Shape the Future of QuickSpecs - Your Input Matters

HPE Synergy 12000 Frame QuickSpecs

The HPE Synergy 12000 Frame is the base for an HPE Synergy intelligent infrastructure with embedded management and scalable links that expands to meet business demand.

HPE Synergy 12000 Frame - Front View

- 6 Zones for Compute and Storage
- 2 Appliance Bays for Management
- Front Panel, for Synergy Console connections

Notes: See Device Bay Population Guidelines in the section below

HPE Synergy 12000 Frame - Rear View

- 6 Interconnect Module Bays (3+3 Redundancy)
- 10 Fan Bays
- 6 Power Supplies Bays (N+N, N+1 Redundancy)
- 2 Frame Link Module Slots

What's New

The HPE Synergy 12000 Frame is the base for an HPE Synergy intelligent infrastructure with embedded management and scalable links that expands to meet business demand. The Frame is the base infrastructure that pools resources of compute, storage, fabric, cooling, power and scalability. IT can manage, assemble and scale resources on demand by using the Synergy Frame with an embedded management solution combining the Synergy Composer and Frame Link Modules. The Synergy Frame is designed to meet today's needs and future needs with continuing enhancements to compute and fabric bandwidths, including photonics-ready capabilities.
Enhancements to the HPE Synergy 12000 Frame include several new capabilities:

Overview

- Support for HPE Synergy High-Capacity Fans
- Support for HPE Synergy Dual Flex Slot Power Supply Adapter
- A guided installation experience for setting up HPE Synergy

HPE Synergy is a single infrastructure of physical and virtual pools of compute, storage, and fabric resources, and a single management interface that allows IT to instantly assemble and re-assemble resources in any configuration. As the foundation for new and traditional styles of business infrastructure, HPE Synergy eliminates hardware and operational complexity so IT can deliver infrastructure to applications faster and with greater precision and flexibility.

Notes: HPE Synergy 12000 Frame is compatible with existing applications and workloads running on c-Class infrastructures today. Subject to the availability of options required for specific applications.

Standard Features

HPE Synergy 12000

Frame

HPE Synergy solutions start with a Synergy 12000 Frame. Once the Frame has been selected, the following options may be added for a complete solution: Synergy Compute Modules, networks and storage options, networking interconnect modules/switches, single or redundant Synergy Composer(s) with embedded OneView, fans, power supplies and an additional redundant Frame Link Module for easy solutions scalability.

HPE Synergy 12000 Frame, is the base for all Synergy products and supports.

- Up to 12 half-height or 6 full-height Compute Modules, Zone designs allow space for double wide half height and full height Compute and/or Storage devices, mixing allowed in designated areas
- Ten fans and a single Frame Link Module is required with every system
- Two appliance bays for redundant management appliances, embedded HPE OneView (additional solution options in future)
- Up to six Power Supplies bays for redundant power line with Titanium-class efficiency power supplies
- Up to 6 Interconnect bays for full redundancy of 3 fabrics
- Two (2) slots for Frame Link Modules, offering links to multiple frames through a private air-gapped management network
- HPE Synergy management that maximizes power and cooling efficiency
- HPE Intelligent Resources technology built-in to every frame and option for Auto-Discovery of resources

HPE Synergy Appliances

HPE Synergy Composer2

It is a management appliance with HPE OneView embedded. The appliance plugs directly into the Frame to manage all Synergy resources intelligently and seamlessly. The Synergy Composer appliance integrated to the system provides:

- A single point of management for single or scaled frames, which is ideal for on-demand composability
- Management of all frame resources through HPE OneView profiles and templates
- Auto-Discovery of Compute, Memory, Storage, and Fabrics within a Frame or across multiple connected Frames
- Activity, Health, and Power LEDs for immediate status.

Notes: The USB port is for Hewlett Packard Enterprise Certified Service Parties Only.

Standard Features

HPE Synergy Frame Link Module (FLM)

Is the frame resource information control point which also links multiple frames. It provides:

- Integrated direct access to single or multiple frames through a HPE Synergy Composer (powered by HPE OneView)
- A dedicated 10GbE air-gapped management network for multi-frame communications,
- Immediate status and health details through HPE OneView
- Asset and inventory information reports for the devices in the frame
- Robust, multi-frame setup and control via HPE Synergy Composer (powered by HPE OneView)
- Thermal and power information reports, including real-time actual power usage per server and per frame
- High availability across single or multi-frame deployments through the required minimum of two Synergy Frame Link Modules per frame, and HPE Synergy Console interfaces on each Synergy Frame Link Module

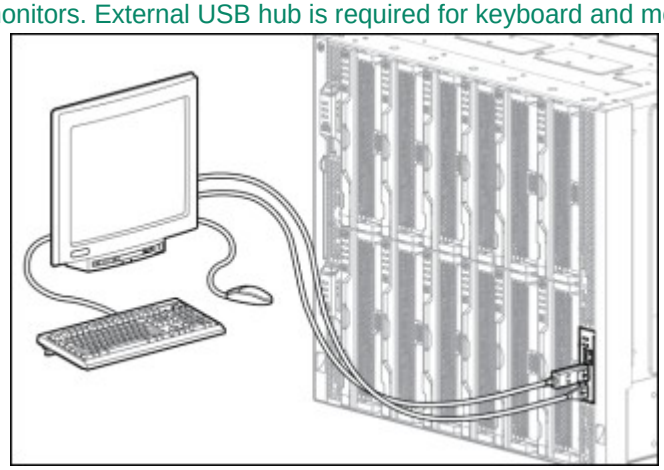
Notes: See Step 3 for details on the Frame Link Module and cable options.

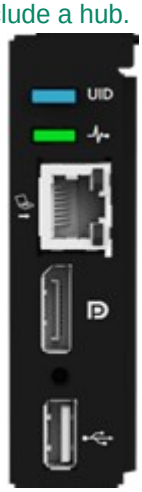
HPE Synergy Console

Is the frame resource information control point. This control point connects technicians for easy setup and installation and/or also allows logins to HPE OneView for the management of one or more frames.

- Front access to the Synergy Console is provided by the Front Panel Monitor Port and USB 2.0 connectors
- Rear access to the Synergy Console is provided on each Frame Link Module
- Laptop connection to the Synergy Console is provided from the Front Panel (RJ45 port) via simple VNC services (free VNC software which can be downloaded from the internet)

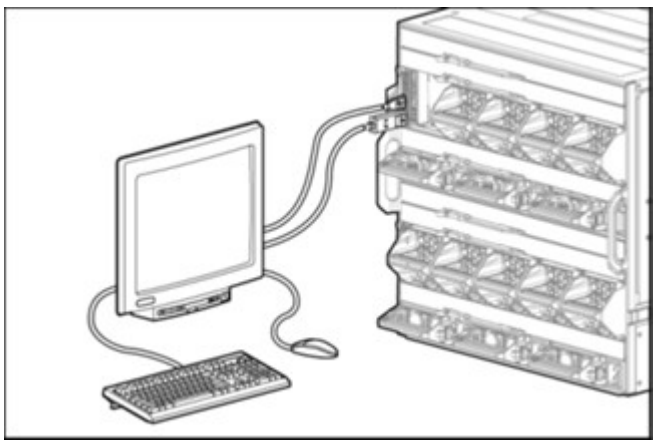
Notes: Hewlett Packard Enterprise offers and recommends the HPE LCD8500 1U Rackmount Console as the Synergy recommended Display Solution. See the Rackmount Solutions section below. The Monitor Port supports any monitor that has DisplayPort'^{TM} or an active DisplayPort'^{TM} adaptor for interfacing to VGA, HDMI or DVI monitors. External USB hub is required for keyboard and mouse if monitor does not include a hub.





Console Connect to the Front Panel

Standard Features



Console Connect to a Frame Link Module - Rear

Warranty

The HPE Synergy is covered by a global limited warranty and supported by Hewlett Packard Enterprise Services and a worldwide network of Hewlett Packard Enterprise Authorized Channel Partners. Hardware diagnostic support and repair are available for three years from the date of purchase. Support for software and initial setup is available for 90 days from the date of purchase. Additional support may be covered under the warranty or available for an additional fee. Enhancements to warranty services are available through HPE Services operational services or customized service agreements.

- HPE Synergy 12000 Frame: 3-3-3; Three-year parts and labor, on-site limited global warranty. Certain restrictions and exclusions apply
- Frame options: Fans, Power Supplies, Frame Link Modules, One-year parts only, or Frame warranty
- HPE Synergy Composer: 3-3-3; Three-year parts and labor, on-site limited global warranty
- HPE Synergy Interconnect Modules/Switches: One-year parts and labor, on-site regardless of the warranty period for the system in which they are installed
- HPE Storage Fibre Channel switches have a maximum warranty period of one (1) year regardless of the warranty period for the system in which they are installed
- Hard drives have either a one-year or three-year warranty. Refer to specific hard drive Tech Specs for details

For additional information please visit: https://www.hpe.com/info/synergy

Carrier Grade Configuration

HPE Synergy 12000 Frame - Carrier Grade

The HPE Synergy 12000 Frame has been certified to NEBS Level 3. The certified configuration covers the compute modules, interconnect modules, and other components that passed the NEBS Level 3 and ETSI EN 300 386-2 certifications. For more information, see HPE Synergy 12000 Frame - Carrier Grade Supplement

Standard Features

Rack Airflow Requirements

HPE Advanced and Enterprise Series Racks

The increasing power of new high-performance processor technology requires increased cooling efficiency for rack-mounted servers. The HPE Series Racks provide enhanced airflow for maximum cooling, allowing these racks to be fully loaded with servers using the latest processors.

Notes: For the complete list of installation requirements, please see the documentation for the "HPE Synergy 12000 Frame " at: https://support.hpe.com/connect/s/product?language=en_US&kmpmoid=1008612379&tab=manualsAndGuides

Third-party racks

Notes:

– If a third-party rack is used, observe the following additional requirements to ensure adequate airflow and to prevent damage to the equipment:

- Front and rear doors: If your server rack includes closing front and rear doors, you must have a minimum of 65% free area compared to the total area of the door evenly distributed from top to bottom to permit adequate airflow.
- Front door: The clearance from face of rack to inside of the front door must be a minimum of 77 mm (3 in).
- Rear door: The clearance between the rear of the Frame and the rear rack door must be a minimum of 175 mm (6.9 in) to accommodate system cabling.
- Side: The clearance between the installed rack component and the side panels of the rack must be a minimum of 70 mm (2.75 in).
- Width: 483 mm (19 in)
- Depth: Maximum clearance between front and rear RETMA rails is 864 mm (34 in). Minimum clearance for round-hole racks is 627 mm (24.7 in). Minimum clearance for square-hole racks is 635 mm (25 in).
- The rack must be able to accept the adjustable rack rails that are shipped with each Frame:
  - Minimum rail length: 698.5 mm (27.5 in)
  - Maximum rail length: 749.3 mm (29.5 in)

– Always use blanking panels to fill all remaining empty front panel U-spaces in the rack. This arrangement ensures proper airflow. Using a rack without blanking panel's results in improper cooling that can lead to thermal damage.

– For the complete list of installation requirements, please see the "HPE Synergy Frame Site Planning Guide" at https://www.hpe.com/support.

Factory Express Portfolio for Servers and Storage

HPE Factory Express offers configuration, customization, integration, and deployment services for HPE Synergy solutions. Customers can choose how their factory solutions are built, tested, integrated, shipped, and deployed.

Factory Express offers service packages for simple configuration, racking, installation, complex configuration, and design services as well as individual factory services, such as image loading, asset tagging, and custom packaging. Hewlett Packard Enterprise products supported through Factory Express include: a wide array of servers and storage, rackable tape libraries and configurable network switches.

For more information on Factory Express services for your specific server model please contact your sales representative or go to: https://www.hpe.com/us/en/services/factory-express.html.

Standard Features

Synergy Software Releases (with Synergy Service Packs)

HPE Synergy Software Releases allow users to perform firmware, driver, and related software updates. HPE Synergy Software Releases, comprised of HPE Synergy Management combinations (Composer and Image Streamer software set) and HPE Synergy Custom SPPs or HPE Synergy Service Packs (SSPs), are available to download and use on products under an active HPE Warranty or HPE Support Agreement. These combinations have been developed, tested, and released together. The download files include firmware updates to existing images and complete images for recovery Combinations within a specific release set are developed and released together. http://www.hpe.com/downloads/synergy

---

HPE Power Advisor

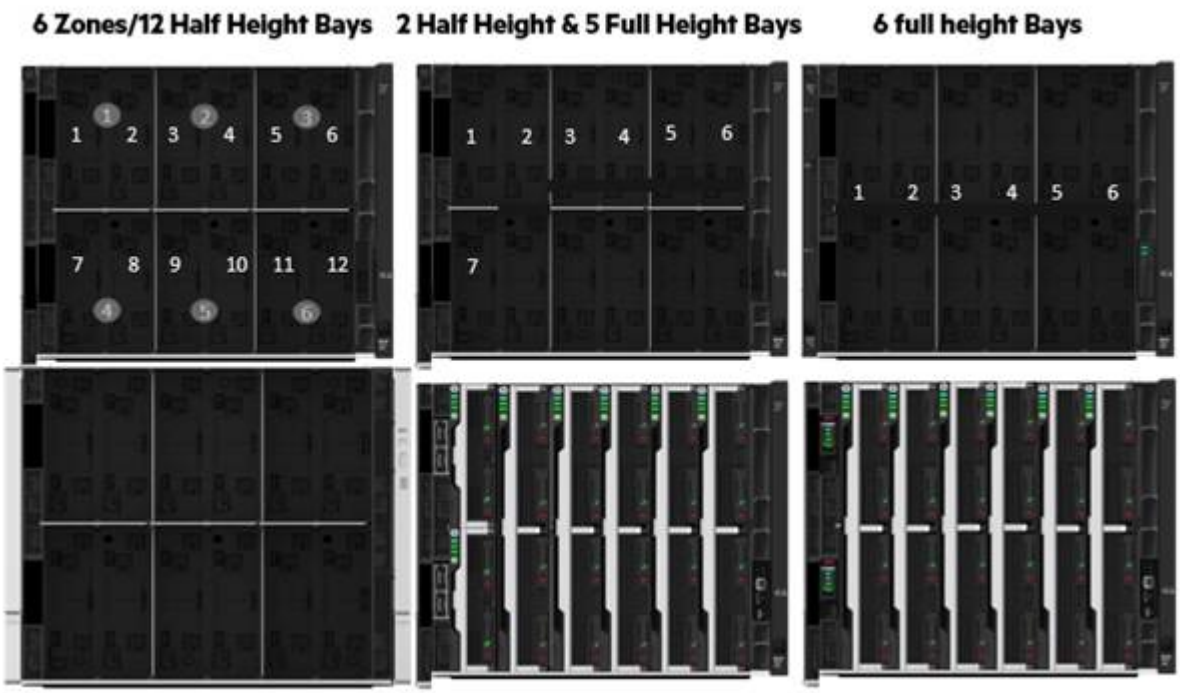
The HPE Power Advisor is a tool provided by Hewlett Packard Enterprise to assist in the estimation of power consumption and proper selection of components including power supplies at a system, rack, and multi-rack level. A variety of additional features are also provided including a condensed bill of materials, a cost of owner-ship calculator, and a power report. The HPE Power Advisor tool allows you to configure multiple Hewlett Packard Enterprise compute, storage, fabric, and power infrastructure solutions into a single-rack or multi-rack configuration.

Hewlett Packard Enterprise highly recommends using the HPE Power Advisor tool to ensure the number of power supply options you have selected can fully support your Synergy 12000 Frame configuration and to review maximum system power ratings for facilities planning purposes.

HPE Power Advisor is available at: https://poweradvisorext.it.hpe.com/?Page=Index

---

Mixed Configuration - Full Height and Half-Height Population rules



Frame Device Bay Options: Half Height, Full Height, Half Height Double Wide, Full Height Double Wide

Notes: The 12000 Frame is divided into 6 quadrants by the vertical and horizontal support metalwork. The horizontal supports or shelves are removable to support Full height devices. Only quadrants 1 and 4 can mix Full-Height with Half-Height Compute modules with an optional Half Shelf kit.

Service and Support

HPE Services

No matter where you are in your digital transformation journey, you can count on HPE Services to deliver the expertise you need when, where and how you need it. From planning to deployment, ongoing operations and beyond, our experts can help you realize your digital ambitions.
https://www.hpe.com/services

Consulting Services

No matter where you are in your journey to hybrid cloud, experts can help you map out your next steps. From determining what workloads should live where, to handling governance and compliance, to managing costs, our experts can help you optimize your operations.
https://www.hpe.com/services/consulting

HPE Managed Services

HPE runs your IT operations, providing 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.
HPE Managed Services | HPE

Operational services

Optimize your entire IT environment and drive innovation. Manage day-to-day IT operational tasks while freeing up valuable time and resources. Meet service-level targets and business objectives with features designed to drive better business outcomes.
https://www.hpe.com/services/operational

HPE Complete Care Service

HPE Complete Care Service is a modular, edge-to-cloud IT environment service designed to help optimize your entire IT environment and achieve agreed upon IT outcomes and business goals through a personalized experience. All delivered by an assigned team of HPE Services experts. HPE Complete Care Service 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/completecare

Service and Support

HPE Tech Care Service

HPE Tech Care Service is the operational support service experience for HPE products. The service 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 Tech Care Service delivers a customer-centric, AI driven, and digitally enabled customer experience to move your business forward. HPE Tech Care Service 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 Lifecycle Services

HPE Lifecycle Services provide a variety of options to help maintain your HPE systems and solutions at all stages of the product lifecycle. A few popular examples include:

- Lifecycle Install and Startup Services: Various levels for physical installation and power on, remote access setup, installation and startup, and enhanced installation services with the operating system.
- HPE Firmware Update Analysis Service: Recommendations for firmware revision levels for selected HPE products, taking into account the relevant revision dependencies within your IT environment.
- 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.
- Implementation assistance services: Highly trained technical service specialists to assist you with a variety of activities, ranging from design, implementation, and platform deployment to consolidation, migration, project management, and onsite technical forums.
- HPE Service Credits: Access to prepaid services for flexibility to choose from a variety of specialized service activities, including assessments, performance maintenance reviews, firmware management, professional services, and operational best practices.

Notes: To review the list of Lifecycle Services available for your product go to:
https://www.hpe.com/services/lifecycle
For a list of the most frequently purchased services using service credits, see the HPE Service Credits Menu

---

Other Related Services from HPE Services:

HPE Education Services

Training and certification designed for IT and business professionals across all industries. Broad catalogue of course offerings to expand skills and proficiencies in topics ranging from cloud and cybersecurity to AI and DevOps. Create learning paths to expand proficiency in a specific subject. Schedule training in a way that works best for your business with flexible continuous learning options.
https://www.hpe.com/services/training

Service and Support

Defective Media Retention

An option available with HPE Complete Care Service and HPE Tech Care Service and applies only to Disk or eligible SSD/Flash Drives replaced by HPE due to malfunction.
Consult your HPE Sales Representative or Authorized Channel Partner of choice for any additional questions and services options.

Parts and Materials

HPE 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.

How to Purchase Services

Services are sold by Hewlett Packard Enterprise 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 services at https://ssc.hpe.com/portal/site/ssc/

AI Powered and Digitally Enabled Support Experience

Achieve faster time to resolution with access to product-specific resources and expertise through a digital and data driven customer experience.
Sign into the HPE Support Center experience, featuring streamlined self-serve case creation and management capabilities with inline knowledge recommendations. You will also find personalized task alerts and powerful troubleshooting support through an intelligent virtual agent with seamless transition when needed to a live support agent.
https://support.hpe.com/hpesc/public/home/signin

Consume IT On Your Terms

HPE GreenLake edge-to-cloud platform 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 edge-to-cloud platform 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

To learn more about HPE 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
For more information: **http://www.hpe.com/services**

Configuration Information

Models

HPE Synergy 12000 Frame Options

Notes:

- Hewlett Packard Enterprise does not allow factory integration of options into pre-configured models. Any additional options purchased will be shipped separately.
- If you desire a custom configuration, please see the "Configuration Information - Factory Integrated Models" section of this QuickSpecs.
- Each Synergy 12000 Frame holds up to 12 half-height compute module, 6 full-height compute modules, and/or 6 double wide half-height compute/storage modules or 3 double wide full-height compute modules.

Configure To Order

Description	SKU
HPE Synergy 12000 Configure-to-order Frame	P51174-B21

Notes:

- This Frame does not include fans. When this frame is selected, 10 units of HPE Synergy 12000 High-Capacity Fan Kit, SKU: P51175-B21, are required.
- The Frame includes KVM ports built-in, and the blanks based on the configuration of the Frame.

HPE Synergy 12000 TAA-compliant Configure-to-order Frame with 2x4 Frame Link Module	P51174-B22

Notes:

- This Frame does not include fans. When this frame is selected, 10 units of HPE Synergy 12000 High-Capacity Fan Kit, SKU: P51175-B21, are required.
- This Frame includes 2, 4-Port Frame Link Modules, with KVM ports built-in, and the blanks based on the configuration of the Frame. This section lists some of the required and optional steps to configure a Factory Integrated Model. To ensure only valid configurations are ordered, Hewlett Packard Enterprise recommends contacting your local sales representative for information on Factory Integrated Model product offerings and requirements.

For a complete configuration of the HPE Synergy Frame System, please do the following:

Step 1: Select the desired model, configuration, and quantity of HPE Synergy Frames and options per Frame (required)

Notes:

- HPE Synergy 12000 Frame will support all new components as part of the new Synergy Solutions program. Please review the links below to specific for Frame, Compute, Storage and Interconnects for details.
- Each HPE Synergy Frame holds up to 12 half height or 6 full height compute modules. Compute blanks will be shipped in all empty bays.
- For Synergy Compute Module information, please visit: https://www.hpe.com/us/en/integrated-systems/synergy.html

Configuration Information

Select the base Frame configuration (required)

HPE Synergy Frame

Notes:

– Frames listed below include KVM connections for Synergy Console and Synergy Composer (HPE OneView) via access on the Front Panel of the Frames. Additional management appliances, Frame Link Modules, power supply kits, power cables, interconnects, additional fans, etc. are added in the following steps.
– Frames listed below include the required blanking panels (device bay, interconnect module, power, redundant Appliance bays, and Frame Link Modules as required per the ordered configuration. If the configuration is modified later, additional blanking panels (ordered separately) may be required.

Description	SKU
HPE Synergy 12000 Configure-to-order Frame	P51174-B21

Notes:

– This Frame does not include fans. When this frame is selected, 10 units of HPE Synergy 12000 High-Capacity Fan Kit, SKU: P51175-B21, are required.
– The Frame includes KVM ports built-in, and the blanks based on the configuration of the Frame.

HPE Synergy 12000 TAA-compliant Configure-to-order Frame with 2x4 Frame Link Module	P51174-B22

Notes:

– This Frame does not include fans. When this frame is selected, 10 units of HPE Synergy 12000 High-Capacity Fan Kit, SKU: P51175-B21, are required.
– This Frame includes 2, 4-Port Frame Link Modules and 10 hot-plug fans, with KVM ports built-in, and the blanks based on the configuration of the Frame.
– This section lists some of the required and optional steps to configure a Factory Integrated Model. To ensure only valid configurations are ordered, Hewlett Packard Enterprise recommends contacting your local sales representative for information on Factory Integrated Model product offerings and requirements.

Notes:

- HPE Synergy Gen11 and newer generations require the installation of the HPE Synergy 12000 High Capacity Fan Kit, SKU: P51175-B21. Discontinued HPE Synergy Frames, SKUs, 797740-B21, P06011-B21, and P06011-B22 can be used and upgraded; you must follow the guidelines published in the support document below,
– https://support.hpe.com/hpesc/public/docDisplay?docId=c05348240en_us&page=GUID-187C4C86-57CB-45F0-BEDC-789272EBCC1F.html for instructions on upgrading your current Frame to support Gen11 and newer generation of HPE Synergy 480 compute modules.

HPE Synergy 12000 High Capacity Fan Kit	P51175-B21

Notes:

– The HPE Synergy 12000 High-Capacity Fan Kit is required when a Synergy 480 Gen11 compute module is ordered. A total of 10 x High-Capacity Fans must be installed per Synergy Frame. HPE Synergy High-Capacity Fan can't be mixed with the original Fans. Mixing of Fans is Not supported.

Configuration Information

- The HPE Synergy 12000 High-Capacity Fan Kit is hot plug, and it is available as an option; it can be installed on the following HPE Synergy Frame 12000 SKUs: 797740-B21, P51174-B21, P51174-B22, P06011-B21, and P06011-B22. HPE Synergy High-Capacity Fan can be hot-swapped for the original hot plug fan with no Synergy Frame disruption. More information can be found in the link below, https://support.hpe.com/hpesc/public/docDisplay?docId=c05348240en_us&page=GUID-F7907DB6-44EE-4C2C-ADB7-02E414E95F72.html
- The HPE Synergy 12000 High-Capacity Fan Kit supports a mix of Gen10, Gen10 Plus, Gen11, and Gen12 Synergy compute modules.
- HPE Synergy Frame Link Module (FLM) firmware must be updated to the latest version 4.x when the Synergy 480 Gen11 compute module is installed. For more information about FLM, please visit: http://h20195.www2.hpe.com/v2/redirect.aspx?/products/quickspecs/15423_div/15423_div.HTML
- HPE Synergy 480 Gen11 compute module requires HPE Synergy Composer2 Management Appliance. For HPE Synergy Composer2 Management Appliance information, please visit: http://h20195.www2.hpe.com/v2/redirect.aspx?/products/quickspecs/15421_div/15421_div.HTML

Select the Frame power options (required)

Synergy Power Supplies (Up to 6Power Bays)

Notes:

- Hewlett Packard Enterprise highly recommends using the HPE Power Advisor to ensure the number of power supply options you have selected can fully support your Synergy System configuration and to review maximum system power ratings for facilities planning purposes. HPE Power Advisor is simply a power start-up advisor and does not reflect the actual power usage on each Frame or the values that may appear in OneView. HPE Power Advisor is available at: https://poweradvisorext.it.hpe.com/?Page=Index
- Mixing of power supplies is not supported on HPE Synergy 12000 Frames. All power supplies must be of the same type. However, there is an exception for hot swapping to different levels or more efficient power supplies (2650W, 3000W, and 3400W models). During the hot-swap process, HPE OneView may display a mismatch or unavailable error until all power supplies are matched.
- For flex slot power supplies, mixing of power supplies is strictly not allowed. To replace existing power supplies with flex slot power supplies, the entire frame must be powered down. Follow the instructions documented in the HPE Support Center, Upgrading an existing frame to Gen11 infrastructure components | HPE Synergy 12000 Frame Setup and Installation Guide
- For information about Synergy Power Management, including Power Supplies configuration, Power allocation, and Power throttling, visit the HPE Synergy Power Management Technical Paper at: https://support.hpe.com/hpesc/public/docDisplay?docId=a00046945en_us
- HPE Synergy 12000 Frame AC power supplies meet 80 PLUS Titanium power efficiency requirements: Titanium (96%). The 80 PLUS program is a unique forum that unites electric utilities, the computer industry, and consumers in an effort to bring energy-efficient technology solutions to the marketplace. 80 PLUS independently tests power supply efficiency and publicly posts the results on https://plugloadsolutions.com/80PlusPowerSupplies.aspx. DC power supplies are not eligible for 80 PLUS testing; efficiency is per Hewlett Packard Enterprise internal testing.

Configuration Information

Description	SKU
HPE 6x 2650W Performance Hot Plug Titanium Plus FIO Power Supply Kit	798096-B21

Notes:
- This option contains Intelligent Auto-Discovery features for HPE OneView.
- This option is for factory installation only.
- The bundle includes a quantity of 6 HPE 2650W Titanium 96% PSU so a full Frame can be configured with a single part number.
- HPE Synergy Power supplies meet multiple Energy Efficiency Initiatives: 2650W, 96%: Climate Savers Computing Initiative TITANIUM and ECOS Consulting 80 Plus Titanium.

HPE 2650W Performance Hot Plug Titanium Plus Power Supply Kit	798095-B21

Notes:
- This option contains Intelligent Auto-Discovery features for HPE OneView.
- HPE Synergy Power supplies meet multiple Energy Efficiency Initiatives: 2650W, 96%: Climate Savers Computing Initiative Titanium and ECOS Consulting 80 Plus Titanium.
- HPE Synergy 2650W -48VDC Power Supplies provide 93% energy efficiency.

HPE 2900-3400W Hot Plug Titanium Power Supply Kit	876929-B21

Notes:
- HPE Synergy 2900-3400W Power Supplies provide 95% energy efficiency.
- This option ONLY supports 230-240VAC input.
- Synergy 12000 Frame only supports this option at a 230-240VAC input. Operating this option at a lower input voltage may result in exceeding the rating of power cords and/or power distribution equipment.

HPE 3000W Titanium Hot Plug Power Supply Kit	P27749-B21

Notes:
- IMPORTANT: This Power Supply is available in NA only.
- HPE Synergy 3000W Power Supplies provide 96% energy efficiency.
- This option ONLY supports 208VAC.

HPE 6x 3000W Titanium Hot Plug FIO Power Supply Kit	P27750-B21

Notes:
- IMPORTANT: This Power Supply is available in NA only.
- HPE Synergy 3000W Power Supplies provide 96% energy efficiency.
- This option ONLY supports 208VAC.
- The bundle includes a quantity of 6 HPE 3000W Power Supplies so a full Frame can be configured with a single part number.

HPE Synergy Dual Slot Power Supply Adapter	P44074-B21

Notes:
- This Adapter is required when an HPE 1800-2200W Hot Plug Power Supply is ordered.
- This Adapter supports up to 2 Power Supplies per power bay

Configuration Information

Description	SKU
HPE 1800W-2200W Flex Slot Titanium Hot Plug Power Supply Kit	P44712-B21

Notes:
- IMPORTANT: This Power Supply must be installed in pairs, 2 per power bay using the HPE Synergy Dual Flex Slot Power Supply Adapter with a total of 12 Power Supply for a full Frame configuration
- The HPE Synergy Dual Flex Slot Power Supply Adapter is required when this Power Supply is ordered.
- HPE 1800-2200W FS Power Supplies provide 96% energy efficiency.
- To connect PDUs with C20 power outlets, you will need to order a HPE C20 - C13 WW 250V 15Amp 2.0m Jumper Cord (SKU: AF590A) for each power supply. This cord supports C13 power outlets and is necessary to connect PDUs with C20 outlets.
- When using the C20 to C13 15Amp Jumper cord SKU: AF590A in North America only, it is possible to achieve power of 2200W even at lower input voltages like 208VAC.
- For guidance on cabling the power supplies, refer to the instructions documented in the **HPE Synergy Cabling Guide**.

Step 2: Select Management Appliance Options

HPE Synergy Frame Management Appliance Options

Description	SKU
HPE Synergy Composer2 Management Appliance	872957-B21
HPE Synergy TAA-compliant Composer2 Management Appliance	872957-B22

Notes: 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.

HPE Synergy Composer2 Management Appliance Kit	P54624-B21

Notes: This option is not available for factory installation.

Step 3: Select optional Redundant Synergy Frame Link Modules

HPE Synergy Frame Link Modules

Notes: Every Synergy 12000 Frame requires two Frame Link Modules. For redundancy and linking multiple frames it is REQUIRED that two Frame Link Modules be purchased for each Frame connected/linked.

CAUTION: Both FLM units of a redundant pair in a Synergy Frame must be of the same generation.

Description	SKU
HPE Synergy 4-port Frame Link Module	876852-B21

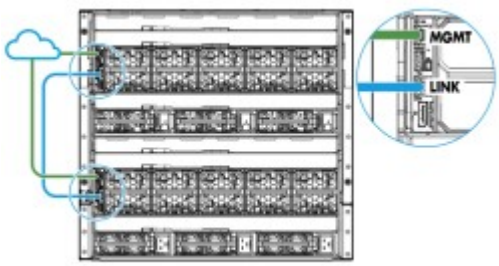
Notes: The 4-port Frame Link Module comes with a 10 Gb/s private Ethernet networking solution included and requires a DAC or AOC cabling between Frames for connection to multiple Frames or forming a management ring between multiple Frames. Multiple DAC and AOC cables are offered through Hewlett Packard Enterprise.

Configuration Information

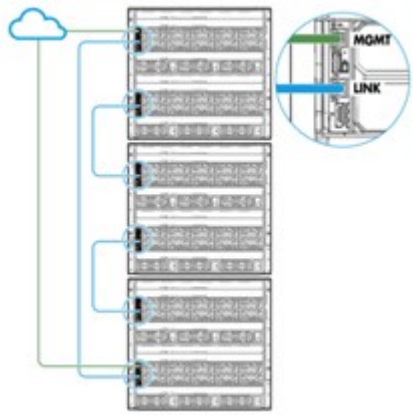
The Frame Link Module is the control and information link for a highly intelligent self-aware system of hardware options. It provides a direct link for resource information to the Synergy Composer (powered by HPE OneView). The link module provides an option for an air-gapped 10GbE management network ring that allows for multi-frame connectivity. Single or multiple Frames directly linked through this management network can be automatically discovered by HPE OneView along with their resources (compute, storage, networking, and other options) the instant they are plugged in and/or powered on.

Management Network

See Frame Link Topology below.



Single Frame MGMT Port and LINK Port Topology



Multiple Frame MGMT Port and LINK Port Topology

HPE Frame Link Topology Cables

Description	SKU
HPE Synergy Frame Link Module CAT6A 1.2m Cable	861412-B21
Notes: For linking consecutive Frames	
HPE Synergy Frame Link Module CAT6A 3m Cable	861413-B21
Notes: For linking bottom Frames to top Frames in a rack.	

Copper Cables (DAC)

DAC Cables connect SFP+ ports using copper cable with built-in transceivers.

Notes:

- For use between Synergy 4-port FLMs, and for connecting management uplinks to other SFP+ network connections.
- Direct Attach Cables (DAC) use copper cables with built-in transceivers on each end.

CAUTION: Cable type determines the distance limit of connections.

- Active DAC cables @ 10Gbps = 15 meters (max)
- Passive DAC cables = ~5 meters

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

Configuration Information

Fiber Cables

Fiber Cables connect SFP+ ports using fiber cables with transceivers.

Notes:

- For use connecting between Synergy 4-port FLMs and for connecting management uplinks to other SFP+ network connections.
- HPE Synergy 4-port FLMs have SFP+ 10Gbps 2-fibre ports.
- Solutions can be created by using either OM3 or OM4 fibre cables with transceivers on each end.
- For distances over 50m, fibre cables are typically purchased from other suppliers.

CAUTION: Cable type and transceivers determine the distance limit of connections.

- Fiber cable use with SR transceivers = 300m (max)
- Fiber cable use with LR transceivers = 10km (max)
- Fiber cable use with ER transceivers = 40km (max)

Description	SKU
OM3 Fibre Cables	
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
OM4 Fibre Cables	
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

Transceivers

Transceiver use should consider bandwidth, port types, and port counts.

Transceivers (10 Gbps) for connecting SFP+ ports using fiber cables.

HPE BladeSystem c-Class 10Gb SFP+ SR Transceiver	455883-B21

Notes: Typical transceiver for use with single-mode fiber cable (short range).

HPE BladeSystem c-Class 10Gb SFP+ LR Transceiver	455886-B21

Notes: Typical transceiver for use with single-mode fiber cable (long range).

Configuration Information

Transceivers (10 Gbps) for connecting SFP+ ports to RJ45 ports using CAT6A cables.

Description	SKU
HPE 10GBase-T SFP+ Transceiver	813874-B21

Notes:
– Typical 10GbE transceiver for connecting CAT6A cables to SFP+ ports on the HPE Synergy 4-port FLM.

- 861412-B21 HPE CAT6A 4-foot Cable
- 861413-B21 HPE CAT6A 10-foot Cable
- 861414-B21 HPE CAT6A 21-foot Cable

Transceivers (1 Gbps) for connecting SFP+ ports (for use with MGMT ports only).

HPE BladeSystem c-Class Virtual Connect 1G SFP SX Transceiver	453151-B21

Notes: Typical 1Gb transceiver for use with fibre cable (<100m).

HPE BladeSystem CClass Virtual Connect 1G SFP RJ45 Transceiver	453154-B21

Notes: Typical 1Gb transceiver for connecting CAT cables to SFP+ ports on the HPE Synergy 4-port FLM.

Step 4: Select 1 or more interconnect switches/link modules for each Frame (as required)

The HPE Synergy 12000 Frame supports up to six Interconnect Module Bays at the rear, providing full redundancy (3+3). Each Interconnect Bay is designed to support an HPE Interconnect Module (ICM) for either Ethernet, Fibre Channel, or SAS.

HPE Synergy 12000 Frame - Rear View

Notes:
– Interconnect Module Bays 1-3, located in the Frame, are considered primary ICM bays, while bays 4-6 serve as redundant backups for the primary bays.
– Both Interconnect Module Bays must contain the same module unless the Fabric is an HPE Virtual Connect SE 100Gb Interconnect Module
– Ethernet Interconnect Modules must be installed first in Bays 3 and 6 before populating more bays with Ethernet Interconnects for physically separate fabrics

Configuration Information

- Do not mix different types of Interconnect Modules, such as Ethernet, Fibre Channel, or SAS, within any redundant ICM Bay Set.
- For Synergy Composable Fabric, the frame can be equipped with either the HPE Virtual Connect SE 100Gb Interconnect Module as the primary or the HPE Synergy 50Gb Interconnect Link Module as a satellite module, depending on the preferred multi-frame setup.

For more information about the HPE Synergy Interconnect modules, options, and cables needed, please refer to the specific Interconnect Module QuickSpecs at **https://www.hpe.com/us/en/resource-library.html/restype/quickspecs/search/Synergy%20Interconnect%20Module?jumpid=in_psnow-quickspecs_rl**, and the support documentation, **HPE Synergy Ethernet modules with supported cables and transceivers | HPE Synergy Cabling Guide**

For guidelines on the placement of Mezzanine Cards and ICMs, refer to the notes below in the '**Best Practices for the placement of Mezzanine Cards and Interconnect Modules**' section in this document.

HPE Synergy Network Interconnects

Description	SKU
HPE Virtual Connect SE 100Gb F32 Module for Synergy	867796-B21
HPE Synergy 50Gb Interconnect Link Module	867793-B21
HE Synergy 10Gb Pass-Thru Module	799330-B21

Notes: 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.

HPE Storage and SAS Switch

Notes: The HPE Synergy Storage Module and 12Gb SAS connection modules are supported on all Synergy 12000 Frame(s).

HPE Synergy D3940 12Gb SAS CTO Drive Enclosure with 40 SFF (2.5in) Drive Bays	835386-B21

Notes: The HPE Synergy Storage Module requires at least one and a maximum of two 12Gb SAS Connection Modules per frame.

12Gb SAS Connection Modules per frame.

HPE Synergy D3940 Redundant I/O Adapter	757323-B21

Notes: One I/O Adapter is configured automatically in each Synergy D3940 Storage Module. A second I/O Adapter can be selected for redundancy.

HPE Synergy 12Gb SAS Connection Module with 12 Internal Ports	755985-B21

Notes: A SAS Connection Module must be placed in ICM bay 1 and ICM bay 4. If only configuring a single module in the frame, a connection module in ICM bay 1 will support storage modules in bays 1 - 6. A connection module in ICM bay 4 will support storage modules in bays 7-12. A second connection module can be configured in the frame for failover.

Configuration Information

HPE Synergy SAN Interconnects

Notes:
– HPE Fibre Channel interconnect switches and modules supporting up to a 32Gbps internal port downlink speed (connection speed from the compute modules to the interconnect) are supported on all HPE Synergy 12000 Frames.
– For a list of complete FC SAN Switch Module SAN management software, hardware, cables and transceiver options for HPE Synergy, please refer to the Brocade FC Switch Module QuickSpecs for HPE Synergy.

Description	SKU
Brocade 32Gb/20 4SFP+ Power Pack+ Fibre Channel SAN Switch Module for HPE Synergy	Q2E57A
HPE Virtual Connect SE 32Gb Fibre Channel Module for Synergy	876259-B21

HPE Synergy Converged Network Adapters

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

HPE Synergy Ethernet Adapters

HPE Synergy 6810C 25/50Gb Ethernet Adapter	867322-B21

HPE Synergy Fibre Channel Host Bus Adapters

HPE Synergy 5830C 32Gb Fibre Channel Host Bus Adapter	777456-B21
HPE Synergy 5330C 32Gb Fibre Channel Host Bus Adapter	870828-B21

HPE Synergy Transceivers and Cable options

Notes: Check the QuickSpecs for each Synergy interconnect module to view the complete list of supported transceivers and cables.

Description	SKU
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 4x32Gb FC modes are all supported.

HPE 100Gb QSFP28 MPO SR4 100m Transceiver	845966-B21
HPE 100Gb QSFP28 Bidirectional Transceiver	845972-B21
HPE QSFP28 to SFP28 Adapter	845970-B21
HPE B-series 4x16 Short Wave QSFP Transceiver	K2Q87A
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

Notes: The following cables can be used for 100Gb uplink connections on the Mellanox SH2200 Switch Module (866573-B21). Check its QuickSpecs to view the complete list of supported transceivers and cables.

Configuration Information

Description	SKU
HPE 100Gb QSFP28 to QSFP28 7m Active Optical Cable	845410-B21
HPE 100Gb QSFP28 to QSFP28 15m Active Optical Cable	845414-B21

Best Practices for the placement of Mezzanine Cards and Interconnect Modules (ICM).

Each HPE Synergy 480 Compute Module supports up to three locations for Mezzanine Cards (Mezz), where Processor 1 (P1) connects to Mezz 1 and Mezz 3, and Processor 2 (P2) connects to Mezz 2. Each Mezzanine Card connects to a pair of Interconnect Bays. Mezz 1 connects to ICM Bay 1 and 4, Mezz 2 connects to ICM Bay 2 and 5, and Mezz 3 connects to ICM Bay 3 and 6.
The placements for the ICMs support up to three Fabrics:
Fabric 1 includes Bay 1 as the primary and Bay 4 as redundant. These ICM bays are considered part of the storage fabric when any of the following Compute Module conditions are met.

- HPE Synergy Compute Modules, such as Gen9, Gen10, Gen10 Plus, and Gen11, feature a SAS controller in Mezz 1 and connect to an HPE D3940 Storage Module through a SAS fabric installed in Bay 1 and Bay 4
- HPE Synergy Compute modules of any generation contain only one CPU and require native Fibre Channel connectivity through an HBA Mezzanine adapter.
- HPE Synergy Gen12 Compute modules that need array-controlled local disks and native Fibre Channel HBA connectivity through an HBA Mezzanine adapter.

Fabric 2 includes Bay 2 as the primary component and Bay 5 for redundancy. These ICM slots are utilized for a secondary Ethernet fabric or native Fibre Channel.
Fabric 3 includes Bay 3 as the primary slot and Bay 6 as a redundant slot. These ICM bays are designated for the main Ethernet/Converged fabric.
Avoid installing an HPE Fibre Channel Interconnect module in Bays 1 or 4 if Bays 2 and 5 are available, unless you have HPE Synergy Compute modules with open Processor 2 (P2) or HPE Synergy Gen12 Compute Modules with a Storage Controller using Mezz 2, which requires an HBA to connect through Mezz 1.

Guidelines for Placement Interconnect Modules (ICM) and Mezzanine Cards

For HPE Synergy Gen11/Gen10 Plus/Gen10 Configurations

Interconnect Bays	Default ICM Placement	Mezz Slot	Default Mezzanine Adapter
ICM Bay 1 (redundant ICM Bay 4)	HPE Synergy 12G SAS Module	M1	HPE Smart Array P416ie-m / HPE SR416ie-m Storage Controller
ICM Bay 2 (redundant ICM Bay 5)	HPE Virtual Connect or Brocade Fibre Channel Module	M2	HPE Synergy Fibre Channel Host Bus Adapter
ICM Bay 3 (redundant ICM Bay 6)	HPE Virtual Connect 100Gb F32 Module	M3	HPE Synergy Converged Network Adapter

Configuration Information

Notes:

- HPE Synergy Gen11/Gen10 Plus/Gen10 compute modules have a different default Controller Mezzanine slot configuration.
- The HPE Storage Controller can only be configured in M1. When the Storage Controller and SAS Module are not installed, M1 and ICM Bays 1 & 4 are available for Fibre Channel or Ethernet fabrics
- When the Fibre Channel HBA and Fibre Channel Module are not installed, M2 and ICM Bays 2 & 5 are available for additional Ethernet fabrics.

For HPE Synergy Gen12 Configurations

Interconnect Bays	Default ICM Placement	Mezz Slot	Default Mezzanine Adapter
ICM Bay 1 (redundant ICM Bay 4)	HPE Virtual Connect or Brocade Fibre Channel Module	M1	HPE Synergy Fibre Channel Host Bus Adapter
ICM Bay 2 (redundant ICM Bay 5)	N/A	M2	HPE MR416i-o Storage Controller
ICM Bay 3 (redundant ICM Bay 6)	HPE Virtual Connect 100Gb F32 Module	M3	HPE Synergy Ethernet Adapter

Notes:

- HPE Synergy Gen12 compute modules have a different default Controller Mezzanine slot configuration
- The HPE Storage Controller can only be configured in M2. When the Storage Controller is not installed, M2 and ICM Bays 2 & 5 are available for Fibre Channel or Ethernet fabrics
- When the Fibre Channel HBA and Fibre Channel Module are not installed, M1 and ICM Bays 1 & 4 are available for additional Ethernet fabrics.
- The HPE Synergy 480 Gen12 Compute Module does not support the HPE Synergy 12G SAS Module and HPE Synergy D3940 Storage Module.

IMPORTANT: The recommendations outlined in the Best Practice for installing the Mezzanine Cards and Interconnect Modules require scheduled maintenance windows or downtime on each HPE Synergy 480 Gen10, Gen10 Plus, and Gen11 Compute Module. This is essential for moving any Storage Controllers from Mezz #1 to Mezz #2 and transferring any Fibre Channel HBAs from Mezz #2 to Mezz #1. Also, server downtime or maintenance windows are necessary for the Interconnect Modules. Fibre Channel Switches must be moved from Bay #2 and Bay #5 to Bay #1 and Bay #4. Similarly, the SAS ICM connected to the HPE Synergy D3940 Storage needs to be relocated from Bays #1 and #4 to Bays #2 and #5. All OneView configurations and profiles must also be updated to reflect the new hardware locations of the Mezzanine cards on the HPE Synergy Compute modules and the different Interconnect Modules (ICMs) in the bays at the rear of the HPE Synergy Frame 12000.

Configuration Information

Step 5: HPE Synergy Storage Module (Optional)

HPE Synergy Storage Modules

Notes: The HPE Synergy Storage Module and 12Gb SAS connection modules are supported on all Synergy 12000 Frame(s).

Description	SKU
HPE Synergy D3940 12Gb SAS CTO Drive Enclosure with 40 SFF (2.5in) Drive Bays	835386-B21
Notes: The HPE Synergy Storage Module requires at least one and a maximum of two 12Gb SAS Connection Modules per frame.	
HPE Synergy D3940 Redundant I/O Adapter	757323-B21
Notes: One I/O Adapter is configured automatically in each Synergy D3940 Storage Module. A second I/O Adapter can be selected for redundancy.	
HPE Synergy 12Gb SAS Connection Module with 12 Internal Ports	755985-B21
Notes: A SAS Connection Module must be placed in ICM bay 1 and ICM bay 4. If only configuring a single module in the frame, a connection module in ICM bay 1 will support storage modules in bays 1 - 6. A connection module in ICM bay 4 will support storage modules in bays 7-12. A second connection module can be configured in the frame for failover.	

Step 6: Select your Rack (optional)

HPE Data Center Racks

Notes:

- Hewlett Packard Enterprise highly recommends the use of racks with a depth of 1200mm (47.2 in) or deeper to ensure adequate space in the back of the rack for cable and power management. Additional Hewlett Packard Enterprise Data Center racks are available other than those listed below. For more information on the full line of Hewlett Packard Enterprise Data Center Racks and rack accessories, please see.

https://www.hpe.com/us/en/integrated-systems/rack-power-cooling.html#Portfolio

- Static load capacity for Advanced G2 and Enterprise G2 racks is 3000 lbs. and represents the maximum weight load for racks that are configured directly in the data center and will never be moved with installed equipment. Dynamic load capacity is 2250 lbs. for Advanced G2 racks and 3000 lbs. for Enterprise G2 racks. Dynamic load capacity represents the maximum load capacity for racks that are shipped fully configured using a shock pallet rack model option. Due to the Dynamic load capacity limitations for Advanced G2 racks, a limit of 2-3 Synergy frames is recommended based on the overall load weight of all equipment included in a single rack.

HPE Advanced G2 Series Racks

Description	SKU
HPE 42U 600mmx1200mm G2 Kitted Advanced Pallet Rack with Side Panels and Baying	P9K09A
HPE 42U 600mmx1200mm G2 Kitted Advanced Shock Rack with Side Panels and Baying	P9K10A
HPE 42U 800mmx1200mm G2 Kitted Advanced Pallet Rack with Side Panels and Baying	P9K15A

Notes:

- Hewlett Packard Enterprise provides both standard pallet and shock pallet shipping options for most racks. If there is a requirement to transport the rack with any IT equipment installed, Hewlett Packard Enterprise highly recommends choosing a shock pallet option to protect your equipment during transport.
- HPE Network Racks are designed for dense network equipment. These racks have the front vertical rails moved back 75mm to facilitate front to rear cabling and have additional bristle covered cable access slots in the front and on top of the racks to prevent mixing of hot and cold air and to allow for large cable bundles.

Configuration Information

Step 7: Select rack power distribution unit (PDU) (optional)

Notes:

- A pair of PDUs must be ordered for AC feed redundancy.
- HPE G2 PDUs with C13 and/or C19 outlets support HPE IEC Locking Power Cords. One locking power cord is included with each compatible PDU model. Additional IEC Locking Power Cords are available for purchase from HPE - see Power Cord section for additional details.
- Additional HPE Power Distribution Units (PDUs) are available compared to those listed below. For a complete list of all Hewlett Packard Enterprise PDUs, please visit:

https://www.hpe.com/us/en/integrated-systems/rack-power-cooling.html

HPE Power Distribution Units (PDUs)

Enlogic by nVent G3 Standard Series Enterprise Power Distribution Units for HPE

100-240V Input, Single Phase, WW

Description	SKU
Enlogic by nVent G3 Basic 1-phase 3.6kVA/16A/100-240V Outlets (20) C13 (2) Combo C13/C19 PDU for HPE	P59407-B21

200-240/346-415V Input, Three Phase, WW

Enlogic by nVent G3 Basic 3-phase 22kVA/32A/200-240V Outlets (18) C13 (12) Combo C13/C19 PDU for HPE	P59418-B21

200-240V Input, Single Phase, North America/Japan

Enlogic by nVent G3 Basic 1-phase 4.9kVA/24A/200-240V Outlets (4) C13 (8) Combo C13/C19 PDU for HPE	P59420-B21
Enlogic by nVent G3 Basic 1-phase 4.9kVA/24A/200-240V Outlets (16) C13 (4) Combo C13/C19 PDU for HPE	P59519-B21

220-240V Input, Three Phase, North America/Japan

Enlogic by nVent G3 Basic 3-phase 17.2kVA/Outlets (18) C13 (12) Combo C13/C19 PDU for HPE	P59415-B21
Enlogic by nVent G3 Basic 3-phase 8.6kVA/24A/200-240V Outlets (12) C13 (6) Combo C13/C19 PDU for HPE	P59521-B21
Enlogic by nVent G3 Basic 3-phase 8.6kVA/24A/200-240V Outlets (6) C13 (6) Combo C13/C19 PDU for HPE	P60344-B21

200-240V Input, Single Phase, INTL

Enlogic by nVent G3 Basic 1-phase 7.3kVA/32A/200-240V Outlets (4) C13 (8) Combo C13/C19 PDU for HPE	P59421-B21
Enlogic by nVent G3 Basic 1-phase 7.3kVA/32A/200-240V Outlets (16) C13 (4) Combo C13/C19 PDU for HPE	P59520-B21

Enlogic by nVent G3 Metered Series Enterprise Power Distribution Units for HPE

200-240V Input, Single Phase, WW

Enlogic by nVent G3 Metered 1-phase 14.4kVA/Outlets (18) C13 (12) Combo C13/C19 PDU for HPE	P59413-B21

Configuration Information

200-240/346-415V Input, Three Phase, WW	
Description	SKU
Enlogic by nVent G3 Metered 3-phase 11kVA/Outlets (36) C13 (6) Combo C13/C19 PDU for HPE	P59412-B21
Enlogic by nVent G3 Metered 3-phase 22kVA/Outlets (36) C13 (12) Combo C13/C19 PDU for HPE	P59417-B21
Enlogic by nVent G3 Metered 3-phase 22kVA/Outlets (12) C13 (12) Combo C13/C19 PDU for HPE	P67672-B21
100-120V Input, Single Phase, North America/Japan	
Enlogic by nVent G3 Metered 1-phase 2.8kVA/L5-30P 24A/120V Outlets (24) 5-20R PDU for HPE	P59406-B21
200-240V Input, Single Phase, North America/Japan	
Enlogic by nVent G3 Metered 1-phase 4.9kVA/Outlets (32) C13 (6) Combo C13/C19 PDU for HPE	P59408-B21
Enlogic by nVent G3 Metered 1-phase 8.3kVA/Outlets (24) C13 (6) Combo C13/C19 PDU for HPE	P59410-B21
200-240V Input, Three Phase, North America/Japan	
Enlogic by nVent G3 Metered 3-phase 8.6kVA/Outlets (30) C13 (6) Combo C13/C19 PDU for HPE	P59411-B21
Enlogic by nVent G3 Metered 3-phase 17.2kVA/Outlets (36) C13 (12) Combo C13/C19 PDU for HPE	P59414-B21
Enlogic by nVent G3 Metered 3-phase 17.2kVA/Outlets (18) C13 (6) Combo C13/C19 PDU for HPE	P67671-B21
200-240V Input, Single Phase, INTL	
Enlogic by nVent G3 Metered 1-phase 14.4kVA/Outlets (18) C13 (12) Combo C13/C19 PDU for HPE	P59413-B21

Enlogic by nVent G3 Metered and Switched Series Enterprise Power Distribution Units for HPE

200-240V Input, Three Phase, WW	
Enlogic by nVent G3 Metered Switched 3-phase 22kVA/Outlets (24) C13 (24) Combo C13/C19 PDU for HPE	P59419-B21
200-240V Input, Three Phase, North America/Japan	
Enlogic by nVent G3 Metered Switched 3-phase 17.2kVA/Outlets (24) C13 (24) Combo C13/C19 PDU for HPE	P59416-B21

Step 8: Select an uninterruptible power system (UPS) (optional)

Notes: Additional HPE Uninterruptable Power Systems (UPSs) are available other than those listed here. For a complete list of all Hewlett Packard Enterprise UPS options and additional information, please visit: https://www.hpe.com/us/en/integrated-systems/rack-power-cooling.html

Step 9: Select power cords (optional)

Notes:

- For additional power cable information, please visit: https://www.hpe.com/psnow/doc/c05324691.HTML?jumpid=in_pb-psnow-red
- For Carrier Grade (NEBS-compliant) configurations, including Seismic Rack Kits and Cable Kits used with the -48VDC Power Supply, please see: http://h20195.www2.hpe.com/v2/redirect.aspx?/products/quickspecs/16023_div/16023_div.HTML

Configuration Information

Power Distribution Unit (PDU) Power Jumper Cords

Description	SKU
HPE C19 - C20 WW 250V 16Amp Flint Gray 1.20m Jumper Cord	AF575A
HPE C19 - C20 WW 250V 16Amp Flint Gray 2.0m Jumper Cord	AF574A
HPE C19-C20 IN 250V 16Amp 2.5m Black Jumper Cord	R1C66A
HPE C20 - C13 WW 250V 15Amp 2.0m Jumper Cord	AF590A

HPE Locking IEC Power Cords(C19-C20)

Notes: These IEC power cords will lock onto the G2 PDUs and will also lock onto the Synergy power supplies.

HPE C19 - C20 WW 250V 16Amp 2m Black Locking Power Cord	Q0P72A

HPE Locking IEC Power Cords (C19-C20)

HPE C19 - C20 WW 250V 16Amp 2m 6-pack Black Locking Power Cord	Q0R17A

High Voltage Direct Current (HVDC) Power Jumper Cords

HPE SAFDGRID-SAFDGRID 277V 15Amp DC 2.0m Jumper Cord	J6X00A

Additional HPE Power Cords

HPE High Line Power Cords 200 - 240V AC	
HPE C19 - Nema L6-20P NA/JP 250V 20Amp High Voltage 3.6m Power Cord	AF593A
HPE C19 - CEE-VII EU 250V 16Amp 3.6m Power Cord	AF576A
Power Cords used with 277VAC Power Supply	
HPE SDG23A-SDG23B 277V 0.76m Jumper Cord	P9B75A
HPE SDG23A-SDG23B 277V 2.0m Jumper Cord	P9B77A
HPE SAFDGRID-SAFDGRID 277V 15Amp DC 2.0m Jumper Cord	J6X00A

Related Options

HPE Synergy 12000 Frame Options

For purchasing any of the following option spares please go to HPE Parts Store at https://parts.hpe.com/Hpparts/Default.aspx?mscssid=08A46B692773436E9BC247202DCEFC43&cc=GB&lang=EN

Description	SKU
HPE Synergy Frame Round Hole Rack Rail Kit	871749-B21
Notes: This rack rail kit provides round hole capability for installing Synergy Frames into racking solutions which require round holes (versus the default square holes).	
HPE Synergy Frame Rack Rail Kit	804938-B21
HPE Synergy Frame 4x Lift Handles	804943-B21
HPE Synergy 12000 Frame Compute Half Shelf	804923-B21

Notes:
- The half-shelf option is designed for mixing half-height and full-height compute nodes in a specific zone. With the middle shelf removed between Bays 1 & 2 and 7 & 8 you may install two full-height Compute modules in what become Bays 1 & 2 for full-heights. If you need to mix half-height with full-height Compute nodes you can install the Half-Shelf option in the leftmost slots between 1 & 7 bays. This allows for two half-height compute modules in the leftmost slots 1 & 7 with a full-height compute note in bay 2(2&8). This is the only Zone that allows the mixing of compute modules.
- For optimal cooling and operating performance there should be no open bays or slots.

HPE Synergy Spares Options

Description	SKU
HPE Synergy Compute Bay Half-Height Blank Option Kit	813561-001
Notes: 1 blank for half-height server bay	
SPS - TB BK FAN KIT	807967-001
SPS-FAN HC MODULE GNRC	P52789-001
Notes: Every Synergy 12000 Frame supports up to 10 Fans	
HPE Synergy Full-Shelf Option Kit	813569-001

Notes:
- The full-shelf is for spare purposes or to replace lost shelves. The Frame is designed with 3 of these shelves inserts to accommodate 12 half-height compute modules.
- For optimal cooling and operating performance there should be no open bays or slots.

HPE Synergy Frame Lift Handle Option Kit	813567-001

Notes:
- The Lift Handle option comes with one (1) handle that latches to the side of a Synergy Frame. Four (4) Lift Handles are required for 4 persons to execute a safe and proper lift of the Synergy 12000 Frame.
- It is HIGHLY RECOMMENDED that any HPE Synergy be empty of all key compute, interconnects, power supplies, fans, and options prior to attempting to lift and place into a rack system.

Related Options

CAUTION: All Frames, chassis, or enclosures generally require multiple people when lifting from the shipping container to a workbench or table or into the rack. The Synergy 12000 Frame requires 4 people to safely and properly lift when empty.

Description	SKU
HPE Synergy Interconnect Module/Switch Blank Option Kit	813563-001
Notes: – This is a single blank for open interconnect module/switch bays. – For optimal cooling and operating performance there should be no open bays or slots.	
HPE Synergy Frame Rack Rail Option Kit	813568-001
Notes: This is a single rack rail kit for installing Synergy Frames into desired racking solutions.	
HPE Synergy Appliance Bay Blank Option Kit	813562-001
Notes: – This blank is for an open Appliance Bay. – For optimal cooling and operating performance there should be no open bays or slots.	
HPE Synergy Frame Link Module Bay Blank Option Kit	813560-001
Notes: – This blank is for an open Appliance Bay. – For optimal cooling and operating performance there should be no open bays or slots.	
HPE Synergy Power Supply Bay Blank Option Kit	813564-001
Notes: – This blank is for an open Appliance Bay. – For optimal cooling and operating performance there should be no open bays or slots.	

HPE Tape Backup

Notes:
– For the complete range of tape drives, autoloaders, libraries and media see:
https://www.hpe.com/us/en/storage/storeever-tape-storage.html.
– For hardware and software compatibility of Hewlett Packard Enterprise tape backup products see:
http://www.hpe.com/storage/spock.

HPE System Management Options

Notes:
– The HPE Synergy 12000 Frame comes with a single USB and DisplayPort'^{TM} ports on the Front Panel of the Frame and on each of the Frame Link Modules in the rear. Synergy Console and OneView must be accessed at the Front Panel of the Frame that has the Synergy Composer installed. When multiple Frames are linked properly and the Synergy Composer/OneView is running you may access Synergy Console from any Front Panel, Frame Link Module or network connections.
– For additional information regarding Rack Options, please see the following URL:
https://www.hpe.com/us/en/integrated-systems/rack-power-cooling.html

Related Options

HPE 1U Rackmount Keyboard with USB

Notes: Single to multi-port USB Adaptor required for Keyboard and Mouse.

HPE LCD8500 1U Rackmount KVM Console Kit Models

Description	SKU
HPE LCD8500 1U US Rackmount Console Kit	AF630A
HPE LCD8500 1U JP Rackmount Console Kit	AF642A
HPE LCD8500 1U INTL Rackmount Console Kit	AF644A

Notes: The DisplayPort'^{TM} cable option below is required for any of these Display solutions

HPE LCD8500 1U Rackmount KVM Console Kit Models

HPE Kit LCD 1.83m Latch Display Port'^{TM} Cable	G7T29A

HPE Synergy Services

Deployment/Installation & Start-up Services

Description	SKU
HPE Synergy First Frame Startup Service	U8JM3E
HPE Synergy Additional Frame Startup Service	U8JM4E
HPE FE Synergy Initial Frame Package 4 Service	HA454A1-300
HPE FE Synergy Add-on Frame Package 4 Service	HA454A1-301

Power Supply Specifications

IMPORTANT: HPE highly recommends using the HPE Power Advisor tool to ensure the number of power supply options you have selected can fully support your Synergy Frame configuration and to review maximum system power ratings for facilities planning purposes.
HPE Power Advisor is available at: **https://poweradvisorext.it.hpe.com/?Page=Index**

HPE 2650 Watts Titanium Hot Plug AC Power Supply					
Part Number	798095-B21				
Input Voltage Range (Vrms)	200-240				
Frequency Range (Nominal) (Hz)	50 - 60				
Nominal Input Voltage (Vrms)	200	208	220	230	240
Maximum Rated Output Wattage	2650	2650	2650	2650	2650
Nominal Input Current (A rms)	14.4	13.9	13.1	12.5	12.0
Maximum Rated Input Wattage Rating (Watts)	2879	2877	2873	2869	2866
Maximum Rated VA (Volt-Amp)	2882	2882	2878	2875	2871
Efficiency (%)	92%	92.1%	92.2%	92.4%	92.5
Power Factor	0.9				
Leakage Current (mA)	0.87	0.9	0.96	1	1.04
Maximum Inrush Current (A peak)	30				
Maximum Inrush Current duration (mS)	0.2				
Maximum British Thermal Unit Rating (BTU-Hr)	9823	9817	9803	9790	9780

– See the "Technical Specifications" section for additional power specifications.

– Accept IEC C19-C20 and C19-C20 Intelligent Power Distribution Unit (iPDU) power cables. One WW 250W C19-C20 2.0m (non-iPDU) power cable is included per supported power supply. iPDU power cables are ordered separately.

– Accept IEC C19-C20 power cables. One WW 250W C19-C20 2.0m power cable is included per supported power supply.

– Rated 200 to 240 VAC line-to-neutral. The Frame will not operate from higher line-to-line voltage with the WYE wall plug configuration. This power input module is configured to provide 200 to 240 VAC to the power supplies.

– Each Frame must include only one type of power supply. Mixing power supplies is not supported, except during hot swaps to different level or higher efficient power supplies.

– Maximum output per power supply is 2650W.

– Power cables with APP Saf-D-Grid connectors are ordered separately.

Technical Specifications

HPE 2650 Watts Hot Plug 380V HVDC Power Supply			
HPE 2650W HVDC Hot Plug Power Supply Kit	798342-B21		
Input Voltage Range (VDC)	240 - 420		
Frequency Range (Nominal) (Hz)	N/A		
Nominal Input Voltage (VDC)	240	380	420
Maximum Rated Output Wattage	2650	2650	2650
Nominal Input Current (A rms)	11.7	7.4	6.7
Maximum Rated Input Wattage Rating (Watts)	2816	2804	2795
Maximum Rated VA (Volt-Amp)	2816	2804	2795
Efficiency (%)	94.1%	94.5%	94.8%
Power Factor	NA		
Leakage Current (mA)	N/A		
Maximum Inrush Current (A peak)	30	N/A	
Maximum Inrush Current duration (mS)	0.2	N/A	
Maximum British Thermal Unit Rating (BTU-Hr)	9609	9568	9538

HPE 2650W 277VAC Hot Plug Power Supply			
SKU	798101-B21		
Input Voltage Range (Vrms)	180 - 305		
Frequency Range (Nominal) (Hz)	50 - 60		
Nominal Input Voltage (Vrms)	180	277	305
Maximum Rated Output Wattage	2650	2650	2650
Nominal Input Current (A rms)	16.2	10.3	9.3
Maximum Rated Input Wattage Rating (Watts)	2856	2801	2792
Maximum Rated VA (Volt-Amp)	2914	2858	2849
Efficiency (%)	92.8%	94.6%	94.9%
Power Factor	0.98		
Leakage Current (mA)	0.49	0.75	0.83
Maximum Inrush Current (A peak)	30		
Maximum Inrush Current duration (mS)	0.2		
Maximum British Thermal Unit Rating (BTU-Hr)	9743	9558	9528

HPE 2650W -48VDC Hot Plug Power Supply			
SKU	798099-B21		
Input Voltage Range (VDC)	-40 to -72		
Frequency Range (Nominal) (Hz)	N/A		
Nominal Input Voltage (VDC)	-40	-48	-72
Maximum Rated Output Wattage	2650	2650	2650
Nominal Input Current (A rms)	-71.8	-59.4	-39.5
Maximum Rated Input Wattage Rating (Watts)	2871	2850	2841
Maximum Rated VA (Volt-Amp)	2871	2850	2841
Efficiency (%)	92.3%	93.0%	93.3%
Power Factor	N/A		
Leakage Current (mA)	N/A		
Maximum Inrush Current (A peak)	180		
Maximum Inrush Current duration (mS)	0.2		
Maximum British Thermal Unit Rating (BTU-Hr)	9796	9725	9695

Technical Specifications

HPE 2900-3400W 240VAC Hot Plug Titanium Power Supply Kit		
SKU	876929-B21	
Input Voltage Range (Vrms)	230 - 240	
Frequency Range (Nominal) (Hz)	50 - 60	
Nominal Input Voltage (Vrms)	230	240
Maximum Rated Output Wattage	3400	3400
Nominal Input Current (A rms)	15.8	15.1
Maximum Rated Input Wattage Rating (Watts)	3626	3618
Maximum Rated VA (Volt-Amp)	3628	3620
Efficiency (%)	94%	94%
Power Factor	1.000	0.999
Leakage Current (mA)	1.00	1.04
Maximum Inrush Current (A peak)	30	30
Maximum Inrush Current duration (mS)	0.2	0.2
Maximum British Thermal Unit Rating (BTU-Hr)	12372	12346

– One 8ft C19-C20 16A Power Cord is included per power supply.

HPE 3000W Titanium Hot Plug Power Supply Kit	
SKU	P27749-B21
Input Voltage Range (Vrms)	208
Frequency Range (Nominal) (Hz) 50 - 60	50-60
Nominal Input Voltage (Vrms)	208
Maximum Rated Output Wattage	3000
Nominal Input Current (A rms)	15.8
Maximum Rated Input Wattage Rating (Watts)	3260
Maximum Rated VA (Volt-Amp)	3268
Efficiency (%)	96
Power Factor 1.000 0.999	0.999
Leakage Current (mA)	0.9
Maximum Inrush Current (A peak)	30
Maximum Inrush Current duration (mS)	0.2
Maximum British Thermal Unit Rating (BTU-Hr)	10916

– One 8ft C19-C20 16A Power Cord is included per power supply.

Technical Specifications

HPE 1800W-2200W Flex Slot Titanium Hot Plug Power Supply					
SKU	P44712-B21 HPE's Generic Part Number: P44714-001 HPE's Spares Part Number: P47163-001			N/A	N/A
Input Voltage Range (Vrms)	200 - 240			N/A	N/A
Frequency Range (Nominal) (Hz)	50 - 60			N/A	N/A
Nominal Input Voltage (Vrms)	200	208	220	230	240
Maximum Rated Output Wattage	1799	1900	2000	2100	2200
Nominal Input Current (A rms)	9.6	9.8	9.7	9.8	9.8
Maximum Rated Input Wattage Rating (Watts)	1904	2013	2119	2226	2334
Maximum Rated VA (Volt-Amp)	1923	2033	2140	2249	2357
Efficiency (%)	94.5	94.4	94.4	94.3	94.3
Power Factor	0.99	0.99	0.99	0.99	0.99
Leakage Current (mA)	0.66	0.69	0.73	0.76	0.80
Maximum Inrush Current (A peak)	30			N/A	N/A
Maximum Inrush Current duration (mS)	10			N/A	N/A
Maximum British Thermal Unit Rating (BTU-Hr)	6497	6868	7230	7596	7962

– One 6ft C13 IEC TO IEC 10A Power Cord is included per power supply.

– To connect PDUs with C20 power outlets, you will need to order a HPE C20 - C13 WW 250V 15Amp 2.0m Jumper Cord (SKU: AF590A) for each power supply. This cord supports C13 power outlets and is necessary to connect PDUs with C20 outlets.

Notes: When using high-current power cords in North America, the maximum power mode can be set to 2200W at lower input voltages like 208VAC. To enable the maximum mode, Power and thermal settings must be updated in HPE OneView to set the maximum power allocation. For more details, consult the OneView User Guide for Synergy.

HPE Synergy 12000 Frame		
Dimensions	Height	17.4in (442mm)
	Width	18.98in (482mm)
	Depth	36.88in (936mm)
Shipping Dimensions	Height	30.13in (765.3mm)
	Width	24.50in (622.3mm)
	Depth	40.50in (1028.7mm)
Frame Weight	Unboxed	137lb (62kg)
	Shipping	185lb (84kg)
Notes: The Frame weight above includes only an empty Frame- Compute, storage, power supplies, fans, interconnect modules, Management Appliances and Frame Link Modules are not included. The weight for power supplies, fans, and other option(s) is listed below. Please see the specific compute module and interconnect module QuickSpecs for their respective weight.		
Power Supply Weight (minimum 1, maximum 6)	4.8lbs (2kg)	
HPE Synergy Fan Weight (minimum 10, maximum 10)	1.5lbs (1kg)	
Management Appliances (minimum 1, maximum 2)	3lbs (1.4kg)	
Frame Link Modules (minimum 1 maximum 2)	1.4lbs (1kg)	
Maximum Frame Weight (approximate)	Unboxed	521lb (236kg)
	Shipping	569lb (258kg)

Technical Specifications

Notes: The approximate maximum Frame weight above includes 12 480 Compute Modules, 6 six power supplies, 10 fans, 6 interconnect modules, 2 Composer Management Appliances and 2 Frame Link Modules.

Temperature Range	Operating	50° to 95° F (10° to 35° C)
	Non-Operating	-22° to 140° F (-30° to 60° C)
Relative Humidity	Operating	10 to 90% relative humidity (Rh), 28°C (82.4°F) maximum wet bulb temperature, non-condensing.
	Non-Operating	5 to 95% relative humidity (Rh), 38.7°C (101.7°F) maximum wet bulb temperature, non-condensing.

Notes:

- Operating temperature has an altitude derating of 1.8° F (1° C) per 1,000 ft (304.8 m). No direct sunlight. Upper operating limit is 10,000 ft (3,048 m) or 70Kpa/10.1 psia. Upper non-operating limit is 30,000 ft (9,144 m) or 30.3 KPa/4.4 psia. Storage maximum humidity of 95% is based on a maximum temperature of 113° F (45° C). Altitude maximum for storage is 70 KPa.
- For detailed environmental and other installation requirements, please see the "HPE Site Planning Guide" at http://www.hpe.com/support.

Environmental-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
13-Oct-2025	Version 41	Changed	Configuration Information section was updated - Module Bays, and Standard of Placement for Interconnect Modules (ICM) and Mezzanine Cards information was updated. Best Practices for the placement of Mezzanine Cards and Interconnect Modules (ICM) information was updated.
18-Aug-2025	Version 40	Changed	Configuration Information section was updated - Best Practices for ICM/Mezzanine #1 information was updated. Related Options section was updated - Notes on HPE Synergy 12000 Frame Options were updated.
28-Apr-2025	Version 39	Changed	Standard Features and Configuration Information sections were updated.
17-Jun-2024	Version 38	Changed	Technical Specifications section was updated.
04-Dec-2023	Version 37	Changed	Modified Sections: Overview, Standard Features, Configuration Information and Related Options sections were updated.
23-Oct-2023	Version 36	Changed	Service and Support and Configuration Information sections were updated.
18-Sep-2023	Version 35	Changed	Standard Features, Configuration Information and Technical Specifications sections were updated.
11-Sep-2023	Version 34	Changed	Overview, Standard Features, Configuration Information and Technical Specifications sections were updated.
10-Jul-2023	Version 33	Changed	Standard Features, Configuration Information, and Related Options sections were updated
03-Apr-2023	Version 32	Changed	Standard Features and Configuration Information sections were updated.
06-Mar-2023	Version 31	Changed	Standard Features, Configuration information and Related Options sections were updated.
10-Jan-2023	Version 30	Changed	Configuration information section was updated Obsolete SKUs were removed
04-Apr-2022	Version 29	Changed	Overview, Standard Features, Configuration Information sections were updated Obsolete SKUs were removed
15-Sep-2021	Version 28	Changed	Obsolete SKUs were removed Service and Support Pointnext Tech Care and Complete Care information added
06-Jul-2021	Version 27	Changed	Configuration Information and Technical Specifications sections were updated
04-May-2021	Version 26	Changed	Standard Features and Configuration Information sections were updated Obsolete SKUs were deleted: K2Q84B, 777430-B21, H0VL8E
15-Feb-2021	Version 25	Changed	QuickSpecs was updated and rebranding was applied.

Summary of Changes

Date	Version History	Action	Description of Change
18-Jan-2021	Version 24	Changed	Configuration Information section was updated.
17-Aug-2020	Version 23	Changed	Configuration Information and Related Options sections were updated.
09-Dec-2019	Version 22	Changed	Configuration Information and Technical Specifications sections were updated.
03-Sep-2019	Version 21	Changed	QuickSpecs sections were updated.
05-Aug-2019	Version 20	Changed	Configure-to-Order - Factory Integrated Models, and Power Supply Specifications sections were updated. Obsolete SKUs were deleted: 759557-B21, K2Q83A, P9R52A, P9R55A, P9S13A, P9S16A, AF460A, AF461A, AF462A, AF463A, AF429A, AF430A.
15-Apr-2019	Version 19	Changed	Overview, Standard Features, Service and Support, Configure-to-Order - Factory Integrated Models, and Power Supply Specifications sections were updated. SKUs added: 876929-B21, Q2E55A, Q2E56A, Q2E57A, Q2E58AA, 876529-B21, P08477-B21, 876449-B21, 777456-B21, 870828-B21. SKUs deleted: 779227-B21, 777430-B21, 804098-B21, P9K16A, P9K18A, P9K57A, P9K60A, AF520A, AF525A, AF521A, AF531A, AF534A, AF431A, AF432A, AF611A, AF618A, AF619A.
03-Dec-2018	Version 18	Changed	Configure to Order - Factory Integrated Models section was updated. SKUs added: 868779-B21, 845972-B21, R1C66A, 804923-B21, 845970-B21. SKUs were deleted: 813570-001, K2Q86A, 845412-B21.
05-Nov-2018	Version 17	Changed	Standard Features, Service and Support, and Configure-to-order - Factory Integrated Models sections were updated. Obsolete SKUs were deleted: K2Q86A, 845412-B21.
01-Oct-2018	Version 16	Changed	Updates applied to document.
04-Sep-2018	Version 15	Changed	Recommended/Extended updates were applied. SKUs added in Configure to Order - Factory Integrated Models
06-Aug-2018	Version 14	Changed	Service and Support, Platform Information, and Configure-to-order - Factory Integrated Models were updated. SKUs added: 845970-B21, 807967-001, 813561-001.
07-May-2018	Version 13	Changed	Standard Features, Models, Configure-to-Order - Factory Integrated Models, and Related Options sections were updated. Obsolete SKUs were deleted: 797738-B21, 797739-B21, 798349-B21, 798102-B21, 798100-B21, 804942-B22, 861414-B21, 755984-B21, 804095-B21, 804107-B21, 755984-B21, P9B76A.
04-Dec-2017	Version 12	Changed	Overview, Standard Features, and Related Options sections were updated. SKU added in Relate Options section: 871749-B21. SKUs deleted in Related Options section: 872033-B21, 872036-B21, 872034-B21.OBS SKUs deleted: 779224-B21.

Summary of Changes

Date	Version History	Action	Description of Change
25-Sep-2017	Version 11	Changed	Related Options section was updated. SKUs added in Related Options section: 779224-B21, 866573-B21, 794502-B23, 845410-B21, 845412-B21, 845414-B21, P9K09A, P9K10A, P9K15A, P9K16A, P9K18A, P9K39A, P9K40A, P9K45A, P9K46A, P9K48A, P9K51A, P9K52A, P9K57A, P9K58A, P9K60A, P9Q39A, P9Q40A, P9Q41A, P9Q42A, P9Q43A, P9Q44A, P9Q45A, P9Q46A, P9Q47A, P9Q48A, P9Q49A, P9Q50A, P9Q51A, P9Q52A, P9Q53A, P9Q54A, P9Q55A, P9Q56A, P9Q57A, P9Q58A, P9Q59A, P9Q60A, P9Q61A, P9Q62A, P9Q63A, P9Q64A, P9Q65A, P9R51A, P9R52A, P9R53A, P9R54A, P9R55A, P9R56A, P9R57A, P9R77A, P9R58A, P9R59A, P9R78A, P9R60A, P9R61A, P9R79A, P9R80A, P9R82A, P9R83A, P9R86A, P9R81A, P9R87A, P9R84A, P9R85A, P9S13A, P9S14A, P9S16A, P9S17A, P9S15A, P9S18A, P9S19A, P9S20A, P9S21A, P9S22A, P9S23A, P9S24A, P9S25A, P9Q66A, P9Q67A, P9Q68A, AF547A, AF528A, Q0R19A, Q0P71A, Q0P72A, Q0P73A, Q0R15A, Q0R16A, Q0R17A, Q0R18A, 813562-001. SKUs removed from Related Options section: H5M59A, H5M60A, H5M75A, H5M71A, 252663-D71, 252663-B24, 252663-D72, 252663-B33, 252663-B21, 252663-D75, 252663-D73, H5M62A, H5M64A, H5M72A, H5M73A, H5M67A, AF512A, AF513A, AF519A, AF511A, AF518A, D9N47A, D9N48A, D9N50A, D9N49A, D9N53A, D9N55A, D9N57A, D9N58A, D9N62A, D9N61A, D9N54A, D9N59A, G9Z07A, D9N60A, G9Z08A, D9N56A, H8B50A, H8B51A, H8B52A, H8B53A, H8B54A, H8B55A, H8B56A, 813570-001.
07-Aug-2017	Version 10	Changed	Overview, Service and Support, Related Options, and Power Supply Specifications sections were updated. SKUs were added in Related Options section: 798102-B21, 798101-B21, 798100-B21, 798099-B21, 872033-B21, 872036-B21, 872034-B21, 872035-B21, AF592A, 359615-031, AF576A, AF577A, AF579A, AF580A, AF581A, AF582A, AF583A, AF584A, P9B75A, P9B76A, P9B77A, U8JM3E , U8JM4E. SKUs removed from Related Options sections: U8JM3E, U8JM4E, H5M70A, 252663-D74.
11-Jul-2017	Version 9	Changed	Overview, Standard Features, Service and Support, Platform Information, and Related Options sections were updated SKUs added in Platform Information and Related Options sections: 797740-B22, 804942-B21, 804942-B22, 794502-B23, 779224-B21, 779215-B21, 866573-B21, 779215-B22, 779218-B22, 799330-B22, 867322-B21, 777452-B21, 777454-B21, 817040-B21, Obsolete SKUs were deleted: 779224-B21
05-Jun-2017	Version 8	Changed	Service and Support, Related Options, Power Supply Specifications, and Technical Specifications sections were updated. SKUs added in Related Options section: 798349-B21, 798342-B21, AF575A, J6W98A, J6W99A, J6X00A, J6X01A, J6X02A, J6X03A. Obsolete SKUs were deleted in Related Options section: 794502-B21, AF900A, AF537A, H0VL6E, H0VL9E.

Summary of Changes

Date	Version History	Action	Description of Change
13-Jan-2017	Version 7	Changed	Service and Support, All Synergy Frame Models, and Related Options sections were updated.
26-Sep-2016	Version 6	Changed	QuickSpecs sections were updated. SKU added in Related Options: 838327-B21
29-Jul-2016	Version 5	Changed	QuickSpecs deleted. SKU deleted: 777434-B21
06-Jun-2016	Version 4	Changed	Related Options section was updated. SKUs added in Related Options section: 799330-B21 Obsolete SKUs were deleted: 804937-B21, 779224-B21, AF902A, AG072A, AG073A, AG084A, AG086A.
15-Apr-2016	Version 3	Changed	Format changes all over document to solve HTML/PB issues.
31-Mar-2016	Version 2	Changed	Overview and Related Options sections were updated. SKUs added to QuickSpecs: 797740-B21, 797738-B21, 797739-B21, 798096-B21, 798095-B21, 804353-B21, 804937-B21, 804942-B21, 861412-B21, 861413-B21, 861414-B21, 794502-B21, 779215-B21, 779218-B21, 835386-B21, 755984-B21, 757323-B21, 755985-B21, 759557-B21, K2Q83A, K2Q84A, K2Q86A, D4U69A, D4U69AAE, 779227-B21, 777430-B21, 777434-B21, 777452-B21, 777454-B21, 794538-B21, 817040-B21, K2Q87A, 804095-B21, 804098-B21, 804155-B21, 804101-B21, 804104-B21, 804107-B21, 804110-B21, 835386-B21, H6J67A, H6J68A, H6J69A, H6J70A, BW899A, BW900A, BW907A, BW908A, BW910A, BW966A, BW919A, BW920A, BW968A, TK756A, TK766A, TK760A, TK772A, BW913A, BW914A, BW936A, H5M59A, H5M60A, H5M70A, H5M75A, H5M71A, 252663-D71, 252663-B24, 252663-D74, 252663-D72, 252663-B31, 252663-B33, 252663-B21, 252663-D75, 252663-D73, H5M62A, H5M64A, H5M72A, H5M73A, H5M67A, AF512A, AF513A, AF519A, AF511A, AF518A, D9N47A, D9N48A, D9N50A, D9N49A, D9N53A, D9N51A, D9N55A, D9N57A, D9N58A, D9N62A, D9N61A, D9N54A, D9N59A, G9Z07A, D9N60A, G9Z08A, D9N56A, H8B50A, H8B51A, H8B52A, H8B53A, H8B54A, H8B55A, H8B56A, AF520A, AF525A, AF521A, AF531A, AF534A, AF522A, AF526A, AF900A, AF533A, AF523A, AF902A, AF901A, AF527A, AF535A, AF537A, AF538A, AF532A, AF460A, AF461A, AF462A, AF463A, AF431A, AF432A, AF429A, AF430A, G9Y75A, AF479A, TK744A, TK745A, TK738A, TK739A, TK740A, TK741A, TK742A, TK743A, AF575A, AF574A, 295633-B22, E7804A, E7805A, AF593A, AF592A, 359615-031, AF576A, AF577A, AF579A, AF580A, AF581A, AF582A, AF583A, AF584A, 807967-B21, 813561-B21, 417894-B21, 813570-001, 813569-001, 813567-001, 813563-001, 813568-001, 813560-001, 813564-001, C0L99A, EH969A, EH970A, AG072A, AG073A, AG084A, AG086A, 631341-B21, 631344-B21, 631346-B21, 631348-B21, 631358-B21, 631360-B21, 631362-B21, 631364-B21, 638212-B21, 638214-B21, AF629A, AF630A, AF631A, AF632A, AF633A, AF642A, AF643A, AF644A, AF645A, G7T29A, AF611A, AF651A, AF652A, AF653A, AF618A, AF619A, AF620A, AF621A, AF622A, H0VL5E, H0VL6E, H0VL8E, H0VL9E, HA454A1-300, HA454A1-301, U8JM3E, U8JM4E.

Date	Version History	Action	Description of Change
01-Dec-2015	Version 1	Created	New QuickSpecs

Copyright

Shape the Future of QuickSpecs - Your Input Matters

Chat now

c04815113 - 15410 - Worldwide - V41 - 13-October-2025
HEWLETT PACKARD ENTERPRISE
Hpe.com