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# Introduction

## Cisco Product Quick Reference Guide

### For companies of all sizes

Welcome to the **February 2009** edition of the Cisco Product Quick Reference Guide. This guide presents an overview of Cisco products, services, and solutions for every part of your business.

The guide is designed to help our partners, resellers, distributors, and sales account teams quickly learn about Cisco products, services, and solutions that are right for their customers. It is also ideal for end users, networking professionals, Cisco Networking Academy® members, and those studying for Cisco certification who need a broad, high-level overview of current Cisco products and services -- particularly when they lack an Internet connection.

A compact, portable, and easy-to-use reference, the guide summarizes information about many Cisco products and services sold through our channel partners, including brief product and service overviews, important features, technical specifications, part numbers, and ordering information.

### What's New in This Edition

Now you can find products even quicker by using the new built-in tabs. Also, you can easily find **\*NEW\*** Cisco products in the "At a Glance" section of each chapter. These new products include, but are not limited to: Cisco WebEx meeting applications, the Cisco CRS-1 Carrier Routing System, the Cisco Catalyst 2975 Series Switch, the Cisco Aironet 1140 Series Access Point, the Cisco Adaptive Wireless Intrusion Prevention System, the Cisco Unified Workspace, the Cisco Unified Messaging Gateway, Cisco Physical Security products, the Cisco Nexus 2000 and Nexus 1000v Series Switches, the Cisco TelePresence System 500 and TelePresence System 3200, the Cisco MXE 3000 Media Experience Engine, Cisco ONS 15310-MA SDH Platform, Cisco Video Surveillance cameras, and much more.

In addition, services information by technology has expanded and is included in each chapter. Cisco and our authorized partners offer services to help you with initial planning and design for new technology deployments, as well as protecting and extending your existing investments.

### For More Information

For questions or to register in the Cisco Product Quick Reference Guide Document Center, visit <http://www.cisco.com/go/guide>.

When you register in the Document Center, you will have access to PDF and HTML versions of the guide that you can download at no charge.

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# Cisco's Integrated Networks Approach to Business Solutions

With the breadth and scope of products and technologies detailed in this guide, it is obvious that Cisco has solutions for every area of a customer network. However, the power of Cisco is most evident when these products are delivered in an integrated network that, along with applications and services, delivers on today's business imperatives. To guide our customers and partners in delivering integrated network systems and solutions, Cisco engineering teams have designed, tested, and documented systems and solutions that provide a baseline to ensure faster, more reliable and more predictable customer deployments.

These system and solutions enable customers to do the following:

- Deliver network agility by lowering the risk of deploying technology solutions
- Increase the speed of technology solution deployment
- Deploy a scalable, reliable, predictable foundation on which to build business value and lower the total cost of ownership
- Ease technology solution integration in the campus, branch, and data center with higher and consistent quality assurance of product and solution
- Improve ease and success of deploying business-critical applications when enabled by Cisco network architectures
- Use Cisco Advanced Services to customize a design to meet specific business requirements

The systems and solutions designs are organized around the following:

- Network architectures—Branch office or WAN, campus and data center
- Technologies—Unified communications, mobility, security, and video
- Industries—Financial services, healthcare, retail, and manufacturing

To access the available design guidance, refer to the following:

- **Enterprise systems and solutions**—Design zone is a consolidated resource for design guides, application deployment guides, white papers, videos, and other technical reference materials. For more information, visit <http://www.cisco.com/go/designzone>.
- **Small and medium-sized business systems and solutions** —The SMB smart designs are validated commercial solutions designed primarily for partner success. They incorporate comprehensive solution implementation best practices in an easy-to-follow format to streamline the installation process, reduce deployment risk, and increase partner profitability. For more information, visit <http://www.cisco.com/go/partner/smartdesigns>.

# Product Warranty Information

All Cisco hardware and software products are covered for a minimum of 90 days. Some products have longer coverage periods. 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>	Entitlement Descriptions
<b>Cisco Standard 90-day Hardware Warranty, Software Warranty and License Agreement (78-523-vvrr)</b>	<ul style="list-style-type: none"> <li>• Warranty Duration: Ninety (90) days</li> <li>• Hardware Replacement: Cisco or its service center will use commercially reasonable efforts to ship a replacement part within ten (10) working days after receipt of the RMA request. Actual delivery times may vary depending on Customer location.</li> <li>• Software Warranty: Ninety (90) days</li> <li>• Warranty provides that the media on which the Software is furnished will be free of defects in materials and workmanship under normal use and that the Software substantially conforms to its published specifications.</li> <li>• Software is provided "AS IS" and in no event does Cisco warrant that the Software is error free or that Customer will be able to operate the Software without problems or interruptions.</li> <li>• Both hardware and software warranties commence from the date of shipment to customer (and in case of resale by a Cisco reseller, commencing not more than ninety (90) days after original shipment by Cisco).</li> <li>• Warranty allows guest access only to Cisco.com</li> </ul>
<b>Cisco 90-day Limited Hardware Warranty (78-5236-vvrr)</b>	<ul style="list-style-type: none"> <li>• Warranty Duration: Ninety (90) days</li> <li>• Hardware Replacement: Cisco or its service center will use commercially reasonable efforts to ship a replacement part within ten (10) working days after receipt of the RMA request. Actual delivery times may vary depending on Customer location.</li> <li>• Both hardware and software warranties commence from the date of shipment to customer (and in case of resale by a Cisco reseller, commencing not more than ninety (90) days after original shipment by Cisco).</li> <li>• Warranty allows guest access only to Cisco.com</li> </ul>
<b>Cisco One-year Limited Hardware Warranty (78-10747-vvrr)</b>	<ul style="list-style-type: none"> <li>• Warranty Duration: One (1) year</li> <li>• Hardware Replacement: Cisco or its service center will use commercially reasonable efforts to ship a replacement part within ten (10) working days after receipt of the RMA request. Actual delivery times may vary depending on Customer location.</li> <li>• Both hardware and software warranties commence from the date of shipment to customer (and in case of resale by a Cisco reseller, commencing not more than ninety (90) days after original shipment by Cisco).</li> <li>• Warranty allows guest access only to Cisco.com</li> </ul>
<b>Cisco Two-Year Limited Hardware Warranty (78-16341-vvrr)</b>	<ul style="list-style-type: none"> <li>• Warranty Duration: Two (1) years</li> <li>• Hardware Replacement: Cisco or its service center will use commercially reasonable efforts to ship a replacement part within ten (10) working days after receipt of the RMA request. Actual delivery times may vary depending on Customer location.</li> <li>• Both hardware and software warranties commence from the date of shipment to customer (and in case of resale by a Cisco reseller, commencing not more than ninety (90) days after original shipment by Cisco).</li> <li>• Warranty allows guest access only to Cisco.com</li> </ul>
<b>Cisco Limited Lifetime Hardware Warranty (78-6310-vvrr)</b>	<ul style="list-style-type: none"> <li>• Warranty Duration: As long as the original End User continues to own or use the Product, provided that: fan and power supply warranty is limited to five (5) years.</li> <li>• In the event of discontinuance of product manufacture, Cisco warranty support is limited to five (5) years from the announcement of discontinuance.</li> <li>• Hardware Replacement: Cisco or its service center will use commercially reasonable efforts to ship a replacement part within ten (10) working days after receipt of the RMA request. Actual delivery times may vary depending on Customer location.</li> <li>• Both hardware and software warranties commence from the date of shipment to customer (and in case of resale by a Cisco reseller, commencing not more than ninety (90) days after original shipment by Cisco).</li> <li>• Warranty allows guest access only to Cisco.com</li> </ul>
<b>Cisco End User Software License Agreement and Limited Software Warranty (78-3621-vvrr)</b>	<ul style="list-style-type: none"> <li>• Warranty Duration: Ninety (90) days</li> <li>• Warranty provides that the media on which the Software is furnished will be free of defects in materials and workmanship under normal use and that the Software substantially conforms to its published specifications.</li> <li>• Software is provided "AS IS" and in no event does Cisco warrant that the Software is error free or that Customer will be able to operate the Software without problems or interruptions.</li> <li>• Both hardware and software warranties commence from the date of shipment to customer (and in case of resale by a Cisco reseller, commencing not more than ninety (90) days after original shipment by Cisco).</li> <li>• The End User License Agreement grants to Customer a nonexclusive and nontransferable license to use for Customer's internal business purposes the Software and the Documentation for which the Customer has paid the required license fees.</li> <li>• Warranty allows guest access only to Cisco.com</li> </ul>

<b>5-Year Limited Hardware and 1-Year Limited Software Warranty (78-13712-vvrr)</b>	<ul style="list-style-type: none"> <li>• Hardware Warranty Duration: Five (5) years</li> <li>• Hardware Replacement: Cisco or its service center will use commercially reasonable efforts to ship a replacement part for delivery within fifteen (15) working days after receipt of the defective product at Cisco's site. Actual delivery times of replacement products may vary depending on Customer location.</li> <li>• Software Warranty Duration: One (1) year</li> <li>• Warranty provides that the media on which the Software is furnished will be free of defects in materials and workmanship under normal use and that the Software substantially conforms to its published specifications.</li> <li>• Software is provided "AS IS" and in no event does Cisco warrant that the Software is error free or that Customer will be able to operate the Software without problems or interruptions.</li> <li>• Both hardware and software warranties commence from the date of shipment to customer (and in case of resale by a Cisco reseller, commencing not more than ninety (90) days after original shipment by Cisco).</li> <li>• Warranty allows guest access only to Cisco.com</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>• Hardware Warranty Duration: Five (5) years</li> <li>• Hardware Replacement: Cisco or its service center will use commercially reasonable efforts to ship a replacement part for delivery within fifteen (15) working days after receipt of the defective product at Cisco's site. Actual delivery times of replacement products may vary depending on Customer location.</li> <li>• Software Warranty Duration: Five (5) years</li> <li>• Warranty provides that the media on which the Software is furnished will be free of defects in materials and workmanship under normal use and that the Software substantially conforms to its published specifications.</li> <li>• Software is provided "AS IS" and in no event does Cisco warrant that the Software is error free or that Customer will be able to operate the Software without problems or interruptions.</li> <li>• Both hardware and software warranties commence from the date of shipment to customer (and in case of resale by a Cisco reseller, commencing not more than ninety (90) days after original shipment by Cisco).</li> <li>• Warranty allows guest access only to Cisco.com</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

For more information about Cisco Hardware and Software Product Warranties, visit:

[http://www.cisco.com/en/US/products/prod\\_warranties\\_listing.html](http://www.cisco.com/en/US/products/prod_warranties_listing.html).

## Partner and Customer Support

### Pre- and Post-Sales Contact Information

Presales— Partner/Reseller Helpline	800 553-6387 408 526-7208 CiscoPartner.custhelp.com
Post-sales—Technical Assistance Center (TAC)	800 553-2447 (United States) 408 526-7209 (United States) +32 2 704 5555 (Europe) 1 800 805 227 (Australia) +61 2 8446 7411 (Asia/Pacific) <a href="http://www.cisco.com/en/US/support/tsd_cisco_worldwide_contacts.html">www.cisco.com/en/US/support/tsd_cisco_worldwide_contacts.html</a>

### Technical Support Email Addresses

English/Spanish	tac@cisco.com
Hanzi (Chinese)	chinese-tac@cisco.com
Kanji (Japanese)	japan-tac@cisco.com
Hangul (Korean)	korea-tac@cisco.com
Service Support Center (SSC)	cs-support@cisco.com; <a href="http://www.cisco.com/public/ssc/">www.cisco.com/public/ssc/</a> • Pre- and post-sales quoting assistance; Contract registration and access; Tool issues and navigation; SCC/SMS3 troubleshooting help; Contract Management Assistance; SCC registration/virtual registration

### Distributor SMARTnet Teams

Westcon-Comstor Group	smartnetgroup@comstor.com; 800 955 9590 ext. 5143
D&H	licensedesk@dandh.com; 800 340-1001
ScanSource	ciscoservice@scansource.com; 800 944-2439
Ingram Micro	myciscoteam@ingrammicro.com; 800 456-8000 ext. 76471
Tech Data	teamisco@techdata.com; 800 237-8931 ext. *77776

# Helpful Cisco Websites

## Partner Resources

Register with Cisco.com	Register to gain partner-level access to Cisco tools and information. <a href="https://tools.cisco.com/RPF/register/register.do">tools.cisco.com/RPF/register/register.do</a>
Partner Central	Explore the tools and resources that are available to Cisco partners. <a href="https://www.cisco.com/web/partners/index.html">www.cisco.com/web/partners/index.html</a>
Customized Partner Intelligence Newsletter	Subscribe to our partner newsletter featuring information that is most relevant to each individual partner company's particular business and technology needs. <a href="https://www.cisco.com/web/partners/news/index.html">www.cisco.com/web/partners/news/index.html</a>
Partner Self-Service	Manage company data including profile information and access privileges. <a href="https://tools.cisco.com/WWChannels/GETLOG/login.do">tools.cisco.com/WWChannels/GETLOG/login.do</a>
Partner Locator	Locate a qualified channel partner identified on the basis of specific criteria. <a href="https://tools.cisco.com/WWChannels/LOCATR/jsp/partner_locator.jsp">tools.cisco.com/WWChannels/LOCATR/jsp/partner_locator.jsp</a>
Distributor Locator	Locate a Cisco distributor in any country. <a href="https://tools.cisco.com/WWChannels/LOCATR/jsp/distributor_locator.jsp">tools.cisco.com/WWChannels/LOCATR/jsp/distributor_locator.jsp</a>
Channel Account Manager (CAM) Locator	Search for a Channels Account Manager assigned to a specific partner. <a href="https://tools.cisco.com/WWChannels/CAMLOC/jsp/cam_locator.jsp">tools.cisco.com/WWChannels/CAMLOC/jsp/cam_locator.jsp</a>
Partner Help Online—Direct FAQ access	Find answers to some commonly asked questions or open a case. <a href="https://ciscopartner.custhelp.com">ciscopartner.custhelp.com</a>
Ordering Website	To place orders for Cisco products and services: <a href="http://www.cisco.com/en/US/ordering/index.html">http://www.cisco.com/en/US/ordering/index.html</a>
Cisco SMB Smart Designs	SMB Smart Designs are Validated Commercial Solutions that incorporate comprehensive solution implementation best practices in an easy to follow format to streamline the installation process, reduce deployment risk, and increase partner profitability. <a href="https://www.cisco.com/go/partner/smartdesigns">www.cisco.com/go/partner/smartdesigns</a>

## Services and Support Resources

Cisco Services	Find detailed information about the services you need to protect and grow your technology investment. <a href="https://www.cisco.com/go/services">www.cisco.com/go/services</a>
Cisco Support Online	Easily access online documentation, technical tools, and resources from Cisco Support Online. <a href="https://www.cisco.com/go/support">www.cisco.com/go/support</a>
Cisco Service Finder	Match the right support service to the right product with the Cisco Service Finder. <a href="https://www.cisco.com/servicefinder.com/">www.cisco.com/servicefinder.com/</a>
End-of-Sale and End-of-Life Products	Stay up-to-date on products that are no longer being sold and might not be supported. <a href="https://www.cisco.com/en/US/products/prod_end_of_life.html">www.cisco.com/en/US/products/prod_end_of_life.html</a>
Return a Product	Information on return policies and RMA process. <a href="https://www.cisco.com/web/ordering/cs_info/or3/o32/Return_a_Product/WWRL_HOME.html">www.cisco.com/web/ordering/cs_info/or3/o32/Return_a_Product/WWRL_HOME.html</a>
RMAService Order Tools	Access tools and resources to streamline your service and parts logistics inquiries. <a href="https://tools.cisco.com/serviceordertools/svosubmit/tools.do">tools.cisco.com/serviceordertools/svosubmit/tools.do</a>
Cisco Support Wiki	Share information and collaborate in real time with users around the globe. Find the most up-to-date information on Cisco products and services. <a href="https://supportwiki.cisco.com">supportwiki.cisco.com</a>
Cisco Technical Services Newsletter	Sign up for your free subscription to our monthly newsletter with current updates on technical documentation, field notices and security alerts, as well as technical articles written by Cisco engineers and technical tips from your peers. <a href="https://www.cisco.com/go/tsnews">www.cisco.com/go/tsnews</a>
Cisco Networking Professionals Connection	Join your fellow networking professionals to discuss and share information on Cisco products and solutions. <a href="https://www.cisco.com/go/netpro">www.cisco.com/go/netpro</a>

## Trainings and Other Resources

Training Resources	Cisco offers training resources, career certifications and events to help you improve your skills and keep up with new technologies. <a href="https://www.cisco.com/web/learning/index.html">www.cisco.com/web/learning/index.html</a>
Cisco Networking Academy	Global e-learning program offers students an opportunity to pursue IT curricula through online instructor-led training and hands-on lab exercises. <a href="https://www.cisco.com/web/learning/netacad/index.html">www.cisco.com/web/learning/netacad/index.html</a>
Cisco Career Certifications	The widely respected Cisco Career Certifications and Training programs bring valuable, measurable rewards to network professionals, their managers, and the organizations that employ them. <a href="https://www.cisco.com/go/learnetspace">www.cisco.com/go/learnetspace</a>
Cisco Design Zone	Consolidated resource for design guides, application deployment guides, white papers, videos, and other technical reference materials. <a href="https://www.cisco.com/go/designzone">www.cisco.com/go/designzone</a>
Cisco Marketplace	The one stop shop for Cisco merchandise, including Cisco collateral and product documentation, logo merchandise, Cisco Press books, and software. <a href="https://www.cisco.com/go/marketplace">www.cisco.com/go/marketplace</a>
Cisco Press Bookstore	The only authorized publisher of Cisco, giving you access to industry experts and educators. Provides networking, business, and certification titles for your unique learning needs. <a href="https://www.cisco.com/go/marketplace">www.cisco.com/go/marketplace</a>

# Routing

## Routing At a Glance

Product	Features	Page
<b>INTEGRATED SERVICES ROUTERS</b>		
<b>Cisco 3800 Series Integrated Services Routers</b>	<p>Cisco 3800 Series Integrated Services Routers offer very high performance and densities with the ability to run concurrent data, security, voice, and advanced services at wire speeds up to T3/E3.</p> <ul style="list-style-type: none"><li>• These routers offer high availability and resiliency with online insertion and removal (OIR), redundant system and inline power options are available.</li><li>• High-speed HWICs free network-module slots for other services.</li><li>• Wireless LAN controller modules are a component of the Cisco Unified Wireless Network.</li></ul>	1–5
<b>Cisco 3200 Series Rugged Integrated Services Routers</b>	<p>These rugged, high-performance integrated services routers are designed for use in mobile and outdoor fixed environments to support voice, video, and data applications over Ethernet, serial, fiber (select 3270 models), &amp; multiple types of wireless interfaces.</p> <ul style="list-style-type: none"><li>• Rugged enclosures provide passive conduction cooling, alleviating the need for fans.</li><li>• The Cisco 3200 Series enclosure systems support wired interfaces, including RJ-45, asynchronous serial, synchronous serial (Cisco 3270 only), and universal serial bus (USB) (Cisco 3270 only).</li><li>• The routers are designed to industry-standard PC/104+ design for embedding routing applications in custom enclosure designs.</li><li>• The routers support enhanced security, quality of service (QoS), and mobility features using Cisco IOS Software.</li><li>• The Cisco 3200 Series supports IP telephony services using Cisco Unified Communications Manager Express (UCME).</li></ul>	1–7
<b>Cisco 2800 Series Integrated Services Routers</b>	<p>Cisco 2800 Series Integrated Services Routers are optimized for the secure, wire-speed delivery of concurrent data, voice, and video services for small and medium-sized business (SMB) and enterprise branch routing. They offer the following benefits:</p> <ul style="list-style-type: none"><li>• These routers offer superior performance, with multiple services enabled for 1 to 6 T1/E1 links.</li><li>• Advanced security features include Stateful Firewall, intrusion prevention system (IPS), VPN, and Cisco Network Admission Control (NAC).</li><li>• Built-in encryption uses Digital Encryption Standard (DES), Triple DES (3DES), and Advanced Encryption Standard (AES).</li><li>• Wireless LAN controller modules are a component of the Cisco Unified Wireless Network.</li></ul>	1–10
<b>Cisco 1800 Series Integrated Services Routers</b>	<p>Cisco 1800 Series Integrated Services Routers, in both modular and fixed architectures, offer a wide variety of LAN and WAN options. Network interfaces on the Cisco 1841 are field-upgradable for flexibility and to accommodate future technologies. These routers offer the following benefits:</p> <ul style="list-style-type: none"><li>• Fixed-configuration models offer 10/100 Ethernet, asymmetric DSL (ADSL) over ISDN, ADSL over basic telephone service, or G.SHDSL WAN interfaces with integrated ISDN Basic Rate Interface (BRI) (Cisco 1801, 1802, 1803, and 1812 models) or analog modem (Cisco 1811) backup interfaces.</li><li>• Unified Communications and integrated wireless LAN 802.11b/g is available with Cisco 1861 model</li></ul>	1–13
<b>Cisco 800 Series Router</b>	<p>Integrated services routers allow small offices to operate secure concurrent services, including firewall, VPNs, and wireless LANs at broadband speeds.</p> <ul style="list-style-type: none"><li>• Wireless support—Optional IEEE 802.11 b/g on Cisco 850 and 870 Series</li><li>• Enhanced security features including Stateful Inspection Firewall and hardware-assisted encryption</li><li>• Advanced features with threat defense capabilities, Intrusion Prevention System (IPS), and quality of service (QoS) for voice over IP (VoIP), (Cisco 870 Series)</li><li>• Demilitarized zone (DMZ), dial backup, &amp; out-of-band management (Cisco 870 Series)</li><li>• Cisco Router and Security Device Manager (SDM) GUI tool for simple and advanced configuration</li></ul>	1–19
<b>SERVICE AGGREGATION/CORE ROUTERS</b>		

<b>Cisco 7600 Series Routers</b>	Cisco 7600 Series Integrated Services Routers consolidate WAN, metropolitan-area network (MAN), and LAN in a single platform. They offer the following benefits: <ul style="list-style-type: none"> <li>• The routers offer high-volume aggregation of service-enabled Ethernet.</li> <li>• These routers are ideal for service provider edge, MAN, and quad-play (data, voice, video, and mobile) deployments and high-end enterprise solutions.</li> <li>• These routers support many Cisco Catalyst 6500 Series line cards and Cisco 7500 and Cisco 7200 port adapters.</li> <li>• The routers support a broad range of advanced services modules, such as IP Security (IPSec) shared port adapter (SPA), distributed denial of service (DDoS), firewall services modules (FWSMs), application control engines (ACEs) (server load balancing), and Wireless Controller Modules.</li> </ul>	1-22
<b>Cisco 7300 Series Routers</b>	<ul style="list-style-type: none"> <li>• Cisco 7304—This network edge router delivers high-performance IP services at optical speeds for service providers and enterprise networks.</li> <li>• Cisco 7301—This broadband and WAN edge router provides intelligent services, port-adaptor modularity, high performance, investment protection, and scalability in a 1-rack unit (1RU) form factor.</li> </ul>	1-24
<b>Cisco 7200 Series Routers</b>	This optimized OC-3/Gigabit Ethernet WAN-edge router provides intelligent services, high modularity, high performance, investment protection, and scalability in a small form factor. <ul style="list-style-type: none"> <li>• Choice of system processors (network processing engines [NPEs]) for up to 2-Mpps performance (Cisco 7201 comes with built-in NPE)</li> <li>• Built-in Gigabit Ethernet connectivity—Copper or fiber (three ports on Cisco uBR7200 Series NPE-G2 Network Processing Engine or four ports on the Cisco 7201)</li> </ul>	1-25
<b>Cisco ASR 1000 Series Aggregation Services Routers</b>	Cisco ASR 1000 Series routers offer service providers and enterprises industry-leading performance, service capabilities, reliability, and efficiencies in a compact form factor. Using an innovative Cisco QuantumFlow processor, current and future services can be instantly turned on to operate at line rate without compromising network performance or availability. <ul style="list-style-type: none"> <li>• For enterprises—Provides secure WAN aggregation services, integrated threat-defense services at the Private WAN or Internet edge, or can be used for managed CPE services.</li> <li>• For service providers—Provides flexible, cost-effective delivery of sophisticated any-play consumer and business services.</li> </ul>	1-27
<b>Cisco XR 12000 and 12000 Series Routers</b>	The Cisco XR 12000 and 12000 Series Routers are service provider-class multiservice-edge routers that help customers transition toward a converged IP network infrastructure. These routers offer the following benefits: <ul style="list-style-type: none"> <li>• The routers support edge-optimized line cards, maximizing the value of line-rate edge applications with 10-G uplinks while sustaining line-rate performance.</li> <li>• Up to nine chassis options are available, with new power supply and blower enhancements supporting a portfolio of shared port adapters (SPAs) and SPA interface processors (SIPs).</li> <li>• The routers offer service-related enhancements (Layer 3 VPN [L3VPN], L2VPN, and quality of service [QoS]) that help ensure traffic differentiation while meeting the strictest customer service-level agreements.</li> </ul>	1-28
<b>Cisco CRS-1 Carrier Routing System</b>	The Cisco CRS-1 Carrier Routing System is the industry's only carrier routing system offering continuous system operation, unprecedented service flexibility, and system longevity. <ul style="list-style-type: none"> <li>• Powered by Cisco IOS XR Software, it is designed for always-on operation while scaling system capacity up to 92 Tbps.</li> <li>• The Cisco CRS-1 marks a new era in carrier IP communications by powering the foundation for Cisco IP Next-Generation Networks (IP NGNs) today while protecting investments for decades to come.</li> </ul>	1-30
<b>SERVICES</b>		
<b>Cisco Routing Services</b>	Cisco Routing Services offers a robust portfolio that can help you align IT to the needs of the business, unify network-based services, and create a flexible architecture optimized for your organization.	1-32
<b>Product Ordering Website</b>		
To place an order or for more part numbers, visit: <a href="http://www.cisco.com/en/US/ordering/index.shtml">http://www.cisco.com/en/US/ordering/index.shtml</a> .		
This chapter only provides a small subset of all part numbers available. See the URL listed in the "For More Information" section of each product to get a complete list of part numbers.		

## Cisco Routers Port Matrix

	Intergrated Services Routers					Service Aggregation/Core Routers					
	3800 Series	3200 Series	2800 Series	1800 Series	800 Series	7600 Series	7304 Series	7200/7301 Series	ASR 1000Series	12000 Series	CRS-1 System
Fixed Ports Only		X			X						
Fixed & Modular Ports	X		X	X		X	X	X	X	X	X
Modular Ports Only											
<b>LAN Ports</b>											
10-Mbps Ethernet						X		X	X		
10-Mbps Ethernet (fiber)						X		X	X		
100-Mbps Ethernet	X	X	X	X		X		X	X	X	
100-Mbps Ethernet (fiber)	X	X <sup>1</sup>				X	X	X	X	X	
10/100-Mbps Ethernet	X	X	X	X	X	X	X	X	X	X	
10/100 Mbps Switch Port	X	X	X	X	X	X					
Cable DOCSIS 2.0	X		X	X	X						
Token Ring	X						X <sup>2</sup>	X			
ATM	X		X			X	X	X			
Gigabit Ethernet	X	X <sup>1</sup>	X <sup>3</sup>			X	X	X	X	X	X
10 Gigabit Ethernet						X			X	X	X
WDM 10 Gigabit Ethernet										X	X
<b>Wireless LAN</b>											
Integrated Standalone Access Point	X	X	X	X	X						
Wireless LAN Controller Module	X		X								
3G Wireless LAN HWIC		X	X	X <sup>4</sup>							
<b>WAN Ports</b>											
Sync Serial	X	X <sup>1</sup>	X	X		X	X	X	X		
Sync Serial w/ CSU	X		X	X			X				
ISDN BRI (S/T)	X	X	X	X	X			X			
ISDN BRI (U)	X		X	X				X			
ISDN PRI/Ch T1	X		X					X			
ISDN PRI w/ CSU	X		X					X			
Async	X	X	X	X							
Analog/POTS	X		X								
Integrated Modems	X	X	X	X							
Integrated Modem WICs	X		X	X							
HSSI	X	X				X	X	X			
DS3	X		X			X	X	X		X	X
ATM OC-3						X	X	X		X	X
ATM OC-12						X	X			X	X
ATM	X		X			X	X	X			X
ATM - T1/E1	X		X			X	X	X			
POS OC-x/STM-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				X	X
ADSL ADSL 2+, G.SHDSL			X	X	X						
ADSL over ISDN	X		X	X	X						
G.SHDSL	X		X	X	X						
IDSL	X		X	X							
DPT										X	X
<b>Voice Over IP (VoIP)</b>											
Analog Voice Interfaces	X		X	X <sup>5</sup>							
Digital Voice Interfaces	X		X	X <sup>5</sup>		X		X			

ISDN BRI Digital Voice Interfaces	X	X	X <sup>5</sup>		
<b>Integrated Switching</b>					
Integrated 4-port Switch		X			X
Integrated 8-port Switch		X <sup>1</sup>		X <sup>6</sup>	
Integrated 4-port Switch HWIC	X		X	X <sup>4</sup>	
Integrated 9-port Switch HWIC	X		X		
Integrated 16-port Switching	X		X <sup>7</sup>		
Integrated 24-port Switching	X		X <sup>8</sup>		
Integrated 36-port Switching	X		X <sup>9</sup>		
Integrated 48-port Switching	X		X		
Power over Ethernet (PoE)	X	X	X	X	X
<b>Application Acceleration (WAAS)</b>					
Wide Area Application Acceleration Modules	X		X		
<b>Security VPN</b>					
IPS	X	X	X	X	X
IPS Advanced Integration Module	X		X <sup>4</sup>		
IPS Network Module	X		X		
Network Admission Control Network Module	X		X		X
Encryption Advanced Integration Modules	X	X	X	X	X
Encryption Service Adapter				X	X
<b>Application Extension Platform (AXP)</b>					
Advanced Integration Module	X		X	X <sup>4</sup>	
Network Module	X		X		

1. Cisco 3271 Router only
2. Cisco 7301 Router only
3. Supported on the Cisco 2691 only
4. Cisco 1841 only
5. Cisco 1861 only
6. Except Cisco 1841
7. Cisco 2811, 2821, and 2851 only
8. Cisco 2821 and 2851 only
9. Supported on Cisco 2851 only

## Memory Information for Routers

Router	Memory Type	Slots	Default Memory	Max Memory	Default Configuration (Notes)
<b>815</b>	Flash	1	32 MB	64 MB	
	DRAM	1		128 MB	
<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 or 28 MB <sup>1</sup>	52 MB	20MB On board + 4MB or 8MB* Mini Flash
	DRAM	1	128 MB	256 MB	128 MB On board + 128MB DIMM module * Advanced IP Services image includes 28MB flash
<b>1800 Series</b>	Flash (1841)	1	32 MB	128 MB	External compact flash
	DRAM (1841)	1	128 MB	384 MB	128 MB on motherboard, plus one slot
	Flash (1861)		128 MB	128 MB	
	DRAM (1861)		256 MB	256 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>3200 Series</b>	Flash (3230)		32 MB	32 MB	
	Flash (3250)		32 MB	32 MB	
	Flash (3270)		64 MB	64 MB	
	DRAM (3230)		128 MB	128 MB	
	DRAM (3250)		128 MB	128 MB	
	DRAM (3270)		256 MB	256 MB	
<b>3800 Series</b>	Flash (External Compact Flash)	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>ASR 1000 Series</b>	ASR1002 DRAM		4 GB	4 GB	
	RP1 DRAM		2 GB	4 GB	
	ESP5 DRAM		1 GB	1 GB	
	ESP10 DRAM		2 GB	2 GB	
	ESP20 DRAM		4 GB	4 GB	
	ASR1002 eUSB		8 GB	8 GB	
<b>7200 Series</b>	Flash for 7201	1	256 MB	256 MB	
	Flash (PCMCIA) (for IO controller card; IO controller card required for NPE-400)	2	64 MB	128 MB	
	Flash for NPE-G1 (Compact Flash)	1	64 MB	256 MB	
	Flash for NPE-G2 (Compact Flash)	1	64 MB	256 MB	
	DRAM (NPE-400)	1	256 MB	256 MB	
	DRAM (NPE-G1)	2	512 MB	1 GB	
	DRAM (NPE-G2)	2	1 GB	2 GB	
	DRAM for 7201	2	256 MB	512 MB	
<b>7301 Series</b>	Flash (CFM)	1	64 MB	512 MB	
	DRAM	1	512 MB	1 GB	
<b>7304 NPE-G100</b>	Flash (CFM)	1	256 MB	256 MB	
	DRAM	1	512 MB	512 MB	
	Flash (CFM)	1	256 MB	256 MB	
<b>7304 NSE-150</b>	DRAM	1	1 GB	1 GB	
			2 GB	2 GB	
<b>7600 Series</b>	Flash (PCMCIA)	1	16 MB	512 MB	
	DRAM (MSFC2 or MSFC3)	1	128 MB	512 MB	
	DRAM (DFC)	1	128 MB	512 MB	
	DRAM (Sup720-3B)	1	512 MB	512 MB	
	DRAM (Sup720-3BXL)	1	1 GB	1 GB	
	DRAM (RSP720-3C)	1	1 GB	4 GB	
	DRAM (RSP720-3CXL)	1	1 GB	4 GB	
	DRAM (RSP720-3C-10G)	1	1 GB	4 GB	
	DRAM (RSP720-3CXL-10G)	1	1 GB	4 GB	
<b>XR 12000/12000 Series</b>	Flash (PCMCIA)	2	48 MB	4 MB	
	SDRAM (PRP-2)	1	2 GB	4 GB	Route Memory
	DRAM (Line Cards)	1/2	128-256 MB	256 MB-2 GB	
<b>CRS-1 Carrier</b>	Flash (PCMCIA)	1	1 GB	4 GB	
	DRAM (RP)	2	4 GB	4 GB	Route Memory
<b>Routing System</b>	DRAM (MSC)	2	2 GB	2 GB	Line Card Route Memory
	DRAM (MSC)	2	2 GB	2 GB	Line Card Packet Memory

1. Advanced IP Services image includes 28MB flash

## Cisco 3800 Series Integrated Services Routers

The Cisco 3800 Series Integrated Services Routers constitute the flagship platform in a portfolio of next-generation routers that integrate advanced technologies, adaptive services, wireless support, 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 voice over IP (VoIP), business video, and collaborative communications. Architectural enhancements include embedded security processing, significant platform performance and memory improvements, and new high-density interface types.

### Ideal for Companies that Need These Features

- Cisco 3825 Integrated Services Router—Low density (up to 88 ports), integrated 10/100 switching; up to 360W Cisco Inline Power, or Power over Ethernet (PoE); Integrated onboard security acceleration for IP Security (IPSec) for improved IPSec performance and an integral part of Cisco Self-Defending Network, which facilitate network device protection, threat defense, secure connectivity, and endpoint protection and control.

Cisco 3825 Integrated Services Routers are ideal for medium- to large-sized branch offices and businesses that can support concurrent data, security, voice, and advanced services at wire speed up to one-half T3/E3 rates.

- Cisco 3845 Integrated Services Router—Same features as above plus 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). Cisco 3845 Integrated Services Routers are ideal for medium- to large-sized branch offices and businesses, providing very high performance and densities for concurrent data, security, voice, and advanced services with the ability to run at wire speed up to T3/E3.

## Key Features

- Cisco IOS Firewall provides stateful, application-based filtering (context-based access control); per-user authentication and authorization; real-time alerts; a transparent firewall; and an IPv6 firewall.
- The Cisco 3845 Integrated Services Routers offer VPN services, including Data Encryption Standard (DES), Triple DES (3DES), and Advanced Encryption Standard (AES) 128, 192, and 256 cryptography support. They support embedded hardware-based VPN acceleration on the motherboard, and (optional) higher-performance AIM-based security acceleration with Layer 3 compression. The routers support up to 1800 tunnels with the VPN module, Cisco Easy VPN (remote and server), and Dynamic Multipoint VPN (DMVPN).
- The 3800 Series routers support Multiprotocol Label Switching (MPLS) VPNs. Specific provider-edge capabilities include Virtual Route Forwarding (VRF) firewall and VRF IP Security (IPsec).
- Onboard universal-serial-bus (USB) 1.1 port(s) offer future support for secure token and flash memory.
- More than 700 intrusion-prevention-system (IPS) signatures are supported in Cisco IOS Software, with the ability to load and enable selected IPS signatures. More than 1000 IPS signatures are available with the optional high-performance intrusion-detection-system (IDS) network module.
- Onboard URL filtering with an optional content-engine network module is provided. Local URL filtering occurs in Cisco IOS Software based on the external server.
- Cisco Router and Security Device Manager (SDM) comes standard on all Cisco 3800 Series Integrated Services Routers.
- Integrated IEEE 802.11 a/b/g standalone access-point high-speed WAN interface cards (HWICs) provide wireless support.
- Wireless LAN (WLAN) controller modules are a component of the Cisco Unified Wireless Network.
- The routers support IP phones through an optional integrated power supply with inline power. Standard 802.3af support derives from 360W of inline power.
- The routers offer analog voice support for up to 88 foreign-exchange-station (FXS) and 56 foreign-exchange-office (FXO) ports and digital voice support for up to 720 calls. The motherboard has 4 packet-voice-DSP-module (PVDM) slots. Finally, the routers support local conferencing and transcoding.
- Cisco Communications Manager Express software on these routers supports up to 240 phones; Cisco Survivable Remote Site Telephony (SRST) supports up to 720 phones.
- The routers have up to 120 mailboxes using a Cisco Unity Express network module.
- Voice interfaces support FXS, FXO, Direct Inward Dial (DID), Ear & Mouth (E&M), Centralized Automated Message Accounting (CAMA), Basic Rate Interface (BRI), T1, E1, J1, Primary Rate Interface (PRI), Q.SIG, and channel associated signaling (CAS).

## Specifications

Feature	Cisco 3825	Cisco 3845
<b>Network Module Slots</b>	2	4
<b>Advanced Integration Module (AIM) Slots</b>	2	Same As Cisco 3825
<b>High speed WAN Interface Card (HWIC) Slots</b>	4	Same As Cisco 3825
<b>10/100/1000 GE Ports</b>	2	Same As Cisco 3825
<b>Small Form Pluggable (SFP) ports</b>	1	Same As Cisco 3825
<b>Onboard PVDM slots</b>	4	Same As Cisco 3825
<b>WAN Network Modules</b>	Yes	Same As Cisco 3825
<b>ATM AIM Modules</b>	Yes	Same As Cisco 3825
<b>Voice/Fax Network Modules</b>	Yes	Same As Cisco 3825
<b>WAN Interface Card (WIC) Modules</b>	Yes	Same As Cisco 3825
<b>Multiflex Voice/WAN Interface Cards</b>	Yes	Same As Cisco 3825
<b>Voice Interface Card (VIC) Modules</b>	Yes	Same As Cisco 3825
<b>Modem Modules</b>	Yes	Same As Cisco 3825
<b>EtherSwitch Modules</b>	Yes, HWIC and Network Modules	Same As Cisco 3825
<b>Performance with Services</b>	Up to 14 T1/E1s	Up to T3

<b>VPN/Security Advanced Integration Modules (AIM)</b>	Yes, AIM-VPN/EP/II-PLUS	Yes, AIM-VPN/EP/II-PLUS
<b>Content Engine Network Modules</b>	Yes	Same As Cisco 3825
<b>Flash Memory (External)</b>	64 MB (default) -256 MB (optional)	Same As Cisco 3825
<b>DRAM Memory</b>	256 MB (default) - 1024 MB (max)	Same As Cisco 3825
<b>Power Supply</b>	AC, AC +POE, DC, external redundant AC	AC, DC, internal redundant AC + POE
<b>Dimensions (H x W x D)</b>	3.5 x 17.1 x 14.7 in.	5.25 x 17.25 x 16 in.

## Selected Part Numbers and Ordering Information

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

### Cisco 3800 Series Secure Voice 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/EP/II-PLUS, FL-CCME (168 users), 128 MB Flash/512 MB DRAM
C3845-VSEC/K9	Cisco 3845 Voice Security Bundle, PVDM2-64, Adv IP Services, 128MB Flash/512MB DRAM
C3825-VSEC/K9	Cisco 3825 Voice Security Bundle, PVDM2-64, Adv IP Services, 128MB Flash/512MB DRAM
C3845-VSEC-CCME/K9	Cisco 3845 VSEC Bundle, PVDM2-64, FL-CCME-240, Adv IP Services, 128MB Flash/512MB DRAM
C3825-VSEC-CCME/K9	Cisco 3825 VSEC Bundle, PVDM2-64, FL-CCME-168, Adv IP Services, 128MB Flash/512MB DRAM
C3845-VSEC-SRST/K9	Cisco 3845 VSEC Bundle, PVDM2-64, FL-SRST-240, Adv IP Services, 128MB Flash/512MB DRAM
C3825-VSEC-SRST/K9	Cisco 3825 VSEC Bundle, PVDM2-64, FL-SRST-168, Adv IP Services, 128MB Flash/512MB DRAM

### Cisco 3800 Series Security Bundles

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/HPII Plus, 128MB Flash/512 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/EP/II Plus, 128MB Flash/512 MB DRAM

### Cisco 3800 Series Voice Bundles

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

### Cisco 3800 Series WAAS Optimization Bundles

CISCO3825-WAE/K9	Cisco 3825, NME-WAE-502/K9, WAAS Trans, IPBase, 128F/512D
CISCO3845-WAE/K9	Cisco 3845, NME-WAE-502/K9, WAAS Trans, IPBase, 128F/512D

## For More Information

For more information about the Cisco 3800 Series Integrated Services Routers, visit: <http://www.cisco.com/go/3800>.

## Cisco 3200 Series Rugged Integrated Services Routers

The Cisco 3200 Rugged ISR is a rugged router that uses Cisco IOS Software to provide access, mobility, and interoperability across multiple wired and wireless networks. The Cisco 3200 Rugged Router has a flexible, compact form factor that is ruggedized to withstand harsh environments. It offers highly secure data, voice, and video communications in mobile and outdoor embedded networks. For mobile applications, standards-based Mobile IP delivers transparent roaming across multiple wireless networks capable of covering wide geographic



areas. The components can also be placed in customized enclosures or existing outdoor infrastructure to connect proprietary network devices with an IP network.

## Ideal for Companies that Need These Features

- Rugged routers for outdoors or inside vehicles where deployments require extra ruggedness to withstand high temperature ranges, shock and vibration, and moist or dusty environments
- Utility rugged router for IP enabling the electric power substations
- Embedded routers for use with Cisco or third-party custom enclosures
- Mobile applications where customers need transparent connectivity across multiple wireless networks

## Key Features

- The hardware architecture of the Cisco 3200 Rugged Router can be embedded in different system designs.
- The Cisco 3200 Rugged Router allows for designs in unique environments for mobile or fixed outdoor networks.
- PC/104-Plus architecture allows for the use of off-the-shelf third-party components for use with the Cisco 3230 Rugged Router.
- Extended temperature ranges of -40°F to +185°F (-40 to +85°C) are possible. (Temperature ranges for completed solutions depend on hardware configuration variables, including enclosures and third-party components.)
- The Cisco 3200 Rugged Router meets MIL-STD-810F and Society of Automotive Engineers (SAE) standards.
- The routers provide flexibility for deployment in many different environments where space, heat dissipation, and low power consumption are critical factors.
- The router design allows for added functions by stacking Cisco interface or third-party component cards into a hardware configuration.
- Third-party cards can give added use to provide various LAN or WAN functions, including security, computing, global positioning system (GPS), and cellular connectivity.
- Multiple LAN and WAN devices can be connected to standard 10/100 Ethernet or serial interfaces.
- IEEE 802.11a/b/g access points or bridge modes can be integrated with the rugged router.
- Integrated 2.4, 4.9, and 5-GHz wireless are configured as a bridge for WAN connectivity or as access points for wireless LAN connectivity.
- Cisco Unified Communications Manager Express supports up to 24 phones (Cisco 3230 and 3250 models) and 48 phones (Cisco 3270) for IP telephony services.
- Mobile IP offers transparent roaming for mobile networks, establishing a transparent Internet connection regardless of location or movement.
- IOS Firewall protection provides perimeter security when using public networks.
- Triple Digital Encryption Standard (3DES) and Advanced Encryption Standard (AES) encryption provide for highly secure VPNs when transmitting and receiving data over public networks.
- Intrusion detection monitors potential malicious activity within the network.

## Specifications

Feature	Cisco 3230	Cisco 3270
<b>Fixed USB 2.0 ports</b>	0	2
<b>Onboard Fast Ethernet (FE) ports</b>	1 - 10/100	2 - 10/100
<b>Onboard Copper Gigabit Ethernet Ports</b>	N/A	2 - 10/100/1000 on C3271MARC-TP 1 - 10/100/1000 on C3271MARC-FO-TP
<b>Onboard Fiber Optic ports</b>	N/A	1 - C3271MARC-FO-TP
<b>SFP</b>	N/A	LX - Single Mode 1000 SX - Multi-mode 1000
<b>Enclosure Slots</b>	7	14
<b>Integrated hardware-based encryption</b>	N/A	Yes
<b>Console port</b>	1-DB9	1-RJ45
<b>Auxiliary port</b>	1	1
<b>Minimum Cisco IOS Software release</b>	12.3(11)T	12.4(6)XE
<b>Rack mounting</b>	No	No
<b>Wall mounting</b>	Yes	Yes
<b>DC input current</b>	9-32VDC	9-32VDC
<b>AC input current</b>	No AC Power Option available	No AC Power Option available
<b>Operating temp (Enclosure systems)</b>	-40°F to 165°F; (-40°C to 74°C)	-40°F to 165°F; (-40°C to 74°C) (-40°C to +65° with Fiber option version)
<b>Operating humidity</b>	95 percent (± 4 percent) relative humidity	95 percent (± 4 percent) relative humidity
<b>Non operating temp</b>	-40°F to 185°F; (-40°C to 85°C)	-40°F to 185°F; (-40°C to 85°C)

<b>Dimensions (H x W x D)</b>	Height: 14.99 cm (5.89 in.) Width: 17.27 cm (6.82 in.) Depth: 20.32 cm (7.80 in.)	Height: 14.99 cm (5.89 in.) Width: 17.27 cm (6.82 in.) Depth: 41.66 cm (16.4 in.) (for Cisco 3270 fiber-optic model)
<b>Weight (configured)</b>	14.5 lbs (6.441 kg) (includes enclosure, MARC, SMIC, FESMIC, Mobile Router Power Card [MRPC], and 2 WMICs)	18.9 lb (8.6 kg) (enclosure with Cisco 3270 router card, MRPC, SMIC, FESMIC, and 3 WMICs)
<b>EMC</b>	47 CFR Part 15: 2002; CISPR22: 1993 [Inc amd 1 & 2]; CISPR22: 1997; EN300386: 2001; EN50082-1: 1992; EN50082-1: 1997; EN55022: 1994 [Inc amd 1 & 2]; EN55022: 1998; EN61000-3-2: 2000; EN61000-3-3: 1995; Resolution 237: 2000	
<b>Immunity</b>	CISPR24: 1997 [+ amd 1: 2001]; EN300386: 2001; EN301 489-1: 2000; EN301 489-1: 2000; EN50082-1: 1992; EN50082-1: 1997; EN55024: 1998 [+ amd 1: 2001]; EN61000-3-2: 2000; EN61000-3-3: 1995; EN61000-6-1: 2001; Resolution 237: 2000	

## Selected Part Numbers and Ordering Information

<b>Cisco 3200 Rugged Enclosure Bundles</b>	
C3230ENC-K9	3230 bundle w/ rugged enclosure fully assembled with no WMICs
C3230ENC-1WMIC-K9	3230 bundle w/ rugged enclosure fully assembled with (1) WMIC (WMIC is selectable option)
C3230ENC-2WMIC-K9	3230 bundle w/ rugged enclosure fully assembled with (2) WMICs (WMICs are selectable options)
C3230ENC-3WMIC-K9	3230 bundle w/ rugged enclosure fully assembled with (3) WMICs (WMICs are selectable options)
C3230ENC-1W-49-K9	3230 bundle w/ rugged enclosure fully assembled with (1) 4.9GHz WMIC for U.S.
C3230ENC-24-49-K9	3230 bundle w/ rugged enclosure fully assembled with (1) 2.4GHz & (1) 4.9GHz WMIC for U.S.
C3230ENC-2W24-49K9	3230 bundle w/ rugged enclosure fully assembled w/ (2) 2.4GHz WMICs & (1) 4.9GHz WMIC for US
C3230ENC-3W-49-K9	3230 bundle w/ rugged enclosure fully assembled with (3) 4.9GHz WMICs for U.S.
C3230ENC-2WMICE-K9	3230 bundle w/ rugged enclosure fully assembled with (2) 2.4GHz WMICs for most of Europe
C3230ENC-3WMICE-K9	3230 bundle w/ rugged enclosure fully assembled with (3) 2.4GHz WMICs for most of Europe
C3230ENC-2WJ-K9	3230 bundle w/ rugged enclosure fully assembled with (2) 2.4GHz WMICs for Japan
C3230ENC-2WJ10-K9	3230 bundle w/ rugged enclosure fully assembled with (2) 2.4GHz WMICs for Japan (10mW)
C3270ENC-FO-K9	Cisco 3270 bundle w/enclosure, Fiber
C3270ENC-1W-FO-K9	Cisco 3270 bundle w/enclosure, Fiber & 1WMIC
C3270ENC-2W-FO-K9	Cisco 3270 bundle w/enclosure, Fiber & 2WMIC
C3270ENC-3W-FO-K9	Cisco 3270 bundle w/enclosure, Fiber & 3WMIC
C3270ENC-K9	Cisco 3270 bundle w/enclosure, 2GE
C3270ENC-1W-K9	Cisco 3270 bundle w/enclosure, 2GE & 1WMIC
C3270ENC-2W-K9	Cisco 3270 bundle w/enclosure, 2GE & 2WMIC
C3270ENC-3W-K9	Cisco 3270 bundle w/enclosure, 2GE & 3WMIC
<b>Cisco 3200 Card Bundles</b>	
CISCO3220	Contains CISCO3220MARC, CISCO3201TSMIC, CISCO3201TFESMIC
C3220-1WMIC-K9	Contains CISCO3220MARC, CISCO3201TSMIC, CISCO3201TFESMIC, plus C3201WMIC-x-K9 selectable option
C3230-K9	3230 bundle with MARC, 4-port SMIC, & 4-port FESMIC (no WMICs)
C3230-1WMIC-K9	3230 bundle with (1) WMIC (WMIC is selectable option)
C3230-2WMIC-K9	3230 bundle with (2) WMICs for N. America (WMICs are selectable options)
C3230-3WMIC-K9	3230 bundle with (3) WMICs (WMIC are selectable options)
C3230-1W-49-K9	3230 bundle with (1) 4.9GHz WMIC for U.S.
C3230-24-49-K9	3230 bundle with (1) 2.4GHz WMIC for N. America & (1) 4.9GHz WMIC for U.S.
C3230-2W24-49-K9	3230 bundle with (2) 2.4GHz WMICs for N. America & (1) 4.9GHz WMIC for U.S.
C3230-3W-49-K9	3230 bundle with (3) 4.9GHz WMICs for U.S.
C3230-2WMICE-K9	3230 bundle with (2) 2.4GHz WMICs for most of Europe
C3230-3WMICE-K9	3230 bundle with (3) 2.4GHz WMICs for most of Europe
C3230-2WMICJ-K9	3230 bundle with (2) 2.4GHz WMICs for Japan
C3230-2WMICJ10-K9	3230 bundle with (2) 2.4GHz WMICs (10mW) for Japan
C3231-1WMIC-K9	Contains C3231MARC, CISCO3201FESMIC, C3201WMIC-E-K9
C3231-K9	Contains C3231MARC, CISCO3201FESMIC
C3231TP-1WMIC-K9	Contains C3231MARC-TP, C3201FESMIC-TP, C3201MRPC-TP, (1) C3201WMIC-TPxK9 (WMIC is selectable option)
C3231TP-2WMIC-K9	Contains C3231MARC-TP, C3201FESMIC-TP, C3201MRPC-TP, (2) C3201WMIC-TPxK9 (WMIC is selectable option)

## For More Information

For more information about the Cisco 3200 Series Rugged Integrated Services Routers, visit: <http://www.cisco.com/go/3200>.