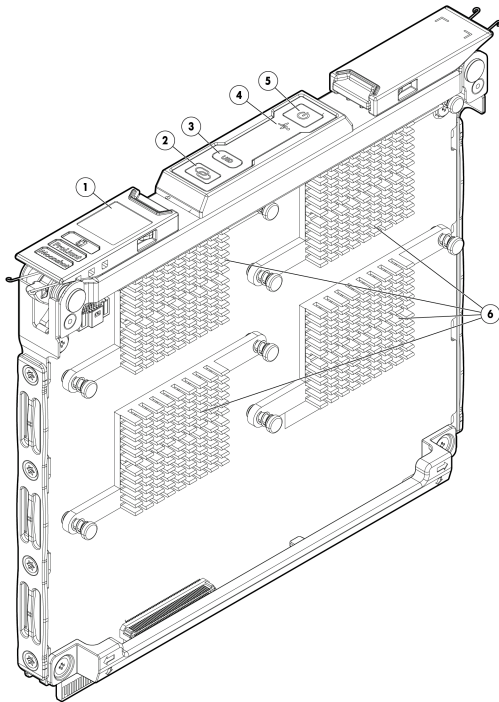## Overview

HP Convergedsystem 100 for hosted desktops with the HP ProLiant m700 server cartridge was created for cost-effective Hosted Desktop Infrastructure (HDI). The ProLiant m700 server cartridge has four AMD 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. Each cartridge also has one SATA attached 256GB iSSD mezz card split discreetly as 64GB to each of the 4 processor nodes .
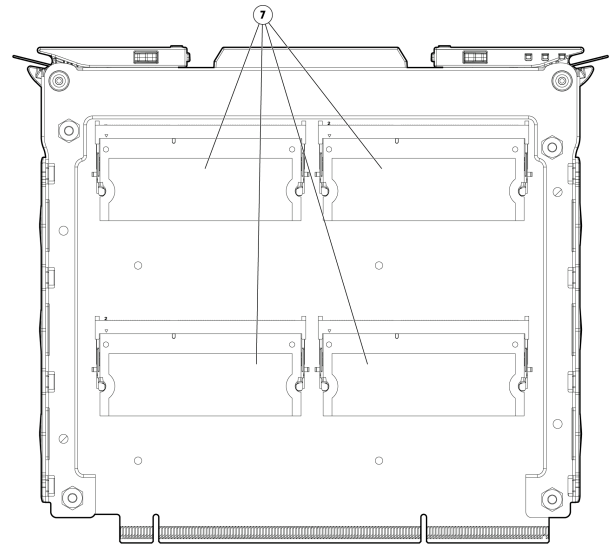
The HP CS100 is based on HP's Moonshot technology system and uses an innovative new architecture that results from one simple design tenet: to align purpose-built modules with the right workload to provide optimal results for your environment. Traditional servers rely on dedicated components, including management, networking, storage, power cords and cooling fans in a single chassis. In contrast, the Moonshot system share these chassis components and are capable of supporting 45 cartridges 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. Cartridge health LED
5. Cartridge power LED/button
6. Four (4) AMD Opteron™ X2150 APU SoC

Back View:

7. Four (4) DDR3 SODIMM memory slots

Overview

Models

HP ProLiant m700 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.

Standard Features

NOTE: For information on HP Moonshot 1500 Chassis (including network switches and uplinks), please see the following:
http://h18000.www1.hp.com/products/quickspecs/14527_div/14527_div.html
HP Moonshot-180G Switch Module QuickSpecs:
http://h18000.www1.hp.com/products/quickspecs/14731_div/14731_div.html
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 (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
Industry Standard Compliance	ACPI 2.0 and 3.0a Compliant	
	SMBIOS 2.6+	
	PXE Support	

QuickSpecs

Standard Features

Operating Systems and Virtualization Software Support for ProLiant Servers	Microsoft Windows Server, Microsoft Windows7 Enterprise SP1 **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

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 m700 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/14757_div/14757_div.html

Graphics	128 Radeon HD 8000 Cores (up to 500Mhz)

Form Factor	HP CS100 for HDI uses HP ProLiant m700 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/14757_div/14757_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).

Optional Features

High Performance Clusters	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

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

Service and Support

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.

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

Service and Support

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 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 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

CS100 for HDI can contain up to Forty Five (45) identically configured Moonshot ProLiant m700 server cartridges per 1500 chassis.
NOTE: All cartridges in the chassis will be identical on a per chassis basis.
Four(4) 1500W Common Slot Platinum Plus Power Supplies included (N+1)
NOTE: Additional power supply kits may be ordered to achieve N+1 redundancy.

Two (2) HP Moonshot-180G Switch Modules
and
Two (2) HP Moonshot-4QSFP+ Uplink Module
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 HP Moonshot 1500 Chassis)

HP Moonshot 1500 Chassis	HP ConvergedSystem 100 for Hosted Desktops - Standard 32GB (Non Persistent)	751820-B21
	HP ConvergedSystem 100 for Hosted Desktops - Performance 64GB (Persistent)	G3T51A
	HP CS100 HDI Chassis Standard Starter Kit - 15 Cartridges only	G6F51A
	HP CS100 HDI Chassis Performance Starter Kit - 15 Cartridges only	G3T52A
	NOTE: Must order identically configured Moonshot servers within same Moonshot 1500 chassis.	

Step 2: Choose Upgrade Options (cartridges must match starter system)

Server Cartridges	HP CS100 HDI Chassis Standard Expansion Kit - 15 cartridges 32GB	G6F52A
	HP CS100 HDI Chassis Performance Expansion Kit - 15 cartridges 64GB	G6F50A
Power Supplies	**HP Common Slot Platinum Plus Power Supply Kits**	
	HP 1500W Common Slot Platinum Plus Hot Plug Power Supply Kit	684532-B21
	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 four 1500W power supplies per chassis when ordering the HP Moonshot CS100 models.	

Step 3: Choose additional Factory Integrated Options

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. Utilizing HP Factory Express Services for this part is highly recommended.	

QuickSpecs

Configuration Information - Factory Integrated Models

Step 4: Choose additional options for Factory Integration

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.

HP SL Advanced Power Manager	The SL Advanced Power Manager is an optional rack level solution for the HP Moonshot 1500 Chassis which enables server-level DC (or hardware) power on and off and server-level monitoring. In addition, the SL APM will automatically discover SL 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 SL servers and Moonshot servers share power supplies to optimize power efficiency, using 'switched' PDUs to turn off the power supplies in the chassis will result in the loss of all servers in that chassis. The SL APM solves this by allowing server-level hardware power on/off of the DC power to the individual server motherboards.	
	HP SL Advanced Power Manager Kit	538084-B21
	HP SL Advanced Power Manager Distribution Module Kit	620002-B21
High Performance Clusters	HP Insight Cluster Management Utility Media	BD477A
	NOTE: For additional license kits please see the QuickSpecs at: http://h18004.www1.hp.com/products/quickspecs/12612_div/12612_div.html	
Ethernet Optical Transceivers	HP X140 40G QSFP+ MPO SR4 Transceiver	JG325A
Ethernet Copper 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.	

Additional Options

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:
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 Basic Power Distribution Units		
	HP 2.8kVA 120 Volt 18 Outlet NA/JP Basic Power Distribution Unit	H5M55A
	HP 3.6kVA 200-240 Volt 12 Outlet WW Basic Power Distribution Unit	H5M56A
	HP 3.6kVA 200-240 Volt 20 Outlet WW Basic Power Distribution Unit	H5M57A
	HP 4.9kVA 208 Volt 20 Outlet NA/JP Basic Power Distribution Unit	H5M58A
	HP 4.9kVA 208 Volt 30 Outlet NA/JP Basic Power Distribution Unit	H5M59A
	HP 8.3kVA 208 Volt 36 Outlet NA/JP Basic Power Distribution Unit	H5M60A
	HP 8.6kVA 208 Volt Three Phase 18 Outlet NA/JP Basic Power Distribution Unit	H5M61A
	HP 8.6kVA 208 Volt Three Phase 30 Outlet NA/JP Basic Power Distribution Unit	H5M62A
	HP 5.7kVA 208 Volt Three Phase 27 Outlet NA/JP Dual Voltage Basic Power Distribution Unit	H5M63A
	HP 8.6kVA 208 Volt Three Phase 30 Outlet NA/JP Dual Voltage Basic Power Distribution Unit	H5M64A
	HP 7.3kVA 230 Volt 20 Outlet INTL Basic Power Distribution Unit	H5M68A
	HP 7.3kVA 230 Volt 30 Outlet INTL Basic Power Distribution Unit	H5M70A
	HP 11kVA 230 Volt 36 Outlet INTL Basic Power Distribution Unit	H5M71A
	HP 11kVA 400 Volt Three Phase 30 Outlet INTL Basic Power Distribution Unit	H5M72A
	HP Hardwired 200-240 Volt 36 Outlet WW Basic Power Distribution Unit	H5M75A
	HP 13.2kVA 480 Volt Three Phase 15 Outlet NA Basic Power Distribution Unit	H3X07A
	HP 277 Volt options for H3X07A and H3X08A	

Additional Options

	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 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 Series Rack	BW899A
	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.

Additional Options

HP Rail Kits	HP 4.3U Server Rail Kit	681254-B21
(Chassis Specific)	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. (see Step 3 of Factory Integrated Models section). If the 13U kit is used, the .66U spacer would not be used and vice versa.

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. Utilizing HP Factory Express Services for this part is highly recommended.

QuickSpecs

Technical Specifications

HP CS100 for HDI	**HP Moonshot System contains up to forty-five (45) Server Cartridges, Four (4) Power Supplies, Two (2) Switch Module Kits and Two (2) uplink Module Kits**		
	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.
	Network Ports (per switch & uplink pair)	One hundred eighty (180) 10/100/1000 downlink ports Four (4) 1000/10000/40000 QSFP+ uplink ports **NOTE:** See the HP Moonshot-180G Switch Module QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/14731_div/ 14731_div.html **NOTE:** See the HP Moonshot-4QSFP+ Uplink Module QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/14733_div/ 14733_div.html	
	Input Requirements (per power supply)	Rated Line Voltage	180 to 264 VAC
		Rated Input Current	3.6A at 230VAC
		Rated Input Frequency	47 to 63 Hz
		Rated Input Power	840.72W (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: www.hp.com/go/hppoweradvisor	
	Power Supply Output (per power supply)	Rated Steady-State Power	653.08W (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.

Technical Specifications

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 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	63W
	Typical Power	33W

Technical Specifications

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.