

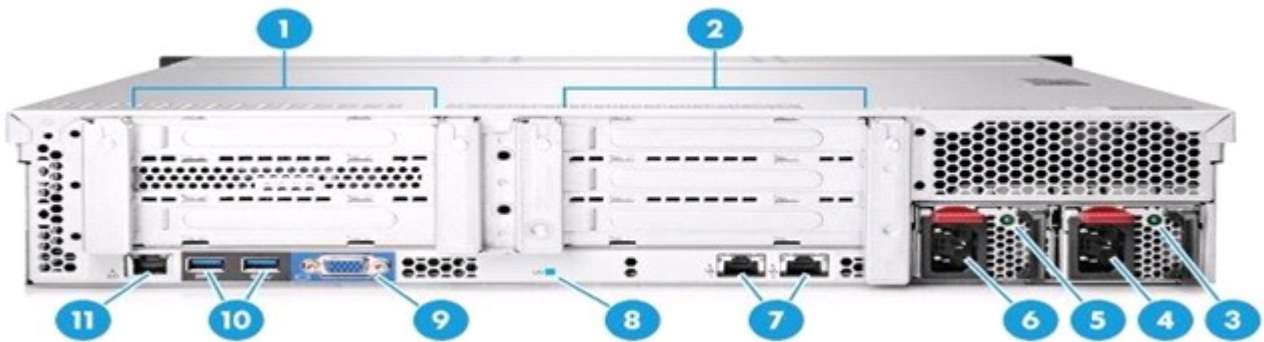
### Overview

The new standard for growing data center needs. Delivering an optimized 2U server, designed with the right balance of expandability, performance, reliability, and manageability—all in a new compact chassis. The ideal platform for SMBs and enterprises running applications, which need the right mix of compute and storage.



#### Front View

1. Access Panel ( Top Cover)
2. Power On/Standby button and system power LED
3. Health LED
4. NIC status LED
5. UID button/LED
6. USB 2.0 connector
7. Serial label pull tab
8. Fixed 8-bay SFF drive cage (box 3)
9. 8-bay SFF drive cage bay (box 2, for the second 8-bay SFF drive cage option)
10. HP Universal Media Bay (box 1, for the optical drive cage option)

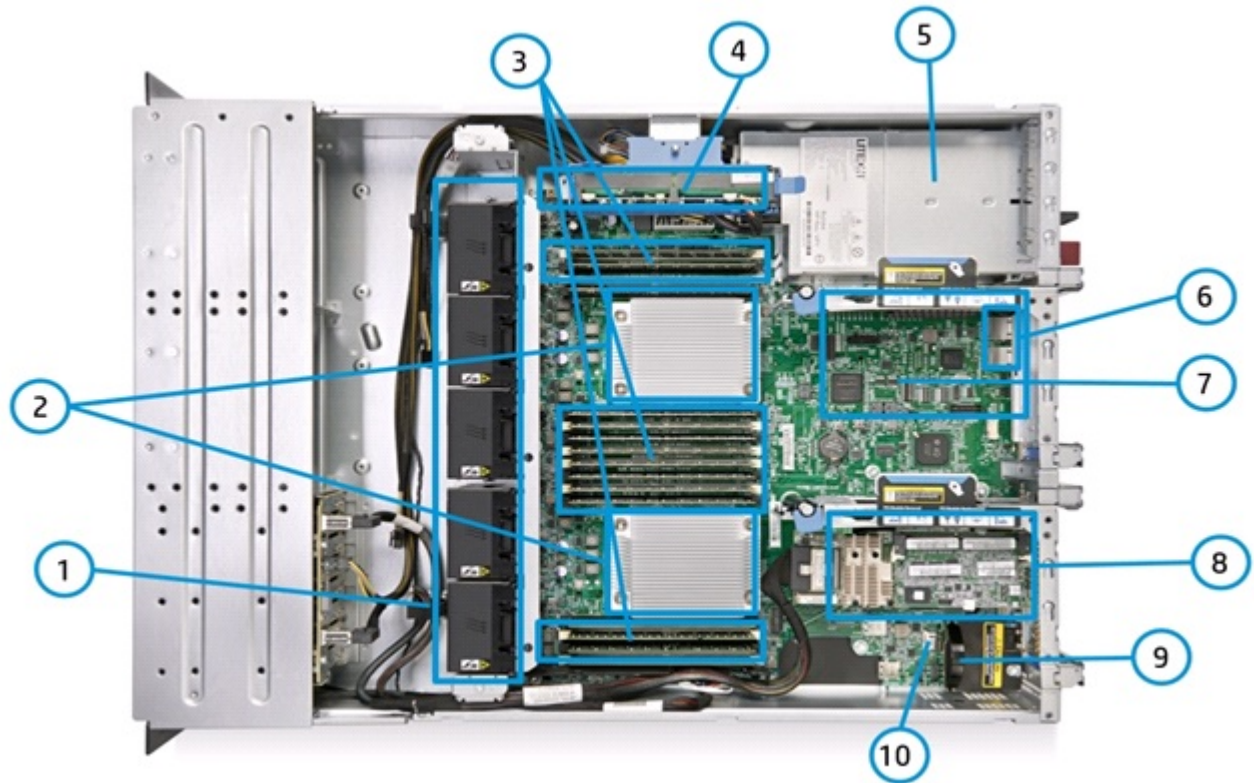


#### Rear view

1. PCIe3 slots 1-3 (primary, associated with processor 1)
2. PCIe3 slots 1-3 (secondary, associated with processor 2)
3. Power Supply 2 LED (Optional)
4. Power Supply 2 Power Connector (Optional)
5. Power Supply 1 LED (Optional)
6. Power Supply 1 Power Connector (Optional)
7. NIC connectors
8. UID LED
9. Video Connector
10. USB 3.0 Connectors

### Overview

11. Dedicated iLO connector (optional)



### Internal view

1. Fan cage shown with 5 Hot-swap fans (for 2P Redundancy)
2. 2 Processors, heatsink showing, with HP Smart Socket Guide
3. DDR4 DIMM slots. Shown fully populated in 16 slots (8 per processor)
4. Optional HP Smart Storage Battery
5. (Under) HP Entry level Power supplies
6. Embedded 2x1Gbe NIC
7. Optional PCIe3 slots 1-3 (Secondary, associated with processor 2)
8. Optional PCIe3 slots 1-3 (Primary, associated with processor 1)
9. iLO module connector
10. MicroSD card slot

### Standard Features

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

Intel® Xeon® processor E5-2600 v3 product family is designed to deliver the best combination of performance, built-in capabilities, and cost-effectiveness. One (or two) of the following Intel® Xeon® E5-2600 v3 processors based on the model

**Processor**  
 One of the following depending on Model

Model	CPU frequency	Cores	L3 Cache	Power	QPI	DDR4 Hz
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	25MB	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	25MB	55W	8.0GT/s	1866
E5-2620v3	2.4GHz	6	15MB	85W	8.0GT/s	1866
E5-2609v3	1.9GHz	6	15MB	85W	8.0GT/s	1600
E5-2603v3	1.6GHz	6	15MB	85W	6.4GT/s	1600

**Chipset**  
 One of the following depending on Model

Intel® C610 Series Chipset  
 Intel® E5-2600v3 Processor Family

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

**On System Management Chipset**  
 One of the following depending on Model

HP iLO (Firmware HP iLO4 2.0) 2GB NAND

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

**Memory**  
 One of the following depending on Model

Type  
 HP SmartMemory  
 DDR4 Registered (RDIMM) or Load Reduced (LRDIMM)  
 DIMM Slots Available 16 (8 DIMM slots per processor, 4 channels per processor, 2 DIMMs per channel)  
 Maximum Capacity (LRDIMM) 512GB (16 x 32GB LRDIMM @2133MHz)  
 Maximum Capacity (RDIMM) 512GB (16 x 32GB LRDIMM @2133MHz)

**NOTE:** 32GB RDIMM will be available in Nov 2014.

**Memory Protection**  
 One of the following depending on Model

Advanced ECC Advanced ECC uses single device data correction to detect and correct single and all multibit error that occurs within a single DRAM chip.  
 Online spare Memory online spare mode detects a rank that is degrading and switches operation to the spare rank.

### Standard Features

#### Expansion Slots

Primary Riser (Optional)	Expansion Slots #	Technology	Bus Width	Connector Width	Bus Number	Form Factor	Notes
	1	PCIe 3.0	x8	x8		Full Height, Full Length Slot	
	2	PCIe 3.0	x8	x8		Full-height, half-length Slot	
	3	PCIe 3.0	x8	x8		Full-height, half-length Slot	

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

Primary Riser (Optional)	Expansion Slots #	Technology	Bus Width	Connector Width	Bus Number	Form Factor	Notes
	1	PCIe 3.0	x16	x16		Full Height, Full Length Slot	
	2	PCIe 3.0	x8	x8		Full-height, half-length Slot	

**NOTE:** This riser is mandatory for installing flexibleLOMs.

**NOTE:** FlexibleLOM riser kit will be available in November 2014

Riser with Flexible LOM (Optional)	Expansion Slots #	Technology	Bus Width	Connector Width	Bus Number	Form Factor	Notes
	1	PCIe 3.0	x8	x8		Full Height, Full Length Slot	
	2	PCIe 3.0	x8	x8		Full-height, half-length Slot	
	3	Flexible LOM					

**NOTE:** Flexible LOM riser kit will be available in Nov 2014

**NOTE:** This riser is mandatory for installing Flexible LOMs & has to be installed in Primary riser slot.

**NOTE:** When populating slots on second riser, a second processor must be installed.

Storage Controller One of the following depending on Model	Entry Models	HP Dynamic Smart Array B140i Controller
		<b>NOTE:</b> Provides support for up to 10 SATA drives and data transmission speeds up to 6Gb/s
	Base Models	HP Dynamic Smart Array B140i Controller HP H240 FIO Smart Host Bus Adapter
		<b>NOTE:</b> H240 Provides support for up to 8 SAS/SATA drives, data transmission speeds up to 12Gb/s and supports RAID 0, 1 & 5.
	Storage Models	HP Flexible Smart Array P840/4G FIO Controller
		<b>NOTE:</b> P840 Provides support for up to 16 SAS/SATA drives, data transmission speeds up to 12Gb/s.
Performance Models	HP Flexible Smart Array P840/4G FIO Controller	
	<b>NOTE:</b> P840 Provides support for up to 16 SAS/SATA drives, data transmission speeds up to 12Gb/s.	

### Standard Features

<b>Internal Storage Devices</b> One of the following depending on Model	Optical Drives	Optional: DVD-ROM, DVD-RW <b>NOTE:</b> This option available with all 8SFF drive bay models only.
	Hard Drives	None ship standard 8 SFF drive bays total with Optical Bay Optional: +8SFF drive bay (total of 16SFF drive bays) <b>NOTE:</b> The Optical Drive bay is not available with +8SFF drive bay optional upgrade.
	Hard Drive Bays	8 LFF drive bays total without Optical Bay <b>NOTE:</b> Optical drive is not supported on LFF Chassis 12 LFF drive bays total without Optical Bay Up to 4 Non-hot plug SATA 3.5" drives

<b>Maximum Internal Storage</b> One of the following depending on Model		<b>CAPACITY</b>	<b>CONFIGURATION</b>
	Hot Plug SFF SAS	19.2TB	16 x 1.2TB (with 16SFF drive cage)
	Hot Plug SFF SATA	16TB	16 x 1TB (with 16SFF drive cage)
	Hot Plug LFF SAS	72.0TB	12 x 6TB (with 12LFF drive cage)
	Hot Plug LFF SATA	72.0TB	12 x 6TB (with 12LFF drive cage)
	Hot Plug SFF SAS SSD	25.6TB	16 x 1.6TB (with 16SFF drive cage)
	Hot Plug SFF SATA SSD	25.6TB	16 x 1.6TB (with 16SFF drive cage)
	Hot Plug LFF SATA SSD	19.2TB	12 x 1.6TB (with 12LFF drive cage)
	Non-Hot Plug LFF SATA	4.8TB	8 x 600GB (with 8LFF drive cage)

### Power Supply

One of the following depending on Model

HP 550W FIO Power Supply

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.

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 [www.hp.com/go/hppoweradvisor](http://www.hp.com/go/hppoweradvisor).

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

### Standard Features

#### System Fans

One of the following depending on Model

1P model

#### Non-redundant

2 fans

#### Redundant

4 fans

2P model

#### Non-redundant

4 fans

#### Redundant

5 fans

**NOTE:** NOTE: Customers may separately purchase redundant fans with the 725571-B21 option kit. Additional fans (two) are also included in -B21 processor option kits when upgrading from one processor to two processors.

#### Interfaces

Video

1 (Vaux Support)

LOM Network Ports

2 x 1GbE ports

HP iLO Remote Management Network Port

1 GbE (Optional)

SD Slot

1 Micro SD

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

USB

Up to 5 total: up to 1 USB 2.0 front (optional 3.0 upgrade), 1 USB 3.0 rear, 1 USB 3.0 internal (secure)

**NOTE:** 8LFF & 12LFF drive cage models with Quick release latch rack ears supports front USB 3.0

#### Operating Systems and Microsoft Windows Server

#### Virtualization Software Red Hat Enterprise Linux (RHEL)

#### Support for ProLiant SUSE Linux Enterprise Server (SLES)

#### Servers

Oracle Solaris

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/DL180Gen9>

#### Upgradeability

One of the following depending on Model

Upgradeable to two processors (24 cores)

Up to 16 DIMM slots available

**NOTE:** To take advantage of DIMMs 9-16, a second processor must be installed

FlexibleLOM slot for 1Gigabit or 10 Gigabit Ethernet or QDR/FDR InfiniBand networking options

**NOTE:** Flexible LOM will be available in Nov 2014

Optional 2 slot riser (x16, x8)

**NOTE:** To take advantage of the additional 2 PCI slot upgrade, a second processor must be installed.

Redundant Power Supply

**NOTE:** Redundant Power Supply will be available in Nov 2014.

Redundant Fan

Optical Drive (8 SFF/16 SFF only)

### 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/A4 <b>NOTE:</b> Supports A3 extended ambience, A4 extended ambience will be available in Nov 2014.
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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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### HP Server UEFI/Legacy ROM

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 UEFI FIO Setting (758959-B22) can be selected to configure the system in Legacy mode in the factory.

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### Form Factor

One of the following depending on Model

2U Rack form factor  
All models ship with Easy Install rails (Cable management arm optional).  
8 SFF Drive Bay Version:  
3.44 (8.75 cm) Height x 17.54" (44.55 cm) Width x 23.9" (60.70 cm) Length  
8 LFF Drive Bay Version:  
3.44 (8.75cm) Height x 17.54" (44.55 cm) Width x 23.9" (60.70 cm) Length  
12 LFF Drive Bay Version:  
3.44 (8.75cm) Height x 17.54" (44.55 cm) Width x 23.9" (60.70 cm) Length  
16 SFF Drive Bay Version:  
3.44 (8.75 cm) Height x 17.54" (44.55 cm) Width x 23.9" (60.70 cm) Length

### 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">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">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">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">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">www.hp.com/go/insightonline/info</a> .

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<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">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">www.hp.com/go/sim</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">www.hp.com/go/ProLiantSTK</a> or <a href="http://www.hp.com/go/powershell">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">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">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">www.hp.com/go/insightonline/info</a> .

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### Standard Features

#### Security

Power-on password  
Serial interface control  
Administrator's password  
TPM 1.2  
UEFI

#### 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

#### Embedded Management

##### iLO Essentials

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 [www.hp.com/go/iLO/essentials](http://www.hp.com/go/iLO/essentials).

##### iLO Scale-Out

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 for the DL160. 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 [www.hp.com/go/iLO/scale-out](http://www.hp.com/go/iLO/scale-out).

##### iLO Advanced

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 [www.hp.com/go/iLOADvanced](http://www.hp.com/go/iLOADvanced).

##### HP Insight Control

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

#### Server Management

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#### Rack and Power Infrastructure

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 [HP Rack and Power Infrastructure](http://www.hp.com/go/rackandpower).

### Optional Features

#### High Performance Clusters

HP Cluster Platforms are specifically engineered, factory-integrated large-scale ProLiant clusters optimized for High Performance Computing, with a choice of servers, networks and software. Operating system options include specially priced offerings for Red Hat Enterprise Linux and SUSE Linux Enterprise Server, as well as Microsoft Windows HPC Server. A Cluster Platform Configurator simplifies ordering. <http://www.hp.com/go/clusters>.

#### HPC Interconnects

**NOTE:** 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: <http://www.hp.com/techservers/clusters/ucp/index.html>

#### 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 turn a set of heterogeneous and disconnected physical disk drives in your servers and storage devices into a single pool of logical storage capacity.

**NOTE:** For more information available Storage Software including QuickSpecs, please see: [www.hp.com/go/storage/software](http://www.hp.com/go/storage/software).

#### 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 and BladeSystem**

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

#### **What HP ProLiant and BladeSystem Services can do for you**

HP ProLiant and BladeSystem Services can help you design, deploy, test, integrate, support, and manage IT and infrastructure solutions. This way, HP proposes services solutions that include more than just uplift of base warranty. You can get the support you need by choosing from one of a number of service packaged solutions we have designed to address wider set of customer support needs:

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

#### Optimized Care Package

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

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

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

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

##### **HP Installation and Startup for SIM (Systems Insight Manager)**

Provides for installation and configuration of the latest version of HP Systems Insight Manager, together with the installation and startup of HP Service Essentials Remote Support Pack

<http://h20195.www2.hp.com/v2/GetPDF.aspx/5982-4143EN.pdf>

##### **3-Year HP Critical Advantage**

Provides end-to-end infrastructure support solution for business critical applications running on virtualized/x86 infrastructures, enabling the customers to cost effectively build, operate, and continuously improve their IT environment

<http://h20195.www2.hp.com/V2/GetDocument.aspx?docname=4AA3-1772ENW>

**Additional Services:** Microsoft or Linux or VMware education courses + Facility & technology environmental assessment services + Energy Efficiency Design, Factory Express

#### Standard Care Package **Package that maintains high level of server availability**

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

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

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

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<http://h20195.www2.hp.com/v2/GetPDF.aspx/5982-4143EN.pdf>

##### **3-Year HP 6 hour Hardware Support Onsite Call-to-Repair Service**

Provides an IT manager with a team of support specialists who will quickly begin troubleshooting the system to help return the hardware to operating condition within 6 hours of the initial service request to the HP Global Solution Center

<http://h20195.www2.hp.com/V2/GetPDF.aspx/5981-6636ENN>

### Service and Support

**Additional Services** - Software OS (Microsoft, Linux (SUSE/Red Hat) & VMware Installation & Start Up, and Software Support; Install and Startup Services for Insight Control; Microsoft or Linux or VMware education courses; +30 Proactive Select Credits, Factory Express

#### Basic Care Package

**Delivers minimum recommended support service level**

##### HP ProLiant Server Hardware Installation

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

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

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

Provides for the deployment and basic configuration of HP Insight Control on HP ProLiant ML and DL series servers or HP BladeSystem servers.

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

**Additional Services:** Software OS (Microsoft, Linux (SUSE/Red Hat) & VMware Installation & Start Up and Software Support); +10 Proactive Select Credits, Factory Express

#### Insight Remote Support

The packages include HP Insight Remote Support that uses proven technology to deliver secure, reliable 24x7 remote monitoring, diagnoses, and problem resolution. It is available at no additional cost to all warranty, HP Care Pack Service, and service agreement customers.

#### For more information

To learn more on HP ProLiant servers and HP BladeSystem servers, please contact your HP sales representative or HP Authorized Channel Partner. Or visit:

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

### Pre-configured Models

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]	778452-B21	778453-B21	778454-B21	778455-B21
<b>Model Name</b>	HP ProLiant DL180 Gen9 E5-2603v3 1P 8GB-R B140i 4LFF NHP SATA 550W PS Entry Server	HP ProLiant DL180 Gen9 E5-2603v3 1P 8GB-R B140i 8LFF Hot Plug SATA 550W PS Entry Server	HP ProLiant DL180 Gen9 E5-2609v3 1P 8GB-R H240 8LFF SAS 550W PS Base Server	HP ProLiant DL180 Gen9 E5-2609v3 1P 8GB-R H240 8SFF SAS 550W PS Base Server
<b>Processor</b>	Intel® Xeon® E5-2603v3	Intel® Xeon® E5-2603v3	Intel® Xeon® E5-2609v3	
<b>Number of Processors</b>	One			
<b>Memory</b>	8GB (1x8GB Registered DIMMs, 1600 MHz)			
<b>Network Controller</b>	HP Ethernet 1Gb 2-port i350 Adapter			
<b>Storage Controller</b>	HP Dynamic Smart Array B140i		HP H240 FIO Smart Host Bus Adapter	
<b>Hard Drive</b>	None ship standard; includes 4 LFF hard drive blanks	None ship standard; includes 6 LFF hard drive blanks		None ship standard; includes 6 SFF hard drive blanks
<b>Internal Storage</b>	4 LFF HDD Bays (Non Hot Plug)	8 LFF HDD Bays		8 SFF HDD Bays
<b>Optical Drive Bay</b>	Not Available	Not Available		1; (Optional: DVD-ROM, DVD-RW)
<b>Optical Drive</b>				
<b>PCI-Express Slots</b>	3 Standard (1-FLFH, 2-FH/HL)			
<b>Power Supply</b>	(1) HP 550W FIO Power Supply	(1) HP 550W FIO Power Supply		
<b>Fans</b>	2 hot swap fans, non redundant			
<b>Management</b>	iLO Management (standard), Intelligent Provisioning (standard), iLO Essentials (optional)			
<b>Energy Star</b>				
<b>Form Factor</b>	Rack (2U), 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.			

Pre-configured Models

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<b>Country Code Key</b>	xx=B21	Worldwide
	xx=291	Japan
	xx=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, HP 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 DL180 Gen9 Non-hot Plug LFF Configure-to-order Server	HP ProLiant DL180 Gen9 Hot Plug 8LFF Configure-to-order Server	HP ProLiant DL180 Gen9 8SFF Configure-to-order Server	HP ProLiant DL180 Gen9 Hot Plug 12LFF Configure-to-order Server
SKU Number	754525-B21	754524-B21	754523-B21	775506-B21
Processor	2 (optional) x HP Smart Socket Guides			
DIMMSlots	16 DIMM slots for RDIMM, LRDIMM DDR4 Memory			
Storage Controller	HP Dynamic Smart Array B140i			
PCIe	3 PCIe slots (+3 PCI slots available with upgrade option, second processor required)			
Drive Cage	4LFF or 8LFF Non Hot Plug	8LFF Hot Plug (+4LFF optional field upgradable)	8SFF Hot Plug (+8SFF Optional)	12LFF Hot Plug
Network Controller	HP Ethernet 1Gb 2-port i350 Adapter			
Fans	2 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	HP Quick Release Ears	HP Thumbscrew Ears	HP Quick Release 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 with part numbers ending with L21.

- If one processor is desired, select one xxxxxx-L21
- If two processors are desired, select one xxxxxx-L21 and one xxxxxx-B21.
- Up to 2 processors supported. Mixing different processor models is not supported.
- 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, 4 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



### Configuration Information - Factory Integrated Models

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: [www.hp.com/go/proliant-energy-efficient](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: [www.hp.com/go/ddr4memory-configurator](http://www.hp.com/go/ddr4memory-configurator)

**HP 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: [www.hp.com/go/hppoweradvisor](http://www.hp.com/go/hppoweradvisor).
- Mixing of power supplies in the same server 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.

### 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: [www.hp.com/go/ProLiantNICs](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: [www.hp.com/go/ProLiantNICs](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.

### Configuration Information - Factory Integrated Models

**HP Graphics Options** Select one or more graphics adapter from Additional options section below.

- 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: [www.hp.com/go/hppoweradvisor](http://www.hp.com/go/hppoweradvisor)

**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 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.

- To take advantage of the additional PCI slot upgrade, the second processor must be installed.
- 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 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 an HP approved configurator. Contact your local sales representative for additional information.

<b>HP Unique Options</b>	HP DL180 Gen9 8SFF Hard Drive Cage/Backplane Kit	725572-B21
	HP DL180 Gen9 12LFF Hot Plug Enablement Kit	725574-B21
	<b>NOTE:</b> This can be used only with 8LFF Hot Plug Chassis and contains the cables required for upgrade.	
	HP DL180 Gen9 3 Slot x8 PCI-E Riser Kit	725569-B21
	HP DL180 Gen9 x16 PCI-E Riser Kit	725570-B21
	HP Quick-release Latch Rack Ears FIO Kit	725579-B21
	<b>NOTE:</b> This option kits required for Security Bezel. This option also provides with One Front USB 3.0.	

### HP Processors

#### Entry Processors - E5-2600v3 series Processors

HP DL180 Gen9 Intel® Xeon® E5-2609v3 (1.9GHz/6-core/15MB/85W) Processor Kit	733925-B21
HP DL180 Gen9 Intel® Xeon® E5-2609v3 (1.9GHz/6-core/15MB/85W) FIO Processor Kit	733925-L21
HP DL180 Gen9 Intel® Xeon® E5-2603v3 (1.6GHz/6-core/15MB/85W) Processor Kit	733929-B21
HP DL180 Gen9 Intel® Xeon® E5-2603v3 (1.6GHz/6-core/15MB/85W) FIO Processor Kit	733929-L21

#### Base Processors - E5-2600v3 series Processors

HP DL180 Gen9 Intel® Xeon® E5-2640v3 (2.6GHz/8-core/20MB/90W) Processor Kit	733916-B21
HP DL180 Gen9 Intel® Xeon® E5-2640v3 (2.6GHz/8-core/20MB/90W) FIO Processor Kit	733916-L21
HP DL180 Gen9 Intel® Xeon® E5-2630v3 (2.4GHz/8-core/20MB/85W) Processor Kit	733918-B21
HP DL180 Gen9 Intel® Xeon® E5-2630v3 (2.4GHz/8-core/20MB/85W) FIO Processor Kit	733918-L21
HP DL180 Gen9 Intel® Xeon® E5-2620v3 (2.4GHz/6-core/15MB/85W) Processor Kit	733921-B21
HP DL180 Gen9 Intel® Xeon® E5-2620v3 (2.4GHz/6-core/15MB/85W) FIO Processor Kit	733921-L21
HP DL180 Gen9 Intel® Xeon® E5-2630Lv3 (1.8GHz/8-core/20MB/55W) Processor Kit	763226-B21
HP DL180 Gen9 Intel® Xeon® E5-2630Lv3 (1.8GHz/8-core/20MB/55W) FIO Processor Kit	763226-L21

#### Performance Processors - E5-2600v3 series Processors

HP DL180 Gen9 Intel® Xeon® E5-2660v3 (2.6GHz/10-core/25MB/105W) Processor Kit	733912-B21
HP DL180 Gen9 Intel® Xeon® E5-2660v3 (2.6GHz/10-core/25MB/105W) FIO Processor Kit	733912-L21
HP DL180 Gen9 Intel® Xeon® E5-2650v3 (2.3GHz/10-core/25MB/105W) Processor Kit	733914-B21
HP DL180 Gen9 Intel® Xeon® E5-2650v3 (2.3GHz/10-core/25MB/105W) FIO Processor Kit	733914-L21

### Core Options

HP DL180 Gen9 Intel® Xeon® E5-2650Lv3 (1.8GHz/12-core/30MB/65W) Processor Kit	763222-B21
HP DL180 Gen9 Intel® Xeon® E5-2650Lv3 (1.8GHz/12-core/30MB/65W) FIO Processor Kit	763222-L21

### HP Memory

#### Registered DIMMs (RDIMMs)

HP 8GB (1x8GB) Single Rank x4 DDR4-2133 CAS-15-15-15 Registered Memory Kit	726718-B21
HP 16GB (1x16GB) Dual Rank x4 DDR4-2133 CAS-15-15-15 Registered Memory Kit	726719-B21

#### Load Reduced DIMMs (LRDIMMs) for E5-2600v3 Series

HP 32GB (1x32GB) Quad Rank x4 DDR4-2133 CAS-15-15-15 Load Reduced Memory Kit	726722-B21
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### HP Optical Drives

HP DL180 Gen9 Optical Disk Drive Enablement Kit	725582-B21
HP 9.5mm SATA DVD-ROM JackBlack Gen9 Optical Drive	726536-B21
HP 9.5mm SATA DVD-RW JackBlack G9 Optical Drive	726537-B21
HP Mobile USB Non Leaded System DVD RW Drive	701498-B21

**NOTE:** Optical drive is not supported on LFF models.

### HP Drives

#### SAS Hot Plug SFF (2.5-inch) Enterprise (ENT) Drives

HP 1.2TB 6G SAS 10K rpm SFF (2.5-inch) SC Dual Port Enterprise 3yr Warranty Hard Drive	718162-B21
HP 900GB 6G SAS 10K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive	652589-B21
HP 600GB 12G SAS 15K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive	759212-B21
HP 600GB 12G SAS 15K rpm LFF (3.5-inch) SC Converter Enterprise 3yr Warranty Hard Drive	765424-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 6G SAS 10K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive	652564-B21

#### SAS Hot Plug SFF (2.5-inch) Midline (MDL) Drives

HP 500GB 6G SAS 7.2K rpm SFF (2.5-inch) SC Midline 1yr Warranty Hard Drive	652745-B21
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#### SAS Hot Plug LFF (3.5-inch) Enterprise (ENT) Drives

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

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

HP 6TB 6G SAS 7.2K rpm LFF (3.5-inch) SC Midline 1yr Warranty Hard Drive	761477-B21
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### Core Options

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
<b>SATA Hot Plug LFF (3.5-inch) Midline (MDL) Drives</b>	
HP 6TB 6G SATA 7.2K rpm LFF (3.5-inch) SC Midline 1yr Warranty Hard Drive	753874-B21
HP 4TB 6G SATA 7.2k rpm LFF (3.5-inch) SC Midline 1yr Warranty Hard Drive	693687-B21
HP 3TB 6G SATA 7.2K rpm LFF (3.5-inch) SC Midline 1yr Warranty Hard Drive	628061-B21
HP 2TB 6G SATA 7.2K rpm LFF (3.5-inch) SC Midline 1yr Warranty Hard Drive	658079-B21
HP 1TB 6G SATA 7.2K rpm LFF (3.5-inch) SC Midline 1yr Warranty Hard Drive	657750-B21
HP 500GB 6G SATA 7.2K rpm LFF (3.5-inch) SC Midline 1yr Warranty Hard Drive	658071-B21
<b>SATA Non-Hot Plug LFF (3.5-inch) Midline (MDL) Drives</b>	
HP 3TB 6G SATA 7.2K rpm LFF (3.5-inch) Non-hot plug Midline 1yr Warranty Hard Drive	628065-B21
HP 2TB 6G SATA 7.2K rpm LFF (3.5-inch) Non-hot plug Midline 1yr Warranty Hard Drive	659339-B21
HP 1TB 6G SATA 7.2K rpm LFF (3.5-inch) Non-hot plug Midline 1yr Warranty Hard Drive	659337-B21
HP 500GB 6G SATA 7.2K rpm LFF (3.5-inch) Non-hot plug Midline 1yr Warranty Hard Drive	659341-B21
<b>12G SAS Hot Plug SFF (2.5-inch) Enterprise Performance Solid State Drives</b>	
HP 800GB 12G SAS High Endurance SFF 2.5-in SC Enterprise Performance 3yr Wty Solid State Drive	741159-B21
HP 400GB 12G SAS High Endurance SFF 2.5-in SC Enterprise Performance 3yr Wty Solid State Drive	741155-B21
HP 200GB 12G SAS High Endurance SFF 2.5-in SC Enterprise Performance 3yr Wty Solid State Drive	741151-B21
<b>12G SAS Hot Plug SFF (2.5-inch) Enterprise Mainstream Solid State Drives</b>	
HP 800GB 12G SAS Mainstream Endurance SFF 2.5-in SC Enterprise Mainstream 3yr Wty Solid State Drive	741146-B21
HP 400GB 12G SAS Mainstream Endurance SFF 2.5-in SC Enterprise Mainstream 3yr Wty Solid State Drive	741142-B21
HP 200GB 12G SAS Mainstream Endurance SFF 2.5-in SC Enterprise Mainstream 3yr Wty Solid State Drive	741138-B21
<b>12G SAS Hot Plug SFF (2.5-inch) Enterprise Value Solid State Drives</b>	
HP 800GB 12G SAS Value Endurance SFF 2.5-in SC Enterprise Value 3yr Wty Solid State Drive	762261-B21
<b>12G SAS Hot Plug LFF (3.5-inch) Enterprise Value Solid State Drives</b>	
HP 800GB 12G SAS Value Endurance LFF 3.5-in SC Enterprise Value 3yr Wty Solid State Drive	762270-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

### Core Options

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 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 (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>	
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 (3.5-inch) Enterprise Value Solid State Drives</b>	
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 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 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 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>Hard Drive Blank Kits</b>	
HP Large Form Factor Hard Drive Blank Kit	666986-B21
HP Small Form Factor Hard Drive Blank Kit	666987-B21

### Core Options

#### Hard Drive Kits

HP DL180 Gen9 8SFF Hard Drive Cage/Backplane Kit	725572-B21
HP DL180 Gen9 12LFF Hot Plug Enablement Kit	725574-B21

#### Disk Enclosure

HP D2600 w/12 4TB 6G SAS 7.2K LFF Dual Port MDL HDD 48TB Bundle	E7W32A
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### HP Networking

#### 1 Gigabit Ethernet adapters

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

#### 10 Gigabit Ethernet adapters

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

### HP I/O Expansion Options

HP DL180 Gen9 3 Slot x8 PCI-E Riser Kit	725569-B21
HP DL180 Gen9 x16 PCI-E Riser Kit	725570-B21

### HP Power Supplies

**NOTE:** Mixing of power supplies in the same server 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.

**NOTE:** 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: [www.hp.com/go/hppoweradvisor](http://www.hp.com/go/hppoweradvisor).

#### HP Entry-Level Power Supplies

HP 550W FIO Power Supply Kit	730941-B21
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### HP Cooling Options

HP DL180 Gen9 Redundant Fan FIO Kit	779841-B21
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**NOTE:** Upgrades a non-redundant server with one additional hot-plug fan (FIO only).

HP DL180 Gen9 Redundant Fan Kit	725571-B21
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**NOTE:** Customers can upgrade to a redundant fan configuration with the purchase of above option kit (contains 2 Fans).

### Additional Options

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

<b>HP Insight software</b>	<b>HP Insight Control</b>	
	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
	<b>NOTE:</b> FIO indicates that this option is only available as a factory installable option.	
	HP Insight Control Upgrade from iLO Advanced including 1yr 24x7 Support Flexible Quantity License	464063-B21
	<b>NOTE:</b> Electronic and Flexible-Quantity licenses can be used to purchase multiple licenses with a single activation key.	
	<b>NOTE:</b> Customer will receive a license entitlement certificate. The license entitlement certificate must be redeemed online or via fax in order to obtain the license activation key(s). Includes one year of 24 x 7 HP Software Technical Support and Update Service.	
<b>NOTE:</b> Licenses ship without media. The HP Insight Control Media Kit can be ordered separately, or can be downloaded at: <a href="http://www.hp.com/go/insightupdates">http://www.hp.com/go/insightupdates</a> .		
<b>NOTE:</b> For additional license options please see the QuickSpecs at: <a href="http://h18000.www1.hp.com/products/quickspecs/12631_div/12631_div.html">http://h18000.www1.hp.com/products/quickspecs/12631_div/12631_div.html</a>		

<b>Embedded Management</b>	<b>HP iLO Advanced</b>	
	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 Electronic License with 3yr 24x7 Tech Support and Updates	BD506AAE
	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 Advanced including 1yr 24x7 Technical Support and Updates Electronic License	TA850AAE
	<b>HP iLO Essentials</b>	
	HP Integrated Lights-Out Essentials including 3yr 24x7 Tech Support and Updates Single Svr License	BD774A
	HP Integrated Lights-Out Essentials including 3yr 24x7 Tech Support and Updates E-LTU	BD774AAE
	HP Integrated Lights-Out Essentials including 1yr 24x7 Tech Support and Updates Single Svr License	BD775A
	HP Integrated Lights-Out Essentials including 1yr 24x7 Tech Support and Updates E-LTU	BD775AAE
	HP Integrated Lights-Out Essentials including 3yr 24x7 Technical Support and Updates E-LTU	E6U61ABE
	HP Integrated Lights-Out Essentials including 1yr 24x7 Technical Support and Updates E-LTU	E6U62ABE
	<b>HP iLO Scale-out</b>	

### Additional Options

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 Flex Qty E-LTU	BD776AAE
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

### HP Converged Infrastructure Management Software

#### HP OneView

HP OneView incl 3yr 24x7 Supp Phys 1 Svr Lic	E5Y34A
HP OneView incl 3yr 24x7 Supp Flex Qty E-LTU	E5Y35AAE
HP OneView Media Kit Phys No Lic	E5Y37A
HP OneView for ProLiant DL Server incl 3yr 24x7 Supp FIO Bundle Physical 1 Svr Lic	E5Y43A
HP OneView incl 3yr 24x7 Supp Bundle 1 Svr E-LTU	E5Y43AAE
<b>HP OneView with 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 High Performance Clusters

#### HP Cluster Management Utility

HP Insight Cluster Management Utility 1yr 24x7 Flexible License	QL803B
HP Insight Cluster Management Utility 3yr 24x7 Flexible License BD476A	BD476A
<b>NOTE:</b> These part numbers can be used to purchase one certificate for multiple licenses and support with a single activation key. Each license is for one node (server). Customer will receive a printed end user license agreement and license entitlement certificate via physical shipment. The license entitlement certificate must be redeemed online in order to obtain a license key. Customer also will receive a support agreement.	
HP Insight Cluster Management Utility Media	BD477A
<b>NOTE:</b> For additional license kits please see the QuickSpecs at: <a href="http://h18004.www1.hp.com/products/quickspecs/12612_div/12612_div.html">http://h18004.www1.hp.com/products/quickspecs/12612_div/12612_div.html</a>	

### Additional Options

#### HP Security

HP 2U Security Bezel Kit	666988-B21
HP DL180 Gen9 Thumbscrew Ear FIO Kit	782641-B21
<b>NOTE:</b> Thumbscrew ears are available on SFF models only	
HP Quick-release Latch Rack Ears FIO Kit	725579-B21
<b>NOTE:</b> Quick-release Latch ears are available on both SFF and LFF models. For 12LFF Models Quick Release Ears are Mandatory.	
<b>NOTE:</b> Quick-release latch ears upgrades front USB from USB 2.0 to USB 3.0- It also supports Security Bezel Kit.	
HP Trusted Platform Module Option	488069-B21
<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">www.hp.com/go/TPM</a> .	
<b>NOTE:</b> ProLiant OS pre-installed units will come with the partition required for TPM deployment.	
<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.	

#### HP Storage Controllers SAS Controllers

##### HP Smart Array Controllers

HP Smart Array P440/4GB FBWC 12Gb 1-port Int SAS Controller	726821-B21
HP Smart Array P840/4GB FBWC 12Gb 2-ports Int SAS Controller	726897-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 Array P840/4GB FBWC 12Gb 2-ports Int FIO SAS Controller	761874-B21

##### HP Smart Host Bus Adapters

HP H240 12Gb 1-port Int Smart Host Bus Adapter	726907-B21
HP H240 12Gb 1-port Int FIO Smart Host Bus Adapter	761873-B21

##### HP Cable Options

HP DL180 Gen9 8LFF Smart Array Cable Kit	725577-B21
HP DL180 Gen9 8SFF Smart Array Cable Kit	725578-B21
HP DL180 Gen9 8LFF Hot Plug FIO Cable Kit	774868-B21
HP DL180 Gen9 8LFF Non-hot Plug FIO Cable Kit	774869-B21
HP DL180 Gen9 8SFF Hot Plug FIO Cable Kit	774870-B21
HP DL180 Gen9 4LFF Non-hot Plug FIO Cable Kit	776447-B21

##### Optional Upgrades

HP 96W Smart Storage Battery with 145mm Cable for DL/ML/SL Servers	727258-B21
<b>NOTE:</b> 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.	

### Additional Options

#### HP Tape Backup

**NOTE:** For the complete range of tape drives, autoloaders, libraries and media see: <http://www.hp.com/go/tape>. For hardware and software compatibility of HP tape backup products see: <http://www.hp.com/storage/SPOCK> and [www.hp.com/go/ebs](http://www.hp.com/go/ebs).

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

#### Tape Drives

HP StoreEver LTO-6 Ultrium 6250 Internal Tape Drive	EH969A
HP StoreEver LTO-6 Ultrium 6650 SAS External Tape Drive	EH964A
HP StoreEver LTO-6 Ultrium 6250 External Tape Drive	EH970A
HP StoreEver LTO-4 Ultrium 1760 SAS External Tape Drive	EH920B
HP StoreEver LTO-5 Ultrium 3280 SAS External Tape Drive	EH900B
HP StoreEver LTO-4 Ultrium 1760 SCSI External Tape Drive	EH922B
HP StoreEver LTO-5 Ultrium 3000 SAS External Tape Drive	EH958B

#### Tape Libraries

HP MSL2024 0-Drive Tape Library	AK379A
HP MSL4048 0-Drive Tape Library	AK381A

#### HP Tape Storage Systems

HP StoreEver 1U SAS Rack-mount Kit	AE459B
HP StoreEver LTO-4 Ultrium 1760 SAS (1) in 1U Rack-mount Kit	EH946C
HP StoreEver LTO-5 Ultrium 3280 SAS Tape Drive in 3U Rack-mount	EJ013B
HP StoreEver LTO-5 Ultrium 3000 SAS Tape Drive in 1U Rack-mount	EJ014B
HP StoreEver LTO-6 Ultrium 6250 Tape Drive in 1U Rack-mount Kit	C0L99A
HP StoreEver 1/8 G2 LTO-6 Ultrium 6250 FC Tape Autoloader	C0H19A

#### HP StoreEver MSL6480

HP StoreEver MSL6480 Scaleable Expansion Module	QU626A
HP StoreEver MSL6480 Scalable Base Module	QU625A
HP MSL Library Extender Kit	AQ746A

#### HP Storage Options

#### 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

#### HP Disk Storage Systems

#### Disk Enclosures

HP D6000 Dual I/O Module Disk Enclosure	QQ695A
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 w/70 3TB 6G SAS 7.2K LFF Dual port MDL HDD 210TB Bundle	QQ700A
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/35 2TB 6G SAS 7.2K LFF Dual port MDL HDD 70TB Bundle	QQ697A

### Additional Options

#### 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 Pallet 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 QuickSpec](#) for information on additional racks options and rack specifications

#### **HP Intelligent Series Racks**

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
HP 842 1075mm Shock Intelligent Series Rack	BW918A

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

#### **HP Value Series Rack**

HP V142 1075mm deep Pallet 100 series Rack	AF046A
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**NOTE:** Please see the [HP Value Series Rack QuickSpec](#) for information on additional racks options and rack specifications.

#### HP Power Distribution Units (PDUs) **HP Basic Power Distribution Unit (bPDU)**

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 17.3kVA 48A Three Phase NA/JP Modular Power Distribution Unit	AF511A
HP 22kVA 32A Three Phase INTL Core Modular Power Distribution Unit	AF518A
HP 3.6kVA 200-240 Volt Detachable C20 Input ( 12xC13) WW Basic PDU	H5M56A
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 7.3kVA 230 Volt IEC309 32A Input (24xC13/6xC19) INTL Basic PDU	H5M70A

**NOTE:** To learn more about HP Basic Power Distribution Units (bPDU), please visit the HP website at [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 (16xC13) WW Monitored PDU	D9N45A
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 7.3kVA 230 Volt IEC309 32A Input (32xC13/4xC19) INTL Monitored PDU	D9N50A
HP 11kVA 400 Volt IEC309 16A 3-Phase Input (18xC13/3xC19) INTL Monitored PDU	D9N55A
HP 11kVA 400 Volt IEC309 16A 3-Phase Input (30xC13/3xC19) INTL Monitored PDU	D9N57A
HP 17.3kVA 208 Volt IEC309 60A 3-Phase Input (12xC13/12xC19) NA/JP Monitored PDU	D9N59A
HP 22kVA 400 Volt IEC309 32A 3-Phase Input (30xC13/3xC19) INTL Monitored PDU	D9N56A
HP 22kVA 400 Volt IEC309 32A 3-Phase Input (12xC13/12xC19) INTL Monitored PDU	D9N60A

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

#### HP Intelligent Power Distribution Units (iPDU)

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 17.3kVA 48A 208V Three Phase 12 Outlet Core NA/JP Intelligent Power Distribution Unit	AF535A
HP 4.9kVA 24A Single Phase NA/JP Intelligent Modular Power Distribution Kit	AF531A
HP 8.6kVA 24A Three Phase NA/JP Intelligent Modular Power Distribution Kit	AF532A
HP 7.3kVA 32A Single Phase INTL Core Intelligent Modular Power Distribution Unit	AF525A
HP 7.3kVA 32A Single Phase INTL Intelligent Modular Power Distribution Kit	AF534A

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

### Additional Options

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

##### Rail Kits

HP 2U Small Form Factor Easy Install Rail Kit 733660-B21

**NOTE:** This applies for both LFF & SFF models and it does not include cable management arm.

HP 2U Cable Management Arm for Easy Install Rail Kit 733664-B21

##### HP Rack Mount Consoles

HP TFT7600 G2 KVM Console Rackmount Keyboard US Monitor AZ870A

HP TFT7600 G2 KVM Console Rackmount Keyboard Intl Monitor AZ884A

**NOTE:** Please see the [HP Rack Console QuickSpec](#) for information on additional options and product specifications.

##### HP KVM Switches

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 Server Console 0x2x8 Port Analog Switch AF616A

HP Server Console 0x2x16 Port Analog Switch AF617A

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

HP 1x4 USB/PS2 KVM Console Switch AF611A

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

##### HP 1U Rackmount Keyboard with USB

HP 1U US Rackmount Keyboard with USB AG072A

HP 1U INT Rackmount Keyboard with USB AG086A

**NOTE:** Please see the [HP 1U Rackmount Keyboard QuickSpec](#) for information on additional options and product specifications.

##### HP USB Keyboard and Mouse

HP USB BFR with PVC Free US Keyboard/Mouse Kit 631341-B21

HP USB BFR with PVC Free Intl Keyboard/Mouse Kit 672097-B33

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

#### HP Uninterruptible Power Systems (UPS)

##### HP Rack-mountable UPS

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

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

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

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

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

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

##### HP Parallel UPS

HP RP12000/3 6U International (INTL) Uninterruptible Power System Module AF437A

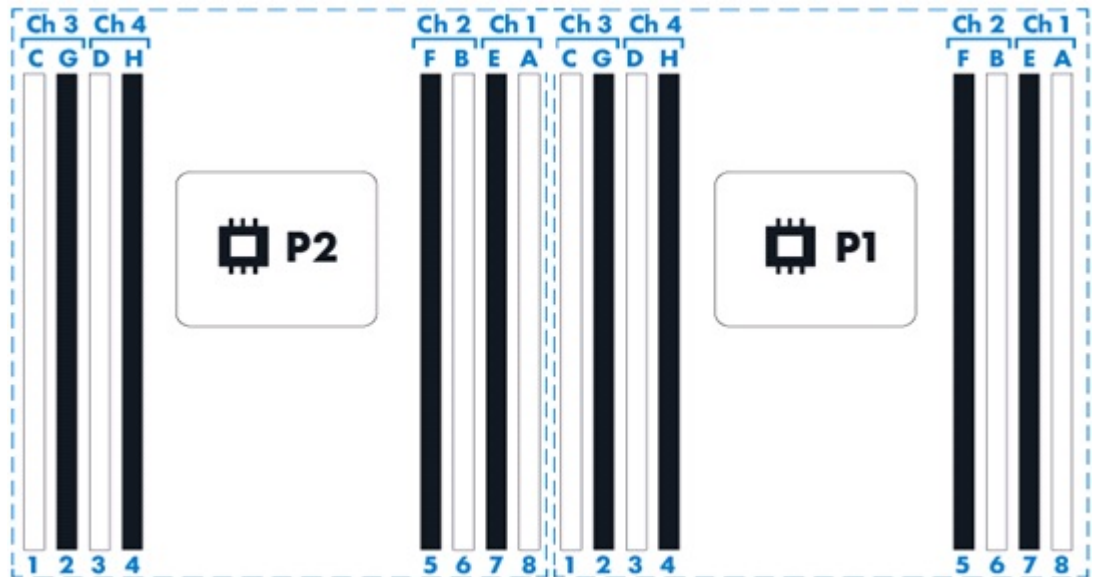
**NOTE:** To learn more, please visit the [HP Uninterruptible Power Systems \(UPS\) web page](#).

### Memory

#### Memory Subsystem Architecture

Each Intel® Xeon® E5-2600v3 family processor socket contains four memory channels per installed processor with two DIMMs per channel for a total of eight (8) DIMMs or a grand total of sixteen (16) DIMMs for the server.

#### Memory Population guidelines



#### General Memory Population Rules and Guidelines:

- Install DIMMs only if the corresponding processor is installed.
- If only one processor is installed in a two processor system, only half of the DIMM slots are available.
- To maximize performance, it is recommended to balance the total memory capacity between all installed processors and load the channels similarly whenever possible.
- When two processors are installed, balance the DIMMs across the two processors.
- White DIMM slots denote the first slot to be populated in a channel.
- 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 DL180 Gen9 servers.
- Quad rank LRDIMMs are capable of up to two DIMMs per channel.
- RDIMMs operating at either 1.35V or 1.5V may be mixed in any order, but the system will power them at the higher voltage.
- 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 Gen8 Intel® Xeon®E5-2600v3 Series Processor Family

### Memory

Memory Bandwidth and Capacity			
[DIMM Type]	Registered DIMMS (RDIMMs)		Load Reduced (LRDIMMs)
DIMM Rank	Single Rank	Dual Rank	Quad Rank
DIMM Capacity	8GB	16GB	32GB
DIMM Native Speed (MT/s)			
Voltage	Std Voltage 1.2V		
<b>SLOTS THAT CAN BE POPULATED</b>			
16 slot servers	16		
<b>MAXIMUM CAPACITY (GB)*</b>			
	128	256	512
<b>1 DIMM Per Channel</b>			
	2133		
<b>2 DIMM Per Channel</b>			
	2133		
<b>3 DIMM Per Channel</b>			
	1600	1600	1600

### DIMM slot and configuration diagram **Basic memory slot & population diagram**

DIMM slot and configuration diagrams

- Population order; start with "A" first, "B" second, "C" third, etc.
- When one processor is installed, install DIMMs in sequential alphabetic order: A, B, C, D, E, F ...
- When two processors are installed, install DIMMs in sequential alphabetic order: CPU1-A, CPU2-A, CPU1-B, CPU2-B, CPU1-C, CPU2-C

CPU #1 IS PROCESSOR ON RIGHT - LOOKING FROM FRONT OF SERVER

	CPU1		CPU2		
	Slot #	population order	Slot #	population order	
Chnl 3	1	C	1	C	Chnl 3
	2	G	2	G	
	CPU1		CPU2		
	Slot #	population order	Slot #	population order	
Chnl 4	3	D	3	D	Chnl 4
	4	H	4	H	
	CPU1		CPU2		
	Slot #	population order	Slot #	population order	
Chnl 2	5	F	5	F	Chnl 2
	6	B	6	B	
	CPU1		CPU2		
	Slot #	population order	Slot #	population order	
Chnl 1	7	E	7	E	Chnl 1
	8	A	8	A	

### Memory

#### Memory Speed by Processor Model

Processor Models	Supported Memory Speeds
E5-2609v3, E5-2603v3,	1600MHz
E5-2640v3, E5-2630v3, E5-2620v3, E5-2630Lv3,	1866MHz
E5-2660v3, E5-2650v3, E5-2650Lv3,	2133MHz

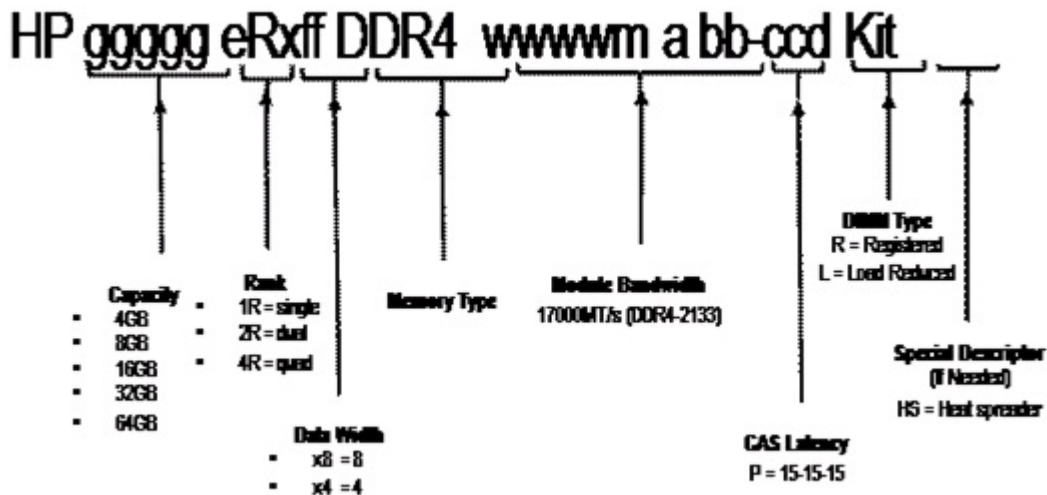
#### Standard and Maximum Memory Capacity (Pre-configured Models)

Pre-Configured Models	Standard Memory	Maximum Memory Plus Optional Memory	Standard Memory Replaced with Optional Memory
E5-2603v3, E5-2609v3	8GB (1x8GB)	248GB (15x16GB, 1x8GB)	512GB (16x32GB)

DDR4 memory options part number decoder

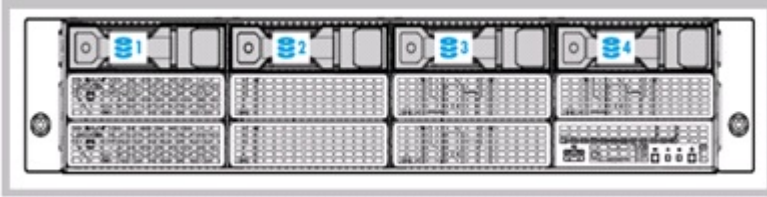
**NOTE:** Capacity references are rounded to the common Gigabyte values.

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



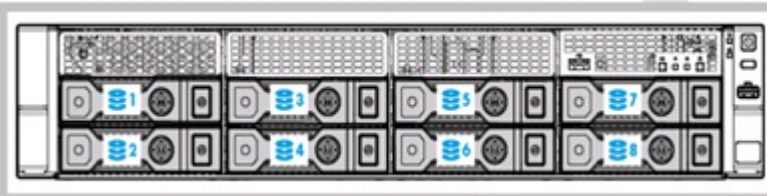
### Storage

4-bay LFF non-hot-plug drive model



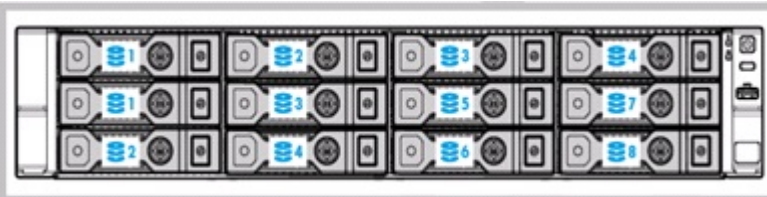
1-4 4 x LFF SATA Non-Hot Pluggable Hard Drive Bays

8-bay LFF hot-plug drive model



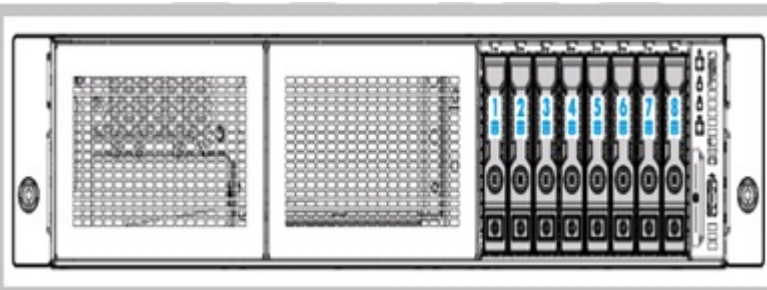
1-8 8 x LFF SATA/SAS/SDD Hot Pluggable Hard Drive Bays

12-bay LFF hot-plug drive model



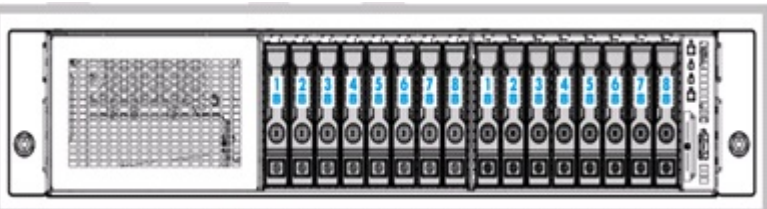
1-12 12 x LFF SATA/SAS/SDD Hot Pluggable Hard Drive Bays

8-bay SFF hot-plug drive model



1-8 8 x SFF SATA/SAS/SDD Hot Pluggable Hard drive bays

16-bay SFF hot-plug drive model



1-16 16 x SFF SATA/SAS/SDD Hot Pluggable Hard drive bays

### Technical Specifications

<b>System Unit</b>	<b>Dimensions</b> (H x W x D)	SFF Drives: 3.44 x 17.54 x 23.9 in (8.75 x 44.55 x 60.7cm) LFF Drives: 3.44 x 17.54 x 23.9 in (8.75 x 44.55 x 60.7 cm)
	<b>Weight</b> (approximate)	Maximum: 47.6 lb (21.59 kg) (all hard drives: front + rear, full power supply, and processor installed) Minimum: 36.58 lb (16.59 kg) (one SFF hard drive, single power supply, and processor installed. HDD not installed)
	<b>Input Requirements</b>	Rated Line Voltage 100 to 240 VAC Rated Input Current For 550W Power Supply: 6.7 A (at 100 VAC) 3.3 A (at 200 VAC) Rated Input Frequency 47 to 63 Hz Rated Input Power 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">www.hp.com/go/proliant-energy-efficient</a> or <a href="http://www.hp.com/go/hppoweradvisor">www.hp.com/go/hppoweradvisor</a> - Click on the system of interest. Example: DL180 Gen9- Follow the instructions of the next screens.
	<b>Power Supply Output</b>	Rated Steady-State Power For 550 W Power Supply: 550 W (at 100 VAC), 550 W (at 200 VAC), Maximum Peak Power For 550 W Power Supply: 550 W (at 100 VAC), 550 W (at 200 VAC),
	<b>System Inlet Temperature</b>	Standard Operating Support 10° to 35°C (50° to 95°F) at sea level with an altitude derating of 1.0°C per every 305 m (1.8°F per every 1000 ft) above sea level to a maximum of 3050 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).  Extended Ambient Operating Support 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 3050 m (10,000 ft). The approved hardware configurations for this system are listed at the URL: <a href="http://www.hp.com/go/proliant/ashrae">www.hp.com/go/proliant/ashrae</a>

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		<p>For approved hardware configurations, the supported system inlet range is extended to be: 40° to 45°C (104° to 113°F) at sea level with an altitude derating of 1.0°C per every 125 m (1.8°F per every 410 ft) above 900 m (2953 ft) to a maximum of 3050 m (10,000 ft). The approved hardware configurations for this system are listed at the URL: <a href="http://www.hp.com/go/proliant/ashrae">www.hp.com/go/proliant/ashrae</a></p>							
<b>Relative Humidity</b> (non-condensing)	Non-operating	-30° to 60°C (-22° to 140°F). Maximum rate of change is 20°C/hr (36°F/hr).							
	Operating	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.							
<b>Altitude</b>	Non-operating	5% to 95% relative humidity (Rh), 38.7°C (101.7°F) maximum wet bulb temperature, non-condensing.							
	Operating	3048 m (10,000 ft). This value may be limited by the type and number of options installed. Maximum allowable altitude change rate is 457 m/min (1500 ft/min).							
<b>Acoustic Noise</b>	Non-operating	9144 m (30,000 ft). Maximum allowable altitude change rate is 457 m/min (1500 ft/min).							
	<p>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).</p> <p><b>Idle</b></p> <table border="0"> <tr> <td>LWAd</td> <td>Entry: 5.4 B Base: 5.5 B Storage: 6.3 B Performance: 5.5 B</td> </tr> <tr> <td>LpAm</td> <td>Entry: 39 dBA Base: 39 dBA Storage: 46 dBA Performance: 38 dBA</td> </tr> </table> <p><b>Operating</b></p> <table border="0"> <tr> <td>LWAd</td> <td>Entry: 5.5 B Base: 5.6 B Storage: 6.3 B Performance: 5.5 B</td> </tr> <tr> <td>LpAm</td> <td>Entry: 40 dBA Base: 40 dBA Storage: 46 dBA Performance: 38 dBA</td> </tr> </table>		LWAd	Entry: 5.4 B Base: 5.5 B Storage: 6.3 B Performance: 5.5 B	LpAm	Entry: 39 dBA Base: 39 dBA Storage: 46 dBA Performance: 38 dBA	LWAd	Entry: 5.5 B Base: 5.6 B Storage: 6.3 B Performance: 5.5 B	LpAm
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<b>Emissions Classification (EMC)</b>	<b>FCC Rating</b>	Class A
	<b>Normative Standards</b>	CISPR 22; EN55022; EN55024; FCC CFR 47, Pt 15; ICES-003; CNS14336-1; CNS13438; GB4943; GB9254; EN 61000-3-2; EN 61000-3-3; EN 60950-1; IEC 60950-1

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

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

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

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

### Technical Specifications

<b>HP Embedded Dual Port 361i Adapter</b>	<b>Network Interface</b>	10Base-T/100Base-TX/1000Base-TX	
	<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>Ports</b>		
	<b>Data Transfer Method</b>	PCI Express v 2.0, 5.0 GT/s, two lanes (x2)	
	<b>Controller</b>	Intel I350 Powerville	
		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
	<b>Network Transfer Rate</b>	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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### Technical Specifications



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