SWITCH SYSTEM

PRODUCT BRIEF

SB7790

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

SB7790 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 SB7790 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 SB7790 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 SB7790 is an elegant top of the rack design, created for performance, serviceability, energy savings and high-availability.

The SB7790 comes with two highly efficient, 80 gold+ and energy star certified, power supplies.

SB7790 switch has best in class design to support low power consumption. ATIS weighted power consumption is 122W for a fully populated switch with more power reduction if not all ports are used or fully utilized.

SB7790 has redundant power supplies (1+1) and fan draws (N+1) both with air shutters for achieving maximal thermal protection.

Building Efficient Clusters

The SB7790 is the industry's most cost-effective building block for deploying high performance clusters and data centers. Whether looking at price-to-performance or energy-to-performance, the SB7790 offers superior performance, low power and scale reducing capital and operating expenses providing the best return-on-investment.

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
- Compliant with IBTA 1.2.1 and 1.3
- 122W 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

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FEATURES

MELLANOX SB7790
- 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
- Congestion control
- Port Mirroring
- VL2VL mapping
- 4X48K entry linear forwarding database

MANAGEMENT PORTS
- I2C (RJ45)
- System reset button

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): 122W

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
MSB7790-ES2F	Switch-IB™-based 36-port QSFP28 EDR 1U Externally 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

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

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