

BROCADE MLX 2-PORT 100 GBE MODULE

HIGH- PERFORMANCE ROUTING

Terabit Networking Provides Scalability with Unparalleled Speed and Value

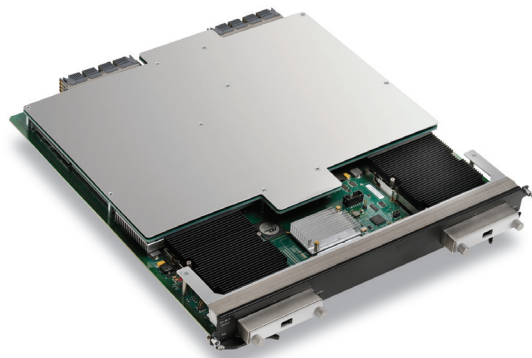
HIGHLIGHTS

- Helps transform network infrastructures to support rapid traffic growth and deliver new, differentiated services
- Delivers 400 Gbps of throughput per slot with full Layer 2, IPv4, IPv6, Multi-Protocol Label Switching (MPLS), and OpenFlow performance
- Provides unmatched scalability with 32 wire-speed 100 GbE ports in a single chassis
- Enables non-disruptive, pay-as-you-grow scalability with flexible Ports on Demand (PoD) licensing
- Aggregates up to 64 100 GbE links in a LAG while supporting up to 6.4 Tbps of capacity in a single trunk
- Provides deployment flexibility by supporting a wide range of 100 GbE optical transceivers
- Provides a scalable and cost-effective solution for next-generation service provider networks, virtualized data centers, High-Performance Computing (HPC) networks, and large distributed enterprises

Networks today are straining to support unprecedented levels of traffic due to high-bandwidth demands for on-demand personalized content. Leading-edge services such as high-definition video streaming, mobile broadband, and cloud services have significantly altered network traffic behavior. Instead of localized flows with occasional bursts, traffic flows are more collaborative over geographical distances and last longer. These new traffic patterns not only consume enormous amounts of network capacity, but they also add a greater degree of complexity to network operations. Additionally, as many organizations look to transform their businesses and networks to offer IT services via the cloud, the need for networks to be cloud-optimized and cloud-ready is pressing. As a result, today's network planners are seeking solutions that provide the right mix

of scalability, performance, and operational simplicity. High-density 100 Gigabit Ethernet (GbE) can meet rising commodity traffic demands while helping organizations maximize revenue and reduce costs.

Brocade delivers 100 GbE on its flagship routing platform: the Brocade® MLX® Series. The Brocade MLX 2-port 100 GbE module provides industry-leading performance and scalability, enabling networks under extreme pressure—such as next-generation service provider networks, virtualized data centers, High-Performance Computing (HPC) networks, and large distributed enterprises—to support increasing application traffic. Each 100 GbE module delivers 400 Gbps of throughput per module without compromising the performance of features such as Layer 2, IPv4, IPv6, and Multi-Protocol Label Switching (MPLS). This high-capacity module uses less



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SOFTWARE FEATURE HIGHLIGHTS

Comprehensive IPv4/IPv6 and Layer 2 support:

- Full-featured Layer 2 switching
- Dual-stack IPv4/IPv6 RIP, OSPF, IS-IS, BGP

MPLS support:

- IPoMPLS
- 6PE, 6VPE
- MPLS VPNs: L3 VPNs, L2 VPNs (VPLS, VLL)
- BGP auto-discovery for VPLS endpoints
- MPLS-PBB- (B-VID + I-SID) based interworking
- MPLS over GRE

Phenomenal scale:

- Carrier trunks: Advanced LAG, ECMP, LSP load balancing
- 64×10 GbE LAG
- Terabit trunks with 64×100 GbE LAG

Comprehensive OAM support:

- 802.1ag, Y.1731, 802.3ah, UDLD
- BFD for BGP, OSPF, IS-IS, RSVP LSPs
- Fine-grained timers (3.3 ms) with 802.1ag

Advanced resiliency:

- NSR for OSPF, IS-IS, multicast
- Graceful restart for BGP, OSPF
- In-service software upgrades

Scalable Carrier Ethernet:

- MEF 9, MEF 14 compliant
- G.8032 v1/v2 for ring resiliency
- MRP (Metro Ring Protocol)
- Virtual Switch Redundancy (VSRP)
- Multi-Chassis Trunking (MCT)
- Provider Backbone Bridging (PBB)

Advanced visibility, statistics:

- sFlow for granular network traffic accounting
- Flow- and port-based mirroring
- Per-queue counters
- Per-VLAN, port+VLAN, per-VE counters

Queuing:

- Virtual Output Queuing (VOQ) architecture
- Up to 1.5 GB of VOQ buffering per 100 GbE port

infrastructure to deliver services to these networks, vastly improving operational efficiency and helping to reduce costs. In addition, the Brocade MLX 2-port 100 GbE module with Ports on Demand (PoD) capability is designed to meet current and future business challenges, providing flexibility to protect existing investments, while enabling organizations to migrate and evolve their networks with unmatched simplicity.

BROCADE VERSASCALE PACKET PROCESSOR

The Brocade MLX Series is built on the Brocade VersaScale-200 Packet Processor. The processor is designed to enable service innovation through programmability and flexibility without sacrificing performance. The Brocade VersaScale-200 provides leading density, zero-packet loss, and line speed for all packet sizes—supporting up to 16,384 simultaneous multicast groups at line rate.

The Brocade VersaScale-200 is designed for service provider and large-enterprise networks (service-driven IT), and delivers a balance of scalability and feature richness. The processor provides extremely deep packet buffering to handle the dynamic traffic. In addition, it supports large-scale Equal-Cost Multi-Pathing (ECMP), which is ideal for cloud service providers and Web 2.0 companies that need scalable solutions to handle explosive bandwidth growth and to optimize the core for efficient packet transport.

The Brocade VersaScale-200 has distributed network processing and advanced Quality of Service (QoS) capabilities, helping providers tighten their Service Level Agreements (SLAs) for traditional and value-add cloud services. As customers begin to demand

network virtualization through Software-Defined Networking (SDN), the ability to easily add new services becomes vital. The Brocade VersaScale-200 is SDN-enabled with OpenFlow support today, and field upgradable for future versions of OpenFlow and other overlay technologies.

BROCADE GLOBAL SERVICES

Brocade Global Services has the expertise to help organizations build scalable, efficient cloud infrastructures. Leveraging 15 years of expertise in storage, networking, and virtualization, Brocade Global Services delivers world-class professional services, technical support, and education services, enabling organizations to maximize their Brocade investments, accelerate new technology deployments, and optimize the performance of networking infrastructures.

AFFORDABLE ACQUISITION OPTIONS

Brocade Capital Solutions helps organizations easily address their IT requirements by offering flexible network acquisition and support alternatives. Organizations can select from purchase, lease, Brocade Network Subscription, and Brocade Subscription Plus options to align network acquisition with their unique capital requirements and risk profiles. To learn more, visit www.Brocade.com/CapitalSolutions.

MAXIMIZING INVESTMENTS

To help optimize technology investments, Brocade and its partners offer complete solutions that include professional services, technical support, and education. For more information, contact a Brocade sales partner or visit www.brocade.com.

100 GBE PORT DENSITY ON BROCADE MLX SERIES ROUTERS

Brocade MLXe Chassis	Wire-Speed 100 GbE Ports
Brocade MLXe-4	8
Brocade MLXe-8	16
Brocade MLXe-16	32
Brocade MLXe-32	64

BROCADE MLX 2-PORT 100 GBE MODULE SPECIFICATIONS

Item	Maximum Capacity per Module
MAC entries	262,144
IPv4 routes	1,048,576
IPv6 routes	245,760
Access Control List (ACL)	131,072

SUPPORTED 100 GBE OPTICS AND KEY STANDARDS AND FEATURES

Optic Type	Ethernet Standards	Domestic Safety Standards	International Safety Standards	Wavelength (nm)	Fiber Type	Maximum Cable Distance	Digital Optical Monitoring
100GBASE-CFP-SR10	802.3ba	FDA 21CFR 1040.10 Class 1, CSA 60950-1-03/UL 60950-1	EN 60825-1, EN 60950-1	850	OM3 MMF OM MMF	100 m 150 m	Yes
100G-CFP-10X10-2KM-OM	802.3ba			1294.53 to 1310.19	SMF	10 km	Yes
100G-CFP-10X10-10KM-OM	10×10 MSA			1523 to 1595	SMF	2 km	Yes
100G-CFP-LR4-10KM	10×10 MSA			1523 to 1595	SMF	10 km	Yes
100G-CFP-ER4-40KM	802.3ba			1294.53 to 1310.19	SMF	40 km	Yes

BROCADE MLX 2-PORT 100 GBE MODULE ORDERING INFORMATION

Part Number	Description
BR-MLX-100Gx2-X	Brocade MLX Series 2-port 100 GbE module with IPv4/IPv6/MPLS hardware support—requires high-speed switch fabric modules and CFP optics
BR-MLX-100Gx1-X	Brocade MLX Series 1-port 100 GbE module with IPv4/IPv6/MPLS hardware support—requires high-speed switch fabric modules and CFP optics
BR-MLX-100Gx1-2PUPG	Brocade MLX Series 100 GbE second port license—requires CFP optics

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