Mellanox ®
TECHNOLOGIES

SX6506

108-port Non-blocking FDR 56Gb/s InfiniBand SDN Switch System

SX6506 switch system provides the highest-performing fabric solution in a 6U form factor factor by delivering 12.1Tb/s of non-blocking bandwidth with sub 1us port latency.

SX6506

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.

Sustained Network Performance

Built with Mellanox's latest SwitchX® InfiniBand switch device, the SX6506 provides up to 108 56Gb/s full bi-directional bandwidth per port.

The SX6506 can scale as the number of nodes per cluster and the number of cores per node increase. This modular chassis switch provides an excellent price-performance ratio for medium to extremely large size clusters, along with the reliability and manageability expected from a director-class switch. The leaf, spine blades and management modules, as well as the power supplies and fan units, are all hot-swappable to help eliminate down time.

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 SX6506 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.

Management

SX6506 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 the fabric health.

The SX6506 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
- Unlimited scalability across storage, application and database servers
- Quick and easy setup and management
- Maximizes performance by removing fabric congestions

KEY FEATURES
- 108 FDR (56Gb/s) ports in a 6U switch
- 12.1Tb/s aggregate switching capacity
- Ultra low switching latency
- Quality of Service enforcement
- FDR/FDR10 support for Forward Error Correction (FEC)
- N+N power supply

MANAGEMENT
- Intuitive CLI and GUI for easy access
- Fully managed by Mellanox Unified Fabric Manager (UFM)

HARDWARE

MELLANOX SX6506

– 6U modular chassis
– 18 QSFP InfiniBand ports per blade, up to 56Gb/s per QSFP
– Aggregate data throughput 12.1 Tb/s
– sub 1us port latency

SWITCH SPECIFICATIONS

– Compliant with IBTA 1.21 and 1.3
– 256 to 4Kbyte MTU
– 4x48K entry linear forwarding table

CONNECTORS AND CABLING

– QSFP+ connectors
  (SFF-8436 and INF- 8438i compliant)
– Passive copper or active fiber cable
– Fiber media adapters

INDICATORS

– Per port status LEDs: Link, Activity
– System status LEDs:
  • *System, power supply and fans*
– Port Error LED
– UnitID LED**

POWER SUPPLY

– Hot swappable units with N+N slots for redundancy (@220VAC only)
– Input range: 90-264VAC
– Frequency: 47-63Hz, single phase AC

COOLING

– Hot-swappable fan trays
– Front-to-rear air flow
– Auto-heat sensing fans

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-003, 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

ACOUSTIC

– ISO 7779
– ETS 300 753

OPERATING CONDITIONS

– Operating temperature: 10 to 45° C
– Humidity: 10-90% non-condensing others
– RoHS-6 compliant
– 1-year warranty

Ordering Information

Ordering Part Number	Description
MSX6506-NR	SwitchX®, 12.1Tb/s, 108-port FDR/FDR10/QDR chassis switch, includes 4 fans and 2 power supplies (N+N configuration), RoHS-6
MSX6001FS	SwitchX-2® 18 port FDR Leaf Blade, RoHS-6
MSX6001TS	SwitchX-2® 18-port FDR10 Leaf Blade, RoHS-6
MSX6002FLS	SwitchX-2® 36 port FDR VPI spine, RoHS-6
MSX6002TBS	SwitchX-2® 36 port FDR10/QDR VPI spine, RoHS-6
MSX6000MAR	PPC460 management module, RoHS-6
LIC-Fabric-Inspector	Enhanced IB Diagnostics license

Please visit Mellanox's web site for more cable information, best usage practice and availability.

*** Available in future release*

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