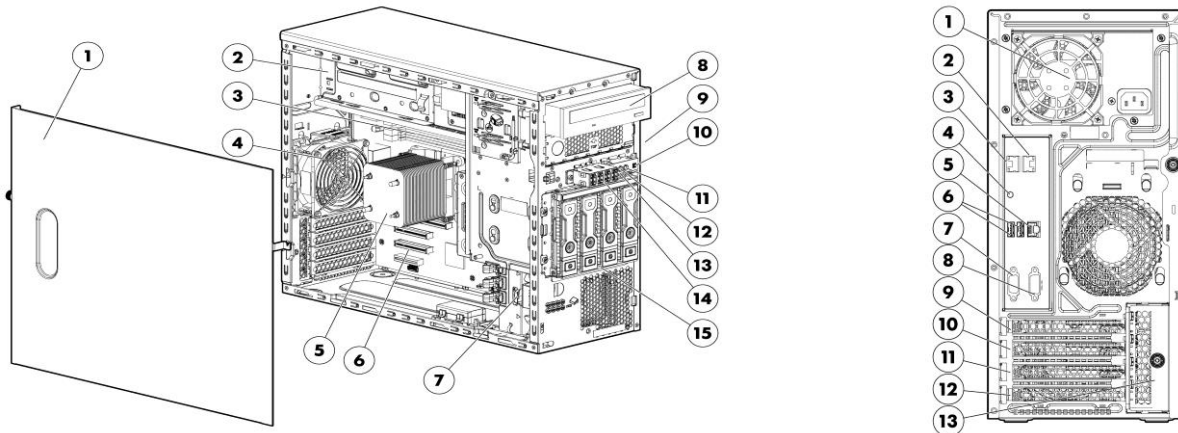## Overview

HP ProLiant ML310e Generation 8 (Gen8) v2

HP ProLiant ML310e Gen8 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. Quick removal access panel
2. Power Supply
3. Four DIMM slots
4. Rear system fan (Processor cooling)
5. Processor Heatsink
6. Four (4) PCIe expansion slots
7. Front system fan (Expansion board cooling)
8. Half Height SATA DVD-ROM or DVD RW Optical Drive
9. Media Drive Blank
10. Power Button
11. NIC Activity LED
12. System Health
13. UID LED button
14. Four (4) USB connectors
15. Four (4) LFF or Eight (8) SFF SAS/SATA HDD cage

Rear View:

1. Power supply
2. NIC Connector 2
3. NIC Connector 1
4. UID LED Button
5. iLO Dedicated LAN Port
6. Two(2) USB 3.0 Connectors
7. Video Connector
8. Serial Connector
9. Slot 4 PCIe x16
10. Slot 3 PCIe x8
11. Slot 2 PCIe x8
12. Slot 1 PCIe x4
13. PCIe card bracket

What's New

- New HDD offering

Standard Features

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

Processor One of the following depending on model	**Entry Processors** **NOTE:** All support up to 1333MT/s DDR3 memory speeds. Intel® Pentium® G3220 (3.0GHz/2-core/3MB/54W) Intel® Pentium® G3240 (3.1GHz/2-core/3MB/54W) **Base Processors** **NOTE:** All support up to 1600MT/s DDR3 memory speeds. Intel® CoreTM i3-4130 (3.4GHz/2-core/3MB/54W, HT) Intel® CoreTM i3-4130T (2.9GHz/2-core/3MB/35W, HT) Intel® CoreTM i3-4150 (3.5GHz/2-core/3MB/54W, HT) Intel® CoreTM i3-4150T (3.0GHz/2-core/3MB/35W, HT) **Performance Processors** **NOTE:** All support up to 1600MT/s DDR3 memory speeds. Intel® Xeon® E3-1230Lv3 (1.8GHz/4-core/8MB/25W, HT) Intel® Xeon® E3-1220v3 (3.1GHz/4-core/8MB/80W) Intel® Xeon® E3-1230v3 (3.3GHz/4-core/8MB/80W, HT) Intel® Xeon® E3-1231v3 (3.4GHz/4-core/8MB/80W, HT) Intel® Xeon® E3-1241v3 (3.5GHz/4-core/8MB/80W, HT) Intel® Xeon® E3-1271v3 (3.6GHz/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® CoreTM 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 8 SFF Hard Drive Bays; Or 4 LFF Hard Drive Bays 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 Redundant Power Supply Optical Drive Bay (up to 2)
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

Standard Features

Maximum Capacity (UDIMM)	32 GB (4 x 8 GB UDIMM)

NOTE: HP memory from previous generation servers are not fully compatible with the HP ProLiant ML310e Gen8 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

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 HP's RBSU (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.

Standard Features

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	1x500GB HP LFF SATA HDD included in Performance Model
	Hard Drive Bays One of the following depending on model	4 LFF drive bays (non-hot-plug and hot-plug)
		8 SFF hot-plug drive bays

NOTE: HP ProLiant ML310e Series servers offer both SFF, and LFF versions in CTO.
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 Gen8 Hard Drive Blank Kit or P/N 666986-B21: HP LFF Gen8 Hard Drive Blank Kit.

Maximum Internal Storage One of the following depending on model	Hot Plug LFF SAS	16TB	4 x 4TB
	Hot Plug SFF SAS	9.6TB	8x 1.2TB
	Non Hot Plug LFF SAS	2.4TB	4 x 600GB
	Hot Plug LFF SATA	16TB	4 x 4TB
	Hot Plug SFF SATA	8TB	8 x 1TB
	Non Hot Plug LFF SATA	12TB	4 x 3TB
	Hot Plug SFF SAS SSD	3.2TB	8 x 400GB
	Hot Plug SFF SATA SSD	6.4TB	8 x 800GB
	Hot Plug LFF SATA SSD	3.2TB	4 x 800GB

Interfaces	Serial	1 (rear)
	Video	1 (rear)
	Network RJ-45 (Ethernet)	2 (1 shared for HP Integrated Lights-Out)
	HP iLO Remote Management Network Port	1 Gb Dedicated
	Micro SD slot	1 (internal)

NOTE: The Micro SD slot is not a hot-pluggable device. Customers should not attempt to plug a Micro SD card into the Micro SD slot while the server is powered.

	USB	8 (4 front, 2 rear(USB3.0), 1 internal standard USB and 1 internal USB header)

NOTE: RHEL 5.9 OS would not be supporting 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

QuickSpecs

Standard Features

Server Power Cords	The ProLiant ML310e Gen8 v2 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. To install the ML310e Gen8 v2 server in a rack, the Tower to Rack Conversion kit (417705-B21) is required as well as a PDU power cord (416151-B21) to connect to a PDU in a data center rack.
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 ML310e Gen8 v2 supports two power supplies, a 350W Multi-Output Power Supply and a 460W Common Slot Gold Power Supply. The 350W Multi-Output Power Supply is a non-redundant power supply with an efficiency rating of 85%.
	HP's Common Slot (CS) power supplies allow for commonality of power supplies across a wide range of ProLiant and Integrity servers, as well as HP Storage solutions, and are designed to provide the highest power supply efficiency without degrading system performance. HP CS power supplies are tested by the Electric Power Research Institute (EPRI) and certified through the ECOS 80 Plus power supply program. The 460W HP CS power supply option provides an efficiency rating of up to 92%. All HP Common Slot power sources are UL, CE Mark Compliant, hot-plug and support redundant configurations.
	NOTE: Mixing of power supplies in the same server is not supported. All power supplies must be of the same output and efficiency rating. If non-matched power supplies are inserted you will get errors and operation will fail.
	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 80Plus.org.
	Redundant Power: Optional (1 + 1 redundant) power supplies can be purchased through power supply option kits (see Power Supplies for part numbers).
	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
	One (1) Non-redundant PCIe fan ships standard
Operating Systems and Virtualization Software Support for ProLiant Servers	Microsoft Windows Server
	Canonical Ubuntu
	Red Hat Enterprise Linux (RHEL)
	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

Standard Features

Graphics	Integrated Matrox G200 video standard

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

HP iLO 4 On System Management Memory

- 16 MB Flash
- 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 Active Health System:** Always on, continuous monitoring for increased stability and shorter downtimes; 100% configuration history; Health and service alerts and easy export and upload to Service and Support.
- **HP Intelligent Provisioning:** Lets customers provision and configure a single server without any separate media. No more SmartStart CDs or Smart Update Firmware DVD are needed.
    - To start Intelligent Provisioning:
        - Press the F10 key during the ProLiant Gen8 server boot process (also known as power on self-test or POST).
        - Please go to the Intelligent Provisioning website at http://www.hp.com/go/intelligentprovisioning for additional information and to view usage videos.
        - Use the Service Pack for ProLiant (SPP) at http://www.hp.com/go/spp to get firmware and software updates.
- **HP iLO Mobile App:** Enables the ability to access, deploy, and manage your server anytime from anywhere from select

QuickSpecs

HP ProLiant ML310e Generation 8 (Gen8) v2

Standard Features

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 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

Standard Features

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, 1-Year Labor, 1-Year Onsite support with next business day response. (3-1-1 warranty offered in Brazil only). 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
HP Enterprise Configurator	The HP eConfigure Enterprise Configurator now provides factory default racking for our HP hardware portfolio. This approach is aligned with our strategic direction to meet the needs and expectations of our valued customers. If you require "custom" rack configuration, please contact HP's Customer Business Center or an Authorized Partner for assistance. For additional information please visit: 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**

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: For the Standard Features shipped in the "Factory Integrated Models", please see the "Configuration Information - Factory Integrated Models" section.
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: If you desire a custom configuration please see "Configuration Information - Factory Integrated Models" section of this QuickSpecs.
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 either P/N 666987-B21: HP SFF Gen8 Hard Drive Blank Kit or 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 ML310e Gen8 v2 i3-4130 1P 2GB-U NHP 4 LFF 350W PS Entry Svr
712327-xx1

Processor(s)	(1) Intel® CoreTM i3-4130 (3.4GHz/2-core/3MB/54W, HT) Processor
Cache Memory	3MB (1 x 3MB) L3 cache
Memory	2GB (1 x 2GB) 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 Non Hot Plug 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 One (1) Non-redundant PCIe 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, 1-Year Labor, 1-Year Onsite support with next business day response (3-1-1 warranty offered in Brazil only).

HP ProLiant ML310e Gen8 v2 i3-4150 1P 2GB-U B120i Non-hot Plug 350W PS Entry Server
768748-xx1

Processor(s)	(1) Intel® CoreTM i3-4150 (3.5GHz/2-core/3MB/54W, HT) Processor
Cache Memory	3MB (1 x 3MB) L3 cache
Memory	2GB (1 x 2GB) 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 Non Hot Plug 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 One (1) Non-redundant PCIe fan ships standard
Management	HP iLO Management Engine (standard on system NIC) Optional: HP iLO Essentials or HP Insight Control

QuickSpecs

Pre-configured Models

	Form Factor	Micro ATX Tower (4U)
	Warranty	Server Warranty includes 1-Year Parts, 1-Year Labor, 1-Year Onsite support with next business day response (3-1-1 warranty offered in Brazil only).

Base Models

HP ProLiant ML310e Gen8 v2 E3-1220v3 1P 4GB-U B120i 350W PS Svr
712329-xx1

Processor(s)	(1) Intel® Xeon® E3-1220v3 (3.1GHz/4-core/8MB/80W) Processor
Cache Memory	8MB (1 x 8MB) 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 Hot Plug HDD cage; includes 4 LFF hard drive blanks
Optical Drive	HP Half-Height 16x SATA DVD-RW
Power Supply	HP 350W Multi-Output Power Supply
Fans	One (1) Non-redundant system fan ships standard One (1) Non-redundant PCIe 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, 1-Year Labor, 1-Year Onsite support with next business day response (3-1-1 warranty offered in Brazil only).

Performance Models

HP ProLiant ML310e Gen8 v2 E3-1240v3 1P 8GB-U B120i SATA 500GB 4 LFF 460W PS Svr
712328-xx1

Processor(s)	(1) Intel® Xeon® E3-1240v3 (3.4GHz/4-core/8MB/80W) Processor
Cache Memory	8MB (1 x 8MB) 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	1x500GB HP LFF SATA
Internal Storage	4 LFF SAS/SATA Hot Plug HDD cage; includes 3 LFF hard drive blanks
Optical Drive	HP Half-Height 16x SATA DVD-RW
Power Supply	HP 460W Common Slot Gold Hot Plug Power Supply
Fans	One (1) Non-redundant system fan ships standard One (1) Non-redundant PCIe fan ships standard
Management	HP iLO Management Engine (standard on system NIC) Optional: HP iLO Essentials or HP Insight Control
Energy Star	Meets Energy Star requirements
Form Factor	Micro ATX Tower (4U)
Warranty	Server Warranty includes 1-Year Parts, 1-Year Labor, 1-Year Onsite support with next business day response (3-1-1 warranty offered in Brazil only).

HP ProLiant ML310e Gen8 v2 E3-1241v3 1P 8GB-U

Processor(s)	(1) Intel® Xeon® E3-1241v3 (3.4GHz/4-core/8MB/80W) Processor
Cache Memory	8MB (1 x 8MB) L3 cache

Pre-configured Models

B120i 460W PS Performance Server 768729-xx1		
	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	1x500GB HP LFF SATA
	Internal Storage	4 LFF SAS/SATA Hot Plug HDD cage; includes 3 LFF hard drive blanks
	Optical Drive	HP Half-Height 16x SATA DVD-RW
	Power Supply	HP 460W Common Slot Gold Hot Plug Power Supply
	Fans	One (1) Non-redundant system fan ships standard One (1) Non-redundant PCIe fan ships standard
	Management	HP iLO Management Engine (standard on system NIC) Optional: HP iLO Essentials or HP Insight Control
	Energy Star	Meets Energy Star requirements
	Form Factor	Micro ATX Tower (4U)
	Warranty	Server Warranty includes 1-Year Parts, 1-Year Labor, 1-Year Onsite support with next business day response (3-1-1 warranty offered in Brazil only).

Country Code Key   **Tower Code Key**

xx=00	US
xx=01	Australia
xx=03	UK
xx=04	Germany
xx=05	France
xx=37	APD
xx=42	Europe
xx=AA	PRC

Configuration Information - Factory Integrated Models

NOTE: This section lists some of the steps required to configure a Factory Integrated Model. To ensure only valid configurations are ordered, HP recommends the use of an HP approved configurator. Contact your local sales representative for information on configurable product offerings and requirements.
NOTE: Factory Integrated Models must start with a CTO Server.
NOTE: FIO indicates that this option is only available as a factory installable option.
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.

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

HP Models	HP ProLiant ML310e Gen8 v2 Non-hot Plug 4 LFF Configure-to-order Server	722445-B21

Factory Integrated Model ships with:

HP Ethernet 1Gb 2-port 332i Adapter
HP iLO Management Engine (standard on shared system NIC)
HP Dynamic Smart Array B120i Controller (RAID 0/1/10)
4 ports for HDD
NOTE: For set up instructions for HP Dynamic Smart Array B120i Controller please refer to the HP ProLiant ML300 series server user guide.
NOTE: For general information about HP Dynamic Smart Array B120i Controller, please visit: http://www.hp.com/go/dynamicsa
Non Hot-Plug SAS/SATA 4 port cable
PCA Power Cord
Micro ATX Tower (4U)

HP ProLiant ML310e Gen8 v2 Hot Plug 4 LFF Configure-to-order Server	722446-B21

Factory Integrated Model ships with:

HP Ethernet 1Gb 2-port 332i Adapter
HP iLO Management Engine (standard on shared system NIC)
HP Dynamic Smart Array B120i Controller (RAID 0/1/10)
4 ports for HDD
NOTE: For set up instructions for HP Dynamic Smart Array B120i Controller please refer to the HP ProLiant ML300 series server user guide.
NOTE: For general information about HP Dynamic Smart Array B120i Controller, please visit: http://www.hp.com/go/dynamicsa
Hot-Plug SAS/SATA 4 port cable
PCA Power Cord
Micro ATX Tower (4U)

HP ProLiant ML310e Gen8 v2 Hot Plug 8 SFF Configure-to-order Server	722447-B21

Factory Integrated Model ships with:

HP Ethernet 1Gb 2-port 332i Adapter
HP iLO Management Engine (standard on shared system NIC)
Standup HP Smart Array Controller or Host Bus Adapter required
PCA Power Cord
Micro ATX Tower (4U)

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

HP Processors	**Entry Processors** **NOTE:** All support up to 1333MT/s DDR3 memory speeds.	
	HP ML310e Gen8 v2 Intel® Pentium® G3240 (3.1GHz/2-core/3MB/54W) FIO Processor Kit	767102-L21
	Base Processors **NOTE:** All support up to 1600MT/s DDR3 memory speeds.	

Configuration Information - Factory Integrated Models

	HP ML310e Gen8 v2 Intel® Core™ i3-4150 (3.5GHz/2-core/3MB/54W) FIO Processor Kit	767100-L21
	HP ML310e Gen8 v2 Intel® Core™ i3-4150T (3GHz/2-core/3MB/35W) FIO Processor Kit	767101-L21
	Performance Processors **NOTE:** All support up to 1600MT/s DDR3 memory speeds.	
	HP ML310e Gen8 v2 Intel® Xeon® E3-1230Lv3 (1.8GHz/4-core/8MB/25W) FIO Processor Kit	740649-L21
	HP ML310e Gen8 v2 Intel® Xeon® E3-1220v3 (3.1GHz/4-core/8MB/80W) FIO Processor Kit	723935-L21
	HP ML310e Gen8 v2 Intel® Xeon® E3-1231v3 (3.4GHz/4-core/8MB/80W) FIO Processor Kit	767097-L21
	HP ML310e Gen8 v2 Intel® Xeon® E3-1241v3 (3.5GHz/4-core/8MB/80W) FIO Processor Kit	767098-L21
	HP ML310e Gen8 v2 Intel® Xeon® E3-1271v3 (3.6GHz/4-core/8MB/80W) FIO Processor Kit	767099-L21
HP Memory	**Unbuffered with ECC DIMMs (UDIMMs)**	
	HP 2GB (1x2GB) Single Rank x8 PC3-12800E (DDR3-1600) Unbuffered CAS-11 Memory Kit	669320-B21
	HP 2GB (1x2GB) Single Rank x8 PC3L-10600E (DDR3-1333) Unbuffered CAS-9 Low Voltage Memory Kit	647905-B21
	HP 2GB (1x2GB) Single Rank x8 PC3L-12800E (DDR3-1600) Unbuffered CAS-11 Low Voltage Memory Kit	713975-B21
	HP 4GB (1x4GB) Dual Rank x8 PC3-12800E (DDR3-1600) Unbuffered CAS-11 Memory Kit	669322-B21
	HP 4GB (1x4GB) Dual Rank x8 PC3L-10600E (DDR3-1333) Unbuffered CAS-9 Low Voltage Memory Kit	647907-B21
	HP 4GB (1x4GB) Dual Rank x8 PC3L-12800E (DDR3-1600) Unbuffered CAS-11 Low Voltage Memory Kit	713977-B21
	HP 8GB (1x8GB) Dual Rank x8 PC3-12800E (DDR3-1600) Unbuffered CAS-11 Memory Kit	669324-B21
	HP 8GB (1x8GB) Dual Rank x8 PC3L-10600E (DDR3-1333) Unbuffered CAS-9 Low Voltage Memory Kit	647909-B21
	HP 8GB (1x8GB) Dual Rank x8 PC3L-12800E (DDR3-1600) Unbuffered CAS-11 Low Voltage Memory Kit	713979-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.	
HP Power Supplies	**NOTE:** Mixing of power supplies in the same server is not supported. All power supplies inside a server must be exactly the same model. Mixing Gold, Platinum, and Platinum Plus certified power supplies is not supported. **NOTE:** Prior to making a power supply selection it is highly recommended that the HP Power Advisor is run to determine the right size power supply for your server configuration. The HP Power Advisor is located at: http://www.hp.com/go/hppoweradvisor	
	HP 350W Factory Integrated Power Supply Kit	674838-B21
	HP Common Slot Gold Power Supplies **NOTE:** The following Power Supplies offer 92% Efficiency.	
	HP 460W CS Gold Ht Plg Power Supply Kit	503296-B21
	Enablement Kit	

Configuration Information - Factory Integrated Models

HP 4U Redundant Power Supply Enablement Kit	675843-B21

NOTE: The HP 4U Redundant Power Supply Enablement Kit (675843-B21) must be installed when using HP Common Slot power supplies.

Step 3: Choose Additional Factory Integratable Options

HP Insight Software	HP Insight Control including 1yr 24x7 Support ProLiant ML/DL/BL-bundle Single Server FIO License	C6N36A
	HP Insight Control including 1yr 24x7 Support ProLiant ML/DL/BL-bundle FIO Electronic License	C6N36ABE

NOTE: The Electronic software license is available in EMEA only.

Step 4: Choose Additional Options for Factory Integration

NOTE: For additional options, please refer to the "Core Options" and "Additional Options" section below.

Core Options

NOTE: Some options may not be integrated at the factory. Contact your local sales representative for additional information.

HP Unique Options	HP 4U 4 Large Form Factor Hot Plug Hard Drive Backplane Kit **NOTE:** The LFF Kit is a backplane kit designed for going from NHP LFF to hot-plug LFF.	674839-B21
	HP 4U 8 Small Form Factor Hot Plug Hard Drive Cage Kit **NOTE:** The SFF Kit is the cage plus backplane and designed to convert from any LFF configuration to SFF.	674841-B21
HP Memory	**NOTE:** To realize the performance memory capabilities listed in this document, HP SmartMemory is required. For additional information, please see the HP SmartMemory QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/14225_div/14225_div.html (Worldwide)	
	Unbuffered with ECC DIMMs (UDIMMs)	
	HP 2GB (1x2GB) Single Rank x8 PC3-12800E (DDR3-1600) Unbuffered CAS-11 Memory Kit	669320-B21
	HP 2GB (1x2GB) Single Rank x8 PC3L-10600E (DDR3-1333) Unbuffered CAS-9 Low Voltage Memory Kit	647905-B21
	HP 2GB (1x2GB) Single Rank x8 PC3L-12800E (DDR3-1600) Unbuffered CAS-11 Low Voltage Memory Kit	713975-B21
	HP 4GB (1x4GB) Dual Rank x8 PC3-12800E (DDR3-1600) Unbuffered CAS-11 Memory Kit	669322-B21
	HP 4GB (1x4GB) Dual Rank x8 PC3L-10600E (DDR3-1333) Unbuffered CAS-9 Low Voltage Memory Kit	647907-B21
	HP 4GB (1x4GB) Dual Rank x8 PC3L-12800E (DDR3-1600) Unbuffered CAS-11 Low Voltage Memory Kit	713977-B21
	HP 8GB (1x8GB) Dual Rank x8 PC3-12800E (DDR3-1600) Unbuffered CAS-11 Memory Kit	669324-B21
	HP 8GB (1x8GB) Dual Rank x8 PC3L-10600E (DDR3-1333) Unbuffered CAS-9 Low Voltage Memory Kit	647909-B21
	HP 8GB (1x8GB) Dual Rank x8 PC3L-12800E (DDR3-1600) Unbuffered CAS-11 Low Voltage Memory Kit	713979-B21
HP Drive Cage Options	HP 4U 4 Large Form Factor Hot Plug Hard Drive Backplane Kit **NOTE:** The LFF Kit is a backplane kit designed for going from NHP LFF to hot-plug LFF.	674839-B21
	HP 4U 8 Small Form Factor Hot Plug Hard Drive Cage Kit **NOTE:** The SFF Kit is the cage plus backplane and designed to convert from any LFF configuration to SFF.	674841-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.	
	12G SAS Hot Plug with SmartDrive SFF (2.5-inch) Enterprise Drives	

Core Options

HP 600GB 12G SAS 15K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive	759212-B21
HP 450GB 12G SAS 15K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive	759210-B21
HP 300GB 12G SAS 15K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive	759208-B21
12G SAS Hot Plug SmartDrive LFF (3.5-inch) Converter Enterprise Drives	
HP 600GB 12G SAS 15K rpm LFF (3.5-inch) SC Converter Enterprise 3yr Warranty Hard Drive	765424-B21
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
12G SAS Hot Plug SFF (2.5-inch) Enterprise Drives	
HP 1.2TB 12G SAS 10K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive	781518-B21
HP 900GB 12G SAS 10K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive	785069-B21
HP 600GB 12G SAS 10K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive	781516-B21
HP 300GB 12G SAS 10K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive	785067-B21
12G SAS Hot Plug SFF (2.5-inch) SC 512e Drives	
HP 2TB 12G SAS 7.2K rpm SFF (2.5-inch) SC 512e 1yr Warranty Hard Drive	765466-B21
HP 1TB 12G SAS 7.2K rpm SFF (2.5-inch) SC 512e 1yr Warranty Hard Drive	765464-B21
12G SAS Hot Plug LFF (3.5-inch) Midline (MDL) 512e Drives	
HP 6TB 12G SAS 7.2K rpm LFF (3.5-inch) SC Midline 512e 1yr Warranty Hard Drive	765259-B21
HP 6TB 6G SATA 7.2K rpm LFF (3.5-inch) SC Midline 512e 1yr Warranty Hard Drive	765255-B21
HP 4TB 12G SAS 7.2K rpm LFF (3.5-inch) SC Midline 512e 1yr Warranty Hard Drive	765257-B21
HP 4TB 6G SATA 7.2K rpm LFF (3.5-inch) SC Midline 512e 1yr Warranty Hard Drive	765253-B21
12G SAS Hot Plug LFF (3.5-inch) SC 512e Performance Drives	
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
6G SAS Hot Plug with SmartDrive SFF (2.5-inch) Enterprise Drives	
HP 1.2TB 6G SAS 10K rpm SFF (2.5-inch) SC Dual Port Enterprise 3yr Warranty Hard Drive	718162-B21
HP 900GB 6G SAS 10K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive	652589-B21
HP 600GB 6G SAS 10K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive	652583-B21
HP 450GB 6G SAS 10K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive	652572-B21
HP 300GB 6G SAS 10K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive	652564-B21
HP 300GB 6G SAS 15K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive	652611-B21
HP 146GB 6G SAS 15K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive	652605-B21
6G SAS Hot Plug SmartDrive SFF (2.5-inch) Midline Drives	
HP 1TB 6G SAS 7.2K rpm SFF (2.5-inch) SC Midline 1yr Warranty Hard Drive	652749-B21
HP 500GB 6G SAS 7.2K rpm SFF (2.5-inch) SC Midline 1yr Warranty Hard Drive	652745-B21
6G SAS Hot Plug SmartDrive LFF (3.5-inch) Midline Drives	
HP 6TB 6G SAS 7.2K rpm LFF (3.5-inch) SC Midline 1yr Warranty Hard Drive	761477-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

Core Options

NOTE: Please see the QuickSpecs for Technical Specifications and additional information:
http://h18000.www1.hp.com/products/quickspecs/12244_div/12244_div.html (Worldwide)

6G SATA Hot Plug with SmartDrive 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

6G SATA Hot Plug with SmartDrive LFF (3.5-inch) Midline (MDL) Drives

HP 6TB 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 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

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 Hot Plug SFF (2.5-inch) SC 512e Drives

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

6G SATA Hot Plug LFF (3.5-inch) SC 512e Performance Drives

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

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

12G SAS High Endurance 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

NOTE: This drive supports Gen8 servers only.

12G SAS Mainstream Endurance Hot Plug SFF (2.5-inch) Enterprise Mainstream H2 Solid State Drives

HP 400GB 12G SAS Mainstream Endurance SFF 2.5-in ENT Mainstream SC 3yr Wty H2 Solid State Drive	779168-B21
HP 200GB 12G SAS Mainstream Endurance SFF 2.5-in ENT Mainstream SC 3yr Wty H2 Solid State Drive	779164-B21

12G SAS Hot Plug SFF (2.5-inch) SC Write Intensive Solid State Drives

HP 200GB 12G SAS Write Intensive SFF 2.5-in SC 3yr Wty Solid State Drive	802578-B21

Core Options

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
6G SATA Value Endurance Hot Plug SFF (2.5-inch) Enterprise Boot Solid State Drives	
HP 120GB 6G SATA Value Endurance SFF 2.5-in SC Enterprise Boot 3yr Wty Solid State Drive	717965-B21
HP 80GB 6G SATA Value Endurance SFF 2.5-in SC Enterprise Boot 3yr Wty Solid State Drive	734360-B21
6G SATA Value Endurance Hot Plug LFF (3.5-inch) Enterprise Boot Solid State Drives	
HP 120GB 6G SATA Value Endurance LFF 3.5-in SC Enterprise Boot 3yr Wty Solid State Drive	718171-B21
HP 80GB 6G SATA Value Endurance LFF 3.5-in SC Enterprise Boot 3yr Wty Solid State Drive	734362-B21
6G SATA Hot Plug Value Endurance LFF (3.5-inch) Converter Enterprise Value G1 Solid State Drives	
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 Value Endurance SFF (2.5-inch) Enterprise Value G1 Solid State Drives	
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 Non-hot Plug Value Endurance SFF (2.5-inch) Enterprise Value G1 Solid State Drives	
HP 120GB 6G SATA Value Endurance SFF 2.5-in ENT Value 3yr Wty Non-hot Plug G1 Solid State Drive	756633-B21
6G SATA Value Endurance Hot Plug SFF (2.5-inch) Enterprise Value Solid State Drives	
HP 1.6TB 6G SATA Value Endurance SFF 2.5-in SC Enterprise Value 3yr Wty Solid State Drive	757339-B21
HP 800GB 6G SATA Value Endurance SFF 2.5-in SC Enterprise Value 3yr Wty Solid State Drive	717973-B21
HP 480GB 6G SATA Value Endurance SFF 2.5-in SC Enterprise Value 3yr Wty Solid State Drive	717971-B21
HP 240GB 6G SATA Value Endurance SFF 2.5-in SC Enterprise Value 3yr Wty Solid State Drive	717969-B21
6G SATA Value Endurance Hot Plug LFF (3.5-inch) Enterprise Value 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 800GB 6G SATA Value Endurance LFF 3.5-in SC Enterprise Value 3yr Wty Solid	718189-B21

Core Options

State Drive	
HP 480GB 6G SATA Value Endurance LFF 3.5-in SC Enterprise Value 3yr Wty Solid State Drive	718183-B21
HP 240GB 6G SATA Value Endurance LFF 3.5-in SC Enterprise Value 3yr Wty Solid State Drive	718177-B21
6G SATA Hot Plug Light Endurance 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 Light Endurance 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 Value Endurance Hot Plug SFF (2.5-inch) Enterprise Value M1 Solid State Drive	
HP 800GB 6G SATA Value Endurance SFF 2.5-in SC Enterprise Value 3yr Wty M1 Solid State Drive	764929-B21
HP 480GB 6G SATA Value Endurance SFF 2.5-in SC Enterprise Value 3yr Wty M1 Solid State Drive	764927-B21
HP 240GB 6G SATA Value Endurance SFF 2.5-in SC Enterprise Value 3yr Wty M1 Solid State Drive	764925-B21
HP 120GB 6G SATA Value Endurance SFF 2.5-in SC Enterprise Value 3yr Wty M1 Solid State Drive	764923-B21
6G SATA Mainstream Endurance Hot Plug SFF (2.5-inch) Enterprise Mainstream Solid State Drives	
HP 800GB 6G SATA Mainstream Endurance SFF 2.5-in SC Enterprise Mainstream 3yr Wty Solid State Drive	691868-B21
HP 400GB 6G SATA Mainstream Endurance SFF 2.5-in SC Enterprise Mainstream 3yr Wty Solid State Drive	691866-B21
HP 200GB 6G SATA Mainstream Endurance SFF 2.5-in SC Enterprise Mainstream 3yr Wty Solid State Drive	691864-B21
HP 100GB 6G SATA Mainstream Endurance SFF 2.5-in SC Enterprise Mainstream 3yr Wty Solid State Drive	691862-B21
6G SATA Mainstream Endurance Hot Plug LFF (3.5-inch) Enterprise Mainstream Solid State Drives	
HP 800GB 6G SATA Mainstream Endurance LFF 3.5-in SC Enterprise Mainstream 3yr Wty Solid State Drive	691860-B21
HP 400GB 6G SATA Mainstream Endurance LFF 3.5-in SC Enterprise Mainstream 3yr Wty Solid State Drive	691856-B21
HP 200GB 6G SATA Mainstream Endurance LFF 3.5-in SC Enterprise Mainstream 3yr Wty Solid State Drive	691854-B21
HP 100GB 6G SATA Mainstream Endurance LFF 3.5-in SC Enterprise Mainstream 3yr Wty Solid State Drive	691852-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 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

Core Options

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

NOTE: Please see the QuickSpecs for Technical Specifications and additional information:
http://h18000.www1.hp.com/products/quickspecs/14038_div/14038_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 Small Form Factor Hard Drive Blank Kit	666987-B21

HP Networking	**Gigabit Ethernet adapters**	
	HP NC112T PCI Express Gigabit Server Adapter	503746-B21
	HP NC365T 4-port Ethernet Server Adapter	593722-B21
	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
	10 Gigabit Ethernet adapters	
	HP NC523SFP 10Gb 2-port Server Adapter	593717-B21
	HP NC552SFP 10Gb 2-port Ethernet Server Adapter	614203-B21
	HP Ethernet 10Gb 2-port 560SFP+ Adapter	665249-B21

NOTE: Please see the QuickSpecs for Technical Specifications and additional information: http://www.hp.com/go/ProLiantNICs

Switches

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 Power Supplies

NOTE: Mixing of power supplies in the same server is not supported. All power supplies inside a server must be exactly the same model. Mixing Gold, Platinum, and Platinum Plus certified power supplies is not supported.
NOTE: Prior to making a power supply selection it is highly recommended that the HP Power Advisor is run to determine the right size power supply for your server configuration. The HP Power Advisor is located at:
http://www.hp.com/go/hppoweradvisor.

HP Common Slot Gold Power Supplies
NOTE: The following Power Supplies offer 92% Efficiency.

HP 460W CS Gold Ht Plg Power Supply Kit	503296-B21

NOTE: Option Kits for AC power supplies include the power supply and one PDU IEC cable.
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

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

Core Options

Graphics Accelerators

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

SAS Controllers
NOTE: Smart Array Storage controller can be added only in PCIe Slot 3, Slot 4 or both.

HP Smart Array P222 Controller

HP Smart Array P222/512 FBWC 6Gb 1-port Int/1-port Ext SAS Controller	631667-B21

HP Smart Array P420 Controller

HP Smart Array P420/2GB FBWC 6Gb 2-ports Int SAS Controller	631671-B21
HP Smart Array P420/1GB FBWC 6Gb 2-ports Int SAS Controller	631670-B21

HP Smart Array P421 Controller

HP Smart Array P421/2GB FBWC 6Gb 2-ports Ext SAS Controller	631674-B21
HP Smart Array P421/1GB FBWC 6Gb 2-ports Ext SAS Controller	631673-B21

Optional Upgrades

HP 2GB P-series Smart Array Flash Backed Write Cache	631681-B21
HP SmartCache No Media 24x7 Technical Support 1 Svr License	D7S26A
HP SmartCache No Media 24x7 Technical Support Flexible License	D7S27A
HP SmartCache No Media 24x7 Technical Support Electronic License	D7S27AAE

NOTE: Please see the QuickSpecs for Technical Specifications and additional information:
http://h18000.www1.hp.com/products/quickspecs/14227_div/14227_div.html
(Smart Array P222 Controller)
http://h18000.www1.hp.com/products/quickspecs/14228_div/14228_div.html
(Smart Array P420 Controller)
http://h18000.www1.hp.com/products/quickspecs/14229_div/14229_div.html
(Smart Array P421 Controller)

HP Host Bus Adapters

HP H220 Host Bus Adapter	650933-B21
HP H221 PCIe 3.0 SAS Host Bus Adapter	729552-B21
HP H222 Host Bus Adapter	650926-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)
http://h18004.www1.hp.com/products/quickspecs/14337_div/14337_div.html

Additional Options

(HBA H222)

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.	
	HP StoreEver LTO-6 Ultrium 6250 Tape Drive in 1U Rack-mount Kit	C0L99A
	HP StoreEver LTO-6 Ultrium 6650 SAS Internal Tape Drive	EH963A
	HP StoreEver LTO-6 Ultrium 6650 SAS External Tape Drive	EH964A
	HP StoreEver LTO-6 Ultrium 6250 Internal Tape Drive	EH969A
	HP StoreEver LTO-6 Ultrium 6250 External Tape Drive	EH970A
	HP StoreEver 1/8 G2 LTO-6 Ultrium 6250 FC Tape Autoloader	C0H19A
HP Tape Storage Systems	**HP StoreEver MSL6480**	
	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 RDX1000 USB3.0 Internal Disk Backup System	B7B67A
	HP RDX1000 USB 3.0 External Disk Backup System	B7B69A
	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 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 Uninterruptible Power Systems	**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.	

Additional Options

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

NOTE: All Input/Output Modules support dual output outlets except the AF484A.

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 Rack-mountable UPS

HP R1500 G4 Uninterruptible Power Supply (UPS)

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

NOTE: Please see the QuickSpecs for additional information:
http://h18000.www1.hp.com/products/quickspecs/14058_div/14058_div.html (Worldwide)

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

NOTE: Please see the QuickSpecs for additional information:
http://h18000.www1.hp.com/products/quickspecs/14109_div/14109_div.html (Worldwide)

R7000 Uninterruptible Power System (UPS)

Additional Options

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

NOTE: Please see the QuickSpecs for additional information:
http://h18000.www1.hp.com/products/quickspecs/14110_div/14110_div.html (Worldwide)

NOTE: For additional information on 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 Basic Power Distribution Unit: 1U/0U Version**	
	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 Basic Power Distribution Unit: Half Height Version	
	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 Basic Power Distribution Unit: Mid Height Version	
	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 Basic Power Distribution Unit: Full Height Version	
	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 Basic Power Distribution Unit: 480/277 Volt Version	
	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

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.

Additional Options

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
	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 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 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

Additional Options

	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
	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 Series	**HP Intelligent Series Rack**	
	HP 642 1075mm Pallet Intelligent Rack	BW903A
	HP 642 1075mm Shock Intelligent Rack	BW904A
	NOTE: Please see the QuickSpecs for Technical Specifications such as height, width, depth, weight, and color: http://h18000.www1.hp.com/products/quickspecs/14223_div/14223_div.html (Worldwide) **NOTE:** For additional information regarding Rack Cabinets, please see the following URL: http://www.hp.com/go/rackandpower.	
HP Rack Options	**HP LCD8500 1U Rackmount Console Kit Models**	
	HP LCD8500 1U US Rackmount Console Kit	AF630A
	HP LCD8500 1U UK Rackmount Console Kit	AF631A

QuickSpecs

Additional Options

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 Location Discovery Services LCD8500 Kit	TL052A
HP Rack LED Light Kit	BW939A
HP USB Keyboard and Mouse	
HP USB BFR with PVC Free US Keyboard/Mouse Kit	631341-B21
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 IN Keyboard/Mouse Kit	672097-D63
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 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 SE Keyboard/Mouse Kit	672097-103
HP USB BFR with PVC Free CH Keyboard/Mouse Kit	672097-113
HP USB BFR with PVC Free KR Keyboard/Mouse Kit	672097-KD3

NOTE: Please see the QuickSpecs for Technical Specifications and additional information:
http://h18000.www1.hp.com/products/quickspecs/13792_div/13792_div.html (Worldwide)

HP Server Console Switches	
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

NOTE: Please see the QuickSpecs for Technical Specifications and additional information:
http://h18000.www1.hp.com/products/quickspecs/11834_div/11834_div.html (Worldwide)

HP Server Console Switch G2 with Virtual Media & CAC	
HP 0x2x16 KVM Server Console Switch G2 with Virtual Media CAC Software	AF618A

Additional Options

HP 0x2x32 KVM Server Console Switch G2 with Virtual Media CAC Software	AF619A
KVM USB Cnsl Itfc Adapter 1PK ALL	336047-B21

NOTE: Please see the QuickSpecs for Technical Specifications and additional information:
http://h18000.www1.hp.com/products/quickspecs/13475_div/13475_div.html (Worldwide)

HP IP Console Switch G2 with Virtual Media & CAC

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: Please see the QuickSpecs for Technical Specifications and additional information:
http://h18000.www1.hp.com/products/quickspecs/13474_div/13474_div.html (Worldwide)

HP USB and SD Options

HP Flash Media Kits for USB Drives

NOTE: HP qualified blank USB key for use with HP ProLiant servers that support the VMware virtualization environment and other HP value-add software. HP recommends this industry standard USB flash device for use with VMware ESXi. USB device must be installed in the internal slot of the ProLiant server for use with VMware ESXi. Refer to HP VMware Getting Started Guide for installation instructions.

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 QuickSpecs for Technical Specifications and additional information:
http://h18000.www1.hp.com/products/quickspecs/13971_div/13971_div.html

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HP Care Pack Services

Proactive Care
NOTE: Collaborative Support plus Proactive services delivered by the onshore, local language Advanced Solution Center (ASC), end-to-end case ownership from a Technical Solution Specialists and Technical Account Manager who remotely delivers firmware/software revision management, proactive scans and incident trend reports. Recommended for customers running a virtualized infrastructure and/or customers who desire an enhanced call support experience.

HP 3 year 4 hour 24x7 ProLiant ML310e Proactive Care Service	U6F73E
HP 3 year 4 hour 24x7 with Defective Media Retention ProLiant ML310e Proactive Care Service	U6F74E
HP 3year 4-Hour 24x7 with Comprehensive Defective Material Retention ML310e ProactiveCare Service	U9E08E

Foundation Care

HP 3 year 24x7 ML310e Foundation Care Service	U2FR3E
HP 3 year 24x7 with Comprehensive Defective Material Retention ML310e Foundation Care Service	U2FR5E
HP 3 year 24x7 with Defective Media Retention ML310e Foundation Care Service	U2FR4E
HP 3 year Next business day ML310e Foundation Care Service	U2FR0E
HP 3 year Next business day wComprehensiveDefectiveMaterialRetention ML310e Foundation Care Service	U2FR2E

Additional Options

HP 3 year Next business day with Defective Media Retention ML310eFoundation Care Service	U2FR1E

Installation Services

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

HP Installation ML310e/ML110 Service	U6G21E
HP Startup ML310e/ML110 Service	U6G23E

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. With HP SmartMemory your new HP ProLiant server can take advantage of additional Gen8 enhancements in performance, durability and future manageability support through HP Active Health System

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 ML310e Gen8 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 32 GB (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

ML310e Gen8 v2 Supported Memory Bandwidth and Capacity

DIMM Type	Unbuffered with ECC DIMMs (UDIMMs)								
DIMM Rank	Single Rank (1R)				Dual Rank (2R)				
DIMM Capacity	2GB	2GB	2GB	4GB	4GB	4GB	8GB	8GB	8GB
DIMM Native Speed (MT/s)	1333	1600	1600	1333	1600	1600	1333	1600	1600
Voltage	LV	Std	LV	LV	Std	LV	LV	Std	LV
SLOTS THAT CAN BE POPULATED									
4 slot servers	4	4	4	4	4	4	4	4	4
MAXIMUM CAPACITY (GB)*									
	8	8	8	16	16	16	32	32	32
POPULATED DIMM SPEED (MT/s)									
1 DIMM Per Channel	1333	1600	1600	1333	1600	1600	1333	1600	1600
2 DIMM Per Channel	1333**	1600	1600	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.
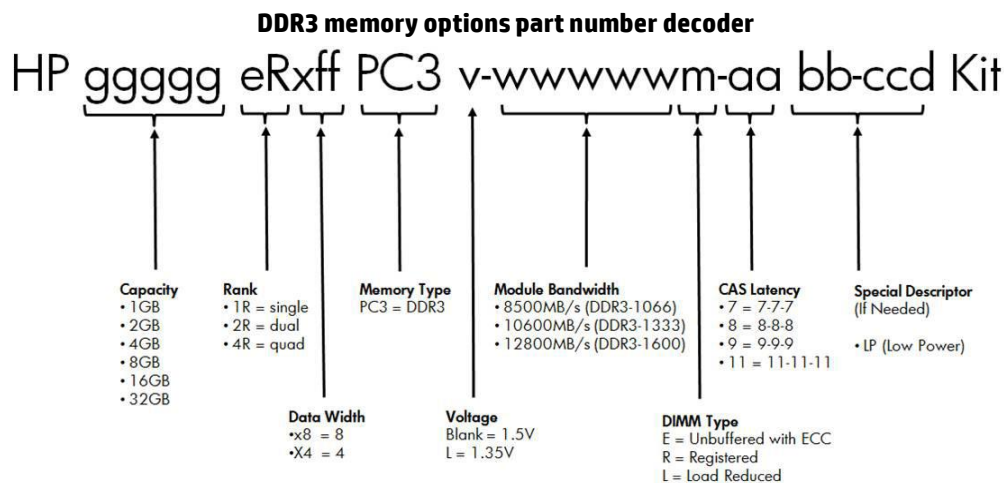
Memory		Slot			
		DIMM1C	DIMM2A	DIMM3D	DIMM4B

Memory

Standard (Performance Model)	8 GB	Empty	8 GB	Empty	Empty
Maximum	**32 GB**	8 GB	8 GB	8 GB	8 GB

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

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

Capacity
- 1GB
- 2GB
- 4GB
- 8GB
- 16GB
- 32GB

Rank
- 1R = single
- 2R = dual
- 4R = quad

Data Width
- x8 = 8
- X4 = 4

Memory Type
PC3 = DDR3

Voltage
Blank = 1.5V
L = 1.35V

Module Bandwidth
- 8500MB/s (DDR3-1066)
- 10600MB/s (DDR3-1333)
- 12800MB/s (DDR3-1600)

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

CAS Latency
- 7 = 7-7-7
- 8 = 8-8-8
- 9 = 9-9-9
- 11 = 11-11-11

Special Descriptor
(If Needed)
- LP (Low Power)

Following are memory options available from HP:

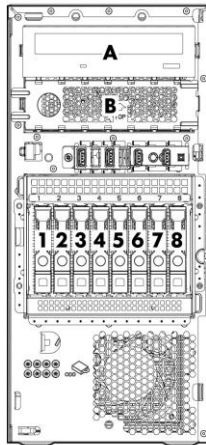| HP Memory	**Unbuffered with ECC DIMMs (UDIMMs)**	
	HP 2GB (1x2GB) Single Rank x8 PC3-12800E (DDR3-1600) Unbuffered CAS-11 Memory Kit	669320-B21
	HP 2GB (1x2GB) Single Rank x8 PC3L-10600E (DDR3-1333) Unbuffered CAS-9 Low Voltage Memory Kit	647905-B21
	HP 2GB (1x2GB) Single Rank x8 PC3L-12800E (DDR3-1600) Unbuffered CAS-11 Low Voltage Memory Kit	713975-B21
	HP 4GB (1x4GB) Dual Rank x8 PC3-12800E (DDR3-1600) Unbuffered CAS-11 Memory Kit	669322-B21
	HP 4GB (1x4GB) Dual Rank x8 PC3L-10600E (DDR3-1333) Unbuffered CAS-9 Low Voltage Memory Kit	647907-B21
	HP 4GB (1x4GB) Dual Rank x8 PC3L-12800E (DDR3-1600) Unbuffered CAS-11 Low Voltage Memory Kit	713977-B21
	HP 8GB (1x8GB) Dual Rank x8 PC3-12800E (DDR3-1600) Unbuffered CAS-11 Memory Kit	669324-B21
	HP 8GB (1x8GB) Dual Rank x8 PC3L-10600E (DDR3-1333) Unbuffered CAS-9 Low Voltage Memory Kit	647909-B21

Memory

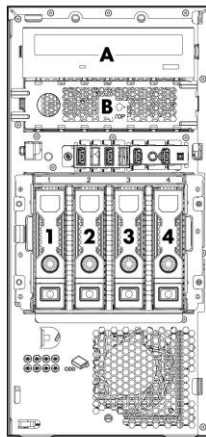|	
HP 8GB (1x8GB) Dual Rank x8 PC3L-12800E (DDR3-1600) Unbuffered CAS-11 Low Voltage Memory Kit	713979-B21

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.

Storage

1 - 8	8 x 2.5" (SFF) SAS/SATA hard drive bays
A	Removable Optical Drive
B	Removable Optical Drive **NOTE.** Once Redundant Power Supply is installed, Bay A will be the only media bay available for use.

1 - 4	4 x 3.5" (LFF) SAS/SATA hard drive bays
A	Removable Optical Drive
B	Removable Optical Drive **NOTE.** Once Redundant Power Supply is installed, Bay A will be the only media bay available for use.

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)	41.8 lb (18.96 kg)
		Minimum (one hard drive, power supply, and processor installed)	25.29 lb (11.47 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	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 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 60°C (-22° to 140°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	5 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	4.0 B
L pAm	26dB-A

Operating

L WAd	4.0 B
L pAm	26dB-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 23 to 24	Added	New Hard Drives were added to Core Options.
		Removed	Pre-configured Models section was revised.
		Changed	Obsolete SKUs were removed from Core Options, and Additional Options.
30-Mar-2015	From Version 22 to 23	Added	New Hard Drives were added to Core Options.
		Removed	Obsolete SKUs removed from HP Processors.
09-Feb-2015	From Version 21 to 22	Added	New Hard Drives, DirectFlow UPS, Rack and Tower G4 Models, LCD8500 1U Rackmount Models and Options were added to the Additional Options section.
		Changed	HP Uninterruptible Power Systems and HP Rack Options in Additional Options section were revised.
09-Feb-2015	From Version 20 to 21	Changed	Versioning matching with Product Bulletin
01-Dec-2014	From Version 19 to 20	Added	HP 1.6TB 6G SATA Value Endurance SFF 2.5-in SC Enterprise Value 3yr Wty Solid State Drive and HP 1.6TB 6G SATA Value Endurance LFF 3.5-in SC Converter Enterprise Value 3yr Wty Solid State Drive were added to HP Hard Drives.
		Removed	Removed two Proactive Care Services (U6F65E and U6F66E), Foundation Care services and Proactive Care Personalized Support Option from HP Care Pack Services.
01-Nov-2014	From Version 18 to 19	Changed	Service and Support section was revised.
29-Sep-2014	From Version 17 to 18	Added	New Solid State Drives were added. HP Managed Power Distribution Units (maPDU) was added to Additional Options.
		Changed	Service and Support section was revised. HP Hard Drives was revised in Core Options section.
09-Sep-2014	From Version 16 to 17	Added	6G SATA Hot Plug SFF VE (2.5-inch) SC EB SSD and 6G SATA Hot Plug SFF VE (2.5-inch) SC EV SSD hard drives were added to Core Options section.
18-Aug-2014	From Version 15 to 16	Added	New Hard Drives were added. HP Remote mPDUs half height version were added.
		Changed	Core Options and Additional Options sections were revised.
10-Jun-2014	From Version 14 to 15	Added	Entry, Base and Performance processors were added to Standard Features. Entry and Performance Pre-configured models were added. Entry and Performance processors were added.
		Changed	Memory, Basic and Remote Power Distribution Units were revised.
18-Apr-2014	From Version 13 to 14	Changed	Memory, HP Insight Software, Basic and Remote Monitoring Power Distribution Units, and HP Care Pack Services were revised.
31-Mar-2014	From Version 12 to 13	Changed	12G SAS High Endurance Hot Plug SFF Enterprise Performance Solid State Drives and 12G SAS Mainstream Endurance Hot Plug SFF Enterprise Mainstream Solid State Drives were added to Hard Drives HP Computation and Graphics Accelerators was added to Core Options HP Insight Software, Storage Controllers and HP USB and SD Options were revised in Additional Options
31-Jan-2014	From Version 11 to 12	Changed	Model descriptions, Tape Backup, and HP USB and SD Options were revised.
13-Dec-2013	From Version 10 to 11	Changed	HP Insight Control including 1yr 24x7 Support ProLiant Ml/DL/BL-bundle FIO Electronic License was added to Step 3 in Configuration Information

Summary of Changes

			HP SmartCache and HP H221 PCIe 3.0 SAS Host Bus Adapter were added to Storage Controllers HP Tape and Disk Storage Systems were added to Additional Options HP 8GB USB EM Flash Media Kit was added to HP USB and SD Options HP 1.2TB 6G SAS 10k rpm SFF SC Dual Port Enterprise 3yr Warranty Hard Drive was added and 3G SATA MLC Hot Plug SFF and LFF Enterprise Mainstream Solid State Drives were removed from Hard Drives HP Basic Power Distribution Units and HP Remote Monitoring Power Distribution Unites were revised in in Additional Options HP Power Distribution Units were removed from Additional Options
15-Nov-2013	From Version 9 to 10	Changed	Minor change made to the Core Options/ Hard Drives Section.
30-Sep-2013	From Version 8 to 9	Added	Entry and Base Processors were added HP Insight Software was added to Step 3 in Configuration Information - Factory Integrated Models 3G SATA MLC Hot Plug SFF and LFF Enterprise Mainstream Solid State Drives were added to Hard Drives Modular PDUs 1U/0U were added to HP Power Distribution Units HP Remote Monitoring Power Distribution Units was added to Additional Options HP Enterprise Mainstream Flash Media Kits for Memory Cards were added to HP USB and SD Drives
20-Sep-2013	From Version 7 to 8	Changed	HP Dynamic Smart Array B120i Controller in Technical Specifications was revised.
10-Sep-2013	From Version 6 to 7	Changed	Changes made throughout all Memory sections.
22-Aug-2013	From Version 5 to 6	Added	Added the Security section to Additional Options
19-Aug-2013	From Version 4 to 5	Changed / Added	Added the What's New section Changes made in the Standard Features section Changes made throughout all Memory sections The Service and Support section was completely revised. Changes made throughout the Configuration Information section. Added the HP Tape Backup section
15-Jul-2013	From Version 3 to 4	Added	HP Disk Backup was added to Additional Options.
14-Jun-2013	From Version 2 to 3	Changed	Changes made to the Models section only.
12-Jun-2013	From Version 1 to 2	Changed	Changes made to the North America and Canada versions only.

Summary of Changes