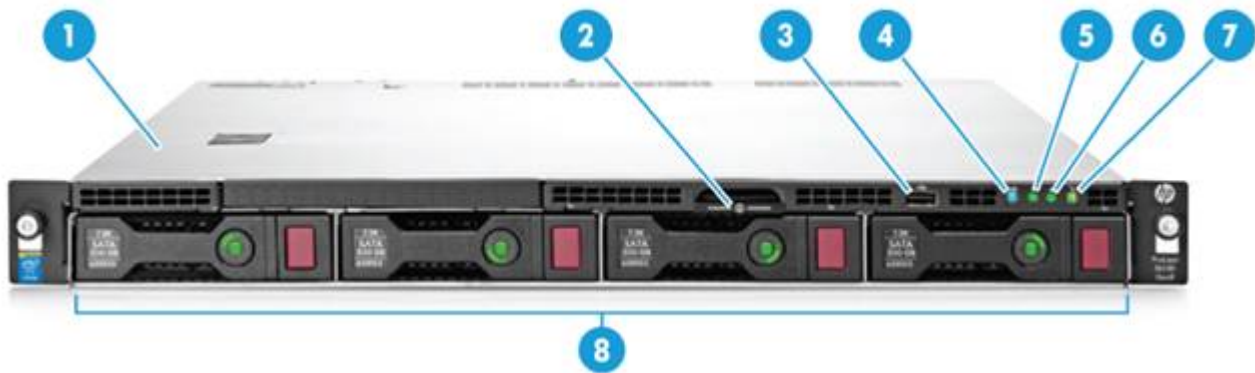


### Overview

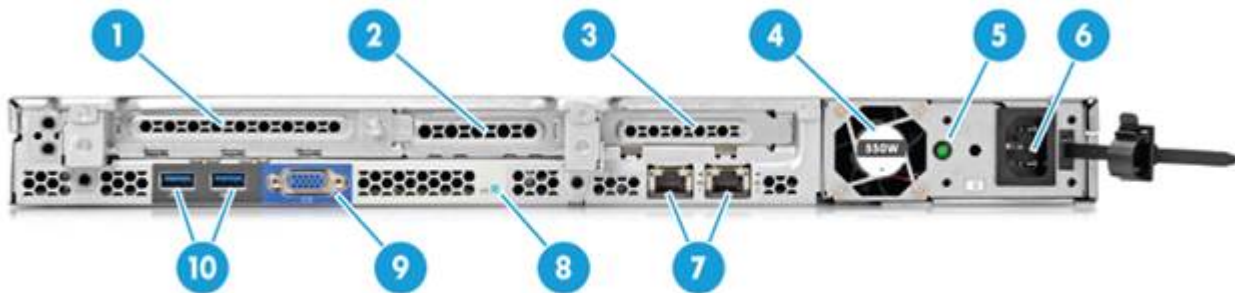
### HP ProLiant DL120 Generation9 (Gen9)

The HP ProLiant DL120 Gen9, an enterprise class design packed in a dense 1U/1-socket form factor, powered by an Intel® Xeon® E5-2600 v3 series processor. Offering a combination of performance, redundancy, expandability as compared to the traditional 1P servers making the DL120 Gen9 ideal for the growing needs of virtualization and general purpose workloads.



#### Front View

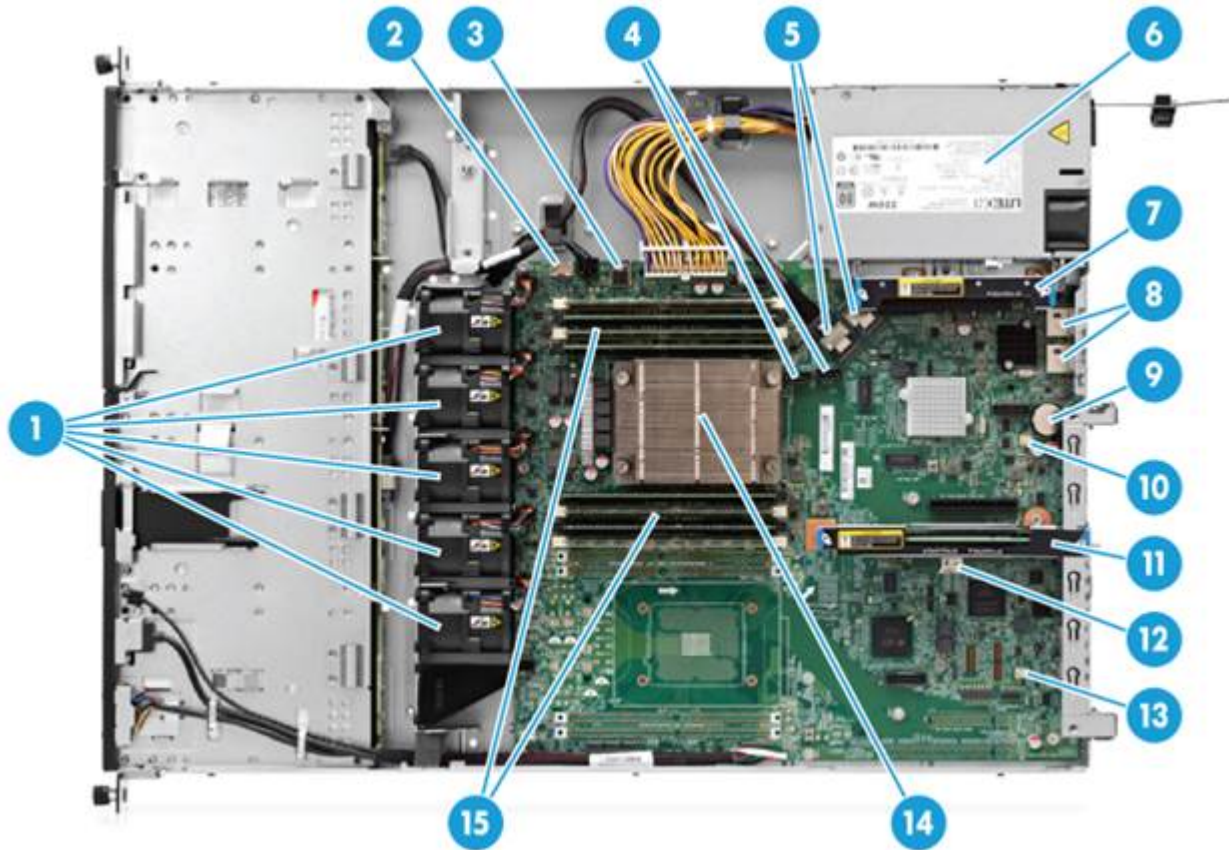
1. Access Panel
2. Serial label pull tab
3. USB 2.0 connector
4. UID LED
5. Health LED
6. NIC status LED
7. Power On/Standby button and system power LED
8. 4LFF drive



#### Rear view

1. Slot 3 PCIe3 x8 (8, 4, 1)  
**NOTE:** Slot 3 supports PCIe x16 (16, 8, 4, 1) if the GPU riser cage is installed.
2. Slot 2 PCIe3 x8 (8, 4, 1)
3. Slot 1 PCIe3 x16 (16, 8, 4, 1)
4. Non-hot-plug power supply
5. Power supply power LED
6. Power supply power connection
7. Embedded 2x1GbE network adapter
8. UID LED
9. Video connector
10. USB 3.0 connectors

## Overview



## Internal View

1. Hot swappable fans (up to 5)
2. HP Smart Storage Battery connector
3. Internal USB 3.0
4. SATA connector
5. Mini-SAS connectors
6. Power supply bay
7. Primary PCIe riser board connector
8. Embedded 2x1GbE network adapter
9. System Battery
10. Storage backup power connector for PCIe slots 1-2
11. Secondary PCIe riser slot
12. MicroSD slot
13. Storage backup power connector for PCIe slot 3
14. Processor heat sink (processor with HP Smart Socket placed below heat sink)
15. DDR4 DIMM slots (up to 8)

### Standard Features

**NOTE:** For more information regarding Intel Xeon processors, please see the following <http://www.intel.com/xeon>.

Processor	Model	CPU frequency	Cores	L3 Cache	Power	QPI	DDR4 Hz
One of the following depending on model	E5-2699v3	2.3GHz	18	45MB	145W	9.6GT/s	2133
	E5-2698v3	2.3GHz	16	40MB	135W	9.6GT/s	2133
	E5-2695v3	2.3GHz	14	35MB	120W	9.6GT/s	2133
	E5-2660v3	2.6GHz	10	25MB	105W	9.6GT/s	2133
	E5-2650v3	2.3GHz	10	25MB	105W	9.6GT/s	2133
	E5-2650Lv3	1.8GHz	12	30MB	65W	9.6GT/s	2133
	E5-2640v3	2.6GHz	8	20MB	90W	8.0GT/s	1866
	E5-2630v3	2.4Ghz	8	20MB	85W	8.0GT/s	1866
	E5-2630Lv3	1.8GHz	8	20MB	55W	8.0GT/s	1866
	E5-2623v3	3.0GHz	4	10MB	105W	8.0GT/s	1866
	E5-2620v3	2.4GHz	6	15MB	85W	8.0GT/s	1866
	E5-2609v3	1.9GHz	6	15MB	85W	6.4GT/s	1600
	E5-2603v3	1.6GHz	6	15MB	85W	6.4GT/s	1600
	E5-1650v3	3.5GHz	6	15MB	140W	0.0GT/s	2133
E5-1620v3	3.5GHz	4	10MB	140W	0.0GT/s	2133	

**Chipset** Intel® C610 Series Chipset

One of the following Intel® E5-2600v3 Processor Family

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

**On System Management Chipset** HP iLO (Firmware HP iLO4 2.0) 2GB NAND

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

**Memory** Type:  
One of the following HP SmartMemory  
depending on model

DDR4 Registered (RDIMM) or Load Reduced (LRDIMM)

DIMM Slots Available 8 (8 DIMM slots per processor, 4 channels per processor, 2 DIMMs per channel)

Maximum Capacity (LRDIMM) 256GB (8 x 32GB LRDIMM @2133MHz)

Maximum Capacity (RDIMM) 256GB (8 x 32GB RDIMM @2133MHz)

**Memory Protection** Advanced ECC

One of the following

depending on model Online spare

Advanced ECC uses single device data correction to detect and correct single and all multibit error that occurs within a single DRAM chip.

Memory online spare mode detects a rank that is degrading and switches operation to the spare rank.

**Network Controller** HP Ethernet 1Gb 2-port Adapter

The HP ProLiant DL120 Gen9 server offers the customer a dual-port NIC standard with the option to upgrade with a variety of networking options.

### Expansion Slots

CPU PCIe riser slots	Expansion Slots #	Technology	Bus Width	Connector Width	Bus Number	Form Factor	Notes
1	1	PCIe 3.0	x16	x16		Low profile	

**NOTE:** Bus Width data indicates the number of physical electrical lanes running to the connector.

### Standard Features

FlexibleLOM riser slots (Option 1)	Expansion Technology Slots #	Expansion Technology	Bus Width	Connector Width	Bus Number	Device Number	Form Factor	Notes
	2	PCIe 3.0	x8	x8			Low profile	
	3	Flexible LOM	x8	x8			Flexible LOM	can only be used for flexibleLOMs

CPU riser PCIe slots (Option 2)	Expansion Technology Slots #	Expansion Technology	Bus Width	Connector Width	Bus Number	Device Number	Form Factor	Notes
	2	PCIe 3.0	x8	x8			Low profile	
	3	PCIe 3.0	x8	x8			Full-height, half-length slot	

GPU riser (Option 3)	Expansion Technology Slots #	Expansion Technology	Bus Width	Connector Width	Bus Number	Device Number	Form Factor	Notes
	3	PCIe 3.0	x16	x16			Full-height, full-length slot	GPU

**Storage Controller** Entry Models HP Dynamic Smart Array B140i Controller  
 One of the following Base Models HP H240 FIO Smart Host Bus Adapter  
 depending on model **NOTE:** B140i provides support for up to 8 SATA drives and supports RAID 0, 1, 1+0 & 5.  
**NOTE:** H240 provides support for up to 8 SAS/SATA drives and supports RAID 0, 1, 1+0 & 5.

**Internal Storage Devices** Optical Drives Optional: DVD-ROM, DVD-RW  
 Hard Drives None ship standard  
 One of the following Hard Drive Bays 8 SFF drive bays total with Optical Bay  
 depending on model 4 LFF drive bays total with Optical bay  
**NOTE:** HP ProLiant DL120 Gen9 server offers both SFF and LFF versions in CTO. The Optical Drive bay is available with both models.  
**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 Gen9 Hard Drive Blank Kit or P/N 666986-B21: HP LFF Gen9 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.

Maximum Internal Storage		CAPACITY	CONFIGURATION
One of the following depending on model	Hot Plug SFF SAS	9.6TB	8x1.2TB
	Hot Plug SFF SATA	8.0TB	8x1TB
	Hot Plug LFF SAS	24.0TB	4x6TB
	Hot Plug LFF SATA	24.0TB	4x6TB
	Hot Plug SFF SAS SSD	12.8TB	8x1.6TB
	Hot Plug SFF SATA SSD	12.8TB	8x1.6TB
	Hot Plug LFF SATA SSD	6.4TB	4x1.6TB

### Standard Features

**Power Supply** HP 550W FIO Power Supply  
 One of the following HP 800W/900W Gold AC Power Input Module  
 depending on model HP Entry-Level Power Supplies provide lower-cost options for customers trying to balance their need for enterprise class efficiency and reliability while maintaining lowest possible hardware costs. All Entry-Level power supply options have been designed specifically for HP ProLiant Gen9 Essential Series servers.

The HP 550W FIO Power Supply is the standard, non-redundant AC power supply option for most HP ProLiant Gen9 Essential servers. It features Silver-level (89%) certified power efficiency with a set of features optimized for the Gen9 Essential-series rack and tower servers.

The HP 800W Gold (Redundant)/900W (Non-Redundant) AC Power Input Module with Power Backplane can be configured to support power redundancy in ProLiant servers that offer only a single power supply bay, providing additional protection against power loss. With an 80 Plus Gold power efficiency rating (up to 92%), this power option helps to reduce operating expenses while protecting against trapped power capacity in the data center. Each power backplane option can support up to two (2) hot-plug AC power input modules.

All pre-configured servers ship with a standard 6-foot IEC C-13/C-14 jumper cord (A0K02A). This jumper cord is also included with each standard AC power supply option kit. If a different power cord is required, please check the [ProLiant Power Cables](#) web page.

To review the power requirements for your selected system, please use the HP Power Advisor Tool located at <http://www.hp.com/go/hppoweradvisor>.

Power specifications and technical content for all HP Server power supplies can be found at <http://www.hp.com/go/proliant/powersupply>.

<b>System Fans</b>	One of the following 1P model depending on model	<b>Non-redundant</b> 3 fans	<b>Redundant</b> 5 fans
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**NOTE:** Redundant fan option kit (P/N: 765513-B21) can be bought separately if redundancy is required with configurations.

<b>Interfaces</b>	Video USB  Micro SD Slot LOM Network Ports	1 (Vaux Support) 4 USB ports (standard) Front: 1xUSB 2.0 std Rear: 2xUSB 3.0 Internal: 1x USB 3.0 1 Micro SD <b>NOTE:</b> The SD slot is not a hot-pluggable device. Customers should not attempt to plug an SD card into the SD slot while the server is powered. 2x1GbE ports
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**Operating Systems and Virtualization Software Support for ProLiant Servers** [Microsoft Windows Server](#)  
[Red Hat Enterprise Linux \(RHEL\)](#)  
[SUSE Linux Enterprise Server \(SLES\)](#)  
[VMware](#)  
**NOTE:** For more information on HP's Certified and Supported ProLiant Servers for OS and Virtualization Software and latest listing of software drivers available for your server, please visit our Support Matrix at: <http://www.hp.com/go/ossupport> and our driver download page <http://www.hp.com/support/DL120Gen9>.

**Upgradeability** FlexibleLOM slot for 1Gigabit or 10 Gigabit Ethernet or QDR/FDR InfiniBand networking options  
 One of the following Up to 8 SFF Hard Drive Bays; or 4 LFF Hard Drive Bays  
 depending on model Up to 8 DIMM slots  
 Redundant Power Supply  
 Optical Drive Bay (8 SFF/4 LFF)

### Standard Features

<b>Industry Standard Compliance</b>	ACPI 2.0b Compliant PCIe 3.0 Compliant PXE Support WOL Support Microsoft® Logo certifications USB 3.0 Support ASHRAE A3 <b>NOTE:</b> Refer to technical specifications section for more details.
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<b>Graphics</b>	Integrated Matrox G200eH2 video standard <ul style="list-style-type: none"><li>• 1280 x 1024 (32 bpp)</li><li>• 1920 x 1200 (16 bpp)</li></ul>
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<b>HP Server UEFI/Legacy ROM</b>	<b>HP Server UEFI /Legacy ROM</b>
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Unified Extensible Firmware Interface (UEFI) is an industry standard that provides better manageability and more secured configuration while interacting with your server at boot time. HP ProLiant Gen9 platform defaults to UEFI and can be factory or field configured for Legacy BIOS Boot Mode.

**NOTE:** The UEFI System Utilities function is analogous to the HP ROM-Based Setup Utility (RBSU) of legacy BIOS. For more information, please visit <http://www.hp.com/go/proliantuefi/docs>.

UEFI enables numerous new capabilities specific to HP ProLiant servers such as:

- Secure Boot
- Operating system specific functionality
- Support for > 2.2 TB (using GPT) boot drives
- USB 3.0 Stack
- Embedded UEFI Shell
- Mass Configuration Deployment Tool using HP RESTful API.
- PXE boot support for IPv6 networks
- Boot support for option cards that only support a UEFI option ROM

For more information please visit <http://www.hp.com/go/proliant/uefi>.

**NOTE:** For UEFI Boot Mode, boot environment and OS image installations should be configured properly to support UEFI.

**NOTE:** HP Legacy FIO Mode Setting (758959-B22) can be selected to configure the system in Legacy mode in the factory.

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<b>Form Factor</b>	1U Rack form factor
One of the following depending on model	8SFF and 4LFF version: 1.69" (4.29cm) Height x 17.11" (43.46cm) Width x 23.9" (60.7cm) Length

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### Standard Features

<b>Embedded Management</b>	<b>HP Integrated Lights-Out (HP iLO)</b>	Monitor your servers for ongoing management, service alerting, reporting and remote management with HP iLO. Learn more at <a href="http://www.hp.com/go/ilo">http://www.hp.com/go/ilo</a> .
	<b>UEFI</b>	Configure and boot your servers securely with industry standard Unified Extensible Firmware Interface (UEFI). Learn more at <a href="http://www.hp.com/go/ProLiant/uefi">http://www.hp.com/go/ProLiant/uefi</a> .
	<b>HP RESTful API</b>	RESTful API is an application programming interface. RESTful Web Service API served by iLO's web server: Learn more at <a href="http://www.hp.com/go/restfulapi">http://www.hp.com/go/restfulapi</a> .
	<b>Intelligent Provisioning</b>	Provision servers by discovering and deploying 1 to few servers with Intelligent Provisioning. Learn more at <a href="http://www.hp.com/go/intelligentprovisioning">http://www.hp.com/go/intelligentprovisioning</a> .
	<b>Embedded Remote Support</b>	HP's embedded remote support, when used with Insight Online direct connect or HP Insight Remote Support, allows HP ProLiant servers to transmit hardware events directly to HP or an HP Authorized Partner for automated phone home support. Learn more at <a href="http://www.hp.com/go/insightonline/info">http://www.hp.com/go/insightonline/info</a> .

**NOTE:** For more information, visit: <http://www.hp.com/go/ilo> or [HP iLO Management Engine technologies whitepaper](#).

<b>Server utilities</b>	<b>HP Smart Update</b>	Optimize firmware and driver updates with HP Smart Update solutions. Learn more at <a href="http://www.hp.com/go/smartupdate">http://www.hp.com/go/smartupdate</a> .
	<b>HP Systems Insight Manager (HP SIM)</b>	HP SIM allows you to monitor the health of your HP ProLiant Servers and HP Integrity Servers, and also provides you with basic support for non-HP servers. HP SIM also integrates with HP SUM to provide quick and seamless firmware updates. Learn more at <a href="http://www.hp.com/go/sim">http://www.hp.com/go/sim</a> .
	<b>HP OneView Standard</b>	HP OneView Standard can inventory, monitor, alert, and report on your G6, G7, Gen8, and Gen9 servers, while using the HP OneView user interface. Annual support is optionally available. Learn more at <a href="http://www.hp.com/go/oneview">http://www.hp.com/go/oneview</a> .
	<b>Scripting Tool Kit and Windows PowerShell</b>	Provision 1 to many servers using your own scripts to discover and deploy them with HP Scripting Tool Kit for Windows and Linux or HP Scripting Tools for Windows PowerShell. Learn more at <a href="http://www.hp.com/go/ProLiantSTK">http://www.hp.com/go/ProLiantSTK</a> or <a href="http://www.hp.com/go/powershell">http://www.hp.com/go/powershell</a> .
	<b>HP RESTful Interface Tool</b>	HP RESTful Interface tool is a scripting tool to provision servers using RESTful API Interface to discover and deploy servers at scale. Learn more at <a href="http://www.hp.com/go/restfulapi">http://www.hp.com/go/restfulapi</a> .
	<b>HP iLO Mobile Application</b>	Enables the ability to access, deploy, and manage your server anytime from anywhere from select smartphones and mobile devices. For additional information please visit: <a href="http://www.hp.com/go/ilo/mobileapp">http://www.hp.com/go/ilo/mobileapp</a> .
	<b>HP Insight Online</b>	HP Insight Online, available at no additional cost as part of your HP warranty, Care Pack or contractual support agreement with HP, is a personalized dashboard for simplified tracking of IT operations and support information from anywhere, anytime. Learn more at <a href="http://www.hp.com/go/insightonline/info">http://www.hp.com/go/insightonline/info</a> .

<b>Security</b>	Power-on password
	Serial interface control
	Administrator's password
	TPM 1.2
	UEFI

### Standard Features

#### Warranty

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

**NOTE:** Server Warranty includes 3-Year Parts, 1-Year Labor, 1-Year Onsite support with next business day response. Warranty repairs may be accomplished through the use of Customer Self Repair (CSR) parts. These parts fall into two categories: 1) Mandatory CSR parts are designed for easy replacement. A travel and labor charge will result when customers decline to replace a Mandatory CSR part; 2) Optional CSR parts are also designed for easy replacement but may involve added complexity. Customers may choose to have HP replace Optional CSR parts at no charge. Additional information regarding worldwide limited warranty and technical support is available at:

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



### Optional Features

<b>Embedded Management</b>	<b>iLO Essentials</b>	HP iLO Essentials is the preferred license for small and medium business that offers full remote server management capabilities for small and medium business via the Integrated Remote Console (IRC), virtual media, and e-mail based alerts. Learn more about HP iLO Essentials at <a href="http://www.hp.com/go/iLO/essentials">http://www.hp.com/go/iLO/essentials</a> .
	<b>iLO Scale-Out</b>	HP iLO Scale-Out is the preferred license built for web hosting, cloud service providers, and high performance computing data centers, managing massive scale out environments. This license offers sophisticated scripting tools that provides remote access through Text Console via SSH, Dynamic power capping, Email-based Alerting and proactive notifications. For more information, visit <a href="http://www.hp.com/go/iLO/scale-out">http://www.hp.com/go/iLO/scale-out</a> .
	<b>iLO Advanced</b>	HP iLO Advanced licenses offer smart remote functionality without compromise, for all HP ProLiant servers. The license includes the full integrated remote console, virtual keyboard, video, and mouse (KVM), multi-user collaboration, console record and replay, and GUI-based and scripted virtual media and virtual folders. You can also activate the enhanced security and power management functionality. Learn more about HP iLO Advanced at <a href="http://www.hp.com/go/iLO/advanced">http://www.hp.com/go/iLO/advanced</a> .
<b>Server Management</b>	<b>HP Insight Control</b>	HP Insight Control, lets you deploy, migrate, monitor, remote control, and optimize your IT infrastructure through a single, simple management console. For more information, see <a href="http://www.hp.com/go/insightcontrol">http://www.hp.com/go/insightcontrol</a> . <b>NOTE:</b> HP OneView support for HP ProLiant Gen9 rack (DL) and blade (BL) servers will be available with a future version of HP OneView to be released Early 2015. Customers may purchase HP OneView licenses now, and will be granted rights to use HP Insight Control software and transition to HP OneView with a free upgrade, when available. Customers also have the option to purchase HP Insight Control.
<b>Rack and Power Infrastructure</b>		HP Rack and Power Infrastructure products and services create highly efficient and intelligent solutions for existing or new IT data centers. HP Rack and Power infrastructure solutions – rack infrastructure, power protection and management, performance optimized data centers (PODs) – are the foundation you are looking for to help secure your long-term IT success. These products are designed to help you react to changes in the industry. They deliver efficient, easy-to-use capabilities to manage, monitor, deploy and provision infrastructure from entry to enterprise. As an industry leader, HP is uniquely positioned to address the key concerns of power, cooling, cable management and system access. Learn more at <a href="#">HP Rack and Power Infrastructure</a> .
<b>High Performance Clusters</b>		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. <a href="http://www.hp.com/go/clusters">http://www.hp.com/go/clusters</a> .
<b>HPC Interconnects</b>		<b>NOTE:</b> High Performance Computing (HPC) interconnect technologies are available for this server under the HP Cluster Platform product portfolio. These high-speed interconnects are fully supported by HP when they are part of these configure to order clusters. Solutions can be defined with a lot of flexibility with the help of configuration tools. Please visit the following URL to configure HPC Clusters with InfiniBand Interconnects: <a href="http://www.hp.com/techservers/clusters/ucp/index.html">http://www.hp.com/techservers/clusters/ucp/index.html</a> .

### Optional Features

**Storage Software** Whether you need to solve a specific data protection, archiving, or storage command and control challenge, or deliver on strategic consolidation, compliance, or continuity initiatives, look no further than HP storage software. Our storage software helps you reduce costs, simplify storage infrastructure, protect vital assets and respond faster to business opportunities.

Storage software that gets the job done:

- **Data Protection and Recovery Software**

Whether you're a large enterprise or a smaller business, HP data protection and recovery software will cost-effectively protect you against disaster and ensure business continuity.

- **Data Archive and Migration Software**

HP's storage software enables you to comply with data retention and retrieval requirements, improve application performance, and reduce costs by efficiently migrating infrequently accessed or less valuable data to lower cost storage.

- **Storage Resource Management Software (SRM)**

HP's storage resource management software reduces operational costs and provides the command and control foundation you need to efficiently manage and visualize your physical and virtual environments.

- **Data Replication Software**

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

- **Storage Device Management Software**

Maximize your investment in HP storage and networking with software that enables hardware-specific configuration, performance tuning and connectivity management.

- **HP StoreVirtual VSA**

With HP StoreVirtual VSA you can use the power of virtualization to create a virtual array within your host server. Manage it as a single pool of shared storage capacity, and scale it to match your evolving needs. HP ProLiant Gen9 servers include a 3-year limited license for HP StoreVirtual VSA software with 1TB of capacity at no extra cost. Simply select to install HP StoreVirtual VSA software during server setup within Intelligent Provisioning. More information, instructional videos, and free console management software are available at <http://www.hp.com/go/vsa1TB>.

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

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

### Service and Support

#### Service and Support

##### **HP Technology Services for Industry Standard Servers**

HP Technology Services delivers confidence, reduces risk and helps customers realize agility and stability. Connect to HP to help prevent problems and solve issues faster. Our support technology lets you to tap into the knowledge of millions of devices and thousands of experts to stay informed and in control, anywhere, any time.

##### **Protect your business beyond warranty with HP Care Pack Services**

HP Care Pack Services enable you to order the right service level, length of coverage and response time as you purchase your new server, giving you full entitlement for the term you select.

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#### Optimized Care

##### **Supports maintaining servers at optimum performance availability**

##### **HP Proactive Care with 24x7 coverage, three year Care Pack Service**

HP Proactive Care helps prevent problems and stabilize IT by utilizing secure, real-time, predictive analytics and proactive consultations when your products are connected to HP. This Care Pack Service combines three years' proactive reporting and advice with our 24x7 coverage and enhanced escalation management, four hour hardware response time and two hour call back for software questions on leading industry standard software running on your HP ProLiant server. <http://h20195.www2.hp.com/v2/GetPDF.aspx/4AA3-8855ENW.pdf>

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#### Standard Care Package

##### **Supports maintaining high level of server availability**

##### **Foundation Care 24x7, three-year Care Pack Service**

HP Foundation Care 24x7 connects you to HP 24 hours a day, seven days a week for assistance on resolving issues. Hardware onsite response within four hours if needed; collaborative software included in this Care Pack service provides troubleshooting assistance on industry leading software running on your HP server. Simplify your support experience and make HP your first call for hardware or software questions. <http://h20195.www2.hp.com/V2/GetDocument.aspx?docname=4AA4-8876ENW&cc=us&lc=en>

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#### Related Services

##### **HP ProLiant Server Hardware Installation**

Provides for the basic hardware installation of HP branded servers, storage devices and networking options to assist you in bringing your new hardware into operation in a timely and professional manner. <http://h20195.www2.hp.com/V2/GetPDF.aspx/5981-9356EN.pdf>

##### **Factory Express for Servers and storage**

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

##### **Data Privacy Services**

Protect your data through better media management. HP Data privacy services help manage and protect sensitive data to reduce the risk of unauthorized access to private information and help meet compliance requirements. Our retention services allow you to keep drives and other devices upon failure, our removal services provide convenient data sanitization and our recovery services allow you to safely retire IT assets and capture any remaining value from the hardware. <http://www.hp.com/services/dataprivacy>

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

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#### Get connected to HP to improve your support experience

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

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#### 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

### *Service and Support*

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.**

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**Parts and Materials** HP will provide HP-supported replacement parts and materials necessary to maintain the covered hardware product in operating condition, including parts and materials for available and recommended engineering improvements.

Parts and components that have reached their maximum supported lifetime and/or the maximum usage limitations as set forth in the manufacturer's operating manual, product quick-specs, or the technical product data sheet will not be provided, repaired, or replaced as part of these services.

The defective media retention service feature option applies only to Disk or eligible SSD/Flash Drives replaced by HP due to malfunction.

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### **For more information**

To learn more on HP ProLiant servers, please contact your HP sales representative or HP Authorized Channel Partner or visit: <http://www.hp.com/services/proliant>

### Pre-configured Models

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

1. Pre-configured models ship with the configurations below. Options can be selected from the Core or Additional options section of this QuickSpecs.
2. HP does not allow factory integration of options into pre-configured models. Any additional options purchased will be shipped separately.
3. If you desire a custom configuration please see "Configuration Information - Factory Integrated Models" section of this QuickSpecs.
4. Not all models are available in all regions. Check with your local country HP offices for availability.

**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 Hard Drive Blank Kit or P/N 666986-B21: HP LFF Hard Drive Blank Kit.

**NOTE:** All pre-configured servers ship with a standard 6-foot IEC C-13/C-14 jumper cord (A0K02A). This jumper cord is also included with each standard AC power supply option kit. If a different power cord is required, please check the [ProLiant Power Cables](#) web page.

**Caution:** HP recommends that a minimum of two people are required for all Rack Server installations. Please refer to your installation instructions for proper tools and number of people to use for any installation.

	Entry Models	
[SKU Number]	777424-B21	777425-B21
<b>Model Name</b>	HP ProLiant DL120 Gen9 E5-2603v3 4GB-R B140i 4LFF 550W PS Entry Server	HP ProLiant DL120 Gen9 E5-2630v3 8GB-R H240 8SFF 550W PS Entry Server
<b>Processor</b>	Intel® Xeon® E5-2603v3	
<b>Number of Processors</b>	One	
<b>Memory</b>	4GB (1x4GB Registered DIMMs, 2133 MHz)	8GB (1x8GB Registered DIMMs, 2133 MHz)
<b>Network Controller</b>	HP Embedded Dual Port 361i Adapter Network Interface	
<b>Storage Controller</b>	HP Dynamic Smart Array B140i	HP H240 Smart Host Bus Adapter
<b>Hard Drive</b>	None ship standard	
<b>Internal Storage</b>	4 LFF HDD Bays	8 SFF HDD Bays
<b>Optical Drive Bay</b>	1; (Optional: DVD-ROM, DVD-RW)	
<b>PCI-Express Slots</b>	1 PCIe LP standard/up to 3 PCIe slots (optional)	
<b>Power Supply</b>	(1) HP 550W FIO Power Supply	
<b>Fans</b>	3 hot swap fans, non-redundant	
<b>Management</b>	iLO Management (standard), Intelligent Provisioning (standard), iLO Essentials (optional)	
<b>Form Factor</b>	Rack (1U), HP Easy Install Rails	
<b>Warranty</b>	Server Warranty includes 3-Year Parts, 1-Year Labor, 1-Year Onsite support with next business day response.	

<b>Country Code Key</b>	xx1 = B21	Worldwide
	xx1 = 291	Japan
	xx1 = AA1	PRC

### Configuration Information - Factory Integrated Models

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

1. Factory Integrated Models must start with a CTO Server.
2. FIO indicates that this option is only available as a factory installable option.
3. All Factory Integrated Models will be populated with sufficient hard drive blanks based on the number of initial hard drives ordered with the server.
4. Some options may not be integrated at the factory. Contact your local sales representative for additional information.

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

[Chassis]	HP ProLiant DL120 Gen9 8SFF Configure-to-order Server	HP ProLiant DL120 Gen9 4LFF Configure-to-order Server	HP ProLiant DL120 Gen9 Non-hot Plug 4LFF Configure-to-order Server
SKU Number	777426-B21	777427-B21	777428-B21
Processor	1	1	1
DIMM Slots	8 DIMM slots for RDIMM, LRDIMM DDR4 Memory		
Storage Controller	HP Dynamic Smart Array B140i		
PCIe	1 PCIe LP standard/up to 3 PCIe slots (optional)		
Drive Cage	8SFF Hot Plug	4LFF Hot Plug	4LFF Non Hot Plug
Network Controller	HP Embedded Dual Port 361i Adapter Network Interface		
Fans	3 hot swap fans, non-redundant		
Management	iLO Management (standard), Intelligent Provisioning (standard), iLO Essentials (optional)		
USB	1 front, 1 internal, 2 rear		
Ears	HP Thumbscrew Ears		

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

#### HP Processors

Select one or two processors from Core options-Processor section below,

- If one processor is desired, select one xxxxxx-L21
- DDR4 speed is the maximum memory speed of the processor. Actual memory speed may depend on the quantity and type of DIMMs installed.

For the Intel® C600 Chipset E5-2600 Series, the letter preceding the model number indicates the Product Line (E3, E5, E7); 2600x v#, 2 = number of CPUs in a Node, 6 is socket/segment designation, 00 = Processor SKU, x = L for low power SKUs and v# (not yet designated) = version number.

#### HP Memory

Select one or more memory from Core options-Memory section below,

- LRDIMM, RDIMM are all distinct memory technologies and cannot be mixed within a server. The majority of ProLiant Gen9 servers support LRDIMM and RDIMM.
- HP memory from previous generation servers are not qualified or warranted with this HP ProLiant Server. HP SmartMemory is required to realize the memory performance improvements and enhanced functionality listed in this document for Gen9.
- If only one processor is installed, only half of the total DIMM slots are available. When populating with two processors all DIMM slots are available.
- Kits described as LP include Low Power DIMMs. For more information on ProLiant Energy Efficient Features, see: <http://www.hp.com/go/proliant-energy-efficient>.
- Depending on the memory configuration and processor model, the memory speed may run at 2133MHz, 1866MHz, 1600MHz or 1333MHz. Please see Memory Population Table or the Online Memory Configuration Tool at: <http://www.hp.com/go/ddr4config>.

#### Power Supplies

Select one or more power supplies from Core Options-Power Supplies section below:

- Prior to selecting a power supply option, it is highly recommended that you review your server configuration in the HP Power Advisor tool to determine the right size power supply for your server configuration. The HP Power Advisor is located at: <http://www.hp.com/go/hppoweradvisor>.
- By RPS Enablement Kit power options, mixing of power supplies in the same RPS enablement kit is not supported. All power supplies must be of the same input voltage, output rating, and efficiency rating. If non-matching power supplies are installed, you may receive an error message and/or experience operational issues with your server.

### Configuration Information - Factory Integrated Models

## Step 3: Choose Additional Factory Integratable Options

- HP Unique Options** Select one or more Unique options from Core options section below.
- This section may contain FIO options, please see the Unique options section below.
  - FIO indicates that this option is only available as a factory installable option.
- HP Drives** Select one or more drives from Core options-HP Drives section below:
- The components of a storage subsystem (e.g. the drive, the HBA/controller, firmware, and the server backplane) should operate at the same data transfer rate or the system bandwidth will be negotiated down to an acceptable level for all components.
  - Hard drives have either a one year or three year warranty; refer to the specific hard drive QuickSpecs for details.
  - The HP ProLiant Gen9 Smart Storage solutions are equipped with 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 and activity indicators as well as caution indicators for "Do Not Remove".
- HP Flexible LOM** Select a FlexibleLOM from Core options-Networking section below,
- Only one FlexibleLOM can be added to the server. These options are upgradeable and can be changed from the original configuration after the server is shipped.
  - For 10Gb adapters, a minimum of two Gigabytes (2 GB) of server memory is required per each adapter.
  - Please see the QuickSpecs for Technical Specifications and additional information: <http://www.hp.com/go/ProLiantNICs>.
- HP Networking** Select a standup NIC adapter from Core options-Networking section below,
- Please see the QuickSpecs for Technical Specifications and additional information: <http://www.hp.com/go/ProLiantNICs>.
  - These options are upgradeable and can be changed from the original configuration after the server is shipped.
  - For 10Gb adapters, a minimum of two Gigabytes (2 GB) of server memory is required per each adapter.
- HP Storage Controllers** Select one or more Storage options from Additional options section below.
- The embedded B140i controller will operate in UEFI only mode. For legacy support an additional controller will be needed, and for CTO orders please also select the Legacy mode settings part, 758959-B22
  - This section may contain FIO options, please see HP Storage Controllers section below.
  - FIO indicates that this option is only available as a factory installable option.
- HP I/O Expansion Options** Select one or more Riser Kit options from Core options section below.
- This section may contain FIO options, please see HP I/O Expansion Options section below.
  - FIO indicates that this option is only available as a factory installable option.
- HP Cooling Options** Select one or more Fan Kits from Core options section below.
- This section may contain FIO options, please see HP Cooling Options section below.
  - FIO indicates that this option is only available as a factory installable option.
- HP Rail Kits** Select one type of rail kit from Additional options section below.
- Please take a moment to review the installation documentation that comes with the server to help you with the installation of your Gen9 server.
  - To assist in the installation of the server into the rack, an optional installation tool is available by contacting your local services representative (p/n 695539-001).
  - See HP Rack Options in Additional Options section of this QuickSpecs for more rack kit choices.
- Caution:** HP recommends that a minimum of two people are required for all Rack Server installations. Please refer to your installation instructions for proper tools and number of people to use for any installation.

### Core Options

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

<b>HP Unique Options</b>	HP DL60/120 Gen9 FlexibleLOM Riser Kit	765509-B21
	HP DL60/80/120 Gen9 4LFF Cable FIO Kit	777331-B21
	HP DL120 Gen9 8SFF Smart Array B140i Cable FIO Kit	777415-B21
	HP AHCI-Enable FIO Setting	801845-B21

**NOTE:** This needs to be selected when Advanced Host Controller Interface mode is required on B140i controller.

<b>HP Processors</b>	<b>Entry Processors - E5-2600v3 series Processors</b>	
	HP DL120 Gen9 Intel® Xeon® E5-2603v3 (1.6GHz/6-core/15MB/85W) FIO Processor Kit	764005-L21
	HP DL120 Gen9 Intel® Xeon® E5-2609v3 (1.9GHz/6-core/15MB/85W) FIO Processor Kit	764007-L21
	<b>Entry Processors - E5-1600v3 series Processors</b>	
	HP DL120 Gen9 Intel® Xeon® E5-1650v3 (3.5GHz/6-core/15MB/140W) FIO Processor Kit	783968-L21
	HP DL120 Gen9 Intel® Xeon® E5-1620v3 (3.5GHz/4-core/10MB/140W) FIO Processor Kit	783969-L21
	<b>Base Processors - E5-2600v3 series Processors</b>	
	HP DL120 Gen9 Intel® Xeon® E5-2620v3 (2.4GHz/6-core/15MB/85W) FIO Processor Kit	764009-L21
	HP DL120 Gen9 Intel® Xeon® E5-2630v3 (2.4GHz/8-core/20MB/85W) FIO Processor Kit	764010-L21
	HP DL120 Gen9 Intel® Xeon® E5-2640v3 (2.6GHz/8-core/20MB/90W) FIO Processor Kit	765566-L21
	HP DL120 Gen9 Intel® Xeon® E5-2623v3 (3GHz/4-core/10MB/105W) FIO Processor Kit	779926-L21
	HP DL120 Gen9 Intel® Xeon® E5-2630Lv3 (1.8GHz/8-core/20MB/55W) FIO Processor Kit	765568-L21
	<b>Performance Processors - E5-2600v3 series Processors</b>	
	HP DL120 Gen9 Intel® Xeon® E5-2650v3 (2.3GHz/10-core/25MB/105W) FIO Processor Kit	764012-L21
	HP DL120 Gen9 Intel® Xeon® E5-2650Lv3 (1.8GHz/12-core/30MB/65W) FIO Processor Kit	765567-L21
	HP DL120 Gen9 Intel® Xeon® E5-2698v3 (2.3GHz/16-core/40MB/135W) FIO Processor Kit	783973-L21
	HP DL120 Gen9 Intel® Xeon® E5-2695v3 (2.3GHz/14-core/35MB/120W) FIO Processor Kit	783974-L21
	HP DL120 Gen9 Intel® Xeon® E5-2699v3 (2.3GHz/18-core/45MB/145W) FIO Processor Kit	783972-L21
	HP DL120 Gen9 Intel® Xeon® E5-2660v3 (2.6GHz/10-core/25MB/105W) FIO Processor Kit	764013-L21



### Core Options

<b>HP Memory</b>	<b>Registered DIMMs (RDIMMs) for E5-2600v3 Series</b>	
	HP 4GB (1x4GB) Single Rank x8 DDR4-2133 CAS-15-15-15 Registered Memory Kit	726717-B21
	HP 4GB (1x4GB) Single Rank x8 DDR4-2133 CAS-15-15-15 Registered Standard Memory Kit	803026-B21
	<b>NOTE: Available WW except EMEA.</b>	
	HP 8GB (1x8GB) Single Rank x4 DDR4-2133 CAS-15-15-15 Registered Memory Kit	726718-B21
	HP 8GB (1x8GB) Dual Rank x8 DDR4-2133 CAS-15-15-15 Registered Memory Kit	759934-B21
	HP 8GB (1x8GB) Single Rank x4 DDR4-2133 CAS-15-15-15 Registered Standard Memory Kit	803028-B21
	<b>NOTE: Available WW except EMEA.</b>	
	HP 16GB (1x16GB) Dual Rank x4 DDR4-2133 CAS-15-15-15 Registered Memory Kit	726719-B21
	HP 32GB (1x32GB) Dual Rank x4 DDR4-2133 CAS-15-15-15 Registered Memory Kit	728629-B21
	<b>Load Reduced DIMMs (LRDIMMs) for E5-2600v3 Series</b>	
	HP 16GB (1x16GB) Dual Rank x4 DDR4-2133 CAS-15-15-15 Load Reduced Memory Kit	726720-B21
	HP 32GB (1x32GB) Quad Rank x4 DDR4-2133 CAS-15-15-15 Load Reduced Memory Kit	726722-B21
<b>HP Optical Drives</b>	HP 9.5mm SATA DVD-ROM JackBlack Gen9 Optical Drive	726536-B21
	HP 9.5mm SATA DVD-RW JackBlack G9 Optical Drive	726537-B21
<b>HP Drives</b>	<b>SAS Hot Plug SFF (2.5-inch) Enterprise (ENT) Drives</b>	
	HP 1.2TB 12G SAS 10K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive	781518-B21
	HP 1.2TB 6G SAS 10K rpm SFF (2.5-inch) SC Dual Port Enterprise 3yr Warranty Hard Drive	718162-B21
	HP 900GB 12G SAS 10K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive	785069-B21
	HP 900GB 6G SAS 10K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive	652589-B21
	HP 600GB 12G SAS 15K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive	759212-B21
	HP 600GB 12G SAS 10K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive	781516-B21
	HP 600GB 6G SAS 10K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive	652583-B21
	HP 450GB 12G SAS 15K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive	759210-B21
	HP 450GB 6G SAS 10K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive	652572-B21
	HP 300GB 12G SAS 15K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive	759208-B21
	HP 300GB 12G SAS 10K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive	785067-B21
	HP 300GB 6G SAS 10K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive	652564-B21
	HP 146GB 6G SAS 15K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive	652605-B21
	HP 1.8TB 12G SAS 10K rpm SFF (2.5-inch) SC Enterprise 512e 3yr Warranty Hard Drive	791034-B21
	<b>SAS Hot Plug SFF (2.5-inch) Midline (MDL) Drives</b>	
	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
	<b>SAS Hot Plug LFF (3.5-inch) Enterprise (ENT) Drives</b>	
	HP 600GB 12G SAS 15K rpm LFF (3.5-inch) SC Converter Enterprise 3yr Warranty Hard Drive	765424-B21
	HP 450GB 12G SAS 15K rpm LFF (3.5-inch) SC Converter Enterprise 3yr Warranty Hard Drive	737394-B21
	HP 300GB 12G SAS 15K rpm LFF (3.5-inch) SC Converter Enterprise 3yr Warranty Hard Drive	737261-B21
	<b>SAS Hot Plug LFF (3.5-inch) Midline (MDL) Drives</b>	
	HP 6TB 12G SAS 7.2K rpm LFF (3.5-inch) SC Midline 512e 1yr Warranty Hard Drive	765259-B21
	HP 6TB 6G SAS 7.2K rpm LFF (3.5-inch) SC Midline 1yr Warranty Hard Drive	761477-B21
	HP 4TB 12G SAS 7.2K rpm LFF (3.5-inch) SC Midline 512e 1yr Warranty Hard Drive	765257-B21
	HP 4TB 6G SAS 7.2K rpm LFF (3.5-inch) SC Midline 1yr Warranty Hard Drive	695510-B21
	HP 3TB 6G SAS 7.2K rpm LFF (3.5-inch) SC Midline 1yr Warranty Hard Drive	652766-B21
	HP 2TB 6G SAS 7.2K rpm LFF (3.5-inch) SC Midline 1yr Warranty Hard Drive	652757-B21
	HP 1TB 6G SAS 7.2K rpm LFF (3.5-inch) SC Midline 1yr Warranty Hard Drive	652753-B21
	<b>SATA Hot Plug SFF (2.5-inch) Midline (MDL) Drives</b>	
	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	

### Core Options

#### SATA Hot Plug LFF (3.5-inch) Midline (MDL) Drives

HP 6TB 6G SATA 7.2K rpm LFF (3.5-inch) SC Midline 512e 1yr Warranty Hard Drive	765255-B21
HP 6TB 6G SATA 7.2K rpm LFF (3.5-inch) SC Midline 1yr Warranty Hard Drive	753874-B21
HP 4TB 6G SATA 7.2K rpm LFF (3.5-inch) SC Midline 512e 1yr Warranty Hard Drive	765253-B21
HP 4TB 6G SATA 7.2k rpm LFF (3.5-inch) SC Midline 1yr Warranty Hard Drive	693687-B21
HP 3TB 6G SATA 7.2K rpm LFF (3.5-inch) SC Midline 1yr Warranty Hard Drive	628061-B21
HP 2TB 6G SATA 7.2K rpm LFF (3.5-inch) SC Midline 1yr Warranty Hard Drive	658079-B21
HP 1TB 6G SATA 7.2K rpm LFF (3.5-inch) SC Midline 1yr Warranty Hard Drive	657750-B21
HP 500GB 6G SATA 7.2K rpm LFF (3.5-inch) SC Midline 1yr Warranty Hard Drive	658071-B21

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

HP 4TB 6G SATA 7.2K rpm LFF (3.5in) Non-hot Plug Standard 1yr Warranty Hard Drive	801888-B21
HP 3TB 6G SATA 7.2K rpm LFF (3.5-inch) Non-hot plug Midline 1yr Warranty Hard Drive	628065-B21
HP 3TB 6G SATA 7.2K rpm LFF (3.5in) Non-hot Plug Standard 1yr Warranty Hard Drive	801886-B21
HP 2TB 6G SATA 7.2K rpm LFF (3.5-inch) Non-hot plug Midline 1yr Warranty Hard Drive	659339-B21
HP 2TB 6G SATA 7.2K rpm LFF (3.5in) Non-hot Plug Standard 1yr Warranty Hard Drive	801884-B21
HP 1TB 6G SATA 7.2K rpm LFF (3.5-inch) Non-hot plug Midline 1yr Warranty Hard Drive	659337-B21
HP 1TB 6G SATA 7.2K rpm LFF (3.5in) Non-hot Plug Standard 1yr Warranty Hard Drive	801882-B21
HP 500GB 6G SATA 7.2K rpm LFF (3.5-inch) Non-hot plug Midline 1yr Warranty Hard Drive	659341-B21

#### 6G SATA Hot Plug SFF (2.5-inch) SC 512e Drives

HP 2TB 6G SATA 7.2K rpm SFF (2.5-inch) SC 512e 1yr Warranty Hard Drive	765455-B21
HP 1TB 6G SATA 7.2K rpm SFF (2.5-inch) SC 512e 1yr Warranty Hard Drive	765453-B21

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

HP 6TB 6G SATA 7.2K rpm LFF (3.5-inch) SC 512e Performance 1yr Warranty Hard Drive	793667-B21
HP 4TB 6G SATA 7.2K rpm LFF (3.5-inch) SC 512e Performance 1yr Warranty Hard Drives	793665-B21
HP 6TB 6G SATA 7.2K rpm LFF (3.5-inch) SC 512e Helium 1yr Warranty Hard Drive	793683-B21
HP 8TB 6G SATA 7.2K rpm LFF (3.5-inch) SC 512e Helium 1yr Warranty Hard Drive	793695-B21

#### 12G SAS Hot Plug SFF (2.5-inch) Enterprise Performance Solid State Drives

HP 400GB 12G SAS High Endurance SFF 2.5-in SC Enterprise Performance 3yr Wty Solid State Drive	741155-B21
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#### 12G SAS Hot Plug SFF (2.5-inch) Enterprise Value Solid State Drives

HP 1.6TB 12G SAS Value Endurance SFF 2.5-in SC Enterprise Value 3yr Wty Solid State Drive	762263-B21
HP 800GB 12G SAS Value Endurance SFF 2.5-in SC Enterprise Value 3yr Wty Solid State Drive	762261-B21

#### 12G SAS Hot Plug LFF (3.5-inch) Enterprise Value Solid State Drives

HP 1.6TB 12G SAS Value Endurance LFF 3.5-in SC Enterprise Value 3yr Wty Solid State Drive	762272-B21
HP 800GB 12G SAS Value Endurance LFF 3.5-in SC Enterprise Value 3yr Wty Solid State Drive	762270-B21

#### 12G SAS Hot Plug SFF (3.5-inch) SC Midline 512e Drives

HP 2TB 12G SAS 7.2K rpm SFF (2.5-inch) SC 512e 1yr Warranty Hard Drive	765466-B21
HP 1TB 12G SAS 7.2K rpm SFF (2.5-inch) SC 512e 1yr Warranty Hard Drive	765464-B21
HP 600GB 12G SAS 15K rpm SFF (2.5-inch) SC 512e Enterprise 3yr Warranty Hard Drive	748387-B21

#### 12G SAS Hot Plug LFF (3.5-inch) SC 512e Performance Drives

### Core Options

HP 6TB 12G SAS 7.2K rpm LFF (3.5-inch) SC 512e Performance 1yr Warranty Hard Drive	793671-B21
HP 4TB 12G SAS 7.2K rpm LFF (3.5-inch) SC 512e Performance 1yr Warranty Hard Drive	793669-B21
HP 8TB 12G SAS 7.2K rpm LFF (3.5-inch) SC 512e Helium 1yr Warranty Hard Drive	793703-B21
HP 6TB 12G SAS 7.2K rpm LFF (3.5-inch) SC 512e Helium 1yr Warranty Hard Drive	793699-B21
<b>12G SAS Hot Plug SFF (2.5-inch) SC Read/Write Intensive Solid State Drives</b>	
HP 1.92TB 12G SAS Read Intensive SFF 2.5-in SC 3yr Wty Solid State Drive	802891-B21
HP 800GB 12G SAS Write Intensive SFF 2.5-in SC 3yr Wty Solid State Drive	802586-B21
HP 400GB 12G SAS Write Intensive SFF 2.5-in SC 3yr Wty Solid State Drive	802582-B21
HP 200GB 12G SAS Write Intensive SFF 2.5-in SC 3yr Wty Solid State Drive	802578-B21
<b>6G SATA Hot Plug SFF (2.5-inch) Enterprise Mainstream Solid State Drives</b>	
HP 800GB 6G SATA Mainstream Endurance SFF 2.5-in SC Enterprise Mainstream 3yr Wty Solid State Drive	691868-B21
HP 400GB 6G SATA Mainstream Endurance SFF 2.5-in SC Enterprise Mainstream 3yr Wty Solid State Drive	691866-B21
HP 200GB 6G SATA Mainstream Endurance SFF 2.5-in SC Enterprise Mainstream 3yr Wty Solid State Drive	691864-B21
HP 100GB 6G SATA Mainstream Endurance SFF 2.5-in SC Enterprise Mainstream 3yr Wty Solid State Drive	691862-B21
<b>6G SATA Hot Plug SFF (2.5-inch) Enterprise Value Solid State Drives</b>	
HP 1.6TB 6G SATA Value Endurance SFF 2.5-in SC Enterprise Value 3yr Wty Solid State Drive	757339-B21
HP 800GB 6G SATA Value Endurance SFF 2.5-in SC Enterprise Value 3yr Wty Solid State Drive	717973-B21
HP 600GB 6G SATA Value Endurance SFF 2.5-in SC Enterprise Value 3yr Wty Solid State Drive	739898-B21
HP 480GB 6G SATA Value Endurance SFF 2.5-in SC Enterprise Value 3yr Wty Solid State Drive	717971-B21
HP 300GB 6G SATA Value Endurance SFF 2.5-in SC Enterprise Value 3yr Wty Solid State Drive	739888-B21
HP 240GB 6G SATA Value Endurance SFF 2.5-in SC Enterprise Value 3yr Wty Solid State Drive	717969-B21
<b>6G SATA Hot Plug SFF Value Endurance (2.5-inch) Enterprise Value G1 Solid State Drives</b>	
HP 480GB 6G SATA Value Endurance SFF 2.5-in SC Enterprise Value 3yr Wty G1 Solid State Drive	756657-B21
HP 240GB 6G SATA Value Endurance SFF 2.5-in SC Enterprise Value 3yr Wty G1 Solid State Drive	756636-B21
HP 120GB 6G SATA Value Endurance SFF 2.5-in SC Enterprise Value 3yr Wty G1 Solid State Drive	756621-B21
HP 960GB 6G SATA Light Endurance SFF 2.5-in SC Enterprise Light 3yr Wty G1 Solid State Drive	756601-B21
<b>6G SATA Hot Plug SFF Value Endurance (2.5-inch) Enterprise Value M1 Solid State Drives</b>	
HP 800GB 6G SATA Value Endurance SFF 2.5-in SC Enterprise Value 3yr Wty M1 Solid State Drive	764929-B21
HP 480GB 6G SATA Value Endurance SFF 2.5-in SC Enterprise Value 3yr Wty M1 Solid State Drive	764927-B21
HP 240GB 6G SATA Value Endurance SFF 2.5-in SC Enterprise Value 3yr Wty M1 Solid State Drive	764925-B21
HP 120GB 6G SATA Value Endurance SFF 2.5-in SC Enterprise Value 3yr Wty M1 Solid State Drive	764923-B21
<b>6G SATA Hot Plug SFF (2.5-inch) Enterprise Boot Solid State Drives</b>	
HP 120GB 6G SATA Value Endurance SFF 2.5-in SC Enterprise Boot 3yr Wty Solid State Drive	717965-B21
HP 80GB 6G SATA Value Endurance SFF 2.5-in SC Enterprise Boot 3yr Wty Solid State Drive	734360-B21
<b>6G SATA Hot Plug LFF (3.5-inch) Enterprise Mainstream Solid State Drives</b>	

### Core Options

HP 800GB 6G SATA Mainstream Endurance LFF 3.5-in SC Enterprise Mainstream 3yr Wty Solid State Drive	691860-B21
HP 400GB 6G SATA Mainstream Endurance LFF 3.5-in SC Enterprise Mainstream 3yr Wty Solid State Drive	691856-B21
HP 200GB 6G SATA Mainstream Endurance LFF 3.5-in SC Enterprise Mainstream 3yr Wty Solid State Drive	691854-B21
HP 100GB 6G SATA Mainstream Endurance LFF 3.5-in SC Enterprise Mainstream 3yr Wty Solid State Drive	691852-B21
<b>6G SATA Hot Plug LFF Value Endurance (3.5-inch) Converter Enterprise Value G1 Solid State Drives</b>	
HP 480GB 6G SATA Value Endurance LFF 3.5-in SC Converter ENT Value 3yr Wty G1 Solid State Drive	756660-B21
HP 240GB 6G SATA Value Endurance LFF 3.5-in SC Converter ENT Value 3yr Wty G1 Solid State Drive	756639-B21
HP 120GB 6G SATA Value Endurance LFF 3.5-in SC Converter ENT Value 3yr Wty G1 Solid State Drive	756624-B21
<b>6G SATA Hot Plug LFF Value Endurance (3.5-inch) Converter Enterprise Value M1 Solid State Drives</b>	
HP 800GB 6G SATA Value Endurance LFF 3.5-in SC Converter ENT Value 3yr Wty M1 Solid State Drive	764945-B21
HP 480GB 6G SATA Value Endurance LFF 3.5-in SC Converter ENT Value 3yr Wty M1 Solid State Drive	764943-B21
HP 240GB 6G SATA Value Endurance LFF 3.5-in SC Converter ENT Value 3yr Wty M1 Solid State Drive	764941-B21
HP 120GB 6G SATA Value Endurance LFF 3.5-in SC Converter ENT Value 3yr Wty M1 Solid State Drive	764939-B21
<b>6G SATA Hot Plug LFF (3.5-inch) Enterprise Value Solid State Drives</b>	
HP 1.6TB 6G SATA Value Endurance LFF 3.5-in SC Converter Enterprise Value 3yr Wty Solid State Drive	757342-B21
HP 800GB 6G SATA Value Endurance LFF 3.5-in SC Enterprise Value 3yr Wty Solid State Drive	718189-B21
HP 600GB 6G SATA Value Endurance LFF 3.5-in SC Converter Enterprise Value 3yr Wty Solid State Drive	739900-B21
HP 480GB 6G SATA Value Endurance LFF 3.5-in SC Enterprise Value 3yr Wty Solid State Drive	718183-B21
HP 300GB 6G SATA Value Endurance LFF 3.5-in SC Converter Enterprise Value 3yr Wty Solid State Drive	739890-B21
HP 240GB 6G SATA Value Endurance LFF 3.5-in SC Enterprise Value 3yr Wty Solid State Drive	718177-B21
<b>6G SATA Hot Plug LFF (3.5-inch) Enterprise Light G1 Solid State Drives</b>	
HP 960GB 6G SATA Light Endurance LFF 3.5-in SC Converter ENT Light 3yr Wty G1 Solid State Drive	756604-B21
<b>6G SATA Hot Plug LFF (3.5-inch) Enterprise Boot Solid State Drives</b>	
HP 120GB 6G SATA Value Endurance LFF 3.5-in SC Enterprise Boot 3yr Wty Solid State Drive	718171-B21
HP 80GB 6G SATA Value Endurance LFF 3.5-in SC Enterprise Boot 3yr Wty Solid State Drive	734362-B21
<b>6G SATA Hot Plug SFF (2.5-inch) SC Read Intensive Solid State Drives</b>	
HP 960GB 6G SATA Read Intensive SFF 2.5-in SC 3yr Wty Solid State Drive	789155-B21
HP 480GB 6G SATA Read Intensive SFF 2.5-in SC 3yr Wty Solid State Drive	789145-B21
HP 240GB 6G SATA Read Intensive SFF 2.5-in SC 3yr Wty Solid State Drive	789135-B21
<b>6G SATA Hot Plug LFF (3.5-inch) SC Read Intensive Solid State Drives</b>	
HP 960GB 6G SATA Read Intensive LFF 3.5-in SC Converter 3yr Wty Solid State Drive	789157-B21
HP 480GB 6G SATA Read Intensive LFF 3.5-in SC Converter 3yr Wty Solid State Drive	789147-B21
HP 240GB 6G SATA Read Intensive LFF 3.5-in SC Converter 3yr Wty Solid State Drive	789137-B21

### Core Options

#### M.2 SSD

HP Dual 120GB Value Endurance Solid State M.2 Enablement Kit for ProLiant ML/DL Servers	777894-B21
HP 120GB Value Endurance Solid State M.2 Enablement Kit for ProLiant ML/DL Servers	788028-B21

**NOTE:** M.2 drives go in PCIe slot and use B140i SATA controller.

#### Hard Drive Blank Kits

HP Large Form Factor Hard Drive Blank Kit	666986-B21
HP Small Form Factor Hard Drive Blank Kit	666987-B21

### HP Networking

#### 1 Gigabit Ethernet adapters

HP Ethernet 1Gb 4-port 331T Adapter	647594-B21
HP Ethernet 1Gb 4-port 366T Adapter	811546-B21
HP Ethernet 1Gb 2-port 361T Adapter	652497-B21
HP Ethernet 1Gb 2-port 332T Adapter	615732-B21

#### 10 Gigabit Ethernet adapters

HP Ethernet 10Gb 2-port 530T Adapter	656596-B21
HP Ethernet 10Gb 2-port 561T Adapter	716591-B21
HP Ethernet 10Gb 2-port 530SFP Adapter	652503-B21
HP Ethernet 10Gb 2-port 546SFP+ Adapter	779793-B21
HP Ethernet 10Gb 2-port 546FLR-SFP+ Adapter	779799-B21
HP Ethernet 10Gb 2-port 560SFP+ Adapter	665249-B21

**NOTE:** A minimum of two Gigabytes (2GB) 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. See cables/options below.

#### FlexibleLOM Adapters

HP FlexFabric 10Gb 2-port 533FLR-T Adapter	700759-B21
HP FlexFabric 10Gb 2-port 534FLR-SFP+ Adapter	700751-B21
HP Ethernet 10Gb 2-port 561FLR-T Adapter	700699-B21
HP Ethernet 1Gb 4-port 331FLR Adapter	629135-B22
HP Ethernet 1Gb 4-port 366FLR Adapter	665240-B21

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

### HP InfiniBand

HP InfiniBand FDR 2-port 545QSFP Adapter	702211-B21
HP InfiniBand FDR/Ethernet 10Gb/40Gb 2-port 544+QSFP Adapter	764284-B21

**NOTE:** Please see the QuickSpecs for additional information:

[http://h18000.www1.hp.com/products/quickspecs/13078\\_div/13078\\_div.html](http://h18000.www1.hp.com/products/quickspecs/13078_div/13078_div.html).

### HP I/O Expansion Options

HP DL60/120 Gen9 CPU1 Riser Kit	765508-B21
HP DL60/120 Gen9 FlexibleLOM Riser Kit	765509-B21
HP DL60/120 Gen9 Full Height Half Length PCIe Riser Kit	765510-B21
HP DL120 Gen9 GPU Enablement Kit	779611-B21

### Core Options

<b>HP Power Supplies</b>	<p><b>HP Entry-Level Power Supplies</b></p> <p>HP 550W FIO Power Supply Kit 730941-B21</p> <p>HP 800W Gold (Redundant)/900W (Non-Redundant) AC Power Input Module 744689-B21</p> <p>HP Server Redundant Power Supply Backplane Kit 745813-B21</p> <p><b>NOTE:</b> Required to be bought when 900W/800W power supply (P/N: 744689-B21) is selected.</p> <p>HP 800W Gold (Redundant)/900W (Non-Redundant) AC Power Input FIO Module 813534-B21</p> <p><b>NOTE:</b> HP Server RPS FIO Backplane Kit (P/N: 813535-B21) is required for this power supply.</p> <p><b>NOTE:</b> Up to two of these option kits can be installed in one system.</p> <p><b>NOTE:</b> This FIO kit only be bought integrated in the server. It cannot be ordered as standalone option after server purchase.</p> <p><b>NOTE:</b> With just one power supply module installed, up to 900W wattage is supported while with both power supply modules installed in RPS mode, up to 800W is supported.</p> <p>HP Server Redundant Power Supply Backplane FIO Kit 813535-B21</p> <p><b>NOTE:</b> Required for RPS capability.</p> <p><b>NOTE:</b> This FIO kit only be bought integrated in the server. It cannot be ordered as standalone option after server purchase.</p> <p><b>NOTE:</b> The above power supply option is 80Plus Gold-certified with an efficiency rating of up to 92%. Each power backplane kit (813535-B21) can support up to two (2) AC power input modules (813534-B21). Power specifications and technical content for all HP Server power supplies can be found at <a href="http://www.hp.com/go/proliant/powersupply">http://www.hp.com/go/proliant/powersupply</a>.</p>
<b>HP Computation and Graphics Accelerators</b>	<p>HP NVIDIA Quadro K2200 Graphics Accelerator J0G89A</p> <p>HP NVIDIA Quadro K4200 Graphics Accelerator J0G90A</p> <p><b>NOTE:</b> 1 GPU supported per Server.</p> <p><b>NOTE:</b> Must select 800W / 900W power supply when graphics card is selected.</p> <p><b>NOTE:</b> 1 GPU Enablement kit 779611-B21 must be selected when adding a GPU option.</p> <p><b>NOTE:</b> Only the above listed Graphics cards are HP standard supported options in this server.</p> <p><b>NOTE:</b> The NVIDIA Quadro modules are supported only on 64-bit versions of Linux and Windows operating systems as well as on Virtual Machine client operating systems. The supported bare metal operating systems are RHEL6, SLES 1 and Windows Server 2012 R2.</p> <p><b>NOTE:</b> Please see the HP Power Advisor for estimated power consumption of your individual system configuration prior to installing GPUs. The HP Power Advisor is located at: <a href="http://www.hp.com/go/hppoweradvisor">http://www.hp.com/go/hppoweradvisor</a>.</p>
<b>HP Cooling Options</b>	<p>HP DL60/120 Gen9 Redundant Fan Kit 765513-B21</p> <p><b>NOTE:</b> Includes two fans and is required to move from non-redundant to redundant configurations.</p>

### Additional Options

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

#### HP Insight Software HP Insight Control

HP Insight Control including 1yr 24x7 Technical Support and Updates Single Server License	C6N27A
HP Insight Control including 1yr 24x7 Technical Support and Updates Electronic License	C6N28ABE
HP Insight Control Server Provisioning Media Kit	BD883A
HP Insight Management Media Kit	C6N31A
HP Insight Control including 1yr 24x7 Support ProLiant ML/DL/BL-bundle Single Server FIO License	C6N36A
HP Insight Control including 1yr 24x7 Support ProLiant ML/DL/BL-bundle FIO Electronic License	C6N36ABE

**NOTE:** 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 24x7 HP Software Technical Support and Update Service.

**NOTE:** Licenses ship without media. The HP Insight Control Media Kit can be ordered separately, or can be downloaded at: <http://www.hp.com/go/insightupdates>.

**NOTE:** For additional license options please see the QuickSpecs at: [http://h18000.www1.hp.com/products/quickspecs/12631\\_div/12631\\_div.html](http://h18000.www1.hp.com/products/quickspecs/12631_div/12631_div.html).

#### Embedded Management

##### HP iLO Advanced

HP iLO Advanced including 1yr 24x7 Technical Support and Updates Single Server License	512485-B21
HP iLO Advanced 1 Server License with 3yr 24x7 Tech Support and Updates	BD505A
HP iLO Advanced including 1yr 24x7 Technical Support and Updates E-LTU	E6U59ABE
HP iLO Advanced including 3yr 24x7 Technical Support and Updates E-LTU	E6U64ABE

##### HP iLO Essentials

HP Integrated Lights-Out Essentials including 3yr 24x7 Technical Support and Updates E-LTU	E6U61ABE
HP Integrated Lights-Out Essentials including 3yr 24x7 Tech Support and Updates Single Svr License	BD774A
HP Integrated Lights-Out Essentials including 1yr 24x7 Tech Support and Updates Single Svr License	BD775A
HP Integrated Lights-Out Essentials including 1yr 24x7 Technical Support and Updates E-LTU	E6U62ABE

##### HP iLO Scale-out

HP Integrated Lights-Out Scale-Out 3yr 24x7 Tech Support and Updates Flex Quantity License	BD776A
HP Integrated Lights-Out Scale-Out including 3yr 24x7 Tech Support and Updates Tracking License	BD777A
HP Integrated Lights-Out Scale-Out 1yr 24x7 Tech Support and Updates Flex Quantity License	BD778A
HP Integrated Lights-Out Scale-Out including 1yr 24x7 Tech Support and Updates Flex Qty E-LTU	BD778AAE
HP Integrated Lights-Out Scale-Out including 1yr 24x7 Tech Support and Updates Tracking License	BD779A

### Additional Options

<b>HP Converged Infrastructure Management Software</b>	<b>HP OneView Advanced (with HP iLO Advanced)</b>	
	HP OneView incl 3yr 24x7 Supp Phys 1 Svr Lic	E5Y34A
	HP OneView incl 3yr 24x7 Supp Flex Qty E-LTU	E5Y35AAE
	HP OneView for ProLiant DL Server incl 3yr 24x7 Supp FIO Bundle Physical 1 Svr Lic	E5Y43A
	<b>HP OneView Advanced (without HP iLO Advanced)</b>	
	HP OneView w/o iLO Adv incl 3yr 24x7 Supp Phys 1 Svr Lic	E5Y38A
	HP OneView w/o iLO Adv inc 3yr 24x7 Supp Flex Qty E-LTU	E5Y39AAE
	HP OneView Media Kit Phys No Lic	E5Y37A
	HP Operations Analytics for HP OneView LTU	K8G29A
	HP Operations Analytics for HP OneView E-LTU	K8G29AAE

**NOTE:** Full licenses of HP OneView Advanced also provide the right-to-use HP Insight Control without additional charge.

**NOTE:** Server provisioning (via 'HP Insight Control server provisioning') is licensed as part of HP OneView Advanced and provides multi-server OS and driver provisioning. Media kit #BD883A can be ordered for a physical copy of this software (USB flash drive).

**NOTE:** Licenses ship without media. The HP OneView Media Kit can be ordered separately, or can be downloaded at: <http://www.hp.com/go/oneview>.

**NOTE:** Electronic and Flexible-Quantity licenses can be used to purchase multiple licenses with a single activation key.

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<b>HP Security</b>	HP Trusted Platform Module Option	488069-B21
	HP 1U Security Bezel Kit	664918-B21
	HP DL120 Gen9 Quick Release Ear FIO Kit	787194-B21
	HP DL120 Gen9 Thumbscrew Ear FIO Kit	787198-B21
	<p><b>NOTE:</b> 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: <a href="http://www.hp.com/go/TPM">http://www.hp.com/go/TPM</a>.</p> <p><b>NOTE:</b> ProLiant OS pre-installed units will come with the partition required for TPM deployment.</p> <p><b>NOTE:</b> 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>	

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### HP Storage SAS Controllers



### Additional Options

#### Controllers

##### HP Smart Array Controllers

HP Smart Array P440/4GB FBWC 12Gb 1-port Int SAS Controller	726821-B21
HP Smart Array P441/4GB FBWC 12Gb 2-ports Ext SAS Controller	726825-B21
HP Smart Array P440/4GB FBWC 12Gb 1-port Int FIO SAS Controller	761872-B21

##### HP Smart Host Bus Adapters

HP H240 12Gb 2-ports Int Smart Host Bus Adapter	726907-B21
HP H240 12Gb 2-ports Int FIO Smart Host Bus Adapter	761873-B21
HP H241 12Gb 2-ports Ext Smart Host Bus Adapter	726911-B21

##### HP Cable Options

HP DL60/80/120 Gen9 4LFF Cable FIO Kit	777331-B21
HP DL60/120 Gen9 4LFF Smart Array P440 SAS Cable Kit	777382-B21
HP DL60/120 Gen9 4LFF Smart Array H240 SAS Cable Kit	777385-B21
HP DL120 Gen9 8SFF Smart Array B140i Cable FIO Kit	777415-B21
HP DL120 Gen9 8SFF Smart Array P440 SAS Cable Kit	777418-B21
HP DL120 Gen9 8SFF Smart Array H240 SAS Cable Kit	777421-B21

**NOTE:** One of the above cables is required to be selected depending on the combination of chassis and storage controller. Cable option kit descriptions include the right chassis and storage controllers names.

**NOTE:** FIO indicates that this option is only available as a factory installable option. Please select FIO option if you want the option to be factory installed.

**NOTE:** NHP server chassis (Mod-x) includes SATA cables required to connect drives to embedded B140i SATA controller.

##### Optional Software

HP Secure Encryption No Media Flexible License per Drive	D8S84A
HP Secure Encryption No Media E-LTU per Drive	D8S85AAE

**NOTE:** HP Secure Encryption is supported when one of the supported Smart Array Controllers or the supported Smart SAS HBA (configured in a RAID mode) is installed in the server.

HP Secure Encryption licensing is based on the number of physical drives requiring encryption.

**NOTE:** For more information about HP Secure Encryption, go to <http://www.hp.com/go/hpsecureencryption>.

HP SmartCache No Media 24x7 Technical Support 1 Svr License	D7S26A
HP SmartCache No Media 24x7 Technical Support Flexible License	D7S27A
HP SmartCache No Media 24x7 Technical Support Electronic License	D7S27AAE

**NOTE:** HP SmartCache is supported when one of the supported Smart Array Controllers is installed in the server.

**NOTE:** HP SmartCache comes standard (no licensing is required) if the HP Smart Array P840 Controller is installed in the server.

##### Optional Upgrades

HP 96W Smart Storage Battery with 145mm Cable for DL/ML/SL Servers	727258-B21
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**NOTE:** This option is mandatorily required with HP Smart Array controllers. One server can accommodate only 1 Smart Storage Battery that would suffice the requirement of all HP Smart Array controllers.

### Additional Options

<b>HP Tape Backup</b>	<p><b>NOTE:</b> For the complete range of tape drives, autoloaders, libraries and media see: <a href="http://www.hp.com/go/tape">http://www.hp.com/go/tape</a>. For hardware and software compatibility of HP tape backup products see: <a href="http://www.hp.com/storage/SPOCK">http://www.hp.com/storage/SPOCK</a> and <a href="http://www.hp.com/go/ebs">http://www.hp.com/go/ebs</a>.</p> <p><b>NOTE:</b> For Internal drives to be connected to DL servers please make sure that you order rack mount kit as well.</p> <p><b>Tape Drives</b></p> <p><b>SAS Rack-Mount Tape Solutions</b></p> <p>HP StoreEver LTO-6 Ultrium 6650 SAS External Tape Drive <span style="float: right;">EH964A</span></p> <p>HP StoreEver LTO-6 Ultrium 6250 Tape Drive in 1U Rack-mount Kit <span style="float: right;">C0L99A</span></p> <p>HP StoreEver LTO-6 Ultrium 6250 External Tape Drive <span style="float: right;">EH970A</span></p> <p>HP StoreEver LTO-5 Ultrium 3000 SAS Tape Drive in 1U Rack-mount <span style="float: right;">EJ014B</span></p> <p>HP StoreEver LTO-5 Ultrium 3000 SAS External Tape Drive <span style="float: right;">EH958B</span></p> <p>HP StoreEver LTO-5 Ultrium 3280 SAS Tape Drive in 3U Rack-mount <span style="float: right;">EJ013B</span></p> <p>HP StoreEver LTO-5 Ultrium 3280 SAS External Tape Drive <span style="float: right;">EH900B</span></p> <p>HP StoreEver LTO-4 Ultrium 1760 SAS (1) in 1U Rack-mount Kit <span style="float: right;">EH946C</span></p> <p>HP StoreEver LTO-4 Ultrium 1760 SCSI External Tape Drive <span style="float: right;">EH922B</span></p> <p>HP StoreEver LTO-4 Ultrium 1760 SAS External Tape Drive <span style="float: right;">EH920B</span></p> <p>HP StoreEver LTO-3 Ultrium 920 SAS External Tape Drive <span style="float: right;">EH848B</span></p> <p>HP StoreEver 1U SAS Rack-mount Kit <span style="float: right;">AE459B</span></p> <p>HP Mini SAS High Density to 4-lane Mini SAS External Fanout 2 Meter Cable <span style="float: right;">K2R09A</span></p> <p>HP Mini SAS High Density to 4-lane Mini SAS External Fanout 4 Meter Cable <span style="float: right;">K2R10A</span></p> <p><b>HP DAT Autoloader</b></p> <p>HP StoreEver 1/8 G2 LTO-6 Ultrium 6250 FC Tape Autoloader <span style="float: right;">C0H19A</span></p> <p><b>HP MSL2024 Tape Library</b></p> <p>HP MSL2024 0-Drive Tape Library <span style="float: right;">AK379A</span></p> <p><b>HP MSL4048 Tape Library</b></p> <p>HP MSL4048 0-Drive Tape Library <span style="float: right;">AK381A</span></p> <p><b>HP StoreEver MSL6480</b></p> <p>HP StoreEver MSL6480 Scaleable Expansion Module <span style="float: right;">QU626A</span></p> <p>HP StoreEver MSL6480 Scalable Base Module <span style="float: right;">QU625A</span></p>
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<b>HP Disk Backup</b>	<p><b>HP RDX Removable Disk Backup System</b></p> <p>HP RDX1000 USB 3.0 External Disk Backup System <span style="float: right;">B7B69A</span></p> <p>HP RDX+ 1TB External Backup System <span style="float: right;">B7B69B</span></p> <p>HP RDX500 USB 3.0 External Disk Backup System <span style="float: right;">B7B66A</span></p> <p>HP RDX+ 500GB External Backup System <span style="float: right;">B7B66B</span></p> <p>HP RDX320 USB3.0 External Disk Backup System <span style="float: right;">B7B63A</span></p> <p>HP RDX 2TB USB3.0 External Disk Backup System <span style="float: right;">E7X53A</span></p> <p>HP RDX 2TB USB3.0 External Disk Backup System <span style="float: right;">E7X53B</span></p> <p>HP D3700 Enclosure <span style="float: right;">QW967A</span></p> <p>HP D3600 Enclosure <span style="float: right;">QW968A</span></p> <p>HP RDX+ External Docking System <span style="float: right;">C8S07B</span></p> <p><b>NOTE:</b> For the complete range of RDX drives and media see: <a href="http://www.hp.com/go/rdx">http://www.hp.com/go/rdx</a>. For hardware and software compatibility of HP disk backup products see: <a href="http://www.hp.com/storage/SPOCK">http://www.hp.com/storage/SPOCK</a>.</p>
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### Additional Options

**HP Storage Options** **NOTE:** These adapters are only supported with Windows Server 2012 R2 operating system as of now. Support for other operating systems will follow later.

#### Emulex Fibre Channel HBAs

HP 81E 8Gb 1-port PCIe Fibre Channel Host Bus Adapter	AJ762B
HP 82E 8Gb 2-port PCIe Fibre Channel Host Bus Adapter	AJ763B
HP StoreFabric SN1100E 16Gb Single Port Fibre Channel Host Bus Adapter	C8R38A
HP StoreFabric SN1100E 16Gb Dual Port Fibre Channel Host Bus Adapter	C8R39A

#### 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
HP StoreFabric SN1000Q 16GB 1-port PCIe Fibre Channel Host Bus Adapter	QW971A
HP StoreFabric SN1000Q 16GB 2-port PCIe Fibre Channel Host Bus Adapter	QW972A

#### Converged Network Adapter

HP StoreFabric CN1200E 10Gb Converged Network Adapter	E7Y06A
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### HP Disk Storage Systems

#### Disk Enclosures

HP D6000 w/35 4TB 6G SAS 7.2K LFF Dual Port MDL HDD 140TB Bundle	E7W30A
HP D6000 w/70 4TB 6G SAS 7.2K LFF Dual Port MDL HDD 280TB Bundle	E7W31A
HP D6000 Dual I/O Module Disk Enclosure	QQ695A
HP D6000 w/35 2TB 6G SAS 7.2K LFF Dual port MDL HDD 70TB Bundle	QQ697A
HP D6000 w/70 2TB 6G SAS 7.2K LFF Dual port MDL HDD 140TB Bundle	QQ698A
HP D6000 w/35 3TB 6G SAS 7.2K LFF Dual port MDL HDD 105TB Bundle	QQ699A
HP D6000 w/70 3TB 6G SAS 7.2K LFF Dual port MDL HDD 210TB Bundle	QQ700A
HP D2600 w/12 4TB 6G SAS 7.2K LFF Dual Port MDL HDD 48TB Bundle	E7W32A

### HP Data Center Racks

#### HP 11000 G2 Series Racks

HP 11648 1075mm Pallet Universal Rack	H6J87A
HP 11648 1075mm Shock Universal Rack	H6J88A
HP 11642 1075mm Pallet Universal Rack	H6J65A
HP 11642 1075mm Shock Universal Rack	H6J66A
HP 11642 1200mm Pallet Universal Rack	H6J67A
HP 11642 1200mm Shock Universal Rack	H6J68A
HP 11636 1075mm Pallet Universal Rack	H6J77A
HP 11636 1075mm Shock Universal Rack	H6J78A
HP 11622 G2 1075mm Shock Universal Rack	H6J83A
HP 11622 G2 1075mm Shock Universal Rack	H6J84A
HP 11614 1075mm Shock Universal Rack	H6J82A

**NOTE:** Please see the [HP 11000 G2 Series Racks QuickSpecs](#) for information on additional racks options and rack specifications.

#### HP Intelligent Series Rack

HP 647 1075mm Pallet Intelligent Series Rack	BW911A
HP 647 1075mm Shock Intelligent Series Rack	BW912A
HP 647 1200mm Pallet Intelligent Series Rack	BW913A
HP 647 1200mm Shock Intelligent Series Rack	BW914A
HP 642 1075mm Pallet Intelligent Series Rack	BW903A
HP 642 1075mm Shock Intelligent Series Rack	BW904A
HP 642 1200mm Pallet Intelligent Series Rack	BW907A
HP 642 1200mm Shock Intelligent Series Rack	BW908A
HP 636 1075mm Pallet Intelligent Series Rack	BW895A
HP 636 1075mm Shock Intelligent Series Rack	BW896A
HP 842 1075mm Pallet Intelligent Series Rack	BW917A

### Additional Options

HP 842 1075mm Shock Intelligent Series Rack BW918A

**NOTE:** Please see the [HP Intelligent Series Racks QuickSpecs](#) for information on additional racks options and rack specifications.

**HP Value Series Rack**

HP V142 1075mm deep Pallet 100 series Rack AF046A

**NOTE:** Please see the [HP Value Series Rack QuickSpecs](#) for information on additional racks options and rack specifications.

**HP Power Distribution Units (PDUs)**

**HP Basic Power Distribution Unit (bPDU)**

HP 1.9kVA 120 Volt L5-20 Input (12xNEMA 5-20R) NA/JP Basic PDU	H5M54A
HP 3.6kVA 200-240 Volt Detachable C20 Input ( 12xC13) WW Basic PDU	H5M56A
HP 2.8kVA 120 Volt L5-30 Input (18xNEMA 5-20R) NA/JP Basic PDU	H5M55A
HP 3.6kVA 200-240 Volt Detachable C20 Input (18xC13) WW Basic PDU	H5M57A
HP 4.9kVA 208 Volt L6-30 Input (20xC13) NA/JP Basic PDU	H5M58A
HP 7.3kVA 230 Volt IEC309 32A Input (20xC13) INTL Basic PDU	H5M68A
HP 8.6kVA 208 Volt L15-30 3-Phase Input (18xC13) NA/JP Basic PDU	H5M61A
HP 4.9kVA 208 Volt L6-30 Input (24xC13/6xC19) NA/JP Basic PDU	H5M59A
HP 7.3kVA 230 Volt IEC309 32A Input (24xC13/6xC19) INTL Basic PDU	H5M70A
HP 8.3kVA 208 Volt CS8265C Input (30xC13/6xC19) NA/JP Basic PDU	H5M60A
HP 11kVA 230 Volt IEC309 63A Input (30xC13/6xC19) INTL Basic PDU	H5M71A
HP Hardwired 200-240 Volt Input (30xC13/6xC19) WW Basic PDU	H5M75A
HP 5.7kVA 208 Volt L21-20 3-Phase Input (24xC13/3xNEMA 5-20R) NA/JP Basic PDU	H5M63A
HP 8.6kVA 208 Volt L21-30 3-Phase Input (24xC13/3xC19/3xNEMA 5-20R) NA/JP Basic PDU	H5M64A
HP 8.6kVA 208 Volt L15-30 3-Phase Input (24xC13/6xC19) NA/JP Basic PDU	H5M62A
HP 11kVA 400 Volt IEC309 16A 3-Phase Input (30xC13/6xC19) INTL Basic PDU	H5M72A
HP 11kVA 400 Volt IEC309 16A 3-Phase Input (36xC13/6xC19) INTL Basic PDU	H5M73A
HP 11kVA 400 Volt IEC309 30A 3-Phase Input (36xC13/6xC19) NA Basic PDU	H5M67A
HP 19.9kVA 480 Volt IEC309 30A 3-Phase Input (30 Outlet) NA Basic PDU	H3X08A
HP 800VA - 277V Input / 230V Output NA Rack Mount Transformer	H3X09A
HP 2.8kVA 24A Low Voltage NA/JP Modular Power Distribution Unit	252663-D71
HP 4.9kVA 24A High Voltage NA/JP Core Modular Power Distribution Unit	252663-D74
HP 8.3kVA 40A High Voltage NA/JP Core Modular Power Distribution Unit	252663-D75
HP 7.3kVA 32A High Voltage INTL Core Modular Power Distribution Unit	252663-B33
HP 9.2kVA 40A High Voltage INTL Core Modular Power Distribution Unit	252663-B34
HP 8.6kVA 24A Three Phase NA/JP Modular Power Distribution Unit	AF512A
HP 11kVA 16A Three Phase INTL Modular Power Distribution Unit	AF513A
HP 14.4kVA 40A Three Phase NA/JP Modular Power Distribution Unit	AF519A
HP 17.3kVA 48A Three Phase NA/JP Modular Power Distribution Unit	AF511A
HP 22kVA 32A Three Phase INTL Core Modular Power Distribution Unit	AF518A

**NOTE:** To learn more about [HP Basic Power Distribution Units \(bPDU\)](#), please visit the [HP website at http://www.hp.com/go/pdu](http://www.hp.com/go/pdu).

**HP Monitored Power Distribution Units (mPDU)**

### Additional Options

HP 2.8kVA 120 Volt L5-30 Input (12xNEMA 5-20R)NA/JP Monitored PDU	D9N43A
HP 3.6kVA 200-240 Volt Detachable C20 Input (12xC13) WW Monitored PDU	D9N46A
HP 4.9kVA 208 Volt L6-30 Input (12xC13) NA/JP Monitored PDU	D9N44A
HP 3.6kVA 200-240 Volt Detachable C20 Input (16xC13) WW Monitored PDU	D9N45A
HP 4.9kVA 208 Volt L6-30 Input (12xC13) NA/JP Monitored PDU	G9Z05A
HP 7.3kVA 230 Volt IEC309 32A Input (12xC13) INTL Monitored PDU	G9Z06A
HP 4.9kVA 208 Volt L6-30 Input (20xC13/4xC19) NA/JP Monitored PDU	D9N47A
HP 7.3kVA 230 Volt IEC309 32A Input (20xC13/4xC19) INTL Monitored PDU	D9N48A
HP 8.6kVA 208 Volt L15-30 3-Phase Input (18xC13/3xC19) NA/JP Monitored PDU	D9N51A
HP 5.7kVA 208 Volt L21-20 3-Phase Input (18xC13/3xNEMA 5-20R) NA/JP Monitored PDU	D9N52A
HP 8.6kVA 208 Volt L21-30 3-Phase Input (20xC13/3xC19/3xNEMA 5-20R) NA/JP Monitored PDU	D9N53A
HP 11kVA 400 Volt IEC309 16A 3-Phase Input (18xC13/3xC19) INTL Monitored PDU	D9N55A
HP 8.3kVA 208 Volt CS8265C Input (30xC13/3xC19) NA Monitored PDU	D9N49A
HP 7.3kVA 230 Volt IEC309 32A Input (32xC13/4xC19) INTL Monitored PDU	D9N50A
HP 11kVA 400 Volt IEC309 16A 3-Phase Input (30xC13/3xC19) INTL Monitored PDU	D9N57A
HP 14.4kVA 208 Volt CS8365C 3-Phase Input (12xC13/12xC19)NA Monitored PDU	D9N58A
HP 16.6kVA 400 Volt IEC309 30A 3-Phase Input (30xC13/3xC19) NA Monitored PDU	D9N61A
HP 16.6kVA 400 Volt IEC309 30A 3-Phase Input (12xC13/12xC19) NA Monitored PDU	D9N62A
HP 17.3kVA 208 Volt IEC309 60A 3-Phase Input (24xC13/3xC19) NA/JP Monitored PDU	D9N54A
HP 17.3kVA 208 Volt IEC309 60A 3-Phase Input (12xC13/12xC19) NA/JP Monitored PDU	D9N59A
HP 17.3kVA 208 Volt IEC309 60A 3-Phase Watertight Input (12xC13/12xC19) NA/JP Monitored PDU	G9Z07A
HP 19.9kVA 480 Volt 3-Phase (30 Outlet) NA Monitored PDU	D9N63A
HP 22kVA 400 Volt IEC309 32A 3-Phase Input (30xC13/3xC19) INTL Monitored PDU	D9N56A
HP 22kVA 400 Volt IEC309 32A 3-Phase Input (12xC13/12xC19) INTL Monitored PDU	D9N60A
HP 22kVA 400 Volt IEC309 32A 3-Phase Watertight Input (12xC13/12xC19) INTL Monitored PDU	G9Z08A
HP Environmental Sensor for Remote Monitored and Managed PDUs	E2D53A
<b>NOTE:</b> Please see the <a href="#">HP Monitored Power Distribution Units QuickSpecs</a> for information on additional options and product specifications.	
<b>HP Intelligent Power Distribution Units (iPDU)</b>	
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 17.3kVA 48A Three Phase NA/JP Core Intelligent Modular Power Distribution Unit	AF523A
HP 11.4kVA 16A 415V Three Phase L22-20 NA Core Intelligent Power Distribution Unit	AF900A
HP 17.3kVA 24A 415V Three Phase IEC309 NA Core Intelligent Power Distribution Unit	AF901A
HP 7.3kVA 32A Single Phase INTL Core Intelligent Modular Power Distribution Unit	AF525A
HP 11kVA 16A Three Phase INTL Core Intelligent Modular Power Distribution Unit	AF526A
HP 22kVA 32A Three Phase INTL Core Intelligent Modular Power Distribution Unit	AF527A
HP 17.3kVA 48A 208V Three Phase 12 Outlet Core NA/JP Intelligent Power Distribution Unit	AF535A
HP 17.3kVA 24A 415V Three Phase 12 Outlet Core NA/JP Intelligent Power Distribution Unit	AF537A
HP 22kVA 32A 400V Three Phase 12 Outlet Core INTL Intelligent Power Distribution Unit	AF538A
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

### Additional Options

HP 14.4kVA 40A Three Phase NA/JP Intelligent Modular Power Distribution Unit	AF533A
HP 7.3kVA 32A Single Phase INTL Intelligent Modular Power Distribution Kit	AF534A
HP 5xC13 Intelligent PDU Extension Bar G2 Kit	AF547A
HP 5xC13 Outlets Power and UID LEDs Pair Standard Extension Bar	AF528A

**NOTE:** Please see the [HP Intelligent Power Distribution Units QuickSpecs](#) for information on additional options and product specifications.

#### HP Managed Power Distribution Units (maPDU)

HP 2.8kVA 120 Volt L5-30 Input (24x NEMA 5-20) NA/JP Managed PDU	H8B48A
HP 3.6kVA 200-240 Volt Detachable C20 Input (7xC13/1xC19) WW Managed PDU	H8B49A
HP 4.9kVA 208 Volt L6-30 Input (20xC13/4xC19) NA/JP Managed PDU	H8B50A
HP 7.3kVA 200-240 Volt IEC309 32A Input (20xC13/4xC19) INTL Managed PDU	H8B51A
HP 8.6kVA 208 Volt L15-30 3 Phase Input (18xC13/6xC19) NA/JP Managed PDU	H8B52A
HP 8.6kVA 208 Volt L21-30 3 Phase Input (20xC13/3xC19/1x NEMA 5-20) NA/JP Managed PDU	H8B53A
HP 11kVA 400 Volt IEC309 16A 3 Phase Input (21xC13/3xC19) INTL Managed PDU	H8B54A
HP 14.4kVA 208V CS8365C 3 Phase Input (12xC13/12xC19) NA/JP Managed PDU	H8B55A
HP 17.3kVA 208V IEC309 60A 3 Phase Input (12xC13/12xC19) NA/JP Managed PDU	H8B56A

**NOTE:** Please see the [HP Managed Power Distribution Units \(maPDU\) QuickSpecs](#) for information on additional options and product specifications.

**NOTE:** To learn more, please visit the [HP Uninterruptible Power Systems \(UPS\) web page](#).

#### HP Rack Mount Consoles, KVM Switches, and Keyboards

#### HP Location Discovery Services

HP Location Discovery Services LCD8500 Kit	TL052A
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#### HP Rack Mount Consoles

HP LCD8500 1U US Rackmount Console Kit	AF630A
HP LCD8500 1U UK Rackmount Console Kit	AF631A
HP LCD8500 1U DE Rackmount Console Kit	AF632A
HP LCD8500 1U FR Rackmount Console Kit	AF633A
HP LCD8500 1U JP Rackmount Console Kit	AF642A
HP LCD8500 1U RU Rackmount Console Kit	AF643A
HP LCD8500 1U INTL Rackmount Console Kit	AF644A
HP LCD8500 1U US TAA Rackmount Console Kit	AF645A
HP TFT7600 G2 KVM Console Rackmount Keyboard JP Monitor	AZ882A

#### HP KVM Switches

HP 0x1x8 G3 KVM Console Switch	AF651A
HP 0x2x16 G3 KVM Console Switch	AF652A
HP TAA 0x2x16 G3 KVM Console Switch	AF653A
HP USB Remote Access Key for G3 KVM Console Switches	AF650A
HP KVM Console USB Interface Adapter	AF628A
HP 0x2x16 KVM Server Console Switch G2 with Virtual Media CAC Software	AF618A
HP 0x2x32 KVM Server Console Switch G2 with Virtual Media CAC Software	AF619A
HP KVM Console USB 2.0 Virtual Media CAC Interface Adapter	AF629A
HP 1x4 USB/PS2 KVM Console Switch	AF611A
HP 1x1Ex8 KVM IP Console Switch G2 with Virtual Media CAC Software	AF620A
HP 2x1Ex16 KVM IP Console Switch G2 with Virtual Media CAC Software	AF621A
HP 4x1Ex32 KVM IP Console Switch G2 with Virtual Media CAC Software	AF622A

**NOTE:** To learn more, please visit the [HP KVM Switches web page](#).

#### HP USB Keyboard and Mouse

### Additional Options

HP USB BFR with PVC Free US Keyboard/Mouse Kit	631341-B21
HP USB BFR with PVC Free UK Keyboard/Mouse Kit	631344-B21
HP USB BFR with PVC Free FR Keyboard/Mouse Kit	631346-B21
HP USB BFR with PVC Free ES Keyboard/Mouse Kit	631348-B21
HP USB BFR with PVC Free DE Keyboard/Mouse Kit	631358-B21
HP USB BFR with PVC Free JP Keyboard/Mouse Kit	631360-B21
HP USB BFR with PVC Free IT Keyboard/Mouse Kit	631362-B21
HP USB BFR with PVC Free CN Keyboard/Mouse Kit	631364-B21
HP USB BFR with PVC Free AE Keyboard/Mouse Kit	638212-B21
HP USB BFR with PVC Free RU Keyboard/Mouse Kit	638214-B21
HP USB BFR with PVC Free IN Keyboard/Mouse Kit	672097-D63
HP USB BFR with PVC Free AP-Intl Keyboard/Mouse Kit	672097-373
HP USB BFR with PVC Free Intl Keyboard/Mouse Kit	672097-B33
HP USB BFR with PVC Free PT Keyboard/Mouse Kit	672097-133
HP USB BFR with PVC Free TR Keyboard/Mouse Kit	672097-143
HP USB BFR with PVC Free CZ Keyboard/Mouse Kit	672097-223
HP USB BFR with PVC Free FI Keyboard/Mouse Kit	672097-353
HP USB BFR with PVC Free SE Keyboard/Mouse Kit	672097-103
HP USB BFR with PVC Free CH Keyboard/Mouse Kit	672097-113
HP USB BFR with PVC Free KR Keyboard/Mouse Kit	672097-KD3
HP 1U INT Rackmount Keyboard with USB	AG086A
HP 1U US Rackmount Keyboard with USB	AG072A

**NOTE:** Please see the [HP USB Keyboard and Mouse QuickSpecs](#) for information on additional options and product specifications.

#### HP Other Options

HP Rack LED Light Kit	BW939A
HP Kit LCD 1.83m Latch Display Port Cable	G7T29A

### HP Uninterruptible Power Systems (UPS)

#### HP DirectFlow Three Phase UPS Power Unit (1U UPS)

HP R12000 DirectFlow - 1U Rackmount Uninterruptible Power System	G9Y75A
HP R12000 DirectFlow - POD 1U Rackmount Uninterruptible Power System	AF478A

#### Input/Output Module Options for 1U UPS

HP 32A 400-415 Volt Three Phase INTL R12000 DirectFlow UPS IEC309 Input/Output Module	AF488A
HP 30A 400-415 Volt Three Phase NA R10000 DirectFlow UPS IEC309 Input/Output Module	AF489A
HP 32A 380 Volt Three Phase China R12000 DirectFlow UPS Unterminated Input/Output Module	AF490A
HP 30A 480 Volt Three Phase NA R12000 DirectFlow UPS L22-30 Input/Output Module	AF491A
HP 30A 480 Volt Three Phase NA R12000 DirectFlow UPS IEC309 Input/Output Module	AF492A
HP 30A 400-415 Volt Three Phase NA R12000 DirectFlow UPS IEC309 Input/Output Module	G9Y76A

#### Power Unit (2U UPS)

HP R18000 DirectFlow - 2U Rackmount Uninterruptible Power System	AF479A
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#### Input/Output Module Options for 2U UPS

HP 32A 400-415 Volt Three Phase INTL R18000 DirectFlow UPS IEC309 Input/Output Module	AF483A
HP 30A 380 Volt Three Phase China R18000 DirectFlow UPS Unterminated Input/Output Module	AF485A
HP 30A 480 Volt Three Phase NA R18000 DirectFlow UPS IEC309 Input/Output Module	AF486A
HP 30A 480 Volt Three Phase NA R18000 DirectFlow UPS IEC309 Input/Output Module	AF487A
HP 30A 400 Volt Three Phase NA R18000 DirectFlow UPS IEC309 Input/Output Module	D9Q02A
HP 30A 400-415V Three Phase NA R18000 DirectFlow UPS 1:1 IEC309 Input/Output Module	AF484A

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

### Additional Options

#### Battery Pack Options

HP DirectFlow UPS - 1U Rackmount Lithium-ion Battery Pack	AF480A
HP DirectFlow UPS - 3U Rackmount VRLA Battery Pack	AF482A
HP WW DirectFlow Secondary Battery Cable	AF497A

**NOTE:** Please see the [HP DirectFlow Three Phase Uninterruptible Power System QuickSpecs](#) for information on additional options and product specifications.

#### HP Tower UPS

##### HP T750 G4 UPS Models

HP T750 G4 NA/JP Uninterruptible Power System	J2P85A
HP T750 G4 INTL Uninterruptible Power System	J2P88A

##### HP T1000 G4 UPS Models

HP T1000 G4 NA/JP Uninterruptible Power System	J2P86A
HP T1000 G4 INTL Uninterruptible Power System	J2P89A

##### HP T1500 G4 UPS Models

HP T1500 G4 NA/JP Uninterruptible Power System	J2P87A
HP T1500 G4 INTL Uninterruptible Power System	J2P90A

#### HP Rack/Tower UPS

##### HP R/T2200 G4 UPS Models

HP R/T2200 G4 NA/JP Uninterruptible Power System	J2R00A
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##### HP R/T3000 G4 UPS Models

HP R/T3000 G4 Low Voltage NA/JP Uninterruptible Power System	J2R01A
HP R/T3000 G4 High Voltage NA/JP Uninterruptible Power System	J2R02A
HP R/T3000 G4 High Voltage INTL Uninterruptible Power System	J2R04A

##### HP 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

##### R1500 G4 Models

HP R1500 G4 NA Uninterruptible Power System	J2Q99A
HP R1500 G4 JP/TWN Uninterruptible Power System	J2R05A
HP R1500 G4 INTL Uninterruptible Power System	J2R03A

##### R7000 Uninterruptible Power System (UPS)

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

##### R5000 Uninterruptible Power System (UPS)

HP R5000 3U L630 High Voltage NA/JP Uninterruptible Power System	AF460A
HP R5000 3U IEC309-32A High Voltage INTL Uninterruptible Power System	AF461A

#### HP UPS Options

HP R/T2200 G4 Extended Runtime Module	J2R09A
HP R/T3000 G4 Extended Runtime Module	J2R10A
HP 2U Rack/Tower UPS Shipping Kit	L4Q11A

**NOTE:** Please see the [HP Line Interactive Single Phase UPS QuickSpecs](#) for information on additional options and product specifications.

**NOTE:** To learn more, please visit the [HP Uninterruptible Power Systems \(UPS\) web page](#).

#### HP USB and SD Options

#### HP Enterprise Mainstream Flash Media Kits for Memory Cards

HP 32GB microSD Enterprise Mainstream Flash Media Kit	700139-B21
HP 8GB microSD Enterprise Mainstream Flash Media Kit	726116-B21
HP 8GB USB Enterprise Mainstream Flash Media Drive Key Kit	737953-B21
HP Dual 8GB microSD Enterprise Midline USB Kit	741279-B21



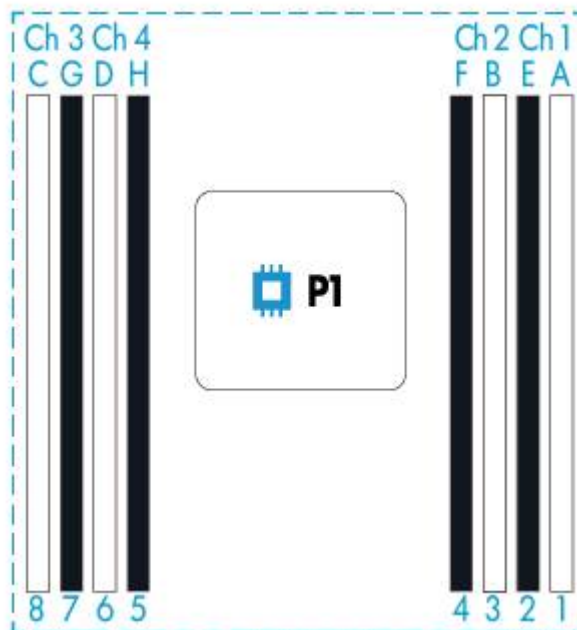
### *Additional Options*

<b>HP Care Pack Services</b>	<b>Installation &amp; Start-up Services</b>	
	HP Installation DL320e/DL120 Service	U6F51E
	HP Startup DL320e/DL120 Service	U6F53E
	<b>Foundation Care</b>	
	HP 3 year 24x7 DL120 Gen9 Foundation Care Service	U7VP0E
	HP 3 year 24x7 with Defective Media Retention DL120 Gen9 Foundation Care Service	U7VP1E
	HP 3 year 24x7 w/Comprehensive Defective Material Retention DL120 Gen9 Foundation Care Service	U7VP2E
	<b>Proactive Care</b>	
	HP 3 year 24x7 DL120 Gen9 Proactive Care Service	U7VR7E
	HP 3 year 24x7 with Defective Media Retention DL120 Gen9 Proactive Care Service	U7VR8E
	HP 3 year 24x7 w/CompDefectiveMaterialRetention DL120 Gen9 Proactive Care Service	U7VR9E

### Memory

**Memory Subsystem Architecture** Each Intel® Xeon® E5-2600v3 family processor socket contains four memory channels per installed processor with one DIMM per channel for a total of four (4) DIMMs or a grand total of eight (8) DIMMs for the server.

### Memory Population guidelines



#### General Memory Population Rules and Guidelines:

- Place the DIMMs with the highest number of ranks in the white slot when mixing DIMMs of different ranks on the same channel.
- Do not mix RDIMMs or LRDIMMs.
- Quad rank RDIMMs are not supported in HP ProLiant DL120 Gen9 servers.
- Quad rank LRDIMMs are capable of up to two DIMMs per channel.
- 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, memory configuration, and processor model.
- The maximum memory capacity is a function of the memory type and number of installed processors.
- To realize the performance memory capabilities listed in this document, HP SmartMemory is required.

### Intel Gen9 Supported Memory Bandwidth for HP ProLiant Gen9 Intel® Xeon®E5-2600v3 Series Processor Family

#### Memory Bandwidth and Capacity

[DIMM Type]	Registered DIMMs (RDIMMs)						Load Reduced (LRDIMMs)	
	Single Rank		Dual Rank				Dual Rank	
DIMM Rank	4GB	8GB	8GB	16GB				
DIMM Capacity	4GB	8GB	8GB	16GB				16GB
Voltage	Std Voltage 1.2V							
<b>SLOTS THAT CAN BE POPULATED</b>								
8 slot servers	8	8					8	
MAXIMUM CAPACITY (GB)	32	64					128	128
1 DIMM Per Channel	2133	2133					2133	
2 DIMM Per Channel	2133	2133					2133	

## Memory

### DIMM slot and configuration diagram

### DIMM slot and configuration diagrams

### Basic memory slot & population diagram

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

		CPU 1		CPU 2	
		Slot #	population order	Slot #	population order
Chnl 1	1	A1		1	A1
	2	E2		2	E2
		CPU 1		CPU 2	
		Slot #	population order	Slot #	population order
Chnl 2	3	B3		3	B3
	4	F4		4	F4
		CPU 1		CPU 2	
		Slot #	population order	Slot #	population order
Chnl 4	5	H5		5	H5
	6	D6		6	D6
		CPU 1		CPU 2	
		Slot #	population order	Slot #	population order
Chnl 3	7	G7		7	G7
	8	C8		8	C8

### Memory Speed by Processor Model

Processor Models	Supported Memory Speeds
E5-2603v3, E5-2609v3,	1600MHz
E5-2620v3, E5-2630v3, E5-2640v3, E5-2623v3, E5-2630Lv3,	1866MHz
E5-1650v3, E5-1620v3, E5-2650v3, E5-2650Lv3, E5-2698v3, E5-2695v3, E5-2699v3, E5-2660v3,	2133MHz

### Standard and Maximum Memory Capacity (Pre-configured Models)

Pre-Configured Models	Standard Memory	Maximum Memory Plus Optional Memory	Standard Memory Replaced with Optional Memory
E5-2603v3,	4GB (1x4GB)	228GB (7x32GB, 1x4GB)	256GB (8x32GB)
E5-2630v3,	8GB (1x8GB)	232GB (7x32GB, 1x8GB)	256GB (8x32GB)

### DDR4 memory options part number decoder

**NOTE:** Capacity references are rounded to the common gigabyte (GB) values.

- 2GB = 2,048MB
- 4GB = 4,096MB
- 8GB = 8,192MB
- 16GB = 16,384MB
- 32GB = 32,768MB
- 64GB = 65,536MB

## Memory

HP gggggg eRxff DDR4 wwwwm a bb-ccd Kit

**Capacity**  
 - 4GB  
 - 8GB  
 - 16GB  
 - 32GB  
 - 64GB

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

**Data Width**  
 - x8 = 8  
 - x4 = 4

**Memory Type**

**Module Bandwidth**  
 - 17000MB/s (DDR4-2133)

**Consistency**  
 - R = 15-15-15

**DRAM Type**  
 R = Registered  
 B = Load Reduced

**Special Descriptor**  
 (if Needed)  
 HS = Heat spreader

### Storage



1-8

8 x SFF SATA/SAS/SSD Hot Pluggable Hard Drive Bays



1-4

4 x LFF SATA/SAS/SSD Hot Pluggable Hard Drives Bays

### Technical Specifications

<b>System Unit</b>	<b>Dimensions</b>	8 SFF - 1.69 x 17.11 x 23.90 inches (4.29 x 43.46 x 60.76 cm) (H x W x D)
		4 LFF - 1.69 x 17.11 x 23.90 inches (4.29 x 43.46 x 60.76 cm)
	<b>Weight</b>	Maximum: 37.44 lb (17kg)
	(approximate)	(all hard drives, power supplies, and processors installed) Minimum: 19.82 lb (9kg) (one hard drive, power supply, and processor installed)
<b>Input Requirements</b>	<b>Input</b>	Rated Line Voltage 100 to 240 VAC
	<b>Rated Input Current</b>	For 550W Power Supply: 6.7 A (at 100 VAC) 3.3 A (at 200 VAC)
	<b>Rated Input Frequency</b>	47 to 63 Hz
	<b>Rated Input Power</b>	For 550 W Power Supply: < 670 W (at 100 VAC), < 660 W (at 200 VAC),
<b>BTU Rating</b>	Maximum	For 550 W Power Supply: 2201 BTU/hr (at 100 VAC), 2153 BTU/hr (at 200 VAC)
<b>Power Specifications</b>		To review typical system power ratings use the Power Advisor which is available via the online tool located at URL: <a href="http://www.hp.com/go/proliant-energy-efficient">http://www.hp.com/go/proliant-energy-efficient</a> or <a href="http://www.hp.com/go/hppoweradvisor">http://www.hp.com/go/hppoweradvisor</a> - Click on the system of interest. Example: DL120 Gen9- Follow the instructions of the next screens.
<b>Power Supply Output</b>	<b>Rated Steady-State Power</b>	For 550 W Power Supply: 550 W (at 100 VAC), 550 W (at 200 VAC),
	<b>Maximum Peak Power</b>	For 550 W Power Supply: 550 W (at 100 VAC), 550 W (at 200 VAC),
<b>System Inlet Temperature</b>	<b>Standard Operating Support</b>	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 20°C/hr (36°F/hr). The upper limit and rate of change may be limited by the type and number of options installed. System performance during standard operating support may be reduced if operating with a fan fault or above 30°C (86°F).
	<b>Extended Ambient Operating Support</b>	For approved hardware configurations, the supported system inlet range is extended to be: 5° to 10°C (41° to 50°F) and 35° to 40°C (95° to 104°F) at sea level with an altitude derating of 1.0°C per every 175 m (1.8°F per every 574 ft) above 900 m (2953 ft) to a maximum of 3048 m (10,000 ft). The approved hardware configurations for this system are listed at the URL: <a href="http://www.hp.com/servers/ashrae">http://www.hp.com/servers/ashrae</a> .
		System performance may be reduced if operating in the extended ambient operating range or with a fan fault.
<b>Relative Humidity</b>	<b>Non-operating</b>	-30° to 60°C (-22° to 140°F). Maximum rate of change is 20°C/hr (36°F/hr).
	<b>Operating</b>	Minimum to be the higher (more moisture) of -12°C (10.4°F) dew point or 8% relative humidity. Maximum to be the lower (less moisture) of 24°C (75.2°F) dew point or 90% relative humidity.
	(non-condensing)	5% to 95% relative humidity (Rh), 38.7°C (101.7°F) maximum wet bulb temperature, non-condensing.
<b>Altitude</b>	<b>Operating</b>	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).

**NOTE:** Supports A3 extended ambient.

### Technical Specifications

	Non-operating	9144 m (30,000 ft). Maximum allowable altitude change rate is 457.2 m/min (1500 ft/min).
<b>Acoustic Noise</b>		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).
	<b>Idle</b>	
	L WAd	Entry 4.9 B Base 5.4 B
	L pAm	Entry 33.0 dBA Base 35.0 dBA
	<b>Operating</b>	
	L WAd	Entry 5.7 B Base 5.8 B
	L pAm	Entry 38.0 dBA Base 39.0 dBA
<b>Emissions Classification (EMC)</b>	FCC Rating	Class A
	Normative Standards	CISPR 22; EN55022; EN55024; FCC CFR 47, Pt 15; ICES-003; CNS13438; GB9254; K22;K24; EN 61000-3-2; EN 61000-3-3; EN 60950-1; IEC 60950-1

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

<b>HP Dynamic Smart Array B140i Controller</b>	Number of PCI links	Four
	PCI link rate	4 Gb/s
	Storage protocol support	SATA
	SAS/SATA peak data transfer rate	6 Gb/s
	Number of SAS/SATA links	10 links
	SAS/SATA connectivity	2x4 connectors; 2x1 connectors
	Expander support	No
	Drives supported (max)	Up to 10 Internal Drives
	RAID support	0, 1, 10, 5 SATA
	Software management	HP SSA, SMH, SIM
	Warranty	Server warranty
	HP Secure Encryption license	Not Supported
	HP SmartCache License	Not Supported
	HP Smart Storage Administrator	Supported

HP Embedded Dual Network Interface 10Base-T/100Base-TX/1000Base-TX

### Technical Specifications

<b>Port 361i Adapter</b>	<b>Compatibility</b>	IEEE 802.3 10Base-T IEEE 802.3ab 1000Base-T IEEE 802.3u 100Base-TX IEEE 1588, IEEE 802.1AS IEEE 802.3az - Energy Efficient Ethernet (EEE)		
	<b>Data Transfer Method</b>	PCI Express v 2.0, 5.0 GT/s, two lanes (x2)		
	<b>Controller</b>	Intel I350 Powerville		
	<b>Network Transfer Rate</b>	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 and Full-Duplex)	1000Mb/s per port, 4000 Mb/s combined	
		<b>Connector</b>	Two RJ-45	
	<b>Cable Support</b>	10 Base-T	Categories 3, 4 or 5 UTP; up to 328 ft (100 m)	
10/100/1000 Base-TX		Category 5 or higher UTP; up to 328 ft (100 m)		

<b>Environment-friendly Products and Approach</b>	<b>End-of-life Management and Recycling</b>	<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: <a href="http://www.hp.com/go/green">http://www.hp.com/go/green</a>. To recycle your product, please go to: <a href="http://www.hp.com/go/green">http://www.hp.com/go/green</a> 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: <a href="http://www.hp.com/go/green">http://www.hp.com/go/green</a>. 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>
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### Summary of Changes

Date	Version History	Action	Description of Change
06/01/2015	From Version 5 to 6	Added	New Hard Drives were added to Core Options.  New options added to HP Power Supplies.  HP OneView LTUs added to HP Converged Infrastructure Management Software.  New RDX+ external backup options were added.
		Changed	Pre-configured Models section was revised.
		Removed	Obsolete SKUs were removed from QuickSpecs.
04/24/2015	From Version 4 to 5	Added	Added 813534-B21 and 813535-B21 to HP Power Supplies.
04/16/2015	From Version 3 to 4	Changed	PCIe slots was changed to "1 PCIe LP standard / up to 3 PCIe slots (optional)" for Entry models and CTO models.
03/30/2015	From Version 2 to 3	Added	Added HP Storage Options to Additional Options.  Added new Hard Drives to Core Options.  Added Optional Software to HP Storage Controllers.
		Changed	HP Processors, HP Memory, HP Hard Drives, HP Networking, and HP USB and SD Options were revised.
02/09/2015	From Version 1 to 2	Added	Added HP Insight Software section and Network controller sections.  Added new HP Drives, HP Disk Backup, and new G4 UPS models.
		Changed	HP Memory, HP Drives, HP Tape Backup, HP Rack Mount Consoles, KVM Switches, and Keyboards, and HP Uninterruptible Power Systems (UPS) sections were revised.



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