

Overview

HPE Synergy 20G Interconnect Link Module

The HPE Synergy 20Gb Interconnect Link Module, satellite module, is designed for Composable Infrastructure. Based on disaggregated, rack-scale design, it uses a master/satellite architecture to consolidate data center network connections, reduce hardware and scale network bandwidth across multiple HPE Synergy Frames. This module extends HPE composable fabric up to two additional satellite frames with 20Gb connectivity to Synergy Compute Modules and replaces fixed ratio of interconnects in each frame by extending the fluid pool of network resources.

The master module contains intelligent networking capabilities that extend connectivity to frames equipped with satellite modules. This reduces the need for top of rack switches and substantially decreases cost. The reduction in components simplifies fabric management at scale while consuming fewer ports at the data center aggregation layer.



Figure 1 HPE Synergy 20G Interconnect Link Module Bezel

- 1. UID LED
- 2. Health LED
- 3. Interconnect Link Ports

Platform Information

Models

HPE Synergy 20Gb Interconnect Link Module 779218-B21

HPE Synergy 20Gb TAA-compliant Interconnect Link Module 779218-B22

NOTE: TAA in the name of this product provides that this product meets the US Trade Agreements Act (19 U.S.C & 2501-2581) and is compliant for resale on GSA (General Services Administration) agreements or contracts.

NOTE: HPE now includes TAA products and options for the Synergy line of product solutions. TAA refers to the US Trade Agreements Act (19 U.S.C & 2501-2581). TAA compliance for HPE simply means that as a product manufacturer or reseller on GSA (General Services Administration), the “final products” that we sell through your GSA Schedule are manufactured or substantially transformed in a TAA-compliant country. HPE Synergy TAA products are aligned for the configuration of a complete TAA-compliant solution or subsets of the complete solution.

NOTE: HPE Synergy 12000 TAA Configure-To-Order Frames may include TAA specific, naturally compliant, or standard product options and become a TAA approved solutions when substantially transformed/integrated at a designated HPE TAA Compliant Factory. Please look for TAA in the name when defining HPE Synergy Options or Solutions that may require TAA compliance.

Compatibility

HPE Synergy 20G Interconnect Link Module supports the following hardware.

HPE Servers

HPE Synergy 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 Interconnects HPE Synergy Interconnect Modules

- HPE Virtual Connect SE 40GB F8 Module for HPE Synergy
- HPE Synergy 40Gb F8 Switch Module

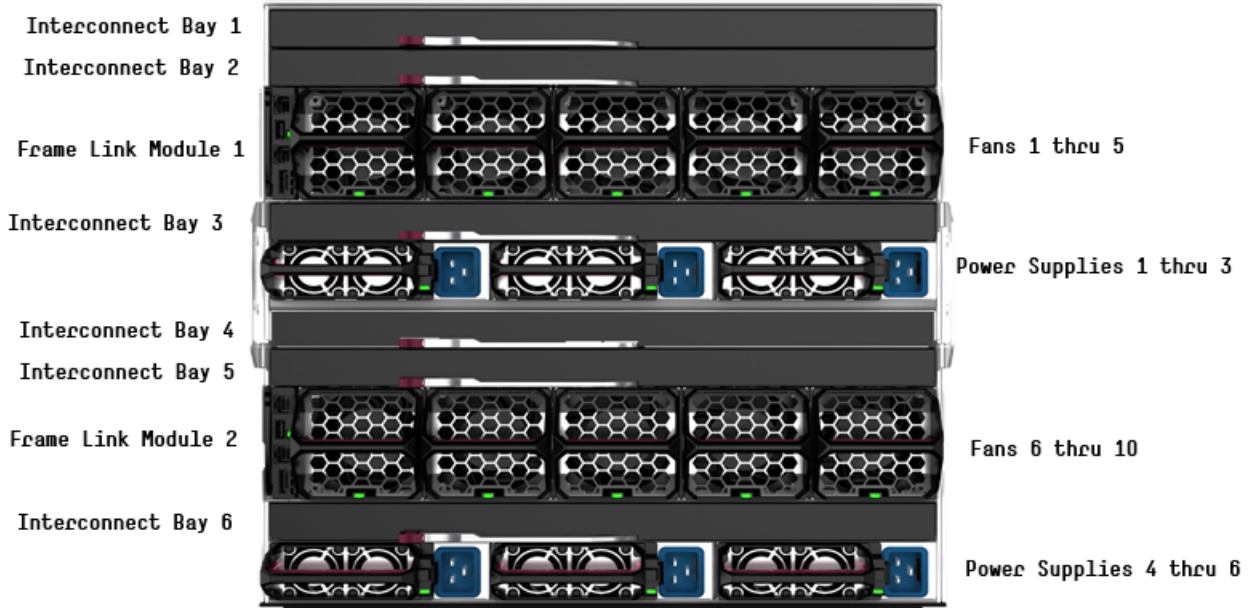
HPE Network Adapters

Converged Network Adapter:

- HPE Synergy 3820C 10/20Gb Converged Network Adapter
NOTE: Consult individual compute module QuickSpecs for specific adapter support.
- 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

Mezzanines

Port Mapping

Port mapping differs slightly between full height and half-height server compute modules due to the support for additional Mezzanine cards on the full height version.

HPE 12000 Synergy Frame

NOTE: Shown below are 2 frame and 3 Synergy frame examples when using the HPE VC SE 40Gb F8 module in conjunction with HPE 20Gb ILM

Interconnect Module Configurations			Compute Module Network Adapters Used		
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Frame 1

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

Platform Information**Frame 2**

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

Frame 3

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

Standard Features

Product Features

Performance

- 12 x 20Gb Ethernet downlinks to compute module mezzanine adapters
- Each 20Gb downlink supports up to 3 FlexNICs and 1 FlexHBA or 4 FlexNICs
- Each FlexHBA can be configured to transport either Fiber Channel over Ethernet/CEE or Accelerated iSCSI protocol.
- Each FlexNIC and FlexHBA is recognized by the server as a PCIe physical function device with adjustable speeds from 200Mb to 20Gb in 100Mb increments when connected to a 2-port FlexFabric Converged Network Adapter and from 1Gb to 20Gb in 200Mb increments when connected to Dual-Port 10/20Gb Converged Network Adapter

Management

- Integrated Synergy composer with HPE OneView included with every frame, providing out-of-the-box management of Interconnect Link Modules.
- Pre-configure server I/O configurations prior to server installation for easy deployment
- Move, add, or change server network connections on the fly without impacting LAN and SAN administrator
- Provisioned storage resource is associated directly to a specific virtual machine - even if the virtual server is re-allocated within stacking domain comprising of Master and Satellite modules
- Centralized configuration of boot from Fibre Channel network storage via OneView

Service and Support

HPE Pointnext operational 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 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

Service and Support

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.

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.

Optimized Support **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>

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, 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.

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.

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.

Service and Support

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.

**For more
information**

Additional Support Services can be found at HPE Support Services Central
[**http://ssc.hpe.com/portal/site/ssc**](http://ssc.hpe.com/portal/site/ssc)

Related Options

CXP DAC Cables	HPE Synergy Interconnect Link 1.1m Direct Attach Copper Cable	804095-B21
	HPE Synergy Interconnect Link 1.6m Direct Attach Copper Cable	804098-B21
	HPE Synergy Interconnect Link 2.1m Direct Attach Copper Cable	804155-B21
CXP AOC Cables	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
HPE Synergy Services	HPE Synergy Proactive Care Services	
	HPE 3 Year Proactive Care 24x7 Synergy Interconnect Link Mod Service	HOWD9E
	HPE 3 Year Proactive Care 24x7 with CDMR Synergy Interconnect Link Mod Service	HOWE1E
	HPE 3 Year Proactive Care Advanced 24x7 Synergy Interconnect Link Mod Service	HOWE2E
	HPE 3 Year Proactive Care Advanced 24x7 with CDMR Synergy Interconnect Link Mod Service	HOWE4E
	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

Technical Specifications

System Unit	Shipping Dimensions	Length	19.53 in (496 mm)	
		Width	15.67 in (398 mm)	
		Height	5.88 in (149.5 mm)	
	Shipping Weight		Approximately 3.0 Kg (6.2 Lbs)	
Product Specifications Hardware	Performance		Non-blocking architecture	
		Connectors and Cabling	12 x 20Gb downlinks through the midplane 2 x 120Gb interconnect link ports	
	Indicators		Health LED	
			UID LED	
			Link cable port LEDs Compute Module Link LEDs	
	Weight		2.81Kg (6.2 Lbs)	
	Latency		Low-latency design (<5ns round trip)	
	Environmental Ranges	Temperature Range	Specification	10° to 35°C (50° to 95°F)*
			Temperature Range	
			Operating	10° to 35°C (50° to 95°F)
		Shipping	Shipping -40°C to 60°C (-40°F to 140°F)	
		Storage	-20°C to 60°C (-4F to 140°F)	
		Maximum wet bulb temperature	30C (80F)	
		Relative Humidity (noncondensing)		
		Operating	10% to 90%	
		Shipping	10% to 90%	
			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 90% 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 @ 1.4A (17 W max)	
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	

Technical Specifications

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
	FCC
	ICES (Canada)
	VCCI (Japan)
	RCM (Australia/NZ)
	KCC (Korea)
	BSMI (Taiwan)

Environment-friendly Products and Approach

End-of-life Management and Recycling

Hewlett Packard Enterprise 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
07-Jan-2019	Version 7	Changed	Platform Information and Service and Support sections were updated.
11-Jul-2017	Version 6	Changed	Overview and Platform Information sections were updated.
		Added	SKU added in Models – Platform Information section: 779218-B22
08-May-2017	Version 5	Changed	Related Options, and Technical Specifications sections were updated.
		Added	SKUs added in Related Options section: 804104-B21, 804107-B21.
18-Nov-2016	Version 4	Changed	Models, Related Options and Service and Support sections were updated,
29-Jul-2016	Version 3	Changed	QuickSpecs updated.
31-Mar-2016	Version 2	Changed	Overview, Supported Products, Standard Features, Related Options, Service and Support and Technical Specifications sections were updated.
		Added	SKUS were added in Overview and Related Options Sections: 779218-B21, 804095-B21, 804098-B21, 804155-B21, 804101-B21, 804104-B21, 804107-B21, 804110-B21, HOWD9E, HOWE1E, HOWE2E, HOWE4E, HA454A1-300, HA454A1-301, U8JM3E, U8JM4E.
1-Dec-2015	Version 1	Created	New QuickSpecs



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