

# SN2000 Series

## Mellanox Spectrum™-based 1/10/25/40/50/100GbE Open Ethernet Platforms

The SN2000 switch series provides the most predictable, high density, 100GbE switching platforms for the growing demands of today's data centers

### HIGHLIGHTS

- Freedom of NOS choice, no vendor lock-in
- Form a predictable data center
- Zero packet loss ([learn more](#))
- Future proof solution ; enhanced scalability
- Support speeds of 1/10/25/40/50 and 100GbE
- SN2100 and SN2010 have a unique, half-width, TOR form factor
- Throughput of up to 6.4Tb/s
- Sub 300ns, industry leading, true, cut-through latency
- 16MB dynamically-shared, flexible packet buffering
- Lowest power, under 5W per 100GbE port

### OVERVIEW

The SN2000 switch series is comprised of ONIE (Open Network Install Environment) based platforms which support the mounting of a multitude of operating systems and utilize the advantages of Open Networking and the Mellanox Spectrum™ ASIC capabilities.

The SN2000 switches are ideal for leaf and spine data center network solutions, allowing maximum flexibility, with port speeds spanning from 10Gb/s up 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.

The SN2000 series 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 SN2000 series, the use of 25, 40, 50 and 100GbE in large scale is enabled without changing the power infrastructure facilities.

The SN2000 series offers three modes of operation:

- Preinstalled with Mellanox Onyx™ (successor to MLNX-OS Ethernet), a home-grown operating system utilizing common networking user experiences and an industry standard CLI.
- Preinstalled with Cumulus™ Linux, a revolutionary operating system, taking the Linux user experience from servers to switches and providing a rich routing functionality for large scale applications.
- Bare metal including ONIE image ready to be installed with the aforementioned or other ONIE-mounted operating systems.

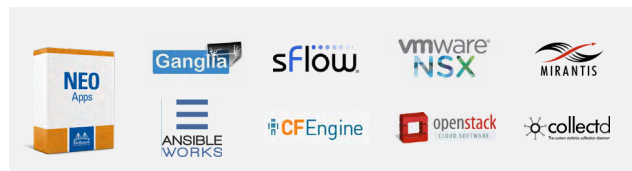
## WHAT IS OPEN ETHERNET?

The current landscape of proprietary Ethernet switches limits the foundation of compute and storage clouds and Web 2.0 infrastructures. The “Open Ethernet” initiative is an alternative approach to traditional closed-code Ethernet switches that provides customers with full flexibility and freedom to custom-design their data center in order to optimize utilization, efficiency, and overall return on investment.

The [Open Ethernet](#) initiative is based on a complete separation between the switch hardware and the switch software. In simple terms, it allows IT managers and data center planners the option to make independent selections with regard to their switching equipment and to “mix and match” offerings from different equipment vendors to achieve optimal configuration and have better control of both capital and operational expenditures.

The hardware drivers expose Open API, which is a standard, open interface that allows integration into any Open Ethernet protocol and application. Examples of such applications are the Quagga routing suite, OpenFlow agent, or a vendor-developed application.

### APPLICATIONS



### OPERATING SYSTEM



### HARDWARE



Figure 1. Open Ethernet Operating System and Hardware

## ONIE AND SPECTRUM LINUX SWITCH

The Open Network Install Environment (ONIE) is an Open Compute Project open source initiative driven by a community to define an open “install environment” for bare metal network switches, such as the Mellanox SN2000 series. ONIE enables a bare metal network switch ecosystem where end users have a choice of different network operating systems. Any Network Operation System (NOS) such as Microsoft® SONiC or Dell® EMC OpenSwitch which runs on top of ONIE can be easily deployed with the SN2000 series.

Spectrum Linux Switch enables users to natively install and use any standard Linux distribution as the switch operating system. Spectrum Linux Switch is based on Switchdev, a Linux kernel driver model for Ethernet switches. It breaks the dependency of using vendor-specific, closed-source software development kits (SDK). The open-source Linux driver is developed and maintained in the Linux kernel, replacing proprietary APIs with standard Linux kernel interfaces to control the switch hardware. This allows off-the-shelf Linux-based networking applications to operate on the Spectrum switch for L2 switching and L3 routing, including open source routing protocol stacks, such as Quagga, Bird and XORP, OpenFlow applications, or user-specific implementations.

## MELLANOX ONYX

Mellanox Onyx (successor to MLNX-OS Ethernet) is a high performance, flexible and cloud-scale switch operating system, designed for the demands of next-generation data centers. Whether building a robust storage fabric, cloud, financial or media & entertainment fabric, customers can leverage the flexibility of Onyx to tailor their network platform to their environment.

With built-in workflow automation, monitoring and visibility tools, enhanced high availability mechanisms, and more, Mellanox Onyx simplifies network processes and workflows, increasing efficiencies and reducing operating expenses and time-to-service.

## CUMULUS-LINUX

[Cumulus Linux](#) embodies native Linux networking. Supercharged versions of the kernel and other networking-related packages encompass the latest industry thinking in networking while retaining compatibility with the full range of software available in Debian. The SN2000 series running Cumulus Linux provides standard networking functions such as bridging, routing, VLANs, MLAGs, IPv4/IPv6, OSPF/BGP, access control, VRF and VXLAN overlays. Cumulus-Linux running on top of Mellanox SN2000 series is a perfect fit for customers with a need for automated-cloud deployments, Layer-3 to the server deployments and “infrastructure as code” data-centers.

## SONiC

Microsoft Software for Open Networking in the Cloud (SONiC) is the first solution to break monolithic switch software into multiple containerized components. SONiC enables fine-grained failure recovery and in-service upgrades with zero downtime. At its core, SONiC is aimed at cloud networking scenarios, where simplicity and managing at scale are the highest priority. All together with monitoring and diagnostic capabilities, SONiC is a perfect fit for the Mellanox SN2000 series.

## DOCKER CONTAINERS

A docker container enables you to pack any piece of software and run it in an isolated container on top of the Linux operating system. In contrary to VMs which required a full copy of the operating system, containers bundle only libraries and settings required by the software and, therefore, are much lighter and more efficient. Dockers can be used to run and manage various applications side-by-side in isolated containers and get better compute density, enabling faster and secure delivery of new features. Mellanox Onyx support enables the customer to share selected storage spaces between the various containers and Onyx itself.

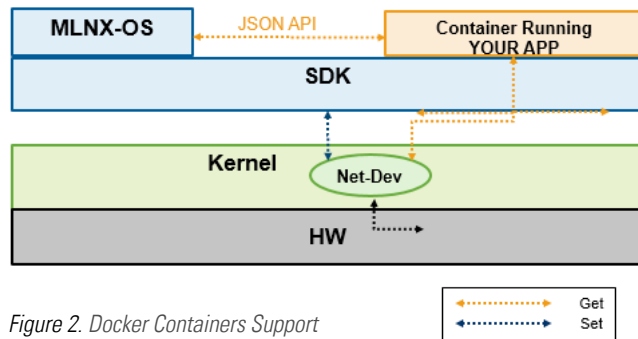


Figure 2. Docker Containers Support

## VXLAN AND EVPN

Modern data centers are moving to a layer 3 fabric which means running a routing protocol, such as BGP or OSPF, between the leaf and spine switches. In order to provide layer 2 connectivity between hosts and VMs on different racks as well as maintain multi-tenant separation, a layer 2 overlay solution is needed. VXLAN is the de facto technology for implementing network virtualization in the data center, enabling layer 2 segments to be extended over an IP core (the underlay). The initial definition of VXLAN did not include any control plane and relied on a flood-and-learn approach for MAC address learning. Practical deployments of VXLAN without a control plane often use a controller. With Cumulus Linux, Ethernet Virtual Private Network (EVPN) is a standards-based control plane for VXLAN that allows the building and deploying of VXLANs at scale, removing the vendor-specific controller dependency. Cumulus EVPN supports redundancy, traffic engineering, multi-tenant separation, and fast convergence for host and VM mobility — all while interoperating between vendors.

## HIGH AVAILABILITY

The Mellanox SN2000 series switches were designed for high availability from both a software and hardware perspective. Key high availability features include:

- 1+1 hot-swappable power supplies and four N+1 hot-swap fans (supported on SN2700, SN2740 and SN2410)
- Color coded PSUs and fans
- Up to 64 10/25/40/50/100GbE ports per link aggregation group
- Multi-chassis LAG for active/active L2 multi-pathing
- 64-way ECMP routing for load balancing and redundancy

## END-TO-END 100GbE SOLUTION

The SN2000 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 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 eventually speeds up ROI.

The SN2000 series introduces superior hardware capabilities including dynamic flexible shared buffers and predictable wire speed performance with no packet loss for any packet size. While the SN2000 Ethernet switch series is aimed for the 25/50/100GbE market, Mellanox offers similar systems for the 10/40GbE market. SN2000B switches are priced comfortably for the 10/40GbE market and provide the superior feature set of Spectrum.

The SN2000 series supports all standard compliances and is fully interoperable with third party systems.

## SPECTRUM SYSTEMS OVERVIEW

The Mellanox SN2000 series come in three different configurations. All powered by the Spectrum™ ASIC, each configuration delivers high performance combined with feature-rich layer 2 and layer 3 forwarding, suited for both top-of-rack leaf and fixed configuration spines.

Front side view



### SN2700/SN2740

The SN2700/SN2740 carries a huge throughput of 6.4Tb/s, 32 ports at 100GbE, with a landmark 4.76Bpps processing capacity in a compact 1RU form factor. With port speeds spanning from 10Gb/s to 100Gb/s per port and a wide choice of QSFP transceivers and cables support. Mellanox SN2700/SN2740 supports flat latency of 300ns in cut-through mode, and a shared 16 MB packet buffer pool that is allocated dynamically to ports that are congested.



### SN2410

The SN2410 has 8 ports running at 100GbE (can be split to 16 ports running 50GbE) and 48 ports running at 25GbE, carrying throughput of 4Tb/s with a 2.97Bpps processing capacity in a compact 1RU form factor. The SN2410 switch is an ideal top-of-rack (ToR) solution, allowing maximum flexibility, with port speeds spanning from 10Gb/s to 100Gb/s per port. Its optimized port configuration enables high-speed rack connectivity to any server at 10GbE or 25GbE speeds. The 100GbE uplink ports allow a variety of blocking ratios that suit any application requirement.



### SN2100

The SN2100 carries a unique design to accommodate the highest rack performance. Its design allows side-by-side placement of two switches in a single 1RU slot of a 19" rack, delivering high availability to the hosts. The SN2100 accommodates 16 ports running at 100GbE, with throughput of 3.2Tb/s and a 2.38Bpps processing capacity.



### SN2010

The SN2010 switch is the ideal top of rack (ToR) solution for small hyper-converged and storage deployments. Packed with 18 ports of 10/25GbE and 4 ports of 40/100GbE, the SN2010 can deliver up to 1.7Tb/s with 1.26Bpps processing capacity in a compact half width 1RU form factor.

Rear side view





## TECHNICAL SPECIFICATIONS

Layer 2 Features	Layer 3 Features	Management and Automation
Multi chassis LAG (MLAG), MLAG with STP support	User and management VRFs	ZTP
IGMPv2/v3, Snooping, Querier	IPv4 & IPv6 routing including route maps	Ansible, Puppet
VLAN 802.1Q (4K)	MP-BGP, OSPFv2	FTP / TFTP / SCP
Q-In-Q	PIM-SSM, PIM-SM	AAA , RADIUS / TACACS+ / LDAP
802.1W Rapid Spanning Tree	BFD (BGP, OSPF, static routes)	JSON & CLI, Web UI
<ul style="list-style-type: none"> <li>• BPDU Filter, Root Guard</li> <li>• Loop Guard, BPDU Guard</li> </ul>	VRRP	SNMP v1,2,3
802.1Q Multiple STP	DHCPv4/v6 Relay	In-band management
RSTP, MSTP and PVRST	Router Port, int VLAN, NULL Interface for Routing	DHCP, SSHv2, Telnet
802.3ad Link Aggregation (LAG) & LACP	ECMP, 64-way	SYSLOG
<ul style="list-style-type: none"> <li>• 16 Ports/Channel – 64 Groups Per System</li> </ul>	IGMPv2/v3 Snooping Querier	10/100/1000Mb/s Ethernet RJ45 mng ports
LLDP		USB
Store & forward / cut-through mode of work		Console port for management
HLL		Dual SW image
1/10/25/40/50/56/100GbE		Events history
Jumbo Frames (9216 Bytes)		ONIE

Quality of Service (QoS)	Monitoring & Telemetry	Security
802.3X Flow Control	sFlow	USA Department of Defense certification – UC APL
WRED, Fast ECN & PFC	Real time queue depth histograms & thresholds	System secure mode – FIPS 140-2 compliance
802.1Qbb Priority Flow Control	Port mirroring (SPAN & ERSPAN)	Storm Control
802.1Qaz ETS	Enhanced Link & Phy Monitoring	Access Control Lists (ACLs L2-L4 & user defined)
DCBX – App TLV support	BER degradation monitor	802.1X - Port Based Network Access Control
Advanced QoS – Qualification, Rewrite, Policers – 802.1AB	Enhanced health mechanism	SSH server strict mode – NIST 800-181A
Shared buffer management	3 <sup>rd</sup> party integration (Splunk, etc.)	CoPP (IP filter)
		Port isolation

Synchronization	Network Virtualization	Software Defined Network (SDN)
PTP IEEE-1588 (SMPTE profile)	VXLAN Hardware VTEP – L2 GW	OpenFlow 1.3:
NTP	Integration with VMware NSX & OpenStack, etc.	<ul style="list-style-type: none"> <li>• Hybrid</li> <li>• Supported controllers: ODL, ONOS, FloodLight, RYU, etc.</li> </ul>

Docker Container
– Full SDK access through the container
– Persistent container & shared storage

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

Standards	SNMP MIBs
802.1D Bridging and Spanning Tree	RFC 4001 INET-ADDRESS-MIB
802.1p QOS	IANAifType-MIB
802.1Q VLAN Tagging	RFC 2863 IF-MIB
802.1w Rapid Spanning Tree	RFC 4318 RSTP-MIB
802.1s Multiple Spanning Tree Protocol	LLDP-MIB 802.1AB-2005
802.1AB Link Layer Discovery Protocol	RFC 4363 Q-BRIDGE-MIB
802.1Qaz ETS	RFC 4188 BRIDGE-MIB
802.1Qbb PFC	RFC 4133 ENTITY-MIB
802.3ad Link Aggregation with LACP	RFC 3433 ENTITY-SENSOR-MIB
802.3ba 40 and 100 Gigabit Ethernet	RFC 4268 ENTITY-STATE-MIB
802.3x Flow Control	RFC 2572 SNMP-MPD-MIB
1000BASE-KX	RFC 4293 IP-MIB
802.3ae 10 Gigabit Ethernet	RFC 4022 TCP-MIB
	RFC 4113 UDP-MIB
	RFC 4292 IP-FORWARD-MIB
	RFC 2790 HOST-RESOURCES-MIB
	RFC 1213
	SNMPV2-CONF
	RFC 2579 SNMPV2-TC MIB
	RFC 3417 SNMPV2-TM MIB
	RFC 3826 SNMP-USM-AES-MIB
	Mellanox SMI MIB
	Mellanox IF-VPI-MIB
	Mellanox enhanced ENTITY-MIB
	Mellanox Power-Cycle-MIB
	Mellanox SW-Update-MIB
	Mellanox Config-MIB

Standard Compliance	
Safety	CB
	cTUVus
	CE
	CU
EMC	CE
	FCC
	VCCI
	ICES
	RCM
Operating Conditions	Operating 0°C to 40°C
	Non-Operating -40°C to 70°C
Relative Humidity	5% to 85%
Operating Altitude	0 – 2000m
ROHS 6	

**Specifications**

Switch Model	SN2700	SN2740	SN2410	SN2100	SN2010
Max 100GbE ports	32	32	8	16	4
Max 40GbE ports	32	32	8	16	4
Max 25GbE ports	64	64	64	64	34
Max 10GbE ports	64	64	64	64	34
Throughput	6.4Tb/s	6.4Tb/s	4Tb/s	3.2Tb/s	1.7Tb/s
Packet Per Second	4.76Bpps	4.76Bpps	2.97Bpps	2.38Bpps	1.26Bpps
Latency	300ns	300ns	300ns	300ns	300ns
CPU	Dual-core x86	ATOM x86	Dual-core x86	ATOM x86	ATOM x86
System Memory	8GB	8GB	8GB	8GB	8GB
SSD Memory	32GB	32GB	32GB	16GB	16GB
Packet Buffer	16MB	16MB	16MB	16MB	16MB
100/100 Mgmt Ports	1	1	1	1	1
Serial Ports	1 RJ45	1 RJ45	1 RJ45	1 RJ45	1 RJ45
USB Ports	1	1	1	1 Mini USB	1 Mini USB
Hot-Swap Power Supplies	2 (1+1 redundant)	2 (1+1 redundant)	2 (1+1 redundant)	No	No
Hot-Swappable Fans	4 (N+1 redundant)	4 (N+1 redundant)	4 (N+1 redundant)	No	No
Reversible Airflow Option	Yes	Yes	Yes	Yes	Yes
Power Supplies	Frequency: 50-60Hz Input range: 100-264 AC Input current 4.5-2.9A	Frequency: 50-60Hz Input range: 100-264 AC Input current 4.5-2.9A	Frequency: 50-60Hz Input range: 100-264 AC Input current 4.5-2.9A	Frequency: 50-60Hz Input range: 100-264 AC Input current 4.5-2.9A	Frequency: 50-60Hz Input range: 100-264 AC Input current 4.5-2.9A
Typical Power (ATIS)	150W	150W	165W	94W	57W
Size (W x H x D)	1.72" x 16.84" x 27" (43.9mm x 427.8mm x 686mm)	1.72" x 17.2" x 15.5" (43.9mm x 438mm x 394mm)	1.72" x 17.24" x 17" (43.9mm x 438mm x 436mm)	1.72" x 7.87" x 20" (43.9mm x 200mm x 508mm)	1.72" x 7.87" x 20" (43.9mm x 200mm x 508mm)
Weight	11.1kg (24.5lb)	7.5kg (16.5lb)	8.52kg (18.8lb)	4.54kg (10lb)	4.54kg (10lb)

**Supported Cables and Optics**

100GbE	QSFP28	SKUs
100BASE-CR4	0.5-3m LSZH DAC	MCP1600-C0XX
100BASE-AOC	3-100m	MFA1A00-CXXX (VCSEL based)
	3-200m	MFS1200-CXXX (SiP based)
100BASE-SR4	850nm, MPO, up to 100m	MMA1B00-C100D
100BASE-PSM	1550nm, MPO, up to 2km	MMS1C00-C500
100BASE-LR4	1310nm, LC-LC, up to 10km	MMA1L10-CR
40GbE	QSFP	SKUs
40BASE-CR4	1-5m DAC	MC2210130-00X
40BASE-AOC	3-100m	MC2210310-XXX
40BASE-SR4	850nm, MPO up to 100m	MC2210411-SR4
	850nm, MPO up to 300m	MC2210411-SR4E
40BASE-LR4	1310nm, LC-LC, up to 10km	MC2210511-LR4
40GbE to 4 x 10GbE	1-5m DAC	MC26091XX-00X
25GbE	SFP28	SKUs
25BASE-CR	0.5-3m DAC	MCP2M00-A0XX
25BASE-AOC	3-100m	MFA2P10-AXXX
25BASE-SR	850nm, LC-LC, up to 100m	MMA2P00-AS
100GbE to 4 x 25GbE	1-3 m DAC	MCP7F00-A0XX
100GbE to 2 x 50GbE	1-3m DAC	MCP7H00-G0XX
10GbE	SFP+	SKUs
10BASE-CR	1-7m DAC	MC3309xxx-00X
10BASE-SR	850nm, LC-LC up to 300m	MFM1T02A-SR
10BASE-LR	1310nm, LC-LC, up to 10km	MFM1T02A-LR

## Supported SKUs

MSN2700-BS2F	Spectrum™ 40GbE 1U Open Ethernet Switch with Mellanox Onyx, 32 QSFP28 ports, 2 Power Supplies (AC), x86 CPU, Standard depth, P2C airflow, Rail Kit, RoHS6		
MSN2700-BS2FC	Spectrum™ 40GbE 1U switch w/Cumulus Linux, 32 QSFP28 ports, 2 AC PSUs, x86 2-core, standard depth, P2C airflow, Rail Kit, RoHS6 (Cumulus License Key is required)		
MSN2700-BS2FO	Spectrum™ 40GbE 1U Open Switch with ONIE, 32 QSFP28 ports, 2 Power Supplies (AC), Standard depth, x86 CPU, P2C airflow, Rail Kit, RoHS6		
MSN2700-BS2R	Spectrum™ 40GbE 1U Open Ethernet Switch with Mellanox Onyx, 32 QSFP28 ports, 2 Power Supplies (AC), x86 CPU, Standard depth, C2P airflow, Rail Kit, RoHS6		
MSN2700-BS2RC	Spectrum™ 40GbE 1U switch w/Cumulus Linux, 32 QSFP28 ports, 2 AC PSUs, x86 2-core, standard depth, C2P airflow, Rail Kit, RoHS6 (Cumulus License Key is required)		
MSN2700-CS2F	Spectrum™ 100GbE 1U Open Ethernet Switch with Mellanox Onyx, 32 QSFP28 ports, 2 Power Supplies (AC), x86 CPU, Standard depth, P2C airflow, Rail Kit, RoHS6		
MSN2700-CS2FC	Spectrum™ 100GbE 1U switch w/Cumulus Linux, 32 QSFP28 ports, 2 AC PSUs, x86 2-core, standard depth, P2C airflow, Rail Kit, RoHS6 (Cumulus License Key is required)		
MSN2700-CS2FE	Spectrum™ 100GbE 1U Development System with SDK, 32 QSFP28 ports, 2 Power Supplies (AC), Standard depth, x86 CPU, P2C airflow, Rail Kit, RoHS6		
MSN2700-CS2FO	Spectrum™ 100GbE 1U Open Switch with ONIE, 32 QSFP28 ports, 2 Power Supplies (AC), Standard depth, x86 CPU, P2C airflow, Rail Kit, RoHS6		
MSN2700-CS2R	Spectrum™ 100GbE 1U Open Ethernet Switch with Mellanox Onyx, 32 QSFP28 ports, 2 Power Supplies (AC), x86 CPU, Standard depth, C2P airflow, Rail Kit, RoHS6		
MSN2700-CS2RC	Spectrum™ 100GbE1U switch w/Cumulus Linux, 32 QSFP28 ports, 2 AC PSUs, x86 2-core, standard depth, C2P airflow, Rail Kit, RoHS6 (Cumulus License Key is required)		
MSN2740-CB2F1	Spectrum™ 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-CB2R1	Spectrum™ 100GbE 1U Open Ethernet Switch with Onyx, 32 QSFP28 ports, 2 power supplies (AC), x86 Atom CPU, short depth, C2P airflow, Rail Kit, RoHS6		
MSN2740-CB2F10	Spectrum™ 100GbE 1U Open Switch with ONIE, 32 QSFP28 ports, 2 Power Supplies (AC), Short depth, x86 CPU, P2C airflow, Rail Kit, RoHS6		
MSN2410-BB2F	Spectrum™ 10GbE/100GbE 1U Open Ethernet switch with Mellanox Onyx, 48 SFP28 ports, 8 QSFP28 ports, 2 power supplies (AC), x86 dual core, Short depth, P2C airflow, Rail Kit, RoHS6		
MSN2410-BB2FC	Spectrum™ 10GbE/100GbE switch w/Cumulus Linux, 48 SFP28 ports + 8 QSFP28 ports, 2 AC PSUs, x86 2-core, short depth, P2C air flow, Rail Kit (Cumulus License Key is required)		
MSN2410-BB2FO	Spectrum™ 10GbE/100GbE 1U Open Ethernet switch with ONIE, 48 SFP28 ports, 8 QSFP28 ports, 2 power supplies (AC), x86 dual core, Short depth, P2C airflow, Rail Kit, RoHS6		
MSN2410-BB2R	Spectrum™ 10GbE/100GbE 1U Open Ethernet switch with Mellanox Onyx, 48 SFP28 ports, 8 QSFP28 ports, 2 power supplies (AC), x86 dual core, Short depth, C2P airflow, Rail Kit, RoHS6		
MSN2410-CB2F	Spectrum™ 25GbE/100GbE 1U Open Ethernet switch with Mellanox Onyx, 48 SFP28 ports, 8 QSFP28 ports, 2 power supplies (AC), x86 dual core, Short depth, P2C airflow, Rail Kit, RoHS6		
MSN2410-CB2FC	Spectrum™ 25GbE/100GbE switch w/Cumulus Linux, 48 SFP28 ports + 8 QSFP28 ports, 2 AC PSUs, x86 2-core, short depth, P2C air flow, Rail Kit (Cumulus License Key is required)		
MSN2410-CB2FE	Spectrum™ 25GbE/100GbE 1U Development System with SDK, 48 SFP28 ports, 8 QSFP28 ports, 2 power supplies (AC), x86 dual core, Short depth, P2C airflow, Rail Kit, RoHS6		
MSN2410-CB2FO	Spectrum™ 25GbE/100GbE 1U Open Ethernet switch with ONIE, 48 SFP28 ports, 8 QSFP28 ports, 2 power supplies (AC), x86 dual core, Short depth, P2C airflow, Rail Kit, RoHS6		
MSN2410-CB2R	Spectrum™ 25GbE/100GbE 1U Open Ethernet switch with Mellanox Onyx, 48 SFP28 ports, 8 QSFP28 ports, 2 power supplies (AC), x86 dual core, Short depth, C2P airflow, Rail Kit, RoHS6		
MSN2410-CB2RC	Spectrum™ 25GbE/100GbE switch w/Cumulus Linux, 48 SFP28 ports + 8 QSFP28 ports, 2 AC PSUs, x86 2-core, short depth, C2P air flow, Rail Kit (Cumulus License Key is required)		
MSN2410-CB2RO	Spectrum™ 25GbE/100GbE 1U Open Ethernet switch with ONIE, 48 SFP28 ports, 8 QSFP28 ports, 2 power supplies (AC), x86 dual core, Short depth, C2P airflow, Rail Kit, RoHS6		
MSN2100-BB2F	Spectrum™ 40GbE 1U Open Ethernet Switch with Mellanox Onyx, 16 QSFP28 ports, 2 AC PSUs, x86 2-core, short depth, P2C airflow, Rail Kit must be purchased separately, RoHS6		
MSN2100-BB2FC	Spectrum™ 40GbE 1U switch w/Cumulus Linux, 16 QSFP28 ports, 2 AC PSUs, x86 2-core, short depth, P2C airflow, Rails to be purchased separately, (Cumulus License Key is required)		
MSN2100-BB2FO	Spectrum™ 40GbE 1U Open Switch with ONIE, 16 QSFP28 ports, 2 AC PSUs, x86 2-core, short depth, P2C airflow, Rail Kit must be purchased separately, RoHS6		
MSN2100-BB2R	Spectrum™ 40GbE 1U Open Ethernet Switch with Mellanox Onyx, 16 QSFP28 ports, 2 AC PSUs, x86 2-core, short depth, C2P airflow, Rail Kit must be purchased separately, RoHS6		
MSN2100-BB2RC	Spectrum™ 40GbE 1U switch w/Cumulus Linux, 16 QSFP28 ports, 2 AC PSUs, x86 2-core, short depth, C2P airflow, Rails to be purchased separately (Cumulus License Key is required)		
MSN2100-CB2F	Spectrum™ 100GbE 1U Open Ethernet Switch with Mellanox Onyx, 16 QSFP28 ports, 2 AC PSUs, x86 2-core, short depth, P2C airflow, Rail Kit must be purchased separately, RoHS6		
MSN2100-CB2FC	Spectrum™ 100GbE 1U switch w/Cumulus Linux, 16 QSFP28 ports, 2 AC PSUs, x86 2-core, short depth, P2C airflow, Rails to be purchased separately (Cumulus License Key is required)		
MSN2100-CB2FE	Spectrum™ 100GbE 1U Development System with SDK, 16 QSFP28 ports, 2 Power Supplies (AC), Short depth, Rangeley CPU, P2C airflow, Rail Kit must be purchased separately, RoHS6		
MSN2100-CB2FO	Spectrum™ 100GbE 1U Open Switch with ONIE, 16 QSFP28 ports, 2 AC PSUs, x86 2-core, short depth, P2C airflow, Rail Kit must be purchased separately, RoHS6		
MSN2100-CB2R	Spectrum™ 100GbE 1U Open Ethernet Switch with Mellanox Onyx, 16 QSFP28 ports, 2 AC PSUs, x86 2-core, short depth, C2P airflow, Rail Kit must be purchased separately, RoHS6		
MSN2100-CB2RC	Spectrum™ 100GbE 1U switch w/Cumulus Linux, 16 QSFP28 ports, 2 AC PSUs, x86 2-core, short depth, C2P airflow, rails to be purchased separately (Cumulus License Key is required)		
MSN2010-CB2F	Spectrum™ 10/25GbE and 100GbE switch with Mellanox Onyx, 18 SFP28 ports, 4 QSFP28 ports, 2 AC PSUs, short depth, x86 CPU, P2C airflow, rail kit must be purchased separately		
MSN2010-CB2R	Spectrum™ 10/25GbE and 100GbE switch with Mellanox Onyx, 18 SFP28 ports, 4 QSFP28 ports, 2 AC PSUs, short depth, x86 CPU, C2P airflow, rail kit must be purchased separately		
MSN2010-CB2FC	Spectrum™ 10/25GbE and 100GbE switch with Cumulus, 18 SFP28 ports, 4 QSFP28 ports, 2 AC PSUs, x86 CPU, P2C airflow, rail kit must be purchased separately (Cumulus license Key is required)		
MSN2010-CB2RC	Spectrum™ 10/25GbE and 100GbE switch with Cumulus, 18 SFP28 ports, 4 QSFP28 ports, 2 AC PSUs, x86 CPU, C2P airflow, rail kit must be purchased separately (Cumulus license Key is required)		
MSN2010-CB2FO	Spectrum™ 10/25GbE and 100GbE open switch with ONIE, 18 SFP28 ports, 4 QSFP28 ports, 2 AC PSUs, short depth, x86 CPU, P2C airflow, rail kit must be purchased separately		
MTEF-PSF-AC-A	Spare 460W AC power supply w/P2C air flow	MTEF-KIT-D	Rack installation kit for SN2100/SN2010 series short depth 1U switches
MTEF-PSR-AC-A	Spare 460w AC power supply w/C2P air flow	MTEF-KIT-SP	Spare rack installation kit for SN2410 series to be mounted into standard depth racks
MTEF-FANF-A	Spare fan module w/P2C air flow	MTEF-KIT-BP	Spare rack installation kit for SN2410 series to be mounted into short depth racks
MTEF-FANR-A	Spare fan module w/C2P air flow	MTEF-KIT-A	Spare rack installation kit for SN2700 series to be mounted into short or standard depth racks

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

## Warranty Information

The Mellanox SN2000 series switches come with a one-year limited hardware return-and-repair warranty, with a 14 business day turnaround after the unit is received. For more information, please visit the [Mellanox Technical Support User Guide](#).

## Additional Information

Support services including next business day and 4-hour technician dispatch are available. For more information, please visit the [Mellanox Technical Support User Guide](#). Mellanox offers installation, configuration, troubleshooting and monitoring services, available on-site or remotely delivered. For more information, please visit the [Mellanox Global Services web site](#).



350 Oakmead Parkway, Suite 100, Sunnyvale, CA 94085  
 Tel: 408-970-3400 • Fax: 408-970-3403  
[www.mellanox.com](http://www.mellanox.com)