QuickSpecs
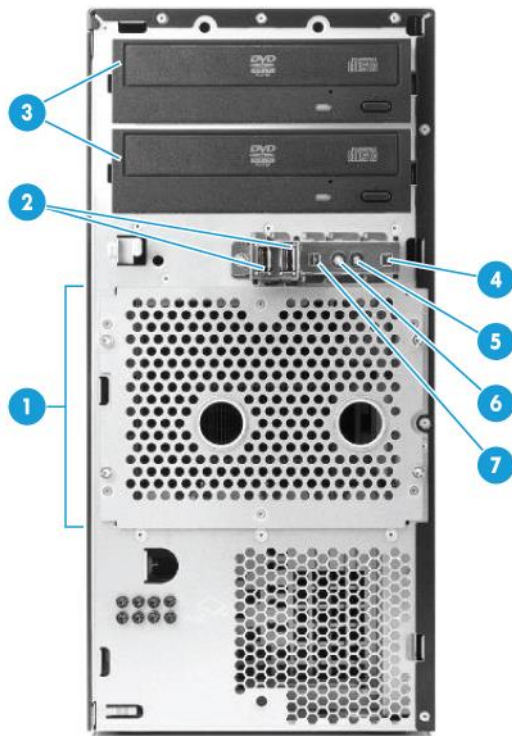
Overview

HP ProLiant ML10 v2 Server

HP ProLiant ML10 v2, a single-socket 4U tower server, delivers essential availability and expansion needed to accommodate changing business needs. It is ideal for remote sites and corporate branch offices running file/print, web messaging, and small vertical applications or databases.
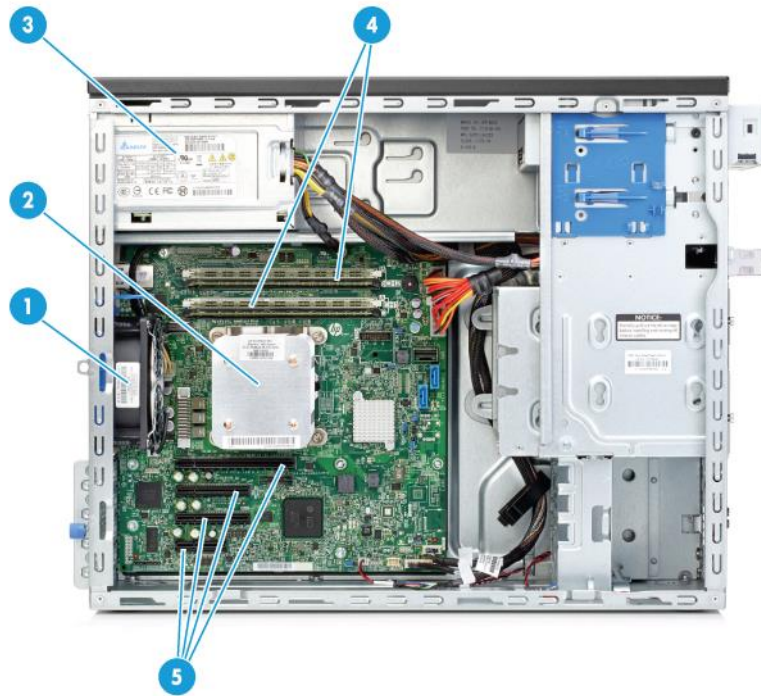

Front View:

1. HDD cage – NHP 4LFF
2. Two (2) USB connectors
3. Half Height SATA DVD-ROM or DVD RW Optical Drive
4. Power Button
5. System Health
6. NIC Activity LED
7. UID LED Button

Rear View:

1. Four (4) PCIe expansion slots
2. VGA connector
3. Two (2) USB 3.0 Connectors
4. NIC Connectors
5. Power Supply
6. Power Supply power connector

Overview

Internal View:

1. System Fans: One NHP fan
2. One (1) processors and Heat sink
3. Power Supply
4. Four (4) DDR3 DIMM slots, shown fully populated in 4 slots
5. Four (4) PCIe expansion slots

Standard Features

Processor One of the following depending on model	**Entry Processors** **NOTE:** All support up to 1333MT/s DDR3 memory speeds. Intel® Pentium® G3240 (3.1GHz/2-core/3MB/54W) **Base Processors** **NOTE:** All support up to 1600MT/s DDR3 memory speeds. Intel® Core™ i3-4150 (3.5GHz/2-core/3MB/54W, HT) **Performance Processors** **NOTE:** All support up to 1600MT/s DDR3 memory speeds. Intel® Xeon® E3-1220v3 (3.1GHz/4-core/8MB/80W) Intel® Xeon® E3-1241v3 (3.5GHz/4-core/8MB/80W, HT)	
Cache Memory One of the following depending on model	8MB (1 x 8MB) L3 Cache **NOTE:** For Quad-core Xeon processors. 3MB (1 x 3MB) L3 Cache **NOTE:** For Dual-core Pentium® Core™ i3 processors.	
Chipset	Intel® C222 Chipset **NOTE:** For more information regarding Intel® chipsets, please see the following URL: http://www.intel.com/products/server/chipsets/.	
Upgradeability	Upgradeable to 4 cores **NOTE:** Total 2 or 4 cores Up to 4 DIMM slots available for higher memory capacity Up to 6 LFF Hard Drive Bays **NOTE:** Requires purchase of HP ML10 v2 Drive Enablement Kit (#812248-B21) 1 x8 and 1 x16 PCIe 3.0 and 1 x8 and 1x4 PCIe 2.0 I/O slots for additional communications and storage expansion Optical Drive Bay (up to 2) **NOTE:** No Optical drive with 6 LFF drive support	
On System Management Processor	HP iLO (Firmware: HP iLO4) **NOTE:** For more information, visit: http://www.hp.com/go/ilo	
Memory Protection	ECC	
Memory One of the following depending on model	Type	HP SmartMemory DDR3 Unbuffered (UDIMM)
	DIMM Slots Available	4
	Maximum Capacity (UDIMM)	32GB (4 x 8GB UDIMM)
	NOTE: HP memory from previous generation servers are not fully compatible with the HP ProLiant ML10 v2 Server. **NOTE:** Depending on the memory configuration and processor model, the memory speed may run at 1600MT/s or 1333MT/s. Please see Memory Population Table or the Online Memory Configuration Tool at: http://www.hp.com/go/ddr3memory-configurator.	
Network Controller	HP Ethernet 1Gb 2-port 332i Adapter	

Standard Features

Expansion Slots

Expansion Slot #	Technology	Bus Width*	Connector Width	Form Factor	Notes
4	PCIe 3.0	X8	X16	Full Length/Full Height	
3	PCIe 3.0	X8	X8	Full Length/Full Height	
2	PCIe 2.0	X1	x8	Full Length/Full Height	
1	PCIe 2.0	X1	X4	Half Length/Full Height	

*Indicates the number of physical electrical lanes running to the connector.

HP Server ROM

HP ROM (Read Only Memory) is now digitally signed using HP's Corporate Signing Service. This signature is verified before the flash process starts, reducing accidental programming and preventing malicious efforts to corrupt system ROM.

HP ROM provides for essential initialization and validation of hardware components before control is passed to the customer-installed operating system. The ROM also provides the capability of booting from various fixed media (HDD, CD-ROM) and removable media (USB), to continue operation to the operating system.

HP ROM performs very early configuration of the video controller, to allow monitoring of initialization progress via an attached monitor. If configuration or hardware errors are discovered during this early phase of hardware initialization, suitable messages are now displayed on the connected monitor. Additionally, these configuration or hardware errors are logged to the Integrated Management Log (IML) to assist in diagnosis.

HP's ProLiant ROM is used to configure the following:

- Processor and chipset status registers
- System memory, memory map, and memory initialization
- System hardware configuration (Integrated PCI devices and optional PCIe cards).
- Customer-specific BIOS configuration (using the HP ROM-Based Setup Utility (RBSU).

NOTE: For further information, please refer to the HP ROM-Based Setup Utility User Guide: http://www.hp.com/support/rbsu.

Storage Controller

HP Dynamic Smart Array B120i Controller
NOTE: Supports up to 6.0Gb/s SATA. (SATA port 0/1 support 6Gb/s and SATA port 2/3 support 3Gb/s)
NOTE: Supports RAID 0/1/10 only. No FBWC support. For FBWC, a standup Smart Array Controller card must be configured.
NOTE: For set up instructions, please refer to the HP ProLiant ML10 v2 series server user guide.
NOTE: For general information about HP Smart Array B120i SATA RAID Controller, please go to: http://h18013.www1.hp.com/products/servers/proliantstorage/arraycontrollers/dynamicsmartarray/index.html

Internal Storage Devices

Optical Drives One of the following depending on model	HP Half-Height SATA DVD-ROM Optical Drive
	HP Half-Height SATA DVD-RW Optical Drive
Hard Drives	
Hard Drive Bays	4 LFF drive bays (non-hot-plug)

Standard Features

	One of the following depending on model	**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 P/N 666986-B21: HP LFF Gen8 Hard Drive Blank Kit.

Maximum Internal Storage One of the following depending on model	Non Hot Plug LFF SATA	24TB	6 x 4TB

Interfaces	Video	1 (rear)
	Network RJ-45 (Ethernet)	2 (1 shared for HP Integrated Lights-Out)
	USB	4 2 front, 2 rear(USB3.0)

Industry Standard Compliance

ACPI 2.0b Compliant

PCIe 3.0 Compliant

PXE Support

WOL Support

Microsoft® Logo certifications

USB 2.0 /3.0 Support

Server Power Cords

The ProLiant ML10v2 server is a tower server that ships standard with a 6' country specific NEMA power cord that allows connection to wall outlets in a home or office. If customers require additional local power cords, they can check the power cord matrix for the appropriate country specific sku. Please see the following power cord matrix: http://www.hp.com/go/powercordmatrix.

Power Specifications

To review typical system power requirements, use the HP Power Advisor which is available via download at URL: http://www.hp.com/go/proliant-energy-efficient or http://www.hp.com/go/hppoweradvisor.

NOTE: Power Specification and Technical Content for supported power supplies can be found at: http://h18000.www1.hp.com/products/quickspecs/14209_div/14209_div.html

Power Supplies

The ML10 v2 supports one power supply, a 350W Multi-Output Power Supply, the 350W Multi-Output Power Supply is a non-redundant power supply with an efficiency rating of 85%.

It is highly recommended that you use the HP Power Advisor in defining the "Right-Size" power supply for your needs. HP Power Advisor can be accessed at: http://www.hp.com/go/hppoweradvisor.

NOTE: The 80 PLUS program is a unique forum that unites electric utilities, the computer industry, and consumers in an effort to bring energy efficient technology solutions to the marketplace. 80 Plus independently tests power supply efficiency and publicly posts the results on http://www.80plus.org/.

NOTE: Power Specification and Technical Content for supported power supplies can be found at: http://h18000.www1.hp.com/products/quickspecs/14209_div/14209_div.html

System Fans

One (1) Non-redundant system fan ships standard

Operating Systems and Virtualization Software Support for ProLiant

Microsoft Windows Server

Canonical Ubuntu

Red Hat Enterprise Linux (RHEL)

QuickSpecs

Standard Features

Servers	SUSE Linux Enterprise Server (SLES)
	VMware
	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/ML10v2.

Graphics

Integrated Matrox G200 video standard

- 1280 x 1024 (32 bpp)
- 1920 x 1200 (16 bpp)

HP iLO 4 On System Management Memory

- 256 MB DDR 3 with ECC (112 MB after ECC and video)

Form Factor
One of the following depending on model

Micro ATX Tower (4U) chassis with feet/bezel:
14.5" (36.82cm) Height x 6.89" (17.5cm) Width x 18.71" (47.52cm) Length

8 SFF Drive Bay Cage:
4.6" (11.72cm) Height x 5.74" (14.57cm) Width x 4.79" (12.16cm) Length

4 LFF Drive Bay Cage:
4.6" (11.72cm) Height x 5.74" (14.57cm) Width x 6.90" (17.54cm) Length

On System Management	HP iLO Management Engine	HP iLO Management Engine is a comprehensive set of embedded management features supporting the complete lifecycle of the server, from initial deployment, through ongoing management, to service alerting and remote support. HP iLO Management Engine comes standard on all HP ProLiant Gen8 servers. The HP iLO Management Engine portfolio includes:

- **HP iLO:** The HP iLO (Integrated Lights-Out) management processor is the core foundation for the HP iLO Management Engine
- **HP Agentless Management:** Provides built in server health monitoring and alerting capability without OS agents, that starts working the moment a power cord and an Ethernet cable are connected.
- **HP iLO Mobile App:** 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

NOTE: For more information, visit: http://www.hp.com/go/ilo or HP iLO Management Engine technologies whitepaper.

HP Insight Management	HP Service Pack for ProLiant (SPP)	HP Service Pack for ProLiant (SPP) and HP Smart Update Manager (HP SUM) provide a comprehensive approach to firmware and system software maintenance. Together they provide better operating stability and ensure maximum uptime. The SPP will be updated at a predictable cadence, typically coinciding with new HP server hardware launches. By enabling firmware to be updated online and integrating firmware and system software updates in one operation, HP SUM and the SPP offer faster updates of individual servers and dramatically faster updates of entire BladeSystem enclosures. Further improving system uptime and stability is

Standard Features

the fact that HP provides 12 months of support for each Service Pack for ProLiant release.

The user experience around HP SUM and the SPP has been improved in several ways, starting with the web download. A single web page provides access to a single download containing both the latest version of HP SUM and the latest SPP. Optional smaller subsets with only specific types of servers or specific operating systems are offered to save on download time. The HP SUM application provides a straightforward, intuitive user interface that guides the user through the steps of discovery, analyses and update, providing comprehensive information on available updates, criticality and interdependencies. This information is also available in reports. By providing the option of multiple local or shared repositories which can be easily updated from hp.com, HP SUM provides the tools to optimize stability and consistency throughout the company. While HP SUM and the SPP recommend the combinations of firmware and system software that HP has found to be the best practice, the application gives customers the flexibility to set their own specific baseline.

The Service Pack for ProLiant has been rigorously tested with specific attention for interaction between firmware, drivers and agents both within the server as well as in interaction with the BladeSystem enclosure components (Onboard Administrator and Virtual Connect). This testing ensures the highest quality as well as providing the input for HP SUM to deploy updates taking into account all interdependencies, when determining the correct updates and order of update deployment.

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 and http://www.hp.com/go/hpsum

Security	Power-on password
	Administrator's password

Warranty	This product is covered by a global limited warranty and supported by HP Services and a worldwide network of HP Authorized Channel Partners resellers. Hardware diagnostic support and repair is available for three years from date of purchase. Support for software and initial setup is available for 90 days from date of purchase. Enhancements to warranty services are available through HP Care Pack services or customized service agreements. Hard drives have either a one year or three year warranty; refer to the specific hard drive QuickSpecs for details.

NOTE: Server Warranty includes 1-Year Parts. 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

Optional Features

HP Insight Management	HP Insight Control	HP Insight Control, a product option, delivers essential infrastructure management that can help save time and money by making it easy to deploy, migrate, monitor, remote control, and optimize your IT infrastructure through a single, simple management console. HP Insight Control also supports Location and Power Discovery Services to automate many configuration, asset tracking, and power management tasks to speed implementation and prevent downtime. For more information, see http://www.hp.com/go/insightcontrol. HP Insight Control includes one year of 24 x 7 HP Software Technical Support and Update Service ensuring rapid access to HP support staff and proactive delivery of software updates. For more information about this service, see: http://www.hp.com/services/insight.
	HP iLO Advanced	HP Integrated Lights-Out Advanced License a product option, providing smart remote server management without compromise. iLO Advanced unlocks the full set of remote administration functionality for all HP ProLiant servers by activating the full Virtual Keyboard Video and Mouse remote console, multi-user collaboration, console record and replay, GUI-based and scripted virtual media and virtual folders, and enhanced security and power management functionality. For more information, see: http://www.hp.com/go/iloadvance
	HP iLO Essentials	HP iLO Essentials license ideal for small and medium business customers. The specially created HP iLO Essentials (a subset of iLO Advanced functionality) saves SMB customers time and money, by ease of remote server set up through the interactive virtual media, lowering operational costs with remote access via the Integrated Remote Console, and faster time to resolution with email-based proactive notifications. With this newly designed HP iLO Essentials license SMB customers now have the option of a server management package solely design and priced just right for their IT environments. HP iLO Essentials is available on all HP ProLiant Gen8 e-series making this an ideal solution for small business owners. For more information, see: http://www.hp.com/go/iLO/essentials

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,

Optional Features

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 turn a set of heterogeneous and disconnected physical disk drives in your servers and storage devices into a single pool of logical storage capacity.

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

HP Insight Online	HP Insight Online is a new addition to the HP Support Center for one stop, secure access to product and HP support information personalized to your IT environment. Insight Online can automatically display devices remotely monitored by HP Insight Remote Support. With Insight Online's easy navigation you can efficiently track your IT support contracts and device status from anywhere and at anytime. http://www.hp.com/go/insightonline
Factory Express Portfolio for Servers and Storage	HP Factory Express offers configuration, customization, integration and deployment services for HP servers and storage products. Customers can choose how their factory solutions are built, tested, integrated, shipped and deployed. Factory Express offers service packages for simple configuration, racking, installation, complex configuration and design services as well as individual factory services, such as image loading, asset tagging, and custom packaging. HP products supported through Factory Express include a wide array of servers and storage: HP Integrity, HP ProLiant, HP ProLiant Server Blades, HP BladeSystem, HP 9000 servers as well as the MSAxxxx, VA7xxx, EVA, XP, rackable tape libraries and configurable network switches. For more information on Factory Express services for your specific server model please contact your sales representative or go to: http://www.hp.com/go/factory-express
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	**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
Basic Care	**Delivers minimum recommended support service level** **Foundation Care NBD, three-year Care Pack Service** HP Foundation Care Next Business Day connects you to HP during business hours for assistance on resolving issues – features next business day hardware onsite response if needed and software call back within two hours. Collaborative software support is included and provides troubleshooting assistance on industry leading software running on your server. Simplify your support experience and make HP your first call for hardware or software questions. http://h20195.www2.hp.com/V2/GetDocument.aspx?docname=4AA4-8876ENW&cc=us&lc=en
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: http://www.hp.com/go/proactiveinsightexperience
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**

QuickSpecs

HP ProLiant ML10 v2 Server

Service and Support

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

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.
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 and HP BladeSystem servers, please contact your HP sales representative or HP Authorized Channel Partner. Or visit: http://www.hp.com/services/proliant

Pre-configured Models

NOTE: Pre-configured models ship with the configurations below. Options can be selected from the Core or Additional options section of this QuickSpecs.
NOTE: HP does not allow factory integration of options into pre-configured models. Any additional options purchased will be shipped separately.
NOTE: Maximum speed supported depends on the CPU installed.
Please see Memory Population Table or the Online Memory Configuration Tool at: http://www.hp.com/go/ddr3memory-configurator.
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 P/N 666986-B21: HP LFF Gen8 Hard Drive Blank Kit.
NOTE: Not all models are available in all regions. Check with your local country HP offices for availability.

Entry Models

HP ProLiant ML10 v2 G32401P 4GB-U NHP 4 LFF 350W PS Entry Svr
814483-xx1

Processor(s)	(1) Intel® PentiumG3240 (3.1GHz/2-core/3MB/54W, HT) Processor
Cache Memory	3MB (1 x 3MB) L3 cache
Memory	4GB (1 x 4GB) PC3-12800E DDR3 UDIMM
Network Controller	HP Ethernet 1Gb 2-port 332i Adapter
Storage Controller	HP Dynamic Smart Array B120i Controller
Hard Drive	None
Internal Storage	4 LFF SATA HDD cage; includes 4 LFF hard drive blanks
Optical Drive	None
Power Supply	HP 350W Multi-Output Power Supply
Fans	One (1) Non-redundant system fan ships standard
Management	HP iLO Management Engine (standard on system NIC) Optional: HP iLO Essentials or HP Insight Control
Form Factor	Micro ATX Tower (4U)
Warranty	Server Warranty includes 1-Year Parts.

NOTE: Server model PN (812126-375) available in Asia Pacific only.

HP ProLiant ML10 v2 G32401P 4GB-U NHP 4 LFF 350W PS Entry Svr
812126-375

Processor(s)	(1) Intel® PentiumG3240 (3.1GHz/2-core/3MB/54W, HT) Processor
Cache Memory	3MB (1 x 3MB) L3 cache
Memory	4GB (1 x 4GB) PC3-12800E DDR3 UDIMM
Network Controller	HP Ethernet 1Gb 2-port 332i Adapter
Storage Controller	HP Dynamic Smart Array B120i Controller
Hard Drive	None
Internal Storage	4 LFF SAS/SATA HDD cage; includes 4 LFF hard drive blanks
Optical Drive	None
Power Supply	HP 350W Multi-Output Power Supply
Fans	One (1) Non-redundant system fan ships standard
Management	HP iLO Management Engine (standard on system NIC) Optional: HP iLO Essentials or HP Insight Control
Form Factor	Micro ATX Tower (4U)
Warranty	Server Warranty includes 1-Year Parts

NOTE: Server model PN (814484-xx1) not available in EMEA.

HP ProLiant ML10 v2 G32401P 4GB-U B120i NHP

Processor(s)	(1) Intel® PentiumG3240 (3.1GHz/2-core/3MB/54W, HT)Processor
Cache Memory	3MB (1 x 3MB) L3 cache

Pre-configured Models

4LFF 1x1TB 350W PS Entry Server 814484-xx1	**Memory**	4GB (1 x 4GB) PC3-12800E DDR3 UDIMM
	Network Controller	HP Ethernet 1Gb 2-port 332i Adapter
	Storage Controller	HP Dynamic Smart Array B120i Controller
	Hard Drive	1x1TB SATA drive and 3 LFF hard drive blanks
	Internal Storage	4 LFF SATA HDD cage
	Optical Drive	None
	Power Supply	HP 350W Multi-Output Power Supply
	Fans	One (1) Non-redundant system fan ships standard
	Management	HP iLO Management Engine (standard on system NIC) Optional: HP iLO Essentials or HP Insight Control
	Form Factor	Micro ATX Tower (4U)
	Warranty	Server Warranty includes 1-Year Parts

NOTE: Server model PN (812127-375) available in Asia Pacific only.

HP ProLiant ML10 v2 G32401P 4GB-U B120i NHP 4LFF 1x1TB 350W PS Entry Server 812127-375	**Processor(s)**	(1) Intel® PentiumG3240 (3.1GHz/2-core/3MB/54W, HT)Processor
	Cache Memory	3MB (1 x 3MB) L3 cache
	Memory	4GB (1 x 4GB) PC3-12800E DDR3 UDIMM
	Network Controller	HP Ethernet 1Gb 2-port 332i Adapter
	Storage Controller	HP Dynamic Smart Array B120i Controller
	Hard Drive	1x1TB SATA drive and 3 LFF hard drive blanks
	Internal Storage	4 LFF SAS/SATA HDD cage
	Optical Drive	None
	Power Supply	HP 350W Multi-Output Power Supply
	Fans	One (1) Non-redundant system fan ships standard
	Management	HP iLO Management Engine (standard on system NIC) Optional: HP iLO Essentials or HP Insight Control
	Form Factor	Micro ATX Tower (4U)
	Warranty	Server Warranty includes 1-Year Parts

Base Models

HP ProLiant ML10 v2 i3 4150 1P 4GB-U B120i 350W PS Svr 814485-xx1	**Processor(s)**	(1) Intel® Core™ i3-4150 (3.5GHz/2-core/3MB/54W, HT)Processor
	Cache Memory	3MB (1 x 3MB) L3 cache
	Memory	4GB (1 x 4GB) PC3-12800E DDR3 UDIMM
	Network Controller	HP Ethernet 1Gb 2-port 332i Adapter
	Storage Controller	HP Dynamic Smart Array B120i Controller
	Hard Drive	1x1TB SATA drive and 3 LFF hard drive blanks
	Internal Storage	4 LFF SATA HDD cage
	Optical Drive	None
	Power Supply	HP 350W Multi-Output Power Supply
	Fans	One (1) Non-redundant system fan ships standard
	Management	HP iLO Management Engine (standard on system NIC) Optional: HP iLO Essentials or HP Insight Control
	Form Factor	Micro ATX Tower (4U)
	Warranty	Server Warranty includes 1-Year Parts.

Pre-configured Models

Performance Models

NOTE: Server model PN (812129-375) available in Asia Pacific only.

HP ProLiant ML10 v2 E3-1220v3 1P 4GB-U B120i 350W PS Svr 812129-375		
	Processor(s)	(1) Intel® Xeon® E3-1220v3 (3.1GHz/4-core/8MB/80W) Processor
	Cache Memory	3MB (1 x 3MB) L3 cache
	Memory	4GB (1 x 4GB) PC3-12800E DDR3 UDIMM
	Network Controller	HP Ethernet 1Gb 2-port 332i Adapter
	Storage Controller	HP Dynamic Smart Array B120i Controller
	Hard Drive	1x1TB SATA drive and 3 LFF hard drive blanks
	Internal Storage	4 LFF SATA HDD cage
	Optical Drive	None
	Power Supply	HP 350W Multi-Output Power Supply
	Fans	One (1) Non-redundant system fan ships standard
	Management	HP iLO Management Engine (standard on system NIC) Optional: HP iLO Essentials or HP Insight Control
	Form Factor	Micro ATX Tower (4U)
	Warranty	Server Warranty includes 1-Year Parts.

NOTE: Server model PN (812130-375) available in Asia Pacific only.

HP ProLiant ML10 v2 E3-1220v3 1P 8GB-U B120i 350W PS Svr 812130-375		
	Processor(s)	(1) Intel® Xeon® E3-1220v3 (3.1GHz/4-core/8MB/80W) Processor
	Cache Memory	3MB (1 x 3MB) L3 cache
	Memory	8GB (1 x 8GB) PC3-12800E DDR3 UDIMM
	Network Controller	HP Ethernet 1Gb 2-port 332i Adapter
	Storage Controller	HP Dynamic Smart Array B120i Controller
	Hard Drive	1x1TB SATA drive and 3 LFF hard drive blanks
	Internal Storage	4 LFF SATA HDD cage
	Optical Drive	None
	Power Supply	HP 350W Multi-Output Power Supply
	Fans	One (1) Non-redundant system fan ships standard
	Management	HP iLO Management Engine (standard on system NIC) Optional: HP iLO Essentials or HP Insight Control
	Form Factor	Micro ATX Tower (4U)
	Warranty	Server Warranty includes 1-Year Parts.

Country Code Key	**Tower Code Key**
xx=00	US
xx=01	Australia
xx=03	UK
xx=37	APD
xx=42	Europe
xx=AA	PRC

Core Options

HP Unique Options	HP ML10v2 Drive Enablement Kit	812248-B21

HP Memory	**Unbuffered with ECC DIMMs (UDIMMs)** **NOTE:** The following memory is supported by the E3-1200 series Processors	
	HP 4GB (1x4GB) Dual Rank x8 PC3-12800E (DDR3-1600) Unbuffered CAS-11 Memory Kit	669322-B21
	HP 4GB (1x4GB) Single Rank x4 PC3-12800E (DDR3-1600) Unbuffered CAS-11 Memory Kit	820077-B21
	HP 8GB (1x8GB) Dual Rank x8 PC3-12800E (DDR3-1600) Unbuffered CAS-11 Memory Kit	669324-B21
	HP 8GB (1x8GB) Dual Rank x8 PC3-12800E (DDR3-1600) Unbuffered CAS-11 Memory Kit	815371-B21

HP Optical Drives	HP Half-Height SATA DVD ROM JackBlack Optical Drive	624189-B21
	HP Half-Height SATA DVD RW JackBlack Optical Drive	624192-B21

HP Hard Drives	**NOTE:** 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. **NOTE:** Hard drives have either a one year or three year warranty; refer to the specific hard drive QuickSpecs for details.	
	6G SATA Non-hot Plug LFF (3.5-inch) Midline (MDL) Drives	
	HP 3TB 6G SATA 7.2K rpm LFF (3.5-inch) Non-hot plug Midline 1yr Warranty Hard Drive	628065-B21
	HP 2TB 6G SATA 7.2K rpm LFF (3.5-inch) Non-hot plug Midline 1yr Warranty Hard Drive	659339-B21
	HP 1TB 6G SATA 7.2K rpm LFF (3.5-inch) Non-hot plug Midline 1yr Warranty Hard Drive	659337-B21
	HP 500GB 6G SATA 7.2K rpm LFF (3.5-inch) Non-hot plug Midline 1yr Warranty Hard Drive	659341-B21
	6G SATA Non-hot Plug LFF (3.5-inch) Entry (ETY) Drives	
	HP 500GB 6G SATA 7.2K rpm LFF (3.5in) Non-hot Plug Entry 512e 1yr Warranty Hard Drive	815612-B21
	HP 1TB 6G SATA 7.2K rpm LFF (3.5in) Non-hot Plug Entry 512e 1yr Warranty Hard Drive	815614-B21
	HP 2TB 6G SATA 7.2K rpm LFF (3.5in) Non-hot Plug Entry 512e 1yr Warranty Hard Drive	815631-B21
	HP 3TB 6G SATA 7.2K rpm LFF (3.5in) Non-hot Plug Entry 512e 1yr Warranty Hard Drive	815633-B21
	HP 4TB 6G SATA 5.9K rpm LFF (3.5in) Non-hot Plug Entry 512e 1yr Warranty Hard Drive	815635-B21
	NOTE: Maximum supported lifetime/maximum usage: Parts and components that have exceeded their maximum supported lifetime and/or the maximum usage limitations as set forth in the manufacturer's operating manual, product QuickSpecs, or the technical product data sheet will not be provided, repaired, or replaced as part of this service. **NOTE:** Data Retentive components that are specified by HP as consumable parts	

Core Options

and/or that have exceeded the maximum supported lifetime and/or the maximum usage limit as set forth in the manufacturer's operating manual, the product QuickSpecs, or the technical data sheet are not eligible for the defective media retention or the comprehensive defective material retention service feature option.

NOTE: Please see the QuickSpecs for Technical Specifications and additional information:
http://h18000.www1.hp.com/products/quickspecs/13021_div/13021_div.html (Worldwide)

Hard Drive Kits
NOTE: All Factory Integrated Models will be populated with sufficient hard drive blanks based on the number of initial hard drives ordered with the server.
NOTE: The part numbers for single HDD blanks below are provided should the customer require replacement HDD blanks for their server

HP Large Form Factor Hard Drive Blank Kit	666986-B21

HP Networking	**Gigabit Ethernet adapters**	
	HP Ethernet 1Gb 4-port 331T Adapter	647594-B21
	HP Ethernet 1Gb 2-port 332T Adapter	615732-B21
	HP Ethernet 1Gb 2-port 361T Adapter	652497-B21
	Switches	
	HP PS110 Wireless 802.11n VPN AM Router	JL065A
	HP PS110 Wireless 802.11n VPN WW Router	JL066A

NOTE: HP PS110 Wireless VPN Router Series deliver high-performance internet access and wired/wireless connectivity for offices and remote/mobile employees.
NOTE: Please see the QuickSpecs for Technical Specifications and additional information:
http://www8.hp.com/h20195/v2/Gethtml.aspx?docname=c04519011 (Worldwide)

HP PS1810-8G Switch	J9833A
HP PS1810-24G Switch	J9834A

NOTE: Please see the QuickSpecs for Technical Specifications and additional information:
http://h18004.www1.hp.com/products/quickspecs/14586_div/14586_div.html (Worldwide)

HP Computation and Graphics Accelerators	NVIDIA Quadro K2000 PCIe Graphics Adapter	753959-B21

Additional Options

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

HP Insight Software	**HP Insight Control**	
	HP Insight Control including 1yr 24x7 Technical Support and Updates Single Server License	C6N27A
	HP Insight Control including 1yr 24x7 Technical Support and Updates Electronic License	C6N28ABE
	NOTE: The Electronic software license is available in EMEA only.	
	HP Insight Control Server Provisioning Media Kit	BD883A
	HP Insight Management Media Kit	C6N31A

NOTE: Electronic and Flexible-Quantity licenses can be used to purchase multiple licenses with a single activation key.
NOTE: Customer will receive a license entitlement certificate. The license entitlement certificate must be redeemed online or via fax in order to obtain the license activation key(s). Includes one year of 24 x 7 HP Software Technical Support and Update Service.
NOTE: Licenses ship without media. The HP Insight Control Media Kit can be ordered separately, or can be downloaded at: http://www.hp.com/go/insightupdates.
NOTE: For additional license options please see the QuickSpecs at:
http://h18000.www1.hp.com/products/quickspecs/12631_div/12631_div.html

HP Integrated Lights-Out (iLO)

HP iLO Essentials

HP Integrated Lights-Out Essentials including 3yr 24x7 Technical Support and Updates E-LTU		E6U61ABE
NOTE: The Electronic software license is available in EMEA only.		
HP Integrated Lights-Out Essentials including 1yr 24x7 Technical Support and Updates E-LTU		E6U62ABE
NOTE: The Electronic software license is available in EMEA only.		
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 (iLO) Advanced for ProLiant

HP iLO Advanced including 1yr 24x7 Technical Support and Updates E-LTU	E6U59ABE
NOTE: The Electronic software license is available in EMEA only.	
HP iLO Advanced including 3yr 24x7 Technical Support and Updates E-LTU	E6U64ABE
NOTE: The Electronic software license is available in EMEA only.	
HP iLO Advanced including 1yr 24x7 Technical Support and Updates Single Server License	512485-B21
HP iLO Advanced 1 Server License with 3yr 24x7 Tech Support and Updates	BD505A
HP iLO Advanced Flexible Qty License with 3yr 24x7 Tech Support and Updates	BD506A
HP iLO Advanced Tracking License with 3yr 24x7 Tech Support and Updates	BD507A
HP iLO Advanced including 1yr 24x7 Technical Support and Updates Flexible Quantity License	512486-B21
HP iLO Advanced including 1yr 24x7 Technical Support and Updates Tracking License	512487-B21

NOTE: For additional license kits, including electronic delivery options, please see the QuickSpecs at:
http://h18004.www1.hp.com/products/quickspecs/14276_div/14276_div.html
NOTE: For more information, visit: http://www.hp.com/go/ilo.

Additional Options

HP Security	HP Trusted Platform Module Option	488069-B21
	NOTE: The TPM (Trusted Platform Module) is a microcontroller chip that can securely store artifacts used to authenticate the server platform. These artifacts can include passwords, certificates and encryption keys. Windows® BitLocker™ Drive Encryption (BitLocker) is a data protection feature available in Windows Server® 2008. BitLocker leverages the enhanced security capabilities of a Trusted Platform Module (TPM) version 1.2. The TPM works with BitLocker to help protect user data and to ensure that a server running Windows Server 2008 has not been tampered with while the system was offline. For more information about TPM, including a white paper, go to: http://www.hp.com/go/TPM.	
	NOTE: ProLiant OS pre-installed units will come with the partition required for TPM deployment.	
	NOTE: The TPM key is unique to every TPM deployed server and must be retained. Misplacing or losing the key could result in data loss.	
HP Storage Controllers	**HP Host Bus Adapters**	
	HP H220 Host Bus Adapter	650933-B21
	HP H221 PCIe 3.0 SAS Host Bus Adapter	729552-B21
	NOTE: Please see the QuickSpecs for Technical Specifications and additional information: http://h18004.www1.hp.com/products/quickspecs/14336_div/14336_div.html (HBA H220) http://h18004.www1.hp.com/products/quickspecs/14222_div/14222_div.html (HBA H221)	
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.	
	SAS Rack-Mount Tape Solutions	
	HP StoreEver LTO-6 Ultrium 6650 SAS External Tape Drive	EH964A
	HP StoreEver LTO-6 Ultrium 6250 Tape Drive in 1U Rack-mount Kit	C0L99A
	HP StoreEver LTO-6 Ultrium 6250 Internal Tape Drive	EH969A
	HP StoreEver LTO-6 Ultrium 6250 External Tape Drive	EH970A
	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 3280 SAS Tape Drive in 3U Rack-mount	EJ013B
	HP StoreEver LTO-5 Ultrium 3280 SAS External Tape Drive	EH900B
	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-3 Ultrium 920 SAS External Tape Drive	EH848B
	HP StoreEver 1U SAS Rack-mount Kit	AE459B
	HP DAT Autoloader	
	HP StoreEver 1/8 G2 LTO-6 Ultrium 6250 FC Tape Autoloader	C0H19A
	HP MSL2024 Tape Library	
	HP MSL2024 0-Drive Tape Library	AK379A
	HP MSL4048 Tape Library	

Additional Options

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

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

HP Disk Backup	**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 RDX Removable Disk Backup System	
	HP RDX320 USB3.0 External Disk Backup System	B7B63A
	HP RDX500 USB3.0 Internal Disk Backup System	B7B64A
	HP RDX500 USB 3.0 External Disk Backup System	B7B66A
	HP RDX+ 500GB External Backup System	B7B66B
	HP RDX1000 USB3.0 Internal Disk Backup System	B7B67A
	HP RDX1000 USB 3.0 External Disk Backup System	B7B69A
	HP RDX 2TB USB3.0 External Disk Backup System	E7X53A
	HP RDX 2TB USB3.0 External Disk Backup System	E7X53B
	HP RDX+ 1TB External Backup System	B7B69B
	HP RDX+ External Docking System	C8S07B
	HP D3700 Enclosure	QW967A
	HP D3600 Enclosure	QW968A

NOTE: Please see the QuickSpecs for additional part numbers, Technical Specifications, and additional information:
http://h18000.www1.hp.com/products/quickspecs/13036_div/13036_div.html (Worldwide)

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

NOTE: Please see the QuickSpecs for Technical Specifications and additional information:
http://h18000.www1.hp.com/products/quickspecs/13404_div/13404_div.html (Worldwide)

HP KVM Switches	HP USB Remote Access Key for G3 KVM Console Switches	AF650A
	HP 0x1x8 G3 KVM Console Switch	AF651A
	HP 0x2x16 G3 KVM Console Switch	AF652A

Additional Options

HP TAA 0x2x16 G3 KVM Console Switch	AF653A
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
HP Other Options	
HP Advanced Power Manager Kit	741192-B21
HP ConvergedSystem Door Branding Kit	TK815A
HP ConvergedSystem Rack Light Kit	TK816A
HP ConvergedSystem Rack Side Panel 1075mm Kit	TK817A

HP Uninterruptible Power Systems (UPS)	**HP DirectFlow Three Phase UPS**	
	Power Unit (1U UPS)	
	NOTE: #0D1 will appear after the part number on the sales order if HP factory integration is indicated.	
	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	
	NOTE: Choose one I/O Module per UPS. **NOTE:** #0D1 will appear after the part number on the sales order if HP factory integration is indicated.	
	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
	HP DirectFlow UPS Management Card	AF493A
	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

Additional Options

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

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 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 Tower UPS

HP T1000 G3 UPS Models

HP T1000 G3 1000VA INTL Tower Uninterruptible Power System	AF449A
HP T1000 G3 1000VA NA Tower Uninterruptible Power System	AF448A
HP T1000J JP Uninterruptible Power System	AF457A

HP T1500 G3 UPS Models

HP T1500 G3 1400VA INTL Tower Uninterruptible Power System	AF451A
HP T1500 G3 1400VA NA Tower Uninterruptible Power System	AF450A
HP T1500J JP Uninterruptible Power System	AF458A

HP Rack-mountable UPS

HP R1500 G3 Uninterruptible Power Supply (UPS)

HP R1.5kVA G3 1U INTL Uninterruptible Power System	AF471A
HP R1.5kVA G3 1U NA Uninterruptible Power System	AF469A
HP R1.5kVA G3 1U JP/TW Uninterruptible Power System	AF470A

HP R1500 G4 Uninterruptible Power Supply (UPS)

Additional Options

HP R1500 G4 NA Uninterruptible Power System	J2Q99A
HP R1500 G4 INTL Uninterruptible Power System	J2R03A
HP R1500 G4 JP/TWN Uninterruptible Power System	J2R05A
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
R5000 Uninterruptible Power System (UPS)	
HP R5000 3U IEC309-32A High Voltage INTL Uninterruptible Power System	AF461A
HP R5000 3U L630 High Voltage NA/JP Uninterruptible Power System	AF460A
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
Expansion Upgrade for HP RPS36000/3	
HP RP12000/3 12000VA Three Phase INTL 6U Rackmount Uninterruptible Power System	AF437A
HP UPS Options	
HP R/T2200 G4 Extended Runtime Module	J2R09A
HP R/T3000 G4 Extended Runtime Module	J2R10A
HP 2U Rack/Tower UPS Shipping Kit	L4Q11A

NOTE: Please see the HP Line Interactive Single Phase UPS QuickSpecs for information on additional options and product specifications.

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

NOTE: For additional information on sizing your server, please reference: http://www.upssizer.com.

NOTE: Please see the UPS and PDU cable matrix's on the HP Power Protection and Management page. Under Power Cords, click on the "HP Power Cord Matrix" link. That link will list cable descriptions, requirements, and specifications for UPS and PDU units. Please see the following link: http://www.hp.com/products/powercords.
NOTE: For additional information on HP Uninterruptible Power Systems please go to: http://www.hp.com/servers/rackups.

HP Basic Power Distribution Units (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

Additional Options

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 13.2kVA 480 Volt IEC309 30A 3-Phase Input (15 Outlet) NA Basic PDU	H3X07A
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 8.6kVA 24A Three Phase NA/JP Modular Power Distribution Unit	AF512A
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 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 11kVA 16A Three Phase INTL Modular Power Distribution Unit	AF513A
HP 22kVA 32A Three Phase INTL Core Modular Power Distribution Unit	AF518A

NOTE: Please see the QuickSpecs for Technical Specifications and additional information:
http://h18000.www1.hp.com/products/quickspecs/14557_div/14557_div.html (Worldwide)

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

HP Remote Monitored Power Distribution Units (mPDU)	
HP Remote Monitored Power Distribution Unit: 1U Version	
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 Remote Monitored Power Distribution Unit: Half Height Version	
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 Remote Monitored Power Distribution Unit: Mid Height Version	
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 Remote Monitored Power Distribution Unit: Full Height Version	
HP 8.3kVA 208 Volt CS8265C Input (30xC13/3xC19) NA Monitored PDU	D9N49A

Additional Options

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 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 22kVA 400 Volt IEC309 32A 3-Phase Input (12xC13/12xC19) INTL Monitored PDU	D9N60A
HP 22kVA 400 Volt IEC309 32A 3-Phase Input (30xC13/3xC19) INTL Monitored PDU	D9N56A
HP 16.6kVA 400 Volt IEC309 30A 3-Phase Input (12xC13/12xC19) NA Monitored PDU	D9N62A
HP 19.9kVA 480 Volt 3-Phase (30 Outlet) NA Monitored PDU	D9N63A
HP 17.3kVA 208 Volt IEC309 60A 3-Phase Watertight Input (12xC13/12xC19) NA/JP Monitored PDU	G9Z07A
HP 22kVA 400 Volt IEC309 32A 3-Phase Watertight Input (12xC13/12xC19) INTL Monitored PDU	G9Z08A
HP Environmental Sensor for Remote Monitored PDUs	
HP Environmental Sensor for Remote Monitored and Managed PDUs	E2D53A
NOTE: Please see the QuickSpecs for additional information: http://h18000.www1.hp.com/products/quickspecs/14669_div/14669_div.html (Worldwide)	

HP Intelligent Power Distribution Units (iPDU)	**iPDU Core Units**	
	HP 4.9kVA 24A Single Phase NA/JP Core Intelligent Modular Power Distribution Unit	AF520A
	HP 8.3kVA 40A Single Phase NA/JP Core Intelligent Modular Power Distribution Unit	AF521A
	HP 8.6kVA 24A Three Phase NA/JP Core Intelligent Modular Power Distribution Unit	AF522A
	HP 14.4kVA 40A Three Phase NA/JP Intelligent Modular Power Distribution Unit	AF533A
	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
	iPDU Kits with Standard Extension Bars	
	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 7.3kVA 32A Single Phase INTL Intelligent Modular Power Distribution Kit	AF534A
	iPDU Extension Bars	
	HP 5xC13 Intelligent PDU Extension Bar G2 Kit	AF547A

Additional Options

	HP 5xC13 Outlets Power and UID LEDs Pair Standard Extension Bar	AF528A
	NOTE: Please see the QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/13650_div/13650_div.html (Worldwide)	
HP Managed Power Distribution Units (maPDU)	**Half Height Models**	
	HP 3.6kVA 200-240 Volt Detachable C20 Input (7xC13/1xC19) WW Managed PDU	H8B49A
	Full Height Models	
	HP 2.8kVA 120 Volt L5-30 Input (24x NEMA 5-20) NA/JP Managed PDU	H8B48A
	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 QuickSpecs for Technical Specifications and additional information: http://www8.hp.com/h20195/v2/GetHtml.aspx?docname=c04376673 (Worldwide)	
HP Rack Options	**HP Location Discovery Services**	
	HP Location Discovery Services LCD8500 Kit	TL052A
	NOTE: Please see the HP Location Discovery Services QuickSpecs for information on additional options and product specifications.	
	HP LCD8500 1U Rackmount Console Kit Models	
	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 LCD8500 1U Rackmount Console Kit Options	
	HP Kit LCD 1.83m Latch Display Port Cable	G7T29A
	HP Rack LED Light Kit	BW939A
	NOTE: Please see the HP Rack Console QuickSpecs for information on additional options and product specifications.	
	HP 1U Rackmount Keyboard with USB	
	HP 1U US Rackmount Keyboard with USB	AG072A
	HP 1U INT Rackmount Keyboard with USB	AG086A
	NOTE: Please see the HP 1U Rackmount Keyboard with USB QuickSpecs for information on additional options and product specifications.	
	HP USB Keyboard and Mouse	

Additional Options

HP USB BFR with PVC Free US Keyboard/Mouse Kit	631341-B21
HP USB BFR with PVC Free PT Keyboard/Mouse Kit	672097-133
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 Intl Keyboard/Mouse Kit	672097-B33
HP USB BFR with PVC Free IN Keyboard/Mouse Kit	672097-D63
HP USB BFR with PVC Free KR Keyboard/Mouse Kit	672097-KD3

NOTE: Please see the HP USB Keyboard and Mouse QuickSpecs for information on additional options and product specifications.

HP USB and SD Options	**HP Flash Media Kits for USB Drives**	
	HP 8GB USB Enterprise Mainstream Flash Media Drive Key Kit	737953-B21
	HP Enterprise Mainstream Flash Media Kits for Memory Cards	
	HP 8GB microSD Enterprise Mainstream Flash Media Kit	726116-B21

NOTE: Please see the HP Flash Media Kits QuickSpecs for information on additional options and product specifications.

HP Care Pack Services	**Proactive Care**	
	HP 3 year 24x7 ML10v2 Proactive Care Service	U0SC5E
	HP 3 year 24x7 with Defective Media Retention ML10v2 Proactive Care Service	U0SC6E
	HP 3 year 24x7 w/ComprehensiveDefectiveMaterialRetention ML10v2 Proactive Care Service	U0SC7E
	Foundation Care	
	HP 3 year Next business day ML10v2 Foundation Care Service	U2GU0E
	HP 3 year Next business day w/Defective Media Retention ML10v2 Foundation Care Service	U2GU1E
	HP 3 year Next business day w/ComprehensiveDefectiveMaterialRetention ML10v2 Foundation Care Service	U2GU2E
	HP 3 year 24x7 ML10v2 Foundation Care Service	U2GU3E
	HP 3 year 24x7 with Defective Media Retention ML10v2 Foundation Care Service	U2GU4E
	HP 3 year 24x7 w/Comprehensive Defective Material Retention ML10v2 Foundation Care Service	U2GU5E

Installation Services
NOTE: Reduce the time required to get your system up and running and help minimize disruptions to your business.

HP Install ProLiant ML110 Service	U4444E

NOTE: For more information, customer/resellers can contact:
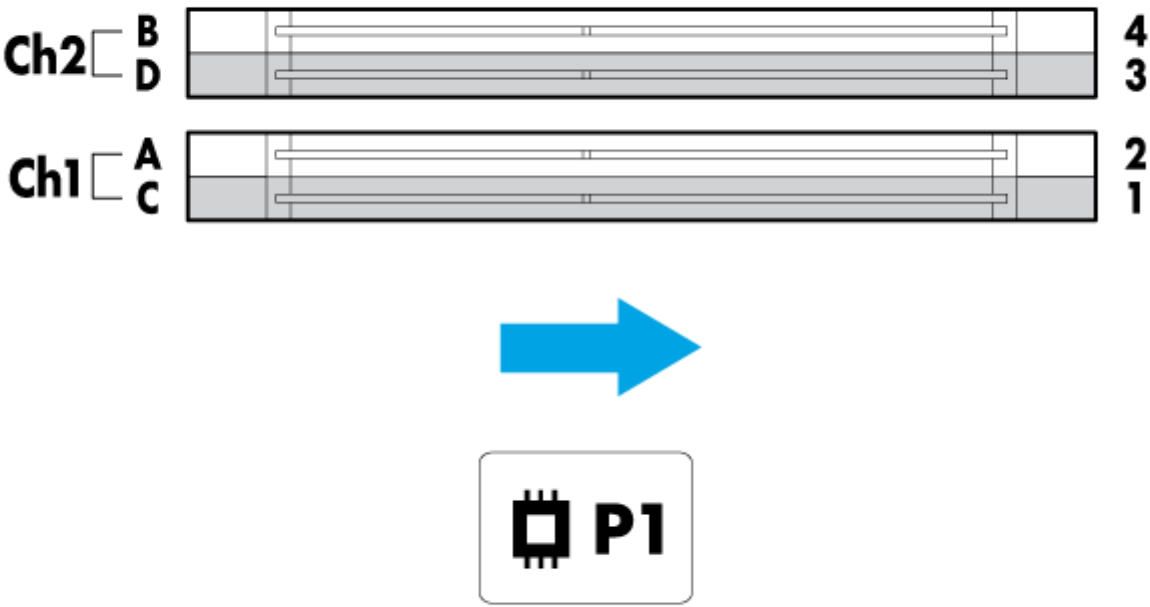http://www.hp.com/services/carepack

Memory

NOTE: Memory configurations listed do not apply to "Factory Integrated Models".

HP SmartMemory

New HP SmartMemory now provides additional protection for your servers. With HP Authentication it can verify that you have true HP Qualified Memory in your HP ProLiant Gen8 server.

DDR3 memory population guidelines

For detailed memory configuration rules and guidelines, please use the Online DDR3 Memory Configuration Tool:

http://www.hp.com/go/ddr3memory-configurator

General Guidelines:

- The HP ProLiant ML10 v2 Server has four memory slots
- There are two channels per server with two DIMM slots per channel
- Memory channel 1 consists of the two (2) DIMMs that are closest to the processor
- Memory channel 2 consists of the two (2) DIMMs that are furthest from the processor
- Different types of processors have different types of memory support.
- Support for single/dual-rank 1333/1600 MT/s ECC UDIMM (unbuffered DIMMS)
- The server supports up to 32GB (4 x 8-GB) for Unbuffered DIMMs
- No support for LRDIMMs; RDIMMs; Non-ECC UDIMMs
- Do not install DIMMs if the processor is not installed
- Populate DIMMs from heaviest load (double-rank) to lightest load (single-rank)
- Non-ECC DIMMs are not supported
- Always use HP qualified DIMMs

ML10 v2 Supported Memory Bandwidth and Capacity

DIMM Type	Unbuffered with ECC DIMMs (UDIMMs)							
DIMM Rank				Single Rank (1R)	Dual Rank (2R)			
DIMM Capacity				4GB	4GB	4GB	8GB	8GB	8GB

Memory

DIMM Native Speed (MT/s)				1333	1600	1600	1333	1600	1600
Voltage				LV	Std	LV	LV	Std	LV
SLOTS THAT CAN BE POPULATED									
4 slot servers				4	4	4	4	4	4
MAXIMUM CAPACITY (GB)*									
				16	16	16	32	32	32
POPULATED DIMM SPEED (MT/s)									
1 DIMM Per Channel				1333	1600	1600	1333	1600	1600
2 DIMM Per Channel				1333**	1600	1600	1333**	1600	1600

NOTE: Memory speed is a function of the processor QPI bus speed. To realize the performance memory capabilities listed above HP SmartMemory is required.

* Maximum capacity will vary based on individual server platform qualification schedule.

** For HP SmartMemory, UDIMM is supported at 2DPC@1333 at 1.35V. Third party memory may only support up to 2DPC@1066 at 1.5V.

Memory		Slot			
		DIMM1C	**DIMM2A**	**DIMM3D**	**DIMM4B**
Standard (Performance Model)	**8GB**	Empty	8GB	Empty	Empty
Maximum	**32GB**	8GB	8GB	8GB	8GB

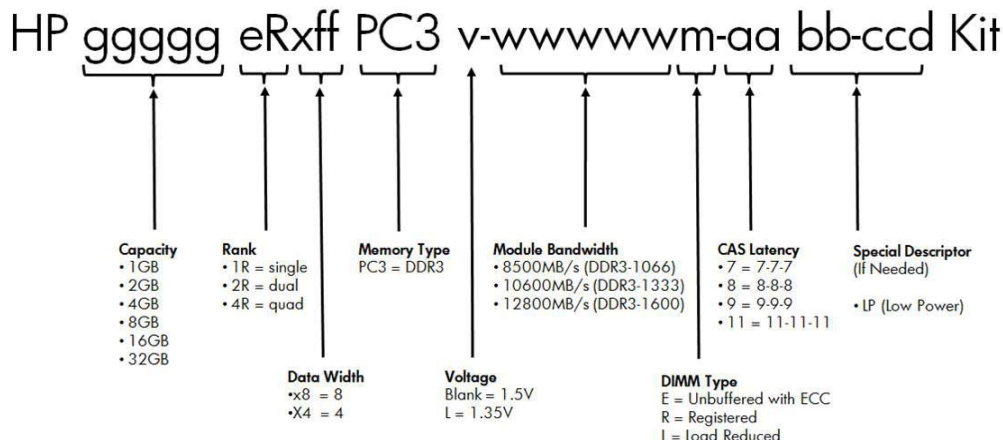| Memory Speed by Processor Model	
Processor Models	Supported Memory Speeds
E3-1220v3, E3-1230v3, E3-1240v4, E3-1270v3	1600/1333

NOTE: Capacity references are rounded to the common Gigabyte values.

- 2GB = 2048MB
- 4GB = 4096MB
- 8GB = 8192MB

DDR3 memory options part number decoder

QuickSpecs

Memory

HP ggggg eRxff PC3 v-wwwwwm-aa bb-ccd Kit

Capacity	Rank	Memory Type	Module Bandwidth	CAS Latency	Special Descriptor
• 1GB	• 1R = single	PC3 = DDR3	• 8500MB/s (DDR3-1066)	• 7 = 7-7-7	(If Needed)
• 2GB	• 2R = dual		• 10600MB/s (DDR3-1333)	• 8 = 8-8-8	
• 4GB	• 4R = quad		• 12800MB/s (DDR3-1600)	• 9 = 9-9-9	• LP (Low Power)
• 8GB				• 11 = 11-11-11	
• 16GB					
• 32GB					

Data Width
•x8 = 8
•X4 = 4

Voltage
Blank = 1.5V
L = 1.35V

DIMM Type
E = Unbuffered with ECC
R = Registered
L = Load Reduced

Following are memory options available from HP:

HP Memory	Unbuffered with ECC DIMMs (UDIMMs)	
	HP 4GB (1x4GB) Dual Rank x8 PC3-12800E (DDR3-1600) Unbuffered CAS-11 Memory Kit	669322-B21
	HP 4GB (1x4GB) Single Rank x4 PC3-12800E (DDR3-1600) Unbuffered CAS-11 Memory Kit	820077-B21
	HP 8GB (1x8GB) Dual Rank x8 PC3-12800E (DDR3-1600) Unbuffered CAS-11 Memory Kit	669324-B21
	HP 8GB (1x8GB) Dual Rank x8 PC3-12800E (DDR3-1600) Unbuffered CAS-11 Memory Kit	815371-B21

NOTE: All DDR3 memory option kits consist of one DIMM per kit. For detailed memory configuration rules and guidelines, please use the Online DDR3 Memory Configuration Tool: http://www.hp.com/go/ddr3memory-configurator.

QuickSpecs

Storage

1 - 4   Four-bay LFF drive model

Technical Specifications

System Unit			
	Tower Dimensions (H x W x D) (with feet/bezel)	14.5.x 6.89 x 18.71 in (36.82 x17.5 x 47.52 cm)	
	Tower Weight (approximate)	Maximum (all hard drives, power supplies, and processors installed)	33.51 lb (15.20 kg)
		Minimum (one hard drive, power supply, and processor installed)	23.81 lb (10.80 kg)
	Input Requirements (per power supply)	Rated Line Voltage	100 to 240 VAC
		Rated Input Current	6 Amps
		Rated Input Frequency	47 to 63 Hz
		Rated Input Power	440W at 100 V AC input 440W at 200V AC input
	BTU Rating	Maximum	460W - 1773 BTU / hr (at 120 VAC), 1715 (at 240 VAC)
	Power Supply Output (per power supply)	Rated Steady-State Power	350 W (at 100 VAC), 350 W (at 200 VAC)
		Maximum Peak Power	350 W (at 100 VAC), 350 W (at 200 VAC)
	System Inlet Temperature	Operating	0° to 40°C (32° to 104°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 10°C/hr (18°F/hr). The upper limit may be limited by the type and number of options installed. System performance may be reduced if operating with a fan fault or above 30°C (86°F).
		Non-operating	-30° to 65°C (-22° to 149°F). Maximum rate of change is 20°C/hr (36°F/hr).
	Relative Humidity (non-condensing)	Operating	10 to 90% relative humidity (Rh), 28°C (82.4°F) maximum wet bulb temperature, non-condensing.
		Non-operating	0 to 95% relative humidity (Rh), 38.7°C (101.7°F) maximum wet bulb temperature, non-condensing.
	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 457 m/min (1500 ft/min).
		Non-operating	9144 m (30,000 ft). Maximum allowable altitude change rate is 457 m/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.	

Technical Specifications

	Noise emissions were measured in accordance with ISO 7779 (ECMA 74) and declared in accordance with ISO 9296 (ECMA 109).	
	Idle	
	L WAd	4.2 B
	L pAm	27dB-A
	Operating	
	L WAd	4.2 B
	L pAm	27dB-A
	NOTE: The Listed sound levels apply to standard shipping configurations. Additional options may result in increased sound levels.	
Emissions Classification (EMC)	**FCC Rating**	Class B
	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 B120i Controller	**Dimensions**	Embedded
	Disk Drive and Enclosure Interface - Transfer rate	Up to 6Gb/s SATA (Serial ATA)
	Connectors	6 internal SATA connectors
	Server Interface	x4 PCIe 2.0
	SATA Speed	6Gb/s SATA links
	Cache Memory	Zero Memory RAID has no cache memory
	Logical Drives Supported	Up to 8 logical volumes (6 physical drives)
	Host Memory Addressing	64-bit, supporting greater than 4GB server memory space
	Hot Plug Support	Yes
	RAID Support	RAID 0 (Striping), RAID 1 (Mirroring)
		RAID 1+0 (Striping & Mirroring)

HP Ethernet 1Gb 2-port 332i Adapter	**Network Interface Compatibility**	10Base-T/100Base-TX/1000Base-TX
		IEEE 802.3 10Base-T
		IEEE 802.3ab 1000Base-T
		IEEE 802.3u 100Base-TX
		Energy Efficient Ethernet (EEE) compliant with IEEE Std 802.3az (default is disabled)
	Data Transfer Method	PCI-e, two lanes (x2)
	Controller	BCM5720
	Network Transfer Rate	10Base-T (Half-Duplex) 10 Mb/s per port, 20 Mb/s Combined
		10Base-T (Full-Duplex) 20 Mb/s per port, 40 Mb/s Combined
		100Base-TX (Half-Duplex) 100 Mb/s per port, 200 Mb/s Combined
		100Base-TX (Full-Duplex) 200 Mb/s per port, 400 Mb/s Combined
		1000Base-TX (Half-Duplex) 1000Mb/s per port, 2000 Mb/s Combined

Technical Specifications

		1000 Base-TX (Full-Duplex)	2000Mb/s per port, 4000 Mb/s Combined
	Connector	RJ-45	
	Cable Support	10Base-T	Categories 3, 4 or 5 UTP; up to 328 ft (100 m)
		10/100/1000Base-TX	Category 5 or better; up to 328 ft (100 m)

Environment-friendly Products and Approach	**End-of-life Management and Recycling**	Hewlett-Packard offers end-of-life HP product return, trade-in, and recycling programs in many geographic areas. For trade-in information, please go to: http://www.hp.com/go/green. To recycle your product, please go to: http://www.hp.com/go/green or contact your nearest HP sales office. Products returned to HP will be recycled, recovered or disposed of in a responsible manner. The EU WEEE directive (2002/95/EC) requires manufacturers to provide treatment information for each product type for use by treatment facilities. This information (product disassembly instructions) is posted on the Hewlett Packard web site at: http://www.hp.com/go/green. These instructions may be used by recyclers and other WEEE treatment facilities as well as HP OEM customers who integrate and re-sell HP equipment.

Summary of Changes

Date	Version History	Action	Description of Change
01-Jun-2015	From Version 2 to 3	Added	Added HP Unique Options section. HP 4GB (1x4GB) Single Rank x4 PC3-12800E (DDR3-1600) Unbuffered CAS-11 Memory Kit was added to HP Memory. HP KVM Switches section was added to QuickSpecs.
		Changed	Upgradeability, Maximum Internal Storage, HP Tape Backup, HP Disk Backup, HP Disk Storage Systems, HP Uninterruptible Power Systems (UPS), HP Basic Power Distribution Units (bPDU), HP Remote Monitored Power Distribution Units (mPDU), HP Intelligent Power Distribution Units (iPDU), HP Care Pack Services, and HP Memory sections were revised.
06-Apr-2015	From Version 1 to 2	Added	New models added to Pre-configured Models in the WW version only.
		Changed	Pre-configured Models and HP Disk Backup were revised.
		Removed	HP Unique Options was removed from the QuickSpecs.

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