

Overview

HPE Storage Switch M-series SN2010M 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.

HPE Storage Switch M-series SN2010M with NVIDIA Cumulus® Linux is based on the 1st generation of NVIDIA Spectrum™ switches, purpose-built for data center leaf/ToR applications. Allowing maximum flexibility, the half width 1U SN2010M provides port speeds spanning from 1GbE to 100GbE, and a port density that enables highly available full rack connectivity to any server. SN2010M provides an on chip fully-shared 16MB packet buffer, and flexible port use in addition to advanced capabilities. The uplink ports allow a variety of blocking ratios to suit any application requirement. HPE Storage Switch M-series SN2010M is ideal for building cloud-scale layer-2 and layer-3 networks. The HPE Storage Switch M-series SN2010M platform delivers high performance, consistent low latency along with support for advanced software defined networking features, making it the ideal choice for web scale IT, cloud, hyperconverged storage and data analytics applications.

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 1/10/25GbE and 100GbE 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.

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 1/10/40Gbps Ethernet connectivity for existing workloads and enhance connectivity utilizing built-in 25/100Gbps 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 1/10/25/100GbE switching solution which scales up to 34 ports per switch with QSFP28 breakout cables for up to 16 additional 1/10/25Gbps 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 1.7Tb/s with 1.26Bpps processing capacity when running 18 ports at 25GbE and 4 ports at 100GbE, and enables 3.4Tb/s and 2.52Bpps when two units are deployed side-by-side in a 1 RU space.

Overview

HPE Storage Switch M-series SN2010M Ethernet switches are based on the high-performance 25GbE 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 1Gbps to 100Gbps
- 4 100/40GbE QSFP28 ports and 18x1/10/25GbE SFP28 ports
 - All 4 QSFP28 ports support split x4 or x2 mode (4x4=16 breakout ports maximum)
- 16MB 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

Models

HPE Storage Switch M-series SN2010M Ethernet Switch Model

Description

| Description | SKU |
|---|--------|
| HPE 25GbE 18SFP28 4QSFP28 Power to Connector Airflow Half Width Switch SN2010M with NVIDIA Cumulus <ul style="list-style-type: none"> • HPE 18SFP28 4QSFP28 P2C Sw SN2010M w/NVD | S2T75A |
| HPE SN2100M Rack Installation Kit | Q2F25A |

Notes:

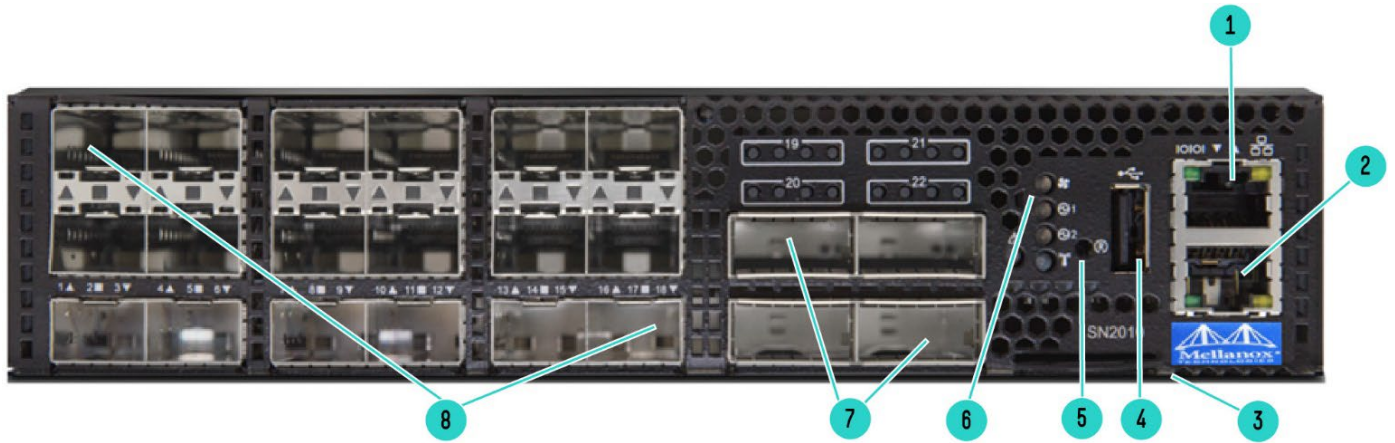
- Only 1 Rack Mount kit is needed for 2x SN2010M switches within the same rack
- HPE switch SKUs with factory installed NVIDIA Cumulus® Linux cannot be converted to HPE ONYX or ONIE switch SKUS
- For HPE Storage Switch M-series SN2010M models Q9E63A, R0P77A, and R0P78A refer to QuickSpecs Version 17



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

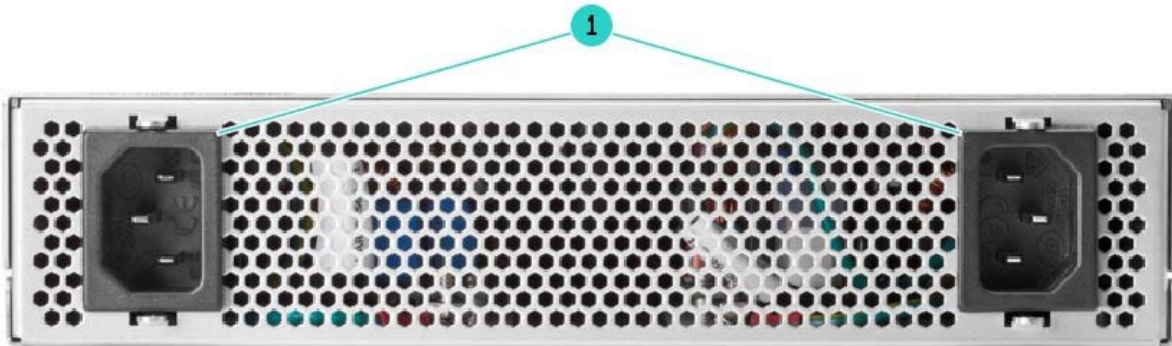


Overview



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

- | | |
|---|---|
| 1. MGMT0 100Mb/s to 1Gb/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) |



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

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 10/25GbE and 40/100GbE 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 10/25GbE and 4 QSFP28 ports supporting 40/100GbE and which can breakout to 4 10GbE or 25GbE ports.
- HPE Storage Switch M-series SN2010M introduces low latency for 10/25GbE and 40/100GbE 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 1/10GbE or 25GbE speeds with 40/100GbE 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 10/25GbE and 40/100GbE 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 40/100GbE 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™ 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.

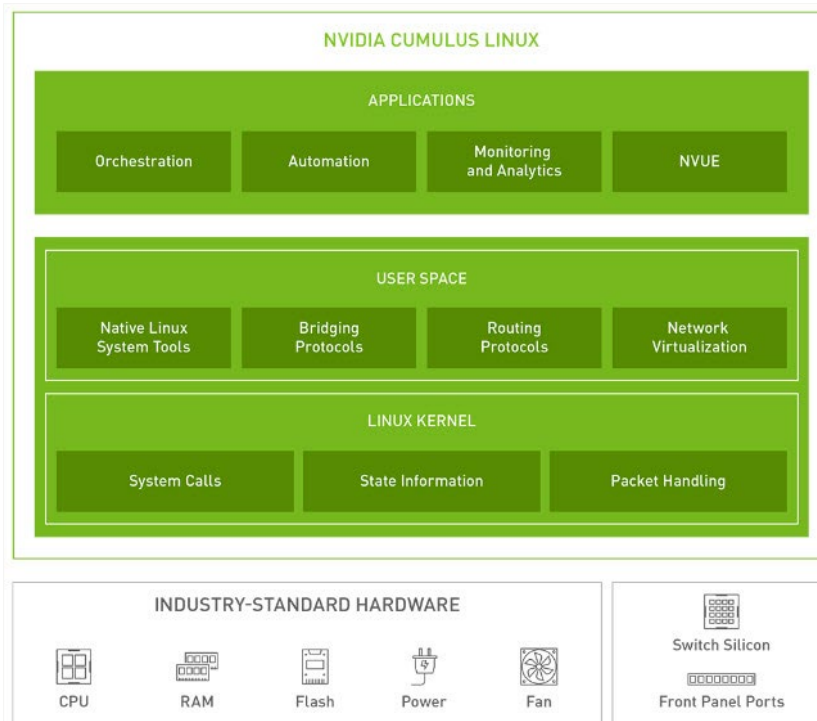
Prescriptive Topology Manager (PTM): Efficiently go from whiteboard to physical cable. With PTM, you can program your data center to verify connections and resolve issues faster.

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 FIB, 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 802.1w), PVRST, PVST, bridge assurance, BPDU guard, and BPDU filter
- VLANs, VLAN trunks (IEEE 802.1q), LACP (IEEE 802.3ad), 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



Standard Features

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
- 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 queue-depth, 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 dnstools, 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.



Standard Features

- 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

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.
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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/completechcare>



Service and Support

Other related services from HPE Services

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.



Service and Support

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

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, 1.83m, 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 25GbE 18SFP28 4QSFP28 Power to Connector Airflow Half Width Switch SN2010M with NVIDIA Cumulus <ul style="list-style-type: none"> • 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 100GbE QSFP28 500m 1310mm PSM4 Transceiver | Q8J73A |
| | HPE 10GbE SFP+ SR Multi-mode 300m Transceiver | Q6M30A |
| | HPE 10Gb SFP+ Short Wave 1-pack Pull Tab Optical Transceiver | Q2P65A |
| | HPE 100GbE QSFP28 SR4 100m Transceiver | Q2F19A |
| | HPE Storage 100GbE QSFP28 SR4 Extended Temperature Pull Tab Transceiver | S2T35A |
| | HPE Aruba Networking 100G SR1.2 QSFP28 LC 100m MMF Transceiver | S4B44A |
| | HPE 25Gb SFP28 Short Wave Extended Temperature 1-pack Pull Tab Optical Transceiver | Q2P64B |
| | HPE Aruba Networking 25G SFP28 LC eSR 400m MMF Transceiver | JL485A |
| 9,10 | HPE 100Gb QSFP28 LC SWDM4 Multi-mode 100m Transceiver | R0R40A |
| 3, 6, 11,12 | HPE 10GBASE-T SFP+ RJ45 30m 1-pack Transceiver | R0R41B |
| 3, 6 | HPE 25Gb SFP28 SR 30m Transceiver | R0R42A |
| | HPE BladeSystem c-Class 10Gb SFP+ SR Transceiver | 455883-B21 |

Configuration Information

| Note # | Descriptions | SKU |
|--------|--|------------|
| 7 | HPE Aruba Networking 1G SFP RJ45 T 100m 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 10km SMF Transceiver | J9151E |
| | HPE Aruba Networking 10G SFP+ LC ER 40km SMF Transceiver | J9153D |
| | HPE Aruba Networking SFP-10GE-ZR 10GBASE-ZR SFP+ 1310nm LC Connector Pluggable 10GbE Transceiver | JW148A |
| | HPE Networking X130 10G SFP+ LC ER 40km Transceiver | JG234A |
| 1 | HPE Networking X130 10G SFP+ LC LH 80km Transceiver | JG915A |
| | HPE Networking X140 40G QSFP+ CSR4 300m Transceiver | JG709A |
| | HPE Networking X140 40G QSFP+ LC LR4 SM 10km 1310nm Transceiver | JG661A |
| | HPE Aruba Networking 40G QSFP+ LC ER4 40km SMF Transceiver | Q9G82A |
| | HPE BladeSystem c-Class 40Gb QSFP+ MPO SR4 100m Transceiver | 720187-B21 |
| | HPE Networking X140 40G QSFP+ LC BiDi 100m MM Transceiver | JL251A |
| | HPE 40Gb QSFP+ Bidirectional Transceiver | 841716-B21 |
| | HPE Networking X140 40G QSFP+ LC LR4L 2km SM Transceiver | JL286A |
| | HPE Networking X190 25G SFP28 LC SR 100m MM Transceiver | JL293A |
| 3 | HPE Aruba Networking 25G SFP28 LC LR 10km SMF Transceiver | JL486A |
| | HPE 100GbE QSFP28 500m 1310mm PSM4 Transceiver | Q8J73A |
| | HPE Networking X130 10G SFP+ LC SR Transceiver | JD092B |
| | HPE Networking X140 40G QSFP+ MPO SR4 Transceiver | JG325B |
| | HPE 25Gb SFP28 SR 100m Transceiver | 845398-B21 |
| 3 | HPE QSFP28 to SFP28 Adapter | 845970-B21 |
| | HPE Networking X150 100G QSFP28 LC LR4 10km SM Transceiver | JL275A |
| | HPE Networking X150 100G QSFP28 CWDM4 2km SM Transceiver | JH673A |
| 9,10 | HPE Networking X150 100G QSFP28 LC SWDM4 100m MM Transceiver | JH419A |
| 9 | HPE 100Gb QSFP28 Bidirectional Transceiver | 845972-B21 |
| 14 | HPE 100GbE QSFP28 LC DR1 500m 1-pack Transceiver | R8M61A |
| | HPE Alletra 6000 2x100Gb QSFP28 MPO SR4 100m FIO Transceiver | R7D08A |
| | HPE Alletra 6000 2x100Gb QSFP28 MPO SR4 100m 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 100m FIO Transceiver | R7D07A |
| | HPE Alletra 6000 2x25Gb SFP28 SR 100m Transceiver | R7D11A |
| | HPE Aruba Networking 40G QSFP+ MPO SR4 Transceiver | R9F97A |

Supported DAC/Copper Cables and Adapters

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

Configuration Information

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

Configuration Information

Note # Descriptions

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

Supported AOC (Optical) Cables and Adapters

Note # Descriptions

| Note # | Descriptions | SKU |
|--------|---|------------|
| | HPE 40GbE QSFP+ to 4x10GbE SFP+ 5m Active Optical Cable | Q9S66A |
| | HPE 25GbE SFP28 to SFP28 3m Smart Active Optical Cable | Q9S67A |
| | HPE 25GbE SFP28 to SFP28 5m Smart Active Optical Cable | Q9S68A |
| | HPE 25GbE SFP28 to SFP28 10m Smart Active Optical Cable | Q9S69A |
| | HPE 25GbE SFP28 to SFP28 15m Smart Active Optical Cable | Q9S70A |
| | HPE 100GbE QSFP28 to QSFP28 5m Active Optical Cable | Q9S71A |
| | HPE Aruba Networking 25G SFP28 to SFP28 7m Active Optical Cable | R9F95A |
| | HPE Storage 100GbE QSFP28 to QSFP28 5m Extended Temperature Active Optical Cable | S2T38A |
| | HPE Storage 100GbE QSFP28 to QSFP28 10m Extended Temperature Active Optical Cable | S2T39A |
| | HPE Storage 100GbE QSFP28 to QSFP28 15m Extended Temperature Active Optical Cable | S2T40A |
| | HPE Storage 100GbE QSFP28 to QSFP28 25m Extended Temperature Active Optical Cable | S2T41A |
| | HPE Aruba Networking 100G QSFP28 to QSFP28 2m Active Optical Cable | R9F76A |
| | HPE Aruba Networking 100G QSFP28 to QSFP28 1m Direct Attach Copper Cable | R9F77A |
| | HPE Aruba Networking 100G QSFP28-QSFP28 3m Direct Attach Copper Cable | R9F74A |
| | HPE Aruba Networking 100G QSFP28 to QSFP28 5m Direct Attach Copper Cable | R9F78A |
| | HPE Aruba Networking 100G QSFP28 to QSFP28 7m Active Optical Cable | R9F79A |
| | HPE Aruba Networking 100G QSFP28 to QSFP28 15m Active Optical Cable | R9F80A |
| | HPE Aruba Networking 100G QSFP28 to QSFP28 30m Active Optical Cable | R9F81A |
| | HPE BladeSystem c-Class QSFP+ to 4x10G SFP+ 15m Active Optical Cable | 721076-B21 |
| | HPE BladeSystem c-Class 40G QSFP+ to QSFP+ 15m Active Optical Cable | 720211-B21 |
| | HPE 100Gb QSFP28 to QSFP28 7m Active Optical Cable | 845410-B21 |
| | HPE 100Gb QSFP28 to QSFP28 15m Active Optical Cable | 845414-B21 |
| | HPE QSFP28 to 4x25Gb SFP28 7m Active Optical Cable | 845420-B21 |
| | HPE QSFP28 to 4x25Gb SFP28 15m Active Optical Cable | 845424-B21 |
| | HPE 25Gb SFP28 to SFP28 7m Active Optical Cable | 844483-B21 |
| | HPE 25Gb SFP28 to SFP28 15m Active Optical Cable | 845396-B21 |
| 13 | HPE 400GbE QSFP-DD to 4xQSFP56 1m Direct Attach Copper Cable | R8M55A |
| 13 | HPE 400GbE QSFP-DD to 4xQSFP56 2m Direct Attach Copper Cable | R8M56A |

Configuration Information

Notes:

Configuration Rules and Notes:

- 1. JG915A - Storage connectivity support for this transceiver is limited to 40Km
- 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 0.5m DAC cable. End device connectivity may use 1m or a 3m (26 gauge) 25G DAC. 10G DAC up to 5m 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 100Gb QSFP28 Bidirectional XCVR does not interoperate with the JH419A and R0R40A HPE 100Gb QSFP28 LC SWDM4 MM 100m transceivers.
- 10. 100Gbe SWDM4 LC transceivers JH419A and R0R40A are interoperable.
- 11. 10Gbase-T SFP+ RJ45 transceiver supports maximum length 30M CAT6a cable. This 10Gbase-T transceiver is not qualified for use at 1GbE and shall be operated only at 10GbE.
- 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 30M CAT6a cable. R0R41B 10Gbase-T transceiver is not qualified for use at 1GbE and shall be operated only at 10GbE.
- 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.

Supported Optical Cables for all M-series switch models

| Descriptions | SKU |
|--|--------|
| HPE Premier Flex MPO/MPO Multi-mode OM4 12 Fiber 10m Cable | QK729A |
| HPE Premier Flex MPO/MPO Multi-mode OM4 8 Fiber 50m Cable | QK731A |
| HPE Premier Flex LC/LC Multi-mode OM4 2 Fiber 1m Cable | QK732A |
| HPE Premier Flex LC/LC Multi-mode OM4 2 Fiber 2m Cable | QK733A |
| HPE Premier Flex LC/LC Multi-mode OM4 2 Fiber 5m Cable | QK734A |
| HPE Premier Flex LC/LC Multi-mode OM4 2 Fiber 15m Cable | QK735A |
| HPE Premier Flex LC/LC Multi-mode OM4 2 Fiber 30m Cable | QK736A |
| HPE Premier Flex LC/LC Multi-mode OM4 2 Fiber 50m Cable | QK737A |
| HPE LC to LC Multi-mode OM3 2-Fiber 0.5m 1-Pack Fiber Optic Cable | AJ833A |
| HPE LC to LC Multi-mode OM3 2-Fiber 1.0m 1-Pack Fiber Optic Cable | AJ834A |
| HPE LC to LC Multi-mode OM3 2-Fiber 2.0m 1-Pack Fiber Optic Cable | AJ835A |
| HPE LC to LC Multi-mode OM3 2-Fiber 5.0m 1-Pack Fiber Optic Cable | AJ836A |
| HPE LC to LC Multi-mode OM3 2-Fiber 15.0m 1-Pack Fiber Optic Cable | AJ837A |

Configuration Information

| Descriptions | SKU |
|--|--------|
| HPE LC to LC Multi-mode OM3 2-Fiber 30.0m 1-Pack Fiber Optic Cable | AJ838A |
| HPE LC to LC Multi-mode OM3 2-Fiber 50.0m 1-Pack Fiber Optic Cable | AJ839A |
| HPE Premier Flex MPO/MPO OM4 100m Cable | H6Z30A |
| HPE Multi Fiber Push On to 4 x Lucent Connector 5m Cable | K2Q46A |
| HPE Multi Fiber Push On to 4 x Lucent Connector 15m Cable | K2Q47A |
| HPE Premier Flex MPO/MPO Multi-mode OM4 12 Fiber 1m Cable | Q1H63A |
| HPE Premier Flex MPO/MPO Multi-mode OM4 12 Fiber 2m Cable | Q1H64A |
| HPE Premier Flex MPO/MPO Multi-mode OM4 12 Fiber 5m Cable | Q1H65A |
| HPE Premier Flex MPO/MPO Multi-mode OM4 12 Fiber 15m Cable | Q1H66A |
| HPE Premier Flex MPO/MPO Multi-mode OM4 12 Fiber 30m Cable | Q1H67A |
| HPE Premier Flex MPO to 4xLC 30m Cbl | Q1H68A |
| HPE Premier Flex MPO to 4 x Lucent Connector 50m Cable | Q1H69A |
| HPE 5m Single-Mode LC/LC Fibre Channel Cable | AK346A |
| HPE Premier Flex MPO12 to MPO12 APC Single-mode 50m 1-pack Cable | R6F28A |
| HPE Premier Flex MPO12 to MPO12 APC Single-mode 100m 1-pack Cable | R6F29A |
| HPE Premier Flex MPO12 to MPO12 APC Single-mode 300m 1-pack Cable | R6F30A |
| HPE Premier Flex MPO12 to MPO12 APC Single-mode 500m 1-pack Cable | R6F31A |
| HPE Premier Flex Wide Band OM5 LC 2 Fibers 100m Cable | R9M64A |
| HPE Premier Flex Wide Band OM5 LC 2 Fibers 150m Cable | R9M65A |
| HPE Premier Flex Wide Band MPO OM5 8 Fibers 100m Cable | R9M62A |
| HPE Premier Flex MPO16 to 2xMPO8 OM4 5m Cable | S1H57A |
| HPE Premier Flex MPO16 to 2xMPO8 OM4 10m Cable | S1H58A |
| HPE Storage Premier Flex MPO16 to 4xMPO8 OM4 5m Cable | S2T36A |
| HPE Storage Premier Flex MPO16 to 4xMPO8 OM4 10m Cable | S2T37A |
| HPE Premier Flex MPO16 to MPO16 OM4 2m Cable | R4D51A |
| HPE Premier Flex MPO16 to MPO16 OM4 5m Cable | R4D52A |
| HPE Premier Flex MPO16 to MPO16 OM4 10m Cable | R4D53A |
| HPE Premier Flex MPO16 to MPO16 OM4 15m Cable | R4D54A |
| HPE Premier Flex MPO16 to MPO16 OM4 30m Cable | R4D55A |
| HPE Premier Flex MPO16 to 8xLC OM4 5m Cable | R4D56A |
| HPE Premier Flex MPO16 to 8xLC OM4 10m Cable | R4D57A |
| HPE Premier Flex MPO16 to 8xLC OM4 15m Cable | R4D58A |
| HPE Premier Flex MPO16 to 8xLC OM4 30m Cable | R4D59A |
| HPE MPO12 to 4xLC Single-mode 15m Fibre Cable | R4D60A |
| HPE MPO12 to 4xLC Single-mode 30m Fibre Cable | R4D61A |
| HPE MPO12 to 4xLC Single-mode 2m Fibre Cable | R4D62A |
| HPE MPO12 to 4xLC Single-mode 5m Fibre Cable | R4D63A |
| HPE MPO12 to 4xLC Single-mode 10m Fibre Cable | R4D64A |

Technical Specifications

| Family Information (M-series with NVIDIA Cumulus® Linux) | | | | |
|--|--|--|--|---|
| | HPE SN2010M 100GbE x4QSFP28 + x18 1/10/25GbE switch S2T75A | HPE SN2100M 100GbE 16QSFP28 switch S2T76A | HPE SN3420M 100GbE x12QSFP28 + x48 1/10/25GbE switch S2T77A | HPE SN3700cM 100GbE 32QSFP28 switch S2T78A |
| Description | Ideal ½ width ToR 1/10/25/40/100GbE | Ideal ½ width ToR 1/10/25/40/100GbE | 1/10/25GbE ToR 40/100GbE | 40/100GbE ToR |
| Ports Speeds | 18 x 1/10/25GbE + 4x40/100GbE Breakout - 16x1/10/25GbE | 16x40/100GbE Breakout - 64x1/10/25GbE | 48x1/10/25GbE + 12x40/100GbE Breakout - 48x1/10/25GbE | 32x40/100GbE Breakout - 128x1/10/25GbE |
| 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 | 1.7Tb/s | 3.2Tb/s | 4.8Tb/s | 6.4Tb/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) | 66W | 74W | 202W | 242W |
| Energy Efficiency | full load: 91.3% @ 115Vac/60Hz, 92.6% @ 230Vac/50Hz | full load: 91.3% @ 115Vac/60Hz, 92.6% @ 230Vac/50Hz | 80 Plus Gold | 80 Plus Gold |
| Supported NOS** | NVIDIA Cumulus® Linux | NVIDIA Cumulus® Linux | NVIDIA Cumulus® Linux | NVIDIA Cumulus® Linux |
| System Memory | 8GB | 8GB | 8GB | 8GB |
| SSD Memory | 16GB | 16GB | 32GB | 32GB |
| Packet Buffer | 16MB | 16MB | 42MB | 42MB |
| 1GbE 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: 50-60Hz Input range: 100-264Vac Input current 4.5A-2.9A IEC C14 To C13 | Frequency: 50-60Hz Input range: 100-264Vac Input current 4.5A-2.9A IEC C14 To C13 | Frequency: 50-60Hz Input range: 100-264Vac Input current 7.1A-2.8A IEC C14 To C13 | Frequency: 50-60Hz Input range: 100-264Vac Input current 13A-7A IEC C14 To C13 |
| Size | 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) | 1.72" x 17.24" x 18.29" (44mm x 438mm x 464.6mm) | 1.72" x 16.84" x 22" (44mm x 428mm x 559mm) |
| Weight | 4.5kg (9.9lbs) | 4.54kg (10lbs) | 8.5kg (18.8lbs) | 14kg (30.9lbs) |

Technical Specifications

| Model | HPE SN4600cM 100GbE 64QSFP28 Switch S2T80A | HPE SN3700M 200GbE 32QSFP56 Switch S2T79A | HPE SN4700M 400GbE 32QSFP-DD Switch S2T81A |
|--|--|--|---|
| Description | 40/100GbE Aggregation/ToR/EoR/ Super Spine | 40/50/100/200GbE Aggregation/ToR/ Super Spine | 40/50/100/200/400GbE Aggregation/ToR/EoR/ Super Spine |
| Ports Speeds | 64 x40/100GbE Breakout – 128 x 1/10/25GbE | 32x40/100/200GbE Breakout – 128x1/10/25/50GbE | 32x40/100/200/400GbE Breakout – 128x1/10/25/50GbE |
| Minimum Configuration | 64 QSFP28 Ports | 32 QSFP56 Ports | 32 QSFP-DD Ports |
| Size | 2U | 1U | 1U |
| Switching Capacity | 12.8Tb/s | 12.8Tb/s | 25.6Tb/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 | 8GB | 8GB | 16GB |
| SSD Memory | 30GB | 32GB | 60GB |
| Packet Buffer | 64MB | 42MB | 64MB |
| 1GbE 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: 50-60Hz Input range: 100-264Vac Input current 10A-6A @200Vac-240Vac C14 TO C15 EUR + CCC C14 TO C15 UL | Frequency: 50-60Hz Input range: 100-264Vac Input current 13A-7A @200Vac- 240Vac IEC C14 To C13 | Frequency: 50-60Hz Input range: 100-264Vac Input current 15A-10A @200Vac-240Vac C14 TO C15 EUR + CCC C14 TO C15 UL |
| Size | 3.46" x 16.85" x 22.3" (88mm x 428mm x 568.5mm) | 1.72" x 16.84" x 22" (44mm x 428mm x 559mm) | 1.72" x 16.85" x22.3" (44mm x 428mm x 568.5mm) |
| Weight | 14.64kg (32.3lbs) | 14kg (30.9lbs) | 11.6kg (25.6lbs) |

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 | -40°C to 70°C |
| NEBs and ETSI operating temperature | -5°C to 55°C |
| Operating relative humidity (operational) | |
| Noncondensing | 10% to 85% |
| Operating Altitude | 0 - 3050m |
| 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 (2.5W)
 - Ports 7-48 Power Class 1 (1.5W)
 - Ports 49-52, 54, 56, 58, 60 Power Class 4 (3.5W)
 - Ports 53, 55, 57, 59 Power Class 7 (5W)
- **SN3700cM**
 - Ports 1, 2, 31, 32 Power class 7 (5W)
 - Ports 3-30 Power class 4 (3.5W)
- **SN3700M**
 - Ports 1-32 Power class 7 (5W)
 - Ports 1, 2, 21, 22 Power class 8 (6.5W)
- **SN4600cM**
 - Ports 1-48 Power Class 4 (3.5W)
 - Ports 49-64 Power Class 7 (5W)
- **SN4700M**
 - All Ports 1-32 Power Class 48 (12W) – QSFP-DD new method Watt *4
- **SN2010M**
 - Ports 1,2,17,18 Power Class 3 (2.5W)
 - Ports 3-16 Power Class1 (1.5W)
 - Ports 19-22 Power Class (4.5W)
- **SN2100M**
 - Ports 1,2,15,16 Power Class 7 (5W)
 - Ports 3-14 Power Class 4 (3.5W)



Technical Specifications

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.



Technical Specifications

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 <code>/usr/share/snmp/mibs/Cumulus-BGPUN-MIB.txt</code> , which has the OID <code>1.3.6.1.4.1.40310.7</code> . |
| CUMULUS-COUNTERS-MIB | Discard counters: Cumulus Linux also includes its own counters MIB, defined in <code>/usr/share/snmp/mibs/Cumulus-Counters-MIB.txt</code> . It has the OID <code>1.3.6.1.4.1.40310.2</code> . |
| CUMULUS-RESOURCE-QUERY-MIB | Cumulus Linux includes its own resource utilization MIB, which is similar to using <code>cl-resource-query</code> . This MIB monitors layer 3 entries by host, route, nexthops, ECMP groups, and layer 2 MAC/BDPU entries. <code>/usr/share/snmp/mibs/Cumulus-Resource-Query-MIB.txt</code> defines this MIB, which has the OID <code>1.3.6.1.4.1.40310.1</code> . |
| 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. |
| 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 <code>dot1dBasePortEntry</code> and <code>dot1dBasePortIfIndex</code> tables in the BRIDGE-MIB and <code>dot1qBase</code> , <code>dot1qFdbEntry</code> , <code>dot1qTpFdbEntry</code> , <code>dot1qTpFdbStatus</code> , and <code>dot1qVlanStaticName</code> tables in the Q-BRIDGE-MIB tables. You must uncomment the <code>bridge_pp.py pass_persist</code> script in <code>/etc/snmp/snmpd.conf</code> . |
| IEEE8023-LAG-MIB | Implementation of the IEEE 8023-LAG-MIB includes the <code>dot3adAggTable</code> and <code>dot3adAggPortListTable</code> tables. To enable this, edit <code>/etc/snmp/snmpd.conf</code> and uncomment or add the following lines: view systemonly included 1.2.840.10006.300.43 pass_persist 1.2.840.10006.300.43 <code>/usr/share/snmp/ieee8023_lag_pp.py</code> |
| 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 <code>-y</code> option from the <code>SNMPDOPTS</code> line in the <code>/etc/default/snmpd</code> file. The example below first shows the original line, commented out, then the modified line without the <code>-y</code> option: <code>cumulus@switch:~\$ cat /etc/default/snmpd # SNMPDOPTS='-y -LS 0-4 d -Lf /dev/null -u snmp -g snmp -l -smux -p /run/snmpd.pid'</code> <code>SNMPDOPTS='-LS 0-4 d -Lf /dev/null -u snmp -g snmp -l -smux -p /run/snmpd.pid'</code> |
| IP-FORWARD-MIB | IP routing table. |
| IP-MIB (includes ICMP) | IPv4, IPv4 addresses counters, netmasks. |
| IPv6-MIB | IPv6 counters. |

Technical Specifications

| | |
|--------------------------------|--|
| 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. |



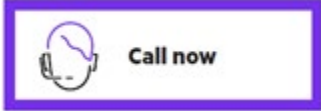
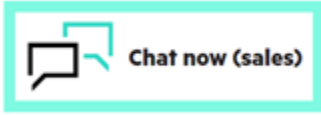
Summary of Changes

| Date | Version History | Action | Description of Change |
|-------------|-----------------|---------|---|
| 02-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. |
| 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. |



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