



# SX6036

## 36-port Non-blocking Managed 56Gb/s InfiniBand/VPI SDN Switch System

SX6036 switch system provides the highest performing fabric solution in a 1U form factor by delivering up to 4Tb/s of non-blocking bandwidth with 200ns port-to-port latency.

### Scaling-Out Data Centers with Fourteen Data Rate (FDR) 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 FDR InfiniBand high-speed smart switches.

### FDR

FDR InfiniBand technology moves from 8b/10b encoding to a more efficient 64/66 encoding while increasing the per lane signaling rate to 14Gb/s. Mellanox end-to-end systems can also take advantage of the efficiency of 64/66 encoding using Mellanox FDR 10 supporting 20% more bandwidth over QDR using the same cables/connectors designed for 40 GbE.

### Sustained Network Performance

Built with Mellanox's sixth latest SwitchX® InfiniBand switch device, the SX6036 provides up to thirty-six 56Gb/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.

### Why Software Defined Network (SDN)?

Data center networks have become exceedingly complex. IT managers cannot optimize the networks for their applications leading to high CAPEX/OPEX, low ROI and IT headaches. Mellanox InfiniBand SDN Switches ensure

separation between control and data planes. InfiniBand enables centralized management and view of network. Programmability of the network by external applications and enable cost effective, simple and flat interconnect infrastructure.

The SX6036 enables efficient computing with features such as static routing, adaptive routing, and congestion control. These features ensure the maximum effective fabric bandwidth by eliminating congestion hot spots.

### Virtual Protocol Interconnect® (VPI)

Virtual Protocol Interconnect (VPI) flexibility enables any standard networking, clustering, storage, and management protocol to seamlessly operate over any converged network leveraging a consolidated software stack. VPI simplifies I/O system design and makes it easier for IT managers to deploy infrastructure that meets the challenges of a dynamic data center.

### Management

SX6036 comes with an onboard subnet manager, enabling simple, out-of-the-box fabric bring-up for up to 648 nodes. The SX6036 MLNX-OS® software delivers complete chassis management, to manage the firmware, power supplies, fans, ports and other interfaces.

SX6036 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

- Software Defined Network (SDN) support
- 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
- Fabric Management for cluster and converged I/O applications

### KEY FEATURES

- 36 FDR (56Gb/s) ports in a 1U switch
- Up to 4Tb/s aggregate switching capacity
- Compliant with IBTA 1.2.1 and 1.3
- FDR/FDR10 support for Forward Error Correction (FEC)
- InfiniBand to Ethernet Bridging
- Optional Redundant power supplies and fan drawers



## SPECIFICATIONS

### MELLANOX SX6036

- 19" rack mountable chassis, 1U with optional redundant power supplies and Fan units
- 36 QSFP non blocking ports with aggregate data throughput up to 4.032 Tb/s (FDR)
- Port-to-port latency 200ns

### 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\*\*
- 4X48K entry linear forwarding data base

### MANAGEMENT PORTS

- Dual 100/1000 Ethernet ports
- RS232 port over DB9
- USB port

### DEVICE MANAGEMENT

- CLI or SNMP

### FABRIC MANAGEMENT

- On-board SM for fabrics up to 648 nodes
- Unified Fabric Manager™ (UFM™) Agent

### CONNECTORS AND CABLING

- QSFP connectors
- Passive copper or active fiber cables
- Fiber media adapters

### INDICATORS

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

### PHYSICAL CHARACTERISTICS

- Dimensions: 1.72"H x 16.84"W x 24.7"D
- Weight: 20.5 Lbs (9.3 Kgs)

### POWER SUPPLY

- Dual redundant slots
- Hot plug operation
- Input range: 100 - 240VAC
- Frequency: 50-60Hz, single phase AC

### COOLING

- Front-to-rear or rear-to-front cooling option
- Hot-swappable fan unit
- Auto-heat sensing for silent fan operation

### POWER CONSUMPTION

- FDR - Typical power consumption:
- Passive cable - 126W
  - Active cable - 231W

## COMPLIANCE

### SAFETY

- US/Canada: cTUVus
- EU: IEC60950
- International: CB
- Russia: GOST-R
- Argentina: S-mark

### POWER SUPPLIES

- China CCC
- Korea KCC

### EMC (EMISSIONS)

- USA: FCC, Class A
- Canada: ICES, Class A
- EU: EN55022, Class A
- EU: EN55024, Class A
- EU: EN61000-3-2, Class A
- EU: EN61000-3-3, Class A
- Japan: VCCI, Class A
- Australia: C-TICK
- Brazil : ANATEL
- Taiwan : BSMI

### ENVIRONMENTAL

- EU: IEC 60068-2-64: Random Vibration
- EU: IEC 60068-2-29: Shocks, Type I / II
- EU: IEC 60068-2-32: Fall Test

### OPERATING CONDITIONS

- Operating 0°C to 45°C, Non Operating -40°C to 70°C
- Humidity: Operating 10% to 85%
- 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
MSX6036F-1SFS	SwitchX®-2-based 36-port QSFP FDR 1U Managed InfiniBand switch system with a non-blocking switching capacity of 4Tb/s. 1PS, Standard depth, Forward airflow*, RoHS-6
MSX6036T-1SFS	SwitchX®-2-based 36-port QSFP FDR10 1U Managed InfiniBand switch system with a non-blocking switching capacity of 2.9Tb/s. 1PS, Standard depth, Forward airflow*, RoHS-6
MSX60-PF	300W Power supply with power supply side to connector side air flow for MSX60xx and MSX10xx series switch systems
MSX60-PR	300W Power supply with connector side to power supply side air flow for MSX60xx and MSX10xx series switch systems
UPGR-6036F-GW	InfiniBand to Ethernet gateway software license for Mellanox 6036 Series Switch
LIC-Fabric-Inspector	Enhanced InfiniBand Diagnostics license

NOTE: 56GbE operation requires an additional license.

\* Forward airflow is connector side outlet, Reverse airflow in connector side inlet. Reverse airflow option is available in short depth

\*\* Available in future release



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