SX1012X Open Ethernet Switch

12-Port 10GbE, High-Performance Small-Scale Switch

The SX1012X switch system provides a 10GbE top-of-rack (ToR) solution in a half-width 1U form factor.

The SX1012X is an ideal 10GbE TOR switch. It offers twelve 1/10GbE ports in a unique half-width, 1 rack unit (RU) form factor. For deployments requiring high availability, two SX1012Xs can be deployed side-by-side in a 1RU rack space.

The unique port count and form factor make the SX1012X the perfect fit for a rack with several storage/compute nodes.

The SX1012X 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 SX1012X provides a full suite of management options, including support for Mellanox's NEO™, SNMP v1,2,3, and web user interfaces. In addition, the SX1012X incorporates a familiar industry-standard CLI, which enables administrators to easily configure the switch.

To ensure long term applicability, the SX1012X is provisioned to enhance its current capabilities with additional L2 and L3 features through software upgrades.

WORLD-CLASS DESIGN

The SX1012X 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 SX1012X 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 SX1012X, together with Mellanox cables and adapters, offers an end-to-end 10GbE solution.

HIGHLIGHTS

BENEFITS

- Unprecedented performance
  - Storage and server applications run faster
- Smallest form factor ToR switch
- 12 x 10GbE ports in half-width 1RU
- Side-by-side deployment in a standard rack
- Running Mellanox Onyx™ (successor to MLNX-OS)
- Low latency, high performance
- Software Defined Networking (SDN) support
- Efficiency
- Competitive pricing

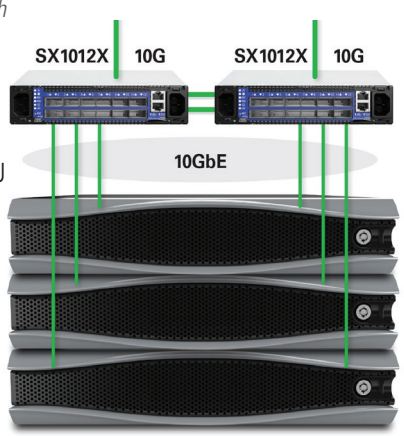
KEY FEATURES

- High availability
  - 12 10GbE ports in 1RU
  - Side-by-side in 1RU
- Lowest latency
  - 270nsec
- Lowest power
  - Typical power consumption 50 Watts

† For illustration only. Actual products may vary.

Figure 1. *10GbE ToR Switch*

- Smallest footprint
- Cost optimized
- Best resiliency
- High availability in 1RU
- Lowest power



Typical Cabling Options

The SX1012X comes with QSFP cable connectors. In order to enable 1/10GbE connections, the following typical cabling options are available:

- 10Gb copper connection
  - QSFP+ to SFP+ DAC
  - QSA with SFP+ to SFP+ DAC
- 10Gb optical connection
  - QSA with SR transceiver
- 1Gb copper connection
  - QSA with 1G transceiver

Figure 2. *QSFP to SFP+ (3m*) (MC2309130-003)*

Figure 3. *QSA (MAM1Q00A-QSA)*

Figure 4. *SFP+ to SFP+ (3m*) (MC3309130-003)*

*The displayed cables are 3m in length; Mellanox supports various lengths up to 7m.

FEATURES

Layer 2 Feature Set

- 1GbE, 10GbE
- 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
- 802.1Q Multiple Spanning Tree Protocol
- PVRST+ (Rapid Per VLAN Spanning Tree+)
- 802.3ad Link Aggregation/LACP
  - 16 Ports/Channel
  - 64 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
- 802.1x
- IGMP v1/v2/v3 Snooping Querier
- Access Control Lists (L2-L4)
- sFlow
- Port Mirroring

Layer 3 Feature Set

- Static Routes v4
- OSPFv2
- BGPv4
- Router Port Interface for Routing
- VLAN Interface for Routing
- PIM Bi-Dir
- DHCP Relay
- ECMP, 64-way
- VRRP
- IGMP v2/v3

Network Management

- 100/1000 Management port
- In-Band Management
- Serial Console Port
- SDN
- OpenFlow 1.0
- 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
- Web UI
- Predefined Scheduled Scripts
- System Health Monitoring

Power Specifications

- ATIS Weighted Power Consumption: 49.9W
- Input Voltage Range: 100-240VAC

Physical Characteristics

- Dimensions: 1.72"H x 7.87"W x 15.74"D
- Weight: 7.1lbs (3.2kgs)

* This section describes hardware features and capabilities. Please refer to the driver and firmware release notes for feature availability.

Table 1 - Part Numbers and Descriptions

OPN	Description
SX1012X-2BFS	SwitchX®-2 based, 1U Open Ethernet Switch with Mellanox Onyx, 12 QSFP+ ports, 2 Power Supplies (AC), short depth, PPC460, Connector airflow out, Rail Kit must be purchased separately, RoHS6
SX1012X-2BRS	SwitchX®-2 based, 1U Open Ethernet Switch with Mellanox Onyx, 12 QSFP+ ports, 2 Power Supplies (AC), short depth, PPC460, Connector airflow in, Rail Kit must be purchased separately, RoHS6
MSX60-DKIT	Rack installation kit for SwitchX®-2 12-port series short depth 1U switches, allows installation of one or two switches side-by-side into a standard depth rack

350 Oakmead Parkway, Suite 100, Sunnyvale, CA 94085
Tel: 408-970-3400 • Fax: 408-970-3403
www.mellanox.com