Dell 8/4Gb/s Fibre Channel Pass-Through Module for Dell PowerEdge™ M1000e Blade Servers

SUPERIOR INTEROPERABILITY WITH CISCO AND BROCADE SAN FABRICS, PLUG AND DONE SIMPLICITY, MAXIMUM BANDWIDTH

Interoperability without Consideration

The Dell 8/4Gb/s Fibre Channel Pass-Through Module provides superior interoperability for connecting Dell M-Series blades into Fibre Channel Storage Area Networks (SANs) from any provider. Pass-Through modules are transparent devices, unseen in SAN topologies and not consuming fabric management nodes, with the purpose to provide direct Fibre Channel connectivity to server blades. This makes for superior interoperability when integrating server blades into Cisco or Brocade Fibre Channel SAN fabrics in order to maintain your preferred SAN equipment supplier environment.

Plug and Done

The Dell 8/4Gb/s Fibre Channel Pass-Though Module is an unmanaged device, so no setup, configuration or management is required. Simply plug the unit into the PE M1000e Blade Server chassis and connect cables into the pre-installed short-wave optical SFPs and you're done. The Dell 8/4Gb/s Fibre Channel Pass-Through Module automatically connects at the highest common Fibre Channel speed and begins passing traffic between the server blades and the Fibre Channel SAN of your choice. Nothing could be easier.

Maximum Bandwidth

In highly virtualized environments greater I/O performance between the server blade and Fibre Channel SAN enables higher levels of virtual machine density. The Dell 8/4Gb/s Fibre Channel Pass-Through Module delivers the maximum bandwidth possible between each server blade and the Fibre Channel SAN without compromise. Unlike Fibre Channel switch solutions that dynamically aggregate links and bandwidth, the Dell 8/4Gb/s Fibre Channel Pass-Through Module statically ties each external port to an internal port that is completely isolated from traffic between other server blades and the Fibre Channel SAN. This ensures dedicated maximum Fibre Channel bandwidth for each server blade and fully isolates connections from potential issues on other ports.

Key Benefits

- Certified interoperability into Cisco or Brocade Fibre Channel Storage Area Network (SAN) fabrics
- Plug and Done—no setup, configuration or management necessary
- Maximum Fibre Channel SAN I/O bandwidth—each physical server has its own dedicated and isolated 8Gb/s Fibre Channel SAN connection
- Complete solution—ships with all 32-ports enabled and 16 optical SFPs preinstalled
- Option to install in pairs for redundancy and high availability

Key Features

- 32 Fibre Channel ports at 8, 4 or 2Gb/s—total bandwidth 512Gb/s
- 16 internal (server) ports and 16 external SAN ports
- No SAN device management tools needed
- Transparent—does not consume Fibre Channel SAN management nodes
- Unit and all external ports are hot-pluggable
- Connects to any industry-standard Fibre Channel-compliant SAN or device
- Auto-sensing and speed matching of 8, 4 and 2Gb/s speeds

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SPECIFICATIONS

Standards

· FC-PI-4 Fibre Channel - Physical Interfaces - 4
· FC-MJSQ Fibre Channel Methodologies for Jitter and Signal Quality specification
· FC-AL-2 Fibre Channel Arbitrated Loop standards
· FCP-3 Fibre Channel Protocol for SCSI, third version
· FC-FS-2 Fibre Channel framing and signaling, second version
· FC-FS-2 Amendment 1 Frame Scrambling
· FC-LS Fibre Channel Link Services

Interoperability

· Cisco and Brocade Fibre Channel Switch Fabrics
· Emulex and QLogic HBAs
· Dell/EMC storage arrays and tape libraries

Architecture

· Fibre Channel Ports
  - 32 total Fibre Channel ports
  - 16 internal (server) ports and 16 external (SAN) ports
  - Internal and external port pairs are dedicated static connections, providing full isolated bandwidth between server blades and the SAN
  - 16 shortwave optical SFP+ modules are pre-installed in the 16 external (SAN) ports
  - All external ports are hot-pluggable
· Connectivity
  - Dell 8/4 Gb/s Fibre Channel Pass-Through Module is transparent to all Fibre Channel topologies
  - Connects to any industry-standard Fibre Channel-compliant SAN or device
  - Port speeds operate independently at 8, 4 or 2 Gb/s
  - Auto-sensing of 8, 4 and 2 Gb/s port speeds
  - Speed-matching to highest-common 8, 4 and 2 Gb/s speeds
· Performance
  - 8.5Gb/s line speed, full duplex
  - 4.25 Gb/s line speed, full duplex
  - 2.125 Gb/s line speed, full duplex
· Aggregate Bandwidth
  - 512 Gb/s end-to-end, full duplex (32-ports x 8Gb/s x 2 [bi-directional])
· Architecture
  - Dell 8/4 Gb/s Fibre Channel Pass-Through Module units are hot pluggable into the M1000e chassis
  - Redundant units provide failover protection
  - Up to four Dell 8/4 Fibre Channel Pass-Through Modules may plug into Fabrics B and C expansion I/O bay slots of the PE M1000e Blade Server chassis
· Options
  - None, device is fully enabled and populated
  - Replacement short wave SFP+ modules are available and separately orderable

Physical Dimensions

· Size
  - Width: 272.75 mm
  - Height: 32.48 mm
  - Depth: 307.24 mm
· Weight
  - 2.6 kg without SFPs; 3.0 kg with SFP'

Power and Environmental Requirements

· Temperature
  - Operating: 0° to 40°C (32° to 104°F)
  - Non-operating: -20° to 70°C (-4° to 158°F)
· Humidity
  - Operating: 10 to 90%, non-condensing at 29°C
  - Non-operating: 5 to 95%, non-condensing at 38°C
· Altitude
  - Operating: Up to 3,048m (10,000ft)
  - Non-operating: Up to 10.668km (35,000ft)
· Shock
  - Operating: 20G for 6ms
  - Non-operating: 50G with a velocity change of 4216 mm/sec^2
· Vibration
  - Operating: 0.4G at 5 Hz to 500 Hz for 60 minutes
  - Non-operating: 0.5G at 2 Hz to 200 Hz for 15 minutes; 1.04 gms random for 15 minutes
· DC Input
  - 12V from M1000e blade chassis (shared power supplies)
· Power Consumption
  - Approximately 20 Watts without SFPs
  - Approximately 28 Watts with SFPs

Agency Approvals

· FCC Class A
· CISPR 22 with 3 db of margin
· CE Mark (EN55022 :2006+A1Class A)
· EN 55024:1998+A1+A2 (CISPR 24)
· VCCI V-2/V-3, Class A
· C-Tick Mark (AS/NZS CISPR22:2006, Class A)
· Industry Canada (ICES-003/NMB-003, Class A)
· UL Recognized to UL 60950-1 2nd edition
· CSA Certified to CSA 22.2, No. 60950-1-07
· TUV/GS Licensed to EN 60950-1:2006
· Cb Report to IEC 60950-1:2005
· EU DoC
· Korean KCC certification mark
· FRU conforms to Dell Specification (46G3772) Environmental Requirements
· FRU conforms to Dell P/N (97P3864) Engineering specification
· EU RoHS
· China RoHS

Ordering Information

· Single Pack—Dell Part Number YHTDH
· Four Pack—Dell Part Number C57VM
· Service FRU(Single), does not include SFPs—Dell Part Number 0TCWD
· Single optical SFP—Dell Part Number M868V

Available from Dell and Dell-authorized resellers.

Management

· Management
  - None, device is unmanaged
  - Device status is available through the PE M1000e Blade Server Chassis Management Controller (CMC)
· Diagnostics
  - Dell 8/4Gb/s Fibre Channel Pass-Through Module performs a power on self-test and various ongoing diagnostics to ensure proper operation