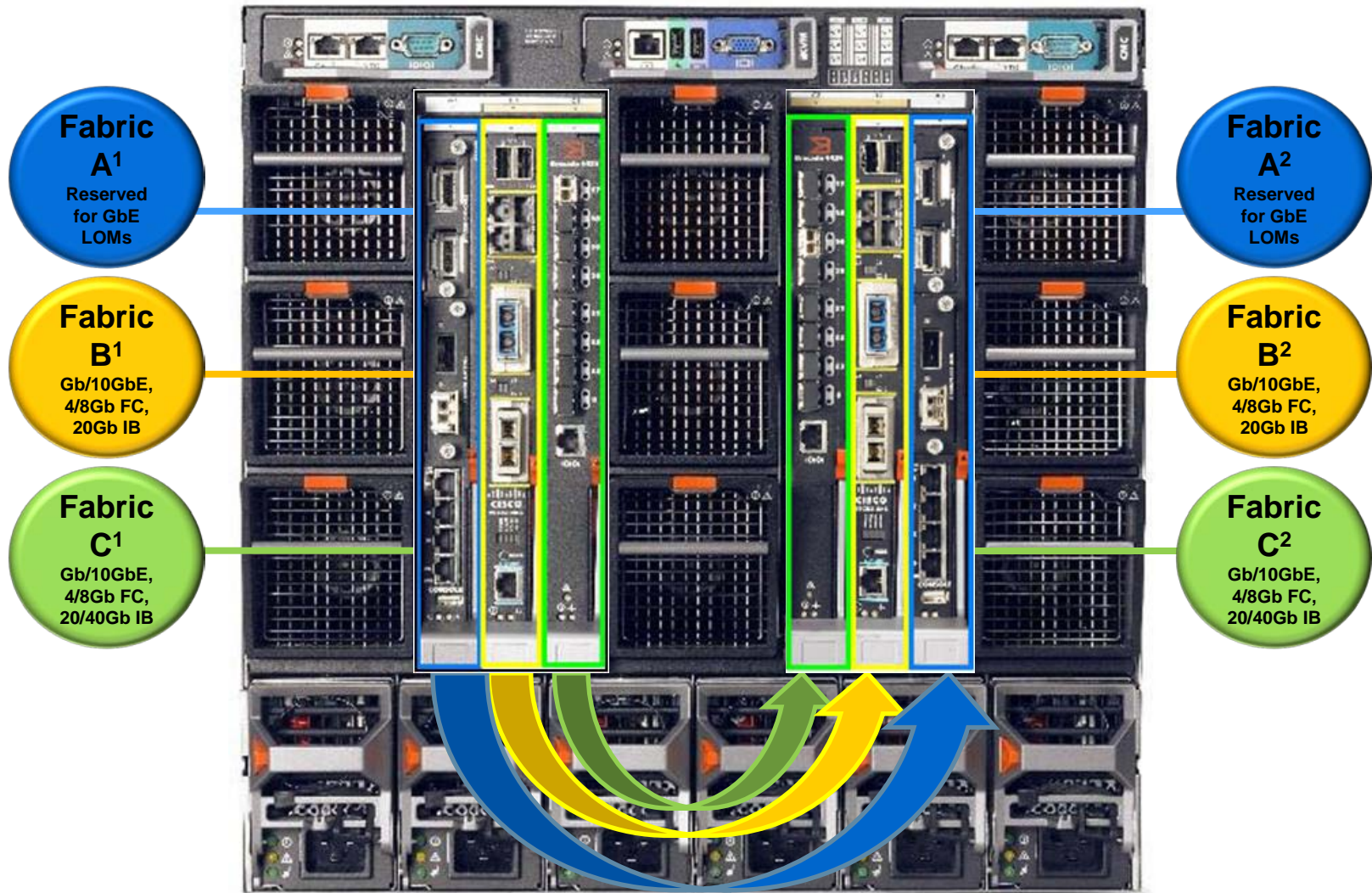


POWEREDGE M-SERIES BLADES I/O GUIDE



January 4, 2010

POWEREDGE M1000E REDUNDANT I/O MODULES VIEW



A total of 6 I/O bays per M1000e blade enclosure

Redundant I/O modules provide high-availability



POWEREDGE SERVER BLADE VIEW

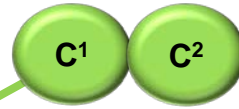
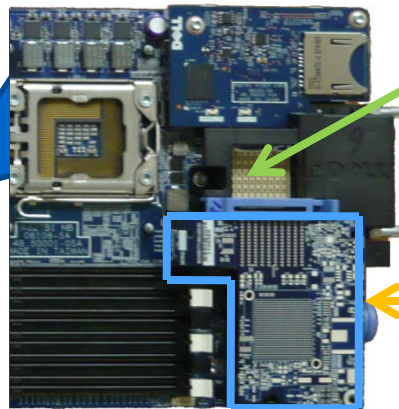
Currently Available Server Models

Half Height

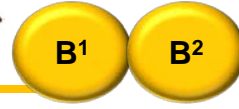
M605
M610

Full Height

M710
M805
M905

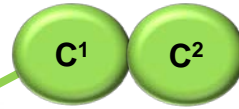
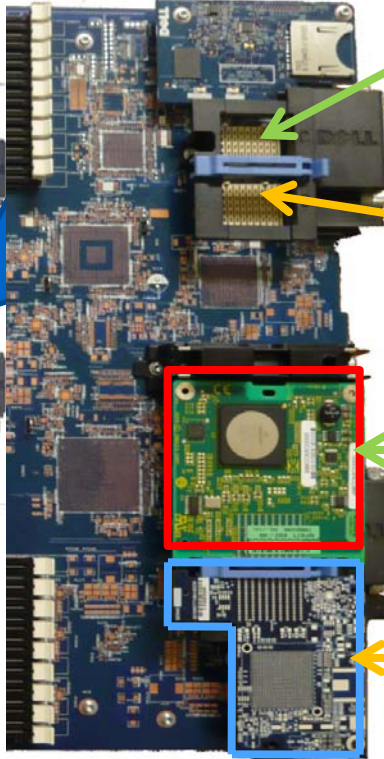
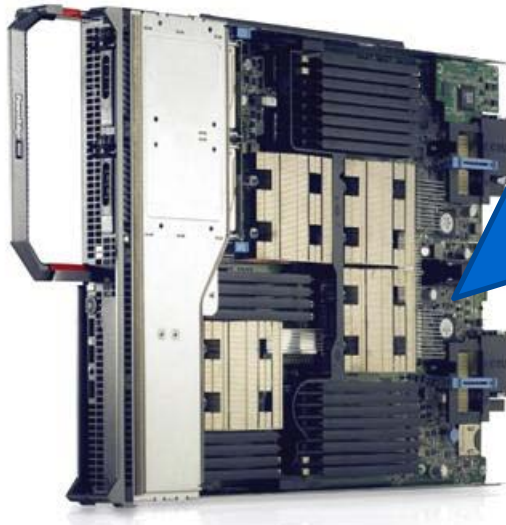


Half height servers include a LAN-On-Motherboard dual port GbE NIC and utilize Fabric I/O bays A1 and A2

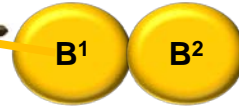


Dual port server blade mezzanine I/O cards map two ports/paths – one to each of the redundant I/O modules (eg. B1 & B2) providing high-availability

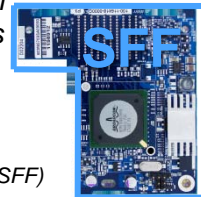
Half Height Server Blade M610 shown here (above)



Full Height servers include two dual-port LAN-On-Motherboard GbE NICs and utilize Fabric I/O bays A1 and A2



Blade I/O Mezzanine Card Form Factors



(on M610 and M710 Mezz slot B MUST use SFF)

Full Height Server Blade M905 shown here (above)



M-SERIES I/O MODULE OPTIONS

ETHERNET

GbE



10GbE



GbE
Pass
Thru

M6220

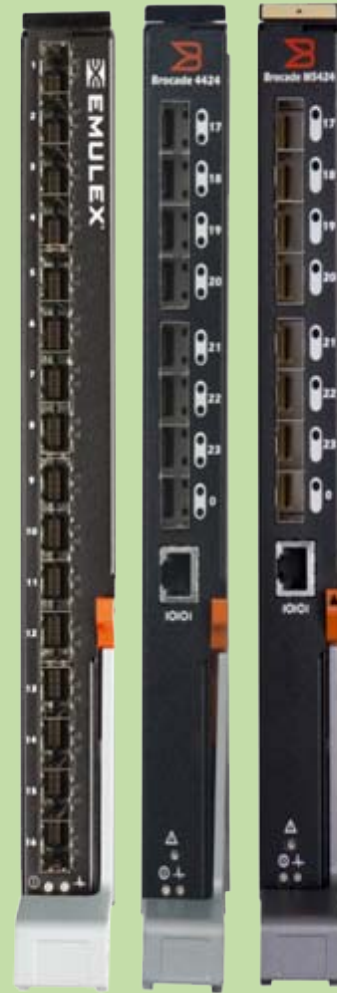
3032
3130G
3130X

M6348

M8024

10GbE
Pass
Thru

FIBRE CHANNEL



FC4
Pass
Thru

FC4
M4424

FC8
M5424

INFINIBAND



M2401G
DDR
Infiniband

M3601Q
QDR
Infiniband



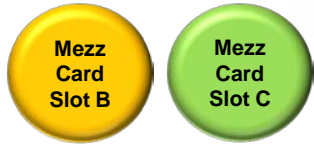
POWERCONNECT M6220

Gb / 10Gb Ethernet

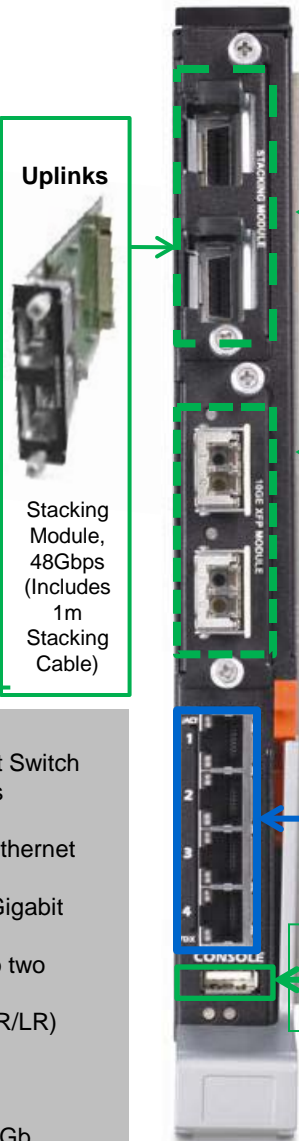
PE server blade I/O card



Use Broadcom 5709 dual port server blade I/O Mezzanine Cards in PE blade servers for Gigabit Ethernet I/O connectivity



Cables
Stacking Cable



Uplinks

Stacking Module, 48Gbps (Includes 1m Stacking Cable)

Uplinks

10GbE Uplink Module for XFP Optical

Transceivers

XFP Optical Transceiver 10GBASE-LR, LC Connector
XFP Optical Transceiver 10GBASE-SR, LC Connector

Uplinks

PowerConnect 6xxx SFP+ Module

Transceivers

Short Range, Multi-Mode SFP+ Optics
Long Range, Multi-Mode SFP+ Optics
Long Range, Single-Mode SFP+ Optics
Short Range, Single-Mode SFP+ Optics

Uplinks

10GBase-T (Copper) Uplink Module

Cables

CAT 6A (shielded)

Uplinks

10GbE Uplink Module for CX-4 Copper

Cables

CX-4 Cable for 10GbE Uplink, 12m

Management Port

Cable included

I/O bays



Description
Managed Layer 3 Gigabit Ethernet Switch for Dell M-Series blade enclosures

- 16 internal server blade Gigabit Ethernet ports
- 4 external fixed 10/100/1000Mb Gigabit Ethernet RJ-45 ports
- Up-to four 10Gb ports using up-to two uplink modules
 - 2 x 10Gb Optical XFP (SR/LR)
 - 2 x 10Gb Copper CX-4
 - 2 x 10GBASE-T Copper
 - 2 x 10Gb Twinax SFP+
- Stacking Capable using single 48Gb stacking uplink module
- Management console port



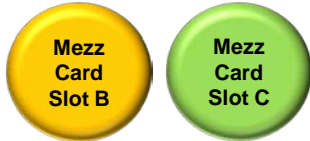
CISCO BLADE SWITCH

Gb / 10Gb Ethernet

PE server blade I/O card



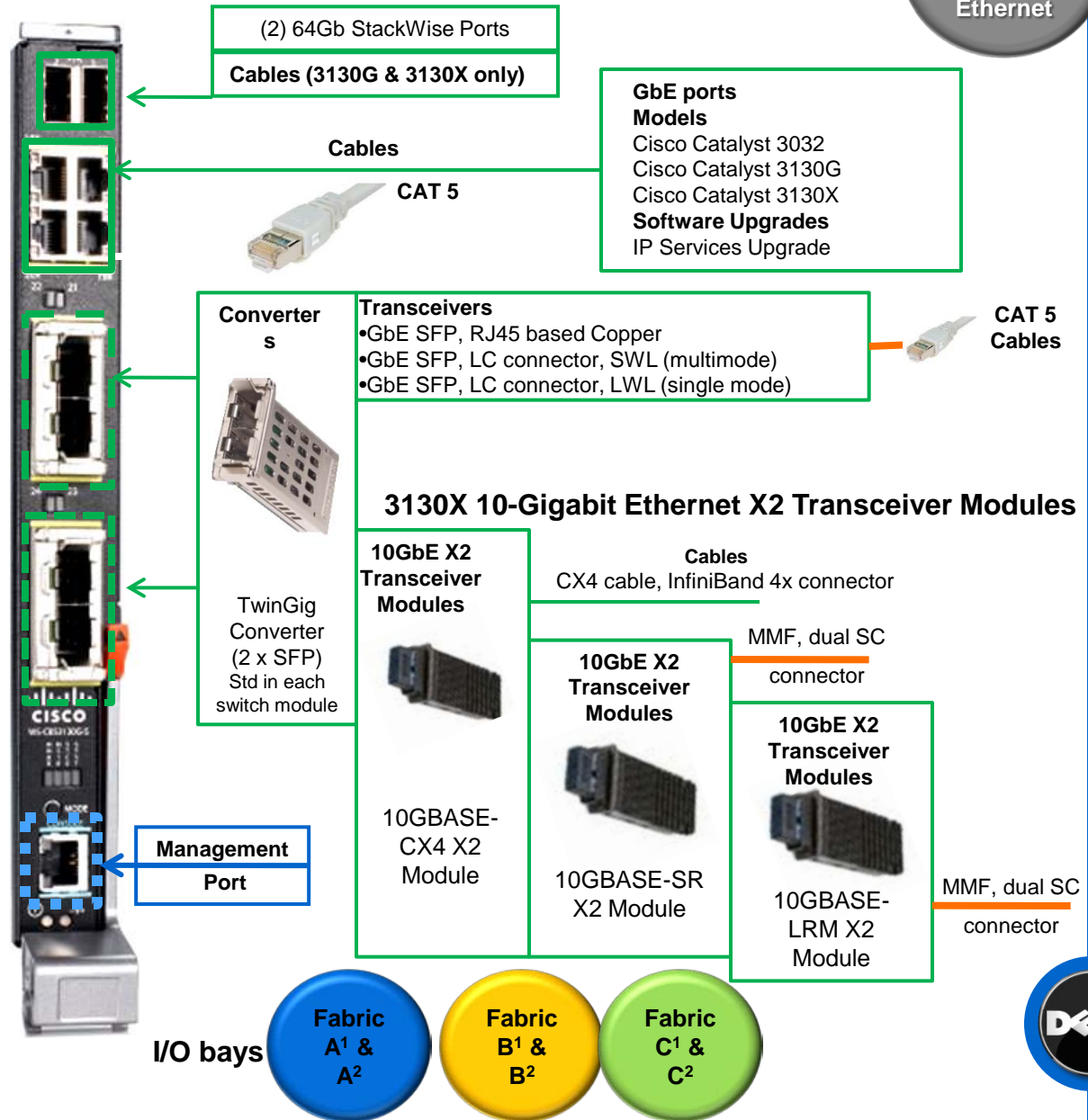
Use Broadcom 5709 dual port server blade I/O Mezzanine Cards in PE blade servers for Gigabit Ethernet I/O connectivity



Description

Managed Layer 3 Gigabit Ethernet Switch for Dell M-Series blade enclosures

- 16 internal server blade Gigabit Ethernet ports
- Four 10/100/1000BASE-T ports
- 3032/3130G four SFP Gigabit ports (using Cisco TwinGig Converter Modules in the X2 slots)
- 3130X up-to four 10Gb ports using X2 transceiver modules
- 3130G/3130X stacking capable using single 64Gb StackWise licensed ports
- Management console port: RJ-45-to-DB9 cable for PC connections



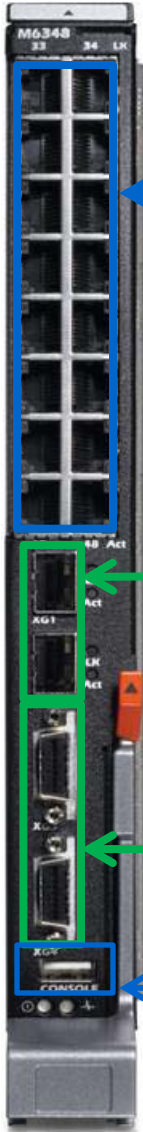
POWERCONNECT M6348

Gb /
10Gb
Ethernet



PE server blade I/O cards

Use 4 port LOM on FH server blades or Quad Port Mezz NICs from Broadcom & Intel in PE blade servers for Gigabit Ethernet I/O connectivity



Cables

16 external Gb Ethernet ports (32 internal ports to blades)

CAT 5



Uplinks

Transceivers
Short Range, Multi-Mode SFP+ Optics
Long Range, Multi-Mode SFP+ Optics
Long Range, Single-Mode SFP+ Optics



SFP+ DA Cables (cable + transceivers) 1meter, 3meter, 5meter, 7meter

Cables
CX4 cables: 1m, 3m, 12m, 15m (for 10GE uplinks or 32Gb M6348 stacking)

Management Port
Cable included

Description

Managed Layer 3 Gigabit Ethernet Switch for Dell M-Series blade enclosures

- 32 internal server blade Gigabit Ethernet ports
- 16 external fixed 10/100/1000Mb Gigabit Ethernet RJ-45 ports
- Up-to four 10Gb ports
 - 2 x 10Gb Optical SFP+ (SR/LR) and/or SFP+ DAC
 - 2 x 10Gb Copper CX4 or 32Gb M6348 stacking
- Management console port

I/O bays



ETHERNET PASS-THROUGH



PE server blade I/O card



Use Broadcom 5709 dual port server blade I/O Mezzanine Cards in PE blade servers for Gigabit Ethernet I/O connectivity



Description

Gigabit Ethernet Pass-Through Module for Dell M-Series blade enclosures

- 16 internal server blade GbE host ports
- 16 external GbE ports



Cables

CAT 5



Models

Dell 16-port Gb Ethernet Pass-Through Module

I/O bays



POWERCONNECT M8024

10Gb Ethernet



PE server blade I/O cards

Combine the 10Gb M8024 switch with the **Broadcom 57710 & 57711 Dual Port 10Gb Ethernet Server Blade I/O Mezzanine Card** in PE blade servers for 10Gb from server to LAN

Mezz Card Slot B

Mezz Card Slot C



Uplinks



10GbE SFP+ Module

Transceivers
 PCT 6XXX Short Range, Multi-Mode SFP+ Optics
 PCT 6XXX Long Range, Multi-Mode SFP+ Optics
 PCT 6XXX Long Range, Single-Mode SFP+ Optics

Cables

SFP+ DA Cables (SFP+ Transceiver + Cable Assembly for connection to/from Cisco Nexus 50x0 switches)
 1meter, 3meter, 5meter, 7meter

Uplinks



10GbE CX4 Copper Module

Cables
 CX4 cables for 10GbE Uplink

Uplinks



10GbE-T Copper Module

Cables



Management Port
 Cable included

Description
 Fully modular managed Layer 3 10Gb Ethernet Switch for Dell M-Series blade enclosures

- 16 internal server blade 10Gb Ethernet host ports
- Up-to two 10Gb uplink modules (mix or match)
 - 10GBASE-T (2 x 10Gb Copper RJ45)
 - 10GE CX4 (3 x 10Gb Copper CX4)
 - 10GE SFP+ (4 x 10Gb Twinax SFP+)
- Management console port

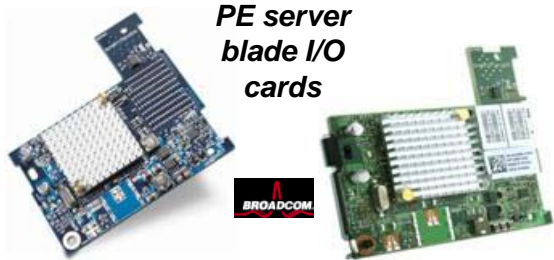
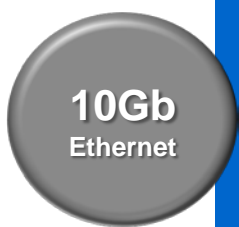
I/O bays

Fabric B¹ & B²

Fabric C¹ & C²



10Gb ETHERNET PASS-THROUGH

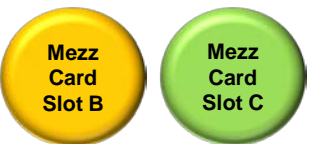


PE server blade I/O cards

Combine the 10Gb pass-through with the **Broadcom 57710 & 57711 Dual Port 10Gb Ethernet Server Blade I/O Mezzanine Card** in PE blade servers for 10Gb from server to LAN switch




QME8142
Converged Network Adapter from QLogic. No blade limitations. FCoE and iSCSI on 10Gb network. Connect 10Gb pass-thru to "top of rack" converged network switch.



I/O bays

Transceivers
10GbE SFP+ Optical Transceiver, SR, LC Connector
10GbE SFP+ Optical Transceiver, LRM, LC Connector

Cables


SFP+ DA Cables (cable + transceivers) 1meter, 3meter, 5meter, 7meter

Description
10 Gigabit Ethernet Pass-Through Module for Dell M-Series blade enclosures

- 16 internal server blade 10 GbE host ports
- 16 external 10 GbE SFP+ optical ports



BROCADE M4424

4Gb
Fibre
Channel

PE server
blade I/O
cards



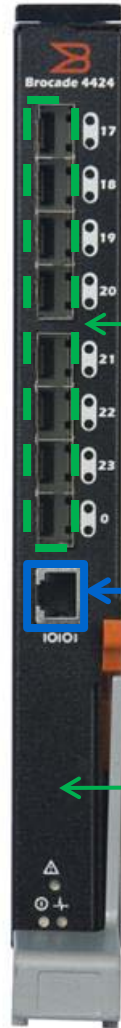
Combine the M4424 with the **Qlogic QME2472** or **Emulex LPe1105 Server Blade I/O Mezzanine Card** in PE blade servers for end-to-end 4Gbps I/O



Description

4Gb Full Fabric Fibre Channel SAN switch for Dell M-Series blade enclosures

- 16 internal server blade 4Gbps host ports
- Up-to eight 8Gb external SAN ports
- Management console port



Transceivers
Brocade SWL 4Gb SFP+ Optics

Cables



Management Port

Models
Brocade M4424 12port Access Gateway w/ four 4Gb SFPs
Brocade M4424 12port Full Fabric SAN Switch w/ four 4Gb SFPs

Upgrades
Full Fabric switch upgrade
12port upgrade with four 4Gb SFPs
ISL Trunking license

I/O bays



BROCADE M5424

8Gb
Fibre Channel

PE server blade I/O cards



Combine the M5424 with the **Qlogic QME2572** or **Emulex LPe1205 Server Blade I/O Mezzanine Card** in PE blade servers for end-to-end 8Gbps I/O

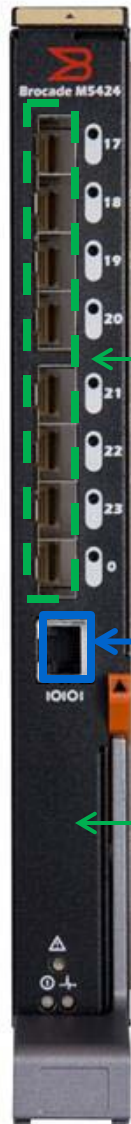
Mezz Card Slot B

Mezz Card Slot C

Description

8Gb Full Fabric Fibre Channel SAN switch for Dell M-Series blade enclosures

- 16 internal server blade 8/4Gbps host ports
- Up-to eight 8Gb external SAN ports
- Management console port



Transceivers
Brocade SWL 8Gb SFP+ Optics
Brocade SWL 4Gb SFP+ Optics



Management Port

Models
Brocade M5424 24port w/ eight 8Gb SFPs plus Enterprise Performance Pack Software
Brocade M5424 24port w/ four 8Gb SFPs
Brocade M5424 12port w/two 8Gb SFPs

I/O bays

Fabric B¹ & B²

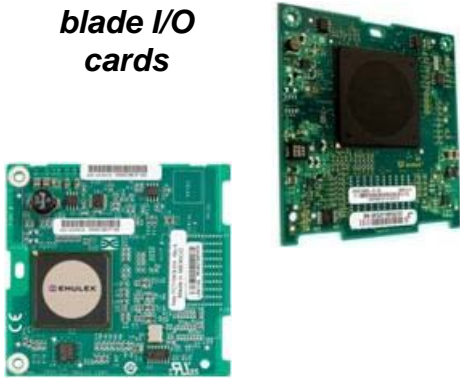
Fabric C¹ & C²



FC PASS-THROUGH

4Gb
Fibre
Channel

PE server
blade I/O
cards



Combine the FC Pass-Through with the **Qlogic QME2472** or **Emulex LPe1105 Server Blade I/O Mezzanine Card** in PE blade servers for end-to-end 4Gbps I/O

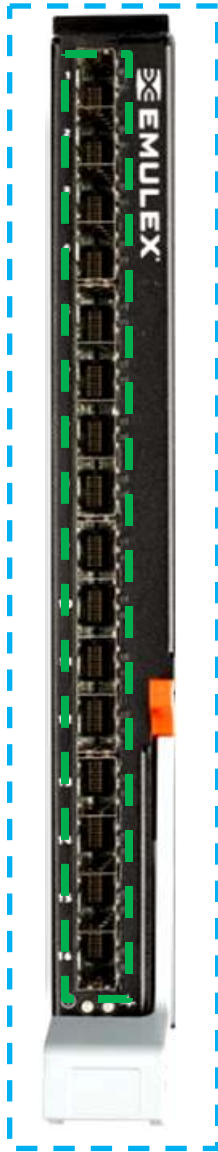
Mezz
Card
Slot B

Mezz
Card
Slot C

Description

4Gbps Fibre Channel Pass-Through Module for Dell M-Series blade enclosures

- 16 internal server 4Gbps host ports
- 16 external 4Gbps external SAN ports



Transceivers

- 16 Pre-installed 4Gbps SWL SFPs (one per port)

Cables



Models

Dell 16-port 4Gb Fibre Channel Pass-Through

I/O bays

Fabric
B¹ &
B²

Fabric
C¹ &
C²



MELLANOX M2401G

20
Gbps
InfiniBand

PE server
blade I/O
cards



Combine the M2401G with the Mellanox ConnectX MDI DDR or QDR InfiniBand Server Blade I/O Mezzanine Cards in PE blade servers for end-to-end 20Gbps I/O



Description

20Gbps InfiniBand switch for Dell M-Series blade enclosures

- 16 internal server blade 20Gbps host ports
- Up-to eight 20Gbps external ports

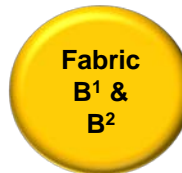


Cables



QSFP Active
Optical Cable
Assembly

I/O bays



MELLANOX M3601Q

40/20
Gbps
InfiniBand

PE server
blade I/O
cards



Combine the M3601Q with the **Mellanox ConnectX MDI QRD InfiniBand Server Blade I/O Mezzanine Card** in PE blade servers for end-to-end 40Gbps I/O or 20Gbps using the MDI DDR card

Mezz
Card
Slot C

Description

20/40Gbps InfiniBand switch for Dell M-Series blade enclosures

- 16 internal server blade 20/40Gbps host ports
- Up-to sixteen 20/40Gbps external ports



Cables



QSFP Active
Optical Cable
Assembly

QSFP Passive Copper Assembly

Ordering Part Number	Length (m)	Wire AWG	Cable Type
QSN3800-2.5	2.5	28	QSFP Non-Equalized Cable Assembly
QSN7600-4	4	26	QSFP Non-Equalized Cable Assembly

One QDR mezzanine card per server blade and one M3601Q QDR switch module per blade enclosure.

Installation for both the mezz card and switch module is limited to Fabric C only.

I/O bays

Fabric
C¹ &
C²