SWITCH SYSTEM

PRODUCT BRIEF

SB7700

36-port Non-blocking Managed EDR 100Gb/s InfiniBand Switch

SB7700 switch system provides the highest performing fabric solution in a 1U form factor by delivering up to 7Tb/s of non-blocking bandwidth with 90ns port-to-port latency.



Scaling-Out Data Centers with Extended Data Rate (EDR) InfiniBand

Faster servers based on PCIe 3.0, combined with high-performance storage and applications that use increasingly complex computations, are causing data bandwidth requirements to spiral upward. As servers are deployed with next generation processors, High-Performance Computing (HPC) environments and Enterprise Data Centers (EDC) will need every last bit of bandwidth delivered with Mellanox's next generation of EDR InfiniBand high-speed smart switches.

Sustained Network Performance

Built with Mellanox's latest Switch-IB™ InfiniBand switch device, EDR uses efficient 64/66 encoding while increasing the per lane signaling rate to 25Gb/s. The SB7700 provides up to thirty-six 100Gb/s full bi-directional bandwidth per port. These stand-alone switches are an ideal choice for top-of-rack leaf connectivity or for building small to extremely large sized clusters.

The SB7700 enables efficient computing with features such as static routing, adaptive routing, congestion control and enhanced VL mapping to enable modern topologies (SlimFly, Dragonfly+, 6D Torus). These features ensure the maximum effective fabric bandwidth by eliminating congestion hot spots.

World-Class Design

The SB7700 is an elegant top of the rack design, created for performance, serviceability, energy savings and high-availability.

The SB7700 comes with two highly efficient, 80 gold+ and energy star certified, power supplies.

SB7700 switch has best in class design to support low power consumption. ATIS weighted power consumption is 136W for a fully populated switch with more power reduction if not all ports are used or fully utilized.

SB7700 has redundant power supplies (1+1) and fan draws (N+1) both with air shutters for achieving maximal thermal protection.

Management

SB7700, dual-core x86 CPU, comes with an onboard subnet manager, enabling simple, out-of-the-box fabric bring-up for up to 2k nodes. SB7700 switch runs the same MLNX-OS® software package as Mellanox FDR products to deliver complete chassis management, to manage the firmware, power supplies, fans and ports.

SB7700 switch can also be coupled with Mellanox's Unified Fabric Manager™ (UFM™) software for managing scale-out InfiniBand computing environments. UFM enables data center operators to efficiently provision, monitor and operate the modern data center fabric. UFM boosts application performance and ensures that the fabric is up and running at all times.

HIGHLIGHTS

BENEFITS

- Industry-leading switch platform in performance, power, and density
- Designed for energy and cost savings
- Quick and easy setup and management
- Maximizes performance by removing fabric congestions
- Backward compatible to FDR technology

KEY FEATURES

Performance

- 36 X EDR 100Gb/s ports in a 1U switch
- 7Tb/s aggregate switch throughput
- 90ns switch latency
- 136W typical power consumption

Optimized Design

- 1+1 redundant & hot-swappable power
- N+1 redundant & hot-swappable fans
- 80 gold+ and energy star certified power supplies
- Dual-core x86 CPU

Advanced Design

- Compliant with IBTA 1.2.1 and 1.3
- Congestion Control
- VL mapping (VL2VL)

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FEATURES

MELLANOX SB7700
- 19" rack mountable 1U chassis
- 36 QSFP28 non-blocking ports with aggregate data throughput up to 7 Tb/s (EDR)

SWITCH SPECIFICATIONS
- Compliant with IBTA 1.21 and 1.3
- 9 virtual lanes: 8 data + 1 management
- 256 to 4Kbyte MTU
- Adaptive Routing
- VL2VL mapping
- Port Mirroring
- 4X48K entry linear forwarding database

MANAGEMENT PORTS
- Dual 10/100/1000 Ethernet ports
- RS232 port over DB9
- USB port
- DHCP
- Familiar Industry Standard CLI
- Management over IPv6
- Management IP
- SNMP v1,v2,v3
- Web UI

FABRIC MANAGEMENT
- On-board Subnet Manager supporting fabrics of up to 2k nodes
- Unified Fabric Manager™ (UFM™) Agent

CONNECTORS AND CABLING
- QSFP28 connectors
- Passive copper or active fiber cables
- Optical modules

INDICATORS
- Per port status LED Link, Activity
- System status LEDs: System, fans, power supplies
- Port Error LED
- Unit ID LED*

PHYSICAL CHARACTERISTICS
- Dimensions: 1.7" (43.6 mm) H x 16.85" (428mm) W x 27" (685.8mm) D
- Weight: 11kg (24.2 Lb)

POWER SUPPLY
- Dual redundant slots
- Hot plug operation
- Input range: 100 - 127 VAC, 200-240VAC
- Frequency: 50-60Hz, single phase AC, 4.5A, 2.9A

COOLING
- Front-to-rear or rear-to-front cooling option
- Hot-swappable fan unit

POWER CONSUMPTION
- Typical Power with Passive Cables (ATIS): 136W

COMPLIANCE

SAFETY
- CB
- cTUVus
- CE
- CU

EMC (EMISSIONS)
- CE
- FCC
- VCCI
- ICES
- RCM

OPERATING CONDITIONS
- Temperature:
  - *Operating 0ºC to 45ºC*
  - *Non-Operating -40ºC to 70ºC*
- Humidity:
  - *Operating 10% to 85% non-condensing*
  - *Non-Operating 10% to 90% non-condensing*
- Altitude: Operating -60 to 3200m

ACOUSTIC
- ISO 7779
- ETS 300 753

OTHERS
- RoHS-6 compliant
- Rack-mountable, 1U
- 1-year warranty

Ordering Part Number	Description
MSB7700-ES2F	Switch-IB™-based 36-port QSFP28 EDR 1U Managed InfiniBand switch system with a non-blocking switching capacity of 7Tb/s. 2PS, Standard depth, P2C airflow, RoHS-6
MTEF-PSF-AC-A	460W AC Power Supply w/ P2C air flow
MTEF-PSR-AC-A	460W AC Power Supply w/ C2P air flow
MTEF-FANF-A	FAN MODULE W/ P2C air flow
MTEF-FANR-A	FAN MODULE W/ C2P air flow
LIC-Fabric-Inspector	Enhanced InfiniBand Diagnostics license

*P2C is connector side outlet, C2P is connector side inlet.

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