



SN2740 Open Ethernet Switch



Spectrum-based 32-port 100GbE Open Ethernet Platform

Mellanox SN2740 provides the most predictable, highest density 100GbE switching platform for the growing demands of today's data centers.

The SN2740 switch is an Open Network Install Environment (ONIE-based) platform that supports mounting a multitude of operating systems on it. SN2740 utilizes both the advantages of Open Networking and the high throughput delivery of Mellanox Spectrum™ ASIC.

The SN2740 has three modes of operation, while also offering multiple pre-installment options:

- Mellanox Onyx™ (successor to MLNX-OS Ethernet), a home-grown operating system utilizing common networking user experiences and industry standard CLI.
- Cumulus® Linux, a revolutionary operating system that extends the Linux user experience from servers to switches and at the same time optimizes the routing performance for large scale applications.
- Bare ONIE image ready to be installed with the aforementioned or other ONIE-based operating systems.

The SN2740 switch is an ideal spine and top-of-rack (ToR) solution, allowing maximum flexibility, with port speeds spanning from 10Gb/s to 100Gb/s per port and port density that enables full rack connectivity to any server at any speed. The uplink ports allow a variety of blocking ratios that suit any application requirement.

Powered by the Spectrum ASIC and packed with 32 ports running at 100GbE, the SN2740 carries a throughput of 6.4Tb/s with a landmark 9.52Bpps processing capacity in a compact 1RU form factor.

SETTING THE HIGHEST PERFORMANCE STANDARDS

Keeping with the Mellanox tradition of record-setting performance switch systems, the SN2740 introduces the world's lowest latency for a 100GbE switching and routing element, and does so while having the lowest power consumption in the market. With the SN2740, you can migrate your (10/40GbE) legacy system to a (25/50/100GbE) next generation network, minus the cost and complexity of a power infrastructure upgrade.

The SN2740 is part of Mellanox's complete end-to-end solution which provides 10GbE through 100GbE interconnectivity within the data center. Other devices in this solution include ConnectX®-4 /ConnectX®-5 based network interface cards, and LinkX™ copper or fiber cabling. This end-to-end solution is topped with Mellanox NEO™, a management application that relieves some of the major obstacles when deploying a network. NEO enables a fully certified and interoperable design, speeds up time to service and return on investment (ROI).

HIGHLIGHTS

BENEFITS

- A predictable data center through predictable, affordable network
- Choice, no vendor lock-in
- Zero Packet Loss ([learn more](#))
- Future proof solution: enhanced scalability
- Arranged and organized data center
 - Supports speeds of 10/25/40/50/56/100GbE
 - Easy deployment
 - Easy maintenance
- Unprecedented performance
 - Line rate performance on all ports at all packet sizes
 - Storage and server applications run faster
- Lowest power
- Software Defined Networking (SDN) support
- Running Mellanox Onyx, Cumulus Linux, and alternative operating systems over ONIE

KEY FEATURES

- Throughput
 - 6.4Tb/s
 - 9.52B packets-per-second
- High density
 - 32 40/56/100GbE ports in 1RU
 - Up to 64 10/25/50GbE ports
- Lowest latency
 - 300nsec for 100GbE port-to-port
 - Flat latency across L2 and L3 forwarding

SUPERIOR HARDWARE AND PERFORMANCE

The SN2740 introduces superior hardware capabilities including dynamic flexible shared buffers and predictable wire speed performance with no packet loss for any packet size.

While Spectrum provides the required thrust and acceleration to power the SN2740, the system enjoys yet another angle of capabilities when running with a powerful x86-based processor. The result is the highest performing switch fabric element, which can also incorporate

a Linux server into the same device. This opens up multiple application aspects of utilizing both high CPU processing power and the best switching fabric. The end result is a powerful machine with unique appliance capabilities, designed to improve numerous network implementation paradigms.

Mellanox SN2740 Ethernet switch series is aimed at the 100/50/25GbE market, whereas the SN2740B series is geared for the 40/10GbE market. Additionally, SN2740B switches are priced comfortably for the 40/10GbE market, while also providing the superior feature set of Spectrum.

FEATURES

Layer 2 Feature Set

- Multi chassis LAG (MLAG)
- IGMPv2/v3, Snooping, Querier
- VLAN 802.1Q (4K)
- Q-In-Q
- 802.1W Rapid Spanning Tree
 - BPDU Filter, Root Guard
 - Loop Guard, BPDU Guard
- 802.1Q Multiple STP
- PVRST+ (Rapid Per VLAN STP+)
- 802.3ad Link Aggregation (LAG) & LACP
 - 32 Ports/Channel – 64 Groups Per System
- LLDP
- Store & forward / cut-through mode of work
- HLL
- 10/25/40/50/56/100GbE
- Jumbo Frames (9216 Bytes)

Layer 3 Feature Set

- User and management VRFs
- IPv4 & IPv6 routing including route maps: BGP4, OSPFv2
- PIM-SSM

- BFD (BGP, OSPF, static routes)
- VRRP
- DHCPv4/v6 Relay
- Router Port, int VLAN, NULL Interface for Routing
- ECMP, 64-way
- IGMPv2/v3 Snooping Querier

Synchronization

- PTP IEEE-1588 (SMPTE profile)
- NTP

Quality of Service

- 802.3X Flow Control
- WRED, Fast ECN & PFC
- 802.1Qbb Priority Flow Control
- 802.1Qaz ETS
- DCBX – App TLV support
- Advanced QoS – Qualification, Rewrite, Policers – 802.1AB
- Shared buffer management

Management and Automation

- ZTP
- Ansible, Puppet
- FTP / TFTP / SCP
- AAA , RADIUS / TACACS+ / LDAP

- JSON & CLI, Web UI
- SNMP v1,2,3
- In-band management
- DHCP, SSHv2, Telnet
- SYSLOG
- 10/100/1000Mb/s Ethernet RJ45 mng ports
- USB Console port for Management
- Dual SW image
- Events history
- ONIE

Network Virtualization

- VXLAN Hardware VTEP – L2 GW
- Integration with VMware NSX & OpenStack, etc.

Software Defined Network (SDN)

- OpenFlow 1.3:
 - Hybrid
 - Supported controllers: ODL, ONOS, FloodLight, RYU, etc.

Docker Container

- Full SDK access through the container
- Persistent container & shared storage

Monitoring & Telemetry

- sFlow
- Real time queue depth histograms & thresholds
- Port mirroring (SPAN & ERSPAN)
- Enhanced Link & Phy Monitoring
- BER degradation monitor
- Enhanced health mechanism
- 3rd party integration (Splunk, etc.)

Security

- USA Department of Defense certification – UC APL
- System secure mode – FIPS 140-2 compliance
- Storm Control
- Access Control Lists (ACLs L2-L4 & user defined)
- 802.1X - Port Based Network Access Control
- SSH server strict mode – NIST 800-181A
- CoPP (IP filter)
- Port isolation

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

SPECIFICATIONS

Power Specifications

- Typical power with passive cables (ATIS): 150W
- Input range: 100-127 VAC, 200-240VAC
- Frequency: 50-60Hz, single phase AC, 4.5A, 2.9A

Physical Characteristics

- Dimensions:
 - 1.72" (43.9mm) H x
 - 17.2" (438mm) W x
 - 15.5" (394mm) D
- Weight: 7.5kg (16.5lb)

Supported Modules and Cables

- QSFP28, SFP28 (with QSA) short and long range optics
- QSFP28 to QSFP28 DAC cable
- QSFP breakout cables 100GbE to 4x25GbE and 40GbE to 4x10GbE DAC, optical

- QSFP breakout cables 100GbE to 2x50GbE DAC, optical
- QSFP AOC
- 1000BASE-T module

Table 1 - SN2740 Series Part Numbers and Descriptions

OPN	Description
MSN2740-CB2F1	Spectrum™ based 100GbE, 1U Open Ethernet Switch with Mellanox Onyx, 32 QSFP28 ports, 2 Power Supplies (AC), x86 CPU, Short depth, P2C airflow, Rail Kit, RoHS6
MSN2740-CB2F1C	Spectrum™ based 100GbE 1U Open Ethernet Switch with Cumulus Linux, 32 QSFP28 ports, 2 Power Supplies (AC), Short depth, x86 CPU, P2C airflow, Rail Kit, RoHS6
MSN2740-CB2F10	Spectrum™ based 100GbE 1U Open Switch with ONIE, 32 QSFP28 ports, 2 Power Supplies (AC), Short depth, x86 CPU, P2C airflow, Rail Kit, RoHS6

*C2P – Connector-to-Power supply airflow, P2C – Power supply-to-Connector airflow.



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