Shape the Future of QuickSpecs - Your Input Matters

HPE Storage Switch M-series SN2010M QuickSpecs

With NVIDIA Cumulus® Linux

HPE M-Series with NVIDIA Cumulus® Linux family of Ethernet switches are capable of addressing today's data center's complex networking requirements, growth, and expansion and are perfect for Top-Of-Rack (TOR) deployments and optimized for virtualized environments, hyperconverged infrastructure, and storage deployments. HPE M-Series Ethernet switches give you the right network bandwidth with consistent zero packet loss performance for high-performance and storage workloads.

With an increasing need to access data faster and accommodate growing workloads, rising levels of east-west traffic, and new storage arrays based on flash storage technologies, a high bandwidth, low-latency, zero packet loss network becomes paramount. The HPE Storage Switch M-series SN2010M offer a mix of 1/10/25 GbE and 100 GbE for the right network bandwidth for your applications with consistent performance for high-performance and storage workloads.

Delivering the highest feature set at the right price allows you to get the most out of your Ethernet infrastructure to best support a variety of use cases, including media and entertainment, streaming video, financial services industry, virtualized data centers, and next generation storage, including software-defined storage and NVMe® flash. HPE Storage Switch M-series SN2010M are available with factory integrated NVIDIA Cumulus® Linux for immediate deployment. With HPE Storage Switch M-series SN2010M, you can:

- Optimize Storage- modernize your network to eliminate limitations and bottlenecks that can be caused by the addition of flash storage.
- Enjoy efficient network performance- avoid packet loss, provide predictable performance with line-rate packet delivery across all ports and all packet sizes
- Realize breakthrough economics- make better use of your data center resources with the highest port density per rack unit and the industry's lowest power consumption.
- Accelerate business innovation- utilize 1/10/40 Gbps Ethernet connectivity for existing workloads and enhance connectivity utilizing built-in 25/100 Gbps capabilities to respond quickly to business needs and to stay on the leading edge of Ethernet switching technology.

The HPE Storage Switch M-series SN2010M provides a high density, side-by-side 1/10/25/100 GbE switching solution which scales up to 34 ports per switch with QSFP28 breakout cables for up to 16 additional 1/10/25 Gbps ports in single Rack Unit (1RU) for the growing demands of today's storage, database, and data center environments. HPE Storage Switch M-series SN2010M 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. Available with 18 SFP28/SFP+ slots and 4 QSFP28/QSFP+ slots, each SN2010M carries a switching capacity of 1.7 TB /s with 1.26Bpps processing capacity when running 18 ports at 25 GbE and 4 ports at 100 GbE, and enables 3.4 TB /s and 2.52Bpps when two units are deployed side-by-side in a 1 RU space.

HPE Storage Switch M-series SN2010M Ethernet switches are based on the high-performance 25 GbE NRZ encoding capable Spectrum-1 ASIC and are ideally suited for both top-of-rack leaf and fixed configurations with capabilities:

- Ethernet port speeds from 1 Gbps to 100 Gbps
- 4 100/40 GbE QSFP28 ports and 18 x1/10/25 GbE SFP28 ports
    - All 4 QSFP28 ports support split x4 or x2 mode (4 x4=16 breakout ports maximum)
- 16 MB of fully-shared packet buffering
- Feature-rich layer 2 and layer 3 forwarding
- Ultra-low latency with true cut through performance, Zero packet loss performance with NVMe TCP and RoCEV2 RDMA, DCBX, PFC, ECN support

Overview

Models

HPE Storage Switch M-series SN2010M Ethernet Switch Model

Description	SKU
HPE 25 GbE 18SFP28 4QSFP28 Power to Connector Airflow Half Width Switch SN2010M with NVIDIA Cumulus – HPE 18SFP28 4QSFP28 P2C Sw SN2010M w/NVD	S2T75A
HPE SN2100M Rack Installation Kit	Q2F25A

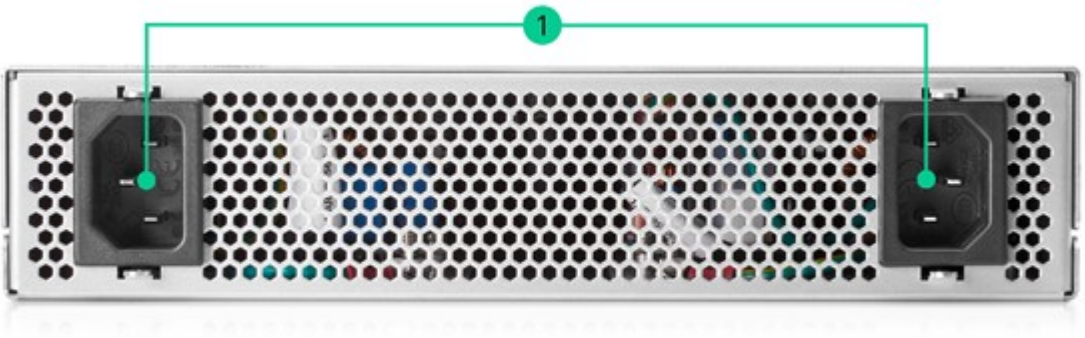
Notes:
– Only 1 Rack Mount kit is needed for 2x SN2010M switches within the same rack
– HPE switch SKUs with factory installed NVIDIA Cumulus® Linux cannot be converted to HPE ONYX or ONIE switch SKUS
– For HPE Storage Switch M-series SN2010M models Q9E63A, R0P77A, and R0P78A refer to QuickSpecs Version 17

HPE Storage Switch M-series 2 x SN2010M Ethernet Switch with Q2F25A Rack Mount Kit

HPE Storage Switch M-series SN2010M (18 x SFP28 + 4 x QSFP28) Front View

Item	Description	Item	Description
1.	MGMT0 100 Mb/s to 1 Gb/s Port	5.	Password Reset Button - refer to the Single User Mode Boot Recovery section in the Cumulus Linux User Guide
2.	IOIOI RS232 Serial Console Port: 115200 BAUD	6.	Status LEDs (System; Fan; Power Supply 1, 2; Unit Identifier)
3.	Inventory Information Pull-out Tab	7.	QSFP28/QSFP Ports (19-22); split x4 supported
4.	USB Type A 2.0 compliant (USB 1.0 not supported)	8.	SFP28/SFP Ports (1-18)

Overview



HPE Storage Switch M-series SN2010M (18 x SFP28 + 4 x QSFP28) Rear View

Item	Description
1.	Power Supply and Fans (non-replaceable)

Standard Features

Key Features and Benefits

- The HPE Storage Switch M-series SN2010M Ethernet switch is a Half-width 10/25 GbE and 40/100 GbE Ethernet Switch ideal for Primary, Secondary storage and Hyperconverged Infrastructures. The SN2010 switch is the ideal top of rack (ToR) solution packed with 18 ports of 10/25 GbE and 4 QSFP28 ports supporting 40/100 GbE and which can breakout to 4 10 GbE or 25 GbE ports.
- HPE Storage Switch M-series SN2010M introduces low latency for 10/25 GbE and 40/100 GbE switching, features a robust implementation of data, control and management planes, and offers the most compact form factor and lowest power consumption.
- HPE Storage Switch M-series SN2010M provides ultra-low latency of under 300ns port-to-port. This is advantageous for flash storage which has moved latency bottlenecks from storage access to the network, as well as for the burst nature of today's software defined and cloud data centers traffic.
- The buffering architecture of the HPE Storage Switch M-series SN2010M provides superior micro burst absorption for applications that burst data at random intervals.
- The HPE Storage Switch M-series SN2010M provides a flexible combination of ports, allowing for efficiency, simplifying scale-out environments, and saving on total cost of ownership.
- Optimized port configuration enables high-speed rack connectivity to the server at 1/10 GbE or 25 GbE speeds with 40/100 GbE uplink ports that allow for a variety of blocking ratios that suit specific application requirements.
- HPE Storage Switch M-series SN2010M with its optimization for RoCE, full buffer utilization, and zero packet loss combined into a small form factor with low latency make it the ideal switch for ESF (Ethernet Storage Fabric).
- The HPE Storage Switch M-series SN2010M provide port density in a single rack unit, allowing for higher capacity and efficiency, simplifying scale-out environments and saving on total cost of ownership.
- Its unique half-width form factors and port counts, these Ethernet switches allow for two SN2010 units to be deployed side-by-side allowing for increased density, making it the ideal top-of-rack switch.
- Designed to use less power than competing switches, providing one of the industry's lowest power draws, producing less heat than competing products allowing reduced OpEx cost.
- SN2010 is the best fit with a mix of 10/25 GbE and 40/100 GbE ports that are all designed for zero packet loss. Distributed storage, hyperconverged, analytic and database solutions require the ability to scale out without compromising performance or high availability.
- High throughput, low latency and active-active network switching capabilities are crucial when deploying clustered servers and storage. HPE Storage Switch M-series SN2010M delivers connectivity to many clients plus 40/100 GbE connectivity to selected servers, storage systems or for network uplinks, and all with low latency.

NVIDIA Cumulus® Linux

Cumulus Linux is a powerful open network operating system enabling advanced automation, customization and scalability using web-scale principles like the world's largest data centers. It accelerates networking functions and provides choice from an extensive list of supported switch models including NVIDIA Spectrum^{TM} based switches. Cumulus Linux was built for automation, scalability and flexibility, allowing you to build data center and campus networks that ideally suits your business needs. Cumulus Linux is the only open network OS that allows you to build affordable and efficient network operations like the world's largest data center operators, unlocking webscale networking for businesses of all sizes.

The Ideal Solution for Your Network Challenges, Cumulus Linux enables modern data center architectures, while providing a transition path for traditional data center architectures, with support for layer 2, layer 3, and overlay networks. This open approach enables a wide range of solutions. Centralized, remote management of AI deployments enables over-the-air software updates, remote debugging, and system monitoring, as well as other features like self-healing systems. These remote management features make maintenance and upkeep easier, and AI more accessible and practical for locations that are difficult to access or far from headquarters. This results in faster, more comprehensive insights that can drive real-time decisions.

Deployment Models:

L3 network, L2 network, Clos, Out-of-band management, Overlay network

Standard Features

Use cases:
Containers, Big data, Private cloud, Network virtualization, DevOps / automation, Monitoring and analytics, Hyperconverged infrastructure

Key Features

Unnumbered Interfaces: Automation gets even easier with this simplified Internet Protocol (IP) approach for Border Gateway Protocol (BGP) and Open Shortest Path First (OSPF). All you need is one IP template for leaf nodes and one for spine nodes. BGP Unnumbered, the only difference between a BGP unnumbered configuration and the BGP numbered configuration is that the BGP neighbor is as an interface (instead of an IP address). There is no need to configure an IP address on the interface between the two peers on each side.

Redistribute Neighbor (RDNBR): Get virtual machine (VM) and host mobility by plugging your server into any RDNBR switch and making it layer-3 discoverable on the fabric. If you need to move the server, there's no need to reconfigure.

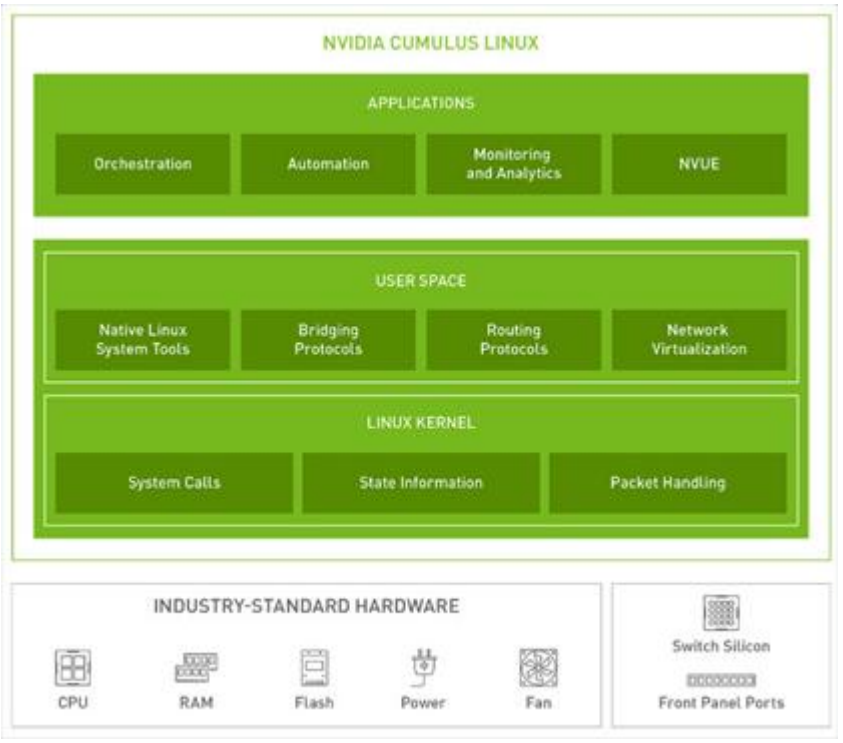
Prescriptive Topology Manager (PTM): Efficiently go from whiteboard to physical cable. With PTM, you can program your data center to verify connections and resolve issues faster.

Virtual Routing and Forwarding: Run multiple network paths without the need for multiple switches, giving you traffic isolation and network segmentation for multiple devices.

Ethernet Virtual Private Networks (EVPN): The most advanced capabilities available for EVPN allow legacy layer-2 applications to operate over next-generation layer-3 networks.

NVIDIA User Experience (NVUE): A full command-line interface (CLI) object model of Cumulus Linux enables advanced programmability, extensibility, and usability.

Digital twins: **NVIDIA Air** makes physical deployments seamless by validating and simplifying deployments and upgrades in a virtual network.



NVIDIA Cumulus® Linux Interface

Standard Features

User Interface: Command Line

With the NVIDIA User Experience (NVUE) object-oriented management tool, Cumulus Linux customers can go beyond the CLI and unify their network management with the rest of the data center management. NVUE enables any APIs to tie into NOS management, including REST, gRPC, RestConf, NetConf, and OpenConfig. Additionally, NVUE is Git-based, enabling Diff, revert, apply, branch, and stash behaviors. NVUE's configuration is simple: one YAML file ties all Linux configurations together, making it easy to copy configurations from switch to switch.

Operating System Install and Upgrade

- Server-style upgrade/patching across minor releases, server-style process restart/termination
- Support for zero touch OS installation using ONIE loaded on industry-standard switches
- Standard mechanism for authentication, authorization, and accounting with TACACS+

Extensibility

- Cumulus Linux works with any language supported in Linux today, including scripting with Bash, Perl, Python, and Ruby

Hardware Management

- The switch hardware abstraction layer accelerates Linux kernel networking constructs in hardware, including the routing table, ARP table, bridge FOB, IP/EB tables, bonds, VLANs, and VXLAN bridges
- Hardware management also includes jumbo frames support and environmental management
- Forwarding table profiles on the ASIC provide flexible partitioning of resources

Layer 3 Features

- IPv4/v6 routing suite including OSPFv2, OSPFv3, and BGPv4/v6
- RDMA over Converged Ethernet (RoCEv2) support for Layer 2 and Layer 3
- Virtual routing and forwarding (VRF) and VRF route leaking
- Equal-cost multi-path (ECMP) and ECMP resilient hashing for IPv4 and IPv6 traffic
- Bidirectional forwarding detection (BFD) across all platform and interface types, IPv4 and IPv6, BGP and OSPF, VXLAN, BGP conditional route advertisement
- Protocol-independent multicast (PIM, PIM-SM, PIM-SSM)
- Policy-based routing
- Generic routing encapsulation (GRE) tunneling
- Precision time protocol (PTP) Boundary Clock
- VNI scaling: supports 6 bridges with up to 1,000 VNIs
- GTP Hashing
- Adaptive Routing with RoCEv2

Layer 2 features

- Bridge management with STP (IEEE 802.1d). RSTP (IEEE 802.1 W), PVRST, PVST, bridge assurance, BPDU guard, and BPDU filter
- VLANs. VLAN trunks (IEEE 802.1q). LACP (IEEE 802.3adl. LACP bypass, unicast/broadcast storm control, LLDP, CDP, IPv6 neighbor discovery, and IPv6 route advertisement
- MLAG (cladg daemon)
- IGMPv2/v3 snooping, MLDv1/v2 snooping, Optimized Multicast Flooding (OMF)
- Virtual router redundancy (VRR - active-active first hop redundancy protocol)
- LLDP DCB IEEE TLVs

Network Virtualization

- VXLAN support
- VXLAN Routing - symmetric and asymmetric
- L2 gateway services integration with VMware NSX
- VXLAN head end replication
- VXLAN active-active bridging with MLAG
- Controller-less network virtualization with EVPN

Management

- Object-oriented API-compatible switch management with NVIDIA User Experience (NVUE)
- ISSU: in-service software upgrades
- Warm boot on bonds

Standard Features

- Native Linux management tools, such as OpenSSH, SCP, and FTPS
- Automated install and provisioning: zero touch install and zero touch provisioning
- Management VRF
- DHCP and v4/v6 DHCP relays
- Authentication with LDAP and authorization with sudo NTP
- Interface configuration management (ifupdown2)
- Advanced management/orchestration through third-party add-on packages
- Snapshot and rollback of the entire system to eliminate risk from system updates

Monitoring and Troubleshooting

- Monitor traffic patterns and preemptive capacity planning with buffer monitoring
- Traditional monitoring with SNMPv2 and SNMPv3 and network-specific MIBs, hardware monitoring via watchdog, analytics with SPAN, ERSPAN, ACL-based counters, DOM optics data, thermal sensors, real time queuedepth, and buffer utilization reporting
  - HPE recommends use of SNMPv3 username and password instead of the read-only community; SNMPv3 does not expose the password in the GetRequest and GetResponse packets and can also encrypt packet contents. You can configure multiple usernames for different user roles with different levels of access to various MIBs.
  - The /usr/share/snmp/mibs/Cumulus-Snmp-MIB.txt file defines the overall Cumulus Linux MIB.
- Troubleshooting with dnsutils, syslog, reachability tools, hardware inventory, log files, server-style filesystem, and Spectrum ASIC commands
- The cl-support script generates a compressed archive file (.txz) of useful information for troubleshooting. The system either creates the archive file automatically or you can create the archive file manually. The system creates the cl-support archive file automatically for the following reasons:
  - When there is a core dump file for any application (not specific to Cumulus Linux, but something all Linux distributions support), located in /var/support/core
  - When one of the monitored services fails for the first time after you reboot or power cycle the switch
- sFlow monitoring for system statistics and network traffic
- The NVIDIA Firmware Tool (MFT) mlxlink tool is integrated into Cumulus and is used to check and debug link status and related issues. The tool can be used on different links and cables (passive, active, transceiver and backplane).
- What Just Happened (WJH) provides real time visibility into network problems and has two components:
  - The WJH agent enables you to stream detailed and contextual telemetry for off-switch analysis with tools such as NVIDIA NetQ.
  - The WJH service (what-just-happened) enables you to diagnose network problems by looking at dropped packets. WJH can monitor layer 1, layer 2, layer 3, tunnel, buffer and ACL related issues. Cumulus Linux enables and runs the WJH service by default.
  - You can choose which packet drops you want to monitor and show by creating channels and setting the packet drop categories (layer 1, layer 2, layer 3, tunnel, buffer and ACL) you want to monitor.
  - NVUE does not provide commands to set the buffer and ACL packet drop categories. You must edit the /etc/what-just-happened/what-just-happened.json file. NVUE supports WJH show commands.

Security

- Access control lists (ACLs) L2-L4 classification through IP/EP tables and CPU protection through hardware enforced ACL-based rate limiting DoS control
- Authenticate and authorize attached devices with 802.1x
- Kernel Address Space Randomization

QoS

- Link PAUSE
- Classification based on Class of Service (CoS) (IEEE 802.1p) or DSCP (queuing, scheduling-DWRR and Strict Priority - and buffer allocation)
- Ingress ACL-based classification/policing
- Priority flow control and explicit congestion notification (ECN)
- Dynamic buffer configuration as default

Standard Features

Cumulus VX and NVIDIA AIR

- Getting started with Cumulus Linux is easy. Customers can explore, test, and prototype the technology.
    - To build a data center digital twin or mock-up a deployment with Cumulus, visit NVIDIA Air
- Download the free NVIDIA Cumulus VX appliance, supported virtual appliance to test and stage production rollouts

Third-party Packages

- Orchestration: Ansible, CFEngine, Chef, and Puppet
- Monitoring: Collectd, Ganglia, Graphite, Nagios/Icinga, and NetSNMP
- You can use Cumulus Linux to run the Docker container platform. You can install Docker Engine directly on a Cumulus Linux switch and run Docker containers natively on the switch.

Service and Support

Warranty

(3-3-3) Hardware Warranty: 3-year parts, 3-year on-site (standard business hours, next business day response), and 3-year labor.

Notes: The hardware warranty covers firmware. For extended hardware support and installation information, please see the "Services and Support" Section.

HPE Services

No matter where you are in your transformation journey, you can count on HPE Services to deliver the expertise you need when, where and how you need it. From planning to deployment, ongoing operations and beyond, our experts can help you realize your digital ambitions.

https://www.HPE.com/services

Consulting services

No matter where you are in your journey to hybrid cloud, experts can help you map out your next steps. From determining what workloads should live where, to handling governance and compliance, to managing costs, our experts can help you optimize your operations.

https://www.HPE.com/services/consulting

HPE Managed Services

HPE runs your IT operations, providing services that monitor, operate, and optimize your infrastructure and applications, delivered consistently and globally to give you unified control and let you focus on innovation.

HPE Managed Services | HPE

Operational services

Optimize your entire IT environment and drive innovation. Manage day-to-day IT operational tasks while freeing up valuable time and resources. Meet service-level targets and business objectives with features designed to drive better business outcomes.

https://www.HPE.com/services/operational

Recommended Services

HPE Tech Care Service

HPE Tech Care Service is the operational support service experience for HPE products. The service goes beyond traditional support by providing access to product specific experts, an AI driven digital experience, and general technical guidance to not only reduce risk but constantly search for ways to do things better. HPE Tech Care Service delivers a customer-centric, AI driven, and digitally enabled customer experience to move your business forward. HPE Tech Care Service is available in three response levels. Basic, which provides 9x5 business hour availability and a 2-hour response time. Essential which provides a 15-minute response time 24x7 for most enterprise level customers, and Critical which includes a 6-hour repair commitment where available and outage management response for severity 1 incidents.

https://www.HPE.com/services/techcare

HPE Complete Care Service

HPE Complete Care Service is a modular, edge-to-cloud IT environment service designed to help optimize your entire IT environment and achieve agreed upon IT outcomes and business goals through a personalized experience. All delivered by an assigned team of HPE Services experts. HPE Complete Care Service provides:

- A complete coverage approach -- edge to cloud
- An assigned HPE team
- Modular and fully personalized engagement
- Enhanced Incident Management experience with priority access
- Digitally enabled and AI driven customer experience

https://www.HPE.com/services/completecare

Other related services from HPE Services

Service and Support

HPE Installation and Start-up Service
Provides for the hardware installation and startup of HPE branded M-Series switches with operating system, according to the product specifications. The HPE service delivery technician will assist you in bringing your new hardware into operation in a timely and professional manner.
https://www.HPE.com/h20195/v2/Getdocument.aspx?docname=a00025816enw

HPE Hardware Installation
Provides for the basic hardware installation of HPE branded M-Series ONIE switches to assist you in bringing your new hardware into operation in a timely and professional manner.
https://www.HPE.com/h20195/v2/Getdocument.aspx?docname=5981-9356enw

HPE Lifecycle Services
HPE Lifecycle Services provide a variety of options to help maintain your HPE systems and solutions at all stages of the product lifecycle. A few popular examples include:
- Lifecycle Install and Startup Services: Various levels for physical installation and power on, remote access setup, installation and startup, and enhanced installation services with the operating system.
- HPE Firmware Update Analysis Service: Recommendations for firmware revision levels for selected HPE products, taking into account the relevant revision dependencies within your IT environment.
- HPE Firmware Update Implementation Service: Implementation of firmware updates for selected HPE server, storage, and solution products, taking into account the relevant revision dependencies within your IT environment.
- Implementation assistance services: Highly trained technical service specialists to assist you with a variety of activities, ranging from design, implementation, and platform deployment to consolidation, migration, project management, and onsite technical forums.
- HPE Service Credits: Access to prepaid services for flexibility to choose from a variety of specialized service activities, including assessments, performance maintenance reviews, firmware management, professional services, and operational best practices.

https://www.HPE.com/services/lifecycle
- For a list of the most frequently purchased services using service credits, see the HPE Service Credits Menu

HPE Education Services
Training and certification designed for IT and business professionals across all industries. Broad catalogue of course offerings to expand skills and proficiencies in topics ranging from cloud and cybersecurity to AI and DevOps. Create learning paths to expand proficiency in a specific subject. Schedule training in a way that works best for your business with flexible continuous learning options.

https://www.HPE.com/services/training

Defective Media Retention
An option available with HPE Complete Care Service and HPE Tech Care Service and applies only to Disk or eligible SSD/Flash Drives replaced by HPE due to malfunction.

Consult your HPE Sales Representative or Authorized Channel Partner of choice for any additional questions and services options.

Parts and Materials
HPE will provide HPE-supported replacement parts and materials necessary to maintain the covered hardware product in operating condition, including parts and materials for available and recommended engineering improvements.

Parts and components that have reached their maximum supported lifetime and/or the maximum usage limitations as set forth in the manufacturer's operating manual, product QuickSpecs, or the technical product data sheet will not be provided, repaired, or replaced as part of these services.

How to purchase services
Services are sold by Hewlett Packard Enterprise and Hewlett Packard Enterprise Authorized Service Partners:
- Services for customers purchasing from HPE or an enterprise reseller are quoted using HPE order configuration tools.
- Customers purchasing from a commercial reseller can find services at https://ssc.HPE.com/portal/site/ssc/

AI Powered and Digitally Enabled Support Experience

Service and Support

Achieve faster time to resolution with access to product-specific resources and expertise through a digital and data driven customer experience.

Sign into the HPE Support Center experience, featuring streamlined self-serve case creation and management capabilities with inline knowledge recommendations. You will also find personalized task alerts and powerful troubleshooting support through an intelligent virtual agent with seamless transition when needed to a live support agent.

https://support.HPE.com/hpesc/public/home/signin

Consume IT on your terms

HPE GreenLake edge-to-cloud platform brings the cloud experience directly to your apps and data wherever they are-the edge, colocations, or your data center. It delivers cloud services for on-premises IT infrastructure specifically tailored to your most demanding workloads. With a pay-per-use, scalable, point-and-click self-service experience that is managed for you, HPE GreenLake edge-to-cloud platform accelerates digital transformation in a distributed, edge-to-cloud world.

- Get faster time to market
- Save on TCO, align costs to business
- Scale quickly, meet unpredictable demand
- Simplify IT operations across your data centers and clouds

To learn more about HPE Services, please contact your Hewlett Packard Enterprise sales representative or Hewlett Packard Enterprise Authorized Channel Partner. Contact information for a representative in your area can be found at "Contact HPE" https://www.HPE.com/us/en/contact-HPE.html

For more information: http://www.HPE.com/services

Configuration Information

Model Description

HPE Storage Switch M-series SN2010M (P2C) 18SFP28 4QSFP28
– 2 x Integrated Power Supplies with Intake Fans – 4x Integrated redundant Intake Fan Tray – 1 x Fixed Rack Mount Kit Q2F25A for 2 switches Standard: 23.6"-31.5" (60 to 80 cm) ○ Ordered separately – 2 x Power cord, 1.83 m, C14-C13 – 1 x Serial cable (DB9 to RJ45) – 2 x PSU CABEL RETAINER KIT – 1 x HPE Warranty and Installation instructions

Notes:
– SN3420M with NVIDIA Cumulus® Linux requires transceivers listed below
– Requires Rack Installation Kit ordered separately & optical transceivers listed below.

Step 1 - Base Configuration. Select one Model

Description	SKU
HPE 25 GbE 18SFP28 4QSFP28 Power to Connector Airflow Half Width Switch SN2010M with NVIDIA Cumulus – HPE 18SFP28 4QSFP28 P2C Sw SN2010M w/NVD, AC Power	S2T75A
HPE SN2100M Rack Installation Kit	Q2F25A

Notes:
– Rack installation kit for SN2100M (S2T76A) or SN2100M (S2T75A)
– Only 1 Rack Mount kit is needed for 2x SN2010M switches within the same rack.

Step 2 - Options

Refer to HPE M-Series Switches SPOCK Connectivity Stream for latest SN2010M with NVIDIA Cumulus® Linux interconnect support matrix

Transceivers - for HPE Storage Switch M-series SN2010M NVIDIA Cumulus® Linux switches

Note #	Descriptions	SKU
	HPE 100 GbE QSFP28 500 m 1310 mm PSM4 Transceiver	Q8J73A
	HPE 10 GbE SFP+ SR Multi-mode 300 m Transceiver	Q6M30A
	HPE 10 GB SFP+ Short Wave 1-pack Pull Tab Optical Transceiver	Q2P65A
	HPE 100 GbE QSFP28 SR4 100 m Transceiver	Q2F19A
	HPE Storage 100 GbE QSFP28 SR4 Extended Temperature Pull Tab Transceiver	S2T35A
	HPE Aruba Networking 100G SR1.2 QSFP28 LC 100 m MMF Transceiver	S4B44A
	HPE 25 GB SFP28 Short Wave Extended Temperature 1-pack Pull Tab Optical Transceiver	Q2P64B
	HPE Aruba Networking 25G SFP28 LC eSR 400 m MMF Transceiver	JL485A
9,10	HPE 100 GB QSFP28 LC SWDM4 Multi-mode 100 m Transceiver	R0R40A
3, 6, 11,12	HPE 10GBASE-T SFP+ RJ45 30 m 1-pack Transceiver	R0R41B
3, 6	HPE 25 GB SFP28 SR 30 m Transceiver	R0R42A
	HPE BladeSystem c-Class 10 GB SFP+ SR Transceiver	455883-B21

Configuration Information

Note #	Descriptions	SKU
7	HPE Aruba Networking 1G SFP RJ45 T 100 m Cat5e TAA Transceiver	R9Q45A
	HPE Networking X130 10G SFP+ LC SR Transceiver	JD092B
	HPE Networking X130 10G SFP+ LC LR Transceiver	JD094B
	HPE Aruba Networking 10G SFP+ LC LR 10 km SMF Transceiver	J9151E
	HPE Aruba Networking 10G SFP+ LC ER 40 km SMF Transceiver	J9153D
2	HPE 10 GbE SFP+ LR 10 km 1-pack Extended Temperature Pull Tab Transceiver	S6B57A
	HPE Networking X130 10G SFP+ LC ER 40 km Transceiver	JG234A
1	HPE Networking X130 10G SFP+ LC LH 80 km Transceiver	JG915A
	HPE Networking X140 40G QSFP+ CSR4 300 m Transceiver	JG709A
	HPE Networking X140 40G QSFP+ LC LR4 SM 10 km 1310nm Transceiver	JG661A
	HPE Aruba Networking 40G QSFP+ LC ER4 40 km SMF Transceiver	Q9G82A
	HPE BladeSystem c-Class 40 GB QSFP+ MPO SR4 100 m Transceiver	720187-B21
	HPE Networking X140 40G QSFP+ LC BiDi 100 m MM Transceiver	JL251A
	HPE 40 GB QSFP+ Bidirectional Transceiver	841716-B21
	HPE Networking X140 40G QSFP+ LC LR4L 2 km SM Transceiver	JL286A
	HPE Networking X190 25G SFP28 LC SR 100 m MM Transceiver	JL293A
3	HPE Aruba Networking 25G SFP28 LC LR 10 km SMF Transceiver	JL486A
2	HPE 25 GbE SFP28 LR 10 km 1-pack Extended Temperature Pull Tab Transceiver	S6B58A
	HPE 100 GbE QSFP28 500 m 1310 mm PSM4 Transceiver	Q8J73A
	HPE Networking X130 10G SFP+ LC SR Transceiver	JD092B
	HPE Networking X140 40G QSFP+ MPO SR4 Transceiver	JG325B
	HPE 25 GB SFP28 SR 100 m Transceiver	845398-B21
3	HPE QSFP28 to SFP28 Adapter	845970-B21
	HPE Networking X150 100G QSFP28 LC LR4 10 km SM Transceiver	JL275A
	HPE Networking X150 100G QSFP28 CWDM4 2 km SM Transceiver	JH673A
9,10	HPE Networking X150 100G QSFP28 LC SWDM4 100 m MM Transceiver	JH419A
9	HPE 100 GB QSFP28 Bidirectional Transceiver	845972-B21
14	HPE 100 GbE QSFP28 LC DR1 500 m 1-pack Transceiver	R8M61A
	HPE Alletra 6000 2x100Gb QSFP28 MPO SR4 100 m FIO Transceiver	R7D08A
	HPE Alletra 6000 2x100Gb QSFP28 MPO SR4 100 m Transceiver	R7D12A
	HPE Alletra 6000 2x10Gb SFP+ SR FIO Transceiver	R7D05A
	HPE Alletra 6000 2x10Gb SFP+ SR Transceiver	R7D09A
	HPE Alletra 6000 2x25Gb SFP28 SR 100 m FIO Transceiver	R7D07A
	HPE Alletra 6000 2x25Gb SFP28 SR 100 m Transceiver	R7D11A
	HPE Aruba Networking 40G QSFP+ MPO SR4 Transceiver	R9F97A

Supported DAC/Copper Cables and Adapters

Note #	Descriptions	SKU
8	HPE 7.6 m /25ft CAT5 RJ45 M/M Ethernet C/O Cable	C7539A
5	HPE Networking X240 10G SFP+ SFP+ 0.65 m DAC Cable	JD095C
5	HPE Networking X240 10G SFP+ SFP+ 1.2 m DAC Cable	JD096C
5	HPE Networking X240 10G SFP+ SFP+ 3 m DAC Cable	JD097C

Configuration Information

Note #	Descriptions	SKU
5	HPE Networking X240 10G SFP+ SFP+ 5 m DAC Cable	JG081C
	HPE C-series 3 m Passive Copper SFP+ Cable	K2Q21A
	HPE C-series 5 m Passive Copper SFP+ Cable	K2Q22A
5	HPE Aruba Networking 10G SFP+ to SFP+ 1 m Direct Attach Copper Cable	J9281D
5	HPE Aruba Networking 10G SFP+ to SFP+ 3 m Direct Attach Copper Cable	J9283D
5	HPE Aruba Networking 25G SFP28 to SFP28 0.65 m Direct Attach Cable	JL487A
	HPE Networking Comware X240 40G QSFP+ QSFP+ 1 m Direct Attach Copper Cable	JG326A
	HPE Networking Comware X240 40G QSFP+ QSFP+ 3 m Direct Attach Copper Cable	JG327A
	HPE Networking Comware X240 40G QSFP+ QSFP+ 5 m Direct Attach Copper Cable	JG328A
	HPE Networking Comware X240 40G QSFP+ to 4x10G SFP+ 1 m Direct Attach Copper Splitter Cable	JG329A
	HPE Networking Comware X240 40G QSFP+ to 4x10G SFP+ 3 m Direct Attach Copper Splitter Cable	JG330A
	HPE Networking Comware X240 40G QSFP+ to 4x10G SFP+ 5 m Direct Attach Copper Splitter Cable	JG331A
5	HPE BladeSystem c-Class 10 GbE SFP+ to SFP+ 3 m Direct Attach Copper Cable	487655-B21
5	HPE BladeSystem c-Class 10 GbE SFP+ to SFP+ 5 m Direct Attach Copper Cable	537963-B21
	HPE Networking X242 40G QSFP+ to QSFP+ 1 m Direct Attach Copper Cable	JH234A
	HPE Networking X242 40G QSFP+ to QSFP+ 3 m Direct Attach Copper Cable	JH235A
	HPE Networking X242 40G QSFP+ to QSFP+ 5 m Direct Attach Copper Cable	JH236A
4	HPE Networking X240 QSFP28 4xSFP28 1 m Direct Attach Copper Cable	JL282A
4	HPE Networking X240 QSFP28 4xSFP28 3 m Direct Attach Copper Cable	JL283A
4	HPE Networking X240 QSFP28 4xSFP28 5 m Direct Attach Copper Cable	JL284A
4	HPE 100 GB QSFP28 to 4x25Gb SFP28 3 m Direct Attach Copper Cable	845416-B21
	HPE Aruba Networking 100G QSFP28 to QSFP28 5 m Direct Attach Copper Cable	R0Z26A
5	HPE 25 GB SFP28 to SFP28 3 m Direct Attach Copper Cable	844477-B21
5	HPE 25 GB SFP28 to SFP28 0.5 m Direct Attach Copper Cable	R4G18A
5	HPE 25 GB SFP28 to SFP28 1 m Direct Attach Copper Cable	R4G19A
	HPE 25 GB SFP28 to SFP28 5 m Direct Attach Copper Cable	844480-B21
	HPE Aruba Networking 25G SFP28 to SFP28 3 m Direct Attach Copper Cable	R9F92A
	HPE Aruba Networking 25G SFP28 to SFP28 5 m Direct Attach Copper Cable	R9F93A
	HPE 100 GB QSFP28 to QSFP28 5 m Direct Attach Copper Cable	845408-B21
4	HPE 100 GbE QSFP28 to 4x25GbE SFP28 1 m Direct Attach Copper Cable	Q9S72A
	HPE Networking X240 100G QSFP28 1 m DAC Cable	JL271A
	HPE Networking X240 100G QSFP28 3 m DAC Cable	JL272A
	HPE Networking X240 100G QSFP28 5 m DAC Cable	JL273A
	HPE Aruba Networking 100G QSFP28 to QSFP28 1 m Direct Attach Copper Cable	R0Z25A
	HPE Aruba Networking 100G QSFP28 to QSFP28 3 m Direct Attach Copper Cable	JL307A
	HPE 100 GB QSFP28 to QSFP28 3 m Direct Attach Copper Cable	845406-B21
	HPE 200 GB QSFP56 to QSFP56 0.5 m Direct Attach Copper Cable	R5Z76A
	HPE 200 GB QSFP56 to QSFP56 1 m Direct Attach Copper Cable	R5Z77A
	HPE 200 GB QSFP56 to QSFP56 2 m Direct Attach Copper Cable	R5Z78A
	HPE 200 GB QSFP56 to QSFP56 2.5 m Direct Attach Copper Cable	R5Z79A

Note #	Descriptions	SKU
	HPE Alletra 6000 2x10Gb SFP+ to SFP+ 3 m Direct Attach Copper Cable	R7D16A
5	HPE Alletra 6000 2x25Gb SFP28 to SFP28 3 m Direct Attach Copper Cable	R7D17A
	HPE Alletra 6000 2x100Gb QSFP28 to QSFP28 3 m Direct Attach Copper Cable	R7D18A
5	HPE Aruba Networking 25G SFP28 to SFP28 3 m Direct Attach Copper Cable	JL488A
15	HPE 200 GbE QSFP56 to 2xQSFP56 2 m Direct Attach Copper Cable	R8M57A
15	HPE 200 GbE QSFP56 to 2xQSFP56 2.5 m Direct Attach Copper Cable	R8M58A
	HPE 100 GB QSFP28 to QSFP28 0.5 m Direct Attach Copper Cable	R8M59A
13	HPE 200 GB QSFP56 to 4x50/25 GB SFP56 2.5 m Direct Attach Copper Cable	R6F27A
	HPE Aruba Networking 10G SFP+ to SFP+ 3 m Direct Attach Copper Cable	R9F84A
	HPE Aruba Networking 10G SFP+ to SFP+ 7 m Direct Attach Copper Cable	J9285D

Supported AOC (Optical) Cables and Adapters

Note #	Descriptions	SKU
	HPE 40 GbE QSFP+ to 4x10GbE SFP+ 5 m Active Optical Cable	Q9S66A
	HPE 25 GbE SFP28 to SFP28 3 m Smart Active Optical Cable	Q9S67A
	HPE 25 GbE SFP28 to SFP28 5 m Smart Active Optical Cable	Q9S68A
	HPE 25 GbE SFP28 to SFP28 10 m Smart Active Optical Cable	Q9S69A
	HPE 25 GbE SFP28 to SFP28 15 m Smart Active Optical Cable	Q9S70A
	HPE 100 GbE QSFP28 to QSFP28 5 m Active Optical Cable	Q9S71A
	HPE Aruba Networking 25G SFP28 to SFP28 7 m Active Optical Cable	R9F95A
	HPE Storage 100 GbE QSFP28 to QSFP28 5 m Extended Temperature Active Optical Cable	S2T38A

Configuration Information

	HPE Storage 100 GbE QSFP28 to QSFP28 10 m Extended Temperature Active Optical Cable	S2T39A
	HPE Storage 100 GbE QSFP28 to QSFP28 15 m Extended Temperature Active Optical Cable	S2T40A
	HPE Storage 100 GbE QSFP28 to QSFP28 25 m Extended Temperature Active Optical Cable	S2T41A
	HPE Aruba Networking 100G QSFP28 to QSFP28 2 m Active Optical Cable	R9F76A
	HPE Aruba Networking 100G QSFP28 to QSFP28 1 m Direct Attach Copper Cable	R9F77A
	HPE Aruba Networking 100G QSFP28-QSFP28 3 m Direct Attach Copper Cable	R9F74A
	HPE Aruba Networking 100G QSFP28 to QSFP28 5 m Direct Attach Copper Cable	R9F78A
	HPE Aruba Networking 100G QSFP28 to QSFP28 7 m Active Optical Cable	R9F79A
	HPE Aruba Networking 100G QSFP28 to QSFP28 15 m Active Optical Cable	R9F80A
	HPE Aruba Networking 100G QSFP28 to QSFP28 30 m Active Optical Cable	R9F81A
	HPE BladeSystem c-Class QSFP+ to 4x10G SFP+ 15 m Active Optical Cable	721076-B21
	HPE BladeSystem c-Class 40G QSFP+ to QSFP+ 15 m Active Optical Cable	720211-B21
	HPE 100 GB QSFP28 to QSFP28 7 m Active Optical Cable	845410-B21
	HPE 100 GB QSFP28 to QSFP28 15 m Active Optical Cable	845414-B21
	HPE QSFP28 to 4x25Gb SFP28 7 m Active Optical Cable	845420-B21
	HPE 100 GbE QSFP28 2 m Extended Temperature Active Optical Cable	S6B63A
16	Aruba 100G QSFP28 LC FR1 SMF 2 km Transceiver	S1D17A/R9B63A
	HPE QSFP28 to 4x25Gb SFP28 15 m Active Optical Cable	845424-B21
	HPE 25 GB SFP28 to SFP28 7 m Active Optical Cable	844483-B21
	HPE 25 GB SFP28 to SFP28 15 m Active Optical Cable	845396-B21
13	HPE 400 GbE QSFP-DD to 4xQSFP56 1 m Direct Attach Copper Cable	R8M55A
13	HPE 400 GbE QSFP-DD to 4xQSFP56 2 m Direct Attach Copper Cable	R8M56A

Configuration Rules and Notes:

1. JG915A - Storage connectivity support for this transceiver is limited to 40 km
2. QSA (QSFP+ to SFP+) adapter (655874-B21) is being phased out of the M-series support. Use HPE QSA28 (QSFP28 to SFP28) adapter (845970-B21) that is compatible with all M-series switches to convert a QSFP+/QSFP28 slot to a single SFP+/SFP28 slot for 1G to 25G operation.
3. HPE QSA28 (QSFP28 to SFP28) adapter (845970-B21) is compatible with all M-series switches and is required with this transceiver to convert a QSFP28 slot to a single SFP28 or SFP+ slot for 1G, 10G, or 25G operation with this switch model.
4. QSFP (+ or 28) cable end is supported in SN2010M. The SFP (+ or 28) end is not supported in the SN2010M
5. The SN2010M 25G DAC connectivity to another M-series switch or 3rd party switch is limited to a 0.5 m DAC cable. End device connectivity may use 1 m or a 3 m (26 gauge) 25G DAC. 10G DAC up to 5 m is supported between SN2010M switches.
6. This HPE transceiver is compatible and supported for use in the SFP28 slots with this M-series switch model and is not restricted to use only with a QSA28 in QSFP28 slots.
7. This HPE transceiver is compatible and supported for use in the SFP28 slots and also the QSFP28 slots with this M-series switch model with the QSA28 (QSFP28 to SFP28) adapter (845970-B21).
8. This RJ45 crossover cable is compatible and supported for use when directly connecting the two M-series switch MGMT ports. When configuring MLAG and also utilizing in-band management, the MGMT0 ports of the two switches should be connected.
9. The 845972-B21 HPE 100 Gb QSFP28 Bidirectional XCVR does not interoperate with the JH419A and R0R40A HPE 100 Gb QSFP28 LC SWDM4 MM 100 m transceivers.
10. 100 Gbe SWDM4 LC transceivers JH419A and R0R40A are interoperable.
11. 10 Gbase-T SFP+ RJ45 transceiver supports maximum length 30 m CAT6a cable. This 10Gbase-T transceiver is not qualified for use at 1 GbE and shall be operated only at 10 GbE.
12. Cumulus 5.9.2 and later revisions are required for support of up to 18 R0R41B transceivers in the SN2010M switch. R0R41B transceiver supports maximum length 30 m CAT6a cable. R0R41B 10Gbase-T transceiver is not qualified for use at 1 GbE and shall be operated only at 10 GbE.
13. All cable ports must be set as NRZ or PAM4. A mix between the two technologies is not supported.
14. The R8M61A class 6 power requirements support use in the SN2010M ports 19, 20, 21, 22.
15. All cable ports must be set as PAM4, NRZ is not supported.
16. The S1D17A/R9B63A power requirements support use in the SN4700 ports swp1-32; SN3700M ports swp1-32; SN3700cM ports swp1-2, swp31-32; SN3420M ports swp53, swp55, swp57, swp59; SN4600cM ports swp49-64

Supported Optical Cables for all M-series switch models

Descriptions	SKU
HPE Premier Flex MPO12/MPO12 Multi-mode OM4 10 m Fiber Cable	QK729A
HPE Premier Flex MPO12/MPO12 Multi-mode OM4 50 m Fiber Cable	QK731A
HPE Premier Flex LC/LC Multi-mode OM4 2 Fiber 1 m Cable	QK732A
HPE Premier Flex LC/LC Multi-mode OM4 2 Fiber 2 m Cable	OK733A

Configuration Information

HPE Premier Flex LC/LC Multi-mode OM4 2 Fiber 5 m Cable	QK734A
HPE Premier Flex LC/LC Multi-mode OM4 2 Fiber 15 m Cable	QK735A
HPE Premier Flex LC/LC Multi-mode OM4 2 Fiber 30 m Cable	QK736A
HPE Premier Flex LC/LC Multi-mode OM4 2 Fiber 50 m Cable	QK737A
HPE LC to LC Multi-mode OM3 2-Fiber 0.5 m 1-Pack Fiber Optic Cable	AJ833A
HPE LC to LC Multi-mode OM3 2-Fiber 1.0 m 1-Pack Fiber Optic Cable	AJ834A
HPE LC to LC Multi-mode OM3 2-Fiber 2.0 m 1-Pack Fiber Optic Cable	AJ835A
Descriptions	SKU
HPE LC to LC Multi-mode OM3 2-Fiber 5.0 m 1-Pack Fiber Optic Cable	AJ836A
HPE LC to LC Multi-mode OM3 2-Fiber 15.0 m 1-Pack Fiber Optic Cable	AJ837A
HPE LC to LC Multi-mode OM3 2-Fiber 30.0 m 1-Pack Fiber Optic Cable	AJ838A
HPE LC to LC Multi-mode OM3 2-Fiber 50.0 m 1-Pack Fiber Optic Cable	AJ839A
HPE Premier Flex MPO12/MPO12 Multi-mode OM4 100 m Fiber Cable	H6Z30A
HPE Premier Flex MPO8 to 4xLC Multi-mode OM4 5 m Fiber Cable	K2Q46A
HPE Premier Flex MPO8 to 4xLC Multi-mode OM4 15 m Fiber Cable	K2Q47A
HPE Premier Flex MPO12/MPO12 Multi-mode OM4 1 m Fiber Cable	Q1H63A
HPE Premier Flex MPO12/MPO12 Multi-mode OM4 2 m Fiber Cable	Q1H64A
HPE Premier Flex MPO12/MPO12 Multi-mode OM4 5 m Fiber Cable	Q1H65A
HPE Premier Flex MPO12/MPO12 Multi-mode OM4 15 m Fiber Cable	Q1H66A
HPE Premier Flex MPO12/MPO12 Multi-mode OM4 30 m Fiber Cable	Q1H67A
HPE Premier Flex MPO8 to 4xLC Multi-mode OM4 30 m Fiber Cable	Q1H68A
HPE Premier Flex MPO8 to 4xLC Multi-mode OM4 50 m Fiber Cable	Q1H69A
HPE 5 m Single-Mode LC/LC Fibre Channel Cable	AK346A
HPE Premier Flex MPO12/MPO12 APC Single-mode 50 m 1-pack Cable	R6F28A
HPE Premier Flex MPO12/MPO12 APC Single-mode 100 m 1-pack Cable	R6F29A
HPE Premier Flex MPO12/MPO12 APC Single-mode 300 m 1-pack Cable	R6F30A
HPE Premier Flex MPO12/MPO12 APC Single-mode 500 m 1-pack Cable	R6F31A
HPE Premier Flex Wide Band LC/LC Multi-mode OM5 100 m Fiber Cable	R9M64A
HPE Premier Flex Wide Band LC/LC Multi-mode OM5 150 m Fiber Cable	R9M65A
HPE Premier Flex Wide Band MPO8/MPO8 Multi-mode OM5 100 m Fiber Cable	R9M62A
HPE Premier Flex MPO16 APC/2xMPO8 MM 5 m Cable	S1H57A
HPE Premier Flex MPO16 APC/2xMPO8 MM 10 m Cable	S1H58A
HPE Storage Premier Flex MPO16 APC/4xMPO4 MM 5 m Cable	S2T36A
HPE Storage Premier Flex MPO16 APC/4xMPO4 MM 10 m Cable	S2T37A
HPE Premier Flex MPO16/MPO16 APC MM 2 m Cable	R4D51A
HPE Premier Flex MPO16/MPO16 APC MM 5 m Cable	R4D52A
HPE Premier Flex MPO16/MPO16 APC MM 10 m Cable	R4D53A
HPE Premier Flex MPO16/MPO16 APC MM 15 m Cable	R4D54A
HPE Premier Flex MPO16/MPO16 APC MM 30 m Cable	R4D55A
HPE Premier Flex MPO16 APC/8xLC MM 5 m Cable	R4D56A
HPE Premier Flex MPO16 APC/8xLC MM 10 m Cable	R4D57A
HPE Premier Flex MPO16 APC/8xLC MM 15 m Cable	R4D58A
HPE Premier Flex MPO16 APC/8xLC MM 30 m Cable	R4D59A
HPE Premier Flex MPO8 APC/4xLC Single-mode 15 m Cable	R4D60A
HPE Premier Flex MPO8 APC/4xLC Single-mode 30 m Cable	R4D61A
HPE Premier Flex MPO8 APC/4xLC Single-mode 2 m Cable	R4D62A
HPE Premier Flex MPO8 APC/4xLC Single-mode 5 m Cable	R4D63A
HPE Premier Flex MPO8 APC/4xLC Single-mode 10 m Cable	R4D64A

Note:

The following 4 single-mode cables have APC connectors for use with the S6B55A and R8M60B transceivers. They are not compatible with the S6B51A or S6B53A.

HPE Premier Flex MPO8/MPO8 APC Single-mode 2 m Cable	S6B70A
HPE Premier Flex MPO8/MPO8 APC Single-mode 5 m Cable	S6B71A
Descriptions	SKU
HPE Premier Flex MPO8/MPO8 APC Single-mode 15 m Cable	S6B72A
HPE Premier Flex MPO8/MPO8 APC Single-mode 30 m Cable	S6B73A

Note:

The following 6 multi-mode cables have APC connectors for use with the S6B51A, S6B56A, and S6B53A transceivers. Connector damage occurs if they are inserted into a transceiver's MPO connector.

HPE Premier Flex MPO8/MPO8 APC MM 1 m Cable	S6B64A
HPE Premier Flex MPO8/MPO8 APC MM 2 m Cable	S6B65A
HPE Premier Flex MPO8/MPO8 APC MM 5 m Cable	S6B66A

Configuration Information

HPE Premier Flex MPO8/MPO8 APC MM 15 m Cable	S6B67A
HPE Premier Flex MPO8/MPO8 APC MM 30 m Cable	S6B68A
HPE Premier Flex MPO8/MPO8 APC MM 50 m Cable	S6B69A

Note:

The following 2 multi-mode splitter cables have APC connectors for use with the S6B51A, S6B56A, and S6B53A transceivers. Connector damage occurs if they are inserted into a transceiver's MPO connector.

These 2x splitter cables are configured for the following use cases:

- MPO8 end: (S6B51A) HPE 400 GbE QSFP-DD VR4 50 m Transceiver
- MPO4 end: (S6B56A) HPE 200 GbE QSFP56 VR2 50 m Transceiver

HPE Premier Flex MPO8/2xMPO4 APC MM 5 m Cable	S6B74A
HPE Premier Flex MPO8/2xMPO4 APC MM 15 m Cable	S6B75A

Technical Specifications

Family Information (M-series with NVIDIA Cumulus® Linux)				
	HPE SN2010M 100 GbE x4QSFP28 + x18 1/10/25 GbE switch S2T75A	HPE SN2100M 100 GbE 16QSFP28 switch S2T76A	HPE SN3420M 100 GbE x12QSFP28 + x48 1/10/25 GbE switch S2T77A	HPE SN3700cM 100 GbE 32QSFP28 switch S2T78A
Description	Ideal ½ width ToR 1/10/25/40/100 GbE	Ideal ½ width ToR 1/10/25/40/100 GbE	1/10/25 GbE ToR 40/100 GbE	40/100 GbE ToR
Ports Speeds	18 x 1/10/25 GbE + 4 x40/100 GbE Breakout - 16 x1/10/25 GbE	16 x40/100 GbE Breakout - 64 x1/10/25 GbE	48 x1/10/25 GbE + 12 x40/100 GbE Breakout - 48 x1/10/25 GbE	32 x40/100 GbE Breakout - 128 x1/10/25 GbE
Minimum Configuration	18 + 4 Ports	16 Ports	48 + 12 Ports	32 ports
Size	1U (½ 19" wide)	1U (½ 19" wide)	1U	1U
Switching Capacity	1.7 TB /s	3.2 TB /s	4.8 TB /s	6.4 TB /s
Processing Capacity	1.26Bpps	2.38Bpps	3.58Bpps	4.76Bpps
Forwarding Technology	Cut Through	Cut Through	Cut Through	Cut Through
Latency	300ns	300ns	425ns	425ns
Typical Power Consumption (ATIS)	66 W	74 W	202 W	242 W
Energy Efficiency	full load: 91.3% @ 115 Vac/60 Hz, 92.6% @ 230 Vac/50 Hz	full load: 91.3% @ 115 Vac/60 Hz, 92.6% @ 230 Vac/50 Hz	80 Plus Gold	80 Plus Gold
Supported NOS**	NVIDIA Cumulus® Linux	NVIDIA Cumulus® Linux	NVIDIA Cumulus® Linux	NVIDIA Cumulus® Linux
System Memory	8 GB	8 GB	8 GB	8 GB
SSD Memory	16 GB	16 GB	32 GB	32 GB
Packet Buffer	16 MB	16 MB	42 MB	42 MB
1 GbE Mgmt Port	1 RJ45	1 RJ45	1 RJ45	1 RJ45
Serial Port	1 RJ45	1 RJ45	1 RJ45	1 RJ45
USB Port	1 Mini USB 2.0	1 Mini USB 2.0	1 Type A USB 3.0	1 Micro USB 2.0
Airflow	Power-to-Connector (P2C) airflow	Power-to-Connector (P2C) airflow	Power-to-Connector (P2C) airflow	Power-to-Connector (P2C) airflow
Power Supplies	2 (1+1 redundant) not replaceable	2 (1+1 redundant) not replaceable	2 (1+1 redundant)	2 (1+1 redundant)
Fans	2 fans not replaceable	2 fans not replaceable	5 (N+1 redundant)	4 (N+1 redundant)
Power Supplies with integrated fans	Frequency: 50-60 Hz Input range: 100-264 Vac Input current 4.5A-2.9A IEC C14 To C13	Frequency: 50-60 Hz Input range: 100-264 Vac Input current 4.5 A - 2.9 A IEC C14 To C13	Frequency: 50-60 Hz Input range: 100-264 Vac Input current 7.1 A - 2.8 A IEC C14 To C13	Frequency: 50-60 Hz Input range: 100-264 Vac Input current 13 A - 7 A IEC C14 To C13
Size	1.72" x 7.87" x 20"(43.9 mm x 200 mm x 508 mm)	1.72" x 7.87" x 20" (43.9 mm x 200 mm x 508 mm)	1.72" x 17.24" x 18.29"(44 mm x 438 mm x 464.6 mm)	1.72" x 16.84" x 22"(44 mm x 428 mm x 559 mm)
Weight	4.5 kg (9.9 lbs)	4.54 kg (10 lbs)	8.5 kg (18.8 lbs)	14 kg (30.9 lbs)

Technical Specifications

Model	HPE SN4600cM 100 GbE 64QSFP28 Switch S2T80A	HPE SN3700M 200 GbE 32QSFP56 Switch S2T79A	HPE SN4700M 400 GbE 32QSFP-DD Switch S2T81A
Description	40/100 GbE Aggregation/ToR/EoR/ Super Spine	40/50/100/200 GbE Aggregation/ToR/ Super Spine	40/50/100/200/400 GbE Aggregation/ToR/EoR/ Super Spine
Ports Speeds	64 x40/100 GbE Breakout - 128 x 1/10/25 GbE	32 x40/100/200 GbE Breakout - 128 x1/10/25/50 GbE	32 x40/100/200/400 GbE Breakout - 128 x1/10/25/50 GbE
Minimum Configuration	64 QSFP28 Ports	32 QSFP56 Ports	32 QSFP-DD Ports
Size	2U	1U	1U
Switching Capacity	12.8 TB /s	12.8 TB /s	25.6 TB /s
Processing Capacity	8.4Bpps	8.33Bpps	8.4Bpps
Forwarding Technology	Cut Through	Cut Through	Cut Through
Latency	500ns	425ns	500ns
Typical Power Consumption (ATIS)	466 watts	250 watts	630 watts
Supported NOS**	NVIDIA Cumulus® Linux	NVIDIA Cumulus® Linux	NVIDIA Cumulus® Linux
System Memory	8 GB	8 GB	16 GB
SSD Memory	30 GB	32 GB	60 GB
Packet Buffer	64 MB	42 MB	64 MB
1 GbE Mgmt Port	1 RJ45	1 RJ45	1 RJ45
Serial Port	1 RJ45	1 RJ45	1 RJ45
USB Port	1 Type A USB 2.0	1 Micro USB 2.0	1 Type A USB 2.0
Airflow	Power-to-Connector airflow (P2C) airflow	Power-to-Connector airflow (P2C) airflow	Power-to-Connector airflow (P2C) airflow
Power Supplies	2 (1+1 redundant)	2 (1+1 redundant)	2 (1+1 redundant)
Energy Efficiency	80 Plus Gold	80 Plus Gold	80 Plus Gold
Fans	3 (N+1 redundant)	6 (N+1 redundant)	6 (N+1 redundant)
Power Supplies with integrated fans	Frequency: 50-60 Hz Input range: 100-264 Vac Input current 10A-6A @200 Vac-240 Vac C14 TO C15 EUR + CCC C14 TO C15 UL	Frequency: 50-60 Hz Input range: 100-264 Vac Input current 13A-7A @200 Vac- 240 Vac IEC C14 To C13	Frequency: 50-60 Hz Input range: 100-264 Vac Input current 15A-10A @200 Vac-240 Vac C14 TO C15 EUR + CCC C14 TO C15 UL
Size	3.46" x 16.85" x 22.3" (88 mm x 428 mm x 568.5 mm)	1.72" x 16.84" x 22" (44 mm x 428 mm x 559 mm)	1.72" x 16.85" x22.3" (44 mm x 428 mm x 568.5 mm)
Weight	14.64 kg (32.3 lbs)	14 kg (30.9 lbs)	11.6 kg (25.6 lbs)

Notes: **There are separate M-Series SKUs for ONIE, ONYX™ and NVIDIA Cumulus® switch models.

Technical Specifications

Environment	
Operating temperature	0°C to 40°C Notes: SN4700M 0°C to 35°C
Non-Operating temperature	-40ºC to 70ºC
NEBs and ETSI operating temperature	-5°C to 55°C
Operating relative humidity (operational)	
Noncondensing	10% to 85%
Operating Altitude	0 - 3050 m
Compliant	RoHS
Safety/ EMC	CB, cTUVus, CE, CU, S_Mark, CE, FCC, VCCI, ICES, RCM, BSMI, KCC, CCC

Electrical characteristics	
Frequency	50/60 Hz
Voltage	90-264 Vac.

Ethernet Ports Maximum High Power Support

- SN3420M
  - Ports 1-6 Power Class 3 (2.5 W)
  - Ports 7-48 Power Class 1 (1.5 W)
  - Ports 49-52, 54, 56, 58, 60 Power Class 4 (3.5 W)
  - Ports 53, 55, 57, 59 Power Class 7 (5 W)
- SN3700cM
  - Ports 1, 2, 31, 32 Power class 7 (5 W)
  - Ports 3-30 Power class 4 (3.5 W)
- SN3700M
  - Ports 1-32 Power class 7 (5 W)
  - Ports 1, 2, 21, 22 Power class 8 (6.5 W)
- SN4600cM
  - Ports 1-48 Power Class 4 (3.5 W)
  - Ports 49-64 Power Class 7 (5 W)
- SN4700M
  - All Ports 1-32 Power Class 48 (12 W) - QSFP-DD new method Watt *4
- SN2010M
  - Ports 1,2,17,18 Power Class 3 (2.5 W)
  - Ports 3-16 Power Class 1 (1.5 W)
  - Ports 19-22 Power Class 6 (4.5 W)
- SN2100M

Technical Specifications

- Ports 1,2,15,16 Power Class 7 (5 W)
- Ports 3-14 Power Class 4 (3.5 W)

Safety

EN 60950-1:2006+A11:2009+A1:2010+A12:2011+AC:2011+A2:2013, IEC 60950-1:2005 (Second Edition) + Am 1:2009 + Am 2:2013 and EN 60950-1:2006 + A11:2009 + A1:2010 + A12:2011 + AC:2011 + A2:2013, UL 60950-1:2007, CAN/CSA C22.2 60950 -1:2007+A1:2011+A2:2014, IEC 60950-1 Ed. 2.0:2005 + Am 1:2009+ Am 2:2013, LV CU TR 004/2011 and EMC CU TR 020/2011 Technical Regulation, DSTU EN 55032:2014 and DSTU EN 60950-1:2014

EMC

EN 55032:2012 class A, EN 55024:2010, EN 61000-3-2:2014, EN 61000-3-3: 2013, EN 61000-4-2: 2002, EN 61000-4-3: 2006+A1(08)+A2(10), EN 61000-4-4: 2004+A1(10), EN 61000-4-5: 2006, EN 61000-4-6: 2014
EN 61000-4-11:2004, FCC 47 CFR, Part 15:2017, Sub-part B, Class A, ICES-003, Issue 6: 2016 Class A, VCCI V-3/2015.04 Class A, AZ/NZS CISPR 32:2015 Class A, KN22:2009 class A/ KN24:2009

Acoustic

- High-speed fan: 73.7dB(A)

Typical power with passive cables (ATIS):

- SN2010M
  - 225.20 BTUs per Hour (66 watts)

HPE Power Advisor

To address a need to accurately estimate power requirements and to ensure the appropriate levels of power and cooling and power-related operating costs, HPE created the HPE Power Advisor utility. The HPE Power Advisor utility provides accurate and meaningful estimates of the power needs for HPE servers, storage, and switches including M-series Ethernet switches.

SNMP MIBs

Due to licensing restrictions, Cumulus Linux does not install all MIBs. For the MIBs that Cumulus Linux does not install, you must add the "non-free" archive to /etc/apt/sources.list. To see which MIBs are on your switch, run ls /usr/share/snmp/mibs/.

BGP4-MIB OSPFv2-MIB OSPFv3-MIB RIPv2-MIB	You can enable FRR SNMP support to provide support for OSPF-MIB (RFC-1850), OSPFV3-MIB (RFC-5643), and BGP4-MIB (RFC-1657).
CUMULUS-BGPVRF-MIB	Cumulus Linux also includes its own BGP unnumbered MIB for BGP unnumbered peers, defined in /usr/share/snmp/mibs/Cumulus-BGPUN-MIB.txt, which has the OID 1.3.6.1.4.1.40310.7.
CUMULUS-COUNTERS-MIB	Discard counters: Cumulus Linux also includes its own counters MIB, defined in /usr/share/snmp/mibs/Cumulus-Counters-MIB.txt. It has the OID.1.3.6.1.4.1.40310.2.
CUMULUS-RESOURCE-QUERY-MIB	Cumulus Linux includes its own resource utilization MIB, which is similar to using cl-resource-query. This MIB monitors layer 3 entries by host, route, nexthops, ECMP groups, and layer 2 MAC/BDPU entries. /usr/share/snmp/mibs/Cumulus-Resource-Query- MIB.txt defines this MIB, which has the OID .1.3.6.1.4.1.40310.1.
CUMULUS-SNMP-MIB	SNMP counters. For information on exposing CPU and memory information with SNMP, see this knowledge base article.
DISMAN-EVENT-MIB	Trap monitoring
ENTITY-MIB	Cumulus Linux supports the temperature sensors, fan sensors, power sensors, and ports from RFC 4133. Notes: The ENTITY-MIB does not show the chassis information in Cumulus Linux.

Technical Specifications

ENTITY-SENSOR-MIB	Physical sensor information (temperature, fan, and power supply) from RFC 3433.
HOST-RESOURCES-MIB	Users, storage, interfaces, process info, run parameters.
BRIDGE-MIB Q-BRIDGE-MIB	The dot1dBasePortEntry and dot1dBasePortIfIndex tables in the BRIDGE-MIB and dot1qBase, dot1qFdbEntry, dot1qTpFdbEntry, dot1qTpFdbStatus, and dot1qVlanStaticName tables in the Q-BRIDGE-MIB tables. You must uncomment the bridge_pp.py pass_persist script in /etc/snmp/snmpd.conf.
IEEE8023-LAG-MIB	Implementation of the IEEE 8023-LAG-MIB includes the dot3adAggTable and dot3adAggPortListTable tables. To enable this, edit /etc/snmp/snmpd.conf and uncomment or add the following lines: view systemonly included .1.2.840.10006.300.43 pass_persist.1.2.840.10006.300.43 /usr/share/snmp/ieee8023_lag_pp.py

IF-MIB	Interface description, type, MTU, speed, MAC, admin, operation status, counters.
	
	Notes: Cumulus Linux disables the IF-MIB cache by default.
	The non-caching code path in the IF-MIB treats 64-bit counters like 32-bit counters (a 64-bit counter rolls over after the value increments to a value that extends beyond 32 bits). To enable the counter to reflect traffic statistics using 64-bit counters, remove the -y option from the SNMPDOPTS line in the /etc/default/snmpd file. The example below first shows the original line, commented out, then the modified line without the -y option:
	cumulus@switch:~$ cat /etc/default/snmpd # SNMPDOPTS='-y -LS 0-4 d -Lf /dev/null -u snmp -g snmp -I -smux -p /run/snmpd.pid'
	SNMPDOPTS='-LS 0-4 d -Lf /dev/null -u snmp -g snmp -I -smux -p /run/snmpd.pid

IP-FORWARD-MIB	IP routing table.
IP-MIB (includes ICMP)	IPv4, IPv4 addresses counters, netmasks.
IPv6-MIB	IPv6 counters.
LLDP-MIB	Layer 2 neighbor information from lldpd (you need to enable the SNMP subagent in LLDP). You need to start lldpd with the -x option to enable connectivity to snmpd (AgentX).
LM-SENSORS MIB	Fan speed, temperature sensor values, voltages. The ENTITY-SENSOR MIB replaces this MIB.
NET-SNMP-AGENT-MIB	Agent timers, user, group config.
NET-SNMP-VACM-MIB	Agent timers, user, group config.
NOTIFICATION-LOG-MIB	Local logging.
SNMP-FRAMEWORK-MIB	Users, access.
SNMP-MPD-MIB	Users, access.
SNMP-TARGET-MIB	SNMP-TARGET-MIB.
SNMP-USER-BASED-SM-MIBS	Users, access.
SNMP-VIEW-BASED-ACM-MIB	Users, access.
TCP-MIB	TCP-related information.
UCD-SNMP-MIB	System memory, load, CPU, disk IO.
UDP-MIB	UDP-related information.

Summary of Changes

Date	Version History	Action	Description of Change
02-Feb-2026	**Version 23**	Added	– Added new optical cable descriptions under **Supported Optical Cables**: MPO12/MPO12 OM4 (1m-100m), MPO8 to 4xLC OM4 (5m-50m), Wide Band LC/LC OM5 (100m, 150m). – Added new APC cable descriptions under **Supported Optical Cables**: MPO16/MPO16 MM (2m-30m), MPO16 APC/2xMPO8 MM (5m, 10m), MPO16 APC/4xMPO4 MM (5m, 10m), MPO16 APC/8xLC MM (5m-30m), MPO8 APC/4xLC Single-mode (2m-30m), MPO8/MPO8 APC Single-mode (2m-30m), MPO8/MPO8 APC MM (1m-50m), and MPO8/2xMPO4 APC MM (5m, 15m). – Added note in **Step 2 - Options** regarding S1D17A/R9B63A power requirements for SN4700, SN3700M, SN3700cM, SN3420M, and SN4600cM ports.
		Changed	Updated model description in **Models** section: removed "with NVIDIA Cumulus® Linux" and standardized to "with NVIDIA Cumulus."
		Removed	– Removed outdated optical cable descriptions using legacy phrasing (e.g., "Multi Fiber Push On", "OM4 12-fiber"). – Removed legacy APC cable descriptions with outdated OM4 references and redundant phrasing.
01-Dec-2025	**Version 22**	Added	Added *Electrical Characteristics* section. Removed obsolete SKU JW148A. Updated *Step 2 - Options* section with new transceiver SKUs (S6B57A, S6B58A), added active optical cable (S6B63A) and Aruba transceiver (S1D17A/R9B63A).
		Changed	Expanded *Supported Optical Cables* table with single-mode, multi-mode, and splitter cables including APC connector notes.
		Removed	Removed obsolete SKU JW148A.
02-Jun-2025	**Version 21**	Changed	Configuration Information section was updated Obsolete SKUs were removed - 720199-B21 / 720202-B21
03-Jun-2024	**Version 20**	Changed	Overview, Configuration Information and Technical Specifications sections were updated
06-May-2024	**Version 19**	Changed	Overview, Standard Features, Service and Support, Configuration Information and Technical Specifications sections were updated Rebranding Series Name applied
26-Feb-2024	**Version 18**	Changed	Networking product names were updated.
13-Nov-2023	**Version 17**	Changed	HPE Services Rebranding
19-Sep-2022	**Version 16**	Changed	Standard Features, Configuration Information and Technical Specifications sections were updated
06-Jun-2022	**Version 15**	Changed	Overview, Standard Features and Service and Support sections were updated
04-Oct-2021	**Version 14**	Changed	Service and Support section was updated
02-Aug-2021	**Version 13**	Changed	Service and Support section was updated
19-Apr-2021	**Version 12**	Changed	Configuration Information Section was updated
15-Feb-2021	**Version 11**	Changed	Overview, Standard Features and Technical Specifications sections were updated
03-Aug-2020	**Version 10**	Changed	Overview, Standard Features and Configuration Information sections were updated
06-Jul-2020	**Version 9**	Changed	QuickSpecs layout was updated and Branding Refresh was applied.
16-Mar-2020	**Version 8**	Changed	Configuration Information and Technical Specifications sections were updated.
03-Feb-2020	**Version 7**	Changed	Overview, Service and Support, Family Information and Technical Specifications sections were updated.
07-Oct-2019	**Version 6**	Changed	ONIE SKU updates; features update; transceivers updated
05-Aug-2019	**Version 5**	Added	Overview, Service and Support, Family Information and Technical Specifications sections were updated.
02-Apr-2019	**Version 4**	Changed	Family Information and Technical Specifications sections were updated.

Summary of Changes

07-Jan-2019	**Version 3**	Changed	Overview, Models, Service and Support, Family Information, Configuration Information and Technical Specifications sections were updated
15-Oct-2018	**Version 2**	Changed	Overview section was updated. SKUs descriptions were updated. Obsolete SKUs were removed from Configuration Information section. New SKUs were added in Configuration Information section.
4-Sep-2018	**Version 1**	New	New QuickSpecs.

Copyright

Shape the Future of QuickSpecs - Your Input Matters

Chat now

a00043975enw - 16202 - Worldwide - V23 - 02-February-2026
HEWLETT PACKARD ENTERPRISE
HPE.com