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Коммутатор Cisco MDS C9148T-48PETK9

DS-C9148T-48PETK9

Описание

Поставляется с 48 активированными портами 4, 8, 16 и 32 Гбит/с.

Cisco MDS 9148T Multilayer Fabric Switch - доступный, универсальный, легко управляемый коммутатор для сетей SAN начального уровня и для сетей отделов предприятий. Коммутатор, выполненный на специализированных ИС для сетей хранения типа «коммутатор на кристалле», обеспечивает выделенную полосу пропускания Fibre Channel 16 Гбит/с на каждом из 48 портов Cisco MDS 9148T. Для простоты заказа он поставляется в полной 48-портовой конфигурации.

Для упрощения настройки готового решения предусмотрен мастер быстрой настройки Quick Configuration Wizard. Предусмотрены такие функции корпоративного класса, как неразрушающая модернизация, виртуальные SAN (VSAN), межсетевая маршрутизация Inter-VSAN Routing (IVR), обеспечение качества обслуживания QOS, агрегирование каналов (Port Channels), виртуализация портов N-Port ID Virtualization (NPIV).

Для обеспечения высокой доступности установлены резервированные блоки питания и вентиляторы, допускающие замену в "горячем" режиме.

Тип коммутатора

Тип коммутатора	Управляемый L2
Линейка Cisco	MDS 9100

Питание

Напряжение питания	100-240 VAC

Интерфейсы

Количество основных портов	48

Доп. описание

Protocols:
Fibre Channel standards
- FC-PH, Revision 4.3 (ANSI INCITS 230-1994)
- FC-PH, Amendment 1 (ANSI INCITS 230-1994/AM1-1996)

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- 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-PI-6 (ANSI INCITS 512-2015)
- 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
- FC-LS, Revision 1.62 (ANSI INCITS 433-2007)
- FC-LS-2, Revision 2.21 (ANSI INCITS 477-2011)
- FC-LS-3, Includes revision 3.53
- 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
- FC-GS-3, Revision 7.01 (ANSI INCITS 348-2001)
- FC-GS-4, Revision 7.91 (ANSI INCITS 387-2004)
- FC-GS-5, Revision 8.51 (ANSI INCITS 427-2007)
- FC-GS-6, Revision 9.4 (ANSI INCITS 463-2010)
- FC-GS-7, Includes revision 10.8
- 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-6, Revision 2.00 (ANSI INCITS 509-2014)
- 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-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)
- 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)

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● 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 B
● 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, Simple Network Management Protocol Version 3 (SNMPv3), and Remote Monitoring (RMON) MIBs

Ports:
● Fixed-switch form factor with 48 SFP+ ports base
● Entry-level 24-port preactivated base model with flexibility to turn on any 24 ports
● Incremental ports
◦ 8-ports upgrade license offers the option of upgrading to 32, 40, and 48 ports

Security:

● VSAN fabric isolation
● Intelligent packet inspection at port level
● 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
● Secure Boot and Anti-counterfeit technology

Performance
:

● Port speed: 4-, 8-, 16-, and 32-Gbps autosensing with 32 Gbps of dedicated bandwidth per port
● Aggregate bandwidth of 1.5-Tbps end-to-end full duplex
● Buffer credits: Up to 8300 for a group of 16 ports, with a default of 500 buffer credits per port and a maximum of 8270 buffer credits for a single port in the group
● Port groups: 3 port groups of 16 ports each

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● Port channel: Up to 16 load-balanced physical links grouped in one port channel

Diagnostics:

● Power-On-Self-Test (POST) diagnostics
● Online Health Management System (OHMS) diagnostics
● Internal loopbacks
● SPAN
● Fibre Channel traceroute
● Fibre Channel ping
● Fibre Channel debug
● Cisco Fabric Analyzer
● Syslog
● Port-level statistics
● Link diagnostics (E-port and F-port links)
● Read Diagnostic Parameter

Serviceability:

● Configuration file management
● Call Home
● Port beaconing
● Link cable beacon
● System LEDs
● SNMP traps for alerts

Reliability and availability:

● Cisco In-Service Software Upgrade (ISSU)
● Hot-swappable, dual redundant power supplies
● Hot-swappable fan tray with switch integrated temperature and power management
● Hot-swappable SFP+ optics
● Stateful process restart
● Any port configuration for port channels
● Fabric-based multipathing
● Per-VSAN fabric services
● Port tracking
● Virtual Router Redundancy Protocol (VRRP) for management IP interface
● FEC with HBA ports
● Buffer-to-buffer state change notification with HBA ports

Network management:

● Management access through 2 out-of-band Ethernet ports
  ◦ mgmt0: 10/100/1000BASE-T port
  ◦ mgmt1: 1/10G SFP+ port#
● RS-232 serial console port
● USB power-on auto-provision port
● Access protocols
● Command-Line Interface (CLI) using the console and Ethernet port
● SNMPv3 using the Ethernet port and in-band IP over Fibre Channel access
● Storage Networking Industry Association (SNIA) Storage Management Initiative Specification (SMI-S)

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● NX-API for REST
● full access through HTTPS REST
● Distributed device alias service
● Network security
● Per-VSAN RBAC using LDAP, RADIUS, and TACACS+-based AAA functions
● Simple File Transfer Protocol (SFTP)
● SSHv2 implementing AES
● SNMPv3 implementing AES
● Cisco Data Center Network Manager (DCNM)

Programming interfaces:
● Scriptable CLI
● Cisco DCNM web services API
● NX-API RESTful interfaces
● Onboard Python interpreter
● Cisco Embedded Event Manager (EEM)
● Cisco NX-OS Software scheduler

Physical dimensions (HxWxD):
● 1 Rack Unit (1RU) (1.72 x 17.3 x 22.3 in. [4.37 x 43/9 x 56.6 cm]) excluding Power Supply Unit (PSU) and fan-tray handles
● 16.7 lb. (8.5 kg)

Power:
● 80 Plus Platinum certified power supplies
● Power supply options
◦ 650W AC in base model, port-side exhaust variant (2 per switch)
◦ 650W AC in base model, port-side intake variant (2 per switch)
● Power cord
◦ IEC60320 C14 plug on 650W power supply connecting to a notched C15 socket connector (check Table 6 later in this document for power cords specific to regions)
● AC input: 100 to 240 VAC (10% range)
● Frequency: 50 to 60 Hz (nominal)
● Typical power consumption
◦ 217W for Idle 48-Port switch without optics modules
◦ 251W for 48-Port switch with 24 32G SW optics modules under typical conditions
◦ 297W for 48-Port switch with 48 32G SW optics modules under typical conditions
● Airflow
◦ Back to front (toward ports) using port-side exhaust fans
◦ Front to back (inward from ports) using port-side intake fans
◦ 50 Cubic Feet per Minute (CFM) through system fan assembly at 77°F (25°C)
◦ 100 CFM maximum

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Temperature range:
● Temperature, ambient operating:
◦ 32 to 104°F (0 to 40°C) with port-side exhaust and intake airflow variants
● 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)

Approvals and compliance:
● 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

Fabric services:
● Name server
● Registered State Change Notification (RSCN)
● Login services
● Fabric Configuration Server (FCS)
● Broadcast
● In-order delivery

Advanced functions:
● VSAN
● IVR
● Port Channel with multipath load balancing
● Flow- and zone-based QoS