NVIDIA SWITCH-IB 2 SB7800 SERIES
Accelerating Data Centers With InfiniBand Switches

Resilience and Ease of Scale

Customers seeking to take advantage of the vast amount of data generated daily by high performance computing (HPC) and AI technologies, are increasingly finding themselves needing every bit of the bandwidth delivered by NVIDIA® InfiniBand high-speed smart switches.

In-Network Acceleration

High performance computing workloads require intelligent interconnect solutions to achieve the highest possible application performance. NVIDIA Scalable Hierarchical Aggregation and Reduction Protocol (SHARP)™ technology improves upon the performance of MPI operations, by offloading collective operations from the CPU to the switch network thus eliminating the need to send data multiple times between endpoints. This innovative approach decreases the amount of data traversing the network as aggregation nodes are reached, and dramatically reduces the MPI operations time. Additional benefits like collective communication, free up valuable CPU resources for computation rather than using them to process communication.

Reduced IT Costs and Complexity

NVIDIA SB7800 switches deliver 36 ports of 100 gigabits per second (Gb/s) InfiniBand per port in a standard 1U standard chassis design. A single switch carries an aggregated bidirectional throughput of 7.2 terabits per second (Tb/s) and ultra-low port latency, both improving application performance and scalability, and reducing operational costs and IT infrastructure complexity. As an ideal top-of-rack leaf connectivity solution for small to extremely large clusters, the internally managed SB7800 and the externally managed SB7890 100Gb/s InfiniBand fixed-configuration switches allow flexibility through enabling a variety of topologies.

World-Class Design

SB7800 switches are designed for performance, serviceability, energy savings and high-availability. The power-optimized design enables these switches 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 fully utilized. The SB7800 also has redundant power supplies (1+1) and fans that boast achieving maximal thermal protection.

SYSTEM SPECIFICATIONS

Performance	**100Gb/s per port**
Switch radix	**36 100Gb/s non-blocking ports with aggregate data throughput up to 7.2Tb/s**
Connectors and cabling	**36 x QSFP28**
Power supply	**1+1 redundant and hot-swappable power** **Input range: 100-127VAC, 200-240VAC** **80 Gold+ and ENERGY STAR certified**
Cooling	**Front-to-rear or rear-to-front** **Cooling option: hot-swappable fan**
Management ports	**1x RJ45** **1x RS232 (console)** **1x USB**
CPU	**Intel Celeron** **1047UE dual core**
System memory	**4GB RAM DDR3** **16GB SSD**
Software	**MLNX-OS (internally managed)**
System weight	**11.978 Kg**
System dimensions	**Height: 1.7 in (43.6 mm)** **Width: 16.85 in (433.2 mm)** **Depth: 27 in (590.6mm)**

Enhanced Management

The SB7800's dual-core x86 CPU runs MLNX-OS® software packages, which deliver complete chassis management of the switch's firmware, power supplies, fans and ports. The switch can also be coupled with NVIDIA UFM® platforms, with their comprehensive feature set to meet the broadest range of modern, scale-out InfiniBand data center requirements. Revolutionizing data center management, the UFM family of products combines enhanced, real-time network telemetry with AI-powered cyber intelligence and analytics. The UFM solutions minimize cluster downtime by empowering research and industrial data center operators to efficiently provision, monitor, manage, and preventatively troubleshoot and maintain their InfiniBand data center fabric.

SYSTEM SPECIFICATIONS

Rack mount	**1U rack mount**
Operating conditions	**Temperature:** **Operating: 0ºC-45ºC** **Non-operating: -40ºC-70ºC** **Humidity:** **Operating: 10%-85%** **Non-operating: 10%-90% non-condensing** **Altitude: up to 3,200m**
EMC (emissions)	**CE, FCC, VCCI, ICES, RCM**
Product safety compliant/certified	**RoHS, CS, cTUVus, CE, CU**

Ordering Information

OPN	Description
MSB7800-ES2F	Switch-IB 2-based 100Gb/s InfiniBand 1U switch, 36 QSFP28 ports, 2 power supplies (AC), x86 dual core, standard depth, P2C airflow, rail kit
MSB7800-ES2R	Switch-IB 2-based 100Gb/s InfiniBand 1U switch, 36 QSFP28 ports, 2 power supplies (AC), x86 dual core, standard depth, C2P airflow, rail kit
MSB7880-ES2R	Switch-IB 2 based 100Gb/s InfiniBand 1U router, 36 QSFP28 ports, 2 power supplies (AC), x86 dual core, standard depth, C2P airflow, rail kit
MSB7880-ES2F	Switch-IB 2 based 100Gb/s InfiniBand 1U router, 36 QSFP28 ports, 2 power supplies (AC), x86 dual core, standard depth, P2C airflow, rail kit

Learn more

Find out more about NVIDIA InfiniBand switches at **nvidia.com/en-us/networking/infiniband-switching/**
Find out more about NVIDIA UFM software at **nvidia.com/en-us/networking/management-software/**

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