

Overview

HPE Synergy 40Gb F8 Switch Module

HPE Synergy 40Gb F8 Switch Module is a key network switch element of HPE Synergy providing resilient fabric functionality. It provides network switching to data or storage networks. The Synergy 40Gb F8 Switch Module eliminates up to 95% of network sprawl at the compute module edge with one device that converges traffic from within Synergy 12000 Frames and directly connects to external networks. The Synergy 40Gb F8 Switch Module provides simultaneous support for Ethernet. Each redundant pair of Synergy 40Gb F8 Switch modules provides Ethernet downlink connections to dual-port 10Gb/20Gb Converged Network Adapters on each compute module. There are six QSFP+ uplink multi-function ports available for connection to upstream 40Gb Ethernet switches. These six multi-function ports can be configured as 4x10Gb Ethernet per QSFP+ connector. A QSFP+ 40Gb/4x10Gb/4x8Gb transceiver provides four uplinks per QSFP+ port for connection to upstream 4x10Gb Ethernet connections. In addition to the six multi-use QSFP+ uplinks, there are two additional QSFP+ ports that can be used for cluster links between Synergy 40Gb F8 Switches Modules or for additional Ethernet uplinks. The Master/Satellite disaggregated architecture removes fixed traditional ratios of ports in a single frame and allows a high-speed, near zero latency connection of network resources directly to other frames via Interconnect Link Modules.

HPE Synergy is a single infrastructure of physical and virtual pools of compute, storage, and fabric resources, and a management interface that allows configuration of server resources in any configuration. The HPE Synergy 40Gb F8 Switch module is managed by industry standard management resources that allows network functions to be managed by network administrators. As the foundation for the New Style of Business infrastructure, HPE Synergy eliminates hardware and operational complexity so IT organizations can precisely deliver infrastructure resources to applications faster and with greater flexibility.

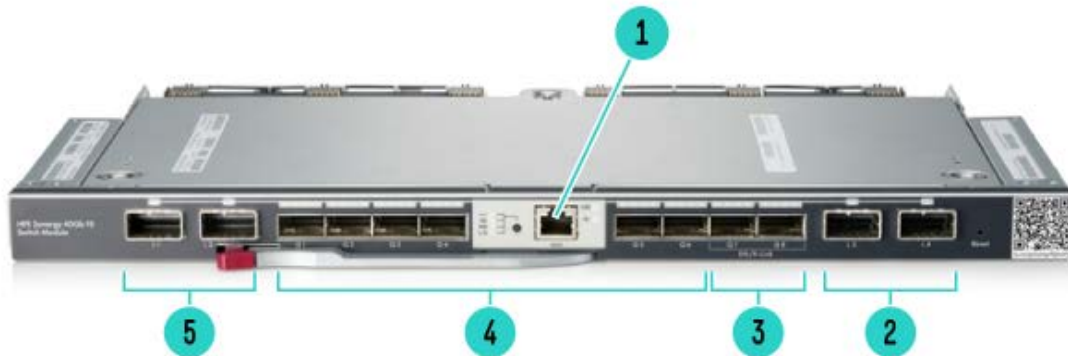


Figure 1 HPE Synergy 40Gb F8 Switch Module Bezel

- | | |
|----------------------------------------------------|--------------------------------------|
| 1. Console port | 4. 40Gb QSFP+ multi-use uplink ports |
| 2. Interconnect link ports | 5. Interconnect link ports |
| 3. 40Gb QSFP+ Ethernet uplink/ICM clustering ports | |

Platform Information

Models

HPE Synergy 40Gb F8 Switch Module

779224-B23

(Trade Agreement Act (TAA) compliant SKU same as above)

NOTE: HPE offers multiple Trade Agreement Act (TAA) compliant configurations to meet the needs of US Federal Government customers. These products are either manufactured or substantially transformed in a designated country.

Compatibility

HPE Synergy 40Gb F8 Switch Module Module supports the following hardware.

HPE Compute Modules

- HPE Synergy 480 Gen9 Compute Module
- HPE Synergy 620 Gen9 Compute Module
- HPE Synergy 660 Gen9 Compute Module
- HPE Synergy 680 Gen9 Compute Module
- HPE Synergy 480 Gen10 Compute Module
- HPE Synergy 660 Gen10 Compute Module

HPE Interconnect Link Modules

- HPE Synergy 20Gb Interconnect Link Module
- HPE Synergy 10Gb Interconnect Link Module

HPE Network Adapters

- HPE Synergy 3820C 10/20Gb Converged Network Adapter
- HPE Synergy 2820C 10Gb Converged Network Adapter

NOTE: Consult individual compute module QuickSpecs for specific adapter support

Platform Information

Supported Configurations



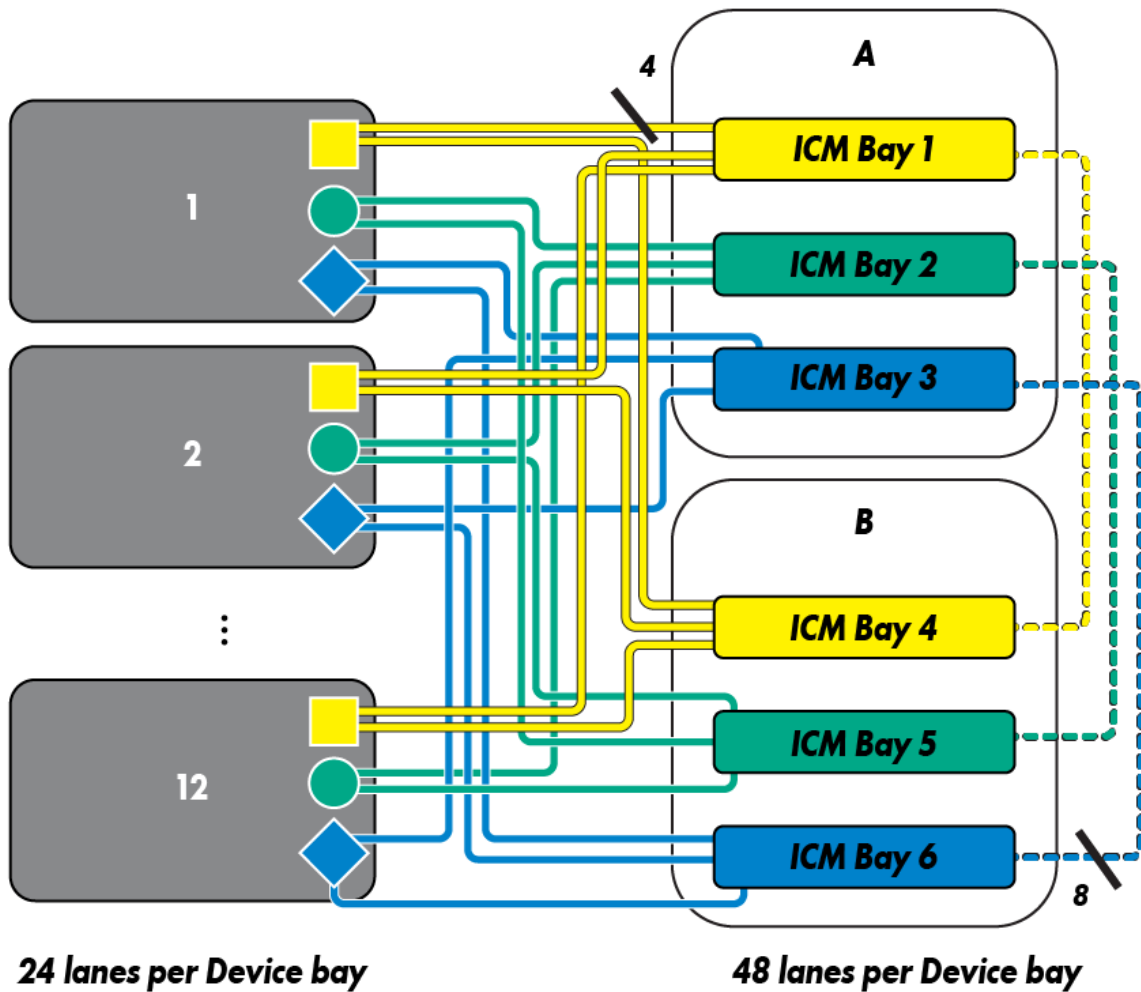
HPE Synergy 12000 Frame - Rear View

Platform Information

Mezzanines to Interconnect Port Mapping

The first interconnect in an ICM bay set is connected to Port 1 of the mezzanine card and the second interconnect in an ICM bay set is connected to Port 2 of that mezzanine card. If the two interconnects in an ICM bay set are of the same type, they provide redundant connectivity to the two mezzanine ports.

NOTE: Dotted lines in the figure below indicate paired Interconnect Bay (ICB)



Platform Information

HPE 12000 Synergy Frame

NOTE: For ease of representation and understanding paired Interconnect Bay (ICB) are shown adjacent rather than vertically as in the real-frame. Interconnect frames are formed between ICB 1 with ICB 4, ICB 2 with ICB 5, and ICB 3 with ICB 6. Hence the below representation. Upto 3 Synergy frames can be deployed with the HPE Synergy 40Gb F8 module when paired with the HPE 20Gb ILM. Shown below is a 2 frame example with different combination of slot placements.

Interconnect Module Configurations			Compute Module Network Adapters Used		
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Frame 1

[ICB 1]	Empty/Interconnect	->	Empty/Interconnect	[ICB 4]	Empty/Adapter
[ICB 2]	Empty/Interconnect	->	Empty/Interconnect	[ICB 5]	Empty/Adapter
[ICB 3]	Synergy 40Gb F8 Switch	->	HPE 20Gb ILM	[ICB 6]	HPE Synergy 20 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 20Gb ILM	->	Synergy 40Gb F8 Switch	[ICB 6]	HPE Synergy 20 CNA

Frame 1

[ICB 1]	Empty/Interconnect	->	Empty/Interconnect	[ICB 4]	Empty/Adapter
[ICB 2]	Synergy 40Gb F8 Switch	->	HPE 10/20Gb ILM	[ICB 5]	HPE Synergy 10/20 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 20Gb ILM	->	Synergy 40Gb F8 Switch	[ICB 5]	HPE Synergy 20 CNA
[ICB 3]	Empty/Interconnect	->	Empty/Interconnect	[ICB 6]	Empty/Adapter

Frame 1

[ICB 1]	Synergy 40Gb F8 Switch	->	HPE 20Gb ILM	[ICB 4]	HPE Synergy 20 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 20Gb ILM	->	Synergy 40Gb F8 Switch	[ICB 4]	HPE Synergy 20 CNA
[ICB 2]	Empty/Interconnect	->	Empty/Interconnect	[ICB 5]	Empty/Adapter
[ICB 3]	Empty/Interconnect	->	Empty/Interconnect	[ICB 6]	Empty/Adapter

Frame 1

[ICB 1]	Synergy 40Gb F8 Switch	->	HPE 20Gb ILM	[ICB 4]	HPE Synergy 20 CNA
[ICB 2]	Synergy 40Gb F8 Switch	->	HPE 20Gb ILM	[ICB 5]	HPE Synergy 20 CNA

Platform Information

[ICB 3]	Empty/Interconnect	->	Empty/Interconnect	[ICB 6]	Empty/Adapter
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Frame 2

[ICB 1]	HPE 20Gb ILM	->	Synergy 40Gb F8 Switch	[ICB 4]	HPE Synergy 20 CNA
[ICB 2]	HPE 20Gb ILM	->	Synergy 40Gb F8 Switch	[ICB 5]	HPE Synergy 20 CNA
[ICB 3]	Empty/Interconnect	->	Empty/Interconnect	[ICB 6]	Empty/Adapter

Frame 1

[ICB 1]	Synergy 40Gb F8 Switch	->	HPE 20Gb ILM	[ICB 4]	HPE Synergy 20 CNA
[ICB 2]	Empty/Interconnect	->	Empty/Interconnect	[ICB 5]	Empty/Adapter
[ICB 3]	Synergy 40Gb F8 Switch	->	HPE 20Gb ILM	[ICB 6]	HPE Synergy 20 CNA

Frame 2

[ICB 1]	HPE 20Gb ILM	->	Synergy 40Gb F8 Switch	[ICB 4]	HPE Synergy 20 CNA
[ICB 2]	Empty/Interconnect	->	Empty/Interconnect	[ICB 5]	Empty/Adapter
[ICB 3]	HPE 20Gb ILM	->	Synergy 40Gb F8 Switch	[ICB 6]	HPE Synergy 20 CNA

Frame 1

[ICB 1]	Empty/Interconnect	->	Empty/Interconnect	[ICB 4]	Empty/Adapter
[ICB 2]	Synergy 40Gb F8 Switch	->	HPE 20Gb ILM	[ICB 5]	HPE Synergy 20 CNA
[ICB 3]	Synergy 40Gb F8 Switch	->	HPE 20Gb ILM	[ICB 6]	HPE Synergy 20 CNA

Frame 2

[ICB 1]	Empty/Interconnect	->	Empty/Interconnect	[ICB 4]	Empty/Adapter
[ICB 2]	HPE 20Gb ILM	->	Synergy 40Gb F8 Switch	[ICB 5]	HPE Synergy 20 CNA
[ICB 3]	HPE 20Gb ILM	->	Synergy 40Gb F8 Switch	[ICB 6]	HPE Synergy 20 CNA

Frame 1

[ICB 1]	Synergy 40Gb F8 Switch	->	HPE 20Gb ILM	[ICB 4]	HPE Synergy 20 CNA
[ICB 2]	Synergy 40Gb F8 Switch	->	HPE 20Gb ILM	[ICB 5]	HPE Synergy 20 CNA
[ICB 3]	Synergy 40Gb F8 Switch	->	HPE 20Gb ILM	[ICB 6]	HPE Synergy 20 CNA

Frame 2

[ICB 1]	HPE 20Gb ILM	->	Synergy 40Gb F8 Switch	[ICB 4]	HPE Synergy 20 CNA
[ICB 2]	HPE 20Gb ILM	->	Synergy 40Gb F8 Switch	[ICB 5]	HPE Synergy 20 CNA
[ICB 3]	HPE 20Gb ILM	->	Synergy 40Gb F8 Switch	[ICB 6]	HPE Synergy 20 CNA

Standard Features

Product Features

Performance

- 12 x 20Gb Ethernet downlinks to compute module Converged Network Adapters
- Each 20Gb downlink supports one Ethernet to the adapter
- 6xQSFP+ external uplink ports configurable as 1x40Gb, 4x10Gb Ethernet ports connected to external LAN switches
- 2xQSFP+ external uplink ports configurable as uplinks or ICM clustering ports
- Extended list of direct attach copper cable connections supported
- Low latency (1.0 μ s Ethernet ports) throughput provides switch-like performance
- Line-rate, full-duplex 2.56 Tbps bridging fabric
- MTU up to 9216 Bytes - Jumbo Frames, Super Jumbo - 12K frames.
- VLAN Tagging, Pass-Thru and Link Aggregation supported on all uplinks
- Data Center Bridging (DCBX & CEE DCBx)

Management

- Monitored by HPE OneView
- CLI support, SSH and Console, IPv4 and IPv6, for configuration and troubleshooting, integrated with security architecture and multi-level user administration
- Standards based SNMP management with SNMP v2, v3, both IPv4 and IPv6
- Syslog client, both IPv4 and IPv6
- RMON2
- Status and statistics reporting, system health, port status, through CLI and SNMP
- LLDP v1, v2 – 802.1AB
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Security

- Access control lists (ACL) – MAC based and IP based (IPv4, IPv6)
- Ethernet ARP – RFC 826

Layer 2 Switching

- 288K MAC addresses
- 4094 VLANs
- IEEE 802.1Q VLAN support
- LAG and LACP over uplinks and stacking links on single module
- M-LAG on uplinks with two modules
- VLAN aware bridging, single VLAN and trunks on each physical port, native VLAN on uplinks
- Priority based switching - IEEE 802.1p
- ICMP – IPv4 and IPv6
- BPDU Guard
- IGMP, IGMPv1, v2, v3 snooping
- Jumbo Frame, Super Jumbo frame support
- Link Aggregation - IEEE 802.3ad
- Spanning Tree Protocol, MSTP, RSTP

Options

- Optional HPE 10Gb SFP+ SR, LR, and LRM modules and 10Gb SFP+ Copper cables for use with QSFP+ to SFP+ adapter
- Optional HPE 40Gb QSFP+SR, SR 300M and LR modules, 40Gb SFP+ DAC and AOC cables, 40Gb DAC splitter cables and QSFP+ to SFP+ adapter
- Supports Converged Network adapters for HPE Synergy Compute Nodes (Supported functionality defined by each adapter)

Service and Support

HPE Care Pack and Warranty Information

Service and Support HPE Technology Services offers you a rich portfolio of consulting and support services designed to add value to our core products and solutions. We have the know-how and experience to put technology to work for you. We work closely with you, as your strategic partner, leveraging our full services portfolio to make sure that everything works to help optimize your enterprise.

Choose from services aligned to our product offerings and lifecycle. From proactive onsite services to innovative support when your products are connected to Hewlett Packard Enterprise, you choose the precise level of attention and support your business demands.

HPE Technology Services for HPE Synergy

HPE Technology Services delivers confidence, reduces risk and helps customers realize agility and stability. Connect to Hewlett Packard Enterprise to help prevent problems and solve issues faster. Our support technology lets you to tap into the knowledge of millions of devices and thousands of experts to stay informed and in control, anywhere, any time.

Protect your business beyond warranty with HPE Support Services

HPE support services offer complete care and support expertise with committed response choices that are designed to meet your IT and business needs.

HPE Foundation Care services offer scalable reactive support-packages for HPE Synergy and software. You choose the type and level of service that is most suitable for your IT and business needs.

HPE Proactive Care keeps your system stable and reliable helping to prevent problems and reduce outages through proactive service management and enhanced technical response.

Advise, transform, integrate, support, automate, and flex

HPE Technology Services helps you get the most out of what you have today and transition to HPE Synergy, a composable infrastructure, at your pace and from wherever you are on the journey.

Start with the HPE Transformation Workshop to ensure that your business and IT organizations collaborate, define the topline strategy for composable, software-defined, cloud-ready infrastructure and kick-start your projects confidently. This workshop clarifies your business requirements and the issues that IT and operations teams must resolve in order to meet these requirements. A detailed executive briefing or high-level report summarizes the strategies, high-level plan and functional requirements.

HPE Modernization and Migration Services helps you choose the right platform for the right workload at the right cost and evolve your IT infrastructure, processes and organization taking advantage of “on-hybrid infrastructure” innovations such as composable, converged, software-defined, technologies. Hewlett Packard Enterprise experts advise, transform, integrate and implement for platform refresh, datacenter consolidation virtualization, migration and automation projects.

HPE Flexible Capacity is a pay per use model for on premise infrastructure. This offers needed HPE Synergy capacity in the datacenter, plus a buffer of additional capacity. As HPE Synergy will be a dynamic environment, this provides enough room to grow your environment, but only pay for actual metered use. Technology transitions and refresh can be built in, infrastructure and services are billed monthly, enabling you to align costs to business use.

HPE Datacenter Care Infrastructure Automation: HPE Synergy with OneView embedded helps enable infrastructure automation and is integrated with tools such as those from Chef, Puppet, and Docker, to enable rapid bare metal provisioning. With DC-IA, HPE service experts provide advice, support, best practices, for

Service and Support

these tools that work with OneView to help create a fast, agile, and reliable automated IT environment. With this approach, customers can deploy faster. DC-IA delivers support to customers to enable infrastructure as code and agile processes as part of the service. Customers schedule quarterly reviews and reports with HPE Center of Expertise, as well as having access to these experts when needed, for automation development and code coaching.

Deploy and integrate

HPE Factory Express Initial Frame Service for Synergy

Factory Express allows a customers' configurations to be pre-configured in the HPE Integration center with an implementation project manager to manage the deployment end to end. The project manager will act as a single point of contact to coordinate the build, delivery and onsite installation and commissioning of the solution. In addition to the configuration and deployment activities, your HPE Synergy configuration goes through comprehensive testing and a detailed documentation package on the configuration and settings of the delivered solution will be provided.

HPE Factory Express Synergy Additional Frame Service for Synergy

Add additional frames to your HPE Synergy Factory Express service or expand your existing HPE Synergy Infrastructure.

HPE Synergy First Frame Installation and Startup - Provides for hardware installation (HPE Synergy compute modules, Storage Modules, Virtual Connect modules, Interconnect Link Modules, Fibre Channel Modules, Frame Link Modules, and HPE Synergy D3940 Storage Modules) and software startup for the first frame of your HPE Synergy deployment. Additional frames can be added using the HPE Synergy Additional Frame Installation and Startup Service.

HPE Synergy Additional Frame Installation and Startup Service - Add additional frames to your HPE Synergy First Frame Startup service or expand your existing HPE Synergy Infrastructure.

Optimized Support

Choose the right support to maximize uptime, free up your resources, and achieve improved value—as you get the most out of the existing IT assets while accelerating time-to-revenue.

HPE Proactive Care Advanced - 24x7 coverage, three year Support Service

Builds and incorporates on Proactive Care and also gives customers personalized technical and operational advice from an assigned, local Account Support Manager for personalized technical collaboration, flexible access to specialist skills to help optimize business critical IT, and Critical Incident Management to help so the business is not affected if there is a system or device outage. This recommendation provides 24x7 coverage with four-hour response for hardware and Basic Software Support and Collaborative Call Management for selected non-HPE software that offers two-hour callback for supported software issues.

<https://www.hpe.com/h20195/v2/GetPDF.aspx/4AA5-3259ENW.pdf>

Standard Support

HPE Proactive Care with 24x7 coverage, three year Support Service

Hardware and software support services designed specifically for your technology with rapid access to Advanced Solution Center specialists for start to finish case management plus proactive reports and recommendations for firmware and software management and best practice advice. This recommendation provides 24x7 coverage with four-hour response for hardware and Basic Software Support and Collaborative Call Management for selected non-HPE software that offers two-hour callback for supported software issues.

<https://www.hpe.com/h20195/v2/GetPDF.aspx/4AA3-8855ENW.pdf>

HPE Education

Training your IT staff is critical to help drive the value of HPE Synergy with increased efficiencies and better business outcomes. Training is key to the transformation and management of HPE Synergy.

Service and Support

Parts and Materials Hewlett Packard Enterprise 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 quick-specs, or the technical product data sheet will not be provided, repaired, or replaced as part of these services.

The defective media retention service feature option applies only to Disk or eligible SSD/Flash Drives replaced by Hewlett Packard Enterprise due to malfunction.

Warranty HPE Synergy 40Gb F8 Switch Module Limited Warranty includes 3 year Parts, 3 year Labor, 3-year on-site support. Additional information regarding worldwide limited warranty and technical support is available at: <http://h17007.www1.hpe.com/us/en/enterprise/servers/warranty>

For more information Additional Support Services can be found at HPE Support Services Central <http://ssc.hpe.com/portal/site/ssc>

Related Options

Interconnect Link Module Cables	HPE Synergy Interconnect Link 1.1m Direct Attach Copper Cable	804095-B21
	HPE Synergy Interconnect Link 2.1m Direct Attach Copper Cable	804155-B21
	HPE Synergy Interconnect Link 3m Active Optical Cable	804101-B21
	HPE Synergy Interconnect Link 5m Active Optical Cable	804104-B21
	HPE Synergy Interconnect Link 10m Active Optical Cable	804107-B21
	HPE Synergy Interconnect Link 15m Active Optical Cable	804110-B21
QSFP+ uplink ports options	HPE Synergy 40GbE/4x10GbE/4x8Gb FC QSFP+ Transceiver	817040-B21
	HPE BladeSystem c-Class 40Gb QSFP+ MPO SR4 100m Transceiver	720187-B21
	HPE BladeSystem c-Class 40Gb QSFP+ MPO SR4 300m Transceiver	747698-B21
	HPE 40Gb QSFP+ Bidirectional Transceiver	841716-B21
	HPE X140 40G QSFP+ LC LR4 SM 10km 1310nm Transceiver	JG661A
	HPE X140 40G QSFP+ MPO MM 850nm CSR4 300m Transceiver	JG709A
	HPE X140 40G QSFP+ MPO SR4 Transceiver	JG325B
	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 10m Cable	QK729A
	HPE Premier Flex MPO/MPO Multi-mode OM4 8 fiber 50m Cable	QK731A
	HPE Premier Flex MPO/MPO OM4 100m (12ft) Cable	H6Z30A
	HPE BladeSystem c-Class 40G QSFP+ to QSFP+ 7m Active Optical Cable	720205-B21
	HPE BladeSystem c-Class 40G QSFP+ to QSFP+ 15m Active Optical Cable	720211-B21
	HPE BladeSystem c-Class 40G QSFP+ to QSFP+ 1m Direct Attach Copper Cable	720196-B21
	HPE BladeSystem c-Class 40G QSFP+ to QSFP+ 3m Direct Attach Copper Cable	720199-B21
	HPE BladeSystem c-Class 40G QSFP+ to QSFP+ 5m Direct Attach Copper Cable	720202-B21
	HPE BladeSystem c-Class QSFP+ to 4x10G SFP+ 7m Active Optical Cable	721070-B21
	HPE BladeSystem c-Class QSFP+ to 4x10G SFP+ 15m Active Optical Cable	721076-B21
	HPE BladeSystem c-Class 40G QSFP+ to 4x10G SFP+ 3m Direct Attach Copper Splitter Cable	721064-B21
	HPE FlexNetwork X240 40G QSFP+ QSFP+ 1m Direct Attach Copper Cable	JG326A
	HPE FlexNetwork X240 40G QSFP+ to 4x10G SFP+ 3m Direct Attach Copper Splitter Cable	JG330A
	HPE FlexNetwork X240 40G QSFP+ to 4x10G SFP+ 5m Direct Attach Copper Splitter Cable	JG331A
QSFP+ to SFP+ Options	HPE BladeSystem c-Class QSFP+ to SFP+ Adapter	720193-B21
	HPE BladeSystem c-Class Virtual Connect 1G SFP SX Transceiver	453151-B21
	HPE BladeSystem c-Class Virtual Connect 1G SFP RJ-45 Transceiver	453154-B21
	HPE BladeSystem c-Class 10Gb SFP+ SR Transceiver	455883-B21
	HPE BladeSystem c-Class 10Gb SFP+ LR Transceiver	455886-B21
	HPE 10GBase-T SFP+ Transceiver	813874-B21
	HPE X130 10G SFP+ LC SR Transceiver	JD092B
	HPE X130 10G SFP+ LC LR Transceiver	JD094B
	HPE X130 10G SFP+ LC ER 40km Transceiver	JG234A
	HPE B-series SFP+ to SFP+ Active Copper 1.0m Direct Attach Cable	AP818A
	HPE B-series SFP+ to SFP+ Active Copper 3.0m Direct Attach Cable	AP819A

Related Options

HPE B-series SFP+ to SFP+ Active Copper 5.0m Direct Attach Cable	AP820A
HPE StoreFabric C-series 3M Passive Copper SFP+ Cable	K2Q21A
HPE StoreFabric 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
HPE 16Gb SFP+ Short Wave 1-pack Industrial Extended Transceiver	E7Y09A
HPE B-series 16Gb SFP+ Short Wave Transceiver	QK724A
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	AJ839
HPE BladeSystem c-Class 10GbE SFP+ to SFP+ 1m Direct Attach Copper Cable	487652-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 FlexNetwork X240 10G SFP+ to SFP+ 3m Direct Attach Copper Cable	JD097C
HPE FlexNetwork X240 10G SFP+ to SFP+ 5m Direct Attach Copper Cable	JG081C
HPE FlexNetwork X240 40G QSFP+ to 4x10G SFP+ 1m Direct Attach Copper Splitter Cable	JG329A
HPE FlexNetwork X240 40G QSFP+ to 4x10G SFP+ 3m Direct Attach Copper Splitter Cable	JG330A
HPE FlexNetwork X240 40G QSFP+ to 4x10G SFP+ 5m Direct Attach Copper Splitter Cable	JG331A

HPE Synergy Services

NOTE: See [HPE Support Services Central](http://ssc.hpe.com/portal/site/ssc) for additional services at <http://ssc.hpe.com/portal/site/ssc>

HPE Synergy Proactive Care Services

HPE 3 Year Proactive Care 24x7 40Gb F8 Switch Module Service	H0WX3E
HPE 3 Year Proactive Care 24x7 with CDMR 40Gb F8 Switch Module Service	H0WX5E
HPE 3 Year Proactive Care Advanced 24x7 40Gb F8 Switch Module Service	H0WX6E
HPE 3 Year Proactive Care Advanced 24x7 with CDMR 40Gb F8 Switch Module Service	H0WX8E

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

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 2.56 Tbps bridging fabric Non-blocking architecture Maximum transmission unit (MTU) of up to 12000 bytes (super jumbo frames)
	Connectors and Cabling	12 x 20Gb downlinks through the midplane 6 x 40Gb SR4, LR4 fiber, DAC, AOC and Splitter uplink 4x120Gb Interconnect Link ports Console port
	Indicators	Interconnect link cable port LED QSFP+ port LED Next button Reset pin-hole Health LED Ethernet mode LED PID mode LED Link/Activity mode LED
	Weight	4.22Kg (9.3 Lbs)
Latency	1.0 μ s on Ethernet only port	
Scalability	Does not contribute to the total switch limit.	
Buffer Credits	16 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%

NOTE: 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.

NOTE: Storage maximum humidity of 95% is based on a maximum temperature of 45°C (113°F). Altitude

Technical Specifications

maximum for storage corresponds to a pressure minimum of 70 KPa.

Power Specification 12V @ 20A (240 W max)

Management and Standards Support

General protocols

IEEE 802.1D MAC Bridges
 IEEE 802.1 AB LLDP
 IEEE 802.1p Priority
 IEEE 802.1Q VLANs
 IEEE 802.1Qbg Virtual Edge Bridging
 IEEE 802.1s (MSTP)
 IEEE 802.1v VLAN classification by Protocol and Port
 IEEE 802.3ad Link Aggregation Control Protocol (LACP)
 IEEE 802.3ae 10 Gigabit Ethernet
 RFC 2521, RFC 1191, RFC 1788, RFC 792 ICMP IPv4 and IPv6
 RFC 826 ARP
 RFC 1812 Static Routing
 RFC 1350 TFTP Protocol (revision 2)
 RFC 2131, RFC 2132 DHCP IPv4
 RFC 3736 Stateless DHCP Client for IPv6
 RFC 1212, 1213, 1215, 2089, 2578, 3411, 3412, 3413, 3414, 3417(partial), 3584, 3526, SNMP v2, v3 , IPv4 and IPv6
 RFC 4250, 4251, 4252, 4253, 4254, 4256, SSH IPv4 and IPv6
 RFC 4502 RMON2
 RFC 3164 Syslog client

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 Enetrpise offers end-of-life Hewlett Packard Enterprise product return, trade-in, and recycling programs in many geographic areas. For trade-in information, please go to: <http://www.hpe.com/info/recycle>. To recycle your product, please go to: <http://www.hpe.com/info/recycle> or contact your nearest Hewlett Packard Enterprise sales office. Products returned to Hewlett Packard Enterprise will be recycled, recovered or disposed of in a responsible manner.

The EU WEEE directive (2002/95/EC) 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 at: <http://www.hpe.com/info/recycle>. 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
02-Apr-2018	Version 9	Changed	Standard Features, Service and Support, and Related Options sections were updated.
		Added	SKUs added in Related Options sections: 453151-B21, 453154-B21.
		Removed	Obsolete SKUs were deleted in Related Options sections: 804098-B21, 720190-B21, 838327-B21, 720208-B21, 721073-B21, 721067-B21, 487649-B21.
11-Jul-2017	Version 8	Changed	Overview, Platform Information, Standard Features, and Related Options sections were updated.
12-Jun-2017	Version 7	Changed	Supported Products and Standard Features sections were updated.
08-May-2017	Version 6	Changed	Related Options sections was updated.
		Added	SKU added in Overview section: 779224-B23
		Removed	SKU removed in Overview section: 779224-B21
18-Nov-2016	Version 5	Changed	Models, Related Options and Service and Support sections were updated.
29-Jul-2016	Version 4	Changed	QuickSpecs updated.
15-Apr-2016	Version 3	Changed	QuickSpecs updated.
31-Mar-2016	Version 2	Changed	Overview, Supported Products, Standard Features, Service and Support, Related Options, Technical Specifications sections were updated.
		Added	SKUs added in Overview and Related Options sections: 779224-B21, 804095-B21, 804098-B21, 804155-B21, 804101-B21, 804104-B21, 804107-B21, 804110-B21, 817040-B21, 720187-B21, 720190-B21, 747698-B21, 838327-B21, 841716-B21, JG661A, JG709A, JG325B, K2Q46A, K2Q47A, QK729A, QK731A, H6Z30A, 720205-B21, 720208-B21, 720211-B21, 720196-B21, 720199-B21, 720202-B21, 721070-B21, 721073-B21, 721076-B21, 721064-B21, 721067-B21, JG326A, JG330A, JG331A, 720193-B21, 455883-B21, 455886-B21, 813874-B21, JD092B, JD094B, JG234A, AP818A, AP819A, AP820A, K2Q21A, K2Q22A, QK701A, QK702A, E7Y09A, QK724A, AJ833A, AJ834A, AJ835A, AJ836A, AJ837A, AJ838A, AJ839, 487649-B21, 487652-B21, 487655-B21, 537963-B21, JD097C, JG081C, JG329A, HOWX3E, HOWX5E, HOWX6E, HOWX8E, HA454A1-300, HA454A1-301, U8JM3E.
1-Dec-2015	Version 1	Created	New QuickSpecs



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