

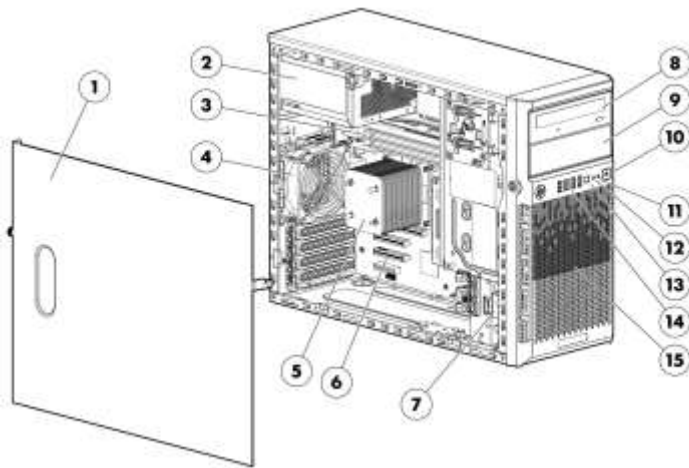
QuickSpecs

HP ProLiant ML310e Generation 8 (Gen8)

Overview

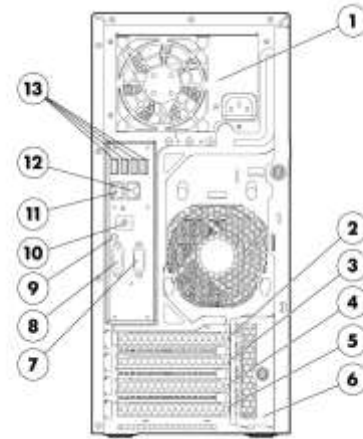
HP ProLiant ML310e Generation 8 (Gen8)

HP ProLiant ML310e Gen8, 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. System fan
5. Processor Heatsink
6. Four (4) PCIe expansion slots
7. PCI Fan
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. Slot 4 PCIe16
3. Slot 3 PCIe8
4. Slot 2 PCIe8
5. Slot 1 PCIe4
6. PCIe card bracket
7. Serial Connector
8. Video Connector
9. UID LED Button
10. iLO Dedicated Lan Port (optional)
11. NIC Connector 1 (shared management)
12. NIC Connector 2
13. Four (4) USB Connectors

What's New

- Updating supported options

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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: Intel® Celeron® G540 supports up to 1066MHz DDR3 memory speed. Intel® Celeron® G1610 and G1620 and Intel® Pentium® G860 and G2020 support up to 1333 MHz DDR3 memory speed. Celeron G1610, G1620 and Pentium G860 and G2020 processors, performance for 1600MHz memory is clocked down to 1333MHz.

Intel® Celeron® G1610 (2.6GHz/2-core/2MB/55W) Processor

Intel® Celeron® G1620 (2.7GHz/2-core/2MB/55W) Processor

Intel® Pentium® G2020 (2.9GHz/2-core/3MB/55W) Processor

Intel® Pentium® G2120 (3.1GHz/2-core/3MB/55W) Processor

Intel® Pentium® G2130 (3.2GHz/2-core/3MB/55W) Processor

Base Processors

NOTE: All support up to 1600MHz DDR3 memory speeds.

Intel® Core™ i3-3220 (3.3GHz/2-core/3MB/65W, HT) Processor

Intel® Core™ i3-3240 (3.4GHz/2-core/3MB/65W, HT) Processor

NOTE: HT indicates that the processor model supports Intel® Hyper-Threading Technology.

NOTE: DDR3 speed is the maximum memory speed of the processor. Actual memory speed may depend on the quantity and type of DIMMs installed (options for 1600, 1333, 1066MHz).

Cache Memory

One of the following depending on Model

3MB (1 x 3MB) L3 Cache

NOTE: For Dual-core Xeon, Core i3, and Pentium processors.

2MB (1 x 2MB) L3 Cache

NOTE: For Dual-core Celeron processors.

NOTE: All processor models above list the L3 Cache associated with that particular processor.

Chipset

Intel® C204 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 (depends on processor) 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

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Standard Features

Standard (Base Models)	2GB (1 x 2GB) PC3-12800E DDR3 UDIMM
Standard (Performance Models)	4GB (1 x 4GB) PC3-12800E DDR3 UDIMM
Maximum Capacity (UDIMM)	32 GB (4 x 8 GB UDIMM @1600MHz)

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

NOTE: Depending on the memory configuration and processor model, the memory speed may run at 1600MHz, 1333MHz, or 1066MHz. Please see Memory Population Table or the Online Memory Configuration Tool at: www.hp.com/go/ddr3memory-configurator.

Network Controller HP Ethernet 1Gb 2-port 330i 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	X4	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.

NOTE: PCIe Gen3 support with Intel Xeon E3-1200v2 family only.

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: www.hp.com/support/rbsu.

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Storage Controller HP Dynamic Smart Array B120i Controller
NOTE: Supports 3.0Gb/s SATA
NOTE: Supports RAID 0/1/10 only. No FBWC support. For FBWC, a standup Smart Array Controller card must be configured.
NOTE: For set up instructions, please refer to the HP ProLiant ML300 series server user guide.
NOTE: For general information about HP Smart Array B120i SATA RAID Controller, please go to: <http://h18004.www1.hp.com/products/servers/proliantstorage/arraycontrollers/smartarrayb120i/index.html>

Internal Storage Devices

Optical Drives	HP Half-Height SATA DVD-ROM Optical Drive
One of the following depending on model	HP Half-Height SATA DVD-RW Optical Drive
Hard Drives	1x500GB NHP LFF SATA HDD included in Entry Model None ship standard in Base and Performance Models
Hard Drive Bays	4 LFF drive bays (non-hot-plug and hot-plug) 8 SFF hot-plug drive bays
One of the following depending on model	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 1.2 TB
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 SATA SSD	6.4TB	8 x 800GB
Hot Plug LFF SATA SSD	800GB	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 (Optional)
SD slot	1 (internal) NOTE: The SD slot is not a hot-pluggable device. Customers should not attempt to plug an SD card into the SD slot while the server is powered.
USB	10 (4 front, 4 rear, 1 internal standard USB and 1 internal USB header)

Industry Standard Compliance

- ACPI 2.0b Compliant
- PCIe 3.0 Compliant
- PXE Support
- WOL Support
- Microsoft® Logo certifications
- USB 2.0 Support

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Standard Features

Server Power Cords The ProLiant ML310e Gen8 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 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: www.hp.com/go/proliant-energy-efficient or 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_na/14209_na.html

Power Supplies The ML310e Gen8 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: 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_na/14209_na.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](#)
[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 at: <http://www.hp.com/go/ossupport> and our driver download page:

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Standard Features

<http://www.hp.com/support/ML310eGen8>.

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 www.hp.com/go/intelligentprovisioning for additional information and to view usage videos.
 - Use the Service Pack for ProLiant (SPP) at 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 smartphones and mobile devices. For additional information

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Standard Features

please visit: 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	<p>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.</p> <p>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.</p> <p>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.</p> <p>NOTE: The Service Pack for ProLiant (which includes HP SUM) can be downloaded from www.hp.com/go/spp/download. More information can be found: http://www.hp.com/go/SmartUpdate, www.hp.com/go/spp and http://www.hp.com/go/hpsum</p>
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Security	Power-on password Administrator's password
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Warranty	This product is covered by a global limited warranty and supported by HP Services and a worldwide network of HP Authorized Channel Partners resellers. Hardware diagnostic support and repair is available for three years from date of purchase. Support for software and initial setup is available for 90 days from date of purchase. Enhancements to warranty services are available through HP Care Pack services or customized service agreements. Hard drives have either a one year or three year warranty;
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QuickSpecs

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Standard Features

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>

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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 you now have the option of offering your SMB customers a server management package solely design and priced for their small business environments.

HP iLO Essentials is available on all HP ProLiant Gen8 e-series making this an ideal solution for small business owners.

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**

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Optional Features

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

- **Storage Device Management Software**
Maximize your investment in HP storage and networking with software that enables hardware-specific configuration, performance tuning and connectivity management.
- **HP StoreVirtual VSA**
With HP StoreVirtual VSA you can use the power of virtualization to 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: 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. www.hp.com/go/insightonline

HP Proactive Insight experience

Prevent problems with innovative, automated monitoring tools and proactive services. The HP Proactive Insight experience consist of using Insight Online, Insight Remote Support, and Proactive Care Support Service as one integrated solution. The Proactive Insight experience provides you with expert advice and personalized, cloud-based automated IT support, helping to prevent unplanned down time and solve problems quickly. For more information, visit: www.hp.com/go/proactiveinsightexperience

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 Simple 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>

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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>

Related Services

HP ProLiant Server Hardware Installation

Provides for the basic hardware installation of HP branded servers, storage devices and networking options to assist you in bringing your new hardware into operation in a timely and professional manner.

<http://h20195.www2.hp.com/V2/GetPDF.aspx/5981-9356EN.pdf>

Factory Express for Servers and storage

HP Factory Express offers configuration, customization, integration and deployment services for HP servers and storage products. Customers can choose how their factory solutions are built, tested, integrated, shipped and deployed. For more information on Factory Express services for your specific server model please contact your sales representative or go to: <http://www.hp.com/go/factory-express>.

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Service and Support

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.

www.hp.com/services/dataprivacy

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

Get connected to HP to improve your support experience

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

www.hp.com/go/proactiveinsightexperience

HP Support Center

Personalized online support portal with access to information, tools and experts to support HP business products. Submit support cases online, chat with HP experts, access support resources or collaborate with peers. Learn more

<http://www.hp.com/go/hpsc>

HP's Support Center Mobile App* allows you to resolve issues yourself or quickly connect to an agent for live support. Now, you can get access to personalized IT support anywhere, anytime.

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

Warranty / Service Coverage

For ProLiant servers and storage systems, the services cover HP-branded hardware options qualified for the server, purchased at the same time or afterward, internal to the enclosure, as well as external monitors up to 22" and tower UPS products; these items will be covered at the same service level and for the same coverage period as the server unless the maximum supported lifetime and/or the maximum usage limitation has been exceeded. Coverage of the UPS battery is not included; standard warranty terms and conditions apply.

The defective media retention service feature option applies only to Disk or eligible SSD/Flash Drives replaced by HP due to malfunction. It does not apply to any exchange of Disk or SSD/Flash Drives that have not failed. SSD/Flash Drives that are specified by HP as consumable parts and/or that have exceeded maximum supported lifetime and/or the maximum usage limit as set forth in the manufacturer's operating manual or the technical data sheet are not eligible for the defective media retention service feature option.

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>

QuickSpecs

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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: 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.

Entry Models

<p>HP ProLiant ML310e Gen8 G2020 2GB-U Non-hot Plug LFF 350W PS Server 721546-001</p>	<p>Processor(s) Cache Memory Memory Network Controller Storage Controller Hard Drive Internal Storage Optical Drive Power Supply</p>	<p>(1) Intel® Pentium® G2020 (2.9GHz/2-core/3MB/55W) Processor 3MB (1 x 3MB) L3 cache 2GB (1 x 2GB) PC3-12800E DDR3 UDIMM HP Ethernet 1Gb 2-port 330i Adapter HP Dynamic Smart Array B120i Controller None ship standard 4 LFF NHP SAS/SATA HDD cage; includes 4 LFF hard drive blanks None ship standard HP 350W Multi-Output Power Supply NOTE: The standard power supply for the Entry Model is an 85% efficient Multi-Output Power Supply. It is a non-redundant, not-hot-plug power supply.</p>
	<p>Fans</p>	<p>One (1) Non-redundant system fan ships standard One (1) Non-redundant PCIe fan ships standard</p>
	<p>Management</p>	<p>HP iLO Management Engine (standard on shared system NIC) Optional: HP Insight Control</p>
	<p>Form Factor</p>	<p>Micro ATX Tower (4U)</p>
	<p>Warranty</p>	<p>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).</p>

<p>HP ProLiant ML310e Gen8 i3-3220 1P 2GB-U Non-hot Plug LFF 350W PS Entry Server 674785-001</p>	<p>Processor(s) Cache Memory Memory Network Controller Storage Controller Hard Drive Internal Storage Optical Drive Power Supply</p>	<p>(1) Intel® Core® i3-3220 (3.3GHz/2-core/3MB/65W, HT) Processor 3MB (1 x 3MB) L3 cache 2GB (1 x 2GB) PC3-12800E DDR3 UDIMM HP Ethernet 1Gb 2-port 330i Adapter HP Dynamic Smart Array B120i Controller 1x500GB NHP LFF SATA 4 LFF NHP SAS/SATA HDD cage; includes 3 LFF hard drive blanks HP Half-Height 16x SATA DVD-ROM HP 350W Multi-Output Power Supply NOTE: The standard power supply for the Entry Model is an 85% efficient Multi-Output Power Supply. It is a non-redundant, not-hot-plug power supply.</p>
	<p>Fans</p>	<p>One (1) Non-redundant system fan ships standard</p>

QuickSpecs

HP ProLiant ML310e Generation 8 (Gen8)

Pre-configured Models

Management	One (1) Non-redundant PCIe fan ships standard HP iLO Management Engine (standard on shared system NIC) Optional: 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).

QuickSpecs

HP ProLiant ML310e Generation 8 (Gen8)

Smart Buys

HP ProLiant ML310e Gen8 E3-1220v2 1P 4GB-U Hot Plug 4 LFF 350W PS Server/S-Buy 686232-S01	Processor(s)	(1) Intel® Xeon® E3-1220v2 (3.1GHz/4-core/8MB/69W, HT) 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 330i Adapter
	Storage Controller	HP Dynamic Smart Array B120i Controller
	Hard Drive	None ship standard
	Internal Storage	4 LFF SAS/SATA HDD cage; includes 3 LFF hard drive blanks
	Optical Drive	HP Half-Height 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
	Accessories	USB Keyboard and Mouse ship standard
	Management	HP iLO Management Engine
	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	

HP ProLiant ML310e Gen8 E3-1220v2 1P 4GB-U Non-Hot Plug 4 LFF 350W PS Server/S-Buy 686233-S01	Processor(s)	(1) Intel® Xeon® E3-1220v2 (3.1GHz/4-core/8MB/69W, HT) 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 330i Adapter
	Storage Controller	HP Dynamic Smart Array B120i Controller
	Hard Drive	(1) 500GB 6G SATA 7.2k 3.5in Non Hot Plug MDL HDD
	Internal Storage	4 LFF SAS/SATA HDD cage
	Optical Drive	HP Half-Height 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
	Accessories	USB Keyboard and Mouse ship standard
	Management	HP iLO Management Engine
	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	

HP ProLiant ML310e Gen8 E3-1220v2 1P 4GB-U Non-Hot Plug 4 LFF 350W WS2012 PS Server/S-Buy 731197-S01	Processor(s)	(1) Intel® Xeon® E3-1220v2 (3.1GHz/4-core/8MB/69W, HT) 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 330i Adapter
	Storage Controller	HP Dynamic Smart Array B120i Controller
	Hard Drive	(2) 500GB 6G SATA 7.2k 3.5in Non Hot Plug MDL HDD
	Internal Storage	4 LFF SAS/SATA HDD cage
	Optical Drive	HP Half-Height SATA DVD-RW
	Power Supply	HP 350W Multi-Output Power Supply
	Operating System	Microsoft Windows Server 2012 Essentials Edition ROK
	Fans	One (1) Non-redundant system fan ships standard

QuickSpecs

HP ProLiant ML310e Generation 8 (Gen8)

Smart Buys

Accessories	One (1) Non-redundant PCIe fan ships standard
Management	USB Keyboard and Mouse ship standard
Form Factor	HP iLO Management Engine
Warranty	Micro ATX Tower (4U)
	Server Warranty includes 1-Year Parts, 1-Year Labor, 1-Year Onsite support with next business day response

HP ProLiant ML310e Gen8 E3-1230v2 1P 8GB-U Hot Plug 4 LFF 350W PS Server/S-Buy 686234-S01	Processor(s)	(1) Intel® Xeon® E3-1230v2 (3.3GHz/4-core/8MB/69W, HT)
	Cache Memory	8MB (1 x 8MB) L3 cache
	Memory	8GB (2 x 4GB) PC3-12800E DDR3 UDIMM
	Network Controller	HP Ethernet 1Gb 2-port 330i Adapter
	Storage Controller	HP Dynamic Smart Array B120i Controller
	Hard Drive	None ships standard
	Internal Storage	4 LFF SAS/SATA HDD cage; 3 LFF Hard Drive Blanks
	Optical Drive	HP Half-Height 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
	Accessories	USB Keyboard and Mouse ship standard
	Management	HP iLO Management Engine
	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	

HP ProLiant ML310e Gen8 E3-1240v2 1P 8GB-U Hot Plug 8 SFF 460W PS Server/S-Buy 686235-S01	Processor(s)	(1) Intel® Xeon® E3-1240v2 (3.4GHz/4-core/8MB/69W, HT)
	Cache Memory	8MB (1 x 8MB) L3 cache
	Memory	8GB (2 x 4GB) PC3-12800E DDR3 UDIMM
	Network Controller	HP Ethernet 1Gb 2-port 330i Adapter
	Storage Controller	HP Smart Array P420/1GB FBWC 6Gb 2-ports Int SAS Controller
	Hard Drive	None ships standard
	Internal Storage	8 SFF SAS/SATA HDD cage; 7 SFF Hard Drive Blanks
	Optical Drive	HP Half-Height SATA DVD-RW
	Power Supply	HP 460W Common Slot Gold Hot Plug Power Supply Kit
	Fans	One (1) Non-redundant system fan ships standard One (1) Non-redundant PCIe fan ships standard
	Accessories	USB Keyboard and Mouse ship standard
	Management	HP iLO Management Engine
	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	

QuickSpecs

HP ProLiant ML310e Generation 8 (Gen8)

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 Hot Plug 4 LFF Configure-to-order Server	675241-B21
	Factory Integrated Model ships with: HP Ethernet 1Gb 2-port 330i 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://h18004.www1.hp.com/products/servers/proliantstorage/arraycontrollers/smartarrayb120i/index.html Hot-Plug SAS/SATA 4 port cable PCA Power Cord Micro ATX Tower (4U)	
	HP ProLiant ML310e Gen8 Hot Plug 8 SFF Configure-to-order Server	675242-B21
	Factory Integrated Model ships with: HP Ethernet 1Gb 2-port 330i 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)	
	HP ProLiant ML310e Gen8 Non-hot Plug 4 LFF Configure-to-order Server	675240-B21
	Factory Integrated Model ships with: HP Ethernet 1Gb 2-port 330i 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://h18004.www1.hp.com/products/servers/proliantstorage/arraycontrollers/smartarrayb120i/index.html Nonhot-plug SAS/SATA 4 port cable 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: Intel® Celeron® G540 supports up to 1066MHz DDR3 memory speed. Intel®

QuickSpecs

HP ProLiant ML310e Generation 8 (Gen8)

Configuration Information - Factory Integrated Models

Celeron® G1610 and G1620 and Intel® Pentium® G860 and G2020 support up to 1333 MHz DDR3 memory speed. Celeron G540 processor, performance for 1600MHz memory is clocked down to 1066MHz. Celeron G1610, G1620 and Pentium G860 and G2020 processors, performance for 1600MHz memory is clocked down to 1333MHz.

HP ML310e Gen8 Intel® Celeron G1610 (2.6GHz/2-core/2MB/55W) FIO Processor Kit	721960-L21
HP ML310e Gen8 Intel® Celeron G1620 (2.7GHz/2-core/2MB/55W) FIO Processor Kit	721958-L21
HP ML310e Gen8 Intel® Pentium® G2020 (2.9GHz/2-core/3MB/55W) FIO Processor Kit	721962-L21
HP ML310e Gen8 Intel® Pentium® G2120 (3.1GHz/2-core/3MB/55W) FIO Processor Kit	703746-L21
HP ML310e Gen8 Intel® Pentium® G2130 (3.2GHz/2-core/3MB/55W) FIO Processor Kit	721956-L21

Base Processors

NOTE: All support up to 1600MHz DDR3 memory speeds.

HP ML310e Gen8 Intel® Core™ i3-3220 (3.3GHz/2-core/3MB/55W) FIO Processor Kit	700582-L21
HP ML310e Gen8 Intel® Core™ i3-3240 (3.4GHz/2-core/3MB/55W) FIO Processor Kit	700580-L21

HP Memory

Unbuffered with ECC DIMMs (UDIMM) for E5-2xxx and E3-1xxx v3 series Processors

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 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 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

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: 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: 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 Common Slot Gold Hot Plug Power Supply Kit	503296-B21
Enablement Kit	
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



QuickSpecs

HP ProLiant ML310e Generation 8 (Gen8)

Configuration Information - Factory Integrated Models

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

Step 4: Choose Additional Options for Factory Integration

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

QuickSpecs

HP ProLiant ML310e Generation 8 (Gen8)

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	674839-B21
	NOTE: The LFF Kit is a backplane kit designed for going from NHP LFF to hot-plug LFF.	
	HP 4U 8 Small Form Factor Hot Plug Hard Drive Cage Kit	674841-B21
	NOTE: The SFF Kit is the cage plus backplane and designed to convert from any LFF configuration to SFF.	

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_na/14225_na.html

Unbuffered with ECC DIMMs (UDIMM) for E5-2xxx and E3-1xxx v3 series Processors

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-10600E (DDR3-1333) Unbuffered CAS-9 Low Voltage Memory Kit S-Buy	647905-S21
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-10600E (DDR3-1333) Unbuffered CAS-9 Low Voltage Memory Kit S-Buy	647907-S21
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 Drive Cage Options

	HP 4U 4 Large Form Factor Hot Plug Hard Drive Backplane Kit	674839-B21
	NOTE: The LFF Kit is a backplane kit designed for going from NHP LFF to hot-plug LFF.	
	HP 4U 8 Small Form Factor Hot Plug Hard Drive Cage Kit	674841-B21
	NOTE: The SFF Kit is the cage plus backplane and designed to convert from any LFF configuration to SFF.	

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.

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
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QuickSpecs

HP ProLiant ML310e Generation 8 (Gen8)

Core Options

HP 1.2TB 6G SAS 10K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive	697574-B21
HP 900GB 6G SAS 10K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive	652589-B21
HP 900GB 6G SAS 10K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive S-Buy	652589-S21
HP 600GB 6G SAS 10K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive	652583-B21
HP 600GB 6G SAS 10K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive S-Buy	652583-S21
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 10K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive S-Buy	652564-S21
HP 300GB 6G SAS 15K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive	652611-B21
HP 300GB 6G SAS 15K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive S-Buy	652611-S21
HP 146GB 6G SAS 15K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive	652605-B21
HP 146GB 6G SAS 15K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive S-Buy	652605-S21
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
SAS Hot Plug SmartDrive LFF (3.5-inch) Enterprise Drives	
HP 600GB 6G SAS 15K rpm LFF (3.5-inch) SC Enterprise 3yr Warranty Hard Drive	652620-B21
HP 450GB 6G SAS 15K rpm LFF (3.5-inch) SC Enterprise 3yr Warranty Hard Drive	652615-B21
SAS Hot Plug SmartDrive LFF (3.5-inch) Midline Drives	
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
SAS Non-Hot Plug LFF (3.5-inch) Enterprise (ENT) Drives	
HP 600GB 6G SAS 15K rpm LFF (3.5-inch) Non-hot Plug Dual Port Enterprise 3yr Warranty Hard Drive	516830-B21
HP 450GB 6G SAS 15K rpm LFF (3.5-inch) Non-hot Plug Dual Port Enterprise 3yr Warranty Hard Drive	516826-B21
NOTE: Please see the QuickSpecs for Technical Specifications and additional information:	
http://h18000.www1.hp.com/products/quickspecs/12244_na/12244_na.html	
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 1TB 6G SATA 7.2K rpm SFF (2.5-inch) SC Midline 1yr Warranty Hard Drive S-Buy	655710-S21
HP 500GB 6G SATA 7.2K rpm SFF (2.5-inch) SC Midline 1yr Warranty Hard Drive	655708-B21
HP 500GB 6G SATA 7.2K rpm SFF (2.5-inch) SC Midline 1yr Warranty Hard Drive S-Buy	655708-S21
6G SATA Hot Plug with SmartDrive LFF (3.5-inch) Midline (MDL) Drives	
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 1TB 6G SATA 7.2K rpm LFF (3.5-inch) SC Midline 1yr Warranty Hard Drive S-Buy	657750-S21

QuickSpecs

HP ProLiant ML310e Generation 8 (Gen8)

Core Options

HP 500GB 6G SATA 7.2K rpm LFF (3.5-inch) SC Midline 1yr Warranty Hard Drive	658071-B21
HP 500GB 6G SATA 7.2K rpm LFF (3.5-inch) SC Midline 1yr Warranty Hard Drive S-Buy	658071-S21
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
NOTE: SATA hard drives have a 1-year warranty. Please see the QuickSpecs for Technical Specifications and additional information:	
http://h18000.www1.hp.com/products/quickspecs/13021_na/13021_na.html	
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 Value Endurance Hot Plug SFF (2.5-inch) Enterprise Value Solid State Drives	
HP 600GB 6G SATA Value Endurance SFF 2.5-in SC Enterprise Value 3yr Wty Solid State Drive	739898-B21
HP 300GB 6G SATA Value Endurance SFF 2.5-in SC Enterprise Value 3yr Wty Solid State Drive	739888-B21
6G SATA Value Endurance Hot Plug LFF (3.5-inch) Enterprise Value Solid State Drives	
HP 800GB 6G SATA Value Endurance LFF 3.5-in SC Enterprise Value 3yr Wty Solid State Drive	718189-B21
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 ME 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 ME 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	691854-B21

QuickSpecs

HP ProLiant ML310e Generation 8 (Gen8)

Core Options

Wty Solid State Drive	
HP 100GB 6G SATA Mainstream Endurance LFF 3.5-in SC Enterprise Mainstream 3yr	691852-B21
Wty Solid State Drive	
NOTE: Please see the QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/14038_na/14038_na.html	
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 LFF Gen8 Hard Drive Blank Kit	666986-B21
HP SFF Gen8 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: www.hp.com/go/ProLiantNICs

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: www.hp.com/go/hppoweradvisor.

HP Common Slot Gold Power Supplies

NOTE: The following Power Supplies offer 92% Efficiency.

HP 460W Common Slot Gold Hot Plug Power Supply Kit	503296-B21
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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_na/14209_na.html

Enablement Kit

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

QuickSpecs

HP ProLiant ML310e Generation 8 (Gen8)

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 Management Hardware	HP Dedicated iLO Management Port Kit	674845-B21
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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 Single Server License/S-Buy	C6N27S
	HP Insight Control Server Provisioning Media Kit	BD883A
	HP Insight Management Media Kit	C6N31A
	HP Insight Control Server Deployment including 1yr 24x7 Support Electronic License	T9082AAE
	HP Insight Control Server Deployment including 1yr 24x7 Support Single Server License	452151-B21

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 Management 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_na/12631_na.html

HP Integrated Lights-Out (iLO)

HP iLO Essentials

HP Integrated Lights-Out Essentials including 3yr 24x7 Tech Support and Updates Single Svr License	BD774A
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HP Integrated Lights-Out Essentials including 1yr 24x7 Tech Support and Updates Single Svr License	BD775A
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HP Integrated Lights-Out (iLO) Advanced for ProLiant

HP iLO Advanced including 1yr 24x7 Technical Support and Updates Single Server License	512485-B21
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HP iLO Advanced 1 Server License with 3yr 24x7 Tech Support and Updates	BD505A
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HP iLO Advanced including 1yr 24x7 Technical Support and Updates Flexible Quantity License	512486-B21
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HP iLO Advanced including 1yr 24x7 Technical Support and Updates Tracking License	512487-B21
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NOTE: For additional license kits, including electronic delivery options, please see the QuickSpecs at:

http://h18004.www1.hp.com/products/quickspecs/14276_na/14276_na.html

NOTE: For more information, visit: <http://www.hp.com/go/ilo>.

HP Security	HP Trusted Platform Module Option	488069-B21
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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

QuickSpecs

HP ProLiant ML310e Generation 8 (Gen8)

Additional Options

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: 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

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_na/14227_na.html
(Smart Array P222 Controller)

http://h18000.www1.hp.com/products/quickspecs/14228_na/14228_na.html
(Smart Array P420 Controller)

http://h18000.www1.hp.com/products/quickspecs/14229_na/14229_na.html
(Smart Array P421 Controller)

http://h18000.www1.hp.com/products/quickspecs/13200_na/13200_na.html
(Smart Array Advanced Pack)

HP Host Bus Adapters

HP H220 Host Bus Adapter 650933-B21

HP H221 Host Bus Adapter 650931-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_na/14336_na.html
(HBA H220)

http://h18004.www1.hp.com/products/quickspecs/14222_na/14222_na.html
(HBA H221)

http://h18004.www1.hp.com/products/quickspecs/14337_na/14337_na.html
(HBA H222)

SCSI HBA

HP SC11Xe Ultra320 Single Channel/ PCIe x4 SCSI Host Bus Adapter 412911-B21



QuickSpecs

HP ProLiant ML310e Generation 8 (Gen8)

Additional Options

NOTE: Please see the following QuickSpecs for additional information:
http://h18000.www1.hp.com/products/quickspecs/12566_na/12566_na.html
(SC11Xe HBA)

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 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	COH19A

HP Tape Storage Systems

HP StoreEver MSL6480

HP StoreEver MSL6480 Scalable Base Module	QU625A
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NOTE: Please see the QuickSpecs for Technical Specifications and additional information:
http://h18000.www1.hp.com/products/quickspecs/14604_na/14604_na.html

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 USB3.0 External Disk Backup System	B7B66A
HP RDX1000 USB3.0 Internal Disk Backup System	B7B67A
HP RDX1000 USB3.0 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_na/13036_na.html

HP Disk Storage Systems Disk Enclosures

HP D2600 w/12 4TB 6G SAS 7.2K LFF Dual Port MDL HDD 48TB Bundle	E7W32A
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NOTE: Please see the QuickSpecs for Technical Specifications and additional information:
http://h18000.www1.hp.com/products/quickspecs/13404_na/13404_na.html

HP Uninterruptible Power Systems

HP Tower UPS

HP T1500 G3 UPS Models

HP T1500 G3 1400VA NA Tower Uninterruptible Power System	AF450A
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NOTE: Please see the QuickSpecs for additional information:
http://h18000.www1.hp.com/products/quickspecs/13160_na/13160_na.html

HP Rack-mountable UPS

HP R1500 G3 Uninterruptible Power Supply (UPS)

HP R1.5kVA G3 1U NA Uninterruptible Power System	AF469A
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QuickSpecs

HP ProLiant ML310e Generation 8 (Gen8)

Additional Options

NOTE: Please see the QuickSpecs for additional information:

http://h18000.www1.hp.com/products/quickspecs/14059_na/14059_na.html

HP R/T3000 G2 Uninterruptible Power System (UPS)

HP R/T3000 G2 2U L530 Low Voltage NA/JP Uninterruptible Power System AF466A

HP R/T3000 G2 2U L620 High Voltage NA/JP Uninterruptible Power System AF467A

NOTE: Please see the QuickSpecs for additional information:

http://h18000.www1.hp.com/products/quickspecs/14058_na/14058_na.html

R5000 Uninterruptible Power System (UPS)

HP R5KVA 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_na/14109_na.html

(Worldwide)

R7000 Uninterruptible Power System (UPS)

HP R7KVA 4U 50A High Voltage NA/JP Uninterruptible Power System AF462A

NOTE: Please see the QuickSpecs for additional information:

http://h18000.www1.hp.com/products/quickspecs/14110_na/14110_na.html

NOTE: For additional information on HP Uninterruptible Power Systems please go to:

www.hp.com/servers/rackups.

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: www.hp.com/products/powercords.

HP Basic Power

Distribution Units (pPDU)

HP Basic Power Distribution Unit: 1U/OU 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 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 8.3kVA 208 Volt CS8265C Input (30xC13/6xC19) NA/JP Basic PDU H5M60A

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 Basic Power Distribution Unit: Full Height Version

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 13.2kVA 480 Volt IEC309 30A 3-Phase Input (15 Outlet) NA Basic PDU H3X07A

HP 19.9kVA 480 Volt IEC309 30A 3-Phase Input (30 Outlet) NA Basic PDU H3X08A

HP 800VA - 277V Input / 230V Output NA Rack Mount Transformer H3X09A

QuickSpecs

HP ProLiant ML310e Generation 8 (Gen8)

Additional Options

NOTE: Please see the QuickSpecs for Technical Specifications and additional information:

http://h18000.www1.hp.com/products/quickspecs/14557_na/14557_na.html

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

HP Remote Monitoring 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 Remote Monitored Power Distribution Unit: Mid Height Version

HP 4.9kVA 208 Volt L6-30 Input (20xC13/4xC19) NA/JP Monitored PDU D9N47A

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 Remote Monitored Power Distribution Unit: Full Height Version

HP 8.3kVA 208 Volt CS8265C Input (30xC13/3xC19) NA Monitored PDU D9N49A

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 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 PDUs E2D53A

NOTE: Please see the QuickSpecs for additional information:

http://h18000.www1.hp.com/products/quickspecs/14669_na/14669_na.html

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 17.3kVA 24A 415V Three Phase L22-30 NA Core Intelligent Power Distribution Unit AF902A

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

iPDU Kits with Standard Extension Bars



QuickSpecs

HP ProLiant ML310e Generation 8 (Gen8)

Additional Options

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

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_na/13650_na.html

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

HP Rack Series

HP Intelligent Series Rack

HP 636 1075mm Pallet Intelligent Series Rack	BW895A
HP 636 1075mm Shock Intelligent Series Rack	BW896A
HP 642 1075mm Pallet Intelligent Series Rack	BW903A
HP 642 1075mm Shock Intelligent Series Rack	BW904A
HP 647 1075mm Pallet Intelligent Series Rack	BW911A
HP 647 1075mm Shock Intelligent Series Rack	BW912A

NOTE: Please see the QuickSpecs for Technical Specifications such as height, width, depth, weight, and color:

http://h18000.www1.hp.com/products/quickspecs/14223_na/14223_na.html

NOTE: For additional information regarding Rack Cabinets, please see the following URL: <http://www.hp.com/go/rackandpower>.

HP Rack Options

HP Location Discovery Services

HP 36U Location Discovery Kit	BW945A
HP 42U Location Discovery Kit	BW946A
HP 47U Location Discovery Kit	BW947A

NOTE: Please see the QuickSpecs for Technical Specifications and additional information:

http://h18000.www1.hp.com/products/quickspecs/14429_na/14429_na.html

HP USB Keyboard and Mouse

HP USB BFR with PVC Free US Keyboard/Mouse Kit	631341-B21
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NOTE: Please see the QuickSpecs for Technical Specifications and additional information:

http://h18000.www1.hp.com/products/quickspecs/13792_na/13792_na.html

HP TFT7600 G2 KVM Console Rackmount Keyboard Monitor

HP TFT7600 G2 KVM Console Rackmount Keyboard US Monitor	AZ870A
HP TFT7600 G2 KVM Console Rackmount Keyboard US TAA Monitor	AZ885A

NOTE: Please see the QuickSpecs for Technical Specifications and additional information:

http://h18000.www1.hp.com/products/quickspecs/13731_na/13731_na.html

HP Server Console Switches

HP Server Console 0x2x8 Port Analog Switch	AF616A
HP Server Console 0x2x16 Port Analog Switch	AF617A
HP TAA 0x2x16xKVM Server Console G2 Switch	AF626A

NOTE: Please see the QuickSpecs for Technical Specifications and additional information:

QuickSpecs

HP ProLiant ML310e Generation 8 (Gen8)

Additional Options

http://h18000.www1.hp.com/products/quickspecs/11834_na/11834_na.html
(Worldwide)

HP Server Console Switch G2 with Virtual Media & CAC

HP 0x2x16 KVM Server Console Switch G2 with Virtual Media CAC Software	AF618A
HP 0x2x32 KVM Server Console Switch G2 with Virtual Media CAC Software	AF619A
HP KVM CAT5 1-pack USB Interface Adapter	336047-B21

NOTE: Please see the QuickSpecs for Technical Specifications and additional information:

http://h18000.www1.hp.com/products/quickspecs/13475_na/13475_na.html

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_na/13474_na.html

Rack Kit

HP Tower to Rack Conversion Tray Universal Kit	417705-B21
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HP USB and SD Options

HP Flash Media Kits for USB Drives

HP 8GB USB Enterprise Mainstream Flash Media Drive Key Kit	737953-B21
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HP Enterprise Mainstream Flash Media Kits for Memory Cards

HP 8GB SD Enterprise Mainstream Flash Media Kit	726113-B21
HP 32GB SD Enterprise Mainstream Flash Media Kit	700136-B21

NOTE: Please see the QuickSpecs for Technical Specifications and additional information:

http://h18000.www1.hp.com/products/quickspecs/13971_na/13971_na.html

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 3 year 6 hour Call to Repair 24x7 ProLiant ML310e Proactive Care Service	U6F79E
HP 3 year 6 hour Call to Repair 24x7 w/ Defective Media Retention ProLiant ML310e Proactive Care SVC	U6F80E

Foundation Care

HP 3 year 4 hour 24x7 ProLiant ML310e Collaborative Support	U6F71E
HP 3 year 4 hour 24x7 with Defective Media Retention ProLiant ML310e Collaborative Support	U6F72E
HP 3 year 6 hour Call to Repair 24x7 ProLiant ML310e Collaborative Support	U6F77E
HP 3 year 6 hour CalltoRepair 24x7 w/Defective Media Retention ProLiant ML310e	U6F78E

QuickSpecs

HP ProLiant ML310e Generation 8 (Gen8)

Additional Options

Collaborative Support

Proactive Care Personalized Support Option

NOTE: To add an onsite Account Support Manager (ASM) to Proactive Care. ASM is an assigned resource who delivers support planning and brings technical expertise and best practices advices for the customer's environment.

HP 3 year ISS ProactiveCare Personalized Support

U6W98E

Installation Services

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

HP Install ProLiant ML310e Service

U6G21E

HP Startup ProLiant ML310e Service

U6G23E

NOTE: For more information, customer/resellers can contact:

<http://www.hp.com/services/carepack>

QuickSpecs

HP ProLiant ML310e Generation 8 (Gen8)

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:

www.hp.com/go/ddr3memory-configurator

General Guidelines:

- The HP ProLiant ML310e Gen8 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 Supported Memory Bandwidth and Capacity

DIMM Type	Unbuffered with ECC DIMMs (UDIMMs)					
	Single Rank (1R)			Dual Rank (2R)		
DIMM Rank						
DIMM Capacity	2GB	2GB	4GB	4GB	8GB	8GB
DIMM Native Speed (MHz)	1333	1600	1333	1600	1333	1600
Voltage	LV	Std	LV	Std	LV	Std
SLOTS THAT CAN BE POPULATED						
4 slot servers	4	4	4	4	4	4
MAXIMUM CAPACITY (GB)*						
	8	8	16	16	32	32
POPULATED DIMM SPEED (MHz)						
1 DIMM Per Channel	1333	1600	1333	1600	1333	1600
2 DIMM Per Channel	1333**	1600	1333**	1600	1333**	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



QuickSpecs

HP ProLiant ML310e Generation 8 (Gen8)

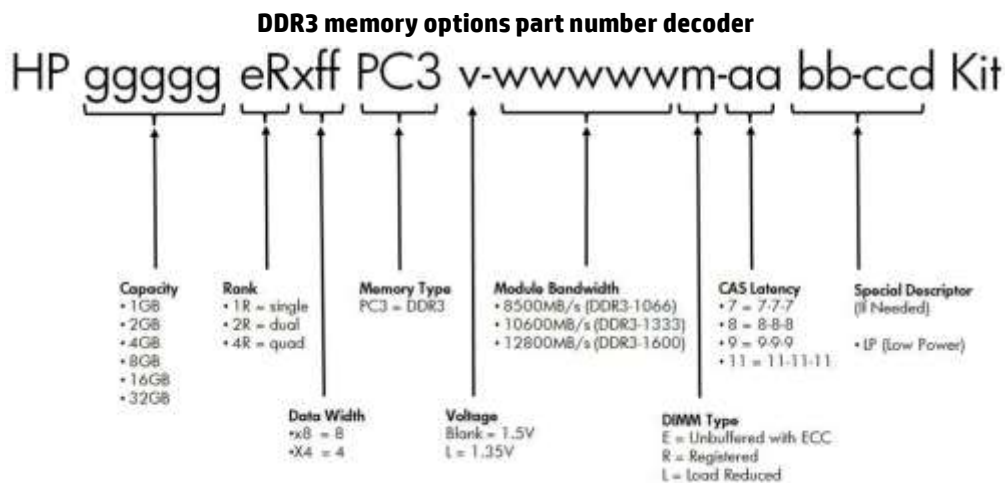
Memory

Standard (Base Model)	2 GB	Empty	2 GB	Empty	Empty
Standard (Performance Model)	4 GB	Empty	4 GB	Empty	Empty
Maximum	32 GB	8 GB	8 GB	8 GB	8 GB

Memory Speed by Processor Model	
Processor Models	Supported Memory Speeds
E3-1220Lv2, E3-1220v2, E3-1230v2, E3-1240v2, E3-1270v2, E3-1280v2, i3-3240, i3-3220	1600/1333/1066MHz
G2120	1333/1066MHz
G540	1066MHz

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

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



Following are memory options available from HP:

HP Memory

Unbuffered with ECC DIMMs (UDIMM) for E5-2xxx and E3-1xxx v3 series Processors

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 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 8GB (1x8GB) Dual Rank x8 PC3-12800E (DDR3-1600) Unbuffered CAS-11 Memory Kit	669324-B21

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Memory

HP 8GB (1x8GB) Dual Rank x8 PC3L-10600E (DDR3-1333) Unbuffered CAS-9 Low Voltage Memory Kit

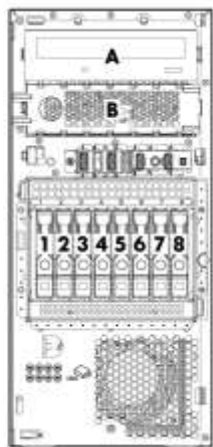
647909-B21

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

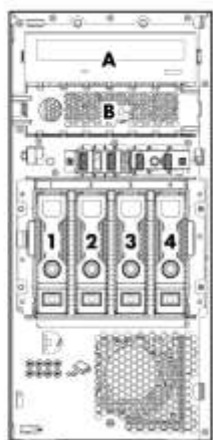
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HP ProLiant ML310e Generation 8 (Gen8)

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.

External Storage

	Quantity Supported	Position Supported	Controller
D2600 Disk Enclosure	Up to 4	External	HP Smart Array P222/512MB FBWC Controller
	Up to 8	External	HP Smart Array P421/1GB FBWC Controller HP Smart Array P421/2GB FBWC Controller
D2700 Disk Enclosure	Up to 4	External	HP Smart Array P222/512MB FBWC Controller
	Up to 8	External	HP Smart Array P421/1GB FBWC Controller HP Smart Array P421/2GB FBWC Controller

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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	7.1 Amps (at 120VAC) to 3.5 Amps (at 240 VAC)
		Rated Input Frequency	50 to 60 Hz
		Rated Input Power	486 W
	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. Noise emissions were measured in accordance with ISO 7779 (ECMA 74)	

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HP ProLiant ML310e Generation 8 (Gen8)

Technical Specifications

and declared in accordance with ISO 9296 (ECMA 109).

Idle

L WAd	4.3 B
L pAm	26dB-A

Operating

L WAd	4.4 B
L pAm	28dB-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 330i Adapter

Network Interface

10Base-T/100Base-TX/1000Base-TX

Compatibility

IEEE 802.3 10Base-T
IEEE 802.3ab 1000Base-T
IEEE 802.3u 100Base-TX

Data Transfer Method

PCI-e, two lanes (x2)

Controller

BCM5717

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
1000 Base-TX (Full-Duplex)	2000Mb/s per port, 4000 Mb/s Combined

Connector

RJ-45

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Technical Specifications

Cable Support

10Base-T
10/100/1000Base-TX

Categories 3, 4 or 5 UTP; up to 328 ft (100 m)
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.

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HP ProLiant ML310e Generation 8 (Gen8)

Summary of Changes

Date	Version History	Action	Description of Change:
01-Nov-2014	From Version 28 to 29	Changed	Service and Support section was revised.
18-Apr-2014	From Version 27 to 28	Changed	Service and Support, Memory, Hard Drives, HP Insight Software, Tape Backup, HP Basic and Remote Monitoring Power Distribution Units, HP USB and SD Options, and HP Care Pack Services were revised.
13-Dec-2013	From Version 26 to 27	Changed	Processors and Models were revised 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 Units were revised in Additional Options HP Power Distribution Units was removed from Additional Options 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
15-Nov-2013	From Version 25 to 26	Changed	Minor change made to the Core Options/ Hard Drives Section.
31-Oct-2013	From Version 24 to 25	Changed	Minor change made in the Models section only.
11-Oct-2013	From Version 23 to 24	Added	6G SATA Value Endurance Hot Plug SFF Enterprise Value Solid State Drives were added to Hard Drives HP Remote Monitoring Power Distribution Units was added to Additional Options HP 8GB SD Enterprise Mainstream Flash Media Kit was added to HP USB and SD Options
20-Sep-2013	From Version 22 to 23	Changed	HP Dynamic Smart Array B120i Controller in Technical Specifications was revised.
10-Sep-2013	From Version 21 to 22	Changed	HP Insight Management, Memory, HP Storage Controllers, HP Power Distribution Units, and HP Care Pack Services were revised High Performance Clusters was removed
19-Jul-2013	From Version 20 to 21	Changed	Correction made in the North America and Canada versions only.
15-Jul-2013	From Version 19 to 20	Added	HP Disk Backup was added to Additional Options.
14-Jun-2013	From Version 18 to 19	Changed	Changes were made in the North America and Canada versions only.
31-May-2013	From Version 17 to 18	Changed	Changes were made in the North America and Canada versions only.
17-May-2013	From Version 16 to 17	Changed	Changes made to the following sections Standard Features - Maximum Internal Storage

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Summary of Changes

			<p>Optional Features - HP Simple Configuration Section</p> <p>Pre-Configured Models - Entry Models</p> <p>Configuration Information - HP Memory</p> <p>Core Options - HP Memory, HP Hard drives, HP Networking, HP Power Supplies</p> <p>Additional Options - HP Insight Software, HP Performance Clusters, HP Tape backup, HP Power Distribution Units, HP Basic Power Distribution Units, HP USB and SD Options, HP Care Pack Services</p>
29-Apr-2013	From Version 15 to 16	Changed	Technical Specifications: Updated HP Dynamic Smart Array B120i Controller section.
23-Apr-2013	From Version 14 to 15	Removed	A correction was made to Remove a duplicate part number in the Additional Options section.
02-Apr-2013	From Version 13 to 14	Removed	Removed duplicate information in the Hard Drives section.
15-Mar-2013	From Version 12 to 13	Changed	Change made to the Base Processor Model description only.
27-Feb-2013	From Version 11 to 12	Added / Removed	<p>Added the HP Proactive Insight experience section to Optional Features.</p> <p>Removed skus from HP Insight Software in the Additional Options section.</p>
19-Feb-2013	From Version 10 to 11	Changed	<p>New Entry BTO Model provides an even more affordable ML310e Gen8 server configuration</p> <p>Support for new Intel Pentium and Celeron Ivy Bridge processors</p>
11-Jan-2013	From Version 8 to 10	Changed	Correction made to the Country Code in the Models section.
08-Jan-2013	From Version 7 to 8	Changed	Correction made to the Country Code in the Models section.
14-Nov-2012	From Version 6 to 7	Changed	Correction was made in Step 3 of the configuration information section.
09-Nov-2012	From Version 5 to 6	Changed	Changes were made in Standard Features, Core Options, Additional Options, and Technical Specifications sections.
23-Oct-2012	From Version 4 to 5	Changed	Changes were made in the Models section.
19-Oct-2012	From Version 3 to 4	Changed	Changes were made through out the QuickSpecs.
05-Oct-2012	From Version 2 to 3	Changed	Changes were made in the North America and Canada versions only.
28-Sep-2012	From Version 1 to 2	Changed	Changes were made in Options and Memory sections.

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Summary of Changes

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