

CISCO SYSTEMS



Cisco Router Guide

For Teleworkers, Small Offices, Small To Medium-sized Businesses,
and Enterprise Branch and Head Offices

Cisco Integrated Services Routers: Cisco 850, 870, 1800 (fixed), 1800 (modular), 2800, 3800 Series; Cisco Access Routers: Cisco SOHO, SB 100, 820/830, 1700, 2600, 3700 Series; Cisco Aggregation Routers: Cisco 7200/7301, 7304, 7600 Series

SPRING 2005 V.2

Cisco Router Guide

For Teleworkers, Small Offices, Small to Medium-Sized Businesses, and Enterprise Branch and Head Offices

This is your guide to Cisco Access Routers, Cisco Aggregation Routers, and Cisco Integrated Services Routers, the broadest and most versatile portfolio of products for enabling the deployment of multiple advanced services.

Cisco Systems is the worldwide leader in networking systems for organizations of all sizes, offering solutions that fully support enterprise-wide deployment of networked business applications. A foundation of the Intelligent Information Network, Cisco routers provide high availability, comprehensive security, integrated wireless, ease of management, and advanced quality of service (QoS) for today's most demanding network services, including IP communications, video, customer relationship management, financial transactions and other real-time applications.

This guide shows how Cisco Access Routers, Cisco Aggregation Routers, and Cisco Integrated Services Routers enable you to meet your current and future needs with modular designs, allowing incremental migration as your business and network requirements change.

In this guide, you can see for yourself how Cisco delivers benefits beyond basic data access, providing services such as voice, security, and wireless as part of an integrated routing system that maximizes productivity and investment protection.

Industry Recognition for Cisco Integrated Services Routers



Product of the Year – Cisco 3800 Series

“...Cisco’s new 3800 Series ISRs are products to “DIE” for this year... designed with security and voice over IP, firewall, QoS, intrusion detection and call processing all without compromising performance.”

Network Computing April 2005



Product Breakthrough, Network Hardware – Cisco Integrated Services Routers

“The combination of routing, switching, firewalling, NAT, intrusion prevention, (NAC), and encryption capabilities, coupled with its ability to provide a host of telephony services and voice mail, makes the ISR our choice ... ”

Network Magazine May 2005



2005 Channel Champions, Switches and Routers – Cisco

“..very few vendors ... are offering solutions that fundamentally change the way companies do business,” (Ron Temske of Localis) said. “But Cisco does.”

CRN April 2005

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Series Overview

Power Branch Solutions for Teleworkers, Small to Medium-Sized Business, and Enterprise Branch and Head Offices

NEW



Cisco Small Business 100 Series

Small Business

- Manageability and reliability of Cisco IOS® Software

Basic security

- Stateful inspection firewall

Fixed configuration

- Asymmetric DSL (ADSL), ADSL over ISDN, or an Ethernet WAN interface with a 4-port 10/100 switch



Cisco SOHO Series

Small Office/Home Office

- Manageability and reliability of Cisco IOS® Software

Business-class security

- Stateful inspection firewall

Fixed configuration

- 3DES Software Encryption (Cisco SOHO 91, 96, 97)
- Some models with integrated 4-port hub or 4-port 10/100 switch
- Dual Ethernet, ADSL, ADSL over ISDN, and G.SHDSL



Cisco 820/830 Series

Teleworker
Small Remote Office

- Manageability and reliability of Cisco IOS Software

Business-class security

- Stateful inspection firewall
- VPN 3DES encryption (hardware based on Cisco 830s)
- Voice and data integration (Cisco 827-4V)

Fixed configuration

- Some models with integrated 4-port hub or 4-port 10/100 switch
- Dual Ethernet, ADSL, ADSL over ISDN, and G.SHDSL

NEW



Cisco 850 Series

Small Office

- Manageability and reliability of Cisco IOS® Software

Secure Connectivity

- Stateful inspection firewall
- VPN 3DES encryption (hardware-accelerated)

Fixed configuration

- Asymmetric DSL (ADSL) over analog telephone line connections (Cisco 857)
- 100 MB Ethernet (Cisco 851)
- Secure WLAN 802.11b/g option with a single fixed antenna
- 4-port 10/100Base-T switch with autosensing MDI/MDX (Media Device In/Media Device Crossover) for auto-crossover

NEW



Cisco 870 Series

Small Offices and
Teleworker Deployments

- Secure, Concurrent Services for Broadband Access

- Manageability and reliability of Cisco IOS® Software

Business-class security

- Stateful inspection firewall
- VPN 3DES encryption and Advanced Encryption Standard (AES) encryption
- Intrusion Prevention System (IPS)

Fixed configuration

- Asymmetric DSL (ADSL), ADSL over ISDN, or an Ethernet WAN interface with a 4-port 10/100 switch
- Secure WLAN 802.11b/g option with a single fixed antenna with replaceable diversity antennas
- 100 MB Ethernet (Cisco 871)
- ADSL over ISDN (Cisco 876)
- ADSL over analog telephone lines (Cisco 877)
- G.SHDSL (Cisco 878)



Cisco 1700 Series

Small/Medium-Sized
Business, Small Enterprise
Branch Office

- Built-in Fast Ethernet (10/100) LAN

- Manageability and reliability of Cisco IOS Software

Business-class security

- Stateful inspection firewall
- VPNs: software and hardware encryption, Cisco Easy VPN server/remote
- Intrusion Prevention System (IPS)

Multiservice data/voice

- Analog and digital voice
- Survivable Remote Site Telephony (SRST)
- IP Communications Express (CCME/CUE)

Modularity

- WAN/voice modular slots
- Wide array of WAN/voice interface cards
- T1/E1, ISDN, ADSL, G.SHDSL, Frame Relay options through Network Admission Control

NEW



Cisco 1800 Fixed-Configuration Series

Small Offices and Small
Enterprise Branch Offices

- Secure, Concurrent Services for Broadband Access with WAN High Availability

- Manageability and reliability of Cisco IOS® Software

Business-class security

- Stateful firewall with URL filtering
- VPN 3DES encryption and Advanced Encryption Standard (AES) encryption
- Dynamic Multipoint VPN (DMVPN)
- Intrusion Prevention System (IPS)

Cisco offers the industry's broadest and most versatile portfolio of secure, high-performance access and integrated services routers, enabling the deployment of a wide array of services to the farthest reaches of an organization, from the home office to the small office to the large enterprise branch and head office.

Fixed configuration

- Secure broadband access at broadband performance
- Integrated ISDN Basic Rate S/T Interface (BRI), analog modem, or Ethernet backup port for redundant WAN links and load balancing
- Secure wireless LAN option for simultaneous 802.11a and 802.11b/g with use of multiple antennas
- 8-port 10/100 managed switch with 802.1q VLAN support and optional Power over Ethernet (PoE)



Cisco 1800 Series (Modular)

Small to Medium-sized Businesses and Small Enterprise Branch Offices

- Wire-speed performance with secure data services enabled at up to T1/E1/xDSL rates
- Increased services density for secure data services
- Support for next-generation High-speed WAN Interface Cards
- Increased flexibility through support of internal AIM slot for high-speed VPN and future applications
- Built-in dual Fast Ethernet ports
- Support for over 30 existing and new modules

Secure Networking

- Hardware-based VPN acceleration on motherboard
- Anti-virus defense

- Intrusion Prevention System (IPS)
 - SDM Support
- Integrated Switching**
- Support for the 4-port 10/100 managed EtherSwitch module



Cisco 2600 Series

Small/Medium-Sized Enterprise Branch Office

- Built-in Fast Ethernet (10/100) LAN

Business-class security

- Stateful inspection firewall
- VPNs: software and hardware encryption, Cisco Easy VPN
- Intrusion Prevention System (IPS)

Multiservice data/voice

- Analog and digital voice
- IP Communications Express (CCME/SRST/CUE)

Modularity

- Wide array of WAN/voice interface cards
- Network and advanced integration module (AIM) support
- Supports more than 70 network modules, AIMS, voice/WAN interfaces



Cisco 2800 Series

Small to Medium-sized Businesses and Enterprise Branch Office

- Wire-speed performance up to multiple T1/E1/xDSL rates

- Increased services density for security, voice, caching, video, network analysis, and L2 switching
- Support for enhanced interfaces (NME, HWIC, EVM, and PVDM2)
- Built-in dual Fast Ethernet or Gigabit Ethernet ports
- Support for over 90 existing and new modules
- Optional support for integrated Power over Ethernet (PoE)

Secure Networking

- Hardware-based VPN acceleration on motherboard
- Anti-Virus Defense
- Intrusion Prevention System (IPS)
- SDM Support

IP Communications and IP Telephony Support

- IP Communications Express (CCME/SRST/CUE)
- Enhanced Modularity (EVM and PVDM2 support)

Integrated Switching

- Up to 56 powered 10/100 switch ports
- 802.3af Power over Ethernet compliance



Cisco 3700 Series

Integrated Enterprise Branch Office

- Built-in Fast Ethernet (10/100) LAN
- Manageability and reliability of Cisco IOS Software

- High-service density in compact form
- Single platform IP telephony infrastructure
- Optional integrated inline powered low-density switching

Business-class security

- Stateful inspection firewall
- VPNs: software and hardware encryption, Cisco Easy VPN
- Intrusion Prevention System (IPS)
- Software compression

Multiservice data/voice

- Analog and digital voice
- IP Communications Express (CCME/SRST/CUE)

Modularity

- Wide array of WAN/voice interface cards
- Network and advanced integration module (AIM) support
- Supports more than 70 network modules, AIMS, and voice/WAN Interfaces



Cisco 3800 Series

Medium-Sized to Large Businesses and Enterprise Branch Offices

- Wire-speed performance with services enabled at up to T3/E3 rates
- Increased services density for security, voice, caching, video, network analysis, and L2 switching
- Support for enhanced interfaces (NME, HWIC, EVM, and PVDM2)

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- Built-in dual Gigabit Ethernet ports
- Support for over 90 existing and new modules
- Single small form pluggable ethernet port
- High availability and resiliency through online insertion and removal support, as well as redundant systems and optional inline power

Secure Networking

- Hardware-based VPN acceleration on motherboard
- Anti-virus defense through Network Admission Control
- Intrusion Prevention System (IPS)
- SDM Support

IP Communications and

IP Telephony Support

- IP Communications Express (CCME/SRST/CUE)
- Enhanced Modularity (EVM and PVDM2 support)

Integrated Switching

- Up to 96 powered 10/100 switch ports
- 802.3af Power over Ethernet compliance



Cisco 7200/7301 Series

Enterprise Head Office Environments

- Application versatility—Managed Network Services, WAN Aggregation, MPLS, VPN, broadband aggregation, QoS, and multiservice

Business-class security/VPN

- Stateful inspection firewall
- VPNs: software and hardware encryption, Cisco Easy VPN
- Service-level validation features
- Intrusion detection system (IDS)

Multiservice data/voice

- Analog and digital voice
- Survivable Remote Site Telephony (SRST)
- Multiservice interchange (MIX)-enabled backplane for service integration

Modularity

- Supports over 70 interfaces, providing a comprehensive range of connectivity options from FE to GE, and DSO through OC-12 DPT
- Shared interfaces with Cisco 7400, Cisco 7500, and Cisco 7600 Series routers for common sparing
- Built-in FE/GE ports on the NPE-G1 processor for high-performance LAN connectivity
- Flexible processing options, including hardware-accelerated IP services, with Parallel Express Forwarding
- Comprehensive management services through Cisco Element Manager Framework (CEMF)



Cisco 7304 Series

Enterprise Head Office Environments

- High-performance connectivity up to OC-48 speeds
- Built-in GE for high-performance LAN connectivity
- Hardware-accelerated services with Parallel Express Forwarding
- Optional redundant processor and power supplies for high availability in a single box solution
- Multiprotocol support

Business-class security/VPN

- Hardware-accelerated Access Control Lists
- Stateful inspection firewall
- Software compression

Modularity

- More than 20 network line cards
- Chassis supports up to 4 line cards or port adapters
- Built in GE ports on processor
- Support for 7x00 port adapters
- Manageability and reliability of Cisco IOS Software

NEW



Cisco 7600 Series

Enterprise Head Office High-end CPE Small Service Provider POP Environments

- Ideal for Enterprise WAN aggregation or service provider environments

Business-class security/VPN

- Supports Services modules such as IPSec, firewall, SSL VPN
- Intrusion Prevention System (IPS)

Modularity

- Chassis supports up to 4-slots for redundant Supervisors and line cards
- Supervisor engines supporting up to 15 Mpps with broad range of edge services
- Support for Shared Port Adapter (SPA) and SPA Interface Processors (SIP), which offers intelligent services. Supports up to 12 SPA bays.
- Support for the Enhanced FlexWAN module, which offers Port Adapter investment protection
- Manageability and reliability of Cisco IOS® Software

Product Transition Matrix

Cisco SOHO 90 and 850 Comparison

	Cisco SOHO 91, SOHO 97	Cisco 851, 857
Form Factor	Desktop	Desktop
DRAM (default)	64 MB	64 MB
DRAM (maximum)	64 MB	64 MB
Flash (default)	8 MB	20 MB
Flash (maximum)	32 MB	20 MB
Integrated LAN Switch	4 Port Switch	4 Port Switch
Integrated Hardware-based encryption	No	Yes
Out of Band Management	External Modem	External Modem
Wireless Option	No	Integrated 802.11b/g
Fast Ethernet WAN	No	1 Port (851)
Power Over Ethernet Support	No	Optional

Cisco 820, 830 and 870 Comparison

	Cisco 831, 836, 837, 828	Cisco 871, 876, 877, 878
Form Factor	Desktop	Desktop
DRAM (default)	16-64 MB (Depends on model)	128 MB
DRAM (maximum)	32-80 (Depends on model)	256 MB
Flash (default)	8-24 (Depends on model)	24 MB
Flash (maximum)	8-24 MB (Depends on model)	52 MB
Integrated LAN Switch	4 Port Switch	4 Port Managed Switch
Integrated Hardware-based encryption	Yes (except 828)	Yes
Dial Back-up & Out of Band Management	External Modem (831, 837) / ISDN S/T BRI (836)	External Modem (871, 877) / ISDN S/T BRI (876, 878) (Out of Band Mgmt only on 878)
Wireless Option	No	Integrated 802.11b/g
Fast Ethernet WAN	No, Only 10 mbps (831)	1 Port (871)
2 USB Ports for Security Tokens	No	Yes (871)
Power Over Ethernet Support	No	Optional

Transition Matrix continued**Cisco Fixed DSL 1700/1800 Product Comparison**

	Cisco 1701	Cisco 1801, 1802, 1803
Form Factor	Desktop	Desktop
Rack/Wall Mountable	No	Yes
DRAM (default)	96 MB	128 MB
DRAM (maximum)	128 MB	384 MB
Flash (default)	32 MB	32 MB
Flash (maximum)	32 MB	128 MB
Integrated LAN Switch	No	8 Port Switch
DSL Technology	ADSL over POTS	ADSL over POTS (1801), ADSL over ISDN (1802), G.SHDSL (1803)
ADSL 2/2+	No	Future, via IOS upgrade
Wireless Option	No	802.11a/b/g
Fast Ethernet WAN	1 Port	1 Port
Integrated Power Over Ethernet Support	No	Optional

Cisco Fixed FE WAN 1700/1800 Product Comparison

	Cisco 1711/1712	Cisco 1811, 1812
Form Factor	Desktop	Desktop
Rack/Wall Mountable	No	Yes
DRAM (default)	96 MB	128 MB
DRAM (maximum)	128 MB	384 MB
Flash (default)	32 MB	32 MB
Flash (maximum)	32 MB	128 MB
Integrated LAN Switch	4 Port Switch	8 Port Switch
Fast Ethernet WAN	1 Port	2 Ports
Back-up WAN	v.90 Modem (1711) / ISDN S/T BRI (1712)	v.92 Modem (1811) / ISDN S/T BRI (1812)
Wireless Option	No	Integrated 802.11a/b/g
USB Ports (v 2.0)	None	2 Ports
Integrated Power Over Ethernet Support	No	Optional
Real Time Clock	No	Yes

Transition Matrix *continued*

Cisco 1721/1841 Product Comparison

	Cisco 1721	Cisco 1841
Form Factor	Desktop	Desktop (1RU)
Chassis Type	Plastic	Metal
DRAM (default)	64 MB	128 MB
DRAM (maximum)	128 MB	384 MB
Flash (default)	32 MB	32 MB
Flash (maximum)	32 MB	Up to 128 MB
AC Power Supply	External	Internal
Onboard AIM Slot	0	1
Support for High Speed WICs (HWICs)	No	Yes
LAN Ports	1 - 10/100	2 - 10/100
Integrated Hardware-based Encryption	No	Yes
USB Ports (v1.1)	No	1
Console Port (Up to 115.2 kbps)	1	1
Auxiliary Port (Up to 115.2 kbps)	1	1

Cisco 1751/1760, 2600, and 2800 Product Comparison

	Cisco 1751/1760	Cisco 2600	Cisco 2800
Form Factor	Desktop and 19" Rack Mount	19" Rack Mount (Up to 2RU)	19" and 23" Rack Mount Options
DRAM (default)	128 MB	256 MB	256 MB
DRAM (maximum)	128 MB (1751); 160 MB (1760)	256 MB	1 GB
Flash (default)	32 MB	Up to 32 MB	64 MB
Flash (maximum)	64 MB (1760)	Up to 128 MB	Up to 256 MB
Onboard DSP slot	2	0	Up to 3
Onboard AIM slot	0	1	2
Support for High Speed WICs (HWICs)	No	No	Yes
LAN Ports	1 - 10/100	Up to 2 - 10/100	2 - 10/100 or 10/100/1000
Integrated Hardware-based Encryption	No	No	Yes
Integrated Inline Power/PoE Support	No	No	Yes
USB Ports (v1.1)	No	No	Yes, Up to 2
Console Port (Up to 115.2 kbps)	1	1	1
Auxiliary Port (Up to 115.2 kbps)	1	1	1

Transition Matrix continued**Cisco 3700/3800 Product Comparison**

	Cisco 3700	Cisco 3800
Form Factor	19" and 23" Rack Mount (2 and 4 RU)	19" and 23" Rack Mount (2 and 4 RU)
DRAM (default)	256 MB	256 MB
DRAM (maximum)	Up to 512 MB (3745)	Up to 1 GB
Flash (default)	32 MB	64 MB
Flash (maximum)	128 MB	Up to 256 MB
Onboard DSP Slot	0	Up to 4
Onboard AIM Slot	2	2
Support for High Speed WICs (HWICs) or Enhanced Network Modules	No	Yes
LAN Ports	2 - 10/100	2 - 10/100/1000
Integrated Hardware-based Encryption	No	Yes
Integrated Inline Power/PoE Support	Yes, (No PoE)	Yes
USB Ports (v1.1)	No	Yes, 2
Console Port (Up to 115.2 kbps)	1	1
Auxiliary Port (Up to 115.2 kbps)	1	1

Cisco 850 Series



The Cisco 850 Series of secure broadband and wireless routers is part of the Cisco Integrated Services Router portfolio. Designed for small offices, the routers provide secure WAN connectivity with optional integrated 802.11b/g WLANs in a single device. Easy setup allows the Cisco 850 Series to be deployed at small remote offices and small businesses, and remote management features enable IT managers and service providers better support at remote sites.

Benefits and Advantages

Integrated Services

Cisco 850 Series integrated services routers are fixed-configuration routers that support broadband cable and Asymmetric DSL (ADSL) over analog telephone line connections in small offices. They provide the performance needed to run concurrent services, including firewall and encryption for VPNs. An optional 802.11b/g offers a secure broadband router and access point for WLANs in a single device. The stateful inspection firewall and IPSec VPN support provide secure access when connecting to the Internet or connecting small offices to a central site. High-speed LAN ports connect multiple devices to the small office network.

Easy Setup and Deployment

The Cisco Router and Security Device Manager (SDM) Web-based configuration tool simplifies setup and deployment, and centralized management capabilities give network managers visibility and control of router configurations at the remote site. Cisco Configuration Express Service supports factory-loaded configurations in high-volume deployments. Support for the Cisco CNS 2100 Series Intelligence Engine enables plug-and-play installations with centralized configuration management.

Remote Management

Cisco 850 Series routers are ideally suited for small office and remote office deployments. Out-of-band management with an external modem through the auxiliary port allows IT managers to remotely manage routers at small office sites to quickly troubleshoot any network issues. Optional integrated secure WLAN connectivity simplifies the number of devices that need to be managed at the remote site. Cisco SDM helps resellers and customers to quickly and easily deploy, configure, and monitor a Cisco access router without knowledge of the Cisco IOS Software command-line interface (CLI).

Security Features

Cisco 850 Security Features

- Stateful inspection firewall
- Hardware-accelerated Triple Data Encryption Standard (3DES) for IPSec
- Hardware-accelerated Advanced Encryption Standard (AES) for IPSec
- IPSec 3DES termination/initiation
- IPSec pass-through
- Point-to-Point Tunneling Protocol (PPTP) pass-through
- L2TP pass-through

WLAN Features

WLAN hardware

- 802.11b/g
- Wi-Fi Certified
- Automatic rate selection for 802.11b/g
- Single, fixed antenna
- WECA interoperability
- Default antenna gain: 2.2 dBi

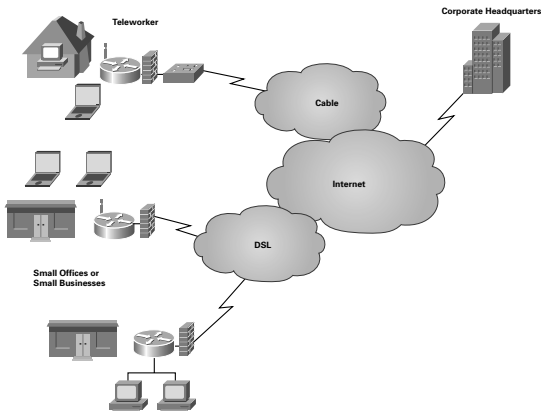
WLAN software features

- Maximize throughput or maximize range option
- Software configurable transmit power

WLAN security features

- 802.1X
- Cisco LEAP
- EAP-TLS
- Static and dynamic Wired Equivalent Privacy (WEP)
- TKIP/SSN (Temporal Key Integrity Protocol/Simple Security Network) encryption
- MAC authentication/filter
- User database for survivable local authentication with Cisco LEAP
- Configurable limit to the number of wireless clients
- Configurable RADIUS accounting for wireless clients
- PSK [Pre Shared Keys] (WPA-SOHO)

Network Example



When to Deploy

Deploy the Cisco 850 Series when you need:

- Secure connectivity with stateful inspection firewall and IP Security (IPSec) VPN support for small offices
- 4-port 10/100 switch
- Secure WLAN 802.11b/g option with a single fixed antenna
- Easy setup, deployment, and remote management capabilities through Web-based tools and Cisco IOS® Software

Series Distinctions

Cisco 850 Series	
WAN Technologies	<ul style="list-style-type: none"> • Cisco 851 – 100 MB Ethernet • Cisco 857 – ADSL over analog telephone lines
LAN Switch	4-port 10/100Base-T switch with autosensing MDI/MDX (Media Device In/Media Device Crossover) for auto-crossover
Security	Stateful firewall, IPSec & AES VPNs
WLAN Option	802.11b/g with single fixed antenna

Platform Overview

Models	WAN Interface	LAN Interfaces	802.11b/g
Cisco 851	10/100 Mbps Fast Ethernet	4-port 10/100 Mbps managed switch	No
Cisco 851W	10/100 Mbps Fast Ethernet	4-port 10/100 Mbps managed switch	Yes
Cisco 857	ADSL	4-port 10/100 Mbps managed switch	No
Cisco 857W	ADSL	4-port 10/100 Mbps managed switch	Yes

PHYSICAL SPECIFICATIONS

Dimensions (H x W x D)	Dimensions with antenna connectors: 2.00 x 10.25 x 9.13 in. (50.8 x 260.4 x 231.9 mm) Dimensions without antenna connectors: 2.00 x 10.25 x 8.50 in. (50.8 x 260.4 x 215.9 mm)
Weight	2.10 lb

POWER DISSIPATIONS

AC input voltage	100 to 240 VAC
Frequency	50 to 60 Hz
Maximum output power	26W
Output voltages	5 and 12V

ENVIRONMENTAL SPECIFICATIONS

Operating temperature	32 to 104°F (0 to 40°C)
Non-operating temperature	-4 to 149°F (-20 to 65°C)
Relative humidity (non-condensing)	10 to 95 percent
Operating altitude	0 to 15,000 ft. (0 to 4570 m)

Platform Overview continued

REGULATORY COMPLIANCE

Approvals and compliance

- UL 1950/CSA 950-95, Third Edition
- IEC 950: Second Edition with Amendments 1, 2, 3, and 4
- EN60950: 1992 with Amendments 1, 2, 3, and 4
- CS-03, Canadian Telecom Requirements
- FCC Part 68 U.S. Telecom Requirements
- AS/NZS 3260: 1996 with Amendments 1, 2, 3, and 4
- ETSI 300-047
- TS 001 with Amendment 1
- EMI
- AS/NRZ 3548: 1992 Class B
- CFR 47 Part 15 Class B
- EN60555-2 Class B
- EN55022 Class B
- VCCI Class II
- ICES-003, Issue 2, Class B, April 1997S
- IEC 1000-3-2

Series Specifications

Flash Memory	20 MB
System DRAM Memory	64 MB
External Power Supply	Universal 100 to 240 VAC
Console Port	RJ-45
802.11b/g WLANs	Optional on both models
LEDs	PPP, VPN, ADSL, WLAN, LAN
Auxiliary Port	Virtual AUX port

Ordering Information

Product Name	Product Number	Product Description
Cisco 851	CISCO851-K9	Ethernet to Ethernet router
	CISCO851W-G-A-K9	Ethernet to Ethernet wireless router
	CISCO851W-G-E-K9	Ethernet to Ethernet wireless router
	CISCO851W-G-J-K9	Ethernet to Ethernet wireless router
Cisco 857	CISCO857-K9	ADSL router
	CISCO857-W-G-A-K9	ADSL wireless router
	CISCO857-W-G-E-K9	ADSL wireless router

Note: For Cisco 850 Series wireless router part numbers, the following letters are associated with specifications meeting wireless regulations in the respective regions: A = U.S. and Americas, E = Europe, J = Japan.

Cisco 870 Series



The Cisco 870 Series Integrated Services Routers extend the high-performance Cisco Integrated Services Router capabilities of running secure concurrent services, including firewall, VPNs, and WLANs, at broadband speeds in small offices. Easy deployment and centralized management features enable the Cisco 870 Series to be deployed in small office or teleworker sites as part of an enterprise network, by small to medium-sized business customers for secure WAN and WLAN connectivity, or used by service providers to offer business-class broadband and WLAN services.

Benefits and Advantages

Increased Performance to Run Concurrent Services

The performance in a Cisco 870 Series router allows customers to take advantage of broadband network speeds while running secure, concurrent data, voice, and video services.

Advanced Security

The Cisco 870 Series delivers enterprise-class security services, including an Integrated Stateful Inspection Firewall for network perimeter security, high-speed IP Security (IPSec), Triple Data Encryption Standard (3DES) and Advanced Encryption Standard (AES) encryption for data privacy over the Internet, Intrusion Prevention System (IPS), and anti-virus support through Network Admission Control (NAC) to enforce security policy in a larger enterprise or service provider network.

4-port 10/100 Mbps Managed Switch

Allows multiple devices to be connected in a small office, with the ability to designate a port as network DMZ. An optional external PoE adapter is available for powering IP phones to avoid individual power supplies or power injectors. VLANs allow for secure segmentation of network resources.

Optional 802.11b/g WLANs with Support for Multiple Antennas

- Broadband router with secure WLAN in a single device
- Diversity antennas for optimizing coverage in a small office
- Options for replaceable external antennas, to get wireless coverage in areas away from where the router is located

Cisco SDM and Cisco IOS Software for Remote Management

Using smart wizards and task-based tutorials, Cisco Security Device Manager (SDM) helps resellers and customers quickly and easily deploy, configure, and monitor a Cisco access router without requiring knowledge of the Cisco IOS Software command-line interface (CLI). Dial backup and out-of-band management allow IT managers to remotely manage the router at small office and teleworker sites. Cisco Configuration Express Service supports factory-loaded configurations in high-volume deployments. Support for the Cisco CNS 2100 Series Intelligence Engine enables plug-and-play installations with centralized configuration management.

Security Features

Cisco 870 Security Features

- Stateful Inspection Firewall
- Intrusion Prevention System (IPS)
- Antivirus support through Network Admission Control (NAC) and enforcement of secure access policies

Cisco 870 VPN Features

- Hardware-accelerated 3DES for IPsec
- Hardware-accelerated AES for IPsec
- Cisco Easy VPN Client and Server
- IPsec 3DES termination/initiation
- IPsec pass-through
- Point-to-Point Tunneling Protocol (PPTP) pass-through
- L2TP pass-through
- 802.1X
- Secure HTTP (HTTPS), FTP, and Telnet authentication proxies

WLAN Features

WLAN hardware

- 802.11b/g
- WiFi Certified
- Automatic rate selection for 802.11b/g
- Field-replaceable external antennae
- Antenna diversity
- WECA interoperability
- Default antenna gain: 2.2 dBi
- PoE (optional external adapter for Inline power) for IP phones or external wireless access points

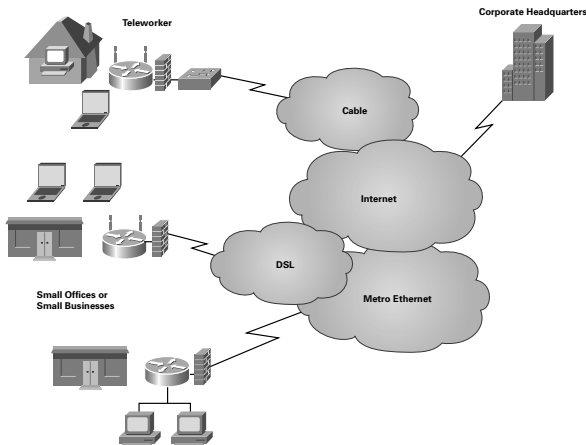
WLAN software features

- Maximize throughput or maximize range option
- Software configurable transmit power

WLAN security features

- 802.1X
- Cisco LEAP
- EAP-TLS
- Static and dynamic Wired Equivalent Privacy (WEP)
- TKIP/SSN (Temporal Key Integrity Protocol/Simple Security Network) encryption
- MAC authentication/filter
- User database for survivable local authentication using LEAP
- Configurable limit to the number of wireless clients
- Configurable RADIUS accounting for wireless clients
- PSK (Pre Shared Keys)
- Wi-Fi Protected Access (WPA)
- 802.11i (software-upgradeable in future software release)

Network Example



When to Deploy

Deploy the Cisco 870 Series when you need the following in a small remote office, or teleworker and small business sites:

- Secure, concurrent services for broadband connection
- High-speed VPN solution
- Advanced security with firewall, VPNs, IPS, NAC, DMVPNs, Easy VPNs
- Integrated 802.11b/g with replaceable diversity antennas
- 4-port 10/100 managed switch
- Easy to set up solution with Cisco SDM and remote management capabilities

Series Distinctions

	Cisco 870 Series
WAN Technologies	<ul style="list-style-type: none"> • 871 – 100 MB Ethernet • 876 – ADSL over ISDN (ADSL2/ADSL2+ hardware ready) • 877 – ADSL over analog telephone lines (ADSL2/ADSL2+ hardware ready) • 878 – G.SHDSL (2- and 4-wire support)
LAN Switch	Managed 4-port 10/100Base-T with autosensing MDI/MDX (Media Device In/Media Device Crossover) for auto-crossover
Network Security	Firewall, IPSec & AES High Speed Encryption, IPS, Anti Virus through Cisco NAC IPSec & AES High Speed Encryption, Cisco Easy VPN, DMVPN, DMZ
Upgradability	Cisco IOS Software upgrades and updates

Platform Overview

Models	WAN Interface	LAN Interfaces	802.11b/g Option	Integrated ISDN Dial Backup
Cisco 871	10/100 Mbps Fast Ethernet	4-port 10/100 Mbps managed switch	Yes (Cisco 871W)	–
Cisco 876	Asymmetric DSL (ADSL) over ISDN	4-port 10/100 Mbps managed switch	Yes (Cisco 876W)	Yes
Cisco 877	ADSL	4-port 10/100 Mbps managed switch	Yes (Cisco 877W)	–
Cisco 878	G.SHDSL	4-port 10/100 Mbps managed switch	Yes (Cisco 878W)	–

PHYSICAL SPECIFICATIONS

Dimensions (H x W x D)	2.00 x 10.25 x 9.13 in. (50.8 x 260.4 x 231.9 mm) (wireless models with antenna connectors, excludes antennae) 2.00 x 10.25 x 8.50 in. (50.8 x 260.4 x 215.9 mm) (non-wireless models)
Weight	2.10 lb

Platform Overview *continued***POWER DISSIPATIONS**

AC input voltage	100 to 240 VAC
Frequency	50 to 60 Hz
Maximum output power	26W (80W for optional external Inline PoE adapter)
Output voltages	5 and 12V (48 VDC for optional external Inline PoE adapter)

ENVIRONMENTAL SPECIFICATIONS

Operating temperature	32 to 104°F (0 to 40°C)
Non-operating temperature	-4 to 149°F (-20 to 65°C)
Relative humidity (non-condensing)	10 to 85 percent
Operating altitude	0 to 10,000 ft. (0 to 3000 m)

REGULATORY COMPLIANCE

Approvals and compliance	<ul style="list-style-type: none"> • UL 1950/CSA 950-95, Third Edition • IEC 950: Second Edition with Amendments 1, 2, 3, and 4 • EN60950: 1992 with Amendments 1, 2, 3, and 4 • CS-03, Canadian Telecom Requirements • FCC Part 68 U.S. Telecom Requirements • AS/NZS 3260: 1996 with Amendments 1, 2, 3, and 4 • ETSI 300-047 • TS 001 with Amendment 1 • EMI • AS/NRZ 3548: 1992 Class B • CFR 47 Part 15 Class B • EN60555-2 Class B • EN55022 Class B • VCCI Class II • ICES-003, Issue 2, Class B, April 1997S • IEC 1000-3-2
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Series Specifications

Flash Memory	24 MB (expandable to 52 MB)
System DRAM Memory	128 MB (expandable to 256 MB)
External Power Supply	Universal 100 to 240 VAC
Console Port	RJ-45
802.11b/g WLANs	Optional on all models
LEDs	PPP, VPN, ADSL, G.SHDSL, WLAN, LAN
USB 2.0 ports for advanced security features such as security tokens	2 USB 2.0 ports on Cisco 871 only Note: USB 2.0 ports cannot be used for connecting external devices other than specified for the Cisco 871.
ISDN Basic Rate Interface (BRI) S/T	<ul style="list-style-type: none"> • Only available on: Cisco 876 for out-of-band management and dial backup • Cisco 878 for out-of-band management
Power of Ethernet	Optional external adapter for inline PoE for IP phones or external wireless access point

High-Availability Features

Cisco IOS Software features on Cisco 870 routers—Advanced Security feature set (default):

- Virtual Router Redundancy Protocol (VRRP) (RFC 2338)
- Hot Standby Router Protocol (HSRP)
- Out-of-band management with external modem through virtual auxiliary port
- Dial backup with external modem through virtual auxiliary port
- ISDN S/T port for out-of-band management (Cisco 876 and 878 only)

Cisco IOS Software Advanced IP Services feature set (optional software upgrade):

- Multigroup HSRP (MHSRP)

Advanced Enterprise Cisco IOS Software feature set (optional software upgrade on Cisco 876 only):

- Integrated dial backup for ADSL using ISDN S/T port

Ordering Information

Product Name	Product Number	Product Description
Cisco 871	CISCO871-K9	Ethernet to Ethernet Router
Cisco 871W	CISCO871W-G-A-K9	Ethernet to Ethernet Wireless Router
	CISCO871W-G-E-K9	
	CISCO871W-G-J-K9	
Cisco 876	CISCO876-K9	ADSL over ISDN Router
Cisco 876W	CISCO876W-G-E-K9	ADSL over ISDN Wireless Router
Cisco 877	CISCO877-K9	ADSL Router
Cisco 877W	CISCO877W-G-A-K9	ADSL Wireless Router
	CISCO877W-G-E-K9	
Cisco 878	CISCO878-K9	G.SHDSL Router
Cisco 878W	CISCO878W-G-A-K9	G.SHDSL Wireless Router
	CISCO878W-G-E-K9	

For Cisco 870 Series wireless router part numbers, the following letters are associated with specifications meeting wireless regulations in the following regions: A = U.S. and Americas, E = Europe, J = Japan

NOTES

Cisco 1800 Series (Fixed-Configuration)



Cisco Systems® is redefining best-in class enterprise and small- to medium-sized business routing with a new line of integrated services routers that are optimized for the secure delivery of data services. Founded on 20 years of leadership and innovation, the Cisco 1800 Series integrated services routers intelligently embed data, security, and wireless technology into a single, resilient system for fast, secure, scalable delivery of mission-critical business applications. The best-in-class Cisco 1800 Series architecture has been specifically designed to meet requirements of small- to medium-sized businesses (SMBs), small enterprise branch offices, and service provider-managed services applications for delivery of concurrent services for broadband access. The integrated secure systems architecture of the Cisco 1800 Series delivers maximum business agility and investment protection.

Benefits and Advantages

Cisco 1800 Series integrated services routers are the next evolution of the award-winning Cisco 1700 Series modular and fixed-configuration routers. The Cisco 1801, 1802, 1803, 1811, and 1812 integrated services routers are fixed-configuration, while the Cisco 1841 Integrated Services Router is modular. The routers are designed for secure broadband, Metro Ethernet, and wireless connectivity, and provide significant performance improvements, feature capability, versatility, and additional value compared to prior generations of Cisco 1700 Series. The Cisco 1800 Series fixed-configuration routers provide:

- Secure broadband access with concurrent services for branch and small offices
- Integrated ISDN Basic Rate S/T Interface (BRI), analog modem, or Ethernet backup port for redundant WAN links and load balancing
- Secure wireless LAN option for simultaneous 802.11a and 802.11b/g with use of multiple antennas

- Advanced security including: Stateful Inspection Firewall, IP Security (IPSec) VPNs (Triple Data Encryption Standard [3DES] or Advanced Encryption Standard [AES]), Intrusion Prevention System (IPS), Antivirus support through Network Admission Control (NAC) and enforcement of secure access policies
- 8-port 10/100 managed switch with 802.1q VLAN support and optional Power over Ethernet (PoE)
- Easy deployment and remote-management capabilities through Web-based tools and Cisco IOS® Software

Cisco 1801, 1802, and 1803 routers provide high-speed DSL broadband access through asymmetric DSL (ADSL) over basic telephone service (Cisco 1801), ADSL over ISDN (Cisco 1802), or Symmetrical High-Data-Rate DSL (G.SHDSL) (Cisco 1803) while helping to ensure reliable networking with integrated ISDN S/T BRI backup. The Cisco 1811 and 1812 provide high-speed broadband or Ethernet access

Benefits & Advantages continued

through two 10/100BASE-T Fast Ethernet WAN ports and also provide integrated WAN backup through a V.92 analog modem (Cisco 1811) or ISDN S/T BRI interface (Cisco 1812).

The Cisco 1800 Series fixed-configuration routers help enable a network infrastructure for SMBs and enterprise small branch offices, providing access to the Internet, corporate headquarters, or other remote offices, while securing and protecting critical data with integrated Cisco IOS Software security features

and capabilities. They also help businesses reduce costs by enabling deployment of a single device to provide multiple services (integrated router with redundant link, LAN switch, firewall, VPN, IPS, wireless technology, and quality of service [QoS]) typically performed by separate devices. Cisco IOS Software allows this flexibility, providing the industry's most robust, scalable, and feature-rich internetworking support, using the accepted standard networking software for the Internet and private WANs.

Security Features

Cisco IOS Firewall

- Stateful firewall with URL filtering
- Per-user authentication and authorization
- Real-time alerts
- Transparent firewall
- IPv6 firewall

VPN

- Advanced Encryption Standard (AES) 128, 192, and 256
- Triple Data Encryption Standard (3DES), and DES encryption
- Embedded hardware-based VPN acceleration on the motherboard
- Cisco Easy VPN remote and server support
- Dynamic Multipoint VPN (DMVPN)

Onboard USB port

- USB 2.0 ports (2) (1811 and 1812 models only)

IPS

- More than 700 IPS signatures supported in Cisco IOS Software, with the ability to load and enable selected IPS signatures

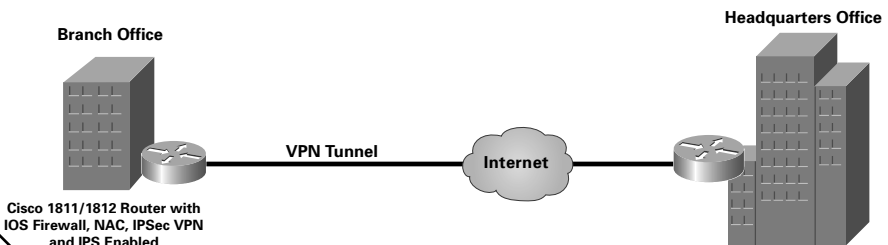
URL filtering

- Local URL filtering in Cisco IOS Software based on external server (Websense and N2H2)
- Stateful firewall contains URL filtering

Cisco SDM

- Cisco Router and Security Device Manager (SDM)

Security Application Example



Wireless

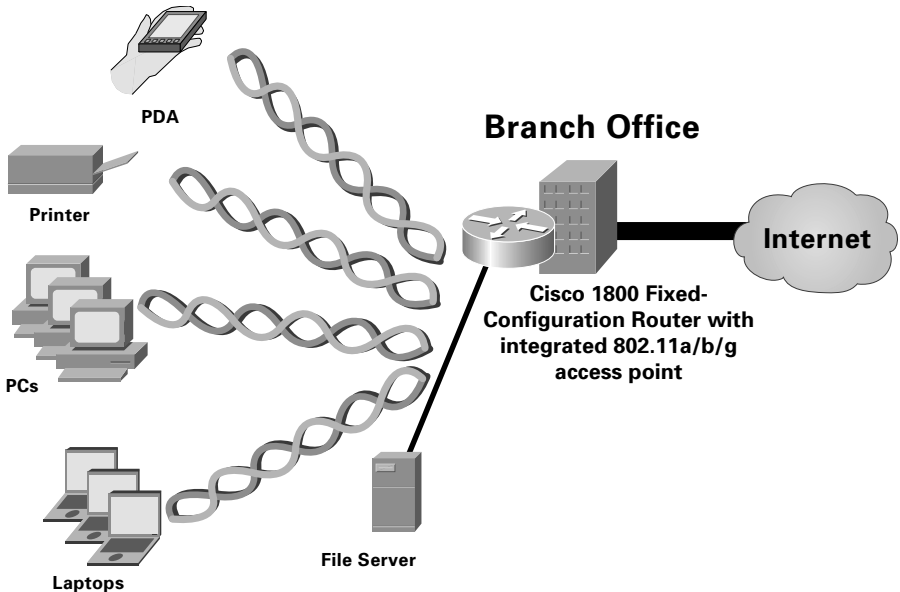
Integrated Wireless LAN Capability

Cisco 1800 Series fixed-configuration routers offer models with an integrated wireless access point, providing secure router and secure wireless LAN services in one device, helping businesses reduce total cost of ownership with simplified WLAN deployment and management capabilities. The integrated wireless access point supports IEEE 802.11a/b/g simultaneously to provide high-speed wireless capability and flexibility to support 2.4-GHz and 5-GHz dual-band simultaneous operation, making them ideal choices for hotspot deployments and wireless office solutions. Wi-Fi Certified client devices including Cisco Aironet,[®] Wi-Fi Certified and Cisco Compatible client devices are fully supported.

The Cisco 1800 Series routers with integrated wireless access points are Wi-Fi Certified and support Wi-Fi Protected Access (WPA) providing

secure mutual authentication and encryption via Cisco IOS Software features to meet the strict demands of today's businesses. These products also provide support for multiple wireless VLANs that can be configured to provide additional security, segmentation, and separation of user groups. When using the routers in conjunction with the Cisco Service Selection Gateway (SSG) and Subscriber Edge Services Manager (SESM), managed service providers can incorporate service-based authorization and accounting, and service and subscriber management for customizable, on-demand wireless services such as hotspots. Additional features such as local authentication allow users to maintain wireless connectivity to the router in the event that a remote authentication server goes down. Quality of Service (QoS) via Wi-Fi Multimedia (WMM) is also supported.

Wireless Example



When to Deploy

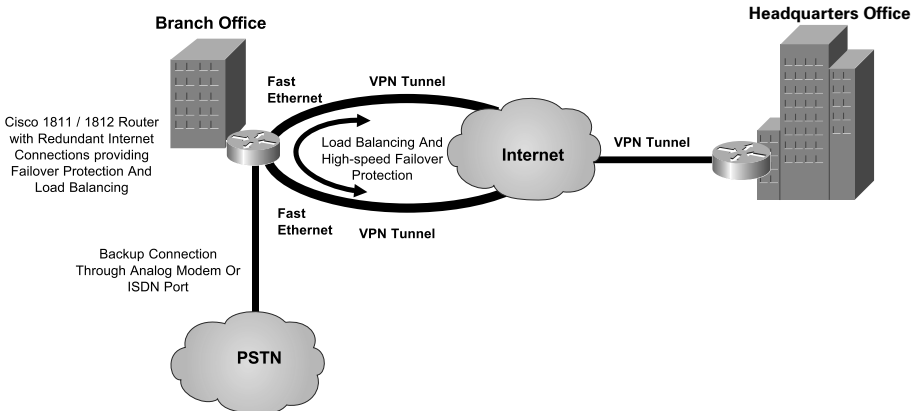
Deploy the Cisco 1800 Series fixed-configuration routers when you need:

- An application-specific configured router
- Fully integrated DSL/Security/Wireless router
- To support high performance Internet access
- High availability Internet connections and load balancing
- Easy to order products
- Ability to connect several LAN devices

High-Availability Features

The Cisco IOS Software Advanced IP Services feature set offers basic and advanced routing capabilities to deliver failover protection and load balancing. These capabilities include Border Gateway Protocol (BGP), Open Shortest Path First (OSPF) Protocol, Enhanced Interior Gateway Routing Protocol (EIGRP), and Routing Information Protocol (RIP) routing protocols along with dial-on-demand routing (DDR) Reliable Static Routing Using Object Tracking. Each of the Cisco 1800 Series fixed-configuration routers is equipped with either an ISDN BRI, V.92 analog modem, or Ethernet port for secondary WAN backup connection. If the primary DSL, cable, or Ethernet-access WAN experiences a link failure or loss of connectivity, the router will detect this failure and will fail over to the secondary backup WAN. The Cisco 1800 Series fixed-configuration routers help enable customers to deliver high-performance and high-availability, mission-critical business applications.

High-Availability Features Example



Platform Overview

	FE WAN Ports	Switch Ports	WAN	Wireless Option	DRAM (MB) default	DRAM (MB) max	Flash (MB) default	Flash (MB) max	Power Supply
Cisco 1801	1	8	ADSL	Yes	128	384	32	128	AC
Cisco 1802	1	8	ADSLoISDN	Yes	128	384	32	128	AC
Cisco 1803	1	8	G.SHDSL	Yes	128	384	32	128	AC
Cisco 1811	2	8	10/100 Ethernet	Yes	128	384	32	128	AC
Cisco 1812	2	8	10/100 Ethernet	Yes	128	384	32	128	AC

Series Specifications

Dimensions (H x W x D)	12.5 x 9.5 in. (34.3 x 27.4 cm)
Console port	1 (up to 115.2 Kbps)
Auxiliary port	1 (up to 115.2 Kbps)
USB port	2 (USB 2.0) on Cisco 1811 and 1812 only. The Cisco 1801, 1802, and 1803 do not offer USB support.
Wireless LAN	IEEE 802.11a,b,g ("W" models)
V.92 analog modem port	One analog modem port on Cisco 1811
Integrated channel service unit/data service unit (CSU/DSU)	No
Voice/data support	Only data support
Encryption	Hardware support on motherboard
10/100 switch ports	8 (10/100BASE-T fully managed switch ports with 802.3af PoE support)
Integrated modems	1 (1811 model only)
Default 10/100 WAN Ports	1 (1801, 1802, 1803 and 1812 models), 2 (1811 and 1812 models)
ISDN Basic Rate Interface (BRI) ports	1 (1801, 1802, 1803 and 1812 models only)
Cisco IOS Software release	12.3(8)YI

Cisco IOS Memory Requirements

Cisco IOS Software Feature Sets	Software Image	Flash Memory	DRAM Memory
IP Broadband	c180X-ipbroadband-mz	32 MB	128 MB
Advanced IP Services	c180X-advipservicesk9-mz	32 MB	128 MB
Advanced Enterprise Services	c180X-adventerprisek9-mz	32 MB	128 MB
Advanced IP Services	c181X-advipservicesk9-mz	32 MB	128 MB
Advanced Enterprise Services	c181X-adventerprisek9-mz	32 MB	128 MB

Ordering Information

Product Number	Product Description
CISCO1801	ADSL over POTS router with 8-port 10/100BASE-T switch, ISDN S/T backup, Cisco IOS IP broadband, 32 MB of Flash memory and 128 MB of DRAM: IOS Security services are not included
CISCO1801/K9	ADSL over POTS router with 8-port 10/100BASE-T switch, ISDN S/T backup, Cisco IOS Advanced IP Services, 32 MB of Flash memory and 128 MB of DRAM
CISCO1802/K9	ADSL over ISDN router with 8-port 10/100BASE-T switch, ISDN S/T backup, Cisco IOS Advanced IP Services, 32 MB of Flash memory and 128 MB of DRAM
CISCO1803/K9	G.SHDSL router with 8-port 10/100BASE-T switch, ISDN S/T backup, Cisco IOS Advanced IP Services, 32 MB of Flash memory and 128 MB of DRAM
CISCO1801W-AG-E/K9	ADSL over POTS router with 8-port 10/100BASE-T switch, ISDN S/T backup, Cisco IOS Advanced IP Services, 32 MB of Flash memory, 128 MB of DRAM, and integrated ETSI-compliant 802.11a,b,g wireless capability
CISCO1802W-AG-E/K9	ADSL over ISDN router with 8-port 10/100BASE-T switch, ISDN S/T backup, Cisco IOS Advanced IP Services, 32 MB of Flash memory, 128 MB of DRAM, and integrated ETSI-compliant 802.11a,b,g wireless capability
CISCO1803W-AG-A/K9	G.SHDSL router with 8-port 10/100BASE-T switch, ISDN S/T backup, Cisco IOS Advanced IP Services, 32 MB of Flash memory, 128 MB of DRAM, and integrated FCC-compliant 802.11a,b,g wireless capability
CISCO1803W-AG-E/K9	G.SHDSL router with 8-port 10/100BASE-T switch, ISDN S/T backup, Cisco IOS Advanced IP Services, 32 MB of Flash memory, 128 MB of DRAM, and integrated ETSI-compliant 802.11a,b,g wireless capability
CISCO1811/K9	Security router with dual 10/100 WAN ports, 8-port 10/100BASE-T switch, V.92 analog modem backup, Cisco IOS Advanced IP Services, 32 MB of Flash memory and 128 MB of DRAM
CISCO1812/K9	Security router with dual 10/100 WAN ports, 8-port 10/100BASE-T switch, ISDN S/T backup, Cisco IOS Advanced IP Services, 32 MB of Flash memory and 128 MB of DRAM
CISCO1811W-AG-A/K9	Security router with dual 10/100 WAN ports, 8-port 10/100BASE-T switch, V.92 analog modem backup, Cisco IOS Advanced IP Services, 32 MB of Flash memory, 128 MB of DRAM, and integrated FCC-compliant 802.11a,b,g wireless capability
CISCO1812W-AG-E/K9	Security router with dual 10/100 WAN ports, 8-port 10/100BASE-T switch, ISDN S/T backup, Cisco IOS Advanced IP Services, 32 MB of Flash memory, 128 MB of DRAM, and integrated ETSI-compliant 802.11a,b,g wireless capability

Cisco 1800 Series (Modular)



Cisco Systems® is redefining best-in-class enterprise and small to medium-sized business (SMB) routing with a line of integrated services routers that are optimized for the secure, wire-speed delivery of data services. Founded on 20 years of leadership and innovation, Cisco 1800 Series integrated services routers intelligently embed data and security into a single, resilient system for fast, scalable delivery of mission-critical business applications. The Cisco 1800 Series architecture has been specifically designed to meet requirements of SMBs, small enterprise branch offices, and service-provider-managed services applications for delivery of concurrent secure data services at wire-speed performance. The integrated, secure systems architecture of the Cisco 1800 Series delivers maximum business agility and investment protection.

Benefits and Advantages

Enhanced Architecture

The Cisco 1841 Integrated Services Router provides secure data connectivity at up to one T1/E1/xDSL WAN connectivity rates. It provides significant additional value compared to prior generations of Cisco 1700 Series routers by offering more than a five-fold performance increase, integrated onboard hardware-based encryption enabled by an optional Cisco IOS® Software security image, and a dramatic increase in interface card slot performance and density. Support for one internal Advanced Integration Module (AIM) slot is provided for additional hardware-accelerated encryption and scalability. The modular architecture on the Cisco 1841 router also supports two newly designed high-speed WAN interface card (HWIC) slots which significantly increase data-throughput capability (up to 800 Mbps aggregate). The Cisco 1841 also offers integrated dual high-speed Ethernet LAN ports to allow LAN segmentation and to help enable connectivity speeds up to 100BASE-T Ethernet

technology. Ample default memory (Flash, SDRAM) is provided to support deployment of concurrent services.

Flexibility and Investment Protection

The modular architecture of the Cisco 1841 router offers a wide variety of LAN and WAN options; interface cards and modules are field-upgradable to accommodate future technologies. The Cisco 1841 delivers investment protection with support for more than 30 modules and interface cards, including existing WICs and voice WAN interface cards (VWICs – on the Cisco 1841 router for data support only) as well as Advanced Integration Modules (AIM). This integrated services router provides 2 slots that are WIC/HWIC/VWIC (data) capable and enables multiple services on an integrate-as-you-grow basis.

Market-leading Integrated Security

A primary component of the Cisco Self-defending Network, the Cisco 1841 integrated services router ships with the industry's

Benefits & Advantages continued

most comprehensive security services embedded within the router that can be enabled with a Cisco IOS Security Image. This provides customers with a single, resilient platform to rapidly deploy secure networks and applications. The Cisco 1800 Series was designed with integrated security to provide a tight coupling among security, routing, and other integrated services throughout the network. With a Cisco IOS Software-based VPN, firewall, and intrusion prevention system (IPS), as well as optional enhanced VPN acceleration, and network admission control (NAC) support for anti-virus defense, the Cisco 1841 offers a robust and adaptable security solution for branch-office routers. Every Cisco 1800 Series router comes with the factory-installed Cisco Router and Security Device Manager (SDM). Cisco SDM is an intuitive, Web-based device manager that offers easy router configuration and monitoring, startup wizards for quick deployment and lock-down, smart wizards to help enable security

and routing features, Cisco Technical Assistance Center (TAC)-approved router configurations, and subject-related educational content.

Integrated Services

By providing integrated services, as well as great modular density and high performance, the Cisco 1841 router provides security, versatility, scalability, and flexibility for multiple applications to the small-to-medium-sized business, small enterprise branch office, and the service provider customer edge. The Cisco 1841 router easily accommodates several network applications, such as secure branch-office data access (including NAC for antivirus defense), VPN access and firewall protection, business-class DSL, IPS support, inter-VLAN routing, and serial device concentration. The Cisco 1841 router provides customers with the industry's most flexible, secure, and adaptable infrastructure to meet both today's and tomorrow's business requirements for maximum investment protection.

Security Features**IPSec VPN**

- Advanced Encryption Standard (AES) 128, 192, and 256; Triple Data Encryption Standard (3DES); and DES cryptology support
- Embedded hardware-based VPN acceleration on the motherboard
- Cisco Easy VPN remote
- Cisco Easy VPN server
- Dynamic Multipoint VPN (DMVPN)
- Virtual Tunnel Interfaces (VTI)
- 802.1x
- VPN QoS – Preclassification support
- Support for up to 800 IPSec tunnels using the AIM-VPN/BPII-PLUS

Multiprotocol Label Switching (MPLS) VPN Support

- Support for VRF-lite and VRF aware IPSec

Cisco IOS IPS

- Inline ability to drop packet, reset connection, locally shun, or send an alarm
- Dynamically load and enable selected attack signatures in the same manner as Cisco IPS Appliances

Cisco IOS Firewall

- Feature rich, stateful firewall
- Per-user authentication and authorization
- Real-time alerts
- Transparent firewall
- IPv6 firewall
- VRF-Aware firewall
- Advanced Application Inspection and Control
 - HTTP inspection engine
 - Email inspection engines (SMTP, ESMTP, IMAP, POP)

Security Features continued

Network Foundation Protection

- Control Plane Policing (CPP)
- AutoSecure
- CPU/Memory Threshold
- Secure Shell (SSH)
- Access Control List (ACL)
- Command Line Interface (CLI)
- Committed Access Rate (CAR)

URL Filtering

- Local URL filtering in Cisco IOS software based on external server

Onboard USB 1.1 port

- Single onboard USB 1.1 port
- Secure token and Flash memory support

Security Solutions

- Network Admission Control (NAC)

Optional Security Modules

- VPN and Encryption Advanced Integration Modules (AIM-VPN/BPII-PLUS)

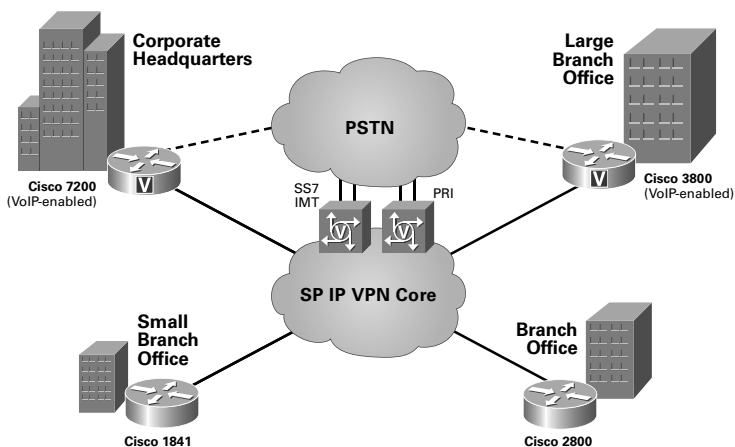
Cisco Router and Security Device Manager (SDM)

- Ships by default

Certifications

- ICSA IPSec
- ICSA Firewall
- Common Criteria IPSec (EAL4) (in process)
- Common Criteria Firewall (EAL4+) (in process)
- FIPS 140-2, Level 2 (in process)

Security Example



Branch office Network Admission Control (NAC) helps ensure that every endpoint complies with network security policies before being granted access, protecting the network from viruses and worms.

When To Deploy

Deploy the Cisco 1800 Series when you need:

- Performance and densities for concurrent data and security services up to one T1/E1/xDSL WAN connectivity rates
- The flexibility to add or change WAN services to support changing needs and applications, including serial T1, E1, ISDN and broadband DSL, etc.
- VPN connections, or plan to migrate to them over time
- Low density (up to eight ports) of integrated 10/100 switching
- 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
- Advanced management for security, routing, quality of service (QoS), and switching services with Cisco SDM Version 2.0

Platform Overview

	Fixed LAN Ports	HWIC Slots	AIM Slots	PVDM* Slots	NME* Slots	EVM* Slots	DRAM (MB)		Flash (MB)		Power Supply
							Default	Max	Default	Max	
Cisco 1841	2	2	1	0	0	0	128	384	32	128	AC

* NME = Enhanced Network Module; EVM = Extension Voice Module; PVDM = Packet Voice/Digital Signal Processor Module

Series Specifications

Dimensions (H x W x D)	1.73 x 13.5 x 10.8 in. (43.9 x 343 x 274 mm)
Console port	1 (up to 115.2 kbps)
Auxiliary port	1 (up to 115.2 kbps)
USB port	1
Integrated channel service unit/data service unit (CSU/DSU)	Yes, with optional T1/E1, Fractional T1/E1, 56k/64k support
Voice/data support	Only data support
Compression	Software and hardware
Encryption	Hardware support on motherboard; optional AIM for enhanced performance
Maximum 10/100 switch ports	8 (without onboard Fast Ethernet ports)
Maximum integrated modems	4
Maximum ISDN Basic Rate Interface (BRI) ports	4

Cisco IOS Memory Requirements

Support for Cisco 1800 Series routers begins with Cisco IOS Software Release 12.3(8)T4. The following table lists the memory requirements for Cisco IOS Software on the Cisco 1841 Integrated Services Router.

Cisco IOS Software Feature Sets	Software Image	Compact Flash Memory	DRAM Memory
IP Base	c1841-ipbase	32 MB	128 MB
IP Broadband*	c1841-broadband	32 MB	128 MB
Enterprise Base	c1841-entbase	32 MB	128 MB
Advanced Security	c1841-advsecurityk9	32 MB	128 MB
SP Services	c1841-spservicesk9	32 MB	128 MB
Enterprise Services	c1841-entservicesk9-mz	32 MB	128 MB
Advanced IP Services	c1841-advipservicesk9-mz	32 MB	128 MB
Advanced Enterprise Services	c1841-adventerprisek9-mz	32 MB	128 MB

* IP Broadband image is first available on 12.3(11)T

Ordering Information

Cisco 1800 Series Base Chassis Part Numbers

Part Number	Product Description
CISCO1841	Cisco 1800 Series Modular Router with two integrated Fast Ethernet slots, two WAN slots, IP BASE, 32 MB of Flash memory and 128 MB of DRAM

Product Bundles

SECURITY BUNDLES

Product Number	Product Description
CISCO1841-SEC/K9	Cisco 1841 security bundle with advanced security, 64 MB Compact Flash/256 MB DRAM
CISCO1841-HSEC/K9	Cisco 1841 security bundle with AIM-VPN/BPII-PLUS, Advanced IP Services, 64 MB Compact Flash/256 MB DRAM
CISCO1841-T1SEC/K9	Cisco 1841 security bundle with WIC-1DSU-T1-V2, Advanced Security, 64 MB Compact Flash/256 MB DRAM

BROADBAND BUNDLES

Product Number	Product Description
CISCO1841-ADSL	Cisco 1841 asymmetric DSL (ADSL) over POTS (ADLoPOTS) bundle, IP broadband, 32 MB Compact Flash/128 MB DRAMs
CISCO1841-ADSLI	Cisco 1841 ADSLoSDN bundle, IP broadband, 32 MB Compact Flash/128 MB DRAM
CISCO1841-ADSL-DG	Cisco 1841 ADSLoPOTS bundle with dying gasp, IP broadband, 32 MB Compact Flash/128 MB DRAM
CISCO1841-SHDSDL	Cisco 1841 G.SHDSDL 2-wire bundle, IP broadband, 32 MB Compact Flash/128 MB DRAM
CISCO1841-SHDSDL-V2	Cisco 1841 G.SHDSDL 4-wire bundle, IP broadband, 32 MB Compact Flash/128 MB DRAM

T1 BUNDLES

Product Number	Product Description
CISCO1841-T1	Cisco 1841 security bundle, advanced security, 32 MB Compact Flash/128 MB DRAM

Notes

Cisco 2800 Series



Cisco Systems® is redefining best-in-class enterprise and small to medium-sized business routing with a new line of integrated services routers that are optimized for the secure, wire-speed delivery of concurrent data, voice, and video services. Founded on 20 years of leadership and innovation, Cisco 2800 Series integrated services routers intelligently embed data, security, and voice services into a single, resilient system for fast, scalable delivery of mission-critical business applications. The unique integrated systems architecture of the Cisco 2800 Series delivers maximum business agility and investment protection.

Benefits and Advantages

Enhanced Architecture

The Cisco 2800 Series features support for new interface cards. Depending on the router model, this can include up to four high-speed WAN interface card (HWIC) slots, up to one Enhanced Network Module (NME) slot, and up to one Extension Voice Module (EVM) slot. Embedded on the motherboard of the router is a hardware-based VPN accelerator, up to three PVDM (Packet Voice DSP Module) slots for integrated digital signal processor (DSP) modules, two advanced integration module (AIM) slots, up to two USB 1.1 ports, and two Fast Ethernet 10/100 ports (2801, 2811) or two Gigabit Ethernet 10/100/1000 ports (2821, 2851). Additionally, optional support for inline power (including 802.3af) is offered.

Investment Protection and Versatility

The Cisco 2800 Series provides significant additional value compared to prior generations of Cisco routers such as the Cisco 1700 and 2600 Series routers at similar price points by offering up to a five-fold performance improvement, up to a

ten-fold increase in security and voice performance, new embedded service options, and dramatically increased slot performance and density while maintaining support for most of the more than 90 existing modules that are available today for the Cisco 1700 Series and Cisco 2600 Series.

Integrated Switching

With support of up to 64 ports of integrated switching with inline power, the Cisco 2800 Series offers an excellent platform for combining two of the most common components of any network infrastructure. Additionally, with support for the new 802.3af (Power over Ethernet [PoE]) standard, the 4- and 9-port Cisco EtherSwitch® HWICs and the new 16-, 24-, and 48-port EtherSwitch Service Modules can provide power to any 802.3af-compliant devices, greatly expanding the number and types of devices that can be powered from the router's integrated switch ports. An optional upgrade to the internal power supply provides power to the integrated switch ports.

Benefits and Advantages continued**Integrated Services**

With the optional integration of numerous services modules, the Cisco 2800 Series offers the ability to easily integrate the functions of standalone network appliances and components into the Cisco 2800 Series chassis itself. Many of these modules, such as the Cisco Network Analysis Module, Cisco Unity™ Express Voice-mail Module, Cisco Intrusion Detection Module, and Cisco Content Engine Module, have embedded processors and hard drives that allow them to run largely independently of the router while allowing management from a single management interface. This flexibility greatly expands the potential applications of the Cisco 2800 Series beyond traditional routing, while maintaining the benefits of integration.

Secure Networking

Integrated on the motherboard of every Cisco 2800 Series router is hardware-based encryption acceleration that offloads the encryption processes to provide greater IPsec throughput with less overhead for the router CPU, when compared with software-based solutions. With the optional integration of VPN modules (for enhanced performance and tunnel count), content engine network modules

for URL filtering, or intrusion-prevention network modules, combined with the rich Cisco IOS® Software security feature set that includes firewall, network admission control (NAC), voice and video-enabled VPN (V3PN), intrusion prevention, and Dynamic Multipoint VPN (DMVPN), Cisco offers the industry's most robust and adaptable security solution for branch-office routers.

IP Telephony

The Cisco 2800 Series allows network managers to provide scalable analog and digital telephony without investing in a one-time solution, giving enterprises greater control of their converged telephony needs. Using voice and fax modules, the Cisco 2800 Series can be deployed for applications ranging from voice over IP (VoIP) and voice over Frame Relay (VoFR) transport to robust, centralized solutions using the Cisco Survivable Remote Site Telephony (SRST) solution or distributed call processing using Cisco CallManager Express (CCME). The architecture is highly scalable with the ability to support up to 96 IP phones, 12 T1/E1s trunks, 52 foreign-exchange-station (FXS) ports, or 36 foreign-exchange-office (FXO) ports concurrent with data routing and other services.

Security Features**IPSec VPN**

- Advanced Encryption Standard (AES) 128, 192, and 256; Triple Data Encryption Standard (3DES); and DES cryptology support
- Embedded hardware-based VPN acceleration on the motherboard
- Cisco Easy VPN remote
- Cisco Easy VPN server
- Dynamic Multipoint VPN (DMVPN)
- Virtual Tunnel Interfaces (VTI)
- 802.1x
- VPN QoS – Preclassification support
- Support for up to 1500 VPN tunnels with the AIM-VPN module

Multiprotocol Label Switching (MPLS) VPN Support

- Specific provider edge capabilities
- Virtual routing and forwarding (VRF) firewall and VRF IPsec

Cisco IOS IPS

- Inline ability to drop packet, reset connection, locally shun, or send an alarm

- Dynamically load and enable selected attack signatures in the same manner as Cisco IPS Appliances

Cisco IOS Firewall

- Feature rich, stateful firewall
- Per-user authentication and authorization
- Real-time alerts
- Transparent firewall
- IPv6 firewall
- VRF-Aware firewall
- Advanced Application Inspection and Control
 - HTTP inspection engine
 - Email inspection engines (SMTP, ESMTP, IMAP, POP)

Network Foundation Protection

- Control Plane Policing (CPP)
- AutoSecure
- CPU/Memory Threshold
- Secure Shell (SSH)
- Access Control List (ACL)
- Command Line Interface (CLI)
- Committed Access Rate (CAR)

Security Features continued

URL Filtering

- Onboard with an optional content-engine network module
- Local URL filtering in Cisco IOS software based on external server

Onboard USB 1.1 port

- 1 or 2 onboard USB 1.1 ports
- Secure token and Flash memory support

Security Solutions

- Network Admission Control (NAC)
- Voice & Video Enabled IPsec VPN (V3PN)

Optional Security Modules

- IDS/IPS Network Modules (NM-CIDS portfolio)
- VPN and Encryption Advanced Integration Modules (AIM-VPN portfolio)
- Content Engine Network Modules (NM-CE portfolio)

Cisco Router and Security Device Manager (SDM)

- Ships by default

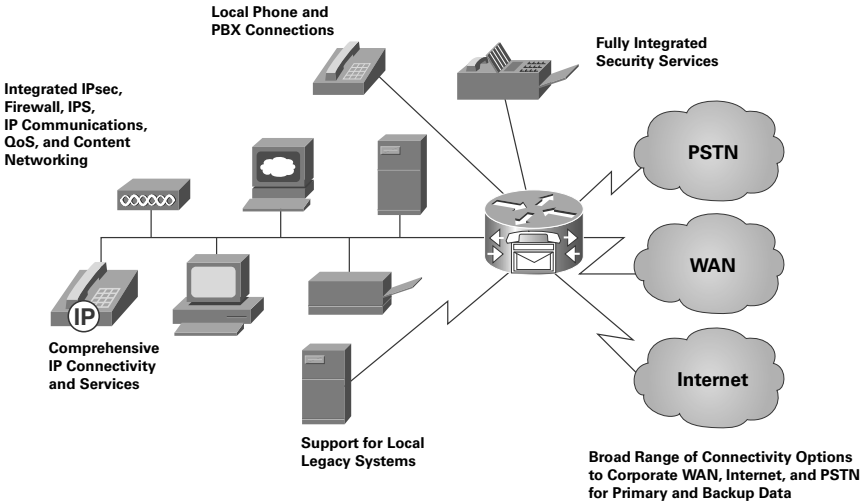
Certifications

- ICSA IPsec
- ICSA Firewall
- Common Criteria IPsec (EAL4) (in process)
- Common Criteria Firewall (EAL4+) (in process)
- FIPS 140-2, Level 2 (in process)

Series Features Overview

Features	Details
Multiprotocol Label Switching (MPLS) VPN Support	<ul style="list-style-type: none"> • Specific Provider Edge (PE) capabilities
Onboard USB 1.1 ports	<ul style="list-style-type: none"> • Secure USB token and USB flash memory features are supported
Intrusion Prevention System (IPS)	<ul style="list-style-type: none"> • More than 1200 IPS signatures supported in Cisco IOS Software, with the ability to load and enable selected IPS signatures • Optional high-performance IDS Network Module with more than 1200 signatures
URL Filtering	<ul style="list-style-type: none"> • Onboard filtering 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), version 2.0 and above	<ul style="list-style-type: none"> • Comes standard on all Cisco 2800 Series routers
Media Authentication and Encryption	<ul style="list-style-type: none"> • Standards-based authentication and encryption using secure RTP provides a secure environment for IP Communications • Advanced Encryption Standard (AES) 256-bit cryptography support
IP Telephony Features	
IP Phone Support	<ul style="list-style-type: none"> • Optional integrated power supply with inline power, 802.3af support • Up to 360W of inline power (Note: requires power supply upgrade)
Analog Voice Support	<ul style="list-style-type: none"> • One EVM on the Cisco 2821 and Cisco 2851 • Up to 52 FXS and 36 FXO ports
Digital Voice Support	<ul style="list-style-type: none"> • Up to 192 calls
DSP (PVDM) Slots on Motherboard	<ul style="list-style-type: none"> • Up to three DSP slots on motherboard • Local Conferencing and Transcoding
Cisco CallManager Express (CCME)	<ul style="list-style-type: none"> • Up to 96 phones
Cisco SRST	<ul style="list-style-type: none"> • Up to 96 phones
Voice Mail and Automated Attendant	<ul style="list-style-type: none"> • Up to 120 mailboxes with up to 16 concurrent sessions using Cisco Unity™ Express network module
Voice Interfaces	<ul style="list-style-type: none"> • FXS, FXO, Direct Inward Dial (DID), E&M, Centralized Automated Message Accounting (CAMA), Cisco Unity Express (CUE), Basic Rate Interface (BRI), T1, E1, J1 Primary Rate Interface (PRI), Q.SIG, channel associated signaling (CAS)

Network Example



When To Deploy

Deploy the Cisco 2800 Series when you need:

- 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
- Ability to upgrade the internal power supply to support integrated 10/100 switching with PoE support for up to 64 ports with inline power
- 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) Double Data Rate (DDR) SDRAM memory to detect and correct SDRAM errors without user intervention, and Cisco IOS Software warm reboot support for reduced downtime caused by system reboots (Note: Cisco 2801 does not support ECC DDR DRAM.)
- Secure integrated call processing, voice mail and automated attendant, 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

Platform Overview

	NME	EVM	AIM	HWIC	PVDM*	Fixed LAN Ports	DRAM (MB)		Compact Flash (MB)		Power Supply
							Default	Max	Default	Max	
Cisco 2801	0***	0	2	2**	2	2 FE	128	384	64	128	AC, AC-IP
Cisco 2811	1	0	2	4	2	2 FE	256	768	64	256	AC, AC-IP, DC
Cisco 2821	1 NME or NME-X	1	2	4	3	2 GE	256	1024	64	256	AC, AC-IP, DC
Cisco 2851	1 NME, NMD, NME-X, or NME-XD	1	2	4	3	2 GE	256	1024	64	256	AC, AC-IP, DC

*Number of PVDM slots on the motherboard, additional DSP resources can be added using a network module

**Four interface card slots total are supported on the Cisco 2801 router; two slots support HWIC, WIC, VIC, or VWIC modules; one slot supports WIC, VIC, or VWIC modules; one slot supports VIC or VWIC modules (in voice mode only)

***Cisco 2801 router does not support Network Modules

Series Specifications

Dimensions (Height x Width x Depth)

Cisco 2801	1.72 x 17.5 x 16.5 in. (43.7 x 445 x 419 mm); 1-rack-unit (RU) height
Cisco 2811	1.75 x 17.25 x 16.4 in. (44.5 x 438.2 x 416.6 mm); 1-RU height
Cisco 2821, Cisco 2851	3.5 x 17.25 x 16.4 in. (88.9 x 438.2 x 416.6 mm) 2-RU height

Console Port 1 (up to 115.2 Kbps)

Auxiliary Port 1 (up to 115.2 Kbps)

USB Port(s)

Cisco 2801	1
Cisco 2811, Cisco 2821, Cisco 2851	2

Integrated Channel Service Unit/Data Service Unit (CSU/DSU) Yes, with optional T1/E1, Fractional T1/E1, 56k/64k support

Voice/Data Support Yes, for voice through VIC, VWIC, NM, and EVM

Compression Software and hardware, with optional AIM support

Encryption Hardware support on motherboard; optional AIM for enhanced performance

Series Specifications continued**Maximum 10/100 Switch Ports with Inline Power**

Cisco 2801	16
Cisco 2811	32
Cisco 2821	40
Cisco 2851	64

Maximum Inline Power Distribution

Cisco 2801	120W
Cisco 2811	160W
Cisco 2821	240W
Cisco 2851	360W

Maximum 1 GB ports	5, including HWIC and NME modules (not supported on 2801)
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Maximum Token Ring Ports	0
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Maximum High-speed Serial (up to 2 Mbps)	20
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Maximum Low-speed Serial (up to 128 Kbps)	48 synchronous, 96 asynchronous
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Maximum Integrated Modems	24 analog
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Maximum ISDN BRI Ports	20
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Maximum ISDN PRI Ports	2
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Integrated RPS Connector

Cisco 2801	No
Cisco 2811, Cisco 2821, Cisco 2851	Yes; use Cisco RPS-675 Redundant Power System

Minimum Cisco IOS Software Release

Cisco 2801	12.3(8)T4
Cisco 2811	12.3(8)T4
Cisco 2821	12.3(8)T4
Cisco 2851	12.3(8)T4

Cisco IOS Memory Requirements

Cisco IOS Software Release 12.3T Memory Recommendations for Cisco 2801 Routers

Feature Sets	Software Image	Compact Flash Memory	DRAM Memory
IP Base	c2801-ipbase-mz	64 MB	128 MB
IP Voice	c2801-ipvoice-mz	64 MB	128 MB
Enterprise Base	c2801-entbase-mz	64 MB	128 MB
Advanced Security	c2801-advsecurityk9-mz	64 MB	128 MB
SP Services	c2801-spservicesk9-mz	64 MB	128 MB
Enterprise Services	c2801-entservicesk9-mz	64 MB	128 MB
Advanced IP Services	c2801-advipservicesk9-mz	64 MB	128 MB
Advanced Enterprise Services	c2801-adventerprisek9-mz	64 MB	128 MB

Cisco IOS Software Release 12.3T Memory Recommendations for Cisco 2811, 2821, and 2851 Routers

Feature Sets	Software Image	Compact Flash Memory	DRAM Memory
IP Base	c2800nm-ipbase-mz	64 MB	256 MB
IP Voice	c2800nm-ipvoice-mz	64 MB	256 MB
Enterprise Base	c2800nm-entbase-mz	64 MB	256 MB
Advanced Security	c2800nm-advsecurityk9-mz	64 MB	256 MB
SP Services	c2800nm-spservicesk9-mz	64 MB	256 MB
Enterprise Services	c2800nm-entservicesk9-mz	64 MB	256 MB
Advanced IP Services	c2800nm-advipservicesk9-mz	64 MB	256 MB
Advanced Enterprise Services	c2800nm-adventerprisek9-mz	64 MB	256 MB
Advanced Enterprise Services with SNA Switching	c2800nm-adventerprisek9_na-mz	64 MB	256 MB
Int. voice/video GK, IPIP GW, TDMIP GW	c2800nm-ipvoice_ivs-mz	64 MB	256 MB
Int. voice/video GK, IPIP GW, TDMIP GW AES	c2800nm-adventerprisek9_ivs-mz	64 MB	256 MB

Ordering Information

All Cisco 2800 Series chassis ship with IP Base software, 64 MB of Compact Flash, either 128 or 256 MB of SDRAM, console, auxiliary and LAN cables, a power cord, 19-inch rack-mount brackets, and blank panels that cover unused WIC or network module slots.

Optional items:

- Cisco IOS Software feature set upgrade or revision; IP Base is default and included with the chassis
- Several voice/WAN interface card options
- Several WAN/LAN network module options
- Optional MFT Dedicated Echo Cancellation Modules for select voice/WAN interface cards
- Between 2 and 3 PVDMs plus additional PVDM capacity on select network modules
- Several services module options, including content engine, IDS, network analysis, and CESoIP
- Up to two AIMs
- Cisco EtherSwitch modules (4-, 9-, 16-, 24- [2821 or 2851 only], 36-port [2851 only], or 48-port [2851 only])
- External RPS (Cisco RPS-675 [not supported on 2801])
- Flash/SDRAM memory upgrade
- Cables
- Feature license for IP Telephony

Cisco 2800 Series Base Chassis Part Numbers

Part Number	Product Description
CISCO2851	Integrated services router with AC power, 2GE, slots for 1 NME-XD, 1EVM, 4 HWICs, 2 AIMs, 3 PVDMs; and Cisco IOS IP Base Software
CISCO2851-AC-IP	Integrated services router with AC power including inline power distribution capability, 2GE, slots for 1 NME-XD, 1 EVM, 4 HWICs, 2 AIMs, 3 PVDMs; and Cisco IOS IP Base Software
CISCO2851-DC	Integrated services router with DC power, 2GE, slots for 1 NME-XD, 1 EVM, 4 HWICs, 2 AIMs, 3 PVDMs; and Cisco IOS IP Base Software
CISCO2821	Integrated services router with AC power, 2GE, slots for 1 NME-X, 1 EVM, 4 HWICs, 2 AIMs, 3 PVDMs; and Cisco IOS IP Base Software
CISCO2821-AC-IP	Integrated services router with AC power including inline power distribution capability, 2GE, slots for 1 NME-X, 1 EVM, 4 HWICs, 2 AIMs, 3 PVDMs; and Cisco IOS IP Base Software
CISCO2821-DC	Integrated services router with DC power, 2GE, slots for 1 NME-X, 1 EVM, 4 HWICs, 2 AIMs, 3 PVDMs; and Cisco IOS IP Base Software
CISCO2811	Integrated services router with AC power, 2FE, slots for 1 NME, 4 HWICs, 2 AIMs, 2 PVDMs; and Cisco IOS IP Base Software
CISCO2811-AC-IP	Integrated services router with AC power including inline power distribution capability, 2FE, slots for 1 NME, 4 HWICs, 2 AIMs, 2 PVDMs; and Cisco IOS IP Base Software
CISCO2811-DC	Integrated services router with DC power, 2FE, slots for 1 NME, 4 HWICs, 2 AIMs, 2 PVDMs; and Cisco IOS IP Base Software
CISCO2801	Integrated services router with AC power, 2FE, slots for 4 Interface Cards, 2 AIMs, 2 PVDMs; and Cisco IOS IP Base Software
CISCO2801-AC-IP	Integrated services router with AC power including inline power distribution capability, 2FE, slots for 4 Interface Cards, 2 AIMs, 2 PVDMs; and Cisco IOS IP Base Software

Product Bundles

VOICE

Part Number	Product Description
CISCO2851-V/K9	Cisco 2851 voice bundle with PVDM2-48, 64 MB Compact Flash/256 MB DRAM, and Cisco IOS SP services
CISCO2851-CCME/K9	Cisco 2851 voice bundle with PVDM2-48, CCME featuring 96-phone license, 64 MB Compact Flash/256 MB DRAM, and Cisco IOS SP services
CISCO2851-SRST/K9	Cisco 2851 voice bundle with PVDM2-48, SRST featuring 96-phone license, 64 MB Compact Flash/256 MB DRAM, and Cisco IOS SP services
CISCO2851-V3PN/K9	Cisco 2851 V3PN bundle with Cisco IOS advanced IP services Image, PVDM2-48, FL-CCME-96, 64 MB Compact Flash/256 MB DRAM, and AIM-VPN-EPII-PLUS
CISCO2821-V/K9	Cisco 2821 voice bundle with PVDM2-32, 64 MB Compact Flash/256 MB DRAM, and Cisco IOS SP services
CISCO2821-CCME/K9	Cisco 2821 voice bundle with PVDM2-32, CCME featuring 48-phone license, 64 MB Compact Flash/256 MB DRAM, and Cisco IOS SP services
CISCO2821-SRST/K9	Cisco 2821 voice bundle with PVDM2-32, SRST featuring 48-phone license, 64 MB Compact Flash/256 MB DRAM, and Cisco IOS SP services
CISCO2821-V3PN/K9	Cisco 2821 V3PN bundle with Cisco IOS advanced IP services, 64 MB Compact Flash/256 MB DRAM, PVDM2-32, CCME featuring 48-phone license, and AIM-VPN-EPII-PLUS
CISCO2811-V/K9	Cisco 2811 voice bundle with PVDM2-16, 64 MB Compact Flash/256 MB DRAM, and Cisco IOS SP services
CISCO2811-CCME/K9	Cisco 2811 voice bundle with PVDM2-16, CCME featuring 36-phone license, 64 MB Compact Flash/256 MB DRAM, and Cisco IOS SP services
CISCO2811-SRST/K9	Cisco 2811 voice bundle with PVDM2-16, SRST featuring 36-phone license, 64 MB Compact Flash/256 MB DRAM, and Cisco IOS SP services
CISCO2811-V3PN/K9	Cisco 2811 V3PN bundle with Cisco IOS advanced IP services, PVDM2-16, CCME featuring 36-phone license, 64 MB Compact Flash/256 MB DRAM, and AIM-VPN-EPII-PLUS
CISCO2801-V/K9	Cisco 2801 voice bundle, PVDM2-8, Cisco IOS SP services, 64 MB Compact Flash/256 MB DRAM
CISCO2801-CCME/K9	Cisco 2801 voice bundle with CCME featuring 24-phone license, Cisco IOS SP services, 64 MB Compact Flash/256 MB DRAM
CISCO2801-SRST/K9	Cisco 2801 voice bundle with SRST featuring 24-phone license, Cisco IOS SP services, 64 MB Compact Flash/256 MB DRAM
CISCO2801-V3PN/K9	Cisco 2801 V3PN bundle with AIM-VPN, PVDM2-8, Cisco IOS advanced IP services, 64 MB Compact Flash/256 MB DRAM, CCME featuring 24-phone license

Product Bundles *continued***SECURITY**

Part Number	Product Description
CISCO2851-SEC/K9	Cisco 2851 security bundle with Cisco IOS advanced security, and 64 MB Compact Flash/256 MB DRAM
CISCO2851-HSEC/K9	Cisco 2851 security bundle with Cisco IOS advanced IP services, 64 MB Compact Flash/256 MB DRAM, and AIM-VPN-EPII-PLUS
CISCO2821-SEC/K9	Cisco 2821 security bundle with Cisco IOS advanced security, and 64 MB Compact Flash/256 MB DRAM
CISCO2821-HSEC/K9	Cisco 2821 security bundle with Cisco IOS advanced IP services, 64 MB Compact Flash/256 MB DRAM, and AIM-VPN-EPII-PLUS
CISCO2811-SEC/K9	Cisco 2811 security bundle with Cisco IOS advanced security, and 64 MB Compact Flash/256 MB DRAM
CISCO2811-HSEC/K9	Cisco 2811 security bundle with Cisco IOS advanced IP services, 64 MB Compact Flash/256 MB DRAM, and AIM-VPN-EPII-PLUS
CISCO2801-SEC/K9	Cisco 2801 Security bundle with Cisco IOS advanced security, and 64 MB Compact Flash/256 MB DRAM
CISCO2801-HSEC/K9	Cisco 2801 security bundle with AIM-VPN-EPII-PLUS, Cisco IOS advanced IP services, and 64 MB Compact Flash/256 MB DRAM

BROADBAND

Part Number	Product Description
CISCO2811-ADSL/K9	Cisco 2811 ADSL bundle, WIC-1ADSL (ADSLoPOTS), 64 MB Compact Flash/256 MB DRAM, Cisco IOS SP services
CISCO2811-SHDSL/K9	Cisco 2811 SHDSL bundle, WIC-1SHDSL-V2 (2- or 4-wire), 64 MB Compact Flash/256 MB DRAM, Cisco IOS SP services
CISCO2801-ADSL/K9	Cisco 2801 DSL bundle, WIC-1ADSL (ADSLoPOTS), Cisco IOS SP services, 64 MB Compact Flash/192 MB DRAM
CISCO2801-SHDSL/K9	Cisco 2801 DSL bundle, WIC-1SHDSL (2-wire only), Cisco IOS SP services, 64 MB Compact Flash/192 MB DRAM

Cisco 3800 Series



Based on 20 years of innovation, Cisco 3800 Integrated Services Routers extend Cisco Systems' leadership in multiservice routing by providing customers with unparalleled network agility, performance, and intelligence. 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.

Benefits and Advantages

Enhanced Architecture

The Cisco 3800 Series offers two modular platforms optimized for the secure delivery of concurrent voice, video, and data. The integrated services architecture of the Cisco 3800 Series builds on the highly successful Cisco 3700 Series design, and adds embedded security and voice processing to a highly modular system that is optimized for rapid deployment of intelligent network services and converged communications. The Cisco 3800 Series supports the bandwidth requirements for multiple Fast Ethernet interfaces per slot, time-division multiplexing (TDM) interconnections, and fully integrated power distribution to modules supporting 802.3af Power over Ethernet (PoE), while supporting the existing portfolio of modular interfaces.

Integrated Switching

With support for up to 96 ports of integrated switching with inline power, the Cisco 3800 Series offers an excellent platform for combining two of the most common components of any network infrastructure. The Cisco 3800 Series supports the 16-, 24-, 36-, and 48-port Cisco EtherSwitch®, and supports the 802.3af (PoE) standard, with 4- and 9-port EtherSwitch high-density WAN interface cards (HWICs), which can provide power to any 802.3af-compliant devices, expanding the number and types of devices that can be powered from the router's integrated switch ports. An optional upgrade to the internal power supply provides power to the integrated switch ports.

Benefits and Advantages continued

Investment Protection and Versatility

The Cisco 3800 Series provides significant additional value compared to prior generations of Cisco routers at similar price points by offering up to three times the performance, new embedded service options, and dramatically increased slot performance and density while maintaining support for most of the more than 90 existing modules that are available today for the Cisco 3700 Series. This helps to ensure continuing investment protection to accommodate network expansion or changes in technology as new services and applications are deployed. By integrating the functions of multiple separate devices into a single, compact unit, Cisco 3800 Series integrated services routers dramatically reduce the cost and complexity of managing remote networks. The Cisco 3800 Series delivers multiple concurrent services at wire-speed performance of up to T3/E3 speeds. The Cisco 3845 features a removable motherboard, fan assembly, and supports high-availability features such as online insertion and removal (OIR) of like network modules, and redundant integrated system and inline power supplies.

Integrated Services

With the optional integration of numerous services modules, the Cisco 3800 Series offers the ability to easily integrate the functions of standalone network appliances and components into the Cisco 3800 Series chassis itself. Many of these modules, such as the Cisco Network Analysis Module, Cisco Unity Express™ Voice Mail Module, Cisco Intrusion Prevention Module, and Cisco Content Engine Module, have embedded processors and hard drives that allow them to run largely independently of the router while allowing management from a single management interface. This flexibility greatly expands the potential applications of the Cisco 3800 Series beyond traditional routing, while maintaining the benefits of integration. The Cisco 3845 Integrated Services Router is optimized for the concurrent delivery of voice, video, and data at T3 wire-rate performance. The architecture provides high-performance embedded security and voice processing for

reliable delivery of mission-critical traffic such as VoIP, business video, and collaborative communications.

The Cisco 3845 is engineered to help customers effectively scale deployment of services, offering the following hardware features:

- Two built-in autosensing 10/100/1000 ethernet ports
- One small form-factor pluggable (SFP) slot gigabit ethernet
- Two built-in USB ports
- Four network module slots for single-wide or extended network modules, two double-wide or extended double-wide network modules (NME-XD), or two extension voice/fax modules (EVM-HD)
- Four single-wide or two double-wide HWICs
- Two advanced integration modules (AIMs)
- Four Packet Voice DSP Modules (PVDM) slots for voice processing
- Onboard IP Security (IPsec) acceleration
- 802.3af-compliant inline power for IP phones or wireless access points

The Cisco 3825 is engineered to help customers effectively scale deployment of services, offering the following hardware features:

- Two built-in autosensing 10/100/1000 ethernet ports
- One SFP slot gigabit ethernet
- Two built-in USB ports
- Two network module slots for single-wide or extended network modules, one double-wide or extended double-wide network module (NME-XD), or one extension voice/fax module (EVM-HD)
- Four single-wide or two double-wide HWICs
- Two AIMs
- Four PVDM slots for voice processing
- Onboard IPsec encryption acceleration
- 802.3af-compliant inline power for IP phones or wireless access points
- External redundant power supply (RPS) for system power and external redundant inline power for IP phones

Benefits and Advantages continued

Secure Networking

Integrated on the motherboard of every Cisco 3800 Series router is hardware-based encryption acceleration that offloads the encryption processes to provide greater IPsec throughput with less overhead for the router CPU when compared with software-based solutions. The integration of optional VPN modules (for enhanced performance and tunnel count), content-engine network modules for URL filtering, or intrusion prevention network modules, combined with the rich Cisco IOS Software security feature set that includes firewall, network access control (NAC), voice- and video-enabled VPN (V3PN), intrusion prevention, and Dynamic Multipoint VPN (DMVPN), Cisco offers the industry's most robust and adaptable security solution for branch office routers.

IP Telephony

The Cisco 3800 Series allows network managers to provide scalable analog and digital telephony without investing in a one-time solution, giving enterprises greater control of their converged telephony needs. Using voice and fax modules, the Cisco 3800 Series can be deployed for applications ranging from VoIP and voice-over-Frame Relay (VoFR) transport to robust, centralized solutions using the Cisco Survivable Remote Site Telephony (SRST) solution or distributed call processing using Cisco CallManager Express (CCME). The architecture is highly scalable with the ability to support up to 168 IP phones with the 3825 router and 240 IP phones with the 3845 router, 24 T1/E1s trunks, 88 foreign-exchange-station (FXS) ports, or 56 foreign-exchange-office (FXO) ports concurrent with data routing and other services.

Security Features

IPSec VPN

- Advanced Encryption Standard (AES) 128, 192, and 256 bit keys; Triple Data Encryption Standard (3DES); and DES cryptology support
- Embedded hardware-based VPN acceleration on the motherboard
- Cisco Easy VPN remote
- Cisco Easy VPN server
- Dynamic Multipoint VPN (DMVPN)
- Virtual Tunnel Interfaces (VTI)
- 802.1x
- VPN QoS – Preclassification support
- Support for up to 2,500 tunnels with AIM-VPN

Multiprotocol Label Switching (MPLS) VPN Support

- Specific provider edge capabilities
- Virtual routing and forwarding (VRF) firewall and VRF IPSec

Cisco IOS IPS

- Inline ability to drop packet, reset connection, locally shun, or send an alarm
- Dynamically load and enable selected attack signatures in the same manner as Cisco IPS Appliances

Network Foundation Protection

- Control Plane Policing (CPP)
- AutoSecure
- CPU/Memory Threshold
- Secure Shell (SSH)
- Access Control List (ACL)
- Command Line Interface (CLI)
- Committed Access Rate (CAR)

Media Authentication and Encryption

- Standards-based authentication and encryption using secure RTP provides a secure environment for IP Communications
- Advanced Encryption Standard (AES) 128-bit cryptography support

Cisco IOS Firewall

- Feature rich, stateful firewall
- Per-user authentication and authorization
- Real-time alerts
- Transparent firewall
- IPv6 firewall
- VRF-Aware firewall
- Advanced Application Inspection and Control
 - HTTP inspection engine
 - Email inspection engines (SMTP, ESMTP, IMAP, POP)

URL Filtering

- Onboard with an optional content-engine network module
- Local URL filtering in Cisco IOS software based on external server

Onboard USB 1.1 port

- 2 onboard USB 1.1 ports
- Secure token and Flash memory support

Security Solutions

- Network Admission Control (NAC)
- Voice & Video Enabled IPSec VPN (V3PN)

Optional Security Modules

- IDS/IPS Network Modules (NM-CIDS portfolio)
- VPN and Encryption Advanced Integration Modules (AIM-VPN portfolio)
- Content Engine Network Modules (NM-CE portfolio)

Security Features *continued*

Cisco Router and Security Device Manager (SDM)

- Ships by default

Certifications

- ICSA IPsec
- ICSA Firewall
- Common Criteria IPsec (EAL4) (in process)
- Common Criteria Firewall (EAL4+) (in process)
- FIPS 140-2, Level 2

IP Telephony Features

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 CallManager Express

- Up to 240 phones for the Cisco 3845 router, and up to 168 phones for the Cisco 3825 router

SRST

- Up to 720 phones for the Cisco 3845 router, and up to 336 phones for the Cisco 3825 router

Voice Mail and Automated Attendant

- Up to 120 mailboxes with up to 16 concurrent sessions 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)

Network Example

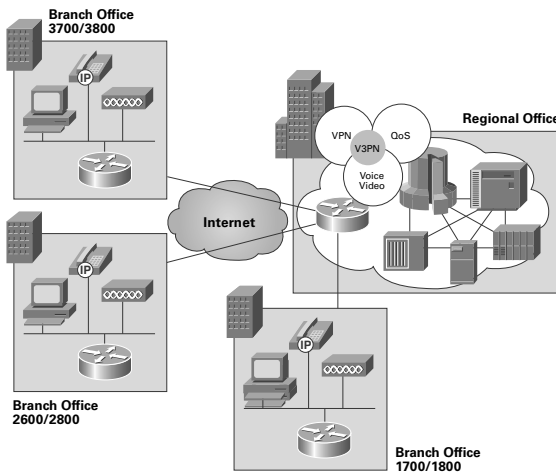


Figure 1 above shows the Cisco 3800 Series routers converge voice, video, and data across a secure IPsec VPN network with high-quality, reliable performance. DMVPN creates tunnels on-the-fly based on user traffic. V3PN functionality provides QoS, multiprotocol, ease of provisioning, and secure connectivity.

When To Deploy

Deploy the Cisco 3800 Series when you need:

- The highest performance and densities for concurrent data, security, voice, and advanced services with headroom for growth
- Higher availability and resiliency with OIR, redundant system, and inline power options
- Higher WAN or voice densities with an additional (fourth) HWIC
- Low density (up to 96 ports), integrated 10/100 switching with PoE support; up to 48 ports with Cisco Inline Power
- Efficient, robust Error Correction Code (ECC) DDR SDRAM memory to detect and correct SDRAM errors without user intervention
- Integrated security services as part of Cisco Self Defending Network, which enable

network device protection, threat defense, secure connectivity, and endpoint protection and control

- Integrated PVDMs, 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
- Advanced management for security, routing, QoS, and switching services with Cisco Router and Security Device Manager (SDM) 2.0
- Secure integrated call processing, voice mail and automated attendant, flexible telephony interfaces, redundancy for centralized call processing, with robust DSP support, including local call conforming and transcoding

Platform Overview

Cisco 3800 Series Features	Cisco 3825	Cisco 3845
Network module slots—These slots can accommodate standard network module, NME, and NME-X slots. The NME has the same form factor as the standard network module. The EVM-HD is supported. The NME-X, when available, will have a wider form factor than the NME. Two side-by-side NME slots can be combined to accommodate one NMD or, when available, a NME-XD.	NM NME NME-X NMD NME-XD EVM-HD	NM NME NME-X NMD NME-XD EVM-HD
Maximum number of network modules, NMEs, and NME-Xs supported	2	4
Maximum number of NMD/NME-XDs supported	1	2
Maximum number of EVM-HDs supported	1	2
Number of HWIC slots—These HWIC slots also support voice interface cards (VICs), voice/WAN interface cards (VVICs), and WICs	4	4
Number of fixed LAN ports (fixed RJ-45 port for 10/100/1000 connectivity)	2 Gigabit Ethernet (10/100/1000)	2 Gigabit Ethernet (10/100/1000)
Number of fixed SFP ports (for SFP Gigabit Ethernet connectivity)	1	1
Number of AIM slots (for optional AIMS for offloading compute-intensive features)	2	2
Number of PVDM slots (for optional PVDM2s)	4	4
Number of USB 1.1 ports (secure USB eToken and USB flash memory for secure Cisco IOS Software configuration distribution, and off-platform storage of VPN credentials)	2	2

Platform Overview continued

Cisco 3800 Series Features	Cisco 3825	Cisco 3845
Embedded VPN (hardware-based VPN encryption acceleration)	Yes	Yes
Number of console ports (up to 115.2 kbps)	1	1
Number of auxiliary ports (up to 115.2 kbps)	1	1
Memory—External compact Flash and internal DDR SDRAM with ECC	Default – 64 MB Compact Flash; 256 MB DDR SDRAM Maximum – 256 MB Compact Flash; 1 GB DDR SDRAM	Default: 64 MB Compact Flash; 256 MB DDR SDRAM Maximum: 256 MB Compact Flash; 1 GB DDR SDRAM
PHYSICAL SPECIFICATIONS		
Dimensions (H x W x D)	3.5 x 17.1 x 14.7 in. 2 rack-unit (RU)	5.25 x 17.25 x 16 in. 3 RU
Weight (minimum)	23 lb	45 lb
Rack-mounting	Yes; 19- and 23-inch options	Yes; 19- and 23-inch options
Wall-mounting	No	No
AC: Input Voltage	100 to 240 VAC, autoranging	100 to 240 VAC, autoranging
AC: Input Frequency	47 to 63 Hz	47 to 63 Hz
AC: Input Current	3A (110V) 2A (230V) Startup current 50A maximum (one cycle)	4A (110V) 2A (230V) Startup current 50A maximum (one cycle)
DC: Input Voltage	24–60 VDC, auto-ranging positive or negative	24–60 VDC, auto-ranging positive or negative
DC: Input Current	12A (24V) 5A (60V) Startup current 50A<10 ms	18A (24V) 7A (60V) Startup current 50A<10 ms
Output	AC or DC power supply: 210W for system AC-IP power supply: 210W for system 360W for IP phones (-48V)	AC or DC power supply: 300W for system AC-IP power supply: 300W for system 360W for IP Phones (-48V)
RPS	External only (Cisco RPS 675)	Internal AC, AC-IP, or DC RPS
Recommended RPS Unit	Cisco RPS 675	

Platform Overview *continued*

Cisco 3800 Series Features	Cisco 3825	Cisco 3845
POWER DISSIPATIONS		
AC without IP Phone Support	300W (1025 BTU/hr)	435W (1485 BTU/hr)
AC with IP Phone Support: System Only	370W (1262 BTU/hr)	555W (1890 BTU/hr)
AC with IP Phone Support: IP Phones	360W (1128 BTU/hr)	360W (1128 BTU/hr)
DC	325W (1100 BTU/hr)	460W (1570 BTU/hr)
Environmental Specifications		
Operating Temperature	32 to 104°F (0 to 40°C)	32 to 104°F (0 to 40°C)
Non-operating Temperature	-40 to 185°F (-40 to 85°C)	-40 to 185°F (-40 to 85°C)
Relative Humidity (non-condensing)	5 to 95 percent	5 to 95 percent
Operation Altitude	Up to 6500 ft (2000 m), derate 1C per 1000 ft	Up to 6500 ft (2000 m), derate 1C per 1000 ft
Noise Level (minimum)	50 dBa typical, 53 dBa maximum	56 dBa typical, 58 dBa maximum
REGULATORY COMPLIANCE		
Safety	UL 60950 CAN/CSA C22.2 No. 60950 EN 60950 AS/NZS 60950	UL 60950 CAN/CSA C22.2 No. 60950 EN 60950 AS/NZS 60950
EMC	47 CFR, Part 15 ICES-003 Class A EN55022 Class A CISPR22 Class A AS/NZS 3548 Class A VCCI V-3 EN 300386 EN 61000	47 CFR, Part 15 ICES-003 Class A EN55022 Class A CISPR22 Class A AS/NZS 3548 Class A VCCI V-3 EN 300386 EN 61000
TELCOM	47 CFR, Part 68 TIA/EIA/IS-968 CS-03 RTTE Directive	47 CFR, Part 68 TIA/EIA/IS-968 CS-03 RTTE Directive

Application Examples

Options

- Complete Cisco IP Communications and voice gateway capabilities
- Cisco Survivable Remote Site Telephony (SRST)
- Cisco CallManager Express and Cisco Unity™ Express
- V3PN-enabled routers
- Integrated stateful firewall
- Network access control (NAC), DMVPN, and intrusion prevention
- Web Cache Communication Protocol (WCCPv2) for content networking
- Business video and web application acceleration
- Network Analysis
- Circuit Emulation over IP (CEoIP)
- Integrated low-density switching with PoE support

High-Availability Features

Support for optional redundant system and inline power supply is offered on both the Cisco 3845 (internal) and the Cisco 3825 (external). OIR for network modules is offered on the Cisco 3845 only. Removable and field-replaceable components include the CPU motherboard, power supplies, and fan tray assembly (Cisco 3845 only).

Cisco IOS Memory Requirements

Router	Cisco IOS Software Release
Cisco 3825	Cisco IOS Software Release 12.3(11)T
Cisco 3845	Cisco IOS Software Release 12.3(11)T

Cisco IOS Software Release 12.3T Memory Recommendations for the Cisco 3825 Router

Cisco IOS Software Feature Sets	Cisco 3825	Compact Flash Memory	SDRAM Memory
IP Base	S382IPB	64 MB	256 MB
IP Voice	S382IPV	64 MB	256 MB
Enterprise Base	S382EB	64 MB	256 MB
Advanced Security	S382ASK9	64 MB	256 MB
SP Services	S382SPSK9	64 MB	256 MB
Enterprise Services	S382ESK9	64 MB	256 MB
Advanced IP Services	S382AISK9	64 MB	256 MB
Advanced Enterprise Services	S382AESK9	64 MB	256 MB
Integrated Voice/Video: GK, IPIP GW, TDM-IP GW	S382IVS	64 MB	256 MB
Integrated Voice/Video: GK, IPIP GW, TDM-IP GW with AES	S382AVSK9	64 MB	256 MB
Advanced Enterprise Service with SNA Switching	S382SNAK9	64 MB	256 MB

Cisco IOS Memory Requirements Continued

Cisco IOS software release 12.3T memory requirements for the Cisco 3845 Router

Cisco IOS Software Feature Sets	Cisco 3845	Compact	
		Flash Memory	SDRAM Memory
IP Base	S384IPB	64 MB	256 MB
IP Voice	S384IPV	64 MB	256 MB
Enterprise Base	S384EB	64 MB	256 MB
Advanced Security	S384ASK9	64 MB	256 MB
SP Services	S384SPSK9	64 MB	256 MB
Enterprise Services	S384ESK9	64 MB	256 MB
Advanced IP Services	S384AISK9	64 MB	256 MB
Advanced Enterprise Services	S384AESK9	64 MB	256 MB
Integrated Voice/Video: GK, IPIP GW, TDM-IP GW	S384IVS	64 MB	256 MB
Integrated Voice/Video: GK, IPIP GW, TDM-IP GW with AES	S384AVSK9	64 MB	256 MB
Advanced Enterprise Service with SNA Switching	S384SNAK9	64 MB	256 MB

Ordering Information

All Cisco 3800 Series integrated services routers ship with Cisco IOS IP Base Software; 64 MB of Compact Flash and 256 MB of SDRAM; console, auxiliary and LAN cables; a power cord; 19-inch rack-mount brackets; and blank panels that cover unused WIC or network module slots.

Optional items include:

- Cisco IOS Software feature set upgrade or revision
- Numerous voice/WAN interface card options
- Optional MFT Dedicated Echo Cancellation Modules for select voice/WAN interface cards

- Numerous WAN/LAN network modules
- Numerous service modules, including content engine, IPS, network analysis, and Circuit Emulation over IP
- Up to two AIMs
- 16-, 24-, 36- or 48-port EtherSwitch modules
- Integrated redundant system and inline power AC-IP power supplies (3845 only)
- Flash/SDRAM memory upgrade
- WAN interface cables

Product Number	Product Description
CISCO3825	Cisco 3825 Integrated Services Router with 2GE,1SFP, 2NME, 4HWIC, 2 AIM, IP Base software, and AC power
CISCO3825-AC-IP	Cisco 3825 Integrated Services Router with 2GE,1SFP, 2NME, 4HWIC, 2 AIM, IP Base software, with AC Power and PoE
CISCO3825-DC	Cisco 3825 Integrated Services Router with 2GE,1SFP, 2NME, 4HWIC, 2 AIM, IP Base software, and DC power
CISCO3845	Cisco 3845 Integrated Services Router with 2GE,1SFP, 4NME, 4HWIC, 2 AIM, IP Base software, and AC power
CISCO3845-AC-IP	Cisco 3845 Integrated Services Router with 2GE,1SFP, 4NME, 4HWIC, 2 AIM, IP Base software, and AC Power with PoE
CISCO3845-DC	Cisco 3845 Integrated Services Router with 2GE,1SFP, 4NME, 4HWIC, 2 AIM, IP Base software, and DC power

Product Bundles

SECURITY

Product Number	Product Description
CISCO3825-SEC/K9	Cisco 3825 security bundle, advanced security, 64 MB Compact Flash/256 MB DRAM
CISCO3845-SEC/K9	Cisco 3845 security bundle, advanced security, 64 MB Compact Flash/256 MB DRAM
CISCO3825-HSEC/K9	Cisco 3825 security bundle, AIM-VPN/HPII-PLUS, advanced IP services, 64 MB Compact Flash/256 MB DRAM
CISCO3845-HSEC/K9	Cisco 3845 security bundle, AIM-VPN/HPII-PLUS, advanced IP services, 64 MB Compact Flash/256 MB DRAM
CISCO3825-V3PN/K9	Cisco 3825 V3PN bundle, AIM-VPN, PVDM2-64, FL-CCME-168, advanced IP services, 64 MB Compact Flash/256 MB DRAM
CISCO3845-V3PN/K9	Cisco 3845 V3PN bundle, AIM-VPN, PVDM2-64, FL-CCME-240, advanced IP services, 64 MB Compact Flash/256 MB DRAM

VOICE

Product Number	Product Description
CISCO3825-V/K9	Cisco 3825 voice bundle, PVDM2-64, SP services, 64 MB Compact Flash/256 MB DRAM
CISCO3845-V/K9	Cisco 3845 voice bundle, PVDM2-64, SP services, 64 MB Compact Flash/256 MB DRAM
CISCO3825-SRST/K9	Cisco 3825 voice bundle, PVDM2-64, FL-SRST-168, SP services, 64 MB Compact Flash/256 MB DRAM
CISCO3845-SRST/K9	Cisco 3845 voice bundle, PVDM2-64, FL-SRST-240, SP services, 64 MB Compact Flash/256 MB DRAM
CISCO3825-CCME/K9	Cisco 3825 voice bundle, PVDM2-64, FL-CCME-168, SP services, 64 MB Compact Flash/256 MB DRAM
CISCO3845-CCME/K9	Cisco 3845 voice bundle, PVDM2-64, FL-CCME-240, SP services, 64 MB Compact Flash/256 MB DRAM

Cisco Small Business 100 Series



The Cisco Small Business Series of secure broadband routers addresses the needs of small businesses, providing affordable, easy-to-use, and secure broadband access for data-only applications. Setup is simple with Web-based tools, and remote management is possible with features in Cisco IOS Software that allow value-added resellers or service providers to centrally manage the routers. The Cisco Small Business Series gives small business customers a new option from Cisco—secure, managed Internet access at an affordable price.

Benefits and Advantages

Secure Internet Access

Cisco Small Business Series secure broadband routers are fixed-configuration, small-office routers that support up to five users. They provide the required performance to run basic, secure services in small offices, including an integrated stateful firewall.

Easy Setup and Deployment

An easy-to-use configuration tool, Cisco Router and Security Device Manager (SDM), allows non-technical users to quickly set up the router and its firewall configuration, while remote management capabilities in Cisco IOS Software facilitate easy deployment and centralized management for service providers or value-added resellers. Support for Cisco Configuration Express allows Service Providers to pre-configure routers in high volume deployments.

Exceptional Value

The Cisco Small Business 100 Series of secure broadband routers provides:

- An affordable Cisco router for data-only applications in small business offices with up to five users
- Asymmetric DSL (ADSL), ADSL over ISDN, or an Ethernet WAN interface with a 4-port 10/100 switch
- Secure connectivity with integrated stateful firewall
- Simple setup and remote management capabilities of Cisco IOS Software

Security Features

Cisco IOS Firewall

- Stateful inspection firewall (context-based access control)
- IP Security (IPSec) pass-through
- Point-to-Point Tunneling Protocol (PPTP) pass-through
- Layer 2 Tunneling Protocol (L2TP) pass-through
- Lock and key
- Telnet, Simple Network Management Protocol (SNMP), CLI, HTTP management
- Secure Shell (SSH) v1 and v2
- Port to application mapping

When to Deploy

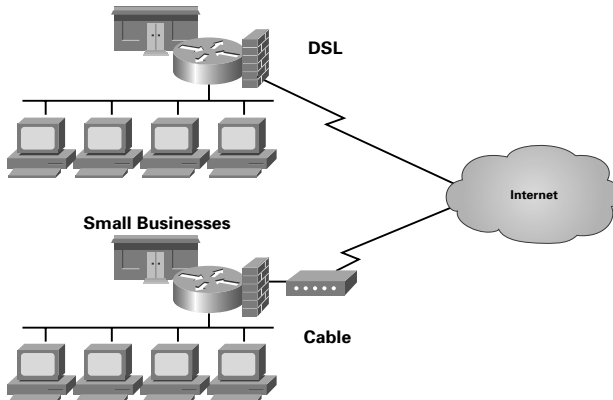
Deploy the Cisco Small Business Series 100 when you need:

- Secure broadband Internet access for small businesses
- A managed Internet access solution
- Stateful inspection firewall for secure Internet connectivity
- Cisco IOS Software in an affordable small business access solution
- Cisco Service and Support
- A solution that is easy to set up for non-technical users

Series Distinctions

	Cisco SB 100 Series
WAN Technologies	ADSL, ADSL over ISDN, Ethernet
LAN Ports	4-Port 10/100 Switch
Security	Stateful Inspection Firewall
VPN	IPSec Pass-through
AUX	Virtual AUX for Remote Management with Analog Modem
Upgradability	Software Updates Only

Application Example



Platform Overview

Platform	Target Market	Key Features	Fixed LAN Connections	Fixed WAN Connections	DRAM (MB) default max	Flash (MB) default max	Power Supply
Cisco SB 101	Small Business	Secure Broadband Access	4-port 10/100 switch	Ethernet	64 64	12 12	External
Cisco SB 106	Small Business	Secure Broadband Access	4-port 10/100 switch	ADSL over ISDN	64 64	12 12	External
Cisco SB 107	Small Business	Secure Broadband Access	4-port 10/100 switch	ADSL WAN Port	64 64	12 12	External

POWER DISSIPATIONS

AC input voltage	• AC input voltage: 100 to 250 VAC, 50 to 60 Hz
Power consumption	• 6 to 10W (idle-maximum consumption)
Power supply rating	• 15

REGULATORY COMPLIANCE

Approvals and compliance	<ul style="list-style-type: none"> • UL 1950/CSA 950-95, Third Edition • IEC 950: Second Edition with Amendments 1, 2, 3, and 4 • EN60950: 1992 with Amendments 1, 2, 3, and 4 • CS-03, Canadian Telecom Requirements • FCC Part 68 US Telecom Requirements • AS/NZS 3260: 1996 with Amendments 1, 2, 3, and 4 • ETSI 300-047 • TS 001 with Amendment 1 • EMI • AS/NRZ 3548: 1992 Class B • CFR 47 Part 15 Class B • EN60555-2 Class B • EN55022 Class B • VCCI Class II • ICES-003, Issue 2, Class B, April 1997S • IEC 1000-3-2
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Series Specifications

Flash Memory	12 MB
System DRAM Memory	64 MB
External Power Supply	Universal 100 to 240 VAC
Dimensions (H x W x D)	2.0 x 9.7 x 8.5 in. (5.1 x 24.6 x 21.6 cm)
Console Port	RJ-45
Auxiliary Port	Virtual AUX Port for External Modem
ISDN Basic Rate Interface (BRI) S/T (Cisco 106 only)	ISDN BRI S/T port that can be configured for ISDN out-of-band management
Maximum Ethernet Ports	4-port 10/100 Switch

ORDERING INFORMATION

Product Name	Product Number	Product Description
Cisco SB 101	CISCOSB101-K9	Secure broadband router
Cisco SB 106	CISCOSB106-K9	Secure ADSL over ISDN router
Cisco SB 107	CISCOSB107-K9	Secure ADSL router

Cisco SOHO Series



Cisco SOHO Series broadband routers provide secure connectivity to small remote offices with up to five users and teleworkers. The Cisco SOHO Series Routers can support integrated security features of Cisco IOS Software such as stateful inspection firewall protection, strong encryption for virtual private networks (VPNs), easy setup for non-technical users with a Web-based setup tool, and advanced management capabilities to lower operational costs. These routers connect to a DSL line with an integrated modem (ADSL: SOHO 97; ADSL over ISDN: SOHO 96; G.SHDSL: SOHO 78) or connect to an external DSL or cable modem (SOHO 91).

Benefits and Advantages

Secure Internet Access

The Cisco SOHO Series Routers, recommended for up to five users, allow all users in a small office to share a secure broadband connection with an integrated stateful inspection firewall. Corporate teleworkers or small-office users can also take advantage of the Cisco SOHO Series Routers for VPN connections to the corporate network. The SOHO 91, 96, and 97 routers can set up secure Triple Data Encryption Standard (3DES) encrypted connections using Cisco IOS Software or, for all the SOHO Series Routers, users can initiate VPN tunnels from PC-based VPN clients on the LAN.

Easy Setup and Deployment

The Cisco SOHO Series Routers include the Cisco Router Web Setup tool (CRWS), a Web-based configuration tool that allows users to quickly self-install the router. Because CRWS is Web-based, no additional software is required on the PC for configuration. Users simply point a browser to the router and follow a few easy steps to quickly get the router up and running. Additionally, the Cisco Configuration Express service allows enterprise or service provider customers who order products direct from Cisco to have pre-configured Cisco SOHO Series Routers shipped from the manufacturer directly to the end users.

Advanced Management Features for Low Cost of Ownership

To simplify management and reduce ongoing operational costs, the Cisco SOHO Series Routers take advantage of many debug and troubleshooting features in Cisco IOS Software. To further reduce operational costs, the routers support centralized management and configuration updates with the Cisco IE 2100 Intelligent Engine management appliance. The Cisco SOHO Series Routers provide the right combination of integrated security features, a four-port 10/100 Ethernet LAN switch on the SOHO 91, 96, and 97 routers, and advanced management features to secure broadband connections for small office and home office users. Cisco SOHO 90 Series routers offer out-of-band management feature via virtual auxiliary port. Dynamic DNS feature is available on Cisco 830 routers, which enables the router to be accessible from outside using a DNS name even when the WAN IP address changes frequently. The Cisco SOHO Series Routers use the same Cisco IOS Software used in large service provider and enterprise networks, allowing small-office users to take advantage of the proven reliability of Cisco IOS Software.

When to Deploy

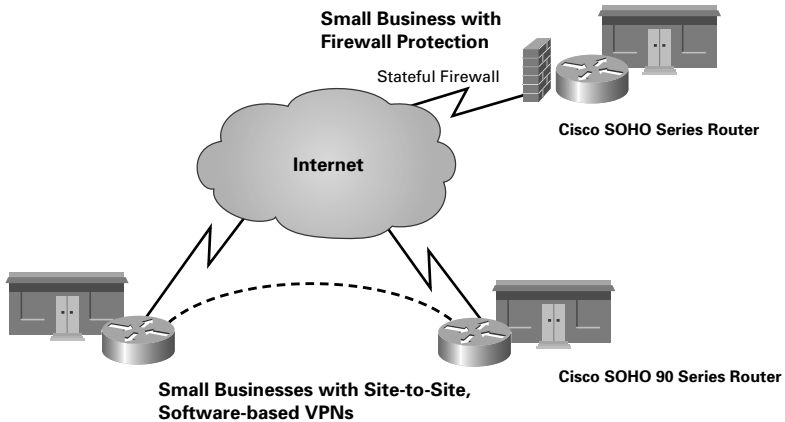
The Cisco SOHO Series is recommended when you need to deploy:

- Affordable, small business multiuser access with a DSL or cable line
- Internet access security with a stateful inspection firewall
- An easy setup solution for non-technical users
- Site-to-site software based VPNs (Cisco SOHO 91, 96, and 97)
- A secure teleworker solution for users who utilize PC VPN clients
- The proven reliability and manageability of Cisco IOS Software

Series Distinctions

	Cisco SOHO Series
WAN Technologies	Ethernet, ADSL, ADSL over ISDN, G.SHDSL
Security	Stateful firewall
VPN	IPsec passthrough, IPsec 3DES encryption (Cisco SOHO 91, 96, and 97)
QoS	DSL ATM QoS only
Upgradability	Software updates to default software image only

Application Example



Platform Overview

Platform	Target Market	Key Features	Fixed LAN Connections	Fixed WAN Connections	DRAM (MB) default max	Flash (MB) default max	Power Supply
Ethernet to Ethernet Routers							
Cisco SOHO 91	Small Business, Remote Office, Teleworker	Stateful firewall, software-based IPsec 3DES, IOS Remote Management	4-port 10/100 switch	1-port Ethernet 10 MB	64 64	12 24	External
ADSL over ISDN Routers							
Cisco SOHO 96	Small Business, Remote Office, Teleworker	Stateful firewall, software-based IPsec 3DES, IOS Remote Management	4-port 10/100 switch	1-port ADSL over ISDN	64 64	12 24	External
ADSL Routers							
Cisco SOHO 97	Small Business, Remote Office, Teleworker	Stateful firewall, software-based IPsec 3DES, IOS Remote Management	4-port 10/100 switch	1-port ADSL	64 64	12 24	External
G.SHDSL Routers							
Cisco SOHO 78	Small Business, Remote Users with VPN PC Clients	Firewall, Web GUI, IOS Remote Management	4-port Ethernet hub (10BASE-T)	1-port G.SHDSL	16 16	8 8	External

Series Specifications

Processor	RISC CPU
Flash Memory	8-24 MB
System DRAM Memory	16–64 MB
Internal Power Supply	No
Dimensions (H x W x D)	2.0 x 9.7 x 8.5 in. (5.1 x 24.6 x 21.6 cm)
Performance	9 Mbps Clear Text
Console Port	1 (up to 115.2 Kbps)
Maximum Ethernet Ports	4-port Ethernet LAN switch (SOHO90), 4-port hub (SOHO78)
Voice/Data Support	0
Integrated Modems	0
Maximum Number of ISDN BRI Ports	0
Maximum Number of ISDN PRI Ports	0
Integrated CSU/DSU	No
Compression	SW
Encryption	SW
Redundant Power Supply Support	No
Minimum Cisco IOS Software Release	Dependent upon model

Cisco IOS Memory Requirements

Cisco SOHO Series	Description	DRAM (MB)	Flash (MB)
soho78-y1-mz	IP	16	8
soho91-k9oy6-mz	IP/FW 3DES	64	12
soho96-k9oy6-mz	IP/FW 3DES	64	12
soho97-k9oy6-mz	IP/FW 3DES	64	12
soho97-oy1-mz	IP	64	8

Ordering Information

Cisco SOHO Series	Part Number	Description
Cisco SOHO 78	CISCOSOH078	1 G.SHDSL, port 10, 4-port 10 MB hub
Cisco SOHO 91	CISCOSOH091	1 Ethernet WAN Port, 4-port 10/100 switch, stateful firewall, IPSec 3DES
Cisco SOHO 96	CISCOSOH096	1 ADSL over ISDN WAN port, 4-port 10/100 switch, stateful firewall, IPSec 3DES
Cisco SOHO 97	CISCOSOH097	1 ADSL WAN Port, 4-port 10/100 switch, stateful firewall, IPSEC 3DES

Cisco 820/830 Series



Cisco 800 Series of secure broadband routers are ideal for providing secure Internet and corporate network connectivity to small remote offices and teleworkers. The Cisco 800 Series of secure broadband routers provides a wide range of rich, integrated security services, advanced quality-of-service (QoS) features for high-quality voice, video, and data applications, and easy deployment and remote management features with Cisco IOS software. The routers connect to the Internet or corporate networks through an ADSL (Cisco 837), ADSL over ISDN (Cisco 836), G.SHDSL (Cisco 828), serial (Cisco 805), or via an Ethernet WAN port connected to an external DSL or cable modem (Cisco 831).

Benefits and Advantages

Advanced Security and Performance for Enterprise Class VPNs

The Cisco 800 Series delivers integrated enterprise-class security services, including hardware-accelerated IP security (IPsec) (Cisco 831, 836, and 837), Advanced Encryption Standard (AES) and Triple Data Encryption Standard (3DES) encryption for virtual private networks (VPNs), and a stateful inspection firewall for secure Internet connectivity. A stateful firewall offers more intelligent perimeter security by denying or permitting WAN traffic based on a session's state, so requests from users behind the firewall can be received, while still preventing unauthorized access. With the support of Cisco Easy VPN Remote, setup, management, and maintenance of VPN connections is simple using Cisco 800 Series Routers. Other important security features offered by Cisco 830 routers are Intrusion Detection System (IDS), Dynamic Multipoint VPN (DMVPN), DMZ interface, 802.1x, Quality of Service for VPNs and Public Wireless LAN security features.

High-quality, Secure Voice and Video

The advanced QoS features of the Cisco 800 Series Routers, combined with high-performance encryption on the 831, 836, and 837, provide high-quality voice and video services to remote users. When IP phones are connected at a remote site, a Cisco 800 Series Router can queue and prioritize the voice traffic over data traffic to ensure a high-quality, secure voice over IP (VoIP) connection from the remote or home office back to the corporate network.

Manageable, Scalable, and Reliable Access

The Cisco 800 Series utilizes valuable management and deployment tools to deliver the industry's lowest total cost of ownership for connecting small remote offices and teleworkers to the corporate network. As a remotely manageable platform, the Cisco 800 Series supports advanced remote troubleshooting commands available in Cisco IOS Software; a virtual auxiliary port for out-of-band management with an external modem on the Cisco 831 and Cisco 837;

Benefits and Advantages continued

an ISDN port on the Cisco 836 router for out of band management; and Secure Shell Protocol (SSH) for secure in-band management via Telnet. For scalability in deployment and management, the Cisco Router Web Setup tool (CRWS) or Cisco Router & Security Device Manager (SDM) allows non-technical users to quickly set up the router and turn on key features such as the stateful firewall. Cisco also provides a suite of solutions—such as Cisco Easy VPN, Cisco IE2100 management appliance, Cisco VPN Solution Center (VPN SC), Cisco Router Management Center (Router MC), and Cisco Configuration Express—that allow for scalable network deployment and management, including automated security policy push, and

configuration updates.

For reliable access, the virtual AUX port on the Cisco 831 and Cisco 837 and Cisco 836 can be used for dial backup with an external modem, should the primary WAN connection fail. The Cisco 836 offers this same functionality but with an integrated ISDN port also. Dynamic DNS feature is available on Cisco 830 routers which enables the router to be accessible from outside using a DNS name even when the WAN IP address changes frequently. Additionally, the Cisco 800 Series runs Cisco IOS Software, the industry-proven software that has become the standard for reliable business access.

Security Features

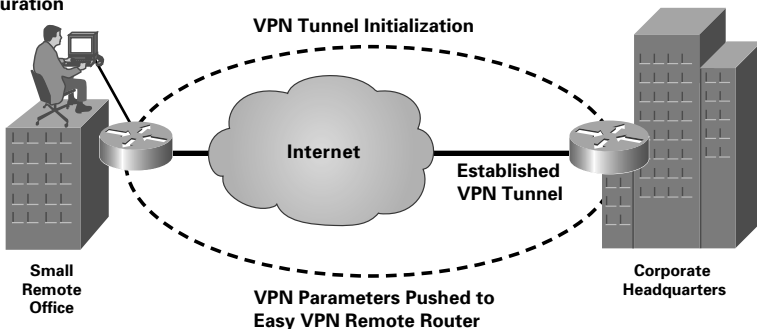
- **Stateful Application Firewall**
- **Encryption** – AES and 3DES SW + HW (HW on 830 Series Only)
- **Cisco Easy VPN Remote** (Cisco 830 Series)
- **Cisco Site-to-Site VPN**
- **DMVPN** (Cisco 830 Series)
- **DMZ** (Cisco 830 Series)
- **802.1x** (Cisco 830 Series)
- **Anti-virus through NAC** (Network Access Control) (Cisco 830 Series)
- **IPS** (Dynamic IDS) (Cisco 830 Series)
- **URL Filtering** – Using Websense or N2H2 server (Cisco 830 Series)
- **MAX IPsec Tunnels Supported** – 10 concurrent

Certifications

- **ICSA** – IPsec, Firewall
- **Common Criteria** – IPsec
- **FIPS140-2**

Security Application Example

Configuration



When to Deploy

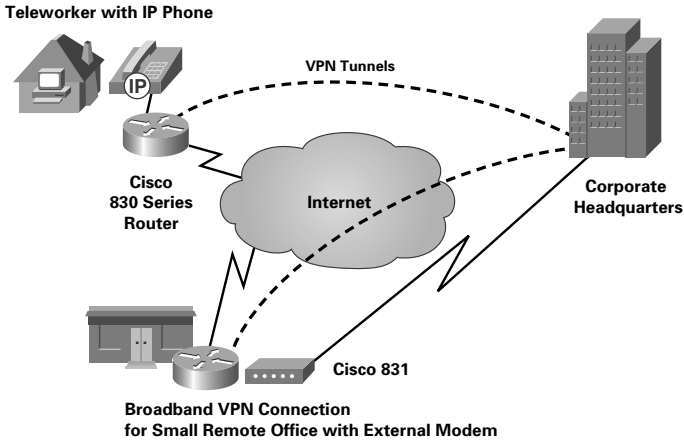
The Cisco 800 Series is recommended when you need to deploy:

- Managed firewall and VPNs for small remote offices and teleworkers
- High-performance VPNs over DSL or cable (Cisco 831 or Cisco 837) with AUX port functionality for remote sites or with ADSL over ISDN and an integrated ISDN port (Cisco 836)
- QoS features for voice, video, and mission-critical applications
- Simple to deploy and setup with Cisco Easy VPN support
- VoIP with IP Phones (Cisco 831, 836, or 837)
- The proven reliability and manageability of Cisco IOS Software

Series Distinctions

	Cisco 800 Series
WAN Technologies	Ethernet, ADSL, ADSL over ISDN, G.SHDSL, serial
LAN Ports	4-port 10 MB Hub or 4-port 10/100 managed switch (Cisco 831, 836, or 837)
DMZ	One LAN switch port can be converted in to a DMZ (Separate LAN) on Cisco 830 routers
Security	Stateful Application Firewall, NAC, IPS and VPNs (Cisco 831, 836, or 837)
VPN	Software IPsec & AES encryption, hardware encryption acceleration (Cisco 831, 836, or 837)
AUX or ISDN backup Functionality	Virtual AUX port on Cisco 831 and 837, ISDN port on Cisco 836 for dial backup and out-of-band management
Upgradability	Software updates and upgrades to new software feature sets, upgradable memory

Application Example



Platform Overview

Platform	Target Market	Key Features	Fixed LAN Connections	Fixed WAN Connections	DRAM (MB) default	DRAM (MB) max	Flash (MB) default	Flash (MB) max	Power Supply
Serial Router									
Cisco 805	Small Business, Remote Office	Stateful firewall, IPsec 3DES, QoS, Cisco IOS Remote Management	1-port Ethernet (10BASE-T)	1-port serial (up to 512 Kpbs)	4	12	8	16	External
Ethernet to Ethernet Routers									
Cisco 831	Small Business, Remote Office, Teleworker	Stateful firewall, hardware-based IPsec 3DES, QoS, Virtual AUX port, Easy VPN, Cisco IOS Remote Management	4-port 10/100 switch	1-port Ethernet 10 MB	64	64	12	24	External
ADSL over ISDN Routers									
Cisco 836	Small Business Remote Office Teleworker	Stateful firewall, hardware-based IPsec 3DES, QoS, ISDN Line, Cisco Easy VPN, Cisco IOS Remote	4-port 10/100 switch	1-port ADSL over ISDN 1-port ISDN	64	64	12	24	External

Platform Overview *continued*

Platform	Target Market	Management	BRI S/T				Power Supply		
		Key Features	Fixed LAN Connections	Fixed WAN Connections	DRAM (MB) default	Flash (MB) default		max	
ADSL Routers									
Cisco 837	Small Business Remote Office, Teleworker	Stateful firewall, hardware-based IPsec 3DES, QoS, Virtual AUX, Cisco Easy VPN, Cisco IOS Remote Management	4-port Ethernet switch (10BASE-T)	1-port ADSL	64	64	12	24	External
G.SHDSL Routers									
Cisco 828	Small Business, Remote Office, Teleworker	Stateful firewall, IPsec 3DES, Easy VPN, QoS, Cisco IOS Remote Management	4-port Ethernet hub (10BASE-T)	1-port G.SHDSL	16	32	8	8	External

Series Specifications

Processor	RISC CPU
Flash Memory	8–24 MB (depending on model)
System DRAM Memory	4–64 MB (depending on model)
Internal Power Supply	No
Dimensions (H x W x D)	2.0 x 9.7 x 8.5 in. (5.1 x 24.6 x 21.6 cm)
Performance	9 Mbps Clear Text
Console Port	1 (up to 115.2 Kbps)
Auxiliary Port	Virtual AUX functionality through Console for out-of-band management or dial backup (Cisco 830 Series)
ISDN Port	ISDN port on the 836 for out-of-band management and dial backup
Maximum Ethernet Ports	4-port 10/100 switch on 830 Series, 4-port 10 MB hub or a single 10 MB LAN port on other models
DMZ	One DMZ port on 831, 836, and 837 only
Maximum High-speed Serial (up to 512 Kbps)	1 (Cisco 805)
Maximum Number of ISDN BRI Ports	1 (Cisco 836)
Integrated CSU/DSU	No
Compression	SW
Encryption	SW on most models and HW on 830 Series models
Redundant Power Supply Support	No
Minimum Cisco IOS Software Release	Dependent upon model

Cisco IOS Memory Requirements

	Description	DRAM (MB)	Flash (MB)
Cisco 805			
c805-k8nosy6-mw	IP/IPX/Firewall/IPsec 3DES Plus	12	8
c805-k8osy6-mw	IP/Firewall/IPsec 3DES Plus	12	8
c805-oy6-mw	IP/Firewall	8	4
c805-sy6-mw	IP Plus	8	8
c805-y6-mw	IP	8	4
Cisco 828			
c806-k9osy6-mz	IP/Firewall/IPsec 3DES Plus	20	8
c806-oy6-mz	IP/Firewall	16	8
c806-sy6-mz	IP Plus	16	8
c806-y6-mz	IP	16	8
Cisco 831			
c831-k9o3y6-mz	IP/Firewall/IPsec 3DES	48	12
c831-k9o3sy6-mz	IP/Firewall/IPsec 3DES Plus	48	12
Cisco 836			
c836-k9o3y6-mz	IP/FW/IPsec 3DES	48	12
c836-k9o3sy6-mz	IP/FW PLUS IPsec 3DES	48	12
c836-k9o3s8y6-mz	IP/FW PLUS IPsec 3DES Dial Backup	48	12
Cisco 837			
c837-k9o3y6-mz	IP/Firewall/IPsec 3DES	48	12
c837-k9o3sy6-mz	IP/Firewall/IPsec 3DES Plus	48	12

Ordering Information

Cisco 800 Series	Part Number	Description
Cisco 805	CISCO805	Cisco 805 Ethernet/serial router
Cisco 828	CISCO828	Cisco 828 G.SHDSL router 1E, 1 G.SHDSL
Cisco 831	CISCO831-K9	Ethernet router, 1E, 4E 10/100 switch, stateful firewall, IPsec 3DES hardware, virtual AUX
Cisco 836	CISCO836-K9	ADSL over ISDN router, 1 ADSL over ISDN, 4-port 10/100 switch, ISDN port, stateful firewall, hardware-based IPsec 3DES
Cisco 837	CISCO837-K9	ADSL router, 4E, 10/100 switch, stateful firewall, IPsec 3DES hardware, virtual AUX

Cisco 1700 Series



The Cisco 1700 Series of access routers is designed to provide a cost-effective, integrated routing platform for small and medium-sized businesses and enterprise small branch offices, ensuring new services can be deployed efficiently as needs change. These routers provide flexibility and manageability through a variety of modular and fixed design offerings to meet demanding and evolving requirements, such as comprehensive security, multiservice data/voice/video/fax integration, and business-class DSL support.

Benefits and Advantages

Flexibility and Investment Protection

The modularity of the Cisco 1700 Series allows it to easily adapt to evolving needs. Interchangeable WAN interface cards (WICs), voice interface cards (VICs), and voice/WAN interface cards (VWICs) enable easy additions or changes, without requiring a forklift upgrade of an entire platform. The wide range of available WIC solutions supports WAN technologies such as broadband DSL, ISDN, leased lines, and Frame Relay, while VIC solutions can support voice over IP and voice over Frame Relay. These modules are shared with Cisco 1800, 2600, 2800, 3700, and 3800 Series Routers.

Comprehensive Security

To keep networks secure and protect sensitive information, businesses deploy a range of security technologies, including firewall, VPN, and Intrusion Prevention System (IPS). Cisco 1700 Series Routers provide stateful inspection firewall, wire-speed VPN with hardware encryption module, and intrusion detection capabilities. As new security technologies are developed, they may simply be uploaded.

Business-class DSL Connectivity

DSL WICs supporting different standards (such as ADSL over POTS, ADSL over ISDN, ADSL over POTS with dying gasp, and G.SHDSL) offer business-class broadband service with scalable performance, flexibility, and security for branch offices. The Cisco 1700 Series provides the perfect solution for a variety of businesses requiring high-speed business-class DSL connectivity on a secure, high-performance, modular platform.

Multiservice Data/Voice/ Video/Fax Integration

In addition to supporting the same security and business-class DSL features as the entire Cisco 1700 Series, the Cisco 1751 and 1760 offer a cost-effective way to extend converged multiservice data/voice networking to branch offices. They work with existing phones and other equipment, simplifying deployment of IP telephony. Service integration using IP protocols over the Internet enables administrators to reduce long-distance toll charges between offices, and support voice-enabled desktop applications such as integrated messaging and packet video.

Security Features

VPN

- **Encryption** – 3DES (SW + HW), AES (SW) available in 12.2(13)T
- **VPN QoS** – Preclassification support
- **Easy VPN server and easy VPN remote**
- **MAX IPsec tunnels supported** – 100 with VPN module
- **IDS** – 59 signatures supported

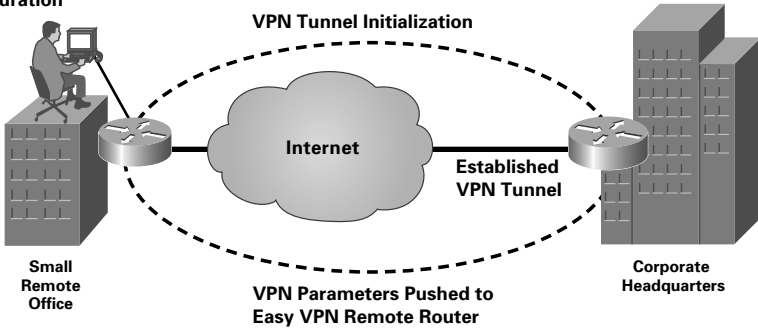
Certifications

- **ICSA** – IPsec, Firewall (in process)
- **Common Criteria** – (VPN): Cisco 1720 and 1750
- **Common Criteria** – IPsec, Cisco 1710, 1721, 1751, and 1760

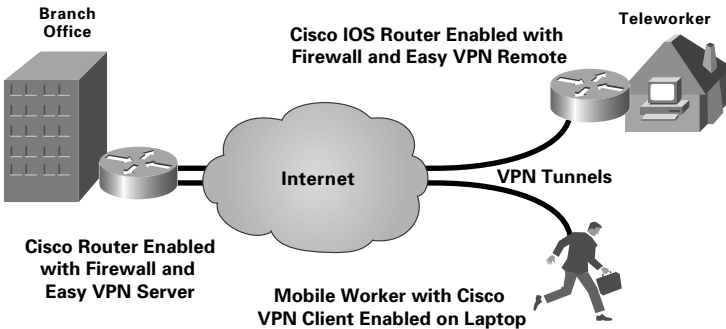
Security Example

Easy VPN Remote Application

Configuration



Easy VPN Server Application

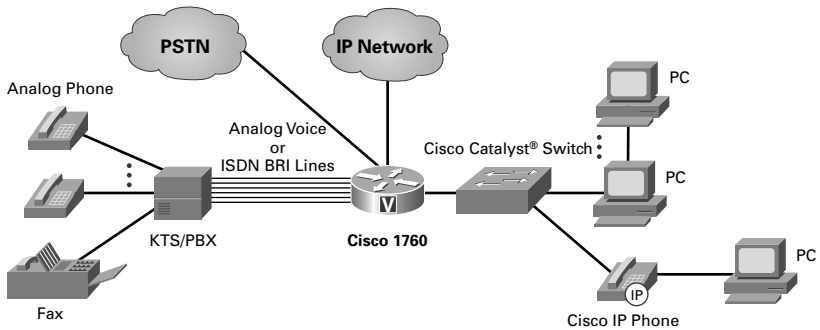


When to Deploy

The Cisco 1700 Series is ideal for customers who need:

- The flexibility to add or change WAN services to support changing needs and applications, including VPNs, integrated voice/fax/data over the WAN, broadband DSL, and cable access services
- An integrated access solution that combines a best-in-class router with firewall, high-speed encryption, VPN tunnel server, DSU/CSU, and ISDN NT-1 functions in one platform
- VPN remote aggregation to terminate VPN software clients at the branch office
- High-speed business-class DSL connectivity on a secure, high-performance modular platform
- A secure access solution with VPN (T1/E1 speeds) and firewall for enterprise small branch offices and small to medium-sized businesses
- Multiservice voice/video/fax/data integration
- Up to five serial interfaces (including the AUX port); for example: retail/point-of-sale or small bank branch office applications

Application Example



Platform Overview

	WICs	VICs	VICs/ WICs	Fixed LAN Ports*	DRAM (MB)		Flash (MB)		Power Supply
					default	max	default	max	
Cisco 1701-K9	-	-	-	1	96	128	32	32	AC
Cisco 1711-VPN/K9	-	-	-	1	96	128	32	32	AC
Cisco 1712-VPN/K9	-	-	-	1	96	128	32	32	AC
Cisco 1721	2	-	-	1	64	128	32	32	AC
Cisco 1751	-	1	2	1	64	128	32	32	AC
Cisco 1751-V	-	1	2	1	96	128	32	32	AC
Cisco 1760	-	2	2	1	64	160	32	64	AC
Cisco 1760-V	-	2	2	1	96	160	32	64	AC

*The Cisco 1711 and 1712 have two fixed interfaces. The Cisco 1711 comes with one ADSL over POTS and one ISDN BRI-S/T interface. The Cisco 1712 offers one ADSL over ISDN and one ISDN BRI-S/T interface.

Series Specifications

Processor	RISC CPU
Dimensions (H x W x D)	
1711, 1712, 1721, 1751, 1751-V	4.0 x 11.2 x 8.7 in. (10.0 x 28.4 x 22.1 cm)
1760, 1760-V (rack-mount)	1.7 x 17.5 x 12.8 in. (4.32 x 44.5 x 32.5 cm)
Flash Memory	32 MB (some models expandable to 64 MB)
System DRAM Memory	64 MB (1721, 1751 expandable to 128 MB; 1760 expandable to 160 MB)
Internal Expansion Slots	1 (e.g., for VPN Module)
Internal Power Supply	AC (internal for Cisco 1760 only)
Console Port	1 (up to 115.2 Kbps)
Auxiliary Port	1 (up to 115.2 Kbps)
Maximum Ethernet Connections	5 (1XFE onboard + 4 ports on WIC-4ESW)
Maximum 10/100 Ethernet Ports	1
Maximum High-speed Serial (up to 2 Mbps)	4
Voice/Data Support	Cisco 1751, 1751-V, 1760, 1760-V
Maximum Number of ISDN BRI Ports	4 voice, 2 data
Integrated CSU/DSU	Yes, with optional T1/E1, Fractional T1/E1, 56k/64k support
Compression	SW
Encryption	SW + HW
Redundant Power Supply Support	No
Minimum Cisco IOS Release	Dependent upon model
802.11q VLAN Support	Yes
Cisco CallManager Express (CCME)	Up to 24 phones
Cisco SRST	Up to 24 phones

Notes

Cisco IOS Memory Requirements

Cisco 1700 Series Data and Voice Software Feature Sets for Cisco IOS Release 12.3(10)

Platform	Image Name
1751-V, 1760	c1700-adventerprisek9-mz
1751-V, 1760	c1700-advipservicesk9-mz
1721, 1751, 1751-V, 1760	c1700-advsecurityk9-mz
1751-V, 1760	c1700-bk9no3r2sv8y7-mz
1721, 1751, 1751-V, 1760	c1700-bk9no3r2sy7-mz
1721, 1751, 1751-V, 1760	c1700-bnr2sy7-mz
1721, 1751, 1751-V, 1760	c1700-entbase-mz
1751-V, 1760	c1700-entservicesk9-mz
1721, 1751, 1751-V, 1760	c1700-ipbase-mz
1751-V, 1760	c1700-ipvoice-mz
1751-V, 1760	c1700-k9o3sv8y7-mz
1721, 1751, 1751-V, 1760	c1700-k9o3sy7-mz
1751-V, 1760	c1700-spservicesk9-mz
1751, 1751-V, 1760	c1700-sv3y-mz
1751, 1751-V, 1760	c1700-sv8y7-mz
1721, 1751, 1751-V, 1760	c1700-sy7-mz
1721, 1751, 1751-V, 1760	c1700-y-mz
1721, 1751, 1751-V, 1760	c1700-y7-mz

Software Product Description	Product Code	Recommended	
		Flash	DRAM
Cisco 1700 IOS ADVANCED ENTERPRISE SERVICES	S17AESK9-12310	32	96
Cisco 1700 IOS ADVANCED IP SERVICES	S17AISK9-12310	32	96
Cisco 1700 IOS ADVANCED SECURITY	S17ASK9-12310	16	48
Cisco 1700 IOS IP/ADSL/IPX/AT/IBM/VOX/FW/IDS PLUS IPSEC 3DES	S17Q7V8K9-12310	32	96
Cisco 1700 IOS IP/ADSL/IPX/AT/IBM/FW/IDS PLUS IPSEC 3DES	S17Q7HK9-12310	16	64
Cisco 1700 IOS IP/ADSL/IPX/AT/IBM PLUS	S17Q7P-12310	16	48
Cisco 1700 IOS ENTERPRISE BASE	S17EB-12310	16	48
Cisco 1700 IOS ENTERPRISE SERVICES	S17ESK9-12310	32	64
Cisco 1700 IOS IP BASE	S17IPB-12310	16	48
Cisco 1700 IOS IP VOICE	S17IPV-12310	16	64
Cisco 1700 IOS IP/ADSL/VOX/FW/IDS PLUS IPSEC 3DES	S17C7V8K9-12310	32	96
Cisco 1700 IOS IP/ADSL/FW/IDS PLUS IPSEC 3DES	S17C7HK9-12310	16	48
Cisco 1700 IOS SP SERVICES	S17SPK9-12310	16	64
Cisco 1700 IOS IP/VOICE PLUS	S17CVP-12310	16	48
Cisco 1700 IOS IP/ADSL/VOX PLUS	S17C7V8P-12310	16	64
Cisco 1700 IOS IP/ADSL PLUS	S17C7P-12310	16	48
Cisco 1700 IOS IP	S17C-12310	8	32
Cisco 1700 IOS IP/ADSL	S17C7-12310	16	48

Ordering Information

Routers

Product Number	Product Description
CISCO1760	10/100 modular router with 4 slots, 32 MB Flash/64 MB DRAM, IOS IP, 19-inch chassis
CISCO1760-V	10/100 modular router with 3 slots, 32 MB Flash/96 MB DRAM, IOS IP, 19-inch chassis
CISCO1751	10/100 modular router with 3 slots, IOS IP, 32 MB Flash/64 MB DRAM
CISCO1751-V	10/100 modular router with voice, 32 MB Flash/96 MB DRAM
CISCO1721	10/100 modular router with 2 slots (data only), 32 MB Flash/64 MB DRAM
CISCO1712-VPN/K9	1712 security router with VPN module, 4-port switch, ISDN-BRI-S/T, 32 MB Flash/96 MB DRAM, IOS IP/FW/3DES
CISCO1711-VPN/K9	1711 security router with VPN module, 4-port switch, analog modem 32 MB Flash/96 MB DRAM, IOS IP/FW/IDS
CISCO1701-K9	ADSLoPOTS router with ISDN-BRI-S/T, IOS IP/FW/3DES, 32 MB Flash/96 MB DRAM

DSL Bundles

Product Number	Product Description
CISCO1760-ADSL	1760 bundle with ADSLoPOTS WIC, IP/ADSL, 32 MB Flash/64 MB DRAM
CISCO1760-SHDSL	1760 bundle with WIC-1SHDSL, IP/ADSL, 32 MB Flash/64 MB DRAM
CISCO1721-ADSL	1721 bundle with ADSLoPOTS WIC, IP/ADSL, 32 MB Flash/64 MB DRAM
CISCO1721-ADSL-DG	1721 bundle with WIC-1ADSL-DG, IP/ADSL, 32 MB Flash/64 MB DRAM
CISCO1721-ADSL-I	1721 bundle with ADSLoSDN WIC, IP/ADSL, 32 MB Flash/64 MB DRAM
CISCO1721-SHDSL	1721 bundle with WIC-1SHDSL, IP/ADSL, 32 MB Flash/64 MB DRAM
CISCO1721-SHDSL-V2	1721 bundle with WIC-1SHDSL-V2, IP/ADSL, 32 MB Flash/64 MB DRAM

Security Bundles

Product Number	Product Description
CISCO1760-VPN/K9	1760 VPN bundle with VPN module, 32 MB Flash/96 MB DRAM, IP Plus/FW/3DES
CISCO1760-VPN/K9-A	1760 VPN bundle with ADSL WIC, VPN module, 32 MB Flash/96 MB DRAM, IP Plus/FW/3DES
CISCO1760-V3PN/K9	1760 V3PN bundle with 1760-V, VPN module, PVDM-256K-4, 32 MB Flash/128 MB DRAM, IOS advanced IP services
CISCO1751-VPN/K9	1751 VPN bundle with VPN module, 32 MB Flash/96 MB DRAM, IP Plus/FW/3DES
CISCO1751-VPN/K9-A	1751 VPN bundle with ADSL WIC, VPN module, 32 MB Flash/96 MB DRAM, IP Plus/FW/3DES
CISCO1721-VPN/K9	1721 VPN bundle with VPN module, 32 MB Flash/96 MB DRAM, IP Plus/FW/3DES
CISCO1721-VPN/K9-A	1721 VPN bundle with ADSL WIC, VPN module, 32 MB Flash/96 MB DRAM, IP Plus/FW/3DES
CISCO1700-VPNU/K9=	VPN Upgrade kit with VPN module, 32 MB DRAM, IP Plus/FW/3DES

Cisco 2600 Series



Cisco extends enterprise/provider-class versatility, integration, and power to branch offices with Cisco 2600 Series modular access routers. With more than 2 million 2600 Series units installed worldwide, this popular series offers network managers and service providers flexibility and investment protection in a compact, single-box solution.

Benefits and Advantages

Integrated Flexible Routing and Low-density Switching

With the support of an optional 16-port 10/100 EtherSwitch® network module, branch offices can take advantage of the flexibility of integrated routing and switching functions in one unit for low port densities. This offers high-speed connections between individual desktops, servers, and other network resources in a single unit for Layer 2, and allows WAN connection at Layer 3 through the router. An optional external power chassis provides power to IP phones and Cisco Aironet® 802.11 base stations.

Integration of Content Networking and Branch-office Routing

With the integration of an optional Content Engine Network Module with branch-office routing, Cisco offers the industry's first and only router-integrated content-delivery system. Combining intelligent caching, content routing and management with robust branch-office routing, WAN bandwidth is conserved for

important branch IP services such as voice over IP (VoIP), while simplifying configuration, deployment, and operations.

Versatility/Investment Protection

Thousands of field-upgradable customized solutions ensure easy migration to future network requirements. More than 115 voice/WAN interface cards and network modules are shared with the Cisco 1700, 1800, 2600, 2800, 3700, and 3800 Series products. The advanced integration module (AIM) slot offers expandability for integration of advanced services, such as hardware-assisted data compression, encryption, voice and ATM hardware-assisted data compression, voice mail and automated attendant, and encryption.

Integration of Security and Branch-office Routing

By integrating optional VPN modules, IOS-based firewall, IOS or optional hardware-based intrusion detection, or Web site-filtering using the content engine network modules or

Benefits and Advantages continued

Cisco IOS software, Cisco offers the industry's most robust and adaptable security solution for branch office routers. The optional VPN modules support 3DES, AES, and hardware-based compression. Additionally, the new Cisco Intrusion Detection System (IDS) network module allows traffic inspection at the first point of entry into the network while freeing the router CPU from processor-intensive IDS tasks. The Cisco 2600 series also features media encryption using SRTP, protecting voice conversations terminating on either TDM or analog voice gateway ports from eavesdropping.

Multiservice Voice/Data Networks

Supports up to 90 simultaneous calls, using analog and digital connections to phones, faxes, key systems, PBXs, and PSTN switches, for Cisco IP telephony networks. Delivers IP telephony enriching features including Survivable Remote Site Telephony (SRST), Cisco CallManager Express (CCME) for localized call processing, Cisco Unity™ Express (CUE) for voice mail and automated attendant, audioconferencing and transcoding capabilities. Using

Cisco IOS quality-of-service (QoS) features, such as LLQ, CB-WFQ, WRED, CAR, RSVP, and Custom and Priority Queuing, voice traffic is digitized and encapsulated in IP packet, Frame Relay, or ATM and consolidated with data to extend multiservice infrastructure to the branch office.

Business-class DSL Connectivity

The WIC-1ADSL, WIC-1ADSL-DG, WIC-1ADSL-I-DG, WIC-1SHDSL, and WIC-1SHDSL-V2 offer business-class broadband service with scalable performance, flexibility, quality of service, and security for branch and regional offices. The Cisco 2600 Series provides the perfect solution for a variety of businesses requiring high-speed business-class DSL connectivity on a secure, high-performance, modular platform.

Interoperability/Multiprotocol Support

Offers a comprehensive set of protocols and services, including virtual private networking, firewall protection, encryption, WAN optimization, and enhanced multimedia support features.

Security Features

Note: 2600 non-XM platforms will not support features added in IOS 12.3 releases.

IPSec VPN

- Advanced Encryption Standard (AES) 128, 192, and 256; Triple Data Encryption Standard (3DES); and DES cryptology support
- Cisco Easy VPN remote
- Cisco Easy VPN server
- Dynamic Multipoint VPN (DMVPN)
- Virtual Tunnel Interfaces (VTI)
- 802.1x
- VPN QoS – Preclassification support
- Support for up to 800 VPN tunnels with the AIM-VPN module

Multiprotocol Label Switching (MPLS) VPN Support

- Specific Customer Edge Capabilities on Cisco 2600XMs
- Customer Edge and Specific Provider Edge Capabilities on Cisco 2691
- Virtual routing and forwarding (VRF) firewall and VRF IPSec

Cisco IOS IPS

- Inline ability to drop packet, reset connection, locally shun, or send an alarm
- Dynamically load and enable selected attack signatures in the same manner as Cisco IPS Appliances

Secure RTP

- Encryption AES (Advanced Encryption Standard)
- Authentication HMAC (Hashed Message Authentication Code)
- Integrity Secure Hash Algorithm (SHA)

Security Features continued

Cisco IOS Firewall

- Feature rich, stateful firewall
- Per-user authentication and authorization
- Real-time alerts
- Transparent firewall
- IPv6 firewall
- VRF-Aware firewall
- Advanced Application Inspection and Control
 - HTTP inspection engine
 - Email inspection engines (SMTP, ESMTP, IMAP, POP)

Network Foundation Protection

- Control Plane Policing (CPP)
- AutoSecure
- CPU/Memory Threshold
- Secure Shell (SSH)
- Access Control List (ACL)
- Command Line Interface (CLI)
- Committed Access Rate (CAR)

URL Filtering

- Onboard with an optional content-engine network module
- Local URL filtering in Cisco IOS software based on external server

Security Solutions

- Network Admission Control (NAC)
- Voice & Video Enabled IPSec VPN (V3PN)

Optional Security Modules

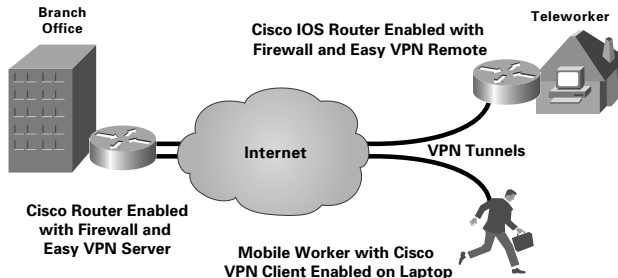
- IDS/IPS Network Modules (NM-CIDS portfolio)
- VPN and Encryption Advanced Integration Modules (AIM-VPN portfolio)
- Content Engine Network Modules (NM-CE portfolio)

Certifications

- ICSA IPSec
- ICSA Firewall
- Common Criteria IPSec (EAL4)
- Common Criteria Firewall (EAL4+)
- FIPS 140-2, Level 2

Security Features Example

Easy VPN Server Application

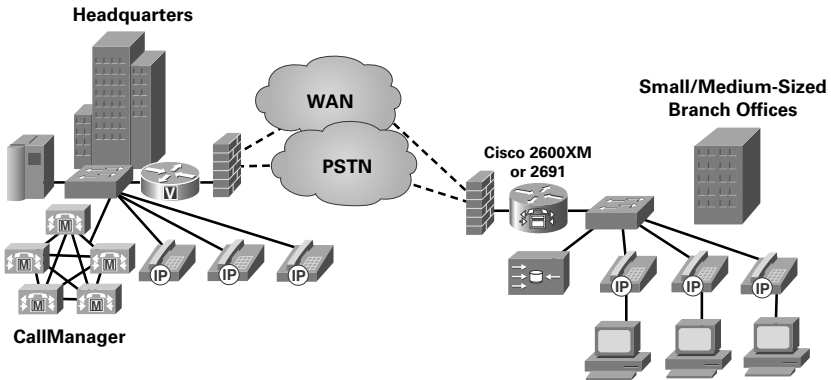


When To Deploy

Deploy the Cisco 2600 Series when you need:

- A cost-effective solution for the long term that adapts to evolving network requirements
- Virtual private network (VPN)/extranet access with firewall protection to reduce costs and increase security for partners and employees
- Dial concentration with async, ISDN, or analog modems
- Integrated routing and switching functionality
- Complete Cisco CallManager IP Telephony Voice Gateway Router integration for analog and digital telephony interfaces
- Complete small office telephony solution using Cisco CallManager Express and Cisco Unity™ Express or high-availability voice gateway for Cisco CallManager with Survivable Remote Site Telephony (SRST)
- Audioconferencing, and transcoding in conjunction with Cisco CallManager VoIP, VoFR, or VoATM toll bypass for all TDM PBXs, key systems, analog telephony devices, and the PSTN
- Integrated content delivery networking such as caching content filtering and content delivery for e-communications
- Serial device concentration of point-of-sale devices, ATMs, alarm systems, SDLC controllers with legacy terminals, and LAN devices sharing a single WAN connection
- High-speed business-class DSL connectivity on a secure, high-performance modular platform
- Support for advanced QoS features such as the Resource Reservation Protocol (RSVP), Weighted Fair Queuing (WFQ), and IP Precedence to reduce recurring WAN costs

Application Example



Options

- Complete Cisco Voice Gateway Router functionality
- Cisco Survivable Remote Site Telephony (SRST)
- Voice mail and automated attendant with Cisco Unity Express (CUE)
- Cisco CallManager Express (CCME)
- VPN-enabled routers
- Integrated stateful firewall
- Cisco IOS intrusion prevention
- WCCP for content networking
- Integrated content networking
- Dial access
- Integrated low-density switching

Platform Overview

	NMs	AIMs	WICs	Fixed LAN Ports		DRAM (MB)		Flash (MB)		Power Supply
				LAN Ports	default	max	default	max		
Cisco 2610XM / 2611XM	1	1	2	1 / 2 FE	128	256	32	48	AC, DC, RPS	
Cisco 2612	1	1	2	1TR, 1E	32	64	8	16	AC, DC, RPS	
Cisco 2620XM / 2621XM	1	1	2	1 / 2 FE	128	256	32	48	AC, DC, RPS	
Cisco 2650XM / 2651XM	1	1	2	1 / 2 FE	256	256	32	48	AC, DC, RPS	
Cisco 2691	1	2	3	2 FE	256	256	32*	128*	AC, DC, RPS	

* Compact Flash

Series Specifications

Dimensions (H x W x D)

All except Cisco 2691 1.69 x 17.5 x 11.8 in. (43 x 445 x 300 mm)
1 Rack Unit (RU) height

Cisco 2691 3.50 x 17.1 x 11.0 in. (88 x 434 x 279 mm)
2 Rack Units (RU) height

Console Port 1 (up to 115.2 Kbps)

Auxiliary Port 1 (up to 115.2 Kbps)

Integrated CSU/DSU Yes, with optional T1/E1, Fractional T1/E1, 56k/64k support

Voice/Data Support Yes

Compression SW + HW

Encryption SW + HW

Maximum 10/100 Ethernet Ports 18

Maximum Gig Ethernet Ports 1 (2691 only)

Maximum Token Ring Ports 1 (2612, 2691 only)

Maximum High-speed Serial (up to 2 Mbps) 10

Maximum Low-speed Serial (up to 128 Kbps) 22 sync, 39 async

Maximum Integrated Modems 22 analog

Maximum Number of ISDN BRI Ports 22

Maximum Number of ISDN PRI Ports 2

Minimum Cisco IOS Release:

Cisco 2610XM IOS 12.1(14) Mainline, 12.2(12) Mainline or 12.2(8) T1

Cisco 2611XM IOS 12.1(14) Mainline, 12.2(12) Mainline or 12.2(8) T1

Cisco 2612 IOS 12.0 Mainline

Cisco 2620XM IOS 12.1(14) Mainline, 12.2(12) Mainline or 12.2(8) T1

Cisco 2621XM IOS 12.1(14) Mainline, 12.2(12) Mainline or 12.2(8) T1

Cisco 2650XM IOS 12.1(14) Mainline, 12.2(12) Mainline or 12.2(8) T1

Cisco 2651XM IOS 12.1(14) Mainline, 12.2(12) Mainline or 12.2(8) T1

Cisco 2691 IOS 12.2(8)T1

Cisco IOS Memory Requirements

Support for Cisco 2600XM Series Routers starts in Cisco IOS Mainline releases 12.1(14), 12.2(12), and in 12.2(8)T1

Cisco IOS Release 12.3 T Memory Recommendations for the Cisco 2600XM Series and 2612 Routers

Feature Set	Software Image	Flash Memory	DRAM Memory
IP Base	c2600-ipbase-mz	16 MB	64 MB
IP Voice	c2600-ipvoice-mz	32 MB	96 MB
SP Services	c2600-spservicesk9-mz	32 MB	128 MB
Enterprise Base	c2600-entbase-mz	32 MB	96 MB
Enterprise Service	c2600-enterservicesk9-mz	32 MB	128 MB
Enterprise Plus/H323 MCM	c2600-jsx-mz	32 MB	128 MB
Advanced Security	c2600-advsecurityk9-mz	32 MB	96 MB
Advanced IP Services	c2600-advipservicesk9-mz	32 MB	128 MB
Advanced Enterprise Services	c2600-adventerprisek9-mz	32 MB	128 MB
Enterprise/SNASW PLUS	c2600-a3js-mz	32 MB	128 MB
Voice to IP to Voice to IP Gateway	c2600-js2-mz	32 MB	128 MB
Voice IP to Voice IP Gateway IP Sec 3DES	c2600-jk9s2-mz	32 MB	128 MB
Int. voice/video GK, IPIP GW, TDMIP GW	c2600-ipvoice_ivs-mz	32 MB	128 MB
Int. voice/video GK, IPIP GW, TDMIP GW AES	c2600-adventerprisek9_ivs-mz	32 MB	128 MB
Telco feature set	c2600-telco-mz	32 MB	64 MB
Enterprise SSG	c2600-g4js-mz	32 MB	128 MB
Enterprise/SNASW Plus IPsec 3DES	c2600-a3jk9s-mz	32 MB	128 MB

Support for Cisco 2691 starts in Cisco IOS releases 12.2(8)T1

Cisco IOS Release 12.3 T Memory Recommendations for the Cisco 2691 Router

Feature Set	Software Image	Flash Memory	DRAM Memory
IP Base	c2691-ipbase-mz	32 MB	128 MB
IP Voice	c2691-ipvoice-mz	32 MB	128 MB
SP Services	c2691-spservicesk9-mz	64 MB	128 MB
Advanced Security	c2691-advsecurityk9-mz	32 MB	128 MB
Advanced IP Services	c2691-advipservicesk9-mz	64 MB	128 MB
Advanced Enterprise Services	c2691-adventerprisek9-mz	64 MB	128 MB
Advanced Enterprise Services with SNA Switching	c2691-adventerprisek9_sna-mz	64 MB	192 MB
Enterprise Base	c2691-enterbase-mz	32 MB	128 MB
Enterprise Services	c2691-c2691-entservicesk9-mz	64 MB	128 MB
Enterprise Plus/H.323 MCM	c2691-jsx-mz	64 MB	128 MB
Enterprise/SNASw Plus	c2691-a3js-mz	64 MB	192 MB
Enterprise/SNASw Plus IPsec 3DES	c2691-a3jk9s-mz	64 MB	192 MB
Int. voice/video GK, IPIP GW, TDMIP GW	c2691-ipvoice_ivs-mz	32 MB	128 MB
Int. voice/video GK, IPIP GW, TDMIP GW AES	c2691-adventerprisek9_ivs-mz	64 MB	128 MB

Ordering Information

The Cisco 2600 is ordered from components. You must specify:

- A 2600 Series chassis: All Cisco 2600 chassis ship with the minimum recommended memory for the most recent default Cisco IOS IP Base feature set, documentation, console, auxiliary and LAN cables, 19-inch rack-mount brackets, RJ-45 to DB-9 and DB-25 converters, and blank panels that cover unused WAN interface card and or network module slots. AC, DC, and RPS power options are available for all chassis
- A CD software pack with desired software release
- A power cord

Optional items:

- Cisco IOS feature set upgrade. The IP Base feature set is the default and included with the chassis
- Up to two WAN interface cards (up to three for Cisco 2691)
- A Network Module with an optional onboard voice/WAN interface card
- Optional MFT Dedicated Echo Cancellation Modules for select voice/WAN interface cards (2600XM and 2691 with appropriate NM only)
- An advanced integration module (up to two for Cisco 2691)
- Flash memory upgrade
- DRAM memory upgrade
- Cables
- NEBS/ETSI compliance kit (not available for Cisco 2691)
- Feature license for IP Telephony

Product Bundles

VPN PRODUCT BUNDLES

Product Number	Product Description
C2611XM-2FE/VPN/K9	AC router, AIM-VPN/BPII-PLUS, 256 MB DRAM, 32 MB Flash, Cisco IOS Advanced IP Services
C2621XM-2FE/VPN/K9	AC router, AIM-VPN/BPII-PLUS, 256 MB DRAM, 32 MB Flash, Cisco IOS Advanced IP Services
C2651XM-2FE/VPN/K9	AC router, AIM-VPN/BPII-PLUS, 256 MB DRAM, 32 MB Flash, Cisco IOS Advanced IP Services
C2691-VPN/K9	AC router, AIM-VPN/EPII-PLUS, 256 MB DRAM, 32 MB Flash, Cisco IOS Advanced IP Services
C2691-V3PN/K9	AC router, AIM-VPN/EPII-PLUS, AIM-ATM-VOICE-30, 256 MB DRAM, 32 MB Flash, CISCO IOS Advanced IP Services

DSL BUNDLES

Product Number	Product Description
CISCO2611XM-ADSL	AC router, 1 WIC-1ADSL, 32 MB Flash, 256 MB DRAM, IOS SP Services
CISCO2621XM-ADSL	AC router, 1 t, 32 MB Flash, 256 MB DRAM, IOS SP Services
CISCO2651XM-ADSL	AC router, 1 WIC-1ADSL, 32 MB Flash, 256 MB DRAM, IOS SP Services
CISCO2611XM-SHDSL	AC router, 1 WIC-1SHDSL-V2, 32 MB Flash, 256 MB DRAM, IOS SP Services
CISCO2621XM-SHDSL	AC router, 1 WIC-1SHDSL-V2, 32 MB Flash, 256 MB DRAM, IOS SP Services
CISCO2651XM-SHDSL	AC router, 1 WIC-1SHDSL-V2, 32 MB Flash, 256 MB DRAM, IOS SP Services

VOICE GATEWAY BUNDLES

Product Number	Product Description
CISCO2611XM-V-CCME	AC router, FL-CCME-36, NM-HD-2V, 32M MB Flash, 256 MB DRAM, CISCO IOS SP Services
CISCO2651XM-V	AC router, 1 AIM-VOICE-30, 32 MB Flash upgrade, 256 MB DRAM, IOS SP Services
CISCO2651XM-V-CCME	AC router, FL-CCME-48, AIM-ATM-VOICE-30, 32 MB Flash, 256MB DRAM, CISCO IOS SP Services
CISCO2651XM-V-SRST	AC router, FL-SRST-MEDIUM for 48 IP Phones, 1 AIM-VOICE-30, 32 MB Flash, 256 MB DRAM, Cisco IOS IP Voice

TERMINAL SERVER BUNDLES

Product Number	Product Description
CISCO2610XM-16TS	AC router, 1 NM-16A, 2 CAB-OCTAL-KIT, 128 MB DRAM, 32 MB Flash, CISCO IOS IP Base

Cisco 3700 Series



The Cisco 3700 Series is a line of modular routers that 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 security, IP Telephony, voice gateway, and integrated flexible routing and switching solutions. The Cisco 3700 Series provides a consolidated service infrastructure and high service density in a compact form factor that enables the incremental integration of branch applications.

Benefits and Advantages

High Service Density

This series supports a wider interface form factor—the High Density Services Module (HDSM). With four network module (NM) slots, the Cisco 3745 can accept two HDSMs by removing the center guides between each pair of adjacent NM slots. With two NM slots, the Cisco 3725 can accept an HDSM in one while still leaving the other NM slot free. Each model also offers three WAN interface card (WIC) slots and two advanced integration module (AIM) slots.

Integration of Content Networking and Branch-office Routing

With the integration of an optional Content Engine Network Module with branch-office routing, Cisco offers the industry's first and only router-integrated content-delivery system. Combining intelligent caching, content routing and management with robust branch-office routing, WAN bandwidth is conserved for important branch IP services such as voice over IP (VoIP), while simplifying configuration, deployment, and operations.

Integrated Flexible Routing and Low-density Switching

When configured with the 16- or 36-port EtherSwitch® Module, the Cisco 3700 Series offers a single, integrated platform that combines flexible routing and low-density switching. This offers high-speed connections between individual desktops, servers, and other network resources in a single unit for Layer 2, and allows WAN connection at Layer 3 through the router. An optional internal power supply provides power to IP phones and Cisco Aironet 802.11 base stations.

Versatility/Investment Protection

More than 70 WICs and network modules are shared with the Cisco 1700, 1800, 2600, 2800, 3600 and 3800 Series products. The advanced integration module (AIM) slot offers expandability for integration of advanced services, such as hardware-assisted data compression, encryption, voice, and ATM.

Benefits and Advantages continued

Integration/Manageability

Provides a single-platform solution for security, branch office IP telephony, voice gateway services, and additional enhanced services, lowering costs of ownership, simplifying management, and allowing flexible, incremental migration. Integrated Layer 3-7 network analysis.

Incremental Migration to IP Telephony

Supports a wide range of traditional telephony devices and IP telephony solutions to enable immediate or gradual migration. Analog telephony connectivity options start at two analog ports and scale to 16, 32, 48, or 64 analog ports. Digital telephony connectivity is increasingly scalable, with options from 12 to 300 voice channels. IP telephony is delivered in a completely integrated package on the Cisco 3700 Series through its powerful set of features. These include line-powered IP phone

connectivity and appropriate quality of service support that begins with 16 ports and scales to 36, 52, or 72 ports. Immediate IP Telephony insurance via Survivable Remote Site Telephony (SRST) or persistent remote site call processing via Cisco CallManager Express (CCME), integrates Cisco Unity Express (CUE) for Auto Attendant and Voice Mail, offers remote site Audioconferencing and Transcoding for IP Telephony solutions.

Power

High-speed routing performance up to 225,000 packets per second, providing the scalability to support more concurrent services.

Interoperability/Multiprotocol Support

Offers a comprehensive set of protocols and services, including virtual private networking, firewall protection, encryption, WAN optimization, and enhanced multimedia support features.

Security Features

IPSec VPN

- Advanced Encryption Standard (AES) 128, 192, and 256; Triple Data Encryption Standard (3DES); and DES cryptology support
- Embedded hardware-based VPN acceleration with the AIM-VPN module
- Cisco Easy VPN remote
- Cisco Easy VPN server
- Dynamic Multipoint VPN (DMVPN)
- Virtual Tunnel Interfaces (VTI)
- 802.1x
- VPN QoS – Preclassification support
- Support for up to 2500 VPN tunnels with the AIM-VPN module

Multiprotocol Label Switching (MPLS) VPN Support

- Specific provider edge capabilities
- Virtual routing and forwarding (VRF) firewall and VRF IPSec

Cisco IOS IPS

- Inline ability to drop packet, reset connection, locally shun, or send an alarm
- Dynamically load and enable selected attack signatures in the same manner as Cisco IPS Appliances

Cisco IOS Firewall

- Feature rich, stateful firewall
- Per-user authentication and authorization
- Real-time alerts
- Transparent firewall
- IPv6 firewall

- VRF-Aware firewall
- Advanced Application Inspection and Control
 - HTTP inspection engine
 - Email inspection engines (SMTP, ESMTP, IMAP, POP)

Network Foundation Protection

- Control Plane Policing (CPP)
- AutoSecure
- CPU/Memory Threshold
- Secure Shell (SSH)
- Access Control List (ACL)
- Command Line Interface (CLI)
- Committed Access Rate (CAR)

URL Filtering

- Onboard with an optional content-engine network module
- Local URL filtering in Cisco IOS software based on external server

Security Solutions

- Network Admission Control (NAC)
- Voice & Video Enabled IPSec VPN (V3PN)

Secure RTP

- Encryption AES (Advanced Encryption Standard)
- Authentication HMAC (Hashed Message Authentication Code)
- Integrity Secure Hash Algorithm (SHA)

Security Features continued

Optional Security Modules

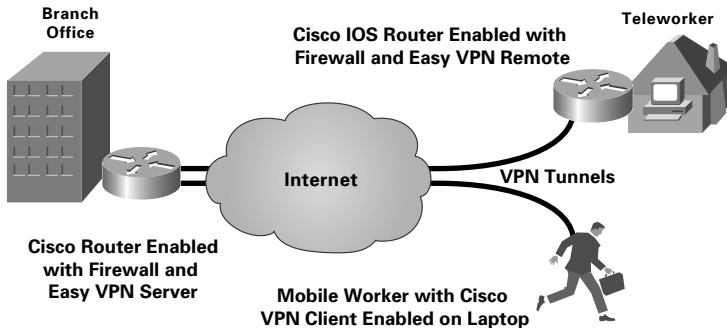
- IDS/IPS Network Modules (NM-CIDS portfolio)
- VPN and Encryption Advanced Integration Modules (AIM-VPN portfolio)
- Content Engine Network Modules (NM-CE portfolio)

Certifications

- ICSA IPsec
- ICSA Firewall
- Common Criteria IPsec (EAL4)
- Common Criteria Firewall (EAL4+)
- FIPS 140-2, Level 2

Security Features Example

Easy VPN Server Application

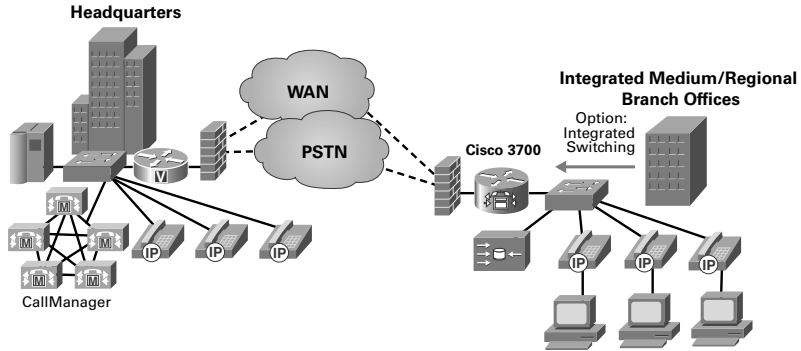


When To Deploy

Deploy the Cisco 3700 Series when you need:

- New levels of branch office service density in a compact form factor
- Integrated flexible routing and low-density switching (16 or 36 ports)
- Flexible, incremental, and scalable migration to a converged branch office network
- Compatibility with more than 90 percent of the world's legacy analog and digital TDM PBXs
- Survivable Remote Site Telephony (SRST) features that enable branch offices to leverage centralized call processing while providing local branch IP Telephony redundancy
- IP Telephony and Voice Gateway Router integration for analog and digital telephony interfaces
- Complete small office telephony solution using Cisco CallManager Express and Cisco Unity™ Express
- Audioconferencing and transcoding in conjunction with Cisco CallManager Express
- VoIP, VoFR, or VoATM toll bypass for all TDM PBXs, key systems, analog telephony devices and the PSTN
- Support for advanced quality of service (QoS), bandwidth optimization, and data fragmentation, as well as voice call admission control, call control, and queuing mechanisms, without sacrificing the expected data performance needed for future growth
- Availability features (Cisco 3745 only) such as redundant power, online insertion and removal components, and field-replaceable components

Application Example



Options

- Complete Cisco Voice Gateway Router functionality
- Cisco Survivable Remote Site Telephony (SRST)
- Cisco CallManager Express (CCME)
- Cisco Unity™ Express (CUE) for Auto Attendant and Voice Mail
- VPN-enabled routers
- Integrated stateful firewall
- Cisco IOS intrusion prevention
- WCCP for content networking
- Integrated content networking
- Dial access
- Integrated low-density switching

Platform Overview

	NMs	AIM	WICs	Fixed LAN Ports	DRAM (MB)		Flash (MB)		Power Supply
					default	max	default	max	
Cisco 3725	2	2	3	2 FE	256	256	32	128	AC, DC, RPS
Cisco 3745	4	2	3	2 FE	256	512	32	128	AC, DC, RPS

Series Specifications

Processor	MIPS RISC Processor
Dimensions (Height x Width x Depth)	
Cisco 3725	3.5 x 17.1 x 15 in. (88 x 434 x 381 mm); 2 RU-height
Cisco 3745	5.25 x 17.25 x 15 in. (133 x 438 x 381 mm); 3 RU-height
Console Port	1 (up to 115.2 Kbps)
Auxiliary Port	1 (up to 115.2 Kbps)
Integrated CSU/DSU	Yes, with optional T1/E1, Fractional T1/E1, 56k/64k support
Voice/Data Support	Yes
Cisco CallManager Express (CCME)	Up to 192 phones for the Cisco 3745; up to 144 phones for the Cisco 3725
Cisco SRST	Up to 480 phones for the Cisco 3745; up to 144 phones for the Cisco 3725
Compression	SW + HW
Encryption	Hardware encryption via AIM-VPN module
Maximum 10/100 Ethernet Ports	72
Maximum 1000 Ethernet Ports	2
Maximum Token Ring Ports	4

Series Specifications continued

Maximum High-speed Serial (up to 2 Mbps)	22
Maximum Low-speed Serial (up to 128 Kbps)	70 sync, 134 async
Maximum Integrated Modems	70 Analog, 60 Digital
Maximum Number of ISDN BRI Ports	35
Maximum Number of ISDN PRI Ports	8
Availability Features	
Support for optional redundant power supply	Supported on Cisco 3745 (internal) and Cisco 3725 (external)
Online insertion and removal (Cisco 3745 only)	Network modules, redundant power supply, fan tray
Field-replaceable components (Cisco 3745 only)	Motherboard, I/O board, power supplies, fan tray
Minimum Cisco IOS Release	
Cisco 3725	IOS 12.2(8) T
Cisco 3745	IOS 12.2(8) T

Cisco IOS Memory Requirements

Support for Cisco 3700 Series Routers starts in Cisco IOS release 12.2(8)T

Cisco IOS Release 12.2 T Memory Recommendations for the Cisco 3725 Router

Feature Set	Software Image	Flash Memory	DRAM Memory
IP	c3725-i-mz	32 MB	128 MB
IP Plus	c3725-is-mz	32 MB	128 MB
IP Plus IPsec 3Des	c3725-ik9s-mz	32 MB	128 MB
IP/FW/IDS	c3725-io3-mz	32 MB	128 MB
IP/FW/IDS Plus IPsec 3Des	c3725-ik9o3s-mz	32 MB	128 MB
Enterprise Plus	c3725-js-mz	32 MB	128 MB
Enterprise Plus IPsec 3Des	c3725-jk9s-mz	32 MB	128 MB
Enterprise/FW/IDS Plus IPsec 3Des	c3725-jk9o3s-mz	32 MB	128 MB
Enterprise Plus/H323 MCM	c3725-jsx-mz	32 MB	128 MB
IP/H323	c3725-ix-mz	32 MB	128 MB

Cisco IOS Release 12.2 T Memory Recommendations for the Cisco 3745 Router

Feature Set	Software Image	Flash Memory	DRAM Memory
IP	c3745-i-mz	32 MB	128 MB
IP Plus	c3745-is-mz	32 MB	128 MB
IP Plus IPsec 3Des	c3745-ik9s-mz	32 MB	128 MB
IP/FW/IDS	c3745-io3-mz	32 MB	128 MB
IP/FW/IDS Plus IPsec 3Des	c3745-ik9o3s-mz	32 MB	128 MB
Enterprise Plus	c3745-js-mz	32 MB	128 MB
Enterprise Plus IPsec 3Des	c3745-jk9s-mz	32 MB	128 MB
Enterprise/FW/IDS Plus IPsec 3Des	c3745-jk9o3s-mz	32 MB	128 MB
Enterprise Plus/H323 MCM	c3745-jsx-mz	32 MB	128 MB
IP/H323	c3745-ix-mz	32 MB	128 MB

Ordering Information

The Cisco 3700 is ordered from components. You must specify:

- A 3700 Series chassis: All chassis ship with the minimum recommended memory for the most recent default Cisco IOS IP feature set, documentation, console, auxiliary and LAN cables, 19-inch rack-mount brackets, and blank panels that cover unused WAN interface card and or network module slots
- A CD software pack with desired software release
- A power cord

Optional items:

- A Cisco IOS feature set upgrade or revision; the IP feature set is the default and included with the chassis
- WAN interface cards
- Network modules with onboard voice/WAN interface cards
- Optional MFT Dedicated Echo Cancellation Modules for select voice/WAN interface cards on select network modules
- Up to two advanced integration modules
- EtherSwitch modules
- Up to two integrated EtherSwitch power supplies
- Flash memory upgrade
- DRAM memory upgrade
- Cables
- Feature license for IP Telephony

Product Bundles

VPN PRODUCT BUNDLES

Product Number	Product Description
CISCO3725-VPN/K9	3725 VPN Bundle, AIM-VPN/EPII-PLUS, Advanced IP, 64 MB Flash, 256 MB SDRAM
CISCO3745-VPN/K9	3745 VPN Bundle, AIM-VPN/HPII-PLUS, Advanced IP, 64 MB Flash, 256 MB SDRAM

VOICE BUNDLES

Product Number	Product Description
CISCO3725-V-CCME	48-phone CCME licence, AIM-ATM-VOICE-30, 64 MB Flash/256 MB DRAM
CISCO3725-V-CCME-A	48-phone CCME licence, NM-HD-2V, 64 MB Flash/256 MB DRAM
CISCO3745-V-CCME	120-phone CCME licence, AIM-ATM-VOICE-30, 64 MB Flash/256 MB DRAM
CISCO3745-V-CCME-A	120-phone CCME licence, NM-HD-2V, 64 MB Flash/256 MB DRAM

Cisco 7200/7301 Series



Cisco 7200 Series routers deliver exceptional versatility in a compact form factor, and are especially suitable for applications that require Gigabit Ethernet and OC3POS with sufficient IP services performance. Offering processing speeds up to one million packets per second, three built-in Gigabit Ethernet ports on the routing engine, port adapters ranging from NxDS0 to OC-12, and an unparalleled number of high-touch IP services, the Cisco 7200 is an ideal high-end access router for large office environments.

A key strength of the Cisco 7200 is its modularity and flexibility. It offers 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, enabling customers to customize their systems to achieve desired levels of performance, connectivity, and capacity. The Cisco 7200 Series is typically deployed for general enterprise WAN aggregation, voice over IP, security, and various other IP applications due to its exceptionally broad routing features. Its flexibility, modularity, and low price-point offer both investment protection and maximum return on investment, allowing organizations to upgrade and redeploy a Cisco 7200 Series router as network needs change.

As a 1-RU form factor of 7200, Cisco 7301 uses the same processor engine as the Cisco 7200 to provide speeds up to 1 Mpps. It also offers extensive port adapter support. Similar to the Cisco 7200 with NPE-G1 engine, the Cisco 7301 provides three built-in Ethernet ports (10/100/1000) with support for one additional port adapter. The Cisco 7301 also supports AC and DC power supply with the option of dual DC power supply.

The Cisco 7301 is most attractive when customers are looking for the performance and functionality of Cisco 7200 Series routers, but desire a more compact form factor without the port density of the Cisco 7200 Series.

Benefits and Advantages

Compact Form Factor

The Cisco 7200 can support up to six port adapters in a fully modular 3-RU form factor. Up to 16 chassis can be supported in a 7' rack. The Cisco 7301 in the 1-RU form factor provides the most powerful 1-RU router solution in the industry.

Exceptional Value

As the most powerful Cisco 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 Mpps processing at a competitive price point.

Simplified Network Convergence

The Cisco 7200 Series' Multiservice Interchange (MIX)-enabled backplane allows for integration of data, voice, and video in a single WAN Edge device. With the latest quality-of-service (QoS) features, the Cisco 7200 Series enables enterprises to save money by bypassing their carrier's long distance charges.

VPN Support

The dedicated VPN acceleration adapters available on both the Cisco 7301 and the Cisco 7200 enable an integrated solution for routing and security including QoS, multicast, and multiprotocol traffic across the VPN. Utilizing the VPN Acceleration Module (VAM2), the Cisco 7301 and Cisco 7200 Series VPN Routers deliver IPsec encryption scalability to 145 Mbps for the most demanding head-end, site-to-site VPN deployments. The Cisco 7301 and Cisco 7200 provide an integrated security solution which includes IPSEC, FW, and IDS features sets.

Enhanced Security

With support for access control lists (ACL), Network Address Translation (NAT), Netflow, along with firewall, intrusion prevention, and service level validation features, the Cisco 7200 and Cisco 7301 are ideal platforms for ensuring network security.

Maximum ROI

A low price per-port entry point makes the value of the Cisco 7301 and Cisco 7200 unbeatable, while allowing customers to easily upgrade and redeploy their equipment as network needs change.

Feature-Rich

Full support for Cisco IOS Software and enhancements for high-performance network services enables the Cisco 7200 and Cisco 7301 to offer industry-leading network services including MPLS, broadband aggregation, quality of service, security, and voice services.

Connectivity/Flexibility

Providing high port density and an extensive range of LAN and WAN media, plus the three built-in GE ports on the NPE-G1 engine, the Cisco 7200 Series dramatically reduces the cost per port and allows for flexible configurations to meet customers' specific network needs. Cisco 7301 utilizes the same port adapters as the Cisco 7200, allowing for common spares between platforms.

Common Port Adapters

By using the same port adapters as the Cisco 7500 Versatile Interface Processor (VIP), 7600 FlexWAN Module, 7301, and 7300 customers using the Cisco 7200 Series simplify stocking spares and protect their investments in interfaces.

Security Features

IPSec VPN

- Advanced Encryption Standard (AES) 128, 192, and 256; Triple Data Encryption Standard (3DES); and DES cryptography support
- Embedded hardware-based VPN acceleration on the motherboard
- Cisco Easy VPN remote
- Cisco Easy VPN server
- Dynamic Multipoint VPN (DMVPN)
- Virtual Tunnel Interfaces (VTI)

- 802.1x
- VPN QoS – Preclassification support
- Support for up to 5000 IPsec tunnels

Multiprotocol Label Switching (MPLS) VPN Support

- Specific provider edge capabilities
- Virtual routing and forwarding (VRF) firewall and VRF IPsec

Security Features continued

Cisco IOS IPS

- Inline ability to drop packet, reset connection, locally shun, or send an alarm
- Dynamically load and enable selected attack signatures in the same manner as Cisco IPS Appliances

Network Foundation Protection

- Control Plane Policing (CPP)
- AutoSecure
- CPU/Memory Threshold
- Secure Shell (SSH)
- Access Control List (ACL)
- Command Line Interface (CLI)
- Committed Access Rate (CAR)

Cisco IOS Firewall

- Feature rich, stateful firewall
- Per-user authentication and authorization
- Real-time alerts
- Transparent firewall
- IPv6 firewall
- VRF-Aware firewall
- Advanced Application Inspection and Control
 - HTTP inspection engine
 - Email inspection engines (SMTP, ESMTP, IMAP, POP)

URL Filtering

- Onboard with an optional content-engine network module
- Local URL filtering in Cisco IOS software based on external server

Security Solutions

- Network Admission Control (NAC)
- Voice & Video Enabled IPsec VPN (V3PN)

Optional Security Modules

- IDS/IPS Network Modules (NM-CIDS portfolio)
- VPN and Encryption Advanced Integration Modules (AIM-VPN portfolio)
- Content Engine Network Modules (NM-CE portfolio)
- VPN Acceleration Modules (SA-VAM portfolio)

Cisco Router and Security Device Manager (SDM)

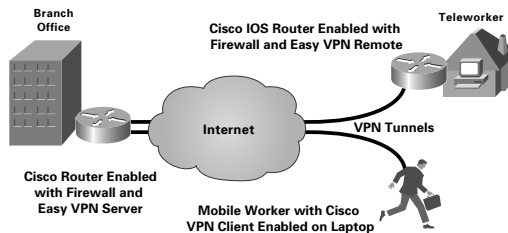
- Ships by default

Certifications

- ICSA IPsec
- ICSA Firewall
- Common Criteria IPsec (EAL4)
- Common Criteria Firewall (EAL4+)
- FIPS 140-2, Level 2

Security Features Example

Easy VPN Server Application



When To Deploy

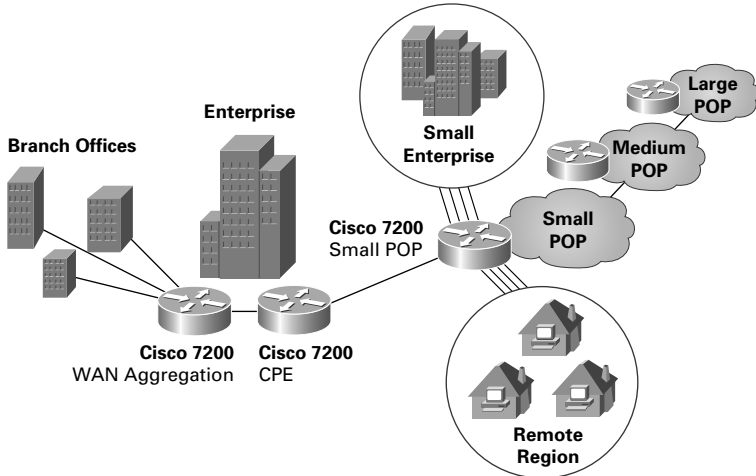
Deploy the Cisco 7200 Series when you need a high-performance access solution offering:

- Flexibility in configurations
- A wide range of services
- A wide range of connectivity options
- High performance in a compact form factor

Deploy Cisco 7301 routers when you need similar performance in a 1-RU form factor.

Cisco 7301 routers also make very attractive security appliances given their form factor and three built-in GE ports.

Application Example



Series Specifications

The Specifications below apply to 7200 with NPE-G1 as well as 7301.

Processor (NPE-G1)	700 MHz Broadcom BCM1250 processor
Flash Memory	64 MB (expandable to 256 MB)
System DRAM Memory	256 MB (expandable to 1 GB)
Modular Slots for 7200	4 or 6
Modular Slots for 7301	1
Supported Port Adapters	70+
Internal Power Supply	AC or DC, dual option
Dimensions (Height x Width x Depth)	
7204VXR	5.25 x 16.8 x 17 in.
7206VXR	5.25 x 16.8 x 17 in.
7301	1.73 x 17.3 x 13.87 in.
Performance	Up to 1 million packets per second (depending on configuration)
Console Port	1
Auxiliary Port	1
Base Configuration for 7200	4- or 6-slot chassis, 1 AC power supply, IP software
Base Configuration for 7301	Includes the NPE-G1, 3 fixed 10/100/1000 ports (and can accommodate any one of the PA that are supported on the 7200) with AC PS, 256 MB of DRAM and 64 MB of Flash
Maximum Ethernet Port	
7204VXR	32
7206VXR	48
Maximum 10/100 Ethernet Ports	
7204VXR	4 (PA slots) plus 3 10/100/1000 on NPE-G1
7206VXR	6 (PA slots) plus 3 10/100/1000 on NPE-G1

Series Specifications continued

Maximum Token Ring Ports	
7204VXR	16
7206VXR	24
Maximum High-speed Serial (up to 52 Mbps)	
7204VXR	8
7206VXR	12
Maximum Low-speed Serial (up to 2 Mbps)	
7204VXR	32
7206VXR	48
Voice/Data Support	Yes
Integrated Modems	No
Maximum Number of ISDN BRI Ports	
7204VXR	32
7206VXR	48
Maximum Number of ISDN PRI Ports	
7204VXR	32
7206VXR	48
Integrated CSU/DSU	Yes (dependent on PA configuration)
Compression	SW
Encryption	SW + HW
Redundant Power Supply Support	Yes, for AC or DC
Minimum Cisco IOS Release	Cisco IOS 12.0(1)XE or later

Cisco IOS Memory Requirements

Cisco 7200 is supported in IOS T, Mainline, 12.0S, and 12.2S releases and as such, supports the most comprehensive and cutting-edge enterprise and service provider features from Cisco IOS.

Memory Requirements

Generally, 16 MB of Flash and 128 MB of DRAM are recommended; however, Flash and DRAM requirements typically vary by IOS release.

Feature Set	Software Image
Desktop/IBM	c7200-ds-mz
Desktop/IBM IPsec 56	c7200-dk8s-mz
Desktop/IBM/FW/IDS	c7200-do3s-mz
Desktop/IBM/FW/IDS IPsec 3DES	c7200-dk9o3s-mz
Desktop/IBM/FW/IDS IPsec 56	c7200-dk8o3s-mz
Enterprise	c7200-js-mz
Enterprise IPsec 3DES	c7200-jk9s-mz
Enterprise IPsec 56	c7200-jk8s-mz
Enterprise MCM	c7200-jx2-mz
Enterprise SSG	c7200-g4js-mz
Enterprise/FW/IDS	c7200-jo3s-mz
Enterprise/FW/IDS IPsec 3DES	c7400-jk9o3s-mz
Enterprise/FW/IDS IPsec 56	c7400-jk8o3s-mz
Enterprise/SNASW IPsec 3DES	c7400-a3jk9s-mz
Enterprise/SNASW IPsec 56	c7400-a3jk8s-mz
Enterprise/SNASW Plus	c7400-a3js-mz

Cisco IOS Memory Requirements continued

IP	c7200-is-mz
IP IPsec 56	c7200-ik8s-mz
IP Plus IPsec 3DES	c7200-ik9s-mz
IP/FW/IDS	c7200-io3s-mz
IP/FW/IDS IPsec 3DES	c7200-ik9o3s-mz

Ordering Information**Cisco 7200 Series Base Chassis, Processing Engine, and I/O Controller**

CISCO7204VXR	Cisco 7204VXR, 4-slot chassis, 1 AC supply
CISCO7206VXR	Cisco 7206VXR, 6-slot chassis, 1 AC supply
NPE-225=	Cisco 7200 network processing engine, 225 Kpps
NPE-400=	Cisco 7200VXR network processing engine, 400 Kpps
NPE-G1=	Cisco 7200VXR network processing engine, 1 Mpps
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

Ordering information for 7301

c7301-a3jk9s-mz	Cisco 7301 Series IOS ENTERPRISE/SNASW IPSEC 3DES
c7301-g4js-mz	Cisco 7301 Series IOS ENTERPRISE SSG
c7301-ik9o3s-mz	Cisco 7301 Series IOS IP/FW/IDS IPSEC 3DES
c7301-ik9s-mz	Cisco 7301 Series IOS IP PLUS IPSEC 3DES
c7301-is-mz	Cisco 7301 Series IOS IP
c7301-jk9o3s-mz	Cisco 7301 Series IOS ENTERPRISE/FW/IDS IPSEC 3DES
c7301-jk9s-mz	Cisco 7301 Series IOS ENTERPRISE PLUS IPSEC 3DES
c7301-js-mz	Cisco 7301 Series IOS ENTERPRISE
c7301-p-mz	Cisco 7301 Series IOS SERVICE PROVIDER
CISCO7301	Cisco 7301 Chassis, 256 MB memory, A/C Power, 64 MB of Flash
CISCO7301-BB	Cisco 7301, 512 MB of memory, 16k subscriber BB license, 64 MB Flash, A/C power, IP/IOS
CISCO7301-BB-8K	Cisco 7301, 256 MB SDRAM, 8k Subscriber BB feature license
CISCO7301/2VPMK9	Cisco 7301 with SA-VAM2, 256 MB system memory, 64 MB of Flash, AC power.
PWR-7301-AC	Cisco 7301 AC power supply option
PWR-7301/2-AC	Cisco 7301 Dual AC power supply option
PWR-7301/2-DC48	Cisco 7301 Dual DC48 power supply option
MEM-7301-1GB	1 GB memory upgrade for 7301
MEM-7301-1GB=	1 GB memory upgrade for 7301
MEM-7301-512MB	512 MB memory upgrade for 7301
MEM-7301-512MB=	512 MB memory upgrade for 7301
MEM-7301-256	256 MB memory upgrade for 7301
MEM-7301-256=	256 MB memory upgrade for 7301
MEM-7301-FLD64	Compact Disk Flash for 7301, 64 MB option
MEM-7301-FLD64=	Compact Disk Flash for 7301, 64 MB option
MEM-7301-FLD128	Compact Disk Flash for 7301, 128 MB option
MEM-7301-FLD128 =	Compact Disk Flash for 7301, 128 MB option
MEM-7301-FLD256	Compact Disk Flash for 7301, 256 MB option
MEM-7301-FLD256=	Compact Disk Flash for 7301, 256 MB option

Cisco 7304 Series



Cisco 7304 Series Routers are designed for the network edge where high-performance IP services and redundancy are required to maintain profitability, service differentiation, and business agility. Using a compact, modular form factor, the Cisco 7304 delivers high-touch IP services at multi-gigabit speeds necessary for applications in the enterprise and service provider high-end customer premise equipment (CPE). This versatile platform delivers a breadth of Cisco IOS features in addition to an evolving set of hardware-accelerated IP services. Providing a range of IP connectivity up to Gigabit Ethernet/OC-48, engineered for high availability and multiprotocol support, the Cisco 7304 scales to meet critical application needs of today and in the future.

Benefits and Advantages

High-performance IP/MPLS Services

The Cisco 7304 Series Routers take advantage of innovative Cisco adaptive network processing capabilities to power a broad set of network applications and services. The performance of the Cisco 7304 Series Routers make them ideal for high performance, multi-gigabit applications. The Cisco 7304, with modular engine support, uses the Network Service Engine (NSE-100) to power IP/MPLS services at up to 3.5 Mpps while delivering multiple IP/MPLS features such as MPLS, NAT, QoS, and NetFlow accounting.

Highly Scalable and Available

Built with a 4-gigabit backplane, the Cisco 7304 Series Routers can support a broad set of interfaces from DS-0 to OC-48 speeds, including built-in Fast Ethernet and Gigabit Ethernet interfaces—meeting performance demands well into the future. The Cisco 7304 is designed with the necessary memory and processing power for the next generation of applications that require large route table support, optical interfaces and high-performance services processing. The Cisco 7304 supports dual route processors and

power supplies, making it an ideal solution for providing mission-critical network availability.

Exceptional Value

Meeting today's connectivity needs, the Cisco 7304 Series Routers deliver built-in Ethernet interfaces, while supporting a wide variety of Cisco 7000 Series port adapters. With both copper and optical Gigabit Ethernet capabilities, these routers offer exceptional value for customers linking to high-speed LAN or Ethernet WAN connections without additional cost or interfaces.

Security Features

VPN

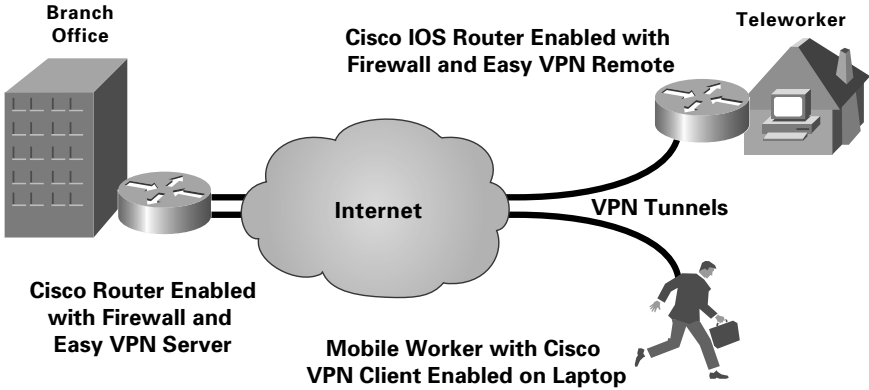
- **Encryption** – 3DES (SW + HW), AES (SW)
- **VPN QoS** – Preclassification Support
- **IDS** – 59 Signatures Supported

Certifications

- **ICSA** – IPsec, Firewall (in process)
- **Common Criteria** – (VPN): Cisco 1720 and 1750
- **Common Criteria** – IPsec
- **FIPS** – 104-2: Cisco 7140 and 7206

Security Features Example

Easy VPN Server Application

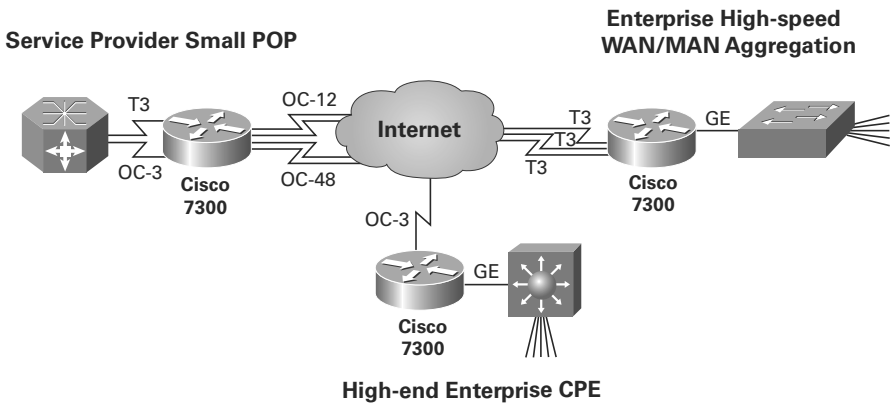


When To Deploy

Deploy the Cisco 7304 when you need:

- A compact and modular form factor that allows for incremental investments
- Scalable deployment with a range of connectivity options, including OC-12 POS and OC-48 POS
- High availability support, including redundant route processor and power supply
- Multiple OC-3 performance or greater—NSE-100 Network Services Engine offers up to 3.5 Mpps forwarding performance
- Built-in Gigabit Ethernet (GE)—2 GE ports per NSE-100 enable cost-effective and high-performance GE connectivity
- Hardware-accelerated services for feature performance of up to 3.5 Mpps
- Multiprotocol support

Application Example



Series Specifications

Processor	RM 7000 MIPS and Parallel Express Forwarding (PXF)
Flash Memory	64 MB (expandable to 128 MB)
System DRAM Memory	512 MB (expandable to 512 MB)
Modular Slots	4
Fixed Ports	2
Internal Power Supply	AC or DC (both redundant)
Dimensions (H x W x D)	7 x 17.2 x 20.5 inches
Performance	Up to 3.5 Mpps
Console Port	1
Auxiliary Port	1
Base Configuration	4-slot chassis, NSE-100, 1 AC power supply, 512 MB
Maximum Ethernet Ports	2 fixed GE ports
Voice/Data Support	Yes
Integrated Modems	No
Integrated CSU/DSU	Yes (T3)
Compression	SW
Encryption	No
Redundant Power Supply Support	Yes
Redundant Processor	Yes
Minimum Cisco IOS Release	Cisco IOS 12.2S

Cisco IOS Memory Requirements

Memory Requirements

Generally, 64 MB of Flash and 512 MB of DRAM is recommended; however, Flash and DRAM requirements typically vary by IOS release.

Feature Set	Software Image
Enterprise/SNASW Plus	c7304-a3js-mz
Enterprise	c7304-js-mz
Enterprise/FW/IDS 3DES	c7304-jk9o3s-mz
Enterprise/FW/IDS 56	c7304-jk8o3s-mz
IP Plus	c7304-is-mz
IP/FW/IDS SSH 3DES	c7304-ik9o3s-mz

Ordering Information

CISCO7304	4-slot chassis, NSE100 with 2 built-in GE ports, 512 MB default memory, 1 power supply
CISCO7304=	Cisco 7304, 4-slot chassis
7304-NSE-100=	Cisco 7304 network services engine 100
7304-NSE-100/2	Redundant Cisco 7304 NSE-100 with Redundancy Feature License

Cisco 7304 Memory Options

7304-MEM-512	512 MB SDRAM for Cisco 7304 NSE-100 (default)
7304-I/O-CFM-64M	Cisco 7304 Compact Flash memory, 64 MB
7304-I/O-CFM-128M	Cisco 7304 Compact Flash memory, 128 MB

Cisco 7304 Carrier Cards

7304-CC-PA=	7304 carrier card for 7200 Series port adapters
7304-MSC-100	7304 carrier card for shared port adapter

Cisco 7304 Line Cards

7300-6T3=	6-port clear channel T3 card, Cisco 7304 line card
7300-2OC3ATM-MM=	2-port OC3/STM-1 ATM line card, Cisco 7304, multimode
7300-2OC3ATM-SMI=	2-port OC3/STM-1 ATM line card, Cisco 7304, single-mode IR
7300-2OC3ATM-SML=	2-port OC3/STM-1 ATM line card, Cisco 7304, single-mode LR
7300-2OC3POS-MM=	2-port OC3/STM-1 POS line card, Cisco 7304, multimode
7300-2OC3POS-SMI=	2-port OC3/STM-1 POS line card, Cisco 7304, single-mode IR
7300-4OC3POS-SMI=	4-port OC3/STM-1 POS line card, Cisco 7304, single-mode IR
7300-1OC12POS-SMI=	1-port OC-12/STM-4 POS line card, Cisco 7304, single-mode IR
7300-2OC12POS-SMI=	2-port OC-12/STM-4 POS line card, Cisco 7304, single-mode IR
7304-1OC48POS-SMS=	1-port OC-48/STM-16 POS line card, Cisco 7304, single-mode SR
SPA-2GE-7304	2-port Gigabit Ethernet shared port adapter
SPA-4FE-7304	4-port Gigabit Ethernet shared port adapter
7304-1OC48POS-SMI=	1-port OC48/STM-16 POS line card, Cisco 7304, single-mode IR

Cisco 7304 Power Supplies and Cords

7304-PWR-DC=	Cisco 7304 DC power supply spare
7304-PWR-AC=	Cisco 7304 AC power supply spare
7304-PWR/2-DC	Cisco 7304 redundant DC power supply option
7304-PWR/2-AC	Cisco 7304 redundant AC power supply option

Cisco 7304 Accessories

7304-HALFSLOTBLNK	Cisco 7304 half-slot blank line card
7304-4RU/RCKBRKT=	Cisco 7304 chassis rack-mount bracket spare
7304-CNTR-SPTUM=	Cisco 7304 center septum spare

Cisco 7304 Software Options

S730A-12220S	Cisco 7300 Series IOS Enterprise
S730AHK91-12220S	Cisco 7300 Series IOS Enterprise/FW/IDS Secured Shell 3DES
S730AR1K91-12220S	Cisco 7300 Series IOS Enterprise/SNASW Secured Shell 3DES
S730C-12220S	Cisco 7300 Series IOS IP Plus
S730CHK91-12220S	Cisco 7300 Series IOS Enterprise /FW/IDS Secured Shell 3DES
S730Z-12220S	Cisco 7300 Series IOS Service Provider
S730ZK91-12220S	Cisco 7300 Series IOS Enterprise Service Provider/Secured Shell 3DES

Notes



Cisco 7600 Series

The Cisco 7600 Series, which is available in five form factors of 3-, 4-, 6-, 9- and 13-slot chassis, delivers robust, high-performance IP/MPLS features, enabling an unmatched range of service provider edge and enterprise MAN/WAN applications and services.

The Cisco® 7604 Router is one of the smallest, redundant routers to offer nx10GE performance with services. The Cisco 7604, a four slot chassis, delivers performance in a compact five-rack unit (5 RU) form factor. The Cisco 7604 may be configured with a single supervisor engine and up to three line cards or for high-availability and redundancy, with dual supervisor engines and up to two line cards. The Cisco 7604 also supports redundant AC or DC power supplies for increased availability.

Ideal for Enterprise WAN aggregation, metropolitan area networks (MAN), or service provider environments, the Cisco 7604 offers one of the industry's leading array of interfaces (DS0 to OC-48/STM-16, FE, GE, 10GE) and services modules such as IPSEC, Firewall, SSL VPN, IDS, and DOS Protection. The Cisco 7604 supports Shared Port Adapter (SPA) and SPA Interface Processors (SIP), which offers intelligent services. The broad range of SPA interfaces can be interchanged across the Cisco Service Provider router portfolio providing deployment flexibility, increased overall density and superior service intelligence at line rate performance to reduce the overall cost of ownership for service providers. The Cisco 7604 also supports the Enhanced FlexWAN module, which offers Port Adapter investment protection for customers looking to migrate their Cisco 7500 or Cisco 7200.

Benefits and Advantages

The Cisco 7604 is a small form factor router that offers a wide range of interfaces ranging from DS0 to OC-48, FE, GE, 10GE, allowing it to be deployed in a wide range of applications. It supports redundant Supervisors and high-available features—making the 7604 resilient.

Security Features

The Cisco 7604 advanced security services offer protection for the device, service and network:

Device Protection

- Control plane protection
- User access
- Spoofed address

Service Protection

- VRF Aware IPsec VPN
- Virtualized firewall
- Virtualized intrusion detection

Network Protection

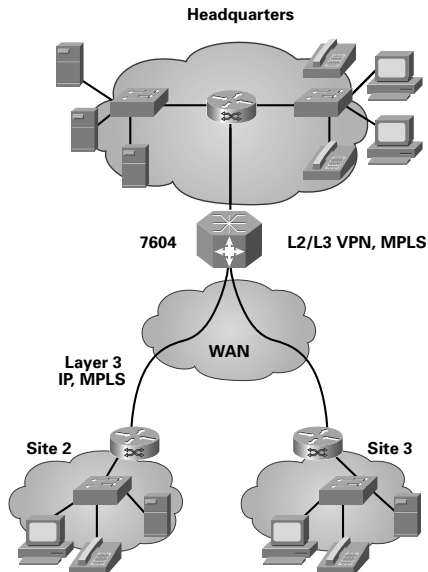
- Clean pipes
- Distributed denial of service protection
- Network Protection Access Control Lists
- Reverse Path Forwarding

When To Deploy

This flexible router is ideal for addressing high-performance applications such as:

- High-end CPE
- Enterprise WAN Aggregation
- Leased Line Aggregation
- IP/MPLS Provider Edge
- Metro Ethernet

Application Example



High-Availability Features

The Cisco 7604 supports redundant processors and power supplies. The Cisco 7604 offers the following high available software features in 12.2.18SXE:

- Online Insertion and Removal
- Hot Standby Routing Protocol
- Fast Software Upgrade
- Route Processor Redundancy +
- NonStop Forwarding
- Stateful SwitchOver

Platform Overview

PHYSICAL SPECIFICATIONS

Dimensions (H x W x D)	8.75 x 17.5 x 21.75 in. 5 rack-unit (RU)
Weight (minimum)	40 lb

POWER DISSIPATIONS

Environmental Specifications

Operating Temperature	32 to 104°F (0 to 40°C)
Storage Temperature	-4 to 149°F (-20 to 65°C)
Relative Humidity (non-condensing)	10 to 85 percent
Operation Altitude	Up to 6500 ft (2000 m)

REGULATORY COMPLIANCE

Safety and Environmental Standard Compliance	<ul style="list-style-type: none"> • GR-63-Core NEBS Level 3 (post FCS) • GR-1089-Core NEBS Level 3 (post FCS) • ETSI 300 019 Storage Class 1.1 • ETSI 300 019 Transportation Class 2.3 • ETSI 300 019 Stationary Use Class 3.1 • UL 60950 • IEC 60825-1, -2 • IEC 60950 • EN 60950, EN 60825-1, -2 • CAN/CSA-C22.2 No. 60950-00 • AS/NSZ 3260-1993 • 21CFR1040
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EMC

- FCC Part 15 (CFR 47) Class A
- ICES-003 Class A
- EN55022 Class A
- CISPR22 Class A
- AS/NZS 3548 Class A
- VCCI Class A
- EN55024
- ETS300 386
- EN50082-1
- EN61000-3-2
- EN61000-3-3

MINIMUM SOFTWARE RELEASE

Cisco IOS® 12.2.18SXE




Ordering Information

Spare Units	Note that “=” denotes a spare order
CISCO7604=	Cisco 7604 chassis, mounting kit, and cable guide
PWR-2700-AC/4=	2700W AC Power Supply for Cisco 7604
PWR-2700-DC/4=	2700W DC Power Supply for Cisco 7604
CAB-7513ACU	AC Power Cord (UK)
CAB-7513ACR	AC Power Cord (Argentina)
CAB-7513ACSA	AC Power Cord (South Africa)
CAB-ACS-10	AC Power Cord (Swiss)
CAB-AC-2500W-US1	Power Cord, 250Vac 16A, straight blade NEMA 6-20 plug, US
CAB-AC-C6K-TWLK	Power Cord, 250Vac 16A, twist lock NEMA L6-20 plug, US
CAB-AC-2500W-EU	Power Cord, 250Vac 16A, Europe
CAB-AC-2500W-INT	Power Cord, 250Vac 16A, INTL
CAB-ACS-16	AC Power Cord (Swiss) 16A
FAN-MOD-4HS=	High speed fan module for Cisco 7604 Chassis
KIT-MNTG-CG-4=	Mounting kit and cable guide for Cisco 7604
CLK-7600=	Spare Clock card for CISCO7603, CISCO7604, CISCO7606 or CISCO7609

Cisco Network Modules





LAN and Mixed Media Network Modules

Ethernet Switching Network Modules and Accessories





Product	Description	Supported Platforms and Minimum Cisco IOS Versions*	Comments
<p>NM-16ESW 16-port 10/100 EtherSwitch network module</p> 	<p>Provides 16 switch ports and one internal port to the router engine. Features include 802.1p prioritization and 802.11q VLAN, and 802.1d Spanning-Tree Protocol.</p> <p>.....</p> <p>Modular Router Solutions LAN Switching LAN-to-LAN Routing Inter-VLAN Routing IP Telephony</p>	<p>3800 Series – 12.3(11)T 3700 Series – 12.2(8)T 3600 Series – 12.2(2)XT 2811, 2821, and 2851 – 12.3(8)T4 2691 – 12.2(8)T 2600XM Series – 12.2(8)T1 2600 Series – 12.2(2)XT</p>	<p>Prior to Cisco IOS 12.3 Mainline, requires a Cisco IOS “Plus” feature set. 12.3 Mainline supported in “IP Base” feature set.</p> <p>No reliance on other network modules, WICs, voice interface cards, or advanced integration modules.</p>
<p>NM-16ESW-1GIG 16-port 10/100 EtherSwitch network module with 1 GE (1000BASE-T) port</p> 	<p>Provides 16 switch ports, one GE port and one internal port to the router engine. Features include 802.1p prioritization and 802.11q VLAN, and 802.1d Spanning-Tree Protocol.</p> <p>.....</p> <p>Modular Router Solutions LAN Switching LAN-to-LAN Routing Inter-VLAN Routing IP Telephony</p>	<p>3800 Series – 12.3(11)T 3700 Series – 12.2(8)T 3600 Series – 12.2(2)XT 2811, 2821, and 2851 – 12.3(8)T4 2691 – 12.2(8)T 2600XM Series – 12.2(8)T1 2600 Series – 12.2(2)XT</p>	<p>Prior to Cisco IOS 12.3 Mainline. Requires a Cisco IOS “Plus” feature set. 12.3 Mainline supported in “IP Base” feature set.</p> <p>No reliance on other network modules, WICs, voice interface cards, or advanced integration modules.</p>
<p>NM-16ESW-PWR 16-port 10/100 EtherSwitch network module with inline power support</p> 	<p>Provides 16 switch ports with inline power support and one internal port to the router engine. Features include 802.1p prioritization and 802.11q VLAN, and 802.1d Spanning-Tree Protocol.</p> <p>.....</p> <p>Modular Router Solutions LAN Switching LAN-to-LAN Routing Inter-VLAN Routing IP Telephony</p>	<p>3800 Series – 12.3(11)T 3700 Series – 12.2(8)T 3600 Series – 12.2(2)XT 2811, 2821, and 2851 – 12.3(8)T4 2691 – 12.2(8)T 2600XM Series – 12.2(8)T1 2600 Series – 12.2(2)XT</p>	<p>This is a bundle of one NM-16-ESW and one PPWR-DCARD-16ESW.</p> <p>Prior to Cisco IOS 12.3 Mainline, requires a Cisco IOS “Plus” feature set. 12.3 Mainline supported in “IP Base” feature set.</p> <p>Requires an external power supply chassis when installed in a Cisco 2600 or Cisco 3600 Series Router or an internal power supply when installed in Cisco 3700, Cisco 2800, or Cisco 3800 Series Routers.</p>

*If platform is not listed in the supported platforms column in the following pages, then that platform is not supported.





LAN and Mixed Media Network Modules

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
NM-16ESW-PWR-1GIG 16-port 10/100 EtherSwitch network module with inline power and GE 	Provides 16 switch ports with inline power support, one GE port and one internal port to the router engine. Features include 802.1p prioritization and 802.11q VLAN, and 802.1d Spanning-Tree Protocol. <p>.....</p> Modular Router Solutions LAN Switching LAN-to-LAN Routing Inter-VLAN Routing IP Telephony	3800 Series – 12.3(11)T 3700 Series – 12.2(8)T 3600 Series – 12.2(2)XT 2811, 2821, and 2851 – 12.3(8)T4 2691 – 12.2(8)T 2600XM Series – 12.2(8)T1 2600 Series – 12.2(2)XT	This is a bundle of one NM-16-ESW, one GE-DCARD-ESW and one PPWR-DCARD-16ESW. <p>Prior to Cisco IOS 12.3 Mainline, requires a Cisco IOS "Plus" feature set. 12.3 Mainline supported in "IP Base" feature set.</p> Requires an inline power supply upgrade (external for 2600 or 3600 Series, internal for 2800, 3700, or 3800 Series).
PPWR-DCARD-16ESW Inline power daughtercard for 16-port EtherSwitch network module 	Enables inline power capability to the NM-16ESW. Note that a power supply is required. <p>.....</p> Modular Router Solutions LAN Switching LAN-to-LAN Routing Inter-VLAN Routing IP Telephony	3800 Series – 12.3(11)T 3700 Series – 12.2(8)T 3600 Series – 12.2(2)XT 2811, 2821, and 2851 – 12.3(8)T4 2691 – 12.2(8)T 2600XM Series – 12.2(8)T1 2600 Series – 12.2(2)XT	Requires a 16-port 10/100 EtherSwitch network module. <p>Requires an external power supply chassis when installed in a Cisco 2600 or Cisco 3600 Series Router or an internal power supply when installed in Cisco 3700, Cisco 2800, or Cisco 3800 Series Routers.</p>
NMD-36-ESW 36-port 10/100 EtherSwitch HDSM 	Provides 36 switch ports and one internal port to the router engine. Features include 802.1p prioritization and 802.11q VLAN, and 802.1d Spanning-Tree Protocol. <p>.....</p> Modular Router Solutions LAN Switching LAN-to-LAN Routing Inter-VLAN Routing IP Telephony	3800 Series – 12.3(11)T 3700 Series – 12.2(8)T 3660 – 12.2(8)T 2851 – 12.3(8)T4	Prior to Cisco IOS 12.3 Mainline, requires a Cisco IOS "Plus" feature set. 12.3 Mainline supported in "IP Base" feature set. <p>No reliance on other network modules, WICs, voice interface cards, or advanced integration modules.</p>
NMD-36-ESW-2GIG 36-port 10/100 EtherSwitch HDSM with 2GE (1000BASE-T) ports 	Provides 36 switch ports, two GE ports and one internal port to the router engine. Features include 802.1p prioritization and 802.11q VLAN, and 802.1d Spanning-Tree Protocol. <p>.....</p> Modular Router Solutions LAN Switching LAN-to-LAN Routing Inter-VLAN Routing IP Telephony	3800 Series – 12.3(11)T 3700 Series – 12.2(8)T 3660 – 12.2(8)T 2851 – 12.3(8)T4	This is a bundle of one NMD-36-ESW and two GE-DCARD-ESW. <p>Prior to Cisco IOS 12.3 Mainline, requires a Cisco IOS "Plus" feature set. 12.3 Mainline supported in "IP Base" feature set.</p> No reliance on other network modules, WICs, voice interface cards, or advanced integration modules.



LAN and Mixed Media Network Modules

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
NMD-36-ESW-PWR 36-port 10/100 EtherSwitch HDSM with inline power support 	Provides 36 switch ports with inline power support and one internal port to the router engine. Features include 802.1p prioritization and 802.11q VLAN, and 802.1d Spanning-Tree Protocol. <p>.....</p> Modular Router Solutions LAN Switching LAN-to-LAN Routing Inter-VLAN Routing IP Telephony	3800 Series – 12.3(11)T 3700 Series – 12.2(8)T 3660 – 12.2(8)T 2851 – 12.3(8)T4	Prior to Cisco IOS 12.3 Mainline, requires a Cisco IOS “Plus” feature set. 12.3 Mainline supported in “IP Base” feature set. Requires an external power supply chassis when installed in a Cisco 3660 Router or an internal power supply when installed in Cisco 3700, Cisco 2800, or Cisco 3800 Series Routers.
NMD-36-ESW-PWR-2G 36-port 10/100 EtherSwitch HDSM with inline power and 2GE (1000BASE-T) ports 	Provides 36 switch ports with inline power support, two GE ports, and one internal port to the router engine. Features include 802.1p prioritization and 802.11q VLAN, and 802.1d Spanning-Tree Protocol. <p>.....</p> Modular Router Solutions LAN Switching LAN-to-LAN Routing Inter-VLAN Routing IP Telephony	3800 Series – 12.3(11)T 3700 Series – 12.2(8)T 3660 – 12.2(8)T 2851 – 12.3(8)T4	This is a bundle of one NMD-36-ESW, two GE-DCARD-ESW and one PPWR-DCARD-36ESW. Prior to Cisco IOS 12.3 Mainline, requires a Cisco IOS “Plus” feature set. 12.3 Mainline supported in “IP Base” feature set. Requires an inline power supply upgrade (external for 3660 Router, internal for 2800, 3700, or 3800 Series Routers).
PPWR-DCARD-36ESW Inline power daughtercard for 36-port EtherSwitch network module 	Enables inline power capability to the NMD-36ESW. Note that a power supply is required. <p>.....</p> Modular Router Solutions LAN Switching LAN-to-LAN Routing Inter-VLAN Routing IP Telephony	3800 Series – 12.3(11)T 3700 Series – 12.2(8)T 3660 – 12.2(8)T 2851 – 12.3(8)T4	Requires a 36-port 10/100 EtherSwitch high-density service module. Requires an external power supply chassis PWR-CHASSIS-360W when installed in a Cisco 3660 Series Router or an internal power supply when installed in a Cisco 2800, 3700, or 3800 Series Routers.
GE-DCARD-ESW 1000BASE-T daughtercard for EtherSwitch modules 	Provides one gigabit port for a file server or intra-chassis stacking of EtherSwitch modules. <p>.....</p> Modular Router Solutions LAN Switching LAN-to-LAN Routing Inter-VLAN Routing IP Telephony	3800 Series – 12.3(11)T 3700 Series – 12.2(8)T 3600 Series – 12.2(2)XT 2811, 2821, and 2851 – 12.3(8)T4 2691 – 12.2(8)T 2600XM Series – 12.2(8)T1 2600 Series – 12.2(2)XT	Requires a 16- or 36-port 10/100 EtherSwitch module with an available GE port slot.



LAN and Mixed Media Network Modules

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
PPWR-PS-360W 360W power supply for EtherSwitch modules	Provides up to 360W inline power. Suitable for up to 36 IP phones. Can be added internally into the Cisco 3700 Series or in a power supply chassis PPWR-PS-CHASSIS for use with Cisco 2600, 2800 (excluding 2801), and 3600 Series Routers	3700 Series – 12.2(8)T 3600 Series – 12.2(2)XT 2811, 2821, and 2851 – 12.3(8)T4 2691 – 12.2(8)T 2600XM Series – 12.2(8)T1 2600 Series – 12.2(2)XT	Requires a 16- or 36-port 10/100 EtherSwitch module with appropriate inline power daughtercard.
	..... Modular Router Solutions LAN Switching LAN-to-LAN Routing Inter-VLAN Routing IP Telephony		
PPWR-PS-CHASSIS Power supply chassis for PPWR-PS-360W	A separate power supply chassis for EtherSwitch modules installed in Cisco 2600 and Cisco 3600 Series Routers. The chassis accommodates up to four PPWR-PS-360W power supplies.	3700 Series – 12.2(8)T 3600 Series – 12.2(2)XT 2811, 2821, and 2851 – 12.3(8)T4 2691 – 12.2(8)T 2600XM Series – 12.2(8)T1 2600 Series – 12.2(2)XT	Requires a 16- or 36-port 10/100 EtherSwitch module with appropriate inline power daughtercard. Requires at least one PPWR-PS-360W power supply.
	..... Modular Router Solutions LAN Switching LAN-to-LAN Routing Inter-VLAN Routing IP Telephony		
PWR-CHASSIS-360W Power supply chassis including one PPWR-PS-360W	A separate power supply chassis for EtherSwitch modules installed in Cisco 2600 and Cisco 3600 Series Routers. Configured with one PPWR-PS-360W power supply and can accommodate up to three additional power supplies.	3700 Series – 12.2(8)T 3600 Series – 12.2(2)XT 2811, 2821, and 2851 – 12.3(8)T4 2691 – 12.2(8)T 2600XM Series – 12.2(8)T1 2600 Series – 12.2(2)XT	Requires a 16- or 36-port 10/100 EtherSwitch module with appropriate inline power daughtercard. This is a bundle consisting of one PPWR-PS-CHASSIS and one PPWR-PS-360W.
	..... Modular Router Solutions LAN Switching LAN-to-LAN Routing Inter-VLAN Routing IP Telephony		
PWR675-AC-RPS-N1 Redundant power supply	System and inline power supply redundancy that supports up to six Cisco networking devices including Cisco 2800 and 3800 Series Routers and all inline power versions of the Catalyst 3750, 3550, and 3524.	3825 - 12.3(11)T 2811, 2821, and 2851 – 12.3(8)T4	This can be used to back up AC power as well as integrated inline power.
	..... Modular Router Solutions LAN Switching LAN-to-LAN Routing Inter-VLAN Routing IP Telephony		





LAN and Mixed Media Network Modules

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<p>NME-16ES-1G-P 16-port Cisco EtherSwitch service module with 802.3af support</p> 	<p>The 16-port EtherSwitch service module provides 16 10/100 802.3af capable ports plus 1 10/100/1000 non-powered port.</p> <p>.....</p> <p>Modular Router Solutions Integrated Switching</p>	<p>3800 Series – 12.3(14)T 3700 Series – 12.3(14)T 2811, 2821, 2851 – 12.3(14)T 2691 – 12.3(14)T</p>	<p>Inline power support requires an upgrade (to PWR-xxxx-AC-IP) to the internal router power supply.</p> <p>Cisco inline power available on 2811, 2821, 2851, 3700 and 3800 Series Routers.</p> <p>IEEE 802.3af (POE) support is available on the Cisco 2811, 2821, 2851 and 3800 Series Routers only.</p> <p>Cisco inline power with NME-16ES-1GE not available with the Cisco 2691.</p> <p>The EtherSwitch service modules run independent of the host router IOS and require their own IOS images. These modules utilize the same IOS images as the Catalyst 3750 IOS images. A version of Catalyst 3750 IOS 12.2(25)EZ or higher must be used with the EtherSwitch service modules in addition to the minimum IOS of the host router IOS.</p>
<p>NME-X-23ES-1G-P 24-port Cisco EtherSwitch service module with 802.3af support</p> 	<p>The 24-port EtherSwitch service module provides 23 10/100 802.3af capable ports plus 1 10/100/1000 802.3af capable port.</p> <p>.....</p> <p>Modular Router Solutions Integrated Switching</p>	<p>3800 Series – 12.3(14)T 2821 and 2851 – 12.3(14)T</p>	<p>Inline power support requires an upgrade (to PWR-xxxx-AC-IP) to the internal router power supply.</p> <p>Only supported in NME-X slots (not supported in NM or NME slots).</p> <p>The EtherSwitch service modules run independent of the host router IOS and require their own IOS images. These modules utilize the same IOS images as the Catalyst 3750 IOS images. A version of Catalyst 3750 IOS 12.2(25)EZ or higher must be used with the EtherSwitch service modules in addition to the minimum IOS of the host router IOS.</p>




LAN and Mixed Media Network Modules

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<p>NME-XD-24ES-1S-P 24-port Cisco EtherSwitch service module with 802.3af support and Cisco StackWise™ interfaces</p>	<p>The 24-port EtherSwitch service module with StackWise™ connectors provides 24 10/100 802.3af capable ports, 1 SFP (Small Form-Factor Pluggable) port, and two StackWise™ interfaces. Cisco Stackwise™ interfaces can be used to provide a high-speed, redundant connection to Catalyst 3750 switches.</p>	<p>3800 Series – 12.3(14)T 2851 – 12.3(14)T</p>	<p>Inline power support requires an upgrade (to PWR-xxxx-AC-IP) to the internal router power supply.</p> <p>Only supported in NME-XD slots (not supported in NM, NME, NME-X slots).</p> <p>Takes up two NME slots in a Cisco 3845 Series Router.</p> <p>The EtherSwitch service modules run independent of the host router IOS and require their own IOS images. These modules utilize the same IOS images as the Catalyst 3750 IOS images. A version of Catalyst 3750 IOS 12.2(25)EZ or higher must be used with the EtherSwitch service modules in addition to the minimum IOS of the host router IOS.</p>
	<p>..... Modular Router Solutions Integrated Switching</p>		
<p>NME-XD-48ES-2S-P 48-port Cisco EtherSwitch service module with 802.3af support</p>	<p>The 48-port EtherSwitch service module provides 48 10/100 802.3af capable ports plus 2 SFP (Small Form-Factor Pluggable) ports.</p>	<p>3800 Series – 12.3(14)T 2851 – 12.3(14)T</p>	<p>Inline power support requires an upgrade (to PWR-xxxx-AC-IP) to the internal router power supply.</p> <p>Only supported in NME-XD slots (not supported in NM, NME, NME-X slots).</p> <p>Takes up two NME slots in a Cisco 3845 Series Router.</p> <p>The EtherSwitch service modules run independent of the host router IOS and require their own IOS images. These modules utilize the same IOS images as the Catalyst 3750 IOS images. A version of Catalyst 3750 IOS 12.2(25)EZ or higher must be used with the EtherSwitch service modules in addition to the minimum IOS of the host router IOS.</p>
	<p>..... Modular Router Solutions Integrated Switching</p>		


LAN Network Modules

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
NM-1GE 1-port Gigabit Ethernet Network Module 	Provides one Gigabit Interface Converter (GBIC) slot to carry any standard copper or optical Cisco GBIC. Modular Router Solutions Inter-VLAN Routing LAN-to-LAN Routing	3800 Series – 12.3(11)T 3700 – 12.2(11)YT, 12.2(15)T 3660 Series – 12.2(11)YT, 12.2(15)T 2691 – 12.2(11)YT, 12.2(15)T	No reliance on other Network Modules, WAN Interface Cards, Voice Interface Cards, or Advanced Integration Modules. VLAN support requires a Cisco IOS “Plus” feature set prior to Cisco IOS 12.3 Mainline.
NM-1FE-FX-V2 1-port Fast Ethernet, FX only network module 	Provides a single auto-sensing 10/100BASE-FX connection via a fiber connector. Modular Router Solutions Inter-VLAN Routing LAN-to-LAN Routing VPN and Firewall	3800 Series – 12.3(11)T 3700 Series – 12.2(11)YT, 12.2(13)T 3660 Series – 12.2(11)YT, 12.2(13)T 3640 – 12.2(13)T 3620 – 12.2(13)T 2691 – 12.2(13)T 2600XM Series – Not supported	No reliance on other network modules, WICs, voice interface cards, or advanced integration modules. VLAN support requires a Cisco IOS “Plus” feature set prior to Cisco IOS 12.3 Mainline.
NM-1E 1-port Ethernet network module 	Provides a single Ethernet LAN connection via an Ethernet AUI DB-15 connector or 10BASE-T RJ-45 connector. Modular Router Solutions LAN-to-LAN Routing VPN and Firewall	3660 Series – 12.0(5)T 3640 – 11.2(4)XA 3620 – 11.2(4)XA 2600XM Series – 12.1(14) Mainline, 12.2(12) Mainline, 12.2(8)T1 2650 Series – 12.1(3)T 2620 Series – 11.3(4)T 2610 Series – 11.3(4)T	Not supported on 2691, 2800 Series, 3700 Series, or 3800 Series.
NM-4E 4-port Ethernet network module 	Provides connections to four Ethernet LANs. One connection is via an Ethernet AUI DB-15 connector or 10BASE-T RJ-45 connector. The other three connections are via 10BASE-T RJ-45 connectors. Modular Router Solutions LAN-to-LAN Routing VPN and Firewall	3660 Series – 12.0(5)T 3640 – 11.2(6)P 3620 – 11.2(6)P 2600XM Series – 12.1(14) Mainline, 12.2(12) Mainline, 12.2(8)T1 2650 Series – 12.1(3)T 2620 Series – 11.3(4)T 2610 Series – 11.3(4)T	Not supported on 2691, 2800 Series, 3700 Series, or 3800 Series.



LAN and WIC Combo Network Modules

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<p>NM-1FE2W-V2 1-port 10/100 Ethernet, two WIC slot network module</p> 	<p>Provides one full/half duplex, auto-sensing 10/100 Ethernet port and two WIC expansion slots. The 10/100 Ethernet connections are via RJ-45 connectors.</p> <p>.....</p> <p>Modular Router Solutions Inter-VLAN Routing LAN-to-LAN Routing VPN and Firewall</p>	<p>3800 Series – 12.3(11)T 3700 Series – 12.2(13)T3 3600 Series – 12.2(12)M and 12.2(13)T3 2691 – 12.2(13)T3</p>	<p>No reliance on other network modules, WICs, voice interface cards, or advanced integration modules.</p> <p>Supports all current WICs and VWICs.</p>
<p>NM-2FE2W-V2 2-port 10/100 Ethernet, two WIC slot network module</p> 	<p>Provides two full/half duplex, auto-sensing 10/100 Ethernet ports and two WIC expansion slots. The 10/100 Ethernet connections are via RJ-45 connectors.</p> <p>.....</p> <p>Modular Router Solutions Inter-VLAN Routing LAN-to-LAN Routing VPN and Firewall</p>	<p>3800 Series – 12.3(11)T 3700 Series – 12.2(13)T3 3600 Series – 12.2(12)M and 12.2(13)T3 2691 – 12.2(13)T3</p>	<p>No reliance on other network modules, WICs, voice interface cards, or advanced integration modules.</p> <p>Supports all current WICs and VWICs.</p>
<p>NM-1FE1R2W 1-port 10/100 Ethernet, 1-port 4/16 Token Ring, two WIC slot network module</p> 	<p>Provides one full/half duplex, autosensing 10/100 Ethernet port, one full/half duplex 4/16 Token Ring port, and 2 WIC expansion slots. The 10/100 Ethernet connection is via an RJ-45 connector. The Token Ring connection is via an STP or UTP connector.</p> <p>.....</p> <p>Modular Router Solutions Inter-VLAN Routing LAN-to-LAN Routing VPN and Firewall</p>	<p>3800 Series – 12.3(11)T 3700 Series – 12.2(8)T 3600 Series – 12.0(7)XK 2691 – 12.2(8)T</p>	<p>No reliance on other network modules, WICs, voice interface cards, or advanced integration modules.</p> <p>Supports all current WICs and VWICs.</p>

LAN and WIC Combo Network Modules


Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
NM-2W Two WIC slot network module	Provides two WIC expansion slots supporting all current WICs and VWICs.	3800 Series – 12.3(11)T 3700 Series – 12.2(8)T 3600 Series – 12.0(7)XK 2691 – 12.2(8)T Modular Router Solutions 2600XM Series – 12.1(14) Mainline, 12.2(12) Mainline, 12.2(8)T1 2650 – 12.1(3)T 2620 – 12.0(7)XK 2610 – 12.0(7)XK	Requires at least one WIC or VWIC. Supports all current WICs and VWICs.
	Modular Router Solutions Serial and Legacy Concentration		

Circuit Emulation Over IP Network Modules


Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<p>NM-CEM-4TE1 Four port channelized, unchannelized E1/T1 Network Module</p> 	<p>Provides four RJ-45 channelized/unchannelized, framed/unframed T1/E1 ports for bit-transparent transport services.</p> <p>Modular Router Solutions Transport of data streams that have no format or structure recognized by any other router interfaces (legacy protocols, encrypted applications, etc.)</p>	<p>3800 Series – 12.3(11)T 3700 Series – 12.3(7)T 3660 – 12.3(7)T 2811, 2821, and 2851 – 12.3(8)T4 2691 – 12.3(7)T 2600XM Series – 12.3(7)T</p>	<p>No reliance on other network modules, WICs, voice interface cards, or advanced integration modules.</p>
<p>NM-CEM-4SER Four port channelized, unchannelized E1/T1 Network Module</p> 	<p>Provides four Smart Serial (Cisco 12-in-1) ports for bit-transparent transport services. Each port may be V.35, X.21, RS-422/449, RS-530, RS-530A, or RS-232. Each port may be DCE or DTE supporting data rates from 200 bps to 2048 kbps.</p> <p>Modular Router Solutions Transport of data streams that have no format or structure recognized by any other router interfaces (legacy protocols, encrypted applications, etc.)</p>	<p>3800 Series – 12.3(11)T 3700 Series – 12.3(7)T 3660 – 12.3(7)T 2811, 2821, and 2851 – 12.3(8)T4 2691 – 12.3(7)T 2600XM Series – 12.3(7)T</p>	<p>No reliance on other network modules, WICs, voice interface cards, or advanced integration modules.</p>

Serial Connectivity Network Modules


Serial T3/E3 Network Modules

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
NM-1T3/E3 1-Port Clear Channel T3/E3 network module	Provides serial connectivity to a T3 44.736 Mbps or E3 34.368 Mbps line with integrated line interface unit (LIU) DSU. The T3/E3 port consists of a pair of 75-ohm BNC connectors.	3800 Series – 12.3(11)T 3700 – 12.2(11)YT 3660 Series – 12.2(11)YT 2811, 2821, and 2851 – 12.3(8)T4 2691 – 12.2(11)YT 2650XM, 2651XM – 12.2(11)YT	No reliance on other network modules, WICs, voice interface cards, or advanced integration modules.
		Modular Router Solutions Serial Connectivity	



High-Speed Serial Network Modules—Up to 52 Mbps

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
NM-1HSSI 1-port HSSI network module	Provides serial speeds up to 52 Mbps via a 50-pin SCSI Type II connector. This network module requires an external T3/E3 DSU/CSU.	3800 Series – 12.3(11)T 3700 Series – 12.2(8)T 3660 Series – 12.0(5)T 3640 – 11.3(3)T 3620 – 11.3(3)T 2811, 2821, and 2851 – 12.3(8)T4 2691 – 12.2(8)T	No reliance on other network modules, WICs, voice interface cards, or advanced integration modules.
		Modular Router Solutions Serial and Legacy Concentration	

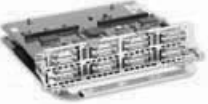


Synchronous Serial Network Modules—Up to 8 Mbps

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
NM-4T 4-port serial network module 	Provides four synchronous serial interfaces, and supports a total full-duplex throughput of 8 Mbps, which can be realized over one port (at 8 Mb/s) or across all four ports (at 2 Mb/s on each port). Each port supports full-duplex operation at T1 and E1 speeds. All ports use identical DB-60 connectors that support five interface types (RS-232, RS-449, RS-530, V.35, X.21) in either DTE or DCE mode.	3800 Series – 12.3(11)T 3700 Series – 12.2(11)YT, 12.2(13)T 3660 – 12.0(5)T 3640 – 11.2(4)XA 3620 – 11.2(4)XA 2811, 2821, and 2851 – not supported 2691 – 12.2(11)YT, 12.2(13)T	No reliance on other network modules, WICs, voice interface cards, or advanced integration modules.
Modular Router Solutions Serial and Legacy Concentration			

Asynchronous Serial Network Modules—Up to 128 Kbps



Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
NM-4A/S 4-port asynchronous/synchronous serial network module 	Provides four low-speed serial connections via DB-60 connectors that support five interface types (RS-232, RS-449, RS-530, V.35, X.21) in either DTE or DCE mode. The low-speed serial connections can be configured for up to either 115.2 kbps asynchronous or 128 kbps synchronous serial traffic.	3800 Series – 12.3(11)T 3700 Series – 12.2(8)T 3660 – 12.0(5)T 3640 – 11.1(7)AA 3620 – 11.1(7)AA 2811, 2821, and 2851 – 12.3(8)T4 2691 – 12.2(8)T 2600XM Series – 12.1(14) Mainline, 12.2(12) Mainline, 12.2(8)T1 2650 Series – 12.1(3)T 2620 Series – 11.3(2)XA 2610 Series – 11.3(2)XA	No reliance on other network modules, WICs, voice interface cards, or advanced integration modules.
Modular Router Solutions Serial and Legacy Concentration			
NM-8A/S 8-port asynchronous/synchronous serial network module 	Provides eight low-speed serial connections via DB-60 connectors that support five interface types (RS-232, RS-449, RS-530, V.35, X.21) in either DTE or DCE mode. The low-speed serial connections can be configured for up to either 115.2 kbps asynchronous or 128 kbps synchronous serial traffic.	3800 Series – 12.3(11)T 3700 Series – 12.2(8)T 3660 – 12.0(5)T 3640 – 11.1(7)AA 3620 – 11.1(7)AA 2811, 2821, and 2851 – 12.3(8)T4 2691 – 12.2(8)T 2600XM Series – 12.1(14) Mainline, 12.2(12) Mainline, 12.2(8)T1 2650 Series – 12.1(3)T 2620 Series – 11.3(2)XA 2610 Series – 11.3(2)XA	No reliance on other network modules, WICs, voice interface cards, or advanced integration modules.
Modular Router Solutions Serial and Legacy Concentration			

Asynchronous Serial Network Modules—Up to 128 Kbps





Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
NM-16A/S 16-port asynchronous/synchronous serial network module	The NM-16A/S combines the rich multi-protocol support of the NM-4A/S and NM-8A/S with higher densities to provide compelling price-per-port solutions for networking applications. In addition to the features of the NM-4A/S and NM-8A/S, the NM-16A/S adds EIA-530A support, and support for physical lead manipulation in the IOS configuration. Lead manipulation allows the user to configure the router to ignore input signals, view the state of input signals, and to monitor the transitions of input signals.	3800 Series – 12.3(11)T 3700 Series – 12.3(2)T 3660 – 12.3(2)T 2811, 2821, and 2851 – 12.3(8)T4 2691 – 12.3(2)T 2600XM Series – 12.3(2)T	In order to achieve higher port density, the NM-16A/S uses the Smart Serial connector that is also used on the WIC-2T WAN Interface Card. Thus customers must order Smart Serial cables for use with the NM-16A/S instead of the “5-in-1” cables used on the NM-4A/S and NM-8A/S.
	..... Modular Router Solutions Serial and Legacy Concentration		
NM-16A 16-port asynchronous network module	Provides 16 asynchronous serial interfaces at speeds up to 134 kbps. The 16 ports are cabled with two custom “octopus” cables, each terminating in eight ports, each with an option of physical endpoints, including RJ-45 and DB-25 connectors.	3800 Series – 12.3(11)T 3700 Series – 12.2(13)T 3660 Series – 12.0(5)T 3640 – 11.2(7a)P 3620 – 11.2(7a)P 2811, 2821, and 2851 – 12.3(8)T4 2691 – 12.2(8)T 2600XM Series – 12.1(14) Mainline, 12.2(12) Mainline, 12.2(8)T1 2650 Series – 12.1(3)T 2620 Series – 11.3(2)XA 2610 Series – 11.3(2)XA	No reliance on other network modules, WICs, voice interface cards, or advanced integration modules.
	..... Modular Router Solutions Dial-up Remote Access Serial and Legacy Concentration		
NM-32A 32-port asynchronous network module	Provides 32 asynchronous serial interfaces at speeds up to 134 kbps. The 32 ports are cabled with four custom “octopus” cables, each terminating in eight ports, each with an option of physical endpoints, including RJ-45 and DB-25 connectors.	3800 Series – 12.3(11)T 3700 Series – 12.2(13)T 3660 Series – 12.0(5)T 3640 – 11.2(7a)P 3620 – 11.2(7a)P 2811, 2821, and 2851 – 12.3(8)T4 2691 – 12.2(8)T 2600XM Series – 12.1(14) Mainline, 12.2(12) Mainline, 12.2(8)T1 2650 Series – 12.1(3)T 2620 Series – 11.3(2)XA 2610 Series – 11.3(2)XA	No reliance on other network modules, WICs, voice interface cards, or advanced integration modules.
	..... Modular Router Solutions Dial-up Remote Access Serial and Legacy Concentration		

Channelized T1/E1 and ISDN Network Modules

Channelized T1/E1 and ISDN Primary Rate Interface Network Modules

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
NM-1CE1T1-PRI 1-port channelized E1/T1 ISDN PRI Network Module 	Provides a single channelized E1/T1 ISDN PRI balanced (120 ohm) or unbalanced (75 ohm) connection. Modular Router Solutions Serial and Legacy Concentration ISDN Concentration	3800 Series – 12.3(11)T 3700 Series – 12.3(1) and 12.3(2)T 3660 Series – 12.3 and 12.3T 2811, 2821, and 2851 – 12.3(8)T 2691 – 12.3 and 12.3T 2600XM Series – 12.3 and 12.3T	No reliance on other network modules, WICs, voice interface cards, or advanced integration modules.
NM-2CE1T1-PRI 2-port channelized E1/T1 ISDN PRI Network Module 	Provides a double channelized E1/T1 ISDN PRI balanced (120 ohm) or unbalanced (75 ohm) connection. Modular Router Solutions Serial and Legacy Concentration ISDN Concentration	3800 Series – 12.3(11)T 3700 Series – 12.3 (1) and 12.3(2)T 3660 Series – 12.3 and 12.3T 2811, 2821, and 2851 – 12.3(8)T 2691 – 12.3 and 12.3T 2600XM Series – 12.3 and 12.3T	No reliance on other network modules, WICs, voice interface cards, or advanced integration modules.

ISDN Basic Rate Interface Network Module




Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
NM-4B-S/T 4-port ISDN-BRI network module 	Provides four ISDN BRI connections via RJ-45 connectors. This network module requires an external NT-1 device for connection to the WAN. Modular Router Solutions ISDN Concentration	3800 Series – 12.3(11)T 3700 Series – 12.2(8)T 3660 Series – 12.0(7)XK 3640 – 11.1(7)AA 3620 – 11.1(7)AA 2811, 2821, and 2851 – 12.3(8)T4 2691 – 12.2(8)T 2600XM Series – 12.1(14) Mainline, 12.2(12) Mainline, 12.2(8)T1 2650 Series – 12.1(3)T 2620 Series – 11.3(4)T 2610 Series – 11.3(4)T	No reliance on other network modules, WICs, voice interface cards, or advanced integration modules.
NM-4B-U 4-port ISDN-BRI with NT-1 network module 	Provides four ISDN BRI connections via RJ-45 connectors. This network module has an integrated NT-1 device. Modular Router Solutions ISDN Concentration	3800 Series – 12.3(11)T 3700 Series – 12.2(8)T 3660 Series – 12.0(7)XK 3640 – 11.1(7)AA 3620 – 11.1(7)AA 2811, 2821, and 2851 – 12.3(8)T4 2691 – 12.2(8)T 2600XM Series – 12.1(14) Mainline, 12.2(12) Mainline, 12.2(8)T1 2650 Series – 12.1(3)T 2620 Series – 11.3(4)T 2610 Series – 11.3(4)T	No reliance on other network modules, WICs, voice interface cards, or advanced integration modules.
NM-8B-S/T 8-port ISDN-BRI network module 	Provides eight ISDN BRI connections via RJ-45 connectors. This network module requires an external NT-1 device for connection to the WAN. Modular Router Solutions ISDN Concentration	3800 Series – 12.3(11)T 3700 Series – 12.2(8)T 3660 Series – 12.0(7)XK 3640 – 11.1(7)AA 3620 – 11.1(7)AA 2811, 2821, and 2851 – 12.3(8)T4 2691 – 12.2(8)T 2600XM Series – 12.1(14) Mainline, 12.2(12) Mainline, 12.2(8)T1 2650 Series – 12.1(3)T 2620 Series – 11.3(4)T 2610 Series – 11.3(4)T	No reliance on other network modules, WICs, voice interface cards, or advanced integration modules.
NM-8B-U 8-port ISDN-BRI with NT-1 network module 	Provides eight ISDN BRI connections via RJ-45 connectors. This network module has an integrated NT-1 device. Modular Router Solutions ISDN Concentration	3800 Series – 12.3(11)T 3700 Series – 12.2(8)T 3660 Series – 12.0(7)XK 3640 – 11.1(7)AA 3620 – 11.1(7)AA 2811, 2821, and 2851 – 12.3(8)T4 2691 – 12.2(8)T 2600XM Series – 12.1(14) Mainline, 12.2(12) Mainline, 12.2(8)T1 2650 Series – 12.1(3)T 2620 Series – 11.3(4)T 2610 Series – 11.3(4)T	No reliance on other network modules, WICs, voice interface cards, or advanced integration modules.

ATM Network Modules



ATM OC3 Network Modules

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
NM-1A-OC3MM-EP 1-port OC-3 multimode ATM enhanced performance network module for 3745	Provides UNI-mode ATM adaptation Layer 5 (AAL5) for UBR, VBR-rt, VBR-nrt, UBR+, and ABR classes of service. This module will drive a signal to a maximum distance of two kilometers.	3745 – 12.2(11)YT	Prior to Cisco IOS 12.3 Mainline, requires a Cisco IOS “Plus” feature set. 12.3 Mainline and forward supported in “SP Services” feature set.
	Modular Router Solutions ATM Edge Connectivity		
NM-1A-OC3SMI-EP 1-port OC-3 ATM enhanced performance single-mode intermediate reach network module for 3745	Provides UNI-mode ATM adaptation Layer 5 (AAL5) for UBR, VBR-rt, VBR-nrt, UBR+, and ABR classes of service. This module will drive a signal to a maximum distance of 15 kilometers.	3745 – 12.2(11)YT	Prior to Cisco IOS 12.3 Mainline, requires a Cisco IOS “Plus” feature set. 12.3 Mainline and forward supported in “SP Services” feature set.
	Modular Router Solutions ATM Edge Connectivity		
NM-1A-OC3SML-EP 1-port OC-3 ATM enhanced performance single-mode long reach network module for 3745	Provides UNI-mode ATM adaptation Layer 5 (AAL5) for UBR, VBR-rt, VBR-nrt, UBR+, and ABR classes of service. This module will drive a signal to a maximum distance of 45 kilometers.	3745 – 12.2(11)YT	Prior to Cisco IOS 12.3 Mainline, requires a Cisco IOS “Plus” feature set. 12.3 Mainline and forward supported in “SP Services” feature set.
	Modular Router Solutions ATM Edge Connectivity		


ATM OC3 Network Modules

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
NM-1A-OC3MM 1-port OC-3 ATM multi-mode fiber network module	Provides UNI mode ATM adaptation layer 5 (AAL5) for UBR, VBR-rt, VBR-nrt, UBR+ and ABR classes of service. This module will drive a signal to a maximum distance of two kilometers.	3725 – 12.2(11)YT 3660 – 12.0(5)T 3640 – 12.0(3)T 3620 – 12.0(3)T 2691 – 12.2(11)YT	Prior to Cisco IOS 12.3 Mainline, requires a Cisco IOS “Plus” feature set. 12.3 Mainline and forward supported in “SP Services” feature set.
	Modular Router Solutions ATM Edge Connectivity		
NM-1A-OC3SMI 1-port OC-3 ATM single-mode intermediate reach fiber network module	Provides UNI mode ATM adaptation layer 5 (AAL5) for UBR, VBR-rt, VBR-nrt, UBR+ and ABR classes of service. This module will drive a signal to a maximum distance of 15 kilometers.	3725 – 12.2(11)YT 3660 – 12.0(5)T 3640 – 12.0(3)T 3620 – 12.0(3)T 2691 – 12.2(11)YT	Prior to Cisco IOS 12.3 Mainline, requires a Cisco IOS “Plus” feature set. 12.3 Mainline and forward supported in “SP Services” feature set.
	Modular Router Solutions ATM Edge Connectivity		
NM-1A-OC3SML 1-port OC-3 ATM single-mode long reach fiber network module	Provides UNI mode ATM adaptation layer 5 (AAL5) for UBR, VBR-rt, VBR-nrt, UBR+ and ABR classes of service. This module will drive a signal to a maximum distance of 45 kilometers.	3725 – 12.2(11)YT 3660 – 12.0(5)T 3640 – 12.0(3)T 3620 – 12.0(3)T 2691 – 12.2(11)YT	Prior to Cisco IOS 12.3 Mainline, requires a Cisco IOS “Plus” feature set. 12.3 Mainline and forward supported in “SP Services” feature set.
	Modular Router Solutions ATM Edge Connectivity		

ATM T3/E3 Network Modules




Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
NM-1A-T3 1-port DS3 ATM network module 	Provides a single ATM connection of 45 Mbps for DS3 using 75 ohm BNC connectors. The network module supports ATM Forum-compliant AAL5. Modular Router Solutions ATM Edge Connectivity	3800 Series – 12.3(11)T 3700 Series – 12.2(8)T 3600 Series – 12.1(2)T 2811, 2821, and 2851 – 12.3(8)T4 2691 – 12.2(8)T 2600XM Series – 12.2(12) Mainline, 12.2(8)T1 2650 Series – 12.1(3)T 2620 Series – 12.1(2)T 2610 Series – 12.1(2)T	Prior to Cisco IOS 12.3 Mainline, requires a Cisco IOS “Plus” feature set. 12.3 Mainline and forward supported in “SP Services” feature set. No reliance on other network modules, WICs, voice interface cards, or advanced integration modules.
NM-1A-E3 1-port E3 ATM network module 	Provides a single ATM connection of 34 Mbps for E3 using 75 ohm BNC connectors. The network module supports ATM Forum-compliant AAL5. Modular Router Solutions ATM Edge Connectivity	3800 Series – 12.3(11)T 3700 Series – 12.2(8)T 3600 Series – 12.1(2)T 2811, 2821, and 2851 – 12.3(8)T4 2691 – 12.2(8)T 2600XM Series – 12.2(12) Mainline, 12.2(8)T1 2650 Series – 12.1(3)T 2620 Series – 12.1(2)T 2610 Series – 12.1(2)T	Prior to Cisco IOS 12.3 Mainline, requires a Cisco IOS “Plus” feature set. 12.3 Mainline and forward supported in “SP Services” feature set. No reliance on other network modules, WICs, voice interface cards, or advanced integration modules.

ATM 25 Mbps Network Modules




Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
NM-1ATM-25 1-port ATM 25 network module	Provides 25 Mbps ATM connections to external ADSL modems. The ATM network module is compatible with the ATM Forum 25.6-Mbps physical sublayer (PHY) specification for unshielded twisted-pair (UTP), Category 3 (UTP-3), or shielded twisted-pair (STP) cable plants.	3660 Series – 12.0(7)XK 3640 – 11.3(3a)T 3620 – 11.3(3a)T 2600XM Series – 12.1(14) Mainline, 12.2(12) Mainline, 12.2(8)T1 2650 Series – 12.1(3)T 2620 Series – 11.3(3a)T 2610 Series – 11.3(3a)T	Prior to Cisco IOS 12.3 Mainline, requires a Cisco IOS “Plus” feature set. 12.3 Mainline and forward supported in “SP Services” feature set. No reliance on other network modules, WICs, voice interface cards, or advanced integration modules.
	Modular Router Solutions ATM Edge Connectivity DSL Access LAN-to-LAN Routing		

Dial-up/Remote Access Network Modules



Digital Modem Network Modules

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
NM-6DM 6-port digital modem network module 	Contains six configurable V.90-compliant digital modems for use with the ISDN PRI and BRI network modules. This module is field upgradable to a maximum of 30 digital modems.	3800 Series – 12.3(11)T 3700 Series – 12.2(8)T 3660 Series – 12.0(7)XK	Requires a channelized or ISDN WAN network module: NM-1CE1T1-PRI, NM-2CE1T1-PRI, NM-4B-S/T, NM-4B-U, NM-8B-S/T, or NM-8B-U.
<p>.....</p> <p>Modular Router Solutions</p> <p>Dial-up Remote Access</p>			
NM-12DM 12-port digital modem network module 	Contains 12 configurable V.90-compliant digital modems for use with the ISDN PRI and BRI network modules. This module is field upgradable to a maximum of 30 digital modems.	3800 Series – 12.3(11)T 3700 Series – 12.2(8)T 3660 Series – 12.0(7)XK	Requires a channelized or ISDN WAN network module: NM-1CE1T1-PRI, NM-2CE1T1-PRI, NM-4B-S/T, NM-4B-U, NM-8B-S/T, or NM-8B-U.
<p>.....</p> <p>Modular Router Solutions</p> <p>Dial-up Remote Access</p>			
NM-18DM 18-port digital modem network module 	Contains 18 configurable V.90-compliant digital modems for use with the ISDN PRI and BRI network modules. This module is field upgradable to a maximum of 30 digital modems.	3800 Series – 12.3(11)T 3700 Series – 12.2(8)T 3660 Series – 12.0(7)XK	Requires a channelized or ISDN WAN network module: NM-1CE1T1-PRI, NM-2CE1T1-PRI, NM-4B-S/T, NM-4B-U, NM-8B-S/T, or NM-8B-U.
<p>.....</p> <p>Modular Router Solutions</p> <p>Dial-up Remote Access</p>			

Digital Modem Network Modules



Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
NM-24DM 24-port digital modem network module 	Contains 24 configurable V.90-compliant digital modems for use with the ISDN PRI and BRI network modules. This module is field upgradable to a maximum of 30 digital modems. Modular Router Solutions Dial-up Remote Access	3800 Series – 12.3(11)T 3700 Series – 12.2(8)T 3660 Series – 12.0(7)XK	Requires a channelized or ISDN WAN network module: NM-1CE1T1-PRI, NM-2CE1T1-PRI, NM-4B-S/T, NM-4B-U, NM-8B-S/T, or NM-8B-U.
NM-30DM 30-port digital modem network module 	Contains 30 configurable V.90-compliant digital modems for use with the ISDN PRI and BRI network modules. Modular Router Solutions Dial-up Remote Access	3800 Series – 12.3(11)T 3700 Series – 12.2(8)T 3660 Series – 12.0(7)XK	Requires a channelized or ISDN WAN network module: NM-1CE1T1-PRI, NM-2CE1T1-PRI, NM-4B-S/T, NM-4B-U, NM-8B-S/T, or NM-8B-U.
MICA-6MOD Six digital modem upgrade 	This digital modem upgrade increases a Cisco digital modem network modules capacity by six modems, up to a maximum of 30 modems per digital modem network module. Modular Router Solutions Dial-up Remote Access	3800 Series – 12.3(11)T 3700 Series – 12.2(8)T 3660 Series – 12.0(7)XK	Requires a digital modem network module: NM-6DM, NM-12DM, NM-18DM, NM-24DM, or NM-30DM.

Analog Modem Network Modules




Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<p>NM-8AM-V2 8-port analog modem network module with V.92</p> 	<p>Provides support for basic dial service via RJ-11 connectors. It allows up to eight remote analog modem users to connect via internal V.92 modems at speeds of up to 56 Kbps.</p> <p>.....</p> <p>Modular Router Solutions Dial-up Remote Access</p>	<p>3800 Series – 12.3(11)T 3700 Series – 12.3(7)T 3600 Series – 12.3(7)T 2811, 2821, and 2851 – 12.3(8)T4 2691 – 12.3(7)T 2600XM Series – 12.3(7)T 2600 Series – not supported</p>	<p>No reliance on other network modules, WICs, voice interface cards, or advanced integration modules.</p>
<p>NM-16AM-V2 16-port analog modem network module WITH V.92</p> 	<p>Provides support for basic dial service via RJ-11 connectors. It allows up to 16 remote analog modem users to connect via internal V.92 modems at speeds of up to 56 Kbps.</p> <p>.....</p> <p>Modular Router Solutions Dial-up Remote Access</p>	<p>3800 Series – 12.3(11)T 3700 Series – 12.3(7)T 3600 Series – 12.3(7)T 2811, 2821, and 2851 – 12.3(8)T4 2691 – 12.3(7)T 2600XM Series – 12.3(7)T 2600 Series – not supported</p>	<p>No reliance on other network modules, WICs, voice interface cards, or advanced integration modules.</p>

Voice Network Modules



Analog and ISDN Basic Rate Voice Network Modules

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
NM-1V 1-slot voice/fax network module 	<p>Provides a one-slot voice/fax network module with an integrated digital signal processor (DSP), enables voice and fax traffic to be routed over data networks. The user-configurable expansion slot accommodates the addition of a Cisco voice interface card which allow two analog ports or one BRI port to standard telephony equipment such as PBXs, key systems, phone, and fax machines.</p>	3700 Series – 12.2(8)T 3660 Series – 12.0(5)T 3640 – 11.3(1)T 3620 – 11.3(1)T 2691 – 12.2(8)T 2600XM Series – 12.1(14) Mainline, 12.2(12) Mainline, 12.2(8)T1 2650 Series – 12.1(3)T 2620 Series – 11.3(1)T 2610 Series – 11.3(1)T	<p>Prior to Cisco IOS 12.3 Mainline, requires a Cisco IOS “Plus” feature set. 12.3 Mainline and forward supported in “IP Voice” feature set.</p> <p>Requires a voice interface card (VIC).</p> <p>End of sales announced. Last order date July 31, 2005.</p>
NM-2V 2-slot voice/fax network module 	<p>Provides a two-slot voice/fax network module with an integrated digital signal processor (DSP), enables voice and fax traffic to be routed over data networks. The user-configurable expansion slot accommodates the addition of a Cisco voice interface card which allow up to four analog ports or two BRI ports to standard telephony equipment such as PBXs, key systems, phone, and fax machines.</p>	3700 Series – 12.2(8)T 3660 Series – 12.0(5)T 3640 – 11.3(1)T 3620 – 11.3(1)T 2691 – 12.2(8)T 2600XM Series – 12.1(14) Mainline, 12.2(12) Mainline, 12.2(8)T1 2650 Series – 12.1(3)T 2620 Series – 11.3(1)T 2610 Series – 11.3(1)T	<p>Prior to Cisco IOS 12.3 Mainline, requires a Cisco IOS “Plus” feature set. 12.3 Mainline and forward supported in “IP Voice” feature set.</p> <p>Requires a voice interface card (VIC).</p> <p>End of sales announced. Last order date July 31, 2005.</p>

Analog and ISDN Basic Rate Voice Network Modules

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<p>NM-HD-1V 1-slot IP communications voice/fax network module</p> 	<p>Provides a one-slot voice/fax network module with an integrated digital signal processor (DSP), enabling voice and fax traffic to be routed over data networks. The user-configurable expansion slot accommodates a Cisco voice interface card, which allows four analog ports or two BRI ports to standard telephony equipment such as PBXs, key systems, phones, and fax machines.</p>	<p>3800 Series – 12.3(11)T 3700 Series – 12.3(4)T 3660 Series – 12.3(4)T 3640 – 12.3(4)T 2811, 2821, and 2851 – 12.3(8)T4 2691 – 12.3(4)T 2600XM Series – 12.3(4)T</p>	<p>Not supported on 12.3 Mainline; only 12.3(4)T and later. Requires voice interface card and voice feature set.</p>
<p>NM-HD-2V 2-slot IP communications voice/fax network module</p> 	<p>Provides a two-slot voice/fax network module with an integrated digital signal processor (DSP), enabling voice and fax traffic to be routed over data networks. The user-configurable expansion slot accommodates two Cisco voice interface cards, which allows up to eight analog ports or four BRI ports to standard telephony equipment such as PBXs, key systems, phones, and fax machines.</p>	<p>3800 Series – 12.3(11)T 3700 Series – 12.3(4)T 3660 Series – 12.3(4)T 3640 – 12.3(4)T 2811, 2821, and 2851 – 12.3(8)T4 2691 – 12.3(4)T 2600XM Series – 12.3(4)T</p>	<p>Not supported on 12.3 Mainline; only 12.3(4)T and later. Requires voice interface card and voice feature set.</p>
<p>NM-HD-2VE 2-slot IP communications enhanced voice/fax network module</p> 	<p>Provides a two-slot voice/fax network module with an integrated digital signal processor (DSP), enabling voice and fax traffic to be routed over data networks. The user-configurable expansion slot accommodate the addition of up to four Cisco voice interface cards or voice/WAN interface cards. The interface cards allow up to eight analog ports, 4 BRI ports, 24 medium complexity, or 48 G.711 digital T1/E1 voice channels. Connects to standard telephony equipment such as PBXs, key systems, phones, and fax machines.</p>	<p>3800 Series – 12.3(11)T 3700 Series – 12.3(4)T 3660 Series – 12.3(4)T 3640 – 12.3(4)T 2811, 2821, and 2851 – 12.3(8)T4 2691 – 12.3(4)T 2600XM Series – 12.3(4)T</p>	<p>Not supported on 12.3 Mainline; only 12.3(4)T and later. Requires voice interface card and voice feature set. The VWIC2-1MFT-G703 and VWIC2-2MFT-G703 are not supported on the NM-HD-2VE.</p>

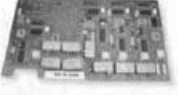
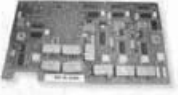


Analog and ISDN Basic Rate Voice Network Modules

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<p>NM-HDA-4FXS High-density analog voice/fax network module with 4 FXS</p>	<p>This base board is always required for any configuration of NM-HDA. It comes with four built-in FXS ports. Onboard DSP resources can service eight voice calls using high-complexity codecs: G.711 a/u; G.726 @ 32k, 24k and 16k; G.728; G.729, A, B, AB; G.723.1 @ 5.3k and 6.3k; clear channel codec, fax relay. Also supports 16 voice calls using medium-complexity codecs: G.711 a/u, G.726 @ 32k, 24k, and 16k; G.729A and AB; clear channel codec, fax relay. Supports two expansion modules and one DSP module.</p>	<p>3800 Series – 12.3(11)T 3700 Series – 12.2(8)T1 3600 Series – 12.2(4)XT 2811, 2821, and 2851 – 12.3(8)T4 2691 – 12.2(8)T1 2600XM Series – 12.2(8)T1 2600 Series – 12.2(4)XT</p>	<p>Prior to Cisco IOS 12.3 Mainline, requires a Cisco IOS “Plus” feature set. 12.3 Mainline and forward supported in “IP Voice” feature set.</p> <p>No reliance on other network modules, WICs, voice interface cards, or advanced integration modules.</p>
	<p>..... Modular Router Solutions Voice and Fax Integration</p>		
<p>EVM-HD-8FXS/DID High-Density Analog and Digital Extension Module for Voice and Fax</p>	<p>With support for up to 24 total voice and fax sessions, the Cisco High-Density Extension Module is ideal for networks with high analog (foreign exchange station [FXS], direct inward dialing [DID], and foreign exchange office [FXO]) and digital (Basic Rate Interface [BRI]) call-capacity requirements. Components: Baseboard with 8 ports that can be configured individually for FXS or DID signaling. Add up to two expansion modules in any combination to increase voice and fax session capacity: EM-HDA-8FXS, EM-4BRI-NT/TE, EM-HDA-6FXO, EM-HDA-3FXS/4FXO. Packet voice DSP modules (PVDM2s) are used in combination with the Cisco High-Density Extension Module baseboard and its expansion modules. PVDM2s are purchased separately and installed in the digital signal processor (DSP) module slots located inside the Cisco 2821, Cisco 2851, Cisco 3825, and Cisco 3845 integrated services routers.</p>	<p>Extension Voice Module (EVM) slot only: 2821 – 12.3(8)T4 2851 – 12.3(8)T4</p> <p>Any Network Module Slot: 3825 (1 per router) – 12.3(11)T 3845 (1 or 2 per router) – 12.3(11)T</p>	<p>Requires a Cisco IOS voice feature set.</p>
	<p>..... Modular Router Solutions Voice and Fax Integration</p>		




Analog and ISDN Basic Rate Voice Network Modules

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
EM-4BRI-NT/TE 4-port voice and fax expansion module 	Adds support for BRI (NT and TE) for use with the Cisco High-Density Extension Module (EVM-HD-8FXS/DID) baseboard. This module allows connection to an ISDN S/T network by replicating either the network side or the terminal side. This module provides four on-premises S/T BRI trunk connections to the ISDN PBX.	3800 Series - 12.3(11)T 2851 - 12.3(8)T4 2821 - 12.3(8)T4	Requires a Cisco high-density analog and digital extension module (EVM-HD-8FXS/DID). Requires voice feature set.
<p style="text-align: center;">.....</p> <p style="text-align: center;">Modular Router Solutions Voice and Fax Integration</p>			
EM-HDA-6FXO 6-port FXO voice and fax expansion module 	Provides off-premises connection to the central office. This module supports FXO power failover. If power to the router fails, this feature helps enable a direct metallic path between an FXO port and a special "red" telephone to provide a direct line to the PSTN. Use with the Cisco High-Density Extension Module (EVM-HD-8FXS/DID) baseboard.	3800 Series - 12.3(11)T 2851 - 12.3(8)T4 2821 - 12.3(8)T4	Requires a Cisco high-density analog and digital extension module (EVM-HD-8FXS/DID). Requires voice feature set.
<p style="text-align: center;">.....</p> <p style="text-align: center;">Modular Router Solutions Voice and Fax Integration</p>			
EM-HDA-3FXS/4FXO 3-port FXS and 4-port FXO voice and fax expansion module 	Provides on-premises FXS signaling to connect directly to a standard telephone, fax machine, or similar device and supplies ring, voltage, and dial tone. In addition, the FXO ports provide off-premises connection to the central office. Use with the Cisco High-Density Extension Module (EVM-HD-8FXS/DID) baseboard.	3800 Series - 12.3(11)T 2851 - 12.3(8)T4 2821 - 12.3(8)T4	Requires a Cisco high-density analog and digital extension module (EVM-HD-8FXS/DID). Requires voice feature set.
<p style="text-align: center;">.....</p> <p style="text-align: center;">Modular Router Solutions Voice and Fax Integration</p>			



Analog and ISDN Basic Rate Voice Network Modules

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
EM-HDA-4FXO 4-port voice/fax expansion module – FXO 	Provides four off-premise analog connections to the central office. Country settings are configurable. Includes support for battery polarity reversal detection and Caller ID. Modular Router Solutions Voice and Fax Integration	3800 Series – 12.3(11)T 3700 Series – 12.2(8)T 3600 Series – 12.2(4)XT 2811, 2821, and 2851 – 12.3(8)T4 2691 – 12.2(8)T1 2600XM Series – 12.2(8)T1 2600 Series – 12.2(4)XT	Prior to Cisco IOS 12.3 Mainline, requires a Cisco IOS “Plus” feature set. 12.3 Mainline and forward supported in “IP Voice” feature set. Requires a high-density analog voice/fax network module (NM-HDA-4FXS).
EM2-HDA-4FXO 4-port voice/fax expansion module – FXO 	Provides four off-premise analog connections to the central office. Country settings are configurable. Includes support for battery polarity reversal detection and Caller ID. Compared to the EM-HDA-4FXO, this module delivers longer loop length support and improved performance against poor line conditions when used in GroundStart signaling mode. Modular Router Solutions Voice and Fax Integration	3800 Series – 12.3(14)T 3700 Series – 12.3(14)T 2811, 2821, and 2851 – 12.3(14)T 2691 – 12.3(14)T 2600XM Series – 12.3(14)T	Requires Cisco IP voice feature set and higher. Requires a high-density analog voice/fax network module (NM-HDA-4FXS).
EM-HDA-8FXS 8-port voice/fax expansion module – FXS 	Provides an additional eight FXS ports for connections directly to analog phones, fax machines, and key. Modular Router Solutions Voice and Fax Integration	3800 Series – 12.3(11)T 3700 Series – 12.2(8)T 3600 Series – 12.2(4)XT 2811, 2821, and 2851 – 12.3(8)T4 2691 – 12.2(8)T1 2600XM Series – 12.2(8)T1 2600 Series – 12.2(4)XT	Prior to Cisco IOS 12.3 Mainline, requires a Cisco IOS “Plus” feature set. 12.3 Mainline and forward supported in “IP Voice” feature set. Requires a high-density analog voice/fax network module (NM-HDA-4FXS) or a Cisco high-density analog and digital extension module (EVM-HD-8FXS/DID).
DSP-HDA-16 16-channel DSP module for NM-HDA 	Enables an additional eight high-complexity or 16 medium-complexity voice calls on NM-HDA. Modular Router Solutions Voice and Fax Integration	3800 Series – 12.3(11)T 3700 Series – 12.2(8)T 3600 Series – 12.2(4)XT 2811, 2821, and 2851 – 12.3(8)T4 2691 – 12.2(8)T1 2600XM Series – 12.2(8)T1 2600 Series – 12.2(4)XT	Prior to Cisco IOS 12.3 Mainline, requires a Cisco IOS “Plus” feature set. 12.3 Mainline and forward supported in “IP Voice” feature set. Requires a high-density analog voice/fax network module (NM-HDA-4FXS).



Analog and ISDN Basic Rate Voice Network Modules

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<p>NM-HDV2 IP communications high-density digital voice/fax network module</p> 	<p>Features a VIC/VVIC slot that can be fitted with either digital or analog/BRI voice/WAN interface cards. Supports a maximum of 2 T1/E1 digital ports or 4 analog/BRI ports. This module has four Packet Voice/Fax DSP (PVDM2s) module slots. PVDM2s are purchased separately.</p>	<p>3800 Series – 12.3(11)T 3700 Series – 12.3(7)T 2811, 2821, and 2851 – 12.3(8)T4 2691 – 12.3(7)T 2600XM Series – 12.3(7)T</p>	<p>Requires PVDM2s for packet voice operation.</p>
<p>NM-HDV2-1T1/E1 IP communications high-density digital voice/fax network module</p> 	<p>Include a built-in T1/E1 port and a VIC/WIC slot that can be fitted to either digital or analog/BRI voice/WAN interface cards. Supports maximum of 3 T1/E1 digital ports or 1 T1/E1 port and 4 analog/BRI ports. This module has four Packet Voice/Fax DSP (PVDM2s) module slots. PVDM2s are purchased separately.</p>	<p>3800 Series – 12.3(11)T 3700 Series – 12.3(7)T 2811, 2821, and 2851 – 12.3(8)T4 2691 – 12.3(7)T 2600XM Series – 12.3(7)T</p>	<p>Requires PVDM2s for packet voice operation.</p>
<p>NM-HDV2-2T1/E1 IP communications high-density digital voice/fax network module</p> 	<p>Includes two built-in T1/E1 ports and a VIC/VVIC slot that can be fitted with either digital or analog/BRI voice/WAN interface cards. Supports a maximum of 4 T1/E1 digital ports or 2 T1/E1 ports and 4 analog/BRI ports. This module has four Packet Voice/Fax DSP (PVDM2s) module slots. PVDM2s are purchased separately.</p>	<p>3800 Series – 12.3(11)T 3700 Series – 12.3(7)T 2811, 2821, and 2851 – 12.3(8)T4 2691 – 12.3(7)T 2600XM Series – 12.3(7)T</p>	<p>Requires PVDM2s for packet voice operation.</p>



T1/E1/J1 Digital Voice Network Modules

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
NM-HDV-1T1-12 1-port 12-channel digital T1 packet voice trunk network module	Provides a single T1 connection with support for 12 channels of medium complexity voice compression using any of the following codecs: G.729A, G.729AB, G.726 all versions, G.711 and fax relay. This module can also be configured to provide six channels of high- and medium-complexity voice compression using any of the following codecs: G.729A, G.729AB, G.726 all versions, G.711, G.729, G.729B, G.723.1 all versions, G.728, GSM, GSMEFR, fax relay. Also supports audio-conferencing; up to 15 conferences of six participants and G.729.a to G.711 transcoding of up to 60 sessions in conjunction with Cisco CallManager.	3800 Series – 12.3(11)T 3700 Series – 12.2(8)T 3600 Series – 12.0(5)XK 2811, 2821, and 2851 – 12.3(8)T4 2691 – 12.2(8)T1 2600XM Series – 12.1(14) Mainline, 12.2(12) Mainline, 12.2(8)T1 2650 Series – 12.1(3)T 2620 Series – 12.0(5)XK 2610 Series – 12.0(5)XK	Prior to Cisco IOS 12.3 Mainline, requires a Cisco IOS “Plus” feature set. 12.3 Mainline and forward supported in “IP Voice” feature set. The NM-HDV-1T1-12 is a bundle of the following components: <ul style="list-style-type: none"> • One network module (NM-HDV) • One one-port T1 voice/WAN interface card (VVIC-1MFT-T1) • One digital signal processor modules (PVDM-12)
	Modular Router Solutions Voice and Fax Integration		
NM-HDV-1T1-24 1-port 24-channel digital T1 packet voice trunk network module	Provides a single T1 connection with support for 24 channels of medium complexity voice compression using any of the following codecs: G.729A, G.729AB, G.726 all versions, G.711 and fax relay. This module can also be configured to provide 12 channels of high- and medium-complexity voice compression using any of the following codecs: G.729A, G.729AB, G.726 all versions, G.711, G.729, G.729B, G.723.1 all versions, G.728, GSM, GSMEFR, fax relay. Also supports audio-conferencing; up to 15 conferences of six participants and G.729.a to G.711 transcoding of up to 60 sessions in conjunction with Cisco CallManager.	3800 Series – 12.3(11)T 3700 Series – 12.2(8)T 3600 Series – 12.0(5)XK 2811, 2821, and 2851 – 12.3(8)T4 2691 – 12.2(8)T1 2600XM Series – 12.1(14) Mainline, 12.2(12) Mainline, 12.2(8)T1 2650 Series – 12.1(3)T 2620 Series – 12.0(5)XK 2610 Series – 12.0(5)XK	Prior to Cisco IOS 12.3 Mainline, requires a Cisco IOS “Plus” feature set. 12.3 Mainline and forward supported in “IP Voice” feature set. The NM-HDV-1T1-24 is a bundle of the following components: <ul style="list-style-type: none"> • One network module (NM-HDV) • One one-port T1 voice/WAN interface card (VVIC-1MFT-T1) • One digital signal processor modules (PVDM-12)
	Modular Router Solutions Voice and Fax Integration		


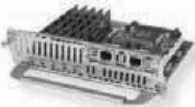
T1/E1/J1 Digital Voice Network Modules

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<p>NM-HDV-1T1-24E 1-port 24-channel enhanced digital T1 packet voice trunk network module</p> 	<p>Provides a single T1 connection with support for 24 channels of high- and medium- complexity voice compression using any of the following codecs: G.729A, G.729AB, G.726 all versions, G.711, G.729, G.729B, G.723.1 all versions, G.728, GSM, GSMEFR, fax relay. Also supports audio-conferencing; up to 15 conferences of six participants and G.729.a to G.711 transcoding of up to 60 sessions in conjunction with Cisco CallManager.</p>	<p>3800 Series – 12.3(11)T 3700 Series – 12.2(8)T 3600 Series – 12.0(5)XX 2811, 2821, and 2851 – 12.3(8)T4 2691 – 12.2(8)T1 2600XM Series – 12.1(14) Mainline, 12.2(12) Mainline, 12.2(8)T1 2650 Series – 12.1(3)T 2620 Series – 12.0(5)XX 2610 Series – 12.0(5)XX</p>	<p>Prior to Cisco IOS 12.3 Mainline, requires a Cisco IOS “Plus” feature set. 12.3 Mainline and forward supported in “IP Voice” feature set.</p> <p>The NM-HDV-1T1-24E is a bundle of the following components:</p> <ul style="list-style-type: none"> • One network module (NM-HDV) • One one-port T1 voice/WAN interface card (VVIC-1MFT-T1) • One digital signal processor modules (PVDM-12)
<p>..... Modular Router Solutions Voice and Fax Integration</p>			
<p>NM-HDV-2T1-48 2-port 48-channel enhanced digital T1 packet voice trunk network module</p> 	<p>Provides two T1 connections with support for 48 channels of medium complexity voice compression using any of the following codecs: G.729A, G.729AB, G.726 all versions, G.711 and fax relay. This module can also be configured to provide 24 channels of high- and medium-complexity voice compression using any of the following codecs: G.729A, G.729AB, G.726 all versions, G.711, G.729, G.729B, G.723.1 all versions, G.728, GSM, GSMEFR, fax relay. Also supports audio-conferencing; up to 15 conferences of six participants and G.729.a to G.711 transcoding of up to 60 sessions in conjunction with Cisco CallManager.</p>	<p>3800 Series – 12.3(11)T 3700 Series – 12.2(8)T 3600 Series – 12.0(5)XX 2811, 2821, and 2851 – 12.3(8)T4 2691 – 12.2(8)T1 2600XM Series – 12.1(14) Mainline, 12.2(12) Mainline, 12.2(8)T1 2650 Series – 12.1(3)T 2620 Series – 12.0(5)XX 2610 Series – 12.0(5)XX</p>	<p>Prior to Cisco IOS 12.3 Mainline, requires a Cisco IOS “Plus” feature set. 12.3 Mainline and forward supported in “IP Voice” feature set.</p> <p>The NM-HDV-2T1-48 is a bundle of the following components:</p> <ul style="list-style-type: none"> • One network module (NM-HDV) • One 2-port T1 voice/WAN interface card (VVIC-2MFT-T1) • Four digital signal processor modules (PVDM-12)
<p>..... Modular Router Solutions Voice and Fax Integration</p>			

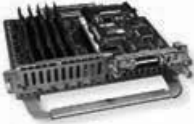
T1/E1/J1 Digital Voice Network Modules

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
NM-HDV-1E1-12 1-port 12-channel digital E1 packet voice trunk network module	Provides a single E1 connection with support for 12 channels of medium complexity voice compression using any of the following codecs: G.729A, G.729AB, G.726 all versions, G.711 and fax relay. This module can also be configured to provide six channels of high- and medium-complexity voice compression using any of the following codecs: G.729A, G.729AB, G.726 all versions, G.711, G.729, G.729B, G.723.1 all versions, G.728, GSM, GSMEFR, fax relay. Also supports audio-conferencing; up to 15 conferences of six participants and G.729.a to G.711 transcoding of up to 60 sessions in conjunction with Cisco CallManager.	3800 Series – 12.3(11)T 3700 Series – 12.2(8)T 3600 Series – 12.0(5)XK 2811, 2821, and 2851 – 12.3(8)T4 2691 – 12.2(8)T1 2600XM Series – 12.1(14) Mainline, 12.2(12) Mainline, 12.2(8)T1 2650 Series – 12.1(3)T 2620 Series – 12.0(5)XK 2610 Series – 12.0(5)XK	Prior to Cisco IOS 12.3 Mainline, requires a Cisco IOS “Plus” feature set. 12.3 Mainline and forward supported in “IP Voice” feature set. The NM-HDV-2T1-48 is a bundle of the following components: <ul style="list-style-type: none"> • One network module (NM-HDV) • One 2-port T1 voice/WAN interface card (VWIC-2MFT-T1) • Four digital signal processor modules (PVDM-12)
	Modular Router Solutions Voice and Fax Integration		
NM-HDV-1E1-30 1-port 30-channel digital E1 packet voice trunk network module	Provides a single E1 connection with support for 30 channels of medium complexity voice compression using any of the following codecs: G.729A, G.729AB, G.726 all versions, G.711 and fax relay. This module can also be configured to provide 18 channels of high- and medium-complexity voice compression using any of the following codecs: G.729A, G.729AB, G.726 all versions, G.711, G.729, G.729B, G.723.1 all versions, G.728, GSM, GSMEFR, fax relay. Also supports audio-conferencing; up to 15 conferences of six participants and G.729.a to G.711 transcoding of up to 60 sessions in conjunction with Cisco CallManager.	3800 Series – 12.3(11)T 3700 Series – 12.2(8)T 3600 Series – 12.0(7)XK 2811, 2821, and 2851 – 12.3(8)T4 2691 – 12.2(8)T1 2600XM Series – 12.1(14) Mainline, 12.2(12) Mainline, 12.2(8)T1 2650 Series – 12.1(3)T 2620 Series – 12.0(7)XK 2610 Series – 12.0(7)XK	Prior to Cisco IOS 12.3 Mainline, requires a Cisco IOS “Plus” feature set. 12.3 Mainline and forward supported in “IP Voice” feature set. The NM-HDV-1E1-30 is a bundle of the following components: <ul style="list-style-type: none"> • One network module (NM-HDV) • One 1-port E1 voice/WAN interface card (VWIC-1MFT-E1) • Three digital signal processor modules (PVDM-12)
	Modular Router Solutions Voice and Fax Integration		

T1/E1/J1 Digital Voice Network Modules

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
 <p>NM-HDV-1E1-30E 1-port 30-channel enhanced digital E1 packet voice trunk network module</p>	<p>Provides a single E1 connection with support for 30 channels of high- and medium- complexity voice compression using any of the following codecs: G.729A, G.729AB, G.726 all versions, G.711, G.729, G.729B, G.723.1 all versions, G.728, GSM, GSMEFR, fax relay. Also supports audio-conferencing; up to 15 conferences of six participants and G.729.a to G.711 transcoding of up to 60 sessions in conjunction with Cisco CallManager.</p> <p>.....</p> <p>Modular Router Solutions Voice and Fax Integration</p>	<p>3800 Series – 12.3(11)T 3700 Series – 12.2(8)T 3600 Series – 12.0(7)XK 2811, 2821, and 2851 – 12.3(8)T4 2691 – 12.2(8)T1 2600XM Series – 12.1(14) Mainline, 12.2(12) Mainline, 12.2(8)T1 2650 Series – 12.1(3)T 2620 Series – 12.0(7)XK 2610 Series – 12.0(7)XK</p>	<p>Prior to Cisco IOS 12.3 Mainline, requires a Cisco IOS “Plus” feature set. 12.3 Mainline and forward supported in “IP Voice” feature set.</p> <p>The NM-HDV-1E1-30E is a bundle of the following components:</p> <ul style="list-style-type: none"> • One network module (NM-HDV) • One 1-port E1 voice/WAN interface card (VVIC-1MFT-E1) • Three digital signal processor modules (PVDM-12)
 <p>NM-HDV-2E1-60 2-port 60-channel digital E1 packet voice trunk network module</p>	<p>Provides two E1 connection with support for six channels of medium complexity voice compression using any of the following codecs: G.729A, G.729AB, G.726 all versions, G.711 and fax relay. This module can also be configured to provide 30 channels of high- and medium- complexity voice compression using any of the following codecs: G.729A, G.729AB, G.726 all versions, G.711, G.729, G.729B, G.723.1 all versions, G.728, GSM, GSMEFR, fax relay. Also supports audio-conferencing; up to 15 conferences of six participants and G.729.a to G.711 transcoding of up to 60 sessions in conjunction with Cisco CallManager.</p> <p>.....</p> <p>Modular Router Solutions Voice and Fax Integration</p>	<p>3800 Series – 12.3(11)T 3700 Series – 12.2(8)T 3600 Series – 12.0(7)XK 2811, 2821, and 2851 – 12.3(8)T4 2691 – 12.2(8)T1 2600XM Series – 12.1(14) Mainline, 12.2(12) Mainline, 12.2(8)T1 2650 Series – 12.1(3)T 2620 Series – 12.0(7)XK 2610 Series – 12.0(7)XK</p>	<p>Prior to Cisco IOS 12.3 Mainline, requires a Cisco IOS “Plus” feature set. 12.3 Mainline and forward supported in “IP Voice” feature set.</p> <p>The NM-HDV-2E1-60 is a bundle of the following components:</p> <ul style="list-style-type: none"> • One network module (NM-HDV) • One 2-port E1 voice/WAN interface card (VVIC-2MFT-E1) • Five digital signal processor modules (PVDM-12)

T1/E1/J1 Digital Voice Network Modules

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
NM-HDV-1J1-30 1-port 30-channel J1 voice/fax network module	<p>Provides a single J1 connection with support for 30 channels of medium complexity voice compression using any of the following codecs: G.729A, G.729AB, G.726 all versions, G.711 and fax relay. This module can also be configured to provide 18 channels of high- and medium- complexity voice compression using any of the following codecs: G.729A, G.729AB, G.726 all versions, G.711, G.729, G.729B, G.723.1 all versions, G.728, GSM, GSMEFR, fax relay. Also supports audio-conferencing; up to 15 conferences of six participants and G.729.a to G.711 transcoding of up to 60 sessions in conjunction with Cisco CallManager.</p>	3800 Series – 12.3(11)T 3700 Series – 12.2(8)T 3600 Series – 12.2(8)T 2811, 2821, and 2851 – 12.3(8)T4 2691 – 12.2(8)T1 2600XM Series – 12.2(8)T1 2600 Series – 12.2(8)T	<p>Prior to Cisco IOS 12.3 Mainline, requires a Cisco IOS “Plus” feature set. 12.3 Mainline and forward supported in “IP Voice” feature set.</p> <p>The NM-HDV-1J1-30 is a bundle of the following components:</p> <ul style="list-style-type: none"> • One network module (NM-HDV) • One one-port E1 voice/WAN interface card (VVIC-1MFT-E1) • Three digital signal processor modules (PVDM-12)
	<p>Modular Router Solutions Voice and Fax Integration</p>		

NM-HDV-1J1-30E
 1-port 30-enhanced-channel J1 voice/fax network module

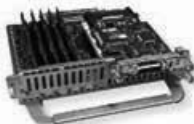
Provides a single J1 connection with support for 30 channels of high and medium complexity voice compression using any of the following codecs: G.729A, G.729AB, G.726 all versions, G.711, G.729, G.729B, G.723.1 all versions, G.728, GSM, GSMEFR, fax relay. Also supports audio-conferencing; up to 15 conferences of six participants and G.729.a to G.711 transcoding of up to 60 sessions in conjunction with Cisco CallManager.

3800 Series – 12.3(11)T
 3700 Series – 12.2(8)T
 3600 Series – 12.2(8)T
 2811, 2821, and 2851 – 12.3(8)T4
 2691 – 12.2(8)T1
 2600XM Series – 12.2(8)T1
 2600 Series – 12.2(8)T

Prior to Cisco IOS 12.3 Mainline, requires a Cisco IOS “Plus” feature set. 12.3 Mainline and forward supported in “IP Voice” feature set.




The NM-HDV-1J1-30E is a bundle of the following components:

- One network module (NM-HDV)
- One 1-port J1 voice interface card (VIC-1J1)
- Five digital signal processor modules (PVDM-12)






Modular Router Solutions
Voice and Fax Integration





T1/E1/J1 Digital Voice Network Modules

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
NM-HDV Digital T1/E1 packet voice trunk network module — Spare	This network module is the carrier card for the PVDM-12 and VWIC cards. It is the basis for all six NM-HDV voice bundles. Up to 30 unique combinations of network module, DSP modules, and VWICs exist, allowing users to increase voice channel support from six up to 60 voice/fax channels. Also supports audio-conferencing; up to 15 conferences of six participants and G.711 to G.729, G.729a, G.729b, and G.729ab transcoding of up to 60 sessions in conjunction with Cisco CallManager.	3800 Series – 12.3(11)T 3700 Series – 12.2(8)T 3600 Series – 12.0(5)XK 2811, 2821, and 2851 – 12.3(8)T4 2691 – 12.2(8)T1 2600XM Series – 12.1(14) Mainline, 12.2(12) Mainline, 12.2(8)T1 2650 Series – 12.1(3)T 2620 Series – 12.0(5)XK 2610 Series – 12.0(5)XK	Prior to Cisco IOS 12.3 Mainline, requires a Cisco IOS “Plus” feature set. 12.3 Mainline and forward supported in “IP Voice” feature set. Requires at least one voice/WAN interface card (VWIC) or VIC-1J1 and a 12-channel DSP module (PVDM-12). The VWIC2-1MFT-G703 is not supported on the NM-HDV.
	Modular Router Solutions Voice and Fax Integration		
NM-HDV-FARM-C36 Partitionable DSP resource farm; 36-port DSP network module	Includes 2 PVDMs allowing for up to six conference calls of six participants and G.711 to G.729, G.729a, G.729b, and G.729ab transcoding of up to 24 sessions in conjunction with Cisco CallManager. Expandable with the option to add additional PVDMs.	3800 Series – 12.3(11)T 3700 Series – 12.2(13)T 3600 Series – 12.2(13)T 2650 Series – 12.2(13)T 2600XM Series – 12.2(13)T 2811, 2821, and 2851 – 12.3(8)T4 2691 – 12.2(13)T VG200 – 12.2(13)T	Prior to Cisco IOS 12.3 Mainline, requires a Cisco IOS “Plus” feature set. 12.3 Mainline and forward supported in “IP Voice” feature set. Similar to NM-HDV, but no VWIC support.
	Modular Router Solutions Voice and Fax Integration		
NM-HDV-FARM-C54 Partitionable DSP resource farm; 54-port DSP network module	Includes 3 PVDMs allowing for up to nine conference calls of six participants and G.711 to G.729, G.729a, G.729b, and G.729ab transcoding of up to 36 sessions in conjunction with Cisco CallManager. Expandable with the option to add additional PVDMs.	3800 Series – 12.3(11)T 3700 Series – 12.2(13)T 3662 – 12.2(13)T 3661 – 12.2(13)T 3640 – 12.2(13)T 3640A – 12.2(13)T 2651 – 12.2(13)T 2650 – 12.2(13)T 2600XM Series – 12.2(13)T 2811, 2821, and 2851 – 12.3(8)T4 2691 – 12.2(13)T VG200 – 12.2(13)T	Prior to Cisco IOS 12.3 Mainline, requires a Cisco IOS “Plus” feature set. 12.3 Mainline and forward supported in “IP Voice” feature set. Similar to NM-HDV, but no VWIC support.
	Modular Router Solutions Voice and Fax Integration		



T1/E1/J1 Digital Voice Network Modules

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<p>NM-HDV-FARM-C90 Partitionable DSP resource farm; 90-port DSP network module</p> 	<p>Includes 5 PVDMs allowing for up to 15 conference calls of six participants and G.711 to G.729, G.729a, G.729b, and G.729ab transcoding of up to 60 sessions in conjunction with Cisco CallManager.</p>	<p>3800 Series – 12.3(11)T 3700 Series – 12.2(13)T 3662 – 12.2(13)T 3661 – 12.2(13)T 3640 – 12.2(13)T 3640A – 12.2(13)T 2651 – 12.2(13)T 2650 – 12.2(13)T 2600M Series – 12.2(13)T 2811, 2821, and 2851 – 12.3(8)T4 2691 – 12.2(13)T VG200 – 12.2(13)T</p>	<p>Prior to Cisco IOS 12.3 Mainline, requires a Cisco IOS “Plus” feature set. 12.3 Mainline and forward supported in “IP Voice” feature set. Similar to NM-HDV, but no VVIC support.</p>
<p>PVDM-12 12-channel packet voice DSP module upgrade – spare</p> 	<p>Installable into an NM-HDV. It contains three T1 549 DSPs along with the necessary DSP SRAM to process six high- or medium-complexity compressed voice channels or 12 medium-complexity compressed voice channels.</p>	<p>3800 Series – 12.3(11)T 3700 Series – 12.2(8)T 3600 Series – 12.0(5)XK 2811, 2821, and 2851 – 12.3(8)T4 2691 – 12.2(8)T1 2600XM Series – 12.1(14) Mainline, 12.2(12) Mainline, 12.2(8)T1 2650 Series – 12.1(3)T 2620 Series – 12.0(5)XK 2610 Series – 12.0(5)XK</p>	<p>Prior to Cisco IOS 12.3 Mainline, requires a Cisco IOS “Plus” feature set. 12.3 Mainline and forward supported in “IP Voice” feature set. Requires at least one high-density voice network module (NM-HDV) and a voice/WAN interface card (VVIC).</p>
<p>PVDM2-8 8-channel packet voice/fax DSP module</p> 	<p>Installable into a NM-HDV2 module or into the motherboard slots of a Cisco 2800 or 3800 Series router. Packet Voice Data Modules provide high-density voice connectivity, conferencing, and transcoding capabilities in Cisco IP Communications solutions.</p>	<p>3800 Series – 12.3(11)T 3700 Series – 12.3(7)T 2800 Series – 12.3(8)T4 2691 – 12.3(7)T 2600XM Series – 12.3(7)T</p>	<p>Requires Cisco IOS “IP Voice” feature set. Can be inserted into a PVDM slot on the motherboard of 2800 and 3800 routers. When used with a 2600 or 3700 requires at least one NM-HDV2 module.</p>


T1/E1/J1 Digital Voice Network Modules

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<p>PVDM2-16 16-channel packet voice/ fax DSP module</p> 	<p>Installable into a NM-HDV2 module or into the motherboard slots of a Cisco 2800 or 3800 Series router. Packet Voice Data Modules provide high-density voice connectivity, conferencing, and transcoding capabilities in Cisco IP Communications solutions.</p>	<p>3800 Series – 12.3(11)T 3700 Series – 12.3(7)T 2800 Series – 12.3(8)T4 2691 – 12.3(7)T 2600XM Series – 12.3(7)T</p>	<p>Requires Cisco IOS “IP Voice” feature set. Can be inserted into a PVDM slot on the motherboard of 2800 and 3800 routers. When used with a 2600 or 3700 requires at least one NM-HDV2 module.</p>
<p>..... Modular Router Solutions Voice and Fax Integration</p>			
<p>PVDM2-32 32-channel packet voice/ fax DSP module</p> 	<p>Installable into a NM-HDV2 module or into the motherboard slots of a Cisco 2800 or 3800 Series router. Packet Voice Data Modules provide high-density voice connectivity, conferencing, and transcoding capabilities in Cisco IP Communications solutions.</p>	<p>3800 Series – 12.3(11)T 3700 Series – 12.3(7)T 2800 Series – 12.3(8)T4 2691 – 12.3(7)T 2600XM Series – 12.3(7)T</p>	<p>Requires Cisco IOS “IP Voice” feature set. Can be inserted into a PVDM slot on the motherboard of 2800 and 3800 routers. When used with a 2600 or 3700 requires at least one NM-HDV2 module.</p>
<p>..... Modular Router Solutions Voice and Fax Integration</p>			
<p>PVDM2-48 48-channel packet voice/ fax DSP module</p> 	<p>Installable into a NM-HDV2 module or into the motherboard slots of a Cisco 2800 or 3800 Series router. Packet Voice Data Modules provide high-density voice connectivity, conferencing, and transcoding capabilities in Cisco IP Communications solutions.</p>	<p>3800 Series – 12.3(11)T 3700 Series – 12.3(7)T 2800 Series – 12.3(8)T4 2691 – 12.3(7)T 2600XM Series – 12.3(7)T</p>	<p>Requires Cisco IOS “IP Voice” feature set. Can be inserted into a PVDM slot on the motherboard of 2800 and 3800 routers. When used with a 2600 or 3700 requires at least one NM-HDV2 module.</p>
<p>..... Modular Router Solutions Voice and Fax Integration</p>			
<p>PVDM2-64 64-channel packet voice/ fax DSP module</p> 	<p>Installable into a NM-HDV2 module or into the motherboard slots of a Cisco 2800 or 3800 Series router. Packet Voice Data Modules provide high-density voice connectivity, conferencing, and transcoding capabilities in Cisco IP Communications solutions.</p>	<p>3800 Series – 12.3(11)T 3700 Series – 12.3(7)T 2800 Series – 12.3(8)T4 2691 – 12.3(7)T 2600XM Series – 12.3(7)T</p>	<p>Requires Cisco IOS “IP Voice” feature set. Can be inserted into a PVDM slot on the motherboard of 2800 and 3800 routers. When used with a 2600 or 3700 requires at least one NM-HDV2 module.</p>
<p>..... Modular Router Solutions Voice and Fax Integration</p>			

Multiflex Trunk Dedicated Echo Cancellation (MFT ECAN) Modules



Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
EC-MFT-32 32-Channel Multiflex Trunk Dedicated ECAN Module 	The 32-Channel Cisco® Multiflex Trunk Dedicated Echo Cancellation Module is a dedicated resource for the Cisco Enhanced ITU-T G.168 ECAN feature, providing robust echo cancellation performance for demanding network environments. The module attaches to Cisco® Second-generation Multiflex Trunk Voice/WAN Interface Cards (VVIC2 MFT cards).	3800 Series – 12.3(14)T; 12.4 Mainline 3700 Series – 12.3(14)T; 12.4 Mainline 3662 Telco Versatile DCN Platform – 12.3(14)T; 12.4 Mainline 2800 Series – 12.3(14)T; 12.4 Mainline 2691 – 12.3(14)T; 12.4 Mainline 2600XM Series – 12.3(14)T; 12.4 Mainline	Attaches to the VVIC2 MFT cards (VVIC2-1MFT-T1/E1, VVIC2-2MFT-T1/E1, VVIC2-1MFT-G703 and VVIC2-2MFT-G703). EC-MFT is not supported on the VVIC2 MFT cards on the 1751 or 1760.
Modular Router Solutions Voice and Fax			
EC-MFT-64 64-Channel Multiflex Trunk Dedicated ECAN Module 	The 64-Channel Cisco® Multiflex Trunk Dedicated Echo Cancellation Module is a dedicated resource for the Cisco Enhanced ITU-T G.168 ECAN feature, providing robust echo cancellation performance for demanding network environments. The module attaches to Cisco® Second-generation Multiflex Trunk Voice/WAN Interface Cards (VVIC2 MFT cards).	3800 Series – 12.3(14)T; 12.4 Mainline 3700 Series – 12.3(14)T; 12.4 Mainline 3662 Telco Versatile DCN Platform – 12.3(14)T; 12.4 Mainline 2800 Series – 12.3(14)T; 12.4 Mainline 2691 – 12.3(14)T; 12.4 Mainline 2600XM Series – 12.3(14)T; 12.4 Mainline	Attaches to the VVIC2 MFT cards (VVIC2-1MFT-T1/E1, VVIC2-2MFT-T1/E1, VVIC2-1MFT-G703 and VVIC2-2MFT-G703). EC-MFT is not supported on the VVIC2 MFT cards on the 1751 or 1760.
Modular Router Solutions Voice and Fax			

Voice Mail Network Modules



Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
NM-CUE Cisco Unity Express (voice mail) Network Module 	Provides 100 hours of voice mail storage, up to 100 mailboxes, automated attendant services, 8 concurrent sessions, with CallManager Express or CallManager IP Telephony.	3800 Series – 12.3(11)T 3700 Series – 12.3(4)T 2811, 2821, and 2851 – 12.3(8)T4 2691 – 12.3(4)T 2600XM Series – 12.3(4)T	Requires Cisco IOS “IP Voice” feature set. Requires Cisco Unity Express License.
Modular Router Solutions IP Telephony			

Application and Content Networking Network Modules


Content Engine Network Modules

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
NM-CE-BP-40G-K9 Content Engine Network Module, Basic Performance, 40-GB IDE hard disk	Provides intelligent content acceleration and content delivery. The module operates a self-contained and independent Cisco Application and Content Networking System (ACNS) with 40-GB local storage capacity.	3800 Series – 12.3(11)T 3700 Series – 12.2(8)T 3660 Series – 12.2(8)T 3640 – 12.2(8)T 2811, 2821, and 2851 – 12.3(8)T4 2691 – 12.2(8)T 2600XM Series – 12.2(8)T 2600 Series – 12.2(8)T	No reliance on other network modules, WICs, voice interface cards, or advanced integration modules.
	..... Modular Router Solutions Rich Media Delivery Bandwidth Management Content Access Management		
NM-CE-BP-80G-K9 Content Engine Network Module, Basic Performance, 80-GB IDE hard disk	Provides intelligent content acceleration and content delivery. The module operates a self-contained and independent Cisco Application and Content Networking System (ACNS) with 80-GB local storage capacity.	3800 Series – 12.3(11)T 3700 Series – 12.2(8)T 2811, 2821, and 2851 – 12.3(8)T4 2691 – 12.2(8)T 2600XM Series – 12.2(8)T	No reliance on other network modules, WICs, voice interface cards, or advanced integration modules.
	..... Modular Router Solutions Rich Media Delivery Bandwidth Management Content Access Management		

Content Engine Network Modules



Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
EM-CE-40G Expansion Module, 40-GB IDE, Field Upgrade 	Provides a field-replaceable 40-GB IDE storage for the NM-CE Series. Modular Router Solutions Bandwidth Management	3800 Series – 12.3(11)T 3700 Series – 12.2(8)T 3660 Series – 12.2(8)T 3640 – 12.2(8)T 2811, 2821, and 2851 – 12.3(8)T4 2691 – 12.2(8)T 2600XM Series – 12.2(8)T 2600 Series – 12.2(8)T	Requires an NM-CE network module.
EM-CE-80G Expansion Module, 80-GB IDE, Field Upgrade 	Provides a field-replaceable 80-GB IDE storage for the NM-CE Series. Modular Router Solutions Bandwidth Management	3800 Series – 12.3(11)T 3700 Series – 12.2(8)T 2811, 2821, and 2851 – 12.3(8)T4 2691 – 12.2(8)T 2600XM Series – 12.2(8)T	Requires an NM-CE network module.

Network Analysis And Monitoring


Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
NM-NAM Network Analysis Module 	Network Analysis Module provides detailed analysis of applications, hosts, conversations, and network-based services such as quality of service (QoS) and voice over IP (VoIP). The module comes with an embedded, Web-based traffic analyzer, which provides full-scale remote monitoring and troubleshooting capabilities that are accessible through a Web browser. Modular Router Solutions Network Analysis and Management	3800 Series - 12.3(11)T 3700 Series - 12.3(7)T 3660 Series - 12.3(7)T 2811, 2821, and 2851 – 12.3(8)T4 2691 - 12.3(7)T 2600XM Series - 12.3(7)T	No reliance on other network modules, WICs, voice interface cards, or advanced integration modules.

Cisco Interface Cards


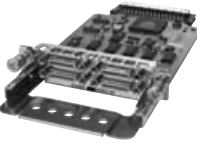
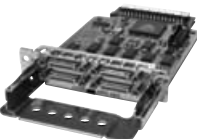
Serial WICs

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
WIC-1T 1-port serial WIC 	Provides a single serial connection at up to T1/E1 rates. The DB-60 connector supports any of five interface types (RS-232, RS-449, RS-530, V.35, X.21) in either DTE or DCE mode. This interface card inserts into a Cisco mixed-media network module or directly into a Cisco WIC expansion slot. Modular Router Solutions Serial and Legacy Concentration	3800 Series – 12.3(11)T 3700 Series – 12.2(11)YT 3660 Series – 12.0(5)T 3640 – 11.1(7)AA 3620 – 11.1(7)AA 2800 Series – 12.3(8)T4 2691 – 12.2(11)YT 2600XM Series – 12.1(14) Mainline, 12.2(12) Mainline, 12.2(8)T1 2650 Series – 12.1(3)T 2620 Series – 11.3(2)XA 2610 Series – 11.3(2)XA 1841 – 12.3(8)T4 1760 – 12.2(11)T 1751 – 12.2(4)T 1721 – 12.2(8)T	When used in a Cisco 3600 Series Router, requires one of the following mixed-media network modules: NM-2W, NM-1E2W, NM-2E2W, NM-1E1R2W, NM-1FE2W, NM-1FE2W-V2, NM-2FE2W, NM-2FE2W-V2, or NM-1FE1R2W.
WIC-2T 2-port serial WAN interface card 	Provides two serial connections up to 8 Mbps. The smart serial connector supports any of six interface types (RS-232, EIA-449, EIA-530, EIA-530a, V.35, X.21) in either DTE or DCE mode. This interface card inserts into a Cisco mixed-media network module or directly into a Cisco WIC expansion slot. Modular Router Solutions Serial and Legacy Concentration	3800 Series – 12.3(11)T 3700 Series – 12.2(8)T 3660 Series – 12.0(7)XK 3640 – 12.1(1)T 3620 – 12.1(1)T 2800 Series – 12.3(8)T4 2691 – 12.2(8)T 2600XM Series – 12.1(14) Mainline, 12.2(12) Mainline, 12.2(8)T1 2650 Series – 12.1(3)T 2620 Series – 11.3(2)XA 2610 Series – 11.3(2)XA 1841 – 12.3(8)T4 1760 – 12.2(11)T 1751 – 12.2(4)T 1721 – 12.2(8)T	When used in a Cisco 3600 Series Router, requires one of the following mixed-media network modules: NM-2W, NM-1FE2W, NM-1FE2W-V2, NM-2FE2W, NM-2FE2W-V2 or NM-1FE1R2W.


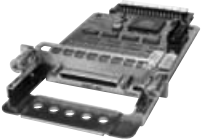
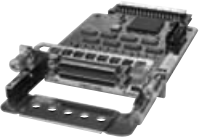
Serial WICs

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
WIC-1DSU-T1-V2 1-port T1/fractional T1 DSU/CSU WIC	Provides a single serial connection at speeds up to T1 rates. This interface card inserts into a Cisco mixed-media network module or directly into a Cisco WIC expansion slot. Modular Router Solutions Serial and Legacy Concentration	3800 Series – 12.3(11)T 3700 Series – 12.2(17), 12.3(2), 12.3(1)T 2800 Series – 12.3(8)T4 2691 – 12.2(17), 12.3(2), 12.3(1)T 2600XM Series – 12.2(17), 12.3(2), 12.3(1)T 1841 – 12.3(8)T4 1760 – 12.2(17), 12.3(2), 12.3(1)T 1751 – 12.2(17), 12.3(2), 12.3(1)T 1721 – 12.2(17), 12.3(2), 12.3(1)T	Also works in one of the following mixed-media network modules: NM-2W, NM-1FE2W, NM-2FE2W, NM-1FE2W-V2, NM-2FE2W-V2 or NM-1FE1R2W
			
WIC-1DSU-56K4 1-port 4-wire 56/64Kbps DSU/CSU WIC	Provides a single serial connection at speeds up to 64 Kbps. This interface card inserts into a Cisco mixed-media network module or directly into a Cisco WIC expansion slot. Modular Router Solutions Serial and Legacy Concentration	3800 Series – 12.3(11)T 3700 Series – 12.2(8)T 3660 Series – 12.0(5)T 3640 – 11.2(4)XA 3620 – 11.2(4)XA 2800 Series - 12.3(8)T4 2691 – 12.2(8)T 2600XM Series – 12.1(14) Mainline, 12.2(12) Mainline, 12.2(8)T1 2650 Series – 12.1(3)T 2620 Series – 11.3(2)XA 2610 Series – 11.3(2)XA 1841 - 12.3(8)T4 1760 – 12.2(11)T 1751 – 12.2(4)T 1721 – 12.2(8)T	When used in a Cisco 3600 Series Router, requires one of the following mixed-media network modules: NM-2W, NM-1E2W, NM-2E2W, NM-1E1R2W, NM-1FE2W, NM-2FE2W or NM-1FE1R2W.
			




Serial WICs

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
WIC-2A/S 2-port Asynchronous / Synchronous serial WIC	Provides two low-speed serial interfaces at speeds up to 128 kbps. This WIC supports asynchronous and synchronous traffic, and plugs directly into a WIC expansion slot.	3800 Series – 12.3(11)T 3700 Series – 12.2(8)T 3660 Series – 12.0(7)XK 3640 – 12.1(1)T 3620 – 12.1(1)T 2800 Series – 12.3(8)T4 2691 – 12.2(8)T 2600XM Series – 12.1(14) Mainline, 12.2(12) Mainline, 12.2(8)T1 2650 Series – 12.1(3)T 2620 Series – 11.3(2)XA 2610 Series – 11.3(2)XA 1841 – 12.3(8)T4 1760 – 12.2(11)T 1751 – 12.2(4)T 1721 – 12.2(8)T	When used in a Cisco 3600 Series Router, requires one of the following mixed-media network modules: NM-2W, NM-1FE2W, NM-1FE2W-V2, NM-2FE2W, NM-2FE2W-V2 or NM-1FE1R2W.
	..... Modular Router Solutions Serial and Legacy Concentration		
HWIC-4T 4-port serial high-speed WAN interface card	Provides four high-speed serial ports with connections up to 8 Mbps on each port. The Smart Serial connector supports EIA-232, EIA-449, EIA-530, EIA-530A, V.35, and X.21 in DTE or DCE mode. This interface card inserts into a HWIC slot of an Integrated Services Router.	3800 Series – 12.3(14)T 2800 Series – 12.3(14)T 1800 Series – Not Supported	Not supported on 1600, 1700, 2600, 3600, or 3700 Series.
	..... Modular Router Solutions WAN Aggregation Legacy Protocol Transport		
HWIC-4A/S 4-port Asynchronous/ Synchronous high-speed WAN interface card	Provides four low-speed asynchronous/synchronous ports with connections up to 256 Kbps in synchronous mode and 230.4 Kbps in asynchronous mode on each port. The Smart Serial connector supports EIA-232, EIA-449, EIA-530, EIA-530A, V.35, and X.21 in DTE or DCE mode. This interface card inserts into a HWIC slot of an integrated services router.	3800 Series – 12.3(14)T 2800 Series – 12.3(14)T 1800 Series – 12.3(14)T	Not supported on 1600, 1700, 2600, 3600, or 3700 Series.
	..... Modular Router Solutions WAN Aggregation Legacy Protocol Transport		




Serial WICs

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
HWIC-8A/S-232 8-port Asynchronous/ Synchronous high-speed WAN interface card	Provides eight low-speed asynchronous/synchronous ports, EIA-232 only, with connections up to 256 Kbps in synchronous mode and 230.4 Kbps in asynchronous mode on each port. The high density cable provides four ports of EIA-232 in DTE or DCE mode. This interface card inserts into a HWIC slot of an integrated services router.	3800 Series – 12.3(14)T 2800 Series – 12.3(14)T 1800 Series – 12.3(14)T	Not supported on 1600, 1700, 2600, 3600, or 3700 Series.
	Modular Router Solutions WAN Aggregation Legacy Protocol Transport		
HWIC-8A 8-port Asynchronous high-speed WAN interface card	Provides eight asynchronous EIA-232 ports, with connections up to 230.4 Kbps on each port. The high density cable provides eight ports of EIA-232. Adapters are used to terminate in DB-25 connectors in DTE or DCE mode. This interface card inserts into a HWIC slot of an integrated services router.	3800 Series – 12.3(14)T 2800 Series – 12.3(14)T 1800 Series – 12.3(14)T	Not supported on 1600, 1700, 2600, 3600, or 3700 Series.
	Modular Router Solutions Remote console management Dial access server Terminal Server		
HWIC-16A 16-port Asynchronous high-speed WAN interface card	Provides 16 asynchronous EIA-232 ports, with connections up to 230.4 Kbps on each port. The high density cable provides eight ports of EIA-232. Adapters are used to terminate in DB-25 connectors in DTE or DCE mode. This interface card inserts into a HWIC slot of an integrated services router.	3800 Series – 12.3(14)T 2800 Series – 12.3(14)T 1800 Series – Not Supported	Not supported on 1600, 1700, 2600, 3600, or 3700 Series.
	Modular Router Solutions Remote console management Dial access server Terminal Server		



ISDN BRI WICs

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
WIC-1B-S/T 1-port ISDN WIC 	Provides a single ISDN BRI connection via an RJ-45 connector. It requires an external NT-1 device for connection to the WAN. This interface card inserts into a Cisco mixed-media network module or directly into a Cisco WIC expansion slot. Modular Router Solutions ISDN Concentration Dial-up Remote Access	3700 Series – 12.2(8)T 3660 Series – 12.0(5)T 3640 – 11.2(4)XA 3620 – 11.2(4)XA 2691 – 12.2(8)T 2600XM Series – 12.1(14) Mainline, 12.2(12) Mainline, 12.2(8)T1 2650 Series – 12.1(3)T 2620 Series – 11.3(2)XA 2610 Series – 11.3(2)XA 1760 – 12.2(11)T 1751 – 12.2(4)T 1721 – 12.2(8)T	When used in a Cisco 3600 Series Router, requires one of the following mixed-media network modules: NM-2W, NM-1E2W, NM-2E2W, NM-1E1R2W, NM-1FE2W, NM-2FE2W or NM-1FE1R2W.
WIC-1B-S/T-V3 1-port ISDN WIC 	Provides a single ISDN BRI connection via an RJ-45 connector. It requires an external NT-1 device for connection to the WAN. This interface card inserts into a Cisco mixed-media network module or directly into a Cisco WIC expansion slot. Modular Router Solutions ISDN Concentration Dial-up Remote Access	3800 Series – 12.3(11)T 3700 Series – 12.3(10) 3660 Series – 12.3(10) 2800 Series – 12.3(8)T4 2691 – 12.3(10) 2600XM Series – 12.3(10) 1841 – 12.3(8)T4 1760 – 12.3(10) 1751 – 12.3(10) 1721 – 12.3(10)	Also works in one of the following mixed-media network modules: NM-2W, NM-1E2W, NM-2E2W, NM-1E1R2W, NM-1FE2W, NM-2FE2W, NM-1FE2W-V2, NM-2FE2W-V2 or NM-1FE1R2W.
WIC-1B-U-V2 1-port ISDN with NT-1 WIC 	Provides a single ISDN BRI connection via an RJ-45 connector. This interface card inserts into a Cisco mixed-media network module or directly into a Cisco WIC expansion slot. Modular Router Solutions ISDN Concentration Dial-up Remote Access	3800 Series – 12.3(11)T 3700 Series – 12.2(13)T 3600 Series – 12.0(23) Mainline, 12.1(15) Mainline, 12.2(10) Mainline, 12.2(11)T 2800 Series – 12.3(8)T4 2691 – 12.2(13)T 2600 Series – 12.0(23) Mainline, 12.1(15) Mainline, 12.2(10) Mainline, 12.2(11)T 1841 – 12.3(8)T4 1700 Series – 12.1(18) Mainline, 12.2(13) Mainline, 12.2(13)T1	When used in a Cisco 3600 Series Router, requires one of the following mixed-media network modules: NM-2W, NM-1E2W, NM-2E2W, NM-1E1R2W, NM-1FE2W, NM-1FE2W-V2, NM-2FE2W-V2 or NM-1FE1R2W.



DSL WICs

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<p>WIC-1ADSL 1-port asymmetric digital subscriber line WIC</p> 	<p>Provides a single ADSL connection at uplink speeds up to 1 Mbps and downlink speeds up to 8 Mbps. This interface card inserts into a Cisco mixed-media network module or directly into a Cisco WIC expansion slot.</p> <p>.....</p> <p>Modular Router Solutions ADSL over POTS Access</p>	<p>3800 Series - 12.3(11)T 3700 Series - 12.2(8)T 3600 Series - 12.1(5)YB 2800 Series - 12.3(8)T4 2691 - 12.2(8)T 2600XM Series - 12.2(12) Mainline, 12.2(8)T1 2600 Series - 12.1(5)YB 1841 - 12.3(8)T4 1760 - 12.2(11)T; 12.3 Mainline 1751 - 12.2(4)T; 12.3 Mainline 1721 - 12.2(8)T; 12.3 Mainline</p>	<p>When used in a Cisco 3600 Series Router, requires one of the following mixed-media network modules: NM-2W, NM-1FE2W, NM-2FE2W or NM-1FE1R2W.</p>
<p>WIC-1ADSL-DG 1-port asymmetric digital subscriber line WIC with dying gasp support</p> 	<p>Provides a single ADSL over POTS connection, with Dying Gasp support, at uplink speeds up to 1 Mbps and downlink speeds up to 8 Mbps. This interface card inserts into a Cisco mixed-media network module or directly into a Cisco WIC expansion slot.</p> <p>.....</p> <p>Modular Router Solutions ADSL over POTS Access</p>	<p>3800 Series - 12.3(11)T 3700 Series - 12.3(4)XD 2800 Series - 12.3(8)T4 2691 - 12.3(4)XD 2610-51XM - 12.3(4)XD 1841 - 12.3(8)T4 1760, 1751, and 1721 - 12.3(4)T</p>	<p>No reliance on other network modules, WICs, voice interface cards, or advanced integration modules.</p>
<p>WIC-1ADSL-IDG 1-port ADSL over ISDN WIC with dying gasp support</p> 	<p>Provides a single ADSL over ISDN connection, with Dying Gasp support, at uplink speeds up to 1 Mbps and downlink speeds up to 8 Mbps. This interface card inserts into a Cisco mixed-media network module or directly into a Cisco WIC expansion slot.</p> <p>.....</p> <p>Modular Router Solutions ADSL over ISDN Access</p>	<p>3800 Series - 12.3(11)T 3700 Series - 12.3(4)XD 2800 Series - 12.3(8)T4 2691 - 12.3(4)XD 2610-51XM - 12.3(4)XD 1841 - 12.3(8)T4 1760, 1751, and 1721 - 12.3(4)T</p>	<p>No reliance on other network modules, WICs, voice interface cards, or advanced integration modules.</p>




DSL WICs

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<p>WIC-1SHDSL 1-port symmetrical high-speed DSL line (G.SHDSL) WIC</p> 	<p>Provides a single G.SHDSL connection up to 2.3 Mbps symmetrical. This interface card inserts into a Cisco mixed-media network module or directly into a Cisco WAN Interface Card (WIC) expansion slot.</p> <p>.....</p> <p>Modular Router Solutions G.SHDSL Access</p>	<p>3800 Series - 12.3(11)T 3700 Series - 12.2(11)YT 3600 Series - 12.2(4)XL2 2800 Series - 12.3(8)T4 2691 - 12.2(11)YT 2600XM Series - 12.2(8)T1 2600 Series - 12.2(4)XL 1841 - 12.3(8)T4 1760, 1751, and 1721 - 12.2(13)T; 12.3 Mainline</p>	<p>When used in a Cisco 3600 Series Router, requires one of the following mixed-media network modules: NM-2W, NM-1FE2W, NM-2FE2W or NM-1FE1R2W.</p>
<p>WIC-1SHDSL-V2 1-port SHDSL WIC with 2- or 4-wire SHDSL support</p> 	<p>Provides a single two or four wire G.shdsl connection, with dying gasp support, with symmetrical WAN speeds up to 2.3 Mbps over a single copper pair and up to 4.6 Mbps over two copper pairs. This interface card inserts into a Cisco mixed-media network module or directly into a Cisco interface card expansion slot.</p> <p>.....</p> <p>Modular Router Solutions SHDSL Access</p>	<p>3800 Series - 12.3(11)T 3700 Series - 12.3(4)XD 2811, 2821, and 2851 - 12.3(8)T4 2801 - 12.3(14)T 2691 - 12.3(4)XD 2610-51XM - 12.3(4)XD 1841 - 12.3(8)YG 1700 Series - 12.3(11)T</p>	<p>No reliance on other network modules, WICs, voice interface cards, or advanced integration modules</p>




Analog Modem WICs

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
WIC-1AM 1-port analog modem WIC	Provides a single integrated analog modem via an RJ-11 connector. Supports for speeds up to 56 Kbps (V.90).	3800 Series – 12.3(11)T 3700 Series – 12.2(8)T 3600 Series – 12.2(2)XB 2800 Series – 12.3(8)T4 2691 – 12.2(8)T1 2600XM Series – 12.2(8)T1 2600 Series – 12.2(2)XB 1841 – 12.3(8)T4 1760 – 12.2(15)T or later T trains; 12.3 Mainline 1751 – 12.2(15)T or later T trains; 12.3 Mainline 1721 – 12.2(15)T or later T trains; 12.3 Mainline	When used in a Cisco 3600 Series Router, requires one of the following mixed-media network modules: NM-2W, NM-1FE2W, NM-2FE2W or NM-1FE1R2W.
	..... Modular Router Solutions Dial-up Remote Access		
WIC-2AM 2-port analog modem WIC	Provides two integrated analog modems via two RJ-11 connectors. Support for speeds up to 56 Kbps (V.90).	3800 Series – 12.3(11)T 3700 Series – 12.2(8)T 3600 Series – 12.2(2)XB 2800 Series – 12.3(8)T4 2691 – 12.2(8)T1 2600XM Series – 12.2(8)T1 2600 Series – 12.2(2)XB 1841 – 12.3(8)T4 1760 – 12.2(15)T or later T trains; 12.3 Mainline 1751 – 12.2(15)T or later T trains; 12.3 Mainline 1721 – 12.2(15)T or later T trains; 12.3 Mainline	When used in a Cisco 3600 Series Router, requires one of the following mixed-media network modules: NM-2W, NM-1FE2W, NM-2FE2W or NM-1FE1R2W.
	..... Modular Router Solutions Dial-up Remote Access		




Ethernet and High-speed Switching WICs

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
WIC-4ESW 4-port 10/100 switch WIC	Provides four 10/100BASE-T Fast Ethernet switched ports with speeds up to 200 Mbps (full-duplex) between switch ports. Provides support for 802.1Q, 802.1p, and 802.1D. This interface card inserts directly into a Cisco WIC expansion slot.	1700 Series – 12.3(4)YB	No reliance on other network modules, WICs, voice interface cards, or advanced integration modules.
	Modular Router Solutions Integrated Switching		
HWIC-4ESW 4-port 10/100 switch HWIC	Provides four autosensing 10/100BASE-T Fast Ethernet switched ports with speeds up to 200 Mbps (full-duplex) between switch ports. Provides support for 802.1Q, 802.1p, 802.1D, and more. This interface card inserts directly into a Cisco WIC expansion slot.	3800 Series – 12.3(11)T 2800 Series – 12.3(8)T4 1841 – 12.3(8)T4	Single-wide form factor (requires one HWIC slot). A maximum of two ESW modules (NM or HWIC) are supported per router.
	Modular Router Solutions Integrated Switching		
HWIC-4ESW-POE 4-port 10/100 switch HWIC with Power over Ethernet support	Provides four autosensing 10/100BASE-T Fast Ethernet switched ports with support for Power over Ethernet and speeds up to 200 Mbps (full-duplex) between switch ports. Provides support for 802.1Q, 802.1p, 802.1D, and more. This interface card inserts directly into a Cisco HWIC expansion slot.	3800 Series – 12.3(11)T 2800 Series – 12.3(8)T4	Single-wide form factor (requires one HWIC slot). A maximum of two ESW modules (NM or HWIC) are supported per router. Requires the router to have an AC-IP power supply to deliver inline power / PoE.
	Modular Router Solutions Integrated Switching		

Ethernet and High-speed Switching WICs

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
ILPM-4= Inline power module for HWIC-4-ESW	4-port daughter card for upgrading existing HWIC-4-ESW to be capable of supporting inline power.	3800 Series – 12.3(11)T 2800 Series – 12.3(8)T4	Requires a HWIC-4ESW module. Router power supply upgrade (AC-IP) needed to provide power to switch.
	..... Modular Router Solutions Integrated Switching		
HWIC-D-9ESW 9-port 10/100 switch double-wide HWIC	Provides nine autosensing 10/100BASE-T Fast Ethernet switched ports with speeds up to 200 Mbps (full-duplex) between switch ports. Provides support for 802.1Q, 802.1p, 802.1D, and more. This interface card inserts into a Cisco double-wide HWIC expansion slot.	3800 Series – 12.3(11)T 2800 Series – 12.3(8)T4	Double-wide form factor (requires two interface card slots). A maximum of two ESW modules (NM or HWIC) are supported per router. Not supported on Cisco 1841.
	..... Modular Router Solutions Integrated Switching		
HWIC-D-9ESW-POE 9-port 10/100 switch double-wide HWIC with 8 ports of Power over Ethernet support	Provides nine autosensing 10/100BASE-T Fast Ethernet switched ports with support for Power over Ethernet and speeds up to 200 Mbps (full-duplex) between switch ports. Provides support for 802.1Q, 802.1p, 802.1D, and more. This interface card inserts directly into a Cisco double-wide HWIC expansion slot.	3800 Series – 12.3(11)T 2800 Series – 12.3(8)T4	Double-wide form factor (requires two interface card slots). A maximum of two ESW modules (NM or HWIC) are supported per router. Not supported on Cisco 1841. Requires the router to have an AC-IP power supply to deliver inline power / PoE.
	..... Modular Router Solutions Integrated Switching		

Ethernet and High-speed Switching WICs

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
ILPM-8= Inline power module for HWIC-D-9ESW	8-port daughter card for upgrading existing HWIC-D-9ESW to be capable of supporting inline power. Modular Router Solutions Integrated Switching	3800 Series – 12.3(11)T 2800 Series – 12.3(8)T4	Requires a HWIC-D-9ESW module. Router power supply upgrade (AC-IP) needed to provide inline power to switch.
			
WIC-1ENET 1-port Ethernet WIC	Provides one standards-based 10BASE-T Ethernet network interface. Operates in half- and full-duplex modes. Supports PPP over Ethernet (PPPoE) to authenticate the router on a service provider's network using PPP. Modular Router Solutions DSL Access VPN and Firewall	1760 – 12.2(11)T 1751 – 12.2(4)T 1721 – 12.2(8)T	No reliance on other network modules, WICs, voice interface cards, or advanced integration modules.
			
HWIC-1GE-SFP 1 slot for GE SFP	Provides one small form factor pluggable (SFP) slot to carry any standard copper or optical Cisco SFP. Modular Router Solutions Inter-VLAN Routing LAN-to-LAN Routing	3800 Series – 12.3(11)T 2811, 2821, and 2851 – 12.3(8)T4	The HWIC-1GE-SFP provides a single slot for a SFP and has no physical interface on board. It requires a SFP that must be purchased separately.
			

HWIC - Wireless Lan Interface Cards and Accessories

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
HWIC-AP-G and HWIC-AP-AG 	<p>The Cisco HWIC-AP 802.11a/b/g and HWIC-AP 802.11a/b/g are wireless LAN interface cards in the HWIC (High-Speed WAN Interface Card) form factor providing integrated access point functionality in the Cisco 1800 (modular), Cisco 2800, and Cisco 3800 integrated services routers.</p> <p>The Cisco HWIC-AP-G supports IEEE 802.11b/g and has a single radio that operates in the 2.4 GHz band supporting up to 54 Mb/s speeds. The Cisco HWIC-AP-AG supports IEEE 802.11a/b/g and has two radios for simultaneous operation in the 2.4 GHz and 5 GHz bands supporting up to 108 Mb/s speeds.</p> <p>The Cisco HWIC access points come with a pair of RP-TNC antenna connectors for both 2.4 GHz single-radio or simultaneous 2.4 and 5 GHz radio operation, providing range and coverage versatility.</p> <p>.....</p> <p>Modular Router Solutions Wireless LAN</p>	<p>3800 Series – 1st release of Cisco IOS Software 12.4T</p> <p>2800 Series – 1st release of Cisco IOS Software 12.4T</p> <p>1800 (modular) Series – 1st release of Cisco IOS Software 12.4T</p>	<p>Enterprise branch office and small- to medium-sized business customers can run concurrent services of Layer 3 routing, security, Layer 2 switching and now IEEE 802.11 wireless LAN functionality in a single platform. This combination offers ease of configuration, deployment, and management while delivering the performance, security, and versatility that Cisco Integrated Service Routers provide.</p>
Wireless LAN Antennas (AIR-ANTxxxx) 	<p>Cisco 2.4 and 5.4 GHz access point antennas, including single mode and dual mode antennas with RP-TNC connectors.</p> <p>.....</p> <p>Modular Router Solutions Wireless LAN</p>	<p>3800 Series with HWIC-AP</p> <p>2800 Series with HWIC-AP</p> <p>1800 (modular) Series with HWIC-AP</p> <p>1800W (fixed) Series</p> <p>870W (fixed) Series</p> <p>Aironet Series access points</p>	<p>External antennas and cables are ideal for antenna installation outside equipment rooms to optimize wireless LAN coverage and performance.</p> <p>The HWIC-AP-G and HWIC-AP-AG modules are shipped with a pair of dipole antennas unless optional antennas are selected.</p>

HWIC - Wireless Lan Interface Cards and Accessories

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
Wireless LAN Antenna Cables (AIR-CABxxxx)	Cisco Low-Loss cables (e.g., 20 ft. (6m), 50 ft. (15m)) and Ultra-Low-Loss cables (e.g., 100 ft. (30m), 150 ft. (46m)) .	3800 Series with HWIC-AP 2800 Series with HWIC-AP 1800 (modular) Series with HWIC-AP 1800W (fixed) Series 870W (fixed) Series Aironet Series access points	External antennas and cables are ideal for antenna installation outside equipment rooms to optimize wireless LAN coverage and performance.
	Modular Router Solutions 3800 Integrated Services Routers 2800 Integrated Services Routers 1800 (Modular) Integrated Services Routers		



Voice Interface/WICs

T1, E1, and G.703 Multiflex Trunk Voice and WAN Interface Cards



Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
VVIC2-1MFT-T1/E1 1-Port 2nd Generation T1/E1 Multiflex Trunk Voice/WAN Interface Card	This module supports voice, data, and integrated voice/data applications. For data applications, the VVIC2 provides a single-port WIC for T1 or E1 (including structured G.703 with G.704 framing) with an integrated DSU/CSU. For a packet voice solution, the VVIC2 provides a single-port voice interface card (VIC) with integrated DSU/CSU. For multiplexed voice and data applications, this module can partially provide a VVIC T1/E1 drop and insert multiplexer (requires 2 ports). The module includes a slot for a dedicated ECAN (EC-MFT) module.	3800 Series – 12.3(14)T; 12.4 Mainline 3700 Series – 12.3(14)T; 12.4 Mainline 3662 Telco Versatile DCN Platform – 12.3(14)T; 12.4 Mainline 2800 Series – 12.3(14)T; 12.4 Mainline 2691 – 12.3(14)T; 12.4 Mainline 2600XM Series – 12.3(14)T; 12.4 Mainline 1760 – 12.3(14)T; 12.4 Mainline 1751 – 12.3(14)T; 12.4 Mainline 1721 (data only) – 12.3(14)T; 12.4 Mainline	When used in a Cisco 3600 Series Router, requires one of the following network modules: NM-2W, NM-1FE2W-V2, NM-2FE2W-V2, or NM-1FE1R2W. When used for a packet voice solution on the Cisco 2600XM Series, 2691, or 3700 Series Routers, requires a NM-HDV, NM-HDV2, NM-HDV2-1T1/E1, NM-HDV2-2T1/E1, or NM-HD-2VE. When used for a packet voice solution in the chassis WIC slot on the Cisco 2600XM Series, 2691, or 3700 Series Routers, requires an AIM-VOICE-30 or AIM-ATM-VOICE-30. When used for a packet voice solution on a Cisco 1751, 1760, 2800, or 3800 router, requires a packet voice DSP module (PVD2M2). Voice is only supported on the VIC slots on the 1751 and 1760.
	Modular Router Solutions Serial and Legacy Concentration Voice and Fax		




T1, E1, and G.703 Multiflex Trunk Voice and WAN Interface Cards

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
VVIC2-2MFT-T1/E1 2-Port 2nd Generation T1/E1 Multiflex Trunk Voice/WAN Interface Card	This module supports voice, data, and integrated voice/data applications. For data applications, the VVIC2 provides a two-port WIC for T1 or E1 (including structured G.703 with G.704 framing) with an integrated DSU/CSU. For a packet voice solution, the VVIC2 provides a two-port voice interface card (VIC) with integrated DSU/CSU. For multiplexed voice and data applications, this module provides a two-port VVIC T1/E1 drop and insert multiplexer. The module includes a slot for a dedicated ECAN (EC-MFT) module.	3800 Series – 12.3(14)T; 12.4 Mainline 3700 Series – 12.3(14)T; 12.4 Mainline 3662 Telco Versatile DCN Platform – 12.3(14)T; 12.4 Mainline 2800 Series – 12.3(14)T; 12.4 Mainline 2691 – 12.3(14)T; 12.4 Mainline 2600XM Series – 12.3(14)T; 12.4 Mainline 1760 – 12.3(14)T; 12.4 Mainline 1751 – 12.3(14)T; 12.4 Mainline 1721 (data only) – 12.3(14)T; 12.4 Mainline	When used in a Cisco 3600 Series Router, requires one of the following network modules: NM-2W, NM-1FE2W-V2, NM-2FE2W-V2, or NM-1FE1R2W. When used for a packet voice solution on the Cisco 2600XM Series, 2691, or 3700 Series Routers, requires a NM-HDV, NM-HDV2, NM-HDV2-1T1/E1, NM-HDV2-2T1/E1, or NM-HD-2VE. When used for a packet voice solution in the chassis WIC slot on the Cisco 2600XM Series, 2691, or 3700 Series Routers, requires an AIM-VOICE-30 or AIM-ATM-VOICE-30. When used for a packet voice solution on a Cisco 1751, 1760, 2800, or 3800 router, requires a packet voice DSP module (PVDM2). Voice is only supported on the VIC slots on the 1751 and 1760.
	Modular Router Solutions Serial and Legacy Concentration Voice and Fax		
VVIC-1MFT-T1 1-port RJ-48 multiflex trunk-T1 voice/WIC	This module supports voice, data, and integrated voice/data applications. For data applications, the VVIC provides a single-port WIC for T1/FT1 with an integrated DSU/CSU. For a packet voice solution, the VVIC provides a single-port voice interface card (VIC) with integrated DSU/CSU, that combines with the digital T1/E1 packet voice trunk modules, or the IP communications voice/fax modules.	3800 Series – 12.3(11)T 3700 Series – 12.2(8)T 3600 Series – 12.0(5)XK 2800 Series – 12.3(8)T4 2691 – 12.2(8)T1 2600XM Series – 12.1(14) Mainline, 12.2(12) Mainline, 12.2(8)T1 2650 Series – 12.1(3)T 2620 Series – 12.0(5)XK 2610 Series – 12.0(5)XK 1841 – 12.3(8)T4 1760 – 12.2(15)T; 12.3 Mainline 1751 – 12.2(15)T; 12.3 Mainline 1721 – 12.2(15)T; 12.3 Mainline	When used in a Cisco 3600 Series Router, requires one of the following network modules: NM-2W, NM-1FE2W-V2, NM-2FE2W-V2, or NM-1FE1R2W. When used for a packet voice solution on the Cisco 2600XM Series, 2691, or 3700 Series Routers, requires a NM-HDV, NM-HDV2, NM-HDV2-1T1/E1, NM-HDV2-2T1/E1, or NM-HD-2VE. When used for a packet voice solution in the chassis WIC slot on the Cisco 2600XM Series, 2691, or 3700 Series Routers, requires an AIM-VOICE-30 or AIM-ATM-VOICE-30. Minimum Cisco IOS version may vary depending on application.
	Modular Router Solutions Serial and Legacy Concentration Voice and Fax		



T1, E1, and G.703 Multiflex Trunk Voice and WAN Interface Cards

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
VVIC-2MFT-T1 2-port RJ-48 multiflex trunk-T1 voice/WIC	This module supports voice, data, and integrated voice/data applications. For data applications, the VVIC provides a two-port WIC for T1/FT1 with an integrated DSU/CSU. For a packet voice solution, the VVIC provides a two-port voice interface card (VIC) with integrated DSU/CSU, that combines with the digital T1/E1 packet voice trunk modules, or the IP communications voice/fax modules.	3800 Series – 12.3(11)T 3700 Series – 12.2(8)T 3600 Series – 12.0(5)XK 2800 Series – 12.3(8)T4 2691 – 12.2(8)T1 2600XM Series – 12.1(14) Mainline, 12.2(12) Mainline, 12.2(8)T1 2650 Series – 12.1(3)T 2620 Series – 12.0(5)XK 2610 Series – 12.0(5)XK 1841 – 12.3(8)T4 1760 – 12.2(15)T; 12.3 Mainline 1751 – 12.2(15)T; 12.3 Mainline 1721 – 12.2(15)T; 12.3 Mainline	When used in a Cisco 3600 Series Router, requires one of the following network modules: NM-2W, NM-1FE2W-V2, NM-2FE2W-V2, or NM-1FE1R2W. When used for a packet voice solution on the Cisco 2600XM Series, 2691, or 3700 Series Routers, requires a NM-HDV, NM-HDV2, NM-HDV2-1T1/E1, NM-HDV2-2T1/E1, or NM-HD-2VE. When used for a packet voice solution in the chassis WIC slot on the Cisco 2600XM Series, 2691, or 3700 Series Routers, requires an AIM-VOICE-30 or AIM-ATM-VOICE-30. Minimum Cisco IOS version may vary depending on application.
	..... Modular Router Solutions Serial and Legacy Concentration Voice and Fax		
VVIC-2MFT-T1-DI 2-port RJ-48 multiflex trunk-T1 voice/WIC with drop and insert	This module supports voice, data, and integrated voice/data applications. For data applications, the VVIC provides a dual-port WIC for T1/FT1 with an integrated DSU/CSU. For a packet voice solution, the VVIC provides a dual-port voice interface card (VIC) with integrated DSU/CSU, that combines with the digital T1/E1 packet voice trunk modules, or the IP communications voice/fax modules. For multiplexed voice and data applications, this module provides a dual-port VVIC T1/FT1 with drop and insert multiplexer.	3800 Series – 12.3(11)T 3700 Series – 12.2(8)T 3600 Series – 12.0(5)XK 2800 Series – 12.3(8)T4 2691 – 12.2(8)T1 2600XM Series – 12.1(14) Mainline, 12.2(12) Mainline, 12.2(8)T1 2650 Series – 12.1(3)T 2620 Series – 12.0(5)XK 2610 Series – 12.0(5)XK 1841 – 12.3(8)T4 1760 – 12.2(15)T; 12.3 Mainline 1751 – 12.2(15)T; 12.3 Mainline 1721 – 12.2(15)T; 12.3 Mainline	When used in a Cisco 3600 Series Router, requires one of the following network modules: NM-2W, NM-1FE2W-V2, NM-2FE2W-V2, or NM-1FE1R2W. When used for a packet voice solution on the Cisco 2600XM Series, 2691, or 3700 Series Routers, requires a NM-HDV, NM-HDV2, NM-HDV2-1T1/E1, NM-HDV2-2T1/E1, or NM-HD-2VE. When used for a packet voice solution in the chassis WIC slot on the Cisco 2600XM Series, 2691, or 3700 Series Routers, requires an AIM-VOICE-30 or AIM-ATM-VOICE-30. Minimum Cisco IOS version may vary depending on application.
	..... Modular Router Solutions Serial and Legacy Concentration Voice and Fax Integration		



T1, E1, and G.703 Multiflex Trunk Voice and WAN Interface Cards

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
VVIC-1MFT-E1 1-port RJ-48 multiflex trunk-E1 voice/WIC	<p>This module supports voice, data, and integrated voice/data applications. For data applications, the VVIC provides a single-port WIC for E1/FE1 with an integrated DSU. For a packet voice solution, the VVIC provides a single-port voice interface card (VIC) with integrated DSU, that combines with the digital T1/E1 packet voice trunk modules, or the IP communications voice/fax modules.</p> <p>.....</p> <p>Modular Router Solutions Serial and Legacy Concentration Voice and Fax Integration</p>	3800 Series – 12.3(11)T 3700 Series - 12.2(8)T 3600 Series – 12.0(5)XK 2800 Series – 12.3(8)T4 2691 – 12.2(8)T1 2600XM Series – 12.1(14) Mainline, 12.2(12) Mainline, 12.2(8)T1 2650 Series – 12.1(3)T 2620 Series – 12.0(5)XK 2610 Series – 12.0(5)XK 1841 – 12.3(8)T4 1760 – 12.2(15)T; 12.3 Mainline 1751 – 12.2(15)T; 12.3 Mainline 1721 – 12.2(15)T; 12.3 Mainline	<p>When used in a Cisco 3600 Series Router, requires one of the following network modules: NM-2W, NM-1FE2W-V2, NM-2FE2W-V2, or NM-1FE1R2W.</p> <p>When used for a packet voice solution on the Cisco 2600XM Series, 2691, or 3700 Series Routers, requires a NM-HDV, NM-HDV2, NM-HDV2-1T1/E1, NM-HDV2-2T1/E1, or NM-HD-2VE. When used for a packet voice solution in the chassis WIC slot on the Cisco 2600XM Series, 2691, or 3700 Series Routers, requires an AIM-VOICE-30 or AIM-ATM-VOICE-30.</p> <p>Minimum Cisco IOS version may vary depending on application.</p>
 VVIC-2MFT-E1 2-port RJ-48 multiflex trunk-E1 voice/WIC	<p>This module supports voice, data, and integrated voice/data applications. For data applications, the VVIC provides a two-port WIC for E1/FE1 with an integrated DSU. For a packet voice solution, the VVIC provides a two-port voice interface card (VIC) with integrated DSU, that combines with the digital T1/E1 packet voice trunk modules, or the IP communications voice/fax modules.</p> <p>.....</p> <p>Modular Router Solutions Serial and Legacy Concentration Voice and Fax Integration</p>	3800 Series – 12.3(11)T 3700 Series - 12.2(8)T 3600 Series – 12.0(5)XK 2800 Series – 12.3(8)T4 2691 – 12.2(8)T1 2600XM Series – 12.1(14) Mainline, 12.2(12) Mainline, 12.2(8)T1 2650 Series – 12.1(3)T 2620 Series – 12.0(5)XK 2610 Series – 12.0(5)XK 1841 – 12.3(8)T4 1760 – 12.2(15)T; 12.3 Mainline 1751 – 12.2(15)T; 12.3 Mainline 1721 – 12.2(15)T; 12.3 Mainline	<p>When used in a Cisco 3600 Series Router, requires one of the following network modules: NM-2W, NM-1FE2W-V2, NM-2FE2W-V2, or NM-1FE1R2W.</p> <p>When used for a packet voice solution on the Cisco 2600XM Series, 2691, or 3700 Series Routers, requires a NM-HDV, NM-HDV2, NM-HDV2-1T1/E1, NM-HDV2-2T1/E1, or NM-HD-2VE. When used for a packet voice solution in the chassis WIC slot on the Cisco 2600XM Series, 2691, or 3700 Series Routers, requires an AIM-VOICE-30 or AIM-ATM-VOICE-30.</p> <p>Minimum Cisco IOS version may vary depending on application.</p>


T1, E1, and G.703 Multiflex Trunk Voice and WAN Interface Cards

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
VVIC-2MFT-E1-DI 2-port RJ-48 multiflex trunk-E1 voice/WIC with drop and insert	This module supports voice, data, and integrated voice/data applications. For data applications, the VVIC provides a two-port WC for E1/FE1 with an integrated DSU. For a packet voice solution, the VVIC provides a dual-port voice interface card (VIC) with integrated DSU, that combines with the digital T1/E1 packet voice trunk modules, or the IP communications voice/fax modules. For multiplexed voice and data applications, this module provides a two-port VVIC E1/FE1 drop and insert multiplexer.	3800 Series – 12.3(11)T 3700 Series – 12.2(8)T 3600 Series – 12.0(5)XK 2800 Series – 12.3(8)T4 2691 – 12.2(8)T1 2600XM Series – 12.1(14) Mainline, 12.2(12) Mainline, 12.2(8)T1 2650 Series – 12.1(3)T 2620 Series – 12.0(5)XK 2610 Series – 12.0(5)XK 1841 – 12.3(8)T4 1760 – 12.2(15)T; 12.3 Mainline 1751 – 12.2(15)T; 12.3 Mainline 1721 – 12.2(15)T; 12.3 Mainline	When used in a Cisco 3600 Series Router, requires one of the following network modules: NM-2W, NM-1FE2W-V2, NM-2FE2W-V2, or NM-1FE1R2W. When used for a packet voice solution on the Cisco 2600XM Series, 2691, or 3700 Series Routers, requires a NM-HDV, NM-HDV2, NM-HDV2-1T1/E1, NM-HDV2-2T1/E1, or NM-HD-2VE. When used for a packet voice solution in the chassis WIC slot on the Cisco 2600XM Series, 2691, or 3700 Series Routers, requires an AIM-VOICE-30 or AIM-ATM-VOICE-30. Minimum Cisco IOS version may vary depending on application.
	..... Modular Router Solutions Serial and Legacy Concentration Voice and Fax Integration		
VVIC2-1MFT-G703 1-port G.703 Multiflex Trunk Voice/WAN Interface Card	This module supports voice, data, and integrated voice/data applications. For data applications, the VVIC2 provides a single-port WIC for T1, fractional T1, E1 (including structured G.703 with G.704 framing), fractional E1 or unstructured E1 (G.703) with an integrated DSU/CSU. For a packet voice solution, the VVIC2 provides a single-port voice interface card (VIC) with integrated DSU/CSU. For multiplexed voice and data applications, this module can partially provide a VVIC T1/E1 drop and insert multiplexer (requires 2 ports). The module includes a slot for a dedicated ECAN (EC-MFT) module.	3800 Series – 12.3(14)T; 12.4 Mainline 3700 Series – 12.3(14)T; 12.4 Mainline 3662 Telco Versatile DCN Platform – 12.3(14)T; 12.4 Mainline 2800 Series – 12.3(14)T; 12.4 Mainline 2691 – 12.3(14)T; 12.4 Mainline 2600XM Series – 12.3(14)T; 12.4 Mainline	When used in a Cisco 3600 Series Router, requires one of the following network modules: NM-2W, NM-1FE2W-V2, NM-2FE2W-V2, or NM-1FE1R2W. When used for a packet voice solution on the Cisco 2600XM Series, 2691, or 3700 Series Routers, requires a NM-HDV, NM-HDV2, NM-HDV2-1T1/E1, NM-HDV2-2T1/E1, or NM-HD-2VE. When used for a packet voice solution in the chassis WIC slot on the Cisco 2600XM Series, 2691, or 3700 Series Routers, requires an AIM-VOICE-30 or AIM-ATM-VOICE-30. When used for a packet voice solution on a Cisco 1751, 1760, 2800, or 3800 router, requires a packet voice DSP module (PVDM2). Voice is only supported on the VIC slots on the 1751 and 1760. The VVIC2-1MFT-G703 is not supported on the NM-HDV or NM-HD-2VE.
	..... Modular Router Solutions Serial and Legacy Concentration Voice and Fax		

T1, E1, and G.703 Multiflex Trunk Voice and WAN Interface Cards


Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
VVIC2-2MFT-G703 2-port 2nd Generation G.703 Multiflex Trunk Voice/WAN Interface Card	<p>This module supports voice, data, and integrated voice/data applications.</p> <p>For data applications, the VVIC2 provides a single-port WIC for T1, fractional T1, E1 (including structured G.703 with G.704 framing), fractional E1 or unstructured E1 (G.703) with an integrated DSU/CSU.</p> <p>For a packet voice solution, the VVIC2 provides a two-port voice interface card (VIC) with integrated DSU/CSU.</p> <p>For multiplexed voice and data applications, this module provides a two-port VVIC T1/E1 drop and insert multiplexer.</p> <p>The module includes a slot for a dedicated ECAN (EC-MFT) module.</p>	3800 Series – 12.3(14)T; 12.4 Mainline 3700 Series – 12.3(14)T; 12.4 Mainline 3662 Telco Versatile DCN Platform – 12.3(14)T; 12.4 Mainline 2800 Series – 12.3(14)T; 12.4 Mainline 2691 – 12.3(14)T; 12.4 Mainline 2600XM Series – 12.3(14)T; 12.4 Mainline	<p>When used in a Cisco 3600 Series Router, requires one of the following network modules: NM-2W, NM-1FE2W-V2, NM-2FE2W-V2, or NM-1FE1R2W.</p> <p>When used for a packet voice solution on the Cisco 2600XM Series, 2691, or 3700 Series Routers, requires a NM-HDV, NM-HDV2, NM-HDV2-1T1/E1, NM-HDV2-2T1/E1, or NM-HD-2VE.</p> <p>When used for a packet voice solution in the chassis WIC slot on the Cisco 2600XM Series, 2691, or 3700 Series Routers, requires an AIM-VOICE-30 or AIM-ATM-VOICE-30.</p> <p>When used for a packet voice solution on a Cisco 1751, 1760, 2800, or 3800 router, requires a packet voice DSP module (PVDM2).</p> <p>Voice is only supported on the VIC slots on the 1751 and 1760.</p> <p>The VVIC2-2MFT-G703 is not supported on the NM-HD-2VE.</p>
	<p>Modular Router Solutions</p> <p>Serial and Legacy Concentration</p> <p>Voice and Fax</p>		
VVIC-1MFT-G703 1-port RJ-48 multiflex trunk-E1 framed/unframed voice/WIC	<p>This module supports voice, data, and integrated voice/data applications.</p> <p>For data applications, the VVIC provides a one-port WIC for E1/FE1 or unframed G.703 with an integrated DSU. For a packet voice solution, the VVIC provides a one-port voice interface card (VIC) with integrated DSU, that combines with the digital T1/E1 packet voice trunk modules, or the IP communications voice/fax modules.</p>	3800 Series – 12.3(11)T 3700 Series - 12.2(8)T 3600 Series – 12.1(1)T 2800 Series – 12.3(8)T4 2691 – 12.2(8)T1 2600XM Series – 12.2(12) Mainline, 12.2(8)T1 2650 Series – 12.1(3)T 2620 Series – 12.1(1)T 2610 Series – 12.1(1)T 1841 – 12.3(8)T4 1760 – 12.2(15)T; 12.3 Mainline 1751 – 12.2(15)T; 12.3 Mainline 1721 – 12.2(15)T; 12.3 Mainline	<p>When used in a Cisco 3600 Series Router, requires one of the following network modules: NM-2W, NM-1FE2W-V2, NM-2FE2W-V2, or NM-1FE1R2W.</p> <p>When used for a packet voice solution on the Cisco 2600XM Series, 2691, or 3700 Series Routers, requires a NM-HDV, NM-HDV2, NM-HDV2-1T1/E1, NM-HDV2-2T1/E1, or NM-HD-2VE. When used for a packet voice solution in the chassis WIC slot on the Cisco 2600XM Series, 2691, or 3700 Series Routers, requires an AIM-VOICE-30 or AIM-ATM-VOICE-30.</p> <p>Minimum Cisco IOS version may vary depending on application.</p>
	<p>Modular Router Solutions</p> <p>Serial and Legacy Concentration</p> <p>Voice and Fax Integration</p>		

T1, E1, and G.703 Multiflex Trunk Voice and WAN Interface Cards




Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
VVIC-2MFT-G703 2-port RJ-48 multiflex trunk-E1 framed/unframed voice/WIC with drop and insert	This module supports voice, data, and integrated voice/data applications. For data applications, the VVIC provides a two-port WIC for E1/FE1 or unframed G.703 with an integrated DSU. For a packet voice solution, the VVIC provides a two-port voice interface card (VIC) with integrated DSU, that combines with the digital T1/E1 packet voice trunk modules, or the IP communications voice/fax modules. For multiplexed voice and data applications, this module provides a two-port VVIC E1/FE1 drop and insert multiplexer.	3800 Series – 12.3(11)T 3700 Series – 12.2(8)T 3600 Series – 12.1(1)T 2800 Series – 12.3(8)T4 2691 – 12.2(8)T1 2600XM Series – 12.2(12) Mainline, 12.2(8)T1 2650 Series – 12.1(3)T 2620 Series – 12.1(1)T 2610 Series – 12.1(1)T 1841 – 12.3(8)T4 1760 – 12.2(15)T; 12.3 Mainline 1751 – 12.2(15)T; 12.3 Mainline 1721 – 12.2(15)T; 12.3 Mainline	When used in a Cisco 3600 Series Router, requires one of the following network modules: NM-2W, NM-1FE2W-V2, NM-2FE2W-V2 or NM-1FE1R2W. When used for a packet voice solution on the Cisco 2600XM Series, 2691, or 3700 Series Routers, requires a NM-HDV, NM-HDV2, NM-HDV2-1T1/E1, NM-HDV2-2T1/E1, or NM-HD-2VE. When used for a packet voice solution in the chassis WIC slot on the Cisco 2600XM Series, 2691, or 3700 Series Routers, requires an AIM-VOICE-30 or AIM-ATM-VOICE-30. When used in a Cisco 1751, 1760, 2800, or 3800 router, requires a DSP module. Minimum Cisco IOS version may vary depending on application.
	Modular Router Solutions Serial and Legacy Concentration Voice and Fax Integration		

Voice Interface Cards




Analog Voice Interface Cards

Product	Description	Supported Platforms and Minimum IOS Versions	Comments
VIC-2FXS 2-port FXS voice interface card	The two-port FXS voice/fax interface card for Cisco voice/fax network modules is used to connect directly to phones and fax machines. This voice interface card works with existing phone and fax equipment to provide voice and fax services over IP, and is compatible with H.323 standard for audio- and videoconferencing.	3700 Series – 12.2(8)T 3660 Series – 12.0(5)T 3640 – 11.3(1)T 3620 – 11.3(1)T 2691 – 12.2(8)T1 2600XM Series – 12.1(14) Mainline, 12.2(12) Mainline, 12.2(8)T1 2650 Series – 12.1(3)T 2620 Series – 11.3(1)T 2610 Series – 11.3(1)T 1760 – 12.2(11)T; 12.3 Mainline 1751 – 12.2(4)T; 12.3 Mainline	When used in a Cisco 2600, 3600 or 3700 Series Router, requires a voice/fax network module: NM-1V or NM-2V. When used in a Cisco 1751 or Cisco 1760 Series Router, requires a DSP module. Prior to Cisco IOS 12.3 Mainline, requires a Cisco IOS "Plus" feature set. 12.3 Mainline and forward supported in "IP Voice" feature set. End of sales announced. Last order date July 31, 2005.
	Modular Router Solutions Voice and Fax Integration		




Analog Voice Interface Cards

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
VIC-2FXO 2-port FXO voice interface card 	The two-port FXO voice/fax interface card for Cisco voice/fax network modules is used to connect to PBX or key systems, and to provide off-premise connections. This voice interface card works with existing phone and fax equipment to provide voice and fax services over IP, and is compatible with H.323 standard for audio- and videoconferencing. <p>.....</p> Modular Router Solutions Voice and Fax Integration	3700 Series – 12.2(8)T 3660 Series – 12.0(5)T 3640 – 11.3(1)T 3620 – 11.3(1)T 2691 – 12.2(8)T1 2600XM Series – 12.1(14) Mainline, 12.2(12) Mainline, 12.2(8)T1 2650 Series – 12.1(3)T 2620 Series – 11.3(2)XA 2610 Series – 11.3(2)XA 1760 – 12.2(11)T; 12.3 Mainline 1751 – 12.2(4)T; 12.3 Mainline	When used in a Cisco 2600, 3600 or 3700 Series Router, requires a voice/fax network module: NM-1V or NM-2V. When used in a Cisco 1751 or Cisco 1760 Series Router, requires a DSP module. Prior to Cisco IOS 12.3 Mainline, requires a Cisco IOS “Plus” feature set. 12.3 Mainline and forward supported in “IP Voice” feature set. End of sales announced. Last order date July 31, 2005.
VIC-2FXO-EU 2-port FXO voice interface card for Europe 	The two-port FXO voice/fax interface card for Cisco voice/fax network modules is used to connect to PBX or key system, and to provide off-premise connections for Europe only. This voice interface card works with existing phone and fax equipment to provide voice and fax services over IP, and is compatible with H.323 standard for audio- and videoconferencing. <p>.....</p> Modular Router Solutions Voice and Fax Integration	3700 Series – 12.2(8)T 3660 Series – 12.0(5)T 3640 – 11.3(6)T 3620 – 11.3(6)T 2691 – 12.2(8)T1 2600XM Series – 12.1(14) Mainline, 12.2(12) Mainline, 12.2(8)T1 2650 Series – 12.1(3)T 2620 Series – 11.3(6)T 2610 Series – 11.3(6)T 1760 – 12.2(11)T; 12.3 Mainline 1751 – 12.2(4)T; 12.3 Mainline	When used in a Cisco 2600, 3600 or 3700 Series Router, requires a voice/fax network module: NM-1V or NM-2V. When used in a Cisco 1751 or Cisco 1760 Series Router, requires a DSP module. Prior to Cisco IOS 12.3 Mainline, requires a Cisco IOS “Plus” feature set. 12.3 Mainline and forward supported in “IP Voice” feature set. End of sales announced. Last order date July 31, 2005.
VIC-2FXO-M1 2-port FXO voice interface card with battery reversal and caller ID support 	The two-port FXO voice/fax interface card for Cisco voice/fax network modules is used to connect to PBX or key system, and to provide off-premise connections. This voice interface card supports all features of VIC-2FXO and in addition battery reversal, power denial, and caller ID. <p>.....</p> Modular Router Solutions Voice and Fax Integration	3700 Series – 12.2(8)T 3660 Series – 12.1(2)XH 3640 – 12.1(2)XH 3620 – 12.1(2)XH 2691 – 12.2(8)T1 2600XM Series – 12.1(14) Mainline, 12.2(12) Mainline, 12.2(8)T1 2650 Series – 12.1(3)T 2620 Series – 12.1(2)XH 2610 Series – 12.1(2)XH 1760 – 12.2(11)T; 12.3 Mainline 1751 – 12.2(13)T; 12.3 Mainline	When used in a Cisco 2600, 3600 or 3700 Series Router, requires a voice/fax network module: NM-1V or NM-2V. When used in a Cisco 1751 or Cisco 1760 Series Router, requires a DSP module. Prior to Cisco IOS 12.3 Mainline, requires a Cisco IOS “Plus” feature set. 12.3 Mainline and forward supported in “IP Voice” feature set. End of sales announced. Last order date July 31, 2005.




Analog Voice Interface Cards

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<p>VIC-2FXO-M2</p> <p>2-port FXO voice interface card with battery reversal and caller ID support for Europe</p> 	<p>The two-port FXO voice/fax interface card for Cisco voice/fax network modules is used to connect to PBX or key system, and to provide off-premise connections in Europe only. This voice interface card supports all features of VIC-2FXO plus battery reversal, power denial and caller ID.</p> <p>.....</p> <p>Modular Router Solutions Voice and Fax Integration</p>	<p>3700 Series – 12.2(8)T 3660 Series – 12.1(2)XH 3640 – 12.1(2)XH 3620 – 12.1(2)XH 2691 – 12.2(8)T1 2600XM Series – 12.1(14) Mainline, 12.2(12) Mainline, 12.2(8)T1 2650 Series – 12.1(3)T 2620 Series – 12.1(2)XH 2610 Series – 12.1(2)XH 1760 – 12.2(11)T; 12.3 Mainline 1751 – 12.2(2)XJ; 12.3 Mainline</p>	<p>When used in a Cisco 2600, 3600 or 3700 Series Router, requires a voice/fax network module: NM-1V or NM-2V.</p> <p>When used in a Cisco 1751 or Cisco 1760 Series Router, requires a DSP module.</p> <p>Prior to Cisco IOS 12.3 Mainline, requires a Cisco IOS “Plus” feature set. 12.3 Mainline and forward supported in “IP Voice” feature set.</p> <p>End of sales announced. Last order date July 31, 2005.</p>
<p>VIC-2FXO-M3</p> <p>2-port FXO voice interface card for Australia</p> 	<p>The two-port FXO voice/fax interface card for Cisco voice/fax network modules is used to connect to PBX or key system, and to provide off-premise connections for Australia only. This voice interface card works with existing phone and fax equipment to provide voice and fax services over IP, and is compatible with H.323 standard for audio- and videoconferencing.</p> <p>.....</p> <p>Modular Router Solutions Voice and Fax Integration</p>	<p>3700 Series – 12.2(8)T 3600 Series – 12.1(2)XH 2691 – 12.2(8)T1 2600XM Series – 12.1(14) Mainline, 12.2(12) Mainline, 12.2(8)T1 2650 Series – 12.1(3)T 2620 Series – 12.1(2)XH 2610 Series – 12.1(2)XH 1760 – 12.2(11)T; 12.3 Mainline 1751 – 12.2(4)T; 12.3 Mainline</p>	<p>When used in a Cisco 2600, 3600 or 3700 Series Router, requires a voice/fax network module: NM-1V or NM-2V.</p> <p>When used in a Cisco 1751 or Cisco 1760 Series Router, requires a DSP module.</p> <p>Prior to Cisco IOS 12.3 Mainline, requires a Cisco IOS “Plus” feature set. 12.3 Mainline and forward supported in “IP Voice” feature set.</p> <p>End of sales announced. Last order date July 31, 2005.</p>
<p>VIC-2DID</p> <p>2-port direct inward dial voice/fax interface card</p> 	<p>The two-port DID voice interface card, VIC-2DID, is a two-port inward dialing voice interface card. DID is a service offered by telephone companies that enables callers to dial directly to an extension on a Private Branch Exchange (PBX) or packet voice system. VIC-2DID card will service two analog DID trunks using analog voice or fax. It has dual working modes: DID and FXS. Two working modes are mutually exclusive.</p> <p>.....</p> <p>Modular Router Solutions Voice and Fax Integration</p>	<p>3800 Series – 12.3(11)T 3700 Series – 12.2(8)T 3600 Series – 12.1(5)XM1 2800 Series – 12.3(8)T4 2691 – 12.2(8)T1 2600XM Series – 12.2(12) Mainline, 12.2(8)T1 2600 Series – 12.1(5)XM1 1760 – 12.2(11)T; 12.3 Mainline 1751 – 12.2(13)T; 12.3 Mainline</p>	<p>When used in a Cisco 2600, 3600 or 3700 Series Router, requires a voice/fax network module: NM-1V, NM-2V, NM-HD-1V, NM-HD-V2, NM-HD-2VE, NM-HDV2, NM-HDV2-1T1/E1, NM-HDV2-2T1/E1.</p> <p>When used in a Cisco 1700, 2800, or 3800 router, requires a DSP module.</p> <p>When used in a Cisco 1751 or Cisco 1760 Series Router, requires a DSP module.</p> <p>Prior to Cisco IOS 12.3 Mainline, requires a Cisco IOS “Plus” feature set. 12.3 Mainline and forward supported in “IP Voice” feature set.</p>


Analog Voice Interface Cards

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
VIC-2E/M 2-port E&M voice interface card 	The two-port E&M voice interface card for Cisco voice/fax network modules is used to connect to PBX or key system trunk lines. This voice interface card works with existing phone and fax equipment to provide voice and fax services over IP, and is compatible with H.323 standard for audio- and videoconferencing.	3700 Series – 12.2(8)T 3600 Series – 12.1(2)XH 2691 – 12.2(8)T1 2600XM Series – 12.1(14) Mainline, 12.2(12) Mainline, 12.2(8)T1 2650 Series – 12.1(3)T 2620 Series – 12.1(2)XH 2610 Series – 12.1(2)XH 1760 – 12.2(11)T; 12.3 Mainline 1751 – 12.2(4)T; 12.3 Mainline	When used in a Cisco 2600, 3600 or 3700 Series Router, requires a voice/fax network module: NM-1V or NM-2V. When used in a Cisco 1751 or Cisco 1760 Series Router, requires a DSP module. Prior to Cisco IOS 12.3 Mainline, requires a Cisco IOS “Plus” feature set. 12.3 Mainline and forward supported in “IP Voice” feature set. End of sales announced. Last order date July 31, 2005.
VIC-2CAMA 2-port FXO analog CAMA trunk interface card 	Provides two FXO ports with an analog CAMA (Centralized Automatic Message Accounting) E911 trunk based on the ANSIT1.411-1995 standard, providing a dedicated CAMA connection to a switch port of the local E911 network.	3700 Series – 12.2(11)T 3600 Series – 12.2(11)T 2691 – 12.2(11)T 2600XM Series – 12.2(11)T 2600 Series – 12.2(11)T	When used in a Cisco 2600, 3600 or 3700 Series Router, requires a voice/fax network module: NM-1V or NM-2V. Prior to Cisco IOS 12.3 Mainline, requires a Cisco IOS “Plus” feature set. 12.3 Mainline and forward supported in “IP Voice” feature set. End of sales announced. Last order date July 31, 2005.
VIC2-2FXS 2-port FXS voice/fax interface card 	The two-port FXS voice/fax interface card for Cisco voice/fax network modules is used to connect directly to phones and fax machines. This voice interface card works with existing phone and fax equipment to provide voice and fax services over IP, and is compatible with H.323 standard for audio- and videoconferencing.	3800 Series – 12.3(11)T 3700 Series – 12.3(4)T 3660 – 12.3(4)T 3640 – 12.3(4)T 2800 Series – 12.3(8)T4 2691 – 12.3(4)T 2600XM Series – 12.3(4)T 1760 – 12.3(4)T 1751 – 12.3(4)T	When used in a Cisco 2600, 3600 or 3700 Series Router, requires a voice/fax network module: NM-HD-V1, NM-HD-V2, NM-HD-2VE, NM-HDV2, NM-HDV2-1T1/E1, NM-HDV2-2T1/E1. When used in a Cisco 1700, 2800, or 3800 router, requires a DSP module. Prior to Cisco IOS 12.3 Mainline, requires a Cisco IOS “Plus” feature set. 12.3 Mainline and forward supported in “IP Voice” feature set.



Analog Voice Interface Cards

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<p>VIC2-2FXO</p> <p>2-port FXO voice/fax interface card (universal card for all countries). Also supports CAMA (centralized automated message accounting) on any port</p> 	<p>FXO ports are used to connect to PBX or key systems, or to provide off-premise connections to PSTN or PTT. Supports battery reversal detection and caller ID. These Cisco VICs can be software-configured to work in all countries. Also used to connect to analog CAMA trunk to provide dedicated E-911 service (North America only).</p> <p>Modular Router Solutions Voice and Fax Integration</p>	<p>3800 Series – 12.3(11)T 3700 Series – 12.3(4)T 3660 – 12.3(4)T 3640 – 12.3(4)T 2800 Series – 12.3(8)T4 2691 – 12.3(4)T 2600XM Series – 12.3(4)T 1760 – 12.3(4)T 1751 – 12.3(4)T</p>	<p>When used in a Cisco 2600, 3600 or 3700 Series Router, requires a voice/fax network module: NM-HD-V1, NM-HD-V2, NM-HD-2VE, NM-HDV2, NM-HDV2-1T1/E1, NM-HDV2-2T1/E1.</p> <p>When used in a Cisco 1700, 2800, or 3800 router, requires a DSP module.</p> <p>Prior to Cisco IOS 12.3 Mainline, requires a Cisco IOS “Plus” feature set. 12.3 Mainline and forward supported in “IP Voice” feature set.</p>
<p>VIC2-4FXO</p> <p>4-port FXO voice/fax interface card (universal card for all countries). Also supports CAMA (centralized automated message accounting) on any port</p> 	<p>FXO ports are used to connect to PBX or key systems, or to provide off-premise connections to PSTN or PTT. Supports battery reversal detection and caller ID. These Cisco VICs can be software-configured to work in all countries. Also used to connect to analog CAMA trunk to provide dedicated E-911 service (North America only).</p> <p>Modular Router Solutions Voice and Fax Integration</p>	<p>3800 Series – 12.3(11)T 3700 Series – 12.3(4)T 3660 – 12.3(4)T 3640 – 12.3(4)T 2800 Series – 12.3(8)T4 2691 – 12.3(4)T 2600XM Series – 12.3(4)T 1760 – 12.3(4)T 1751 – 12.3(4)T</p>	<p>When used in a Cisco 2600, 3600 or 3700 Series Router, requires a voice/fax network module: NM-HD-V1, NM-HD-V2, NM-HD-2VE, NM-HDV2, NM-HDV2-1T1/E1, NM-HDV2-2T1/E1.</p> <p>When used in a Cisco 1700, 2800, or 3800 router, requires a DSP module.</p> <p>Prior to Cisco IOS 12.3 Mainline, requires a Cisco IOS “Plus” feature set. 12.3 Mainline and forward supported in “IP Voice” feature set.</p>
<p>VIC2-2E/M</p> <p>2-port E&M voice/fax interface card. Also supports CAMA (centralized automated message accounting) on any port</p> 	<p>The two-port E&M voice interface card for Cisco voice/fax network modules is used to connect to PBX or key system trunk lines. This voice interface card works with existing phone and fax equipment to provide voice and fax services over IP, and is compatible with H.323 standard for audio- and teleconferencing.</p> <p>Modular Router Solutions Voice and Fax Integration</p>	<p>3800 Series – 12.3(11)T 3700 Series – 12.3(4)T 3660 – 12.3(4)T 3640 – 12.3(4)T 2800 Series – 12.3(8)T4 2691 – 12.3(4)T 2600XM Series – 12.3(4)T 1760 – 12.3(4)T 1751 – 12.3(4)T</p>	<p>When used in a Cisco 2600, 3600 or 3700 Series Router, requires a voice/fax network module: NM-HD-V1, NM-HD-V2, NM-HD-2VE, NM-HDV2, NM-HDV2-1T1/E1, NM-HDV2-2T1/E1.</p> <p>When used in a Cisco 1700, 2800, or 3800 router, requires a DSP module.</p> <p>Prior to Cisco IOS 12.3 Mainline, requires a Cisco IOS “Plus” feature set. 12.3 Mainline and forward supported in “IP Voice” feature set.</p>


Analog Voice Interface Cards

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
VIC-4FXS/DID 4-port FXS voice/fax interface card 	FXS port is used to connect directly to phones, fax machines, and key systems. Generates battery polarity reversal and caller ID. Modular Router Solutions Voice and Fax Integration	3800 Series – 12.3(11)T 3700 Series – 12.3(4)T 3660 – 12.3(4)T 3640 – 12.3(4)T 2800 Series – 12.3(8)T4 2691 – 12.3(4)T 2600XM Series – 12.3(4)T 1760 – 12.3(4)T 1751 – 12.3(4)T	When used in a Cisco 2600, 3600 or 3700 Series Router, requires a voice/fax network module: NM-1V, NM-2V, NM-HD-1V, NM-HD-2V, NM-HD-2VE, NM-HDV2, NM-HDV2-1T1/E1, or NM-HDV2-2T1/E1. When used in a Cisco 1700, 2800, or 3800 router, requires a DSP module. Prior to Cisco IOS 12.3 Mainline, requires a Cisco IOS “Plus” feature set. 12.3 Mainline and forward supported in “IP Voice” feature set.


ISDN BRI Voice Interface Cards

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
VIC-2BRI-NT/TE 2-port BRI ISDN voice interface card terminal side or network side 	This two-port ISDN Terminal Side or Network Side Basic Rate Interface (BRI) voice interface card (VIC) connects directly to PSTNs and PBX/PABXs and supports both on-premise and off-premise connections. The VIC-2BRI-NT/TE supports a total of four voice channels in a single interface card via two RJ-45 physical ports, and enables toll-bypass and voice-over-packet features. Modular Router Solutions Voice and Fax Integration	3700 Series – 12.2(11)YT 3600 Series – 12.1(3)XI 2691 – 12.2(11)YT 2600XM Series – 12.2(12) Mainline, 12.2(8)T1 2600 Series – 12.1(3)XI 1760 – 12.2(11)T 1751 – 12.2(4)T	When used in a Cisco 2600, 3600 or 3700 Series Router, requires a voice/fax network module: NM-1V or NM-2V. When used in a Cisco 1751 or Cisco 1760 Series Router, requires a DSP module. Prior to Cisco IOS 12.3 Mainline, requires a Cisco IOS “Plus” feature set. 12.3 Mainline and forward supported in “IP Voice” feature set.
VIC2-2BRI-NT/TE 2-port BRI voice/fax interface card 	This two-port ISDN terminal-side or network-side Basic Rate Interface (BRI) voice interface card connects directly to PSTNs and PBX/PABXs and supports both on-premise and off-premise connections. Supports a total of four voice channels in a single interface card via two RJ-45 physical ports, and enables toll-bypass and voice-over-packet features. Modular Router Solutions Voice and Fax Integration	3800 Series – 12.3(11)T 3700 Series – 12.3(4)T 3660 – 12.3(4)T 3640 – 12.3(4)T 2800 Series – 12.3(8)T4 2691 – 12.3(4)T 2600XM Series – 12.3(4)T 1760 – 12.3(4)T 1751 – 12.3(4)T	When used in a Cisco 2600, 3600 or 3700 Series Router, requires a voice/fax network module: NM-HD-1V, NM-HD-2V, NM-HD-2VE, NM-HDV2, NM-HDV2-1T1/E1, or NM-HDV2-2T1/E1. When used in a Cisco 1700, 2800, or 3800 router, requires a DSP module. Prior to Cisco IOS 12.3 Mainline, requires a Cisco IOS “Plus” feature set. 12.3 Mainline and forward supported in “IP Voice” feature set.

ISDN BRI Voice Interface Cards



Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
VIC-2BRI-S/T-TE 2-port BRI ISDN voice interface card	This two-port ISDN, S/T, terminal side, basic rate interface (BRI) voice interface card (VIC) connects directly to PSTNs and supports both on-premise and off-premise connections. The VIC-2BRI-S/T-TE supports a total of four voice channels in a single interface card via two RJ-45 physical ports, and enables toll-bypass and voice-over-packet features.	3700 Series – 12.2(8)T 3660 Series – 12.0(7)XK 3640 – 12.0(3)T 3620 – 12.0(3)T 2691 – 12.2(8)T1 2600XM Series – 12.1(14) Mainline, 12.2(12) Mainline, 12.2(8)T1 2650 – 12.1(3)T 2620 – 12.0(3)T 2610 – 12.0(3)T	When used in a Cisco 2600, 3600 or 3700 Series Router, requires a voice/fax network module: NM-1V or NM-2V. Prior to Cisco IOS 12.3 Mainline, requires a Cisco IOS "Plus" feature set. 12.3 Mainline and forward supported in "IP Voice" feature set. End of sales announced. Last order date July 31, 2005.
		Modular Router Solutions Voice and Fax Integration	

J1 Voice Interface Cards

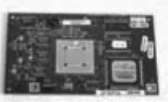
Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
VIC-1J1 1-port J1 voice interface card	Provides a one-port J1 line interface to Japanese private branch exchanges (PBXs). It is specifically designed to conform with the TTC JJ-20.10-12 standards which define the interface between a PBX and a TDM switch. This network module is currently designed only for voice and fax applications.	3800 Series – Not Supported except in NM-HDV and NM-HDV2 3700 Series – 12.2(8)T 3600 Series – 12.1(3)XI 2811, 2821, and 2851 – Not Supported except in NM-HDV and NM-HDV2 2691 – 12.2(8)T1 2600XM Series – 12.2(8)T1 2600 Series – 12.1(3)XI	Requires a high-density digital voice/fax network module: NM-HDV, NM-HDV2, NM-HDV2-1T1/E1, or NM-HDV2-2T1/E1. Prior to Cisco IOS 12.3 Mainline, requires a Cisco IOS "Plus" feature set. 12.3 Mainline and forward supported in "IP Voice" feature set.
		Modular Router Solutions Voice and Fax Integration	

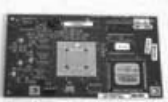
Advanced Integration Modules and Security Modules

Compression Advanced Integration Modules


Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<p>AIM-COMPR4 Cisco data compression advanced interface module</p> 	<p>The data compression AIM plugs directly into one or both of the two internal advanced integration module slots for supported Cisco routers.</p> <p>.....</p> <p>Modular Router Solutions Bandwidth Management</p>	<p>3800 Series – 12.3(11)T 3700 Series – 12.2(13)T 3660 Series – 12.0(5)T 2691 – 12.2(13)T</p>	<p>No reliance on other network modules, WICs, voice interface cards, or advanced integration modules.</p>
<p>AIM-COMPR2-V2 Cisco data compression advanced interface module</p> 	<p>The data compression AIM plugs directly into one of the internal advanced integration module slots for supported Cisco routers.</p> <p>.....</p> <p>Modular Router Solutions Bandwidth Management</p>	<p>2811, 2821, and 2851–12.3(8)T4 2600XM Series – 12.2(23), 12.3(6), 12.3(7)T</p>	<p>No reliance on other network modules, WICs, voice interface cards, or advanced integration modules.</p>

Security Modules




Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<p>AIM-VPN/HPII-PLUS DES/3DES/AES VPN Encryption and Compression AIM —high-performance</p>	<p>Provides enhanced hardware accelerated DES, 3DES or AES encryption (optimized for AES128, AES192, AES256). Plugs directly into one of the internal advanced integration module slots for supported Cisco routers. In addition, the module supports hardware-assisted Layer 3 IPsec LZS compression.</p>	<p>3845 Series – 12.3(11)T 3745 Series – 12.3(5c)/12.3(6) Mainline or 12.3(7)T 3660 Series – 12.3(5c)/12.3(6) Mainline or 12.3(7)T</p>	<p>No reliance on other network modules, WICs, encryption and voice interface cards, or advanced integration modules. Requires Cisco Advanced Security feature set.</p>
	<p>..... Modular Router Solutions VPN and Firewall Bandwidth Management</p>		

<p>AIM-VPN/EPII-PLUS DES/3DES/AES VPN Encryption and Compression AIM —enhanced-performance</p>	<p>Provides enhanced hardware accelerated DES, 3DES or AES encryption (optimized for AES128, AES192, AES256). Plugs directly into one of the internal advanced integration module slots for supported Cisco routers. In addition, the module supports hardware-assisted Layer 3 IPsec LZS compression.</p>	<p>3825 Series – 12.3(11)T 3725 – 12.3(5c)/12.3(6) Mainline or 12.3(7)T 2800 Series – 12.3(8)T4 2691 Series – 12.3(5c)/12.3(6) Mainline or 12.3(7)T</p>	<p>No reliance on other network modules, WICs, encryption and voice interface cards, or advanced integration modules. Requires Cisco Advanced Security feature set.</p>
	<p>..... Modular Router Solutions VPN and Firewall Bandwidth Management</p>		





Security Modules

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<p>AIM-VPN/BPII-PLUS DES/3DES/AES VPN Encryption and Compression AIM —base-performance</p>	<p>Provides enhanced hardware accelerated DES, 3DES or AES encryption (optimized for AES128, AES192, AES256). Plugs directly into one of the internal advanced integration module slots for supported Cisco routers. In addition, the module supports hardware-assisted Layer 3 IPsec LZS compression.</p>	<p>2600XM Series – 12.3(5c)/12.3(6) Mainline or 12.3(7)T 1841 – 12.3(8)T4</p>	<p>No reliance on other network modules, WICs, encryption and voice interface cards, or advanced integration modules. Requires Cisco Advanced Security feature set.</p>
	<p>Modular Router Solutions VPN and Firewall Bandwidth Management</p>		
<p>AIM-VPN/HPII DES/3DES/AES VPN Encryption and Compression AIM —high-performance</p>	<p>Provides hardware-accelerated DES/3DES/AES encryption (optimized for AES128 only) for the Cisco 3660 and Cisco 3745. In addition, the module supports hardware-assisted Layer 3 IPsec LZS compression.</p>	<p>3745 – 12.2(13)T 3660 Series – 12.2(13)T</p>	<p>No reliance on other network modules, WICs, voice interface cards, or advanced integration modules. Requires Cisco IPsec or Advanced Security feature set.</p>
	<p>Modular Router Solutions VPN and Firewall Bandwidth Management</p>		
<p>AIM-VPN/EPII DES/3DES/AES VPN Encryption and Compression AIM —enhanced performance</p>	<p>Provides hardware-accelerated DES/3DES/AES encryption (optimized for AES128 only) for the Cisco 2691 and Cisco 3725. In addition, the module supports hardware-assisted Layer 3 IPsec LZS compression.</p>	<p>3725 – 12.2(13)T 2691 – 12.2(13)T</p>	<p>No reliance on other network modules, WICs, voice interface cards, or advanced integration modules. Requires Cisco IPsec or Advanced Security feature set.</p>
	<p>Modular Router Solutions VPN and Firewall Bandwidth Management</p>		


Security Modules

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
AIM-VPN/BPII DES/3DES/AES VPN Encryption and Compression AIM —base-performance	Provides hardware-accelerated DES/3DES/AES encryption (optimized for AES128 only) for the Cisco 2600XM. Plugs directly into one of the internal advanced integration module slots for supported Cisco routers. In addition, the module supports hardware-assisted Layer 3 IPCCP LZS compression.	2600XM Series – 12.3(5c)/12.3(6) Mainline or 12.3(7)T 1841 – 12.3(8)T4	No reliance on other network modules, WICs, encryption and voice interface cards, or advanced integration modules. Requires Cisco Advanced Security feature set.
	..... Modular Router Solutions VPN and Firewall Bandwidth Management		
AIM-VPN/HP DES/3DES VPN advanced integration module for Cisco 3660 and Cisco 3745 —high-performance	Provides up to 10 times the performance over software-only encryption by offloading the encryption processing from the router central processing unit. Plugs directly into one of the Cisco 3660's two internal advanced integration module slots.	3700 Series – 12.2(8)T 3660 Series – 12.1(3)T	No reliance on other network modules, WICs, voice interface cards, or advanced integration modules. Requires Cisco IPsec or Advanced Security feature set.
	..... Modular Router Solutions VPN and Firewall		
AIM-VPN/EP DES/3DES VPN advanced integration module for Cisco 2600 and Cisco 3725 —enhanced performance	Provides up to 10 times the performance over software-only encryption by offloading the encryption processing from the router central processing unit. Plugs directly into the Cisco 2600's internal advanced integration module slot.	3700 Series – 12.2(8)T 2691 – 12.2(8)T1 2600XM Series – 12.2(8)T1 2600 Series – 12.2.2T	No reliance on other network modules, WAN interface cards, voice interface cards, or advanced integration modules. Requires Cisco IPsec or Advanced Security feature set.
	..... Modular Router Solutions VPN and Firewall		


Security Modules

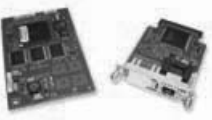
Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
NM-CIDS-K9 Intrusion Detection System Network Module 	The IDS Network Module works in concert with the Cisco IDS Management Console, CiscoWorks VPN/Security Management Solution, and Cisco IDS Device Manager, to efficiently protect your data and information infrastructure. With the increased complexity of security threats, achieving efficient network intrusion security solutions is critical to maintaining a high level of protection. Vigilant protection helps ensure business continuity and minimizes the effect of costly intrusions.	3800 Series – 12.3(11)T 3700 Series – 12.3(4)T 3660 Series – 12.3(4)T 2811, 2821, 2851 – 12.3(8)T4 2691 – 12.3(4)T 2600XM Series – 12.3(4)T	Requires a Cisco IOS Advanced Security, Advanced IP Services, or Advanced Enterprise Services feature set.
Modular Router Solutions Security			
NM-VPN/MP DES/3DES VPN network module for Cisco 3620 and Cisco 3640—mid-performance 	Provides up to 10 times the performance over software-only encryption by offloading the encryption processing from the router central processing unit.	3640 – 12.1(3)T 3620 – 12.1(3)T	No reliance on other network modules, WICs, voice interface cards, or advanced integration modules. Requires Cisco IPsec or Advanced Security feature set.
Modular Router Solutions VPN and Firewall			
AIM-VPN/BP DES/3DES VPN advanced integration module for Cisco 2600—base performance 	Provides up to 10 times the performance over software-only encryption by offloading the encryption processing from the router central processing unit. Plugs directly into the Cisco 2600's internal advanced integration module slot.	2600XM Series – 12.2(12), 12.2(8)T1, 12.2(11)YT 2600 Series – 12.1(3a)X11, 12.2(1), 12.2(2)T	No reliance on other network modules, WICs, voice interface cards, or advanced integration modules. Requires Cisco IPsec or Advanced Security feature set.
Modular Router Solutions VPN and Firewall			
MOD1700-VPN Hardware-assisted VPN encryption module for Cisco 1700 	Provides up to 10 times the performance over software-only encryption by offloading the encryption processing from the router central processing unit. Plugs directly into the Cisco 1700's internal expansion module slot.	1760 – 12.2(11)T 1751 – 12.2(4)T 1721 – 12.2(8)T	No reliance on other network modules, WICs, voice interface cards, or advanced integration modules. Requires Cisco IPsec or Advanced Security feature set.
Modular Router Solutions VPN and Firewall			

Voice Mail Advanced Integration Modules




Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
AIM-CUE Cisco Unity Express (voice mail) Advanced Integration Module 	Provides 8 hours of voice mail storage, up to 50 mailboxes, automated attendant services, 4 concurrent sessions, with CallManager Express or CallManager IPTelephony. Modular Router Solutions IP Communications	3800 Series – 12.3(11)T 3700 Series – 12.3(8)T 2800 Series – 12.3(8)T4 2691 – 12.3(8)T3 2600XM Series – 12.3(8)T3	Requires IP Voice feature set. Requires Cisco Unity Express License.

ATM Advanced Integration Modules



Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
AIM-ATM High-performance ATM segmentation and reassembly (SAR) advanced integration module 	Provides ATM hardware SAR for AAL2 and AAL5 low-density T1/E1 ATM and IMA applications. Modular Router Solutions ATM Edge Connectivity	3800 Series – 12.3(11)T 3700 Series – 12.2(11)YT 3660 Series – 12.2(2)XA 2811, 2821, and 2851 – 12.3(8)T4 2691 – 12.2(11)YT 2600XM Series – 12.2(8)T1 2600 Series – 12.2(2)XA	Requires at least one voice/WIC (VVIC). Prior to Cisco IOS 12.3 Mainline, requires a Cisco IOS “Plus” feature set. 12.3 Mainline and forward supported in “SP Services” feature set.

AIM-ATM-1E1 High-performance E1 ATM bundle. Includes 1 VVIC-1MFT-E1 and 1 AIM-ATM 	Provides ATM hardware SAR for AAL2 and AAL5 low-density T1/E1 ATM and IMA applications, includes one of the one port E1 VVICs. Modular Router Solutions ATM Edge Connectivity	3800 Series – 12.3(11)T 3700 Series – 12.2(11)YT 2811, 2821, and 2851 – 12.3(8)T4 2691 – 12.2(11)YT 2600XM Series – 12.2(8)T1 2600 Series – 12.2(2)XA	No reliance on other network modules, WICs, voice interface cards, or advanced integration modules. Prior to Cisco IOS 12.3 Mainline, requires a Cisco IOS “Plus” feature set. 12.3 Mainline and forward supported in “SP Services” feature set. This is a bundle of one AIM-ATM and one VVIC-1MFT-E1.
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ATM Advanced Integration Modules

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<p>AIM-ATM-1T1</p> <p>High-performance T1 ATM bundle. Includes 1 VVIC-1MFT-T1 and 1 AIM-ATM</p> 	<p>Provides ATM hardware SAR for AAL2 and AAL5 low-density T1/E1 ATM and IMA applications, includes one of the one port T1 VVICs.</p> <p>.....</p> <p>Modular Router Solutions</p> <p>ATM Edge Connectivity</p>	<p>3800 Series – 12.3(11)T 3700 Series – 12.2(11)YT 2811, 2821, and 2851 – 12.3(8)T4 2691 – 12.2(11)YT 2600XM Series – 12.2(8)T1 2600 Series – 12.2(2)XA</p>	<p>No reliance on other network modules, WICs, voice interface cards, or advanced integration modules.</p> <p>Prior to Cisco IOS 12.3 Mainline, requires a Cisco IOS “Plus” feature set. 12.3 Mainline and forward supported in “SP Services” feature set.</p> <p>This is a bundle of one AIM-ATM and one VVIC-1MFT-E1.</p>
<p>AIM-ATM-4E1</p> <p>High-performance E1 ATM bundle. Includes 2 VVIC-2MFT-E1 and 1 AIM-ATM</p> 	<p>Provides ATM hardware SAR for AAL2 and AAL5 low-density T1/E1 ATM and IMA applications, includes two of the two port E1 VVICs.</p> <p>.....</p> <p>Modular Router Solutions</p> <p>ATM Edge Connectivity</p>	<p>3800 Series – 12.3(11)T 3700 Series – 12.2(13)T 2811, 2821, and 2851 – 12.3(8)T4 2691 – 12.2(13)T 2600XM Series – 12.2(8)T1 2600 Series – 12.2(2)XA</p>	<p>No reliance on other modules.</p> <p>Prior to Cisco IOS 12.3 Mainline, requires a Cisco IOS “Plus” feature set. 12.3 Mainline and forward supported in “SP Services” feature set.</p> <p>This is a bundle of one AIM-ATM and two VVIC-2MFT-E1s.</p>
<p>AIM-ATM-4T1</p> <p>High-performance T1 ATM bundle. Includes 2 VVIC-2MFT-T1 and 1 AIM-ATM</p> 	<p>Provides ATM hardware SAR for AAL2 and AAL5 low-density T1/E1 ATM and IMA applications, includes two of the two port T1 VVICs.</p> <p>.....</p> <p>Modular Router Solutions</p> <p>ATM Edge Connectivity</p>	<p>3800 Series – 12.3(11)T 3700 Series – 12.2(13)T 2811, 2821, and 2851 – 12.3(8)T4 2691 – 12.2(13)T 2600XM Series – 12.2(8)T1 2600 Series – 12.2(2)XA</p>	<p>No reliance on other modules.</p> <p>Prior to Cisco IOS 12.3 Mainline, requires a Cisco IOS “Plus” feature set. 12.3 Mainline and forward supported in “SP Services” feature set.</p> <p>This is a bundle of one AIM-ATM and two VVIC-2MFT-T1s.</p>

ATM and Voice Advanced Integration Modules

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<p>AIM-ATM-VOICE-30 ATM SAR and 30-channel voice/fax DSP advanced integration module</p> 	<p>Provides DSP resources for up to 30 voice channels and ATM hardware SAR for AAL2 and AAL5 low-density T1/E1 ATM voice/data applications.</p> <p>.....</p> <p>Modular Router Solutions ATM Edge Connectivity Voice and Fax Integration</p>	<p>3700 Series – 12.2(11)YT 3660 Series – 12.2(2)XB 2691 – 12.2(11)YT 2600XM Series – 12.2(8)T1 2600 Series – 12.2(2)XB</p>	<p>No reliance on other modules.</p> <p>Prior to Cisco IOS 12.3 Mainline, requires a Cisco IOS “Plus” feature set. 12.3 Mainline and forward supported in “SP Services” feature set.</p>
<p>AIM-VOICE-30 30-channel voice/fax DSP advanced integration module</p> 	<p>Provides DSP resources for up to 30 voice channels in T1/E1 voice/data applications. This AIM is an alternative to NM-HDV-based voice solutions.</p> <p>.....</p> <p>Modular Router Solutions Voice and Fax Integration</p>	<p>3700 Series – 12.2(11)YT 3660 Series – 12.2(2)XB 2691 – 12.2(11)YT 2600XM Series – 12.2(8)T1 2600 Series – 12.2(2)XB</p>	<p>No reliance on other modules.</p> <p>Prior to Cisco IOS 12.3 Mainline, requires a Cisco IOS “Plus” feature set. 12.3 Mainline and forward supported in “SP Services” feature set.</p>

Cisco Universal Serial Bus (USB) Cards

UNIVERSAL SERIAL BUS (USB) PORTS

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
MEMUSB-64FT 64 MB USB Flash Memory	Provides 64 MB USB Flash Memory. Modular Router Solutions USB Integration	3800 Series – 12.3(14)T 2800 Series – 12.3(14)T 1841 – 12.3(14)T 1811, 1812 - 12.3(14)T 871 - 12.3(14)T	64 MB USB Flash Memory
MEMUSB-128FT 128 MB USB Flash Memory	Provides 128 MB USB Flash Memory. Modular Router Solutions USB Integration	3800 Series – 12.3(14)T 2800 Series – 12.3(14)T 1841 – 12.3(14)T 1811, 1812 - 12.3(14)T 871 - 12.3(14)T	128 MB USB Flash Memory
MEMUSB-256FT 256 MB USB Flash Memory	Provides 256 MB USB Flash Memory. Modular Router Solutions USB Integration	3800 Series – 12.3(14)T 2800 Series – 12.3(14)T 1841 – 12.3(14)T 1811, 1812 - 12.3(14)T 871 - 12.3(14)T	256 MB USB Flash Memory

NOTES

Cisco Network Module Compatibility Quick Look

	3825 3845	3725 3745	2811 2821 2851	2691	2600XM
Ethernet Switching Network Modules and Accessories					
NM-16ESW 16-port 10/100 EtherSwitch NMs	•	•	•	•	•
NM-16ESW-1GIG 16-port 10/100 EtherSwitch NM with 1 GE (1000Base-T) port	•	•	•	•	•
NM-16ESW-PWR 16-port 10/100 EtherSwitch NM with inline power and GE	•	•	•	•	•
NM-16ESW-PWR-1GIG 16-port 10/100 EtherSwitch NM with inline power and GE	•	•	•	•	•
PPWR-DCARD-16ESW Inline power daughtercard for 16-port EtherSwitch NM	•	•	•	•	•
NMD-36ESW 36-port 10/100 EtherSwitch HDSM	•	•	2851 only	–	–
NMD-36ESW-2GIG 36-port 10/100 EtherSwitch HDSM with 1 GE (1000Base-T) port	•	•	2851 only	–	–
NMD-36ESW-PWR 36-port 10/100 EtherSwitch HDSM with inline power support	•	•	2851 only	–	–
NMD-36ESW-PWR-2G 36-port 10/100 EtherSwitch HDSM with inline power and GE	•	•	2851 only	–	–
PPWR-DCARD-36ESW Inline power daughtercard for 36-port EtherSwitch NM	•	•	2851 only	–	–
GE-DCARD-ESW 1000Base-T daughtercard for EtherSwitch modules	•	•	•	•	•
PPWR-PS-360W 360W power supply for EtherSwitch modules	–	•	–	•	•
PPWR-PS-CHASSIS Power supply chassis for PPWR-PS-360W	–	•	–	•	•
PWR-CHASSIS-360W Power supply chassis including one PPWR-PS-360W	–	•	–	•	•
PWR675-AC-RPS-N1 Redundant Power Supply	3825 only	–	•	–	–
NME-16ES-1GP 16-port 10/100 EtherSwitch service NM with ILP + 1 SFP	•	•	•	•	–
NME-X-23ES-1GP 23-port 10/100 EtherSwitch NM with ILP + 1 10/100/1000 port with ILP	•	–	2821/ 2851 only	–	–
NME-XD-24ES-1SP 24-port 10/100 EtherSwitch service NM with ILP + 1 SFP + StackWise™	•	–	2851 only	–	–
NME-XD-48ES-2SP 48-port 10/100 EtherSwitch service NM with ILP + 2 SFP	•	–	2851 only	–	–

Network Module Compatibility Quick Look

	3825 3845	3725 3745	2811 2821 2851	2691	2600XM
LAN Network Modules					
NM-1GE 1-port Gigabit Ethernet network module	•	•	–	•	–
NM-1FE-FX-V2 1-port Fast Ethernet network module (FX Only)	•	•	–	•	–
NM-1E 1-port Ethernet network module	–	–	–	–	•
NM-4E 4-port Ethernet network module	–	–	–	–	•
LAN and WIC Combo Network Modules					
NM-1FE2W-V2 1 10/100 Ethernet, 2 WAN card slot network module	•	•	–	•	–
NM-2FE2W-V2 2-port 10/100 Ethernet, two WIC slot network module	•	•	–	•	–
NM-1FE1R2W 1 10/100 Ethernet, 1 4/16 Token Ring 2 WAN card slot NM	•	•	–	•	–
NM-2W 2 WAN card slot network module (no LAN)	•	•	–	•	•
Serial Connectivity Network Modules					
NM-CEM-4TE1 4-port Circuit Emulation over IP E1/T1 network module	•	•	•	•	•
NM-CEM-4SER 4-port Circuit Emulation over IP serial network module	•	•	•	•	•
NM-1T3/E3 1-port clear channel T3/E3 network module	•	•	•	•	•*
NM-1HSSI 1-port HSSI network module	•	•	•	•	–
NM-4T 4-port serial network module	•	•	–	•	–
NM-4A/S 4-port async/sync serial network module	•	•	•	•	•
NM-8A/S 8-port async/sync serial network module	•	•	•	•	•
NM-16A/S 16-port async/sync serial network module	•	•	•	•	•
NM-16A 16-port asynchronous module	•	•	•	•	•
NM-32A 32-port asynchronous module	•	•	•	•	•

Network Module Compatibility Quick Look

	3825 3845	3725 3745	2811 2821 2851	2691	2600XM
Channelized T1/E1 and ISDN Network Modules					
NM-1CE1T1-PRI 1-port channelized T1/E1/ISDN-PRI network module	•	•	•	•	•
NM-2CE1T1-PRI 2-port channelized T1/E1/ISDN-PRI network module	•	•	•	•	•
NM-4B-S/T 4-port ISDN-BRI network module	•	•	•	•	•
NM-4B-U 4-port ISDN-BRI with NT-1 network module	•	•	•	•	•
NM-8B-S/T 8-port ISDN-BRI network module	•	•	•	•	•
NM-8B-U 8-port ISDN-BRI with NT-1 network module	•	•	•	•	•
ATM Network Modules					
NM-1A-OC3MM-EP 1-Port OC-3 multimode ATM enhanced performance network module	–	3745 only	–	–	–
NM-1A-OC3SMI-EP 1-Port OC-3 ATM enhanced performance single-mode intermediate reach network module	–	3745 only	–	–	–
NM-1A-OC3SML-EP 1-Port OC-3 ATM enhanced performance single-mode long reach network module	–	3745 only	–	–	–
NM-1A-OC3MM 1-port ATM OC-3 multimode network module	–	3725 only	–	•	–
NM-1A-OC3SMI 1-port ATM OC-3 single-mode intermediate reach network module	–	3725 only	–	•	–
NM-1A-OC3SML 1-port ATM OC-3 single-mode long reach network module	–	3725 only	–	•	–
NM-1A-T3 1-port DS3 ATM network module	•	•	•	•	•
NM-1A-E3 1-port E3 ATM network module	•	•	•	•	•
NM-1ATM-25 1-port ATM 25 Mbps network module	–	–	–	–	•
Digital Dial-up and Remote Access Network Modules and Accessories					
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	•	•	–	–	–
MICA-6MOD 6-port digital modem network module, spare	•	•	–	–	–

Network Module Compatibility Quick Look

	3825 3845	3725 3745	2811 2821 2851	2691	2600XM
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Analog Dial-up and Remote Access Network Modules

NM-8AM-V2 8-port analog modem network module	•	•	•	•	•
NM-16AM-V2 16-port analog modem network module	•	•	•	•	•

Analog and ISDN Basic Rate Voice Network Modules and Accessories

NM-1V 1-slot voice/fax network module	–	•	–	•	•
NM-2V 2-slot voice/fax network module	–	•	–	•	•
NM-HD-1V 1-slot IP communications voice/fax network module	•	•	•	•	•
NM-HD-2V 2-slot IP communications voice/fax network module	•	•	•	•	•
NM-HD-2VE 2-slot IP communications enhanced voice/fax network module	•	•	•	•	•
NM-HDA-4FXS High-density analog voice/fax network module with 4 FXS	•	•	•	•	•
EVM-HD-8FXS/DID Extension voice module with 8 FXS	•	–	2821/ 2851 only	–	–
EM-4BRI-NT/TE 4-port voice and fax expansion module	•	–	2821/ 2851 only	–	–
EM-HDA-6FXO 6-port FXO voice and fax expansion module	•	–	2821/ 2851 only	–	–
EM-HDA-3FXS/4FXO 3-port FXS and 4-port FXO voice and fax expansion module	•	–	2821/ 2851 only	–	–
EM-HDA-4FXO 4-port voice/fax expansion module–FXO	•	•	•	•	•
EM2-HDA-4FXO Enhanced 4-port voice/fax expansion module FXO	•	•	•	•	•
EM-HDA-8FXS 8-port voice/fax expansion module–FXS	•	•	•	•	•
DSP-HDA-16 16-channel DSP module for NM-HDA	•	•	•	•	•

Network Module Compatibility Quick Look

3825	3725	2811	2691	2600XM
3845	3745	2821 2851		

High-density Digital Voice Network Modules and Accessories

NM-HDV High-density voice/fax network module (single VIC slot)	•	•	•	•	•
NM-HDV2 IPC high-density digital voice network module	•	•	•	•	•
NM-HDV2-1T1/1E1 IPC high-density digital voice network module with 1 built-in T1/E1	•	•	•	•	•
NM-HDV2-2T1/1E IPC high-density digital voice network module with 2 built-in T1/E1	•	•	•	•	•
NM-HDV-1T1-12 1-port 12-channel T1 voice/fax network module	•	•	•	•	•
NM-HDV-1T1-24 1-port 24-channel T1 voice/fax network module	•	•	•	•	•
NM-HDV-1T1-24E 1-port 24-enhanced-channel T1 voice/fax network module	•	•	•	•	•
NM-HDV-2T1-48 2-port 48-channel T1 voice/fax network module	•	•	•	•	•
NM-HDV-1E1-12 1-port 12-channel E1 voice/fax network module	•	•	•	•	•
NM-HDV-1E1-30 1-port 30-channel E1 voice/fax network module	•	•	•	•	•
NM-HDV-1E1-30E 1-port 30-enhanced-channel E1 voice/fax network module	•	•	•	•	•
NM-HDV-2E1-60 2-port 60-channel E1 voice/fax network module	•	•	•	•	•
NM-HDV-1J1-30 1-port 30-channel J1 voice/fax network module	•	•	•	•	•
NM-HDV-1J1-30E 1-port 30-enhanced-channel J1 voice/fax network module	•	•	•	•	•
NM-HDV-FARM-C36 Partitionable DSP resource farm; 36-port DSP network module	•	•	•	•	•
NM-HDV-FARM-C54 Partitionable DSP resource farm; 54-port DSP network module	•	•	•	•	•
NM-HDV-FARM-C90 Partitionable DSP resource farm; 90-port DSP network module	•	•	•	•	•

Network Module Compatibility Quick Look

	3825 3845	3725 3745	2811 2821 2851	2691	2600XM
Voice Digital Signal Processors (DSPs)					
PVDM-12 12-channel packet voice DSP module upgrade – spare	–	requires NM-HDV	–	requires NM-HDV	requires NM-HDV
PVDM2-8 8-channel packet voice DSP module	•	requires NM-HDV2	•	requires NM-HDV2	requires NM-HDV2
PVDM2-16 16-channel packet voice DSP module	•	requires NM-HDV2	•	requires NM-HDV2	requires NM-HDV2
PVDM2-32 32-channel packet voice DSP module	•	requires NM-HDV2	•	requires NM-HDV2	requires NM-HDV2
PVDM2-48 48-channel packet voice DSP module	•	requires NM-HDV2	•	requires NM-HDV2	requires NM-HDV2
PVDM2-64 64-channel packet voice DSP module	•	requires NM-HDV2	•	requires NM-HDV2	requires NM-HDV2
Application and Content Networking Modules					
NM-CIDS-K9 Intrusion Detection System Network Module	•	•	•	•	•
NM-CUE Cisco Unity Express Network Module for Voice Mail and AA 8 ports	•	•	•	•	•
NM-CUE-EC Cisco Unity Express Enhanced Capacity Network Module for Voice Mail and AA 16 ports	•	•	•	•	•
NM-CE-BP-40G-K9 Content engine network module, basic performance, 40-GB IDE hard disk	•	•	•	•	•
NM-CE-BP-80G-K9 Content engine network module, basic performance, 80-GB IDE hard disk	•	•	•	•	•
EM-CE-40G Expansion module, 40-GB IDE, field upgrade	•	•	•	•	•
EM-CE-80G Expansion module, 80-GB IDE, field upgrade	•	•	•	•	•
NM-NAM Network Analysis Module	•	•	•	•	•

Cisco Interface Card Compatibility Quick Look

	3825 3845	3725 3745	2851 2821 2811 2801	2691	2600XM	1841	1760	1751	1721
Serial WICs									
WIC-1T 1-port serial WIC
WIC-2T 2-port serial WIC
WIC-1DSU-T1-V2 1-port T1/fractional T1 DSU/CSU WIC
WIC-1DSU-56K4 1-port 4-wire 56/64 Kbps WIC
WIC-2A/S 2-port async/sync serial WIC
HWIC-4T 4-port serial high-speed WAN interface card	.	-	.	-	-	-	-	-	-
HWIC-16A 16-port Asynchronous high-speed WAN interface card	.	-	.	-	-	-	-	-	-
HWIC-4A/S 4-port Asynchronous/Synchronous high-speed WAN interface card	.	-	.	-	-	.	-	-	-
HWIC-8A/S-232 8-port Asynchronous/Synchronous high-speed WAN interface card	.	-	.	-	-	.	-	-	-
HWIC-8A 8-port Asynchronous high-speed WAN interface card	.	-	.	-	-	.	-	-	-
ISDN BRI WICs									
WIC-1B-S/T 1-port ISDN WIC (dial and leased line)	-	.	-	.	.	-	.	.	.
WIC-1B-S/T-V3 1-port ISDN WIC (dial and leased line)
WIC-1B-U-V2 1-port ISDN with NT-1 WIC (dial and leased line)
DSL WICs									
WIC-1ADSL 1-port ADSL WIC
WIC-1ADSL-DG 1-port ADSL WIC with Dying Gasp
WIC-1ADSL-I-DG 1-port ADSLoISDN WIC with Dying Gasp
WIC-1SHDSL 1-port G.SHDSL WIC G.SHDSL WIC (2 wire only)
WIC-1SHDSL-V2 1-port G.SHDSL WIC (2 or 4 wire only)

Interface Card Compatibility Quick Look

	3825 3845	3725 3745	2851 2821 2811 2801	2691	2600XM	1841	1760	1751	1721
Analog Modem WICs									
WIC-1AM 1-port analog modem WIC	•	•	•	•	•	•	•	•	•
WIC-2AM 2-port analog modem WIC	•	•	•	•	•	•	•	•	•
Ethernet and High-Speed Switching WICs									
WIC-4ESW 4-port Fast Ethernet switch WIC	–	–	–	–	–	–	•	•	•
HWIC-4ESW 4-port Fast Ethernet switch HWIC	•	–	•	–	–	•	–	–	–
HWIC-4ESW-POE 4-port Power over Ethernet (PoE)-ready, Fast Ethernet switch HWIC	•	–	•	–	–	–	–	–	–
IPLM-4= 4-port inline power module, spare	•	–	•	–	–	–	–	–	–
HWIC-D-9ESW 9-port double-wide, Fast Ethernet switch HWIC	•	–	•	–	–	–	–	–	–
HWIC-D-9ESW-POE 9-port double-wide, Power over Ethernet (PoE)-ready, Fast Ethernet switch HWIC	•	–	•	–	–	–	–	–	–
IPLM-8= 8-port Inline power module, spare	•	–	•	–	–	–	–	–	–
WIC-1ENET 1-port Ethernet WIC	–	–	–	–	–	–	•	•	•
HWIC-1GE-SFP	•	–	2811, 2821, 2851 only	–	–	–	–	–	–
T1, E1, T1/E1, and G.703 Multiflex Trunk Voice and WAN Interface Cards									
VVIC-1MFT-T1 1-port RJ-48 multiflex trunk–T1	•	•	•	•	•	•	•	•	•
VVIC2-1MFT-T1/E1 1-port 2nd Gen Multiflex Trunk Voice/WAN Interface Card - G.703	•	•	•	•	•	•	•	•	•
VVIC-2MFT-T1 2-port RJ-48 multiflex trunk–T1	•	•	•	•	•	•	•	•	•
VVIC2-2MFT-T1/E1 2-port 2nd Gen Multiflex Trunk Voice/WAN Interface Card - T1/E1	•	•	•	•	•	•	•	•	•
VVIC-2MFT-T1-DI 2-port RJ-48 multiflex trunk–T1 with drop and insert	•	•	•	•	•	•	•	•	•
VVIC-1MFT-E1 1-port RJ-48 multiflex trunk–T1	•	•	•	•	•	•	•	•	•

Note: The 1721 and 1841 support the VVIC and VVIC2 cards for data only.

Interface Card Compatibility Quick Look

	3825 3845	3725 3745	2851 2821 2811 2801	2691	2600XM	1841	1760	1751	1721
VVIC-2MFT-E1 2-port RJ-48 multiflex trunk–T1	•	•	•	•	•	•	•	•	•
VVIC-2MFT-E1-DI 2-port RJ-48 multiflex trunk–E1 with drop and insert	•	•	•	•	•	•	•	•	•
VVIC-1MFT-G703 1-port RJ-48 multiflex trunk–G.703	•	•	•	•	•	•	•	•	•
VVIC2-1MFT-G703 1-port 2nd Gen Multiflex Trunk Voice/WAN Interface Card - G.703	•	•	•	•	•	•	•	•	•
VVIC-2MFT-G703 2-port RJ-48 multiflex trunk–G.703	•	•	•	•	•	•	•	•	•
VVIC2-2MFT-G703 2-port 2nd Gen Multiflex Trunk Voice/WAN Interface Card - G.703	•	•	•	•	•	•	•	•	•

Note: The 1721 and 1841 support the VVIC and VVIC2 cards for data only.

Multiflex Trunk Dedicated Echo Cancellation Modules

(requires appropriate Multiflex Trunk Voice/WAN Interface Card)

EC-MFT-32* 32 channel multiflex trunk dedicated echo cancellation module	•	•	•	•	•	–	–	–	–
EC-MFT-64* 64 channel multiflex trunk dedicated echo cancellation module	•	•	•	•	•	–	–	–	–

* The 3700 series, 2691, and 2600XM routers require a VVIC2 interface card attached on select network modules .

Analog 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 w/ reversal (for US+)	–	•	–	•	•	–	•	•	–

Interface Card Compatibility Quick Look

	3825 3845	3725 3745	2851 2821 2811 2801	2691	2600XM	1841	1760	1751	1721
VIC-2FXO-M2 2-port voice interface card – FXO with reversal (for EU)	–	•	–	•	•	–	•	•	–
VIC-2FXO-M3 2-port voice interface card – FXO (for Australia)	–	•	–	•	•	–	•	•	–
VIC-2E/M 2-port voice interface card – E and M	–	•	–	•	•	–	•	•	–
VIC-2DID 2-port DID (direct inward dial) voice/fax interface card	•	•	–	•	•	–	•	•	–
VIC-2CAMA 2-port FXO analog CAMA trunk interface card	–	•	–	•	•	–	–	–	–
VIC2-2FXS 2-port voice interface card – FXS	•	•	•	•	•	–	•	•	–
VIC2-2FXO 2-port voice interface card – FXO (universal for all countries, also supports CAMA)	•	•	•	•	•	–	•	•	–
VIC2-4FXO 4-port voice interface card – FXO (universal for all countries)	•	•	•	•	•	–	•	•	–
VIC2-2E/M 2-port voice interface card – E and M	•	•	•	•	•	–	•	•	–
VIC-4FXS/DID 4-port FXS/DID (direct inward dial) voice/fax interface card	•	•	•	•	•	–	•	•	–
ISDN BRI Voice Interface Cards									
VIC2-2BRI-NT/TE 2-port voice interface card – BRI (NT and TE)	•	•	•	•	•	–	•	•	–
VIC-2BRI-NT/TE 2-port voice interface card – BRI (Terminal)	–	•	–	•	•	–	•	•	–
VIC-2BRI-S/T-TE 2-port voice interface card – BRI (Terminal)	–	•	–	•	•	–	–	–	–
J1 Voice Interface Card for Japan									
VIC-1J1* 1-port digital voice interface card (J1) for Japan	•	•	2811, 2821, 2851, only	•	•	–	–	–	–

* The 3800 series, 2811, 2821, and 2851 routers are supported in NM-HDV2 (page 133) and NM-HDV (page 140) modules only.

Notes

Cisco Advanced Integration Module Compatibility Quick Look

	3825 3845	3725 3745	2851 2821 2811 2801	2691	2600XM	1841	1760	1751	1721
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Compression Advanced Integration Modules

AIM-COMPR4

Compression advanced integration module for Cisco 3660

• • – • – – – – –

AIM-COMPR2-V2

Compression advanced integration module for Cisco 2600

– – 2811, 2821, 2851 only – • – – – –

VPN and Encryption Advanced Integration Modules

AIM-VPN/HPII-PLUS: DES/3DES/AES

VPN encryption and compression AIM – high performance

3845 only 3745 only – – – – – –

AIM-VPN/EPII-PLUS: DES/3DES/AES

VPN encryption and compression AIM – enhanced performance

3825 only 3725 only • • – – – – –

AIM-VPN/BPII-PLUS: DES/3DES/AES

VPN encryption and compression AIM – enhanced performance

– – – – • • – – – –

AIM-VPN/HPII: DES/3DES/AES

VPN encryption and compression AIM – high performance

– 3745 only – – – – – –

AIM-VPN/EPII: DES/3DES/AES

VPN encryption and compression AIM – enhanced performance

– 3725 only – • – – – – –

AIM-VPN/BPII: DES/3DES/AES

VPN encryption and compression AIM – enhanced performance

– – – – • – – – – –

AIM-VPN/HP: DES/3DES VPN

Advanced integration module for Cisco 3660 and 3745 – high performance

– 3745 only – – – – – –

AIM-VPN/EP: DES/3DES VPN

Advanced integration module for Cisco 2600 and 3725 – enhanced performance

– 3725 only – • • – – – – –

AIM-VPN/BP: DES/3DES VPN

Advanced integration module for Cisco 2600 – base performance

– – – – • – – – – –

MOD1700-VPN

Cisco 1700 Series VPN module

– – – – – • • •

Advanced Integration Module Compatibility Quick Look

3825	3725	2851	2691	2600XM	1841	1760	1751	1721
3845	3745	2821						
		2811						
		2801						

Voice-mail Advanced Integration Modules

AIM-CUE High-performance	6 ports	6 ports	6 ports	4 ports	4 ports	-	-	-	-
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ATM Advanced Integration Modules

AIM-ATM High-performance ATM segmentation and reassembly (SAR) advanced integration module	•	•	2811, 2821, 2851 only	•	•	-	-	-	-
AIM-ATM-1E1 High-performance E1 ATM bundle, one AIM-ATM and one VWIC-1MFT-E1	•	•	2811, 2821, 2851 only	•	•	-	-	-	-
AIM-ATM-1T1 High-performance T1 ATM bundle, one AIM-ATM and one VWIC-1MFT-T1	•	•	2811, 2821, 2851 only	•	•	-	-	-	-
AIM-ATM-4E1 High-performance E1 ATM bundle. Includes 2 VWIC-2MFT-E1 and 1 AIM-ATM	•	•	2811, 2821, 2851 only	•	•	-	-	-	-
AIM-ATM-4T1 High-performance T1 ATM bundle. Includes 2 VWIC-2MFT-T1 and 1 AIM-ATM	•	•	2811, 2821, 2851 only	•	•	-	-	-	-

Voice Advanced Integration Modules

AIM-ATM-Voice-30 ATM SAR and 30-channel voice/fax DSP advanced integration module	-	•	-	•	•	-	-	-	-
AIM-Voice-30 30-channel voice/fax DSP advanced integration module	-	•	-	•	•	-	-	-	-

Cisco 7x00 Series Port Adapter Compatibility Quick Look

	7200VXR	7301	7304 Carrier Card	7400	7500 (VIP4/VIP6)	7600 FlexWAN	7600 Enhanced FlexWAN
ATM Port Adapters							
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 1-port ATM-enhanced OC-3c/STM1 multimode port adapter	•	•	•	•	•	• (N) • (H)	• (N) • (H)
PA-A3-OC12 1-port ATM-enhanced OC-12/STM4 multimode	–	–	–	–	•	–	–
PA-A3-T3/E3 1-port ATM-enhanced DS3 port adapter Ethernet Port Adapters	•	•	•	•	•	• (N) • (H)	• (N) • (H)
Ethernet Port Adapters							
PA-2FE-TX/FX 2-port Fast Ethernet 100Base-TX/FX port adapter	•	•	•	•	•	–	–
PA-4E 4-port Ethernet 10Base-T 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	•	•	•	–	–	–	–
Serial Port Adapters							
PA-4E1G 4-port E1 G.703 serial port adapter (120 ohm/balanced)	•	•	•	•	•	–	–
PA-4T+ 4-port serial port adapter, enhanced	•	•	•	•	•	• (N) • (H)	• (N) • (H)
PA-8T-232 8-port serial, 232-port adapter	•	•	•	•	•	• (N) • (H)	• (N) • (H)

Port Adapter Compatibility Quick Look

	7200VXR	7301	7304 Carrier Card	7400	7500 (VIP4/VIP6)	7600 FlexWAN	7600 Enhanced FlexWAN
Serial and High-Speed Serial Port Adapters							
PA-H 1-port HSSI port adapter	•	•	•	•	•	• (N) • (H)	• (N) • (H)
PA-2H 2-port HSSI port adapter	•	•	•	•	•	• (N) • (H)	• (N) • (H)
PA-E3 1-port E3 serial port adapter with E3 DSU	•	•	•	•	•	• (N) • (H)	• (N) • (H)
PA-2E3 2-port E3 serial port adapter with E3 DSUs	•	•	•	•	•	• (N) • (H)	• (N) • (H)
PA-T3+ 1-port T3 serial port adapter, enhanced	•	•	•	•	•	• (N) • (H)	• (N) • (H)
PA-2T3+ 2-port T3 serial port adapter, enhanced	•	•	•	•	•	• (N) • (H)	• (N) • (H)
PA-4B-U	•	•	–	–	–	–	–
PA-8B-S/T 8-port BRI port adapter, S/T interface	•	•	–	–	–	–	–
Multichannel Serial Port Adapters							
PA-MC-4T(1) 4-port multichannel T1 port adapter with integrated CSU/DSUs	•	•	•	•	•	• (N) • (H)	• (N) • (H)
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-E3 1-port multichannel E3 port adapter	•	•	•	•	•	• (N) • (H)	• (N) • (H)
PA-MC-T3 1-port multichannel T3 port adapter	•	•	•	•	•	• (N) • (H)	• (N) • (H)
PA-MC-2T3+ 2-port multichannel T3 port adapter	•	•	•	•	•	• (N) • (H)	• (N) • (H)
PA-MC-STM 1-port multichannel STM-1 multimode and single mode port adapter	•	–	•	–	•	• (N) • (H)	• (N) • (H)

Port Adapter Compatibility Quick Look

	7200VXR	7301	7304 Carrier Card	7400	7500 (VIP4/VIP6)	7600 FlexWAN	7600 Enhanced FlexWAN
Voice							
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-VXC-2TE1+ 2-port T1/E1 high-capacity enhanced-voice PA	•	•	–	•	•	–	–
PA-VXB 1-port T1/E1 digital voice port adapter with 24- or 30-port channel option	•	•	–	•	•	–	–
PA-VXA-1TE1 1-port T1/E1 digital voice port adapter with 24- or 30-port channel option	•	–	–	•	–	–	–
Sonet PAs							
PA-POS-OC3-SMI 8-port MIX-enabled multichannel T1/E1 with CSU/DSU	•	•	•	•	•	–	–
PA-POS-OC3-SML 8-port MIX-enabled multichannel T1/E1 with CSU/DSU	•	•	•	•	•	–	–
PA-POS-OC3-MM 1-port packet/SONET OC-3c/STM1 multimode port adapter	•	•	•	•	•	•	•
PA-POS-1OC3/STM1 1 port packet/SONET OC3 port adapter	•	–	–	–	–	–	–
PA-POS-2OC3 2-port packet/SONET OC-3c/STM1 port adapter	•	•	•	•	•	•	•

Port Adapter Compatibility Quick Look

	7200VXR	7301	7304 Carrier Card	7400	7500 (VIP4/VIP6)	7600 FlexWAN	7600 Enhanced FlexWAN
Other Port Adapters and SAs							
PA-4C-E 1-port-enhanced ESCON channel port 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-4R-DTR 4-port dedicated Token Ring, 4/16 Mbps, HDX/FDX	•	–	–	–	–	–	–

NOTES

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