

### Overview

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

#### Notes:

- 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.
- 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.
- 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.

## Overview

### 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

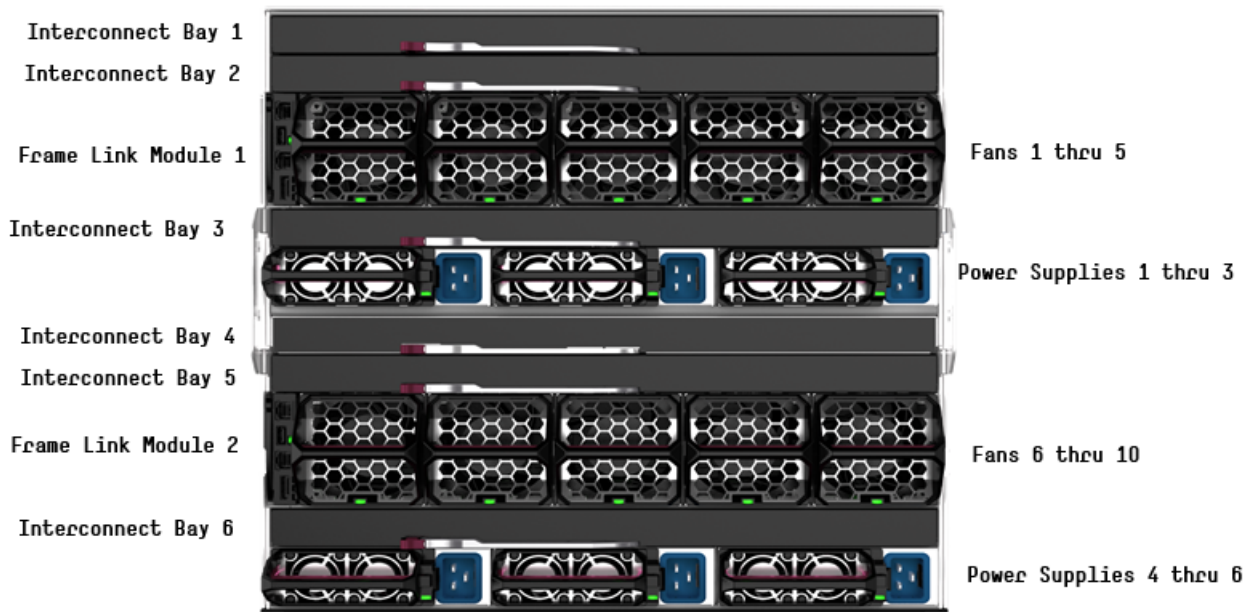
- HPE Virtual Connect SE 40GB F8 Module for HPE Synergy
- HPE Synergy 40Gb F8 Switch Module

#### HPE Network Adapters

##### Converged Network Adapter:

- HPE Synergy 3820C 10/20Gb Converged Network Adapter  
**Notes:** Consult individual compute module QuickSpecs for specific adapter support.
- HPE Synergy 2820C 10Gb Converged Network Adapter  
**Notes:** Consult individual compute module QuickSpecs for specific adapter support.

## Supported Configurations



HPE Synergy 12000 Frame - Rear View



## Overview

### 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

**Notes:** 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	
<b>Frame 1</b>					
[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

<b>Frame 2</b>					
[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

<b>Frame 1</b>					
[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

<b>Frame 2</b>					
[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

<b>Frame 3</b>					
[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



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## 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 Primary and Satellite modules
  - Centralized configuration of boot from Fibre Channel network storage via OneView
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## Service and Support

### HPE Pointnext - Service and Support

**Get the most from your HPE Products.** Get the expertise you need at every step of your IT journey with **HPE Pointnext Services**. We help you lower your risks and overall costs using automation and methodologies that have been tested and refined by HPE experts through thousands of deployments globally. HPE Pointnext **Advisory Services** focus on your business outcomes and goals, partnering with you to design your transformation and build a roadmap tuned to your unique challenges. Our **Professional** and **Operational Services** can be leveraged to speed up time-to-production, boost performance and accelerate your business. HPE Pointnext specializes in flawless and on-time implementation, on-budget execution, and creative configurations that get the most out of software and hardware alike.

### Consume IT on your terms

**HPE GreenLake** brings the cloud experience directly to your apps and data wherever they are—the edge, colocations, or your data center. It delivers cloud services for on-premises IT infrastructure specifically tailored to your most demanding workloads. With a pay-per-use, scalable, point-and-click self-service experience that is managed for you, HPE GreenLake accelerates digital transformation in a distributed, edge-to-cloud world..

- Get faster time to market
- Save on TCO, align costs to business
- Scale quickly, meet unpredictable demand
- Simplify IT operations across your data centers and clouds

### Managed services to run your IT operations

**HPE GreenLake Management Services** provides services that monitor, operate, and optimize your infrastructure and applications, delivered consistently and globally to give you unified control and let you focus on innovation.

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### Free up resources with Operational Services from HPE Pointnext Services

HPE delivers services for IT by using proven best practices as well as automation and methodologies that have been tested and refined by HPE experts and artificial intelligence through thousands of deployments globally. Choose from the recommended services for customers purchasing from Hewlett Packard Enterprise or an authorized reseller. Services are quoted using Hewlett Packard Enterprise order configuration tools.

### HPE Pointnext Tech Care

HPE Pointnext Tech Care is the new operational service experience for HPE products. Tech Care goes beyond traditional support by providing access to product specific experts, an AI driven digital experience, and general technical guidance to not only reduce risk but constantly search for ways to do things better. HPE Pointnext Tech Care has been reimagined from the ground up to support a customer-centric, AI driven, and digitally enabled customer experience to move your business forward. HPE Pointnext Tech Care is available in three response levels. Basic, which provides 9x5 business hour availability and a 2 hour response time. Essential which provides a 15 minute response time 24x7 for most enterprise level customers, and Critical which includes a 6 hour repair commitment where available and outage management response for severity 1 incidents.

<https://www.hpe.com/services/techcare>

### HPE Pointnext Complete Care

HPE Pointnext Complete Care is a modular, edge-to-cloud IT environment service that provides a holistic approach to optimizing your entire IT environment and achieving agreed upon IT outcomes and business goals through a personalized and customer-centric experience. All delivered by an assigned team of HPE Pointnext Services experts. HPE Pointnext Complete Care provides:

- A complete coverage approach -- edge to cloud
- An assigned HPE team
- Modular and fully personalized engagement
- Enhanced Incident Management experience with priority access
- Digitally enabled and AI driven customer experience

<https://www.hpe.com/services/completechcare>

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## Service and Support

### Other related services from HPE Pointnext Services

#### 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.

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#### 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.

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### 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.
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### HPE Education Services

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.

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## 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.

### Defective Media Retention

An option available with HPE Pointnext Complete Care and HPE Pointnext Tech Care and applies only to Disk or eligible SSD/Flash Drives replaced by HPE due to malfunction.

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### For more information

- [www.hpe.com/services](http://www.hpe.com/services)
- <https://www.hpe.com/us/en/services/operational.html>

To learn more on HPE Storage Services, please contact your Hewlett Packard Enterprise sales representative or Hewlett Packard Enterprise Authorized Channel Partner. Contact information for a representative in your area can be found at "Contact HPE"

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

HPE Support Services are sold by HPE and Hewlett Packard Enterprise Authorized Service Partners:

- Services for customers purchasing from HPE or an enterprise reseller are quoted using HPE order configuration tools.
- Customers purchasing from a commercial reseller can find HPE Support Services at <https://ssc.hpe.com/portal/site/ssc/>



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## Related Options

### CXP DAC Cables

HPE Synergy Interconnect Link 2.1m Direct Attach Copper Cable	804155-B21
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### CXP AOC Cables

HPE Synergy Interconnect Link 3m Active Optical Cable	804101-B21
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HPE Synergy Interconnect Link 5m Active Optical Cable	804104-B21
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HPE Synergy Interconnect Link 15m Active Optical Cable	804110-B21
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### HPE Synergy Services

#### HPE Synergy Tech Care Services

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#### Deployment/Installation & Start-up Services

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

<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 20Gb downlinks through the midplane	
		2 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	10° to 35°C (50° to 95°F)*
		<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%	
<b>Notes:</b>			
<ul style="list-style-type: none"> <li>— 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.</li> <li>— 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.</li> </ul>			
<b>Power Specification</b>	12V @ 1.4A (17 W max)		
<b>Safety and Compliance</b>	<b>Safety Certifications</b> <ul style="list-style-type: none"> <li>• UL/CUL Recognition to UL/CSA 60950-1</li> <li>• TUV to EN 60950-1</li> <li>• CB report and certificate to IEC 60950-1 with all country deviations</li> <li>• CE Marking</li> </ul>		
<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)		



## Technical Specifications

### 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.

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## Summary of Changes

Date	Version History	Action	Description of Change
15-Nov-2021	Version 9	Changed	Service and Support Pointnext Tech Care and Complete Care information updated
11-Jan-2021	Version 8	Changed	Overview, Standard Features, Service and Support, and Technical Specifications sections were updated.
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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