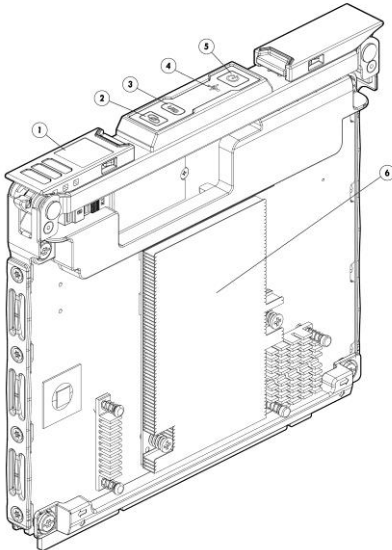


Overview

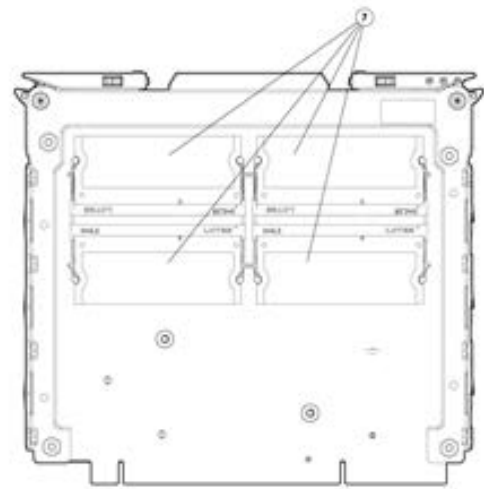
HP Moonshot System with the HP ProLiant m710 server cartridge is designed to enhance the performance of Rich Application Streaming and Video Transcoding. The ProLiant m710 server cartridge has one Intel® Xeon® E3-1284L v3 eight-core processor with Intel® Iris™ Pro 5200 graphics, 32GB of ECC protected memory, 10Gb Ethernet along with one M.2 flash storage module for local OS booting.

The HP Moonshot System uses an innovative new architecture that results from one simple design tenet: to align purpose-built modules 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 45 servers cartridge per 4.3U chassis. This gives you the ability to generate greater revenue from a smaller footprint while driving down your operational costs.



Front View:

1. QR Code label
2. Cartridge Link LED/button
3. Cartridge UID LED/button
4. Drive LED
5. Cartridge health LED
6. Cartridge power LED/button
7. Four (4) DDR3 SODIMM memory slots
8. One (1) Intel® Xeon E3-1284Lv3™ Processor



Rear View:

9. Optional - one (1) M.2 solid state device
10. Four (4) DDR3 SODIMM memory slots

This document covers the following:

- HP ProLiant m710 Server Cartridge
- HP Moonshot 1500 Chassis
- HP Moonshot-45XGc Switch Module
- HP Moonshot-4QSFP+ Uplink Module

Standard Features

NOTE: For information on HP Moonshot 1500 Chassis and HP Moonshot Switch and Uplink Modules, please see the following:

HP Moonshot 1500 Chassis QuickSpecs:

http://h18000.www1.hp.com/products/quickspecs/14527_div/14527_div.html

HP Moonshot-45XGc Switch Module QuickSpecs:

<http://h18000.www1.hp.com/products/quickspecs/>

HP Moonshot- 4QSFP Uplink Module QuickSpecs:

http://h18000.www1.hp.com/products/quickspecs/14733_div/14733_div.html

Processor	Intel® Xeon® E3-1284L v3 (1.8-3.2GHz/8-core/6MB/47W) Integrated Intel® Iris™ Pro 5200 graphics and 128MB of embedded DRAM		
Cache Memory	6MB shared Level 3		
Memory Protection	ECC		
Memory	Type	HP 8GB (1x8GB) PC3L-12800 (DDR3-1600) SODIMM Low Voltage Memory	
	DIMM Slots Available	Four (4) SODIMM Slots	
	Maximum Configuration	32GB (4x8GB)	
Network Controller	Mellanox Connect-X3 Dual 10GbE NIC. Supports RDMA over Converged Ethernet (RoCE)		
Storage Controller	Integrated into the Intel® QM87 chipset		
	M.2 2280 solid state device	765479-B21 765481-B21 765483-B21	120GB 240GB 480GB
	NOTE: m710 cartridge may be purchased with zero M.2 storage (i.e. network/diskless boot).		
Interfaces	Cartridge Link LED/button Cartridge UID LED/button Drive LED Cartridge health LED HDMI 1.4b compliant connector for external monitor Micro-USB 2.0 connector NOTE: HDMI and Micro-USB connectors are for diagnostic usage only and may require removal of any adjacent cartridge. NOTE: To connect a standard USB device to the cartridge, connect a USB on-the-go adapter to the cartridge Micro-USB connector, and then connect the USB device to the adapter.		
Industry Standard Compliance	PXE Support PCIe 3.0 iSCSI Boot (with supported operating systems)		
Operating Systems and Virtualization Software Support for ProLiant	Microsoft Windows Server 2012 / 2012 R2 Red Hat Enterprise Linux (RHEL) 6.5 and 7.0 SUSE Linux Enterprise Server (SLES) 11 SP3		

Standard Features

Servers

[Canonical Ubuntu 14.04](#)

NOTE: Only 64-bit versions of these operating systems are supported.

NOTE: For more information on HP's Certified and Supported ProLiant Servers for OS and Virtualization Software and latest listing of software drivers available for your server including how to purchase from HP, please visit our OS Support Site at: <http://www.hp.com/go/ossupport> and our driver download page: <http://www.hp.com/go/servers/Moonshot/download>

HP Moonshot 1500 Chassis

The Moonshot 1500 chassis holds up to 45 server and/or storage 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 storage cartridges, and to connect server cartridges to neighboring server cartridges. 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 Moonshot 1500 Chassis is built with the following functions:

- Up to 45 server and/or storage 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 HP Moonshot 1500 Chassis Management module manages the health of the chassis and servers.

A Moonshot 1500 chassis provides the following benefits:

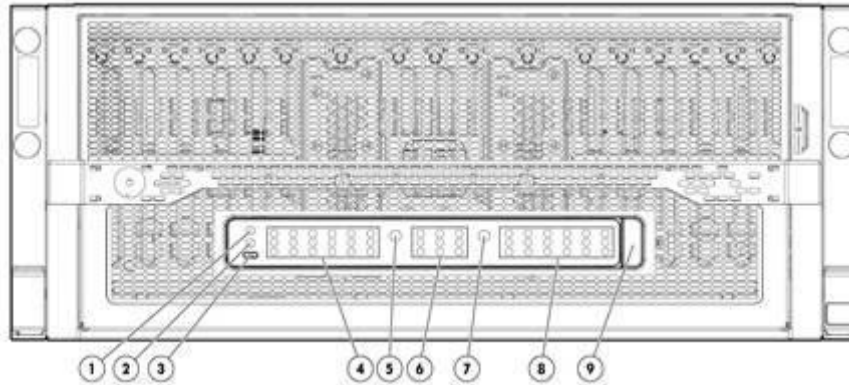
- Lowest cost of ownership.
- With local and remote hardware management integrated across the solution, one full enclosure can be managed as easily as one server.
- Investment protection: Accommodates multiple server and network designs in one enclosure.
- Lower costs per server, in comparison to rack-mounted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

http://h18000.www1.hp.com/products/quickspecs/14527_div/14527_div.html

HP Moonshot 1500 Chassis

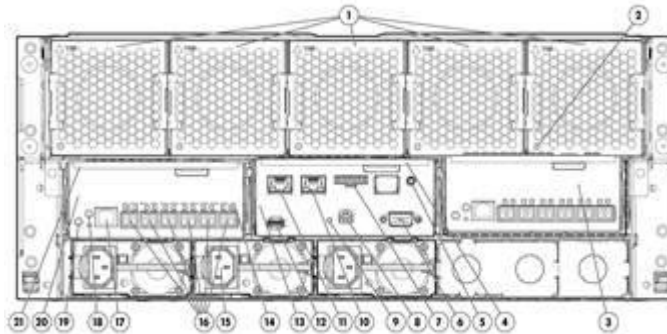
Faster innovation and unprecedented scale begins with the Moonshot 1500 Chassis. Specifically designed to support servers using mobile device chips, the 4.3U chassis enables shared management, networking, storage, power, cooling, and switching. It supports up to 45 hot-pluggable, efficient, extreme low-energy servers and/or storage cartridges, each tuned to a specific workload.

Standard Features



Front View

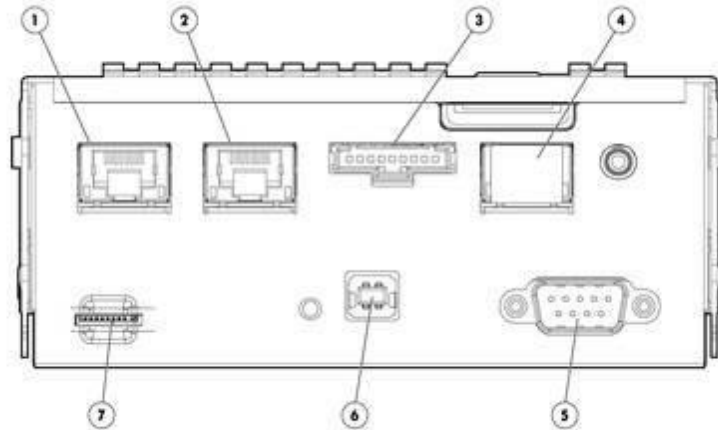
- | | |
|--|---|
| 1. Chassis Power LED | 6. Front Panel Display LED, Moonshot server 19-27 |
| 2. System health LED | 7. Switch module B health LED |
| 3. Chassis UID/LED/button | 8. Front Panel Display LED, Moonshot server 28-45 |
| 4. Front Panel Display LED, Moonshot server 1-18 | 9. Front Panel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



Back View with HP Moonshot-4QSFP+ Uplink Modules

- | | |
|--|---|
| 1. Fans | 12. SD card slot |
| 2. Fan LED | 13. HP Moonshot 1500 Chassis Management Module |
| 3. HP Moonshot-4QSFP+ Uplink Module B | 14. Switch module uplink/downlink activity LEDs |
| 4. Chassis management module release lever | 15. Power supply connector |
| 5. HP Moonshot 1500 Chassis Management Module UID LED/button | 16. 40Gb QSFP+ connector (x4) |
| 6. Serial port | 17. Serial connector |
| 7. Rack control modular connection | 18. Uplink module UID/LED button |
| 8. USB port | 19. Uplink module health LED |
| 9. HP Moonshot 1500 Chassis Management module LED | 20. HP Moonshot-4QSFP+ Uplink Module A |
| 10. iLO2 connector | 21. Uplink module release lever |
| 11. iLO1 connector (primary) | |

Standard Features



HP Moonshot 1500 Chassis Management Module

- | | |
|--|--|
| 1. iLO Chassis Manager management port | 5. iLO CM management serial port |
| 2. iLO CM link port (disabled by default) | 6. Moonshot 1500 CM module USB connector |
| 3. Moonshot 1500 CM module SL-APM port | 7. Moonshot 1500 CM module MicroSD slot |
| 4. Moonshot 1500 CM module diagnostic port | |

HP Interconnect modules **NOTE:** Up to two identical pairs of Switch and Uplink modules are supported in the Moonshot 1500 Chassis. Dual switch modules are required for network redundancy, regardless of cartridge configuration.

HP Moonshot-45XGc Switch Module

Switch with 45 10 GbE downlink ports.
Compatible with HP Moonshot-4QSFP+ Uplink Module in the Moonshot 1500 Chassis.
For more information, please visit:
HP Moonshot-45XGc Switch Module

HP Moonshot-4QSFP+ Uplink Module

Networking faceplate module with 4 40GbE QSFP+ uplink ports.
Compatible with HP Moonshot-180G Switch Module in the Moonshot 1500 Chassis.
For more information, please visit:
HP Moonshot-4QSFP+ Uplink Module
http://h18000.www1.hp.com/products/quickspecs/14733_div/14733_div.html

HP Moonshot 1500 Chassis Management Module

HP Moonshot 1500 Chassis Management module, complete with support for SL-APM.

The HP Moonshot 1500 Chassis Management module manages the health of the chassis and servers and includes a command-line interface accessible via SSH to configure the chassis and server settings and control server power and UID lights, use Virtual Serial Port to servers, and to flash firmware in the chassis. It also supports IPMI management.

HP Common Slot Power Supply

HP Moonshot 1500 Chassis can accommodate up to four (4) HP Common slot power supplies listed in Step 2 of the Configure to Order section of this QuickSpecs.

Standard Features

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

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

Enclosure

The HP Moonshot 1500 Chassis is designed to support the following:

- The HP Moonshot 1500 Chassis is 4.3U high and holds up to forty-five (45) HP ProLiant m400 Server Cartridge plugged vertically.
- Server cartridges, switches, uplinks, power supplies, fans, and HP Moonshot 1500 Chassis Management module are all designed to fit into the HP Moonshot 1500 Chassis.

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

NOTE: For additional chassis information, please see:

http://h18000.www1.hp.com/products/quickspecs/14527_div/14527_div.html

Form Factor

HP ProLiant m400 Server Cartridge is a server cartridge that plugs into the HP Moonshot 1500 Chassis.

On System Management

On System Management provided via HP Moonshot 1500 Chassis Management module, complete with support for SL-APM: For more information, visit:

http://h18000.www1.hp.com/products/quickspecs/14527_div/14527_div.html

The HP Moonshot 1500 Chassis Management module manages the health of the chassis and servers and includes a command-line interface accessible via SSH to configure the chassis and server settings and control server power and UID lights, use Virtual Serial Port to servers, and to flash firmware in the chassis. It also supports IPMI management.

HP Moonshot iLO Chassis Management Firmware is the gateway for aggregated chassis management on HP Moonshot. Moonshot iLO CM firmware reduces cost and power by sharing four iLO modules across the nodes and other system components. As a single point of access to the chassis, Moonshot iLO CM firmware allows you to configure, update, and operate HP Moonshot via CLI, IPMI, and remote serial console access.

For more information, see the HP Moonshot iLO Chassis Management Firmware User Guide on the HP Project Moonshot Information Library (<http://www.hp.com/go/moonshot/docs>).

HP Insight Management

HP Service Pack for ProLiant

HP Service Pack for ProLiant (SPP) and HP Smart Update Manager (HP SUM) provide a comprehensive approach to firmware and system software maintenance. Together they provide better operating stability and ensure maximum uptime. The SPP will be updated at a predictable cadence, typically coinciding with new HP server hardware launches. By enabling firmware to be updated online and integrating firmware and system software updates in one operation, HP SUM and the SPP offer faster updates of individual servers and dramatically faster updates of entire BladeSystem enclosures. Further improving system uptime and stability is the fact that HP provides 12 months of support for each Service Pack for ProLiant release.

Standard Features

The user experience around HP SUM and the SPP has been improved in several ways, starting with the web download. A single web page provides access to a single download containing both the latest version of HP SUM and the latest SPP. Optional smaller subsets with only specific types of servers or specific operating systems are offered to save on download time. The HP SUM application provides a straightforward, intuitive user interface that guides the user through the steps of discovery, analyses and update, providing comprehensive information on available updates, criticality and interdependencies. This information is also available in reports. By providing the option of multiple local or shared repositories which can be easily updated from hp.com, HP SUM provides the tools to optimize stability and consistency throughout the company. While HP SUM and the SPP recommend the combinations of firmware and system software that HP has found to be the best practice, the application gives customers the flexibility to set their own specific baseline.

The Service Pack for ProLiant has been rigorously tested with specific attention for interaction between firmware, drivers and agents both within the server as well as in interaction with the BladeSystem enclosure components (Onboard Administrator and Virtual Connect). This testing ensures the highest quality as well as providing the input for HP SUM to deploy updates taking into account all interdependencies, when determining the correct updates and order of update deployment.

NOTE: The Service Pack for ProLiant (which includes HP SUM) can be downloaded from www.hp.com/go/spp/download. More information can be found: <http://www.hp.com/go/SmartUpdate>, www.hp.com/go/spp and <http://www.hp.com/go/hpsum>

Serial interface control
Power switch security
Administrator's password

Warranty

This product is covered by a global limited warranty and supported by HP Services and a worldwide network of HP Authorized Channel Partners 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 warranty services are available through HP Care Pack 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. Server Cartridge Warranty includes 3-Year Parts, 0-Year Labor, 0-Year Onsite support. Additional information regarding worldwide limited warranty and technical support is available at: <http://h18004.www1.hp.com/products/servers/platforms/warranty/index.html>

Optional Features

HP Cloud OS for Moonshot

Based on HP Cloud OS, Cloud OS for Moonshot brings the power and extensibility of OpenStack to the Moonshot platform. It is enterprise-grade OpenStack, enhanced and supported by HP. It brings the capabilities of OpenStack and HP Cloud OS to Moonshot; helping enterprises and service providers avoid lock in, minimize complexity, and support massive scale in cloud environments:

- Simplified OpenStack® installation, management, and updates
- Rapid bare metal provisioning
- Automate deployment of single and multi-tier workloads with topology modeling

For enterprises who want to leverage OpenStack technology for rapid innovation and the beneficial economics of an open source approach, there's HP Cloud OS. As a leader and a top contributor in the OpenStack community, HP brings industry-leading innovation, expertise and best practices with HP Cloud OS technology to help you drive better business outcomes.

For more information on HP Cloud OS for Moonshot, please contact your sales representative or visit:

<http://www.hp.com/go/moonshot>

<http://www.hp.com/go/cloudos>

High Performance Clusters

HP Insight Cluster Management Utility

HP Insight Cluster Management Utility (Insight CMU) is an HP-licensed and HP-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 HP Insight Cluster Management Utility, please contact your sales representative or go to: <http://www.hp.com/go/cmu>.

Factory Express Portfolio for Servers and Storage

HP Factory Express offers configuration, customization, integration and deployment services for HP 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. HP products supported through Factory Express include a wide array of servers and storage: HP Moonshot, HP Integrity, HP ProLiant, HP ProLiant Server Blades, and HP BladeSystem, HP 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: <http://www.hp.com/go/factory-express>.

Service and Support

Service and Support

HP Technology Services for Moonshot

Capitalizing on the Moonshot 1500 System requires a service partner who understands your increasingly complex business technology environment. That's why it makes sense to team up with the people who know HP infrastructure hardware and software best - the experienced professionals at HP Technology Services.

HP is pleased to include full software support for Ubuntu Linux as part of your Moonshot chassis purchase. For chassis supporting revenue-generating or production level workloads, consider purchasing a level of support that matches your requirements.

Protect your business beyond warranty with HP Care Pack Services

HP sells support in easy-to-buy, preconfigured packages with the combination of services, coverage and duration to fit your needs and budget. With Moonshot, we are introducing a new, simpler set of services. Simply choose the service level that best fits the criticality of your hardware.

HP Foundation Care

HP introduces new Foundation Care services offer scalable reactive support-packages for HP Moonshot and software. You can choose the type and level of service that is most suitable for your IT and business needs. The Moonshot 1500 Care Pack services cover the Moonshot 1500 Chassis and the Moonshot servers with one single Care Pack SKU. Entitlement of support requires the customer to provide the 1500 chassis serial number. All HP components structured to the Moonshot System are covered by Care Pack services inclusive of switches, power supplies, and fans. HP Foundation Care services include hardware support, basic software support and collaborative call handling for software questions related to industry leading operating systems and software. For a complete list of software products covered, refer to: www.hp.com/services/collaborativesupport.

Full software support, including call management and ownership thru to resolution is available for select third party software. As stated earlier, support for Ubuntu software is included in the purchase of your Moonshot chassis.

HP Datacenter Care

HP Datacenter Care offers you a flexible, tailored, relationship-based approach to support the most demanding data centers handling the demands of hyperscale computing. This is an environment level service, purchased once to support your Moonshot environment. Other equipment may be included in this agreement for holistic datacenter coverage. With HP Datacenter Care, you still have the choice of HP Foundation Care reactive support which you purchase with each chassis.

HP Datacenter Care is flexible enough to deliver exactly what you need in one relationship. All Datacenter Care support is tailored to your needs, based on our experience with hyperscale customers:

- Assigned account team, led by an account support manager (ASM) who knows your business and your IT environment and is responsible for the quality service delivery and experience.
- Enhanced call handling for the best call experience with rapid escalation and incident resolution through the HP Hyperscale Center of Excellence
- Proactive and reactive support, configured to deliver the level of support needed by the different data center components and meeting both service-level agreement (SLA) and cost targets

Then add on other services that are tailored to your specific needs, including:

HP Self-Service Spares Service answers the question: What do you do when you need parts? We can set it up so that you get spare parts onsite through our automated self-service spares. You simply go to the part of your data center where the parts live, scan them out, scan in the broken one, and you're done. We maintain your inventory of good spares, so that what you need is ready to go when you need

Service and Support

it. And we provide monthly service excellence reports illustrating onsite inventory performance.

To obtain further information or to order HP Datacenter Care Service as described above, contact a local HP sales representative. Please see the Additional Options section of this QuickSpecs for additional information.

HP Moonshot Installation & Startup Service

HP Installation and Startup Service for the Moonshot System provides for the installation of one system and its associated Moonshot servers and network switches, as well as operating system deployment and basic configuration of OS network parameters to establish network connectivity

In response to the needs of the majority of HP Moonshot System customers, this fixed-price/fixed deliverable service targets new hardware installation and software deployments for the 1500 infrastructure. For more advanced installation, configuration, and integration requirements, custom deployments are available through a customized Statement of Work. . Please see the Additional Options section of this QuickSpecs for additional information.

For more information on HP Services, contact any of our worldwide sales offices or visit one of the following websites:

HP support services: www.hp.com/services/alwayson

HP Care Pack services: www.hp.com/services/carepack

Recommended HP Care Pack Services for your HP product

Optimized Care

3-Year HP Foundation Care Call to Repair

This is HP's highest level of reactive support giving you our commitment to have the hardware operational within six hours of opening the call with us. This service level includes hardware coverage plus software diagnosis support with collaborative call management for a broad spectrum of third party software products including O/S and hypervisors.

<http://h20195.www2.hp.com/v2/GetPDF.aspx/4AA4-8877ENW.pdf>

Standard Care

3-Year HP Foundation Care 24x7

This service level provides consistent, reliable reactive support with the broadest coverage window which is recommended when maintenance must be performed outside business hours. Calls may be opened 24x7. Should an onsite visit be needed, our commitment is to respond onsite within four hours. Software call back commitment is two hours.

<http://h20195.www2.hp.com/V2/GetPDF.aspx/4AA4-8877ENW.pdf>

Basic Care

3- Year HP Foundation Care Next Business Day

This service level provides the most economical support coverage and is designed for non-revenue impacting systems. Calls may be opened 24x7. Should an onsite visit be needed, our commitment is to respond onsite the next business day. Software call back commitment is two hours, during regular business hours.

For more information on HP Care Pack services, contact any of our worldwide sales offices or resellers or visit our website at: www.hp.com/go/carepack

Defective Media Retention (DMR) and Comprehensive Defective Material Retention

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.

HP Foundation Care services are available with defective media retention of failed hard drives and comprehensive defective material retention of those other data-retentive components, such as memory, switches, processors and more. This may be purchased as an optional add-on to your HP

Service and Support

Foundation Care service purchase. This service 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.

For more information on our data privacy services, see: www.hp.com/services/dataprivacy.

HP Support Center

HP provides several tools that make it simpler to get help from HP:

HP Support Center is personalized online support portal with access to information, tools and experts to support HP business products. Submit support cases online, chat with HP experts, access support resources or collaborate with peers. Learn more: <http://www.hp.com/go/hpsc>

HP's 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. HP Support Center are available at no additional cost with a HP warranty, HP Care Pack or HP contractual support agreement.

NOTE: HP Support Center Mobile App is subject to local availability.

Parts and Materials

HP will provide HP-supported replacement parts and materials necessary to maintain the covered hardware product in operating condition, including parts and materials for available and recommended engineering improvements.

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

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

For more information

To learn more on HP Moonshot System, please contact your HP sales representative.

Configuration Information - Factory Integrated Models

NOTE: This section lists some of the steps required to configure a Factory Integrated Model. To ensure only valid configurations are ordered, HP recommends the use of an HP approved configurator. Contact your local sales representative for information on configurable product offerings and requirements.

NOTE: Factory Integrated Models must start with an HP Moonshot 1500 Chassis. Each Moonshot Chassis will be ordered with minimum configurations as follows:

Minimum of fifteen (15) identically configured Moonshot server cartridges per chassis.

NOTE: Each of the 15 server cartridges in the chassis will contain an identically sized HDD or SDD M.2 solid state device.

Three (3) 1500W Common Slot Platinum Plus Power Supplies

NOTE: Additional power supply kits may be ordered to achieve N+1 redundancy.

One (1) HP Moonshot-45XGc Switch Module

And

One (1) HP Moonshot- 6SFP Uplink Module

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 Moonshot servers.

NOTE: Some options may not be integrated at the factory. To ensure only valid configurations are ordered, HP recommends the use of an HP approved configurator. Contact your local sales representative for additional information.

Step 1: Base Configuration (Choose one chassis or one upgrade kit)

HP Moonshot 1500 Chassis	HP Moonshot 1500 Chassis NOTE: Must order a minimum of 15 identically configured Moonshot servers. NOTE: Upgrade kits of 15 additional servers may be purchased separately.	755371-B21
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Step 1A: Configure Moonshot Servers (one of each unless otherwise noted)

HP Moonshot Server	HP ProLiant m710 1P CPU 32GB Configure-to-order Server Cartridge NOTE: Must order a minimum of 15 identically configured Moonshot server. NOTE: Each Moonshot server comes preconfigured with four 8 GB SODIMM pre-installed. This is the only memory configuration available on this server. NOTE: Each Moonshot cartridge is pre-configured with a single Intel® Xeon® E3-1284L v3 (x86-64) processor running at 1.8-3.2GHz. This processor is eight-core and contains 6MB of shared L3 cache. The same processor package also contains an Integrated Intel® Iris™ Pro 5200 graphics controller and 128MB of embedded DRAM.	755860-B21
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HP Solid State	Optional Factory Integration Options (FIO) NOTE: Additional options are not configurable for server upgrade kits. NOTE: Must order identical quantity as configured Moonshot server	
	HP Moonshot 120GB M.2 2280 Solid State Device	765479-B21
	HP Moonshot 240GB M.2 2280 Solid State Device	765481-B21
	HP Moonshot 480GB M.2 2280 Solid State Device	765483-B21

Step 2: Choose Required Chassis Options (one of each unless otherwise noted)

NOTE: Additional options are not configurable for server upgrade kits.

Power Supplies	HP Common Slot Platinum Plus Power Supply Kits NOTE: 94% efficiency	
	HP 1500W Common Slot Platinum Plus Hot Plug Power Supply Kit	684532-B21
	HP 1200W Common Slot Platinum Plus Hot Plug Power Supply Kit NOTE: due to restricted airflow at 110v max power is 600w per power supply – this is	656364-B21

Configuration Information - Factory Integrated Models

for the 1200w power supply only

NOTE: Due to restricted airflow at 220v 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:

http://h18000.www1.hp.com/products/quickspecs/14209_div/14209_div.html

NOTE: Minimum of three and maximum of four power supplies per chassis when configured with the HP Moonshot Server (PN 734619-B21).

Networking

HP Moonshot 45XGc Switch Module Kit 704654-B21

HP Moonshot 4QSFP Uplink Module Kit 704652-B21

NOTE: Must order one of each the Switch Kit and Uplink Kit per chassis.

NOTE: Maximum of two of each the Switch Kit and Uplink Kit per chassis to allow configurations with redundant or dual networks.

Step 3: Choose Additional Chassis Factory Integration Options

NOTE: Additional options are not configurable for server upgrade kits.

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

NOTE: Group the HP Moonshot 1500 Chassis units into a 13U space. Order one per three chassis. The 0.66U spacer is not used when selecting this option.

Step 4: Choose Additional Chassis Options

NOTE: Additional options are not configurable for server upgrade kits.

HP Power Cords	HP C13 - Nema 5-15P US/CA 110V 10Amp 1.83m Power Cord	AF556A
	HP C13 - GB-1002 CN 250V 10Amp 1.83m Power Cord	AF557A
	HP C13 - IRAM -2073 AR 250V 10A 2.5m Power Cord	AF558A
	HP C13 - Nema 5-15P TH/PH 250V 10Amp 1.83m Power Cord	AF559A
	HP C13 - CNS-690 TW 110V 13Amp 1.83m Power Cord	AF561A
	HP C13 - IS-1293 IN 240V 6Amp LV 2.0m Power Cord	AF562A
	HP C13 - KSC- 8305 KR 250V 10Amp 1.83m Power Cord	AF560A
	HP C13 - SI-32 IL 250V 10Amp 1.83m Power Cord	AF564A
	HP C13 - SEV 1011 CH 250V 10Amp 1.83m Power Cord	AF565A
	HP C13 - DK-2.5A DK 250V 10Amp 1.83m Power Cord	AF566A
	HP C13 - SABS-164 ZA 250V 10Amp 2.5m Power Cord	AF567A
	HP C13 - CEE-VII EU 250V 10Amp 1.83m Power Cord	AF568A
	HP C13 - AS3112-3 AU 250V 10Amp 2.5m Power Cord	AF569A
	HP C13 - BS-1363A UK/HK/SG 250V 10Amp 1.83m Power Cord	AF570A
	HP C13 - CEI-23-50 IT/CL 250V 10Amp 1.83m Power Cord	AF571A
	HP C13 - JIS C8303 JP 100V 12Amp 2.0m Power Cord	AF572A
	HP C13 - IS-1293 IN 250V 10Amp HV 2.5m Power Cord	SG579A
	HP C13 - C14 WW 250V 10Amp Flint Gray 2.0m Jumper Cord	AF573A
	HP C13 - NBR-14136 BR 250V 10Amp 1.83m Power Cord	AF591A
	HP C13 - C14 WW 250V 10Amp 2.0m Jumper Cord	A0K02A
	HP C13 - C14 WW 250V 10A Gray 0.7m Jumper Cord	A0K03A
	HP C13 - C14 WW 250V 10A Gray 1.37m Jumper Cord	A0K04A
	HP C13 - C14 WW 250V 10A Gray 3.0m Jumper Cord	A0K06A
	HP C13 - Nema 6-15P US 250V 15A JP 3.6m Power Cord	A0N33A

Additional Options

NOTE: Some options may not be integrated at the factory. To ensure only valid configurations are ordered, HP recommends the use of an HP approved configurator. Contact your local sales representative for additional information.

High Performance Clusters	HP Insight Cluster Management Utility Media NOTE: For additional license kits please see the QuickSpecs at: http://h18004.www1.hp.com/products/quickspecs/12612_div/12612_div.html	BD477A
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HP SL Advanced Power Manager	The SL Advanced Power Manager is an optional rack level solution for the HP Moonshot System which enables server-level DC (or hardware) power on and off and server-level monitoring. In addition, the SL APM will automatically discover hardware components which are connected into the SL APM solution. The SL 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 HP Moonshot System share 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 SL APM solves this by allowing server node-level hardware power on/off of the DC power to the individual server node motherboards. HP SL Advanced Power Manager Kit HP SL Advanced Power Manager Distribution Module Kit	538084-B21 620002-B21
SFP+ Options	HP BladeSystem c-Class 10Gb SFP+ SR Transceiver	455883-B21

Direct Attach Cables	HP X240 40G QSFP+ QSFP+ 1m Direct Attach Copper Cable HP X240 40G QSFP+ QSFP+ 3m Direct Attach Copper Cable HP X240 40G QSFP+ QSFP+ 5m Direct Attach Copper Cable HP X240 40G QSFP+ to 4x10G SFP+ 1m Direct Attach Copper Splitter Cable HP X240 40G QSFP+ to 4x10G SFP+ 3m Direct Attach Copper Splitter Cable HP X240 40G QSFP+ to 4x10G SFP+ 5m Direct Attach Copper Splitter Cable NOTE: The transceivers and cables listed above have been qualified and certified to work with this product. Transceiver and DAC cables from any manufacturer may be accepted, but they will not be supported by HP. HP X240 40G QSFP+ QSFP+ 3m Direct Attach Copper Cable	JG326A JG327A JG328A JG329A JG330A JG331A JG327A
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QSFP Options	HP X140 40G QSFP+ MPO SR4 Transceiver	JG325B
	HP 0.66U Spacer Blank Kit 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 HP 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. (See Step 3 of the Factory Integrated Models section). If the 13U kit is used, the .66U spacer would not be used and vice versa.	681260-B21

Rack Adapter	HP 13U FIO Rack Adapter Kit for 3X4.3U Chassis NOTE: Group the HP Moonshot 1500 Chassis units into a 13U space. Order one per three chassis. The 0.66U spacer is not used when selecting this option.	681677-B21
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Additional Options

HP Rack Series

HP Intelligent Series Rack

HP 636 1200mm Shock Intelligent Series Rack	BW900A
HP 642 1200mm Pallet Intelligent Series Rack	BW907A
HP 642 1200mm Shock Intelligent Series Rack	BW908A
HP 647 1200mm Pallet Intelligent Series Rack	BW913A
HP 647 1200mm Shock Intelligent Series Rack	BW914A

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.

NOTE: Please see the QuickSpecs for Technical Specifications such as height, width, depth, weight, and color:

http://h18000.www1.hp.com/products/quickspecs/14223_div/14223_div.html
(Worldwide)

NOTE: For additional information regarding Rack Cabinets, please see the following URL: <http://www.hp.com/go/rackandpower>.

HP Rack Options

KVM Consoles

HP TFT7600 G2 KVM Console Rackmount Keyboard US Monitor	AZ870A
HP TFT7600 G2 KVM Console Rackmount Keyboard UK Monitor	AZ871A
HP TFT7600 G2 KVM Console Rackmount Keyboard DE Monitor	AZ872A
HP TFT7600 G2 KVM Console Rackmount Keyboard FR Monitor	AZ873A
HP 647 1200mm Shock Intelligent Series Rack	BW914A
HP TFT7600 G2 KVM Console Rackmount Keyboard ES Monitor	AZ875A
HP TFT7600 G2 KVM Console Rackmount Keyboard DK Monitor	AZ876A
HP TFT7600 G2 KVM Console Rackmount Keyboard NO Monitor	AZ877A
HP TFT7600 G2 KVM Console Rackmount Keyboard SE/FI Monitor	AZ878A
HP TFT7600 G2 KVM Console Rackmount Keyboard CH Monitor	AZ879A
HP TFT7600 G2 KVM Console Rackmount Keyboard PT Monitor	AZ880A
HP TFT7600 G2 KVM Console Rackmount Keyboard BE Monitor	AZ881A
HP TFT7600 G2 KVM Console Rackmount Keyboard JP Monitor	AZ882A
HP TFT7600 G2 KVM Console Rackmount Keyboard RU Monitor	AZ883A
HP TFT7600 G2 KVM Console Rackmount Keyboard Intl Monitor	AZ884A
HP TFT7600 G2 KVM Console Rackmount Keyboard US TAA Monitor	AZ885A
HP 0x2x16 KVM Server Console Switch G2 with Virtual Media CAC Software	AF618A
HP 0x2x32 KVM Server Console Switch G2 with Virtual Media CAC Software	AF619A
HP 1x1Ex8 KVM IP Console Switch G2 with Virtual Media CAC Software	AF620A
HP 2x1Ex16 KVM IP Console Switch G2 with Virtual Media CAC Software	AF621A
HP 4x1Ex32 KVM IP Console Switch G2 with Virtual Media CAC Software	AF622A

HP Uninterruptible Power Systems

HP Rack-mountable UPS

HP R1500 G3 Uninterruptible Power Supply (UPS)

HP R1.5kVA G3 1U NA Uninterruptible Power System	AF469A
HP R1.5kVA G3 1U JP/TW Uninterruptible Power System	AF470A
HP R1.5kVA G3 1U INTL Uninterruptible Power System	AF471A

NOTE: Please see the QuickSpecs for additional information:

http://h18000.www1.hp.com/products/quickspecs/14059_div/14059_div.html
(Worldwide)

HP R/T3000 G2 Uninterruptible Power System (UPS)

Additional Options

HP R/T3000 G2 2U L530 Low Voltage NA/JP Uninterruptible Power System	AF466A
HP R/T3000 G2 2U L620 High Voltage NA/JP Uninterruptible Power System	AF467A
HP R/T3000 G2 2U Detachable Cord High Voltage INTL Uninterruptible Power System	AF468A

NOTE: Please see the QuickSpecs for additional information:

http://h18000.www1.hp.com/products/quickspecs/14058_div/14058_div.html
(Worldwide)

NOTE: For additional information on HP Uninterruptible Power Systems please go to:
www.hp.com/servers/rackups.

NOTE: For additional information on sizing your server, please reference:
<http://www.upssizer.com>.

NOTE: Please see the UPS and PDU cable matrix's on the HP Power Protection and Management page. Under Power Cords, click on the "HP Power Cord Matrix" link. That link will list cable descriptions, requirements, and specifications for UPS and PDU units. Please see the following link: www.hp.com/products/powercords.

HP Intelligent Power Distribution Units (iPDU)

iPDU Core Units

HP 4.9kVA 24A Single Phase NA/JP Core Intelligent Modular Power Distribution Unit	AF520A
HP 8.3kVA 40A Single Phase NA/JP Core Intelligent Modular Power Distribution Unit	AF521A
HP 8.6kVA 24A Three Phase NA/JP Core Intelligent Modular Power Distribution Unit	AF522A
HP 17.3kVA 48A Three Phase NA/JP Core Intelligent Modular Power Distribution Unit	AF523A
HP 7.3kVA 32A Single Phase INTL Core Intelligent Modular Power Distribution Unit	AF525A
HP 11kVA 16A Three Phase INTL Core Intelligent Modular Power Distribution Unit	AF526A
HP 22kVA 32A Three Phase INTL Core Intelligent Modular Power Distribution Unit	AF527A
HP 14.4kVA 40A Three Phase NA/JP Intelligent Modular Power Distribution Unit	AF533A

iPDU Extension Bars

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

NOTE: Please see the QuickSpecs for Technical Specifications and additional information:
http://h18000.www1.hp.com/products/quickspecs/13650_div/13650_div.html
(Worldwide)

HP Basic Power Distribution Units

HP 2.8kVA 120 Volt L5-30 Input (18xNEMA 5-20R) NA/JP Basic PDU	H5M55A
HP 3.6kVA 200-240 Volt Detachable C20 Input (12xC13) WW Basic PDU	H5M56A
HP 3.6kVA 200-240 Volt Detachable C20 Input (18xC13) WW Basic PDU	H5M57A
HP 4.9kVA 208 Volt L6-30 Input (20xC13) NA/JP Basic PDU	H5M58A
HP 4.9kVA 208 Volt L6-30 Input (24xC13/6xC19) NA/JP Basic PDU	H5M59A
HP 8.3kVA 208 Volt CS8265C Input (30xC13/6xC19) NA/JP Basic PDU	H5M60A
HP 8.6kVA 208 Volt L15-30 3-Phase Input (18xC13) NA/JP Basic PDU	H5M61A
HP 8.6kVA 208 Volt L15-30 3-Phase Input (24xC13/6xC19) NA/JP Basic PDU	H5M62A
HP 5.7kVA 208 Volt L21-20 3-Phase Input (24xC13/3xNEMA 5-20R) NA/JP Basic PDU	H5M63A
HP 8.6kVA 208 Volt L21-30 3-Phase Input (24xC13/3xC19/3xNEMA 5-20R) NA/JP Basic PDU	H5M64A
HP 7.3kVA 230 Volt IEC309 32A Input (20xC13) INTL Basic PDU	H5M68A
HP 7.3kVA 230 Volt IEC309 32A Input (24xC13/6xC19) INTL Basic PDU	H5M70A
HP 11kVA 230 Volt IEC309 63A Input (30xC13/6xC19) INTL Basic PDU	H5M71A
HP 11kVA 400 Volt IEC309 16A 3-Phase Input (30xC13/6xC19) INTL Basic PDU	H5M72A
HP Hardwired 200-240 Volt Input (30xC13/6xC19) WW Basic PDU	H5M75A

Additional Options

HP 13.2kVA 480 Volt IEC309 30A 3-Phase Input (15 Outlet) NA Basic PDU	H3X07A
HP 277 Volt options for H3X07A and H3X08A	
HP 800VA - 277V Input / 230V Output NA Rack Mount Transformer	H3X09A
NOTE: Please see the QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/14557_div/14557_div.html (Worldwide)	
NOTE: Additional HP Power Distribution Units are available. For a complete list of all HP PDUs and additional information please visit: www.hp.com/go/rackandpower .	

HP Remote Monitored Power Distribution Units

HP 2.8kVA 120 Volt L5-30 Input (12xNEMA 5-20R)NA/JP Monitored PDU	D9N43A
HP 3.6kVA 200-240 Volt Detachable C20 Input (12xC13) WW Monitored PDU	D9N46A
HP 4.9kVA 208 Volt L6-30 Input (12xC13) NA/JP Monitored PDU	D9N44A
HP 3.6kVA 200-240 Volt Detachable C20 Input (16xC13) WW Monitored PDU	D9N45A
HP 4.9kVA 208 Volt L6-30 Input (20xC13/4xC19) NA/JP Monitored PDU	D9N47A
HP 7.3kVA 230 Volt IEC309 32A Input (20xC13/4xC19) INTL Monitored PDU	D9N48A
HP 7.3kVA 230 Volt IEC309 32A Input (32xC13/4xC19) INTL Monitored PDU	D9N50A
HP 8.3kVA 208 Volt CS8265C Input (30xC13/3xC19) NA Monitored PDU	D9N49A
HP 5.7kVA 208 Volt L21-20 3-Phase Input (18xC13/3xNEMA 5-20R) NA/JP Monitored PDU	D9N52A
HP 8.6kVA 208 Volt L21-30 3-Phase Input (20xC13/3xC19/3xNEMA 5-20R) NA/JP Monitored PDU	D9N53A
HP 8.6kVA 208 Volt L15-30 3-Phase Input (18xC13/3xC19) NA/JP Monitored PDU	D9N51A
HP 11kVA 400 Volt IEC309 16A 3-Phase Input (18xC13/3xC19) INTL Monitored PDU	D9N55A
HP 11kVA 400 Volt IEC309 16A 3-Phase Input (30xC13/3xC19) INTL Monitored PDU	D9N57A
HP 14.4kVA 208 Volt CS8365C 3-Phase Input (12xC13/12xC19)NA Monitored PDU	D9N58A
HP 16.6kVA 400 Volt IEC309 30A 3-Phase Input (12xC13/12xC19) NA Monitored PDU	D9N62A
HP 16.6kVA 400 Volt IEC309 30A 3-Phase Input (30xC13/3xC19) NA Monitored PDU	D9N61A
HP 17.3kVA 208 Volt IEC309 60A 3-Phase Input (12xC13/12xC19) NA/JP Monitored PDU	D9N59A
HP 17.3kVA 208 Volt IEC309 60A 3-Phase Input (24xC13/3xC19) NA/JP Monitored PDU	D9N54A
HP 19.9kVA 480 Volt 3-Phase (30 Outlet) NA Monitored PDU	D9N63A
HP 22kVA 400 Volt IEC309 32A 3-Phase Input (12xC13/12xC19) INTL Monitored PDU	D9N60A
HP 22kVA 400 Volt IEC309 32A 3-Phase Input (30xC13/3xC19) INTL Monitored PDU	D9N56A

Cloud Management Software

HP Cloud OS for Moonshot 1-chassis License with 1yr 24x7 Tech Support and Updates	G2E78A
HP Cloud OS for Moonshot 1-chassis E-LTU with 1yr 24x7 Tech Support and Updates	G2E78AAE
HP Cloud OS for Moonshot 1-chassis License with 3yr 24x7 Tech Support and Updates	G6N92A
HP Cloud OS for Moonshot 1-chassis E-LTU with 3yr 24x7 Tech Support and Updates	G6N92AAE

Additional Options

HP Moonshot System	HP Moonshot System typically contains forty-five (45) server cartridges, Four (4) Power Supplies (with redundancy) One (1) Switch Module Kit and One (1) Uplink Module Kit.	
HP 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 (all server cartridges, power supplies, one switch and one uplink installed)	180 lbs.
Typical Power	1311W	
Max Power	2496W	
Network Ports (per switch & uplink pair)	Forty-five (45) 10Gb downlink ports Four (4) 40Gb QSFP uplink ports	
	NOTE: See the HP Moonshot-45XGc Switch Module QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/xxx	
	NOTE: See the HP Moonshot-4QSFP Uplink Module QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/14734_div/14734_div.html	
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 HP Power Advisor which is available via the online tool located at URL: www.hp.com/go/hppoweradvisor	
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-

Additional Options

		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).
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.	

Server Cartridge	HP Moonshot m710 Server Cartridge Dimensions (H x W x D)	6.57 x 7.23 x 0.78in (16.71 x 18.37 x 1.98cm)
	Typical Power	27.5W
	Max Power	44.0W

HP 1200W Common Slot Platinum Plus Hot Plug Power Supply

Part Number 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	89.2	90.1	90.9	91.0	91.1	91.2	91.3

Additional Options

Wattage

Power Factor				.998			
Leakage Current (mA)	.42	.50	.83	.87	.92	.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 110v max power is 600w per power supply

NOTE: Due to restricted airflow at 220v max power is 850w per power supply

HP 1500W Common Slot Platinum Plus Hot Plug Power Supply

Part Number	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	

HP Power Advisor

The HP Power Advisor is a tool provided by Hewlett-Packard 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 ownership calculator, and a power report. The HP Power Advisor allows for the mixing of rack, tower, blade, and other products in a single environment.

Available at: www.hp.com/go/hppoweradvisor

Power Supply Specifications

To review typical system power ratings use the HP Power Advisor which is available via the online tool located at URL: www.hp.com/go/hppoweradvisor.

NOTE: Power Specification and Technical Content for supported power supplies can be found at: http://h18000.www1.hp.com/products/quickspecs/14209_div/14209_div.html

Environment-friendly Products and Approach

End-of-life Management and Recycling

Hewlett-Packard offers end-of-life HP product return, trade-in, and recycling programs in many geographic areas. For trade-in information, please go to: <http://www.hp.com/go/green>. To recycle your product, please go to: <http://www.hp.com/go/green> or contact your nearest HP sales

Additional Options

office. Products returned to HP 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 web site at: <http://www.hp.com/go/green>. These instructions may be used by recyclers and other WEEE treatment facilities as well as HP OEM customers who integrate and re-sell HP equipment.

Summary of Changes

<u>Date</u>	<u>Version History</u>	<u>Action</u>	<u>Description of Change:</u>
09-Sept-2014	Create Version 1	Created	Create QS for HP ProLiant m710 Sever Cartridge

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For hard drives, 1GB = 1 billion bytes. Actual formatted capacity is less.