Cisco Catalyst 4900M Series

High-Performance Small Form Factor Cisco Catalyst Switch with Flexibility and Investment Protection for Top of Rack Switching or Midmarket Collapsed Core/Distribution

Product Overview

The Cisco® Catalyst® 4900M Series (Figure 1) is designed for data center network top of rack switching and midmarket collapsed core/distirbution. Optimized for ultimate deployment flexibility for the data center, the Cisco Catalyst 4900M can be deployed for 10/100/1000 server access with 1:1 uplink-to-downlink oversubscription and a mix of 10/100/1000 and 10 Gigabit Ethernet servers or all 10 Gigabit Ethernet server environments. The Cisco Catalyst 4900M is a 320-Gbps, 250 million packets per second (mpps), two-rack-unit (2RU) fixed-configuration switch with 8 fixed wire-speed X2 ports on the base unit and 2 optional half-card slots for deployment flexibility and investment protection. Low latency, scalable buffer memory, and high availability with 1+1 hot swappable AC or DC power supplies and a field replaceable fan tray optimize the Cisco Catalyst 4900M for any size of data center.

For the midmarket collapsed core/distribution and in branch, the Cisco Catalyst 4900M provides an ideal solution for space-constrained deployments that require high-performance wire-speed services and high availability. With the unique semifixed archiecture and support of the TwinGig converter, the Cisco Catalyst 4900M can be used in a collapsed core distribution LAN deployment with the flexibility of deploying Gigabit Ethernet now, and cost-effectively migrate to 10 Gigabit Ethernet as requirements change. The Cisco Catalyst 4900M configuration provides wire-speed connection, buffers to handle bursty traffic, and a comprehensive set of Layer 3 features required at the collapsed core/distribution of the network. The Cisco Catalyst 4900M also supports a suite of ease of management features to simplify operations.

Figure 1. Cisco Catalyst 4900M

Features and Benefits

The Cisco Catalyst 4900M half cards provide a wide variety of combinations of Gigabit Ethernet and 10 Gigabit Ethernet media types. The base unit can accommodate up to two of following half cards in any combination. [[NOTE: Please add in-text refs to Figures 2, 3, and 4.]]

Figure 2. 20-Port Wire-Speed 10/100/1000 (RJ-45) Half Card

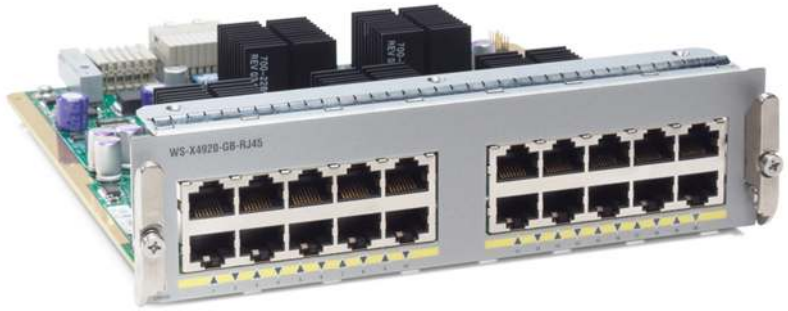


Figure 3. 4-Port Wire-Speed 10 Gigabit Ethernet (X2) Half Card

Figure 4. 8-Port (2:1) 10 Gigabit Ethernet (X2) Half Card (Cisco TwinGig Converter Module Compatible)

In addition to deployment flexibility, the half slots provide investment protection for further additions of Gigabit Ethernet and 10 Gigabit Ethernet media.

Table 1 summarizes the features and benefits of the Cisco Catalyst 4900M.

Table 1. Features and Benefits

Feature	Benefit
Outstanding Scalability	
16 MB shared buffers	Large buffers for microburst and high traffic control
Up to 320 Gbps and 250 mpps wire-speed performance with low latency	Delay-sensitive traffic forwarded without interruption
Wire-speed uplinks	Elimination of oversubscription bottlenecks between downlinks and uplinks across the switch with any combination of half cards
Configuration Flexibility	
Choice of Gigabit Ethernet and 10 Gigabit Ethernet interfaces	Granular configuration options for all–Gigabit Ethernet to 10 Gigabit Ethernet transition
Online insertion and removal of cards	In-service line card changes
Cisco TwinGig Converter Module support*	Gigabit Ethernet and 10 Gigabit Ethernet interface support on the same card
Dual AC or DC power	High availability for nonstop operation
Investment Protection	
Modular half slots	Migration to new media types through additional half cards
Field-replaceable power supplies and hot-swappable removable fan	Extended longevity of hardware
Use of existing software	Consistent operational model for all Cisco Catalyst 4900 Series Switches

- Only supported on 8-port (2:1) 10 Gigabit Ethernet (X2) half card

One System, Many Configurations

The Cisco Catalyst 4900M can be configured to meet the needs of many types of top-of-rack deployments. Table 2 summarizes the configuration options.

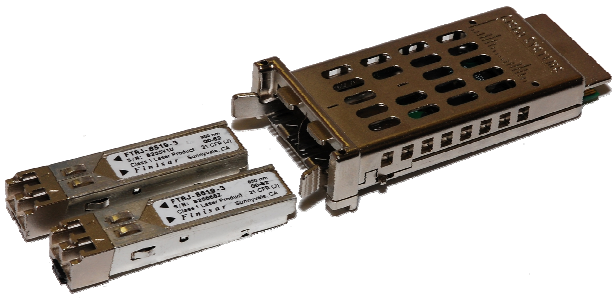
Table 2. Cisco Catalyst 4900M Configuration Options

Configuration	10 Gigabit Ethernet (X2) Ports	10/100/1000 Ports	Gigabit Ethernet (Small Form-Factor Pluggable [SFP]) Ports Using Cisco TwinGig Converter Module
10/100/1000 access with 10 Gigabit Ethernet uplinks	8	40	0
10/100/1000 and 10 Gigabit Ethernet access with 10 Gigabit Ethernet uplinks	12 or 16	20	0
Gigabit Ethernet (SFP) access with 10 Gigabit Ethernet uplinks	8	0	32
Gigabit Ethernet (SFP) and 10 Gigabit Ethernet access with 10 Gigabit Ethernet uplinks	12 or 16	0	16
10 Gigabit Ethernet access with 10 Gigabit Ethernet uplinks	16 or 24	0	0
Gigabit Ethernet (SFP) and 10/100/1000 access with 10 Gigabit Ethernet uplinks	8	20	16

10 Gigabit Ethernet and Gigabit Ethernet on the Same Half Card

The Cisco TwinGig Converter Module (Figure 5) converts a single 10 Gigabit Ethernet X2 interface into two Gigabit Ethernet port slots that can be populated with SFP optics, enabling customers to use Gigabit Ethernet SFPs on the same card in combination with 10 Gigabit Ethernet X2 optics.

Figure 5. Cisco TwinGig Converter Module Converts 10 Gigabit Ethernet X2 Interface into Two Gigabit Ethernet SFPs



Operational Consistency and Control

The Cisco Catalyst 4900M includes a console port to manage all system features. Remote in-band management is available with Simple Network Management Protocol (SNMP), Telnet client, BOOTP, and Trivial File Transfer Protocol (TFTP). Support for local or remote out-of-band management is delivered through a terminal or modem attached to the console interface.

The Cisco Catalyst 4900M supports file allocation table (FAT) file systems. System images can be updated directly through Windows-based machines with compact flash readers.

Using CiscoWorks solutions, Cisco Catalyst switches can be configured and managed to deliver end-to-end device, VLAN, traffic, and policy management. The CiscoWorks LAN Management Solution (LMS) bundle offers tools such as CiscoWorks Resource Manager Essentials (SNMS) and CiscoWorks CiscoView (SNMS). These Web-based management tools offer several services, including automated inventory collection, software deployment, easy tracking of network changes, views into device availability, and quick isolation of error conditions.

Software Configuration Options

Table 3 describes the software configuration options for the Cisco Catalyst 4900M Series Switch, and Table 4 describes the hardware options.

Table 3. Software Configuration Options for the Cisco Catalyst 4900M Series Switch

Software Image	Description
IP Base image	Standard Layer 3 image, including Routing Information Protocol Version 1 (RIPv1), RIPv2, static routes, and Enhanced Interior Gateway Routing Protocol (EIGRP) stub
Enterprise Services image	Enhanced Layer 3 image, including Open Shortest Path First (OSPF), EIGRP, and Border Gateway Protocol (BGP); also includes all IP Base image features

Table 4. Cisco Catalyst 4900 Series Hardware Comparison

Feature and Description	Cisco Catalyst 4948	Cisco Catalyst 4948 -10GE	Cisco Catalyst 4900M
Switching Capacity	96 Gbps	136 Gbps	320 Gbps
Throughput	72 mpps	102 mpps	250 mpps for IPv4 125 mpps for IPv6
IPv6 Support	In Software	In Software	In Hardware
Height	1RU	1RU	2RU
Modular Half-Card Slots	0	0	2
Maximum 10/100/1000 Ports	48	48	40

Feature and Description	Cisco Catalyst 4948	Cisco Catalyst 4948 -10GE	Cisco Catalyst 4900M
Maximum 10 Gigabit Ethernet Ports	0	2	24
Maximum Gigabit Ethernet (Fiber) Ports	4	0	32 (Cisco TwinGig Converter Module)
Cisco TwinGig Converter Module Support	No	No	Yes (half cards only)
Uplink Optic Types	4 SFP optics	Two X2 (10 Gigabit Ethernet) optics	Eight X2 (10 Gigabit Ethernet) optics
Multilayer Switching	IP Base and Enterprise Services options	IP Base and Enterprise Services options	IP Base and Enterprise Services options
Shared Buffer	16 MB	16 MB	16 MB
CPU	266 MHz	666 MHz	1.3 GHz
Synchronous Dynamic RAM (SDRAM)	256 MB	256 MB	512 MB
Active VLANs	4096	4096	4096
Multicast Entries	28K (Layer 3) 16K (Layer 2)	28K (Layer 3) 16K (Layer 2)	70K for IPv4 35K for IPv6
Per VLAN Spanning Tree (PVST) Protocol and VLAN IDs	4096	4096	4096
Spanning Tree Protocol instances	1500	1500	3000
Switched Virtual Interfaces (SVIs)	2000	2000	4096
Security and Quality-of-Service (QoS) Hardware Entries	32K	32K	128K
MAC Addresses	32K	55K	55K
Switched Port Analyzer (SPAN)	2 ingress and 4 egress	2 ingress and 4 egress	8 ingress and 8 egress
USB Port	No	No	Yes
Compact Flash Memory Support	No	No	Yes
System Reset Button	No	No	Yes
Minimum Software Requirement	Cisco IOS® Software Release 12.2(20)EWA or later	Cisco IOS Software Release 12.2(25)EWA or later	Cisco IOS Software Release 12.2(46)SG or later

Features at a Glance

Layer 2 Features

- Layer 2 switch ports and VLAN trunks
- IEEE 802. 1Q VLAN encapsulation
- Dynamic Trunking Protocol (DTP)
- VLAN Trunking Protocol (VTP) and VTP domains
- VTP pruning
- VTPv3
- Port security on trunk port
- Q-in-Q passthrough
- Support for 4096 VLANs per switch
- PVST+ and Per-VLAN Rapid Spanning-Tree Protocol (PVRST)

- Spanning Tree PortFast and PortFast guard
- Spanning Tree UplinkFast and BackboneFast
- IEEE 802.1s
- IEEE 802.1w
- IEEE 802.3ad
- Spanning Tree root guard
- Cisco Discovery Protocol
- Internet Group Management Protocol (IGMP) Versions 1, 2, and 3 snooping
- IP v6 Multicast Listener Discovery (MLD) snooping
- Cisco EtherChannel technology, Cisco Fast EtherChannel technology, and Cisco Gigabit EtherChannel technology across half cards and base unit
- Port Aggregation Protocol (PAgP)
- Link Aggregation Control Protocol (LACP)
- Unidirectional link detection (UDLD) and aggressive UDLD
- Jumbo frames (up to 9216 bytes)
- Baby Giants (up to 1600 bytes)
- Storm control (formally known as broadcast and multicast suppression)
- Forced 10/100 autonegotiation
- Bridge protocol data unit (BPDU) guard
- FlexLink and FlexLink with VLAN Load Balancing
- IEEE 802.1ab LLDP and 802.1ab LLDP-MED
- Resilient Ethernet Protocol (REP)

Layer 3 Features

- Jumbo frames on all ports (up to 9216 bytes)
- Hardware-based IP Cisco Express Forwarding routing at 250 mpps
- IP routing protocols: EIGRP, OSPF, BGP4, Routing Information Protocol (RIP), and RIP2
- OSPF fast convergence
- OSPF and EIGRP fast convergence protection
- Enhanced Interior Gateway Routing Protocol (EIGRP) stub
- Static routing
- Inter-VLAN Routing
- Virtual Route Forwarding lite (VRF-lite)
- Multicast VRF-lite
- VRF-aware IP services
- EIGRP to Multi VRF CE (VRF Lite)
- Equal Cost Multi Path Routing (ECMP up to 8 paths)
- IPv6: RIP next generation (RIPng) for IPv6
- IPv6: OSPFv3
- IPv6: EIGRP

- Software-based generic routing encapsulation (GRE) tunneling
- IGMP v1, v2, and v3
- IGMP filtering on access and trunk ports
- IP Multicast routing protocols: PIM (SM, DM, SDM)
- Protocol Independent Multicast Version 6 (PIMv6) (Sparse mode)
- Pragmatic General Multicast
- Bidirectional (Bi-dir) PIM
- Internet Control Message Protocol (ICMP)
- ICMP Router Discovery Protocol
- Dynamic Host Configuration Protocol (DHCP) server
- Per-port multicast suppression
- Unicast RPF

High Availability Features

- 1+1 hot swappable AC or DC power supplies
- Hot-swappable field replaceable fan tray with redundant fans
- Hot Standby Router Protocol (HSRP)
- Virtual Router Redundancy Protocol (VRRP)
- Cisco IOS Embedded Event Manager (EEM)
- Cisco Generic On Line Diagnostics (GOLD)
- Enhanced Object Tracking (EOT)

IPv6 Support

- IPv6: RIP next generation (RIPng) for IPv6
- IPv6: OSPFv3
- IPv6: EIGRP
- IPv6: Protocol Independent Multicast (PIMv6) (Sparse mode)
- IPv6 unicast and multicast forwarding in hardware
- IPv6 addressing architecture
- IPv6: Cisco Discovery Protocol IPv6 address family
- IPv6: Cisco Express Forwarding (CEF/dCEF) in hardware
- IPv6: Extended access control list (ACL)
- IPv6: ICMP rate limiting
- IPv6: ICMPv6
- IPv6: ICMPv6 redirect
- IPv6: IP MIB
- IPv6 over IEEE 802.1Q
- IPv6: IPv6 over IPv4 GRE tunnel (tunnel support in software)
- IPv6: Intrasite Automatic Tunnel Addressing Protocol (ISATAP)
- IPv6: Loopback
- IPv6: MLD snooping

- IPv6: MLDv1 and v2
- IPv6: Maximum transmission unit (MTU) path discovery for IPv6
- IPv6: Ping
- IPv6: Secure Shell (SSH) over an IPv6 transport
- IPv6: Stateless autoconfiguration
- IPv6: Static routes within IPv6
- IPv6: authentication, authorization, and accounting (AAA)
- IPv6: Telnet
- IPv6: Trivial FTP (TFTP)
- IPv6: Traceroute
- IPv6: Duplicate address detection
- IPv6: Standard ACL
- IPv6 tunnels in software
- IPv6: Hop-by-hop option header; in software
- IPv6: DHCPv6 relay agent

Sophisticated QoS and Traffic Management

- Modular QoS command-line interface (MQC)
- Per-port per VLAN QoS
- Dynamic Tx queue sizing
- Strict priority queuing
- IP differentiated services code point (DSCP)
- IEEE 802.1p class of service
- Flexible classification marking
- Classification and marking based on full Layer 3 and 4 headers
- Input and output policing based on Layer 3 and 4 headers
- Support for 16,000 policers with flexible assignment for input and output
- 2-rate 3-color policing
- Output queue management shaping and sharing
- Dynamic buffer limiting: Congestion-avoidance feature

Performance and Scalability

- 320-Gbps switching fabric
- Layer 2 hardware forwarding at 250 mpps
- Layer 3 hardware-based IP Cisco Express Forwarding routing at 250 mpps
- Layer 4 TCP and User Datagram Protocol (UDP) hardware-based filtering at 250 mpps
- Software-based learning at a sustained rate of 10,000 hosts per second
- 55,000 unicast MAC addresses
- 16,000 multicast MAC addresses
- 200,000 entries in routing table (shared between unicast and multicast)
- 4000 virtual ports (VLAN port instances)

- Bandwidth aggregation up to 16 Gbps through Cisco Gigabit EtherChannel technology.
- Bandwidth aggregation up to 160 Gbps for 10 Gigabit Ethernet through 10 Gigabit EtherChannel technology
- Hardware-based multicast management
- Hardware-based ACLs

Management

- Console port to manage all system features
- Software configuration management, including local and remote storage
- Optional compact flash memory card to store software images for backup and easy software upgrades (Future)
- USB drive support (Future)
- FAT file system support
- Manageable through CiscoWorks Windows network-management software on a per-port and per-switch basis, providing a common management interface for Cisco routers, switches, and hubs
- SNMP v1, v2, and v3 instrumentation, delivering comprehensive in-band management
- Command-line interface (CLI) based management console to provide detailed out-of-band management
- Remote monitoring (RMON) software agent to support four RMON groups (history, statistics, alarms, and events) for enhanced traffic management, monitoring, and analysis
- Analysis support, including ingress port, egress port, and VLAN SPAN
- Layer 2 traceroute
- Cisco SmartPort macros
- SPAN ACL filtering
- DHCP client autoconfiguration
- Enhanced SNMP MIB support
- Network Timing Protocol (NTP)
- E-OAM 802.3ah & Connectivity Fault Management (CFM - 802.1ag)
- Ethernet Management Port
- Remote SPAN (RSPAN)

Advanced Security

- TACACS+ and RADIUS, which enable centralized control of the switch and restrict unauthorized users from altering the configuration
- Standard and extended ACLs on all ports
- IEEE 802. 1X user authentication (with VLAN assignment, voice VLAN, and port security)
- Router ACLs (RACLs) on all ports (no performance penalty)
- VLAN ACLs (VACLs)
- Port ACLs (PACLs)
- Private VLANs (PVLANs) on access ports
- DHCP snooping and Option 82 insertion

- Port security
- Sticky port security
- SSHv1 and SSHv2
- Unicast port flood blocking
- Dynamic Address Resolution Protocol (ARP) inspection
- IP source guard
- VLAN Management Policy Server (VMPS) client
- Network Admission Control (NAC) Layer 2 IEEE 802.1X
- NAC LAN port IP
- Secure Copy Protocol (SCP)
- Unicast RPF
- IEEE 802.1x Guest VLAN
- IEEE 802.1x Radius Accounting
- IEEE 802.1X MAC Authentication Bypass
- Control plane policing
- Access Node Control Protocol (ANCP) client
- Cisco Trusted Security Multihop Security Group Tag Exchange Protocol

Technical Specifications

Management

- CiscoWorks LMS; includes CiscoWorks Resource Manager Essentials
- CiscoWorks CiscoView
- SNMP v1, v2, and v3
- RMON I and II
- RFC 1213-MIB (MIB II)
- UDP-MIB
- TCP-MIB
- BGP4-MIB
- OSPF-MIB
- LLDP-MIB
- CISCO-FLASH-MIB
- CISCO-IMAGE-MIB
- RFC 2233 (IF-MIB)
- CISCO-CONFIG-MAN-MIB
- CISCO-MEMORY-POOL
- CISCO-CDP-MIB
- RMON-MIB lite (RFC 1757)
- RMON2-MIB lite (RFC 2021)
- HC-RMON-MIB

- SMON-MIB
- ENTITY-MIB (V1-RFC 2037) (V2- RFC 2737)
- CISCO-PROCESS-MIB
- CISCO-CONFIG-COPY-MIB
- CISCO-ENTITY-EXT-MIB
- CISCO-ENTITY-ASSET-MIB
- CISCO-ENTITY-FRU-CONTROL-MIB
- CISCO-ENTITY-SENSOR-MIB
- CISCO-ENVMON-MIB
- BRIDGE-MIB (RFC 1493)
- CISCO-PAGP-MIB
- CISCO-PRIVATE-VLAN-MIB
- CISCO-STP-EXTENSIONS-MIB
- CISCO-VLAN-MEMBERSHIP-MIB
- CISCO-VLAN-IFTABLE-RELATIONSHIP-MIB
- IGMP-MIB
- CISCO-ENTITY-VENDORTYPE-OID-MIB
- CISCO-SYSLOG-MIB
- CISCO-BULK-FILE-MIB
- CISCO-CLASS-BASED-QOS-MIB
- CISCO-FTP-CLIENT-MIB
- CISCO-HSRP-MIB
- CISCO-IGMP-FILTER-MIB
- CISCO-IPMROUTE-MIB
- CISCO-PORT-SECURITY-MIB
- CISCO-RMON-CONFIG-MIB
- CISCO-VTP-MIB
- ETHERLIKE-MIB
- EXPRESSION-MIB
- CISCO-PORT-STORM-CONTROL-MIB

Industry Standards

- Ethernet: IEEE 802.3 and 10BASE-T
- Fast Ethernet: IEEE 802.3u and 100BASE-TX
- Gigabit Ethernet: IEEE 802.3z and 802.3ab
- 10 Gigabit Ethernet: IEEE 802.3ae
- IEEE 802. 1D Spanning Tree Protocol
- IEEE 802.1w rapid reconfiguration of spanning tree
- IEEE 802. 1s multiple VLAN instances of spanning tree
- IEEE 802.3 ad LACP

- IEEE 802. 1p class of service (CoS) prioritization
- IEEE 802.1Q VLAN
- IEEE 802. 1x user authentication
- 1000BASE-X (SFP)
- 1000BASE-SX
- 1000BASE-LX/LH
- 1000BASE-ZX
- RMON I and II standards

Optics Support

SFPs used with Cisco TwinGig Converter Module for Gigabit Ethernet connectivity (supported only in WS-X4908-10GE(=) half card):

- GLC-T: 1000BASE-T SFP
- GLC-SX-MM: Gigabit Ethernet SFP, LC connector, and SX transceiver
- GLC-LH-SM: Gigabit Ethernet SFP, LC connector, and LX/LH transceiver
- GLC-ZX-SM: 1000BASE-ZX SFP
- Cisco (CWDM) SFP solution

X2 Modules for 10 Gigabit Ethernet Connectivity

- X2-10GB-LR=: 10GBASE-LR X2 module
- X2-10GB-CX4=: 10GBASE-CX4 X2 module
- X2-10GB-LX4=: 10GBASE-LX4 X2 module
- X2-10GB-SR=: 10GBASE-SR X2 module
- X2-10GB-ER=: 10GBASE-ER X2 module
- X2-10GB-LRM=: 10GBASE-LRM X2 module
- X2-10GB-ZR=: 10GBASE-ZR X2 module
- X2-10GB-DWDM=: 10GBASE-DWDM X2 module

Product Specifications

Tables 5 and 6 list the specifications for the Cisco Catalyst 4900M.

Table 5. Product Specifications: Dimensions

Product Name	Max Overall Dimension, H x W x D in (mm)
4900M 8-port base system	3.5 (89) x 17.2 (437) x 17.9 (455)
4900M 20-port 10/100/1000 RJ-45 half card	1.9 (49) x 7.4 (188) x 8.2 (209)
4900M 4 port 10GE half card with X2 interfaces	1.9 (49) x 7.4 (188) x 8.2 (209)
4900M 8 port 10GE half card with X2 interfaces	1.9 (49) x 7.4 (188) x 8.2 (209)
4900M AC Power Supply	1.9 (49) x 7.3 (186) x 10.7 (272)
4900M DC Power Supply	1.9 (49) x 7.3 (186) x 10.7 (272)
4900M Spare Fan Tray	3.4 (87) x 2.5 (64) x 17.8 (453)

Table 6. Product Specifications: Weight

System Configurations	Weight
Cisco Catalyst 4900M 8-port base unit plus fan (no power supply)	25.0 lb (11.3 kg)
Cisco Catalyst 4900M 8-port base unit plus fan plus 1 AC power supply	29.5 lb (13.4 kg)
Cisco Catalyst 4900M 8-port base unit plus fan plus 2 AC power supplies	34.0 lb (15.4 kg)
Cisco Catalyst 4900M 4-port 10 Gigabit Ethernet half card with X2 interfaces	1.5 lb (0.7 kg)
Cisco Catalyst 4900M 20-port 10/100/1000 RJ-45 half card:	1.5 lb (0.7 kg)
Cisco Catalyst 4900M 8-port 10 Gigabit Ethernet half card with X2 interfaces	2.5 lb (1.1 kg)

Indicator and Port Specifications

- System status: Green (operational); red (faulty)
- Console: RJ-45 socket
- Reset (switch recessed for protection)
- Image management port: 10/100/1000BASE-T (RJ-45 socket) data terminal equipment (DTE); green (good), orange (disabled), and off (not connected)
- Air Flow Specifications (Average)
- Airflow at 25°C (77°F) is approximately 77 cubic fe et per minute (cfm)
- Airflow at 55°C (131°F) is approximately 150 to 16 0 cfm

Table 7 shows the air flow specifications by speed.

Table 7. Air Flow Specifications by Speed

Speed Level	RPM	Airflow ft3/minute (m3/minute)
0	4953	77.7 (2.2)
1	7109	118.4 (3.4)
2	7752	127.6 (3.6)
3	9449	151.7 (4.3)

Power-Supply Specifications

The Cisco Catalyst 4900M offers a choice of 1000-watt (W) AC or DC power supplies. The switch can operate with one power supply present. When two power supplies are installed, the switch shares the power load between the two power supplies (Table 8).

Table 8. AC and DC Power Supply Specifications

Item	1000W AC	1000W DC
Input current	14.12A root mean square maximum at 85 VAC input	31.60A maximum at –40.5 VDC input
Output current	Maximum 80.0A	Maximum 80.0A
Weight	4.5 lb (2.0 kg)	4.5 lb (2.0 kg)
Heat dissipation	Maximum use 818.88 British thermal units (Btus) per hour	Maximum use 1091.84 Btus per hour

Power Use by Configuration

- 40 10/100/1000 ports and 8 10 Gigabit Ethernet (X2) ports at normal operating temperature: 336 watts
- 16 10 Gigabit Ethernet ports at normal operating temperature: 318 watts
- 24 10 Gigabit Ethernet ports at normal operating temperature: 353 watts

Software Requirements

The Cisco Catalyst 4900M is supported only in Cisco IOS Software. The minimum software version for the Cisco Catalyst 4900M is Cisco IOS Software Release 12.2(46)SG

Environmental Conditions

- **Operating temperature:** 32 to 104ºF (0 to 40ºC)
- **Storage temperature:** –40 to 167ºF (–40 to 75ºC)
- **Relative humidity:** 10 to 90 percent, noncondensing
- **Operating altitude:** –60 to 2000m (-197 to 6562 ft)

Regulatory Standards Compliance

Table 9 summarizes Cisco Catalyst 4900M compliance with regulatory standards.

Table 9. Cisco Catalyst 4900M Regulatory Standards Compliance

Specification	Standard
Regulatory compliance	CE marking
Safety	• UL 60950 • CAN/CSA-C22.2 No. 60950 • EN 60950 • IEC 60950 • AS/NZS 60950
EMC	• KN22 Class A • FCC Part 15 (CFR 47) Class A • ICES-003 Class A • EN55022 Class A • CISPR22 Class A • AS/NZS CISPR22 Class A • VCCI Class A • EN 55022 • EN 55024 • EN 61000-6-1 • EN 50082-1 • EN 61000-3-2 • EN 61000-3-3 • CISPR24
Industry EMC, Safety, and Environmental Standards	• SR-3580 NEBS level 3 (GR-63-CORE, issue 3, and GR-1089-CORE, issue 4) • Telecommunications Carrier Group (TCG) Checklist • ATT TP76200 level 3 and TCG Checklist • ETS 300 019-1-1, Class 1.2 Storage • ETS 300 019-1-2, Class 2.3 Transportation • ETS 300 019-1-3, Class 3.2 Stationary Use

Cisco IOS Software Packaging for the Cisco Catalyst 4900M Series

Cisco provides a Cisco IOS Software package for the Cisco Catalyst 4900M Series, creating a foundation for features and functions and offering consistency across all Cisco Catalyst switches. The Cisco IOS Software release is designated Release 12.2SG. The initial release of the Cisco Catalyst 4900M will be the 12.2(40)XO release providing initial support for the new hardware. This initial release will be realigend with the 12.2SG train at which time we will begin to support and maintain the 12.2SG release. The 4900M software packages are tailored as follows:

- The IP Base image does not support the following routing-related features: BGP, EIGRP, OSPF and VRF-lite).
- The IP Base image supports EIGRP stub, RIP V1/2, and Static Routes for Layer 3 routing on all Cisco Catalyst 4900M Series switches.

The Enterprise Services image supports all Cisco Catalyst 4900M Series software features based on Cisco IOS Software, including enhanced routing. Table 3 earlier in this document provides a more detailed description of the feature differences between the IP Base and Enterprise Services images.

Ordering Information

Table 10 provides ordering information.

Table 10. Ordering Information

Product Name	Part Number
Cisco Catalyst 4900M 8-port base system	WS-C4900M
Cisco Catalyst 4900M 20-port 10/100/1000 RJ-45 half card	WS-X4920-GB-RJ45 (=)
Cisco Catalyst 4900M 4 port 10GbE half card with X2 interfaces	WS-X4904-10GE (=)
Cisco Catalyst 4900M 8 port 10GbE half card with X2 interfaces	WS-X4908-10GE (=)
Cisco Catalyst 4900M AC Power Supply	PWR-C49M-1000AC(=)
Cisco Catalyst 4900M AC Power Supply Redundant	PWR-C49M-1000AC/2
Cisco Catalyst 4900M DC Power Supply	PWR-C49M-1000DC (=)
Cisco Catalyst 4900M DC Power Supply Redundant	PWR-C49M-1000DC/2
Cisco Catalyst 4900M Spare Fan Tray	WS-X4992=
Cisco® TwinGig Converter Module	CVR-X2-SFP=
Cisco Catalyst 4900M IOS IP Base without CRYPTO	S49MIPB-12246SG(=)
Cisco Catalyst 4900M IOS IP Base SSH	S49MIPBK9-12246SG(=)
Cisco Catalyst 4900M IOS Enterprise Services without CRYPTO	S49MES-12246SG(=)
Cisco Catalyst 4900M IOS Enterprise Services SSH	S49MESK9-12246SG(=)

The Cisco Catalyst 4900M can be ordered as a fully configured system including all port cards and optics or as spares. Part numbers for spares have = at the end.

Service and Support

Using the Cisco Lifecycle Services approach, Cisco and its partners provide a broad portfolio of end-to-end services and support that can help increase your network's business value and return on investment (ROI). This approach defines the minimum set of activities needed, by technology and by network complexity, to help you successfully deploy and operate Cisco technologies and optimize their performance throughout the lifecycle of your network.

Warranty

The warranty for the Cisco Catalyst 4900M is 90 days and includes hardware replacement with a 10-day turnaround from receipt of a return materials authorization (RMA).

Cisco Technical Support Services

Cisco Technical Support Services help ensure that your Cisco products operate efficiently, remain highly available, and benefit from current system software to assist you in effectively managing your network service while controlling operational costs. (See Tables 11 and 12.)

Cisco Technical Support Services provide significant benefits that go beyond what is offered under the Cisco warranty policy. Services available under a Cisco SMARTnet® service contract that are not covered under a warranty include the following:

- Latest software updates
- Rapid replacement of hardware with next-day, 4-hour, or 2-hour dispatch options
- Ongoing technical support through Cisco Technical Assistance Center (TAC)
- Registered access to www.cisco.com

Table 11. Technical Support Services Components

Feature	Benefit or Advantage
Software Support	Software support offers maintenance and minor and major updates for licensed feature sets. Downloading new maintenance releases, patches, or updates of Cisco IOS Software helps enhance and extend the useful life of Cisco devices. Through major software updates, it is possible to extend the life of equipment and maximize application technology investments by: • Adding new functions that, in many cases, require no additional hardware investment • Increasing the performance of current functions • Enhancing network or application availability, reliability, and stability
Cisco TAC Support	With more than 1000 highly trained customer support engineers, 390 CCIE® experts, and access to 13,000 R&D engineers, Cisco TAC complements your in-house staff with a high level of knowledge in data, voice, and video communications networking technology. Its sophisticated call-routing system quickly routes calls to the correct technology personnel. Cisco TAC is available 24 hours a day, 365 days a year.
Cisco.com	This award-winning Website provides 24-hour access to an extensive collection of online product and technology information, interactive network management and troubleshooting tools, and knowledge-transfer resources that can help customers reduce costs by increasing staff self-sufficiency and productivity.
Advance Hardware Replacement	Advance replacement and onsite field engineer options provide fast access to replacement hardware and field resources for installing hardware, minimizing the risk of potential network downtime.

Table 12. Technical Support Services Competitive Differentiators

Feature	Benefit or Advantage
Worldwide virtual lab	This extensive lab of Cisco equipment and Cisco IOS Software versions provides an invaluable engineering resource and knowledge base for training, product information, and recreation and testing of selected network concerns to help decrease time to resolution.
Cisco TAC training • Boot camps • Tech calls • Tech forums	Cisco is committed to providing customers the latest in technology support. These TAC training programs assist customers in case avoidance and provide knowledge transfer of Cisco networking expertise.
Cisco Live	A powerful suite of Internet-enabled tools with firewall-friendly features, these secure, encrypted Java applets can turn a simple phone call into an interactive collaboration session, allowing a customer and Cisco TAC support engineer to work together more effectively.
Global logistics	This feature delivers award-winning, worldwide hardware-replacement support through 650 depots covering 120 countries with a $2.3 billion investment in inventory, taking advantage of 10,000 onsite field engineers.
Cisco IOS Software	Cisco IOS Software employs 100 discrete technologies with more than 2000 features. Each year, 400 new features are added. Cisco IOS Software is installed in more than 10 million devices and is running on more than 10,000 networks worldwide. It operates on the world's largest IPv6 and VoIP networks and in all major service provider networks worldwide.

For More Information

To learn more about how you can take advantage of Cisco Technical Support Services, talk to your Cisco representative or visit Cisco Technical Support Services at http://www.cisco.com/en/US/products/svcs/ps3034/ps2827/serv_category_home.html.

For additional information about the Cisco Catalyst 4900 Series, visit http://www.cisco.com/go/catalyst4900.

For additional information about Cisco products, contact:

- United States and Canada: 800 553-NETS (6387)
- Europe: 32 2 778 4242
- Australia: 612 9935 4107
- Other: 408 526-7209
- http://www.cisco.com

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Printed in USA C78-439361-01 03/09