**C H A P T E R** **1**

# Routing

## Routing at a Glance

| Product | Features | Page |
|---|---|---|
| Cisco IOS® Software | See the Chapter 9—Cisco IOS Software and Network Management for an overview of Cisco IOS Software | 9-3 |
| Cisco SOHO Series Secure Broadband Routers | Ethernet, ADSL, ADSL over ISDN, and G.SHDSL Routers for Small Office and Home Offices | 1-8 |
| | • Integrated security of Cisco IOS Software with Stateful Inspection Firewall and software-based 3DES encryption | |
| | • 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 | |
| Cisco 800 Series | • WAN: 1-port Ethernet, 1-port ADSL, ADSL over ISDN or G.SHDSL or 1-port BRI (optional NT1), or 1-port serial | 1-9 |
| | • 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 | |
| | • Advanced security features including stateful inspection firewall and hardware assisted encryption (830 series) and QoS features for VoIP | |
| | • DMZ, Dial back up and out-of-band management (Cisco 830 series) | |
| | • Security Device manager (SDM) GUI tool for simple and advanced configuration | |
| Cisco 1800 Series | • Features secure, fast, and high-quality delivery of multiple, concurrent services for small-to-medium-sized businesses and small enterprise branch offices. | 1-11 |
| | • 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 | |
| Cisco 1700 Series | Flexible, secure, modular access routers | 1-14 |
| | • 1-port autosensing 10/100 Fast Ethernet LAN | |
| | • Modular slots support a wide variety of WAN and voice interface cards | |
| | • Supports secure Internet, intranet, and extranet access as well as new WAN applications including VPNs, integrated voice/data (VoIP), and broadband services | |
| | • VLAN Capability | |
| | • Supports up to five Ethernet connections with 1FE and 1 4-port Ethernet Switch WIC (WIC-4ESW) | |
| Cisco 2800 Series | • MIPS CPUs for increased performance | 1-18 |
| | • FIO ASIC-A custom designed ASIC—acts as a non-blocking switch for multiple busses | |
| | • Enhanced memory bus using Double data Rate (DDR) SDRAM with Error Correcting Code | |
| | • Built in hardware encryption chip accelerating IPSEC traffic | |
| | • A minimum of 2 built in Fast Ethernet (FE) LAN interfaces | |
| Cisco 2600 Series | Modular multiservice router | 1-24 |
| | • Single or dual LAN (10/100 Mbps Ethernet and Token Ring/Ethernet options) | |
| | • 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 | |
| | • Shares WAN interface cards and network modules with Cisco 1700, 3600 and 3700 series | |
| | • Optional AC, DC or RPS versions | |
| Cisco 3800 Series | Integrated Services Routers | 1-29 |
| | • Highest performance and densities with the ability to run concurrent data, security, voice, and advanced services at wire speed up to T3/E3 | |
| | • Higher availability and resiliency with Online Insertion and Removal (OIR); redundant system and inline power options | |
| | • High-speed WAN Interface Cards (HWICs) free up network module slots for other services | |
| | • Enhanced security | |
| | • Expanded default and maximum memory capacity with ECC (Error Correction Code) DDR SDRAM memory to detect and correct SDRAM errors without user intervention | |

| Product | Features | Page |
|---------|----------|------|
| **Cisco 3700 Series** | Modular multiservice high-density access router | 1-32 |
| | • Enable higher levels of application and service integration in enterprise branch offices in a small form factor | |
| | • 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. | |
| | • Shares WAN interface cards (WICs), Voice Interface Cards (VICs), and Network Modules with Cisco 1700, 2600/2600XM, and 3600 series | |
| **Cisco 7200 Series** | WAN-edge router providing intelligent services, modularity, high performance, investment protection, and scalability in a small form factor | 1-36 |
| | • Modular 3 RU Chassis | |
| | • 4- or 6-slot models and choice of system processors for up to 1 Mpps performance | |
| | • 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 | |
| **Cisco 7300 Series** | Network Edge router with high performance IP services delivered at optical speeds for service providers and enterprise networks | 1-38 |
| | • Compact and modular 4 rack unit chassis—4 slots | |
| | • High performance connectivity—T3 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 | |
| **Cisco 7500 Series** | High-end services-enabled core and WAN aggregation router for enterprise and service provider applications | 1-40 |
| | • 5-, 7-, and 13-slot models | |
| | • 1-, 2-, or 4-bus models offering 1, 2, or 4 Gbps backplanes | |
| | • Wide variety of LAN and WAN options including Ethernet, Fast Ethernet, Gigabit Ethernet, Token Ring, FDDI, serial, HSSI, ATM, and Packet over SONET | |
| **Cisco 7600 Series** | • Consolidated WAN/MAN/LAN in a single platform | 1-43 |
| | • 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 | |
| | • High-volume aggregation of service-enabled Ethernet | |
| | • Wide range of WAN/MAN interfaces from NxDS0, T1, T3 to OC-48 with line rate services | |
| | • Ideal for service provider edge, metropolitan area network, & triple-play deployments, and high-end enterprise solutions | |
| | • Also supports Catalyst 6500 series line cards and 75/7200 port adapters | |
| **Cisco 10000 Series** | Service provider-class edge services router | 1-45 |
| | • Enables service providers to deploy revenue-generating services without worrying about performance degradation | |
| | • Minimizes costly network outages and maximizing end-customer satisfaction with its carrier-class high availability | |
| | • Enables leased line and broadband aggregation features on a single platform | |
| | • Broad range of channelized, clear channel, ATM and LAN interfaces. Physical interface speeds from E1/T1 up to OC-48c/STM-16c | |
| **Cisco 10700 Series** | Service provider-class metro edge services router | 1-47 |
| | • Optimized building block for the next generation metro Ethernet/IP access networks | |
| | • 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 | |
| | • Powered by Cisco IOS 12.0S software and the parallel express forwarding (PXF) architecture | |
| | • Cost-effective, reliable, high-performance platform supporting full suite of IP/MPLS features and services found in Cisco Internet Routers | |
| | • 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 | |
| **Cisco 12000 Series** | • Seven chassis options | 1-49 |
| | • 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 | |
| | • Extensive portfolio of line cards | |

# Cisco Routers Port Matrix

| | SOHO Series | 800 Series | 1700 Series | 1800 Serieis | 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 |
| **LAN Ports** | | | | | | | | | | | | | | | | |
| 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 | |
| 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 |
| **WAN Ports** | | | | | | | | | | | | | | | | |
| 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[1] | | X | X | X | X | | X | X | | | |
| DS3 | | | | | X | | X | X | X | X | X | X | X | X | | X |
| ATM OC-3 | | | | | X[1] | | X | | X | X | X | X | X | | | X |
| ATM OC-12 | | | | | | | | | | X | X | X | X | | | X |
| ATM | X | X | | | X | | X | | X | X | X | X | X | | | X |
| ATM - T1/E1 | | | | | X | | X | | X | X | X | X | | | | |
| POS OC-x/STM-x | | | | | | | | | X | X | X | X | X | | | X |
| DPT/RPR OC-12/STM-4 | | | | | | | | | | X | | X | | | | X |
| DPT/RPR OC-48/STM-16 | | | | | | | | | | | | | X | X | X | 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 |
| **Voice Over IP** | | | | | | | | | | | | | | | | |
| Analog Voice Interfaces | | X | X[2] | | X | | X | X | | | | | | | | |
| Digital | | | X[2] | | 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[2] | | X | | X | | | X | | | | | | |
| **Integrated Switching** | | | | | | | | | | | | | | | | |
| Integrated 4-port Switching | | | X | X | | | | | | | | | | | | |
| Integrated 16-port Switching | | | | | X | | X | X | | | | | | | | |
| Integrated 36-port Switching | | | | | | | X | X | | | | | | | | |
| Inline Power | | | | | X[3] | | X | X | | | | | | | | |
| **Content Acceleration** | | | | | | | | | | | | | | | | |
| Content Engine | | | | | X | | X | X | | | | | X | | | |
| **Security VPN** | | | | | | | | | | | | | | | | |
| 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) |
|---|---|---|---|---|---|
| **SOHO 78** | Flash | 1 | 8 MB | 8 MB | No Upgradeable Memory |
| | DRAM | 1 | 16 MB | 16 MB | |
| **SOHO 90** | Flash | 1 | 8 MB | 8 MB | No Upgradeable Memory |
| | DRAM | 1 | 32 MB | 32 MB | |
| **801, 802, 803, and 804** | Flash | 1 | 8 MB | 12 MB | 4 MB on board and 4 MB or 8 MB Mini flash card |
| | DRAM | 1 | 8 MB | 12 MB | 4 MB onboard and 4 MB or 8 MB DIMM module |
| **805** | Flash | 1 | 8 MB | 12 MB | |
| | DRAM | 1 | 8 MB (On board) | 16 MB | 4 MB On board + 4 MB Mini Flash |
| **811 and 813** | Flash | 1 | 8 MB | 12 MB | 4 MB On board + 4 MB or 8 MB Mini Flash |
| | DRAM | 1 | 8 MB | 16 MB | 8MB on board and 4MB or 8MB DIMM Module |
| **827-4V** | Flash | 1 | 12 MB | 16 MB | 8 MB On board + 4 MB or 8 MB Mini Flash |
| | DRAM | 1 | 48 MB | 48 MB | 16 MB Onboard and 32 MB DIMM module |
| **828** | Flash | 1 | 8 MB | 16 MB | 8 MB On board flash |
| | DRAM | 1 | 24 MB | 32 MB | 16MB On board DRAM + 4MB, 8MB or 16MB DIMM module |
| **831, 836, 837** | Flash | 1 | 12 MB | 24 MB | 8MB On board + 4MB, 8MB or 16MB Mini Flash |
| | DRAM | 1 | 48 MB | 48 MB | 32MB On board + 16MB DIMM module |
| **1711 and 1712** | Flash | 1 | 32 MB | 32 MB | |
| | DRAM | 1 | 64 MB | 128 MB | |
| **1721** | Flash | 1 | 32 MB | 32 MB | |
| | DRAM | 1 | 64 MB (On board) | 128 MB | |
| **1751** | Flash | 1 | 32 MB | 32 MB | |
| | DRAM | 1 | 64 MB | 128 MB | |
| **1760** | Flash | 1 | 32 MB | 64 MB | |
| | DRAM | 1 | 64 MB | 128 MB | |
| **1800 Series**[1] | Flash | 1 | 32 MB | 128 MB | |
| | DRAM | 1 | 256 MB | 384 MB | |
| **2500 Series** | Flash | 2 | 8 MB | 16 MB | Slot 0 = 8 MB |
| | DRAM | 1 | 4 MB | 16 MB | |

| Router | Memory Type | Slots | Default Memory | Max Memory | Default Configuration (Notes) |
|---|---|---|---|---|---|
| **2600 Series** | 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 |
| **2800 Series** | 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 | |
| **3700 Series** | 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 |
| **3800 Series** | 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 |
| **7100 Series** | 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 | |
| **7200 Series** | 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 |
| **7300 Series** | Flash (CFM) | 1 | 64 MB | 128 MB | |
| | DRAM | 1 | 128 MB | 1024 MB | |
| **7400 Series** | 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 | |
| **7500 Series** | 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 | |
| **7600 Series** | 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 | |
| **10000 Series** | 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 Memory | Max Memory | Default Configuration (Notes) |
|---|---|---|---|---|---|
| **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 Carrier Card | 7400 | 7500 | 7600 |
|---|---|---|---|---|---|---|
| **ATM Port Adapters** | | | | | | |
| 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 | • | – | – | • | • | – |
| **Ethernet Port Adapters** | | | | | | |
| 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 | • | – | • | • | – | – |
| **Other LAN Port Adapters** | | | | | | |
| PA-4R-DTR: 4-port dedicated Token Ring, 4/16 Mbps, HDX/FDX | • | – | – | – | • | – |

| Port Adapter | 7200VXR | 7301 | 7304 Carrier Card | 7400 | 7500 | 7600 |
|---|---|---|---|---|---|---|
| PA-F-MM/SM: 1-port FDDI full duplex multimode/single-mode port adapter | – | – | – | – | • | – |
| PA-F/FD-MM/SM: 1-port FDDI full duplex multimode/single-mode port adapter | – | – | – | – | • | – |
| **Serial Port Adapters** | | | | | | |
| 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) |
| **High-speed Serial Port Adapters** | | | | | | |
| 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) |
| **Multichannel Serial Port Adapters** | | | | | | |
| 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 adapte | • | • | • | • | • | • (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) |
| **SONET PAs** | | | | | | |

| Port Adapter | 7200VXR | 7301 | 7304 Carrier Card | 7400 | 7500 | 7600 |
|---|---|---|---|---|---|---|
| PA-POS-OC3-MM: 1-port packet/SONET OC-3c/STM1 multimode port adapter | • | • | • | • | • | • (Native) |
| **Other Port Adapters and SAs** | | | | | | |
| PA-4C-E: 1-port-enhanced ESCON channel port adapter | • | – | – | – | – | – |
| PA-FC-1G: Cisco Fiber Channel over IP port adapter interface | • | – | – | • | • | – |
| SA-ISA: Integrated Services Adapter | • | – | – | – | – | – |
| SA-VAM: VPN acceleration module for Cisco 7100 and 7200 Series | • | – | – | • | – | – |
| SA-VAM2: VPN acceleration module 2 | • | – | – | – | – | – |
| PA-SRP-OC12SMI: DPT-OC-12 single-mode intermediate PA | • | – | – | – | – | – |
| PA-SRP-OC12SMX: DPT-OC-12 single-mode extended reach PA | • | – | – | – | – | – |
| PA-VXC-2TE1+: 2-port T1/E1 high-capacity enhanced-voice PA | • | • | – | – | • | – |
| PA-VXB-2TE1+: 2-port T1/E1 moderate-capacity enhanced-voice PA | • | • | – | • | • | – |
| PA-VXA-1TE1-24+: 1-port T1/E1 digital voice port adapter with 24 channels | • | – | – | • | • | – |

# Cisco SOHO Series Ethernet, ADSL over ISDN, ADSL 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 | When a Customer Needs These Features |
|---|---|
| **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 |
|---|---|---|---|---|
| Fixed LAN Ports | 4-port 10/100 Switch | 4-port 10/100 Switch | 4-port 10/100 Switch | 4-port Ethernet hub (10BASE-T) |
| Fixed WAN Ports | 1-port Ethernet (connects to external DSL or cable modem | 1-port ADSL over ISDN | 1-port ADSL over POTS | 1-port G.SHDSL |
| Flash Memory | 8 MB | 8 MB | 8 MB | 8 MB |
| DRAM Memory | 32 MB | 32 MB | 32 MB | 16 MB |
| Dimensions (HxWxD) | 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<br>• Service providers who offer value-added services to small offices<br>• VARs who are familiar with Cisco IOS software and want to profitably service small office customers<br>• 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

- 3Com: Office Connect Remote 511/521
- Alcatel: Speed Touch Pro Routers
- Ascend: Pipeline 75/85
- Efficient: 5861 / 5660
- Intel: Express 8100

- Netopia: R3100, R6100, 4533
- Nortel/Bay: Nautica 250
- Nokia: MW1352
- Zyxel: 782
- Linksys: Etherfast

## Specifications

| Feature | 801 | 802 | 803 | 804 | 811 | 813 |
|---|---|---|---|---|---|---|
| Fixed LAN Port Connections | 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) |
| Fixed WAN Port Connections | 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 |
| Flash Memory | 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) |
| DRAM Memory | 8MB (default) 12MB (max) | 8MB (default) 12MB (max) | 8MB (default) 12MB (max) | 8MB (default) 12MB (max) | 8MB (default) 16MB (max) | 8MB (default) 16MB (max) |
| Dimensions (HxWxD) | 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 |
|---|---|---|---|---|---|---|
| Fixed LAN Port Connections | 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) |
| Fixed WAN Port Connections | 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 |
| Flash Memory | 8MB (default) 12MB (max) | 12MB (default) 16MB (max) | 8MB (default) 16MB (max) | 12MB (default) 24MB (max) | 12MB (default) 24MB (max) | 12MB (default) 24MB (max) |
| DRAM Memory | 8MB (default) 16MB (max) | 48MB (default) 48MB (max) | 24MB (default) 32MB (max) | 48MB (default) 48MB (max) | 48MB (default) 48MB (max) | 48MB (default) 48MB (max) |
| Dimensions (HxWxD) | 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[1]

**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-12.0.7.XV= | Cisco 800 Series IP/IPX/FW Plus IPSec 56 |
| CD08-BP-12.07.XV= | Cisco 800 Series IP/IPX/Plus |
| CD800-5CAPI= | CAPI 5 User CD |
| CD08-IC-12.0.5T= | Cisco 800 Series Internet DSL |
| CD08-ICHL-12.0.5T= | Cisco 800 Series Internet DSL FW IPSec56 |
| CD08-IBHL-12.0.5T= | Cisco 800 Series Internet DSL IPX FW IPSec56 |

**Cisco 800 Series Memory Options**

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

**Cisco 800 Series Accessories**

| | |
|---|---|
| PWR-8xx-WW1= | Cisco 8xx Series, AC Power Supply Spare |

**Cisco 800 Series Basic Maintenance**

| | |
|---|---|
| CON-SNT-PKG1 | Cisco 800 Series SMARTnet Maintenance (8x5xNBD) |

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 | When a Customer Needs These Features |
|---|---|
| Cisco 1841 | • Secure data access solution for customer environments up to T1/E1/xDSL WAN rates with services turned on |
| | • Needs support for a broad array of WAN services |
| | • Needs comprehensive security features |

## Key Features

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

| Features | Cisco 1841 |
|---|---|
| Immunity | 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 |
| Network homologation | 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.991.2, CTR3, ITU I.431 1993; Hong Kong: HKTA 2033, HKTA 2033, HKTA 2014, HKTA 2017 Issue 3 2003, HKTA 2011 Issue 1, HKTA 2011 Issue 2, HKTA 2013 Issue 1; India: I_DCA_18_02_Jun_99-199, S/ISN-01/02 Issue 1999 S/ISN-02 1 1998, IR/PRI-01/02 Issue 1 1998, S/INT-2W/02 MAY 2001, S/INT-2W/02 MAY 2001; Israel: U.S. approval accepted; Japan: Technical condition (DoC acceptance in process); Korea: U.S. approval accepted; Mexico: U.S. approval accepted; New Zealand: PTC 270/272, CTR 3, ACA 016 Revision 4 1997, PTC 200; Singapore: IDA TS ADSL1 Issue 1, IDA TS ADSL 2, IDA TS HDSL, IDA TS ISDN 1 Issue 1 1999, IDA TS ISDN 3 Issue 1 1999, IDA TS PSTN 1 Issue 4 , IDA TS PSTN 1 Issue 4, IDA TS PSTN 1 Issue 4; South Africa: U.S. approval accepted; Taiwan: U.S. approval accepted |

# Selected Part Numbers and Ordering Information[1]

**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 VWICs**

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

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 | When a Customer Needs These Features |
|---|---|
| Cisco 1711/1712 | • Advanced routing and security functionality in one device when connecting to the Internet using a broadband modem<br>• Hardware-assisted high speed 3DES VPN encryption<br>• Back-up interface is need for highly reliable apps<br>• VLAN Configuration is necessary or fixed configuration is sufficient |
| Cisco 1721 | • Secure data-only access solution that adapts to customers' evolving network requirements<br>• Support for data applications including VPNs and broadband access services<br>• A broad array of WAN services supported, including Frame Relay, leased line, ADSL, G.SHDSL, ISDN BRI, X.25, SMDS and more<br>• IPSec 3DES VPN encryption at full T1/E1 speeds<br>• IEEE 802.1Q VLAN Support<br>• Modularity is required |
| Cisco 1751 | All the above, plus:<br>• Analog and digital voice support in a desk-top form factor<br>• 3 modular slots for WAN and Voice interface cards |
| Cisco 1760 | All the above, plus:<br>• 19" rackmount form factor; 4 slots with 2 WIC/VWIC/VIC and 2 VWIC/VIC (voice only) slots<br>• Multiservice analog and digital voice support<br>• Highest performance multi-service router in the Cisco 1700 family<br>• 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 |
|---|---|---|---|---|
| **Fixed LAN Ports (connections)** | 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 autosensing10/100 Mbps Ethernet |
| **Fixed WAN Ports** | 1-port analog modem (1711), 1-port ISDN S/T interface (1712) | None | None | None |
| **Modular Slots** | 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) |
| **WAN Interface Card (WIC) Modules** | None | See Part Numbers and Ordering Information | See Part Numbers and Ordering Information | See Part Numbers and Ordering Information |
| **Voice Interface Cards (VIC) Modules** | None | None | See Part Numbers and Ordering Information | See Part Numbers and Ordering Information |
| **Flash Memory** | 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) |
| **DRAM Memory** | 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) |
| **Dimensions (HxWxD)** | 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[1]

**Cisco 1700 Series Modular Access Routers**

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

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

**Cisco 1700 Module Options**

| | |
|---|---|
| MOD1700-VPN | Cisco 1700 Series VPN Module |

**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 | When a Customer Needs These Features |
|---|---|
| Cisco 2800 | • 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 (PVDMs), 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 |
|---|---|---|---|---|
| Fixed USB 1.1 ports | 1 | 2 | Sames As Cisco 2811 | Sames As Cisco 2811 |
| Onboard LAN ports | 2 - 10/100 | Sames As Cisco 2801 | 2 - 10/100/1000 | Sames As Cisco 2821 |
| Onboard AIM (internal) slot | 2 | Sames As Cisco 2801 | Sames As Cisco 2801 | Sames As Cisco 2801 |
| Interface card slots | 4 slots; 2 slots support HWIC, WIC, VIC, or VWIC type modules<br><br>1 slot supports WIC, VIC, or VWIC type modules<br><br>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 |
| Network-module slot | No | 1 slot, supports NM and NME type modules | Sames As Cisco 2811 | Sames As Cisco 2811 |
| Extension Voice Module Slot | 0 | Sames As Cisco 2801 | Sames As Cisco 2801 | 1 |
| PVDM (DSP) slots on motherboard | 2 | Sames As Cisco 2801 | Sames As Cisco 2801 | 3 |
| Integrated hardware-based encryption | Yes | Sames As Cisco 2801 | Sames As Cisco 2801 | Sames As Cisco 2801 |
| VPN hardware acceleration (on motherboard) | DES, 3DES, AES 128, AES 192, and AES 256 | Sames As Cisco 2801 | Sames As Cisco 2801 | Sames As Cisco 2801 |
| Optional integrated in-line power (PoE) | Yes, requires AC-IP power supply | Sames As Cisco 2801 | Sames As Cisco 2801 | Sames As Cisco 2801 |
| Console port (up to 115.2 kbps) | 1 | Sames As Cisco 2801 | Sames As Cisco 2801 | Sames As Cisco 2801 |
| Auxiliary port (up to 115.2 kbps) | 1 | Sames As Cisco 2801 | Sames As Cisco 2801 | Sames As Cisco 2801 |
| Minimum Cisco IOS Software release | 12.3(8)T | Sames As Cisco 2801 | Sames As Cisco 2801 | Sames As Cisco 2801 |
| Rack mounting | Yes, 19-inch | Yes, 19- and 23-in. options | Sames As Cisco 2811 | Sames As Cisco 2811 |
| Wall mounting | No | Yes | Sames As Cisco 2801 | Sames As Cisco 2801 |
| AC input voltage | 100 to 240 VAC, autoranging | Sames As Cisco 2801 | Sames As Cisco 2801 | Sames As Cisco 2801 |
| AC input frequency | 47-63 Hz | Sames As Cisco 2801 | Sames As Cisco 2801 | Sames As Cisco 2801 |
| AC input current | 2A (110V); 1A (230V) | Sames As Cisco 2801 | 3A (110V); 2A (230V) | Sames As Cisco 2821 |
| AC input surge current | "50A maximum, one cycle (-48V power included) | Sames As Cisco 2801 | Sames As Cisco 2801 | Sames As Cisco 2801 |
| AC-IP max in-line power distribution | 120W | 160W | 240W | Sames As Cisco 2821 |
| AC-IP input current | 2A (110V); 1A (230V) | Sames As Cisco 2801 | Sames As Cisco 2801 | Sames As Cisco 2801 |
| AC-IP input surge current | 50A maximum, one cycle (−48V power included) | Sames As Cisco 2801 | Sames As Cisco 2801 | Sames As Cisco 2801 |
| DC input voltage | 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 |
| DC input current | No DC Power Option available | 8A (24V)<br>3A (60V)<br>Startup current 5A<10 ms | 12A (24V)<br>5A (60V)<br>Startup current 50A<10 ms | Sames As Cisco 2821 |
| Power dissipation— AC without IP phone support | 150W (511 BTU/hr) | 170W (580 BTU/hr) | 280W (955 BTU/hr) | Sames As Cisco 2821 |
| Power dissipation— AC with IP phone support—system only | 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 |
|---|---|---|---|---|
| **Power dissipation— AC with IP phone support-IP phones** | 180W (612 BTU/hr) | 160W (546 BTU/hr) | 240W (819 BTU/hr) | Sames As Cisco 2821 |
| **Power dissipation— DC** | Not applicable | 180W (614 BTU/hr) | 300W (1024 BTU/hr) | Sames As Cisco 2821 |
| **RPS** | No | External only, connector for RPS provided by default | Sames As Cisco 2811 | Sames As Cisco 2811 |
| **Recommended RPS unit** | No RPS option | Cisco RPS-675 Redundant Power System | Sames As Cisco 2811 | Sames As Cisco 2811 |
| **Operating temp** | 32 to 104×F; (0 to 40×C) | Sames As Cisco 2801 | Sames As Cisco 2801 | Sames As Cisco 2801 |
| **Operating humidity** | 10 to 85% noncondensing | 5 to 95%, noncondensing | Sames As Cisco 2811 | Sames As Cisco 2811 |
| **Nonoperating temp** | N/A | −4° to 149°F (−20° to 65°C) | Sames As Cisco 2811 | Sames As Cisco 2811 |
| **Dimensions (H x W x D)** | 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 |
| **Rack height** | 1 rack unit (1RU) | 1 rack unit (1RU) | 2RU | Sames As Cisco 2821 |
| **Weight (configured)** | 13.7 lb (6.2 kg) | 14 lb (6.4 kg) | 25 lb (11.4 kg) | Sames As Cisco 2821 |
| **Noise level (min/max)** | 39 dBA for normal operating temperature (<90°F/32.2°C) 53.5 dBA (@ maximum fan speed) | 47 dBA for normal operating temperature (<90°F/32.2°C) 57 dBA (@ maximum fan speed) | 44 dBA for normal operating temperature (<90°F/32.2°C) 53 dBA (@ maximum fan speed) | Sames As Cisco 2821 |
| **Safety** | 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 |
| **Immunity** | EN300386 EN55024/CISPR24 EN50082-1 EN61000-6-2 | Sames As Cisco 2801 | Sames As Cisco 2801 | Sames As Cisco 2801 |
| **EMC** | FCC Part 15; ICES-003 Class A; EN55022 Class A; CISPR22 Class A; AS/NZS 3548 Class A; VCCI Class A EN 300386; EN61000-3-3; EN61000-3-2 | Sames As Cisco 2801 | Sames As Cisco 2801 | Sames As Cisco 2801 |
| **TELCOM** | Telecom compliance standards depend upon country and interface type. Interfaces comply with FCC Part 68, CS-03, JATE Technical Conditions, European Directive 99/5/EC and relevant TBRs. See the datasheet for the specific interface card. | Sames As Cisco 2801 | Sames As Cisco 2801 | Sames As Cisco 2801 |

# Selected Part Numbers and Ordering Information[1]

**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 nodule |
| 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 |

**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 |

**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 | |

**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**

| VWIC-1MFT-T1 | 1-port RJ-48 multiflex trunk - T1 |
| VWIC-2MFT-T1 | 2-port RJ-48 multiflex trunk - T1 |
| VWIC-2MFT-T1-DI | 2-port RJ-48 multiflex trunk - T1 with drop and insert |
| VWIC-1MFT-E1 | 1-port RJ-48 multiflex trunk - E1 |
| VWIC-1MFT-G703 | 1-port RJ-48 multiflex trunk - G.703 |
| VWIC-2MFT-E1 | 2-port RJ-48 multiflex trunk - E1 |
| VWIC-2MFT-E1-DI | 2-port RJ-48 multiflex trunk - E1 with drop and insert |
| VWIC-2MFT-G703 | 2-port RJ-48 multiflex trunk - G.703 |

**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[2] 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[2] users), 64 MB Flash/256 MB DRAM |
| CISCO2851-SRST/K9 | Cisco 2851 Voice Bundle with IOS SP Services, PVDM2-48, FL-SRST (72/96[2] 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 | When a Customer Needs These Features |
| --- | --- |
| Cisco 2691 | • 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.<br>• High Performance 10/100 Dual Ethernet Router with 3 WIC Slots, 1 NM |
| Cisco 2651XM | • High performance Dual 10/100 Modular Router with Cisco IOS IP |
| 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

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

## Specifications

| Feature | 2610/11XM | 2620/21XM | 2650/51XM | 2691 |
|---|---|---|---|---|
| Performance | Up to 20Kpps | Up to 30Kpps | Up to 40Kpps | Up to 70Kpps |
| Flash Memory (Default/Max) | 32 MB/48 MB | 32 MB/48 MB | 32 MB/48 MB | 32 MB/128 MB (Compact Flash) |
| System Memory (Default/Max) | 128 MB/256 MB | 128 MB/256 MB | 256 MB/256 MB | 256 MB/256 MB |
| Integrated WIC Slots | 2 | 2 | 2 | 3 |
| Onboard AIM Slot | 1 | 1 | 1 | 2 |
| Minimum Cisco IOS Release | 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 |
| Onboard LAN Ports | 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 |
| Rack Mounting | Yes, 19" and 23" options | Yes, 19" and 23" options | Yes, 19" and 23" options | Yes, 19" and 23" options |
| Wall Mounting | Yes | Yes | Yes | No |

## Cisco IOS Software[1]

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**

| Part Number | Feature Pack Description |
| --- | --- |
| 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/fn

## Selected Part Numbers and Ordering Information[1]

**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 Rout w/Cisco IOS IP-DC |
| CISCO2621XM-RPS | Mid Performance Dual 10/100 Ethernet Rout w/IOS IP-RPS ADPT |
| CISCO2650XM | High Performance 10/100 Modular Router w/Cisco IOS IP |
| CISCO2650XM-DC | High Performance 10/100 Modular Rout w/Cisco IOS IP-DC NEBs |
| CISCO2650XM-RPS | High Performance 10/100 Modular Rout w/Cisco IOS IP-RPS ADPT |
| CISCO2651XM | High Performance Dual 10/100 Modular Rout with Cisco IOS IP |
| CISCO2651XM-DC | High Performance Dual 10/100 Modular Rout w/IP-DC NEB |
| CISCO2651XM-RPS | High Performance Dual 10/100 Mod Rout w/IP-RPS ADPT |
| CISCO2691 | High Performance 10/100 Dual Eth Router w/3 WIC Slots,1 NM |
| CISCO2691-DC-U | 2691 router w/Universal Power Supply 24/48 volts |
| CISCO2691 | 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/ FrT1/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[2]**

2VWIC-1MFT-T1=               1-port RJ-48 Multiflex Trunk-T1
VWIC-2MFT-T1=                2-port RJ-48 Multiflex Trunk-T1
VWIC-2MFT-T1-DI=             2-port RJ-48 Multiflex Trunk-T1 With Drop and Insert
VWIC-1MFT-E1=                1-port RJ-48 Multiflex Trunk-E1
VWIC-1MFT-G703=              1-port RJ-48 Multiflex Trunk-G.703
VWIC-2MFT-E1=                2-port RJ-48 Multiflex Trunk-E1
VWIC-2MFT-G703=              2-port RJ-48 Multiflex Trunk-G.703
VWIC-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-2FX0-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 |

**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 |

**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/BPII= | 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/-EPII= | 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 |

**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 | When a Customer Needs These Features |
|---|---|
| Cisco 3825 | • Medium sized to large branch offices and businesses with the ability to support concurrent data, security, voice, and advanced services at wire speed up to ½ T3/E3 rates |
| | • Two onboard 10/100/1000, 4 HWIC slots and one SFP port |
| | • Low density (up to 18 ports), integrated 10/100 switching with PoE support; up to 48-ports with Cisco Inline Power |
| | • Integrated onboard security acceleration for IPSec for improved IPSec performance and an integral part of Cisco Self Defending Network, which enable network device protection, threat defense, secure connectivity, and endpoint protection and control |
| | • Up to four Integrated PVDMs slots, industry-leading call processing and autoattendant solutions, and high-density voice cards and modules that speed IP Communications and give customers a choice of telephony interface devices |
| Cisco 3845 | Same features as above plus: |
| | • Medium sized to large branch offices and businesses providing the highest performance and densities for concurrent data, security, voice, and advanced services with the ability to run at wire-speed up to T3/E3 |
| | • 4 Enhanced Network Module slots |
| | • Higher availability and resiliency, such as redundant system and inline power, online insertion and removable (OIR) components, and field replaceable components such as the cpu motherboard and fan assembly |

## Key Features

- Cisco IOS Software Firewall—Stateful, application-based filtering (context-based access control); Per-user authentication and authorization; Real-time alerts; Transparent firewall; IPv6 firewall
- VPN—Data Encryption Standard (DES), Triple DES (3DES), and Advanced Encryption Standard (AES) 128, 192, and 256 cryptology support; Embedded hardware-based VPN acceleration on the motherboard; Support for optional higher-performance AIM-based security acceleration with Layer 3 compression; Support for up to 1800 tunnels with VPN Module; Cisco Easy VPN remote and server support; DMVPN
- Multiprotocol Label Switching (MPLS) VPN support—Specific provider edge capabilities; Virtual routing and forwarding (VRF) firewall and VRF IPSec
- Onboard USB 1.1 port(s)—Future support for secure token and Flash memory
- 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 |
|---|---|---|
| EtherSwitch Modules | Yes, HWIC and Network Modules | Same As Cisco 3825 |
| Performance with Services | Up to 14 T1/E1ís | Up to T3 |
| VPN/Security Advanced Integration Modules (AIM) | Yes, EPII-Plus | Yes, HPII-Plus |
| Content Engine Network Modules | Yes | Same As Cisco 3825 |
| Flash Memory (External) | 64 MB (default) -256 MB (optional) | Same As Cisco 3825 |
| DRAM Memory | 256 MB (default) | Same As Cisco 3825 |
|  | 1024 MB (max) | Same As Cisco 3825 |
| Power Supply | AC, AC +POE,  DC, external redundant AC | AC, DC, internal redundant AC + POE |
| Dimensions (HxWxD)in. | 3.5 x 17.1 x 14.7 in. | 5.25 x 17.25 x 16 in. |

## Selected Part Numbers and Ordering Information[1]

**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/HPII-PLUS, FL-CCME (240 users), 64 MB Flash/256 MB DRAM |
| CISCO3825-V3PN/K9 | Cisco 3825 V3PN Bundle with IOS Advanced IP Services, PVDM2-64, AIM-VPN/EPII-PLUS, FL-CCME (168 users), 64 MB Flash/256 MB DRAM |
| 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/HPII 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/EPII 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.
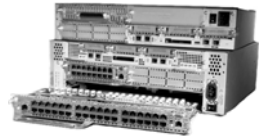
## When to Sell

| Sell This Product | When a Customer Needs These Features |
|---|---|
| Cisco 3725 | • New levels of branch office service density in a compact form factor (2RU)<br>• Integrated Security, intrusion detection, and VPN<br>• Integrated flexible routing and low-density switching (16-or-36 ports)<br>• Flexible incremental and scalable migration to a voice/data converged branch office network<br>  – Compatibility with more than 90% of the world's legacy analog and digital TDM PBXs<br>  – Survivable Remote Site Telephony (SRST) features that enable centralized call processing with local branch IP Telephony redundancy<br>  – Inline power for IP Telephony<br>• Content Networking and Caching integrated for WAN bandwidth conservation |
| Cisco 3745 | Same features as above plus:<br>• New levels of branch office service density in a compact form factor (3RU)<br>• Availability features such as redundant power, online insertion and removable components, and field replaceable components<br>• Increased performance and density |

## Key Features

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

## Specifications

| Feature | Cisco 3725 | Cisco 3745 |
| --- | --- | --- |
| Network Module Slots | 2 | 4 |
| Advanced Integration Module (AIM) Slots | 2 | 2 |
| WAN Interface Card (WIC) Slots | 3 | 3 |
| 10/100 FE Ports | 2 | 2 |
| WAN Modules | See Part Numbers and Ordering Information | See Part Numbers and Ordering Information |
| ATM Modules | See Part Numbers and Ordering Information | See Part Numbers and Ordering Information |
| Voice/Fax Network Modules | See Part Numbers and Ordering Information | See Part Numbers and Ordering Information |
| WAN Interface Card (WIC) Modules | See Part Numbers and Ordering Information | See Part Numbers and Ordering Information |
| Multiflex Voice/WAN Interface Cards | See Part Numbers and Ordering Information | See Part Numbers and Ordering Information |
| Voice Interface Card (VIC) Modules | See Part Numbers and Ordering Information | See Part Numbers and Ordering Information |
| Modem Modules | See Part Numbers and Ordering Information | See Part Numbers and Ordering Information |
| EtherSwitch Modules | See Part Numbers and Ordering Information | See Part Numbers and Ordering Information |
| Performance | 100 kpps | 225 kpps |
| VPN/Security Advanced Integration Modules (AIM) | See Part Numbers and Ordering Information | See Part Numbers and Ordering Information |
| Content Network Modules | See Part Numbers and Ordering Information | See Part Numbers and Ordering Information |
| Flash Memory | 32 MB (default); 128 MB (max) | 32 MB (default); 128 MB (max) |
| Flash Memory (External) | 32 MB -128 MB (optional) | 32 MB -128 MB (optional) |
| DRAM Memory | 256 MB (default) 256 MB (max) | 256 MB (default) 256 MB (max) |
| Power Supply | AC, DC, external redundant AC | AC, DC, internal redundant AC |
| Dimensions (HxWxD) | 3.5 x 17.25 x 14.7 in. | 5.25 x 17.25 x 15 in. |

## Selected Part Numbers and Ordering Information[1]

**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.711and 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 |

**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**

| | |
|---|---|
| VWIC-1MFT-T1 | 1-port RJ-48 MultiFlex Trunk-T1 |
| VWIC-2MFT-T1 | 2-port RJ-48 MultiFlex Trunk-T1 |
| VWIC-2MFT-T1-DI | 2-port RJ-48 MultiFlex Trunk-T1 with Drop and Insert |
| VWIC-1MFT-E1 | 1-port RJ-48 MultiFlex Trunk-E1 |
| VWIC-2MFT-E1 | 2-port RJ-48 MultiFlex Trunk-E1 |
| VWIC-2MFT-E1-DI | 2-port RJ-48 MultiFlex Trunk-E1 with Drop and Insert Add not for VWICs VIC slots & WIC slots |
| VWIC-1MFT-G703 | 1-port RJ-48 MultiFlex Trunk-E1 unstructured |
| VWIC-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/HPII | DES/3DES/AES VPN Encryption/Compression Module for 3660/3745 |
| AIM-VPN/EP II | DES/3DES/AES VPN Encryption/Compression Module for 2691/3725 |

**Content Engine Network Modules**

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

**Dry Contact Closure Alarm NM**

| | |
|---|---|
| NM-AIC-64 | Alarm Monitoring and Control Network Module |

**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 |

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 | When a Customer Needs These Features |
|---|---|
| Cisco 7204VXR | • 4-slot chassis<br>• Modular processor: 225, 400, or 1 Mpps (NPE-225, NPE-400, NPE-G1)<br>• 1.2 Gbps backplane<br>• MIX-enabled bus for data/voice/video applications |
| Cisco 7206VXR | • 6-slot chassis<br>• Modular processor: 225, 400, or 1 Mpps (NPE-225, NPE-400, NPE-G1)<br>• 1.2 Gbps backplane<br>• MIX-enabled bus for data/voice/video applications |

## Key Features

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

## Competitive Products

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

## Specifications

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

## Cisco IOS Software and Memory Requirements[1]

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 |

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/fn

## Selected Part Numbers and Ordering Information[1]

**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 contlr w/ 2FE
**Cisco 7200 VPN Bundle**
7204VXR225/VPNK9                    7204VXR VPN Bundle NPE225, 128MB, I/O 2FE, VAM
7206VXR400/VPNK9                    7206VXR VPN Bundle NPE400,256MB, I/O 2FE, VAM
7206VXRG1/VPNK9                     7206VXR VPN Bundle NPE-G1,256MB, 3 FE/GE, VAM
7206VXRG1/2VPNK9                    7206VXR VPN Bundle NPE-G1, 256MB, 3 FE/GE, VAM2
7206VXR400/2VPNK9                   7206VXR VPN Bundle NPE400,256MB, I/O 2FE,VAM2
**Cisco 7200 Series Processors**
NPE-G1=                             Cisco 7200 Network Processing Engine NPE-G1 including 256MB default DRAM and 64MB default flash memory.
NPE-225=                            Network Processing Engine 225 (128MB default memory)-spare
NPE-400=                            7200VXR NPE-400 (128MB default memory),SPARE
**Cisco 7200 Series Input/Output Controller**
C7200-I/O=                          Cisco 7200 Input/Output Controller, Spare
C7200-I/O-2FE/E=                    Cisco 7200 Input/Output Controller with Dual 10/100 Ethernet
C7200-I/O-GE+E=                     Cisco 7200 Input/Output Controller with GE and Ethernet

**Cisco 7200 Processor Memory: NPE-G1**

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

**Cisco 7200 Processor Memory: NPE-225**

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

**Cisco 7200 Processor Memory: NPE-400**

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

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 | When a Customer Needs These Features |
|---|---|
| Cisco 7301 | • Compact, power efficient 1RU form factor<br>• Three times the performance increase over existing single rack unit routers like the Cisco 7401<br>• Single 7000 Series Port Adapter Slot |
| Cisco 7304 | • Highly modular price and performance optimized platform, rich in IP services<br>• High performance connectivity—DS-1 through OC48/STM16 with 3.5 Mpps performance<br>• Built-in Gigabit Ethernet connectivity<br>• Multiprotocol routing: IP, IPX, AppleTalk, DLSw<br>• 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 |
|---|---|---|
| Fixed Ports | Three Gigabit Ethernet ports | Same as 7301 |
| Expansion Slots | 1 | 4 |
| WAN Interface Range | DS-1 to OC-3 | DS-1 to OC-48 |
| Processor | RM 7000 MIPS Processor + PXF Processor | RM 7000 MIPS Processor + PXF Processor |
| Forwarding Rate | Up to 1 Mpps | Up to 3.5 Mpps |
| Backplane Capacity | 1.2 Gbps | 16 Gbps |
| Flash PCMCIA Memory | 64 MB (expandable to 128 MB) | Same as 7301 |
| System DRAM Memory | 128 MB (expandable to 512 MB) | Same as 7301 |
| Minimum Cisco IOS Release | 12.2(11)YZ | 12.1(9)EX |
| Internal Power Supply | AC or DC | Same as 7301 |
| Redundant Power Supply Support | Yes, for AC or DC | Same as 7301 |
| Chassis Height | 1 RU | 4 RU |
| Rack Mountable | Yes, up to 40 per rack | Yes, up to 11 per rack |
| Dimensions (HxWxD) | 1.73 x 17.3 x 13.87 in. | 7 x 17.2 x 20.5 in. |

## Selected Part Numbers and Ordering Information[1]

**Cisco 7300 System**

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

**Cisco 7300 Memory Options**

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

**Cisco 7300 Series Compact Flash Disk Options**

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

**Cisco 7300 Line Cards**

| | |
|---|---|
| 7300-1OC12POS-MM= | 1-port OC12 POS line card for Cisco 7304 w/ Multi-mode |
| 7300-1OC12POS-SMI= | 1-port OC12 POS line card for Cisco 7304 w/ Single-mode IR |
| 7300-1OC12POS-SML= | 1-port OC12 POS line card for Cisco 7304 w/ Single-mode LR |
| 7300-1OC48POS-SMI= | 1-port OC48 POS line card for Cisco 7304 w/ Single-mode IR |
| 7300-1OC48POS-SML= | 1-port OC48 POS line card for Cisco 7304 w/ Single-mode LR |
| 7300-1OC48POS-SMS= | 1-port OC48 POS line card for Cisco 7304 w/ Single-mode SR |
| 7300-2OC12POS-MM= | 2-port OC12 POS line card for Cisco 7304 w/ Multi-mode |
| 7300-2OC12POS-SMI= | 2-port OC12 POS line card for Cisco 7304 w/ Single-mode IR |
| 7300-2OC12POS-SML= | 2-port OC12 POS line card for Cisco 7304 w/ Single-mode LR |
| 7300-2OC3ATM-MM= | 2-port OC3 ATM line card for Cisco 7304 w/ Multi-mode |
| 7300-2OC3ATM-SMI= | 2-port OC3 ATM line card for Cisco 7304 w/ Single-mode IR |
| 7300-2OC3ATM-SML= | 2-port OC3 ATM line card for Cisco 7304 w/ Single-mode LR |
| 7300-2OC3POS-MM= | 2-port OC3 POS line card for Cisco 7304 w/ Multi-mode |
| 7300-2OC3POS-SMI= | 2-port OC3 POS line card for Cisco 7304 w/ Single-mode IR |
| 7300-2OC3POS-SML= | 2-port OC3 POS line card for Cisco 7304 w/ Single-mode LR |
| 7300-4OC3POS-MM= | 4-port OC3 POS line card for Cisco 7304 w/ Multi-mode |
| 7300-4OC3POS-SMI= | 4-port OC3 POS line card for Cisco 7304 w/ Single-mode IR |
| 7300-4OC3POS-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 |

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 | When a Customer Needs These Features |
|---|---|
| Cisco 7505 | • 5 expansion slots<br>• One CyBus<br>• DS0 to OC-12 connectivity (all platforms) |
| Cisco 7507 | • 7 expansion slots<br>• Dual CyBuses<br>• Redundant power supplies<br>• Diverse set of routing protocols (all platforms) |
| Cisco 7513 | • 13 expansion slots<br>• Dual CyBuses<br>• Redundant power supplies<br>• Diverse set of routing protocols (all platforms) |

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

**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 | When a Customer Needs These Features |
|---|---|
| Cisco 7603 | • 3 slot (horizontal) chassis; 240 Gbps backplane bandwidth[1]; 30 Mpps forwarding rate[1]; NEBs Compliant |
| Cisco 7606 | • 6 slot (horizontal) chassis; 480 Gbps backplane bandwidth[1]; 30 Mpps forwarding rate[1]; NEBs Compliant |
| Cisco 7609 | • 9 slot (vertical) chassis; 720 Gbps backplane bandwidth[1]; 30 Mpps forwarding rate[1]; NEBs Compliant |
| Cisco 7613 | • 13 slot (horizontal) chassis; 720 Gbps backplane bandwidth[1]; 30 Mpps forwarding rate[1]; NEBs Compliant |

1.  Bandwidth & forwarding rate numbers assume Sup720 Engine

## Key Features

- Up to 30 Mpps forwarding processor with hardware acclerated 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: ERX700, ERX1400 |
| • Juniper: M10i, M20, M40e, M320 | • Extreme: Black Diamond 6808 |

## Specifications

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

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

**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-1OC48-POS-SI+= | Enhanced 1-port OC-48/STM-16 SONET/SDH OSM, SM-IR, with 4 GE |
| OSM-1OC48-POS-SL+= | Enhanced 1-port OC-48/STM-16 SONET/SDH OSM, SM-LR, with 4 GE |
| OSM-1OC48-POS-SS+= | Enhanced 1-port OC-48/STM-16 SONET/SDH OSM, SM-SR, with 4 GE |
| OSM-2OC12-ATM-MM+= | Enhanced 2-port OC12/STM4 ATM OSM+, MM, with 4 GE |
| OSM-2OC12-ATM-SI+= | Enhanced 2-port OC12/STM4 ATM OSM+, SI, with 4 GE |
| OSM-2OC12-POS-MM+= | Enhanced 2-port OC-12/STM-4 SONET/SDH OSM, MM, with 4 GE |
| OSM-2OC12-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-4OC3-POS-SI+= | Enhanced 4-port OC-3/STM-1 SONET/SDH OSM, with 4 GE |
| OSM-4OC12-POS-MM+= | Enhanced 4-port OC-12/STM-4 SONET/SDH OSM, MM, with 4 GE |
| OSM-4OC12-POS-SI+= | Enhanced 4-port OC-12/STM-4 SONET/SDH OSM, SM-IR, with 4 GE |
| OSM-8OC3-POS-SI+= | Enhanced 8-port OC-3/STM-1 SONET/SDH OSM, SM-IR, with 4 GE |
| OSM-8OC3-POS-SL+= | Enhanced 8-port OC-3/STM-1 SONET/SDH OSM, SM-LR, with 4 GE |
| OSM-2OC48/1DPT-SS= | 2-port OC-48/STM-16 POS/DPT OSM, SM-SR, with 4 GE |
| OSM-2OC48/1DPT-SI | 2-port OC-48/STM-16 POS/DPT OSM, SM-IR, with 4 GE |
| OSM-2OC48/1DPT-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 PXF 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[1]

**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-1COC12-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 |
| ESR1OC48/P/SRPSML= | OC-48/STM-16 POS/SRP SM-LR |
| ESR1OC48/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<br>• Simple, scalable, reliable features of DPT technology while maximizing fiber usage<br>• Any customer already using DPT technology in their network, most likely with DPT cards on the 12000 Internet Router<br>• 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 |
|---|---|
| Security Features | Including AAA, RADIUS authentication, TACACS+, and encrypted passwords |
| Management | Cisco IOS CLI; TACACS+ and RADIUS; Configuration and administration features including Telnet and Cisco Discovery Protocol (CDP); Serial (aux) and console ports for local and remote administration; Remote software download via TFTP and RCP; IP over DCC for remote management of the Cisco ONS 15104 OC-48/STM-16 Optical Regenerator, where applicable |
| Physical Interfaces | 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) |
| | Interface Modules—The Cisco 10720 Internet Router has two dedicated slots for interface modules—modules are not interchangeable or hot swappable: |
| | • 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. |
| | • 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 |
| | • 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 |
| | • 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. |
| | • 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. |
| Dimensions | 3.5 x 17.25 x 18.25 in. (8.9 x 43.81 x 46.35 cm) |

## Selected Part Numbers and Ordering Information[1]

**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 | When a Customer Needs These Features |
|---|---|
| **Cisco 12400 Internet Routers (10G)** | • 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 |
|---|---|---|---|---|---|---|---|---|---|
| Switching Capacity | 40 Gbps | 60 Gbps | 80 Gbps | 80 Gbps | 120 Gbps | 200 Gbps | 320 Gbps[1] | 800 Gbps | 1.28 Tbps |
| Capacity per slot (full duplex) | 2.5 Gbps | 2.5 Gbps | 2.5 Gbps | 10 Gbps | 10 Gbps | 10 Gbps | 10 Gbps[1] | 40 Gbps | 40 Gbps |
| Chassis Size | 1/3 Rack | Full Rack | Full Rack | 1/8 Rack | 1/4 Rack | 1/2 Rack | Full Rack | 1/2 Rack | Full Rack |
| Chassis Slots | 8 | 12 | 16 | 4 | 6 | 10 | 16 | 10 | 16 |
| Supported Line Cards | 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 |
| Supported Protocols | 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,DVMRP, PIM DM/SM | Same as Cisco 12416 | Same as Cisco 12416 |
| Management | 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 |
| Dimensions | 24.85 x 17.4 x 21.2 in. (63.1 x 44.2 x 53.8 cm) | 56 x 17.3 x 21 in. (142.2 x 43.9 x 53.3 cm) | 72.5 x 18.75 x 8.75 in. (184.2 x 47.6 x 61 cm)[2] | 8.75 x 18.9 x 18.9 in. (22.23 x 48.01 x 69.85 cm) | 18.5 x 18.9 x 28 in. (47 x 48 x 71.1 cm)[3] | 37.5 x 19 x 24 in. (95.25 x 48.26 x 61 cm)[4] | 72.5 x 18.75 x 18.75 in. (184.2 x 47.6 x 61 cm)[2] | 37.5 in. x 19 in. 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[1]

### 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 Gpbs; 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 Gpbs; 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-4OC3/POS-SM | 4port OC3/STM1 Packet Over SONET/SDH Line Card, Single-Mode |
| LC-4OC3/POS-MM | 4port OC3/STM1 Packet Over SONET/SDH Line Card, Multi-Mode w |
| LC-1OC12/POS-SM | 1port OC12/STM4 Packet Over SONET/SDH Line Card, Single-Mode |
| LC-1OC12/ATM-MM | 1 port OC12/STM4  ATM Line Card, Multi-Mode |
| LC-1OC12/ATM-SM | 1 port OC12/STM4  ATM Line Card, Single-Mode |
| LC-1OC12/POS-MM | 1 port OC12/STM4 Packet Over SONET/SDH Line Card, Multi-Mode |
| CHOC48/DS3-SR-SC | 1 port channelized C-48 to DS3 |
| 2CHOC3/STM1-IR-SC | Channelized OC3/STM1 -> DS1/E1, 2 ports Intermediate Reach |
| 4CHOC12/DS3-I-SCB | 4 PORT CHANNELIZED OC12 B |
| 4OC3/ATM-IR-SC | 4 port OC3/STM1 ATM Line Card intermediate reach |
| 4OC3/ATM-MM-SC | 4 port OC3/STM1 multimode ATM line card |
| 4OC3/POS-LR-SC | 4 port OC-3/STM1 SONET/SDH Long Reach LC with SC connector |
| 4OC12/ATM-IR-SC | 4 port OC-12/STM4 ATM LC Intermediate Reach |
| 4OC12/ATM-MM-SC | 4 port OC-12/STM4 ATM Line Card multimode |
| 4OC12/POS-MM-SC-B | 4OC12/POS-MM-SC-B |
| 4OC12X/POS-M-SC-B | 4-port OC12/POS Eng3 Multi-mode |
| 4OC12/POS-IR-SC-B | 4OC12/POS-IR-SC-B |
| 4OC12X/POS-I-SC-B | 4 PORT OC12 POS B |
| 4OC48/SRP-SFP= | 4 Port OC48c/STM16c SRP Linecard, SFP Optics |
| 4OC48E/POS-LR-SC | Edge 4 Port OC-48c/STM-16c SONET/SDH LR with SC |
| 4OC48E/POS-SR-SC | Edge 4 Port OC-48c/STM-16c SONET/SDH SR with SC |
| 8OC03/ATM/TS-IR-B | 8-port OC03/STM1 ATM IR LC with SC connector |
| 8OC03/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 |
| 8OC3/POS-MM= | 8 port OC3/STM1 SONET/SDH Multi-Mode LC with MTRJ conn Spare |
| 8OC3/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 |
| 16OC3/POS-MM= | 16 port OC3/STM1 SONET/SDH Multi-Mode LC with MTRJ conn |
| 16OC3/POS-SM= | 16 port OC3/STM1 SONET/SDH Single-Mode LC with LC conn Spare |
| 16OC3X/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 |
| CHOC12/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**