Overview

HPE Virtual Connect SE 100Gb F32 Module for Synergy

The HPE Virtual Connect SE 100Gb F32 Module for Synergy is a fundamental building block of Composable Infrastructure. Its disaggregated, rack-scale design uses a primary/satellite architecture to consolidate data center network connections, reduces hardware and scales network bandwidth across multiple HPE Synergy Frames.

This HPE VC SE 100Gb F32 Module is the primary and the HPE Synergy 50Gb Interconnect Link Module is the satellite. The primary module contains intelligent networking capabilities that extend connectivity to additional frames through satellite modules. This eliminates the need for top of rack switches and substantially reduces cost. This reduction in switching equipment also simplifies the management of the fabric at scale while consuming fewer ports at the data center aggregation layer.

The HPE VC SE 100Gb F32 Modules eliminate up to 95% of network sprawl at the compute module edge with one device that converges traffic inside frames and directly connects to external LANs. Using the midplane of the Synergy Frame, each HPE VC SE 100Gb F32 Module provides 2 downlink connections (or lanes) connecting up to 12 compute modules that are housed in the 12 vertical device bays on the front side of each Synergy frame. Each downlink can be configured as Ethernet or Fibre Channel over Ethernet (FCoE). A Fibre Channel upgrade license needs to be purchased separately to enable the Fibre Channel uplink functionality. Up to 6 QSFP28 ports provided on each module for uplinks. Each port provides 100Gbps Ethernet bandwidth. Additionally, each of the 6 QSFP28 uplink ports can be configured as 4x25Gbps Ethernet or 4x32Gbps Fibre Channel for connection to upstream Ethernet and Fibre Channel switches using splitter cables. Since the maximum bandwidth of any QSFP28 port is 100Gbps, when 4x32Gbps Fibre Channel connections are used, each of the Fibre Channel connections signals for 32Gbps speed and setup but is limited to only 25Gbps bandwidth for that connection. If a full 32Gbps bandwidth is desired for any QSFP28 port, then an HPE QSFP28/SFP28 adapter with a 32Gbps FC transceiver will populate the QSFP28 port. The HPE VC SE 100Gb F32 Modules reduce the number of components required compared to traditional and other converged network solutions by eliminating the need for separate Ethernet and Fibre Channel switches and cables. Also, Virtual Connect wire-once connection management is built-in enabling the tasks of adds, moves and replacements of compute modules in minutes instead of days or weeks. The Primary/Satellite disaggregated architecture removes fixed of ratios of interconnects in every frame and allows extending networking resources pool for Virtual Connect to satellite frames.

Overview

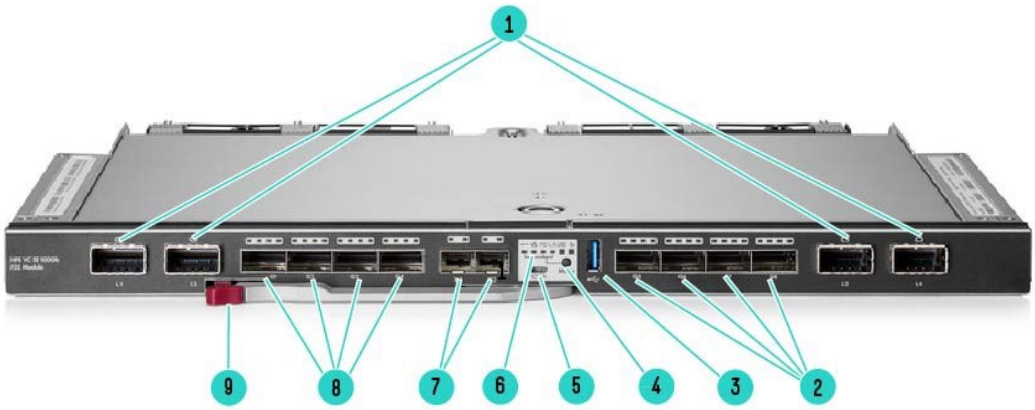


Figure 1 HPE Synergy Virtual Connect SE 100Gb F32 Module

1. CXP28 ports - L1, L2, L3, & L4 used for Interconnect Link Ports
2. QSFP28 ports - Q5 & Q6 used for uplink ports - Q7 & Q8 used for stacking ports
3. USB 3.0 port (unused)
4. Mode button
5. Micro-USB port for serial access
6. LED status display
7. SFP+ ports - X1 & X2 used for Image Streamer ports
8. QSFP28 ports - Q1, Q2, Q3 & Q4 used for uplink ports
9. Insertion & Extraction lever

Standard Features

Product Features

Performance

- 6xQSFP28 external uplink ports configurable as 1x100Gb or 4x25Gb or 1x40Gb or 4x10Gb or 1x25Gb or 1x10Gb Ethernet or 1x32Gb FC or 1x16Gb or 1x8Gb FC connected to external LAN/SAN switches
  Notes:
  - Since the maximum bandwidth of any QSFP28 port is 100Gbps, when 4x32Gbps Fibre Channel connections are used, each of the Fibre Channel connections signals for 32Gbps speed and setup but is limited to only 25Gbps bandwidth for that connection.
  - If a full 32Gbps bandwidth is desired for any QSFP28 port, then an HPE QSFP28/SFP28 adapter with a 32Gbps FC transceiver will populate the QSFP28 port. In addition, the user must provision the uplink as a singular (1:1 or Q1 for example) uplink port to achieve the full 32Gbps for FC. If the port is configured in a 4:1 (Q1.1 for example) mode, then the port will be divided into 4 lanes with only 1 lane enabled and will only achieve 25Gbps speed.
- 12 x 25Gb or 12x50Gb Ethernet downlinks (traversing the midplane) to compute module Converged Network Adapters
- The FlexHBA can be configured to transport either Fiber Channel over Ethernet/CEE or Accelerated iSCSI protocol.
- Each FlexNIC and FlexHBA is recognized by the compute module as a PCIe physical function device with adjustable speeds from 250Mb to 25Gb in 250Mb increments when connected to a 2-port 25GbE Converged Network Adapter and from 500Mb to 50Gb in 500Mb increments when connected to a Dual-Port 50Gb Converged Network Adapter
- Extended list of direct attach copper cable connections supported
- Low latency (sub 1.0 µs Ethernet ports) throughput provides switch-like performance.
- Line-rate, full-duplex 6.4 Tbps bridging fabric
- MTU up to 9216 Bytes - Jumbo Frames
- Supports up to 48K L2 MAC entries
- VLAN Tagging and Link Aggregation supported on all uplinks
- Supports up to 4K IPMC entries
  Notes: Since the entries of the IPMC table are a result of hashing Source IP Addresses, using consecutively numbered Source IP Addresses results in approximately only 3K entries in the table.

Management

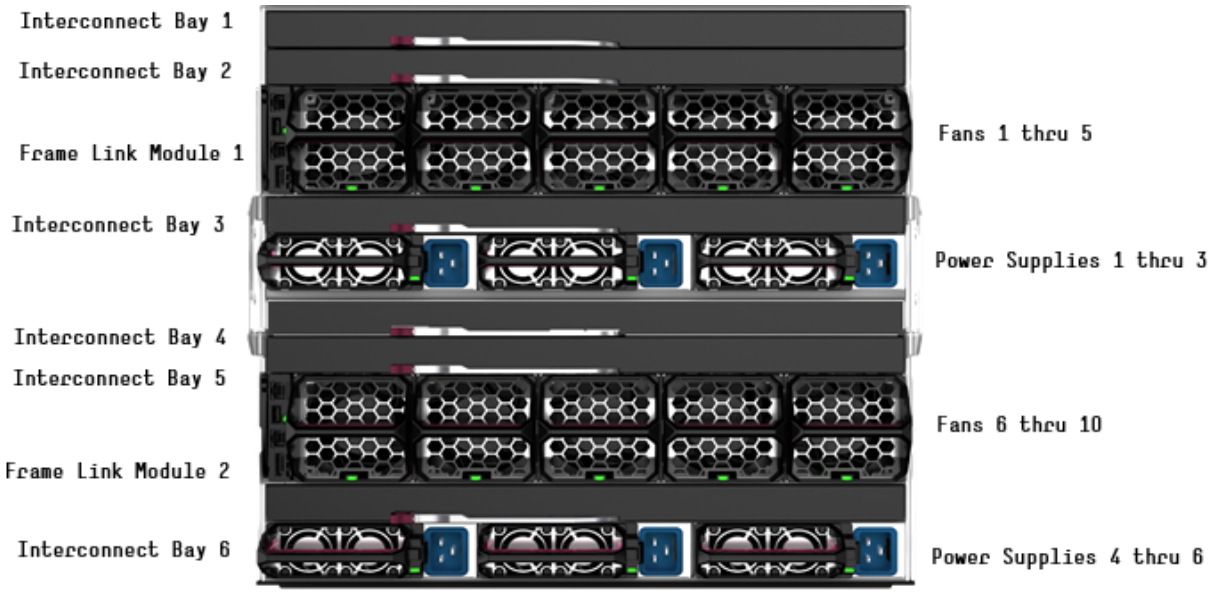
- Integrated composer based HPE OneView included with every frame, providing out-of-the-box for individual Virtual Connect configuration and management.
- Pre-configure compute modules I/O configurations prior to their installation for easy deployment
- Move, add, or change compute module network connections on the fly without impacting LAN and SAN administrator
- Monitoring via SNMPv1 & SNMPv2 and management via industry standard SNMPv3
- Compute module-side NPIV removes storage management constraint of a single physical HBA on a compute module does not add to SAN switch domains or require traditional SAN management
- Licensing support for native Fibre Channel through Composer powered by OneView

Options

- Optional HPE 10Gb SFP+ SR, LR, and LRM modules and 10Gb SFP+ Copper cables
- Optional HPE 40Gb QSFP+ SR, LR, and LRM modules and 10Gb SFP+ Copper cables
- Optional HPE 40Gb QSFP+ SR, SR 300M and LR modules, 40Gb QSFP+ DAC and AOC cables, 40Gb DAC splitter cables and QSFP+ to SFP+ adapter
- Optional HPE 100Gb QSFP28 SR and LR modules, 100Gb QSFP28 DAC and AOC cables, 100Gb DAC splitter cables and QSFP28 to QSFP+ adapter
- Supports Converged Network Adapters (CNAs) for HPE Synergy Compute Modules

Standard Features

Supported Configurations



HPE Synergy 12000 Frame - Rear View

Interconnect Module Configurations					Compute Module Network Adapters Used
Frame 1					
[ICB 1]	Empty/Interconnect	->	Empty/Interconnect	[ICB 4]	Empty/Adapter
[ICB 2]	Empty/Interconnect	->	Empty/Interconnect	[ICB 5]	Empty/Adapter
[ICB 3]	HPE VC SE 100Gb F32	->	HPE 50Gb ILM	[ICB 6]	HPE 25Gb/50Gb CNA
Frame 2					
[ICB 1]	Empty/Interconnect	->	Empty/Interconnect	[ICB 4]	Empty/Adapter
[ICB 2]	Empty/Interconnect	->	Empty/Interconnect	[ICB 5]	Empty/Adapter
[ICB 3]	HPE 50Gb ILM	->	HPE VC SE 100Gb F32	[ICB 6]	HPE 25Gb/50Gb CNA
Frame 1					
[ICB 1]	Empty/Interconnect	->	Empty/Interconnect	[ICB 4]	Empty/Adapter
[ICB 2]	HPE VC SE 100Gb F32	->	HPE 50Gb ILM	[ICB 5]	HPE 25Gb/50Gb CNA
[ICB 3]	Empty/Interconnect	->	Empty/Interconnect	[ICB 6]	Empty/Adapter
Frame 2					
[ICB 1]	Empty/Interconnect	->	Empty/Interconnect	[ICB 4]	Empty/Adapter
[ICB 2]	HPE 50Gb ILM	->	HPE VC SE 100Gb F32	[ICB 5]	HPE 25Gb/50Gb CNA
[ICB 3]	Empty/Interconnect	->	Empty/Interconnect	[ICB 6]	Empty/Adapter

Standard Features

Interconnect Module Configurations					Compute Module Network Adapters Used
Frame 1					
[ICB 1]	HPE VC SE 100Gb F32	->	HPE 50Gb ILM	[ICB 4]	HPE 25Gb/50Gb CNA
[ICB 2]	Empty/Interconnect	->	Empty/Interconnect	[ICB 5]	Empty/Adapter
[ICB 3]	Empty/Interconnect	->	Empty/Interconnect	[ICB 6]	Empty/Adapter
Frame 2					
[ICB 1]	HPE 50Gb ILM	->	HPE VC SE 100Gb F32	[ICB 4]	HPE 25Gb/50Gb CNA
[ICB 2]	Empty/Interconnect	->	Empty/Interconnect	[ICB 5]	Empty/Adapter
[ICB 3]	Empty/Interconnect	->	Empty/Interconnect	[ICB 6]	Empty/Adapter
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[ICB 1]	HPE VC SE 100Gb F32	->	HPE 50Gb ILM	[ICB 4]	HPE 25Gb/50Gb CNA
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[ICB 3]	Empty/Interconnect	->	Empty/Interconnect	[ICB 6]	Empty/Adapter
Frame 2					
[ICB 1]	HPE 50Gb ILM	->	HPE VC SE 100Gb F32	[ICB 4]	HPE 25Gb/50Gb CNA
[ICB 2]	HPE 50Gb ILM	->	HPE VC SE 100Gb F32	[ICB 5]	HPE 25Gb/50Gb CNA
[ICB 3]	Empty/Interconnect	->	Empty/Interconnect	[ICB 6]	Empty/Adapter
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[ICB 1]	HPE VC SE 100Gb F32	->	HPE 50Gb ILM	[ICB 4]	HPE 25Gb/50Gb CNA
[ICB 2]	Empty/Interconnect	->	Empty/Interconnect	[ICB 5]	Empty/Adapter
[ICB 3]	HPE VC SE 100Gb F32	->	HPE 50Gb ILM	[ICB 6]	HPE 25Gb/50Gb CNA
Frame 2					
[ICB 1]	HPE 50Gb ILM	->	HPE VC SE 100Gb F32	[ICB 4]	HPE 25Gb/50Gb CNA
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[ICB 3]	HPE 50Gb ILM	->	HPE VC SE 100Gb F32	[ICB 6]	HPE 25Gb/50Gb CNA
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[ICB 3]	HPE VC SE 100Gb F32	->	HPE 50Gb ILM	[ICB 6]	HPE 25Gb/50Gb CNA
Frame 2					
[ICB 1]	Empty/Interconnect	->	Empty/Interconnect	[ICB 4]	Empty/Adapter
[ICB 2]	HPE 50Gb ILM	->	HPE VC SE 100Gb F32	[ICB 5]	HPE 25Gb/50Gb CNA
[ICB 3]	HPE 50Gb ILM	->	HPE VC SE 100Gb F32	[ICB 6]	HPE 25Gb/50Gb CNA

Standard Features

Interconnect Module Configurations				Compute Module Network Adapters Used	
Frame 1					
[ICB 1]	HPE VC SE 100Gb F32	->	HPE 50Gb ILM	[ICB 4]	HPE 25Gb/50Gb CNA
[ICB 2]	HPE VC SE 100Gb F32	->	HPE 50Gb ILM	[ICB 5]	HPE 25Gb/50Gb CNA
[ICB 3]	HPE VC SE 100Gb F32	->	HPE 50Gb ILM	[ICB 6]	HPE 25Gb/50Gb CNA
Frame 2					
[ICB 1]	HPE 50Gb ILM	->	HPE VC SE 100Gb F32	[ICB 4]	HPE 25Gb/50Gb CNA
[ICB 2]	HPE 50Gb ILM	->	HPE VC SE 100Gb F32	[ICB 5]	HPE 25Gb/50Gb CNA
[ICB 3]	HPE 50Gb ILM	->	HPE VC SE 100Gb F32	[ICB 6]	HPE 25Gb/50Gb CNA

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- 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.
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https://www.hpe.com/us/en/contact-hpe.html

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

Configuration Information

Models

HPE Virtual Connect SE 100Gb F32 Module for Synergy	867796-B21
HPE Virtual Connect SE 100Gb F32 TAA-compliant Module for Synergy	867796-B22

Compatibility

HPE VC SE 100Gb F32 Module interoperates with the following HPE Synergy hardware also housed in the Synergy Frames.

HPE Synergy Compute Modules

HPE Synergy 480 Gen10 Configure-to-order Compute Module	871940-B21
HPE Synergy 480 Gen10 TAA-compliant Configure-to-order Compute Module	871940-B22
HPE Synergy 480 Gen10 Configure-to-order without Drive Bays Compute Module	871941-B21
HPE Synergy 480 Gen10 TAA-compliant Configure-to-order without Drive Bays Compute Module	871941-B22
HPE Synergy 480 Gen10 Configure-to-order Premium Compute Module	871942-B21
HPE Synergy 480 Gen10 TAA-compliant Configure-to-order Premium Compute Module	871942-B22
HPE Synergy 660 Gen10 Configure-to-order Compute Module	871929-B21
HPE Synergy 660 Gen10 TAA-compliant Configure-to-order Compute Module	871929-B22
HPE Synergy 660 Gen10 Configure-to-order without Drive Bays Compute Module	871930-B21
HPE Synergy 660 Gen10 TAA-compliant Configure-to-order without Drive Bays Compute Module	871930-B22
HPE Synergy 660 Gen10 Configure-to-order Premium Backplane Compute Module	871931-B21
HPE Synergy 660 Gen10 TAA-compliant Configure-to-order Premium Backplane Compute Module	871931-B22
HPE Synergy 480 Gen10 Plus Base Chassis Configure-to-order Compute Module	P22139-B21
HPE Synergy 480 Gen10 Plus Base Chassis TAA-compliant Configure-to-order Compute Module	P22139-B22
HPE Synergy 480 Gen11 Configure-to-order Compute Module	P39531-B21
HPE Synergy 480 Gen11 TAA-compliant Configure-to-order Compute Module	P39531-B22

HPE Interconnect Link Module

HPE Synergy 50Gb Interconnect Link Module	867793-B21
HPE Synergy 50Gb TAA-compliant Interconnect Link Module	867793-B22

HPE Network Adapters

HPE Synergy 4820C 10/20/25Gb Converged Network Adapter	876449-B21
HPE Synergy 6820C 25/50Gb Converged Network Adapter	P02054-B21

Related Options

CXP28 Cables

HPE Synergy 300Gb Interconnect Link 2.1m Direct Attach Copper Cable	876680-B21
HPE Synergy 300Gb Interconnect Link 3m Active Optical Cable	876689-B21
HPE Synergy 300Gb Interconnect Link 5m Active Optical Cable	876692-B21
HPE Synergy 300Gb Interconnect Link 15m Active Optical Cable	876698-B21

Management

HPE Synergy 32Gb Fibre Channel Upgrade E-LTU	R3P67AAE
HPE Synergy 32Gb Fibre Channel Upgrade FIO LTU	R3P67A

QSFP28 Transceivers for uplink ports

HPE Synergy 100GbE/4x25GbE/4x32GbFC QSFP28 Transceiver	882251-B21

Notes:

- Mixing of Ethernet and Fiber Channel port types is not supported with the transceiver above
- 4x8Gb FC, 4x16Gb FC, and 4x32GbFC modes are supported

HPE 100Gb QSFP28 MPO SR4 100m Transceiver	845966-B21
HPE Aruba Networking 100G QSFP28 LC LR4 10km SMF 2-strand Transceiver	JL310A
HPE 100Gb QSFP28 Bidirectional Transceiver	845972-B21
HPE Networking X150 100G QSFP28 PSM4 500m SM Transceiver	JH420A
HPE Networking X150 100G QSFP28 CWDM4 2km SM Transceiver	JH673A
HPE Networking X150 100G QSFP28 LC SWDM4 100m MM Transceiver	JH419A

QSFP28 Cables for uplink ports

HPE Aruba Networking 100G QSFP28 to QSFP28 1m Direct Attach Copper Cable	R0Z25A
HPE 100Gb QSFP28 to QSFP28 3m Direct Attach Copper Cable	845406-B21
HPE Aruba Networking 100G QSFP28 to QSFP28 3m Direct Attach Copper Cable	JL307A
HPE 100Gb QSFP28 to QSFP28 5m Direct Attach Copper Cable	845408-B21
HPE Aruba Networking 100G QSFP28 to QSFP28 5m Direct Attach Copper Cable	R0Z26A
HPE 100Gb QSFP28 to QSFP28 7m Active Optical Cable	845410-B21
HPE 100Gb QSFP28 to QSFP28 15m Active Optical Cable	845414-B21
HPE 100Gb QSFP28 to 4x25Gb SFP28 3m Direct Attach Copper Cable	845416-B21
HPE QSFP28 to 4x25Gb SFP28 7m Active Optical Cable	845420-B21
HPE QSFP28 to 4x25Gb SFP28 15m Active Optical Cable	845424-B21
HPE QSFP28 to SFP28 Adapter	845970-B21

Notes:

- Since the maximum bandwidth of any QSFP28 port is 100Gbps, when 4x32Gbps Fibre Channel connections are used, each of the Fibre Channel connections signals for 32Gbps speed and setup but is limited to only 25Gbps bandwidth for that connection.
- If a full 32Gbps bandwidth is desired for any QSFP28 port, then an HPE QSFP28/SFP28 adapter with a 32Gbps FC transceiver will populate the QSFP28 port. In addition, the user must provision the uplink as a singular (1:1) uplink port to achieve the full 32Gbps for FC. If the port is configured in a 4:1 mode, then the port will be divided into 4 lanes with only 1 lane enabled and will only achieve 25Gbps speed.

Related Options

SFP28 Transceivers and Cables for uplink ports

HPE 25Gb SFP28 SR 100m Transceiver	845398-B21
HPE 25Gb SFP28 to SFP28 7m Active Optical Cable	844483-B21
HPE 32Gb SFP28 Short Wave Commercial Temperature Transceiver	P9H30A
HPE 8Gb Short Wave Fibre Channel SFP+ 1 Pack Transceiver	AJ718A
HPE 16Gb SFP+ Short Wave 1-pack Industrial Extended Transceiver	E7Y09A
HPE 16Gb SFP+ Short Wave 1-pack Commercial Transceiver	E7Y10A

QSFP+ Transceivers and Cables for uplink ports

HPE BladeSystem c-Class 40Gb QSFP+ MPO SR4 100m Transceiver	720187-B21
HPE Networking X140 40G QSFP+ CSR4 300m Transceiver	JG709A
HPE Networking X140 40G QSFP+ LC LR4 SM 10km 1310nm Transceiver	JG661A
HPE Networking X242 40G QSFP+ to QSFP+ 1m Direct Attach Copper Cable	JH234A
HPE BladeSystem c-Class 40G QSFP+ to QSFP+ 3m Direct Attach Copper Cable	720199-B21
HPE Networking X242 40G QSFP+ to QSFP+ 3m Direct Attach Copper Cable	JH235A
HPE BladeSystem c-Class 40G QSFP+ to QSFP+ 5m Direct Attach Copper Cable	720202-B21
HPE Networking X242 40G QSFP+ to QSFP+ 5m Direct Attach Copper Cable	JH236A
HPE BladeSystem c-Class 40G QSFP+ to QSFP+ 15m Active Optical Cable	720211-B21
HPE BladeSystem c-Class 40G QSFP+ to 4x10G SFP+ 3m Direct Attach Copper Splitter Cable	721064-B21
HPE BladeSystem c-Class QSFP+ to 4x10G SFP+ 15m Active Optical Cable	721076-B21
HPE 40Gb QSFP+ Bidirectional Transceiver	841716-B21

Notes: In addition to the supported HPE copper cables above, Virtual Connect provides "allowed" connections using third party cables that meet the following criteria: connector=copper pigtail; transceiver code=active cable or passive cable; speed equal or less than 100Gb; length between 1m and 5m, inclusive. All "allowed" DACs are connected and logged. Prior to requesting support from Hewlett Packard Enterprise, a DAC from the supported list above must be used to verify a cable issue is not involved.

SFP+ Options

HPE BladeSystem c-Class 10Gb SFP+ SR Transceiver	455883-B21
HPE BladeSystem c-Class 10Gb SFP+ LR Transceiver	455886-B21
HPE BladeSystem c-Class 10GbE SFP+ to SFP+ 3m Direct Attach Copper Cable	487655-B21
HPE BladeSystem c-Class 10GbE SFP+ to SFP+ 5m Direct Attach Copper Cable	537963-B21
HPE 10GBase-T SFP+ Transceiver	813874-B21
HPE Networking X130 10G SFP+ LC ER 40km Transceiver	JG234A
HPE C-series 3M Passive Copper SFP+ Cable	K2Q21A
HPE C-series 5M Passive Copper SFP+ Cable	K2Q22A
HPE C-series SFP+ to SFP+ Active Copper 7.0m Direct Attach Cable	QK701A
HPE C-series SFP+ to SFP+ Active Copper 10.0m Direct Attach Cable	QK702A

Related Options

Fiber Cable Options

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
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 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 to 4xLC 30m Cbl	Q1H68A
HPE Premier Flex MPO to 4 x Lucent Connector 50m Cable	Q1H69A
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 MPO/MPO OM4 100m Cable	H6Z30A
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 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

Notes: For the ICM clustering ports, in addition to the 100G DAC and 100G AOC options above, any of the 100G optical transceivers above can be used with the supported fiber cables. Note that the HPE 100Gb QSFP28 Bidirectional Transceiver cannot be used for ICM clustering but may be used for uplinks.

HPE Synergy Services

Notes: See HPE Support Services Central for additional services at **HPE Global IT Services-Infrastructure and Business Technology Services | HPE**

Deployment/Installation & Start-up Services

HPE Factory Express Synergy Initial Frame Package 4 Service	HA454A1-300
HPE Factory Express Synergy Add-on Frame Package 4 Service	HA454A1-301
HPE Synergy First Frame Startup Service	U8JM3E
HPE Synergy Additional Frame Startup Service	U8JM4E

Related Options

HPE Synergy Tech Care Services

HPE 3 Year Tech Care Basic VC 100Gb F32 Module Service	H37P6E
HPE 3 Year Tech Care Critical VC 100Gb F32 Module Service	H37N4E
HPE 3 Year Tech Care Basic with CDMR VC 100Gb F32 Module Service	H37P9E
HPE 3 Year Tech Care Critical with CDMR VC 100Gb F32 Service	H37N7E
HPE 4 Year Tech Care Basic VC 100Gb F32 Module Service	H37P7E
HPE 4 Year Tech Care Critical VC 100Gb F32 Module Service	H37N5E
HPE 4 Year Tech Care Basic with CDMR VC 100Gb F32 Module Service	H37Q0E
HPE 4 Year Tech Care Critical with CDMR VC 100Gb F32 Service	H37N8E
HPE 5 Year Tech Care Basic VC 100Gb F32 Module Service	H37P8E
HPE 5 Year Tech Care Critical VC 100Gb F32 Module Service	H37N6E
HPE 5 Year Tech Care Basic with CDMR VC 100Gb F32 Module Service	H37Q1E
HPE 5 Year Tech Care Critical with CDMR VC 100Gb F32 Service	H37N9E
HPE Installation Synergy Node Service	H0YW6E
HPE Installation Non Standard Hours Synergy Node Service	H0YW7E

Technical Specifications

Shipping Dimensions		
Length	19.45 in (494 mm)	
Width	15.55 in (395 mm)	
Height	5.75 in (145 mm)	
Shipping Weight	Approximately 5.4Kg (12.0 Lbs)	
Product Specifications Hardware		
Performance	Line-rate, full-duplex 6.4 Tbps bridging fabric	
	Non-blocking architecture	
	Maximum transmission unit (MTU) of up to 9216 bytes (jumbo frames)	
Connectors and Cabling	24 x 25Gb downlinks (lanes) through the midplane	
	8 x 100Gb SR4, LR4 fiber, DAC, AOC and Splitter uplink	
	4 x 300Gb Interconnect Link ports	
Indicators	Interconnect link cable port LED	
	QSFP28 port LED CXP28 port LED SFP+ port LED	
	Mode button	
	Health LED	
	Ethernet mode LED	
	PID mode LED	
	Link/Activity mode LED	
Weight	4.22Kg (9.3 Lbs)	
Latency	Sub 1.0 µs on Ethernet only port	
Scalability	Does not contribute to the total switch limit	
Buffer Credits	8 buffer credits per port, ASIC embedded memory	
Environmental Ranges	**Temperature Range**	
	Specification	10°C to 40°C (50°F to 104°F)*
	Temperature Range	
	Operating	10°C to 40°C (50°F to 104°F)
	Shipping	Shipping -40°C to 70°C (-40°F to 158°F)
	Storage	-30°C to 60°C (-22°F to 140°F)
	Maximum wet bulb temperature	38.7°C (101.66°F)
	Relative Humidity (noncondensing)	
	Operating	5% to 95%
	Shipping	5% to 95%
Notes: – All temperature ratings shown are for sea level. An altitude derating of 1°C per 304.8 m (1.8°F per 1,000 ft) to 3048 m (10,000 ft) is applicable. No direct sunlight allowed. Upper operating limit is 3,048m (10,000 ft) or 70 Kpa/10.1 psia. Upper non-operating limit is 9,144 m (30,000 ft) or 30.3 KPa/4.4 psia. – Storage maximum humidity of 95% is based on a maximum temperature of 45°C (113°F). Altitude maximum for storage corresponds to a pressure minimum of 70 KPa.		
Power Specification	12V @ 20A (240 W max)	

Technical Specifications

Product Specifications Software

Trunking, Failover and Other Networking Features

- Shared Uplink Sets using Link Aggregation Control Protocol (LACP) allows the creation of Ethernet channeling with upstream switches that conform to IEEE 802.3ad. Ports can alternatively be configured for failover only.
- External ports within a Port Set can be on the same VC Ethernet module or on multiple VC modules within the Logical Interconnect.
- Supports 802.3ad Link Aggregation on server (downlink) ports.

VLAN Features

- 802.1Q VLAN supported on uplinks.
- Uplink ports can be configured for VLAN tagging at egress or pass-thru of tagged VLAN packets from Server ports.
- Native VLAN support for untagged packets on a shared uplink set.
- Packets can be targeted to a specific server ports.
- Simultaneous tunneled and mapped VLAN connections to a single logical interconnect.

Management Features

- Simple and intuitive Graphical User Interface (GUI) for defining, configuring, and managing all elements of Virtual Connect via composer based HPE OneView.
- Comprehensive administration, definition, and management of Ethernet Network, Shared Uplink Set, SAN Fabric management and Server Profiles.
- Embedded SNMPv3 agents allow Network Management applications to query Virtual Connect for statistics and trap information.
- Any uplink port and downlink port can be used as a dedicated mirrored port for traffic analysis and troubleshooting by a Network Analyzer.
- Domain Management of user accounts, frame, settings, and firmware updates
  MAC Address Administration allows local administration of predefined or user-defined MAC address ranges.
- WWN Address Administration allows local administration of predefined WWN addresses ranges to allow pre-provisioning of SAN volumes.
- Supported by composer based HPE OneView. Provides centralized network connection management and workload mobility for multiple compute modules.

Management and Standards Support

Standards

- INCITS FC-BB-5 Rev 2.00 (on all downlinks)
- IEEE 802.1Qbb
- IEEE 802.1Qaz
- IEEE 802.1AB LLDP
- IEEE 802.1Q (VLAN includes Native VLAN support and server side VLAN tag mapping)
- IEEE 802.2 LLC
- IEEE 802.3ad Link Aggregation
  - Maximum of 48 LAGs
- Multi-Chassis Link Aggregation
  - Maximum of 16 ports per MLAG
  - Maximum of 24 uplink MLAGs
- IEEE 802.3ae 10Gb Fiber Ethernet
- IEEE 802.3aq 10Gb LRM Ethernet
- SNMPv3
- IPv6
- FC-BB5 aka FIP snooping on Q1-Q6

Technical Specifications

Safety and Compliance

Safety Certifications

- UL/CUL Recognition to UL/CSA 60950-1
- TUV to EN 60950-1
- CB report and certificate to IEC 60950-1 with all country deviations
- CE Marking

Electromagnetic Emissions Certifications FCC Part 15 Class A

- FCC Part 15 Class A
- EN 55022 Class A (CISPR22 Class A)
- VCCI Class A
- CE Marking

Environment-friendly Products and Approach - End-of-life Management and Recycling

Hewlett Packard Enterprise offers end-of-life **product return, trade-in, and recycling programs**, in many geographic areas, for our products. Products returned to Hewlett Packard Enterprise will be recycled, recovered or disposed of in a responsible manner.

The EU WEEE Directive (2012/19/EU) requires manufacturers to provide treatment information for each product type for use by treatment facilities. This information (product disassembly instructions) is posted on the **Hewlett Packard Enterprise web site**. These instructions may be used by recyclers and other WEEE treatment facilities as well as Hewlett Packard Enterprise OEM customers who integrate and re-sell Hewlett Packard Enterprise equipment.

Summary of Changes

Date	Version History	Action	Description of Change
19-Feb-2024	Version 12	Changed	Networking product names were updated
08-Jan-2024	Version 11	Changed	Service and Support section was updated.
01-May-2023	Version 10	Changed	Service and Support, Configuration Information, Related Options and Technical Specifications sections were updated. Added Gen10Plus and Gen11 interoperability.
01-Nov-2021	Version 9	Changed	Standard Features section was updated Obsolete SKU was removed
15-Sep-2021	Version 8	Changed	Standard Features, Configuration Information and Related Options sections were updated Service and Support Pointnext Tech Care and Complete Care information added,
17-May-2021	Version 7	Changed	Technical Specifications section was updated Obsolete SKUs were removed
11-Jan-2021	Version 6	Changed	Overview section was updated.
05-Oct-2020	Version 5	Changed	Configuration Information and Related Options sections were updated.
24-Aug-2020	Version 4	Changed	Configuration Information section was updated.
17-Aug-2020	Version 3	Changed	Corrected TAA description, added additional transceiver and fiber cable support. Rebranding applied to document.
02-Dec-2019	Version 2	Changed	Overview, Standard Features and Configuration Information sections were updated.
03-Sep-2019	Version 1	Created	New QuickSpecs

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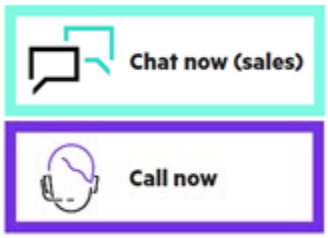

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