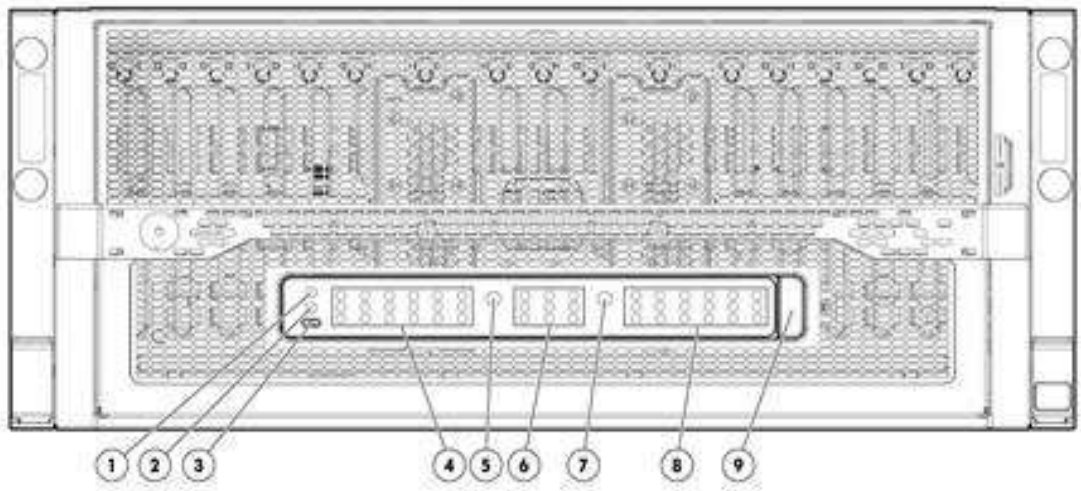
Overview

HPE Moonshot 1500 Chassis

The HPE Moonshot System uses an innovative new architecture that results from one simple design tenet: to align purpose-built servers with the right workload to provide optimal results for your environment. Traditional servers rely on dedicated components, including management, networking, storage, power cords and cooling fans in a single chassis. In contrast, the Moonshot system shares these chassis components and is capable of supporting up to 45 workload-optimized ProLiant server cartridges (each offering up to 16 Intel® Xeon® cores, 128GB RAM and 4TB NVMe SSD storage) in a compact 4.3U chassis. This gives you the ability to generate greater revenue from a smaller footprint while driving down your operational costs.

The HPE Moonshot System with its portfolio of ProLiant Server Cartridges and modular Switches excels in a variety of uses:

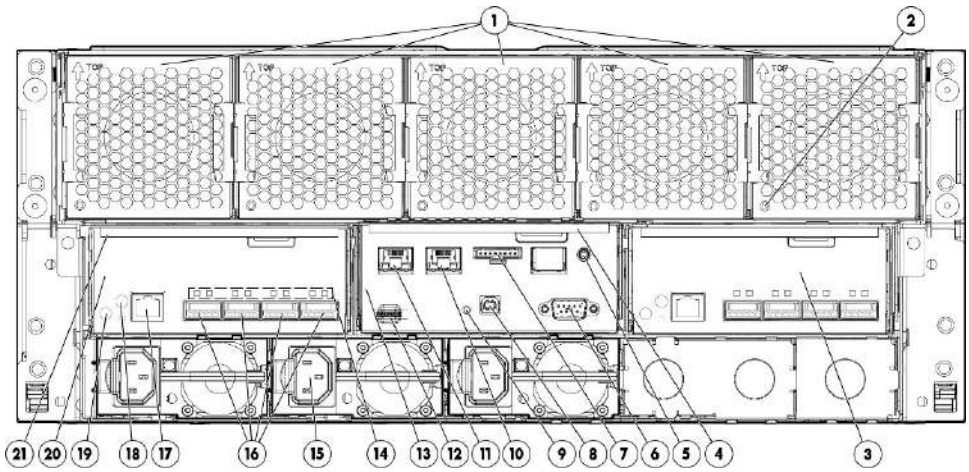
- Performance intensive Trader Workstations at top financial firms worldwide
- Mission critical Engineering Workstations for Computer Aided Design (CAD) and Digital Content Creation (DCC)
- Extreme density Hosted Desktop Infrastructure (HDI) and Application Delivery, but with excellent user experience
- Efficient Video Transcoding and Content Delivery Network (CDN) caching for major multimedia providers
- High Performance Computing (HPC CFD) farm helping to build better racing cars and many more.



Front View

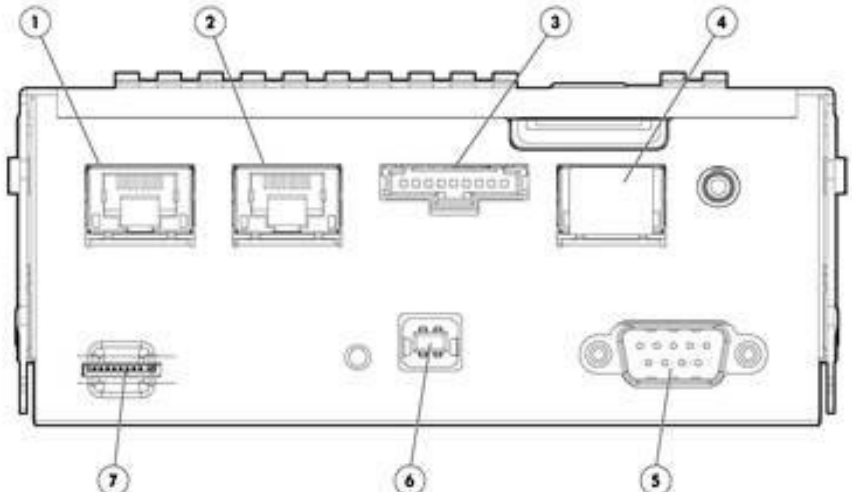
1. Chassis Power LED
2. System Health LED
3. Chassis UID/LED/button
4. Front Panel Display LED, ProLiant server 1-18
5. Switch Module A Health LED
6. Front Panel Display LED, ProLiant server 19-27
7. Switch module B health LED
8. Front Panel Display LED, ProLiant server 28-45
9. Front Panel Display release

Overview



Back View

1. Fans
2. Fan LED
3. Uplink Module A
4. HPE Moonshot 1500 CM Module release lever
5. HPE Moonshot 1500 CM Module UID/LED button
6. HPE Moonshot 1500 CM Module serial port
7. HPE Moonshot 1500 CM Module SL-APM port
8. HPE Moonshot 1500 CM Module USB connector
9. HPE Moonshot 1500 CM Module LED
10. iLO CM link port (disabled by default)
11. iLO CM RJ45 Management port
12. HPE Moonshot 1500 CM Module MicroSD slot
13. HPE Moonshot 1500 Chassis Management (CM) Module
14. Switch Module uplink/downlink activity LEDs
15. Power supply connector
16. Four (4) 40GbE QSFP+ connectors
17. Serial connector
18. Uplink Module UID/LED button
19. Uplink Module health LED
20. Uplink Module B
21. Uplink Module release lever



HPE Moonshot 1500 Chassis Management (CM) Module

1. iLO CM RJ45 Management port
2. iLO CM link port (disabled by default)
3. HPE Moonshot 1500 CM Module HPE APM port
4. HPE Moonshot 1500 CM Module diagnostic port
5. HPE Moonshot 1500 CM Module serial port
6. HPE Moonshot 1500 CM Module USB connector
7. HPE Moonshot 1500 CM Module MicroSD slot

Standard Features

Embedded Management
Included in all HPE Moonshot Systems, the HPE Moonshot 1500 Chassis Management module manages the health of the chassis and servers via a command-line interface accessible via SSH as well as a web-based Graphical User Interface (GUI). Customers can configure the chassis, set server settings, and flash firmware in the HPE Moonshot 1500 System. The HPE Moonshot 1500 Chassis Management module also supports **Intelligent Platform Management Interface (IPMI)**.
The HPE Moonshot 1500 Chassis Management module supports the HPE RESTful Interface Tool, this tool provides mass scripting configuration for rapid deployment of multiple HPE Moonshot Systems.
For more information on the HPE Moonshot 1500 Chassis Management Module, please contact your sales representative or go to:
http://www.hpe.com/info/moonshot

HPE Moonshot Remote Console Administrator (806843-B21)
The HPE Moonshot Remote Console Administrator (mRCA) allows users to have access to keyboard, video monitors and a mouse in a headless environment. It enables users to remote console (on a node per node basis) for the initial golden OS image installation (Windows or Linux) assistance, virtual media functionality for mounting an image to boot, and in addition the mRCA can be used as debug/crash tool. Click here, for additional technical information.
https://h20195.www2.hpe.com/v2/GetDocument.aspx?docname=c04616502
NOTE: The mRCA is not required for new server cartridges such as the HPE m510 or m710x that have an embedded integrated Lights-Out (iLO4) management processor. Instead these servers provide out-of-box virtual KVM and virtual Media capabilities that can be directly accessed through the iLO CM web GUI.

HPE Moonshot Component Pack
The HPE Moonshot Component Pack, is the delivery mechanism for firmware updates on the HPE Moonshot System, it includes firmware, and tools including the HPE Smart Update Manager (HPE SUM).

The HPE Smart Update Manager (SUM) - is the engine/application that deploys the updates from the HPE Moonshot Component Pack on HPE Moonshot Systems. HPE SUM helps you inventory and identify which servers require updates, gets the necessary components from the HPE Moonshot Component Pack, and then performs the respective updates individually, as a group, or at scale. HPE SUM simplifies the update process, making HPE ProLiant server cartridges much easier to manage by letting you know what's happening throughout the update process. The tool provides a graphical user interface (GUI), scriptable command line interface (CLI), and an interactive CLI. In addition, HPE SUM offers comprehensive reporting to ensure the latest drivers, software, and firmware are implemented into the server environment.

To download the HPE Moonshot Component Pack, please reference:
http://www.hpe.com/info/moonshot

HPE ProLiant Server Cartridges
Based on Intel® Xeon®
HPE ProLiant m510 Server Cartridge
https://h20195.www2.hpe.com/v2/GetDocument.aspx?docname=c05069171
HPE ProLiant m710x Server Cartridge
https://h20195.www2.hpe.com/v2/GetDocument.aspx?docname=c05069173
Based on AMD Opteron™
HPE ProLiant m700p Server Cartridge
https://h20195.www2.hpe.com/v2/GetDocument.aspx?docname=c05174362

Standard Features

Network Switch
Comware
HPE Moonshot-45Gc Switch Module
https://h20195.www2.hpe.com/v2/GetDocument.aspx?docname=c04773032
HPE Moonshot-45XGc Switch Module
https://h20195.www2.hpe.com/v2/GetDocument.aspx?docname=c04384058
HPE Moonshot-180XGc Switch Module
https://h20195.www2.hpe.com/v2/GetDocument.aspx?docname=c04923651

Network Uplink
HPE Moonshot-6SFP+ Uplink Module
https://h20195.www2.hpe.com/v2/GetDocument.aspx?docname=c04111340
HPE Moonshot-16SFP+ Uplink Module
https://h20195.www2.hpe.com/v2/GetDocument.aspx?docname=c04499458
HPE Moonshot-4QSFP+ Uplink Module
https://h20195.www2.hpe.com/v2/GetDocument.aspx?docname=c04111341

Moonshot Network Switch compatibility
NOTE: Up to two identical pairs of Switch and Uplink modules are supported in the Moonshot 1500 System. Dual switch modules are required for network redundancy, regardless of cartridge configuration.
NOTE: Check Compatibility matrix below for supported switch and uplink module

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Switch	HPE ProLiant Server Cartridges	HPE ProLiant Server Cartridges	HPE ProLiant Server Cartridges	HPE ProLiant Server Cartridges	Uplink	Uplink	Uplink
	m510 (8 core / 1 node)	m510-16c (16 core / 1 node)	m710x (4 core / 1 node)	m700p (4 core / 4 node)	Moonshot 6 SFP+ Uplink	Moonshot 16 SFP+ Uplink	Moonshot 4 QSFP+ Uplink
Moonshot-45Gc Switch	1 Gb	1 Gb	1 Gb	-	X	-	-
Moonshot-45XGc Switch	1 or 10 Gb	1 or 10 Gb	1 or 10 Gb	-	-	X	X
Moonshot-180XGc Switch	1 or 10 Gb	1 or 10 Gb	1 or 10 Gb	1 Gb only	-	X	X

Standard Features

HPE Common Slot Power Supply

HPE Moonshot 1500 System can accommodate up to four (4) HPE Common slot power supplies listed in Step 4 of the Configure to Order section of this QuickSpecs.

The HPE Common Slot (CS) power supplies allow for commonality of power supplies across a wide range of ProLiant and Integrity servers, as well as HPE Storage solutions, and are designed to provide the highest power supply efficiency without degrading system performance. HPE CS power supplies are tested by the Electric Power Research Institute (EPRI) and certified through the ECOS 80 Plus power supply program. HPE CS power supply options provide efficiency ratings of up to 94% and are available in a 1200w and 1500W configurations for this platform. All HPE Common Slot power sources are UL, CE Mark Compliant, hot-plug and support redundant configurations. HPE Power Advisor can be accessed at: **https://paonline56.itcs.hpe.com/?Page=Index**

NOTE: Redundant Power: Optional redundant power supplies will vary based on configurations. Please refer to specific HPE Proliant server cartridge for details.

Enclosure

The HPE Moonshot 1500 System is 4.3U high and holds up to forty-five (45) ProLiant Server cartridges. Switches, uplinks, power supplies, fans, and a chassis management module are all designed to fit into the HPE Moonshot 1500 System.

NOTE: Can be racked as either a 5U tall chassis or as three chassis in 13U.

Warranty

This product is covered by a global limited warranty and supported by Hewlett Packard Enterprise Services and a worldwide network of Hewlett Packard Enterprise Authorized Partner Ready Resellers. Hardware diagnostic support and repair is available for three years from date of purchase. Support for software and initial setup is available for 90 days from date of purchase. Enhancements to the warranty services are available through HPE services or customized service agreements. Hard drives have either a one year or three-year warranty; refer to the specific hard drive QuickSpecs for details.

NOTE: Chassis Warranty includes 3-Year Parts, 3-Year Labor, 3-Year Onsite support. Additional information regarding worldwide limited warranty and technical support is available at:

http://h20564.www2.hpe.com/hpsc/wc/public/home

HPE Moonshot 1500 System

The HPE Moonshot 1500 System holds up to 45 ProLiant server cartridges plus redundant network switches. It includes a shared base-plane with three multi-terabit high-speed fabrics: to connect server cartridges to the network, to connect server cartridges to neighboring server cartridges and 2D Torus fabric. Power is delivered through a pooled-power back-plane that ensures the full capacity of the hot-plug power supplies is available to all cartridges.

Each HPE Moonshot 1500 System is built with the following functions:

- Up to 45 ProLiant server cartridges per chassis.
- Up to 2 independently paired network and uplink modules supported simultaneously within the chassis.
- Five dual-rotor, hot-plug, redundant fans as standard.
- Optionally redundant hot-plug power supplies
- Optionally redundant interconnect modules
- The HPE Moonshot 1500 Chassis Management module manages the health of the chassis and servers.

A HPE Moonshot 1500 System provides the following benefits:

- Optimum performance and utilization by using servers tailored to specific workloads
- Lowest cost of ownership.
- With local and remote hardware management integrated across the solution, one full enclosure can be managed as easily as one server.
- Investment protection: Accommodates multiple server and network designs in one enclosure.
- Lower costs per server, in comparison to rack-mounted servers
- Lower power consumption, in comparison to rack-mounted servers.
- Lower airflow requirements, in comparison to rack-mounted servers

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Optional Features

HPE Insight Cluster Management Utility
HPE Insight Cluster Management Utility (CMU) is an Hewlett Packard Enterprise-licended and Hewlett Packard Enterprise-supported suite of tools that are used to manage large-scale systems. Insight CMU includes software for the centralized provisioning, management and monitoring of nodes. Insight CMU makes the administration of clusters more user friendly, efficient, and error free than if they were being managed by scripts, or on a node-by-node basis. For more information on Hewlett Packard Enterprise Insight Cluster Management Utility, please contact your sales representative or go to:
https://www.hpe.com/us/en/product-catalog/detail/pip.3296361.html#

HPE StoreVirtual VSA
HPE StoreVirtual VSA Software provides complete storage array functionality for virtualized environments without the need for external array hardware. Built on proven technology, HPE StoreVirtual VSA delivers software-defined storage by virtualizing up to 50TB of disk capacity on a server running VMware vSphere, Microsoft Hyper-V or Linux KVM. The HPE StoreVirtual VSA eliminates the need for external shared storage required to implement advanced hypervisor features.
For more details refer to: **https://www.hpe.com/us/en/storage/storevirtual.html**
NOTE: A free 1TB StoreVirtual license is available with the purchase of any Intel® Xeon® based server cartridge. For details on this offer refer to: **https://www.hpe.com/h20195/v2/getpdf.aspx/4AA5-5143ENW.pdf**

Factory Express Portfolio for Servers and Storage
HPE Factory Express offers configuration, customization, integration and deployment services for Hewlett Packard Enterprise servers and storage products. 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 asset tagging, and custom packaging. Hewlett Packard Enterprise products supported through Factory Express include a wide array of servers and storage: HPE Moonshot, HPE Integrity, HPE ProLiant, HPE ProLiant Server Blades, and HPE BladeSystem, HPE 9000 servers as well as the MSAxxxx, VA7xxx, EVA, XP, 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

Services and Support

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

Protect your business beyond warranty with HPE Services
HPE Services enable you to order the right service level, length of coverage and response time as you purchase your new server, giving you full entitlement for the selected support.

Recommended HPE Services for your HPE product (4 and 5 year Service offerings are also available)
Optimized Care
Foundation Care 24x7, three-year Service
HPE Foundation Care 24x7 connects you to Hewlett Packard Enterprise 24 hours a day, seven days a week for assistance on resolving issues. Hardware onsite response within four hours if needed. Collaborative software included in this service provides troubleshooting assistance on industry leading software running on your HPE server. Simplify your support experience and make Hewlett Packard Enterprise your first call for hardware or software questions.
https://www.hpe.com/h20195/V2/GetDocument.aspx?docname=4AA4-8876ENW&cc=us&lc=en

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Standard Care
Foundation Care NBD, three-year Service
HPE Foundation Care Next Business Day (NBD) gives you support during business hours for assistance on resolving issues – features next business day hardware onsite response if needed and software with a call back within two hours. Collaborative software support is included and provides troubleshooting assistance on industry leading software running on your HPE server. Simplify your support experience and make Hewlett Packard Enterprise your first call for hardware or software questions.
https://www.hpe.com/h20195/V2/GetDocument.aspx?docname=4AA4-8876ENW&cc=us&lc=en

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Related Services
HPE Moonshot Installation & Startup Service
HPE Installation and Startup Service for the Moonshot System provides for the installation of one system and its associated ProLiant server cartridges and network switches, as well as operating system deployment and basic configuration of OS network parameters to establish network connectivity

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Connect your devices to HPE
Unlock all of the benefits of your technology investment by connecting your products to Hewlett Packard Enterprise. Achieve up to 77% reduction in down time, near 100% diagnostic accuracy and a single consolidated view of your environment. By connecting, you will receive 24x7 monitoring, pre-failure alerts, automatic call logging, and automatic parts dispatch. HPE Proactive Care Service and HPE Datacenter Care Service customers will also benefit from proactive activities to help prevent issues and increase optimization. All of these benefits are already available to you with your server storage and networking products, securely connected to Hewlett Packard Enterprise support.

Services and Support

Defective Media Retention (DMR) and Comprehensive Defective Material Retention (CMDR)
If your business deals with sensitive or legally protected data, you know that it's not a simple matter to return a defective hardware component, but keeping it conflicts with the terms and conditions of many standard warranty agreements. If you don't return the component, you'll be charged for the replacement part.

HPE Foundation Care services are available with defective media retention or comprehensive defective material retention of those other data-retentive components, such as hard drives, memory, switches and processors. This is critical for customers who:

- Need to control and secure their classified, proprietary and confidential data.
- Are subject to current data privacy regulations.

Want a simpler, more cost-effective solution when choosing not to return a malfunctioning disk drive or other data retentive component.

Other Services
HPE Technology Services Support Credits offer flexible services and technical skills to meet your changing IT demands. With a menu of services tailored to suit your needs, you get additional resources and specialist skills to help you maintain peak performance of your IT with technical and operational services. There is even a custom deliverable where we work with you to develop exactly what meets your needs. Offered as annual credits, you can plan your budgets while proactively responding to your dynamic business.

HPE Education Services keep your IT staff trained making sure they have the right skills to deliver on your business outcomes. Book on a class today and learn how to get the most from your technology investment.
https://www.hpe.com/us/en/services/it-education-training.html

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HPE Support Center
Hewlett Packard Enterprise provides several tools that make it simpler to get help from Hewlett Packard Enterprise:

HPE Support Center is personalized online support portal with access to information, tools and experts to support Hewlett Packard Enterprise business products. Submit support cases online, chat with Hewlett Packard Enterprise experts, access support resources or collaborate with peers. Learn more: **http://ssc.hpe.com**

The HPE Support Center Mobile App allows you to resolve issues yourself or quickly connect to an agent for live support. Now, you can get access to personalize IT support anywhere, anytime. HPE Support Center are available at no additional cost with a Hewlett Packard Enterprise warranty, HPE support package or Hewlett Packard Enterprise contractual support agreement.
NOTE: HPE Support Center Mobile App is subject to local availability.

Services 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 sage 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.

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

For more information
To learn more on HPE Moonshot System, please contact your Hewlett Packard Enterprise sales representative.

Configuration Information

NOTE: This section lists some of the steps required to configure a Factory Integrated Model. To ensure only valid configurations are ordered, Hewlett Packard Enterprise recommends the use of a Hewlett Packard Enterprise approved configurator. Contact your local sales representative for information on configurable product offerings and requirements.
NOTE: Factory Integrated Models must start with an HPE Moonshot 1500 Chassis. The recommended minimum functional configuration for a HPE Moonshot System is as follows:

- One (1) ProLiant Server Cartridge
- Three (3) Power Supplies
- One (1) Switch
- One (1) Uplink

NOTE: A second Switch and Uplink Module Kit may be ordered to give a redundant network configuration or to enable two separate networks utilizing different ProLiant server cartridges.
NOTE: Some options may not be integrated at the factory.

Step 1: Base Configuration (Choose chassis)

HPE Moonshot 1500 Chassis

HPE Moonshot 1500 Chassis OS Option 755372-B21

NOTE: Mixed Cartridge configuration is supported – See Network section in step 3 for restrictions

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Step 2: Configure ProLiant Server Cartridges

HPE ProLiant Server Cartridges (Min:1, Max: 45)

NOTE: Mixed Server Cartridge configuration is supported – See Network section in step 3 and the special populations rules section for restrictions
NOTE: See Server Cartridge Quick Specs for Cartridge configurations

Based on Intel® Xeon®

HPE ProLiant m510 Server Cartridge
HPE ProLiant m510-16c Server Cartridge
https://h20195.www2.hpe.com/v2/GetDocument.aspx?docname=c05069171
NOTE: Due to thermal constraints, a maximum of 30 m510-16c servers can be configured in a chassis. Mixed configurations may allow more servers to be installed in a chassis. Please refer to the special population rules section of this document for details.
HPE ProLiant m710x Server Cartridge
https://h20195.www2.hpe.com/v2/GetDocument.aspx?docname=c05069173

Based on AMD OpteronTM

HPE ProLiant m700p Server Cartridge
https://h20195.www2.hpe.com/v2/GetDocument.aspx?docname=c05174362

Configuration Information

Step 3: Choose Required Networking Options

Networking

NOTE: Recommended to order a minimum of One (1) Switch Kit and One (1) Uplink Kit per chassis.

NOTE: Maximum of Two (2) Switch Kits and Two Uplink Kits (2) per chassis to allow configurations with redundant or dual networks.

- Customer ordering ONLY Single Node Cartridge (, m510, m710x)

For 1G Solution: Compatible Switch	**Compatible uplink**
Moonshot-45Gc Switch Module (1G Switch – **45 port**)	Moonshot 6SFP+ Uplink Module
For 10G solution: Compatible Switch	**Compatible uplink**
Moonshot-45XGc Switch Module (10G Switch – **45 port**)	Moonshot 16SFP+ Uplink Module Moonshot 4QSFP+ Uplink Module
Moonshot-180XGc Switch Module (10G Switch – **180 port**)	

- Customer ordering one or more Quad Node Cartridge (m700p), including any mix of Single and Quad node cartridges

For 10G solution: Compatible Switch	**Compatible uplink**
Moonshot-180XGc Switch Module (1G Switch – **180 port**)	Moonshot 16SFP+ Uplink Module Moonshot 4QSFP+ Uplink Module

Step 3A: Switches (Min:1, Max: 2)

Comware Switch

HPE Moonshot-45Gc Switch Module Kit	786617-B21
HPE Moonshot-45XGc Switch Module Kit	704654-B21
HPE Moonshot-180XGc Switch Module Kit	786619-B21

Step 3B: Uplinks (Min:1, Max: 2)

HPE Moonshot 6SFP Uplink Module Kit	704646-B21
HPE Moonshot-16SFP+ Uplink Module Kit	783263-B21
HPE Moonshot-4QSFP+ Uplink Module Kit	704652-B21

NOTE: If all the cartridges in the chassis are single node then 45XGc switch is the optimal switch to use for 10GbE cartridges and 45Gc switch for 1GbE cartridges. If one or more quad node cartridge is used in the same chassis then 180XGc switch is required as long as there are not more then 10 single node 10GbE cartridges in the chassis.

Power Supplies (Min:3, Max: 4)

HPE Common Slot Platinum Plus Power Supply Kits

NOTE: Minimum of Three (3) power supplies must be installed for a functional configuration. The chassis can accommodate a maximum of Four (4) power supplies.

NOTE: N+N power redundancy is supported, as long as total max power is below the total power of the remaining 2 power supplies. Intel based X86 cartridges use power capping to reduce the amount of power used during this degraded state.

HPE 1500W Common Slot Platinum Plus Power Supply Kit	684532-B21
HPE 1200W Common Slot Platinum Plus Hot Plug Power Supply Kit	656364-B21

NOTE: Due to restricted airflow at 110VAC max power is 600W per power supply – this is for the 1200W power supply only

NOTE: Due to restricted airflow at 220VAC max power is 850W per power supply– this is for the 1200W power supply only

NOTE: Power Specification and Technical Content for supported power supplies can be found at:

h

Configuration Information

HPE Rail Kits (Chassis Specific)

HPE 4.3U Server Rail Kit 681254-B21

HPE 0.66U Spacer Blank Kit 681260-B21

NOTE: For data center airflow management purposes, it is recommended that either the .66U Spacer Blank or the 13U FIO Rack Adapter Kit can be ordered.
NOTE: The HPE 4.3U Rail Kit is required to be ordered for every chassis to properly install the chassis into a rack.
NOTE: The .66U Spacer Blank kit may be ordered and will give an even 5U (4.3U+0.66U) spacing in a rack. This would enable installing up to 8 chassis in a 42U rack. It is also possible to stack up to 9 chassis in a 42U rack using the 13U FIO Rack Adapter Kit.

HPE Rack Adapter

HPE 13U FIO Rack Adapter Kit for 3X4.3U Chassis 681677-B21

NOTE: Group the HPE Moonshot 1500 Chassis units into a 13U space. Order one per three chassis.
NOTE: HPE 4.3U Server Rail Kit (PN 681254-B21) is still required
NOTE: The 0.66U spacer is not used when selecting this option.

Step 6: Choose Additional Chassis Options

NOTE: Some options may not be integrated at the factory. To ensure only valid configurations are ordered, Hewlett Packard Enterprise recommends the use of an Hewlett Packard Enterprise approved configurator. Contact your local sales representative for additional information.
NOTE: Additional options are not configurable for server upgrade kits.

Management

HPE Moonshot Provisioning Manager Free Download

NOTE: For more information see at **https://h20392.www2.hpe.com/portal/swdepot/displayProductInfo.do?productNumber=HPMPM1**

HPE Moonshot Remote Console Administrator 806843-B21

NOTE: Each Moonshot Remote Console Administrator (mRCA) must be installed adjacent to the server being managed, and will occupy One (1) chassis slot. For more information see QuickSpecs:
https://h20195.www2.hpe.com/v2/GetDocument.aspx?docname=c04616502
NOTE: The mRCA is not required or supported with newer server cartridges such as the HPE m510 or m710x

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HPE Insight Cluster Management Utility (CMU)

HPE Insight Cluster Management Utility Media BD477A

NOTE: For additional license kits please see the QuickSpecs at:
https://www.hpe.com/us/en/product-catalog/detail/pip.detail.3296361.html

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HPE StoreVirtual VSA

HPE StoreVirtual Free 1TB VSA VSA1TB-S

NOTE: Get free Software Defined Storage of up to 1TB using HPE StoreVirtual VSA. The free license is available with the order of any Intel® Xeon® based server cartridge. For details on this offer refer to: **Learn more about the free 1TB VSA program**
Full license upgrades to 4TB, 10TB or 50 TB capacities can also be purchased. Refer to the QuickSpecs at:
https://www.hpe.com/h20195/v2/GetPDF.aspx%2Fc04111621.pdf

Configuration Information

Support Services

3 year Care

HPE 3 year Foundation Care Next business day Moonshot 1500 Opt OS Service	U8K89E
HPE 3 year Foundation Care Next business day with DMR Moonshot 1500 Opt OS Service	U8K90E
HPE 3 year Foundation Care Next business day with CDMR Moonshot 1500 Opt OS Service	U8K91E
HPE 3 year Foundation Care 24x7 Moonshot 1500 Opt OS Service	U8K92E
HPE 3 year Foundation Care 24x7 wDMR Moonshot 1500 Opt OS Service	U8K93E
HPE 3 year Foundation Care 24x7 wCDMR Moonshot 1500 Opt OS Service	U8K94E
HPE 3 year Foundation Care Call to Repair Moonshot 1500 Opt OS Service	U8K95E
HPE 3 year Foundation Care Call to Repair wDMR Moonshot 1500 Opt OS Service	U8K96E
HPE 3 year Foundation Care Call to Repair wCDMR Moonshot 1500 Opt OS Service	U8K97E

4 year Care

HPE 4 year Foundation Care Next business day Moonshot 1500 Opt OS Service	U8AT3E
HPE 4 year Foundation Care Next business day with DMR Moonshot 1500 Opt OS Service	U8AT4E
HPE 4 year Foundation Care Next business day with CDMR Moonshot 1500 Opt OS Service	U8AT5E
HPE 4 year Foundation Care 24x7 Moonshot 1500 Opt OS Service	U8AT6E
HPE 4 year Foundation Care 24x7 wDMR Moonshot 1500 Opt OS Service	U8AT7E
HPE 4 year Foundation Care 24x7 wCDMR Moonshot 1500 Opt OS Service	U8AT8E
HPE 4 year Foundation Care Call to Repair Moonshot 1500 Opt OS Service	U8AT9E
HPE 4 year Foundation Care Call to Repair wDMR Moonshot 1500 Opt OS Service	U8AU0E
HPE 4 year Foundation Care Call to Repair wCDMR Moonshot 1500 Opt OS Service	U8AU1E

5 year Care

HPE 5 year Foundation Care Next business day Moonshot 1500 Opt OS Service	U8AU2E
HPE 5 year Foundation Care Next business day with DMR Moonshot 1500 Opt OS Service	U8AU3E
HPE 5 year Foundation Care Next business day with CDMR Moonshot 1500 Opt OS Service	U8AU4E
HPE 5 year Foundation Care 24x7 Moonshot 1500 Opt OS Service	U8AU5E
HPE 5 year Foundation Care 24x7 wDMR Moonshot 1500 Opt OS Service	U8AU6E
HPE 5 year Foundation Care 24x7 wCDMR Moonshot 1500 Opt OS Service	U8AU7E
HPE 5 year Foundation Care Call to Repair Moonshot 1500 Opt OS Service	U8AU8E
HPE 5 year Foundation Care Call to Repair wDMR Moonshot 1500 Opt OS Service	U8AU9E
HPE 5 year Foundation Care Call to Repair wCDMR Moonshot 1500 Opt OS Service	U8AV0E

NOTE: See HPE Support Services Central for additional services at **http://ssc.hpe.com**

Configuration Information

HPE Power Cords

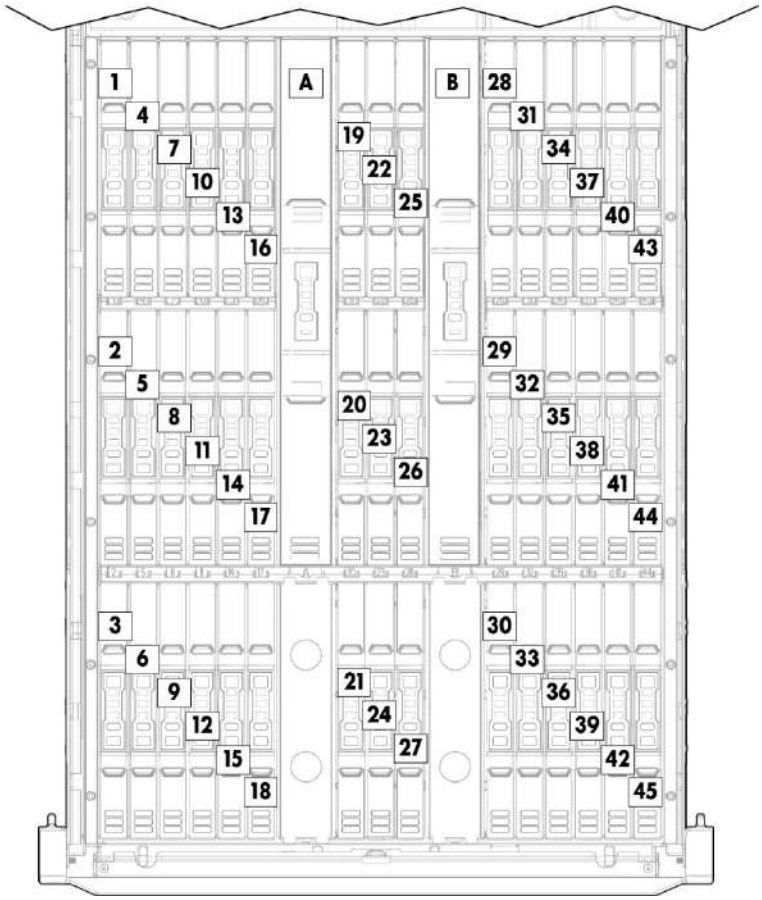
HPE OEM C13 - C14 WW 250V 10A Gray 3m Jumper Cord	A0K06A
HPE C13 - C14 WW 250V 10Amp Flint Gray 2.0m Jumper Cord	AF573A
HPE C13 - C14 WW 250V 10Amp 2.0m Jumper Cord	A0K02A
HPE C13-C14 IN 250V 2m Blk Jumper Cord	R1C65A
HPE C13 - Nema 5-15P US/CA 110V 10Amp 1.83m Power Cord	AF556A
HPE C13 - GB-1002 CN 250V 10Amp 1.83m Power Cord	AF557A
HPE C13 - IRAM -2073 AR 250V 10A 2.5m Power Cord	AF558A
HPE C13 - Nema 5-15P TH/PH 250V 10Amp 1.83m Power Cord	AF559A
HPE C13 - CNS-690 TW 110V 13Amp 1.83m Power Cord	AF561A
HPE C13 - IS-1293 IN 240V 6Amp LV 2.0m Power Cord	AF562A
HPE C13 - KSC- 8305 KR 250V 10Amp 1.83m Power Cord	AF560A
HPE C13 - SI-32 IL 250V 10Amp 1.83m Power Cord	AF564A
HPE C13 - SEV 1011 CH 250V 10Amp 1.83m Power Cord	AF565A
HPE C13 - DK-2.5A DK 250V 10Amp 1.83m Power Cord	AF566A
HPE C13 - SABS-164 ZA 250V 10Amp 2.5m Power Cord	AF567A
HPE C13 - CEE-VII EU 250V 10Amp 1.83m Power Cord	AF568A
HPE C13 - AS3112-3 AU 250V 10Amp 2.5m Power Cord	AF569A
HPE C13 - BS-1363A UK/HK/SG 250V 10Amp 1.83m Power Cord	AF570A
HPE C13 - JIS C8303 JP 100V 12Amp 2.0m Power Cord	AF572A
HPE C13 - IS-1293 IN 250V 10Amp HV 2.5m Power Cord	SG579A
HPE C13 - NBR-14136 BR 250V 10Amp 1.83m Power Cord	AF591A
HPE C13 - C14 WW 250V 10A Gray 0.7m Jumper Cord	A0K03A
HPE C13 - C14 WW 250V 10A Gray 1.37m Jumper Cord	A0K04A
HPE C13-NEMA 6-15P 10A/250V 3.6m Black Power Cord	A0N33A

Configuration Information

Specific Chassis Population Rules for the HPE ProLiant m510 Server Cartridge

Server cartridge slot and switch module bay identification

The chassis provides 45 server cartridge slots (1-45) and two switch module bays (A-B).



NOTE: Factory Integrated Models must start with a HPE Moonshot 1500 Chassis.

NOTES: The following configuration rules must be followed when installing the HPE ProLiant m510 Server Cartridge in a Moonshot 1500 System, in order to maintain an optimum thermal environment

If your configuration has m510 (8-core model) Green in diagrams

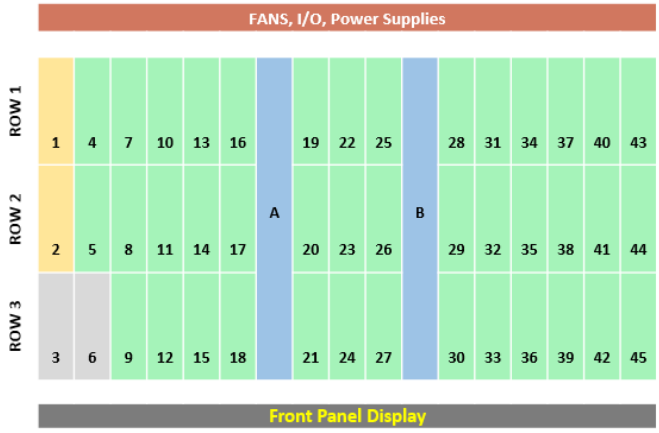
- No restriction in number of servers per chassis (i.e. 1 up to maximum of 45)
- Mixing with other ProLiant server cartridges is allowed, provided loading rules specified by other server cartridges (if any) are also fulfilled.

If your configuration has m510-16c (16-core model) Yellow in diagrams

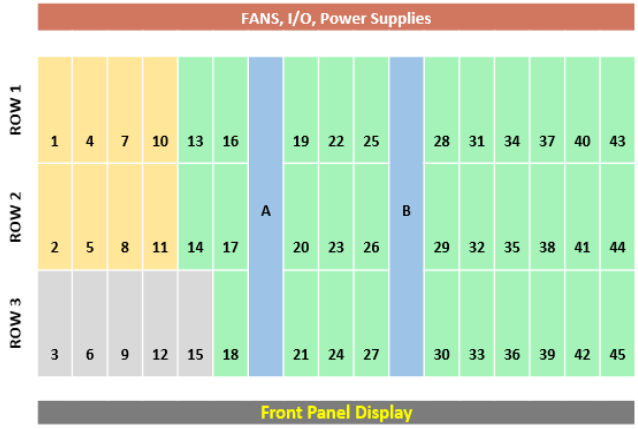
- Install m510-16c before any other servers. Start from slot 1 and move down the column to slot 2, then slot 4, 5 etc.
- Any column that has a m510-16c must leave **two slots blank** in Row 3 (one slot in its **own** column and another slot in the adjacent **right** column).
- Mixing with other ProLiant server cartridges is allowed, provided loading rules specified by other server cartridges (if any) are also fulfilled.

NOTE: Pictures 3.1-3.4 show some example scenarios. Yellow represents a m510-16c server, Green is any other server (including m510 8-core) and Grey is an Empty slot.

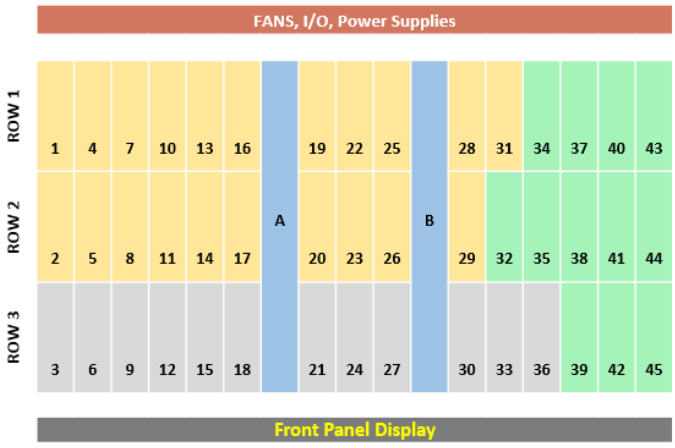
Configuration Information



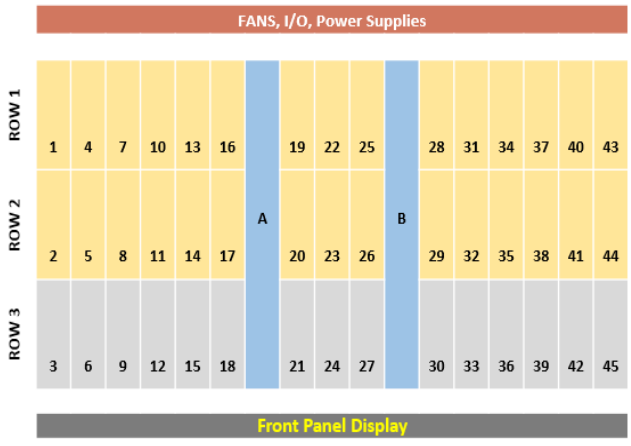
Pic 3.1



Pic 3.2



Pic 3.3



Pic 3.4

Additional Options

HPE Advanced Power Manager

The HPE Advanced Power Manager is an optional rack level solution for the HPE Moonshot System which enables server-level DC (or hardware) power on and off and server-level monitoring. In addition, the HPE APM will automatically discover hardware components, dynamic rack power capping, provides efficient Rack management, manages shared infrastructure, and participates in federation with other HPE APM units.

The HPE APM does not replace rack PDUs, but is designed to enable the utilization of basic, low cost, rack PDUs while providing the functionality of 'switched' PDUs (which provide hardware power on/off of individual servers by turning off the AC power to the power supplies of a given server).

Because the HPE Moonshot System shares power supplies to optimize power efficiency, using 'switched' PDUs to turn off all the power supplies in the chassis will result in the loss of all server nodes in that chassis. The HPE APM solves this by allowing server node-level hardware power on/off of the DC power to the individual server node motherboards.

HPE Advanced Power Manager Kit	741192-B21

NOTE: Each HPE APM can connect to 2 HPE SL Advanced Power Manager Distribution (SL APMD) modules

HPE SL Advanced Power Manager Distribution Module Kit	620002-B21

NOTE: Each SL APMD can connect up to 10 chassis

HPE Networking Options

SFP Options

HPE BladeSystem c-Class Virtual Connect 1G SFP SX Transceiver	453151-B21
HPE BladeSystem c-Class Virtual Connect 1G SFP RJ-45 Transceiver	453154-B21

Transceivers

HPE BladeSystem c-Class 10Gb SFP+ SR Transceiver	455883-B21
HPE 10GBase-T SFP+ Transceiver	813874-B21

Direct Attach Cables

HPE FlexNetwork X240 10G SFP+ to SFP+ 5m Direct Attach Copper Cable	JG081C
HPE B-series SFP+ to SFP+ Active Copper 1.0m Direct Attach Cable	AP818A
HPE B-series SFP+ to SFP+ Active Copper 5.0m Direct Attach Cable	AP820A
HPE BladeSystem c-Class 10GbE SFP+ to SFP+ 3m Direct Attach Copper Cable	487655-B21
HPE BladeSystem c-Class 10GbE SFP+ to SFP+ 5m Direct Attach Copper Cable	537963-B21
HPE B-series SFP+ to SFP+ Active Copper 3.0m Direct Attach Cable	AP819A
HPE BladeSystem c-Class 10GbE SFP+ to SFP+ 1m Direct Attach Copper Cable	487652-B21

Additional Options

QSFP+ Options

Transceivers

HPE X140 40G QSFP+ MPO SR4 Transceiver	JG325B
HPE X140 40G QSFP+ LC BiDi 100m MM Transceiver	JL251A

Transceivers

HPE BladeSystem c-Class 4x10G QSFP+ MPO SR4 100m Transceiver	805755-B21

Direct Attach Cables

HPE FlexNetwork X240 40G QSFP+ QSFP+ 1m Direct Attach Copper Cable	JG326A
HPE FlexNetwork X240 40G QSFP+ QSFP+ 3m Direct Attach Copper Cable	JG327A
HPE FlexNetwork X240 40G QSFP+ QSFP+ 5m Direct Attach Copper Cable	JG328A
HPE FlexNetwork X240 40G QSFP+ to 4x10G SFP+ 1m Direct Attach Copper Splitter Cable	JG329A
HPE FlexNetwork X240 40G QSFP+ to 4x10G SFP+ 3m Direct Attach Copper Splitter Cable	JG330A
HPE FlexNetwork X240 40G QSFP+ to 4x10G SFP+ 5m Direct Attach Copper Splitter Cable	JG331A

Optical cables

HPE BladeSystem c-Class QSFP+ to 4x10G SFP+ 15m Active Optical Cable	721076-B21
HPE BladeSystem c-Class 40G QSFP+ to QSFP+ 15m Active Optical Cable	720211-B21
HPE BladeSystem c-Class QSFP+ to 4x10G SFP+ 7m Active Optical Cable	721070-B21
HPE BladeSystem c-Class 40G QSFP+ to QSFP+ 7m Active Optical Cable	720205-B21

NOTE: The Optical cables must be ordered as a standalone parts

Adaptors

HPE QSFP/SFP+ Adapter Kit	655874-B21

HPE Rack Options

KVM Consoles

HPE 0x2x16 KVM Server Console Switch G2 with Virtual Media CAC Software	AF618A
HPE 0x2x32 KVM Server Console Switch G2 with Virtual Media CAC Software	AF619A
HPE 1x1Ex8 KVM IP Console Switch G2 with Virtual Media CAC Software	AF620A
HPE 2x1Ex16 KVM IP Console Switch G2 with Virtual Media CAC Software	AF621A
HPE 4x1Ex32 KVM IP Console Switch G2 with Virtual Media CAC Software	AF622A

HPE Intelligent Power Distribution Units (iPDU)

iPDU Core Units

HPE Intelligent Modular 4.9kVA/L6-30P 24A/208V Outlets (6) C19/Horizontal NA/JP PDU	AF520A
HPE Intelligent Modular 7.3kVA/60309 3-wire 32A/230V Outlets (6) C19/Horizontal INTL PDU	AF525A
HPE Intelligent Modular 3Ph 8.6kVA/L15-30P 24A/208V Outlets (6) C19/Horizontal NA/JP PDU	AF522A
HPE Intelligent Modular 3Ph 17.3kVA/60309 60A 4-wire 48A/208V (6) C19/Horizontal NA/JP PDU	AF523A

iPDU Extension Bars

HPE 5xC13 Intelligent PDU Extension Bar G2 Kit	AF547A
HPE 5xC13 Outlets Power and UID LEDs Pair Standard Extension Bar	AF528A

Additional Options

HPE Basic Power Distribution Units

HPE 277 Volt options for H3X07A and H3X08A

HPE 800VA - 277V Input / 230V Output NA Rack Mount Transformer H3X09A

NOTE: Please see the QuickSpecs for Technical Specifications and additional information:
https://h20195.www2.hpe.com/v2/GetDocument.aspx?docname=c04111392

HPE 1200W Common Slot Platinum Plus Hot Plug Power Supply							656364-B21
Input Voltage Range (Vrms)	100 – 240						
Frequency Range (Nominal) (Hz)	50 – 60						
Nominal Input Voltage (Vrms)	100	120	200	208	220	230	240
Maximum Rated Output Wattage	800	900	1200	1200	1200	1200	1200
Nominal Input Current (A rms)	9.1	8.4	6.7	6.4	6.1	5.8	5.5
Maximum Rated Input Wattage Rating (Watts)	897	999	1321	1319	1317	1315	1314
Maximum Rated VA (Volt-Amp)	909	1012	1338	1337	1334	1332	1331
Efficiency (%) at Max. Rated Output Wattage	89.2	90.1	90.9	91.0	91.1	91.2	91.3
Power Factor	0.998						
Leakage Current (mA)	0.42	0.50	0.83	0.87	0.92	0.96	1.00
Maximum Inrush Current (A peak)	30						
Maximum Inrush Current duration (mS)	20						
Maximum British Thermal Unit Rating (BTU-Hr)	3061	3408	4506	4501	4493	4487	4483
NOTE: Due to restricted airflow at 110VAC max power is 600W per power supply **NOTE:** Due to restricted airflow at 220VAC max power is 850W per power supply							

HPE 1500W Common Slot Platinum Plus Hot Plug Power Supply					684532-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	1500	1500	1500	1500	1500
Nominal Input Current (A rms)	8.4	8.1	7.6	7.3	7.0
Maximum Rated Input Wattage Rating (Watts)	1661	1659	1655	1652	1649
Maximum Rated VA (Volt-Amp)	1681	1679	1675	1672	1669
Efficiency (%) at Max. Rated Output Wattage	90.3	90.4	90.6	90.8	91.0
Power Factor	0.999	0.999	0.999	0.999	0.999
Leakage Current (mA)	0.50	0.75	0.79	0.83	1.00
Maximum Inrush Current (A peak)	40				
Maximum Inrush Current duration (mS)	0.2				
Maximum British Thermal Unit Rating (BTU-Hr)	5667	5661	5648	5637	5627

Additional Options

HPE 1500W Common Slot -48V Hot Plug Power Supply Kit			746708-B21
Input Voltage Range (VDC)	-40 to -72		
Frequency Range (Nominal) (Hz)	DC		
Nominal Input Voltage (VDC)	-40	-48	-72
Maximum Rated Output Wattage	1500	1500	1500
Nominal Input Current (ADC)	40.5	33.5	22.2
Maximum Rated Input Wattage Rating (Watts)	1621	1607	1598
Maximum Rated VA (Volt-Amp)	1621	1607	1598
Efficiency (%) at Max. Rated Output Wattage	92.6	93.3	93.9
Power Factor	N/A		
Leakage Current (mA)	N/A		
Maximum Inrush Current (A peak)	63		
Maximum Inrush Current duration (mS)	10		
Maximum British Thermal Unit Rating (BTU-Hr)	5530	5484	5451

Power Supply Specifications

To review typical system power ratings use the HPE Power Advisor which is available via the online tool located at URL:

HPE Power Advisor

NOTE: Power Specification and Technical Content for supported power supplies can be found at:

https://h20195.www2.hpe.com/v2/GetDocument.aspx?docname=4aa6-2925enw

Technical Specifications

HPE Moonshot System

The HPE Moonshot System used for these calculations contains forty-five (45) server cartridges - each with one (1) 500GB HDD and one (1) 32GB Memory DIMM - Two (2) Power Supplies, One (1) Switch Module Kit and One (1) Uplink Module Kit.

HPE Moonshot 1500 Chassis Dimensions (H x W x D)	7.47 x 17.45 x 35.34in (18.96 x 44.33 x 89.97cm) **NOTE:** Rack chosen is required to have 1200mm to provide space for cable management arm at the rear of the chassis and host PDU in the rear of the rack.	
Weight (approximate)	**Maximum**	180 lbs. All server cartridges, power supplies, one switch and one uplink installed
Input Requirements (per power supply)	Rated Line Voltage	
Power Specifications	**Rated Input Current**	180 to 264 VAC
	Rated Input Frequency	8.4A at 200VAC 7.0A at 240VAC
	Rated Input Power	47 to 63 Hz
	To review typical system power ratings use the HPE Power Advisor which is available via the online tool located at URL: **HPE Power Advisor**	
Power Supply Output (per power supply)	**Rated Steady-State Power**	1661W at 200VAC 1649W at 240VAC
	Maximum Peak Power	1500W (Max) @ 200VAC 1500W (Max) @ 240VAC
System Inlet Temperature	**Operating**	50° to 95° F (10° to 35° C) at sea level with an altitude derating of 1.8°F per every 1000 ft (1.0°C per every 304.8 m) above sea level to a maximum of 10,000 ft (3048 m), no direct sustained sunlight. Maximum rate of change is 18°F/hr (10°C/hr). The upper limit may be limited by the type and number of options installed. System performance may be reduced if operating with a fan fault or above 86°F (30°C).
	Non-operating	-22° to 140° F (-30° to 60° C) Maximum rate of change is 36°F/hr (20°C/hr).
Relative Humidity (non-condensing)	**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.
Altitude	**Operating**	10,000 ft (3048 m). This value may be limited by the type and number of options installed. Maximum allowable altitude change rate is 1500 ft/min (457 m/min).
	Non-operating	30,000 ft (9144 m). Maximum allowable altitude change rate is 1500 ft/min (457 m/min).

Technical Specifications

Acoustic Noise

Listed are the declared A-Weighted sound power levels (LWAd) and declared average bystander position A-Weighted sound pressure levels (LpAm) when the product is operating in a 23°C ambient environment. Noise emissions were measured in accordance with ISO 7779 (ECMA 74) and declared in accordance with ISO 9296 (ECMA 109).

Idle	
L WAd	7.1 Bels
L pAm	54 dB
Operating	
L WAd	7.3 Bels
L pAm	57 dB

Emissions Classification (EMC)

FCC Rating	Class A
Normative Standards	CISPR 22; EN55022; EN55024; FCC CFR 47, Pt 15; ICES-003; CNS13438; K22;K24; EN 61000-3-2; EN 61000-3-3; EN 60950-1; IEC 60950-1

NOTE: Product conformance to cited product specifications is based on sample (type) testing, evaluation, or assessment. This product or family of products is eligible to bear the appropriate compliance logos and statements.

Environment friendly Products and Approach End-of life Management and Recycling

Hewlett Packard Enterprise offers end-of-life **product return, trade-in, and recycling programs,** in many geographic areas, for our products. Products returned to Hewlett Packard Enterprise will be recycled, recovered or disposed of in a responsible manner.

The EU WEEE Directive (2012/19/EU) 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.** 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
03-Dec-2018	Version 12	Changed	Standard Features, Configuration Information and Additional Options sections were updated. SKU was added in Configuration Information section
01-Oct-2018	Version 11	Changed	Configuration Information and Aditional Options were updated.
06-Aug-2018	Version 10	Changed	SKUs and descriptions were updated on Configuration Information and Additional Options Sections
05-Feb-2018	Version 9	Changed	Additional Options Section was updated
18-Dec-2017	Version 8	Changed	Standard Features Section was updated
16-Dec-2016	Version 7	Changed	Added information on new servers and switches
08-Jul-2016	Version 6	Changed	The whole QuickSpecs , formatting and SKUs were updated
09-Oct-2015	Version 5	Changed	Unarchive version and update with the latet info and specs of the HPE Moonshot 1500 Chassis
10-Jun-2014	Version 4	Changed	HPE Hard Drives, Direct Attach Cables SKUs updated.
18-Feb-2014	Version 3	Changed	Added the What's New and the Pre-Configured Models sections. Changes made in the Configuration Information section.
14-Dec-2013	Version 2	Changed	Corrected a part number in the Configuration Information section.
09-Dec-2013	Version 1	New	New QuickSpecs

Sign up for updates

c04111337 - 14757 - Worldwide - V12 - 03-December-2018