



# 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	9-3
<b>Cisco SOHO Series Secure Broadband Routers</b>	<ul style="list-style-type: none"> <li>Ethernet, ADSL, ADSL over ISDN, and G.SHDSL Routers for Small Office and Home Offices</li> <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>	1-8
<b>Cisco 800 Series</b>	<ul style="list-style-type: none"> <li>WAN: 1-port Ethernet, 1-port ADSL, ADSL over ISDN or G.SHDSL or 1-port BRI (optional NT1), 1-9 or 1-port serial</li> <li>LAN: 4-port Ethernet hub or 10/100 switch on most models and 2 analog telephone ports on ISDN models and 4 analog voice FXS ports on 827-4V</li> <li>Advanced security features including stateful inspection firewall and hardware assisted encryption (830 series) and QoS features for VoIP</li> <li>DMZ, Dial back up and out-of-band management (Cisco 830 series)</li> <li>Security Device manager (SDM) GUI tool for simple and advanced configuration</li> </ul>	1-9
<b>Cisco 1800 Series</b>	<ul style="list-style-type: none"> <li>Features secure, fast, and high-quality delivery of multiple, concurrent services for small-to-medium-sized businesses and small enterprise branch offices.</li> <li>Supports concurrent deployment of high-performance, secure data services with headroom for future applications</li> <li>Modular architecture—Offers wide variety of LAN and WAN options; network interfaces are field-upgradeable to accommodate future technologies</li> </ul>	1-11
<b>Cisco 1700 Series</b>	<ul style="list-style-type: none"> <li>Flexible, secure, modular access routers</li> <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>	1-14
<b>Cisco 2800 Series</b>	<ul style="list-style-type: none"> <li>MIPS CPUs for increased performance</li> <li>FIO ASIC-A custom designed ASIC—acts as a non-blocking switch for multiple busses</li> <li>Enhanced memory bus using Double data Rate (DDR) SDRAM with Error Correcting Code</li> <li>Built in hardware encryption chip accelerating IPSEC traffic</li> <li>A minimum of 2 built in Fast Ethernet (FE) LAN interfaces</li> </ul>	1-18
<b>Cisco 2600 Series</b>	<ul style="list-style-type: none"> <li>Modular multiservice router</li> <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 and network modules with Cisco 1700, 3600 and 3700 series</li> <li>Optional AC, DC or RPS versions</li> </ul>	1-24
<b>Cisco 3800 Series</b>	<ul style="list-style-type: none"> <li>Integrated Services Routers</li> <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 ECC (Error Correction Code) DDR SDRAM memory to detect and correct SDRAM errors without user intervention</li> </ul>	1-29

Product	Features	Page
<b>Cisco 3700 Series</b>	<p>Modular multiservice high-density access router</p> <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/IDS and VPN, Fractional and channelized T1/E1, T3/E3, DS3, E3 and OC-3 ATM, Ethernet, Gigabit Ethernet and DSL</li> <li>• Shares WAN interface cards (WICs), Voice Interface Cards (VICs), and Network Modules with Cisco 1700, 2600/2600XM, and 3600 series</li> </ul>	1-32
<b>Cisco 7200 Series</b>	<p>WAN-edge router providing intelligent services, modularity, high performance, investment protection, and scalability in a small form factor</p> <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>	1-36
<b>Cisco 7300 Series</b>	<p>Network Edge router with high performance IP services delivered at optical speeds for service providers and enterprise networks</p> <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>	1-38
<b>Cisco 7500 Series</b>	<p>High-end services-enabled core and WAN aggregation router for enterprise and service provider applications</p> <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>	1-40
<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 NxDSO, 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>	1-43
<b>Cisco 10000 Series</b>	<p>Service provider-class edge services router</p> <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 maximizing end-customer satisfaction with its 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>	1-45
<b>Cisco 10700 Series</b>	<p>Service provider-class metro edge services router</p> <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>• Powered by Cisco IOS 12.0S software and the parallel express forwarding (PXF) architecture</li> <li>• Cost-effective, reliable, high-performance platform supporting full suite of IP/MPLS features and services found in Cisco Internet Routers</li> <li>• With DPT/RPR architecture, enables optimal fiber connectivity as well as features such as IP class of service, VoIP, L2 VPN (EoMPLS and L2TPv3) and L3 VPN (MPLS) services</li> </ul>	1-47
<b>Cisco 12000 Series</b>	<ul style="list-style-type: none"> <li>• Seven chassis options</li> <li>• Supports backbone—or edge-optimized line cards in the same chassis, maximize the value of line-rate edge applications with 10G uplinks, and sustained line-rate performance as they scale to maximum capacity</li> <li>• Extensive portfolio of line cards</li> </ul>	1-49

## Cisco Routers Port Matrix

	SOHO 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	10720 Series	12000 Series
Fixed Ports Only	X	X	X													
Fixed & Modular Ports			X	X	X		X	X	X	X	X		X			
Modular Ports Only										X		X		X	X	X
<b>LAN Ports</b>																
10-MB Ethernet	X	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
100-MB Ethernet (fiber)							X	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	
10/100 MB Switch Port	X	X	X	X									X			
Token Ring					X			X	X			X				
FDDI/CDDI												X				
ATM					X		X	X		X	X	X	X	X		
Gigabit Ethernet							X	X	X	X	X	X	X	X	X	X
<b>WAN Ports</b>																
Sync Serial		X	X	X	X		X	X		X	X	X	X			
Sync Serial w/ CSU			X	X	X		X	X						X		
ISDN BRI (S/T)		X	X	X	X		X	X	X	X	X					
ISDN BRI (U)		X	X	X	X		X	X	X	X	X					
ISDN PRI/Ch T1					X		X	X	X	X	X		X			
ISDN PRI w/ CSU					X		X	X		X	X					
Async	X	X	X	X	X		X	X								
Analog/POTS		X			X		X	X								
Integrated Modems			X	X	X		X	X								
Integrated Modem WICs			X	X	X		X	X								
HSSI					X <sup>1</sup>		X	X	X	X		X	X			
DS3					X		X	X	X	X	X	X	X	X		X
ATM OC-3					X <sup>1</sup>		X		X	X	X	X	X	X		X
ATM OC-12									X		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			
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	X
DPT/RPR OC-192/STM-64																X
ADSL	X	X	X	X	X		X	X								
ADSL over ISDN	X	X	X	X	X		X	X								
G.SHDSL	X	X	X	X	X		X	X								
IDSL		X	X	X	X		X	X								
DPT										X		X	X	X	X	X
<b>Voice Over IP</b>																
Analog Voice Interfaces		X	X <sup>2</sup>		X		X	X								
Digital			X <sup>2</sup>		X		X	X		X	X	X	X			

	SOHO 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	10720 Series	12000 Series
ISDN BRI Digital Voice Interfaces			X <sup>2</sup>		X		X			X						
<b>Integrated Switching</b>																
Integrated 4-port Switching			X	X												
Integrated 16-port Switching					X		X	X								
Integrated 36-port Switching							X	X								
Inline Power					X <sup>3</sup>		X	X								
<b>Content Acceleration</b>																
Content Engine					X		X	X					X			
<b>Security VPN</b>																
IDS		X	X	X	X		X	X	X	X			X			
Encryption Advanced Integration Modules				X	X		X	X					X			
Encryption Network Module		X	X				X			X			X			

1. Supported on the 2691 only
2. Cisco 1751 and Cisco 1760 only
3. 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>801, 802, 803, and 804</b>	Flash	1	8 MB	12 MB	4 MB on board and 4 MB or 8 MB Mini flash card 4 MB on board and 4 MB or 8 MB DIMM module
	DRAM	1	8 MB	12 MB	
<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 8MB on board and 4MB or 8MB DIMM Module
	DRAM	1	8 MB	16 MB	
<b>827-4V</b>	Flash	1	12 MB	16 MB	8 MB On board + 4 MB or 8 MB Mini Flash 16 MB Onboard and 32 MB DIMM module
	DRAM	1	48 MB	48 MB	
<b>828</b>	Flash	1	8 MB	16 MB	8 MB On board flash 16MB On board DRAM + 4MB, 8MB or 16MB DIMM module
	DRAM	1	24 MB	32 MB	
<b>831, 836, 837</b>	Flash	1	12 MB	24 MB	8MB On board + 4MB, 8MB or 16MB Mini Flash 32MB On board + 16MB DIMM module
	DRAM	1	48 MB	48 MB	
<b>1711 and 1712</b>	Flash	1	32 MB	32 MB	
	DRAM	1	64 MB	128 MB	
<b>1721</b>	Flash	1	32 MB	32 MB	
	DRAM	1	64 MB (On board)	128 MB	
<b>1751</b>	Flash	1	32 MB	32 MB	
	DRAM	1	64 MB	128 MB	
<b>1760</b>	Flash	1	32 MB	64 MB	
	DRAM	1	64 MB	128 MB	
<b>1800 Series<sup>1</sup></b>	Flash	1	32 MB	128 MB	
	DRAM	1	256 MB	384 MB	
<b>2500 Series</b>	Flash	2	8 MB	16 MB	Slot 0 = 8 MB
	DRAM	1	4 MB	16 MB	

Router	Memory Type	Slots	Default		Default Configuration (Notes)
			Memory	Max Memory	
<b>2600 Series</b>	Flash (261xXM, 262xXM, 265xXM)1		32 MB	48 MB	16 MB on Mother Board; Slot 0 = 32 MB
	Flash (2612)				
	Flash (2691)	1	8 MB	16 MB	Slot 0 = 8 MB
	DRAM (261XM, 262xXM)	2	32 MB	128 MB	Slot 0 = 32 MB
	DRAM (265xXM)	2	128 MB	256 MB	Slot 0 = 128 MB; Slot 1 = empty
	DRAM (2612)	2	128 MB	256 MB	Slot 0 = 128 MB; Slot 1 = empty
	DRAM (2691)	2	32MB	64 MB	Slot 0 = 128 MB; Slot 1 = empty
		2	256 MB	256 MB	Slot 0 = 128 MB; Slot 1 = 128 MB
<b>2800 Series</b>	DRAM (2801)		128 MB	384 MB	
	DRAM (2811)		256 MB	760 MB	
	DRAM (2821)		256 MB	1 GB	
	DRAM (2851)		256 MB	1 GB	
	Compact Flash (2801)		64 MB	128 MB	
	Compact Flash (2811)		64 MB	256 MB	
	Compact Flash (2821)		64 MB	256 MB	
	Compact Flash (2851)		64 MB	256 MB	
<b>3700 Series</b>	Flash (Internal)	1	32 MB	128 MB	
	Flash (External)	1	0 MB	32-128 MB	
	DRAM (SoDIMM)	2	256 MB	256 MB	Slot 0 = 128 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	Single 256 MB SDRAM default
<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	
<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
DRAM (NPE-G1)	1	256 MB	1 GB	Slot 0 = 128 MB SoDIMM, Slot 2 = 128 MB SoDIMM	
<b>7300 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 (PCMCIA)	2	48 MB	128 MB	1 x 48MB ships as default; 128MB is optional
	Flash (Internal)	1	32 MB	32 MB	
	Shared (PRE-1)	1	128 MB	128 MB	
	DRAM (PRE-1)	1	512 MB	512 MB	

Router	Memory Type	Slots	Default		Default Configuration (Notes)
			Memory	Max Memory	
10700 Series	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	
12000 Series	Flash (PCMCIA)	2	20 MB	20 MB	
	DRAM (GRP-B)	1/2	128 MB	512 MB	Route Memory
	SDRAM (PRP-1)	1/2	512 MB	1 GB	Route Memory
	DRAM (Line Cards)	1/2	128-256 MB	256-512 MB	Route Memory (line card dependent)
	SDRAM (Line Cards)	1/2	128-256 MB	256-512 MB	Packet Memory (line card dependent)
	Shared (PRE-2)	1	128 MB	128 MB	
	DRAM (PRE-2)	1	512 MB	512 MB	

1. Cisco 1800 Series default memory listed is based on overall series offerings. For exact memory listing, see Cisco 1800 Series web site at <http://www.cisco.com/go/ISR>

## Cisco 7000 Series Port Adapter Compatibility Matrix

Port Adapter	7200VXR	7301	7304	7400	7500	7600
			Carrier Card			
<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	•	–	–	–	•	–

Port Adapter	7304 Carrier Card					
	7200VXR	7301	7400	7500	7600	
PA-F-MM/SM: 1-port FDDI full duplex multimode/single-mode port adapter	–	–	–	•	–	–
PA-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)
<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-SMI: 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>						

Port Adapter	7304 Carrier Card					
	7200VXR	7301	7400	7500	7600	
PA-POS-0C3-MM: 1-port packet/SONET OC-3c/STM1 multimode port adapter	•	•	•	•	•	• (Native)
<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-0C12SMI: DPT-0C-12 single-mode intermediate PA	•	–	–	–	–	–
PA-SRP-0C12SMX: DPT-0C-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 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

- 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
<b>Fixed LAN Ports</b>	4-port 10/100 Switch	4-port 10/100 Switch	4-port 10/100 Switch	4-port Ethernet hub (10BASE-T)
<b>Fixed WAN Ports</b>	1-port Ethernet (connects to external DSL or cable modem)	1-port ADSL over ISDN	1-port ADSL over POTS	1-port G.SHDSL
<b>Flash Memory</b>	8 MB	8 MB	8 MB	8 MB
<b>DRAM Memory</b>	32 MB	32 MB	32 MB	16 MB
<b>Dimensions (HxWxD)</b>	2.0 x 9.7 x 8.5 in.	2.0 x 9.7 x 8.5 in.	2.0 x 9.7 x 8.5 in.	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 Web site: <http://www.cisco.com/go/soho90>

## Cisco 800 Series

The Cisco 800 series router provides enhanced network security 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 who Cisco IOS-based networks who want to add telecommuters
- 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)

## Key Features

- Fixed configuration support for several types of WAN connections
- 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 based on Cisco 830s and AES encryption on Cisco 830s). Also includes security features like IDS, 802.1x, Dynamic Multipoint VPN (DMVPN), EasyVPN and others
- Dial backup via aux/console port on the 830 routers
- Dial backup via integrated ISDN port on the 836
- X.25 over D-channel support on 836
- DMZ interface on all 830 routers
- Toll quality voice with VoIP on Cisco 827-4V. Advanced QoS Features for prioritized voice
- Integrated 4-port 10/100 Ethernet Switch on Cisco 830 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

- |  |   |
|--|---|
| <ul style="list-style-type: none"> <li>• 3Com: Office Connect Remote 511/521</li> <li>• Alcatel: Speed Touch Pro Routers</li> <li>• Ascend: Pipeline 75/85</li> <li>• Efficient: 5861 / 5660</li> <li>• Intel: Express 8100</li> </ul> | <ul style="list-style-type: none"> <li>• Netopia: R3100, R6100, 4533</li> <li>• Nortel/Bay: Nautica 250</li> <li>• Nokia: MW1352</li> <li>• Zyxel: 782</li> <li>• Linksys: Etherfast</li> </ul> |
|--|---|

## Specifications

Feature	801	802	803	804	811	813
<b>Fixed LAN Port Connections</b>	1-port Ethernet (10BASE-T)	1-port Ethernet (10BASE-T)	4-port Ethernet hub (10BASE-T)	4-port Ethernet hub (10BASE-T)	1-port Ethernet (10BASE-T)	4-port Ethernet hub (10BASE-T)
<b>Fixed WAN Port Connections</b>	1-port ISDN BRI (S/T)	1-port ISDN BRI (U) NT-1	1-port ISDN BRI (S/T) 2 analog ports	1-port ISDN BRI (U) NT-1 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
<b>Flash Memory</b>	8MB (default) 12 MB (max)	8MB (default) 12 MB (max)	8MB (default) 12 MB (max)	8MB (default) 12 MB (max)	4MB (default) 12MB (max)	8MB (default) 12MB (max)
<b>DRAM Memory</b>	8MB (default) 12MB (max)	8MB (default) 12MB (max)	8MB (default) 12MB (max)	8MB (default) 12MB (max)	8MB (default) 16MB (max)	8MB (default) 16MB (max)
<b>Dimensions (HxWxD)</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	Same as Cisco 801	Same as Cisco 801

Feature	805	827-4V	828	831	836	837
<b>Fixed LAN Port Connections</b>	1-port Ethernet (10BASE-T)	1-port Ethernet (10BASE-T)	4-port Ethernet hub (10BASE-T)	4-port Ethernet switch (10BASE-T)	1-port Ethernet switch (10BASE-T)	4-port Ethernet switch (10BASE-T)
<b>Fixed WAN Port Connections</b>	1-port Serial (Up to 512 Kbps)	1-port ADSL	1-port G.SHDSL	1-port Ethernet	1-port ADSL-over-ISDN, 1-port ISDN S/T	1-port ADSL over POTS
<b>Flash Memory</b>	8MB (default) 12MB (max)	12MB (default) 16MB (max)	8MB (default) 16MB (max)	12MB (default) 24MB (max)	12MB (default) 24MB (max)	12MB (default) 24MB (max)
<b>DRAM Memory</b>	8MB (default) 16MB (max)	48MB (default) 48MB (max)	24MB (default) 32MB (max)	48MB (default) 48MB (max)	48MB (default) 48MB (max)	48MB (default) 48MB (max)
<b>Dimensions (HxWxD)</b>	2.0 x 9.9 x 8.3 in. (5.1 x 25.2 x 21.1 cm)	Same as Cisco 805	Same as Cisco 805	2.0 x 9.7 x 8.5 in.	2.0 x 9.7 x 8.5 in.	2.0 x 9.7 x 8.5 in.

## 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
CISCO802	1-port 10BASE-T, 1-port BRI (U) w/ NT-1, IP s/w
CISCO803	4-port 10BASE-T hub, 1-port BRI (S/T), 2-port POTS, IP s/w
CISCO804	4-port 10BASE-T hub, 1-port BRI (U) w/ NT-1, 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
CISCO827-4V	1-port ADSL, 1-port 10BASE-T, 4 ports FXS, IP/Voice s/w
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

### Cisco 800 Series CD Feature Packs

CD08-BHL-12.0.7XV=	Cisco 800 Series IP/IPX/FW Plus IPSec 56
CD08-BP-12.0.7XV=	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 Web site: <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 1841 router is designed for secure data connectivity. The Cisco 1841 router features secure, fast, and high-quality delivery of multiple, concurrent services for small-to-medium-sized businesses and small enterprise branch offices. It also offers embedded hardware-based encryption enabled by an optional Cisco IOS Software security image; further enhancement of VPN performance with an optional VPN acceleration module; an intrusion prevention system (IPS) and firewall functions; interfaces for a wide range of connectivity requirements, including support for optional integrated switch ports; plus sufficient performance and slot density for future network expansion and advanced applications as well as an integrated real-time clock.

**When to Sell****Sell This Product****Cisco 1841****When a Customer Needs These Features**

- 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**

- 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
- Optional integrated 10/100 switching and two onboard 10/100 LAN ports
- Supports the latest Cisco IOS Software-based QoS bandwidth management features
- Advanced device management—using Cisco Router and Security Device Manager
- High-performance processor—Supports concurrent deployment of high-performance, secure data services with headroom for future applications
- Modular architecture—Offers wide variety of LAN and WAN options; network interfaces are field-upgradeable to accommodate future technologies
- 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
- Allows LAN segmentation
- Integrated standard power supply—Easier router platform installation and management

## Specifications

Features	Cisco 1841
<b>Form factor</b>	Desktop, 1-rack-unit (1RU) height (4.75 cm high with rubber feet)
<b>Target Applications</b>	Secure data
<b>Chassis</b>	Metal
<b>Wall-mountable</b>	Yes
<b>Rack-mountable</b>	No
<b>Dimensions (W x D)</b>	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)
<b>Weight</b>	Maximum: 6.2 lb (2.8 kg); with interface cards and modules; Minimum: 6.0 lb (2.7 kg) (no interface cards and modules)
<b>DRAM</b>	Synchronous dual in-line memory module (DIMM) DRAM
<b>DRAM capacity</b>	Default: 128 MB; Maximum: 384 MB
<b>Flash memory</b>	External compact Flash
<b>Flash memory capacity</b>	Default: 32 MB; Maximum: 128 MB
<b>Modular slots - total</b>	Two
<b>Modular slots (WAN)</b>	Two
<b>Modular slots (HWICs)</b>	Two
<b>Modular slots (voice)</b>	None: The Cisco 1841 does not support voice
<b>Analog/digital voice support</b>	No
<b>VoIP support</b>	Voice-over-IP (VoIP) pass-through only
<b>Onboard Ethernet ports</b>	Two 10/100
<b>Onboard USB ports</b>	One (1.1)
<b>Console port</b>	One -up to 115.2 kbps
<b>Auxiliary port</b>	One: up to 115.2 kbps
<b>Onboard AIM slots</b>	One (internal)
<b>Packet-voice-DSP-module (PVDM) slots on motherboard</b>	None-The Cisco 1841 does not support voice
<b>Integrated H/W-based encryption on motherboard</b>	Yes
<b>Encryption support in software and hardware by default</b>	DES, 3DES, AES 128, AES 192, AES 256
<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>	1.5A maximum
<b>Output power</b>	50W (maximum)
<b>System Power Dissipation</b>	153 BTU/hr
<b>Cisco IOS Software default image</b>	IP BASE (12.3(8)T)
<b>Operating temp</b>	32 to 104°F (0 to 40°C)
<b>Operating humidity</b>	10 to 85% noncondensing operating; 5 to 95% noncondensing, nonoperating
<b>Nonoperating Temp</b>	-4 to 149°F (-25 to 65°C)
<b>Operating altitude</b>	10,000 feet (3000 meters) @ 77°F (25°C)
<b>Noise level</b>	Normal operating temperature: <78× F/25.6×C : 34 dBA; >78×F/25.6×C through; 104×F/40×C.
<b>Safety</b>	UL60950-1; CAN/CSA 60950-1; AS 3260; EN60950-1
<b>EMI</b>	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
<b>Immunity</b>	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 EN 300 386, 1997 Telecommunications network equipment EMC requirements 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
<b>Network homologation</b>	USA: TIA-968-A, T1.TRQ.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.992.1, CTR3, ITU 1.431 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_99-1999, 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 HDLS, 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

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

### Cisco 1800 Series Integrated Services Routers

CISCO1841	Modular Router w/2FE,2 WAN slots,32FL/128DR
CISCO1841-ADSL	1841 ADSLoPOTS Bdle,IP Broadband,32FL/128DR
CISCO1841-ADSLI	1841 ADSLoISDN Bdle,IP Broadband,32FL/128DR
CISCO1841-ADSL-DG	1841 ADSLoPOTS Bdle w/dying gasp,IP Broadband,32FL/128DR
CISCO1841-SHDSL	1841 G.shdsl 2-wire Bdle,IP Broadband,32FL/128DR
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-T1	1841 with WIC-1DSU-T1-V2,IP BASE,32FL,128DR
CISCO1841-T1SEC/K9	1841 Security Bundle w/ WIC-1DSU-T1-V2, Adv.Security,64FL,256DR

### Ethernet Switching HWICs

HWIC-4ESW 4-port single-wide 10/100 BaseT Ethernet switch HWIC

### Serial WICs

WIC-1T	1-port serial WIC
WIC-2T	2-port serial WIC
WIC-2A/S	2-port asynchronous or synchronous serial WIC

### CSU/DSU WICs

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

### ISDN BRI WICs

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

### DSL WICs

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[1] WIC
WIC-1ADSL-I-DG	1-port ADSL over ISDN with dying-gasp1 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 VVICs

VVIC-1MFT-T1	1-port RJ-48 multiflex trunkóT1
VVIC-2MFT-T1	2-port RJ-48 multiflex trunkóT1
VVIC-2MFT-T1-DI	2-port RJ-48 multiflex trunkóT1 with drop and insert
VVIC-1MFT-E1	1-port RJ-48 multiflex trunkóE1
VVIC-1MFT-G703	1-port RJ-48 multiflex trunkóG.703
VVIC-2MFT-E1	2-port RJ-48 multiflex trunkóE1
VVIC-2MFT-E1-DI	2-port RJ-48 multiflex trunkóE1 with drop and insert
VVIC-2MFT-G703	2-port RJ-48 multiflex trunkóG.703

### AIMs

AIM-VPN/BPII-PLUS Enhanced-performance DES, 3DES, AES, and compression VPN encryption AIM

**Cisco 1800 Series 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
MEM1800-32CF	32MB Cisco 1800 Compact Flash Memory
MEM1800-32CF=	32MB Cisco 1800 Compact Flash Memory
MEM1800-64CF=	64MB Cisco 1800 Compact Flash Memory
MEM1800-128CF=	128MB Cisco 1800 Compact Flash Memory

**Cisco 1800 Series CD Feature Packs**

CD18-IPB=	CISCO 1841 IP BASE Feature Pack
CD18-BB=	CISCO 1841 IP Broadband Feature Pack
CD18-EB=	CISCO 1841 ENTERPRISE BASE Feature Pack
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-ESK9=	CISCO 1841 ENTERPRISE SERVICES Feature Pack
CD18-SPSK9=	CISCO 1841 SP SERVICES Feature Pack

**Cisco 1800 Spares and Accessories**

PWR-184X-AC=	Cisco 184X AC standard power supply
ACS-184X=	Accessory Kit for Cisco 184X

**Cisco 1800 Series Basic Maintenance**

CON-OSP-CISCO1841	Onsite 24x7x4 Modular Router w/2xFE
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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 1800 Series Web site: <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. 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.

**When to Sell****Sell This Product****Cisco 1711/1712****When a Customer Needs These Features**

- 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 needed 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
- IEEE802.1Q 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/VVIC/VIC and 2 WVIC/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 auxiliary (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 1600 (WAN only), 2600/2600XM, and 3600 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, Intrusion Detection System (IDS), and encryption.
- IEEE 802.1Q VLAN Support
- 1751 and 1760—Cisco IOS-based routers deliver multiservice data/voice/video/fax integration

## Specifications

Feature	Cisco 1711/1712	Cisco 1721	Cisco 1751/1751-V	Cisco 1760/1760-V
<b>Fixed LAN Ports (connections)</b>	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-port analog modem (1711), 1-port ISDN S/T interface (1712)	None	None	None
<b>Modular Slots</b>	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>WAN Interface Card (WIC) Modules</b>	None	See Part Numbers and Ordering Information	See Part Numbers and Ordering Information	See Part Numbers and Ordering Information
<b>Voice Interface Cards (VIC) Modules</b>	None	None	See Part Numbers and Ordering Information	See Part Numbers and Ordering Information
<b>Flash Memory</b>	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>	64 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 (HxWxD)</b>	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/ADSLoSDN 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
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

### Cisco 1751 Software Feature Packs for Cisco IOS Release 12.1.(5)YB

CD17-C-12.1.5=	IP
CD17-C-12.1.5=	IP ADSL
CD17-C7P-12.1.5=	IP Plus ADSL
CD17-C7K2-12.1.5=	IP Plus IPSec 3DES ADSL
CD17-CH-12.1.5=	IP/FW/IDS
CD17-B-12.1.5=	IP/IPX
CD17-B7HP-12.1.5=	IP/IPX/FW/IDS Plus ADSL
CD17-C7HK2-12.1.5=	IP/FW/IDS Plus IPSec 3DES ADSL
CD17-Q7HK2-12.1.5=	IP/IPX/AT/IBM/FW/IDS Plus IPSec 3DES
CD17-C7VP-12.1.5=	IP/Voice Plus
CD17-C7VP-12.1.5=	IP/Voice Plus ADSL
CD17-C7HV-12.1.5=	IP/Voice/FW/IDS Plus ADSL
CD17-C7VK2-12.1.5=	IP/Voice Plus IPSec 3DES ADSL
CD17-C7HVK2-12.1.5=	IP/Voice/FW/IDS Plus IPSec 3DES ADSL
CD17-Q7HVK2-12.1.5=	IP/IPX/AT/IBM/FW/IDS/Voice Plus IPSec 3DES

### 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 ADSLoSDN Wan Interface Card
WIC-1ADSL-DG=	1-port ADSLoPOTS WIC w/Dying Gasp
WIC-1SHDSL	1-port G.SHDSL WAN Interface Card
WIC-1ENET=	1-port Ethernet Interface Card
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**

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

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 1700 Series Web site: <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 new 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 as part of the Cisco Self Defending Network, which enable network device protection, threat defense, secure connectivity, and endpoint protection and control
- High-availability features such as an integrated redundant power supply (RPS) connector for quick connections to an external redundant power supply, Error Correction Code (ECC) DDR SDRAM memory to detect and correct SDRAM errors without user intervention, and Cisco IOS Software warm reboot support for reduce downtime caused by system reboots
- Secure integrated call processing, voice mail, flexible telephony interfaces, redundancy for centralized call processing, or robust DSP support, including local conferencing and transcoding
- Advanced management for security, routing, quality of service (QoS), and switching services with Cisco SDM Version 2.0.

### 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--The Cisco 2800 Series 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.
- Optional integrated power supply for distribution of Power over Ethernet (PoE)
- High-performance WIC (HWIC) slots with enhanced functions; Dual AIM slots; Packet voice DSP module (PVDm) slots on motherboard
- Real-time clock support
- 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
- Support for an optional dedicated security AIM
- 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.
- On board hardware-based encryption for Digital Encryption Standard (DES), Triple DES (3DES), Advanced Encryption Standard (AES), and onboard slots for packet voice DSP modules (PVDm), and they all include high-speed Ethernet interfaces

## 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
- FutureWei/Quidway®: R2630/31E
- Tasman: 2004, 1400
- Huawei: AR2800

## Specifications

Feature	Cisco 2801	Cisco 2811	Cisco 2821	Cisco 2851
<b>Fixed USB 1.1 ports</b>	1	2	Sames As Cisco 2811	Sames As Cisco 2811
<b>Onboard LAN ports</b>	2 - 10/100	Sames As Cisco 2801	2 - 10/100/1000	Sames As Cisco 2821
<b>Onboard AIM (internal) slot</b>	2	Sames As Cisco 2801	Sames As Cisco 2801	Sames As Cisco 2801
<b>Interface card slots</b>	4 slots; 2 slots support HWIC, VIC, 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	Sames As Cisco 2811	Sames As Cisco 2811
<b>Network-module slot</b>	No	1 slot, supports NM and NME type modules	Sames As Cisco 2811	Sames As Cisco 2811
<b>Extension Voice Module Slot</b>	0	Sames As Cisco 2801	Sames As Cisco 2801	1
<b>PVDM (DSP) slots on motherboard</b>	2	Sames As Cisco 2801	Sames As Cisco 2801	3
<b>Integrated hardware-based encryption</b>	Yes	Sames As Cisco 2801	Sames As Cisco 2801	Sames As Cisco 2801
<b>VPN hardware acceleration (on motherboard)</b>	DES, 3DES, AES 128, AES 192, and AES 256	Sames As Cisco 2801	Sames As Cisco 2801	Sames As Cisco 2801
<b>Optional integrated in-line power (PoE)</b>	Yes, requires AC-IP power supply	Sames As Cisco 2801	Sames As Cisco 2801	Sames As Cisco 2801
<b>Console port (up to 115.2 kbps)</b>	1	Sames As Cisco 2801	Sames As Cisco 2801	Sames As Cisco 2801
<b>Auxiliary port (up to 115.2 kbps)</b>	1	Sames As Cisco 2801	Sames As Cisco 2801	Sames As Cisco 2801
<b>Minimum Cisco IOS Software release</b>	12.3(8)T	Sames As Cisco 2801	Sames As Cisco 2801	Sames As Cisco 2801
<b>Rack mounting</b>	Yes, 19-inch	Yes, 19- and 23-in. options	Sames As Cisco 2811	Sames As Cisco 2811
<b>Wall mounting</b>	No	Yes	Sames As Cisco 2801	Sames As Cisco 2801
<b>AC input voltage</b>	100 to 240 VAC, autoranging	Sames As Cisco 2801	Sames As Cisco 2801	Sames As Cisco 2801
<b>AC input frequency</b>	47-63 Hz	Sames As Cisco 2801	Sames As Cisco 2801	Sames As Cisco 2801
<b>AC input current</b>	2A (110V); 1A (230V)	Sames As Cisco 2801	3A (110V); 2A (230V)	Sames As Cisco 2821
<b>AC input surge current</b>	50A maximum, one cycle (-48V power included)	Sames As Cisco 2801	Sames As Cisco 2801	Sames As Cisco 2801
<b>AC-IP max in-line power distribution</b>	120W	160W	240W	Sames As Cisco 2821
<b>AC-IP input current</b>	2A (110V); 1A (230V)	Sames As Cisco 2801	Sames As Cisco 2801	Sames As Cisco 2801
<b>AC-IP input surge current</b>	50A maximum, one cycle (-48V power included)	Sames As Cisco 2801	Sames As Cisco 2801	Sames As Cisco 2801
<b>DC input voltage</b>	No DC Power Option available	24 to 60 VDC, autoranging positive or negative	24 to 60 VDC, autoranging positive or negative	Sames 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	Sames As Cisco 2821
<b>Power dissipation—AC without IP phone support</b>	AC 150W (511 BTU/hr)	170W (580 BTU/hr)	280W (955 BTU/hr)	Sames As Cisco 2821
<b>Power dissipation—AC with IP phone support—system only</b>	AC 150W (511 BTU/hr)	210W (717 BTU/hr)	310W (1058 BTU/hr)	Sames As Cisco 2821

Feature	Cisco 2801	Cisco 2811	Cisco 2821	Cisco 2851
<b>Power dissipation—AC</b> with IP phone support-IP phones	180W (612 BTU/hr)	160W (546 BTU/hr)	240W (819 BTU/hr)	Sames As Cisco 2821
<b>Power dissipation—DC</b>	Not applicable	180W (614 BTU/hr)	300W (1024 BTU/hr)	Sames As Cisco 2821
<b>RPS</b>	No	External only, connector for RPS provided by default	Sames As Cisco 2811	Sames As Cisco 2811
<b>Recommended RPS unit</b>	No RPS option	Cisco RPS-675 Redundant Power System	Sames As Cisco 2811	Sames As Cisco 2811
<b>Operating temp</b>	32 to 104°F; (0 to 40°C)	Sames As Cisco 2801	Sames As Cisco 2801	Sames As Cisco 2801
<b>Operating humidity</b>	10 to 85% noncondensing	5 to 95%, noncondensing	Sames As Cisco 2811	Sames As Cisco 2811
<b>Nonoperating temp</b>	N/A	-4° to 149°F (-20° to 65°C)	Sames As Cisco 2811	Sames As Cisco 2811
<b>Dimensions (H x W x D)</b>	1.72 x 17.5 x 16.5 in. (43.7 x 445 x 419 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)	Sames As Cisco 2821
<b>Rack height</b>	1 rack unit (1RU)	1 rack unit (1RU)	2RU	Sames As Cisco 2821
<b>Weight (configured)</b>	13.7 lb (6.2 kg)	14 lb (6.4 kg)	25 lb (11.4 kg)	Sames As Cisco 2821
<b>Noise level (min/max)</b>	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)	Sames As Cisco 2821
<b>Safety</b>	UL 60950 CAN/CSA C22.2 No. 60950 IEC 60950 EN 60950-1 AS/NZS 60950	Sames As Cisco 2801	Sames As Cisco 2801	Sames As Cisco 2801
<b>Immunity</b>	EN300386 EN55024/CISPR24 EN50082-1 EN61000-6-2	Sames As Cisco 2801	Sames As Cisco 2801	Sames As Cisco 2801
<b>EMC</b>	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	Sames As Cisco 2801	Sames As Cisco 2801	Sames As Cisco 2801
<b>TELCOM</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 TBRS. See the datasheet for the specific interface card.	Sames As Cisco 2801	Sames As Cisco 2801	Sames 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

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

### 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-CE-BP-SCSI-K9	Cisco Content Engine Network Module, basic performance, Small Computer System Interface (SCSI) controller
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

**Alarm Monitoring and Control Network Modules and Accessories**

NM-AIC-64	Alarm monitoring and control network module
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**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	
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**Serial WICs**

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**

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
VIC2-2FXS	2-port VIC - FXS
VIC2-2FXO	2-port VIC - FXO (universal)
VIC2-4FXO	4-port VIC - FXO (universal)
VIC2-2E/M	2-port VIC - E&M
VIC2-2BRI-NT/TE	2-port VIC card - BRI (NT and TE)

**AIMs**

AIM-ATM	High-performance ATM SAR AIM
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 (72/96 <sup>2</sup> users), 64 MB Flash/256 MB DRAM
CISCO2851-SRST/K9	Cisco 2851 Voice Bundle with IOS SP Services, PVDM2-48, FL-SRST (72/96 <sup>2</sup> 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 Web site: <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.

The Cisco 2600XM models are based on the classic Cisco 2600 platform architecture, and extend the performance by as much as 33%. They also increase default platform memory and provide increases in memory capacity at the same price as their Cisco 2600 predecessor.

### 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, Virtual Private Network (VPN) performance, increased bandwidth to support voice and video applications, and the delivery of Web-based applications.

##### Cisco 2600XM Series

- Enterprises considering the Cisco 2600 for branch office applications should now regard the Cisco 2600XM as the preferential platform for delivering high performing, flexible solutions to branch and remote offices.

##### Cisco 2651XM

- High Performance 10/100 Dual Ethernet Router with 3 WIC Slots, 1 NM

##### Cisco 2650XM

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

##### Cisco 2621XM

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

##### Cisco 2620XM

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

##### Cisco 2611XM

- Dual 10/100 Ethernet Router with Cisco IOS IP

##### Cisco 2610XM

- 10/100 Ethernet Router with Cisco IOS IP

##### Cisco 2612

- 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 and 3600 routers
- **An EtherSwitch network module** for the Cisco 2600/3600 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



- The introduction of the WIC-ADSL and WIC-1SHDSL, offers 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

- |  |   |
|--|---|
| <ul style="list-style-type: none"> <li>• 3Com: SuperStack II NETbuilder SI and Pathbuilder S400</li> <li>• Intel/Shiva: LanRover Family</li> <li>• Motorola: Vanguard 645x/643x</li> </ul> | <ul style="list-style-type: none"> <li>• Nortel/Bay: Advanced Remote Node (ARN), Passport 4400 series</li> <li>• FutureWei/Quidway®: R2630/31E</li> <li>• Tasman: 2004, 1400</li> </ul> |
|--|---|

## Specifications

Feature	2610/11XM	2620/21XM	2650/51XM	2691
<b>Performance</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 Slot</b>	1	1	1	2
<b>Minimum Cisco IOS Release</b>	12.1(14) mainline, 12.2(12) mainline, 12.2(8)T1or later	12.1(14) mainline, 12.2(12) mainline, 12.2(8)T1or later	12.1(14) mainline, 12.2(12) mainline, 12.2(8)T1or 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

## 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
CD26XM-AESK9=	Cisco 2600XM Ser IOS ADV ENT SERVICES Feature Pack
CD26XM-AHK9=	Cisco 2600XM Ser IOS ENT/FW/IDS 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/IDS Feature Pack
CD26XM-CHK9=	Cisco 2600XM Ser IOS IP/FW/IDS PLUS IPSEC 3DES Feature Pack
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/IDS 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

**Distribution**

<b>Part Number</b>	<b>Feature Pack Description</b>
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/IDS Feature Pack
CD269-CHK9=	Cisco 2691 Ser IOS IP/FW/IDS 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
CD26-C-12.0.7=	IP only
CD26-CP-12.0.7=	IP Plus
CD26-CH-12.0.7=	IP/Firewall
CD26-CHL-12.0.7=	IP/Firewall Plus IPsec 56
CD26-CHK2-12.0.7=	IP/Firewall Plus IPsec 3DES
CD26-CK2-12.0.7=	IP Plus IPsec 3DES
CD26-CL-12.0.7=	IP Plus IPsec 56
CD26-B-12.0.7=	IP/IPX/AT/DEC
CD26-BP-12.0.7=	IP/IPX/AT/DEC Plus
CD26-BHP-12.0.7=	IP/IPX/AT/DEC/Firewall Plus
CD26-AP-12.0.7=	Enterprise Plus
CD26-AL-12.0.7=	Enterprise Plus IPsec 56
CD26-AHK2-12.0.7=	Enterprise/Firewall Plus IPsec 3DES
CD26-AHL-12.0.7=	Enterprise/Firewall Plus IPsec 56
CD26-AK2-12.0.7=	Enterprise Plus IPsec 3DES
CD26-E-12.0.7=	Remote Access Server

1. 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/fin>

**Selected Part Numbers and Ordering Information<sup>1</sup>****Cisco 2600/2600XM Series Router Chassis**

1CISCO2610XM	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
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
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 Router w/IP-DC NEB
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	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

### Cisco 2600 Series VPN Bundles

CVPN2600FIPS/KIT=	KIT (Instructions, labels) to configured 2600 for FIPS
C2651XM-2FE/VPN/K9	2651XM/VPN Bundle, AIM-VPN/BPII/2FE/IOS FW/IPSec 3 DES, 128DRAM
C2621XM-2FE/VPN/K9	2621XM/VPN Bundle, AIM-VPN/BPII/2FE/IOS FW/IPSec 3 DES, 128DRAM
C2611XM-2FE/VPN/K9	2611XM/VPN Bundle, AIM-VPN/BPII/2FE/IOS FW/IPSec 3 DES, 128DRAM
C2691-VPN/K9	2691 VPN Bundle, AIM-VPN/EPII, Plus IOS/FW/IPSEC3DES

### Cisco 2600 Series DSL Bundles

CISCO2651XM-ADSL	2651XM-ADSL Bundle, WIC-1ADSL, 2FE, IP Plus, 32F/128DRAM
CISCO2621XM-ADSL	2621XM-ADSL Bundle, WIC-1ADSL, 2FE, IP Plus, 32F/128DRAM
CISCO2611XM-ADSL	2611XM-ADSL Bundle, WIC-1ADSL, 2FE, IP Plus, 32F/128DRAM
CISCO2651XM-SHDSL	2651XM-SHDSL Bundle, WIC-1SHDSL, 2FE, IP Plus, 32F/128DRAM
CISCO2621XM-SHDSL	2621XM-SHDSL Bundle, WIC-1SHDSL, 2FE, IP Plus, 32F/128DRAM
CISCO2611XM-SHDSL	2611XM-SHDSL Bundle, WIC-1SHDSL, 2FE, IP Plus, 32F/128DRAM

### Cisco 2600 Series LAN Modules

NM-1E=	1-port 10BASE-T network module
NM-4E=	4-port 10BASE-T network module
NM-1GE	1-port Gigabit Ethernet Network Module (2691 only)

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

WIC-1B-S/T=	1-port BRI (S/T) WAN Interface Card (Dial and Leased Line)
WIC-1B-U-V2	1-port BRI (U) w/NT-1 WAN Interface Card (Dial and Leased Line)
WIC-1DSU-56K4=	1-port Serial W/ 4-Wire 56/64Kbps DSU/CSU WAN Interface Card
WIC-1DSU-T1=	1-port Serial w/ F/T1/T1 DSU/CSU WAN Interface Card
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-1ADSL=	1-port ADSL WAN Interface Card
WIC-1SHDSL=	1-port G.SHDSL WAN Interface Card
WIC-1AM=	1-port Analog Modem WAN Interface Card
WIC-2AM=	2-port Analog Modem WAN Interface Card

### Cisco 2600/3600/3700 Series Multiflex Voice and WAN Interface Cards<sup>2</sup>

2VVIC-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-G703=	2-port RJ-48 Multiflex Trunk-G.703
VVIC-2MFT-E1-DI=	2-port RJ-48 Multiflex Trunk-E1 With Drop and Insert

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

NM-1V=	1-slot voice/fax network module
NM-2V=	2-slot voice/fax network module
NM-HDV-FARM-C36	Network Module 36 Port DSP Farm Bundle
NM-HDV-FARM-C54	Network Module 54 Port DSP Farm Bundle
NM-HDV-FARM-C90	Network Module 90 Port DSP Farm Bundle
NM-HDV-1T1-24=	1-port T1 24 channel voice/fax network module
NM-HDV-1T1-24E=	1-port T1 24 enhanced channel voice/fax network module
NM-HDV-2T1-48=	2-port T1 48 channel voice/fax network module
NM-CE-BP-20G-K9=	Content Engine NM-Basic Perf-20GB
NM-CE-BP-40G-K9=	Content Engine NM-Basic Perf-40GB
NM-CE-BP-SCSI-K9=	Content Engine NM-Basic Perf-SCSI Adapter
N-CIDS-K9=	Cisco IDS Network Module, 20-GB IDE hard disk
NM-HDV-1E1-30=	1-port E1 30 channel voice/fax network module
NM-HDV-1E1-30E=	1-port E1 30 enhanced channel voice/fax network module
NM-HDV-2E1-60=	2-port E1 60 channel voice/fax network module
NM-HDV=	High density voice network module, spare (no T1/E1 or DSPs)
NM-HDA-4FXS=	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
NM-1FE1R2W	1 10/100 Ethernet 1 4/16 Token-Ring 2 WAN Card Slot NM (2691 only)

### Cisco 2600/3600/3700 Series ATM Modules

NM-4T1-IMA=	4-port T1 ATM network module with 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

**Cisco 2600/3600/3700 Series EtherSwitch Modules**

NM-16ESW=	Sixteen 10BaseT/100BaseTX autosensing ports EtherSwitch
NM-16ESW-PWR=	Sixteen 10BaseT/100BaseTX autosensing ports EtherSwitch with power daughter card

**Cisco 2600/3600/3700 Series Voice Interface Cards (VICs)**

VIC-2E/M=	2-port E&M Voice Interface Card
VIC-2FXO=	2-port FXO Voice Interface Card
VIC-2FXS=	2-port FXS Voice Interface Card
VIC-2DID=	2-port DID Voice/Fax Interface Card
VIC-2FXO-EU=	2-port FXO Voice Interface Card (for Europe)
VIC-2FXO-M3=	2-port FXO Voice Interface Card (for Australia)
VIC-2BRI-S/T-TE=	2-port BRI (S/T user side) Voice Interface Card
VIC-2FXO-M1=	2-port Voice Interface Card-FXO w/ Reversal (for US+)
VIC-2FXO-M2=	2-port Voice Interface Card-FXO w/ Reversal (for EU)

**Cisco 2600/3600/3700 Series High-Density Voice/Fax DSP Upgrade Modules**

PVDM-12=	12-channel Packet Voice/Fax DSP Module
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**Cisco 2600/3600/3700 Series WAN Network Modules**

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-4A/S=	4-port Async/Sync Serial network module
NM-8A/S=	8-port Async/Sync Serial network module
NM-16A=	16-port Async Serial network module
NM-32A=	32-port Async Serial network module
NM-1CT1=	1-port Channelized T1/ISDN-PRI network module
NM-2CT1=	2-port Channelized T1/ISDN-PRI network module
NM-1CT1-CSU=	1-port Channelized T1/ISDN-PRI w/ CSU network module
NM-2CT1-CSU=	2-port Channelized T1/ISDN-PRI w/ CSU network module
NM-1ATM-25=	1-port ATM 25 network module

**Cisco 2600/3600/3700 Series Modem Network Modules**

NM-8AM=	8-port Analog Modem network module
NM-16AM=	16-port Analog Modem network module

**Cisco 2600/3600/3700 Series Network Modules (International)**

NM-1CE1B=	1-port Channelized E1/ISDN-PRI balanced network module
NM-1CE1U=	1-port Channelized E1/ISDN-PRI unbalanced network module
NM-2CE1B=	2-port Channelized E1/ISDN-PRI balanced network module
NM-2CE1U=	2-port Channelized E1/ISDN-PRI unbalanced network module

**Cisco 2600/3600/3700 Series Modem Management Technology Licenses (MMTL)**

3MMTL-3600/2600-8=	MMTL for 8 Analog Modems
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**Cisco 2600 Series Advanced Integration Modules**

AIM-COMPR2=	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-ATM=	ATM SAR Only AIM
AIM-VPN/BP11=	DES/3DES/AES VPN Encryption Module for 2600XM
AIM-ATM-1T1=	High Performance ATM AIM/T1 Bundle AIM-ATM
AIM-ATM-1E1=	High Performance ATM AIM/E1 Bundle AIM-ATM
AIM-VPN/-EP=	DES/3DES VPN Encryption Module for 2600-Enhanced Performance
AIM-VPN/-EP11=	DES/3DES/AES VPN Encryption Module for 2691/3725
AIM-ATM-VOICE-30=	30-Channel T1/E1 Digital Voice Module
AIM-VOICE-30=	SAR and 30-Channel T1/E1 Digital Voice Module

**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 2691

**Cisco 2600 Series Factory DRAM Memory Upgrades**

MEM2600XM-96U128D	96 to 128MB 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 2600 Series
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
MEM-CE-256U512D	256MB DRAM Factory Upgrade for NM-CE-BP

**Cisco 2600 Series SMARTnet Maintenance**

CON-SNT-PKG5	Cisco 2600 Series Packaged SMARTnet 8x5xNBD Maintenance
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### Cisco 2691 Series Network Modules

NM-1GE=	1 Port GE Network Module
NM-1T3/E3=	One port T3/E3 network 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. Resellers: For latest part number and pricing info, see the *Distribution Product Reference Guide* at: <http://www.cisco.com/dprg> (limited country availability).
2. VoIP and VoFR require use of a Voice/Fax network module

### For More Information

See the Cisco 2600 Series Web site: <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 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. 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 PVDIM 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
- Intrusion prevention system (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 Security Device Manager (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 (PVDM) slots on motherboard—4 PVDM 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), Basic Rate Interface (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
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

Feature	Cisco 3825	Cisco 3845
<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, EP11-Plus	Yes, HP11-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)	Same As Cisco 3825
	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 (HxWxD)in.</b>	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).

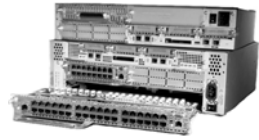
## For More Information

See the Cisco 3800 Series Web site: <http://www.cisco.com/go/ISR>

## 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
<b>Network Module Slots</b>	2	4
<b>Advanced Integration Module (AIM) Slots</b>	2	2
<b>WAN Interface Card (WIC) Slots</b>	3	3
<b>10/100 FE Ports</b>	2	2
<b>WAN Modules</b>	See Part Numbers and Ordering Information	See Part Numbers and Ordering Information
<b>ATM Modules</b>	See Part Numbers and Ordering Information	See Part Numbers and Ordering Information
<b>Voice/Fax Network Modules</b>	See Part Numbers and Ordering Information	See Part Numbers and Ordering Information
<b>WAN Interface Card (WIC) Modules</b>	See Part Numbers and Ordering Information	See Part Numbers and Ordering Information
<b>Multiflex Voice/WAN Interface Cards</b>	See Part Numbers and Ordering Information	See Part Numbers and Ordering Information
<b>Voice Interface Card (VIC) Modules</b>	See Part Numbers and Ordering Information	See Part Numbers and Ordering Information
<b>Modem Modules</b>	See Part Numbers and Ordering Information	See Part Numbers and Ordering Information
<b>EtherSwitch Modules</b>	See Part Numbers and Ordering Information	See Part Numbers and Ordering Information
<b>Performance</b>	100 kpps	225 kpps
<b>VPN/Security Advanced Integration Modules (AIM)</b>	See Part Numbers and Ordering Information	See Part Numbers and Ordering Information
<b>Content Network Modules</b>	See Part Numbers and Ordering Information	See Part Numbers and Ordering Information
<b>Flash Memory</b>	32 MB (default); 128 MB (max)	32 MB (default); 128 MB (max)
<b>Flash Memory (External)</b>	32 MB -128 MB (optional)	32 MB -128 MB (optional)
<b>DRAM Memory</b>	256 MB (default) 256 MB (max)	256 MB (default) 256 MB (max)
<b>Power Supply</b>	AC, DC, external redundant AC	AC, DC, internal redundant AC
<b>Dimensions (HxWxD)</b>	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 30channels of G726, G729, G723.1, G.728, G729a/b, G711 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 G726, G729, G723.1, G.728, G729a/b, G711 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
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**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**

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-2MFT-E1	2-port RJ-48 MultiFlex Trunk-E1
VVIC-2MFT-E1-DI	2-port RJ-48 MultiFlex Trunk-E1 with Drop and Insert Add not for VVICs VIC slots & WIC slots
VVIC-1MFT-G703	1-port RJ-48 MultiFlex Trunk-E1 unstructured
VVIC-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 ADSLoISDN 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 11	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-1GIG	One 16 port 10/100 EtherSwitch NM with 1 GE (1000BaseT) port
NM-16ESW-PWR-1GIG	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 HDSM with Inline Power
NMD-36-ESW-2GIG	One 36 port 10/100 EtherSwitch HDSM with two GE (1000BaseT)
NMD-36-ESW-PWR-2G	One 36 port 10/100 EtherSwitch HDSM + Inline Power and two GE
PPWR-DCARD-36ESW	One Inline Power daughter card for 36 port EtherSwitch HDSM
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 Web site: <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

#### 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

##### Cisco 7206VXR

- 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 0C-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 (HxWxD)	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  
 7206VXR/1/VPNK9 7206VXR VPN Bundle NPE-G1,256MB, 3 FE/GE, VAM  
 7206VXR/1/2VPNK9 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
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**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

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 7200 Series Web site: <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****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

**Cisco 7304**

- 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 million-packets-per-second (Mpps) processing performance, the fastest Cisco 1RU general-purpose processor, as of October 2003; 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 3.5Mpps 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: M5, M10

- Juniper: ERX700, ERX1400

## Specifications

Feature	Cisco 7301	Cisco 7304
<b>Fixed Ports</b>	Three Gigabit Ethernet ports	Same as 7301
<b>Expansion Slots</b>	1	4
<b>WAN Interface Range</b>	DS-1 to OC-3	DS-1 to OC-48
<b>Processor</b>	RM 7000 MIPS Processor + PXF Processor	RM 7000 MIPS Processor + PXF Processor
<b>Forwarding Rate</b>	Up to 1 Mpps	Up to 3.5 Mpps
<b>Backplane Capacity</b>	1.2 Gbps	16 Gbps
<b>Flash PCMCIA Memory</b>	64 MB (expandable to 128 MB)	Same as 7301
<b>System DRAM Memory</b>	128 MB (expandable to 512 MB)	Same as 7301
<b>Minimum Cisco IOS Release</b>	12.2(11)YZ	12.1(9)EX
<b>Internal Power Supply</b>	AC or DC	Same as 7301
<b>Redundant Power Supply 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 (HxWxD)</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	Cisco 7304 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-SM=	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-SM=	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-SM=	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-SM=	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-SM=	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-SM=	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 Web site: <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

- Redback: SMS-500, SMS-1800
- Juniper: M7i, M10, M20

- Juniper: ERX700, ERX1400
- Huawei: NE8 and NE16

## Specifications

Feature	Cisco 7505	Cisco 7507	Cisco 7513
<b>Fixed Ports</b>	None	Same as Cisco 7505	Same as Cisco 7505
<b>Expansion Slots</b>	5	7	13
<b>WAN Interface Range</b>	DS0 to OC-12	Same as Cisco 7505	Same as Cisco 7505
<b>Processor</b>	MIPS RISC Processor	Same as Cisco 7505	Same as Cisco 7505
<b>Forwarding Rate</b>	Up to 1.1 Mpps	Up to 2.2 Mpps	Up to 2.2 Mpps
<b>Backplane Capacity</b>	1 Gbps	2 Gbps	2 Gbps
<b>Flash PCMCIA Memory</b>	16MB (expandable to 128MB)	Same as Cisco 7505	Same as Cisco 7505
<b>System DRAM Memory</b>	32MB (expandable to 1GB)	Same as Cisco 7505	Same as Cisco 7505
<b>Minimum Cisco IOS Release</b>	11.3	Same as Cisco 7505	Same as Cisco 7505
<b>Internal Power Supply</b>	AC or DC	AC, dual AC/DC, or dual DC	AC, dual AC/DC, or dual DC
<b>Redundant Power Supply Support</b>	No	Yes	Yes
<b>Chassis Size</b>	6 RU	13 RU	20 RU
<b>Rack Mountable</b>	Yes, up to 6 per rack	Yes, up to 3 per rack	Yes, up to 2 per rack
<b>Dimensions (HxWxD)</b>	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 Web site: <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 7603

### When a Customer Needs These Features

- 3 slot (horizontal) chassis; 240 Gbps backplane bandwidth<sup>1</sup>; 30 Mpps forwarding rate<sup>1</sup>; NEBs Compliant

#### Cisco 7606

- 6 slot (horizontal) chassis; 480 Gbps backplane bandwidth<sup>1</sup>; 30 Mpps forwarding rate<sup>1</sup>; NEBs Compliant

#### Cisco 7609

- 9 slot (vertical) chassis; 720 Gbps backplane bandwidth<sup>1</sup>; 30 Mpps forwarding rate<sup>1</sup>; NEBs Compliant

#### Cisco 7613

- 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
- 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 7603	Cisco 7606	Cisco 7609	Cisco 7613
<b>Fixed Ports</b>	SFP & 10/100/1000 (Sup720)	Same as Cisco 7603	Same as Cisco 7603	Same as Cisco 7603
<b>Expansion Slots</b>	3 (horizontal)	6 (horizontal)	9 (vertical)	13 (horizontal)
<b>WAN Interface Range</b>	DS0 to OC-48	Same as Cisco 7603	Same as Cisco 7603	Same as Cisco 7603
<b>Processor</b>	Supervisor720-3B Supervisor720-3BXL	Same as Cisco 7603	Same as Cisco7603	Same as Cisco 7603
<b>Forwarding Rate</b>	Up to 30 Mpps	Same as Cisco 7603	Same as Cisco 7603	Same as Cisco 7603
<b>Backplane Capacity</b>	240 Gbps	480 Gbps	720 Gbps	720 Gbps
<b>Flash PCMCIA Memory</b>	up to 512MB	Same as Cisco 7603	Same as Cisco 7603	Same as Cisco 7603

Feature	Cisco 7603	Cisco 7606	Cisco 7609	Cisco 7613
<b>System DRAM Memory</b>	512MB on Sup720-3B 1G on Sup720-3BXL	Same as Cisco 7603	Same as Cisco 7603	Same as Cisco 7603
<b>Internal Power Supply</b>	AC or DC	Same as Cisco 7603	Same as Cisco 7603	Same as Cisco 7603
<b>Redundant Power Supply Support</b>	Yes	Same as Cisco 7603	Same as Cisco 7603	Same as Cisco 7603
<b>Chassis Height</b>	4 RU	7 RU	20 RU	18 RU
<b>Rack Mountable</b>	Yes, up to 10 per rack	Yes, up to 6 per rack	Yes, up to 2 per rack	Yes, up to 2 per rack
<b>Dimensions (HxWxD)</b>	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
CISCO7606=	7606 chassis spare
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 7603 Systems

CISCO7603	Cisco 7603 Chassis Bundle
CISCO7603=	7603 chassis
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 Web site: <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 up to DS3/E3 aggregation speeds.

**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 (99.999 percent uptime). Full hardware redundancy, hot-swappable elements, and seamless route processor cutover provide continuous traffic forwarding.
- 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
- 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, ERX1400
- Juniper: M5, M10, M20

## Specifications

Feature	Cisco 10008
Fixed Ports	None
Expansion Slots	8 (for interfaces)
WAN Interface Range	DS0 to OC-12
Processor	Cisco PFX Processor
Forwarding Rate	Up to 6.2 Mpps
Backplane Capacity	51.2 Gbps
Flash PCMCIA Memory	48 MB (expandable to 128 MB)
System DRAM Memory	512 MB
Minimum Cisco IOS Release	12.0(23)S, 12.3(7)XI
Internal Power Supply	AC or DC, dual option
Redundant Power Supply	Yes, for both AC and DC
Chassis Height	13 RU
Rack Mountable	Yes, up to 6 per rack
Dimensions (HxWxD)	21.75 x 17.5 x 12 in.

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

### Cisco 10008 Pricing Bundles

1ESR10008-1P1AC	C10000 8-slot chassis, 1 PRE, 1 AC PEM
ESR10008-1P1AC+6	C10000 8-slot chassis, 1 PRE, 1 AC PEM, 1CT3 module
ESR10008-1P1DC	C10000 8-slot chassis, 1 PRE, 1 DC PEM
ESR10008-1P1DC+6	C10000 8-slot chassis, 1 PRE, 1 DC PEM, 1CT3 module
ESR10008-1P1AC+4CH	C10000 8-slot chassis, 1 PRE, 1 AC PEM, 1 CH STM-1 Module
ESR10008-1P1DC+4CH	C10000 8-slot chassis, 1 PRE, 1 DC PEM, 1 CH STM-1 Module
ESR10008-2P2AC	C10000 8-slot chassis, 2 PREs, 2 AC PEMs
ESR10008-2P2AC+6	C10000 8-slot chassis, 2 PREs, 2 AC PEMs, 1 CT3 module
ESR10008-2P2DC	C10000 8-slot chassis, 2 PREs, 2 DC PEMs
ESR10008-2P2DC+6	C10000 8-slot chassis, 2 PREs, 2 DC PEMs, 1 CT3 module
ESR10008-2P2AC+4CH	C10000 8-slot chassis, 2 PREs, 2 AC PEMs, 1 CH STM-1 Module
ESR10008-2P2DC+4CH	C10000 8-slot chassis, 2 PREs, 2 DC PEMs, 1 CH STM-1 Module
ESR10008-CHASSIS=	Spare eight-slot Chassis
10000-1P2-1AC	Cisco 10000 eight-slot chassis, 1 PRE2, 1 AC PEM
10000-1P2-1DC	Cisco 10000 eight-slot chassis, 1 PRE2, 1 DC PEM
10000-2P2-2AC	Cisco 10000 eight-slot chassis, 2 PRE2s, 2 AC PEMs
10000-2P2-2DC	Cisco 10000 eight-slot chassis, 2 PRE2s, 2 DC PEMs

### Cisco 10000 Series Processors

ESR-PRE1=	Performance Routing Engine, 512 DRAM and 32M Flash
ESR-PRE2=	Performance Routing Engine, 512 DRAM and 32M Flash

### Cisco 10000 Series Line Cards

ESR-24CT1/E1=	24port Channelized E1/T1 Line Card
ESR-8E3/DS3=	8 port clear channel E3/DS3 Line Card
ESR-8E3DS3-ATM=	8 port E3/DS3 ATM Line Card
ESR-6OC3/P-SMI=	6 Port OC3/STS3c/STM1c POS Line Card, single mode
ESR-6CT3=	6 port channelized T3 line card
ESR-HH-1GE=	1 port Gigabit Ethernet Half-Slot Line Card
ESR-1GE=	1 pt Gigabit Ethernet line card (requires a GBIC)
ESR-4OC3-CHSTM1	4 pt OC3 chan. STM1 SDH SM line card
ESR-4OC3ATM-SM=	4 Port OC3/STS3c/STM1c ATM Line Card, single mode
ESR-1CO12-SMI=	1 pt ChOC12 (STS12) line card, single mode intermed. reach
ESR-1OC12/P-SMI=	1 pt OC12/STS12c/STM4 POS, single mode, int reach
ESR-1OC12ATM-SM=	1 pt OC12/STM4 ATM Line Card, Single-Mode
ESR10C48/P/SRPSML=	OC-48/STM-16 POS/SRP SM-LR
ESR10C48/P/SRPSMS=	OC-48/STM-16 POS/SRP SM-SR
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 Web site: <http://www.cisco.com/go/10000>

## Cisco 10720 Series

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

#### When a Customer Needs These Features

- Cisco 10720 Internet Router**
- 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.

### Key Features

- IPS with <50 ms restoration time and SRP MIB support; Multicast support including PIM SM, PIM DM, MBGP; L2 VPN—UTI, L2TPv3 and EoMPLS for Layer 2 to Layer 2 LAN extension; L3 VPN MPLS VPN
- QoS—Modular QoS CLI, CAR, WRED, VTMS traffic shaping, and access lists
- Ethernet features—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)
- Allows service providers to offer IP services closer to the user, enabling them to better control admission to network resources and bypass traditional DS1 and DS3 access options
- Equipped with Ethernet technology
- Supports the full suite of IP routing protocols
- 64-MB built-in Flash for software and configuration load
- Optical receive power monitoring support on OC-48/STM-16 Interface and GE
- Supported management information bases (MIBs) include SNMP, SRP, SONET, Etherlike, OSPF
- Suitable for other applications such as Internet data center applications, intra-POP aggregation, cable multisystem operator (MSO) internetworking, and voice-over-IP (VoIP) aggregation

### Competitive Products (vs. Cisco's Metro IP RPR Solution using the 10720)

- 
- Extreme Summit: 48/Blackdiamond comb for GigE Hub & Spoke
  - Riverstone: RS3000/RS8600 combo for GigE Hub & Spoke
-

## Specifications

Feature	Cisco 10720
<b>Security Features</b>	Including AAA, RADIUS authentication, TACACS+, and encrypted passwords
<b>Management</b>	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
<b>Physical Interfaces</b>	<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. The TX and the FX-MM versions of the 24-port Fast Ethernet modules accommodate copper or multimode fiber deployments within MTUs and the FX-SM allows for deployment of the Cisco 10720 Internet Router in a central location covering Ethernet connectivity to buildings for a radius of up to 15 km.</li> </ul>
<b>Dimensions</b>	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 ModuleRJ45 connectors
10720-FE-FX-MM	24-port 100Mbps Multimode Fiber Ethernet Access Module 2kmMTRJ connectors
10720-FE-FX-SM	24-port 100Mbps Single mode Fiber Ethernet Access Module 15kmMTRJ connectors
10720-GE-FE-TX-B	4-port 100Mbps SFP GE with 8-ports of 10/100 Ethernet TX-RJ45
10720-GE-SFP-SX	GE SFP - Short Reach 550M LC connectors
10720-GE-SFP-LH	GE SFP - Intermediate Reach 10KM LC connectors
GLC-ZX-SM	GE SFP - Long Reach 70KM LC connectors
10720-SR-LC	OC-48c/STM-16c SRP Short Reach (2km) Uplink ModuleLC connectors
10720-IR-LC	OC-48c/STM-16c SRP Intermediate Reach (15km) Uplink ModuleLC connectors
10720-LR1-LC	OC-48c/STM-16c SRP Long Reach 1 (40km) Uplink Module LC
10720-LR2-LC	OC-48c/STM-16c SRP Long Reach 2 (80km) Uplink Module-LC connectors
10720-CON-AUX	Console and Auxiliary port that fits in the Upper Slot
10720-SR-LC-POS	OC-48c/STM-16c POS Short Reach (2km) Uplink Module-LC connectors
10720-IR-LC-POS	OC-48c/STM-16c POS Intermediate Reach (15km) Uplink Module-LC connectors
10720-LR1-LC-POS	OC-48c/STM-16c POS Long Reach 1 (40km) Uplink Module - LC
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 Web site: <http://www.cisco.com/go/10700>



## Cisco 12000 Series

The Cisco 12000 Series routers make up a portfolio of intelligent routing solutions that scale from 2.5 Gbps/slot to 40 Gbps/slot capacity, enabling carrier-class IP/MPLS core and edge 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, and an integrated core and edge feature set. With a fully upgradable modular switch fabric, the Cisco 12000 Series routers help provide investment protection and low total cost of ownership.

## When to Sell

### Sell This Product

#### Cisco 12400 Internet Routers (10G)

### When a Customer Needs These Features

- 10 Gbps/slot, from 80 to 320 Gbps of non-blocking switching capacity
- Support for high-density, high-speed interfaces: ATM, DPT/RPR, POS, GbE/FE ranging from channelized DS3 (to DS1) through OC-192c/STM-64c
- 4 10G platforms to choose from: 12416, 320 Gbps, 16 slots, 40 RU; 12410, 200 Gbps, 10 slots, 20 RU; 12406, 120 Gbps, 6 slots, 10 RU; 12404, 80 Gbps, 4 slots, 5 RU
- Support for industry-leading QoS/CoS features ideal for peering, transit, POP consolidation, and IDC bandwidth aggregation as well as latency-sensitive applications like voice and video
- Support for IP or MPLS forwarding
- Support for hundreds of thousands of routes
- Proven carrier-class reliability and availability through enhanced features such as Online Insertion and Removal, High Availability (RPR+, NSF and SSO) and APS/MPS

#### Cisco 12000 Internet Routers (2.5G)

- 2.5 Gbps/slot, from 40 to 80 Gbps switching capacity
- Support for high-density, high-speed interfaces: ATM, DPT/RPR, POS, GbE/FE ranging from channelized DS3 (to DS1) through OC-48c/STM-16c
- 3 chassis to choose from: 12016, 80 Gbps, 16 slots, 40 RU; 12012, 60 Gbps, 12 slots, 32 RU; 12008, 40 Gbps, 8 slots, 14 RU
- The 12016 Internet Router is upgradeable to 320 Gbps via an easy, field-installed switch fabric upgrade kit—no need to pull out existing line cards

#### Cisco 12000 Manager

- An element management solution to increase service velocity and decrease operation costs

## Key Features

- Offers full forward compatibility for all line cards
- 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 Non Stop Forwarding (NSF) and Cisco Stateful Switchover (SSO) eliminate single points of failure, help maintain system performance, and prevent service interruption. With these features, packet forwarding remains uninterrupted before, during and after a route processor switchover.

## Competitive Products

• Juniper: T640, M160, M40E, M40, and M20

• Avici: Stackable Switch Router (SSR)

## Specifications

Feature	Cisco 12008	Cisco 12012	Cisco 12016	Cisco 12404	Cisco 12406	Cisco 12410	Cisco 12416	Cisco 12810	Cisco 12816
<b>Switching Capacity</b>	40 Gbps	60 Gbps	80 Gbps	80 Gbps	120 Gbps	200 Gbps	320 Gbps <sup>1</sup>	800 Gbps	1.28 Tbps
<b>Capacity per slot (full duplex)</b>	2.5 Gbps	2.5 Gbps	2.5 Gbps	10 Gbps	10 Gbps	10 Gbps	10 Gbps <sup>1</sup>	40 Gbps	40 Gbps
<b>Chassis Size</b>	1/3 Rack	Full Rack	Full Rack	1/8 Rack	1/4 Rack	1/2 Rack	Full Rack	1/2 Rack	Full Rack
<b>Chassis Slots</b>	8	12	16	4	6	10	16	10	16
<b>Supported Line Cards</b>	All Cisco 12000 Series 2.5 Gbps line cards	Same as Cisco 12008	All 2.5 Gbps line cards plus all 10 Gbps line cards when upgraded	Same as Cisco 12416	Same as Cisco 12416	Same as Cisco 12416	All Cisco 12000 Series Line Cards	All Cisco 12000 Series Line Cards	All Cisco 12000 Series Line Cards
<b>Supported Protocols</b>	IPv4, MPLS, BGPv4, IS-IS, OSPF v. 2.0, EIGRP, RIP v2, IGMP, PIM (dense and sparse mode)	Same as Cisco 12008	Same as Cisco 12008	Same as Cisco 12416	Same as Cisco 12416	Same as Cisco 12416	IPv4, MPLS, BGPv4, IS-IS, OSPF v. 2.0, EIGRP, RIP v2, IGMP, DVMR P, PIM DM/SM	Same as Cisco 12416	Same as Cisco 12416
<b>Management</b>	CLI, SNMP, Cisco 12000 Manager	CLI, SNMP, Cisco 12000 Manager	CLI, SNMP, Cisco 12000 Manager	CLI, SNMP, Cisco 12000 Manager	CLI, SNMP, Cisco 12000 Manager	CLI, SNMP, Cisco 12000 Manager	CLI, SNMP, Cisco 12000 Manager	CLI, SNMP, Cisco 12000 Manager	CLI, SNMP, Cisco 12000 Manager
<b>Dimensions</b>	24.85 x 17.4 x 56 x 17.3 x 21.2 in. (63.1 x 44.2 x 53.8 cm)	56 x 17.3 x 21 (142.2 x 43.9 x 53.3 cm)	72.5 x 18.75 x 8.75 x 18.9 x 24 in. (184.2 x 47.6 x 61 cm) <sup>2</sup>	8.75 x 8.75 x 27.5 in. (22.23 x 22.23 x 70.15 cm)	18.5 x 18.9 x 28 in. (47 x 48 in. (95.25 x 121.92 cm)) <sup>3</sup>	37.5 x 19 x 24 in. (95.25 x 48.26 x 61 cm) <sup>4</sup>	72.5 x 18.75 x 24 in. (184.2 x 47.6 x 61 cm) <sup>2</sup>	37.5 in. x 19 x 22.0 in. (95.25 cm x 48.26 cm x 55.9 cm)	71.5 in. x 17.25 in. x 22.0 in. (181.6 cm x 43.8 cm x 55.9 cm)

1. The Cisco 12016 may be field upgraded to a Cisco 12416 via a Switch Fabric Upgrade kit, providing 10 Gbps full duplex capacity per slot, for an overall 320 Gbps switching capacity
2. Includes power, front cover, rack mount flanges, and cable-management system
3. Includes rack-mount flanges, power entry module pullouts, blower, and handle
4. Includes cable-management system and front cover

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

### Cisco 12000 Series of Gigabit Switch Routers (GSR)

GSR6/120-AC	GSR6/120 w/ 1GRP, 3SFC, 1 CSC, 2Alarms & 1 AC Power Supply
GSR6/120-DC	GSR6/120 w/ 1GRP, 3SFC, 1 CSC, 2Alarms & 1 DC Power Supply
GSR8/40	Cisco12008 GSR 40Gbps;1GRP,1CSC-GSR8,3SFC-GSR8,1DC
GSR10/200-AC	Cisco 12410 200 Gbps; 1GRP, 2 CSC, 5 SFC, 2 Alarm, 2 AC
GSR10/200-DC	Cisco 12410 200 Gbps; 1GRP, 2 CSC, 5 SFC, 2 Alarm, 2 DC
GSR12/60	Cisco12012 GSR 60Gbps;1GRP,1CSC,3SFC,1DC
GSR4/80-AC	GSR12404- 4 slot AC System
GSR4/80-DC	GSR12404- 4 slot DC System
GSR16/80-AC-8R	Cisco 12016 80 Gbps; 1GRP, 2CSC, 3SFC, 2Alarm, 3AC, 8Rails
GSR16/80-AC4-8R	Same As GSR16/80-AC-8R But W/ 4AC And Requires 8 Foot Rack
GSR16/80-DC-8R	Cisco 12016 80 Gbps; 1GRP, 2CSC, 3SFC, 2Alarm, 4DC, 8Rails
GSR16/320-AC	Cisco 12416 320 Gbps; 1GRP, 2CSC, 3SFC, 2Alarm, 3AC, 8Rails
GSR16/320-AC4	Same As GSR16/320-AC-8R But W/ 4 AC And Requires 8 Foot Rack
GSR16/320-DC	Cisco 12416 320 Gbps; 1GRP, 2CSC, 3SFC, 2Alarm, 4DC, 8Rails

### Cisco 12000 Series Processors

GRP-B	Route Processor, 128MB and 20MB Flash, ECC support
GRP-B/R	GSR Route Processor, Redundant Option
PRP-1	Cisco 12000 Series Performance Route Processor
PRP-1/R	Redundant PRP-1 chassis upgrade option, factory only

## Cisco 12000 Series Line Cards

LC-40C3/POS-SM	4port OC3/STM1 Packet Over SONET/SDH Line Card, Single-Mode
LC-40C3/POS-MM	4port OC3/STM1 Packet Over SONET/SDH Line Card, Multi-Mode w
LC-10C12/POS-SM	1port OC12/STM4 Packet Over SONET/SDH Line Card, Single-Mode
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
CH048/DS3-SR-SC	1 port channelized C-48 to DS3
2CH0C3/STM1-IR-SC	Channelized OC3/STM1 -> DS1/E1, 2 ports Intermediate Reach
4CH0C12/DS3-I-SCB	4 PORT CHANNELIZED OC12 B
40C3/ATM-IR-SC	4 port OC3/STM1 ATM Line Card intermediate reach
40C3/ATM-MM-SC	4 port OC3/STM1 multimode ATM line card
40C3/POS-LR-SC	4 port OC-3/STM1 SONET/SDH Long Reach LC with SC connector
40C12/ATM-IR-SC	4 port OC-12/STM4 ATM LC Intermediate Reach
40C12/ATM-MM-SC	4 port OC-12/STM4 ATM Line Card multimode
40C12/POS-MM-SC-B	40C12/POS-MM-SC-B
40C12X/POS-M-SC-B	4-port OC12/POS Eng3 Multi-mode
40C12/POS-IR-SC-B	40C12/POS-IR-SC-B
40C12X/POS-I-SC-B	4 PORT OC12 POS B
40C48/SRP-SFP=	4 Port OC48c/STM16c SRP Linecard, SFP Optics
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
80C03/ATM/TS-IR-B	8-port OC03/STM1 ATM IR LC with SC connector
80C03/ATM/TS-MM-B	8-port OC03/STM1 ATM MM LC with SC Connector
OC12/SRP-IR-SC-B	OC12 SRP IR line card
OC12/SRP-LR-SC-B	OC12 SRP LR line card
OC12/SRP-MM-SC-B	OC12 SRP MM line card
OC12/SRP-XR-SC	OC12 SRP single ring linecard, single mode 1550, XR
OC48/SRP-LR-SC-B=	OC48 SRP Rev-B Line Card, Single Mode, Long Reach
OC48/SRP-SR-SC-B=	OC48 SRP Rev-B Line Card, Single Mode, Short Reach, GSR
OC48E/POS-LR-SC-B=	1 Port OC-48c/STM-16c SONET/SDH 1550nm LR with SC
OC48E/POS-SR-SC-B=	1 Port OC-48c/STM-16c SONET/SDH 1310nm SR with SC, GSR
OC48X/POS-LR-SC	CONCATENATED OC48 WITH EXTENDED FEATURES LONG REACH
OC48X/POS-SR-SC	1 port OC48 POS Extended features
80C3/POS-MM=	8 port OC3/STM1 SONET/SDH Multi-Mode LC with MTRJ conn Spare
80C3/POS-SM=	8 port OC3/STM1 SONET/SDH Single-Mode LC with LC conn Spare
1X10GE-LR-SC=	Cisco 12000 1-Port 10GE Card, 1310nm serial, 10km, SC
160C3/POS-MM=	16 port OC3/STM1 SONET/SDH Multi-Mode LC with MTRJ conn
160C3/POS-SM=	16 port OC3/STM1 SONET/SDH Single-Mode LC with LC conn Spare
160C3X/POS-I-LC-B	16 PORT OC3 WITH EXTENDED FEATURES RELEASE B
EPA-GE/FE-BBRD	Cisco 12000 Modular GE Baseboard w/ 1GE and 3 EPA Slots
EPA-3GE-SX/LH-LC	Cisco 12000 3-Port GE Port Adapter for EPA-GE/FE-BBRD
3GE-GBIC-SC	GSR12000 three-port GE line card
GE-GBIC-SC-B	GSR12000 single port Gigabit Ethernet line card
GBIC-SX-MM	1000base-SX GBIC module, multimode, standardized for GSR12000
GBIC-LH-SM	1000base-LH GBIC module, singlemode, standardized for GSR12000
GBIC-ZX-SM	GBIC very long reach GBIC module for the GE line card
6CT3-SMB	Channelized T3 for the GSR
GLC-LH-SM	GE SFP, LC connector LH transceiver
GLC-SX-MM	GE SFP, LC connector SX transceiver
6DS3-SMB-B	6DS3-SMB-B w/ ECC
6E3-SMB	E3 line card, 6 ports
12DS3-SMB-B	12DS3-SMB-B w/ ECC
12E3-SMB	E3 line card, 12 ports
CH0C12/STS3-IR-SC=	Channelized OC-12/STM-4 with four STS-3c/STM-1 POS paths
LC-OC12-DS3	1 port Channelize OC-12 with 12 DS3s
8FE-FX-SC-B	GSR 8-port 100baseFX, SC connector, version B
8FE-TX-RJ45-B	8-port 100baseTX, RJ45 connector type, version B
OC192/POS-IR-SC	1 Port OC192c/STM64c POS, 1550nm IR, SC
OC192/POS-SR-SC	1 Port OC192c/STM64c POS, 1310nm SR, SC
OC192/POS-VSR	1 Port OC192c/STM64c POS, VSR Optics
OC192E/POS-VSR	1 Port OC192c/STM64c POS Edge Card, VSR Optics
OC192E/POS-IR-SC	1 Port OC192c/STM64c POS Edge Card, 1550nm IR, SC
OC192E/POS-SR-SC	1 Port OC192c/STM64c POS Edge Card, 1310nm SR, SC
OC192/SRP-VSR	1 Port OC192c/STM64c SRP Linecard, 850nm VSR, MTP
OC192/SRP-IR-SC	1 Port OC192c/STM64c SRP Linecard, 1550nm IR, SC
OC192/SRP-SR-SC	1 Port OC192c/STM64c SRP Linecard, 1310nm SR, SC
4GE-SFP-LC=	4 port-GE line card for Cisco 12000

**Cisco 12000 Series Pluggable Optic Modules**

POM-OC48-LR2-LC 1-port OC-48/STM-16 Pluggable Optic Module, 1550nm SM-LR2 LC  
POM-OC48-SR-LC 1-port OC-48/STM-16 Pluggable Optic Module, 1310nm SM-SR LC

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

**For More Information**

See the Cisco 12000 Series Web site: <http://www.cisco.com/go/12000>