Mellanox
TECHNOLOGIES

SX1012

12-Port 40/56GbE, 48-Port 10GbE, High Performance in Small Scale

The SX1012 switch system provides the highest-performing top-of-rack (ToR) solution in a half-width 1U form factor by delivering up to 1.3Tb/s of non-blocking throughput with 10GbE or 40/56GbE form factor.

The SX1012 is the ideal top-of-rack (ToR) switch for small pods connecting a small number of servers with 40GbE. Each QSFP port can be used with a passive breakout cable to create four discrete SFP+ interfaces to be used as 10GbE ports, for a total of 48-ports on the smallest form factor 10GbE ToR in the industry.

The SX1012 switch has a rich set of networking and application performance features that excel and enable Software Defined Networking in any data center, making this switch the perfect solution for your network.

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 SX1012 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 SX1012 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 SX1012 incorporates a familiar industry-standard CLI, which enables administrators to easily configure the switch.

To ensure long term applicability, the SX1012 is provisioned to enhance its current capabilities with additional L2 and L3 features through software upgrades.

World-Class Design

The SX1012 carries a unique design to accommodate the highest performance at a small form factor.

The unique design allows placement of two switches positioned side-by-side in a standard 19" rack to occupy 1RU height with high availability from the Network Interface Card level.

The SX1012 is available as reverse or forward airflow, allowing the switch to fit into data centers with different thermal designs and redundant power supplies and fans, providing yet another level of high availability for the application running within the pod.

Status LEDs for fans and power supply units are placed on both sides of the system for easy status identification. Quick start guide, rack mount kit, AC power cord and RJ45 console cable are provided as part of the standard system providing an easy out-of-the-box experience.

End-to-End
Mellanox is a leading supplier of end-to-end connectivity solutions. The SX1012, together with Mellanox cables and adapters, brings the networking industry's first end-to-end 40/56GbE.

HIGHLIGHTS

BENEFITS
– Unprecedented Performance
  - *Storage and server applications run faster*
– Smallest form factor ToR switch
– 48 x 10GbE ports in half-width 1RU
– Side-by-side deployment in a standard rack
– Running full MLNX-OS
– Low latency, high performance
– Software Defined Networking (SDN) support
– Efficiency
  - *Simple configuration, no need for QoS (40/56GbE vs. 10GbE)*
– IPv6 Ready
– IPv6 IPsec

KEY FEATURES
– High Density
  - *12 40/56GbE ports in 1RU*
  - *Up to 48 10GbE ports*
– Lowest Latency
  - *220nsec for 40GbE*
  - *270nsec for 10GbE*
– Lowest Power
  - *Maximum power consumption: <100 Watts*

FEATURES

LAYER 2 FEATURE SET
– 48K L2 Forwarding Entries
– Static MAC
– 802.1w Rapid Spanning Tree Protocol
  • *BPDU Filter*
  • *Root Guard*
  • *Loop Guard*
– 802.1s Multiple Spanning Tree Protocol
– 802.3ad Link Aggregation/LACP
  • *16 ports/channel*
  • *32 groups per system*
– 802.3x Flow control
– 802.1Qbb Priority Flow Control (PFC)
– 802.1Qaz Enhanced Transmission Selection (ETS)
– DCBx
– 802.1AB LLDP
– VLAN 802.1Q (4K)
– IGMP v1,v2, Snooping, Querier
– Access Control Lists (L2-L4)
– Jumbo Frames (9216 Bytes)
– sFlow
– Port Mirroring
– 1GbE, 10GbE, 40GbE, 56GbE

LAYER 3 FEATURE SET
– Static Routes
– OSPF
– ECMP
– VLAN interface for routing
– DHCP Relay

NETWORK MANAGEMENT
– 100/1000 Management port
– In-Band Management
– Serial Console Port
– SDN

– OpenFlow
– RADIUS
– TACACS+
– LDAP
– SSHv2
– DHCP
– Familiar Industry Standard CLI
– Management over IPv6
– Management IP
– Telnet
– File download via SCP, FTP & TFTP client
– Simple Network Time Protocol (SNTP)
– Syslog
– Dual SW Image
– Auto Temprature Control
– System alarms
– Port Counters
– SNMP v1,v2,v3
– Web UI
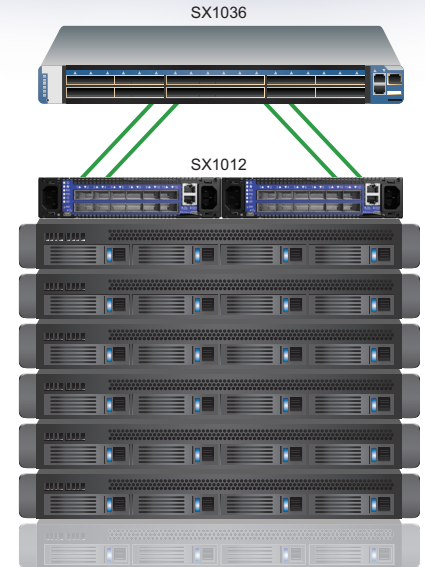
POWER SPECIFICATIONS
– ATIS Weighted Power consumption: 49.9W
– Max Power consumption: 100W
– Input Voltage Range: 100-240VAC

PHYSICAL CHARACTERISTICS
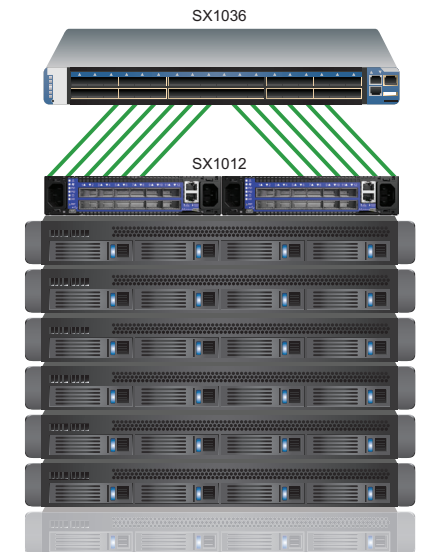– Dimensions: 1.72"H x 7.87"W x 15.74"D
– Weight: 7.1Lbs (3.2 Kgs)

SUPPORTED MODULES AND CABLES
– QSFP – 40GbE module
– QSA - QSFP to SFP+ adapter
– QSFP to QSFP Cable – 1M, 3M
– QSFP splitter cables 40GbE to 4x10GbE

– 48 10GbE Ports
– 40 10GbE + 2 x 40GbE

Figure 1. 10GbE ToR Switch

– Smallest Footprint
– Cost Optimized
– 56GbE Capable
– Best Resiliency

Figure 2. 40/56GbE ToR Switch

Ordering Part Number	Description
MSX1012B-2BFS	SwitchX®-2 based 12-port QSFP 40/56GbE 1U Ethernet Switch, 12 QSFP ports, 2 PS, Short depth, PSU side to Connector side airflow and RoHS-6
MSX1012B-2BRS	SwitchX®-2 based 12-port QSFP 40/56GbE 1U Ethernet Switch, 12 QSFP ports, 1 PS, Short depth, Connector side to PSU side airflow and RoHS-6

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