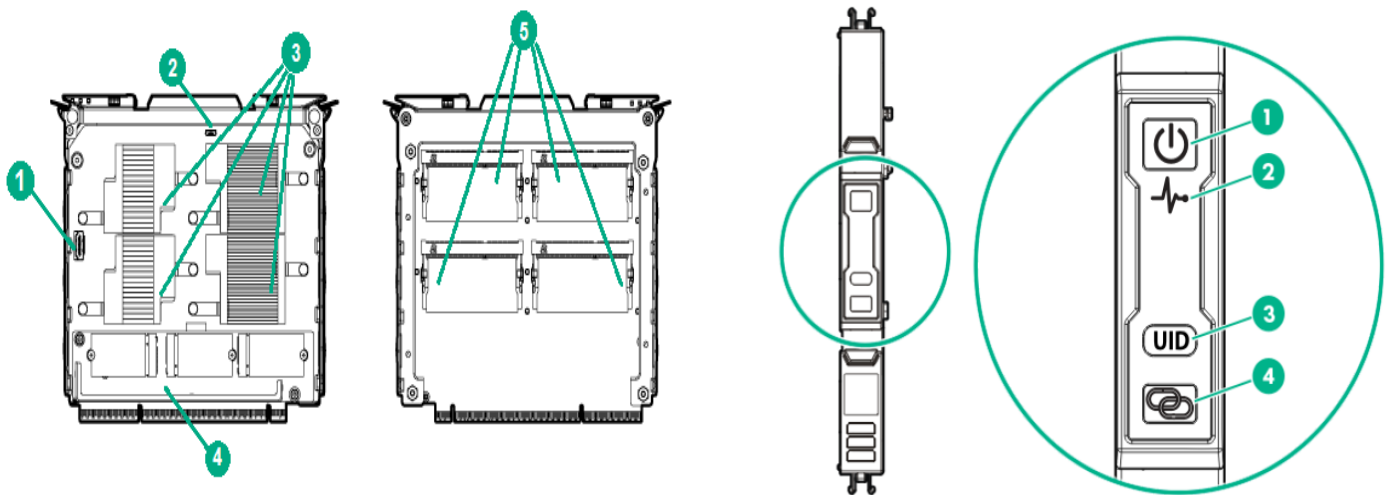


### Overview

#### HPE ProLiant m700p Server Cartridge

HPE Moonshot System with the HPE ProLiant m700p server cartridge was created for cost-effective Hosted Desktop Infrastructure (HDI) and other graphics enabled applications. The ProLiant m700p server cartridge has four AMD Opteron™ X2170 APU System on a Chip (SoC) having up to four x86 cores with integrated Graphics Processing Unit (GPU), each supporting up to 16GB of memory and 240GB SATA M.2 storage.

HPE 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.



#### Cartridge Top and Bottom Side View

Item	Description
1.	HDMI Connector (For node 2 only)
2.	Micro USB Connector (For node 2 only)
3.	Four (4) AMD Opteron™ X2170 APU processors
4.	M.2 SSD Mezzanine kit
5.	Four (4) DDR3 ECC SODIMM memory slots

#### Cartridge LEDs and Buttons

Item	Description
1.	Cartridge Power LED/Button
2.	Cartridge health LED
3.	Cartridge UID LED/Button
4.	Cartridge Link LED/Button

## Standard Features

### Processor

AMD Opteron™ APU	SoC Frequency	Integrated GPU	Cores	L2 Cache	Power	DDR3 MHz
X2170	2.4GHz	Radeon™ R5E	4-core	2MB	25W	1866 <sup>[1]</sup>

**NOTE:** For more information regarding AMD Opteron™ X series APU processors, please go to:

<http://www.amd.com/en-us/products/server/opteron-x>

**NOTE:** There are four (4) processors available on each HPE ProLiant m700p server.

**NOTE:**<sup>[1]</sup> AMD Opteron™ X2170 APUs will run memory at the maximum of DDR3 1600MHz on HPE ProLiant m700p server cartridges.

### Chipset

AMD Opteron™ X Series APU

### Graphics

AMD Radeon™ R5E GPU

- Base Frequency: 655 MHz
- Boost Frequency: 800 MHz

**NOTE:** Achieving Boost frequency depends on configured CPU power limit (if any).

### Memory

Type	HPE SmartMemory	
Supported DIMMs	DDR3 PC3-12800 SDRAM (1600 MHz) 8GB (2R x 8), 16GB (2R x 8)	
DIMM Slots Available	4 (1 per SoC)	(Four (4) SODIMM Slots, One per SoC)
Maximum Capacity (SODIMM)	64GB	(1 x 16GB per SoC)

**NOTE:** Four (4) identical Small Outline DIMMs (SODIMMs) must be configured on each server.

**NOTE:** Registered DIMMs (RDIMMs), Load Reduced DIMMs (LRDIMMs) and Non-Volatile DIMMs (NVDIMMs) are not supported.

### Memory Protection

Advanced ECC

Advanced ECC uses single device data correction to detect and correct single and all multibit error that occurs within a single DRAM chip.

### Network Controller

Broadcom BCM5720 Ethernet Controller

### Storage Controller and Devices

Integrated SATA controller on each of the Four (4) independent System on a Chip (SoC)

SSD Slot #	Technology	Bus Width	Connector Width	Form Factor	Supported Sizes
SATA #1 (Only for Node 1)	SATA-3	x1	x1	M.2 2242	64GB 120GB 240GB
SATA #2 (Only for Node 2)	SATA-3	x1	x1	M.2 2242	64GB 120GB 240GB
SATA #3 (Only for Node 3)	SATA-3	x1	x1	M.2 2242	64GB 120GB 240GB
SATA #4 (Only for Node 4)	SATA-3	x1	x1	M.2 2242	64GB 120GB 240GB

**NOTE:** m700p server cartridges may be purchased with zero M.2 storage (i.e. network/diskless boot).

**NOTE:** If storage installation option is selected, a mezzanine card and four (4) identical SSDs are required

**NOTE:** The SATA M.2 2242 SSDs (64GB, 120GB, 240GB) supports "Read Intensive" environments. Drive wear out may occur if it's subjected to more DWPD then recommended for that endurance tier.

## Standard Features

<b>Maximum Internal Storage</b>	M.2 2242 SATA solid state device	960GB	(1 x 240GB per SoC)
<b>Power Supply</b>	Refer to the chassis documentation for details.		
<b>System Fans</b>	Refer to the chassis documentation for details.		
<b>Interfaces</b>	Cartridge Link LED/button Cartridge UID LED/button Drive LED Cartridge health LED Micro-USB 2.0 connector HDMI connector <b>NOTE:</b> Micro-USB and HDMI connector is for node 2 diagnostic usage only and may require removal of any adjacent cartridge. <b>NOTE:</b> To connect a standard USB or HDMI device to the cartridge, connect a USB or HDMI on-the-go adapter to the cartridge respective connector, and then connect the USB or HDMI device to the adapter.		
<b>Operating Systems Support for ProLiant Servers</b>	<b>Microsoft Windows Client</b> <b>NOTE:</b> Only 64-bit versions of these operating systems are supported <b>NOTE:</b> For more information on Hewlett Packard Enterprise's Certified and Supported ProLiant Servers for OS and Virtualization Software and latest listing of software drivers available for your server, please visit our OS Support Site at: <a href="http://www.hp.com/go/ossupport">http://www.hp.com/go/ossupport</a> and our driver download page which can be found from the HPE Support Center: <a href="http://www.hpe.com/support/hpesc">http://www.hpe.com/support/hpesc</a>		
<b>Industry Standard Compliance</b>	PXE Support PCIe 2.0 Compliant ACPI 2.0 and 3.0a Compliant SMBIOS 26+ WoL Support USB 2.0 Support		
<b>Form Factor</b>	HPE ProLiant m700p Server Cartridge plugs into the HPE Moonshot 1500 System. <b>NOTE:</b> The HPE ProLiant m700p server is not supported in a HPE Edgeline system.		
<b>Server Utilities</b>	Moonshot Component Pack	The HPE Moonshot Component Pack is a comprehensive firmware solution tested on the HPE Moonshot System and delivered as a compressed file. The compressed file includes all the component files needed to update a Moonshot System. Users deploy the firmware updates contained in the Moonshot Component Pack via the iLO Chassis Manager CLI or HPE Moonshot-45G/180G Switch Module CLI. This can be accomplished using HPE Smart Update Manager, which is included with the files, or manually. Access the Moonshot supporting software/driver download page via: <a href="https://www.hpe.com/us/en/servers/moonshot.html">https://www.hpe.com/us/en/servers/moonshot.html</a> <b>NOTE:</b> The Moonshot Component Pack is only supported when the server is installed in a HPE Moonshot 1500 System.	
<b>Security</b>	<ul style="list-style-type: none"> <li>• Serial interface control</li> <li>• Administrator's password</li> <li>• Power-on password</li> </ul>		

**Warranty** This product is covered by a global limited warranty and supported by Hewlett Packard Enterprise Services and a worldwide network of Hewlett Packard Enterprise Authorized Channel Partners resellers. Hardware diagnostic support and repair is available for three years from date of purchase. Support for initial setup is available for 90

## Standard Features

days from date of purchase. Enhancements to warranty services are available through HPE support services or customized service agreements.

**NOTE:** Server Warranty includes 3-Year Parts, 0-Year Labor, 0-Year Onsite support with next business day response. Warranty repairs may be accomplished through the use of Customer Self Repair (CSR) parts. These parts fall into two categories: 1) Optional CSR parts are designed for easy replacement but may involve added complexity. Customers may choose to have Hewlett Packard Enterprise replace Optional CSR parts at no charge. 2) No CSR parts are also designed for requiring a Hewlett Packard Enterprise authorized service provider replace the part. Additional information regarding worldwide limited warranty and technical support is available at: <http://h20564.www2.hp.com/hpsc/wc/public/home>

## Additional Options

### HPE Moonshot Remote Console Administrator (806843-B21)

The HPE Moonshot Remote Console Administrator (mRCA) allows users to have access to keyboard, video monitors and a mouse in a headless environment. It enables users to remote console (on a node per node basis) for the initial golden OS image installation (Windows or Linux) assistance, virtual media functionality for mounting an image to boot, and in addition the mRCA can be used as debug/crash tool. Click here, for additional technical information.

<https://www.hpe.com/h20195/v2/GetHtml.aspx?docname=c04545619>

**NOTE:** One (1) optional mRCA can be ordered for every m700p that is intended to be managed. The mRCA will occupy an adjacent cartridge slot to the m700p in the Moonshot 1500 System.

### HPE Insight Cluster Management Utility (CMU)

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

<https://www.hpe.com/us/en/servers/server-management.html>

### Factory Express Portfolio for Servers and Storage

HPE Factory Express offers configuration, customization, integration and deployment services for Hewlett Packard Enterprise servers and storage products. Customers can choose how their factory solutions are built, tested, integrated, shipped and deployed.

Factory Express offers service packages for simple configuration, racking, installation, complex configuration and design services as well as individual factory services, such as asset tagging, and custom packaging. Hewlett Packard Enterprise products supported through Factory Express include a wide array of servers and storage: HPE Moonshot, HPE Integrity, HPE ProLiant, HPE ProLiant Server Blades, and HPE BladeSystem, HPE 9000 servers as well as the MSAxxxx, VA7xxx, EVA, XP, rackable tape libraries and configurable network switches.

For more information on Factory Express services for your specific server model please contact your sales representative or go to: <http://www.hp.com/go/factory-express>

### Service and Support

To see recommended HPE Support Services for your HPE product (4 and 5 year Service offerings are also available)

See HPE Moonshot 1500 System Quick Specs:

<https://www.hpe.com/us/en/servers/moonshot.html>

### For more information

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

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

#### NOTES:

- If you want to configure the HPE Moonshot 1500 System with server cartridges, proceed to the HPE Moonshot 1500 System Quick Specs: <https://www.hpe.com/us/en/servers/moonshot.html>
- If you want to configure a server cartridge only, proceed to Step 1

## Step 1: Base Configuration (Choose upgrade kit)

### HPE ProLiant Server Upgrade Kit

HPE Moonshot Server Multipack

814659-B21

**NOTE:** Up to 15 server cartridges of any kind fit in this multipack

**NOTE:** Mixed Cartridge configuration is supported

## Step 2: Pick ProLiant Server Cartridge

### HPE ProLiant m700p Server Cartridge

HPE ProLiant m700p 4x1P X2170 APU Configure-to-order Server Cartridge

861177-B21

**NOTE:** Each Moonshot m700p cartridge is pre-configured with four AMD Opteron™ X2170 APU processors. The Opteron™ X2170 is the only processor option available.

## Configuration Information - Factory Integrated Model

### NOTES:

- The processor on each server is fixed and cannot be changed after ordering. DIMMs and SSDs are configurable.
- Mixing of different server cartridges within the same system is supported

### Step 3: Configure ProLiant Server Cartridge (Choose appropriate Option)

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

**NOTE:** Must order identical quantity on all configured ProLiant server cartridges.

**NOTE:** Part numbers provided below can be used to order upgrades as well

<b>HPE Memory</b>	Select 4 of the following (same type):	
	HPE 8GB 2Rx8 EP3L-12800E-11 Kit	867505-B21
	HPE 16GB 2Rx8 EP3L-12800E-11 Kit	859485-B21
	<b>NOTE:</b> Four (4) identical ECC SODIMMs of the selected type must be configured per server.	
<b>HPE Solid State Drives</b>	Select 1 of the following:	
	HPE ProLiant m700p-ind M.2 Mezzanine Kit	869105-B21
	Select 4 of the following (same type):	
	HPE 64GB SATA M.2 2242 SSD Kit	866840-B21
	HPE 120GB SATA M.2 2242 SSD Kit	866842-B21
HPE 240GB SATA M.2 2242 SSD Kit	866844-B21	
	<b>NOTE:</b> Server cartridge must be purchased with four (4) identical capacity M.2 SSD Kits.	
	<b>NOTE:</b> The SATA M.2 2242 SSDs (64GB, 120GB, 240GB) supports “Read Intensive” environments.	

### Step 4: To Select a different server cartridge see details:

HPE Moonshot 1500 System:

<https://www.hpe.com/us/en/servers/moonshot.html>

## Other Infrastructure Components

**NOTE:** For information on Hewlett Packard Enterprise Moonshot Chassis, Switch and Uplink Modules, please see the following:

Chassis:

HPE Moonshot 1500 System

[\*\*http://www.hpe.com/info/moonshot\*\*](http://www.hpe.com/info/moonshot)

Switch:

Comware

HPE Moonshot-180XGc Switch Module

[\*\*https://www.hpe.com/h20195/v2/gethtml.aspx?docname=c04923651\*\*](https://www.hpe.com/h20195/v2/gethtml.aspx?docname=c04923651)

Uplink:

HPE Moonshot-16SFP+ Uplink Module

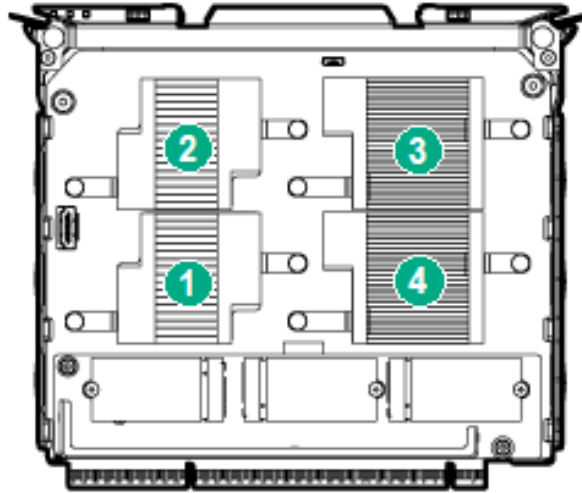
[\*\*http://www8.hpe.com/h20195/v2/gethtml.aspx?docname=c04499458\*\*](http://www8.hpe.com/h20195/v2/gethtml.aspx?docname=c04499458)

HPE Moonshot-4QSFP+ Uplink Module

[\*\*http://www8.hpe.com/h20195/v2/GetHTML.aspx?docname=c04111291\*\*](http://www8.hpe.com/h20195/v2/GetHTML.aspx?docname=c04111291)

**NOTE:** The m700p will continue to support HPE Moonshot 180G Switch Module

## Node Locations



### Node Locations on HPE ProLiant m700p Server

Item	Description
1.	Node 1
2.	Node 2
3.	Node 3
4.	Node 4



## Memory

### AMD Supported Memory Bandwidth for AMD Opteron™ X2170 APU System on a Chip (SoC)

Memory Bandwidth and Capacity		
<b>[DIMM Type]</b>	DDR3 SODIMMs	
<b>HPE SKU P/N</b>	867505-B21	859485-B21
<b>DIMM Rank</b>	Dual Rank	Dual Rank
<b>DIMM Capacity</b>	8GB	16GB
<b>Voltage</b>	Std Voltage 1.5V	Std Voltage 1.5V
<b>SDRAM Depth [bit]</b>	1G	2G
<b>SDRAM Width [bit]</b>	X72	X72
<b>SDRAM Density</b>	8Gb	8Gb
<b>CAS Latency</b>	11-11-11	11-11-11
<b>SODIMM Native Speed (MT/s)</b>	1600	1600
<b>Slots that can be populated</b>	4	4
<b>Maximum Capacity (GB)</b>	32	64
<b>POPULATED DIMM SPEED (MT/s)</b>		
<b>1 DIMM Per Channel</b>	1600	1600

**Memory Speed by  
Processor Model**

Processor Model  
X2170

Supported Memory Speeds  
1866 MT/s

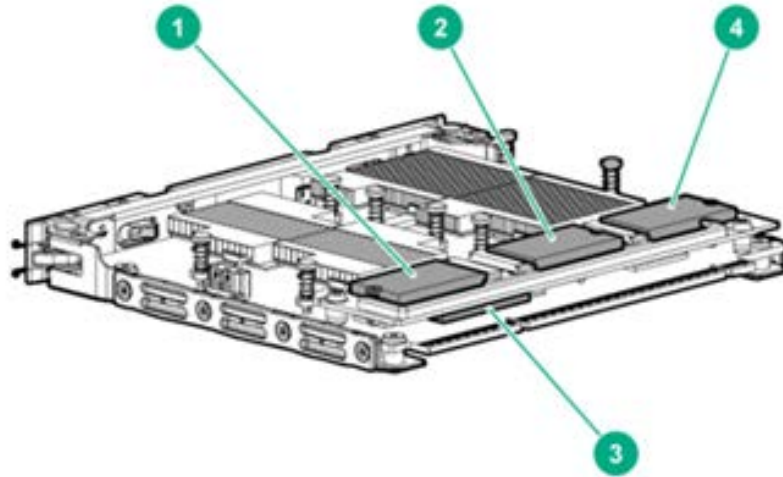
## Storage

**SSD Options on the HPE m700p Server Cartridge**

**SSD Numbering**  
SATA # 1-4

**Supported Module**  
M.2 2242

**Connection Type**  
SATA-3 x1



### SSD Locations on the HPE ProLiant m700p Server

Item	Description
1.	Node 1 M.2 SSD
2.	Node 2 M.2 SSD
3.	Node 3 M.2 SSD (on the bottom side of the mezzanine)
4.	Node 4 M.2 SSD

## Technical Specifications

<b>Server Cartridge</b>	HPE ProLiant m700p 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	65W
	Max Power	93W
<p><b>NOTE:</b> The HPE ProLiant m700p server is optimized for the Hosted Desktop Infrastructure (HDI) use case. Power consumption may vary with other workloads.</p>		
<b>System Inlet Temperature</b>	Operating	<p>For HPE Moonshot 1500 System: 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 and rate of change may be limited by the type and number of options installed.</p> <p>System performance may be reduced if operating with a fan fault or above 86°F (30°C).</p> <p><b>NOTE:</b> The HPE ProLiant m700p server is not supported in a HPE Edgeline system.</p>
	Non-operating	<p>-22° to 140° F (-30° to 60° C)            Maximum rate of change is 36°F/hr (20°C/hr).</p> <p><b>NOTE:</b> The HPE ProLiant m700p server is optimized for Hosted Desktop Infrastructure (HDI) with an assumption of usage at full performance for 70% of the time.  <b>NOTE:</b> Running heavy compute workloads (e.g. analytics, stress benchmarks) results in higher thermal dissipation and may cause reduced system performance when running above 22°C inlet ambient temperature in a dense chassis. This throttling behavior does not impact system uptime or data integrity.</p>
<b>Relative Humidity (non-condensing)</b>	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.
<b>Altitude</b>	Operating	10,000 ft (3048 m). This value may be limited by the type and number of options installed. Maximum allowable altitude change rate is 1500 ft/min (457 m/min).
	Non-operating	30,000 ft (9144 m). Maximum allowable altitude change rate is 1500 ft/min (457 m/min).

## Technical Specifications

### Acoustic Noise

For HPE Moonshot 1500 System:  
 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 dBA
Operating	
L WAd	7.3 Bels
L pAm	57 dBA

### Emissions Classification (EMC)

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

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

### Environment-friendly Products and Approach

End-of-life Management and Recycling: Hewlett Packard Enterprise offers end-of-life Hewlett Packard Enterprise 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 Hewlett Packard Enterprise sales office. Products returned to Hewlett Packard Enterprise 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 Enterprise web site at: <http://www.hp.com/go/green>. These instructions may be used by recyclers and other WEEE treatment facilities as well as Hewlett Packard Enterprise customers who integrate and re-sell Hewlett Packard Enterprise equipment.

## Summary of Changes

Date	Version History	Action	Description of Change
18-Dec-2017	From version 2 a 3	Updated	Update several sections throughout the QuickSpecs
16-Dec-2016	From version 1 to 2	Updated	Added statement of support for mRCA. Various content updates.
26-Sept-2016	Version 1	Created	Create QuickSpecs for HPE ProLiant m700p Server Cartridge



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

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