



# Dell 8/4Gbps FC SAN module

## For Dell M1000e Blade Enclosures

Simply deploy M-Series Blades into the Fibre Channel (FC) SAN of your choice with the Dell 8/4Gbps FC SAN Module, built on standards-based NPIV technology.

### Highlights

- Rise above the challenges of SAN interoperability by leveraging industry-standard NPIV technology
- Extremely scalable! Deploy M-Series blade servers into existing SANs without added switch domains
- Pay as you grow with port upgrade options from 12 to 24 ports
- Protect your investment with flexibility to grow from 2 to 4 to 8 Gigabit per second Fibre Channel
- Eliminate the need for incremental SAN management

### Simplified connectivity and interoperability

The Dell 8/4Gbps FC SAN Module eliminates the traditional challenges of heterogeneous switch-to-switch interoperability. Built on industry-standard N\_Port ID Virtualization (NPIV) technology, the Dell 8/4Gbps FC SAN Module non-disruptively connects Dell blades to NPIV-enabled FC SANs, including Cisco, Brocade, McDATA, and others.

### Improved scalability for your data center

By leveraging NPIV technology, the Dell 8/4Gbps FC SAN Module allows you to deploy M-Series blades into FC SANs without introducing additional switch domains into your data center.

The Dell 8/4Gbps FC SAN Module combines cost-effective deployment with scalable port upgrade capabilities for up to 24 8Gbit/sec Fibre Channel ports. Dynamically grow from 12 ports to 24 as needed in your data center through pay-as-you-grow license upgrades.

### Investment Protection

The Dell 8/4Gbps FC SAN Module ensures flexibility by offering connectivity to widely deployed 2/4Gbps FC SANs while providing a seamless path to newer 8Gbps.

### Management

The Dell 8/4Gbps FC SAN Module eliminates incremental switch management and configuration by presenting Fibre Channel connections as a logical device (rather than switch domains) to the SAN fabric. Enjoy the benefits of port aggregation, failover, and redundancy without the complexities of additional SAN switches.

System architecture	
Fibre Channel ports	Up to 24 ports (16 internal, 8 external) 12 ports and 2 SFP+ optical transceivers standard Optional port upgrade license to 24 ports with 2 additional SFP+ transceivers
Certified maximum	Up to four Dell 8/4Gbps FC SAN Modules plug into Fabric B and C expansion I/O bay slots in the rear of the Dell M1000e blade enclosure
Performance	8.5 Gbps line speed, full duplex; 4.25 Gbps line speed, full duplex; 2.125 Gbps line speed, full duplex
Aggregate bandwidth	384Gbps end to end, 24 ports x 8Gbps x 2 (bi-directional)
Fabric latency	700 ns with no contention, cut-through routing at 8 Gbps
Maximum frame size	2112-byte payload
Classes of service	Class 2, Class 3, Class F (inter-switch frames)
Port types	F_Port, and NPIV-enabled N_Port
Data traffic types	Fabric switches supporting unicast and broadcast
Media types	8 Gbps: Requires hot-pluggable SFP+, LC connector; 8 Gbps Short-Wavelength Laser (SWL); 8 Gbps Long-Wavelength Laser (LWL); distance depends on fiber-optic cable and port speed
Options	12-port upgrade, SFP+ Media
Management	
Supported management software	Telnet, HTTP, SNMP v1/v3 (FE MIB, FC Management MIB); Auditing, Syslog, Change Management tracking; Administrative Domains
Security	SSL, SSH v2, HTTPS, LDAP, RADIUS, Role-Based Access Control (RBAC), DH-CHAP (between switches and end devices), Port Binding, Switch Binding, Secure RPC, Secure Copy (SCP), Trusted Switch, IPSec, IP Filtering
Management access	In-band over Fibre Channel; serial port (RJ-45)
Diagnostics	POST and embedded online/offline diagnostics, including RAStrace logging, environmental monitoring, non-disruptive daemon restart, FCping and Pathinfo (FC traceroute), port mirroring (SPAN port)
Mechanicals	
Size	Single-wide I/O Module for PowerEdge M1000e blade chassis Width: 272.75 mm, Height: 32.48 mm, Depth: 307.24 mm
System weigh	4.65 Pounds – without media
Environment	
Temperature	Operating: 0°C to 40°C (32°F to 104°F) Non-operating: -20°C to 70°C (-4°F to 158°F)
Humidity	Operating: 10% to 90%, non-condensing at 29°C Non-operating: 5% to 95%, non-condensing at 38°C
Operating altitude	Up to 3,048 m (10,000 ft)
Storage altitude	Up to 10,668 m (35,000 ft)
Operating shock	20G for 6ms
Non-operating Shoc	50G with a velocity change of 4216 mm/sec <sup>2</sup>
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 grms random for 15 minutes
Power	
DC Input	12V and 3.3V from chassis
Power consumption	About 32 Watts normally, 39 Watts maximum measured

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