



# Introduction

## CPQRG Background

The Cisco Product Quick Reference Guide (CPQRG) is a handy, compact reference tool that includes brief product overviews, key features, sample part numbers, and abbreviated technical specifications for many of Cisco's products. The CPQRG is primarily published to support Cisco partners, resellers, sales account teams, and even end-user customers who need a broad, high-level overview of Cisco products, but at that moment do not have access to Cisco's website, Cisco.com at <http://www.cisco.com>.

Because this book is only published twice per year, there are likely to be new products, configurations, and part numbers not included in this edition. For the most up-to-date and comprehensive information about Cisco products and solutions, please refer to our on-line information or consult a Cisco representative.

## Additional Information

Additional printed copies of this book can be purchased on an as-needed basis. For questions, comments, and to register a copy of the CPQRG, visit <http://www.cisco.com/go/guide>.

## How to Get More Complete Product Information

<b>Cisco Product Website</b>	For more comprehensive information on all of Cisco's products, please refer to the Cisco Product website at: <a href="http://www.cisco.com/en/US/products/index.html">http://www.cisco.com/en/US/products/index.html</a>
<b>Cisco.com</b>	For even more complete product and solution information, please go to Cisco.com at <a href="http://www.cisco.com">http://www.cisco.com</a> .  In addition to product, technology, and network solutions support, Cisco.com provides a wealth of information including how to find an authorized representative or partner, how to order products, technical support/customer service, Cisco Corporate news and information, and links to training/events/seminars.
<b>Cisco Technical Documentation</b>	<a href="http://www.cisco.com/en/US/support/index.html">http://www.cisco.com/en/US/support/index.html</a>

## Partner and Customer Support

### Partner Sales and Technical Assistance Contact Information

<b>Customer Help Lines</b>	<b>Contact Information</b>
<b>Presales—Partner/Reseller Helpline</b>	800 553-6387 (within U.S.) 408 526-7208 (outside U.S.) <a href="http://CiscoPartner.custhelp.com/">http://CiscoPartner.custhelp.com/</a>
<b>Post-Sales—Technical Assistance Center (TAC)</b>	800 553-2447 (within U.S.) 408 526-7209 (outside U.S.) tac@cisco.com (e-mail) <a href="http://www.cisco.com/warp/customer/687/Directory/DirTAC.shtml">http://www.cisco.com/warp/customer/687/Directory/DirTAC.shtml</a>

## Cisco Systems Overview

Cisco Systems, Inc. is the worldwide leader in networking for the Internet. Today, networks are an essential part of business, education, government and home communications, and Cisco Internet Protocol-based (IP) networking solutions are the foundation of these networks. Cisco hardware, software, and service offerings are used to create Internet solutions that allow individuals, companies, and countries to increase productivity, improve customer satisfaction and strengthen competitive advantage. The Cisco name has become synonymous with the Internet, as well as with the productivity improvements that Internet business solutions provide. At Cisco, our vision is to change the way people work, live, play and learn.

Cisco was founded in 1984 by a small group of computer scientists from Stanford University. Since the company's inception, Cisco engineers have been leaders in the development of Internet Protocol (IP)-based networking technologies. This tradition of IP innovation continues with industry-leading products in the core areas of routing and switching, as well as advanced technologies in areas such as: Home Networking, Optical, Storage Networking, IP Telephony, Network Security, and Wireless LAN

Today, with more than 34,000 employees worldwide, Cisco remains committed to creating networks that are smarter, thanks to built-in intelligent network services; faster, in their ability to perform at ever-increasing speeds; and more durable, with a generational approach to an evolutionary infrastructure..

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## Cisco Authorized Refurbished Equipment (Select Countries Only)

Customers looking for used Cisco equipment can now be assured of the quality and support they come to expect from new Cisco products, through the Cisco Authorized Refurbished Equipment program. Cisco Authorized Refurbished Equipment gives customers a price competitive alternative to buying uncertified and unlicensed products off the secondary market. All equipment sold through this program is labeled "Refurbished by Cisco Systems," indicating that the product is Cisco tested, refurbished, authorized, and supported.

### Advantages to customer

- Fully tested and refurbished by Cisco
- Current revision IP-only software and new software license included
- Full warranty protection (same as new) through Cisco's Technical Assistance Center
- Automatically eligible to add SMARTnet Maintenance or other service contracts for extra support
- Both current and end-of-sale products available
- Competitive pricing

### **Key Facts**

- The Cisco Authorized Refurbished Equipment program is currently limited to certain countries (US, Canada, EMEA, Japan, and selected countries in Asia Pacific ). More countries will be added in the future. Please contact your Cisco Account Manager or Partner to check the availability of the program in your country and the applicable conditions.
- Products are mainly available through distribution, so customers should contact a Cisco authorized reseller for more inventory information. Customers can find a Cisco authorized reseller by clicking [here](#).
- Inventory varies daily, and sales are on a first-come, first-served basis. For current inventory and pricing, Cisco authorized resellers can go to the Distribution Products Reference Guide (DPRG) at [www.cisco.com/dprg](http://www.cisco.com/dprg) (click on "Refurbished Products")
- Both individual features and standard configurations are available
- Standard configurations and pricing are based on minimum configuration required to run current revision IP-only software. Please review Standard Configurations to see parts included
- Part numbers are similar to new Cisco part numbers but with an "-RF" suffix added
- All Cisco Authorized Refurbished Equipment are clearly marked as "Refurbished by Cisco Systems"

In conjunction with offering Cisco Authorized Refurbished Equipment, Cisco Systems has established a program for resellers and customers to purchase software licenses for their used Cisco equipment that is not purchased through the Cisco Authorized Refurbished Equipment program.

### **For More Information**

End Users/Customers:

[cisco.com/en/US/ordering/or6/or17/order\\_refurbished\\_equipment\\_program\\_description.html](http://cisco.com/en/US/ordering/or6/or17/order_refurbished_equipment_program_description.html)

Resellers: <http://www.cisco.com/go/refurb> (click on "Refurbished Products")

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## Cisco Systems Capital Financing

Cisco Systems Capital® Corporation (“Cisco Capital”)—a wholly owned subsidiary of Cisco Systems, Inc.—provides innovative financing programs for Cisco Systems’ customers and partners to acquire networking solutions on a global basis.

Cisco Capital provides inventory and short-term project financing to channel partners. These programs provide credit support for Cisco distributors and channel partners worldwide to help manage the cash flow needs in longer project payment cycles.

The Cisco Capital Commercial Easy Lease Program supplies Cisco channel partners with a valuable tool to capture leasing opportunities in the rapidly growing commercial/SMB market. Cisco channel partners can now provide their commercial/SMB customers a Cisco Capital leasing solution for transactions of \$1,000 or more based on a highly automated, web-enabled tool designed to expedite credit applications, approvals, documentation and funding.

Cisco Systems Capital also provides creative and flexible leasing solutions for Enterprise, Service Provider and Public Sector customers. All Cisco Systems hardware, software and SmartNet are eligible to be financed. Additionally, partner services and installation may be financed as part of the total lease transaction. Cisco Capital Lease financing enables customers to:

- Better Manage Cash Flow - By distributing the acquisition cost of the latest Cisco technology over a longer period of time (vs. upfront purchase).
- Create Flexible Repayment Options - By matching the benefit/revenue of the technology to the acquisition expense.
- Access Opex Budgets—By structuring an operating lease thereby utilizing operating expense budgets(freeing up Capex budgets for other projects)
- Utilize a Sale and Lease Back—By converting existing assets into cash
- Take Advantage of Technology Refresh—By replacing outdated equipment during the lease term, thereby providing a natural hedge against technology obsolescence

The key to capturing the value of Cisco Systems Capital is to engage early and often with your local Leasing Manager. Finance professionals helps the account team bridge the gap to the financial decision maker by delivering a financing solutions matching Cisco’s leading edge technology solutions.

### For More Information

See the Cisco Systems Capital Website: <http://www.cisco.com/go/CiscoCapital>  
Within the United States, call 800 730-4090.

## Cisco Learning Credit Program

Cisco Learning Credits are a purchase method for authorized training redeemable with Cisco Learning Partners and for a subscription to Networkers Online. Cisco Learning Credits can be added to your purchase order when ordering Cisco products and offer several benefits:

- Ensures staff is expertly trained to get the best value out of the purchase of new equipment
- Enables internal staff to optimize network efficiencies and gain overall productivity for your organization
- Safeguards training budget by adding Learning Credits to the equipment purchase order
- Reduces administrative costs by reducing the need to open multiple purchase orders.
- Keeps Cisco representatives aware of and involved in the training levels and needs of your organization

### Purchase Learning Credits

Credits are ordered along with a hardware purchase or as a standalone item. By integrating training from the start, you set the stage for the most productive use of your network. Each Learning Credit (sold in packs of 10, 100, 500 or 1500) pays for US\$100 worth of training. Credits are valid for one year and may be redeemed individually.

### Learning Credit Pack

Part Number	Credits	Value
TRN-CLC-000	10	\$1,000
TRN-CLC-001	100	\$10,000
TRN-CLC-002	500	\$50,000
TRN-CLC-003	1500	\$150,000

### Identify Training Needs

Review a Cisco Training Map to assist you in determining your training needs, courses offered and how many Learning Credits are needed.

The Cisco Training Map correlates available training from authorized Cisco Learning Partners with Cisco products and technology and solutions areas. The tool includes an estimator to assist you in determining how many credits to purchase. It links to complete course descriptions and course registration information. You can use the map to identify training opportunities for products you already own or for those you are about to purchase.

### Manage Learning Credits

Gain access to the Learning Credits Management Tool and information about redeeming, tracking and reporting your Credits.

### How Learning Credits Are Managed

Learning Credits are registered and managed in an online database that tracks transactions, validates redemptions, and sends monthly statements. This tool, available 24 hours per day, allows you to view your credit balance, review account transactions, monitor the courses taken by individuals and departments in your organization, and generate reports.

Learning Credits Management Tool (LCMT) (login required)

<http://tools.cisco.com/GET/lnrcrd/jsp/index.jsp>

# Learning Credit Customer Support

Cisco Learning Credits are available for purchase on Cisco global, wholesale and services prices lists.

## For More Information

See the Cisco Learning Credit Program Website at  
[http://www.cisco.com/en/US/learning/le31/159/learning\\_credits\\_purchase.html](http://www.cisco.com/en/US/learning/le31/159/learning_credits_purchase.html)

## Product Warranty Information

All Cisco hardware and software products are covered for a minimum of 90 days. Some products have a longer or more appropriate coverage. All Cisco warranties apply to the Customer or Original Owner (the individual who purchased the product for their own use) also referred to as the End User.

Warranty <sup>1</sup>	Entitlements Description
<b>Cisco Standard 90-day Hardware Warranty, Software Warranty and License Agreement (78-5235-vvrr)</b>	<ul style="list-style-type: none"> <li>• Advance Replacement shipping within 10 business days from RMA Request Date within 90 Days of original shipment from Cisco or from Cisco Reseller</li> <li>• 90-Day Assurance that the SW Media is defect-free and the SW conforms to its published specifications</li> <li>• Guest Access to Cisco Connection Online (CCO)</li> </ul>
<b>90-Day Limited Hardware Warranty(78-5236-vvrr)</b>	<ul style="list-style-type: none"> <li>• Advance Replacement shipping within 10 business days from RMA Request Date within 90 Days of original shipment from Cisco or from Cisco Reseller</li> <li>• 90-Day Assurance that the SW Media is defect-free and the SW conforms to its published specifications</li> <li>• Guest Access to Cisco Connection Online (CCO)</li> </ul>
<b>One-Year Limited Hardware Warranty (78-10747-vvrr)</b>	<ul style="list-style-type: none"> <li>• Advance Replacement shipping within 10 business days from RMA Request Date within One Year of original shipment from Cisco or from Cisco Reseller</li> <li>• 90-Day Assurance that the SW Media is defect-free and the SW conforms to its published specifications</li> <li>• Guest Access to Cisco Connection Online (CCO)</li> </ul>
<b>Limited Lifetime Hardware Warranty (78-6310-vvrr)</b>	<ul style="list-style-type: none"> <li>• Advance Replacement shipping within 10 business days from RMA Request Date during supported life of the product, starting original ship date from Cisco or Cisco reseller. (Fan and power supply warranty limited to 5 years from ship-date)</li> <li>• 90-Day Assurance that the SW Media is defect-free and the SW conforms to its published specifications</li> <li>• Guest Access to Cisco Connection Online (CCO)</li> </ul>
<b>End-User Software License Agreement and Software Warranty (78-3621-vvrr)</b>	<ul style="list-style-type: none"> <li>• 90-Day Assurance that the SW Media is defect-free and the SW conforms to its published specifications</li> <li>• End User License Agreement terms</li> <li>• Guest Access to Cisco Connection Online (CCO)</li> </ul>
<b>5-Years Limited Hardware and 1-Year Limited Software Warranty (78-13712-vvrr)</b>	<ul style="list-style-type: none"> <li>• Replacement shipping within 15 business days from RTF Date within 5 Years from the original ship date from Cisco or Cisco reseller</li> <li>• One-Year Assurance that the SW Media is defect-free and the SW conforms to its published specifications</li> <li>• Guest Access to Cisco Connection Online (CCO)</li> </ul>
<b>5-Years Limited Hardware and 5-Year Limited Software Warranty<sup>2</sup> (78-13712-vvrr)</b>	<ul style="list-style-type: none"> <li>• Replacement shipping within 15 business days from RTF Date within 5 Years from the original ship date from Cisco or Cisco reseller</li> <li>• Five-Year Assurance that the SW Media is defect-free and the SW conforms to its published specifications</li> <li>• Guest Access to Cisco Connection Online (CCO)</li> </ul>

1. “vv” and “rr” suffixes of the warranty document numbers represent the revision and version numbers respectively.
2. The Cisco Limited 5-Year Hardware and 5-Year Software Warranty is available only to qualified World Wide Service Providers which Cisco defines as owners and operators of the world’s collection of voice-oriented Public Switched Telephone Networks (PSTNs)

## For More Information

See the Cisco Product Warranties Website:  
[http://www.cisco.com/en/US/products/prod\\_warranties\\_listing.html](http://www.cisco.com/en/US/products/prod_warranties_listing.html)

## **Cisco Lifecycle Services**

As the network has become a more strategic asset, the need for higher availability, security, and reliability has increased. Delivering what companies require to achieve a converged, complex network takes specialized knowledge and skills in a growing list of advanced technologies that includes security, voice, wireless LAN, and storage networking. Successful adoption of advanced technologies requires an approach that aligns business and technical requirements through all six phases of the network lifecycle:

- **Prepare**—Establish a technology vision, business case, and high-level conceptual architecture
- **Plan**—Assess the existing environment to determine whether it can support the proposed system
- **Design**—Devise a system that meets business and technical requirements
- **Implement**—Integrate the new solution without disrupting the network or creating points of vulnerability
- **Operate**—Maintain network health through day-to-day operations
- **Optimize**—Achieve operational excellence by adapting the architecture, operation, and performance of the network to ever-changing business goals

By taking a lifecycle approach, Cisco and its partners can help companies to lower the cost of owning and operating the network, improve their ability to respond to rapidly changing market conditions, speed access to applications and services, and increase network availability. Advanced services help you achieve operational excellence by adapting your network to ever-changing business goals. Technical support services help you maintain network health through day-to-day operations. Cisco Lifecycle Services are available through various service programs designed to help accelerate customer success.

### **For More Information**

See the Cisco Services Website:

**[http://www.cisco.com/en/US/products/svcs/ps2961/serv\\_category\\_home.html](http://www.cisco.com/en/US/products/svcs/ps2961/serv_category_home.html)**

# Helpful Cisco Websites

Cisco Resource	Description	URL <sup>1</sup>
<b>2600/3600/3700 Memory Calculator</b>	Compute the memory required for Cisco 2600, 3600, and 3700 series routers.	<a href="http://tools.cisco.com/Support/MCalc/do/MemCalc1.do">http://tools.cisco.com/Support/MCalc/do/MemCalc1.do</a>
<b>Application Discovery Voucher Program - App Developer View</b>		<a href="http://www.cisco.com/cgi-bin/front.x/Voucher/partnerIndex.cgi">http://www.cisco.com/cgi-bin/front.x/Voucher/partnerIndex.cgi</a>
<b>Associate Myself With A Partner</b>	If you are an employee of Cisco Registered and Cisco Certified or Specialized Partners, you can associate yourself with your company and upgrade your current Cisco.com ID to partner level	<a href="http://tools.cisco.com/WWChannels/GETLOG/jsp/GetLogin.jsp?page=PartnerUserHomePage">http://tools.cisco.com/WWChannels/GETLOG/jsp/GetLogin.jsp?page=PartnerUserHomePage</a>
<b>Bitswapping Tool</b>	Perform instant automated bit swapping of MAC addresses and convert Ethernet MAC addresses in canonical format to Token Ring MAC addresses in non-canonical format.	<a href="http://www.cisco.com/cgi-bin/Support/Bitswap/bitswap.pl">http://www.cisco.com/cgi-bin/Support/Bitswap/bitswap.pl</a>
<b>BPX/IGX Firmware Compatibility Tool</b>	Evaluate BPX and IGX firmware versions for switch software compatibility using the "dspcds" screen output.	<a href="http://www.cisco.com/cgi-bin/Support/dspcds/home.pl">http://www.cisco.com/cgi-bin/Support/dspcds/home.pl</a>
<b>Browse and Configure Products</b>	Contains a configuration tool to validate channel product options; also select and compare products, check price and availability, and submit your order to your distributor online. Cisco.com login required; click on "Browse and Configure Products."	<a href="http://www.cisco.com/appcontent/echannels/pbc/">http://www.cisco.com/appcontent/echannels/pbc/</a>
<b>Bug Toolkit</b>	Search for software bugs based on version and feature sets.	<a href="http://www.cisco.com/cgi-bin/Support/Bugtool/home.pl">http://www.cisco.com/cgi-bin/Support/Bugtool/home.pl</a>
<b>Campaign Builder (Available in certain countries)</b>	Formerly Collateral Builder, this tool allows you to create co-branded marketing collateral including advertisements, mailers, invitations, and postcards to market to end customers.	<a href="http://www.cisco.com/en/US/partner/partners/pr61/pr155/pr81/partners_marketing_program_concept_home.shtml">http://www.cisco.com/en/US/partner/partners/pr61/pr155/pr81/partners_marketing_program_concept_home.shtml</a>
<b>Certification and Specialization Application</b>	Provides information to help you apply for Cisco certifications or specializations, or monitor your application status.	<a href="http://tools.cisco.com/WWChannels/cppap/home.do">http://tools.cisco.com/WWChannels/cppap/home.do</a>
<b>Channel Account Manager (CAM) Locator</b>	Search for a CAM assigned to a specific partner.	<a href="http://tools.cisco.com/WWChannels/CAMLOC/jsp/cam_locator.jsp">http://tools.cisco.com/WWChannels/CAMLOC/jsp/cam_locator.jsp</a>
<b>Channel Partner Program</b>		<a href="http://www.cisco.com/en/US/partners/pr11/index.shtml">http://www.cisco.com/en/US/partners/pr11/index.shtml</a>
<b>Channel Partner Tools</b>		<a href="http://www.cisco.com/en/US/partners/partners_channel_tools_index.shtml">http://www.cisco.com/en/US/partners/partners_channel_tools_index.shtml</a>
<b>Cisco 1700 Series Router Solution Design Tool</b>	Designed to guide you through the configuration of a complete Cisco 1700 Series system.	<a href="http://www.ciscowebtools.com/1700sdt/">http://www.ciscowebtools.com/1700sdt/</a>
<b>Cisco Co-op Apply Online Rewards (Available worldwide)</b>	Place, track, and close your pre-approvals online. Cisco is proud to offer this tool, along with cooperative funding to select partners and distributors for marketing and training initiatives.	<a href="http://www.cisco.com/cgi-bin/front.x/jmf/jmf30/jmf30/COSelectCountry">http://www.cisco.com/cgi-bin/front.x/jmf/jmf30/jmf30/COSelectCountry</a>
<b>Cisco Feature Navigator II</b>		<a href="http://tools.cisco.com/ITDIT/CFN/jsp/index.jsp">http://tools.cisco.com/ITDIT/CFN/jsp/index.jsp</a>
<b>Cisco Intrusion Prevention Alert Center</b>	Provides information on emerging threats and the Cisco network IPS signatures available to protect your network.	<a href="http://www.cisco.com/cgi-bin/front.x/ipsalerts/ipsalertsHome.pl">http://www.cisco.com/cgi-bin/front.x/ipsalerts/ipsalertsHome.pl</a>
<b>Cisco IOS Software Selector</b>		<a href="http://tools.cisco.com/ITDIT/ISTMAIN/servlet/index">http://tools.cisco.com/ITDIT/ISTMAIN/servlet/index</a>
<b>Cisco Network Assistant</b>		<a href="http://www.cisco.com/en/US/partner/products/ps5931/index.html">http://www.cisco.com/en/US/partner/products/ps5931/index.html</a>
<b>Cisco Network Investment Calculator</b>		<a href="http://www.cisco.com/cgi-bin/front.x/roi/cnicHome.pl">http://www.cisco.com/cgi-bin/front.x/roi/cnicHome.pl</a>
<b>Cisco Partner Newsletters</b>		<a href="http://www.cisco.com/en/US/partners/pr47/newsletter/index.shtml">http://www.cisco.com/en/US/partners/pr47/newsletter/index.shtml</a>
<b>Cisco Partner View</b>	This customizable portal, providing access to applications and content, is designed to help you effectively manage your Cisco relationships. Channel account managers (CAMs) and system engineers can log into the "CAM View" mode to access the same view as their partners.	<a href="http://www.cisco.com/partner/WWChannels/ciscopartnerreview/">http://www.cisco.com/partner/WWChannels/ciscopartnerreview/</a>
<b>Cisco Power Calculator</b>	Calculate the power supply requirements for a specific Power over Ethernet (PoE) configuration. The results will show output current, output power, and system heat dissipation. The Cisco Power Calculator supports the following Cisco product series: Cisco Catalyst 6500, Catalyst 4500, Catalyst 3750, and Catalyst 3560 series switches, and the Cisco 7600 Series Router.	<a href="http://tools.cisco.com/cpc/launch.jsp">http://tools.cisco.com/cpc/launch.jsp</a>
<b>Cisco Powered Network - Find Recommended Service Providers</b>		<a href="http://www.cisco.com/en/US/partner/partners/network_find_service_providers_tool_launch.html">http://www.cisco.com/en/US/partner/partners/network_find_service_providers_tool_launch.html</a>
<b>Cisco Product Advisor</b>		<a href="http://www.cisco.com/warp/public/779/smbiz/service/advisor/">http://www.cisco.com/warp/public/779/smbiz/service/advisor/</a>
<b>Cisco Product Identification Tool</b>	Locate the serial number label on your Cisco product.	<a href="http://tools.cisco.com/Support/CPI/index.do">http://tools.cisco.com/Support/CPI/index.do</a>



## Introduction

<b>Cisco Product Quick Reference Guide</b>		<a href="http://www.cisco.com/go/guide">http://www.cisco.com/go/guide</a>
<b>Cisco Rewards (Asia-Pacific region only)</b>	An incentive program developed to reward channel partners in the Asia-Pacific region for selling Cisco products and services to their customers.	<a href="http://www.cisco.com/rewards/asiapac/">http://www.cisco.com/rewards/asiapac/</a>
<b>Cisco WAFS Online Support Tool</b>	Use this Wide Area File Services (WAFS) screen sharing session tool to troubleshoot your networking issue.	<a href="http://www.gotoassist.com/ph/ciscosupport">http://www.gotoassist.com/ph/ciscosupport</a>
<b>Cisco-centric Open Source Initiative (COSI)</b>	Visit the OpenSource Exchange community where Cisco-centric developers and customers publish, discuss and release their open source NMS tools, scripts, and utilities.	<a href="http://cosi-nms.sourceforge.net">http://cosi-nms.sourceforge.net</a>
<b>Command Lookup Tool for Cisco IOS</b>	Look up a detailed description or configuration guidelines for a particular Cisco IOS, Catalyst or PIX command.	<a href="http://www.cisco.com/cgi-bin/Support/Cmdlookup/home.pl">http://www.cisco.com/cgi-bin/Support/Cmdlookup/home.pl</a>
<b>Developer Services FAQs Central</b>		<a href="http://www.cisco.com/pcgi-bin/front.x/cse/DSFC/DSFCGuestLogin.pl">http://www.cisco.com/pcgi-bin/front.x/cse/DSFC/DSFCGuestLogin.pl</a>
<b>Developer Support Central Supported Products</b>		<a href="http://www.cisco.com/pcgi-bin/dev_support/access_level/product_support">http://www.cisco.com/pcgi-bin/dev_support/access_level/product_support</a>
<b>Discussion Forums</b>	Share questions, suggestions, and information about networking solutions, products, and technologies in discussion forms, Tech Talks and Ask the Expert forums.	<a href="http://forums.cisco.com/eforum/servlet/NetProf?page=main">http://forums.cisco.com/eforum/servlet/NetProf?page=main</a>
<b>Discussion Forums</b>	Share questions, suggestions, and information about networking solutions, products, and technologies in discussion forms, Tech Talks and Ask the Expert forums.	<a href="http://www.cisco.com/go/netpro/">http://www.cisco.com/go/netpro/</a>
<b>Distribution Product Reference Guide (DPRG)</b>	Complete list of pricing information, part numbers, and more for distribution (2-tier) products. Data is refreshed nightly. Cisco.com login required.	<a href="http://www.cisco.com/appcontent/echannels/pbc/">http://www.cisco.com/appcontent/echannels/pbc/</a>
<b>Distributor Locator</b>	Locate a Cisco distributor in any country.	<a href="http://tools.cisco.com/WWChannels/LOCATR/jsp/distributor_locator.jsp">http://tools.cisco.com/WWChannels/LOCATR/jsp/distributor_locator.jsp</a>
<b>Downloads</b>	Download Cisco software.	<a href="http://www.cisco.com/kobayashi/sw-center/">http://www.cisco.com/kobayashi/sw-center/</a>
<b>DSP Calculator</b>	Calculate the DSP requirements of Cisco 1751, 1760, 2600XM, 2800 and 3800 routers.	<a href="http://www.cisco.com/cgi-bin/Support/DSP/cisco_product_sel.pl">http://www.cisco.com/cgi-bin/Support/DSP/cisco_product_sel.pl</a>
<b>End-of-Sale and End-of-Life Products</b>		<a href="http://www.cisco.com/en/US/products/prod_end_of_life.html">http://www.cisco.com/en/US/products/prod_end_of_life.html</a>
<b>Error Message Decoder</b>	Look up explanations for console error message strings listed in the Cisco Software System Messages guide.	<a href="http://www.cisco.com/cgi-bin/Support/Errordecoder/index.cgi">http://www.cisco.com/cgi-bin/Support/Errordecoder/index.cgi</a>
<b>Field Notices</b>	Review the list of the Product Field Notices issued by Cisco.	<a href="http://www.cisco.com/kobayashi/support/tac/fn_index.html">http://www.cisco.com/kobayashi/support/tac/fn_index.html</a>
<b>Get Cisco.com Access</b>	Register for a guest-level Cisco.com ID as a prerequisite for partner level access	<a href="http://tools.cisco.com/RPF/register/register.do">http://tools.cisco.com/RPF/register/register.do</a>
<b>Google Groups comp.dcom.sys.cisco</b>	Browse an active Cisco newsgroup for articles of interest.	<a href="http://groups.google.com/groups?hl=en&amp;lr=lang_en&amp;ie=UTF-8&amp;safe=active&amp;group=comp.dcom.sys.cisco">http://groups.google.com/groups?hl=en&amp;lr=lang_en&amp;ie=UTF-8&amp;safe=active&amp;group=comp.dcom.sys.cisco</a>
<b>ION Patch Navigator</b>	Find patches for an ION image and/or DDTS ID. Also, find patches for a specific platform and base release. Look for more information on a patch and patches in a newer release.	<a href="http://tools.cisco.com/swdf/ionpn/jsp/main.jsp">http://tools.cisco.com/swdf/ionpn/jsp/main.jsp</a>
<b>IOS Upgrade Planner</b>	Browse to find the information you need to upgrade your Cisco IOS software.	<a href="http://www.cisco.com/cgi-bin/Software/Iosplanner/Planner-tool/iosplanner.cgi?majorRel=">http://www.cisco.com/cgi-bin/Software/Iosplanner/Planner-tool/iosplanner.cgi?majorRel=</a>
<b>IP Subnet Calculator</b>	Plan your subnetting and addressing strategy.	<a href="http://www.cisco.com/cgi-bin/Support/IpSubnet/home.pl">http://www.cisco.com/cgi-bin/Support/IpSubnet/home.pl</a>
<b>IP Telephony Readiness Assessment</b>	Confirm whether your organization has met common network design requirements for a high-availability Cisco IP telephony implementation.	<a href="http://tools.cisco.com/Assessments/jsp/welcome.jsp?asmt=V01P">http://tools.cisco.com/Assessments/jsp/welcome.jsp?asmt=V01P</a>
<b>Learning &amp; Events</b>		<a href="http://www.cisco.com/en/US/learning/">http://www.cisco.com/en/US/learning/</a>
<b>Marketing Fund Builder (U.S. only)</b>	Formerly the JMF tool, this tool helps you by providing funding and support for pre-approved marketing activities.	<a href="http://www.cisco.com/en/US/partner/partners/pr61/pr155/pr37/partners_marketing_program_concept_home.html">http://www.cisco.com/en/US/partner/partners/pr61/pr155/pr37/partners_marketing_program_concept_home.html</a>
<b>Marketing Resources</b>		<a href="http://www.cisco.com/en/US/partners/pr61/marketing.shtml">http://www.cisco.com/en/US/partners/pr61/marketing.shtml</a>
<b>Output Interpreter</b>	Receive instant troubleshooting analysis and course of action for your router, switch or PIX device using show command output. For more information, view this video on demand .	<a href="http://www.cisco.com/cgi-bin/Support/OutputInterpreter/home.pl">http://www.cisco.com/cgi-bin/Support/OutputInterpreter/home.pl</a>
<b>Partner Access onLine (PAL)</b>	Provides free real-time partner-customized access to trend-tracking data and to a data-collection system. PAL helps identify areas for improvement, strengthens customer relationships, and builds long-term customer loyalty.	<a href="http://www.cisco.com/en/US/partner/applicat/partaccs/partners_overview.html">http://www.cisco.com/en/US/partner/applicat/partaccs/partners_overview.html</a>
<b>Partner Business Central (PBC)</b>	A portal to all commerce-enabling applications used by channel partners and channel account managers (CAMs) worldwide. PBC streamlines product selection, comparison, configuration, and validation processes, and provides easy access to distributor part numbers.	<a href="http://www.cisco.com/appcontent/echannels/pbc/">http://www.cisco.com/appcontent/echannels/pbc/</a>
<b>Partner Business Planning</b>	Helps you and channel account managers (CAMs) collaborate on strategic planning by identifying incremental revenue streams, aligning objectives, and optimizing market opportunities to help ensure mutual success.	<a href="http://tools.cisco.com/WWChannels/UNIFY/welcome.jsp">http://tools.cisco.com/WWChannels/UNIFY/welcome.jsp</a>

## Introduction

<b>Partner E-Learning Connection (PEC)</b>	The primary learning source for channel partners who want fast, accessible training solutions in several formats.	<a href="http://www.cisco.com/go/pec_publicredirect/">http://www.cisco.com/go/pec_publicredirect/</a>
<b>Partner Events</b>		<a href="http://www.cisco.com/en/US/partners/pr47/events.shtml">http://www.cisco.com/en/US/partners/pr47/events.shtml</a>
<b>Partner Help Online</b>	An up-to-date knowledgebase of support information. If the answer is not available in the knowledgebase, this tool provides fast access to support cases.	<a href="http://www.cisco.com/en/US/partner/partners/partners_esupport_tool_launch.html">http://www.cisco.com/en/US/partner/partners/partners_esupport_tool_launch.html</a>
<b>Partner Help Online - Direct FAQ access</b>	Search partners' frequently asked questions and ask for the help you need	<a href="http://ciscopartner.custhelp.com/">http://ciscopartner.custhelp.com/</a>
<b>Partner Incentives and Promotions</b>	To encourage our channel partners to do their best, Cisco has created multiple programs to help boost your profitability and success in specific vertical markets and across several technology areas. Choose from proven programs that offer rewards, incentives, or extra discounts.	<a href="http://www.cisco.com/en/US/partner/partners/pr61/pr73/partners_promotions_concept_home.shtml">http://www.cisco.com/en/US/partner/partners/pr61/pr73/partners_promotions_concept_home.shtml</a>
<b>Partner Initiated Customer Access</b>		<a href="http://www.cisco.com/xent/welcome_2_pica.shtml">http://www.cisco.com/xent/welcome_2_pica.shtml</a>
<b>Partner Locator</b>	Lets potential customers locate a qualified channel partner identified on the basis of specific criteria such as certification level, specialization, Advanced Technology Provider (ATP), or geography. This tool also provides an easy way to obtain or verify partner information. Channel partners can use the tool to verify company information or identify other channel partners for collaboration.	<a href="http://tools.cisco.com/WWChannels/LOCATR/jsp/partner_locator.jsp">http://tools.cisco.com/WWChannels/LOCATR/jsp/partner_locator.jsp</a>
<b>Partner News@Cisco</b>		<a href="http://www.cisco.com/en/US/partners/pr47/partners_w_hats_new.shtml">http://www.cisco.com/en/US/partners/pr47/partners_w_hats_new.shtml</a>
<b>Partner Registration</b>	Begin your relationship with Cisco by registering as a Cisco Registered or Certified Partner	<a href="http://tools.cisco.com/WWChannels/IPA/welcome.do">http://tools.cisco.com/WWChannels/IPA/welcome.do</a>
<b>Partner Self-Service</b>	These tools provide streamlined data and access management to you and your sales representatives, giving partner administrators and sales representatives a simple way to manage company data -- including contacts, locations, and access.	<a href="http://tools.cisco.com/WWChannels/GETLOG/login.do">http://tools.cisco.com/WWChannels/GETLOG/login.do</a>
<b>Performance Metrics Central</b>	From this central location, review and manage performance metrics and operational indicators associated with partner programs from this central location.	<a href="http://www.cisco.com/en/US/partner/partners/metrics.shtml">http://www.cisco.com/en/US/partner/partners/metrics.shtml</a>
<b>Product Alert Tool</b>	Set up a profile to receive email updates about reliability, safety, network security and end-of-sale issues for the Cisco products you specify.	<a href="http://tools.cisco.com/Support/PAT/do/ViewMyProfiles.do">http://tools.cisco.com/Support/PAT/do/ViewMyProfiles.do</a>
<b>Product Upgrade Tool</b>	Request hardware upgrades, software on media or software that is not available in the Software Center, and hard-copies of UniverCD documentation.	<a href="http://tools.cisco.com/gct/Upgrade/jsp/productUpgrade.jsp">http://tools.cisco.com/gct/Upgrade/jsp/productUpgrade.jsp</a>
<b>Report Product Security Incidents</b>	Report security problems you have with a Cisco product.	<a href="http://www.cisco.com/en/US/customer/products/products_security_vulnerability_policy.html">http://www.cisco.com/en/US/customer/products/products_security_vulnerability_policy.html</a>
<b>RIF Decoder Tool</b>	Interpret and decode a hex string.	<a href="http://www.cisco.com/en/US/customer/tech/tk331/tk660/technologies_tech_note09186a0080094cf1.shtml">http://www.cisco.com/en/US/customer/tech/tk331/tk660/technologies_tech_note09186a0080094cf1.shtml</a>
<b>RMA US and Canada Service Order Returns</b>	Schedule an on-line return of your contracted Service RMA at Cisco's expense.	<a href="http://www.cisco.com/warp/customer/708/GPSTools/RMAWebReturns/rma_web_based_returns.html">http://www.cisco.com/warp/customer/708/GPSTools/RMAWebReturns/rma_web_based_returns.html</a>
<b>RMA/Service Order</b>	With your open service request, request or view your order for replacement hardware.	<a href="http://tools.cisco.com/serviceordertools/svosubmit/tools.do">http://tools.cisco.com/serviceordertools/svosubmit/tools.do</a>
<b>Sales Resources</b>		<a href="http://www.cisco.com/en/US/partners/pr61/partners_marketing_category_home.shtml">http://www.cisco.com/en/US/partners/pr61/partners_marketing_category_home.shtml</a>
<b>Security Advisories</b>	Stop an active security attack or prevent an imminent security risk.	<a href="http://www.cisco.com/en/US/customer/products/products_security_advisories_listing.html">http://www.cisco.com/en/US/customer/products/products_security_advisories_listing.html</a>
<b>Service Availability Matrix</b>		<a href="http://tools.cisco.com/apidc/sam/search/search.do">http://tools.cisco.com/apidc/sam/search/search.do</a>
<b>Service Contract Center (SCC)</b>	Manage and review your service contracts and perform contract-related business tasks.	<a href="http://www.cisco.com/cgi-bin/front.x/scccibdispatch?AppName=ContractAgent">http://www.cisco.com/cgi-bin/front.x/scccibdispatch?AppName=ContractAgent</a>
<b>Service Provider Solutions Ecosystem - Find a Partner</b>		<a href="http://www.cisco.com/pcgi-bin/front.x/Ecosystem/profile_search.pl">http://www.cisco.com/pcgi-bin/front.x/Ecosystem/profile_search.pl</a>
<b>Service Provider Solutions Ecosystem - Partner Project Tracker Tool</b>		<a href="http://www.cisco.com/pcgi-bin/front.x/Ecosystem/pcgi_redirect.pl">http://www.cisco.com/pcgi-bin/front.x/Ecosystem/pcgi_redirect.pl</a>
<b>Service Request Tool</b>	Request technical assistance by creating a service request or query an existing service request with the TAC.	<a href="http://tools.cisco.com/ServiceRequestTool/create/">http://tools.cisco.com/ServiceRequestTool/create/</a>
<b>Small Business Network Designer</b>		<a href="http://www.ciscoretail.com/sbnd/index.html">http://www.ciscoretail.com/sbnd/index.html</a>
<b>SNMP Object Navigator</b>	Translate SNMP object identifiers (OIDs) into object names, search object names and descriptions, browse OID tree, and download MIB files.	<a href="http://www.cisco.com/cgi-bin/Support/Mibbrowser/unit.ypl">http://www.cisco.com/cgi-bin/Support/Mibbrowser/unit.ypl</a>
<b>Software Advisor</b>	Find software compatible with my hardware and with the features I need, compare the features in different software releases, or research a software release.	<a href="http://tools.cisco.com/Support/Fusion/FusionHome.do">http://tools.cisco.com/Support/Fusion/FusionHome.do</a>
<b>Software Registration</b>	Register your Product Authorization Key (PAK) or Software Serial Number or select from a list of product-oriented software registration forms.	<a href="http://www.cisco.com/cgi-bin/Software/FormManager/formgenerator.pl">http://www.cisco.com/cgi-bin/Software/FormManager/formgenerator.pl</a>

## Introduction

<b>Software Search Engine</b>	Search for software images and image metadata.	<a href="http://www.cisco.com/cgi-bin/Software/SWSearch/SWSearch.cgi">http://www.cisco.com/cgi-bin/Software/SWSearch/SWSearch.cgi</a>
<b>Solution Finder for Modular Routers</b>		<a href="http://www.cisco.com/pcgi-bin/finder/msbsearch.pl">http://www.cisco.com/pcgi-bin/finder/msbsearch.pl</a>
<b>Special File Access</b>	Enter the special access code you have been given by your Cisco support representative.	<a href="http://www.cisco.com/cgi-bin/specialaccess.cgi">http://www.cisco.com/cgi-bin/specialaccess.cgi</a>
<b>TAC Advanced Search</b>	Search only TAC content and certain types of files within TAC content.	<a href="http://www.cisco.com/kobayashi/support/tac/s_tac.shtml">http://www.cisco.com/kobayashi/support/tac/s_tac.shtml</a>
<b>TAC Case Collection</b>	Interactively diagnose common problems involving hardware, configuration, and performance issues with solutions provided by TAC engineers. For more information, view this video on demand .	<a href="http://www.cisco.com/kobayashi/support/tac/tsa/launch_tsa.html">http://www.cisco.com/kobayashi/support/tac/tsa/launch_tsa.html</a>
<b>Technical Support</b>	For customer support tips, software center, online documents, and more.	<a href="http://www.cisco.com/go/support">http://www.cisco.com/go/support</a>
<b>Technical Support Advisor</b>	Provides highly targeted search results based on your networking device and software combination.	<a href="http://tools.cisco.com/Support/Jack/home.do">http://tools.cisco.com/Support/Jack/home.do</a>
<b>Technical Support Contacts</b>	Obtain technical support from Cisco.	<a href="http://www.cisco.com/warp/customer/687/Directory/DirTAC.shtml">http://www.cisco.com/warp/customer/687/Directory/DirTAC.shtml</a>
<b>Technical Support Newsletter</b>	Read the latest version of Cisco's biweekly Technical Support Newsletter.	<a href="http://www.cisco.com/kobayashi/news_training/itsnews/latest.html">http://www.cisco.com/kobayashi/news_training/itsnews/latest.html</a>
<b>Technical Support Services Portfolio</b>	Ensure that your Cisco products operate efficiently and benefit from the most up-to-date software releases.	<a href="http://www.cisco.com/en/US/customer/products/svcs/ps3034/ps2827/serv_group_home.html">http://www.cisco.com/en/US/customer/products/svcs/ps3034/ps2827/serv_group_home.html</a>
<b>Technical Support Training Resources</b>	Learn how to use the Cisco Technical Support Website to find critical technical documentation and online tools to help you troubleshoot issues, enhance your networking skills, and support your networks.	<a href="http://www.cisco.com/en/US/customer/learning/le31/le47/learning_tac_e-learning_tool_launch.html">http://www.cisco.com/en/US/customer/learning/le31/le47/learning_tac_e-learning_tool_launch.html</a>
<b>Voice Codec Bandwidth Calculator</b>	Do capacity planning for your packet voice network and determine the bandwidth used by different codecs with various voice protocols over different media.	<a href="http://tools.cisco.com/Support/VBC/do/CodecCalc1.do">http://tools.cisco.com/Support/VBC/do/CodecCalc1.do</a>
<b>Worldwide Contacts</b>		<a href="http://www.cisco.com/go/wwcontacts">http://www.cisco.com/go/wwcontacts</a>

1. Additional Cisco.com access required for most URLs.





# Routing

## Routing at a Glance

Product	Features	Page
<b>Cisco IOS® Software</b>	See the Chapter 9—Cisco IOS Software and Network Management for an overview of Cisco IOS Software	9-1
<b>Cisco SOHO Series Secure Broadband Routers</b>	Ethernet, ADSL, ADSL over ISDN, and G.SHDSL Routers for Small Office and Home Offices <ul style="list-style-type: none"> <li>• Integrated security of Cisco IOS Software with Stateful Inspection Firewall and software-based 3DES encryption</li> <li>• Easy setup and deployment using Cisco Router Web Set Up Tool (CRWS)</li> <li>• Offers many local and remote debug and troubleshooting features in Cisco IOS Software</li> </ul>	1-9
<b>Cisco Small Business (SB) 100 Series</b>	Fixed-configuration, small-office secure broadband routers that support up to five users <ul style="list-style-type: none"> <li>• Security features including stateful inspection firewall and access control lists</li> <li>• Security Device manager (SDM) GUI tool for simple and advanced configuration</li> </ul>	1-10
<b>Cisco 800 Series</b>	Integrated services routers allow small offices to operate secure concurrent services, including firewall, VPNs, and wireless LANs, at broadband speeds <ul style="list-style-type: none"> <li>• Wireless support: Optional IEEE 802.11 b/g on 850 and 870 Series</li> <li>• Advanced security features including stateful inspection firewall and hardware assisted encryption (830, 850, and 870 series) and QoS features for VoIP</li> <li>• DMZ, Dial back up and out-of-band management (Cisco 830, 850, and 870 series)</li> <li>• SDM GUI tool for simple and advanced configuration</li> </ul>	1-11
<b>Cisco 1800 Series</b>	Modular and fixed architectures—Offers wide variety of LAN and WAN options; network interfaces on Cisco 1841 are field-upgradeable to accommodate future technologies <ul style="list-style-type: none"> <li>• Fixed configuration models offer 10/100 ethernet, ADSL over ISDN, ADSL over POTS, or G.SHDSL WAN interfaces with integrated ISDN BRI (1801, 1802, 1803, and 1812) or analog modem (1811) backup interfaces</li> <li>• Wireless LAN access using IEEE 802.11 a/b/g is available for all models of the 1800 Series</li> </ul>	1-14
<b>Cisco 1700 Series</b>	Flexible, secure, modular access routers <ul style="list-style-type: none"> <li>• 1-port autosensing 10/100 Fast Ethernet LAN</li> <li>• Modular slots support a wide variety of WAN and voice interface cards</li> <li>• Supports secure Internet, intranet, and extranet access as well as new WAN applications including VPNs, integrated voice/data (VoIP), and broadband services</li> <li>• VLAN Capability</li> <li>• Supports up to five Ethernet connections with 1FE and 1 4-port Ethernet Switch WIC (WIC-4ESW)</li> </ul>	1-20
<b>Cisco 2800 Series</b>	Integrated services routers that are optimized for the secure, wire-speed delivery of concurrent data, voice, and video services for small- to midsize business routing <ul style="list-style-type: none"> <li>• Superior performance with services enabled for 1-6 T1/E1 links</li> <li>• Advanced security features including Stateful Firewall, IPS, VPN.</li> <li>• Built-in encryption using DES, 3DES, and AES.</li> <li>• Wireless IEEE 802.11 a/b/g LANs</li> </ul>	1-24
<b>Cisco 2600 Series</b>	Modular multiservice router <ul style="list-style-type: none"> <li>• Single or dual LAN (10/100 Mbps Ethernet and Token Ring/Ethernet options)</li> <li>• Wide variety of interface support, including integrated 16-port switching, high-density analog and digital, voice, Cisco IOS Firewall and VPN, Content, async and sync serial, ISDN, Fractional and channelized T1/E1, Ethernet, analog modems, ADSL, G.SHDSL, switching integration, and ATM support</li> <li>• Shares WAN interface cards (WICs) and network modules with Cisco 1800, 2800, and 3700 series</li> <li>• Optional AC, DC or RPS versions</li> </ul>	1-30
<b>Cisco 3800 Series</b>	Integrated Services Routers <ul style="list-style-type: none"> <li>• Highest performance and densities with the ability to run concurrent data, security, voice, and advanced services at wire speed up to T3/E3</li> <li>• Higher availability and resiliency with Online Insertion and Removal (OIR); redundant system and inline power options</li> <li>• High-speed WAN Interface Cards (HWICs) free up network module slots for other services</li> <li>• Enhanced security</li> <li>• Expanded default and maximum memory capacity with Error Correction Code (ECC) DDR SDRAM memory to detect and correct SDRAM errors without user intervention</li> </ul>	1-35

Product	Features	Page
<b>Cisco 3700 Series</b>	Modular multiservice high-density access router <ul style="list-style-type: none"> <li>• Enable higher levels of application and service integration in enterprise branch offices in a small form factor</li> <li>• Wide variety of interface support, high-density analog and digital, voice, Cisco IOS Firewall/IPS and VPN, Fractional and channelized T1/E1, T3/E3, DS3, E3 and OC-3 ATM, Ethernet, Gigabit Ethernet and DSL</li> <li>• Shares WICs, Voice Interface Cards (VICs), and Network Modules with Cisco 1700, 2600/2600XM, and 3600 series</li> </ul>	1-38
<b>Cisco 7200 Series</b>	WAN-edge router providing intelligent services, modularity, high performance, investment protection, and scalability in a small form factor <ul style="list-style-type: none"> <li>• Modular 3 RU Chassis</li> <li>• 4- or 6-slot models and choice of system processors for up to 1 Mpps performance</li> <li>• Wide variety of LAN and WAN options, including Ethernet, Fast Ethernet, Gigabit Ethernet, Token Ring, FDDI, serial, ISDN, HSSI, ATM, Packet over SONET, DPT/RPR</li> </ul>	1-41
<b>Cisco 7300 Series</b>	Network Edge router with high performance IP services delivered at optical speeds for service providers and enterprise networks <ul style="list-style-type: none"> <li>• Compact and modular 4 rack unit chassis—4 slots</li> <li>• High performance connectivity—T3 through OC48/STM16 with 3.5 Mpps performance</li> <li>• Built-in Gigabit Ethernet connectivity</li> <li>• Multiprotocol routing: IP, IPX, AppleTalk, DLSw</li> <li>• Compact size, high availability and optimal cooling</li> </ul>	1-44
<b>Cisco 7500 Series</b>	High-end services-enabled core and WAN aggregation router for enterprise and service provider applications <ul style="list-style-type: none"> <li>• 5-, 7-, and 13-slot models</li> <li>• 1-, 2-, or 4-bus models offering 1, 2, or 4 Gbps backplanes</li> <li>• Wide variety of LAN and WAN options including Ethernet, Fast Ethernet, Gigabit Ethernet, Token Ring, FDDI, serial, HSSI, ATM, and Packet over SONET</li> </ul>	1-46
<b>Cisco 7600 Series</b>	<ul style="list-style-type: none"> <li>• Consolidated WAN/MAN/LAN in a single platform</li> <li>• Scalable backplane bandwidth from 32 Gbps to 720 Gbps and performance from 30 Mpps to over 400Mpps with new Sup720 engine and distributed forwarding line cards</li> <li>• High-volume aggregation of service-enabled Ethernet</li> <li>• Wide range of WAN/MAN interfaces from NxDS0, T1, T3 to OC-48 with line rate services</li> <li>• Ideal for service provider edge, metropolitan area network, &amp; triple-play deployments, and high-end enterprise solutions</li> <li>• Also supports Catalyst 6500 series line cards and 75/7200 port adapters</li> </ul>	1-48
<b>Cisco 10000 Series</b>	Service provider-class edge services router <ul style="list-style-type: none"> <li>• Enables service providers to deploy revenue-generating services without worrying about performance degradation</li> <li>• Minimizes costly network outages and maximizes end-customer satisfaction with carrier-class high availability</li> <li>• Enables leased line and broadband aggregation features on a single platform</li> <li>• Broad range of channelized, clear channel, ATM and LAN interfaces. Physical interface speeds from E1/T1 up to OC-48c/STM-16c</li> </ul>	1-51
<b>Cisco 10700 Series</b>	Service provider-class metro edge services router <ul style="list-style-type: none"> <li>• Optimized building block for the next generation metro Ethernet/IP access networks</li> <li>• Equipped with either (24) 10/100 or 4 GbE and 8 FE ports for customer access and OC-48c/STM-16c dynamic packet transport/resilient packet ring (DPT/RPR) technology or Packet Over SONET (POS) for metro optical connectivity</li> <li>• Supports IEEE 802.17 standard compliant RPR technology</li> </ul>	1-52
<b>Cisco XR 12000/12000 Series</b>	Service provider-class multiservice-edge router to enable customer to transition toward a converged IP Network Infrastructure <ul style="list-style-type: none"> <li>• Supports edge-optimized line cards maximizing the value of line-rate edge applications with 10G uplinks while sustaining line-rate performance</li> <li>• Up to nine chassis options with new power supply and blower enhancements supporting a portfolio of SPAs and SIPs</li> <li>• Extensive portfolio of line cards and SPAs that support POS, ATM, Ethernet, DPT/RPR and copper, channelized physical interfaces</li> <li>• Service-related enhancements (L3VPN, L2VPN, QoS) that ensures traffic differentiation while meeting the strictest customer service-level agreements</li> </ul>	1-54

## Cisco Routers Port Matrix

	SOHO Series	SB 100 Series	800 Series	1700 Series	1800 Series	2600 Series	2800 Series	3700 Series	3800 Series	7100 Series	7200 Series	7300 Series	7500 Series	7600 Series	10000 Series	10700 Series	12000 Series
Fixed Ports Only	X	X	X	X													
Fixed & Modular Ports				X	X	X	X	X	X	X	X	X		X			X
Modular Ports Only											X		X		X	X	
<b>LAN Ports</b>																	
10-MB Ethernet	X		X	X		X				X	X		X	X		X	
10-MB Ethernet (fiber)										X	X		X	X			
100-MB Ethernet	X		X	X	X	X	X	X	X	X	X		X	X	X	X	X
100-MB Ethernet (fiber)								X	X	X	X	X	X	X		X	X
10/100-MB Ethernet	X	X	X	X	X	X	X	X	X	X	X	X		X		X	X
10/100 MB Switch Port	X	X	X	X	X	X	X		X					X			
Token Ring						X <sup>1</sup>			X	X			X				
FDDI/CDDI													X				
ATM						X	X	X	X		X	X	X	X	X		
Gigabit Ethernet						X	X <sup>2</sup>	X	X	X	X	X	X	X	X	X	X
10 Gigabit Ethernet														X			X
Wireless LAN Access Point			X		X		X		X								
<b>WAN Ports</b>																	
Sync Serial			X	X	X	X	X	X	X		X	X	X	X			
Sync Serial w/ CSU				X	X	X	X	X	X						X		
ISDN BRI (S/T)			X	X	X	X	X	X	X	X	X	X					
ISDN BRI (U)			X	X	X	X	X	X	X	X	X	X					
ISDN PRI/Ch T1						X	X	X	X	X	X	X		X			
ISDN PRI w/ CSU						X	X	X	X		X	X					
Async	X		X	X	X	X	X	X	X								
Analog/POTS			X			X	X	X	X								
Integrated Modems				X	X	X	X	X	X								
Integrated Modem WICs				X	X	X	X	X	X								
HSSI						X <sup>3</sup>		X	X	X	X		X	X			
DS3						X	X <sup>2</sup>	X	X	X	X	X	X	X	X		X
ATM OC-3								X		X	X	X	X	X	X		X
ATM OC-12											X		X	X	X		X
ATM	X		X			X	X	X	X		X	X	X	X	X		
ATM - T1/E1						X	X	X	X	X	X	X	X	X			
POS OC-x/STM-x										X	X	X	X	X	X		X
DPT/RPR OC-12/STM-4											X		X				X
DPT/RPR OC-48/STM-16														X		X	X
DPT/RPR OC-192/STM-64																	X
ADSL	X	X	X	X	X	X	X	X	X								
ADSL over ISDN	X	X	X	X	X	X	X	X	X								
G.SHDSL	X		X	X	X	X	X	X	X								

	SOHO Series	SB 100 Series	800 Series	1700 Series	1800 Series	2600 Series	2800 Series	3700 Series	3800 Series	7100 Series	7200 Series	7300 Series	7500 Series	7600 Series	10000 Series	10700 Series	12000 Series
ISDL			X	X	X	X	X	X	X								
DPT										X		X	X			X	X
<b>Voice Over IP (VoIP)</b>																	
Analog Voice Interfaces			X	X <sup>2</sup>		X	X	X	X								
Digital				X <sup>3</sup>		X	X	X	X		X	X		X			
ISDN BRI Digital Voice Interfaces				X <sup>3</sup>		X	X	X	X		X						
<b>Integrated Switching</b>																	
Integrated 4-port Switch HWIC				X	X		X		X								
Integrated 9-port Switch HWIC					X		X		X								
Integrated 16-port Switching						X	X <sup>4</sup>	X	X								
Integrated 24-port Switching							X <sup>5</sup>		X								
Integrated 36-port Switching							X <sup>6</sup>	X	X								
Integrated 48-port Switching							X <sup>5</sup>		X								
Power over Ethernet (PoE)				X		X <sup>7</sup>	X	X	X								
<b>Content Acceleration</b>																	
Content Engine					X	X	X	X	X					X			
<b>Security VPN</b>																	
IPS			X	X	X	X	X	X	X	X	X			X			
Encryption Advanced Integration Modules					X	X	X	X	X					X			
Encryption Network Module			X	X							X			X			

1. 2612 and 2691 only
2. Supported on the 2691 only
3. Cisco 1751 and Cisco 1760 only
4. Cisco 2811, 2821, and 2851 only
5. Cisco 2821 and 2851 only
6. Supported on CISC02851 only
7. Requires external power source



# Memory Information for Routers

Router	Memory Type	Slots	Default Memory	Max Memory	Default Configuration (Notes)
<b>SOHO 78</b>	Flash	1	8 MB	8 MB	No Upgradeable Memory
	DRAM	1	16 MB	16 MB	
<b>SOHO 90</b>	Flash	1	8 MB	8 MB	No Upgradeable Memory
	DRAM	1	32 MB	32 MB	
<b>SB 100 Series</b>	Flash	N/A	12 MB	12 MB	12 MB
	DRAM		64 MB	64 MB	64 MB
<b>801 and 803</b>	Flash	1	8 MB	12 MB	4 MB on board and 4 MB or 8 MB Mini flash card
	DRAM	1	8 MB	12 MB	4 MB onboard and 4 MB or 8 MB DIMM module
<b>805</b>	Flash	1	8 MB	12 MB	4 MB On board + 4 MB Mini Flash
	DRAM	1	8 MB (On board)	16 MB	
<b>811 and 813</b>	Flash	1	8 MB	12 MB	4 MB On board + 4 MB or 8 MB Mini Flash
	DRAM	1	8 MB	16 MB	8MB on board and 4MB or 8MB DIMM Module
<b>828</b>	Flash	1	8 MB	16 MB	8 MB On board flash
	DRAM	1	24 MB	32 MB	16MB On board DRAM + 4MB, 8MB or 16MB DIMM module
<b>831, 836, 837</b>	Flash	1	12 MB	24 MB	8MB On board + 4MB, 8MB or 16MB Mini Flash
	DRAM	1	48 MB	48 MB	32MB On board + 16MB DIMM module
<b>851, 857</b>	Flash	1	20 MB	20 MB	20 MB On board
	DRAM	1	64 MB	64 MB	64 MB On board
<b>871, 876, 877, 878</b>	Flash	1	24 MB	52 MB	256 MB
	DRAM	1	128 MB	256 MB	
<b>1701</b>	Flash	1	32 MB	32 MB	128 MB
	DRAM	1	96 MB	128 MB	
<b>1711 and 1712</b>	Flash	1	32 MB	32 MB	128 MB
	DRAM	1	64 MB	128 MB	
<b>1721</b>	Flash	1	32 MB	32 MB	128 MB
	DRAM	1	64 MB (On board)	128 MB	
<b>1751</b>	Flash	1	32 MB	32 MB	CISCO1751-V has 96 MB DRAM default
	DRAM	1	64 MB	128 MB	
<b>1760</b>	Flash	1	32 MB	64 MB	CISCO1760-V has 96 MB DRAM default
	DRAM	1	64 MB	128 MB	
<b>2500 Series</b>	Flash	2	8 MB	16 MB	Slot 0 = 8 MB
	DRAM	1	4 MB	16 MB	
<b>2600 Series</b>	Flash (261xXM, 262xXM, 265xXM)	1	32 MB	48 MB	16 MB on Mother Board; Slot 0 = 32 MB
	Flash (2612)	1	8 MB	16 MB	Slot 0 = 8 MB
	Flash (2691)	2	32 MB	128 MB	Internal compact flash = 32 MB
	DRAM (261XM, 262xXM)	2	128 MB	256 MB	Slot 0 = 128 MB; Slot 1 = empty
	DRAM (265xXM)	2	256 MB	256 MB	Slot 0 = 128 MB; Slot 1 = 128 MB
	DRAM (2612)	2	32MB	64 MB	Slot 0 = 32 MB; Slot 1 = empty
	DRAM (2691)	2	256 MB	256 MB	Slot 0 = 128 MB; Slot 1 = 128 MB
<b>2800 Series</b>	DRAM (2801)		128 MB	384 MB	Slot 0 = 128 MB, Slot 1 = Empty
	DRAM (2811)		256 MB	768 MB	Slot 0 = 256MB, Slot 1 = Empty
	DRAM (2821)		256 MB	1 GB	Slot 0 = 256MB, Slot 1 = Empty
	DRAM (2851)		256 MB	1 GB	Slot 0 = 256MB, Slot 1 = Empty
	Compact Flash (2801)		64 MB	128 MB	Single 64 MB Compact Flash default
	Compact Flash (2811)		64 MB	256 MB	Single 64 MB Compact Flash default
	Compact Flash (2821)		64 MB	256 MB	Single 64 MB Compact Flash default
	Compact Flash (2851)		64 MB	256 MB	Single 64 MB Compact Flash default
<b>3700 Series</b>	Flash (Internal)	1	32 MB	128 MB	Slot 0 = 256 MB, Slot 1 = Empty
	Flash (External)	1	0 MB	32-128 MB	
	DRAM (SoDIMM)	2	256 MB	256 MB	
<b>3800 Series</b>	Flash (Internal)	1	64 MB	256 MB	Single 64 MB Compact Flash default
	DDR SDRAM (ECC)	2	256 MB	1 GB	Slot 0 = 256MB, Slot 1 = Empty
<b>7100 Series</b>	Flash (PCMCIA)	2	48 MB	110 MB	Slot 0 = 48 MB
	System SDRAM	2	64 MB	256 MB	Slot 0 = 64 MB
	Packet SDRAM		64 MB	64 MB	

Router	Memory Type	Slots	Default Memory	Max Memory	Default Configuration (Notes)
<b>7200 Series</b>	Flash (PCMCIA)	2	20 MB	128 MB	
	Flash (non-volatile, fixed config)		128 KB	128 KB	
	Flash (C7200-IO-FE bootflash)	1	4 MB	4 MB	
	Flash (C7200-IO-2FE, C7200-IO-GE/E bootflash)	1	4 or 8 MB	4 or 8 MB	
	DRAM (NPE-225)	1	128 MB	256 MB	Slot 0 = 128 MB DIMM
	DRAM (NPE-300)	4	32+128 MB	32+256 MB	Slot 0 = 32 MB DIMM, Slot 2 = 128 MB DIMM
	DRAM (NPE-400)	1	128 MB	512 MB	Slot 0 = 128 MB SoDIMMs
	DRAM (NSE-1)	1	128 MB	256 MB	Slot 0 = 128 MB DIMM
<b>7300 Series</b>	DRAM (NPE-G1)	1	256 MB	1 GB	Slot 0 = 128 MB SoDIMM, Slot 2 = 128 MB SoDIMM
<b>7400 Series</b>	Flash (CFM)	1	64 MB	128 MB	
	DRAM	1	128 MB	1024 MB	
<b>7400 Series</b>	Flash (PCMCIA)	2	64 MB	128 MB	
	DRAM (NSE-1) BB	1	256 MB	512 MB	
	DRAM (NSE-1) CP	1	128 MB	512 MB	
<b>7500 Series</b>	Flash (PCMCIA) RSP2, RSP4+	1	16 MB	20 MB	
	Flash (PCMCIA) RSP8	2	20 MB	40 MB	
	Flash (PCMCIA) RSP16	1	48 MB	128 MB	
	Flash (SIMM)	1	8 MB	8 MB	
	DRAM (RSP2)	4	32 MB	128 MB	
	DRAM (RSP4+, RSP8)	2	64 MB	256 MB	
	DRAM (RSP16)	2	128 MB	1 GB	
	DRAM (VIP2-40)	1	32 MB	64 MB	
	DRAM (VIP2-50)	1	32 MB	128 MB	
	DRAM (VIP4-50/80)	1	64 MB	256 MB	
	DRAM (VIP6-80)	1	64 MB	256 MB	
<b>7600 Series</b>	Flash (PCMCIA)	1	16 MB	512 MB	
	DRAM (Sup 2)	1	128 MB	512 MB	
	DRAM (MSFC2)	1	128 MB	512 MB	
	DRAM (PFC2)	1	128 MB	256 MB	
	DRAM (Sup720-3B)	1	512 MB	512 MB	
	DRAM (Sup720-3BXL)	1	1 GB	1 GB	
<b>10000 Series</b>	Flash (PRE-2) PCMCIA	2	64 MB	128 MB	
	Internal Flash	1	64 MB	64 MB	
	NVRAM	1	2 MB	2 MB	
	DRAM (PRE-2)	1	1 GB	1 GB	
<b>10700 Series</b>	Flash (Internal)	1	32 MB	64 MB	Maximum memory is configured with No Option
	SDRAM RP	1	512 MB	512 MB	
	Packet Buffer	1	64 MB	64 MB	
<b>XR 12000/12000 Series</b>	Flash (PCMCIA)	2	48 MB	256 MB	
	SDRAM (PRP-1)	1	512 MB	1 GB	Route Memory
	SDRAM (PRP-2)	1	1 GB	4 GB	Route Memory
	DRAM (Line Cards)	1/2	128-256 MB	256 MB - 1 GB	

# Cisco 7000 Series Port Adapter Compatibility Matrix

Port Adapter	7200VXR	7301	7304 Carrier Card	7400	7500	7600
<b>ATM Port Adapters</b>						
PA-A2-4E1XC-OC3SM: CES OC-3 port adapter 4 • E1 ports 120 ohms	—	—	—	—	—	—
PA-A2-4E1XC-E3ATM: CES port adapter E3/E1 • 120 ohms	—	—	—	—	—	—
PA-A2-4E1YC-OC3SM	•	—	—	—	—	—
PA-A2-4E1YC-E3ATM	•	—	—	—	—	—
PA-A2-4T1C-OC3SM: ATM CES port adapter, 4 • T1 CES ports and 1 OC-3 ATM SM port	—	—	—	—	—	—
PA-A2-4T1C-T3ATM: ATM CES port adapter, 4 T1 • CES ports and 1 T3 ATM port	—	—	—	—	—	—
PA-A3-8T1IMA 8-port ATM inverse Mux T1 port adapter	•	•	—	•	•	•
PA-A3-8E1IMA: 8-port ATM inverse Mux E1 (120 • ohm) port adapter	•	•	—	—	•	•
PA-A3-OC3-MM: 1-port ATM-enhanced OC-3c/STM1 multimode port adapter	•	•	•	•	•	• (Native)
PA-A3-OC12-MM: 1-port ATM-enhanced OC-12/STM4 multimode	—	—	—	—	•	—
PA-A3-T3/E3: 1-port ATM-enhanced DS3 port adapter	•	•	•	•	•	• (Native)
PA-A6-OC3XXX: 1-port ATM OC-3 port adapter	•	—	—	•	•	—
PA-A6-T3 or E3: 1-port ATM DS3 (E3) port adapter	•	—	—	•	•	—
<b>Ethernet Port Adapters</b>						
PA-2FE-TX/FX: 2-port Fast Ethernet 100Base-TX/FX port adapter	•	•	• (TX)	•	•	—
PA-4E: 4-port Ethernet 10Base-T port adapter	•	•	•	•	•	—
PA-5EFL: 5-port Ethernet 10Base-FL port adapter	•	•	—	—	•	—
PA-8E: 8-port Ethernet 10Base-T port adapter	•	•	•	•	•	—
PA-FE-TX/FX: 1-port Fast Ethernet 100Base-FX/TX port adapter	•	•	•	•	•	—
PA-GE: Gigabit Ethernet port adapter	•	—	•	•	—	—
<b>Other LAN Port Adapters</b>						
PA-4R-DTR: 4-port dedicated Token Ring, 4/16 • Mbps, HDX/FDX	—	—	—	—	•	—
PA-F-MM/SM: 1-port FDDI full duplex multimode/single-mode port adapter	—	—	—	—	•	—
PA-F/FD-MM/SM: 1-port FDDI full duplex multimode/single-mode port adapter	—	—	—	—	•	—
<b>Serial Port Adapters</b>						
PA-4E1G/120: 4-port E1 G.703 serial port adapter • (120 ohm/balanced)	•	•	•	•	•	—
PA-4T+: 4-port serial port adapter, enhanced	•	•	•	•	•	• (Native)
PA-8T-XXX: 8-port serial, 232 port adapter	•	•	•	•	•	• (Native)

Port Adapter	7200VXR	7301	7304 Carrier Card	7400	7500	7600
<b>High-speed Serial Port Adapters</b>						
PA-H: 1-port HSSI port adapter	•	•	•	•	•	• (Native)
PA-2H: 2-port HSSI port adapter	•	•	•	•	•	• (Native)
PA-E3: 1-port E3 serial port adapter with E3 DSU•		•	•	•	•	• (Native)
PA-2E3: 2-port E3 serial port adapter with E3 DSUs	•	•	•	•	•	• (Native)
PA-T3+: 1-port T3 serial port adapter, enhanced•		•	•	•	•	• (Native)
PA-2T3+: 2-port T3 serial port adapter, enhanced	•	•	•	•	•	• (Native)
<b>Multichannel Serial Port Adapters</b>						
PA-4B-U	•	•	—	—	—	—
PA-8B-S/T: 8-port BRI port adapter, S/T interface•		•	—	—	—	—
PA-MC-2T(1): 2-port multichannel T1 port adapter with integrated CSU/DSUs	•	•	•	—	•	—
PA-MC-4T(1): 4-port multichannel T1 port adapter with integrated CSU/DSUs	•	•	•	—	•	• (Native)
PA-MC-8T(1): 8-port multichannel T1 port adapter with integrated CSU/DSUs	•	•	•	•	•	• (Native)
PA-MC-8TE1+: 8-port multichannel T1/E1 8PRI port adapter	•	•	•	•	•	•
PA-MC-2E1/120: 2-port multichannel E1 port adapter with G.703 120 ohm interface	•	•	•	•	•	—
PA-MC-8E1/120: 8-port multichannel E1 port adapter with G.703 120 ohm interface	•	•	•	•	•	• (Native)
PA-MC-E3: 1-port multichannel E3 port adapter •		•	•	•	•	• (Native)
PA-MC-T3: 1-port multichannel T3 port adapter •		•	•	•	•	• (Native)
PA-MC-2T3+: 2-port multichannel T3 port adapter	•	•	•	•	•	• (Native)
PA-MC-STM-1MM: 1-port multichannel STM-1 multimode port adapter	•	•	•	—	•	• (Native)
PA-MCX-2TE(1): 2-port MIX-enabled multichannel T1/E1 with CSU/DSU	•	—	—	—	—	—
PA-MCX-4TE(1): 4-port MIX-enabled multichannel T1/E1 with CSU/DSU	•	—	—	—	—	—
PA-MCX-8TE(1): 8-port MIX-enabled multichannel T1/E1 with CSU/DSU	•	—	—	—	—	—
PA-POS-OC3-SML: 1-port OC-3/STM1 POS port adapter	•	•	•	•	•	• (Native)
PA-POS-OC3-SML: 1-port OC-3/STM1 POS port adapter	•	•	•	•	•	• (Native)
PA-POS-2OC3: 2-port OC-3/STM1 POS port adapter	•	—	—	•	•	• (Native)
<b>SONET PAs</b>						
PA-POS-OC3-MM: 1-port packet/SONET OC-3c/STM1 multimode port adapter	•	•	•	•	•	• (Native)

Port Adapter	7200VXR	7301	7304 Carrier Card	7400	7500	7600
<b>Other Port Adapters and SAs</b>						
PA-4C-E: 1-port-enhanced ESCON channel port • adapter	—	—	—	—	—	—
PA-FC-1G: Cisco Fiber Channel over IP port adapter interface	•	—	—	•	•	—
SA-ISA: Integrated Services Adapter	•	—	—	—	—	—
SA-VAM: VPN acceleration module for Cisco 7100 and 7200 Series	•	—	—	•	—	—
SA-VAM2: VPN acceleration module 2	•	—	—	—	—	—
PA-SRP-OC12SMI: DPT-OC-12 single-mode intermediate PA	•	—	—	—	—	—
PA-SRP-OC12SMX: DPT-OC-12 single-mode extended reach PA	•	—	—	—	—	—
PA-VXC-2TE1+: 2-port T1/E1 high-capacity enhanced-voice PA	•	•	—	—	•	—
PA-VXB-2TE1+: 2-port T1/E1 moderate-capacity enhanced-voice PA	•	•	—	•	•	—
PA-VXA-1TE1-24+: 1-port T1/E1 digital voice port • adapter with 24 channels	—	—	—	•	•	—

## Cisco SOHO Series Ethernet, ADSL over ISDN, ADSL over POTS and G.SHDSL Routers



The Cisco SOHO series provides an affordable, secure, multi-user access solution to small office/home office (SOHO) customers while reducing deployment and operational costs for service providers. Through the power of Cisco IOS software technology, the Cisco SOHO 91 Ethernet to Ethernet Router, the SOHO 96 ADSL over ISDN, the SOHO 97 ADSL and SOHO 78 G.SHDSL routers provide superior manageability and reliability.

### When to Sell

#### Sell This Product

##### Cisco SOHO 91

#### When a Customer Needs These Features

- Ethernet WAN port for use with an external DSL or cable modem with 4-port 10/100 switch, stateful firewall and software based encryption

##### Cisco SOHO 96

- ADSL modem for use of ADSL over ISDN with 4-port 10/100 switch, stateful firewall and software based encryption

##### Cisco SOHO 97

- ADSL modem for ADSL over POTS with 4-port 10/100 switch, stateful firewall and software based encryption

##### Cisco SOHO 78

- 4-port Ethernet Hub and 1 G.SHDSL port with firewall security and Cisco IOS manageability and reliability

### Key Features

- Integrated security of Cisco IOS Software with Stateful Inspection Firewall and software-based 3DES encryption (no encryption on the SOHO 78)
- Easy setup and deployment using Cisco Router Web Set Up Tool (CRWS)
- Offers many local and remote debug and troubleshooting features in Cisco IOS Software
- Other important features available on SOHO 90 are AAA, L2TP and DynDNS

### Competitive Products

- 3Com: OfficeConnect 810
- Alcatel: Speed Touch Pro Router
- Cayman: 3220H
- Efficient: 5861, 5660
- Lucent: CellPipe 50A

- Netopia: R6100, 4533
- Westel: Wirespeed 36R566
- Zyxel: 641, 782
- Nokia: MW1352
- Linksys: Etherfast models

## Specifications

Feature	SOHO 91	SOHO 96	SOHO 97	SOHO 78
Fixed LAN Ports	4-port 10/100 Switch	4-port 10/100 Switch	4-port 10/100 Switch	4-port Ethernet hub (10BASE-T)
Fixed WAN Ports	1-port Ethernet (connects to external DSL or cable modem)	1-port ADSL over ISDN	1-port ADSL over POTS	1-port G.SHDSL
Flash Memory	8 MB	8 MB	8 MB	8 MB
DRAM Memory	32 MB	32 MB	32 MB	16 MB
Dimensions (H x W x D)	2.0 x 9.7 x 8.5 in. (5.08 x 24.6 x 21.6 cm)	2.0 x 9.7 x 8.5 in. (5.08 x 24.6 x 21.6 cm)	2.0 x 9.7 x 8.5 in. (5.08 x 24.6 x 21.6 cm)	2.0 x 9.9 x 8.3 in. (5.1 x 25.2 x 21.1 cm)

## For More Information

See the Cisco SOHO Website: <http://www.cisco.com/go/soho90>

## Cisco SB 100 Series



The Cisco Small Business Series of secure broadband routers addresses the needs of small businesses, providing affordable, easy-to-use, and secure broadband access for data-only applications. They provide the required performance to run basic, secure services in small offices, including firewall and support for MPLS-based VPNs.

## When to Sell

### Sell This Product

#### Cisco SB 100 Series

### When a Customer Needs These Features

- An affordable Cisco router for data-only applications in small businesses offices with up to five users
- Companies that need the remote management capabilities of Cisco IOS
- Service providers who offer value-added services to small offices
- Managed services for a company with a single location
- VARs who are familiar with Cisco IOS software and want to profitably service small office customers
- Locations that do not require encrypted site-to-site VPN connectivity

## Key Features

- Fixed configuration support for several types of 10/100 Ethernet or ADSL WAN connections
- Standard security with ACLs, PAT/NAT, PAP/CHAP, MS-CHAP
- Enhanced security with stateful inspection firewall
- Out of band management via integrated ISDN port on the SB106; Integrated 4-port 10/100 Ethernet Switch
- Cisco Security Device Manager (SDM) allows nontechnical users to quickly set up the router and firewall; Easy-to-use configuration tool; Remote management capabilities in Cisco IOS Software facilitate easy deployment and centralized management for service providers or value-added resellers

## Specifications

Feature	SB 100	SB 106	SB 107
Fixed LAN Port Connections	4-port 10/100 Ethernet Switch	4-port 10/100 Ethernet Switch	4-port 10/100 Ethernet Switch
Fixed WAN Port Connections	1-port 10/100 Ethernet	1-port ADSL over ISDN	1-port ADSL
Flash Memory	12 MB	12 MB	12 MB
DRAM Memory	64 MB	64 MB	64 MB
Dimensions (H x W x D)	2.0 x 9.7 x 8.5 in. (5.1 x 24.6 x 21.6 cm)	2.0 x 9.7 x 8.5 in. (5.1 x 24.6 x 21.6 cm)	2.0 x 9.7 x 8.5 in. (5.1 x 24.6 x 21.6 cm)

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**Selected Part Numbers and Ordering Information<sup>1</sup>****Cisco Small Business 100 Series Routers**

CISCO SB101-K9

Cisco Small Business 101 Secure Broadband Router

CISCO SB106-K9

Cisco Small Business 106 Secure ADSL over ISDN Router

CISCO SB107-K9

Cisco Small Business 107 Secure ADSL Router

1. This is only a small subset of all parts available via URL listed under "For More Information." Some parts have restricted access or are not available through distribution channels.

**For More Information**

See the Cisco SB 100 Series Website: <http://www.cisco.com/go/sb100>

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**Cisco 800 Series**

The Cisco 800 series router provides enhanced network security, wireless LAN, and proven reliability through Cisco IOS software, for small offices and telecommuters. It connects users to the Internet or to a corporate LAN via one ADSL, ADSL over ISDN, G.SHDSL, IDSL, ISDN, or serial connection (up to 512 Kbps), or with an Ethernet WAN port connected to an external broadband modem.

**When to Sell****Sell This Product When a Customer Needs These Features****Cisco 800 Series**

- Companies with Cisco IOS-based networks who want to add telecommuters or very small branch offices
- Service providers who offer value-added services to small offices
- VARs who are familiar with Cisco IOS software and want to profitably service small office customers
- Ethernet LAN ports and variety of WAN connectivity, including: ISDN BRI, Frame Relay, ADSL, G.SHDSL, async dialup (see Specifications for details)
- Locations with advanced security and wireless LAN requirements

**Key Features**

- Fixed configuration support for several types of WAN connections
- Optional IEEE 802.11 b/g wireless LAN (850 and 870 Series)
- Standard security with ACLs, PAT/NAT, PAP/CHAP, MS-CHAP, Lock and Key, and Generic Routing Encapsulation (GRE) tunneling
- Enhanced security with stateful inspection firewall, IPSec encryption (hardware DES, 3DES and AES encryption on Cisco 830, 850, and 870 Series). Also includes security features like IPS, 802.1x, Dynamic Multipoint VPN (DMVPN), EasyVPN, URL filtering, NAC and others
- Dial backup via aux/console port on the 830, 850, and 870 series routers
- Dial backup via integrated ISDN port on the 836
- X.25 over D-channel support on 836
- DMZ interface on all 830 routers
- Integrated 4-port 10/100 Ethernet Switch on Cisco 830, 850, and 870 series
- Bandwidth optimization features such as compression, Bandwidth-on-Demand, Dial-on-Demand, Always-On-Dynamic-ISDN (AODI), and X.25 over D channel (Cisco 801- 804)
- Support for CAPI applications in the European market (801, 803)

## Competitive Products

- 3Com: Office Connect Remote 511/521
- Alcatel: Speed Touch Pro Routers
- Ascend: Pipeline 75/85
- Efficient: 5861 / 5660
- Intel: Express 8100
- Netopia: R3100, R6100, 4533
- Nortel/Bay: Nautica 250
- Nokia: MW1352
- Zyxel: 782

## Specifications

Feature	801	803	811	813	805
<b>Fixed LAN Port Connections</b>	1-port Ethernet (10BASE-T)	4-port Ethernet hub (10BASE-T)	1-port Ethernet (10BASE-T)	4-port Ethernet hub (10BASE-T)	1-port Ethernet (10BASE-T)
<b>Fixed WAN Port Connections</b>	1-port ISDN BRI (S/T)	1-port ISDN BRI (S/T) 2 analog ports	1-port ISDN BRI S/T and 1-port ISDN BRI (U) NT-1	1-port ISDN BRI S/T and 1-port ISDN BRI (U) NT-1 2 analog ports	1-port Serial (Up to 512 KBPS)
<b>Flash Memory</b>	8MB (default) 12 MB (max)	8MB (default) 12 MB (max)	4MB (default) 12MB (max)	8MB (default) 12MB (max)	8MB (default) 12MB (max)
<b>DRAM Memory</b>	8MB (default) 12MB (max)	8MB (default) 12MB (max)	8MB (default) 16MB (max)	8MB (default) 16MB (max)	8MB (default) 16MB (max)
<b>Dimensions (H x W x D)</b>	2.0 x 9.9 x 8.3 in. (5.1 x 25.2 x 21.1 cm)	Same as Cisco 801	Same as Cisco 801	Same as Cisco 801	2.0 x 9.9 x 8.3 in. (5.1 x 25.2 x 21.1 cm)

Feature	828	831	836	837	851
<b>Fixed LAN Port Connections</b>	4-port Ethernet hub (10BASE-T)	4-port Ethernet switch (10BASE-T)	1-port Ethernet switch (10BASE-T)	4-port Ethernet switch (10BASE-T)	4-port 10/100 Ethernet switch
<b>Fixed WAN Port Connections</b>	1-port G.SHDSL	1-port Ethernet	1-port ADSL-over-ISDN, 1-port ISDN S/T	1-port ADSL over POTS	1-port 10/100 Ethernet switch
<b>Flash Memory</b>	8MB (default) 16MB (max)	12MB (default) 24MB (max)	12MB (default) 24MB (max)	12MB (default) 24MB (max)	IEEE 802.11 b/g ("W" model)
<b>DRAM Memory</b>	24MB (default) 32MB (max)	48MB (default) 48MB (max)	48MB (default) 48MB (max)	48MB (default) 48MB (max)	Single fixed antenna
<b>Dimensions (H x W x D)</b>	2.0 x 9.9 x 8.3 in. (5.1 x 25.2 x 21.1 cm)	2.0 x 9.7 x 8.5 in. (5.1 x 24.7 x 21.1 cm)	2.0 x 9.7 x 8.5 in. (5.1 x 24.7 x 21.1 cm)	2.0 x 9.7 x 8.5 in. (5.1 x 24.7 x 21.1 cm)	10

Feature	857	871	876	877	878
<b>Fixed LAN Port Connections</b>	4-port 10/100 Ethernet switch	4-port 10/100 Ethernet switch	4-port 10/100 Ethernet switch	4-port 10/100 Ethernet switch	4-port 10/100 Ethernet switch
<b>Fixed WAN Port Connections</b>	1-port ADSL (ADSL 2+ future)	1-port 10/100 Ethernet	1-port ADSL-over-ISDN, 1-port ISDN S/T (ADSL 2+ future)	1-port ADSL over POTS (ADSL 2+ future)	1-port G.SHDSL
<b>Wireless LAN</b>	IEEE 802.11 b/g ("W" model)	IEEE 802.11 b/g ("W" model)	IEEE 802.11 b/g ("W" model)	IEEE 802.11 b/g ("W" model)	IEEE 802.11 b/g ("W" model)
<b>Wireless Antenna</b>	Single fixed antenna	Dual removable antennas	Dual removable antennas	Dual removable antennas	Dual removable antennas
<b>Maximum VPN Tunnels</b>	10	20	20	20	20
<b>NAC</b>	No	Yes	Yes	Yes	Yes
<b>URL Filtering</b>	No	Yes	Yes	Yes	Yes
<b>Stateful Firewall</b>	Yes	Yes	Yes	Yes	Yes
<b>Inline IPS</b>	No	Yes	Yes	Yes	Yes



## Selected Part Numbers and Ordering Information<sup>1</sup>

### Cisco 800 Series Routers

CISCO801	1-port 10BASE-T, 1-port BRI (S/T), IP s/w
CISCO803	4-port 10BASE-T hub, 1-port BRI (S/T), 2-port POTS, IP s/w
CISCO805	1-port 10BASE-T, 1-port serial, IP s/w
CISCO801-CAPI	ISDN/Ethernet Router with one-user CAPI license
CISCO803-CAPI	ISDN/Ethernet Router with one-user CAPI license, 4-port hub
CISCO828	1-port G.SHDSL, 4-port 10BASE-T hub, IP s/w
CISCO831-K9 USD 649.00	Cisco 831 Ethernet Router
CISCO836-K9	Cisco 836 ADSL over ISDN Router
CISCO837-K9	Cisco 837 ADSL Router
CISCO851-K9	Cisco 851 Ethernet to Ethernet Router
CISCO851W-G-A-K9	Cisco 851 Ethernet to Ethernet Wireless Router; Americas
CISCO851W-G-E-K9	Cisco 851 Ethernet to Ethernet Wireless Router; Europe
CISCO851W-G-J-K9	Cisco 851 Ethernet to Ethernet Wireless Router; Japan
CISCO857-K9	Cisco 857 ADSL Router
CISCO857W-G-A-K9	Cisco 857 ADSL Wireless Router; U.S. and Americas
CISCO857W-G-E-K9	Cisco 857 ADSL Wireless Router; Europe
CISCO871-K9	Cisco 871 Ethernet to Ethernet Router
CISCO871W-G-A-K9	Cisco 871 Ethernet to Ethernet Wireless Router; U.S./Americas
CISCO871W-G-E-K9	Cisco 871 Ethernet to Ethernet Wireless Router; Europe
CISCO871W-G-J-K9	Cisco 871 Ethernet to Ethernet Wireless Router; Japan
CISCO876-K9	Cisco 876 ADSL over ISDN Router
CISCO876W-G-E-K9	Cisco 876 ADSL over ISDN Wireless Router
CISCO877-K9	Cisco 877 ADSL Router
CISCO877W-G-A-K9	Cisco 877 ADSL Wireless Router: U.S./Americas
CISCO877W-G-E-K9	Cisco 877 ADSL Wireless Router; Europe
CISCO878-K9	Cisco 878 G.SHDSL Router
CISCO878W-G-A-K9	Cisco 878 G.SHDSL Wireless Router; U.S./Americas
CISCO878W-G-E-K9	Cisco 878 G.SHDSL Wireless Router; Europe

### Cisco 800 Series CD Feature Packs

CD08-BHL-12.0.7XV=	Cisco 800 Series IP/IPX/FW Plus IPsec 56
CD08-BP-12.07.XV=	Cisco 800 Series IP/IPX/Plus
CD800-5CAPI=	CAPI 5 User CD
CD08-IC-12.0.5T=	Cisco 800 Series Internet DSL
CD08-ICHL-12.0.5T=	Cisco 800 Series Internet DSL FW IPsec56
CD08-IBHL-12.0.5T=	Cisco 800 Series Internet DSL IPX FW IPsec56

### Cisco 800 Series Memory Options

MEM800-4F=	Cisco 800 Series, 4 MB Flash Mini-Card
MEM800-8F=	Cisco 800 Series, 8 MB Flash Mini-Card
MEM800-4D=	Cisco 800 Series, 4 MB DRAM DIMM
MEM800-8D=	Cisco 800 Series, 8 MB DRAM DIMM
MEM820-8U16F	Cisco 820 Flash upgrade 8Mbyte-16Mbyte
MEM820-16U20D	Cisco 820 DRAM upgrade 16Mbyte-20Mbyte (16Mbyte-24Mbyte & 16Mbyte-32Mbyte also available)
MEM820-24U32D	Cisco 820 DRAM 24Mbyte upgrade to 32 Mbytes

### Cisco 800 Series Accessories

PWR-8xx-WW1=	Cisco 8xx Series, AC Power Supply Spare
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### Cisco 800 Series Basic Maintenance

CON-SNT-PKG1	Cisco 800 Series SMARTnet Maintenance (8x5xNBD)
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1. This is only a small subset of all parts available via URL listed under "For More Information." Some parts have restricted access or are not available through distribution channels.

## For More Information

See the Cisco 800 Series Website: <http://www.cisco.com/go/800>

## Cisco 1800 Series

Cisco 1800 Series integrated services routers are the next evolution of the award-winning Cisco 1700 Series modular access routers. The Cisco 1800 Series is designed for secure data connectivity via broadband access, and wireless local area networks. It features secure, fast, and high-quality delivery of multiple, concurrent services for small-to-medium-sized businesses and small enterprise branch offices.



### When to Sell

#### Sell This Product

**Cisco 1801, 1802, 1803**

#### When a Customer Needs These Features

- Secure data access via broadband DSL
- Primary WAN access via ADSL over POTS (1801), ADSL over ISDN (1802), or G.SHDSL (1803)
- Backup WAN interface using ISDN BRI
- Integrated 8-port managed 10/100 Ethernet switch
- Integrated IEEE 802.11 a/b/g wireless LAN ("W" models)

**Cisco 1811, 1812**

- Secure data access at broadband rates
- Using 10/100 Ethernet as a WAN access connecting to external DSL or cable modem
- Backup WAN interface using V.92 analog modem (1811) or ISDN BRI (1812)
- Integrated 8-port managed 10/100 Ethernet switch
- Integrated IEEE 802.11 a/b/g wireless LAN ("W" models)

**Cisco 1841**

- Secure data access solution for customer environments up to T1/E1/xDSL WAN rates with services turned on
- Needs support for a broad array of WAN services
- Needs comprehensive security features

### Key Features

- Available with IEEE 802.11 a/b/g wireless access point ("W" models of 1801-1812, HWIC-AP for 1841)
- Modular 1841 provides flexibility with internal AIM slot designated for higher speed VPNs and future applications; Provides several slot types to add future connectivity and services on an "integrate-as-you-grow" basis
- Integrated 8-port 10/100 Ethernet switch with PoE on fixed configuration 1801-1812. Optional 4-port switch HWIC on 1841
- Supports the latest Cisco IOS Software-based QoS bandwidth management features
- Advanced device management—using Cisco Router and SDM
- High-performance processor—Supports concurrent deployment of high-performance, secure data services with headroom for future applications
- Integrated hardware-based encryption acceleration—Offers cryptography accelerator as standard integrated hardware that can be enabled with an optional Cisco IOS Software for 3DES and AES encryption support
- Security performance enhanced feature set—Supports optional VPN acceleration card for VPN 3DES or AES encryption; Offers an intrusion prevention system (IPS) and firewall functions.
- Allows LAN segmentation
- Integrated standard power supply—Easier router platform installation and management

## Specifications

Features	Cisco 1841
Form factor	Desktop, 1-rack-unit (1RU) height (4.75 cm high with rubber feet)
Target Applications	Secure data
Chassis	Metal
Wall-mountable	Yes
Rack-mountable	No
Dimensions (W x D)	13.5 x 10.8 in. (34.3 x 27.4 cm); Height without rubber feet: 1.73 in. (4.39 cm); Height with rubber feet: 1.87 in. (4.75 cm)
Weight	Maximum: 6.2 lb (2.8 kg); with interface cards and modules; Minimum: 6.0 lb (2.7 kg) (no interface cards and modules)
DRAM	Synchronous dual in-line memory module (DIMM) DRAM
DRAM capacity	Default: 128 MB; Maximum: 384 MB
Flash memory	External compact Flash
Flash memory capacity	Default: 32 MB; Maximum: 128 MB
Modular slots - total	Two
Modular slots (WAN)	Two
Modular slots (HWICs)	Two
Modular slots (voice)	None: The Cisco 1841 does not support voice
Analog/digital voice support	No
VoIP support	Voice-over-IP (VoIP) pass-through only
Onboard Ethernet ports	Two 10/100
Onboard USB ports	One (1.1)
Console port	One: up to 115.2 kbps
Auxiliary port	One: up to 115.2 kbps
Onboard AIM slots	One (internal)
Packet-voice-DSP-module (PVDM) slots on motherboard	None: The Cisco 1841 does not support voice
Integrated H/W-based encryption on motherboard	Yes
Encryption support in software and hardware by default	DES, 3DES, AES 128, AES 192, AES 256
Internal power supply	Yes
Redundant power supply	No
DC power support	No
AC input voltage	100 to 240 VAC
Frequency	50 to 60 Hz
AC input current	1.5A maximum
Output power	50W (maximum)
System Power Dissipation	153 BTU/hr
Cisco IOS Software default image	IP BASE (12.3(8)T)
Operating temp	32 to 104°F (0 to 40°C)
Operating humidity	10 to 85% noncondensing operating; 5 to 95% noncondensing, nonoperating
Nonoperating Temp	-4 to 149°F (-25 to 65°C)
Operating altitude	10,000 feet (3000 meters) @ 77°F (25°C)
Noise level	Normal operating temperature: <78° F/25.6°C: 34 dBA; >78°F/25.6°C through; 104°F/40°C
Safety	UL60950-1; CAN/CSA 60950-1; AS 3260; EN60950-1
EMI	EN 55022, 1998, class A; CISPR22, 1997, class A; CFR47, Part 15, Subpart B, 1995, class A; EN61000-3-2 Harmonic Current Emission (only for equipment >75W but <16A); EN61000-3-3 Voltage Fluctuation and Flicker (only for equipment <16A)

Features	Cisco 1841
Immunity	<p>CISPR24, 1997 ITE-Immunity characteristics, Limits and methods of measurement; EN 55024, 1998 ITE-Immunity characteristics, Limits and methods of measurement; EN50082-1, 1997 Electromagnetic compatibility Generic immunity standard, Part 1</p> <p>EN 300 386, 1997 Telecommunications network equipment EMC requirements</p> <p>The requirements are covered by the following standards: IEC 61000-4-2:1995 Immunity to Electrostatic Discharges; IEC 61000-4-3:1995 Immunity to Radio Frequency Electromagnetic Fields; IEC 61000-4-4:1995 Immunity to Electrical Fast Transients; IEC 61000-4-5:1995 Immunity to Power Line Transients (Surges); IEC 61000-4-6:1996 Immunity to Radio Frequency Induced Conducted Disturbances; IEC 61000-4-11:1995 Immunity to Voltage Dips, Voltage Variations, and Short Voltage Interruptions</p>
Network homologation	<p>USA: TIA-968-A, T1 TR0.6-2001; Canada: CS-03; European Union: RTTE Directive 5/99; Argentina: CTR 21; Australia: AS/ACIF S002, S003, S016, S031, 3043; Brazil: 225-540-788, CTR3, 225-100-717 Edition 3, NET 001/92 1990; China: ITU-G.992.1, ITU-G.992.1, ITU-G.991.2, CTR3, ITU I.431 1993; Hong Kong: HKTA 2033, HKTA 2033, HKTA 2014, HKTA 2017 Issue 3 2003, HKTA 2011 Issue 1, HKTA 2011 Issue 2, HKTA 2013 Issue 1; India: I. DCA. 18. 02. Jun. 99-199, S/ISN-01/02 Issue 1999 S/ISN-02 1 1998, IR/PRI-01/02 Issue 1 1998, S/INT-2W/02 MAY 2001, S/INT-2W/02 MAY 2001; Israel: U.S. approval accepted; Japan: Technical condition (DoC acceptance in process); Korea: U.S. approval accepted; Mexico: U.S. approval accepted; New Zealand: PTC 270/272, CTR 3, ACA 016 Revision 4 1997, PTC 200; Singapore: IDA TS ADSL1 Issue 1, IDA TS ADSL 2, IDA TS HDSL, IDA TS ISDN 1 Issue 1 1999, IDA TS ISDN 3 Issue 1 1999, IDA TS PSTN 1 Issue 4, IDA TS PSTN 1 Issue 4, IDA TS PSTN 1 Issue 4; South Africa: U.S. approval accepted; Taiwan: U.S. approval accepted</p>

Feature	Cisco 1800 Series Fixed-Configuration Routers
Form Factor	Desktop, 1-rack-unit (1-RU) high (4.75-cm high with rubber feet)
Chassis	Metal
Wall-Mountable	Yes
Rack-Mountable	Yes (optional 19-in. rack-mount kit required)
Dimensions (W x D)	12.5 x 9.5 in. (34.3 x 27.4 cm); Height without rubber feet: 1.73 in. (4.39 cm); Height with rubber feet: 1.87 in. (4.75 cm)
Weight	Maximum: 6.1 lb (2.8 kg)
DRAM	Synchronous dual in-line memory module (DIMM) SDRAM (1 DIMM slot)
DRAM Capacity	Default: 128 MB; Maximum: 384 MB
Flash Memory	External removable Compact Flash
Flash Memory Capacity	Default: 32 MB; Maximum: 128 MB
ADSL Port	One ADSL over POTS port on Cisco 1801. One ADSL over ISDN on Cisco 1802. The Cisco 1801 supports ADSL over POTS standards G.992.1 G.DMT and ANSI T1.413 DMT Issue 2. The Cisco 1802 supports ADSL over ISDN standards ETSI 101-388, U-R2, and G.992.1 G.DMT. The Cisco 1801 is interoperable with the following DSLAMs: Cisco 6130 and Cisco 6260 IP DSL switches; Alcatel (ASAM 1000 and 7300); Lucent Stinger (24- and 72-port line cards); ECI HiFocus (16- and 32-port line cards); The Cisco 1802 is interoperable with the following DSLAMs: Cisco 6260; Alcatel (ASAM 1000 and 7300); Siemens (XpressLink 2.0 and XpressLink 2.1); Lucent Stinger (48-port line cards); ECI HiFocus (16- and 32-port line cards)
G.SHDSL Port	One G.SHDSL port on Cisco 1803 supports either 2-wire mode or 4-wire mode. The Cisco 1803 supports the same standards as the Cisco G.SHDSL WIC and is based on ITU Recommendation G.991.2 (accepted worldwide).
G. SHDSL DSLAM Interoperability	The Cisco 1803 in 2-wire mode is interoperable with the following DSLAMs: Cisco 6000 Series IP DSL switches; Alcatel ASAM 7300 (12- and 24-port line cards); ECI HiFocus SAM 2401 (16-port Metalink-based line cards); Lucent Stinger FS (32- and 48-port line cards); CopperEdge 200 DSLAM (24-port line cards); The Cisco 1803 in 4-wire mode is interoperable with the following DSLAMs: Alcatel ASAM 7300 (12- and 24-port line cards); CopperEdge 200 DSLAM (24-port line cards)
10/100 WAN Ports	10/100BASE-T ports for WAN connection supporting DSL and cable modems and Ethernet access services. (One port is available on Cisco 1801, 1802, and 1803. Two ports are available on Cisco 1811 and
10/100 LAN Switch	Eight 10/100BASE-T fully managed switch ports with 802.1Q VLAN and 802.3af PoE support
USB Ports	Two (USB 2.0) on Cisco 1811 and 1812 only. The Cisco 1801, 1802, and 1803 do not offer USB support.
ISDN S/T BRI Port	One ISDN S/T BRI port on Cisco 1801, 1802, 1803, and 1812
V.92 Analog Modem Port	One analog modem port on Cisco 1811
Console Port	One—up to 115.2 kbps
Auxiliary Port	One—up to 115.2 kbps
Integrated Hardware-Based Encryption	On motherboard
Encryption Support in Hardware	DES, 3DES, AES 128, AES 192, AES 256
IPSec Tunnels Supported	50
IPSec VPN Performance	40 Mbps 3DES @ 1400 byte packets
Cisco IOS Firewall Performance	100 Mbps @ 1400 byte packets
Wireless LAN Hardware	IEEE 802.11a/b/g; Automatic rate selection for 802.11a/11b/11g; Field-replaceable antennae; External antenna; Antenna diversity; Wi-Fi Certified for WPA-Personal and WPA-Enterprise; Default antenna gain—2.2 dBi
Data Rates Supported	802.11a: 6, 9, 12, 18, 24, 36, 48, and 54 Mbps 802.11g: 1, 2, 5.5, 6, 9, 11, 12, 18, 24, 36, 48, and 54 Mbps
Range	Range—Indoor 1 Mbps at 320 ft

<b>Cisco 1800 Series Fixed-Configuration Routers</b>	
<b>Feature</b>	
<b>Wireless LAN Software Features</b>	Maximize throughput or maximize range option; Software-configurable transmit power; Support for Wi-Fi Multimedia (WMM); Quality of Service (QoS) for WLANs
<b>Wireless LAN Security Features</b>	IEEE 802.1X per-user, per-session mutual authentication with a variety of extensible authentication protocol (EAP) types including Cisco LEAP, Protected Extensible Authentication Protocol (PEAP), and EAP-Transport Layer Security (EAP-TLS). Preshared Key (PSK) Authentication; MAC authentication/filter encryption; WPA Temporal Key Integrity Protocol (TKIP) with support for per-packet key hashing, message integrity check; Static and dynamic wired equivalent privacy (WEP) keys of 40 bits and 128 bits; Additional security features: IEEE 802.1X local authentication; Configurable limit for the number of wireless clients; Configurable RADIUS accounting for wireless clients
<b>SSIDs</b>	8
<b>Wireless LAN Management Features</b>	Supported by CiscoWorks 2000, CiscoView and Router, and Security Device Management (SDM) GUI-based network management for wireless interface is provided
<b>Cisco IOS Software Release</b>	12.3(8)Y1
<b>Cisco IOS Software Default Image</b>	Advanced IP services (without voice services) except Cisco 1801 which comes with Cisco IOS IP Broadband
<b>User Support</b>	Up to 50 users (recommended)
<b>Routing Protocols</b>	BGP, EIGRP, OSPF, RIPv1, RIPv2
<b>Routed Protocols</b>	IPv4, IPv6 unicast only (Internetwork Packet Exchange [IPX], IBM SNA, AppleTalk supported with optional Advanced Enterprise Services Feature Set)
<b>QoS Protocols</b>	Weighted Fair Queuing (WFQ), Class-Based WFQ (CBWFQ), Weighted Random Early Detection (WRED), Committed Access Rate (CAR), Resource Reservation Protocol (RSVP), Network-Based Application Recognition
<b>VLAN Support</b>	802.1Q VLAN supported on all 10/100BASE-T ports
<b>VLAN Configured</b>	8 VLANs
<b>PoE Support</b>	Supported on 10/100 Ethernet switch ports with optional PoE kit
<b>PoE Standards</b>	IEEE 802.3af, Cisco Prestandard PoE
<b>External Power Supply</b>	80W external power supply
<b>Internal Power Supply</b>	Yes
<b>Redundant Power Supply</b>	No
<b>DC Power Support</b>	No
<b>AC Input Voltage</b>	100 to 240 VAC
<b>Frequency</b>	50 to 60 Hz
<b>AC Input Current</b>	1A maximum
<b>Output Power</b>	50W maximum
<b>System Power Dissipation</b>	153 Btu per hour
<b>Operating Temperature</b>	32° to 104°F (0° to 40°C)
<b>Operating Humidity</b>	10 to 85 percent noncondensing operating; 5 to 95 percent noncondensing, nonoperating
<b>Nonoperating Temperature</b>	-4° to 149°F (-25 to 65°C)
<b>Operating Altitude</b>	10,000 ft (3000m) at 77°F (25°C)
<b>Noise Level</b>	<80°F (27°C): 34 dBA >80°F (27°C) through <104°F (40°C): 36 dBA >104°F (40°C): 42 dBA
<b>Safety</b>	UL 60950; CAN/CSA C22.2 No. 60950; IEC 60950-1; EN 60950-1; AS/NZS 60950
<b>EMC Immunity</b>	EN300386; EN55024(CISPR24); EN61000-4-2; EN61000-4-3; EN41000-4-4; EN41000-4-5; EN41000-4-6; EN41000-4-8; EN41000-4-11; EN50082-1; EN61000-6-2; ITU-T K.21
<b>EMC Emissions</b>	CFR 47 Part 15, Class A; ICES-003 Class A; EN55022 Class A; CISPR22 Class A; AS/NZS 3548; lass A; VCCI Class A; EN 300386; EN61000-3-2; EN61000-3-3
<b>Telecommunications</b>	Telecom compliance standards depend upon country and interface type. Interfaces comply with FCC Part 68, CS-03, JATE Technical Conditions, European Directive 99/5/EC, and relevant Technical Basis for Regulation (TBRs). For specific information, refer to the data sheet for the specific interface card. Homologation requirements vary by country and interface type. For specific country information, refer to the online approvals database. Cisco 1801, 1802, 1803, and 1812 ISDN BRI S/T: TIA-968-A; IC CS-03 Part VI; JATE Technical Requirements; TBR3; S031

## Selected Part Numbers and Ordering Information<sup>1</sup>

### Cisco 1800 Series (Modular) Integrated Services Routers

CISCO1841	Modular Router w/2xFE, 2 WAN slots, 32 FL/128 DR
CISCO1841-T1	1841 bundle w/WIC-1DSU-T1-V2, IP Base, 32FL/128DR

### Cisco 1800 Series (Fixed) Integrated Services Routers

CISCO1801	ADSL/POTS router w/IOS IP Broadband
CISCO1801/K9	ADSL/POTS Router with Firewall/IPS and IPSEC 3DES
CISCO1802/K9	ADSL/ISDN Router with Firewall/IPS and IPSEC 3DES
CISCO1803/K9	G.SHDSL Router with Firewall/IPS and IPSEC
CISCO1811/K9	Dual Ethernet Security Router with V.92 Modem Backup
CISCO1812/K9	Dual Ethernet Security Router with ISDN S/T Backup

### Cisco 1800 Series (Fixed Wireless) Integrated Services Route

CISCO1801W-AG-E/K9	ADSL/POTS Router with 802.11a+g ETSI Compliant and Security
CISCO1802W-AG-E/K9	ADSL/ISDN Router with 802.11a+g ETSI Compliant and Security
CISCO1803W-AG-A/K9	G.SHDSL Router with 802.11a+g FCC Compliant and Security
CISCO1803W-AG-E/K9	G.SHDSL Router with 802.11a+g ETSI Compliant and Security
CISCO1811W-AG-A/K9	Security Router with 802.11a+g FCC Compliant and Analog B/U
CISCO1812W-AG-E/K9	Security Router with 802.11a+g ETSI Compliant and ISDN S/T

### Cisco 1800 Series (modular) Security bundles

CISCO1841-SEC/K9	1841 Security Bundle, Adv. Security, 64FL/256DR
CISCO1841-HSEC/K9	1841 Security bundle w/AIM-VPN, Adv. IP Svcs, 64FL/256DR
CISCO1841-T1SEC/K9	1841 Security Bundle w/ WIC-1DSU-T1-V2, Adv. Sec., 64FL, 256DR

### Cisco 1800 Series (modular) Broadband bundles

CISCO1841-ADSL	1841 ADSLoPOTS Bdle, IP Broadband, 32FL/128DR
CISCO1841-ADSL-DG	1841 ADSLoPOTS w/dying gasp Bdle, IP Broadband, 32FL/128DR
CISCO1841-ADSLI	1841 ADSLoISDN Bdle, IP Broadband, 32FL/128DR
CISCO1841-SHDSL	1841 G.shdsl 2-wire Bdle, IP Broadband, 32FL/128DR
CISCO1841-SHDSL-V2	1841 G.shdsl 4-wire Bdle, IP Broadband, 32FL/128DR

### Cisco 1800 Series WAN Interface Cards

WIC-1T	1-Port Serial WAN Interface Card
WIC-1T=	1-Port Serial WAN Interface Card
WIC-2T	2-Port Serial WAN Interface Card
WIC-2T=	2-Port Serial WAN Interface Card spare
WIC-2A/S	2-Port Async/Sync Serial WAN Interface Card
WIC-2A/S=	2-Port Async/Sync Serial WAN Interface Card spare
WIC-1AM	One-port Analog Modem WAN Interface Card
WIC-1AM=	One-port Analog Modem WAN Interface Card
WIC-2AM	Two-port Analog Modem WAN Interface Card
WIC-2AM=	Two-port Analog Modem WAN Interface Card
WIC-1DSU-56K4	1-port 4-WIRE 56/64 KBPS WAN INTERFACE CARD
WIC-1DSU-56K4=	1-Port 4-Wire 56Kbps DSU/CSU WAN Interface Card
WIC-1ADSL	1-port ADSL WAN Interface Card
WIC-1ADSL=	1-port ADSL WAN Interface Card
WIC-1ADSL-DG	1-port ADSLoPOTS WIC with Dying Gasp
WIC-1ADSL-DG=	1-port ADSLoPOTS WIC w/Dying Gasp
WIC-1ADSL-I-DG	1-port ADSLoISDN Wan Interface Card
WIC-1ADSL-I-DG=	1-port ADSLoISDN Wan Interface Card
WIC-1SHDSL	1-Port G.SHDSL WIC
WIC-1SHDSL=	1-Port G.SHDSL WIC
WIC-1B-S/T-V3	1-Port ISDN WAN Interface Card (dial and leased line)
WIC-1B-S/T-V3=	1-Port ISDN WAN Interface Card (dial and leased line)
WIC-1B-U-V2	1-Port ISDN BRI NT-1 WIC
WIC-1B-U-V2=	1-Port ISDN BRI NT-1 WIC
WIC-BLANK-PANEL=	Blank WAN Interface Card Panel
WIC-1DSU-T1-V2	Updated 1-Port T1/Fractional T1 DSU/CSU WAN Interface Card
WIC-1DSU-T1-V2=	1-Port T1/Fractional T1 DSU/CSU WAN Interface Card: Ver. 2

### Cisco 1800 Series High Speed WAN Interface Cards

HWIC-4ESW	Four port 10/100 Ethernet switch interface card
HWIC-4ESW=	Four port 10/100 Ethernet switch interface card
HWIC-4A/S	4-Port Async/Sync Serial HWIC
HWIC-4A/S=	4-Port Async/Sync Serial HWIC
HWIC-8A/S-232	8-Port Async/Sync Serial HWIC, EIA-232
HWIC-8A/S-232=	8-Port Async/Sync Serial HWIC, EIA-232
HWIC-8A	8-Port Async HWIC
HWIC-8A=	8-Port Async HWIC

### Cisco 1800 Series Multiflex Voice/WAN Interface Cards

VWIC-1MFT-E1	1-Port RJ-48 Multiflex Trunk - E1
VWIC-1MFT-E1=	1-Port RJ-48 Multiflex Trunk - E1
VWIC-2MFT-E1	2-Port RJ-48 Multiflex Trunk - E1
VWIC-2MFT-E1=	2-Port RJ-48 Multiflex Trunk - E1
VWIC-2MFT-E1-DI	2-Port RJ-48 Multiflex Trunk - E1 With Drop and Insert
VWIC-2MFT-E1-DI=	2-Port RJ-48 Multiflex Trunk - E1 With Drop and Insert
VWIC-1MFT-T1	1-Port RJ-48 Multiflex Trunk - T1
VWIC-1MFT-T1=	1-Port RJ-48 Multiflex Trunk - T1
VWIC-2MFT-T1	2-Port RJ-48 Multiflex Trunk - T1
VWIC-2MFT-T1=	2-Port RJ-48 Multiflex Trunk - T1
VWIC-2MFT-T1-DI	2-Port RJ-48 Multiflex Trunk - T1 With Drop and Insert
VWIC-2MFT-T1-DI=	2-Port RJ-48 Multiflex Trunk - T1 With Drop and Insert
VWIC-1MFT-G703	1-Port RJ-48 Multiflex Trunk - G.703
VWIC-1MFT-G703=	1-Port RJ-48 Multiflex Trunk - G.703
VWIC-2MFT-G703	2-Port RJ-48 Multiflex Trunk - G.703
VWIC-2MFT-G703=	2-Port RJ-48 Multiflex Trunk - G.703
VWIC2-1MFT-T1/E1	1-Port 2nd Gen Multiflex Trunk Voice/WAN Int. Card - T1/E1
VWIC2-1MFT-T1/E1=	1-Port 2nd Gen Multiflex Trunk Voice/WAN Int. Card - T1/E1
VWIC2-2MFT-T1/E1	2-Port 2nd Gen Multiflex Trunk Voice/WAN Int. Card - T1/E1
VWIC2-2MFT-T1/E1=	2-Port 2nd Gen Multiflex Trunk Voice/WAN Int. Card - T1/E1
VWIC2-1MFT-G703	1-Port 2nd Gen Multiflex Trunk Voice/WAN Int. Card - G.703
VWIC2-1MFT-G703=	1-Port 2nd Gen Multiflex Trunk Voice/WAN Int. Card - G.703
VWIC2-2MFT-G703	2-Port 2nd Gen Multiflex Trunk Voice/WAN Int. Card - G.703
VWIC2-2MFT-G703=	2-Port 2nd Gen Multiflex Trunk Voice/WAN Int. Card - G.703

### Cisco 1800 Series Advanced Integration Modules

AIM-VPN/BPII-PLUS	DES/3DES/AES VPN Encryption/Compression
AIM-VPN/BPII-PLUS=	DES/3DES/AES VPN Encryption/Compression

### Cisco 1800 Series Flash Memory Options

MEM1800-32CF	32MB Cisco 1800 Compact Flash
MEM1800-32CF=	32MB Cisco 1800 Compact Flash Memory
MEM1800-64CF	64MB Cisco 1800 Compact Flash Memory
MEM1800-64CF=	64MB Cisco 1800 Compact Flash Memory
MEM1800-128CF=	128MB Cisco 1800 Compact Flash Memory
MEM1800-32U64CF	32 to 64MB Cisco 1800 Compact Flash factory upgrade
MEM1800-64U128CF	64 to 128 MB Cisco 1800 Compact Flash factory upgrade
MEM1800-32U128CF	32 to 128 MB Cisco 1800 Compact Flash factory upgrade

### Cisco 1800 Series USB Memory Options

MEMUSB-64FT=	64MB USB Flash Token for Cisco 1800/2800/3800 series
MEMUSB-128FT=	128MB USB Flash Token for Cisco 1800/2800/3800 series
MEMUSB-256FT=	256MB USB Flash Token for Cisco 1800/2800/3800 series

### Cisco 1800 Series DRAM Memory Options

MEM1841-64D=	64MB SODIMM DRAM for Cisco 1841
MEM1841-128D=	128MB SODIMM DRAM for the Cisco 1841
MEM1841-256D=	256MB SODIMM DRAM for the Cisco 1841
MEM1841-128U192D	128 to 192MB SODIMM DRAM factory upgrade for the Cisco 1841
MEM1841-128U256D	128 to 256MB SODIMM DRAM factory upgrade for the Cisco 1841
MEM1841-128U384D	128 to 384MB SODIMM DRAM factory upgrade for the Cisco 1841
MEM1841-256U384D	256 to 384MB SODIMM DRAM factory upgrade for the Cisco 1841

### Cisco 1800 Series Spares and Accessories

PWR-184X-AC=	Cisco 184X AC standard power supply
ACS-184X=	Accessory Kit for Cisco 184X
SW-CONFIG-1800-001	Configuration of software via CCO for 1800 series
CX-CUSTOM-BUILD	Please complete this P.O. via CX Tool

### Cisco 1800 Series (modular) IOS Software Options

S1841PB-12308T	Cisco 1841 IOS IP BASE
S184EB-12308T	Cisco 1841 IOS ENTERPRISE BASE
S184ASK9-12308T	Cisco 1841 IOS ADVANCED SECURITY
S184AISK9-12308T	Cisco 1841 IOS ADVANCED IP SERVICES
S184SPSK9-12308T	Cisco 1841 IOS SP SERVICES
S184ESK9-12308T	Cisco 1841 IOS ENTERPRISE SERVICES
S184AESK9-12308T	Cisco 1841 IOS ADVANCED ENTERPRISE SERVICES

**Cisco 1800 Series (modular) Software CD Feature Packs**

CD18-AISK9=	CISCO 1841 ADVANCED IP SERVICES Feature Pack
CD18-ASK9=	CISCO 1841 ADVANCED SECURITY Feature Pack
CD18-AESK9=	CISCO 1841 ADVANCED ENTERPRISE SERVICES Feature Pack
CD18-BB=	CISCO 1841 IP Broadband Feature Pack
CD18-EB=	CISCO 1841 ENTERPRISE BASE Feature Pack
CD18-ESK9=	CISCO 1841 ENTERPRISE SERVICES Feature Pack
CD18-IPB=	CISCO 1841 IP BASE Feature Pack
CD18-SPSK9=	CISCO 1841 SP SERVICES Feature Pack
184-SW-SPARECD	Cisco 184X Series Software Spare CD

**Cisco 1800 Series IOS Upgrade Licenses**

FL18-AISK9-AESK9=	Cisco 1841 Adv IP Ser to Adv Ent Ser Upgrade SW feature lic
FL18-ASK9-AISK9=	Cisco 1841 Adv Sec to Adv IP Ser Upgrade SW feature lic
FL18-EB-ESK9=	Cisco 1841 Ent Base to Ent Ser Upgrade SW feature lic
FL18-ESK9-AESK9=	Cisco 1841 Ent Ser to Adv Ent Ser Upgrade SW feature lic
FL18-SPSK9-AISK9=	Cisco 1841 SP Ser to Adv IP Ser Upgrade SW feature lic
FL18-SPSK9-ESK9=	Cisco 1841 SP Ser to Ent Ser Upgrade SW feature lic
FL18-IPB-ASK9=	Cisco 1800 IP BASE to Adv Sec Upgrade SW feature lic
FL18-IPB-EB=	Cisco 1800 IP BASE to Ent Base Upgrade SW feature lic
FL18-CB=	Corvil Bandwidth Feature License for 1800 Series

**Cisco 1800 (Fixed) Series DRAM Memory Options**

MEM180X-128U256D	128 to 256MB SODIMM DRAM factory upgrade for the Cisco 180X
MEM181X-128U256D	128 to 256MB SODIMM DRAM factory upgrade for the Cisco 181X
MEM180X-128D=	128MB SODIMM DRAM for the Cisco 1841
MEM181X-128D=	128MB SODIMM DRAM for the Cisco 181X

**Cisco 1800 (Fixed) Series PoE Options**

P0E-180X	802.3af PoE Module, 80W Power Supply and Cable
P0E-181X	802.3af PoE Module, 80W Power Supply and Cable
P0E-180X=	802.3af PoE Module, 80W Power Supply and Cable
P0E-181X=	802.3af PoE Module, 80W Power Supply and Cable

**Cisco 1800 (Fixed) Series Rack Mount Kit**

ACS-1800-RM-19=	19 inch Rack Mount Kit for Cisco 180X / 181X
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**Cisco 1800 (fixed & mod)-802.11 a/g Antennae Options-Spares**

AIR-ANTM2050D-R=	2.2dBi/2.4Ghz,5.0dBi/5GHz DualBand Dipole Antenna
AIR-ANTM4050V-R=	4.0dBi/2.4Ghz,5.0 dBi/5GHz Dual Band Ceiling Mount Antenna
AIR-ANTM5560P-R=	5.5 dBi/2.4Ghz,6.0 dBi/5GHz Dual Band Wall Mount Antenna

1. This is only a small subset of all parts available via URL listed under "For More Information." Some parts have restricted access or are not available through distribution channels. Resellers: For latest part number and pricing info, see the *Distribution Product Reference Guide* at: <http://www.cisco.com/dprg> (limited country availability).

**For More Information**

See the Cisco 1800 Series Website: <http://www.cisco.com/go/ISR>

**Cisco 1700 Series**

The Cisco 1700 series modular and fixed configuration access routers are designed to provide a cost-effective integrated access platform for small and medium-sized businesses and enterprise small branch offices. The Cisco 1701 ADSL Security Access router provides reliable, secure broadband access via ADSL with ISDN Basic Rate Interface (BRI) backup. Cisco 1711 and 1712 security access routers work with existing broadband modems to provide advanced routing and security functionality. Cisco 1721 modular access routers provide flexible, high-performance data access. Cisco 1751 and Cisco 1760 modular access routers are optimized for voice and data traffic.





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**When to Sell****Sell This Product****When a Customer Needs These Features****Cisco 1701**

- Built-in ADSL over POTS interface
- High reliability via ISDN BRI backup WAN interface
- Advanced security features including IP Security (IPSec) 3DES for VPNs, as well as stateful inspection firewall and Cisco IPS for network protection

**Cisco 1711/1712**

- Advanced routing and security functionality in one device when connecting to the Internet using a broadband modem
- Hardware-assisted high speed 3DES VPN encryption
- Back-up interface is need for highly reliable apps
- VLAN Configuration is necessary or fixed configuration is sufficient

**Cisco 1721**

- Secure data-only access solution that adapts to customers' evolving network requirements
- Support for data applications including VPNs and broadband access services
- A broad array of WAN services supported, including Frame Relay, leased line, ADSL, G.SHDSL, ISDN BRI, X.25, SMDS and more
- IPSec 3DES VPN encryption at full T1/E1 speeds
- IEEE 802.1Q VLAN Support
- Modularity is required

**Cisco 1751**

- All the above, plus:
- Analog and digital voice support in a desk-top form factor
  - 3 modular slots for WAN and Voice interface cards

**Cisco 1760**

- All the above, plus:
- 19" rackmount form factor; 4 slots with 2 WIC/VWIC/VIC and 2 VWIC/VIC (voice only) slots
  - Multiservice analog and digital voice support
  - Highest performance multi-service router in the Cisco 1700 family
  - Higher density analog and digital voice support than Cisco 1751

**Key Features**

- Support for up to 4 serial interfaces or 2 ISDN BRI; 1 autosensing 10/100 Mbps Fast Ethernet LAN connection; 1 AUX port for dial-up management or low-speed asynchronous connections (up to 112.5 kbps)
- Flexibility—Cisco 1700 Series supports a diverse set of WAN and Voice Interface Cards that are shared with the 2600, 2800, 3700, and 3800 series routers enabling field upgradeability
- Integrated Device—Cisco 1700 series combines WAN routing, VPN and multiservice access in a single device
- Expansion Slot—optional hardware VPN module for wire-speed IPSec 3DES encryption and can enable future technologies (standard on Cisco 1710, 1711, and 1712)
- Integrated Security—Supports context-based access control for dynamic firewall filtering, denial-of-service detection and prevention, Java blocking, real-time alerts, IPS, and encryption.
- IEEE 802.1Q VLAN Support
- 1751 and 1760—Cisco IOS-based routers deliver multiservice data/voice/video/fax integration

# Specifications

Feature	Cisco 1701	Cisco 1711/1712	Cisco 1721	Cisco 1751/1751-V	Cisco 1760/1760-V
<b>Fixed LAN Ports (connections)</b>	1-port autosensing 10/100 Mbps Ethernet	4-port 10/100 Mbps switch, 1-port autosensing 10/100 Mbps Ethernet	1-port autosensing 10/100 Mbps Ethernet	1-port autosensing 10/100 Mbps Ethernet	1-port autosensing 10/100 Mbps Ethernet
<b>Fixed WAN Ports</b>	1 ADSL over POTS 1 ISDN BRI	1-port analog modem (1711), 1-port ISDN S/T interface (1712)	None	None	None
<b>Modular Slots</b>	None	None	2 WAN slots	3 slots (2 WAN or Voice slots and 1 Voice-only slot)	4 Slots (2 WAN or Voice slots and 2 Voice-only slots)
<b>WIC Modules</b>	None	None	See Part Numbers	See Part Numbers	See Part Numbers
<b>VIC Modules</b>	None	None	None	See Part Numbers	See Part Numbers
<b>Flash Memory</b>	32 MB Flash (default/max)	32 MB Flash (default/max)	32 MB (default); 32 MB (max)	1751 base model: 32 MB (default); 32 MB (max) 1751-V multiservice ready configuration: 32 MB (default); 32 MB (max)	1760 base model: 32-MB Flash Memory (on board) 64-MB (max) 1760-V: 32-MB Flash 64-MB (max)
<b>DRAM Memory</b>	96 MB (default); 128 MB (max)	96 MB	64 MB (default); 128 MB (max)	1751 base model: 64 MB (default); 128 MB (max) 1751-V multiservice-ready configuration: 96 MB (default); 128 MB (max)	1760 base model: 64 MB (default) 128 MB (max) 1760-V: 96 MB (default) 128 MB (max)
<b>Dimensions (H x W x D)</b>	3.1 x 11.2 x 8.7 in.	3.1 x 11.2 x 8.7 in.	3.1 x 11.2 x 8.7 in.	4.0 x 11.2 x 8.7 in.	1.7 x 17.5 x 12.8 in.

## Selected Part Numbers and Ordering Information<sup>1</sup>

### Cisco 1700 Series Modular Access Routers

CISCO1760	10/100 Modular Router w/ 4 slots, 19-in Chassis, 32F/64D
CISCO1760-ADSL	1760 bundle, w/ADSL POTS WIC, IP/ADSL, 32MB FL/64MB DR
CISCO1760-SHDSL	1760 bundle, w/WIC-1SHDSL, IP/ADSL, 32MB FL/64MB DR
CISCO1760-VPN/K9	1760 VPN Bndl w/VPN Mod, 96MB DRAM, 32MB Flash, IP Plus/FW/3DES
CISCO1760-VPN/K9-A	1760 VPN Bnd w/ADSL WIC, VPN Mod, 96MB DR, 32MB FL, IP+/FW/3DES
CISCO1760-V	10/100 Modular Router w/Voice, 19-in Chassis, 32MB FL/96MB DR
CISCO1760-V-SRST	Cisco 1760-V with 24-user SRST Feature License, 32F/128D
CISCO1760-V3PN/K9	V3PN Bndl w/1760-V/128MB DR/32MB FL/VPN Module/4-Ch DSP
CISCO1751	10/100 Modular Router w/ 3 slots, IOS IP, 32F/64D
CISCO1751-V	10/100 Modular Router w/Voice, 32F/96D
CISCO1751-VPN/K9	1751 VPN Bndl w/VPN Mod, 96MB DRAM, 32MB Flash, IP Plus/FW/3DES
CISCO1751-VPN/K9-A	1751 VPN Bnd w/ADSL WIC, VPN Mod, 96MB DR, 32MB FL, IP+/FW/3DES
CISCO1721	10/100BaseT Modular Router w/2 WAN slots, 16M Flash/32M DRAM
CISCO1721-ADSL	1721 bundle, w/ADSLoPOTS WIC, IP/ADSL, 32MB FL/64MB DR
CISCO1721-ADSLI	1721 bundle w/ADSLoISDN WIC, IP/ADSL, 32MB FL/64MB DR
CISCO1721-ADSL-DG	1721 bundle w/WIC-1ADSL-DG, IP/ADSL, 32MB FL/64MB DR
CISCO1721-VPN/K9	1721 VPN Bndl w/VPN Mod, 96MB DRAM, 32MB Flash, IP Plus/FW/3DES
CISCO1721-VPN/K9-A	1721 VPN Bnd w/ADSL WIC, VPN Mod, 96MB DR, 32MB FL, IP+/FW/3DES
CISCO1721-SHDSL	1721 bundle, w/WIC-1SHDSL, IP/ADSL, 32MB FL/64MB DR
CISCO1721-SHDSL-V2	1721 bundle w/WIC-1SHDSL-V2, IP/ADSL, 32MB FL/ 64MB DRAM
CISCO1711-VPN/K9	1711 Security Router w/VPN Mod, 32MB Flash, 64MB DRAM
CISCO1712-VPN/K9	1712 Security Router w/VPN Mod, 32MB Flash, 64MB DRAM
CISCO1701-K9	ADSLoPOTS Router w/ISDN-BRI-S/T, K9 Image, 32MB FI, 96MB DR

### Cisco 1700 Series Memory Options

MEM-1700-4MFC=	Cisco 1700 Series, 4 MB Mini-Flash Card
MEM-1700-8MFC=	Cisco 1700 Series, 8 MB Mini-Flash Card
MEM-1700-16D=	Cisco 1700 Series, 16 MB DRAM DIMM
MEM-1700-32D=	Cisco 1700 Series, 32 MB DRAM DIMM
MEM-1700-64D=	Cisco 1700 Series, 64 MB DRAM DIMM

**Cisco 1700 Series WAN Interface Cards (WICs)**

WIC-1T	1-port Serial WAN Interface Card
WIC-2T	2-port Serial WAN Interface Card
WIC-2A/S	2-port Async/Sync Serial WAN Interface Card
WIC-1B-S/T	1-port BRI (S/T) WAN Interface Card (dial and leased line)
WIC-1B-U-V2	1-Port ISDN BRI NT-1 WIC for 1700, 2600, 3600 and 3700 series
WIC-1DSU-56K4	1-port 4-Wire 56/64 Kbps w/ (DSU/CSU) WAN Interface Card
WIC-1DSU-T1-V2	1-Port T1/Fractional T1 DSU/CSU WAN Interface Card: Ver. 2
WIC-1ADSL	1-port ADSL WAN Interface Card
WIC-1ADSL-I-DG	1-port ADSLoISDN Wan Interface Card
WIC-1ADSL-DG	1-port ADSLoPOTS WIC w/Dying Gasp
WIC-1SHDSL	1-port G.SHDSL WAN Interface Card
WIC-1SHDSL-V2	1-Port G.SHDSL WIC with Four Wire Support
WIC-1ENET	1-port Ethernet Interface Card
WIC-4ESW	4-port Ethernet Switch WIC
WIC-1AM	1-port Analog Modem WAN Interface Card
WIC-2AM	2-port Analog Modem WAN Interface Card

**Cisco 1751/1760 Voice Interface Cards**

VIC-2FXS	2-port Voice Interface Card FXS
VIC-4FXS	4-port Voice Interface Card FXS
VIC-2FXO	2-port Voice Interface Card FXO
VIC-2E/M	2-port Voice Interface Card E&M
VIC-2FXO-EU	2-port Voice Interface Card FXO for Europe
VIC-2FXO-M	32-port Voice Interface Card FXO for Australia
VIC-2BRI-NT/TE	2-port Voice Interface Card-BRI (NT & TE)
VIC-2FXO-M1	2-port FXO for U.S. with battery reversal
VIC-2FXO-M2	2-port FXO for Europe with battery reversal
VIC-2DID	2-port FXO analog DID
VIC2-2FXS	Two-port Voice Interface Card - FXS
VIC2-2FXO	Two-port Voice Interface Card - FXO (Universal)
VIC2-4FXO	Four-port Voice Interface Card - FXO (Universal)
VIC2-2E/M	Two-port Voice Interface Card - EandM
VIC2-2BRI-NT/TE	Two-port Voice Interface Card - BRI (NT and TE)

**Cisco 1700 Multiflex Voice / WAN interface Cards**

VWIC-1MFT-E1	1-Port RJ-48 Multiflex Trunk - E1
VWIC-1MFT-G703	1-Port RJ-48 Multiflex Trunk - G.703
VWIC-2MFT-E1	2-Port RJ-48 Multiflex Trunk - E1
VWIC-2MFT-E1-DI	2-Port RJ-48 Multiflex Trunk - E1 With Drop and Insert
VWIC-2MFT-G703	2-Port RJ-48 Multiflex Trunk - G.703
VWIC-1MFT-T1	1-Port RJ-48 Multiflex Trunk - T1
VWIC-2MFT-T1-DI	2-Port RJ-48 Multiflex Trunk - T1 With Drop and Insert
VWIC-2MFT-T1	2-Port RJ-48 Multiflex Trunk - T1

**Cisco 1700 Module Options**

MOD1700-VPN	Cisco 1700 Series VPN Module
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**Cisco 1700 Spares and Accessories**

PWR-1700-WW1=	Cisco 1700 AC Power Supply-worldwide
PVDM-256K-4=	4-Channel Packet Voice/Fax DSP Module
PVDM-256K-8=	8-Channel Packet Voice/Fax DSP Module
PVDM-256K-12=	12-Channel packet Voice/Fax DSP Module
PVDM-256K-16HD=	16-Channel Packet Voice/Fax DSP Module for 1700
PVDM-256K-20HD=	20-Channel Packet Voice/Fax DSP Module for 1700

**Cisco 1700 Series Basic Maintenance**

CON-OSP-1721	24x7x4 Onsite Svc, 10/100BaseT Modular Router w/2 WAN slots
CON-OSP-1751	24x7x4 Onsite Svc, 10/100 Modular Router (1751)
CON-OSP-1760	24x7x4 Onsite Svc, 10/100 Modular Router w/ 2WIC/VIC,2VIC

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**For More Information**

See the Cisco 1700 Series Website: <http://www.cisco.com/go/1700>

## Cisco 2800 Series



The Cisco 2800 Series Integrated Services Routers offers performance improvements, increased security and voice performance, new embedded service options, and increased slot performance and density. It maintains support for most existing interface cards and modules available for the Cisco 1700 Series and Cisco 2600 Series routers. Comprised of four platforms: the Cisco 2801, the Cisco 2811, the Cisco 2821, and the Cisco 2851 router, the Cisco 2800 Series features the ability to deliver multiple high-quality simultaneous services at wire speed at up to multiple T1/E1/xDSL connections.

### When to Sell

#### Sell This Product

##### Cisco 2800

#### When a Customer Needs These Features

- Performance and densities for concurrent data, security, voice, and advanced services up to multiple T1/E1/xDSL connections
- VPN connections, or plan to migrate to them over time
- Integrated security services which enable network device protection, threat defense, secure connectivity, and endpoint protection and control
- Secure integrated call processing, voice mail, flexible telephony interfaces, redundancy for centralized call processing, or robust DSP support, including local conferencing and transcoding
- Wireless support via integrated IEEE 802.11 a/b/g access point HWICs
- Integrated Layer 2 switching capability in densities from 4 port to 48 port and the ability to utilize Cisco StackWise connectivity.

### Key Features

- Modular architecture—A wide variety of LAN and WAN options are available. Network interfaces can be upgraded in the field to accommodate future technologies; Several types of slots are available to add connectivity and services in the future on an “integrate-as-you-grow” basis
- Embedded security hardware acceleration—embedded hardware cryptography accelerators, which when combined with an optional Cisco IOS Software upgrade help enable WAN link security and VPN services
- Integrated dual Fast Ethernet or Gigabit Ethernet ports—Provides two 10/100 Ethernet ports on the Cisco 2801 and Cisco 2811 and two 10/100/1000 Ethernet ports on the Cisco 2821 and Cisco 2851
- HWIC slots with enhanced functions including wireless LAN access points; Dual AIM slots; Packet voice DSP module (PVDm) slots on motherboard
- IP Telephony solutions enable an all-in-one VoIP solution with Cisco Call Manager Express, telephony interfaces, and Cisco Unity Express for voice mail and auto-attendant functions
- On board hardware-based encryption for DES, 3DES, AES, and onboard slots for PVDmS, and they all include high-speed Ethernet interfaces
- Support for an optional dedicated security AIM
- EzVPN eases administration and management of point-to-point VPNs by pushing new security policies from a single headend to remote sites
- DSP modules deliver support for analog and digital voice, conferencing, transcoding, and secure Real-Time Transport Protocol (RTP) applications
- Network Admission Control (NAC)—A Cisco Self-Defending Network initiative seeks to dramatically improve the ability of networks to identify, prevent, and adapt to threats by allowing network access only to compliant and trusted endpoint devices
- Optional integrated power supply for distribution of PoE
- Real-time clock support

## Competitive Products

- Juniper: J Series
- 3Com: SuperStack II NETbuilder SI and Pathbuilder S400, 5000 & 6000 Series
- Intel/Shiva: LanRover Family
- Motorola: Vanguard 645x/643x
- Nortel/Bay: Advanced Remote Node (ARN), Passport 4400 series
- Tasman: 2004, 1400
- Huawei: AR2800

## Specifications

Feature	Cisco 2801	Cisco 2811	Cisco 2821	Cisco 2851
<b>Fixed USB 1.1 ports</b>	1	2	Same As Cisco 2811	Same As Cisco 2811
<b>Onboard LAN ports</b>	2 - 10/100	Same As Cisco 2801	2 - 10/100/1000	Same As Cisco 2821
<b>Onboard AIM (internal) slot</b>	2	Same As Cisco 2801	Same As Cisco 2801	Same As Cisco 2801
<b>Interface card slots</b>	4 slots; 2 slots support HWIC, WIC, VIC, or VWIC type modules 1 slot supports WIC, VIC, or VWIC type modules 1 slot supports VIC or VWIC type modules	4 slots, each slot can support HWIC, WIC, VIC, or VWIC type modules	Same As Cisco 2811	Same As Cisco 2811
<b>Network-module slot</b>	No	1 slot, supports NM and NME type modules	1 slot, supports NM, NME and NME-X type modules	1 slot, supports NM, NME, NME-X, and NME-XD type modules
<b>Extension Voice Module Slot</b>	0	Same As Cisco 2801	1	Same As Cisco 2821
<b>PVDM (DSP) slots on motherboard</b>	2	Same As Cisco 2801	3	Same As Cisco 2821
<b>Integrated hardware-based encryption</b>	Yes	Same As Cisco 2801	Same As Cisco 2801	Same As Cisco 2801
<b>Optional PoE</b>	Yes, requires AC-IP system power supply	Same As Cisco 2801	Same As Cisco 2801	Same As Cisco 2801
<b>Console port (up to 115.2 kbps)</b>	1	Same As Cisco 2801	Same As Cisco 2801	Same As Cisco 2801
<b>Auxiliary port (up to 115.2 kbps)</b>	1	Same As Cisco 2801	Same As Cisco 2801	Same As Cisco 2801
<b>Minimum Cisco IOS Software release</b>	12.3(8)T4	Same As Cisco 2801	Same As Cisco 2801	Same As Cisco 2801
<b>Rack mounting</b>	Yes, 19-inch	Yes, 19- and 23-in. options	Same As Cisco 2811	Same As Cisco 2811
<b>Wall mounting</b>	No	Yes	Same As Cisco 2801	Same As Cisco 2801
<b>AC input voltage</b>	100 to 240 VAC, autoranging	Same As Cisco 2801	Same As Cisco 2801	Same As Cisco 2801
<b>AC input frequency</b>	47-63 Hz	Same As Cisco 2801	Same As Cisco 2801	Same As Cisco 2801
<b>AC input current</b>	2A (110V); 1A (230V)	Same As Cisco 2801	3A (110V); 2A (230V)	Same As Cisco 2821
<b>AC input surge current</b>	*50A maximum, one cycle (-48V power included)	Same As Cisco 2801	Same As Cisco 2801	Same As Cisco 2801
<b>AC-IP max in-line power distribution</b>	120W	160W	240W	360W
<b>AC-IP input current</b>	4A (110V); 2A (230V)	Same As Cisco 2801	8A (110V); 4A (230V)	Same As Cisco 2821
<b>AC-IP input surge current</b>	50A maximum, one cycle (-48V power included)	Same As Cisco 2801	Same As Cisco 2801	Same As Cisco 2801
<b>DC input voltage</b>	No DC Power Option available	24 to 60 VDC, autoranging positive or negative	Same As Cisco 2811	Same As Cisco 2811
<b>DC input current</b>	No DC Power Option available	8A (24V) 3A (60V) Startup current 5A<10 ms	12A (24V) 5A (60V) Startup current 50A<10 ms	Same As Cisco 2821
<b>Power dissipation—AC 150W (511 BTU/hr) without PoE support</b>		170W (580 BTU/hr)	280W (955 BTU/hr)	Same As Cisco 2821
<b>Power dissipation—AC 180W (612 BTU/hr) with PoE-IP phones</b>		160W (546 BTU/hr)	240W (819 BTU/hr)	Same As Cisco 2821
<b>Power dissipation—DC</b>	Not applicable	180W (614 BTU/hr)	300W (1024 BTU/hr)	Same As Cisco 2821
<b>Redundant Power Support (RPS)</b>	No	External only, connector for RPS provided by default	Same As Cisco 2811	Same As Cisco 2811
<b>Recommended RPS unit</b>	No RPS option	Cisco RPS-675 Redundant Power System	Same As Cisco 2811	Same As Cisco 2811

Feature	Cisco 2801	Cisco 2811	Cisco 2821	Cisco 2851
Operating temp	32 to 104°F; (0 to 40°C)	Same As Cisco 2801	Same As Cisco 2801	Same As Cisco 2801
Operating humidity	10 to 85% noncondensing	5 to 95%, noncondensing	Same As Cisco 2811	Same As Cisco 2811
Nonoperating temp	N/A	–4 to 149°F (–20 to 65°C)	Same As Cisco 2811	Same As Cisco 2811
Dimensions (H x W x D)	1.72 x 17.5 x 16.5 in. (43.7 x 44.5 x 41.9 mm)	1.75 x 17.25 x 16.4 in. (44.5 x 438.2 x 416.6 mm)	3.5 x 17.25 x 16.4 in. (88.9 x 438.2 x 416.6 mm)	Same As Cisco 2821
Rack height	1 rack unit (1RU)	1 rack unit (1RU)	2RU	Same As Cisco 2821
Weight (configured)	13.7 lb (6.2 kg)	14 lb (6.4 kg)	25 lb (11.4 kg)	Same As Cisco 2821
Noise level (min/max)	39 dBA for normal operating temperature (<90°F/32.2°C) 53.5 dBA (@ maximum fan speed)	47 dBA for normal operating temperature (<90°F/32.2°C) 57 dBA (@ maximum fan speed)	44 dBA for normal operating temperature (<90°F/32.2°C) 53 dBA (@ maximum fan speed)	Same As Cisco 2821
Safety	UL 60950 CAN/CSA C22.2 No. 60950 IEC 60950 EN 60950-1 AS/NZS 60950	Same As Cisco 2801	Same As Cisco 2801	Same As Cisco 2801
Immunity	EN300386 EN55024/CISPR24 EN50082-1 EN61000-6-2	Same As Cisco 2801	Same As Cisco 2801	Same As Cisco 2801
EMC	FCC Part 15; ICES-003 Class A; EN55022 Class A; CISPR22 Class A; AS/NZS 3548 Class A; VCCI Class A EN 300386; EN61000-3-3; EN61000-3-2	Same As Cisco 2801	Same As Cisco 2801	Same As Cisco 2801
TELCOM	Telecom compliance standards depend upon country and interface type. Interfaces comply with FCC Part 68, CS-03, JATE Technical Conditions, European Directive 99/5/EC and relevant TBRs. See the datasheet for the specific interface card.	Same As Cisco 2801	Same As Cisco 2801	Same As Cisco 2801

## Selected Part Numbers and Ordering Information<sup>1</sup>

### Cisco 2800 Series Router

CISCO2801	Integrated services router with AC power, 2FE, 4 Interface Card Slots, 2 PVDM slots, 2 AIMs, and Cisco IOS IP Base Software
CISCO2801-AC-IP	Integrated services router with AC power including Inline power distribution capability, 2FE, 4 Interface Card Slots, 2 PVDM slots, 2 AIMs, and Cisco IOS IP Base Software
CISCO2811	Integrated services router with AC power, 2FE, 1 NME, 4 HWICs, 2 PVDM slots, 2 AIMs, and Cisco IOS IP Base Software
CISCO2811-AC-IP	Integrated services router with AC power including Inline power distribution capability, 2FE, 1 NME, 4 HWICs, 2 PVDM slots, 2 AIMs, and Cisco IOS IP Base Software
CISCO2811-DC	Integrated services router with DC power, 2FE, 1 NME, 4 HWICs, 2 PVDM slots, 2 AIMs, and Cisco IOS IP Base Software
CISCO2821	Integrated services router with AC power, 2GE, 1 NME-X, 1 EVM, 4 HWICs, 2 PVDM slots, 2 AIMs, and Cisco IOS IP Base Software
CISCO2821-AC-IP	Integrated services router with AC power including inline power distribution capability, 2GE, 1 NME-X, 1 EVM, 4 HWICs, 3 PVDM slots, 2 AIMs, and Cisco IOS IP Base Software
CISCO2821-DC	Integrated services router with DC power, 2GE, 1 NME-X, 1 EVM, 4 HWICs, 3 PVDM slots, 2 AIMs, and Cisco IOS IP Base Software
CISCO2851	Dual Gigabit Ethernet integrated services router with AC power, 2GE, 1 NME-XD, 1 EVM, 4 HWICs, 3 PVDM slots, 2 AIMs, and Cisco IOS IP Base Software
CISCO2851-AC-IP	Integrated services router with AC power including inline power distribution capability, 2GE, 1 NME-XD, 1 EVM, 4 HWICs, 3 PVDM slots, 2 AIMs, and Cisco IOS IP Base Software
CISCO2851-DC	Integrated services router with DC power, 2GE, 1 NME-XD, 1 EVM, 4 HWICs, 3 PVDM slots, 2 AIMs, and Cisco IOS IP Base Software

**Ethernet Switching Network Modules**

NME-16ES-1G-P=	EtherSwitch Service Mod 16 10/100T POE + 1 GE,IP Base
NME-X-23ES-1G-P=	EtherSwitch Service Mod 23 10/100T POE + 1 GE POE, IP Base
NM-16ESW	16-port 10/100 Cisco EtherSwitchÆ Network Module
NM-16ESW-1GIG	16-port 10/100 Cisco EtherSwitch Network Module with 1 Gigabit Ethernet (1000BASE-T) port
NM-16ESW-PWR	16-port 10/100 Cisco EtherSwitch Network Module with in-line power support
NM-16ESW-PWR-1GIG	16-port 10/100 Cisco EtherSwitch Network Module with in-line power and Gigabit Ethernet
NMD-36ESW	36-port 10/100 Cisco EtherSwitch High-Density Services Module (HDSM)
NMD-36ESW-2GIG	36-port 10/100 Cisco EtherSwitch HDSM with 1 Gigabit Ethernet (1000BASE-T) port
NMD-36ESW-PWR	36-port 10/100 Cisco EtherSwitch HDSM with in-line power support
NMD-36ESW-PWR-2G	36-port 10/100 Cisco EtherSwitch HDSM with in-line power and Gigabit Ethernet
NME-XD-24ES-1S-P	24 10/100 w/ POE + 1 SFP + Stackwise interfaces
NME-XD-48ES-2S-P	48 10/100 w/ POE + 2 SFP

**Serial Connectivity Network Modules**

NM-1T3/E3	1-port clear-channel T3/E3 network module
NM-1HSSI	1-port High-Speed Serial Interface (HSSI) network module
NM-4A/S	4-port asynchronous/synchronous serial network module
NM-8A/S	8-port asynchronous/synchronous serial network module
NM-16A/S	16-port asynchronous/synchronous serial network module
NM-16A	16-port asynchronous serial network module
NM-32A	32-port asynchronous serial network module

**Channelized T1/E1 and ISDN Network Modules**

NM-1CE1T1-PRI	1-port Channelized E1/T1/ISDN PRI network module
NM-2CE1T1-PRI	2-port Channelized E1/T1/ISDN PRI network module
NM-4B-S/T	4-port ISDN BRI network module (S/T interface)
NM-4B-U	4-port ISDN BRI network module with integrated Network Termination 1 (NT1) (U interface)
NM-8B-S/T	8-port ISDN BRI network module (S/T interface)
NM-8B-U	8-port ISDN BRI network module with integrated NT1 (U interface)

**ATM Network Modules**

NM-1A-T3	1-port DS-3 ATM network module
NM-1A-E3	1-port E3 ATM network module

**Analog Dialup and Remote Access Network Modules**

NM-8AM-V2	8-port analog modem network module with v.92
NM-16AM-V2	16-port analog modem network module with v.92

**Voice Network Modules and Accessories**

NM-HD-1V	1-slot IP Communications voice and fax network module
NM-HD-2V	2-slot IP Communications voice and fax network module
NM-HD-2VE	2-slot IP Communications enhanced voice and fax network module
NM-HDA-4FXS	High-density analog voice and fax network module with 4 FXS slots
NM-HDV2	IP Communications high-density voice and fax network module
NM-HDV2-1T1/E1	1-port T1/E1 IP Communications high-density voice and fax network module
NM-HDV2-2T1/E1	2-port T1/E1 IP Communications high-density voice and fax network module
NM-HDV=	High-density voice and fax network module (single VIC slot)
NM-HDV-1T1-12	1-port 12-channel T1 voice and fax network module
NM-HDV-1T1-24	1-port 24-channel T1 voice and fax network module
NM-HDV-1T1-24E	Single-port 24-enhanced-channel T1 voice and fax network module
NM-HDV-2T1-48	2-port 48-channel T1 voice and fax network module
NM-HDV-1E1-12	1-port 12-channel E1 voice and fax network module
NM-HDV-1E1-30	1-port 30-channel E1 voice and fax network module
NM-HDV-1E1-30E	1-port 30-enhanced-channel E1 voice and fax network module
NM-HDV-2E1-60	2-port 60-channel E1 voice and fax network module
NM-HDV-1J1-30	1-port 30-channel J1 high-density voice network module
NM-HDV-1J1-30E	1-port 30-enhanced-channel J1 high-density voice network module
NM-HDV-FARM-C36	36-port transcoding and conferencing DSP farm
NM-HDV-FARM-C54	54-port transcoding and conferencing DSP farm
NM-HDV-FARM-C90	90-port transcoding and conferencing DSP farm

**Application Network Modules**

NM-CE-BP-40G-K9	Cisco Content Engine Network Module, basic performance, 40-GB IDE hard disk
NM-CE-BP-80G-K9	Cisco Content Engine Network Module, basic performance, 80-GB IDE hard disk
NM-CIDS-K9	Cisco IDS Network Module
NM-CUE	Cisco Unity Express Voice-Mail Network Module
NM-NAM	Cisco 2600, 3660, and 3700 series network analysis module

**Circuit Emulation Service over IP (CESoIP) Network Modules**

NM-CEM-4SER	4-port serial CESoIP network module
NM-CEM-T1E1	4-port T1/E1 CESoIP network module

**Extension Voice Modules**

EVM-HD-8FXS/DID	High-density voice and fax extension module - 8 FXS or DID
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**Ethernet Switching HWICs**

HWIC-4ESW	4-port single-wide 10/100BASE-T Ethernet switch HWIC
HWIC-D-9ESW	9-port double-wide 10/100BASE-T Ethernet switch HWIC
HWIC-4ESW-POE	4-port Ethernet switch HWIC, PoE capable
HWIC-D-9-ESW-POE	9-port Ethernet switch HWIC, PoE capable

**Gigabit Ethernet HWICs**

HWIC-1GE-SFP

**Wireless HWICs and Accessories**

HWIC-AP-G-A	Cisco 802.11 B/G Access Point High Speed Wan Interface Card for the Americas (FCC configuration)
HWIC-AP-G-E	Cisco 802.11 B/G Access Point High Speed Wan Interface Card for Europe (ETSI configuration)
HWIC-AP-G-J	Cisco 802.11 B/G Access Point High Speed Wan Interface Card for Japan (TELEC configuration)
HWIC-AP-AG-A	Cisco 802.11 A/B/G Access Point High Speed Wan Interface Card for the Americas (FCC configuration)
HWIC-AP-AG-E	Cisco 802.11 A/B/G Access Point High Speed Wan Interface Card for Europe (ETSI configuration)
HWIC-AP-AG-J	Cisco 802.11 A/B/G Access Point High Speed Wan Interface Card for Japan (TELEC configuration)
AIR-ANT4941	2.2 dBi Cisco Aironet 2.4 GHz Swivel mount dipole
AIR-ANT5959	2 dBi Cisco Aironet 2.4 GHz Diversity omni-directional ceiling mount patch
AIR-ANT1728	5.2dBi Cisco Aironet 2.4 GHz Omni-directional ceiling mount
AIR-ANTM2050D-R	(2.2 dBi Cisco 2.4 Ghz and 5.0 dBi 5 GHz) Dual band Swivel mount dipole antenna
AIR-ANTM5560P-R	(5.5 dBi Cisco 2.4 Ghz and 6.0 dBi 5 GHz) Dual band Wall-mount patch antenna
AIR-ANTM4050V-R	(4.0 dBi Cisco 2.4 Ghz and 5.0 dBi 5 GHz) Dual band Diversity Ceiling-mount omnidirectional antenna
AIR-CAB020LL-R	20-ft (6m) low-loss cable with RP-TNC connectors
AIR-CAB050LL-R	50-ft (15m) low-loss cable with RP-TNC connectors
AIR-CAB100ULL-R	100 ft (30m) ultra-low-loss cable with RP-TNC connectors
AIR-CAB150ULL-R	150-ft (46m) ultra-low-loss cable with RP-TNC connector

**Serial WICs and HWICs**

HWIC-4T	4-Port Serial HWIC
HWIC-4A/S	4-Port Async/Sync Serial HWIC
HWIC-8A/S-232	8-Port Async/Sync Serial HWIC, EIA-232
HWIC-8A	8-Port Async HWIC
HWIC-16A	16-Port Async HWIC
WIC-1T	1-port high-speed serial WIC
WIC-2T	2-port high-speed serial WIC
WIC-2A/S	2-port asynchronous/synchronous serial WIC

**CSU/DSU WICs**

WIC-1DSU-T1-V2	1-port T1/Fractional-T1 DSU/CSU WIC
WIC-1DSU-56K4	1-port 4-wire 56-/64-kbps CSU/DSU WIC

**ISDN BRI WICs**

WIC-1B-U-V2	1-port ISDN BRI with integrated NT1 (U interface)
WIC-1B-S/T-V3	1-port ISDN BRI with S/T interface

**DSL WAN Interface Cards**

WIC-1ADSL	1-port asymmetric DSL (ADSL) over basic-telephone-service WIC
WIC-1ADSL-DG	1-port ADSL over basic telephone service with dying-gasp WIC
WIC-1ADSL-I-DG	1-port ADSL over ISDN with dying-gasp WIC
WIC-1SHDSL	1-port G.shdsl WIC (two wire only)
WIC-1SHDSL-V2	1-port G.shdsl WIC (two or four wire)

**Analog Modem WICs**

WIC-1AM	1-port analog modem WIC
WIC-2AM	2-port analog modem WIC

**T1, E1, and G.703 Multiflex Trunk Voice Cards and WICs**

VVIC2-1MFT-T1/E1=	1-Port 2nd Gen Multiflex Trunk Voice/WAN Int. Card - T1/E1
VVIC2-2MFT-T1/E1=	2-Port 2nd Gen Multiflex Trunk Voice/WAN Int. Card - T1/E1
VVIC2-1MFT-G703=	1-Port 2nd Gen Multiflex Trunk Voice/WAN Int. Card - G.703
VVIC2-2MFT-G703=	2-Port 2nd Gen Multiflex Trunk Voice/WAN Int. Card - G.703
EC-MFT-32=	32-Channel Multiflex Trunk Dedicated ECAN Module
EC-MFT-64=	64-Channel Multiflex Trunk Dedicated ECAN Module
VVIC-1MFT-T1	1-port RJ-48 multiflex trunk - T1
VVIC-2MFT-T1	2-port RJ-48 multiflex trunk - T1
VVIC-2MFT-T1-DI	2-port RJ-48 multiflex trunk - T1 with drop and insert
VVIC-1MFT-E1	1-port RJ-48 multiflex trunk - E1
VVIC-1MFT-G703	1-port RJ-48 multiflex trunk - G.703
VVIC-2MFT-E1	2-port RJ-48 multiflex trunk - E1
VVIC-2MFT-E1-DI	2-port RJ-48 multiflex trunk - E1 with drop and insert
VVIC-2MFT-G703	2-port RJ-48 multiflex trunk - G.703



### VICs

VIC-2DID	2-port DID voice and fax interface card
VIC-1J1	1-port digital VIC (J1) for Japan
VIC-4FXS/DID	4-port FXS or DID VIC
VIC-2FXS	2-port VIC - FXS
VIC-2FXO	2-port VIC - FXO (universal)
VIC-4FXO	4-port VIC - FXO (universal)
VIC-2E/M	2-port VIC - E&M
VIC-2BRI-NT/TE	2-port VIC card - BRI (NT and TE)

### AIMs

AIM-ATM	High-performance ATM SAR AIM
AIM-ATM-1T1=	High Performance ATM AIM/T1 Bundle AIM-ATM
AIM-ATM-1E1=	High Performance ATM AIM/E1 Bundle AIM-ATM
AIM-ATM-4T1=	AIM-ATM with 2 VWIC-2MFT-T1
AIM-ATM-4E1	AIM-ATM with 2 VWIC-2MFT-E1
AIM-COMPR2-V2	Data-compression AIM
AIM-CUE	Cisco Unity Express Voice-Mail AIM
AIM-VPN/EPII-PLUS	Enhanced-performance DES, 3DES, AES, and compression VPN encryption AIM

### PVDM Support on Motherboard Slots

PVDM2-8	8-channel fax and voice DSP module
PVDM2-16	16-channel fax and voice DSP module
PVDM2-32	32-channel fax and voice DSP module
PVDM2-48	48-channel fax and voice DSP module
PVDM2-64	64-channel fax and voice DSP module

### Voice and Video VPN (V3PN) Bundles

CISCO2851-V3PN/K9	Cisco 2851 V3PN Bundle with IOS Advanced IP Services Image, PVDM2-48, FL-CCME (72/96 <sup>2</sup> users), AIM-VPN/EPII-PLUS, 64 MB Flash/256 MB DRAM
CISCO2821-V3PN/K9	Cisco 2821 V3PN Bundle with IOS Advanced IP Services Image, PVDM2-32, FL-CCME (48 users), AIM-VPN/EPII-PLUS, 64 MB Flash/256 MB DRAM
CISCO2811-V3PN/K9	Cisco 2811 V3PN Bundle with IOS Advanced IP Services Image, PVDM2-16, FL-CCME (36 users), AIM-VPN/EPII-PLUS, 64 MB Flash/256 MB DRAM

### Voice Bundles

CISCO2851-V/K9	Cisco 2851 Voice Bundle with IOS SP Services, PVDM2-48, 64 MB Flash/256 MB DRAM
CISCO2851-CCME/K9	Cisco 2851 Voice Bundle with IOS SP Services, PVDM2-48, FL-CCME (96 users), 64 MB Flash/256 MB DRAM
CISCO2851-SRST/K9	Cisco 2851 Voice Bundle with IOS SP Services, PVDM2-48, FL-SRST (96 users), 64 MB Flash/256 MB DRAM
CISCO2821-V/K9	Cisco 2821 Voice Bundle with IOS SP Services, PVDM2-32, 64 MB Flash/256 MB DRAM
CISCO2821-CCME/K9	Cisco 2821 Voice Bundle with IOS SP Services, PVDM2-32, FL-CCME (48 users), 64 MB Flash/256 MB DRAM
CISCO2821-SRST/K9	Cisco 2821 Voice Bundle with IOS SP Services, PVDM2-32, FL-SRST(48 users), 64 MB Flash/256 MB DRAM
CISCO2811-V/K9	Cisco 2811 Voice Bundle with IOS SP Services, PVDM2-16, 64 MB Flash/256 MB DRAM
CISCO2811-CCME/K9	Cisco 2811 Voice Bundle with IOS SP Services, PVDM2-16, FL-CCME (36 users), 64 MB Flash/256 MB DRAM
CISCO2811-SRST/K9	Cisco 2811 Voice Bundle with IOS SP Services, PVDM2-16, FL-SRST (36 users), 64 MB Flash/256 MB DRAM
CISCO2801-V/K9	Cisco 2801 Voice Bundle with IOS SP Services, PVDM2-8, 64 MB Flash/256 MB DRAM
CISCO2801-CCME/K9	Cisco 2801 Voice Bundle with IOS SP Services, PVDM2-8, FL-CCME (24 users), 64 MB Flash/256 MB DRAM
CISCO2801-SRST/K9	Cisco 2801 Voice Bundle with IOS SP Services, PVDM2-8, FL-SRST (24 users), 64 MB Flash/256 MB DRAM

### Security Bundles

CISCO2851-SEC/K9	Cisco 2851 Security Bundle with IOS Advanced Security, 64 MB Flash/256 MB DRAM
CISCO2851-HSEC/K9	Cisco 2851 Security Bundle with IOS Advanced IP Services AIM-VPN/EPII-PLUS, 64 MB Flash/256 MB DRAM
CISCO2821-SEC/K9	Cisco 2821 Security Bundle with IOS Advanced Security, 64 MB Flash/256 MB DRAM
CISCO2821-HSEC/K9	Cisco 2821 Security Bundle with IOS Advanced IP Services, AIM-VPN/EPII-PLUS, 64 MB Flash/256 MB DRAM
CISCO2811-SEC/K9	Cisco 2811 Security Bundle with IOS Advanced Security, 64 MB Flash/256 MB DRAM
CISCO2811-HSEC/K9	Cisco 2811 Security Bundle with IOS Advanced IP Services, AIM-VPN/EPII-PLUS, 64 MB Flash/256 MB DRAM
CISCO2801-SEC/K9	Cisco 2801 Security Bundle with IOS Advanced Security, 64 MB Flash/256 MB DRAM
CISCO2801-HSEC/K9	Cisco 2801 Security Bundle with IOS Advanced IP Services, AIM-VPN/EPII-PLUS, 64 MB Flash/256 MB DRAM

### Broadband Bundles

CISCO2811-ADSL/K9	Cisco 2811 ADSL Bundle with IOS SP Services, WIC-1ADSL(ADSLoPOTS), 64 MB Flash/256 MB DRAM
CISCO2811-SHDSL/K9	Cisco 2811 SHDSL Bundle with IOS SP Services, WIC-1SHDSL-V2 (2 or 4 Wire), 64 MB Flash/256 MB DRAM
CISCO2801-ADSL/K9	Cisco 2801 ADSL Bundle with IOS SP Services, WIC-1ADSL(ADSLoPOTS), 64 MB Flash/192 MB DRAM
CISCO2801-SHDSL/K9	Cisco 2801 SHDSL Bundle with IOS SP Services, WIC-1SHDSL (2-Wire only), 64 MB Flash/192 MB DRAM

1. This is only a small subset of all parts available via URL listed under "For More Information". Some parts have restricted access or are not available through distribution channels. Resellers: For latest part number and pricing info, see the *Distribution Product Reference Guide* at: <http://www.cisco.com/dprg> (limited country availability).
2. Available with IOS Version 12.3(11)T release

## For More Information

See the Cisco 2800 Series Website: <http://www.cisco.com/go/2800>

## Cisco 2600 Series

The Cisco 2600 series is an award-winning family of modular multiservice access routers, providing flexible LAN and WAN configurations, multiple security options, voice/data integration, and a range of high performance processors.



The Cisco 2600 series family of modular routers include the Cisco 2600XM models, the Cisco 2691 and the Cisco 2612 token ring router. These models deliver extended performance, higher density, enhanced security performance and increased concurrent application support to meet the growing demands of branch offices.

### When to Sell

#### Sell This Product

##### Cisco 2691

#### When a Customer Needs These Features

- Enterprises wanting a higher level of performance for a broad range of concurrent remote office applications, including unparalleled voice/data integration, VPN performance, increased bandwidth to support voice and video applications, and the delivery of Web-based applications.
- High Performance 10/100 Dual Ethernet Router with 3 WIC Slots, 1 NM

##### Cisco 2600XM Series

##### Cisco 2651XM

- Enterprises needing high performance, flexible solutions to branch and remote offices

##### Cisco 2650XM

- High performance Dual 10/100 Modular Router with Cisco IOS IP

##### Cisco 2621XM

- High performance 10/100 Modular Router with Cisco IOS IP

##### Cisco 2620XM

- Mid Performance Dual 10/100 Ethernet Router with Cisco IOS IP

##### Cisco 2611XM

- Mid Performance 10/100 Ethernet Router with Cisco IOS IP

##### Cisco 2610XM

- Dual 10/100 Ethernet Router with Cisco IOS IP

##### Cisco 2612

- 10/100 Ethernet Router with Cisco IOS IP

- One Token Ring port and one Ethernet port for mixed LANs and migrating from Token Ring to Ethernet

### Key Features

- Integration/manageability—Lowers cost of ownership and improves ease of remote management, providing integrated “branch-in-a-box” networking that combines CSU/DSUs, multiplexers, modems, voice/data gateways, ISDN NT1s, firewalls, VPNs, encryption, and compression devices
- Multiservice voice/data networks—Reduces phone/fax costs between offices; using Cisco IOS software QoS features (such as RSVP, WFQ, CAR, and RED), voice/fax traffic is digitized and encapsulated in Frame Relay or IP packets and consolidated with data traffic
- Enterprise/Provider class solution—Meets the requirements of multiservice enterprises and their managed service CPE providers with high reliability features, multiple WAN connections, and the ability to migrate from data- only to TDM voice and data to packetized voice and data infrastructure
- High-density analog/fax network modules provide the ability to directly connect PSTN and legacy telephony equipment to existing Cisco 2600 routers
- An EtherSwitch network module for the Cisco 2600 series with 16 ports of 10/100 Ethernet and one optional 1000BaseT (Gigabit Ethernet) connection, providing a fully integrated L2 switch with the capability to support both Line Power to Cisco IP phones and current Aironet 802.11 wireless base stations (with the addition of an external power supply). This provides a single box solution for branch offices deploying converged IP telephony, extending data, voice and video by delivering IP routing, Ethernet switching, fixed wireless solutions and voice gateway capabilities
- A wide range of VPN optimize the Cisco 2600 Series platforms for VPNs and delivers a rich integrated package of routing, firewall, intrusion-detection, and VPN functions
- Available DSL interfaces offer business-class broadband service with scalable performance, flexibility, and security for branch and regional offices

- Content Networking Integration and Branch-Office Routing with router-integrated content-delivery system that combines intelligent caching, content routing and management with robust branch-office routing, WAN bandwidth for branch IP services such as VoIP

## Competitive Products

- 3Com: SuperStack II NETBuilder SI and Pathbuilder S400
- Intel/Shiva: LanRover Family
- Motorola: Vanguard 645x/643x
- Nortel/Bay: Advanced Remote Node (ARN), Passport 4400 series
- FutureWei/Quidway®: R2630/31 E
- Tasman: 2004, 1400

## Specifications

Feature	2610/11XM	2620/21XM	2650/51XM	2691
<b>Performance<sup>1</sup></b>	Up to 20Kpps	Up to 30Kpps	Up to 40Kpps	Up to 70Kpps
<b>Flash Memory (Default/Max)</b>	32 MB/48 MB	32 MB/48 MB	32 MB/48 MB	32 MB/128 MB (Compact Flash)
<b>System Memory (Default/Max)</b>	128 MB/256 MB	128 MB/256 MB	256 MB/256 MB	256 MB/256 MB
<b>Integrated WIC Slots</b>	2	2	2	3
<b>Onboard AIM Slots</b>	1	1	1	2
<b>Minimum Cisco IOS Release</b>	12.1(14) mainline, 12.2(12) mainline, 12.2(8)T1 or later	12.1(14) mainline, 12.2(12) mainline, 12.2(8)T1 or later	12.1(14) mainline, 12.2(12) mainline, 12.2(8)T1 or later	12.2(8)T1 or later
<b>Onboard LAN Ports</b>	1 to 2 10/100 FE ports	1 to 2 10/100 FE ports	1 to 2 10/100 FE ports	2 10/100 FE ports
<b>Rack Mounting</b>	Yes, 19" and 23" options	Yes, 19" and 23" options	Yes, 19" and 23" options	Yes, 19" and 23" options
<b>Wall Mounting</b>	Yes	Yes	Yes	No

1. IP routing 64 byte packets without services

## Cisco IOS Software<sup>1</sup>

Most Cisco IOS software CD feature packs for the Cisco 2600 series include several selected Cisco IOS releases. Some configurations will require more than the recommended minimum.

### Distribution

Part Number	Feature Pack Description
CD26-AHK9=	Cisco 2600 Ser IOS ENT/FW/IPS PLUS IPSEC 3DES Feature Pack
CD26-APU=	Cisco 2600 Ser IOS ENT PLUS/H323 MCM Feature Pack
CD26-AR1K9=	Cisco 2600 Ser IOS ENT/SNASW PLUS IPSEC 3DES Feature Pack
CD26-AR1P=	Cisco 2600 Ser IOS ENT/SNASW PLUS Feature Pack
CD26-B=	Cisco 2600 Ser IOS IP/IPX/APPLETALK Feature Pack
CD26-BP=	Cisco 2600 Ser IOS IP/IPX/APPLETALK PLUS Feature Pack
CD26-C=	Cisco 2600 Ser IOS IP Feature Pack
CD26-CH=	Cisco 2600 Ser IOS IP/FW/IPS Feature Pack
CD26-CHK9=	Cisco 2600 Ser IOS IP/FW/IPS PLUS IPSEC 3DES Feature Pack
CD26-CP=	Cisco 2600 Ser IOS IP PLUS Feature Pack
CD26AB=	Cisco 2600 Ser IOS ENT BASIC Feature Pack
CD26XM-AESK9=	Cisco 2600XM Ser IOS ADV ENT SERVICES Feature Pack
CD26XM-AHK9=	Cisco 2600XM Ser IOS ENT/FW/IPS PLUS IPSEC 3DES Feature Pack
CD26XM-AISK9=	Cisco 2600XM Ser IOS ADV IP SERVICES Feature Pack
CD26XM-AP=	Cisco 2600XM Ser IOS ENT PLUS Feature Pack
CD26XM-APU=	Cisco 2600XM Ser IOS ENT PLUS/H323 MCM Feature Pack
CD26XM-AR1K9=	Cisco 2600XM Ser IOS ENT/SNASW PLUS IPSEC 3DES Feature Pack
CD26XM-AR1P=	Cisco 2600XM Ser IOS ENT/SNASW PLUS Feature Pack
CD26XM-ASK9=	Cisco 2600XM Ser IOS ADV SECURITY Feature Pack
CD26XM-B=	Cisco 2600XM Ser IOS IP/IPX/APPLETALK Feature Pack
CD26XM-BP=	Cisco 2600XM Ser IOS IP/IPX/APPLETALK PLUS Feature Pack
CD26XM-C=	Cisco 2600XM Ser IOS IP Feature Pack
CD26XM-CH=	Cisco 2600XM Ser IOS IP/FW/IPS Feature Pack
CD26XM-CHK9=	Cisco 2600XM Ser IOS IP/FW/IPS PLUS IPSEC 3DES Feature Pack

Distribution Part Number	Feature Pack Description
CD26XM-CP=	Cisco 2600XM Ser IOS IP PLUS Feature Pack
CD26XM-EB=	Cisco 2600XM Ser IOS ENT BASE Feature Pack
CD26XM-ESK9=	Cisco 2600XM Ser IOS ENT SERVICES Feature Pack
CD26XM-IPB=	Cisco 2600XM Ser IOS IP BASE Feature Pack
CD26XM-IPV=	Cisco 2600XM Ser IOS IP VOICE Feature Pack
CD26XM-SPSK9=	Cisco 2600XM Ser IOS SP SERVICES Feature Pack
CD269-AESK9=	Cisco 2691 Ser IOS ADV ENT SERVICES Feature Pack
CD269-AHK9=	Cisco 2691 Ser IOS ENT/FW/IPS PLUS IPSEC 3DES Feature Pack
CD269-AISK9=	Cisco 2691 Ser IOS ADV IP SERVICES Feature Pack
CD269-AP=	Cisco 2691 Ser IOS ENT PLUS Feature Pack
CD269-APU=	Cisco 2691 Ser IOS ENT PLUS/H323 MCM Feature Pack
CD269-AR1K9=	Cisco 2691 Ser IOS ENT/SNASW PLUS IPSEC 3DES Feature Pack
CD269-AR1P=	Cisco 2691 Ser IOS ENT/SNASW PLUS Feature Pack
CD269-ASK9=	Cisco 2691 Ser IOS ADV SECURITY Feature Pack
CD269-B=	Cisco 2691 Ser IOS IP/IPX/APPLETALK Feature Pack
CD269-BP=	Cisco 2691 Ser IOS IP/IPX/APPLETALK PLUS Feature Pack
CD269-C=	Cisco 2691 Ser IOS IP Feature Pack
CD269-CH=	Cisco 2691 Ser IOS IP/FW/IPS Feature Pack
CD269-CHK9=	Cisco 2691 Ser IOS IP/FW/IPS PLUS IPSEC 3DES Feature Pack
CD269-CP=	Cisco 2691 Ser IOS IP PLUS Feature Pack
CD269-EB=	Cisco 2691 Ser IOS ENT BASE Feature Pack
CD269-ESK9=	Cisco 2691 Ser IOS ENT SERVICES Feature Pack
CD269-IPB=	Cisco 2691 Ser IOS IP BASE Feature Pack
CD269-IPV=	Cisco 2691 Ser IOS IP VOICE Feature Pack
CD269-SPSK9=	Cisco 2691 Ser IOS SP SERVICES Feature Pack

- For the complete list of IOS Feature Sets, refer to the parts list, via the URL listed under "For More Information." For users with CCO access, search by IOS feature or release via the *Feature Navigator* at <http://www.cisco.com/go/fn>

## Selected Part Numbers and Ordering Information<sup>1</sup>

### Cisco 2600/2600XM Series Router Chassis

CISCO2610XM	10/100 Ethernet Router w/ Cisco IOS IP
CISCO2610XM-DC	10/100 Ethernet Router w/ Cisco IOS IP - DC
CISCO2610XM-RPS	10/100 Ethernet Router w/ Cisco IOS IP - use w/ ext RPS
CISCO2610XM-16TS	Cisco 2610XM Terminal Sever Bundle
CISCO2611XM	Dual 10/100 Ethernet Router w/ Cisco IOS IP
CISCO2611XM-DC	Dual 10/100 Ethernet Router w/ Cisco IOS IP - DC
CISCO2611XM-RPS	Dual 10/100 Ethernet Router w/ Cisco IOS IP - use w/ ext RPS
CISCO2611XM-V-CCME	Cisco 2611XM, 36-phone CCME, NM-HD-2V, add FXO VIC
CISCO2620XM	Mid Performance 10/100 Ethernet Router with Cisco IOS IP
CISCO2620XM-DC	Mid Performance 10/100 Ethernet Router w/Cisco IOS IP-DC
CISCO2620XM-RPS	Mid Performance 10/100 Ethernet Rout w/Cisco IOS IP-RPS ADPT
CISCO2621XM	Mid Performance Dual 10/100 Ethernet Router w/Cisco IOS IP
CISCO2621XM-DC	Mid Performance Dual 10/100 Ethernet Rout w/Cisco IOS IP-DC
CISCO2621XM-RPS	Mid Performance Dual 10/100 Ethernet Rout w/IOS IP-RPS ADPT
CISCO2650XM	High Performance 10/100 Modular Router w/Cisco IOS IP
CISCO2650XM-DC	High Performance 10/100 Modular Rout w/Cisco IOS IP-DC NEBs
CISCO2650XM-RPS	High Performance 10/100 Modular Rout w/Cisco IOS IP-RPS ADPT
CISCO2651XM	High Performance Dual 10/100 Modular Rout with Cisco IOS IP
CISCO2651XM-DC	High Performance Dual 10/100 Modular Rout w/IP-DC NEB
CISCO2651XM-RPS	High Performance Dual 10/100 Mod Rout w/IP-RPS ADPT
CISCO2691	High Performance 10/100 Dual Eth Router w/3 WIC Slots, 1 NM
CISCO2691-DC-U	2691 router w/Universal Power Supply 24/48 volts
CISCO2691-RPS	High Performance 10/100 Dual Eth Router w/3 WIC Slots/1 NM-RPS ADPT
CISCO2612	1-port 10BASE-T, 1-port TR, 1 network module slot, 1 AIM slot, 2 WIC slots, IP s/w
CISCO2612-DC	1-port 10BASE-T, 1-port TR, 1 network module slot, 1 AIM slot, 2 WIC slots, DC Power, IP s/w
CISCO2612-RPS	1-port 10BASE-T, 1-port TR, 1 network module slot, 1 AIM slot, 2 WIC slots, RPS adapter, IP s/w

### Cisco 2600 Series Voice Gateway Bundles

CISCO2651XM-V	CISCO2651XM, AIM-VOICE-30, IOS IP Voice, 128D/32F
CISCO2651XM-V-SRST	CISCO2651XM, FL-SRST-MEDIUM, AIM-VOICE-30, IOS IP Voice, 128D/32F
CISCO2651XM-V-CCME	Cisco2651XM, 48 Phone CCME, AIM-ATM-VOICE30, 256D/32F, add VWIC
C2691-V3PN/K9	Cisco 2691 V3PN Bundle, AIM-VPN/EPi-PLUS, AIM-ATM-VOICE-30, adv Cisco IOS IP, 32F, 256D

## Cisco 2600 Series VPN Bundles

CVPN2600FIPS/KIT  
C2651XM-2FE/VPN/K9  
C2621XM-2FE/VPN/K9  
C2611XM-2FE/VPN/K9  
C2691-VPN/K9

KIT (Instructions, labels) to configured 2600 for FIPS  
2651XM/VPN Bundle, AIM-VPN/BPII/2FE/IOS FW/IPSec 3 DES, 128DRAM  
2621XM/VPN Bundle, AIM-VPN/BPII/2FE/IOS FW/IPSec 3 DES, 128DRAM  
2611XM/VPN Bundle, AIM-VPN/BPII/2FE/IOS FW/IPSec 3 DES, 128DRAM  
2691 VPN Bundle, AIM-VPN/EPII, Plus IOS/FW/IPSEC3DES

## Cisco 2600 Series DSL Bundles

CISCO2651XM-ADSL  
CISCO2621XM-ADSL  
CISCO2611XM-ADSL  
CISCO2651XM-SHDSL  
CISCO2621XM-SHDSL  
CISCO2611XM-SHDSL

2651XM-ADSL Bundle, WIC-1ADSL, 2FE, IP Plus, 32F/128DRAM  
2621XM-ADSL Bundle, WIC-1ADSL, 2FE, IP Plus, 32F/128DRAM  
2611XM-ADSL Bundle, WIC-1ADSL, 2FE, IP Plus, 32F/128DRAM  
2651XM-SHDSL Bundle, WIC-1SHDSL, 2FE, IP Plus, 32F/128DRAM  
2621XM-SHDSL Bundle, WIC-1SHDSL, 2FE, IP Plus, 32F/128DRAM  
2611XM-SHDSL Bundle, WIC-1SHDSL, 2FE, IP Plus, 32F/128DRAM

## Cisco 2600 Series LAN Modules

NM-1E  
NM-4E  
NM-1GE  
NM-1FE2W-V2  
NM-2FE2W-V2  
NM-1FE1R2W

1-port 10BASE-T network module  
4-port 10BASE-T network module  
1-port Gigabit Ethernet Network Module (2691 only)  
1 10/100 Ethernet with 2 WAN Card Slot Network Module (2691 only)  
2 10/100 Ethernet with 2 WAN Card Slot Network Module (2691 only)  
1 10/100 Ethernet 1 4/16 Token-Ring 2 WAN Card Slot NM (2691 only)

## Cisco 2600/3600/3700 Series WAN Interface Cards (WICs)

WIC-1B-S/T  
WIC-1B-U-V2=  
WIC-1DSU-56K4  
WIC-1DSU-T1-V2  
WIC-1T  
WIC-2T  
WIC-2A/S  
WIC-1ADSL  
WIC-1ADSL-DG=  
WIC-1ADSL-I-DG=  
WIC-1SHDSL  
WIC-1SHDSL-V2=  
WIC-1AM  
WIC-2AM

1-port BRI (S/T) WAN Interface Card (Dial and Leased Line)  
1-port BRI (U) w/NT-1 WAN Interface Card (Dial and Leased Line)  
1-port Serial W/ 4-Wire 56/64Kbps DSU/CSU WAN Interface Card  
1-port Serial w/ FrT1/T1 DSU/CSU WAN Interface Card  
1-port Serial WAN Interface Card  
2-port Serial WAN Interface Card  
2-port Async/Sync Serial WAN Interface Card  
1-port ADSL over POTS WAN Interface Card  
1-port ADSL over POTS WAN Interface Card with Dying Gasp  
1-port ADSL over ISDN WAN Interface Card with Dying Gasp  
1-port G.SHDSL WAN Interface Card  
1-Port G.SHDSL WIC with Four Wire Support  
1-port Analog Modem WAN Interface Card  
2-port Analog Modem WAN Interface Card

## Cisco 2600/3600/3700 Series Multiflex Voice and WAN Interface Cards

VVIC2-1MFT-T1/E1=  
VVIC2-2MFT-T1/E1=  
VVIC2-1MFT-G703=  
VVIC2-2MFT-G703=  
EC-MFT-32=  
EC-MFT-64=  
VVIC-1MFT-T1  
VVIC-2MFT-T1  
VVIC-2MFT-T1-DI  
VVIC-1MFT-E1  
VVIC-1MFT-G703  
VVIC-2MFT-E1  
VVIC-2MFT-G703  
VVIC-2MFT-E1-DI

1-Port 2nd Gen Multiflex Trunk Voice/WAN Int. Card - T1/E1  
2-Port 2nd Gen Multiflex Trunk Voice/WAN Int. Card - T1/E1  
1-Port 2nd Gen Multiflex Trunk Voice/WAN Int. Card - G.703  
2-Port 2nd Gen Multiflex Trunk Voice/WAN Int. Card - G.703  
32-Channel Multiflex Trunk Dedicated ECAN Module  
64-Channel Multiflex Trunk Dedicated ECAN Module  
1-port RJ-48 Multiflex Trunk-T1  
2-port RJ-48 Multiflex Trunk-T1  
2-port RJ-48 Multiflex Trunk-T1 With Drop and Insert  
1-port RJ-48 Multiflex Trunk-E1  
1-port RJ-48 Multiflex Trunk-G.703  
2-port RJ-48 Multiflex Trunk-E1  
2-port RJ-48 Multiflex Trunk-G.703  
2-port RJ-48 Multiflex Trunk-E1 With Drop and Insert

## Cisco 2600/3600/3700 Series Voice/Fax Network Modules and Expansion Modules

NM-HD-1V=  
NM-HD-2V=  
NM-HD-2VE=  
NM-HDV-FARM-C36=  
NM-HDV-FARM-C54=  
NM-HDV-FARM-C90=  
NM-HDV2=  
NM-HDV2-1T1/E1=  
NM-HDV2-2T1/E1=  
NM-HDV-1T1-24  
NM-HDV-1T1-24E  
NM-HDV-2T1-48  
NM-HDV-1E1-30  
NM-HDV-1E1-30E  
NM-HDV-2E1-60  
NM-HDV  
NM-HDA-4FXS

One-slot IP Communications Voice/Fax Network Module  
Two-slot IP Communications Voice/Fax Network Module  
Two-slot IP Communications Enhanced Voice/Fax Network Module  
Network Module 36 Port DSP Farm Bundle  
Network Module 54 Port DSP Farm Bundle  
Network Module 90 Port DSP Farm Bundle  
IP Communications High-Density Digital Voice/fax Network Module  
IP Communications High-Density Digital Voice/fax Network Module with one Built-in T1/E1 port  
IP Communications High-Density Digital Voice/fax Network Module with two Built-in T1/E1 ports  
1-port T1 24 channel voice/fax network module  
1-port T1 24 enhanced channel voice/fax network module  
2-port T1 48 channel voice/fax network module  
1-port E1 30 channel voice/fax network module  
1-port E1 30 enhanced channel voice/fax network module  
2-port E1 60 channel voice/fax network module  
High density voice network module, spare (no T1/E1 or DSPs)  
High density analog voice/fax network module with 4 FXS

EM-HDA-8FXS	8-port FXS voice/fax expansion module
EM-HDA-4FXO	4-port FXO voice/fax expansion module
DSP-HDA-16	16-channel DSP module for NM-HDA
<b>Cisco 2600/3600/3700 Series ATM Modules</b>	
NM-1A-E3=	1-Port E3 ATM Network Module
NM-1A-T3=	1-Port DS3 ATM Network Module
NM-1ATM-25=	One port ATM 25Mbps network module
<b>Cisco 2600 Series EtherSwitch Modules</b>	
NME-16ES-1G-P=	Sixteen port 10/100 EtherSwitch Service Module with POE capability
NM-16ESW=	Sixteen 10BaseT/100BaseTX autosensing ports EtherSwitch
NM-16ESW-PWR=	Sixteen 10BaseT/100BaseTX autosensing ports EtherSwitch with power daughter card
NM-16ESW-1GIG=	1 16 port 10/100 EtherSwitch NM + 1 Gig Port
NM-16ESW-PWR-1GIG=	1 16 port 10/100 EtherSwitch NM+PWR+1 Gig Port
<b>Cisco 2600 Series Voice Interface Cards (VICs)</b>	
VIC2-2FXS	2-port FXS voice/fax interface card
VIC-4FXS/DID	4-port FXS voice/fax interface card
VIC2-2FXO	2-port FXO voice/fax interface card [universal card for all countries].
VIC2-4FXO	4-port FXO voice/fax interface card [universal card for all countries].
VIC2-2E/M	2-port E&M voice/fax interface card
VIC2-2BRI-NT/TE	2-port BRI voice/fax interface card (configurable for either network or terminal side)
VIC-2DID	2-port DID Voice/Fax Interface Card
VIC-fJ1=	One Port Digital Voice Interface Card (J1) for Japan
<b>Cisco 2600 Series High-Density Voice/Fax DSP Upgrade Modules</b>	
PVDM-12	12-channel Packet Voice/Fax DSP Module
PVDM2-8	8-channel Packet Fax/Voice DSP Module
PVDM2-16	16-channel Packet Fax/Voice DSP Module
PVDM2-32	32-channel Packet Fax/Voice DSP Module
PVDM2-48	48-channel Packet Fax/Voice DSP Module
PVDM2-64	64-channel Packet Fax/Voice DSP Module
<b>Cisco 2600 Series WAN Network Modules</b>	
NM-2W=	WAN Card Slot Network Module(no LAN)
NM-4B-S/T	4-port BRI (S/T) network module
NM-8B-S/T	8-port BRI (S/T) network module
NM-4B-U	4-port BRI (U) w/ NT1 network module
NM-8B-U	8-port BRI (U) w/ NT1 network module
NM-1CE1T1-PRI=	1-Port Channelized E1/T1/ISDN-PRI Network Module
NM-2CE1T1-PRI=	2-Port Channelized E1/T1/ISDN-PRI Network Module
NM-4A/S	4-port Async/Sync Serial network module
NM-8A/S	8-port Async/Sync Serial network module
NM-16A/S=	16-Port Async/Sync Serial Network Module
NM-16A	16-port Async Serial network module
NM-32A	32-port Async Serial network module
NM-1T3/E3=	One port T3/E3 network module (2650, 2651, and 2691 only)
<b>Circuit Emulation over IP Network Modules</b>	
NM-CEM-4TE1=	4 Port T1/E1 Circuit Emulation over IP NM
NM-CEM-4SER=	4 Port Serial Circuit Emulation over IP NM
<b>Cisco 2600/3600/3700 Series Modem Network Modules</b>	
NM-8AM-V2	8-port Analog Modem network module
NM-16AM-V2	16-port Analog Modem network module
<b>CUE Network Module</b>	
NM-CUE	Cisco Unity Express Module
<b>Cisco Content Networking and Intrusion Prevention Service Network Modules</b>	
NM-CE-BP-40G-K9=	Content Engine NM-Basic Perf-40GB
NM-CE-BP-80G-K9=	Content Engine NM-Basic Perf-80GB
NM-CIDS-K9=	Cisco IDS Network Module, 20-GB IDE hard disk
<b>IDS Network Module</b>	
NM-CIDS-K9	Cisco IDS Network Module
<b>Cisco 2600/3600/3700 Series Modem Management Technology Licenses (MMTL)</b>	
MMTL-3600/2600-8	MMTL for 8 Analog Modems

**Cisco 2600 Series Advanced Integration Modules**

AIM-COMPR2-V2	Data Compression AIM for the Cisco 2600/2600XM series
AIM-COMPR4	Data Compression AIM for the Cisco 2691/3660/3700 series
AIM-VPN/BP	DES/3DES VPN Encryption AIM for 2600-Base Performance
AIM-VPN/BPII=	DES/3DES/AES VPN Encryption Module for 2600XM
AIM-VPN/BPII-PLUS=	DES/3DES/AES VPN Encryption/Compression
AIM-VPN/-EP=	DES/3DES VPN Encryption Module for 2600-Enhanced Performance
AIM-VPN/-EPII=	DES/3DES/AES VPN Encryption Module for 2691/3725
AIM-VPN/-EPII-PLUS=	DES/3DES/AES VPN Encryption/Compression
AIM-ATM=	ATM SAR Only AIM
AIM-ATM-1T1	High Performance ATM AIM/T1 Bundle AIM-ATM
AIM-ATM-1E1	High Performance ATM AIM/E1 Bundle AIM-ATM
AIM-ATM-4T1=	AIM-ATM with 2 VWIC-2MFT-T1
AIM-ATM-4E1	AIM-ATM with 2 VWIC-2MFT-E1
AIM-ATM-VOICE-30	30-Channel T1/E1 Digital Voice Module
AIM-VOICE-30	SAR and 30-Channel T1/E1 Digital Voice Module
AIM-CUE=	Unity Express AIM -price includes 12 mailbox

**Cisco 2600 Series Factory Memory Options**

MEM2691-32CF-EXT	32MB External Compact Flash Memory for the 2691
MEM2691-64CF-EXT	64MB External Cisco Flash Memory for the 2691
MEM2691-128CF-EXT	128MB External Cisco Flash Memory for the 2691

**Cisco 2600 Series Factory DRAM Memory Upgrades**

MEM2600XM-128U256D	128 to 256MB DRAM factory upgrade for Cisco 2600XM
MEM2691-128U192D	128 to 192MB DIMM DRAM factory upgrade for the Cisco 2691
MEM2691-128U256D	128 to 256MB DIMM DRAM factory upgrade for the Cisco 2691

**Cisco 2600/2600XM Series Factory Flash Memory Upgrades**

MEM2600-8U16FS	8 to 16 MB Flash Factory Upgrade for the Cisco 2612
MEM2600XM-32U48FS	32 to 48MB Flash Factory Upgrade for the Cisco 2600XM
MEM2691-32U128CF	32 to 128MB Cisco 2691 Compact Flash factory upgrade
MEM2691-32U64CF	32 to 64MB Cisco 2691 Compact Flash factory

**Cisco 2600 Series SMARTnet Maintenance**

CON-SNT-PKG5	Cisco 2600 Series Packaged SMARTnet 8x5xNBD Maintenance
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1. This is only a small subset of all parts available via URL listed under "For More Information". Some parts have restricted access or are not available through distribution channels. Resellers: For latest part number and pricing info, see the *Distribution Product Reference Guide* at: <http://www.cisco.com/dprg> (limited country availability).

**For More Information**

See the Cisco 2600 Series Website: <http://www.cisco.com/go/2600>

**Cisco 3800 Series**

The Cisco 3800 Series is the flagship platform in a portfolio of next-generation routers that integrate advanced technologies, adaptive services, and secure enterprise communications.

These new routers offer the performance and reliable packet delivery necessary to efficiently deliver mission-critical network capabilities, including real-time applications such as VoIP, business video, and collaborative communications. Architectural enhancements include embedded security processing, significant platform performance and memory improvements, and new high-density interface types. These design achievements complement the Cisco IOS Software features and superior investment protection that this platform inherits from the Cisco 3700 Series. The Cisco 3800 Series, comprised of the Cisco 3825 and Cisco 3845, serves as a catalyst for midsize organizations and enterprise branch offices that want to gracefully scale their enterprise edges and take advantage of converged business services, while minimizing the cost and complexity of network upgrades.



# When to Sell

## Sell This Product

### Cisco 3825

## When a Customer Needs These Features

- Medium sized to large branch offices and businesses with the ability to support concurrent data, security, voice, and advanced services at wire speed up to ½ T3/E3 rates
- Two onboard 10/100/1000, 4 HWIC slots and one SFP port
- Low density (up to 18 ports), integrated 10/100 switching with PoE support; up to 48-ports with Cisco Inline Power
- Integrated onboard security acceleration for IPSec for improved IPSec performance and an integral part of Cisco Self Defending Network, which enable network device protection, threat defense, secure connectivity, and endpoint protection and control
- Up to four Integrated PVDMS slots, industry-leading call processing and autoattendant solutions, and high-density voice cards and modules that speed IP Communications and give customers a choice of telephony interface devices

### Cisco 3845

- Same features as above plus:
- Medium sized to large branch offices and businesses providing the highest performance and densities for concurrent data, security, voice, and advanced services with the ability to run at wire-speed up to T3/E3
  - 4 Enhanced Network Module slots
  - Higher availability and resiliency, such as redundant system and inline power, online insertion and removable (OIR) components, and field replaceable components such as the cpu motherboard and fan assembly

## Key Features

- Cisco IOS Software Firewall—Stateful, application-based filtering (context-based access control); Per-user authentication and authorization; Real-time alerts; Transparent firewall; IPv6 firewall
- VPN—Data Encryption Standard (DES), Triple DES (3DES), and Advanced Encryption Standard (AES) 128, 192, and 256 cryptology support; Embedded hardware-based VPN acceleration on the motherboard; Support for optional higher-performance AIM-based security acceleration with Layer 3 compression; Support for up to 1800 tunnels with VPN Module; Cisco Easy VPN remote and server support; DMVPN
- Multiprotocol Label Switching (MPLS) VPN support—Specific provider edge capabilities; Virtual routing and forwarding (VRF) firewall and VRF IPSec
- Onboard USB 1.1 port(s)—Future support for secure token and Flash memory
- IPS—More than 700 IPS signatures supported in Cisco IOS Software, with the ability to load and enable selected IPS signatures; More than 1000 IPS signatures with optional high-performance IDS Network Module
- URL filtering—Onboard with an optional content-engine network module; Local URL filtering in Cisco IOS Software based on external server
- Cisco Router and SDM—Comes standard on all Cisco 3800 Series routers
- IP phone support—Optional integrated power supply with inline power; 802.3af support—360W of inline power
- Analog voice support—Up to 88 FXS and 56 FXO ports; Digital voice support—Up to 720 calls; Packet voice digital signal processor (DSP) module (PVDMS) slots on motherboard—4 PVDMS slots on motherboard; Local conferencing and transcoding;
- Cisco CME—Up to 240 phones; SRST—Up to 720 phones
- Voice mail—Up to a 100 mailboxes using Cisco Unity Express network module
- Voice interfaces—FXS, FXO, Direct Inward Dial (DID), E&M, Centralized Automated Message Accounting (CAMA), BRI, T1, E1, J1, Primary Rate Interface (PRI), Q.SIG, channel associated signaling (CAS)

## Specifications

Feature	Cisco 3825	Cisco 3845
Network Module Slots	2	4
Advanced Integration Module (AIM) Slots	2	Same As Cisco 3825



## Chapter 1

Feature	Cisco 3825	Cisco 3845
High speed WAN Interface Card (HWIC) Slots	4	Same As Cisco 3825
10/100/1000 GE Ports	2	Same As Cisco 3825
Small Form Pluggable (SFP) ports	1	Same As Cisco 3825
Onboard PVDM slots	4	Same As Cisco 3825
WAN Network Modules	Yes	Same As Cisco 3825
ATM AIM Modules	Yes	Same As Cisco 3825
Voice/Fax Network Modules	Yes	Same As Cisco 3825
WAN Interface Card (WIC) Modules	Yes	Same As Cisco 3825
Multiflex Voice/WAN Interface Cards	Yes	Same As Cisco 3825
Voice Interface Card (VIC) Modules	Yes	Same As Cisco 3825
Modem Modules	Yes	Same As Cisco 3825
EtherSwitch Modules	Yes, HWIC and Network Modules	Same As Cisco 3825
Performance with Services	Up to 14 T1/E1s	Up to T3
VPN/Security Advanced Integration Modules (AIM)	Yes, EP11-Plus	Yes, HP11-Plus
Content Engine Network Modules	Yes	Same As Cisco 3825
Flash Memory (External)	64 MB (default) -256 MB (optional)	Same As Cisco 3825
DRAM Memory	256 MB (default) 1024 MB (max)	Same As Cisco 3825 Same As Cisco 3825
Power Supply	AC, AC +POE, DC, external redundant ACAC, DC, internal redundant AC + POE	
Dimensions (H x W x D)	3.5 x 17.1 x 14.7 in.	5.25 x 17.25 x 16 in.

## Selected Part Numbers and Ordering Information<sup>1</sup>

### Cisco 3800 Series Integrated Services Routers

CISCO3825	Cisco 3825 Integrated Services Router with 2 Gigabit Ethernet, 1 SFP, 2 NME, 4 HWIC, 2 AIM, Cisco IOS IP Base software, and AC power
CISCO3825-AC-IP	Cisco 3825 Integrated Services Router with 2 Gigabit Ethernet, 1 SFP, 2 NME, 4 HWIC, 2 AIM, Cisco IOS IP Base software, AC Power, and PoE
CISCO3825-DC	Cisco 3825 Integrated Services Router with 2 Gigabit Ethernet, 1 SFP, 2 NME, 4 HWIC, 2 AIM, Cisco IOS IP Base software, and DC power
CISCO3845	Cisco 3845 Integrated Services Router with 2 Gigabit Ethernet, 1 SFP, 4 NME, 4 HWIC, 2 AIM, Cisco IOS IP Base software, and AC power
CISCO3845-AC-IP	Cisco 3845 Integrated Services Router with 2 Gigabit Ethernet, 1 SFP, 4 NME, 4 HWIC, 2 AIM, Cisco IOS IP Base software, AC Power, and PoE

### Cisco 3800 Series Voice and Security Bundles

CISCO3845-V3PN/K9	Cisco 3845 V3PN Bundle with IOS Advanced IP Services, PVDM2-64, AIM-VPN/HP11-PLUS, FL-CCME (240 users), 64 MB Flash/256 MB DRAM
CISCO3825-V3PN/K9	Cisco 3825 V3PN Bundle with IOS Advanced IP Services, PVDM2-64, AIM-VPN/EP11-PLUS, FL-CCME (168 users), 64 MB Flash/256 MB DRAM
CISCO3845-V/K9	Cisco 3845 Voice Bundle with IOS SP Services, PVDM2-64, 64 MB Flash/256 MB DRAM
CISCO3845-SRST/K9	Cisco 3845 Voice Bundle with IOS SP Services, PVDM2-64, FL-SRST (240 users), 64 MB Flash/256 MB DRAM
CISCO3845-CCME/K9	Cisco 3845 Voice Bundle with IOS SP Services, PVDM2-64, FL-CCME (240 users), 64 MB Flash/256 MB DRAM
CISCO3825-V/K9	Cisco 3825 Voice Bundle with IOS SP Services, PVDM2-64, 64 MB Flash/256 MB DRAM
CISCO3825-SRST/K9	Cisco 3825 Voice Bundle with IOS SP Services, PVDM2-64, FL-SRST (168 users), 64 MB Flash/256 MB DRAM
CISCO3825-CCME/K9	Cisco 3825 Voice Bundle with IOS SP Services, PVDM2-64, FL-CCME (168 users), 64 MB Flash/256 MB DRAM
CISCO3845-SEC/K9	Cisco 3845 Security Bundle with IOS Advanced Security, 64MB Flash/256 MB DRAM
CISCO3845-HSEC/K9	Cisco 3845 Security Bundle with IOS Advanced IP Services, AIM-VPN/HP11 Plus, 64MB Flash/256 MB DRAM
CISCO3825-SEC/K9	Cisco 3825 Security Bundle with IOS Advanced Security, 64MB Flash/256MB DRAM
CISCO3825-HSEC/K9	Cisco 3825 Security Bundle with IOS Advanced IP Services, AIM-VPN/EP11 Plus, 64MB Flash/256 MB DRAM

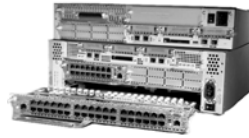
1. This is only a small subset of all parts available via URL listed under "For More Information." Some parts have restricted access or are not available through distribution channels. Resellers: For latest part number and pricing info, see the Distribution Product Reference Guide at: <http://www.cisco.com/dprg> (limited country availability).

## For More Information

See the Cisco 3800 Series Website: <http://www.cisco.com/go/3800>

## Cisco 3700 Series

The Cisco 3700 Series of modular routers enable flexible and scalable deployment of new applications in an integrated branch office access platform. The Cisco 3700 Series is ideal for sites and solutions requiring the highest levels of integration at the branch for IP



Telephony, and integrated flexible routing with low-density switching solutions. Integrated security, intrusion detection, and VPN protect the network at the perimeters, while integrated caching conserves WAN bandwidth. The Cisco 3700 Series provides a consolidated service infrastructure and high service density in a compact form factor that enables the incremental incorporation of branch applications.

### When to Sell

#### Sell This Product

##### Cisco 3725

#### When a Customer Needs These Features

- New levels of branch office service density in a compact form factor (2RU)
- Integrated Security, intrusion detection, and VPN
- Integrated flexible routing and low-density switching (16-or-36 ports)
- Flexible incremental and scalable migration to a voice/data converged branch office network
  - Compatibility with more than 90% of the world's legacy analog and digital TDM PBXs
  - Survivable Remote Site Telephony (SRST) features that enable centralized call processing with local branch IP Telephony redundancy
  - Inline power for IP Telephony
- Content Networking and Caching integrated for WAN bandwidth conservation

##### Cisco 3745

- Same features as above plus:
- New levels of branch office service density in a compact form factor (3RU)
  - Availability features such as redundant power, online insertion and removable components, and field replaceable components
  - Increased performance and density

### Key Features

- Optimized for multiple high density services, such as voice and security
- Versatile High Density Service Module (HDSM) supports the 36-port EtherSwitch Network Module
- Integrated connectivity options free up network module slots
- Optional features enhance availability/resiliency (3745 only): internal redundant power, hot-swappable modules, and field-serviceable components
- Optimized for Integrated IP Telephony: IP phone powered switch, high density voice gateway, flexible WAN routing, Survivable Remote Site Telephony, and Cisco Call Manager Express
- Flexible combination of analog and/or digital voice with scalable port density
- Full support for Cisco IOS voice suite of features
- Platforms performance-tuned for scaling packet voice solutions, security and content
- Integrated switching modules (16- and 36-port)
- Optimized for security and VPN deployments with IPSec VPN, stateful Cisco IOS Firewall, and full-featured intrusion detection
- Simplified management from a single platform for ease of configuration, deployment, and troubleshooting
- Integrated inline power for wireless access points and IP phones
- Gigabit Ethernet connectivity

## Specifications

Feature	Cisco 3725	Cisco 3745
Network Module Slots	2	4
Advanced Integration Module (AIM) Slots	2	2
WAN Interface Card (WIC) Slots	3	3
10/100 FE Ports	2	2
Performance	100 kpps	225 kpps
Flash Memory	32 MB (default); 128 MB (max)	32 MB (default); 128 MB (max)
Flash Memory (External)	32 MB -128 MB (optional)	32 MB -128 MB (optional)
DRAM Memory	256 MB (default) 256 MB (max)	256 MB (default) 256 MB (max)
Power Supply	AC, DC, external redundant AC	AC, DC, internal redundant AC
Dimensions (H x W x D)	3.5 x 17.25 x 14.7 in.	5.25 x 17.25 x 15 in.

## Selected Part Numbers and Ordering Information<sup>1</sup>

### Cisco 3700 Series Modular Multiservice Access Router

CISCO3725 2-slot Modular Multiservice Router with IP Software

CISCO3745 4-slot Modular Multiservice Router with IP Software

### Serial Network Modules

NM-4A/S 4-port async/sync serial network module  
 NM-8A/S 8-port async/sync serial network module  
 NM-16A/S 16-port async/sync serial network module  
 NM-1HSSI 1-port high speed serial interface module  
 NM-1T3/E3 1-port clear channel T3/E3 network module

### Asynchronous Network Modules

NM-16A 16 Async Ports network module  
 NM-32A 32 Async Ports network module

### LAN Network Modules and Mixed-Media LAN & WAN Network Modules

NM-2W 2 WAN Card Slot Network Module (no LAN)  
 NM-1FE2W-V2 1 10/100 Ethernet 2 WAN Card Slot Network Module  
 NM-1FE1R2W 1 10/100 Ethernet 1 4/16 Token Ring 2 WAN Card Slot NM  
 NM-2FE2W-V2 2 10/100 Ethernet 2 WAN Card Slot Network Module  
 NM-1FE-FX-V2 1-port Fast Ethernet network module (10/100Base Fiber only)  
 NM-1GE 1 port GE network module

### Digital Packet Voice and Fax Trunk Modules

NM-HDV-1T1-12 High Density Voice Network Module, with 1 VWIC-1MFT-T1 and 1 PVDM-12  
 NM-HDV-1E1-12 High Density Voice Network Module, with 1 VWIC-1MFT-E1 and 1 PVDM-12  
 NM-HDV-1E1-30 Single-port, 30-channel E1 voice/fax Network Module (supports 30 channels) of medium complexity VoCoders: G.729a/b, G.726, G.711 and fax or 12 channels of G.726, G.729, G.723.1, G.728, G.729a/b, G.711 and fax)  
 NM-HDV-1E1-30E Single-port, enhanced 30-channel E1 voice/fax Network Module (supports 30 channels of high and medium complexity VoCoders: G.729a/b, G.726, G.729, G.728, G.723.1, G.711 and fax)  
 NM-HDV-2E1-60 Dual-port, 60-channel E1 voice/fax Network Module (supports 60 channels) of medium complexity VoCoders: G.729a/b, G.726, G.711 and fax or 30 channels of G.726, G.729, G.723.1, G.728, G.729a/b, G.711 and fax) Supports add/drop multiplexing (drop and insert)  
 NM-HDV-1T1-24 Single-port, 24-channel T1 voice/fax Network Module (supports 24 channels of medium complexity VoCoders: G.729a/b, G.726, G.711 and fax or 12 channels of G.726, G.729, G.723.1, G.728, G.729a/b, G.711 and fax)  
 NM-HDV-1T1-24E Single-port, enhanced 24-channel T1 voice/fax Network Module (supports 24 channels of high and medium complexity VoCoders: G.729a/b, G.726, G.729, G.728, G.723.1, G.711 and fax)  
 NM-HDV-2T1-48 Dual-port, 48-channel T1 voice/fax Network Module (supports 48 channels) of medium complexity VoCoders: G.729a/b, G.726, G.711 and fax or 24 channels of G.726, G.729, G.723.1, G.728, G.729a/b, G.711 and fax) Supports add/drop multiplexing (drop and insert)

### AIM-ATM-VOICE-30 SAR and 30 Channel T1/E1 Digital Voice module

AIM-VOICE-30 30 Channel T1/E1 Digital Voice module

### Analog Packet Voice and Fax Trunk Network Modules

NM-1V 1-slot voice and fax network module  
 NM-2V 2-slot voice and fax network module  
 NM-HDA High Density Analog Module  
 NM-HD-1V One-slot IP Communications Voice/Fax Network Module  
 NM-HD-2V Two-slot IP Communications Voice/Fax Network Module  
 NM-HD-2VE Two-slot IP Communications Enhanced Voice/Fax Network Module

**Voice Interface Cards**

VIC-2FXS	2-port voice interface card-FXS
VIC-2FXO	2-port voice interface card-FXO
VIC-2FXO-EU	2-port voice interface card-FXO (for Europe)
VIC-2FXO-M1	2-port voice interface card-FXO (with battery reversal, for North America)
VIC-2FXO-M2	2-port voice interface card-FXO (with battery reversal, for Europe)
VIC-2FXO-M3	2-port voice interface card-FXO (for Australia)
VIC-2E/M	2-port voice interface card-E&M
VIC-2DID	2-port voice interface card-DID (Direct Inward Dial)
VIC-2BRI-S/T-TE	2-port voice interface card-BRI (Terminal side)
VIC-2BRI-NT/TE	2-port voice interface card-BRI (Network side)
VIC2-2FXS	Two-port Voice Interface Card - FXS
VIC2-2FXO	Two-port Voice Interface Card - FXO (Universal)
VIC2-4FXO	Four-port Voice Interface Card - FXO (Universal)
VIC2-2E/M	Two-port Voice Interface Card - EandM
VIC2-2BRI-NT/TE	Two-port Voice Interface Card - BRI (NT and TE)
VIC-4FXS/DID	4 port FXS or DID VIC

**ATM Network Modules**

NM-4T1-IMA	4-port T1 ATM network module with Inverse Multiplexing over ATM (IMA)
NM-4E1-IMA	4-port E1 ATM network module with IMA
NM-8T1-IMA	8-port T1 ATM network module with IMA
NM-8E1-IMA	8-port E1 ATM network module with IMA
NM-1A-T3	1-port DS3 ATM network module
NM-1A-E3	1-port E3 ATM network module
NM-1A-OC3MM	1-port ATM OC3 Multimode NM for 2691, 3600 and, 3725
NM-1A-OC3SMI	1-port ATM OC3 Singlemode Inter Reach NM for 2691, 3600 and, 3725
NM-1A-OC3SML	1-port ATM OC3 Singlemode Ling Reach NM for 2691, 3600 and, 3725
NM-1A-OC3MM-EP	1-port ATM OC3 Multimode NM for 3745
NM-1A-OC3SMI-EP	1-port ATM OC3 Singlemode Inter Reach NM for 3745
NM-1A-OC3SML-EP	1-port ATM OC3 Singlemode Ling Reach NM 3745
AIM-ATM	ATM cell processing module

**Serial WAN Interface Cards**

WIC-1DSU-T1-V2	One T1 CSU/DSU - Integrated
WIC-2T	2-port High Speed Serial
WIC-2-A/S	2-port Async/Sync Serial
WIC-1DSU-56K4	1-port, four-wire 56/64-Kbps with CSU/DSU

**Digital Voice/WAN Interface Cards**

VVWIC-1MFT-T1	1-port RJ-48 MultiFlex Trunk-T1
VVWIC-2MFT-T1	2-port RJ-48 MultiFlex Trunk-T1
VVWIC-2MFT-T1-DI	2-port RJ-48 MultiFlex Trunk-T1 with Drop and Insert
VVWIC-1MFT-E1	1-port RJ-48 MultiFlex Trunk-E1
VVWIC-2MFT-E1	2-port RJ-48 MultiFlex Trunk-E1
VVWIC-2MFT-E1-DI	2-port RJ-48 MultiFlex Trunk-E1 with Drop and Insert Add not for VVWICs VIC slots & WIC slots
VVWIC-1MFT-G703	1-port RJ-48 MultiFlex Trunk-E1 unstructured
VVWIC-2MFT-G703	2-port RJ-48 MultiFlex Trunk-E1 unstructured

**ISDN WAN Interface Cards**

WIC-1B-S/T	1-port ISDN BRI
WIC-1B-U-V2	1-port ISDN BRI with NT1

**ISDN and Channelized Serial Network Modules**

NM-1CE1T1-PRI	1-Port Channelized E1/T1/ISDN-PRI Network Module
NM-2CE1T1-PRI	2-Port Channelized E1/T1/ISDN-PRI Network Module
NM-4B-S/T	4-port ISDN BRI network module
NM-4B-U	4-port ISDN BRI with NT1 network module
NM-8B-S/T	8-port ISDN BRI network module (S/T interface)
NM-8B-U	8-port ISDN BRI with NT1 network module (U interface)

**Modem Modules**

WIC-1AM	1-port analog modem WAN interface card (WIC)
WIC-2AM	2-port analog modem WAN interface card (WIC)
NM-6DM	6-port digital modem network module
NM-12DM	12-port digital modem network module
NM-18DM	18-port digital modem network module
NM-24DM	24-port digital modem network module
NM-30DM	30-port digital modem network module
NM-8AM	8-port analog modem Network Module
NM-16AM	16-port analog modem Network Module

**Digital Subscriber Line (DSL)**

WIC-1ADSL	1-port ADSL WAN Interface Card
WIC-1ADSL-DG	1-port ADSLolSDN Wan Interface Card
WIC-G.SHDSL	1-port G.shdsl WAN Interface Card

**Encryption Advanced Integration Modules**

AIM-COMPR4	Data Compression AIM for 3660 Series (4 E1 performance)
AIM-VPN/HP11	DES/3DES/AES VPN Encryption/Compression Module for 3660/3745
AIM-VPN/EP II	DES/3DES/AES VPN Encryption/Compression Module for 2691/3725

**Content Engine Network Modules**

NM-CE-BP-20G-K9	Content Engine Network Module, Basic Performance, 20GB IDE Hard Disk
NM-CE-BP-40G-K9	Content Engine Network Module, Basic Performance, 40GB IDE Hard Disk
NM-CE-BP-SCSI-K9	Content Engine Network Module, Basic Performance, SCSI Controller

**Dry Contact Closure Alarm NM**

NM-AIC-64	Alarm Monitoring and Control Network Module
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**Cisco EtherSwitch Modules**

NM-16ESW	One 16-Port 10/100 EtherSwitch Network Module
NM-16ESW-PWR	One 16 port 10/100 EtherSwitch NM with Inline Power support
NM-16ESW-1G1G	One 16 port 10/100 EtherSwitch NM with 1 GE (1000BaseT) port
NM-16ESW-PWR-1G1G	One 16 port 10/100 EtherSwitch NM with Inline Power and GE
PPWR-DCARD-16ESW	One Inline power daughter card for 16 port EtherSwitch NM
NMD-36-ESW	One 36 port 10/100 EtherSwitch High Density Service Module
NMD-36-ESW-PWR	One 36 port 10/100 EtherSwitch HD SM with Inline Power
NMD-36-ESW-2G1G	One 36 port 10/100 EtherSwitch HD SM with two GE (1000BaseT)
NMD-36-ESW-PWR-2G	One 36 port 10/100 EtherSwitch HD SM + Inline Power and two GE
PPWR-DCARD-36ESW	One Inline Power daughter card for 36 port EtherSwitch HD SM
GE-DCARD-ESW	One GE (1000BaseT) daughter card for EtherSwitch Modules
PPWR-PS-360W	One 48V (360W) power supply for EtherSwitch Modules
PPWR-PS-CHASSIS	One power supply chassis for Cisco 48V (360W) power supply
PWR-CHASSIS-360W	One power supply chassis and 48V power supply for EtherSwitch
CAB-PPWR-PS1-1	Connects one EtherSwitch power supply to one EtherSwitch Module
CAB-PPWR-PS1-2	Connects one EtherSwitch power supply to two EtherSwitch Modules
CAB-PPWR-PS2-1	Connects two EtherSwitch power supplies to one EtherSwitch Module

**Intrusion Detection Network Module**

NM-CIDS-K9	Intrusion Detection System Network Module
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1. This is only a small subset of all parts available via URL listed under "For More Information." Some parts have restricted access or are not available through distribution channels. Resellers: For latest part number and pricing info, see the Distribution Product Reference Guide at: <http://www.cisco.com/dprg> (limited country availability).

**For More Information**

See the Cisco 3700 Series Website: <http://www.cisco.com/go/3700>

**Cisco 7200 Series**

The Cisco 7200 Series routers deliver exceptional price/performance, versatility, and feature-richness in a compact form factor. The Cisco 7200 is ideal as a WAN aggregator for the Service Provider (small POP) or enterprise edge, an enterprise WAN gateway, a high-end managed CPE, or as a small core router. With the hardware supported IPsec encryption module as well as robust firewall and VRF aware IPsec/NAT support, the Cisco 7200 is ideal for integrated security service. The platform also supports sites that require IBM data center connectivity as well as multifunction capabilities that combine all the above for multiservice voice, video, and data traffic. A key strength of the Cisco 7200 is its modularity. With a choice of 4- and 6-slot chassis, a selection of processors providing up to 1 Mpps, an extensive range of LAN and WAN interfaces with up to 48 ports per chassis, and single or dual power supplies, the customer can customize their system to achieve the performance, connectivity, and capacity desired. This modularity combined with a low initial price point guarantees both investment protection and maximum return on investment, allowing the customer to upgrade and/or redeploy their Cisco 7200 as their network needs change.



# When to Sell

## Sell This Product

Cisco 7204VXR

Cisco 7206VXR

## When a Customer Needs These Features

- 4-slot chassis
- Modular processor: 225, 400, or 1 Mpps (NPE-225, NPE-400, NPE-G1)
- 1.2 Gbps backplane
- MIX-enabled bus for data/voice/video applications
- 6-slot chassis
- Modular processor: 225, 400, or 1 Mpps (NPE-225, NPE-400, NPE-G1)
- 1.2 Gbps backplane
- MIX-enabled bus for data/voice/video applications

## Key Features

- Compact Form Factor—Up to six port adapters in a fully modular 3RU form factor.
- Exceptional Value—As the most powerful single-processor platform, the Cisco 7200 offers customers a superior price/performance ratio supporting high-speed media and high-density configurations with up to 1 million packets per second processing at a competitive price point
- Feature Rich—Full support for Cisco IOS software and enhancements for high-performance network services; offers industry-leading network services, including: MPLS, broadband aggregation, quality of service (QoS), Service Management router, IBM data center, Storage Area Network application, security, and voice/video/data support
- Connectivity/Flexibility—Provides high port density and an extensive range of LAN and WAN media, the Cisco 7200 dramatically reduces the cost per port and allows for flexible configurations to meet your specific network needs
- Common port adapters—Port adapters are shared with the Cisco 7300, 7400, 7500, and 7600 (w/FlexWAN Module), which simplifies sparing and protects customer investment in interfaces

## Competitive Products

- Redback: SMS-500, SMS-1800
- Juniper: M5, M10, M7i, M10i
- Juniper: ERX700, ERX1400

## Specifications

Feature	Cisco 7204VXR	Cisco 7206VXR
Fixed Ports	None	Same as 7204VXR
Expansion Slots	4	6
WAN Port Adapters	DS0 to OC-12	Same as 7204VXR
Processor	RM7K RISC Processor	Same as 7204VXR
Forwarding Rate	Up to 1 Mpps	Same as 7204VXR
Backplane Capacity	1.2 Gbps	Same as 7204VXR
Flash PCMCIA Memory	48 MB (expandable to 256 MB)	Same as 7204VXR
System DRAM Memory	128 MB (expandable to 1 GB)	Same as 7204VXR
Minimum Cisco IOS Release	12.0(1)XE	Same as 7204VXR
Internal Power Supply	AC or DC, dual option	Same as 7204VXR
Redundant Power Supply	Yes, for AC or DC	Same as 7204VXR
Chassis Height	3 RU	Same as 7204VXR
Rack Mountable	Yes, up to 16 per rack	Same as 7204VXR
Dimensions (H x W x D)	5.25 x 16.8 x 17 in.	Same as 7204VXR

## Cisco IOS Software and Memory Requirements<sup>1</sup>

To run the Cisco IOS Feature Packs, you need, at a minimum, the amount of memory shown in the following table. Some configurations will require more.

Distribution Part Number	Feature Pack Description	IOS Image Release	Flash Memory Required	DRAM Memory Required
CD72-C-12.3T=	IP	12.3T	16MB	64MB
CD72-CK2-12.1E=	IP IPSEC 3DES	12.1E	16MB	64MB
CD72-CHK2-12.3T=	IP/FW/IDS IPSEC 3DES	12.3T	16MB	64MB
CD72-A-12.3T=	Enterprise	12.3T	16MB	64MB

- For the complete list of IOS Feature Sets, refer to the parts list, via the URL listed under "For More Information." For users with CCO access, search by IOS feature or release via the *Feature Navigator* at <http://www.cisco.com/go/fn>

## Selected Part Numbers and Ordering Information<sup>1</sup>

### Cisco 7204 Chassis

CISCO7204VXR Cisco 7204VXR, 4-slot chassis, 1 AC Supply w/IP Software  
CISCO7204VXR/225 7204VXR Bundle with NPE-225 and I/O Controller with 2 FE/E

### Cisco 7206 Chassis

CISCO7206VXR Cisco 7206VXR, 6-slot chassis, 1 AC Supply w/IP Software  
C7206VXR/400/2FE 7206VXR with NPE-400 and I/O Controller with 2 FE/E Ports  
C7206VXR/400/GE 7206VXR with NPE-400 and GE+E I/O controller  
7206VXR/NPE-G1 7206VXR with NPE-G1 processing engine

### Cisco 7200 Voice Bundles

C7206VXR/VOICE/400 7206VXR w/ NPE-400, Voice PA-VXC-2TE1+, I/O contrlr w/ 2FE

### Cisco 7200 VPN Bundle

7204VXR225/VPNK9 7204VXR VPN Bundle NPE225, 128MB, I/O 2FE, VAM  
7206VXR400/VPNK9 7206VXR VPN Bundle NPE400,256MB, I/O 2FE, VAM  
7206VXRG1/VPNK9 7206VXR VPN Bundle NPE-G1,256MB, 3 FE/GE, VAM  
7206VXRG1/2VPNK9 7206VXR VPN Bundle NPE-G1, 256MB, 3 FE/GE, VAM2  
7206VXR400/2VPNK9 7206VXR VPN Bundle NPE400,256MB, I/O 2FE,VAM2

### Cisco 7200 Series Processors

NPE-G1= Cisco 7200 Network Processing Engine NPE-G1 including 256MB default DRAM and 64MB default flash memory.

NPE-225= Network Processing Engine 225 (128MB default memory)-spare

NPE-400= 7200VXR NPE-400 (128MB default memory),SPARE

### Cisco 7200 Series Input/Output Controller

C7200-I/O= Cisco 7200 Input/Output Controller, Spare  
C7200-I/O-2FE/E= Cisco 7200 Input/Output Controller with Dual 10/100 Ethernet  
C7200-I/O-GE+E= Cisco 7200 Input/Output Controller with GE and Ethernet

### Cisco 7200 Processor Memory: NPE-G1

MEM-NPE-G1-256MB= Two 128MB memory modules (256MB total) for the Cisco 7200 Network Processing Engine NPE-G1  
MEM-NPE-G1-512MB= Two 256MB memory modules (512MB total) for the Cisco 7200 Network Processing Engine NPE-G1  
MEM-NPE-G1-1GB= Two 512MB memory modules (1GB total) for the Cisco 7200 Network Processing Engine NPE-G1  
MEM-NPE-G1-FLD64= 64MB Compact Flash Disk for the Cisco 7200 Network Processing Engine NPE-G1  
MEM-NPE-G1-FLD128= 128MB Compact Flash Disk for the Cisco 7200 Network Processing Engine NPE-G1  
MEM-NPE-G1-FLD256= 256MB Compact Flash Disk for the Cisco 7200 Network Processing Engine NPE-G1  
MEM-SD-NPE-256MB= 2 128MB memory modules (256MB total) for the NPE-300 in 7200

### Cisco 7200 Processor Memory: NPE-225

MEM-SD-NPE-128MB= 128MB Memory Upgrade Kit for NPE-300/NPE-225/NPE-175

### Cisco 7200 Processor Memory: NPE-400

MEM-NPE-400-128MB= 128MB Memory for NPE-400 in 7200 Series  
MEM-NPE-400-256MB= 256MB Memory for NPE-400 in 7200 Series  
MEM-NPE-400-512MB= 512MB Memory for NPE-400 in 7200 Series

- This is only a small subset of all parts available via URL listed under "For More Information." Some parts have restricted access or are not available through distribution channels.

## For More Information

See the Cisco 7200 Series Website: <http://www.cisco.com/go/7200>

Cisco 7300 Series

The Cisco 7300 Series Routers are optimized for flexible, high performance IP/MPLS services at the network edge, where service providers and enterprises link together.



The Cisco 7304 Series Router is ideally applied as a high-end CPE or as an Internet Gateway router. Architected for network High Availability and multi-protocol support, the 7304 supports the broad set of existing Cisco 7000 Series Port Adapters with the Cisco 7304 Port Adapter Carrier Card.

The Cisco 7301 Series Router is a compact single rack unit router coupled with a broad set of interfaces and Cisco IOS software features. It packs high performance in a space and power efficient form factor that includes a single 7000 Series port adapter slot, 3 on-board Gigabit Ethernet (copper or optical)/Fast Ethernet ports and a new high-speed bus technologies.

When to Sell

Sell This Product

Cisco 7301

Cisco 7304

When a Customer Needs These Features

- Compact, power efficient 1RU form factor
- Three times the performance increase over existing single rack unit routers like the Cisco 7401
- Single 7000 Series Port Adapter Slot
- Highly modular price and performance optimized platform, rich in IP services
- High performance connectivity—DS-1 through OC48/STM16 with 3.5 Mpps performance
- Built-in Gigabit Ethernet connectivity
- Multiprotocol routing: IP, IPX, AppleTalk, DLSw
- Compact size, high availability and optimal cooling

Key Features

- Cisco 7301—With nearly 1 Mpps processing performance, the fastest Cisco 1RU general-purpose processor; 3 fixed 10/100/1000-Mbps ports (RJ-45 or SFP optics) directly on the processor; Full Cisco IOS feature support; Pluggable Gigabit Ethernet optics (SFPs); Up to 1GB of available DRAM; Up to 256MB of removable compact flash memory; Front-back airflow and single sided management
- Cisco 7304—Compact modular form factor with four RU with four port adapter slots per chassis; PXF IP processor hardware-accelerated services such as Cisco Express Forwarding (CEF), NetFlow v8, and Turbo ACL; Offers up to 3.5 Mpps performance for PXF-accelerated services with the NSE-100 Network Services Forwarding Engine; Two Gigabit Ethernet ports per NSE-100; System redundancy: optional dual processors and dual AC or DC power supplies increases network availability

Competitive Products

- Redback: SMS-500, SMS-1800
- Juniper: ERX700, ERX1400
- Juniper: M5, M10

Specifications

Feature	Cisco 7301	Cisco 7304
Fixed Ports	Three Gigabit Ethernet ports	Same as 7301
Expansion Slots	1	4
WAN Interface Range	DS-1 to OC-3	DS-1 to OC-48
Processor	RM 7000 MIPS Processor + PXF Processor	RM 7000 MIPS Processor + PXF Processor
Forwarding Rate	Up to 1 Mpps	Up to 3.5 Mpps
Backplane Capacity	1.2 Gbps	16 Gbps
Flash PCMCIA Memory	64 MB (expandable to 128 MB)	Same as 7301



Feature	Cisco 7301	Cisco 7304
<b>System DRAM Memory</b>	128 MB (expandable to 512 MB)	Same as 7301
<b>Min Cisco IOS Release</b>	12.2(11)YZ	12.1(9)EX
<b>Internal Power Supply</b>	AC or DC	Same as 7301
<b>RPS Support</b>	Yes, for AC or DC	Same as 7301
<b>Chassis Height</b>	1 RU	4 RU
<b>Rack Mountable</b>	Yes, up to 40 per rack	Yes, up to 11 per rack
<b>Dimensions (H x W x D)</b>	1.73 x 17.3 x 13.87 in.	7 x 17.2 x 20.5 in.

## Selected Part Numbers and Ordering Information<sup>1</sup>

### Cisco 7300 System

PWR-7301/2-AC	Cisco 7301 Dual AC Power Supply Option
PWR-7301/2-DC48	Cisco 7301 Dual DC48 Power Supply Option
CISCO7301	Cisco 7301 chassis, 256MB memory, A/C power, 64MB Flash
CISCO7304=	Cisco 7300, 4-slot chassis, NSE100, Power, IP Software
CISCO7304-CH	Cisco7304 channel bundle
7300-NSE-100=	Cisco 7304 Network Services Engine 100
7300-NPE-G100=	Cisco 7304 NPE-G100 w/1GB SDRAM, 256MB Flash, 3 GE/FE/E Ports
7300-NSE-100/2	Redundant Cisco 7304 NSE-100 w/Redundancy Feature License
7304-NPE-G100/2	Redundant 7304 NPE-G100 w/1GB SDRAM, 256MB Flash, 3 GE/FE/E Ports
7300-PWR-DC=	Cisco 7304 DC Power Supply Spare
7300-PWR-AC=	Cisco 7304 AC Power Supply Spare
7300-PWR/2-DC	Cisco 7304 Redundant DC Power Supply Option
7300-PWR/2-AC	Cisco 7304 Redundant AC Power Supply Option

### Cisco 7300 Memory Options

MEM-7301-1GB=	1GB memory upgrade for 7301
MEM-7301-512MB=	512MB memory upgrade for 7301
MEM-7301-256MB=	256MB memory upgrade for Cisco 7301
7300-MEM-128=	128MB default SDRAM for 7304 NSE-100, spare
7300-MEM-256=	256MB SDRAM for 7304 NSE-100, spare
7300-MEM-512=	512MB SDRAM for 7304 NSE-100, spare
7300-I/O-CFM-64M=	Cisco 7304 Compact Flash Memory, 64 MB
7300-I/O-CFM-128M=	Cisco 7304 Compact Flash Memory, 128 MB

### Cisco 7300 Series Compact Flash Disk Options

MEM-7301-FLD64=	Compact Disk Flash for 7301, 64MB option
MEM-7301-FLD128=	Compact Disk Flash for 7301, 128MB option
MEM-7301-FLD256	Compact Disk Flash for 7301, 256MB Option

### Cisco 7300 Line Cards

7300-10C12POS-MM=	1-port OC12 POS line card for Cisco 7304 w/ Multi-mode
7300-10C12POS-SMI=	1-port OC12 POS line card for Cisco 7304 w/ Single-mode IR
7300-10C12POS-SML=	1-port OC12 POS line card for Cisco 7304 w/ Single-mode LR
7300-10C48POS-SMI=	1-port OC48 POS line card for Cisco 7304 w/ Single-mode IR
7300-10C48POS-SML=	1-port OC48 POS line card for Cisco 7304 w/ Single-mode LR
7300-10C48POS-SMS=	1-port OC48 POS line card for Cisco 7304 w/ Single-mode SR
7300-20C12POS-MM=	2-port OC12 POS line card for Cisco 7304 w/ Multi-mode
7300-20C12POS-SMI=	2-port OC12 POS line card for Cisco 7304 w/ Single-mode IR
7300-20C12POS-SML=	2-port OC12 POS line card for Cisco 7304 w/ Single-mode LR
7300-20C3ATM-MM=	2-port OC3 ATM line card for Cisco 7304 w/ Multi-mode
7300-20C3ATM-SMI=	2-port OC3 ATM line card for Cisco 7304 w/ Single-mode IR
7300-20C3ATM-SML=	2-port OC3 ATM line card for Cisco 7304 w/ Single-mode LR
7300-20C3POS-MM=	2-port OC3 POS line card for Cisco 7304 w/ Multi-mode
7300-20C3POS-SMI=	2-port OC3 POS line card for Cisco 7304 w/ Single-mode IR
7300-20C3POS-SML=	2-port OC3 POS line card for Cisco 7304 w/ Single-mode LR
7300-40C3POS-MM=	4-port OC3 POS line card for Cisco 7304 w/ Multi-mode
7300-40C3POS-SMI=	4-port OC3 POS line card for Cisco 7304 w/ Single-mode IR
7300-40C3POS-SML=	4-port OC3 POS line card for Cisco 7304 w/ Single-mode LR
7300-6T3=	6-port T3 line card for Cisco 7304 w/ DSU

### Cisco 7300 Carrier Cards

7300-CC-PA=	7304 Carrier Card for 7200 Series Port Adapters
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1. This is only a small subset of all parts available via URL listed under "For More Information." Some parts have restricted access or are not available through distribution channels.

## For More Information

See the Cisco 7300 Series Website: <http://www.cisco.com/go/7300>

## Cisco 7500 Series

An essential part of both Enterprise and Service Provider networks, the Cisco 7500 Series routers are the market leader for edge applications, due to its breadth of services, diverse interfaces, reliability, and performance. Since its inception, the Cisco 7500 has seen huge improvements in performance and its ability to scale, most recently with the Route Switch Processor 16 (RSP16) and Versatile Interface Processor 6-80 (VIP6-80) module. This series combines Cisco’s proven software technology with exceptional reliability, availability, serviceability, and performance features to meet the requirements of today’s most mission-critical networks.



### When to Sell

#### Sell This Product

**Cisco 7505**

- 5 expansion slots
- One CyBus
- DS0 to OC-12 connectivity (all platforms)

**Cisco 7507**

- 7 expansion slots
- Dual CyBuses
- Redundant power supplies
- Diverse set of routing protocols (all platforms)

**Cisco 7513**

- 13 expansion slots
- Dual CyBuses
- Redundant power supplies
- Diverse set of routing protocols (all platforms)

#### When a Customer Needs These Features

### Key Features

- Supports high-speed media and high-density configurations; uses the processing capabilities of the Versatile Interface Processors and Cisco Express Forwarding
- Performs network services such as QoS, security, compression, and encryption at high speed; VIP technology extends the performance of these services through distributed IP services
- Provides high port density and an extensive range of LAN and WAN media; this feature dramatically reduces the cost per port and allows a flexible configuration
- The Cisco 7500 supports a broad selection of Interface Processors (IPs) and Port Adapters (PAs). Port adapters are shared with the Cisco 7200, 7300, 7400, and 7600 (with FlexWAN Module)
- Enhanced features and capabilities include redundant route processors, power supplies, fans, and software fault isolation with Stateful Switchover and NonStop Forwarding

### Competitive Products

- |   |   |
|---|---|
| <ul style="list-style-type: none"><li>• Redback: SMS-500, SMS-1800</li><li>• Juniper: M7i, M10, M20</li></ul> | <ul style="list-style-type: none"><li>• Juniper: ERX700, ERX1400</li><li>• Huawei: NE8 and NE16</li></ul> |
|---|---|

# Specifications

Feature	Cisco 7505	Cisco 7507	Cisco 7513
Fixed Ports	None	Same as Cisco 7505	Same as Cisco 7505
Expansion Slots	5	7	13
WAN Interface Range	DS0 to OC-12	Same as Cisco 7505	Same as Cisco 7505
Processor	MIPS RISC Processor	Same as Cisco 7505	Same as Cisco 7505
Forwarding Rate	Up to 1.1 Mpps	Up to 2.2 Mpps	Up to 2.2 Mpps
Backplane Capacity	1 Gbps	2 Gbps	2 Gbps
Flash PCMCIA Memory	16MB (expandable to 128MB)	Same as Cisco 7505	Same as Cisco 7505
System DRAM Memory	32MB (expandable to 1GB)	Same as Cisco 7505	Same as Cisco 7505
Minimum Cisco IOS Release	11.3	Same as Cisco 7505	Same as Cisco 7505
Internal Power Supply	AC or DC	AC, dual AC/DC, or dual DC	AC, dual AC/DC, or dual DC
Redundant Power Supply Support	No	Yes	Yes
Chassis Size	6 RU	13 RU	20 RU
Rack Mountable	Yes, up to 6 per rack	Yes, up to 3 per rack	Yes, up to 2 per rack
Dimensions (H x W x D)	10.5 x 17.5 x 17 in.	19.25 x 17.5 x 25 in.	33.75 x 17.5 x 22 in.

## Selected Part Numbers and Ordering Information<sup>1</sup>

### Cisco 7500 Series Products

CISCO7505/4	Cisco 7505 5-Slot, 1 CyBus, 1RSP4, Single Power Supply
CISCO7507/8-MX	Cisco 7507, 7 Slot, MIX-Enabled, Dual Bus, 1 RSP8, 1 PS
CISCO7507/8X2-MX	Cisco 7507, 7 Slot, MIX-Enabled, Dual Bus, 2 RSP8, 2 PS
CISCO7507/4	Cisco 7507 7-Slot, 2 CyBus, 1RSP4, Single Power Supply
CISCO7507/4X2	Cisco 7507 7-Slot, 2 CyBus, 2 RSP4, Dual Power Supply
CISCO7513/4	Cisco 7513 13-Slot, Dual Bus, 1RSP4, 1 PS
CISCO7513/4X2	Cisco 7513 13-Slot, Dual Bus, 2 RSP4, 2 PS
CISCO7513/8-MX	Cisco 7513, 13 Slot, MIX-Enabled, Dual Bus, 1 RSP8, 1 PS
CISCO7513/8X2-MX	Cisco 7513, 13 Slot, MIX-Enabled, Dual Bus, 2 RSP8, 2 PS
CISCO7507/16-MX	Cisco 7507, 7 Slot, MIX-Enabled, Dual Bus, 1 RSP16, 1 PS
CISCO7507/16X2-MX	Cisco 7507, 7 Slot, MIX-Enabled, Dual Bus, 2 RSP16, 2 PS
CISCO7513/16-MX	Cisco 7513, 13 Slot, MIX-Enabled, Dual Bus, 1 RSP16, 1 PS
CISCO7513/16X2-MX	Cisco 7513, 13 Slot, MIX-Enabled, Dual Bus, 2 RSP16, 2 PS

### Cisco 7500 Series Processors and Accessories

RSP4+=	Cisco 7500 Series Route Switch Processor 4+ (Spare)
RSP8=	Cisco 7500 Series Route Switch Processor 8 (Spare)
RSP16=	Cisco 7500 Series Route Switch Processor 16 (Spare)

### Route Switch Processor Memory Options (RSP4)

MEM-RSP4-FLC16M=	RSP4 Flash Card: 16 MB Kit
MEM-RSP4-FLC20M=	RSP4 Flash Card: 20 MB Kit
MEM-RSP4-FLC32M=	RSP4/4+ Flash Card: 32 MB Kit
MEM-RSP4-32M=	RSP4 32MB DRAM Upgrade Kit
MEM-RSP4-64M=	RSP4/RSP4+ 64MB DRAM Upgrade Kit
MEM-RSP4-128M=	RSP4/RSP4+ 128MB DRAM Upgrade Kit
MEM-RSP4-128-4PK=	RSP4 128MB DRAM Upgrade Kit (4-pack)
MEM-RSP4-256M=	RSP4/RSP4+ 256MB DRAM Upgrade Kit
MEM-RSP4-256-4PK=	RSP4 256MB DRAM Upgrade Kit (4-pack)
MEM-16F-RSP4+=	RSP4+ 16MB Boot Flash (Spare)
MEM-V250-128-10PK=	128 MByte DRAM Upgrade for VIP2-50/xIP-50 (10-pack)

### Route Switch Processor Memory Options (RSP8)

MEM-RSP8-64M=	RSP8 64MB DRAM Option
MEM-RSP8-128M=	RSP8 128MB DRAM Upgrade Kit
MEM-RSP8-256M=	RSP8 256MB DRAM Upgrade Kit
MEM-RSP8-FLC16M=	RSP8 Flash Card: 16 MB Kit
MEM-RSP8-FLC20M=	RSP8 Flash Card: 20 MB Kit
MEM-RSP8-FLC32M=	RSP8 Flash Card: 32 MB Kit
MEM-RSP8-FLD48M=	RSP8 Flash Disk: 48 MB Kit
MEM-RSP8-FLD128M=	RSP8 Flash Disk: 128 MB Kit

**Route Switch Processor Memory Options (RSP16)**

MEM-RSP16-FLD48M=	RSP16 Flash Disk: 48 MB Option
MEM-RSP16-FLD128M=	RSP16 Flash Disk: 128 MB Option
MEM-RSP16-128M=	RSP16 128MB ECC SDRAM Memory Spare
MEM-RSP16-256M=	RSP16 256MB ECC SDRAM Memory Spare
MEM-RSP16-512M=	RSP16 512MB ECC SDRAM Memory Spare
MEM-RSP16-1G=	RSP16 1GB ECC SDRAM Memory Spare

**CISCO7500 Series Gigabit Ethernet Interface Processor**

GEIP=	Gigabit Ethernet Interface Processor
GEIP+=	Enhanced Gigabit Ethernet

**Cisco 7500 Series Interface Processors**

CX-CIP2-ECA1=	CHANNEL IP:CIP2 W/ ECA-1 PORT
CX-CIP2-ECA2=	CHANNEL IP:CIP2 W/ ECA-2 PORTS
FEIP2-DSW-2TX=	2-Port Fast Ethernet IP with Dist. Switching (100TX)
FEIP2-DSW-2FX=	2-Port Fast Ethernet IP with Dist. Switching (100FX)
CX-ECA1-U	ESCON Interface Upgrade for CX-CIP-ECA1 or CX-CIP-PCA1

**Cisco 7500 Series Versatile Interface Processors**

VIP2-40=	VERSATILE INT. PROCESSOR-2,MODEL 40
VIP2-50=	Versatile Interface Processor 2, Model 50
VIP2-10/15-UPG	VIP2-10 to VIP2-15 Upgrade
VIP2-10/40-UPG	VIP2-10 TO VIP2-40 UPGRADE
VIP2-15/40-UPG	VIP2-15 to VIP2-40 Upgrade
VIP2-20/40-UPG	VIP2-20 TO VIP2-40 UPGRADE
VIP4-50=	Versatile Interface Processor 4, Model 50
VIP4-80=	Versatile Interface Processor 4, Model 80
VIP6-80=	Services Accelerator Versatile Interface Processor 6-80

1. This is only a small subset of all parts available via URL listed under "For More Information." Some parts have restricted access or are not available through distribution channels.

**For More Information**

See the Cisco 7500 Series Website: <http://www.cisco.com/go/7500>

**Cisco 7600 Series**



The Cisco 7600 Series combines optical WAN/MAN networking and high-volume Ethernet aggregation with a focus on the delivery of high-touch services for the IP and MPLS edge. It combines Layer 2 and Layer 3 networking capabilities with a high-bandwidth, high-performance architecture including hardware-based forwarding of MPLS, IPv4, & IPv6. Cisco 7600 series form factors include the Cisco 7603, 7606, 7609, and 7613. Each router can deliver DS0 to OC-48 WAN and nx10-Mbps Ethernet to nx10-Gigabit Ethernet connectivity into service provider edge, metropolitan-area and enterprise networks for a variety of triple-play and aggregation solutions.

**When to Sell**

**Sell This Product**

**Cisco 7604**

**Cisco 7606**

**Cisco 7609**

**Cisco 7613**

**When a Customer Needs These Features**

- 4 slot (horizontal) chassis; 320 Gbps backplane bandwidth<sup>1</sup>; 30 Mpps forwarding rate<sup>1</sup>; NEBs Compliant
- 6 slot (horizontal) chassis; 480 Gbps backplane bandwidth<sup>1</sup>; 30 Mpps forwarding rate<sup>1</sup>; NEBs Compliant
- 9 slot (vertical) chassis; 720 Gbps backplane bandwidth<sup>1</sup>; 30 Mpps forwarding rate<sup>1</sup>; NEBs Compliant
- 13 slot (horizontal) chassis; 720 Gbps backplane bandwidth<sup>1</sup>; 30 Mpps forwarding rate<sup>1</sup>; NEBs Compliant

1. Bandwidth & forwarding rate numbers assume Sup720 Engine

**Key Features**

- Up to 30 Mpps forwarding processor with hardware accelerated IPv4, IPv6, & MPLS
- Hardware accelerated IP services on each Optical Services Module (OSM), delivering up to 6 Mpps per slot
- Modular and scalable from 32 Gbps to 720 Gbps switch fabric
- One of the widest, most complete ranges of WAN interfaces in the industry, with DS0 to OC-48 connectivity
- Leveraging the FlexWAN Module, 7x00 port adapters are shared with the Cisco 7200, 7300, 7400, and 7500 which simplifies sparing and protects customer investment in interfaces
- Support for the Cisco SPA/SIP portfolio
- Compatible with Catalyst 6500 LAN interfaces, offering nx10 Mbps Ethernet to 10 Gbps

**Competitive Products**

- Alcatel: 7450, 7750
- Juniper: M10i, M20, M40e, M320
- Juniper: ERX700, ERX1400
- Extreme: Black Diamond 6808

**Specifications**

Feature	Cisco 7604	Cisco 7606	Cisco 7609	Cisco 7613
Fixed Ports	SFP & 10/100/1000 (Sup720)	Same as Cisco 7603	Same as Cisco 7603Same as Cisco 7604Same as Cisco 7604	Same as Cisco 7604
Expansion Slots	4 (horizontal)	6 (horizontal)	9 (vertical)	13 (horizontal)
WAN Interface Range	DS0 to OC-48	Same as Cisco 7604	Same as Cisco 7604	Same as Cisco 7604
Processor	Supervisor720-3B Supervisor720-3BXL	Same as Cisco 7604	Same as Cisco7604	Same as Cisco 7604
Forwarding Rate	Up to 30 Mpps	Same as Cisco 7604	Same as Cisco 7604	Same as Cisco 7604
Backplane Capacity	320 Gbps	480 Gbps	720 Gbps	720 Gbps
Flash PCMCIA Memory	up to 512MB	Same as Cisco 7603	Same as Cisco 7603	Same as Cisco 7603
System DRAM Memory	512MB on Sup720-3B 1G on Sup720-3BXL	Same as Cisco 7603	Same as Cisco 7603	Same as Cisco 7603
Internal Power Supply	AC or DC	Same as Cisco 7603	Same as Cisco 7603	Same as Cisco 7603
RPS Support	Yes	Same as Cisco 7603	Same as Cisco 7603	Same as Cisco 7603
Chassis Height	5 RU	7 RU	20 RU	18 RU
Rack Mountable	Yes, up to 10 per rack	Yes, up to 6 per rack	Yes, up to 2 per rack	Yes, up to 2 per rack
Dimensions (H x W x D)	7 x 17.37 x 21.75 in.	12.25 x 17.37 x 21.75 in.	36.75 x 17.2 x 20.7 in.	33.3 x 17.2 x 18.1 in.

**Selected Part Numbers and Ordering Information<sup>1</sup>****Cisco 7613 Systems**

CISCO7613	7613 Chassis Bundles
CISCO7613=	Spare CISCO7613 Chassis, equipped with High-speed FAN2
7613-SUP720XL-PS	Cisco 7613 13-slot, SUP720-3BXL and PS
7613-2SUP720XL-2PS	Cisco 7613 13-slot, Redundant System, 2 SUP720-3BXL and 2 PS
7613-SUP7203B-PS	Cisco 7613 Chassis, 13-slot, SUP7203B, Power Supply
7613-2SUP7203B-2PS	Cisco 7613 Chassis, 13-slot, 2 SUP7203B, 2 Power Supply

**Cisco 7609 Systems**

CISCO7609	7609 Chassis Bundles
CISCO7609=	Cisco 7609 Chassis Spare
7609-SUP720XL-PS	Cisco 7609 9-slot, SUP720-3BXL and PS
7609-2SUP720XL-2PS	Cisco 7609 9-slot, Redundant System, 2 SUP720-3BXL and 2 PS
7609-SUP7203B-PS	Cisco 7609 Chassis, 9-slot, SUP7203B, Power Supply
7609-2SUP7203B-2PS	Cisco 7609 Chassis, 9-slot, 2 SUP7203B, 2 Power Supply

**Cisco 7606 Systems**

CISCO7606	Cisco 7606 Chassis Bundle
7606-SUP720XL-PS	Cisco 7606 6-slot, SUP720-3BXL and PS
7606-2SUP720XL-2PS	Cisco 7606 6-slot, Redundant System, 2 SUP720-3BXL and 2 PS
7606-SUP7203B-PS	Cisco 7606 Chassis, 6-slot, SUP7203B, Power Supply
7606-2SUP7203B-2PS	Cisco 7606 Chassis, 6-slot, 2 SUP7203B, 2 Power Supply

**Cisco 7604 Systems**

CISCO7603-CHASS	CISCO 7603 Chassis
CISCO7603	Cisco 7603 Chassis Bundle
7603-AC-BUN	7603 Chassis, SUP2/MSFC2, 950W AC P/S, PEM, 256MB DRAM
7603-DC-BUN	7603 Chassis, SUP2/MSFC2, 950W DC P/S, PEM, 256MB DRAM
7603-SUP720-PS	Cisco 7603 Chassis, 3-slot, SUP720, Power Supply
7603-SUP720XL-PS	Cisco 7603 3-slot, SUP720-3BXL and PS
7603-SUP7203B-PS	Cisco 7603 Chassis, 3-slot, SUP7203B, Power Supply

**Cisco 7600 FlexWAN Modules**

WS-X6582-2PA=	Enhanced FlexWAN Module for Cisco 7600 / Catalyst 6000
WS-X6182-2PA=	FlexWAN Module for Cisco 7600 / Catalyst 6000

**Cisco 7600 Optical Services Modules (OSMs)**

OSM-1CHOC12/T1-SI=	1-port CHOC-12/CHSTM-4 OSM IR, to DS0 and T1/E1, w/4GE
OSM-12CT3/T1=	12-port Channelized DS-3 to DS-1/DS-0
OSM-1CHOC12/T3-SI=	1-port CHOC-12/CHSTM-4 OSM, to T3/E3, SM-IR, with 4 GE
OSM-10C48-POS-SI+=	Enhanced 1-port OC-48/STM-16 SONET/SDH OSM, SM-IR, with 4 GE
OSM-10C48-POS-SL+=	Enhanced 1-port OC-48/STM-16 SONET/SDH OSM, SM-LR, with 4 GE
OSM-10C48-POS-SS+=	Enhanced 1-port OC-48/STM-16 SONET/SDH OSM, SM-SR, with 4 GE
OSM-20C12-ATM-MM+=	Enhanced 2-port OC12/STM4 ATM OSM+, MM, with 4 GE
OSM-20C12-ATM-SI+=	Enhanced 2-port OC12/STM4 ATM OSM+, SI, with 4 GE
OSM-20C12-POS-MM+=	Enhanced 2-port OC-12/STM-4 SONET/SDH OSM, MM, with 4 GE
OSM-20C12-POS-SI+=	Enhanced 2-port OC-12/STM-4 SONET/SDH OSM, SM-IR, with 4 GE
OSM-2-4GE-WAN+=	Enhanced OSM with 4 GE WAN Ports & 2GE LAN Ports
OSM-40C3-POS-SI+=	Enhanced 4-port OC-3/STM-1 SONET/SDH OSM, with 4 GE
OSM-40C12-POS-MM+=	Enhanced 4-port OC-12/STM-4 SONET/SDH OSM, MM, with 4 GE
OSM-40C12-POS-SI+=	Enhanced 4-port OC-12/STM-4 SONET/SDH OSM, SM-IR, with 4 GE
OSM-80C3-POS-SI+=	Enhanced 8-port OC-3/STM-1 SONET/SDH OSM, SM-IR, with 4 GE
OSM-80C3-POS-SL+=	Enhanced 8-port OC-3/STM-1 SONET/SDH OSM, SM-LR, with 4 GE
OSM-20C48/1DPT-SS=	2-port OC-48/STM-16 POS/DPT OSM, SM-SR, with 4 GE
OSM-20C48/1DPT-SI	2-port OC-48/STM-16 POS/DPT OSM, SM-IR, with 4 GE
OSM-20C48/1DPT-SL=	2-port OC-48/STM-16 POS/DPT OSM, SM-LR, with 4 GE

**Cisco 7600/Catalyst 6500 Ethernet Modules**

WS-F6K-DFC=	Distributed Forwarding Card
WS-F6700-DFC3BXL	Catalyst 6500 Dist Fwd Card- 3BXL, for WS-X67xx
WS-F6700-DFC3B=	Catalyst 6500 Dist Fwd Card, 256K+ Routes for WS-X67xx
WS-X6348-RJ-45=	Catalyst 6000 48-port 10/100, Upgradable to Voice, RJ-45
WS-X6516-GBIC=	Catalyst 6500 16-port GigE Mod: fabric-enabled (Req. GBICs)
WS-X6524-100FX-MM=	Catalyst 6500 24-port 100FX, MT-RJ, fabric-enabled
WS-X6502-10GE=	Catalyst 6500 10 Gigabit Ethernet Base Module(Req. OIM), Spare
WS-X6816-GBIC=	Catalyst 6500 16-port GigE mod, 2 fab I/F w/DF, (Req GBICs)
WS-X6548-RJ-21=	Catalyst 6500 48-port 10/100, RJ-21, fabric-enabled
WS-X6548-RJ-45=	Catalyst 6500 48-port 10/100, RJ-45, x-bar
WS-X6516-GE-TX=	Catalyst 6500 16-port Gig/Copper Module, x-bar
WS-X6748-GE-TX=	Cat6500 48-port 10/100/1000 GE Mod: fabric enabled, RJ-45
WS-X6724-SFP=	Catalyst 6500 24-port GigE Mod: fabric-enabled (Req. SFPs)
WS-X6748-SFP=	Catalyst 6500 48-port CEF720 GigE Module (Req. SFPs)
WS-X6704-10GE=	Cat6500 4-port 10 Gigabit Ethernet Module (req. XENPAKs)

**Cisco 7600 Services Modules**

WS-SVC-IPSEC-1=	IPSec VPN Security Module
WS-SVC-FWM-1-K9=	Firewall blade
WS-SVC-NAM-1=	Network Analysis Module-1
WS-SVC-NAM-2=	Network Analysis Module-2
WS-X6066-SLB-APC=	Content Switching Module
WS-SVC-SSL-1-K9=	SSL Module
WS-SVC-MWAM-1=	Multi-Processor WAN Application Module

1. This is only a small subset of all parts available via URL listed under "For More Information." Some parts have restricted access or are not available through distribution channels.

**For More Information**

See the Cisco 7600 Series Website: <http://www.cisco.com/go/7600>

# Cisco 10000 Series

The Cisco 10000 Series is the industry’s only edge router that delivers consistent, high performance services for carriers deploying IP, MPLS, and broadband services to DSL and private line customers. Coupled with proven high availability and innovative adaptive network processing technology, the Cisco 10000 Series is uniquely designed to meet the service needs of carriers for aggregation of tens of thousands of network connections.

## When to Sell

### Sell This Product When a Customer Needs These Features

- Cisco 10008
- Broadband features including PPP over ATM, PPP over Ethernet, routed bridge encapsulation, Layer 2 Tunneling Protocol and remote access-MPLS
  - MPLS, MPLS VPN, and MPLS Quality of Service edge features
  - Leased line features such as seamless integration from a dedicated access environment (TDM or SONET/SDH) to the ATM core.

## Key Features

- Industry-leading high availability—nonstop performance, with a complete set of reliability features for high availability. Full hardware redundancy, hot-swappable elements, and seamless route processor cutover provide continuous traffic forwarding. Non-stop forwarding and stateful switch over ensure continuous operation, even if a PRE-2 fails. In-service software upgrades ensures software upgrades are accomplished.
- Industry-leading session density—Supports thousands of DS0, DS1/E1 connections, or hundreds of clear-channel DS3 connections on a single platform, providing the highest port density of DS3-and-below interfaces; Broad portfolio of line-rate IP sessions
- Granular service definition and accounting for up to 61,500 broadband subscribers on a single 1008 system
- Integrated Edge—Supports dynamic QoS capabilities along with scalability, performance and single platform for both ATM and Ethernet edge aggregation

## Competitive Products

- Redback: SMS-10000, SE-800
- Juniper: ERX700, ERX1440
- Juniper: M5, M10, M20

## Specifications

Feature	Cisco 10008
Fixed Ports	None
Expansion Slots	8/16 (for interfaces) 8 Full Height or 16 Half Height
WAN Interface Range	DS0 to OC-48c
Processor	Cisco Performance Routing Engine 2
Forwarding Rate	Up to 6.2 Mpps
Backplane Capacity	51.2 Gbps
Flash PCMCIA Memory	64 MB (expandable to 128 MB)
System DRAM Memory	1 GB
Minimum Cisco IOS Release	12.3(7)XI or or 12.2SB
Internal Power Supply	AC or DC, dual option
RPS Support	Yes, for both AC and DC
Chassis Height	13 RU
Rack Mountable	Yes, up to 6 per rack
Dimensions (H x W x D)	21.75 x 17.5 x 12 in.

## Selected Part Numbers and Ordering Information<sup>1</sup>

### Cisco 10008 Pricing Bundles

10000-1P2-1AC	C10000 8-slot chassis, 1 PRE2, 1 AC PEM
10000-1P2-1DC	C10000 8-slot chassis, 1 PRE2, 1 AC PEM
10000-2P2-2AC	C10000 8-slot chassis, 1 PRE2, 1 DC PEM
10000-2P2-2DC	C10000 8-slot chassis, 1 PRE2, 1 DC PEM

### Cisco 10000 Series Processors

ESR-PRE2= Performance Routing Engine, 1G DRAM and 64M Flash

### Cisco 10000 Series Line Cards

ESR-24CT1/E1=	24port Channelized E1/T1 Line Card
ESR-6CT3=	6 port channelized T3 line card
ESR-HH-4CT3=	4 Port channelized T3 Half Slot Line Card
ESR-4OC3-CHSTM1=	4 pt OC3 chan. STM1 SDH SM line card
ESR-8E3/DS3=	8 port clear channel E3/DS3 Line Card
ESR-8E3DS3-ATM=	8 port E3/DS3 ATM Line Card
ESR-4OC3ATM-SM=	4 Port OC3/STS3c/STM1c ATM Line Card, single mode
ESR-4OC3-ATM-SM-LR	4 Port OC3/STM1 ATM Line Card SM Long Reach Optics
ESR-1OC12ATM-SM=	1 pt OC12/STM4 ATM Line Card, Single-Mode
ESR-6OC3/P-SMI=	6 Port OC3/STS3c/STM1c POS Line Card, single mode
ESR-1COC12-SMI=	1 pt ChOC12 (STS12) line card, single mode intermed. reach
ESR-1OC12/P-SMI=	1 pt OC12/STS12c/STM4 POS, single mode, intermed. Reach
ESR1OC48/P/SRPSML=	OC-48/STM-16 POS/SRP SM-LR
ESR1OC48/P/SRPSMS=	OC-48/STM-16 POS/SRP SM-LR
ESR-HH-1GE=	1 port Gigabit Ethernet Half-Slot Line Card
ESR-1GE=	1 pt Gigabit Ethernet line card (requires a GBIC)
ESR-HH-8FE-TX=	8 port Fast Ethernet Half-Slot Line Card

1. This is only a small subset of all parts available via URL listed under "For More Information." Some parts have restricted access or are not available through distribution channels.

## For More Information

See the Cisco 10000 Series Website: <http://www.cisco.com/go/10000>

## Cisco 10700 Series

The Cisco 10700 series includes the Cisco 10720 Internet Router is a high-performance router and a principle building block in the metro IP network. It enables service providers to offer innovative and differentiated IP services to their customers at optical speeds.

## When to Sell

### Sell This Product

#### Cisco 10700 Series

### When a Customer Needs These Features

- High-performance IP services as part of their business strategy by extending IP further out into the network
- Simple, scalable, reliable features of DPT technology while maximizing fiber usage
- Any customer already using DPT technology in their network, most likely with DPT cards on the 12000 Internet Router
- Metro Ethernet Services such as L2 and L3 VPN with FE/GE hand off to the Customer and 50ms restoration over dark fiber using DPT
- IEEE 802.17-standard-compliant RPR technology

## Key Features

- Support for IP, MPLS and L2TPv3 features at 2MPPS
- L2 VPN—L2TPv3 and EoMPLS; L3 VPN MPLS VPN and MPLS VPN over IP
- Security—ACLs, uRPF, Control Plane Policing and BFD
- SRP or 802.17 RPR with <50 ms restoration time
- Multicast support including PIM SM, PIM DM, MBGP
- QoS—Modular QoS CLI, 8 queues per port
- Ethernet—MDI-MDI-X support, 10/100 speed auto-negotiation, HDX-FDX negotiation and time delay reflectometry (TDR) for 10/100BaseTX
- Hot Standby Routing Protocol (HSRP)/Multiple Hot Standby Routing Protocol (MHSRP)



- Optical receive power monitoring support on OC-48/STM-16 Interface and GE
- Management information bases (MIBs)—SNMP, SRP, SONET, Etherlike, OSPF
- Suitable for other applications—Internet data center applications, intra-POP aggregation, cable multisystem operator (MSO) internetworking, and VoIP aggregation

## Specifications

Feature	Cisco 10700 Series
Security Features	Including AAA, RADIUS authentication, TACACS+, and encrypted passwords
Management	Cisco IOS CLI; TACACS+ and RADIUS; Configuration and administration features including Telnet and Cisco Discovery Protocol (CDP); Serial (aux) and console ports for local and remote administration; Remote software download via TFTP and RCP; IP over DCC for remote management of the Cisco ONS 15104 OC-48/STM-16 Optical Regenerator, where applicable
Physical Interfaces	<p>Uplink Modules: 2-port single-mode OC-48c/STM16c DPT (SR 2 km (1.2 miles), IR 15 km (9.3 miles), LR1 40km (24 miles) and LR2 80km (50miles)</p> <p>Interface Modules—The Cisco 10720 Internet Router has two dedicated slots for interface modules—modules are not interchangeable or hot swappable:</p> <ul style="list-style-type: none"><li>• Upper slot is dedicated for DPT or POS Uplink module equipped with two physical ports of OC-48c/STM16c that provide an aggregate bandwidth of approximately 5 Gbps. The cards are available in two four versions of optics, short reach (SR) and intermediate reach (IR), Long Reach1 (LR1) and Long Reach2 (LR2) with two small form-factor OC-48 ports with LC connectors.</li><li>• A third option for the upper slot is the CON-AUX module, which is a depopulated uplink card equipped with Console and Auxiliary ports only; this allows the configuration of the 10720 as an "Ethernet Router" allowing the use of one or more of the Ethernet ports in the lower slot for network connectivity</li><li>• New Uplink module that supports 2XOC48/STM16 RPR/DPT with pluggable optics. This is Cisco's first IEEE 802.17-compliant RPR module. This module can be optionally configured in SRP mode, thus making it backward compatible with existing DPT deployments</li><li>• Lower slot is dedicated for 24-port Fast Ethernet module—available in TX (100 m reach), FX-MM (2 km reach) or FX-SM (15 km reach). The TX module is equipped with RJ-45 connectors while the FX-SM and FX-MM modules are equipped with MT-RJ connectors.</li><li>• Also available is a combination 4 Gigabit Ethernet with Small Form Factor Plug-able (SFP) Optics available in SX 550m, LH 10km, ZH 70km and Copper plus an additional 8 Ports of Fast Ethernet 10/100 TX Copper ports.</li></ul>
Dimensions (H x W x D)	3.5 x 17.25 x 18.25 in. (8.9 x 43.81 x 46.35 cm)

## Selected Part Numbers and Ordering Information<sup>1</sup>

### Cisco 10700 Series

CISCO10720-AC-A	Cisco 10720 Internet Router with dual AC power supply
CISCO10720-DC-A	Cisco 10720 Internet Router with dual DC Power Supply
10720-FE-TX	24-port 10/100 Ethernet Access Module RJ45 connectors
10720-GE-FE-TX-B	4-port 100Mbps SFP GE with 8-ports of 10/100 Ethernet TX-RJ45
SFP-GE-S	GE SFP - Short Reach 550M LC connectors
SFP-GE-L	GE SFP - Intermediate Reach 10KM LC connectors
CWDM-SFP-1470	Longwave 1470 nm laser, single mode - Gray
CWDM-SFP-1490	Longwave 1490 nm laser, single mode - Violet
CWDM-SFP-1510	Longwave 1510 nm laser, single mode - Blue
CWDM-SFP-1530	Longwave 1530 nm laser, single mode - Green
CWDM-SFP-1550	Longwave 1550 nm laser, single mode - Yellow
CWDM-SFP-1570	Longwave 1570 nm laser, single mode - Orange
CWDM-SFP-1590	Longwave 1590 nm laser, single mode - Red
CWDM-SFP-1610	Longwave 1610 nm laser, single mode - Brown
SFP-GE-T	GE SFP - 1000BaseT
10720-LR2-LC-POS	OC-48c/STM-16c SRP Long Reach 2 (80km) Uplink Module-LC connectors
10720-MEM-512=	512MB RP Memory
10720-RPR-SFP	OC-48c/STM-16c RPR/SRP Uplink Module supporting SFPs
SFP-OC48-SR	OC-48c/STM-16c Short Reach (2KM) pluggable SFP
SFP-OC48-IR1	OC-48c/STM-16c Intermediate Reach1 (15KM) pluggable SFP
SFP-OC48-LR2	OC-48c/STM-16c Long Reach2 (80KM) pluggable SFP

1. This is only a small subset of all parts available via URL listed under "For More Information." Some parts have restricted access or are not available through distribution channels.

## For More Information

See the Cisco 10720 Internet Router Website: <http://www.cisco.com/go/10700>

## Cisco XR 12000 and 12000 Series

The Cisco XR 12000 Series and Cisco 12000 Series routers compose a portfolio of intelligent routing solutions that scale from 2.5G to n x 10 G capacity per slot, enabling carrier-class IP/MPLS networks and accelerating the evolution to IP Next-Generation Networks.



This portfolio uses advanced silicon and software technologies, delivering high standards of routing performance and quality of service capabilities, comprehensive high-availability support, ATM/Frame Relay transport (over an IP/MPLS core), and an integrated core and edge feature set. With a fully upgradeable modular switch fabric as well as a portfolio of SPAs and SIPs, the Cisco XR 12000 Series and 12000 Series routers help provide investment protection and low total cost of ownership.

### Key Features

- Delivers up to 1.28 Tbps switching capacity with wire-speed feature performance, scalability, and graceful hardware and software upgrade paths
- Offers full forward compatibility for all line cards and portfolio of SPAs and SIPs.
- Scales to the edge, supporting backbone- or edge-optimized line cards in the same chassis
- Maximizes the value of line-rate edge applications with 10G uplinks.
- IP QoS and congestion control implementation that enables real-time services such as VoIP and video. Its distributed architecture and class of service features such as priority based congestion control (WRED) and dedicated low latency queuing (MDRR), along with virtual output queuing (VoQ), eliminate head of line blocking (HOL) and maintain packet sequence integrity under all conditions
- Non-service impacting online insertion and removal (OIR) of components (including switch fabric cards) and front accessibility reduce downtime and simplify maintenance
- Offers Cisco NSF and Cisco Stateful Switchover (SSO) eliminate single points of failure, help maintain system performance, and prevent service interruption; packet forwarding remains uninterrupted before, during and after a route processor switchover.

### Competitive Products

• oJuniper: T640, T320, M320

• Avici: Stackable Switch Router (SSR)

### Specifications

Feature	Cisco XR 12000/ 12000	Cisco XR 12000/ 12000 Series 10-Slot Chassis	Cisco XR 12000/ 12000 Series 6-Slot Chassis	Cisco XR 12000/ 12000 Series 4-Slot Chassis
Slot Capacity	16 slots	10 slots	6 slots	4 slots
Aggregate Switching Capacity	12016: 80 Gbps; 12416: 320 Gbps; 12816: 1280 Gbps	12010: 50 Gbps; 12410: 200 Gbps; 12810: 800 Gbps	12006: 30 Gbps; 12406: 120 Gbps	12404: 80 Gbps
Full-Duplex Throughput Per	12016: 2.5 Gbps/slot 12416: 10 Gbps/slot 12816: 40 Gbps/slot	12010: 2.5 Gbps/slot 12410: 10 Gbps/slot 12810: 40 Gbps/slot	12006: 2.5 Gbps/slot 12406: 10 Gbps/slot	12404: 10 Gbps/slot
Dimensions (H x W x D)	71.5 x 17.25 x 22.0 in. (181.6 x 184.2 <sup>1</sup> x 55.9 cm) 72.5 x 18.75 x 24.0 in. <sup>2</sup> (43.8 x 47.6 x 61.0 cm) <sup>3</sup>	37.5 x 19 x 22.0 in. (95.25 x 48.26 x 55.9 cm); 24.0 in. (61.0 cm) <sup>3</sup>	18.5 in. (47.0 cm) Chassis width 17.3 in. (43.9 cm) 18.9 in. (48.0 cm) <sup>2</sup> Chassis depth 28.0 in. (71.1 cm)	8.75 in. (22.23 cm) Chassis width 17.38 in. (44.15 cm) 18.9 in. (48.01 cm) <sup>2</sup> Chassis depth 27.5 in. (69.85 cm)
Weight	140 lb (64 kg) <sup>4</sup> ; 390 lb (177 kg) <sup>5</sup>	125 lb (57 kg) <sup>4</sup> ; 275 lb (125 kg) <sup>5</sup>	140 lb (64 kg) <sup>4</sup> ; 205 lb (94 kg) <sup>5</sup>	73 lb (33.18 kg) <sup>4</sup> ; 103 lb (46.82 kg) <sup>5</sup>
Chassis Per Rack	One	Two	Four	Eight

Feature	Cisco XR 12000/ 12000 Series	Cisco XR 12000/ 12000 Series 10-Slot Chassis	Cisco XR 12000/ 12000 Series 6-Slot Chassis	Cisco XR 12000/ 12000 Series 4-Slot Chassis
<b>Software Components (Per Base System)</b>	Cisco IOS XR or Cisco IOS Software Operating System; Cisco Express Forwarding for distributed packet forwarding			
<b>Compatibility</b>	12800: Line cards that support 2.5-, 10-, or 20-Gbps capability; 12400: Line cards that support 2.5- or 10-Gbps capability; 12000: Line cards that support 2.5-Gbps capability			
<b>Protocols</b>	IPv4, MPLS, BGPv4, IS-IS, OSPFv2.0, RIPv2, IGMP, DVMRP, and PIM DX/SX			
<b>Connectivity</b>	Packet over SONET/SDH (POS), Ethernet, ATM, copper (DS-3/E3), Channelized (CT3, ChOC-3/CHSTM1, ChOC-12/CHSTM4, ChOC-48/CHSTM16); see Cisco IOS XR Software release notes for specific connectivity support on the Cisco XR 12000 Series			

1. With AC input power shelf or DC input power shelf, front covers installed
2. Including chassis rack-mount flanges
3. Including cable-management system and front cover
4. Chassis only, including power shelf for 16-slot chassis
5. Chassis fully configured, using all card slots, AC or DC power shelf for 16-slot chassis, and AC or DC input power supplies

## Selected Part Numbers and Ordering Information<sup>1</sup>

### Cisco XR 12000 16-Slot Systems

XR-12416/320-AC	Cisco XR 12000 16-slot Chassis with 3 AC power supplies, 320-Gbps fabric (2 CSC and 3 SFC cards), 2
XR-12416/320-AC4	Cisco XR 12000 16-slot Chassis with 4 AC power supplies, 320-Gbps fabric (2 CSC and 3 SFC cards), 2
XR-12416/320-DC	Cisco XR 12000 16-slot Chassis with 4 DC power supplies, 320-Gbps fabric (2 CSC and 3 SFC cards), 2

### Cisco 12000 16-Slot Systems

GSR16/80-AC-8R	Cisco 12000 16-slot Chassis with 3 AC power supplies, 80-Gbps fabric (2 CSC and 3 SFC cards), 2 blowers, 2
GSR16/320-AC	Cisco 12000 16-slot Chassis with 3 AC power supplies, 320-Gbps fabric (2 CSC and 3 SFC cards), 2 blowers, 2
12816/1280-AC3	Cisco 12000 16-slot Chassis with 3 AC power supplies, 1280-Gbps fabric (2 CSC and 3 SFC cards), 2 blowers, 2 alarms, and 1 PRP-1
GSR16/80-AC4-8R	Cisco 12000 16-slot Chassis with 4 AC power supplies, 80-Gbps fabric (2 CSC and 3 SFC cards), 2 blowers, 2
GSR16/320-AC4	Cisco 12000 16-slot Chassis with 4 AC power supplies, 320-Gbps fabric (2 CSC and 3 SFC cards), 2 blowers, 2
12816/1280-AC4	Cisco 12000 16-slot Chassis with 4 AC power supplies, 1280-Gbps fabric (2 CSC and 3 SFC cards), 2 blowers, 2 alarms, and 1 PRP-1
GSR16/80-DC-8R	Cisco 12000 16-slot Chassis with 4 DC power supplies, 80-Gbps fabric (2 CSC and 3 SFC cards), 2 blowers, 2
GSR16/320-DC	Cisco 12000 16-slot Chassis with 4 DC power supplies, 320-Gbps fabric (2 CSC and 3 SFC cards), 2 blowers, 2
12816/1280-DC	Cisco 12000 16-slot Chassis with 4 DC power supplies, 1280-Gbps fabric (2 CSC and 3 SFC cards), 2 blowers, 2 alarms, and 1 PRP-1

### Cisco XR 12000 10-Slot Systems

XR-12410/200-AC	Cisco XR 12000 10-slot Chassis with 2 AC power supplies, 200-Gbps fabric (2 CSC and 5 SFC cards), 1
XR-12410/200-DC	Cisco XR 12000 10-slot Chassis with 2 DC power supplies, 200-Gbps fabric (2 CSC and 5 SFC cards), 1

### Cisco 12000 10-Slot Systems

12010-AC	Cisco 12000 10-slot Chassis with 2 AC power supplies, 50-Gbps fabric (2 CSC and 5 SFC cards), 1 blower, 2
12010-DC	Cisco 12000 10-slot Chassis with 2 DC power supplies, 50-Gbps fabric (2 CSC and 5 SFC cards), 1 blower, 2
GSR10/200-AC	Cisco 12000 10-slot Chassis with 2 AC power supplies, 200-Gbps fabric (2 CSC and 5 SFC cards), 1 blower, 2
GSR10/200-DC	Cisco 12000 10-slot Chassis with 2 DC power supplies, 200-Gbps fabric (2 CSC and 5 SFC cards), 1 blower, 2
12810/800-AC	Cisco 12000 10-slot Chassis with 2 AC power supplies, 800-Gbps fabric (2 CSC and 5 SFC cards), 1 blower, 2
12810/800-DC	Cisco 12000 10-slot Chassis with 2 DC power supplies, 800-Gbps fabric (2 CSC and 5 SFC cards), 1 blower, 2

### Cisco XR 12000 6-Slot Systems

XR-12406/120-AC	Cisco XR 12000 6-slot Chassis with 1 AC power supply, 120-Gbps fabric (1 CSC and 3 SFC cards), 1 blower, 2
XR-12406/120-DC	Cisco XR 12000 6-slot Chassis with 1 DC power supply, 120-Gbps fabric (1 CSC and 3 SFC cards), 1 blower, 2

### Cisco 12000 6-Slot Systems

12006-AC	Cisco 12000 6-slot Chassis with 2 AC power supplies, 30-Gbps fabric (2 CSC and 3 SFC cards), 1 blower, 2
12006-DC	Cisco 12000 6-slot Chassis with 2 DC power supplies, 30-Gbps fabric (2 CSC and 3 SFC cards), 1 blower, 2
GSR6/120-AC	Cisco 12000 6-slot Chassis with 1 AC power supply, 120-Gbps fabric (1 CSC and 3 SFC cards), 1 blower, 2
GSR6/120-DC	Cisco 12000 6-slot Chassis with 1 DC power supply, 120-Gbps fabric (1 CSC and 3 SFC cards), 1 blower, 2

### Cisco XR 12000 4-Slot Systems

XR-12404/80-AC	Cisco XR 12000 4-slot Chassis with 2 AC power supply, 80-Gbps fabric (consolidated switch fabric, clock scheduler, and alarm card), 1 blower, and 1 PRP-2
XR-12404/80-DC	Cisco XR 12000 4-slot Chassis with 2 DC power supply, 80-Gbps fabric (consolidated switch fabric, clock scheduler, and alarm card), 1 blower, and 1 PRP-2

### Cisco 12000 4-Slot Systems

GSR4/80-AC	Cisco 12000 4-slot Chassis with 2 AC power supply, 80-Gbps fabric (consolidated switch fabric, clock scheduler, and alarm card), 1 blower, and 1 PRP-1
GSR4/80-DC	Cisco 12000 4-slot Chassis with 2 DC power supply, 80-Gbps fabric (consolidated switch fabric, clock scheduler, and alarm card), 1 blower, and 1 PRP-1

### Cisco 12000 Series Processors

PRP-1	Cisco 12000 Series Performance Route Processor
PRP-1/R	Redundant PRP-1 chassis upgrade option, factory only
PRP-2	Cisco 12000 Series Performance Route Processor-2
PRP-2/R	Redundant PRP-2 chassis upgrade option, factory only

### Cisco 12000 Series Line Cards

12DS3-SMB	DS3 line card, 12 ports
12E3-SMB	E3 line card, 12 ports

160C3X/POS-I-LC-B	16 PORT OC3 WITH EXTENDED FEATURES RELEASE B
160C3X/POS-M-MJ-B	GSR 16-port OC3/POS MM Eng3 release B
1X10GE-ER-SC	Cisco 12000 1-Port 10GE Card, 1550nm serial, 40km, SC
1X10GE-LR-SC	Cisco 12000 1-Port 10GE Card, 1310nm serial, 10km, SC
2CHOC3/STM1-IR-SC	Channelized OC3/STM1 -> DS1/E1, 2 ports Intermediate Reach
20C192/POS-IR-SC	Cisco Two-port OC192c/STM64c POS Line Card 1550nm IR, SC
20C192/POS-SR-SC	Cisco Two-port OC192c/STM64c POS Line Card 1310 nm SR, SC
20C192/POS-VSR	Cisco Two-port OC192c/STM64c POS Line Card 850nm VSR, MTP
4CHOC12/DS3-I-SCB	4 PORT CHANNELIZED OC12 B
4GE-SFP-LC	4-port-GE line card for Cisco 12000
40C12X/ATM-IR-SC	4-port OC12/STM4 ATM SM-IR ISE LC with SC connector
40C12X/ATM-MM-SC	4-port OC12/STM4 ATM MM ISE LC with SC connector
40C12X/POS-I-SC-B	4 PORT OC12 POS B
40C12X/POS-M-SC-B	4-port OC12/POS Eng3 Multi-mode
40C12X/SRP-IR-LC	4 port OC-12c/STM-4c SRP ISE Line Card, 1310nm IR, LC
40C12X/SRP-XR-LC	4 port OC-12c/STM-4c SRP ISE Line Card, 1550nm XR, LC
40C3X/ATM-IR-SC	4-port OC3/STM1 ATM SM-IR ISE LC with SC connector
40C3X/ATM-MM-SC	4-port OC3/STM1 ATM MM ISE LC with SC connector
40C3X/POS-IR-LC-B	GSR 4-port OC3/POS IR Eng3 release B
40C3X/POS-LR-LC-B	GSR 4-port OC3/POS LR Eng3 release B
40C3X/POS-MM-MJ-B	GSR 4-port OC3/POS MM Eng3 release B
40C48E/POS-LR-SC	Edge 4 Port OC-48c/STM-16c SONET/SDH LR with SC
40C48E/POS-SR-SC	Edge 4 Port OC-48c/STM-16c SONET/SDH SR with SC
40C48/SRP-SFP	4 Port OC48c/STM16c SRP Linecard, SFP Optics
6CT3-SMB	Channelized T3 for the GSR
6DS3-SMB-B	6DS3-SMB-B w/ ECC
6E3-SMB	E3 line card, 6 ports
8FE-FX-SC-B	GSR 8-port 100baseFX, SC connector, version B
8FE-TX-RJ45-B	8-port 100baseTX, RJ45 connector type, version B
80C3X/POS-IR-LC-B	GSR 8-port OC3/POS IR Eng3 release B
80C3X/POS-MM-MJ-B	GSR 8-port OC3/POS MM Eng3 release B
CHOC12/DS1-IR-SC	GSR12000 Channelized OC12/STM4 to DS1 (Engine3 based)
CHOC48/DS3-SR-SC	1 port Channelized OC-48 to DS3
EPA-3GE-SX/LH-LC	Cisco 12000 3-Port GE Port Adapter for EPA-GE/FE-BBRD
EPA-GE/FE-BBRD	Cisco 12000 Modular GE Baseboard w/ 1GE and 3 EPA Slots
LC-10C12/ATM-MM	1 port OC12/STM4 ATM Line Card, Multi-Mode
LC-10C12/ATM-SM	1 port OC12/STM4 ATM Line Card, Single-Mode
LC-10C12/POS-MM	1 port OC12/STM4 Packet Over SONET/SDH Line Card, Multi-Mode
LC-10C12/POS-SM	1port OC12/STM4 Packet Over SONET/SDH Line Card, Single-Mode
OC192E/POS-IR-SC	1 Port OC192c/STM64c POS Edge Card, 1550nm IR, SC
OC192E/POS-LR-SC	OC192/STM64 Packet over Sonet Long Reach with SC
OC192E/POS-SR-SC	1 Port OC192c/STM64c POS Edge Card, 1310nm SR, SC
OC192E/POS-VSR	1 Port OC192c/STM64c POS Edge Card, VSR Optics
OC192/SRP-IR-PR	Two OC192/SRP-IR-SC Linecards With One CBL-SRP-OC192 Cable
OC192/SRP-IR-SC	1 Port OC192c/STM64c SRP Linecard, 1550nm IR, SC
OC192/SRP-SR-PR	Two OC192/SRP-SR-SC Linecards With One CBL-SRP-OC192 Cable
OC192/SRP-SR-SC	1 Port OC192c/STM64c SRP Linecard, 1310nm SR, SC
OC192/SRP-VSR	1 Port OC192c/STM64c SRP Linecard, 850nm VSR, MTP
OC192/SRP-VSR-PR	Two OC192/SRP-VSR Linecards With One CBL-SRP-OC192 Cable
OC48/SRP-LR-B-PR	Two OC48/SRP-LR-SC-B Line Cards with MATE Cable
OC48/SRP-LR-SC-B=	OC48 SRP Rev-B Line Card, Single Mode, Long Reach
OC48/SRP-SR-B-PR	Two OC48/SRP-SR-SC-B Line Cards with MATE Cable, GSR
OC48/SRP-SR-SC-B=	OC48 SRP Rev-B Line Card, Single Mode, Short Reach, GSR
OC48X/POS-LR-SC	CONCATENATED OC48 WITH EXTENDED FEATURES LONG REACH
OC48X/POS-SR-SC	1 port OC48 POS Extended features
12000-SIP-400	Cisco 12000 Series SPA Interface Processor-400
12000-SIP-400=	Cisco 12000 Series SPA Interface Processor-400, spare
SPA-4XT3/E3	4-port Clear Channel T3/E3 Shared Port Adapter
SPA-2XT3/E3	2-port Clear Channel T3/E3 Shared Port Adapter
SPA-4XCT3/DS0	4-port Channelized T3 to DS0 Shared Port Adapter
SPA-2XCT3/DS0	2-port Channelized T3 to DS0 Shared Port Adapter
12000-SIP-600	Cisco 12000 Series SPA Interface Processor-600
12000-SIP-600=	Cisco 12000 Series SPA Interface Processor-600, spare
SPA-10X1GE	10-port Gigabit Ethernet Shared Port Adapter
SPA-5X1GE	5-port Gigabit Ethernet Shared Port Adapter
SPA-OC192POS-XFP	1-port OC192/STM64 POS/RPR XFP Optics
SPA-OC192POS-LR	1-port OC192/STM64 POS/RPR SMLR Optics
SPA-1XTENGE-XFP	1-port 10Gigabit Ethernet Shared Port Adapter XFP based

1. Some parts have restricted access or are not available through distribution channels.

## For More Information

See the Cisco XR 12000 and 12000 Series Website: <http://www.cisco.com/go/12000>



# LAN Switching

## LAN Switching Products at a Glance

Product	Features	Page
<b>Fixed Configuration Products</b>		
<b>Catalyst 2940 Series</b>	<ul style="list-style-type: none"> <li>Fixed-configuration Ethernet switches</li> <li>Autosensing 48 10/100/1000BASE-T ports and 4 small form-factor pluggable (SFP) ports, providing a total of 52 Gigabit Ethernet ports</li> <li>Managed</li> </ul>	2-3
<b>Catalyst 2948 Series</b>	<ul style="list-style-type: none"> <li>Fixed-configuration 10/100 Ethernet switches</li> <li>8 10/100 ports + 1 10/100/1000BASE-T port (WS-C2940-8TT-S)</li> <li>8 10/100 ports + 1 100BASE-FX or SFP port (WS-C2940-8TF-S)</li> <li>Small form factor (10.6 in. long and 6.4 in. deep) and all metal shell</li> <li>Silent operation with no fans</li> <li>Flexible mounting capabilities</li> <li>Simplified network management through Cisco Network Assistant (CNA).</li> </ul>	2-4
<b>Catalyst 2950 Series</b>	<ul style="list-style-type: none"> <li>Fixed-configuration basic and Intelligent Ethernet 10/100 switches</li> <li>12/24/48 10/100 port managed switches with stackable and standalone models</li> <li>Flexible uplink options: fixed 100Base FX, fixed 1000BaseT, fixed 1000BaseSX, and GBIC-based ports</li> <li>Models with the Standard Image software (SI) provide Layer 2 Cisco IOS functionality for basic data, voice, and video services at the edge of the network.</li> <li>Models with the Enhanced Image software (EI) bring Layer 2-4 intelligent services such as advanced Quality of Service, rate limiting, security filtering and multicast management capabilities</li> <li>Stackable up to 9 switches with Gigastack GBIC</li> <li>Simplified network management through CNA.</li> </ul>	2-10
<b>Catalyst 2955 Series</b>	<ul style="list-style-type: none"> <li>Industrial-grade, rugged models (Catalyst 2955) for harsh environment deployments</li> <li>12/24/48 10/100 port managed switches with stackable and standalone models</li> <li>Flexible uplink options: fixed 100Base FX, fixed 1000BaseT, fixed 1000BaseSX, and GBIC-based ports</li> <li>Models with the SI software provide Layer 2 Cisco IOS functionality</li> <li>Models with the EI software bring Layer 2-4 intelligent services</li> <li>Stackable up to 9 switches with Gigastack GBIC</li> <li>Simplified network management through CNA</li> </ul>	2-10
<b>Catalyst 2970 Series</b>	Affordable Gigabit-to-the-desktop Ethernet switches that deliver wire-speed intelligent services for small and medium-sized businesses and enterprise branch offices.	2-12
<b>Catalyst 3560 Series</b>	<ul style="list-style-type: none"> <li>Fast-Ethernet and Gigabit-Ethernet configurations</li> <li>Extensive network security capability</li> <li>Granular network control and bandwidth optimization</li> <li>Network scalability</li> <li>Lower Total Cost of Ownership (TCO)</li> </ul>	2-13
<b>Catalyst 3750 Series</b>	<ul style="list-style-type: none"> <li>Provides the highest levels of resilient stacking via Cisco StackWise™ technology, intelligent network services, and Gigabit Ethernet optimization</li> <li>Provides configurations that can be interconnected and stackable up to 9 switches</li> </ul>	2-16
<b>Catalyst 4948 Series</b>	High performance fixed Gigabit Ethernet switch with intelligent enterprise Cisco IOS services	2-19
<b>Modular Switching Products</b>		
<b>Catalyst 4500 Series</b>	<ul style="list-style-type: none"> <li>Modular switch with integrated intelligent L2-L4 services for converged networks in enterprise LAN Access, Layer2/Layer3 distribution, SMB and branch office.</li> <li>Scalable, evolutionary modular architecture for investment protection</li> <li>Up to 384 ports of Fast Ethernet or Gigabit Ethernet over Fiber or Copper with wire-speed 10 Gigabit Ethernet Uplinks</li> <li>High performance, Layer 2/3/4 switching up to 136 Gbps and 102 Mpps</li> <li>Advanced network control with predictable performance, granular QoS, advanced security and web-based Network Management</li> </ul>	2-20

Product	Features	Page
Catalyst 6500 Series	High-performance, multilayer switch with integrated intelligent services for enterprise campus backbones, wiring closets, server aggregation, or internet data centers <ul style="list-style-type: none"><li>Up to 1152 10/100 ports and 57710/100/1000 ports, up to 410 high performance Gigabit Ethernet ports, up to 32 10GE ports, multigigabit L4-7 and Security Services such as Firewall, Intrusion Detection and Load Balance</li><li>Layer 4-7 services</li><li>Up to 720 Gbps of switching capacity and Packet throughput scalable to 425 Mpps IPv4 (200 Mpps IPv6)</li></ul>	2-22
Catalyst 8500 Series	High-performance, modular, multimedia switch router <ul style="list-style-type: none"><li>Wire speed, nonblocking IP, IPX, IP multicast Layer 3 switching</li><li>Multiple interface options</li><li>Managed</li></ul>	2-25

Cisco LAN and MAN Products Port Matrix

	Fixed Switches								Modular Switches		
	Catalyst 2940	Catalyst 2948	Catalyst 2950	Catalyst 2955	Catalyst 2970	Catalyst 3560	Catalyst 3750	Catalyst 4948	Catalyst 4500	Catalyst 6500	Catalyst 8500
Fixed Ports Only	X										
Fixed and Modular Ports		X	X	X	X	X	X	X	X		
Modular Ports Only										X	X
Ports											
10BASE-T Switched	X	X	X	X		X	X	X	X	X	
10BASE-FL Switched										X	
100BASE-T Switched	X	X	X	X		X	X	X	X	X	X
100BASE-FX Switched		X	X	X		X	X		X	X	
10/100 Autosensing Switched	X	X	X	X		X	X	X	X	X	X
10/100/1000BaseT					X	X	X	X	X	X	
Gigabit Ethernet	X	X	X	X	X	X	X	X	X	X	X
10 Gigabit Ethernet							X	X	X	X	
ATM										X	X
Integrated PoE						X	X		X	X	
Integrated Server Load Balancing										X	

## Cisco Catalyst 2940 Series

The Cisco Catalyst 2940 series switches are small, standalone, managed switches with eight Fast Ethernet ports and a single integrated Fast Ethernet or Gigabit Ethernet uplink. The switches are designed to be used outside the wiring closet in the end-user workspace, and feature a durable metal shell, no fan for silent operation, easy wall or under-the-desk mounting, a security lock slot to prevent theft, and an available cable guard to secure the Ethernet cables and switch.



### When to Sell

#### Sell This Product

##### Catalyst 2940 Series

#### When a Customer Needs These Features

- Low port density and price with high performance 10/100 Mbps connectivity
- Small size with quiet operation
- Fiber or 10/100/1000BaseT uplink
- Flexible mounting capabilities

### Key Features

- Network Management—CNA offers centralized management and configuration of Cisco networks to simplify deployment and ongoing maintenance by leveraging Cisco Smartports technology. CNA is a PC-based network management application optimized for networks with 20 devices or less.
- Express Setup is a Web browser utility that allows simple switch setup so that novices can even perform a basic configuration
- Wire-speed performance across all ports
- Deployed in small workgroups environments outside of the wiring closet
- QoS and security based on Layer 2 information

### Specifications

Feature	Catalyst 2940-8TT	Catalyst 2940-8TF
Fixed Ports	8 port 10/100 autosensing & 1 port 10/100/1000	8 port 10/100 autosensing & 1 port 100BASE-FX or 1000BASE-X SFP
Forwarding Bandwidth	3.6 Gbps	Same as Catalyst 2940-8TT
Forwarding Rate	2.7 Mpps	Same as Catalyst 2940-8TT
Full Duplex Capabilities	All Ports	Same as Catalyst 2940-8TT
VLAN Maximum	4-port-based VLANs	Same as Catalyst 2940-8TT
FEC	Yes	Same as Catalyst 2940-8TT
802.1Q	Yes	Same as Catalyst 2940-8TT
Security	Port Security with MAC aging, Private VLAN Edge, 802.1x, TACACS+, RADIUS	Same as Catalyst 2940-8TT
Multicast	IGMP Snooping	Same as Catalyst 2940-8TT
QoS	802.1p, 4 egress queues, WRR, SPS	Same as Catalyst 2940-8TT
Management Capabilities	SNMP, Telnet, RMON, CiscoWorks, CNA	Same as Catalyst 2940-8TT
Flash Memory	8 MB	Same as Catalyst 2940-8TT
CPU DRAM	16 MB	Same as Catalyst 2940-8TT
Embedded RMON	History, Events, Alarms, Statistics	Same as Catalyst 2940-8TT
Dimensions (H x W x D)	1.55 x 10.6 x 6.42 in. (3.94 x 26.92 x 16.3 cm)	Same as Catalyst 2940-8TT
Weight	3 lb (1.36 kg)	Same as Catalyst 2940-8TT

## Selected Part Numbers and Ordering Information<sup>1</sup>

### Catalyst 2940 Series

WS-C2940-8TF	8 10/100 ports and 1 100BASE-FX or SFP port
WS-C2940-8TT	8 10/100 ports and 1 10/100/1000 port
CABLEGUARD-C2940=	Cable Guard secures switch; prevents tampering w/ Ethernet jacks

### SFP Transceivers

GLC-LH-SM=	1000BASE-LX/LH Gigabit Ethernet SFP, LC connector, LH transceiver
GLC-SX-MM=	1000BASE-SX Gigabit Ethernet SFP, LC connector, SX transceiver

### Fiber Patch Cables

CAB-MTRJ-SC-MM-1M=	1-meter, MT-RJ-to-SC multimode cable
CAB-MTRJ-ST-MM-1M=	1-meter, MT-RJ-to-ST multimode cable
CAB-MTRJ-SC-MM-3M=	3-meter, MT-RJ-to-SC multimode cable
CAB-MTRJ-ST-MM-3M=	3-meter, MT-RJ-to-ST multimode cable
CAB-MTRJ-SC-MM-5M=	5-meter, MT-RJ-to-SC multimode cable
CAB-MTRJ-ST-MM-5M=	5-meter, MT-RJ-to-ST multimode cable

### Catalyst 2940 Series Packaged SMARTnet Maintenance 8x5xNBD

CON-SNT-29408TF	Packaged SMARTnet 8x5xNBD Maintenance for the Catalyst 2940-8TF
CON-SNT-29408TT	Packaged SMARTnet 8x5xNBD Maintenance for the Catalyst 2940-8TT

1. This is only a small subset of all parts available via URL listed under "For More Information." Some parts have restricted access or are not available through distribution channels. Resellers: For latest part number and pricing info, see the *Distribution Product Reference Guide* at: <http://www.cisco.com/dprg> (limited country availability).

## For More Information

See the Catalyst 2940 Website: <http://www.cisco.com/go/catalyst2940>

## Cisco Catalyst 2948 Series



The Cisco Catalyst 2948G-GE-TX Gigabit Ethernet switch offers affordable Gigabit Ethernet connectivity for small and mid-size networks. It enhances network performance and productivity where higher densities of 10/100/1000BASE-T ports are required. The Catalyst 2948G-GE-TX is an affordable solution for delivering Gigabit Ethernet connectivity to the desktop over Category 5 copper cabling.

## Key Features

- Autosensing 48 10/100/1000BASE-T ports and 4 small form-factor pluggable (SFP) ports, providing a total of 52 Gigabit Ethernet ports; 4 SFP ports are wire-speed, and the 48 10/100/1000BASE-T ports can burst to Gigabit Ethernet line rate and share 12 Gbps of capacity (or 6 Gbps full-duplex) into the switching fabric
- All ports can use Cisco Gigabit EtherChannel® or IEEE 802.3ad for high-speed interconnection applications
- Uses the standard IEEE 802.3x flow control (PAUSE frame) mechanism to control Gigabit Ethernet host traffic
- Uses the feature-rich Cisco Catalyst OS software

## Specifications

Feature	Catalyst 2948G-GE-TX
<b>Fixed Ports (connections)</b>	48 Ethernet 10/100/1000BASE-T ports and 4 SFP-based Gigabit Ethernet ports; )
<b>Full-Duplex Capabilities</b>	6 Gbps full-duplex
<b>VLAN Maximum</b>	2000
<b>Flash Memory</b>	16 MB
<b>DRAM Memory</b>	64 MB
<b>Embedded RMON</b>	Statistics, history, alarms, events
<b>Warranty</b>	Limited lifetime hardware warranty
<b>Performance</b>	20 Gbps maximum forwarding bandwidth at Layer 2 switching fabric; Forwarding rate of 29.76 Mpps for 64-byte packets; 64 MB DRAM and 16 MB Flash memory; Configurable up to 16,000 MAC addresses; Configurable maximum transmission unit (MTU) of up to 1522 bytes for bridging on Gigabit Ethernet ports



Feature	Catalyst 2948G-GE-TX
<b>Connectors and Cabling</b>	10BASE-T ports: RJ-45 connectors, 2-pair Category 3, 4, or 5 unshielded twisted-pair (UTP) cabling; 100BASE-TX ports: RJ-45 connectors, 2-pair Category 5 UTP cabling; 1000BASE-T ports: RJ-45 connectors, 4-pair Category 5 UTP cabling; 1000BASE-T SFP-based ports: RJ-45 connectors, 4-pair Category 5 UTP cabling; 1000BASE-SX, -LX/LH, -ZX, and CWDM SFP-based ports: LC fiber connectors (single-mode, or multimode fiber); 10/100 management port: RJ-45 connector; Management console port: RJ-45-to-DB9 cable for PC connections
<b>Power Connectors</b>	Customers can provide power to a switch by using either the internal power supply or the Cisco RPS 675. Internal Power Supply Connector: autoranging unit, supports input voltages between 100 and 240 VAC. Use the supplied AC power cord to connect the AC power connector to an AC power outlet; Cisco RPS Connector: optional Cisco RPS 675 that uses AC input and supplies DC output to the switch, offers a 675W RPS that supports up to six external network devices and provides power to one failed device at a time, automatically senses when the internal power supply of a connected device fails and provides power to the failed device, preventing loss of network traffic. Only the Cisco RPS 675 (model PWR675-AC-RPS-N1=) should be attached to the redundant power supply receptacle
<b>RPS</b>	Yes, RPS 675
<b>Indicators</b>	Per-port link status LED; System-status LEDs: system, power, and RPS
<b>Environmental Ranges</b>	Operating temperature: 32 to 113°F (0 to 45°C) Storage temperature: -13 to 158°F (-25 to 70°C) Operating relative humidity: 10 to 85 percent (noncondensing) Operating altitude: Up to 10,000 ft (3049 m) Storage altitude: Up to 15,000 ft (4573 m)
<b>Safety Certifications</b>	UL to UL 60950, Third Edition; C-UL to CAN/CSA C22.2 No. 60950-00, Third Edition; TUV/GS to EN 60950:2000; CB to IEC 60950 with all country deviations; NOM to NOM-019-SCFI; CE Marking
<b>Dimensions (H x W x D)</b>	1.73 x 17.5 x 17 in. (4.39 x 44.5 x 43.1 cm)
<b>Weight</b>	13 lb (5.9 kg)
<b>Electromagnetic Emissions Certifications</b>	FCC Part 15 Class A; EN 55022: 1998 (CISPR22); EN 55024: 1998 (CISPR24); VCCI Class A; AS/NZS 3548 Class A; CE; CNS 13438 Class A; MIC
<b>Telco</b>	CLEI code

## Selected Part Numbers and Ordering Information<sup>1</sup>

### Catalyst 2900 Series Switches

WS-C2948G-GE-TX	48 10/100/1000 ports + 4 SFP ports
PWR675-AC-RPS-N1=	Cisco RPS 675 with one connector cable
CAB-RPS-1614=	1.2-meter cable for Cisco RPS 675 to external device connection
RCKMNT-1RU=	Spare rack mount kit
RCKMNT-REC-1RU=	Recessed spare rack mount kit
GLC-LH-SM=	Gigabit Ethernet SFP, LC connector, LH transceiver
GLC-SX-MM=	Gigabit Ethernet SFP, LC connector, SX transceiver
GLC-ZX-SM=	Gigabit Ethernet SFP, LC connector, ZX transceiver
GLC-T=	Gigabit Ethernet SFP, RJ-45 connector, 10/100/1000BASE-T transceiver
CWDM-SFP-1470= *	Cisco CWDM SFP 1470 nm; Gigabit Ethernet and 1G/2G FC (gray)
CWDM-SFP-1490= *	Cisco CWDM SFP 1490 nm; Gigabit Ethernet and 1G/2G FC (violet)
CWDM-SFP-1510= *	Cisco CWDM SFP 1510 nm; Gigabit Ethernet and 1G/2G FC (glue)
CWDM-SFP-1530= *	Cisco CWDM SFP 1530 nm; Gigabit Ethernet and 1G/2G FC (green)
CWDM-SFP-1550= *	Cisco CWDM SFP 1550 nm; Gigabit Ethernet and 1G/2G FC (yellow)
CWDM-SFP-1570= *	Cisco CWDM SFP 1570 nm; Gigabit Ethernet and 1G/2G FC (orange)
CWDM-SFP-1590= *	Cisco CWDM SFP 1590 nm; Gigabit Ethernet and 1G/2G FC (red)
CWDM-SFP-1610= *	Cisco CWDM SFP 1610 nm; Gigabit Ethernet and 1G/2G FC (brown)
CSS5-CABLX-LCSC=	CSS11500 10-meter fiber single-mode LX LC-to-SC connectors
CSS5-CABSX-LC=	CSS11500 10-meter fiber multimode SX LC connectors
CSS5-CABSX-LCSC=	CSS11500 10-meter fiber multimode SX LC-to-SC connectors
CAB-SM-LCSC-1M	1-meter fiber single-mode LC-to-SC connectors
CAB-SM-LCSC-5M	5-meter fiber single-mode LC-to-SC connectors

1. This is only a small subset of all parts available via URL listed under "For More Information." Some parts have restricted access or are not available through distribution channels. Resellers: For latest part number and pricing info, see the *Distribution Product Reference Guide* at: <http://www.cisco.com/dprg> (limited country availability).

## For More Information

See the Catalyst 2900 Website: <http://www.cisco.com/go/2900>

# Cisco Catalyst 2950 Series Intelligent Ethernet Switches



The Catalyst 2950 Series with Intelligent Ethernet Switches are fixed-configuration, standalone and stackable models that provide wire-speed Fast Ethernet and Gigabit Ethernet connectivity for small, mid-sized, service provider and industrial networks. When a Catalyst 2950 Switch is combined with a Catalyst 3550 Series Switch, the solution is capable of enabling IP routing from the edge to the core of the network. These Intelligent Ethernet Switches come with Enhanced Image (EI) software configuration only.

In addition to the range of Intelligent Ethernet switches, the Catalyst 2950 Series also includes switches with Standard Image (SI) software configuration only and are standalone, fixed-configuration, managed 10/100 switches with Gigabit uplinks (2950SX-48, 2950T-48, and 2950SX-24 only) providing user connectivity for small to mid-sized networks. These wire-speed desktop switches come with Standard Image (SI) software features and offer Cisco IOS functionality for basic data, video and voice services at the edge of the network.

## When to Sell

### Sell This Product

**Catalyst 2950 Series Intelligent Ethernet Switches with EI**

**Catalyst 2950G-48-EI**

**Catalyst 2950G-24-EI**

**Catalyst 2950G-24-EI-DC**

**Catalyst 2950G-12-EI**

**Catalyst 2950T-48**

**Catalyst 2950T-24**

**Catalyst 2950C-24**

**Catalyst 2950 Series with SI**

**Catalyst 2950-12**

**Catalyst 2950-24**

**Catalyst 2950SX-48**

**Catalyst 2950SX-24**

### When a Customer Needs These Features

- Layer 2/3/4 based services: Advanced QoS, Security, High availability and STP enhancements
- Wire-speed performance
- Advanced QoS, Security, High availability and STP enhancements
- CNA
- Stackable
- GBIC based uplink ports for media flexibility
- Ideal for desktop connectivity
- High Port Density
- Ideal for desktop connectivity
- Medium Port Density
- Ideal for Telco/DCN environments
- NEBS compliant
- Medium Port Density
- Ideal for desktop connectivity
- Low Port density
- High port density
- High speed uplink connectivity with 2 fixed 10/100/1000BASE-T ports
- High speed uplink connectivity with 2 fixed 10/100/1000BASE-T ports
- Low price per port
- High speed uplink connectivity over extended distances with 2 fixed 100BASE-FX connections using MT-RJ connectors
- Low price per port
- Wire speed, high performance switches for delivering 10/100 Mbps speed connectivity to desktop PCs, servers and other systems
- Layer 2-based QoS and Security features
- CNA
- Ideal for desktop connectivity-
- Low Port density
- Medium port density
- High port density
- High speed uplink connectivity with 2 fixed 1000BASE-SX ports
- High speed uplink connectivity with 2 fixed 1000BASE-SX ports
- Medium port density

**Key Features**

- Network Management—CNA offers centralized management and configuration of Cisco networks to simplify deployment and ongoing maintenance by leveraging Cisco Smartports technology. CNA is a PC-based network management application optimized for networks with 20 devices or less.
- Wire-speed performance in connecting end-stations to the LAN
- Provides intelligent services such as advanced quality of service, rate-limiting, security filters, and multicast management, to the network edge-while maintaining the simplicity of traditional LAN switching
- Ideal for small- and mid-sized networks
- Sophisticated Multicast Management via IGMP Snooping
- Scalability and high availability features
- Support for Cisco Redundant Power System 675 (RPS 675)

**Competitive Products**

- Hewlett Packard: Procurve 2500/2650
- Nortel: BPS 2000/450T/420T
- 3 Com: Superstack 3300/4300/4400/4400SE/4200 series
- Extreme: Summit 24 e2e3
- Dell: Powerconnect 3024/3048/3248
- Hirshchmann
- GarretCom
- Sixnet

**Specifications**

Feature	2950G-48-EI	2950G-24-EI	2950G-24-EI-DC	2950G-12-EI	2950T-24
<b>Fixed Ports</b>	48 port 10/100 autosensing & 2 GBIC-based Gigabit Ethernet ports	24 port 10/100 autosensing & 2 GBIC ports	24 port 10/100 autosensing & 2 GBIC ports and DC Power	12 port 10/100 autosensing & 2 GBIC ports	26-port (24 10/100 autosensing & 2 ports 1000BaseT
<b>Forwarding Bandwidth</b>	13.6 Gbps	8.8 Gbps	8.8Gbps	6.4Gbps	8.8 Gbps
<b>Forwarding Rate</b>	10.1 Mpps	6.6 Mpps	6.6 Mpps	4.8 Mpps	6.6 Mpps
<b>Full-Duplex Capabilities</b>	All Ports	All Ports	All Ports	All Ports	All Ports
<b>VLAN Maximum</b>	250-port-based VLANs	Same as 2950G-48-EI	Same as 2950G-48-EI	Same as 2950G-48-EI	Same as 2950G-48-EI
<b>FEC</b>	Yes	Yes	Yes	Yes	Yes
<b>802.1Q</b>	Yes	Yes	Yes	Yes	Yes
<b>Security</b>	Port Security, with MAC aging, Private VLAN Edge, ACL 802.11x, IBNS, SSH, RADIUS, TACACS+, SNMPv3 (crypto), BPDU Guard, BPDU Filtering, SPAN for Intrusion Detection, Spanning Tree Root Guard	Same as 2950G-48-EI	Same as 2950G-48-EI	Same as 2950G-48-EI	Same as 2950G-48-EI
<b>Multicast</b>	IGMP Snooping, IGMP filtering, Multicast VLAN Registration	Same as 2950G-48-EI	Same as 2950G-48-EI	Same as 2950G-48-EI	Same as 2950G-48-EI
<b>QoS</b>	802.1P, 4 egress queues, Weighted Round Robin, Strict Priority Scheduling, Expedite Queuing, Policing, Marking, Layer 3 and 4 Services, Auto QoS	Same as 2950G-48-EI	Same as 2950G-48-EI	Same as 2950G-48-EI	Same as 2950G-48-EI
<b>Management Capabilities</b>	Express Setup, SPAN for Intrusion Detection, L2 Trace Route, VLAN 1 minimization, Auto configuration, SNMP, Telnet, RMON, CWSI, (CLI)-based out-of-band, embedded CMS, RSPAN	Same as 2950G-48-EI	Same as 2950G-48-EI	Same as 2950G-48-EI	Same as 2950G-48-EI
<b>Software Image</b>	EI	EI	EI	EI	EI
<b>Flash Memory</b>	8 MB	8 MB	8 MB	8 MB	8 MB
<b>CPU DRAM</b>	16 MB	16 MB	16 MB	16 MB	16 MB
<b>Embedded RMON</b>	History, Events, Alarms, Statistics	Same as 2950G-48-EI	Same as 2950G-48-EI	Same as 2950G-48-EI	Same as 2950G-48-EI
<b>Dimensions (H x W x D)</b>	1.72 x 17.5 x 13 in.	1.72 x 17.5 x 9.52 in.	1.72 x 17.5 x 9.52 in.	1.72 x 17.5 x 9.52 in.	1.75 x 17.5 x 16 in.

Feature	2950T-48	2950-24	2950-12	2950SX-12	2950SX-48
<b>Fixed Ports</b>	50-port (48 10/100 autosensing & 2 ports 10/100/1000BASE-T) autosensing T-12: 2 fixed 10/100/1000BASE-T uplink ports	24-port 10/100 autosensing	12-port 10/100 autosensing	26-port (24 10/100 autosensing & 2 ports 1000BaseSX) C-12: 2 fixed 100BASE-FX multimode uplink ports; S-12: 2 fixed 100BASE-LX single-mode uplink ports	50-port (48 10/100 autosensing & 2 ports 1000BASE-SX) 12 10/100 ports
<b>Forwarding Bandwidth</b>	13.6 Gbps	4.8 Gbps	2.4 Gbps	8.8 Gbps	13.6 Gbps
<b>Forwarding Rate</b>	13.6 Mpps	3.6 Mpps	1.8 Mpps	6.6 Mpps	13.6 Mpps
<b>Full-Duplex Capabilities</b>	All Ports	All Ports	All Ports	All Ports	All Ports
<b>VLAN Maximum</b>	64-port-based VLANs	64-port-based VLANs	64-port-based VLANs	64-port-based VLANs	64-port-based VLANs
<b>FEC</b>	Yes	Yes	Yes	Yes	Yes
<b>802.1Q</b>	Yes	Yes	Yes	Yes	Yes
<b>Security</b>	Port Security, with MAC aging, Private VLAN Edge, 802.11x, RADIUS, TACACS+, BPDU Guard, BPDU Scheduling, SPAN for Intrusion Detection, Spanning Tree Root Guard	Same as 2950T-48	Same as 2950T-48	Same as 2950T-48	Same as 2950T-48
<b>Multicast</b>	Same as 2950G-48-EI	Same as 2950G-48-EI	Same as 2950G-48-EI	Same as 2950G-48-EI	Same as 2950G-48-EI
<b>QoS</b>	802.1P, 4 egress queues, WRR, Strict Priority Scheduling	Same as 2950T-48	Same as 2950T-48	Same as 2950T-48	Same as 2950T-48
<b>Management Capabilities</b>	Express Setup, SPAN for Intrusion Detection, L2 Trace Route, VLAN 1 minimization, Auto configuration, SNMP, Telnet, RMON, CWSI, (CLI)-based out-of-band, embedded CMS	SNMP, Telnet, RMON, CWSI, (CLI)-based out-of-band, embedded CMS	Same as 2950-24	Same as 2950-24	Same as 2950-24
<b>Software Image</b>	SI	SI	SI	SI	SI
<b>Flash Memory</b>	8 MB	8 MB	8 MB	8 MB	8 MB
<b>CPU DRAM</b>	16 MB	16 MB	16 MB	16 MB	16 MB
<b>Embedded RMON</b>	Same as 2950G-48-EI	Same as 2950G-48-EI	Same as 2950G-48-EI	Same as 2950G-48-EI	Same as 2950G-48-EI
<b>Dimensions (H x W x D)</b>	1.75 x 17.5 x 13 in.	1.75 x 17.5 x 11.8 in.	1.75 x 17.5 x 9.52 in.	1.75 x 17.5 x 9.52 in.	1.75 x 17.5 x 13 in.

Feature	2950C-24
<b>Fixed Ports</b>	26-port (24 10/100 autosensing & 2 ports 100BaseFX)
<b>Forwarding Bandwidth</b>	5.2 Gbps
<b>Forwarding Rate</b>	3.9 Mpps
<b>Full-Duplex Capabilities</b>	All Ports
<b>VLAN Maximum</b>	250-port-based VLANs
<b>FEC</b>	Yes
<b>802.1Q</b>	Yes
<b>Security</b>	Port Security, with MAC aging, Private VLAN Edge, ACL, 802.11x, IBNS, SSH, RADIUS, TACACS+, SNMPv3 (crypto), BPDU Guard, BPDU Scheduling, SPAN for Intrusion Detection, Spanning Tree Root Guard
<b>Multicast</b>	Same as 2950G-48-EI
<b>QoS</b>	802.1P, 4 egress queues, Weighted Round Robin, Strict Priority Scheduling,
<b>Management Capabilities</b>	Express Setup, SPAN for Intrusion Detection, L2 Trace Route, VLAN 1 minimization, Auto configuration, SNMP, Telnet, RMON, CWSI, (CLI)-based out-of-band, embedded CMS, RPSAN
<b>Software Image</b>	EI
<b>Flash Memory</b>	8 MB
<b>CPU DRAM</b>	16 MB
<b>Embedded RMON</b>	Same as Catalyst 2950G-48-EI
<b>Dimensions (H x W x D)</b>	1.75 x 17.5 x 11.8 in.

## Selected Part Numbers and Ordering Information<sup>1</sup>

### Catalyst 2950 Series Switches

WS-C2950G-48-EI	Catalyst 2950G-48 switch with 48 10/100 ports and 2 Gigabit Interface Converter (GBIC)-based GE ports, Enhanced Image
WS-C2950G-24-EI	Catalyst 2950G-24 switch with 24 10/100 ports and 2 GBIC ports, Enhanced Image
WS-C2950G-24-EI-DC	Catalyst 2950G-24-DC switch with 24 10/100 ports, 2 GBIC ports and DC Power, Enhanced Image
WS-C2950G-12-EI	Catalyst 2950G-12 switch with 12 10/100 ports and 2 GBIC ports, Enhanced Image
WS-C2950T-24	Catalyst 2950C-24T switch with 24 10/100 ports and two fixed 1000BaseT Uplink ports, Enhanced Image
WS-C2950C-24	Catalyst 2950C-24 switch with 24 10/100 ports and two fixed 1000BaseFX Uplink ports, Enhanced Image
WS-C2950SX-48-SI	Catalyst 2950SX-48 switch with 48 10/100 ports and two fixed 1000BASE-SX Uplink ports, Standard Image
WS-C2950T-48-SI	Catalyst 2950T-48 switch with 48 10/100 ports and two fixed 10/100/1000BASE-T Uplink ports, Standard Image
WS-C2950SX-24	Catalyst 2950SX-24 switch with 24 10/00 ports and two fixed 1000BaseSX Uplink ports, Standard Image
WS-C2950-24	Catalyst 2950-24 switch with 24 10/100 ports, Standard Image
WS-C2950-12	Catalyst 2950-12 switch with 12 10/100 ports, Standard Image

### Gigabit Interface Converters (GBICs)

WS-X3500-XL	GigaStack GBIC Gigabit Ethernet stacking GBIC and 50 cm cable
WS-G5484=	1000BaseSX GBIC short wavelength GBIC (multimode fiber only)
WS-G5486=	1000BaseLX/LH GBIC long wavelength/long haul GBIC (single or multimode fiber)
WS-G5487=	1000BaseZX GBIC extended-reach GBIC (single mode fiber only)
WS-G5483=	1000BaseT GBIC- Gigabit-Ethernet-over-copper GBIC

### Redundant Power System (RPS)

PWR675-AC-RPS-N1=	675W Redundant Power Supply with 1 connector cable
VAB-RPS-1414=	1.2 meter cable for Cisco RPS 300 to external device connection

### Cables/Accessories

CAB-RPS-1614=	1 RPS 675 connector cable 16/14
CAB-GS-50CM	50 centimeter cable for GigaStack GBIC
STK-RACKMOUNT-1RU=	Rack mount kit for 1 RU versions of Catalyst 2950, 3500 XL, 2900 XL, 1900, and FastHub 400 switches

### Packaged SMARTnet 8x5xNBD Maintenance Contract

CON-SNT-PKG3	Packaged SMARTnet 8x5xNBD Maintenance for the Catalyst 2950G-12, 2950-24 and 2950-12
CON-SNT-PKG4	Packaged SMARTnet 8x5xNBD Maintenance for the Catalyst 2950G-24 and 2850G-24-DC
CON-SNT-PKG6	Packaged SMARTnet 8x5xNBD Maintenance for the Catalyst 2950G-48

1. This is only a small subset of all parts available via URL listed under "For More Information." Some parts have restricted access or are not available through distribution channels. Resellers: For latest part number and pricing info, see the *Distribution Product Reference Guide* at: <http://www.cisco.com/dprg> (limited country availability).

## For More Information

See the Catalyst 2950 Series Website: <http://www.cisco.com/go/catalyst2950>

# Cisco Catalyst 2955 Series Intelligent Ethernet Switches



The Cisco Catalyst 2955 are industrial-grade switches providing Fast Ethernet and Gigabit Ethernet connectivity for deployment in harsh environments. It offers a range of copper and fiber uplink options and operates in environments such as industrial networking solutions (industrial Ethernet deployments), intelligent transportation systems (ITSs), and transportation network solutions. It is also suitable for many military and utility market applications where the environmental conditions or suspended solid concentrations exceed the specifications of other commercial switching products.

## When to Sell

### Sell This Product

**Catalyst 2955 Series with Enhanced Image (EI)**

- Catalyst 2955T-12
- Catalyst 2955C-12
- Catalyst 2955S-12

### When a Customer Needs These Features

- Ideal for harsh network environments
- Rugged: Implements industrial-grade components, a compact form factor, convection cooling, and relay output signaling. Designed to operate at extreme temperatures and under extreme vibration and shock.
- Layer 2/3/4 based services: Advanced QoS, Security, High availability and STP enhancements
- Wire-speed performance
- Twelve 10/100 ports and two 10/100/1000BASE-TX (Copper) uplinks
- Twelve 10/100 ports and two 100BASE-FX (Multimode Fiber) uplinks
- Twelve 10/100 ports and two 100BASE-LX (Singlemode Fiber) uplinks

## Key Features

- Network Management—CNA offers centralized management and configuration of Cisco networks to simplify deployment and ongoing maintenance by leveraging Cisco Smartports technology. CNA is a PC-based network management application optimized for networks with 20 devices or less.
- Wire-speed performance in connecting end-stations to the LAN
- Provides intelligent services such as advanced quality of service, rate-limiting, security filters, and multicast management, to the network edge-while maintaining the simplicity of traditional LAN switching
- Ideal for harsh network environments
- Sophisticated Multicast Management via IGMP Snooping
- Scalability and high availability features
- Support for Cisco Redundant Power System 675 (RPS 675)

## Competitive Products

- |  |   |
|--|---|
| <ul style="list-style-type: none"> <li>• Hewlett Packard: Procurve 2500 /2650</li> <li>• Nortel: BPS 2000/450T/420T</li> <li>• 3 Com: Superstack 3300/4300/4400/4400SE/4200 series</li> <li>• Extreme: Summit 24 e2e3</li> </ul> | <ul style="list-style-type: none"> <li>• Dell: Powerconnect 3024/3048/3248</li> <li>• Hirshchmann</li> <li>• GarretCom</li> <li>• Sixnet</li> </ul> |
|--|---|

## Chapter 2

### Specifications

Feature	2955 (T-12,C-12,S-12)
Fixed Ports	12
Forwarding Bandwidth	13.6 Gbps
Forwarding Rate	2 Mpps
Full-Duplex Capabilities	All Ports
VLAN Maximum	250-port-based VLANs
FEC	Yes
802.1Q	Yes
Security	Port Security, with MAC aging, Private VLAN Edge, 802.11x, RADIUS, TACACS+, SNMPv3 (non-crypto)
Multicast	IGMP Snooping, IGMP filtering, Multicast VLAN Registration
QoS	802.1P, 4 egress queues, WRR, Strict Priority Scheduling
Management Capabilities	SNMP, Telnet, RMON, CWSI, (CLI)-based out-of-band, embedded CMS
Software Image	EI
Flash Memory	16 MB
CPU DRAM	32 MB
Embedded RMON	History, Events, Alarms, Statistics
Dimensions (H x W x D)	3.78 x 8.07 x 5.03 in; connectors facing forward 5.03 x 8.07 x 3.78 in; connectors facing downward

### Selected Part Numbers and Ordering Information<sup>1</sup>

#### Catalyst 2950 Series Switches

WS-C2950G-48-EI	Catalyst 2950G-48 switch with 48 10/100 ports and 2 Gigabit Interface Converter (GBIC)-based GE ports, Enhanced Image
WS-C2950G-24-EI	Catalyst 2950G-24 switch with 24 10/100 ports and 2 GBIC ports, Enhanced Image
WS-C2950G-24-EI-DC	Catalyst 2950G-24-DC switch with 24 10/100 ports, 2 GBIC ports and DC Power, Enhanced Image
WS-C2950G-12-EI	Catalyst 2950G-12 switch with 12 10/100 ports and 2 GBIC ports, Enhanced Image
WS-C2950T-24	Catalyst 2950C-24T switch with 24 10/100 ports and two fixed 1000BaseT Uplink ports, Enhanced Image
WS-C2950C-24	Catalyst 2950C-24 switch with 24 10/100 ports and two fixed 100BaseFX Uplink ports, Enhanced Image
WS-C2950SX-48-SI	Catalyst 2950SX-48 switch with 48 10/100 ports and two fixed 1000BASE-SX Uplink ports, Standard Image
WS-C2950T-48-SI	Catalyst 2950T-48 switch with 48 10/100 ports and two fixed 10/100/1000BASE-T Uplink ports, Standard Image
WS-C2950SX-24	Catalyst 2950SX-24 switch with 24 10/00 ports and two fixed 1000BaseSX Uplink ports, Standard Image
WS-C2950-24	Catalyst 2950-24 switch with 24 10/100 ports, Standard Image
WS-C2950-12	Catalyst 2950-12 switch with 12 10/100 ports, Standard Image

#### Gigabit Interface Converters (GBICs)

WS-X3500-XL	GigaStack GBIC Gigabit Ethernet stacking GBIC and 50 cm cable
WS-G5484=	1000BaseSX GBIC short wavelength GBIC (multimode fiber only)
WS-G5486=	1000BaseLX/LH GBIC long wavelength/long haul GBIC (single or multimode fiber)
WS-G5487=	1000BaseZX GBIC extended-reach GBIC (single mode fiber only)
WS-G5483=	1000BaseT GBIC - Gigabit-Ethernet-over-copper GBIC

#### Redundant Power System (RPS)

PWR675-AC-RPS-N1=	675W Redundant Power Supply with 1 connector cable
VAB-RPS-1414=	1.2 meter cable for Cisco RPS 300 to external device connection

#### Cables/Accessories

CAB-RPS-1614=	1 RPS 675 connector cable 16/14
CAB-GS-50CM	50 centimeter cable for GigaStack GBIC
STK-RACKMOUNT-1RU=	Rack mount kit for 1 RU versions of Catalyst 2950, 3500 XL, 2900 XL, 1900, and FastHub 400 switches

#### Packaged SMARTnet 8x5xNBD Maintenance Contract

CON-SNT-PKG3	Packaged SMARTnet 8x5xNBD Maintenance for the Catalyst 2950G-12, 2950-24 and 2950-12
CON-SNT-PKG4	Packaged SMARTnet 8x5xNBD Maintenance for the Catalyst 2950G-24 and 2850G-24-DC
CON-SNT-PKG6	Packaged SMARTnet 8x5xNBD Maintenance for the Catalyst 2950G-48

1. This is only a small subset of all parts available via URL listed under "For More Information." Some parts have restricted access or are not available through distribution channels. Resellers: For latest part number and pricing info, see the *Distribution Product Reference Guide* at: <http://www.cisco.com/dprg> (limited country availability).

### For More Information

See the Catalyst 2950 Series Website: <http://www.cisco.com/go/catalyst2950>

## Cisco Catalyst 2970 Series

The Cisco Catalyst 2970 Series switches are affordable Gigabit-to-the-desktop Ethernet switches that deliver wire-speed intelligent services for small and medium-sized businesses and enterprise branch offices. Featuring a complete set of intelligent services, the Cisco Catalyst 2970 Series switches can enhance network performance and increase productivity for today's knowledge workers by intelligently scaling beyond 100 Mbps.

### Specifications

Feature	Catalyst 2970
<b>Performance</b>	Forwarding bandwidth: 28 Gbps (Cisco Catalyst 2970G-24TS), 24 Gbps (Cisco Catalyst 2970G24T) Forwarding rate based on 64-byte packets: 38.7 Mpps (Cisco Catalyst 2970G-24TS), 35.7 Mpps (Cisco Catalyst 2970G-24T) 128 MB DRAM and 16 MB flash memory Up to 8000 MAC addresses configurable Up to 1000 IGMP groups and bridging entries configurable Configurable maximum transmission unit (MTU) of up to 9018 bytes (jumbo frames) for bridging on Gigabit Ethernet ports, and up to 1546 bytes for bridging on Fast Ethernet ports
<b>Connectors and cabling</b>	10BASE-T ports: RJ-45 connectors; 2-pair Category 3, 4, or 5 unshielded twisted-pair (UTP) cabling 100BASE-TX ports: RJ-45 connectors; 2-pair Category 5 UTP cabling 1000BASE-T ports: RJ-45 connectors; 2-pair Category 5 UTP cabling 1000BASE-T SFP-based ports: RJ-45 connectors, 2-pair Category 5 UTP cabling 1000BASE-SX, -LX/LH, -ZX, and CWDM SFP-based ports: LC fiber connectors (single-mode or multimode fiber) Management console port: RJ-45-to-DB9 cable for PC connections
<b>Indicators</b>	Per-port status LEDs: link integrity, disabled, activity, speed, and full-duplex indications. System-status LEDs: system, RPS, and bandwidth-utilization indications
<b>Predicted mean time between failure (MTBF)</b>	163,222 hrs (Cisco Catalyst 2970G-24TS) 219,108 hrs (Cisco Catalyst 2970G-24T)
<b>Power connectors</b>	Customers can provide power to a switch by using either the internal power supply or the Cisco RPS 675. The connectors are located at the back of the switch.
<b>Internal Power Supply Connector</b>	Customers can provide power to a switch by using either the internal power supply or the Cisco RPS 675. The connectors are located at the back of the switch. Internal Power Supply Connector <ul style="list-style-type: none"> <li>• The internal power supply is an autoranging unit.</li> <li>• The internal power supply supports input voltages between 100 and 240 VAC.</li> <li>• Use the supplied AC power cord to connect the AC power connector to an AC power outlet.</li> <li>• Cisco RPS 675 Connector</li> <li>• Offers connection for an optional Cisco RPS 675 that uses AC input and supplies DC output to the switch.</li> <li>• Offers a 675 W RPS that supports up to 6 external network devices and provides power to 1 failed device at a time.</li> <li>• Automatically senses when the internal power supply of a connected device fails and provides power to the failed device, preventing loss of network traffic.</li> <li>• Only the Cisco RPS 675 (Model PWR675-AC-RPS-N1=) should be attached to the RPS receptacle.</li> </ul>
<b>Power consumption</b>	165 W (maximum), 563 BTUs per hour (Cisco Catalyst 2970G-24TS) 135 W (maximum), 460 BTUs per hour (Cisco Catalyst 2970G-24T)
<b>AC input voltage/frequency</b>	100 to 127 or 200 to 240 VAC (autoranging), 50 to 60 Hz
<b>DC input voltages</b>	RPS input+12 V at 17 A (Cisco Catalyst 2970G-24TS) +12 V at 13 A (Cisco Catalyst 2970G-24T)
<b>Dimensions (H x W x D)</b>	Cisco Catalyst 2970G-24TS: 2.59 x 17.5 x 11.6 in. (6.58 x 44.5 x 29.5 cm) Cisco Catalyst 2970G-24T: 1.73 x 17.5 x 12.83 in. (4.39 x 44.5 x 32.6 cm)
<b>Weight</b>	Cisco Catalyst 2970G-24TS: 12.5 lb (5.68 kg) Cisco Catalyst 2970G-24T: 10 lb (4.54 kg)

### For More Information

See the Catalyst 2970 Website: <http://www.cisco.com/go/catalyst2970>



## Cisco Catalyst 3560 Series



The Cisco Catalyst 3560 Series is a line of fixed-configuration, enterprise-class switches in Fast Ethernet and Gigabit Ethernet configurations. It is an ideal access layer solution for small to medium enterprises and branch-offices. The Catalyst 3560 Series includes 10/100/1000 and PoE options for maximum productivity and investment protection. This enables deployment of new applications such as IP telephony, wireless access, video surveillance, building management systems, and remote video kiosks. With the Catalyst 3560 Series, customers can deploy network-wide intelligent services such as advanced QoS, rate limiting, access control lists (ACLs), multicast management, and high-performance IP routing while maintaining the simplicity of traditional LAN switching.

The Cisco Catalyst 3560 is available with the IP Base, IP Services, or Advanced IP Services licenses. The IP Base license offers advanced QoS, rate-limiting, ACLs, and basic routing functionality. The IP Services license provides a richer set of enterprise-class features, including advanced hardware-based IP unicast and IP Multicast routing as well as policy-based routing (PBR). The Advanced IP Services license adds IPv6 capabilities, including IPv6 routing and MLD Snooping.

### When to Sell

#### Sell This Product

**Catalyst 3560-24TS**

**Catalyst 3560-48TS**

**CatalystÆ 3560-24PS**

**Catalyst 3560-48PS**

**Catalyst 3560G-24TS**

**Catalyst 3560G-24PS**

**Catalyst 3560G-48TS**

**Catalyst 3560G-48PS**

#### When a Customer Needs These Features

- For networks requiring low-density access, Layer 2+ or L3 features, and one or more fiber uplinks
- For networks requiring medium-density access, Layer 2+ or L3 features, and one or more fiber uplinks
- For networks requiring low-density access, PoE, Layer 2+ or L3 features, and one or more fiber uplinks
- For networks requiring medium-density access, PoE, Layer 2+ or L3 features, and one or more fiber uplinks
- For networks requiring low-density 10/100/1000 access, Layer 2+ or L3 features, and one or more fiber uplinks
- For networks requiring low-density 10/100/1000 access, PoE, Layer 2+ or L3 features, and one or more fiber uplinks
- For networks requiring medium-density 10/100/1000 access, Layer 2+ or L3 features, and one or more fiber uplinks
- For networks requiring medium-density 10/100/1000 access, PoE, Layer 2+ or L3 features, and one or more fiber uplinks

### Key Features

- Fast-Ethernet and Gigabit-Ethernet configurations, available with and without PoE to meet new and evolving network demands
- Extensive network security capability—includes Network Admission Control, Identity Based Network Services, and man-in-the-middle attack prevention features such as DHCP snooping, dynamic ARP inspection and IP source guard
- Granular network control and bandwidth optimization via advanced QoS—includes classification, reclassification, policing, marking, and queuing of incoming packet and queuing and scheduling of packets at egress
- Network scalability through advanced routing protocols such as EIGRP, OSPF, BGP, and PIM (requires IP Services software license)
- Lower TCO for IP Telephony and Wireless LAN deployments through integrated Power over Ethernet and intelligent power management
- Easy switch configuration and deployment of advanced services with Smartports as well as the CNA
- IPv6 functionality with optional Advanced IP Services software license

# Specifications

Feature	Catalyst 3560-24TS	Catalyst 3560-24PS	Catalyst 3560-48TS	Catalyst 3560-48PS	Catalyst 3550-24-DC <sup>1</sup>
Fixed Ports	24 10/100	24 10/100	48 10/100	48 10/100	24 1/10
Uplinks	2 SFP	2 SFP	4 SFP	4 SFP	2 GBIC
Forwarding Bandwidth	32 Gbps	32 Gbps	32 Gbps	32 Gbps	8.8 Gbps
VLAN Maximum	1005	1005	1005	1005	1005
FEC/GEC	Yes	Yes	Yes	Yes	Yes
SFPs	1000BaseT, SX, LX/LH, ZX, CWDM, 100BaseFX	Same as 3560-24TS	Same as 3560-24TS	Same as 3560-24TS	GBICS: 1000BaseT, SX, LX/LH, ZX, CWDM
802.1Q and ISL	Yes	Yes	Yes	Yes	Yes
PoE (Cisco prestandard and IEEE 802.3af)	No	Yes	No	Yes	No
Security	NAC LAN Port IP, Identity Based Network Services, DHCP Snooping, Dynamic ARP Inspection, IP Source Guard, Port security with MAC aging				
QoS	802.1p, DSCP, 2 ingress queues, 4 egress Queues, SRR, Strict Priority Queueing, WTD	Same as 3560-24TS	Same as 3560-24TS	Same as 3560-24TS	802.1p, DSCP, 4 egress Queues, WRR, Strict Priority Queueing, WRED
Multicast	IGMP Snooping, PIM, DVMRP, CGMP Server (features require AIS image)	Same as 3560-24TS	Same as 3560-24TS	Same as 3560-24TS	Same as 3560-24TS
Management Capabilities	SNMP, Telnet, RMON, CWSI, CLI-based out-of-band, Express Setup, CNA	Same as 3560-24TS	Same as 3560-24TS	Same as 3560-24TS	Same as 3560-24TS
Flash Memory	32 MB	16 MB	32 MB	16 MB	16 MB
CPU DRAM	128 MB	128 MB	128 MB	128 MB	64 MB
Embedded RMON	History, Events, Alarms, Statistics	Same as 3560-24TS	Same as 3560-24TS	Same as 3560-24TS	Same as 3560-24TS
Dimensions (H x W x D)	1.73 x 17.5 x 11.8 in.	1.73 x 17.5 x 11.8 in.	1.73 x 17.5 x 11.8 in.	1.73 x 17.5 x 14.9 in	1.75 x 17.5 x 14.4 in.

1. The Catalyst 3550-24-DC is part of the Catalyst 3550 Series

Feature	Catalyst 3560G-24TS	Catalyst 3560G-24PS	Catalyst 3560G-48TS	Catalyst 3560G-48PS
Fixed Ports	24 10/100/1000	24 10/100/1000	48 10/100/1000	48 10/100/1000
Uplinks	4 SFP	4 SFP	4 SFP	4 SFP
Forwarding Bandwidth	32 Gbps	32 Gbps	32 Gbps	32 Gbps
VLAN Maximum	1005	1005	1005	1005
FEC/GEC	Yes	Yes	Yes	Yes
SFPs	1000BaseT, SX, LX/LH, ZX, CWDM, 100BaseFX	Same as 3560G-24TS	Same as 3560G-24TS	Same as 3560G-24TS
802.1Q and ISL	Yes	Yes	Yes	Yes
PoE (Cisco prestandard and IEEE 802.3af)	No	Yes	No	Yes
Security	NAC LAN Port IP, Identity Based Network Services, DHCP Snooping, Dynamic ARP Inspection, IP Source Guard, Port security with MAC aging			
QoS	802.1p, DSCP, 2 ingress queues, 4 egress Queues, SRR, Strict Priority Queueing, WTD	Same as 3560G-24TS	Same as 3560G-24TS	Same as 3560G-24TS
Multicast	IGMP Snooping, PIM, DVMRP, CGMP Server (features require AIS image)	Same as 3560G-24TS	Same as 3560G-24TS	Same as 3560G-24TS
Management Capabilities	SNMP, Telnet, RMON, CWSI, CLI-based out-of-band, Express Setup, CNA	Same as 3560G-24TS	Same as 3560G-24TS	Same as 3560G-24TS
Flash Memory	32 MB	32 MB	32 MB	32 MB
CPU DRAM	128MB	128MB	128MB	128MB
Embedded RMON	History, Events, Alarms, Statistics	Same as 3560G-24TS	Same as 3560G-24TS	Same as 3560G-24TS
Dimensions (H x W x D)	1.73 x 17.5 x 14.9 in.	1.73 x 17.5 x 14.9 in.	1.73 x 17.5 x 16.1 in.	1.73 x 17.5 x 16.1 in.

## Selected Part Numbers and Ordering Information<sup>1</sup>

### Catalyst 3560 Series 10/100/1000 Workgroup Switches<sup>2</sup>

WS-C3560G-48PS-S	Catalyst 3560 48 10/100/1000T PoE + 4 SFP Standard Image
WS-C3560G-48PS-E	Catalyst 3560 48 10/100/1000T PoE + 4 SFP Enhanced Image
WS-C3560G-24PS-S	Catalyst 3560 24 10/100/1000T PoE + 4 SFP Standard Image
WS-C3560G-24PS-E	Catalyst 3560 24 10/100/1000T PoE + 4 SFP Enhanced Image
WS-C3560G-48TS-S	Catalyst 3560 48 10/100/1000T + 4 SFP Standard Image
WS-C3560G-48TS-E	Catalyst 3560 48 10/100/1000T + 4 SFP Enhanced Image
WS-C3560G-24TS-S	Catalyst 3560 24 10/100/1000T + 4 SFP Standard Image
WS-C3560G-24TS-E	Catalyst 3560 24 10/100/1000T + 4 SFP Enhanced Image

### Catalyst 3560 Series 10/100 Workgroup Switches

WS-C3560-48PS-S	Catalyst 3560 48 10/100 PoE + 4 SFP Standard Image
WS-C3560-48PS-E	Catalyst 3560 48 10/100 PoE + 4 SFP Enhanced Image
WS-C3560-24PS-S	Catalyst 3560 24 10/100 PoE + 2 SFP Standard Image
WS-C3560-24PS-E	Catalyst 3560 24 10/100 PoE + 2 SFP Enhanced Image
WS-C3560-48TS-S	Catalyst 3560 48 10/100 + 4 SFP Standard Image
WS-C3560-48TS-E	Catalyst 3560 48 10/100 + 4 SFP Enhanced Image
WS-C3560-24TS-S	Catalyst 3560 24 10/100 + 2 SFP Standard Image
WS-C3560-24TS-E	Catalyst 3560 24 10/100 + 2 SFP Enhanced Image

### IOS Upgrades for the Catalyst 3560

CD-3560-EMI=	Enhanced Multilayer Image upgrade for 3560 10/100 models
CD-3560G-EMI=	Enhanced Multilayer Image upgrade for 3560 GE models
3560-AISK9-LIC-B=	Advanced IP Services for 3560 FE models running SMI
3560-AISK9-LIC-S=	Advanced IP Services upgrade for 3560 FE models running EMI
3560G-AISK9-LIC-B=	Advanced IP Services upgrade for 3560 GE models running SMI
3560G-AISK9-LIC-S=	Advanced IP Services upgrade for 3560 GE models running EMI

### SFPs for the Catalyst 3560

GLC-GE-100FX=	100FX SFP on GE SFP ports for DSBu switches
GLC-LH-SM=	GE SFP, LC connector LX/LH transceiver
GLC-SX-MM=	GE SFP, LC connector SX transceiver
GLC-T=	1000BASE-T SFP
GLC-ZX-SM=	1000BASE-ZX SFP
CWDM-SFP-1470=	CWDM 1470 NM SFP Gigabit Ethernet and 1G/2G FC
CWDM-SFP-1490=	CWDM 1490 NM SFP Gigabit Ethernet and 1G/2G FC
CWDM-SFP-1510=	CWDM 1510 NM SFP Gigabit Ethernet and 1G/2G FC
CWDM-SFP-1530=	CWDM 1530 NM SFP Gigabit Ethernet and 1G/2G FC
CWDM-SFP-1550=	CWDM 1550 NM SFP Gigabit Ethernet and 1G/2G FC
CWDM-SFP-1570=	CWDM 1570 NM SFP Gigabit Ethernet and 1G/2G FC
CWDM-SFP-1590=	CWDM 1590 NM SFP Gigabit Ethernet and 1G/2G FC
CWDM-SFP-1610=	CWDM 1610 NM SFP Gigabit Ethernet and 1G/2G FC
CAB-SFP-50CM=	Catalyst 3560 SFP Interconnect Cable, 50cm

### LC to SC Cables for the Catalyst 3560

CSS5-CABLX-LCSC=	CSS11500 10-Meter Fiber Single Mode LX LC-to-SC Connectors
CSS5-CABSX-LC=	CSS11500 10-Meter Fiber Multimode SX LC Connectors
CSS5-CABSX-LCSC=	CSS11500 10-Meter Fiber Multimode SX LC-to-SC Connectors

### RPS for the Catalyst 3560

PWR675-AC-RPS-N1=	675W Redundant Power Supply with 1 connector cable
CAB-RPS-1614=	1 RPS 675 connector cable 16/14

### Spare Rack Mount Kits for the Catalyst 3560

RCKMNT-1RU=	Rack Mount Kit for 1RU for 3750,3560,3550,2900-LRE-XL
RCKMNT-REC-1RU=	RECESSED 1RU RACK MOUNT FOR 3550, 3560, and 3750

1. This is only a small subset of all parts available via URL listed under "For More Information." Some parts have restricted access or are not available through distribution channels. Resellers: For latest part number and pricing info, see the *Distribution Product Reference Guide* at: <http://www.cisco.com/dprg> (limited country availability).

2. S=IP Base; E=IP Services

## For More Information

See the Catalyst 3560 Series Website: <http://www.cisco.com/go/cat3560>

## Cisco Catalyst 3750 Series

The Cisco Catalyst 3750 Series switches are an innovative product line that improves LAN operating efficiency by combining industry-leading ease of use and the highest resiliency available for stackable switches. This product series represents the next generation in desktop switches, and features Cisco StackWise™ technology, a 32-Gbps stack interconnect that allows customers to build a unified, highly resilient switching system—one switch at a time.



### When to Sell

#### Sell This Product

##### Catalyst 3750-24TS

For networks requiring low-density access with switch stacking capability, Layer 2+ or L3 features, and 1 or more fiber uplinks.

##### Catalyst 3750-24PS

For networks requiring low-density access with switch stacking capability, Layer 2+ or L3 features, Power over Ethernet (PoE), and 1 or more fiber uplinks.

##### Catalyst 3750-48TS

For networks requiring medium-density access with switch stacking capability, Layer 2+ or L3 features, and 1 or more fiber uplinks.

##### Catalyst 3750-48PS

For networks requiring medium-density access with switch stacking capability, Layer 2+ or L3 features, Power over Ethernet (PoE), and 1 or more fiber uplinks.

##### Catalyst 3750G-24T

For networks requiring low-density Layer 2+ or L3 Gigabit Ethernet to the desktop (GTDD) or Ethernet aggregation with stacking capability without any uplinks.

##### Catalyst 3750G-24TS-1U

For networks requiring low-density Layer 2+ or L3 GTDD or Ethernet aggregation with stacking capability and fiber uplinks in a 1RU form factor.

##### Catalyst 3750G-24TS

For networks requiring low-density Layer 2+ or L3 GTDD or Ethernet aggregation with stacking capability and fiber uplinks in a 1.5RU form factor.

##### Catalyst 3750G-24PS

For networks requiring low-density Layer 2+ or L3 GTDD or Ethernet aggregation with stacking capability, PoE, and fiber uplinks.

##### Catalyst 3750G-48TS

For networks requiring medium-density Layer 2+ or L3 GTDD or Ethernet aggregation with stacking capability and fiber uplinks.

##### Catalyst 3750G-48PS

For networks requiring medium-density Layer 2+ or L3 GTDD or Ethernet aggregation with stacking capability, PoE, and fiber uplinks.

##### Catalyst 3750G-16TD

For networks requiring low-density L2+ or L3 GTDD or Ethernet aggregation with stacking capability and a 10 GE uplink.

##### Catalyst 3750G-12S

For aggregation of wiring closet switches with optical connectivity and stacking.

### Key Features

- **Ease of Use**—“Plug-and-Play” Configuration; A working stack is self-managing and self-configuring. When switches are added or removed, the master switch automatically updates all the routing tables to reflect changes. Upgrades are applied universally and simultaneously to all members of the stack.
- **Scalability**—Fast Ethernet to Gigabit Ethernet
- **Mix-and-Match Switch Types**—Pay as You Expand Your Network
- **Availability**—Non-Stop Performance at Layer 2 and Layer 3
- **Smart Multicast**—With Cisco StackWise technology, offers greater efficiency for multicast applications such as video. Each data packet is put on to the backplane only once, which provides more effective support for more data streams.
- **Superior Quality of Service**—Across the Stack and at Wire Speed; Gigabit Ethernet speed with intelligent services; Mechanisms for marking, classification, and scheduling deliver best-in-class performance for data, voice, and video traffic—all at wire speed.
- **Security**—Granular Control for the Access Environment; Supports a comprehensive set of security features for connectivity and access control, including ACLs, authentication, port-level security, and identity-based network services with 802.1x and extensions.
- **Single IP Management**—Many Switches, One Address
- **Jumbo Frames**—Support for High-Demand Applications
- **IPv6 Capable**

Competitive Products

- Extreme Networks: Summit5i, Summit 24/48, Summit 48i
  - Foundry: FastIron 4802
- Nortel: 5510/5520

Specifications

Feature	Catalyst 3750-24TS	Catalyst 3750-24PS	Catalyst 3750-48TS	Catalyst 3750-48PS	Catalyst 3750G-24T	Catalyst 3750G-24TS
Fixed Ports	24 10/100	24 1/10	48 10/100	48 1/10	24 10/100/1000	24 10/100/1000
Uplinks	2 SFP	2 SFP	4 SFP	4 SFP	0	4 SFP
Switching Fabric	32 Gbps	Same as 3750-24TS	Same as 3750-24TS	Same as 3750-24TS	Same as 3750-24TS	Same as 3750-24TS
VLAN Maximum	1005	Same as 3750-24TS	Same as 3750-24TS	Same as 3750-24TS	Same as 3750-24TS	Same as 3750-24TS
FEC/GEC	Yes	Same as 3750-24TS	Same as 3750-24TS	Same as 3750-24TS	Same as 3750-24TS	Same as 3750-24TS
SFPs	1000BaseT, SX, LX/LH, ZX, CWDM, 100BaseFX	Same as 3750-24TS	Same as 3750-24TS	Same as 3750-24TS	Same as 3750-24TS	Same as 3750-24TS
802.1Q and ISL	Yes	Same as 3750-24TS	Same as 3750-24TS	Same as 3750-24TS	Same as 3750-24TS	Same as 3750-24TS
PoE (Cisco prestandard and IEEE 802.3af)	No	Yes	No	Yes	No	No
QoS	802.1p, DSCP, 4 egress Queues, SRR, Strict Priority Queueing, WTD	Same as 3750-24TS	Same as 3750-24TS	Same as 3750-24TS	Same as 3750-24TS	Same as 3750-24TS
Multicast	IGMP Snooping, PIM (requires EMI), DVMRP (requires EMI), CGMP Server (requires EMI)	Same as 3750-24TS	Same as 3750-24TS	Same as 3750-24TS	Same as 3750-24TS	Same as 3750-24TS
Management Capabilities	SNMP, Telnet, RMON, CWSI, CLI-based out-of-band, CNA	Same as 3750-24TS	Same as 3750-24TS	Same as 3750-24TS	Same as 3750-24TS	Same as 3750-24TS
Flash Memory	16 MB	16 MB	16 MB	16 MB	16 MB	16 MB
CPU DRAM	128 MB	Same as 3750-24TS	Same as 3750-24TS	Same as 3750-24TS	Same as 3750-24TS	Same as 3750-24TS
Embedded RMON	History, Events, Alarms, Statistics	Same as 3750-24TS	Same as 3750-24TS	Same as 3750-24TS	Same as 3750-24TS	Same as 3750-24TS
Dimensions (H x W x D)	1.73 x 17.5 x 11.83 in.	1.73 x 17.5 x 11.83 in.	1.73 x 17.5 x 11.83 in.	1.73 x 17.5 x 14.83 in.	1.73 x 17.5 x 12.83 in.	2.59 x 17.5 x 11.6 in.

Feature	Catalyst					
	3750G-24TS-1 U	Catalyst 3750G-24PS	Catalyst 3750G-48TS	Catalyst 3750G-48PS	Catalyst 3750G-16TD	Catalyst 3750G-12S
Fixed Ports	24 10/100/1000	24 10/100/1000	48 10/100/1000	48 10/100/1000	16 10/100/1000	0
Uplinks	4 SFP	4 SFP	4 SFP	4 SFP	1 10GE XENPAK	12 SFP
Switching Fabric	Same as 3750-24TS	Same as 3750-24TS	Same as 3750-24TS	Same as 3750-24TS	Same as 3750-24TS	Same as 3750-24TS
VLAN Maximum	Same as 3750-24TS	Same as 3750-24TS	Same as 3750-24TS	Same as 3750-24TS	Same as 3750-24TS	Same as 3750-24TS
FEC/GEC	Same as 3750-24TS	Same as 3750-24TS	Same as 3750-24TS	Same as 3750-24TS	Same as 3750-24TS	Same as 3750-24TS
SFPs	Same as 3750-24TS	Same as 3750-24TS	Same as 3750-24TS	Same as 3750-24TS	Same as 3750-24TS	Same as 3750-24TS
802.1Q and ISL	Same as 3750-24TS	Same as 3750-24TS	Same as 3750-24TS	Same as 3750-24TS	Same as 3750-24TS	Same as 3750-24TS
PoE (Cisco prestandard and IEEE 802.3af)	No	Yes	No	Yes	No	No
QoS	Same as 3750-24TS	Same as 3750-24TS	Same as 3750-24TS	Same as 3750-24TS	Same as 3750-24TS	Same as 3750-24TS
Multicast	Same as 3750-24TS	Same as 3750-24TS	Same as 3750-24TS	Same as 3750-24TS	Same as 3750-24TS	Same as 3750-24TS
Management Capabilities	Same as 3750-24TS	Same as 3750-24TS	Same as 3750-24TS	Same as 3750-24TS	Same as 3750-24TS	Same as 3750-24TS
Flash Memory	32 MB	32 MB	32 MB	32 MB	16 MB	16 MB
CPU DRAM	Same as 3750-24TS	Same as 3750-24TS	Same as 3750-24TS	Same as 3750-24TS	Same as 3750-24TS	Same as 3750-24TS
Embedded RMON	Same as 3750-24TS	Same as 3750-24TS	Same as 3750-24TS	Same as 3750-24TS	Same as 3750-24TS	Same as 3750-24TS
Dimensions (H x W x D)	1.73 x 17.5 x 14.9 in.	1.73 x 17.5 x 14.9 in.	1.73 x 17.5 x 16.1 in.	1.73 x 17.5 x 16.1 in.	1.73 x 17.5 x 16.1 in.	1.73 x 17.5 x 12.83 in.

## Selected Part Numbers and Ordering Information<sup>1</sup>

## Catalyst 3750 Series Ethernet Switches

[illegible]

## Chapter 2

<b>CAB-RPS-1614=</b>	1.2 meter cable for Cisco RPS 675 to external device connection
<b>CD-3750G-EMI=</b>	Enhanced Multilayer Software Image (EMI) upgrade kit for standard versions of the Catalyst 3750G-24TS, 3750G-24T, 3750G-24TS-1U, 3750G-24PS, 3750G-12S, and 3750G-16TD switches; Provides advanced IP routing
<b>CD-3750-EMI=</b>	Enhanced Multilayer Software Image (EMI) upgrade kit for standard versions of the Catalyst 3750-48TS, 3750-24TS, 3750-48PS, and 3750-24PS switches; Provides advanced IP routing
<b>CD-3750G-48EMI=</b>	Enhanced Multilayer Software Image (EMI) upgrade kit for standard versions of the Catalyst 3750G-48TS and 3750G-48PS
<b>CAB-STACK-50CM=</b>	Cisco StackWise 50CM Stacking Cable
<b>CAB-STACK-1M=</b>	Cisco StackWise 1M Stacking Cable
<b>CAB-STACK-3M=</b>	Cisco StackWise 3M Stacking Cable
<b>RCKMNT-3550-1.5RU=</b>	Spare rack mount kit for the Catalyst 3750G-24TS
<b>RCKMNT-1RU=</b>	Spare rack mount kit for the Catalyst 3750 1RU switches
<b>RCKMNT-REC-1.5RU=</b>	1.5RU recessed rack mount kit for the Catalyst 2970, 3550, 3750
<b>RCKMNT-REC-1RU=</b>	1RU recessed rack mount kit for the Catalyst 2970, 3550, 3750
<b>GLC-LH-SM=</b>	GE SFP, LC connector LH transceiver
<b>GLC-SX-MM=</b>	GE SFP, LC connector SX transceiver
<b>GLC-ZX-SM=</b>	GE SFP, LC connector ZX transceiver
<b>GLC-T=</b>	GE SFP, RJ45 connector, 10/100/1000BT transceiver
<b>CWDM-SFP-1470=</b>	Cisco CWDM SFP 1470 nm; Gigabit Ethernet and 1G/2G FC (Grey)
<b>CWDM-SFP-1490=</b>	Cisco CWDM SFP 1490 nm; Gigabit Ethernet and 1G/2G FC (Violet)
<b>CWDM-SFP-1510=</b>	Cisco CWDM SFP 1510 nm; Gigabit Ethernet and 1G/2G FC (Blue)
<b>CWDM-SFP-1530=</b>	Cisco CWDM SFP 1530 nm; Gigabit Ethernet and 1G/2G FC (Green)
<b>CWDM-SFP-1550=</b>	Cisco CWDM SFP 1550 nm; Gigabit Ethernet and 1G/2G FC (Yellow)
<b>CWDM-SFP-1570=</b>	Cisco CWDM SFP 1570 nm; Gigabit Ethernet and 1G/2G FC (Orange)
<b>CWDM-SFP-1590=</b>	Cisco CWDM SFP 1590 nm; Gigabit Ethernet and 1G/2G FC (Red)
<b>CWDM-SFP-1610=</b>	Cisco CWDM SFP 1610 nm; Gigabit Ethernet and 1G/2G FC (Brown)
<b>CSS5-CABLX-LCSC=</b>	CSS11500 10-Meter Fiber Single Mode LX LC-to-SC Connectors
<b>CSS5-CABSX-LC=</b>	CSS11500 10-Meter Fiber Multimode SX LC Connectors
<b>CSS5-CABSX-LCSC=</b>	CSS11500 10-Meter Fiber Multimode SX LC-to-SC Connectors
<b>CAB-SM-LCSC-1M</b>	1-Meter Fiber Singlemode LC-to-SC Connectors
<b>CAB-SM-LCSC-5M</b>	5-Meter Fiber Singlemode LC-to-SC Connectors

1. This is only a small subset of all parts available via URL listed under "For More Information." Some parts have restricted access or are not available through distribution channels. Resellers: For latest part number and pricing info, see the *Distribution Product Reference Guide* at: <http://www.cisco.com/dprg> (limited country availability).

## For More Information

See the Catalyst 3750 Series Website: [www.cisco.com/go/catalyst3750](http://www.cisco.com/go/catalyst3750)

## Cisco Catalyst 4948 Series



The Cisco Catalyst 4948 Series is a family of wire-speed, low-latency, 1 RU fixed configuration switches for rack optimized server switching and DSLAM aggregation. Based on the proven Catalyst 4500 Series hardware and software architecture. The Catalyst 4948 series offers exceptional performance and reliability for low density, multilayer aggregation of high performance servers and workstations.

## When to Sell

### Sell This Product When a Customer Needs These Features

<b>Catalyst 4948</b>	<ul style="list-style-type: none"><li>• 48-Ports of Gigabit Ethernet switching in 1RU with dual power supplies</li><li>• Non-blocking Layer 2/3/4 10/100/1000 Gigabit Ethernet performance</li></ul>
<b>Catalyst 4948-10GE</b>	<ul style="list-style-type: none"><li>• 48-Ports of Gigabit Ethernet switching in 1RU with dual power supplies</li><li>• Non-blocking Layer 2/3/4 10/100/1000 Gigabit Ethernet performance with 10 Gigabit Ethernet uplinks</li></ul>

## Key Features

- Wire-speed performance with up to 136 Gbps of dedicated bandwidth for nonblocking Layer 2/3/4 Gigabit Ethernet concentration
- Redundant internal AC or DC power supplies with hot swappable fan tray
- SFP or X2 flexibility on fiber port interfaces covering a wide range of cabling distances

### Competitive Products

- Extreme Networks: Summit 400
- Foundry: FESX448 and FWS X448

### Specifications

Feature	Catalyst 4948	Catalyst 4948-10GE
Fixed Ports	48 10/100/1000 & 4 GE ports (SFP)—shared	48 10/100/100 & 2 10 Gigabit Ethernet ports (X2)
Backplane Capacity	96 Gbps	136 Gbps
Stackable	No	Same as 4948
Power Supply Redundancy	Yes. 1+1 AC or DC	Same as 4948
Fan Tray	Hot Swappable with redundant fans	Same as 4948
EIGRP, OSPF, IS-IS, BGP	Yes. Enhanced Software required	Same as 4948
Management Ports	Dedicated console port and 10/100 management port for disaster recovery	Dedicated console port and 10/100/1000 management port for disaster recovery
Dimensions (H x W x D)	1.75 x 17.3 x 16.1 in. (4.45 x 43.91 x 40.99 cm.)	Same as 4948

### Selected Part Numbers and Ordering Information<sup>1</sup>

#### Catalyst 4900 Switch Series

WS-C4948-10GE-S	Cisco Catalyst 4948-10GE, std multilayer software image (RIP, static routes, IPX, AppleTalk), one AC power supply, fan tray
WS-C4948-10GE-S	Cisco Catalyst 4948-10GE, enhanced multilayer software image (OSPF, EIGRP, IS-IS, BGP), one AC power supply, fan tray
WS-C4948-10GE	Cisco Catalyst 4948-10GE, optional software image, optional power supplies, fan tray
WS-C4948-S	Cisco Catalyst 4948, std multilayer software image (RIP, static routes, IPX, AppleTalk), one AC power supply, fan tray
WS-C4948-E	Cisco Catalyst 4948, enhanced multilayer software image (OSPF, EIGRP, IS-IS, BGP), one AC power supply, fan tray
WS-C4948	Cisco Catalyst 4948, optional software image, optional power supplies, fan tray
S49L3E-12225EWA(=)	Enhanced multilayer software image: OSPF, IS-IS, EIGRP, BGP
PWR-C49-300AC(=)	Cisco Catalyst 4900 300-Watt AC power supply
PWR-C49-300DC(=)	Cisco Catalyst 4900 300-Watt DC power supply

- This is only a small subset of all parts available via URL listed under “For More Information.” Some parts have restricted access or are not available through distribution channels. Resellers: For latest part number and pricing info, see the *Distribution Product Reference Guide* at: <http://www.cisco.com/dprg> (limited country availability).

### For More Information

See the Catalyst 4000 series Website: <http://www.cisco.com/go/cat4000>

## Cisco Catalyst 4500 Series

The Catalyst 4500 Series includes four Catalyst chassis: Catalyst 4510R (10-slot: redundant Supervisor capable), Catalyst 4507R (7-slot: redundant Supervisor capable), Catalyst 4506 (6-slot) and Catalyst 4503 (3-slot). The Catalyst 4500 extends control to the Enterprise LAN Access, SMB core and Layer 3 aggregation points. A variety of network infrastructure solutions are enabled by the Catalyst 4500 Series including: IP Telephony, Power Over Ethernet, 10/100/1000 to the desktop, Wireless LAN, NetFlow Services and Metro Ethernet Switching.



### When to Sell

#### Sell This Product

##### Catalyst 4510R

#### When a Customer Needs These Features

- When high performance, port density, and network resiliency is crucial to customer success
- Port density up to 384-10/100, 100-FX, 1000BASE-X or 10/100/1000BASE-T and 2 ports 10 GbE
- Layer 2 and Layer 3 Cisco Express Forwarding (CEF)-based switching up to 136 Gbps, 102 Mpps

##### Catalyst 4507R

- When network resiliency via redundant Supervisor Engines is crucial to customer success
- Port density up to 240-10/100, 100-FX, 1000BASE-X or 10/100/1000BASE-T and 2 ports 10 GbE
- Layer 2 and Layer 3 Cisco Express Forwarding (CEF)-based switching up to 100 Gbps, 72 Mpps

##### Catalyst 4506

- Port density up to 240-10/100, 100-FX, 1000BASE-X or 10/100/1000BASE-T and 2 ports 10 GbE
- Layer 2 and Layer 3 Cisco Express Forwarding (CEF)-based switching up to 100 Gbps, 75 Mpps



### Sell This Product

#### Catalyst 4503

### When a Customer Needs These Features

- Port density up to 116-10/100, 100-FX, 1000BASE-X or 10/100/1000BASE-T and 2 ports 10 GbE
- Layer 2 and Layer 3 Cisco Express Forwarding (CEF)-based switching up to 64 Gbps, 48 Mpps

Note: Compatible sparring between Catalyst 4510R, 4507R, 4506, and 4503 chassis provides investment protection with common Supervisor Engines, power supplies and switching line cards.

### Competitive Products

- Extreme Networks: Alpine and Aspen
- Foundry: Fast Iron and Super-X
- Hewlett Packard: Procurve 5300XL, 4108GL
- Nortel: Passport 8300/8600

### Specifications

Feature	Catalyst 4510R	Catalyst 4507R	Catalyst 4506	Catalyst 4503
<b>Modular Slots</b>	Up to 384 ports; 8 linecard slots	Up to 240 ports; 5 linecard slots	Up to 240 ports; 5 linecard slots	Up to 116 ports, 2 linecard slots
<b>Available Modules</b>	Supervisor Engine V and V-10GE	Supervisor Engine II-Plus IV, V, V-10GE	Supervisor Engine II-Plus IV, V, V-10GE	Supervisor Engine II-Plus-TS, II-Plus, IV, V, V-10GE
<b>Redundant Supervisor Capable</b>	Yes	Yes	No	No
<b>Backplane Capacity</b>	136 Gbps	100 Gbps	100 Gbps	64 Gbps
<b>Stackable</b>	No	No	No	No
<b>Hot-Swappable Power Supplies</b>	Yes	Yes	Yes	Yes
<b>1+1 Power Supply Protection</b>	Yes	Yes	Yes	Yes
<b>Power Over Ethernet (PoE) Support</b>	Up to 15.4W of PoE on every port	Up to 15.4W of PoE on every port	Up to 15.4W of PoE on every port	Up to 15.4W of PoE on every port
<b>Embedded RMON</b>	Statistics, History, Alarm, Events	Statistics, History, Alarm, Events	Statistics, History, Alarm, Events	Statistics, History, Alarm, Events
<b>Dimensions (H x W x D)</b>	24.35 x 17.31 x 12.50 in. (61.84 x 43.97 x 31.70 cm)	19.19 x 17.31 x 12.50 in. (48.74 x 43.97 x 31.70 cm)	17.38 x 17.31 x 12.50 in. (44.13 x 43.97 x 31.70 cm)	12.25 x 17.31 x 12.50 in. (31.12 x 43.97 x 31.70 cm)

Feature	Supervisor II-Plus-TS (WS-X4013+TS)	Supervisor II-Plus (WS-X4013+)	Supervisor IV (WS-X4515)	Supervisor V (WS-X4516)	Supervisor V-10GE (WS-X4516-10GE)
<b>Switching Capacity &amp; Throughput</b>	64 Gbps, 48 Mpps	64 Gbps, 48 Mpps	64 Gbps, 48 Mpps	96 Gbps, 72 Mpps	136 Gbps, 102 Mpps
<b>Multilayer Switching</b>	Basic L2/3/4 Services	Basic L2/3/4 Services	Enhanced L2/3/4 Services & Routing	Enhanced L2/3/4 Services & Routing	Enhanced L2/3/4 Services & Routing
<b>(E)IGRP, OSPF, IS-IS, BGP</b>	No	No	Yes	Yes	Yes
<b>Platform Support</b>	Catalyst 4503 ONLY	Catalyst 4507R, 4506, 4503	Catalyst 4507R, 4506, 4503	Catalyst 4510R, 4507R, 4506, 4503	Catalyst 4510R, 4507R, 4506, 4503
<b>Supervisor Redundancy</b>	No	4507R Only	4507R Only	4507R and 4510R Only	4507R and 4510R Only
<b>Operating System</b>	IOS	IOS	IOS	IOS	IOS
<b>QoS</b>	4Q/Port, policing, shaping, congestion avoidance	4Q/Port, policing, shaping, congestion avoidance	4Q/Port, policing, shaping, congestion avoidance	4Q/Port, policing, shaping, congestion avoidance	4Q/Port, policing, shaping, congestion avoidance
<b>CPU</b>	266 MHz	266 MHz	333 MHz	400 MHz	800 MHz
<b>NetFlow Support</b>	No	No	Yes (Optional Daughter Card)	Yes (Optional Daughter Card)	Yes (Built-in functionality; no Daughter Card Required)
<b>ISL</b>	Yes	Yes	Yes	Yes	Yes
<b>ACLs</b>	Yes	Yes	Yes	Yes	Yes
<b>IP FIB entries</b>	32K	32K	128K	128K	128K
<b>MAC Addresses</b>	32K Unicast, 16K Multicast	32K Unicast, 16K Multicast	32K Unicast, 16K Multicast	32K Unicast, 16K Multicast	32K Unicast, 16K Multicast
<b>On-Board Flash</b>	32 MB	32 MB	64 MB	64 MB	64 MB
<b>Compact Flash Support</b>	Yes	Yes	Yes	Yes	Yes
<b>Non-Blocking Supervisor Ports</b>	12x10/100/1000 BASET, 2xGE ports PoE, 8xSFP		2xGE ports	2xGE ports	2x10GE and 4xGE

## Selected Part Numbers and Ordering Information<sup>1</sup>

### Catalyst 4500 Series Switches

WS-C4510R	Catalyst 4500 Chassis (10-Slot), fan, no p/s, Red Sup Capable
WS-C4507R	Catalyst 4500 Chassis (7-Slot), fan, no p/s, Red Sup Capable
WS-C4506	Catalyst 4500 Chassis (6-Slot), fan, no p/s
WS-C4503	Catalyst 4500 Chassis (3-Slot), fan, no p/s

### Catalyst 4500 Series Common Equipment

WS-X4013+=	Catalyst 4500 Supervisor II-Plus, 2GE, RJ-45
WS-X4013+-TS=	Catalyst 4503 Supervisor Engine II-Plus TS (for Catalyst 4503 chassis only)
WS-X4515=	Catalyst 4500 Supervisor IV, 2GE, RJ-45
WS-X4516=	Catalyst 4500 Supervisor V, 2GE, RJ-45
WS-X4516-10GE=	Catalyst 4500 Supervisor V-10GE, 2x10GE, RJ-45
WS-X4531=	Catalyst 4500 NetFlow Services card for Supervisor Engine IV/V
PWR-C45-1000AC=	Catalyst 4500 1000W AC Power Supply (Data Only)
PWR-C45-1400AC=	Catalyst 4500 1400W AC Power Supply (Data Only)
PWR-C45-1300ACV=	Catalyst 4500 1300W AC Power Supply (with PoE)
PWR-C45-2800ACV=	Catalyst 4500 2800W AC Power Supply (with PoE)
PWR-C45-4200ACV=	Catalyst 4500 Dual Input 4200W AC Power Supply (with PoE)

### Catalyst 4500 Series Line Card Modules and GBICs

WS-X4148-RJ=	Catalyst 4500 10/100 Fast Ethernet Module, 48 Ports (RJ-45)
WS-X4148-RJ21=	Catalyst 4500 Telco switch module, 48-port 10/100 (4xRJ21)
WS-X4148-FX-MT	Cisco Catalyst 4500 Fast Ethernet Switching Module, 48-port 100BASE-FX multimode fiber (MMF) (MT-RJ)
WS-X4148-FE-LX-MT	Catalyst 4500 Fast Ethernet Switching Module, 48-port 100BASE-LX10 single-mode fiber (SMF) (MT-RJ)
WS-X4148-FE-BD-LC	Catalyst 4500 Fast Ethernet Switching Module, 48-port 100BASE-BX-D SMF (LC)
WS-X4232-GB-RJ=	Catalyst 4500 E/FE/GE Module, 2-GE (GBIC), 32-10/100 FE (RJ-45)
WS-X4232-RJ-XX=	Catalyst 4500 FE Base Module, 32-10/100(RJ45)+ Modular Uplink slot
WS-X4302-GB=	Catalyst 4500 Gigabit Ethernet Module, 2-Ports (GBIC)
WS-X4306-GB=	Catalyst 4500 Gigabit Ethernet Module, 6 Ports (GBIC)
WS-X4506-GB-T=	Catalyst 4500 Gigabit Ethernet Module, 6 Ports: 10/100/1000BASE-T PoE or SFP (Alternatively Wired)
WS-X4424-GB-RJ-45=	Catalyst 4500 24 port 10/100/1000 Auto-Sensing Module (RJ45)
WS-X4548-GB-RJ45=	Catalyst 4500 48 port 10/100/1000 Auto-Sensing Module (RJ45)
WS-X4124-RJ45=	Catalyst 4500 10/100 Module, 24-Ports(RJ45)
WS-X4224-RJ45V=	Catalyst 4500 PoE 802.3af 10/100 24-ports (RJ45)
WS-X4524-GB-RJ45V=	Catalyst 4500 PoE 802.3af 10/100/1000, 24-Ports (RJ45)
WS-X4248-RJ21V=	Catalyst 4500 PoE 802.3af 10/100, 48-Ports (RJ45)
WS-X4248-RJ45V=	Catalyst 4500 PoE 802.3af 10/100, 48-Ports (RJ45)
WS-X4548-GB-RJ45V=	Catalyst 4500 PoE 802.3af 10/100/1000, 48-Ports (RJ45)
WS-X4418-GB=	Catalyst 4500 GE Module, Server Switching 18 Ports (GBIC)
WS-X4448-GB-SFP=	Catalyst 4500 48-Port GE 1000BASE-X (SFP sold separately)

### Catalyst 4500 Series Software

S4KL3-12.2(25)EWA=	Cisco IOS BASIC L3 SW Cat4500 SUP II-Plus/4/5/5-10ge (RIP, St.Routes, IPX, AT)
S4KL3E-12.2(25)EWA=	Cisco IOS ENHANCED L3 SW Cat4500 SUP4/5/5-10ge (OSPF, IGRP, EIGRP, IS-IS)

1. This is only a small subset of all parts available via URL listed under "For More Information." Some parts have restricted access or are not available through distribution channels. Resellers: For latest part number and pricing info, see the *Distribution Product Reference Guide* at: <http://www.cisco.com/dprg> (limited country availability).

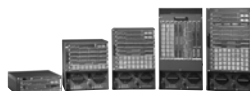
## For More Information

See the Catalyst 4500 series Website:

<http://www.cisco.com/en/US/products/hw/switches/ps4324/index.html>

## Cisco Catalyst 6500 Series

The Catalyst 6500 Family delivers highly available secure converged network services for the Enterprise and Service Provider networks. It is designed to address the increased requirements for gigabit scalability, high-availability, rich services, and multilayer switching in backbone, distribution, and wiring closet topologies as well as datacenter environments. The Catalyst 6500 Family delivers exceptional scalability and price/performance, supporting a wide range of interface densities, performance, and integration of powerful service modules.



# When to Sell

## Sell This Product

Catalyst 6513

Catalyst 6509-E

Catalyst 6506-E

Catalyst 6503-E

Catalyst 6504-E

## When a Customer Needs These Features

- A high capacity chassis for Ethernet connectivity, with slots to spare for services modules providing network security and management
- A traditional chassis for the wiring closet, distribution and core, data center, and WAN edge
- A traditional chassis for the wiring closet, distribution and core, data center, and WAN edge
- A low-density, wiring-closet chassis sharing interface modules and supervisor engines with larger chassis for common sparing
- A small factor high performance, chassis sharing interface modules and supervisor engines with larger chassis for common sparing, suitable for small/medium enterprise core/distribution. Metro edge and enterprise wan edge

## Key Features

- Supervisor Engine 720—Positioned for enterprise core, distribution, and data centers: Up to 720 Gbps Switch Fabric Connection and up to 400 Mpps of switching performance; Supports new accelerated Cisco Express Forwarding (CEF720) and distributed Cisco Express Forwarding (dCEF720) interface modules; IPv6 and MPLS supported in hardware. Supports Layer 3 routing protocols
- Supervisor Engine 32—Positioned for the intelligent wiring-closet and low end cost effective core and distribution deployments: incorporates a 32-Gbps shared bus connection to modules; Supports up to 15 Mpps of switching performance; Centralized Layer 2 and Layer 3 forwarding and is available in two models, either 8-port 1GE model or 2-port 10GbE uplinks
- Supervisor Engine 2 MSFC2—Positioned for enterprise distribution, data centers, and WAN edge: Supports the 256 Gbps Switch Fabric Connection via the SFM; With the SFM, it supports up to 210 Mpps of switching performance; Supports distributed Cisco Express Forwarding (dCEF256) interface modules; Supports Layer 3 routing protocols
- Supervisor Engine 2 PFC2—Positioned for premium wiring closet and data center access; Up to 256 Gbps Switch Fabric Connection with SFM; Up to 30 Mpps of Centralized Forwarding using Cisco Express Forwarding (CEF) in hardware

## Competitive Products

- Extreme: Black Diamond
- Foundry: Big Iron
- Lucent: Cajun Switch 550
- Nortel: Passport 8600

## Specifications

Feature	6503-E	6504-E	6506-E	6509-E	6513
<b>Modular Slots</b>	3	4	6	9	13
<b>Maximum Port Density</b>	192 10/100 97 10/100/1000 96 100FX 98 SFP Gigabit 34 GBIC Gigabit 8 10GE	288 10/100 145 10/100/1000 144 100FX 146 SFP Gigabit 50 GBIC Gigabit 12 10GE	480 10/100 241 10/100/1000 240 100FX 242 242 SFP Gigabit 82 GBIC Gigabit 20 10 GE	768 10/100 385 10/100/1000 384 100FX 386 SFP Gigabit 130 GBIC Gigabit 32 10GE	1152 10/100 584 10/100/1000 576 100FX 410 SFP Gigabit 194 GBIC Gigabit 20 10GE
<b>WAN Interfaces</b>	DS0 to OC-48	DS0 to OC-48	DS0 to OC-48	DS0 to OC-48	DS0 to OC-48
<b>Available Bandwidth</b>	Scalable to 240 Gbps	Scalable to 320 Gbps	Scalable to 480 Gbps	Scalable to 720 Gbps	Scalable to 720 Gbps
<b>Throughput</b>	Scalable to 99 Mpps	Scalable to 147 Mpps	Scalable to 243 Mpps	Scalable to 387 Mpps	Scalable to 425 Mpps
<b>Redundant Supervisor</b>	Yes	Yes	Yes	Yes	Yes
<b>Hot-Swappable Power Supplies</b>	Yes	Yes	Yes	Yes	Yes
<b>VLAN Maximum</b>	4096	4096	4096	4096	4096
<b>FEC/GEC</b>	Yes	Yes	Yes	Yes	Yes
<b>Management Capabilities</b>	CiscoWorks 2000, RMON, Enhanced Switched Port Analyzer (SPAN), SNMP, Telnet, BOOTP, and Trivial File Transfer Protocol (TFTP)	Same as Catalyst 6503-E	Same as Catalyst 6503-E	Same as Catalyst 6503-E	Same as Catalyst 6503-E
<b>Dimensions (H x W x D)</b>	4 RU, 7 x 17.5 x 21.7 in.	5RU, 8.7 x 17.5 x 21.6 in.	12 RU, 19.2 x 17.5 x 18.2 in.	15 RU, 24.5 x 17.5 x 18.2 in.	20 RU, 33.3 x 17.3 x 18.1 in.

## Selected Part Numbers and Ordering Information<sup>1</sup>

### Catalyst 6500 - Bundles

WS-C6503-E-S32-GE	6503-E chassis + Supervisor Engine 32 (8 GE version) + fan tray
WS-C6504-E-S32-GE	6504-E chassis + Supervisor Engine 32 (8 GE version) + fan tray
WS-C6503-E-FWM-K9	Cisco Catalyst 6503 Firewall Security System
WS-C6503-E-IPSEC-K9	Cisco Catalyst 6503 IPsec VPN System
WS-C6506-E-S32-GE	6506-E chassis + Supervisor Engine 32 (8 GE version) + fan tray
WS-C6506-E-FWM-K9	Cisco Catalyst 6506 Firewall Security System
WS-C6506-E-IPSEC-K9	Cisco Catalyst 6506 IPsec VPN System
WS-C6509-E-S32-GE	6509-E chassis + Supervisor Engine 32 (8 GE version) + fan tray
WS-C6509-E-FW-IDS-K9	Catalyst Firewall and Intrusion Prevention System
WS-C6509-E-FW-VPN-K9	Catalyst Firewall and VPN Security System
WS-C6513-S32-GE	6513 chassis + Supervisor Engine 32 (8 GE version) + fan tray
WS-C6503E-S32-10GE	6503-E chassis + Supervisor Engine 32 (10 GbE version) + fan tray
WS-C6504E-S32-10GE	6504-E chassis + Supervisor Engine 32 (10 GbE version) + fan tray
WS-C6506E-S32-10GE	6506-E chassis + Supervisor Engine 32 (10 GbE version) + fan tray
WS-C6509E-S32-10GE	6509-E chassis + Supervisor Engine 32 (10 GbE version) + fan tray
WS-C6513-S32-10GE	6513 chassis + Supervisor Engine 32 (10 GbE version) + fan tray
WS-C6509-E-FW-VPN-K9	Catalyst Firewall and VPN Security System

### Catalyst 6500 - Chassis

WS-C6503-E	Enhanced Cat 6503 Chassis, 3slot, 4RU, No Pow Supply, No Fan Tray
WS-C6504-E	Enhanced Cat 6504 Chassis, 3slot, 4RU, No Pow Supply, No Fan Tray
WS-C6506-E	Enhanced Cat 6506 Chassis, 6slot, 12RU, No Pow Supply, No Fan Tray
WS-C6509-E	Enhanced Cat 6509 Chassis, 9slot, 15RU, No Pow Supply, No Fan Tray
WS-C6509-NEB-A	Cat 6509 NEBS Chassis for all Supervisors, No PS, No Fan
WS-C6513	Cat 6513 Chassis, 13slot, 19RU, No Pow Supply, No Fan Tray

### Catalyst 6500 - Supervisor Engines & Switch Fabric Modules

WS-SUP720-3BXL=	Catalyst 6500/Cisco 7600 Supervisor 720 Fabric MSFC3 FC3BXL
WS-SUP720-3B=	Catalyst 6500/Cisco 7600 Supervisor 720 Fabric MSFC3 PFC3B
WS-SUP720=	Catalyst 6500/Cisco 7600 Supervisor 720 Fabric MSFC3 PFC3A
WS-X6K-S2U-MSFC2=	Catalyst 6500 Supervisor 2U, 256MB Supervisor, 512MB PFC2
WS-X6K-S2-MSFC2=	Catalyst 6500 Supervisor Engine-2, 2GE, plus MSFC-2 / PFC-2
WS-X6K-S2-PFC2=	Catalyst 6500 Supervisor Engine-2, 2GE, plus PFC-2
WS-SUP32-GE-3B=	C6500 Supervisor 32 with 8 GigE uplinks and PFC3B
WS-SUP32-10GE-3B=	Cat 6500 Supervisor 32 with 2 ports 10GbE and PFC3B

### Catalyst 6500 10GE

WS-X6704-10GE=	Cat6500 4-port 10 Gigabit Ethernet Module (req. XENPAKs)
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### Catalyst 6500 - Gigabit Ethernet

WS-X6516A-GBIC=	Catalyst 6500 16-port GigE Mod, fabric-enabled (Req. GBICs)
WS-X6724-SFP=	Catalyst 6500 24-port GigE Mod: fabric-enabled (Req. SFPs)
WS-X6748-SFP=	Catalyst 6500 48-port CEF720 GigE Module (Req. SFPs)
WS-X6816-GBIC=	Cat6500 16-port GigE mod, 2 fab I/F, (Req GBICs, DFC/DFC3)

### Catalyst 6500 - 10/100/100 Ethernet

WS-X6148-GE-TX=	Catalyst 6500 48-port 10/100/1000 GE Mod., RJ-45
WS-X6148A-GE-TX=	Catalyst 6500 48-port 10/100/1000 GE Mod., RJ-45
WS-X6148-GE-45AF=	Cat6500 PoE 802.3af 10/100/1000, 48 port (RJ45) line card
WS-X6148A-GE-45AF=	Cat6500 PoE 802.3af 10/100/1000, 48 port (RJ45) line card
WS-X6548-GE-TX=	Catalyst 6500 48-port fabric-enabled 10/100/1000 Module
WS-X6548-GE-45AF=	Cat 6500 PoE 802.3af 10/100/1000 48-port(RJ45)CEF256 card
WS-X6748-GE-TX=	Cat6500 48-port 10/100/1000 GE Mod: fabric enabled, RJ-45

### Catalyst 6500 - 10/100 Ethernet

WS-X6148-RJ-21=	Catalyst 6500 48-Port 10/100 Upgradable to Voice, RJ-21
WS-X6148-21AF=	Cat6500 PoE 802.3af 10/100, 48 port (RJ21) line card
WS-X6148-RJ-45=	Catalyst 6500 48-Port 10/100, Upgradable to Voice, RJ-45
WS-X6148A-RJ-45=	Catalyst 6500 48-Port 10/100 w/TDR, Upgradable - PoE 802.3af
WS-X6148-45AF=	Catalyst 6500 PoE 802.3af 10/100, 48 port(RJ45) line card
WS-X6148A-45AF=	Catalyst 6500 PoE 802.3af 10/100, 48 port(RJ45) line card
WS-X6148X2-RJ-45=	Cat6500 96-Port 10/100 (RJ45), Upgradable to PoE 802.3af
WS-X6148X2-45AF=	Cat6500 96-Port 10/100 (RJ21), Upgradable to PoE 802.3af
WS-X6196-RJ-21	Cat6500 PoE 802.3af 10/100, 96-Port ( RJ-21) line card
WS-X6196-21AF	Cat6500 PoE 802.3af 10/100, 96-Port ( RJ-21) line card
WS-X6548-RJ-21=	Catalyst 6500 48-port 10/100, RJ-21, fabric-enabled
WS-X6548-RJ-45=	Catalyst 6500 48-port 10/100, RJ-45, fabric-enabled

### Catalyst 6500 100 FX

WS-X6148FE-SFP=

Catalyst 6500 48 port 100Base-X module (require SFP)

### Services Modules

WS-SVC-CMM=

COMMUNICATION MEDIA MODULE

WS-SVC-CMM-24FXS=

24-Port FXS Interface Port Adapter

WS-SVC-CMM-6E1=

6-PORT E1 INTERFACE PORT ADAPTER

WS-SVC-CMM-6T1=

6-PORT T1 INTERFACE PORT ADAPTER

WS-SVC-CMM-ACT=

Adhoc Conferencing and Transcoding PA

WS-SVC-CSG-1=

Content Services Gateway

WS-SVC-FWM-1-K9=

Firewall blade for Catalyst 6500

WS-SVC-IDS2BUNK9=

IDS-M-2 600M mod spare

WS-SVC-IPSEC-1=

IPSec VPN Security Module for 6500 and 7600 series

WS-SVC-MWAM-1=

Multi-Processor WAN Application Module

WS-SVC-NAM-1=

Catalyst 6500 Network Analysis Module-1

WS-SVC-NAM-2=

Catalyst 6500 Network Analysis Module

WS-SVC-PSD-1=

Persistent Storage Device

WS-SVC-SSL-1-K9=

SSL Module for Catalyst 6500

WS-SVC-WLAN-1-K9=

Wireless LAN Services Module, CEF256

WS-X6066-SLB-APC=

Catalyst 6500/7600 Content Switching Module

WS-X6066-SLB-S-K9=

Content Switching Module with SSL daughter card

1. This is only a small subset of all parts available via URL listed under "For More Information." Some parts have restricted access or are not available through distribution channels.

### For More Information

See the Catalyst 6500 Family Website: <http://www.cisco.com/go/6000>

## Cisco Catalyst 8500 Multiservice Switch Routers

The Catalyst 8500 family multiservice switch routers integrate multiservice ATM switching with wire-speed multiprotocol routing for Gigabit Ethernet and Fast Ethernet into a single platform that also supports advanced Cisco IOS services for QoS and security. The Catalyst 8500 series consists of the modular Catalyst 8510 (10-Gbps, 5-slot) switch and the modular Catalyst 8540 (40-Gbps, 13-slot) switch. Both switches implement Cisco IOS Software to provide a variety of network services including reliability, security, management, and QoS with CiscoAssure policy networking.



### When to Sell

#### Sell This Product

Catalyst 8540 and  
Catalyst 8510

#### When a Customer Needs These Features

- Integrated 10/100 FE, GE, and ATM; Flexible ATM interfaces (T1/E1, IMA, DS3/E3, OC-3, OC-12, and OC-48)
- Frame relay and circuit emulation services
- Wire-speed performance
- Multiservice MAN/WAN applications; Multiservice Edge solutions
- Voice, data, and video solutions
- MPLS VPN

### Key Features

- Ideal for integrated multiservice ATM switching with wire-speed multiprotocol routing for gigabit Ethernet (L3eATM or Layer 3 enabled ATM)
- Ideal for aggregating multiprotocol traffic from multiple wiring closets or from workgroup switches
- Provides nonblocking routing for IP, IPX, and IP multicast while also offering wire-speed Layer 2 switching for nonroutable protocols such as NetBIOS and DECnet local-area transport (LAT)
- Aggregate throughput of up to 24 million packets per second (pps) for non-blocking, wirespeed Layer 3 switching

## Competitive Products

- Foundry: Big Iron
- Lucent: PSAX 1250 and 2300
- Marconi: ASX 1000, 1200, and 4000
- Alcatel: Omniswitch

## Specifications

Feature	Catalyst 8510	Catalyst 8540
<b>Modular Slots</b>	5	13
<b>Available Modules</b>	See Part Numbers and Ordering information for a partial parts list	
<b>Backplane</b>	10 Gbps	40 Gbps
<b>Throughput Performance</b>	6 Mpps	24 Mpps
<b>MAN / WAN</b>	Gig Ethernet / ATM	Gig Ethernet / ATM
<b>Dimensions (H x W x D)</b>	10.5 x 17.2 x 18.14 in.	25.25 x 17.3 x 18.25 in.

## Selected Part Numbers and Ordering Information<sup>1</sup>

### Catalyst 8540—Common Equipment

C8540MSR-SKIT-AC	C8540 MSR Starter Kit w/ Stratum 4 Clock Module—AC Power (also available in DC Power)
C8545MSR-MRP4CLK=	C8540 MSR Multiservice Route Processor (spare)
C8545MSR-MRP3CLK=	C8540 MSR Route Processor Stratum 3 (spare)
C8546MSR-MSP-FCL=	C8540 MSR Switch Processor with ATM FC (spare)
C8540-CHAS13=	Catalyst 8540 - Chassis (spare)
C8540-PWR-AC=	C8540 Power Supply—AC (also available in DC Power)

### Catalyst 8510—Common Equipment

C8510MSR-SKIT-AC	Catalyst 8510 MSR Starter Kit with AC Power (also available as -DC for DC Power)
C8515-MSRP=	C8510 Multiservice Switch Route Processor (spare)
C8510-CHAS5=	Catalyst 8510 - Chassis (spare)
C8510-PWR-AC=	C8510 power supply, AC (spare) (also available in DC power)

### Catalyst 8500 Family—ATM Router Module Equipment

C8540-ARM-64K=	C8540 ATM Router Module 64K (also available for 8510)
C8540-ARM2=	C8540 Enhanced ATM Router Module (spare)

### Catalyst 8500—Layer 3 Modules and ATM Interface Modules and Uplinks

C85GE-2X-64K=	C8540 2-port Enhanced GE 64K (also available in 256K)
C85GE-8X-64K=	C8540 8-port GE 64K
C85FE-16TACL-64K=	C8540 16-port 10/100 RJ-45 w/ACL 64K
C8540-ACL=	C8540 ACL Daughter Card (also available for C8510/LS1010)
C85GE-1X-16K=	C8510/LS1010 1-port Gigabit Ethernet 16K (also available in 64K)
C85FE-8T-64K=	C8510/LS1010 8-port 10/100 RJ-45 64K
C85MS-4F-OC12S=	C8540 4-port OC-12c/STM-4 SMF
C85MS-4F-OC12MM=	C8540 4-port OC-12c/STM-4 MMF
C85MS-16F-OC3MM=	C8540 16-port OC-3c/STM-1 MMF (spare)
C85MS-16F-OC3SM=	C8540 16-port OC-3c/STM-1 SMF-LR (spare)

### Catalyst 8500—Port Adapter Modules

C85MS-SCAM-2P=	C8540 SuperCAM for Port Adapter Modules (spare)
C8510TSCAM-2P=	CS8510/LS1010 Traffic Shaping Carrier Access Modules (spare)
WATM-CAM-2P=	C8510 / LS1010 Carrier Modules (spare)
WAI-T1C-4RJ48=	4 Port T1 (circuit emulation) RJ-48 PAM (also available in E1 and in E1 BNC)
C85MS-4E1-FRRJ48=	C8500 4-port E1 Frame-Relay/FUNI PAM (spare)
WAI-OC3-4MM=	4 Port OC-3c/STM-1 MMF PAM (also available in SMF-IR & SMF-LR)
WAI-OC3-1S3M=	OC-3c/STM-1 Mix PAM, 1-port SMF-IR + 3-port MMF (spare)
WAI-OC12-1MM=	1 Port OC-12c/STM-4c MMF PAM (also available in SMF-IR and SMF-LR)
WAI-T3-4BNC=	4 Port DS-3 PAM (spare and in E3 BNC)
C85MS-8T1-IMA=	C8500MSR/LS1010 8-port T1 IMA PAM (also available in E1 120 ohm)
WAI-T1-4RJ48=	4 Port T1 (ATM) RJ-48 PAM (spare also available in E1 and E1 BNC E1)

### Catalyst 8500 Software Feature License Options

FR-8510-TAGSW=	C8510 Tag Switching upgrade license (also available with HPNNI and HPNNI + Tag Switching)
FR-8540MSR-HPNNI=	Cat 8540MSR—Hierarchical PNNI License (also available with Tag Switching)

1. This is only a small subset of all parts available via URL listed under "For More Information." Some parts have restricted access or are not available through distribution channels.

## For More Information

See the Catalyst 8500 series Website: <http://www.cisco.com/go/8500>



# Wireless LAN

## Wireless LAN at a Glance (IEEE 802.11 a/b/g)

Product	Features	Page
<b>Cisco Aironet 1000 Series Lightweight Access Point</b>	<ul style="list-style-type: none"> <li>Standard-based Lightweight Access Point Protocol (LWAPP) to help ensure interoperability with the existing infrastructure</li> <li>Cost effective way of delivering advanced WLAN services to enterprise deployments</li> <li>IEEE 802.11a/b/g access point with internal antennas</li> <li>Dual 802.11a and 802.11b/g radios provide flexibility for users to meet the performance requirements of the most demanding applications, while security and management capabilities provide uncompromised support for interoperable IEEE 802.11i security and ease of deployment</li> </ul>	3-3
<b>Cisco Aironet 1100 Series Access Point</b>	<ul style="list-style-type: none"> <li>Single 802.11g radio supports maximum data rate of 54 Mbps</li> <li>2.4 GHz integrated diversity dipole antennas</li> <li>Easy-to-install, cost-efficient deployment for offices and similar RF environments</li> </ul>	3-4
<b>Cisco Aironet 1130AG Series Access Point</b>	<ul style="list-style-type: none"> <li>With two high-performance radios, these access points provide simultaneous support for the 802.11a and 802.11g standards, offering 108 Mbps of capacity for your growing WLAN</li> <li>Cost-compelling solution for a high-capacity, high-security, enterprise-class WLAN.</li> </ul>	3-5
<b>Cisco Aironet 1200 Series Access Points</b>	<ul style="list-style-type: none"> <li>Modular design allows single or dual radio configuration for up to 54 Mbps connectivity in both the 2.4 and 5 GHz bands</li> <li>May be field upgraded to support 802.11a with a hardware upgrade module</li> </ul>	3-7
<b>Cisco Aironet 1230AG Series Access Point</b>	<ul style="list-style-type: none"> <li>Antenna connectors for both 2.4GHz and 5GHz radios ensure optimal coverage, range, and reliability in particularly warehouses, offices, and other high multipath environments.</li> <li>Cast aluminum case and rugged features support deployment in industrial environments.</li> <li>Broad operating temperature range and UL 2043 certification for plenum rating requirements set by local fire codes supports installation in environmental air spaces</li> </ul>	3-9
<b>Cisco Aironet 1300 Series Outdoor Access Point/Bridge</b>	<ul style="list-style-type: none"> <li>Configurable for access point, bridge, or workgroup bridge roles</li> <li>Support for both point-to-point or point-to-multipoint configurations</li> <li>Industry leading range and throughput, supporting data rates up to 54 Mbps</li> <li>Ruggedized enclosure optimized for harsh outdoor environments with extended operating temperature range</li> <li>Integrated or optional external antennas for flexibility in deployment</li> </ul>	3-10
<b>Cisco Aironet 802.11a/b/g Wireless CardBus and PCI Adapter</b>	<ul style="list-style-type: none"> <li>Secure network communications, with the Cisco Wireless Security Suite and support for Wi-Fi 3-12 Protected Access (WPA)</li> <li>Comprehensive utilities for flexible, easy configuration and management</li> <li>High- performance 54 Mbps connectivity in the 2.4 and 5 GHz bandst               <ul style="list-style-type: none"> <li>Superior range and throughput</li> <li>World mode for international roaming</li> </ul> </li> </ul>	3-12
<b>Cisco Aironet 5 GHz 54 Mbps Wireless LAN Client Adapter</b>	<ul style="list-style-type: none"> <li>IEEE 802.11a-compliant CardBus adapter that operates in the UNII-1 and UNII-2 bands</li> <li>Complements the Cisco Aironet 1200 Series 802.11a Access Point, providing a solution that combines performance and mobility with the security and manageability that enterprises require</li> </ul>	3-13
<b>Cisco Aironet 350 Series Client Adapters</b>	<ul style="list-style-type: none"> <li>Secure network communications</li> <li>World mode for international roaming</li> <li>PCMCIA card and PCI form factors</li> <li>IEEE 802.11b</li> </ul>	3-15
<b>Cisco Aironet 1400 Series Wireless Bridge</b>	<ul style="list-style-type: none"> <li>Support for both point-to-point or point-to-multipoint configurations</li> <li>Range and throughput supporting data rates up to 54 Mbps</li> <li>Enhanced security mechanisms based on 802.11 standards</li> <li>Ruggedized enclosure optimized for harsh outdoor environments with extended operating temperature range</li> </ul>	3-16
<b>Cisco Aironet 350 Series Wireless Bridge</b>	<ul style="list-style-type: none"> <li>High-speed, high-power radios, delivering building-to-building links of up to 25 miles (40.2 km)</li> <li>Supports both point-to-point and point-to-multipoint configurations</li> <li>Simplified installation, improved performance, and upgradeable firmware, ensuring investment protection</li> <li>IEEE 802.11b</li> </ul>	3-18

Product	Features	Page
<b>Cisco Aironet 350 Series Workgroup Bridge</b>	<ul style="list-style-type: none"> <li>• Driverless installation of up to eight Ethernet-enabled devices</li> <li>• Optimum wireless performance and range</li> <li>• Standards-based centralized security</li> <li>• IEEE 802.11b</li> </ul>	3-19
<b>Cisco Antennas and Accessories</b>	<ul style="list-style-type: none"> <li>• A wide array of options</li> <li>• FCC-approved directional and omni-directional antennas</li> <li>• Low-loss cable, mounting hardware, and other accessories available</li> </ul>	3-20
<b>CiscoWorks Wireless LAN Solution Engine</b>	<p>A hardware-based wireless LAN management solution that provides template-based configuration with user-defined groups to effectively manage a large number of access points and bridges.</p> <ul style="list-style-type: none"> <li>• Monitors LEAP authentication servers</li> <li>• Enhances security management through mis-configuration detection on access points and bridges</li> </ul>	9-19
<b>Cisco 2000 Series Wireless LAN Controller</b>	<ul style="list-style-type: none"> <li>• Ideal for enterprise wireless LAN deployments that require system-level security, scalability, and RF management</li> <li>• Leverages the LWAPP to centrally control Cisco Aironet 1000 Series Lightweight Access Points for WLAN performance optimization and automated network resiliency</li> <li>• Ideal for small and medium-sized enterprise environments. It supports up to six lightweight access points making it a cost-effective solution for small branch offices.</li> </ul>	3-23
<b>Cisco 4100 Series Wireless LAN Controller</b>	<ul style="list-style-type: none"> <li>• Ideal for enterprise wireless LAN deployments that require system-level security, scalability, and RF management</li> <li>• Leverages the LWAPP to centrally control Cisco Aironet 1000 Series Lightweight Access Points for WLAN performance optimization and automated network resiliency</li> <li>• Designed for medium-sized and large enterprise facilities. Supports a maximum of 12, 24 and 36 access points. For branch offices to main campuses, this product provides a secure, enterprise wireless network.</li> </ul>	3-24
<b>Cisco Wireless Control System (WCS)</b>	<ul style="list-style-type: none"> <li>• Complete platform for enterprise-wide WLAN systems management.</li> <li>• Wide range of tools for visualizing and controlling the air space</li> <li>• Provides a centralized platform for managing a complete network of Cisco WLAN controllers and lightweight access points, simplifying WLAN planning and deployment and creating a cost effective way of managing and securing ongoing wireless operations</li> </ul>	3-26
<b>Cisco Wireless Location Appliance</b>	<ul style="list-style-type: none"> <li>• Advanced and scalable location tracking that simultaneously tracks thousands of wireless users and devices to within a few meters of their physical location</li> <li>• Integrated location tracking using existing LWAPP enabled infrastructure, minimizing capital expenditures and helping ensure better WLAN visibility</li> <li>• Intuitive management GUI to centrally and easily add, configure, manage and upgrade multiple location appliances</li> </ul>	3-27



# Cisco Aironet 1000 Series Lightweight Access Point



Cisco® 1000 Series lightweight access points handle real-time 802.11 radio functions within a Cisco wireless LAN, including radio transmit and receive, client probe requests, and air monitoring. These devices act as the eyes and ears of the wireless network, feeding valuable information to Cisco wireless LAN controllers and Cisco Wireless Control System (WCS) Software for real-time decisions. In addition, Cisco Aironet 1000 Series Lightweight Access Points handle time-sensitive functions, such as Layer 2 encryption, that enable Cisco wireless LANs to securely support voice, video, and data applications.

## When to Sell

### Sell This Product

**Cisco Aironet 1000 Series Lightweight Access Point**

### When a Customer Needs These Features

- Designed for complex RF environments that require real-time RF management
- Cost effective way of adding location and wireless IPS to enterprise wireless LANs
- Centralized management and control makes it ideal for large, distributed enterprises

## Key Features

- Standard-based LWAPP to help ensure interoperability with the existing infrastructure
- Zero-touch configuration and management that reduces the cost and time to deploy a wireless network
- Simultaneous air monitoring and data service that minimizes equipment requirements, simplifies network design and increases security through complete real-time monitoring across an entire network
- Internal and external antenna options
- Security that works with existing and planned security policies
- QoS to provide effective resource management of the air space

## Specifications

Features	Cisco Aironet 1000 Series Lightweight Access Point
<b>Data Rates Supported</b>	802.11a: 6, 9, 12, 18, 24, 36, 48, and 54 Mbps; 802.11b: 1, 2, 5.5, and 11 Mbps; 802.11g: 1, 2, 5.5, 6, 9, 11, 12, 18, 24, 36, 48, and 54 Mbps
<b>Uplink</b>	Carrier-Sense Multiple Access/Collision Avoidance (CSMA/CA)
<b>Frequency Band and Operating</b>	802.11a: 5.15 to 5.25 GHz, 5.25 to 5.35 GHz, 5.725 to 5.825 GHz; 802.11b: 2.412 to 2.497 GHz, 802.11g: 2.412 to 2.497 GHz
<b>Nonoverlapping Channels</b>	802.11a: Up to 12, 802.11b/g: Up to 3, Dependent upon country-specific regulatory approvals
<b>Wireless Modulation</b>	802.11a: Orthogonal frequency division multiplexing (OFDM), 802.11b: Direct sequence spread spectrum (DSSS), 802.11g: DSSS and OFDM
<b>Receive Sensitivity (Typical)</b>	802.11a: -73 dBm at 54 Mbps: -75 dBm at 48 Mbps, -80 dBm at 36 Mbps, -83 dBm at 24 Mbps, -87 dBm at 18 Mbps, -89 dBm at 12 Mbps, -90 dBm at 9 Mbps, -91 dBm at 6 Mbps; 802.11b: -89 dBm at 11 Mbps, -91 dBm at 5.5 Mbps, -92 dBm at 2 Mbps, -94 dBm at 1 Mbps; 802.11g: -73 dBm at 54 Mbps, -75 dBm at 48 Mbps, -80 dBm at 36 Mbps, -84 dBm at 24 Mbps, -87 dBm at 18 Mbps, -90 dBm at 12 Mbps, -89 dBm at 11 Mbps, -91 dBm at 9 Mbps, -91 dBm at 6 Mbps, -91 dBm at 5.5 Mbps, -92 dBm at 2 Mbps, -94 dBm at 1 Mbps
<b>Available Transmit Power Settings</b>	100, 50, 25, 12.5, and 6.25 percent; 802.11a: 50 mW (17 dBm) conducted; 802.11b: 100 mW (20 dBm) conducted; 802.11g: 100 mW (20 dBm) conducted, Maximum power setting will vary according to channel and individual country regulations
<b>Range</b>	802.11a: Indoor-45 ft (14 m) @ 54 Mbps, 110 ft (34 m) @ 18 Mbps, 165 ft (50 m) @ 6 Mbps; Outdoor- 100 ft (30 m) @ 54 Mbps, 600 ft (183 m) @ 18 Mbps, 1000 ft (305 m) @ 6
<b>Antenna Connectors</b>	AIR-AP1010-x-K9: None; AIR-AP1020-x-K9 and AIR-AP1030-x-K9: 802.11a: One male RP-TNC connector, 802.11b/g: Two male RP-TNC connectors
<b>Integrated Antennas</b>	802.11a/b/g: Two 180-degree sectorized antennas
<b>Compliance</b>	Safety: UL 60950, Third Edition, UL 2043, EN 50385:2002, RSS 102, FCC OET 65; Electrical safety: UL 60950-1:2003, First Edition, CSA C22.2 No. 60950-1-03; Radio approvals: US- FCC Part 15 subparts C and E, EN 300 328 V1.4.1, EN 301 893 V1.2.3, Canada- RSS-210, Europe- EN 301.893, EN 300.328; Japan: ARIB STD-33A/STD-T66, ARIB STD T-71; EMI and susceptibility (Class A): US- FCC parts 15.107 and 15.109, Canada- ICES-003, Japan- VCCI, Europe- EN 55022, EN 55024, EN 301.489-1 and -17; Electromagnetic compatibility (EMC): EN 60601-1-2:1993 Class B, EN 301 489-17 V1.2.1, EN 301 489-1 V1.4.1, Subpart B of Part 15 of FCC Rules for Class B digital devices, Canada ICES 003 1997 Class B, VCCI Class B, EN 55022:1994, Class B, as modified by Amendment A1, dated 1995, and Amendment A2
<b>Interface and Indicators</b>	Network: 10/100 Mbps Ethernet (RJ-45 link, activity); Other indicators: Power, alarm
<b>Dimensions (H x W x D)</b>	6 x 4.4 x 1.6 in. (15.2 x 11.2 x 4.1 cm)
<b>Weight</b>	Access point and ceiling clip: 1.3 lb (0.6 kg); Access point with optional wall brackets kit: 2.2 lb (1 kg)
<b>Environmental</b>	Operating: 32 to 122°F (0 to 50°C); Storage: -13 to 158°F (-25 to 70°C)
<b>Power</b>	48 VDC; 250 mA; 10W; Power over Ethernet (IEEE 802.3af); Optional AC power supply (AIR-PWR-1000=)
<b>Warranty</b>	One year

## Selected Part Numbers and Ordering Information

### Cisco Aironet 1000 Series Lightweight Access Point

AIR-AP1010-X-K9	802.11a/b/g AP w/ integrated antennas, X=regulatory domain
AIR-AP1020-X-K9	802.11a/b/g AP w/ integrated antenna and RP-TNC, X=regulatory domain
AIR-AP1030-X-K9	802.11a/b/g Remote Edge AP w/ integrated antenna and RP-TNC, X=regulatory domain

## For More Information

See the Cisco Wireless Website: <http://www.cisco.com/go/wireless>

## Cisco Aironet 1100 Series Access Points

The Cisco Aironet® 1100 Series offers customers an affordable, easy-to-install, single-band access point that features enterprise-class management, security, and scalability. Legacy Cisco Aironet 1100 Series access points have an 802.11b radio that may be field-upgraded to 802.11g; alternately, the Cisco Aironet 1100 Series may be ordered with a single 802.11g radio that is backward-compatible with 802.11b.



## When to Sell

### Sell This Product

#### Cisco Aironet 1100 Series Access Point

### When a Customer Needs These Features

- An affordable, easy-to-install single-band 802.11g AP
- A high-performance 2.4 GHz WLAN solution that delivers data rates of up to 11 Mbps (IEEE 802.11b) or 54 Mbps (IEEE 802.11g) with backwards compatibility to legacy 802.11b equipment is needed
- A high-quality transmitter and receiver design that provides long range and reliable coverage

## Key Features

- Single 802.11b or 802.11g radios available; 802.11b is field upgradable to 802.11g
- Provides end-to-end solution support for Intelligent Network Services
- Variety of mounting options
- With the IEEE 802.11g version, up to 54 Mbps data rates while maintaining full backward compatibility with legacy 802.11b devices
- Provides administrators configuration control to support both 802.11g and legacy 802.11b clients
- Cisco IOS Software operating system provides a familiar user interface
- Integrated diversity dipole antennas
- Wi-Fi Certified

## Specifications

Feature	Cisco Aironet 1100 Series Access Points
<b>Data Rates Supported</b>	802.11b: 1, 2, 5.5, 11 Mbps; 802.11g: 1,2,5.5, 6,9, 11, 12, 18, 24, 36, 48, and 54 Mbps
<b>Network standard</b>	IEEE 802.11b or IEEE 802.11g
<b>Uplink</b>	Autosensing 802.3 10/100BaseT Ethernet
<b>Frequency Band</b>	802.11b: 2.412 to 2.462 GHz (FCC); 2.412 to 2.472 GHz (ETSI); 2.422 to 2.452 GHz (Israel); 2.412 to 2.484 GHz (TELEC); 802.11g: 2.412 to 2.462 GHz (FCC); 2.412 to 2.472 GHz (ETSI); 2.412 to 2.484 GHz CCK: (TELEC); 2.412 to 2.472 GHz OFDM: (TELEC)
<b>Network architecture type</b>	Infrastructure, star topology
<b>Wireless Medium</b>	802.11g: Orthogonal Frequency Division Multiplexing (OFDM); 802.11b and 802.11g: Direct Sequence Spread Spectrum (DSSS)
<b>Modulation</b>	OFDM: BPSK @ 6 and 9 Mbps; QPSK @ 12 and 18 Mbps; 16-QAM @ 24 and 36 Mbps; 64-QAM @ 48 and 54 Mbps; DSS: DBPSK @ 1 Mbps; DQPSK @ 2 Mbps; CCK @ 5.5 and 11 Mbps
<b>Operating Channels</b>	802.11b—ETSI: 13; Israel: 4; Americas: 11; TELEC (Japan): 14; 802.11g—ETSI: 13; Americas: 11; TELEC (Japan): CCK-14, OFDM-13
<b>Nonoverlapping Channels</b>	Three
<b>Receive sensitivity</b>	802.11b: 1 Mbps: -94 dBm; 2 Mbps: -91 dBm; 5.5 Mbps: -89 dBm; 11 Mbps: -85 dBm; 802.11g: 1 Mbps: -95 dBm; 2 Mbps: -91 dBm; 5.5 Mbps: -89 dBm; 6 Mbps: -90 dBm; 9 Mbps: -84 dBm; 11 Mbps: -88 dBm; 12 Mbps: -82 dBm; 18 Mbps: -80 dBm; 24 Mbps: -77 dBm; 36 Mbps: -73 dBm; 48 Mbps: -72 dBm; 54 Mbps: -72 dBm

Feature	Cisco Aironet 1100 Series Access Points
Available Transmit Power Settings <sup>1</sup>	802.11b: CCK: 100 mW (20 dBm); 50 mW (17 dBm); 30 mW (15 dBm); 20 mW (13 dBm); 5 mW (7 dBm); 1 mW (0 dBm); 802.11g: • CCK: 100 mW (20 dBm); 50 mW (17 dBm); 30 mW (15 dBm); –20 mW (13 dBm); 10 mW (10 dBm); 5 mW (7 dBm); 1 mW (0 dBm); OFDM: 30 mW (15 dBm); 20 mW (13 dBm); 10 mW (10 dBm); 5 mW (7 dBm); 1 mW (0 dBm) Maximum power setting will vary according to individual country regulations.
Range (typical @ maximum power setting, 2.2 dBi gain diversity dipole antenna)	Indoor (Distance across open office environment): 90 ft (27 m) @ 54 Mbps, 95 ft (29 m) @ 48 Mbps, 100 ft (30 m) @ 36 Mbps, 140 ft (42 m) @ 24 Mbps, 180 ft (54 m) @ 18 Mbps, 210 ft (64 m) @ 12 Mbps, 220 ft (67 m) @ 11 Mbps, 250 ft (76 m) @ 9 Mbps, 300 ft (91 m) @ 6 Mbps, 310 ft (94 m) @ 5.5 Mbps, 350 ft (107 m) @ 2 Mbps, 410 ft (125 m) @ 1 Mbps; Outdoor: 110 ft (34 m) @ 54 Mbps, 200 ft (60 m) @ 48 Mbps, 225 ft (69 m) @ 36 Mbps, 325 ft (100 m) @ 24 Mbps, 400 ft (122 m) @ 18 Mbps, 475 ft (145 m) @ 12 Mbps, 490 ft (150 m) @ 11 Mbps, 550 ft (168 m) @ 9 Mbps, 650 ft (198 m) @ 6 Mbps, 660 ft (201 m) @ 5.5 Mbps, 690 ft (210 m) @ 2 Mbps, 700 ft (213 m) @ 1 Mbps
SMTP Compliance	MIB I and MIB II
Antenna	Integrated 2.2 dBi diversity dipole antennas
Security Architecture Client Authentication (Cisco Wireless Security Suite)	Authentication: 802.1X support, including Cisco LEAP, EAP-FAST, PEAP-GTC, PEAP-MSCHAPv2, EAP-TLS, EAP-TTLS, and EAP-SIM to yield mutual authentication and dynamic, per-user, per-session encryption keys (WPA and WPA2); MAC address and standard 802.11 authentication mechanisms; Encryption: AES-CCMP encryption (WPA2); TKIP encryption enhancements: key hashing (per-packet keying), message integrity check (MIC) and broadcast key rotation via Cisco TKIP or WPA TKIP; Support for static and dynamic IEEE 802.11 WEP keys of 40 bits and 128 bits
Software and Device Management Topology	CiscoWorks CiscoView, Resource Manager Essentials, and Campus Manager
Remote configuration support	BOOTP, DHCP, Telnet, HTTP, FTP, TFTP, and SNMP
Dimensions (H x W x D)	8.1 x 4.1 x 1.5 in. (20.5 x 10.4 x 3.8 cm)
Weight	10.5 oz. (297 g)
Environmental	32 to 104° F (0 to 40° C); 10-90% humidity (noncondensing)
System Memory	16 MB RAM; 8 MB Flash
Input Power Requirements	100 to 240 VAC 50 to 60Hz (power supply); 33 to 57 VDC (device)
Power Draw	4.9 watts, RMS
Warranty	One year

1. Management Information Base

## Selected Part Numbers and Ordering Information

### Cisco Aironet 1100 Series Access Point

AIR-AP1120B-A-K9	802.11b AP, Single MPCI Radio, Int Ant, FCC Cnfg
AIR-AP1120B-E-K9	802.11b AP, Single MPCI Radio, Int Ant, ETSI Cnfg
AIR-AP1120B-J-K9	802.11b AP, Single MPCI Radio, Int Ant, Japan Cnfg
AIR-AP1121G-A-K9	802.11g AP, Single MPCI Radio, Int Ant, FCC Cnfg
AIR-AP1121G-E-K9	802.11g AP, Single MPCI Radio, Int Ant, ETSI Cnfg

## For More Information

See the Cisco Wireless Website: <http://www.cisco.com/go/wireless>

## Cisco Aironet 1130AG Series Access Point

The Cisco Aironet® 1130AG Series packages high capacity, high security, and enterprise-class features delivering wireless LAN access for a low total cost of ownership. Designed for wireless LAN coverage in offices and similar RF environments, this unobtrusive access point features integrated antennas and dual IEEE 802.11a/g radios for robust and predictable coverage, delivering a combined capacity of 108 Mbps. It is cost-effective, ready to install and easy to manage reducing the overall cost of ownership.



## When to Sell

### Sell This Product

**Cisco Aironet 1130AG Series Access Point**

### When a Customer Needs These Features

- A high-capacity and high-security WLAN in the enterprise office
- Two high-performance radios providing simultaneous support for the 802.11a and 802.11g standards offering 108 Mbps capacity for your growing WLAN
- A low-profile access point that blends into the environment and is easy to deploy

## Key Features

- IEEE 802.11a and 802.11g radios with simultaneous dual band support provides 108 Mbps capacity. Works with dual band clients to optimize usage of network bandwidth while providing backwards compatibility with 802.11b clients; Complies with 802.11i security standards and is WPA2 certified; Incorporates AES encryption in hardware;
- Provides robust signals to long distances and mitigates the effects of multipath signal propagation for more consistent coverage
- Cisco IOS Software provides intelligent network services for scalable, robust, enterprise connectivity; Cisco Structured Wireless-Aware framework integrates wired and wireless network
- Variable transmit power settings that allows access point coverage to be tuned for differing requirements
- Integrated 4.5 dBi antennas—Complete system deployable out of the box without external antennas; specifically designed to provide omni-directional coverage for offices and similar radio frequency environments. Low 0.5 mW setting supports closer spacing of access points in high density deployments
- Wi-Fi Certified

## Specifications

Features	Cisco Aironet 1130AG Series Access Point
<b>Data rates supported</b>	802.11a: 6, 9, 12, 18, 24, 36, 48, and 54 Mbps; 802.11g: 1, 2, 5.5, 6, 9, 11, 12, 18, 24, 36, 48, and 54 Mbps
<b>Network standard</b>	IEEE 802.11a, 802.11b and 802.11g
<b>Uplink</b>	Autosensing 802.3/10/100BaseT Ethernet
<b>Frequency band and Operating Channels</b>	Americas (FCC)= 2.412 to 2.462 GHz-11 channels; 5.15 to 5.35, 5.725 to 5.825 GHz-12 channels China= 2.412 to 2.472 GHz-13 channels; 5.725 to 5.825 GHz; 4 channels ETSI= 2.412 to 2.472 GHz-13 channels; 5.15 to 5.725 GHz; 19 channels Japan (TELEC)= 2.412 to 2.472 GHz-13 channels Orthogonal Frequency Division Multiplexing (OFDM); 2.412 to 2.484 GHz; 14 channels Complementary Code Keying (CCK); 5.15 to 5.25 GHz-4 channels; North America= 2.412 to 2.462 GHz, 11 channels; 5.15 to 5.35, 5.725 to 5.825 GHz, 12 channels
<b>Non-overlapping channels</b>	802.11a—Up to 19; 802.11b/g—3
<b>Receive sensitivity</b>	802.11a— 6 Mbps: -87 dBm, 9 Mbps: -86 dBm, 12 Mbps: -85 dBm, 18 Mbps: -84 dBm, 24 Mbps: -80 dBm, 36 Mbps: -78 dBm, 48 Mbps: -73 dBm, 54 Mbps: -71 dBm; 802.11g— 1 Mbps: -93 dBm, 2 Mbps: -91 dBm, 5.5 Mbps: -88 dBm, 6 Mbps: -86 dBm, 9 Mbps: -85 dBm, 11 Mbps: -85 dBm, 12 Mbps: -84 dBm, 18 Mbps: -83 dBm, 24 Mbps: -79 dBm, 36 Mbps: -77 dBm, 48 Mbps: -72 dBm, 54 Mbps: -70 dBm
<b>Available transmit power settings</b>	802.11a: OFDM: 50 mW (17 dBm), 32 mW (15 dBm), 25 mW (14 dBm), 10 mW (11 dBm), 5 mW (8 dBm), 3 mW (5 dBm), 2 mW (2 dBm), 1 mW (-1 dBm); 802.11g: CCK—100 mW (20 dBm), 50 mW (17 dBm), 25 mW (14 dBm), 12 mW (11 dBm), 6 mW (8 dBm), 3 mW (5 dBm), 2 mW (2 dBm), 1 mW (-1 dBm); OFDM—50 mW (17 dBm), 25 mW (14 dBm), 10 mW (11 dBm), 5 mW (8 dBm), 3 mW (5 dBm), 1 mW (2 dBm), 1 mW (-1 dBm) Maximum power setting will vary by channel and according to individual country regulations.
<b>Range</b>	Indoor (Distance across open office environment): 802.11a: 80 ft (24 m) @ 54 Mbps, 150 ft (45 m) @ 48 Mbps, 200 ft (60 m) @ 36 Mbps, 225 ft (69 m) @ 24 Mbps, 250 ft (76 m) @ 18 Mbps, 275 ft (84 m) @ 12 Mbps, 300 ft (91 m) @ 9 Mbps, 325 ft (100 m) @ 6 Mbps; 802.11g: 1000 ft (30 m) @ 54 Mbps, 175 ft (53 m) @ 48 Mbps, 250 ft (76 m) @ 36 Mbps, 275 ft (84 m) @ 24 Mbps, 325 ft (100 m) @ 18 Mbps, 350 ft (107 m) @ 12 Mbps, 360 ft (110 m) @ 11 Mbps, 375 ft (114 m) @ 9 Mbps, 400 ft (122 m) @ 6 Mbps Outdoor: 802.11a: 100 ft (30 m) @ 54 Mbps, 300 ft (91 m) @ 48 Mbps, 425 ft (130 m) @ 36 Mbps, 500 ft (152 m) @ 24 Mbps, 550 ft (168 m) @ 18 Mbps, 600 ft (183 m) @ 12 Mbps, 625 ft (190 m) @ 9 Mbps, 650 ft (198 m) @ 6 Mbps; 802.11g: 120 ft (37 m) @ 54 Mbps, 350 ft (107 m) @ 48 Mbps, 550 ft (168 m) @ 36 Mbps, 650 ft (198 m) @ 24 Mbps, 750 ft (229 m) @ 18 Mbps, 800 ft (244 m) @ 12 Mbps, 820 ft (250 m) @ 11 Mbps, 875 ft (267 m) @ 9 Mbps, 900 ft (274 m) @ 6 Mbps, 910 ft (277 m) @ 5.5 Mbps, 940 ft (287 m) @ 2 Mbps, 950 ft (290 m) @ 1 Mbps Ranges and actual throughput vary based upon numerous environmental factors so individual performance may differ.
<b>Compliance</b>	Safety: UL 60950-1, CAN/CSA-C22.2 No. 60950-1, UL 2043, IEC 60950-1, EN 60950-1; Radio Approvals: FCC Part 15.247, 15.407, RSS-210 (Canada), EN 300.328, EN 301.893 (Europe), ARIB-STD 33 (Japan), ARIB-STD 66 (Japan), ARIB-STD T71 (Japan), AS/NZS 4771, 4268.2 (Australia and New Zealand); EMI and Susceptibility (Class B): FCC Part 15.107 and 15.109, ICES-003 (Canada), VCCI (Japan), EN 301.489-1 and -17 (Europe), AS/NZS 3548; Security: 802.11i, WPA2, WPA, 802.1X, AES, TKIP; Other: IEEE 802.11g and IEEE 802.11a, FCC Bulletin OET-65C, RSS-102
<b>SNMP compliance</b>	MIB I and MIB II
<b>Antennas</b>	2.4 GHz: Gain 3.0 dBi, Horizontal Beamwidth 360°; 5 GHz: Gain 4.5 dBi, Horizontal Beamwidth 360°
<b>Security architecture client authentication and encryption (Cisco Wireless Security Suite supporting WPA and WPA2)</b>	Authentication: 802.1X support, including Cisco LEAP, EAP-Flexible Authentication via Secure Tunneling (EAP-FAST), Protected EAP- Generic Token Card (PEAP-GTC), PEAP-Microsoft Challenge Authentication Protocol Version 2 (PEAP-MSCHAPv2), EAP-Transport Layer Security (EAP-TLS), EAP-Tunneled TLS (EAP-TTLS), and EAP-Subscriber Identity Module (EAP-SIM) to yield mutual authentication and dynamic, per-user, per-session encryption keys (WPA and WPA2); MAC address and by standard 802.11 authentication mechanisms; Encryption: AES-CCMP encryption (WPA2); TKIP encryption enhancements: key hashing (per-packet keying), message integrity check (MIC) and broadcast key rotation via Cisco TKIP or WPA TKIP; Support for static and dynamic IEEE 802.11 WEP keys of 40 bits and 128 bits
<b>Status LEDs</b>	External: Status LED indicates operating state, association status, error/warning condition, boot sequence and maintenance status Internal: Ethernet LED indicates activity over the Ethernet, status; Radio LED indicates activity over the radios, status

Features	Cisco Aironet 1130AG Series Access Point
Network Management	BootP, Secure Shell (SSH) Protocol, Secure HTTP (HTTPS), Trivial File Transfer Protocol (TFTP), FTP, Telnet, console port, Simple Network Management Protocol (SNMP) MIB I and MIB II, CiscoWorks Resource Manager Essentials (RME), CiscoWorks Software Image Manager (SWIM), CiscoWorks Campus Manager, CiscoWorks CiscoView, and CiscoWorks WLSE
Dimensions (H x W x D)	7.5 x 7.5 x 1.3 in. (19.1 x 19.1 x 3.3 cm)
Weight	1.5 lbs. (0.67 kg)
Environmental	32-104° F (0-40° C); 10-90% humidity (non-condensing)
System Memory	32 MB RAM; 16 MB FLASH
Input Power Requirements	100-240 VAC 50-60Hz (power supply); 36-57 VDC (device)
Power Draw	12.2 watts, max
Warranty	One year

## Selected Part Numbers and Ordering Information

### Cisco Aironet 1130AG Series Access Point

AIR-AP1131AG-A-K9	Cisco Aironet 1130AG Series IEEE 802.11a/b/g Access Point, FCC Configuration
AIR-AP1131AG-C-K9	Cisco Aironet 1130AG Series IEEE 802.11a/b/g Access Point, China Configuration
AIR-AP1131AG-E-K9	Cisco Aironet 1130AG Series IEEE 802.11a/b/g Access Point, ETSI Configuration
AIR-AP1131AG-J-K9	Cisco Aironet 1130AG Series IEEE 802.11a/b/g Access Point, Japan Configuration
AIR-AP1131AG-N-K9	Cisco Aironet 1130AG Series IEEE 802.11a/b/g Access Point, North America Configuration (Excluding-FCC)

## For More Information

See the Cisco Wireless Website: <http://www.cisco.com/go/wireless>

## Cisco Aironet 1200 Series Access Points

The Cisco Aironet 1200 Series offers the same versatility, high capacity, security, and enterprise-class features demanded by industrial wireless LAN customers, but when configured as a single-band IEEE 802.11g access point, provides a cost-effective, single-band solution. It protects current and future network infrastructure investments. Customers can confidently deploy 802.11g networks now, and have the option to upgrade to a dual-band 802.11a/g network in the future.



## When to Sell

### Sell This Product

#### Cisco Aironet 1200 Series Access Point

### When a Customer Needs These Features

- Antenna versatility associated with connectorized antennas, as well as a rugged metal enclosure and a broad operating temperature range
- Support for installation in environmental air spaces, such as areas above suspended ceilings
- Flexibility for frequent LAN wiring changes, either throughout the site or in selected areas
- An alternative to LAN wiring because of building or budget limitations, such as older buildings, leased space or temporary sites

## Key Features

- Single 802.11g radio supports maximum data rate of 54 Mbps
- Configurable to meet current and future customer-specific requirements
- Enterprise-class security with the Cisco Wireless Security Suite, WPA and WPA2 providing authentication via IEEE 802.1X and encryption via WPA Temporal Key Integrity Protocol (TKIP), Cisco TKIP, or Advanced Encryption Standard (AES)
- Offers investment protection because of its upgrade capability and compatibility with current standards
- Supports inline power over Ethernet or local power
- Wi-Fi Certified

## Specifications

Feature	Cisco Aironet 1200 Series Access Points
<b>Data Rates Supported</b>	802.11g: 1, 2, 5.5, 6, 9, 11, 12, 18, 24, 36, 48, and 54 Mbps
<b>Network Standard</b>	IEEE 802.11b and IEEE 802.11g
<b>Uplink</b>	Autosensing 802.3 10/100BASE-T Ethernet
<b>Radio Module Form</b>	802.11a: CardBus (32-bit); 802.11b or 802.11g: Mini-PCI (32-bit)
<b>Frequency Band and Operating Channels</b>	Americas (FCC): 2.412 to 2.462 GHz; 11 channels; Japan (TELEC): 2.412 to 2.472 GHz; 13 channels Orthogonal Frequency Division Multiplexing (OFDM); ETSI: 2.412 to 2.484 GHz; 14 channels Complementary Code Keying (CCK) 2.412 to 2.472 GHz; 13 channels; Israel: 2.432 to 2.472 GHz; 9 channels;; Japan (TELEC): 2.412 to 2.472 GHz; 13 channels Orthogonal Frequency Division Multiplexing (OFDM); 2.412 to 2.484 GHz; 14 channels Complementary Code Keying (CCK)
<b>Nonoverlapping Channels</b>	802.11g: 3
<b>Wireless Modulation</b>	802.11g: Direct sequence spread spectrum (DSSS); OFDM
<b>Receive Sensitivity (Typical)</b>	802.11g: 6 Mbps: -90 dBm, 9 Mbps: -84 dBm, 12 Mbps: -82 dBm, 18 Mbps: -80 dBm, 24 Mbps: -77 dBm, 36 Mbps: -73 dBm, 48 Mbps: -72 dBm, 54 Mbps: -72 dBm
<b>Available Transmit Power Settings<sup>1</sup></b>	802.11g—CCK: 100 mW (20 dBm), 50 mW (17 dBm), 30 mW (15 dBm), 20 mW (13 dBm), 10 mW (10 dBm), 5 mW (7 dBm), 1 mW (0 dBm)
<b>Range</b>	802.11g—Outdoor: 110 ft (34m) @ 54 Mbps, 200 ft (61 m) @ 48 Mbps, 225 ft (69 m) @ 36 Mbps, 325 ft (99 m) @ 24 Mbps, 400 ft (122 m) @ 18 Mbps, 475 ft (145 m) @ 12 Mbps, 490 ft (149 m) @ 11 Mbps, 550 ft (168 m) @ 9 Mbps, 650 ft (198 m) @ 6 Mbps, 660 ft (201 m) @ 5.5 Mbps, 690 ft (210 m) @ 2 Mbps, 700 ft (213 m) @ 1 Mbps 802.11g—Indoor: 90 ft (27 m) @ 54 Mbps, 95 ft (29 m) @ 48 Mbps, 100 ft (30 m) @ 36 Mbps, 140 ft (43 m) @ 24 Mbps, 180 ft (55 m) @ 18 Mbps, 210 ft (64 m) @ 12 Mbps, 220 ft (67 m) @ 11, Mbps, 250 ft (76 m) @ 9 Mbps, 300 ft (91 m) @ 6 Mbps, 310 ft (94 m) @ 5.5 Mbps, 350 ft (107 m) @ 2 Mbps, 410 ft (125 m) @ 1 Mbps (Ranges and actual throughput vary based upon numerous environmental factors so individual performance may differ)
<b>Compliance</b>	Safety: UL 60950, CAN/CSA C22.2 No. 60950, IEC 60950, UL 2043; Radio Approvals: FCC Part 15.247, RSS-210 (Canada), EN 300.328, ARIB-STD 33 (Japan), ARIB-STD 66 (Japan), AS/NZS 4771 (Australia and New Zealand), EMI and Susceptibility (Class B): FCC Part 15.107 and 15.109, ICES-003 (Canada), VCCI (Japan), EN 301.489-1 and -17 (Europe), AS/NZS 3548; Security: 802.11i, WPA2, WPA, 802.1X, AES, TKIP; Other: IEEE 802.11g, FCC Bulletin OET-65C, RSS-102
<b>Antenna</b>	2.4 GHz Radio: Two RP-TNC connectors; 802.11g approved with AIR-ANT1728, AIR-ANT1729, AIR-ANT2012, AIR-ANT2506, AIR-ANT3213, AIR-ANT3549, AIR-ANT4941, AIR-ANT5959, and AIR-ANT2410Y-R
<b>Network Management</b>	BootP, Secure Shell (SSH) Protocol, Secure HTTP (HTTPS), Trivial File Transfer Protocol (TFTP), FTP, Telnet, console port, Simple Network Management Protocol (SNMP) MIB I and MIB II, CiscoWorks Resource Manager Essentials (RME), CiscoWorks Software Image Manager (SWIM), CiscoWorks Campus Manager, CiscoWorks CiscoView, and CiscoWorks WLSE
<b>LEDs</b>	Three indicators on the top panel report Ethernet activity and status, device operating status, and radio activity and status.
<b>Housing</b>	Die-cast aluminum
<b>Dimensions (H x W x D)</b>	1.660 x 6.562 x 7.232 in. (4.22 x 16.67 x 18.37 cm); add 0.517 in. (1.31 cm) height for mounting bracket
<b>Weight</b>	1.725 lb (0.783 kg); add 0.4 lb (0.181 kg) for mounting bracket
<b>Environmental</b>	-4 to 122°F (-20 to 50°C), 10 to 90 percent humidity (noncondensing)
<b>Memory and Processor</b>	IBM PowerPC405 (200 MHz); 16 MB RAM; 8 MB Flash memory
<b>Input Power Requirements</b>	90 to 240 VAC ±10 percent (power supply); 48 VDC ±10 percent
<b>Power Draw</b>	6W maximum
<b>Warranty</b>	One year

1. Maximum power setting will vary according to individual country regulations.

## Selected Part Numbers and Ordering Information<sup>1</sup>

### 1200 Series Access Points

AIR-AP1200	AP Platform, CardBus and MPCl Slots (no radio), Enet Uplink
AIR-AP1220B-A-K9	802.11b AP w/Avail CBus Slot, FCC Cnfg
AIR-AP1220B-E-K9	802.11b AP w/Avail CBus Slot, ETSI Cnfg
AIR-AP1220A-J-K9	802.11a AP w/Avail MPCl Slot, Enet Uplink, TELEC Cnfg
AIR-AP1220B-J-K9	802.11b AP w/Avail CBus Slot, Japan Cnfg
AIR-AP1210	IOS based AP Platform, CardBus and MPCl Slots (no radio), Enet Uplink
AIR-AP1230B-A-K9	IOS based 802.11b AP w/Avail CBus Slot, FCC Cnfg
AIR-AP1230B-E-K9	IOS based 802.11b AP w/Avail CBus Slot, ETSI Cnfg
AIR-AP1230A-J-K9	IOS based 802.11a AP w/Avail MPCl Slot, Enet Uplink, TELEC Cnfg
AIR-AP1230B-J-K9 I	OS based 802.11b AP w/Avail CBus Slot, Japan Cnfg
AIR-AP1231G-A-K9	802.11g IOS AP w/Avail CBus Slot, FCC Cnfg
AIR-AP1231G-E-K9	802.11g IOS AP w/Avail CBus Slot, ETSI Cnfg
AIR-AP1231G-J-K9	802.11g IOS AP w/Avail CBus Slot, Japan Cnfg

1. This is only a small subset of all parts available via URL listed under "For More Information." Some parts have restricted access or are not available through distribution channels. Resellers: For latest part number and pricing info, see the Distribution Product Reference Guide at: <http://www.cisco.com/dprg> (limited country availability)

## For More Information

See the Cisco Wireless Website: <http://www.cisco.com/go/wireless>

# Cisco Aironet 1230AG Series Access Point

The 1230AG Series modular access point features both antenna connectors for greater range or coverage versatility using a broad selection of available Cisco antennas, as well as a rugged, metal housing for operation over extended temperature ranges typical of challenging environments.



## When to Sell

### Sell This Product

**Cisco Aironet 1230AG Series Access Point**

### When a Customer Needs These Features

- Versatility, high-capacity, security, and Enterprise class features in an industrial environment
- Versatile antenna and flexible installation options in a harsh environment
- Simultaneous support of 802.11a and 802.11g standards with 108 Mbps of data rate in the 2.4 and 5GHz bands are required

## Key Features

- Dual 802.11a and 802.11g radios deliver a combined capacity of 108 Mbps
- 2.4 GHz and 5 GHz antenna connectors for greater range or coverage versatility and more flexible installation options using a broad selection of available Cisco antennas
- Supports Cisco IOS Software
- Hardware-assisted AES encryption provides support for interoperable IEEE 802.11i and WPA2 security
- Wi-Fi Certified

## Specifications

Features	Cisco Aironet 1230AG Series Access Point
Software	Cisco IOS software 12(3)2JA or later
Protocols and Air Interface	IEEE 802.11a/b/g
Uplink	802.3 Ethernet 10/100 Base-T
Radio Module Form Factor	802.11a: CardBus (32-bit); 802.11b or 802.11g: Mini-PCI (32-bit)
Frequency Band and Operating Channels	Americas (FCC): 2.412 to 2.462 GHz-11 channels, 5.15 to 5.35, 5.725 to 5.825 GHz-12 channels; China: 2.412 to 2.472 GHz-13 channels, 5.725 to 5.825 GHz-4 channels; ETSI: 2.412 to 2.472 GHz-13 channels, 5.15 to 5.725 GHz-19 channels; Japan (TELEC): 2.412 to 2.472 GHz-13 channels Orthogonal Frequency Division Multiplexing (OFDM), 2.412 to 2.484 GHz-14 channels Complementary Code Keying (CCK), 5.15 to 5.25 GHz-4 channels; North America: 2.412 to 2.462 GHz-11 channels, 5.15 to 5.35, 5.725 to 5.825 GHz-12 channels; Singapore: 2.412 to 2.472 GHz-13 channels, 5.15 to 5.25 GHz and 5.725 to 5.825 GHz-8 channels; Taiwan: 2.412 to 2.462 GHz-11 channels, 5.25 to 5.35 GHz and 5.725 to 5.825 GHz-8 channels
Media Access Protocol	Carrier sense multiple access with collision avoidance (CSMA/CA)
Wireless Modulation	802.11a—Orthogonal Frequency Division Multiplexing (OFDM); 802.11g—Direct sequence spread spectrum (DSSS); Orthogonal Frequency Division Multiplexing (OFDM)
Datarates Supported	802.11a—6, 9, 12, 18, 24, 36, 48, 54 Mbps; 802.11g—1, 2, 5.5, 6, 9, 11, 12, 18, 24, 36, 48, and 54 Mbps
Receive Sensitivity	802.11a: 6 Mbps: -87 dBm; 9 Mbps: -87 dBm; 12 Mbps: -85 dBm; 18 Mbps: -84 dBm; 24 Mbps: -81 dBm; 36 Mbps: -78 dBm; 48 Mbps: -73 dBm; 54 Mbps: -72 dBm 802.11g: 6 Mbps: -90 dBm; 9 Mbps: -84 dBm; 12 Mbps: -82 dBm; 18 Mbps: -80 dBm; 24 Mbps: -77 dBm; 36 Mbps: -73 dBm; 48 Mbps: -72 dBm; 54 Mbps: -72 dBm
Transmit Power	802.11a: 50 mW (17 dBm), 25 mW (14 dBm), 10 mW (10 dBm), 5 mW (7 dBm) 802.11g: (CCK): 100 mW (20 dBm), 50 mW (17 dBm), 30 mW (15 dBm), 20 mW (13 dBm), 10 mW (10 dBm), 5 mW (7 dBm), 1 mW (0 dBm) 802.11g: (OFDM): 30 mW (15 dBm), 20 mW (13 dBm), 10 mW (10 dBm), 5 mW (7 dBm), 1 mW (0 dBm) Maximum power setting will vary according to individual country regulations.
Range <sup>1</sup>	Indoor-802.11a: 90 ft (27 m) @ 54 Mbps; 225 ft (69 m) @ 48 Mbps; 300 ft (91 m) @ 36 Mbps; 350 ft (107 m) @ 24 Mbps; 400 ft (122 m) @ 18 Mbps; 450 ft (137 m) @ 12 Mbps; 475 ft (145 m) @ 9 Mbps; 500 ft (152 m) @ 6 Mbps 802.11g: 90 ft (27 m) @ 54 Mbps; 95 ft (29 m) @ 48 Mbps; 100 ft (30 m) @ 36 Mbps; 140 ft (43 m) @ 24 Mbps; 180 ft (55 m) @ 18 Mbps; 210 ft (64 m) @ 12 Mbps; 220 ft (67 m) @ 11 Mbps; 250 ft (76 m) @ 9 Mbps; 300 ft (91 m) @ 6 Mbps; 310 ft (94 m) @ 5.5 Mbps; 350 ft (107 m) @ 2 Mbps; 410 ft (125 m) @ 1 Mbps Outdoor-802.11a: 170 ft (27 m) @ 54 Mbps; 350 ft (69 m) @ 48 Mbps; 550 ft (91 m) @ 36 Mbps; 700 ft (107 m) @ 24 Mbps; 800 ft (122 m) @ 18 Mbps; 875 ft (137 m) @ 12 Mbps; 925 ft (145 m) @ 9 Mbps; 950 ft (152 m) @ 6 Mbps; 802.11g: 110 ft (34 m) @ 54 Mbps; 200 ft (61 m) @ 48 Mbps; 225 ft (69 m) @ 36 Mbps; 325 ft (99 m) @ 24 Mbps; 400 ft (122 m) @ 18 Mbps; 475 ft (145 m) @ 12 Mbps; 490 ft (149 m) @ 11 Mbps; 550 ft (168 m) @ 9 Mbps; 650 ft (198 m) @ 6 Mbps; 660 ft (201 m) @ 5.5 Mbps; 690 ft (210 m) @ 2 Mbps; 700 ft (213 m) @ 1 Mbps
Antenna	2.4 GHz radio: Two RP-TNC connectors; 802.11g approved with: AIR-ANT1728, AIR-ANT1729, AIR-ANT2012, AIR-ANT2506, AIR-ANT3213, AIR-ANT3549, AIR-ANT4941, AIR-ANT5959, and AIR-ANT2410Y-R; 5 GHz radio: Two RP-TNC connectors; 802.11a approved with: AIR-ANT5135D-R, AIR-ANT5145V-R, and AIR-ANT5160V-R
Non Overlapping Channels	802.11a: Up to 19; 802.11b/g: 3
Network Management	BootP, Secure Shell (SSH) Protocol, Secure HTTP (HTTPS), Trivial File Transfer Protocol (TFTP), FTP, Telnet, console port, Simple Network Management Protocol (SNMP), MIB I and MIB II, CiscoWorks Resource Manager Essentials (RME), CiscoWorks Software Image Manager (SWIM), CiscoWorks Campus Manager, CiscoWorks CiscoView, and CiscoWorks WLSE

<b>LEDs</b>	Three indicators on the top panel report association status, operation, error/warning, firmware upgrade, and configuration, network/modem, and radio status.
<b>Housing</b>	Die cast aluminum
<b>Dimensions (H x W x D)</b>	1.66 x 6.562 x 7.232 in. (4.22 x 16.67 x 18.37 cm) add 0.517 in. (1.31 cm) to the height for mounting bracket;
<b>Weight</b>	27.6 oz (783g) add 6.4 oz (181g) for mounting bracket
<b>Environmental</b>	-4 to 122° F (-20 to 50°C), 10 to 90% humidity (noncondensing)
<b>Input Power Requirements</b>	90 to 240 VAC $\pm$ 10% (power supply); 48 VDC $\pm$ 10%
<b>Power Draw</b>	11 watts maximum
<b>Warranty</b>	One year

1. Ranges and actual throughput vary based upon numerous environmental factors so individual performance may differ

## Selected Part Numbers and Ordering Information

Part Number	Product Name
AIR-AP1232AG-x-K9	1230AG Series IEEE 802.11a/b/g Access Point

## For More Information

See the Cisco Wireless Website: <http://www.cisco.com/go/wireless>

## Cisco Aironet 1300 Series

The Cisco Aironet 1300 Series is an 802.11g access point and bridge that provides high-speed and cost-effective wireless connectivity between multiple fixed or mobile networks and clients.



## When to Sell

### Sell This Product

Cisco Aironet 1300 Series

### When a Customer Needs These Features

- Configurable for access point, bridge, or workgroup bridge roles
- Support for both point-to-point or point-to-multipoint configurations
- Industry leading range and throughput, supporting data rates up to 54 Mbps
- Enhanced security mechanisms based on 802.1X standards
- Ruggedized enclosure optimized for harsh outdoor environments with extended operating temperature range

## Key Features

- Network connections within a campus area; Outdoor infrastructure for mobile networks and users; Public access for outdoor areas
- Supports temporary networks for portable or military operations
- Supports the 802.11g standard providing 54-Mbps data rates with secure technology while maintaining full backward compatibility with legacy 802.11b devices
- Easy maintenance and installation by integrating it with your wired network via SWAN solution
- Provides advanced features such as Fast Secure Roaming, QoS, and VLANs based on Cisco IOS Software
- Operates as a wireless bridge, access point, or a workgroup bridge
- Provides ongoing savings of leased-line expenses, a method to connect networks despite physical barriers such as lakes or highways, and rapid deployment of network connections
- Wi-Fi Certified in Access Point mode



## Specifications

<b>Compatibility</b>	Access Point—Compatible with any Wi-Fi Certified client device for basic capability; Compatible with Cisco Aironet clients and Cisco Compatible clients for extended capability Workgroup Bridge—Supports operation with Cisco Aironet access points and Cisco bridges	
<b>Air interface standard<sup>1</sup></b>	IEEE 802.11b or IEEE 802.11g	
<b>Frequency band</b>	2.412 to 2.462 GHz (FCC); 2.412 to 2.472 GHz (ETSI); 2.412 to 2.472 GHz (TELEC)	
<b>Wireless modulation</b>	802.11b—Direct Sequence Spread Spectrum (DSSS): Differential Binary Phase Shift Keying (DBPSK) at 1 Mbps; Differential Quadrature Phase Shift Keying (DQPSK) at 2 Mbps; Complementary Code Keying (CCK) at 5.5 and 11 Mbps 802.11g—Orthogonal Frequency Divisional Multiplexing (OFDM): BPSK at 6 and 9 Mbps; QPSK at 12 and 18 Mbps; 16-quadrature amplitude modulation (QAM) at 24 and 36 Mbps; 64-QAM at 48 and 54 Mbps	
<b>Media access protocol</b>	Carrier Sense Multiple Access/Collision Avoidance (CSMA/CA)	
<b>Operating channels</b>	802.11b/g—ETSI: 13; Americas: 11; TELEC (Japan): 13	
<b>Non-overlapping channels<sup>3</sup></b>	3	
<b>Security</b>	Bridge—Authentication: 802.1X support including LEAP to yield mutual authentication and dynamic per-user, per-session encryption keys; Encryption: Cisco TKIP, key hashing (per-packet keying) and message, Integrity Check (MIC), AES-ready Access Point: Authentication: 802.1X support including LEAP, PEAP, EAP Message Digest 5 (EAP MD5), EAP TLS, and EAP FAST to yield mutual authentication and dynamic per-user, per-session encryption keys; Encryption: Cisco TKIP and WPA TKIP; key hashing (per-packet keying) and MIC; AES-ready Workgroup-Bridge—Authentication: 802.1X support including LEAP to yield mutual authentication and dynamic per-user, per-session encryption keys; Encryption: Cisco TKIP, key hashing (per-packet keying) and MIC, AES-ready	
<b>Warranty</b>	One year	
<b>SNMP compliance</b>	Versions 1 and 2	
<b>Feature</b>	<b>AIR-BR1310G-x-K9</b>	<b>AIR-BR1310G-x-K9-R</b>
<b>Available transmit power settings<sup>2</sup></b>	802.11b: 100 mW (20 dBm), 50 mW (17 dBm), 30 mW (15 dBm), 20 mW (13 dBm), 10 mW (10 dBm), 5 mW (7 dBm), 1 mW (0 dBm); 802.11g: 30 mW (15 dBm); 20 mW (13 dBm); 10 mW (10 dBm); 5 mW (7 dBm); 1 mW (0 dBm)	Same as AIR-BR1310G-x-K9
<b>Maximum operational receive level</b>	-20 dBm	Same as AIR-BR1310G-x-K9
<b>Maximum survivable receive level</b>	10 dBm	Same as AIR-BR1310G-x-K9
<b>Receive sensitivity (10 percent with 3200-byte packets)</b>	1 Mbps: -94 dBm; 2 Mbps: -91 dBm; 5.5 Mbps: -89 dBm; 11 Mbps: -85 dBm; 6 Mbps: -90 dBm; 9 Mbps: -89 dBm; 12 Mbps: -86 dBm; 18 Mbps: -84 dBm; 24 Mbps: -81 dBm; 36 Mbps: -77 dBm; 48 Mbps: -73 dBm; 54 Mbps: -72 dBm	Same as AIR-BR1310G-x-K9
<b>Access-point role (Outdoor range)</b>	Americas: 865 feet (260 meters) at 54 Mbps, 3465 feet (1055 meters) at 11 Mbps; ETSI: 150 feet (45 meters) at 54 Mbps, 775 feet (235 meters) at 11 Mbps; TELEC: 485 feet (145 meters) at 54 Mbps, 1095 feet (330 meters) at 11 Mbps Note: Access Point with 13 dBi integrated antenna and Cisco clients	Americas: 350 feet (105 meters) at 54 Mbps, 1410 feet (430 meters) at 11 Mbps; ETSI: 195 feet (60 meters) at 54 Mbps, 630 feet (190 meters) at 11 Mbps; TELEC: 195 feet (60 meters) at 54 Mbps, 445 feet (135 meters) at 11 Mbps Note: Access Point with 5.2dBi patch antenna and Cisco clients
<b>Bridge role (Point-to-point range)<sup>3</sup></b>	Americas: 1.3 miles (2 km) at 54 Mbps, 9 miles (15 km) at 11 Mbps; EMEA: 0.2 miles (0.36 km) at 54 Mbps, 2.3 miles (3.5 km) at 11 Mbps; TELEC: 0.7 miles (1.1 km) at 54 Mbps, 3.2 miles (5 km) at 11 Mbps Note: 13 dBi integrated antenna at root and non-root bridge	Americas: 4.5 miles (7 km) at 54 Mbps, 14 miles (23 km) at 11 Mbps; EMEA: 5.5 miles (9 km) at 11 Mbps; TELEC: 4.5 miles (7 km) at 54 Mbps, 12 miles (20 km) at 11 Mbps Note: 21-dBi dish antenna at root and non-root bridge
<b>Bridge role (Point-to-multipoint range)<sup>3</sup></b>	Americas: 1.1 miles (1.8 km) at 54 Mbps, 8 miles (13 km) at 11 Mbps; EMEA: 0.25 miles (0.4 km) at 54 Mbps, 1.1 miles (1.8 km) at 11 Mbps; TELEC: 0.8 miles (1.3 km) at 54 Mbps, 3.6 miles (5.8 km) at 11 Mbps Note: 14-dBi sector antenna at root and 13dBi integrated antenna at non-root	Americas: 2.0 miles (3.3 km) at 54 Mbps, 10 miles (16 km) at 11 Mbps; EMEA: 2.5 miles (4 km) at 11 Mbps; TELEC: 2.0 miles (3.3 km) at 54 Mbps, 9.0 miles (14 km) at 11 Mbps Note: 14-dBi sector at root and 21-dBi dish at non-root
<b>Feature</b>	<b>AIR-BR1310G-x-K9 and AIR-BR1310G-x-K9-R</b>	<b>AIR-PWRINJ-BLR2 and AIR-PWRINJ-BLR2T</b>
<b>Dimensions (H x W x D)</b>	8 x 8.1 x 3.12 in. (20.3 x 20.57 x 7.87 cm)	4.62 x 4.76 x 1.07 in. (11.73 x 12.09 x 2.71 cm)
<b>Weight</b>	2.5 lb (1.25 kg)	2 lb (1 kg)
<b>Operational temperature</b>	-22½ to 131½°F (-30½ to 55½°C)	Same As AIR-BR1310G-x-K9 and AIR-BR1310G-x-K9-R
<b>Storage temperature</b>	-40½ to 185½°F (-40½ to 85½°C)	Same As AIR-BR1310G-x-K9 and AIR-BR1310G-x-K9-R
<b>Operational altitude</b>	13,800 ft (4206 m)	Same As AIR-BR1310G-x-K9 and AIR-BR1310G-x-K9-R
<b>Storage altitude</b>	16,000 ft (4877 m)	Same As AIR-BR1310G-x-K9 and AIR-BR1310G-x-K9-R
<b>Humidity</b>	0 to 100% at 100½°F (38½°C) (condensing)	0 to 90% at 100°F (38°C) (non-condensing)

1. Bridge mode has enhancements to the standard to allow longer-range bridging communication

2. Maximum power setting will vary according to individual country regulations

3. The distances referenced here are approximations and should be used for estimation purposes only.

## Selected Part Numbers and Ordering Information

### Cisco Aironet 1300 Series

AIR-BR1310G-A-K9	2.4 GHz (802.11g) Outdoor Access Point /Bridge with integrated patch antenna (FCC regulatory domain)
AIR-BR1310G-A-K9-R	(FCC regulatory domain) 2.4 GHz (802.11g) Outdoor Access Point /Bridge with RP-TNC type connector

## For More Information

See the Cisco Wireless Website: <http://www.cisco.com/go/wireless>

## Cisco Aironet 802.11a/b/g Wireless CardBus and PCI Adapters



The Cisco Aironet IEEE 802.11a/b/g Wireless CardBus and PCI Adapters provides high-performance 54 Mbps connectivity in the 2.4 and 5 GHz bands that combines the freedom of wireless connectivity with the performance, security, and manageability that businesses require.

## When to Sell

### Sell This Product

**Cisco Aironet 802.11a/b/g Wireless CardBus Adapter**

### When a Customer Needs These Features

- Ability to operate in a mixed mode environment
- Mobility within the enterprise to increase productivity, as an addition or alternative to wired networks or need flexibility for frequent LAN wiring changes

## Key Features

- Secure network communications using the Cisco Wireless Security Suite
- Includes the Aironet Desktop Utility (ADU), Aironet System Tray Utility (ASTU), and Aironet Client Administration Utility (ACAU)
- World mode for international roaming
- Superior range and throughput
- Supports single 802.11b coverage, single 802.11g coverage, single 802.11a coverage, dual-mode 802.11a/g coverage or tri-mode 802.11a/b/g coverage
- Wi-Fi Certified; Support for WPA
- PCI Adapter—Optimal placement for maximum performance using dual-band 2.4/5 GHz 1 dBi effective gain antenna has a 2-meter cable
- PCI Adapter—Provides a low-profile form factor and two-meter cable length providing flexibility for installation in low-profile devices, such as slim desktops and point-of-sale (POS) devices.

## Specifications

Feature	Cisco Aironet 802.11a/b/g Wireless CardBus Adapter	Cisco Aironet 802.11a/b/g Wireless PCI Adapter
<b>Form Factor</b>	CardBus Type II	Standard and Low Profile Type II PCI
<b>Interface</b>	32-bit CardBus with standard 68-pin connector; PC-Card Rev. 7.0 compliant	Standard PCI Interface, PCI Rev. 2.3 compliant
<b>Data Rates Supported</b>	1, 2, 5.5, 6, 9, 11, 12, 18, 24, 36, 48, 54 Mbps	Same as CardBus Adapter
<b>Network Standard</b>	IEEE 802.11a/b/g	Same as CardBus Adapter
<b>Operating Voltage</b>	3.3 V ( $\pm 0.3$ V)	Same as CardBus Adapter
<b>Media Access Protocol</b>	Carrier-Sense Multiple Access w/ Collision Avoidance (CSMA/CA)	Same as CardBus Adapter
<b>Wireless Medium</b>	802.11g: Direct Sequence Spread Spectrum (DSSS) and Orthogonal Frequency Divisional Multiplexing (OFDM); 802.11a: OFDM	Same as CardBus Adapter

<b>Modulation</b>	802.11b: DSSS--Differential Binary Phase Shift Keying Same as CardBus Adapter (DBPSK) @ 1 Mbps; Differential Quadrature Phase Shift Keying (DQPSK) @ 2 Mbps; Complementary Code Keying (CCK) @ 5.5 and 11 Mbps 802.11g and 802.11a: OFDM--BPSK @ 6 and 9 Mbps; QPSK @ 12 and 18 Mbps; 16-Quadrature Amplitude Modulation (QAM) @ 24 and 36 Mbps; 64-QAM @ 48 and 54 Mbps	
<b>Frequency Bands</b>	2.40 to 2.4897 GHz; 5.15 to 5.35 GHz (FCC UNII 1 and UNII 2); 5.725 to 5.85 GHz (FCC UNII 3); 5.15 to 5.35 GHz (ETSI); 5.470 to 5.725 (ETSI); 5.15 to 5.25 GHz (Japan)	
<b>Range (With 2.2 dBi dipole antenna for 802.11g and 802.11b and 6 dBi gain patch for 802.11a)</b>	802.11a—Indoor: 45 ft (13 m) @ 54 Mbps, 110 ft (33 m) @ 18 Mbps, 165 ft (50 m) @ 6 Mbps; Outdoor: 100 ft (30 m) @ 54 Mbps, 600 ft (183 m) @ 18 Mbps, 1000 ft (304 m) @ 6 Mbps 802.11b/g—Indoor: 90 ft (27 m) @ 54 Mbps, 180 ft (54 m) @ 18 Mbps, 160 ft (48 m) @ 11 Mbps, 300 ft (91 m) @ 6 Mbps, @ 410 ft (124 m); Outdoor: 250 ft (76 m) @ 54 Mbps, 600 ft (183 m) @ 18 Mbps, 1000 ft (304 m) @ 11 Mbps, 1300 ft (396 m) @ 6 Mbps, 2000 ft (610 m) @ 1 Mbps	
<b>Antenna</b>	Integrated diversity dual-band 2.4/5 GHz antenna	
<b>Security Architecture Client Authentication (Cisco Wireless Security Suite)</b>	Authentication: WPA and 802.1X support for Cisco LEAP, PEAP-GTC, PEAP-MSCHAPv2, and EAP-TLS; MAC address and by standard 802.11 authentication mechanisms Encryption: Support for static and dynamic IEEE 802.11 WEP keys of 40 bits and 128 bits; Cisco TKIP and WPA TKIP encryption enhancements: key hashing (per-packet keying), message integrity check (MIC) and broadcast key rotation	Same as CardBus Adapter
<b>Drivers</b>	Windows XP and Windows 2000	Same as CardBus Adapter
<b>Dimensions (H x W x D)</b>	0.19 x 2.05 x 4.46 in. (4.80 x 52.08 x 113.35 mm)	3.12205 x 4.72 in. (79.3 x 119.9 mm)
<b>Weight</b>	1.6 oz (44.0g)	Standard (frame) PCI w/Antenna: 3.64 oz. (103.2 g), Standard (frame) PCI w/o Antenna: 1.92 oz. (54.7 g), Low Profile PCI w/Antenna: 3.43 oz. (97.5 g), Low Profile PCI w/o Antenna: 1.72 oz. (49.0 g)
<b>Warranty</b>	One Year	Same as CardBus Adapter

## For More Information

See the Cisco Wireless Website: <http://www.cisco.com/go/wireless>

## Cisco Aironet 5 GHz 54 Mbps Wireless Client Adapter

The Cisco Aironet 5 GHz 54 Mbps Wireless LAN client adapter is an IEEE 802.11a-compliant CardBus adapter that operates in the UNII-1 and UNII-2 bands. The client adapter complements the Cisco Aironet 1200 Series 802.11a Access Point, providing a solution that combines performance and mobility with the security and manageability that enterprises require.



## When to Sell

### Sell This Product

**Cisco Aironet 5 GHz 54Mbps Wireless LAN Client Adapters**

### When a Customer Needs These Features

- Industry leading security: IEEE 802.11x support, including LEAP and EAP-TLS, for mutual authentication and dynamic per-user, per session WEP keys
- End-to-end Cisco branded solution
- Mobility within the enterprise to increase productivity, as an addition or alternative to wired networks or need flexibility for frequent LAN wiring changes

## Key Features

- IEEE 802.11a-compliant CardBus adapter that operates in the UNII-1 and UNII-2 bands
- Complements the Cisco Aironet 1200 Series 802.11a Access Point, providing a solution that combines performance and mobility with the security and manageability that enterprises require
- Uses Cisco Wireless Security Suite for user-based authentication which supports a variety of 802.11x authentication types including LEAP and EAP-Transport Layer Security (EAP-TLS)
- Configure, monitor, and manage using ACU. Includes site-survey tools to assist in the placement of access points

## Specifications

Feature	Cisco Aironet 5 GHz 54 Mbps Wireless Client Adapter
Form Factor	CardBus Type II
Interface	32-bit CardBus (PCI)
Operational voltage	3.3 V (+/- 0.33 V)
LED	Status (green) and Activity (amber)
Data Rates Supported	6, 9, 12, 18, 24, 36, 48, 54 Mbps (configurable as fixed or auto selecting to extend range)
Network Standard	IEEE 802.11a
Frequency Band	5.15 to 5.35 GHz (FCC UNII 1 and UNII 2); 5.15 to 5.25 GHz (TELEC); 5.15 to 5.25 GHz (Singapore); 5.25 to 5.35 GHz (Taiwan)
Media Access Protocol	Carrier sense multiple access with collision avoidance (CSMA/CA)
Wireless Medium	Orthogonal Frequency Division Multiplexing (OFDM)
Modulation	(OFDM sub-carrier); BPSK @ 6 and 9 Mbps; QPSK @ 12 and 18 Mbps; 16-QAM @ 24 and 36 Mbps; 64-QAM @ 48 and 54 Mbps
Selectable Operating Channels	FCC: 8 channels (UNII-1 4 channels and UNII-2 4 channels); 4 channels for Japan, Singapore, and Taiwan
Available Transmit Power Settings <sup>1</sup>	20 mW (13 dBm); 10 mW (10 dBm); 5 mW (7 dBm) Maximum power setting will vary according to individual country regulations.
Current steady state (typical)	Transmit: 520 mA; Receive: 580 mA; Sleep: 20 mA
Range	Omni directional Antenna: Indoor: 60 ft (18m) @ 54 Mbps, 130 ft (40m) @ 18 Mbps, 170 ft (52m) @ 6 Mbps Outdoor: 100 ft (30m) @ 54 Mbps, 600 ft (183m) @ 18 Mbps, 1000 (304m) @ 6 Mbps Patch Antenna: Indoor: 70 ft (21m) @ 54 Mbps, 150 ft (45m) @ 18 Mbps, 200 ft (61m) @ 6 Mbps Outdoor: 120 ft (36m) @ 54 Mbps, 700 ft (213m) @ 18 Mbps, 1200 ft (355m) @ 6 Mbps
Power Management	3 levels of power consumption available, including: CAM (Constantly Awake Mode), Fast PSP (Power Save Mode), Max PSP (Maximum Power Savings)
Antenna	Integrated 5dBi gain patch antenna
Security Architecture Client Authentication	Cisco Wireless Security Suite including: Authentication: 802.11x support for LEAP and EAP-TLS to yield mutual authentication and dynamic, per-user, per-session WEP keys; MAC address and by standard 802.11 authentication mechanisms Encryption: Support for static and dynamic IEEE 802.11 WEP keys of 40 bits and 128 bits; Pre-standard TKIP WEP enhancements: key hashing (per-packet keying), message integrity check (MIC) and broadcast key rotation
Drivers	Windows, 98/98SE, Windows ME, Windows 2000 and Windows XP
Environmental	-30 to 70°C; 95% humidity (noncondensing)
Warranty	One year

1. Management Information Base

## For More Information

See the Cisco Wireless Website: <http://www.cisco.com/go/wireless>

## Cisco Aironet 350 Series Client Adapters



Wireless client adapters are the key to adding mobility and flexibility to an enterprise—increasing productivity by enabling users to have network and Internet access anywhere within a building without the limitation of wires. The Cisco Aironet 350 Series 802.11b Client Adapters are a complement to Aironet 350 Series infrastructure devices, providing an enterprise-ready solution that combines mobility with the performance, security, and manageability.

### When to Sell

#### Sell This Product

**Cisco Aironet 350 Series Client Adapters**

#### When a Customer Needs These Features

- Mobility within the enterprise to increase productivity, as an addition or alternative to wired networks or need flexibility for frequent LAN wiring changes, either throughout the site or in selected areas

### Key Features

- Superior range and throughput for IEEE 802.11b networks
- Secure network communications
- Available in PCMCIA and PCI form factors
- World mode for international roaming
- Supports LEAP authentication for secure wireless transmissions
- Full-featured utilities for easy configuration and management
- Compliance with the IEEE 802.11b high-rate standard
- Support for popular operating systems

### Specifications

Feature	Cisco Aironet 350 Series Client Adapters
<b>Data Rates Supported</b>	1, 2, 5.5, and 11 Mbps
<b>Network Standard</b>	IEEE 802.11b
<b>System Interface</b>	AIR-PCM35x: PC Card (PCMCIA) Type II; AIR-PCI 35x: peripheral component interconnect (PCI) Bus
<b>Frequency Band</b>	2.4 to 2.4897 GHz
<b>Network Architecture Types</b>	Infrastructure and ad hoc
<b>Wireless Medium</b>	Direct Sequence Spread Spectrum (DSSS)
<b>Media Access Protocol</b>	Carrier sense multiple access with collision avoidance (CSMA/CA)
<b>Modulation</b>	DBPSK @1 Mbps; DQPSK @ 2 Mbps; CCK @ 5.5 and 11 Mbps
<b>Operating Channels</b>	North America: 11; ETSI: 13; Japan: 14
<b>Nonoverlapping Channels</b>	Three
<b>Receive Sensitivity</b>	1 Mbps: -94 dBm; 2 Mbps: -91 dBm; 5.5 Mbps: -89 dBm; 11 Mbps: -85 dBm
<b>Delay Spread</b>	1 Mbps: 500 ns; 2 Mbps: 400 ns; 5.5 Mbps: 300 ns; 11 Mbps: 140 ns
<b>Available Transmit Power Settings<sup>1</sup></b>	100 mW (20 dBm); 50 mW (17 dBm); 30 mW (15 dBm); 20 mW (13 dBm); 5 mW (7 dBm); 1 mW (0 dBm)
<b>Range (typical)</b>	Indoor: 130 ft (40 m) @ 11 Mbps; 350 ft (107 m) @ 1 Mbps Outdoor: 800 ft (244 m) @ 11 Mbps; 2000 ft (610 m) @ 1 Mbps
<b>Compliance</b>	Operates license free under FCC Part 15 and complies as a Class B device; complies with DOC regulations; complies with ETS 300.328, FTZ 2100, and MPT 1349 standards
<b>Operating Systems Supported</b>	Windows 95, 98, NT 4.0, 2000, ME, XP, CE 2.11, CE 3.0, Mac OS 9.x, and Linux
<b>Antenna</b>	AIR-PCM35x: Integrated diversity dipoles AIR-LMC35x: Two MMCX connectors (antennas optional, none supplied with unit) AIR-PCI35x: External, removable 2.2 dBi Dipole with RP-TNC Connector
<b>Encryption Key Length</b>	128-bit
<b>Authentication Type</b>	EAP-Cisco Wireless LEAP
<b>Status Indicators</b>	Link Status and Link Activity
<b>Dimensions (W x D x H)</b>	AIR-PCM35x: 2.13 in. (5.4 cm) x 4.37 in. (11.1 cm) x 0.1 in. (0.3 cm) AIR-LMC35x: 2.13 in. (5.4 cm) x 3.31 in. (8.4 cm) x 0.1 in. (0.3 cm) AIR-PCI35x: 6.6 in. (16.8 cm) x 3.9 in. (9.8 cm) x .5 in. (1.3 cm)
<b>Weight</b>	AIR-PCM35x: 1.6 oz (45g); AIR-LMC35x: 1.4 oz (40g); AIR-PCI35x: 4.4 oz (125g)

Feature	Cisco Aironet 350 Series Client Adapters
Environmental	AIR-PCM35x and AIR-LMC35x: -22° to 158° F (-30° to 70° C); AIR-PCI35x: 32° to 131° F (0° to 55° C); 10 to 90% (noncondensing)
Input Power Requirements	+5 VDC +/- 5%
Typical Power Consumption (at 100 mW transmit power setting)	Transmit: 450 mA; Receive: 270 mA; Sleep mode: 15 mA

1. Maximum power setting will vary according to individual country regulations.

## Selected Part Numbers and Ordering Information<sup>1</sup>

### Cisco Aironet 350 Series Client Adapters

AIR-PCM352	350 Series PC Card with Diversity Antennas & 128-bit WEP
AIR-PCI352	350 Series PCI Card with 2.2 dBi Dipole Antenna & 128-bit WEP

1. This may be only a subset of all parts available via URL listed under "For More Information."

## For More Information

See the Cisco Wireless Website: <http://www.cisco.com/go/wireless>

## Cisco Aironet 1400 Series Wireless Bridge

The Cisco Aironet 1400 Series Wireless Bridge provides a high-performance and feature-rich solution for connecting multiple LANs in a metro area.



## When to Sell

### Sell This Product

#### Cisco Aironet 1400 Series Wireless Bridge

### When a Customer Needs These Features

- A cost-effective, high-bandwidth way to connect networks in multiple locations within a metro area
- A rapid payback period and a lower total cost of ownership than a leased line
- High performance data rates of 54 Mbps at point-to-point ranges of 7.5 miles and 2 miles for point-to-multipoint ranges

## Key Features

- Support for both point-to-point or point-to-multipoint configurations
- Industry leading range and throughput, supporting data rates up to 54 Mbps
- Enhanced security mechanisms based on 802.11 standards
- Ruggedized enclosure optimized for harsh outdoor environments with extended operating temperature range
- Integrated or optional external antennas for flexibility in deployment
- Designed specifically for ease-of-installation and operation

## Specifications

Feature	AIR-BR1410A-A-K9	AIR-BR1410A-A-K9-N	Power Injector LR
Frequency band	5.725 to 5.825 GHz (FCC UNII 3)	Same as AIR-BR1410A-A-K9	
Wireless modulation	Coded Orthogonal Frequency Division Multiplexing (COFDM)	Same as AIR-BR1410A-A-K9	
Media access protocol	Carrier Sense Multiple Access with Collision Avoidance (CSMA/CA)	Same as AIR-BR1410A-A-K9	
Modulation	BPSK @ 6 and 9 Mbps, QPSK @ 12 and 18 Mbps, 16-QAM @ 24 and 36 Mbps, 64-QAM @ 48 and 54 Mbps	Same as AIR-BR1410A-A-K9	
Non-overlapping channels	4	Same as AIR-BR1410A-A-K9	
Receive sensitivity (10% PER with 3200byte packets)	6 Mbps: -83 dBm, 9 Mbps: -83 dBm, 12 Mbps: -81 dBm, 18 Mbps: -80 dBm, 24 Mbps: -77 dBm, 36 Mbps: -74 dBm, 48 Mbps: -70 dBm, 54 Mbps: -68 dBm	Same as AIR-BR1410A-A-K9	
Maximum Operational Receive Level	-19 dBm	Same as AIR-BR1410A-A-K9	
Maximum Survivable Receive Level	0 dBm	Same as AIR-BR1410A-A-K9	

## Chapter 3

Feature	AIR-BR1410A-A-K9	AIR-BR1410A-A-K9-N	Power Injector LR
<b>Available transmit power settings</b>	250 mW (24 dBm), 200 mW (23 dBm), Same as AIR-BR1410A-A-K9 155 mW (22 dBm), 125 mW (21 dBm), 60 mW (18 dBm), 30 mW (15 dBm), 15 mW (12 dBm)  Maximum power setting will vary according to individual country regulations		
<b>Point-to-point range<sup>1</sup></b>	7.5 miles (13 km) @ 54 Mbps, 16 miles (26 km) @ 9 Mbps	12 miles (19 km) @ 54 Mbps, 23 miles (37 km) @ 9 Mbps, (Antennas are 28 dBi dish)	
<b>Point-to-multipoint range (sector antenna at root)<sup>2</sup></b>	2 miles (3 km) @ 54 Mbps, 8 miles (13 km) @ 9 Mbps	4 miles (7 km) @ 54 Mbps, 11 miles (18 km) @ 9 Mbps, (Non-root antenna is 28 dBi dish)	
<b>Antenna</b>	Captured Linear Polarization; 22.5dBi gain: 10 E-plane by 12 H-plane beamwidth	One N-Type connector for professional installations (antennas sold separately)	
<b>Security</b>	Cisco Wireless Security Suite, including:  Authentication: 802.1x support including LEAP to yield mutual authentication and dynamic per-user, per-session encryption keys  Encryption: Support for static and dynamic IEEE 802.11 WEP keys of 40 bits and 128 bits  Pre-standard TKIP WEP enhancements: key hashing (per packet keying) and Message Integrity Check (MIC)	Same as AIR-BR1410A-A-K9	
<b>SNMP compliance</b>	v1 and v2	Same as AIR-BR1410A-A-K9	
<b>Status LEDs</b>	Four LEDs: Install, Radio, Status, Ethernet	Same as AIR-BR1410A-A-K9	Four LEDs: Power ON, Injector status, LAN Ethernet status, Bridge Ethernet status
<b>RSSI port</b>	BNC connector DC Voltage port (0VDC to 2.7 VDC)	BNC connector DC Voltage port (0VDC to 2.7 VDC)	NA
<b>Uplink</b>	100 Mbps over dual coaxial cables	100 Mbps over dual coaxial cables	10/100BaseT Ethernet
<b>Configuration support</b>	Telnet, HTTP, FTP, TFTP, SNMP	Telnet, HTTP, FTP, TFTP, SNMP	NA
<b>Compliance</b>	Standards:  Safety: UL 60950, CSA C22.2 No. 60950-00, IEC 60950, EN 60950  Radio Approvals: FCC Part 15.207, 15.407, & 15.209 Class B, ICES-003 Class B (Canada), Canada DGT-P-010, FCC Bulletin OET-65C, Industry Canada RSS-102, RSP100, RSS 210 Issue 5  EMI and Susceptibility (ClassB): FCC Part 15.107 & 15.109 Class B, ICES-003 Class B (Canada), EN 55022 Class B, EN 55024	Standards:  Safety: UL 60950, CSA C22.2 No. 60950-00, IEC 60950, EN 60950, NEMA 4  Radio Approvals: FCC Part 15.207, 15.407, & 15.209 Class B, ICES-003 Class B (Canada), Canada DGT-P-010, FCC Bulletin OET-65C, Industry Canada RSS-102, RSP100, RSS 210 Issue 5  EMI and Susceptibility (ClassB): FCC Part 15.107 & 15.109 Class B, ICES-003 Class B (Canada), EN 55022 Class B, EN 55024	Standards:  Safety: UL 60950, CSA C22.2 No. 60950-00, IEC 60950, EN 60950  EMI and Susceptibility (ClassB): FCC Part 15.107 & 15.109 Class B, ICES-003 Class B (Canada), EN 55022 Class B, EN 55024
<b>Dimensions (H x W x D)</b>	11.4 x 11.4 x 4.2 in. (29 x 29 x 11 cm)	11.6 x 11.6 x 3.6 in. (29 x 29 x 9 cm)	6.7 x 6.3 x 1.3 in (17 x 16 x 3 cm)
<b>Weight</b>	11 lbs. (5 kg)	10 lbs. (5 kg)	1.4lbs. (0.6kg)
<b>Operational temperature</b>	-30 to +55°C (-22 to +131°F)	Same as AIR-BR1410A-A-K9	0 to +50C (32 to 122F)
<b>Storage temperature</b>	-40 to +85°C (-40 to +185°F)	Same as AIR-BR1410A-A-K9	-40 to +70C (-40 to +158F)
<b>Operational altitude</b>	4206 m (13,800 ft.)	Same as AIR-BR1410A-A-K9	Same as AIR-BR1410A-A-K9
<b>Storage altitude</b>	4877 m (16,000 ft.)	Same as AIR-BR1410A-A-K9	Same as AIR-BR1410A-A-K9
<b>Humidity</b>	0 to 100% (condensing)	Same as AIR-BR1410A-A-K9	0 to 90% (non-condensing)
<b>Vibration</b>	0.001 G2/Hz from 5 - 100 Hz	Same as AIR-BR1410A-A-K9	Same as AIR-BR1410A-A-K9
<b>Storage vibration</b>	0.01 G2/Hz from 5 - 100 Hz	Same as AIR-BR1410A-A-K9	Same as AIR-BR1410A-A-K9
<b>Enclosure</b>	Aluminum with environmentally sealed plastic radome	NEMA-4, aluminum	Metal case
<b>AC power</b>	Not Required as uses DC voltage from Power Injector	Same as AIR-BR1410A-A-K9	100 to 240 VAC, +/- 10% (power supply)
<b>DC power</b>	48 VDC +/-2V	Same as AIR-BR1410A-A-K9	Same as AIR-BR1410A-A-K9
<b>Warranty</b>	One year	Same as AIR-BR1410A-A-K9	Same as AIR-BR1410A-A-K9

## For More Information

See the Cisco Wireless Website: <http://www.cisco.com/go/wireless>

## Cisco Aironet 350 Series Wireless Bridge

The Cisco Aironet 350 Series Wireless Bridge enables high-speed long-range outdoor links between buildings and is ideal for installations subject to plenum rating and harsh environments. The 802.11b wireless bridge delivers high data rates and superior throughput for data-intensive, line-of-sight applications. The bridges connect hard-to-wire sites, noncontiguous floors, satellite offices, school or corporate campus settings, temporary networks, and warehouses.



### When to Sell

#### Sell This Product

**Cisco Aironet 350 Series Ethernet Bridge**

#### When a Customer Needs These Features

- Connect sites into a single LAN, even when separated by obstacles such as freeways, railroads and bodies of water that are normally inaccessible via cabling
- Low-cost, easy-to-deploy solution for connecting line-of-sight networks located in different buildings or want multiple buildings on a campus to share a single high-speed line to the Internet
- Harsh indoor environments or outdoor NEMA enclosures

### Key Features

- High-speed (11-Mbps), high-power (100-mW) radios, delivering building-to-building links of up to 25 miles (40.2 km)
- A metal case for durability and plenum rating and an extended operating temperature rating for harsh environments
- Supports both point-to-point and point-to-multipoint configurations allowing multiple sites to share a single, high-speed connection to the Internet
- Broad range of supported antennas
- Simplified installation, improved performance, and upgradeable firmware, ensuring investment protection
- Configurable as an access point
- Extended operating temperature range of -20° to 55° C

### Specifications

Feature	Cisco Aironet 350 Series Wireless Bridge
Data Rates Supported	1, 2, 5.5, and 11 Mbps
Frequency Band	2.4 to 2.497 GHz
Wireless Medium	Direct Sequence Spread Spectrum (DSSS)
Media Access Protocol	Carrier sense multiple access with collision avoidance (CSMA/CA)
Modulation	DBPSK @1 Mbps; DQPSK @ 2 Mbps; CCK @ 5.5 and 11 Mbps
Operating Channels	North America: 11; ETSI: 13; Japan: 14
Nonoverlapping Channels	Three
Receive Sensitivity	1 Mbps: -94 dBm; 2 Mbps: -91 dBm; 5.5 Mbps: -89 dBm; 11 Mbps: -85 dBm
Delay Spread	1 Mbps: 500 ns; 2 Mbps: 400 ns; 5.5 Mbps: 300 ns; 11 Mbps: 140 ns
Available Transmit Power Settings <sup>1</sup>	100 mW (20 dBm); 50 mW (17 dBm); 30 mW (15 dBm); 20 mW (13 dBm); 5 mW (7 dBm); 1 mW (0 dBm)
Range <sup>2</sup>	18 miles (28.9 km) @ 11 Mbps; Up to 25 miles (40.2 km) @ 2 Mbps
Compliance	Operates license-free under FCC Part 15 and complies as a Class B device; complies with DOC regulations; complies with ETS 300.328, FTZ 2100, and MPT 1349 standards; complies with UL 2043 (The use of this device in a system operating either partially or completely outdoors may require the user to obtain a license for the system according to the Canadian regulations. For further information, contact your local industry Canada office.)
SNMP Compliance	MIB I and MIB II
Antenna	Two RP-TNC connectors (antennas optional, none supplied with unit)
Encryption Key Length	128-bit
Security	128-bit WEP in bridge mode; IEEE 802.11x (includes EAP and RADIUS) in AP mode
Status Indicators	Three indicators on the top panel provide information concerning association status, operation, error/warning, firmware upgrade, and configuration, network/modem, and radio status
Automatic Configuration Support	BOOTP and DHCP
Remote Configuration Support	Telnet, HTTP, FTP, TFTP, and SNMP



## Chapter 3

Feature	Cisco Aironet 350 Series Wireless Bridge
Local Configuration	Direct console port (with supplied serial cable)
Bridging Protocol	Spanning Tree
Dimensions	6.74 x 6.25 x 1.31 in. (17.1 x 15.9 x 3.3 cm)
Weight	1.43 lbs (.648 kg)
Environmental	Temperature: -4 to 131° F (-20 to 55° C) 10 to 90% (noncondensing)
Enclosure	Metal case (for plenum rating); UL 2043 certified
Input Power Requirements	24VDC 10% to 60 VDC (Ethernet line power)

1. Maximum power setting will vary according to individual country regulations
2. Typical and contingent on antenna used

### Selected Part Numbers and Ordering Information<sup>1</sup>

#### Cisco Aironet 350 Series Wireless Bridge

AIR-BR350-x-K9                      350 Series 11Mbps DSSS Bridge with 128-bit WEP

#### Cisco Aironet 350 Series Wireless Bridge Basic Maintenance

CON-SNT-PKG2                      SMARTnet Maintenance for AIR-BR350-A-K9

1. This is only a small subset of all parts available via URL listed under "For More Information." Some parts have restricted access or are not available through distribution channels.

### For More Information

See the Cisco Wireless Website: <http://www.cisco.com/go/wireless>

## Cisco Aironet 350 Series Workgroup Bridge

Designed to meet the needs of remote workgroups, satellite offices, and mobile users, the Cisco Aironet 350 Series Workgroup Bridge brings the freedom and flexibility of wireless connectivity to any Ethernet-enabled device.



### When to Sell

#### Sell This Product

Cisco Aironet 350 Series Workgroup Bridge

#### When a Customer Needs These Features

- Connectivity to a network for remote workgroups located in an area that may be difficult or not practical for wiring
- Provides in road to remote offices and branches

### Key Features

- Supports WEP security architecture and provides up to 128-bit encryption
- Receive a single-session, single-user encryption key from the RADIUS server via the associated AP with a username and password stored statically or in dynamic memory within the workgroup bridge; Standards-based centralized security
- Easily connect up to eight devices; Driverless installation
- Based upon an IEEE 802.11x standard utilizing EAP
- Optimum wireless performance and range
- Full-featured utilities and robust management
- Wi-Fi Certified

### Specifications

Feature	Cisco Aironet 350 Series Workgroup Bridge
Data Rates Supported	1, 2, 5.5, and 11 Mbps
Client Interface	10BaseT Ethernet
Clients Supported	Direct: One Via hub: Eight
Network Architecture Types	Infrastructure (via Cisco Aironet Access Point or Bridge)

Feature	Cisco Aironet 350 Series Workgroup Bridge
Frequency Band	2.4 to 2.4897 GHz
Wireless Medium	Direct Sequence Spread Spectrum (DSSS)
Media Access Protocol	Carrier sense multiple access with collision avoidance (CSMA/CA)
Modulation	DBPSK @1 Mbps; DQPSK @ 2 Mbps; CCK @ 5.5 and 11 Mbps
Operating Channels	North America: 11; ETSI: 13; Japan: 14
Nonoverlapping Channels	Three
Receive Sensitivity	1 Mbps: -94 dBm; 2 Mbps: -91 dBm; 5.5 Mbps: -89 dBm; 11 Mbps: -85 dBm
Delay Spread	1 Mbps: 500 ns; 2 Mbps: 400 ns; 5.5 Mbps: 300 ns; 11 Mbps: 140 ns
Available Transmit Power Settings <sup>1</sup>	100 mW (20 dBm); 50 mW (17 dBm); 30 mW (15 dBm); 20 mW (13 dBm); 5 mW (7 dBm); 1 mW (0 dBm)
Range (typical)	Indoor: 130 ft (40 m) @ 11 Mbps; 350 ft (107 m) @ 1 Mbps Outdoor: 800 ft (244 m) @ 11 Mbps; 2000 ft (610 m) @ 1 Mbps
Compliance	Operates license free under FCC Part 15 and complies as a Class B device; complies with DOC regulations; complies with EN 300.328 standards
SNMP Compliance	MIB I and MIB II
Antenna	AIR-WGB352C: One nonremovable 2.2-dBi dipole AIR-WGB352R: Two RP-TNC connectors (antennas optional, none supplied with unit)
Encryption Key Length	AIR-WGB352x: 128-bit
Remote Configuration Support	Telnet, HTTP, FTP, TFTP, and SNMP
Dimensions (H x W x D)	1.45 x 6.30 x 4.72 in. (3.7 x 16 x 12 cm)
Weight	12.3 oz (350g)
Environmental	10 to 90% (Noncondensing)
Temperature	32 to 122° F (0 to 50° C)
Input Power Requirements	North American: 120 VAC @ 60 Hz; Universal: 90 to 264 VAC @ 47 to 63 Hz

1. Maximum power setting will vary according to individual country regulations.

## Selected Part Numbers and Ordering Information

### Cisco Aironet 350 Series Workgroup Bridge

AIR-WGB352C	350 Series Workgroup Bridge with Captured Antenna & 128-bit WEP
AIR-WGB352R	350 Series Workgroup Bridge with Dual RP-TNC & 128-bit WEP

## For More Information

See the Cisco Wireless Website: <http://www.cisco.com/go/wireless>

## Cisco Antennas and Accessories

Every wireless LAN deployment is different. When engineering an in-building solution, varying facility sizes, construction materials, and interior divisions raise transmission and multipath considerations. Cisco has the widest range of antennas, cable, and accessories available from any wireless manufacturer. Cisco offers a complete range of 2.4 GHz and 5 GHz antennas for access point and bridge equipment that enable a customized wireless solution for almost any installation



## Key Features

- **Client Adapter Antennas**—To extend the transmission range for more specialized applications, a variety of optional, higher-gain antennas are provided that are compatible with selected client adapters
- **Access Point Antennas**—Compatible with all Cisco RP-TNC-equipped access points; Available with different gain and range capabilities, beam widths, and form factors
- **Bridge Antennas**—Available in directional configurations for point-to-point transmission and omnidirectional configuration for point-to-multipoint implementations
- **Low-loss cable** extends the length between any Cisco Aironet bridge and the antenna. With a loss of 6.7 dB per 100 feet (30m), low-loss cable provides installation flexibility without a significant sacrifice in range
- **Complete range of antennas** for 5 GHz bridging applications

## Specifications

### Access Point Antennas

Feature	AIR-ANT5959	AIR-ANT2410Y-R	AIR-ANT2012	AIR-ANT3213
<b>Description</b>	Diversity omni-directional ceiling mount	Yagi mast or wall mount	Diversity patch wall mount	Pillar mount diversity omni
<b>Application</b>	Indoor unobtrusive antenna, best for ceiling mount. Excellent throughput and coverage solution in high multipath cells and dense user population	Indoor/Outdoor directional antenna for use with Access Points or Bridges	Indoor/Outdoor, unobtrusive medium range antenna	Indoor, unobtrusive medium-range antenna
<b>Approximate Indoor Range<sup>1</sup></b>	6 Mbps: 295 ft (90 m) 54 Mbps: 88 ft (27 m)	6 Mbps: 548 ft (167 m) 54 Mbps: 165 ft (50 m)	6 Mbps: 418 ft (127 m) 54 Mbps: 126 ft (38 m)	6 Mbps: 379 ft (121 m) 54 Mbps: 114 ft (35 m)
<b>Cable Length</b>	3 ft. (0.91m)	3 ft. (0.91 m)	3 ft. (0.91m)	3 ft. (0.91m)
<b>Dimensions (H x W x D)</b>	5.3 x 2.8 x 0.9 in. (13.5 x 7.1 x 2.3 cm)	7.25 x 5 in. (18.4 x 12.7 cm)	4.78 x 6.66 x .82 in. (12.14 x 16.92 x 2.08 cm)	10 x 1 in. (25.4 x 2.5 cm)
<b>Weight</b>	0.3 lbs. (0.14kg)	8 oz.	9.6 oz. (272g)	1 lb. (460g)

1. All range estimations are based on an integrated client adapter antenna associating with an access point under ideal indoor conditions. The distances referenced here are approximations and should be used for estimation only.

### Access Point Antennas (cont.)

Feature	AIR-ANT1728	AIR-ANT4941	AIR-ANT3549	AIR-ANT1729
<b>Description</b>	High gain omnidirectional ceiling mount	2.2 dBi dipole antenna	Patch wall mount	Patch wall mount
<b>Application</b>	Indoor medium-range antenna, typically hung from crossbars of coverage drop ceilings	Indoor omni-directional	Indoor, unobtrusive, long-range antenna (may also be used as a medium-range bridge antenna)	Indoor, unobtrusive, medium-range antenna (may also be used as a medium-range bridge antenna)
<b>Approximate Indoor Range<sup>1</sup></b>	6 Mbps: 379 ft (116 m) 54 Mbps: 114 ft (35 m)	6 Mbps: 300 ft (91 m) 54 Mbps: 90 ft (27 m)	6 Mbps: 507 ft (155 m) 54 Mbps: 153 ft (47 m)	6 Mbps: 403 ft (123 m) 54 Mbps: 121 ft (37 m)
<b>Cable Length</b>	3 ft. (0.91m)	N/A	3 ft. (0.91m)	3 ft. (0.91m)
<b>Dimensions (L x D)</b>	9 x 1 in. (22 x 2.5 cm)	5.5 in. (14 cm)	5 x 5 in. (12.4 x 12.4 cm)	4 x 5 in. (9.7 x 13 cm)
<b>Weight</b>	4.6 oz. (131g)	1.1 oz. (31 g)	5.3 oz. (150g)	4.9 oz. (139g)

1. All range estimations are based on an integrated client adapter antenna associating with an access point under ideal indoor conditions. The distances referenced here are approximations and should be used for estimation only.

### Access Point Antennas (Con.)

Feature	AIR-ANT5135D-R	AIR-ANT5145V-R	AIR-ANT5160V-R
<b>Application</b>	Indoor omnidirectional coverage	Indoor medium-range antenna	Indoor medium-range antenna
<b>Gain</b>	3.5 dBi	4.5 dBi	6 dBi
<b>Approximate Range<sup>1</sup></b>	6 Mbps: 675 ft (206 m) 54 Mbps: 75 ft (21 m)	6 Mbps: 732 ft (223 m) 54 Mbps: 82 ft (25 m)	6 Mbps: 822 ft (251 mm) 54 Mbps: 92 ft (28 m)
<b>Beam Width</b>	360 degrees H 40 degrees E	360 degrees H 50 degrees E	360 degrees H 17 degrees E
<b>Cable Length</b>	N/A	3 ft. (0.91 m)	3 ft. (0.91 m)
<b>Dimensions (L x D)</b>	5 1/3 x 0.6 in	6 3/4" x 4.2"	12 x 1 in.
<b>Weight</b>	1 oz	11.5 oz	5.3 oz

1. All range estimations are based on an integrated client adapter antenna associating with an access point under ideal indoor conditions. The distances referenced here are approximations and should be used for estimation only.

**Bridge Antennas**

Feature	AIR-ANT2506	AIR-ANT24120	AIR-ANT2414S-R	AIR-ANT1949	AIR-ANT3338
Description	Omnidirectional Mast mount	High-gain omnidirectional Mast mount	Vertically polarized sector; -15 dBc, 0 to 30°; Declination lower; side lobe null fill; Mast mount	Yagi mast mount	Solid dish
Application	Outdoor short-range point-to-multipoint applications	Outdoor medium-range point-to-multipoint applications	Outdoor long range point-to-multipoint applications	Outdoor medium-range directional connections	Outdoor long-range directional connections
Approximate Indoor Range <sup>1</sup>	2 Mbps: 3.3 miles (5.31 km) 11 Mbps: 1.66 miles (2.66 km) 54 Mbps: .21 miles (.34 km)	2 Mbps: 15.81 miles (25.43 km) 11 Mbps: 7.92 miles (12.75 km) 54 Mbps: 1.0 miles (1.6 km)	2 Mbps: 16.71 miles (26.89 km) 11 Mbps: 8.89 miles (14.30 km) 54 Mbps: 1.26 miles (2.02 km)	2 Mbps: 18.33 miles (29.49 km) 11 Mbps: 11.19 miles (18.01 km) 54 Mbps: 1.41 miles (2.27 km)	2 Mbps: 26.49 miles (42.62 km) 11 Mbps: 20.1 miles (32.33 km) 54 Mbps: 4.46 miles (7.17 km)
Cable Length	3 ft. (0.91m)	1 ft. (0.30m)	5 ft (3 m)	1.5 ft. (0.46m)	2 ft. (0.61m)
Dimensions (L x D)	13 x 1 in. (33 x 2.5 cm)	42 x 1.5 in. (103 x 3 cm)	36 x 5 in. (91 x 15 cm)	18 x 3 in. (46 x 7.6 cm)	24 in. d (61 cm)
Weight	6 oz. (17g)	1.5 lb. (0.68 kg)	6.5 lb. (3 kg)	1.5 lb. (0.68 kg)	11 lb. (5 kg)

1. All range estimations are based on an integrated client adapter antenna associating with an access point under ideal indoor conditions. The distances referenced here are approximations and should be used for estimation only.

**Low-Loss/Ultra Low-Loss Antenna Cable**

Feature	AIR-CAB020LL-R	AIR-CAB050LL-R	AIR-CAB100ULL-R	AIR-CAB150ULL-R
Cable Length	20 ft. (6m)	50 ft. (15m)	100 ft. (30m)	150 ft. (46m)
Transmission Loss	1.3 dB	3.4 dB	4.4 dB	6.6 dB

**Cisco Aironet Accessories**

Feature	AIR-ACC2537-060	AIR-ACC3354 AIR-ACC2537-060	AIR-ACC245LA-R AIR-ACC3354
Description	60 in. (152 cm) bulkhead extender	Lightning arrester 60 in. (152 cm) bulkhead extender	Yagi articulating mount
Application	Flexible antenna cable that extends access point cabling typically within an enclosure	Helps prevent damage due to lightning-induced surges or static electricity; Flexible antenna cable that extends access point cabling typically within an enclosure	Helps prevent damage due to lightning-induced surges or static electricity; Helps prevent damage due to lightning-induced surges or static electricity

**Cisco Aironet 1400 Wireless Bridge Antennas (5 GHz)**

Feature	AIR-ANT58G9VOA-N	AIR-ANT58G10SSA-N	AIR-ANT58G28SDA-N
Description	Omni-directional Mast mount	Sector antenna Mast mount	Dish antenna Mast mount
Application	Outdoor short-range point-to-multipoint applications	Outdoor medium-range point-to-point and point-to-multipoint applications	Outdoor long-range directional connections
Gain (including supplied jumper cable)	9.0 dBi	9.5 dBi	28.0 dBi
Polarization	Vertical	Vertical or horizontal Field configurable	Vertical or horizontal Field configurable
Elevation adjustment	None	None	+/- 12.5 degrees
Approximate range at 9 Mbps	8 miles (13 km) (with 22.5 dBi captive antenna on the remote site)	Same as AIR-ANT58G9VOA-N	23 miles (37 km) (with 28 dBi antennas on each end)
Approximate range at 54 Mbps	2 miles (3 km) (with 22.5 dBi captive antenna on the remote site)	Same as AIR-ANT58G9VOA-N	12 miles (19 km) (with 28 dBi antennas on each end)
Beam width	360 H, 6 V	60 H, 60 V	5.7 H, 6 V
Supplied jumper cable length	4.9 ft. (1.5 m)	Same as AIR-ANT58G9VOA-N	Same as AIR-ANT58G9VOA-N
Dimensions (H x W x D)	18 x 1 in. (46 x 2.5 cm) (L x W)	2.5 x 2.5 x 1.75 in. (6.4 x 6.4 x 4.5 cm)	Diameter: 29 in. (74 cm) Depth: 14.5 in. (36.8 cm)
Weight	2.0 lb. (0.9 kg)	1.25 lb. (0.6 kg)	9.5 lb. (4.3 kg)

**Cisco Aironet Bridge Accessory**

Feature	AIR-ACCRWM1400	AIR-ACCBRGB=	AIR-ACCMFM1400=
Description	Roof/Wall mount kit	Grounding block	Multifunction mount
Application	Allows mounting to flat surfaces Includes full elevation and azimuth adjustment	Helps prevent damage due to lightning-induced surges or static electricity	Allows mounting to poles with a diameter between 1.5 in. and 2.5 in. Includes both elevation and polarization adjustment

### Cisco Aironet Power Injector Cables

Feature	AIR-CAB020DRG6-F=	AIR-CAB050DRG6-F=	AIR-CAB100DRG6-F
Cable length	20 ft. (6m)	50 ft. (15m)	100 ft. (30m)

### Selected Part Numbers and Ordering Information<sup>1</sup>

#### Cisco Aironet Accessories

AIR-ACC2662	Yagi Antenna Articulating Mount
AIR-ACC3354	Lightning Arrestor w/ grounding ring
AIR-CAB020LL-R	20 ft. (6m) low-loss antenna cable
AIR-CAB050LL-R	50 ft. (15m) low loss antenna cable
AIR-CAB100ULL-R	100 ft. (30m) low loss antenna cable
AIR-CAB150ULL-R	150 ft. (46m) low loss antenna cable

#### Cisco Aironet Antennas

AIR-ANT1728	5.2 dBi Omni Ceiling Mount Antenna
AIR-ANT1729	6 dBi Patch Wall Mount Antenna
AIR-ANT1949	13.5 dBi Yagi Mast Mount Antenna
AIR-ANT2012	6.5 dBi Diversity Patch Wall Mount Antenna
AIR-ANT2506	5.2 dBi Omnidirectional Mast Mount Antenna
AIR-ANT3195	3 dBi Patch Wall Mount Antenna
AIR-ANT3213	5.2 dBi Pillar-Mount Diversity Omni Antenna
AIR-ANT3338	21 dBi Solid Dish Antenna
AIR-ANT3351	2.2 dBi POS Diversity Dipole Antenna
AIR-ANT3549	8.5 dBi Hemispherical Patch Antenna
AIR-ANT24120	12 dBi Omnidirectional Mast Mount Antenna
AIR-ANT4941	2.2 dBi Dipole Antenna (Standard Rubber Duck)
AIR-ANT5959	2.0dBi Diversity Omni Ceiling Mount Antenna
AIR-ANT2414S-R	14dBi Sector Mast Mount Antenna
AIR-ANT5135	3.5 dBi dipole antenna
AIR-ANT5145	4.5 dBi omni
AIR-ANT5160	6 dBi omni

1. This is only a small subset of all parts available via URL listed under "For More Information." Some parts have restricted access or are not available through distribution channels. Resellers: For latest part number and pricing info, see the *Distribution Product Reference Guide* at: <http://www.cisco.com/dprg> (limited country availability).

### For More Information

See the Aironet Antennas & Accessories Website <http://www.cisco.com/go/antenna>

## Cisco 2000 Series Wireless LAN Controller



Cisco® Wireless LAN Controllers are responsible for system wide wireless LAN functions, such as security policies, intrusion prevention, RF management, quality of service (QoS), and mobility. They work in conjunction with Cisco Aironet 1000 Series Lightweight Access Points and the Cisco Wireless Control System (WCS) to support business-critical wireless applications. From voice and data services to location tracking, Cisco Wireless LAN Controllers provide the control, scalability, security, and reliability that network managers need to build secure, enterprise-scale wireless networks—from branch offices to main campuses. The Cisco 2000 Series Wireless LAN Controller supports up to six lightweight access points making it ideal for small—to medium—sized enterprise facilities such as branch offices.

### When to Sell

#### Sell This Product

##### Cisco 2000 Series Wireless LAN Controller

#### When a Customer Needs These Features

- An enterprise scalable architecture that provides business-critical wireless services for locations of all sizes
- Create an intelligent RF control plane for self-configuration, self-healing, and self-optimization
- Require a system that is deployed without modifying existing routing and switching infrastructures without touching access points

## Key Features

- Enterprise scalability
- Integrated Radio Resource Management (RRM)
- Zero-configuration deployment
- Multi-layered security
- Rogue access point detection, location, and containment
- Mobility management
- Enterprise reliability
- Intuitive management interfaces

## Specifications

Features	Cisco 2000 Series Wireless LAN Controller
<b>Wireless</b>	IEEE 802.11a, 802.11b, 802.11g, 802.11d, 802.11h
<b>Wired/Switching</b>	IEEE 802.3 10BASE-T, IEEE 802.3u 100BASE-TX specification, and IEEE 802.1Q VLAN tagging
<b>Data RFCs</b>	RFC 768 UDP, RFC 791 IP, RFC 792 ICMP, RFC 793 TCP, RFC 826 ARP, RFC 1122 Requirements for Internet Hosts, RFC 1519 CIDR, RFC 1542 BOOTP, RFC 2131 DHCP
<b>Security Standards</b>	Wi-Fi Protected Access (WPA), IEEE 802.11i (WPA2, RSN), RFC 1321 MD5 Message-Digest Algorithm, RFC 2104 HMAC: Keyed Hashing for Message Authentication, RFC 2246 TLS Protocol Version 1.0, RFC 3280 X.509 PKI Certificate and CRL Profile
<b>Encryption</b>	WEP and TKIP-MIC: RC4 40, 104 and 128 bits (both static and shared keys), Secure Sockets Layer (SSL) and TLS: RC4 128-bit and RSA 1024- and 2048-bit, AES: CCM, CCMP
<b>AAA</b>	IEEE 802.1x, RFC 2548 Microsoft Vendor-Specific RADIUS Attributes, RFC 2716 PPP EAP-TLS, RFC 2865 RADIUS Authentication, RFC 2866 RADIUS Accounting, RFC 2867 RADIUS Tunnel Accounting, RFC 2869 RADIUS Extensions, RFC 3576 Dynamic Authorization Extensions to RADIUS, RFC 3579 RADIUS Support for EAP, RFC 3580 IEEE 802.1x RADIUS Guidelines, RFC 3748 Extensible Authentication Protocol, Web-based authentication
<b>Management</b>	SNMP v1, v2c, v3, RFC 854 Telnet, RFC 1155 Management Information for TCP/IP-Based Internets, RFC 1156 MIB, RFC 1157 SNMP, RFC 1213 SNMP MIB II, RFC 1350 TFTP, RFC 1643 Ethernet MIB, RFC 2030 SNMP, RFC 2616 HTTP, RFC 2665 Ethernet-Like Interface types MIB, RFC 2674 Definitions of Managed Objects for Bridges with Traffic Classes, Multicast Filtering, and Virtual LAN Extensions, RFC 2819 RMON MIB, RFC 2863 Interfaces Group MIB, RFC 3164 Syslog, RFC 3414 User-Based Security Model (USM) for SNMPv3, RFC 3418 MIB for SNMP, RFC 3636 Definitions of Managed Objects for IEEE 802.3 MAUs, Cisco private MIBs
<b>Management Interfaces</b>	Web-based: HTTP/HTTPS, Command-line interface: Telnet, SSH, serial port
<b>Interfaces and Indicators</b>	Console port: RS-232 (DB-9 male, DTE interface), Network: Four 10/100 Mbps Ethernet (RJ-45-10/100 link, activity), Other indicators: Power
<b>Regulatory Compliance</b>	CE Mark; Safety: UL 60950-1:2003, EN 60950:2000; EMI and susceptibility (Class B): U.S.—FCC Part 15.107 and 15.109, Canada—ICES-003; Japan—VCCI, Europe—EN 55022, EN 55024
<b>Temperature</b>	Operating: 32 to 104°F (0 to 40°C); Storage: -13 to 158°F (-25 to 70°C); Operating humidity: 10 to 95 percent, noncondensing; Storage humidity: Up to 95 percent;
<b>Dimensions (W x D x H)</b>	1.6 x 9.5 x 6.0 in. (41 x 241 x 152 mm)
<b>Weight</b>	2.45 lb (1.11 kg)
<b>Power</b>	Input power: 100 to 240 VAC; 50/60 Hz; Output power: +5V @ 3A; +12V @ 1A; 27W

## Selected Part Numbers and Ordering Information

### Cisco 2000 Series Wireless LAN Controller

AIR-WLC2006-K9 Cisco 2000 Series Wireless LAN Controller for up to six Cisco Aironet 1000 Series Lightweight Access Points

## For More Information

See the Cisco Wireless Website: <http://www.cisco.com/go/wireless>

## Cisco 4100 Series Wireless LAN Controller



Cisco® wireless LAN controllers are responsible for system wide wireless LAN functions, such as security policies, intrusion prevention, RF management, quality of service (QoS), and mobility. They work in conjunction with Cisco Wireless Control System (WCS) Software and Cisco Aironet 1000 Series Lightweight Access Points to support business-critical wireless applications. From voice and data services to location tracking, WLAN controllers provide the control, scalability, and reliability that IT managers need to build secure, enterprise-scale wireless networks from branch offices to main campuses. The Cisco 4100 Series Wireless LAN Controller is designed for medium-to-large enterprise facilities. Models that support 12, 24 or 36 access points are available. It also offers dual Gigabit Ethernet uplinks for high speed LAN connectivity with high network availability.

When to Sell

Sell This Product

Cisco 4100 Series Wireless LAN Controller

When a Customer Needs These Features

- An enterprise scalable architecture that provides business-critical wireless services for locations of all sizes
- Create an intelligent RF control plane for self-configuration, self-healing, and self-optimization
- Require a system that is deployed without modifying existing routing and switching infrastructures without touching access points

Key Features

- Wi-Fi Certified Enterprise scalability
- Integrated Radio Resource Management (RRM)
- Zero-configuration deployment
- Multi-layered security
- Rogue access point detection, location, and containment
- Mobility management
- Enterprise reliability
- Intuitive management interfaces

Specifications

Features	Cisco 4100 Series Wireless LAN Controller
Wireless	IEEE 802.11a, 802.11b, 802.11g, 802.11d, 802.11h
Wired/Switching	IEEE 802.3 10BASE-T, IEEE 802.3u 100BASE-TX specification, IEEE 802.1Q VLAN tagging, and IEEE 802.1D Spanning Tree Protocol
Data RFCs	RFC 768 UDP, RFC 791 IP, RFC 792 ICMP, RFC 793 TCP, RFC 826 ARP, RFC 1122 Requirements for Internet Hosts, RFC 1519 CIDR, RFC 1542 BOOTP, RFC 2131 DHCP
Security Standards	WPA, IEEE 802.11i (WPA2, RSN), RFC 1321 MD5 Message-Digest Algorithm, RFC 1851 The ESP Triple DES Transform, RFC 2104 HMAC: Keyed Hashing for Message Authentication, RFC 2246 TLS Protocol Version 1.0, RFC 2401 Security Architecture for the Internet Protocol, RFC 2403 HMAC-MD5-96 within ESP and AH, RFC 2404 HMAC-SHA-1-96 within ESP and AH, RFC 2405 ESP DES-CBC Cipher Algorithm with Explicit IV, RFC 2406 IPsec, RFC 2407 Interpretation for ISAKMP, RFC 2408 ISAKMP, RFC 2409 IKE, RFC 2451 ESP CBC-Mode Cipher Algorithms, RFC 2661 L2TP, RFC 3280 Internet x.509 PKI Certificate and CRL Profile, RFC 3602 The AES-CBC Cipher Algorithm and Its Use with IPsec, RFC 3686 Using AES Counter Mode with IPsec ESP
Encryption	WEP and TKIP-MIC: RC4 40, 104 and 128 bits (both static and shared keys), SSL and TLS: RC4 128-bit and RSA 1024- and 2048-bit, AES: CCM, CCMP, IPsec: DES-CBC, 3DES, AES-CBC
AAA	IEEE 802.1x, RFC 2548 Microsoft Vendor-Specific RADIUS Attributes, RFC 2716 PPP EAP-TLS, RFC 2865 RADIUS Authentication, RFC 2866 RADIUS Accounting, RFC 2867 RADIUS Tunnel Accounting, RFC 2869 RADIUS Extensions, RFC 3576 Dynamic Authorization Extensions to RADIUS
Management	SNMP v1, v2c, v3, RFC 854 Telnet, RFC 1155 Management Information for TCP/IP-Based Internets, RFC 1156 MIB, RFC 1157 SNMP, RFC 1213 SNMP MIB II, RFC 1350 TFTP, RFC 1643 Ethernet MIB, RFC 2030 SNMP, RFC 2616 HTTP, RFC 2665 Ethernet-Like Interface types MIB, RFC 2674 Definitions of Managed Objects for Bridges with Traffic Classes, Multicast Filtering, and Virtual LAN Extensions, RFC 2819 RMON MIB, RFC 2863 Interfaces Group MIB, RFC 3164 Syslog, RFC 3414 User-Based Security Model (USM) for SNMPv3, RFC 3418 MIB for SNMP, RFC 3636 Definitions of Managed Objects for IEEE 802.3 MAUs, Cisco private MIBs
Management Interfaces	Web-based: HTTP/HTTPS; Command-line interface: Telnet, SSH, serial port
Interfaces and Indicators	Uplink: 1000BASE-SX (LC female-In use, link); one active, one standby; Management port: 10/100 Mbps Ethernet (RJ-45-10/100 link, activity); Console port: RS-232 (DB-9 male, DTE interface); Other indicators: Status, 1000BASE-X activity, alarm
Regulatory Compliance	CE Mark; Safety: UL 60950-1:2003, EN 60950:2000; EMI and susceptibility (Class A): U.S.—FCC Part 15.107 and 15.109, Canada—ICES-003, Japan—VCCI, Europe—EN 55022, EN 55024
Temperature	Operating: 32 to 104°F (0 to 40°C), Storage: -13 to 158°F (-25 to 70°C); Humidity—Operating humidity: 10 to 95 percent, noncondensing, Storage humidity: Up to 95 percent
Dimensions (H x W x D)	1.75 x 17.4 x 12.8 in. (44.5 x 442 x 326 mm)
Weight	12.5 lb (5.7 kg)
Power	Input power: 100 to 240 VAC; 50/60 Hz; 0.5A at 110 VAC, 0.2A at 220 VAC; 50W

Selected Part Numbers and Ordering Information

Cisco 4100 Series Wireless LAN Controller

AIR-WLC4112-K9	Cisco 4100 Series Wireless LAN Controller for up to 12 Cisco Aironet 1000 Series Lightweight Access Points
AIR-WLC4124-K9	Cisco 4100 Series Wireless LAN Controller for up to 24 Cisco Aironet 1000 Series Lightweight Access Points
AIR-WLC4136-K9	Cisco 4100 Series Wireless LAN Controller for up to 36 Cisco Aironet 1000 Series Lightweight Access Points
AIR-VPN-4100-K9=	VPN/enhanced security module for Cisco 4100 Series Wireless LAN Controller

For More Information

See the Cisco Wireless Website: <http://www.cisco.com/go/wireless>

## Cisco Wireless Control System (WCS)

Cisco® Wireless Control System (WCS) is the industry leading platform for wireless LAN planning, configuration, and management. It provides a powerful foundation that allows IT managers to design, control, and monitor enterprise wireless networks from a centralized location, simplifying operations and reducing total cost of ownership. With Cisco WCS, network administrators have a single solution for RF prediction, policy provisioning, network optimization, troubleshooting, user tracking, security monitoring, and wireless LAN systems management. Robust graphical interfaces make wireless LAN deployment and operations simple and cost-effective. Detailed trending and analysis reports make Cisco WCS vital to ongoing network operations.

### When to Sell

#### Sell This Product

**Cisco Wireless Control System (WCS)**

#### When a Customer Needs These Features

- Centralized platform for managing a complete network of Cisco WLAN controllers and lightweight access points
- WLAN planning tools to increase the effectiveness of WLAN design and deployment

### Key Features

- Intuitive GUI so IT staff can easily configure, monitor, and troubleshoot their wireless networks with minimal training
- Hierarchical maps so IT staff can quickly access different geographies, campuses, buildings, floors, and regions for better visibility and control
- WLAN planning tools to increase the effectiveness of WLAN design and deployment
- Integrated location tracking to protect assets and increase WLAN security
- Policy management templates for easy creation and enforcement across an entire enterprise
- Complete wireless intrusion protection
- Simple, hands-off software upgrades
- Robust APIs for integration with external software systems

### Specifications

Features	Cisco Wireless Control System (WCS)
<b>Minimum Server Requirements</b>	Redhat Enterprise Linux ES or Windows 2000/2003 server or workstation, SP4 or greater, 2.4 GHz Pentium or better, 1 Gig RAM or better, 20 GB hard drive
<b>Minimum Client Requirements</b>	Internet Explorer 6.0/SP1 or later
<b>Management</b>	SNMP v1, v2c, v3
<b>Managed Devices</b>	Cisco 2000 Series and Cisco 4100 Series wireless LAN controllers; Cisco Aironet 1000 Series Lightweight Access Points
<b>Database</b>	Integrated Solid FlowEngine SQL

### Selected Part Numbers and Ordering Information

#### Cisco Wireless Control System (WCS)

AIR-WCS-WB-1.0-K9	Cisco WCS v1.0 for up to 50 Cisco Aironet 1000 Series Lightweight Access Points; Windows XP/2000
AIR-WCS-LB-1.0-K9	Cisco WCS v1.0 for up to 50 Cisco Aironet 1000 Series Lightweight Access Points; Linux
AIR-WCS-WL-1.0-K9	Cisco WCS w/ Location v1.0 for up to 50 Cisco Aironet 1000 Series Lightweight Access Points; Windows XP/2000
AIR-WCS-LL-1.0-K9	Cisco WCS w/ Location v1.0 for up to 50 Cisco Aironet 1000 Series Lightweight Access Points; Linux
AIR-WCS-WLB-100EX	Cisco WCS Expansion License add 100 access points, Windows/Linux
AIR-WCS-WLL-100EX	Cisco WCS w/Location Expansion License add 100 access points, Windows/Linux
AIR-WCS-WL-UG-K9	Cisco WCS to WCS w/ Location feature per AP upgrade, Windows
AIR-WCS-LL-UG-K9	Cisco WCS to WCS w/ Location feature per AP upgrade, Linux
AIR-WCS-WL-S-UG-K9	Cisco WCS to WCS w/ Location Site License upgrade, Windows
AIR-WCS-LL-S-UG-K9	Cisco WCS to WCS w/ Location Site License upgrade, Linux
AIR-WCS-WLB-SITE	Cisco WCS Site License for unlimited APs, Win/Linux
AIR-WCS-WLL-SITE	Cisco WCS w/Location Site License for unlimited APs, Win/Linux

### For More Information

See the Cisco Wireless Website: <http://www.cisco.com/go/wireless>



# Cisco Wireless Location Appliance



The Cisco® Wireless Location Appliance is the industry's first location solution that simultaneously tracks thousands of devices from directly within the WLAN infrastructure-bringing the power of a cost effective, high-resolution location solution to critical applications such as high-value asset tracking, IT management and location based security. Integrates tightly with a spectrum of technology and application partners through a rich and open API facilitating the deployment of new and important business applications.

## When to Sell

### Sell This Product

Cisco Wireless Location Appliance

### When a Customer Needs These Features

- Advanced and scalable location tracking that simultaneously tracks thousands of wireless users and devices to within a few meters of their physical location
- Integrated location tracking using existing Cisco LWAPP (lightweight access point protocol) enabled infrastructure, minimizing capital expenditures and helping ensure better WLAN visibility
- Intuitive management GUI to centrally and easily add, configure, manage and upgrade multiple location appliances

## Key Features

- Increased Accuracy—Cisco Wireless Location Appliance uses the Cisco Systems® patent-pending RF fingerprinting technology to determine the location of wireless devices. Cisco provides the only WLAN infrastructure that correlates known RF characteristics of a building, such as multipath or attenuation, with real-time user information to track mobile devices within a few meters
- Scalability—Thousands of wireless clients and Wi-Fi tags can be tracked simultaneously helping ensure that location services can be applied to an entire enterprise environment
- Lowered Total Cost of Ownership—Reduces operating expenses by using the existing Cisco WLAN network infrastructure in conjunction with the location appliance. This results in being more cost-effective than proprietary or single-purpose location tracking solutions by using standard 802.11 components which does not require dedicated access points for location tracking

## Specifications

Features	Cisco Wireless Location Appliance
Memory	1-GB memory
Ports	Serial: One 9-pin connector, RJ-45: Two RJ-45 connectors for connection to two 10/100/1000 Ethernet controllers, 2 USB ports: One USB connector in front and one in back, 2 PS2 ports: One mouse and one keyboard, 2 VGA ports: One in front and one in back
Connectivity	Network: Two 10/100/1000 (RJ-45) ports
Management	SNMP v1, v2c, and v3
Network Management	Cisco WCS v.3.0 or greater running Internet Explorer 6.0/Service Pack 1 or later
Network Devices	Cisco Wireless LAN Controllers and Cisco lightweight access points
Programming Interfaces	SOAP/XML APIs
Dimensions (H x W x D)	1.68 x 16.8 x 23 in. (4.27 x 42.7 x 58.4 cm)
Weight	28.6lbs (13kg) maximum
Power	AC power supply wattage: 230W; AC power supply voltage: 100-120V at 50-60Hz; 200-240V at 50-60Hz
Environmental	Operating Temperature: 50 to 95°F (10-35°C); Storage Temperature: -40 to 149°F (-40°-65°C)
Approvals and Compliance	Safety UL 60950, CAN/CSA - C22.2 No. 60950, EN60950, IEC 60950: EMC FCC Part 15 (CFR 47) Class A, ICES-003 Class A, EN 55022 Class A, CISPR22 Class A, AS/NZS 3548 Class A, VCCI Class A, EN 50024, EN 50082-1

## Selected Part Numbers and Ordering Information

### Cisco Wireless Location Appliance

AIR-LOC2700-L-K9

Cisco 2700 Series Wireless Location Appliance

## For More Information

See the Cisco Wireless Website: <http://www.cisco.com/go/wireless>





# Voice and IP Communications

## Voice and IP Communications at a Glance

Product	Features	Page
<b>Call Control</b>		
<b>Cisco CallManager 4.1</b>	<ul style="list-style-type: none"> <li>The server-based call processing and call control component of Cisco's IP Telephony solution</li> <li>Resides on Cisco Media Convergence Servers (MCS), or selected third-party servers (CallManager 4.1)</li> </ul>	4-4
<b>Cisco CallManager Express</b>	<ul style="list-style-type: none"> <li>IOS-based call control - supported on standard Cisco access and Integrated Services routers (1751, 1760, 2600XM, 2800, 3700, 3800 and IAD 2400 series)</li> <li>Configurable Key-system or Hybrid-PBX feature set for up to 240 users</li> <li>Intuitive GUI for system administration and administration</li> <li>Supports all Cisco standard IP phones</li> </ul>	4-8
<b>Cisco Survivable Remote Site Telephony Software (SRST)</b>	<ul style="list-style-type: none"> <li>IOS software feature that runs on local branch office router provides IP Telephony backup redundancy for IP phones during WAN outage or CallManager is unreachable</li> </ul>	4-9
<b>Voice Mail and Unified Messaging</b>		
<b>Cisco Unity—Unified Messaging and Voice Mail</b>	Voice mail and unified messaging system delivers all messages into single inbox for access via 4-10 phone, email or Internet	
<b>Cisco Unity Express</b>	<ul style="list-style-type: none"> <li>Integrated voice mail and automated attendant services locally delivered for either Cisco CallManager or Cisco CallManager Express solution</li> <li>Leverages the data infrastructure; supported on broad range of Cisco access routers and new Cisco Integrated Services Routers</li> <li>Increases employee productivity and customer service for businesses of various sizes and operational models</li> </ul>	4-11
<b>Cisco IP Contact Center Product Family</b>		
<b>Cisco IP Contact Center (IPCC) Enterprise Edition</b>	<ul style="list-style-type: none"> <li>Delivers intelligent call routing, network-to-desktop CTI, and multi-channel contact management to contact center agents over an IP infrastructure.</li> <li>Pre-routing and post-routing of contacts</li> <li>Ability to handle voice, Web and e-mail contacts, as well as inbound and outbound campaigns</li> <li>Computer telephony integration (CTI), universal queue, IVR integration and remote agent support</li> <li>Complete supervisory, administration and reporting for the contact center</li> </ul>	4-12
<b>Cisco IP Contact Center Express Edition</b>	<ul style="list-style-type: none"> <li>A software-based ACD, IVR, and CTI application for departmental, enterprise branch, or small to mid-sized contact centers with Cisco IP Telephony networks based on Cisco AVVID.</li> <li>Provided in Standard, Enhanced and Premium versions</li> <li>Offers an open systems platform allowing ease of installation and configuration</li> <li>Provides a graphically driven workflow editor providing a common interface for creating interactions, or call flows, and creates business logic between IVR and ACD functions</li> </ul>	4-13
<b>Cisco IPCC Hosted Edition</b>	Offers full IP-based contact center services from its network. The only required customer premises equipment (CPE) are Cisco IP Phones, agent PCs, and a Cisco AVVID network enabled for QoS.	4-14
<b>IP Phones</b>		
<b>Cisco IP Phones IP 7900 Series</b>	<ul style="list-style-type: none"> <li>An exciting, distinctively stylish, and pure Voice over IP phone portfolio to meet the wide range of business communication needs at affordable prices</li> <li>Display-based technology provides ease-of-use</li> <li>Integrated inline power and 2-port Ethernet Switch provides end-to-end infrastructure integration</li> <li>Rich application environment enabled by open APIs based on XML</li> </ul>	4-14
<b>Cisco ATA Series of Analog Telephone Adaptors</b>	<ul style="list-style-type: none"> <li>Turns any analog telephone into an IP telephone. Each of the two voice ports supports independent telephone numbers, providing two separate lines.</li> <li>Interoperable with SIP and SCCP</li> <li>Enables analog devices, such as phones and fax machines, to support Voice over IP services by converting the analog signal into an IP signal</li> </ul>	4-16

Product	Features	Page
<b>Cisco IP Communicator</b>	<ul style="list-style-type: none"> <li>• Softphone client that gives computers the capabilities and features of a Cisco IP phone</li> <li>• A supplemental telephone that provides access to phone extensions and services outside the office</li> <li>• Unified administration with Cisco IP phones and automatic software updates makes it easy to manage</li> </ul>	4-17
<b>Cisco VT Advantage</b>	<ul style="list-style-type: none"> <li>• Brings video telephony functionality to Cisco IP phones</li> <li>• Adds video to phone calls through the use of a personal computer without button-pushing or mouse-clicking</li> <li>• Video telephony is now just a phone call</li> </ul>	4-18
<b>Voice Applications</b>		
<b>Cisco Emergency Responder</b>	<ul style="list-style-type: none"> <li>• Works with Cisco CallManager to automatically provide E9-1-1 features in North America, 4-18 and is compatible with any emergency number including 112 in Europe, 999 in UK, and 000 in Australia.</li> <li>• Dynamically tracks the location of IP phones, routes emergency calls to the appropriate E9-1-1 network, and provides the current location information to E9-1-1 call center dispatchers.</li> <li>• Provides real-time alert notifications to on-site or contracted security groups, to facilitate a timely response to emergency situations.</li> </ul>	4-18
<b>Cisco IP Manager Assistant</b>	<ul style="list-style-type: none"> <li>• Improves productivity by extending commonly used features such as call filtering, immediate call diversion, and line state monitoring to administrative assistants and managers.</li> </ul>	4-20
<b>Voice Network Management</b>		
<b>CiscoWorks Manager IP Telephony Environment Monitor</b>	<ul style="list-style-type: none"> <li>• A suite of management applications that helps ensure the readiness and manageability of converged networks that are supporting VoIP and IP telephony traffic and applications. The bundle includes: Voice Health Monitor; Default Fault Manager; CiscoView</li> <li>• CCO Downloadable Modules: IP Phone Information Utility; IP Phone Help Desk Utility; Fault History Manager</li> </ul>	9-15
<b>Voice Servers</b>		
<b>Cisco MCS 7800 Series Media Convergence Servers</b>	<ul style="list-style-type: none"> <li>• High availability server platform for Cisco IP telephony systems</li> <li>• Turnkey solution, includes CallManager or other software</li> <li>• For large- and medium-sized enterprise IP telephony deployments</li> </ul>	4-20
<b>Cisco IP/TV 3400 Series Video Servers</b>	<ul style="list-style-type: none"> <li>• High-quality, low-latency video communications over enterprise networks</li> <li>• Support live and scheduled video broadcasts, recording of live broadcasts and video on demand</li> <li>• MPEG-1, MPEG-2, and ISMA MPEG-4 support</li> <li>• Enables e-training, corporate communications, business TV, and distance learning</li> </ul>	4-21
<b>Voice Gateways</b>		
<b>Cisco Voice Gateways<sup>1</sup></b>	<ul style="list-style-type: none"> <li>• The Cisco VG248 and VG224 dedicated voice gateway provides connectivity between IP networks and legacy telephony systems/PSTN</li> <li>• VG248 supports up to 48 Foreign eXchange Station (FXS) ports for connecting analog telephones or legacy voice mail systems</li> <li>• VG224 supports up to 24 FXS ports for connecting analog telephones and is IOS based</li> <li>• Fully manageable by Cisco CallManager, a CLI interface via Telnet, or via SNMP</li> <li>• VG224 is also fully manageable by Cisco Call Manager Express via CLI interface or GUI</li> </ul>	4-22
<b>Cisco AS5350 Series Universal Gateways</b>	<ul style="list-style-type: none"> <li>• High performance, 1RU, universal gateway offering best in class voice, fax, and remote access services</li> <li>• Two models—Cisco AS5350XM and Cisco AS5350</li> <li>• 2, 4, &amp; 8 CT1/7 CE1/PRI configurations for 48 to 240 channels</li> <li>• Supports broad range of VoIP/async/ISDN/wireless protocols</li> <li>• Low power and high availability design</li> <li>• Cisco SS7 signaling gateway interoperability</li> <li>• Flexible, redundant backhaul methods</li> </ul>	4-23
<b>Cisco AS5400 Series Universal Gateways</b>	<ul style="list-style-type: none"> <li>• High performance, 2RU, universal gateway offering best in class voice, fax, and remote access services</li> <li>• Three models—Cisco AS5400XM, AS5400HPX and Cisco AS5400</li> <li>• 8 to 16 CT1/CE1/PRI or 1 T3 configuration for 192 to 648 channels</li> <li>• Low power and high availability design</li> <li>• Supports a broad range of VoIP/async/ISDN/fax/wireless protocols</li> <li>• Cisco SS7 signaling gateway interoperability</li> <li>• Flexible, redundant backhaul methods</li> </ul>	4-25
<b>Cisco AS5850 Universal Gateway</b>	<ul style="list-style-type: none"> <li>• The highest density universal gateway in the marketplace</li> <li>• Supporting at least 2,688 sessions data, voice, and fax services on any port at any time using T1, E1, DS3 or STM-1 trunk interface</li> <li>• Constant density regardless of codec type, ECAN or VAD settings</li> <li>• Extensive high availability features</li> <li>• TDM grooming capability</li> </ul>	4-27

Product	Features	Page
<b>Cisco Conferencing</b>		
<b>Cisco Conference Connection (CCC)</b>	<ul style="list-style-type: none"> <li>Enables enterprises to bring geographically dispersed employees and customers together to facilitate meetings and collaboration.</li> <li>Provides a cost-effective and time-efficient method of doing business without the hassle of travel.</li> </ul>	4-29
<b>Cisco IP/VC 3500 Series</b>	<ul style="list-style-type: none"> <li>Videoconferencing over IP solution</li> <li>Cost-effective, easy-to-manage</li> <li>Translates between H.323 and H.320 systems</li> <li>Management and QoS</li> </ul>	4-29
<b>Videoconferencing Products</b>		
<b>Cisco MeetingPlace</b>	<ul style="list-style-type: none"> <li>Integrated voice, video and web conferencing</li> <li>On-network conferencing solution that integrates directly into an organization's private voice and data networks</li> <li>Cost-effective and secure with a superior user experience</li> </ul>	4-31
<b>Customer Contact</b>		
<b>Cisco ICM Enterprise Edition</b>	<ul style="list-style-type: none"> <li>Enables interaction with a contact center via phone, Web, VoIP, text chat, or e-mail.</li> <li>Provides centralized management control over customer contacts</li> <li>Cisco Pre-Routing and Post-Routing; Customer Profile Routing (CPR)</li> <li>CTI, Web collaboration, E-mail management, IVR integration</li> <li>Inbound and outbound campaign management</li> <li>Enterprise reporting</li> <li>Distributed fault tolerance</li> <li>Multi-carrier, multi-vendor capabilities</li> </ul>	4-32
<b>Cisco IP IVR</b>	<ul style="list-style-type: none"> <li>Provides a feature-rich foundation for the creation of an IP-based interactive voice response (IVR) system that is open and expandable.</li> <li>Provides an IP-empowered application-generation environment for self service and call treatment solutions</li> <li>Offers Web-based activation and administration</li> <li>HTML, XML, ODBC, JDBC integrations supported</li> <li>Interoperates with automatic speech recognition (ASR) and text to speech (TTS)</li> <li>Extendable through custom Java steps</li> </ul>	4-33
<b>Cisco Customer Voice Portal</b>	<ul style="list-style-type: none"> <li>Offers a Web-based prompt, collect, queuing, and call control service, using standard Internet technologies</li> <li>Offers a Web-based, self-service IVR option enabling customers to: pay a bill, order products and track delivery, locate a dealer, schedule a pickup, change name and address information, make travel arrangements, check payment status, receive notification of unusual activity, or request literature or product information</li> <li>Supports ASR and TTS</li> <li>Integrates fully with both traditional TDM and IP-based contact centers</li> </ul>	4-33
<b>Bundles</b>		
<b>Cisco Voice Bundles<sup>2</sup></b>	Cisco 1760, 2600, 2800, 3700, and 3800 Voice Bundles for handling toll bypass applications or PSTN/PBX to IP Connectivity for Cisco CallManager deployments.	4-34
<b>Cisco CallManager Express Bundles<sup>2</sup></b>	Cisco 1760, 2600, 2800, 3700, and 3800 Cisco CallManager Express Bundles for customers wanting a complete all in one router IP Telephony Solution for the Small Office or Enterprise Branch location.	4-34
<b>Cisco Survivable Remote Site (SRST) Bundles<sup>2</sup></b>	Cisco 1760, 2600, 2800, 3700, and 3800 Voice Bundles for customers' branch locations where they need data connectivity plus local PSTN call handling with a centralized Cisco CallManager deployment.	4-35
<b>Cisco V3PN Bundles<sup>2</sup></b>	Cisco 1760, 2800 and 3800 Voice Bundles for remote branch locations needing VPN and IP Telephony using Cisco CallManager Express or SRST with centralized Cisco CallManager Express deployment.	4-36

1. Cisco's full line of multiservice routers also provide analog and digital voice gateway functionality through use of network modules and voice interface cards. Please see the 1700, 2600XM, 3600, 7200, 5x00 series in Chapter 1—Routers, as well as Chapter 7—Access Products.
2. Bundles provide a discount compare to ordering the parts individually. With each bundle, the customer needs to choose the country explicit PSTN module required plus any additional features or modules for the applications.

## Cisco CallManager 4.1

Cisco CallManager Version 4.1 provides a secure, scalable, distributable, and highly available enterprise IP telephony call-processing solution. Multiple Cisco CallManager servers are clustered and managed as a single entity. Clustering multiple call-processing servers on an IP network is a unique capability in the industry, and highlights the leading architecture provided by Cisco AVVID. Cisco CallManager clustering yields scalability of from 1 to 30,000 IP phones per cluster, load balancing, and call-processing service redundancy. By interlinking multiple clusters, system capacity can be increased up to one million users in a 100+ site system. Clustering aggregates the power of multiple, distributed Cisco CallManagers, enhancing the scalability and accessibility of the servers to phones, gateways, and applications. Triple call-processing server redundancy improves overall system availability.

The benefit of this distributed architecture is improved system availability, load balancing, and scalability. Call Admission Control (CAC) helps ensure that voice QoS is maintained across constricted WAN links, and automatically diverts calls to alternate public switched telephone network (PSTN) routes when WAN bandwidth is not available.

Cisco CallManager 4.1 has the ability to verify identity of the devices or servers that they communicate with, ensure the integrity of data they are receiving, and provide privacy of communications via encryption. The devices that can participate in secure communications now includes the Cisco IP Phone 7940G, IP Phone 7960G, IP Phone 7970G, and Media Gateway Control Protocol (MGCP) gateways.

Enhancements to the CallManager APIs (AXL, JTAPI, TSP) provide customers and 3rd party vendors increased ability to develop improved applications that can be integrated with CallManager and IP Phones.

### Key Features

- Supplementary and enhanced services such as hold, transfer, forward, conference, multiple line appearances, automatic route selection, speed dial, last-number redial, and other features are extended to IP phones and gateways
- Capabilities enhancements are achieved through software upgradeability, avoiding expensive hardware costs traditional to legacy PBX systems
- Cisco CallManager Attendant Console—This Web-enabled application supports the traditional role of a manual attendant console and allows the attendant to quickly accept and dispatch calls to enterprise users. An integrated directory service provides traditional busy lamp field (BLF) and direct station select (DSS) functions for any line in the system. It monitors the state of every line in the system without requiring hardware-based line monitoring devices, thereby saving costs
- Software-only applications such as the Cisco Interactive Voice Response system, Cisco IP Contact Center, Cisco Automated Attendant, and Cisco SoftPhone are applications that interact with the CallManager through telephony APIs
- Video telephony gives users the ability to place video calls using traditional telephony features such as hold, resume, park, transfer, conference; Provides a common dial plan and administration between voice and video
- Comprehensive and wide range of security features; Encryption and Authentication are available across the most widely used Cisco IP phones and gateways; Secure system and user administration

- Call coverage/call routing features allow calls to be routed based on time of day, source of call and destination of call to handle the complex routing requirements of many of our customers
- By supporting a wide set of Q.SIG features, installable along with a TDM based PBX to allow peaceful co-existence and migration to an all IP environment while delivering some of the key features needed between the TDM PBX and CallManager; Path replacement and call completion allow integrating with other Q.SIG compatible systems; H.323 Annex M.1 support gives users improved feature transparency between CallManager clusters

## Specifications

Feature	Cisco CallManager 4.1 <sup>1</sup>
Platforms	Media Convergence Server (MCS); Selected third-party servers
Pre-Installed Software	Auto attendant Bulk Administration Tool (BAT) CDR Analysis and Reporting (CAR) tool Cisco Attendant Console Cisco CallManager Administration software Cisco CallManager version 4.1 (call processing and call-control application) Cisco CallManager version 4.1 configuration database (contains system and device configuration information, including dial plan) Cisco Conference Bridge Cisco Customer Directory Configuration Plugin Cisco Dialed Number Analyzer—Serviceability tool that analyzes the dialing plan for specific numbers. Cisco IP Manager Assistant (IPMA) Cisco IP Phone Address Book Synchronizer Cisco IP Telephony Locale Installer Cisco JTAPI Cisco TAPS Cisco Telephony Service Provider Real Time Monitoring Tool RTMT
Sample Subset of System Capabilities	Anti-Virus checker certification Cisco IPS Host-Based Sensor certification Cisco Security Agent (CSA) bundled with CallManager. Data integrity with TLS cipher “NULL-SHA” Device Authentication with X.509v3 certificates. Distributed Call Processing Encryption of signaling and media on many Cisco IP endpoints and gateways. Forced Authorization Codes/Client Matter Codes H.323 FastStart H.323 scalability improvements - 1,000 H.323 calls per CallManager server in cluster H.323 T.38 fax support Multi-level Precedence and Pre-emption (MLPP) Secure HTTPS support SIP trunk SRST

Feature	Cisco CallManager 4.1 <sup>1</sup>
Summary of Administrative Features	<p>Application discovery and registration to SNMP manager</p> <p>Automated Alternate Routing Groups</p> <p>AXL SOAP API with performance and real-time informationBulk Administration</p> <p>Call Back</p> <p>Call Detail Records (CDR)</p> <p>Call forward reason code delivery</p> <p>Centralized, replicated configuration database, distributed Web-based management viewers</p> <p>Configurable and default ringer WAV files per phone</p> <p>Configuration database API</p> <p>Database automated change notification</p> <p>Date/time display format configurable per phone</p> <p>Debug information to common syslog file</p> <p>Device addition through wizards</p> <p>Device downloadable feature upgrades—Phones, hardware transcoder resource, hardware conference bridge resource, VoIP gateway resource</p> <p>Device groups and pools for large system management</p> <p>Device mapping tool-IP address to MAC address</p> <p>Dialed Number Identification Service (DNIS)</p> <p>Dialed number translation table (inbound/outbound translation)</p> <p>Distinctive ring per line</p> <p>DHCP block IP assignment-phones and gateways</p> <p>Enhanced 911 service</p> <p>H.323-compliant interface to H.323 clients, gateways, and gatekeepers</p> <p>Individual line Call Waiting Alert Configuration</p> <p>Integration with Unity Voicemail</p> <p>JTAPI 1.2 computer telephony interface</p> <p>LDAP version 3 directory interface to selected vendor's LDAP directories</p> <ul style="list-style-type: none"> <li>• Active Directory</li> <li>• Netscape Directory Server</li> </ul> <p>Manager Assistant</p> <p>Mappable softkeys</p> <p>MGCP signaling and control to selected Cisco VoIP gateways</p> <p>Multilevel Administration Access (MLA)</p> <p>Native supplementary services support to Cisco H.323 gateways</p> <p>Network Specific Facilities Paperless phone DNIS-display driven button labels on phones</p> <p>Performance Monitor</p> <p>Performance monitoring SNMP statistics from applications to SNMP manager or to operating system</p> <p>Q.SIG Support</p> <p>QoS statistics recorded per call</p> <p>Redirected DNIS (RDNIS), inbound, outbound (to H.323 devices)</p> <p>Select specified line appearance to ring; Select specified phone to ring</p> <p>Single CDR per cluster</p> <p>Single point system/device configuration</p> <p>Sortable component inventory list by device, user, or line</p> <p>System event reporting-to common syslog or operating system event viewer</p> <p>TAPI 2.1 computer telephony interface</p> <p>Time-zone configurable per phone</p> <p>Toll Fraud prevention</p> <p>Video telephony</p> <p>XML API into IP phones (794X/6X)</p> <p>Zero cost automated phone moves; Zero cost phone adds</p>



<b>Feature</b>	<b>Cisco CallManager 4.1<sup>1</sup></b>
<b>Summary of User Features</b>	Abbreviated Dialing or speed dials Answer/answer release Auto-answer/intercom Barge Call back Call connection Call coverage Call forward-all (off-net/on-net); Call forward-busy; Call forward-no answer Call hold/retrieve Call Join Call park/pickup; Call pickup group-universal Call status per line (state, duration, number) Call waiting/retrieve Calling Line Identification (CLID); Calling party name identification (CNID) Calling Line Identification Restriction (CLIR) Direct inward dial (DID; Direct outward dial (DOD) Direct Transfer Directories-missed, placed, received calls list stored on selected IP phones Directory dial from phone-corporate, 2personal Distinctive ring (on-net vs. off-net); Distinctive ring per phone Drop last conference party (ad-hoc conferences) Extension Mobility Extension mobility support H.264 video Codec support Hands-free, full-duplex speakerphone HTML help access from phone Immediate Divert to voicemail Last number redial (off-net/on-net) List and drop conference participate Manager-assistant service (IPMA application) Message waiting indication Multiparty conference-Ad-hoc with add-on, Meet-me Multiple line appearances per phone Music-on-hold Mute capability from speakerphone and handset On-hook dialing Operator attendant-Web-browser interface, loop key notification, logon/logoff, busy/available, left/right hand access, headphone access, busy lamp field, direct station select, drag and drop transfer, call status (state, duration, and number) Privacy Real-time QoS statistics through http browse to phone Recent dial list-calls to phone, calls from phone, auto-dial, and edit dial Service URL—Single button access to IP phone service Single button data collaboration on SoftPhone-chat, whiteboard, and app sharing Single directory number, multiple phones-bridged line appearances Speed dial-multiple speed dials per phone Station volume controls (audio, ringer) Transfer-with consultation hold User-configured speed dial and call forward through Web access Video support for continuous presence Video support of H.323 endpoints, gateways, and MCUs Video Telephony VT Advantage with mid call invocation. Web services access from phone Wideband audio codec support—proprietary 16-bit resolution, 16 kHz sampling rate codec One touch call pickup Other group Pickup Complete transfer by going on hook.

1. Additional RAM may be required in Media Convergence Servers to support existing and enhanced services in Cisco CallManager 4.1

## For More Information

See the Cisco CallManager Websites: <http://www.cisco.com/go/callmgr>

## Cisco CallManager Express

Cisco CallManager Express is a solution embedded in Cisco IOS Software that provides call processing for Cisco IP phones. This solution enables the large portfolio of Cisco multiservice access and new Integrated Services routers to deliver features similar to those of a key system or low-end private branch exchange (PBX), thereby enabling deployment of a cost-effective, highly reliable, IP Communications solution for the small office. Customers can now scale IP telephony to a small site or branch office for a deployment of up to 240 users.

### Key Features

- Cost-effective operations through a single, integrated voice-and-data platform for the Commercial Small Medium business or branch office needs
- Provides integrated IP telephony services for access and Integrated Services routers that allows customers to deploy one device in their office to address all their business needs, simplifying management, maintenance, and operations, and delivering a lower total cost of ownership (TCO)
- Robust set of key system and low-end PBX capabilities—Delivers a robust set of telephony features for the small office, and delivers unique value-added capabilities through XML that enhance the productivity of the end user and of the business, and that cannot be delivered by traditional solutions
- Investment protection and ease of upgrade to centralized call-processing solutions—Simple software upgrade capabilities
- Remote maintenance and troubleshooting using Cisco IOS Software command-line interface (CLI) or Web-based GUI—Acts as a standalone call-processing engine for IP phones located in the branch office

### Specifications

Feature	Cisco CallManager Express
Platform	Cisco IAD2400, 1751, 1760, 2600XM, 2691, 2800, 3700, and 3800 Series Routers.
Phone supported	Cisco 7971G-GE, 7970G, 7960G 7940G, 7936, 7912G, 7905G, 7902G, 7910G-SW, 7920, Expansion Module 7914, ATA, VG 224
IOS Images	Cisco Call Manager Express 3.2 supported with 12.3(11)T or 12.4(1)

### Selected Part Numbers and Ordering Information

Cisco CCME Router Bundles	
CISCO1760-V-CCME	1760 Router, 32MB Flash, 96MB DRAM, PVDM-256K-4, FL-CCME-SMALL (24 users), IOS IP Voice Feature Set
CISCO-2611XM-V-CCME	2611XM router, 32 MB Flash, 128 MB DRAM, NM-HD-2V (for 8 calls), FL-CCME-MEDIUM (48 users), Cisco IOS SP Services Voice
CISCO2651XM-V-CCME	2651 Router, 32MB Flash, 128MB DRAM, AIM-VOICE-30 (DSP for 30 calls), FL-CCME-MEDIUM (48 users), IOS SP Services .
CISCO3845-CCME/K9	Cisco 3845 Voice Bundle with IOS SP Services, PVDM2-64, FL-CCME (240 users), 64 MB Flash/256 MB DRAM
CISCO3825-CCME/K9	Cisco 3825 Voice Bundle with IOS SP Services, PVDM2-64, FL-CCME (168 users), 64 MB Flash/256 MB DRAM
CISCO2851-CCME/K9	Cisco 2851 Voice Bundle with IOS SP Services, PVDM2-48, FL-CCME (72/96 <sup>1</sup> users), 64 MB Flash/256 MB DRAM
CISCO2821-CCME/K9	Cisco 2821 Voice Bundle with IOS SP Services, PVDM2-32, FL-CCME (48 users), 64 MB Flash/256 MB DRAM
CISCO2811-CCME/K9	Cisco 2811 Voice Bundle with IOS SP Services, PVDM2-16, FL-CCME (36 users), 64 MB Flash/256 MB DRAM
CISCO2801-CCME/K9	Cisco 2801 Voice Bundle with IOS SP Services, PVDM2-8,FL-CCME (24 users), 64 MB Flash/256 MB DRAM

1. Available with IOS Version 12.3(11)T release

### For More Information

See the Cisco CallManager Express Website: <http://www.cisco.com/go/ccme>

## Cisco Survivable Remote Site Telephony (SRST)

Cisco SRST provides key backup telephony functions at remote branch office if connectivity to the centrally-located Cisco CallManager fails (i.e. WAN link is interrupted). During WAN outage the Cisco SRST-enabled router will provide robust telephony services (including off-net calls to 911). It is ideal for enterprise organizations looking to cost-effectively deploy IP telephony in their branch office location. SRST v3.2 with 12.3(11)T is available on Cisco 1760V, 2600XM, 2691, 2800, 3700, and 3800 series of routers and with the Cisco Catalyst 6500 with the Cisco Communications Media Module (CMM). The Cisco 7200 also supports previous versions of SRST.

### Key Features

- Business resiliency through redundant, localized call processing with intelligent and automatic failover configuration—no manual IT or telecom intervention required
- SRST 3.2 features—Support for all Cisco IP Phones, 24 to 720 phones supported per platform; RFC2833 support for SCCP-SIP (vmail) DTMF conversion during SRST; External MOH from live feed; Option to disable H225 TCP keep alive timer to maintain calls during WAN failure (new with 12.3(7)T)
- All common PSTN Interfaces/protocols supported. Support for both internal and external calling during failover with calls maintained during failover and fall back.
- Voice Mail Support during WAN outage with local Cisco Unity Express or Centralized Cisco Unity via PSTN

### Selected Part Numbers and Ordering Information

#### SRST 3.2 Platform Density and Feature License Part Numbers

Platform	Number of Phones Supported	Part Number	Part Number (Spare)
Cisco 1751V, 1760V, 2801	Up to 24 phones	FL-SRST-SMALL	FL-SRST-SMALL=
Cisco 261x-XM, 262x-XM, 2811	Up to 36 phones	FL-SRST-36	FL-SRST-36=
Cisco 265xXM, 2821	Up to 48 phones	FL-SRST-MEDIUM	FL-SRST-MEDIUM=
Cisco 2691	Up to 72 phones	FL-SRST-SMALL and FL-SRST-MEDIUM	FL-SRST-SMALL= and FL-SRST-MEDIUM=
Cisco 2851	Up to 96 phones	FL-SRST-96	FL-SRST-96=
Cisco 3725	Up to 144 phones	FL-SRST-144	FL-SRST-144=
Cisco, 3745, 7200 NPE300/400	Up to 240 phones	FL-SRST-240	FL-SRST-240=
Cisco 3825	Up to 336 phones	FL-SRST-336	FL-SRST-336 =
Cisco 7200NPE400/G1	Up to 480 phones	FL-SRST-480	FL-SRST-480=
Cisco 3845	Up to 720 phones	FL-SRST-720	FL-SRST-720=

#### SRST bundles

CISCO2801-SRST/K9	Feature License FL-SRST-SMALL: 8 G.711 channels of DSPs included
CISCO2811-SRST/K9	Feature License FL-SRST-36: 16 G.711 channels of DSPs included
CISCO2821-SRST/K9	Feature License FL-SRST-MEDIUM: 32 G.711 channels of DSPs included
CISCO2851-SRST/K9	Feature License FL-SRST-96: 48 G.711 channels of DSPs included
CISCO3825-SRST/K9	Feature License FL-SRST-168: 64 G.711 channels of DSPs included
CISCO3845-SRST/K9	Feature License FL-SRST-240: 64 G.711 channels of DSPs included
CISCO1760-V-SRST	Feature License FL-SRST-SMALL: 4 G.711 channels of DSPs included
CISCO2651XM-V-SRST	Feature License FL-SRST-MEDIUM: 30 G.711 channels of DSPs included

### For More Information

See the Cisco SRS Telephony Website: <http://www.cisco.com/go/srst>

## Cisco Unity—Unified Messaging and Voice Mail

Cisco Unity is a powerful Unified Communications server that provides advanced, convergence-based communication services and integrates them with the desktop applications business professionals use everyday, improving customer service and productivity. Designed for enterprise-scale organizations, Cisco Unity delivers unified messaging that gives subscribers the ability to access and manage messages and calls from anywhere, at any time, regardless of device or media type. Subscribers can listen to e-mail over the telephone, check voice messages from the Internet, and if a fax server is present, forward faxes to any local fax machine. Cisco Unity’s optional digital networking module enables connectivity to other Cisco Unity servers at the same site via the LAN or remotely via WAN.

Cisco Unity supports both Cisco CallManager and leading legacy telephone systems—even simultaneously—to help smooth the transition to IP telephony and protect existing infrastructure investments. Built on a scalable platform, it uses streaming media and an intuitive HTML browser-style system administration interface.

### Key Features

- Architecture allows IT staff to set one back-up procedure, one message storage policy, and one security policy
- Enhanced scalability allows up to 72 ports per server; up to 7,500 subscribers per server; or a total of 250,000 users in an Exchange environment or 100,000 users in a Domino environment up
- Support for Exchange 2000/Active Directory as the single message store and directory
- AMIS-A and VPIM interoperability for legacy voicemail system interoperability
- Integration with many legacy PBX switches using analog, serial or digital set emulations
- Enhanced networking for large deployments
- Support for multiple CCM clusters; ability to light Message Waiting Indicators
- With Exchange/Domino off-line, utilizes pre-MTA queue to take messages and give basic message access; Support for Lotus Domino as the single message store
- Fault-tolerant system tools—robust security, file replication, and event logging
- Scalable, high-availability hardware platforms—Server options with multiple processors, redundant fans, redundant power supplies and RAID hard disk drives
- Support for Windows 2000 and Windows 2003 operating systems
- Unity Inbox/VMI (Visual Messaging Interface) is an Internet Explorer-based voice mail inbox providing unified messaging
- IMAP-based message interface to provide basic desktop message access
- Unity Bridge provides advanced message interchange functionality with legacy Avaya/Octel voice mail systems—unlocking proprietary networking to deliver open standards-based IP migration

### Specifications

Feature	Cisco Unity 4.0
Unity Voice Mail (VM) and Unified Messaging (UM) Possible Configurations	16, 32 and Max sessions Configured for CallManager or configured for legacy PBX/dual integration <sup>1</sup>
Options	Voice Mail; Voice Mail with Multi-lingual option; Unified Messaging with TTS option Unified Messaging with Multi-lingual option; Exchange or Domino; AMIS for Exchange; VPIM for Exchange; Unity Inbox/Visual Messaging Interface; Failover for Exchange; Unity Bridge for Exchange

1. Contact your Cisco Software Sales Representative for integration information.

**Selected Part Numbers and Ordering Information<sup>1</sup>****Cisco Unity Servers**

MCS-7815-I1-ECS1	MCS 7815 tower; Unity and Unity Bridge; 1GB; Win2K
MCS-7825-I1-ECS1	MCS 7825-IBM rack; 1GB RAM; sATA RAID; Win2K
MCS-7825-H1-ECS1	MCS 7825-HP rack; 1GB RAM; sATA RAID; Win2K
MCS-7835-I1-ECS1	MCS 7835-IBM; rack; 2GB; RAID 1; Win2K
MCS-7835-H1-ECS1	MCS 7835-HP; rack; 2GB; RAID 1; Win2K
MCS-7845-I1-ECS1	MCS 7845-IBM; VM-6HDD; rack; 4GB; RAID 1(x3) DUAL CPU; Win2K
MCS-7845-I1-ECS2	MCS 7845-IBM; UM-4HDD; rack; 4GB; RAID 1(x2) DUAL CPU; Win2K
MCS-7845-H1-ECS1	MCS 7845-HP; VM-6HDD; rack; 4GB; RAID 1(x3) DUAL CPU; Win2K
MCS-7845-H1-ECS2	MCS 7845-HP; UM-4HDD; rack; 4GB; RAID 1(x2) DUAL CPU; Win2K
UNITY-MCS-ML-DAT=	Hot-Swap tape drive for MCS-7835H and MCS-7845H
DAT-7835-I1	Hot swap IBM DAT tape drive for MCS-7835-I1
DAT-7845-I1	Hot swap IBM DAT tape drive for MCS-7845-I1
MCS-EXT-DAT	External DAT tape drive for MCS servers
MCS-EXT-SDLT	External SDLT drive for MCS servers
MCS-EXT-SCSI	SCSI card option for external DAT drive
UNITY-EXP-CHAS=	Expansion chassis

**Cisco Unity 4.0 Unified Messaging and Voicemail Software**

UNITYU4-50USR-E=	Unity UM Exchange, 50 users, 16 session, 2 TTS
UNITYU4-100USR-E=	Unity UM Exchange, 100 users, 16 session, 2 TTS
UNITYU4-200USR-E=	Unity UM Exchange, 200 users, 16 session, 2 TTS
UNITYU4-300USR-E=	Unity UM Exchange, 300 users, 16 session, 2 TTS
UNITYV4-50USR=	Unity VM, 50 users, 16 sessions
UNITYV4-100USR=	Unity VM, 100 users, 16 sessions
UNITYV4-200USR=	Unity VM, 200 users, 16 sessions
UNITYV4-300USR=	Unity VM, 300 users, 16 sessions
UNITY-DVD-4.0=	UNITY 4.0 DVD set
UNITY-CD-4.0=	UNITY 4.0 CD set

**Cisco Unity Integrations**

UNITY-D/41U-LS	D/41 Universal PCI - US/CANADA
UNITY-D/41U-EU	D/41 Universal PCI - Europe, Aus, NZ
UNITY-D/120U-LS	D/120JCT Universal PCI rev 2 - US/CANADA
UNITY-D/120U-EU	D/120JCT Universal PCI Euro - Europe, Aus, NZ
UNITY-PBXLINK-1	PBXLink, 4-24 ports for Lucent; 4-20 ports for Nortel
UNITY-PBXLINK-2	PBXLink, 4-40 ports for Lucent; 4-48 ports for Nortel
UNITY-PIMG-DIG	PBX IP Media gateway for digital integrations

**Cisco Unity Bridge**

UNITY-BRIDGE-3.0	Unity Bridge 3.0, requires Unity 4.0.3 or later
UNITY-BRIDGE-2.1	Unity Bridge 2.1, requires Unity 4.0.2 or earlier

1. This is only a small subset of all parts available via URL listed under "For More Information." Some parts have restricted access or are not available through distribution channels.

**For More Information**

See the Cisco Unity site: <http://www.cisco.com/go/unity>

**Cisco Unity Express**

Cisco Unity Express provides voice mail and automated attendant services specifically for the small and medium office or branch. It's application is delivered on either a network module or advanced integration module which are supported on a variety of Cisco access router platforms and the Cisco Integrated Services Router family.

In a Cisco CallManager environment, Cisco Unity Express provides local storage and processing of voice mail and automated attendant services for the branch office, thereby alleviating WAN bandwidth and QoS concerns. Cisco CallManager Express and Unity Express combine to create the Cisco IP Communications Express solution which provides voice, data, and telephony management services integrated on a single, router-based platform.

Key Features

- Cost-effective operations through a single, integrated voice-and-data platform for all small and medium office or branch needs
- Boosts the professionalism, productivity and customer service available to the small and medium office through built-in automated attendant and voice mail capabilities; Customizable automated attendant to support business hours, day-of-week treatment and multi-level, nested automated attendant menus with up to 5 separate automated attendants per system
- Both standard and advanced voice mail features such as remote message access, save and delete, forward, pause, fast forward or rewind messages, alternate greetings, zero-out to designated alternate phone number or extension, per user storage allocation, plus much, much more
- Support for VPIMv2 for voice mail message exchange with other Cisco Unity or Unity Express systems.
- Remote maintenance and troubleshooting using Cisco CLI or Web-based GUI

Specifications

Feature	Cisco Unity Express
Hardware	NM-CUE, NM-CUE-EC, or AIM-CUE, fully self-contained modules with onboard storage, memory and processing supporting a variety of mailbox densities, storage capacities and concurrent sessions to meet the needs of every small and medium office or branch
Software	Cisco Unity Express release 1.1.2/2.1.2 and Cisco IOS 12.3.4T for NM-CUE, Cisco IOS 12.3.11T for NM-CUE-EC, Cisco IOS 12.3.8T for the AIM-CUE
Platform Supported	Cisco 2600XM, 2691,3700 Series Multi-Service Routers and Cisco 2800, 3800 Integrated Services Routers

For More Information

See the Cisco Unity Express Website: <http://www.cisco.com/go/ccmecue>

Cisco IP Contact Center (IPCC) Enterprise Edition

Cisco IPCC Enterprise Edition delivers skills-based contact routing, voice self-service, computer telephony integration (CTI), and multichannel contact management over an IP infrastructure. By combining multichannel automatic-call-distributor (ACD) functions with IP telephony in a unified solution, it helps enable companies to rapidly deploy a distributed contact center infrastructure.

Cisco IPCC Enterprise Edition segments customers, monitors resource availability, and delivers each contact to the most appropriate resource anywhere in the enterprise. The software profiles each customer contact using related data such as dialed number and calling line ID, caller-entered digits, data submitted on a Web form, and information obtained from a customer database lookup. This combination of customer and contact center data is processed through user-defined routing scripts that graphically reflect a company's business rules.

Key Features

- Full Scalability from less than a hundred to thousands of seats; Multi-site Contact Centers support; CRM Integration
- Carrier-class, distributed fault tolerance helps ensure uninterrupted operation
- Multi-channel interaction—Web collaboration with chat and callback, email, voice mail and fax routing
- Cradle-to-grave contact call detail records
- Common agent and supervisor desktops across all Cisco customer interaction management products

- Pre-defined and custom historical reports; Real-time reports integrated in the agent and supervisor desktops
- Support for custom call treatment for calls in queue includes support for music in queue and custom messaging; Standard screen pop allows any caller-entered information to be popped to the agent
- Support for agent/supervisor interaction via chat; pre-define agent-supervisor messages

### **Selected Part Numbers and Ordering Information<sup>1</sup>**

#### **Cisco IP Contact Center**

IPCE-Bundle	Requires the purchase of one IPCC Server license. This license entitles the user to deploy the following necessary components: (redundant) Router; (redundant) Logger; (redundant) CallManager Peripheral Gateway(s); (redundant) IVR Peripheral Gateway(s) for connection to Cisco IVR systems ISN and IP-IVR (Non-Cisco IVRs require Third part IVR port licenses); Administrative Workstation(s); Historical Database server(s); WebView server and WebView user connections; Internet Script Editor (ISE) server and ISE user connections; Application Gateways; (redundant) CTI Server for 3rd party CTI connections (only for non-agent desktop application)
IPCE-SVR	IPCC ENTERPRISE SERVER LICENSE

1. This is only a small subset of all parts available via URL listed under "For More Information." Some parts have restricted access or are not available through distribution channels.

### **For More Information**

See the Cisco IPCC Enterprise Edition Website: <http://www.cisco.com/go/ipcc>

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## **Cisco IPCC Express Edition**

Cisco IPCC Express Edition provides easy-to-deploy, easy-to-use, highly available, and sophisticated customer interaction management for 1 to 300 agents by supporting a highly available virtual contact center with integrated self-service applications across multiple sites secured with CSA. All Cisco IPCC Express Edition solutions are tightly integrated with Cisco AVVID and Cisco CallManager.

### **Key Features<sup>1</sup>**

- Reduces business costs while improving customer response by providing sophisticated and distributed ACD, IVR, CTI, and agent/desktop services
- Browser-based administration; integrates with Cisco CallManager browser-based administration
- Cradle-to-grave contact call detail records
- Standard screen allows any caller-entered information to be popped to the agent
- Pre-defined or custom historical reports; Real-time reports within the agent and supervisor desktops
- Full support for agent/supervisor interaction via chat and to pre-define messages
- Full IP call queue points and prompt; Collect voice interaction capabilities
- Optional ASR and TTS capabilities
- Support for custom call treatment such as music for calls in queue

### **Selected Part Numbers and Ordering Information<sup>1</sup>**

#### **Cisco IPCC Express Edition**

IPCX-3.Y-STANDARD	PCX 3.5 or later 3.Y Standard All-in-One (Servers & SW)
IPCX-3.Y-ENHANCED	PCX 3.5 or later 3.Y Enhanced All-in-One (Servers & SW)
IPCX-3.Y-PREMIUM	PCX 3.5 or later 3.Y Premium All-in-One (Servers & SW)

1. This is only a small subset of all parts available via URL listed under "For More Information." Some parts have restricted access or are not available through distribution channels.

### **For More Information**

See the Cisco IPCC Express Edition Website: <http://www.cisco.com/go/icd>

#### **1. Abbreviated list of IPCC Features**

## Cisco IPCC Hosted Edition

The Cisco IPCC Hosted Edition is suitable for both enterprise customers and service providers. For service providers, it creates a new, high-margin service revenue stream for incumbent providers as well as new service carriers. The service provider hosts the contact center infrastructure software—which is shared by multiple business customers—in its central office or data center. Subscribing business customers can have IP infrastructures, TDM infrastructures, or a combination of the two. For the enterprise customer with multiple branch offices or divisions the value is a centralized contact center infrastructure with the ability to offer services to its various divisions or satellite offices. The solution includes a suite of integrated services that can be introduced all at once or incrementally.

### Key Features

- Virtual call center—Calls are routed to contact center agents independent of their location, a service especially appealing to businesses with branch offices or home agents
- Network routing with CTI-Network-based ACD is combined with CTI services
- Network IVR functionality is located in the network to provide information to callers or to collect information from callers before they speak with a live agent
- Calls are routed between contact centers based on call context information (dialed number and caller ID), agent availability, and customer information from databases

### Selected Part Numbers and Ordering Information<sup>1</sup>

#### Cisco IPCC Hosted Edition IPCH-BUNDLE

The IPCC Hosted Edition bundle consists of two separately licensed sets of components: The Base licenses for the shared infrastructure, such as the NAM, the network interfaces, shared network IVRs, CICMs and Hosted IPCC Agent licenses; (redundant) Router; (redundant) Logger; (redundant) CallManager Peripheral Gateway(s); (redundant) IVR Peripheral Gateway(s) for connection to Cisco IVR systems ISN and IP-IVR (Non-Cisco IVRs require Third party IVR port licenses); Administrative Workstation(s); Historical Database server(s); WebView server and WebView user connections; Internet Script Editor (ISE) server and ISE user connections; Application Gateways; (redundant) CTI Server for 3rd party CTI connections (only for non-agent desktop application)

1. This is only a small subset of all parts available via URL listed under “For More Information.” Some parts have restricted access or are not available through distribution channels.

### For More Information

See the Cisco IPCC Enterprise Edition Website: <http://www.cisco.com/go/ipcchosted>

## Cisco 7900 Series IP Phones

Cisco IP Phones provide unmatched levels of integrated business functionality and converged. The Cisco IP Phone 7971G-GE offers a Gigabit Ethernet port for integration to a PC or desktop server. The Cisco IP Phone 7970G includes a color, high-resolution backlit touch-screen display. The Cisco IP Phone 7960G “manager set” addresses the communication needs for a high or busy amount of phone traffic. The Cisco IP Phone 7940G “business set” addresses the communication needs for medium to high telephone traffic. The Cisco IP Phone 7912G, and 7905G “basic sets” address the communication needs for low to medium telephone traffic. The Cisco IP Phone 7902G “entry set” addresses voice communication needs where only a minimal amount of features are required. The Cisco IP Phone Expansion Module 7914 provides additional buttons and LCD to the 7960G, increasing the total number of buttons to 20 with one module, or 34 with two modules. The Cisco IP Conference Station 7936, a high-quality hands-free conference station, is designed for use on desktops and offices and in small to medium-sized conference rooms.





## Key Features

- Dynamic soft keys present calling options based on context
- Open APIs using XML to deliver applications to the display
- Automatic phone discovery, VLAN configuration, and registration
- QoS is provided via support of 802.1Q/p, in addition to configurable DIFFSERV and TOS
- Voice-activity detection, silence suppression, comfort-noise generation, and error concealment
- G.711a, G.711u, G.729ab audio-compression coder-decoders (codecs); Software upgrade support via Trivial File Transfer Protocol (TFTP) server
- Microsoft NetMeeting enabled—application sharing and video conferencing
- Integrated Ethernet Switch supporting Ethernet connectivity for a downstream PC
- Integrated Inline power support allows the phone to receive power over the LAN
- A hearing-aid-compatible handset

## Specifications

Feature	7960G	7970G	7971G-GE	7914 Expansion IP Conference Module	Station 7936
Display	Pixel-Based	Pixel-based	Pixel-based	Pixel-based	Pixel-Based
Dynamic Soft Keys	4	8	8	N/A	3
Inline Power	Yes	Yes	IEEE power only	Yes	No
10/100Base-T Ethernet Switch	Yes	Yes	No, 10/100/1000 switch	N/A	No
Lines	6	8	8	14	1
Speaker Phone	Yes	Yes	Yes	N/A	Yes
Headset Jack	Yes	Yes	Yes	N/A	No
3rd Party XML Applications	Yes	Yes	Yes	N/A	No

Feature	7902G	7905G	7912G	7940G
Display	None	Pixel-Based	Pixel-based	Pixel-Based
Dynamic Soft Keys	0	4	4	4
Inline Power	Yes	Yes	Yes	Yes
10/100Base-T Ethernet Switch	No	No	Yes	Yes
Lines	1	1	1	2
Speaker Phone	No	Monitor Only	Monitor Only	Yes
Headset Jack	No	No	No	Yes
3rd Party XML Applications	No	Yes	Yes	Yes

## Selected Part Numbers and Ordering Information<sup>1</sup>

### Cisco 7900 Series IP Power and Phones

CP-7971G-GE	Cisco IP Phone 7971G-GE, Executive Set w/GigE Switch
CP-7970G	Cisco IP Phone 7970G, Executive Set
CP-7960G	Cisco IP Phone 7960G, Manager Set
CP-7940G	Cisco IP Phone 7940G, Business Set
CP-7912G-A	Cisco IP Phone 7912G, Basic Set w/ Switch
CP-7905G	Cisco IP Phone 7905G, Basic Set
CP-7902G	Cisco IP Phone 7902G, Entry Set
CP-7936	Cisco IP Conference Station
CP-7914=	Cisco 7914 IP Phone Expansion Module for the 7960 IP Phone
CP-SINGLFOOTSTAND=	Single module footstand
CP-DOUBLFOOTSTAND=	Double module footstand
CP-WALLMOUNTKIT=	Non-Locking Wall Mount Kit for 7910/40/60G series IP phones
CP-LCKNGWALLMOUNT=	Locking Wallmount Kit for the 7910/40/60G series IP phones
CP-LCKNGWALLMNT2=	Locking Wallmount Kit for all 7900 series IP phones
CP-PWR-CUBE=	IP Phone power transformer for 7900 series IP phones
WS-PWR-PANEL	Catalyst 48 port Inline Power Patch Panel

1. This is only a small subset of all parts.

## For More Information

See the Cisco IP Telephones Website: <http://www.cisco.com/go/iptel>

## Cisco ATA Series of Analog Telephone Adaptors

The Cisco ATA 186 and 188 Analog Telephone Adaptors bring analog telephones into the networked world. The Cisco ATA series of products address the low-end product portfolio need by targeting the enterprise, business local services, small-office environment and the emerging managed voice services market. These cost effective handset-to-Ethernet adaptors enable analog devices, such as phones and fax machines, to support voice-over-IP (VoIP) services. The Cisco ATA 186 is equipped with, and a single RJ-45 Ethernet port. The Cisco ATA 188 has two RJ-11 voice ports and two RJ-45 ports. The internal Ethernet switch allows for a direct connection to a 10/100BASE-T Ethernet network and connectivity to a co-located PC or other Ethernet-based device via the RJ-45 ports.



Both models ship with a bootload image and must be upgraded to a signaling firmware image available on Cisco.com before deployment. Cisco ATAs can be configured<sup>1</sup> to use the standards-based VoIP protocols SIP as well as Skinny Client Control Protocol (SCCP).

### When to Sell

#### Sell This Product

**Cisco ATA Series of Analog Telephone Adaptors**

#### When a Customer Needs These Features

- Enable analog devices, such as phones and fax machines, to support Voice over IP services by converting the analog signal into an IP signal
- Continue use of existing analog phones with IP network

### Key Features

- Auto-provisioning with Trivial FTP provisioning servers
- Automatic assignment of IP address, network route IP, and subnet mask via DHCP
- Optional web configuration through built-in Web server
- Optional touch-tone telephone keypad configuration with voice prompt
- Administration password to protect configuration and access
- Advanced pre-processing to optimize full-duplex voice compression
- High performance line-echo cancellation eliminates noise and echo
- Voice activity detection (VAD) and comfort noise generation (CNG) save bandwidth by delivering voice, not silence
- Dynamic network monitoring to reduce jitter artifacts such as packet loss

### Specifications

Feature	Cisco ATA 186	Cisco ATA 188
Telephone and network interfaces	2 RJ-11 FXS ports 1 RJ-45 interface for network connection	2 RJ-11 FXS ports 1 RJ-45 interface for network connection 1 RJ-45 "switch port" for connection to PC or another downstream Ethernet device Note: "Daisy chaining" multiple ATAs together through the second RJ45 port is not supported
Dimensions (H x W x D)	1.5 x 6.5 x 5.75 in. (3.8 x 16.5 x 14.6 cm)	1.5 x 6.5 x 5.75 in. (3.8 x 16.5 x 14.6 cm)
Weights	15 oz (425 gm)	15 oz (425 gm)
Voice-over-IP (VoIP) protocols	SIP (RFC 2543); SCCP	SIP (RFC 2543); SCCP

1. Two software image combinations are available on Cisco.com: H.323/SIP and MGCP/SCCP. MGCP/SCCP image includes the letters, ms, in its name.

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**Selected Part Numbers and Ordering Information<sup>1</sup>****Cisco ATA Series of Analog Telephone Adaptors**

ATA186-I1-A	Cisco ATA 186 2-port adaptor, 600 ohm impedance
ATA186-I2-A	Cisco ATA 186 2-port adaptor, complex impedance (270 ohm in series with 750 ohm and 150 nF in parallel)
ATA188-I1-A	Cisco ATA 188 2-port adaptor with switch, 600 ohm impedance
ATA188-I2-A	Cisco ATA 188 2-port adaptor with switch, complex impedance (270 ohm in series with 750 ohm and 150 nF in parallel)

**Cisco ATA Series of Analog Telephone Adaptors Power Supply Cables**

ATACAB-NA	ATA power supply cable for North American-style power systems
ATACAB-EU	ATA power supply cable for Continental European-style power systems
ATACAB-UK	ATA power supply cable for United Kingdom
ATACAB-AR	ATA power supply cable for Argentina
ATACAB-JP	ATA power supply cable for Japan
ATACAB-AU	ATA power supply cable for Australia

1. Some countries have telephone networks that list multiple impedance requirements. It is important to closely approximate the impedance of the typical handsets used in the region when selecting the proper configuration. The incorrect choice may lead to poor echo cancellation performance.

**For More Information**

See the Cisco ATA Series Website: <http://www.cisco.com/go/ata186> and <http://www.cisco.com/go/ata188>

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**Cisco IP Communicator**

Cisco IP Communicator is a software-based application that gives computers the capabilities and features of Cisco IP phones, providing high-quality voice calls and connection to company services while on the road, in the office, or from wherever users may have access to the corporate network. When used remotely, users have access to the same familiar phone services they have in the office. While registered to the Cisco CallManager call processing system, Cisco IP Communicator has the features and functionality of a full-featured Cisco IP Phone including the ability to transfer calls, forward calls, and conference additional participants to an existing call.

**Key Features**

- Easy to use—Feature parity with Cisco's advanced IP phones, IP phone services support (XML) to deliver company specific applications to the desktop, and auto-detection of Cisco VPN client
- Premium voice quality—Audio Tuning Wizard for setting audio levels properly, advanced jitter buffer and packet loss concealment algorithms, and echo suppression and noise cancellation
- Easy to manage—Unified administration with Cisco IP phones and automatic software upgrades; system administrators can provision as they would any other Cisco IP Phone

**Selected Part Numbers and Ordering Information****Cisco IP Communicator**

SW-IPCOMM-E1	Cisco IP Communicator Software
SW-CCM-UL-IPCOMM-E	Station User License for Cisco CallManager

**For More Information**

See the Cisco IP Communicator Website:  
<http://www.cisco.com/en/US/products/sw/voicesw/ps5475/index.html>

## Cisco VT Advantage

Cisco VT Advantage brings video telephony functionality to Cisco IP Phones, providing users with the ability to easily add video to their communications experience. It's software application and Cisco VT Camera, an included USB camera, allows a personal computer co-located with a Cisco IP Phone to add video to phone calls without requiring any extra button-pushing or mouse-clicking. When registered to Cisco CallManager, the Cisco VT Advantage-enabled IP Phone has the features and functionality of a full-featured IP video phone.

### Key Features

- Consistent user experience for voice and video—users to talk as they normally would on the phone with call features such as call forward, transfer, conference, hold, and mute are initiated through the phone while available video is viewed through the PC
- Provides ease of use, high-quality video, and more value at a lower cost
- Easy to manage—Unified administration with Cisco IP phones and automatic software upgrades

### Selected Part Numbers and Ordering Information

#### Cisco VT Advantage

CVT-ADV-E1=

Cisco VT Advantage (software and camera included)

### For More Information

See the Cisco VT Advantage Website:

<http://www.cisco.com/en/US/products/sw/voicesw/ps5662/index.html>

## Cisco Emergency Responder

Cisco Emergency Responder revolutionizes enterprise telephony support for E9-1-1 in North America, E1-1-2 in Europe, and other emergency telephone services across the globe. Traditional PBX E9-1-1 implementations in North America support “automatic location identification” of emergency callers through daily manual database update processes, which limit the frequency of location updates and increase the likelihood of update errors. The Cisco Emergency Responder software application works with Cisco CallManager to automatically track the location of Cisco IP phones in enterprise campuses, route emergency calls to an appropriate public safety answering point (PSAP), and provide the location of the caller to the Public Safety Answering Point (PSAP).

Cisco ER performs these functions without requiring tedious manual database updates after phone moves/adds/changes, which significantly reduces the time, headcount, and costs associated with traditional PBX E9-1-1 maintenance. While some vendors may automate location updates, they still require manual PBX configuration changes to trigger the updates. The Cisco ER solution, when coupled with the automated phone moves/adds/changes features in Cisco CallManager, is the first in the industry to completely automate the phone move process while maintaining E9-1-1 and location data integrity.

In addition, Cisco ER can use email/pager messaging, telephone calls, and auto-refreshing webpage updates to notify on-site security operations personnel and third-party agencies of emergency calls in progress.

## Key Features

- Meets and exceeds traditional E9-1-1 requirements
- Automates all user and phone moves, adds, and changes; Enables users and phones to move an unlimited number of times per day
- Avoids the expense and burden of daily PS-ALI record uploads
- Avoids daily error-prone documentation and database updates
- Enables quicker and more effective emergency response from onsite personnel and public agencies
- Provides configuration auditing to facilitate responsible change management and investigative or legal processes
- Provides call history logs for capacity planning, management of emergency call abuse, and incident documentation
- Compatible with any emergency number

## Specifications

Feature	Cisco Emergency Responder
<b>Supported Platform</b>	Cisco Media Convergence Server MCS-781511-IPC1, MCS-781511-IPC3, MCS-7825H-3.0-IPC1, MCS-78251-3.0-IPC1, MCS-7825-H1-IPC1, MCS-7825-11-IPC1, MCS-7835-H1-IPC1, MCS-7835-11-IPC1, MCS-7845-H1-IPC1, MCS-7845-11-IPC1
<b>System Capacity</b>	A single Cisco Emergency Responder server can (depending on server platform) support 30,000 phones, 120,000 Ethernet switch ports and 10,000 manually entered endpoints such as analog or proprietary phones or H.323 clients. Cisco recommends a second Emergency Responder server to form a fully redundant Cisco Emergency Responder Group with the same capacity and increased availability compared with a single Cisco Emergency Responder server. Larger campuses and distributed systems are supported via a network of Cisco Emergency Responder groups called a Cisco Emergency Responder Cluster.
<b>Configurable Elements</b>	
<b>Cisco CallManager</b>	Call routing and digit manipulation to forward user-initiated emergency calls and PSAP return calls to and from Cisco Emergency Responder as appropriate
<b>Cisco Emergency Responder</b>	System administration interface-for access to all configuration components or oversight of outsourced vendors LAN administration interface-for IT LAN group or an outsourced vendor Emergency Response Location (ERL) administration interface-for IT telecom group or an outsourced vendor
<b>Other Components</b>	Configure e-mail account on a SMTP Internet mail server for use by Cisco Emergency Responder Configure an email-to-pager gateway, or use an email paging service Configure a PS-ALI transfer application provided by the PS-ALI database service provider (often requires a dialup modem connection) Provision an E9-1-1 capable voice trunk (Centralized Automated Message Accounting [CAMA] or PRI through a local exchange carrier)
<b>Supported Switches<sup>1</sup></b>	Cisco Catalyst 2900 XL, 2950, 3500 XL, 3550, 3560, 3750, 4000, 4500, 5000, 5500, 6000, and 6500 Series switches. Cisco 3700 and 3800 series routers. (See the latest Release Notes for specific devices supported within each series.)

1. Check for updates on CCO, and following is list of tested switch platforms at time of printing

## Selected Part Numbers and Ordering Information<sup>1</sup>

### Cisco Emergency Responder

SW-CER1.2-SVR=	Cisco Emergency Responder software (MCS platforms) on CD, including 100 user licenses
KEY-CER1.2-100=	CER 1.2 user license for 100 phones
KEY-CER1.2-500=	CER 1.2 user license for 500 phones
KEY-CER1.2-1K=	CER 1.2 user license for 1,000 phones
KEY-CER1.2-5K=	CER 1.2 user license for 5,000 phones

1. Redundant user licenses are not required when ordering redundant CER servers for a single CER group.

## For More Information

See the Cisco Emergency Responder Website: <http://www.cisco.com/go/cer>

## Cisco IP Manager Assistant

Cisco IP Manager Assistant (IPMA) provides all the call-routing and display capabilities required in a business environment while giving users a choice of phone devices that better fit their needs. By combining a PC-based console application and various soft keys and display panes on Cisco IP phones, Cisco IPMA can present users job-specific tools to more efficiently manage calls in this important environment.

Cisco IPMA can be configured in either proxy-line mode or shared-line mode. In proxy-line mode, managers and assistants have different directory numbers or lines on their phones, but calls to managers are usually diverted to the assistant's line. In shared-line mode, both managers and assistants share the same directory number, but assistants can handle calls without disturbing managers.

### For More Information

See the Cisco IPMA Website: <http://www.cisco.com/go/ipma>

## Cisco MCS 7800 Series Media Convergence Servers

### Cisco MCS 7815-I1

- Provides an entry level tower server equipped with an Intel Pentium™ 4 3060MHz processor, 80GB Serial Attached ATA (SATA) hard drive and single non-hot-swap power supply



### Cisco MCS 7825-I1 and Cisco MCS 7825-I1

- Each provides an entry level rack mount server that occupies only one rack mounting space
- Equipped with an Intel Pentium™ 4 3.4GHz processor, two 80GB Serial Attached ATA (SATA) hard drives configured as RAID1 and a single non-hot-swap power supply

### Cisco MCS 7825I-3000

- Provides an entry level rack mount server that occupies only one rack mounting space.
- Equipped with an Intel Pentium™ 4 3060MHz processor, 80GB SATA hard drive and a single non-hot-swap power supply
- Not supported for Unity operation

### Cisco MCS 7835-I1 and Cisco MCS 7835-I1

- Each provides a highly available mid-level rack mounted server solution that is equipped with an Intel Nocona Xeon™ 3400MHz processor, up to six hot-swap small computer system interface (SCSI) hard disks, a Redundant Array of Independent Disks (RAID) 1/0 Controller, hot-swap redundant fans and redundant hot-swap power supplies.
- An optional tape backup is available (Tape on 7835-I1 only supported for Unity)

### Cisco MCS 7845-I1 and Cisco MCS 7845-I1

- Each provides a powerful and highly reliable high level rack mounted server solutions
- Equipped with two Intel Nocona Xeon™ 3400MHz processors, up to six hot-swap SCSI hard disks, RAID 1/0 controller, redundant hot-swap fans and redundant hot-swap power supplies
- An optional tape backup is available (Tape on 7845-I1 only supported for Unity)

## Specifications

MCS-7815-I1	MCS-7825-H1	MCS-7825-I1	MCS 7835-H1
Intel Pentium® 4 3060-MHz processor 512KB L2 Cache 1024MB SDRAM 80GB SATA Hard Disk 1.44MB Floppy Disk DVD Drive Integrated SATA Controller Single 10/100/1000 Ethernet NIC Tower System with optional rack mount kit.	Intel Pentium® 4 3400-MHz processor 1024KB L2 Cache 1024MB SDRAM Dual 80GB SATA Hard Disk 1.44MB Floppy Disk DVD Drive Integrated SATA Controller-RAID1 Dual 10/100/1000 Ethernet NIC1U Rack Mount System	Intel Pentium® 4 3400-MHz processor 1024KB L2 Cache 1024MB SDRAM Dual 80GB SATA Hard Disk 1.44MB Floppy Disk DVD Drive Integrated SATA Controller-RAID1 Dual 10/100/1000 Ethernet NIC1U Rack Mount System	Intel Xeon® 3400-MHz processor 1024KB Cache 2048MB SDRAM Two-72GB SCSI Hard Disk 1.44MB Floppy Disk DVD Drive SCSI Controller. Dual 10/100/1000 Ethernet NIC2U Rack Mount System

## Specifications (Con.)

MCS-7835-I1	MCS-7845-H1	MCS-7845-I1
Intel Xeon® 3400-MHz processor 1024KB Cache 2048MB SDRAM Two-72GB SCSI Hard Disk 1.44MB Floppy Disk DVD Drive SCSI Controller. Dual 10/100/1000 Ethernet NIC2U Rack Mount System	Dual Intel Xeon® 3400-MHz processor 1024KB Cache SDRAM is configuration dependant Hard Disk is configuration dependant 1.44MB Floppy Disk DVD Drive SCSI Controller. Dual 10/100/1000 Ethernet NIC2U Rack Mount System	Dual Intel Xeon® 3400-MHz processor 1024KB Cache SDRAM is configuration dependant Hard Disk is configuration dependant 1.44MB Floppy Disk DVD Drive SCSI Controller. Dual 10/100/1000 Ethernet NIC2U Rack Mount System

## Selected Part Numbers and Ordering Information<sup>1</sup>

### Cisco Media Convergence Server 7800

MCS-7815-I1-IPC1, MCS-7815-I1-ECS1, MCS-7815-I1-CC2	Cisco Media Convergence Server 7815-I1
MCS-7825-H1-IPC1, MCS-7825-H1-ECS1, MCS-7825-H1-CC1	Cisco Media Convergence Server 7825-H1
MCS-7825-I1-IPC1, MCS-7825-I1-ECS1, MCS-7825-I1-CC1	Cisco Media Convergence Server 7825-I1
MCS-7835-H1-IPC1, MCS-7835-H1-ECS1, MCS-7835-H1-CC1	Cisco Media Convergence Server 7835-H1
MCS-7835-I1-IPC1, MCS-7835-I1-ECS1, MCS-7835-I1-CC1	Cisco Media Convergence Server 7835-I1
MCS-7845-H1-IPC1, MCS-7845-H1-ECS1, MCS-7845-H1-ECS2, MCS-7845-H1-CC1	Cisco Media Convergence Server 7845-H1
MCS-7845-I1-IPC1, MCS-7845-I1-ECS1, MCS-7845-I1-ECS2, MCS-7845-I1-CC1	Cisco Media Convergence Server 7845-I1

1. This is only a small subset of all parts available via URL listed under "For More Information." Some parts have restricted access or are not available through distribution channels.

## For More Information

See the Cisco Media Convergence Server Website: <http://www.cisco.com/go/mcs>

## Cisco IP/TV 5.2

Cisco IP/TV 5.2 delivers a complete, highly scalable, bandwidth-efficient solution for high-quality video communications over enterprise networks. Cisco IP/TV supports live video, scheduled video, video on demand (VOD), synchronized presentations and screen captures, and a wide range of video management functions. The solution enables a broad spectrum of applications for enterprise communications including training, corporate communications, business TV, and distance learning.

The Cisco IP/TV 5.2 solution is purchased as Cisco IP/TV 3400 Series Server appliances which will include the IP/TV client viewer software, SlideCast, Stream Watch and other applications to enable a turn-key enterprise IP broadcasting solution. The Cisco IP/TV 3400 Series servers contain pre-configured software, preinstalled capture cards, network interface cards, and device drivers. The Cisco IP/TV 3400 Series includes the IP/TV 3441 Broadcast Server, the IP/TV 3442 Broadcast Server, the IP/TV 3427 Broadcast Servers, and the IP/TV Program Manager device mode of the ACNS 566 Content Engine. This product family offers a range of choices to best suit large-scale enterprise applications, performance requirements, and bandwidth availability.

## Selected Part Numbers and Ordering Information<sup>1</sup>

### Cisco IP/TV 3400 Series Video Servers

IPTV-3441-BCAST	Cisco IP/TV 3441 Broadcast Server, (1) MPEG-1/2
IPTV-3442-BCAST	Cisco IP/TV 3442 Broadcast Server, (4) MPEG-4
IPTV-3427-BCAST-C1	Cisco IP/TV 3427 Broadcast Server, (6) MPEG-4
IPTV-3427-BCAST-C2	Cisco IP/TV 3427 Broadcast Server, (6) MPEG-4, (2) MPEG-1/2
IPTV-3427-BCAST-C3	Cisco IP/TV 3427 Broadcast Server, (2) MPEG-4, (3) MPEG-1/2
CE-566-144GB-K9	IP/TV Program Manager device mode of the Cisco ACNS 566 Content Engine (standard configuration, no extra licenses needed)

1. This is only a small subset of all parts available via URL listed under "For More Information." Some parts have restricted access or are not available through distribution channels.

## For More Information

See the IP/TV 3400 series Website: <http://www.cisco.com/go/iptv>

## Cisco Voice Gateways

Voice Gateways interface directly to PBXs or public telephone networks to carry voice traffic across IP networks—by converting IP calls to standard telephony calls and vice versa. They provide connectivity between packet telephony and legacy telephony such as PSTN, PBX, fax machines, and other devices. Cisco offers the Cisco VG 248 and VG 224 dedicated analog voice gateways.

Cisco's full line of multiservice routers can also add analog and digital voice gateway functionality through the use of network modules and voice interface cards.

### Cisco VG 224 Voice Gateway

The Cisco VG 224 is a Cisco IOS high-density 24-port gateway for analog phones, fax machines, modems, and speakerphones within an enterprise voice system based on Cisco Call Manager or Call Manager Express. Having these devices tightly integrated with the IP-based phone system is advantageous for increased manageability, scalability, and cost-effectiveness. Commercial businesses can also use the Cisco VG 224 in conjunction with Cisco CallManager Express to effectively augment an Integrated Services Router (ISR) environment. This topology environment supports a business which needs a high concentration of analog voice ports for basic calls, with supplementary services such as hotels, universities, and hospitals.

With Cisco Call Manager or Cisco Call Manager Express, the Cisco VG 224 can provide supplementary analog services while leveraging Cisco IOS for reliable fax and modem delivery. It also supports legacy voicemail by tunneling SMDI back to Cisco Call Manager for termination to allow users to continue to use their legacy voicemail systems with an IP Telephony solution.

### Cisco VG248 Voice Gateway

The Cisco VG248 Voice Gateway is a 1 unit high rack mountable device allowing 48 analog devices (phones, fax machines and modems) to be used with Cisco CallManager. It enables organizations with large numbers of analog phones (e. g., hotels, universities, hospitals) to deploy IP Telephony while maintaining the investment in legacy handsets. The analog lines are full featured (caller id, message waiting lights, feature codes) and the price per port is competitive with a legacy PBX.

The VG 248 supports the legacy voicemail Simple Message Desk Interface (SMDI) voice mail interface that allows the connection of a Cisco Call Manager network to a legacy voicemail system. It also will allow the sharing of existing SMDI based voicemail systems between the Cisco Call Manager and the legacy PBX.



**Selected Part Numbers and Ordering Information****Cisco VG 200 Voice Gateway**

VG 224

Cisco VG 224 Analog Phone Gateway

VG 248

48 Port Voice over IP analog phone gateway

**For More Information**See the Cisco Voice Gateways Website: <http://www.cisco.com/go/voicegate>**Memory Information for Universal Gateways**

Router	Memory Type	Slots	Default Memory	Max Memory	Default Config. (Notes)
<b>Cisco AS5350XM</b>	Main SDRAM	2	512 MB	1 GB	
	System Flash	1	128 MB	1 GB	
<b>Cisco AS5350</b>	Main SDRAM	2	256 MB	512 MB	
	Shared	1	128 MB	128 MB	
	Boot Flash	1	16 MB	16 MB	
	System Flash	2	64 MB	64 MB	
<b>Cisco AS5400XM</b>	Main SDRAM	2	512 MB	1 GB	
	System Flash	1	128 MB	1 GB	
<b>Cisco AS5400HPX</b>	Main SDRAM	2	512 MB	512 MB	Cisco AS5400HPX and Cisco AS5400 use different Boot and System Flash — NOT interchangeable
	Shared	1	128 MB	128 MB	
	Boot Flash (3V)	1	16 MB	16 MB	
	System Flash (3V)	2	64 MB	64 MB	
<b>Cisco AS5400</b>	Main SDRAM	2	256 MB	512 MB	Cisco AS5400HPX and Cisco AS5400 use different Boot and System Flash — NOT interchangeable
	Shared	1	128 MB	128 MB	
	Boot Flash (5V)	1	16 MB	16 MB	
	System Flash (5V)	2	64 MB	64 MB	
<b>Cisco AS5850</b>	RSC SDRAM		1 GB	1 GB	Ships with all required memory
	Feature Cards SDRAMs		128 MB	128 MB	

**Cisco AS5350 Series Universal Gateway**

The Cisco AS5350 Series Universal Gateway is a one-rack-unit (1RU) gateway supporting two-, four-, or eight-port



T1/seven-port E1 configurations that provides voice, fax, and data services on any port at any time. This cost-effective platform is ideally suited for SP and enterprise environments that require innovative voice, fax, and data services.

The Cisco AS5350 Series consists of two models—the Cisco AS5350XM and the Cisco AS5350. The Cisco AS5350XM Universal Gateway doubles the performance of the Cisco AS5350 and delivers significant memory enhancements to offer high performance and high reliability in a compact, modular design. The Cisco AS5350XM Universal Gateway supports existing Cisco AS5350 trunk termination and universal port feature cards in a more powerful chassis to ensure continuing network investment protection.

**When to Sell****Sell This Product****Cisco AS5350XM****When a Customer Needs These Features**

- High density in a small footprint (2 CT1/CE1, 4 CT1/CE1 or 8 CT1/7 CE1)
- High performance voice, fax, and data services
- Enhanced performance for processor intensive voice and fax applications
- Low power per port
- Two 10/100/1000BaseT Gigabit Ethernet ports
- T.38 real-time fax relay, T.37 fax store and forward, fax detection, unified communications
- 2 to 8 channelized CT1/7 CE1/PRI compact and modular universal
- Universal port services (data, voice, fax)
- Two 10/100BaseT Ethernet ports

**Cisco AS5350**

### Key Features

- 1 RU modular high-performance 2 to 8 channelized CT1/7 CE1/PRI system
- Universal Gateway—offering best in class voice, fax, and remote access services
- Ideal for Tier 2/3 ISPs and enterprises requiring innovative universal services
- Feature cards: 2, 4, or 8 CT1/7 E1/PRI feature cards (ISDN calls terminated on the card); 60 or 108 channel Universal Port feature card
- Cisco AS5350XM—Two 10/100/1000BaseT autosensing Gigabit Ethernet LAN ports
- Cisco AS5350—Two 10/100BaseT autosensing Ethernet LAN ports
- Two 8 MB serial WAN ports for Frame Relay, HDLC, or PPP WAN backhaul
- Carrier Class Resiliency: All feature cards and fan tray are hot swappable, modem and voice DSP are pooled and can be configured as spares, internal power supply with dual fans, Redundant LAN/WAN backhaul ports, Thermal management and environmental monitoring, ETSI/NEBS Level 3 compliant
- Single or Redundant AC or DC power supply with dual fans
- Cisco SS7 signaling gateway interoperability

### Competitive Products

- Lucent/Ascend: Max TNT
- 3Com/CommWorks: Total Control 1000
- Alcatel: 7505 Series
- Nuera: BTX Series
- Siemens: HiPath Series

### Specifications

Feature	Cisco AS5350	Cisco AS5350XM
<b>Processor</b>	250 MHz RISC processor	750 MHz RISC processor
<b>SDRAM</b>	256 MB (default), 512 MB (maximum)	512 MB (default), 1 GB (maximum)
<b>Boot Flash</b>	16 MB (default), 16 MB (maximum)	N/A
<b>System Flash</b>	64 MB (default), 64 MB (maximum)	128 MB (default), 1 GB (maximum)
<b>Shared input/output (I/O)</b>	128 MB (default), 128 MB (maximum)	N/A
<b>Feature Card Slots</b>	Three slots	Same as Cisco AS5650
<b>Egress Ports</b>	Two 10/100BaseT Ethernet ports Two 8-Mbps serial ports T1/E1 DS1 trunk feature cards	Two 10/100/1000BaseT Gigabit Ethernet ports Two 8-Mbps serial ports T1/E1 DS1 trunk feature cards
<b>LAN Protocols</b>	IP, IPX, AppleTalk, DECnet, ARA, NetBEUI, bridging, HSRP, 802.1Q	
<b>WAN Protocols</b>	Frame Relay, PPP, HDLC (leased line)	
<b>Routing Protocols</b>	Routing Information Protocol (RIP), RIPv2, OSPF, IGRP, EIGRP, BGPv4, IS-IS, AY-EIGRP, IPX-EIGRP, Next Hop Resolution Protocol (NHRP), AppleTalk Update-Based Routing Protocol (AURP)	
<b>QoS Protocols</b>	IP Precedence, Resource Reservation Protocol (RSVP), Weighted Fair Queuing (WFQ), Weighted Random Early Detection (WRED), Multichassis Multilink PPP (MMP) fragmentation and interleaving, 802.1P	
<b>Access Protocols</b>	PPP, Serial Line Internet Protocol (SLIP), TCP Clear, IPXCP, ATCP, ARA, NBFCP, NetBIOS over TCP/IP, NetBEUI over PPP, protocol translation (PPP, SLIP, ARA, X.25, TCP, local-area transport [LAT], Telnet), and Xremote	
<b>Bandwidth Optimization</b>	Multilink PPP (MLPPP), TCP/IP header compression, Bandwidth Allocation Control Protocol (BACP)	
<b>Voice Compression</b>	G.711, G.723.1 (5.3K and 6.3K), G.726, G.729ab, G.729, GSM-FR	
<b>DSP Voice Features</b>	Echo cancellation, programmable up to 128 ms Transparent transcoding between A-law and mu-law encoding Voice activity detection, silence suppression, comfort noise generation Fixed and adaptive jitter buffering Call progress tone detection and generation - Dial tone, busy, ring-back, congestion, and re-order tones with local country variants DTMF, Multifrequency (MF) Continuity Testing (COT)	
<b>Voice and Fax Signaling Protocols</b>	H.323v2, H.323v3, H.323v4, SIP, MGCP 1.0, TGCP 1.0, Voice XML, Real-Time Streaming Protocol (RTSP), Extended Simple Mail Transfer Protocol (ESMTP) T.38 real-time fax relay T.37 fax store and forward Fax detection Fax and modem passthrough Open Settlements Protocol (OSP) Media Recording Control Protocol (MRCP) TTS Servers ASR Servers	
<b>SS7</b>	Integrated Signaling Link Terminal (ISLT), MTP1, MTP2, TUA, RUDP backhaul	

Feature	Cisco AS5350	Cisco AS5350XM
<b>Network Security</b>	RADIUS or TACACS+, PAP, CHAP and MSCHAP authentication, local user/password database DNIS, CLID, call-type preauthentication Inbound/outbound traffic filtering (including IP, IPX, AppleTalk, bridged traffic) Network Address Translation (NAT) and dynamic access lists (ACLs)SNMPv2, SNMPv3, SSHv2 H.235	
<b>Virtual Private Networking</b>	IP Security (IPSec) and policy enforcement (RADIUS or TACACS+)+L2TP, Layer 2 Forwarding (L2F), and generic routing encapsulation (GRE) tunnels Firewall security and intrusion detection QoS features (committed access rate [CAR], Random Early Detection [RED], IP Precedence, policy-based routing)	
<b>Channelized T1</b>	Robbed-bit signaling; Loop Start, Immediate Start, and Wink Start Protocols	
<b>Channelized E1</b>	CAS, PRI, E1 R1, E1 R2, leased line, Frame Relay, G.703, G.704	
<b>ISDN Protocols Supported</b>	Sync mode PPP, V.120, V.110 at rates up to 38400 bps Network- and User-side ISDN NFAS with backup D-channel QSIG, Feature Group B, Feature Group D DoVBS	
<b>Modem Protocols Supported</b>	V.90 or V.92 standard supporting rates of 56000 to 28000 in 1333 bps increments V.92 Modem on Hold and Quick Connect V.44 Compression supporting increased throughput by more than 100 percent for Internet browsing K56Flex at 56000 to 32000 in 2000-bps increments ITU-T V.34 Annex 12 at 33600 and 31200-bps ITU-T V.34 at 28800, 26400, 24000, 21600, 19200, 16800, 14400, 12000, 9600, 7200, 4800, or 2400-bps V.32bis 14400, 12000, 9600, 7200, 4800; V.32 9600, 4800; V.22bis 2400, 1200; V.21 300; Bell 103, 300; V.22 1200; V.23 1200/75 ITU-T V.42 (including Microcom Networking Protocol [MNP] 2-4 and Link Access Procedure for Modems [LAPM]) error correction ITU-T V.42bis (1000 nodes) and MNP 5 data compression Async-mode PPP	
<b>Full Cisco IOS Support</b>	IP Plus and Enterprise Plus feature sets including 3DES and Lawful Intercept images	
<b>Console and Auxiliary Ports</b>	Asynchronous serial (RJ-45)	
<b>Chassis</b>	Dimensions (H x W x D): 1.75 x 17.5 x 20.5 in. Weight (fully loaded): 22 lbs. (10 kg)	

## For More Information

See the Cisco Universal Gateways and Access Servers Website:  
<http://www.cisco.com/en/US/products/hw/iad/index.html>

## Cisco AS5400 Series Universal Gateways



Cisco AS5400 Series Universal Gateways offer unparalleled capacity in only two rack units (2RUs) and provide voice, fax and data servicc on any port at any time. High-density (up to 1 CT3 of VoIP and 2 CT3 of TDM switching), low-power consumption (7.2A at 48 VDC per CT3), and universal port DSPs make the Cisco AS5400 Universal Gateways ideal for many network deployment architectures, especially colocation environments and mega POPs.

The Cisco AS5400 Series consists of three models, the Cisco AS5400XM, the Cisco AS5400 and the Cisco AS5400HPX. The Cisco AS5400XM Universal Gateway doubles the performance of the Cisco AS5400 and Cisco AS5400HPX and delivers significant memory enhancements to offer high performance and high reliability in a compact, modular design. The Cisco AS5400XM Universal Gateway supports existing Cisco AS5400 and AS5400HPX trunk termination and universal port feature cards in a more powerful chassis to ensure continuing network investment protection. This cost-effective platform is ideally suited for SP and enterprise environments that require innovative voice, fax, and data services.

## When to Sell

### Sell This Product

Cisco AS5400XM

Cisco AS5400HPX

Cisco AS5400

### When a Customer Needs These Features

- High density in a small footprint (16 CT1/CE1 or 1 CT3)
- High performance voice, fax, and data services up to 1 CT3
- Enhanced performance for processor intensive voice and fax applications
- Compact form factor—easy to add capacity as the network grows
- Low power per port
- Two 10/100/1000BaseT Gigabit Ethernet ports
- T.38 real-time fax relay, T.37 fax store and forward, fax detection, unified communications
- Voice and fax applications up to 480 sessions
- Universal port services (data, voice, fax)
- Two 10/100BaseT Ethernet ports
- Data applications up to 1 CT3
- Universal port services (data, voice, fax)
- Two 10/100BaseT Ethernet ports

## Key Features

- The Industry's only 2RU, CT3-capable universal gateway on the market with hot-swappable cards, internal redundant power supply
- Universal Gateway offering best in class voice, fax, and remote access services Feature cards: 8 CT1/CE1 and CT3 feature cards; 60 or 108 channel Universal Port feature card; All feature cards and fan trays are hot-swappable
- Cisco AS5400XM—Two 10/100/1000BaseT autosensing Gigabit Ethernet LAN ports
- Cisco AS5400 and Cisco AS5400HPX—Two 10/100BaseT autosensing Ethernet LAN ports
- Redundant 8 Mbps serial backhaul ports for Frame Relay, HDLC or PPP WAN Backhaul
- One fast console port for local administrative access; one auxiliary port for remote administrative access
- Redundant LAN/WAN backhaul ports
- ETSI/NEBS Level 3 compliant
- Redundant AC or DC power supply with dual fans
- Cisco SS7 signaling gateway interoperability

## Competitive Products

- 3Com/CommWorks: Total Control C1000
- Alcatel: 7505 Series
- Lucent: Max TNT
- Siemens: HiPath Series

## Specifications

Features	Cisco AS5400XM	Cisco AS5400HPX	Cisco AS5400
<b>Processor Type</b>	750 MHz RISC processor	390 MHz RISC processor	250 MHz RISC processor
<b>Calls Supported</b>	Voice, fax and remote access services to 648 concurrent calls (to 1CT3/16E1s)	Cisco AS5400HPX: Voice or fax services - to 480 concurrent calls (to 20T1s/16E1s) or remote access services - to 648 calls (to 1CT3/16E1s)	Remote access services - to 648 calls (to 1CT3/16E1s)
<b>SDRAM</b>	512 MB (default), 1 GB (maximum)	512 MB (default), 512 MB (maximum)	256 MB (default), 512 MB (maximum)
<b>Boot Flash</b>	N/A	16 MB (default) 16 MB (maximum)	Same as AS5400HPX
<b>System Flash</b>	128 MB (default), 1 GB (maximum)	64 MB (default) 64 MB (maximum)	Same as AS5400HPX
<b>Shared input/output (I/O)</b>	N/A	128 MB (default), 128 MB (maximum)	Same as AS5400HPX
<b>Feature Slots</b>	7	Same as AS5400XM	Same as AS5400XM
<b>Trunk Feature Cards</b>	8 T1/E1/PRI, 1 CT3	Same as AS5400XM	Same as AS5400XM
<b>DSP Feature Card</b>	60/180 Universal ports	Same as AS5400XM	Same as AS5400XM
<b>LAN Protocols</b>	IP, IPX, AppleTalk, DECnet, ARA, NetBEUI, bridging, HSRP, 802.1Q		
<b>WAN Protocols</b>	Frame Relay, PPP, HDLC (leased line)		
<b>Routing Protocols</b>	Routing Information Protocol (RIP), RIPv2, OSPF, IGRP, EIGRP, BGPv4, IS-IS, AY-EIGRP, IPX-EIGRP, Next Hop Resolution Protocol (NHRP), AppleTalk Update-Based Routing Protocol (AURP)		
<b>QoS Protocols</b>	IP Precedence, Resource Reservation Protocol (RSVP), Weighted Fair Queuing (WFQ), Weighted Random Early Detection (WRED), Multichassis Multilink PPP (MMP) fragmentation and interleaving, 802.1P		

## Chapter 4

<b>Access Protocols</b>	PPP, Serial Line Internet Protocol (SLIP), TCP Clear, IPXCP, ATCP, ARA, NBFCP, NetBIOS over TCP/IP, NetBEUI over
<b>Bandwidth Optimization</b>	PPP, protocol translation (PPP, SLIP, ARA, X.25, TCP, local-area transport [LAT], Telnet), and Xremote Multilink PPP (MLPPP), TCP/IP header compression, Bandwidth Allocation Control Protocol (BACP)
<b>Voice Compression</b>	G.711, G.723.1 (5.3K and 6.3K), G.726, G.729ab, G. Clear, GSM-FR
<b>DSP Voice Features</b>	Echo cancellation, programmable up to 128 ms Transparent transcoding between A-law and mu-law encoding Voice activity detection, silence suppression, comfort noise generation Fixed and adaptive jitter buffering Call progress tone detection and generation - Dial tone, busy, ring-back, congestion, and re-order tones with local country variants DTMF, Multifrequency (MF) Continuity Testing (COT)
<b>Voice and Fax Signaling Protocols</b>	H.323v2, H.323v4, SIP, MGCP 1.0, TGCP 1.0, Voice XML, Real-Time Streaming Protocol (RTSP), Extended Simple Mail Transfer Protocol (ESMTP), T.38 real-time fax relay, T.37 fax store and forward Fax out (transmission) Group 3, standards EIA 2388 Class 2 and EIA 592 Class 2.0 at modulations V.33, V.17, V.29, V.27ter, V.21 ITU-T T.30, T.4 Fax detection, fax and modem passthrough Open Settlements Protocol (OSP), Media Resource Control Protocol (MRCP) to enable TTS and ASR Services
<b>Virtual Private Networking</b>	IP Security (IPSec) and Policy enforcement (RADIUS or TACACS+), L2TP, Layer 2 Forwarding (L2F), and generic routing encapsulation (GRE) tunnels Firewall security and intrusion detection QoS features (committed access rate [CAR], Random Early Detection [RED], IP Precedence, policy-based routing)
<b>Channelized T1</b>	Robbed-bit signaling; Loop Start, Immediate Start, and Wink Start Protocols
<b>Channelized E1</b>	CAS, PRI, E1 R1, E1 R2, leased line, Frame Relay, G.703, G.704
<b>ISDN Protocols Supported</b>	Sync mode PPP, V.120, V.110 at rates up to 38400 bps, Network- and User-side ISDN NFAS with backup D-channel QSIG, Feature Group B, Feature Group D DoVBS
<b>Modem Protocols Supported</b>	V.90 or V.92 standard supporting rates of 56000 to 28000 in 1333 bps increments V.92 Modem on Hold and Quick Connect V.44 Compression supporting increased throughput by more than 100 percent for Internet browsing K56Flex at 56000 to 32000 in 2000-bps increments ITU-T V.34 Annex 12 at 33600 and 31200-bps ITU-T V.34 at 28800, 26400, 24000, 21600, 19200, 16800, 14400, 12000, 9600, 7200, 4800, or 2400-bps V.32bis 14400, 12000, 9600, 7200, 4800; V.32 9600, 4800; V.22bis 2400, 1200; V.21 300; V.22 1200; V.23 1200/75 ITU-T V.42 (including Microcom Networking Protocol [MNP] 2-4 and Link Access Procedure for Modems [LAPM]) error correction ITU-T V.42bis (1000 nodes) and MNP 5 data compression
<b>Full Cisco IOS Support</b>	IP Plus and Enterprise Plus feature sets including 3DES and Lawful Intercept images
<b>Console and Auxiliary Ports</b>	Asynchronous serial (RJ-45)
<b>Chassis Dimensions (H x W x D)</b>	3.5 x 17.5 x 18.25 in.
<b>Chassis Weight (fully loaded)</b>	35 lb maximum (15.8 kg)

## For More Information

See the Cisco Universal Gateways and Access Servers Website:  
<http://www.cisco.com/en/US/products/hw/iad/index>

## Cisco AS5850 Universal Gateway

The Cisco AS5850 Universal Gateway is a high-density universal gateway, with carrier-class attributes, offering highest capacity and high availability in its class. Higher capacity configurations, depending on dial, voice, and fax application types are also supported. It supports a wide range of IP-based value-added services such as high-volume Internet access, corporate VPNs, long distance for ISPs, international wholesale long distance, distributed prepaid calling, SS7 interconnect, and managed voice services such as hosted IP telephony, managed IP-PBX, multiservice VPNs, and IP contact centers.

Using the rich set of Cisco IOS Software features and SS7 interconnection, service providers can quickly provision their network for new services to meet the rapidly changing demands of the communications provider marketplace.



# When to Sell

## Sell This Product

Cisco AS5850

## When a Customer Needs These Features

- Supporting at least 2688 sessions of data, voice, and fax services on any port at any time using T1, E1, channelized DS3 and STM-1 trunk interfaces. Larger configurations are supported for dial, MGCP voice, TDM switching, and simple H.323 or SIP applications.
- Service provider or IP-focused installations
- Highly available single system with multiple redundancy
- Wholesale dial/voice, retail dial/voice, TDM grooming or wireless applications

## Key Features

- Hot-swappable redundant power supplies and power feeds
- Redundant DSPs and RSC; redundant blower for cooling; CAC
- Supports any coder-decoder (CODEC) at 100-percent capacity; simplify network engineering
- Router Processor Redundancy+ for high availability
- Thermal/Power management and redundant fans
- DSP Resource Recovery Feature
- Supports H.323v2, H.323v3, H.323v4, SIP and MGCP 1.0; An open programmable architecture streamlines rapid voice service creation.
- Application-specific support including AOL and Prodigy traffic
- WAN optimization—routing filters, snapshot routine, dial-on-demand routing ASAP
- ETSI/NEBS Level 3 compliant
- Cisco SS7 signaling gateway interoperability
- Stratum-3 clock support
- 802.1Q/1p VLAN/ISL support

## Competitive Products

- 3Com: TC 2000
- Lucent: APX 8000
- Siemens: HiPath Series
- Alcatel: 7505 Series

## Specifications

Feature	Cisco AS5850
Slots	12 feature board slots; 2 eRSC slots
Processor Type	650 MHz Broadcom 1250 Dual Core
RSC Switch Fabric	5 GBps, Layer 3 / 4 switching
Memory	1 GB SDRAM with ECC per ERSC 128 MB SDRAM (with parity) per feature card
Trunk Cards	Single CT3 plus 216 DSP Channel feature card; 24 CE1/CT1 feature card; Single port Channelized STM-1 feature card
Universal Port Card	324 Channel DSP-feature card
Egress Ports	Dual Gigabit load-balanced redundant Ethernet ports with GBIC interfaces for user traffic Dual 10/100-Mbps Ethernet port with RJ45 connector for management traffic
LAN Protocols	IP, IPX, AppleTalk, DECnet, ARA, NetBEUI, bridging, HSRP, 802.1Q
Service Support	Port Policy Management and SS7/C7
Routing Protocols	RIP, RIPv2, OSPF, IGRP, EIGRP, BGPv4, IS-IS, Next Hop Resolution Protocol (NHRP)
Access Protocols	PPP, Serial Line Internet Protocol (SLIP), TCP Clear
Bandwidth Optimization	Multilink PPP (MLPPP), TCP/IP header compression, Bandwidth Allocation Control Protocol (BACP), Bandwidth on demand, Nonfacility-associated signaling (NFAS), traffic shaping
Network Security	RADIUS or TACACS+, PAP or CHAP authentication, local user/password database, DNIS, CLID, call-type pre-authentication, Inbound/outbound traffic filtering (including IP), SNMPv2, SNMPv3
Virtual Private Networking	IP Security (IPSec) and Policy enforcement (RADIUS or TACACS+), L2TP, Layer 2 Forwarding (L2F), and generic routing encapsulation (GRE) tunnels, Firewall security and intrusion detection, IP Precedence, policy-based routing
Channelized T1	PRI, robbed-bit signaling; loop start, immediate start, and wink start protocols, SS7 IMT
Channelized DS3	PRI, robbed-bit signaling; loop start, immediate start, and wink start protocols, SS7 IMT
Channelized E1	CAS, E1 R2, PRI, SS7 IMT
Channelized STM-1	CAS, E1 R2, PRI, SS7 IMT
ISDN Protocols	Sync mode PPP, V. 120, V. 110 at rates up to 38400
Voice Protocols	G.711, G.723.1, G.726, G.729ab, G.Clear, GSM-FR; H.323v2, H.323v3, H.323v4, SIP, MGCP 1.0; ECAN up to 128ms; T.38 real-time fax relay; Fax detection; Fax and modem passthrough

<b>Modem Protocols</b>	V.90 or V.92 standard supporting rates of 56000 to 28000 in 1333-bps increments; V.44 supporting increased throughput by more than 100 percent for Internet browsing; Fax out (transmission) Group 3, standards EIA 2388 Class 2 and EIA 592 Class 2.0, at modulations V.33, V.17, V.29, V.27ter, and V.21; K56Flex at 56000 to 32000 in 2000-bps increments; ITU-T V.34 Annex 12 at 33600 and 31200 bps; and more
<b>ISDN Protocols</b>	Sync mode PPP, V.120, V.110 at rates up to 38400 bps
<b>Wireless Protocol</b>	V.110
<b>Console</b>	Asynchronous serial (RJ-45)
<b>Dimensions (H x W x D)</b>	24.5 x 17.5 x 24 in.
<b>Chassis Weight</b>	220 lb (100 kg)

### For More Information

See the Cisco Universal Gateways and Access Servers Website:

<http://www.cisco.com/en/US/products/hw/iad/index.html>

## Cisco Conference Connection

Cisco Conference Connection is an IP audio conferencing solution that is designed for small and medium businesses. Cisco Conference Connection integrates with Cisco CallManager and can scale from 20 ports to 180 ports in a single system. This application is ideal for enterprises trying to increase productivity while reducing expenses. A simple web-based interface enables employees to manage their conference schedules.

### For More Information

See the Cisco Conference Connection Website:

<http://www.cisco.com/en/US/products/sw/voicesw/ps752/index.html>

## Cisco IP/VC 3500 Series Videoconferencing Products

Cisco® IPVC – part of the Cisco IP Communications system—is a complete portfolio of IP video Multipoint Control Units (MCU's) and ISDN gateways for traditional video conferencing networks, and Cisco Video Telephony and Cisco MeetingPlace solutions. Cisco Video Telephony integrates video into Cisco CallManager to enable desktop video communications—making video as easy to use and administer as a telephone.

### Key Features

- Integrates video conferencing into the Cisco MeetingPlace solution— Enables users to set up, attend, and manage voice, video and web rich-media conferences
- Integrating Cisco IPVC into Cisco MeetingPlace leverages disparate conferencing investments to maximize conferencing resources and provide new levels of user satisfaction and productivity.
- Cisco Video Telephony is a capability of Cisco CallManager extending phone usage and administration models to desktop video communications. Video calls now have familiar phone features such as hold, transfer, and call forward. Dial plans for video and telephony are integrated along with call detail records (CDRs) and administration points.
- Provides multi-party ad-hoc conference support with enhanced features such as Continuous for video telephony endpoints, providing a user experience equivalent to the standard conference button on the voice PBX.
- Supports standard video conferencing for IP and ISDN video endpoints—ISDN video endpoints require the use of the IPVC ISDN Gateway
- Scalability—Create large conferences by cascading conferences between multiple Cisco IPVC 3511 Multipoint Control Units and Cisco IPVC 3540 Series Multipoint Control Units. Cascaded conferences can be centralized in the data center or geographically distributed utilizing WAN bandwidth more efficiently. Increase the conferencing capacity by creating an MCU cluster of up to six Cisco IPVC 3540 MCUs

- **Scheduling**—Enables the Cisco MeetingPlace Web user interface, Microsoft Outlook, and Lotus Notes interfaces to set-up scheduled and reservation-less video conferences
- **Notification**—Cisco MeetingPlace meeting notifications include meeting dial in and dial out information for video conferences
- **Management**—New Cisco MeetingPlace information and commands targeted at video end points.
- **SIP Support**—Targeted at enabling the creation of many diverse end points and video-enabled applications; The Cisco IPVC MCU provides multi-party voice and video conferencing for SIP-enabled video end points (examples: Microsoft Messenger, eConf, and Polycom VSX 8000). Further more, inter-working functionality is provided allowing multi-protocol end points-SIP, SCCP, H.323, and H.320-to attend the same conference.

### Specifications

Feature	Cisco IP/VC 3500 Series Videoconferencing
<b>Protocols</b>	H.323 V.4, SCCP, SIP, H.320 through the IPVC Gateway, H.239, H.235, H.281 FECC; G.711; H.261, H.263, H.263++, H.264; T.120
<b>SCCP Protocol Support</b>	All Cisco IPVC MCU platforms support SCCP and/or H.323/SIP ports active; Port designation is strictly for call control and MCU port access; IPVC MCU Port Designations: Cisco IPVC 3540 MCU-Port protocol designation can be applied by a percentage to MCU port resources; Cisco IPVC 3511 MCU-Port protocol designation can be applied as SCCP or H.323/SIP modes only; IPVC MCU ports integrate video media from all protocols-SCCP, H.323, SIP, H.320 (through IPVC Gateway)
<b>SIP Protocol Support</b>	Fully interoperability with ISDN, H.323 network solutions
<b>Audio Transcoding</b>	All Cisco IPVC MCU platforms support SCCP and/or H.323/SIP ports active; Port designation is strictly for call control and MCU port access; IPVC MCU Port Designations: Cisco IPVC 3540 MCU-Port protocol designation can be applied by a percentage to MCU port resources; Cisco IPVC 3511 MCU-Port protocol designation can be applied as SCCP or H.323/SIP modes only; IPVC MCU ports integrate video media from all protocols-SCCP, H.323, SIP, H.320 (through IPVC Gateway)
<b>Resolutions</b>	Quarter Common Intermediate Format (QCIF), CIF, 4CIF, SIF, 4SIF, Video Graphics Array (VGA), Super-eXtended Graphics Array (SXGA), eXtended Graphic array (XGA)
<b>Rate Matching</b>	Each endpoint in a video conference can participate according to individual video bandwidth capabilities without affecting the connection of other participants
<b>Downspeeding</b>	Enables the completion and maintaining of a call during the loss of ISDN B channels
<b>QoS</b>	Support for Differentiated Services (DiffServ) markings
<b>Security and Privacy</b>	Password protection for administrative functions and for conferences—helps to ensure privacy for participants
<b>DuoVideo Support</b>	In addition to standard-based H.239 support, MCU also supports Tandberg end point when transmitting more than one video channel (DuoVideo)
<b>LAN Interface</b>	One 10/100 Ethernet port, IEEE 802.3, 8-pin RJ-45
<b>Physical Dimensions</b>	IPVC 3540 Chassis: 3.50 in. x 17.25 in. x 10.0 in. (4.445 cm x 43.815 cm x 25.4 cm); IPVC-3511-MCU(E): 1.75 in. x 17.25 in. x 10.0 in. (4.445 cm x 43.815 cm x 25.4 cm)
<b>Weight</b>	Cisco IPVC 3540 Chassis: 15.43 lb (7 kg); Cisco IPVC 3511 Multipoint Control Unit: 7.50 lb (3.5 kg); Cisco IPVC 3511 Multipoint Control Unit with EMP: 8.00 lb (3.75 kg)
<b>Power</b>	100 to 240 VAC autosense, 50 to 60 Hz, 75W maximum; U.S. power cable included; Other power cables available separately
<b>Environment</b>	Operating temperature: 0 to 40°C (32 to 104°F); Storage temperature: -25 to 70°C (-13 to 158°F); Humidity: 5 to 90 percent noncondensing

### Selected Part Numbers and Ordering Information<sup>1</sup>

#### Cisco IP/VC 3500 Series Videoconferencing Products

IPVC-3511-MCU	IPVC 3511 Multipoint Control Unit
IPVC-3511-MCU-E	IPVC 3511 Multipoint Control Unit and Enhanced Media Processor
IPVC-3544-CHAS	IPVC 3544 Four Slot Chassis
IPVC-3540-MC03A	IPVC 3540 Series MCU Modules - 30 Port Session
IPVC-3540-MC06A	IPVC 3540 Series MCU Modules - 60 Port Session
IPVC-3540-MC10A	IPVC 3540 Series MCU Modules - 100 Port Session
IPVC-3540-EMP	IPVC 3540 Enhanced Media Processor
IPVC-3540-EMP3	IPVC 3540 Enhanced Media Processor 3
IPVC-3540-XAM03	IPVC 3540 MCU Audio Transcoder Cards - 30 Port MCU Daughter card
IPVC-3540-XAM06	IPVC 3540 MCU Audio Transcoder Cards - 60 Port MCU Daughter card

1. This is only a small subset of all parts available. Some parts have restricted access or are not available through distribution channels.

### For More Information

See the Cisco IP/VC 3500 series Website: <http://www.cisco.com/go/ipvc>



## Cisco MeetingPlace

Cisco MeetingPlace—part of the Cisco IP Communications system—is a complete rich-media conferencing solution that seamlessly integrates voice, video, and Web conferencing capabilities to make remote meetings as natural and effective as face-to-face meetings for unmatched productivity gains. It is deployed “on network” behind the firewall and integrated directly into an organization’s private voice and data networks and collaborative applications to provide significant cost savings, the utmost in security, and a superior user experience. Intuitive interfaces make setting up, attending, and managing meetings easy.

### Key Features

- Immediate or future voice, video, and Web conferences can be set up and attended in a single step—from Cisco IP phones, instant messaging clients, Web browsers, and Microsoft Outlook and Lotus Notes calendars; Meeting participants have total control over their voice, video, and Web conference from a single browser interface
- Allows enterprises to isolate their confidential meetings and content behind the firewall for secure data network transport while providing the flexibility to meet with external parties
- Deployed in a variety of ways—on premises or hosted, customer managed or outsourced; Cisco Managed Solutions and managed services partners can provide system administration and end-user help desk functions for on-premises or hosted systems

### Selected Part Numbers and Ordering Information<sup>1</sup>

#### Cisco MeetingPlace 8100 Solution Bundles

MP-8106-30IP	Cisco MeetingPlace 8106 30UL IP Solution Bundle
MP-8106-48	Cisco MeetingPlace 8106 48UL T1-CAS Solution Bundle
MP-8106-120IP	Cisco MeetingPlace 8106 120UL IP Solution Bundle
MP-8112-180IP	Cisco MeetingPlace 8112 180UL IP Solution Bundle
MP-8112-180PRI	Cisco MeetingPlace 8112 180UL PRI Solution Bundle
MP-8112-192	Cisco MeetingPlace 8112 192UL T1-CAS Solution Bundle
MP-8112-510IP	Cisco MeetingPlace 8112 510UL IP Solution Bundle
MP-8112-510PRI	Cisco MeetingPlace 8112 510UL PRI Solution Bundle
MP-8112-600	Cisco MeetingPlace 8112 600UL T1-CAS Solution Bundle

#### Cisco MeetingPlace Hardware and Software options

MP-SMARTBLADE	Cisco MeetingPlace Audio Conference Module, 96 ports with 4xT1-CAS
MP-MA-4	Cisco MeetingPlace Gateway Module, 120 IP ports
MP-MA-4-PRI	Cisco MeetingPlace Gateway Mod., 4xPRI (T1/E1)
MP-MA-16	Cisco MeetingPlace Gateway Module, 480 IP ports
MP-MA-16-PRI	Cisco MeetingPlace Gateway Module 16xPRI (T1/E1)
MP-AUDIO-UL-24	Cisco MeetingPlace Audio Conference user license bundle, 24 user licenses
MP-AUDIO-UL-30	Cisco MeetingPlace Audio Conference. user license bundle, 30 user licenses
MP-MTGMT-SITE-5.3	Cisco MeetingPlace MeetingTime Site License
MP-FLEX-MENU	Cisco MeetingPlace Flex Menu Option
MP-LANG-5.3	Cisco MeetingPlace Multilingual System License

#### Web Conferencing Options

MP-WEBCONFWSW-5.3	Cisco MeetingPlace Web Conferencing Server Application (includes 20 concurrent Web conferencing user licenses)
MP-RM-RECORDING	Cisco MeetingPlace Web Voice Recording System License
MP-CONF-UI-5.3	Cisco MeetingPlace Conferencing User Interface (included in Cisco MeetingPlace Solution Bundles)
MP-WEB-UL-20	Cisco MeetingPlace Web Conferencing 20 user licenses bundle

**Integration Applications**

MP-VIDEO	Cisco MeetingPlace Video Integration
MP-IP-GW	Cisco MeetingPlace H.323/SIP Gateway Application (included in Cisco MeetingPlace Solution Bundles)
MP-EMAIL-5.3	Cisco MeetingPlace SMTP E-mail Gateway Application (included in Cisco MeetingPlace Solution Bundles)
MP-OUTLOOK-5.3	Cisco MeetingPlace for Outlook Integration Application
MP-NOTES-5.3	Cisco MeetingPlace for Lotus Notes Integration Application
MP-DIRSVCS-5.3	Cisco MeetingPlace Directory Services 5.3
MP-IM	Cisco MeetingPlace Instant Messaging Integration Application

1. Some countries have telephone networks that list multiple impedance requirements. It is important to closely approximate the impedance of the typical handsets used in the region when selecting the proper configuration. The incorrect choice may lead to poor echo cancellation performance.

**For More Information**

See the Cisco MeetingPlace Website: <http://www.cisco.com/go/meetingplace>

**Cisco ICM Enterprise Edition**

Through a combination of multi-channel contact management, intelligent routing, and network-to-desktop CTI, the Cisco ICM Enterprise Edition segments customers, monitors resource availability, and delivers each contact to the most appropriate resource anywhere in the enterprise.

**Key Features**

- Carrier-class, distributed fault tolerance for uninterrupted operation
- Profiles using contact-related data—dialed number and calling line ID, caller-entered digits, data submitted on a Web form, or information obtained from a customer profile database lookup; Processed using user-defined routing scripts that graphically reflect business rules; Routes each contact to the optimum resource anywhere in the enterprise; Delivers a unique and rich set of call event and customer profile data to the targeted desktop
- as a contact arrives, personalizing service and maximizing efficiency
- Gives customers the choice to interact via phone, Web, VoIP, text chat, or e-mail
- Provides centralized management control over customer contacts, allowing users to implement a single set of business rules that uniformly address customer needs independent of contact channel or resource location

**Selected Part Numbers and Ordering Information<sup>1</sup>****Cisco ICM Enterprise Edition****ICME-BUNDLE**

Requires the purchase of at least one ACD PG and one ICM Agent license. Functionality included: Monitor 3rd party ACD (call and agent) activity; Call routing, including pre-routing from a carrier network and post-routing from an ACD; Historical Database server(s); WebView server and WebView user connections; Internet Script Editor (ISE) server and ISE user connections; Application, SQL and ICM-to-ICM Gateways; Redundant deployment of all licensed components; Integrations through the ICM's CTI interfaces with 3rd party devices that are not intended for agent desktop usage; Connections to Cisco IVR systems (IP-IVR and ISN) and all related functions an ICM can perform, such as monitoring, reporting and routing.

1. This is only a small subset of all parts available via URL listed under "For More Information." Some parts have restricted access or are not available through distribution channels.

**For More Information**

See the Cisco ICM Enterprise Edition Website: <http://www.cisco.com/go/icmee>

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## Cisco IP IVR

Cisco IP IVR is designed to enhance the efficiency of any organization by simplifying business integration, increasing flexibility, and providing efficiency gains in network hosting. These features reduce business costs while dramatically improving customer satisfaction. Enabled by Cisco AVVID, and tightly integrated with Cisco CallManager, the Cisco IP IVR offers ease of installation, configuration and application hosting because it is constructed specifically to exploit the power of IP-based communications. It facilitates concurrent multimedia communication processing.

### Key Features

- Written in Java to provide customer flexibility; Support for VoiceXML
- Multimedia (voice/data/Web) IP-empowered application-generation environment
- Interoperates with ASR and TTS servers via Media Resource Control Protocol (MRCP)
- Offers web-based activation and administration; Multiple Language support
- Flows (the IP IVR applications) are stored in an industry standard LDAP directory
- Sold with Cisco CallManager; Can be co-resident on the same server as CallManager; Can function on a separate, dedicated media convergence servers (MCSs) or Cisco-approved customer provided server
- Packages available to scale up to 300 ports

### For More Information

See the Cisco IP IVR Website:

<http://www.cisco.com/en/US/products/sw/custcosw/ps3651/index.html>

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## Cisco Customer Voice Portal

The Cisco Customer Voice Portal integrates with both traditional time-division multiplexing (TDM) and IP-based contact centers to provide an unparalleled call-management and call-treatment solution with a self-service IVR option that can use information available to customers on the corporate Web server. With support for ASR and TTS capabilities, callers can obtain personalized answers to increasingly complex questions and can conduct business in new and innovative ways—all without the costs of interacting with a live agent. The Customer Interaction Network is a suite of innovative multi-channel IP communications applications for the contact center that is accessible from any point on the network and integrated with core business processes.

### Selected Part Numbers and Ordering Information<sup>1</sup>

#### Cisco Customer Voice Portal

ISN-APSSVRLIC  
ISN-APSSSES-T1-L  
ISN-APSSSES-T2-L  
ISN-APSSSES-T3-L  
ISN-APSSSES-T4-L  
ISN-APSSSES-LC=

ISN APPLICATION SERVER LICENSE  
ISN APPLICATION SERVER SESSION - TIER 1  
ISN APPLICATION SERVER SESSION - TIER 2  
ISN APPLICATION SERVER SESSION - TIER 3  
ISN APPLICATION SERVER SESSION - TIER 4

Part number to order additional Application Server session licenses without ordering a server license

1. This is only a small subset of all parts available via URL listed under "For More Information." Some parts have restricted access or are not available through distribution channels.

### For More Information

See the Cisco Internet Service Node Website: <http://www.cisco.com/go/cvp>

## Cisco Voice Router Bundles

Cisco Voice router bundles based on the Cisco 1760, 2600XM, 2691, 3700, and 3800 access router platforms provide customers with a single part number for ease of ordering. These voice bundles are especially designed for the application of toll bypass, PSTN or PBX to IP connectivity with Cisco CallManager, or other voice applications where connectivity from IP to PSTN is required.

Each Voice bundle provides DSP resources to support PSTN connectivity to IP, necessary memory, and recommended Cisco IOS feature set.

### When to Sell

#### Sell This Product

##### Cisco Voice Router Bundles

#### When a Customer Needs These Features

- Deploying access router where toll bypass application is required
- Deploying Cisco CallManager and PSTN or PBX gateway is required
- Customer may need voice application in the future and wants investment protection on initial purchase

### Selected Part Numbers and Ordering Information<sup>1</sup>

#### Cisco Voice Router Bundles

CISCO1760-V	1760 Router, 32MB Flash, 96MB DRAM, PVDM-256K-4, IOS IP Voice Feature Set
CISCO2651XM-V	2651 Router, 32MB Flash, 128MB DRAM, AIM-VOICE-30 (DSP for 30 calls), IOS SP Services
CISCO2801-V/K9	2801 Router, 64MB Flash, 256MB DRAM, PVDM2-8 (DSP for 8 calls), IOS SP Services
CISCO2811-V/K9	2811 Router, 64MB Flash, 256MB DRAM, PVDM2-16 (DSP for 16 calls), IOS SP Services
CISCO2821-V/K9	2821 Router, 64MB Flash, 256MB DRAM, PVDM2-32 (DSP for 32 calls), IOS SP Services
CISCO2851-V/K9	2851 Router, 64MB Flash, 256MB DRAM, PVDM2-48 (DSP for 48 calls), IOS SP Services
CISCO3825-V/K9	3825 Router, 64MB Flash, 256MB DRAM, PVDM2-64 (DSP for 64 calls), IOS SP Services
CISCO3845-V/K9	3845 Router, 64MB Flash, 256MB DRAM, PVDM2-64 (DSP for 64 calls), IOS SP Services

1. This is only a small subset of all parts available via URL listed under "For More Information." Some parts have restricted access or are not available through distribution channels.

### For More Information

See Routing, page 1-1 for product details.

## Cisco CallManager Express Bundles

Designed for enterprise branch offices, small and midsize businesses, and managed network service providers who seek consolidated, easy to order CallManager Express enabled routers. Each of these bundles provide a versatile, cost-effective solution that offer integrated IP Telephony and data services via a single router platform and include Cisco CallManager Express feature license, DSP resources to support PSTN connectivity to IP, necessary memory and recommended Cisco IOS feature set.

### When to Sell

#### Sell This Product

##### Cisco CCME Router Bundles

#### When a Customer Needs These Features

- SMB or Enterprise branch locations looking for data and distributed call processing using Cisco CallManager Express in a all-in-one solution based on Cisco access router
- Support for 24 to 240 Phones per location
- Customers who may need IP Telephony application in the future and wants investment protection on initial purchase

## Selected Part Numbers and Ordering Information<sup>1</sup>

### Cisco CCME Router Bundles

CISCO1760-V-CCME	1760 Router, 32MB Flash, 96MB DRAM, PVDM-256K-4, FL-CCME-SMALL (24 users), IOS IP Voice Feature Set
CISCO-2611XM-V-CCME	2611XM router, 32 MB Flash, 128 MB DRAM, NM-HD-2V (for 8 calls), FL-CCME-MEDIUM (48 users), Cisco IOS SP Services Voice
CISCO2651XM-V-CCME	2651 Router, 32MB Flash, 128MB DRAM, AIM-VOICE-30 (DSP for 30 calls), FL-CCME-MEDIUM (48 users), IOS SP Services
CISCO3845-CCME/K9	Cisco 3845 Voice Bundle with IOS SP Services, PVDM2-64, FL-CCME (240 users), 64 MB Flash/256 MB DRAM
CISCO3825-CCME/K9	Cisco 3825 Voice Bundle with IOS SP Services, PVDM2-64, FL-CCME (168 users), 64 MB Flash/256 MB DRAM
CISCO2851-CCME/K9	Cisco 2851 Voice Bundle with IOS SP Services, PVDM2-48, FL-CCME (72/96 <sup>2</sup> users), 64 MB Flash/256 MB DRAM
CISCO2821-CCME/K9	Cisco 2821 Voice Bundle with IOS SP Services, PVDM2-32, FL-CCME (48 users), 64 MB Flash/256 MB DRAM
CISCO2811-CCME/K9	Cisco 2811 Voice Bundle with IOS SP Services, PVDM2-16, FL-CCME (36 users), 64 MB Flash/256 MB DRAM
CISCO2801-CCME/K9	Cisco 2801 Voice Bundle with IOS SP Services, PVDM2-8,FL-CCME (24 users), 64 MB Flash/256 MB DRAM

1. This is only a small subset of all parts available via URL listed under "For More Information." Some parts have restricted access or are not available through distribution channels.
2. Available with IOS Version 12.3(11)T release

### For More Information

See Routing, Page 1-1 for detailed product information.

See Cisco CallManager Express, page 4-8 for product details.

## SRST Bundles

Designed for enterprise branch offices, small and midsize businesses, and managed network service providers who seek consolidated, easy to order SRST enabled routers. These bundles provide a versatile, cost-effective solution that offer voice connectivity, call processing redundancy and data services via a single Enterprise Router platform and include Cisco SRST feature license, DSP resources to support PSTN connectivity to IP, necessary memory and recommended Cisco IOS feature set.

### When to Sell

#### Sell This Product

##### Cisco SRST Bundles

#### When a Customer Needs These Features

- SRST for remote branch locations with Centralized Cisco CallManager deployments
- Support for 24 to 720 phones in SRST mode
- Customers who may deploy Cisco CallManager in the future and who want investment protection

## Selected Part Numbers and Ordering Information<sup>1</sup>

### Cisco Survivable Remote Site (SRST) Bundles

CISCO1760-V-SRST	1760 Router, 32MB Flash, 96MB DRAM, PVDM-256K-4, 24 Phone SRST FL, IOS IP Voice
CISCO2651XM-V-SRST	2651 Router, 32MB Flash, 128MB DRAM, AIM-VOICE-30 (DSP for 30 calls), 48 Phone FL, IOS IP Voice.
CISCO3845-SRST/K9	Cisco 3845 Voice Bundle with IOS SP Services, PVDM2-64, FL-SRST (240 users), 64 MB Flash/256 MB DRAM
CISCO3825-SRST/K9	Cisco 3825 Voice Bundle with IOS SP Services, PVDM2-64, FL-SRST (168 users), 64 MB Flash/256 MB DRAM
CISCO2851-SRST/K9	Cisco 2851 Voice Bundle with IOS SP Services, PVDM2-48, FL-SRST (96 users), 64 MB Flash/256 MB DRAM
CISCO2821-SRST/K9	Cisco 2821 Voice Bundle with IOS SP Services, PVDM2-32, FL-SRST(48 users), 64 MB Flash/256 MB DRAM
CISCO2811-SRST/K9	Cisco 2811 Voice Bundle with IOS SP Services, PVDM2-16, FL-SRST (36 users), 64 MB Flash/256 MB DRAM
CISCO2801-SRST/K9	Cisco 2801 Voice Bundle with IOS SP Services, PVDM2-8,FL-SRST (24 users), 64 MB Flash/256 MB DRAM

1. This is only a small subset of all parts available via URL listed under "For More Information." Some parts have restricted access or are not available through distribution channels.

### For More Information

See Cisco Survivable Remote Site Telephony (SRST), page 4-9 for product details.

## Cisco V3PN Bundles

Designed for enterprise branch offices, small and midsize businesses, and managed network service providers who seek security and IPCommunications capabilities in the same platform. V3PN bundle includes CME Features license, DSP resources for PSTN to IP calls, Advanced IP Services and AIM-VPN Accelerator card for maximum performance of security features including VPN tunneling

### When to Sell

#### Sell This Product

**Cisco V3PN Bundles**

#### When a Customer Needs These Features

- SMB or Enterprise branch locations looking for data, IP Telephony and VPN in a all in one solution based on Cisco Access router
- Support for 24 to 240 Phones per location
- Customers who may need IP Telephony application in the future and who want investment protection

### Selected Part Numbers and Ordering Information<sup>1</sup>

**Cisco V3PN Bundles**

CISCO3845-V3PN/K9	Cisco 3845 V3PN Bundle with IOS Advanced IP Services, PVDM2-64, AIM-VPN/HPII-PLUS, FL-CCME (240 users), 64 MB Flash/256 MB DRAM
CISCO3825-V3PN/K9	Cisco 3825 V3PN Bundle with IOS Advanced IP Services, PVDM2-64, AIM-VPN/EPII-PLUS, FL-CCME (168 users), 64 MB Flash/256 MB DRAM
CISCO2851-V3PN/K9	Cisco 2851 V3PN Bundle with IOS Advanced IP Services Image, PVDM2-48, FL-CCME (72/96 <sup>2</sup> users), AIM-VPN/EPII-PLUS, 64 MB Flash/256 MB DRAM
CISCO2821-V3PN/K9	Cisco 2821 V3PN Bundle with IOS Advanced IP Services Image, PVDM2-32, FL-CCME (48 users), AIM-VPN/EPII-PLUS, 64 MB Flash/256 MB DRAM
CISCO2811-V3PN/K9	Cisco 2811 V3PN Bundle with IOS Advanced IP Services Image, PVDM2-16, FL-CCME (36 users), AIM-VPN/EPII-PLUS, 64 MB Flash/256 MB DRAM
CISCO2801-V3PN/K9	Cisco 2801 V3PN bundle with IOS Advanced IP Services, PVDM2-8, FL-CCME (24 users), AIM-VPN/EPII-PLUS, 64 MB Flash/256 MB DRAM

1. This is only a small subset of all parts available via URL listed under “For More Information.” Some parts have restricted access or are not available through distribution channels.
2. Available with IOS Version 12.3(11)T release

### For More Information

See individual product pages for more detail



# VPN and Security

## VPN and Security Products at a Glance

Product	Features	Page
<b>Cisco ASA 5500 Series Adaptive Security Appliances</b>	<p>A powerful multifunction network security appliance family that provides the security breadth and 5-3 depth for protecting small and medium-sized business and enterprise networks while reducing the overall deployment and operations costs and complexities associated with providing this new level of security.</p> <ul style="list-style-type: none"> <li>Combines security and VPN services with the Cisco Adaptive Identification and Mitigation (AIM) architecture</li> <li>Designed as a key component of the Cisco Self-Defending Network</li> <li>Provides proactive threat defense stopping attacks before they spread</li> </ul>	
<b>Cisco PIX Security Appliances</b>	<p>The market-leading Cisco PIX Security Appliance Series provides robust user and application 5-5 policy enforcement, multi-vector attack protection, and secure connectivity services through a wide range of rich security and networking services, including:</p> <ul style="list-style-type: none"> <li>Advanced Application-Aware Firewall Services</li> <li>Market-Leading Voice-Over-IP and Multimedia Security</li> <li>Robust Site-to-Site and Remote Access IPSec VPN Connectivity</li> <li>Award-Winning Resiliency</li> </ul>	
<b>Cisco IPS 4200 Series Sensors</b>	<p>Cisco's IPS Sensors allow businesses to minimize the total cost of ownership of their IPS 5-8 deployments by delivering:</p> <ul style="list-style-type: none"> <li>Inline intrusion prevention functionality with IPS v5.0 Software</li> <li>Unprecedented price/performance ratios the ability to simultaneously protect multiple network subnets through the support for multiple interfaces—up to 8 interfaces (on the appliances)</li> <li>Dual operation in both promiscuous as well as inline modes simultaneously a wide array of performance options—from 80 Mbps</li> <li>Embedded web-based management solutions packaged with the sensor</li> </ul>	
<b>Cisco Security Monitoring Analysis and Response System (CS-MARS)</b>	<p>Centralized Monitoring and event correlation system for Cisco and non-Cisco platforms 5-10</p> <ul style="list-style-type: none"> <li>Timely Attack Mitigation—identify and disable offending layer 2 switch port</li> <li>End to End Network Awareness—identifies the attack path and keeps track of NAT's</li> <li>Netflow Analysis to detect Day Zero Worms and Virus</li> <li>10,000 events per second on a single box as well as a highly scalable distributed architecture</li> <li>Make sense of data—reduce millions of security events down to a handful of incidents</li> </ul>	
<b>Cisco VPN 3000 Family</b>	<p>Remote access Virtual Private Network platform 5-12</p> <ul style="list-style-type: none"> <li>Supports IPsec and SSL (WebVPN) remote connectivity</li> <li>Has models for all size companies, from small to large enterprise organizations</li> <li>Reduces communications expenditures</li> <li>Enables users to easily add capacity and throughput</li> </ul>	
<b>Network Admission Control</b>	<p>NAC is part of the Cisco Self-Defending Network, an initiative to increase network intelligence in 5-15 order to enable the network to automatically identify, prevent, and adapt to security threats.</p> <ul style="list-style-type: none"> <li>Organizations can provide network access to endpoint devices such as PCs, PDAs, and servers that are verified to be fully compliant with established security policy.</li> <li>Identify noncompliant devices and deny them access, place them in a quarantined area, or give them restricted access to computing resources</li> <li>Enforce security policy compliance on all devices seeking to access network computing resources, thereby limiting damage from viruses and worms</li> </ul>	
<b>Cisco Clean Access</b>	<p>Cisco Clean Access is an easy-to-deploy network admission control appliance that automatically 5-16 detects, isolates, and cleans infected or vulnerable devices that attempt to access the network.</p> <ul style="list-style-type: none"> <li>Integrated authentication, posture assessment, quarantine, remediation into one product</li> <li>Pre-packaged rulesets for updates, definition files, and hot fixes from Microsoft® and all major anti-virus vendors</li> <li>Generates significant cost savings by enlisting users to repair and update their own machines</li> <li>Improves network health and resiliency by requiring that all incoming devices comply with a certain standard of security</li> <li>Scales from 50 user to 100,000 user deployments</li> </ul>	

Product	Features	Page
<b>Cisco Security Agent</b>	Provides threat protection for desktop and server computing systems by identifying and preventing malicious activity: <ul style="list-style-type: none"> <li>Aggregates and extends multiple endpoint security functions</li> <li>Protects against known and unknown attacks on both servers and desktops;</li> <li>Scalable to 100,000 agents per management server</li> <li>Compliant with SDN/NAC Cisco Trust Agent. Integrated management with Cisco PIX, Cisco Secure IDS, and Cisco VPN security devices and built-in Cisco Secure VPN “Are You There” (AYT)</li> </ul>	5-17
<b>Cisco Security Auditor</b>	<ul style="list-style-type: none"> <li>Scaleable and intuitive automatic auditing process management to eliminate the error-prone and time-consuming manual process</li> <li>Best-practice guidelines gathered from industry standards (NSA, SAFE, CIS) for security compliance auditing</li> </ul>	5-19
<b>Cisco Secure Access Control Server (ACS) for Windows</b>	Provides a comprehensive identity networking solution and secure user experience for Cisco intelligent information networks. It is the integration and control layer among all enterprise users, administrators, and the resources of the network infrastructure	5-20
<b>Cisco Secure Access Control Server (ACS) Solution Engine</b>	A high-performance and highly scalable user and administrative access control solution that operates as a centralized RADIUS or TACACS+ server system in a turnkey security-hardened solution	5-22
<b>Cisco Secure User Registration Tool (URT)</b>	Identifies users within the network and creates user registration policy bindings that help support mobility and tracking: <ul style="list-style-type: none"> <li>Ensures that users are associated with their authorized subnet/VLAN</li> <li>Addresses the challenges associated with campus user mobility</li> <li>Secure user access to the VLAN with MAC address-based security option</li> <li>Option to allow multiple users connected to a hub to access a VLAN served by a single switch port</li> </ul>	5-23
<b>CiscoWorks VPN/Security Management Solution</b>	Combines general device management tools for configuring, monitoring, and troubleshooting enterprise networks with powerful security solutions for managing virtual private networks (VPNs), firewalls, and network and host-based intrusion protection systems (IPS). An integral part of the Cisco SAFE Blueprint for Enterprise, this bundle also delivers network device inventory, change audit and software distribution features. See Chapter 9-1—IOS Software and Network Management for more information on CiscoWorks VPN/Security Management Solution	9-11
<b>CiscoWorks Security Information Management Solution and CiscoWorks Security Information Management Solution Engine</b>	A solution that collects, analyzes, and correlates security event data from across the enterprise- letting you detect and respond to security events as they occur. <ul style="list-style-type: none"> <li>Event monitoring of multivendor security environments</li> <li>Extensive reporting for operators and high-level administrators</li> <li>Risk assessment information to understand overall vulnerability of critical network assets within the enterprise; Forensics tools to investigate attacks</li> <li>Traffic utilization reports and graphs to understand changes in traffic patterns</li> </ul> See Chapter 9-1—IOS Software and Network Management for more information on CiscoWorks Security Information Management Solution	9-12
<b>Cisco Firewall Services Module (FWSM) for Catalyst 6500</b>	Firewall Module is a high performance integrated stateful firewall solution for Catalyst 6500 family of switches with performance exceeding 5GB. It is based on proven PIX technology while providing the following benefits to the customers <ul style="list-style-type: none"> <li>Investment protection; Low cost of ownership; Ease of use; Operational Consistency; Scalability</li> </ul> See the Catalyst 6500 Series Switch in Chapter 2: LAN Switching, page 2-22, for more information	2-22
<b>IPSec VPN Shared Port Adapter (SPA) for Catalyst 6500</b>	<ul style="list-style-type: none"> <li>Next-generation encryption technology</li> <li>High speed VPN performance; Scalability</li> <li>Attractive form factor to enable a more flexible and scalable network infrastructure</li> <li>Comprehensive VPN features</li> </ul> See the Catalyst 6500 Series Switch in Chapter 2: LAN Switching, page 2-22, for more information See also the Cisco 7600 Series Router in Chapter 1: Routing, page 1-48	2-22
<b>Intrusion Detection System Services Module (IDSM-2) for Catalyst 6500</b>	<ul style="list-style-type: none"> <li>Integrates full-featured IPS functions directly into the network infrastructure</li> <li>Monitor traffic directly off the switch backplane—a logical platform for additional services such as firewall, VPN, and IPS</li> <li>When in passive mode, IDSM-2 provides promiscuous inspection of packet copies via VACL capture and Switch Port Analyzer/Remote SPAN (SPAN/RSPAN)</li> <li>Advanced false positive reduction features</li> <li>One rack-unit (RU) size takes up only a single slot in the Cisco Catalyst 6500 or Catalyst 7600 chassis</li> <li>Up to 500 megabits per second (Mbps) of IDS/IPS inspection provides high-speed packet-examination capabilities and allows for more protection of a wider variety of networks and traffic</li> </ul> See the Catalyst 6500 Series Switch in Chapter 2: LAN Switching, page 2-22	2-22
<b>Cisco IOS Firewall</b>	<ul style="list-style-type: none"> <li>Tightly integrated with IOS VPN and advanced routing technologies</li> <li>Application aware stateful packet inspection via context-based access control (CBAC) for TCP, UDP, SIP, Skinny, H.323 and others</li> <li>Supports user authentication for https, ftp and telnet connections</li> <li>URL filtering through router exclusive domains or use of external Websense and N2H2 servers</li> <li>Inline intrusion prevention for real-time response to network attacks dynamically supporting thousands of common attack signatures</li> <li>Dynamic, network-to-network, per-user authentication and authorization via TACACS+ and RADIUS</li> </ul>	5-24



Product	Features	Page
Cisco Security Router Bundles	Cisco 800, 1700, 1800, 2600, 2800, 3700, 3800 7200 and 7301 Security Router Bundles with Enhanced 1-1 Integrated Network Security. See individual product pages for more detail (page 1-1)	
Cisco 800, 1700, 1800, 2600, 2800, 3700, 3800, 7200, and 7301	Wide variety of modular router platforms with options for Cisco IOS-based and hardware-enabled 1-1 VPN, Cisco IOS Firewall, Intrusion Prevention, Network Admission Control (NAC), and security support.	

## Cisco ASA 5500 Series Adaptive Security Appliance



Cisco® ASA 5500 Series adaptive security appliances deliver numerous market-leading, high-performance security and VPN services for small and medium-sized businesses (SMBs), enterprises, and service providers-in addition to providing unprecedented services flexibility and extensibility and lower deployment and operations costs.

### When to Sell

#### Sell This Product

Cisco ASA 5510

#### When a Customer Needs These Features

- Small-to-medium business or enterprise remote/branch office class security appliance
- Up to 300 Mbps of firewall throughput
- Up to 150 Mbps, with AIP-SSM-10 of concurrent threat mitigation throughput (firewall + anti-x services)
- Up to 170 Mbps of 3DES/AES VPN throughput
- Up to 32,000 connections on base system; 64,000 connections with Security Plus license upgrade
- Up to 50 IPSec peers and 50 WebVPN peers on base system; scalable to 150 peers each with Security Plus license upgrade
- Up to three Fast Ethernet ports and one management port on base system; increase to total five Fast Ethernet ports with Security Plus license upgrade
- VLAN trunking (802.1q tag-based) and OSPF dynamic routing support
- Active/Standby firewall stateful failover support with Security Plus license upgrade

Cisco ASA 5520

- Medium-sized enterprise class security appliance
- Up to 450 Mbps of firewall throughput
- Up to 375 Mbps, with AIP-SSM-20 of concurrent threat mitigation throughput (firewall + anti-x services)
- Up to 225 Mbps of 3DES/AES VPN throughput
- Up to 130,000 connections
- Up to 300 IPSec peers and 300 WebVPN peers on base system; scalable to 750 peers each with Security Plus license upgrade
- VPN clustering and load balancing
- Two security contexts (virtual firewalls) on base system; expandable to 10 security contexts with upgrade license
- Four Gigabit Ethernet ports and one Fast Ethernet port
- Up to 25 virtual interfaces or VLANs (802.1q tag-based)
- Active/Standby IPSec failover support
- Active/Active and Active/standby firewall stateful failover support

Cisco ASA 5540

- Medium-to-large enterprise and service-provider class security appliance
- Up to 650 Mbps of firewall throughput
- Up to 450 Mbps, with AIP-SSM-20 of concurrent threat mitigation throughput (firewall + anti-x services)
- Up to 325 Mbps of 3DES/AES VPN throughput
- Up to 280,000 connections
- Up to 500 IPSec VPN peers on base system; scalable to 2000 and 5000 peers through VPN Plus and Premium license upgrades respectively.
- VPN clustering and load balancing
- Four Gigabit Ethernet ports and one Fast Ethernet port
- Up to 100 virtual interfaces or VLANs (802.1q tag-based)
- Active/Standby IPSec failover support
- Active/Active and Active/standby firewall stateful failover support

# Key Features

- Proven security and VPN capabilities—Full-featured, high-performance firewall, IPS, network antivirus, and IP Security/Secure Sockets Layer (IPSec/SSL) VPN technologies deliver robust application security, user- and application-based access control, worm and virus mitigation, malware protection, and remote user/site connectivity
- Extensible Adaptive Identification and Mitigation services architecture—Leveraging a modular services processing and policy framework, AIM enables the application of specific security or network services on a per traffic flow basis, delivering highly granular policy controls and anti-x protection with streamlined traffic processing.
  - Enables evolution of existing services as well as deployment of new services without requiring a platform replacement or performance compromise
  - Enables highly customizable security policies and services to help protect against a fast evolving threat environment
- Reduced deployment and operations costs—Multifunctionality allows for configuration and management standardization helping decrease the costs of deployment and ongoing operations

# Competitive Products

- Juniper: NetScreen Security Appliances
- Check Point Software: FireWall-1 / VPN-1
- Nokia: IP-Series Security Appliances
- SonicWALL: SonicWALL Security Appliances
- WatchGuard Technologies: Firebox X Security Appliances

# Specifications

Feature	Cisco ASA 5510	Cisco ASA 5520	Cisco ASA 5540
Users/Nodes	Unlimited	Unlimited	Unlimited
Firewall Throughput	Up to 300 Mbps	Up to 450 Mbps	Up to 650 Mbps
Concurrent Threat Mitigation Throughput (Firewall + Anti-x Services)	Up to 150 Mbps with AIP-SSM-10	Up to 225 Mbps with AIP-SSM-10 Up to 375 Mbps with AIP-SSM-20	Up to 450 Mbps with AIP-SSM-20
3DES/AES VPN Throughput	Up to 170 Mbps	Up to 225 Mbps	Up to 325 Mbps
IPSec VPN Peers <sup>1</sup>	50/150	300/750	500/2000/5000
WebVPN Peers	50 <sup>1</sup> /150 <sup>1</sup>	300 <sup>1</sup> /750 <sup>1</sup>	500/1250 <sup>1</sup> /2500 <sup>1</sup>
Concurrent Sessions	32,000/64,000 <sup>1</sup>	130,000	280,000
Integrated Network Ports	3 + 1 Management Fast Ethernet Ports / Upgradable to 5 Fast Ethernet Ports	4 Gigabit Ethernet, 1 Fast Ethernet	4 Gigabit Ethernet, 1 Fast Ethernet
Virtual Interfaces (VLANs)	0 in base system / 10 with Security Plus license upgrade	25	100
Security Contexts (Included/Maximum)	0/0	2/10	2/50
High Availability	Not supported / Active/Standby with Security Plus license upgrade	Active/Active and Active/Standby	Active/Active and Active/Standby
SSM Expansion Slot	1	1	1
USB 2.0 Ports	2	2	2
RAM	256 Mb	512 Mb	1 Gb
Flash Memory	64 Mb	64 Mb	64 Mb
Size	1 RU	1 RU	1 RU

1. Available through an upgrade license

## Selected Part Numbers and Ordering Information<sup>1</sup>

### Cisco ASA 5500 Series Adaptive Security Appliances

ASA5510-K8	Cisco ASA 5510 Appliance with Software, 50 VPN Peers, 3 FE Ports, DES
ASA5510-DC-K8	Cisco ASA 5510 Appliance with DC Power Supply, Software, 50 VPN Peers, 3 FE Ports, DES
ASA5510-BUN-K9	Cisco ASA 5510 Appliance with Software, 50 VPN Peers, 3 FE Ports, 3DES/AES
ASA5510-AIP10-K9	Cisco ASA 5510 Appliance with AIP-SSM-10, Software, 50 VPN Peers, 3 FE Ports, 3DES/AES
ASA5510-SEC-BUN-K9	Cisco ASA 5510 Sec Plus Appliance with Software, 150 VPN Peers, 5 FE Ports, 3DES/AES
ASA5520-K8	Cisco ASA 5520 Appliance with Software, 300 VPN Peers, 4 GE and 1 FE Ports, DES
ASA5520-DC-K8	Cisco ASA 5520 Appliance with DC Power Supply, Software, 300 VPN Peers, 4 GE and 1 FE Ports, DES
ASA5520-BUN-K9	Cisco ASA 5520 Appliance with Software, 300 VPN Peers, 4 GE and 1 FE Ports, 3DES/AES
ASA5520-AIP10-K9	Cisco ASA 5520 Appliance with AIP-SSM-10, Software, 300 VPN Peers, 4 GE and 1 FE Ports, 3DES/AES
ASA5520-AIP20-K9	Cisco ASA 5520 Appliance with AIP-SSM-20, Software, 300 VPN Peers, 4 GE and 1 FE Ports, 3DES/AES
ASA5540-K8	Cisco ASA 5540 Appliance with Software, 500 VPN Peers, 4 GE and 1 FE Ports, DES
ASA5540-DC-K8	Cisco ASA 5540 Appliance with DC Power Supply, Software, 500 VPN Peers, 4 GE and 1 FE Ports, DES
ASA5540-BUN-K9	Cisco ASA 5540 Appliance with Software, 500 VPN Peers, 4 GE and 1 FE Ports, 3DES/AES
ASA5540-AIP20-K9	Cisco ASA 5540 Appliance with AIP-SSM-20, Software, 500 VPN Peers, 4 GE and 1 FE Ports, 3DES/AES

### Security Service Modules

ASA-SSM-AIP-10-K9=	Cisco ASA Advanced Inspection and Prevention (AIP) Security Service Module-10
ASA-SSM-AIP-20-K9=	Cisco ASA Advanced Inspection and Prevention (AIP) Security Service Module-20

1. This is only a small subset of all parts available via URL listed under “For More Information”. Some parts have restricted access or are not available through distribution channels. Resellers: For latest part number and pricing info, see the *Distribution Product Reference Guide* at: <http://www.cisco.com/dprg> (limited country availability).

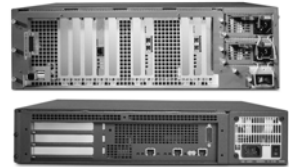
### For More Information

See the Cisco ASA 5500 Series Adaptive Security Appliance Website:

<http://www.cisco.com/go/asa>

## Cisco PIX Security Appliance Series

The market-leading Cisco PIX Security Appliance Series delivers robust user and application policy enforcement, multi-vector attack protection, and secure connectivity services in cost-effective, easy-to-deploy solutions. Ranging from compact, “plug-and-play” desktop appliances for small and home offices to modular gigabit appliances with superior investment protection for enterprise and service-provider environments, Cisco PIX Security Appliances provide robust security, performance, and reliability for network environments of all sizes.



### When to Sell

#### Sell This Product

PIX 501

PIX 506E

#### When a Customer Needs These Features

- Small Office / Home Office desktop integrated security appliance
- Up to 60 Mbps of firewall throughput
- Up to 3 Mbps of 3DES and 3.4 Mbps of AES-256 IPsec VPN throughput<sup>1</sup>
- Hardware VPN client (Easy VPN Remote)
- VPN concentrator services (Easy VPN Server) for up to 10 remote users
- Integrated four port 10/100 Mbps switch
- Remote Office / Branch Office desktop integrated security appliance
- Up to 100 Mbps of firewall throughput
- Up to 15 Mbps of 3DES and 25 Mbps of AES-256 IPsec VPN throughput<sup>1</sup>
- Hardware VPN client (Easy VPN Remote)
- VPN concentrator services (Easy VPN Server) for up to 25 remote users
- Maximum of two 10BASE-T Ethernet interfaces
- VLAN trunking (802.1q tag-based) and OSPF dynamic routing support

**Sell This Product**  
**PIX 515E**

**When a Customer Needs These Features**

- Small-to-Medium Business (SMB) integrated security appliance
- Up to 190 Mbps of firewall throughput<sup>1</sup>
- Up to 130 Mbps of 3DES/AES-256 VPN throughput<sup>1</sup> using hardware acceleration (integrated in select models, optional for others)
- VPN concentrator services (Easy VPN Server) for up to 2,000 remote users
- Up to six 10/100 FE interfaces
- VLAN trunking (802.1q tag-based) and OSPF dynamic routing support
- Security contexts (virtual firewall services) support
- Active/Active and Active/Standby firewall stateful failover support
- Active/standby IPSec VPN failover support

**PIX 525**

- Enterprise-class integrated security appliance
- Up to 330 Mbps of firewall throughput<sup>1</sup>
- Up to 145 Mbps of 3DES and 135 Mbps of AES-256 VPN throughput<sup>1</sup> using hardware acceleration (integrated in select models, optional for others)
- VPN concentrator services (Easy VPN Server) for up to 2,000 remote users
- Gigabit Ethernet support; Up to eight 10/100 FE or three Gigabit Ethernet interfaces
- VLAN trunking (802.1q tag-based) and OSPF dynamic routing support
- Security contexts (virtual firewall services) support
- Active/Active and Active/Standby firewall stateful failover support
- Active/standby IPSec VPN failover support

**PIX 535**

- Carrier class large enterprise and service provider firewall appliance
- Up to 1.7 Gbps of firewall throughput<sup>1</sup>
- Up to 425 Mbps of 3DES/AES-256 VPN throughput using hardware acceleration (integrated in select models, optional for others)
- VPN concentrator services (Easy VPN Server) for up to 2,000 remote users
- Gigabit Ethernet throughput; Up to ten 10/100 FE or nine Gigabit Ethernet interfaces
- VLAN trunking (802.1q tag-based) and OSPF dynamic routing support
- Security contexts (virtual firewall services) support
- Active/Active and Active/Standby firewall stateful failover support
- Active/standby IPSec VPN failover support
- Redundant, hot-swappable power supplies

1. At 1400-byte packets

**Key Features**

- **Advanced Firewall Services**—Deep inspection firewall services such as HTTP, FTP, and ESMTP; Instant messaging, peer-to-peer, and tunneling application blocking; Cisco Modular Policy Framework with flow-based security policies; Virtual firewall services; Layer 2 transparent firewall; 3G Mobile Wireless security services;
- **Robust IPSEC VPN Services**—VPN client security posture enforcement; Automatic VPN client software updating; OSPF dynamic routing over VPN tunnels
- **High Availability Services**—Award-winning Active/Standby or more advanced Active/Active failover with asymmetric routing support; Remote-access and site-to-site VPN stateful failover; Zero-downtime software upgrades
- **Intelligent Network Services**—PIM multicast routing; Quality of service (QoS); IPv6 networking
- **Flexible Management Solutions**—SSHv2 and SNMPv2c; Configuration rollback; Usability enhancements; Web-based Adaptive Security Device Manager (ASDM)

**Competitive Products**

- Check Point Software: FireWall-1 / VPN-1
- Juniper Networks: NetScreen Security Appliances
- Nokia: IP-Series Security Appliances
- SonicWALL: SonicWALL Security Appliances
- WatchGuard Technologies: Firebox-series Security Appliances

**Specifications**

Feature	PIX 501	PIX 506E	PIX 515E	PIX 525	PIX 535
<b>Processor</b>	133 MHz	300 MHz	433 MHz	600 MHz	1.0 GHz
<b>RAM</b>	16 MB	32 MB	64 or 128 MB	128 or 256 MB	512 MB or 1 GB
<b>Flash Memory</b>	8 MB	8 MB	16 MB	16 MB	16 MB
<b>PCI Slots</b>	None	None	2	3	9
<b>Fixed Interfaces (Physical)</b>	Four port 10/100 switch (inside), One 10Base-T Ethernet (outside)	Two 10Base-T Ethernet	Two 10/100 Fast Ethernet	Two 10/100 Fast Ethernet	Two 10/100 Fast Ethernet

Feature	PIX 501	PIX 506E	PIX 515E	PIX 525	PIX 535
<b>Maximum Interfaces (Physical)</b>	Four port 10/100 switch (inside), One 10Base-T Ethernet (outside)	Two 10Base-T Ethernet	Six 10/100 Fast Ethernet (FE)	Eight 10/100 FE or GE	Ten-10/100 FE or GE
<b>Maximum Virtual Interfaces (VLAN)</b>	0	2 (DMZ)	25	100	150
<b>Supported Security Contexts</b>	No	No	Yes, 2/5 <sup>1</sup>	Yes, 2/50 <sup>1</sup>	Yes, 2/50 <sup>1</sup>
<b>VPN Accelerator Card+ (VAC+) Option</b>	No	No	Yes, integrated in select models	Yes, integrated in select models	Yes, integrated in select models
<b>High Availability Support</b>	No	No	A/S, A/A <sup>2</sup>	A/S, A/A	A/S, A/A
<b>Size</b>	Desktop	Desktop	1 RU	2 RU	3 RU

1. Licensed feature on UR, FO, and AA Platform Licenses, requires Cisco PIX Security Appliance Software Version 7.0(1) or higher
2. Requires Cisco PIX Security Appliance Software Version 7.0(1) or higher; A/A high availability requires one UR and one FO-AA unit (A/S = Active/Standby; A/A = Active/Active)

## Selected Part Numbers and Ordering Information<sup>1</sup>

### Cisco PIX Security Appliance Bundles

PIX-535-UR-BUN	PIX 535 Unrestricted Bundle (Chassis, license, unrestricted software, two 10/100 ports, VPN Accelerator Card+)
PIX-535-R-BUN	PIX 535 Restricted Bundle (Chassis, license, restricted software, two 10/100 ports)
PIX-535-FO-BUN	PIX 535 Failover Bundle (Chassis, license, failover software, two 10/100 ports, VPN Accelerator Card+)
PIX-535-UR-GE-BUN	PIX 535-UR-GE Bundle (Chassis, unrestricted license, software, three GE, two FE, VPN Accelerator Card+, 2 AC)
PIX-535-FO-GE-BUN	PIX 535-FO-GE Bundle (Chassis, failover license, software, three GE, two FE, VPN Accelerator Card+, 2 AC)
PIX-535-AA-GE-BUN	PIX 535 FO-AA Bundle (Chassis, active/active failover license, software, three GE, two FE, VPN Accelerator Card+, 2 AC)
PIX-525-UR-GE-BUN	PIX 525 Unrestricted GE Bundle (Chassis, license, unrestricted software, two GE ports, two 10/100 ports, VPN Acceleration Card+)
PIX-525-FO-GE-BUN	PIX 525 Failover GE Bundle (Chassis, license, failover software, two GE ports, two 10/100 ports, VPN Acceleration Card+)
PIX-525-UR-BUN	PIX 525 Unrestricted Bundle (Chassis, license, unrestricted software, two 10/100 ports, VPN Accelerator Card+)
PIX-525-R-BUN	PIX 525 Restricted Bundle (Chassis, license, restricted software, two 10/100 ports)
PIX-525-FO-BUN	PIX 525 Failover Bundle (Chassis, license, failover software, two 10/100 ports, VPN Accelerator Card+)
PIX-525-AA-GE-BUN	PIX 525 FO-AA Bundle (Chassis, active/active failover license, software, two GE, two FE, VPN Accelerator Card+)
PIX-515E-UR-FE-BUN	PIX 515E Unrestricted Bundle (Chassis, license, unrestricted software, six 10/100 ports, VPN Accelerator Card+)
PIX-515E-FO-FE-BUN	PIX 515E Failover Bundle (Chassis, license, failover software, six 10/100 ports, VPN Accelerator Card+)
PIX-515E-UR-BUN	PIX 515E Unrestricted Bundle (Chassis, license, unrestricted software, two 10/100 ports, VPN Accelerator Card+)
PIX-515E-R-BUN	PIX 515E Restricted Bundle (Chassis, license, restricted software, two 10/100 ports)
PIX-515E-FO-BUN	PIX 515E Failover Bundle (Chassis, license, failover software, two 10/100 ports, VPN Accelerator Card+)
PIX-515E-AA-FE-BUN	PIX 515E FO-AA Bundle (Chassis, active/active failover license, software, six FE, VPN Accelerator Card+)
PIX-515E-R-DMZ-BUN	PIX 515E DMZ Bundle (Chassis, license, restricted software, three 10/100 ports)
PIX515E-DMZ-CSA-K9	Cisco Security Starter Bundle with PIX 515E-R-DMZ system, CSA, VMS Basic Software
PIX-506E-BUN-K9	PIX 506E 3DES/AES Bundle (Chassis, license, software, 3DES/AES license, two 10-BaseT ports)2
PIX-501-BUN-K9	PIX 501 10 User/3DES/AES Bundle (Chassis, software, 10 user/3DES/AES license, 4 port 10/100 switch)
PIX-501-50-BUN-K9	PIX 501 50 User/3DES/AES Bundle (Chassis, software, 50 user/3DES/AES license, 4 port 10/100 switch)
PIX-501-UL-BUN-K9	PIX 501 Unlimited User/3DES/AES Bundle (Chassis, software, Unlimited Users 3DES/AES license, 4 port 10/100 switch)

### Cisco PIX Security Appliance Interfaces and Cards

PIX-1GE-66	PIX 66-MHz Single-port Gigabit Ethernet interface card (multimode fiber, SC connector)
PIX-4FE-66	PIX 66-MHz Four-port 10/100 Fast Ethernet interface card, RJ45
PIX-1FE	PIX Single-port 10/100 Fast Ethernet interface card
PIX-VPN-ACCEL	PIX DES/3DES VPN Accelerator Card (VAC)
PIX-VPN-PLUS	PIX DES/3DES/AES VPN Accelerator Card+ (VAC+)

1. This is only a small subset of all parts available via URL listed under "For More Information". Some parts have restricted access or are not available through distribution channels. Resellers: For latest part number and pricing info, see the *Distribution Product Reference Guide* at: <http://www.cisco.com/dprg> (limited country availability).

## For More Information

See the PIX Security Appliance Website: <http://www.cisco.com/go/pix>

## Cisco Intrusion Protection System (IPS) Network Sensors



The Cisco IPS 4200 Series sensors are a key component of the Cisco Self Defending Network. In busy network environments, business continuity relies on efficient network intrusion security to stop malicious attacks, worms and viruses before they affect your data and resources. The Cisco IPS sensors, utilizing IPS v5.0 software, accurately detect, classify, and stop malicious traffic through the use of inline prevention functionality.

Cisco's family of purpose-built IPS devices includes the Cisco IPS 4200 Series appliances and the Cisco Catalyst 6500 Series switch module. The intrusion detection system (IDS) module for Cisco access routers provides traditional detection with enhanced capabilities. Additionally, a focused set of intrusion prevention capabilities is available as a Cisco IOS® Software solution for Cisco routers. For device configuration and event viewing, Cisco solutions include the IPS Device Manager for single device management and event monitoring, and CiscoWorks VPN/Security Management Solution (VMS) for multidevice, multievent-type correlation.

When combined, these elements provide a comprehensive inline prevention solution, giving you the confidence to detect and stop the broadest range of malicious traffic before it affects business continuity.

The current Cisco IDS/IPS sensing portfolio includes IDS 4215, IPS 4240, IPS 4255 and IDS 4250-XL. Additional Cisco IDS integrated solutions include Intrusion Detection System Module (IDSM-2) for the Catalyst 6500 switch and the IDS Network Module (NM-CIDS) for Cisco Access Routers.

### When to Sell

#### Sell This Product Cisco IPS Network Sensors

#### When a Customer Needs These Features

- A distributed intrusion prevention system capable of directing and forwarding alarms between local, regional, and headquarters-based monitoring consoles
- A scalable architecture to allow the deployment of large numbers of sensors in order to provide comprehensive security coverage in large network environments
- Cisco network IPS appliances (Cisco IPS 4200 Series Appliances) that can be deployed throughout the network with the ability to monitor multiple subnets using a single appliance through the support of multiple interfaces
- The Cisco IDS Switch Module (IDSM2) enables customers to perform both security monitoring and switching functions within the same chassis
- The Cisco IDS Network Module enables full features intrusion protection integrated into the Cisco Access Routers
- Broad performance range from 45 Mbps
- Flexible IDS signature customization options
- Broad range of management and monitoring options to fit any environment.
- A robust, 24 hour x 7 day-a-week monitoring and response system with the latest attack detection capabilities

## Key Features

- **Multivector threat identification**—Protects your network from policy violations, vulnerability exploitations, and anomalous activity through the detailed inspection of Layers 2-7 traffic.
- **Accurate prevention technologies**—Provides the confidence to enable prevention actions on a broader range of threats without the risk of dropping legitimate traffic. The Cisco innovative Risk Rating and Meta-Event Generator (MEG) accurately identify attacks, allowing for rapid mitigation activity.
- **Unique network collaboration**—Provides enhanced scalability and resiliency through network collaboration, including efficient traffic capture techniques, load-balancing capabilities, and visibility into encrypted traffic.
- **Comprehensive deployment solutions**—Provides intrusion detection and prevention solutions for all environments from the small to midsize business (SMB) and branch office location to the large enterprise and service provider installations.

## Competitive Products

- Internet Security Systems (ISS): Proventia
- Symantec: Recourse Manhunt & ManTrap/NetProwler
- Enterasys: Dragon IDS
- Intrusion.com: SecureNet
- Juniper: OneSecure IDP
- Snort: IDS
- Tipping Point—Unity One
- NAI: Intrushield
- Network Flight Recorder, Inc.: NFR

## Specifications

Feature	IPS-4255	IPS-4240	IDS-4215	IDS-4250-XL	IDS Module (IDSM-2)	IDS Network Module (NM-CIDS)
<b>Performance</b>	600 Mbps	250 Mbps	650 Mbps	800 Mbps	600 Mbps	45Mbps
<b>Monitoring Interface</b>	Four 10/100/1000BASE-T X	Four 10/100/1000BASE-T X	Autosensing 10/100 Base-T Ethernet, (upgradable to support up to 5 monitoring interfaces)	Dual 1000BASE-SX interface with MTRJ	PCI	Internal 10-/100-Mbps Ethernet and external 10-100-Mbps Ethernet
<b>Optional Interface</b>			Four 10/100 Base-Tx 1000Base-Sx (fiber) (4FE) sniffing interfaces (allowing a total of 5 sniffing interfaces)			
<b>Command &amp; Control Interface</b>	10/100 Base-TX	10/100 Base-TX	10/100 Base-TX	100Base-SX (fiber)	PCI	10/1010/100Base T

## Selected Part Numbers and Ordering Information<sup>1</sup>

### Cisco IDS/IPS Network Appliance Sensor

IDS-4215-K9	4215 Cisco IDS 4215 Sensor (chassis, software, SSH, 2 onboard 10/100Base-TX with RJ-45 connector) 65-Mbps
IDS-4215-4FE-K9	Cisco IDS 4215 Sensor (chassis, software, SSH, 2 onboard 10/100BASE-TX with RJ-45 connector plus 4FE interface card), 65-Mbps
IPS-4240-K9	Cisco IPS 4240 Sensor (chassis, software, SSH, four 10/100/1000BASE-T with RJ-45 connector) 250 Mbps
IPS-4255-K9	Cisco IPS 4255 Sensor (chassis, software, SSH, four 10/100/1000BASE-T with RJ-45 connector) 500 Mbps
IDS-4250-XL-K9	Cisco IDS 4250-XL Sensor (chassis, software, SSH, hardware accelerator with dual 1000BASE-SX and MTRJ connectors) 800 Mbps

### Cisco IDS Network Module for Cisco Access Routers

WS-SVC-IDS2-BUN-K9	Cisco IDS Network Module, for 26xx, 3660 and 37xx routers as well as the ISR router series, 45Mbps
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1. This is only a small subset of all parts available via URL listed under “For More Information”. Some parts have restricted access or are not available through distribution channels. Resellers: For latest part number and pricing info, see the *Distribution Product Reference Guide* at: <http://www.cisco.com/dprg> (limited country availability).



**Note** **Export Considerations:** The Cisco IDS 4215, Cisco IDS 4240, Cisco IDS 4255, Cisco IDS 4250-XL, Cisco IDSM-2 & Cisco IDS Network Module are subject to export controls. Please refer to the export compliance website at <http://www.cisco.com/www/export/crypto> for guidance. For specific export questions, please contact [export@cisco.com](mailto:export@cisco.com).

### For More Information

See the Cisco IPS Website: <http://www.cisco.com/go/ips>

## Cisco Security Monitoring and Response System (CS-MARS)

The CS-MARS is a family of high performance, scalable appliances for threat management, monitoring and mitigation that enable customers to make more effective use of network and security devices by combining traditional security event monitoring with network intelligence, context correlation, vector analysis, anomaly detection, hotspot identification and automated mitigation capabilities. By combining network intelligence, an understanding of network topology and automated mitigation capabilities, CS-MARS help companies to accurately identify and eliminate network attacks while maintaining network compliance.

### When to Sell

#### Sell This Product

CS-MARS 20

CS-MARS 50

CS-MARS 100e

CS-MARS 100

CS-MARS 200

CS-MARS GC

CS-MARS GCm

#### When a Customer Needs These Features

- Small Office, Test lab, Departments, Small Retail, DMZ, CPE
- Low end device to plot network topology and gain insight of their network topology
- Up to 500 events per second
- Up to 15,000 Netflow flows per second
- 120 Gig Storage
- Small to Medium Office, remote branch office, retail, small business, DMZ, CPE
- Consolidate Firewall and IDS with network events and network flows in small network
- Up to 1,000 events per second
- Up to 30,000 Netflow flows per second
- 240 Gig Storage
- Medium Regional Office, large remote branch office, mid-tier company, CPE
- Up to 3,000 events per second
- Up to 75,000 Netflow flows per second
- 750 Gig Storage
- Large regional, large Branch Office, mid tier company, CPE
- Up to 5,000 events per second
- Up to 150,000 Netflow flows per second
- 750 Gig storage
- Large Enterprise, Central Office, large Firewalls (FWSM)
- Up to 10,000 events per second
- Up to 300,000 Netflow flows per second
- Large Distributed Environment (large Enterprise or Service Provider Companies), MSSP
- Preserve WAN
- Autonomous business units rolling activity to Global team
- State and Federal government consolidating activities from various agencies
- Consolidates reports from distributed "Local" controller
- Small distributed customer environment
- Preserve WAN
- Consolidates reports from distributed "Local" controller
- Up to (5) MARS 20 or MARS 50 connection



**Key Features**

- Redundant, hot-swappable power supplies—CS-MARS 100, 100e, 200, GC, and GCm
- Raid 10 disk Drive (Hot Swappable)—CS-MARS 100, 100e, 200, GC, and GCm
- 1 Terabyte of storage—CS-MARS 200, GC, and GCm
- Centralized Monitoring—Provides detailed information about the network infrastructure including routers, switches, firewalls, VPN concentrators, and endpoint devices through a variety of device logs, alerts, and Netflow communication. Enables CS-MARS to process threat information down to the IP and MAC address, nearest attached switch port, as well as providing the attack path through the network
- Central Event Repository—Serves as a central repository for all events generated by Security devices, such as firewalls, authentication servers, Network IDS/IPS, and proxy servers. Network device events as well as workstations and servers logs are also collected. All collected events are cross-correlated in real-time.
- Data reduction—Can reduce millions of security events to a handful of actual reported network incidents
- Timely attack mitigation—Performance and the built-in expertise to recognize and recommend mitigation for attacks before they can bring down an entire network
- End-to-end network awareness—Integrates NAT/PAT and MAC address information to identify attackers, targets, and network hot spots in graphical form for quick action; Uses the full configurations of all types of network devices and end systems; Pre and Post NAT addresses can be displayed
- Integrated Vulnerability Assessment—Determines whether a possible network attack is genuine or a false positive, further reducing the number of alarms and the time needed to take action
- Reduced Deployment and Operation Cost—After bootstrapping and connecting to the network, CS-MARS discovers then maps the topology and becomes operational in a very short period of time
- Cisco NAC Support—Supports Cisco Network Admission Control initiative, reporting on overall posture, and identifying compliant, non-compliant workstations; Verifies when hosts that pass the company's posture criteria display inappropriate behavior
- Netflow Analysis—Netflow data from routers are collected by the CS-MARS, as high as 300K flows per second

**Competitive Products**

- |   |                  |
|---|------------------|
| • Internet Security Systems (ISS) SiteProtector | • Intellitactics |
| • Checkpoint Eventia                            | • Sensage        |
| • Network Intelligence                          | • Guardednet     |
| • ArcSight                                      | • Q1 Labs        |

## Specifications

Feature	CS-MARS-20-K9	CS-MARS-50-K9	CS-MARS-100E-K9	CS-MARS-100-K9	CS-MARS-200-K9	CS-MARS-GCM-K9	CS-MARS-GC-K9
Storage	120GB (non-RAID)	240GB RAID0	750GB RAID10; Hot Swappable	750GB RAID10; Hot Swappable	1TB RAID10; Hot Swappable	1TB RAID10; Hot Swappable	1TB RAID10; Hot Swappable
Form Factor	1RU x16	1RU x25.6	3RU x25.6	3RU x25.6	4RU x25.6	4RU x25.6	4RU x25.6
Power Supply	300W	300W	500W Dual Redundant	500W Dual Redundant	500W Dual Redundant	500W Dual Redundant	500W Dual Redundant
<b>Performance</b>							
Events/sec	500	1,000	3,000	5,000	10,000		
NetFlows/sec	15,000	30,000	75,000	150,000	300,000		
<b>Distributed Monitoring</b>							
Supported Models						From MARS 20/50 Only	5
Maximum Connections						Any	Not Restricted

## Selected Part Numbers and Ordering Information<sup>1</sup>

### Cisco Security Monitoring and Response System (CS-MARS)

CS-MARS-100-K9	PN-MARS 100 3RU Appliance, 5,000 EPS, 750GB RAID10, HW/SW
CS-MARS-100E-K9	PN-MARS 100e 3RU Appliance, 3,000 EPS, 750GB RAID10, HW/SW
CS-MARS-20-K9	PN-MARS 20 1RU Appliance, 500 EPS, 120GB, HW/SW
CS-MARS-200-K9	PN-MARS 200 4RU Appliance, 10,000 EPS, 1TB RAID10, HW/SW
CS-MARS-50-K9	PN-MARS 50 1RU Appliance, 1,000 EPS, 240GB RAID0, HW/SW
CS-MARS-GC-K9	PN-MARS Global Controller (Any Model LC), HW/SW
CS-MARS-GCM-K9	PN-MARS GCM (Restricted, Up to 5 MARS 20/50 LCs Only), HW/SW

1. This is only a small subset of all parts available via URL listed under "For More Information". Some parts have restricted access or are not available through distribution channels.

## For More Information

See the CS-MARS Website:

[www.cisco.com/en/US/partner/products/ps6241/tsd\\_products\\_support\\_series\\_home.html](http://www.cisco.com/en/US/partner/products/ps6241/tsd_products_support_series_home.html)

## Cisco VPN 3000 Family



The Cisco VPN 3000 Series Concentrator is a best-in-class, remote-access VPN solution for enterprise-class deployment.

A standards-based, easy-to-use VPN client and scalable VPN tunnel termination devices are included, as well as a management system that enables corporations to easily install, configure, and monitor their remote access VPNs. Remote connections can be established either from a SSL-capable Web browser or an installed VPN Client, allowing for maximum flexibility and application access without the need to deploy and manage multiple unique devices for secure corporate or partner application access. Incorporating the most advanced, high-availability capabilities with a unique purpose-built, remote-access architecture, it allows corporations to build high-performance, scalable, and robust VPN infrastructures to support their mission-critical, remote-access applications.

Unique to the industry, it is the only scalable platform to offer components that are field-swappable and can be upgraded by the customer. These components, called Scalable Encryption Processing (SEP/SEP-E) modules, enable users to easily add capacity and throughput.

The Cisco VPN 3000 Series Concentrator supports the widest range of connectivity options, including WebVPN (Clientless using a Web browser), the Cisco VPN Client, the Microsoft L2TP/IPSec, and Microsoft PPTP.

## When to Sell

### Sell This

#### Product

#### VPN 3005 and 3015 Concentrators

#### When a Customer Needs These Features

Cisco VPN 3005 Concentrator

- Designed for small to medium-sized organizations with bandwidth requirements up to full-duplex T1/E1 (4 Mbps maximum performance) with support for up to 200 simultaneous IPSec sessions or 50 simultaneous clientless sessions

- Encryption processing is performed in software

- Does not have built-in upgrade capability

Cisco VPN 3015 Concentrator

- Designed for small- to medium-sized organizations with bandwidth requirements up to full-duplex T1/E1 (4 Mbps maximum performance) and up to 100 simultaneous IPSec sessions or 75 simultaneous clientless sessions

- Encryption processing is performed in software

- Field-upgradable to the Cisco VPN 3030 and 3060 models

#### VPN 3020 Concentrator

- Designed for medium to large organizations with bandwidth requirements from full T1/E1 through T3/E3 (50 Mbps maximum performance) with support for up to 750 simultaneous IPSec sessions or 200 simultaneous clientless sessions

- Specialized SEP modules (SEP-E) perform hardware-based acceleration

- Cannot be upgraded to other products in the family

- Redundant and nonredundant configurations are available

#### VPN 3030 and 3060 Concentrators

Cisco VPN 3030 Concentrator

- Designed for medium to large organizations with bandwidth requirements from full T1/E1 through T3/E3 (50 Mbps maximum performance) with support for up to 1,500 simultaneous IPSec sessions or 500 simultaneous clientless sessions

- Specialized SEP modules perform hardware-based acceleration

- Field upgradeable to the Cisco VPN 3060

- Redundant and nonredundant configurations are available

Cisco VPN 3060 Concentrator

- Designed for large organizations demanding the highest level of performance and reliability, with high-bandwidth requirements from fractional T3 through full T3/E3 or greater (100 Mbps maximum performance) with support for up to 5,000 simultaneous IPSec sessions or 500 simultaneous clientless sessions

- Specialized SEP modules perform hardware-based acceleration

- Redundant and nonredundant configurations are available

#### VPN 3080 Concentrator

- Optimized to support large enterprise organizations that demand the highest level of performance combined with support for up to 10,000 simultaneous IPSec sessions or 500 simultaneous clientless sessions

- Specialized SEP modules perform hardware-based acceleration

- Available in a fully redundant configuration only

#### VPN Client

- Simple to deploy and operate

- Used to establish secure, end-to-end encrypted tunnels to the Cisco VPN 3000 Concentrator and other Cisco EasyVPN compliant devices

- Thin design, IPSec-compliant implementation is provided

- Licensed for an unlimited number of users

- Client can be pre-configured for mass deployments and the initial logons require very little user intervention

- VPN access policies are created and stored centrally and pushed to the client when a connection is established

- Provided at no charge, installs on PCs and is available for Windows, Mac OS X and Linux Intel/Solaris UltraSparc environments

#### VPN 3002 Hardware Client

- Emulates the software client in hardware

- Ideal for mixed operating system environments and where a corporation does not own/control remote PCs or for very large applications requiring large number of devices due to ease of deployment, upgradability & scalability

## Key Features

- Cisco VPN 3000 Concentrators Series
  - Support for industry standard IPSec DES/3DES/AES and Cisco IPSec/NAT for VPN Access through Port Address Translation firewalls
  - Unlimited-use license for Cisco VPN Client distribution included at no cost with multiple OS support including Windows, MAC OS X, Linux and Solaris; also integrates with Zone Alarms personal firewall
  - Supports standard authentication: RADIUS, SDI Tokens, and Digital Certificates
  - VPN load balancing allows for multiple units to cluster as a single shared pool
- Cisco VPN 3002 Hardware Client supports up to 253 users/stations per VPN 3002
  - Works with most operating systems including Windows, Linux, Solaris, and MAC OS X
  - Auto-upgrade capability automates upgrades with no user intervention required
  - Client technology employs push policy and automatic address assignment from the central site concentrator, enabling virtually unlimited scalability

### Competitive Products

- Nortel: Contivity products (IPsec)
  - Juniper (Netscreen): LAN to LAN environments
  - Juniper (Neoteris): SSL VPN Secure Access products
  - Nokia

### Specifications

#### Cisco VPN 3000 Series Concentrators

Feature	VPN 3005	VPN 3015	VPN 3020	VPN 3030	VPN 3060	VPN 3080
Simultaneous IPSec Users	200	100	750	1500	5000	10000
Simultaneous WebVPN (Clientless) Users	50	75	200	500	500	500
Encryption Throughput	4 Mbps	4 Mbps	50 Mbps	50 Mbps	100 Mbps	100 Mbps
Encryption Method	Software	Software	Hardware	Hardware	Hardware	Hardware
Encryption (SEP) Module	0	0	1	1	2	4
Redundant SEP	No	No	Optional	Optional	Optional	Yes
Expansion Slots	0	4	1 (Redundant)	3	2	N/A
Upgradeable	No	Yes		Yes	N/A	N/A
Memory	32/64 MB (fixed)	128 MB	256 MB	128-512 MB	256/512 MB	256/512MB
Hardware Configuration	1U, Fixed	2U, Scalable	Fixed 2U	2U, Scalable	2U, Scalable	2U
Power Supply	Single	Single, with a dual option	Single, with a dual option	Single, with a dual option	Single, with a dual option	Dual
Client License	Unlimited	Unlimited	Unlimited	Unlimited	Unlimited	Unlimited
LAN-to-LAN Connections (internal user database)	100	100	250	500	1000	1000
Dimensions (HxWxD)	1.75 x 17.5 x 11.5 in.3.5 x 17.5 x 14.5 in. 3.5 x 17.5 x 14.5 in. 3.5 x 17.5 x 14.5 in. 3.5 x 17.5 x 14.5 in. 3.5 x 17.5 x 14.5 in.					

#### Cisco VPN 3002 Hardware Client

Feature	VPN 3002 Hardware Client
Hardware Processor	Motorola PowerPC processor; Dual flash image architecture
Network Interfaces	CPVN3002-K9: One Public 10/100Mbps RJ-45 Ethernet Interface and One Private Port 10/100Mbps RJ-45 Ethernet Interface CVPN3002-8E-K9: One Public 10/100Mbps RJ-45 Ethernet Interface and Eight Private Port 10/100Mbps RJ-45 Ethernet Interfaces via AUTO-MDIX switch
Physical Dimensions	1.967 x 8.6 x 6.5 in. (5 x 8.6 x 16.51 cm)
Power Supply	External AC Operation: 100-240V at 50/60 Hz with universal power factor correction; 4 foot cord included and international "pigtail" power cord selection
Tunneling Protocol Support	IPsec with IKE key management
Monitoring & Configuration	Event logging; SNMP MIB-II support Embedded management interface is accessible via console port or local web browser; SSH/SSL
Encryption Algorithms, Key Management & Authentication Algorithms	56-bit DES (IPsec); 168-bit Triple DES (IPsec); AES 128 & 256-bit (IPsec)
Authentication and Accounting Servers	Support for redundant external authentication servers including RADIUS Microsoft NT Domain authentication, X.509v3 Digital Certs (PKC7-PKCS10)
Configuration Modes	Client Mode—acts as client, receives random IP address from Concentrator Pool; Uses NAPT to hide stations 3002; Network behind 3002 is unroutable; few configuration parameters Network Extension Mode—acts as site-to-site device; Uses NAPT to hide stations only to Internet (stations visible to central site); Network behind 3002 is routable; additional configuration parameters

### Selected Part Numbers and Ordering Information<sup>1</sup>

#### Cisco VPN 3000 Concentrator

CVPN3005-E/FE-BUN	VPN3005:Chassis, 2FE, 200 user, client, SW, US PWR
CVPN3015-NR-BUN	VPN3015:Chassis, 3FE, 100 user, client, SW, US PWR
CVPN3020E-NRBUN-K9	VPN3020:Chassis, 3FE, SEP-E, 750 user, client, SW, US PWR
CVPN3020E-RDBUN-K9	VPN3020:Chassis, 3FE, 2SEP-E, 750 user, client, SW, 2 US PWR
CVPN3030E-NRBUN-K9	VPN3030:Chassis, 3FE, SEP-E, 1500 user, client, SW, US PWR
CVPN3030E-RDBUN-K9	VPN3030:Chassis, 3FE, 2SEP-E, 1500 user, client, SW, 2 US PWR
CVPN3060E-NRBUN-K9	VPN3060:Chassis, 3FE, 2SEP-E, 5k user, client, SW, US PWR
CVPN3060E-RDBUN-K9	VPN3060:Chassis, 3FE, 4SEP-E, 5k user, client, SW, 2 US PWR
CVPN3080E-RDBUN-K9	VPN3080:Chassis, 3FE, 4SEP-E, 10k user, client, SW, 2 US PWR

**Cisco VPN 3000 Series Upgrades**

CVPN3000-UKITA-K9=	1SEP-E,1PS,512MB memory,4.0 OS and boot,client SW
CVPN3000-UKITB-K9=	2SEP-E,1PS,512MB memory,4.0 OS and boot,client SW
CVPN3000-UKITC-K9=	3SEP-E,1PS,512MB memory,4.0 OS and boot,client SW
CVPN3000-UKITD-K9=	4SEP-E,1PS,512MB memory,4.0 OS and boot,client SW

**Cisco VPN 3000 Series Accessories**

CVPN3000-PWR=	Cisco VPN 3000 Concentrator Power Supply
CVPN30XX-MEMKITK9=	VPN 3030, 3060, 3080: 2x256MB RAM

**Cisco VPN 3000 Series Basic Maintenance**

CON-SNT-PKG4	SMARTnet Maintenance for Cisco CVPN3005-E/FE-BUN
CON-SNT-PKG8	SMARTnet Maintenance for Cisco CVPN3015-NR-BUN
CON-SNT-PKG11	SMARTnet Maintenance for Cisco CVPN3030-NR-BUN
CON-SNT-PKG13	SMARTnet Maintenance for Cisco CVPN3030-RED-BUN
CON-SNT-PKG14	SMARTnet Maintenance for Cisco CVPN3060-RED-BUN

**Cisco VPN Client**

CVPN-CLIENT-K9=	Cisco VPN Client CD (included with Concentrator purchase)
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**For More Information**

See the Cisco VPN 3000 series Website: <http://www.cisco.com/go/vpn3000>

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**Network Admission Control (NAC)**

The Cisco NAC Framework is an industry-wide initiative led by Cisco Systems that leverages the network infrastructure and third party security, management, and remediation technologies to enforce security policy compliance on all endpoints. The Cisco NAC Appliance, based on Cisco Clean Access technology, is a self-contained, turn-key solution that controls network access based on user authentication and policy. It works in conjunction with anti-virus vendor's software by assessing the condition or "posture" of a wired and wireless endpoint (PDA, PCs, laptops) prior to granting network access. Cisco NAC then ensures compliance using built-in auditing, policy, and device remediation tools.

Cisco NAC is a unique approach to preventing vulnerable and noncompliant hosts from affecting enterprise resilience. It enables customers to use their existing network and antivirus infrastructures.

**Key Features**

- Dramatically improved security through proactive protection against viruses, worms, malware, spyware, and other endpoint attacks by ensuring that all endpoint devices comply with corporate security policy
- Extension of existing investments in network infrastructure and host security to audit and enforce security policies on every device seeking network access
- Increased resilience by providing comprehensive admission control policy across all access methods (wired, wireless, dial-up, IPSec and SSL VPN, Layer 2, and Layer 3, etc.), and for all user types (corporate users, guests, contractors, vendors, etc.)
- Based on collaboration between leading security and management software vendors-Cisco, IBM, Network Associates, Symantec, and Trend Micro-to identify vulnerable systems and enforce effective network admission controls.

**For More Information**

See the Cisco Network Admission Control Website:

[http://www.cisco.com/en/US/partner/netsol/ns466/networking\\_solutions\\_package.html](http://www.cisco.com/en/US/partner/netsol/ns466/networking_solutions_package.html)

## Cisco Clean Access

Cisco Clean Access is an easy-to-deploy network admission control appliance that automatically detects, isolates, and cleans infected or vulnerable devices that attempt to access the network. It identifies whether machines are compliant with security policies and repairs vulnerabilities before permitting access to the network. To enhance its ease-of-use, the Cisco Clean Access comes pre-installed with rule sets for operating system updates and antivirus software from all major vendors, simplifying the task of determining which policies to enforce and how to enforce them.

### When to Sell

#### Sell This Product

##### Cisco Clean Access Manager

##### Cisco Clean Access In-Band (CCA-IB) Server

##### Cisco Clean Access Out-of-Band (CCA-OOB) Server

##### Cisco Clean Access Commercial (CCA-SM)

#### When a Customer Needs These Features

- Large enterprise deployments with at least one in-band or out-of-band Clean Access Server
- Supports up to 20 Clean Access Servers
- Single Manager can support both in-band and out-of-band Clean Access deployments
- Large enterprise deployments with:
  - Wireless access
  - Hubs and shared media
  - VoIP considerations
- Large enterprise deployments with highly routed, high throughput environments
- Branch offices, extranets
- For smaller organizations with 100-, 250-, 500- and 750-user environments
- Bundled Clean Access Server and Clean Access Manager

### Key Features

- **Authentication Integration**—Supports roles-based access control by acting as an authentication proxy for most forms of authentication, natively integrating with Kerberos, LDAP, RADIUS, Active Directory, S/Ident, and others.
- **Vulnerability Assessment**—Supports scanning of all Windows-based operating systems, Mac OS, Linux machines, and non-PC networked devices such as Xbox, PlayStation 2, and personal digital assistants. It conducts network-based scans, sourced from the open-source Nessus organization, or agent-based local scans on a user machine as required.
- **Device Quarantine**—Places noncompliant machines into VLAN-based or subnet-based quarantine, which prevents the spread of infection while maintaining access to remediation resources.
- **Automatic Security Policy Updates**—Provides predefined policies for the most common network access criteria, including policies that check for critical operating system updates and common antivirus software virus definition updates. This eases the management cost on network administrators who can rely on the Clean Access system to constantly maintain updated policies.
- **Remediation and Repair**—Gives devices access to remediation servers during quarantine that can provide operating system patches and updates, virus definition files, or endpoint security solutions such as Cisco Security Agent. Administrators have the option of automatically installing these fixes using the Cisco Clean Access enforcement agent.

### Competitive Products

- Bradford Networks Campus Manager
- Sygate Secure Enterprise

- Citadel Security Software Hercules Automated Vulnerability Remediation Appliance

## Selected Part Numbers and Ordering Information

Part Number	Description	SASU Part Number
<b>Cisco Clean Access Managers</b>		
CCA-MGR-K9	Cisco Clean Access Manager	CON-SAU-CCAMGR
CCA-MGR-FB-K9	Cisco Clean Access Manager Failover Bundle	CON-SAU-CCAMGRFB
CCA-MGR-U-K9	Cisco Clean Access Manager Failover Upgrade	CON-SAU-CCAMGRFB
<b>Cisco Clean Access Servers In-Band</b>		
CCA-START-IB-K9	Cisco Clean Access Server + Manager In-Band (750 users)	CON-SAU-CCASTIB
CCA-BRSVR-IB-K9	Cisco Clean Access Branch Office In-Band Server (250 Users )	CON-SAU-CCABSVOB
CCA-SVR-IB-K9	Cisco Clean Access Server In-Band	CON-SAU-CCASVIB
CCA-SVR-IB-FB-K9	Cisco Clean Access Server In-Band Failover Bundle	CON-SAU-CCASVIBF
CCA-10SVR-IB-K9	Cisco Clean Access 10 Server In-Band Bundle	CON-SAU-CCA10IB
CCA-10SVR-IBF-K9	Cisco Clean Access 10 Server Failover In-Band Bundle	CON-SAU-CCA10IBF
CCA-SVR-IBU-K9	Cisco Clean Access Server In-Band Failover Upgrade	CON-SAU-CCASVIBF
CCA-10SVR-IBU-K9	Cisco Clean Access 10 Server In-Band Failover Upgrade	CON-SAU-CCA10IBF
<b>Cisco Clean Access Servers Out-of-Band</b>		
CCA-START-OB-K9	Cisco Clean Access Server + Manager Out-of-Band (750 users)	CON-SAU-CCASTOB
CCA-BRSVR-OB-K9	Cisco Clean Access Branch Office Out-of-Band Server (250 Users )	CON-SAU-CCABSVIB
CCA-SVR-OB-K9	Cisco Clean Access Server Out-of-Band	CON-SAU-CCASVOB
CCA-SVR-OB-FB-K9	Cisco Clean Access Server Out-of-Band Failover Bundle	CON-SAU-CCASVOBF
CCA-10SVR-OB-K9	Cisco Clean Access 10 Server Out-of-Band Bundle	CON-SAU-CCA10OB
CCA-10SVR-OBF-K9	Cisco Clean Access 10 Server Failover Out-of-Band Bundle	CON-SAU-CCA10OBF
CCA-SVR-OBU-K9	Cisco Clean Access Server Out-of-Band Failover Upgrade	CON-SAU-CCASVOBF
CCA-10SVR-OBU-K9	Cisco Clean Access 10 Server Out-of-Band Failover Upgrade	CON-SAU-CCA10OBF
<b>Cisco Clean Access Commercial</b>		
CCA-100-SM-BUN-K9	Cisco Clean Access Server + Manager (100 users )	CON-SAU-CCABU100
CCA-250-SM-BUN-K9	Cisco Clean Access Server + Manager (250 users )	CON-SAU-CCABU250
CCA-500-SM-BUN-K9	Cisco Clean Access Server + Manager (500 users )	CON-SAU-CCABU500

### For More Information

See the Cisco Clean Access Website: <http://www.cisco.com/go/cca>

## Cisco Security Agent

The next-generation Cisco Security Agent network security software provides threat protection for server and desktop computing systems, also known as “endpoints.” The Cisco Security Agent goes beyond conventional host and desktop security solutions by identifying and preventing malicious behavior that threaten enterprise networks and applications before it can occur. It aggregates and extends multiple endpoint security functions by providing host intrusion prevention, antispware, distributed firewall, malicious mobile code protection, operating system integrity assurance, and audit log consolidation all within a single agent package.

The Cisco Security Agent analyzes behavior rather than relying on signature matching, its solution provides robust protection with reduced operational costs. It provides patch relief to reduce the system administration workload allowing companies to wait for “roll-ups” and Service Packs, which come better qualified from the vendor. Testing and implementation of updates can be scheduled without undue change control interruption. Fewer updates reduce the cost of ownership.

### When to Sell

#### Sell This Product

**Cisco Security Agent**

#### When a Customer Needs These Features

- Host intrusion protection, antispware, distributed firewall, malicious mobile code protection, operating system hardening, file integrity and/or audit log consolidation. The Cisco Security Agent provides all of these features in one integrated package
- Protection against both known and unknown attacks
- Protection for servers and/or desktops/laptops
- A solution that is scalable to protect thousands of servers and desktops for large enterprise deployments
- Provides endpoint protection enabling businesses to participate in e-commerce securely and take advantage of the Internet economy

## Key Features

- Provides industry-leading protection for Unix and Windows servers
- Multiple security functions in a single agent
- Open, extensible architecture offers the capability to define and enforce security according to corporate policy
- “Zero Update” prevention for known and unknown attacks
- Integrates with Cisco Network Security Products
- Provides application inventory and use tracking, hotfix and Service Pack status checking, and antivirus DAT version check for Symantec and McAfee antivirus agents
- A key component of the SAFE blueprint for secure e-business

## Competitive Products

- Internet Security Systems (ISS)
- Symantec: Intruder Alert
- Enterasys: Squire
- Sana Security: Primary Response
- NAI: Intercept
- NFR (Centrax)

## Specifications

Cisco Security Server			
Feature	Agent	Cisco Security Desktop Agent	Cisco Security Agent Manager
Platforms	Windows 2000 Server and Advanced Server (up to Service Pack 3)	Windows NT v4.0 Workstation (Service Pack 5 or later)	Microsoft Windows 2000 Server and Advanced Server (up to SP 2)
	Windows NT v4.0 Server and Enterprise Server (Service Pack 5 or later)	Windows 2000 Professional (up to Service Pack 3)	
	Solaris 8 SPARC architecture (64-bit kernel)	Windows XP Professional (up to Service 1)	

## Selected Part Numbers and Ordering Information<sup>1</sup>

### Cisco Security Agent Options

CSA-SRVR-K9=	Cisco Security Server Agent (Win + Sol), 1 Agent
CSA-B10-SRVR-K9	Cisco Security Server Agent (Win + Sol), 10 Agent Bundle
CSA-B25-SRVR-K9	Cisco Security Server Agent (Win + Sol), 25 Agent Bundle
CSA-B50-SRVR-K9	Cisco Security Server Agent (Win + Sol), 50 Agent Bundle
CSA-B100-SRVR-K9	Cisco Security Server Agent (Win + Sol), 100 Agent Bundle
CSA-B25-DTOP-K9	Cisco Security Desktop Agent (Win + Sol), 25 Agent Bundle
CSA-B100-DTOP-K9	Cisco Security Desktop Agent (Win + Sol), 100 Agent Bundle
CSA-B250-DTOP-K9	Cisco Security Desktop Agent (Win + Sol), 250 Agent Bundle
CSA-B500-DTOP-K9	Cisco Security Desktop Agent (Win + Sol), 500 Agent Bundle
CSA-B500-SRVR-K9	Cisco Security Server Agent (Win + Sol), 500 Agent Bundle
CSA-B1000-DTOP-K9	Cisco Security Desktop Agent (Win + Sol), 1000 Agent Bundle
CSA-B5000-DTOP-K9	Cisco Security Desktop Agent (Win + Sol), 5000 Agent Bundle
CSA-PROFILER-K9	Cisco Security Agent Profiler



### Note

**Export Considerations:** The Cisco Security Agent is subject to export controls. Please refer to the export compliance website at <http://www.cisco.com/wwl/export/crypto> for guidance. For specific export questions, please contact [export@cisco.com](mailto:export@cisco.com).

## For More Information

See the Cisco Security Agent Website: <http://www.cisco.com/go/csa>



# Cisco Security Auditor

The Cisco Security Auditor is a software solution that extends Cisco’s portfolio of lifecycle security management products. Privacy mandates, improved network availability and security assurance demands drive the need for security compliance auditing. Cisco Security Auditor provides customers with new levels of security assurance enabling them to cost-effectively audit their network infrastructure against corporate security policies and industry best practices.

The automated auditing capabilities of the software allow customers to eliminate costly manual auditing operations for large scale networks, drastically reducing the time required to perform an audit. Cisco Security Auditor also provides security improvement recommendations and reporting simplifying the process of addressing network security vulnerabilities. This allows management operations to effectively manage the risks related to their network. The result is a powerful software solution that ensures organizational security compliance and network availability, while increasing productivity and overall return on investment.

## When to Sell

**Sell This Product**  
**Cisco Security Auditor**

### When a Customer Needs These Features

- Scalable, automated auditing capabilities
- Best-practice guidelines gathered from industry standards (NSA, SAFE, CIS) for security compliance auditing
- Assistance to meet organizational regulatory compliance for standards such as Sarbanes-Oxley and HIPAA
- Cisco security customers that are looking for security assurance and improved network availability

## Key Features

- Built-in security best practices, including National Security Agency (NSA), SAFE Blueprint from Cisco, and Center for Internet Security (CIS) best security practice guidelines
- Integrated custom corporate security policies providing maximum flexibility
- Weighted security policy to reflect varied importance of corporate enforced policies
- Scalable and intuitive automatic auditing process management to eliminate the error-prone and time-consuming manual process
- Audit-compliance scores for easy and quick view of a complex security network; Audit-detail reports providing insight into current network security deployment; Audit security-policy reports to measure compliancy with best practices
- Detailed security-enhancement recommendations to efficiently protect network resources
- Security-improvement trending analysis to monitor the ongoing security performance of a network

## Competitive Products

- IESE Crocodile
- Router Audit Tool (RAT)

## Specifications

Feature	Cisco Security Auditor
Component	Recommendation
System Hardware	IBM PC-compatible system with 1 GHz or faster Pentium processor, Color monitor, CD-ROM drive
Memory (RAM)	2 GB
Disk Space	20 GB (depending on the data amount); Paging file space equal to double the amount of memory (RAM); New Technology File System (NTFS) file system required for secure operation; Cisco does not recommend installing the product on a File Allocation Tables (FAT) file system; Minimum 1024 MB swap space
System Software	Windows 2000 Professional with Service Pack 3 (SP3) or SP4; Windows 2000 Server with SP3 or SP4; Windows 2000 Advanced Server with SP3 and SP4; Windows 2003 Server Standard Edition; Windows 2003 Server Enterprise Edition;
Supported Web Browsers	Microsoft Internet Explorer 6.0.26 and Microsoft Internet Explorer 6.0.28; Netscape Navigator 7.1; Mozilla 1.7.1

### Selected Part Numbers and Ordering Information

Part Number	Description
CSAU1.0-BASE25-K9	Cisco Security Auditor 1.0 base package for auditing up to 25 Cisco network devices
CSAU1.0-ADD25	Cisco Security Auditor 1.0 add-on 25-device license for each additional 25 devices audited
CSAU1.0-ADD100	Cisco Security Auditor 1.0 add-on 100-device license for each additional 100 devices audited
CSAU1.0-ADD500	Cisco Security Auditor 1.0 add-on 500-device license for each additional 500 devices audited
CSAU1.0-ADD1000	Cisco Security Auditor 1.0 add-on 1000-device license for each additional 1000 devices audited



**Note** **Export Considerations:** The Cisco Security Auditor is subject to export controls. Please refer to the export compliance website at <http://www.cisco.com/www/export/crypto> for guidance. For specific export questions, please contact [export@cisco.com](mailto:export@cisco.com).

### For More Information

See the Cisco Security Auditor Website:  
<http://www.cisco.com/en/US/products/ps6263/index.html>

## Cisco Secure Access Control Server (ACS) for Windows

Cisco Secure ACS is a highly scalable, high-performance access control server that operates as a centralized RADIUS server or TACACS+ server. It extends access security by combining authentication, user or administrator access, and policy control from a centralized identity networking solution, allowing greater flexibility and mobility, increased security, and user productivity gains. It reduces the administrative and management burden involved in scaling user and network administrative access to your network. By using a central database for all user accounts, it centralizes the control of all user privileges and distributes them to hundreds or thousands of access points throughout the network. As an accounting service, the Cisco Secure ACS reduces IT operating costs by providing detailed reporting and monitoring capabilities of network users' behavior and by keeping a record of every access connection and device configuration change across the entire network. The Cisco Secure ACS supports a wide array of access connection types, including wired and wireless LAN, dialup, broadband, content, storage, voice over IP, firewalls, and VPNs.

The Cisco Secure ACS is a key component of the Cisco Identity-Based Networking Services (IBNS) architecture and of Cisco Network Admission Control (NAC).

### When to Sell

#### Sell This Product

**Cisco Secure Access Control Server (ACS) for Windows**

#### When a Customer Needs These Features

- Centrally manage who can log in to the network from wired or wireless connections
- Privileges each user has in the network
- Accounting information recorded in terms of security audits or account billing
- What access and command controls are enabled for each configuration administrator
- Virtual VSA for Aironet rekey
- Secure server authentication and encryption
- Simplified firewall access and control through Dynamic Port Assignment
- Same User AAA services

**Key Features**

- Cisco NAC support—Using policies that you configure, it evaluates the credentials sent to it by Cisco Trust Agent, determines the state of the host, and sends the AAA client ACLs that are appropriate to the host state; records the results of policy evaluation for use with your monitoring system
- Supports the new, publicly accessible IEEE 802.1X EAP type developed by Cisco to support customers who cannot enforce a strong password policy and who wish to deploy an 802.1X EAP; Does not require digital certificates, and supports a variety of user and password database types, password expiration and change, and is flexible, easy to deploy, and easy to manage
- Downloadable IP access control lists (ACLs)—Extends per-user ACL support to any Layer 3 network device that supports this feature; Allows for custom defined sets of ACLs that can be applied per user or per group
- Certification Revocation List (CRL) comparison for EAP-Transport Layer Security (TLS) authentication—Adds support for certificate revocation using the X.509 CRL profile; Cisco Secure ACS fails the authentication and denies access to the user if the certificate presented by the user during an EAP-TLS authentication is present in the retrieved CRL
- Machine Access Restrictions (MARs) that complement 802.1X machine authentication—Ability to use MARs to control authorization of EAP-TLS and Microsoft Protected Extensible Authentication Protocol (PEAP) users who authenticate with a Windows external user database
- Network access filtering (NAF) as a new shared profile component—Introduces granular application of network access restrictions and downloadable ACLs, both of which previously supported only the use of the same access restrictions or ACLs to all devices
- Allows replication of the user and group databases separately

**Competitive Products**

- Funk: Steel Belted RADIUS
- Lucent/Avaya: Security Management Server (LSMS)
- Nortel: Preside RADIUS Server (OEM of Funk product)

**Specifications**

Feature	Cisco Secure Access Control Server (ACS) for Windows
Hardware	<ul style="list-style-type: none"><li>• Pentium processor, 550 MHz or faster</li><li>• 256 MB RAM</li><li>• 250 MB free disk space, more if you are running your database on the same device</li><li>• Minimum resolution of 800 x 600 with 256 colors</li></ul>

**Selected Part Numbers and Ordering Information<sup>1</sup>****Cisco Secure Access Control Server (ACS) for Windows**

CSACS-3.3-WIN-K9	Cisco Secure ACS 3.3 for Windows
CSACS-3.3-WINUP-K9	Upgrade to CSACS 3.3 for Windows from ACS versions 1.x, 2.x, and Cisco Secure ACS for Unix version 2.x
CSACS-3.3-WINMR-K9	Minor update kit for customers on ACS 3.x that do not have SAS support contracts; Includes minor update release for ACS 3.3

1. This is only a small subset of all parts available via URL listed under “For More Information”. Some parts have restricted access or are not available through distribution channels. Resellers: For latest part number and pricing info, see the *Distribution Product Reference Guide* at: <http://www.cisco.com/dprg> (limited country availability).

**For More Information**

See the Cisco Secure ACS for Windows Website: <http://www.cisco.com/go/acs>

# Cisco Secure Access Control Solution Engine

The Cisco Secure ACS Solution Engine is a highly secure, OS-independent, and dedicated platform that offers a highly manageable access control solution with an increasingly reduced setup and troubleshooting time. It provides plug-and-play deployment, a highly reliable authentication, authorization, and accounting (AAA) solution, and increased total cost of ownership (TCO) protection. A Cisco Secure ACS remote agent is available with each Cisco Secure ACS Solution Engine to enable remote logging and Windows authentication.

## When to Sell

**Sell This Product**  
**Cisco Secure Access**  
**Control Solution Engine**

- When a Customer Needs These Features**
- Need a dedicated, security-hardened, application-specific appliance package
  - Simplified day-to-day management with overall reliability and security of the Cisco Secure ACS service
  - Suitable alternative for Cisco Secure ACS UNIX customers not willing to install or manage Cisco Secure ACS on the Windows OS

## Key Features

- Dedicated to run only the Cisco Secure ACS service preventing any appliance-based OS changes, additions, or configuration modifications
- A serial console interface is provided for initial configuration, subsequent management of IP connections, access to the Cisco Secure ACS HTML interface, and applying upgrade and recovery procedures
- Solution Engine-specific management tools provide generic appliance management capabilities including backup, recovery, software upgrades, monitoring, maintenance, and troubleshooting functions
- Provides authentication against Windows domains and remote logging capabilities of user accounting records
- A packet-filtering service to block traffic on all but the necessary Cisco Secure ACS-specific TCP and User Datagram Protocol ports
- Preinstalled, standalone Cisco Security Agent helps protect Cisco Secure ACS Solution Engine from day-zero attacks
- Built-in NTP functions to maintain network timing synchronization and consistency with other Cisco Secure ACS appliances or network devices

## Specifications

Feature	Cisco Secure Access Control Solution Engine <sup>1</sup>
Processor speed	Pentium IV, 3.2 GHz
Memory	1 GB RAM
Hard Drive	80 GB free disk space
Interfaces	2 built-in 10/100 Ethernet controllers and 1 floppy disk drive

1. Specific to Cisco ACS Solution Engine. Additional features are found under Cisco Secure Access Control Server (ACS) for Windows, page 5-20

## Selected Part Numbers and Ordering Information<sup>1</sup>

Cisco Secure ACS Solution Engine	
CSACSE-1112-K9	Cisco Secure ACS 3.3 Solution; includes HW and SW
CSACSE-1112-UP-K9	Upg. for ACS 3.X open server or 1111 to Cisco 1112 w/ACS 3.3
CSACSE-3.3-SWMR-K9	Minor Release update for CSACS Sol. Eng. SW 3.3-Jul04

1. This is only a small subset of all parts available via URL listed under “For More Information”. Some parts have restricted access or are not available through distribution channels. Resellers: For latest part number and pricing info, see the *Distribution Product Reference Guide* at: <http://www.cisco.com/dprg> (limited country availability).

## For More Information

See the Cisco Secure ACS Solution Engine Website:  
<http://www.cisco.com/en/US/products/sw/secursw/ps5338/index.html>

# Cisco Secure User Registration Tool

Cisco Secure URT is a virtual LAN (VLAN) assignment service that provides LAN security by actively identifying and authenticating users and then associating them only to the specific network services and resources they need through dynamic VLAN assignments to Cisco Catalyst® Switch networks. URT v2.5 introduces many innovative features, including a Web-based logon from Windows, Macintosh, and Linux clients, RADIUS and Lightweight Directory Access Protocol (LDAP) authentication, and a secure link between the client and the VLAN Policy Server (VPS). It also includes a security feature based on the Media Access Control (MAC) address that prevents users from accessing the network if they are not using authorized machines. Web based LAN authentication allows for user mobility within the LAN environment.

## When to Sell

### Sell This Product

Cisco Secure User Registration Tool (URT)

### When a Customer Needs These Features

- Web-based LAN authentication for Windows, Macintosh, and Linux client platforms—ideal for mobile users within the LAN environment
- Extended security to protect user access to the logon VLAN from unregistered PCs through MAC-based security option
- RADIUS authentication and accounting support
- Multiple user access per port

## Key Features

- Web Client Logon Interface—Supports customizable Web-based authentication for Windows, Macintosh, and Linux client platforms
- MAC-Based Security Option—Provides extended security to protect user access to the logon VLAN from unregistered PCs
- RADIUS Authentication and Accounting Support—RADIUS authentication is offered for Web logon
- Secure Link Between Cisco Secure URT Client and VPS Server—Security authentication and data encryption have been added to URT v2.5 to enable a more secure connection from the user
- LDAP Support (Active Directory and NDS directories)—Cisco Secure URT v2.5 supports Windows' Active Directory and Novell's NDS LDAP servers
- Multiple Users Per Port—Previous versions of Cisco Secure URT support only a single user logon on a single port
- Display of Windows NT Groups—The URT Administrator interface is enhanced to display the users belonging to a Windows NT group
- MAC Address Events History—With URT v2.5 MAC-address-based logon/logoff events are added as an option and reported to the history events tool

## Specifications

Feature	Cisco Secure User Registration Tool (URT)
Hardware	Windows 2000 (SP2) server, professional, and Windows XP Professional—Min H/W (Pentium III, 512MB DRAM, 65 MB of disk space)
Browser for Web Login	Netscape version 4.79 and 6.2; IE version 5.5 (SP2) or 6.0
Client Software Requirements	Windows 98 (2ndE), Windows NT4 Workstation/Server (SP6A), Windows 2000 (SP2) Professional/server, Windows XP Professional, Windows XP Home (Web Client Only), Mac OS 10.1 (Web client only), Linux Redhat/ SuSE/ Mandrake/ VA (Web Client only)—Min H/W for Web client (Pentium II, 256MB DRAM, 65 MB of disk space), Min H/W for traditional client (Pentium II, 64MB DRAM, 1MB of disk space)
Supported Cisco Products (latest tested version)	1900 series (1912, 1924), v9.00.05; C2800 series (2822, 2828), v9.00.05; C2900XL series (2908XL, 2916XL, 2912XL, 2912LRE-XL, 2924XL, 2924LRE-XL), v12.0(5)WC3b; C2948GL3 series (2948GL3, 4232) v12.0(18)W5(22b); C2950 series, v12.1.6.EA2c; C3500XL series (3508XL, 3512XL, 3524XL, 3548XL, 3550XL), v12.0(5)WC3b; C3550 series, v12.1.8.EA1c; C4000 series (4003, 4006, 4912g), v7.1(2); C5000 series (2900, 2926, 2948, 5000, 5002, 5500, 5505, 5509), v6.3(5); C6000 series (6006, 6009, 6506, 6509, 6513), v7.1(3)

## Selected Part Numbers and Ordering Information<sup>1</sup>

### Cisco Secure User Registration Tool (URT)

CSURT-1102-K9	Starter Kit: includes one (1) User Registration Tool 2.5 Software license, and one (1) Cisco 1102 VLAN Policy Server (VPS) appliance
URT-1102-HW-K9	Hardware Only; Cisco 1102 VPs appliance; additional appliance needed for backup, use in distributed deployments, or deployments requiring Web logon capabilities
CSURT-2.5-SWMR-K9	Minor update kit for customers on URT 2.x that do not have SAS support contracts; Includes minor update release for URT 2.5.

1. This is only a small subset of all parts available via URL listed under "For More Information". Some parts have restricted access or are not available through distribution channels.

### For More Information

See the Cisco Secure User Registration Tool Website: <http://www.cisco.com/go/urt>

## Cisco IOS® Firewall

The Cisco IOS Firewall enriches Cisco IOS Software security capabilities, integrating robust firewall functionality and intrusion prevention for every network perimeter. When combined with Cisco IOS IPSec software and other Cisco IOS Software-based technologies such as L2TP tunneling and QoS, it provides a complete, integrated virtual private network solution. Because it is available for a wide range of Cisco routers, it gives customers the flexibility to choose a solution that meets their bandwidth, LAN/WAN density, and multiservice requirements, while benefiting from advanced security.

### When to Sell

#### Sell This Product When a Customer Needs These Features

- |                           |  |
|---------------------------|--|
| <b>Cisco IOS Firewall</b> | <ul style="list-style-type: none"> <li>• An integrated stateful firewall solution with powerful security and multiprotocol routing all on the same platform</li> <li>• Scalability options from the Cisco 800 up to the Cisco 7200</li> <li>• Low cost solution that leverages existing infrastructure</li> <li>• For secure extranet and intranet perimeters and Internet connectivity for branch and remote offices</li> <li>• Secure remote access or data transfer via a Cisco IOS Software-based VPN solution</li> <li>• Real-time (inline) integrated Cisco IOS IPS to complement firewall or existing IPS (Cisco Secure IPS) solutions</li> <li>• Security and access to the network on a per-user basis</li> </ul> |
|---------------------------|--|

### Key Features

- Context-based access control (CBAC) provides secure, stateful, application-based packet inspection, supporting the latest protocols and advanced applications
- Cisco IOS Inline Intrusion Prevention for real-time monitoring, interception, and response to network misuse for supporting thousands of attack signatures
- Supports URL Filtering either local on the router through exclusive domains as well as use of external Websense and N2H2 servers.
- Dynamic, per-user authentication/authorization for LAN, WAN, and VPN clients
- Authentication proxy for https, ftp and telnet connections
- Supports Cisco Router and Security Device Manager (SDM)
- Graphical configuration and management via the VPN/Security Management Solution (VMS) and the IP Solution Center (ISC)
- Provides strong perimeter security for a complete Cisco IOS Software-based VPN solution, including IPSec, QoS, and tunneling

### Competitive Products

- |                                |                                     |
|--------------------------------|-------------------------------------|
| • Nortel: BaySecure Firewall-1 | • Checkpoint, Nokia, Netscreen, etc |
|--------------------------------|-------------------------------------|

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**Specifications**

Feature	Cisco IOS Firewall
Supported Network Interfaces	All network interfaces on supported platforms
Supported Platforms	Cisco 1720, 1800, 2600/2600XM, 2800, 3700, 3800, 7100, 7200, and 7301 series router platforms (supports full feature set) Cisco 800, UBR900, 1600, and 2500 series router platforms include all firewall features with exception of intrusion detection/prevention and authentication proxy
Simultaneous Sessions	No maximum; dependent on platform, network connection, and traffic
Cisco IOS Firewall Performance	C800 - 10Mbps, C1700: 20Mbps; Cisco 1800: 125 Mbps, C2600XM: 35Mbps; C2691-VPN: 197Mbps; Cisco 2800: 530Mbps; C3725-VPN, C3745-VPN: 197 Mbps; Cisco 3825: 855Mbps; Cisco 3845: 1 Gbps, 7200/7301 Bundles: 1Gbps

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**Part Numbers and Ordering Information**

For Cisco IOS Images containing firewall (FW) and intrusion prevention (IPS) capabilities, see individual product pages of supported platforms and the Cisco IOS Feature Navigator at <http://www.cisco.com/go/fn> (CCO login required) for part numbers and more info.

**For More Information**

See the Cisco IOS Firewall Feature Set Website: <http://www.cisco.com/go/firewall>

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**Cisco Security Router Bundles with Integrated Network Security**

The Cisco Security Router Bundles are based on the Cisco 800, 1700, 1800, 2600XM, 2691, 2800, 3700, 3800 7200 and 7301 router platforms. They include the Entry Security bundles, Enhanced Security bundles for added performance and scale, and V3PN bundles for combined Security and IPCommunications.

**Key Features**

- Single part number when ordering a Cisco router with all the necessary Security components at a reduced price compared to ordering each component separately
- All Security bundles come pre-installed with Router and Security Device Manager (SDM) for fast and easy deployment based on Cisco TAC and ICSA Labs recommended router security configurations
- Entry Security Bundles, Enhanced Security Bundles, and V3PN bundles allow varying capabilities and price points to meet a variety of needs
- Cisco 2800, 3700, and 3800 Series now have Advanced Security Network Modules available for ULR Filtering and hardware-based IDS
- Cisco 1700, 2600XM, 2691, 3700, 7200 and 7301 bundles include the selected router platform, a VPN hardware card, additional memory, and the Cisco IOS to run IPsec 3DES or AES encryption
- Cisco 820/830 Series, as well as 1711 and 1712 offer embedded VPN acceleration

**When to Sell****Sell This Product When a Customer Needs These Features****Cisco VPN Security Router Bundles**

- Combatting worms, viruses or threats from every gateway to the network (NAC, firewall, IPS)
- Deploying VPN on routers and want to have future option for VPN
- Planning to use the Internet for remote business communications (remote access VPN)
- When migrating from leased lines to VPN
- Need encryption to protect customer data (i.e HIPAA, Sarbanes-Oxley)
- Needs to integrate Voice and VPN Services (V3PN)
- Would like to integrate Security with Voice (V3PN bundles) or with Wireless routers
- New Integrated Services Routers (Cisco 800, 1800, 2800, and 3800) have embedded VPN acceleration, so corresponding Security bundles are necessary to enable the 3DES or AES encryption functionality

Specifications

Feature	Cisco VPN Security Router Bundles
All Bundles Include	Network Admission Control (NAC) Firewall with IPS; GRE and IPSec; High Availability/Failover; VPN QoS; AES in Hardware (excluding C1700 Bundles)
IPPCP Compression	Software: C800, C1800 Bundles Hardware: Cisco 1841 bundles, C2600XM, C2691-VPN, Cisco 2800 bundles, C3725-VPN, C3745-VPN, Cisco 3800, 7200, 7301 Bundles
Max Tunnel	C870 - 20, C1800: 50; Cisco 1841: 800.; Cisco 2800: 1500; Cisco 3800: 2500; 7200/7301 Bundles: 5000
Firewall Performance	C870 - 70Mbps, C1800: 100Mbps; Cisco 1841: 125 Mbps, Cisco 2800: 530Mbps; Cisco 3825: 855Mbps; Cisco 3845: 1 Gbps, 7200/7301 Bundles: 1Gbps

For More Information

See Chapter 1: Routing for more details.





# Content Networking

## Content Networking at a Glance

Product	Features	Page
<b>Cisco Content Engine 500 Series</b>	<ul style="list-style-type: none"> <li>Content services edge delivery platform for Enterprise networks</li> <li>Functions as edge node device in an Application and Content Networking (ACN) system</li> <li>Responsible for delivery of cached or distributed content to the end-user</li> <li>Enables customers to rapidly deliver strategic applications to branch personnel including web application and content acceleration, content filtering, software distribution, and business video</li> <li>Lays the foundation for advanced services such as corporate communications, e-learning and business application acceleration</li> </ul>	6-2
<b>Cisco Content Engine 7300 Series</b>	<ul style="list-style-type: none"> <li>Content services platform for Enterprise data center</li> <li>Functions as data center node device in an Application and Content Networking (ACN) system</li> <li>Offers transparent and Internet proxy caching to optimize website performance and WAN bandwidth utilization, Content/URL Filtering and AAA features for Web security and ECDN capabilities in a single platform</li> <li>Accelerates both Web and streaming media content</li> <li>Supports Content Distribution Manager (CDM) device mode to provide central control over acquisition and distribution of content in the ACNS network, including live video streams, video on demand, and software updates</li> <li>Supports Content Router (CR) device mode to provide integrated global load balancing solution for content delivery networks</li> </ul>	6-2
<b>Content Engine Network Modules</b>	<ul style="list-style-type: none"> <li>Content services edge delivery network module for 2600, 3600, 3700 branch routers</li> <li>Functions as edge node device in an Application and Content Networking (ACN) system</li> <li>Enables delivery of new applications and services via a Cisco branch router with no performance degradation of core routing services</li> <li>Allows rapid delivery of strategic applications to branch personnel including web application and content acceleration, content filtering and business video</li> </ul>	6-2
<b>Cisco 11500 Series Content Services Switches (CSS)</b>	<ul style="list-style-type: none"> <li>Provides an intelligent, distributed architecture to scale for today's e-business infrastructure</li> <li>Offers Adaptive Session Redundancy (ASR)—a new industry standard in stateful failover</li> <li>Delivers the greatest flexibility of any content switch in its class for customizing combinations of ports, performance, and services</li> <li>Provides integrated and scalable SSL encryption and decryption services</li> </ul>	6-4
<b>Content Switching Module (CSM) for the Catalyst 6500 Series Switches</b>	<ul style="list-style-type: none"> <li>High performance Content Switching line card for Catalyst 6500</li> <li>L4 and L7, Firewall, VPN, Cache and Server load balancing</li> <li>Intelligently balances client traffic across multiple devices</li> <li>Full State and Sticky State redundancy; Full Regular Expression support</li> </ul>	6-5
<b>Cisco SSL Module for Catalyst 6500</b>	<ul style="list-style-type: none"> <li>Offloads SSL encryption and decryption</li> <li>Scalable performance</li> <li>Stickiness</li> </ul>	6-6
<b>Cisco DistributedDirector</b>	<ul style="list-style-type: none"> <li>Solves distributed server site selection problems. Enables a set of distributed servers to be 6-7 seen as a single virtual server</li> <li>Uses DNS to redirect a client to the best site on the Internet based on a variety of options</li> <li>Configurable as authoritative DNS caching name server and/or HTTP Session Redirector on a per-domain basis</li> </ul>	6-7
<b>Cisco GSS 4491 Global Site Selector</b>	<ul style="list-style-type: none"> <li>Delivers global load balancing for multiple data centers</li> <li>Offloads DNS servers by doing DNS resolution</li> <li>Scales to support hundreds of data centers or server load balancers (SLBs)</li> <li>Supports up to 20,000 DNS request per second</li> <li>Delivers a unique DNS-based localization and persistence services</li> </ul>	6-8

## Content Networking Overview

Cisco Content Networking solutions are designed to optimize the delivery of content to end users. To accomplish this, Cisco offers solutions for both data center and edge delivery with industry-leading products in both categories.

In the data center, Cisco Content Switching, or L4-7 Switching, solutions optimizes a network to dynamically enable faster responses to Web requests and decrease network bandwidth congestion. Content switching, or intelligent load balancing, insures high levels of content availability and security, and leverages investment in Cisco IP infrastructure.

Cisco's Application and ACN System allows enterprises to accelerate mission critical web applications such as Siebel and SAP, block viruses and inappropriate websites and deliver business video, while laying the foundation for advanced services such as e-learning and corporate communications.

### Cisco Content Engines (CE)

Within Cisco's content-networking solutions portfolio, the Cisco ACNS Software enables a variety of services that optimize delivery of Web applications and content to the network edge to ensure enhanced speed, availability, and performance for users. ACNS Software combines the technologies of transparent caching and enterprise content-delivery network (ECDN) for accelerated delivery of Web objects, files, and streaming media from a single intelligent appliance, Cisco CE.



The Cisco ECDN solution provides a platform that delivers immediate benefits from entry-level applications such as content and business application acceleration and URL filtering, while laying the foundation for advanced services such as business video and e-learning.

### When to Sell

#### Sell This Product

**Content Engine 7325A**

**Content Engine 7305A**

**Content Engine 566**

**Content Engine 511**

**Content Engine Network Modules**

#### When a Customer Needs These Features

- Ultra high-end Content Engine platform for delivering business video streaming, Web application acceleration, software distribution and Intra/Internet Web proxy and security applications to the enterprise datacenter.
- High-end Content Engine platform for delivering the ACNS capabilities and business applications to the enterprise datacenter or very large branch/office locations. Also supports the CDM and CR devices modes of ACNS in the datacenter.
- Mid-range Content Engine ideal for delivering the ACNS capabilities and business applications to larger branch offices. Also supports the CDM and CR device modes of ACNS in the datacenter.
- Entry-level Content Engine for delivering the ACNS capabilities and business applications into small to moderate size branch offices.
- Router-integrated caching and content delivery network modules for 2600, 3600, 3700 and 3800 Series branch access routers

### Key Features

- **Video Distribution and Streaming**—Enables intelligent distribution of both live and on-demand video content making best use of existing WAN bandwidth preventing bottlenecks. Supports popular video streaming formats and is easily integrated with 3rd party business video creation, management and publishing applications via APIs to provide end-to-end business video solutions.
- **Caching/Web Application Acceleration**—Provides accelerated content delivery, improved performance of web-based business applications, WAN bandwidth cost savings, and protection vs. uncontrollable bottlenecks
- **Software Distribution**—Content Distribution features of ACNS can be leveraged to scale the distribution of software updates throughout the enterprise network helping to alleviate impact on WAN.

- Content Security and Filtering—Enables administrators to enforce Web access policies with existing AAA services (including NTLM and LDAP/AD) as well as block, monitor, and report on end users’ access to non-business and objectionable content via URL filtering. Supports both Secure Computing’s Smartfilter and Websense’s URL filtering solutions “on-box.” Other URL filtering and virus scanning servers can also be leveraged via the ICAP protocol.

## Competitive Products

- Blue Coat: Blue Coat Server Accelerator 700 and 7000 Series and Blue Coat Systems Director
- Network Appliance: NetCache C1200/2100/6100 Series Appliances and Content Director
- Volera: Excelerator, Media Excelerator, Secure Excelerator

## Specifications

Feature	7325A	7305A	566	511	Network Module	SA-7340
<b>Supported Interfaces</b>	Two 10/100/1000BASE-T X	Two 10/100/1000BASE-T X	Two 10/100/1000BASE-T X	Two 10/100/1000BASE-T X	One internal 10/100-Mbps Ethernet to router backplane; one external 10/100-Mbps Ethernet	
<b>SDRAM</b>	4 GB	2 GB	1 GB	512 MB	Up to 512 MB	
<b>Max Storage</b>	1,440 GB; U320 SCSI	936 GB; U320 SCSI	396 GB; U320 SCSI	160 GB; SATA	80 GB; IDE	1,008 GB; U320 SCSI
<b>Maximum Internal Storage</b>	432 GB; U320 SCSI	432 GB; U320 SCSI	144 GB; U320 SCSI	160 GB; SATA	40 GB or 80 GB; IDE	1,008 GB; U320 SCSI
<b>Flash Memory</b>	128 MB	128 MB	128 MB	128 MB	16 MB internal; optional Compact Flash Memory	
<b>Storage Array Support</b>	Yes	Yes	Yes <sup>1</sup>	No	No	
<b>Rack Units</b>	2 RU	2 RU	1 RU	1 RU	N/A	3 RU
<b>Dimensions (HxWxD)</b>	3.36 x 17.46 x 27.48 in	3.36 x 17.46 x 27.48 in.	1.72 x 17.3 x 20 in.	1.72 x 17.3 x 20 in.	One slot in 2600/2800/3700/3800 chassis	5.0 x 17.5 x 21.8 in
<b>Max. Weight</b>	62 lb.	62 lb.	28 lb.	28 lb.	1.5 lb.	82 lb.
<b>Power</b>	Hot-swappable redundant AC or DC	Hot-swappable redundant AC or DC	300W AC	300W AC	From chassis	500W AC

1. 7-Disk Default SA-7340 Configuration only

## Selected Part Numbers and Ordering Information<sup>1</sup>

### Cisco Content Engine 7300 Series Hardware

- CE-7325A-K9 Content Engine 7325A AC Power, ACNS software
- CE-7305A-K9 Content Engine 7305A AC Power, ACNS software. Also runs as CDM or CR

### Cisco Content Engine 500 Series Hardware

- CE-566-144G-K9 Cisco Content Engine 566, AC Power, ACNS software. Also runs as CDM or CR
- CE-511-K9 Cisco Content Engine 511 AC Power, ACNS software

### Cisco Storage Array 7340

- SA-7340 Cisco Storage Array 7340, (7) 72 GB drives, AC power

### Cisco Content Engine Network Module Hardware

- NM-CE-BP-40G-K9= Content Engine Network Module, basic performance, 20-GB IDE hard disk
- NM-CE-BP-80G-K9= Content Engine Network Module, basic performance, 40-GB IDE hard disk

1. This is only a small subset of all parts available via URL listed under “For More Information.”

## For More Information

See the Cisco Content Engine Website:

<http://cisco.com/en/US/products/sw/conntsw/ps491/index.html>

# Cisco CSS 11500 Series Content Services Switches

The Cisco CSS 11500 Series Content Services Switch is suitable for both enterprises and service providers seeking to reduce data center costs, boost e-business application performance, offer enhanced services, ensure online transaction integrity, and provide the best possible online experience for customers, business partners, and internal workers.



The Cisco CSS 11500 is available in as the standalone Cisco CSS 11501, the three-slot Cisco CSS 11503 and the six-slot Cisco CSS 11506.

## When to Sell

### Sell This Product

#### CSS 11501/ CSS 11501S

### When a Customer Needs These Features

- Standalone, fixed-configuration switching platform with up to 8 Fast Ethernet ports and 1 optional Gigabit Ethernet port
- Cost-effective server, cache, and firewall load balancing
- Complex Web applications requiring high-level URL and cookie switching
- Integrated SSL encryption and decryption (11501S only)

#### CSS 11503

- Compact, high-performance, modular content switching platform with up to 32 Fast Ethernet ports or up to six Gigabit Ethernet ports
- Cost-effective server, cache, and firewall load balancing
- Integrated SSL capabilities for secure transactions
- Complex Web applications requiring high-level URL and cookie switching

#### CSS 11506

- Compact, high-performance, modular content switching platform with up to 32 Fast Ethernet ports or up to six Gigabit Ethernet ports
- Cost-effective server, cache, and firewall load balancing
- Integrated SSL capabilities for secure transactions
- Complex Web applications requiring high-level URL and cookie switching

## Key Features

- Introduces an intelligent, distributed architecture
- Improves site availability and transaction integrity by introducing ASR
- Delivers customized combinations of ports, performance, and services
- Scales secured transaction performance through support of an integrated, high-capacity SSL module (WebNS 5.20): Enables content switching functionality.
- Protects investment by enabling upgrades of performance, ports, and services through modularity

## Competitive Products

- Alteon/Nortel: ACEdirector and 700 Series
- F5 Networks: Big/IP and LAN switch Partners
- Foundry Networks: ServerIron
- Radware: Web Server Director (WSD)
- Resonate: Central Dispatch and Global Dispatch

## Specifications

Feature	Cisco CSS 11501	Cisco CSS 11503	Cisco CSS 11506
<b>Modular Slots</b>	N/A	3	6
<b>Base Configuration</b>	Switch Control with 8 10/100 Ethernet; 1 GBIC port	Switch Control Module; 2 Gigabit Ethernet (GBIC) ports	Switch Control Module; 2 Gigabit Ethernet (GBIC) ports
<b>Max GB Ethernet Ports</b>	1	6	12
<b>Max 10/100 Ethernet ports</b>	8	32	80
<b>2-port GB Ethernet I/O Module</b>		Max: 2	Max: 5
<b>16-port GB Ethernet I/O Module</b>		Max: 2	Max: 5
<b>8-port GB Ethernet I/O Module</b>		Max: 2	Max: 5
<b>SSL Module</b>	CSS 11501S only	Max: 2	Max: 5
<b>Session Accelerator modules</b>	CSS 11501S only	Max: 2	Max: 5
<b>Redundancy features</b>	Active-active Layer 5 ASR Virtual IP Address (VIP) redundancy	Active-active Layer 5 ASR VIP redundancy	Active-active Layer 5; ASR; VIP redundancy; Active-standby SCM; Redundant switch fabric module; Redundant power supplies
<b>Height</b>	1/75 in. (1 rack unit)	3.5" (2 rack units)	8.75" (5 rack units)
<b>Bandwidth</b>	Aggregate 6 Gbps	Aggregate 20 Gbps	Aggregate 40 Gbps

Feature	Cisco CSS 11501	Cisco CSS 11503	Cisco CSS 11506
Storage	512 MB hard disk or 256 MB Flash disk	512-MB hard disk or 256-MB Flash memory disk	512-MB hard disk or 256-MB Flash memory disk
Power	Integrated AC supply	Integrated AC or DC	Up to 3 AC or 3 DC

## Selected Part Numbers and Ordering Information<sup>1</sup>

### Cisco CSS 11500 Series Content Services Switches

CSS11506-2AC	Cisco 11506 Content Services Switch including SCM with 2 Gigabit Ethernet ports, hard disk, 2 switch modules, 2 AC power supplies, and a fan (requires SFP GBICs)
CSS11506-2DC	Cisco 11506 Content Services Switch including SCM with 2 Gigabit Ethernet ports, hard disk, 2 switch modules, 2 DC power supplies, and a fan (requires SFP GBICs)
CSS11503-AC	Cisco 11503 Content Services Switch including SCM with 2 Gigabit Ethernet ports, hard disk, and integrated AC power supply, integrated fan, and integrated switch module (requires SFP GBICs)
CSS11503-DC	Cisco 11503 Content Services Switch including SCM with 2 Gigabit Ethernet ports, hard disk, and integrated DC power supply, integrated fan, and integrated switch module (requires SFP GBICs)
CSS5-SCM-2GE	Cisco CSS 11500 System Control Module with 2 Gigabit Ethernet ports and hard disk (requires SFP GBICs)
CSS5-IOM-8FE	Cisco CSS 11500 Fast Ethernet I/O Module: 8-port TX
CSS5-IOM-16FE	Cisco CSS 11500 Fast Ethernet I/O Module: 16-port TX
CSS5-IOM-2GE	Cisco CSS 11500 Gigabit Ethernet I/O Module: 2-port (requires SFP GBICs)
CSS5-SAM	Cisco CSS 11500 Session Accelerator Module
CSS5-SSL	Cisco CSS 11500 SSL Module
CSS11501S-K9	Cisco CSS 11501 Content Services Switch-8 Fast Ethernet, hard disk, AC with integrated SSL
CSS11501	Cisco CSS 11501 Content Services Switch-8 Fast Ethernet, hard disk, AC

1. This is only a small subset of all parts available via URL listed under “For More Information”. Some parts have restricted access or are not available through distribution channels. Resellers: For latest part number and pricing info, see the *Distribution Product Reference Guide* at: <http://www.cisco.com/dprg> (limited country availability).

## For More Information

See the CSS 11500 Series Website: <http://www.cisco.com/go/11500>

## Cisco Content Switching Module (CSM)

The Cisco CSM is a Catalyst 6500 line card that balances client traffic to farms of servers, firewalls, SSL devices, or VPN termination devices. The CSM provides a high-performance, cost-effective load balancing solution for enterprise and ISP networks. The CSM meets the demands of high-speed Content Delivery Networks, tracking network sessions and server load conditions in real time and directing each session to the most appropriate server. Fault tolerant CSM configurations maintain full state information and provide true hitless failover required for mission-critical functions.

## When to Sell

### Sell This Product

#### Cisco Content Switching Module

### When a Customer Needs These Features

- A high performance, L4 to L7 load balancing solution integrated with Cisco's Catalyst 6500
- Load balancing for the highest traffic sights
- Support for up to 1,000,000 concurrent TCP connections

## Key Features

- Establishes up to 150,000 Layer 4 connections per second and provides high-speed content switching, while maintaining 1 million concurrent connections
- Outstanding price/performance value for large data centers and ISPs—Features a low connection cost and occupies a small footprint. The CSM slides into a slot in a new or existing Catalyst 6500 enabling all its ports for layer 4 through layer 7 content switching. Multiple CSMs can be installed in the same Catalyst 6500 for redundancy and scalable performance
- Uses the same Cisco IOS Command Line Interface (CLI) that is used to configure the Catalyst 6500 Switch

### Competitive Products

- Alteon/Nortel: Web Switching Module, Application Switch, and Web Switches
- Foundry Networks: ServerIron
- Radware: Web Server Director (WSD)
- Resonate: Central Dispatch and Global Dispatch
- F5 Networks: Big/IP

### Specifications

Feature	Cisco Content Switching Module (CSM)
Configuration Limits	512 total VLANs (client and server); 4000 virtual servers; 4000 server farms; 16,000 real servers; 4000 probes; 16,000 access control list (ACL) items
Connections	1,000,000 concurrent TCP connections 150,000 connection setups per second-Layer 4 75,000 connection setups per second-Layer 7
Throughput	4 Gigabits-per-second total combined (client-to-server and server-to-client) throughput 1.25 million packets per second
Catalyst Switch Platform Requirements	Native support (switch running Cisco IOS Software only) Hybrid Support (switch running IOS/CatOS) Functions as a bus enabled line card-not fabric enabled Multilayer switch feature card-MSFC or MSFC2

### Selected Part Numbers and Ordering Information<sup>1</sup>

**Cisco Content Switching Module**  
WS-X6066-SLB-APC Catalyst 6500 Content Switching Module

### For More Information

See the Cisco Content Switching Module (CSM) Website at: <http://www.cisco.com/go/csm>

### Cisco SSL Module for Catalyst 6500

The SSL Services Module is an integrated service module for the Cisco Catalyst 6500 Series that offloads the processor-intensive tasks related to securing traffic with SSL and increases the number of secure connections supported by a website.

### When to Sell

#### Sell This Product

##### SSL Module for Catalyst 6500

#### When a Customer Needs These Features

- An integrated SSL encryption/decryption solution featuring Cisco's Catalyst 6500
- Scalable SSL processing: 2,500 connection setups/second per module-10,000 per Chassis fully-populated with SSL modules

### Key Features

- Server SSL offload—performs all SSL-related tasks, allowing servers to handle high-speed clear text traffic
- Scalable performance—provides a simple means of addressing increased performance requirements by installing additional SSL modules in a Catalyst 6500 switch
- Persistent—maintains persistence even when clients request new session IDs, in Integrated Mode with CSM
- Certificate optimization—provides cost savings by requiring only a single certificate copy vs. a copy for each server subject to customer and certificate authority agreement

### Competitive Products

- F5 Networks eCommerce 540
- Nortel/Alteon iSD 410 SSL Accelerator

Chapter 6

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## Specifications

Feature	Cisco SSL Module for Catalyst 6500
System Capacity and Performance	2500 connection setups/sec per module-10K per chassis; 60K concurrent client connections-240K per chassis; 300 Mbps bulk rate encryption-1.2 Gbps per chassis; 256 key pairs; 256 key certificates; Up to 2K key sizes-256 proxy servers
Scalability	Up to four SSL modules in the same Catalyst 6500
Integration with Server Load Balancing	Tightly integrated in the Cisco Catalyst 6500 Switch with the CSM

## Selected Part Numbers and Ordering Information<sup>1</sup>

Cisco SSL Module for Catalyst 6500  
WS-SVC-SSL-1-K9= Cisco SSL Module for Catalyst 6500

## For More Information

See the Catalyst 6500 Series Website at: <http://www.cisco.com/go/cat6500>

## Cisco DistributedDirector<sup>1</sup>

DistributedDirector provides dynamic, transparent, and scalable Internet traffic load distribution between multiple geographically-dispersed servers. DistributedDirector is a global Internet service-scaling solution that utilizes Cisco IOS software and leverages routing table information, delay characteristics, and other information to make “network intelligent” load distribution and site selection decisions.

DistributedDirector transparently redirects end-user service requests to the closest responsive server, which increases access performance and reduces transmission costs. Users need only a single subdomain name or URL-embedded hostname for accessing a distributed set of servers, thus providing the appearance of a single virtual server.

## When to Sell

Sell This Product	When a Customer Needs These Features
Cisco Distributed Director	<ul style="list-style-type: none"><li>• Load distribution across geographically/topologically dispersed TCP/IP servers</li><li>• High availability for dispersed mission-critical applications</li><li>• Data center redundancy and failover</li></ul>

## Key Features

- Transparent distribution of all IP Services (TCP and UDP), including HTTP, FTP, Telnet, and Gopher; provides global scalability for all IP-based network services
- Improves access performance by redirecting to the topologically closest server
- Calculates client-to-server round-trip times in real time; redirects clients to server with lowest client-to-server link latency, maximizing end-to-end performance
- Redirects clients only to responsive servers, resulting in maximized availability
- Cisco IOS Software & standard CLI for device configuration
- Transparently add and remove distributed servers, simplifying maintenance
- Supports multiple domains; cost-effective IP service scalability solution

1. DistributedDirector is available in Cisco IOS software for 2600/2600XM, 3600, and 7200 series routers, starting on release 12.2(4)T Enterprise Plus feature sets; Dedicated routers may be recommended for DistributedDirector to meet performance targets of both routing and load balancing; If no dedicated hardware platform is available for running DistributedDirector, it is recommended customers use the Configurable DD Cache feature (available in 12.2(8)T) to limit the memory DistributedDirector may consume for DNS caching; To take advantage of enhanced caching capabilities, routers should be configured with additional DRAM (128MB or more)

### Competitive Products

- Alteon Networks: ACEdirector and Web Switches with WebOS GLSB
  - F5 Labs: 3DNS
  - Foundry Networks: ServerIron Switch with Internet IronWare
- Resonate, Inc.: Global Dispatch
  - RND Networks, Inc.: Web Server Director - Network Proximity (WSD-NP)

### For More Information

See the DistributedDirector Website at <http://www.cisco.com/go/dd>

## Cisco GSS 4491 Global Site Selector

The Cisco GSS 4491 is a networking product that globally load balances distributed data centers. The Cisco GSS 4491 acts as the cornerstone of multisite disaster recovery plans in deployments of Cisco’s market-leading content switches. Customers deploying new Cisco content switches such as the Cisco CSS 11500 Content Services Switch and the CSM for the Cisco Catalyst 6500 Series switches or have already deployed legacy switches such as the Cisco CSS 11000 and Cisco Local Directors can benefit from the new levels of traffic management and centralized command and control provided by the Cisco GSS 4491.

### Key Features

- Provides resilient architecture critical for disaster recovery and multisite Web applications deployments
- Offers flexible heterogeneous support for all Cisco SLBs and DNS-capable networking products
- Provides centralized command and control of DNS resolution process for direct and precise control of global load-balancing process
- Offers site persistence for e-commerce applications
- Offers a unique DNS race feature-The Cisco GSS 4491 can in real time direct content consumers to the closest data center
- Supports a Web-based GUI and DNS wizard to simplify the DNS command and control

### Competitive Products

- F5 Networks 3DNS
- Nortel/Alteon Content Director

### Specifications

Feature	Cisco GSS 4491
Number of Ports	Two 10/100/1000Base TX Ports
Port Description	Network Ports: Two 10/100Base TX; Console Port
DNS requests per second	Up to 20,000, depending on configuration
Configuration Software OS Support	Windows NT 4.0; Red Hat Linux 5.0, 6.0, 6.1, 6.2
Network management	Console port-CLI Access to system via Telnet; Secure copy (SCP) or FTP; GUI-Secure HTTP (HTTPS) for Internet Explorer and Netscape Navigator
Storage	One 80-GB hard drive
Physical	One-rack unit size chassis; Network management serial portport; 1 GB RAM; Prescott 3.2-GHz CPU
Dimensions (H x W x D)	1.75 x 16.54 x 16.69 in. (44 x 424 x 430 mm)

### Selected Part Numbers and Ordering Information<sup>1</sup>

<b>Cisco GSS 4491</b>	
Cisco GSS 4491-K9	Global site selector
SF-GSS-V1.0-K9	SF-GSS-V1.0-K9Global site selector software

### For More Information

See the Cisco GSS 4480 Website: <http://www.cisco.com/go/gss>





# Broadband and Dial Access

## Broadband and Dial Access Products at a Glance

### Remote Dial Access—Data and Voice (VoIP)

Product	Features	Page
<b>SS7 Signaling &amp; Softswitch Products</b>	<ul style="list-style-type: none"> <li>• Cisco PGW 2200 Softswitch—Call Agent providing signaling and call control functionality for 7-3 PSTN Gateway and transit applications in international markets</li> <li>• Cisco BTS 10200 Softswitch—Class 4/5 softswitch for Voice over IP applications</li> </ul>	

### Broadband Cable

Product	Features	Page
<b>Headend and Distribution Hub Equipment</b>		
<b>Cisco uBR7100 Series Universal Broadband Router</b>	<p>Entry-level, standards-based fixed-configuration CMTS and integrated router for lower-density 7-4 residential and MxU customers serviced by cable operators or ISPs.</p> <ul style="list-style-type: none"> <li>• Compact form factor (2RU)</li> <li>• Supports up to 2,000<sup>1</sup> broadband subscribers</li> <li>• Layer 2 bridging and full Layer 3 routing</li> <li>• DOCSIS 1.0, 1.1 and Euro--DOCSIS 1.0 qualified; supports DOCSIS Set-top Gateway (DSG)</li> <li>• Fixed-configuration models including: Cisco uBR7111, Cisco uBR7111E, Cisco uBR7114, and Cisco uBR7114E</li> <li>• Integrated upconverter/modulator</li> <li>• Embedded dual 10/100 BaseT Ethernet network interface</li> <li>• Selection of LAN and WAN interfaces</li> </ul>	
<b>Cisco uBR7246VXR Universal Broadband Router</b>	<p>Modular, standards-based communications-grade CMTS and integrated router for high-growth 7-5 broadband cable deployments</p> <p>Supports up to 10,000<sup>1</sup> broadband subscribers</p> <ul style="list-style-type: none"> <li>• Offers large variety of LAN and WAN interface options and processors</li> <li>• Full Layer 3 implementation</li> <li>• DOCSIS, 1.0, 1.1, Euro-DOCSIS 1.0, 1.1, 2.0 (ATDMA-only) and PacketCable 1.0 qualified; Supports Advanced Mode DSG</li> <li>• Selection of cable line cards that includes Cisco uBR7200 Series MC28U, MC28X, MC16U, and MC16X Broadband Processing Engines (BPEs)</li> </ul>	
<b>Cisco uBR10012 Universal Broadband Router</b>	<p>Highest-capacity communications-grade CMTS on the market today. Delivers the services, performance, scale, and carrier-class reliability large cable operators and ISPs demand</p> <ul style="list-style-type: none"> <li>• Supports up to 64,000<sup>1</sup> broadband subscribers</li> <li>• A-TDMA and advanced spectrum management</li> <li>• Full Layer 3 implementation</li> <li>• DOCSIS, 1.0, 1.1, Euro-DOCSIS 1.0, 1.1 and PacketCable 1.0 qualified; Supports Advanced Mode DSG</li> <li>• High-performance aggregation platform with Parallel Express Forwarding patented by Cisco</li> <li>• Cisco 5x20U Broadband Processing Engine (BPE)</li> <li>• Network interfaces that includes 1 Gbps over Gigabit Ethernet and OC-48-Dynamic Packet Transport (DPT) Interface Module Set</li> </ul>	7-6
<b>Cisco uBR3x10 RF Switch</b>	<ul style="list-style-type: none"> <li>• Exceeds PacketCable availability requirements</li> <li>• Enables a fully redundant CMTS with no single point of failure; works with the Cisco uBR7246VXR and uBR10012</li> <li>• Maximizes density with more than 250 MCX-type connector</li> </ul>	7-7
<b>Network Management</b>		
<b>Cisco Broadband Configurator</b>	<ul style="list-style-type: none"> <li>• Provides a user interface to collect information needed to generate DOCSIS or PacketCable 7-8 configuration files</li> </ul>	
<b>Cisco Broadband Troubleshooter</b>	<p>Provides a diagnostic tool for RF technicians to quickly and easily isolate problems in the cable 7-8 plant</p> <ul style="list-style-type: none"> <li>• Analyzes and sorts RF conditions into specific categories such as attenuation, provisioning, noise or packet corruption (CRC) errors</li> <li>• Provides dashboard views of network health, CMTS and CM statistics, and CM snapshots</li> <li>• Correlates CM to subscriber information</li> <li>• Works with an optional tool to map CMs and status to subscriber street-level views</li> </ul>	

1. Numbers are for reference only. Actual numbers for specific systems will vary depending on network/service loading, traffic, and other parameters.

### DSL (Digital Subscriber Line) Access

Product	Features	Page
<b>DSL Access CPE<sup>1</sup></b>	Wide variety of Cisco router-based DSL CPE solutions for business-class to small office applications	7-9
<b>Broadband Services Aggregation</b>	<ul style="list-style-type: none"> <li>• Cisco 7200 Series Router—Up to 16000 broadband sessions on a 3 RU platform, including aggregation of PPP, PPPoE, and PPPoA</li> <li>• Cisco 7301 Series Router—1 RU Broadband Aggregation Router that is capable of delivering up to 16000 sessions per chassis</li> <li>• Cisco 10000 Series Router—A carrier-class router that supports up to 61,500 broadband sessions with 99.999 percent system uptime</li> </ul>	7-9

1. For ADSL, ISDN, and IDSL small office/home office (SOHO) customer premise equipment (CPE), see Chapter 1: Routing

### ATM Multiservice WAN Switching

Product	Features	Page
<b>Cisco BPX 8600 Series Switches</b>	<ul style="list-style-type: none"> <li>• Large-scale Advanced ATM switch for service provider and large enterprise applications</li> <li>• Narrowband and broadband services in a single, highly reliable platform using a multishef architecture with intelligent call processing for Frame Relay and ATM switched virtual circuits (SVCs)</li> <li>• 20 Gbps of high-throughput switching for multiple traffic types data, voice, and video</li> </ul>	7-11
<b>Cisco MGX 8850 Series Advanced ATM Multiservice Switches</b>	<ul style="list-style-type: none"> <li>• Multiservice switch, scales from DS0 to OC-48c/STM-16 speeds</li> <li>• Serves as a stand-alone device for narrowband services, an integrated edge concentrator or a broadband edge switch when equipped with 45 Gbps switch card and broadband ATM modules</li> <li>• Supports PNNI routing</li> </ul>	7-11
<b>Cisco MGX 8830 Series Multiservice Switches</b>	<ul style="list-style-type: none"> <li>• Multiservice switch scales from DS0 to OC-3c/STM-1 speeds</li> <li>• A standalone switch with narrowband interfaces and broadband trunking to remote sites with low density and high service mix requirements with 1.2 Gbps or 45 Gbps switch fabric in the enhanced chassis</li> <li>• Supports PNNI routing</li> </ul>	7-11

### Long Reach Ethernet

Product	Features	Page
<b>Cisco Catalyst 2950 LRE Switches</b>	<ul style="list-style-type: none"> <li>• Fixed configuration Ethernet switches for delivering converged voice, video, and data services over existing category 1/2/3 wiring for the in-building MxU, Hospitality, and Enterprise markets</li> <li>• 8 or 24 LRE ports + 2 10/100/1000BASE-T ports + 2 Small Form-Factor Pluggable (SFP) ports (two of the four uplinks active at one time), deliver Ethernet traffic (up to 15 Mbps) over standard copper cabling (up to 5000 feet); ideal for in-building applications</li> <li>• Co-exists with POTS and ISDN traffic on the same line and compatible with ADSL</li> <li>• Advanced QoS, security, and multicast features to support converged voice, video (broadcast and VoD), and high speed data services</li> </ul>	7-12
<b>Cisco LRE CPE Devices</b>	<ul style="list-style-type: none"> <li>• Cisco 575 LRE CPE—Compact, includes one RJ-45 Ethernet connection and two RJ-11 connectors (for telephone)</li> <li>• Cisco 585 LRE CPE—Compact, includes four RJ-45 switched Ethernet connections and two RJ-11 connectors (for telephone). Supports 802.1p QoS</li> </ul>	7-12
<b>Cisco LRE POTS Splitter</b>	<ul style="list-style-type: none"> <li>• Cisco LRE 48 POTS Splitter—48 ports in 1RU. Ensures that POTS service is separate, and never compromised by LRE switch reconfiguration or downtime</li> </ul>	7-12
<b>Cisco Broadband Building Service Manager</b>	<ul style="list-style-type: none"> <li>• Server system enables automated online activation, integrated billing, tiered service levels</li> <li>• Ideal for any form of broadband access technology, including Ethernet, LRE, Cable access, DSL, Wireless, or Fiber</li> </ul>	7-14

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## **SS7 Signaling & Softswitch Products**

### **Cisco PGW 2200 Softswitch**

The Cisco PGW 2200 provides the signaling and call control functionality that enables SPs to bridge the boundary between the legacy PSTN. Combined with Cisco's award winning media gateways, the PGW 2200 is the catalyst for PSTN Gateway solutions enabling dial offload, transit, business voice, H.323 and SIP based applications. The PGW 2200 leverages its protocol library of 90+ SS7/C7 variants to enable interconnect worldwide. In signaling mode the PGW adds SS7/C7 to the AS5X00 gateways, giving service providers around the world a proven cost-saving and reliable solution for connecting VoIP and Internet Dial Access solutions to the PSTN. SS7 signaling allows service providers to enter into new markets, optimize their networks for both voice and data traffic, and save drastically on monthly interconnect fees.

#### **Key Features:**

- Peer-to-peer Interconnect with the PSTN via SS7/C7
- SS7/C7 support for carrier-class Cisco AS5x00 network access servers and voice gateways
- Calling-party analysis (A-number analysis); Called-party number analysis (B-number analysis)
- ANI- or CLI-based number screening with on-board database
- Overload control; Automatic congestion control (ACC); Advice of charge (AOC)
- E.164 and North American numbering plan (NANP) support
- Over-decadic digits; Toll-free/800 number calls

#### **For More Information**

See PGW 2200 Website:

<http://www.cisco.com/en/US/products/hw/vcallcon/ps2027/index.html>

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### **Cisco BTS 10200 Softswitch**

The Cisco BTS 10200 Softswitch offers tremendous flexibility to service providers who want to deploy local and transit services and facilitates cost reduction through grooming. The standards-based Cisco BTS 10200 Softswitch enables new, innovative, easily differentiated services for a fortified broadband services offering. Services can be quickly deployed, and time-consuming and costly upgrades to each transport element are not required-the Cisco BTS 10200 Softswitch extracts and centralizes the call-control and service applications from the transport network. In addition to telecommunications services, service providers can offer a wider range of other business and residential services, including multiservice VPNs, Web hosting, and Internet access.

Leveraging the power of packet networks while seamlessly operating with legacy circuit switched infrastructures, the Cisco BTS 10200 Softswitch empowers service providers and carriers to gracefully transition to packet-based technology. Implementing the Cisco BTS 10200 Softswitch ensures rapid service deployment, carrier-grade reliability, service flexibility, scalability to millions of subscribers, and cost savings through investment optimization and operational

## When to Sell

### Sell This Product

Cisco BTS 10200  
Softswitch

### When a Customer Needs These Features

- Resellers moving to facilities-based services
- Facilities-based competitive local exchange carriers (CLECs)
- Fixed-wireless carriers

## Key Features

- Comprehensive industry-standard protocol support
- Carrier-grade reliability with Network Equipment Building Systems (NEBS) compliance and redundant platform components
- Interoperable with numerous commercial feature servers
- Feature server architecture, which provides an open protocol
- Streamlined maintenance, provisioning, and service activation
- Integrated access device and IP Phone support
- GUI and CLI
- Comprehensive reporting features, including billing records
- Network scalability through deployment of multiple, centrally managed call agents

## For More Information

See Cisco BTS 10200 Softswitch Website:

<http://www.cisco.com/en/US/products/hw/vcallcon/ps531/index.html>

## Cisco uBR7100 Series Universal Broadband Router



The Cisco uBR7100 Series is a complete, compact, easy-to-use product that enables cost-effective, high-speed Internet access in the hospitality multidwelling (MDU) and multitenant (MTU) market space using the coaxial cable already in a building. The product requires exceptionally low capital investment and minimal setup time to provide online Internet access and support residential voice services. For Tier 2 or Tier 3 cable operators, it is the industry's most cost-effective, feature-rich CMTS and integrated router. The Cisco uBR7111 and Cisco uBR7114 models are CableLabs qualified to DOCSIS 1.0 and 1.1 specifications. The Cisco uBR7111E and Cisco uBR7114E models are tComLabs qualified to EuroDOCSIS 1.0 and 1.1 specifications. Includes support for DSG. The Cisco uBR7111 and Cisco uBR7111E contain one downstream port and one upstream port. The Cisco uBR7114 and Cisco uBR7114E contain one downstream port and four upstream ports. All models support bidirectional or telco-return traffic.

## When to Sell

### Sell This Product

Cisco uBR7100 Series

### When a Customer Needs These Features

- For MxU customers: the Cisco uBR7100 Series enables high-value Internet and residential voice services over a DOCSIS or EuroDOCSIS cable infrastructure
- For cable operators: Given the small subscriber base of a typical multitenant/dwelling unit (MxU) setting, the challenge has been to deliver robust services quickly and cost-effectively for an accelerated break-even point and a quicker return on investment

## Key Features

- Complete package that includes a full Layer 3 router and CMTS with an integrated upconverter, and embedded Network Interface
- Standards-based: DOCSIS and EuroDOCSIS
- Reliable operation to ensure the system remains online

Specifications

Feature	Cisco uBR7111 and uBR7114	Cisco uBR7111E and uBR7114E
Memory	Flash: 48 MB; System: 128 MB	Flash: 48 MB; System: 128 MB
Line Card with Integrated Upconverter (Cable Plant Interface)	uBR7111: 1 downstream and 1 upstream uBR7114: 2 downstream and 4 upstreams	uBR7111E: 1 downstream and 1 upstream uBR7114E: 2 downstream and 4 upstreams
Integrated Upconverter	DOCSIS Annex B, 6 MHz High level output: =+61dBmV, 55 to 858 MHz Optimized for 64 and 256 QAM	DOCSIS Annex A, 8 MHz, High level output: = +61 dBmV, 55 to 858 MHz Optimized for 64 and 256 QAM
Power Options	Single; 100 to 240 VAC input voltage	Same as Cisco uBR7111 and Cisco uBR7114
Recommended Cisco IOS Software Release	12.3(13)BC	12.3(13)BC
Port Adapter (WAN or backbone Interface)	Embedded dual 10/100 BaseT Ethernet (TX FE) provided; Same as Cisco uBR7111 and Cisco uBR7114 supports one additional PA that includes: Ethernet, Serial, ATM, and POS.	

For More Information

See the Cisco uBR7100 series Website:  
<http://www.cisco.com/en/US/products/hw/cable/ps2211/index.html>

Cisco uBR7246VXR Universal Broadband Router



The Cisco uBR7246VXR Universal Broadband Router, a member of the Cisco uBR7200 Series, provides a single, Layer 3 routing, multiservice, scalable platform that gives cable companies the ability to deliver IP data, voice and video services to DOCSIS, Euro-DOCSIS, and PacketCable-compliant cable modems, set-top boxes and multimedia terminal adapters. The Cisco uBR7246VXR is CableLabs qualified to PacketCable 1.0, DOCSIS 1.0 and 1.1 specifications. The Cisco uBR7246VXR is tComLabs qualified to Euro-DOCSIS 1.0, 1.1, and 2.0 (ATDMA-only) specifications. The product also supports Advanced Mode DSG.

When to Sell

Sell This Product  
Cisco uBR7246VXR

When a Customer Needs These Features

- DOCSIS, Euro-DOCSIS, and PacketCable-qualified, modular design that easily scales from small to large subscriber bases
- Flexible port expansion for multiservice deployment options
  - Service support of up to 10,000 subscribers per chassis with 3.2 Gbps back plane<sup>1</sup>
  - Powerful processor and edge intelligence; Field proven and carrier class reliability
  - Support for multimedia services
  - High tolerance to HFC network/spectrum noise

1. Numbers are for reference only. Actual numbers for specific systems will vary depending on network/service loading, traffic, and other parameters

Key Features

- Modular design—1,000- 10,000 subscribers per chassis
- Five 9's availability for low cost maintenance
- Advanced PHY
- ATDMA / DOCSIS compliant
- Euro-DOCSIS 2.0 (A-TDMA only), DOCSIS 1.1 qualified, and PacketCable 1.0 qualified
- Powerful Layer 3 routing intelligence and sophistication

## Specifications

<b>Feature</b>	<b>Cisco uBR7246VXR</b>
<b>Cable Line Cards and Number of Slots</b>	4
<b>Supported cable line cards (Cable Plant Interfaces)</b>	uBR7200 Series MC28U, MC28X, MC16U, and MC16X Broadband Processing Engines uBR-MC28C and uBR-MC16C Universal Broadband Line Cards
<b>Port Adapter Slots (LAN/WAN interfaces)</b>	2
<b>Supported PA categories</b>	Ethernet Serial HSSI ATM POS DPT
<b>Power Supply Shots</b>	2
<b>Power Supply Option</b>	AC; Dual AC; DC; Dual DC
<b>Input/Output (I/O) controller</b>	uBR7200-I/O uBR7200-I/O-FE uBR7200-I/O-2FE/E
<b>I/O flash options for PCMCIA slots</b>	Flash disk (48 MB) Flash disk (128 MB)
<b>Network processing engines (NPE)</b>	uBR7200-NPE-G1 and NPE-400
<b>Add-on processor memory options</b>	SDRAM (128 MB, 256 MB) for NPE-225 only 1 GB, 512 MB, 128 MB for uBR7200-NPE-G1
<b>Router Bandwidth</b>	3.2 Gbps

## For More Information

See the uBR7200 Website:

<http://www.cisco.com/en/US/products/hw/cable/ps2217/index.html>

## Cisco uBR10012 Universal Broadband Router

The Cisco uBR10012 Universal Broadband Router addresses the volume, capacity, and complexity of large cable headends or distribution hubs. The Cisco uBR10012 delivers the highest level of service availability and capacity of any production CMTS available today. It employs a mix of distributed, centralized, and parallel processing to enable consistently high, real-world performance. The Cisco uBR10012 is CableLabs qualified to PacketCable 1.0, DOCSIS 1.0 and 1.1 specifications. The product is also tComLabs qualified to EuroDOCSIS 1.0 and 1.1 specifications. The product further supports Advanced Mode DSG.



## When to Sell

**Sell This Product**  
**Cisco uBR10012**

### When a Customer Needs These Features

- Large subscriber bases
- Edge routing or aggregation of DOCSIS traffic
- High-end throughput, capacity, and service handling
- Advanced multimedia service delivery
- Sophisticated Layer 3 routing intelligence
- Complex network interface configurations

## Key Features

- Highest density and capacity: 5,000 - 64,000 subscribers
- Powerful process and throughput
- Five 9's availability
- GE line rate -> OC-48
- Scalable performance
- A-TDMA / DOCSIS 2.0
- Advanced intelligence features

**Specifications**

<b>Feature</b>	<b>Cisco uBR10012</b>
<b>Modular Slots</b>	8 slots for cable line cards; 4 slots for LAN/WAN interfaces; 2 slots for Performance Routing Engines (PREs); 2 slots for Timing Communication and Control Plus (TCC+) modules
<b>Supported Cards</b>	Cable line cards that include Cisco 5X20U BPE Timing, Communications, and Control Plus (TCC+) card Gigabit Ethernet (GE) network uplink card and OC-48 DPT Interface
<b>Processor Type</b>	Parallel Express Forwarding (PXF)
<b>Flash Memory</b>	48 MB (default); 128 MB (maximum)
<b>DRAM Memory</b>	512 DRAM (default)
<b>Software Supported</b>	Cisco IOS Software Release 12.3(13)BC recommended; Minimum software requirement: Cisco IOS Software Release 12.2(11)BC1 minimum for the Cisco 5X20 BPE, Cisco IOS Software Release 12.2(13)BC minimum for the Cisco OC-48 DPT Interface, Cisco IOS Software Release 12.3(9)BC minimum to support the Cisco PRE-2
<b>Power Supply</b>	DC, AC
<b>Hot-Swappable</b>	Yes
<b>Backplane Capacity</b>	51.2 Gbps
<b>Dimensions (H x W x D)</b>	31.25 x 17.2 x 22.75 in. (79.4 x 43.7 x 57.8 cm)—18 rack units (RU) Mounting: 19 in. rack mountable (front or rear), 2 units per 7 ft. rack Note: Mounting in 23 in. racks is possible with optional third-party hardware
<b>Weight</b>	Weight: 235 lb (106.6 kg) fully configured chassis

**For More Information**

See the Cisco uBR10012 Website:

<http://www.cisco.com/en/US/products/hw/cable/ps2209/index.html>

**Cisco uBR 3x10 RF Switch**

The Cisco uBR 3x10 RF Switch works with the Cisco uBR10002 and uBR7246VXR universal broadband routers to provide a fully redundant CMTS. The Cisco uBR 3x10 RF Switch accommodates three downstream switch modules and 10 upstream modules.

**When to Sell****Sell This Product**  
**Cisco uBR 3x10 RF Switch****When a Customer Needs These Features**

- Carrier class N+1 network and service architecture
- High density HA service support
- Scalability to tens of thousands of subscribers

**Key Features**

- Hot swap capability that eliminates downtime for RF paths
- Support of DOCSIS, Euro-DOCSIS and PacketCable RF performance specifications
- Most comprehensive set of high availability features
- Modular upstream and downstream capacity
- Fully passive working path
- Active components only in protect path
- Position-sensing latching relays
- Unmatched port density and flexibility
- N+1 redundancy

# Specifications

<b>Feature</b>	<b>Cisco uBR 3x10 RF Switch</b>
<b>Input Power Requirements</b>	AC: 100 to 240 VAC, 50 or 60 Hz, operating range: 90 to 254 VAC DC: -48 to -60 VDC, operating range: -40.5 to -72 VDC, 200 mVpp ripple/noise
<b>Environmental</b>	Operational temperature range: 0 to +40°C Operating temperature range: -5 to +55°C
<b>Unit Control</b>	10BaseT Ethernet—SNMP Switching time from active (working) to standby (protect): 150 mS maximum after SNMP command
<b>Connectors</b>	RF connectors: MCX AC power: IEC320 type DC power: Three terminal block Ethernet: RJ-45 RS-232 Bus: 9-pin male D
<b>Reliability</b>	41,000 MTBF @ +50°C as calculated by Belcore 5, 80 percent confidence factor
<b>Dimensions (H x W x D)</b>	5.25 x 17.5 x 14.8 in. (13.335 x 44.45 x 37.592 cm)
<b>Weight</b>	36 lbs
<b>RF requirements</b>	Input/output impedance: 75 ohms Maximum RF input power: +15 dBm (63.75 dBmV) Switch type: Electro-mechanical, absorptive for working path, non-absorptive on the protect path Switch setting time per switch module: 20 ms maximum Downstream frequency range: 54 to 860 MHz Typical downstream insertion loss: +/-1.1 dB from CMTS to cable plant; +/- 2.1 dB from protect to cable plant; 5.5 dB from working to output; 8.0 dB from protect to output Downstream insertion loss flatness: +/- 1.1 dB from CMTS to cable plant; +/- 2.1 dB from protect to cable plant Downstream output return loss: >15.0dB at <450 MHz, > 12.0 dB at >= 450 MHz Downstream input return loss: >15.0 dB Downstream isolation: > 60 dB from channel to channel in working mode; > 52 dB from CMTS to protect when in protect mode Upstream frequency range: 5 to 70 MHz Typical upstream insertion loss: 4.1 dB from cable plant to CMTS; 5.2 dB from cable plant to protect Upstream insertion loss flatness: +/- 0.4 dB from cable plant to CMTS, +/- 0.6 dB from cable plant to protect Upstream input return loss: > 16 dB Upstream isolation: > 60 dB from channel to channel in working mode; > 60 dB from CMTS to protect when in protect mode Protect mode: CMTS return loss >10 dB, cable plant return loss: >10dB

## For More Information

See the Cisco uBR 3x10 RF Switch Website:

<http://www.cisco.com/en/US/products/hw/cable/ps2929/index.html>

## Remote Cable Access—Network Management Products

### Cisco Broadband Troubleshooter

Cisco Broadband Troubleshooter is an easy-to-use tool that gives network administrators and technicians a GUI that streamlines RF problem resolution. The tool dynamically monitors RF characteristics on a per modem or per upstream basis, provides a measurement interface for the upstream that looks and feels like a spectrum analyzer, decentralizes RF monitoring and analysis, and automatically sorts and categorizes RF problem conditions. The product provides a fault-analysis tool that enabling isolation of performance, cable plant, and CM problems. The product characterizes upstream and downstream trouble patterns. Operators can quickly discern CPE connectivity impairments by identifying noise, attenuation, provisioning, and packet-corruption issues.

## For More Information

See the Cisco Broadband Troubleshooter Website:

<http://www.cisco.com/en/US/products/sw/netmgts/ps530/index.html>



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**Cisco Broadband Configurator**

Cisco Broadband Configurator is an easy-to-navigate, Java-based application that simplifies the creation and maintenance of configuration files for PacketCable 1.0 media terminal adapters (MTAs) and DOCSIS 1.0 and 1.1 cable modems. The product provides a simple-to-use, forms-based approach that leads cable operators through the process of configuring or editing values of a configuration file. For More Information

See the Cisco Broadband Configurator Website:

<http://www.cisco.com/en/US/products/sw/netmgtsw/ps819/index.html>

**DSL Remote Access—Customer Premise Equipment (CPE)**

Cisco offers the industry's broadest array of business-class DSL (G.SHDSL and ADSL) CPE solutions, from Enterprise to branch office, to SOHO applications. Cisco's CPE solutions offer the choice of key features including Firewall, VPN, and Voice-over DSL support. And, Cisco's industry leading IOS-based capabilities enable QoS, policy management, and standardized set-up and configuration. Cisco CPE Products include:

- Cisco SOHO Series Ethernet, ADSL over ISDN, ADSL over POTS and G.SHDSL Routers (page 1-9)
- Cisco 800 Series Routers Ethernet, ADSL over ISDN, ADSL over POTS and G.SHDSL (page 1-11)
- ADSL and G.SHDSL WAN Interface Cards (WICs) for 1700, 1800, 2600XM, 2800 and 3800 Series (see Chapter 1: Routing)

**Note**

Refer to Chapter 1: Routing section for easy-to-order xDSL bundles.

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**Broadband Services Aggregation**

The Cisco broadband aggregation portfolio covers all possible broadband aggregation markets.

- Cisco 7301: Highest Density PPP aggregation per rack-unit
- Cisco 7200: Most versatile platform
- Cisco 10000: Highest availability on a carrier-class integrated edge router

With this portfolio, Cisco can address the broadest set of requirements in terms of form factor, density, performance and scale, and offer customers a unique level of choice, with products optimized for any customer deployment.

**Cisco 7200 Series**

When ordered with the Cisco IOS 7200 Series Broadband User Services License, the 7200 delivers scaled PPP, RBE, and L2TP sessions and tunnels in addition to rich IP services. It enables service providers to provision broadband Internet access and supports all of the popular access technologies. It is ideal for low- to medium-density applications and is capable of handling up to 16000 subscribers in a single chassis.

### Cisco 7301 Series

When ordered as 7301-BB-8K and 7301-BB-16K (16K License) the Cisco 7301 Series Router provides a compact, high-performance single-rack-unit (1RU) router coupled with a broad set of interfaces and Cisco IOS® Software features, which makes it ideal for Broadband applications. The Cisco is capable of handling up to 16,000 simultaneous sessions and allowing for a pay-as-you-grow “rack and stack” architecture.

### Cisco 10000 Series

Integrated edge router that delivers highly available, line-rate performance without compromises for service providers deploying advanced IP services to broadband, leased line, ATM, and Frame Relay customers. With 99.999 percent uptime, it delivers high-performance broadband features including support for 61,500 broadband subscribers, hardware-accelerated PPP over Ethernet and PPP over ATM, routed bridge encapsulation and 1483 routing. New to the Cisco 10000 is support for Ethernet 802.1Q VLANs and QinQ further broadening the spectrum of encapsulations. See page 1-51 for more information on the 10000 series.

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## ATM Multiservice WAN Switching

### Cisco BPX 8600 Series—Advanced ATM Multiservice Switches

The Cisco BPX 8600 series is an ATM switch with advanced IP and ATM capabilities. Designed to meet the demanding, high-traffic needs of a public service provider or large private enterprise, the BPX switch delivers high-performance ATM switching, multiservice adaptation and aggregation for all types of user traffic.

- Enables service providers and large enterprises to meet skyrocketing network demands.
- Offers up to 20 Gbps of high-throughput switching for multiple traffic types data, voice, and video and supports a wide range of interfaces, from Frame Relay to full broadband subscriber interfaces, up to 622 Mbps with a connection to an Edge Concentrator.
- Offers multiple services for LAN, X.25, SNA, IP, Frame Relay, and ATM traffic from a single BPX platform.
- Supports multiprotocol label switching (MPLS).

### For More Information

See the Cisco BPX Website: <http://www.cisco.com/go/bpx>

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## **Cisco MGX 8850 ATM Multiservice Switch**

The Cisco MGX 8850 ATM Multiservice Switch enables delivery of a complete portfolio of service offerings while scaling from DS0 to OC-48c/STM-16 speeds. It enables service providers to be first to market with high-margin voice and data services while maintaining existing services. The MGX 8850 universal chassis provides a unified ATM architecture that delivers a complete portfolio of differentiated services—from circuit emulation to IP VPNs—all with a single chassis, to enable service providers to easily add new services.

The Cisco MGX 8850 can function in three different modes of operation:

- **PXM-1 configuration**—Operates as a stand-alone device for narrowband services, or as an integrated edge concentrator for the Cisco BPX 8600 series or the Cisco MGX 8850 PXM-45
- **PXM-1E configuration**—Operates as a stand alone switch for low density narrowband services, it includes a 1.2 Gbps switch card for PNNI routing. There are various PXM-1E network interface cards such as the T1/E1, T3/E3 and OC-3/STM1.
- **PXM-45 configuration**—Serves as a broadband edge switch and includes the 45 Gbps switch card and broadband ATM modules. The PXM-45 configuration also supports standards-based PNNI routing.

### **Key Features**

- Flexible ATM multiservice platform
- Highly scalable—from 1.2 to 45 Gbps of non-blocking throughput in single chassis
- Highest reliability, availability, and serviceability in the industry
- IP VPNs using Cisco IOS software-based Multiprotocol Label Switching (MPLS)
- Market-leading Frame Relay capabilities, with price-per-port leadership and advanced QoS
- High-density Point-to-Point protocol (PPP) for Internet access and aggregation
- Full-featured narrowband ATM for managed data, voice, and video services; high-density broadband ATM for wholesale ATM services
- Circuit Emulation for Private Line replacement
- Highly scalable packet voice gateway providing VoIP, VoATM(AAL1 & AAL2), ATM SVCs, and Onboard MPLS

### **For More Information**

See the Cisco MGX 8850 Website: <http://www.cisco.com/go/mgx8850>

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## **Cisco MGX 8830 ATM Multiservice Switch**

The Cisco MGX 8830 Advanced ATM Multiservice Switch extends a full suite of narrowband interfaces and broadband trunking to remote sites with low density and high service mix requirements, using PNNI and MPLS flexible network and services evolution. It features a 7-slot chassis for smaller footprint and power consumption than the MGX 8850. The Cisco MGX 8830 has a switching capacity of 1.2 Gbps or 45 Gbps and acts as a standalone switch. It offers a full range of service interfaces including ATM, FR, CE, MPLS and Voice.

### **For More Information**

See the Cisco MGX 8830 Series Website: <http://www.cisco.com/go/mgx8830>

## Cisco Long Reach Ethernet Solution



Cisco LRE enables the transport of symmetrical, bi-directional data over unshielded, copper twisted-pair telephone wires originally intended for the frequency bands used for traditional telephone voice services (300 Hz and 3.4 KHz). The system employs Frequency Division Duplexing (FDD) to separate the downstream channel, the upstream channel, and POTS, ISDN, or PBX signaling services in the frequency domain. This enables users to overlay LRE on existing POTS, ISDN, or analog PBX signaling services without disruption, extending intelligent Ethernet services at distances of up to 5000 over existing phone or legacy wiring. Both LRE and POTS/ISDN/analog PBX services may be transmitted over the same line without interfering with each other.

The Cisco 2950 LRE solution includes the Cisco Catalyst 2950 LRE switches, the Cisco 575 and 585 LRE CPE devices, and the Cisco LRE POTS Splitter. Each LRE link is terminated with either the Cisco 575 or 585 LRE CPEs, and a POTS splitter is required when POTS traffic coexists with the LRE link over the same line.

### Catalyst 2950 LRE Series Intelligent Ethernet Switches

The Cisco Catalyst® 2950 LRE switches are fixed-configuration, stackable models that provide wire-speed LRE and Gigabit Ethernet connectivity for small and midsized networks. The Catalyst 2950 Series is an affordable product line that brings enhanced security, high availability and advanced QoS, to the network edge-while maintaining the simplicity of traditional LAN switching. When a Catalyst 2950 LRE switch is combined with a Catalyst 3750 Series switch, the solution can enable IP routing from the edge to the core of the network. The Cisco Catalyst 2950 LRE switches are supported in the Cisco Network Assistant (CNA) application, which allows users to simultaneously configure and troubleshoot multiple Catalyst desktop switches, Integrated Services Routers, IP phones and Access Points using a PC based network management application.

The two built-in Gigabit Ethernet SFP ports support 1000BASE-SX and 1000BASE-LX modules. The dual SFP-based and copper Gigabit Ethernet implementation provides customers with tremendous deployment flexibility-allowing customers increased availability with the redundant uplinks. High levels of stack resiliency can also be implemented by deploying dual redundant Gigabit Ethernet uplinks and UplinkFast technologies for high-speed uplink and stack interconnection failover, and Per VLAN Spanning Tree Plus (PVST+) for uplink load balancing.

### Cisco 575 and 585 LRE CPE Devices

Each LRE port is terminated in the room with either the Cisco 575 or 585 LRE CPE devices. These compact devices bridge LRE and Ethernet. The 575 CPE has one RJ-45 Ethernet connection and two RJ-11 connectors—one for the wall and one for a telephone. The 585 CPE has four RJ-45 switched Ethernet connections and two RJ-11 connectors and supports 802.1p QoS so that voice and video traffic are prioritized over normal data traffic. Both the Cisco 575 and 585 LRE CPE device can be mounted on or under a desk, or on a wall. They ship with a mount lock-in mechanism and clip-on Ethernet cable guard to discourage theft. It supports voice (Plain Old Telephone Service—POTS) traffic-including ISDN or digital phones-that coexists over the same LRE line by splitting LRE and POTS traffic at the CPE device.

### Cisco LRE 48 POTS Splitter

The Cisco LRE 48 POTS Splitter is a high-density, low-cost device that is ideal for building deployments where the PBX system is on-site and POTS traffic must coexist over the same copper wiring as LRE traffic. Unlike “splitterless” building broadband network solutions,

the Cisco LRE 48 POTS Splitter ships as a separate, compact form factor to ensure that POTS service is separate, and never compromised by LRE switch reconfigurations or downtime.

The Cisco LRE 48 POTS Splitter supports 48 ports in a 1RU form factor. Each splitter has six RJ-21 connectors—two each for connectivity to the patch panel, the LRE switch(es), and the on-site PBX system.

### Key Features

- Performance—Delivers 2-15 Mbps symmetric over existing category 1/2/3 wiring at distances up to 5000 feet. Rate Selection feature automates the process of selecting a data rate for a line for ease of installation and increased robustness.
- Powerful Gigabit Ethernet uplink options—1000BaseT and SFP ports
- Superior control through intelligent services—advanced QoS and security based on Layer 2 through Layer 4 parameters.
- Multicast support—Multicast VLAN Registration (MVR) and IGMPv3 Snooping.
- Enhanced Cisco IOS Services
- Network Management—CNA offers centralized management and configuration of Cisco networks to simplify deployment and ongoing maintenance by leveraging Cisco Smartports technology. CNA is a PC-based network management application; Optimized for networks with 20 devices or less; User-friendly GUI; Seamlessly apply common services such as configuration management, inventory reports, password synchronization and Drag and Drop IOS® Upgrade across Cisco SMB-Class switches, routers and access points; Available at no cost and downloadable at [www.cisco.com/go/cna](http://www.cisco.com/go/cna)

### Competitive Products

- Paradyne Networks: BitStorm solution (Etherloop) and ReachDSL products
- Huawei: Quidway s3026v
- Tut Systems: IntelliPOP VDSL

### Specifications

Feature	Cisco 2950ST 24 LRE	Cisco 2950ST 8 LRE
<b>Fixed Ports</b>	24 LRE ports + 2 10/100/1000BASE-T ports + 2 Small Form-Factor Pluggable (SFP) ports (two of the four uplinks active at one time)	8 LRE ports + 2 10/100/1000BASE-T ports + 2 SFP ports (two of the four uplinks active at one time)
<b>Backplane</b>	8.8 Gbps	Same as Cisco 2950ST 24 LRE
<b>Forwarding Rate</b>	3.5 Mpps	3.2 Mpps
<b>VLAN Maximum</b>	250 port based VLANs or ISL/802.1Q trunks	Same as Cisco 2950ST 24 LRE
<b>FEC</b>	Yes	Same as Cisco 2950ST 24 LRE
<b>802.1Q</b>	Yes	Same as Cisco 2950ST 24 LRE
<b>Multicast</b>	IGMPv3 Snooping, IGMP Throttling	Same as Cisco 2950ST 24 LRE
<b>QoS</b>	802.1p, 4 egress queues, WRR, Layer 3 and 4 services	Same as Cisco 2950ST 24 LRE
<b>Management Capabilities</b>	SNMP, Telnet, RMON, CW2000, CLI-based out-of-band, embedded Cisco Cluster Management Suite (CMS), Web-based interface	Same as Cisco 2950ST 24 LRE
<b>Memory</b>	84 MB (Flash); 32 MB (CPU DRAM)	Same as Cisco 2950ST 24 LRE
<b>Embedded RMON</b>	History, Events, Alarms, Statistics	Same as Cisco 2950ST 24 LRE
<b>Dimensions (H x W x D)</b>	1.75" (44.5 mm) x 17.5" (444.5 mm) x 9.7" (246.6 mm)	Same as Cisco 2950ST 24 LRE

## Selected Part Numbers and Ordering Information<sup>1</sup>

### Catalyst 2950 LRE Series Switches

WS-C2950ST-24-LRE

Catalyst 2950 LRE switch: 24-port LRE + 2 10/100/1000BASE-T ports + 2 SFP ports

WS-C2950ST-8-LRE

Catalyst 2950 LRE switch: 8-port LRE + 2 10/100/1000BASE-T ports + 2 SFP ports

### Cisco 575 and 585 LRE CPE Device

CISCO575-LRE

Cisco 575 LRE CPE device: 1-port Ethernet + 2 RJ-11 connectors

CISCO575-LRE-6P

Cisco 575 LRE CPE device (6 pack): 1-port Ethernet + 2 RJ-11 connectors

CISCO575-LRE-24P

Cisco 575 LRE CPE device (24 pack): 1-port Ethernet + 2 RJ-11 connectors

CISCO585-LRE

Cisco 585 LRE CPE device: 4-port Ethernet + 2 RJ-11 connectors

CISCO585-LRE-6P

Cisco 585 LRE CPE device (6 pack): 4-port Ethernet + 2 RJ-11 connectors

CISCO585-LRE-24P

Cisco 585 LRE CPE device (24 pack): 4-port Ethernet + 2 RJ-11 connectors

### Cisco LRE 48 POTS Splitter

PS-1M-LRE-48

Cisco LRE 48 POTS Splitter: 48 ports

1. This is only a small subset of all parts available via URL listed under "For More Information." Some parts have restricted access or are not available through distribution channels. Resellers: For latest part number and pricing info, see the *Distribution Product Reference Guide* at: <http://www.cisco.com/dprg> (limited country availability).

### For More Information

See the LRE Website: <http://www.cisco.com/go/lre>

## Cisco Building Broadband Service Manager (BBSM) Version 5.3

Cisco BBSM is an access gateway for public access networks that enables simple, plug-and-play access, end user self-provisioning of services, customizable portal and advertising platforms and Web-based management, reporting and configuration. In addition, multiple automated authentication and billing options are supported, including credit card, RADIUS, property management system and access code.

The Cisco BBSM platform manages Internet access services with no routine IT support, enabling venues to offer services in remote and unattended locations. BBSM supports tiered service levels in order to deliver targeted customer offerings. For instance, a hotel can set-up daily network access for a series of meetings providing a variety of bandwidth/pricing options to capture lucrative meeting room revenue opportunities.

LAN products to provide a complete solution that enables venues to create, market and operate broadband access services in markets such as: Hospitality, Higher-Education, Healthcare, Retail, Enterprise guest access, and Public Access.

### Cisco BBSM Hotspot Server Version 5.3

Cisco BBSM is an access gateway for guest access networking that enables simple, plug-and-play access, end user self-provisioning of services, customizable portal and advertising platforms and Web-based management, reporting and configuration. Multiple authentication and billing options are supported, including access codes, RADIUS, credit card, and property management system (PMS).

Cisco BBSM manages Internet access services without IT intervention, enabling venues to offer services in remote and unattended locations. Cisco BBSM enables venues to create, market and operate broadband access services in markets such as: Higher-Education, Healthcare, Retail, and Enterprise guest access.

### For More Information

See the BBSM Website: <http://www.cisco.com/go/bbsm>



# Optical Networking

## Optical Networking at a Glance

Product	Features	Page
<b>Metro Core</b>		
Cisco ONS 15600 Multiservice Switching Platform (SONET/SDH)	<p>Allows service providers to seamlessly integrate their metro core and metro edge networks, 8-3 while dramatically reducing initial turn up costs.</p> <p>Provides 320 gigabits of switching, grooming, aggregation, and bandwidth management capacity in a single shelf</p> <p>Supports 32, OC-192/STM-64 long reach or 128, OC-48/STM-16 long reach optical interfaces in a single shelf</p> <p>Offers any service/any port (ASAP) service cards that hold up to four pluggable I/O (ASAP 4-PI0) modules each capable of supporting up to four - 2.5 Gbps SFP optics capable of both fixed-rate and multirate formats</p> <p>Combines the functionality of multiple metro systems including SONET/SDH multiplexers and digital cross-connect network elements</p> <p>Provides carrier-class availability, serviceability, and management</p> <p>Scalable, easy-to-use platform supports all metro topologies</p>	
Cisco ONS 15454 SONET/SDH Multiservice Provisioning Platform (MSPP)	<p>Integrates the functions of legacy SONET or SDH network elements with next-generation SONET/SDH transport, integrated dense wavelength division multiplexing (DWDM) optical networking, and multiservice interfaces:</p> <p>Aggregated lower-rate TDM services from DS-1/E1 over 2.5-Gbps and 10-Gbps wavelengths SONET/SDH wavelength and aggregated services—OC-3/STM-1, OC-12/STM-4, OC-48/STM-16, OC-192/STM-64</p> <p>Data services—private-line, switched and wavelength-based, including 10/100BASE-T, Gigabit Ethernet, 10 Gigabit Ethernet LAN physical layer, and 10 Gigabit Ethernet WAN physical layer</p> <p>Storage services—1-Gbps and 2-Gbps Fibre Channel, 10-Gbps Fibre Channel, IBM Fiber Connection (FICON), and Enterprise Systems Connection (ESCON), ETR/CLO, ISC-1</p> <p>Video services—D1 and high-definition television (HDTV)</p> <p>Combines multiplexing, optical networking, and switching functionality in one easy-to-use platform that supports all metro topologies</p>	8-3
<b>Metro DWDM</b>		
Cisco ONS 15454 Multiservice Transport Platform (MSTP)	<p>Delivers integrated, intelligent DWDM functionality, including fully reconfigurable optical add/drop multiplexer (ROADM) technology, for metropolitan and regional networks (up to 32 wavelengths per node):</p> <p>Aggregated lower-rate TDM services from DS-1/E1 over 2.5-Gbps and 10-Gbps wavelengths SONET/SDH wavelength and aggregated services—OC-3/STM-1, OC-12/STM-4, OC-48/STM-16, OC-192/STM-64</p> <p>ROADM functionality—Zero to 32 channels of pass through or add/drop, A-Z wavelength provisioning and full, realtime power monitoring of each individual wavelength</p> <p>Data services—private-line, switched and wavelength-based, including 10/100BASE-T, Gigabit Ethernet, 10 Gigabit Ethernet LAN physical layer, and 10 Gigabit Ethernet WAN physical layer</p> <p>Storage services—1-Gbps and 2-Gbps Fibre Channel, 10-Gbps Fibre Channel, IBM Fiber Connection (FICON), and Enterprise Systems Connection (ESCON), ETR/CLO, ISC-1</p> <p>Video services—D1 and high-definition television (HDTV)</p>	8-4
Cisco ONS 15530 Metro DWDM Aggregation Platform	<p>High-density and scalable DWDM multiservice aggregation platform</p> <p>Ideal for both enterprises and managed service providers</p> <p>Network consolidation of storage, data, and legacy applications</p> <p>Up to 8 Fibre Channel / FICON / GbE services or up to 40 ESCON services per wavelength</p> <p>Support for up to 4-ports of 2 Gbps Fibre Channel services per wavelength</p> <p>8-port Multi Service Muxponder supports up to 8 multiservice interfaces (T1/E1, OC3-STM-1, ESCON, D1 Video, FE, GE, 1GFC, and ITS) per wavelength</p> <p>Scales from 2.5Gbps to 10Gbps</p> <p>Supports wide range of protocols over a highly-available optical infrastructure</p> <p>Highly resilient network with flexible topology design options</p>	8-4

Product	Features	Page
Cisco ONS 15540 Extended Services Platform	Highly modular and scalable next-generation DWDM platform offering Industry Leading Wavelength Density Ideal for enterprises requiring Business Continuance (BC) and Disaster Recovery (DR) Solutions and service providers offering Enterprise BC and DR Managed Services Delivers the integration of data, storage and metro networking Ultra-high bandwidth intelligent optical infrastructure	8-5
Cisco ONS 15216 and 15501 Optical Transmission Families	Cisco ONS 15216 Metro DWDM Series Supports 32 ITU-grid wavelengths at 100 GHz spacing and provides unprecedented transport flexibility with optical filtering Combines wavelengths launched by the Cisco ONS 15454, and ONS 15530-creates a more desirable cost per-wavelength Optical Add/Drop Multiplexing (OADM) Optical Performance Monitoring and Amplification Compact, modular design Cisco ONS 15501 Optical Amplifier Constant flat gain of 17 dB over the 1530nm to 1563nm band simplifies network design. Metro optimized auto gain control and variable gain Low noise figure of <6.0 dB allows the use multiple amplifiers in cascade Input power range of -29 to 0 dBm	8-6
<b>Metro Edge Access</b>		
Cisco ONS 15327 SONET Multiservice Provisioning Platform (MSPP)	Integrated optical networking platform and unprecedented multiservices on demand for the 8-6 metro access or customer location: Offers optimized bandwidth management, high-speed IP-based data services, rapid service provisioning, and multiple optical interfaces Aggregates and switches TDM, 10/100 BaseT Ethernet and GigE, data and video services Compact footprint (3 rack-units), modular design and industrially hardened	8-6
Cisco ONS 15310-CL SONET Multiservice Provisioning Platform (MSPP)	Compact 1 RU single system controller design, optimized for data and TDM services over protected SONET transport for the customer location. 1RU AC or dual-DC power chassis Single system controller/timing/synchronization 2x small form-factor pluggable (SFP) optical ports for rings 21 DS1s, 3 DS3s 1 expansion slot Fan-cooled	8-7
Cisco ONS 15302/15305 SDH Multiservice Provisioning Platforms (MSPPs)	Ultra-compact integrated systems that extend next-generation optical networks (access nodes or CPE): Low-cost access/customer premise equipment (CPE) platform E1, E3, DS3, 10/100 BaseT Ethernet and GigE STM-1 (15302) or STM-1/4/16 (15305)	8-7
<b>Optical Network Management</b>		
Cisco Transport Manager (CTM 5.0)	Advanced optical transport domain manager that delivers element and network management layer functionality: Efficiently manages the entire Cisco ONS product family and Cisco CR-12000 Series routers Provides a resilient, adaptable, and integrated carrier-class EMS solution Powerful GUI-based management system makes advanced management capabilities such as A-to-Z circuit provisioning easy to learn and use Cost-effective, using industry-standard platforms such as Sun Solaris, Oracle, and Microsoft Windows to fit smoothly into various IT environments Offers a variety of northbound interface options (e.g., SNMP, TL1 and CORBA)	8-8
<b>Metro edge access routers</b>		
Cisco 10720 Internet Router	Service provider-class metro access services router Equipped with 24 ports of Ethernet technology for customer access and dynamic packet transport (DPT) technology for metro optical connectivity With DPT architecture, enables optimal fiber connectivity as well as features such as IP class of service, TLS, VoIP and VPN services See Chapter 1—Routers for more information on the Cisco 10720 Internet Router	1-52



## **Cisco ONS 15600 Multiservice Switching Platform**

The Cisco ONS 15600 provides unparalleled flexibility in designing next generation metro networks. Fully engineered and optimized for metro applications, the Cisco ONS 15600 MSSP simplifies and revolutionizes bandwidth management in the metro core by allowing service providers to seamlessly integrate their metro core and metro edge networks, while dramatically reducing initial turn up costs. The Any Service Any Port (ASAP) interface cards of the Cisco ONS 15600 provide 1 to 16 ports of capacity to aggregate and transport mission-critical regional/metropolitan-area (metro) traffic using a modular, flexible and scalable design that allows single- and multiple-rate optics from OC-3 to OC-48, including Gigabit Ethernet SFP optics. Delivering scalability to 960 Gbps of traffic in a single rack, it complements the market-leading Cisco ONS 15454 MSPP by leveraging its proven architecture and operating software. This allows service providers to dramatically simplify their metro networks and realize immediate cost, space and operational benefits. The Cisco ONS 15600 MSSP provides complete integration of metro core and edge networks for service provisioning and network management.



### **For More Information**

See the ONS 15600 Series Website: <http://www.cisco.com/go/ons15600>

## **Cisco ONS 15454 SONET/SDH Multiservice Transport Platform (MSTP)**

The Cisco ONS 15454 Multiservice Transport Platform sets the industry benchmark for metropolitan and regional dense wavelength-division multiplexing solutions by using proven Cisco MSPP networking technologies to deliver simple, fast, and intelligent DWDM capabilities and lower capital and operating expenditures. A metropolitan network, being close to or on a customer's premises-unlike its long-haul counterpart-requires support for a great diversity of service interfaces. The service interfaces allow network providers to offer new tariffs and enable enterprise customers to natively transport a wide variety of services over a common transport network without unnecessary conversion stages and equipment. Additionally, a wide service mix simplifies the planning for services. The Cisco ONS 15454 MSTP, with its MSPP capabilities, supports a broad range of standards-based services in a single platform. Critical to offering a wide service mix is a DWDM system's ability to offer the level of transparency required by the service. The ultimate in network management flexibility is achieved through an industry leading, fully reconfigurable optical add/drop multiplexer (ROADM) that allows zero to 32 channels of pass through or add/drop, A-Z wavelength provisioning, and full realtime power monitoring of each individual wavelength. The Cisco ONS 15454 MSTP solution offers the choice of multiservice aggregation, wavelength aggregation, and wavelength transport, combined with integrated, intelligent DWDM transmission, in a single platform to optimize network costs for any mix of service types. Using digital-wrapper technology (defined in ITU-T G.709) enables transparency while still allowing enhanced wavelength management and providing extended optical reach with integrated Forward Error Correction (FEC).



### **For More Information**

See the ONS 15454 MSTP Website:  
<http://www.cisco.com/en/US/products/hw/optical/ps2006/ps5320/index.html>

## Cisco ONS 15454 Multiservice Provisioning Platforms

The Cisco ONS 15454 Multi-service Provisioning Platforms (MSPP) are key building blocks in optical networks due to its unprecedented transport performance and economics. It offers supercharged transport capability by combining the best of traditional SONET time division multiplexing (TDM) and statistical multiplexing in single units. The Cisco ONS 15454 aggregates traditional facilities such as DS1, DS3, STS-1, OC-3, OC-12, and OC-48 including multi-wavelength DWDM optics, and also supports data interfaces for 10/100/GigE, data and video. This enables drastically improved efficiencies in the transport layer and breakthrough cost savings for initial and life cycle deployment. A single ONS 15454 shelf can support combinations of OC-3/c, OC-12/c, OC-48/c, and OC-192. It also offers an international optical transport solution that combines the best of traditional SDH TDM and statistical multiplexing in a single platform.



### For More Information

See the ONS 15454 SONET Website: <http://www.cisco.com/go/ons15454>

See the ONS 15454 SDH Website: <http://www.cisco.com/go/15454sdh>

## Cisco ONS 15530

The Cisco ONS 15530 is a highly scalable DWDM multiservice aggregation platform that integrates storage, data networking, and legacy applications over an ultra-high-bandwidth, intelligent optical infrastructure. The ONS 15530 supports Fibre Channel extension over DWDM via buffer-to-buffer credit support to significantly increase disaster recovery distances; Industry-leading aggregation of IBM Coupling Facility Links used in IBM GDPS storage networks; New Low-band Variable Rate SFP Optics for expanded protocol support.



### Key Features

- ONS 15530 4-Port 1-Gbps/2-Gbps Fibre Channel Aggregation Card provides efficient wavelength usage by aggregating up to four 2-Gbps Fibre Channel, IBM Fiber Connection (FICON), and IBM Intersystem Channel (ISC) services onto a single 10-Gbps wavelength
- 8-port Multi Service Muxponder provides the aggregation of up to 8 low speed services such as T1/E1, OC3-STM-1, ESCON, D1 Video, FE, GE, 1 Gbps FC, and ITS per 2.5 Gbps wavelength
- Industry leading Service Aggregation—up to 4 ports of 2 Gbps Fibre Channel, up to 8 ports of Fibre Channel, FICON, or Gigabit Ethernet or up to 40 ports of ESCON per wavelength
- Capacity—Fiber capacity is maximized when used with a 32-wavelength system providing up to 256 Fibre Channel, FICON, or Gigabit Ethernet services or up to 1280 ESCON services on a single fiber pair.
- Scalability—up to 32 wavelengths ranging from 2.5 Gbps to 10 Gbps
- Multiservice Interfaces—Customers have a single scalable platform that supports low speed copper legacy services such as T1/E1 (PBX interconnect), OC-3/STM-1, Fast Ethernet and D1 Video, in addition to high density ESCON, GE, and 1Gb FC services

- Service mixing—Ability to mix a combination of Fibre Channel, FICON, ESCON, and Gigabit Ethernet services over the same wavelength
- Complete Amplification Solution—Enables enterprises and service providers to further expand their optical DWDM networks over greater distances when used with EDFA optical amplifiers

### For More Information

See the Cisco ONS 15530 Website: <http://www.cisco.com/go/ons15530>

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## Cisco ONS 15540 Extended Services Platform (ESPx)

The ONS 15540 Extended Services Platform with external cross connect capability (ESPx) is a highly modular, flexible, and scalable next generation DWDM platform that integrates data networking, storage area networking (SAN), TDM Synchronous Optical Network (SONET) and Synchronous Digital Hierarchy (SDH) technologies over an ultra high bandwidth, intelligent optical infrastructure that can support any packet, over any wavelength on any platform.



- Flexible Multi-Protocol Support—The Cisco ONS 15540 offers both variable rate transparent and fixed rate multi-protocol transponders that feature user selectable SFPs and support a variety of industry standard data rates between 16Mbps to 2.5Gbps as well as 10Gb Ethernet
- Scalable, flexible, and modular architecture in a high-density compact footprint—Provides superior operational support and network expansion on an as needed basis through its hot swappable modular lines cards, transponders, and optical multiplexers
- Simple Network Consolidation and Comprehensive Multi Service Support provided by the available ONS 15540 2.5GB and 10GbE transponders
- Optical, Service, and Application Level Performance Monitoring—provides industry-leading supports for service level agreements (SLAs)
- High Availability for mission critical networks—Provides 99.999% availability for demanding Managed Network Service Providers and enterprise business continuance applications, with hardware redundancy and automatic protection switching to protect against fiber cuts and equipment failures
- Multi-Service Integration—Transports ESCON, FICON, 1Gb/2GB Fibre Channel for SAN, Fast and Gigabit Ethernet, and 10 Gb Ethernet for data networking, and SONET/SDH at OC-3/STM1, OC-12/STM4, and OC-48/STM12

### Key Features:

- Compact modular design with external connectorization: External Direct Connect system from Line card to OADMs; Optional cross connect and fiber management system
- Tunable Type 2 Transponders with Multi Protocol Small form Factor Pluggables (SFPs): Variable data rate support between 16Mbps to 2.5Gbps; 16 Tunable transponders support 32 channels for reduced sparing costs; Multi-protocol SFP Support—Now featuring Variable Rate SFPs and support for IBM Sysplex/GDPS applications.
- Standards based Management support for SNMP, Ciscoview and CTM

- Protection Switch Module provides highly cost effective solution for fiber trunk protection
- Standards based Optical architecture conforming to ITU G.692 100GHz channel spacing
- This system has been qualified by IBM for Geographically Dispersed Parallel Sysplex (GDPS), and by EMC for Symmetrix Synchronous support as tested in their E-LAB environment

### For More Information

See the Cisco ONS 15500 Series Website: <http://www.cisco.com/go/ons15500>

## Cisco ONS 15216 Metro DWDM Series

The Cisco ONS 15216 Metro DWDM solution supercharges wavelength services by supporting up to 32 ITU-grid wavelengths, and provides unprecedented transport flexibility with optical filtering, Optical Add/Drop Multiplexing (OADM), Optical Performance Monitoring and Amplification. It allows service providers to deliver more services per wavelength and more wavelengths per fiber.



The Cisco ONS 15216 Metropolitan Dense Wavelength-Division Multiplexing (DWDM) FlexLayer filter solution is an ultraflexible filter architecture that allows cable multiple system operators and service providers to build “pay-as-you-grow” networks with the flexibility to upgrade in-service without preprovisioning channels that are not required. This approach creates a more desirable per-wavelength cost.

The FlexLayer architecture allows for deployment of point-to-point, point-to-multipoint, ring, bus, and tree-and-branch architectures. These networks can be deployed as unprotected or protected networks, and they may also be deployed in transmit-only applications for broadcast networks. This flexibility is inherent in the design of the FlexLayer architecture.

### For More Information

See the ONS 15216 Metro DWDM System Website:

<http://www.cisco.com/en/US/products/hw/optical/ps1996/ps1999/index.html>

## Cisco ONS 15327 SONET Multiservice Provisioning Platform

The Cisco ONS 15327 combines high-bandwidth capacity and service diversity in a very compact footprint, enabling service providers to achieve increased economics at the metro edge. Based on the same technology as the industry leading Cisco ONS 15454, the ONS 15327 supports high optical bandwidth and has the ability to support OC-3/12/48, DS1, DS3, 10/100 and Gigabit Ethernet. With the ability to support either customer located or metro access, the ONS 15327 includes comprehensive STS- and VT-level bandwidth management and integrated data switching. The Cisco ONS 15327 also may serve as a digital cross-connect without the need for additional equipment. It aggregates and switches TDM and Ethernet services, and can be managed using the Cisco Transport Controller (CTC) element management system and CTM for network management.



### For More Information

See the ONS 15300 Website: <http://www.cisco.com/go/ons15300>

## **Cisco ONS 15310-CL SONET Multiservice Provisioning Platform**



By extending the metropolitan (metro) edge to customer premises and providing direct high-speed LAN connectivity, the Cisco ONS 15310-CL allows service providers to cost-effectively offer scalable, high-speed data services over their transport networks. For the enterprise, the Cisco ONS 15310-CL offers the efficiency, scalability, and high availability to meet the bandwidth demands of the mission-critical e-business infrastructure. These features are available without implementing new technology or upgrading the existing transport network infrastructure.

Optimized for the customer location, this evolutionary platform is based on the same technology as the industry leading Cisco ONS 15454 and the ONS 15327, supporting high optical bandwidth and can support DS1, DS3 and layer 1/2 10/100 Ethernet. The Cisco ONS 15310-CL also provides comprehensive STS- and VT-level bandwidth management and integrated data switching.

The integrated multiservice optical networking functions of the Cisco ONS 15310-CL dramatically reduce service-delivery costs. Packaged in a 1RU, industrially temperature-hardened Network Equipment Building Standards (NEBS) 3-compliant assembly, the Cisco ONS 15310-CL delivers fast provisioning and low initial cost, while maintaining a small footprint and low operational cost throughout the life of the product and can be managed using the CTC element management system and CTM for network management.

### **For More Information**

See the ONS 15300 Website: <http://www.cisco.com/go/ons15300>

## **Cisco ONS 15302/15305 SDH Multiservice Access Platforms (MSAP)**



The Cisco ONS 15302/ONS 15305 Multiservice CPE and Aggregation solutions are ultra-compact integrated systems that offer cost effective solutions. These platforms provide native multiservice capabilities (i.e., TDM interfaces, multiplexing and Ethernet data interfaces).

The ONS 15302 CPE platform provides the STM-1 uplink (protected or unprotected STM-1 optical uplink, 1+1 MSP, future SNCP) and E1 customer interfaces (12 E1 ports) interfaces. It provides native Ethernet customer access via 4-port 10/100BaseT module that supports full layer 2 capacity, bridging, VLANs, spanning tree, and priority management. An optional WAN module is available for point to multi-point applications.

The ONS 15305 Aggregation platform provides the following TDM interfaces— protected or unprotected optical interfaces (8 port S-1.1 optical module, 2 port S-4.1 optical module, 1 port S-16.1 optical module, 1+1 MSP, SNCP, 2F MS-SPRing for STM-16) and electrical customer interfaces (8 and 63 port E1 modules and a 6 port E3/DS3 module). This product also provides native Ethernet customer access via an 8-port 10/100BaseT module and a 2-port GigE module (supports full layer 2 capacity, bridging, VLANs, spanning tree, and priority management). An optional WAN module is available for point to multi-point applications.

### **For More Information**

See the ONS 15300 Website: <http://www.cisco.com/go/ons15300>

## **Cisco Transport Manager (CTM 5.0) (Optical Element/Network Management)**

Cisco Transport Manager (CTM) is an integrated optical element management system for Cisco ONS 15000 series optical networking platforms. CTM manages configuration, fault isolation, performance, and security for Cisco optical network elements. With integrated support for SONET, SDH, DWDM and Ethernet, along with open interfaces to operations support systems (OSS), CTM delivers the full power of Cisco's wide range of advanced optical systems to today's network operators and enterprises.

CTM is a powerful tool that increases the productivity of the network operations staff. The system provides GUI-based point-and-click network management. As such, CTM has a low learning curve while providing advanced management capabilities such as A-to-Z circuit provisioning. Explorer-style navigation, the extensive use of wizards, tool tips, legends, and online help make it easy for an operator to perform tasks quickly and efficiently. Many otherwise tedious, time-consuming, and error-prone tasks can be fully streamlined using CTM's features.

CTM works for small networks, but can also scale up to 2500 network elements and 100 concurrent clients per server. This solution is appropriate for small enterprise networks as well as large service provider networks. CTM is extremely cost-effective (uses industry-standard platforms such as Sun Solaris, Oracle8i, and Microsoft Windows). CTM fits smoothly into most companies' information technology environments. Using scalable Sun server platforms, customers can minimize up-front investment, but still accommodate growth by adding additional processors, memory, and disk space.

### **For More Information**

See the CTM Series Website:

**<http://www.cisco.com/en/US/products/sw/opticsw/ps2204/index.html>**



# IOS® Software and Network Management

## Cisco IOS® Software and Network Management at a Glance

Product	Features	Page
<b>Cisco IOS Software</b>	Advanced network infrastructure software supported on a wide range of Cisco products <ul style="list-style-type: none"> <li>• A common IP fabric, functionality, and command-line interface (CLI) across network infrastructures</li> <li>• A vast array of key routing, multiservice, traffic shaping, security/firewall, and traffic monitoring features that run on many platforms</li> </ul>	9-2
<b>CiscoWorks Small Network Management Solution</b>	Web-based network management solution designed for small to medium businesses (SMB) <ul style="list-style-type: none"> <li>• Device auto-discovery using SNMP simplifies setup and reduces startup time</li> <li>• Standards-based, multi-vendor management</li> <li>• Event management and topology mapping application</li> <li>• Includes Cisco's popular CiscoView Element Management Tool</li> </ul>	9-8
<b>CiscoWorks LAN Management Solution</b>	Provides key applications needed to manage Cisco switch-based Enterprise campus networks. This bundle includes: <ul style="list-style-type: none"> <li>• Campus Manager</li> <li>• Device Fault Manager</li> <li>• Resource Manager Essentials</li> <li>• CiscoView</li> </ul>	9-9
<b>CiscoWorks VPN/Security Management Solution</b>	Combines general device management tools for configuring, monitoring, and troubleshooting enterprise networks with powerful security solutions for managing virtual private networks (VPNs), firewalls, and network and host-based intrusion prevention systems (IPS). CiscoWorks VMS is organized into several functional areas: <ul style="list-style-type: none"> <li>• Firewall Management</li> <li>• IPS Management, network and host-based</li> <li>• Host Intrusion Prevention System Management</li> <li>• VPN Router Management</li> <li>• Security Monitoring</li> <li>• VPN Monitoring</li> <li>• Operational Management</li> </ul>	9-11
<b>CiscoWorks Security Information Management Solution and CiscoWorks Security Information Management Solution Engine</b>	A solution that collects, analyzes, and correlates security event data from across the enterprise—letting you detect and respond to security events as they occur. The hardware-based solution engine option provides the same features and functions as the CiscoWorks SIMS software on a dedicated appliance. The Solution Engine requires minimal setup and installation. <ul style="list-style-type: none"> <li>• Event monitoring of multivendor security environments</li> <li>• Extensive reporting for operators and high-level administrators</li> <li>• Risk assessment information to understand overall vulnerability of critical network assets within the enterprise</li> <li>• Forensics tools to investigate attacks</li> </ul>	9-12
<b>CiscoWorks Network Connectivity Center</b>	A suite of network and service management software that manages increasingly complex and distributed networks and IT environments in alignment with business priorities. Leveraging sophisticated modeling, analysis, and automation technologies, it provides end-to-end insight into how the intelligent network health relates to key business services. It automatically pinpoints service-affecting faults and calculates their business impacts, therefore minimizing service downtime while lowering operating cost and reducing business risk.	9-13
<b>CiscoWorks Manager IP Telephony Environment Monitor</b>	A suite of telephony management applications that ensures the readiness and manageability of converged networks supporting VoIP and IP telephony traffic and applications. It enables operations and administrative personnel to check the state and operational health of key resources in their converged networks that support IP telephony implementations. The bundle includes: <ul style="list-style-type: none"> <li>• Voice Health Monitor</li> <li>• Default Fault Manager</li> <li>• CiscoView and</li> </ul> Downloadable Modules—IP Phone Information Utility; IP Phone Help Desk Utility; Gateway Statistics Utility; WAN Performance Utility; Tactical Graphics Utility	9-15

Product	Features	Page
<b>CiscoWorks Voice Manager for Voice Gateways</b>	Enables the management and monitoring of devices used as gateways between analog voice equipment and the data network. <ul style="list-style-type: none"> <li>Enhanced capabilities to configure and provision voice ports</li> <li>Create and modify dial plans on voice-enabled Cisco routers for voice over IP (VoIP), voice over Frame Relay (VoFR), and voice over ATM (VoATM) network deployments</li> </ul>	9-17
<b>CiscoWorks QoS Policy Manager (QPM)</b>	Enables centralized administration and automated deployment of bandwidth reservation and prioritization policies for network applications across converged voice, video and data networks. <ul style="list-style-type: none"> <li>Differentiates services of Web applications, voice traffic, and business-critical applications</li> <li>Validate QoS settings and results with traffic analysis</li> <li>Real time and historical reports for QoS troubleshooting</li> <li>Control roles and privileges for policy view, modification and deployment</li> </ul>	9-18
<b>CiscoWorks Wireless LAN Solution Engine</b>	A hardware based wireless LAN management solution that provides template-based configuration with user-defined groups to effectively manage a large number of access points and bridges <ul style="list-style-type: none"> <li>Monitors LEAP authentication servers</li> <li>Enhances security management through mis-configuration detection on access points and bridges</li> </ul>	9-19
<b>CiscoWorks Hosting Solution Engine</b>	A hardware-based content management solution for e-business operations in Cisco-powered data Centers. This product provides network infrastructure monitoring and Layer 4-7 hosted services configuration and activation. <ul style="list-style-type: none"> <li>Flexible security model offers tiered user access to server management</li> </ul>	9-20
<b>Cisco Catalyst 6500 Series Network Analysis Modules 1 and 2</b>	NAM is an integrated, network monitoring instrumentation and Web-browser based traffic analysis solution for the Catalyst 6500 based environments. It enables greater visibility into traffic at all layers of the network by providing real time traffic analysis and troubleshooting capabilities.	9-21
<b>Cisco Network Analysis Module for Branch Routers - Cisco 2600/3660/3700 Series Network Analysis Module</b>	The Cisco 2600/3660/3700 Series NAM is an integrated traffic-monitoring network module that enables network managers to gain application-level visibility into network traffic with the ultimate goal of improving performance, reducing failures, and maximizing return on network investments.	1-1
<b>Cisco Secure User Registration Tool (URT)</b>	Provides organizations with increased LAN security by actively identifies users within the network and creates user registration policy bindings that help support mobility and tracking: <ul style="list-style-type: none"> <li>Ensures that users are associated with their authorized subnet/VLAN</li> <li>Addresses the challenges associated with campus user mobility</li> <li>Supports Web-based authentication for Windows, Macintosh, and Linux client platforms</li> <li>Secure user access to the VLAN with MAC address-based security option to allow multiple users connected to a hub access to a VLAN served by single switch port</li> </ul>	5-23
<b>Cisco Secure Access Control Server (ACS) for Windows and Cisco Secure Access Control Server Solution Engine</b>	Highly scalable, high-performance access control server that provides a comprehensive identity networking solution and secure user experience for Cisco intelligent information networks. An important component of the Cisco Identity-Based Networking Services (IBNS) architecture. It supports several access connection types, including wired and wireless LANs, dialup, broadband, content, storage, VoIP, firewalls, and VPNs. <p>It helps ensure enforcement of assigned policies by allowing network administrators to control:</p> <ul style="list-style-type: none"> <li>Who can log in to the network</li> <li>Privileges each user has in the network</li> <li>Security audit or account billing information that is recorded</li> </ul>	5-20
<b>Cisco IOS Tools</b>	List of essential IOS web-based tools available on Cisco.com	9-7

## Cisco IOS® Software

The family of Cisco IOS Software products (T, S and XR) enables Cisco to meet the network infrastructure requirements of Large and Small Enterprises, as well as Service Providers, because each software product is architected to meet the needs of a given customer type. Customers benefit from shared intellectual property and technologies between family members and all Cisco IOS products deliver the consistent look and feel.

### Key Features

- **Available**—Resiliency features enable applications, devices and network infrastructure components to automatically recover from errors and adapt when network infrastructure changes occur
- **Secure**—Protects network devices allowing them to remain operative, and thereby controllable, even during an attack. It protects your network traffic and ensures the safety of your business infrastructure



- **Manageable**—Embeds the management instrumentation required to manage your devices, technologies and network - centrally, via software, or manually.
- **Flexible**—Adapts to evolving requirements
- **Scalable**—Allows networks to expand in size and capability, while preserving hardware and network investments

## **Security**

Cisco's integrated security systems incorporate security services (VPN, Threat Defense, Identity) in a variety of ways.

- Stand-alone appliances including PIX, IDS sensors, VPN Concentrators. In addition, Security hardware modules and software for routers and switches along
- Security software agents for desktop and servers
- Trust and identity management
- Centralized management and analysis of all security

## **High Availability**

Cisco offers a comprehensive approach to High Availability Networking (HAN) that ensures non-stop access to mission-critical applications. Cisco HAN takes a network-wide approach in that it delivers a solution for combining reinforced network infrastructure, real-world design, realigned operations, real-time management, and relentless support.

## **Management Instrumentation**

Cisco Network Management products manage single devices, entire networks, and network services while leveraging the intelligence of the network

- CiscoWorks—network operations, leveraging automation of time consuming tasks
- Cisco Secure—security-access and identity management to the infrastructure
- Element Managers—device-specific fault, configuration, accounting, performance, and security management
- Domain Managers—integrated network and service layer management
- Service Mgmt Applications—management across multiple network domains to provide a unified service environment
- Service Modules—network monitoring services within the switch or router

## **Routing**

Cisco IOS Software offers the industry's widest variety of enterprise and service provider-class routing protocols. Protocols that provide for integration, and are integrated with each other, enable the convergence of data, voice and video networking. Routing Technology's adaptive behavior enables customer networks to evolve with user needs. It is critical to scalability and allows networks to expand in size and capability, while preserving hardware and network investments. The technology includes Optimized Edge Routing (OER), On Demand Routing (ODR), Routing Information Protocol (RIP), Interior Gateway Routing Protocol (IGRP), Open Shortest Path First (OSPF), IP Multicast, Integrated IS-IS, Enhanced Interior Gateway Routing Protocol (EIGRP), and Border Gateway Protocol (BGP).

## Multicast

Multicast is a bandwidth-conserving technology that reduces traffic by simultaneously delivering a single stream of information to thousands of corporate recipients and homes. Applications that take advantage of multicast technologies include video conferencing, corporate communications, distance learning, and distribution of software, stock quotes, and news.

### Key Features

- Efficiently deploys and scales distributed group applications across the Internet
- Creates a ubiquitous, enterprise-wide content distribution model
- Solves traffic congestion problems
- Allows service providers to deploy value-added streaming services that leverage their existing infrastructure.

## Multiprotocol Label Switching (MPLS)

Cisco IOS MPLS is the protocol that Enterprises and Service Providers use on next-generation intelligent networks that deliver a wide variety of advanced, value-added services over a single infrastructure. This economical solution can be integrated seamlessly over any existing infrastructure, such as IP, Frame Relay, ATM, or Ethernet.

### For More Information

See the Cisco IOS MPLS Website: <http://www.cisco.com/go/mpls>

## Quality of Service (QoS)

QoS is the set of techniques to manage network resources. Achieving the required QoS by managing delay, delay variation (jitter), bandwidth, and packet loss parameters on a network becomes the secret to a successful end-to-end business solution. QoS is the set of techniques to manage network resources. IOS does this through following features:

- Differentiated Services—Performs Packet classification based on IP precedence and QoS group setting and Bandwidth management through various rate limiting features
- Integrated Services—IOS does through RSVP typically perform admission control, Classification, policing, and scheduling of data packets on a per-flow basis and keeps a database of information for each flow
- Network-Based Application Recognition—IOS does this in two steps Intelligent classification engine used with class-based features and Protocol Discovery and analysis

## IPv6

- Internet Protocol version 6 (IPv6) is supported by over 20 platforms offering the most extensive product line in the industry
- Integrated into Cisco IOS
- Numerous innovative and advanced IPv6 features including co-existence technologies (tunneling, 6PE, NAT-PT), security (AAA, IPsec, IOS Firewall) quality of service and multicast
- IPv6 performance supported in software (CEFv6/dCEFv6) and hardware assisted forwarding across numerous platforms with the largest installed base in the world

### For More Information

See the Cisco IOS IPv6 Website: <http://www.cisco.com/go/ipv6>

## IOS Feature Set Packaging

A feature set is a bundle of the features available for a release. Multiple feature sets can be used with a release. Cisco IOS 12.3 standard feature sets are eight sets of features that were added to legacy feature sets to simplify the feature selection process. The Cisco IOS 12.3 standard feature sets consolidate the number of features to simplify feature selection. For easier migration to Cisco IOS 12.3, Cisco offered customers either legacy images or the new feature sets on some platforms. The eight Cisco IOS 12.3 standard feature sets and legacy feature sets are available for the Cisco 1700, 2600XM, 2691, and 3700 Series Routers. The Cisco 1800, 2800 and 3800 support only the Cisco IOS 12.3 standard feature sets (no legacy feature sets).

The Cisco IOS 12.3 feature sets are also available on Release 12.3T for Cisco 3640 and will soon be available in Releases 12.2S on all hardware products that support Cisco IOS Software.

### New Naming Convention Categories

Category	Naming Convention
Base	Entry level image, (i.e., IP Base)
Services	Addition of IP Telephony Service, MPLS, Net Flow, Voice over IP (VoIP), Voice over Frame Relay (VoFR), and ATM (i.e., SP Services, Enterprise Services)
Advanced	Addition of VPN, Cisco IOS Firewall, 3DES encryption, SSH, Cisco IOS IPSEC and Intrusion Prevention Systems (IPS) (i.e., Advanced Security, Advanced IP Services)
Enterprise	Additional of multi-protocols, including IBM, IPX, AppleTalk (i.e., Enterprise Base, Enterprise Services)

### Cisco IOS Software Family

- Cisco IOS T Product Line—Satisfies the performance and price needs for a broad range of platforms and markets, but focuses on small to mid-range routers. Maintenance or feature changes to T releases usually occur every 14 to 16 weeks.
- Cisco IOS S Product Line—Focuses on enterprise and service provider edge markets and meets the high availability requirements of enterprises and service providers, and the 12.2S train has an innovative infrastructure helps ensure high availability along with new functionality key to these markets.
- IOS XR Product Line—Focuses on high-end routing and is optimized for terabyte-scale service provider core and massively distributed processing. It has a modular architecture that supports dual processors.

### Types of Trains

Cisco train, or “major release,” is a series of releases that evolve from a common code base and numbering system. Trains, such as 12.4, are built from previous generation trains (12.3 and 12.3T). A higher numbered release incorporates the maintenance improvements that were made on a lower numbered release in the product line.

Product	Latest Train	Description
T	12.2	Derived from the last, lower-numbered T maintenance release from which it inherits features. For example, Release 12.4(1) is derived from Release 12.3T(14), and is functionally equivalent to Release 12.3T(14). Cisco generally does not add additional features to mainline trains.
	12.3	
	12.4	
	12.3T	Routinely enhanced with new features.
	12.4T	
S	12.2S	Supports Enterprise and Service Provider Edge platforms.
	12.2SB	Supports service provider edge and broadband aggregation.
	12.2SX	Supports service provider edge and enterprise networks: high-end switching, IP/MPLS edge, and metro Ethernet services.
	12.2SE	Supports mid-range & low-end switching.
	12.2EW/12.2SG	Supports mid-range and low-end switching. Cisco is changing the name of Release 12.2EW to 12.2SG to reflect its membership in the S product line.
XR	3.0	Powers the Cisco Carrier Routing System. Designed for always on, self-healing, and self-defending operation while scaling system capacity up to 92Tbps.

### Cisco IOS T and S Product Line Release Types

- Maintenance releases—A maintenance release is a scheduled revision of Cisco IOS that introduces new features or bug fixes or both.
- Rebuild releases—Rebuilds are Cisco IOS releases that fix defects on an accelerated schedule.
- General Deployment (GD) releases—A legacy Cisco IOS Software release reaches GD certification after meeting strict standards and when its quality has been demonstrated by extensive deployment in diverse networks over extended periods of time. GD Release Criteria—wide exposure, minimal changes (no new features, minimal need for improvements or defect fixes); GD Life Cycle—After a release attains GD status, every subsequent revision of the release is also GD. When a release is declared GD, it enters a restricted maintenance phase; GD Releases—Cisco IOS 12.1 and 12.2 have attained GD status
- Special releases—A special release is a release that Cisco introduces to quickly meet market demands for new features or additional platform support. The new features and platforms offered by these releases benefit customers who need to deploy new network equipment or services.

### Bug Synchronizing and Feature Integration

Bug fixes to maintenance releases on a mainline train are synchronized with subsequent maintenance releases on the child T train. New features are integrated into the T train only-the mainline train receives bug fixes only.

### Train Lifecycle Milestones

At some point in the life of a release, Cisco stops selling, maintaining, and supporting it. Customers need to know when support for releases stop so they can migrate to supported releases.

- Cisco IOS Release Lifecycle Milestones:
  - FCS-First Customer Shipment—Release is first available to customers on Cisco.com.
  - EoS-End of Sale—Release can no longer be ordered, downloaded, or included in manufacturing shipments. Release no longer gets regularly scheduled bug fixes. Releases are removed from Software Center when they reach End of Sale.
  - EoE-End of Engineering—Requests for rebuilds to fix serious bugs no longer accepted.
  - EoL-End of Life—Release is no longer supported by Cisco Technical Assistance Center.

### Milestones in the Life of a Train

The following table briefly describes the train lifecycle milestones

Milestone	Sold through Sales Channels	Bug Fixes <sup>1</sup>	TAC Support	Download from Cisco.com
FCS	Yes	Regularly Scheduled	Yes	Yes
EoS	No	Rebuild	Yes	No
EoE	No	No	Yes	No
EoL	No	No	No	No

1. Each new release receives regularly scheduled bug fixes prior to reaching EoS. Cisco considers requests for rebuilds of a discontinued release.

### Interim Builds

An interim build is software from an internal Cisco engineering build process that TAC gives customers to use on a temporary basis to address a specific issue. Contact TAC for assistance in replacing the interim build.

**Important Communications about Releases**

Software advisories describe problems with Cisco IOS Software that are platform specific or occur under unusual circumstances, and therefore, do not affect most customers.

**Critical Release Communication Types**

<b>Security Advisory</b>	Product Security Incident Response Team (PSIRT) issues a security advisory to alert customers to security issues that directly impact Cisco products and to help customers repair the Cisco product.
<b>Security Notices</b>	Cisco issues Security Notices about issues that require a response to information posted to a public forum, or to make recommendations to mitigate general problems affecting network stability.
<b>Deferral Advisory</b>	Cisco issues a deferral advisory to announce the removal of a Cisco IOS image from Cisco's offerings and to introduce a replacement image. A deferral advisory is most often issued to correct a defect. At the time that the deferral of a Cisco IOS image is advised, customers are strongly urged to migrate from the affected image to the replacement image.

**Cisco IOS Software Licenses**

A Cisco IOS Software License includes the right to use a particular software release and feature set on one router. In some cases, additional value-added functionality is provided in software images but not covered by the “base” Cisco IOS Software License. The right to use these features is offered through a feature license. A feature license conveys the right to use a feature, but cannot add a feature to a software release that does not support it. For example, purchasing a WAN Packet Protocols/Net flow license for software Release 11.0 will not upgrade the software to support Net flow. Choose a software release that supports all required features, then choose any necessary feature licenses.

**Cisco IOS Software Upgrade Licenses**

Customers who purchase “base” software licenses may wish to increase their software functionality or feature set at some point. The following illustrates the benefits of software feature licenses as well as how they are used to provide increased software functionality.

<b>Example</b>	<b>Description</b>
<b>Upgrade A Feature Set (Single)</b>	<p>If a customer purchased a Router with Enterprise software, earlier and now wants to upgrade to Enterprise with Firewall/IDS, the customer has one of two options</p> <ul style="list-style-type: none"><li>• With a valid maintenance contract, the customer may purchase the software feature license, Firewall/IDS Upgrade, to upgrade from Enterprise to Enterprise with Firewall/IDS.</li><li>• Without maintenance, the customer will need to purchase a new software license Enterprise/FW/IDS, in order to upgrade from Enterprise to Enterprise with Firewall/IDS.</li></ul>
<b>Upgrade Feature Sets (Multiple)</b>	<p>If a customer purchased a router with IP software, product code and now wants to upgrade to Enterprise with IPSEC 56, the customer has one of two options</p> <ul style="list-style-type: none"><li>• With a valid maintenance contract, the customer will need to purchase two software feature license: IP to Enterprise and IPSEC 56 Upgrade. The first license upgrades from IP to Enterprise, and the second upgrades from Enterprise to Enterprise/IPSEC 56.</li><li>• Without maintenance, the customer will need to purchase a new software license, Enterprise/IPSEC 56, in order to upgrade from IP to Enterprise with IPSEC 56.</li></ul>

**Key Cisco IOS Tools**

<b>Tool</b>	<b>Description</b>
<b>Software Selector</b>	<b>Finds required features for a given technology.</b> <a href="http://tools.cisco.com/ITDIT/ISTMAIN/servlet/index">http://tools.cisco.com/ITDIT/ISTMAIN/servlet/index</a>
<b>Feature Navigator</b>	<b>Finds releases that support a set of software features and platforms, and compares releases.</b> <a href="http://tools.cisco.com/ITDIT/CFN/jsp/index.jsp">http://tools.cisco.com/ITDIT/CFN/jsp/index.jsp</a>
<b>Software Advisor</b>	<b>Compares IOS releases, matches IOS and CatOS features to releases, and finds out which software release supports a given hardware device.</b> <a href="http://www.cisco.com/cgi-bin/front.x/Support/HWSWmatrix/hwswwmatrix.cgi">http://www.cisco.com/cgi-bin/front.x/Support/HWSWmatrix/hwswwmatrix.cgi</a>
<b>Cisco IOS Upgrade Planner</b>	<b>Finds releases by platform, release, and feature set, and downloads images of Cisco IOS Software.</b> <a href="http://www.cisco.com/cgi-bin/Software/Iosplanner/Planner-tool/iosplanner.cgi?">http://www.cisco.com/cgi-bin/Software/Iosplanner/Planner-tool/iosplanner.cgi?</a>
<b>Bug Toolkit</b>	<b>Searches for known bugs based on software version, feature set, and keywords.</b> <a href="http://www.cisco.com/cgi-bin/Support/Bugtool/launch_bugtool.pl">http://www.cisco.com/cgi-bin/Support/Bugtool/launch_bugtool.pl</a>

**For More Information on Cisco IOS Software**

See the Cisco IOS Software Website: <http://www.cisco.com/go/ios>

See the Cisco IOS Reference Website: <http://www.cisco.com/warp/customer/620/1.html>

## Cisco Network Management Overview

Cisco is transforming traditional network management by focusing on the strengths of Internet-based architectures for greater accessibility and simplification of network management tools, tasks, and processes. Cisco's network management strategy calls for a Web-based model with the following characteristics:

- Simplification of tools, tasks, and processes
- Web-level integration with NMS platforms and general management products
- Capable of providing end-to-end solutions for managing routers, switches, and access servers
- Creation of a management intranet by integrating discovered device knowledge with CCO and third-party application knowledge

## CiscoWorks Small Network Management Solution (SNMS)

CiscoWorks Small Network Management Solution (SNMS) is an end-to-end network management solution ideal for small networks which might include two or three branch offices. CiscoWorks SNMS is a comprehensive, cost-effective, and user-friendly solution that provides advanced monitoring, and configuration capabilities. It also provides management capabilities that simplify network administration. CiscoWorks SNMS enables network operators to more efficiently and effectively manage the network through a simplified browser-based interface that can be accessed anytime from anywhere within the network. It provides tools that make the job of configuring, monitoring, and troubleshooting routers, switches, firewalls, and other business applications, quicker and helps reduce the likelihood of human errors.

Positioned between CiscoWorks for Windows (CWW) and the CiscoWorks LAN Management Solution (LMS), SNMS introduces network administrators to the functionality of Resource Manager Essentials along with the multi-vendor device monitoring and SNMP management features of WhatsUp Gold.

### When to Sell

#### Sell This Product

**CiscoWorks Small Network Management Solution**

#### When a Customer Needs These Features

- Simple integrated installation, autodiscovery and automated import of devices using SNMP
- Standards-based multi vendor management
- Reduce the time and complexity of keeping the networks' configuration, software version and connectivity optimized

### Key Features

- Aids in avoiding configuration mismatches via templates for SNMP community, Terminal Access Controller Access Control System (TACACS), enable, syslog, SNMP trap destinations, Cisco Discovery Protocol (CDP) and DNS to prevent CLI command errors
- Provides a snapshot of the current state of a specific device with detailed graphical back and front views
- Provides a single window to monitor and manage Cisco network devices and non-network devices such as PCs, servers, and applications
- Monitors and reports on hardware, configuration, and inventory changes
- Provides reports that analyze prerequisites and impacts of proposed software updates
- Simplifies remote access to SNMS applications through a secure web browser while providing tiered user access based upon role permission

CiscoWorks Small Network Management Solution Components

- CiscoWorks Small Network Management Solution includes the following tools:
- CiscoView—Provides graphical back and front panel views of Cisco devices; dynamic, color-coded graphical displays to simplify device-status monitoring, device-specific component diagnostics, device configuration, and application launching
  - CiscoWorks Server—Provides the common management desktop services and security across the CiscoWorks family of solutions. It also provides the foundation for integrating with other Cisco and third-party applications
  - Support for secure browser communications with CiscoView and RME sessions via SSL and SSH protocol
  - WhatsUp Gold from Ipswitch, Inc.—Provides network discovery, mapping, monitoring, and alarm tracking
  - Resource Manager Essentials—Resource Manager Essentials (RME) provides tools for building and managing network inventory, deploying configuration and software image changes, archiving configurations, and providing an audit trail of network changes;



**Note** RME has a device limit of 40 or fewer Cisco devices

Specifications

Feature	CiscoWorks Small Network Management Solution
Server	Hardware: PC-compatible computer with 1 GHz or faster Pentium processor; CD-ROM drive; 100Base-T or faster connection; 512 MB RAM; 9 GB available disk drive space; 1 GB virtual memory Software: Windows 2000 Professional, Server, and Advanced Server (Service Pack 3)
Client	Hardware: PC-compatible computer with 1 GHz or faster Pentium processor Operating System: Windows 2000 Server or Professional Edition with Service Pack 3, or Windows XP SP1 with Microsoft VM; Browser: Internet Explorer 6.0 Service Pack 1, on Windows operating systems

Selected Part Numbers and Ordering Information

<b>CiscoWorks Small Network Management Solution</b>	
CWSNM-1.5-K9	CiscoWorks Small Network Management Solution 1.5 for Windows; includes WhatsUp Gold 8.0, Common Services 2.2 with CiscoView 6.0, Resource Manager Essentials 3.5 (40 Cisco device restriction)
CWSNM-1.5-WINMR-K9	Maintenance kit for customers that purchased SNMS 1.0 X and now want new device support and code upgrades; kit includes support for Windows and updates to all components - September 2003

For More Information

See the CiscoWorks SNMS Website: <http://www.cisco.com/go/wrsnms>

CiscoWorks LAN Management Solution

The CiscoWorks LAN Management Solution consists of operationally focused tools. These tools include fault management, scalable topology views, sophisticated configuration, Layer 2/3 path analysis, voice-supported path trace, traffic monitoring, end-station tracking, workflow application server management, and device troubleshooting capabilities.

When to Sell

Sell This Product

LAN Management Solution

When a Customer Needs These Features

- A set of tools for managing Cisco's award winning Catalyst switches
- Time saving user tracking and path trace analysis tools with support of IP phones
- Automated process of inventorying network devices, updating device software, and managing configuration to reduce the time and errors involved in network updates
- Browser-accessible, graphical tool for configuring and monitoring Cisco device components and operational status
- VLAN, ATM, or LANE service management tools
- Active fault monitoring of Cisco devices

### Key Features

- **Campus Manager**—Web-based applications designed for managing Layer 2 device and connectivity discovery, workflow application server discovery and management, detailed topology views, virtual LAN/LAN Emulation (VLAN/LANE) and ATM configuration, end-station tracking, Layer2/3 path analysis tools, and IP phone user and path information
- **Device Fault Manager**—Provides real-time fault analysis for Cisco devices, automatically includes Cisco devices into its monitoring environment and applies a Cisco “Best Practices” fault rule to each device
- **RME**—Provides the tools needed to manage Cisco devices.
- **CiscoView**—Provides back- and front-panel displays; dynamic, color-coded graphical displays simplify device-status monitoring, device-specific component diagnostics, and application launching
- **CiscoWorks Server**—Provides the common management desktop services and security across the CiscoWorks Family of solutions. It also provides the foundation for integrating with other Cisco and third-party applications
- Support for secure browser communications with CiscoView and RME sessions via SSL and SSH protocol

### Specifications

Feature	Description
<b>Server</b>	Hardware: Sun UltraSPARCIII (Sun Blade 1000 Workstation or Sun Fire 280R Workgroup Server) or IBM PC compatible with 550-MHz or higher Pentium III processor running; (Dual processor system required for hosting multiple management solutions) Software: Solaris 2.8; Microsoft Windows 2000 Advanced Server (with Terminal Services turned off), Server or Professional Edition with Service Pack 3
<b>Client</b>	Hardware: IBM PC-compatible computer with 300-MHz or higher Pentium processor; Sun Ultra 10, HP9000 Series; IBM RS/6000 running Software: Windows XP Professional with Service Pack 1, Windows 2000 Professional with Service Pack 2 or 3, Windows Server with Server Pack 2 or 3; Solaris 2.7, 2.8; HP-UX 11.0; AIX 4.3.3 Web Browser support for Windows 2000/XP: Netscape 4.78 or 4.79 or Internet Explorer 6.0 with Service Pack 1; Solaris support for Netscape 4.76 only
<b>Supported Cisco Devices</b>	Most Cisco IOS Software routers, access servers, hubs, and switches
<b>Supported Cisco IOS Software Versions<sup>1</sup></b>	Generally supports: Cisco IOS Software Versions 10.3 and higher; Catalyst Supervisor code 2.1 through 4.1

1. Some CiscoWorks applications require certain versions of IOS and CAT these releases in order to operate, please see the specific application documentation and release notes for more information

### Selected Part Numbers and Ordering Information<sup>1</sup>

#### LAN Management Solution

CWLMS-2.2-K9	LAN Management Solution 2.2 for Windows and Solaris; includes Campus Manager 3.3, Device Fault Manager 1.2, Resource Manager Essentials 3.5, Common Services 2.2 with CiscoView 5.5
CWLMS-2.2-P1-K9	Cross Bundle Discount LMS 2.2 for Windows and Solaris platforms; available to customers who have previously purchased RWAN 1.X and want to add LMS

#### LAN Management Solution Upgrades

CWLMS-2.2-UP-K9	Upgrade kit for LMS 1.X customers wanting to upgrade to LMS 2.2; kit includes support for both Windows and Solaris platforms; primary value of this kit is to provide DFM to LMS 1.X customers
CWLMS-MAY03-MR-K9	Maintenance kit for customers that purchased LMS 2.X and want new device support and code updates; kit includes support for both Windows and Solaris platforms; includes updates to all LMS 2.X components. Customers with LMS 1.X will not be able to install DFM 1.2 (use PN# CWLMS-2.2-UP-K9 to purchase the LMS 2.2 upgrade with DFM)

1. This is only a small subset of all parts available via URL listed under “For More Information”. Some parts have restricted access or are not available through distribution channels. Resellers: For latest part number and pricing info, see the *Distribution Product Reference Guide* at: <http://www.cisco.com/dprg> (limited country availability).

### For More Information

See the LAN Management Solution Website: <http://www.cisco.com/go/lms>



# CiscoWorks VPN/Security Management Solution (VMS)

CiscoWorks VPN/Security Management Solution (VMS), an integral part of the SAFE Blueprint for network security, combines Web-based tools for configuring, monitoring, and troubleshooting enterprise VPNs, firewalls, and network and host-based IPS. It offers the ability to monitor remote access links, and IPSec based site to site VPN links. VMS is a Web-based solution that provides a “dashboard” view of critical VPN resources and their performance, VPN hardware and configuration and troubleshooting reports.

## When to Sell

### Sell This Product

**CiscoWorks VPN/Security Management Solution**

### When a Customer Needs These Features

- Complete management of a SAFE infrastructure environment
- Configuring and monitoring VPN, PIX, IOS routers, and IDS devices.
- Monitoring large remote access, and site-to-site hub and spoke VPNs from a single management console and focus on problem areas and performance.

## Key Features

- Management and Monitoring Centers—Supplies the latest in management functionality and multifaceted scalability by offering features such as a consistent user experience, auto update, command and control workflow, and role-based access control. The management and monitoring centers include Management Center for Firewalls, Management Center for IDS Sensors, Management Center for Cisco Security Agents, Management Center for VPN Routers, and Monitoring Center for Security
- VPN Monitor—Allows network administrators to collect, store, and view information on IPSec VPN connections for remote-access or site-to-site VPN terminations. Multiple devices can be viewed from an easy-to-use dashboard that is configured using a Web browser
- Cisco IPS Host Sensor Console—Provides real-time analysis and reaction to network hacking attempts by identifying an attack and preventing access to critical server resources before any unauthorized transactions occur
- RME—Provides the tools needed to manage Cisco devices.
- CiscoWorks Server—Provides the common management desktop services and security across the CiscoWorks family of solutions. It also provides the foundation for integrating with other Cisco and third-party applications
- Support for secure browser communications with CiscoView and RME sessions via SSL and SSH protocol

## Specifications

Feature	CiscoWorks VPN/Security Management Solution
Server	Hardware: IBM PC-compatible computer with 1-GHz or faster Pentium processor; Sun UltraSPARC 60 MP with 440-MHz or faster processor; Sun UltraSPARCIII (Sun Blade 1000 Workstation or Sun Fire 280R Workgroup Server) Software: Windows 2000 Professional, Server, and Advanced Server (Service Pack 3); Sun Solaris 2.8
Server	Hardware: IBM PC-compatible computer with 300-MHz or faster Pentium; Solaris SPARCstation or Sun Ultra 10 Software: Windows 2000 Server or Professional Edition with Service Pack 3, or Windows XP SP1 with Microsoft VM; Solaris 2.8 Browser: Internet Explorer 6.0 Service Pack 1, on Windows operating systems; Netscape Navigator 4.79, on Windows 2000 Server or Professional Edition with Service Pack 3, or Windows XP; Netscape Navigator 4.76 on Solaris 2.8

## Selected Part Numbers and Ordering Information

### CiscoWorks VPN/Security Management Solution

CWVMS-2.2-UR-K9	CiscoWorks VMS 2.2 Windows (unrestricted device usage; 1 server installation license); Includes: Management Center for Firewalls 1.1, for IDS Sensors 1.2, for Cisco Security Agents 4.0, and for VPN Routers 1.1, CiscoWorks Auto Update Server 1.1, CiscoWorks Monitoring Center for Security 1.2, CiscoWorks VPN Monitor 1.2, RME 3.5, and Common Services 2.2 <sup>1</sup>
CWVMS-2.2-WINR-K9	CiscoWorks VMS 2.2 Windows (20-device restricted usage; 1 server installation license); Includes: Management Center for Firewalls 1.1, for IDS Sensors 1.2, for Cisco Security Agents 4.0, and for VPN Routers 1.1, CiscoWorks Auto Update Server 1.1, CiscoWorks Monitoring Center for Security 1.2, CiscoWorks VPN Monitor 1.2, RME 3.5, and Common Services 2.2
CWVMS-2.2-WUPGR-K9	Upgrade from CSPM 2.x (unrestricted license), CiscoWorks VMS 1.X or 2.X (restricted licenses) to CiscoWorks VMS 2.2 for Windows and Solaris (unrestricted license) <sup>1</sup>
CWVMS-2.2-UPGUR-K9	Upgrade from CSPM 2.X (restricted license) or CiscoWorks VMS 1.X (restricted license) to CiscoWorks VMS 2.2 for (20-device restricted license) <sup>1</sup>
CWVMS-DEC03URMR-K9	Minor update kit for existing VMS 2.X Windows and Solaris (unrestricted license) <sup>1</sup>
CWVMS-DEC03RMR-K9	Minor update kit for existing VMS 2.X Windows Only (20-device restricted license) <sup>1</sup>

1. Contains Windows-only versions of Management Center for Firewalls 1.1, for IDS Sensors 1.2, for Cisco Security Agents 4.0 and for VPN Routers 1.1, CiscoWorks Auto Update Server 1.1, and CiscoWorks Monitoring Center for Security 1.2

### For More Information

See the CiscoWorks VPN/Security Management Solution Website:

<http://www.cisco.com/go/vms>

## CiscoWorks Security Information Management Solution and CiscoWorks Security Information Management Solution Engine

The CiscoWorks Security Information Management Solution (SIMS) is a solution for effectively gathering and analyzing the overwhelming amount of security event data that companies receive through growing numbers of multi-vendor security devices and systems installed throughout their network. SIMS is based on technology from netForensics and incorporates powerful features to help companies better manage their growing security infrastructure and effectively monitor millions of event messages, without additional staff. CiscoWorks SIMS 3.1 also introduces a new, hardware-based solution engine option that provides the same features and functions as the CiscoWorks SIMS 3.1 software on a dedicated appliance. The CiscoWorks SIMS 3.1 Solution Engine requires minimal setup and installation.

The hardware based solution engine provides regional scalability for customers with small to medium deployments and the software only solution provides global scalability for larger deployments.

### When to Sell

#### Sell This Product

**CiscoWorks Security Information Management Solution**

#### When a Customer Needs These Features

- Security monitor with advanced visualization for quickly detecting known and unknown threats
- Perform risk assessments and analysis to determine overall vulnerability of enterprise network assets
- Manage and correlate events from SAFE and multi-vendor security environments

### Key Features

- Complete event monitoring for SAFE and all multivendor security environments
- Advanced visualization for fast and intuitive security monitoring
- Integrated risk assessment to understand the overall vulnerability of any particular asset within the enterprise
- Comprehensive reporting and forensics for all levels of security operations
- Productivity gains and cost reduction
- Flexible deployment options of either software only or network appliance with SIMS pre-installed on a Cisco 1160 Solutions Engine

**Chapter 9**

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**Specifications**

Feature <sup>1</sup>	CiscoWorks Security Information Management Solution (Open Server)
Server	Hardware: Linux: Dual Intel Pentium IV with 1.5 GHz (Server Class) with 4 GB RAM and 18 GB available disk space for full install; Solaris: Dual UltraSPARC-III with 444 MHz (Server Class) with 4 GB RAM and 18 GB available disk space for full install Software: Linux: Red Hat Linux, Solaris: 2.8
Client	Hardware: IBM PC-compatible computer with 300-MHz or faster Pentium; Solaris SPARCstation or Sun Ultra 10 Software: Windows 2000 Server or Professional Edition with Service Pack 3, or Windows XP SP1 with Microsoft VM; Solaris 2.8 Browser: Internet Explorer 6.0 Service Pack 1, on Windows operating systems; Netscape Navigator 4.79, on Windows 2000 Server or Professional Edition with Service Pack 3, or Windows XP; Netscape Navigator 4.76 on Solaris 2.8

1. For complete Server and Client Hardware and Software requirements, please refer to the Product Literature or Installation documentation for specific details and requirements; Information on the CiscoWorks Security Information Management Solution Engine can be found in the Product Literature

**Selected Part Numbers and Ordering Information<sup>1</sup>**

CiscoWorks Security Information Management Solution (Open Server)	
CWSIME-1160-K9	Security Information Management Solution Engine 3.1; includes the Cisco 1160 hardware platform and Security Information Management Solution software version 3.1
CWSIM-3.1-SS-K9	Security Information Management Solution 3.1 Starter Kit for Solaris; restricted license for monitoring 30 devices; License covers installation of 1 master engine, 1 distributed engine server and 1 database server. Includes release CDs for all software and documentation. Web-enabled license activation required upon receipt
CWSIM-3.1-SL-K9	Security Information Management Solution 3.1 Starter Kit for Linux; restricted license for monitoring 30 devices; License covers installation of 1 master engine, 1 distributed engine server and 1 database server. Includes release CDs for all software and documentation. Web-enabled license activation required upon receipt
CWSIM-3.1-DS-K9	Additional database server license for existing SIM 3.1 installations running Solaris. Web-enabled license activation required upon receipt
CWSIM-3.1-DL-K9	Additional database server license for existing SIM 3.1 installations running Linux. Web-enabled license activation required upon receipt
CWSIM-3.1-EN-K9	Distributed Engine add-on license for SIM 3.1 installations running Solaris or Linux. Web-enabled license activation required upon receipt

1. This is only a small subset of all parts available via URL listed under “For More Information”. Some parts have restricted access or are not available through distribution channels.

**For More Information**

See the CiscoWorks Security Information Management Solution Website:  
<http://www.cisco.com/go/sims>

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**CiscoWorks Network Connectivity Center Products**

The Cisco® Network Connectivity Center (NCC) delivers end-to-end management across multiple tools, technologies, and silos. From networks and applications to business impact and dashboard views, Cisco NCC manages the entire IT environment in alignment with an organization's business objectives.

Organizations continue to measure IT investments against how they contribute to business objectives. Primary organizational goals include improving service levels and reducing operating costs by optimizing the performance of the infrastructure and the applications that deliver critical business services.

Cisco NCC is a suite of network and service management software that manage increasingly complex and distributed IT environments in alignment with business priorities. Using sophisticated modeling, analysis, and automation technologies, Cisco NCC provides end-to-end insight into how IT health relates to business services. It automatically pinpoints service-affecting faults and calculates their business impact, giving you the information you need to maximize service delivery while lowering operating costs and reducing business risk.

Cisco NCC builds on industry-leading, ready-to-use root cause and impact analysis technology that pinpoints connectivity problems in real time and identifies their impact. Cisco NCC extends that analysis from end to end across the IT environment, including multitechnology, multivendor networks; operations support system (OSS), packaged, and proprietary applications; and business services and processes.

### When to Sell

#### Sell This Product

**CiscoWorks Network Connectivity Center Products**

#### When a Customer Needs These Features

- Eliminate time-consuming manual event analysis and ensure corrective action can begin early before significant network service problems arise
- Faster problem isolation to prevent downtime and provide continuous availability of networked business applications
- Easy to install right out-of-the-box with embedded knowledge of Cisco devices integrated into the tool so the need for costly and time-consuming development of custom rules and their implementation is not needed and saves valuable time

### Key Features

- Fast, accurate discovery of the entire environment
- Built-in information model that maps components and their relationships across layers
- Automated root cause analysis-no rules writing required.
- Business impact analysis that aligns IT with business objectives
- Advanced automation, including analysis, escalation, and updates
- Scalable architecture to manage the world’s largest infrastructures
- Flexible, Web-based dashboard views

### Specifications

Feature <sup>1</sup>	CiscoWorks Network Connectivity Center Products
Software	Solaris 2.8 or 2.9, Windows 2000 Server, Windows XP (console only)

1. For complete Server and Client Hardware and Software requirements, please refer to the Product Literature or Installation documentation for specific details and requirements

### Selected Part Numbers and Ordering Information<sup>1</sup>

#### CiscoWorks Network Connectivity Center Products

CNCC-NCMP1.1-50K9	Cisco NCC NCM production server;includes software and 50 devices and 1 console
CNCC-NCMP1.1-100K9	Cisco NCC NCM production server;includes software and 100 devices and 1 console
CNCC-ASMP-1.0-50	Cisco NCC Application Services Manager-includes 1 ASM RTU Production server license with 50 ASM Managed Hosts device licenses.
CNCC-ACMP-1.0-20	Cisco NCC Application Connectivity Monitor - includes 1 ACM RTU Production server License 20 device license.
CNCC-BIMP-1.0-K9	Cisco NCC Business Impact Manager - includes 1 BIM RTU Production server License.
CNCC-ATFP-1.0	Cisco NCC ATM/Frame Relay Manager ñ Includes 1 ATM/FR RTU Production server License and 20 ATM/FR Managed Devices licenses.
CNCC-MPVP-1.0-100	Cisco NCC MPLS VPN Manager - Includes 1 MPLS VPN RTU Production server License and 100 Managed CE Devices.
CNCC-RPP-1.0-50	Cisco NCC RPSM - Includes 1 NCM/ RPSM Manager Production RTU server License and 50 Managed RPSM Devices licenses.
CNCC-BDP-1.0-K9	Cisco NCC Business Dashboard - Includes 1 Business Dashboard RTU Production server License and 1 Business Dashboard Concurrent User License.
CNCC-RMP-1.0-K9	Cisco NCC Report Manager - Includes 1 Report Manager RTU Production server License and 1 Report Manager Named User License.

1. This is only a small subset of all parts available via URL listed under “For More Information”. Some parts have restricted access or are not available through distribution channels.

### For More Information

See the CiscoWorks Network Connectivity Center Products Website:  
<http://www.cisco.com/en/US/products/ps5934/index.html>

## **CiscoWorks Manager IP Telephony Environment Monitor**

CiscoWorks IP Telephony Monitor (ITEM) is a suite of applications and tools that facilitate effective management of Cisco-based IP telephony implementations. ITEM is designed to manage AVVID and IOS-based telephony environments with specialized tools and processes appropriate to both large and small installations. ITEM consists of a product bundle as well as several optional components that can be downloaded from the Cisco Systems, Inc. website. CiscoWorks ITEM provides information and tools in three areas to instill high confidence that Cisco-based IP telephony environments are performing as expected.

CiscoWorks ITEM provides several tools that enable Operations and Help-desk personnel respond to customer issues and to maintain surveillance on the introduction and movement of IP telephones in their environment. These optional tools increase the awareness and accountability for telephony resources and can play an important role in enterprise security programs yet are simple to install and use.

CiscoWorks ITEM also provides tools for Operations and Administrative personnel to monitor and manage telephony resources requiring financial expenditures. These tools, part of an ongoing program to capture and record capacity management data, can be used in conjunction with HP OpenView Performance Insight: Cisco IP Telephony Statistics Report Pack to produce meaningful utilization and capacity reports.

### **When to Sell**

#### **Sell This Product**

**CiscoWorks IP Telephony  
Environment Monitor**

#### **When a Customer Needs These Features**

- Network managers who need to effectively manage their converged networks while maintaining high confidence that their IP telephony environments are performing as expected
- Network Managers who need to use synthetic traffic (replicating key forms of network activity associated with VoIP and IP telephony) to enable around-the-clock monitoring of key voice elements in the network

### **Key Features**

The IP Telephony Monitor (ITM) is the primary application of the ITEM bundle. ITM tracks the health of IP telephony environments by proactively monitoring Cisco voice elements in the network to alert operations personnel to potential problems and to help minimize IP telephony service downtime. It supports the health monitoring of AVVID Cisco CallManager, Cisco AVVID IP telephony applications and platforms, IOS Telephony-based hardware, the gateways and gatekeepers, and in-line power switches. Main features of ITM are:

- Problem-focused fault analysis
- Synthetic traffic generation and monitoring
- Real-time Alerts and Activities Display
- Integration with CiscoWorks desktop
- Integration with enterprise management systems
- Support for Layer 2 and Layer 3 network devices
- Support of AVVID and IOS-based IP telephony applications and services
- Incremental device support

Optional Drop-In Modules

Fault History Manager

Fault History is an optional drop-in module (downloadable from Cisco.com Software Center) that provides a web-based tool to access historical fault and alert data from a database. The user has several filtering options that can facilitate the search for specific information.

IP Phone Information Utility

The IP Phone Information Utility is an optional drop-in module (downloadable from Cisco.com Software Center) that provides a web-based tool to show detailed information about individual IP telephone. The operator can access the IP phone information by using its extension number, IP address, and/or MAC address. This utility bases its information on the devices created in VHM.

IP Phone Help Desk Utility

The IP Phone Help Desk Utility is an optional applet (downloadable from Cisco.com Software Center) that provides a MS Windows 2000 desktop tool to show summary information about individual IP telephone. The help desk operator can access the IP phone information by using its extension number (or can configure the application to search by IP or MAC addresses). This utility requires a connection to an ITEM server running VHM with the IP Phone Information Utility installed.

Gateway Statistics Utility

When available, the Gateway Statistics Utility is an optional drop-in module (downloadable from Cisco.com Software Center) that provides a web-based tool to collect performance and behavior statistics about CCM-controlled IP telephony gateways. This statistical information can be subsequently exported for processing by reporting packages for capacity planning and trending information.

Specifications

Feature	CiscoWorks IP Telephony Environment Manager
Server	Hardware: IBM PC-compatible with 1 GHz or higher Pentium IV processor; UNIX (If DFM is on Unix platform; Sun UltraSPARCIII (Sun Blade 1000 Workstation or Sun Fire 280R Workgroup Server); (Dual processor system required for hosting multiple management solutions) Software: Windows 2000 Server or Professional Edition with Service Pack 2; Solaris 2.8
Client	Hardware: IBM PC-compatible computer with 300 MHz or higher Pentium processor; Windows NT 4 (Workstation & Server) with Service Pack 6a, Win 98 or Windows 2000 Professional & Server with Service Pack 2 Browser: Windows 98/NT/2000: Netscape v4.77, 4.78, 4.79; Windows 98/NT/2000: Internet Explorer v5.5 with Service Pack 2, 6.0

Selected Part Numbers and Ordering Information

CiscoWorks IP Telephony Environment Monitor

CWITEM-2.0-WIN-K9	CiscoWorks IP Telephony Environment Monitor 2.0 (Windows) for new customer installations; includes IP Telephony Monitor (ITM); this suite is intended for enterprise customers
CWITEM-2.0-ADD-K9	CiscoWorks IP Telephony Environment Monitor 2.0 (Windows) Add-On Kit for existing LMS 2.X customers; includes IP Telephony Monitor (ITM); this suite is intended for enterprise customers
CWITEM-2.0-UP-K9	Upgrade kit for existing IP Telephony Environment Monitor customers; includes IP Telephony Monitor (ITM). This suite is intended for the Enterprise customers
CWITEM-2.0-MV-K9	CiscoWorks IP Telephony Environment Monitor Multi-View 2.0 (Windows) for new customer installations; includes IP Telephony Monitor (ITM) Multi-View; this suite is intended for service provider customers

For More Information

See the CiscoWorks IP Telephony Environment Monitor Website at:  
<http://www.cisco.com/go/cwvoip>

## CiscoWorks Voice Manager for Voice Gateways

CiscoWorks Voice Manager (CVM) 2.3 is a Web-based voice management and reporting solution. The application provides enhanced capabilities to configure and provision voice ports, and to create and modify dial plans on voice-enabled Cisco routers for voice-over-IP (VoIP), voice-over-Frame Relay (VoFR), and voice-over-ATM (VoATM) network deployments.

### When to Sell

#### Sell This Product

**Voice Manager for Voice Gateways**

#### When a Customer Needs These Features

- Network managers who need to maintain a distributed network architecture for increased scalability
- Network Managers who need to manage multiple customer networks from one common server

### Key Features

- Integration with CiscoWorks—Manage a wide variety of router and switch functions through the CVM integration with CiscoWorks, which provides a common platform for running different applications
- Multiple platform support—Supported Platforms: Cisco 1700, 2600, and 3600 series, Cisco MC3810 Multiservice Access Concentrator, Cisco AS5300, AS5350, AS5400, and AS5800 series universal access servers, and Cisco 7200 and 7500 series routers
- GUI-based voice ports, dial-plan generation management—Create and manage local dial plans and VoIP, VoFR, and VoATM network dial plans

### Specifications

Feature	CiscoWorks Voice Manager for Voice Gateways
<b>Server Hardware Requirements</b>	Windows: 512 MB, Twice as much swap space as memory, 2 GB of disk space, 500 MHz, 10 MB in temporary directory, NTFS file system required for security option Solaris: Sparc Ultra 10, 256 MB, Same amount of swap space as memory, 2GB of disk space
<b>Server Software Requirements</b>	Windows: Windows 2000 Professional and Server, SP 3 and SP 4 (Solaris: Solaris 2.7 or 2.8
<b>Client Hardware Requirements</b>	Windows: 128 MB, IBM PC-compatible 300-MHz Pentium processor Solaris: Sparc Ultra 10, 128 MB
<b>Client Software Requirements</b>	Windows: Windows 2000 or Windows XP Solaris: Solaris 2.7 or 2.8 Display Setting: 1024 x 768 resolution, 16-bit color palette

### Selected Part Numbers and Ordering Information<sup>1</sup>

#### CiscoWorks Voice Manager for Voice Gateways

CWVM-2.3-K9	CiscoWorks Voice Manager 2.2 for Windows and Solaris; includes Voice Manager 2.2, and Common Services 2.2 with CiscoView (CV) 5.5
CWVM-2.3-UP-K9	Upgrade to CVM 2.3 for Windows and Solaris from CVM 1.X.
CWVM-2.3-MR-K9	Minor updates to CVM 2.3 for Windows and Solaris for customers currently using CVM 2.X.

1. This is only a small subset of all parts available via URL listed under “For More Information”. Some parts have restricted access or are not available through distribution channels.

### For More Information

See the Voice Manager for Voice Gateways Website at:

<http://www.cisco.com/en/US/products/sw/cscowork/ps2432/index.html>

## CiscoWorks QoS Policy Manager

QoS Policy Manager allows you to centrally define and administer IOS and CAT parameters needed for differentiating network traffic. This ensures high availability and predictable performance for business-critical which rely on advanced voice and video services. Cisco QoS Policy Manager (QPM) 3.2 is a key enabler of end-to-end QoS for converged networks. It delivers differentiated services across network infrastructures with converged voice, video, and data applications, simply by taking advantage of Cisco IOS and Catalyst OS Software with built-in QoS mechanisms in LAN and WAN switching and routing equipment.

### When to Sell

#### Sell This Product

##### Cisco QoS Policy Manager

#### When a Customer Needs These Features

- End-to-end QoS configuration and automated, reliable policy deployment, while eliminating device-by-device command streams
- Rules-based policies that combine static and dynamic port applications and host system traffic filters
- QoS Policy Manager's services, including congestion management & avoidance, and traffic-shaping
- Efficiently translate policies to specific QoS config commands, ensuring consistency across domains
- Validate policies prior to deploying them quickly and reliably to LAN and WAN policy domains
- Generate Web-based reports on QoS policies deployed in the network

### Key Features

- Measure traffic throughput for top applications and service classes plus troubleshoot problems with real-time and historical QoS feedback
- Centrally define roles and permissions and take advantage of Cisco Secure ACS to control privileges for policy view, modification and deployment for different device groups
- Partition network into administrative and deployment domains and use policy libraries for global QoS configuration. Modify, scale and monitor IOS AutoQoS voice policies on routers
- Use the secure, Web-based GUI for accurate end-to-end QoS configuration and automated, reliable policy deployment, while eliminating device-by-device command streams; Setup wizard intelligently determines QoS policies and properties at each network point that requires IP telephony QoS configuration based on Cisco AVVID design recommendations; Achieve business-driven service levels across the enterprise network by configuring traffic classification and allowing QoS policy enforcement through Cisco devices
- Expose QoS policy conflicts, uploads existing device configurations, presents CLI syntax that corresponds to policies, allows previewing configuration changes before deployment, supports incremental ACL updates, defines ACL ranges, and restores or applies a previous version of a policy database and backup to a remote server
- An integral part of Cisco content networking, QPM 3.1 delivers the appropriate service levels to business-critical applications by supporting the extension of IP packet classification to include application signature, Web URLs, and negotiated ports
- Enables congestion management, congestion avoidance, and bandwidth control by selectively activating QoS mechanisms on intelligently grouped LAN and WAN interfaces and providing support for external APIs to trigger event-based policy distribution
- Extend security by defining access control policies to permit or deny transport of packets into or out of device interfaces



- Supports device inventory import from CiscoWorks Resource Manager Essentials shortens configuration time for devices targeted for policy enforcement and QoS monitoring

## Specifications

Feature	Cisco QoS Policy Manager
Server	Server Hardware: PC-compatible computer with 1-GHz or faster Pentium processor, CD-ROM drive, 10BASE-T or faster connection, 1-GB RAM, 9-GB available disk drive space, 2-GB virtual memory, Server Operating System CiscoWorks QPM requires the following operating systems: Windows 2000 Professional, Server, and Advanced Server (Service Pack 3 or 4). Support for Advanced Server requires that Terminal Services be turned off. Ports Used by QPM—CiscoWorks QPM on Windows uses the following ports, in addition to the ports used by CiscoWorks Common Services: 51099 Java Naming and Directory Interface (JNDI) lookup port, 51199 JRMP lookup port, 51299 Admin page port, 10033 (Windows) Database port, 51899 Protocol Data Packet (PDP) port
Client	Hardware—PC-compatible computer with 300-MHz or faster Pentium processor Client Operating System— Windows 2000 (Server or Professional Edition) with Service Pack 3 or 4, or Windows XP SP1 (Server or Professional) Client Browser—Windows with SP 3 and Windows XP clients: Microsoft Internet Explorer 6.0 or Internet Explorer 6.0 with Service Pack 1, Netscape Navigator 7.1; Windows clients with SP 4: Microsoft Internet Explorer 6.0 with Service Pack 1, Netscape Navigator 7.1

## Selected Part Numbers and Ordering Information<sup>1</sup>

### Cisco QoS Policy Manager

CWQPM-3.1-WINUR-K9	QoS Policy Mgr 3.1 for Windows (unrestricted device usage; 1 server installation license)
CWQPM-3.1-WINR-K9	QoS Policy Mgr 3.1 for Windows (20-device restricted usage; 1 server installation license)
CWQPM-3.1-URUP-K9	Upgrade to QPM 3.1 for Windows from QPM 1.x, 2.x or 3.0 to QPM 3.1 (unrestricted device usage; 1 server installation license)
CWQPM-3.1-URC-K9	Conversion of a QPM 3.1 20-device restricted usage license to unrestricted device usage license

1. This is only a small subset of all parts available via URL listed under “For More Information”. Some parts have restricted access or are not available through distribution channels. Resellers: For latest part number and pricing info, see the *Distribution Product Reference Guide* at: <http://www.cisco.com/dprg> (limited country availability).

## For More Information

See the Cisco QoS Policy Manager Website: <http://www.cisco.com/go/qpm>

## CiscoWorks Wireless LAN Solution Engine

CiscoWorks WLSE is a centralized systems-level solution for managing the entire Cisco Aironet® WLAN infrastructure. Advanced air/radio frequency (RF) and device management tools eliminate complexity and give administrators visibility into the WLAN. By quickly and easily detecting, locating, and disabling unauthorized (rogue) access points, CiscoWorks WLSE helps ensure security, while ensuring that policies are consistently applied throughout the network. This advanced capability can benefit any organization, including those that have not deployed WLANs but still want to guard against intruders. CiscoWorks WLSE automates a range of previously time-consuming and repetitive tasks, such as bulk firmware updates and mass configuration of access points and bridges. CiscoWorks WLSE may be transparently integrated with other network management systems (NMSs), operations support systems, and CiscoWorks applications. CiscoWorks WLSE runs on the CiscoWorks 1130 for Wireless LAN Solution Engine hardware platform, which is one rack unit high.

## When to Sell

### Sell This Product

#### CiscoWorks Wireless LAN Solution Engine

### When a Customer Needs These Features

The CiscoWorks WLSE is ideal for enterprise customers:

- Implementing large-scale Cisco Aironet WLAN infrastructures
- Template-based configuration tool which can include a large number of uniform policies for Cisco access points and bridges
- Access point and bridge mis-configuration alerts to minimize security vulnerabilities
- Proactive fault and performance monitoring of Cisco access points, bridges, LEAP authentication server, and switches connected to the access points

## Key Features

- **Self-healing WLANs**—If it detects that an access point has failed, it compensates by automatically increasing the power and cell coverage of nearby access points
- **Additional device support**—RF management support has been added for Cisco Aironet 1200 Series and Cisco Aironet 1100 Series access points with IEEE 802.11a and 802.11g radios, including Cisco Aironet 1200 Series dual mode radios (802.11a/802.11b and 802.11a/802.11g), and Cisco Aironet 1400 Series Wireless Bridge.
- **Security and Wireless LAN IDS**—Protects organizations' RF environments and WLAN networks from unauthorized access: **Integrated IDS**—Standard Cisco Aironet access points are deployed with the radio (802.11a, b, or g) placed in multifunction mode to service client devices and to provide WLAN intrusion monitoring; **Dedicated IDS**—A dedicated access-point-only WLAN is deployed with the access point radio (802.11a, b, or g) placed in radio scan mode to support only WLAN intrusion monitoring
- **Assisted site surveys and automated resite surveys**—Automates the process of determining optimal access point radio transmit power and channel selection.
- **Open XML API**—RF management data, in addition to network management data, may be accessed by third-party management systems using XML
- **Real-time client tracking and reporting** including real-time client tracking, present a powerful set of tools for troubleshooting and capacity planning

## Selected Part Numbers and Ordering Information<sup>1</sup>

### CiscoWorks Wireless LAN Solution Engine

CWWLSE-1130-19-K9 Wireless LAN Solution Engine 2.7; includes the Cisco 1130 hardware platform and wireless LAN management software version 2.7

CWWLSE-2.7-SWUP-K9 Software only upgrade kit for Wireless LAN Solution Engine 1.x customers wanting to upgrade their Cisco 1130 hardware to Wireless LAN management software version 2.7

## For More Information

See the CiscoWorks Wireless LAN Solution Engine Website:

<http://www.cisco.com/go/wlse>

## CiscoWorks Hosting Solution Engine (HSE)

HSE is a turnkey network management appliance that monitors, activates, and configures a variety of e-business services in Cisco powered data centers. The hardware running HSE is the Cisco 1140, which is a one rack unit (1RU) that enables convenient deployment on the same rack as the rest of other Cisco e-business networking devices.

HSE automatically discovers the entire data center infrastructure and instantly begins collecting statistics and management information, providing a current snapshot of the managed environment. It provides up-to-date information for operational staff to easily pinpoint the source of a problem and, itself, is a manageable Cisco device with a full Cisco Discovery Protocol implementation and supports Cisco MIB II.

## When to Sell

### Sell This Product

**CiscoWorks Hosting Solution Engine**

### When a Customer Needs These Features

- Ideal for enterprise and service providers with e-business data center facilities
- Granular user access model
- Robust Layer 4-7 service configuration

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**Key Features**

- Granular user access model to partition network resources for Layer 4-7 services and switch ports, and authorize user group access to individual application services
- Robust Layer 4-7 service configuration and service activation of server load balancing devices, including virtual servers, real servers, and content owners and rules
- Monitoring and reporting of SSL Proxy services on Cisco Catalyst 6000 Series with SSL Service Modules and Cisco Content Services Switch
- HTML-based, secure graphic user interface with easy customer view/report personalization and historical data reporting
- Upper layer NMS/OSS integration with SYSLOG, trap, email notifications and historical data XML export

**Selected Part Numbers and Ordering Information<sup>1</sup>****Cisco 1105 Hosting Solution Engine**

CWHSE1105-1.5-K9      CWHSE-1140-19-K9 CiscoWorks Hosting Solution Engine; includes 1105 hardware platform with software version 1.7; can be configured for international power cords

CWHSE-1.8-SWMR-K9      Minor update kit for customers on HSE 1.x that do not have SAS support contracts; Includes minor update release for HSE 1.8

1. Some parts have restricted access or are not available through distribution channels. Resellers: For latest part number and pricing info, see the *Distribution Product Reference Guide* at: <http://www.cisco.com/dprg> (limited country availability).

**For More Information**

See the 1105 Hosting Solution Engine Website: <http://www.cisco.com/go/hse>

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**Cisco Catalyst 6500 Series Network Analysis Module 1 and 2(with NAM software version 3.3)**

The Cisco Network Analysis Module (NAM) 1 and 2, second generation high performance network analysis modules for the Cisco Catalyst 6500 Series provides network monitoring instrumentation and web-browser based traffic analysis for Catalyst based AVVID environments. The NAM enables network managers to gain application-level visibility into network traffic with the ultimate goal of improving performance, reducing failures, and maximizing returns on network investment. It comes with an embedded, Web-based traffic analyzer, which provides full scale remote monitoring and troubleshooting capabilities that are accessible through a Web browser.

**When to Sell****Sell This Product**

**Catalyst 6500 Series  
Network Analysis Module  
1 and 2 (with NAM  
software version 3.3)**

**When a Customer Needs These Features**

- Needs Application-Level visibility built into the network
- Provides network managers visibility into all layers of network traffic
- Monitoring in a scalable switching environment that supports traffic monitoring in a scalable switching environment
- Offers investment protection by interfacing with both the bus and the crossbar switching fabric-based architectures in the Cisco Catalyst 6500 Series

## Key Features

- Available in two models—NAM-1 and NAM-2—to meet diverse network analysis needs in a scalable switching environment running up to gigabit speeds.
- Provides application-level Remote Monitoring (RMON) functions based on RMON2 and other advanced Management Information Bases (MIBs)
- Collects statistics on both data and VoIP streams flowing through the host switch using the Switch Port Analyzer (SPAN) and NetFlow Data Export features of the Cisco Catalyst 6500 Series
- Collects data from remote switches using the remote SPAN (RSPAN) feature of the Cisco Catalyst 6500 and 4000 Series switches
- Easy to deploy and use at LAN aggregation where they can see most of the traffic, at service points where performance is critical and at important access points where quick troubleshooting is required
- Application monitoring can be done using RMON, RMON2, and several extended RMON MIBs, which can detect the applications on the network and provide detailed information about how these applications utilize the bandwidth, which hosts access those applications, and which client/server pairs generate the most traffic
- Performance management provides valuable information about the delays in server responses to client requests

## Selected Part Numbers and Ordering Information<sup>1</sup>

### Cisco Catalyst 6500 Series Network Analysis Module 1 and 2(with NAM software version 3.3)

WS-SVC-NAM-1	Catalyst 6500 Series Network Analysis Module 1. To order the NAM individually, please use the spare part number of WS-SVC-NAM-1=
WS-SVC-NAM-2	Catalyst 6500 Series Network Analysis Module 2. To order the NAM individually, please use the spare part number of WS-SVC-NAM-2=

1. Some parts have restricted access or are not available through distribution channels.

## For More Information

See the Cisco NAM Website:

<http://www.cisco.com/en/US/products/hw/modules/ps2706/ps5025/index.html>



# Storage Networking

## Storage Networking at a Glance

Product	Features	Page
Cisco MDS 9000 Family Multilayer Directors and Fabric Switches	<ul style="list-style-type: none"><li>• Industry-leading port densities across the Cisco MDS 9000 Family</li><li>• Intelligent network services including VSANs, Port, Channels, embedded diagnostics and advanced security</li><li>• Embedded Fabric Manager, open API and integration with CiscoWorks RME and other third party SAN management platforms</li><li>• Multiprotocol support including Fibre Channel, FICON, Fibre Channel over IP (FCIP) and iSCSI. (Cisco MDS 9500 Series and Cisco MDS 9200 Series)</li><li>• Open platform for hosting third party storage applications (Cisco MDS 9500 Series and Cisco MDS 9200 Series) via a FAIS based intelligent storage API (iSAPI) and SANTap Protocol</li><li>• High availability directors with non-disruptive software upgrades, stateful processor restart/failover and redundancy of all major components</li></ul>	10-2
Additional Storage Networking Solutions	<ul style="list-style-type: none"><li>• Cisco MDS 9000 Port Analyzer Adapter encapsulates Fibre Channel frames into Ethernet packets for low cost Ethernet based storage/SCSI protocol analysis</li><li>• Cisco Coarse Wave Division Multiplexing (CWDM) Extended Distance Solution offers Small Form-Factor Pluggable (SFP) optics in 8 different wavelengths, enabling 2/1 Gbps Fibre Channel and 1 Gbps Ethernet ports to be directly connected to passive add/drop CWDM multiplexers.</li><li>• Cisco 7200 FCIP Port Adapter for long distance SAN connectivity over an IP network infrastructure</li><li>• Cisco ONS 15530/15540/15454 are Dense Wave Division Multiplexing (DWDM) platforms that provide transport across dark fibre for business continuance applications</li></ul>	10-6

## Cisco MDS 9000 Family Multilayer Directors and Fabric Switches



Consisting of the Cisco MDS 9500 Series of Multilayer Directors, the semi-modular Cisco MDS 9200 Series Multilayer Fabric Switches, and the fixed configuration Cisco MDS 9100 Series Multilayer Fabric Switches, the Cisco MDS 9000 Family provides a full line of products to meet requirements for storage networks of all sizes and architectures. The Cisco MDS 9000 Family delivers intelligent network services such as virtual SANs (VSANs), comprehensive security, advanced traffic management, sophisticated diagnostics, and unified SAN management. In addition, the Cisco MDS 9500 Series and the Cisco MDS 9200 Series provide multiprotocol/multitransport integration and an open platform for embedding intelligent storage services such as network-based virtualization. With its multilayer approach to network and storage intelligence, the Cisco MDS 9000 Family ushers in a new era in storage networking.

### When to Sell

#### Sell This Product

#### When a Customer Needs These Features

##### Cisco MDS 9500 Multilayer Directors

- Maximum port densities—Up to 224 Fibre Channel ports in a single 9-slot chassis
- High availability—non-disruptive software upgrades, stateful processor restart/failover and redundancy of all major components
- High performance—1.44 Terabit/sec backplane to provide 10Gbps future readiness
- Multiprotocol support—integration of Fibre Channel, FICON, FCIP, and iSCSI in single platform
- Hosting intelligent storage applications (network-based virtualization, volume management, data replication, and snapshot capabilities)
- Modularity and flexibility for future growth

##### Cisco MDS 9200 Multilayer Fabric Switches

- Moderate port densities - Up to 48 Fibre Channel ports in a single 2-slot chassis
- Multiprotocol support - integration of Fibre Channel, FCIP, and iSCSI in single platform
- Hosting intelligent storage applications (network-based virtualization, volume management, data replication, and snapshot capabilities)
- Modularity and flexibility for future growth

##### Cisco MDS 9100 Series Fabric Switches

- Lower port count—20 ports for Cisco MDS 9120; 40 ports for Cisco MDS 9140
- 1RU for space-constrained environments
- Fibre Channel-only connectivity
- Entry-level SAN where price per port more important than future modularity/flexibility

### Key Features

- Configurable—provides embedded Cisco Fabric Manager, open APIs and integration with CiscoWorks RME and third party SAN and network management platforms
- Serviceable—delivers embedded diagnostics (Fibre Channel ping, traceroute and protocol analyzer) and “Call Home”
- Upgradeable—offers investment protection with multiple module options, all interchangeable across Cisco MDS 9500 Series and Cisco MDS 9200 Series;
- High availability—Cisco MDS 9500 Series directors provides nondisruptive software upgrades, stateful process failover and hot swappable components
- Secure—supports VSANs, hardware-enforced zoning, role-based access control, FC-SP, IPsec, SNMPv3, RADIUS and access control lists
- Multiprotocol—integrates Fibre Channel, FICON, iSCSI, and FCIP in one system (Cisco MDS 9500 Series and Cisco MDS 9200 Series)
- Flexible—introduces VSANs for consolidation of isolated SAN islands on a single physical fabric
- Scalable—offers 16 to 224 Fibre Channel ports; supports throughput up to 32Gbps in a single Port Channel ISL

- High performance—Cisco MDS 9500 Directors supply 1.44 Terabits/sec of internal throughput ensuring readiness for future 10 Gbps integration
- Open—Cisco MDS 9500 Series directors and Cisco MDS 9200 Series provide open platform for network-based intelligent storage applications

## Specifications

Feature	MDS 9509 Director	MDS 9506 Director	MDS 9216i Fabric Switch	MDS 9216 Fabric Switch	MDS 9100 Fabric Switch
<b>Modular Slots</b>	9 slots: 2 for supervisors, 7 for connectivity	6 slots: 2 for supervisors, 4 for connectivity	2 slots: 1 fixed configuration - 14 Fibre Channel ports and 2 GE ports: 1 open for connectivity	2 slots: 1 fixed configuration 16 Fibre Channel ports: 1 slot open for connectivity	fixed configuration, 20 Fibre Channel ports
<b>Maximum Number of Ports per Switch</b>	224 Fibre Channel ports	128 Fibre Channel ports	46 Fibre Channel ports + 2 GE ports	48 Fibre Channel ports	MDS 9120/9140: 20 and 40 Fibre Channel ports, respectively
<b>Multiprotocol/Multitransport</b>	Yes: Fibre Channel, FCIP, iSCSI, IP-FC and FICON	Yes: Fibre Channel, FCIP, iSCSI, IP-FC and FICON	Yes: Fibre Channel, FCIP, iSCSI, IP-FC and FICON	Yes: Fibre Channel, FCIP, iSCSI, IP-FC and FICON	No: Fibre Channel only
<b>High Availability:</b>	Non-disruptive software upgrades, stateful failover, process re-startability, system health monitoring, hot swap: optics, power supplies, fans, supervisors, switching and services modules	Same as MDS 9509 Director	Stateful failover, process re-startability, system health monitoring, hot swap: optics, power supplies, fans, switching and services modules	Stateful failover, process re-startability, system health monitoring, hot swap: optics, power supplies, fans, switching and services modules	Stateful failover, process re-startability, system health monitoring, hot swap: optics, power supplies, and fans
<b>Intelligent Network Services: VSANs, PortChannels, Diagnostics, Security, Traffic Mgmt, QoS</b>	Yes	Yes	Yes	Yes	Yes
<b>Platform for Hosting network-based storage applications (virtualization, volume mgmt, data replication)</b>	Yes	Yes	Yes	Yes	No
<b>Embedded Fabric Management, open API, integration with CiscoWorks, third party SAN and network mgmt platforms</b>	Yes	Yes	Yes	Yes	Yes
<b>Dimensions (H x W x D)</b>	24.5 x 17.25 x 18.4 in.	12.25 x 17.37 x 21.75 in	5.25 x 17.32 x 22.66 in	5.25 x 17.32 x 22.66 in	1.75 x 17.2 x 23.1 in
<b>Max Buffer Credits per port</b>	255 per port in the 16 port line card; 12 per port in the 32 port line card	Same as MDS 9509 Director	3500 per port on the base FC ports; 255 per port in the 16 port line card; 12 per port in the 32 port line card	255 per port in the 16 port line card and in the fixed module; 12 per port in the 32 port line card	255 per port (target-optimized ports); 12 per port (host-optimized ports)
<b>Port Channel</b>	Up to 16 ports per Port Channel across switching modules	Up to 16 ports per Port Channel across switching modules	Up to 16 ports per Port Channel across switching modules	Up to 16 ports per Port Channel across switching modules	Cisco MDS 9120: Up to 7 ports; Cisco MDS 9140: up to 15 ports
<b>Optics Support</b>	Fibre Channel Ethernet and CWDM	Same as MDS 9509 Director	Same as MDS 9509 Director	Same as MDS 9509 Director	Same as MDS 9509 Director
<b>HW enforced Zoning Support</b>	N_Port WWN, F_Port WWN, N_Port FCID, Port Broadcast,	Same as MDS 9509 Director	Same as MDS 9509 Director	Same as MDS 9509 Director	Same as MDS 9509 Director
<b>Default, LUN, Read Only Security</b>	Yes	Yes	Yes	Yes	Yes
	Role-based access control, VSAN-based access control, Port security, RADIUS, TACACS+, SNMPv3, FC-SP, SSH, SSL, SFTP and IPsec	Same as MDS 9509 Director	Same as MDS 9509 Director	Same as MDS 9509 Director	Role-based access control, VSAN-based access control, Port security, RADIUS, TACACS+, SNMPv3, FC-SP, SSH, SSL, and SFTP

## Selected Part Numbers and Ordering Information<sup>1</sup>

### MDS 9500 Base Configuration

DS-C9506	MDS 9506 Chassis
DS-C9506=	MDS 9506 Chassis, Spare
DS-C9509	MDS 9509 Chassis
DS-C9509=	MDS 9509 Chassis, Spare
DS-X9530-SF1-K9	MDS 9500 Supervisor/Fabric I
DS-X9530-SF1-K9=	MDS 9500 Supervisor/Fabric I, Spare

### MDS 9000 Modules

DS-X9016	MDS 9000 16-port 1 / 2 Gbps FC Module
DS-X9016=	MDS 9000 16-port 1 / 2 Gbps FC Module, Spare
DS-X9032	MDS 9000 32-port 1 / 2 Gbps FC Module
DS-X9032=	MDS 9000 32-port 1 / 2 Gbps FC Module, Spare
DS-X9032-SMV	MDS 9000 Advanced Services Module
DS-X9032-SMV=	MDS 9000 Advanced Services Module, Spare
DS-X9032-SSM	MDS 9000 Storage Services Module
DS-X9032-SSM=	MDS 9000 Storage Services Module, Spare
DS-X9302-14K9	MDS 9000 2-port GE and 14-port FC Module
DS-X9302-14K9=	MDS 9000 2-port GE and 14-port FC Module, Spare
DS-X9304-SMIP	MDS 9000 4-port 1GE IP Storage Services Module
DS-X9304-SMIP=	MDS 9000 4-port 1GE IP Storage Services Module, Spare
DS-X9308-SMIP	MDS 9000 8-port 1GE IP Storage Services Module
DS-X9308-SMIP=	MDS 9000 8-port 1GE IP Storage Services Module, Spare
DS-SFP-FC-2G-SW	2 Gbps Fibre Channel-SW SFP, LC
DS-SFP-FC-2G-SW=	2 Gbps Fibre Channel-SW SFP, LC, Spare
DS-SFP-FC-2G-LW	2 Gbps Fibre Channel-LW SFP, LC
DS-SFP-FC-2G-LW=	2 Gbps Fibre Channel-LW SFP, LC, Spare
DS-SFP-FCGE-SW	1 Gbps Ethernet and 2 Gbps Fibre Channel-SW SFP, LC
DS-SFP-FCGE-SW=	1 Gbps Ethernet and 2 Gbps Fibre Channel-SW SFP, LC, Spare
DS-SFP-FCGE-LW	1 Gbps Ethernet and 2 Gbps Fibre Channel-LW SFP, LC
DS-SFP-FCGE-LW=	1 Gbps Ethernet and 2 Gbps Fibre Channel-LW SFP, LC, Spare

### MDS 9500 Power Supplies and Cord Options

CAB-2500W-US1	Power Cord, 250VAC 20A, Straight C19, NEMA 6-20 Plug, US
CAB-2500W-US2	Power Cord, 250VAC 20A, Straight C19, NEMA L6-20 Plug, US
CAB-2500W-EU	Power Cord, 250VAC 16A, Straight C19, CEE 7/7 Plug, EU
CAB-2500W-INT	Power Cord, 250VAC 20A, Straight C19, IEC 309 Plug, INTL
CAB-2500W-SW	Power Cord, 250VAC 16A, Straight C19, 23G Plug, SWITZ
CAB-2500W-SA	Power Cord, 250VAC 16A, Straight C19, South Africa
DS-CAC-2500W	2500W AC Power Supply
DS-CAC-2500W=	2500W AC Power Supply, Spare
DS-CDC-2500W	2500W DC Power Supply
DS-CDC-2500W=	2500W DC Power Supply, Spare
DS-CAC-4000W-US	4000W AC Power Supply for US (cable attached)
DS-CAC-4000W-US=	4000W AC Power Supply for US (cable attached), spare
DS-CAC-4000W-INT	4000W AC Power Supply International (cable attached)
DS-CAC-4000W-INT=	4000W AC Power Supply International (cable attached), spare
DS-CAC-1900W	1900W AC Power Supply
DS-CAC-1900W=	1900W AC Power Supply, Spare

### Additional MDS 9500 Power Cord Options

CAB-1900W-US1	Power Cord, 250VAC 20A, Right Angle C19, NEMA 6-20 Plug, US
CAB-1900W-US2	Power Cord, 250Vac 20A, Right Angle C19, NEMA L6-20 Plug, US
CAB-1900W-EU	Power Cord, 250VAC 16A, Right Angle C19, CEE 7/7 Plug, EU
CAB-1900W-INT	Power Cord, 250Vac 20A, Right Angle C19, IEC 309 Plug, INTL
DS-CDC-1900W	1900W DC Power Supply
DS-CDC-1900W=	1900W DC Power Supply, Spare

### MDS 9500 Memory Options

MEM-MDS-FLD512M	MDS 9500 Sup Compact Flash Disk, 512MB
MEM-MDS-FLD512M=	MDS 9500 Sup Compact Flash Disk, 512MB, Spare

### MDS 9200 Base Configuration

DS-C9216-K9	MDS 9216 16-port 2Gbps FC + 1-slot Modular Switch
DS-C9216A-K9	MDS 9216A 16-port 2Gbps FC + 1-slot Modular Switch
DS-C9216i-K9	MDS 9216i 14-port FC and 2-port GE + 1-slot Modular Switch



### MDS 9200 Power Supplies and Cord Options

CAB-7KAC	AC Power Cord (North America)
CAB-7KACA	AC Power Cord (Australia)
CAB-7KACE	AC Power Cord (Europe)
CAB-7KACI	AC Power Cord (Italy)
CAB-7KACU	AC Power Cord (UK)
CAB-7KACR	AC Power Cord (Argentina)
CAB-7KACSW	AC Power Cord, 250VAC 10A, Straight C15, MP232 Plug, SWITZ
CAB-7KACSA	AC Power Cord (South Africa)
DS-CAC-845W	845W AC Power Supply
DS-CAC-845W=	845W AC Power Supply, Spare

### MDS 9100 Base Configuration

DS-C9140-K9	MDS 9140 40-Port Fibre Channel Fabric Switch
DS-C9120-K9	MDS 9120 20-Port Fibre Channel Fabric Switch
DS-CAC-300W	300W AC Power Supply
DS-CAC-300W=	300W AC Power Supply, Spare

### MDS Software

M95S1K9-1.3.4	MDS 9500 Supervisor/Fabric-I, Enterprise SW, Release 1.3.4
M92S1K9-1.3.4	MDS 9200 Supervisor/Fabric-I, Enterprise SW, Release 1.3.4
M91S1K9-1.3.4	MDS 9100 Supervisor/Fabric-I, Enterprise SW, Release 1.3.4
M95S1K9-2.0.1	MDS 9500 Supervisor/Fabric-I, SAN-OS Software Release 2.0.1
M92S1K9-2.0.1	MDS 9200 Supervisor/Fabric-I, SAN-OS Software Release 2.0.1
M91S1K9-2.0.1	MDS 9100 Supervisor/Fabric-I, SAN-OS Software Release 2.0.1

### MDS licensed features

M9500EXT1K9	FCIP license for 1 8-Port IP Storage module in MDS9500
M9500EXT1K9=	FCIP license for 1 8-Port IP Storage module in MDS9500, spare
M9200EXT1K9	FCIP license for 1 8-Port IP Storage module in MDS9200
M9200EXT1K9=	FCIP license for 1 8-Port IP Storage module in MDS9200, spare
M9500EXT14K9	FCIP license for 1 4-Port IP Storage module in MDS9500
M9500EXT14K9=	FCIP license for 1 4-Port IP Storage module in MDS9500, spare
M9200EXT14K9	FCIP license for 1 4-Port IP Storage module in MDS9200
M9200EXT14K9=	FCIP license for 1 4-Port IP Storage module in MDS9200, spare
M9500FIC1K9	MDS 9500 Mainframe Package license for 1 MDS 9500 switch
M9500FIC1K9=	MDS 9500 Mainframe Package license for 1 MDS 9500 switch, spare
M9200FIC1K9	MDS 9200 Mainframe Package license for 1 MDS 9200 switch
M9200FIC1K9=	MDS 9200 Mainframe Package license for 1 MDS 9200 switch, spare
M9500SSE1K9	Storage Services Enabler pkg: 1 ASM on 1 MDS9500
M9500SSE1K9=	Storage Services Enabler pkg: 1 ASM on 1 MDS9500, Spare
M9200SSE1K9	Storage Services Enabler pkg: 1 ASM on 1 MDS9200
M9200SSE1K9=	Storage Services Enabler pkg: 1 ASM on 1 MDS9200, Spare
M9500FMS1K9	MDS 9500 Fabric Manager Server license for 1 MDS 9500 switch
M9500FMS1K9=	MDS 9500 Fabric Manager Server license for 1 MDS 9500 switch, Spare
M9200FMS1K9	MDS 9200 Fabric Manager Server license for 1 MDS 9200 switch
M9200FMS1K9=	MDS 9200 Fabric Manager Server license for 1 MDS 9200 switch, Spare
M9100FMS1K9	MDS 9100 Fabric Manager Server license for 1 MDS 9100 switch
M9100FMS1K9=	MDS 9100 Fabric Manager Server license for 1 MDS 9100 switch, Spare
M9500ENT1K9	MDS 9500 Enterprise Package license for 1 MDS 9500 switch
M9500ENT1K9=	MDS 9500 Enterprise Package license for 1 MDS 9500 switch, spare
M9200ENT1K9	MDS 9200 Enterprise Package license for 1 MDS 9200 switch
M9200ENT1K9=	MDS 9200 Enterprise Package license for 1 MDS 9200 switch, spare
M9100ENT1K9	MDS 9100 Enterprise Package license for 1 MDS 9100 switch
M9100ENT1K9=	MDS 9100 Enterprise Package license for 1 MDS 9100 switch, spare
M9200EXT12K9	MDS 9200 14 + 2 SAN Extension over IP License, 1 count
M9200EXT12K9=	MDS 9200 14 + 2 SAN Extension over IP License, 1 count, spare
M9500EXT12K9	MDS 9500 14 + 2 SAN Extension over IP License, 1 count
M9500EXT12K9=	MDS 9500 14 + 2 SAN Extension over IP License, 1 count, spare

### Port Analyzer Adapter

DS-PAA-2	MDS 9000 Port Analyzer Adapter
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### Port Analyzer Adapter Power Cord Options

CAB-2WIRE-ARG	Power Cord, 250VAC 2.5A, C7 coupler, Argentina
CAB-2WIRE-AUS	Power Cord, 250VAC 2.5A, C7 coupler, BS 1363 plug, Australia
CAB-2WIRE-EU	Power Cord, 250VAC 2.5A, C7 coupler, EN 50075 plug, EU
CAB-2WIRE-US	Power Cord, 125VAC 3A, C7 coupler, NEMA 1-15P plug, US
CAB-2WIRE-UK	Power Cord, 250VAC 2.5A, C7 coupler, AS 3112 plug, UK

CAB-2WIRE-KOR	Power Cord, 250VAC 2.5A, C7 coupler, Korea
<b>Fiber Optic Cables</b>	
CAB-MM-LCLC-1M	Fiber Optic Cable, Multimode, LC/LC, 1 Meter
CAB-MM-LCLC-5M	Fiber Optic Cable, Multimode, LC/LC, 5 Meter
CAB-MM-LCLC-25M	Fiber Optic Cable, Multimode, LC/LC, 25 Meter
CAB-CP-SCLC-8IN	Fiber Optic Cable, Coupler, SC/LC, 8 Inch
CAB-CP-LCSC-2M	Fiber Optic Cable, Coupler, LC/SC, 2 Meter
<b>CWDM Solution</b>	
CWDM-SFP-1470=	1470 NM CWDM Gigabit Ethernet and 2 Gbps FC SFP
CWDM-SFP-1490=	1490 NM CWDM Gigabit Ethernet and 2 Gbps FC SFP
CWDM-SFP-1510=	1510 NM CWDM Gigabit Ethernet and 2 Gbps FC SFP
CWDM-SFP-1530=	1530 NM CWDM Gigabit Ethernet and 2 Gbps FC SFP
CWDM-SFP-1550=	1550 NM CWDM Gigabit Ethernet and 2 Gbps FC SFP
CWDM-SFP-1570=	1570 NM CWDM Gigabit Ethernet and 2 Gbps FC SFP
CWDM-SFP-1590=	1590 NM CWDM Gigabit Ethernet and 2 Gbps FC SFP
CWDM-SFP-1610=	1610 NM CWDM Gigabit Ethernet and 2 Gbps FC SFP
CWDM-MUX-4=	4 Wavelength Add/Drop MUX for CWDM-CHASSIS-2=
CWDM-MUX-8=	8 Wavelength Mux/Demux Plug in Module for CWDM-CHASSIS-2=
CWDM-CHASSIS-2=	2 Slot Chassis for CWDM Mux Plug in Modules
CAB-SM-LCSC-1M	Fiber Optic Cable, Single mode, LC/SC, 1 Meter
CAB-SM-LCSC-5M	Fiber Optic Cable, Single mode, LC/SC, 5 Meter

## For More Information

See the Cisco MDS 9000 Family Website: <http://www.cisco.com/go/storagenetworking>

## Additional Storage Networking Solutions

### Cisco MDS 9000 Port Analyzer Adapter—Reducing Time to Problem Resolution

The Cisco MDS 9000 Port Analyzer Adapter enables effective, low-cost analysis of Fibre Channel traffic anywhere in the network at any time, simplifying debug of network problems and reducing time to problem resolution. The device is a “plug-and-play” accessory for the Cisco MDS 9000 Family that enables simple, transparent analysis of Fibre Channel traffic in a switched fabric, eliminating the need for expensive standalone protocol analyzers.

### Cisco MDS 9000 Optical Modules—Optimizing SAN Interconnect

The Cisco MDS 9000 Family optical interface modules offer a broad range of SAN connectivity solutions for both local and extended reach. SFP modules for the Cisco MDS 9000 are available in either short-wave or long-wave options supporting Fibre Channel and Gigabit Ethernet connections over distances of up to 500 meters and 10 kilometers, respectively. Cisco CWDM SFPs and passive add/drop multiplexers provide cost-effective, multiprotocol, extended-distance connectivity by optimizing the use of the existing optical infrastructure.