Cisco Catalyst 6500 Series and Cisco 7600 Series Communication Media Module

Product Overview

Cisco® Unified Communications is a comprehensive IP communications system of voice, video, data, and mobility products and applications. It enables more effective, more secure, more personal communications that directly affect both sales and profitability. It brings people together by enabling a new way of communicating—where your business moves with you, security is everywhere, and information is always available...whenever and wherever it is needed. Cisco Unified Communications is part of an integrated solution that includes network infrastructure, security, mobility, network management products, lifecycle services, flexible deployment and outsourced management options, end-user and partner financing packages, and third-party communications applications.

The Cisco Communication Media Module (CMM) is a line card for the Cisco Catalyst® 6500 Series Switch and Cisco 7600 Series Router that provides high-performance and high-density voice-over-IP (VoIP) gateways and media services. The Cisco CMM (Figure 1) allows organizations to connect their existing time-division multiplexing (TDM) network to their IP communications network, provide connectivity to the public switched telephone network (PSTN), and enable conferencing, transcoding, and media termination services for their IP communications networks.

Figure 1.   Cisco Communication Media Module

The Cisco CMM is a modular line card that supports four different types of port adapters, including 6-port T1, 6-port E1, 24-port foreign exchange station (FXS), and 128-port conferencing and transcoding port adapters. Up to four port adapters can be installed in a single Cisco CMM Line Card. Customers have the flexibility of mixing any of the four types of port adapters in a single Cisco CMM (Note: Mixed E1 and T1 port adapters on the same CMM are not allowed).

With the Cisco Catalyst 6500 Series and Cisco 7600 Series, Cisco delivers best-in-class products and services to help customers migrate to a fully converged network by bringing data, voice, and video together for fully integrated IP communications on every desktop. Voice services are supported by the converged IP network rather than the traditional private branch exchange (PBX), reducing capital and operational costs, and opening the environment to innovation by supporting new applications (refer to Figure 2).

Key Features and Benefits

A critical component of the Cisco Unified Communications solution, the Cisco CMM allows businesses to extend a cost-effective, transparent network infrastructure to all locations within their network.

Figure 2. Cisco Unified Communication Network Deployment
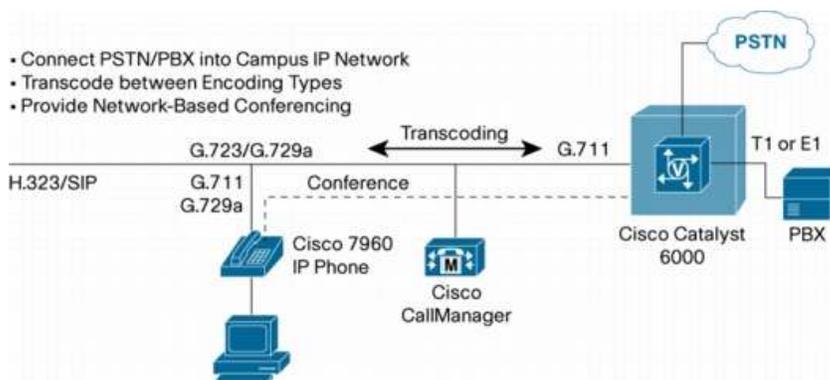
The Cisco CMM provides a value-added, end-to-end networking solution with the following benefits:

- Modularity:
  - Lowers cost of ownership—The modular architecture helps customers achieve higher port capacity in a single Cisco Catalyst 6500 Series or Cisco 7600 Series slot. Integrating the functions of VoIP gateways, analog and digital, and conferencing and transcoding in a single module provides a space-saving solution. The Cisco CMM can be managed remotely along with other modules and line cards in the Cisco Catalyst 6500 and Cisco 7600 Series chassis.
  - Offers investment protection—The Cisco CMM supports field-upgradable modular components, allowing customers to easily add, replace, or change interface port adapters without upgrading or replacing the entire module.
- Hot-swappable module:
  - Delivers business resilience—The hot-swappable capability on the Cisco CMM allows hardware maintenance to be performed on an active Cisco Catalyst 6500 or Cisco 7600 Series with little or no service interruption. During a hot-swap, the Cisco CMM can be removed, inserted, or replaced, and only the calls on the card being removed are affected.
- Cisco Unified Communications Manager redundancy:
  - Provides robust, fault-tolerant architecture—The Cisco Unified Communications solution design takes advantage of the robust, fault-tolerant architecture of clustered Cisco Unified CallManager systems. The Cisco CMM works transparently in this environment. Even in its most simple form (such as a two-system cluster), a secondary Cisco Unified Communications Manager can take control of the Cisco CMM initially managed by the primary Cisco Unified Communications Manager.

Additionally, supported on the Cisco IOS® Software mainline release, the Cisco CMM enjoys a comprehensive set of features, including the following:

- Full support for Session Initiation Protocol (SIP) with Cisco SIP proxy server and voice authentication, authorization, and accounting (AAA)
- Full support for H.323 with Cisco Gatekeeper server and voice AAA
- Media Gateway Control Protocol (MGCP) Secure Real-Time Transport Protocol (SRTP) with Secure SRST (SSRST)
- T.30 and T.38 fax relay and fax/modem pass through
- Transparent Common Channel Signaling (TCCS) with G clear codec

Using the Cisco CMM, customers can plug in a range of port adapters to get a set of diverse functions within a single Cisco Catalyst 6500 or Cisco 7600 Series slot.

Scalability

The Cisco CMM provides a high-density and high-performance VoIP gateway to the PSTN, existing PBXs, or traditional analog devices and network-based media services. It gives customers a very high level of flexibility and a cost-effective solution. The Cisco CMM allows customers to make efficient use of Cisco Catalyst 6500 or Cisco 7600 Series slots by allowing them to mix and match different port adapters to achieve the desired density and configuration. The Cisco CMM is fabric-enabled and compatible with the classic backplane chassis.

T1 Or E1 VoIP Gateway

The Cisco CMM allows organizations to connect their Cisco IP Communications network to the PSTN or to existing PBXs. A typical configuration includes a Cisco CMM Line Card (part number WS-SVC-CMM) with one or more T1 interface port adapters (part number WS-SVC-CMM-6T1) or E1 port adapters (part number WS-SVC-CMM-6E1). It is recommended that there should be up to 10 T1s maximum configured on a CMM. Similarly for E1s, there should be up to 9 E1s configured on a CMM. Actual densities will depend on other services running on the Cisco CMM.

Conferencing and Transcoding Services

The Cisco CMM can provide flexible conferencing and transcoding services using the new Cisco Conferencing and Transcoding Port Adapter (part number WS-SVC-CMM-ACT). Conference resources can now be deployed in distributed locations, including the remote branches within the network. Users can bring people into conversations spontaneously by pressing the conference button on the IP phone. With its transcoding capabilities, the new port adapter allows endpoints that support differing codecs to participate in the same conference session. It can also help minimize the bandwidth effect of calls across the WAN by transcoding G.711 calls to compressed codecs such as G.729 or G.723. Up to four of the port adapters can be plugged into a single Cisco CMM Line Card.

24-Port FXS Interface Module

The Cisco Catalyst 6000 24-Port FXS Analog Interface Module helps enterprises connect traditional analog telephony equipment such as phones, speakerphones, fax machines, and modem devices to Cisco Catalyst 6500 Series Switches. The module supports migration to a fully converged multiservice network, extending the product life of analog devices and thus maximizing their return on investment (ROI). Up to three of the FXS modules can be plugged into a single Cisco CMM.

Cisco Unified Survivable Remote Site Telephony

Cisco Unified Survivable Remote Site Telephony (SRST) allows the Cisco CMM to temporarily manage connections for Cisco Unified IP phones when a connection to a Cisco Unified Communications Manager is unavailable. The Cisco CMM provides SRST for up to 720 IP phones and a maximum of 1024 Ephone-DNs.

Protocols

The Cisco CMM can operate as a MGCP, H.323, or SIP device under control of the Cisco Unified CallManager.

The following interface types are supported in MGCP mode:

- T1/E1 Primary Rate Interface (PRI)
- T1 channel associated signaling (CAS)
- FXS

When operating in this mode, the Cisco CMM becomes a stateless client to the Cisco Unified CallManager, giving it full control of enhanced management and calling features.

The interface types supported in H.323 mode follow:

- T1/E1 PRI
- T1 CAS
- E1-R2
- FXS

Table 1 lists platform requirements for the Cisco Catalyst 6500 and Cisco 7600 Series platforms, and Table 2 provides the software compatibility requirements.

Table 1. Cisco Catalyst 6500 and Cisco 7600 Series Platform Requirements

Features	Cisco Catalyst 6500 Series Switch	Cisco 7600 Series Router
Chassis operating system	Cisco Catalyst OS, Cisco Catalyst Switch with Cisco IOS Software	Catalyst IOS Software
Supervisor engines supported	Cisco Catalyst 6500 Series Supervisor Engine 2, Supervisor Engine 32, and Supervisor Engine 720	Cisco Catalyst 6500 Series Supervisor Engine 720
Maximum line card density and chassis	• 12 ports (13-slot) • 8 ports (9-slot) • 5 ports (6-slot) • 2 ports (3-slot)	• 12 ports (13-slot) • 8 ports (9-slot) • 5 ports (6-slot) • 2 ports (3-slot)
Port adapters and slots	4 port adapters per Cisco CMM (3 accessible from front)	4-port adapters per CMM (3 accessible from front)
Part numbers of supported port adapters	WS-SVC-CMM-6T1, WS-SVC-CMM-6E1, WS-SVC-CMM-24FXS, and WS-SVC-CMM-ACT	WS-SVC-CMM-6T1, WS-SVC-CMM-6E1, WS-SVC-CMM-24FXS, and WS-SVC-CMM-ACT
Slot requirement	Can occupy any slot in any chassis	Can occupy any slot in any chassis
Switch fabric connectivity	Yes	Yes
Online insertion and removal (OIR) of module	Yes	Yes

Table 2. Software Compatibility Requirements

Requirements (Minimum)	Cisco CMM
Cisco Catalyst OS	Release 8.4(1) or later
Native Cisco IOS Software	Release 12.2(18)SXF3 or later
Cisco Unified CallManager	Release 4.1(2) or later

Tables 3 through 6 provide specific information about the port adapters.

Table 3. 6-Port T1 Port Adapter

	6-Port, 144-Channel T1 Voice Port Adapter
Interface type	Channelized T1
Voice ports	144 channels of G.711 and G.729 codecs
Number of connectors per port adapter	6
Physical connector	RJ-48
Cisco part number	WS-SVC-CMM-6T1
Spare part number	WS-SVC-CMM-6T1=
Maximum number of port adapters per Cisco CMM	3
Cisco IOS Software (minimum) on Cisco CMM	12.4(8a) or later
Cisco Catalyst OS (minimum)	8.4(1) or later
Native Cisco IOS Software (minimum)	12.2(18)SXF3 or later
Regulatory	TIA/EIA-IS-968, CS-03, IEC 60950, UL 60950, FCC (CFR 47) Part 15, and CISPR-22
Line bit rate	T1, 1.544 Mbps
Line code	Alternate mark inversion (AMI) and binary 8-zero substitution (B8ZS)
Framing format	D4 (Super Frame [SF]) and Extended Superframe (ESF)
LED indicators	Link status

Physical interface standard	ATT T1.1 and ANSI T1.403

Table 4. 6-Port E1 Port Adapter

	6-Port 180-Channel E1 Voice Port Adapter
Interface type	Channelized E1
Voice ports	180 channels of G.711 and G.729 codecs
Number of connectors per port adapter	6
Physical interface specification	G.703, G.704, and G.706
Physical connector	RJ-48
Cisco part number	WS-SVC-CMM-6E1
Spare part number	WS-SVC-CMM-6E1=
Maximum number of port adapters per Cisco CMM	3
Cisco IOS Software (minimum) on Cisco CMM	12.4(8a) or later
Cisco Catalyst OS (minimum)	8.4(1) or later
Native Cisco IOS Software (minimum)	12.2(18)SXF3 or later
Regulatory	IEC/EN 60950, AS/NZS 3260, TS001, EN 55022, and EN 55024 CE Marking
Line bit rate	E1, 2048 Mbps
Line code	HDB3
Framing format	CRC4 and non-CRC4
LED indicators	Link status

Table 5. 24-Port FXS Analog Port Adapter

	24-Port FXS Analog Voice Port Adapter
Interface type	FXS
Voice ports	24 channels of G.711 and G.729 codecs
Number of connectors per port adapter	1
Physical connector	RJ-21
Cisco part number	WS-SVC-CMM-24FXS
Spare part number	WS-SVC-CMM-24FXS=
Maximum number of port adapters per Cisco CMM	3
Cisco IOS Software (minimum) on Cisco CMM	12.4(8a) or later
Cisco Catalyst OS (minimum)	8.4.1 or later
Native Cisco IOS Software (minimum)	12.2(18)SXF3 or later
Regulatory	UL 60950, CSA22.2-No. 60950, AS/NZS 3260, TS001, FCC (CFR47) Part 15, CISPR 22, EN 55022, EN 55023, and CE Marking
Signaling format	Loop start
Loop current	>24 mA
Ringing frequency	25 or 50 Hz
Distance	300 ohms maximum loop
Ringer-equivalency-number (REN) equivalence	3 (United States)
LED indicators	On-hook/off-hook status

Table 6. Conferencing and Transcoding Port Adapter

	128-Channel Conferencing and Transcoding Port Adapter
Interface type	IP
Voice ports	128 channels of G.711, G.729, or G723 codecs
Cisco part number	WS-SVC-CMM-ACT
Spare part number	WS-SVC-CMM-ACT=
Maximum number of port adapters per Cisco CMM	4
Cisco IOS Software (minimum) on Cisco CMM	12.4(8a) or later
Cisco Catalyst OS (minimum)	8.4(1) or later
Native Cisco IOS Software (minimum)	12.2(18)SXF3 or later
LED indicators	Link status

System Data

- Processor type: R7000
- System memory: 512 MB (on board)
- Boot Flash memory: 64 MB (on board)

Table 7 provides product numbers and their description for ordering.

Table 7. Ordering Information

Part Number	Description
WS-SVC-CMM	Cisco Communication Media Module
WS-SVC-CMM-6T1	6-port T1 Interface Port Adapter
WS-SVC-CMM-6E1	6-port E1 Interface Port Adapter
WS-SVC-CMM-24FXS	24-port FXS Analog Port Adapter
WS-SVC-CMM-ACT	Conferencing and Transcoding Port Adapter

Specification

Physical Specifications

- Occupies one slot in Cisco Catalyst 6500 Series or Cisco 7600 Series chassis
- Dimensions (H x W x D): 14.4 x 1.2 x 16 in. (35.6 x 3.0 x 40.6 cm)

Power Requirements

- Output: 252W
- DC input voltage: 32V
- DC input current: 6A

Environmental Conditions

- Operating temperature: 0 to 40°C (32 to 104°F)
- Nonoperating temperature: 40 to 75°C (-40 to 167°F)
- Relative humidity: 10–90 percent, noncondensing

Network Management

The Cisco CMM provides Simple Network Management Protocol (SNMP) Version 3 MIB support.

MIBs

- Dial control MIB (RFC 2128)
- CISCO Dial Control MIB (Extension to RFC 2128)
- Cisco Voice Dial Control MIB (CISCO-VOICE-DIAL-CONTROL-MIB)
- Cisco Voice Interface MIB (CISCO-VOICE-IF-MIB)
- Cisco Voice Analog Interface MIB (CISCO-VOICE-ANALOG-IF-MIB)
- Cisco Digital Signal Processing Management MIB (CISCO-DSP-MGMT-MIB)
- Cisco-CAS-IF-MIB
- CAS-INTERFACE-MIB
- ISDN-MIB (RFC 2127)
- CISCO-ENVMON-MIB
- DS-1 MIB (RFC 1406)
- ETHERLIKE-MIB (RFC 1643)
- Ethernet MIB (RFC 1157)
- Interface MIB (IF-MIB) (RFC 2233)
- Interface Extensions MIB II (IF-MIB II) (RFC 1573)
- SNMP MIB II (RFC 1213)
- OLD-CISCO-CHASSIS-MIB (CANA)
- SNMPv2-SMI
- SNMPv2-MIB

Cisco Unified Communications Services and Support

Using the Cisco Lifecycle Services approach, Cisco and its partners offer a broad portfolio of end-to-end services to support the Cisco Unified Communications system. These services are based on proven methodologies for deploying, operating, and optimizing IP communications solutions. Initial planning and design services, for example, can help you meet aggressive deployment schedules and minimize network disruption during implementation. Operate services reduce the risk of communications downtime with expert technical support, and optimize services enhance solution performance for operational excellence. Cisco and its partners offer a system-level service and support approach that can help you create and maintain a resilient, converged network that meets your business needs.

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