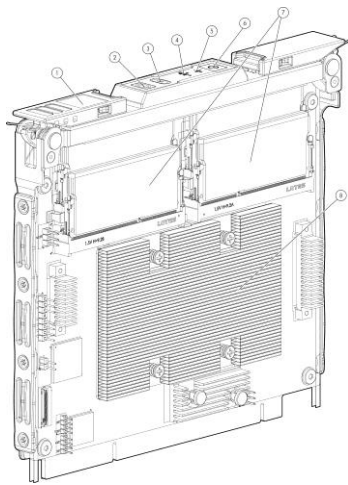


Overview

HP ProLiant m400 Server Cartridge

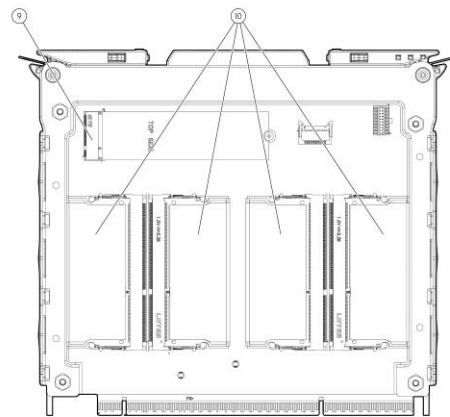
HP Moonshot System with the HP ProLiant m400 server cartridge is designed to enhance the performance of Dynamic Web Content Delivery by lowering the load on databases via in-memory key-value caching. The ProLiant m400 server cartridge has one AppliedMicro X-Gene 64-bit ARM System on a Chip (SoC) server having eight cores, 64GB of memory, and 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) AppliedMicro® X-Gene™ Processor



Rear View:

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

What's New

- BIOS with support for both UBoot and UEFI (switchable)

Models

HP ProLiant m400 1P 64GB Configure-to-order Server Cartridge

771717-B21

NOTE: For ordering the HP ProLiant m400 Server Cartridge, please see Step 1 of the Configuration to Order section of this QuickSpecs.

Standard Features

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

Chassis:

HP Moonshot 1500 Chassis Opt OS

<http://www8.hp.com/us/en/products/servers/moonshot/index.html>

Switch:

FastPATH

HP Moonshot-45G Switch Module

<http://www8.hp.com/h20195/v2/GetHTML.aspx?docname=c04111070>

HP Moonshot-180G Switch Module

<http://www8.hp.com/h20195/v2/GetHTML.aspx?docname=c04111290>

Comware

HP Moonshot-45Gc Switch Module

<http://www8.hp.com/us/en/products/servers/moonshot/index.html>

HP Moonshot-45XGc Switch Module

<http://www8.hp.com/h20195/v2/GetHTML.aspx?docname=c04384058>

Uplink:

HP Moonshot-6SFP+ Uplink Module

<http://www8.hp.com/h20195/v2/GetHTML.aspx?docname=c04111292>

HP Moonshot-16SFP+ Uplink Module

<http://www8.hp.com/h20195/v2/gethtml.aspx?docname=c04499458>

HP Moonshot-4QSFP+ Uplink Module

<http://www8.hp.com/h20195/v2/GetHTML.aspx?docname=c04111291>

Processor	AppliedMicro® X-Gene™ 1 Processor, Eight ARM64-bit 2.4 GHz cores		
Cache Memory	Each core has a 32KB L1 Instruction and a 32KB L1 data cache. Also, each core pair has a 256KB L2 cache and all 8 cores share an 8MB L3 cache		
Memory Protection	ECC		
Memory	Type	HP 8GB (1x8GB) PC3L-12800 (DDR3-1600) SODIMM Low Voltage Memory	
	DIMM Slots Available	Eight (8) SODIMM Slots	
	Standard Configuration	64GB (8x8GB)	
Network Controller	Mellanox Connect-X3 Pro Dual 10Gbe NIC		
Storage Controller	Integrated into the System on a Chip (SoC)		
Maximum Internal Storage (per Moonshot Server)	M.2 2280 solid state SATA boot device	765479-B21	120GB
		765481-B21	240GB
		765483-B21	480GB
m400 may be purchased with zero M.2 storage.			

Standard Features

Interfaces	Cartridge Link LED/button Cartridge UID LED/button Drive LED Cartridge health LED
Industry Standard Compliance	PXE Support PCIe 3.0
System BIOS	Supports user switching between U-Boot and UEFI boot modes
Operating Systems and Virtualization Software Support for ProLiant Servers	Canonical Ubuntu for 64-bit ARM 14.04 (requires U-Boot environmen 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
Form Factor	HP ProLiant m400 Server Cartridge is a server cartridge that plugs into the HP Moonshot 1500 Chassis.
Security	Power-on password Setup password 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 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 Insight Cluster Management Utility (CMU)

HP Insight Cluster Management Utility (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 **To see recommended HP Care Pack Services for your HP product** (4 and 5 year Service offerings are also available) see HP Moonshot 1500 Chassis Opt OS Quick Specs.
<http://www8.hp.com/us/en/products/servers/moonshot/index.html>

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

Technical Specifications

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: If you want to configure the HP Moonshot 1500 Chassis Opt OS with cartridges, proceed to the HP Moonshot 1500 Chassis Opt OS Quick Specs

<http://www8.hp.com/us/en/products/servers/moonshot/index.html>

NOTE: If you want to configure a cartridge only, proceed to Step 1

Step 1: Base Configuration (Choose upgrade kit)

HP Moonshot Server Upgrade Kit	HP Moonshot Server Multipack NOTE: up to 15 cartridges of any kind fit in this multipack NOTE: Mixed Cartridge configuration is supported	814659-B21
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Step 2: Pick Moonshot Servers

HP Moonshot Server	HP ProLiant m400 1P X-Gene CPU 64GB Configure-to-order Server Cartridge NOTE: Mixed Cartridge configuration is supported NOTE: Each Moonshot server comes preconfigured with eight 8 GB SODIMM pre-installed. NOTE: Each Moonshot cartridge is pre-configured with a single AppliedMicro® X-Gene™ Processor running at 2.4 GHz. This processor is eight-core and contains 1 MB Cache shared per two cores. The X-Gene is 64-bit ARM and is compatible with the Cortex-A57 instruction set.	721717-B21
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Step 3: Configure Moonshot Server (Choose appropriate Options)

HP Solid State Device	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 4: To Select a different cartridge see details:

<http://www8.hp.com/us/en/products/servers/moonshot/index.html>

Server Cartridge	HP Moonshot m400 Server Cartridge Dimensions (H x W x D) Typical Power Max Power	6.57 x 7.23 x 0.78in (16.71 x 18.37 x 1.98cm) 60W 85.1W
System Inlet Temperature	Operating Non-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). -22° to 140° F (-30° to 60° C) Maximum rate of change is 36°F/hr (20°C/hr).
Relative Humidity	Operating	10 to 90% relative humidity (Rh), 28°C (82.4°F) maximum wet bulb

Technical Specifications

(non-condensing)		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).
Environment-friendly Products and Approach	End-of-life Management and Recycling	<p>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.</p> <p>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.</p>

Summary of Changes

Date	Version History	Action	Description of Change
28-Sept-2015	From version 8 to 9	Changed	Update several sections throughout the QS
17-Jul-2015	From version 7 to 8	Changed	Updates throughout the QuickSpecs
5-May-2015	From version 6 to 7	Update	Add chassis part number
17-Aug-2015	From version 5 to 6	Changed	Updates in configuration information and technical specifications
3-Feb-2015	From version 4 to 5	Changed	Changes throughout the QuickSpecs.
21-Jan-2015	From version 3 to 4	Changes	Changes in the configuration section
1-Dec-2014	From version 2 to 3	Changed	Changes throughout the QuickSpecs.
5-Nov-2014	From version 1 to 2	Changed	Changes in images and verbiage
29-Sept-2014	Version 1	Created	Create QS for the HP ProLiant m400 Server Cartridge

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