Mellanox®
TECHNOLOGIES

SX1400

48-port 10GbE + 12-port 40/56GbE SDN Switch System

With industry leading density, power efficiency and low latency, the SX1400 is the first non-blocking top of rack SDN switch providing unmatched performance advantage while lowering capital and operational expenditures.

The SX1400, is the optimal top of rack switch with 48 port of 10GbE and 12 uplink ports of 40/56GbE for non-blocking throughput between rack and aggregation layer. Based on Mellanox's SwitchX®-2 silicon and advanced hardware design this switch packs 48 SFP+ and 12 QSFP interfaces in an ultra-dense 1U form factor. The SX1400 features industry leading latency of 250ns and power efficiency while providing optimal performance for enterprise data center, financial services, Web 2.0, high performance computing and cloud computing applications.

SwitchX-2 carries a unique design that enables users with a straight forward platform for implementation of a Software Defined Network, allowing the construction of a high scale network with advanced fine tuning control plane capabilities The SX1400 support the Virtual Protocol Interconnect (VPI) technology which enables it to be used for both Ethernet and InfiniBand technology providing the user with flexibility and investment protection. The SX1400 provides a full suite of management options, including support for Mellanox's Unified Fabric Manager™ (UFM™), SNMP V1,2,3, and web user interfaces. In addition, the SX1400 incorporates a familiar industry-standard CLI, which enables administrators to easily configure the switch.

To ensure long term applicability, the SX1400 is provisioned to enhance its current capabilities with additional L2 and L3 features through software upgrades.

World-Class Design

The SX1400 is an elegant top-of-rack design that is architected for performance, serviceability, energy savings and high-availability. SX1400 comes with 12 QSFP and can be further broken to allow a higher number of 10GbE ports on the expense of 40GbE ports up to as much as 64 10GbE ports on a single switch. The compact 1RU design and optimal port count of 48 SFP+ and 12 QSFP ports, provide the perfect solution for a high density, server packed rack without the need to compromise for blocking ratio on the uplink ports. Both standard and reverse airflow schemes are supported to ensure compatibility with different data center thermal designs. Redundant power supplies and fans provide high availability for both Enterprise Data Center and High Performance Computing environments. Status LEDs for fans and power supply units are placed on the front side of the system for easy status identification. Common accessories such as rack mount kit, AC power and RJ45 console cables are included with a quick-start guide as part of the standard system to ensure fast installation and a positive out-of-the-box experience.

The SX1400 switch carries a high capacity quad core x86 processor. This allows the switch to function in environments demanding high performance and multiple functions from the CPU, without jeopardizing other switch attri¬butes and/or degrading user experience.

Using an x86 processor allows the implementation of virtual machines on the system's CPU and enables the operation of various applications on the CPU in addition to the MLNX-OS management software.

HIGHLIGHTS

BENEFITS
- Optimal ToR design
- 48x10GbE hosts ports and 12x40/56GbE uplinks
- Software Defined Networking support
- Leading performance and scalability
- Low latency (270ns)
- Energy efficient
- Virtual Protocol Interconnect (VPI)
- Built-in L3 features
- IPv6 Ready
- IPv6 IPsec

KEY FEAUTURES
- High Density
  - *Non-Blocking ToR for 48 10GbE ports*
  - *Up to 64 10GbE ports*
- Lowest Latency
  - *220nsec for 40GbE*
  - *270nsec for 10GbE*
- Lowest Power
- Control Plane resiliency
  - *Quad core x86 CPU*
  - *16GB SSD*
  - *4GB DIMM*
- VM running user applications

End-to-End

The SX1400 switch is interoperable with components supporting the Ethernet industry standards. The switch becomes an integral part of an optimized end-to-end networking solution when combined with other Mellanox Ethernet products, including the ConnectX® family of 10GbE NICs, acceleration and management software and cables. These solutions deliver industry-leading performance, scalability, reliability and power usage for optimal data center efficiency and application performance across a wide range of industry applications in financial services, Web 2.0, database, cloud and HPC environments.
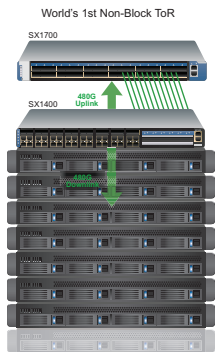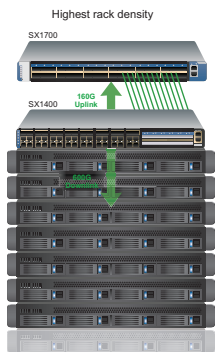

World's 1st Non-Block ToR

Figure 1.

Highest rack density
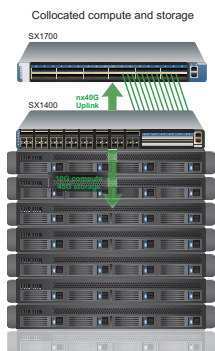
Figure 2.

Collocated compute and storage

Figure 3.

FEATURES

LAYER 2 FEATURE SET
– 1GBE, 10GBE, 40GBE, 56GBE
– 48K L2 Forwarding Entries
– Static MAC
– Jumbo Frames (9216 BYTES)
– VLAN 802.1Q (4K)
– 802.1W Rapid Spanning Tree Protocol
• BPDU Filter
• ROOT Guard
• LOOP Guard
• BPDU Guard
– 802.1S Multiple Spanning Tree Protocol
– PVRST+ (Rapid Per VLAN Spanning Tree+)
– 802.3AD Link Aggregation/LACP
• 16 Ports/Channel
• 32 Groups Per System
– Multi Chassis Link Aggregation Group (MLAG)
– 802.3X Flow Control
– 802.1QBB Priority Flow Control (PFC)
– 802.1QAZ Enhanced Transmission Selection (ETS)
– DCBX
– 802.1AB LLDP
– Access Control Lists (L2-L4)
– SFLOW
– Port Mirroring
– FCoE

LAYER 3 FEATURE SET
– Static Routes v4/v6
– OSPFv2
– BGPv4
– Router port interface for routing
– VLAN interface for routing
– PIM Bi-Dir
– DHCP Relay
– ECMP
– VRRP
– IGMP Querier Router

NETWORK MANAGEMENT
– 100/1000 Management port
– In-Band Management

– Serial Console Port
– SDN
– OpenFlow
– Embedded puppet Agent
– RADIUS
– TACACS+
– LDAP
– SSHv2
– DHCP/Zeroconf
– Familiar Industry Standard CLI
– Management over IPv4/IPv6
– Telnet
– File download via SCP, FTP & TFTP client
– Network Time Protocol (NTP)
– Syslog
– Dual SW Image
– Auto Temperature Control
– System alarms
– Port Counters
– Event notification
– SNMP v1,v2,v3
– E-Mail
– Web UI
– Predefined scheduled scripts
– System health monitoring

POWER SPECIFICATIONS
– Typical Power Consumption: 182
– Max Power Consumption: 220
– Input Voltage Range: 100-240VAC

PHYSICAL CHARACTERISTICS
– Dimensions:
  • 1.716" (H) x 16.85" (W) x 24.75" (D)
  • 43.6mm (H) x 428mm (W) x 628.9 mm (D)
– Weight: 19.40 lbs (8.80 kgs)

SUPPORTED MODULES AND CABLES
– QSFP, SFP+ short and long range optics
– QSA - QSFP to SFP+ adapter
– QSFP to SFP+ DAC cable
– QSFP to QSFP DAC Cable
– QSFP breakout cables 40GbE to 4x10GbE
  – DAC, Optical
– QSFP AOC

Part Number	Description
MSX1400-BS2F2	SwitchX®-2 based 48-port SFP+ 10GbE and 12-port QSFP 40GbE 1U Ethernet Switch, 2 Power Supplies, Standard depth, PSU side to Connector side airflow, x86 CPU, Rail kit and ROHS6
MSX1400-BS2R2	SwitchX®-2 based 48-port SFP+ 10GbE and 12-port QSFP 40GbE 1U Ethernet Switch, 2 Power Supplies, Standard depth, Connector side to PSU side airflow, x86 CPU, Rail kit and ROHS6

NOTE: 56GbE operation requires an additional license.

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