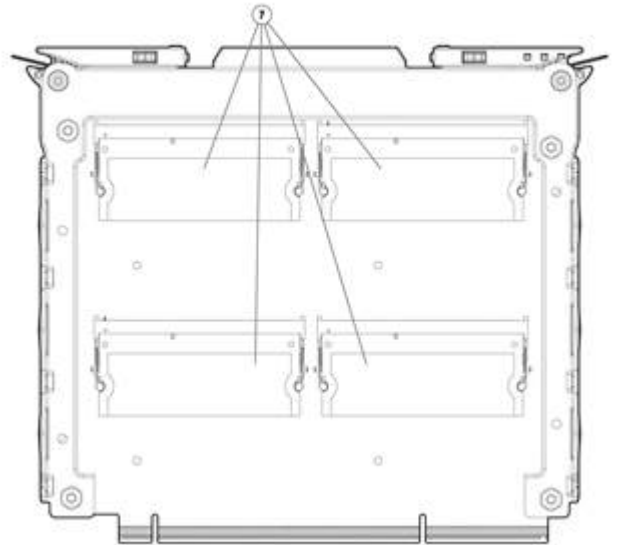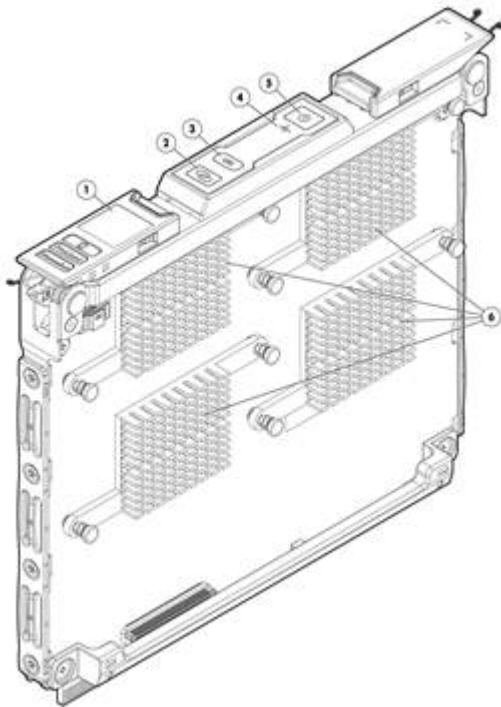## Overview

HP Moonshot System with the HP ProLiant m700 server cartridge was created for cost-effective Hosted Desktop Infrastructure (HDI), Media Transcoding, and other video processing applications. The ProLiant m700 server cartridge has four AMD Opteron™ X2150 APU System on a Chip (SoC) having up to four x86 cores with integrated Graphics Processing Unit (GPU) and each supporting 8GB of memory.

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 cartridges per 4.3U chassis.

HP Moonshot m700 cartridge is the power behind HP ConvergedSystem 100 for Hosted Desktops (751820-B21). All-in-one compute, storage, and networking system that delivers desktops for Citrix XenDesktop non-persistent users. Provide your mainstream users a dedicated PC experience with the business graphics and multimedia performance they need, while boosting TCO by up to 44 percent and lowering power requirements up to 63 percent. Visit hp.com/go/ConvergedSystem/cs100hdi for more details.

Front View:
1. QR Code label
2. Cartridge link LED/button
3. Cartridge UID LED/button
4. Cartridge health LED
5. Cartridge power LED/button

Back View:
7. Four (4) DDR3 ECC SODIMM memory slots

Standard Features

Models

HP ProLiant m700 4x1P X2150 APU 4x8GB Configure-to-order Server Cartridge   733747-B21

NOTE: For ordering the HP ProLiant m700 Server Cartridge, please see Step 1 of the Configuration to Order section of this QuickSpecs.

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

Switch:
HP Moonshot-180G Switch Module QuickSpecs:
http://h18000.www1.hp.com/products/quickspecs/14731_div/14731_div.html

Uplink
HP Moonshot- 16SFP+ Uplink 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	AMD Opteron™ X2150 APU, 1.5Ghz

Cache Memory	2MB L2 cache

Chipset	NA

Memory Protection	ECC

Memory	Type	DDR3 PC3-12800 SDRAM (1600 MHz)
	DIMM Slots Available	Four (4) SODIMM Slots (One per SoC)
	Maximum Configuration	32GB (1x8GB per SoC)

Network Controller	Broadcom BCM5720 Ethernet Controller

Storage Controller	Integrated SATA controller on the System on a Chip (SoC)

Maximum Internal Storage	Up to 64 GB per SoC (SSD mezzanine card)

Interfaces	Power LED/button	One per server cartridge
	UID for node	One per server cartridge
	Drive health LED/button	N/A
	Cartridge health LED	One per server cartridge

Standard Features

Industry Standard Compliance	ACPI 2.0 and 3.0a Compliant SMBIOS 2.6+ PXE Support

Operating Systems	Microsoft Windows 7 Enterprise SP1
	NOTE: Both 32 and 64-bit versions of this 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
	Microsoft Windows 8.1 64-bit
	Red Hat Enterprise Linux (RHEL) 6.5 and 7.0

HP Moonshot 1500 Chassis	The Moonshot 1500 chassis holds up to 45 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 the 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 Moonshot 1500 Chassis is built with the following functions:

- Up to 45 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 HP Moonshot 1500 Chassis Management module manages the health of the chassis and servers.
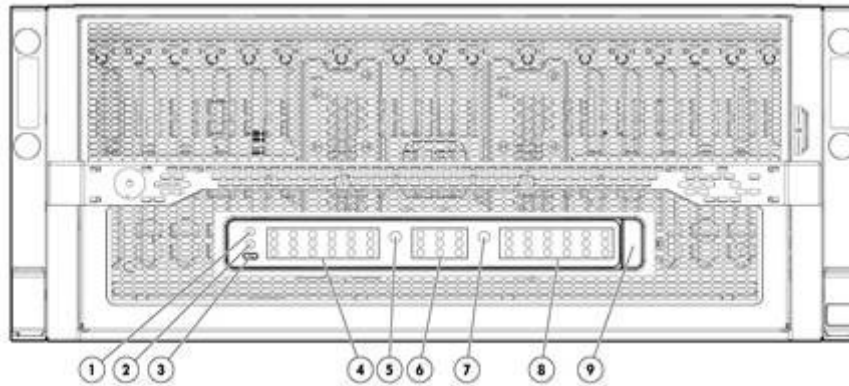
A Moonshot 1500 chassis provides the following benefits:

- 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.
- Lower airflow requirements, in comparison to rack-mounted servers

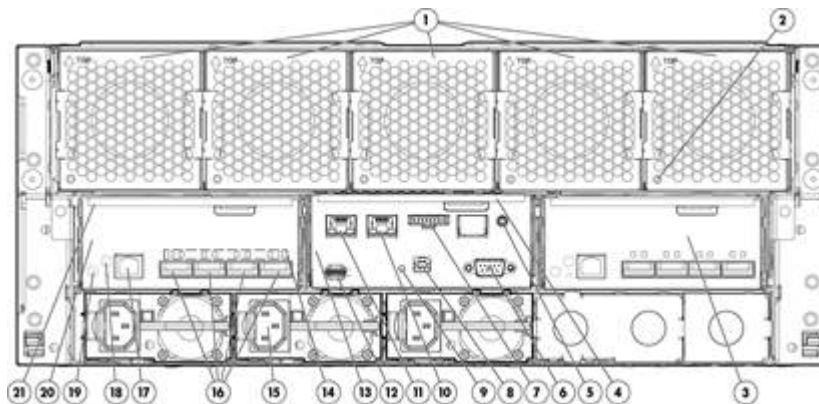**HP Moonshot 1500 Chassis**
Faster innovation and unprecedented scale begins with the Moonshot 1500 Chassis. Specifically designed to support servers using System on a Chip (SoC), the 4.3U chassis enables shared management, networking, storage, power, cooling, and switching. It supports up to 45 hot-pluggable, efficient, extreme low-energy servers cartridges, each tuned to a specific workload.
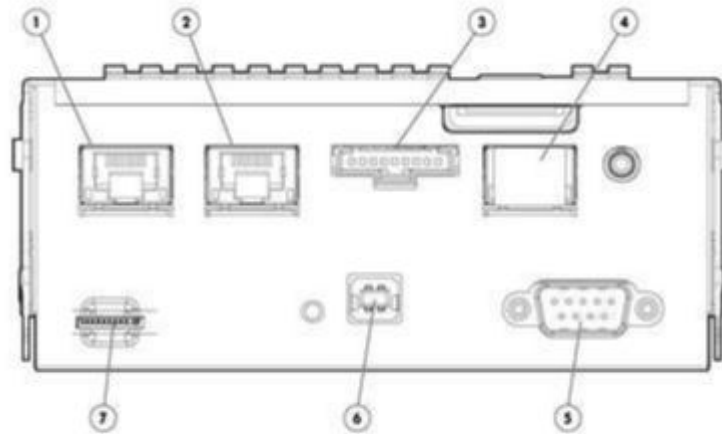
Standard Features

Front View

1. Chassis Power LED
2. System health LED
3. Chassis UID/LED/button
4. Front Panel Display LED, Moonshot server 1-18
5. Switch Module A Health LED

6. Front Panel Display LED, Moonshot server 19-27
7. Switch module B health LED
8. Front Panel Display LED, Moonshot server 28-45
9. Front Panel Display release

Back View

1. Fans
2. Fan LED
3. Uplink Module A
4. HP Moonshot 1500 CM Module release lever
5. HP Moonshot 1500 CM Module UID/LED button
6. HP Moonshot 1500 CM Module serial port
7. HP Moonshot 1500 CM Module HP APM port
8. HP Moonshot 1500 CM Module USB connector t
9. HP Moonshot 1500 CM Module LED
10. iLO CM link port (disabled by default)
11. iLO CM Management port
12. HP Moonshot 1500 CM Module MicroSD slot

13. HP Moonshot 1500 Chassis Management (CM) Module
14. Switch Module uplink/downlink activity LEDs
15. Power supply connector
16. 40Gb QSFP+ connector (x4)
17. Serial connector
18. Uplink Module UID/LED button
19. Uplink Module health LED
20. Uplink Module B
21. Uplink Module release lever

Standard Features

HP Moonshot 1500 Chassis Management (CM) Module

1.   iLO CM Management port
2.   iLO CM link port (disabled by default)
3.   HP Moonshot 1500 CM Module HP APM port
4.   HP Moonshot 1500 CM Module diagnostic port

6.   HP Moonshot 1500 CM Module serial port
7.   HP Moonshot 1500 CM Module USB connector
8.   HP Moonshot 1500 CM Module MicroSD slot

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.
NOTE: Check Compatibility matrix below for supported switch and uplink modules
NOTE: For information on HP Moonshot Switch and Uplink Modules, please see the following:

Switch:
HP Moonshot-180G Switch Module QuickSpecs:
http://h18000.www1.hp.com/products/quickspecs/14731_div/14731_div.html

Uplink
HP Moonshot- 16SFP+ Uplink 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

Switch	Speed	Cartridges						Uplink		
		m300	m350	m400	m700	m710	m800	Moonshot-6SFP+ Uplink	Moonshot-16SFP+ Uplink	Moonshot-4QSFP+ Uplink

Standard Features

Switch	Speed									
Moonshot-45G Switch	1Gb	✓		✓ *1Gb speed only*		✓ *1Gb speed only*		✓		
Moonshot-180G Switch	1Gb	✓	✓	✓ *1Gb speed only*	✓	✓ *1Gb speed only*	✓		✓	✓
Moonshot-45XGc Switch	1Gb	✓		✓ *1Gb speed only*		✓ *1Gb speed only*				✓
	10Gb			✓		✓				✓

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.

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: http://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.

Graphics

128 Radeon HD 8000 Cores (up to 500Mhz)

Form Factor

HP ProLiant m700 server cartridge plugs only into the HP Moonshot 1500 Chassis.

Standard Features

Embedded Management

Included in all HP Moonshot Systems, the HP Moonshot 1500 Chassis Managementmodule manages the health of the chassis and servers via a command-line interface accessible via SSH as well as a Graphical User Interface. Customers can configure the chassis, set server settings, and flash firmware in the HP Moonshot 1500 chassis. The HP Moonshot 1500 Chassis Management module also supports Intelligent Platform Management Interface (IPMI).

The HP Moonshot 1500 Chassis Management module supports the HP RESTful Interface Tool, this tool provides mass scripting configuration for rapid deployment of multiple HP Moonshot Systems.

For more information on the HP Moonshot 1500 Chassis Management Module, please contact your sales representative or go to:
http://www.hp.com/go/moonshot/docs
> HP Moonshot 1500 Chassis Setup and Installation Guide
> HP Moonshot iLO Chassis Management Firmware User Guide

HP Moonshot Component Pack

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

The HP Smart Update Manager (SUM)— is the engine/application that deploys the updates from the HP Moonshot Component Pack on HP Moonshot Systems. HP SUM helps you inventory and identify which servers require updates, gets the necessary components from the HP Moonshot Component Pack, and then performs the respective updates individually, as a group, or at scale. HP SUM simplifies the update process, making HP Moonshot servers 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, HP SUM offers comprehensive reporting to ensure the latest drivers, software, and firmware are implemented into the server environment

To download the HP Moonshot Component Pack, please reference:
http://www.hp.com/go/moonshot/download

Optional Features

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. Warranty terms may vary by region. Additional information regarding worldwide limited warranty and technical support is available at: http://h18004.www1.hp.com/products/servers/platforms/warranty/index.html

HP Insight Cluster Management Utility

HP Insight Cluster Management Utility (CMU) is an HP-licensed and HP-supported suite of tools that are used for lifecycle management of HyperScale clusters of Linux ProLiant systems. CMU includes software for the centralized provisioning, management and monitoring of nodes. CMU makes the administration of clusters user friendly, efficient, and effective.
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 image loading, asset tagging, and custom packaging. HP products supported through Factory Express include a wide array of servers and storage: HP Integrity, HP ProLiant, HP ProLiant Server Blades, 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 | **Recommended HP Care Pack Services for your HP product**
(4 and 5 year Service offerings are also available) |
|---|---|

HP Technology Services

HP Technology Services delivers confidence, reduces risk and helps customers realize agility and stability. Connect to HP 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 HP Care Pack Services
HP Care Pack 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 suppor

Recommended HP Care Pack Services for your HP product
(4 and 5 year Service offerings are also available)

| Optimized Care | **Foundation Care 24x7, three-year Care Pack Service**
HP Foundation Care 24x7 connects you to HP 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 Care Pack service provides troubleshooting assistance on industry leading software running on your HP server. Simplify your support experience and make HP your first call for hardware or software questions.
http://h20195.www2.hp.com/V2/GetDocument.aspx?docname=4AA4-8876ENW&cc=us&lc=en |
|---|---|
| Standard Care | **Foundation Care NBD, three-year Care Pack Service**
HP Foundation Care Next Business Day connects you to HP during business hours for assistance on resolving issues – features next business day hardware onsite response if needed and software call back within two hours. Collaborative software support is included and provides troubleshooting assistance on industry leading software running on your server. Simplify your support experience and make HP your first call for hardware or software questions.
http://h20195.www2.hp.com/V2/GetDocument.aspx?docname=4AA4-8876ENW&cc=us&lc=en |
| Related Services | **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

HP Datacenter Care service
HP Datacenter Care helps you improve IT stability and security, increase the value of IT, and enable agility and innovation. It is a structured framework of repeatable, tested, and globally available services "building blocks." You can deploy, operate, and evolve your datacenter wherever you are on your IT journey. With HP Datacenter Care, you benefit from a personalized relationship with HP via a single point of accountability for HP and others' products. For more information, visit http://www.hp.com/services/datacentercare

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

Service and Support

Connect your devices to HP

Unlock all of the benefits of your technology investment by connecting your products to HP. Achieve up to 77%[1] reduction in down time, near 100%[2] diagnostic accuracy and a single consolidated view of your environment. By connecting, you will receive 24x7monitoring, pre-failure alerts, automatic call logging, and automatic parts dispatch. HP Proactive Care Service and HP 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 HP support.

1- IDC
2 – HP CSC reports 2014 – 2015

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 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: http://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 is 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.

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:

One (1) Cartridge

Three (3) 1200w or 1500w 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 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 Opt OS	755372-B21
	NOTE: This chassis does NOT include 1 year of Ubuntu support	
	NOTE: If you prefer Ubuntu support for the chassis consider part number 755371-B21	
	NOTE: Mixed Cartridge configuration is supported – See Network section in step 2 for restrictions	
HP Moonshot Server Upgrade Kit	HP Moonshot Server Multipack	814659-B21
	NOTE: up to 15 cartridges of any kind fit in this multipack	

Step 1A: Configure Moonshot Server Cartridge

HP Moonshot Server	**For 32 GB of storage per server**	
	HP ProLiant m700 4x1P X2150 APU 4x8GB Configure-to-order Server Cartridge	733747-B21
	For 64 GB of storage per server	
	HP ProLiant m700 (4) 4P X2150 CPU 4x8GB RAM Configure-to-order Server Cartridge	760133-B21
	Plus	
	HP ProLiant m700 (4) 4P X2150 CPU 4x8GB RAM Configure 4 x 64GB iSSD Storage Mezzanine FIO Kit	756104-B21

NOTE: Mixed Cartridge configuration is supported – See Network section in step 2 for restrictions

NOTE: Each ProLiant m700 cartridge comes preconfigured with four 8 GB ECC SODIMM pre-installed. This is the only memory configuration available on this server.

NOTE: Each Moonshot m700 cartridge is pre-configured with a four AMD Opteron X2150 APU. The Opteron X2150 is the only processor option available.

NOTE: When 32 GB of storage per server is required, 733747-B21 is the only SKU required. When 64 GB of storage per server is required, order the base cartridge, 760133-B21 and the 64 GB storage mezzanine, 756104-B21. 733747-B21 comes preconfigured with the 32 GB of storage, and no additional cartridge options are required.

Configuration Information - Factory Integrated Models

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	
	NOTE: Minimum of three and maximum of four power supplies per chassis	
	HP 1500W Common Slot Platinum Plus Hot Plug Power Supply Kit	684532-B21
	HP 1200W Common Slot Platinum Plus Hot Plug Power Supply Kit	**656364-B21**
	NOTE: due to restricted airflow at 110v max power is 600w per power supply – this is 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 1500W power supplies per chassis when configured with 15 of the HP Moonshot m700 (733747-B21). Minimum of four 1500W power supplies per chassis when configured with 45 of the HP Moonshot m700 (733747-B21).	
	HP Common Slot -48VDC Power Supplies	
	HP 1500W Common Slot -48VDC Hot Plug Power Supply Kit	746708-B21
Networking	**NOTE:** Must order one Switch Kit and one Uplink Kit per chassis.	
	NOTE: Maximum of two Switch Kits and two Uplink Kit per chassis to allow configurations with redundant or dual networks.	
	Ordering Guidance for Moonshot 1500 chassis with mixed cartridge configurations	
	1. **Customer ordering a Quad Node Cartridge (m700, m350, m800) <u>MUST</u> use Moonshot-180G Switch Module.**	
	a. Choose one of the following Uplink Module:	
	i. Moonshot -16SFP+ Uplink Module	
	ii. Moonshot -4QSFP+ Uplink Module	
	Switches	
	HP Moonshot-180G Switch Module Kit	704642-B21
	Uplinks	
	HP Moonshot-16SFP+ Uplink Module Kit	783263-B21
	HP Moonshot-4QSFP+ Uplink Module Kit	704652-B21

Step 3: Choose Additional Chassis Factory Integration Options

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

HP Rail Kits (Chassis Specific)	HP 4.3U Server Rail Kit	681254-B21
	HP 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 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.	

Configuration Information - Factory Integrated Models

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.	
	NOTE: HP 4.3U Server Rail Kit (PN 681254-B21) is still required	
	NOTE: 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 Care Pack Services	**3 year Care Pack**	
	HP 3yr Nbd Moonshot 1500 OptOS FC SVC	U8K89E
	HP 3yr Nbd DMR Moonshot1500 OptOS FC SVC	U8K90E
	HP 3yr Nbd CDMR Moonshot1500 OptOS FC SVC	U8K91E
	HP 3yr 24x7 Moonshot 1500 OptOS FC SVC	U8K92E
	HP 3yr 24x7 DMR Moonshot1500 OptOS FC SVC	U8K93E
	HP 3yr 24x7 CDMR Moonshot1500 OptOS FC SVC	U8K94E
	HP 3yr CTR Moonshot 1500 Opt OS FC SVC	U8K95E
	HP 3yr CTR DMR Moonshot1500 OptOS FC SVC	U8K96E
	HP 3yr CTR CDMR Moonshot1500 OptOS FC SVC	U8K97E
	4 year Care Pack	
	HP 4yr Nbd Moonshot 1500 OptOS FC SVC	U8AT3E
	HP 4yr Nbd DMR Moonshot1500 OptOS FC SVC	U8AT4E
	HP 4yr Nbd CDMR Moonshot 1500 OptOS FC SVC	U8AT5E
	HP 4yr 24x7 Moonshot 1500 OptOS FC SVC	U8AT6E
	HP 4yr 24x7 DMR Moonshot1500 OptOS FC SVC	U8AT7E
	HP 4yr 24x7 CDMR Moonshot1500 OptOS FC SVC	U8AT8E
	HP 4yr CTR Moonshot 1500 Opt OS FC SVC	U8AT9E
	HP 4yr CTR DMR Moonshot 1500 OptOS FC SVC	U8AU0E
	HP 4yr CTR CDMR Moonshot1500 OptOS FC SVC	U8AU1E
	5 year Care Pack	
	HP 5yr Nbd Moonshot 1500 OptOS FC SVC	U8AU2E
	HP 5yr Nbd DMR Moonshot1500 OptOS FC SVC	U8AU3E
	HP 5yr Nbd CDMR Moonshot1500 OptOS FC SVC	U8AU4E
	HP 5yr 24x7 Moonshot 1500 OptOS FC SVC	U8AU5E
	HP 5yr 24x7 DMR Moonshot1500 OptOS FC SVC	U8AU6E
	HP 5yr 24x7 CDMR Moonshot 1500 OptOS FC SVC	U8AU7E
	HP 5yr CTR Moonshot 1500 Opt OS FC SVC	U8AU8E
	HP 5yr CTR DMR Moonshot1500 OptOS FC SVC	U8AU9E
	HP 5yr CTR CDMR Moonshot1500 OptOS FC SVC	U8AV0E
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

Configuration Information - Factory Integrated Models

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

Technical Specifications

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.

HP Insight Cluster Management Utility (CMU)	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

HP Advanced Power Manager	The HP 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 HP APM will automatically discover hardware components, dynamic rack power capping, provides efficient Rack management, manages shared infrastructure, and participates in federation with other HP APM units. The HP 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 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 HP APM solves this by allowing server node-level hardware power on/off of the DC power to the individual server node motherboards.	
	HP Advanced Power Manager Kit **NOTE**: Each HP APM can connect to 2 HP SL Advanced Power Manager Distribution (SL APMD) modules	741192-B21
	HP SL Advanced Power Manager Distribution Module (SL APMD) Kit **NOTE**: Each SL APMD can connect up to 10 chassis	620002-B21

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

Technical Specifications

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)

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/14110_div/14110_div.html
(Worldwide)

NOTE: For additional information on HP Uninterruptible Power Systems please go to: http://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:
http://www.hp.com/products/powercords.

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
	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)

Technical Specifications

> **NOTE:** Additional HP Power Distribution Units are available. For a complete list of all HP PDUs and additional information please visit:
> http://www.hp.com/go/rackandpower.

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 Rack Series	**HP Intelligent Series Rack**	
	HP 636 1200mm Pallet Intelligent Rack	BW899A
	HP 636 1200mm Shock Intelligent Rack	BW900A
	HP 642 1200mm Pallet Intelligent Rack	BW907A
	HP 642 1200mm Shock Intelligent Rack	BW908A
	HP 647 1200mm Pallet Intelligent Rack	BW913A
	HP 647 1200mm Shock Intelligent 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 11000 G2 Series Racks	
	HP 11642 1075mm Pallet Rack	H6J65A
	HP 11642 1075mm Shock Rack	H6J66A
	HP 11648 1075mm Pallet Rack	H6J87A
	HP 11648 1075mm Shock Rack	H6J88A
	HP 11636 1075mm Pallet Universal Rack	H6J77A
	HP 11636 1075mm Shock Universal Rack	H6J78A

Technical Specifications

HP 11622 1075mm Pallet Rack	H6J83A
HP 11622 1075mm Shock Rack	H6J84A
HP 11614 1075mm Shock Universal Rack	H6J82A

NOTE: When using the 1075mm racks with the Moonshot 1500 Chassis, the rear door will not be able to be closed.

HP Moonshot System

HP Moonshot System contains forty-five (45) Server Cartridges, Four (4) Power Supplies, 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.
Input Requirements (per power supply)	Rated Line Voltage	180 to 264 VAC
	Rated Input Current	8.4A at 200VAC
	Rated Input Frequency	47 to 63 Hz
	Rated Input Power	1661W (at 200 VAC)
Power Specifications	To review typical system power ratings use the HP Power Advisor which is available via the online tool located at URL: http://www.hp.com/go/hppoweradvisor	
Power Supply Output (per power supply)	Rated Steady-State Power	1500W (at 200 VAC)
	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

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 m700 Server Cartridge Dimensions (H x W x D)	6.57 in x 7.23 in x 0.78 in (16.71 cm x 18.37 cm x 1.98cm)
	Idle Power	20W
	Max Power	78W
	Typical Power	49W

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 Wattage	89.2	90.1	90.9	91.0	91.1	91.2	91.3
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

Technical Specifications

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 1500W Common Slot -48V Hot Plug Power Supply Kit

Part Number	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

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 owner ship calculator, and a power report. The HP Power Advisor allows for the mixing of rack, tower, blade, and other products in a single environment.
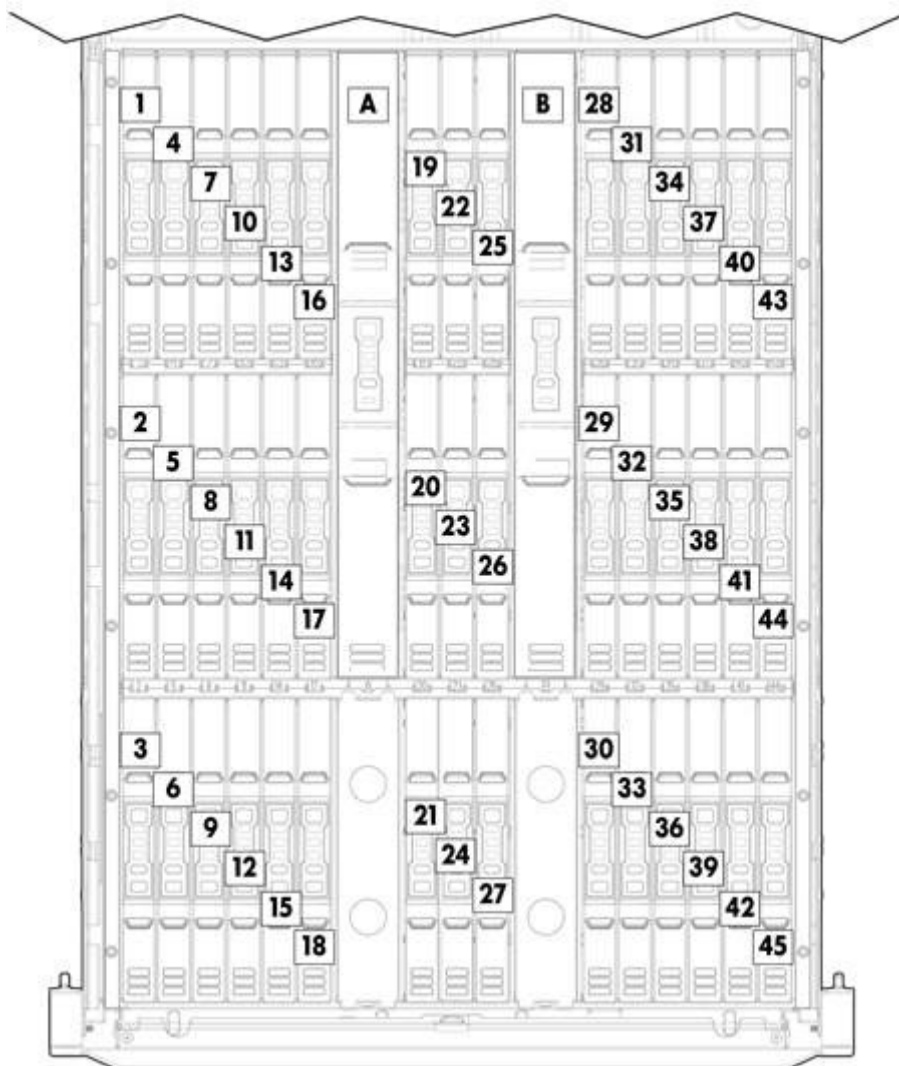
Available at: http://www.hp.com/go/hppoweradvisor

Power Supply Specifications To review typical system power ratings use the HP Power Advisor which is available via the online tool located at URL: http://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

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Technical Specifications

Cartridge slot and switch module bay identification
The chassis provides 45 cartridge slots (1-45) and two switch module bays (A-B).

NOTE: Factory Integrated Models must start with an HP Moonshot 1500 Chassis.

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 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

Date	Version History	Action	Description of Change
17-Jul-2015	From version 13 to 14	Updated	Update additional options
1-Jun-2015	From version 12 to 13	Changed	Update the Configuration section
5-May-2015	From version 11 to 12	Changed	Add Chassis Information
9-Abr-2015	From version 10 to 11	Updated	Add power supply
30-Feb-2015	From version 9 to 10	Updated	Update several sections throughout the QuickSpecs.
21-Jan-2015	From Version 8 to 9	Updated	Update Configuration Information.
1-Dec-2014	From version 7 to 8	Changed	Update Technical specifications
5-Nov-2014	From version 6 to 7	Changed	Review Images and Wording
18-Aug-2014	From Version 5 to 6	Changed	The QuickSpecs was completely revised.
10-Jun-2014	From Version 3 to 4	Changed	Maximum internal storage was revised.
31-Mar-2014	From Version 2 to 3	Changed	The QuickSpecs was completely revised.
18-Feb-2014	From Version 1 to 2	Changed	Added the What's New and the Pre-Configured Models sections. Changes made in the Configuration Information section.