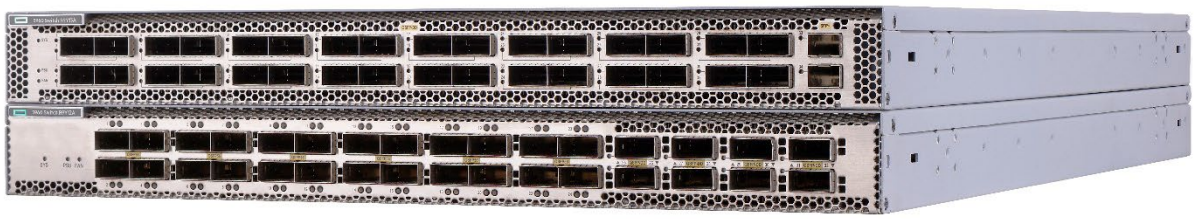
Overview

HPE Networking Comware 5960 Switch Series

The HPE Networking Comware 5960 Switch Series are high-density, high-performance top-of-rack (ToR) switches suited for deployment at the core and aggregation layer of enterprise data centers, large cloud service providers, and telco environments.

These switches offer multiple connectivity options with high-density 400G connectivity and are backward compatible with the widely used 100G QSFP28 ports. Switching capacity of 12.8 Tbps and redundant hot-swappable power supplies offer exceptional performance with improved power savings. VXLAN/EVPN and DRNI lead to improved scalability and resiliency. Enhanced software features such as SR-MPLS running with the latest OS Comware v9 enables a dynamic and highly available network.

HPE Intelligent Management Center (IMC) support on these switches provides a consistent network manageability experience through centralized configuration, compliance, policy management, monitoring, and troubleshooting. The HPE Networking Comware 5960 Switch Series also supports HPE IMC Orchestrator and Analyzer for DC fabric orchestration and application telemetry.



HPE Networking Comware 5960 Switch Series

Key features

- High-performance, high-density, and backward-compatible switch with varied 400/200/100G connectivity options
- New-generation OS Comware v9 offering enhanced software features such as Segment Routing MPLS, egress ACL, egress rate limiting, and others for highly distributed environments
- Dual, redundant, hot-swappable power supplies maintain a dynamic and highly available network
- Supports HPE IMC for a consistent network manageability experience; integrates with HPE IMC Orchestrator and Analyzer for DC fabric orchestration, monitoring, and application telemetry

Standard Features

Features and Benefits

Consistent and advanced data center switches with flexible connectivity options

- The HPE Networking Comware 5960 Switch Series offers multiple connectivity options of 25/40/100/200/400G with two SKUs—A high-density 32 x 400GbE QSFP-DD switch and a highly flexible 24x100/200G + 8x400G QSFP-DD switch that is backward compatible with the widely used 100G QSFP28 ports
- Supports new-generation OS Comware v9 offering enhanced features such as SR-MPLS and others for highly distributed environments built on a modular and open architecture; supports containerized deployment; can run third-party software applications
- VXLAN/EVPN for network virtualization and overlay solutions for improved flexibility
- Supports DRNI that combines multiple physical switches into one virtual distributed-relay (DR) system for doubling aggregate bandwidth, fast forwarding, resiliency, and high availability

High-Performance Data Center Switching

- The HPE Networking Comware 5960 Switch Series supports redundant, hot-swappable power modules and varied fan speeds to meet the actual demands, thereby, ensuring a dynamic and highly available network
- Delivers up to 12.8 Tbps switching capacity for demanding data center applications
- Low latency, under 1 µs delivering increased network throughput
- Uses programmable chips that improve flexibility and aid in network expansion by defining forwarding logic and developing new features as per user needs through simple software upgrades

Rich Quality of Service (QoS) Features

- The HPE Networking Comware 5960 Switch Series support Layer 2 to Layer 4 packet filtering for traffic classification based on source MAC address, destination MAC address, source IP address, destination IP address, TCP/UDP port number, protocol type, and VLAN
- Supports committed access rate (CAR) and line rate for anomaly detection and troubleshooting
- Provides extensive traffic prioritization with strict priority (SP) queuing, weighted round robin (WRR), SP+WRR, WFQ, and SP+WFQ

Improved Visibility and Simplified Management

- The HPE Networking Comware 5960 Switch Series supports operations, administration, and maintenance (OAM) for improved manageability
- These switches can send real-time information, statistics, and RDMA notifications to the data center operation and maintenance platform through ERSPAN and gRPC protocols, thereby, enabling improved visibility
- Supports real-time analysis, troubleshooting, and risk warning to improve network performance and ensure business continuity
- Uses multiple access methods including SNMPv1/v2c/v3, Telnet, SSH 2.0, SSL, and FTP to monitor essential network functions; and supports events, alarm, history, and statistics group plus a private alarm extension group
- Supports centralized configuration, compliance and policy management, monitoring, and troubleshooting with HPE IMC to provide a consistent network manageability experience; for DC fabric orchestration and application telemetry, this switch supports HPE IMC Orchestrator and Analyzer

Configuration Information

BTO Models

BTO Switch Enclosures

Rule #	Description	SKU
3, 4, 5, 6, 7, 8	HPE Networking Comware Data Center Switch 24-port 100/200G QSFP56 8-port 400G QSFP-DD 5960 • 24 QSFP+/QSFP28 40/100G ports (min=0 \ max=24) • 8 QSFP28/QSFP-DD 100G/400G ports (min=0 \ max=8) • 1 RJ45 Management Port • 1 Console port • 1 USB2.0 port • 2 Power Supply Slots (Min 1 required) • 6 Fan Tray Slots (Min 6 required) • 1U - Height	R9Y12A
1, 2, 4, 5, 7, 8	HPE Networking Comware Data Center Switch 32-port 400G QSFP-DD 5960 • 32 QSFP28/QSFP-DD 100G/400G ports (min=0 \ max=32) • 2 SFP/SFP+ 1/10G ports (min=0 \ max=2) • 1 RJ45 Management Port • 1 Console port • 1 USB2.0 port • 2 Power Supply Slots (Min 1 required) • 6 Fan Tray Slots (Min 6 required) • 1U - Height	R9Y13A

Configuration Rules

Rule #	Description	
1	The following SFP Transceivers install into this switch's Management Port and SFP+ Ports: (Use BTO only when adding to switch)	
	HPE Networking X120 1G SFP LC SX Transceiver	JD118B
	HPE Networking X120 1G SFP LC LX Transceiver	JD119B
	HPE Networking X120 1G SFP RJ45 T Transceiver	JD089B
	HPE Networking X120 1G SFP LC LH100 Transceiver	JD103A
2	The following SFP+ Transceivers install into this Switch: (Use BTO only when adding to switch)	
	HPE Networking X130 10G SFP+ LC BiDi 10km-Uplink Transceiver	JL737A
	HPE Networking X130 10G SFP+ LC BiDi 10km-Downlink Transceiver	JL738A
	HPE Networking X130 10G SFP+ LC BiDi 40km-Uplink Transceiver	JL739A
	HPE Networking X130 10G SFP+ LC BiDi 40km-Downlink Transceiver	JL740A
	HPE Networking X130 10G SFP+ LC SR Transceiver	JD092B
	HPE Networking X130 10G SFP+ LC LR Transceiver	JD094B
	HPE Networking X130 10G SFP+ LC LH 80km Transceiver	JG915A
	HPE Networking X2A0 10G SFP+ to SFP+ 7m Active Optical Cable	JL290A
	HPE Networking X2A0 10G SFP+ to SFP+ 10m Active Optical Cable	JL291A
	HPE Networking X2A0 10G SFP+ to SFP+ 20m Active Optical Cable	JL292A
	HPE Networking X240 10G SFP+ SFP+ 0.65m DAC Cable	JD095C
	HPE Networking X240 10G SFP+ SFP+ 1.2m DAC Cable	JD096C
	HPE Networking X240 10G SFP+ SFP+ 3m DAC Cable	JD097C
	HPE Networking X240 10G SFP+ SFP+ 5m DAC Cable	JG081C
3	The following QSFP+ Transceivers install into this Switch: (Use BTO only when adding to switch)	
	HPE Networking X140 40G QSFP+ MPO SR4 Transceiver	JG325B
	HPE Networking X140 40G QSFP+ CSR4 300m Transceiver	JG709A
	HPE Networking X140 40G QSFP+ LC BiDi 100m MM Transceiver	JL251A
	HPE Networking X140 40G QSFP+ LC LR4 SM 10km 1310nm Transceiver	JG661A
	HPE Networking X140 40G QSFP+ LC LR4L 2km SM Transceiver	JL286A

Configuration Information

	HPE Networking X140 40G QSFP+ LC ER4 40km SM Transceiver	JL306A
	HPE Networking X2A0 40G QSFP+ to QSFP+ 7m Active Optical Cable	JL287A
	HPE Networking X2A0 40G QSFP+ to QSFP+ 10m Active Optical Cable	JL288A
	HPE Networking X2A0 40G QSFP+ to QSFP+ 20m Active Optical Cable	JL289A
	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
4	The following QSFP28 Transceivers install into this Switch: (Use BTO only when adding to switch)	
	HPE Networking X150 100G QSFP28 MPO SR4 100m MM Transceiver	JL274A
	HPE Networking X150 100G QSFP28 LC SWDM4 100m MM Transceiver	JH419A
	HPE Networking X150 100G QSFP28 LC BiDi 100m MM Transceiver	JQ344A
	HPE Networking X150 100G QSFP28 eSR4 300m MM Transceiver	JH672A
	HPE Networking X150 100G QSFP28 PSM4 500m SM Transceiver	JH420A
	HPE Networking X150 100G QSFP28 LC LR4 10km SM Transceiver	JL275A
	HPE Networking X150 100G QSFP28 CWDM4 2km SM Transceiver	JH673A
	HPE Networking X2A0 100G QSFP28 to QSFP28 7m Active Optical Cable	JL276A
	HPE Networking X2A0 100G QSFP28 to QSFP28 10m Active Optical Cable	JL277A
	HPE Networking X2A0 100G QSFP28 to QSFP28 20m Active Optical Cable	JL278A
	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
5	The following QSFP28 Transceivers install into this Switch: (Use BTO only when adding to switch)	
	HPE Networking X240 QSFP28 4xSFP28 1m Direct Attach Copper Cable	JL282A
	HPE Networking X240 QSFP28 4xSFP28 3m Direct Attach Copper Cable	JL283A
	HPE Networking X240 QSFP28 4xSFP28 5m Direct Attach Copper Cable	JL284A
6	The following QSFP28 Transceivers install into this Switch: (Use BTO only when adding to switch)	
	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
7	The following QSFP-DD Transceivers install into this Switch: (Use BTO only when adding to switch)	
	HPE Networking X1E0 400G QSFP-DD to QSFP-DD 2m Passive Cable	R9J28A
	HPE Networking X1E0 400G QSFP-DD SR8 MM850 100m OM4 MPO16/APC Transceiver	R9J29A
	HPE Networking X1E0 400G QSFP-DD FR4-WDM1300 2km LC Transceiver	R9J30A
	HPE Networking Comware 1xQSFP-DD 400G to 4xQSFP56 100G 2x50G PAM4 2.5m Split Direct Attach Cable	S0E49A
	HPE Networking Comware 1xQSFP-DD 400G to 8xSFP56 50G 2.5m Split Direct Attach Cable	S0P73A
8	If ANY Option is integrated 0D1 to this Switch, then the Switch requires 0D1. (Box level integration is not allowed)	

Notes:

- Drop down under power supply should offer the following options and results:
  - Switch/Router/Power Supply to PDU Power Cord - B2B in North America, Mexico, Taiwan, and Japan or B2C ROW. (OCA Default B2B or B2C for Rack Level CTO)
  - Switch/Router/Power Supply to Wall Power Cord - Localized Option (OCA Default for BTO)
  - High Volt Switch/Router/Power Supply to Wall Power Cord - B2E Option. (Offered only in North America, Mexico, Taiwan, and Japan)
  - No Power Cord - AC3 Option
- Locking Power Cord (J9955A) L6-20P is available through the OCA Accessories tab
- OCA Only Model Selection Form - HPE Offering > Switches > FlexFabric > Access: HPE FlexFabric 5960 Switch Series

Configuration Information

Rack Level Integration CTO Models

CTO Switch Chassis

Rule #	Description	SKU
3, 4, 5, 6, 7, 8	HPE Networking Comware Data Center Switch 24-port 100/200G QSFP56 8-port 400G QSFP-DD 5960 • 24 QSFP+/QSFP28 40/100G ports (min=0 \ max=24) • 8 QSFP28/QSFP-DD 100G/400G ports (min=0 \ max=8) • 1 RJ45 Management Port • 1 Console port • 1 USB2.0 port • 2 Power Supply Slots (Min 1 required) • 6 Fan Tray Slots (Min 6 required) • 1U - Height	R9Y12A
1, 2, 4, 5, 7, 8	HPE Networking Comware Data Center Switch 32-port 400G QSFP-DD 5960 • 32 QSFP28/QSFP-DD 100G/400G ports (min=0 \ max=32) • 2 SFP/SFP+ 1/10G ports (min=0 \ max=2) • 1 RJ45 Management Port • 1 Console port • 1 USB2.0 port • 2 Power Supply Slots (Min 1 required) • 6 Fan Tray Slots (Min 6 required) • 1U - Height	R9Y13A

Configuration Rules

Rule #	Description	
1	The following SFP Transceivers install into this switch's Management Ports and SFP+ Ports: (Use 0D1 or B01 if switch is CTO) - if applicable	
	HPE Networking X120 1G SFP LC SX Transceiver	JD118B
	HPE Networking X120 1G SFP LC LX Transceiver	JD119B
	HPE Networking X120 1G SFP RJ45 T Transceiver	JD089B
	HPE Networking X120 1G SFP LC LH100 Transceiver	JD103A
2	The following SFP+ Transceivers install into this Switch: (Use 0D1 or B01 if switch is CTO) - if applicable	
	HPE Networking X130 10G SFP+ LC BiDi 10km-Uplink Transceiver	JL737A
	HPE Networking X130 10G SFP+ LC BiDi 10km-Downlink Transceiver	JL738A
	HPE Networking X130 10G SFP+ LC BiDi 40km-Uplink Transceiver	JL739A
	HPE Networking X130 10G SFP+ LC BiDi 40km-Downlink Transceiver	JL740A
	HPE Networking X130 10G SFP+ LC SR Transceiver	JD092B
	HPE Networking X130 10G SFP+ LC LR Transceiver	JD094B
	HPE Networking X130 10G SFP+ LC LH 80km Transceiver	JG915A
	HPE Networking X2A0 10G SFP+ to SFP+ 7m Active Optical Cable	JL290A
	HPE Networking X2A0 10G SFP+ to SFP+ 10m Active Optical Cable	JL291A
	HPE Networking X2A0 10G SFP+ to SFP+ 20m Active Optical Cable	JL292A
	HPE Networking X240 10G SFP+ SFP+ 0.65m DAC Cable	JD095C
	HPE Networking X240 10G SFP+ SFP+ 1.2m DAC Cable	JD096C
	HPE Networking X240 10G SFP+ SFP+ 3m DAC Cable	JD097C
	HPE Networking X240 10G SFP+ SFP+ 5m DAC Cable	JG081C
3	The following QSFP+ Transceivers install into this Switch: (Use 0D1 or B01 if switch is CTO) - if applicable	
	HPE Networking X140 40G QSFP+ MPO SR4 Transceiver	JG325B
	HPE Networking X140 40G QSFP+ CSR4 300m Transceiver	JG709A
	HPE Networking X140 40G QSFP+ LC BiDi 100m MM Transceiver	JL251A

Configuration Information

	HPE Networking X140 40G QSFP+ LC LR4 SM 10km 1310nm Transceiver	JG661A
	HPE Networking X140 40G QSFP+ LC LR4L 2km SM Transceiver	JL286A
	HPE Networking X140 40G QSFP+ LC ER4 40km SM Transceiver	JL306A
	HPE Networking X2A0 40G QSFP+ to QSFP+ 7m Active Optical Cable	JL287A
	HPE Networking X2A0 40G QSFP+ to QSFP+ 10m Active Optical Cable	JL288A
	HPE Networking X2A0 40G QSFP+ to QSFP+ 20m Active Optical Cable	JL289A
	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
4	The following QSFP28 Transceivers install into this Switch: (Use 0D1 or B01 if switch is CTO) - if applicable	
	HPE Networking X150 100G QSFP28 MPO SR4 100m MM Transceiver	JL274A
	HPE Networking X150 100G QSFP28 LC SWDM4 100m MM Transceiver	JH419A
	HPE Networking X150 100G QSFP28 LC BiDi 100m MM Transceiver	JQ344A
	HPE Networking X150 100G QSFP28 eSR4 300m MM Transceiver	JH672A
	HPE Networking X150 100G QSFP28 PSM4 500m SM Transceiver	JH420A
	HPE Networking X150 100G QSFP28 LC LR4 10km SM Transceiver	JL275A
	HPE Networking X150 100G QSFP28 CWDM4 2km SM Transceiver	JH673A
	HPE Networking X2A0 100G QSFP28 to QSFP28 7m Active Optical Cable	JL276A
	HPE Networking X2A0 100G QSFP28 to QSFP28 10m Active Optical Cable	JL277A
	HPE Networking X2A0 100G QSFP28 to QSFP28 20m Active Optical Cable	JL278A
	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
5	The following QSFP28 Transceivers install into this Switch: (Use 0D1 or B01 if switch is CTO) - if applicable	
	HPE Networking X240 QSFP28 4xSFP28 1m Direct Attach Copper Cable	JL282A
	HPE Networking X240 QSFP28 4xSFP28 3m Direct Attach Copper Cable	JL283A
	HPE Networking X240 QSFP28 4xSFP28 5m Direct Attach Copper Cable	JL284A
6	The following QSFP28 Transceivers install into this Switch: (Use 0D1 or B01 if switch is CTO) - if applicable	
	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
7	The following QSFP-DD Transceivers install into this Switch: (Use 0D1 or B01 if switch is CTO) - if applicable	
	HPE Networking X1E0 400G QSFP-DD to QSFP-DD 2m Passive Cable	R9J28A
	HPE Networking X1E0 400G QSFP-DD SR8 MM850 100m OM4 MPO16/APC Transceiver	R9J29A
	HPE Networking X1E0 400G QSFP-DD FR4-WDM1300 2km LC Transceiver	R9J30A
	HPE Networking Comware 1xQSFP-DD 400G to 4xQSFP56 100G 2x50G PAM4 2.5m Split Direct Attach Cable	S0E49A
	HPE Networking Comware 1xQSFP-DD 400G to 8xSFP56 50G 2.5m Split Direct Attach Cable	S0P73A
8	If HPE CTO Switch Chassis is selected for Rack Level Integration, Then the Switch needs to integrate (with 0D1) to the Rack.	

Notes:

- Drop down under power supply should offer the following options and results:
  - Switch/Router/Power Supply to PDU Power Cord - B2B in North America, Mexico, Taiwan, and Japan or B2C ROW. (OCA Default B2B or B2C for Rack Level CTO)
  - Switch/Router/Power Supply to Wall Power Cord - Localized Option (OCA Default for BTO)
  - High Volt Switch/Router/Power Supply to Wall Power Cord - B2E Option. (Offered only in North America, Mexico, Taiwan, and Japan)
  - No Power Cord - AC3 Option
- Locking Power Cord (J9955A) L6-20P is available through the OCA Accessories tab

Configuration Information

Enter the following menu selections as integrated to the CTO Model X server above if order is factory built.

Switch Options

Transceivers

SFP Transceivers

Rule #	Description	SKU
	HPE Networking X120 1G SFP RJ45 T Transceiver	JD089B
	HPE Networking X120 1G SFP LC SX Transceiver	JD118B
	HPE Networking X120 1G SFP LC LX Transceiver	JD119B
	HPE Networking X120 1G SFP LC LH100 Transceiver	JD103A

SFP+ Transceivers

Rule #	Description	SKU
	HPE Networking X130 10G SFP+ LC BiDi 10km-Uplink Transceiver	JL737A
	HPE Networking X130 10G SFP+ LC BiDi 10km-Downlink Transceiver	JL738A
	HPE Networking X130 10G SFP+ LC BiDi 40km-Uplink Transceiver	JL739A
	HPE Networking X130 10G SFP+ LC BiDi 40km-Downlink Transceiver	JL740A
	HPE Networking X130 10G SFP+ LC SR Transceiver	JD092B
	HPE Networking X130 10G SFP+ LC LR Transceiver	JD094B
	HPE Networking X130 10G SFP+ LC ER 40km Transceiver	JG234A
	HPE Networking X130 10G SFP+ LC LH 80km Transceiver	JG915A
	HPE Networking X2A0 10G SFP+ to SFP+ 7m Active Optical Cable	JL290A
	HPE Networking X2A0 10G SFP+ to SFP+ 10m Active Optical Cable	JL291A
	HPE Networking X2A0 10G SFP+ to SFP+ 20m Active Optical Cable	JL292A
	HPE Networking X240 10G SFP+ SFP+ 0.65m DAC Cable	JD095C
	HPE Networking X240 10G SFP+ SFP+ 1.2m DAC Cable	JD096C
	HPE Networking X240 10G SFP+ SFP+ 3m DAC Cable	JD097C
	HPE Networking X240 10G SFP+ SFP+ 5m DAC Cable	JG081C

QSFP+ Transceivers

Rule #	Description	SKU
	HPE Networking X140 40G QSFP+ MPO SR4 Transceiver	JG325B
	HPE Networking X140 40G QSFP+ CSR4 300m Transceiver	JG709A
	HPE Networking X140 40G QSFP+ LC BiDi 100m MM Transceiver	JL251A
	HPE Networking X140 40G QSFP+ LC LR4 SM 10km 1310nm Transceiver	JG661A
	HPE Networking X140 40G QSFP+ LC LR4L 2km SM Transceiver	JL286A
	HPE Networking X140 40G QSFP+ LC ER4 40km SM Transceiver	JL306A
	HPE Networking X2A0 40G QSFP+ to QSFP+ 7m Active Optical Cable	JL287A
	HPE Networking X2A0 40G QSFP+ to QSFP+ 10m Active Optical Cable	JL288A
	HPE Networking X2A0 40G QSFP+ to QSFP+ 20m Active Optical Cable	JL289A
	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

QSFP28 Transceivers

Rule #	Description	SKU
	HPE Networking X150 100G QSFP28 MPO SR4 100m MM Transceiver	JL274A
	HPE Networking X150 100G QSFP28 LC SWDM4 100m MM Transceiver	JH419A
	HPE Networking X150 100G QSFP28 LC BiDi 100m MM Transceiver	JQ344A
	HPE Networking X150 100G QSFP28 eSR4 300m MM Transceiver	JH672A
	HPE Networking X150 100G QSFP28 PSM4 500m SM Transceiver	JH420A
	HPE Networking X150 100G QSFP28 LC LR4 10km SM Transceiver	JL275A
	HPE Networking X150 100G QSFP28 CWDM4 2km SM Transceiver	JH673A
	HPE Networking X2A0 100G QSFP28 to QSFP28 7m Active Optical Cable	JL276A
	HPE Networking X2A0 100G QSFP28 to QSFP28 10m Active Optical Cable	JL277A

Configuration Information

	HPE Networking X2A0 100G QSFP28 to QSFP28 20m Active Optical Cable	JL278A
	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 Networking X240 QSFP28 4xSFP28 1m Direct Attach Copper Cable	JL282A
	HPE Networking X240 QSFP28 4xSFP28 3m Direct Attach Copper Cable	JL283A
	HPE Networking X240 QSFP28 4xSFP28 5m Direct Attach Copper Cable	JL284A
	QSFP-DD Transceivers	
Rule #	**Description**	**SKU**
	HPE Networking X1E0 400G QSFP-DD SR8 MM850 100m OM4 MPO16/APC Transceiver	R9J29A
	HPE Networking X1E0 400G QSFP-DD FR4-WDM1300 2km LC Transceiver	R9J30A
	HPE Networking X1E0 400G QSFP-DD to QSFP-DD 2m Passive Cable	R9J28A
	HPE Networking Comware 1xQSFP-DD 400G to 4xQSFP56 100G 2x50G PAM4 2.5m Split Direct Attach Cable	S0E49A
	HPE Networking Comware 1xQSFP-DD 400G to 8xSFP56 50G 2.5m Split Direct Attach Cable	S0P73A

Internal Power Supplies

Rule #	Description	SKU
1, 2	HPE Networking Comware 5960 400G 1600W AC Power Supply Unit	R9Y18A
	• includes 1 x c15, 1600w	
	HPE Networking Comware 5960 400G 1600W AC Power Supply Unit PDU	R9Y18A#B2B
	• C15 PDU Jumper Cord (NA/MX/TW/JP)	
	HPE Networking Comware 5960 400G 1600W AC Power Supply Unit PDU	R9Y18A#B2C
	• C15 PDU Jumper Cord (ROW)	
	HPE Networking Comware 5960 400G 1600W AC Power Supply Unit No Loc	R9Y18A#AC3
	• No Localized Power Cord Selected	
1	HPE Networking Comware 5960 400G 48VDC 2400W Power Supply Unit	R9Y19A
	• Includes 1 x c19, 1600w	

Configuration Rules

Rule #	Description
1	PSU's cannot be mixed in the same switch enclosure
2	Localization (Wall Power Cord) required on orders without B2B, B2C, and AC3 (PDU Power Cord) . (See Localization Menu) REMARK: When Switches/Routers are Factory Racked, Then B2B, or B2C should be the Defaulted Power Cable option on the Switches/Routers.

Notes:

- Drop down under power supply should offer the following options and results:
  - Switch/Router to PDU Power Cord - B2B in NA, Mexico, Taiwan, and Japan or B2C ROW. (Watson Default B2B or B2C for Rack Level CTO)
  - Switch/Router/Power Supply to Wall Power Cord - Localized Option (Watson Default for BTO and Box Level CTO)
  - No Power Cord - AC3 Option

Fan Trays

Rule #	Description	SKU
1, 2	HPE Networking Comware Module 400G Port Side to Power Supply Side Airflow Fan 5960	R9Y16A
1, 2	HPE Networking Comware Module 400G Power Supply Side to Port Side Airflow Fan 5960	R9Y17A

Configuration Rules

Rule #	Description
1	Fan Trays cannot be mixed in the same switch enclosure
2	This fan tray is supported on: R9Y12A, R9Y13A.

Notes: If there is any empty space below the switch in a rack when using Back to Front Fan Tray, R9Y17A, the rack will receive an Air Plenum kit that takes up 1U of additional space in the rack. The Air Plenum kit is not required on fully configured racks. The Air Plenum Kit is a non-saleable SKU, and is brought in automatically for CTO Factory Rack Level Integration.

Configuration Information

Software

	IMC Orchestrator	
Rule #	**Description**	**SKU**
1, 2	HPE Networking IMC Orchestrator Base License E-LTU	JL849AAE
1, 3	HPE Networking IMC Orchestrator Analyzer Add-on License E-LTU	JL850AAE
1, 4	HPE Networking IMC Orchestrator Network Node Add-on License E-LTU	JL851AAE
1, 3	HPE Networking IMC Orchestrator Analyzer IP Host Add-on License E-LTU	JL852AAE
	Configuration Rules	
Rule #	**Description**	
1	When configuring 12900 Switch Chassis(JH262A or JL255A), this Orchestrator Service is available when one of the following Type X MPUs is added:	
	HPE Networking 12904E Type X Main Processing Unit	JL844A
	HPE Networking 12900E Type X Main Processing Unit	JL845A
2	IMC Orchestrator Base E-LTU sku must be Qty 1 per solution	
3	If this analyzer E-LTU is selected, then Qty 1 must be added per solution. Additionally, if this Analyzer E-LTU is selected, then IP Host E-LTU must match qty of desired Hosts.	
4	This Network Node Add-on E-LTU must match the switch qty in the solution	
Notes:	If there is any empty space below the switch in a rack when using Back to Front Fan Tray, R9Y17A, the rack will receive an Air Plenum kit that takes up 1U of additional space in the rack. The Air Plenum kit is not required on fully configured racks. The Air Plenum Kit is a non-saleable SKU, and is brought in automatically for CTO Factory Rack Level Integration.	

Technical Specifications

HPE NW CW 5960 24x100G/200G+ 8x400GQDD Sw (R9Y12A)	
I/O ports and slots	1 I/O module slot Supports a max of 24x100G/200G QSFP56/ QSFP28 ports, 8x400G QDD ports
Additional ports and slots	1 console port, 1 out of band management port, 1 USB port
Power modules and slots	2 power supply slots. 1 minimum power supply required (ordered separately)
Fan tray	6 hot swappable fans
Physical Characteristics	
Dimensions (HxWxD)	44 mm x 440 mm x 460 mm
Weight	≤ 13.5 kg
Memory and proc	D-1627 @ 2.9 GHz, 16G DDR4, 240G SSD
Mounting and enclosure	Mounts in an EIA standard 19-inch rack or other equipment cabinet (hardware included); horizontal surface mounting only
Performance	
Latency	<1.2 µs
Switching capacity	8 Tbps
Forwarding capacity	268 Bps
MAC address table size	16K
Routing table size	1M FIB IPv4/500K IPv6
Operating temp	0°C to 40°C
Operating relative humidity	5% to 95%, noncondensing
Non-operating/storage temp	–40°F to 158°F (–40°C to 70°C)
Non-operating/storage relative humidity	5% to 95%, noncondensing
Acoustic	59.5 dB at 40% Fan Speed 72.3 dB at 70% Fan Speed 79.6 dB at 100% Fan Speed
Airflow direction	From front to rear
Electrical Characteristics	
Frequency	50/60 Hz
Maximum heat dissipation	2552BTU/h
Current	70A (12V)
Voltage	DC—Input Voltage 180V to 320V; AC—Input Voltage 100V to 240V
Maximum power rating	748W
Idle power	Dual AC 146W
Notes:	Idle power is the actual power consumption of the device with no ports connected. Maximum power rating and maximum heat dissipation are the worst-case theoretical maximum numbers provided for planning the infrastructure with fully loaded PoE (if equipped), 100% traffic, all ports plugged in, and all modules populated.
Safety	UL 60950-1CAN/CSA C22.2 No 60950-1IEC 60950-1AS/NZS 60950-1FDA 21 CFR Subchapter J GB 4943.1UL 62368-1CAN/CSA C22.2 No 62368-1IEC 62368-1EN 62368-1AS/NZS 62368-1
Emissions	FCC Part 15 SubpartB CLASS A ICES-003 CLASS A VCCI CLASS ACISPR 32 CLASS A EN 55032 CLASS A AS/NZS CISPR 32 CLASS A CISPR 35EN 55035EN 61000-3-2EN 61000-3-3ETSI EN 300 386

Technical Specifications

Telecom	
Management	IMC; CLI; out-of-band management; SNMP Manager; Telnet; FTP.
	Notes: The customer must install a minimum of one power supply, as the device does not come with one. The customer must install 6 fan kits, as the device does not come with one.
Services	Refer to the Hewlett Packard Enterprise website at **hpe.com/networking/services** for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local Hewlett Packard Enterprise sales office

HPE NW CW 5960 32x400G QSFP-DD Sw (R9Y13A)	
I/O ports and slots	1 I/O module slot Supports a max of 32 400G QSFP-DD ports and 2 SFP+ ports
Additional ports and slots	1 console port, 1 out of band management port, 1 USB port
Power modules and slots	2 power supply slots. 1 minimum power supply required (ordered separately)
Fan tray	6 hot swappable fans
Physical Characteristics	
Dimensions (HxWxD)	44 mm x 440 mm x 660 mm
Weight	≤ 12.2 kg
Memory and proc	D-1627 @ 2.9 GHz, 16G DDR4, 240G SSD
Mounting and enclosure	Mounts in an EIA standard 19-inch rack or other equipment cabinet (hardware included); horizontal surface mounting only
Performance	
Latency	<1.2 µs
Switching capacity	12.8 Tbps
Forwarding capacity	353 Bps
MAC address table size	16K
Routing table size	1M FIB IPv4/500K IPv6
Operating temp	0°C to 40°C
Operating relative humidity	5% to 95%, noncondensing
Non-operating/storage temp	–40°F to 158°F (–40°C to 70°C)
Non-operating/storage relative humidity	5% to 95%, noncondensing
Acoustic	60.3 dB at 40% Fan Speed 73.2 dB at 70% Fan Speed 78.9 dB at 100% Fan Speed
Airflow direction	From front to rear
Electrical Characteristics	
Frequency	50/60 Hz
Maximum heat dissipation	3890BTU/h
Current	70A (12V)
Voltage	DC—Input Voltage 180V to 320V; AC—Input Voltage 100V to 240V
Maximum power rating	1140W
Idle power	Dual AC 168W
Notes:	Idle power is the actual power consumption of the device with no ports connected. Maximum power rating and maximum heat dissipation are the worst-case theoretical maximum numbers provided for planning the infrastructure with fully loaded PoE (if equipped), 100% traffic, all ports plugged in, and all modules populated.
Safety	UL 60950-1CAN/CSA C22.2 No 60950-1IEC 60950-1AS/NZS 60950-1FDA 21 CFR Subchapter J GB 4943.1UL 62368-1CAN/CSA C22.2 No 62368-1IEC 62368-1EN 62368-1AS/NZS 62368-1

Technical Specifications

Emissions	FCC Part 15 SubpartB CLASS A ICES-003 CLASS A VCCI CLASS ACISPR 32 CLASS A EN 55032 CLASS A AS/NZS CISPR 32 CLASS A CISPR 35EN 55035EN 61000-3-2EN 61000-3-3ETSI EN 300 386
Telecom	
Management	IMC; CLI; out-of-band management; SNMP Manager; Telnet; FTP. **Notes:** The customer must install a minimum of one power supply, as the device does not come with one. The customer must install 6 fan kits, as the device does not come with one.
Services	Refer to the Hewlett Packard Enterprise website at **hpe.com/networking/services** for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local Hewlett Packard Enterprise sales office

Standards and Protocols	
Item	**Standards**
Forwarding mode	Store-forward
Virtualization	Distributed device management Distributed link aggregation Distributed resilient routing
Link aggregation	100GbE/200GbE/400GbE port aggregation Static aggregation, dynamic aggregation
Data center	VXLAN 802.1Qbb PFC, 802.1Qaz ETS, ECN, DCBX Multiple types of OpenFlow controllers EVPN distributed gateway NETCONF, Python RDMA, RoCE
Jumbo frame	Supported
MAC address table	Static MAC address MAC address
VLAN	Port-based VLAN (quantity: 4094) Default VLAN
Traffic monitoring	sFlow®/Netstream
DHCP	DHCP client DHCP snooping/DHCP relay DHCP snooping support for Option 82/DHCP relay agent support for Option 82 IPv6 DHCP client DHCP relay
ARP	Gratuitous ARP Dynamic ARP source-suppression ARP
IP routing	Stating routing, OSPFv1/v2/v3, BGP, IS-IS ECMP, VRRP, policy-based routing BGP4+ for IPv6, VRRP, IPv6 policy-based routing OSPFv3, ISISv6
IPv6	IPv6 ND ICMPv6, Telnetv6, SFTPv6, SNMP over IPv6, BFDv6, VRRPv3 IPv6 tunnel
Zero touch provisioning (ZTP)	Auto-config
MPLS	L3VPN VPLS
MSTP	STP/RSTP/MSTP PVST+/RPVST+ STP root guard BPDU guard

Technical Specifications

QoS/ACL	Inbound and outbound traffic rate limit Committed Access Rate (CAR) Eight output queues on each port Flexible port and queue-based queuing and scheduling algorithms SP, WRR, WFQ, SP+WRR, and SP+WFQ queuing 802.1p and DSCP priority remarking Packet filtering at Layer 2 to Layer 4 Traffic classification based on source MAC address, destination MAC address, source IPv4/IPv6 address, destination IPv4/IPv6 address, port number, protocol type, and VLAN Time range-based ACL Bi-directional ACLs (inbound and outbound) ACLs VLAN-based ACL assignment WRED
Mirroring	Traffic mirroring N:4 port mirroring Local port mirroring, remote port mirroring Multiple remote mirroring ports (reflector port)
LACP	LACP LACP local forwarding first LACP short time LACP stack split detection
Security	Hierarchical user management and password protection AAA/RADIUS/HWTACACS SSH 2.0 HTTPS/SSL PKI
LLDP	LLDP LLDP-MED
Loading and upgrading	Loading/upgrading through the XMODEM protocol Loading/upgrading through FTP and TFTP
Management and maintenance	Configuration via CLI, Telnet, and console port scheduled job SNMPv1/v2c/v3 Telemetry gRPC HPE IMC System logs Hierarchical alarms NTP, SNTP Power, fan, and temperature alarms Debugging information output Ping and traceroute File uploading and downloading through the USB port
Safety	UL 60950-1 CAN/CSA C22.2 No. 60950-1 IEC 60950-1, EN 60950-1 AS/NZS 60950-1 FDA 21 CFR Subchapter J GB 4943.1

Technical Specifications

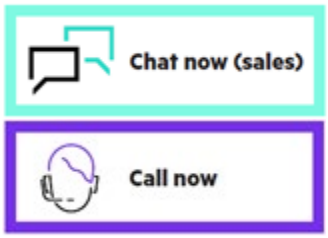
EMC	FCC Part 15 Subpart B CLASS A ICES-003 CLASS A VCCI CLASS A CISPR 32 CLASS A EN 55032 CLASS A AS/NZS CISPR 32 CLASS A CISPR 24 EN 55024 EN 61000-3-2 EN 61000-3-3 ETSI EN 300 386 GB/T 9254 YD/T 993

Summary of Changes

Date	Version History	Action	Description of Change
06-May-2024	Version 4	Changed	Configuration Information section was updated.
20-Nov-2023	Version 3	Changed	Technical Specifications section was updated.
07-Aug-2023	Version 2	Changed	Overview section was updated.
05-Jun-2023	Version 1	New	New QuickSpecs

Copyright

Make the right purchase decision.
Contact our presales specialists.



Get updates

Hewlett Packard Enterprise

To learn more, visit **http://www.hpe.com/networking**

a50007000enw - 17110 - Worldwide - V4 - 06-May-2024