QuickSpecs

Overview

Now organizations of all sizes can enjoy the benefits of SANs. The Cisco MDS 9124 Fabric Switch offers advanced storage networking capabilities at new price points with its "pay as you grow" port activation feature starting at 8 ports. With twenty-four, 4 Gbps Fibre Channel ports, the Cisco MDS 9124 is well suited for Small to Medium Businesses that want to deploy cost-effective but scalable, high-performance SANs. Ideal for branch offices and departments in large enterprises, it can be used as the foundation of SAN standalone SANs or as an edge switch in larger core-edge SAN infrastructures.

The Cisco MDS 9124 brings built-in, enterprise-class features to entry-level SANs in a compact 1-RU form factor at no added cost. There are no hidden license and software support charges for ISL trunking, extended distance support, security, real-time performance and event monitoring and virtual SANs. Designed for environments where downtime is not an option, the hot-pluggable design supports non-disruptive upgrades, VSANs for fault isolation, redundant power supply option and PortChannels for ISL resiliency.

This switch meets the low cost, high performance, ease of management and security requirements of small to medium-scale storage environments. Plus the Cisco MDS 9124 is fully compatible with the HP C-series, Cisco MDS 9500 Directors, MDS 9200 semi-modular Fabric Switches and other MDS 9100 Fabric Switches for transparent, end-to-end service delivery in very large data-center core-edge deployments providing investment protection and a solution you will not outgrow.
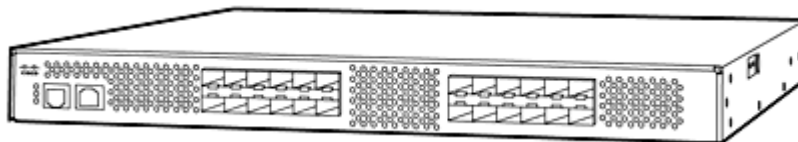
Cisco MDS 9124 Fabric Switch

Key Features and Benefits

- **Value/Affordability**
  - **Lowers TCO with all-in-one licensing and support for bundled software features.**

    A. Low entry-level 8-port version with "pay as you grow" upgrade plan for 16 and 24 port expansion

    B. Simple to use Quick Configuration Wizard lowers cost by simplifying administration for those unfamiliar with Fibre Channel SANs

    C. Optional second, hot-swappable power supply provides higher availability and fewer points of failure

    D. Hot-pluggable components and non-disruptive software upgrades increases availability and reliability

- **Flexibility**

  - **Built-in Director-class product features in an entry level fabric switch.**

    A. Exceptional performance and scalability for the most demanding environments with up to 24 auto-sensing external ports capable of speeds of 4, 2, and 1 Gbps

    B. PortChannels/trunking capability for ISLs, real-time performance and event monitoring, extended fabric support and security to ease SAN administration and provisioning, SAN extension over distances and boost overall SAN reliability

    C. 8 and 16 port models with 8-port activation upgrade option to scale as needs dictate

    D. Advanced traffic management features optimize core to edge fabrics

Overview

E. Most efficient storage network utilization with VSANs

F. Ports can be configured with short, mid, long and very long range SFP optics for long distance network applications

G. Full Full integration with SN6000C, MDS 9200, and MDS 9500 series switches insures users will not be locked into a SAN they will soon outgrow

- **Ease-Of-Use**

  - **Easy to configure and manage**

    A. Broad range of integrated management options

    B. Extensive security framework protects sensitive data in the network

    C. Integrates the industry's most advanced analysis and debugging tools

- **Security**
  - Supports RADIUS and TACACS+, Fibre Channel Security Protocol (FC-SP), Secure File Transfer Protocol (SFTP), Secure Shell (SSH) protocol, Simple Network Management Protocol Version 3 (SNMPv3) implementing Advanced Encryption Standard (AES), VSANs, hardware-enforced zoning, ACLs, and per-VSAN Role-Based Access Control (RBAC). Additionally Gigabit Ethernet ports support IPsec authentication, data integrity, and hardware-assisted data encryption.

Product Highlights

Configuration support	Please see the following Web site for configuration support at: http://h18000.www1.hp.com/products/storageworks/san/documentation.html
Cost Effective Intelligent Storage networking	This Fabric Switch offers advanced features in a compact, extremely cost-effective design that simplifies deployment and administration of small and medium-scale storage-area networks (SANs) and as an edge switch in a larger enterprise.
Industry leading 4-Gb Performance Capability	The switch offers full non-blocking 4-Gbps Fibre Channel performance on 24 line rate ports and an aggregate bandwidth of 288 Gbps full duplex in a 1 Rack unt form factor.
Non-disruptive Software Upgrades	This switch supports non-disruptive software upgrades to minimize service disruptions in a highly available storage area networking environment.
Intelligent network services	The Cisco MDS 9124 supports up to 16 Virtual SANs (VSAN) to boost reliability and availability, creating multiple isolated environments within a single physical fabric.
Scalability	In the box starting with 8 active ports and expansion in 8 port increments up to 24, plus compatibility with all Cisco MDS 9000 Family switches ensures scalability and consistent service delivery no matter how large your SAN grows.
Simplified Storage Management	The MDS 9124 includes built-in storage network management with all features available through a command line interface (CLI) or Cisco Fabric Manager, a tool that simplifies management of multiple MDS 9000 switches. and the optional Cisco Fabric Manager Server provides centralized management and supports multiple management stations.
Interoperability	Offers compatibility with a broad range of HP servers and operating systems, as well as disk and tape storage devices; see current compatibility matrix.
Diagnostics	● Embedded diagnostics ● Network analysis tools

Software Components, Included

SAN-OS   Cisco MDS 9124 includes the Cisco MDS 9000 SAN-OS Software operating system version 3.1(1) or higher with a complete set of security features, Cisco Fabric Manager, a full suite of configuration, maintenance and diagnostics tools. It also includes VSAN support, PortChannels, extended fabrics, per VSAN-based access control, hardware-enforced zoning, Port Security and Host/Switch Authentication (DH-CHAP), RADIUS and TACACS+ and Advanced Encryption Standard (AES) and non-disruptive firmware upgrade capability.

Product Highlights

Software Components, Optional

**Cisco Fabric Manager
Server Package**

The "Standard" Cisco Fabric Manager software that is included at no charge with the MDS family switches provides basic switch configuration and troubleshooting capabilities. The Cisco Fabric Manager Server (FMS) Package extends Cisco Fabric Manager by providing historical performance data collection for network traffic hot-spot analysis, centralized management services and advanced application integration.

Service and Support and Warranty Information

Warranty	(1-1-1) Hardware Warranty; 1-year parts; 1-year on-site (8x5, next business day response) and 1-year labor.

NOTE: The hardware warranty covers firmware and embedded non-saleable software. For extended hardware installation and maintenance information, click the link below:
http://h18005.www1.hp.com/services/carepaq/us/install/
http://h18005.www1.hp.com/services/carepaq/us/hardware/.

NOTE: Certain restrictions and exclusions apply. Consult the Customer Support Center for details.

Hardware or Software product installation is not included in the warranty, but is available and highly recommended. |
| **Software Product Services** | Software Warranty - HP warrants only that the software media will be free of physical defects for a period of ninety (90) days from delivery.

EXCLUSIVE REMEDY -The entire liability of HP and its suppliers and your exclusive remedy for software that does not conform to this Limited Warranty shall be the repair or replacement of the defective media. This warranty and remedy are subject to your returning the defective media during the warranty period to HP in the country in which you obtained the software.

NOTE: Certain restrictions and exclusions apply. Consult the Customer Support Center for details.

Hardware or Software product installation is not included in the warranty, but is available and highly recommended. |
| **Additional Services** | Installation service, SAN Architecture service. For more information on service options, please visit our Web site at: http://www.hp.com/hps/support |
| **HP Service Warranty and Support Options** | HP Service & Warranty Support Additional Warranty protection and/or HP Installation packages can be purchased.
NOTE: Certain restrictions and exclusions apply. Consult the Customer Support Center for details. HP provides a one-year, hardware limited warranty, fully supported by a worldwide network of resellers and service providers.

The basic hardware warranty service can be enhanced and/or HP Installation services can be purchased. Support options with various response time and durations are available, including:

• Warranty upgrade to 3-3-3
• Various support response times (same/next day, 24x7)
• Various support coverage periods (M - F, 24x7, 1 yr, 3 yr)
• 6-hr Call-To-Repair

To ensure you receive assistance on your software, support options include:

• Software support coverage periods (13x5, 24x7, 1 yr, 3 yr)
• License to Use and SW Updates (1 yr, 3 yr)

For more information on warranty and support options, please visit our Web site at: |

Service and Support and Warranty Information

http://www.hp.com/hps/tech/storage/supp/

HP Care Pack Services Warranty Upgrade Options	Service offerings include a full range of Customer HP Care Pack services for both hardware and software services:

- Response - Upgrade on-site response from next business day to same day 4-hours
- Coverage - Extend hours of coverage from 5 days x 9 hours to 7 days x 24 hours
- Duration - Select duration of coverage for a period of 1, 3, or 5 years

Additional Warranty protection and/or HP Installation packages can be purchased.

NOTE: Certain restrictions and exclusions apply. Consult the HP Customer Support Center for details

HP Care Pack Information HP Care Pack is defined as an upgrade to the product warranty attribute, available for a specific duration and hours of coverage.

- HP Care Pack is not available for less than the product's warranty duration.
- HP Care Pack is available for sale anytime during the warranty period for most products, but the commencement date will be the same as the Warranty Start Date (delivery date to end user customer). Proof of purchase may be required.
- HP Care Pack services are prepaid.

For additional HP Care Pack (hardware & software) information, as well as orderable part numbers, please refer to the URL listed below:

http://h18005.www1.hp.com/services/carepaq/index.html

Family Information

	Cisco MDS 9513 w/Dual Supervisor 2	Cisco MDS 9222i	Cisco MDS 9509 w/Dual Supervisor 2	Cisco MDS 9506 w/Dual Supervisor 2
Introduction Date	May 2006	November 2007	May 2006	May 2006
Switch Type	Multilayer Director	Multilayer Fabric Switch	Multilayer Director	Multilayer Director
Maximum ports	528 Fibre Channel, 58 IP ports	18 fixed auto-sensing 4/2/1-Gbps Fibre Channel ports, 4 1-Gb Ethernet ports	336 Fibre Channel, 50 IP ports	192 Fibre Channel, 26 IP ports
Number of slots per chassis	Thirteen		Nine	Six

	SN6000C	Cisco 9134	Cisco MDS 9124	Cisco MDS 9124e Fabric Switch for HP c-Class BladeSystem
Introduction Date	June 2010	March 2008	March 2007	March 2007
Switch Type	Fabric Switch	Multilayer Fabric Switch	Fabric Switch	Embedded Switch
Maximum ports	Up to (48) 8/4/2/1-Gbps Fibre Channel ports	Up to (32) 4/2/1-Gbps Fibre Channel, (2) 10-Gbps Fibre Channel ports	Up to (24) 4/2/1-Gbps Fibre Channel ports	Up to (24) 4/2/1-Gbps Fibre Channel ports
Number of slots per chassis	N/A, Fixed FRU	N/A, Fixed FRU	N/A, Fixed FRU	NA

NOTE: Please Refer to SAN Design Guide pointer

http://www.hp.com/go/SANdesign or http://www.hp.com/go/SANdesignguide

Configuration Information

The MDS 9124 Fabric Switch comes in a fixed 24 port configuration with 8 or 16 active ports. An 8-port software activation license is available for "pay as you grow" expansion in 8-port increments up to the 24 port maximum of the switch. The port slots are empty and optical transceivers are required to utilize the ports. Short, Medium and Long Range optical transceiver options (SFPs) are available and must be ordered separately. The switch can also be equipped with a second hot swappable power supply for higher availability and redundancy.

Step 1 – Base Configuration

Select one:

Model	Model Description	Part Number
Cisco MDS 9124 8-ports Active Fabric Switch	Base 24-port chassis with 8-ports active, power supply, power cords (configurable by ship to country) fans, Rackmount Kit, documentation and packaged documents. (no SFPs included)	AG646A
Cisco MDS 9124 16-ports Active Fabric Switch	Base 24-port chassis with 16 active ports, power supply, power cords (configurable) fans, Rackmount Kit, documentation and packaged documents. (no SFPs included)	AG647A

Step 2 - Optional Software

On Demand Port Activation License	Description	Part Number
HP MDS 9124 8-Port Upgrade License	8 port upgrade license for MDS 9124 8 Port Switch (AG646A) and 16 Port Switch (AG647A)	T5171A

Management Software	Part Number
HP MDS 9100 Fab Mgr Serv-1MDS9100 Swt LTU	A7512A
HP MDS 9100 Ent Pkg -1 MDS 9100 Swt LTU	A7515A

Step 3 - Options

Select each required option with quantities specific:

4 Gb Transceivers	Quantity	Part Number
HP MDS 9000 4Gb FC SFP, 4pk Shrt Range XCVR	1 min, 6 max	AE379A

NOTE: Optional - Must be ordered separately.

	Quantity	Part Number
HP MDS 9000 4Gb FC SFP, Lng Range XCVR	1 min, 24 max	AE380A

NOTE: Optional - Must be ordered separately.

NOTE: Each port on the MDS 9124 switch may be configured to accept Short, medium or Long Wave SFP optical transceivers. However, when ordering the Cisco MDS 9124, active ports must be populated with above SFP optical transceivers only. (No substitutes allowed) Using other transceivers may void product warranty.

Hardware Options	Quantity	Part Number
Cisco MDS 9124 2nd/Spare Power Supply	2 Max	AG649A
OM3 LC-LC for between two 2/4/8 Gb devices		**Part Number**
.5 m LC-LC Multi-Mode Fibre Channel Cable		AJ833A
1 m LC-LC Multi-Mode Fibre Channel Cable		AJ834A
2 m LC-LC Multi-Mode Fibre Channel Cable		AJ835A
5 m LC-LC Multi-Mode Fibre Channel Cable		AJ836A

Configuration Information

15 m LC-LC Multi-Mode Fibre Channel Cable	AJ837A
30 m LC-LC Multi-Mode Fibre Channel Cable	AJ838A
50 m LC-LC Multi-Mode Fibre Channel Cable	AJ839A
OM2 LC-LC for between two 2/4/8 Gb devices	**Part Number**
2 m LC-LC Multi-Mode Fibre Channel Cable	221692-B21
5 m LC-LC Multi-Mode Fibre Channel Cable	221692-B22
15 m LC-LC Multi-Mode Fibre Channel Cable	221692-B23
30 m LC-LC Multi-Mode Fibre Channel Cable	221692-B26
50 m LC-LC Multi-Mode Fibre Channel Cable	221692-B27

Step 4 - Installation Service Option

http://www.hp.com/hps/support

For more information on HP SAN switches, contact any of our worldwide sales offices or visit our Web site at:
http://www.hp.com/go/san.

Technical Specifications

Diagnostics	• Power-on self-test (POST) diagnostics • Online diagnostics • Internal loopbacks • SPAN • Fibre Channel Traceroute capability • Fibre Channel Ping • Fibre Channel Debug • Cisco Fabric Analyzer • Syslog • Port-level statistics
Security	• VSANs • Zoning • Hardware-enforced zoning • Logical-unit-number (LUN) zoning and read-only zones • FC-SP for host-to-switch and switch-to-switch authentication • Port security • Management access • SSHv2 • SNMPv3 • IP ACLs
Fabric Services	• Name server • Registered state change notification (RSCN) • Login services • Public loop • Broadcast • In-order delivery • Name-server zoning

Management	• Access methods
	  ○ Out-of-band 10/100 Ethernet port
	  ○ EIA/TIA-232 serial console port
	  ○ In-band IP over Fibre Channel
	• Access protocols
	  ○ CLI
	  ○ SNMP
	  ○ SMI-S
	• Security
	  ○ RBACL using RADIUS or TACACS+ authentication, authorization, and accounting (AAA) functions
	  ○ ' VSAN-based roles
	  ○ SSHv2
	  ○ SNMPv3
	• Management applications
	  ○ Cisco MDS 9000 family CLI
	  ○ Cisco Fabric Manager and Device Manager
	  ○ Cisco Fabric Manager Server (optional; requires Cisco Fabric Manager Server license)

Compatibility	**Fibre Channel protocols** • FC-PH, Revision 4.3
	                                                        • FC-PH-2, Revision 7.4
	                                                        • FC-PH-3, Revision 9.4
	                                                        • FC-GS-2, Revision 5.3

Technical Specifications

		• FC-GS-3, Revision 7.01
		• FC-FLA, Revision 2.7
		• FC-FG, Revision 3.5
		• FC-SW-2, Revision 5.3
		• FC-AL, Revision 4.5
		• FC-AL-2, Revision 7.0
		• FC-PLDA, Revision 2.1
		• FC-VI, Revision 1.61
		• FCP, Revision 12
		• FCP-2, Revision 7
		• FC-SB-2, Revision 2.1
		• FC-BB, Revision 4.7
		• FC-FS, Revision 1.9
		• FC-PI, Revision 13
		• FC-MI, Revision 1.99
		• FC-Tape, Revision 1.17
		• IP over Fibre Channel (RFC 2625)
		• Class of service: Class 2, Class 3, Class F
	Fibre Channel element MIB	• Extensive IETF-standards-based TCP/IP, SNMPv3, and Remote Monitoring (RMON) MIBs
	Port types	• Fibre Channel standard port types: E, F, FL, B
		• Fibre Channel enhanced port types: SD, TE
	Internet standards	RFC 791 IPv4, RFC 793, 1323 TCP, RFC 894 IP/Ethernet, RFC 1041 IP/802, RFC 792, 950, 1256 ICMP, RFC 1323 TCP performance enhancements, RFC 2338 VRRP
	O/S Support	MDS 9000 SAN-OS 3.1(1) or higher
Performance	**Transfer Rate**	4 Gb/FC port full bandwidth, non-blocking, Aggregate switch platform Bandwidth 288 Gbps Full Duplex
	Devices/Ports	• 24 FC ports
		• 1, 10/100 Mb Ethernet port
		• 1, EIA/TIA-232 serial console port
		• 1, DB-9 COM port
	Interface	• 1/2/4 Gb FC ports
		• 10/100 Mb Ethernet port (management)
		• RS-232 RJ-45 console port
		• DB-9 COM port
Dimensions	**Dimensions in inches** (H x W x D)	1.75 x 17.5 x 16 inches (4.5 x 44.5 x 40.6 cm)
	Shipping	11.00 x 23.00 x 29.50 in (27.94 x 58.42 x 74.93 cm)
	Weight	Fully configured chassis w/2 Power Supplies: 18.5 lbs (8.4 kg)
	Rack	1 Rack Unit, All units rack mountable in standard 19 inch EIA rack
	Air Flow	Front to back
Connectors/Cables	**Connectors**	• RJ-45 Interface Cable Connector
		• LC-type-fiber optic SFP

Technical Specifications

	Cables	• RJ-45 to RJ-45 rollover cable • RJ-45 to DB-25 female DTE adapter (labeled "Terminal ") • RJ-45 to DB-9 female DTE adapter (labeled "Terminal ") • RJ-45 to DB-25 male DCE adapter (labeled "Modem") • LC-type cable
	Cable Lengths	2 meters, 5 meters, 15 meters, 30 meters, 50 meters
	Optical Transceivers	• Small Form Factor Pluggable, Short Wave • Small Form Factor Pluggable, Long Wave
Electrical	**Nominal Line Voltage**	100 to 240 VAC
	Range Line Voltage	100 to 240 VAC nominal (±10% for full range)
	Line Frequency	50 to 60 Hz (nominal) (±3% for full range)
	Typical Input Current	12A @ 100VAC, 12A @ 200 VAC Max.
	Power	300W AC (Max. 2 power supplies per switch)

	Plug Types:	Argentina	IRAM 2073 (10A)
		North America(300W power supply)	NEMA 5-15P (12A)
		Australia, New Zealand	SAA/3 AS/NZZS 3112-1993 (12A)
		Europe	VIIG CEE (7)VII (12A)
		Italy	1/3/16 CEI 23-16 (12A)
		United Kingdom	BS89/12 BS 1363/A (12A; replaceable fuse)

Safety	• UL 60950 -1 • CAN/CSA-C22.2 No. 60950 -1 • EN 60950 -1 • EC 60950 -1 • AS/NZS 60950 • IEC 60825 • EN 60825 • 21 CFR 1040 • FCC Part 15 (CFR 47) Class A
EMC	• ICES-003 Class A • EN55022 Class A • CISPR22 Class A • AS/NZS CISPR22 Class A • VCCI Class A • EN55024 • ETS300 386 • EN50082-1 • EN61000-3-2 • EN61000-3-3 • EN61000-6-1 • CISPR24 • ETSI

Technical Specifications

		○ ETS 300 019 Storage
Environmental	**Operating temp**	41° to 104° F (5° to 40° C)
	Non-operating temp	-40° to 158° F (-40° to 70° C)
	Operating humidity	5 to 90%, ambient (non-condensing)
	Non-operating humidity	5 to 93%, ambient (non-condensing)