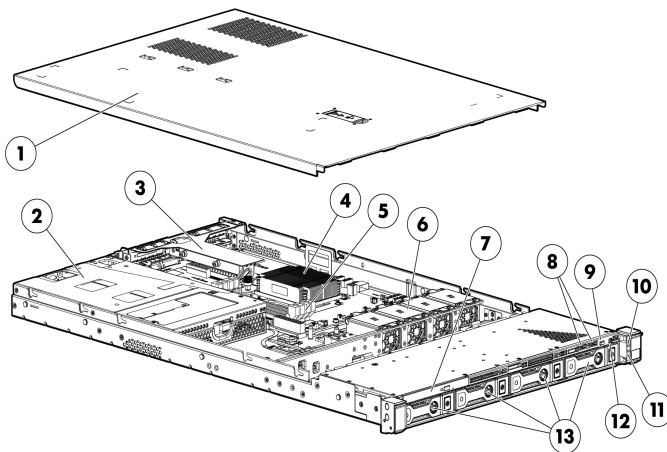


Overview

The latest 1P rack server, HP ProLiant DL320e Gen8 Server series, is a new entry level rack-optimized platform, ideal for single-application IT infrastructure, web and edge-of-network applications. The ProLiant DL320e Gen8 Server is not only affordable but is more powerful by enabling powerful quad-core processor computing performance with larger memory & storage capacity, all in a small package.

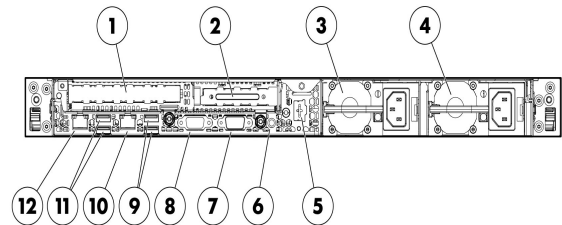
The DL320e Gen8 supports the latest technology, such as Intel® Xeon® E3, Core i3 and Pentium processors, PCI-e Gen3, DDR3 1600MHz memory, up to 12TB internal storage, RAID solution as well as High Efficiency Hot Plug Redundant Power Supply Kit.

HP ProLiant DL320e Gen8 Server series supports HP iLO Management Engine, a complete set of embedded management features supporting the complete lifecycle of the server, from initial deployment, through ongoing management, to service alerting and remote support.



Front View:

1. Access Panel
2. Power Supply
3. PCI Riser Cage
4. Processor
5. DIMMs
6. Fans
7. Optical drive
8. 2 USB Connectors
9. UID LED button
10. Health LED
11. NIC status LED
12. Power On/Standby button and LED
13. Hard Drive Bays



Rear View:

1. Expansion slot 2, PCIe x16
2. Expansion slot 1, PCIe x8
3. Power Supply 2
4. Power Supply 1
5. Dedicated iLO port
6. UID LED button
7. Serial Connector
8. Video Connector
9. USB Connectors
10. NIC Connector 1
11. USB Connectors
12. NIC Connector 2

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

Intel® Pentium® G630 (2.7GHz/2-core/3MB/65W) Processor

NOTE: Intel® Pentium® G630 processor, performance for 1600MHz memory is clocked down to 1066MHz.

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

NOTE: Intel® Pentium® G2120 Processor supports up to 1600MHz DDR3 memory speeds.

Intel® Pentium® G2100T (2.6GHz/2-core/3MB/35W) Processor

NOTE: Intel® Pentium® G2100T Processor supports up to 1600MHz DDR3 memory speeds.

Base Processors

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

Intel® Core™ i3-3220T (2.8GHz/2-core/3MB/35W, HT) Processor

Intel® Core™ i3-3240 (3.4GHz/2-core/3MB/55W, HT) Processor

Performance Processors

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

Intel® Xeon® E3-1220Lv2 (2.3GHz/2-core/3MB/17W, HT)

Intel® Xeon® E3-1220v2 (3.1GHz/4-core/8MB/69W)

Intel® Xeon® E3-1230v2 (3.3GHz/4-core/8MB/69W, HT)

Intel® Xeon® E3-1240v2 (3.4GHz/4-core/8MB/69W, HT)

Intel® Xeon® E3-1270v2 (3.5GHz/4-core/8MB/69W, HT)

Intel® Xeon® E3-1290v2 (3.7GHz/4-core/8MB/87W, HT)

NOTE: HT indicates that the processor model supports Intel® /Hyper-Threading Technology (Depends on the processor).

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

Cache Memory

One of the following depending on Model

8MB (1x8MB) Level 3

NOTE: For Quad-core processors.

3MB (1x3MB) Level 3

NOTE: For Dual-core processors.

Chipset

Intel® C204 Series Chipset

NOTE: For more information regarding Intel® chipsets, please see the following URL:
<http://www.intel.com/products/server/chipsets/>.

Standard Features

Upgradeability

Up to 4 DIMM slots available for higher Memory capacity
Up to 8 bay SFF Hot plug Drive Cage; Or 4 bay LFF Hot plug or Non hot plug Drive Cages
1 PCIe 2.0 expansion slot
1 PCIe 3.0 I/O slot for additional communications and storage expansion (depends on processor)
Redundant Power Supply
Optical Drive Bay

On System Management Processor

HP iLO (Firmware: HP iLO 4)
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
	Unbuffered (UDIMM)
DIMM Slots Available	4 DIMMs (2 Channels/ 2 DIMMs per channel)
Standard (Entry Model)	2GB (1 x 2GB) UDIMM PC3-12800E (1600MHz)
Standard (Base Models)	4GB (1 x 4GB) UDIMM PC3-12800E (1600MHz)
Standard (Performance Models)	8GB (2 x 4GB) UDIMM PC3-12800E (1600MHz)
Maximum Capacity (UDIMM)	32GB (4 x 8GB@1600MHz)

NOTE: HP memory from previous generation servers are not fully compatible with the HP ProLiant DL320e Gen8 Server.

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

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
NOTE: The HP ProLiant DL320e Gen8 server has an embedded dual-port network adapter . The server can be further upgraded with various networking products

Standard Features

Expansion Slots	Expansion Slots #	Technology	Bus Width*	Connector Width	Form Factor	Notes
	1	PCIe 2.0	x4	x8	Low profile slot	
	2	PCIe 3.0	x16	x16	Half-length, full-height slot	

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

NOTE: PCIe 3.0 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.

Standard Features

Storage Controller One of the following depending on Model

Entry Models
(Non hot plug)

HP Dynamic Smart Array B120i Controller

NOTE: Supports 3.0Gb/s SATA.

NOTE: Supports RAID 0/1/10 only. It does not have FBWC support so cannot support advanced RAID (5 onwards). For FBWC, a standup Smart Array Controller card must be configured.

Base Models
(Hot plug)

HP Dynamic Smart Array B120i Controller

NOTE: Supports 3.0Gb/s SATA.

NOTE: Supports RAID 0/1/10 only. It does not have FBWC support so cannot support advanced RAID (5 onwards). For FBWC, a standup Smart Array Controller card must be configured.

Performance Models
(Hot plug)

HP Smart Array P222/512MB FBWC controller

NOTE: P222 can support RAID 0/1/10/5/50. More advanced options available with Smart Array Advanced Pack 2.0.

NOTE: The DL320e Gen8 can support other advanced controllers as well, depending on model and configuration

NOTE: For set up instructions for HP Smart Array B120i SATA Controller please refer to the HP ProLiant DL300 series server user guide.

NOTE: For general information about HP Smart Array B120i SATA RAID Controller, please visit:

<http://h18004.www1.hp.com/products/servers/proliantstorage/arraycontrollers/dynamicsmartarray/index.html>

Internal Storage Devices

Diskette Drive

None

Optical Drive

Optional

DVD-ROM, DVD-RW

Hard Drives

One of the following
depending on Model

None ship standard (Base Models and Performance Models)

1x NHP 500GB SATA 3.5" drive (Entry Models)

Hard Drive Bays

8 SFF drive bays or 4 LFF Non hot plug/Hot plug

NOTE: HP ProLiant DL320e Series servers offer both SFF, and LFF versions in CTO. The Optical Drive bay is available with both models.

NOTE: LFF versions are not an upgradeable option from SFF models, or vice versa, also between Non Hot Plug LFF and Hot Plug LFF.

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. These part numbers for single HDD blanks below are also provided should the customer require replacement HDD blanks for their server.

Standard Features

Maximum Internal Storage	Hot Plug SFF SAS	8.0TB	8 x 1TB
	Hot Plug SFF SATA	8.0TB	8 x 1TB
	Hot Plug LFF SAS	12.0TB	4 x 3TB
	Hot Plug LFF SATA	12.0TB	4 x 3TB
	Hot Plug SFF SAS SSD	6.4TB	8 x 800GB
	Hot Plug SFF SATA SSD	3.2TB	8 x 400GB
	Hot Plug LFF SATA SSD	1.6 TB	4 x 400GB
	Non-Hot Plug LFF SATA	12 TB	4 x 3TB
	Non-Hot Plug LFF SAS	2.4TB	4 x 600GB

Interfaces	Serial	1
	Video	1 Rear standard video
	HP iLO Remote Management Network Port	1Gb Dedicated
	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 2.0 Ports	7 total: 4 rear, 2 front, 1 internal (Optional)

Industry Standard Compliance	ACPI 2.0b Compliant
	PCIe 3.0
	PXE Support
	WOL Support
	USB 2.0 Compliant

Server Power Cords	All Pre-configured Models servers ship with a high voltage server to PDU power cord.
	NOTE: HP ProLiant DL servers no longer ship standard with a 12-foot NEMA 5-15P to C13 power cords (227099-001) that allow connection to 110V US wall outlets in a home or office. ProLiant DL servers are primarily connected to PDU's in data center racks so they now ship standard with only a PDU 6-foot C-14 to C13 power cord (142258-001). If a user wishes to power a ProLiant DL server using a 110V receptacle (NEMA-15), the 12-foot NEMA 5-15 to C13 power cord must be ordered separately. See Power Cords section for Worldwide Power Cord options.

Power Specifications	To review typical system power ratings use the HP Power Advisor which is available via the online tool located 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_div/14209_div.html

Standard Features

Common Slot Power Supply

NOTE: The default power supply for DL320e Gen8 server is a 350W Non Hot Plug, Non Redundant (ATX) power supply with 85% efficiency.

NOTE: To choose a Redundant Common Slot Power Supply option for the DL320e Gen8 server, a Factory Integrated Model must be chosen, beginning with a CTO server. Also, an HP DL320e Gen8 RPS Enablement FIO Kit (675451-B21) is required.

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 94%. All HP Common Slot power sources are UL, CE Mark Compliant, hot-plug and support redundant configurations.

NOTE: Mixing of power supplies (for instance Common Slot Platinum Plus power supplies and Common Slot Gold 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.

HP CS Platinum Plus power supplies are required when enabling HP's Intelligent Power Discovery (IPD) solution. IPD is the first technology to create an automated, energy-aware network between IT systems and facilities. This allows your company to reclaim millions of dollars in wasted power capacity and downtime costs across data centers. For more information on HP's IPD solution, go to www.hp.com/go/ipd.

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 or n+n 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

4 fan modules ship standard, non-redundant

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 including how to purchase from HP, please visit our OS Support Site at: <http://www.hp.com/go/ossupport> and our driver download page: <http://www.hp.com/support/DL320eGen8>.

Standard Features

Graphics

Integrated Matrox G200 video standard

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

HP iLO 4 On System Management Memory

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

Form Factor

One of the following
depending on Model

1U Rack form factor

8 SFF Drive Bay Version:

1.7" (4.32cm) Height x 17.11" (43.46cm) Width x 27.5" (69.90cm) Length

4 LFF Drive Bay Version:

1.7" (4.32cm) Height x 17.11" (43.46cm) Width x 29.5" (75.00cm) 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 please visit: www.hp.com/go/ilo/mobileapp

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

Standard Features

[Management Engine technologies whitepaper](#)

HP Insight Management HP Service Pack for ProLiant (SPP)

HP Service Pack for ProLiant (SPP) and HP Smart Update Manager (HP SUM) version 5 provide a new, 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 all 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 on each Service Pack for ProLiant.

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 version 5 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 has been re-written to provide a more 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 will recommend the combinations of firmware and system software that HP has found to be the best practice, the application gives customers the flexibility to set their own specific baseline.

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

NOTE: The Service Pack for ProLiant (which includes HP SUM 5) can be downloaded from www.hp.com/go/spp/download. More information can be found: www.hp.com/go/spp and <http://www.hp.com/go/hpsum>

Security Power-on password Administrator's password

Standard Features

Warranty

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

NOTE: Server Warranty includes 1-Year Parts, 1-Year Labor, 1-Year Onsite support with next business day response. Warranty repairs may be accomplished through the use of Customer Self Repair (CSR) parts. These parts fall into two categories: 1) Mandatory CSR parts are designed for easy replacement. A travel and labor charge will result when customers decline to replace a Mandatory CSR part; 2) Optional CSR parts are also designed for easy replacement but may involve added complexity. Customers may choose to have HP replace Optional CSR parts at no charge. Additional information regarding worldwide limited warranty and technical support is available at:

<http://h18004.www1.hp.com/products/servers/platforms/warranty/index.html>

Optional Features

HP Insight management software

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 License for ProLiant Servers

HP iLO management processors for HP ProLiant Gen8 servers virtualizes system controls to help simplify server setup, engage health monitoring and power and thermal control, and promote remote administration. HP iLO functions out-of-the-box without additional software installation and functions regardless of the servers' state of operation. Basic system board management functions, diagnostics, and essential Lights-Out functionality ships standard across all HP ProLiant Gen8 rack, tower and blade servers. The HP iLO can be accessed from any location via a web browser and works hand-in-hand with HP Systems Insight Manager, Insight Control, and Insight Dynamics, helping customers unleash the value of the ProLiant platform and deliver the highest possible quality of IT service to the business.

Advanced functionality, such as graphical remote console, multi-user collaboration, and video record/playback can be activated with the optional HP iLO Advanced or HP iLO Advanced for BladeSystem licenses. The Advanced licensed features offer sophisticated remote administration of servers in dynamic data center and remote locations and can help significantly reduce cost associated with IT-related travel and unplanned downtime.

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

HP Service Pack for ProLiant

HP Service Pack for ProLiant (SPP) and HP Smart Update Manager (HP SUM) version 5 provide a new, 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 all 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 on each Service Pack for ProLiant.

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Optional Features

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 will 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.

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High Performance Clusters

HP Cluster Platforms	HP Cluster Platforms are specifically engineered, factory-integrated large-scale ProLiant clusters optimized for High Performance Computing, with a choice of servers, networks and software. Operating system options include specially priced offerings for Red Hat Enterprise Linux and SUSE Linux Enterprise Server, as well as Microsoft Windows HPC Server. A Cluster Platform Configurator simplifies ordering. http://www.hp.com/go/clusters .
HP HPC Interconnects	High Performance Computing (HPC) interconnect technologies are available for this server as part of the HP Cluster Platform portfolio. These high-speed InfiniBand and Gigabit interconnects are fully supported by HP when integrated within an HP cluster. Flexible, validated solutions can be defined with the help of configuration tools. http://www.hp.com/techservers/clusters/ucp/index.html
HP Insight Cluster Management Utility	HP Insight Cluster Management Utility (CMU) is an HP-licensed and HP-supported suite of tools that are used for lifecycle management of hyperscale clusters of Linux ProLiant systems. CMU includes software for the centralized provisioning, management and monitoring of nodes. CMU makes the administration of clusters user friendly, efficient, and effective. http://www.hp.com/go/cmu
HP HPC Linux Value Pack	HP HPC Linux Value Pack (Value Pack) is an HP-licensed and HP-supported option to HP Insight CMU, bundle for the development and deployment of applications on HPC Cluster Platforms. Value Pack includes the Platform LSF workload scheduler and Platform Application Center, as well as the HP-MPI parallelization library. HP HPC Linux Value Pack

Optional Features

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

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

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

Service and Support

Service and Support

HP Technology Services for Industry Standard Servers and BladeSystem

Capitalizing on HP ProLiant server and HP BladeSystem capabilities requires a service partner who understands your increasingly complex business technology environment. That's why it makes sense to team up with the people who know HP infrastructure hardware and software best - the experienced professionals at HP Services.

What HP ProLiant and BladeSystem Services can do for you

HP ProLiant and BladeSystem Services can help you design, deploy, test, integrate, support, and manage IT and infrastructure solutions. This way, HP proposes services solutions that include more than just uplift of base warranty. Foundation Care services deliver scalable support-packages for HP industry-standard servers and software. You can choose the type and level of service that is most suitable for their business needs. New to this portfolio is HP Collaborative Support. If you are running business critical environments, HP offers Proactive Care or Critical Advantage. These services help deliver high levels of application availability through proactive service management and advanced technical response

You can get the support you need by choosing from one of a number of service packaged solutions we have designed to address wider set of customer support needs.

HP Technology Services meets business challenges with services offered in three support recommendations - **Optimized Care, Standard Care, and Basic Care** - available for each product group. Such support solutions enable customers to optimize technology operations, minimize risk and drive better business outcomes with easy-to-buy, easy-to-use scalable support recommendations for servers, storage, networking and software designed to meet your specific needs.

All three service recommendations include support services from the broader portfolio of Foundation Care and Proactive Care services.

Optimized Care

Optimized Care: Supports maintaining servers at optimum performance availability

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>

HP Installation and Startup for Insight Control Software / HP SIM

Provides for the deployment and basic configuration of HP Insight Control or HP SIM (Systems Insight Manager) on HP ProLiant ML and DL series servers or HP BladeSystem servers
<http://h20195.www2.hp.com/v2/GetPDF.aspx/4AA0-9972ENW.pdf>

3-Year HP 24x7 4 hour Response, Proactive Care

Helps optimize your systems and delivers high levels of application availability through proactive service management and advanced technical response. A skilled Technical Manager will own your call and end to end until resolved, delivering a single point of contact for you. Helping you to resolve your hardware and software issues and minimizing downtime in your business critical environment.

Additional Services: Factory Express, Education Services, Proactive Select - 30 Credit Package

Service and Support

Standard Care

Standard Care: Service recommendation that maintains high level of server availability

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>

HP Installation and Startup for Insight Control Software / HP SIM

Provides for the deployment and basic configuration of HP Insight Control or HP SIM (Systems Insight Manager) on HP ProLiant ML and DL series servers or HP BladeSystem servers

<http://h20195.www2.hp.com/v2/GetPDF.aspx/4AA0-9972ENW.pdf>

3-Year HP 24x7 4 hour Response, Collaborative Support

Provides problem resolution support across the stack of HW, firmware, and HP and 3rd party SW. In case the issue is with 3rd party SW, HP does known issue resolution. If HP cannot solve the issue, it will contact the third-party vendor and create a problem incident on your behalf.

<http://h20195.www2.hp.com/V2/GetPDF.aspx/4AA3-8232ENW.pdf>

Additional Services: Software support service with 24X7 availability with a 2 hour response, Training courses on Microsoft, Linux (Red Hat and SUSE), VMware, and HP Insight Software, 10 Proactive Select Credit package, Factory Express

<http://www8.hp.com/us/en/business-services/it-services.html?compURI=1078865>

Basic Care

Basic Care: delivers minimum recommended support service level

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>

3-Year HP 24x7 4 hour Response, Hardware Support Onsite Service

Provides you with rapid remote support and if required an HP authorized technical engineer will be on site 24X7 begin hardware maintenance service within 4 hours of the service request being logged

<http://h20195.www2.hp.com/V2/GetPDF.aspx/5982-6547EEE.pdf>

3-Year , HP 24x7 Software Support for Insight Control

Provides remote 3-year software support service that delivers comprehensive software services, including access to HP technical resources and software updates

<http://h20195.www2.hp.com/V2/GetPDF.aspx/5981-6645EEE.pdf>

Additional Services: Factory Express, Education Services, Proactive Select - 10 Credits

Insight Remote Support

Provides 24 X 7 remote monitoring, proactive notifications, and problem resolution. Learn more

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

Service and Support

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>

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. Entry model will support maximum speed of 1600 MHz.

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

HP ProLiant DL320e Gen8 G2120 1P 2GB-U Non-hot Plug SATA 4 LFF 350W PS Server 675420-001	Processor(s)	(1) Intel® Pentium® G2120 (3.1GHz/2-core/3MB/55W) Processor
	Cache Memory	3MB (1x3MB) Level3
	Memory	2GB (1 x 2GB) Unbuffered DIMMs PC3-12800E (1600MHz)
	Network Controller	HP Ethernet 1Gb 2-port 330i Adapter
	Storage Controller	HP Dynamic Smart Array B120i Controller
	Hard Drive	(1) 500GB 3.5" Non-hot plug SATA
	Internal Storage	4 LFF HDD Bays; includes 3 LFF hard drive blanks
	Optical Drive Bay	None ships standard
	PCI-Express Slots	1 PCIe3 x16 and 1 PCIe2 x8
	Power Supply	350 Watts Non-Hot Plug, Non redundant Power Supply
	Fans	4 fan modules ship standard, non-redundant
	Management	HP iLO Management Engine (standard) Optional: HP Insight Control
	Form Factor	1U, HP Friction Rail Kit
	Warranty	Server Warranty includes 1-Year Parts, 1-Year Labor, 1-Year Onsite support with next business day response.

Pre-configured Models

Base Models

HP ProLiant DL320e Gen8 E3-1220v2 1P 4GB-U Hot Plug 4 LFF 350W PS Server 675421-001	Processor(s)	(1) Intel® Xeon® E3-1220v2 (3.1GHz/4-core/8MB/69W, HT) Processor
	Cache Memory	8MB (1x8MB) Level3
	Memory	4GB (1 x 4GB) Unbuffered DIMMs PC3-12800E (1600MHz)
	Network Controller	HP Ethernet 1Gb 2-port 330i Adapter
	Storage Controller	HP Dynamic Smart Array B120i Controller
	Hard Drive	None ship standard NOTE: Only SATA 3 Gbit/s data transmission guaranteed without HP Smart Array Card.
	Internal Storage	4 LFF HDD Bays; includes 3 LFF hard drive blanks
	Optical Drive Bay	None ships standard
	PCI-Express Slots	1 PCIe3 x16 and 1 PCIe2 x8
	Power Supply	350 Watts Non-Hot Plug, Non redundant Power Supply
	Fans	4 fan modules ship standard, non-redundant
	Management	HP iLO Management Engine (standard) Optional: HP Insight Control
	Form Factor	1U, HP Friction Rail Kit
	Warranty	Server Warranty includes 1-Year Parts, 1-Year Labor, 1-Year Onsite support with next business day response.

Performance Models

HP ProLiant DL320e Gen8 E3-1240v2 3.4GHz 4-core 1P 8GB-U P222 Hot Plug 4 LFF 350W PS US Server 675422 -001	Processor(s)	(1) Intel® Xeon® E3-1240v2 (3.4GHz/4-core/8MB/69W, HT) Processor
	Cache Memory	8MB (1x8MB) Level3
	Memory	8GB (2 x 4GB) Unbuffered DIMMs PC3-12800E (1600MHz)
	Network Controller	HP Smart Array P222/512MB FBWC Controller
	Storage Controller	HP Smart Array P222/512 FBWC Controller
	Hard Drive	None ship standard
	Internal Storage	4 LFF HDD Bays; includes 3 LFF hard drive blanks
	Optical Drive Bay	None ships standard
	PCI-Express Slots	1 PCIe2 x8 available
	Power Supply	350 Watts Non-Hot Plug, Non redundant Power Supply
	Fans	4 fan modules ship standard, non-redundant
	Management	HP iLO Management Engine (standard) HP Insight Control Standard
	Form Factor	1U, HP Friction Rail Kit
	Warranty	Server Warranty includes 1-Year Parts, 1-Year Labor, 1-Year Onsite support with next business day response

Smart Buys

HP ProLiant DL320e Gen8 E3-1220v2 1P 4GB-U Non-hot Plug 4 LFF 350W PS Server 687520-S01	Processor(s)	(1) Intel® Xeon® E3-1220v2 (3.1GHz/4-core/8MB/69W, HT)
	Cache Memory	8MB (1x8MB) Level3
	Memory	4GB (1 x 4GB) Unbuffered DIMMs PC3-12800E (1600MHz)
	Network Controller	HP Ethernet 1Gb 2-port 330i Adapter
	Storage Controller	HP Dynamic Smart Array B120i Controller
	Hard Drive	(1) HP 1TB 6G SATA 7.2K rpm LFF (3.5-inch) Midline Hard Drive
	Internal Storage	4 LFF HDD Bays; includes 3 LFF hard drive blanks
	Optical Drive Bay	None ships standard
	PCI-Express Slots	1 PCIe2 x16 and 1 PCIe2 x8
	Power Supply	350 Watts Non-Hot Plug, Non redundant Power Supply
	Fans	4 fan modules ship standard, non-redundant
	Management	HP iLO Management Engine (standard) Optional: HP Insight Control
	Form Factor	1U, HP Friction Rail Kit
	Warranty	Server Warranty includes 1-Year Parts, 1-Year Labor, 1-Year Onsite support with next business day response.

HP ProLiant DL320e Gen8 E3-1240v2 1P 8GB-U Hot Plug 4 LFF 350W PS Server 687519-S01	Processor(s)	Intel® Xeon® E3-1240v2 (3.4GHz/4-core/8MB/69W, HT)
	Cache Memory	8MB (1x8MB) Level3
	Memory	8GB (2 x 4GB) Unbuffered DIMMs PC3-12800E (1600MHz)
	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 HDD Bays; includes 3 LFF hard drive blanks
	Optical Drive Bay	None ships standard
	PCI-Express Slots	1 PCIe2 x16 and 1 PCIe2 x8
	Power Supply	350 Watts Non-Hot Plug, Non redundant Power Supply
	Fans	4 fan modules ship standard, non-redundant
	Management	HP iLO Management Engine (standard) Optional: HP Insight Control
	Form Factor	1U, HP Friction Rail Kit
	Warranty	Server Warranty includes 1-Year Parts, 1-Year Labor, 1-Year Onsite support with next business day response.

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 DL320e Gen8 Hot Plug 4 LFF Configure-to-order Server

675597-B21

NOTE: All 6G SATA/SAS Drives listed in HDD section are tested and supported for both 3G and 6G speed. A HP Smart Array Controller is required for 6G HDD.

Factory Integrated Model ships with:

1U Chassis with 4 LFF Hot Plug Drive Cage

HP Ethernet 1Gb 2-port 330i Adapter

HP iLO Management Engine (standard)

HP Dynamic Smart Array B120i SATA Controller (RAID 0/1/10)

NOTE: For set up instructions for HP Dynamic Smart Array B120i SATA Controller please refer to the HP ProLiant DL300 series server user guide

NOTE: For general information about HP Dynamic Smart Array B120i SATA Controller, please visit:

<http://h18004.www1.hp.com/products/servers/proliantstorage/arraycontrollers/smartarrayb120i/index.html>

HP ProLiant DL320e Gen8 Hot Plug 8 SFF Configure-to-order Server

675598-B21

Factory Integrated Model ships with:

1U Chassis with 8 SFF Hot Plug Drive Cage

HP Ethernet 1Gb 2-port 330i Adapter

HP iLO Management Engine (standard)

HP Dynamic Smart Array B120i SATA Controller (RAID 0/1/10)

NOTE: For set up instructions for HP Dynamic Smart Array B120i SATA Controller please refer to the HP ProLiant DL300 series server user guide

NOTE: For general information about HP Dynamic Smart Array B120i SATA Controller, please visit:

<http://h18004.www1.hp.com/products/servers/proliantstorage/arraycontrollers/smartarrayb120i/index.html>

HP ProLiant DL320e Gen8 Non-hot Plug 4 LFF Configure-to-order Server

675596-B21

NOTE: All 6G SATA/SAS Drives listed in HDD section are tested and supported for both 3G and 6G speed. A HP Smart Array Controller is required for 6G HDD.

Factory Integrated Model ships with:

1U Chassis with 4 LFF Non hot plug Drive Cage

HP Ethernet 1Gb 2-port 330i Adapter

HP iLO Management Engine (standard)

HP Dynamic Smart Array B120i SATA Controller (RAID 0/1/10)

NOTE: For set up instructions for HP Dynamic Smart Array B120i SATA Controller please refer to the HP ProLiant DL300 series server user guide

NOTE: For general information about HP Dynamic Smart Array B120i SATA Controller, please visit:

Configuration Information - Factory Integrated Models

<http://h18004.www1.hp.com/products/servers/proliantstorage/arraycontrollers/smartarrayb120i/index.html>

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

HP Processors

Entry Processors

NOTE: All support up to 1600MHz DDR3 memory speeds except Intel® Pentium® G630 which supports up to 1066MHz DDR3 memory speeds

HP DL320e Gen8 Intel® Pentium® G630 (2.7GHz/2-core/3MB/65W) FIO Processor Kit	682797-L21
HP DL320e Gen8 Intel® Pentium® G2120 (3.1GHz/2-core/3MB/55W) FIO Processor Kit	703278-L21
HP DL320e Gen8 Intel® Pentium® G2100T (2.6GHz/2-core/3MB/35W) FIO Processor Kit	703280-L21

Base Processors

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

HP DL320e Gen8 Intel® Core™ i3-3220T (2.8GHz/2-core/3MB/35W) FIO Processor Kit	700792-L21
HP DL320e Gen8 Intel® Core™ i3-3240 (3.4GHz/2-core/3MB/55W) FIO Processor Kit	700786-L21

Performance Processors

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

HP DL320e Gen8 Intel® Xeon® E3-1220Lv2 (2.3GHz/2-core/3MB/17W) FIO Processor Kit	682789-L21
HP DL320e Gen8 Intel® Xeon® E3-1220v2 (3.1GHz/4-core/8MB/69W) FIO Processor Kit	682787-L21
HP DL320e Gen8 Intel® Xeon® E3-1230v2 (3.3GHz/4-core/8MB/69W) FIO Processor Kit	682785-L21
HP DL320e Gen8 Intel® Xeon® E3-1240v2 (3.4GHz/4-core/8MB/69W) FIO Processor Kit	682783-L21
HP DL320e Gen8 Intel® Xeon® E3-1270v2 (3.5GHz/4-core/8MB/69W) FIO Processor Kit	682781-L21
HP DL320e Gen8 Intel® Xeon® E3-1290v2 (3.7GHz/4-core/8MB/87W) FIO Processor Kit	682777-L21

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

NOTE: HP memory from previous generation servers are not fully compatible with new Active Health features on the DL320e Gen8 Server.

Unbuffered with ECC DIMMs (UDIMMs)

HP 2GB (1x2GB) Single Rank x8 PC3-12800E (DDR3-1600) Unbuffered CAS-11 Memory Kit	669320-B21
HP 2GB (1x2GB) Single Rank x8 PC3L-10600E (DDR3-1333) Unbuffered CAS-9 Low Voltage Memory Kit	647905-B21
HP 2GB (1x2GB) Single Rank x8 PC3L-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

Configuration Information - Factory Integrated Models

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.

NOTE: Depending on the memory configuration and processor model, 1600MHz and 1333MHz memory may operate at a lower speed. Please see the "Memory" section later in this document and the Online Memory Configuration Tool for details at www.hp.com/go/ddr3memory-configurator.

NOTE: For additional memory rules and guidelines, see the "Memory" section later in this document.

NOTE: For more information on ProLiant Energy Efficient Features, see:

www.hp.com/go/proliant-energy-efficient

NOTE: PC3L is a low voltage memory.

HP Power Supplies

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 1U Factory Integrated Power Supply Kit 675450-B21

NOTE: The 350 Watts Power Supply is rated at 85% efficiency.

HP Common Slot Platinum Plus Power Supply Kits

NOTE: The following Power Supplies offer 94% efficiency with support for Intelligent Power Discovery.

HP 460W Common Slot Platinum Plus Hot Plug Power Supply Kit 656362-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

HP DL320e Gen8 Factory Integrated RPS Enablement Kit 675451-B21

NOTE: When selecting Common Slot power supply options for the DL320e Gen8 server, a HP DL320e Gen8 RPS Enablement FIO Kit (675451-B21) is required for HP common slot redundant power supply configurations.

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

Configuration Information - Factory Integrated Models

Step 3: Choose Additional Factory Integratable Options

HP USB Kit	HP Gen8 FIO Internal USB Kit	662961-B21
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HP Rail Kits

NOTE: Gen8 rail kits have changed significantly from prior generation rail kits. Please take a moment to review the installation documentation that comes with the server to help you with the installation of your Gen8 server.

NOTE: Rail kits are optional for Gen8 and are no longer included standard with the server. Customers have the option to purchase their server without a rail kit.

CAUTION: HP recommends that at least two people are used for all rack server installations. Please refer to your installation instructions for proper tools and number of people to use for any installation.

HP 1U Friction Gen8 FIO Rail Kit

663200-B21

NOTE: Kit contains non-telescoping friction rails which do not allow for in rack serviceability. The HP 1U Gen8 Cable Management Arm is not available when using Friction Rails. Caution: HP recommends that a minimum of two people is required for all Rack Server installations. Please refer to your installation instructions for proper tools and number of people to use for any installation.

HP Insight Software	HP Insight Control including 1yr 24x7 Support ProLiant ML/DL/BL-bundle Single Server FIO License	582765-B21
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Step 4: Choose Additional Options for Factory Integration

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

Core Options

NOTE: Some options may not be integrated at the factory. 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 Unique Options	HP DL320e Gen8 Mini SAS Cable Kit	685018-B21
	NOTE: HP DL320e Gen8 mini SAS cable kit would be required for the server to be compatible with 4LFF Hot Plug drives, H222 and P222 controllers.	

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

NOTE: HP memory from previous generation servers are not fully compatible with SmartMemory features in Gen8 Servers.

Unbuffered with ECC DIMMs (UDIMMs)

HP 2GB (1x2GB) Single Rank x8 PC3-12800E (DDR3-1600) Unbuffered CAS-11 Memory Kit	669320-B21
HP 2GB (1x2GB) Single Rank x8 PC3L-10600E (DDR3-1333) Unbuffered CAS-9 Low Voltage Memory Kit	647905-B21
HP 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.

NOTE: Kits described as LP include Low Power DIMMs. For more information on ProLiant Energy Efficient Features, see: www.hp.com/go/proliant-energy-efficient.

NOTE: PC3L is a low voltage memory.

HP Optical Drives

HP 9.5mm SATA DVD-ROM JackBlack Optical Drive	652238-B21
HP 9.5mm SATA DVD-RW JackBlack Optical Drive	652241-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 900GB 6G SAS 10K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive	652589-B21
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Core Options

HP 600GB 6G SAS 10K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive	652583-B21
HP 450GB 6G SAS 10K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive	652572-B21
HP 300GB 6G SAS 10K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive	652564-B21
HP 300GB 6G SAS 15K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive	652611-B21
HP 146GB 6G SAS 15K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive	652605-B21

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 3TB 6G SAS 7.2K rpm LFF (3.5-inch) SC Midline 1yr Warranty Hard Drive	652766-B21
HP 2TB 6G SAS 7.2K rpm LFF (3.5-inch) SC Midline 1yr Warranty Hard Drive	652757-B21
HP 1TB 6G SAS 7.2K rpm LFF (3.5-inch) SC Midline 1yr Warranty Hard Drive	652753-B21

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 500GB 6G SATA 7.2K rpm SFF (2.5-inch) SC Midline 1yr Warranty Hard Drive	655708-B21

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

HP 3TB 6G SATA 7.2K rpm LFF (3.5-inch) SC Midline 1yr Warranty Hard Drive	628061-B21
HP 2TB 6G SATA 7.2K rpm LFF (3.5-inch) SC Midline 1yr Warranty Hard Drive	658079-B21
HP 1TB 6G SATA 7.2K rpm LFF (3.5-inch) SC Midline 1yr Warranty Hard Drive	657750-B21
HP 500GB 6G SATA 7.2K rpm LFF (3.5-inch) SC Midline 1yr Warranty Hard Drive	658071-B21

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

HP 3TB 6G SATA 7.2K rpm LFF (3.5-inch) Non-hot plug Midline 1yr Warranty Hard Drive	628065-B21
HP 2TB 6G SATA 7.2K rpm LFF (3.5-inch) Non-hot plug Midline 1yr Warranty Hard Drive	659339-B21
HP 1TB 6G SATA 7.2K rpm LFF (3.5-inch) Non-hot plug Midline 1yr Warranty Hard Drive	659337-B21
HP 500GB 6G SATA 7.2K rpm LFF (3.5-inch) Non-hot plug Midline 1yr Warranty Hard Drive	659341-B21

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

http://h18000.www1.hp.com/products/quickspecs/13021_na/13021_na.html

6G SAS SLC Hot Plug SFF (2.5-inch) Enterprise Performance Solid State Drives

Core Options

HP 400GB 6G SAS SLC SFF (2.5-inch) SC Enterprise Performance 3yr Warranty Solid State Drive	653082-B21
HP 200GB 6G SAS SLC SFF (2.5-inch) SC Enterprise Performance 3yr Warranty Solid State Drive	653078-B21
3G SATA MLC Hot Plug SFF (2.5-inch) Enterprise Mainstream Solid State Drives	
HP 400GB 3G SATA MLC SFF (2.5-inch) SC Enterprise Mainstream 3yr Warranty Solid State Drive	653120-B21
HP 200GB 3G SATA MLC SFF (2.5-inch) SC Enterprise Mainstream 3yr Warranty Solid State Drive	653118-B21
HP 100GB 3G SATA MLC SFF (2.5-inch) SC Enterprise Mainstream 3yr Warranty Solid State Drive	653112-B21
3G SATA MLC Hot Plug LFF (3.5-inch) Enterprise Mainstream Solid State Drives	
HP 400GB 3G SATA MLC LFF (3.5-inch) SC Enterprise Mainstream 3yr Warranty Solid State Drive	653126-B21
HP 200GB 3G SATA MLC LFF (3.5-inch) SC Enterprise Mainstream 3yr Warranty Solid State Drive	653124-B21
HP 100GB 3G SATA MLC LFF (3.5-inch) SC Enterprise Mainstream 3yr Warranty Solid State Drive	653122-B21
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.	
NOTE: The mixing of standard SAS drives with SAS SSD drives is supported within the server, but limits the RAID configuration to two separate RAID 0 volumes. Mixing of other drives types is not supported.	
HP LFF Gen8 Hard Drive Blank Kit	666986-B21
HP SFF Gen8 Hard Drive Blank Kit	666987-B21

Core Options

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 2-port 361T Adapter	652497-B21
HP Ethernet 1Gb 4-port 331T Adapter	647594-B21
HP Ethernet 1Gb 2-port 332T Adapter	615732-B21

10 Gigabit Ethernet Adapters

NOTE: A minimum of two Gigabytes (2 GB) of server memory is required per each adapter.

NOTE: Direct Attach Cable (DAC) for copper environments or fiber transceivers and cables for fiber-optic environments must be purchased separately.

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: 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 Platinum Plus Power Supply Kits

NOTE: The following Power Supplies offer 94% efficiency with support for Intelligent Power Discovery.

HP 460W Common Slot Platinum Plus Hot Plug Power Supply Kit	656362-B21
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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

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
HP Insight Software	HP Insight Control	
	HP Insight Control including 1yr 24x7 Technical Support and Updates Electronic License	T9074BAE
	HP Insight Control including 1yr 24x7 Support ProLiant ML/DL/BL-bundle Electronic License	TC278AAE
	HP Insight Control including 1yr 24x7 Technical Support and Updates Single Server License	452148-B22
	HP Insight Management Media Kit	436222-B21
	NOTE: HP Insight Management Media Kit contains DVDs without licenses. Contains HP Systems Insight Manager, HP Insight Control, HP Matrix Operating Environment, and Virtual Connect Enterprise Manager software. Uses an integrated installer to perform quick and accurate software installation and updates.	
	HP Integrated Lights-Out (iLO) Advanced for ProLiant Remote Management	
	HP iLO Advanced including 1yr 24x7 Technical Support and Updates Electronic License	TA850AAE
	HP iLO Advanced Electronic License with 3yr 24x7 Tech Support and Updates	BD506AAE
	HP iLO Advanced including 1yr 24x7 Technical Support and Updates Single Server License	512485-B21
	HP iLO Advanced 1 Server License with 3yr 24x7 Tech Support and Updates	BD505A
	NOTE: This license allows 1 server to be deployed and managed via HP iLO Advanced. Customer will receive a printed license entitlement certificate via physical shipment. The license entitlement certificate must be redeemed online or via fax in order to obtain the license activation key(s). Includes one or three years of 24 x 7 HP Software Technical Support Service.	
	NOTE: For additional license kits, including electronic delivery options, please see the iLO QuickSpecs at: http://h18004.www1.hp.com/products/quickspecs/14276_na/14276_na.html	
	HP Insight Control Server Deployment	
	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
	NOTE: Electronic and Flexible-Quantity licenses can be used to purchase multiple licenses with a single activation key.	
	NOTE: Customer will receive a license entitlement certificate. The license entitlement certificate must be redeemed online or via fax in order to obtain the license activation key(s). Includes one year of 24 x 7 HP Software Technical Support and Update Service.	
	NOTE: Licenses ship without media. The HP Insight 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 Insight Control QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/12631_na/12631_na.html	
	HP Insight Control for Linux	
	HP Insight Control for Linux w/1yr 24x7 Supp ML/DL/SL Bundle Electronic 1 Svr LTU	TC203AAE

Additional Options

HP Insight Control for Linux including 1yr 24x7 Support Electronic License	TC213AAE
HP Insight Control for Linux Media Kit	TC208A
NOTE: Media pack DVD contains the ISO image for HP Insight Control for Linux, HP Systems Insight Manager, HP Insight Control power management, HP Insight Control virtual machine management, and an integrated installer. Servers must be acquired separately.	
NOTE: Licenses ship without media. The Media Kit for Insight Control for Linux can be ordered separately, or can be downloaded at: http://www.hp.com/go/ic-linux (click on Download button).	
NOTE: Electronic and Flexible-Quantity licenses can be used to purchase multiple licenses with a single set of activation keys.	
NOTE: For additional License Kits, including electronic licensing options, please see the QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/13019_na/13019_na.html	

High Performance Clusters

HP Cluster Management Utility	
HP Insight Cluster Management Utility 1yr 24x7 Flexible License	QL803B
HP Insight Cluster Management Utility 3yr 24x7 Flexible License	BD476A
NOTE: These part numbers can be used to purchase one certificate for multiple licenses and support with a single activation key. Each license is for one node (server). Customer will receive a printed end user license agreement and license entitlement certificate via physical shipment. The license entitlement certificate must be redeemed online in order to obtain a license key. Customer also will receive a support agreement.	
HP Insight Cluster Management Utility Media	BD477A
NOTE: For additional license kits please see the QuickSpecs at http://h18004.www1.hp.com/products/quickspecs/12612_na/12612_na.html .	
HP HPC Linux Value Pack	
HP High Performance Computing Linux Value Pack 1 Processor Flexible License for ProLiant Servers	TC293B
NOTE: This part number can be used to purchase one certificate for multiple licenses with a single activation key. Each license is for one socket (a.k.a. processor). Customer will receive a printed end user license agreement and license entitlement certificate via physical shipment. The license entitlement certificate must be redeemed online in order to obtain a license key.	
HP High Performance Computing Linux Value Pack Media Kit for ProLiant Servers	TC294A
NOTE: This part number can be used to purchase media including software and documentation, which will be delivered to the customer.	
NOTE: For additional license kits please see the QuickSpecs at http://h18004.www1.hp.com/products/quickspecs/13485_na/13485_na.html .	

Additional Options

HP I/O Accelerator Options

Second Generation Accelerators

HP 365GB Multi Level Cell G2 PCIe ioDrive2 for ProLiant Servers	673642-B21
HP 785GB Multi Level Cell G2 PCIe ioDrive2 for ProLiant Servers	673644-B21
HP 1205GB Multi Level Cell G2 PCIe ioDrive2 for ProLiant Servers	673646-B21
HP 2410GB Multi Level Cell G2 PCIe ioDrive2 Duo for ProLiant Servers	673648-B21

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

http://h18000.www1.hp.com/products/quickspecs/13587_na/13587_na.html
(Worldwide)

HP Security

HP Trusted Platform Module Option

488069-B21

NOTE: The TPM (Trusted Platform Module) is a microcontroller chip that can securely store artifacts used to authenticate the server platform. These artifacts can include passwords, certificates and encryption keys. Windows® BitLocker™ Drive Encryption (BitLocker) is a data protection feature available in Windows Server® 2008. BitLocker leverages the enhanced security capabilities of a Trusted Platform Module (TPM) version 1.2. The TPM works with BitLocker to help protect user data and to ensure that a server running Windows Server 2008 has not been tampered with while the system was offline. For more information about TPM, including a white paper, go to:

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 1U Security Gen8 Bezel Kit

664918-B21

HP Storage Controllers

SAS Controllers

Smart Array P222 Controller

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

631667-B21

Smart Array P420 Controller

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

631670-B21

HP Smart Array P420/2GB FBWC 6Gb 2-ports Int SAS Controller

631671-B21

Smart Array P421 Controller

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

631673-B21

HP Smart Array P421/2GB FBWC 6Gb 2-ports Ext SAS Controller

631674-B21

Optional Upgrades

HP 2GB P-series Smart Array Flash Backed Write Cache

631681-B21

HP DL320e Gen8 Mini SAS Cable Kit

685018-B21

HP Smart Array Advanced Pack 2.0 No Media 1 Server 1yr 24x7 Support Software

BC377A

HP Smart Array Advanced Pack 2.0 No Media Electronic Lic 1yr 24x7 Support Software

BC390AAE

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

http://h18000.www1.hp.com/products/quickspecs/14227_na/14227_na.html



Additional Options

(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)

Host Bus Adapter

HP H220 Host Bus Adapter

650933-B21

HP H221 Host Bus Adapter

650931-B21

NOTE: This is a 2 x4 External Port HBA.

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 220)

http://h18004.www1.hp.com/products/quickspecs/14222_na/14222_na.html

(HBA 221)

http://h18004.www1.hp.com/products/quickspecs/14337_na/14337_na.html

(HBA 222)

SCSI HBA

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

412911-B21

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.

NOTE: For Internal drives to be connected to DL servers please make sure that you order rack mount kit as well.

HP StoreEver LTO-6 Ultrium 6250 Tape Drive in 1U Rack-mount Kit

COL99A

HP StoreEver LTO-6 Ultrium 6650 Internal Tape Drive

EH963A

HP StoreEver LTO-6 Ultrium 6650 External Tape Drive

EH964A

HP StoreEver LTO-6 Ultrium 6250 Internal Tape Drive

EH969A

HP StoreEver LTO-6 Ultrium 6250 External Tape Drive

EH970A

Additional Options

HP Storage Options

Fibre Channel HBA

NOTE: The following is a list of all Fibre Channel Host Bus Adapters for Windows and Linux. For detailed compatibility information please see:

<http://h18006.www1.hp.com/storage/saninfrastructure/hba.html>

QLogic Fibre Channel HBAs

HP 81Q 8Gb 1-port PCIe Fibre Channel Host Bus Adapter

AK344A

HP 82Q 8Gb 2-port PCIe Fibre Channel Host Bus Adapter

AJ764A

Converged Network Adapter

HP CN1000Q Dual Port Converged Network Adapter

BS668A

HP Uninterruptible Power Systems

HP Rack-mountable UPS

HP R1500 G3 Uninterruptible Power Supply (UPS)

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

AF469A

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 HP UPS, 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.

Additional Options

HP Power Distribution Units

Monitored PDUs

HP Monitored Power Distribution Unit: Full Rack Version

HP 8.6kVA 24A Single Input Three Phase NA/JP Monitored Power Distribution Unit	AF504A
HP 8.3kVA 40A Single Input Single Phase NA/JP Monitored Power Distribution Unit	AF506A
HP 11kVA 16A Single Input Three Phase INTL Monitored Power Distribution Unit	AF508A
HP 7.3kVA 32A Single Input Single Phase INTL Monitored Power Distribution Unit	AF510A

HP Monitored Power Distribution Unit: Half Rack Version

HP 4.9kVA 24A Single Input Single Phase NA/JP Monitored Power Distribution Unit	AF914A
HP 7.3kVA 32A Single Input Single Phase INTL Monitored Power Distribution Unit	AF915A

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

http://h18000.www1.hp.com/products/quickspecs/12118_na/12118_na.html

Modular PDUs 1U/0U

NOTE: 1U/0U mounting brackets shipped with the unit (optimized for 10000 G2 and 9000 series racks).

HP 2.8kVA 24A Low Voltage NA/JP Modular Power Distribution Unit	252663-D71
HP 3.6kVA 16A High Voltage INTL Modular Power Distribution Unit	252663-B24
HP 4.9kVA 24A High Voltage NA/JP Modular Power Distribution Unit	252663-D72
HP 7.3kVA 32A High Voltage INTL Modular Power Distribution Unit	252663-B31

NOTE: For additional information on HP Power Distribution Units including accessories please go to: www.hp.com/go/pdu.

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.

NOTE: This PDU has a detachable input power cord and allows for adaptability to country specific power requirements.

NOTE: Please see the following QuickSpecs for additional options including shorter jumper cables and country specific power cords:

http://h18000.www1.hp.com/products/quickspecs/11041_na/11041_na.html
(Worldwide)

HP Intelligent Power Distribution Units (iPDU)

iPDU Core Units

HP 4.9kVA 24A Single Phase NA/JP Core Intelligent Modular Power Distribution Unit	AF520A
HP 8.6kVA 24A Three Phase NA/JP Core Intelligent Modular Power Distribution Unit	AF522A

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
(Worldwide)

Additional Options

HP Rack Series

HP Intelligent Series Racks

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
(Worldwide)

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
(Worldwide)

HP TFT7600 G2 KVM Console and Monitor (TFT7600 G2)

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 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/13972_na/13972_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:

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

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

Additional Options

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 1x4 USB/PS2 KVM Console Switch	
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	
Rail Kits	
HP 1U Gen8 Cable Management Arm	663203-B21
HP 1U Small Form Factor Ball Bearing Gen8 Rail Kit	663201-B21
HP 1U Large Form Factor Ball Bearing Gen8 Rail Kit	663202-B21

HP USB and SD Options

HP 4GB Secure Digital High Capacity Flash Media Kit	580387-B21
NOTE: Blank SD media device is supported for use with VMware and Citrix. SD media must be installed in the internal slot of the ProLiant server. Learn more at: http://www.hp.com/go/proliantvirtualization .	
HP 2GB USB Flash Media Drive Key Kit	608447-B21
NOTE: HP qualified blank USB key for use with HP ProLiant servers that support the VMware virtualization environment and other HP value-add software. HP recommends this industry standard USB flash device for use with VMware ESXi. USB device must be installed in the internal slot of the ProLiant server for use with VMware ESXi. Refer to HP VMware Getting Started Guide for installation instructions.	

HP Care Pack Services

HP 3 year Next business day ProLiant DL320e Hardware Support	U6E91E
HP 3 year Next business day with Defective Media Retention ProLiant DL320e Hardware Support	U6E92E
HP 3 year Next business day ProLiant DL320e Collaborative Support	U6E93E
HP 3 year Next business day with Defective Media Retention ProLiant DL320e Collaborative Support	U6E94E
HP 3 year Next business day ProLiant DL320e Proactive Care Service	U6E95E
HP 3 year Next business day with Defective Media Retention ProLiant DL320e Proactive Care Service	U6E96E
HP 3 year 4 hour 13x5 ProLiant DL320e Hardware Support	U6E97E
HP 3 year 4 hour 13x5 with Defective Media Retention ProLiant DL320e Hardware Support	U6E98E
HP 3 year 4 hour 24x7 ProLiant DL320e Hardware Support	U6E99E
HP 3 year 4 hour 24x7 with Defective Media Retention ProLiant DL320e Hardware Support	U6F00E



Additional Options

HP 3 year 4 hour 24x7 ProLiant DL320e Collaborative Support	U6F01E
HP 3 year 4 hour 24x7 with Defective Media Retention ProLiant DL320e Collaborative Support	U6F02E
HP 3 year 4 hour 24x7 ProLiant DL320e Proactive Care Service	U6F03E
HP 3 year 4 hour 24x7 with Defective Media Retention ProLiant DL320e Proactive Care Service	U6F04E
HP 3 year 6 hour Call to Repair 24x7 ProLiant DL320e Hardware Support	U6F05E
HP 3 year 6 hour Call to Repair 24x7 w /Defective Media Retention ProLiant DL320e Hardware Support	U6F06E
HP 3 year 6 hour Call to Repair 24x7 ProLiant DL320e Collaborative Support	U6F07E
HP 3 year 6 hour Call to Repair 24x7 w/Defective Media Retention ProLiant DL320e Collaborative Sup	U6F08E
HP 3 year 6 hour Call to Repair 24x7 ProLiant DL320e Proactive Care Service	U6F09E
HP 3 year 6 hour Call to Repair 24x7 w/Defective Media Retention ProLiant DL320e Proactive Care SVC	U6F10E
HP Installation ProLiant DL320e Service	U6F51E
HP Installation non Standard Hours ProLiant DL320e Service	U6F52E
HP Startup ProLiant DL320e Service	U6F53E
HP Startup non Standard Hours ProLiant DL320e Service	U6F54E
HP 3 year 24 hour Call to Repair 24x7 ProLiant DL320e Hardware Support	U6F55E
HP 3 year 24 hour Call to Repair 24x7 w/Defective Media Retention ProLiant DL320e Hardware Support	U6F56E

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

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

Memory

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

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

www.hp.com/go/ddr3memory-configurator

Memory Subsystem Architecture

Intel Processor socket supports 2 channels and 2 DIMMs per channel. Total max. memory up to 32GB DDR3 PC3-12800E1600MHz.

Standard Memory Plus Optional Memory

Up to 32 GB memory is available with the optional installation of 4 x 8GB PC3-12800E UDIMM ECC DDR3 UDIMM Memory kits, operating at 1600MHz when fully populated at 2 DIMMs per Channel in 4 slots.

NOTE: The below chart does not represent all possible memory configurations.

NOTE: For best performance, it is recommended that customer installs memory in identical pairs

General Memory Population Rules and Guidelines:

- The HP ProLiant DL320e Gen8 Server has four memory slots
- There are two channels per server with two DIMM slot per channel
- Memory channel A consists of the two (2) DIMMs that are closest to the processor
- Memory channel B 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 LV-DIMMs; 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)
- Always use HP qualified DIMM

Farthest DIMM (either CHA or CHB) should always be populated first

Memory

The UDIMM installing sequence:

Memory		Slot			
		DIMM1C	DIMM2A	DIMM3D	DIMM4B
Standard (Entry Model)	2 GB	Empty	2 GB	Empty	Empty
Standard (Base Model)	4 GB	Empty	4 GB	Empty	Empty
Standard (Performance Model)	8 GB	Empty	4 GB	Empty	4 GB
Maximum	32 GB	8 GB	8 GB	8 GB	8 GB

Memory Speed by Processor Model

Processor Models	Supported Memory Speeds
E3-1220v2, E3-1220Lv2, E3-1230v2, E3-1240v2, E3-1270v2, E3-1290v2, i3-3220T, i3-3240, G2120, G2100 T	1600/1333MHz
G630	1066MHz

Following are memory options available from HP:

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

NOTE: HP memory from previous generation servers are not fully compatible with the DL320e Gen8 Server.

Unbuffered with ECC DIMMs (UDIMMs)

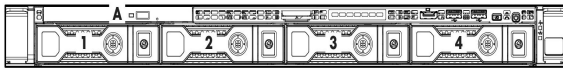
HP 2GB (1x2GB) Single Rank x8 PC3-12800E (DDR3-1600) Unbuffered CAS-11 Memory Kit	669320-B21
HP 2GB (1x2GB) Single Rank x8 PC3L-10600E (DDR3-1333) Unbuffered CAS-9 Low Voltage Memory Kit	647905-B21
HP 4GB (1x4GB) Dual Rank x8 PC3-12800E (DDR3-1600) Unbuffered CAS-11 Memory Kit	669322-B21
HP 4GB (1x4GB) 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.

NOTE: Kits described as LP include Low Power DIMMs. For more information on ProLiant Energy Efficient Features, see: www.hp.com/go/proliant-energy-efficient.

NOTE: PC3L is a low voltage memory.

Storage



1 - 4 4 x 3.5" (LFF) SAS/SATA hard drive bays

A Optical Drive Bay: Optional DVD-ROM, or DVD-RW drive



1 - 8 8 x 2.5" (SFF) SAS/SATA hard drive bays

A Optical Drive Bay: Optional DVD-ROM, or DVD-RW drive

Technical Specifications

System Unit	Dimensions (H x W x D)	8 SFF	1.7 x 17.11 x 27.5 inches (4.32 x 43.46 x 69.90 cm)
		4 LFF	1.7 x 17.11 x 29.5 inches (4.32 x 43.46 x 75.0 cm)
Weight (approximate)		Maximum (all hard drives, power supply, and processor installed)	8 SFF/4 LFF - 16.2/16.8 kg, 35.7/37.0 lb
		Minimum (one hard drive, power supply, and processor installed)	8 SFF/4 LFF - 10.9/11.9 kg, 24.0/26.2 lb
Input Requirements (HP ProLiant 350 W power supply)		Rated Line Voltage	100 to 120 VAC
		Rated Input Current	6 Amps (at 100VAC) to 3 Amps (at 200 VAC)
		Rated Input Frequency	50 to 60 Hz
Power Supply Output (per power supply)		Rated Steady-State Power	350 W (at 100 to 120 VAC), 350 W (at 200 to 240 VAC)
		Maximum Peak Power	400 W (at 100 to 120 VAC), 400 W (at 200 to 240 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) and declared in accordance	

Technical Specifications

with ISO 9296 (ECMA 109).

Idle (Note 1)

LWAd	5.0 B
LpAm	35 dB Average Bystander

Operating

LWAd	5.1 B
LpAm	35 dB Average Bystander

NOTE: Values are subject to change without notification and are for reference only.

NOTE: Performance of system, options, and ancillary equipment will vary depending on the system configuration.

NOTE: Levels presented do not account for non-Hewlett-Packard installed hardware.

Emissions Classification (EMC)

FCC Rating	Class A
Normative Standards	CISPR 22; EN55022; EN55024; FCC CFR 47, Pt 15; ICES-003; CNS13438; GB9254; K22;K24; EN 61000-3-2; EN 61000-3-3; EN 60950-1; IEC 60950-1

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

HP Dynamic Smart Array B120i Controller

Dimensions	Embedded
Disk Drive Interface - Transfer rate	Up to 6Gb/s SATA (Serial ATA)
SATA Connectors	4 internal connectors w/hot plug support
Server Interface	PCIe 2.0
SATA Speed	3Gb/s SATA links
Logical Drives Supported	Zero Memory, Up to 2 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)

Technical Specifications

HP Ethernet 1Gb 2-port 330i Adapter	Compatibility	IEEE 802.3 10Base-T IEEE 802.3ab 1000Base-T IEEE 802.3u 100Base-TX
	Data Transfer Method	PCI Express, four lanes (x8)
	Controller	BCM5717
	Network Transfer Rate	10Base-T (Half-Duplex)
		10Base-T (Full-Duplex)
		100Base-TX (Half-Duplex)
		100Base-TX (Full-Duplex)
		1000Base-TX (Half and Full-Duplex)
	Connector	RJ-45
	Cable Support	10Base-T
		100Base-TX
		1000BaseTX

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