GATEWAY SYSTEMS

BridgeX® BX5020 – Delivering Unified I/O

10/20/40G InfiniBand to 10GigE and 1/2/4/8G FC Gateway

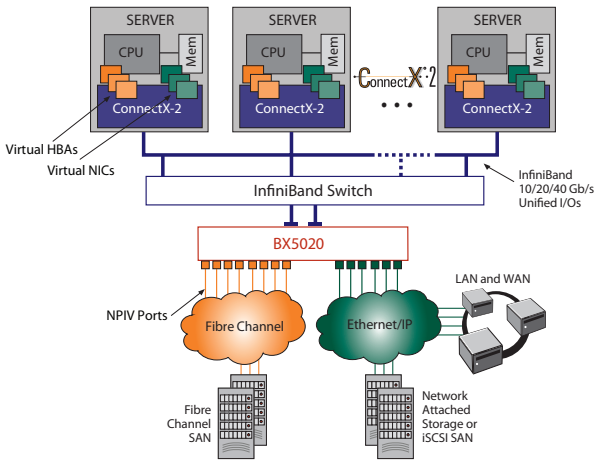
BX5020

The BX5020 is a high density, low latency gateway allowing data centers to deploy I/O consolidation solutions using InfiniBand as the convergence fabric of choice. Networks have increased in size and managing a growing multi-fabric 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 BX5020 virtualization systems, enterprises can get rid of this complexity while improving performance, enable flexibility and save energy and cooling costs.

BX5020 when combined with Mellanox ConnectX-2 host adapters enables data centers to operate in high-performance 40Gb/s network speed on the hosts and connects lower speed Gigabit and 10GigE networks and 1, 2, 4, 8Gb/s Fibre Channel SAN networks. BX5020 connects to existing SAN and LAN and at the same time, providing I/O consolidation. Server applications that rely on Ethernet and Fibre Channel transport run unmodified using Ethernet over InfiniBand (EoIB) or Fibre Channel over InfiniBand (FCoIB) protocol encapsulation. Existing LAN and SAN infrastructure and management practices can be preserved easing deployment and providing significant return on investment. Mellanox ConnectX-2 adapters are required in order to run EoIB and FCoIB protocols.

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 BX5020 combines low-latency, lossless fabric and high-performance in a 1U form-factor providing 12 ports of 10GigE or 16 ports of 1/2/4/8G Fibre Channel or a mix of both. Both Unicast and Multicast traffic benefits from the high bandwidth 40Gbps converged I/O infrastructure



BENEFITS

- I/O consolidation on 40Gb/s InfiniBand
- Reduces cabling, power and cooling costs
- Applications run unchanged and are presented with NIC and HBA software interfaces
- Preserves investments in LAN, iSCSI SAN and FC SAN infrastructure and management practices
- Presents virtualized Ethernet and Fibre Channel host ports
- 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
- Downlink: Up to 16 Ports of 1/2/4/8Gb FC or 12 ports of 10GigE or a flexible mix of 10GigE and FC
- 1K vNICs per Ethernet port
- 1K vHBAs per FC port
- Up to 8K MAC, VLAN and 8K 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

Cost-savings

The BX5020 when combined with Mellanox ConnectX-2 host adapters 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, reduced switch and server infrastructure, delivering a consistent and easy to use management software.

SPECIFICATIONS

UPLINK PORTS-CX4
- 4 ports of 10/20/40G InfiniBand

DOWNLINK PORTS-SFP+
- 12 ports of 1/10GigE or 16 ports of 1/2/4/8G FC or a mix of 1/10GigE and 1/2/4/8G FC

ETHERNET PORTS
- Ethernet over InfiniBand (EoIB) protocol encapsulation
- 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 support

FC PORTS
- 1/2/4/8G FC support
- Fibre Channel over InfiniBand (FCoIB) protocol encapsulation
- Class of service – 2 and 3
- Topology – Point to point and switched fabric
- FCP3 SCSI
- FC-Tape FCP-2

CONNECTORS AND CABLING
- QSFP connectors for 10/20/40Gb/s InfiniBand
- SFP+ connectors for 1/10GbE and 1/2/4/8G FC
- Optical modules for Ethernet and FC
- 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 436mm x 584mm

MANAGEMENT OPTIONS
- 1000BASE-T Ethernet port
- I^2C port (RJ45 to Serial)
- Serial Port (RJ45 to Serial)
- USB Port

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

Ordering Part Number	Description
MBX5020-1SFC	BridgeX based IB to EN/FC Gateway with 4 QSFP 10/20/40Gb/s InfiniBand ports (internal) and up to 12 SFP+ 1/10GigE ports (external) or up to 16 SFP+ 1/2/4/8Gb/s ports (external)

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