**Hewlett Packard
Enterprise**

Figure 1. HPE StoreFabric M-series SN2100M

Figure 2. HPE StoreFabric M-series SN2100M

Figure 3. HPE StoreFabric M-series SN2100M (2 x SN2100M with Rack Mount Kit—Redundancy within 1RU)

HPE StoreFabric M-series SN2100M Ethernet Switch

100GbE Ethernet with high density, bandwidth, and availability in a compact half rack width

Capable of delivering unbelievable networking speed and agility to keep pace with intense storage and data center workloads

HPE StoreFabric M-series SN2100M Ethernet Switch provides a high density, side-by-side 100GbE **switching solution**, which scales up to 128 ports in single rack unit to meet the growing demands of today's storage, database, and data center environments. With its unique design, it is able to deliver high available and increased density by allowing side-by-side placement of two switches in a single U slot of a 19" rack and with unique breakout cables for increased port density.

Available in 8 or 16 ports, HPE StoreFabric M-series SN2100M carries a switching capacity of 3200 Gbps with 4.76 BPPS processing capacity when running 16 ports at 100GbE, and enables 6400 Gbps and 9.52 BPPS when two units are deployed side-by-side.

With an increasing need to access data faster and accommodate **flash-based storage** environments, increasing workloads, and rising server-to-server network traffic, a high bandwidth, low-latency network becomes paramount. HPE StoreFabric M-series delivers an uncompromising 300 ns cut-through latency, predictable performance, and agility to keep pace with the most intense storage workloads, small- to large-scale, which enterprise data centers can produce.

HPE StoreFabric M-series spans port speeds from 1 Gbps to 100 Gbps, giving you the right network bandwidth with consistent performance for high-performance and storage workloads.

Delivering a high feature set at the right price allows you to get the most out of your Ethernet infrastructure. This helps you to support a variety of use cases, including media, entertainment and video, financial services industry, virtualized data centers, and next-generation storage such as **software-defined storage** and NVMe flash.

Product highlights
- Up to 64 ports of 10GbE, 25GbE; or 32 ports of 50Gbps or 16 ports of 40GbE or 100GbE ports
- Up to 6.4 Tbps of data throughput
- Wire speed L2 and L3 forwarding
- Low cut-through latency of 300 ns port to port
- Up to 9.52 BPPS

Enhanced data center design
- Up to 128 ports at 10GbE, 25GbE, or 64 ports at 50GbE; or 32 ports at 40GbE or 100GbE with two units deployed side-by-side in 1U
- Predictable behavior with zero-packet loss across packet sizes
- 16 MB dynamic shared buffer and predictable wire speed performance
- Typical power under 150W (Typical Power with passive cables)

Versatility in the data center

HPE StoreFabric M-series SN2100M allows you to deploy high-performance Ethernet networking solutions that replace expensive, underperforming platforms. Providing industry-leading cut-through latency for any packet size and a mix of port speeds, enables HPE StoreFabric M-series to be tailored for specialized and critical workloads including exceptional performance in iSCSI storage and Remote Direct Memory Access (RDMA) server connected environments.

Ethernet storage fabric

In an era of exponential data growth, shared **storage infrastructures** are being pushed to new limits. The connection between hosts and storage has become critical to the overall data center. Increasing adoption of flash storage is placing more performance pressure on the network.

HPE StoreFabric M-series SN2100M offers advanced storage support with multiple storage connectivity options, including iSCSI, NAS, and NVMe storage devices. Data Center Bridging (DCB) features enable the reliable exchange of storage traffic and help in eliminating packet loss when network congestion occurs. Moreover, quality of service (QoS) can be used to prioritize IP storage traffic to enable consistent performance.

Incorporating RDMA protocols, such as RDMA over Converged Ethernet (RoCE), can alleviate I/O bottlenecks' direct memory placement semantics. The result is drastically lower data

transfer latencies and significantly higher CPU, as well as overall converged and hyperconverged system efficiencies.

IP storage

Increasing demands being placed on storage networks are driven by flash-based and NVMe storage along with faster servers and networks. The need for scale-out storage and the industry trend toward hyperconverged infrastructures are causing a migration away from traditional Fibre Channel SANs to Ethernet and IP-based storage networks. HPE StoreFabric M-series provides next-generation storage applications with a highly available, open, programmable, and lossless **storage networking** solution that supports the growing demands of IP-based storage traffic.

Media and entertainment

Remove the complexity, inefficiency, and individual customization of Serial Digital Interface (SDI)–IP-based networks to empower broadcast and post-production industries to Ultra High Definition (UDH) and beyond. Delivering high performance and low latency is key in supporting throughput requirements for 4K, 8K, high frame rate (HFR), and high dynamic range (HDR) videos. By providing efficient buffers, QoS and differentiated services code point (DSCP) marking, along with zero-packet loss the HPE StoreFabric M-series delivers the ultimate experience for live streaming, broadcasting, and video production.

Enhanced for virtualization and storage support
- Virtual Extensible LAN (VXLAN) termination capabilities for next-generation DC
- Virtual Tunnel Endpoint (VTEP) bare-metal servers
- Tagged VLANs and VLAN trunking
- Equal-cost multipath (ECMP)-based on TCP port for iSCSI port base load balancing
- Multiple queues (eight priorities/queues)
- Layer 3 IPv4 static route
- IPv6 ready
- Multi-Chassis Link Aggregation Group (MLAG)
- DCB features
- Enhanced Transmission Selection (ETS)
- Priority Flow Control (PFC)
- Data Center Bridging Exchange (DCBX)
- Multiple queues (eight priorities/queues)
- Docker/container support
- Support Access Control List (ACL) ingress
- iSCSI Threshold Limit Value (TLV) support
- Storm control

Virtualized data center

The communication process for virtualizing physical servers and the movement of virtual machines throughout a data center has increased the volume of server-to-server network traffic. Along with faster server processors and storage arrays, this continues to drive a need for greater bandwidth, bringing with it new networking challenges. The HPE StoreFabric M-series provides enhanced hardware for data centers that exceed the growing demands of today's virtualized environments.

For virtualized data centers, HPE StoreFabric M-series introduces hardware capabilities for multiple tunneling protocols that enable increased scalability for today's data centers. Implementing Network Virtualization using Generic Routing Encapsulation (NVGRE) and Virtual Extensible LAN (VXLAN) tunneling encapsulations in the network layer of the data center allows more flexibility for terminating a tunnel by the network, in addition to termination on the server endpoint.

Key features and benefits

Wire speed performance with no packet loss, low latency, and dynamic shared buffers
- HPE StoreFabric M-series SN2100M Ethernet Switch delivers 16 Ethernet ports at 1 Gbps to 100 Gbps to accommodate increasing workloads, rising server-to-server network traffic, and flash-based storage environments.
- Unique breakout cables allow expanding to 64 ports of 10GbE or 25GbE or 32 ports of 50GbE for increased density.

- Supports cut-through or store-and-forward switching globally or per port. The cut-through mode utilizes the lowest packet latency.
- Provides a dynamic shared 16 MB packet buffer pool, which is allocated to ports dynamically to manage congestion.

Designed for scale-out efficiency
- 64-way equal-cost multipath (ECMP) and Multi-Chassis Link Aggregation Group (MLAG) to simplify scale-out network designs and balance traffic across large two-tier leaf-spine designs.
- 16 MB shared buffer pool that flexibly allocates memory to ports dynamically, as well as avoid head of line blocking and manage congestion.
- Support more design choices with flexible allocation of L2 and L3 forwarding table resources.
- Multispeed port flexibility with a choice of 1GbE, 10GbE, 25GbE, 40GbE, 50GbE, or 100GbE.
- Enable next-generation data center designs with VXLAN routing, bridging, and gateway for physical to virtualized communications.

High bandwidth, simplified scalability
- HPE StoreFabric M-series SN2100M Ethernet Switch provides up to 16 ports running at 100 Gbps Ethernet in an efficient half-width rack 1U design form factor. Facilitating a redundant pair of 16 port switches in a 1U form factor.
- Scales up to 128 ports of 10 Gbps or 25 Gbps when two HPE StoreFabric M-series SN2100M switches are deployed side-by-side in the 1U rail kit with breakout cables. It delivers high availability dual fabric and increased port density with efficient space utilization and scalability.

Higher efficiencies
- HPE StoreFabric M-series SN2100M introduces dynamic shared buffers and wire speed performance with no packet loss for predictable data delivery.
- 25GbE/100GbE provides better overall efficiency compared to 10 Gbps/40 Gbps Ethernet switches.

Lower TCO
- Higher port bandwidth and switch density reduce CAPEX requirements on network components.
- Provides 2.5X the bandwidth and up to 38% reduced cabling for 25GbE compared to 10GbE.
- Reduce OPEX costs with less power and cooling requirement.

Product highlights
- Ideal 1GbE, 10GbE, 25GbE, 40GbE, 50GbE, or 100GbE in a half width top of rack (ToR) switch
- Up to 3200 Gbps of data throughput
- Wire speed L2 and L3 forwarding
- Low cut-through latency of 300 ns port-to-port
- Up to 4.76 BPPS

Improved data center design
- Up to 128 ports of 10GbE/25GbE/50GbE, 64 ports of 50 or 32 of 40GbE/100GbE configuration when deploying two units side-by-side in a 1U
- Predictable behavior with zero packet loss across all packet sizes
- 16 MB dynamic shared buffer and predictable wire speed performance
- Typical power under 6W per port

Enhanced for virtualization and storage support
- Virtual Extensible LAN (VXLAN) termination capabilities for next-generation data center
- Virtual Tunnel Endpoint (VTEP) bare-metal servers
- Tagged VLANs and VLAN trunking
- ECMP based on TCP port for iSCSI port base load balancing
- Layer 3 IPv4 static route
- IPv6 ready
- MLAG
- Data Center Bridging (DCB) Features
  - Enhanced Transmission Selection (ETS)
  - Priority Flow Control (PFC)
  - Data Center Bridging Exchange (DCBX)
- Multiple queues (eight priorities/queues)
- Docker/Container support
- Support Access Control List (ACL) ingress
- iSCSI Threshold Limit Value (TLV) support
- Storm control
- Cut-through or store-and-forward modes globally or per port

Layer 2 feature set

- 10/25/40/50/56/100GbE
- 88K L2 Forwarding Entries
- Static MAC
- Jumbo frames (9216 bytes)
- VLAN 802.1Q (4K)
- 802.1Q tunneling (Q-In-Q)
- 802.1W Rapid Spanning Tree Protocol
  - Bridge Protocol Data Unit (BPDU) filter
  - Root guard
  - Loop guard
  - BPDU guard
- 802.1Q Multiple Spanning Tree Protocol
  - Per-VLAN Spanning Tree+ (PVST+)
  - Rapid Per-VLAN Spanning Tree (RPVST)
- 802.3ad Link Aggregation/LACP
  - 32 Ports/Channel
  - 64 Groups Per System
- MLAG
- 802.3X Flow Control
- 802.1Qbb Priority Flow Control (PFC)
- 802.1Qaz Enhanced Transmission Selection (ETS)
- DCBX
- Explicit Congestion Notification (ECN)
- QoS: qualification, rewrite, policers
- 802.1AB LLDP
- IGMP V1, V2, Snooping, Querier
- Access Control Lists (L2–L4)
- sFlow®
- Port Mirroring
- 802.1X—Port Based Network Access Control

HPE StoreFabric M-series SN2100M Ethernet Switch

Port speed	1 Gbps, 10 Gbps, 25 Gbps, 40 Gbps, 50 Gbps, 100 Gbps Ethernet
Ports	16 physical ports
Aggregate switch bandwidth	3.2 Tbps
Protocol support	Ethernet
Media types	• QSFP28, SFP28 (with QSA) short and long range optics • QSFP28 to QSFP28 DAC Cable • QSFP breakout cables 100GbE to 4 x 25GbE and 40GbE to 4 x 10GbE DAC; optical • QSFP breakout cables 100GbE to 2 x 50GbE DAC; optical • QSFP AOC • 1000BASE-T module
Models available	• 100GbE, 1U 32 QSFP28 ports, 2 Power Supplies (AC), x86 CPU, Standard depth, P2C airflow
Form factor	1U (1/2 rack width)
Warranty (parts/labor/on-site)	3/3/3

Technical specifications

Table 1. Power specifications

Typical power	94.3W
Input range	100–127 VAC; 200–240 VAC
Frequency	50–60 Hz, single phase AC, 4.5A, 2.9A

Table 2. Physical characteristics

Dimensions	1.72" (43.8 mm) H x 7.87" (200 mm) W x 20" (508 mm) D
Weight	4.540 kg (10 lb)

Table 3. Supported modules and cables

QSFP28, SFP28 (with QSA) short and long range optics
QSFP28 to QSFP28 DAC cable
QSFP breakout cables 100GbE to 4 x 25GbE and 40GbE to 4 x 10GbE DAC; Optical
QSFP breakout cables 100GbE to 2 x 50GbE DAC; optical
QSFP AOC
1000BASE-T module

Layer 3 feature set
- Static Routes IPv4
- OSPFv2
- BGPv4
- Router Port Interface for Routing
- VLAN Interface for Routing
- Bi-directional Protocol Independent Multicast (PIM Bi-Dir)
- PIM Load Balancing
- DHCP relay
- ECMP, 64-way

Table 4. Model Configuration

	HPE StoreFabric SN2100M
Ports	16 x QSFP28
Max 10/25GbE	64 x 10, 25GbE
Max 40/100GbE	16 x 40/100GbE
Max 50GbE	32 x 50GbE
Throughput	3.2 Tbps
Packets/second	4.76 BPPS
Latency	300 ns port-to-port
CPU	x86
Buffer memory	16 MB
100/1000 management	1
RS-232 serial port	1
USB port	1
Power supplies and fans are not replaceable	Power-to-port air flow 2 power supplies (1+1 redundant)

Table 5. Switch SKU part numbers

	HPE part number
HPE M-series SN2100M 100GbE, 1U, 16 QSFP28 ports, 2 Power Supplies (AC), x86 CPU, power-to-port airflow Storage Switch	Q2F23A
HPE M-series SN2100M 100GbE, 1U, 8 QSFP28 ports, 2 Power Supplies (AC), x86 CPU, power-to-port airflow	Q2F24A

Table 6. Port upgrade license

	HPE part number
HPE SN2100M 100GbE 8p Upgrade E-LTU	Q2M94AAE

Table 7. Optional components

	HPE part number
HPE SN2100M Rack Installation Kit	Q2F25A

Resources

QuickSpecs
- PDF: **hpe.com/h20195/v2/GetDocument. aspx?docname=a00021858enw**

- HTML: **hpe.com/h20195/v2/GetHtml. aspx?docname=a00021858enw**

Customer technical training
Gain the skills you need with ExpertOne training and certification from Hewlett Packard Enterprise. With HPE Converged Storage training, you can accelerate your technology transition, improve operational performance, and get an excellent return on your HPE investment. Our training is available when and where you need it, through flexible delivery options and a global training capability. **hpe.com/us/en/ storage/networking.html**

The total package

Designed for scale-out efficiency

High port density and peak throughput efficiently scales out over time without the need to implement significant changes to the predefined architecture. Pay-as-you-grow port licensing enables you to deploy the switch today and add incremental ports as required. This enables the solution to start small with a minimal port count with support for 10GbE and evolve over time to add more ports and increase to 25, 50, 100GbE speeds as required.

HPE StoreFabric M-series network adapters

HPE network adapters provide bandwidth for increased workloads while offloading and accelerating data delivery and are the perfect accompaniment to switches from HPE StoreFabric M-series.

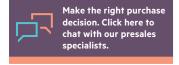## HPE StoreFabric M-series QSFP28 transceivers

Hewlett Packard Enterprise requires using only HPE high-quality Ethernet transceivers (QSFP28) in HPE networking environments. HPE QSFP28 transceivers are tested with our products to improve performance, compatibility, and reliability.

HPE StoreFabric M-series cables

Visit **hpe.com/us/en/storage/networking. html** for all optic compatibility information, including QSFP28 transceivers, and cables.

Learn more at
hpe.com/storage/storefabric

Make the right purchase decision. Click here to chat with our presales specialists.

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