

**CISCO SYSTEMS**



# CISCO ROUTER GUIDE

FOR TELEWORKERS, SMALL OFFICES, SMALL TO MEDIUM-SIZED BUSINESSES,  
AND ENTERPRISE BRANCH AND HEAD OFFICES

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CISCO ACCESS AND INTEGRATED SERVICES ROUTERS

Cisco SOHO, 800, 1700, 1800, 2600, 2800, 3700, 3800, 7200, and 7300 Series

FALL 2004/WINTER 2005 V.1

# Cisco Access and Integrated Services Routers

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

This is your guide to Cisco Access 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, 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 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.

We've color-coded the guide to help you distinguish the new Cisco Integrated Services Routers (red sections) from the popular line of Cisco Access Routers (teal sections).

# Cisco Access and Integrated Services Routers

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

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

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.



## Cisco SOHO Series

Small Office/Home Office

- Manageability and reliability of Cisco IOS<sup>®</sup> 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 800 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



## 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



## Cisco 1800 Series

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 new 4-port 10/100 managed EtherSwitch module acceleration



## 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 new enhanced interfaces (NME, HWIC, EVM, and PVD2M2)
- 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 PVD2M2 support)

### Integrated Switching

- Up to 44 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 new enhanced interfaces (NME, HWIC, EVM, and PVD2M2)
- Built-in dual Gigabit Ethernet ports
- Support for over 90 existing and new modules
- Single small form pluggable 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 PVD2M2 support)

### Integrated Switching

- Up to 72 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
- Hardware compression
- 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



## 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



## 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

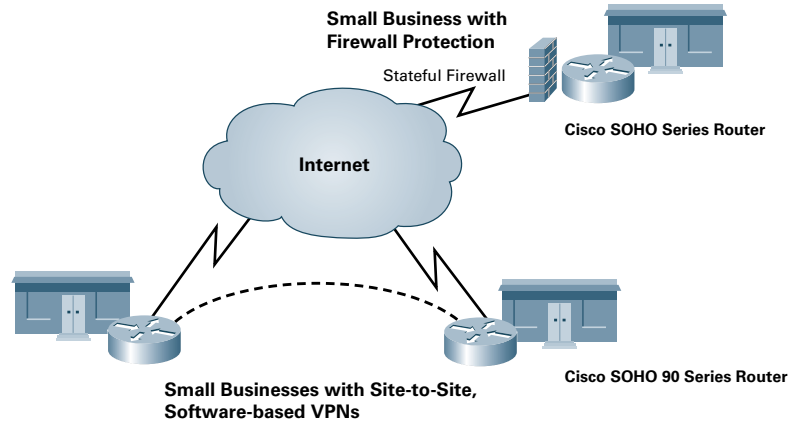
### The Cisco SOHO Series is recommended when you need to deploy:

- 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
<b>WAN Technologies</b>	Ethernet, ADSL, ADSL over ISDN, G.SHDSL
<b>Security</b>	Stateful firewall
<b>VPN</b>	IPsec passthrough, IPsec 3DES encryption (Cisco SOHO 91, 96, and 97)
<b>QoS</b>	DSL ATM QoS only
<b>Upgradability</b>	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	Flash (MB) max	Power Supply
<b>Ethernet to Ethernet Routers</b>							
<b>Cisco SOHO 91</b>	Small Business, Remote Office, Teleworker	Stateful firewall, software-based IPsec 3DES, IOS Remote Management	4-port 10/100 switch	1-port Ethernet 10 MB	32	32	8 8 External
<b>ADSL over ISDN Routers</b>							
<b>Cisco SOHO 96</b>	Small Business, Remote Office, Teleworker	Stateful firewall, software-based IPsec 3DES, IOS Remote Management	4-port 10/100 switch	1-port ADSL over ISDN	32	32	8 8 External
<b>ADSL Routers</b>							
<b>Cisco SOHO 97</b>	Small Business, Remote Office, Teleworker	Stateful firewall, software-based IPsec 3DES, IOS Remote Management	4-port 10/100 switch	1-port ADSL	32	32	8 8 External
<b>G.SHDSL Routers</b>							
<b>Cisco SOHO 78</b>	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

<b>Processor</b>	RISC CPU
<b>Flash Memory</b>	8 MB
<b>System DRAM Memory</b>	16–32 MB
<b>Internal Power Supply</b>	No
<b>Dimensions (H x W x D)</b>	2.0 x 9.7 x 8.5 in. (5.1 x 24.6 x 21.6 cm)
<b>Performance</b>	9 Mbps Clear Text
<b>Console Port</b>	1 (up to 115.2 Kbps)
<b>Maximum Ethernet Ports</b>	4-port Ethernet LAN switch (SOHO90), 4-port hub (SOHO78)
<b>Voice/Data Support</b>	0
<b>Integrated Modems</b>	0
<b>Maximum Number of ISDN BRI Ports</b>	0
<b>Maximum Number of ISDN PRI Ports</b>	0
<b>Integrated CSU/DSU</b>	No
<b>Compression</b>	SW
<b>Encryption</b>	SW
<b>Redundant Power Supply Support</b>	No
<b>Minimum Cisco IOS Software Release</b>	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	32	8
soho96-k9oy6-mz	IP/FW 3DES	32	8
soho97-k9oy1-mz	IP/FW 3DES	32	8

**ORDERING INFORMATION**

Cisco SOHO Series	Part Number	Description
<b>Cisco SOHO 78</b>	CISCOSHO78	Cisco SOHO 78 router, 1 G.SHDSL, 4E hub
<b>Cisco SOHO 91</b>	CISCOSHO91	Ethernet router, 1E, 4E, 10/100 switch, stateful firewall, IPsec 3DES
<b>Cisco SOHO 96</b>	CISCOSHO96	ADSL over ISDN router, 4E, 10/100 switch, stateful firewall, IPsec 3DES
<b>Cisco SOHO 97</b>	CISCOSHO97	ADSL router, 4E, 10/100 switch, stateful firewall, IPsec 3DES

**Cisco 800 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, 827-4V), ADSL over ISDN (Cisco 836), G.SHDSL (Cisco 828), ISDN (Cisco 801, 803), 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 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.

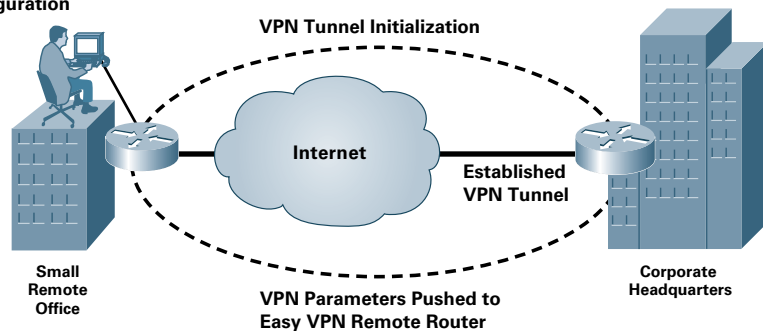
For reliable access, the virtual AUX port on the Cisco 831 and Cisco 837 and Cisco 836 can be used for dial backup with an external modem, should the primary WAN connection fail. The Cisco 836 offers this same functionality but with an integrated ISDN port also. Dynamic DNS feature is available on Cisco 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****VPN**

- **Encryption** – AES and 3DES SW + HW (HW on 830 Series Only)
- **Cisco Easy VPN Remote**
- **Cisco Site-to-Site VPN**
- **DMVPN**
- **DMZ**
- **802.1x**
- **URL Filtering** – Using Websense or N2H2 server
- **MAX IPsec Tunnels Supported** – 10 concurrent

**Certifications**

- **ICSA** – IPsec, Firewall (in process)
- **Common Criteria** – IPsec

**SECURITY APPLICATION EXAMPLE****Configuration****WHEN TO DEPLOY**

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

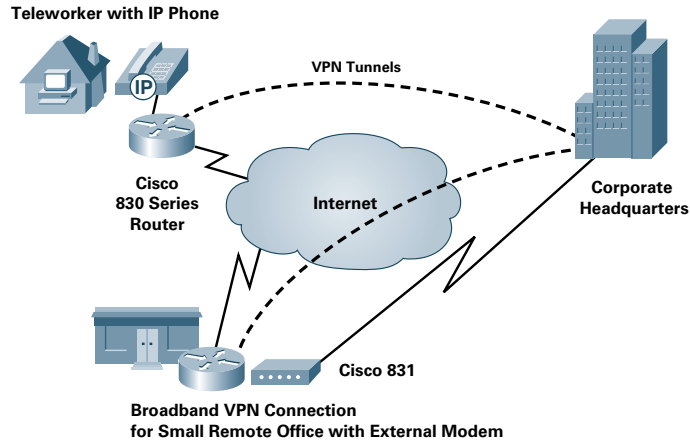
- Managed firewall and VPNs for small remote offices and teleworkers
- High-performance VPNs over DSL or cable (Cisco 831 or Cisco 837) with AUX port functionality for remote sites or with ADSL over ISDN and an integrated ISDN port (Cisco 836)
- QoS features for voice, video, and mission-critical applications
- Simple to deploy and setup with Cisco Easy VPN support
- VoIP with IP Phones (Cisco 831, 836, or 837) or integrated VoIP ports (827-4V)
- The proven reliability and manageability of Cisco IOS Software

**SERIES DISTINCTIONS**

	<b>Cisco 800 Series</b>
<b>WAN Technologies</b>	Ethernet, ADSL, ADSL over ISDN, G.SHDSL, serial
<b>LAN Ports</b>	4-port 10 MB Hub or 4-port 10/100 managed switch (Cisco 831, 836, or 837)
<b>DMZ</b>	One LAN switch port can be converted in to a DMZ (Separate LAN) on 830 routers
<b>Security</b>	Stateful Firewall, IDS and AES (Cisco 831, 836, or 837)
<b>VPN</b>	Software IPsec 3DES encryption, hardware encryption acceleration (Cisco 831, 836, or 837)
<b>AUX or ISDN backup Functionality</b>	Virtual AUX port on 831 and 837, ISDN port on 836 for dial backup and out-of-band management
<b>Upgradability</b>	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	Flash (MB) default	Power Supply
<b>ISDN and Serial Routers</b>							
<b>Cisco 801</b>	Small Business, Remote Office, Teleworker	Stateful firewall, IPsec 3DES, QoS, IOS Remote Management	1-port Ethernet (10BASE-T)	1-port ISDN BRI (S/T)	8	12	8 12 External
<b>Cisco 803</b>	Small Business, Remote Office, Teleworker	Stateful firewall, IPsec 3DES, QoS, IOS Remote Management	4-port Ethernet hub (10BASE-T)	1-port ISDN BRI (S/T) 2 analog telephone ports	8	12	8 12 External
<b>Cisco 805</b>	Small Business, Remote Office, Teleworker	Stateful firewall, IPsec 3DES, QoS, IOS Remote Management	1-port Ethernet (10BASE-T)	1-port serial (up to 512 Kbps)	4	12	8 16 External
<b>Ethernet to Ethernet Routers</b>							
<b>Cisco 831</b>	Small Business, Remote Office, Teleworker	Stateful firewall, hardware-based IPsec 3DES, QoS, Virtual AUX port, Easy VPN, IOS Remote Management	4-port 10/100 switch	1-port Ethernet 10 MB	48	48	12 24 External
<b>ADSL over ISDN Routers</b>							
<b>Cisco 836</b>	Small Business Remote Office Teleworker	Stateful firewall, hardware-based IPsec 3DES, QoS, ISDN Line, Cisco Easy VPN, IOS Remote Management	4-port 10/100 switch	1-port ADSL over ISDN 1-port ISDN BRI S/T	48	48	12 24 External

PLATFORM OVERVIEW *continued*

Platform	Target Market	Key Features	Fixed LAN Connections	Fixed WAN Connections	DRAM (MB) default	Flash (MB) default	Power Supply
<b>ADSL Routers</b>							
<b>Cisco 827-4V</b>	Small Business, Remote Office, Teleworker	Stateful firewall, software-based IPsec 3DES, QoS, Easy VPN, IOS Remote Management	4-port 10/100 hub	1-port ADSL 10 MB	48	32	8 16 External
<b>Cisco 837</b>	Small Business Remote Office, Teleworker	Stateful firewall, hardware-based IPsec 3DES, QoS, Virtual AUX, Cisco Easy VPN, IOS Remote Management	4-port Ethernet switch (10BASE-T)	1-port ADSL	48	48	12 24 External
<b>G.SHDSL Routers</b>							
<b>Cisco 828</b>	Small Business, Remote Office, Teleworker	Stateful firewall, IPsec 3DES, Easy VPN, QoS, IOS Remote Management	4-port Ethernet hub (10BASE-T)	1-port G.SHDSL	16	32	8 8 External

## SERIES SPECIFICATIONS

<b>Processor</b>	RISC CPU
<b>Flash Memory</b>	8–16 MB (Cisco 830 Series expandable up to 24 MB)
<b>System DRAM Memory</b>	4–48 MB (Cisco 800 Series expandable from 12–48 MB depending on model)
<b>Internal Power Supply</b>	No
<b>Dimensions (H x W x D)</b>	2.0 x 9.7 x 8.5 in. (5.1 x 24.6 x 21.6 cm)
<b>Performance</b>	9 Mbps Clear Text
<b>Console Port</b>	1 (up to 115.2 Kbps)
<b>Auxiliary Port</b>	Virtual AUX functionality through Console for out-of-band management or dial backup
<b>ISDN Port</b>	ISDN port on the 836 for out-of-band management and dial backup
<b>Maximum Ethernet Ports</b>	4-port 10/100 switch on 830 Series, 4-port 10 MB hub or a single 10 MB LAN port on other models
<b>DMZ</b>	One DMZ port on 831, 836, and 837 only
<b>Maximum High-speed Serial (up to 512 Kbps)</b>	1 (Cisco 805)
<b>Maximum Low-speed Serial (up to 128 Kbps)</b>	0
<b>Voice/Data Support</b>	Cisco 827-4V only
<b>Integrated Modems</b>	0
<b>Maximum Number of ISDN BRI Ports</b>	1 (Cisco 836)
<b>Maximum Number of ISDN PRI Ports</b>	0
<b>Integrated CSU/DSU</b>	No
<b>Compression</b>	SW
<b>Encryption</b>	SW on most models and HW on 830 Series models
<b>Redundant Power Supply Support</b>	No
<b>Minimum Cisco IOS Software Release</b>	Dependent upon model

## CISCO IOS MEMORY REQUIREMENTS

	Description	DRAM (MB)	Flash (MB)
<b>Cisco 801-804</b>			
c800-k8nosy6-mw	IP/IPX/Firewall/IPsec 3DES Plus	12	8
c800-k8osy6-mw	IP/Firewall/IPsec 3DES Plus	12	8
c800-oy6-mw	IP/Firewall	8	8
c800-sy6-mw	IP Plus	8	8
c800-y6-mw	IP	4	8
<b>Cisco 805</b>			
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
<b>Cisco 828</b>			
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
<b>Cisco 831</b>			
c831-k9o3y6-mz	IP/Firewall/IPsec 3DES	32	8
c831-k9o3sy6-mz	IP/Firewall/IPsec 3DES Plus	32	8
<b>Cisco 836</b>			
c836-k9o3y6-mz	IP/FW/IPsec 3DES	32	8
c836-k9o3sy6-mz	IP/FW PLUS IPsec 3DES	32	8
c836-k9o3s8y6-mz	IP/FW PLUS IPsec 3DES Dial Backup	32	8
<b>Cisco 837</b>			
c837-k9o3y6-mz	IP/Firewall/IPsec 3DES	32	8
c837-k9o3sy6-mz	IP/Firewall/IPsec 3DES Plus	32	8

## ORDERING INFORMATION

Cisco 800 Series	Part Number	Description
Cisco 801	CISCO801	ISDN/Ethernet router
Cisco 803	CISCO803	ISDN BRI/Ethernet router, 4-port hub, 2 POTS
Cisco 805	CISCO805	Cisco 805 Ethernet/serial router
Cisco 811	CISCO811	ISDN Ethernet router with integrated Japan DSU
Cisco 813	CISCO813	ISDN/Ethernet router with integrated 4-port hub, Japan DSU
Cisco 827-4V	CISCO827-4V	Cisco 827-4V ADSL router 1E, 1 ADSL, 4 voice
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-K	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

## NOTES



## 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

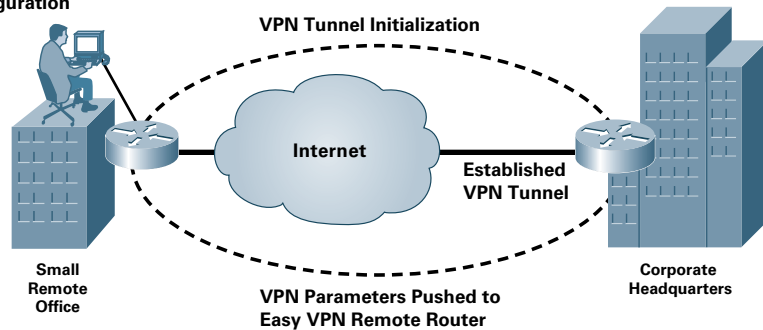
## Certifications

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

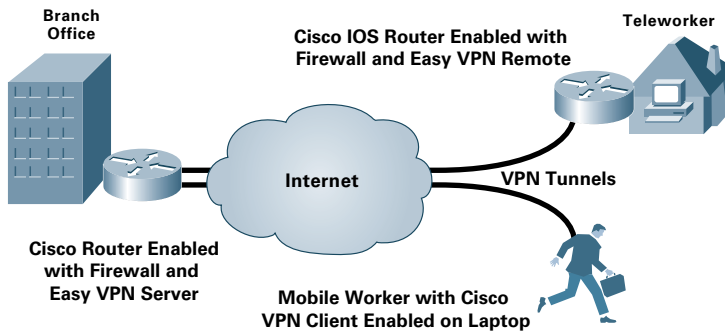
## SECURITY EXAMPLE

## Easy VPN Remote Application

## Configuration



## Easy VPN Server Application

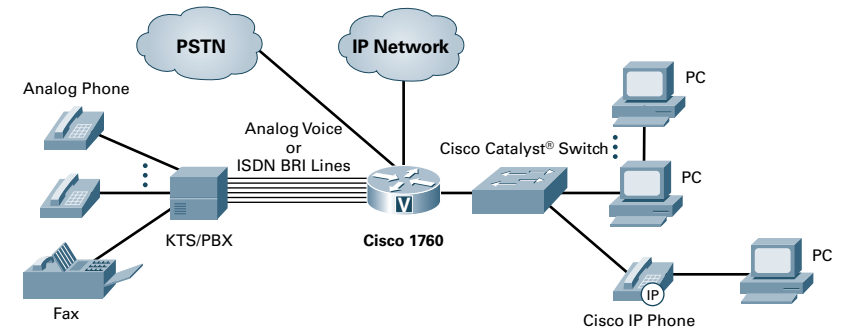


## WHEN TO DEPLOY

**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

	VICs/			Fixed LAN Ports*	DRAM (MB)		Flash (MB)		Power Supply
	WICs	VICs	WICs		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	128	32	64	AC
Cisco 1760-V	-	2	2	1	96	128	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 (all models expandable to 128 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	4/4
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

## NOTES

## CISCO IOS MEMORY REQUIREMENTS

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

Platform	Image Name	Software Product Description	Product Code	Recommended	
				Flash	DRAM
1751-V, 1760	c1700-adventerprisek9-mz	Cisco 1700 IOS ADVANCED ENTERPRISE SERVICES	S17AESK9-12310	32	96
1751-V, 1760	c1700-advipservicesk9-mz	Cisco 1700 IOS ADVANCED IP SERVICES	S17AISK9-12310	32	96
1721, 1751, 1751-V, 1760	c1700-advsecurityk9-mz	Cisco 1700 IOS ADVANCED SECURITY	S17ASK9-12310	16	48
1751-V, 1760	c1700-bk9no3r2sv8y7-mz	Cisco 1700 IOS IP/ADSL/IPX/AT/IBM/VOX/FW/IDS PLUS IPSEC 3DES	S17Q7V8K9-12310	32	96
1721, 1751, 1751-V, 1760	c1700-bk9no3r2sy7-mz	Cisco 1700 IOS IP/ADSL/IPX/AT/IBM/FW/IDS PLUS IPSEC 3DES	S17Q7HK9-12310	16	64
1720, 1721, 1750, 1751, 1751-V, 1760	c1700-bnr2sy7-mz	Cisco 1700 IOS IP/ADSL/IPX/AT/IBM PLUS	S17Q7P-12310	16	48
1721, 1751, 1751-V, 1760	c1700-entbase-mz	Cisco 1700 IOS ENTERPRISE BASE	S17EB-12310	16	48
1751-V, 1760	c1700-entservicesk9-mz	Cisco 1700 IOS ENTERPRISE SERVICES	S17ESK9-12310	32	64
1721, 1751, 1751-V, 1760	c1700-ipbase-mz	Cisco 1700 IOS IP BASE	S17IPB-12310	16	48
1751-V, 1760	c1700-ipvoice-mz	Cisco 1700 IOS IP VOICE	S17IPV-12310	16	64
1751-V, 1760	c1700-k9o3sv8y7-mz	Cisco 1700 IOS IP/ADSL/VOX/FW/IDS PLUS IPSEC 3DES	S17C7V8K9-12310	32	96
1720, 1721, 1750, 1751, 1751-V, 1760	c1700-k9o3sy7-mz	Cisco 1700 IOS IP/ADSL/FW/IDS PLUS IPSEC 3DES	S17C7HK9-12310	16	48
1751-V, 1760	c1700-spservicesk9-mz	Cisco 1700 IOS SP SERVICES	S17SPK9-12310	16	64
1750, 1751, 1751-V, 1760	c1700-sv3y-mz	Cisco 1700 IOS IP/VOICE PLUS	S17CVP-12310	16	48
1751, 1751-V, 1760	c1700-sv8y7-mz	Cisco 1700 IOS IP/ADSL/VOX PLUS	S17C7V8P-12310	16	64
1720, 1721, 1750, 1751, 1751-V, 1760	c1700-sy7-mz	Cisco 1700 IOS IP/ADSL PLUS	S17C7P-12310	16	48
1720, 1721, 1750, 1751, 1751-V, 1760	c1700-y-mz	Cisco 1700 IOS IP	S17C-12310	8	32
1720, 1721, 1750, 1751, 1751-V, 1760	c1700-y7-mz	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 ADSLoISDN 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-VPN/K9=	VPN Upgrade kit with VPN module, 32 MB DRAM, IP Plus/FW/3DES

## Cisco 1800 Series



Cisco Systems® is redefining best-in-class enterprise and small to medium-sized business (SMB) routing with a new 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 many types of slots to add connectivity and data and security services in the future 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****Cisco IOS Software Firewall**

- Stateful, application-based filtering (context-based access control)
- Per-user authentication and authorization
- Real-time alerts
- Transparent firewall
- IPv6 firewall

**VPN**

- 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
- Support for optional higher-performance AIM-based security acceleration
- Cisco Easy VPN remote and server support
- Dynamic Multipoint VPN (DMVPN)

**Onboard USB 1.1 port**

- Future support for secure token and Flash memory

**IPS**

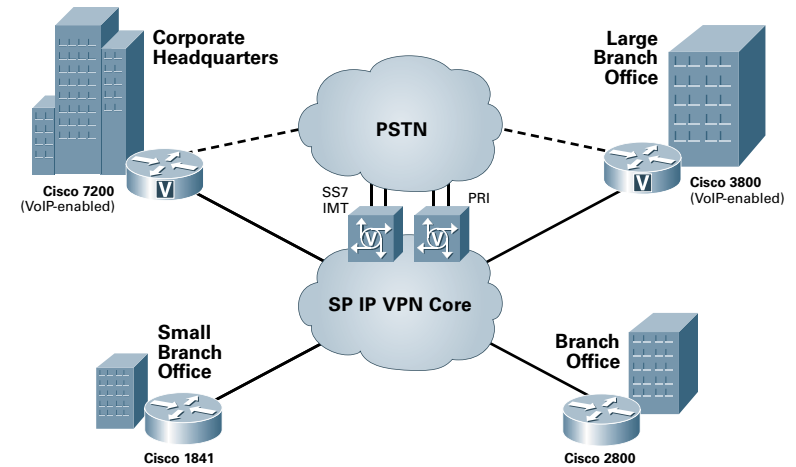
- More than 700 IPS signatures supported in Cisco IOS Software, with the ability to load and enable selected IPS signatures

**URL filtering**

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

**Cisco SDM**

- Cisco Router and Security Device Manager (SDM)

**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**

<b>Dimensions (H x W x D)</b>	
<b>Cisco 1841</b>	1.73 x 13.5 x 10.8 in. (43.9 x 343 x 274 mm)
<b>Console port</b>	1 (up to 115.2 kbps)
<b>Auxiliary port</b>	1 (up to 115.2 kbps)
<b>USB port</b>	1
<b>Integrated channel service unit/data service unit (CSU/DSU)</b>	Yes, with optional T1/E1, Fractional T1/E1, 56k/64k support
<b>Voice/data support</b>	Only data support
<b>Compression</b>	Software and hardware
<b>Encryption</b>	Hardware support on motherboard; optional AIM for enhanced performance
<b>Maximum 10/100 switch ports</b>	
<b>Cisco 1841</b>	8 (without onboard Fast Ethernet ports)
<b>Maximum integrated modems</b>	4
<b>Maximum ISDN Basic Rate Interface (BRI) ports</b>	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	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
<b>CISCO1841</b>	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
<b>CISCO1841-SEC/K9</b>	Cisco 1841 security bundle with advanced security, 64 MB Flash/256 MB DRAM
<b>CISCO1841-HSEC/K9</b>	Cisco 1841 security bundle with AIM-VPN/BPII-PLUS, Advanced IP Services, 64 MB Flash/256 MB DRAM
<b>CISCO1841-T1SEC/K9</b>	Cisco 1841 security bundle with WIC-1DSU-T1-V2, Advanced Security, 64 MB Flash/256 MB DRAM

**BROADBAND BUNDLES**

Product Number	Product Description
<b>CISCO1841-ADSL</b>	Cisco 1841 asymmetric DSL (ADSL) over POTS (ADLSOPOTS) bundle, IP broadband, 32 MB Flash/128 MB DRAMs
<b>CISCO1841-ADSLI</b>	Cisco 1841 ADSLoISDN bundle, IP broadband, 32 MB Flash/128 MB DRAM
<b>CISCO1841-ADSL-DG</b>	Cisco 1841 ADSLoPOTS bundle with dying gasp, IP broadband, 32 MB Flash/128 MB DRAM
<b>CISCO1841-SHDSL</b>	Cisco 1841 G.SHDSL 2-wire bundle, IP broadband, 32 MB Flash/128 MB DRAM

**T1 BUNDLES**

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

## NOTES

## 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 80 WAN interface cards (WICs) and network modules (NMs) are shared with the Cisco 1700, 1800, 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 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.

**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, 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****VPN**

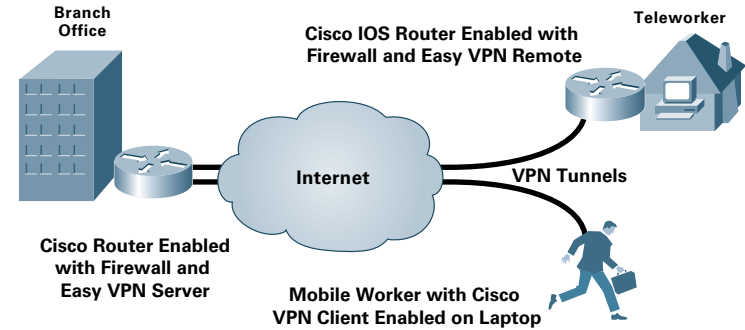
- **Encryption** – 3DES (SW + HW), AES (SW + HW)
- **VPN QoS** – Preclassification support
- **Easy VPN Server and client**
- **MAX IPsec Tunnels Supported** – 800 with VPN module
- **HA** – High Availability
- **URL Filtering** – IOS or HW (Content Engine Network Module [NM-CE])-based

**IPS (Intrusion Prevention Systems)**

- **SW-based (IOS) and HW-based options**
- **More than 700 signatures supported**

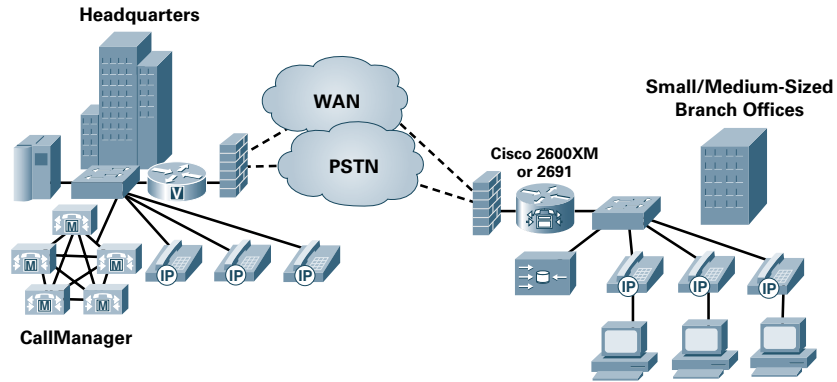
**Certifications**

- **ICSA** – IPsec, Firewall – 2651XM
- **Common Criteria** – IPsec
- **FIPS** – 140-2, Level 2, Cisco 2621, 2621XM, 2651, 2651XM, and 2691

**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 support 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
				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
Maximum Token Ring Ports	1
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-enterservicesk9-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
- 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 WIC-1ADSL, 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 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 44 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 new 4- and 9-port Cisco EtherSwitch® HWICs 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 & 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 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 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 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****Cisco IOS Firewall**

- Stateful, application-based filtering (context-based access control)
- Per-user authentication and authorization
- Real-time alerts
- Transparent firewall
- IPv6 firewall

**VPN**

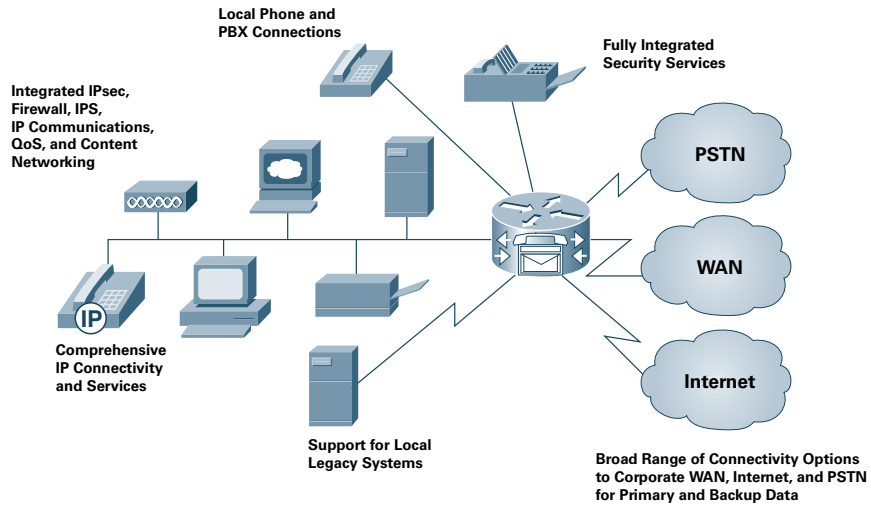
- Data Encryption Standard (DES), Triple DES (3DES), and Advanced Encryption Standard (AES) 128, 192, and 256 bit cryptology support
- Embedded hardware-based VPN acceleration on the motherboard
- Support for optional higher-performance AIM-based security acceleration with Layer 3 compression
- Support for up to 1500 VPN tunnels with AIM-VPN module
- Cisco Easy VPN remote and server support
- Dynamic Multipoint VPN (DMVPN)

**SERIES FEATURES OVERVIEW**

Features	Details
Multiprotocol Label Switching (MPLS) VPN Support	<ul style="list-style-type: none"> <li>• Specific Provider Edge (PE) capabilities</li> <li>• Virtual routing and forwarding (VRF) firewall and VRF IPsecOnboard USB 1.1 Port(s)</li> </ul>
Onboard USB 1.1 ports	<ul style="list-style-type: none"> <li>• Future support for secure token and Flash memory</li> </ul>
Intrusion Prevention System (IPS)	<ul style="list-style-type: none"> <li>• More than 700 IPS signatures supported in Cisco IOS Software, with the ability to load and enable selected IPS signatures</li> <li>• Optional high-performance IDS Network Module with more than 1000 signatures</li> </ul>
URL Filtering	<ul style="list-style-type: none"> <li>• Onboard filtering with an optional content engine network module</li> <li>• Local URL filtering in Cisco IOS Software based on external server</li> </ul>
Cisco Router and Security Device Manager (SDM), version 2.0 and above	<ul style="list-style-type: none"> <li>• Comes standard on all Cisco 2800 Series routers</li> </ul>
<b>IP Telephony Features</b>	
IP Phone Support	<ul style="list-style-type: none"> <li>• Optional integrated power supply with inline power, 802.3af support</li> <li>• Up to 360W of inline power</li> </ul>
Analog Voice Support	<ul style="list-style-type: none"> <li>• One EVM on the Cisco 2821 and Cisco 2851</li> <li>• Up to 52 FXS and 36 FXO ports</li> </ul>
Digital Voice Support	<ul style="list-style-type: none"> <li>• Up to 192 calls</li> </ul>
DSP (PVDM) Slots on Motherboard	<ul style="list-style-type: none"> <li>• Up to three DSP slots on motherboard</li> <li>• Local Conferencing and Transcoding</li> </ul>
Cisco CallManager Express (CCME)	<ul style="list-style-type: none"> <li>• Up to 72/96* phones</li> </ul>
Cisco SRST	<ul style="list-style-type: none"> <li>• Up to 72/96* phones</li> </ul>
Voice Mail	<ul style="list-style-type: none"> <li>• Up to 100 mailboxes using Cisco Unity™ Express network module</li> </ul>
Voice Interfaces	<ul style="list-style-type: none"> <li>• FXS, FXO, Direct Inward Dial (DID), E&amp;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)</li> </ul>

\* Note: A maximum of 72 IP phones are supported in Cisco IOS 12.3(8)T4 on the Cisco 2851, in Cisco 12.3(11)T a maximum of 96 IP phones will be supported on the Cisco 2851

## 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
- Integrated 10/100 switching with PoE support; up to 44 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. Cisco IOS warm reboot support will be offered at a later point in time.)

- Secure integrated call processing, voice mail, flexible telephony interfaces, redundancy for centralized call processing, or robust DSP support, including local conferencing and transcoding
- Advanced management for security, routing, quality of service (QoS), and switching services with Cisco SDM Version 2.0

## PLATFORM OVERVIEW

	NME	EVM	AIM	HWIC	PVDM*	Fixed LAN Ports	DRAM (MB) Default	DRAM (MB) Max	Flash (MB) Default	Flash (MB) Max	Power Supply
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 44.5 x 41.9 mm); 1-rack-unit (RU) height
Cisco 2811	1.75 x 17.25 x 16.4 in. (44.5 x 43.8.2 x 41.6.6 mm); 1-RU height
Cisco 2821, Cisco 2851	3.5 x 17.25 x 16.4 in. (88.9 x 43.8.2 x 41.6.6 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	24
Cisco 2821	24
Cisco 2851	44

**Maximum Inline Power Distribution**

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

**Maximum 1 GB ports** 3, including HWIC (not supported on 2801)

**Maximum Token Ring Ports** 0

**Maximum High-speed Serial (up to 2 Mbps)** 12

**Maximum Low-speed Serial (up to 2 Mbps)** 24 synchronous, 40 asynchronous

**Maximum Integrated Modems** 24 analog

**Maximum ISDN BRI Ports** 20

**Maximum ISDN PRI Ports** 2

**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	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	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
- Interface cards (HWICs, WICs, VWICs, or VICs)
- Several WAN/LAN network module options
- Several services module options, including content engine, IDS, network analysis, and CESoIP
- Up to two AIMs
- Cisco EtherSwitch modules (4-, 9-, 16-, or 36-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
<b>CISCO2851</b>	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
<b>CISCO2851-AC-IP</b>	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
<b>CISCO2851-DC</b>	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
<b>CISCO2821</b>	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
<b>CISCO2821-AC-IP</b>	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
<b>CISCO2821-DC</b>	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
<b>CISCO2811</b>	Integrated services router with AC power, 2FE, slots for 1 NME, 4 HWICs, 2 AIMs, 2 PVDMs; and Cisco IOS IP Base Software
<b>CISCO2811-AC-IP</b>	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
<b>CISCO2811-DC</b>	Integrated services router with DC power, 2FE, slots for 1 NME, 4 HWICs, 2 AIMs, 2 PVDMs; and Cisco IOS IP Base Software
<b>CISCO2801</b>	Integrated services router with AC power, 2FE, slots for 4 Interface Cards, 2 AIMs, 2 PVDMs; and Cisco IOS IP Base Software
<b>CISCO2801-AC-IP</b>	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

**SECURITY**

Part Number	Product Description
<b>CISCO2851-V/K9</b>	Cisco 2851 voice bundle with PVDM2-48, 64 MB Flash/256 MB DRAM, and Cisco IOS SP services
<b>CISCO2851-CCME/K9</b>	Cisco 2851 voice bundle with PVDM2-48, CCME featuring 72/96*-phone license, 64 MB Flash/256 MB DRAM, and Cisco IOS SP services
<b>CISCO2851-SRST/K9</b>	Cisco 2851 voice bundle with PVDM2-48, SRST featuring 72/96*-phone license, 64 MB Flash/256 MB DRAM, and Cisco IOS SP services
<b>CISCO2851-V3PN/K9</b>	Cisco 2851 V3PN bundle with Cisco IOS advanced IP services Image, PVDM2-48, FL-CCME-72/96*, 64 MB Flash/256 MB DRAM, and AIM-VPN-EPII-PLUS
<b>CISCO2821-V/K9</b>	Cisco 2821 voice bundle with PVDM2-32, 64 MB Flash/256 MB DRAM, and Cisco IOS SP services
<b>CISCO2821-CCME/K9</b>	Cisco 2821 voice bundle with PVDM2-32, CCME featuring 48-phone license, 64 MB Flash/256 MB DRAM, and Cisco IOS SP services
<b>CISCO2821-SRST/K9</b>	Cisco 2821 voice bundle with PVDM2-32, SRST featuring 48-phone license, 64 MB Flash/256 MB DRAM, and Cisco IOS SP services
<b>CISCO2821-V3PN/K9</b>	Cisco 2821 V3PN bundle with Cisco IOS advanced IP services, 64 MB Flash/256 MB DRAM, PVDM2-32, CCME featuring 48-phone license, and AIM-VPN-EPII-PLUS
<b>CISCO2811-V/K9</b>	Cisco 2811 voice bundle with PVDM2-16, 64 MB Flash/256 MB DRAM, and Cisco IOS SP services
<b>CISCO2811-CCME/K9</b>	Cisco 2811 voice bundle with PVDM2-16, CCME featuring 36-phone license, 64 MB Flash/256 MB DRAM, and Cisco IOS SP services
<b>CISCO2811-SRST/K9</b>	Cisco 2811 voice bundle with PVDM2-16, SRST featuring 36-phone license, 64 MB Flash/256 MB DRAM, and Cisco IOS SP services
<b>CISCO2811-V3PN/K9</b>	Cisco 2811 V3PN bundle with Cisco IOS advanced IP services, PVDM2-16, CCME featuring 36-phone license, 64 MB Flash/256 MB DRAM, and AIM-VPN-EPII-PLUS
<b>CISCO2801-V/K9</b>	Cisco 2801 voice bundle, PVDM2-8, Cisco IOS SP services, 64 MB Flash/256 MB DRAM
<b>CISCO2801-CCME/K9</b>	Cisco 2801 voice bundle with CCME featuring 24-phone license, Cisco IOS SP services, 64 MB Flash/256 MB DRAM
<b>CISCO2801-SRST/K9</b>	Cisco 2801 voice bundle with SRST featuring 24-phone license, Cisco IOS SP services, 64 MB Flash/256 MB DRAM
<b>CISCO2801-V3PN/K9</b>	Cisco 2801 V3PN bundle with AIM-VPN, PVDM2-8, Cisco IOS advanced IP services, 64 MB Flash/256 MB DRAM, CCME featuring 24-phone license

\*Note: The 2851 CCME, SRST, and V3PN bundles will ship with 72 IP phone licenses initially, but will be converted to 96 IP phones licenses once Cisco IOS 12.3(11)T is available.

**PRODUCT BUNDLES** *continued***SECURITY**

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

**BROADBAND**

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



## 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 introduces a new, 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, 2600, and 3600 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****VPN**

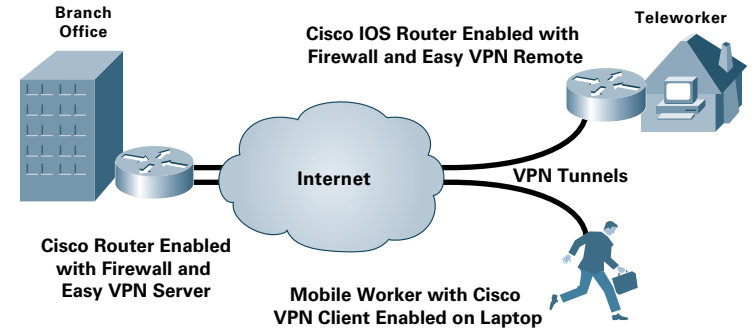
- **Encryption** – 3DES (SW + HW), AES (SW + HW) available in 12.2(13)T
- **VPN QoS** – Preclassification Support
- **Easy VPN Server**
- **MAX IPsec Tunnels Supported** – 2,000 with VPN Module
- **HA** – High Availability

**IDS**

- **700+ signatures supported in IOS**
- **1000+ signatures support on integrated module**

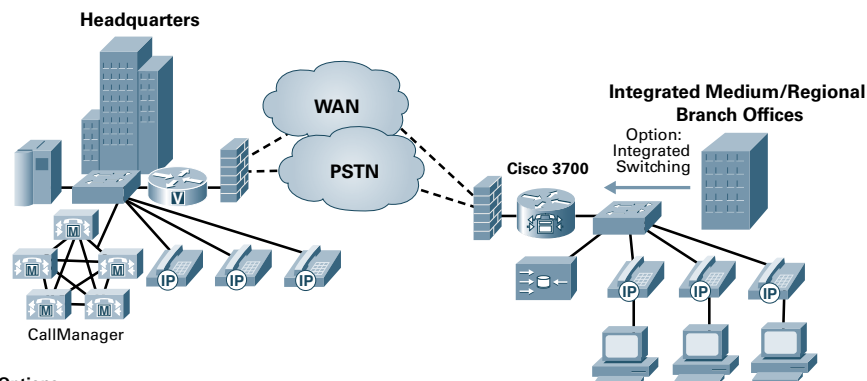
**Certifications**

- **ICSA** – IPsec, Firewall (in process)
- **FIPS** – 140-2 (in process)
- **FIPS** – EAL-4 certified

**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	Performance (Kpps)	DRAM (MB)		Flash (MB)		Power Supply
						default	max	default	max	
Cisco 3725	2	2	3	2 FE	100	256	256	32	128	AC, DC, RPS
Cisco 3745	4	2	3	2 FE	225	256	512	32	128	AC, DC, RPS

## SERIES SPECIFICATIONS

<b>Processor</b>	MIPS RISC Processor
<b>Dimensions (Height x Width x Depth)</b>	
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
<b>Console Port</b>	1 (up to 115.2 Kbps)
<b>Auxiliary Port</b>	1 (up to 115.2 Kbps)
<b>Integrated CSU/DSU</b>	Yes, with optional T1/E1, Fractional T1/E1, 56k/64k support
<b>Voice/Data Support</b>	Yes
<b>Compression</b>	SW + HW
<b>Encryption</b>	SW + HW
<b>Maximum 10/100 Ethernet Ports</b>	46
<b>Maximum 1000 Ethernet Ports</b>	2
<b>Maximum Token Ring Ports</b>	4

SERIES SPECIFICATIONS *continued*

<b>Maximum High-speed Serial (up to 2 Mbps)</b>	22
<b>Maximum Low-speed Serial (up to 128 Kbps)</b>	38 sync, 134 async
<b>Maximum Integrated Modems</b>	70 Analog, 60 Digital
<b>Maximum Number of ISDN BRI Ports</b>	35
<b>Maximum Number of ISDN PRI Ports</b>	8
<b>Availability Features</b>	
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
<b>Minimum Cisco IOS Release</b>	
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 12.2T 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 12.2T 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, RJ-45 to DB-9 and DB-25 converters, 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 WAN and voice interface cards
- 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	AIM-VPN/EPII, Plus IOS FW/IPsec 3DES, 128 MB Flash/256 MB DRAM
CISCO3745-VPN/K9	AIM-VPN/HPII, Plus IOS FW/IPsec 3DES, 128 MB Flash/256 MB DRAM

### 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 3800 Series

Cisco Systems® is extending its leadership in multiservice routing with a new line of routers that offer the network the agility, performance, and intelligence needed to meet customers' rapidly evolving network and business challenges. 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 new 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 48 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 both the 16- and 36-port Cisco EtherSwitch®, and supports the new 802.3af (PoE) standard, with new 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 & 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 3600 Series and 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 ports
- One small form-factor pluggable (SFP) slot
- 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 ports
- One SFP slot
- 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 & 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 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**

<b>Cisco IOS Software Firewall</b>	<ul style="list-style-type: none"> <li>• Stateful, application-based filtering (context-based access control)</li> <li>• Per-user authentication and authorization</li> <li>• Real-time alerts</li> <li>• Transparent firewall</li> <li>• IPv6 firewall</li> </ul>
<b>VPN</b>	<ul style="list-style-type: none"> <li>• Data Encryption Standard (DES), Triple DES (3DES), and Advanced Encryption Standard (AES) 128, 192, and 256 cryptology support</li> <li>• Embedded hardware-based VPN acceleration on the motherboard</li> <li>• Support for optional higher-performance AIM-based security acceleration with Layer 3 compression</li> <li>• Support for up to 2,500 tunnels with AIM-VPN</li> <li>• Cisco Easy VPN remote and server support</li> <li>• DMVPN</li> </ul>
<b>Multiprotocol Label Switching (MPLS) VPN Support</b>	<ul style="list-style-type: none"> <li>• Specific provider edge capabilities</li> <li>• Virtual routing and forwarding (VRF) firewall and VRF IPsec</li> </ul>
<b>Onboard USB 1.1 port(s)</b>	<ul style="list-style-type: none"> <li>• Future support for secure token and Flash memory</li> </ul>
<b>Intrusion Prevention System (IPS)</b>	<ul style="list-style-type: none"> <li>• More than 700 IPS signatures supported in Cisco IOS Software, with the ability to load and enable selected IPS signatures</li> <li>• More than 1000 IPS signatures with optional high-performance IDS Network Module</li> </ul>
<b>URL Filtering</b>	<ul style="list-style-type: none"> <li>• Onboard with an optional content-engine network module</li> <li>• Local URL filtering in Cisco IOS Software based on external server</li> </ul>
<b>Cisco Router and Security Device Manager (SDM)</b>	<ul style="list-style-type: none"> <li>• Comes standard on all Cisco 3800 Series routers</li> </ul>

## IP TELEPHONY FEATURES

<b>IP Phone Support</b>	<ul style="list-style-type: none"> <li>Optional integrated power supply with inline power</li> <li>802.3af support</li> <li>360W of inline power</li> </ul>
<b>Analog Voice Support</b>	<ul style="list-style-type: none"> <li>Up to 88 FXS and 56 FXO ports</li> </ul>
<b>Digital Voice Support</b>	<ul style="list-style-type: none"> <li>Up to 720 calls</li> </ul>
<b>Packet Voice Digital Signal Processor (DSP) Module (PVDM) Slots on Motherboard</b>	<ul style="list-style-type: none"> <li>4 PVDM slots on motherboard</li> <li>Local conferencing and transcoding</li> </ul>
<b>Cisco CallManager Express</b>	<ul style="list-style-type: none"> <li>Up to 240 phones</li> </ul>
<b>SRST</b>	<ul style="list-style-type: none"> <li>Up to 720 phones</li> </ul>
<b>Voice Mail</b>	<ul style="list-style-type: none"> <li>Up to a 100 mailboxes using Cisco Unity™ Express network module</li> </ul>
<b>Voice Interfaces</b>	<ul style="list-style-type: none"> <li>FXS, FXO, Direct Inward Dial (DID), E&amp;M, Centralized Automated Message Accounting (CAMA), Basic Rate Interface (BRI), T1, E1, J1, Primary Rate Interface (PRI), Q.SIG, channel associated signaling (CAS)</li> </ul>

## NETWORK EXAMPLE

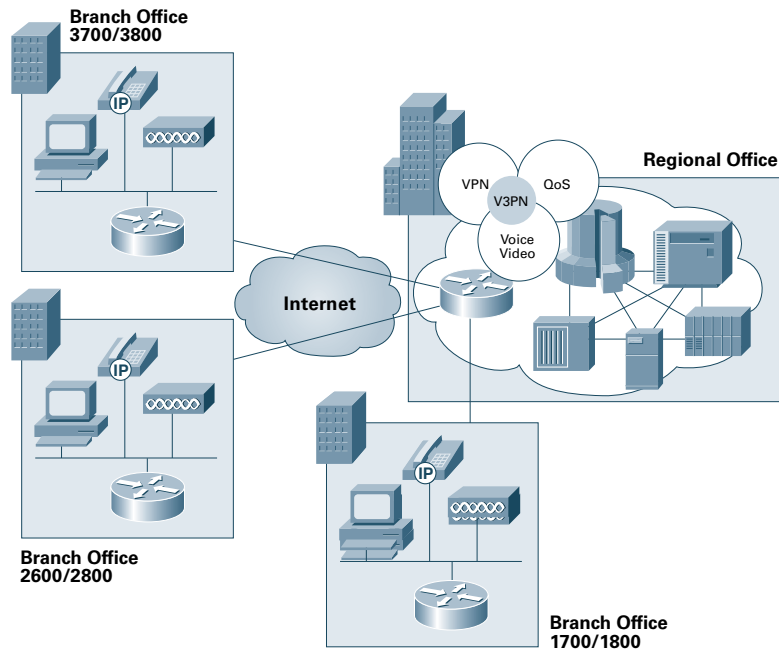


Figure 1 above shows the Cisco 3800 Series routers converge voice, video, and data across a secure IPsec VPN network with high-quality, reliable performance. DMVPN creates tunnels on-the-fly based on user traffic. V3PN functionality provides QoS, multiprotocol, ease of provisioning, and secure connectivity.

## 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 18 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, 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 (VWICs), 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 (for future use with USB Flash memory, security tokens 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
<b>PHYSICAL SPECIFICATIONS</b>		
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
<b>POWER DISSIPATIONS</b>		
<b>AC without IP Phone Support</b>	300W (1025 BTU/hr)	435W (1485 BTU/hr)
<b>AC with IP Phone Support: System Only</b>	370W (1262 BTU/hr)	555W (1890 BTU/hr)
<b>AC with IP Phone Support: IP Phones</b>	360W (1128 BTU/hr)	360W (1128 BTU/hr)
<b>DC</b>	325W (1100 BTU/hr)	460W (1570 BTU/hr)
<b>Environmental Specifications</b>		
<b>Operating Temperature</b>	32 to 104°F (0 to 40°C)	32 to 104°F (0 to 40°C)
<b>Non-operating Temperature</b>	-40 to 185°F (-40 to 85°C)	-40 to 185°F (-40 to 85°C)
<b>Relative Humidity (non-condensing)</b>	5 to 95 percent	5 to 95 percent
<b>Operation Altitude</b>	Up to 6500 ft (2000 m), derate 1C per 1000 ft	Up to 6500 ft (2000 m), derate 1C per 1000 ft
<b>Noise Level (minimum)</b>	50 dBA typical, 53 dBA maximum	56 dBA typical, 58 dBA maximum
<b>REGULATORY COMPLIANCE</b>		
<b>Safety</b>	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
<b>EMC</b>	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
<b>TELCOM</b>	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	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	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; RJ-45 to DB-9 and DB-25 converters; and blank panels that cover unused WIC or network module slots. Optional items include:

- Cisco IOS Software feature set upgrade or revision
- Numerous WIC, VIC, and multiflex VVIC options

- Numerous WAN/LAN network modules
- Numerous service modules, including content engine, IPS, network analysis, and Circuit Emulation over IP
- Up to two AIMs
- 16- or 36-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 Flash/256 MB DRAM
CISCO3845-SEC/K9	Cisco 3845 security bundle, advanced security, 64 MB Flash/256 MB DRAM
CISCO3825-HSEC/K9	Cisco 3825 security bundle, AIM-VPN/HPUI-PLUS, advanced IP service, 64 MB Flash/256 MB DRAM
CISCO3845-HSEC/K9	Cisco 3845 security bundle, AIM-VPN/HPUI-PLUS, advanced IP service, 64 MB Flash/256 MB DRAM
CISCO3825-V3PN/K9	Cisco 3825 V3PN bundle, AIM-VPN, PVDM2-64, FL-CCME-168, advanced IP service, 64 MB Flash/256 MB DRAM
CISCO3845-V3PN/K9	Cisco 3845 V3PN bundle, AIM-VPN, PVDM2-64, FL-CCME-240, advanced IP service, 64 MB Flash/256 MB DRAM

### VOICE

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

### VPN

- **Encryption** – 3DES (SW + HW), AES (SW + HW) available in 12.2(14)T
- **VPN QoS** – Preclassification Support
- **Easy VPN Server**
- **MAX IPsec Tunnels Supported** – 5,000 with VPN Module
- **HA** – High Availability

### IDS

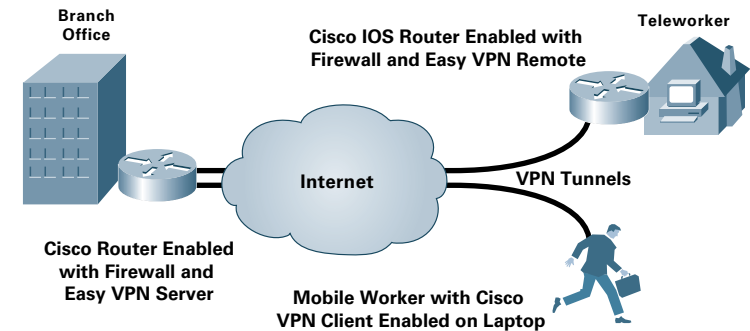
- **118 signatures supported with capability to support 800 signatures**

### Certifications

- **Common Criteria EAL4 certification**
- **ICSA labs IPsec certification**
- **FIPS2-140 certification**

## SECURITY FEATURES EXAMPLE

### Easy VPN Server Application



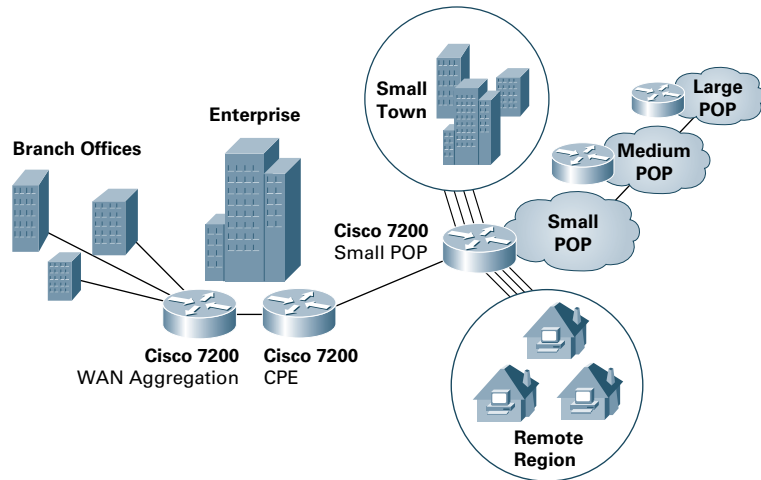
## WHEN TO DEPLOY

**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.

<b>Processor (NPE-G1)</b>	700 MHz Broadcom BCM1250 processor
<b>Flash Memory</b>	64 MB (expandable to 256 MB)
<b>System DRAM Memory</b>	256 MB (expandable to 1 GB)
<b>Modular Slots for 7200</b>	4 or 6
<b>Modular Slots for 7301</b>	1
<b>Supported Port Adapters</b>	70+
<b>Internal Power Supply</b>	AC or DC, dual option
<b>Dimensions (Height x Width x Depth)</b>	
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.
<b>Performance</b>	Up to 1 million packets per second (depending on configuration)
<b>Console Port</b>	1
<b>Auxiliary Port</b>	1
<b>Base Configuration for 7200</b>	4- or 6-slot chassis, 1 AC power supply, IP software
<b>Base Configuration for 7301</b>	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
<b>Maximum Ethernet Port</b>	
7204VXR	32
7206VXR	48
<b>Maximum 10/100 Ethernet Ports</b>	
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

<b>Maximum Token Ring Ports</b>	
7204VXR	16
7206VXR	24
<b>Maximum High-speed Serial (up to 2 Mbps)</b>	
7204VXR	8
7206VXR	12
<b>Maximum Low-speed Serial (up to 128 Kbps)</b>	
7204VXR	32
7206VXR	48
<b>Voice/Data Support</b>	Yes
<b>Integrated Modems</b>	No
<b>Maximum Number of ISDN BRI Ports</b>	
7204VXR	32
7206VXR	48
<b>Maximum Number of ISDN PRI Ports</b>	
7204VXR	32
7206VXR	48
<b>Integrated CSU/DSU</b>	Yes (dependent on PA configuration)
<b>Compression</b>	SW
<b>Encryption</b>	SW + HW
<b>Redundant Power Supply Support</b>	Yes, for AC or DC
<b>Minimum Cisco IOS Release</b>	Cisco IOS 12.0(1)XE or later

## CISCO IOS MEMORY REQUIREMENTS

Cisco 7200 is supported in IOST, 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
NSE-1=	Cisco 7200VXR network services engine, 300 Kpps plus PXF
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

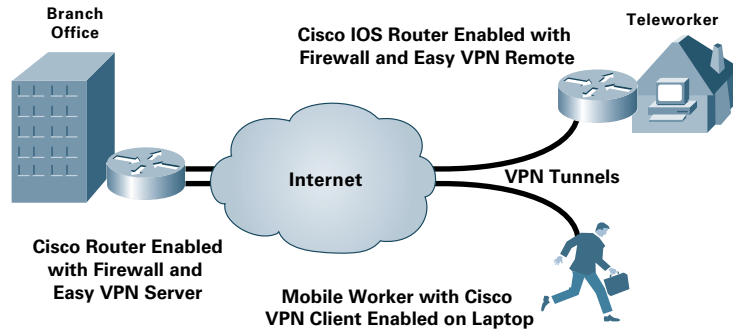
- **Encryption** – 3DES (SW + HW), AES (SW)
- **VPN QoS** – Preclassification Support
- **IDS** – 59 Signatures Supported

### 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

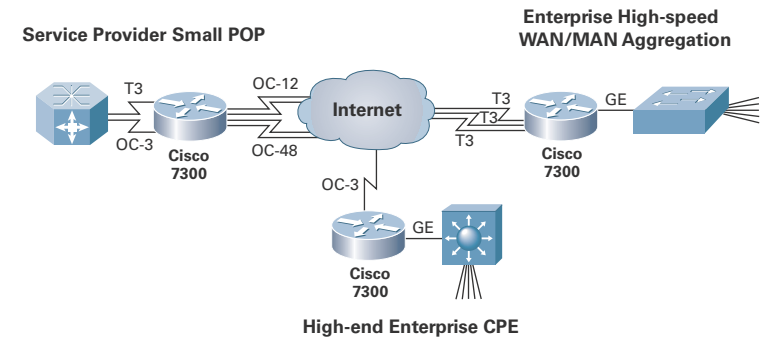


## WHEN TO DEPLOY

### 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

<b>Processor</b>	RM 7000 MIPS and Parallel Express Forwarding (PXF)
<b>Flash Memory</b>	64 MB (expandable to 128 MB)
<b>System DRAM Memory</b>	512 MB (expandable to 512 MB)
<b>Modular Slots</b>	4
<b>Fixed Ports</b>	2
<b>Internal Power Supply</b>	AC or DC (both redundant)
<b>Dimensions (H x W x D)</b>	7 x 17.2 x 20.5 inches
<b>Performance</b>	Up to 3.5 Mpps
<b>Console Port</b>	1
<b>Auxiliary Port</b>	1
<b>Base Configuration</b>	4-slot chassis, NSE-100, 1 AC power supply, 512 MB
<b>Maximum Ethernet Ports</b>	2 fixed GE ports
<b>Voice/Data Support</b>	Yes
<b>Integrated Modems</b>	No
<b>Integrated CSU/DSU</b>	Yes (T3)
<b>Compression</b>	SW
<b>Encryption</b>	No
<b>Redundant Power Supply Support</b>	Yes
<b>Redundant Processor</b>	Yes
<b>Minimum Cisco IOS Release</b>	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
7300-20C3ATM-MM=	2-port OC3/STM-1 ATM line card, Cisco 7304, multimode
7300-20C3ATM-SMI=	2-port OC3/STM-1 ATM line card, Cisco 7304, single-mode IR
7300-20C3ATM-SML=	2-port OC3/STM-1 ATM line card, Cisco 7304, single-mode LR
7300-20C3POS-MM=	2-port OC3/STM-1 POS line card, Cisco 7304, multimode
7300-20C3POS-SMI=	2-port OC3/STM-1 POS line card, Cisco 7304, single-mode IR
7300-40C3POS-SMI=	4-port OC3/STM-1 POS line card, Cisco 7304, single-mode IR
7300-10C12POS-SMI=	1-port OC-12/STM-4 POS line card, Cisco 7304, single-mode IR
7300-20C12POS-SMI=	2-port OC-12/STM-4 POS line card, Cisco 7304, single-mode IR
7304-10C48POS-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
7304-10C48POS-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 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><b>NM-16ESW</b> 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><b>Modular Router Solutions</b> 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 3660 Series – 12.2(2)XT 3640 – 12.2(2)XT 3620 – 12.2(2)XT 2811, 2821, and 2851 – 12.3(8)T4 2691 – 12.2(8)T 2600XM Series – 12.2(8)T1 2650 Series – 12.2(2)XT 2620 Series – 12.2(2)XT 2610 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><b>NM-16ESW-1GIG</b> 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><b>Modular Router Solutions</b> 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 3660 Series – 12.2(2)XT 3640 – 12.2(2)XT 3620 – 12.2(2)XT 2811, 2821, and 2851 – 12.3(8)T4 2691 – 12.2(8)T 2600XM Series – 12.2(8)T1 2650 Series – 12.2(2)XT 2620 Series – 12.2(2)XT 2610 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><b>NM-16ESW-PWR</b> 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><b>Modular Router Solutions</b> 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 3660 Series – 12.2(2)XT 3640 – 12.2(2)XT 3620 – 12.2(2)XT 2811, 2821, and 2851 – 12.3(8)T4 2691 – 12.2(8)T 2600XM Series – 12.2(8)T1 2650 Series – 12.2(2)XT 2620 Series – 12.2(2)XT 2610 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
<b>NM-16ESW-PWR-1GIG</b> 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.  <b>Modular Router Solutions</b> LAN Switching LAN-to-LAN Routing Inter-VLAN Routing IP Telephony	3800 Series – 12.3(11)T 3700 Series – 12.2(8)T 3660 Series – 12.2(2)XT 3640 – 12.2(2)XT 3620 – 12.2(2)XT 2811, 2821, and 2851 – 12.3(8)T4 2691 – 12.2(8)T 2600XM Series – 12.2(8)T1 2650 Series – 12.2(2)XT 2620 Series – 12.2(2)XT 2610 Series – 12.2(2)XT	This is a bundle of one NM-16-ESW, one GE-DCARD-ESW and one PPWR-DCARD-16ESW.  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 2600 or 3600 Series, internal for 2800, 3700, or 3800 Series).
<b>PPWR-DCARD-16ESW</b> Inline power daughtercard for 16-port EtherSwitch network module 	Enables inline power capability to the NM-16ESW. Note that a power supply is required.  <b>Modular Router Solutions</b> LAN Switching LAN-to-LAN Routing Inter-VLAN Routing IP Telephony	3800 Series – 12.3(11)T 3700 Series – 12.2(8)T 3660 Series – 12.2(2)XT 3640 – 12.2(2)XT 3620 – 12.2(2)XT 2811, 2821, and 2851 – 12.3(8)T4 2691 – 12.2(8)T 2600XM Series – 12.2(8)T1 2650 Series – 12.2(2)XT 2620 Series – 12.2(2)XT 2610 Series – 12.2(2)XT	Requires a 16-port 10/100 EtherSwitch network module.  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.
<b>NMD-36ESW</b> 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.  <b>Modular Router Solutions</b> LAN Switching LAN-to-LAN Routing Inter-VLAN Routing IP Telephony 3800 Series – 12.3(11)T	3800 Series – 12.3(11)T 3700 Series – 12.2(8)T 3660 Series – 12.2(8)T 2851 Series – 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.  No reliance on other network modules, WICs, voice interface cards, or advanced integration modules.
<b>NMD-36ESW-2GIG</b> 36-port 10/100 EtherSwitch HDSM with GE (1000BASE-T) port 	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.  <b>Modular Router Solutions</b> LAN Switching LAN-to-LAN Routing Inter-VLAN Routing IP Telephony	3800 Series – 12.3(11)T 3700 Series – 12.2(8)T 3660 Series – 12.2(8)T 2851 Series – 12.3(8)T4	This is a bundle of one NMD-36-ESW and two GE-DCARD-ESW.  Prior to Cisco IOS 12.3 Mainline, requires a Cisco IOS “Plus” feature set. 12.3 Mainline supported in “IP Base” feature set.  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
<b>NMD-36ESW-PWR</b> 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.  <b>Modular Router Solutions</b> LAN Switching LAN-to-LAN Routing Inter-VLAN Routing IP Telephony	3800 Series – 12.3(11)T 3700 Series – 12.2(8)T 3660 Series – 12.2(8)T 2851 Series – 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 2600 or Cisco 3600 Series Router or an internal power supply when installed in Cisco 3700, Cisco 2800, or Cisco 3800 Series Routers.
<b>NMD-36ESW-PWR-2G</b> 36-port 10/100 EtherSwitch HDSM with inline power and GE (1000BASE-T) port 	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.  <b>Modular Router Solutions</b> LAN Switching LAN-to-LAN Routing Inter-VLAN Routing IP Telephony	3800 Series – 12.3(11)T 3700 Series – 12.2(8)T 3660 Series – 12.2(8)T 2851 Series – 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 2600 or 3600 Series, internal for 2800, 3700, or 3800 Series).
<b>PPWR-DCARD-36ESW</b> Inline power daughtercard for 36-port EtherSwitch network module 	Enables inline power capability to the NMD-36ESW. Note that a power supply is required.  <b>Modular Router Solutions</b> LAN Switching LAN-to-LAN Routing Inter-VLAN Routing IP Telephony	3800 Series – 12.3(11)T 3700 Series – 12.2(8)T 3660 Series – 12.2(8)T 2851 Series – 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 PPWR-PS-360W when installed in a Cisco 3700 Series Router.
<b>GE-DCARD-ESW</b> 1000BASE-T daughtercard for EtherSwitch modules 	Provides one gigabit port for a file server or future intra-chassis stacking of EtherSwitch modules.  <b>Modular Router Solutions</b> LAN Switching LAN-to-LAN Routing Inter-VLAN Routing IP Telephony	3800 Series – 12.3(11)T 3700 Series – 12.2(8)T 3660 Series – 12.2(2)XT 3640 – 12.2(2)XT 3620 – 12.2(2)XT 2811, 2821, and 2851 – 12.3(8)T4 2691 – 12.2(8)T 2600XM Series – 12.2(8)T1 2650 Series – 12.2(2)XT 2620 Series – 12.2(2)XT 2610 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
<b>PPWR-PS-360W</b> 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 <b>Modular Router Solutions</b> LAN Switching LAN-to-LAN Routing Inter-VLAN Routing IP Telephony	3700 Series – 12.2(8)T 3660 Series – 12.2(2)XT 3640 – 12.2(2)XT 3620 – 12.2(2)XT 2811, 2821, and 2851 – 12.3(8)T4 2691 – 12.2(8)T 2600XM Series – 12.2(8)T1 2650 Series – 12.2(2)XT 2620 Series – 12.2(2)XT 2610 Series – 12.2(2)XT	Requires a 16- or 36-port port 10/100 EtherSwitch module with appropriate inline power daughtercard.
<b>PPWR-PS-CHASSIS</b> 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. <b>Modular Router Solutions</b> LAN Switching LAN-to-LAN Routing Inter-VLAN Routing IP Telephony	3700 Series – 12.2(8)T 3660 Series – 12.2(2)XT 3640 – 12.2(2)XT 3620 – 12.2(2)XT 2811, 2821, and 2851 – 12.3(8)T4 2691 – 12.2(8)T 2600XM Series – 12.2(8)T1 2650 Series – 12.2(2)XT 2620 Series – 12.2(2)XT 2610 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.
<b>PWR-CHASSIS-360W</b> 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. <b>Modular Router Solutions</b> LAN Switching LAN-to-LAN Routing Inter-VLAN Routing IP Telephony	3700 Series – 12.2(8)T 3660 Series – 12.2(2)XT 3640 – 12.2(2)XT 3620 – 12.2(2)XT 2811, 2821, and 2851 – 12.3(8)T4 2691 – 12.2(8)T 2600XM Series – 12.2(8)T1 2650 Series – 12.2(2)XT 2620 Series – 12.2(2)XT 2610 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.
<b>PWR675-AC-RPS-N1</b> 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 3750, 3550, and 3524. <b>Modular Router Solutions</b> LAN Switching LAN-to-LAN Routing Inter-VLAN Routing IP Telephony	3700 Series – 12.2(8)T 3660 Series – 12.2(2)XT 3640 – 12.2(2)XT 3620 – 12.2(2)XT 2811, 2821, and 2851 – 12.3(8)T4 2691 – 12.2(8)T 2600XM Series – 12.2(8)T1 2650 Series – 12.2(2)XT 2620 Series – 12.2(2)XT 2610 Series – 12.2(2)XT	This can be used to back up AC power as well as integrated inline power.





## LAN NETWORK MODULES

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>NM-1GE</b> 1-port Gigabit Ethernet Network Module 	Provides one Gigabit Interface Converter (GBIC) slot to carry any standard copper or optical Cisco GBIC. <b>Modular Router Solutions</b> Inter-VLAN Routing LAN-to-LAN Routing	3800 Series – 12.3(11)T 3700 – 12.2(11)YT 3660 Series – 12.2(11)YT 2691 – 12.2(11)YT	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. After 12.3 Mainline, supported in Cisco IOS advanced security feature set.
<b>NM-1FE-FX-V2</b> 1-port Fast Ethernet, FX only network module 	Provides a single auto-sensing 10/100BASE-FX connection via a fiber connector. <b>Modular Router Solutions</b> Inter-VLAN Routing LAN-to-LAN Routing VPN and Firewall	3800 Series – 12.3(11)T 3700 Series – 12.2(11)YT 3660 Series – 12.0(5)T 3640 – 11.3(1)T 3620 – 11.3(1)T 2691 – 12.2(8)T 2600XM Series – Future	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. After 12.3 Mainline, supported in Cisco IOS advanced security feature set.
<b>NM-1E</b> 1-port Ethernet network module 	Provides a single Ethernet LAN connection via an Ethernet AUI DB-15 connector or 10BASE-T RJ-45 connector. <b>Modular Router Solutions</b> LAN-to-LAN Routing VPN and Firewall	3660 Series – 12.0(5)T 3640 – 11.2(4)XA 3620 – 11.2(4)XA 2691 – Future 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.
<b>NM-4E</b> 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. <b>Modular Router Solutions</b> 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	No reliance on other network modules, WICs, voice interface cards, or advanced integration modules.

## LAN AND WIC COMBO NETWORK MODULES

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>NM-1FE2W</b> 1-port 10/100 Ethernet, two WIC slot network module	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.  <b>Modular Router Solutions</b> Inter-VLAN Routing LAN-to-LAN Routing VPN and Firewall Voice and Fax Integration	3800 Series – 12.3(11)T 3700 Series – 12.2(8)T 3660 Series – 12.0(7)XK 3640 – 12.0(7)XK 3620 – 12.0(7)XK 2691 – 12.2(8)T	No reliance on other network modules, WICs, voice interface cards, or advanced integration modules.  Supports all current WICs and VWICs.  <b>This card has reached end of sale. The last shipment date was March 30, 2004. Please migrate to the V2 version.</b>
			
<b>NM-1FE2W-V2</b> 1-port 10/100 Ethernet, two WIC slot network module	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.  <b>Modular Router Solutions</b> Inter-VLAN Routing LAN-to-LAN Routing VPN and Firewall Voice and Fax Integration	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	No reliance on other network modules, WICs, voice interface cards, or advanced integration modules.  Supports all current WICs and VWICs.
			
<b>NM-2FE2W</b> 2-port 10/100 Ethernet, two WIC slot network module	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.  <b>Modular Router Solutions</b> Inter-VLAN Routing LAN-to-LAN Routing VPN and Firewall Voice and Fax Integration	3800 Series – 12.3(11)T 3700 Series – 12.2(8)T 3660 Series – 12.0(7)XK 3640 – 12.0(7)XK 3620 – 12.0(7)XK 2691 – 12.2(8)T	No reliance on other network modules, WICs, voice interface cards, or advanced integration modules.  Supports all current WICs and VWICs.  <b>This card has reached end of sale. The last shipment date was March 30, 2004. Please migrate to the V2 version.</b>
			
<b>NM-2FE2W-V2</b> 2-port 10/100 Ethernet, two WIC slot network module	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.  <b>Modular Router Solutions</b> Inter-VLAN Routing LAN-to-LAN Routing VPN and Firewall Voice and Fax Integration	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	No reliance on other network modules, WICs, voice interface cards, or advanced integration modules.  Supports all current WICs and VWICs.
			

## LAN AND WIC COMBO NETWORK MODULES

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>NM-1FE1R2W</b> 1-port 10/100 Ethernet, 1-port 4/16 Token Ring, two WIC slot network module	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.  <b>Modular Router Solutions</b> Inter-VLAN Routing LAN-to-LAN Routing VPN and Firewall Voice and Fax Integration	3800 Series – 12.3(11)T 3700 Series – 12.2(8)T 3660 Series – 12.0(7)XK 3640 – 12.0(7)XK 3620 – 12.0(7)XK 2691 – 12.2(8)T	No reliance on other network modules, WICs, voice interface cards, or advanced integration modules.  Supports all current WICs and VWICs.
			
<b>NM-1E2W</b> One Ethernet, two WIC slot network module	Provides one Ethernet port and two WIC expansion slots. The Ethernet connection is via an Ethernet AUI DB-15 connector or 10BASE-T RJ-45 connector.  <b>Modular Router Solutions</b> LAN-to-LAN Routing VPN and Firewall	3660 Series – 12.0(5)T 3640 – 11.1(7)AA 3620 – 11.1(7)AA	No reliance on other network modules, WICs, voice interface cards, or advanced integration modules.  Supported WICs include WIC-1T, WIC-1B-S/T, WIC-1B-U, WIC-1DSU-56K4, and WIC-1DSU-T1.
			
<b>NM-2E2W</b> Two Ethernet, two WIC slot network module	Provides two Ethernet ports and two WIC expansion slots. The Ethernet connection is via an Ethernet AUI DB-15 connector or 10BASE-T RJ-45 connector.  <b>Modular Router Solutions</b> LAN-to-LAN Routing VPN and Firewall	3660 Series – 12.0(5)T 3640 – 11.1(7)AA 3620 – 11.1(7)AA	No reliance on other network modules, WICs, voice interface cards, or advanced integration modules.  Supported WICs include WIC-1T, WIC-1B-S/T, WIC-1B-U, WIC-1DSU-56K4, and WIC-1DSU-T1.
			
<b>NM-1E1R2W</b> One Ethernet, one Token Ring, two WIC slot network module	Provides one Ethernet port, one Token Ring and two WIC expansion slots. The Ethernet connection is via an Ethernet AUI DB-15 connector or 10BASE-T RJ-45 connector. The Token Ring connection is via an STP or UTP connector.  <b>Modular Router Solutions</b> LAN-to-LAN Routing VPN and Firewall	3660 Series – 12.0(5)T 3640 – 11.1(8)AA 3620 – 11.1(8)AA	No reliance on other network modules, WICs, voice interface cards, or advanced integration modules.  Supported WICs include WIC-1T, WIC-1B-S/T, WIC-1B-U, WIC-1DSU-56K4, and WIC-1DSU-T1.
			



## LAN AND WIC COMBO NETWORK MODULES

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>NM-2W</b> Two WIC slot network module	Provides two WIC expansion slots supporting all current WICs and VWICs.  <b>Modular Router Solutions</b> Serial and Legacy Concentration Voice and Fax Integration	3800 Series – 12.3(11)T 3700 Series – 12.2(8)T 3660 Series – 12.0(7)XK 3640 – 12.0(7)XK 3620 – 12.0(7)XK 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 – 12.0(7)XK 2610 Series – 12.0(7)XK	Requires at least one WIC or VWIC.  Supports all current WICs and VWICs.



## CIRCUIT EMULATION OVER IP NETWORK MODULES

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>NM-CEM-4TE1</b> Four port channelized, unchannelized E1/T1 Network Module	Provides four RJ-45 channelized/unchannelized, framed/unframed T1/E1 ports for bit-transparent transport services.  <b>Modular Router Solutions</b> Transport of data streams that have no format or structure recognized by any other router interfaces (legacy protocols, encrypted applications, etc.)	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.



<b>NM-CEM-4SER</b> Four port channelized, unchannelized E1/T1 Network Module	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 kbps to 2048 kbps.  <b>Modular Router Solutions</b> Transport of data streams that have no format or structure recognized by any other router interfaces (legacy protocols, encrypted applications, etc.)	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.
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## Serial Connectivity Network Modules

## SERIAL T3/E3 NETWORK MODULES

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>NM-1T3/E3</b> 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.  <b>Modular Router Solutions</b> Serial Connectivity	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.




## HIGH-SPEED SERIAL NETWORK MODULES – UP TO 52 MBPS


Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>NM-1HSSI</b> 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.  <b>Modular Router Solutions</b> Serial and Legacy Concentration	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.




## SYNCHRONOUS SERIAL NETWORK MODULES—UP TO 8 MBPS


Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>NM-4T</b> 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 and half-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 3660 Series – 12.0(5)T 3640 – 11.2(4)XA 3620 – 11.2(4)XA 2811, 2821, and 2851 – 12.3(8)T4 2691 – 12.2(11)YT	No reliance on other network modules, WICs, voice interface cards, or advanced integration modules.
	<b>Modular Router Solutions</b> Serial and Legacy Concentration		


## ASYNCHRONOUS SERIAL NETWORK MODULES—UP TO 128 KBPS


Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>NM-4A/S</b> 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 Series – 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.
	<b>Modular Router Solutions</b> Serial and Legacy Concentration		

<b>NM-8A/S</b> 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 Series – 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.
	<b>Modular Router Solutions</b> Serial and Legacy Concentration		

## ASYNCHRONOUS SERIAL NETWORK MODULES—UP TO 128 KBPS

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>NM-16A/S</b> 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 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.
	<b>Modular Router Solutions</b> Serial and Legacy Concentration		




<b>NM-16A</b> 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 – Future 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.
	<b>Modular Router Solutions</b> Dial-up Remote Access Serial and Legacy Concentration		

<b>NM-32A</b> 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 – Future 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.
	<b>Modular Router Solutions</b> 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
<b>NM-1CE1T1-PRI</b> 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.  <b>Modular Router Solutions</b> Serial and Legacy Concentration ISDN Concentration	3800 Series – 12.3(11)T 3700 Series – 12.3 and 12.3T 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.  <b>End of sales announced. Last order date December 17, 2004.</b>
			
<b>NM-2CE1T1-PRI</b> 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.  <b>Modular Router Solutions</b> Serial and Legacy Concentration ISDN Concentration	3800 Series – 12.3(11)T 3700 Series – 12.3 and 12.3T 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.  <b>End of sales announced. Last order date December 17, 2004.</b>
			
<b>NM-1CT1</b> 1-port channelized T1/ISDN-PRI network module	Provides a single channelized T1/ISDN PRI connection via a DB-15 connector.  <b>Modular Router Solutions</b> Serial and Legacy Concentration ISDN Concentration	3700 Series – 12.2(8)T 3660 Series – 12.0(7)XK 3640 – 11.1(7)AA 3620 – 11.1(7)AA 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.  <b>End of sales announced. Last order date December 17, 2004.</b>
			





## CHANNELIZED T1/E1 AND ISDN PRIMARY RATE INTERFACE NETWORK MODULES

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>NM-1CT1-CSU</b> 1-port channelized T1/ISDN-PRI with CSU network module	Provides a single channelized T1/ISDN PRI with integrated DSU/CSU connection via an RJ-48 connector.  <b>Modular Router Solutions</b> Serial and Legacy Concentration ISDN Concentration	3700 Series – 12.2(8)T 3660 Series – 12.0(7)XK 3640 – 11.1(7)AA 3620 – 11.1(7)AA 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.  <b>End of sales announced. Last order date December 17, 2004.</b>
			
<b>NM-1CE1B</b> 1-port channelized E1/ISDN-PRI balanced network module	Provides a single channelized E1/ISDN PRI balanced (120 ohm) connection via a DB-15 connector.  <b>Modular Router Solutions</b> Serial and Legacy Concentration ISDN Concentration	3700 Series – 12.2(8)T 3660 Series – 12.0(7)XK 3640 – 11.1(7)AA 3620 – 11.1(7)AA 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.  <b>End of sales announced. Last order date December 17, 2004.</b>
			
<b>NM-1CE1U</b> 1-port channelized E1/ISDN-PRI unbalanced network module	Provides a single channelized E1/ISDN PRI unbalanced (75 ohm) connection via a DB-15 connector.  <b>Modular Router Solutions</b> Serial and Legacy Concentration ISDN Concentration	3700 Series – 12.2(8)T 3660 Series – 12.0(7)XK 3640 – 11.1(7)AA 3620 – 11.1(7)AA 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.  <b>End of sales announced. Last order date December 17, 2004.</b>
			
<b>NM-2CT1</b> 2-port channelized T1/ISDN-PRI network module	Provides two channelized T1/ISDN PRI connections via DB-15 connectors.  <b>Modular Router Solutions</b> Serial and Legacy Concentration ISDN Concentration	3700 Series – 12.2(8)T 3660 Series – 12.0(7)XK 3640 – 11.1(7)AA 3620 – 11.1(7)AA 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.  <b>End of sales announced. Last order date December 17, 2004.</b>
			

## CHANNELIZED T1/E1 AND ISDN PRIMARY RATE INTERFACE NETWORK MODULES

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>NM-2CT1-CSU</b> 2-port channelized T1/ISDN-PRI with CSU network module 	Provides two channelized T1/ISDN PRI with integrated DSU/CSU connections via RJ-48 connectors. <b>Modular Router Solutions</b> Serial and Legacy Concentration ISDN Concentration	3700 Series – 12.2(8)T 3660 Series – 12.0(7)XK 3640 – 11.1(7)AA 3620 – 11.1(7)AA 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. <b>End of sales announced. Last order date December 17, 2004.</b>
<b>NM-2CE1B</b> 2-port channelized E1/ISDN-PRI balanced network module 	Provides two channelized E1/ISDN PRI balanced (120 ohm) connections via DB-15 connectors. <b>Modular Router Solutions</b> Serial and Legacy Concentration ISDN Concentration	3700 Series – 12.2(8)T 3660 Series – 12.0(7)XK 3640 – 11.1(7)AA 3620 – 11.1(7)AA 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. <b>End of sales announced. Last order date December 17, 2004.</b>
<b>NM-2CE1U</b> 2-port channelized E1/ISDN-PRI unbalanced network module 	Provides two channelized E1/ISDN PRI unbalanced (75 ohm) connections via DB-15 connectors. <b>Modular Router Solutions</b> Serial and Legacy Concentration ISDN Concentration	3700 Series – 12.2(8)T 3660 Series – 12.0(7)XK 3640 – 11.1(7)AA 3620 – 11.1(7)AA 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. <b>End of sales announced. Last order date December 17, 2004.</b>

## ISDN BASIC RATE INTERFACE NETWORK MODULE




Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>NM-4B-S/T</b> 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. <b>Modular Router Solutions</b> 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.
<b>NM-4B-U</b> 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. <b>Modular Router Solutions</b> 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.
<b>NM-8B-S/T</b> 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. <b>Modular Router Solutions</b> 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.
<b>NM-8B-U</b> 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. <b>Modular Router Solutions</b> 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
<b>NM-1A-OC3MM-EP</b> 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.  <b>Modular Router Solutions</b> ATM Edge Connectivity	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.
			
<b>NM-1A-OC3SMI-EP</b> 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.  <b>Modular Router Solutions</b> ATM Edge Connectivity	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.
			
<b>NM-1A-OC3SML-EP</b> 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.  <b>Modular Router Solutions</b> ATM Edge Connectivity	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.
			


## ATM OC3 NETWORK MODULES

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>NM-1A-OC3MM</b> 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.  <b>Modular Router Solutions</b> ATM Edge Connectivity	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.
			
<b>NM-1A-OC3SMI</b> 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.  <b>Modular Router Solutions</b> ATM Edge Connectivity	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.
			
<b>NM-1A-OC3SML</b> 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.  <b>Modular Router Solutions</b> ATM Edge Connectivity	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.
			




## ATM T3/E3 NETWORK MODULES

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>NM-1A-T3</b> 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.  <b>Modular Router Solutions</b> ATM Edge Connectivity	3800 Series – 12.3(11)T 3700 Series – 12.2(8)T 3660 Series – 12.1(2)T 3640 – 12.1(2)T 3620 – 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.
<b>NM-1A-E3</b> 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.  <b>Modular Router Solutions</b> ATM Edge Connectivity	3800 Series – 12.3(11)T 3700 Series – 12.2(8)T 3660 Series – 12.1(2)T 3640 – 12.1(2)T 3620 – 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
<b>NM-1ATM-25</b> 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.  <b>Modular Router Solutions</b> ATM Edge Connectivity DSL Access LAN-to-LAN Routing	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.

## ATM T1/E1 IMA NETWORK MODULES

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>NM-4T1-IMA</b> 4-port T1 ATM network module with IMA 	Provides four physical T1 ports with integrated CSU/DSU and up to four inverse multiplexing over ATM (IMA) groups. Each IMA group can aggregate one to all physical ports, providing up to 6 Mbps bandwidth.  <b>Modular Router Solutions</b> ATM Edge Connectivity	3800 Series – 12.3(11)T 3700 Series – 12.2(8)T 3660 Series – 12.0(5)T 3640 – 12.0(5)T 3620 – 12.0(5)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 – 12.0(5)T 2610 Series – 12.0(5)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.  Maximum of one per Cisco 3620. Maximum of three per Cisco 3640.  No reliance on other network modules, WICs, voice interface cards, or advanced integration modules.  <b>End of sales announced. Last order date March 31, 2004.</b>
<b>NM-4E1-IMA</b> 4-port E1 ATM network module with IMA 	Provides four physical E1 ports with integrated DSU and up to four inverse multiplexing over ATM (IMA) groups. Each IMA group can aggregate one to all physical ports, providing up to 8 Mbps bandwidth.  <b>Modular Router Solutions</b> ATM Edge Connectivity	3800 Series – 12.3(11)T 3700 Series – 12.2(8)T 3660 Series – 12.0(5)T 3640 – 12.0(5)T 3620 – 12.0(5)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 – 12.0(5)T 2610 Series – 12.0(5)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.  Maximum of one per Cisco 3620. Maximum of three per Cisco 3640.  No reliance on other network modules, WICs, voice interface cards, or advanced integration modules.  <b>End of sales announced. Last order date March 31, 2004.</b>
<b>NM-8T1-IMA</b> 8-port T1 ATM network module with IMA 	Provides eight physical T1 ports with integrated CSU/DSU and up to four inverse multiplexing over ATM (IMA) groups. Each IMA group can aggregate one to all physical ports, providing up to 12 Mbps bandwidth.  <b>Modular Router Solutions</b> ATM Edge Connectivity	3800 Series – 12.3(11)T 3700 Series – 12.2(8)T 3660 Series – 12.0(5)T 3640 – 12.0(5)T 3620 – 12.0(5)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 – 12.0(5)T 2610 Series – 12.0(5)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.  Maximum of one per Cisco 3620. Maximum of three per Cisco 3640.  No reliance on other network modules, WICs, voice interface cards, or advanced integration modules.  <b>End of sales announced. Last order date March 31, 2004.</b>



## ATM T1/E1 IMA NETWORK MODULES

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>NM-8E1-IMA</b> 8-port E1 ATM network module with IMA	Provides eight physical E1 ports with integrated DSU and up to four inverse multiplexing over ATM (IMA) groups. Each IMA group can aggregate one to all physical ports, providing up to 16 Mbps bandwidth.  <b>Modular Router Solutions</b> ATM Edge Connectivity	3800 Series – 12.3(11)T 3700 Series – 12.2(8)T 3660 Series – 12.0(5)T 3640 – 12.0(5)T 3620 – 12.0(5)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 – 12.0(5)T 2610 Series – 12.0(5)T	Prior to Cisco IOS 12.3 Mainline, requires a Cisco “Plus” feature set. 12.3 Mainline and forward supported in “SP Services” feature set.  Maximum of one per Cisco 3620. Maximum of three per Cisco 3640.  No reliance on other network modules, WICs, voice interface cards, or advanced integration modules.  <b>End of sales announced. Last order date March 31, 2004.</b>



## Dial-up/Remote Access Network Modules

## DIGITAL MODEM NETWORK MODULES

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>NM-6DM</b> 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.  <b>Modular Router Solutions</b> Dial-up Remote Access	3800 Series – 12.3(11)T 3700 Series – 12.2(8)T 3660 Series – 12.0(7)XK 3640 – 11.2(9)XA 3620 – 11.2(9)XA	Requires a channelized or ISDN WAN network module: NM-1FE1CT1, NM-1FE1CT1-CSU, NM-1FE1CE1B, NM-1FE1CE1U, NM-1FE2CT1, NM-1FE2CT1-CSU, NM-1FE2CE1B, NM-1FE2CE1U, NM-1CT1, NM-1CT1-CSU, NM-2CT1, NM-2CT1-CSU, NM-1CE1B, NM-1CE1U, NM-2CE1B, NM-2CE1U, NM-4B-S/T, NM-4B-U, NM-8B-S/T, or NM-8B-U.
<b>NM-12DM</b> 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.  <b>Modular Router Solutions</b> Dial-up Remote Access	3800 Series – 12.3(11)T 3700 Series – 12.2(8)T 3660 Series – 12.0(7)XK 3640 – 11.2(9)XA 3620 – 11.2(9)XA	Requires a channelized or ISDN WAN network module: NM-1FE1CT1, NM-1FE1CT1-CSU, NM-1FE1CE1B, NM-1FE1CE1U, NM-1FE2CT1, NM-1FE2CT1-CSU, NM-1FE2CE1B, NM-1FE2CE1U, NM-1CT1, NM-1CT1-CSU, NM-2CT1, NM-2CT1-CSU, NM-1CE1B, NM-1CE1U, NM-2CE1B, NM-2CE1U, NM-4B-S/T, NM-4B-U, NM-8B-S/T, or NM-8B-U.







## DIGITAL MODEM NETWORK MODULES

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>NM-18DM</b> 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.  <b>Modular Router Solutions</b> Dial-up Remote Access	3800 Series – 12.3(11)T 3700 Series – 12.2(8)T 3660 Series – 12.0(7)XK 3640 – 11.2(9)XA 3620 – 11.2(9)XA	Requires a channelized or ISDN WAN network module: NM-1FE1CT1, NM-1FE1CT1-CSU, NM-1FE1CE1B, NM-1FE1CE1U, NM-1FE2CT1, NM-1FE2CT1-CSU, NM-1FE2CE1B, NM-1FE2CE1U, NM-1CT1, NM-1CT1-CSU, NM-2CT1, NM-2CT1-CSU, NM-1CE1B, NM-1CE1U, NM-2CE1B, NM-2CE1U, NM-4B-S/T, NM-4B-U, NM-8B-S/T, or NM-8B-U.
<b>NM-24DM</b> 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.  <b>Modular Router Solutions</b> Dial-up Remote Access	3800 Series – 12.3(11)T 3700 Series – 12.2(8)T 3660 Series – 12.0(7)XK 3640 – 11.2(9)XA 3620 – 11.2(9)XA	Requires a channelized or ISDN WAN network module: NM-1FE1CT1, NM-1FE1CT1-CSU, NM-1FE1CE1B, NM-1FE1CE1U, NM-1FE2CT1, NM-1FE2CT1-CSU, NM-1FE2CE1B, NM-1FE2CE1U, NM-1CT1, NM-1CT1-CSU, NM-2CT1, NM-2CT1-CSU, NM-1CE1B, NM-1CE1U, NM-2CE1B, NM-2CE1U, NM-4B-S/T, NM-4B-U, NM-8B-S/T, or NM-8B-U.
<b>NM-30DM</b> 30-port digital modem network module	Contains 30 configurable V.90-compliant digital modems for use with the ISDN PRI and BRI network modules.  <b>Modular Router Solutions</b> Dial-up Remote Access	3800 Series – 12.3(11)T 3700 Series – 12.2(8)T 3660 Series – 12.0(7)XK 3640 – 11.2(9)XA 3620 – 11.2(9)XA	Requires a channelized or ISDN WAN network module: NM-1FE1CT1, NM-1FE1CT1-CSU, NM-1FE1CE1B, NM-1FE1CE1U, NM-1FE2CT1, NM-1FE2CT1-CSU, NM-1FE2CE1B, NM-1FE2CE1U, NM-1CT1, NM-1CT1-CSU, NM-2CT1, NM-2CT1-CSU, NM-1CE1B, NM-1CE1U, NM-2CE1B, NM-2CE1U, NM-4B-S/T, NM-4B-U, NM-8B-S/T, or NM-8B-U.
<b>MICA-6MOD</b> 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.  <b>Modular Router Solutions</b> Dial-up Remote Access	3800 Series – 12.3(11)T 3700 Series – 12.2(8)T 3660 Series – 12.0(7)XK 3640 – 11.2(9)XA 3620 – 11.2(9)XA	Requires a digital modem network module: NM-6DM, NM-12DM, NM-18DM, or NM-24DM.





## ANALOG MODEM NETWORK MODULES

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>NM-8AM</b> 8-port analog modem network module	Provides support for basic dial service via RJ-11 connectors. It allows up to eight remote analog modem users to connect via internal V.34 modems at speeds of up to 33.6 Kbps.  <b>Modular Router Solutions</b> Dial-up Remote Access	3700 Series – 12.2(11)YT 3660 Series – 12.0(7)XK 3640 – 11.3(4)T 3620 – 11.3(4)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(3)T 2610 Series – 11.3(3)T	No reliance on other network modules, WICs, voice interface cards, or advanced integration modules.  <b>End of sales announced. Last order date October 13, 2004.</b>
			
<b>NM-8AM-V2</b> 8-port analog modem network module with V.92	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.  <b>Modular Router Solutions</b> Dial-up Remote Access	3800 Series – 12.3(11)T 3700 Series – 12.3(4)D 3660 Series – 12.3(4)D 3640 – 12.3(4)D 3620 – 12.3(4)D 2811, 2821, and 2851 – 12.3(8)T4 2691 – 12.3(4)D 2600XM Series – 12.3(4)D 2650 Series – 12.3(4)D 2620 Series – 12.3(4)D 2610 Series – 12.3(4)D	No reliance on other network modules, WICs, voice interface cards, or advanced integration modules.
			
<b>NM-16AM</b> 16-port analog modem network module	Provides support for basic dial service via RJ-11 connectors. It allows up to 16 remote analog modem users to connect via internal V.34 modems at speeds of up to 33.6 Kbps.  <b>Modular Router Solutions</b> Dial-up Remote Access	3700 Series – 12.2(11)YT 3660 Series – 12.0(7)XK 3640 – 11.3(4)T 3620 – 11.3(4)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(3)T 2610 Series – 11.3(3)T	No reliance on other network modules, WICs, voice interface cards, or advanced integration modules.  <b>End of sales announced. Last order date October 13, 2004.</b>
			
<b>NM-16AM-V2</b> 16-port analog modem network module WITH V.92	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.  <b>Modular Router Solutions</b> Dial-up Remote Access	3800 Series – 12.3(11)T 3700 Series – 12.2(11)YT 3660 Series – 12.0(7)XK 3640 – 11.3(4)T 3620 – 11.3(4)T 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(3)T 2610 Series – 11.3(3)T	No reliance on other network modules, WICs, voice interface cards, or advanced integration modules.
			




## Voice Network Modules

## ANALOG AND ISDN BASIC RATE VOICE NETWORK MODULES



Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>NM-1V</b> 1-slot voice/fax network module	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.  <b>Modular Router Solutions</b> 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)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	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 voice interface card (VIC).
			
<b>NM-2V</b> 2-slot voice/fax network module	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.  <b>Modular Router Solutions</b> 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)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	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 voice interface card (VIC).
			






## ANALOG AND ISDN BASIC RATE VOICE NETWORK MODULES

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>NM-HD-1V</b> 1-slot IP communications voice/fax network module 	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><b>Modular Router Solutions</b> Voice and Fax Integration</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	Not supported on 12.3 Mainline; only 12.3(4)T and later. Requires voice interface card.
<b>NM-HD-2V</b> 2-slot IP communications voice/fax network module 	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><b>Modular Router Solutions</b> Voice and Fax Integration</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	Not supported on 12.3 Mainline; only 12.3(4)T and later. Requires voice interface card.
<b>NM-HD-2VE</b> 2-slot IP communications enhanced voice/fax network module 	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 G7.11 digital T1/E1 voice channels. Connects to standard telephony equipment such as PBXs, key systems, phones, and fax machines. <p><b>Modular Router Solutions</b> Voice and Fax Integration</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	Not supported on 12.3 Mainline; only 12.3(4)T and later. Requires voice interface card.





## ANALOG AND ISDN BASIC RATE VOICE NETWORK MODULES

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>NM-HDA-4FXS</b> High-density analog voice/fax network module with 4 FXS 	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><b>Modular Router Solutions</b> Voice and Fax Integration</p>	3800 Series – 12.3(11)T 3700 Series – 12.2(8)T1 3660 Series – 12.2(4)XT 3640 – 12.2(4)XT 3620 – 12.2(4)XT 2811, 2821, and 2851 – 12.3(8)T4 2691 – 12.2(8)T1 2600XM Series – 12.2(8)T1 2650 Series – 12.2(4)XT 2620 Series – 12.2(4)XT 2610 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.  No reliance on other network modules, WICs, voice interface cards, or advanced integration modules.
<b>EVM-HD-8FXS/DID</b> High-Density Analog and Digital Extension Module for Voice and Fax 	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><b>Modular Router Solutions</b> Voice and Fax Integration</p>	Extension Voice Module (EVM) slot only: 2821 – 12.3(8)T4 2851 – 12.3(8)T4  Any Network Module Slot: 3825 (1 per router) – 12.3(11)T 3845 (1 or 2 per router) – 12.3(11)T	Not supported on 12.3 Mainline; only IP voice on 12.3T.



## ANALOG AND ISDN BASIC RATE VOICE NETWORK MODULES

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>EM-4BRI-NT/TE</b> 4-port voice and fax expansion module	A support 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	Not supported on 12.3 Mainline; only 12.3T and later.  Requires a Cisco high-density analog and digital extension module (EVM-HD-8FXS/DID).
	<b>Modular Router Solutions</b> Voice and Fax Integration		
<b>EM-HDA-6FXO</b> 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	Not supported on 12.3 Mainline; only 12.3T and later.  Requires a Cisco high-density analog and digital extension module (EVM-HD-8FXS/DID).
	<b>Modular Router Solutions</b> Voice and Fax Integration		
<b>EM-HDA-3FXS/4FXO</b> 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	Not supported on 12.3 Mainline; only 12.3T and later.  Requires a Cisco high-density analog and digital extension module (EVM-HD-8FXS/DID).
	<b>Modular Router Solutions</b> Voice and Fax Integration		



## ANALOG AND ISDN BASIC RATE VOICE NETWORK MODULES

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>EM-HDA-4FXO</b> 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.	3800 Series – 12.3(11)T 3700 Series – 12.2(8)T 3660 Series – 12.2(4)XT 3640 – 12.2(4)XT 3620 – 12.2(4)XT 2811, 2821, and 2851 – 12.3(8)T4 2691 – 12.2(8)T1 2600XM Series – 12.2(8)T1 2650 Series – 12.2(4)XT 2620 Series – 12.2(4)XT 2610 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).
	<b>Modular Router Solutions</b> Voice and Fax Integration		
<b>EM-HDA-8FXS</b> 8-port voice/fax expansion module – FXS	Provides an additional eight FXS ports for connections directly to analog phones, fax machines, and key.	3800 Series – 12.3(11)T 3700 Series – 12.2(8)T 3660 Series – 12.2(4)XT 3640 – 12.2(4)XT 3620 – 12.2(4)XT 2811, 2821, and 2851 – 12.3(8)T4 2691 – 12.2(8)T1 2600XM Series – 12.2(8)T1 2650 Series – 12.2(4)XT 2620 Series – 12.2(4)XT 2610 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).
	<b>Modular Router Solutions</b> Voice and Fax Integration		
<b>DSP-HDA-16</b> 16-channel DSP module for NM-HDA	Enables an additional eight high-complexity or 16 medium-complexity voice calls on NM-HDA.	3800 Series – 12.3(11)T 3700 Series – 12.2(8)T 3660 Series – 12.2(4)XT 3640 – 12.2(4)XT 3620 – 12.2(4)XT 2811, 2821, and 2851 – 12.3(8)T4 2691 – 12.2(8)T1 2600XM Series – 12.2(8)T1 2650 Series – 12.2(4)XT 2620 Series – 12.2(4)XT 2610 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).
	<b>Modular Router Solutions</b> Voice and Fax Integration		
<b>NM-HDV2</b> High-density digital voice/fax module	Supports a VIC/VWIC slot that can be fitted with either digital or analog/BRI voice/WAN interface cards. Supports a maximum of 60 channels of digital voice, or four channels of analog voice in medium complexity codec. Must be used with up to four PVDM2 Packet Fax/Voice DSP modules.	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	Not supported on 12.3 Mainline; only 12.3T and later.
	<b>Modular Router Solutions</b> Voice and Fax Integration		


## ANALOG AND ISDN BASIC RATE VOICE NETWORK MODULES


Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>NM-HDV2-1T1/1E1</b> High-density digital voice/fax network module  	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 a maximum of 90 channels of digital voice, or 30 channels of digital voice and four channels of analog voice in medium complexity codec. Must be used with up to four PVDM2 Packet Fax/Voice DSP modules.	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	Not supported on 12.3 Mainline; only 12.3T and later.
	<b>Modular Router Solutions</b> Voice and Fax Integration		
<b>NM-HDV2-2T1/1E1</b> High-density digital voice/fax network module  	Includes two built-in T1/E1 ports and a VIC/VWIC slot that can be fitted with either digital or analog/BRI voice/WAN interface cards. Supports a maximum of 120 channels of digital voice, or 60 channels of digital voice and four channels of analog voice in medium complexity codec. Must be used with up to four PVDM2 Packet Fax/Voice DSP modules.	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	Not supported on 12.3 Mainline; only 12.3T and later.
	<b>Modular Router Solutions</b> Voice and Fax Integration		

## T1/E1/J1 DIGITAL VOICE NETWORK MODULES


Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>NM-HDV-1T1-12</b> 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 3660 Series – 12.0(5)XK 3640 – 12.0(5)XK 3620 – 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"> <li>• One network module (NM-HDV)</li> <li>• One one-port T1 voice/WAN interface card (VWIC-1MFT-T1)</li> <li>• One digital signal processor modules (PVDM-12)</li> </ul>
	<b>Modular Router Solutions</b> Voice and Fax Integration		
<b>NM-HDV-1T1-24</b> 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 3660 Series – 12.0(5)XK 3640 – 12.0(5)XK 3620 – 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"> <li>• One network module (NM-HDV)</li> <li>• One one-port T1 voice/WAN interface card (VWIC-1MFT-T1)</li> <li>• One digital signal processor modules (PVDM-12)</li> </ul>
	<b>Modular Router Solutions</b> Voice and Fax Integration		


## T1/E1/J1 DIGITAL VOICE NETWORK MODULES

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>NM-HDV-1T1-24E</b> 1-port 24-channel enhanced digital T1 packet voice trunk network module 	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.	3800 Series – 12.3(11)T 3700 Series – 12.2(8)T 3660 Series – 12.0(5)XK 3640 – 12.0(5)XK 3620 – 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-1T1-24E is a bundle of the following components: <ul style="list-style-type: none"> <li>• One network module (NM-HDV)</li> <li>• One one-port T1 voice/WAN interface card (VVIC-1MFT-T1)</li> <li>• One digital signal processor modules (PVDM-12)</li> </ul>
<b>Modular Router Solutions</b> Voice and Fax Integration			

<b>NM-HDV-2T1-48</b> 2-port 48-channel enhanced digital T1 packet voice trunk network module 	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.	3800 Series – 12.3(11)T 3700 Series – 12.2(8)T 3660 Series – 12.0(5)XK 3640 – 12.0(5)XK 3620 – 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"> <li>• One network module (NM-HDV)</li> <li>• One 2-port T1 voice/WAN interface card (VVIC-2MFT-T1)</li> <li>• Four digital signal processor modules (PVDM-12)</li> </ul>
<b>Modular Router Solutions</b> Voice and Fax Integration			


## T1/E1/J1 DIGITAL VOICE NETWORK MODULES


Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>NM-HDV-1E1-12</b> 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 3660 Series – 12.0(5)XK 3640 – 12.0(5)XK 3620 – 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"> <li>• One network module (NM-HDV)</li> <li>• One 2-port T1 voice/WAN interface card (VVIC-2MFT-T1)</li> <li>• Four digital signal processor modules (PVDM-12)</li> </ul>
<b>Modular Router Solutions</b> Voice and Fax Integration			

<b>NM-HDV-1E1-30</b> 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 3660 Series – 12.0(7)XK 3640 – 12.0(7)XK 3620 – 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"> <li>• One network module (NM-HDV)</li> <li>• One 1-port E1 voice/WAN interface card (VVIC-1MFT-E1)</li> <li>• Three digital signal processor modules (PVDM-12)</li> </ul>
<b>Modular Router Solutions</b> Voice and Fax Integration			





## T1/E1/J1 DIGITAL VOICE NETWORK MODULES

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>NM-HDV-1E1-30E</b> 1-port 30-channel enhanced digital E1 packet voice trunk network module	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.	3800 Series – 12.3(11)T 3700 Series – 12.2(8)T 3660 Series – 12.0(7)XK 3640 – 12.0(7)XK 3620 – 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-1E1-30E is a bundle of the following components: •One network module (NM-HDV) •One 1-port E1 voice/WAN interface card (VVIC-1MFT-E1) •Three digital signal processor modules (PVDM-12)
	<b>Modular Router Solutions</b> Voice and Fax Integration		




<b>NM-HDV-2E1-60</b> 2-port 60-channel digital E1 packet voice trunk network module	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.	3800 Series – 12.3(11)T 3700 Series – 12.2(8)T 3660 Series – 12.0(7)XK 3640 – 12.0(7)XK 3620 – 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-2E1-60 is a bundle of the following components: •One network module (NM-HDV) •One 2-port E1 voice/WAN interface card (VVIC-2MFT-E1) •Five digital signal processor modules (PVDM-12)
	<b>Modular Router Solutions</b> Voice and Fax Integration		

## T1/E1/J1 DIGITAL VOICE NETWORK MODULES




Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>NM-HDV-1J1-30</b> 1-port 30-channel J1 voice/fax network module	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.	3800 Series – 12.3(11)T 3700 Series – Future 3660 Series – 12.2(8)T 3640 – 12.2(8)T 3620 – 12.2(8)T 2811, 2821, and 2851 – 12.3(8)T4 2691 – Future 2600XM Series – 12.2(8)T1 2650 Series – 12.2(8)T 2620 Series – 12.2(8)T 2610 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-1J1-30 is a bundle of the following components: •One network module (NM-HDV) •One one-port E1 voice/WAN interface card (VVIC-1MFT-E1) •Three digital signal processor modules (PVDM-12)
	<b>Modular Router Solutions</b> Voice and Fax Integration		

<b>NM-HDV-1J1-30E</b> 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 – Future 3660 Series – 12.2(8)T 3640 – 12.2(8)T 3620 – 12.2(8)T 2811, 2821, and 2851 – 12.3(8)T4 2691 – Future 2600XM Series – 12.2(8)T1 2650 Series – 12.2(8)T 2620 Series – 12.2(8)T 2610 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)
	<b>Modular Router Solutions</b> Voice and Fax Integration		

## T1/E1/J1 DIGITAL VOICE NETWORK MODULES




Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>NM-HDV</b> Digital T1/E1 packet voice trunk network module – Spare	This network module is the carrier card for the PVDM-12 and VVIC cards. It is the basis for all six NM-HDV voice bundles. Up to 30 unique combinations of network module, DSP modules, and VVICs 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 3660 Series – 12.0(5)XK 3640 – 12.0(5)XK 3620 – 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 (VVIC) or VIC-1J1 and a 12-channel DSP module (PVDM-12).
	<b>Modular Router Solutions</b> Voice and Fax Integration		
<b>NM-HDV-FARM-C36</b> 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 3745 – 12.2(13)T 3725 – 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 VVIC support.
	<b>Modular Router Solutions</b> Voice and Fax Integration		
<b>NM-HDV-FARM-C54</b> 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 3745 – 12.2(13)T 3725 – 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 VVIC support.
	<b>Modular Router Solutions</b> Voice and Fax Integration		

## T1/E1/J1 DIGITAL VOICE NETWORK MODULES


Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>NM-HDV-FARM-C90</b> Partitionable DSP resource farm; 90-port DSP network module	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.	3800 Series – 12.3(11)T 3745 – 12.2(13)T 3725 – 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 VVIC support.
	<b>Modular Router Solutions</b> Voice and Fax Integration		
<b>PVDM-12</b> 12-channel packet voice DSP module upgrade – spare	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.	3800 Series – 12.3(11)T 3700 Series – 12.2(8)T 3660 Series – 12.0(5)XK 3640 – 12.0(5)XK 3620 – 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 high-density voice network module (NM-HDV) and a voice/WAN interface card (VVIC).
	<b>Modular Router Solutions</b> Voice and Fax Integration		
<b>PVDM2-8</b> 8-channel packet voice/fax DSP module	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.	3800 Series – 12.3(11)T 3700 Series – 12.2(8)T 3660 Series – 12.0(5)XK 3640 – 12.0(5)XK 3620 – 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	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.
	<b>Modular Router Solutions</b> Voice and Fax Integration		




## T1/E1/J1 DIGITAL VOICE NETWORK MODULES

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>PVDM2-16</b> 16-channel packet voice/ fax DSP module	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.  <b>Modular Router Solutions</b> Voice and Fax Integration	3800 Series – 12.3(11)T 3700 Series – 12.2(8)T 3660 Series – 12.0(5)XK 3640 – 12.0(5)XK 3620 – 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	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.
			
<b>PVDM2-32</b> 32-channel packet voice/ fax DSP module	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.  <b>Modular Router Solutions</b> Voice and Fax Integration	3800 Series – 12.3(11)T 3700 Series – 12.2(8)T 3660 Series – 12.0(5)XK 3640 – 12.0(5)XK 3620 – 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	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.
			
<b>PVDM2-48</b> 48-channel packet voice/ fax DSP module	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.  <b>Modular Router Solutions</b> Voice and Fax Integration	3800 Series – 12.3(11)T 3700 Series – 12.2(8)T 3660 Series – 12.0(5)XK 3640 – 12.0(5)XK 3620 – 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	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.
			

## T1/E1/J1 DIGITAL VOICE NETWORK MODULES




Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>PVDM2-64</b> 64-channel packet voice/ fax DSP module	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.  <b>Modular Router Solutions</b> Voice and Fax Integration	3800 Series – 12.3(11)T 3700 Series – 12.2(8)T 3660 Series – 12.0(5)XK 3640 – 12.0(5)XK 3620 – 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	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.
			

## VOICE MAIL NETWORK MODULES




Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>NM-CUE</b> 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.  <b>Modular Router Solutions</b> 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.
			

# Application and Content Networking Network Modules


## CONTENT ENGINE NETWORK MODULES

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>NM-CE-BP-40G-K9</b> 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. <b>Modular Router Solutions</b> Rich Media Delivery Bandwidth Management Content Access Management	3800 Series – 12.3(11)T 3700 – 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 2650 Series – 12.2(8)T 2620 Series – 12.2(8)T 2610 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. No reliance on other network modules, WICs, voice interface cards, or advanced integration modules.
<b>NM-CE-BP-80G-K9</b> 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. <b>Modular Router Solutions</b> Rich Media Delivery Bandwidth Management Content Access Management	3800 Series – 12.3(11)T 3700 – 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 2650 Series – 12.2(8)T 2620 Series – 12.2(8)T 2610 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. No reliance on other network modules, WICs, voice interface cards, or advanced integration modules.
<b>NM-CE-BP-SCSI-K9</b> Content Engine Network Module, Basic Performance, SCSI controller 	Provides intelligent content acceleration and content delivery. The module operates a self-contained and independent Cisco Application and Content Networking System (ACNS) with a SCSI interface to external SCSI disk array such as the Cisco SA-6. <b>Modular Router Solutions</b> Rich Media Delivery Bandwidth Management Content Access Management	3700 – 12.2(8)T 3660 Series – 12.2(8)T 3640 – 12.2(8)T 2691 – 12.2(8)T 2600XM Series –12.2(8)T 2650 Series – 12.2(8)T 2620 Series – 12.2(8)T 2610 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. Requires an external SCSI disk array such as the Cisco SA-6.

## CONTENT ENGINE NETWORK MODULES


Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>EM-CE-40G</b> Expansion Module, 40-GB IDE, Field Upgrade 	Provides a field-replaceable 40-GB IDE storage for the NM-CE Series. <b>Modular Router Solutions</b> Bandwidth Management	3800 Series – 12.3(11)T 3700 – 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 2650 Series – 12.2(8)T 2620 Series – 12.2(8)T 2610 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. Requires an NM-CE network module.
<b>EM-CE-80G</b> Expansion Module, 80-GB IDE, Field Upgrade 	Provides a field-replaceable 80-GB IDE storage for the NM-CE Series. <b>Modular Router Solutions</b> Bandwidth Management	3800 Series – 12.3(11)T 3700 – 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 2650 Series – 12.2(8)T 2620 Series – 12.2(8)T 2610 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. Requires an NM-CE network module.
<b>EM-CE-SCSI</b> Expansion Module, SCSI controller, Field Upgrade 	Provides a field-replaceable SCSI controller and interface for the NM-CE Series. <b>Modular Router Solutions</b> Bandwidth Management	3700 – 12.2(8)T 3660 Series – 12.2(8)T 3640 – 12.2(8)T 2691 – 12.2(8)T 2600XM Series –12.2(8)T 2650 Series – 12.2(8)T 2620 Series – 12.2(8)T 2610 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. Requires an NM-CE network module. Requires an external SCSI disk array such as the Cisco SA-6.

## NETWORK ANALYSIS AND MONITORING



Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>NM-NAM</b> 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.	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.
	<b>Modular Router Solutions</b> Network Analysis and Management		

## Alarm Monitoring and Control Network Modules and Accessories

## ALARM MONITORING AND CONTROL NETWORK MODULES



Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>NM-AIC-64</b> Alarm Monitoring and Control Network Module	Provides ports for 64 discrete alarm points and 16 relay control points. Up to eight of the 64 alarm points can be configured to accept analog input.	3800 Series - 12.3(11)T 3700 Series - 12.3(2)T 3660 Series - 12.2(2)XG 3640 - 12.2(2)XG 3620 - 12.2(2)XG 2811, 2821, and 2851 - 12.3(8)T4 2691 - 12.3(2)T 2600XM Series - 12.2(8)T1 2650 Series - 12.2(2)XG 2620 Series - 12.2(2)XG 2610 Series - 12.2(2)XG	Requires a SCSI to Telco patch panel.
	<b>Modular Router Solutions</b> Alarm Monitoring and Control		

## ALARM MONITORING AND CONTROL NETWORK MODULES




Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>AIC-DBL-PNL</b> Patch Panel	SCSI to telco patch panel for terminating up to 128 alarm points (two NM-AIC-64).	3800 Series - 12.3(11)T 3700 Series - 12.3(2)T 3660 Series - 12.2(2)XG 3640 - 12.2(2)XG 3620 - 12.2(2)XG 2811, 2821, and 2851 - 12.3(8)T4 2691 - 12.3(2)T 2600XM Series - 12.2(8)T1 2650 Series - 12.2(2)XG 2620 Series - 12.2(2)XG 2610 Series - 12.2(2)XG	Requires an alarm monitoring and control network module.
	<b>Modular Router Solutions</b> Alarm Monitoring and Control		
<b>AIC-SGL-PNL</b> Patch Panel with voltage monitoring	SCSI to telco patch panel for terminating up to 64 alarm points and monitoring up to eight power lines.	3800 Series - 12.3(11)T 3700 Series - 12.3(2)T 3660 Series - 12.2(2)XG 3640 - 12.2(2)XG 3620 - 12.2(2)XG 2811, 2821, and 2851 - 12.3(8)T4 2691 - 12.3(2)T 2600XM Series - 12.2(8)T1 2650 Series - 12.2(2)XG 2620 Series - 12.2(2)XG 2610 Series - 12.2(2)XG	Requires an alarm monitoring and control network module.
	<b>Modular Router Solutions</b> Alarm Monitoring and Control		

# Cisco Interface Cards

## SERIAL WICS

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>WIC-1T</b> 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.	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-2FE2W or NM-1FE1R2W.
	<b>Modular Router Solutions</b> Serial and Legacy Concentration		
<b>WIC-2T</b> 2-port serial WAN interface card	Provides a two serial connections up to T1/E1 speeds. 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.	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-2FE2W or NM-1FE1R2W.
	<b>Modular Router Solutions</b> Serial and Legacy Concentration		

## SERIAL WICS

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>WIC-1DSU-T1</b> 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.	3700 Series – 12.2(11)YT 3660 Series – 12.0(5)T 3640 – 11.2(12)P 3620 – 11.2(12)P 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(4)T 2610 Series – 11.3(4)T 1760 – 12.2(11)T and later T trains; 12.3 Mainline 1751 – 12.2(4)T and later T trains; 12.3 Mainline 1721 – 12.2(8)T and 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-1E2W, NM-2E2W, NM-1E1R2W, NM-1FE2W, NM-2FE2W or NM-1FE1R2W.
	<b>Modular Router Solutions</b> Serial and Legacy Concentration		
<b>WIC-1DSU-T1-V2</b> 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.	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-1E2W, NM-2E2W, NM-1E1R2W, NM-1FE2W, NM-2FE2W, NM-1FE2W-V2, NM-2FE2W-V2 or NM-1FE1R2W
	<b>Modular Router Solutions</b> Serial and Legacy Concentration		
<b>WIC-1DSU-56K4</b> 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.	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 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.
	<b>Modular Router Solutions</b> Serial and Legacy Concentration		

## SERIAL WICS

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>WIC-2A/S</b> 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.  <b>Modular Router Solutions</b> 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-2FE2W or NM-1FE1R2W.

## ISDN BRI WICS

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>WIC-1B-S/T</b> 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.  <b>Modular Router Solutions</b> 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.

<b>WIC-1B-S/T-V3</b> 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.  <b>Modular Router Solutions</b> 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)T 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.
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## ISDN WICS

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>WIC-1B-U-V2</b> 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.  <b>Modular Router Solutions</b> 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 1, 2.2(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-2FE2W or NM-1FE1R2W.




## DSL WICS

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>WIC-1ADSL</b> 1-port asymmetric digital subscriber line WIC	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.  <b>Modular Router Solutions</b> ADSL over POTS Access	3700 Series – 12.2(8)T 3660 Series – 12.1.1(5)YB 3640 – 12.1.1(5)YB 3620 – 12.1.1(5)YB 2800 Series – 12.3(8)T4 2691 – 12.2(8)T 2600XM Series – 12.2(12) Mainline, 12.2(8)T1 2650 Series – 12.1.1(5)YB 2620 Series – 12.1.1(5)YB 2610 Series – 12.1.1(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	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.



<b>WIC-1ADSL-DG</b> 1-port asymmetric digital subscriber line WIC with dying gasp support	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.  <b>Modular Router Solutions</b> ADSL over POTS Access	3800 Series – 12.3(11)T 3725 Series – 12.3(4)XD 3745 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 – 12.3(4)T 1751 – 12.3(4)T 1721 – 12.3(4)T	No reliance on other network modules, WICs, voice interface cards, or advanced integration modules.
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## DSL WICS




Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>WIC-1ADSL-I-DG</b> 1-port ADSL over ISDN WIC with dying gasp support 	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.  <b>Modular Router Solutions</b> ADSL over ISDN Access	3800 Series – 12.3(11)T 3725 Series – 12.3(4)XD 3745 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 – 12.3(4)T 1751 – 12.3(4)T 1721 – 12.3(4)T	No reliance on other network modules, WICs, voice interface cards, or advanced integration modules.
<b>WIC-1SHDSL</b> 1-port symmetrical high-speed DSL line (G.SHDSL) WIC 	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.  <b>Modular Router Solutions</b> G.SHDSL Access	3700 Series – 12.2(11)YT 3660 Series – 12.2(4)XL2 3640 – 12.2(4)XL2 3620 – 12.2(4)XL2 2800 Series – 12.3(8)T4 2691 – 12.2(11)YT 2600XM Series – 12.2(8)T1 2650 Series – 12.2(4)XL 2620 Series – 12.2(4)XL 2610 Series – 12.2(4)XL 1841 – 12.3(8)T4 1760 – 12.2(13)T; 12.3 Mainline 1751 – 12.2(13)T; 12.3 Mainline 1721 – 12.2(13)T; 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.
<b>WIC-1SHDSL-V2</b> 1-port SHDSL WIC with 2- or 4-wire SHDSL support 	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.  <b>Modular Router Solutions</b> SHDSL Access	3800 Series – 12.3(11)T 3725 Series – 12.3(4)XD 3745 Series – 12.3(4)XD 2811, 2821, and 2851 – 12.3(8)T4 2801 – Available Q1 CY05 2691 – 12.3(4)XD 2610-51XM – 12.3(4)XD 1841 – Available Q1 CY05 1700 Series – 12.3(8)T	No reliance on other network modules, WICs, voice interface cards, or advanced integration modules

## ANALOG MODEM WICS




Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>WIC-1AM</b> 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).  <b>Modular Router Solutions</b> Dial-up Remote Access	3800 Series – 12.3(11)T 3700 Series – 12.2(8)T 3660 Series – 12.2(2)XB 3640 – 12.2(2)XB 3620 – 12.2(2)XB 2800 Series – 12.3(8)T4 2691 – 12.2(8)T1 2600XM Series – 12.2(8)T1 2650 Series – 12.2(2)XB 2620 Series – 12.2(2)XB 2610 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.
<b>WIC-2AM</b> 2-port analog modem WIC 	Provides two integrated analog modems via two RJ-11 connectors. Support for speeds up to 56 Kbps (V.90).  <b>Modular Router Solutions</b> Dial-up Remote Access	3800 Series – 12.3(11)T 3700 Series – 12.2(8)T 3660 Series – 12.2(2)XB 3640 – 12.2(2)XB 2800 Series – 12.3(8)T4 3620 – 12.2(2)XB 2691 – 12.2(8)T1 2600XM Series – 12.2(8)T1 2650 Series – 12.2(2)XB 2620 Series – 12.2(2)XB 2610 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.



## ETHERNET AND HIGH-SPEED SWITCHING WICS

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>WIC-4ESW</b> 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 into a Cisco mixed-media network module or directly into a Cisco WIC expansion slot.	1760 – 12.3(4)YB 1751 – 12.3(4)YB 1721 – 12.3(4)YB	No reliance on other network modules, WICs, voice interface cards, or advanced integration modules.
	<b>Modular Router Solutions</b> Integrated Switching		
<b>HWIC-4ESW</b> 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 into a Cisco mixed-media network module or 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.
	<b>Modular Router Solutions</b> Integrated Switching		
<b>HWIC-4ESW-POE</b> 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 into a Cisco mixed-media network module or directly into a Cisco WIC 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.
	<b>Modular Router Solutions</b> Integrated Switching		
<b>ILPM-4=</b> 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.
	<b>Modular Router Solutions</b> Integrated Switching		

## ETHERNET AND HIGH-SPEED SWITCHING WICS

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>HWIC-D-9ESW</b> 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 WIC 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.
	<b>Modular Router Solutions</b> Integrated Switching		
<b>HWIC-D-9ESW-POE</b> 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 into a Cisco mixed-media network module or directly into a Cisco double-wide WIC 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.
	<b>Modular Router Solutions</b> Integrated Switching		
<b>ILPM-8=</b> Inline power module for HWIC-D-9ESW	8-port daughter card for upgrading existing HWIC-D-9ESW to be capable of supporting inline power.	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.
	<b>Modular Router Solutions</b> Integrated Switching		
<b>WIC-1ENET</b> 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.	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.
	<b>Modular Router Solutions</b> DSL Access VPN and Firewall		

## ETHERNET AND HIGH-SPEED SWITCHING WICS

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>HWIC-1GE-SFP</b> 1 slot for GE SFP	Provides one small form factor pluggable (SFP) slot to carry any standard copper or optical Cisco SFP.	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.

**Modular Router Solutions**

Inter-VLAN Routing  
LAN-to-LAN Routing

## 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
<b>VVIC-1MFT-T1</b> 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.	3800 Series – 12.3(11)T 3700 Series – 12.2(8)T 3660 Series – 12.0(5)XK 3640 – 12.0(5)XK 3620 – 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 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 network modules: NM-2W, NM-1FE2W, NM-2FE2W, NM-1FE1R2W, NM-1A-OC3MM-1V, NM-1A-OC3SML-1V, or NM-HDV.  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
<b>VVIC-2MFT-T1</b> 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.	3800 Series – 12.3(11)T 3700 Series – 12.2(8)T 3660 Series – 12.0(5)XK 3640 – 12.0(5)XK 3620 – 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 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 network modules: NM-2W, NM-1FE2W, NM-2FE2W, NM-1FE1R2W, NM-1A-OC3MM-1V, NM-1A-OC3SML-1V, or NM-HDV.  Minimum Cisco IOS version may vary depending on application.

**Modular Router Solutions**


Serial and Legacy Concentration  
Voice and Fax


<b>VVIC-2MFT-T1-DI</b> 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. 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 3660 Series – 12.0(5)XK 3640 – 12.0(5)XK 3620 – 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 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 network modules: NM-2W, NM-1FE2W, NM-2FE2W, NM-1FE1R2W, NM-1A-OC3MM-1V, NM-1A-OC3SML-1V, or NM-HDV.  Minimum Cisco IOS version may vary depending on application.
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**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
<b>VVIC-1MFT-E1</b> 1-port RJ-48 multiflex trunk-E1 voice/WIC	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.  <b>Modular Router Solutions</b> Serial and Legacy Concentration Voice and Fax Integration	3800 Series – 12.3(11)T 3700 Series – 12.2(8)T 3660 Series – 12.0(5)XK 3640 – 12.0(5)XK 3620 – 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 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 network modules: NM-2W, NM-1FE2W, NM-2FE2W, NM-1FE1R2W, NM-1A-OC3MM-1V, NM-1A-OC3SML-1V, NM-1A-OC3SML-1V or NM-HDV.  Minimum Cisco IOS version may vary depending on application.
			


<b>VVIC-2MFT-E1</b> 2-port RJ-48 multiflex trunk-E1 voice/WIC	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.  <b>Modular Router Solutions</b> Serial and Legacy Concentration Voice and Fax Integration	3800 Series – 12.3(11)T 3700 Series – 12.2(8)T 3660 Series – 12.0(5)XK 3640 – 12.0(5)XK 3620 – 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 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 network modules: NM-2W, NM-1FE2W, NM-2FE2W, NM-1FE1R2W, NM-1A-OC3MM-1V, NM-1A-OC3SML-1V or NM-HDV.  Minimum Cisco IOS version may vary depending on application.
			

## T1, E1, AND G.703 MULTIFLEX TRUNK VOICE AND WAN INTERFACE CARDS

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>VVIC-2MFT-E1-DI</b> 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. For multiplexed voice and data applications, this module provides a two-port VVIC E1/FE1 drop and insert multiplexer.  <b>Modular Router Solutions</b> Serial and Legacy Concentration Voice and Fax Integration	3800 Series – 12.3(11)T 3700 Series – 12.2(8)T 3660 Series – 12.0(5)XK 3640 – 12.0(5)XK 3620 – 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 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 network modules: NM-2W, NM-1FE2W, NM-2FE2W, NM-1FE1R2W, NM-1A-OC3MM-1V, NM-1A-OC3SML-1V, NM-1A-OC3SML-1V or NM-HDV.  Minimum Cisco IOS version may vary depending on application.
			


<b>VVIC-1MFT-G703</b> 1-port RJ-48 multiflex trunk-E1 framed/unframed voice/WIC	This module supports voice, data, and integrated voice/data applications. 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.  <b>Modular Router Solutions</b> Serial and Legacy Concentration Voice and Fax Integration	3800 Series – 12.3(11)T 3700 Series – 12.2(8)T 3660 Series – 12.1(1)T 3640 – 12.1(1)T 3620 – 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 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 network modules: NM-2W, NM-1FE2W, NM-2FE2W, NM-1FE1R2W or NM-HDV.  Minimum Cisco IOS version may vary depending on application.
			

## T1, E1, AND G.703 MULTIFLEX TRUNK VOICE AND WAN INTERFACE CARDS




Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>VVIC-2MFT-G703</b> 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. 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 3660 Series – 12.1(1)T 3640 – 12.1(1)T 3620 – 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 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 network modules: NM-2W, NM-1FE2W, NM-2FE2W, NM-1FE1R2W or NM-HDV. Minimum Cisco IOS version may vary depending on application.
	<b>Modular Router Solutions</b> Serial and Legacy Concentration Voice and Fax Integration		

## Voice Interface Cards

## ANALOG VOICE INTERFACE CARDS




Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>VIC-2FXS</b> 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.
	<b>Modular Router Solutions</b> Voice and Fax Integration		

## ANALOG VOICE INTERFACE CARDS




Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>VIC-2FXO</b> 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.	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.
	<b>Modular Router Solutions</b> Voice and Fax Integration		
<b>VIC-2FXO-EU</b> 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.	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.
	<b>Modular Router Solutions</b> Voice and Fax Integration		
<b>VIC-2FXO-M1</b> 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.	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.
	<b>Modular Router Solutions</b> Voice and Fax Integration		






## ANALOG VOICE INTERFACE CARDS

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>VIC-2FXO-M2</b> 2-port FXO voice interface card with battery reversal and caller ID support 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 in Europe only. This voice interface card supports all features of VIC-2FXO plus battery reversal, power denial and caller ID.  <b>Modular Router Solutions</b> 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(2)XJ; 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.
<b>VIC-2FXO-M3</b> 2-port FXO voice interface card for Australia 	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.  <b>Modular Router Solutions</b> 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(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.
<b>VIC-2DID</b> 2-port direct inward dial voice/fax interface card 	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.  <b>Modular Router Solutions</b> Voice and Fax Integration	3800 Series – 12.3(11)T 3700 Series – 12.2(8)T 3660 Series – 12.1(5)XM1 3640 – 12.1(5)XM1 3620 – 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 2650 Series – 12.1(5)XM1 2620 Series – 12.1(5)XM1 2610 Series – 12.1(5)XM1 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.




## ANALOG VOICE INTERFACE CARDS

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>VIC-2E/M</b> 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.  <b>Modular Router Solutions</b> 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(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.
<b>VIC-2CAMA</b> 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.  <b>Modular Router Solutions</b> Voice and Fax Integration	3700 Series – 12.2(11)T 3660 – 12.2(11)T 3640 – 12.2(11)T 3620 – 12.2(11)T 2691 – 12.2(11)T 2600XM Series – 12.2(11)T 2650 – 12.2(11)T 2620 – 12.2(11)T 2610 – 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.
<b>VIC2-2FXS</b> 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.  <b>Modular Router Solutions</b> 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 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.

## ANALOG VOICE INTERFACE CARDS


Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>VIC2-2FXO</b> 2-port FXO voice/fax interface card (universal card for all countries). Also supports CAMA (centralized automated message accounting) on any port	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).	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 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.
	<b>Modular Router Solutions</b> Voice and Fax Integration		
<b>VIC2-4FXO</b> 4-port FXO voice/fax interface card (universal card for all countries). Also supports CAMA (centralized automated message accounting) on any port	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).	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 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.
	<b>Modular Router Solutions</b> Voice and Fax Integration		
<b>VIC2-2E/M</b> 2-port E&M voice/fax interface card. Also supports CAMA (centralized automated message accounting) on any port	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.	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 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.
	<b>Modular Router Solutions</b> Voice and Fax Integration		

## ANALOG VOICE INTERFACE CARDS


Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>VIC-4FXS/DID</b> 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.  <b>Modular Router Solutions</b> 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 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.
			
ISDN BRI VOICE INTERFACE CARDS			
Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>VIC-2BRI-NT/TE</b> 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.	3700 Series – 12.2(11)YT 3660 Series – 12.1(3)XI 3640 – 12.1(3)XI 3620 – 12.1(3)XI 2691 – 12.2(11)YT 2600XM Series – 12.2(12) Mainline, 12.2(8)T1 2650 Series – 12.1(3)XI 2620 Series – 12.1(3)XI 2610 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.
	<b>Modular Router Solutions</b> Voice and Fax Integration		
<b>VIC2-2BRI-NT/TE</b> 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.	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 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.
	<b>Modular Router Solutions</b> Voice and Fax Integration		



## ISDN BRI VOICE INTERFACE CARDS



Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>VIC-2BRI-S/T-TE</b> 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 Series – 12.1(3)T 2620 Series – 12.0(3)T 2610 Series – 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.
	<b>Modular Router Solutions</b> Voice and Fax Integration		

## J1 VOICE INTERFACE CARDS

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>VIC-1J1</b> 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 – Future 3660 Series – 12.1(3)XI 3640 – 12.1(3)XI 3620 – 12.1(3)XI 2811, 2821, and 2851 – Not Supported except in NM-HDV and NM-HDV2 2691 – Future 2600XM Series – 12.2(8)T1 2650 Series – 12.1(3)XI 2620 Series – 12.1(3)XI 2610 Series – 12.1(3)XI	Requires a high-density digital voice/fax network module NM-HDV.  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.
	<b>Modular Router Solutions</b> Voice and Fax Integration		


## Advanced Integration Modules and Security Modules

## COMPRESSION ADVANCED INTEGRATION MODULES

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>AIM-COMPR4</b> Cisco data compression advanced interface module	The data compression AIM plugs directly into one or both of the two internal advanced integration module slots for supported Cisco routers.	3800 Series – 12.3(11)T 3700 Series – 12.2(11)YT 3745 – 12.2(13)T 3725 – 12.2(13)T 3660 Series – 12.0(5)T 2691 – 12.2(13)T	No reliance on other network modules, WICs, voice interface cards, or advanced integration modules.
	<b>Modular Router Solutions</b> Bandwidth Management		
<b>AIM-COMPR2</b> Cisco data compression advanced interface module	The data compression AIM plugs directly into the Cisco 2600's internal advanced integration module slot. This AIM provides 2E1 full duplex (2 x 2.048 Mbps full duplex) of compressed input/output.	2600XM Series – 12.1(14) Mainline, 12.2(12) Mainline, 12.2(8)T1 2650 Series – 12.1(3)T 2600 Series – 12.0(1)T	No reliance on other network modules, WICs, voice interface cards, or advanced integration modules.
	<b>Modular Router Solutions</b> Bandwidth Management		



## COMPRESSION ADVANCED INTEGRATION MODULES

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






## SECURITY MODULES

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>AIM-VPN/HPII-PLUS</b> DES/3DES/AES VPN Encryption and Compression AIM –high-performance	Provides enhanced hardware accelerated DES, 3DES or AES encryption (optimized for AES128, AES192, AES256). Plugs directly into one or both of the two internal advanced integration module slots for supported Cisco routers. In addition, the module supports hardware-assisted Layer 3 IPsec L2S compression.  ..... <b>Modular Router Solutions</b> VPN and Firewall Bandwidth Management	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	No reliance on other network modules, WICs, encryption and voice interface cards, or advanced integration modules.  Requires Cisco Advanced Security feature set.
<b>AIM-VPN/EPII-PLUS</b> DES/3DES/AES VPN Encryption and Compression AIM –enhanced-performance	Provides enhanced hardware accelerated DES, 3DES or AES encryption (optimized for AES128, AES192, AES256). Plugs directly into one or both of the two internal advanced integration module slots for supported Cisco routers. In addition, the module supports hardware-assisted Layer 3 IPsec L2S compression.  ..... <b>Modular Router Solutions</b> VPN and Firewall Bandwidth Management	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	No reliance on other network modules, WICs, encryption and voice interface cards, or advanced integration modules.  Requires Cisco Advanced Security feature set.







## SECURITY MODULES




Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>AIM-VPN/BPII-PLUS</b> DES/3DES/AES VPN Encryption and Compression AIM –base-performance	Provides enhanced hardware accelerated DES, 3DES or AES encryption (optimized for AES128, AES192, AES256). Plugs directly into one or both of the two internal advanced integration module slots for supported Cisco routers. In addition, the module supports hardware-assisted Layer 3 IPsec L2S compression.  ..... <b>Modular Router Solutions</b> VPN and Firewall Bandwidth Management	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.
<b>AIM-VPN/HPII</b> DES/3DES/AES VPN Encryption and Compression AIM –high-performance	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 L2S compression.  ..... <b>Modular Router Solutions</b> VPN and Firewall Bandwidth Management	3745 – 12.2(13)T 3660 Series – 12.2(13)T	No reliance on other network modules, WICs, voice interface cards, or advanced integration modules.  Requires Cisco IPsec or Advanced Security feature set.
<b>AIM-VPN/EPII</b> DES/3DES/AES VPN Encryption and Compression AIM –enhanced performance	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 L2S compression.  ..... <b>Modular Router Solutions</b> VPN and Firewall Bandwidth Management	3725 – 12.2(13)T 2691 – 12.2(13)T	No reliance on other network modules, WICs, voice interface cards, or advanced integration modules.  Requires Cisco IPsec or Advanced Security feature set.


## SECURITY MODULES

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>AIM-VPN/BPII</b> 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 or both of the two internal advanced integration module slots for supported Cisco routers. In addition, the module supports hardware-assisted Layer 3 IPSPC LZS compression.	2600XM Series – 12.3(5c)/12.3(6) Mainline or 12.3(7)T 1840 Series – 12.3(8)T4 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.
	<b>Modular Router Solutions</b> VPN and Firewall Bandwidth Management		
<b>AIM-VPN/HP</b> 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.
	<b>Modular Router Solutions</b> VPN and Firewall		
<b>AIM-VPN/EP</b> 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 2650 Series – 12.2.2T 2620 Series – 12.2.2T 2610 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.
	<b>Modular Router Solutions</b> VPN and Firewall		


## SECURITY MODULES


Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>NM-VPN/MP</b> 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.
	<b>Modular Router Solutions</b> VPN and Firewall		
<b>AIM-VPN/BP</b> 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 2650 Series – 12.1(3a)X11, 12.2(1), 12.2(2)T 2620 Series – 12.1(3a)X11, 12.2(1), 12.2(2)T 2610 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.
	<b>Modular Router Solutions</b> VPN and Firewall		
<b>MOD1700-VPN</b> 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.
	<b>Modular Router Solutions</b> VPN and Firewall		

## VOICE MAIL ADVANCED INTEGRATION MODULES


Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>AIM-CUE</b> 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 IP Telephony.	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.
	<b>Modular Router Solutions</b> IP Communications		


## ATM ADVANCED INTEGRATION MODULES


Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>AIM-ATM</b> High-performance ATM segmentation and reassembly (SAR) advanced integration module	Provides ATM hardware SAR for AAL2 and AAL5 low-density T1/E1 ATM applications.	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 2650 Series – 12.2(2)XA 2620 Series – 12.2(2)XA 2610 Series – 12.2(2)XA	Requires at least one voice/WIC (VWIC). 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.
	<b>Modular Router Solutions</b> ATM Edge Connectivity		

<b>AIM-ATM-1E1</b> High-performance E1 ATM bundle. Includes 1 VWIC-1MFT-E1 and 1 AIM-ATM	Provides ATM hardware SAR for AAL2 and AAL5 low-density T1/E1 ATM applications, includes one E1 interface.	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 2650 Series – 12.2(2)XA 2620 Series – 12.2(2)XA 2610 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 VWIC-1MFT-E1.
	<b>Modular Router Solutions</b> ATM Edge Connectivity		



## ATM ADVANCED INTEGRATION MODULES

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>AIM-ATM-1T1</b> High-performance T1 ATM bundle. Includes 1 VWIC-1MFT-T1 and 1 AIM-ATM	Provides ATM hardware SAR for AAL2 and AAL5 low-density T1/E1 ATM applications, includes one T1 interface.	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 2650 Series – 12.2(2)XA 2620 Series – 12.2(2)XA 2610 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 VWIC-1MFT-E1.
	<b>Modular Router Solutions</b> ATM Edge Connectivity		

<b>AIM-ATM-4E1</b> High-performance E1 ATM bundle. Includes 2 VWIC-2MFT-E1 and 1 AIM-ATM	Provides ATM hardware SAR for AAL2 and AAL5 low-density T1/E1 ATM applications, includes two of the two port E1 VWICs.	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 2650 Series – 12.2(2)XA 2620 Series – 12.2(2)XA 2610 Series – 12.2(2)XA	No reliance on other 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.
	<b>Modular Router Solutions</b> ATM Edge Connectivity		

<b>AIM-ATM-4T1</b> High-performance T1 ATM bundle. Includes 2 VWIC-2MFT-T1 and 1 AIM-ATM	Provides ATM hardware SAR for AAL2 and AAL5 low-density T1/E1 ATM applications, includes two of the two port T1 VWICs.	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 2650 Series – 12.2(2)XA 2620 Series – 12.2(2)XA 2610 Series – 12.2(2)XA	No reliance on other 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.
	<b>Modular Router Solutions</b> ATM Edge Connectivity		

## ATM AND VOICE ADVANCED INTEGRATION MODULES

Product	Description	Supported Platforms and Minimum Cisco IOS Versions	Comments
<b>AIM-ATM-VOICE-30</b> ATM SAR and 30-channel voice/fax DSP advanced integration module  	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.	3700 Series – 12.2(11)YT 3660 Series – 12.2(2)XB 2691 – 12.2(11)YT 2600XM Series – 12.2(8)T1 2650 Series – 12.2(2)XB 2620 Series – 12.2(2)XB 2610 Series – 12.2(2)XB	No reliance on other 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.
	<b>Modular Router Solutions</b> ATM Edge Connectivity Voice and Fax Integration		
<b>AIM-VOICE-30</b> 30-channel voice/fax DSP advanced integration module  	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.	3700 Series – 12.2(11)YT 3660 Series – 12.2(2)XB 2691 – 12.2(11)YT 2600XM Series – 12.2(8)T1 2650 Series – 12.2(2)XB 2620 Series – 12.2(2)XB 2610 Series – 12.2(2)XB	No reliance on other 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.
	<b>Modular Router Solutions</b> Voice and Fax Integration		

## Cisco Network Module Compatibility Quick Look

	3825 3845	3725 3745	2811 2821 2851	2691	2600XM
<b>Ethernet Switching Network Modules and Accessories</b>					
<b>NM-16ESW</b> 16-port 10/100 EtherSwitch NMs	•	•	•	•	•
<b>NM-16ESW-1GIG</b> 16-port 10/100 EtherSwitch NM with 1 GE (1000Base-T) port	•	•	•	•	•
<b>NM-16ESW-PWR</b> 16-port 10/100 EtherSwitch NM with inline power and GE	•	•	•	•	•
<b>NM-16ESW-PWR-1GIG</b> 16-port 10/100 EtherSwitch NM with inline power and GE	•	•	•	•	•
<b>PPWR-DCARD-16ESW</b> Inline power daughtercard for 16-port EtherSwitch NM	•	•	•	•	•
<b>NMD-36ESW</b> 36-port 10/100 EtherSwitch HDSM	•	•	2851 only	–	–
<b>NMD-36ESW-2GIG</b> 36-port 10/100 EtherSwitch HDSM with 1 GE (1000Base-T) port	•	•	2851 only	–	–
<b>NMD-36ESW-PWR</b> 36-port 10/100 EtherSwitch HDSM with inline power support	•	•	2851 only	–	–
<b>NMD-36ESW-PWR-2G</b> 36-port 10/100 EtherSwitch HDSM with inline power and GE	•	•	2851 only	–	–
<b>PPWR-DCARD-36ESW</b> Inline power daughtercard for 36-port EtherSwitch NM	•	•	2851 only	–	–
<b>GE-DCARD-ESW</b> 1000Base-T daughtercard for EtherSwitch modules	•	•	•	•	•
<b>PPWR-PS-360W</b> 360W power supply for EtherSwitch modules	–	•	•	•	•
<b>PPWR-PS-CHASSIS</b> Power supply chassis for PPWR-PS-360W	–	•	•	•	•
<b>PWR-CHASSIS-360W</b> Power supply chassis including one PPWR-PS-360W	–	•	•	•	•
<b>PWR675-AC-RPS-N1</b> Redundant Power Supply	•	–	•	–	–
<b>LAN Network Modules</b>					
<b>NM-1GE</b> 1-port Gigabit Ethernet network module	•	•	–	•	–
<b>NM-1FE-FX-V2</b> 1-port Fast Ethernet network module (FX Only)	•	•	–	•	–
<b>NM-1E</b> 1-port Ethernet network module	–	–	–	–	•
<b>NM-4E</b> 4-port Ethernet network module	–	–	–	–	•

## NETWORK MODULE COMPATIBILITY QUICK LOOK

	3825 3845	3725 3745	2811 2821 2851	2691	2600XM
<b>LAN and WIC Combo Network Modules</b>					
<b>NM-1FE2W</b> 1 10/100 Ethernet, 2 WAN card slot network module	•	•	–	•	–
<b>NM-1FE2W-V2</b> 1 10/100 Ethernet, 2 WAN card slot network module	•	•	–	•	–
<b>NM-2FE2W</b> 2 10/100 Ethernet, 2 WAN card slot network module	•	•	–	•	–
<b>NM-2FE2W-V2</b> 2-port 10/100 Ethernet, two WIC slot network module	•	•	–	•	–
<b>NM-1FE1R2W</b> 1 10/100 Ethernet, 1 4/16Token Ring 2 WAN card slot NM	•	•	–	•	–
<b>NM-1E2W</b> 1 Ethernet, 2 WAN card slot network module	–	–	–	–	–
<b>NM-2E2W</b> 2 Ethernet, 2 WAN card slot network module	–	–	–	–	–
<b>NM-1E1R2W</b> 1 Ethernet, 1 Token Ring, 2 WAN card slot network module	–	–	–	–	–
<b>NM-2W</b> 2 WAN card slot network module (no LAN)	•	•	–	•	•
<b>Serial Connectivity Network Modules</b>					
<b>NM-CEM-4TE1</b>	•	•	•	•	•
<b>NM-CEM-4SER</b>	•	•	•	•	•
<b>NM-1T3/E3</b> 1-port clear channel T3/E3 network module	•	•	•	•	•*
<b>NM-1HSSI</b> 1-port HSSI network module	•	•	•	•	–
<b>NM-4T</b> 4-port serial network module	•	•	•	•	–
<b>NM-4A/S</b> 4-port async/sync serial network module	•	•	•	•	•
<b>NM-8A/S</b> 8-port async/sync serial network module	•	•	•	•	•
<b>NM-16A/S</b> 16-port async/sync serial network module	•	•	•	•	•
<b>NM-16A</b> 16-port asynchronous module	•	•	•	•	•
<b>NM-32A</b> 32-port asynchronous module	•	•	•	•	•
<b>Channelized T1/E1 and ISDN Network Modules</b>					
<b>NM-1CE1T1-PRI</b> 1-port channelized T1/E1/ISDN-PRI network module	•	•	•	•	•
<b>NM-2CE1T1-PRI</b> 2-port channelized T1/E1/ISDN-PRI network module	•	•	•	•	•
<b>NM-1CT1</b> 1-port channelized T1/ISDN-PRI network module	–	•	–	•	•

## NETWORK MODULE COMPATIBILITY QUICK LOOK

	3825 3845	3725 3745	2811 2821 2851	2691	2600XM
<b>ATM Network Modules</b>					
<b>NM-1CT1-CSU</b> 1-port channelized T1/ISDN-PRI with CSU network module	–	•	–	•	•
<b>NM-1CE1B</b> 1-port channelized E1/ISDN-PRI unbalanced network module	–	•	–	•	•
<b>NM-1CE1U</b> 1-port channelized E1/ISDN-PRI unbalanced network module	–	•	–	•	•
<b>NM-2CT1</b> 2-port channelized T1/ISDN-PRI network module	–	•	–	•	•
<b>NM-2CT1-CSU</b> 2-port channelized T1/ISDN-PRI with CSU network module	–	•	–	•	•
<b>NM-2CE1B</b> 2-port channelized E1/ISDN-PRI balanced network module	–	•	–	•	•
<b>NM-2CE1U</b> 2-port channelized E1/ISDN-PRI unbalanced network module	–	•	–	•	•
<b>NM-4B-S/T</b> 4-port ISDN-BRI network module	•	•	•	•	•
<b>NM-4B-U</b> 4-port ISDN-BRI with NT-1 network module	•	•	•	•	•
<b>NM-8B-S/T</b> 8-port ISDN-BRI network module	•	•	•	•	•
<b>NM-8B-U</b> 8-port ISDN-BRI with NT-1 network module	•	•	•	•	•
<b>NM-1A-OC3MM-EP</b> 1-Port OC-3 multimode ATM enhanced performance network module	–	3745 only	–	–	–
<b>NM-1A-OC3SMI-EP</b> 1-Port OC-3 ATM enhanced performance single-mode intermediate reach network module	–	3745 only	–	–	–
<b>NM-1A-OC3SML-EP</b> 1-Port OC-3 ATM enhanced performance single-mode long reach network module	–	3745 only	–	–	–
<b>NM-1A-OC3MM</b> 1-port ATM OC-3 multimode network module	–	3725 only	–	•	–
<b>NM-1A-OC3SMI</b> 1-port ATM OC-3 single-mode intermediate reach network module	–	3725 only	–	•	–
<b>NM-1A-OC3SML</b> 1-port ATM OC-3 single-mode long reach network module	–	3725 only	–	•	–
<b>NM-1A-T3</b> 1-port DS3 ATM network module	•	•	•	•	•
<b>NM-1A-E3</b> 1-port E3 ATM network module	•	•	•	•	•
<b>NM-1ATM-25</b> 1-port ATM 25 Mbps network module	–	–	–	–	•
<b>NM-4T1-IMA</b> 4-port T1 ATM network module with IMA	•	•	–	•	•
<b>NM-4E1-IMA</b> 4-port E1 ATM network module with IMA	•	•	–	•	•



## NETWORK MODULE COMPATIBILITY QUICK LOOK

	3825 3845	3725 3745	2811 2821 2851	2691	2600XM
<b>NM-8T1-IMA</b> 8-port T1 ATM network module with IMA	•	•	–	•	•
<b>NM-8E1-IMA</b> 8-port E1 ATM network module with IMA	•	•	–	•	•

## Digital Dial-up and Remote Access Network Modules and Accessories

<b>NM-6DM</b> 6-port digital modem network module	•	•	–	–	–
<b>NM-12DM</b> 12-port digital modem network module	•	•	–	–	–
<b>NM-18DM</b> 18-port digital modem network module	•	•	–	–	–
<b>NM-24DM</b> 24-port digital modem network module	•	•	–	–	–
<b>NM-30DM</b> 30-port digital modem network module	•	•	–	–	–
<b>MICA-6MOD</b> 6-port digital modem network module, spare	•	•	–	–	–

## Analog Dial-up and Remote Access Network Modules

<b>NM-8AM-V2</b> 8-port analog modem network module	•	•	•	•	•
<b>NM-8AM</b> 8-port analog modem network module <small>End of Sales announced. Last order date October 13, 2004</small>	–	•	–	•	•
<b>NM-16AM</b> 16-port analog modem network module	–	•	–	•	•
<b>NM-16AM-V2</b> 16-port analog modem network module <small>End of Sales announced. Last order date October 13, 2004</small>	•	•	•	•	•

## Analog and ISDN Basic Rate Voice Network Modules and Accessories

<b>NM-1V</b> 1-slot voice/fax network module	–	•	–	•	•
<b>NM-2V</b> 2-slot voice/fax network module	–	•	–	•	•
<b>NM-HD-1V</b> 1-slot IP communications voice/fax network module	•	•	•	•	•
<b>NM-HD-2V</b> 2-slot IP communications voice/fax network module	•	•	•	•	•
<b>NM-HD-2VE</b> 2-slot IP communications enhanced voice/fax network module	•	•	•	•	•
<b>NM-HDA-4FXS</b> High-density analog voice/fax network module with 4 FXS	•	•	•	•	•

## NETWORK MODULE COMPATIBILITY QUICK LOOK

	3825 3845	3725 3745	2811 2821 2851	2691	2600XM
<b>EVM-HD-8FXS/DID</b> Extension voice module with 8 FXS	•	–	2821/2851 only	–	–
<b>EM-4BRI-NT/TE</b> 4-port voice and fax expansion module	•	–	2821/2851 only	–	–
<b>EM-HDA-6FXO</b> 6-port FXO voice and fax expansion module	•	–	2821/2851 only	–	–
<b>EM-HDA-3FXS/4FXO</b> 3-port FXS and 4-port FXO voice and fax expansion module	•	–	2821/2851 only	–	–
<b>EM-HDA-4FXO</b> 4-port voice/fax expansion module–FXO	•	•	•	•	•
<b>EM-HDA-8FXS</b> 8-port voice/fax expansion module–FXS	•	•	•	•	•
<b>DSP-HDA-16</b> 16-channel DSP module for NM-HDA	•	•	•	•	•
<b>NM-HDV2</b> High-density digital voice/fax module	•	•	•	•	•

## High-density Digital Voice Network Modules and Accessories

<b>NM-HDV2-1T1/1E1</b>	•	•	•	•	•
<b>NM-HDV2-2T1/1E1</b>	•	•	•	•	•
<b>NM-HDV-1T1-12</b> 1-port 12-channel T1 voice/fax network module	•	•	•	•	•
<b>NM-HDV-1T1-24</b> 1-port 24-channel T1	•	•	•	•	•
<b>NM-HDV-1T1-24E</b> 1-port 24-enhanced-channel T1 voice/fax network module	•	•	•	•	•
<b>NM-HDV-2T1-48</b> 2-port 48-channel T1 voice/fax network module	•	•	•	•	•
<b>NM-HDV-1E1-12</b> 1-port 12-channel E1 voice/fax network module	•	•	•	•	•
<b>NM-HDV-1E1-30</b> 1-port 30-channel E1 voice/fax network module	•	•	•	•	•
<b>NM-HDV-1E1-30E</b> 1-port 30-enhanced-channel E1 voice/fax network module	•	•	•	•	•
<b>NM-HDV-2E1-60</b> 2-port 60-channel E1 voice/fax network module	•	•	•	•	•
<b>NM-HDV-1J1-30</b> 1-port 30-channel J1 voice/fax network module	•	•	•	•	•
<b>NM-HDV-1J1-30E</b> 1-port 30-enhanced-channel J1 voice/fax network module	•	•	•	•	•
<b>PVDM-12</b> 12-channel packet voice DSP module upgrade – spare	•	•	•	•	•
<b>PVDM2-8</b> 8-channel packet voice DSP module	•	•	•	•	•

### NETWORK MODULE COMPATIBILITY QUICK LOOK

	3825 3845	3725 3745	2811 2821 2851	2691	2600XM
<b>PVDM2-16</b> 16-channel packet voice DSP module	•	•	•	•	•
<b>PVDM2-32</b> 32-channel packet voice DSP module	•	•	•	•	•
<b>PVDM2-48</b> 48-channel packet voice DSP module	•	•	•	•	•
<b>PVDM2-64</b> 64-channel packet voice DSP module	•	•	•	•	•
<b>NM-HDV</b> High-density voice/fax network module (single VIC slot)	•	•	•	•	•
<b>NM-HDV-FARM-C36</b> Partitionable DSP resource farm; 36-port DSP network module	•	•	•	•	•
<b>NM-HDV-FARM-C54</b> Partitionable DSP resource farm; 54-port DSP network module	•	•	•	•	•
<b>NM-HDV-FARM-C90</b> Partitionable DSP resource farm; 90-port DSP network module	•	•	•	•	•

### Application and Content Networking Modules

<b>NM-CUE</b> Cisco Unity Express Network Module for Voicemail storage	•	•	•	•	•
<b>NM-CE-BP-40G-K9</b> Content engine network module, basic performance, 40-GB IDE hard disk	•	•	•	•	•
<b>NM-CE-BP-80G-K9</b> Content engine network module, basic performance, 80-GB IDE hard disk	•	•	•	•	•
<b>NM-CE-BP-SCSI-K9</b> Content engine network module, basic performance, SCSI controller	–	•	–	•	•
<b>EM-CE-40G</b> Expansion module, 40-GB IDE, field upgrade	•	•	•	•	•
<b>EM-CE-80G</b> Expansion module, 80-GB IDE, field upgrade	•	•	•	•	•
<b>EM-CE-SCSI</b> Expansion module, SCSI controller, field upgrade	–	•	–	•	•
<b>NM-NAM</b> Network Analysis Module	•	•	•	•	•

### Alarm Monitoring and Control Network Modules and Accessories

<b>NM-AIC-64</b> Alarm monitoring and control network module	•	•	•	•	•
<b>AIC-DBL-PNL</b> Patch panel	•	•	•	•	•
<b>AIC-SGL-PNL</b> Patch panel with voltage monitoring	•	•	•	•	•

## Cisco Interface Card Compatibility Quick Look

	3825 3845	3725 3745	2851 2821 2801	2691	2600XM	1841	1760	1751	1721
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### Serial WICs

<b>WIC-1T</b> 1-port serial WIC	•	•	•	•	•	•	•	•	•
<b>WIC-2T</b> 2-port serial WIC	•	•	•	•	•	•	•	•	•
<b>WIC-1DSU-T1</b> 1-port T1/fractional T1 DSU/CSU WIC	–	•	–	•	•	–	•	•	•
<b>WIC-1DSU-T1-V2</b> 1-port T1/fractional T1 DSU/CSU WIC	•	•	•	•	•	•	•	•	•
<b>WIC-1DSU-56K4</b> 1-port 4-wire 56/64 Kbps WIC	•	•	•	•	•	•	•	•	•
<b>WIC-2A/S</b> 2-port async/sync serial WIC	•	•	•	•	•	•	•	•	•

### ISDN BRI WICs

<b>WIC-1B-S/T</b> 1-port ISDN WIC (dial and leased line)	–	•	–	•	•	–	•	•	•
<b>WIC-1B-S/T-V3</b> 1-port ISDN WIC (dial and leased line)	•	•	•	•	•	•	•	•	•
<b>WIC-1B-U-V2</b> 1-port ISDN with NT-1 WIC (dial and leased line)	•	•	•	•	•	•	•	•	•

### DSL WICs

<b>WIC-1ADSL</b> 1-port ADSL WIC	•	•	•	•	•	•	•	•	•
<b>WIC-1ADSL-DG</b> 1-port ADSL WIC with Dying Gasp	•	•	•	•	•	•	•	•	•
<b>WIC-1ADSL-I-DG</b> 1-port ADSL over ISDN WIC with Dying Gasp	•	•	•	•	•	•	•	•	•
<b>WIC-1SHDSL</b> 1-port G.SHDSL WIC G.SHDSL WIC (2 wire only)	•	•	•	•	•	•	•	•	•
<b>WIC-1SHDSL-V2</b> 1-port G.SHDSL WIC (2 or 4 wire only)	•	•	2811, 2821, 2851 only	•	•	–	•	•	•

### Analog Modem WICs

<b>WIC-1AM</b> 1-port analog modem WIC	•	•	•	•	•	•	•	•	•
<b>WIC-2AM</b> 2-port analog modem WIC	•	•	•	•	•	•	•	•	•

## INTERFACE CARD COMPATIBILITY QUICK LOOK

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

## Ethernet and High-Speed Switching WICs

	3825	3725	2851	2691	2600XM	1841	1760	1751	1721
<b>WIC-4ESW</b> 4-port Fast Ethernet switch WIC	-	-	-	-	-	-	•	•	•
<b>HWIC-4ESW</b> 4-port Fast Ethernet switch HWIC	•	-	•	-	-	•	-	-	-
<b>HWIC-4ESW-POE</b> 4-port Power over Ethernet (PoE)-ready, Fast Ethernet switch HWIC	•	-	•	-	-	-	-	-	-
<b>IPLM-4=</b> 4-port inline power module, spare	•	-	•	-	-	-	-	-	-
<b>HWIC-D-9ESW</b> 9-port double-wide, Fast Ethernet switch HWIC	•	-	•	-	-	-	-	-	-
<b>HWIC-D-9ESW-POE</b> 9-port double-wide, Power over Ethernet (PoE)-ready, Fast Ethernet switch HWIC	•	-	•	-	-	-	-	-	-
<b>IPLM-8=</b> 8-port Inline power module, spare	•	-	•	-	-	-	-	-	-
<b>WIC-1ENET</b> 1-port Ethernet WIC	-	-	-	-	-	-	•	•	•
<b>HWIC-1GE-SFP</b>	•	-	2811, 2821, 2851 only	-	-	-	-	-	-

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

	3825	3725	2851	2691	2600XM	1841	1760	1751	1721
<b>VVIC-1MFT-T1</b> 1-port RJ-48 multiflex trunk – T1	•	•	•	•	•	•	•	•	•
<b>VVIC-2MFT-T1</b> 2-port RJ-48 multiflex trunk – T1	•	•	•	•	•	•	•	•	•
<b>VVIC-2MFT-T1-DI</b> 2-port RJ-48 multiflex trunk – T1 with drop and insert	•	•	•	•	•	•	•	•	•
<b>VVIC-1MFT-E1</b> 1-port RJ-48 multiflex trunk – T1	•	•	•	•	•	•	•	•	•
<b>VVIC-2MFT-E1</b> 2-port RJ-48 multiflex trunk – T1	•	•	•	•	•	•	•	•	•
<b>VVIC-2MFT-E1-DI</b> 2-port RJ-48 multiflex trunk – E1 with drop and insert	•	•	•	•	•	•	•	•	•
<b>VVIC-1MFT-G703</b> 1-port RJ-48 multiflex trunk – G.703	•	•	•	•	•	•	•	•	•
<b>VVIC-2MFT-G703</b> 2-port RJ-48 multiflex trunk – G.703	•	•	•	•	•	•	•	•	•

## INTERFACE CARD COMPATIBILITY QUICK LOOK

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

## Analog Voice Interface Cards

	3825	3725	2851	2691	2600XM	1841	1760	1751	1721
<b>VIC-2FXS</b> 2-port voice interface card – FXS	-	•	-	•	•	-	•	•	-
<b>VIC-2FXO</b> 2-port voice interface card – FXO	-	•	-	•	•	-	•	•	-
<b>VIC-2FXO-EU</b> 2-port voice interface card – FXO (for Europe)	-	•	-	•	•	-	•	•	-
<b>VIC-2FXO-M1</b> 2-port voice interface card – FXO w/ reversal (for US+)	-	•	-	•	•	-	•	•	-

## Interface Card – FXO w/Reversal (for US+)

	3825	3725	2851	2691	2600XM	1841	1760	1751	1721
<b>VIC-2FXO-M2</b> 2-port voice interface card – FXO with reversal (for EU)	-	•	-	•	•	-	•	•	-
<b>VIC-2FXO-M3</b> 2-port voice interface card – FXO (for Australia)	-	•	-	•	•	-	•	•	-
<b>VIC-2E/M</b> 2-port voice interface card – E and M	-	•	-	•	•	-	•	•	-
<b>VIC-2DID</b> 2-port DID (direct inward dial) voice/fax interface card	•	•	•	•	•	-	•	•	-
<b>VIC-2CAMA</b> 2-port FXO analog CAMA trunk interface card	-	•	-	•	•	-	-	-	-
<b>VIC2-2FXS</b> 2-port voice interface card – FXS	•	•	•	•	•	-	•	•	-
<b>VIC2-2FXO</b> 2-port voice interface card – FXO (universal for all countries, also supports CAMA)	•	•	•	•	•	-	•	•	-
<b>VIC2-4FXO</b> 4-port voice interface card – FXO (universal for all countries)	•	•	•	•	•	-	•	•	-
<b>VIC2-2E/M</b> 2-port voice interface card – E and M	•	•	•	•	•	-	•	•	-
<b>VIC-4FXS/DID</b> 4-port FXS/DID (direct inward dial) voice/fax interface card	•	•	•	•	•	-	•	•	-

## ISDN BRI Voice Interface Cards

	3825	3725	2851	2691	2600XM	1841	1760	1751	1721
<b>VIC2-2BRI-NT/TE</b> 2-port voice interface card – BRI (NT and TE)	•	•	•	•	•	-	•	•	-
<b>VIC2-2BRI-NT/TE</b> 2-port voice interface card – BRI (Terminal)	-	•	-	•	•	-	•	•	-
<b>VIC2-2BRI-S/T-TE</b> 2-port voice interface card – BRI (Terminal)	-	•	-	•	•	-	-	-	-

## J1 Voice Interface Card for Japan

	3825	3725	2851	2691	2600XM	1841	1760	1751	1721
<b>VIC-1J1</b> 1-port digital voice interface card (J1) for Japan	•	•	2811, 2821, 2851 only	•	•	-	-	-	-

# 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

<b>AIM-COMPR4</b> Compression advanced integration module for Cisco 3660	•	•	-	•	-	-	-	-	-
<b>AIM-COMPR2-V2</b> Compression advanced integration module for Cisco 2600	-	-	2811, 2821, 2851 only	-	•	-	-	-	-
<b>AIM-COMPR2</b> Compression advanced integration module for Cisco 2600	-	-	-	-	•	-	-	-	-

## VPN and Encryption Advanced Integration Modules

<b>AIM-VPN/HPII-PLUS: DES/3DES/AES</b> VPN encryption and compression AIM – high performance	3845 only	3745 only	-	-	-	-	-	-	-
<b>AIM-VPN/EPII-PLUS: DES/3DES/AES</b> VPN encryption and compression AIM – enhanced performance	3825 only	3725 only	•	-	-	-	-	-	-
<b>AIM-VPN/BPII-PLUS: DES/3DES/AES</b> VPN encryption and compression AIM – enhanced performance	-	-	-	-	•	•	-	-	-
<b>AIM-VPN/HPII: DES/3DES/AES</b> VPN encryption and compression AIM – high performance	-	3745 only	-	-	-	-	-	-	-
<b>AIM-VPN/EPII: DES/3DES/AES</b> VPN encryption and compression AIM – enhanced performance	-	3725 only	-	•	-	-	-	-	-
<b>AIM-VPN/BPII: DES/3DES/AES</b> VPN encryption and compression AIM – enhanced performance	-	-	-	-	•	-	-	-	-
<b>AIM-VPN/HP: DES/3DES VPN</b> Advanced integration module for Cisco 3660 and 3745 – high performance	-	•	-	-	-	-	-	-	-
<b>AIM-VPN/EP: DES/3DES VPN</b> Advanced integration module for Cisco 2600 and 3725 – enhanced performance	-	•	-	•	•	-	-	-	-
<b>AIM-VPN/BP: DES/3DES VPN</b> Advanced integration module for Cisco 2600 – base performance	-	-	-	-	•	-	-	-	-
<b>MOD1700-VPN</b> Cisco 1700 Series VPN module	-	-	-	-	-	-	•	•	•

## ADVANCED INTEGRATION MODULE COMPATIBILITY QUICK LOOK

	3825 3845	3725 3745	2851 2821 2811 2801	2691	2600XM	1841	1760	1751	1721
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## Voice-mail Advanced Integration Modules

<b>AIM-CUE</b> High-performance	•	•	•	•	•	-	-	-	-
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## ATM Advanced Integration Modules

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

## Voice Advanced Integration Modules

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

# Cisco 7000 Series Port Adapter Compatibility Quick Look

	7200VXR	7301	7304 Carrier Card	7400	7500 (VIP4/VIP6)	7600 FlexWAN	7600 Enhanced FlexWAN
<b>ATM Port Adapters</b>							
<b>PA-A2-4E1XC-OC3SM</b> CES OC-3 port adapter 4 E1 ports 120 ohms	•	–	–	–	–	–	–
<b>PA-A2-4E1XC-E3ATM</b> CES port adapter E3/E1 120 ohms	•	–	–	–	–	–	–
<b>PA-A2-4E1YC-OC3SM</b>	•	–	–	–	–	–	–
<b>PA-A2-4E1YC-E3ATM</b>	•	–	–	–	–	–	–
<b>PA-A2-4T1C-OC3SM</b> ATM CES port adapter, 4T1 CES ports and 1 OC-3ATM SM port	•	–	–	–	–	–	–
<b>PA-A2-4T1C-T3ATM</b> ATM CES port adapter, 4T1 CES ports and 1T3 ATM port	•	–	–	–	–	–	–
<b>PA-A3-8T1IMA</b> 8-port ATM inverse MuxT1 port adapter	•	•	•	–	•	–	–
<b>PA-A3-8E1IMA</b> 8-port ATM inverse Mux E1 (120 ohm) port adapter	•	•	•	•	•	–	–
<b>PA-A3-OC3-MM</b> 1-port ATM-enhanced OC-3c/STM1 multimode port adapter	•	•	•	•	•	• (N) • (H)	• (N) • (H)
<b>PA-A3-OC12-MM</b> 1-port ATM-enhanced OC-12/STM4 multimode	–	–	–	–	•	–	–
<b>PA-A3-T3/E3</b> 1-port ATM-enhanced DS3 port adapter Ethernet Port Adapters	•	•	•	•	•	• (N) • (H)	• (N) • (H)
<b>PA-2FE-TX/FX</b> 2-port Fast Ethernet 100Base-TX/FX port adapter	•	•	•	•	•	–	–
<b>PA-4E</b> 4-port Ethernet 10Base-T port adapter	•	•	•	•	•	–	–
<b>PA-5EFL</b> 5-port Ethernet 10Base-FL port adapter	•	•	–	–	–	–	–
<b>PA-8E</b> 8-port Ethernet 10Base-T port adapter	•	•	•	•	•	–	–
<b>PA-FE-TX/FX</b> 1-port Fast Ethernet 100Base-FX/TX port adapter	•	•	•	•	•	–	–
<b>PA-GE</b> Gigabit Ethernet port adapter	•	•	•	–	–	–	–

## PORT ADAPTER COMPATIBILITY QUICK LOOK

	7200VXR	7301	7304 Carrier Card	7400	7500 (VIP4/VIP6)	7600 FlexWAN	7600 Enhanced FlexWAN
<b>Other LAN Port Adapters</b>							
<b>PA-4R-DTR</b> 4-port dedicated Token Ring, 4/16 Mbps, HDX/FDX	•	–	–	–	–	–	–
<b>PA-F-MM/SM</b> 1-port FDDI full duplex multimode/ single-mode port adapter	–	–	–	–	•	–	–
<b>PA-F/FD-MM/SM</b> 1-port FDDI full duplex multimode/ single-mode port adapter	–	–	–	–	•	–	–
<b>Serial Port Adapters</b>							
<b>PA-4E1G/120</b> 4-port E1 G.703 serial port adapter (120 ohm/balanced)	•	•	•	•	•	–	–
<b>PA-4T+</b> 4-port serial port adapter, enhanced	•	•	•	•	•	• (N) • (H)	• (N) • (H)
<b>PA-8T-232</b> 8-port serial, 232-port adapter	•	•	•	•	•	• (N) • (H)	• (N) • (H)
<b>High-Speed Serial Port Adapters</b>							
<b>PA-H</b> 1-port HSSI port adapter	•	•	•	•	•	• (N) • (H)	• (N) • (H)
<b>PA-2H</b> 2-port HSSI port adapter	•	•	•	•	•	• (N) • (H)	• (N) • (H)
<b>PA-E3</b> 1-port E3 serial port adapter with E3 DSU	•	•	•	•	•	• (N) • (H)	• (N) • (H)
<b>PA-2E3</b> 2-port E3 serial port adapter with E3 DSUs	•	•	•	•	•	• (N) • (H)	• (N) • (H)
<b>PA-T3+</b> 1-port T3 serial port adapter, enhanced	•	•	•	•	•	• (N) • (H)	• (N) • (H)
<b>PA-2T3+</b> 2-port T3 serial port adapter, enhanced	•	•	•	•	•	• (N) • (H)	• (N) • (H)
<b>Multichannel Serial Port Adapters</b>							
<b>PA-4B-U</b>	•	•	–	–	–	–	–
<b>PA-8B-S/T</b> 8-port BRI port adapter, S/T interface	•	•	–	–	–	–	–
<b>PA-MC-2T(1)</b> 2-port multichannel T1 port adapter with integrated CSU/DSUs	•	•	•	•	•	–	–

## PORT ADAPTER COMPATIBILITY QUICK LOOK

	7200VXR	7301	7304 Carrier Card	7400	7500 (VIP4/VIP6)	7600 FlexWAN	7600 Enhanced FlexWAN
<b>Multichannel Serial Port Adapters (cont.)</b>							
<b>PA-MC-4T(1)</b> 4-port multichannel T1 port adapter with integrated CSU/DSUs	•	•	•	•	•	• (N) • (H)	• (N) • (H)
<b>PA-MC-8T(1)</b> 8-port multichannel T1 port adapter with integrated CSU/DSUs	•	•	•	•	•	• (N)	• (N)
<b>PA-MC-8TE1+</b> 8-port multichannel T1/E1 8PRI port adapter	•	•	•	•	•	–	–
<b>PA-MC-2E1/120</b> 2-port multichannel E1 port adapter with G.703 120 ohm interface	•	•	•	•	•	–	–
<b>PA-MC-8E1/120</b> 8-port multichannel E1 port adapter with G.703 120 ohm interface	•	•	•	•	•	• (N) • (H)	• (N) • (H)
<b>PA-MC-E3</b> 1-port multichannel E3 port adapter	•	•	•	•	•	• (N) • (H)	• (N) • (H)
<b>PA-MC-T3</b> 1-port multichannel T3 port adapter	•	•	•	•	•	• (N) • (H)	• (N) • (H)
<b>PA-MC-2T3+</b> 2-port multichannel T3 port adapter	•	•	•	•	•	• (N) • (H)	• (N) • (H)
<b>PA-MC-STM-1MM</b> 1-port multichannel STM-1 multimode port adapter	•	–	•	–	•	• (N) • (H)	• (N) • (H)
<b>PA-MCX-2TE(1)</b> 2-port MIX-enabled multichannel T1/E1 with CSU/DSU	•	–	–	–	–	–	–
<b>PA-MCX-4TE(1)</b> 4-port MIX-enabled multichannel T1/E1 with CSU/DSU	•	–	–	–	–	–	–
<b>PA-MCX-8TE(1)</b> 8-port MIX-enabled multichannel T1/E1 with CSU/DSU	•	–	–	–	–	–	–
<b>PA-POS-OC3-SMI</b> 8-port MIX-enabled multichannel T1/E1 with CSU/DSU	•	•	•	•	•	–	–
<b>PA-POS-OC3-SML</b> 8-port MIX-enabled multichannel T1/E1 with CSU/DSU	•	•	•	•	•	–	–

## Sonet PAs

<b>PA-POS-OC3-MM</b> 1-port packet/SONET OC-3c/STM1 multimode port adapter	•	•	•	•	•	•	•
<b>PA-POS-2OC3</b> 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
<b>Other Port Adapters and SAs</b>							
<b>PA-4C-E</b> 1-port-enhanced ESCON channel port adapter	•	–	–	–	–	–	–
<b>SA-VAM</b> VPN acceleration module for Cisco 7100 and 7200 Series	•	–	–	•	–	–	–
<b>SA-VAM2</b> VPN acceleration module 2	•	•	•	–	–	–	–
<b>PA-SRP-OC12SMI</b> DPT-OC-12 single-mode intermediate PA	•	–	–	–	–	–	–
<b>PA-SRP-OC12SMX</b> DPT-OC-12 single-mode extended reach PA	•	–	–	–	–	–	–
<b>PA-VXC-2TE1+</b> 2-port T1/E1 high-capacity enhanced-voice PA	•	•	–	•	•	–	–
<b>PA-VXB-2TE1+</b> 2-port T1/E1 moderate-capacity enhanced-voice PA	•	•	–	•	•	–	–
<b>PA-VXA-1TE1-24+</b> 1-port T1/E1 digital voice port adapter with 24 channels	•	–	–	•	–	–	–



# Product Transition Matrix

## Cisco 1721/1841 Product Comparison

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

## Cisco 1751/1760, 2600, and 2800 Product Comparison

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

## TRANSITION MATRIX continued

### Cisco 3700/3800 Product Comparison

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

**NOTES**



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