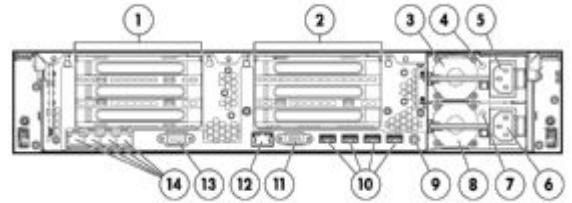
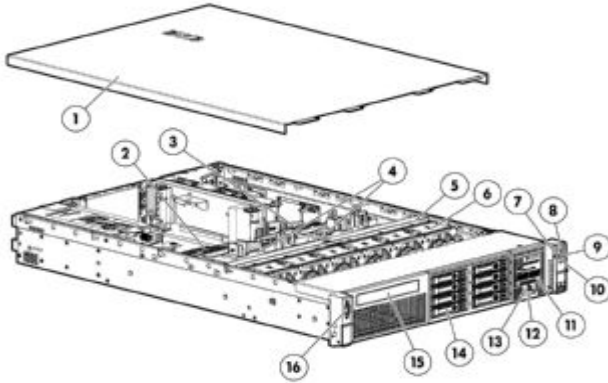


Overview

With enhanced innovations in performance, feature flexibility, and management capabilities, the DL385p Gen8 is the price/performance choice for your virtualization, database, and high performance computing workloads.



Front View:

1. Quick removal access panel
2. Second AMD Processor
3. First AMD Processor
4. (24) DDR3 DIMM slots
5. Air Baffle
6. Hot-plug fans, full N+1 redundancy
7. Health LED
8. Power On/Standby button & system power LED button
9. USB connector
10. UID LED
11. Systems Insight Display
12. Asset Tag
13. USB connector
14. 8 SFF HDD Bays
15. Optional Slim Optical Bay
16. Video connector

Rear View:

1. PCIe Slots (Slots 1-3 top to bottom)
2. PCIe Slots (Slots 4-6 top to bottom)
3. Power supply 1
4. Power supply 1 Power LED
5. Power supply 1 Power connection
6. Power supply 2 Power connection
7. Power supply 2 Power LED
8. Power supply 2
9. UID LED
10. USB connectors (4)
11. Video connector
12. iLO connector
13. Serial connector
14. FlexibleLOM ports (Shown: 4 ports 1Gb each-Port 1-4 starting Right to Left)

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

Sixteen-Core Processors

AMD Opteron™ 6284SE (2.7GHz/16-core/16MB/140W TDP) Processor
AMD Opteron™ 6282SE (2.6GHz/16-core/16MB/140W TDP) Processor
AMD Opteron™ 6278 (2.4GHz/16-core/16MB/115W TDP) Processor
AMD Opteron™ 6276 (2.3GHz/16-core/16MB/115W TDP) Processor
AMD Opteron™ 6274 (2.2GHz/16-core/16MB/115W TDP) Processor
AMD Opteron™ 6272 (2.1GHz/16-core/16MB/115W TDP) Processor
AMD Opteron™ 6262HE (1.6GHz/16-core/16MB/85W TDP) Processor

Twelve-Core Processors

AMD Opteron™ 6238 (2.6GHz/12-core/16MB/115W TDP) Processor
AMD Opteron™ 6234 (2.4GHz/12-core/16MB/115W TDP) Processor

Eight-Core Processors

AMD Opteron™ 6220 (3.0GHz/8-core/16MB/115W TDP) Processor
AMD Opteron™ 6212 (2.6GHz/8-core/16MB/115W TDP) Processor

Quad-Core Processors

AMD Opteron™ 6204 (3.3GHz/4-core/16MB/115W TDP) Processor

NOTE: Mixing different processor models is not supported.

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

Cache Memory 16MB (2x8MB) Level 3

Chipset AMD SR5690 Northbridge and SP5100 Southbridge

Upgradeability Upgradeable to 2 processors
Up to 24 DIMM slots available for higher memory capacities
FlexibleLOM connector for 1Gb or 10Gb networking options
8SFF (plus optional upgrade of 8SFF for up to 16SFF drives-requires second Smart Array) and other Models with 8LFF, 12LFF, or 25SFF hard drive bays
Optional 3-slot PCIe 2.0 riser (x16, x8, x8)
NOTE: The second processor must be installed to take advantage of the optional 3-slot riser.
Redundant Power Supply
Optical Drive (available on 8SFF and 8LFF Models only)

On System Management Chipset HP iLO (Firmware: HP iLO 4)
NOTE: For more information, visit: <http://www.hp.com/go/ilo>

Memory Protection Advanced ECC
Online Spare

Standard Features

Memory

One of the following depending on Model

Type	HP SmartMemory DDR3 Load Reduced(LRDIMM) and Registered (RDIMM)
DIMM Slots Available	24 (12 DIMM slots per processor/4 channels per processor/3 DIMMs per channel)
Storage Centric Model	16GB (2x8GB) PC3-10600R (DDR3-1333) Registered DIMMS
Dedicated Workload Model	32GB (4x8GB) PC3-10600R (DDR3-1333) Registered DIMMS
Maximized Consolidation Model	32GB (4x8GB) PC3-10600R (DDR3-1333) Registered DIMMS
Maximum Capacity (LDIMM)	768GB (24 x 32GB LRDIMM @ 800MHz)
Maximum Capacity (RDIMM)	128GB (8 slots x 16GB RDIMM @1600MHz) NOTE: Requires 2nd processor installed

NOTE: HP memory from previous generation servers may not provide the same performance with the HP ProLiant DL385p Gen8 Servers as HP SmartMemory will.

NOTE: To realize the performance memory capabilities listed in this document, HP SmartMemory is required. For additional information, please see the HP SmartMemory QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/14225_div/14225_div.html

NOTE: If only one processor is installed, only half the DIMM slots are available.

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

Network Controller

One of the following depending on Model

HP ProLiant Gen8 servers offer a new networking technology - FlexibleLOM. The HP ProLiant DL385p Gen8 server offers the customer the choice of 1 Gigabit and/or 10 Gigabit networking solutions. For additional details see the Networking Section of this document. Only one FlexibleLOM may fit on a single server - see PCIe solutions for additional networking.
HP Ethernet 1Gb 4-port 331FLR Adapter

Expansion Slots

PCIe Riser #1 (Standard)

Expansion Slots #	Technology	Bus Width**	Connector Width	Bus Number*	Form Factor	Notes
1	PCIe 2.0	X8	X16	5	Full Length, Full Height Slot	For Processor 1
2	PCIe 2.0	X8	X8	8	Half Length, Full Height Slot	For Processor 1
3	PCIe 2.0	X4	X8	11	Half Length, Full Height Slot	For Processor 1

* Default bus assignment (in decimal). Inserting cards with PCI bridges may alter the actual bus assignment number

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

NOTE: When populating the second optional riser slot, the second processor must be installed.

PCIe Riser #2 (Optional - Requires 2nd

Expansion Slots #	Technology	Bus Width**	Connector Width	Bus Number*	Form Factor	Notes
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Standard Features

Processor)	4	PCIe 2.0	X16	X16	65	Full length, full height slot	For Processor 2
	5	PCIe 2.0	X8	X16	68	Half length, full height slot	For Processor 2
	6	PCIe 2.0	X8	X8	71	Half length, full height slot	For Processor 2

* Default bus assignment (in decimal). Inserting cards with PCI bridges may alter the actual bus assignment number.

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

NOTE: When populating the second optional riser slot, the second processor must be installed.

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.

Storage Controller

One of the following depending on Model

Storage Centric Model	HP Smart Array P420i/512MB FBWC (RAID 0/1/1+0/5/5+0)
Dedicated Workload Model	HP Smart Array P420i/1GB FBWC (RAID 0/1/1+0/5/5+0)
Maximized Consolidation Model	HP Smart Array P420i/2GB FBWC (RAID 0/1/1+0/5/5+0)

Standard Features

Internal Storage Devices	Diskette Drive	None
	Optical Drive	Optional: DVD-ROM, DVD-RW NOTE: Not Available on 12LFF or 25SFF Models.
	Hard Drives	None ship standard
	Drive Bays	Storage Centric Model 12-LFF drive bays
	One of the following depending on Model	Dedicated Workload Model 8-SFF drive bays total with options for DVD OR optional second 8-SFF drive bay set (total of 16SFF drive bays, no DVD) NOTE: Optional 2nd 8-SFF drive kit requires 2nd Smart Array Controller (PCIe) for support recommend HP Smart Array P420 PCI card).
		Maximized Consolidation Model 25-SFF drive bays total
		NOTE: HP ProLiant DL385p series servers offer both LFF and SFF versions. The optical drive bay is not available with +8SFF drive bay upgrade, 12-LFF, or 25-SFF drive bay models. NOTE: 8-LFF, 12-LFF, and 25-SFF versions are not upgradeable options from the standard 8SFF model, or vice versa. 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. 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.

Maximum Internal Storage	Hot Plug SFF SAS	25.0TB	25 x 1TB (on 25 SFF Drive Bay Models)
	Hot Plug SFF SATA	25.0TB	25 x 1TB (on 25 SFF Drive Bay Models)
	Hot Plug LFF SAS	36.0TB	12 x 3TB (on 12 LFF Drive Bay Models)
	Hot Plug LFF SATA	36.0TB	12 x 3TB (on 12 LFF Drive Bay Models)
	Hot Plug SFF SAS SSD	20.0TB	25 x 800GB (on 25 SFF Drive Bay Models)
	Hot Plug LFF SATA SSD	4.8TB	12 x 400GB (on 12 LFF Drive Bay Models)

NOTE: Storage capacities may vary depending on Models/Drive Cages and Hard Drives selected.

Interfaces	Serial	1 (Back)
	Video	2 (1 front, 1 back) not active simultaneously
	FlexibleLOM Network Ports	All pre-configured models come standard with 4 x 1GB ports (See HP Networking section below for more details and options)
	HP iLO Remote Management Network Port	1 Gb Dedicated
	SD Slot	1 Internal Secure
	USB 2.0 Ports	Up to 8 total: up to 2 front, 4 back, 2 internal



Standard Features

Industry Standard Compliance	ACPI 2.0b Compliant PCIe 2.0 Compliant PXE Support WOL Support Microsoft® Logo certifications USB 2.0 Compliant
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Server Power Cords High voltage power cord ships standard with all part numbers.
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. Also available: 110 volt 6-Foot NEMA 5-15p to C13 (AF556A).

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

Common Slot Power Supply **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.

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. HP CS power supply options provide efficiency ratings of up to 94% (80 Plus Platinum) and are available in three power output options - 460W, 750W, and 1200W - allowing the customer to "right-size" a power supply for their specific server configuration. 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.

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.

Standard Features

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_div/14209_div.html

System Fans

One of the following depending on Model

2P Models have (6) (N+1 redundancy standard)

1P Models have (4) (N+1 redundancy standard)

Required Cabling

For required cabling information, refer to the HP Web site at: www.hp.com/servers/dl385p-gen8

Operating Systems and Virtualization Software Support for ProLiant Servers

[Microsoft Windows Server](#)
[Red Hat Enterprise Linux \(RHEL\)](#)
[SUSE Linux Enterprise Server \(SLES\)](#)
[Oracle Solaris](#)
[VMware](#)
[Citrix XenServer](#)

NOTE: For more information on HP's Certified and Supported ProLiant Servers for OS and Virtualization Software and latest listing of software drivers available for your server, please visit our Support Matrix at: <http://www.hp.com/go/ossupport> and our driver download page: <http://www.hp.com/support/DL385pGen8>

Graphics

Integrated Matrox G200 video standard

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

Form Factor

One of the following depending on Model

2U Rack form factor

NOTE: All pre-configured BTO Models ship with Ball-Bearing sliding rails and cable management arm. Any customer configured models must select appropriate Rail Kits when configuring.

8 SFF Drive Bay Version:

3.44 (8.74 cm) Height x 17.54" (44.55 cm) Width x 27.5" (69.85 cm) Length

8 LFF Drive Bay Version:

3.44 (8.74 cm) Height x 17.54" (44.55 cm) Width x 29.5" (74.94cm) Length

12 LFF Drive Bay Version:

3.44 (8.74 cm) Height x 17.54" (44.55 cm) Width x 29.5" (74.94cm) Length

25 SFF Drive Bay Version:

3.44 (8.74 cm) Height x 17.54" (44.55 cm) Width x 27.5" (69.85 cm) Length

Standard Features

On System Management

HP iLO Management Engine

HP iLO Management Engine is 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. HP iLO Management Engine comes standard on all HP ProLiant Gen8 Servers. HP iLO Management Engine portfolio includes:

- **HP iLO:** The HP iLO management processor is the core **foundation for HP iLO Management Engine**. **HP iLO for HP ProLiant** servers simplify server setup, engage health monitoring, power and thermal control, and promote remote administration for HP ProLiant ML, DL, BL and SL servers. Furthermore with the new HP iLO is the ability to access, deploy, and manage your server anytime from anywhere with your Smartphone device.
- **HP Agentless Management:** With HP iLO Management Engine in every HP ProLiant Gen8 server, the base hardware monitoring and alerting capability is built into the system (running on the HP iLO chipset) and starts working the moment that a power cord and an Ethernet cable is connected to the server.
- **HP Active Health System:** HP Active Health System is an essential component of the HP iLO Management Engine. It provides: Diagnostics tools/scanners wrapped into one; Always on, continuous monitoring for increased stability and shorter downtimes; Rich configuration history; Health and service alerts; Easy export and upload to Service and Support.
- **HP Intelligent Provisioning (previously known as SmartStart):** HP Intelligent Provisioning offers the ability for out-of-the box single-server deployment and configuration without the need for media.

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

HP Insight

management software

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



Standard Features

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
Serial interface control
Administrator's password

Warranty

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

NOTE: Server Warranty includes 3-Year Parts, 3-Year Labor, 3-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.

Two versions of Insight Control are available, to serve environments requiring either a Linux-based or a Windows-based central management server: HP Insight Control for Linux, and HP Insight Control. See 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, please visit: <http://www.hp.com/services/insight>.

HP Matrix Operating Environment

The HP Matrix Operating Environment (Matrix OE) for ProLiant and Integrity servers is an integrated command center that helps you instantly adjust to dynamic business demands. This advanced infrastructure management software lets you reduce the cost of common data center tasks by up to 40 percent while keeping pace with your changing business.

The HP Matrix OE includes the automated provisioning, optimization, and recovery management capabilities for HP CloudSystem Matrix, the ideal platform for private cloud and Infrastructure as a Service (IaaS).

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

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 HP Matrix Operating Environment, 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>

Optional Features

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, 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

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, EVA7xxx, EVA, XP, rackable tape libraries and configurable network switches.

For more information on Factory Express services for your specific server model please contact your sales representative or go to: <http://www.hp.com/go/factory-express>.

HP Enterprise Configurator The HP eConfigure-Enterprise Configurator now provides factory default racking for our HP hardware portfolio. This approach is aligned with our strategic direction to meet the needs and expectations of our valued customers. If you require "custom" rack configuration, please contact HP's Customer Business Center or an Authorized Partner for assistance. <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: All Pre-configured Models come populated with some hard drive blanks installed. Should the customer need additional hard drive blanks, they can order more using either P/N 666987-B21: HP SFF Gen8 Hard Drive Blank Kit or P/N 666986-B21: HP LFF Gen8 Hard Drive Blank Kit.

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

Storage Centric Models

<p>HP ProLiant DL385p Gen8 6212 1P 16GB-R P420i/512 Hot Plug 12 LFF 750W PS Server 642137-xx1</p>	<p>Processor(s)</p> <p>Cache Memory</p> <p>Memory</p> <p>Network Controller</p> <p>Storage Controller</p> <p>Hard Drive</p> <p>Internal Storage</p> <p>Optical Drive Bay</p> <p>PCI-Express Slots</p> <p>Power Supply</p> <p>Fans</p> <p>Management</p> <p>Form Factor</p> <p>Warranty</p>	<p>(1) AMD Opteron™ 6212 (2.6GHz/8-core/16MB/115W TDP) Processor</p> <p>16MB (2x8MB) Level 3</p> <p>16GB (2x8GB) PC3-10600R (DDR3-1333) Registered DIMMS NOTE: Up to 24 DIMM slots available with 2nd Processor installed (12 DIMM Slots per processor).</p> <p>HP Ethernet 1Gb 4-port 331FLR Adapter</p> <p>HP Smart Array P420i/512MB FBWC (RAID 0/1/1+0/5/5+0)</p> <p>None ship standard; includes 10 LFF hard drive blanks, 2 open drive bays for drives</p> <p>12 LFF SAS/SATA HDD Bays</p> <p>Optional Slim Optical Bay (SATA DVD-RW/ROM Optical Drive)</p> <p>3 PCIe slots NOTE: 3 additional PCIe slots available with optional PCIe Riser Cage #2-requires second processor.</p> <p>(1) HP 750W CS Platinum Plus Hot Plug Power Supply (94% Efficient)</p> <p>(4) (N+1 redundancy standard)</p> <p>HP iLO Management Engine (standard) Optional: HP Insight Control</p> <p>Rack (2U), HP Ball Bearing Rail Kit /Cable Management Arm standard</p> <p>Server Warranty includes 3-Year Parts, 3-Year Labor, 3-Year Onsite support with next business day response.</p>
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Pre-configured Models

Dedicated Workload Models

NOTE: This Model is Energy Star Certified.

HP ProLiant DL385p Gen8 6238 2P 32GB-R P420i Hot Plug 8 SFF 750W PS Server 642136-xx1	Processor(s) Cache Memory Memory Network Controller Storage Controller Hard Drive Internal Storage Optical Drive Bay PCI-Express Slots Power Supply Fans Management Form Factor Warranty	(2) AMD Opteron™ 6238 (2.6GHz/12-core/16MB/115W TDP) Processors 16MB (2x8MB) Level 3 32GB (4x8GB) PC3-10600R (DDR3-1333) Registered DIMMS NOTE: Up to 24 DIMM slots available with 2nd Processor installed(12 DIMM Slots per processor). HP Ethernet 1Gb 4-port 331FLR Adapter HP Smart Array P420i/1GB FBWC (RAID 0/1/1+0/5/5+0) None ship standard; includes 6 SFF hard drive blanks, 2 open drive bays for drives 8 SFF SAS/SATA HDD Bays Optional: +8 SFF (total of 16) SFF SAS/SATA HDD Bays (requires additional PCI controller) Optional Slim Optical Bay (SATA DVD-RW /ROM Optical Drive) 6 PCIe slots NOTE: Includes PCIe Riser Cage #2. (2) HP 750W CS Platinum Plus Hot Plug Power Supplies (94% Efficient) (6) (N+1 redundancy standard) HP iLO Management Engine (standard) Optional: HP Insight Control Rack (2U), HP Ball Bearing Rail Kit /Cable Management Arm standard Server Warranty includes 3-Year Parts, 3-Year Labor, 3-Year Onsite support with next business day response.
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Maximized Consolidation Models

NOTE: These Models are Energy Star Certified.

HP ProLiant DL385p Gen8 6272 2P 32GB-R P420i Hot Plug 25 SFF 750W PS Server 642135-xx1	Processor(s) Cache Memory Memory Network Controller Storage Controller Hard Drive Internal Storage Optical Drive Bay PCI-Express Slots Power Supply Fans Management	(2) AMD Opteron™ 6272 (2.1GHz/16-core/16MB/115W TDP) Processors 16MB (2x8MB) Level 3 32GB (4x8GB) PC3-10600R (DDR3-1333) Registered DIMMS NOTE: Up to 24 DIMM slots available with 2nd Processor installed(12 DIMM Slots per processor). HP Ethernet 1Gb 4-port 331FLR Adapter HP Smart Array P420i/2GB FBWC (RAID 0/1/1+0/5/5+0) None ship standard; includes 23 SFF hard drive blanks, 2 open drive bays for drives 25 SFF SAS/SATA HDD Bays None Available 6 PCIe slots NOTE: Includes PCIe Riser Cage #2. (2) HP 750W CS Platinum Plus Hot Plug Power Supplies (94% Efficient) (6) (N+1 redundancy standard) HP iLO Management Engine (standard) Optional: HP Insight Control
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Pre-configured Models

Form Factor

Rack (2U), HP Ball Bearing Rail Kit /Cable Management Arm standard

Warranty

Server Warranty includes 3-Year Parts, 3-Year Labor, 3-Year Onsite support with next business day response.

Country Code Key

xx = 00

U.S.

xx = 29

Japan

xx = 37

APD

xx = 42

Europe

xx = AA

PRC

Configuration Information - Factory Integrated Models

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

NOTE: Factory Integrated Models must start with a CTO Server.

NOTE: FIO indicates that this option is only available as a factory installable option.

NOTE: All Factory Integrated Models will be populated with sufficient hard drive blanks based on the number of initial hard drives ordered with the server.

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

HP Models	HP ProLiant DL385p Gen8 8 SFF Configure-to-order Server	653203-B21
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Factory Integrated Model ships with:

Drive Cage - 8-SFF Drive Bays available (See hard drives in Section 4 for options)

SID-Systems Insight Display Included

24 DIMM slots for RDIMM or LRDIMM memory installation

Smart Array P420i Controller w/ Zero Memory (ZM)

I/O slots - 3 Slots come standard:

- Slot 1 - FL/FH x8 PCIe 2.0 (x16 connector)
- Slot 2 - HL/FH x8 PCIe 2.0 (x8 connector)
- Slot 3 - HL/FH x4 PCIe 2.0 (x8 connector)
- Additional PCIe Slots may be added with the 2nd Riser Cage option.

System Fans - 4 standard (2 additional fans included with second processor)

Drive Cage - 8SFF (drive blanks installed dependent on number of drives ordered)

USB - 4 Rear, 2 Front, 2 Internal, 1 SD slot

HP iLO Management Engine (iLO4)

NOTE: Smart Array Cache options, Hard drives, Optical drives, Flexible NICs*, Power Supply* and Rail/CMA Kits not included in the base configuration - choose these from Steps 2 or 4 below in Options section. Additional 8-SFF Drive option requires additional HP Smart Array Controller.

* This is a required selection.

HP ProLiant DL385p Gen8 8 LFF Configure-to-order Server	669804-B21
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Factory Integrated Model ships with:

Drive Cage - 8-LFF Drive Bays available (See hard drives in Section 4 for options)

Pop Out SID-Systems Insight Display Included

24 DIMM slots for RDIMM or LRDIMM memory installation

Smart Array P420i Controller w/ Zero Memory (ZM)

I/O slots - 3 Slots come standard:

- Slot 1 - FL/FH x8 PCIe 2.0 (x16 connector)
- Slot 2 - HL/FH x8 PCIe 2.0 (x8 connector)
- Slot 3 - HL/FH x4 PCIe 2.0 (x8 connector)
- Additional PCIe Slots may be added with the 2nd Riser Cage option.

System Fans - 4 standard (2 additional fans included with second processor)

Drive Cage - 8LFF (drive blanks installed dependent on number of drives ordered)

USB - 4 Rear, 2 Front, 2 Internal, 1 SD slot

HP iLO Management Engine (iLO4)

NOTE: Smart Array Cache options, Hard drives, Optical drives, Flexible NICs*, Power Supply* and Rail/CMA Kits not included in the base configuration - choose these from Steps 2 or 4 below in Options section.

* Required selection.



Configuration Information - Factory Integrated Models

HP ProLiant DL385p Gen8 12 LFF Configure-to-order Server 669805-B21

Factory Integrated Model ships with:

Drive Cage - 12-LFF Drive Bays available (See hard drives in Section 4 for options)

NO SID-Systems Insight Display Included

24 DIMM slots for RDIMM and LRDIMM memory installation

Smart Array P420i Controller w/ Zero Memory (ZM)

I/O slots - 3 Slots come standard:

- Slot 1 - FL/FH x8 PCIe 2.0 (x16 connector)
- Slot 2 - HL/FH x8 PCIe 2.0 (x8 connector)
- Slot 3 - HL/FH x4 PCIe 2.0 (x8 connector)
- Additional PCIe Slots may be added with the 2nd Riser Cage option.

System Fans - 4 standard (2 additional fans included with second processor)

USB - 4 Rear, 2 Front, 2 Internal, 1 SD slot

HP iLO Management Engine (iLO4)

NOTE: Smart Array Cache options, Hard drives, Optical drives, Flexible NICs*, Power Supply* and Rail/CMA Kits not included in the base configuration - choose these from Steps 2 or 4 below in Options section.

* Required selection.

HP ProLiant DL385p Gen8 25 SFF Configure-to-order Server 669803-B21

Factory Integrated Model ships with:

Drive Cage - 25-SFF Drive Bays available (See hard drives in Section 4 for options)

NO SID-Systems Insight Display Included

24 DIMM slots for RDIMM, LRDIMM, and UDIMM memory installation

1 FlexibleLOM connector (see Step2: HP Flexible NIC section below for NIC choices to populate the embedded connector)

Smart Array P420i Controller w/ Zero Memory (ZM)

I/O slots - 3 Slots come standard:

- Slot 1 - FL/FH x8 PCIe 2.0 (x16 connector)
- Slot 2 - HL/FH x8 PCIe 2.0 (x8 connector)
- Slot 3 - HL/FH x4 PCIe 2.0 (x8 connector)
- Additional Slots may be added via selection from the "PCI Information and Options" subsection

System Fans - 4 standard (2 additional fans included with second processor)

Drive Cage - 12LFF (drive blanks installed dependent on number of drives ordered)

USB - 4 Rear, 2 Front, 2 Internal, 1 SD slot

HP iLO Management Engine (iLO4)

NOTE: Smart Array Cache options, Hard drives, Optical drives, Flexible NICs*, Power Supply* and Rail/CMA Kits not included in the base configuration - choose these from Steps 2 or 4 below in Options section.

* Required selection.

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

HP Processors

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

Sixteen-Core Processors

HP DL385p Gen8 AMD Opteron™ 6284SE (2.7GHz/16-core/16MB/140W) FIO Processor Kit 686879-L21



Configuration Information - Factory Integrated Models

HP DL385p Gen8 AMD Opteron™ 6282SE (2.6GHz/16-core/16MB/140W) FIO Processor Kit	654712-L21
HP DL385p Gen8 AMD Opteron™ 6278 (2.4GHz/16-core/16MB/115W) FIO Processor Kit	686881-L21
HP DL385p Gen8 AMD Opteron™ 6276 (2.3GHz/16-core/16MB/115W) FIO Processor Kit	654714-L21
HP DL385p Gen8 AMD Opteron™ 6274 (2.2GHz/16-core/16MB/115W) FIO Processor Kit	654716-L21
HP DL385p Gen8 AMD Opteron™ 6272 (2.1GHz/16-core/16MB/115W) FIO Processor Kit	654718-L21
HP DL385p Gen8 AMD Opteron™ 6262HE (1.6GHz/16-core/16MB/85W) FIO Processor Kit	654728-L21

Twelve-Core Processors

HP DL385p Gen8 AMD Opteron™ 6238 (2.6GHz/12-core/16MB/115W) FIO Processor Kit	654722-L21
HP DL385p Gen8 AMD Opteron™ 6234 (2.4GHz/12-core/16MB/115W) FIO Processor Kit	654724-L21

Eight-Core Processors

HP DL385p Gen8 AMD Opteron™ 6220 (3.0GHz/8-core/16MB/115W) FIO Processor Kit	654726-L21
HP DL385p Gen8 AMD Opteron™ 6212 (2.6GHz/8-core/16MB/115W) FIO Processor Kit	654720-L21

Quad-Core Processors

HP DL385p Gen8 AMD Opteron™ 6204 (3.3GHz/4-core/16MB/115W) FIO Processor Kit	677551-L21
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HP Memory

NOTE: To realize the performance memory capabilities listed in this document, HP SmartMemory is recommended. For additional information, please see the HP SmartMemory QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/14225_div/14225_div.html (Worldwide)

Registered DIMMs (RDIMMs)

HP 4GB (1x4GB) Single Rank x4 PC3L-10600R (DDR3-1333) Registered CAS-9 Low Voltage Memory Kit	647871-B21
HP 8GB (1x8GB) Dual Rank x4 PC3L-10600R (DDR3-1333) Registered CAS-9 Low Voltage Memory Kit	647877-B21
HP 16GB (1x16GB) Dual Rank x4 PC3L-10600R (DDR3-1333) Registered CAS-9 Low Voltage Memory Kit	647883-B21
HP 4GB (1x4GB) Single Rank x4 PC3-12800R (DDR3-1600) Registered CAS-11 Memory Kit	647873-B21
HP 8GB (1x8GB) Single Rank x4 PC3-12800R (DDR3-1600) Registered CAS-11 Memory Kit	647879-B21
HP 16GB (1x16GB) Dual Rank x4 PC3-12800R (DDR3-1600) Registered CAS-11 Memory Kit	672633-B21

Load Reduced DIMMs(LRDIMMs)

HP 32GB (1x32GB) Quad Rank x4 PC3L-10600L (DDR3-1333) Load Reduced CAS-9 Low Voltage Memory Kit	647885-B21
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Ultra Low Voltage DIMMs (ULVDIMM)

HP 4GB (1x4GB) Single Rank x4 PC3U-10600R (DDR3-1333) Registered CAS-9 Ultra Low Voltage Memory Kit	647869-B21
HP 8GB (1x8GB) Dual Rank x4 PC3U-10600R (DDR3-1333) Registered CAS-9 Ultra Low Voltage Memory Kit	647875-B21

Configuration Information - Factory Integrated Models

HP 16GB (1x16GB) Dual Rank x4 PC3U-10600R (DDR3-1333) Registered CAS-9 Ultra Low Voltage Memory Kit 647881-B21

NOTE: HP memory from previous generation servers may not provide the same performance with the HP ProLiant DL385p Gen8 Servers as HP SmartMemory will.

NOTE: If only one processor is installed, only half the DIMM slots are available.

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

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 Networking

FlexibleLOM Adapters

NOTE: The HP ProLiant DL385p Gen8 server requires one FlexibleLOM to be installed in the FlexibleLOM slot.

HP Ethernet 1Gb 4-port 331FLR FIO Adapter 684208-B21

HP Ethernet 10Gb 2-port 530FLR-SFP+ FIO Adapter 684210-B21

HP FlexFabric 10Gb 2-port 554FLR-SFP+ FIO Adapter 684213-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 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 750W Common Slot Platinum Plus Hot Plug Power Supply Kit 656363-B21

HP 1200W Common Slot Platinum Plus Hot Plug Power Supply Kit 656364-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 750W Common Slot Gold Hot Plug Power Supply Kit 512327-B21

HP Common Slot -48VDC Power Supplies

HP 750W Common Slot -48VDC Hot Plug Power Supply Kit 636673-B21

NOTE: The HP 750W Common Slot -48VDC power supply does not ship with a power cable. It has been designed with a terminal block connection allowing for custom design of power cords by the user.

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

NOTE: Power Specification and Technical Content for supported power supplies can be found at:

http://h18000.www1.hp.com/products/quickspecs/14209_div/14209_div.html

Configuration Information - Factory Integrated Models

Step 3: Choose Additional Factory Integratable Options (only one of the following from each list unless otherwise noted)

HP Rack Kits

NOTE: Rail kits are optional for Gen8 and are no longer included standard with the server (except pre-configured/BTO Models). The customer has the choice to not include rail kits with their server purchase, but it is recommended.

NOTE: HP 2U Ball Bearing Rail Kits provide full serviceability of the server while in the Rack and include a CMA. HP 2U Friction Rail Kits ARE NOT serviceable in the Rack and must be removed from the rack and do not include CMA.

NOTE: Additional HP Rack Kit options can be found in the "Additional Options" section of this QuickSpecs. Only FIO options are listed here.

Caution: Due to the size and weight of some servers HP recommends that a minimum of two people is required for all HP Rack Server installations. Please refer to your Rail Installation Kit instructions for proper tools and number of people to use for any installation.

NOTE: To assist in the installation of multiple servers into the rack an optional installation Service Spares tool (SPS-Tool Rack Installation 695539-001) is available by contacting your local services representative.

HP 2U Friction Gen8 Rail FIO Kit

663476-B21

NOTE: No in-rack serviceability.

HP Insight Software

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

582765-B21

Step 4: Choose Additional Options for Factory Integration

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

Core Options

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

HP Unique Options	<p>HP 380/385 Gen8 8-SFF Cage/Bkpln Kit 662883-B21</p> <p>NOTE: With upgrade of 8SFF Cage/Bkpln, there is no Optical Drive support.</p> <p>NOTE: With upgrade of 8SFF Cage/Bkpln, an additional storage controller is required. Please go to the Storage Controller section for options available.</p> <p>HP DL385p Gen8 x16 2x8 PCI-E Riser Kit 653214-B21</p> <p>NOTE: 2nd Riser Cage requires 2nd Processor.</p>
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HP Processors

Sixteen-Core Processors

NOTE: All support up to 1600MHz DDR3 memory speeds

HP DL385p Gen8 AMD Opteron™ 6284SE (2.7GHz/16-core/16MB/140W) Processor Kit	686879-B21
HP DL385p Gen8 AMD Opteron™ 6282SE (2.6GHz/16-core/16MB/140W) Processor Kit	654712-B21
HP DL385p Gen8 AMD Opteron™ 6278 (2.4GHz/16-core/16MB/115W) Processor Kit	686881-B21
HP DL385p Gen8 AMD Opteron™ 6276 (2.3GHz/16-core/16MB/115W) Processor Kit	654714-B21
HP DL385p Gen8 AMD Opteron™ 6274 (2.2GHz/16-core/16MB/115W) Processor Kit	654716-B21
HP DL385p Gen8 AMD Opteron™ 6272 (2.1GHz/16-core/16MB/115W) Processor Kit	654718-B21
HP DL385p Gen8 AMD Opteron™ 6262HE (1.6GHz/16-core/16MB/85W) Processor Kit	654728-B21

Twelve-Core Processors

HP DL385p Gen8 AMD Opteron™ 6238 (2.6GHz/12-core/16MB/115W) Processor Kit	654722-B21
HP DL385p Gen8 AMD Opteron™ 6234 (2.4GHz/12-core/16MB/115W) Processor Kit	654724-B21

Eight-Core Processors

HP DL385p Gen8 AMD Opteron™ 6220 (3.0GHz/8-core/16MB/115W) Processor Kit	654726-B21
HP DL385p Gen8 AMD Opteron™ 6212 (2.6GHz/8-core/16MB/115W) Processor Kit	654720-B21

Quad-Core Processors

HP DL385p Gen8 AMD Opteron™ 6204 (3.3GHz/4-core/16MB/115W) Processor Kit	677551-B21
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NOTE: Up to 2 processors supported in all models.

NOTE: DDR3 speed is the maximum memory speed of the processor. Actual memory speed may depend on the quantity and type of DIMMs installed.

Core Options

HP Memory

NOTE: To realize the performance memory capabilities listed in this document, HP SmartMemory is recommended. For additional information, please see the HP SmartMemory QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/14225_div/14225_div.html (Worldwide)

Registered DIMMs (RDIMMs)

HP 4GB (1x4GB) Single Rank x4 PC3L-10600R (DDR3-1333) Registered CAS-9 Low Voltage Memory Kit 647871-B21

HP 8GB (1x8GB) Dual Rank x4 PC3L-10600R (DDR3-1333) Registered CAS-9 Low Voltage Memory Kit 647877-B21

HP 16GB (1x16GB) Dual Rank x4 PC3L-10600R (DDR3-1333) Registered CAS-9 Low Voltage Memory Kit 647883-B21

HP 4GB (1x4GB) Single Rank x4 PC3-12800R (DDR3-1600) Registered CAS-11 Memory Kit 647873-B21

HP 8GB (1x8GB) Single Rank x4 PC3-12800R (DDR3-1600) Registered CAS-11 Memory Kit 647879-B21

HP 16GB (1x16GB) Dual Rank x4 PC3-12800R (DDR3-1600) Registered CAS-11 Memory Kit 672633-B21

Load Reduced DIMMs (LRDIMMs)

HP 32GB (1x32GB) Quad Rank x4 PC3L-10600L (DDR3-1333) Load Reduced CAS-9 Low Voltage Memory Kit 647885-B21

Ultra Low Voltage DIMMs (ULVDIMM)

HP 4GB (1x4GB) Single Rank x4 PC3U-10600R (DDR3-1333) Registered CAS-9 Ultra Low Voltage Memory Kit 647869-B21

HP 8GB (1x8GB) Dual Rank x4 PC3U-10600R (DDR3-1333) Registered CAS-9 Ultra Low Voltage Memory Kit 647875-B21

HP 16GB (1x16GB) Dual Rank x4 PC3U-10600R (DDR3-1333) Registered CAS-9 Ultra Low Voltage Memory Kit 647881-B21

NOTE: HP memory from previous generation servers may not provide the same performance with the HP ProLiant DL385p Gen8 Servers as HP SmartMemory will.

NOTE: If only one processor is installed, only half the DIMM slots are available.

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

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 Optical Drives

HP 12.7mm Slim SATA DVD ROM JackBlack Optical Drive 652232-B21

HP 12.7mm Slim SATA DVD RW JackBlack Optical Drive 652235-B21

HP Hard Drives

NOTE: The HP ProLiant DL385p Gen8 Smart Storage solutions are equipped with entirely re-designed Small Form Factor (SFF 2.5 in) and Large Form Factor (LFF 3.5 in) hot plug carriers for HP Qualified Hard Drives and Solid State Drives. These new carriers provide status, location and activity indicators as well as caution indicators for "Do Not Remove".

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



Core Options

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
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

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

http://h18000.www1.hp.com/products/quickspecs/12244_div/12244_div.html
(Worldwide)

6G SATA Hot Plug with SmartDrive SFF (2.5-inch) Midline (MDL) Drives

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

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

HP 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

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

http://h18000.www1.hp.com/products/quickspecs/13021_div/13021_div.html
(Worldwide)

Core Options

6G SAS MLC Hot Plug SFF (2.5-inch) Enterprise Mainstream Solid State Drives

HP 800GB 6G SAS MLC SFF (2.5-inch) SC Enterprise Mainstream 3yr Warranty Solid State Drive	653109-B21
HP 400GB 6G SAS MLC SFF (2.5-inch) SC Enterprise Mainstream 3yr Warranty Solid State Drive	653105-B21
HP 200GB 6G SAS MLC SFF (2.5-inch) SC Enterprise Mainstream 3yr Warranty Solid State Drive	658478-B21

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

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_div/14038_div.html
(Worldwide)

Hard Drive Kits

NOTE: All Factory Integrated Models will be populated with sufficient hard drive blanks based on the number of initial hard drives ordered with the server.

HP SFF Gen8 Hard Drive Blank Kit	666987-B21
HP LFF Gen8 Hard Drive Blank Kit	666986-B21
HP 380/385 Gen8 8-SFF Cage/Bkpln Kit	662883-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 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	
	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 530SFP Adapter	652503-B21
	FlexibleLOM Adapters	
	HP Ethernet 1Gb 4-port 331FLR Adapter	629135-B21
HP Ethernet 10Gb 2-port 530FLR-SFP+ Adapter	647581-B21	
HP FlexFabric 10Gb 2-port 554FLR-SFP+ Adapter	629142-B21	
NOTE: Please see the QuickSpecs for Technical Specifications and additional information: www.hp.com/go/ProLiantNICs		
SFP+		
HP X132 10G SFP+ LC LR Transceiver	J9151A	
HP X132 10G SFP+ LC SR Transceiver	J9150A	
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HP InfiniBand	QLogic InfiniBand 4X QDR PCI-E G2 Dual Port HCA	583211-B21
	HP InfiniBand 4X QDR ConnectX-2 PCIe G2 Dual Port HCA	592520-B21
	HP InfiniBand FDR/EN 10/40Gb Dual Port 544QSFP Adapter	649281-B21
	NOTE: For the following two InfiniBand Adapters, only 1 FlexibleLOM can be added to the server, which is selected in Step 2 for the "Configuration Information - Factory Integrated Models" section. These two options are for upgrade or change from original configuration.	
	HP InfiniBand FDR/EN 10/40Gb Dual Port 544FLR-QSFP Adapter	649282-B21
	HP InfiniBand QDR/EN 10Gb Dual Port 544FLR-QSFP Adapter	649283-B21
	NOTE: FLR Indicates new HP FlexibleLOM Adapter series.	
	NOTE: Please see the QuickSpecs for additional information: http://h18000.www1.hp.com/products/quickspecs/13078_div/13078_div.html	
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HP I/O Expansion Options	HP DL385p Gen8 x16 2x8 PCI-E Riser Kit	653214-B21
	NOTE: 2nd Riser Cage requires 2nd Processor.	
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Core Options

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 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 750W Common Slot Platinum Plus Hot Plug Power Supply Kit 656363-B21

HP 1200W Common Slot Platinum Plus Hot Plug Power Supply Kit 656364-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 750W Common Slot Gold Hot Plug Power Supply Kit 512327-B21

HP Common Slot -48VDC Power Supplies

NOTE: The following Power Supplies offer 92% Efficiency.

HP 750W Common Slot -48VDC Hot Plug Power Supply Kit 636673-B21

NOTE: The HP 750W Common Slot -48VDC power supply does not ship with a power cable. It has been designed with a terminal block connection allowing for custom design of power cords by the user.

NOTE: Option Kits contain optional power supply, an IEC power cable and PDU IEC cables.

NOTE: Power Specification and Technical Content for supported power supplies can be found at:

http://h18000.www1.hp.com/products/quickspecs/14209_div/14209_div.html

HP Graphic Options

HP 150W PCI-E Power Cable Kit

669777-B21

Additional Options

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

HP Insight Software	HP Insight Control	
	HP Insight Control including 1yr 24x7 Technical Support and Updates Electronic License	T9074BAE
	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 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_div/12631_div.html	
	HP Insight Control for Linux	
	HP Insight Control for Linux including 1yr 24x7 Support Electronic License	TC213AAE
	HP Insight Control for Linux including 1yr 24x7 Support Single Server License	TC209A
	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_div/13019_div.html	

Additional Options

HP iLO Advanced License	HP Integrated Lights-Out (iLO) Advanced for ProLiant Remote Management HP iLO Advanced including 1yr 24x7 Technical Support and Updates Single Server License NOTE: For more information, visit: http://www.hp.com/go/ilo .	512485-B21
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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_div/12612_div.html HP HPC Linux Value Pack HP High Performance Computing Linux Value Pack 1 Processor Flexible License 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 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_div/13485_div.html
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HP I/O Accelerator Options	HP 160GB Single Level Cell PCIe ioDrive for ProLiant Servers 600278-B21 NOTE: A low-profile PCI bracket is included for use in low-profile slots. HP 320GB Multi Level Cell PCIe ioDrive for ProLiant Servers 600279-B21 NOTE: A low-profile PCI bracket is included for use in low-profile slots. HP 320GB Single Level Cell PCIe ioDrive Duo for ProLiant Servers 600281-B21 HP 640GB Multi Level Cell PCIe ioDrive Duo for ProLiant Servers 600282-B21 HP 1.28TB Multi Level Cell PCIe ioDrive Duo for ProLiant Servers 641027-B21 NOTE: Please see the QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/13587_div/13587_div.html (Worldwide)
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Additional Options

HP Security	<p>HP Trusted Platform Module Option 488069-B21</p> <p>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.</p> <p>NOTE: ProLiant OS pre-installed units will come with the partition required for TPM deployment.</p> <p>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.</p>
	<p>HP 2U Security Bezel Kit 666988-B21</p>

HP Storage Controllers	<p>SAS Controllers</p> <p>Smart Array P222 Controller</p> <p>HP Smart Array P222/512 FBWC 6Gb 1-port Int/1-port Ext SAS Controller 631667-B21</p> <p>Smart Array P420 Controller</p> <p>HP Smart Array P420/1GB FBWC 6Gb 2-ports Int SAS Controller 631670-B21</p> <p>HP Smart Array P420/2GB FBWC 6Gb 2-ports Int SAS Controller 631671-B21</p> <p>Smart Array P421 Controller</p> <p>HP Smart Array P421/1GB FBWC 6Gb 2-ports Ext SAS Controller 631673-B21</p> <p>HP Smart Array P421/2GB FBWC 6Gb 2-ports Ext SAS Controller 631674-B21</p> <p>Smart Array P822 Controller</p> <p>HP Smart Array P822/2GB FBWC 2-ports Int/4-ports Ext SAS Controller 615418-B21</p> <p>Optional Upgrades</p> <p>HP 1GB P-series Smart Array Flash Backed Write Cache 631679-B21</p> <p>HP 2GB P-series Smart Array Flash Backed Write Cache 631681-B21</p> <p>HP 512MB P-series Smart Array Flash Backed Write Cache 661069-B21</p> <p>HP Smart Array Advanced Pack 2.0 No Media 1 Server 1yr 24x7 Support Software BC377A</p> <p>HP Smart Array Advanced Pack 2.0 No Media Electronic Lic 1yr 24x7 Support Software BC390AAE</p> <p>NOTE: RAID 6, 6+0 may be enabled with a combination of one cache upgrade and one Smart Array Advanced Pack from the options above.</p> <p>HP Cable Options</p> <p>HP DL38x/DL360 Gen8 Embedded SATA Cable Kit 664009-B21</p> <p>HP Mini SAS Straight to Straight 37in Cable Assembly 662897-B21</p> <p>NOTE: Please see the QuickSpecs for Technical Specifications and additional information:</p> <p>http://h18000.www1.hp.com/products/quickspecs/14227_div/14227_div.html (Smart Array P222 Controller)</p> <p>http://h18000.www1.hp.com/products/quickspecs/14228_div/14228_div.html (Smart Array P420 Controller)</p> <p>http://h18000.www1.hp.com/products/quickspecs/14229_div/14229_div.html (Smart Array P421 Controller)</p> <p>http://h18000.www1.hp.com/products/quickspecs/13200_div/13200_div.html (Smart Array Advanced Pack)</p>
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Additional Options

Host Bus Adapter

HP H220 Host Bus Adapter	650933-B21
HP H221 Host Bus Adapter	650931-B21
HP H222 Host Bus Adapter	650926-B21

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

http://h18004.www1.hp.com/products/quickspecs/14336_div/14336_div.html
(HBA 220)

http://h18004.www1.hp.com/products/quickspecs/14222_div/14222_div.html
(HBA 221)

http://h18004.www1.hp.com/products/quickspecs/14337_div/14337_div.html
(HBA 222)

SCSI HBA

HP SC11Xe Ultra320 Single Channel/ PCIe x4 SCSI Host Bus Adapter	412911-B21
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NOTE: Please see the following QuickSpecs for additional information:

http://h18000.www1.hp.com/products/quickspecs/12566_div/12566_div.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>

HP DAT 160 SCSI External Tape Drive	Q1574A
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HP DAT 160 SAS Internal Tape Drive	Q1587A
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HP 1/8 G2 LTO-4 Ultrium 1760 SAS Tape Autoloader	AK377A
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NOTE: Requires HP 1U Tape Autoloader Rack Kit (AH166A) for rack installation. Connection using HP Smart Array P222 Controller (631667-B21) recommended.

HP LTO-4 Ultrium 1760 SCSI External Tape Drive	EH922A
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HP LTO-5 Ultrium 3280 SAS Internal Tape Drive	EH899A
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NOTE: Connection using HP Smart Array P222 Controller (631667-B21) recommended.

HP LTO-5 Ultrium 3000 SAS Tape Drive in 1U Rackmount	EJ014A
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NOTE: Connection using HP Smart Array P222 Controller (631667-B21) recommended.

HP LTO-5 Ultrium 3000 SAS External Tape Drive	EH958A
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HP MSL2024 1 LTO-5 Ultrium 3000 SAS Tape Library	BL537A
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NOTE: Connection using HP Smart Array P222 Controller (631667-B21) recommended.

HP MSL2024 1 LTO-4 Ultrium 1760 SAS Tape Library	AK378A
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NOTE: Connection using HP Smart Array P222 Controller (631667-B21) recommended.

HP MSL4048 2 LTO-4 Ultrium 1760 SAS Tape Library	AK380A
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Additional Options

HP Storage Options

Storage Fibre Channel HBA

NOTE: For the complete listing of Fibre Channel Host Bus Adapters for Windows 2000, Windows Server 2003 and Linux, please see: <http://h18006.www1.hp.com/storage/saninfrastructure/hba.html>

Brocade Fibre Channel HBAs

HP 81B 8Gb 1-port PCIe Fibre Channel Host Bus Adapter	AP769A
HP 82B 8Gb 2-port PCIe Fibre Channel Host Bus Adapter	AP770A

Emulex Fibre Channel HBAs

HP 81E 8Gb 1-port PCIe Fibre Channel Host Bus Adapter	AJ762A
HP 82E 8Gb 2-port PCIe Fibre Channel Host Bus Adapter	AJ763A

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 CN1100E Dual Port Converged Network Adapter	BK835A
HP CN1000Q Dual Port Converged Network Adapter	BS668A

HP Disk Storage Systems

Modular Smart Arrays

HP P2000 G3 10GbE iSCSI MSA Dual Controller LFF Array System	AW596A
HP P2000 G3 10GbE iSCSI MSA Dual Controller SFF Array System	AW597A
HP P2000 G3 iSCSI MSA Dual Controller LFF Array System	BK830A
HP P2000 G3 iSCSI MSA Dual Controller SFF Array System	BK831A
HP P2000 G3 MSA FC Dual Controller LFF Modular Smart Array System	AP845A
HP P2000 G3 MSA FC Dual Controller SFF Modular Smart Array System	AP846A
HP P2000 G3 MSA FC/iSCSI Dual Combo Controller LFF Array	AW567A
HP P2000 G3 MSA FC/iSCSI Dual Combo Controller SFF Array	AW568A
HP P2000 G3 SAS MSA Dual Controller LFF Array System	AW593A
HP P2000 G3 SAS MSA Dual Controller SFF Array System	AW594A

NOTE: Please see the QuickSpecs for additional options and configuration information at:

http://h18000.www1.hp.com/products/quickspecs/13551_div/13551_div.html

Disk Enclosures

HP D2000 Disk Enclosures

HP D2600 Disk Enclosure	AJ940A
HP D2700 Disk Enclosure	AJ941A

NOTE: Please see the QuickSpecs for additional options and configuration information at:

http://h18000.www1.hp.com/products/quickspecs/13404_div/13404_div.html

Additional Options

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

HP R1.5kVA G3 1U JP/TW Uninterruptible Power System AF470A

HP R1.5kVA G3 1U INTL Uninterruptible Power System AF471A

NOTE: Please see the QuickSpecs for additional information:

http://h18000.www1.hp.com/products/quickspecs/14059_div/14059_div.html
(Worldwide)

HP R/T3000 G2 Uninterruptible Power System (UPS)

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

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

HP R/T3000 G2 2U Detachable Cord High Voltage INTL Uninterruptible Power System AF468A

NOTE: Please see the QuickSpecs for additional information:

http://h18000.www1.hp.com/products/quickspecs/14058_div/14058_div.html
(Worldwide)

R5000 Uninterruptible Power System (UPS)

HP R5KVA 3U IEC309-32A High Voltage INTL Uninterruptible Power System AF461A

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_div/14109_div.html
(Worldwide)

R7000 Uninterruptible Power System (UPS)

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

HP R7KVA 4U IEC-32A High Voltage INTL Uninterruptible Power System AF463A

HP R5KVA and R7KVA 3U Extended Runtime Module AF464A

NOTE: Please see the QuickSpecs for additional information:

http://h18000.www1.hp.com/products/quickspecs/14110_div/14110_div.html
(Worldwide)

NOTE: For additional information on 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 Power Distribution Units

Monitored PDUs

HP Monitored Power Distribution Unit: Full Rack Version

HP 17.3kVA 24A Dual Three Phase NA/JP Monitored Power Distribution Unit AF503A

HP 8.6kVA 24A Single Input Three Phase NA/JP Monitored Power Distribution Unit AF504A

HP 16.6kVA 40A Dual Input Single Phase NA/JP Monitored Power Distribution Unit AF505A

HP 8.3kVA 40A Single Input Single Phase NA/JP Monitored Power Distribution Unit AF506A

HP 22.1kVA 16A Dual Input Three Phase INTL Monitored Power Distribution Unit AF507A

Additional Options

HP 11kVA 16A Single Input Three Phase INTL Monitored Power Distribution Unit	AF508A
HP 14.7kVA 32A Dual Input Single Phase INTL Monitored Power Distribution Unit	AF509A
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 Three Phase INTL Intelligent Modular Power Distribution Unit	AF536A
HP 17.3kVA 48A Single Input Three Phase NA/JP Monitored Power Distribution Unit	AF916A
HP 7.3kVA 32A Single Input Single Phase INTL Monitored Power Distribution Unit	AF915A
HP 22kVA 32A Single Input Three Phase INTL Monitored Power Distribution Unit	AF917A

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

http://h18000.www1.hp.com/products/quickspecs/12118_div/12118_div.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 8.3kVA 40A High Voltage INTL Modular Power Distribution Unit	252663-B21
HP 8.3kVA 40A High Voltage NA/JP Modular Power Distribution Unit	252663-D73
HP 8.3kVA 40A High Voltage NA/JP Core Modular Power Distribution Unit	252663-D75
HP 4.9kVA 24A High Voltage NA/JP Core Modular Power Distribution Unit	252663-D74
HP 7.3kVA 32A High Voltage INTL Modular Power Distribution Unit	252663-B31
HP 9.2kVA 40A High Voltage INTL Modular Power Distribution Unit	252663-B32
HP 9.2kVA 40A High Voltage INTL Core Modular Power Distribution Unit	252663-B34
HP 7.3kVA 32A High Voltage INTL Core Modular Power Distribution Unit	252663-B33
HP 22kVA 32A Three Phase INTL Core Modular Power Distribution Unit	AF518A

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_div/11041_div.html
(Worldwide)

Additional Options

HP Intelligent Power Distribution Units (iPDU)	iPDU Core Units	
	HP 4.9kVA 24A Single Phase NA/JP Core Intelligent Modular Power Distribution Unit	AF520A
	HP 8.3kVA 40A Single Phase NA/JP Core Intelligent Modular Power Distribution Unit	AF521A
	HP 8.6kVA 24A Three Phase NA/JP Core Intelligent Modular Power Distribution Unit	AF522A
	HP 14.4kVA 40A Three Phase NA/JP Intelligent Modular Power Distribution Unit	AF533A
	HP 17.3kVA 48A Three Phase NA/JP Core Intelligent Modular Power Distribution Unit	AF523A
	HP 11.4kVA 16A 415V Three Phase L22-20 NA Core Intelligent Power Distribution Unit	AF900A
	HP 17.3kVA 24A 415V Three Phase L22-30 NA Core Intelligent Power Distribution Unit	AF902A
	HP 17.3kVA 24A 415V Three Phase IEC309 NA Core Intelligent Power Distribution Unit	AF901A
	HP 7.3kVA 32A Single Phase INTL Core Intelligent Modular Power Distribution Unit	AF525A
	HP 11kVA 16A Three Phase INTL Core Intelligent Modular Power Distribution Unit	AF526A
	HP 22kVA 32A Three Phase INTL Core Intelligent Modular Power Distribution Unit	AF527A
	HP 17.3kVA 48A 208V Three Phase 12 Outlet Core NA/JP Intelligent Power Distribution Unit	AF535A
	HP 17.3kVA 24A 415V Three Phase 12 Outlet Core NA/JP Intelligent Power Distribution Unit	AF537A
	HP 22kVA 32A 400V Three Phase 12 Outlet Core INTL Intelligent Power Distribution Unit	AF538A
	iPDU Kits with Standard Extension Bars	
	HP 4.9kVA 24A Single Phase NA/JP Intelligent Modular Power Distribution Kit	AF531A
	HP 8.6kVA 24A Three Phase NA/JP Intelligent Modular Power Distribution Kit	AF532A
	HP 7.3kVA 32A Single Phase INTL Intelligent Modular Power Distribution Kit	AF534A
	iPDU Extension Bars	
	HP 5xC13 Outlets Power and UID LEDs Pair Standard Extension Bar	AF528A

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

http://h18000.www1.hp.com/products/quickspecs/13650_div/13650_div.html
(Worldwide)

HP Rack Options	HP USB Keyboard and Mouse	
	HP USB BFR with PVC Free US Keyboard/Mouse Kit	631341-B21
	HP USB BFR with PVC Free UK Keyboard/Mouse Kit	631344-B21
	HP USB BFR with PVC Free FR Keyboard/Mouse Kit	631346-B21
	HP USB BFR with PVC Free ES Keyboard/Mouse Kit	631348-B21
	HP USB BFR with PVC Free DE Keyboard/Mouse Kit	631358-B21
	HP USB BFR with PVC Free JP Keyboard/Mouse Kit	631360-B21
	HP USB BFR with PVC Free IT Keyboard/Mouse Kit	631362-B21
	HP USB BFR with PVC Free CN Keyboard/Mouse Kit	631364-B21
	HP USB BFR with PVC Free AE Keyboard/Mouse Kit	638212-B21

Additional Options

HP USB BFR with PVC Free RU Keyboard/Mouse Kit	638214-B21
HP USB BFR with PVC Free AP-Intl Keyboard/Mouse Kit	672097-373
HP USB BFR with PVC Free Intl Keyboard/Mouse Kit	672097-B33
HP USB BFR with PVC Free PT Keyboard/Mouse Kit	672097-133
HP USB BFR with PVC Free TR Keyboard/Mouse Kit	672097-143
HP USB BFR with PVC Free CZ Keyboard/Mouse Kit	672097-223
HP USB BFR with PVC Free FI Keyboard/Mouse Kit	672097-353
HP USB BFR with PVC Free SE Keyboard/Mouse Kit	672097-103
HP USB BFR with PVC Free CH Keyboard/Mouse Kit	672097-113
HP USB BFR with PVC Free KR Keyboard/Mouse Kit	672097-KD3
HP USB BFR with PVC Free IN Keyboard/Mouse Kit	672097-D63

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

http://h18000.www1.hp.com/products/quickspecs/13972_div/13972_div.html
(Worldwide)

HP Server Console Switches

HP Server Console 0x2x8 Port Analog Switch	AF616A
HP Server Console 0x2x16 Port Analog Switch	AF617A

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

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

HP Server Console Switch G2 with Virtual Media & CAC

HP 0x2x16 KVM Server Console Switch G2 with Virtual Media CAC Software	AF618A
HP 0x2x32 KVM Server Console Switch G2 with Virtual Media CAC Software	AF619A

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

http://h18000.www1.hp.com/products/quickspecs/13475_div/13475_div.html
(Worldwide)

HP IP Console Switch G2 with Virtual Media & CAC

HP 1x1Ex8 KVM IP Console Switch G2 with Virtual Media CAC Software	AF620A
HP 2x1Ex16 KVM IP Console Switch G2 with Virtual Media CAC Software	AF621A
HP 4x1Ex32 KVM IP Console Switch G2 with Virtual Media CAC Software	AF622A

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

http://h18000.www1.hp.com/products/quickspecs/13474_div/13474_div.html
(Worldwide)

Rail Kits

NOTE: Rail kits are optional for Gen8 and are no longer included standard with the server(except pre-configured/BTO Models). The customer has the choice to not include rail kits with their server purchase, but it is recommended.

NOTE: HP 2U Ball Bearing Rail Kits provide full serviceability of the server while in the Rack and include a CMA. HP 2U Friction Rail Kits ARE NOT serviceable in the Rack and must be removed from the rack and do not include CMA.

Caution: Due to the size and weight of some servers HP recommends that a minimum of two people is required for all HP Rack Server installations. Please refer to your Rail Installation Kit instructions for proper tools and number of people to use for any installation. To assist in the installation of multiple servers into the rack an optional installation Service Spares tool(SPS-Tool Rack Installation 695539-001) is available by contacting your local services representative.

Additional Options

HP 2U Large Form Factor Ball Bearing Gen8 Rail Kit	663480-B21
NOTE: HP 2U Ball Bearing Rail Kits provide full serviceability of the server while in the Rack and include a CMA. HP 2U Friction Rail Kits ARE NOT serviceable in the Rack and must be removed from the rack and do not include CMA.	
HP 2U Small Form Factor Ball Bearing Gen8 Rail Kit	663478-B21
NOTE: HP 2U Ball Bearing Rail Kits provide full serviceability of the server while in the Rack and include a CMA. HP 2U Friction Rail Kits ARE NOT serviceable in the Rack and must be removed from the rack and do not include CMA.	

HP USB and SD options

HP USB 2-Button Optical Scroll Mouse	DC172B
HP USB 04 Standard Keyboard	DT528A#ABA
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 like SmartStart. 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 24x7 24 hour Call to Repair ProLiant DL38x(p) Hardware Support	UP717E
HP 3 year 4 hour 13x5 ProLiant DL38x(p) Hardware Support	U4544E
HP 3 year 4 hour 24x7 ProLiant DL38x(p) Collaborative Support	U1J30E
HP 3 year 4 hour 24x7 ProLiant DL38x(p) Hardware Support	U4545E
HP 3 year 4 hour 24x7 ProLiant DL38x(p) Proactive Care Service	U2Z50E
HP 3 year 4 hour 24x7 ProLiant DL38x(p) with Insight Control Proactive Care Service	U3N23E
HP 3 year 6 hour 24x7 Call to Repair ProLiant DL38x(p) Hardware Support	U4546E
HP 3 year Next business day ProLiant DL38x(p) Collaborative Support	U1J24E
HP 3 year Next business day ProLiant DL38x(p) Proactive Care Service	U2Z44E
HP 3 year Next business day ProLiant DL38x(p) with Insight Control Proactive Care Service	U3N17E
HP 3 year Support Plus 24 Insight Control ProLiant DL38x(p) Service	UM812E
HP 3 year Support Plus 24 Microsoft ProLiant DL38x(p) Service	U4557E
HP 3 year Support Plus 24 SuSE ProLiant DL38x(p) Service	U6312E
HP 4 year 24x7 24 hour Call to Repair ProLiant DL38x(p) Hardware Support	UP718E
HP 4 year 4 hour 13x5 ProLiant DL38x(p) Hardware Support	U8101E
HP 4 year 4 hour 24x7 ProLiant DL38x(p) Hardware Support	U8118E
HP 4 year 6 hour 24x7 Call to Repair ProLiant DL38x(p) Hardware Support	U9738E
HP 4 year Next business day ProLiant DL38x(p) Hardware Support	UA010E
HP 5 year 24x7 24 hour Call to Repair ProLiant DL38x(p) Hardware Support	UP719E
HP 5 year 4 hour 13x5 ProLiant DL38x(p) Hardware Support	U8067E
HP 5 year 4 hour 24x7 ProLiant DL38x(p) Hardware Support	U8084E
HP 5 year 6 hour 24x7 Call to Repair ProLiant DL38x(p) Hardware Support	U9737E
HP 5 year Next business day ProLiant DL38x(p) Hardware Support	UA009E
HP Install ProLiant DL38x(p) Service	U4554E



Additional Options

HP Installation of ProLiant Add On/In Options Service	UH745E
HP Startup ProLiant DL38x(p) Service	U4555E
HP Installation and Startup for Insight Control Server Deployment - previously Rapid Deployment Pack	U5683E

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

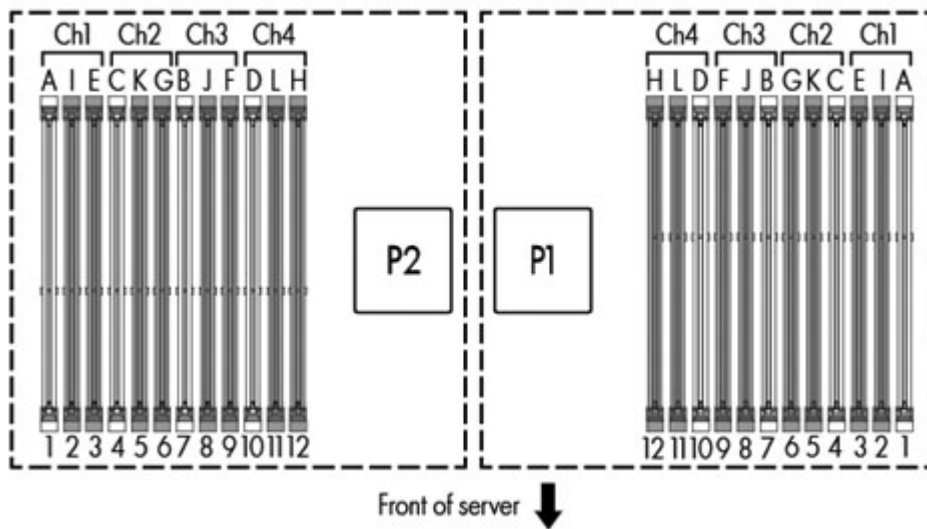
Memory

For detailed memory configuration rules and guidelines, please use the Online DDR3 Memory Configuration Tool: www.hp.com/go/ddr3memory-configurator

Memory Subsystem Architecture

Each AMD Opteron family processor socket contains four memory channels that support three DIMMs each for a total of twelve (12) DIMM per installed processor or a grand total of twenty-four (24) DIMMs for the server. Up to 32GB capacity DIMMs are supported for 768GB of memory (24 DIMM slots x 32GB per DIMM).

Memory population guidelines



General Memory Population Rules and Guidelines:

- White DIMM slots denote the first slot of a channel. For 1 DPC (DIMM per channel) populate white slots only.
- Install DIMMs only if the corresponding processor is installed.
- If only one processor is installed in a two processor system, only half of the DIMM slots are available.
- To maximize performance, it is recommended to balance the total memory capacity between all installed processors and to load the channels similarly whenever possible.
- Populate DIMMs from heaviest load (quad-rank) to lightest load (single-rank) within a channel. Heaviest load (DIMM with most ranks) within a channel goes furthest from the processor
- RDIMMs operating at either 1.35V or 1.5V may be mixed in any order, but the system will power them at the higher voltage.
- RDIMMs and LRDIMMs are supported up to 3 DIMMs per channel.
- The AMD Opteron™ 6200 processor does not support DIMMs at 1.35V. Using the HP RBSU, 1.35V DIMMs can be changed to operate at 1.5V.
- DIMMs of different speeds may be mixed in any order; the server will select a common optimal speed.
- The maximum memory speed is a function of the memory type and memory configuration.
- The maximum memory capacity is a function of the memory type and number of installed processors.
- HP memory from previous generation servers is not qualified on the DL385p Gen8 Server. Certain HP SmartMemory features such as memory authentication and enhanced performance may not be supported.
- To realize the performance memory capabilities listed in this document, HP SmartMemory is required. For additional information, please see the HP SmartMemory QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/14225_div/14225_div.html.
- For memory population rules and additional memory guidelines, please see the DL385p Gen8 user guide at <http://www.hp.com/support>.

Memory

DL385p Gen8 Supported Memory Bandwidth and Capacity							
DIMM Type	Registered DIMMS						Load Reduced (LRDIMMs)
DIMM Rank	Single Rank (1R)			Dual Rank (2R)			Quad Rank (4R)
DIMM Capacity	4GB	4GB	8GB	8GB	16GB	16GB	32GB
DIMM Native Speed (MHz)	1333	1600	1600	1333	1333	1600	1333
Voltage	LV/ULV	Std	Std	LV/ULV	LV	Std	SLV
SLOTS THAT CAN BE POPULATED							
24 slot servers	24	24	24	24	24	24	24
MAXIMUM CAPACITY (GB) ¹							
24 slot servers	96	96	192	192	384	384	768
POPULATED DIMM SPEED (MHz)							
1 DIMM Per Channel	1333	1600	1600	1333	1333	1600	1333
2 DIMM Per Channel	1333	1300	1300	1333/1066 ²	1333	1333	1333
3 DIMM Per Channel	1066/800	1066	1066	800/667 ³	800	1066	800
¹ Maximum capacity will vary based on individual server platform. ² Ultra Low Voltage 8GB and 16GB dual rank operate at 1066MT/s speed in 2 DPC configurations. ³ Ultra Low Voltage 8GB and 16GB dual rank operate at 667MT/s speed in 3 DPC configurations							

DIMM slot and configuration diagram

Population order; start with "A" first, "B" second, "C" third, etc.

When one processor is installed, install DIMMs in sequential alphabetic order: A, B, C, D, E, F ...

When two processors are installed, install DIMMs in sequential alphabetic order: CPU1-A, CPU2-A, CPU1-B, CPU2-B, CPU1-C, CPU2-C

24 DIMM SLOTS (12 per CPU node)					
	slot #	population order	slot #	population order	
Chnl 1	1	A	1	A	Chnl 1
	2	I	2	I	
	3	E	3	E	
Chnl 2	4	C	4	C	Chnl 2
	5	K	5	K	
	6	G	6	G	
CPU1			CPU2		
Chnl 3	7	B	7	B	Chnl 3
	8	J	8	J	
	9	F	9	F	
Chnl 4	10	D	10	D	Chnl 4
	11	L	11	L	
	12	H	12	H	

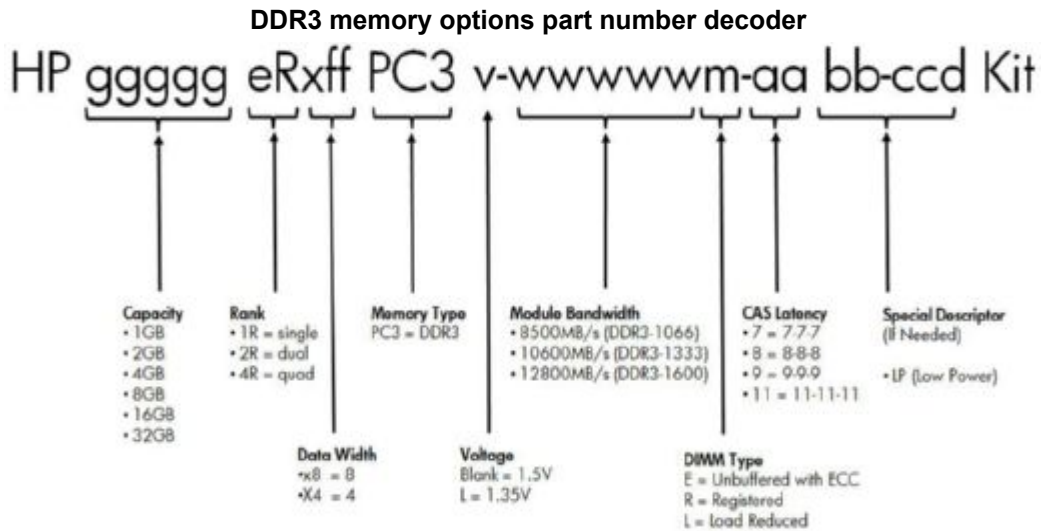
NOTE: Capacity references are rounded to the common Gigabyte values.

- 1GB = 1024MB
- 2GB = 2048MB
- 4GB = 4096MB



Memory

- 8GB = 8192MB
- 16GB = 16384MB
- 32GB = 32768MB



Following are memory options available from HP:

HP Memory

NOTE: To realize the performance memory capabilities listed in this document, HP SmartMemory is recommended. For additional information, please see the HP SmartMemory QuickSpecs at:

http://h18000.www1.hp.com/products/quickspecs/14225_div/14225_div.html
(Worldwide)

Registered DIMMs (RDIMMs)

HP 4GB (1x4GB) Single Rank x4 PC3L-10600R (DDR3-1333) Registered CAS-9 Low Voltage Memory Kit	647871-B21
HP 8GB (1x8GB) Dual Rank x4 PC3L-10600R (DDR3-1333) Registered CAS-9 Low Voltage Memory Kit	647877-B21
HP 16GB (1x16GB) Dual Rank x4 PC3L-10600R (DDR3-1333) Registered CAS-9 Low Voltage Memory Kit	647883-B21
HP 4GB (1x4GB) Single Rank x4 PC3-12800R (DDR3-1600) Registered CAS-11 Memory Kit	647873-B21
HP 8GB (1x8GB) Single Rank x4 PC3-12800R (DDR3-1600) Registered CAS-11 Memory Kit	647879-B21
HP 16GB (1x16GB) Dual Rank x4 PC3-12800R (DDR3-1600) Registered CAS-11 Memory Kit	672633-B21

Load Reduced DIMMs (LRDIMMs)

HP 32GB (1x32GB) Quad Rank x4 PC3L-10600L (DDR3-1333) Load Reduced CAS-9 Low Voltage Memory Kit	647885-B21
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Ultra Low Voltage DIMMs (ULVDIMM)

HP 4GB (1x4GB) Single Rank x4 PC3U-10600R (DDR3-1333) Registered CAS-9 Ultra Low Voltage Memory Kit	647869-B21
HP 8GB (1x8GB) Dual Rank x4 PC3U-10600R (DDR3-1333) Registered CAS-9 Ultra Low Voltage Memory Kit	647875-B21
HP 16GB (1x16GB) Dual Rank x4 PC3U-10600R (DDR3-1333) Registered CAS-9 Ultra Low Voltage Memory Kit	647881-B21

NOTE: HP memory from previous generation servers may not provide the same performance with the HP ProLiant DL385p Gen8 Servers as HP SmartMemory will.



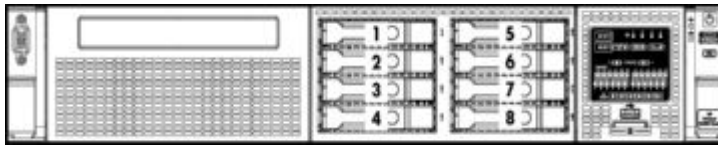
Memory

NOTE: If only one processor is installed, only half the DIMM slots are available.

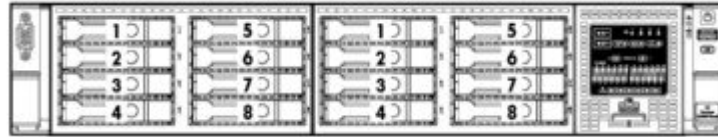
NOTE: Depending on the memory configuration, the memory speed may run at 1600MHz, 1333MHz, 1066MHz or lower. Please see Memory Population Table or the Online Memory Configuration Tool at: www.hp.com/go/ddr3memory-configurator.

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.

Storage

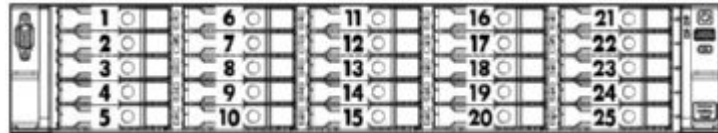


1-8 Eight SFF SAS hot plug drive bays



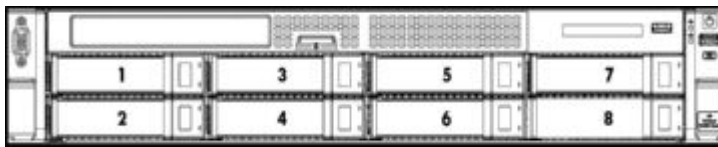
1-8, Sixteen SFF SAS hot plug drive bays. Built-In Smart Array manages first 8 drives. Requires 2nd Smart Array Controller for second option of 8 drives.

NOTE: This configuration does not support optical drive.



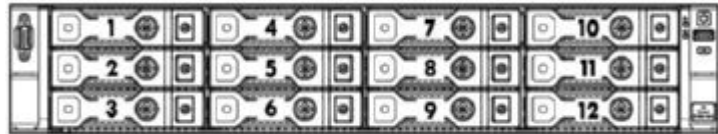
1-25 Twenty Five SFF SAS hot plug drive bays

NOTE: This configuration does not support SID or optical drive.



1-8 Eight LFF SAS hot plug drive bays.

NOTE: This configuration supports a pop-out SID.



1-12 Twelve LFF SAS hot plug drive bays

NOTE: This configuration does not support SID or optical drive.

External Storage

	Quantity Supported	Position Supported	Host Controller or Adapter
D2600 Disk Enclosure	Up to 4	External	HP Smart Array P222 Controller
	Up to 8	External	HP Smart Array P421 Controller HP Smart Array P822 Controller
D2700 Disk Enclosure	Up to 4	External	HP Smart Array P222 Controller
	Up to 8	External	HP Smart Array P421 Controller HP Smart Array P822 Controller

Maximum Storage Capacity - (with D2700, SAS/SATA HDD)

Internal	16TB (16 x 1TB SAS/SATA SFF with addition 8 SFF drive cage)
External	200TB (200 x 1TB SAS SFF)
Total	216TB

Technical Specifications

System Unit	Dimensions (H x W x D) (with bezel)	SFF Drives: 3.44 x 17.54 x 27.50 in (8.73 x 44.55 x 69.85 cm) LFF Drives: 3.44 x 17.54 x 29.50 in (8.73 x 44.55 x 74.93 cm)							
	Weight (approximate)	<table border="0"> <tr> <td>Maximum</td> <td>61.00 lb (27.66 kg)</td> </tr> <tr> <td colspan="2">(all LFF hard drives, power supply, and processor installed)</td> </tr> <tr> <td>Minimum</td> <td>41.0 lb (18.59 kg)</td> </tr> <tr> <td colspan="2">(one SFF hard drive, power supply, and processor installed, ODD not installed)</td> </tr> </table>	Maximum	61.00 lb (27.66 kg)	(all LFF hard drives, power supply, and processor installed)		Minimum	41.0 lb (18.59 kg)	(one SFF hard drive, power supply, and processor installed, ODD not installed)
Maximum	61.00 lb (27.66 kg)								
(all LFF hard drives, power supply, and processor installed)									
Minimum	41.0 lb (18.59 kg)								
(one SFF hard drive, power supply, and processor installed, ODD not installed)									
Input Requirements (per power supply)	Rated Line Voltage	100 to 120 VAC 200 to 240 VAC							
	Rated Input Current	For 1200 W Power Supply: 10 A (at 100 VAC), 4.9 A (at 200 VAC) For 750 W Power Supply: 8.9 A (at 100 VAC), 4.3 A (at 200 VAC) For 460 W Power Supply: 5.5 A (at 100 VAC), 2.6 A (at 200 VAC)							
	Rated Input Frequency	50 to 60 Hz							
	Rated Input Power	For 1200 W Power Supply: 930 W (at 100 VAC), 1348 W (at 200 VAC) For 750 W Power Supply: 857 W (at 100 VAC), 824 W (at 200 VAC) For 460 W Power Supply: 526 W (at 100 VAC), 505 W (at 200 VAC)							
	BTU Rating	<table border="0"> <tr> <td>Maximum</td> <td>For 1200 W Power Supply: 3530 BTU/hr (at 100 VAC), 4600 BTU/hr (at 200 VAC) For 750 W Power Supply: 2925 BTU/hr (at 100 VAC), 2812 BTU/hr (at 200 VAC) For 460 W Power Supply: 1794 BTU/hr (at 100 VAC), 1725 BTU/hr (at 200 VAC)</td> </tr> </table>	Maximum	For 1200 W Power Supply: 3530 BTU/hr (at 100 VAC), 4600 BTU/hr (at 200 VAC) For 750 W Power Supply: 2925 BTU/hr (at 100 VAC), 2812 BTU/hr (at 200 VAC) For 460 W Power Supply: 1794 BTU/hr (at 100 VAC), 1725 BTU/hr (at 200 VAC)					
Maximum	For 1200 W Power Supply: 3530 BTU/hr (at 100 VAC), 4600 BTU/hr (at 200 VAC) For 750 W Power Supply: 2925 BTU/hr (at 100 VAC), 2812 BTU/hr (at 200 VAC) For 460 W Power Supply: 1794 BTU/hr (at 100 VAC), 1725 BTU/hr (at 200 VAC)								
Power Supply Output (per power supply)	Rated Steady-State Power	For 1200 W Power Supply: 800 W (at 100 VAC), 900 W (at 120 VAC), 1200 W (at 200 to 240 VAC) For 750 W Power Supply: 750 W (at 100 to 120 VAC), 750 W (at 200 to 240 VAC) For 460 W Power Supply: 460 W (at 100 to 120 VAC), 460 W (at 200 to 240 VAC)							
	Maximum Peak Power	For 1200 W Power Supply: 800 W (at 100 VAC), 900 W (at 120 VAC),							

Technical Specifications

		1200 W (at 200 to 240 VAC) For 750 W Power Supply: 750 W (at 100 to 120 VAC), 750 W (at 200 to 240 VAC) For 460 W Power Supply: 460 W (at 100 to 120 VAC), 460 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 with ISO 9296 (ECMA 109). The listed sound levels apply to standard shipping configurations. Additional options may result in increased sound levels. NOTE: The Listed sound levels apply to standard shipping configurations. Additional options may result in increased sound levels.	
	Idle	
	LWAd	5.5 B
	LpAm	37 dBA
	Operating	
	LWAd	5.5 B
	LpAm	37 dBA
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

Technical Specifications

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.

NOTE: The Listed sound levels apply to standard shipping configurations. Additional options may result in increased sound levels.

HP iLO 4 On System Management	Architecture	PCI Express based health and remote management ASIC
	Processor	Embedded ARM processor core operating at 400MHz
	Upgradeability	Firmware upgradeable via Flash ROM
	Video Support	1920 x 1200 (16 bpp) DVR max resolution
	Interfaces	HP iLO Dedicated* Network connection (10/100/1000 Mb/s) on rack, tower and SL systems *Optional Module on some servers
		HP iLO Shared Network connection (10/100/1000 Mb/s) on rack, tower and SL systems
		HP iLO network connection to blades (100 Mb/s) to Onboard Administrator (with 10/100/1000 Mb/s uplink) on blade systems
	Memory	16 MB Flash 256 MB DDR 3 with ECC (112 MB after ECC and video)
	Operating System Support	For 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
	Client System Support	For information on Client System Support, please visit the HP iLO Feature Comparison Site at: www.hp.com/go/compareilo
	Client Browser Support	Microsoft Internet Explorer 9 NOTE: For customers using Protected Mode, please use the Java based version of Integrated Remote Console. Microsoft Internet Explorer 8 NOTE: For customers using Protected Mode, please use the Java based version of Integrated Remote Console. Microsoft Internet Explorer 7
		Firefox Extended Support Release (ESR) 10 (on supported Windows and Linux systems) Firefox 3.6 (on supported Windows and Linux systems)
	Command Line Support	Secure Shell and serial port access Secure Socket Layer Secure Shell version 2
	Security	Advanced Encryption Standard (AES) and Triple Data Encryption Standard (3DES) on browser, CLP and XML scripting interface AES encryption of video RC4 encryption of video
Directory Support Services	Active Directory v1.0 (Windows 2003)	
Driver Support	HP ProLiant iLO 4 Management Controller Driver Package	
Management protocols supported	SNMP, IPMI 2.0 (system and LAN interface), DMTF Systems Management Architecture for Server Hardware Command Line Protocol (SMASH CLP), HP RIBCL XML	

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HP Smart Array P420i Controller	Dimensions	Embedded	
	Disk Drive and Enclosure Interface - Transfer Rate	6Gb/s SAS (Serial Attached SCSI) 3Gb/s SATA (Serial ATA)	
	SAS Connectors	2 internal 4X connectors	
	Cache Memory Speed	DDR2-800MHz with 40 or 72-bit wide bus	
	Server Interface	x4 PCIe 2.0 provides 2GB/s maximum bandwidth	
	SAS Speed	(8) 6Gb/s SAS links provide 4.8GB/s maximum bandwidth	
	Cache Memory	Zero Memory RAID has no cache memory 40-bit 256MB ECC protected cache (battery upgrade available) 72-bit 512MB BBWC or 72-bit 512MB and 1G FBWC Zero Memory, Up to 2 logical volumes (8 physical drives)	
	Logical Drives Supported	Up to 64 logical drives with cache	
	Host Memory Addressing	64-bit, supporting greater than 4GB server memory space	
	RAID Support	RAID 6, 6+0 (Advanced Data Guarding) NOTE: RAID 6, 6+0 can be enabled with one of the following combinations: <ul style="list-style-type: none"> • 256 MB cache, Battery kit and Smart Array Advanced Pack License key option upgrades • 512 MB BBWC/FBWC and Smart Array Advanced Pack License key option upgrades • 1G FBWC and Smart Array Advanced Pack License key option upgrades RAID 5, 5+0 (Distributed Data Guarding) NOTE: A minimum of 256 MB cache is required to enable RAID 5, 5+0 support RAID 1+0 (Striping & Mirroring) RAID 0 (Striping), RAID 1 (Mirroring)	
	HP Ethernet 1Gb 4-port 331FLR 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 IEEE 802.3ad 1000Base-TX IEEE 802.1p 100Base-TX IEEE 802.1q 100Base-TX
		Data Transfer Method	PCI Express, four lanes (x4)
	Number of Ports	4	
	Controller	BCM5719	
	Network Transfer Rate	10Base-T (Half-Duplex) 10 Mb/s per port, 40 Mb/s Combined 10Base-T (Full-Duplex) 20 Mb/s per port, 80 Mb/s Combined 100Base-TX (Half-Duplex) 100 Mb/s per port, 400 Mb/s Combined 100Base-TX (Full-Duplex) 200 Mb/s per port, 800 Mb/s Combined 1000Base-TX (Half-Duplex) 1000Mb/s per port, 4000 Mb/s Combined	

Technical Specifications

	Connector	1000Base-TX (Full Duplex) Two RJ-45	2000Mb/s per port, 8000 Mb/s Combined
	Cable Support	10Base-T	Categories 3, 4 or 5 UTP; up to 328 ft (100 m)
		10/100/1000Base-TX	Category 5 or higher UTP; up to 328 ft (100 m)
HP Ethernet 10Gb 2-port 530FLR-SFP+ Adapter	Network Interface Compatibility	10Base-T/100Base-TX/1000Base-TX	
		EEE 802.3 10Base-T	
		IEEE 802.3ab 1000Base-T	
		IEEE 802.3u 100Base-TX	
		IEEE 802.3ad 1000Base-TX	
		IEEE 802.1p 100Base-TX	
		IEEE 802.1q 100Base-TX	
	Data Transfer Method Controller	PCI Express, four lanes (x4) BCM57810S	
	Network Transfer Rate	10Base-T (Half-Duplex)	10 Mb/s
		10Base-T (Full-Duplex)	20 Mb/s
	100Base-TX (Half-Duplex)	100 Mb/s	
	100Base-TX (Full-Duplex)	200 Mb/s	
	1000Base-TX (Half and Full-Duplex)	2000Mb/s	
	Connector	Two SFP+	
	Cable Support	10Base-T	Categories 3, 4 or 5 UTP; up to 328 ft (100 m)
		100Base-TX	Category 5 or higher UTP; up to 328 ft (100 m)
		1000BaseTX	Category 5 or higher UTP; up to 328 ft (100 m)
Environment-friendly Products and Approach	End-of-life Management and Recycling	<p>Hewlett-Packard offers end-of-life HP product return, trade-in, and recycling programs in many geographic areas. For trade-in information, please go to: http://www.hp.com/go/green. To recycle your product, please go to: http://www.hp.com/go/green or contact your nearest HP sales office. Products returned to HP will be recycled, recovered or disposed of in a responsible manner.</p> <p>The EU WEEE directive (2002/95/EC) requires manufacturers to provide treatment information for each product type for use by treatment facilities. This information (product disassembly instructions) is posted on the Hewlett Packard web site at: http://www.hp.com/go/green. These instructions may be used by recyclers and other WEEE treatment facilities as well as HP OEM customers who integrate and re-sell HP equipment.</p>	

Technical Specifications

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