

# SX6018

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

SX6018 switch system provides the highest performing fabric solution in a 1U form factor by delivering up to 2Tb/s of non-blocking bandwidth with 170ns 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 generation SwitchX®-2 InfiniBand switch device, the SX6018 provides up to eighteen 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 SX6018 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

SX6018 comes with an onboard subnet manager, enabling simple, out-of-the-box fabric bring-up for up to 648 nodes. The MLNX-OS® software delivers complete chassis management, to manage the firmware, power supplies, fans, ports and other interfaces. MLNX-OS provides a license activated embedded diagnostic tool called Fabric Inspector to check node-to-node, node-to-switch connectivity and ensures fabric health.

SX6018 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.



## 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

- IPv6 Ready
- IPv6 IPsec

### KEY FEATURES

- Supports Virtual Protocol Interconnect (VPI)
- 18 FDR (56Gb/s) ports in a 1U switch
- Up to 2Tb/s aggregate switching capacity
- Compliant with IBTA 1.2.1 and 1.3
- FDR/FDR10 support for Forward Error Correction (FEC)
- Port mirroring\*\*
- Optional redundant power supplies and fan drawers



## SPECIFICATIONS

**MELLANOX SX6018**

- 19" rack mountable chassis, 1U with optional redundant power supplies and fan units
- 18 QSFP non blocking ports with aggregate data throughput up to 2.016 Tb/s (FDR)
- Port-to-port latency 170ns

**SWITCH SPECIFICATIONS**

- Compliant with IBTA 1.2.1 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
- Software Defined Network

**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: 19.8 Lbs (9.0 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 - 105W
- Active cable - 152W

## 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

**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 5% to 95%
- Altitude: Operating -60 to 2000m

**ACOUSTIC**

- ISO 7779
- ETS 300 753

**OTHERS**

- RoHS-6 compliant
- Rack-mountable, 1U
- 1-year warranty

| Ordering Part Number | Description   |
|----------------------|---|
| MSX6018F-1SFS        | SwitchX®-2 based 18-port QSFP FDR 1U managed InfiniBand switch system with a non-blocking switching capacity of 2Tb/s. 1PS, standard depth, forward airflow*, RoHS-6    |
| MSX6018F-1BRS        | SwitchX®-2 based 18-port QSFP FDR 1U managed InfiniBand switch system with a non-blocking switching capacity of 2Tb/s. 1PS, short depth, reverse airflow*, RoHS-6       |
| MSX6018T-1SFS        | SwitchX®-2 based 18-port QSFP FDR10 1U managed InfiniBand switch system with a nonblocking switching capacity of 1.4Tb/s. 1PS, standard depth, forward airflow*, RoHS-6 |
| MSX6018T-1BRS        | SwitchX®-2 based 18-port QSFP FDR10 1U managed InfiniBand switch system with a nonblocking switching capacity of 1.4Tb/s. 1PS, short depth, reverse 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   |
| LIC-6018-GW          | InfiniBand to Ethernet gateway software license for Mellanox 6018 Series switch   |
| LIC-Fabric-Inspector | Enhanced IB Diagnostics license   |

\* Forward airflow is connector side outlet, Reverse airflow in connector side inlet

\*\*Available in future release



350 Oakmead Parkway, Suite 100, Sunnyvale, CA 94085  
 Tel: 408-970-3400 • Fax: 408-970-3403  
[www.mellanox.com](http://www.mellanox.com)