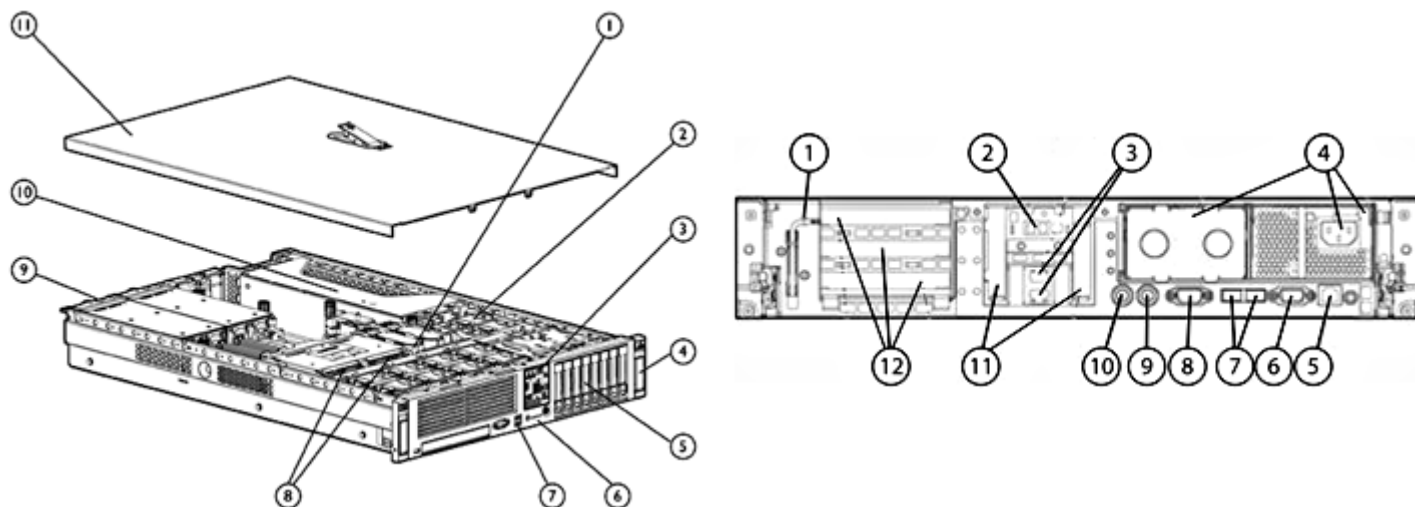


### Overview



#### Front View:

1. Eight sockets for PC2-5300 Fully Buffered DIMMs (DDR2-667)
2. Hot-plug fans, full redundancy
3. Systems Insight Display
4. Quick release lever for rapid server access
5. Support for eight Small Form Factor hot plug hard drives bays
6. Front LEDs (show server status) and Unit Identification button/LED (for easy in rack server identification)
7. Two front USB ports (2 rear USB ports, 1 internal USB port)
8. Intel Xeon Processor (Performance models include two processors)
9. Hot plug power supply, redundancy option (High performance models include redundant power supply)
10. Three full-size PCI-E expansion slots in standard expansion cage (or optional mixed PCI-X/E expansion cage). Two additional low-profile PCI-E slots embedded on the system board. Four slots available for use; one consumed by Smart Array controller (Base and Performance models)
11. Quick removal access panel

#### Rear View:

1. Torx service tool
2. Optional pass through cable door
3. Two Embedded NC373i Multifunction Gigabit Server Adapters with TCP/IP Offload Engine
4. Hot plug power supply bays, redundancy option (High performance models include redundant power supply)
5. Integrated Lights-Out 2 (iLO 2) Remote management port
6. Video Port
7. Two USB 2.0 Ports
8. Serial Port
9. Keyboard Port
10. Mouse PS/2 Port
11. Two low-profile PCI Express x8 slots. Slot 1 is consumed by the P400 Smart Array controller. (Base and Performance models)
12. Three full-size PCI Express slots in standard cage (or optional mixed PCI-X/E expansion cage)

### What's New

- New Intel® Xeon® X5270 Dual-Core processor

### At A Glance



### Overview

The HP ProLiant DL380, the world's best selling server, delivers on its history of design excellence with enterprise-class uptime and manageability, proven 2-socket Intel® Xeon® performance, and 2U density for a variety of rack deployments and applications.

- **Processors:**
  - Quad-Core and Dual-Core Intel® Xeon® processors for blazing performance; systems support up to 2 processors (2 processors standard on all Performance models)
  - Preconfigured Performance models save valuable deployment time at a discounted bundle price
  - Intel® 5000P chipset
- **Memory:**
  - Up to 64 GB PC2-5300 Fully Buffered DIMMs (DDR2-667) with 4:1 and 2:1 interleaving available, online spare and mirrored memory capabilities
- **Storage Controller:**
  - Performance Models: HP Smart Array P400/512MB BBWC Controller (RAID 0/1/1+0/5/6)
  - High Efficiency and Base Models: HP Smart Array P400/256MB Controller (RAID 0/1/1+0/5)
  - Entry Models: HP Smart Array E200/64MB Controller (RAID 0/1/1+0)
- **Internal Drive Support:**
  - (8) small form factor (SFF) hot-plug drive bays to support Serial-attached SCSI (SAS) and Serial ATA (SATA) drives
  - Slimline media bay supporting Optical or Floppy drive
- **Network Controller:**
  - Two embedded NC373i Multifunction Gigabit Network Adapters with TCP/IP Offload Engine, including support for Accelerated iSCSI through an optional Licensing Kit
- **Expansion Slots:**
  - Four available PCI-Express slots, optional mixed PCI-X / PCI-Express configurations available (see "Standard Features - Expansion Slots" section below for more details)
- **USB Ports:**
  - USB 2.0 support
  - 5 total ports: (2) ports up front; (2) ports in back; (1) port internal
- **Redundancy:**
  - Fully redundant hot plug fans (N+1)
  - Hot plug power supply with optional redundancy (Included in Performance models)
- **Infrastructure Management:**
  - Convenient slide-out Systems Insight Display for quick and easy front view server diagnostics, along with status LEDs, Automatic Server Recovery (ASR), ROM Based Setup Utility (RBSU)
  - HP ProLiant Onboard Administrator (powered by the HP Integrated Lights-Out 2 management processor) for simplified server setup, health monitoring and recovery, power and thermal control, and lights-out remote administration.
  - HP Insight Control a product option, delivers essential infrastructure management that can help save time and money by making it easy to deploy, migrate, monitor, control and optimize your IT infrastructure through a single, simple management console. Insight Control supports both Windows and Linux-based central management servers.
  - HP Insight Dynamics for ProLiant, a product option, is an integrated command center that enables IT Staff personnel to continuously analyze and optimize a converged infrastructure, while automating and reducing the cost of common data center tasks by as much as 40 percent. This ultimately enables them to dynamically keep pace with the organization's changing business requirements.
- **Form Factor:**
  - Rack (2U), (3.5-inch); Depth 26 inches (66 cm)
- **Operating Systems and Virtualization Software Support for ProLiant Servers:**
  - Supports Windows, RHEL, SLES, OEL, Solaris, NetWare, VMware, and HP Citrix Essentials for XenServer
- **Deployment/Serviceability:**
  - System Insight Display on the front bezel for quick and easy server diagnostics
  - Quick Deploy Rail System includes sliding universal rails, an ambidextrous cable management arm and quick release levers for fast and easy serviceability
  - Tool-less access to all system components for easy in rack serviceability
  - Customer Self Repair (CSR): HP products are designed with many CSR parts to minimize repair time and allow for



### Overview

greater flexibility in performing defective parts replacement

- **Warranty:**

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

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

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



### Standard Features

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

#### Processor

One of the following depending on Model

#### Quad-Core Processors

Quad-Core Intel® Xeon® Processor X5470 (3.33 GHz, 120 Watts, 1333 FSB)  
Quad-Core Intel® Xeon® Processor X5460 (3.16 GHz, 120 Watts, 1333 FSB)  
Quad-Core Intel® Xeon® Processor X5450 (3.0 GHz, 120 Watts, 1333 FSB)  
Quad-Core Intel® Xeon® Processor E5450 (3.00 GHz, 80 Watts, 1333 FSB)  
Quad-Core Intel® Xeon® Processor E5440 (2.83 GHz, 80 Watts, 1333 FSB)  
Quad-Core Intel® Xeon® Processor E5430 (2.66 GHz, 80 Watts, 1333 FSB)  
Quad-Core Intel® Xeon® Processor L5430 (2.66 GHz, 50 Watts, 1333 FSB)  
Quad-Core Intel® Xeon® Processor E5420 (2.50 GHz, 80 Watts, 1333 FSB)  
Quad-Core Intel® Xeon® Processor L5420 (2.50 GHz, 50 Watts, 1333 FSB)  
Quad-Core Intel® Xeon® Processor E5410 (2.33 GHz, 80 Watts, 1333 FSB)  
Quad-Core Intel® Xeon® Processor L5410 (2.33 GHz, 50 Watts, 1333 FSB)  
Quad-Core Intel® Xeon® Processor E5405 (2.00 GHz, 80 Watts, 1333 FSB)  
Quad-Core Intel® Xeon® Processor X5365 (3.00 GHz, 120 Watts, 1333 FSB)  
Quad-Core Intel® Xeon® Processor X5355 (2.66 GHz, 120 Watts, 1333 FSB)  
Quad-Core Intel® Xeon® Processor E5345 (2.33 GHz, 80 Watts, 1333 FSB)  
Quad-Core Intel® Xeon® Processor L5335 (2.00 GHz, 50 Watts, 1333 FSB, Low Voltage)  
Quad-Core Intel® Xeon® Processor E5335 (2.00 GHz, 80 Watts, 1333 FSB)  
Quad-Core Intel® Xeon® Processor E5320 (1.86 GHz, 80 Watts, 1066 FSB)  
Quad-Core Intel® Xeon® Processor L5320 (1.86 GHz, 50 Watts, 1066 FSB)  
Quad-Core Intel® Xeon® Processor E5310 (1.60 GHz, 80 Watts, 1066 FSB)

#### Dual-Core Processors

Dual-Core Intel® Xeon® Processor X5270 (3.50 GHz, 80 Watts, 1333 FSB)  
Dual-Core Intel® Xeon® Processor X5260 (3.33 GHz, 80 Watts, 1333 FSB)  
Dual-Core Intel® Xeon® Processor L5240 (3.00 GHz, 40Watts, 1333 FSB)  
Dual-Core Intel® Xeon® Processor E5205 (1.86 GHz, 65 Watts, 1066 FSB)

**NOTE:** Up to 2 processors (8 cores) supported. Performance configurations include two processors. Mixing different processor models is not supported.

**NOTE:** Future upgradeable to Xeon® Series 5400/5300 Quad-Core processors (Please contact your regional sales support to determine quad core upgradeability. Some of the earlier shipping models may not support this upgrade). 5100 Dual-Core models are not upgradeable to the 5200 Dual-Core processors.

#### Cache Memory

One of the following depending on Model

12 MB (2 x 6 MB) Level 2 cache (5400 series)  
8 MB (2 x 4 MB) Level 2 cache (5300 series)  
6 MB (1 x 6 MB) Level 2 cache (5200 series)



### Standard Features

Chipset	Intel® 5000P Chipset <b>NOTE:</b> For more information regarding Intel chipsets, please see the following URL: <a href="http://www.intel.com/products/server/chipsets/">http://www.intel.com/products/server/chipsets/</a> .	
Memory Protection	Advanced ECC (multi-bit error protection), Online Spare, Mirroring 4-way Interleaving	
Memory	Type	PC2-5300 Fully Buffered DIMMs (DDR2-667) with 4:1 and 2:1 interleaving available (interleaving requires identical DIMMs)
	Standard (Entry Models)	1 GB (2 x 512 MB)
	Standard (Base Models)	2 GB (2 x 1 GB)
	Standard (Performance Models)	4 GB (4 x 1 GB)
	Maximum	64 GB (8 x 8 GB)
	<b>NOTE:</b> Memory DIMMs in systems with the Front Side Bus (FSB) running at 1333 MHz will run at 667 MHz and in systems with a FSB running at 1066 MHz or 667 MHz the memory DIMMs will run at 533 MHz.	
Network Controller	Two embedded NC373i Multifunction Gigabit Network Adapters with TCP/IP Offload Engine, including support for Accelerated iSCSI through an optional Licensing Kit	

### Expansion Slots

Expansion Slots	Expansion Slots #	Technology	Bus Width**	Connector Width	Bus Number*	Form Factor	Notes
Embedded Slots	1	PCIe	X4	X8	6	Half length, low profile slot, embedded	Performance / Base models: Reserved slot for Smart Array P400 Controller
	2	PCIe	X4	X8	11	Half length, low profile slot, embedded	N/A

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

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

PCIe Riser (Standard)	Expansion Slots #	Technology	Bus Width**	Connector Width	Bus Number*	Form Factor	Notes
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# QuickSpecs

## Standard Features

3	PCIe	X4	X8	14	Full length, full height slot	Entry models: Reserved Smart Array E200 Controller slot
4	PCIe	X8	x16	23	Full length, full height slot	
5	PCIe	X8	x16	19	Full length, full height slot	

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

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

PCIe/PCI-X Riser (Optional)	Expansion Slots #	Technology	Bus Width***	Connector Width	Bus Number*	Device No.**	Form Factor
	3	PCIe	X8	X16	23	0	Full length, full height slot
	4	PCI-X (133MHz, 3.3 Volt)	64-bit	Not applicable	18	1	Full length, full height slot
	5	PCI-X (133MHz, 3.3 Volt)	64-bit	Not applicable	18	2	Full length, full height slot

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

\*\* Slots are enumerated differently based on OS. MS OS's enumerate from lowest to highest Device ID by bus (starting with the lowest bus).

\*\*\* Indicates the number of physical electrical lanes running to a PCI-e connector.

Storage Controller One of the following depending on Model	Performance Models:	HP Smart Array P400/512MB BBWC Controller (RAID 0/1/1+0/5/6)
	High Efficiency and Base Models:	HP Smart Array P400/256MB Controller (RAID 0/1/1+0/5) <b>Available upgrades:</b> 512MB battery-backed write cache (BBWC) or standalone battery for RAID 0/1/1+0/5/6
	Entry Models:	HP Smart Array E200/64MB Controller (RAID 0/1/1+0) <b>Available upgrades:</b> 128MB battery-backed write cache (BBWC) for RAID 0/1/1+0/5

Storage	Diskette Drive	None Standard
	Optical Drive	None Standard
	One of the following depending on Model	IDE DVD-ROM/CDRW Combo included on Performance models
	Hard Drives	None Standard



### Standard Features

Maximum Internal Storage	Hot Plug SAS	4.0TB	8 x 500GB with standard internal hot plug SFF SAS drive cage
	Hot Plug	2.0TB	8 x 250GB

Intelligent Manageability	HP Systems Insight Manager		
	SmartStart		
	Management Agent		
	Redundant ROM		
	Remote Flash ROM		
	ROM-Based Setup Utility (RBSU)		
	Integrated Management Log		
	Automatic Server Recovery (ASR)		
	Dynamic Sector Repairing (with Smart Array controller)		
	Drive Parameter Tracking (with Smart Array controller)		
Hot Spare Boot			
<b>NOTE:</b> Upon the event of a failed processor in a multi-processing environment, the system will automatically reboot and attempt to use the remaining good processor.			
Pre-Failure Warranty (covers processors, SAS hard drives and memory)			

Interfaces	Serial	1	
	Pointing Device (Mouse)	1	
	Graphics	1	
	Keyboard	1	
	VGA	2 (1 front, 1 back)	
	Network RJ-45	2	
	iLO 2 remote management port	1	
	USB 2.0 Ports	5 total: 2 front, 2 back, 1 internal	
			<b>NOTE:</b> Please see the following URL for additional information regarding USB support: <a href="http://h18004.www1.hp.com/products/servers/platforms/usb-support.html">http://h18004.www1.hp.com/products/servers/platforms/usb-support.html</a> .

Graphics	Integrated ATI ES1000, 32MB video standard	
	<ul style="list-style-type: none"><li>• 16 bit color: maximum resolution of 1600 x 1200</li><li>• 32 bit color: maximum resolution of 1280 x 1024</li></ul>	
	<b>NOTE:</b> Maximum resolution available via iLO 2 remote console is 1280 x 1024.	

Form Factor	Rack (2U); Height 3.38-inch (8.59 cm); Depth: 26 inches (66 cm)	
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HP Insight management software	HP Insight Foundation	Managing the growing number of servers can be complex and expensive for your organization. IT managers need to address changing business needs with tools that meet the challenges of managing today's complex Datacenters.
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### Standard Features

HP provides management solutions that are designed to simplify a server's installation, configuration and maintenance throughout the entire server lifecycle. This provides the customer with higher levels of operational efficiency and highly reliable systems: [www.hp.com/go/foundation](http://www.hp.com/go/foundation).

The foundation pack includes:

- HP SmartStart
- HP Management
- HP ProLiant Firmware Maintenance

SmartStart version supported (minimum): SmartStart 7.51  
<http://www.hp.com/servers/smartstart>

#### ProLiant Onboard Administrator

HP ProLiant Onboard Administrator (powered by the HP Integrated Lights-Out 2 management processor) simplifies server setup, health monitoring, power and thermal control, and lights-out remote administration of ProLiant ML, DL, and BL servers. HP ProLiant Onboard Administrator functions without additional software, and can be accessed from any location via a web browser. It works hand-in-hand with HP Systems Insight Manager, Insight Control suites, and the Insight Dynamics for ProLiant helping customers unlock the value of the ProLiant platform and deliver the highest possible quality of IT service to the business. See [www.hp.com/go/ProLiantOA](http://www.hp.com/go/ProLiantOA)

#### HP Insight Control

HP Insight Control, a product option, delivers essential infrastructure management that can help save time and money by making it easy to deploy, migrate, monitor, remote control, and optimize your IT infrastructure through a single, simple management console.

Two versions of Insight Control are available, to serve environments requiring either a Linux-based or a Windows-based central management server: HP Insight Control for Linux, and HP Insight Control. See [www.hp.com/go/insightcontrol](http://www.hp.com/go/insightcontrol)

HP Insight Control includes one year of 24 x 7 HP Software Technical Support and Update Service ensuring rapid access to HP support staff and proactive delivery of software updates. For more information about this service, please visit: <http://www.hp.com/services/insight>.

#### HP Insight Dynamics for ProLiant

HP Insight Dynamics for ProLiant, a product option, is an integrated command center that enables IT Staff personnel to continuously analyze and optimize a converged infrastructure, while automating and reducing the cost of common data center tasks by as much as 40 percent. As a powerfully integrated by design toolkit to accelerate complex technology projects and simplify daily operations that ultimately enable IT Staff personnel to dynamically keep pace with the organizations changing business requirements. It enables them to plan capacity and power continuously, balance across physical and virtual resources, and ensure cost-effective high availability. It also enables IT organizations to provision infrastructure consistently and automatically from pools of shared resources using a self-service portal. Resources provisioned can range from a single virtual machine to complex multi-tier environments and their associated physical and virtual resource requirements. In addition to the previous functional





### Standard Features

benefits, it also provides a cost-effective disaster recovery for physical and virtual environments that works with HP StorageWorks Continuous Access software for both the Enterprise Virtual Array and the XP storage array allowing application environments to be reactivated in minutes with the touch of a button to a remote location.

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

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#### Industry Standard Compliance

ACPI 2.0 Compliant  
PCI 2.2 Compliant  
WOL Support  
Microsoft® Logo certifications  
USB 2.0 Support

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#### Security

Power-on password  
Keyboard password  
Diskette drive control  
Diskette boot control  
QuickLock, Network Server Mode  
Parallel and serial interface control  
Administrator's password

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#### Server Power Cords

An IEC13 to IEC14 jumper cord ships standard with all part numbers if connecting to a UPS or PDU. If a localized cable is desired or required, it needs to be purchased.

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#### UPS and PDU Power Cord Matrix

Please see the UPS and PDU cable matrix's on the HP Power Protection and Management page. Under Power Cords, click on the "HP Power Cord Matrix" link. That link will list cable descriptions, requirements, and specifications for UPS and PDU units. Please see the following link:  
[www.hp.com/products/powercords](http://www.hp.com/products/powercords).

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#### Power Supply

800Watt, CE Mark Compliant  
Optional Hot Plug AC Redundant Power Supply  
Optional 48 Volt DC Power Supply Kit (Factory integration not available)

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#### System Fans

Fully redundant hot plug fans ship standard (N+1)

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### Standard Features

#### Operating Systems and Virtualization Software Support for ProLiant Servers

Microsoft Windows Server  
Microsoft Windows Server Hyper V  
Red Hat Enterprise Linux (RHEL)  
SUSE Linux Enterprise Server (SLES)  
Oracle Enterprise Linux (OEL)  
Solaris 10 for x86/x64 based Systems  
NetWare  
VMware  
Citrix Essentials for XenServer

**NOTE:** For more information on HP's Certified and Supported ProLiant Servers for OS and Virtualization Software and latest listing of software drivers available for your server, please visit our Support Matrix at: <http://www.hp.com/go/ossupport> and our driver download page [www.hp.com/support/DL380G5](http://www.hp.com/support/DL380G5).

#### Rack Airflow Requirements

##### Rack 10000 G2 series Cabinets

The increasing power of new high-performance processor technology requires increased cooling efficiency for rack-mounted servers. The 10000 G2 Series Racks provide enhanced airflow for maximum cooling, allowing these racks to be fully loaded with servers using the latest processors.

**CAUTION:** If a third-party rack is used, observe the following additional requirements to ensure adequate airflow and to prevent damage to the equipment:

- Front and rear doors: If your 42U server rack includes closing front and rear doors, you must allow 830 square inches (5,350 sq cm) of hole evenly distributed from top to bottom to permit adequate airflow (equivalent to the required 64 percent open area for ventilation).
- Side: The clearance between the installed rack component and the side panels of the rack must be a minimum of 2.75 inches (7 cm).

**CAUTION:** Always use blanking panels to fill all remaining empty front panel U-spaces in the rack. This arrangement ensures proper airflow. Using a rack without blanking panels results in improper cooling that can lead to thermal damage.

**NOTE:** For additional information, refer to the Setup and Installation Guide or the Documentation CD provided with the server, or to the server documentation located in the Support section at the following URL: [www.hp.com/servers/dl380](http://www.hp.com/servers/dl380).

#### Rack Kit

Quick deploy rail system provides tool-free support for racks with square or round mounting holes (including Compaq/HP 7000, 9000, 10000 G2 and HP series), with an adjustment range of 24" - 36". The ambidextrous cable management arm can be mounted on either the left or right side for improved cable management.

**NOTE:** Cable management arm must be removed to access hot-plug power supplies when the cable management arm is mounted on the right.

#### Telco Rack Support

Support for all 2-post Telco racks requires the use of the standard rack kit and an additional option kit from Rack Solutions at: <http://www.hp.com/go/rackandpower/>



### Standard Features

#### Factory Express Portfolio for Servers and Storage

HP Factory Express offers configuration, customization, integration and deployment services for HP servers and storage products. Customers can choose how their factory solutions are built, tested, integrated, shipped and deployed.

Factory Express offers service packages for simple configuration, racking, installation, complex configuration and design services as well as individual factory services, such as image loading, asset tagging, and custom packaging. HP products supported through Factory Express include a wide array of servers and storage: HP Integrity, HP ProLiant, HP ProLiant Server Blades, HP BladeSystem, HP 9000 servers as well as the MSAxxx, VA7xxx, EVA, XP, rackable tape libraries and configurable network switches.

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

#### HP Enterprise Configurator

The HP eConfigure-Enterprise Configurator now provides factory default racking for our HP hardware portfolio. This approach is aligned with our strategic direction to meet the needs and expectations of our valued customers. If you require "custom" rack configuration, please contact HP's Customer Business Center or an Authorized Partner for assistance. <http://www.hp.com/products/configurator>.

#### Service and Support

HP Care Pack services include coverage for the HP branded hardware options qualified for the server and purchased at the same time or afterward that are internal to the enclosure. This also includes the 22" and smaller external monitors and tower UPS options up to 3kVA. These items will be covered at the same service level and for the same coverage period as the server. Coverage of UPS Battery is not included, and standard warranty terms & conditions apply. For servers or storage systems installed within a rack, service also covers all HP qualified rack options installed within the same rack.

To fully capitalize on your HP ProLiant servers' capabilities requires a service partner who thoroughly understands your server technology and systems environment. HP Services, an industry leader in provision of multi vender support solutions, provides a range of support services designed to meet the varying needs of your business. Whether an SMB, or large global corporation, HP has a ProLiant server support offer to help you speedily deploy and maximize system uptime.

**Recommended Service** - simplify ProLiant solution implementation, maintenance, and management.

- **Support:** 3-Year 4-Hour response 24x7 Same Business Day Coverage only
- **Deployment Service:** Installation and Start up only

**Enhanced Service** - optimize service level to increase IT performance and availability.

- **Support:** 3-Year Support Plus 24 only

Refer to the information on "Installation & Start-Up" for service on ProLiant server and Microsoft or Linux O/S per the Customer Description and/or Data Sheet; to be delivered on a scheduled basis 8am-5pm, M-F, excluding HP holidays.

**NOTE:** For a complete listing of service offerings and information visit:

<http://www.hp.com/services/proliantservices>  
<http://www.hp.com/go/proliant/carepack>



## HPC Interconnects

**NOTE:** High Performance Computing (HPC) interconnect technologies are available for the DL380 under the 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, Gigabit Ethernet or Myrinet Interconnects: <http://www.hp.com/techservers/clusters/ucp/index.html>

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HPC Interconnect	InfiniBand	PCI-X and PCI-Express adapters
	Gigabit Ethernet	Use embedded ports
	Myrinet XP	PCI-X Rev D and Rev E adapters



### Models

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

<p><b>HP DL380 G5 Performance Models</b></p> <p><b>Quad-Core Models</b>  <b>HP DL380G5 X5460 4G</b>  458561-001  <b>HP DL380G5 E5450 4G</b>  492205-001</p>	<p><b>Processor(s)</b>  <a href="#">Two of the following depending on Model</a></p> <p><b>Cache Memory</b>  <a href="#">One of the following depending on Model</a></p> <p><b>Memory</b></p> <p><b>Network Controller</b></p> <p><b>Storage Controller</b></p> <p><b>Hard Drive</b></p> <p><b>Internal Storage</b></p> <p><b>Optical Drive</b></p> <p><b>Power Supply</b></p> <p><b>Fans</b></p> <p><b>Form Factor</b></p>	<p>(2) Quad-Core Intel® Xeon® Processors X5460 (3.16 GHz, 120 Watt, 1333 FSB)</p> <p>(2) Quad-Core Intel® Xeon® Processors E5450 (3.00 GHz, 80 Watts, 1333 FSB)</p> <p>12MB (2 x 6MB) Level 2 cache - Intel® Xeon® processor 5400 sequence  8MB (2 x 4MB) Level 2 cache - Intel® Xeon® processor 5300 sequence  6MB (1 x 6MB) Level 2 cache - Intel® Xeon® processor 5200 sequence</p> <p>4 GB (4 x 1 GB of PC2-5300 Fully Buffered DIMMs (DDR2-667) with Advanced ECC, mirrored and online spare memory capabilities</p> <p>Two embedded NC373i Multifunction Gigabit Server Adapters</p> <p>HP Smart Array P400/512MB BBWC Controller (RAID 0/1/1+0/5/6)</p> <p>None ship standard</p> <p>4.0TB SATA; 4.0TB SAS (with optional hard drives)</p> <p>IDE DVD-ROM/CDRW combo</p> <p>(2) 800Watt, CE Mark Compliant</p> <p>Fully redundant hot plug fans ship standard (N+1)</p> <p>Rack (2U), Height 3.38-inch/8.59 cm; Depth: 26 inches (66 cm)</p>
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<p><b>HP DL380 G5 Base Models</b></p> <p><b>Quad-Core Models</b>  <b>HP DL380G5 E5440 2G</b>  458563-001  <b>HP DL380G5 E5430 2G</b>  458565-001  <b>HP DL380G5 E5420 2G</b>  458567-001</p> <p><b>Dual-Core Models</b>  <b>HP DL380RG5 X5260 2G</b>  461453-001</p>	<p><b>Processor(s)</b>  <a href="#">One of the following depending on Model</a></p> <p><b>Cache Memory</b>  <a href="#">One of the following depending on Model</a></p> <p><b>Memory</b></p> <p><b>Network Controller</b></p> <p><b>Storage Controller</b></p> <p><b>Hard Drive</b></p> <p><b>Internal Storage</b></p> <p><b>Optical Drive</b></p> <p><b>Power Supply</b></p> <p><b>Fans</b></p> <p><b>Form Factor</b></p>	<p>(1) Quad-Core Intel® Xeon® Processor E5440 (2.83 GHz, 80 Watts, 1333 FSB)</p> <p>(1) Quad-Core Intel® Xeon® Processor E5430 (2.66 GHz, 80 Watts, 1333 FSB)</p> <p>(1) Quad-Core Intel® Xeon® Processor E5420 (2.50 GHz, 80 Watts, 1333 FSB)</p> <p>(1) Dual-Core Intel® Xeon® Processor X5260 (3.33 GHz, 80 Watts, 1333 FSB)</p> <p>12MB (2 x 6MB) Level 2 cache - Intel® Xeon® processor 5400 sequence  8MB (2 x 4MB) Level 2 cache - Intel® Xeon® processor 5300 sequence  6MB (1 x 6MB) Level 2 cache - Intel® Xeon® processor 5200 sequence</p> <p>2 GB (2 x 1 GB) PC2-5300 Fully Buffered DIMMs (DDR2-667) with Advanced ECC, mirrored and online spare memory capabilities</p> <p>Two embedded NC373i Multifunction Gigabit Server Adapters</p> <p>HP Smart Array P400/256MB Controller (RAID 0/1/1+0/5)</p> <p>None ship standard</p> <p>4.0TB SATA; 4.0TB SAS (with optional hard drives)</p> <p>Optional DVD, DVD/CD-RW combo, DVD+R/RW or floppy drive</p> <p>(1) 800Watt, CE Mark Compliant</p> <p>Fully redundant hot plug fans ship standard (N+1)</p> <p>Rack (2U), Height 3.38-inch/8.59cm; Depth: 26 inches (66 cm)</p>
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### Models

<b>HP DL380 G5 High Efficiency Models</b>	<b>Processor(s)</b>	(1) Quad-Core Intel® Xeon® Processor L5420 (2.5 GHz, 50 Watts)
	<b>Cache Memory</b>	12MB (2 x 6MB) Level 2 cache - Intel® Xeon® processor 5400 sequence
<b>Quad-Core Models DL380 L5420 HE 2GB 465323-001</b>	<b>Memory</b>	2 GB (2 x 1 GB) PC2-5300 Fully Buffered Low Power DIMMs (DDR2-667) with Advanced ECC, mirrored and online spare memory capabilities
	<b>Network Controller</b>	Two embedded NC373i Multifunction Gigabit Server Adapters
	<b>Storage Controller</b>	HP Smart Array P400/256MB Controller (RAID 0/1/1+0/5)
	<b>Hard Drive</b>	None ship standard
	<b>Internal Storage</b>	4.0TB SATA; 4.0TB SAS (with optional hard drives)
	<b>Optical Drive</b>	Optional DVD, DVD/CD-RW combo, DVD+R/RW or floppy drive
	<b>Power Supply</b>	(1) 800Watt, CE Mark Compliant
	<b>Fans</b>	Fully redundant hot plug fans ship standard (N+1)
	<b>Form Factor</b>	Rack (2U), Height 3.38-inch/8.59cm; Depth: 26 inches (66 cm)

<b>HP DL380 G5 Entry Models</b>	<b>Processor(s)</b>	(1) Quad-Core Intel® Xeon® Processor E5405 (2.0 GHz, 80 Watt, 1333 FSB)
	<a href="#">One of the following depending on Model</a>	
<b>Quad-Core Models DL380G5 E5405 1G 458568-001</b>	<b>Cache Memory</b>	12MB (2 x 6MB) Level 2 cache - Intel® Xeon® processor 5400 sequence 8MB (2 x 4MB) Level 2 cache - Intel® Xeon® processor 5300 sequence 6MB (1 x 6MB) Level 2 cache - Intel® Xeon® processor 5200 sequence
	<a href="#">One of the following depending on Model</a>	
	<b>Memory</b>	1 GB (2 x 512 MB) PC2-5300 Fully Buffered DIMMs (DDR2-667) with Advanced ECC, mirrored and online spare memory capabilities
	<b>Network Controller</b>	Two embedded NC373i Multifunction Gigabit Server Adapters
	<b>Storage Controller</b>	HP Smart Array E200/64MB Controller (RAID 0/1/1+0)
	<b>Hard Drive</b>	None ship standard
	<b>Internal Storage</b>	4.0TB SATA; 4.0TB SAS (with optional hard drives)
	<b>Optical Drive</b>	Optional DVD, DVD/CD-RW combo, DVD+R/RW or floppy drive
	<b>Power Supply</b>	(1) 800Watt, CE Mark Compliant
	<b>Fans</b>	Fully redundant hot plug fans ship standard (N+1)
	<b>Form Factor</b>	Rack (2U), Height 3.38-inch/8.59cm; Depth: 26 inches (66 cm)



### Configuration Information - Factory Integrated Models

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

**NOTE:** HP does not allow factory integration of options into standard models listed above. Configure-to-order servers must start with a CTO Chassis.

**NOTE:** FIO indicates that this option only available as a Factory Installable Option.

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

Models	HP ProLiant DL380G5 Rack CTO Chassis	391835-B21
	<b>Factory Integrated Model ships with:</b>	
	(8) SFF Serial Attached SCSI (SAS) Drive Bays	
	Two embedded NC373i Multifunction Gigabit Server Adapters	
	PCI-Express Riser Cage	
	800Watt hot plug power supply, CE Mark Compliant	
	One IEC Power cord	
	Rack (2U), (3.5-inch)	

### Step 1A: Choose Controller (must choose only one of the following)

Controllers	HP Smart Array P400/256 for DL380 G5/ DL385 G2 FIO Controller	405160-B21
	<b>NOTE:</b> PCI Express	
	HP Smart Array P400/512 BBWC for DL380 G5/ DL385 G2 FIO Controller	405162-B21
	<b>NOTE:</b> PCI Express	
	HP Smart Array E200/128 BBWC Controller	411508-B21
	<b>NOTE:</b> PCI Express	
	HP Smart Array P800/512 BBWC Controller	381513-B21
	<b>NOTE:</b> PCI Express SA-P800 Controller supports both internal and external drives.	
	HP Smart Array P600/256 BBWC Controller	337972-B21
	<b>NOTE:</b> PCI-X. SA-P600 Controller supports both internal and external drives.	
	HP Smart Array P600 w/512 FIO Ctrlr	432103-B21
	HP Smart Array E200/64 FIO Controller	405528-B21

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

Processors	<b>Quad-Core Processors</b>	
	Quad-Core Intel® Xeon® Processor X5470 (3.33 GHz, 120 Watts, 1333 FSB) DL380 FIO Kit	484309-L21
	Quad-Core Intel® Xeon® Processor X5460 (3.16 GHz, 120 Watts, 1333 FSB) DL380 FIO Kit	458581-L21
	Quad-Core Intel® Xeon® Processor X5450 (3.0 GHz, 120 Watts, 1333 FSB) DL380 FIO Kit	462593-L21
	Quad-Core Intel® Xeon® Processor E5450 (3.0 GHz, 80 Watts, 1333 FSB) DL380 FIO Kit	458583-L21
	Quad-Core Intel® Xeon® Processor E5440 (2.83 GHz, 80 Watts, 1333 FSB) DL380 FIO Kit	458585-L21



### Configuration Information - Factory Integrated Models

Quad-Core Intel® Xeon® Processor E5430 (2.66 GHz, 80 Watts, 1333 FSB) DL380 FIO Kit	458575-L21
Quad-Core Intel® Xeon® Processor L5430 (2.66 GHz, 50 Watts, 1333 FSB) DL380 FIO Kit	484310-L21
Quad-Core Intel® Xeon® Processor E5420 (2.50 GHz, 80 Watts, 1333 FSB) DL380 FIO Kit	458577-L21
Quad-Core Intel® Xeon® Processor L5420 (2.50 GHz, 50 Watts, 1333 FSB) DL380 FIO Kit	465324-L21
Quad-Core Intel® Xeon® Processor E5410 (2.33 GHz, 80 Watts, 1333 FSB) DL380 FIO Kit	459142-L21
Quad-Core Intel® Xeon® Processor L5410 (2.33 GHz, 50 Watts, 1333 FSB) DL380 FIO Kit	465326-L21
Quad-Core Intel® Xeon® Processor E5405 (2.00 GHz, 80 Watts, 1333 FSB) DL380 FIO Kit	458579-L21

#### Dual-Core Processors

Dual-Core Intel® Xeon® Processor X5260 (3.50 GHz, 80 Watts, 1333 FSB) DL380 FIO Kit	484311-L21
Dual-Core Intel® Xeon® Processor X5260 (3.33 GHz, 80 Watts, 1333 FSB) DL380 FIO Kit	461461-L21
Dual-Core Intel® Xeon® Processor L5240 (3.00 GHz, 40 Watts, 1333 FSB), FIO Kit	461463-L21
Dual-Core Intel® Xeon® Processor E5205 (1.86 GHz, 65 Watts, 1066 FSB) DL380 FIO Kit	461465-L21

#### Base Memory

1 GB FBD PC2-5300 2 x 512 MB Single Rank Kit	397409-B21
2 GB FBD PC2-5300 2 x 1 GB Dual Rank Kit	397411-B21
2 GB FBD PC2-5300 2 x 1 GB Low Power Single Rank Kit	461826-B21
4 GB FBD PC2-5300 2 x 2 GB Dual Rank Kit	397413-B21
4 GB FBD PC2-5300 2 x 2 GB Low Power Dual Rank Kit	461828-B21
8 GB FBD PC2-5300 2 x 4 GB Dual Rank Kit	397415-B21
8 GB FBD PC2-5300 2 x 4 GB Low Power Dual Rank Kit	466440-B21
16 GB FBD PC2-5300 2 x 8 GB Dual Rank Kit	413015-B21
64 GB FBD PC2-5300 8 x 8 GB Dual Rank Kit	495604-B21

**NOTE:** Memory Option Kits include Low Power DIMMs. For more information on ProLiant Energy Efficient Features, please visit:  
<http://h18004.www1.hp.com/products/servers/platforms/energyefficient/>.





### Configuration Information - Factory Integrated Models

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

##### Performance Packs

The HP ProLiant DL380 G5 performance packs are necessary to configure a HP ProLiant DL380 G5 Performance Model. HP ProLiant DL380 G5 Performance model includes the latest performance technologies and enterprise class availability features pre-installed for convenience and value. The performance pack includes a 2nd processor and a redundant power supply.

**NOTE:** Must also select Slimline CD-RW/DVD-ROM Combo Option Kit (331903-B21) to achieve parity to DL380 G5 High Performance Models.

HP DL380G5 X5460 HPM FIO Perf Pack	458588-B21
HP DL380G5 X5450 HPM FIO Perf Pack	458589-B21
HP DL380G5 E5450 HPM FIO Perf Pack	494037-B21

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#### Step 4: Choose Additional Options for Factory Integration

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



### Core Options

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

Processors		
	<b>Quad-Core Processors</b>	
	Quad-Core Intel® Xeon® Processor X5470 (3.33 GHz, 120 Watts, 1333 FSB)	484309-B21
	Quad-Core Intel® Xeon® Processor X5460 (3.16 GHz, 120 Watts, 1333 FSB)	458581-B21
	Quad-Core Intel® Xeon® Processor X5450 (3.0 GHz, 120 Watts, 1333 FSB)	462593-B21
	Quad-Core Intel® Xeon® Processor E5450 (3.0 GHz, 80 Watts, 1333 FSB)	458583-B21
	Quad-Core Intel® Xeon® Processor E5440 (2.83 GHz, 80 Watts, 1333 FSB)	458585-B21
	Quad-Core Intel® Xeon® Processor E5430 (2.66 GHz, 80 Watts, 1333 FSB)	458575-B21
	Quad-Core Intel® Xeon® Processor L5430 (2.66 GHz, 50 Watts, 1333 FSB)	484310-B21
	Quad-Core Intel® Xeon® Processor E5420 (2.50 GHz, 80 Watts, 1333 FSB)	458577-B21
	Quad-Core Intel® Xeon® Processor L5420 (2.50 GHz, 50 Watts, 1333 FSB)	465324-B21
	Quad-Core Intel® Xeon® Processor E5410 (2.33 GHz, 80 Watts, 1333 FSB)	459142-B21
	Quad-Core Intel® Xeon® Processor L5410 (2.33 GHz, 50 Watts, 1333 FSB)	465326-B21
	Quad-Core Intel® Xeon® Processor E5405 (2.00 GHz, 80 Watts, 1333 FSB)	458579-B21
	<b>Dual-Core Processors</b>	
	Dual-Core Intel® Xeon® Processor X5270 (3.50 GHz, 80 Watts, 1333 FSB)	484311-B21
	Dual-Core Intel® Xeon® Processor X5260 (3.33 GHz, 80 Watts, 1333 FSB)	461461-B21
	Dual-Core Intel® Xeon® Processor L5240 (3.00 GHz, 40 Watts, 1333 FSB)	461463-B21
	Dual-Core Intel® Xeon® Processor E5205 (1.86 GHz, 65 Watts, 1066 FSB)	461465-B21

Memory		
	1 GB FBD PC2-5300 2 x 512 MB Single Rank Kit	397409-B21
	2 GB FBD PC2-5300 2 x 1 GB Dual Rank Kit	397411-B21
	2 GB FBD PC2-5300 2 x 1 GB Low Power Single Rank Kit	461826-B21
	4 GB FBD PC2-5300 2 x 2 GB Dual Rank Kit	397413-B21
	4 GB FBD PC2-5300 2 x 2 GB Low Power Dual Rank Kit	461828-B21
	8 GB FBD PC2-5300 2 x 4 GB Dual Rank Kit	397415-B21
	8 GB FBD PC2-5300 2 x 4 GB Low Power Dual Rank Kit	466440-B21
	16 GB FBD PC2-5300 2 x 8 GB Dual Rank Kit	413015-B21
	64 GB FBD PC2-5300 8 x 8 GB Dual Rank Kit	495604-B21

**NOTE:** Memory Option Kits include Low Power DIMMs. For more information on ProLiant Energy Efficient Features, please visit: <http://h18004.www1.hp.com/products/servers/platforms/energyefficient/>.

Smart Buy Memory (DIMMs)		
	1GB FBD PC2-5300 2X512MB Kit	397409-S21
	2GB FBD PC2-5300 2X1GB Kit	397411-S21
	4GB FBD PC2-5300 2X2GB Kit	397413-S21



### Core Options

Diskette Drive	Slimline Ejectable Floppy drive	390164-B21
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Optical Drives	Slimline CD-RW/DVD-ROM Combo Option Kit	331903-B21
	<b>NOTE:</b> Included in performance models.	
	Slimline DVD-ROM Drive (8x/24x) Option Kit	264007-B21
	HP DVD±R/RW 8X Slim	383975-B21
	Slimline CD-ROM Drive 24X	356963-B21

### Hard Drives

**NOTE:** The components of a storage subsystem (e.g. the drive, the HBA/controller, firmware, and the server backplane) should operate at the same data transfer rate or the system bandwidth will be negotiated down to an acceptable level for all components.

**NOTE:** Hard drives have either a one year or three year warranty; refer to the specific hard drive QuickSpecs for details.

#### SAS Hot Plug SFF Enterprise (ENT) Drives

HP 300GB 6G SAS 10K SFF DP ENT HDD	507127-B21
HP 300GB 3G SAS 10K SFF DP ENT HDD	492620-B21
HP 146GB 6G SAS 15K SFF DP ENT HDD	512547-B21
HP 146GB 6G SAS 10K SFF DP ENT HDD	507125-B21
HP 146GB 3G SAS 15K SFF DP ENT HDD	504062-B21
HP 146GB 3G SAS 10K SFF DP ENT HDD	418367-B21
HP 72GB 6G SAS 15K SFF DP ENT HDD	512545-B21
HP 72GB 3G SAS 15K SFF DP ENT HDD	418371-B21
HP 72GB 3G SAS 10K SFF DP ENT HDD	384842-B21

#### SAS Hot Plug SFF Midline (MDL) Drives

HP 500GB 6G SAS 7.2K SFF DP MDL HDD	507610-B21
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**NOTE:** SAS Enterprise drives have a 3 year warranty, while SAS Midline drives have a 1 year warranty. Please see the QuickSpecs for Technical Specifications and additional information:

[http://h18000.www1.hp.com/products/quickspecs/12244\\_na/12244\\_na.html](http://h18000.www1.hp.com/products/quickspecs/12244_na/12244_na.html)

#### SATA Hot Plug SFF Midline (MDL) Drives

HP 500GB 3G SATA 7.2K 2.5in MDL HDD	507750-B21
HP 160GB 3G SATA 7.2K 2.5in MDL HDD	530888-B21

#### SATA Hot Plug SFF Entry (ETY) Drives

HP 250GB 3G SATA 5.4K SFF ETY HDD	460355-B21
HP 120GB 1.5G SATA 5.4K SFF ETY HDD	458924-B21

**NOTE:** SATA drives have a 1 year warranty. Please see the QuickSpecs for Technical Specifications and additional information:

[http://h18000.www1.hp.com/products/quickspecs/13021\\_na/13021\\_na.html](http://h18000.www1.hp.com/products/quickspecs/13021_na/13021_na.html)

#### SATA Hot Plug Midline (MDL) Solid State Drives

HP 60GB 3G SATA 2.5in MDL 1y Wty SSD	572071-B21
HP 120GB 3G SATA 2.5in MDL 1y Wty SSD	572073-B21



### Core Options

**NOTE:** Please see the QuickSpecs for Technical Specifications and additional information:  
[http://h18000.www1.hp.com/products/quickspecs/13415\\_na/13415\\_na.html](http://h18000.www1.hp.com/products/quickspecs/13415_na/13415_na.html)

#### Communications

##### Gigabit Ethernet Adapters

HP NC110T PCI Express Gigabit Server Adapter 434905-B21

**NOTE:** Does not support Windows 2000.

HP NC360T PCI Express Dual Port Gigabit Server Adapter 412648-B21

HP NC364T PCI Express Quad Port Gigabit Server Adapter 435508-B21

**NOTE:** Does not support Windows 2000.

HP NC373F PCI Express Multifunction Gigabit Server Adapter 394793-B21

HP NC373T PCI Express Multifunction Gigabit Server Adapter 394791-B21

HP NC380T PCI Express Dual Port Multifunction Gigabit Server Adapter 394795-B21

**NOTE:** Supported on a Full Length-Full Height slot only.

##### 10 Gigabit Ethernet Adapters

HP NC522SFP Dual Port 10GbE Server Adapter 468332-B21

**NOTE:** A minimum of two gigabyte (2 GB) of server memory is required per each NC522SFP adapter.

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

**NOTE:** Please see the QuickSpecs for Technical Specifications and additional information: [www.hp.com/go/ProLiantNICs](http://www.hp.com/go/ProLiantNICs)

#### Riser Cage Options

Mixed Riser Cage Option Kit (PCI-E/PCI-X) 410570-B21

#### Power Supplies

Redundant Power Supply 350/370/380 G5 Kit 399771-B21

Redundant Power Supply 350/370/380 G5 NEMA Kit 399771-001

Redundant Power Supply 380 G5 Kit - 48Volt DC 433634-B21

**NOTE:** Factory integration not available for PN 433634-B21.



### Additional Options

#### HP Insight Software

##### HP Insight Control server deployment

HP Insight Control server deployment, Electronic License including 1 year of 24x7 Technical Support and Updates

T9082AAE

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

**NOTE:** Electronic software is available in all countries except China and Japan. Customers in China and Japan should order the physical equivalent.

**NOTE:** Customer will receive a license entitlement certificate. The license entitlement certificate must be redeemed online or via fax in order to obtain the license activation key(s). Includes one year of 24 x 7 HP Software Technical Support and Update Service.

**NOTE:** Licenses ship without media. The HP Insight 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 Insight Control QuickSpecs at: [http://h18000.www1.hp.com/products/quickspecs/12631\\_na/12631\\_na.html](http://h18000.www1.hp.com/products/quickspecs/12631_na/12631_na.html)

##### HP Insight Control for Linux

HP Insight Control for Linux, 1-server license, including one year of 24x7 Technical Support and Updates, Electronic

T9084BAE

HP Insight Control for Linux, No Media, 1-Server license, including one year of 24x7 Technical Support and Updates

464423-B22

HP Insight Control for Linux, Media pack (DVD) - No licenses included

464422-B22

**NOTE:** Media pack DVD contains the ISO image for HP Insight Control for Linux, HP Systems Insight Manager, HP Insight Control power management, HP Insight Control virtual machine management, and an integrated installer. Servers must be acquired separately.

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

**NOTE:** Electronic software is available in all countries except China and Japan. Customers in China and Japan should order the physical equivalent.

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

**NOTE:** For additional License Kits, including electronic licensing options, please see the QuickSpecs at:

[http://h18000.www1.hp.com/products/quickspecs/13019\\_na/13019\\_na.html](http://h18000.www1.hp.com/products/quickspecs/13019_na/13019_na.html)

##### HP Integrated Lights-Out Advanced

HP Integrated Lights-Out Advanced, No Media, 1-Server License, including 1 year of 24x7 Technical Support and Updates

512485-B21

**NOTE:** This license allows 1 server to be deployed and managed via HP iLO Advanced. Customer will receive a printed license entitlement certificate via physical shipment. The license entitlement certificate must be redeemed online or via fax in order to obtain the license activation key(s). Includes one year of 24 x 7 HP Software Technical Support Service

**NOTE:** For additional license kits, including electronic delivery options, please see the QuickSpecs at:

[http://h18000.www1.hp.com/products/quickspecs/12362\\_na/12362\\_na.html](http://h18000.www1.hp.com/products/quickspecs/12362_na/12362_na.html)

##### HP Insight Rapid Deployment software

HP Insight Rapid Deployment software No Media 1-Server License, including 1 year of 24x7 Technical Support and Updates

452151-B21



### Additional Options

**NOTE:** This license allows 1 server to be deployed and managed via RDP. Customer will receive a printed license entitlement certificate via physical shipment. The license entitlement certificate must be redeemed online or via fax in order to obtain the license activation key(s). Includes one year of 24 x 7 HP Software Technical Support Service.

**NOTE:** For additional license kits, including electronic delivery options, please see the QuickSpecs at:

[http://h18000.www1.hp.com/products/quickspecs/11053\\_na/11053\\_na.html](http://h18000.www1.hp.com/products/quickspecs/11053_na/11053_na.html)

#### Storage Controllers

##### SAS Controllers

###### Smart Array E200 Controller

HP Smart Array E200/128 BBWC Controller 411508-B21

###### Smart Array E500 Controller

Smart Array E500/256MB Controller 435129-B21

###### Smart Array P400 Controller

HP Smart Array P400/256MB Controller 405132-B21

**NOTE:** The HP Smart Array P400/256 MB Controller (PN 405132-B21) may only be installed in slots 3, 4, and 5.

HP Smart Array P400/512MB BBWC Controller 411064-B21

**NOTE:** The HP Smart Array P400/512 MB BBWC Controller (PN 411064-B21) may only be installed in slots 3, 4, and 5.

###### Smart Array P600 Controller

HP Smart Array P600/256 BBWC Controller 337972-B21

**NOTE:** Requires Mixed PCI-E/X riser cage.

###### Smart Array P800 Controller

HP Smart Array P800/512 BBWC Controller 381513-B21

##### Optional Upgrades

128-MB BBWC (Battery-Backed Write Cache) Enabler 351580-B21

**NOTE:** Supports the Smart Array E200 Controller, Smart Array 641 Controller, and Smart Array 642 Controller.

HP SA-P400 and SA-E500 24 In Battery Cable Kit 417836-B21

**NOTE:** This option kit contains a 24" battery cable and adhesive material for installing a battery into the server if a Smart Array E500 or Smart Array P400 is integrated outside of the factory. For all solutions, please refer to the server QuickSpecs and User's Manual for detailed installation instructions.

512MB Battery-backed cache upgrade 405148-B21

**NOTE:** Contains battery and memory module. For Smart Array P400 Controller.

Battery-backed write cache upgrade 383280-B21

**NOTE:** Contains battery only. For Smart Array P400 Controller.

512 MB Battery-Backed Cache Upgrade 372538-B21

**NOTE:** This 512-MB Battery-Backed Cache Module upgrade kit supports the Smart Array P600 Controller and the Smart Array 6400 series Controller.

HP 8484 to Mini SAS 33in Cable Assy 591734-B21

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

[http://h18000.www1.hp.com/products/quickspecs/12460\\_na/12460\\_na.html](http://h18000.www1.hp.com/products/quickspecs/12460_na/12460_na.html)



### Additional Options

(Smart Array E200 Controller)

[http://h18000.www1.hp.com/products/quickspecs/12700\\_na/12700\\_na.html](http://h18000.www1.hp.com/products/quickspecs/12700_na/12700_na.html)

(Smart Array E500 Controller)

[http://h18000.www1.hp.com/products/quickspecs/12400\\_na/12400\\_na.html](http://h18000.www1.hp.com/products/quickspecs/12400_na/12400_na.html)

(Smart Array P400 Controller)

[http://h18000.www1.hp.com/products/quickspecs/12247\\_na/12247\\_na.html](http://h18000.www1.hp.com/products/quickspecs/12247_na/12247_na.html)

(Smart Array P600 Controller)

[http://h18000.www1.hp.com/products/quickspecs/12616\\_na/12616\\_na.html](http://h18000.www1.hp.com/products/quickspecs/12616_na/12616_na.html)

(Smart Array P800 Controller)

#### SAS HBA

HP SC08Ge Host Bus Adapter

488765-B21

HP SC44Ge Host Bus Adapter

416096-B21

**NOTE:** When using the SC44Ge with SATA Hard Drives, 1.5G SATA Hard Drives are required. Transfer rate: 1.5 Gb/s SATA, 3 Gb/s SAS.

HP 8 Internal Port SAS HBA with RAID

347786-B21

**NOTE:** When using the 8 Internal Port SAS HBA with SATA Hard Drives, 1.5G SATA Hard Drives are required. Transfer rate: 1.5 Gb/s SATA, 3 Gb/s SAS.

**NOTE:** Transfer rate: 1.5 Gb/s SATA, 3 Gb/s SAS.

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

[http://h18004.www1.hp.com/products/quickspecs/13082\\_na/13082\\_na.html](http://h18004.www1.hp.com/products/quickspecs/13082_na/13082_na.html)

(SC08Ge HBA)

[http://h18004.www1.hp.com/products/quickspecs/12617\\_na/12617\\_na.html](http://h18004.www1.hp.com/products/quickspecs/12617_na/12617_na.html)

(SC44Ge HBA)

[http://h18004.www1.hp.com/products/quickspecs/12332\\_na/12332\\_na.html](http://h18004.www1.hp.com/products/quickspecs/12332_na/12332_na.html)

(SAS HBA)

#### SCSI Controllers for External Drive/Storage Support

**NOTE:** All Ultra 320 controllers are PCI-X and require the Mixed Riser Cage Option Kit (PCI-E/PCI-X).

Smart Array 6402/128 Controller

273915-B21

**NOTE:** Ultra320 SCSI.

Smart Array 6404/256 Controller

273914-B21

**NOTE:** Ultra320 SCSI.

Smart Array 642 Controller

291967-B21

**NOTE:** Ultra320 SCSI.

128-MB Battery-Backed Write Cache (BBWC)

351580-B21

**NOTE:** Supports the Smart Array E200 Controller, Smart Array 641 Controller, and Smart Array 642 Controller.

Ultra320 Expansion Module for SA-6402

273911-B21

64-Bit/133-MHz Single Channel Ultra320 SCSI HBA G2

374654-B21

#### SCSI HBA

HP SC11Xe Host Bus Adapter

412911-B21

**NOTE:** Recommended HBA for SCSI tape drive connect.

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

[http://h18000.www1.hp.com/products/quickspecs/11943\\_na/11943\\_na.html](http://h18000.www1.hp.com/products/quickspecs/11943_na/11943_na.html)

(Single Channel Ultra320 SCSI HBA)

[http://h18000.www1.hp.com/products/quickspecs/11587\\_na/11587\\_na.html](http://h18000.www1.hp.com/products/quickspecs/11587_na/11587_na.html)



### Additional Options

(Smart Array 6400 Series)  
[http://h18000.www1.hp.com/products/quickspecs/12069\\_na/12069\\_na.html](http://h18000.www1.hp.com/products/quickspecs/12069_na/12069_na.html)  
 (Smart Array 642)  
[http://h18000.www1.hp.com/products/quickspecs/12566\\_na/12566\\_na.html](http://h18000.www1.hp.com/products/quickspecs/12566_na/12566_na.html)  
 (SC11Xe HBA)

Power Cords	Nema 5-15P to IEC320-C13, Low voltage (6 ft/2 m)	AF556A
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HPC Specific Options	HP IB 4X DDR PCI-e Dual Port HCA	409376-B21
	HP IB 4X DDR Conn-X PCI-e Dual Port HCA	448397-B21
	HP IB 4X DDR PCI-e DUAL PORT 0 mem HCA	483513-B21
	<b>NOTE:</b> Please see the QuickSpecs for additional information: <a href="http://h18000.www1.hp.com/products/quickspecs/13078_na/13078_na.html">http://h18000.www1.hp.com/products/quickspecs/13078_na/13078_na.html</a>	

### Tape Storage

**NOTE:** For the complete listing of Tape Drive offerings, please see:  
<http://www.hp.com/products1/storage/compatibility/tapebackup/ISS/index.html>

#### Tape Drives

#### USB Rack-Mount Tape Solutions

HP StorageWorks 1U USB Rack-Mount Kit with one DAT 160 USB Tape Drive	AG703A
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**NOTE:** Pre-configured with one DAT 160 USB tape drive.

DAT 320 USB External Tape Drive	AJ823A
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DAT 320 WW SAS External Tape Drive	AJ828A
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#### SAS Rack-Mount Tape Solutions

**NOTE:** HP recommends purchasing the HP SC44Ge HBA (416096-B21) for a dedicated SAS HBA for tape.

HP StorageWorks 1U SAS Rack-Mount Kit with one LTO-4 Ultrium 1760	EH946A
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**NOTE:** Pre-configured with one LTO-4 Ultrium 1760 SAS tape drive.

HP StorageWorks 1U SAS Rack-Mount Kit	AE459A
---------------------------------------	--------

**NOTE:** Supports up to (2) half-height SAS tape drives.

HP StorageWorks LTO-2 Ultrium 448 SAS Internal Tape Drive	DW085A
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**NOTE:** Mounts inside the 1U SAS Rack-Mount Kit (AE459A).

HP StorageWorks LTO-3 Ultrium 920 SAS Internal Tape Drive	EH847A
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**NOTE:** Mounts inside the 1U SAS Rack-Mount Kit (AE459A).

**NOTE:** For an up-to-date listing of the latest O/S and software support details for HP tape drives, please visit: <http://www.hp.com/go/connect>.

#### HP StorageWorks 1/8 G2 Tape Autoloader

HP StorageWorks 1/8 G2 LTO-4 Ultrium 1760 SAS Tape Autoloader	AK377A
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HP StorageWorks 1/8 G2 LTO-3 Ultrium 920 SAS Autoloader	AH558A
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HP StorageWorks 1/8 G2 Tape Autoloader Rack Kit	AH166A
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**NOTE:** Required to install the 1/8 G2 Autoloaders in a standard 19-inch rack; includes rails and rackmount instructions.

**NOTE:** Please reference the Tape Autoloader QuickSpecs at:

<http://www.hp.com/go/automation> for additional information needed to create a complete solution.





### Additional Options

#### HP StorageWorks MSL2024 Tape Library

HP StorageWorks MSL2024 1 LTO-4 Ultrium 1760 SAS Drive Library AK378A

HP StorageWorks MSL2024 1 LTO-3 Ultrium 920 SAS Drive Library AH559A

#### HP StorageWorks MSL4048 Tape Library

HP StorageWorks MSL4048 2 LTO-4 Ultrium 1760 SAS Drive Library AK380A

HP StorageWorks MSL4048 1 LTO-3 Ultrium 920 SAS Drive Library AH560A

**NOTE:** Please reference the MSL Tape Library QuickSpecs at:

<http://www.hp.com/go/automation> for additional information needed to create a complete solution; reference current compatibility information at:

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

### Disk-Based Backup

#### RDX Removable Disk Backup

HP StorageWorks RDX500 External Removable Disk Backup System AJ935A

**NOTE:** 500GB of Disk Storage

**NOTE:** Please see the HP RDX Removable Disk Backup System QuickSpecs for additional information:

[http://h18000.www1.hp.com/products/quickspecs/13036\\_na/13036\\_na.html](http://h18000.www1.hp.com/products/quickspecs/13036_na/13036_na.html)

#### D2D Backup

HP StorageWorks D2D2502i Backup System EJ001A

**NOTE:** 2 TB raw capacity/1.5 TB useable capacity.

HP StorageWorks D2D2504i Backup System EJ002A

**NOTE:** 4 TB raw capacity/3 TB useable capacity.

**NOTE:** Please see the HP D2D Backup Systems QuickSpecs for additional information: <http://www.hp.com/go/d2d>

### StorageWorks Options

#### StorageWorks Fibre Channel HBA

**NOTE:** For the complete listing of Fibre Channel Host Bus Adapters for Windows 2000, Windows Server 2003 and Linux, please see:

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

#### Brocade Fibre Channel HBAs

HP StorageWorks 81B PCI-e FC HBA Single Port AP769A

HP StorageWorks 82B PCI-e FC HBA Dual Port AP770A

HP StorageWorks 41B 4Gb PCI-e FC HBA AP767A

HP StorageWorks 42B 4Gb Dual-Port PCI-e FC HBA AP768A

#### Emulex Fibre Channel HBAs

HP StorageWorks 81E PCI-e FC HBA Single Port AJ762A

HP StorageWorks 82E PCI-e FC HBA Dual Port AJ763A

HP StorageWorks FC2142 4Gb PCI-e HBA A8002A

HP StorageWorks FC2242 Dual Channel 4Gb PCI-e HBA A8003A

#### QLogic Fibre Channel HBAs

HP StorageWorks 81Q PCI-e FC HBA Single Port AK344A

HP StorageWorks 82Q PCI-e FC HBA Dual Port AJ764A

HP StorageWorks FC1142 4Gb PCI-e HBA AE311A



### Additional Options

HP StorageWorks FC1242 Dual Channel 4Gb PCI-e HBA	AE312A
<b>StorageWorks SCSI HBA</b>	
HP U320e SCSI Host Bus Adapter	AH627A
<b>NOTE:</b> Recommended HBA for MSL SCSI Tape Library connect.	

HP StorageWorks Modular Smart Array	<b>MSA SAN Storage Arrays</b>	
	HP StorageWorks 20 Modular Smart Array	335921-B21
	<b>NOTE:</b> Rack-mountable 12 (SATA) drive enclosure with U320 Host connectivity, redundant power supplies.	
	<b>NOTE:</b> Please see the QuickSpecs for additional options and configuration information at: <a href="http://h18000.www1.hp.com/products/quickspecs/11942_na/11942_na.html">http://h18000.www1.hp.com/products/quickspecs/11942_na/11942_na.html</a>	
	HP StorageWorks 50 Modular Smart Array	364430-B21
	<b>NOTE:</b> Please see the QuickSpecs for additional options and configuration information at: <a href="http://h18000.www1.hp.com/products/quickspecs/12245_na/12245_na.html">http://h18000.www1.hp.com/products/quickspecs/12245_na/12245_na.html</a>	
	HP StorageWorks 60 Modular Smart Array	418408-B21
	<b>NOTE:</b> Please see the QuickSpecs for additional options and configuration information at: <a href="http://h18000.www1.hp.com/products/quickspecs/12627_na/12627_na.html">http://h18000.www1.hp.com/products/quickspecs/12627_na/12627_na.html</a>	
HP StorageWorks 70 Modular Smart Array	418800-B21	
<b>NOTE:</b> Please see the QuickSpecs for Technical Specifications and additional information: <a href="http://h18000.www1.hp.com/products/quickspecs/12652_na/12652_na.html">http://h18000.www1.hp.com/products/quickspecs/12652_na/12652_na.html</a>		
HP 2012sa Single Controller Modular Smart Array	AJ752A	
HP 2012sa Dual Controller Modular Smart Array	AJ753A	
<b>NOTE:</b> Please see the QuickSpecs for additional options and configuration information at: <a href="http://h18000.www1.hp.com/products/quickspecs/13045_na/13045_na.html">http://h18000.www1.hp.com/products/quickspecs/13045_na/13045_na.html</a>		

Uninterruptible Power Systems	<b>HP Rack-mountable UPS</b>	
	<b>HP R1500 G2 UPS</b>	
	HP, R1.5kVA UPS, 1U	AF419A
	<b>NOTE:</b> Please see the QuickSpecs for Technical Specifications and additional information: <a href="http://h18000.www1.hp.com/products/quickspecs/12507_na/12507_na.html">http://h18000.www1.hp.com/products/quickspecs/12507_na/12507_na.html</a>	
<b>NOTE:</b> For additional information on HP Uninterruptable Power Systems please go to: <a href="http://www.hp.com/servers/rackups">www.hp.com/servers/rackups</a> .		



### Additional Options

Power Distribution Units	Monitored PDUs	
	<b>HP Monitored Power Distribution Unit: Full Rack Version</b>	
	HP 17.3 kVA S2324 Monitored PDU- dual input, 3Ø24A	AF503A
	HP 8.6 kVA S1324 Monitored PDU- single input, 3Ø, 24A	AF504A
	HP 16.6 kVA S2140 Monitored PDU- dual input, 1Ø, 40A	AF505A
	<b>HP Monitored Power Distribution Unit: Half Rack Version</b>	
	HP 4.9 kVA S124 Monitored PDU- single input, 1Ø, 24A	AF914A
	<b>NOTE:</b> Please see the <a href="#">QuickSpecs for Technical Specifications and additional information:</a>	
	<a href="http://h18000.www1.hp.com/products/quickspecs/12118_na/12118_na.html">http://h18000.www1.hp.com/products/quickspecs/12118_na/12118_na.html</a>	

HP Rack Series	<b>HP Rack 5000 Series</b> (Graphite Metallic)	
	HP 5642 Rack-Unassembled	358254-B21
	<b>NOTE:</b> Please see the <a href="#">QuickSpecs for Technical Specifications and additional information:</a>	
	<a href="http://h18000.www1.hp.com/products/quickspecs/12074_na/12074_na.html">http://h18000.www1.hp.com/products/quickspecs/12074_na/12074_na.html</a>	
	<b>HP Rack 10000 G2 Series</b> (Carbon/Graphite Metallic)	
	S10614 (14U) Rack Cabinet - Shock Pallet	292302-B22
	10642 G2 (42U) Rack Cabinet - Pallet	AF001A
	10642 G2 (42U) Rack Cabinet - Shock Pallet	AF002A
	10642 G2 (42U) Rack Cabinet - Crated	AF003A
	10642 G2 (42U) Rack Cabinet, with Extension - Shock Pallet	AF004A
	10636 G2 (36U) Rack Cabinet - Pallet	AF011A
	10636 G2 (36U) Rack Cabinet - Shock Pallet	AF012A
	10636 G2 (36U) Rack Cabinet - Crated	AF013A
	10636 G2 (36U) Rack Cabinet, with Extension - Shock Pallet	AF014A
	10622 G2 (22U) Rack Cabinet - Pallet	AF021A
	10622 G2 (22U) Rack Cabinet - Shock Pallet	AF022A
	10642 G2 (42U) Rack Cabinet 1200mm Deep - Shock Pallet	AF034A
	10642 G2 (42U) Rack Cabinet 1200mm Deep - Pallet	AF038A
	10842 G2 (42U) 800mm Wide Rack Cabinet - Pallet	AF041A
	10842 G2 (42U) 800mm Wide Rack Cabinet - Shock Pallet	AF042A
	10647 G2 (47U) Rack Cabinet - Pallet	AF031A
	10647 G2 (47U) Rack Cabinet 1200mm Deep - Shock Pallet	AF044A
	<b>NOTE:</b> Due to handling and shipping requirements, AF044A is only orderable through HP Factory Express. It is not for direct sales. Customer site surveys are required before an order is approved. CTO orders may require additional lead time.	
	10647 G2 (47U) Rack Cabinet 1200mm Deep - Pallet	AF045A
	<b>NOTE:</b> It is mandatory to use a shock pallet when shipping racks with equipment installed.	
	<b>NOTE:</b> xxxxx-B22 (shock pallet) used to ship racks with equipment installed (by custom systems, VARs and Channels).	



### Additional Options

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

[http://h18000.www1.hp.com/products/quickspecs/12402\\_na/12402\\_na.html](http://h18000.www1.hp.com/products/quickspecs/12402_na/12402_na.html)

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

#### HP Rack Options

##### Keyboards and Monitors

TFT7600 Rackmount Keyboard Monitor AG052A

HP TAA TFT7600 Rkmntkybd 17in Monitor AG067A

1U Rackmount Keyboard with USB AG072A

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

##### HP KVM Switch Options

2x1x16 IP Console Switch with Virtual Media AF601A

4x1x16 IP Console Switch with Virtual Media AF602A

2x16 Server Console Switch with Virtual Media AF600A

PS/2 Virtual Media Interface Adapter, 1 pack AF604A

**NOTE:** Requires PS/2 and one USB port on server.

Server console switch 0x2x8 AF616A

Server console switch 0x2x16 AF617A

PS/2 Interface Adapter, 1 pack 262588-B21

PS/2 Interface Adapter, 8 pack 262587-B21

**NOTE:** Cat5e cables are required to connect Interface Adapters to Console Switches. Cat5e cables can be found at the following URL: <http://www.hp.com/go/kvm>.

HP 1x4 Console Switch AF611A

HP PS2 Server Console Cable, 6 foot, 2-Pack AF612A

HP USB Server Console Cable, 6 foot, 2-Pack AF613A

**NOTE:** Required for supporting USB peripherals.

**NOTE:** For additional information regarding KVM switches, Serial Console servers, rack mount monitors, keyboards and all related options please see the following URL:

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

##### HP Serial Console Server Options

HP 16 Port Serial Console Server AF101A

HP 48 Port Serial Console Server AF102A

Serial Adapter, RJ45-DB9 DCE Female, 1 Pack AF103A

Serial Adapter, RJ45-DB9 DCE Female, 8 Pack AF110A

**NOTE:** Cat5e cables are required to connect Serial Adapters to Serial Console Servers. Additional Serial Adapters and Cat5e cables can be found at the following URL: <http://www.hp.com/go/kvm>.

**NOTE:** For additional information regarding KVM switches, Serial Console servers, rack mount monitors, keyboards and all related options please see the following URL:

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



### Additional Options

USB and SD Options	HP USB 2-Button Optical Scroll Mouse (Carbonite/Silver)	DC172B
	1.44MB External USB Floppy Drive	DC141B
	HP USB 04 Standard Keyboard	DT528A#ABA
	HP 1GB USB 2.0 Floppy Drive Key	442085-B21

### Service and Support Offerings

(HP Care Pack Services)

#### Hardware Services On-site Service

**NOTE:** To attach 3 year, 4-Hour On-site Service to Smart Buy servers, Smart Buy Care Packs must be used. For other service levels, order standard Care Pack part numbers.

4-Hour On-site Service, 5-Day x 13-Hour Coverage, 3 Years, Electronic U4544E

4-Hour On-site Service, 7-Day x 24-Hour Coverage, 3 Years, Electronic U4545E

**NOTE:** Use one of the following Smart Buy Care Packs to attach 3 year, 4-Hour On-site Service to Smart Buy servers. For other service levels, order standard Care Pack part numbers.

DL38x Smart Buy 4-Hour On-site Service, 5-Day x 13-Hour Coverage, 3 Years, Electronic UE893E

DL38x Smart Buy 4-Hour On-site Service, 7-Day x 24-Hour Coverage, 3 Years, Electronic UE894E

#### Hardware Services 6-Hour Call to Repair On-site Service

6-Hour Call to Repair, On-site Service, 7-Day x 24-Hour Coverage, 3 Years, Electronic U4546E

#### Installation & Start-up Services

Hardware Installation, Electronic U4554E

Installation & Start-Up of a ProLiant server and Microsoft or Linux O/S per the Customer Description and/or Data Sheet. To be delivered on a scheduled basis 8am-5pm, M-F, excl. HP holidays, Electronic U4555E

Installation and Startup for Essentials Rapid Deployment Pack, Electronic U5683E

#### Support Plus

Onsite HW support, 8am-9pm, M-F, 4hr response and Microsoft O/S SW Tech support offsite, onsite at HP's discretion, 8am-9pm, M-F 2hr response time excl. HP holidays, Electronic U4556E

#### Support Plus 24

Onsite HW support 24x7, 4hr response and Microsoft O/S SW Tech support offsite, onsite at HP's discretion, 24x7 2hr response time incl. HP holidays, Electronic U4557E

Onsite HW support 24x7, 4hr response and SuSE Linux SW Tech support offsite, onsite at HP's discretion, 24x7 2hr response time incl. HP holidays, Electronic U6312E

Onsite HW support 24x7, 4hr response and Red Hat ES Linux SW Tech support offsite, onsite at HP's discretion, 24x7 2hr response time incl. HP holidays, Electronic U8334E

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

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



### Memory

**NOTE:** Memory configurations listed do not apply to "Factory Integrated Models".

#### Standard Memory

2 GB PC2-5300 Fully Buffered DIMMs (DDR2-667) (2 x 1 GB)

#### Upgrading Memory and Memory Interleaving

When upgrading memory, DIMMs 1A and 3A must match. DIMMs 5B and 7B, DIMMs 2C and 4C, and DIMMs 6D and 8D must match and must be installed as a pair. When DIMMs 1A and 3A are populated the system is automatically configured for 2:1 interleaving. When all 4 banks are populated the system is automatically configured for 4:1 interleaving. When four, six, or eight DIMMs are populated with identical DIMMs the system is automatically configured for bank interleaving.

#### Standard Memory Plus Optional Memory

Up to 50 GB memory is available with the standard memory and the optional installation of PC2-5300 Fully Buffered DIMMs (DDR2-667) memory kits.

#### Standard Memory Replaced with Optional Memory

Up to 64 GB of memory is available with the removal of the standard memory and the optional installation of PC2-5300 Fully Buffered DIMMs (DDR2-667) memory kits.

**NOTE:** Chart does not represent all possible configurations.

Memory		Slot							
		1	2	3	4	5	6	7	8
Standard	2 GB	1 GB	Empty	1 GB	Empty	Empty	Empty	Empty	Empty
Optional	50 GB	1 GB	8 GB	1 GB	8 GB	8 GB	8 GB	8 GB	8 GB
Maximum	64 GB	8 GB	8 GB	8 GB	8 GB	8 GB	8 GB	8 GB	8 GB

**NOTE:** In the online spare configuration, the ROM automatically configures the last populated bank as the spare memory. If only banks A and B are populated, bank B is the spare bank. If banks A, B, and C are populated, bank C is the spare bank, Online spare memory is configured through RBSU.

**NOTE:** Mirrored Memory uses mirrored banks to provide a high level of memory redundancy. Customer chooses to implement or not: User selectable via BIOS and default is off.

#### Following are memory options available from HP:

1 GB FBD PC2-5300 2 x 512 MB Single Rank Kit	397409-B21
2 GB FBD PC2-5300 2 x 1 GB Dual Rank Kit	397411-B21
2 GB FBD PC2-5300 2 x 1 GB Low Power Single Rank Kit	461826-B21
4 GB FBD PC2-5300 2 x 2 GB Dual Rank Kit	397413-B21
4 GB FBD PC2-5300 2 x 2 GB Low Power Dual Rank Kit	461828-B21
8 GB FBD PC2-5300 2 x 4 GB Dual Rank Kit	397415-B21
8 GB FBD PC2-5300 2 x 4 GB Low Power Dual Rank Kit	466440-B21
16 GB FBD PC2-5300 2 x 8 GB Dual Rank Kit	413015-B21
64 GB FBD PC2-5300 8 x 8 GB Dual Rank Kit	495604-B21

**NOTE:** Memory Option Kits include Low Power DIMMs. For more information on ProLiant Energy Efficient Features, please visit: <http://h18004.www1.hp.com/products/servers/platforms/energyefficient/>

In Advanced ECC mode, FBDIMMs must be populated as specified in the following table:



## Memory

Configuration	Bank A 1A and 3A	Bank B 5B and 7B	Bank C 2C and 4C	Bank D 6D and 8D
1	X	-	-	-
2	X	X	-	-
3	X	X	X	-
4	X	X	X	X

### Online spare memory configuration

Online spare FBDIMM configuration requirements (in addition to general configuration requirements):

- When only bank A is being used, it must be fully populated with dual-rank FBDIMMs.
- If banks A and C are being used, they must be fully populated.
- If installed, bank A and bank C must contain FBDIMMs with identical part numbers.
- If installed, bank B and bank D must also contain FBDIMMs with identical part numbers.

In online spare mode, FBDIMMs must be populated as specified in the following table:

Configuration	Branch 0 Bank A 1A and 3A	Branch 0 Bank C 2C and 4C	Branch 1 Bank B 5B and 7B	Branch 1 Bank D 6D and 8D
1*	X	-	-	-
2	X	X	-	-
3	X	X	X	X

\* Configuration 1 is only supported if using bank A, populated with dual-rank FBDIMMs. All FBDIMMs 1GB and above are dual-rank.

After installing FBDIMMs, use RBSU to configure the system for online spare memory support ("Configuring online spare memory" on page 57).

### Mirrored memory configuration

Mirrored memory FBDIMM configuration requirements (in addition to general configuration requirements):

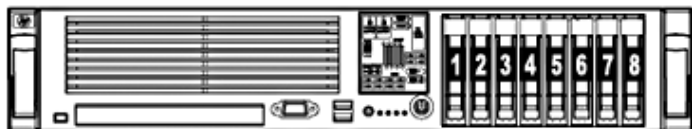
- Banks A and B must be fully populated.
- Bank A and bank B must contain FBDIMMs with identical part numbers. If installed, bank C and bank D must also contain FBDIMMs with identical part numbers.

When using mirrored memory mode, FBDIMMs must be populated as specified in the following table:

Configuration	Bank A 1A and 3A	Bank B 5B and 7B	Bank C 2C and 4C	Bank D 6D and 8D
1	X	X	-	-
2	X	X	X	X

**NOTE:** After installing FBDIMMs, use RBSU to configure the system for mirrored memory support ("Configuring mirrored memory" on page 57).

### Storage



1-8 Eight SFF SAS hot plug hard drive bays

### Drive Support

	Quantity Supported	Position Supported	Controller
<b>Removable Media</b>			
1.44-MB Diskette Drive	Only 1 available removable media bay	Slimline bay	Integrated diskette <b>NOTE:</b> Optional
Slimline CD-RW/DVD-ROM Combo Option Kit <b>NOTE:</b> Included in performance models.	Only 1 available removable media bay	Slimline bay	Integrated IDE <b>NOTE:</b> Optional
Slimline DVD-ROM Drive (8x/24x) Option Kit	Only 1 available removable media bay	Slimline bay	Integrated IDE <b>NOTE:</b> Optional
HP ProLiant Slim CD-ROM x24	Only 1 available removable media bay	Slimline bay	Integrated IDE <b>NOTE:</b> Optional
HP DVD <sub>±</sub> R/RW 8X Slim	Only 1 available removable media bay	Slimline bay	Integrated IDE <b>NOTE:</b> Optional

### Hard Drives

**NOTE:** The components of a storage subsystem (e.g. the drive, the HBA/controller, firmware, and the server backplane) should operate at the same data transfer rate or the system bandwidth will be negotiated down to an acceptable level for all components.  
**NOTE:** Hard drives have either a one year or three year warranty; refer to the specific hard drive QuickSpecs for details.

### SAS Hot Plug SFF Enterprise (ENT) Drives

	Quantity Supported	Position Supported	Controller
300GB 6G SAS 10K DP	Up to 8	1-8	HP Smart Array E200/64 MB Controller
300GB 3G SAS 10K DP			HP Smart Array E200/128 BBWC Controller
146GB 6G SAS 10K DP	Up to 8	1-8	HP Smart Array E500/256 MB Controller
146GB 6G SAS 15K DP			HP Smart Array P400/256 MB Controller
146GB 3G SAS 15K DP			HP Smart Array P400/512 MB BBWC Controller
146GB 3G SAS 10K DP			HP Smart Array P600/256 BBWC Controller
72GB 6G SAS 15K DP			<b>NOTE:</b> Optional mixed PCI-X/E required for SA-P600.
72GB 3G SAS 10K DP			
72GB 3G SAS 15K DP			

### SAS Hot Plug SFF Midline (MDL) Drives





### Storage

	Quantity Supported	Position Supported	Controller
500GB 6G SAS 7.2K DP	Up to 8	1-8	HP Smart Array E200/64 MB Controller HP Smart Array E200/128 BBWC Controller HP Smart Array E500/256 MB Controller HP Smart Array P400/256 MB Controller HP Smart Array P400/512 MB BBWC Controller HP Smart Array P600/256 BBWC Controller <b>NOTE:</b> Optional mixed PCI-X/E required for SA-P600. HP Smart Array P800/512 BBWC Controller

### SATA Hot Plug SFF Midline (MDL) Drives

	Quantity Supported	Position Supported	Controller
500GB 3G SATA 7.2K 160GB 3G SATA 7.2K	Up to 8	1-8	HP Smart Array E200/64 MB Controller HP Smart Array E200/128 BBWC Controller HP Smart Array E500/256 MB Controller HP Smart Array P400/256 MB Controller HP Smart Array P400/512 MB BBWC Controller HP Smart Array P600/256 BBWC Controller <b>NOTE:</b> Optional mixed PCI-X/E required for SA-P600. HP Smart Array P800/512 BBWC Controller

### SATA Hot Plug SFF Entry (ETY) Drives

	Quantity Supported	Position Supported	Controller
250GB 3G SATA 5.4K 120GB 1.5G SATA 5.4K	Up to 8	1-8	HP 8 Internal Port SAS HBA with RAID <b>NOTE:</b> When using the 8 Internal Port SAS HBA with SATA Hard Drives, 1.5G SATA Hard Drives are required. Transfer rate: 1.5 Gb/s SATA, 3 Gb/s SAS. <b>NOTE:</b> Transfer rate: 1.5 Gb/s SATA, 3 Gb/s SAS. HP SC44Ge Host Bus Adapter <b>NOTE:</b> When using the SC44Ge with SATA Hard Drives, 1.5G SATA Hard Drives are required. Transfer rate: 1.5 Gb/s SATA, 3 Gb/s SAS. HP Smart Array E200/64 MB Controller HP Smart Array E200/128 BBWC Controller HP Smart Array E500/256 MB Controller HP Smart Array P400/256 MB Controller HP Smart Array P400/512 MB BBWC Controller HP Smart Array P600/256 BBWC Controller <b>NOTE:</b> Optional mixed PCI-X/E required for SA-P600. HP Smart Array P800/512 BBWC Controller

### SATA Hot Plug Midline (MDL) Solid State Drives

	Quantity Supported	Position Supported	Controller
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### Storage

60GB 3.0G SATA SSD 120GB 3.0G SATA SSD	Up to 8	1-8	<p>HP 8 Internal Port SAS HBA with RAID</p> <p><b>NOTE:</b> When using the 8 Internal Port SAS HBA with SATA Hard Drives, 1.5G SATA Hard Drives are required. Transfer rate: 1.5 Gb/s SATA, 3 Gb/s SAS.</p> <p><b>NOTE:</b> Transfer rate: 1.5 Gb/s SATA, 3 Gb/s SAS.</p> <p>HP SC44Ge Host Bus Adapter</p> <p><b>NOTE:</b> When using the SC44Ge with SATA Hard Drives, 1.5G SATA Hard Drives are required. Transfer rate: 1.5 Gb/s SATA, 3 Gb/s SAS.</p> <p>HP Smart Array E200/64 MB Controller          HP Smart Array E200/128 BBWC Controller          HP Smart Array E500/256 MB Controller          HP Smart Array P400/256 MB Controller          HP Smart Array P400/512 MB BBWC Controller          HP Smart Array P600/256 BBWC Controller</p> <p><b>NOTE:</b> Optional mixed PCI-X/E required for SA-P600.</p> <p>HP Smart Array P800/512 BBWC Controller</p>
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### External Storage

	Quantity Supported	Position Supported	Host Controller or Adapter
20 Modular Smart Array	1 per SCSI VHDCI connector	External	Smart Array 6402/128 Controller Smart Array 6404/256 Controller <b>NOTE:</b> Optional mixed PCI-X/E cage required.
50 Modular Smart Array	2 per connector (supports 1 + 1 cascading)	External	HP Smart Array P600/256 BBWC Controller <b>NOTE:</b> Optional mixed PCI-X/E cage required.
60 Modular Smart Array	Up to 4 Up to 8	External	HP Smart Array P600/256 BBWC Controller HP Smart Array E500/256MB Controller HP Smart Array P800/512 BBWC Controller
70 Modular Smart Array	Up to 2 Up to 4	External	HP Smart Array P600/256 BBWC Controller HP Smart Array E500/256MB Controller HP Smart Array P800/512 BBWC Controller
HP 2000sa Modular Smart Array Controller	Up to 4	External	HP SC08Ge Host Bus Adapter

### Maximum Storage Capacity - (with MSA50, SAS HDD)

Internal	4.0TB (8 x 500GB SATA SFF)
External	5.0TB (20 x 250GB SATA SFF)
Total	9.0TB



## Storage

### Maximum Storage Capacity - (with MSA50, SATA HDD)

Internal	960GB (8 x 120GB SATA SFF)
External	2.40TB (20 x 120GB SATA SFF)
Total	3.360TB

### Tape and Disk-Based Backup

**NOTE:** For a complete listing of compatible tape and disk-based backup offerings, please visit: [www.hp.com/go/connect](http://www.hp.com/go/connect)

	Position Supported	Controller	Part Number
<b>HP StorageWorks SCSI Tape Drives, External</b> LTO-1 Ultrium 232 LTO-2 Ultrium 448 LTO-3 Ultrium 960 LTO-3 Ultrium 920 LTO-4 Ultrium 1760 LTO-4 Ultrium 1840 DAT 40 DAT 72 DAT 160 1U Rack-Mount Kit 3U Rack-Mount Kit	External	HP SC11Xe Host Bus Adapter	412911-B21
<b>HP StorageWorks USB Tape Drives, External</b> DAT 40 USB DAT 72 USB DAT 160 USB 1U Rack-Mount Kit	External	USB 2.0 Port	N/A
<b>HP StorageWorks SAS Tape Drives, External</b> DAT 160 SAS LTO-2 Ultrium 448 SAS LTO-3 Ultrium 920 SAS LTO-4 Ultrium 1760 SAS LTO-4 Ultrium 1840 SAS 1U Rack-Mount Kit 3U Rack-Mount Kit	External	HP SC44Ge Host Bus Adapter	416096-B21
<b>HP StorageWorks SCSI Tape Automation, External</b> DAT 72x10 Autoloader	External	HP SC11Xe Host Bus Adapter	412911-B21



### Storage

1/8 G2 Autoloader MSL2024 MSL4048 MSL8096 MSL6000		HP U320e SCSI Host Bus Adapter <b>NOTE:</b> Recommended for MSL tape libraries.	AH627A
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<b>HP StorageWorks SAS Tape Automation, External</b> 1/8 G2 Autoloader MSL2024 MSL4048 MSL8096	External	HP SC44Ge Host Bus Adapter  <b>NOTE:</b> Please visit <a href="http://www.hp.com/go/connect">http://www.hp.com/go/connect</a> for details about minimum SAS controller firmware version and SAS cabling requirements.	416096-B21
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<b>HP StorageWorks Fibre Tape Automation, External</b> MSL2024 MSL4048 MSL8096 MSL6000	External	Please consult the EBS connectivity matrix at <a href="http://www.hp.com/go/ebs">http://www.hp.com/go/ebs</a> for detailed connectivity information.	N/A
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<b>HP StorageWorks RDX Removable Disk Backup System</b> RDX160 RDX320 RDX500	External	USB 2.0 Port	N/A
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<b>HP StorageWorks D2D Backup Systems</b> D2D120 D2D130 D2D2500i D2D4000i	External	Embedded Network Controller	N/A
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### Power Specifications

<b>Power Supply Specification - AC</b>	<b>Part number</b>		380622-001			
	<b>Spare Kit</b>		403781-001			
Operational Input Voltage Range (Vrms)	90 to 264					
Frequency Range (Nominal) (Hz)	47 to 63 (50/60)					
Nominal Input Voltage (Vrms)	100	120	208	220	230	240
Max Rated Output Wattage Rating	800	850	1000	1000	1000	1000
Nominal Input Current (A rms)	10.0	8.8	5.85	5.5	5.2	4.97
Max Rated Input Wattage Rating (Watts)	980	1035	1193	1186	1172	1169
Max. Rated VA (Volt-Amp)	1000	1056	1217	1210	1196	1193
Efficiency (%)	81.5	82	84	84	85	85.5
Power Factor	0.98	0.98	0.98	0.98	0.98	0.98
Leakage Current (mA)	0.44	0.52	0.91	0.96	1.00	1.04
Max. Inrush Current (A peak)	30	30	30	30	30	30
Max. Inrush Current duration (mS)	3	3	3	3	3	3

<b>Power Supply Specification - DC</b>	<b>Part number</b>		433634-B21			
	<b>Spare Kit</b>		419613-001			
Operational Input Voltage Range (Vrms)	-36.0 to -72.0V DC					
Frequency Range (Nominal) (Hz)	DC					
Nominal Input Voltage (Vrms)	36	48	72			
Max Rated Output Wattage Rating	1210	1210	1210			
Nominal Input Current (A rms)	38	29	20			
Max Rated Input Wattage Rating (Watts)	1368	1392	1440			
Efficiency (%)	87.6	87.6	86			
Max. Inrush Current (A peak)	60	60	60			
Max. Inrush Current duration (mS)	100	100	100			

**NOTE:** To review typical system power ratings use the HP Power Advisor which is available online located at url: [www.hp.com/go/proliant-energy-efficient](http://www.hp.com/go/proliant-energy-efficient) or [www.hp.com/go/hppoweradvisor](http://www.hp.com/go/hppoweradvisor)

- Click on: "ProLiant Servers"
- Click on the Server of interest. Example: DL380 G5
- Click on: "Power Calculator" link. (You may need to scroll down to see it)



### Technical Specifications

<b>System Unit</b>	<b>Dimensions (H x W x D)</b> (with bezel)	3.38 x 17.54 x 26.01 in (8.59 x 44.54 x 66.07 cm)	
	<b>Weight (approximate)</b>	Maximum (all hard drives, power supply, and processor installed)	60 lb (27.22 kg)
		Minimum (one hard drive, power supply, and processor installed)	47.18 lb (20.41 kg)
	<b>Input Requirements</b> (per power supply)	<b>Rated Line Voltage</b>	100 - 132 VAC, 200 - 240 VAC
		<b>Rated Input Current</b>	10A (at 100 VAC) 9A (at 120 VAC) 6.1A (at 200 VAC)
		<b>Rated Input Frequency</b>	50 to 60 Hz
		<b>Rated Input Power</b>	980W (at 100 VAC) 1035W (at 120 VAC) 1170W (at 240 VAC)
	<b>BTU Rating</b>	Maximum	3350 BTU/hr (at 100 VAC) 3530 BTU/hr (at 120 VAC) 3990 BTU/hr (at 240 VAC)
	<b>Power Specifications</b>	<p><b>NOTE:</b> To review typical system power ratings use the HP Power Advisor which is available online 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></p> <p>- Click on the system of interest. Example: DL380 G5 - Follow the instructions of the next screens.</p>	
	<b>Power Supply Output Power</b> (per power supply)	<b>Rated Steady-State Power</b>	800 W (at 100 VAC) 850 W (at 120 VAC) 1000W (at 200-240 VAC)
		<b>Maximum Peak Power</b>	800 W (at 100 VAC) 850 W (at 120 VAC) 1000W (at 200-240 VAC)
	<b>System Inlet Temperature</b>	Operating	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 10°C/hr (18°F/hr). The upper limit may be limited by the type and number of options installed.  System performance may be reduced if operating with a fan fault or above 30°C (86°F).
		Non-operating	-30° to 60°C (-22° to 140°F). Maximum rate of change is 20°C/hr (36°F/hr).
	<b>Relative Humidity</b> (non-condensing)	Operating	10 to 90% relative humidity (Rh), 28°C (82.4°F) maximum wet bulb temperature, non-



### Technical Specifications

		condensing.
	Non-operating	5 to 95% relative humidity (Rh), 38.7°C (101.7°F) maximum wet bulb temperature, non-condensing.
Altitude	Operating	3050 m (10,000 ft). This value may be limited by the type and number of options installed. Maximum allowable altitude change rate is 457 m/min (1500 ft/min).
	Non-operating	9144 m (30,000 ft). Maximum allowable altitude change rate is 457 m/min (1500 ft/min).
Acoustic Noise		Listed are the declared A-Weighted sound power levels (LWAd) and declared average bystander position A-Weighted sound pressure levels (LpAm) when the product is operating in a 23°C ambient environment. Noise emissions were measured in accordance with ISO 7779 (ECMA 74) and declared in accordance with ISO 9296 (ECMA 109).
		<b>Idle</b>
	LWAd	6.1 B
	LpAm	44 dBA
		<b>Operating</b>
	LWAd	6.1 B
	LpAm	44 dBA
Emissions Classification (EMC)	FCC Rating	Class A
	Normative Standards	CISPR 22; EN55022; EN55024; FCC CFR 47, Pt 15; ICES-003; CNS13438; GB9254; K22;K24; EN 61000-3-2; EN 61000-3-3; EN 60950-1; IEC 60950-1

**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.



### Technical Specifications

Smart Array P400 Controller	Disk Drive and Enclosure Interface	3G SAS (Serial Attached SCSI) 1.5G SATA (Serial Advanced Technology Attachment)
	SAS Connectors	2 internal (SFF8484) x4 wide port connectors
	Cache Memory Speed	DDR2-533MHz with 40 or 72-bit wide bus provides up to 4.2 GB/s maximum bandwidth.
	Server Interface	x8 2.5G PCIe provides 2GB/s maximum bandwidth.
	SAS Speed	x8 3G SAS provides 2.4GB/s maximum bandwidth.
	Cache Memory	40-bit 256MB cache (72-bit 512MB module upgrades available); ECC protection, battery-backed, and transportable
	Logical Drives Supported	Up to 32 logical drives
	Host Memory Addressing	64-bit, supporting greater than 4GB server memory space
	RAID Support	RAID 6 with ADG (Advanced Data Guarding) requires Battery Backed Write Cache Upgrade RAID 5 (Distributed Data Guarding) RAID 1 +0 (Striping & Mirroring) RAID 0 (Striping)

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Smart Array E200 Controller	Disk Drive and Enclosure Interface	3G SAS (Serial Attached SCSI) 1.5G SATA (Serial Advanced Technology Attachment)
	SAS Connectors	2 internal (SFF8484) x4 wide port connectors
	Cache Memory Speed	DDR1-266 MHz provides up to 4.2 GB/s maximum bandwidth.
	Server Interface	x8 2.5G PCIe provides 2GB/s maximum bandwidth.
	SAS Speed	x8 3G SAS provides 2.4GB/s maximum bandwidth.
	Cache Memory	40-bit 64MB cache or a 128MB battery backed cache: ECC protection, battery-backed, and transportable <b>NOTE:</b> The 64MB cache is not battery-backed or transportable.
	Logical Volumes Supported	Up to 32 logical volumes
	Host Memory Addressing	64-bit, supporting greater than 4GB server memory space
	RAID Support	RAID 5 (Distributed Data Guarding) RAID 1, 1 +0 (Striping & Mirroring) RAID 0 (Striping)

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### Technical Specifications

Two embedded NC373i Multifunction Server Adapters	Network Interface	10Base-T/100Base-TX/1000Base-TX	
	Compatibility	IEEE 802.3 10Base-T	
		IEEE 802.3ab 1000Base-T	
		IEEE 802.3u 100Base-TX	
	Data Transfer Method	PCI Express, four lanes (x4)	
	Network Transfer Rate	10Base-T (Half-Duplex)	10 Mb/s
		10Base-T (Full-Duplex)	20 Mb/s
		100Base-TX (Half-Duplex)	100 Mb/s
		100Base-TX (Full-Duplex)	200 Mb/s
		1000Base-TX (Half and Full-Duplex)	2000Mb/s
Connector	Two RJ-45		
Cable Support	10Base-T	Categories 3, 4 or 5 UTP; up to 328 ft (100 m)	
	100Base-TX	Category 5 or higher UTP; up to 328 ft (100 m)	
	1000BaseTX	Category 5 or higher UTP; up to 328 ft (100 m)	

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The EU WEEE directive (2002/95/EC) requires manufacturers to provide treatment information for each product type for use by treatment facilities. This information (product disassembly instructions) is posted on the Hewlett Packard web site at: <http://www.hp.com/go/green>. These instructions may be used by recyclers and other WEEE treatment facilities as well as HP OEM customers who integrate and re-sell HP equipment.

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

