



GATEWAY SYSTEMS

BridgeX™ BX4000 – Delivering Unified I/O

10/20/40G InfiniBand to 10 GigE and 2/4/8G FC Gateway
10 GigE (FCoE) to 2/4/8G FC Gateway

The BX4000 is the first *Virtual Protocol Interconnect* (VPI) gateway allowing data centers to deploy I/O consolidation solutions using InfiniBand or Ethernet as the convergence fabric of choice. Networks have increased in size and managing a growing multi-infrastructure has become a daunting task. Enterprise data centers currently use three different networks—Storage Area Networks using Fibre Channel transport for storage access, Local Area Network using Ethernet transport for standard network access and System Area Networks using InfiniBand transport for inter-process communication and high-performance clustering. With the introduction of the BX4000 virtualization systems, enterprises can get rid of this complexity while improving performance, enable flexibility and save energy and cooling costs.

BX4000 enables data centers to operate in high-performance 40Gb/s network speed on the hosts and connects lower speed Gigabit and 10GigE networks and 2, 4, 8Gb/s Fibre Channel SAN networks. BX4000 connects to existing SAN and LAN and at the same time, providing I/O consolidation.

Flexibility

The BX4000 draws on Mellanox's vision to deliver seamless protocol agility to adapt to a dynamic and ever-changing data center infrastructure. The BX4000 provides the highest levels of flexibility by allowing port groups to be configured and dynamically change as 10GigE or as 2/4/8G Fibre Channel. When the BX4000's uplink ports are configured as 10GigE (CX4) then the system operates as Fibre Channel over Ethernet (FCoE) to Fibre Channel gateway. This agility offered by the BX4000 provides new levels of flexibility and provisioning of data center resources.

Performance

In a unified I/O solution, various performance capabilities are required because each network has unique characteristics and metrics. For server to server interconnection, a low-latency fabric is critical; for storage traffic a lossless fabric with high IOPS (I/O per second) capability is important; and for a regular network, higher bandwidth is required. The BX4000 combines low-latency, lossless fabric and high-performance in a 1U form-factor providing 12 ports of 10GigE or 16 ports of 2/4/8G Fibre Channel or a mix of both.

Cost-savings

The BX4000 delivers cost-savings by integrating three networks on a single wire. Consolidating multiple networks on a single wire, not only delivers CAPEX savings by having one adapter instead of three in a server and having a single switch instead of three, but also on OPEX savings. OPEX savings are provided by reducing cabling complexity, delivering a single consistent management and ease of use.



BX4010



BX4020

BENEFITS

- I/O consolidation on 40Gb/s InfiniBand or on 10GigE
- Removes cabling complexity and consolidates I/O
- Reduces power and cooling costs
- Virtualized Ethernet and Fibre Channel host ports
- 40Gb/s LAN and SAN connections
- QoS provides granular bandwidth allocation
- Simplified – local or remote management

KEY FEATURES

HARDWARE

- Inbuilt CPU for easy configuration and management
- Uplink: Up to 4 ports of 10/20/40 Gb/s InfiniBand or up to 12 ports of 10GigE
- Downlink: Up to 16 Ports of 2/4/8Gb FC or 12 ports of 10GigE
- 1K vNICs per Ethernet port
- 1K vHBAs per FC port
- Up to 16K, MAC, VLAN and FC WWN addresses
- Dual power supplies for redundancy
- High availability and fail-over mode

SOFTWARE

- Configuration and management for
 - VLAN, NPIV, MAC and WWN
- Integrated gateway management

SPECIFICATIONS

UPLINK PORTS-CX4

- 2 or 4 ports of 10/20/40G InfiniBand or 6 or 12 ports of 10GigE

DOWNLINK PORTS-SFP+

- 6 or 12 ports of 1/10GigE or 8/16 ports of 2/4/8G FC

ETHERNET PORTS

- IEEE 802.3ae 10 Gigabit Ethernet
- IEEE 802.3z Gigabit Ethernet
- IEEE 802.1D Spanning Tree
- IEEE 802.1p QoS / COS
- IEEE 802.1Q VLAN Tagging
- IEEE 802.1AB Link Layer Discovery
- IEEE 802.3ad Link Aggregation with LACP
- IEEE 802.3x Flow Control (Per Priority Flow Control)
 - Virtual lanes support
- Jumbo Frames up to 9K support

FC PORTS

- 2/4/8G FC support
- Fibre Channel over Ethernet (FCoE) protocol encapsulation (T11 compliant)
- Class of service - 2 and 3
- Topology - Point to point and switched fabric
- FCP3 SCSI
- FC-Tape FCP-2

CONNECTORS AND CABLING

- CX4 connectors for 10/20/40Gb/s InfiniBand
- SFP+ connectors for 10GbE and 2/4/8G FC
- Optical modules for Ethernet and FC
- Supports QSFP to CX4 hybrid cables
- Supports Twinax cables for 10GigE

INDICATORS

- Per port status LEDs: Link Activity
- System status LEDs: system, fans, power supply
- Ethernet or FC indicators for port groups

DIMENSION (H x W x D)

- 44mm x 482.5mm x 540mm

MANAGEMENT OPTIONS

- COM Express Module
- 1000BASE-T Ethernet port
- I²C port (RJ45 to Serial)
- Serial Port (RJ45 to Serial)

POWER SUPPLY

- Dual redundant slots
 - 1 PSU is required for device functioning
- Input range 90-264VAC

*only six or twelve 2/4/8G FC ports when the uplink ports are 10GigE

Ordering Part Number	Description
MTB4010-NC	BX4010 system, single BridgeX, without CPU, RoHS5
MTB4010-PC	BX4010 system, single BridgeX, with CPU, RoHS5
MTB4020-NC	BX4020 system, dual BridgeX, without CPU, RoHS5
MTB4020-PC	BX4020 system, dual BridgeX, with CPU, RoHS5
Options	
MFM1T02A-SR	10GBASE-SR Module
MCC4N26C-002	26 AWG Hybrid 40Gb/s InfiniBand cable- 2 meters
MCC4N26C-003	26 AWG Hybrid 40Gb/s InfiniBand cable- 3 meters
MCC4N26C-005	26 AWG Hybrid 40Gb/s InfiniBand cable- 5 meters
FC modules	TBD



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