SX1012

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

The SX1012 SDN 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 straightforward 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 NEO®, 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.
## 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
- 802.1Q Multiple Spanning Tree Protocol
- PVST+(Rapid Per VLAN Spanning Tree+)
- 802.3ad Link Aggregation/LACP
  - 16 Ports/Channel
  - 64 Groups Per System
- 802.3K Flow Control
- 802.1Qb Priority Flow Control (PFC)
- 802.1Qaz Enhanced Transmission Selection (ETS)
- DCBX
- 802.1AB LLDP
- IGMP V1, V2, Snooping, Querier
- Access Control Lists (L2-L4)
- sFlow
- Port Mirroring

### 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, 64-way
- VRRP
- IGMP Querier Router

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

<table>
<thead>
<tr>
<th>Ordering Part Number</th>
<th>Description</th>
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<tbody>
<tr>
<td>MSX1012B-2BFS</td>
<td>SwitchX®-2 based 12-port QSF 40/56GbE 1U Ethernet Switch, 12 QSFP ports, 2 PS, Short depth, P2C airflow and RoHS-6, Rail Kit must be purchased separately</td>
</tr>
<tr>
<td>MSX1012B-2BRS</td>
<td>SwitchX®-2 based 12-port QSF 40/56GbE 1U Ethernet Switch, 12 QSFP ports, 2 PS, Short depth, C2P airflow and RoHS-6, Rail Kit must be purchased separately</td>
</tr>
<tr>
<td>MSX60-DK1</td>
<td>Rack installation kit for SX1012 short depth 1U switches</td>
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*P2C is connector side outlet, C2P is connector side inlet.

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**Figure 1.** 10GbE ToR Switch

**Figure 2.** 40/56GbE ToR Switch

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

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