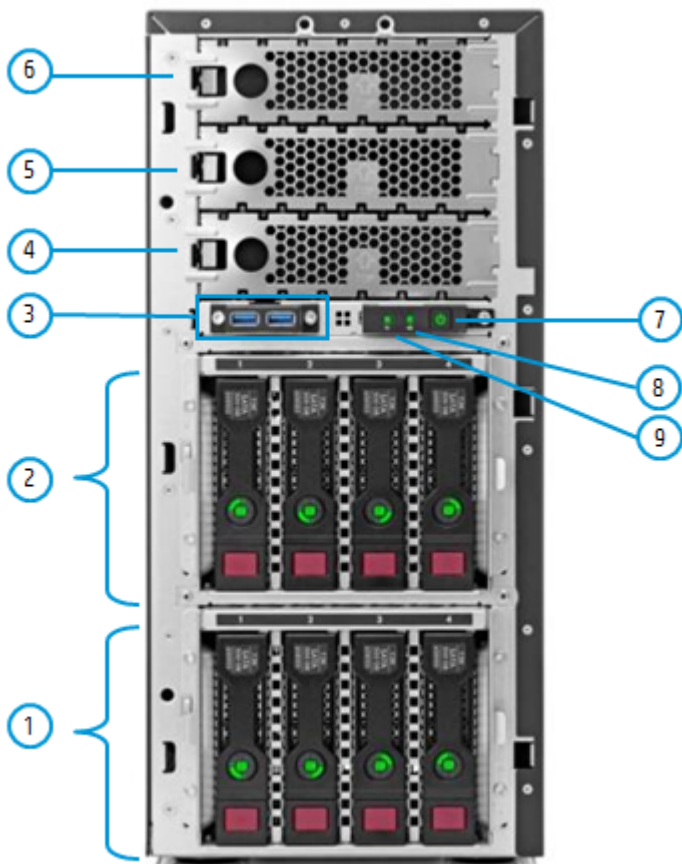


Overview

HP ProLiant ML150 Generation9 (Gen9)

The HP ProLiant ML150 Gen9 Server delivers the essential mix of performance, price and expandability to fit the needs of growing budget conscious businesses. Designed as a dual-socket tower server, it is a right size tower with performance and expandability. With expansion options, it allows you to grow as needed with a low initial capital outlay. Covering a wide range of applications and workloads and addressing our customers from sophisticated SMB to large enterprise class server environments.

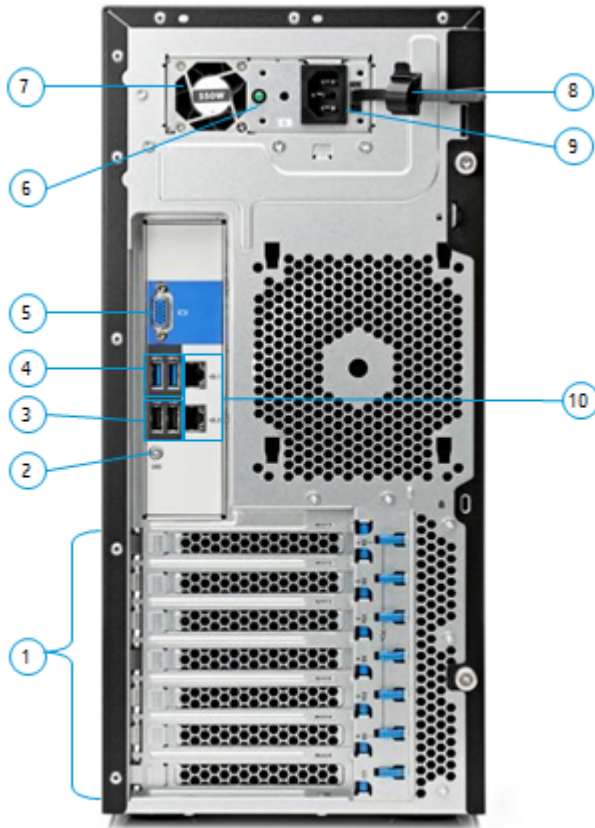


Front view details for Tower (LFF)

1. Drive Cage (4 LFF shown) Alternative server choice would offer 8 SFF
2. Drive Cage (4 LFF shown) Alternative server choice would offer 8 SFF
3. USB 3.0 (2)
4. Media bay, Optional SATA 9.5mm DVD-ROM shown
5. Media bay, blank shown*
NOTE: Optional choices: SATA 9.5mm DVD-ROM or DVD RW Optical Drive, Tape Drive, or LFF.
NOTE: When populating 10 LFF, not able to install Tape Drive or Optical Drive. Possible Configurations: 1) 8LFF + 1 ODD + 1 Tape Drive (Full/Half), or 2) 9LFF + 1 ODD, or 3) 9LFF + 1 Tape Drive (Full/Half).
6. Media bay, blank shown*
NOTE: Optional choices: SATA 9.5mm DVD-ROM or DVD RW Optical Drive, Tape Drive, or LFF.
NOTE: When populating 10 LFF, not able to install Tape Drive or Optical Drive. Possible Configurations: 1) 8LFF + 1 ODD + 1 Tape Drive (Full/Half), or 2) 9LFF + 1 ODD, or 3) 9LFF + 1 Tape Drive (Full/Half).
7. Power On/Standby button and system power LED button

Overview

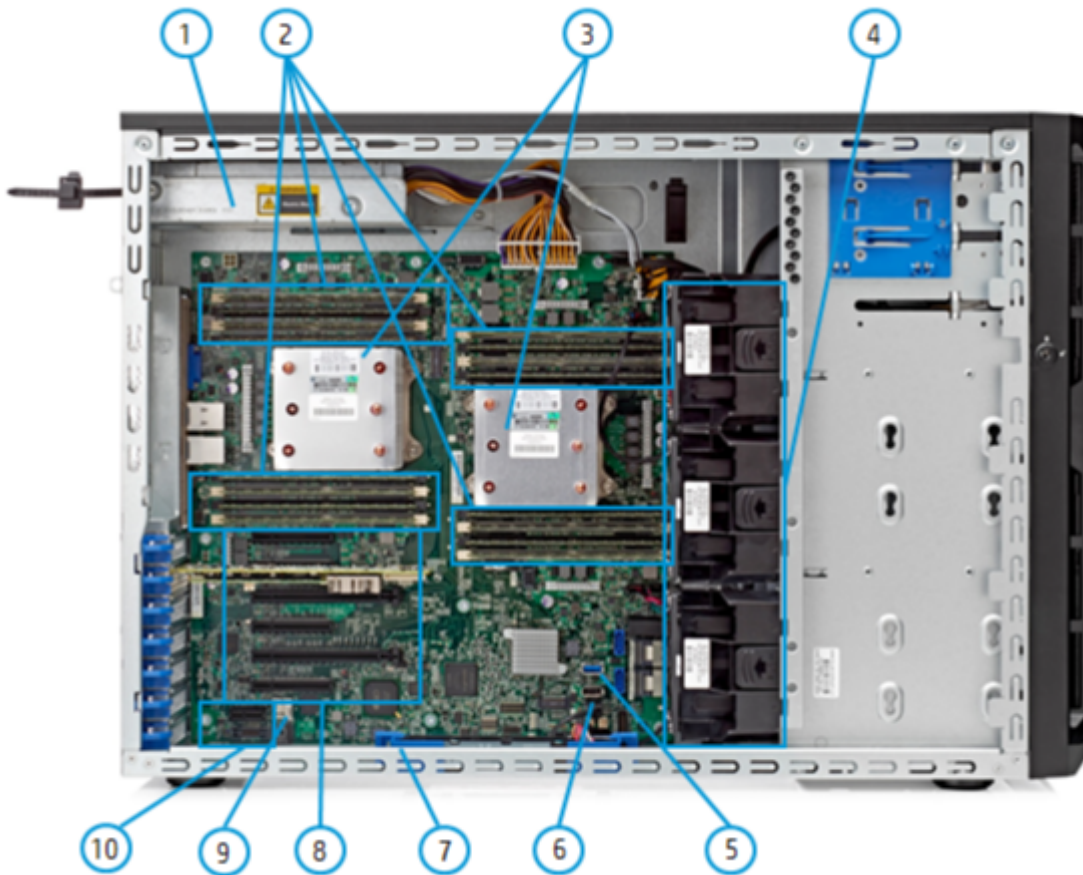
- NIC status
- Health LED



Rear View (Tower Model)

- PCI Slots (Slots 1-6) Slot 1 and 3 can support Optional GPU
- Unit ID LED
- USB 2.0 (2)
- USB 3.0 (2)
- Video Connector
- Power supply Power LED
- HP 550W Power Supply
- Cable tie back
- Power Supply Power connection
- Network RJ-45 Ports (2)

Overview



Interior View (Tower Model)

1. Power Supply
2. Sixteen (16) DDR4 DIMM slots. Shown fully populated in 16 slots (8 per processor)
3. Two (2) processors and heatsinks with HP Smart Socket Guide (Second Processor is Optional)
4. System Fans: Three fans for 2P SKU
5. Internal USB 3.0 connector
6. Internal USB 2.0 connector
7. Gen9 Smart Storage Battery Holder Kit
8. Six (6) PCIe expansion slots
9. MicroSD slot
10. Dedicated iLO module slot

Standard Features

NOTE: For more information regarding Intel Xeon processors, please see the following <http://www.intel.com/xeon>.

Processor	Model	CPU frequency	Cores	L3 Cache	Power	QPI	DDR4 Hz
One of the following depending on model	E5-2660v3	2.6GHz	10	25MB	105W	9.6GT/s	2133
	E5-2650v3	2.3GHz	10	25MB	105W	9.6GT/s	2133
	E5-2650Lv3	1.8GHz	12	30MB	65W	9.6GT/s	2133
	E5-2640v3	2.6GHz	8	20MB	90W	8.0GT/s	1866
	E5-2630v3	2.4Ghz	8	20MB	85W	8.0GT/s	1866
	E5-2620v3	2.4GHz	6	15MB	85W	8.0GT/s	1866
	E5-2609v3	1.9GHz	6	15MB	85W	6.4GT/s	1600
	E5-2603v3	1.6GHz	6	15MB	85W	6.4GT/s	1600

NOTE: Up to 2 processors supported. Mixing different processor models is not supported.

NOTE: Recommend to select 900W for 2P config. or check power advisor for power consumption for the customer usage case.

Cache Memory 15MB (1 x 15MB) Level 3
One of the following **NOTE:** For Six-core processors.
depending on model 20MB (1 x 20MB) Level 3

NOTE: For Eight-core processors.

30MB (1 x 30MB) Level 3

NOTE: For Twelve-core processors.

Chipset Intel® C610 Series Chipset
Intel® E5-2600v3 Processor Family
NOTE: For more information regarding Intel® chipsets, please see the following URL:
<http://www.intel.com/products/server/chipsets/>.

On System Management Chipset HP iLO (Firmware HP iLO4 2.0) 2GB NAND
NOTE: 1GB USB user space configurable via UEFI and accessible via iLO. Read and learn more in the [iLO QuickSpecs](#).

Memory Type:
HP SmartMemory
DDR4 Registered (RDIMM) or Load Reduced (LRDIMM)
DIMM Slots Available 16
Maximum Capacity 256GB (16 x 16GB LRDIMM @2133MHz)
(LRDIMM)
Maximum Capacity 512GB (16 x 32GB RDIMM @2133MHz)
(RDIMM)
NOTE: 32GB RDIMM is available in 2015
NOTE: This server does not support mixing LRDIMMs or RDIMMs. Attempting to mix any combination of these DIMMs can cause the server to halt during BIOS installation.

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.
Online spare
Memory online spare mode detects a rank that is degrading and switches operation to the spare rank.

Network Controller Broadcom 5717 Dual-port 1Gb

Expansion Slots

Standard Features

Expansion Slots #	Technology	Bus Width	Connector Width	Bus Number	Form Factor	Notes
6	PCIe 3.0	x8	x8		Half Length/Full Height	For processor 1
5	PCIe 3.0	x16	x16		Full Length/Full Height	For processor 1
4	PCIe 3.0	x8	x8		Half Length/Full Height	For processor 1
3	PCIe 3.0	x16	x16		Full Length/Full Height	For processor 2
2	PCIe 3.0	x8	x8		Half Length/Full Height	For processor 1
1	PCIe 3.0	x8	x8		Half Length/Full Height	For processor 2

NOTE: Bus number - Default bus assignment (in decimal). Inserting cards with PCI bridges may alter the actual bus assignment number.

NOTE: Six total expansion PCIe 3.0 slots. Two PCIe 3.0 x16 (x16 speed); Four PCIe 3.0 x 8 (x8 speed).

Expansion Slots #	Technology	Bus Width	Connector Width	Bus Number	Device Number	Form Factor	Notes
7	HP ML Gen9 Dedicated iLO Port Kit	x1	x1			Dedicate for ML Series	

Storage Controller	Entry Models	HP Dynamic Smart Array B140i Controller
One of the following depending on model	NOTE: B140i can't mix with any standup internal controller.	
Storage Controller	Base Models	HP Dynamic Smart Array B140i Controller
	NOTE: B140i can't mix with any standup internal controller.	
Storage Controller	Performance Models	HP H240 FIO Smart Host Bus Adapter

Internal Storage Devices	Optical Drive	Optional SATA 9.5mm DVD-ROM Optical Drive Optional SATA 9.5mm DVD RW Optical Drive
One of the following depending on model		NOTE: Optical is optional in entry, base and performance BTO models. NOTE: ML150 Gen9 Slim ODD Enablement Kit (P/N: 784603-B21) is required for any DVD options.
Internal Storage Devices	Hard Drives	None ship standard
	Hard Drive Bays	Up to 10 Non-hot plug SATA 3.5" drives NOTE: Mixing drive cage types is not allowed. NOTE: All Pre-configured Models come populated with hard drive blanks installed. The 4LFF configurations includes 2 blanks and 8SFF includes 6 blanks. Additional hard drive blanks can be ordered using either P/N 666986-B21 for the HP LFF HDD Blank Kit or P/N 666987-B21 for the HP SFF HDD Blank Kit. These part numbers for single HDD blanks below are also provided should you require replacement HDD blanks for your server. NOTE: NHP SATA is limited to B140i controller. NOTE: When populate 10 LFF, not able to install any Tape Drive and Optical Drive. Possible Configurations: 1) 8LFF +1 ODD + 1 Tape Drive (Full/Half), or 2) 9LFF + 1 ODD, or 3) 9LFF + 1 Tape Drive (Full/Half). NOTE: Must select two 4LFF NHP drive cage and 10LFF enablement kit if customer wants to support 10 LFF drives. (4) Hot plug LFF SAS/SATA HDD bays; upgradable to (8) (8) Hot plug SFF SAS/SATA HDD bays; upgradable to (16) NOTE: 16SFF is limited to P840 controller. NOTE: 10LFF is limited to H140i controller NOTE: H240 8LFF/8SFF require 2 cable kit P/N: 784606-B21. NOTE: P840/16SFF require 2 cable kit P/N: 784608-B21.

Standard Features

Maximum Internal Storage		CAPACITY	CONFIGURATION
One of the following depending on model	Hot Plug LFF SAS	60TB	10x6TB
	Hot Plug LFF SATA	60TB	10x6TB
	Hot Plug SFF SAS	19.2TB	16x1.2TB
	Hot Plug SFF SATA	16TB	16xTB
	Non-Hot Plug LFF SATA	30TB	10x3TB
	Hot Plug LFF SAS SSD	16TB	10x1.6TB
	Hot Plug LFF SATA SSD	16TB	10x1.6TB
	Hot Plug SFF SAS SSD	25.6TB	16x1.6TB
	Hot Plug SFF SATA SSD	25.6TB	16x1.6TB

Power Supply HP 550W FIO Power Supply
 One of the following depending on model HP 800W/900W Gold AC Power Input Module

NOTE: Each Redundant Power Supply Backplane can support up to two (2) power input modules. Non-redundant configurations with a single power input module installed can provide up to 900W (200 – 240VAC) and up to 550W (100 – 127VAC) of power. Redundant configurations with two power input modules installed can provide up to 800W (200 – 240VAC) and up to 550W (100 – 127VAC) of power. HP Entry-Level Power Supplies provide lower-cost options for customers trying to balance their need for enterprise class efficiency and reliability while maintaining lowest possible hardware costs. All Entry-Level power supply options have been designed specifically for HP ProLiant Gen9 Essential Series servers.

The HP 550W FIO Power Supply is the standard, non-redundant AC power supply option for most HP ProLiant Gen9 Essential servers. It features Silver-level (89%) certified power efficiency with a set of features optimized for the Gen9 Essential-series rack and tower servers.

The HP 800W Gold (Redundant)/900W (Non-Redundant) AC Power Input Module with Power Backplane can be configured to support power redundancy in ProLiant servers that offer only a single power supply bay, providing additional protection against power loss. With an 80 Plus Gold power efficiency rating (up to 92%), this power option helps to reduce operating expenses while protecting against trapped power capacity in the data center. Each power backplane option can support up to two (2) hot-plug AC power input modules.

All pre-configured servers ship with a standard 6-foot IEC C-13/C-14 jumper cord (A0K02A). This jumper cord is also included with each standard AC power supply option kit. If a different power cord is required, please check the [ProLiant Power Cables](#) web page.

To review the power requirements for your selected system, please use the HP Power Advisor Tool located at <http://www.hp.com/go/hppoweradvisor>.

Rack Options HP T/R CONV TRAY UNIVERSAL Kit
 One of the following depending on model

System Fans	Non-redundant	Redundant
One of the following depending on model	2 fans	NA
1P model		
2P model	3 fans	NA

NOTE: Two (2) Non-hot plug, non-redundant fans ship as standard.
NOTE: Third fan is shipped with 2nd CPU Kit. Third fan is only required in 2P configurations.

Interfaces		
Video	1 (rear)	
Network RJ-45 (Ethernet)	2	
HP iLO Remote Management Network Port	2GB NAND	
Micro SD Slot	1 (internal)	
NOTE: The Micro-SD slot is not a hot-pluggable device. Customers should not attempt to plug an Micro-SD card into the Micro-SD slot while the server is powered.		
USB 3.0	5 (2 rear, 1 internal, 2 front)	
USB 2.0	3 (2 rear, 1 internal)	

Standard Features

Operating Systems and Virtualization [Microsoft Windows Server](#)
Software Support for ProLiant Servers [Canonical Ubuntu](#)
[Red Hat Enterprise Linux \(RHEL\)](#)
[SUSE Linux Enterprise Server \(SLES\)](#)
[VMware](#)
[Oracle Solaris](#)

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, please visit our Support Matrix at: <http://www.hp.com/go/ossupport> and our driver download page <http://www.hp.com/support/ML150Gen9>.

Upgradeability Upgradeable to two processors (24 cores)
NOTE: Total 6, 8, 12cores.
Up to 16 SFF Hard Drive Bays; Or 10 LFF Hard Drive Bays
Up to 16 DIMM slots
Redundant Power Supply
Tower to rack conversion
Optional optical drive (up to 1)
NOTE: When populate 10 LFF, not able to install Optical Drive. Possible Configurations: 1) 8LFF +1 ODD + 1 Tape Drive (Full/Half), or 2) 9LFF + 1 ODD, or 3) 9LFF + 1 Tape Drive (Full/Half).

Industry Standard Compliance ACPI 2.0b Compliant
PCIe 3.0 Compliant
PXE Support
WOL Support
Novell Certified
IPMI 2.0, SMASH CLP, DCMI 1.0 compliant
Microsoft® Logo certifications
USB 3.0 Support
SMBIOS 2.7.1
ASHRAE A3

Graphics Integrated Matrox G200 video standard
DisplayPort:

- Up to 4096 x 2160 x 30 bpp @ 60Hz
- Supports High Bit Rate 2 (HBR2) and Multi-Stream Transport (MST)

DL-DVI(I) output:

- Up to 2560 x 1600 x 32 bpp @ 60Hz

Single Link-DVI(I) output:

- Up to 1920 x 1200 x 32 bpp @ 60Hz

VGA (via adapter cable):

- 2048 × 1536 × 32 bpp at 85 Hz

Standard Features

HP Server UEFI/Legacy ROM	HP Server UEFI /Legacy ROM
--------------------------------------	-----------------------------------

Unified Extensible Firmware Interface (UEFI) is an industry standard that provides better manageability and more secured configuration while interacting with your server at boot time. HP ProLiant Gen9 platform defaults to UEFI and can be factory or field configured for Legacy BIOS Boot Mode.

NOTE: The UEFI System Utilities function is analogous to the HP ROM-Based Setup Utility (RBSU) of legacy BIOS. For more information, please visit <http://www.hp.com/go/proliantuefi/docs>.

UEFI enables numerous new capabilities specific to HP ProLiant servers such as:

- Secure Boot
- Operating system specific functionality
- Support for > 2.2 TB (using GPT) boot drives
- USB 3.0 Stack
- Embedded UEFI Shell
- Mass Configuration Deployment Tool using HP RESTful API.
- PXE boot support for IPv6 networks
- Boot support for option cards that only support a UEFI option ROM

For more information please visit <http://www.hp.com/go/proliant/uefi>.

NOTE: For UEFI Boot Mode, boot environment and OS image installations should be configured properly to support UEFI.

NOTE: HP UEFI FIO Setting (758959-B22) can be selected to configure the system in Legacy mode in the factory.

Form Factor Tower or Rack (5U)

Embedded Management	HP Integrated Lights-Out (HP iLO)	Monitor your servers for ongoing management, service alerting, reporting and remote management with HP iLO. Learn more at http://www.hp.com/go/ilo .
	UEFI	Configure and boot your servers securely with industry standard Unified Extensible Firmware Interface (UEFI). Learn more at http://www.hp.com/go/ProLiant/uefi .
	HP RESTful API	RESTful API is an application programming interface. RESTful Web Service API served by iLO's web server. Learn more at http://www.hp.com/go/restfulapi .
	Intelligent Provisioning	Provision servers by discovering and deploying 1 to few servers with Intelligent Provisioning. Learn more at http://www.hp.com/go/intelligentprovisioning .
	Embedded Remote Support	HP's embedded remote support, when used with Insight Online direct connect or HP Insight Remote Support, allows HP ProLiant servers to transmit hardware events directly to HP or an HP Authorized Partner for automated phone home support. Learn more at http://www.hp.com/go/insightonline/info .

Standard Features

Server utilities	<p>HP Smart Update Optimize firmware and driver updates with HP Smart Update solutions. Learn more at http://www.hp.com/go/smartupdate.</p> <p>HP Systems Insight Manager (HP SIM) HP SIM allows you to monitor the health of your HP ProLiant Servers and HP Integrity Servers, and also provides you with basic support for non-HP servers. HP SIM also integrates with HP SUM to provide quick and seamless firmware updates. Learn more at http://www.hp.com/go/sim.</p> <p>Scripting Tool Kit and Windows PowerShell Provision 1 to many servers using your own scripts to discover and deploy them with HP Scripting Tool Kit for Windows and Linux or HP Scripting Tools for Windows PowerShell. Learn more at http://www.hp.com/go/ProLiantSTK or http://www.hp.com/go/powershell.</p> <p>HP RESTful Interface Tool HP RESTful Interface tool is a scripting tool to provision servers using RESTful API Interface to discover and deploy servers at scale. Learn more at http://www.hp.com/go/restfulapi.</p> <p>HP iLO Mobile Application Enables the ability to access, deploy, and manage your server anytime from anywhere from select smartphones and mobile devices. For additional information please visit: http://www.hp.com/go/ilo/mobileapp.</p> <p>HP Insight Online HP Insight Online, available at no additional cost as part of your HP warranty, Care Pack or contractual support agreement with HP, is a personalized dashboard for simplified tracking of IT operations and support information from anywhere, anytime. Learn more at http://www.hp.com/go/insightonline/info. NOTE: The Service Pack for ProLiant (which includes HP SUM) can be downloaded from http://www.hp.com/go/spp/download. More information can be found: http://www.hp.com/go/SmartUpdate, http://www.hp.com/go/spp/download and http://www.hp.com/go/hpsum.</p>
-------------------------	--

Security	<ul style="list-style-type: none"> Power-on password Setup password Serial interface control Power switch security Administrator's password TPM 1.2 UEFI
-----------------	---

Warranty	<p>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.</p> <p>NOTE: Server Warranty includes 3-Year Parts, 1-Year Labor, 1-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) Mandatory CSR parts are designed for easy replacement. A travel and labor charge will result when customers decline to replace a Mandatory CSR part; 2) Optional CSR parts are also designed for easy replacement but may involve added complexity. Customers may choose to have HP replace Optional CSR parts at no charge. Additional information regarding worldwide limited warranty and technical support is available at: http://h18004.www1.hp.com/products/servers/platforms/warranty/index.html.</p>
-----------------	---

Optional Features

Embedded Management	iLO Essentials	HP iLO Essentials is the preferred license for small and medium business that offers full remote server management capabilities for small and medium business via the Integrated Remote Console (IRC), virtual media, and e-mail based alerts. Learn more about HP iLO Essentials at http://www.hp.com/go/iLO/essentials .
	iLO Scale-Out	HP iLO Scale-Out is the preferred license built for web hosting, cloud service providers, and high performance computing data centers, managing massive scale out environments. This license offers sophisticated scripting tools that provides remote access through Text Console via SSH, Dynamic power capping, Email-based Alerting and proactive notifications. For more information, visit http://www.hp.com/go/iLO/scale-out .
	iLO Advanced	HP iLO Advanced licenses offer smart remote functionality without compromise, for all HP ProLiant servers. The license includes the full integrated remote console, virtual keyboard, video, and mouse (KVM), multi-user collaboration, console record and replay, and GUI-based and scripted virtual media and virtual folders. You can also activate the enhanced security and power management functionality. Learn more about HP iLO Advanced at http://www.hp.com/go/ioloadvanced .

Server Management	HP Insight Control	HP Insight Control, lets you deploy, migrate, monitor, remote control, and optimize your IT infrastructure through a single, simple management console. For more information, see http://www.hp.com/go/insightcontrol . NOTE: HP OneView support for HP ProLiant Gen9 rack (DL) and blade (BL) servers will be available with a future version of HP OneView to be released Early 2015. Customers may purchase HP OneView licenses now, and will be granted rights to use HP Insight Control software and transition to HP OneView with a free upgrade, when available. Customers also have the option to purchase HP Insight Control.
--------------------------	---------------------------	--

High Performance Clusters	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 . HP Cluster Platforms are specifically engineered, factory-integrated large-scale ProLiant clusters optimized for High Performance Computing, with a choice of servers, networks and software. Operating system options include specially priced offerings for Red Hat Enterprise Linux and SUSE Linux Enterprise Server, as well as Microsoft Windows HPC Server. A Cluster Platform Configurator simplifies ordering. http://www.hp.com/go/clusters .
----------------------------------	--

HPC Interconnects	NOTE: High Performance Computing (HPC) interconnect technologies are available for this server under the HP Cluster Platform product portfolio. These high-speed interconnects are fully supported by HP when they are part of these configure to order clusters. Solutions can be defined with a lot of flexibility with the help of configuration tools. Please visit the following URL to configure HPC Clusters with InfiniBand Interconnects: http://www.hp.com/techservers/clusters/ucp/index.html .
--------------------------	---

Optional Features

Storage Software Whether you need to solve a specific data protection, archiving, or storage command and control challenge, or deliver on strategic consolidation, compliance, or continuity initiatives, look no further than HP storage software. Our storage software helps you reduce costs, simplify storage infrastructure, protect vital assets and respond faster to business opportunities.

Storage software that gets the job done:

- **Data Protection and Recovery Software**

Whether you're a large enterprise or a smaller business, HP data protection and recovery software will cost-effectively protect you against disaster and ensure business continuity.

- **Data Archive and Migration Software**

HP's storage software enables you to comply with data retention and retrieval requirements, improve application performance, and reduce costs by efficiently migrating infrequently accessed or less valuable data to lower cost storage.

- **Storage Resource Management Software (SRM)**

HP's storage resource management software reduces operational costs and provides the command and control foundation you need to efficiently manage and visualize your physical and virtual environments.

- **Data Replication Software**

HP offers array-based and host-based replication software for use in disaster recovery, testing, application development and reporting.

- **Storage Device Management Software**

Maximize your investment in HP storage and networking with software that enables hardware-specific configuration, performance tuning and connectivity management.

- **HP StoreVirtual VSA**

With HP StoreVirtual VSA you can use the power of virtualization to create a virtual array within your host server. Manage it as a single pool of shared storage capacity, and scale it to match your evolving needs. HP ProLiant Gen9 servers include a 3-year limited license for HP StoreVirtual VSA software with 1TB of capacity at no extra cost. Simply select to install HP StoreVirtual VSA software during server setup within Intelligent Provisioning. More information, instructional videos, and free console management software are available at <http://www.hp.com/go/vsa1TB>.

NOTE: For more information about Storage Software including QuickSpecs, please see: <http://www.hp.com/go/storage/software>.

One Config Simple (SCE) SCE is a guided self-service tool to help sales and non-technical people provide customers with initial configurations in 3 to 5 minutes. You may then send the configuration on for configuration help, or use in your existing ordering processes. If you require "custom" rack configuration or configuration for products not available in SCE, please contact HP's Customer Business Center or an Authorized Partner for assistance. <http://www.hp.com/products/configurator>.

Service and Support

Service and Support

HP Technology Services for Industry Standard Servers

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 term you select.

Optimized Care

Supports maintaining servers at optimum performance availability

HP Proactive Care with 24x7 coverage, three year Care Pack Service

HP Proactive Care helps prevent problems and stabilize IT by utilizing secure, real-time, predictive analytics and proactive consultations when your products are connected to HP. This Care Pack Service combines three years' proactive reporting and advice with our 24x7 coverage and enhanced escalation management, four hour hardware response time and two hour call back for software questions on leading industry standard software running on your HP ProLiant server. <http://h20195.www2.hp.com/v2/GetPDF.aspx/4AA3-8855ENW.pdf>

Standard Care Package

Supports maintaining high level of server availability

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>

Related Services

HP ProLiant Server Hardware Installation

Provides for the basic hardware installation of HP branded servers, storage devices and networking options to assist you in bringing your new hardware into operation in a timely and professional manner. <http://h20195.www2.hp.com/V2/GetPDF.aspx/5981-9356EN.pdf>

Factory Express 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. 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>.

Data Privacy Services

Protect your data through better media management. HP Data privacy services help manage and protect sensitive data to reduce the risk of unauthorized access to private information and help meet compliance requirements. Our retention services allow you to keep drives and other devices upon failure, our removal services provide convenient data sanitization and our recovery services allow you to safely retire IT assets and capture any remaining value from the hardware. <http://www.hp.com/services/dataprivacy>

Additional HP Care Pack services can be found at: <http://www.hp.com/go/cpc>

Get connected to HP to improve your support experience

Prevent problems with innovative, automated monitoring tools and proactive services. Combining Proactive Care Services with our remote support technology such as Insight Online provides you with expert advice and personalized, cloud-based automated IT support, helping to prevent unplanned down time and solve problems quickly. For more information, visit: www.hp.com/go/proactiveinsightexperience

HP Support Center

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 personalized IT support anywhere, anytime.

Service and Support

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

**** HP Support Center Mobile App is subject to local availability.**

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

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

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

For more information

To learn more on HP ProLiant servers, please contact your HP sales representative or HP Authorized Channel Partner or visit: <http://www.hp.com/services/proliant>

Pre-configured Models

For the Standard Features shipped in the "Factory Integrated Models", please see the "Configuration Information - Factory Integrated Models" section.

1. Pre-configured models ship with the configurations below. Options can be selected from the Core or Additional options section of this QuickSpecs.
2. HP does not allow factory integration of options into pre-configured models. Any additional options purchased will be shipped separately.
3. If you desire a custom configuration please see "Configuration Information - Factory Integrated Models" section of this QuickSpecs.
4. Not all models are available in all regions. Check with your local country HP offices for availability.

NOTE: All Pre-configured Models come populated with some hard drive blanks installed. Should the customer need additional hard drive blanks, they can order more using either P/N 666987-B21: HP SFF Hard Drive Blank Kit or P/N 666986-B21: HP LFF Hard Drive Blank Kit.

NOTE: All pre-configured servers ship with a standard 6-foot IEC C-13/C-14 jumper cord (A0K02A). This jumper cord is also included with each standard AC power supply option kit. If a different power cord is required, please check the [ProLiant Power Cables](#) web page.

Caution: HP recommends that a minimum of two people are required for all Rack Server installations. Please refer to your installation instructions for proper tools and number of people to use for any installation.

	Entry Models	Base Models
[SKU Number]	776274-xx1	776275-xx1
Model Name	HP ProLiant ML150 Gen9 E5-2603v3 4GB B140i Non-hot Plug 4LFF SATA Entry 550W PS Server	HP ProLiant ML150 Gen9 E5-2609v3 8GB B140i Hot Plug 4LFF SATA Base 550W PS Server
Processor	Intel® Xeon® E5-2603v3	Intel® Xeon® E5-2609v3
Number of Processors	One	
Memory	4GB (1x4GB Registered DIMMs, 2133 MHz)	8GB (1x8GB Registered DIMMs, 2133 MHz)
Network Controller	Broadcom 5717 Dual-port 1GbE	
Storage Controller	HP Dynamic Smart Array B140i	
Hard Drive	None ship standard	
Internal Storage	4 LFF HDD Bays (Non Hot Plug)	4 LFF HDD Bays
Optical Drive Bay	1; (Optional: DVD-ROM, DVD-RW)	
Optical Drive	Optional Slim Optical Bay (SATA DVD-RW/ROM Optical Drive)	
PCI-Express Slots	6 PCIe slots	
Power Supply	(1) HP 550W FIO Power Supply	
Fans	2 non hot plug, non-redundant fans	
Management	Mid-tier iLO with 2GB NAND	
Form Factor	Tower (5U)	
Warranty	Server Warranty includes 3-Year Parts, 1-Year Labor, 1-Year Onsite support with next business day response.	

Pre-configured Models

	Performance Models
[SKU Number]	776276-xx1
Model Name	HP ProLiant ML150 Gen9 E5-2620v3 16GB H240 Hot Plug 8SFF SAS Perf 900W PS Server
Processor	Intel® Xeon® E5-2620v3
Number of Processors	One
Memory	16GB (1x16GB Registered DIMMs, 2133 MHz)
Network Controller	Broadcom 5717 Dual-port 1GbE
Storage Controller	HP H240 Smart Host Bus Adapter NOTE: HP ML150 Gen9 PCI BAFFLE Kit (779861-B21) is included while order Performance Model with H240 Storage Controller
Hard Drive	None ship standard
Internal Storage	8 SFF HDD Bays
Optical Drive Bay	1; (Optional: DVD-ROM, DVD-RW)
Optical Drive	Optional Slim Optical Bay (SATA DVD-RW/ROM Optical Drive)
PCI-Express Slots	6 PCIe slots
Power Supply	(1) HP 900W FIO Power Supply
Fans	2 non hot plug, non-redundant fans
Management	Mid-tier iLO with 2GB NAND
Form Factor	Tower (5U)
Warranty	Server Warranty includes 3-Year Parts, 1-Year Labor, 1-Year Onsite support with next business day response.

Country Code Key	xx1 = B21	Worldwide
	xx1 = 001	US
	xx1 = 031	UK
	xx1 = 291	Japan
	xx1 = 371	AP
	xx1 = 421	EU
	xx1 = AA1	PRC

NOTE: Not all models are available in all regions. Check with your local country HP offices for availability.

Configuration Information - Factory Integrated Models

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

1. Factory Integrated Models must start with a CTO Server.
2. FIO indicates that this option is only available as a factory installable option.
3. All Factory Integrated Models will be populated with sufficient hard drive blanks based on the number of initial hard drives ordered with the server.
4. Some options may not be integrated at the factory. Contact your local sales representative for additional information.

Step 1: Base Configuration (choose one of the following configurable models)

[Chassis]	HP ProLiant ML150 Gen9 Non-hot Plug 4LFF Configure-to-order Server	HP ProLiant ML150 Gen9 Hot Plug 4LFF Configure-to-order Server	HP ProLiant ML150 Gen9 Hot Plug 8SFF Configure-to-order Server
SKU Number	767062-B21	767063-B21	767064-B21
Processor	2 (optional) x HP Smart Socket Guides		
DIMMSlots	16 DIMM slots for RDIMM, LRDIMM DDR4 Memory		
Storage Controller	HP Dynamic Smart Array B140i		
PCIe	6 Standard (4FH/HL, 2FH/FL)		
Drive Cage	4LFF Non Hot Plug	4LFF Hot Plug	8SFF Hot Plug
Network Controller	Broadcom 5717 Dual-port 1GbE		
Fans	2 non hot plug, non-redundant fans		
Management	Mid-tier iLO with 2GB NAND		
USB	2 front, 2 internal, 4 rear		

Step 2: Choose Required Options (only one of the following from each list unless otherwise noted)

HP Processors

Select one or two processors from Core options-Processor section below,

- If one processor is desired, select one xxxxxx-L21
- If two processors are desired, select one xxxxxx-L21 and one xxxxxx-B21.
- Up to 2 processors supported. Mixing different processor models is not supported.
- DDR4 speed is the maximum memory speed of the processor. Actual memory speed may depend on the quantity and type of DIMMs installed.

For the Intel® C600 Chipset E5-2600 Series, the letter preceding the model number indicates the Product Line (E3, E5, E7); 2600x v#, 2 = number of CPUs in a Node, 6 is socket/segment designation, 00 = Processor SKU, x = L for low power SKUs and v# (not yet designated) = version number.

HP Memory

Select one or more memory from Core options-Memory section below,

- LRDIMM, RDIMM are all distinct memory technologies and cannot be mixed within a server. The majority of ProLiant Gen9 servers support LRDIMM and RDIMM.
- HP memory from previous generation servers are not qualified or warranted with this HP ProLiant Server. HP SmartMemory is required to realize the memory performance improvements and enhanced functionality listed in this document for Gen9.
- If only one processor is installed, only half of the total DIMM slots are available. When populating with two processors all DIMM slots are available.
- Kits described as LP include Low Power DIMMs. For more information on ProLiant Energy Efficient Features, see: <http://www.hp.com/go/proliant-energy-efficient>.
- Depending on the memory configuration and processor model, the memory speed may run at 2133MHz, 1866MHz, 1600MHz or 1333MHz. Please see Memory Population Table or the Online Memory Configuration Tool at: <http://www.hp.com/go/ddr4memory-configurator>.

HP Power Supplies

Select one or more power supplies from Core Options-Power Supplies section below:

- Prior to selecting a power supply option, it is highly recommended that you review your server configuration in the HP Power Advisor tool to determine the right size power supply for your server configuration. The HP Power Advisor is located at: <http://www.hp.com/go/hppoweradvisor>.
- Mixing of power supplies in the same server is not supported. All power supplies must be of the same input voltage, output rating, and efficiency rating. If non-matching power supplies are installed, you may receive an error message and/or experience operational issues with your server.

Configuration Information - Factory Integrated Models

Step 3: Choose Additional Factory Integratable Options

- HP Networking** Select a standup NIC adapter from Core options-Networking section below,
- Please see the QuickSpecs for Technical Specifications and additional information: <http://www.hp.com/go/ProLiantNICs>.
 - These options are upgradeable and can be changed from the original configuration after the server is shipped.
 - For 10Gb adapters, a minimum of two Gigabytes (2 GB) of server memory is required per each adapter.
- HP Drives** Select one or more drives from Core options-HP Drives section below:
- The components of a storage subsystem (e.g. the drive, the HBA/controller, firmware, and the server backplane) should operate at the same data transfer rate or the system bandwidth will be negotiated down to an acceptable level for all components.
 - Hard drives have either a one year or three year warranty; refer to the specific hard drive QuickSpecs for details.
 - The HP ProLiant Gen9 Smart Storage solutions are equipped with re-designed Small Form Factor (SFF 2.5 in) and Large Form Factor (LFF 3.5 in) hot plug carriers for HP Qualified Hard Drives and Solid State Drives. These new carriers provide status and activity indicators as well as caution indicators for "Do Not Remove".
- HP Graphics Options** Select one or more graphics adapter from Additional options section below.
- Please see the HP Power Advisor for estimated power consumption of your individual system configuration prior to installing GPUs. The HP Power Advisor is located at: <http://www.hp.com/go/hppoweradvisor>.
 - This section may contain FIO options, please see HP Computation & Graphics Accelerators section below.
- HP Unique Options** Select one or more Unique options from Core options section below.
- This section may contain FIO options, please see the Unique options section below.
 - FIO indicates that this option is only available as a factory installable option.
- HP Cooling Options** Select one or more Fan Kits from Core options section below.
- This section may contain FIO options, please see HP Cooling Options section below.
 - FIO indicates that this option is only available as a factory installable option.
- HP Storage Controllers** Select one or more Storage options from Additional options section below.
- The embedded B140i controller will operate in UEFI only mode. For legacy support an additional controller will be needed, and for CTO orders please also select the Legacy mode settings part, 758959-B22
 - This section may contain FIO options, please see HP Storage Controllers section below.
 - FIO indicates that this option is only available as a factory installable option.

Core Options

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

HP Unique Options	<p>HP ML150 Gen9 4LFF Hot Plug Drive Cage 725872-B21 NOTE: Adding 4LFF Hard Drive Cage allow up to 8FF Drive Bays.</p> <p>HP ML150 Gen9 8SFF Hot Plug Drive Cage 725874-B21 NOTE: Adding 8SFF Hard Drive backplane allow up to 16SFF Drive Bays.</p> <p>HP ML150 Gen9 4LFF Non-hot Plug Drive Cage 779859-B21 NOTE: Adding 4LFF Hard Drive Cage allow for up to 8LFF Drive Bays.</p> <p>HP ML150 Gen9 PCI Baffle Kit 779861-B21 NOTE: Must select when a PCIe card is installed with any Networking, Controllers (SAS, SCSI and Fiber Channel), and Graphic options. NOTE: HP ML150 Gen9 PCI BAFFLE Kit (779861-B21) is included while order Performance Model with H240 Storage Controller</p> <p>HP ML150 Gen9 Slim ODD Enablement Kit 784603-B21 NOTE: Must select with the ODD option.</p> <p>HP ML150 Gen9 Smart Storage Battery Holder Kit 786710-B21 NOTE: Must select when install Smart Store Battery P/N: 727258-B21. NOTE: Must select when install P440/840 FIO controller P/N: 761872-B21/761874-B21. NOTE: Must select when support upgrade battery.</p> <p>HP ML150 Gen9 9/10LFF Drive Enablement Kit 788567-B21 NOTE: When populate 10 LFF, not able to install any Tape Drive or Optical Drive. Possible Configurations: 1) 8LFF + 1 ODD + 1 Tape Drive (Full/Half), or 2) 9LFF + 1 ODD, or 3) 9LFF + 1 Tape Drive (Full/Half). NOTE: 10LFF is limited to B140i controller NOTE: Must select both 4LFF NHP drive cage and 10LFF enablement kit if plan to expand to 10LFF. NOTE: Only support NHP SATA HDD. NOTE: Must select B140i controller.</p> <p>HP ML150 Gen9 Dedicated iLO Management Port Kit 780310-B21</p> <p>HP ML150 Gen9 Mini SAS H240 Cable Kit 784606-B21 NOTE: Must be selected for H240 controller. 1 cable kit is required for Hot Plug 4LFF. 2 cable kits are required for below: - Hot Plug 4+4 LFF (with additional drive cage) - 8 SFF</p> <p>HP ML150 Gen9 Mini SAS P440/P840 Cable Kit 784608-B21 NOTE: Must be selected for P440/P840 controller. 1 cable kit is required for P440x1. 2 cable kits are required for P840x1.</p> <p>HP Tower to Rack Conversion Tray Universal Kit 417705-B21</p> <p>HP AHCI-Enable FIO Setting 801845-B21 NOTE: This needs to be selected when Advanced Host Controller Interface mode is required on B140i controller.</p>
--------------------------	---

Core Options

HP Processors	<p>Entry Processors - E5-2600v3 series Processors</p> <p>HP ML150 Gen9 Intel® Xeon® E5-2603v3 (1.6GHz/6-core/15MB/85W) Processor Kit 726663-B21</p> <p>HP ML150 Gen9 Intel® Xeon® E5-2603v3 (1.6GHz/6-core/15MB/85W) FIO Processor Kit 726663-L21</p> <p>HP ML150 Gen9 Intel® Xeon® E5-2609v3 (1.9GHz/6-core/15MB/85W) Processor Kit 726660-B21</p> <p>HP ML150 Gen9 Intel® Xeon® E5-2609v3 (1.9GHz/6-core/15MB/85W) FIO Processor Kit 726660-L21</p> <p>Base Processors - E5-2600v3 series Processors</p> <p>HP ML150 Gen9 Intel® Xeon® E5-2620v3 (2.4GHz/6-core/15MB/85W) Processor Kit 726657-B21</p> <p>HP ML150 Gen9 Intel® Xeon® E5-2620v3 (2.4GHz/6-core/15MB/85W) FIO Processor Kit 726657-L21</p> <p>HP ML150 Gen9 Intel® Xeon® E5-2630v3 (2.4GHz/8-core/20MB/85W) Processor Kit 726653-B21</p> <p>HP ML150 Gen9 Intel® Xeon® E5-2630v3 (2.4GHz/8-core/20MB/85W) FIO Processor Kit 726653-L21</p> <p>HP ML150 Gen9 Intel® Xeon® E5-2640v3 (2.6GHz/8-core/20MB/90W) Processor Kit 726650-B21</p> <p>HP ML150 Gen9 Intel® Xeon® E5-2640v3 (2.6GHz/8-core/20MB/90W) FIO Processor Kit 726650-L21</p> <p>Performance Processors - E5-2600v3 series Processors</p> <p>HP ML150 Gen9 Intel® Xeon® E5-2650Lv3 (1.8GHz/12-core/30MB/65W) Processor Kit 726667-B21</p> <p>HP ML150 Gen9 Intel® Xeon® E5-2650Lv3 (1.8GHz/12-core/30MB/65W) FIO Processor Kit 726667-L21</p> <p>HP ML150 Gen9 Intel® Xeon® E5-2650v3 (2.3GHz/10-core/30MB/105W) Processor Kit 726647-B21</p> <p>HP ML150 Gen9 Intel® Xeon® E5-2650v3 (2.3GHz/10-core/30MB/105W) FIO Processor Kit 726647-L21</p> <p>HP ML150 Gen9 Intel® Xeon® E5-2660v3 (2.6GHz/10-core/25MB/105W) Processor Kit 726644-B21</p> <p>HP ML150 Gen9 Intel® Xeon® E5-2660v3 (2.6GHz/10-core/25MB/105W) FIO Processor Kit 726644-L21</p> <p>NOTE: Recommend to select 900W for 2P configurations or check power advisor for power consumption for the customer usage case.</p>
----------------------	--

HP Memory	<p>Registered DIMMs (RDIMMs) for E5-2600v3 Series</p> <p>HP 4GB (1x4GB) Single Rank x8 DDR4-2133 CAS-15-15-15 Registered Memory Kit 726717-B21</p> <p>HP 4GB (1x4GB) Single Rank x8 DDR4-2133 CAS-15-15-15 Registered Standard Memory Kit 803026-B21</p> <p>NOTE: Available WW except EMEA.</p> <p>HP 8GB (1x8GB) Single Rank x4 DDR4-2133 CAS-15-15-15 Registered Memory Kit 726718-B21</p> <p>HP 8GB (1x8GB) Dual Rank x8 DDR4-2133 CAS-15-15-15 Registered Memory Kit 759934-B21</p> <p>HP 8GB (1x8GB) Single Rank x4 DDR4-2133 CAS-15-15-15 Registered Standard Memory Kit 803028-B21</p> <p>NOTE: Available WW except EMEA.</p> <p>HP 16GB (1x16GB) Dual Rank x4 DDR4-2133 CAS-15-15-15 Registered Memory Kit 726719-B21</p> <p>HP 32GB (1x32GB) Dual Rank x4 DDR4-2133 CAS-15-15-15 Registered Memory Kit 728629-B21</p> <p>Load Reduced DIMMs (LRDIMMs) for E5-2600v3 Series</p> <p>HP 16GB (1x16GB) Dual Rank x4 DDR4-2133 CAS-15-15-15 Load Reduced Memory Kit 726720-B21</p>
------------------	--

Core Options

HP Optical Drives	HP 9.5mm SATA DVD-ROM JackBlack Gen9 Optical Drive	726536-B21
	HP 9.5mm SATA DVD-RW JackBlack G9 Optical Drive	726537-B21
	HP ML150 Gen9 Slim ODD Enablement Kit	784603-B21

NOTE: Must be selected with the ODD option.
NOTE: Must select ODD enablement kit, one kit per ODD.

HP Drives

NOTE: User may select any combination of SAS or SATA Hard Drives.
 However, if RAID is selected and both SAS and SATA Hard Drives have been selected, then only the SAS Drives will be used in the RAID set.

NOTE: If B140i is the primary controller, user can only select SATA drives.

NOTE: SAS drives require the selection of a SAS controller. See card lists in Controllers section.

SAS Hot Plug SFF (2.5-inch) Enterprise (ENT) Drives

HP 1.2TB 12G SAS 10K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive	781518-B21
HP 1.2TB 6G SAS 10K rpm SFF (2.5-inch) SC Dual Port Enterprise 3yr Warranty Hard Drive	718162-B21
HP 900GB 12G SAS 10K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive	785069-B21
HP 900GB 6G SAS 10K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive	652589-B21
HP 600GB 12G SAS 15K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive	759212-B21
HP 600GB 12G SAS 10K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive	781516-B21
HP 600GB 6G SAS 10K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive	652583-B21
HP 450GB 12G SAS 15K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive	759210-B21
HP 450GB 6G SAS 10K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive	652572-B21
HP 300GB 12G SAS 15K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive	759208-B21
HP 300GB 12G SAS 10K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive	785067-B21
HP 300GB 6G SAS 10K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive	652564-B21
HP 146GB 6G SAS 15K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive	652605-B21
HP 1TB 12G SAS 7.2K rpm SFF (2.5-inch) SC 512e 1yr Warranty Hard Drive	765464-B21
HP 2TB 12G SAS 7.2K rpm SFF (2.5-inch) SC 512e 1yr Warranty Hard Drive	765466-B21
HP 1.8TB 12G SAS 10K rpm SFF (2.5-inch) SC Enterprise 512e 3yr Warranty Hard Drive	791034-B21
HP 600GB 12G SAS 15K rpm SFF (2.5-inch) SC 512e Enterprise 3yr Warranty Hard Drive	748387-B21

SAS Hot Plug SFF (2.5-inch) Midline (MDL) Drives

HP 500GB 6G SAS 7.2K rpm SFF (2.5-inch) SC Midline 1yr Warranty Hard Drive	652745-B21
HP 1TB 6G SAS 7.2K rpm SFF (2.5-inch) SC Midline 1yr Warranty Hard Drive	652749-B21

SAS Hot Plug LFF (3.5-inch) Enterprise (ENT) Drives

HP 450GB 12G SAS 15K rpm LFF (3.5-inch) SC Converter Enterprise 3yr Warranty Hard Drive	737394-B21
HP 300GB 12G SAS 15K rpm LFF (3.5-inch) SC Converter Enterprise 3yr Warranty Hard Drive	737261-B21
HP 600GB 12G SAS 15K rpm LFF (3.5-inch) SC Converter Enterprise 3yr Warranty Hard Drive	765424-B21
HP 6TB 12G SAS 7.2K rpm LFF (3.5-inch) SC 512e Performance 1yr Warranty Hard Drive	793671-B21
HP 4TB 12G SAS 7.2K rpm LFF (3.5-inch) SC 512e Performance 1yr Warranty Hard Drive	793669-B21

SAS Hot Plug LFF (3.5-inch) Midline (MDL) Drives

HP 6TB 12G SAS 7.2K rpm LFF (3.5-inch) SC Midline 512e 1yr Warranty Hard Drive	765259-B21
HP 6TB 6G SAS 7.2K rpm LFF (3.5-inch) SC Midline 1yr Warranty Hard Drive	761477-B21
HP 4TB 12G SAS 7.2K rpm LFF (3.5-inch) SC Midline 512e 1yr Warranty Hard Drive	765257-B21
HP 4TB 6G SAS 7.2K rpm LFF (3.5-inch) SC Midline 1yr Warranty Hard Drive	695510-B21
HP 3TB 6G SAS 7.2K rpm LFF (3.5-inch) SC Midline 1yr Warranty Hard Drive	652766-B21
HP 2TB 6G SAS 7.2K rpm LFF (3.5-inch) SC Midline 1yr Warranty Hard Drive	652757-B21
HP 1TB 6G SAS 7.2K rpm LFF (3.5-inch) SC Midline 1yr Warranty Hard Drive	652753-B21

SATA Hot Plug SFF (2.5-inch) Midline (MDL) Drives

HP 1TB 6G SATA 7.2K rpm SFF (2.5-inch) SC Midline 1yr Warranty Hard Drive	655710-B21
HP 500GB 6G SATA 7.2K rpm SFF (2.5-inch) SC Midline 1yr Warranty Hard Drive	655708-B21
HP 2TB 6G SATA 7.2K rpm SFF (2.5-inch) SC 512e 1yr Warranty Hard Drive	765455-B21
HP 1TB 6G SATA 7.2K rpm SFF (2.5-inch) SC 512e 1yr Warranty Hard Drive	765453-B21

SATA Hot Plug LFF (3.5-inch) Midline (MDL) Drives

Core Options

HP 6TB 6G SATA 7.2K rpm LFF (3.5-inch) SC Midline 512e 1yr Warranty Hard Drive	765255-B21
HP 4TB 6G SATA 7.2K rpm LFF (3.5-inch) SC Midline 1yr Warranty Hard Drive	753874-B21
HP 4TB 6G SATA 7.2K rpm LFF (3.5-inch) SC Midline 512e 1yr Warranty Hard Drive	765253-B21
HP 4TB 6G SATA 7.2k rpm LFF (3.5-inch) SC Midline 1yr Warranty Hard Drive	693687-B21
HP 3TB 6G SATA 7.2K rpm LFF (3.5-inch) SC Midline 1yr Warranty Hard Drive	628061-B21
HP 2TB 6G SATA 7.2K rpm LFF (3.5-inch) SC Midline 1yr Warranty Hard Drive	658079-B21
HP 1TB 6G SATA 7.2K rpm LFF (3.5-inch) SC Midline 1yr Warranty Hard Drive	657750-B21
HP 500GB 6G SATA 7.2K rpm LFF (3.5-inch) SC Midline 1yr Warranty Hard Drive	658071-B21
HP 6TB 6G SATA 7.2K rpm LFF (3.5-inch) SC 512e Performance 1yr Warranty Hard Drive	793667-B21
HP 4TB 6G SATA 7.2K rpm LFF (3.5-inch) SC 512e Performance 1yr Warranty Hard Drives	793665-B21
SATA Non-Hot Plug LFF (3.5-inch) Midline (MDL) Drives	
HP 4TB 6G SATA 7.2K rpm LFF (3.5in) Non-hot Plug Standard 1yr Warranty Hard Drive	801888-B21
HP 3TB 6G SATA 7.2K rpm LFF (3.5-inch) Non-hot plug Midline 1yr Warranty Hard Drive	628065-B21
HP 3TB 6G SATA 7.2K rpm LFF (3.5in) Non-hot Plug Standard 1yr Warranty Hard Drive	801886-B21
HP 2TB 6G SATA 7.2K rpm LFF (3.5-inch) Non-hot plug Midline 1yr Warranty Hard Drive	659339-B21
HP 2TB 6G SATA 7.2K rpm LFF (3.5in) Non-hot Plug Standard 1yr Warranty Hard Drive	801884-B21
HP 1TB 6G SATA 7.2K rpm LFF (3.5-inch) Non-hot plug Midline 1yr Warranty Hard Drive	659337-B21
HP 1TB 6G SATA 7.2K rpm LFF (3.5in) Non-hot Plug Standard 1yr Warranty Hard Drive	801882-B21
HP 500GB 6G SATA 7.2K rpm LFF (3.5-inch) Non-hot plug Midline 1yr Warranty Hard Drive	659341-B21
12G SAS Hot Plug SFF (2.5-inch) Enterprise Performance Solid State Drives	
HP 400GB 12G SAS High Endurance SFF 2.5-in SC Enterprise Performance 3yr Wty Solid State Drive	741155-B21
HP 200GB 12G SAS Write Intensive SFF 2.5-in SC 3yr Wty Solid State Drive	802578-B21
HP 400GB 12G SAS Write Intensive SFF 2.5-in SC 3yr Wty Solid State Drive	802582-B21
HP 800GB 12G SAS Write Intensive SFF 2.5-in SC 3yr Wty Solid State Drive	802586-B21
HP 1.92TB 12G SAS Read Intensive SFF 2.5-in SC 3yr Wty Solid State Drive	802891-B21
12G SAS Hot Plug SFF (2.5-inch) Enterprise Value Solid State Drives	
HP 1.6TB 12G SAS Value Endurance SFF 2.5-in SC Enterprise Value 3yr Wty Solid State Drive	762263-B21
HP 800GB 12G SAS Value Endurance SFF 2.5-in SC Enterprise Value 3yr Wty Solid State Drive	762261-B21
12G SAS Hot Plug LFF (3.5-inch) Enterprise Value Solid State Drives	
HP 800GB 12G SAS Value Endurance LFF 3.5-in SC Enterprise Value 3yr Wty Solid State Drive	762270-B21
HP 1.6TB 12G SAS Value Endurance LFF 3.5-in SC Enterprise Value 3yr Wty Solid State Drive	762272-B21
SAS Hot Plug SmartDrive LFF (3.5-inch) Midline 512e Helium Drives	
HP 8TB 12G SAS 7.2K rpm LFF (3.5-inch) SC 512e Helium 1yr Warranty Hard Drive	793703-B21
HP 6TB 12G SAS 7.2K rpm LFF (3.5-inch) SC 512e Helium 1yr Warranty Hard Drive	793699-B21
6G SATA Hot Plug LFF (3.5-inch) Enterprise Light G1 Solid State Drives	
HP 960GB 6G SATA Light Endurance LFF 3.5-in SC Converter ENT Light 3yr Wty G1 Solid State Drive	756604-B21
6G SATA Hot Plug SFF (2.5-inch) SC Read Intensive Solid State Drives	
HP 960GB 6G SATA Read Intensive SFF 2.5-in SC 3yr Wty Solid State Drive	789155-B21
HP 480GB 6G SATA Read Intensive SFF 2.5-in SC 3yr Wty Solid State Drive	789145-B21
HP 240GB 6G SATA Read Intensive SFF 2.5-in SC 3yr Wty Solid State Drive	789135-B21
6G SATA Hot Plug SFF (2.5-inch) Enterprise Value Solid State Drives	

Core Options

	HP 1.6TB 6G SATA Value Endurance SFF 2.5-in SC Enterprise Value 3yr Wty Solid State Drive	757339-B21
	HP 480GB 6G SATA Value Endurance SFF 2.5-in SC Enterprise Value 3yr Wty G1 Solid State Drive	756657-B21
	HP 240GB 6G SATA Value Endurance SFF 2.5-in SC Enterprise Value 3yr Wty G1 Solid State Drive	756636-B21
	HP 120GB 6G SATA Value Endurance SFF 2.5-in SC Enterprise Value 3yr Wty G1 Solid State Drive	756621-B21
	6G SATA Hot Plug SFF (2.5-inch) Enterprise Light G1 Solid State Drives	
	HP 960GB 6G SATA Light Endurance SFF 2.5-in SC Enterprise Light 3yr Wty G1 Solid State Drive	756601-B21
	6G SATA Hot Plug LFF (3.5-inch) SC Read Intensive Solid State Drives	
	HP 960GB 6G SATA Read Intensive LFF 3.5-in SC Converter 3yr Wty Solid State Drive	789157-B21
	HP 480GB 6G SATA Read Intensive LFF 3.5-in SC Converter 3yr Wty Solid State Drive	789147-B21
	HP 240GB 6G SATA Read Intensive LFF 3.5-in SC Converter 3yr Wty Solid State Drive	789137-B21
	6G SATA Hot Plug LFF Value Endurance (3.5-inch) Converter Enterprise Value M1 Solid State Drives	
	HP 480GB 6G SATA Value Endurance LFF 3.5-in SC Converter ENT Value 3yr Wty M1 Solid State Drive	764943-B21
	HP 240GB 6G SATA Value Endurance LFF 3.5-in SC Converter ENT Value 3yr Wty M1 Solid State Drive	764941-B21
	HP 120GB 6G SATA Value Endurance LFF 3.5-in SC Converter ENT Value 3yr Wty M1 Solid State Drive	764939-B21
	6G SATA Hot Plug LFF Value Endurance (3.5-inch) Converter Enterprise Value G1 Solid State Drives	
	HP 1.6TB 6G SATA Value Endurance LFF 3.5-in SC Converter Enterprise Value 3yr Wty Solid State Drive	757342-B21
	HP 480GB 6G SATA Value Endurance LFF 3.5-in SC Converter ENT Value 3yr Wty G1 Solid State Drive	756660-B21
	HP 240GB 6G SATA Value Endurance LFF 3.5-in SC Converter ENT Value 3yr Wty G1 Solid State Drive	756639-B21
	HP 120GB 6G SATA Value Endurance LFF 3.5-in SC Converter ENT Value 3yr Wty G1 Solid State Drive	756624-B21
	6G SATA Hot Plug with SmartDrive LFF (3.5-inch) Midline 512e Helium Drives	
	HP 8TB 6G SATA 7.2K rpm LFF (3.5-inch) SC 512e Helium 1yr Warranty Hard Drive	793695-B21
	HP 6TB 6G SATA 7.2K rpm LFF (3.5-inch) SC 512e Helium 1yr Warranty Hard Drive	793683-B21
	Hard Drive Blank Kits	
	HP Large Form Factor Hard Drive Blank Kit	666986-B21
	HP ML150 Gen9 4LFF Hot Plug Drive Cage	725872-B21
	HP ML150 Gen9 4LFF Non-hot Plug Drive Cage	779859-B21
	HP ML150 Gen9 9/10LFF Drive Enablement Kit	788567-B21
	HP Small Form Factor Hard Drive Blank Kit	666987-B21
	HP ML150 Gen9 8SFF Hot Plug Drive Cage	725874-B21
<hr/>		
HP Networking	1 Gigabit Ethernet adapters	
	HP Ethernet 1Gb 4-port 331T Adapter	647594-B21
	HP Ethernet 1Gb 2-port 361T Adapter	652497-B21
	HP Ethernet 1Gb 2-port 332T Adapter	615732-B21
	HP Ethernet 1Gb 4-port 366T Adapter	811546-B21
	10 Gigabit Ethernet adapters	
	HP Ethernet 10Gb 2-port 560SFP+ Adapter	665249-B21
	HP Ethernet 10Gb 2-port 561T Adapter	716591-B21

Core Options

HP Power Supplies	<p>HP Entry-Level Power Supplies HP 550W FIO Power Supply Kit 730941-B21</p> <p>NOTE: The above power supply option is 80Plus Silver-certified with an efficiency rating of up to 89%. Power specifications and technical content for all HP Server power supplies can be found at http://www.hp.com/go/proliant/powersupply.</p> <p>HP Server Redundant Power Supply Backplane Kit 745813-B21 HP 800W Gold (Redundant)/900W (Non-Redundant) AC Power Input Module 744689-B21</p> <p>NOTE: The above power supply option is 80Plus Gold-certified with an efficiency rating of up to 92%. Each power backplane kit (745813-B21) can support up to two (2) AC power input modules (744689-B21). Power specifications and technical content for all HP Server power supplies can be found at http://www.hp.com/go/proliant/powersupply.</p> <p>NOTE: HP 800W/900W Gold AC Power Input Module only support up to maximum 800W redundant with 2 x 900W power module.</p> <p>NOTE: Each Redundant Power Supply Backplane can support up to two (2) power input modules. Non-redundant configurations with a single power input module installed can provide up to 900W (200 – 240VAC) and up to 550W (100 – 127VAC) of power. Redundant configurations with two power input modules installed can provide up to 800W (200 – 240VAC) and up to 550W (100 – 127VAC) of power.</p> <p>NOTE: Must select power backplane along with 900W power module: 900w power module x 1 requires 900W power backplane x 1 (Non-redundant PSU). 900w power module x 2 requires 900W power backplane x 1 (Redundant PSU).</p> <p>NOTE: Recommend to select 900W for 2P configurations or check power advisor for power consumption for the customer usage case. Power specifications and technical content for all HP Server power supplies can be found at http://www.hp.com/go/proliant/powersupply.</p>
HP Computation and Graphics Accelerators	<p>HP NVIDIA Quadro K2200 Graphics Accelerator J0G89A</p> <p>NOTE: Must select 2 processor if 2 graphic cards are selected.</p> <p>NOTE: Must select 900W power supply when 2 graphic cards are selected.</p> <p>NOTE: Only the above listed Graphics cards are HP standard supported options in this server.</p> <p>NOTE: The NVIDIA Quadro modules are supported only on 64-bit versions of Linux and Windows operating systems as well as on Virtual Machine client operating systems. The supported bare metal operating systems are RHEL6, SLES 11 and Windows Server 2012 R2.</p> <p>NOTE: Please see the HP Power Advisor for estimated power consumption of your individual system configuration prior to installing GPUs. The HP Power Advisor is located at: http://www.hp.com/go/hppoweradvisor.</p>
HP Cooling Options	<p>HP ML150 Gen9 PCI Baffle Kit 779861-B21</p> <p>NOTE: Must be selected when a PCIe card is installed with any Networking, Controllers (SAS, SCSI and Fiber Channel), and Graphic options.</p> <p>NOTE: HP ML150 Gen9 PCI BAFFLE Kit (779861-B21) is included while order Performance Model with H240 Storage Controller.</p>

Additional Options

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

Embedded Management	HP iLO Advanced	
	HP iLO Advanced 1 Server License with 3yr 24x7 Tech Support and Updates	BD505A
	HP iLO Advanced including 1yr 24x7 Technical Support and Updates E-LTU	E6U59ABE
	HP iLO Advanced including 1yr 24x7 Technical Support and Updates Single Server License	512485-B21
	HP iLO Advanced including 3yr 24x7 Technical Support and Updates E-LTU	E6U64ABE
	HP iLO Essentials	
	HP Integrated Lights-Out Essentials including 3yr 24x7 Tech Support and Updates Single Svr License	BD774A
	HP Integrated Lights-Out Essentials including 1yr 24x7 Tech Support and Updates Single Svr License	BD775A
	HP Integrated Lights-Out Essentials including 3yr 24x7 Technical Support and Updates E-LTU	E6U61ABE
	HP Integrated Lights-Out Essentials including 1yr 24x7 Technical Support and Updates E-LTU	E6U62ABE

High Performance Clusters	HP Insight Cluster Management Utility	
	HP Insight Cluster Management Utility 3yr 24x7 Flexible License	BD476A
	HP Insight Cluster Management Utility 1yr 24x7 Flexible License	QL803B
	NOTE: These part numbers can be used to purchase one certificate for multiple licenses and support with a single activation key. Each license is for one node (server). Customer will receive a printed end user license agreement and license entitlement certificate via physical shipment. The license entitlement certificate must be redeemed online in order to obtain a license key. Customer also will receive a support agreement.	
	HP Insight Cluster Management Utility Media	BD477A

HP Storage Controllers	SAS Controllers	
	HP Smart Array Controllers	
	HP Smart Array P440/4GB FBWC 12Gb 1-port Int SAS Controller	726821-B21
	HP Smart Array P441/4GB FBWC 12Gb 2-ports Ext SAS Controller	726825-B21
	HP Smart Array P840/4GB FBWC 12Gb 2-ports Int SAS Controller	726897-B21
	NOTE: 16SFF is limited to P840.	
	HP Smart Array P841/4GB FBWC 12Gb 4-ports Ext SAS Controller	726903-B21
	HP Smart Array P440/4GB FBWC 12Gb 1-port Int FIO SAS Controller	761872-B21
	NOTE: Smart Storage Battery included.	
	NOTE: Must select battery holder P/N: 786710-B21 when purchase P440.	
	NOTE: B140i can't mix with any standup internal controller.	
	NOTE: HP ML150 Gen9Mini SAS P440/P840 Cable Kit must be selected P/N: 784606-B21 for P440 controller (1 cable kit is required for P440x1).	
	NOTE: HP ML150 Gen9 PCI BAFFLE Kit (779861-B21) is required while order H240 controller card.	
	HP Smart Array P840/4GB FBWC 12Gb 2-ports Int FIO SAS Controller	761874-B21
	NOTE: Smart Storage Battery included.	
	NOTE: B140i can't mix with any standup internal controller.	
	NOTE: Must select P840/4G FIO Controller when additional drive cage is selected.	
	NOTE: Must select P840/4G Controller when apply 16SFF.	
	NOTE: Must select battery holder when purchase P440 P/N: 786710-B21.	
	NOTE: HP ML150 Gen9Mini SAS P440/P840 Cable Kit must be selected P/N: 784606-B21 for P840 controller (2 cable kits are required for P840x1).	
NOTE: HP ML150 Gen9 PCI BAFFLE Kit (779861-B21) is required while order controller card.		
	SAS Controller Options	
	HP 96W Smart Storage Battery with 145mm Cable for DL/ML/SL Servers	727258-B21
	HP Host Bus Adapter	

Additional Options

HP H240 12Gb 2-ports Int Smart Host Bus Adapter	726907-B21
HP H241 12Gb 2-ports Ext Smart Host Bus Adapter	726911-B21
HP H240 12Gb 2-ports Int FIO Smart Host Bus Adapter	761873-B21

NOTE: Must select for H240 controller when select Tape Drive

NOTE: Cable Rule:

1 cable kit is required for Hot Plug 4LFF.

2 cable kits are required for below:

- Hot Plug 4+4 LFF (with additional drive cage)

- 8SFF

NOTE: If H240 is the primary controller and if HP Mfg FIO Enable HBA Mode Setting is selected, then RAID is not allowed.

NOTE: B140i can't mix with any standup internal controller.

NOTE: HP ML150 Gen9 PCI BAFFLE Kit (779861-B21) is required while order controller card.

HP Cable Options

HP ML150 Gen9 Mini SAS H240 Cable Kit	784606-B21
HP ML150 Gen9 Mini SAS P440/P840 Cable Kit	784608-B21

Battery Holder

HP ML150 Gen9 Smart Storage Battery Holder Kit	786710-B21
--	------------

HP Tape Backup

NOTE: For the complete range of tape drives, autoloaders, libraries and media see: <http://www.hp.com/go/tape>. For hardware and software compatibility of HP tape backup products see: <http://www.hp.com/storage/SPOCK> and <http://www.hp.com/go/ebs>.

NOTE: Must select SAS controller to support internal SAS tape drives.

NOTE: Tape drive and HDD total amount can't exceed SAS controller support qty.

NOTE: Limited to H240 when select Tape Drive.

Tape Drives

HP StoreEver LTO-6 Ultrium 6650 SAS External Tape Drive	EH964A
HP StoreEver LTO-6 Ultrium 6650 SAS Internal Tape Drive	EH963A
HP StoreEver 1/8 G2 LTO-6 Ultrium 6250 FC Tape Autoloader	C0H19A
HP StoreEver LTO-6 Ultrium 6250 Tape Drive in 1U Rack-mount Kit	C0L99A
HP StoreEver LTO-6 Ultrium 6250 External Tape Drive	EH970A
HP StoreEver LTO-6 Ultrium 6250 Internal Tape Drive	EH969A
HP StoreEver LTO-5 Ultrium 3000 SAS Tape Drive in 1U Rack-mount	EJ014B
HP StoreEver LTO-5 Ultrium 3000 SAS External Tape Drive	EH958B
HP StoreEver LTO-5 Ultrium 3000 SAS Internal Tape Drive	EH957B
HP StoreEver LTO-5 Ultrium 3280 SAS Tape Drive in 3U Rack-mount	EJ013B
HP StoreEver LTO-5 Ultrium 3280 SAS External Tape Drive	EH900B
HP StoreEver LTO-5 Ultrium 3280 SAS Internal Tape Drive	EH899B
HP StoreEver LTO-4 Ultrium 1760 SAS (1) in 1U Rack-mount Kit	EH946C
HP StoreEver LTO-4 Ultrium 1760 SCSI External Tape Drive	EH922B
HP StoreEver LTO-4 Ultrium 1760 SAS External Tape Drive	EH920B
HP StoreEver LTO-4 Ultrium 1760 SAS Internal WW Tape Drive	EH919B
HP StoreEver LTO-3 Ultrium 920 SAS External Tape Drive	EH848B
HP StoreEver 1U SAS Rack-mount Kit	AE459B

HP Tape Storage Systems HP StoreEver MSL6480

HP StoreEver MSL6480 Scaleable Expansion Module	QU626A
HP StoreEver MSL6480 Scalable Base Module	QU625A
HP MSL2024 0-Drive Tape Library	AK379A
HP MSL4048 0-Drive Tape Library	AK381A

NOTE: Please see the QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/14604_div/14604_div.html (Worldwide).

Additional Options

HP Disk Backup	HP RDX Removable Disk Backup System	
	HP RDX1000 USB 3.0 External Disk Backup System	B7B69A
	HP RDX500 USB 3.0 External Disk Backup System	B7B66A
	HP RDX320 USB3.0 External Disk Backup System	B7B63A
	HP RDX 2TB USB3.0 External Disk Backup System	E7X53A
	HP RDX 2TB USB3.0 External Disk Backup System	E7X53B
	HP D3700 Enclosure	QW967A
	HP D3600 Enclosure	QW968A
	HP RDX+ 1TB External Backup System	B7B69B
	HP RDX+ 500GB External Backup System	B7B66B
	HP RDX+ External Docking System	C8S07B

NOTE: For the complete range of RDX drives and media see:
<http://www.hp.com/go/rdx>. For hardware and software compatibility of HP disk backup products see: <http://www.hp.com/storage/SPOCK>.

HP Disk Storage Systems	Disk Enclosures	
	HP D6000 w/35 4TB 6G SAS 7.2K LFF Dual Port MDL HDD 140TB Bundle	E7W30A
	HP D6000 w/70 4TB 6G SAS 7.2K LFF Dual Port MDL HDD 280TB Bundle	E7W31A
	HP D6000 Dual I/O Module Disk Enclosure	QQ695A
	HP D6000 w/35 2TB 6G SAS 7.2K LFF Dual port MDL HDD 70TB Bundle	QQ697A
	HP D6000 w/70 2TB 6G SAS 7.2K LFF Dual port MDL HDD 140TB Bundle	QQ698A
	HP D6000 w/35 3TB 6G SAS 7.2K LFF Dual port MDL HDD 105TB Bundle	QQ699A
	HP D6000 w/70 3TB 6G SAS 7.2K LFF Dual port MDL HDD 210TB Bundle	QQ700A
	HP D2600 w/12 4TB 6G SAS 7.2K LFF Dual Port MDL HDD 48TB Bundle	E7W32A

HP Power Distribution Units (PDUs)	HP Basic Power Distribution Unit (bPDU)	
	HP 1.9kVA 120 Volt L5-20 Input (12xNEMA 5-20R) NA/JP Basic PDU	H5M54A
	HP 3.6kVA 200-240 Volt Detachable C20 Input (12xC13) WW Basic PDU	H5M56A
	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 (18xC13) WW Basic PDU	H5M57A
	HP 4.9kVA 208 Volt L6-30 Input (20xC13) NA/JP Basic PDU	H5M58A
	HP 7.3kVA 230 Volt IEC309 32A Input (20xC13) INTL Basic PDU	H5M68A
	HP 8.6kVA 208 Volt L15-30 3-Phase Input (18xC13) NA/JP Basic PDU	H5M61A
	HP 4.9kVA 208 Volt L6-30 Input (24xC13/6xC19) NA/JP Basic PDU	H5M59A
	HP 7.3kVA 230 Volt IEC309 32A Input (24xC13/6xC19) INTL Basic PDU	H5M70A
	HP 8.3kVA 208 Volt CS8265C Input (30xC13/6xC19) NA/JP Basic PDU	H5M60A
	HP 11kVA 230 Volt IEC309 63A Input (30xC13/6xC19) INTL Basic PDU	H5M71A
	HP Hardwired 200-240 Volt Input (30xC13/6xC19) WW Basic PDU	H5M75A
	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 8.6kVA 208 Volt L15-30 3-Phase Input (24xC13/6xC19) NA/JP Basic PDU	H5M62A
	HP 11kVA 400 Volt IEC309 16A 3-Phase Input (30xC13/6xC19) INTL Basic PDU	H5M72A
	HP 11kVA 400 Volt IEC309 16A 3-Phase Input (36xC13/6xC19) INTL Basic PDU	H5M73A
	HP 11kVA 400 Volt IEC309 30A 3-Phase Input (36xC13/6xC19) NA Basic PDU	H5M67A
	HP 19.9kVA 480 Volt IEC309 30A 3-Phase Input (30 Outlet) NA Basic PDU	H3X08A
	HP 800VA - 277V Input / 230V Output NA Rack Mount Transformer	H3X09A
	HP 2.8kVA 24A Low Voltage NA/JP Modular Power Distribution Unit	252663-D71
	HP 4.9kVA 24A High Voltage NA/JP Core Modular Power Distribution Unit	252663-D74
	HP 8.3kVA 40A High Voltage NA/JP Core Modular Power Distribution Unit	252663-D75
	HP 7.3kVA 32A High Voltage INTL Core Modular Power Distribution Unit	252663-B33
	HP 9.2kVA 40A High Voltage INTL Core Modular Power Distribution Unit	252663-B34
	HP 8.6kVA 24A Three Phase NA/JP Modular Power Distribution Unit	AF512A
	HP 11kVA 16A Three Phase INTL Modular Power Distribution Unit	AF513A
	HP 14.4kVA 40A Three Phase NA/JP Modular Power Distribution Unit	AF519A
	HP 17.3kVA 48A Three Phase NA/JP Modular Power Distribution Unit	AF511A
	HP 22kVA 32A Three Phase INTL Core Modular Power Distribution Unit	AF518A

NOTE: To learn more about HP Basic Power Distribution Units (bPDU), please visit the HP website at <http://www.hp.com/go/pdu>.

Additional Options

HP Monitored Power Distribution Units (mPDU)

HP 2.8kVA 120 Volt L5-30 Input (12xNEMA 5-20R)NA/JP Monitored PDU	D9N43A
HP 3.6kVA 200-240 Volt Detachable C20 Input (12xC13) WW Monitored PDU	D9N46A
HP 4.9kVA 208 Volt L6-30 Input (12xC13) NA/JP Monitored PDU	D9N44A
HP 3.6kVA 200-240 Volt Detachable C20 Input (16xC13) WW Monitored PDU	D9N45A
HP 4.9kVA 208 Volt L6-30 Input (12xC13) NA/JP Monitored PDU	G9Z05A
HP 7.3kVA 230 Volt IEC309 32A Input (12xC13) INTL Monitored PDU	G9Z06A
HP 4.9kVA 208 Volt L6-30 Input (20xC13/4xC19) NA/JP Monitored PDU	D9N47A
HP 7.3kVA 230 Volt IEC309 32A Input (20xC13/4xC19) INTL Monitored PDU	D9N48A
HP 8.6kVA 208 Volt L15-30 3-Phase Input (18xC13/3xC19) NA/JP Monitored PDU	D9N51A
HP 5.7kVA 208 Volt L21-20 3-Phase Input (18xC13/3xNEMA 5-20R) NA/JP Monitored PDU	D9N52A
HP 8.6kVA 208 Volt L21-30 3-Phase Input (20xC13/3xC19/3xNEMA 5-20R) NA/JP Monitored PDU	D9N53A
HP 11kVA 400 Volt IEC309 16A 3-Phase Input (18xC13/3xC19) INTL Monitored PDU	D9N55A
HP 8.3kVA 208 Volt CS8265C Input (30xC13/3xC19) NA Monitored PDU	D9N49A
HP 7.3kVA 230 Volt IEC309 32A Input (32xC13/4xC19) INTL Monitored PDU	D9N50A
HP 11kVA 400 Volt IEC309 16A 3-Phase Input (30xC13/3xC19) INTL Monitored PDU	D9N57A
HP 14.4kVA 208 Volt CS8365C 3-Phase Input (12xC13/12xC19)NA Monitored PDU	D9N58A
HP 16.6kVA 400 Volt IEC309 30A 3-Phase Input (30xC13/3xC19) NA Monitored PDU	D9N61A
HP 16.6kVA 400 Volt IEC309 30A 3-Phase Input (12xC13/12xC19) NA Monitored PDU	D9N62A
HP 17.3kVA 208 Volt IEC309 60A 3-Phase Input (24xC13/3xC19) NA/JP Monitored PDU	D9N54A
HP 17.3kVA 208 Volt IEC309 60A 3-Phase Input (12xC13/12xC19) NA/JP Monitored PDU	D9N59A
HP 17.3kVA 208 Volt IEC309 60A 3-Phase Watertight Input (12xC13/12xC19) NA/JP Monitored PDU	G9Z07A
HP 19.9kVA 480 Volt 3-Phase (30 Outlet) NA Monitored PDU	D9N63A
HP 22kVA 400 Volt IEC309 32A 3-Phase Input (30xC13/3xC19) INTL Monitored PDU	D9N56A
HP 22kVA 400 Volt IEC309 32A 3-Phase Input (12xC13/12xC19) INTL Monitored PDU	D9N60A
HP 22kVA 400 Volt IEC309 32A 3-Phase Watertight Input (12xC13/12xC19) INTL Monitored PDU	G9Z08A
HP Environmental Sensor for Remote Monitored and Managed PDUs	E2D53A

NOTE: Please see the [HP Monitored Power Distribution Units QuickSpecs](#) for information on additional options and product specifications.

HP Intelligent Power Distribution Units (iPDU)

Additional Options

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 11.4kVA 16A 415V Three Phase L22-20 NA Core Intelligent Power Distribution Unit	AF900A
HP 17.3kVA 24A 415V Three Phase IEC309 NA Core Intelligent Power Distribution Unit	AF901A
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 17.3kVA 48A 208V Three Phase 12 Outlet Core NA/JP Intelligent Power Distribution Unit	AF535A
HP 17.3kVA 24A 415V Three Phase 12 Outlet Core NA/JP Intelligent Power Distribution Unit	AF537A
HP 22kVA 32A 400V Three Phase 12 Outlet Core INTL Intelligent Power Distribution Unit	AF538A
HP 4.9kVA 24A Single Phase NA/JP Intelligent Modular Power Distribution Kit	AF531A
HP 8.6kVA 24A Three Phase NA/JP Intelligent Modular Power Distribution Kit	AF532A
HP 14.4kVA 40A Three Phase NA/JP Intelligent Modular Power Distribution Unit	AF533A
HP 7.3kVA 32A Single Phase INTL Intelligent Modular Power Distribution Kit	AF534A
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 HP Intelligent Power Distribution Units QuickSpecs for information on additional options and product specifications.	
HP Managed Power Distribution Units (maPDU)	
HP 2.8kVA 120 Volt L5-30 Input (24x NEMA 5-20) NA/JP Managed PDU	H8B48A
HP 3.6kVA 200-240 Volt Detachable C20 Input (7xC13/1xC19) WW Managed PDU	H8B49A
HP 4.9kVA 208 Volt L6-30 Input (20xC13/4xC19) NA/JP Managed PDU	H8B50A
HP 7.3kVA 200-240 Volt IEC309 32A Input (20xC13/4xC19) INTL Managed PDU	H8B51A
HP 8.6kVA 208 Volt L15-30 3 Phase Input (18xC13/6xC19) NA/JP Managed PDU	H8B52A
HP 8.6kVA 208 Volt L21-30 3 Phase Input (20xC13/3xC19/1x NEMA 5-20) NA/JP Managed PDU	H8B53A
HP 11kVA 400 Volt IEC309 16A 3 Phase Input (21xC13/3xC19) INTL Managed PDU	H8B54A
HP 14.4kVA 208V CS8365C 3 Phase Input (12xC13/12xC19) NA/JP Managed PDU	H8B55A
HP 17.3kVA 208V IEC309 60A 3 Phase Input (12xC13/12xC19) NA/JP Managed PDU	H8B56A
NOTE: Please see the HP Managed Power Distribution Units QuickSpecs for information on additional options and product specifications.	
NOTE: To learn more, please visit the HP Uninterruptible Power Systems (UPS) web page .	

HP Rack Mount Consoles, KVM Switches, and Keyboards

HP Location Discovery Services

HP Location Discovery Services LCD8500 Kit

TL052A

NOTE: Please see the [QuickSpecs for Technical Specifications and additional information:](#)

http://h18000.www1.hp.com/products/quickspecs/14429_div/14429_div.html (Worldwide)

HP Rack Mount Consoles

Additional Options

HP LCD8500 1U US Rackmount Console Kit	AF630A
HP LCD8500 1U UK Rackmount Console Kit	AF631A
HP LCD8500 1U DE Rackmount Console Kit	AF632A
HP LCD8500 1U FR Rackmount Console Kit	AF633A
HP LCD8500 1U JP Rackmount Console Kit	AF642A
HP LCD8500 1U RU Rackmount Console Kit	AF643A
HP LCD8500 1U INTL Rackmount Console Kit	AF644A
HP LCD8500 1U US TAA Rackmount Console Kit	AF645A
HP TFT7600 G2 KVM Console Rackmount Keyboard UK Monitor	AZ871A
HP TFT7600 G2 KVM Console Rackmount Keyboard DE Monitor	AZ872A
HP TFT7600 G2 KVM Console Rackmount Keyboard FR Monitor	AZ873A
HP TFT7600 G2 KVM Console Rackmount Keyboard IT Monitor	AZ874A
HP TFT7600 G2 KVM Console Rackmount Keyboard ES Monitor	AZ875A
HP TFT7600 G2 KVM Console Rackmount Keyboard DK Monitor	AZ876A
HP TFT7600 G2 KVM Console Rackmount Keyboard NO Monitor	AZ877A
HP TFT7600 G2 KVM Console Rackmount Keyboard SE/FI Monitor	AZ878A
HP TFT7600 G2 KVM Console Rackmount Keyboard CH Monitor	AZ879A
HP TFT7600 G2 KVM Console Rackmount Keyboard PT Monitor	AZ880A
HP TFT7600 G2 KVM Console Rackmount Keyboard BE Monitor	AZ881A
HP TFT7600 G2 KVM Console Rackmount Keyboard JP Monitor	AZ882A
HP TFT7600 G2 KVM Console Rackmount Keyboard RU Monitor	AZ883A
HP KVM Switches	
HP Server Console 0x2x8 Port Analog Switch	AF616A
HP Server Console 0x2x16 Port Analog Switch	AF617A
HP 0x1x8 G3 KVM Console Switch	AF651A
HP 0x2x16 G3 KVM Console Switch	AF652A
HP TAA 0x2x16 G3 KVM Console Switch	AF653A
HP USB Remote Access Key for G3 KVM Console Switches	AF650A
HP KVM Console USB Interface Adapter	AF628A
HP 0x2x16 KVM Server Console Switch G2 with Virtual Media CAC Software	AF618A
HP 0x2x32 KVM Server Console Switch G2 with Virtual Media CAC Software	AF619A
HP KVM Console USB 2.0 Virtual Media CAC Interface Adapter	AF629A
HP 1x4 USB/PS2 KVM Console Switch	AF611A
HP 1x1Ex8 KVM IP Console Switch G2 with Virtual Media CAC Software	AF620A
HP 2x1Ex16 KVM IP Console Switch G2 with Virtual Media CAC Software	AF621A
HP 4x1Ex32 KVM IP Console Switch G2 with Virtual Media CAC Software	AF622A
NOTE: To learn more, please visit the HP KVM Switches web page.	
HP USB Keyboard and Mouse	
HP USB BFR with PVC Free US Keyboard/Mouse Kit	631341-B21
HP USB BFR with PVC Free Intl Keyboard/Mouse Kit	672097-B33
HP USB BFR with PVC Free UK Keyboard/Mouse Kit	631344-B21
HP USB BFR with PVC Free FR Keyboard/Mouse Kit	631346-B21
HP USB BFR with PVC Free ES Keyboard/Mouse Kit	631348-B21
HP USB BFR with PVC Free DE Keyboard/Mouse Kit	631358-B21
HP USB BFR with PVC Free JP Keyboard/Mouse Kit	631360-B21
HP USB BFR with PVC Free IT Keyboard/Mouse Kit	631362-B21
HP USB BFR with PVC Free CN Keyboard/Mouse Kit	631364-B21
HP USB BFR with PVC Free AE Keyboard/Mouse Kit	638212-B21
HP USB BFR with PVC Free RU Keyboard/Mouse Kit	638214-B21
HP USB BFR with PVC Free SE Keyboard/Mouse Kit	672097-103
HP USB BFR with PVC Free CH Keyboard/Mouse Kit	672097-113
HP USB BFR with PVC Free PT Keyboard/Mouse Kit	672097-133
HP USB BFR with PVC Free TR Keyboard/Mouse Kit	672097-143
HP USB BFR with PVC Free CZ Keyboard/Mouse Kit	672097-223
HP USB BFR with PVC Free FI Keyboard/Mouse Kit	672097-353
HP USB BFR with PVC Free AP-Intl Keyboard/Mouse Kit	672097-373
HP USB BFR with PVC Free IN Keyboard/Mouse Kit	672097-D63
HP USB BFR with PVC Free KR Keyboard/Mouse Kit	672097-KD3
HP 1U INT Rackmount Keyboard with USB	AG086A

Additional Options

	HP 1U US Rackmount Keyboard with USB	AG072A
	NOTE: Please see the HP USB Keyboard and Mouse QuickSpecs for information on additional options and product specifications.	
	HP Other Options	
	HP Rack LED Light Kit	BW939A
	HP Kit LCD 1.83m Latch Display Port Cable	G7T29A
<hr/>		
HP Uninterruptible Power Systems (UPS)	HP DirectFlow Three Phase UPS Power Unit (1U UPS)	
	HP R12000 DirectFlow - 1U Rackmount Uninterruptible Power System	G9Y75A
	HP R12000 DirectFlow - POD 1U Rackmount Uninterruptible Power System	AF478A
	Input/Output Module Options for 1U UPS	
	HP 32A 400-415 Volt Three Phase INTL R12000 DirectFlow UPS IEC309 Input/Output Module	AF488A
	HP 30A 400-415 Volt Three Phase NA R10000 DirectFlow UPS IEC309 Input/Output Module	AF489A
	HP 32A 380 Volt Three Phase China R12000 DirectFlow UPS Unterminated Input/Output Module	AF490A
	HP 30A 480 Volt Three Phase NA R12000 DirectFlow UPS L22-30 Input/Output Module	AF491A
	HP 30A 480 Volt Three Phase NA R12000 DirectFlow UPS IEC309 Input/Output Module	AF492A
	HP 30A 400-415 Volt Three Phase NA R12000 DirectFlow UPS IEC309 Input/Output Module	G9Y76A
	Power Unit (2U UPS)	
	HP R18000 DirectFlow - 2U Rackmount Uninterruptible Power System	AF479A
	Input/Output Module Options for 2U UPS	
	HP 32A 400-415 Volt Three Phase INTL R18000 DirectFlow UPS IEC309 Input/Output Module	AF483A
	HP 30A 380 Volt Three Phase China R18000 DirectFlow UPS Unterminated Input/Output Module	AF485A
	HP 30A 480 Volt Three Phase NA R18000 DirectFlow UPS IEC309 Input/Output Module	AF486A
	HP 30A 480 Volt Three Phase NA R18000 DirectFlow UPS IEC309 Input/Output Module	AF487A
	HP 30A 400 Volt Three Phase NA R18000 DirectFlow UPS IEC309 Input/Output Module	D9Q02A
	HP 30A 400-415V Three Phase NA R18000 DirectFlow UPS 1:1 IEC309 Input/Output Module	AF484A
	NOTE: All Input/Output Modules support dual output outlets except the AF484A.	
	Battery Pack Options	
	HP DirectFlow UPS - 1U Rackmount Lithium-ion Battery Pack	AF480A
	HP DirectFlow UPS - 3U Rackmount VRLA Battery Pack	AF482A
	HP WW DirectFlow Secondary Battery Cable	AF497A
	NOTE: Please see the HP DirectFlow Three Phase Uninterruptible Power System QuickSpecs for information on additional options and product specifications.	
	HP Tower UPS	

Additional Options

HP T750 G4 UPS Models

HP T750 G4 NA/JP Uninterruptible Power System	J2P85A
HP T750 G4 INTL Uninterruptible Power System	J2P88A

HP T1000 G4 UPS Models

HP T1000 G4 NA/JP Uninterruptible Power System	J2P86A
HP T1000 G4 INTL Uninterruptible Power System	J2P89A

HP T1500 G4 UPS Models

HP T1500 G4 NA/JP Uninterruptible Power System	J2P87A
HP T1500 G4 INTL Uninterruptible Power System	J2P90A

HP T750 G2 UPS Models

HP T750 G2 750VA NA Tower Uninterruptible Power System	AF446A
HP T750 G2 750VA INTL Tower Uninterruptible Power System	AF447A
HP T750J JP Uninterruptible Power System	AF456A

HP T1000 G3 UPS Models

HP T1000 G3 1000VA INTL Tower Uninterruptible Power System	AF449A
--	--------

HP T1500 G3 UPS Models

HP T1500 G3 1400VA INTL Tower Uninterruptible Power System	AF451A
--	--------

HP Rack/Tower UPS

HP R/T2200 G4 UPS Models

HP R/T2200 G4 NA/JP Uninterruptible Power System	J2R00A
--	--------

HP R/T3000 G4 UPS Models

HP R/T3000 G4 Low Voltage NA/JP Uninterruptible Power System	J2R01A
HP R/T3000 G4 High Voltage NA/JP Uninterruptible Power System	J2R02A
HP R/T3000 G4 High Voltage INTL Uninterruptible Power System	J2R04A

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

R1500 G4 Models

HP R1500 G4 NA Uninterruptible Power System	J2Q99A
HP R1500 G4 JP/TWN Uninterruptible Power System	J2R05A
HP R1500 G4 INTL Uninterruptible Power System	J2R03A

R1.5kVA G3 Models

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

R7000 Uninterruptible Power System (UPS)

HP R7000 4U 50A High Voltage NA/JP Uninterruptible Power System	AF462A
HP R7000 4U IEC-32A High Voltage INTL Uninterruptible Power System	AF463A

R5000 Uninterruptible Power System (UPS)

HP R5000 3U L630 High Voltage NA/JP Uninterruptible Power System	AF460A
HP R5000 3U IEC309-32A High Voltage INTL Uninterruptible Power System	AF461A

NOTE: To learn more, please visit the [HP Uninterruptible Power Systems \(UPS\) web page](#).

HP USB and SD Options

HP Enterprise Mainstream Flash Media Kits for Memory Cards

HP 8GB microSD Enterprise Mainstream Flash Media Kit	726116-B21
HP 8GB USB Enterprise Mainstream Flash Media Drive Key Kit	737953-B21
HP Dual 8GB microSD Enterprise Midline USB Kit	741279-B21

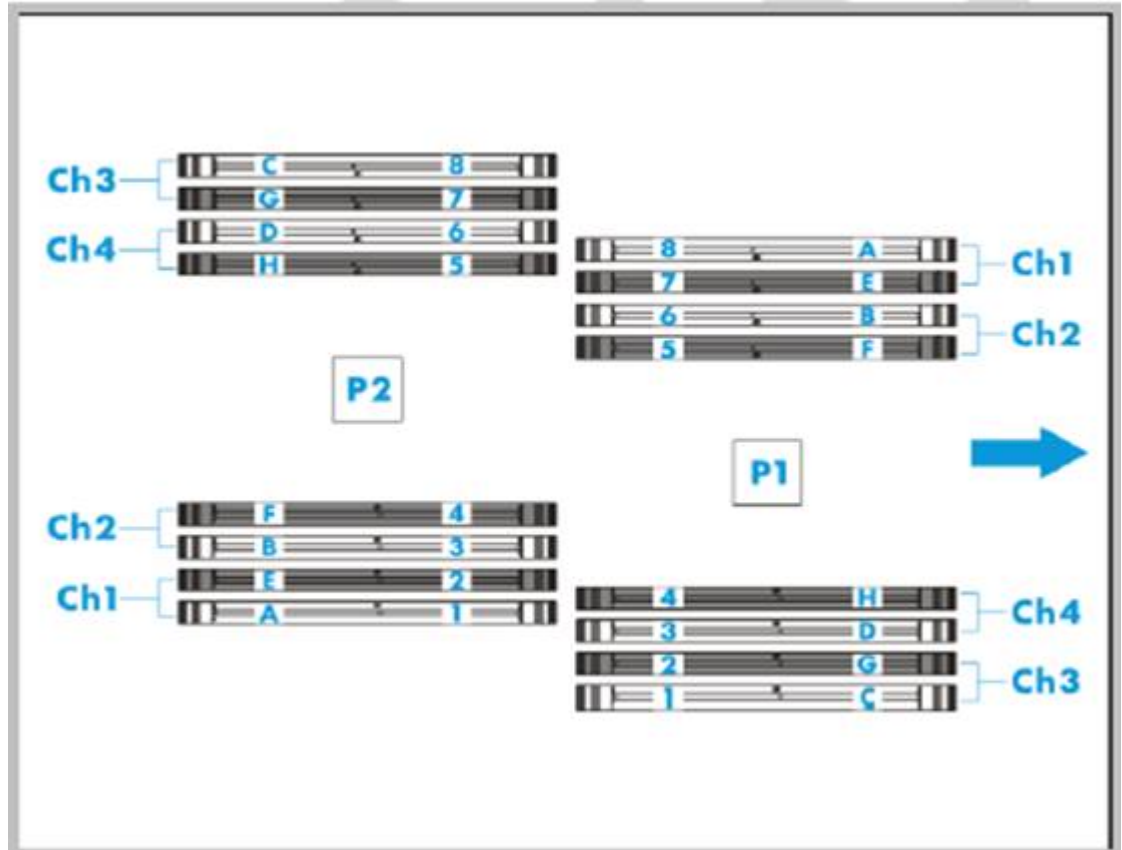
Additional Options

HP Care Pack Services	Installation & Start-up Services	
	HP Installation ML350e/ML150 Service	U6D41E
	HP Startup ML350e/ML150 Service	U6D43E
	Foundation Care	
	HP 3 year 24x7 ML150 Gen9 Foundation Care Service	U7WR1E
	HP 3 year 24x7 with Defective Media Retention ML150 Gen9 Foundation Care Service	U7WR2E
	HP 3 year 24x7 w/Comprehensive Defective Material Retention ML150 Gen9 Foundation Care Service	U7WR3E
	Proactive Care	
	HP 3 year 24x7 ML150 Gen9 Proactive Care Service	U7WT8E
	HP 3 year 24x7 with Defective Media Retention ML150 Gen9 Proactive Care Service	U7WT9E
	HP 3 year 24x7 w/CompDefectiveMaterialRetention ML150 Gen9 Proactive Care Service	U7WU0E

Memory

Memory Subsystem Architecture Each Intel® Xeon® E5-2600v3 family processor socket contains four memory channels per installed processor with two DIMMs per channel for a total of eight (8) DIMMs or a grand total of sixteen (16) DIMMs for the server.

Memory Population guidelines



DIMM population order							
1st slot of channel				2nd slot of channel			
A	B	C	D	E	F	G	H
Number of DIMMs to install	1						
2	■						
4	■	■					
8	■	■	■	■	■	■	■

General Memory Population Rules and Guidelines:

Memory

- . Install DIMMs only if the corresponding processor is installed.
- . If only one processor is installed in a two processor system, only half of the DIMM slots are available.
- . To maximize performance, it is recommended to balance the total memory capacity between all installed processors and load the channels similarly whenever possible.
- . When two processors are installed, balance the DIMMs across the two processors.
- . White DIMM slots denote the first slot to be populated in a channel.
- . Place the DIMMs with the highest number of ranks in the white slot when mixing DIMMs of different ranks on the same channel.
- . Do not mix RDIMMs or LRDIMMs.
- . Quad rank RDIMMs are not supported in HP ProLiant ML150 Gen9 servers.
- . Quad rank LRDIMMs are capable of up to three DIMMs per channel.
- . RDIMMs operating at 1.2V.
- . DIMMs of different speeds may be mixed in any order; the server will select a common optimal speed.
- . The maximum memory speed is a function of the memory type, memory configuration, and processor model.
- . The maximum memory capacity is a function of the memory type and number of installed processors.
- . To realize the performance memory capabilities listed in this document, HP SmartMemory is required.
- . There are four (4) channels per processor; eight (8) channels per server.
- . There are three (2) DIMM slots for each memory channel; twenty-four (16) total slots.
- . Memory channels 1 and 3 consists of the two (2) DIMMs that are furthest from the processor.
- . Memory channel 2 and 4 consists of the two (2) DIMMs that are closest to the processor.

Intel Gen9 Supported Memory Bandwidth for HP ProLiant Gen9 Intel® Xeon® E5-2600v3 Series Processor Family

Memory Bandwidth and Capacity			
[DIMM Type]	Registered Dimms (RDIMMs)		Load Reduced (LRDIMMs)
DIMM Rank	Single Rank	Dual Rank	Dual Rack
DIMM Capacity	4GB	8GB	16GB
Voltage	Std Voltage 1.2V		
SLOTS THAT CAN BE POPULATED			
16 slot servers	16		
MAXIMUM CAPACITY (GB)			
	64	128	256
1 DIMM Per Channel	2133		
2 DIMM Per Channel	2133		

Memory

DIMM slot and configuration diagram

DIMM slot and configuration diagrams

- Population order; start with "A" first, "B" second, "C" third, etc.
- When one processor is installed, install DIMMs in sequential alphabetic order: A, B, C, D, E, F ...
- When two processors are installed, install DIMMs in sequential alphabetic order: CPU1-A, CPU2-A, CPU1-B, CPU2-B, CPU1-C, CPU2-C

		CPU 1		CPU 2			
		Slot #	population order	Slot #	population order		
Chnl 3	1	C		1	A	Chnl 1	
	2	G		2	E		
		CPU 1		CPU 2			
		Slot #	population order	Slot #	population order		
Chnl 4	3	D		3	B	Chnl 2	
	4	H		4	F		
		CPU 1		CPU 2			
		Slot #	population order	Slot #	population order		
Chnl 2	5	F		5	H	Chnl 4	
	6	B		6	D		
		CPU 1		CPU 2			
		Slot #	population order	Slot #	population order		
Chnl 1	7	E		7	G	Chnl 3	
	8	A		8	C		

Memory Speed by Processor Model

Processor Models	Supported Memory Speeds
E5-2603v3, E5-2609v3,	1600MHz
E5-2620v3, E5-2630v3, E5-2640v3,	1866MHz
E5-2650Lv3, E5-2650v3, E5-2660v3,	2133MHz

Standard and Maximum Memory Capacity (Pre-configured Models)

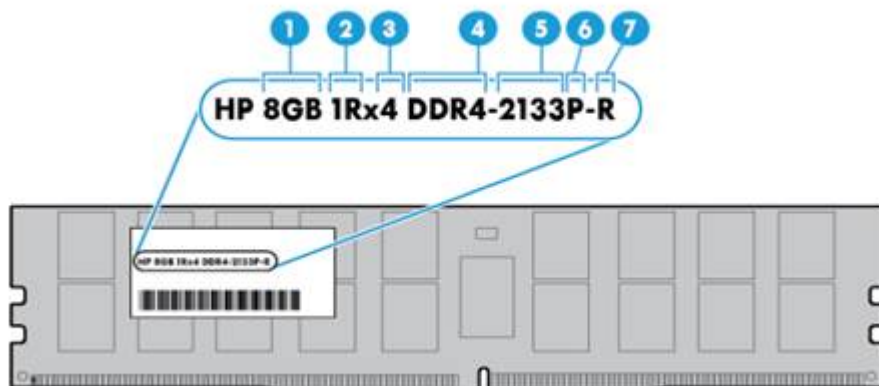
Pre-Configured Models	Standard Memory	Maximum Memory Plus Optional Memory	Standard Memory Replaced with Optional Memory
E5-2603v3,	4GB (1x4GB)	484GB (15x32GB, 1x4GB)	256GB (16x16GB)
E5-2609v3,	8GB (1x8GB)	488GB (15x32GB, 1x8GB)	256GB (16x16GB)
E5-2620v3,	16GB (1x16GB)	496GB (15x32GB, 1x16GB)	256GB (16x16GB)

Memory

DDR4 memory options part number decoder

NOTE: Capacity references are rounded to the common gigabyte (GB) values.

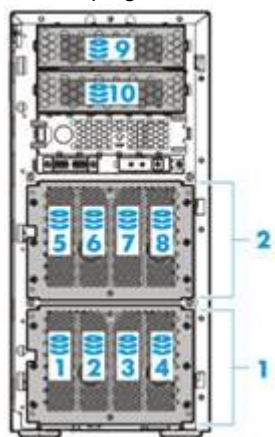
- 4GB = 4,096MB
- 8GB = 8,192MB
- 16GB = 16,384MB



1. Capacity: 4GB/8GB/16GB/32GB
2. Rank: 1R = Single-rank; 2R = Dual-rank; 4R = Quad-rank
3. Data width: x4 = 4-bit; x8 = 8-bit
4. Memory generation: DDR4
5. Maximum memory speed: 2133 MT/s
6. CAS latency: P = 15
7. DIMM type: R = RDIMM (registered); L = LRDIMM (load reduced)

Storage

4-bay LFF non-hot-plug drive model

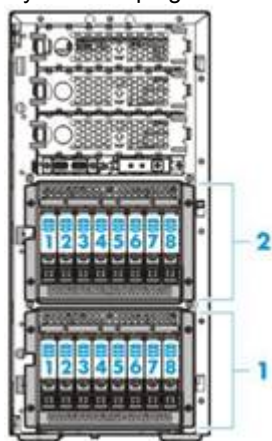


1-8 8 x LFF SATA/SSD Non-hot-plug Hard Drive Bays

9-10 Media Bays

NOTE: When populating 10 LFF, not able to install Tape Drive or Optical Drive. Possible Configurations:
 1) 8LFF +1 ODD+ 1 Tape Drive (Full/Half), or 2) 9LFF + 1ODD, or 3) 9LFF + 1 Tape Drive (Full/Half).

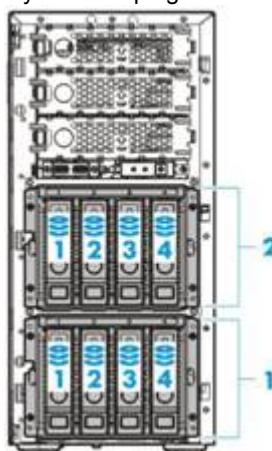
8-bay SFF hot-plug drive model



1 x 1-8 8 x LFF SAS/SSD Hot Pluggable Hard Drive Bays

2 x 1-8 8 x LFF SAS/SSD Hot Pluggable Hard Drive Bays

4-bay LFF hot-plug drive model



1 x 1-4 4 x LFF SATA/SSD Hot Pluggable Hard Drive Bays

2 x 1-4 4 x LFF SATA/SSD Hot Pluggable Hard Drive Bays

Maximum Storage Capacity -

Total (10 LFF Drive) 60TB
 Total (16 SFF Drive) 25.6TB

Technical Specifications

System Unit	Tower	17.03(H) x 7.87(W) x 24.41(D) in (43.26 x 20 x 62 cm)
	Dimensions	
	Tower Weight	Minimum: 32lb (14.51kg) Maximum: 41lb (18.60kg)
	Input	Range Line 100 to 240 VAC
	Requirements	Voltage For 550W Power Supply:6.7 A (at 100 VAC)3.3 A (at 200 VAC)
	(for Standard 460W PSU, see power specifications tables for detail on 460W, 750W and 1200W power supplies)	Rated Input Current Rated Input Frequency Rated Input Power For 550 W Power Supply:< 670 W (at 100 VAC),< 660 W (at 200 VAC),
	BTU Rating	Maximum For 550 W Power Supply:2201 BTU/hr (at 100 VAC),2153 BTU/hr (at 200 VAC)
	Power Specifications	To review typical system power ratings use the Power Advisor which is available via the online tool located at URL: http://www.hp.com/go/proliant-energy-efficient or http://www.hp.com/go/hppoweradvisor - Click on the system of interest. Example: ML150 Gen9-Follow the instructions of the next screens.
	Power Supply Output	Rated Steady-State Power For 550 W Power Supply:550 W (at 100 VAC),550 W (at 200 VAC), Maximum Peak Power For 550 W Power Supply:550 W (at 100 VAC),550 W (at 200 VAC),
	System Inlet Temperature	Standard Operating Support 10° to 35°C (50° to 95°F) at sea level with an altitude derating of 1.0°C per every 304.8 m (1.8°F per every 1000 ft) above sea level to a maximum of 3048 m (10,000 ft), no direct sustained sunlight. Maximum rate of change is 20°C/hr (36°F/hr). The upper limit and rate of change may be limited by the type and number of options installed. System performance during standard operating support may be reduced if operating with a fan fault or above 30°C(86°F). Extended Ambient Operating Support For approved hardware configurations, the supported system inlet range is extended to be: 5° to 10°C (41° to 50°F) and 35° to 40°C (95° to 104°F) at sea level with an altitude derating of 1.0°C per every 175 m (1.8°F per every 574 ft) above 900 m (2953 ft) to a maximum of 3048 m (10,000 ft). The approved hardware configurations for this system are listed at the URL: http://www.hp.com/servers/ashrae For approved hardware configurations, the supported system inlet range is extended to be: 40° to 45°C (104° to 113°F) at sea level with an altitude derating of 1.0°C per every 125 m (1.8°F per every 410 ft) above 900 m (2953 ft) to a maximum of 3048 m (10,000 ft). The approved hardware configurations for this system are listed at the URL: http://www.hp.com/servers/ashrae System performance may be reduced if operating in the extended ambient operating range or with a fan fault. NOTE: Supports A3 extended ambient, A4 extended ambience will be available in early 2015.
	Relative Humidity	Non-operating -30° to 60°C (-22° to 140°F). Maximum rate of change is 20°C/hr(36°F/hr). Operating Minimum to be the higher (more moisture) of -12°C (10.4°F) dew point or 8% relative humidity. Maximum to be the lower (less moisture) of 24°C (75.2°F) dew point or 90% relative humidity. Non-operating 5% to 95% relative humidity (Rh), 38.7°C (101.7°F) maximum wet bulb temperature, non-condensing.

Technical Specifications

Altitude	Operating	3048 m (10,000 ft). This value may be limited by the type and number of options installed. Maximum allowable altitude change rate is 457m/min (1500 ft/min).
	Non-operating	9144 m (30,000 ft). Maximum allowable altitude change rate is 457m/min (1500 ft/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	3.8 Bels (1P LFF Non Hot-Plug Entry) 3.8 Bels (1P LFF Hot-plug Base) 4.3 Bels (1P SFF Hot-plug Performance)
	L pAm	22 dBA (1P LFF Non Hot-Plug Entry) 22 dBA (1P LFF Hot-plug Base) 25 dBA (1P SFF Hot-plug Performance)
	Operating	
	L WAd	3.8 Bels (1P LFF Non Hot-Plug Entry) 3.8 Bels (1P LFF Hot-plug Base) 4.1 Bels (1P SFF Hot-plug Performance)
	L pAm	23 dBA (1P LFF Non Hot-Plug Entry) 22 dBA (1P LFF Hot-plug Base) 25 dBA (1P SFF Hot-plug Performance)
	NOTE: Configurations tested for 1P LFF Entry models included two (2) 500GB LFF SATA Midline HDD and Windows 2012 Enterprise 64-bit.	
	NOTE: Configurations tested for 1P and 2P SFF models included two (2) 500GB SFF SATA Midline HDD and Windows 2012 Enterprise 64-bit.	
	NOTE: The Listed sound levels apply to standard shipping configurations. Additional options may result in increased sound levels.	
Emissions Classification	FCC Rating	Class A
	Normative Standards	CISPR 22; EN55022; EN55024; FCC CFR 47, Pt 15; ICES-003; CNS13438; GB9254; 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.	

HP Dynamic Smart Array B140i Controller	Number of PCI links	Four
	PCI link rate	4 Gb/s
	Storage protocol support	SATA
	SAS/SATA peak data transfer rate	6 Gb/s
	Number of SAS/SATA links	10 links
	SAS/SATA connectivity	2x4 connectors; 2x1 connectors
	Expander support	No
	Drives supported (max)	Up to 10 Internal Drives
	RAID support	0, 1, 10, 5 SATA
	Software management	HP SSA, SMH, SIM
	Warranty	Server warranty
	HP Secure Encryption license	Not Supported
	HP SmartCache License	Not Supported

Technical Specifications

	HP Smart Storage Supported Administrator	
HP Ethernet 1Gb 4-port 331i Adapter	Network Interface	10Base-T/100Base-TX/1000Base-TX
	Compatibility	IEEE 802.3 10Base-T IEEE 802.3ab 1000Base-T IEEE 802.3u 100Base-TX
	Ports	
	Data Transfer Method	PCI Express, two lanes (x2)
	Controller	BCM5717
	Network Transfer Rate	10Base-T (Half-Duplex) 10 Mb/s per port, 40 Mb/s combined 10Base-T (Full-Duplex) 20 Mb/s per port, 80 Mb/s combined 100Base-TX (Half-Duplex) 100 Mb/s per port, 400 Mb/s combined 100Base-TX (Full-Duplex) 200 Mb/s per port, 800 Mb/s combined 100Base-TX (Half-Duplex) 1000Mb/s per port, 4000 Mb/s combined 100Base-TX (Full-Duplex) 2000Mb/s per port, 8000 Mb/s combined
	Connector	RJ-45
	Cable Support	10 Base-T Categories 3, 4 or 5 UTP; up to 328 ft (100 m) 10/100/1000 Base-TX Category 5 or higher UTP; up to 328 ft (100 m)

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
06/01/2015	From Version 4 to 5	Added	New Hard Drives were added to Core Options. New RDX+ external backup options were added.
		Changed	Standard Features and HP Power Supplies were revised.
		Removed	Obsolete SKUs were removed from QuickSpecs.
04/24/2015	From Version 3 to 4	Added	Added 813534-B21 and 813535-B21 to HP Power Supplies.
03/30/2015	From Version 2 to 3	Added	New Hard Drives offering. Optional Software added to HP Storage Controllers. Added HP Smart Array P841/4GB FBWC 12Gb 4-ports Ext SAS Controller.
		Changed	HP Memory and HP Disk Storage Systems were updated.
02/09/2015	From Version 1 to 2	Added	Added HP Insight Software section and Network controller sections. Added new HP Drives and new G4 UPS models.
		Changed	HP Processors, HP Memory, HP Drives, HP Tape Backup, HP Disk Backup, HP Rack Mount Consoles, KVM Switches, and Keyboards, HP Uninterruptible Power Systems (UPS), and HP USB and SD Options sections were updated.



© Copyright 2015 Hewlett-Packard Development Company, L.P.

The information contained herein is subject to change without notice. The only warranties for HP products and services are set forth in the express warranty statements accompanying such products and services. Nothing herein should be construed as constituting an additional warranty. HP shall not be liable for technical or editorial errors or omissions contained herein.

Intel® and Xeon® are registered trademarks of Intel Corporation in the U.S. and other countries.

Microsoft®, Windows®, and Windows Server® are U.S. registered trademarks of the Microsoft group of companies.

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