

# Switch-IB™ EDR Switch Silicon

36-port switch device provides leading EDR 100Gb/s InfiniBand throughput per port, total of 7.2Tb/s throughput



Mellanox continues its interconnect leadership by providing the highest performing server and storage system interconnect solution for Enterprise Data Centers, Cloud Computing, High-Performance Computing, and embedded environments.

Switch-IB, the seventh generation switching IC from Mellanox, further improves the company's tradition of leading bandwidth, low-latency, and scalability of InfiniBand switching.

The industry-leading integration of 144 SerDes, which are flexible enough to run 1 Gb/s to 25 Gb/s speeds per lane, independent of network protocol, makes Switch-IB an obvious choice for OEMs that must address end-user requirements for faster and more robust applications. Reduced power and footprint and a fully integrated PHY capable of connectivity across PCBs, backplanes as well as passive and active copper/fiber cables allow interconnect fabrics based on Switch-IB to be utilized by network architects deploying leading, fabric-flexible computing and storage systems with the lowest total cost of ownership.

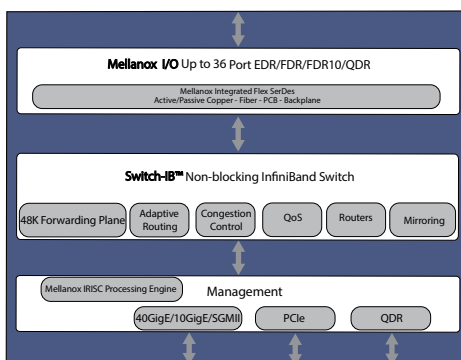


Figure 1: Mellanox Switch-IB Architecture

### EDR

EDR InfiniBand technology uses the efficient 64/66 encoding while increasing the per lane signaling rate to 25Gb/s. By using EDR 4X-ports and Mellanox ConnectX® family of InfiniBand adapters, users can increase end-to-end bandwidth up to 78% over previous FDR solutions.

### InfiniBand Interconnect

Switch-IB InfiniBand devices enable industry standard networking, clustering, storage, and management protocols to seamlessly operate over a single "one-wire" converged network. Combined with Mellanox's ConnectX family of adapters, on-the-fly fabric repurposing can be enabled for Cloud, Web 2.0, EDC and Embedded environments providing "future proofing" of fabrics independent of protocol.

Switch-IB enables IT managers to program and centralize their server and storage interconnect management and dramatically reduce their operations expenses by completely virtualizing their data center network.

### Switch Product Development

The Switch-IB Evaluation Board (EVB) and Software Development Kit (SDK) are available to accelerate OEMs' time to market and for running benchmark tests. These rack mountable evaluation systems are equipped with QSFP interfaces for verifying InfiniBand functionality. In addition, SMA connectors are available for SerDes characterization.

### HIGHLIGHTS

- Industry-leading cut-through latency
- Low-cost solution
  - Single-chip implementation
- Fully integrated PHY
  - Backplane and cable support
  - 1, 2 and 4 lanes
- Up to 7.2Tb/s of switching capacity
  - Up to 7.02 billion messages-per-second
- Up to 36, EDR 100Gb/s InfiniBand ports
- Hardware-based adaptive routing
- Congestion control
- Up to 8 switch partitions
- Mirroring

The Switch-IB SDK provides customers the flexibility to implement InfiniBand connectivity using a single switch device.

The SDK includes a robust and portable device driver with two levels of APIs, so the user can choose their level of integration. A minimal set of code is implemented in the kernel to allow for easy porting to various CPU architectures and operating systems, such as x86 and PowerPC architectures utilizing the Linux operating system. Within the SDK, the device driver and API libraries are written in standard ANSI “C” language for easy porting to additional processor architectures and operating systems. The same SDK supports the SwitchX-2 and the Switch-IB.

**Configurations**

- Switch-IB allows OEMs to deliver:
- 36-port 1U EDR InfiniBand switch
  - Modular chassis switch with up to 648 EDR InfiniBand ports

**Mellanox Advantage**

Mellanox is the leading supplier of industry standard InfiniBand and Ethernet HCA, NIC and switch silicon. Mellanox products have been deployed in clusters scaling to thousands- of nodes and are being deployed end-to-end in data centers and TOP500 systems around the world.

**COMPATIBILITY**

**CPU**

- PowerPC, Intel x86, AMD X86 and MIPS

**PCI EXPRESS INTERFACE**

- PCIe 3.0 compliant, 1.1 compatible
- 2.5GT/s, 5GT/s or 8GT/s x4 link rate

**CONNECTIVITY**

- Interoperability with InfiniBand adapters and switches
- Active/passive copper cables, fiber optics, PCB or backplanes

**MANAGEMENT & TOOLS**

- Support for Mellanox and IBTA compliant Subnet Managers (SM)
- Diagnostic and debug tools

**SPECIFICATIONS**

**INFINIBAND**

- IBTA Specification 1.3 compliant
- 10, 20, 40, 56 or 100Gb/s per 4X lane
- Integrated SMA/GSA
- Hardware-based congestion control
- 256 to 4KB MTU
- 9 virtual lanes: 8 data +1 management

**I/O SPECIFICATIONS**

- 36 4X SDR/DDR/QDR/FDR10/FDR/EDR InfiniBand ports
- SPI Flash interface, I2C
- IEEE 1149.1/1149.6 boundary-scan JTAG
- LED driver I/Os
- General purpose I/Os
- 52.5 x 52.5 mm FCBGA

Ordering Part Number	Description	Typical Power
MT52236A0-FDCR-E	Switch-IB, 36 Port EDR InfiniBand Switch IC	83W



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