

# Refurbished CISCO DS-C96S-FAN-I Datasheet

CISCO > STORAGE-NETWORKING

## Cisco MDS 9300 Series Multilayer Fabric Switches

### Features and Benefits

Feature	
Feature	Benefit
<b>Common software across all platforms</b>	Reduce Total Cost Of Ownership (TCO) by using Cisco NX-OS and Cisco Prime DCNM for consistent provisioning, management, and diagnostic capabilities across the fabric
<b>POAP</b>	Automate deployment and upgrade of software images
<b>Smart zoning</b>	Reduce consumption of hardware resources and administrative time needed to create and manage zones
<b>Intelligent diagnostics and hardware-based slow-port detection</b>	Enhance reliability, accelerate problem resolution, and reduce service costs by using Fibre Channel ping and traceroute to identify exact path and timing of flows, as well as Cisco Switched Port Analyzer (SPAN) and Remote SPAN (RSPAN) and Cisco Fabric Analyzer to capture and analyze network traffic
<b>Virtual output queuing</b>	Help ensure line-rate performance on each port by eliminating head-of-line blocking
<b>High-performance ISLs</b>	Optimize bandwidth utilization by aggregating up to 16 physical ISLs into a single logical PortChannel bundle with multipath load balancing
<b>ISSU</b>	Reduce downtime for planned maintenance and software upgrades

### Optional Licenses

<b>Cisco MDS 9396S 12-port On-Demand Activation</b>	Enables 12 additional Fibre Channel ports (up to 96 total ports on the switch)
<b>Cisco MDS 9300 Family Enterprise Package</b>	Includes advanced traffic-engineering and network security features such as IVR, QoS and zone-based QoS, FC-SP, port security, VSAN-based access control, and fabric binding for open systems Licensed per switch for all the ports on the switch
<b>Cisco Prime DCNM for SAN Advanced Edition for Cisco MDS 9300 Series</b>	Includes advanced management capabilities such as VMware vCenter integration, performance trending, advanced provisioning, backup, and dashboards Licensed per switch for all the ports on the switch. License is hosted on a server
<b>Cisco MDS 9300 Family Enterprise and DCNM Package Bundle</b>	Includes both Cisco MDS 9300 Family Enterprise Package and Cisco Prime DCNM for SAN Advanced Edition for Cisco MDS 9300 Series

### Product Specifications

Item	
Item	Specification
<b>Protocols</b>	FC-PH, Revision 4.3 (ANSI INCITS 230-1994) FC-PH, Amendment 1 (ANSI INCITS 230-1994/AM1-1996) FC-PH, Amendment 2 (ANSI INCITS 230-1994/AM2-1999) FC-PH-2, Revision 7.4 (ANSI INCITS 297-1997) FC-PH-3, Revision 9.4 (ANSI INCITS 303-1998) FC-PI, Revision 13 (ANSI INCITS 352-2002) FC-PI-2, Revision 10 (ANSI INCITS 404-2006) FC-PI-3, Revision 4 (ANSI INCITS 460-2011) FC-PI-4, Revision 8 (ANSI INCITS 450-2008) FC-PI-5, Revision 6 (ANSI INCITS 479-2011) FC-FS, Revision 1.9 (ANSI INCITS 373-2003) FC-FS-2, Revision 1.01 (ANSI INCITS 424-2007) FC-FS-2, Amendment 1 (ANSI INCITS 424-2007/AM1-2007)

FC-FS-3, Revision 1.11 (ANSI INCITS 470-2011)  
 FC-FS-4, Revision 1.10  
 FC-LS, Revision 1.62 (ANSI INCITS 433-2007)  
 FC-LS-2, Revision 2.21 (ANSI INCITS 477-2011)  
 FC-LS-3, Revision 3.10  
 FC-SW-2, Revision 5.3 (ANSI INCITS 355-2001)  
 FC-SW-3, Revision 6.6 (ANSI INCITS 384-2004)  
 FC-SW-4, Revision 7.5 (ANSI INCITS 418-2006)  
 FC-SW-5, Revision 8.5 (ANSI INCITS 461-2010)  
 FC-SW-6, Revision 1.8  
 FC-GS-3, Revision 7.01 (ANSI INCITS 348-2001)  
 FC-GS-4, Revision 7.91 (ANSI INCITS 387-2004)  
 FC-GS-7, Revision 10.3  
 FCP, Revision 12 (ANSI INCITS 269-1996)  
 FCP-2, Revision 8 (ANSI INCITS 350-2003)  
 FCP-3, Revision 4 (ANSI INCITS 416-2006)  
 FCP-4, Revision 2b (ANSI INCITS 481-2011)  
 FC-SB-2, Revision 2.1 (ANSI INCITS 349-2001)  
 FC-SB-3, Revision 1.6 (ANSI INCITS 374-2003)  
 FC-SB-3, Amendment 1 (ANSI INCITS 374-2003/AM1-2007)  
 FC-SB-4, Revision 3.0 (ANSI INCITS 466-2011)  
 FC-SB-5, Revision 2.00 (ANSI INCITS 485-2014)  
 FC-BB-2, Revision 6.0 (ANSI INCITS 372-2003)  
 FC-BB-3, Revision 6.8 (ANSI INCITS 414-2006)  
 FC-BB-4, Revision 2.7 (ANSI INCITS 419-2008)  
 FC-BB-5, Revision 2.0 (ANSI INCITS 462-2010)  
 FC-BB-6, Revision 2.00 (ANSI INCITS 509-2014)  
 FC-VI, Revision 1.84 (ANSI INCITS 357-2002)  
 FC-SP, Revision 1.8 (ANSI INCITS 426-2007)  
 FC-SP-2, Revision 2.71 (ANSI INCITS 496-2012)  
 FC-SP-2, Amendment 1 (ANSI INCITS 496-2012/AM1-2014)  
 FAIS, Revision 1.03 (ANSI INCITS 432-2007)  
 FAIS-2, Revision 2.23 (ANSI INCITS 449-2008)  
 FC-IFR, Revision 1.06 (ANSI INCITS 475-2011)  
 FC-FLA, Revision 2.7 (INCITS TR-20-1998)  
 FC-PLDA, Revision 2.1 (INCITS TR-19-1998)  
 FC-Tape, Revision 1.17 (INCITS TR-24-1999)  
 FC-MI, Revision 1.92 (INCITS TR-30-2002)  
 FC-MI-2, Revision 2.6 (INCITS TR-39-2005)  
 FC-MI-3, Revision 1.03 (INCITS TR-48-2012)  
 FC-DA, Revision 3.1 (INCITS TR-36-2004)  
 FC-DA-2, Revision 1.06 (INCITS TR-49-2012)  
 FC-MSQS, Revision 3.2 (INCITS TR-46-2011)  
 Fibre Channel classes of service: Class 2, Class 3, and Class F  
 Fibre Channel standard port types: E, F and FL  
 Fibre Channel enhanced port types: SD, ST, and TE  
 FC-NVMe  
 In-band management using IP over Fibre Channel (RFC 2625)  
 IPv6, IPv4, and Address Resolution Protocol (ARP) over Fibre Channel (RFC 4338)  
 Extensive IETF-standards-based TCP/IP, SNMPv3, and remote monitoring (RMON) MIBs  
 FC-AL, Revision 4.5 (ANSI/INCITS 272-1996)  
 FC-AL-2, Revision 7.0 (ANSI/INCITS 332-1999)  
 FC-AL-2, Amendment 1 (ANSI/INCITS 332-1999/AM1-2003)  
 FC-AL-2, Amendment 2 (ANSI/INCITS 332-1999/AM2-2006)

<b>Ports</b>	Available in a 48-port or 96-port base configuration Enable incremental ports on the 48-port base model, with the 12-port On-Demand Activation license
<b>Security</b>	VSAN fabric isolation Hardware zoning by Access Control Lists (ACLs) Fibre Channel Security Protocol (FC-SP) switch-to-switch authentication FC-SP host-to-switch authentication Role-based access control (RBAC) using RADIUS, TACACS+, or Lightweight Directory Access Protocol (LDAP) Authentication, Authorization, and Accounting (AAA) functions Secure FTP (SFTP) Secure Shell Protocol Version 2 (SSHv2) Simple Network Management Protocol Version 3 (SNMPv3) implementing Advanced Encryption Standard (AES) Control-plane security Cisco TrustSec payload encryption
<b>Performance</b>	Port speed: 2/4/8/10/16-Gbps autosensing with 16-Gbps of dedicated bandwidth per port Buffer credits: Up to 500 per port without Enterprise license and up to 4095 per port with optional Enterprise license PortChannel: Up to 16 physical links
<b>Reliability and availability</b>	ISSU Hot-swappable, dual redundant power supplies Hot-swappable fan tray with integrated temperature and power management Hot-swappable Enhanced Small Form-Factor Pluggable (SFP+) optics Passive backplane Stateful process restart Any port configuration for PortChannels

	<p>Fabric-based multipathing  Per-VSAN fabric services  Port tracking  Virtual Router Redundancy Protocol (VRRP) for management connections  Online diagnostics</p>
<b>Network management</b>	<p>Access methods  Out-of-band 10/100/1000 Ethernet port  RS-232 serial console port  USB  Access protocols  CLI using the console and Ethernet ports  SNMPv3 using the Ethernet port and in-band IP over Fibre Channel access  Storage Networking Industry Association (SNIA) Storage Management Initiative Specification (SMI-S)  Distributed device alias service  Network security  Per-VSAN role-based access control (RBAC) using RADIUS and TACACS+-based AAA functions  SFTP  SSHv2 implementing AES  SNMPv3 implementing AES  Management applications  Cisco MDS 9000 Family CLI  Cisco Prime DCNM</p>
<b>Programming interfaces</b>	<p>Scriptable CLI  Cisco Prime DCNM web services API</p>
<b>Physical dimensions</b>	<p>Dimensions (H x W x D): 3.4 x 17.42 x 22.28 in. (8.64 x 44.25 x 56.59 cm), 2RU  Rack-mountable in standard 19-inch Electronic Industries Alliance [EIA] rack  Weight of fully configured chassis: 39.24 lb (17.8 kg)</p>
<b>Power</b>	<p>Power Supplies supported on this switch are 80 PLUS Platinum Certified  Power supply: 1200W with 180 to 264V AC input; and 800W with 90 to 180V AC input (2 per switch)  Power supply: Power grid redundancy (1+1) with 180 to 264V AC input only  Power cord: Notched C15 socket connector connecting to C16 plug on power supply  AC input: 100 to 240V AC (10% range)  Frequency: 50 to 60 Hz (nominal)  Maximum power consumption  700W (on base model configuration running 16-Gbps 100% traffic load at 25 °C)  800W (on fully populated configuration running 16-Gbps 100% traffic load at 25 °C)  Airflow: Port-side exhaust (air flows from back to front) and Port-side intake (air flows from front to back)  Airflow  Maximum 255 cubic feet per minute (CFM)  Nominal 110 CFM  Cisco recommends maintaining a minimum air space of 2.5 in. (6.4 cm) between walls and chassis air vents, and a minimum horizontal separation of 6 in. (15.2 cm) between 2 chassis to prevent overheating</p>
<b>Temperature range</b>	<p>Temperature, ambient operating: 32 to 104°F (0 to 40°C)  Temperature, ambient nonoperating and storage: -40 to 158°F (-40 to 70°C)  Relative humidity, ambient (noncondensing) operating: 10 to 90%  Relative humidity, ambient (noncondensing) nonoperating and storage: 10 to 95%  Altitude, operating: -197 to 6500 ft (-60 to 2000m)</p>
<b>Approvals and compliance</b>	<p>Safety compliance  CE Marking  UL 60950  CAN/CSA-C22.2 No. 60950  EN 60950  IEC 60950  TS 001  AS/NZS 3260  IEC60825  EN60825  21 CFR 1040  EMC compliance  FCC Part 15 (CFR 47) Class A  ICES-003 Class A  EN 55022 Class A  CISPR 22 Class A  AS/NZS 3548 Class A  VCCI Class A  EN 55024  EN 50082-1  EN 61000-6-1  EN 61000-3-2  EN 61000-3-3</p>
<b>Fabric services</b>	<p>Name server  Registered State Change Notification (RSCN)  Login services  Fabric Configuration Server (FCS)</p>

	Public loop Broadcast In-order delivery
<b>Advanced functions</b>	VSAN IVR NPV PortChannel with multipath load balancing Flow-based and zone-based QoS
<b>Supported Cisco optics, media, and transmission distances</b>	For detailed information about all supported transceivers, see Cisco MDS 9000 Family pluggable transceivers

## System Requirements

<b>Software</b>	Port-side exhaust: Cisco MDS 9000 NX-OS Software Release 6.2 (13) or later and Cisco Prime DCNM Software Release 7.2 or later Port-side intake: Supported on Cisco MDS 9000 NX-OS Release 6.2.(15). Not supported on Cisco NX-OS Release 7.3 (0) D1 (1).
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## The next steps...

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