Mellanox
TECHNOLOGIES

BridgeX® BX5020 – Delivering Unified I/O

40Gb/s InfiniBand to 1/10GbE Gateway

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.

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's ConnectX host adapter family enables data centers to operate in high-performance 40Gb/s network speed on the hosts and connects lower speed Gigabit and 10GbE networks. BX5020 connects to existing LAN and at the same time, providing I/O consolidation. Server applications that rely on Ethernet transport run unmodified using Ethernet over InfiniBand (EoIB) protocol encapsulation. Existing LAN infrastructure and management practices can be preserved, resulting in ease of deployment and a significant return on investment. Mellanox's ConnectX host adapter family is required in order to run EoIB protocol.

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 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 1/10GbE. Both Unicast and Multicast traffic benefits from the high bandwidth 40Gbps converged I/O infrastructure

Cost-savings
The BX5020 when combined with Mellanox's ConnectX host adapter family delivers cost-savings by integrating two networks on a single wire. Consolidating multiple networks on a single wire, not only delivers CAPEX but OPEX savings as well. OPEX savings are provided by reducing cabling complexity, reduced switch and server infrastructure and delivering a consistent and easy to use management software.

HIGHLIGHTS

BENEFITS
– I/O consolidation on 40Gb/s InfiniBand
– Reduces cabling, power and cooling costs
– Applications run unchanged and are presented with NIC software interfaces
– Preserves investments in LAN infrastructure and management practices
– Presents virtualized Ethernet host ports
– QoS provides granular bandwidth allocation

HARDWARE
– Inbuilt CPU for easy configuration and management
– 1K vNICs per Ethernet port or up to 4K vNICs with LAG
– LAG and LACP support up to 12 ports
– Up to 8K VLAN addresses
– Up to 16,000 MAC addresses
– Dual power supplies option for redundancy
– High availability and fail-over mode

HARDWARE

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

DOWNLINK PORTS-SFP+
– 12 ports of 1/10GbE

ETHERNET PORTS
– Ethernet over InfiniBand (EoIB) protocol encapsulation
– IEEE 802.3ae 10 Gigabit Ethernet
– IEEE 802.3z Gigabit Ethernet
– 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

CONNECTORS AND CABLING
– QSFP connectors for 40Gb/s InfiniBand
– SFP+ connectors for 1/10GbE
– Optical modules for Ethernet
– Supports Twinax cables for 10GbE

INDICATORS
– Per port status LEDs: Link Activity
– System status LEDs: system, fans, power supply
– Ethernet indicators for port groups

DIMENSION (H X W X D)
– 43.6mm x 436mm x 627.7mm

MANAGEMENT OPTIONS
– Dual 1000BASE-T Ethernet port
– Serial Port (RJ45 to Serial)
– USB Port

POWER SUPPLY
– Dual redundant slots
– Input range 100-240VAC

COMPLIANCE

OPERATING CONDITIONS
– Operating   0ºC to 45ºC
– Non Operating -40ºC to 70ºC
– Humidity: Operating 10% to 90%

SAFETY
– EU: IEC60950
– US/Canada : cTUVus
– International : CB

EMC (EMISSIONS)
– CC 47CFR Class A
– Canada: ICES-003 class A
– Japan : VCCI Class A
– AS/NZS CISPR 22 Class A
– CISPR 22 Class A
– EU: EN 55024 Class A
– EU: EN 55022 Class A

ENVIRONMENTAL
– EU: IEC 60068-2-64: Random Vibration
– EU: IEC 60068-2-29: Shocks, Type I / II
– EU: IEC 60068-2-32: Fall Test

* Available in future release

Ordering Part Number	Description
MBX5020-1SFR	BridgeX based IB to EN Gateway with 4 QSFP 40Gb/s InfiniBand ports (internal) and up to 12 SFP+ 1/10GbE ports (external)

Also available through Mellanox Certified Resellers and Distributors

INFINIBAND
TRADE ASSOCIATION

OPENFABRICS
ALLIANCE

Mellanox
TECHNOLOGIES

350 Oakmead Parkway, Suite 100, Sunnyvale, CA 94085
Tel: 408-970-3400 • Fax: 408-970-3403
www.mellanox.com

3568PB Rev 1.1