

### 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 from the master mo

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    | 3. Interconnect Link Ports |
| 2. Health LED |                            |

### Models

HPE Synergy 20Gb Interconnect Link Module

779218-B21

## Supported Products

### Compatibility

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

#### HPE Servers

##### HPE Synergy Compute Modules

- HPE Synergy 480 Gen9 Configure-to-order Compute Module
- HPE Synergy 480 Gen9 Configure-to-order w/o Drive Bays Compute Module
- HPE Synergy 480 Gen9 Configure-to-order Expanded Storage Compute Module
- HPE Synergy 660 Gen9 Configure-to-order SAS Compute Module
- HPE Synergy 660 Gen9 Configure-to-order SATA Compute Module
- HPE Synergy 660 Gen9 Configure-to-order with Expanded Storage 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.

### 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

## Supported Products

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

**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 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 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

## Service and Support

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.

Parts and components that have reached their maximum supported lifetime and/or the maximum usage limitations as set forth in the manufacturer's operating manual, product QuickSpecs, or the technical product data sheet will not be provided, repaired, or replaced as part of these services.

## Service and Support

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\*\*](http://ssc.hpe.com)

## Related Options

### ISS Virtual Connect **CXP DAC**

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

### **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

<b>System Unit</b>	<b>Shipping Dimensions</b>	<b>Length</b>	19.53 in (496 mm)
		<b>Width</b>	15.67 in (398 mm)
		<b>Height</b>	5.88 in (149.5 mm)
	<b>Shipping Weight</b>		Approximately 3.0 Kg (6.2 Lbs)
<b>Product Specifications Hardware</b>	<b>Performance</b>		Non-blocking architecture
		<b>Connectors and Cabling</b>	12 x 10Gb downlinks through the midplane
			1 x 120Gb interconnect link ports
	<b>Indicators</b>		Health LED
			UID LED
			Link cable port LEDs
			Compute Module Link LEDs
	<b>Weight</b>		2.81Kg (6.2 Lbs)
	<b>Latency</b>		Low-latency design (<5ns round trip)
	<b>Environmental Ranges</b>	<b>Temperature Range</b>	Specification
<b>Temperature Range</b>			
		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)
<b>Relative Humidity</b> (noncondensing)			
		Operating	10% to 90%
		Shipping	10% to 90%
		<p><b>NOTE:</b> 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.</p> <p><b>NOTE:</b> 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.</p>	
<b>Power Specification</b>	12V @ 1.4A (17 W max)		
<b>Safety and Compliance</b>	<b>Safety Certifications</b>		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

<b>Electromagnetic Emissions Certifications FCC Part 15 Class A</b>	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)

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### 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
18-Nov-2016	From Version 3 to 4	Changed	Models, Related Options and Service and Support sections were updated.
29-Jul-2016	From Version 2 to 3	Changed	QuickSpecs updated.
31-Mar-2016	From Version 1 to 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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