



InfiniBand EDR 100Gb/s Routers

Switch-IB® 2

Switch-IB®

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

SB7780 and SB7880 InfiniBand routers enable new levels of subnets isolation and compute-to-storage connectivity, critical to large-scale and diverse data-centers.

Scaling-Out Data Centers with EDR 100G InfiniBand

High Performance Computing (HPC), Artificial Intelligence (AI), and Data-Intensive and Cloud infrastructures all leverage InfiniBand's high data throughput, extremely low latency, and smart In-Network Computing acceleration engines to deliver world-leading application performance and scalability, while reducing operational costs and infrastructure complexity. Mellanox's innovative In-Networking-based Scalable Hierarchical Aggregation and Reduction Protocol (SHARP)™ technology enables the acceleration of communications frameworks using embedded hardware, resulting in order of magnitude application and performance improvements.

In cases where the separation between InfiniBand subnets and keeping connectivity to a central InfiniBand Storage are required, InfiniBand Routers are the ideal solution.

Sustained Network Performance

SB7780 / SB7880 InfiniBand routers are based on Switch-IB® / Switch-IB® 2 ASICs, respectively. They offer fully-flexible 36 EDR 100Gb/s ports that can be split among several different subnets.

InfiniBand routers bring two major enhancements to the Mellanox InfiniBand portfolio:

- Increase resiliency by splitting the data center's network into several subnets; each subnet runs its own subnet manager, effectively isolating each subnet from the others' availability or instability
- Enable multiple compute to storage connections while separately isolating login access to each compute subnet

World-Class Design

SB7780 / SB7880 InfiniBand routers are elegantly designed for performance, serviceability, energy savings and high-availability. They come equipped with two highly efficient, 80 gold+ and energy star certified, power supplies.

Their best-in-class design enables the EDR IB routers to support low power consumption, with ATIS weighted power consumption as low as 122W for a fully populated system. This means more power reduction if not all ports are used or fully utilized.

SB7780 / SB7880 also have redundant power supplies (1+1) and their fans draw (N+1) both with air shutters for achieving maximal thermal protection.

HIGHLIGHTS

BENEFITS

- Industry-leading switch platform in performance, power, and density
- Designed for next level of scale and resiliency
- In-Network Computing-based Mellanox SHARP technology (SB7880)
- Quick and easy setup and management
- Flexible port allocation to support up to 8 different InfiniBand subnets

FEATURES

- Performance
 - 36 X EDR 100Gb/s ports in a 1U system
 - 7Tb/s aggregate switch throughput
 - Ultra-low 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

Management

The InfiniBand router's dual-core x86 CPU runs MLNX-OS® software package, which delivers complete chassis management of the router's firmware, power supplies, fans and ports. The router can also be coupled with Mellanox's Unified Fabric Manager (UFM®) platforms to manage scale-out InfiniBand computing environments.

Revolutionizing data center management, the UFM family of products combine enhanced, real-time network telemetry with AI-powered cyber intelligence and analytics. The UFM solutions minimize downtime by enabling system admins to quickly detect and respond to potential security threats and operational issues, and predict upcoming failures.

FEATURES

Mellanox SB7780 / SB7880

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

Router Specifications

- Compliant with IBTA 1.21 and 1.3
- 9 virtual lanes: 8 data + 1 management
- 256 to 4Kbyte MTU
- 8X 48K entry linear forwarding database

Management Ports

- 100/1000Mb/s 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

- 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 (24.2lb)

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 0°C to 45°C
 - Non-operating -40°C to 70°C

- Humidity:
 - Operating 10% to 85% non-condensing
 - Non-operating 10% to 90% non-condensing
- Altitude: Operating -60m to 3200m

Acoustic

- ISO 7779
- ETS 300 753

Others

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

Table 1 - Part Numbers and Descriptions

OPN	Description
MSB7780-ES2F	Switch-IB based 36-port QSFP28 EDR 1U router, 2 Power Supplies (AC), x86 dual core, standard depth, P2C* airflow, Rail Kit
MSB7880-ES2F	Switch-IB 2 based 36-port QSFP28 EDR 1U router, 2 Power Supplies (AC), x86 dual core, standard depth, P2C* airflow, Rail Kit
MSB7880-ES2R	Switch-IB 2 based 36-port QSDP28 EDR 1U router, 2 Power Supplies (AC), x86 dual core, standard depth, C2P* airflow, Rail Kit
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.