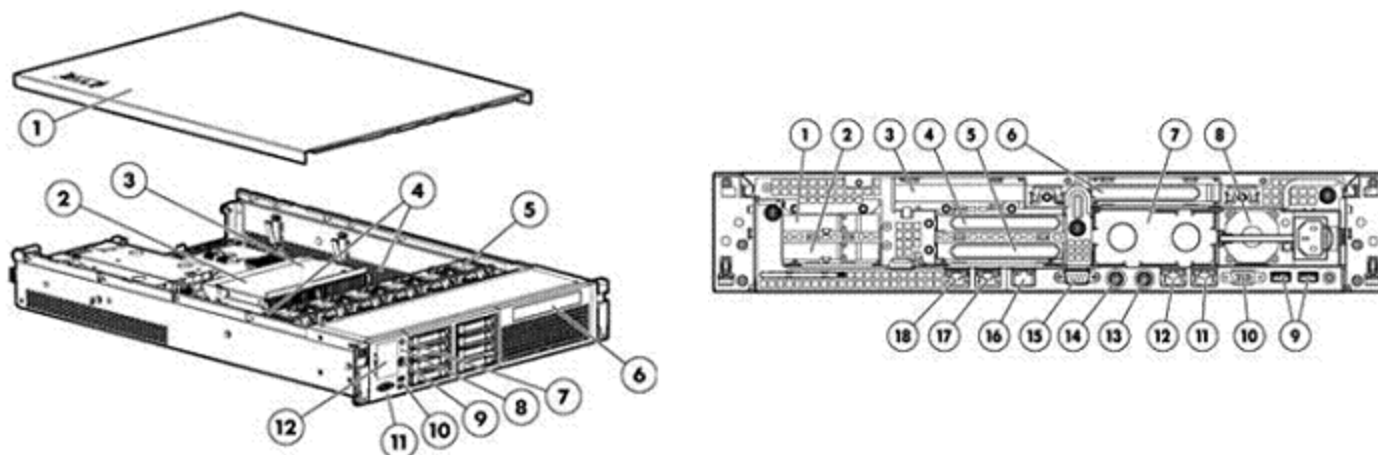


### Overview



#### Front View:

1. Quick removal access panel
2. Intel Quad-Core Processor (Performance models include two processors)
3. Second Intel Quad-Core Processor
4. Eighteen slots: DDR3 Registered (RDIMM) or Unbuffered (UDIMM) memory
5. Hot-plug fans, full N+1 redundancy
6. Slim Optical Bay (SATA DVD-RW Optical Drive included on Performance models)
7. UID LED button
8. Health LED
9. Power On/Standby button and system power LED
10. USB connectors (2)
11. Video connector
12. Systems Insight Display

#### Rear View:

1. PCI slot 5
2. PCI slot 6
3. PCI slot 4
4. PCI slot 2
5. PCI slot 3
6. PCI slot 1
7. Power supply 2
8. Power supply 1
9. USB connectors (2)
10. Video connector
11. NIC 1 connector
12. NIC 2 connector
13. Mouse connector
14. Keyboard connector
15. Serial connector
16. iLO 2 connector
17. NIC 3 connector
18. NIC 4 connector

### What's New

- The DL380 G6 will now offer the Intel 5600 Series 6 Core capable processors
  - X5670 2.93GHz 6C 95w
  - X5660 2.80GHz 6C 95w
  - X5650 2.66GHz 6C 95w

### At A Glance

The HP ProLiant DL380 G6 Server continues to deliver on its heritage of engineering excellence with increased flexibility and performance, enterprise-class uptime and manageability, 2-socket Intel Xeon performance, and 2U density for a variety of applications.

- **Processors:**
  - Up to 2 Six-Core, Quad-Core or Dual-Core Intel® Xeon® processor 5600/5500 sequence
  - Intel® 5520 Chipset
- **Memory:**
  - Total of 18 DIMM slots
  - Up to 192GB (16GB kits populating 12 DIMM slots), using PC3-8500R DDR3 Registered (RDIMM) memory, operating at 800MHz when fully populated at 2 DIMMs per Channel in 12 slots
    - NOTE:** If only one processor is installed, only half the DIMM slots are available.
    - NOTE:** when populating with the 16GB Memory Kits (Quad-Rank), only 12 DIMMs can be populated.
  - Up to 48GB, using 4GB PC3-10600E DDR3 Unbuffered (UDIMM) memory, operating at 1066MHz when fully populated at 2 DIMMs per Channel in 12 slots
  - Two DIMMs Per Channel at 1333MHz supported with ROM update via ROM Based Setup Utility (RBSU) for 1333MHz RDIMMs. UDIMM support is only on 12-slot servers.
- **Storage Controller:**
  - Entry Models: HP Smart Array P410i/Zero Memory Controller (RAID 0/1/1+0)
  - Base Models: HP Smart Array P410i/256 MB Controller (RAID 0/1/1+0/5/5+0)
  - Performance Models: HP Smart Array P410i/512 MB BBWC Controller (RAID 0/1/1+0/5/5+0)
  - High Efficiency: HP Smart Array P410i/Zero Memory Controller (RAID 0/1/1+0)
  - Available upgrades: 256MB, 512MB with BBWC, Battery kit upgrade (for the 256MB cache), 512MB, 1G with FBWC, and Smart Array Advanced Pack (SAAP)
- **Internal Drive Support:**
  - Standard (8) small form factor (SFF) hot-plug drive bays to support Serial-attached SCSI (SAS) and Serial ATA

### Overview

(SATA) drives

- Optional second drive cage for additional (8) SFF drive bays (total 16)
- Optional cage for (6) Large Form Factor SAS/SATA hard drive bays

- Slimline media bay supporting Optical Drive (ships standard on performance models)

**NOTE:** The Optical Drive option is not available when you upgrade with the additional 8 SFF drive cage, or in the LFF Models.

- **Network Controller:**

- Two HP NC382i Dual Port Multifunction Gigabit Server Adapters (four ports total) with TCP/IP Offload Engine, including support for Accelerated iSCSI

- **Expansion Slots:**

- Six available PCI-Express Gen2 slots, optional mixed PCI-X / PCI-Express or x16 PCI configurations available (see "Standard Features -Expansion Slots" section for more details)

- **Ports:**

- USB 2.0 support
- 5 total ports: (2) ports up front; (2) ports in back; (1) port internal
- 1 internal Secure Digital (SD) slot

- **Redundancy:**

- Fully redundant hot plug fans (N+1)
- Hot plug power supply with optional redundancy (Included in Performance models)

- **Power Sources:**

- Dual Common Slot Bay for Right Sized, Hot plug and Redundant Power options
  - HP 1200W CS HE Silver Power Supply (optional)
  - HP 750W CS HE Gold Power Supply (standard on some models)
  - HP 460W CS HE Gold Power Supply (standard on some models)
  - HP 1200W -48V DC Power Supply (optional)

- **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 Integrated Lights-Out 2 (iLO 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 27.25 inches (69.98 cm)

- **Operating Systems and Virtualization Software Support for ProLiant Servers:**

- Supports Windows, RHEL, SLES, OEL, Solaris, NetWare, VMware, and Citrix 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 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

#### Six-Core Processors

Intel® Xeon® Processor X5670 (2.93 GHz, 12MB L3 Cache, 95W, DDR3-1333, HT, Turbo 2/2/3/3)

Intel® Xeon® Processor X5660 (2.80 GHz, 12MB L3 Cache, 95W, DDR3-1333, HT, Turbo 2/2/3/3)

Intel® Xeon® Processor X5650 (2.66 GHz, 12MB L3 Cache, 95W, DDR3-1333, HT, Turbo 2/2/3/3)

#### Quad-Core Processors

Intel® Xeon® Processor X5570 (2.93 GHz, 8MB L3 Cache, 95W, DDR3-1333, HT, Turbo 2/2/3/3)

Intel® Xeon® Processor X5560 (2.80 GHz, 8MB L3 Cache, 95W, DDR3-1333, HT, Turbo 2/2/3/3)

Intel® Xeon® Processor X5550 (2.66 GHz, 8MB L3 Cache, 95W, DDR3-1333, HT, Turbo 2/2/3/3)

Intel® Xeon® Processor E5540 (2.53 GHz, 8MB L3 Cache, 80W, DDR3-1066, HT, Turbo 1/1/2/2)

Intel® Xeon® Processor L5530 (2.40 GHz, 8MB L3 Cache, 60W, DDR3-1066, HT, Turbo 1/1/2/2)

Intel® Xeon® Processor E5530 (2.40 GHz, 8MB L3 Cache, 80W, DDR3-1066, HT, Turbo 1/1/2/2)

Intel® Xeon® Processor E5520 (2.26 GHz, 8MB L3 Cache, 80W, DDR3-1066, HT, Turbo 1/1/2/2)

Intel® Xeon® Processor E5506 (2.13 GHz, 4MB L3 Cache, 80W, DDR3-800)

Intel® Xeon® Processor E5504 (2.00 GHz, 4MB L3 Cache, 80W, DDR3-800)

Intel® Xeon® Processor L5520 (2.26 GHz, 8MB L3 Cache, 60W, DDR3-1066, HT, Turbo 1/1/2/2)

Intel® Xeon® Processor L5506 (2.13 GHz, 4MB L3 Cache, 60W, DDR3-800)

#### Dual-Core Processors

Intel® Xeon® Processor E5502 (1.86 GHz, 4MB L3 Cache, 80W, DDR3-800)

**NOTE:** HT indicates that the processor model supports Intel® Hyper-Threading Technology.

**NOTE:** Turbo indicates the maximum potential frequency increment when using Intel® Turbo Boost Technology, with 4, 3, 2, and 1 cores active.

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

**NOTE:** For the Intel 5500 Series, the letter preceding the model number indicates the performance/wattage of the processor. "X" denotes High Performance/Wattage; "E" denotes Enterprise Performance/Wattage (Mainstream); and "L" denotes Lower Wattage.

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

#### Cache Memory

One of the following depending on Model

12MB (1x12MB) Level 3 cache on the 5600 sequence

8MB (1 x 8MB) Level 3 cache on the 5500 sequence

**NOTE:** All 5500 sequence processor models have 8M L3 Cache except for those identified below.

4MB (1 x 4MB) Level 3 cache

**NOTE:** For processors E5506/L5506/E5504/E5502.

#### Chipset

Intel® 5520 Chipset

**NOTE:** For more information regarding Intel chipsets, please see the following URL:

<http://www.intel.com/products/server/chipsets/>.

#### Upgradeability

Upgradeable to 2 processors (12 cores)

#### Memory Protection

Advanced ECC (multi-bit error protection)

Mirroring mode

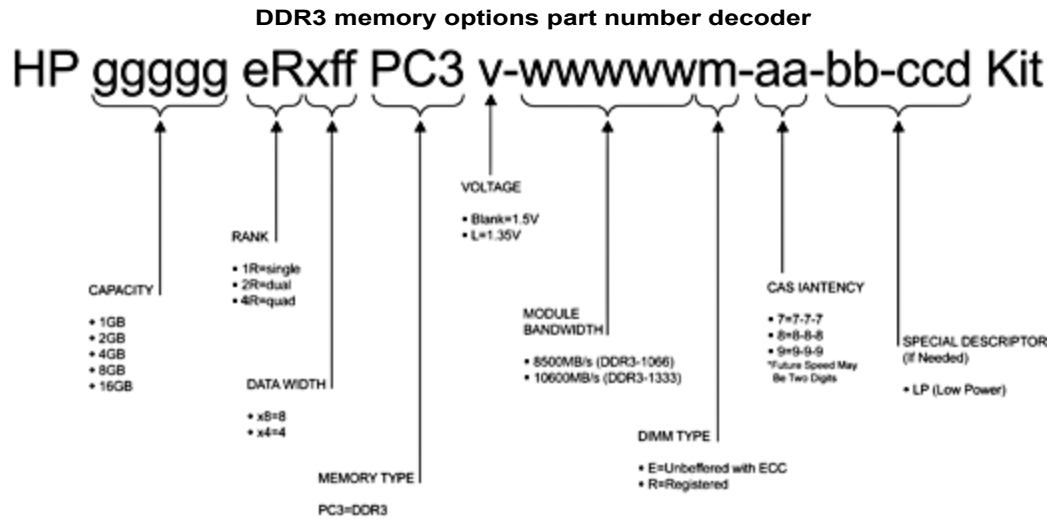
Lockstep mode

### Standard Features

<b>Memory</b>	Type	DDR3 Registered (RDIMM) and Unbuffered (UDIMM)
	Standard (Performance Models)	12GB (6 x 2GB) PC3-10600R (DDR3-1333) Registered DIMMs
	Standard (Base Models)	6GB (3 x 2GB) PC3-10600R (DDR3-1333) Registered DIMMs
	Standard (Entry Models)	4GB (2 x 2GB) PC3-10600R (DDR3-1333) Registered DIMMs
	Standard (High Efficiency Models)	4GB (2 x 2GB) PC3-10600E (DDR3-1333) Unbuffered DIMMs
	Maximum (RDIMM)	192GB (12 x 16GB) for Registered Memory configurations
	Maximum (UDIMM)	48GB (12 x 4GB) for Unbuffered Memory configurations

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

**NOTE:** Depending on the memory configuration and processor model, the memory speed may run at 1333MHz, 1066MHz, or 800MHz. Please see the Online Memory Configuration Tool at: [www.hp.com/go/ddr3memory-configurator](http://www.hp.com/go/ddr3memory-configurator).



**Network Controller** Two HP NC382i Dual Port Multifunction Gigabit Server Adapters (four ports total) with TCP/IP Offload Engine, including support for Accelerated iSCSI

### Expansion Slots

**NOTE:** The system board has 2 PCI connectors, but the below riser cards have the actual PCI slots, to which PCI cards attach.

Primary Riser (Standard)	Expansion Slots #	Technology	Bus Width**	Connector Width	Bus Number*	Form Factor	Notes
	1	PCIe Gen2	X8	X16	7	Full Length, Full Height Slot	
	2	PCIe Gen2	X4	X8	10	Half Length, Full Height Slot	
	3	PCIe Gen2	X4	X8	13	Half 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 Riser (Optional Secondary)	Expansion Slots #	Technology	Bus Width**	Connector Width	Bus Number*	Form Factor	Notes
	4	PCIe Gen2	X8	X16	16	Full length, full height slot	
	5	PCIe Gen2	X4	X8	20	Half length, half height slot	
	6	PCIe Gen2	X4	X8	23	Half length, half 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.

### Standard Features

PCIe/PCI-X Riser (Optional Primary)	Expansion Slots #	Technology	Bus Width**	Connector Width	Bus Number*	Form Factor	Notes
	1	PCI-X (133MHz)	64-bit	N/A	7	Full length, Full Height	
	2	PCI-E Gen2	X8	X16	11	Half Length, Full Height	
	3	PCI-E Gen2	X4	X8	15	Half Length, Full Height	

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

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

**NOTE:** PCI-X support is limited to PCI-X cards only.

PCIe/PCI-X Riser (Optional Secondary)	Expansion Slots #	Technology	Bus Width**	Connector Width	Bus Number*	Form Factor	Notes
	4	PCI-X (133MHz)	64-bit	Not applicable	19	Full length, Full height slot	
	5	PCI-E Gen2	X8	X16	23	Half Length, Half Height	
	6	PCI-E Gen2	X4	X8	27	Half Length, Half Height	

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

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

**NOTE:** PCI-X support is limited to PCI-X cards only.

x16 PCIe Riser (Optional Primary)	Expansion Slots #	Technology	Bus Width**	Connector Width	Bus Number*	Form Factor	Notes
	1	PCIe Gen2	x16	x16	13	Full Length, Full Height slot	Supports up to 150W; single wide cards only

\* 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.

x16 PCIe Riser (Optional Secondary)	Expansion Slots #	Technology	Bus Width**	Connector Width	Bus Number*	Form Factor	Notes
	4	PCIe Gen2	x16	x16	16	Full Length, Full Height slot	Supports up to 150W; single wide cards only

\* 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.

Storage Controller	Entry Models	HP Smart Array P410i/Zero Memory Controller (RAID 0/1/1+0)
One of the following depending on Model	Base Models	HP Smart Array P410i/256 MB Controller (RAID 0/1/1+0/5/5+0)
	Performance Models	HP Smart Array P410i/512 MB BBWC Controller (RAID 0/1/1+0/5/5+0)
	High Efficiency Models	HP Smart Array P410i/Zero Memory Controller (RAID 0/1/1+0)
	Available upgrades: 256MB, 512MB with BBWC, 512MB with FBWC, 512MB, 1G with FBWC, Battery kit upgrade (for the 256MB cache), and Smart Array Advanced Pack (SAAP)	

### Standard Features

<b>Storage</b>	Diskette Drive	None Standard	
	Optical Drive One of the following depending on Model	None Standard on Entry, High Efficiency, and Base Models <b>NOTE:</b> No support on LFF HD Models, or when the 2nd SFF drive cage is added (optional drive cage has 8 SFF bays). HP Slim SATA DVD RW Optical Drive Standard on Performance Models <b>NOTE:</b> HP 64GB SSD Optical Drive Option Kit available. See options sections below contact HP for details.	
	Hard Drives	None Standard	
<b>Maximum Internal Storage</b>	Hot Plug SFF SAS	8.0TB	16 x 500GB
	Hot Plug LFF SAS	12.0TB	6 x 2TB
<b>Interfaces</b>	Serial	1	
	Pointing Device (Mouse)	1	
	Graphics	1	
	Keyboard	1	
	VGA	2 (1 front, 1 back)	
	Network RJ-45	4	
	iLO remote management port	1	
	SD slot	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> .	
<b>Graphics</b>	Integrated ATI ES1000, 64MB 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.		
<b>Form Factor</b>	Rack (2U); Height 3.38-inch (8.59 cm); Width: 17.25 (44.54 cm); Depth: 27.25 inches (69.98 cm)		
<b>HP Insight management software</b>	HP Insight Foundation	<p>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.</p> <p>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: <a href="http://www.hp.com/go/foundation">www.hp.com/go/foundation</a>.</p> <p>The foundation pack includes:</p> <ul style="list-style-type: none"> <li>● HP SmartStart</li> <li>● HP Management</li> <li>● HP ProLiant Firmware Maintenance</li> </ul> <p>SmartStart version supported (minimum): SmartStart 8.20 <a href="http://www.hp.com/servers/smartstart">http://www.hp.com/servers/smartstart</a></p> <p><b>NOTE:</b> In an effort to support reducing our environmental impact, the HP ProLiant Essentials Foundation Pack media will be available as a selectable option for this server at time of order of a CTO SKU. This will allow customers to order the number of media kits that best meet their needs and eliminate receiving unnecessary duplicate media.</p>	
	HP Integrated Lights-Out (iLO)	HP Integrated Lights-Out (iLO) simplifies server setup, health monitoring, power and thermal control, and lights-out remote administration of ProLiant ML, DL, and BL servers. HP iLO functions without additional software and can be accessed from any location via a web browser. HP iLO works hand-in-hand with HP Systems Insight	

### Standard Features

HP Insight Control	<p>Manager, Insight Control suites, and Insight Dynamics for ProLiant, helping customers unleash the value of the ProLiant platform and deliver the highest possible quality of IT service. For more information, visit: <a href="http://www.hp.com/go/iLO">www.hp.com/go/iLO</a></p> <p>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.</p> <p>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 <a href="http://www.hp.com/go/insightcontrol">www.hp.com/go/insightcontrol</a></p> <p>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: <a href="http://www.hp.com/services/insight">http://www.hp.com/services/insight</a>.</p>
HP Insight Dynamics for ProLiant	<p>HP Insight Dynamics for ProLiant, a product option, is advanced infrastructure management software that enables IT staff to instantly adjust their environments to meet dynamic business demands by provisioning, optimizing and protecting complex infrastructure in minutes. It's a powerful toolkit, integrated-by-design, that accelerates complex technology projects and simplifies daily operations, transforming data center economics. With Insight Dynamics IT professionals can plan capacity and power continuously, balance workloads 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 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.</p> <p><b>NOTE:</b> For more information, visit: <a href="http://www.hp.com/go/insightdynamics">http://www.hp.com/go/insightdynamics</a></p>

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<b>Industry Standard Compliance</b>	<p>ACPI 2.0 Compliant</p> <p>PCI 2.2 Compliant</p> <p>WOL Support</p> <p>Microsoft® Logo certifications</p> <p>USB 2.0 Support</p>
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<b>Security</b>	<p>Power-on password</p> <p>Keyboard password</p> <p>Diskette drive control</p> <p>Diskette boot control</p> <p>QuickLock, Network Server Mode</p> <p>Parallel and serial interface control</p> <p>Administrator's password</p>
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**Standard Features****Security - Trusted Platform Module**

Trusted Platform Module option kit

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

**NOTE:** ProLiant OS pre-installed units will come with the partition required for TPM deployment.

**NOTE:** The TPM key is unique to every TPM deployed server and must be retained. Misplacing or losing the key could result in data loss.

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**Server Power Cords**

High voltage power cord ships standard with all part numbers.

**NOTE:** HP ProLiant DL servers no longer ship standard with a 12-foot NEMA 5-15P to C13 power cords (227099-001) that allow connection to 110V US wall outlets in a home or office. ProLiant DL servers are primarily connected to PDU's in data center racks so they now ship standard with only a PDU 6-foot C-14 to C13 power cord (142258-001). If a user wishes to power a ProLiant DL server using a 110V receptacle (NEMA-15), the 12-foot NEMA 5-15 to C13 power cord (227099-001) must be ordered separately. Also available: 110 volt 6-Foot NEMA 5-15p to C13 (AF556A).

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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**

HP has a new design for ProLiant power supplies. The Common Slot (CS) Power Supply provides the customer with commonality in power supplies across multiple platforms to save on the cost of spares and allows HP to offer multiple power solutions to fit the customers' needs. Many HP ProLiant Servers come with or are compatible with high-efficiency HP CS Power Supplies. These power supplies are designed to provide high-efficiency power without degrading performance of the ProLiant server. HP CS Power Supplies options for this server have efficiency ratings up to 94%. There are three Right Size power options available, depending on the configuration of your server. To make sure you select the correct power supply to meet your configuration, we suggest that you use the HP Power Advisor to decide the "Right-Size" for your configuration. All HP Common Slot power sources are UL, CE Mark Compliant, Hot Plug and Redundant.

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**Common Slot ProLiant NOTE:** Mixing of power supplies in the same server is not supported. All power supplies must be of the same type, all HP 460W, all HP750W, all 1200w 94%, all 1200w 90%, or all -48V DC. If non-matched power supplies are inserted you will get errors and operation will fail.

It is highly recommended that you use the HP Power Advisor in defining the "Right-Size" power supply for your needs.

HP's ProLiant Common Slot Power supplies meet multiple Energy Efficiency Initiatives:

- 460W, 92%: Climate Savers Computing Initiative GOLD and ECOS Consulting 80PLUS GOLD
- 750W, 92%: Climate Savers Computing Initiative GOLD and ECOS Consulting 80PLUS GOLD
- 1200W, 94%: Climate Savers Computing Initiative Platinum and ECOS Consulting 80PLUS Platinum
- 1200W, 90%: Climate Savers Computing Initiative Silver and ECOS Consulting 80PLUS Silver
- 1200W, -48V DC: Climate Savers Computing Initiative Bronze and ECOS Consulting 80PLUS Bronze

**NOTE:** The 80 PLUS program is a unique forum that unites electric utilities, the computer industry, and consumers in an effort to bring energy efficient technology solutions to the marketplace. 80 Plus independently tests power supply efficiency and publicly posts the results on 80Plus.org.

Redundant Power: Optional (1+ 1 or n+n redundant) power supplies can be purchased through power supply option kits (see Power Supplies for part numbers).

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### Standard Features

#### System Fans

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

**NOTE:** One processor models include four fans. Two processor models include six fans.

#### Operating Systems and Microsoft Windows Server

#### Virtualization Software Microsoft Windows Server Hyper-V

#### Support for ProLiant Servers

Red Hat Enterprise Linux (RHEL)

SUSE Linux Enterprise Server (SLES)

Oracle Enterprise Linux (OEL)

Solaris

NetWare

VMware

Citrix XenServer

**NOTE:** For more information on HP's Certified and Supported ProLiant Servers for OS and Virtualization Software and latest listing of software drivers available for your server, please visit our Support Matrix at: <http://www.hp.com/go/ossupport> and our driver download page [www.hp.com/support/DL380G6](http://www.hp.com/support/DL380G6).

#### 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:** High Airflow Inserts (High Air Flow Rack Door Insert for the 7142 Rack (single) - PN: 327281-B21; or High Air Flow Rack Door Insert for the 7142 Rack (6-pack) - PN: 327281-B22) are required to support the HP ProLiant DL380 in 7000 series racks. The DL380 Cable Management Arm is not supported on 7000 series racks.

**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>

#### Factory Express Portfolio for Servers and Storage

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

Factory Express offers service packages for simple configuration, racking, installation, complex configuration and design services as well as individual factory services, such as image loading, asset tagging, and custom packaging. HP products supported through Factory Express include a wide array of servers and storage: HP Integrity, HP ProLiant, HP ProLiant Server Blades, HP BladeSystem, HP 9000 servers as well as the MSAxxxx, EVA7xxx, EVA, XP, rackable tape libraries and configurable network switches.

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

### Standard Features

#### 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>.

#### 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>

**InfiniBand** PCI-Express adapters

#### 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>

### Models

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

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

<p><b>HP DL380 G6 Performance Models</b></p> <p><b>Quad-Core Models</b>  <b>HP DL380G6 X5560</b>            491315-xx1  <b>HP DL380G6 X5550</b>            491316-xx1</p>	<p><b>Processor(s)</b>  <a href="#">Two of the following depending on Model</a></p> <p><b>Cache Memory</b></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) Intel® Xeon® Processor X5560 (2.80 GHz, 8MB L3 Cache, 95W, DDR3-1333, HT, Turbo 2/2/3/3)            (2) Intel® Xeon® Processor X5550 (2.66 GHz, 8MB L3 Cache, 95W, DDR3-1333, HT, Turbo 2/2/3/3)</p> <p>8MB (1 x 8MB) Level 3 cache</p> <p>12 GB (6 x 2 GB) PC3-10600R (DDR3-1333) Registered DIMMs</p> <p>Two HP NC382i Dual Port Multifunction Gigabit Server Adapters</p> <p>HP Smart Array P410i/512MB with BBWC</p> <p>None ship standard</p> <p>Standard: 8 SFF SAS/SATA HDD Bays            Optional: 16 SFF SAS/SATA HDD Bays</p> <p>HP Slim SATA DVD RW drive</p> <p>(2) 750W Hot Plug Power Supplies</p> <p>(6) (N+1 redundancy standard)</p> <p>Rack (2U), Height 3.38-inch (8.59 cm); Width: 17.25 (44.54 cm); Depth: 27.25 inches (69.98 cm)</p>
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<p><b>HP DL380 G6 Performance Models with ICE standard</b></p> <p><b>Quad-Core Models</b>  <b>HP DL380G6 X5560</b>            470065-067 US            470065-071 APJ            470065-072 EURO</p> <p><b>HP DL380G6 X5550</b>            470065-068 APJ            470065-069 EURO</p>	<p><b>Processor(s)</b>  <a href="#">Two of the following depending on Model</a></p> <p><b>Cache Memory</b></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>Insight Control</b></p> <p><b>Form Factor</b></p>	<p>(2) Intel® Xeon® Processor X5560 (2.80 GHz, 8MB L3 Cache, 95W, DDR3-1333, HT, Turbo 2/2/3/3)            (2) Intel® Xeon® Processor X5550 (2.66 GHz, 8MB L3 Cache, 95W, DDR3-1333, HT, Turbo 2/2/3/3)</p> <p>8MB (1 x 8MB) Level 3 cache</p> <p>12 GB (6 x 2 GB) PC3-10600R (DDR3-1333) Registered DIMMs</p> <p>Two HP NC382i Dual Port Multifunction Gigabit Server Adapters</p> <p>HP Smart Array P410i/512MB with BBWC</p> <p>None ship standard</p> <p>Standard: 8 SFF SAS/SATA HDD Bays            Optional: 16 SFF SAS/SATA HDD Bays</p> <p>HP Slim SATA DVD RW drive</p> <p>(2) 750W Hot Plug Power Supplies</p> <p>(6) (N+1 redundancy standard)</p> <p>HP Insight Control No Media single server license, including 1 year of 24x7 Technical Support and Updates</p> <p>Rack (2U), Height 3.38-inch (8.59 cm); Width: 17.25 (44.54 cm); Depth: 27.25 inches (69.98 cm)</p>
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<p><b>HP DL380 G6 Base Models</b></p> <p><b>Quad-Core Models</b>  <b>HP DL380G6 E5540</b>            491332-xx1  <b>HP DL380G6 E5530</b>            491324-xx1  <b>HP DL380G6 E5520</b>            491325-xx1</p>	<p><b>Processor(s)</b>  <a href="#">One of the following depending on Model</a></p> <p><b>Cache Memory</b></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) Intel® Xeon® Processor E5540 (2.53 GHz, 8MB L3 Cache, 80W, DDR3-1066, HT, Turbo 1/1/2/2)            (1) Intel® Xeon® Processor E5530 (2.40 GHz, 8MB L3 Cache, 80W, DDR3-1066, HT, Turbo 1/1/2/2)            (1) Intel® Xeon® Processor E5520 (2.26 GHz, 8MB L3 Cache, 80W, DDR3-1066, HT, Turbo 1/1/2/2)</p> <p>8MB (1 x 8MB) Level 3 cache</p> <p>6 GB (3 x 2 GB) PC3-10600R (DDR3-1333) Registered DIMMs</p> <p>Two HP NC382i Dual Port Multifunction Gigabit Server Adapters</p> <p>HP Smart Array P410i/256MB Controller</p> <p>None ship standard</p> <p>Standard: 8 SFF SAS/SATA HDD Bays            Optional: 16 SFF SAS/SATA HDD Bays</p> <p>None ship standard</p> <p>(1) 460W Hot Plug Power Supply</p> <p>(4) (N+1 redundancy standard)</p> <p>Rack (2U), Height 3.38-inch (8.59 cm); Width: 17.25 (44.54 cm); Depth: 27.25 inches (69.98 cm)</p>
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### Models

<b>HP DL380 G6 High Efficiency Models</b>  <b>Quad-Core Models</b> <b>HP DL380G6 L5520</b> 491335-xx1	<b>Processor(s)</b>	(1) Intel® Xeon® Processor L5520 (2.26 GHz, 8MB L3 Cache, 60W, DDR3-1066, HT, Turbo 1/1/2/2)
	<b>Cache Memory</b>	8MB (1 x 8MB) Level 3 cache
	<b>Memory</b>	4 GB (2 x 2 GB) PC3-10600E (DDR3-1333) Unbuffered DIMMs
	<b>Network Controller</b>	Two HP NC382i Dual Port Multifunction Gigabit Server Adapters
	<b>Storage Controller</b>	HP Smart Array P410i/Zero Memory Controller
	<b>Hard Drive</b>	None ship standard
	<b>Internal Storage</b>	Standard: 8 SFF SAS/SATA HDD Bays Optional: 16 SFF SAS/SATA HDD Bays
	<b>Optical Drive</b>	None ship standard
	<b>Power Supply</b>	(1) 460W Hot Plug Power Supply
	<b>Fans</b>	(4) (N+1 redundancy standard)
	<b>Form Factor</b>	Rack (2U), Height 3.38-inch (8.59 cm); Width: 17.25 (44.54 cm); Depth: 27.25 inches (69.98 cm)

<b>HP DL380 G6 Entry Models</b>  <b>Quad-Core Models</b> <b>HP DL380G6 E5504</b> 491505-xx1	<b>Processor(s)</b>	(1) Intel® Xeon® Processor E5504 (2.00 GHz, 4MB L3 Cache, 80W, DDR3-800)
	<b>Cache Memory</b>	4MB (1 x 4MB) Level 3 cache
	<b>Memory</b>	4 GB (2 x 2 GB) PC3-10600R (DDR3-1333) Registered DIMMs
	<b>Network Controller</b>	Two HP NC382i Dual Port Multifunction Gigabit Server Adapters
	<b>Storage Controller</b>	HP Smart Array P410i/Zero Memory Controller
	<b>Hard Drive</b>	None ship standard
	<b>Internal Storage</b>	Standard: 8 SFF SAS/SATA HDD Bays Optional: 16 SFF SAS/SATA HDD Bays
	<b>Optical Drive</b>	None ship standard
	<b>Power Supply</b>	(1) 460W Hot Plug Power Supply
	<b>Fans</b>	(4) (N+1 redundancy standard)
	<b>Form Factor</b>	Rack (2U), Height 3.38-inch (8.59 cm); Width: 17.25 (44.54 cm); Depth: 27.25 inches (69.98 cm)

<b>Country Code Key</b>	xx=00	U.S.
	xx=20	Brazil
	xx=29	Japan
	xx=37	APD
	xx=42	Europe
	xx=AA	PRC

### Configuration Information - Factory Integrated Models

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

<b>HP Models</b>	<p>HP DL380R06 CTO Chassis <span style="float: right;">494329-B21</span></p> <p><b>Factory Integrated Model ships with:</b></p> <p>Two HP NC382i Dual Port Multifunction Gigabit Server Adapters            Smart Array P410i Controller            I/O slots - 3 Slots come standard:</p> <ul style="list-style-type: none"> <li>● Slot 1 - FL/FH x8 PCIE (x16 connector)</li> <li>● Slot 2 - HL/FH x4 PCIE (x8 connector)</li> <li>● Slot 3 - HL/FH x4 PCIE (x8 connector)               <ul style="list-style-type: none"> <li>○ Additional Slots may be added via selections from the PCI Information and Options subsection</li> </ul> </li> </ul> <p>System Fans - 4 (2 additional fans included with second processor)            Drive Cage - 8-SFF (Second SFF drive cage optional)            USB - 2 Rear, 2 Front, 1 Internal, 1 SD slot            Server Management - (iLO 2) (embedded)  <b>NOTE:</b> Power Supply not included - choose from Options section</p>
	<p>HP DL380R06 LFF CTO Chassis <span style="float: right;">516919-B21</span></p> <p><b>Factory Integrated Model ships with:</b></p> <p>Two HP NC382i Dual Port Multifunction Gigabit Server Adapters            Smart Array P410i Controller            I/O slots - 3 Slots come standard:</p> <ul style="list-style-type: none"> <li>● Slot 1 - FL/FH x8 PCIE (x16 connector)</li> <li>● Slot 2 - HL/FH x4 PCIE (x8 connector)</li> <li>● Slot 3 - HL/FH x4 PCIE (x8 connector)               <ul style="list-style-type: none"> <li>○ Additional Slots may be added via selections from the PCI Information and Options subsection</li> </ul> </li> </ul> <p>Drive Cage - 6-LFF            System Fans - 4 (2 additional fans included with second processor)            USB - 2 Rear, 2 Front, 1 Internal, 1 SD slot            Server Management - (iLO 2) (embedded)  <b>NOTE:</b> Power Supply not included - choose from Options section</p>

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

<b>HP Processors</b>	<p><b>Six-Core Processors</b></p> <p>Intel® Xeon® Processor X5650 (2.66 GHz, 12MB L3 Cache, 95W, DDR3-1333, HT, Turbo 2/2/3/3), FIO <span style="float: right;">587482-L21</span></p> <p>Intel® Xeon® Processor X5660 (2.80 GHz, 12MB L3 Cache, 95W, DDR3-1333, HT, Turbo 2/2/3/3), FIO <span style="float: right;">587491-L21</span></p> <p>Intel® Xeon® Processor X5670 (2.93 GHz, 12MB L3 Cache, 95W, DDR3-1333, HT, Turbo 2/2/3/3), FIO <span style="float: right;">587493-L21</span></p> <p><b>Quad-Core Processors</b></p> <p>Intel® Xeon® Processor E5504 (2.00 GHz, 4MB L3 Cache, 80W, DDR3-800), FIO <span style="float: right;">492136-L21</span></p> <p>Intel® Xeon® Processor E5506 (2.13 GHz, 4MB L3 Cache, 80W, DDR3-800), FIO <span style="float: right;">492131-L21</span></p> <p>Intel® Xeon® Processor L5506 (2.13 GHz, 4MB L3 Cache, 60W, DDR3-800), FIO <span style="float: right;">500089-L21</span></p> <p>Intel® Xeon® Processor E5520 (2.26 GHz, 8MB L3 Cache, 80W, DDR3-1066, HT, Turbo 1/1/2/2), FIO <span style="float: right;">492239-L21</span></p> <p>Intel® Xeon® Processor L5520 (2.26 GHz, 8MB L3 Cache, 60W, DDR3-1066, HT, Turbo 1/1/2/2), FIO <span style="float: right;">500087-L21</span></p> <p>Intel® Xeon® Processor L5530 (2.40 GHz, 8MB L3 Cache, 60W, DDR3-1066, HT, Turbo 1/1/2/2), FIO <span style="float: right;">578388-L21</span></p> <p>Intel® Xeon® Processor E5530 (2.40 GHz, 8MB L3 Cache, 80W, DDR3-1066, HT, Turbo 1/1/2/2), FIO <span style="float: right;">492237-L21</span></p>
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### Configuration Information - Factory Integrated Models

Intel® Xeon® Processor E5540 (2.53 GHz, 8MB L3 Cache, 80W, DDR3-1066, HT, Turbo 1/1/2/2), FIO 492244-L21

Intel® Xeon® Processor X5550 (2.66 GHz, 8MB L3 Cache, 95W, DDR3-1333, HT, Turbo 2/2/3/3), FIO 492234-L21

Intel® Xeon® Processor X5560 (2.80 GHz, 8MB L3 Cache, 95W, DDR3-1333, HT, Turbo 2/2/3/3), FIO 492232-L21

Intel® Xeon® Processor X5570 (2.93 GHz, 8MB L3 Cache, 95W, DDR3-1333, HT, Turbo 2/2/3/3), FIO 500094-L21

#### Dual-Core Processors

Intel® Xeon® Processor E5502 (1.86 GHz, 4MB L3 Cache, 80W, DDR3-800), FIO 500085-L21

#### HP Memory

##### Registered DIMMs (RDIMMs)

HP 2GB (1x2GB) Dual Rank x8 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit 500656-B21

HP 4GB (1x4GB) Dual Rank x4 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit 500658-B21

HP 4GB (1x4GB) Quad Rank x8 PC3-8500 (DDR3-1066) Registered CAS-7 Low Power Memory Kit 500660-B21

HP 8GB (1x8GB) Dual Rank x4 PC3-8500 (DDR3-1066) Registered CAS-7 Memory Kit 516423-B21

HP 8GB (1x8GB) Dual Rank x4 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit 500662-B21

HP 16GB (1x16GB) Quad Rank x4 PC3-8500 (DDR3-1066) Registered CAS-7 Memory Kit 500666-B21

##### Unbuffered with ECC DIMMs (UDIMMs)

HP 1GB (1x1GB) Single Rank x8 PC3-10600 (DDR3-1333) Unbuffered CAS-9 Memory Kit 500668-B21

HP 2GB (1x2GB) Dual Rank x8 PC3-10600 (DDR3-1333) Unbuffered CAS-9 Memory Kit 500670-B21

**NOTE:** All DDR3 memory option kits consist of one DIMM per kit. For detailed memory configuration rules and guidelines, please use the Online DDR3 Memory Configuration Tool: [www.hp.com/go/ddr3memory-configurator](http://www.hp.com/go/ddr3memory-configurator).

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

#### HP Power Supplies

**NOTE:** Refer to HP Power Advisor when selecting a power supply for your configuration, [www.hp.com/go/hppoweradvisor](http://www.hp.com/go/hppoweradvisor). Many HP ProLiant Servers now offer new power options, including Common Slot Power Supplies. These power supplies come in multiple power ratings and higher efficiency levels to offer the Right Size solution to fit your configuration. This provides improved power delivery and the advantage of reclaiming lost power. Prior to making a power supply selection it is "highly recommended" that the "HP Power Advisor" is run to determine the right size power supply for your server configuration. The HP Power Advisor is located at "[www.hp.com/go/proliant-energy-efficient](http://www.hp.com/go/proliant-energy-efficient)" or [www.hp.com/go/hppoweradvisor](http://www.hp.com/go/hppoweradvisor)

HP 460W CS HE Gold Power Supply 92% Efficiency 503296-B21

HP 750W CS HE Gold Power Supply 92% Efficiency 512327-B21

HP 1200W 12V Hot Plug AC Power Supply 500172-B21

HP 1200W CS Platinum Power Supply 94% Efficiency 578322-B21

HP 1200W-48V DC Common Slot Power Supply 437573-B21

**NOTE:** DC power supplies contain a -48V DC power cord designed for in rack DC power rectifiers.

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

### Configuration Information - Factory Integrated Models

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

**HP Storage Controllers** **NOTE:** If Additional Memory Cache Module or Controller is Required please pick one of the following:

HP Smart Array P212/256 MB w/ Battery FIO	491191-B21
HP Smart Array P410/256 MB w/ Battery FIO	491195-B21
HP Smart Array P411/256 MB w/ Battery FIO	491193-B21

**NOTE:** The ProLiant DL380 G6 can support up to a quantity of two HP Smart Array P411 Controllers.

#### Optional Upgrades

HP 256 MB P-series cache module FIO	534108-B21
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**NOTE:** This is an option for the HP Smart Array P410i controller (P410i is standard integrated controller).

Battery Kit upgrade	462969-B21
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**NOTE:** This is an option for the HP Smart Array P410i Controller (P410i is standard integrated controller).

**NOTE:** To enable BBWC on the 256MB cache on P410i.

512MB BBWC	462967-B21
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**NOTE:** This is an option for the HP Smart Array P410i Controller (P410i is standard integrated controller).

**NOTE:** Battery included. When used with the embedded HP Smart Array P410i controller.

512MB Flash Backed Write Cache	534916-B21
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**NOTE:** This is an option for the HP Smart Array P410i Controller (P410i is standard integrated controller).

1G Flash Backed Write Cache	534562-B21
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**NOTE:** This is an option for the HP Smart Array P410i Controller (P410i is standard integrated controller).

**HP Performance Packs** The HP ProLiant DL380 performance packs are necessary to configure a HP ProLiant DL380 Performance Model. HP ProLiant DL380 Performance model includes the latest performance technologies and enterprise class availability features pre-installed for convenience and value.

- The performance pack includes:
  - 2nd processor
  - 750-watt redundant power supply
  - 512MB cache module for P410i
  - 650 mAh P-Series Battery
  - 15P 24in SFP Battery Cable Assy
  - One DL380 G6 HP Fan kit (contains qty of 2)

**NOTE:** Must also select Slimline SATA DVD RW Optical Drive (481043-B21) to achieve parity to DL380 High Performance Models.

HP DL380G6 2.6 HPM FIO Perf Pack	500583-B21
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HP DL380G6 2.8 HPM FIO Perf Pack	500584-B21
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<b>HP Insight Software</b> HP Insight Control, No Media 1-Server License Factory-Integratable Option (FIO) including 1 year of 24x7 Technical Support and Updates	582765-B21
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HP Insight Control for Linux, No Media 1-Server License Factory-Integratable Option (FIO) including 1 year of 24x7 Technical Support and Updates	TC203A
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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.

<b>HP Unique Options</b>	HP StorageWorks RDX160 Removable Disk Backup System DL Server Module <b>NOTE:</b> Mounts in DL380 G6 second drive cage slot (160GB of Disk Storage)	AP724A
	HP StorageWorks RDX320 Removable Disk Backup System DL Server Module <b>NOTE:</b> Mounts in DL380 G6 second drive cage slot (320GB of Disk Storage)	AP725A
	HP StorageWorks RDX500 Removable Disk Backup System DL Server Module <b>NOTE:</b> Mounts in DL380 G6 second drive cage slot (500GB of Disk Storage)	AP726A
	HP 8SFF CAGE 380G6 <b>NOTE:</b> Second drive cage installation replaces internal optical bay. <b>NOTE:</b> Second drive cage requires second controller or HP SAS Expander Card (468406-B21).	516914-B21
	HP DL380G6 PCI-E 3 Slot 1x8 2x4 Riser Kit	500579-B21

### HP Processors

#### Six-Core Processors

Intel® Xeon® Processor X5650 (2.66 GHz, 12MB L3 Cache, 95W, DDR3-1333, HT, Turbo 2/2/3/3)	587482-B21
Intel® Xeon® Processor X5660 (2.80 GHz, 12MB L3 Cache, 95W, DDR3-1333, HT, Turbo 2/2/3/3)	587491-B21
Intel® Xeon® Processor X5670 (2.93 GHz, 12MB L3 Cache, 95W, DDR3-1333, HT, Turbo 2/2/3/3)	587493-B21

#### Quad-Core Processors

Intel® Xeon® Processor E5504 (2.00 GHz, 4MB L3 Cache, 80W, DDR3-800)	492136-B21
Intel® Xeon® Processor E5506 (2.13 GHz, 4MB L3 Cache, 80W, DDR3-800)	492131-B21
Intel® Xeon® Processor L5506 (2.13 GHz, 4MB L3 Cache, 60W, DDR3-800)	500089-B21
Intel® Xeon® Processor E5520 (2.26 GHz, 8MB L3 Cache, 80W, DDR3-1066, HT, Turbo 1/1/2/2)	492239-B21
Intel® Xeon® Processor L5520 (2.26 GHz, 8MB L3 Cache, 60W, DDR3-1066, HT, Turbo 1/1/2/2)	500087-B21
Intel® Xeon® Processor L5530 (2.40 GHz, 8MB L3 Cache, 60W, DDR3-1066, HT, Turbo 1/1/2/2)	578388-B21
Intel® Xeon® Processor E5530 (2.40 GHz, 8MB L3 Cache, 80W, DDR3-1066, HT, Turbo 1/1/2/2)	492237-B21
Intel® Xeon® Processor E5540 (2.53 GHz, 8MB L3 Cache, 80W, DDR3-1066, HT, Turbo 1/1/2/2)	492244-B21
Intel® Xeon® Processor X5550 (2.66 GHz, 8MB L3 Cache, 95W, DDR3-1333, HT, Turbo 2/2/3/3)	492234-B21
Intel® Xeon® Processor X5560 (2.80 GHz, 8MB L3 Cache, 95W, DDR3-1333, HT, Turbo 2/2/3/3)	492232-B21
Intel® Xeon® Processor X5570 (2.93 GHz, 8MB L3 Cache, 95W, DDR3-1333, HT, Turbo 2/2/3/3)	500094-B21

#### Dual-Core Processors

Intel® Xeon® Processor E5502 (1.86 GHz, 4MB L3 Cache, 80W, DDR3-800)	500085-B21
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### Core Options

#### HP Memory

##### Registered DIMMs (RDIMMs)

HP 2GB (1x2GB) Dual Rank x8 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit	500656-B21
HP 4GB (1x4GB) Dual Rank x4 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit	500658-B21
HP 4GB (1x4GB) Quad Rank x8 PC3-8500 (DDR3-1066) Registered CAS-7 Low Power Memory Kit	500660-B21
HP 8GB (1x8GB) Dual Rank x4 PC3-8500 (DDR3-1066) Registered CAS-7 Memory Kit	516423-B21
HP 8GB (1x8GB) Dual Rank x4 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit	500662-B21
HP 16GB (1x16GB) Quad Rank x4 PC3-8500 (DDR3-1066) Registered CAS-7 Memory Kit	500666-B21

##### Unbuffered with ECC DIMMs (UDIMMs)

HP 1GB (1x1GB) Single Rank x8 PC3-10600 (DDR3-1333) Unbuffered CAS-9 Memory Kit	500668-B21
HP 2GB (1x2GB) Dual Rank x8 PC3-10600 (DDR3-1333) Unbuffered CAS-9 Memory Kit	500670-B21
HP 4GB (1x4GB) Dual Rank x8 PC3-10600 (DDR3-1333) Unbuffered CAS-9 Memory Kit	500672-B21

**NOTE:** All DDR3 memory option kits consist of one DIMM per kit. For detailed memory configuration rules and guidelines, please use the Online DDR3 Memory Configuration Tool: [www.hp.com/go/ddr3memory-configurator](http://www.hp.com/go/ddr3memory-configurator).

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

#### HP Optical Drives

HP Slim SATA DVD RW Optical Drive	481043-B21
<b>NOTE:</b> Included in performance models.	
HP Slim SATA DVD-ROM Optical Drive	481041-B21
HP External USB CD/DVD R/RW Option Drive	FS943AA#ABA
<b>NOTE:</b> There is no optical drive support in the LFF Hard Drive models.	

#### HP Hard Drives

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

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

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

HP 300GB 6G SAS 10K rpm SFF (2.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	507127-B21
HP 300GB 3G SAS 10K rpm SFF (2.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	492620-B21
HP 146GB 6G SAS 15K rpm SFF (2.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	512547-B21
HP 146GB 3G SAS 15K rpm SFF (2.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	504062-B21
HP 146GB 6G SAS 10K rpm SFF (2.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	507125-B21
HP 146GB 3G SAS 10K rpm SFF (2.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	418367-B21
HP 72GB 6G SAS 15K rpm SFF (2.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	512545-B21
HP 72GB 3G SAS 15K rpm SFF (2.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	418371-B21

##### SAS Hot Plug LFF (3.5-inch) Enterprise (ENT) Drives

HP 600GB 6G SAS 15K rpm LFF (3.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	516828-B21
HP 450GB 6G SAS 15K rpm LFF (3.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	516816-B21
HP 450GB 3G SAS 15K rpm LFF (3.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	454232-B21
HP 300GB 6G SAS 15K rpm LFF (3.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	516814-B21

### Core Options

HP 300GB 3G SAS 15K rpm LFF (3.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive 416127-B21

HP 146GB 3G SAS 15K rpm LFF (3.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive 384854-B21

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

HP 500GB 6G SAS 7.2K rpm SFF (2.5-inch) Dual Port Midline 1yr Warranty Hard Drive 507610-B21

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

HP 2TB 6G SAS 7.2K rpm LFF (3.5-inch) Dual Port Midline 1yr Warranty Hard Drive 507616-B21

HP 1TB 6G SAS 7.2K rpm LFF (3.5-inch) Dual Port Midline 1yr Warranty Hard Drive 507614-B21

HP 1TB 3G SAS 7.2K rpm LFF (3.5-inch) Dual Port Midline 1yr Warranty Hard Drive 461137-B21

HP 750GB 3G SAS 7.2K rpm LFF (3.5-inch) Dual Port Midline 1yr Warranty Hard Drive 461135-B21

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

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

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

HP 500GB 3G SATA 7.2K rpm SFF (2.5-inch) Midline 1yr Warranty Hard Drive 507750-B21

HP 160GB 3G SATA 7.2K rpm SFF (2.5-inch) Midline 1yr Warranty Hard Drive 530888-B21

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

HP 2TB 3G SATA 7.2K rpm LFF (3.5-inch) Midline 1yr Warranty Hard Drive 507632-B21

HP 1TB 3G SATA 7.2K rpm LFF (3.5-inch) Midline 1yr Warranty Hard Drive 454146-B21

HP 500GB 3G SATA 7.2K rpm LFF (3.5-inch) Midline 1yr Warranty Hard Drive 458928-B21

#### SATA Hot Plug SFF (2.5-inch) Entry (ETY) Drives

HP 250GB 3G SATA 5.4K rpm SFF (2.5-inch) Entry 1yr Warranty Hard Drive 460355-B21

HP 120GB 1.5G SATA 5.4K rpm SFF (2.5-inch) Entry 1yr Warranty Hard Drive 458924-B21

#### SATA Hot Plug LFF (3.5-inch) Entry (ETY) Drives

HP 250GB 3G SATA 7.2K rpm LFF (3.5-inch) Entry 1yr Warranty Hard Drive 571230-B21

HP 160GB 3G SATA 7.2K rpm LFF (3.5-inch) Entry 1yr Warranty Hard Drive 458945-B21

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

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

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

HP 60GB 3G SATA SFF (2.5-inch) Midline 1yr Warranty Solid State Drive 572071-B21

HP 120GB 3G SATA SFF (2.5-inch) Midline 1yr Warranty Solid State Drive 572073-B21

#### SATA Hot Plug 3.5" Midline (MDL) Solid State Drives

HP 60GB 3G SATA LFF (3.5-inch) Midline 1yr Warranty Solid State Drive 570761-B21

HP 120GB 3G SATA LFF (3.5-inch) Midline 1yr Warranty Solid State Drive 570763-B21

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

[http://h18000.www1.hp.com/products/quickspecs/13415\\_div/13415\\_div.html](http://h18000.www1.hp.com/products/quickspecs/13415_div/13415_div.html)  
(Worldwide)

### Core Options

#### HP Networking

##### Gigabit Ethernet adapters

HP NC112T PCIe Gigabit Server Adapter	503746-B21
HP NC360T PCI Express Dual Port Gigabit Server Adapter	412648-B21
HP NC364T PCI Express Quad Port Gigabit Server Adapter	435508-B21
<b>NOTE:</b> Does not support Windows 2000.	
HP NC365T 4-port Ethernet Server Adapter	593722-B21
HP NC373F PCI Express Multifunction Gigabit Server Adapter	394793-B21
HP NC373T PCI Express Multifunction Gigabit Server Adapter	394791-B21
HP NC375T PCI Express Quad Port Gigabit Server Adapter	538696-B21
HP NC382T PCI Express Dual Port Multifunction Gigabit Server Adapter	458492-B21

##### 10 Gigabit Ethernet Adapters

**NOTE:** No more than two 10GbE I/O devices are supported in a single ProLiant server.

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

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

HP NC522SFP Dual Port 10GbE Server Adapter	468332-B21
HP NC550SFP Dual Port 10GbE Server Adapter	581201-B21

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

#### HP InfiniBand

HP IB 4X QDR CX-2 PCI-e G2 Dual Port HCA	592520-B21
HP IB 4X DDR CX-2 PCI-e G2 Dual Port HCA	592521-B21
HP 4X QDR PCI-e G2 QLogic InfiniBand Dual Port HCA	583211-B21

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

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

#### HP I/O Expansion Options

HP DL380G6 PCI-E 3 Slot 1x8 2x4 Riser Kit	500579-B21
HP DL38X PCI-X riser kit (1) PCI-X, (1) x8, (1) x4)	494322-B21
HP DL38X (1) x16 PCI-E riser kit	494323-B21
HP DL38X (2) x8 Dual Port Riser Kit	494326-B21

**NOTE:** This riser card will support a quantity of one 10Gbe NIC.

#### HP Power Supplies

**CAUTION:** In ProLiant Servers that have more than one power slot (bay), only same size power supplies are recommended. If non-matched power supplies are inserted you will get errors and operation will fail.

HP 460W CS HE Gold Power Supply 92% Efficiency	503296-B21
HP 750W CS HE Gold Power Supply 92% Efficiency	512327-B21
HP 1200W 12V Hot Plug AC Power Supply	500172-B21
HP 1200W CS Platinum Power Supply 94% Efficiency	578322-B21
HP 1200W-48V DC Common Slot Power Supply	437573-B21

**NOTE:** DC power supplies contain a -48V DC power cord designed for in rack DC power rectifiers.

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

### Additional Options

#### HP Insight Software

#### HP Insight Control

HP Insight Control, Single-Server License including 1 year of 24x7 Technical Support and Updates 452148-B22

HP Insight Control suite, No Media, Electronic License including 1 year of 24x7 Technical Support and Updates T9074BAE

HP Insight Control, Electronic License for bundling with ProLiant ML/DL server, including 1 year of 24x7 Technical Support and Updates TC278AAE

HP Insight Control, Tracking License for bundling with ProLiant ML/DL server, including 1 year of 24x7 Technical Support and Updates TC275A

HP Insight Software Media Kit 436222-B21

**NOTE:** Insight Software DVD media without licenses. Contains HP Systems Insight Manager, HP Insight Control, HP Insight Dynamics, HP Insight Control for Microsoft System Center, and Virtual Connect Enterprise Manager software. Uses an integrated installer to perform quick and accurate software installation and updates.

**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\\_div/12631\\_div.html](http://h18000.www1.hp.com/products/quickspecs/12631_div/12631_div.html)

#### HP Insight Control for Linux

HP Insight Control for Linux, No Media, 1-server license for bundling with Tower, Rack, and Scalable servers, including one year of 24x7 Technical Support and Updates, Electronic TC203AAE

HP Insight Control for Linux, 1-server license, including one year of 24x7 Technical Support and Updates, Electronic TC213AAE

HP Insight Control for Linux, No Media, 1-Server license, including one year of 24x7 Technical Support and Updates TC209A

HP Insight Control for Linux, Media pack (DVD) - No licenses included TC208A

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

**NOTE:** Licenses ship without media. The Media Kit for Insight Control for Linux can be ordered separately, or can be downloaded at: <http://www.hp.com/go/ic-linux> (click on Download button).

**NOTE:** Electronic 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\\_div/13019\\_div.html](http://h18000.www1.hp.com/products/quickspecs/13019_div/13019_div.html)

#### HP Integrated Lights-Out (iLO) Advanced

HP Integrated Lights-Out Advanced, No Media, 1-Server License, including 1 year of 24x7 Technical Support and Updates 512485-B21

HP ProLiant Essentials Integrated Lights-Out Advanced Pack, Electronic, including 1 year of 24x7 Technical Support and Updates TA850AAE

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

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

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

#### HP Insight Control server deployment

### Additional Options

HP Insight Control server deployment Electronic License including 1 year 24x7 Technical Support and Updates T9082AAE

HP Insight Control server deployment 1-Server License including 1 year 24x7 Technical Support and Updates 452151-B21

**NOTE:** Licenses ship without media. The Insight Control Media Kit can be ordered separately, or can be downloaded at:

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

**NOTE:** Electronic licenses can be used to purchase multiple licenses with a single activation key, and 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, which 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 please see the Insight Control QuickSpecs at:

[http://h18004.www1.hp.com/products/quickspecs/12631\\_div/12631\\_div.html](http://h18004.www1.hp.com/products/quickspecs/12631_div/12631_div.html)

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**HP Drive Cage Options** HP 8SFF CAGE 380G6 516914-B21

**NOTE:** Second drive cage installation replaces internal optical bay.

**NOTE:** Second drive cage requires second controller or HP SAS Expander Card (468406-B21).

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**HP I/O Accelerator Options** HP 160GB SLC PCIe ioDrive 600278-B21

**NOTE:** A low-profile PCI bracket is included for use in low-profile slots.

HP 320GB MLC PCIe ioDrive 600279-B21

**NOTE:** A low-profile PCI bracket is included for use in low-profile slots.

HP 320GB SLC PCIe ioDrive Duo 600281-B21

HP 640GB MLC PCIe ioDrive Duo 600282-B21

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

[http://h18000.www1.hp.com/products/quickspecs/13587\\_div/13587\\_div.html](http://h18000.www1.hp.com/products/quickspecs/13587_div/13587_div.html) (Worldwide)

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**HP Security - TPM** HP Trusted Platform Module Option Kit 488069-B21

### HP Storage Controllers SAS Controllers

#### Smart Array P800 Controller

HP Smart Array P800/512 BBWC Controller 381513-B21

#### Smart Array P212 Controller

HP Smart Array P212/Zero Memory Controller 462828-B21

HP Smart Array P212/256 MB Controller 462834-B21

#### Smart Array P410 Controller

HP Smart Array P410/256 MB Controller 462862-B21

HP Smart Array P410/512 MB with BBWC Controller 462864-B21

HP Smart Array P410/512MB with FBWC 578230-B21

HP Smart Array P410/1G with FBWC 572532-B21

#### Smart Array P411 Controller

HP Smart Array P411/256 MB Controller 462830-B21

HP Smart Array P411/512 MB with BBWC Controller 462832-B21

HP Smart Array P411/512MB Flash Backed Write Cache 578229-B21

HP Smart Array P411/1G Flash Backed Write Cache 572531-B21

#### Smart Array P812 Controller

HP Smart Array P812/1G Flash Backed Cache Controller 487204-B21

#### Optional Upgrades

256 MB Cache Module 462968-B21

**NOTE:** Supported on HP Smart Array P212 Controller and as an upgrade on HP Smart Array P410i (Zero Memory).

512MB BBWC 462967-B21

1G Flash Backed Write Cache 534562-B21

**NOTE:** Supported on the Smart Array P410i Controller only.

512MB Flash Backed Write Cache 534916-B21

**NOTE:** Supported on the Smart Array P410i Controller only.

### Additional Options

<p>Battery Kit upgrade</p> <p><b>NOTE:</b> To enable BBWC on the 256MB cache.</p> <p><b>NOTE:</b> Supported on HP P410i Smart Array (integrated), HP Smart Array P212 Controller, HP Smart Array P410 Controller, and HP Smart Array P411 Controller only.</p>	462969-B21
<p>HP 8484 to Mini SAS 33in Cable Assembly</p> <p><b>NOTE:</b> Cable for use connecting the Smart Array P800 Controller to internal hard disk drives on select HP ProLiant G6 Servers.</p>	591734-B21
<p>HP Smart Array Advanced Pack No Media 1-Server license including 1yr 24x7 Technical Support</p> <p><b>NOTE:</b> This part number can be used to purchase a single license or to order multiple licenses with a single activation key. Customers will receive a license entitlement certificate via e-mail. The license entitlement certificate must be redeemed online or via fax in order to obtain the license activation key(s). Include one year of 24x7 HP Software Technical Support Services.</p> <p><b>NOTE:</b> Please see the QuickSpecs for Technical Specifications and additional information:</p> <p><a href="http://h18000.www1.hp.com/products/quickspecs/12616_div/12616_div.html">http://h18000.www1.hp.com/products/quickspecs/12616_div/12616_div.html</a> (Smart Array P800 Controller)</p> <p><a href="http://h18000.www1.hp.com/products/quickspecs/13203_div/13203_div.html">http://h18000.www1.hp.com/products/quickspecs/13203_div/13203_div.html</a> (Smart Array P212 Controller)</p> <p><a href="http://h18000.www1.hp.com/products/quickspecs/13201_div/13201_div.html">http://h18000.www1.hp.com/products/quickspecs/13201_div/13201_div.html</a> (Smart Array P410 Controller)</p> <p><a href="http://h18000.www1.hp.com/products/quickspecs/13202_div/13202_div.html">http://h18000.www1.hp.com/products/quickspecs/13202_div/13202_div.html</a> (Smart Array P411 Controller)</p> <p><a href="http://h18000.www1.hp.com/products/quickspecs/13558_div/13558_div.html">http://h18000.www1.hp.com/products/quickspecs/13558_div/13558_div.html</a> (Smart Array P812 Controller)</p> <p><a href="http://h18000.www1.hp.com/products/quickspecs/13200_div/13200_div.html">http://h18000.www1.hp.com/products/quickspecs/13200_div/13200_div.html</a> (Smart Array Advanced Pack)</p> <p><b>SAS Controller Options</b></p>	516471-B21
<p>HP SAS Expander Card</p> <p><b>NOTE:</b> Please see the QuickSpecs for Technical Specifications and additional information:</p> <p><a href="http://h18004.www1.hp.com/products/quickspecs/13232_div/13232_div.html">http://h18004.www1.hp.com/products/quickspecs/13232_div/13232_div.html</a> (SAS Expander Card)</p> <p><b>SAS HBA</b></p>	468406-B21
<p>HP SC08Ge Host Bus Adapter</p> <p><b>NOTE:</b> For use with additional 8 SFF drive cage (516914-B21).</p>	488765-B21
<p>HP SC08e 6Gb 2-ports Ext PCIe SAS HBA</p> <p><b>NOTE:</b> This is a 2 x4 External Port HBA</p> <p><b>NOTE:</b> This is only approved for the HP StorageWorks P2000 G3 SAS Modular Smart Array.</p> <p><b>NOTE:</b> Please see the QuickSpecs for Technical Specifications and additional information:</p> <p><a href="http://h18004.www1.hp.com/products/quickspecs/13082_div/13082_div.html">http://h18004.www1.hp.com/products/quickspecs/13082_div/13082_div.html</a> (SC08Ge HBA)</p> <p><a href="http://h18004.www1.hp.com/products/quickspecs/13651_div/13651_div.html">http://h18004.www1.hp.com/products/quickspecs/13651_div/13651_div.html</a> (SC08e 6Gb HBA)</p> <p><b>SCSI HBA</b></p>	614988-B21
<p>HP SC11Xe Host Bus Adapter</p> <p><b>NOTE:</b> Recommended HBA for SCSI tape drive connect.</p> <p><b>NOTE:</b> Please see the QuickSpecs for additional information:</p> <p><a href="http://h18000.www1.hp.com/products/quickspecs/12566_div/12566_div.html">http://h18000.www1.hp.com/products/quickspecs/12566_div/12566_div.html</a> (SC11Xe HBA)</p>	412911-B21

### HP Power Cords

<p><b>NOTE:</b> HP ProLiant servers ships with an IEC-IEC power cord used for rack mounting with Power Distribution Units (PDUs).</p>	
Nema 5-15P to IEC320-C13, North America low voltage (6 ft/2 m)	AF556A
Power Cord, Euro, 10A 250 V Straight (6 ft/1.83 m)	AF568A
Power Cord, UK, 10A 250 V Straight (6 ft/1.83 m)	AF570A
Power Cord, Danish, 10A 250 V Straight (6 ft/1.83 m)	AF566A
Power Cord, Swiss, 10A 250 V Straight (6 ft/1.83 m)	AF565A
Power Cord, Italian, 10A 250 V Straight (6 ft/1.83 m)	AF571A
Power Cord, South Africa, 10A 250 V Straight (8.2 ft/2.5 m)	AF567A

### Additional Options

#### HP Backup & Recovery HP Data Protector Express

<b>Software</b>	HP Data Protector Express 4.0 SP1 Backup Server	BB117BA
	HP Data Protector Express 4.0 SP1 for Microsoft Small Business Server	BB118BA
	HP Data Protector Express Backup Server 4.0 SP1 Upgrade from Data Protector Express Single Server Edition	BB117BT

**NOTE:** One of these Data Protector Express base products is required. To see available options: <http://www.hp.com/go/dataprotectorexpress>

#### HP Tape Backup

**NOTE:** For the complete range of StorageWorks tape drives, autoloaders, libraries and media see: <http://www.hp.com/go/tape>. For hardware and software compatibility of HP StorageWorks tape backup products see: <http://www.hp.com/go/connect>.

HP StorageWorks DAT 320 USB Tape Drive in 1U USB Rack Kit	AP835A
HP StorageWorks DAT 320 SAS Internal Tape Drive	AJ830A
<b>NOTE:</b> For installation into 1U SAS rack kit (AE459B) or 3U SAS rack kit (AG576B). No peripheral bay available for installation into the server. Connection using HP P212 Smart Array Controller SAS (462828-B21) recommended.	
HP StorageWorks LTO-3 Ultrium 920 SAS Internal Tape Drive	EH847A
<b>NOTE:</b> For installation into 1U SAS rack kit (AE459B) or 3U SAS rack kit (AG576B). No peripheral bay available for installation into the server. Connection using HP Smart Array P212/Zero Memory Controller (462828-B21) recommended.	
HP StorageWorks LTO-4 Ultrium 1760 Tape Drive in 1U SAS Rack Kit	EH946B
<b>NOTE:</b> Connection using HP Smart Array P212/Zero Memory Controller (462828-B21) recommended.	
HP StorageWorks LTO-5 Ultrium 3000 Tape Drive in 1U SAS Rack Kit	EJ014A
<b>NOTE:</b> Connection using HP Smart Array P212/Zero Memory Controller (462828-B21) recommended.	
HP StorageWorks 1/8 G2 LTO-3 Ultrium 3000 SAS Tape Autoloader	BL536A
<b>NOTE:</b> Requires HP 1U Tape Autoloader Rack Kit (AH166A) for rack installation. Connection using HP P212 Smart Array Controller SAS (462828-B21) recommended.	
HP StorageWorks MSL2024 Tape Library with one LTO-5 Ultrium 3000 SAS Drive	BL537A
<b>NOTE:</b> Connection using HP P212 Smart Array Controller SAS (462828-B21) recommended.	

#### HP Disk Backup

**NOTE:** For the complete range of StorageWorks D2D Backup Systems see: <http://www.hp.com/go/d2d>. For the complete range of StorageWorks RDX drives and media see: <http://www.hp.com/go/rdx>. For hardware and software compatibility of HP StorageWorks disk backup products see: <http://www.hp.com/go/connect>.

##### HP StorageWorks D2D Backup Systems with Backup Data Deduplication

HP StorageWorks D2D2502i Backup System	EJ001B
<b>NOTE:</b> 1.5TB of useable network disk backup capacity. Network connected appliance with connectivity using the iSCSI protocol. If the server requires a hardware iSCSI initiator, the QLogic QLA4050 Host Bus Adapter is recommended.	
HP StorageWorks D2D2504i Backup System	EJ002B
<b>NOTE:</b> 3.0TB of useable network disk backup capacity. Network connected appliance with connectivity using the iSCSI protocol. If the server requires a hardware iSCSI initiator, the QLogic QLA4050 Host Bus Adapter is recommended.	
HP StorageWorks D2D4004i Backup System	EH938A
<b>NOTE:</b> 3.0TB (expandable to 7.5TB) of useable network disk backup capacity. Network connected appliance with connectivity using the iSCSI protocol. If the server requires a hardware iSCSI initiator, the QLogic QLA4050 Host Bus Adapter is recommended.	
HP StorageWorks D2D4112fc Backup System	EH993B
<b>NOTE:</b> 9.0TB (expandable to 18.0TB) of useable network disk backup capacity. Fibre Channel SAN connected appliance. Direct server attach is not supported, requires connection via SAN fabric.	
<b>HP StorageWorks RDX Removable Disk Backup Systems USB</b>	
HP StorageWorks RDX320 Internal Removable Disk Backup System for DL Servers	AP725A
<b>NOTE:</b> 320GB of disk capacity per data cartridge.	

### Additional Options

HP StorageWorks RDX500 Internal Removable Disk Backup System for DL Servers AP726A

**NOTE:** 500GB of disk capacity per data cartridge.

HP StorageWorks RDX750 Internal Removable Disk Backup System for DL Servers AW578A

**NOTE:** 750GB of disk capacity per data cartridge.

#### HP 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

HP StorageWorks FC1242 Dual Channel 4Gb PCI-e HBA AE312A

##### StorageWorks SCSI HBA

HP U320e SCSI Host Bus Adapter AH627A

**NOTE:** Recommended HBA for MSL SCSI Tape Library connect.

##### StorageWorks Converged Network Adapter

HP CN1000E 2P Converged Network Adapter AW520A

#### HP Disk Storage Systems

##### MSA SAN Storage Arrays

HP StorageWorks 60 Modular Smart Array 418408-B21

**NOTE:** Supports 12 SFF drives, and SAS 3 Gb/s and SATA 1.5 Gb/s.

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

[http://h18000.www1.hp.com/products/quickspecs/12627\\_div/12627\\_div.html](http://h18000.www1.hp.com/products/quickspecs/12627_div/12627_div.html)

HP StorageWorks 70 Modular Smart Array 418800-B21

**NOTE:** Supports 25 SFF drives, and SAS 3 Gb/s and SATA 1.5 Gb/s.

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

[http://h18000.www1.hp.com/products/quickspecs/12652\\_div/12652\\_div.html](http://h18000.www1.hp.com/products/quickspecs/12652_div/12652_div.html)

##### Disk Enclosures

HP StorageWorks D2600 Disk Enclosure AJ940A

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

[http://h18000.www1.hp.com/products/quickspecs/13404\\_div/13404\\_div.html](http://h18000.www1.hp.com/products/quickspecs/13404_div/13404_div.html) (Worldwide)

HP StorageWorks D2700 Disk Enclosure AJ941A

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

[http://h18000.www1.hp.com/products/quickspecs/13404\\_div/13404\\_div.html](http://h18000.www1.hp.com/products/quickspecs/13404_div/13404_div.html) (Worldwide)



### Additional Options

#### HP Uninterruptible Power Systems

##### HP Rack-mountable UPS

###### HP R1500 G2 UPS

HP, R1.5kVA UPS, 1U, NA	AF419A
HP, R1.5kVA UPS, 1U, INTL	AF418A
HP, R1.5kVA UPS, 1U, JPN/TW	AF421A

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

[http://h18000.www1.hp.com/products/quickspecs/12507\\_div/12507\\_div.html](http://h18000.www1.hp.com/products/quickspecs/12507_div/12507_div.html)  
(Worldwide)

###### HP R/T3000 Uninterruptible Power System (UPS)

HP R/T3000 UPS, High voltage, NA/JPN	AF453A
HP R/T3000 UPS, High voltage, detachable inlet cord INTL	AF454A

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

[http://h18000.www1.hp.com/products/quickspecs/13417\\_div/13417\\_div.html](http://h18000.www1.hp.com/products/quickspecs/13417_div/13417_div.html)  
(Worldwide)

###### HP Rack-Mountable R5500 UPS

HP R5500 VA UPS, INTL	AF416A
HP R5500 VA UPS, NA/JPN	AF426A

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

[http://h18000.www1.hp.com/products/quickspecs/13129\\_div/13129\\_div.html](http://h18000.www1.hp.com/products/quickspecs/13129_div/13129_div.html)

**NOTE:** For additional information on HP Uninterruptible Power Systems please go to: [www.hp.com/servers/rackups](http://www.hp.com/servers/rackups).

**NOTE:** For additional information on sizing your server, please reference: <http://www.upssizer.com>.

#### HP Power Distribution Units

##### HP Monitored Power Distribution Unit: Half Rack Version

HP 4.9 kVA S124 Monitored PDU- single input, 1Ø, 24A (NA/JPN)	AF914A
HP 7.3 kVA S132 Monitored PDU- single input, 1Ø, 32A (INTL)	AF915A

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

[http://h18000.www1.hp.com/products/quickspecs/12118\\_div/12118\\_div.html](http://h18000.www1.hp.com/products/quickspecs/12118_div/12118_div.html)  
(Worldwide)

##### HP Monitored Power Distribution Unit: Full Rack Version

HP 8.6 kVA S1324 Monitored PDU- single input, 3Ø, 24A (NA/JPN)	AF504A
HP 8.3 S1140 Monitored PDU- single input, 1Ø, 40A (NA/JPN)	AF506A
HP 11 kVA S1316 Monitored PDU- single input, 3Ø, 16A (INTL)	AF508A
HP 7.3 kVA S1132 Monitored PDU- single input, 1Ø, 32A (INTL)	AF510A

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

[http://h18000.www1.hp.com/products/quickspecs/12118\\_div/12118\\_div.html](http://h18000.www1.hp.com/products/quickspecs/12118_div/12118_div.html)  
(Worldwide)

##### Modular Power Distribution Units 1U/0U (Up to 32 outlets)

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

HP Modular Power Distribution Units (mPDU), High Volt Model, 24A (200-240 VAC) (NA, Japan)	252663-D72
8.3kVA Model - mPDU, 40A, High (power cord attached) (NA/JPN)	252663-D73
HP Modular Power Distribution Units (mPDU), High Volt Model, 32A (200-240 VAC) (Int'l)	252663-B31
HP Modular Power Distribution Units (mPDU), High Volt Model, 16A (200-240 VAC) (WW)	252663-B24

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

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

[http://h18000.www1.hp.com/products/quickspecs/11041\\_div/11041\\_div.html](http://h18000.www1.hp.com/products/quickspecs/11041_div/11041_div.html)  
(Worldwide)

**NOTE:** For additional information on HP Power Distribution Units including accessories please go to: [www.hp.com/go/pdu](http://www.hp.com/go/pdu).

### Additional Options

<b>HP Rack Series</b>	<b>HP Rack 10000 G2 Series</b> (Carbon/Graphite Metallic)	
	10642 G2 (42U) Rack Cabinet - Pallet	AF001A
	10642 G2 (42U) Rack Cabinet - Shock Pallet	AF002A
	<b>NOTE:</b> It is mandatory to use a shock pallet when shipping racks with equipment installed.	
	<b>NOTE:</b> Please see the QuickSpecs for Technical Specifications and additional information: <a href="http://h18000.www1.hp.com/products/quickspecs/12402_div/12402_div.html">http://h18000.www1.hp.com/products/quickspecs/12402_div/12402_div.html</a> (Worldwide)	
	<b>NOTE:</b> For additional information regarding Rack Cabinets, please see the following URL: <a href="http://www.hp.com/go/rackandpower">http://www.hp.com/go/rackandpower</a> .	

<b>HP Rack Options</b>	<b>HP Server Console Switches</b>	
	HP Server console switch 0x2x8	AF616A
	HP Server console switch 0x2x16	AF617A
	<b>NOTE:</b> Please see the QuickSpecs for Technical Specifications and additional information: <a href="http://h18000.www1.hp.com/products/quickspecs/11834_div/11834_div.html">http://h18000.www1.hp.com/products/quickspecs/11834_div/11834_div.html</a> (Worldwide)	
	<b>HP Server Console Switch G2 with Virtual Media &amp; CAC</b>	
	0x2x16 KVM Server Console G2 Switch with Virtual Media and CAC	AF618A
	0x2x32 KVM Server Console G2 Switch with Virtual Media and CAC	AF619A
	<b>NOTE:</b> Please see the QuickSpecs for Technical Specifications and additional information: <a href="http://h18000.www1.hp.com/products/quickspecs/13475_div/13475_div.html">http://h18000.www1.hp.com/products/quickspecs/13475_div/13475_div.html</a> (Worldwide)	
	<b>HP IP Console Switch G2 with Virtual Media &amp; CAC</b>	
	1x1Ex8 KVM IP Console Switch G2 with Virtual Media and CAC	AF620A
	2x1Ex16 KVM IP Console Switch G2 with Virtual Media and CAC	AF621A
	4x1Ex32 KVM IP Console Switch G2 with Virtual Media and CAC	AF622A
	<b>NOTE:</b> Please see the QuickSpecs for Technical Specifications and additional information: <a href="http://h18000.www1.hp.com/products/quickspecs/13474_div/13474_div.html">http://h18000.www1.hp.com/products/quickspecs/13474_div/13474_div.html</a> (Worldwide)	

<b>HP USB and SD Options</b>	HP USB 2-Button Optical Scroll Mouse (Carbonite/Silver)	DC172B
	HP USB 04 Standard Keyboard	DT528A#ABA
	HP 4GB SD Flash Media Kit	580387-B21
	<b>NOTE:</b> Blank SD media device is supported for use with VMware and Citrix. SD media must be installed in the internal slot of the ProLiant server. Learn more at: <a href="http://www.hp.com/go/proliantvirtualization">http://www.hp.com/go/proliantvirtualization</a> .	
	HP 2GB USB Flash Media Drive Key	608447-B21
	<b>NOTE:</b> HP qualified blank USB key for use with HP ProLiant servers that support the VMware virtualization environment and other HP value-add software like SmartStart. HP recommends this industry standard USB flash device for use with VMware ESXi. USB device must be installed in the internal slot of the ProLiant server for use with VMware ESXi. Refer to <b>HP VMware Getting Started Guide</b> for installation instructions.	

### Additional Options

#### HP Care Pack Services Hardware Services On-site Service

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

#### 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

**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".

#### DDR3 memory population guidelines

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

[www.hp.com/go/ddr3memory-configurator](http://www.hp.com/go/ddr3memory-configurator)

Some DIMM installation guidelines are summarized below:

- For servers with eighteen (18) memory slots:
  - There are three (3) channels per processor; six (6) channels per server
  - There are three (3) DIMM slots for each memory channel; eighteen (18) total slots
  - Memory channel 1 consists of the three (3) DIMMs that are closest to the processor
  - Memory channel 3 consists of the three (3) DIMMs that are furthest from the processor
- DIMM slots that are white should be populated first
- Do not mix Unbuffered memory (UDIMMs) with Registered memory (RDIMMs)
- Do not install DIMMs if the corresponding processor is not installed
- If only one processor is installed in a 2CPU system, only half of the DIMM slots are available
- To maximize performance, balance the total memory capacity between all installed processors
- It is not required, but it is recommended to load the channels similarly if possible
- You can only have up to eight (8) ranks installed per channel
- You can only install two quad-rank DIMMs per channel
- You can only install two UDIMMs per channel; if available, the third slot in the channel must remain empty
- Populate DIMMs from heaviest load (quad-rank) to lightest load (single-rank) within a channel
- Heaviest load (DIMM with most ranks) within a channel goes furthest from the chipset
- For memory mirroring mode, channel 3 must be unpopulated. Channels 1 and 2 are populated identically
- For lock-step mode, channel 3 must be unpopulated. DIMMs in channels 1 and 2 will be installed in pairs. The paired slots will be 1,4; 2,5; 3,6 on a 3DPC system or 1,4; 2,5; on a 2DPC system
- No mixing DIMM voltage; all DIMMs must be the same voltage

DIMM Type ->	Registered Dimms (RDIMMs)						Unbuffered with ECC DIMMs (UDIMMs)		
	Dual Rank (2R)			Quad Rank (4R)			Single Rank (1R)	Dual Rank (2R)	
DIMM Rank ->	Dual Rank (2R)			Quad Rank (4R)			Single Rank (1R)	Dual Rank (2R)	
DIMM Capacity ->	2GB	4GB	8GB	8GB	4GB	16GB	1GB	2GB	4GB
DIMM Native Speed (MHz) ->	1333	1333	1066	1333	1066	1066	1333	1333	1333
<b>SLOTS THAT CAN BE POPULATED</b>									
18 slot servers	18	18	18	18	12	12	12	12	12
<b>MAXIMUM CAPACITY (GB)</b>									
18 slot servers	36	72	144	144	48	192	12	24	48
<b>POPULATED DIMM SPEED (MHz)</b>									
1 DIMM Per Channel	1333	1333	1066	1333	1066	1066	1333	1333	1333
2 DIMM Per Channel	1333*	1333*	1066	1333*	800	800	1333	1333	1333
3 DIMM Per Channel	800	800	800	800	*	n/a	n/a	n/a	n/a

\* - supported with ROM update via ROM Based Setup Utility (RBSU). UDIMM support is only on 12-slot servers

#### NOTES:

- Mixing DIMM speeds is allowed, but the system processor speed rules always override the DIMM capabilities
- If you do mix DIMM speeds, the memory bus will default to the minimum clock rate of all DIMMs in the system - even if the slower DIMM is on the other processor
- If you install 1x 1066MHz DIMM in channel 1 and 1x 1333MHz DIMM in channel 2, you still run at 1066MHz
- If you install 1x 1066MHz DIMM in channel 1 and 5x 1333MHz DIMMs with 1 DIMM Per Channel (DPC) in each of the other channels, you run at 1066MHz
- If you install 3DPC in one channel (if applicable) and 1DPC in all other channels, you run at 800MHz
- 95 Watt CPU's are required for 1333MHz DIMM speeds. All other CPU's are capable of up to 1066MHz
- References to the above MHz speeds are for the various speeds of DDR3 DIMMs; 1333 refers to DDR3-1333, etc.

#### DIMM slot and configuration diagrams

##### Basic memory slot & population diagram

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

### Memory

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

#### Standard memory configuration (1 CPU model)

- 6GB, consisting of three (3) 2GB dual-rank PC3-10600 RDIMMs

	CPU1		CPU2		
	slot #	population order	slot #	population order	
Chnl 1	1	G; empty	1	G; empty	Chnl 1
	2	D; empty	2	D; empty	
	3	A; 2GB DIMM	3	A; empty	
Chnl 2	4	H; empty	4	H; empty	Chnl 2
	5	E; empty	5	E; empty	
	6	B; 2GB DIMM	6	B; empty	
Chnl 3	7	I; empty	7	I; empty	Chnl 3
	8	F; empty	8	F; empty	
	9	C; 2GB DIMM	9	C; empty	

#### Standard memory plus optional memory (1 CPU model)

- 54GB, consisting of three (3) 2GB RDIMMs plus six (6) 8GB RDIMMs
  - 3x 2GB dual-rank PC3-10600 RDIMMs
  - 6x 8GB dual-rank PC3-8500 RDIMMs

	CPU1		CPU2		
	slot #	population order	slot #	population order	
Chnl 1	1	G; 8GB DIMM	1	G; empty	Chnl 1
	2	D; 8GB DIMM	2	D; empty	
	3	A; 2GB DIMM	3	A; empty	
Chnl 2	4	H; 8GB DIMM	4	H; empty	Chnl 2
	5	E; 8GB DIMM	5	E; empty	
	6	B; 2GB DIMM	6	B; empty	
Chnl 3	7	I; 8GB DIMM	7	I; empty	Chnl 3
	8	F; 8GB DIMM	8	F; empty	
	9	C; 2GB DIMM	9	C; empty	

#### Standard memory replaced with optional memory (1 CPU model)

##### RDIMM maximum configuration (1 CPU model)

- 96GB, consisting of six (6) 16GB quad-rank PC3-8500 RDIMMs

### Memory

	CPU1		CPU2		
	slot #	population order	slot #	population order	
Chnl 1	1	G; empty	1	G; empty	Chnl 1
	2	D; 16GB DIMM	2	D; empty	
	3	A; 16GB DIMM	3	A; empty	
Chnl 2	4	H; empty	4	H; empty	Chnl 2
	5	E; 16GB DIMM	5	E; empty	
	6	B; 16GB DIMM	6	B; empty	
Chnl 3	7	I; empty	7	I; empty	Chnl 3
	8	F; 16GB DIMM	8	F; empty	
	9	C; 16GB DIMM	9	C; empty	

#### UDIMM maximum configuration (1 CPU model)

- 12GB, consisting of six (6) 2GB dual-rank PC3-10600 UDIMMs

	CPU1		CPU2		
	slot #	population order	slot #	population order	
Chnl 1	1	G; empty	1	G; empty	Chnl 1
	2	D; 2GB DIMM	2	D; empty	
	3	A; 2GB DIMM	3	A; empty	
Chnl 2	4	H; empty	4	H; empty	Chnl 2
	5	E; 2GB DIMM	5	E; empty	
	6	B; 2GB DIMM	6	B; empty	
Chnl 3	7	I; empty	7	I; empty	Chnl 3
	8	F; 2GB DIMM	8	F; empty	
	9	C; 2GB DIMM	9	C; empty	

#### Standard memory replaced with optional memory (2 CPU model)

#### RDIMM maximum configuration (2 CPU model)

- 192GB, consisting of twelve (12) 16GB quad-rank PC3-8500 RDIMMs

	CPU1		CPU2		
	slot #	population order	slot #	population order	
Chnl 1	1	G; empty	1	G; empty	Chnl 1
	2	D; 16GB DIMM	2	D; 16GB DIMM	
	3	A; 16GB DIMM	3	A; 16GB DIMM	
Chnl 2	4	H; empty	4	H; empty	Chnl 2
	5	E; 16GB DIMM	5	E; 16GB DIMM	
	6	B; 16GB DIMM	6	B; 16GB DIMM	
Chnl 3	7	I; empty	7	I; empty	Chnl 3
	8	F; 16GB DIMM	8	F; 16GB DIMM	
	9	C; 16GB DIMM	9	C; 16GB DIMM	

#### UDIMM maximum configuration

- 48GB, consisting of twelve (12) 4GB dual-rank PC3-10600 UDIMMs

### Memory

	CPU1		CPU2		
	slot #	population order	slot #	population order	
Chnl 1	1	G; empty	1	G; empty	Chnl 1
	2	D; 4GB DIMM	2	D; 4GB DIMM	
	3	A; 4GB DIMM	3	A; 4GB DIMM	
Chnl 2	4	H; empty	4	H; empty	Chnl 2
	5	E; 4GB DIMM	5	E; 4GB DIMM	
	6	B; 4GB DIMM	6	B; 4GB DIMM	
Chnl 3	7	I; empty	7	I; empty	Chnl 3
	8	F; 4GB DIMM	8	F; 4GB DIMM	
	9	C; 4GB DIMM	9	C; 4GB DIMM	

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

- 1GB = 1024MB
- 2GB = 2048MB
- 4GB = 4096MB
- 8GB = 8192MB
- 16GB = 16384MB

Following are memory options available from HP:

#### HP Memory

#### Registered DIMMs (RDIMMs)

HP 2GB (1x2GB) Dual Rank x8 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit	500656-B21
HP 4GB (1x4GB) Dual Rank x4 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit	500658-B21
HP 4GB (1x4GB) Quad Rank x8 PC3-8500 (DDR3-1066) Registered CAS-7 Low Power Memory Kit	500660-B21
HP 8GB (1x8GB) Dual Rank x4 PC3-8500 (DDR3-1066) Registered CAS-7 Memory Kit	516423-B21
HP 8GB (1x8GB) Dual Rank x4 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit	500662-B21
HP 16GB (1x16GB) Quad Rank x4 PC3-8500 (DDR3-1066) Registered CAS-7 Memory Kit	500666-B21

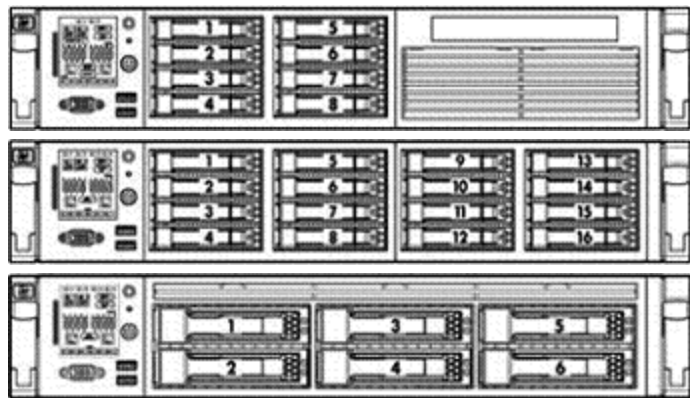
#### Unbuffered with ECC DIMMs (UDIMMs)

HP 1GB (1x1GB) Single Rank x8 PC3-10600 (DDR3-1333) Unbuffered CAS-9 Memory Kit	500668-B21
HP 2GB (1x2GB) Dual Rank x8 PC3-10600 (DDR3-1333) Unbuffered CAS-9 Memory Kit	500670-B21
HP 4GB (1x4GB) Dual Rank x8 PC3-10600 (DDR3-1333) Unbuffered CAS-9 Memory Kit	500672-B21

**NOTE:** All DDR3 memory option kits consist of one DIMM per kit. For detailed memory configuration rules and guidelines, please use the Online DDR3 Memory Configuration Tool: [www.hp.com/go/ddr3memory-configurator](http://www.hp.com/go/ddr3memory-configurator).

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

### Storage



1-8 Eight SFF SAS hot plug hard drive bays

1-16 Sixteen SFF SAS hot plug hard drive bays  
**NOTE:** This configuration does not support optical drive.

1-6 Six LFF SAS hot plug hard drive bays  
**NOTE:** This configuration does not support optical drive.

### Drive Support

	Quantity Supported	Position Supported	Controller
<b>Removable Media</b>			
HP Slim SATA DVD RW Optical Drive <b>NOTE:</b> Included in performance models.	Only 1 available removable media bay	Slimline bay	Integrated SATA <b>NOTE:</b> Optional
HP Slim SATA DVD-ROM Optical Drive	Only 1 available removable media bay	Slimline bay	Integrated SATA <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 (2.5-inch) Enterprise (ENT) Drives

	Quantity Supported	Position Supported	Controller
300GB 3G SAS 10K DP	Up to 8	1-8	HP Smart Array P800/512 BBWC Controller
300GB 6G SAS 10K DP			HP Smart Array P212/Zero Memory Controller
146GB 6G SAS 10K DP			HP Smart Array P212/ 256 MB Controller
146GB 6G SAS 15K DP			HP Smart Array P410/256 MB Controller
146GB 3G SAS 15K DP			HP Smart Array P410/512 MB BBWC Controller
146GB 3G SAS 10K DP			HP Smart Array P410/512 MB FBWC Controller
72GB 6G SAS 15K DP			HP Smart Array P410/1G FBWC Controller
72GB 3G SAS 15K DP			HP Smart Array P411/256 MB Controller
			HP Smart Array P411/512 MB BBWC Controller
			HP Smart Array P411/512 MB FBWC Controller
	HP Smart Array P411/1G FBWC Controller		
	HP Smart Array P812/1G Flash Backed Cache Controller		

**NOTE:** Second SFF drive cage requires second controller or HP SAS Expander Card (PN 468406-B21).

#### SAS Hot Plug LFF (3.5-inch) Enterprise (ENT) Drives

	Quantity Supported	Position Supported	Controller
600GB 6G SAS 15K DP	Up to 6	1-6	HP Smart Array P800/512 BBWC Controller
450GB 6G SAS 15K DP			HP Smart Array P212/Zero Memory Controller
450GB 3G SAS 15K DP			HP Smart Array P212/ 256 MB Controller
300GB 6G SAS 15K DP			HP Smart Array P410/256 MB Controller
300GB 3G SAS 15K DP			HP Smart Array P410/512 MB BBWC Controller
146GB 3G SAS 15K DP			HP Smart Array P410/512 MB FBWC Controller
			HP Smart Array P410/1G FBWC Controller
			HP Smart Array P411/256 MB Controller
			HP Smart Array P411/512 MB BBWC Controller
			HP Smart Array P411/512 MB FBWC Controller
	HP Smart Array P411/1G FBWC Controller		
	HP Smart Array P812/1G Flash Backed Cache Controller		

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

	Quantity Supported	Position Supported	Controller
500GB 6G SAS 7.2K DP	Up to 8	1-8	HP Smart Array P800/512 BBWC Controller



### Storage

HP Smart Array P212/Zero Memory Controller  
 HP Smart Array P212/ 256 MB Controller  
 HP Smart Array P410/256 MB Controller  
 HP Smart Array P410/512 MB BBWC Controller  
 HP Smart Array P410/512 MB FBWC Controller  
 HP Smart Array P410/1G FBWC Controller  
 HP Smart Array P411/256 MB Controller  
 HP Smart Array P411/512 MB BBWC Controller  
 HP Smart Array P411/512 MB FBWC Controller  
 HP Smart Array P411/1G FBWC Controller  
 HP Smart Array P812/1G Flash Backed Cache Controller

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

	Quantity Supported	Position Supported	Controller
2TB 6G SAS 7.2K DP	Up to 6	1-6	HP Smart Array P800/512 BBWC Controller
1TB 6G SAS 7.2K DP			HP Smart Array P212/Zero Memory Controller
1TB 3G SAS 7.2K DP			HP Smart Array P212/ 256 MB Controller
750GB 3G SAS 7.2K DP			HP Smart Array P410/256 MB Controller
			HP Smart Array P410/512 MB BBWC Controller
		HP Smart Array P410/512 MB FBWC Controller	
		HP Smart Array P410/1G FBWC Controller	
		HP Smart Array P411/256 MB Controller	
		HP Smart Array P411/512 MB BBWC Controller	
		HP Smart Array P411/512 MB FBWC Controller	
		HP Smart Array P411/1G FBWC Controller	
		HP Smart Array P812/1G Flash Backed Cache Controller	

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

	Quantity Supported	Position Supported	Controller
500GB 3G SATA 7.2K	Up to 8	1-8	HP Smart Array P800/512 BBWC Controller
160GB 3G SATA 7.2K			HP Smart Array P212/Zero Memory Controller
			HP Smart Array P212/ 256 MB Controller
			HP Smart Array P410/256 MB Controller
			HP Smart Array P410/512 MB BBWC Controller
			HP Smart Array P410/512 MB FBWC Controller
			HP Smart Array P410/1G FBWC Controller
			HP Smart Array P411/256 MB Controller
			HP Smart Array P411/512 MB BBWC Controller
			HP Smart Array P411/512 MB FBWC Controller
			HP Smart Array P411/1G FBWC Controller
			HP Smart Array P812/1G Flash Backed Cache Controller

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

	Quantity Supported	Position Supported	Controller
2TB 3G SATA 7.2K	Up to 6	1-6	HP Smart Array P800/512 BBWC Controller
1TB 3G SATA 7.2K			HP Smart Array P212/Zero Memory Controller
500GB 3G SATA 7.2K			HP Smart Array P212/ 256 MB Controller
			HP Smart Array P410/256 MB Controller
			HP Smart Array P410/512 MB BBWC Controller
			HP Smart Array P410/512 MB FBWC Controller
			HP Smart Array P410/1G FBWC Controller
			HP Smart Array P411/256 MB Controller
			HP Smart Array P411/512 MB BBWC Controller
			HP Smart Array P411/512 MB FBWC Controller
			HP Smart Array P411/1G FBWC Controller
			HP Smart Array P812/1G Flash Backed Cache Controller

#### SATA Hot Plug SFF (2.5-inch) Entry (ETY) Drives

	Quantity Supported	Position Supported	Controller
250GB 3G SATA 5.4K	Up to 8	1-8	HP Smart Array P800/512 BBWC Controller
120GB 1.5G SATA 5.4K			HP Smart Array P212/Zero Memory Controller
			HP Smart Array P212/ 256 MB Controller
			HP Smart Array P410/256 MB Controller
			HP Smart Array P410/512 MB BBWC Controller
			HP Smart Array P410/512 MB FBWC Controller
			HP Smart Array P410/1G FBWC Controller
			HP Smart Array P411/256 MB Controller
			HP Smart Array P411/512 MB BBWC Controller
			HP Smart Array P411/512 MB FBWC Controller
			HP Smart Array P411/1G FBWC Controller
			HP Smart Array P812/1G Flash Backed Cache Controller

### Storage

**NOTE:** Second SFF drive cage requires second controller or HP SAS Expander Card (PN 468406-B21).

#### SATA Hot Plug LFF (3.5-inch) Entry (ETY) Drives

	Quantity Supported	Position Supported	Controller
250GB 3G SATA 7.2K	Up to 6	1-6	HP Smart Array P800/512 BBWC Controller
160GB 3G SATA 7.2K			HP Smart Array P212/Zero Memory Controller
			HP Smart Array P212/ 256 MB Controller
			HP Smart Array P410/256 MB Controller
			HP Smart Array P410/512 MB BBWC Controller
			HP Smart Array P410/512 MB FBWC Controller
			HP Smart Array P410/1G FBWC Controller
			HP Smart Array P411/256 MB Controller
			HP Smart Array P411/512 MB BBWC Controller
			HP Smart Array P411/512 MB FBWC Controller
			HP Smart Array P411/1G FBWC Controller
			HP Smart Array P812/1G Flash Backed Cache Controller

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

	Quantity Supported	Position Supported	Controller
60GB 3.0G SATA SSD	Up to 8	1-8	HP Smart Array P212/Zero Memory Controller
120GB 3.0G SATA SSD			HP Smart Array P212/ 256 MB Controller
			HP Smart Array P410/256 MB Controller
			HP Smart Array P410/512 MB BBWC Controller
			HP Smart Array P410/512 MB FBWC Controller
			HP Smart Array P410/1G FBWC Controller
			HP Smart Array P411/256 MB Controller
			HP Smart Array P411/512 MB BBWC Controller
			HP Smart Array P411/512 MB FBWC Controller
			HP Smart Array P411/1G FBWC Controller
			HP Smart Array P812/1G Flash Backed Cache Controller

#### SATA Hot Plug 3.5" Midline (MDL) Solid State Drives

	Quantity Supported	Position Supported	Controller
60GB 3.0G SATA SSD	Up to 6	1-6	HP Smart Array P212/Zero Memory Controller
120GB 3.0G SATA SSD			HP Smart Array P212/ 256 MB Controller
			HP Smart Array P410/256 MB Controller
			HP Smart Array P410/512 MB BBWC Controller
			HP Smart Array P410/512 MB FBWC Controller
			HP Smart Array P410/1G FBWC Controller
			HP Smart Array P411/256 MB Controller
			HP Smart Array P411/512 MB BBWC Controller
			HP Smart Array P411/512 MB FBWC Controller
			HP Smart Array P411/1G FBWC Controller
			HP Smart Array P812/1G Flash Backed Cache Controller

### External Storage

	Quantity Supported	Position Supported	Host Controller or Adapter
60 Modular Smart Array	Up to 4	External	HP Smart Array P212/ 256 MB Controller
		External	HP Smart Array P411/256 MB Controller
	Up to 8		HP Smart Array P411/512 MB BBWC Controller
			HP Smart Array P411/512 MB FBWC Controller
			HP Smart Array P411/1G FBWC Controller
			HP Smart Array P800/512 BBWC Controller
70 Modular Smart Array	Up to 2	External	HP Smart Array P212/ 256 MB Controller
		External	HP Smart Array P411/256 MB Controller
D2600 Disk Enclosure	Up to 4	External	HP Smart Array P411/512 MB BBWC Controller
		External	HP Smart Array P411/512 MB FBWC Controller
	Up to 8		HP Smart Array P411/1G FBWC Controller
			HP Smart Array P800/512 BBWC Controller
			HP Smart Array P812/1G Flash Backed Cache Controller
			HP Smart Array P812/1G Flash Backed Cache Controller

### Storage

D2700 Disk Enclosure	Up to 2	External	HP Smart Array P212/ 256 MB Controller
	Up to 4	External	HP Smart Array P411/256 MB Controller
			HP Smart Array P411/512 MB BBWC Controller
			HP Smart Array P411/512 MB FBWC Controller
			HP Smart Array P411/1G FBWC Controller
			HP Smart Array P812/1G Flash Backed Cache Controller

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

Internal	8.0TB (16 x 500GB SAS SFF with addition 8 SFF drive cage)
External	5.0TB (20 x 250GB SAS SFF)
Total	13.0TB

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

Internal	8.0TB (16 x 500GB SATA SFF with additional 8 SFF drive cage)
External	5.0TB (20 x 250GB SATA SFF)
Total	13.0TB

### Tape and Disk Backup

**NOTE:** For the complete range of StorageWorks tape drives, autoloaders, libraries and media, including the internal fitting models, see: <http://www.hp.com/go/tape>. For the complete range of StorageWorks D2D Backup Systems see: <http://www.hp.com/go/d2d>. For the complete range of StorageWorks RDX drives and media see: <http://www.hp.com/go/rdx>. For hardware and software compatibility of HP StorageWorks disk and tape backup products see: <http://www.hp.com/go/connect>.

	Position Supported	Controller	Part Number
<b>HP StorageWorks SCSI Tape Drives</b>	External	HP SC11Xe Host Bus Adapter	412911-B21
LTO-1 Ultrium 232			
LTO-2 Ultrium 448			
LTO-3 Ultrium 920			
LTO-3 Ultrium 960			
LTO4 Ultrium 1760			
LTO-4 Ultrium 1840			
DAT 40			
DAT 72			
DAT 160			
1U Rack-Mount Kit			
3U Rack-Mount Kit			
<b>HP StorageWorks USB Tape Drives</b>	External	USB 2.0 Port	N/A
DAT 40			
DAT 72			
DAT 160			
DAT 320			
1U USB Rack-Mount Kit			
<b>HP StorageWorks SAS Tape Drives</b>	External	HP Smart Array P212/Zero Memory Controller	462828-B21
DAT 160			
DAT 320			
LTO-2 Ultrium 448			
LTO-3 Ultrium 920			
LTO-4 Ultrium 1760			
LTO-4 Ultrium 1840			
LTO-5 Ultrium 3000			
LTO-5 Ultrium 3280			
1U Rack-Mount Kit			
3U Rack-Mount Kit			
<b>HP StorageWorks SCSI Tape Autoloaders</b>	External	HP SC11Xe Host Bus Adapter	412911-B21
DAT 72x10 Autoloader			
1/8 G2 Autoloader			

**NOTE:** Please check the full compatibility information at: <http://www.hp.com/go/connect>

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### Storage

<b>HP StorageWorks SCSI Tape Libraries</b> MSL2024 MSL4048 MSL8096 MSL6000	External	HP U320e SCSI Dual Channel Controller	AH627A
<p><b>NOTE:</b> Please check the full compatibility information at: <a href="http://www.hp.com/go/connect">http://www.hp.com/go/connect</a></p>			
<b>HP StorageWorks SAS Tape Autoloaders and Libraries</b> 1/8 G2 Autoloader MSL2024 MSL4048 MSL8096	External	HP Smart Array P212/Zero Memory Controller	462828-B21
<p><b>NOTE:</b> Please check the full compatibility information at: <a href="http://www.hp.com/go/connect">http://www.hp.com/go/connect</a></p>			
<b>HP StorageWorks Fibre Channel Tape Libraries</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
<b>HP StorageWorks USB RDX Removable Disk Backup System</b> RDX160 RDX320 RDX500 RDX750	Internal or External	USB 2.0	N/A
<b>HP StorageWorks D2D Backup Systems, iSCSI</b> D2D2500i D2D4000i	External	Embedded Network Controller. If the server requires a hardware iSCSI initiator, the QLogic QLA4050 Host Bus Adapter is recommended.	
<b>HP StorageWorks D2D Backup Systems, Fibre Channel</b> D2D4000fc	External	Direct server attach is not supported, requires connection via SAN fabric. See: <a href="http://www.hp.com/go/connect">http://www.hp.com/go/connect</a>	

### Power Specifications

HP 460W CS HE Power Supply Kit							
Part Number	503296-B21						
Input Voltage Range ( V rms )	100 to 240						
Frequency Range (Nominal) ( Hz )	50/60						
Nominal Input Voltage ( Vrms )	<b>100</b>	<b>120</b>	<b>200</b>	<b>208</b>	<b>220</b>	<b>230</b>	<b>240</b>
Maximum Rated Output Wattage Rating	460	460	460	460	460	460	460
Nominal Input Current ( A rms )	5.5	4.5	2.6	2.5	2.4	2.3	2.2
Maximum Rated Input Wattage Rating ( Watts )	526	520	505	505	503	503	503
Maximum Rated VA ( Volt-Amp )	548	542	527	527	524	524	524
Efficiency ( % )	87.5	88.5	91	91	91.5	91.5	91.5
Power Factor	0.97						
Leakage Current ( mA )	0.42	0.50	0.83	0.87	0.92	0.96	1.00
Maximum Inrush Current ( A peak )	30						
Maximum Inrush Current duration ( mS )	20						
Maximum British Thermal Unit Rating ( BTU-Hr )	1794	1773	1725	1725	1715	1715	1715

HP 750W CS HE Power Supply Kit							
Part Number	512327-B21						
Input Voltage Range ( V rms )	100 to 240						
Frequency Range (Nominal) ( Hz )	50/60						
Nominal Input Voltage ( Vrms )	<b>100</b>	<b>120</b>	<b>200</b>	<b>208</b>	<b>220</b>	<b>230</b>	<b>240</b>
Maximum Rated Output Wattage Rating	750	750	750	750	750	750	750
Nominal Input Current ( A rms )	8.9	7.4	4.3	4.1	3.9	3.7	3.6
Maximum Rated Input Wattage Rating ( Watts )	857	847	824	824	820	820	820
Maximum Rated VA ( Volt-Amp )	894	884	859	854	854	854	
Efficiency ( % )	87.5	88.5	91	91	91.5	91.5	91.5
Power Factor	0.97						
Leakage Current ( mA )	0.42	0.50	0.83	0.87	0.92	0.96	1.00
Maximum Inrush Current ( A peak )	30						
Maximum Inrush Current duration ( mS )	20						
Maximum British Thermal Unit Rating ( BTU-Hr )	2925	2892	2812	2812	2797	2797	2797

HP 1200W CS HE Power Supply Kit							
Part Number	500172-B21						
Input Voltage Range ( V rms )	100 to 240						
Frequency Range (Nominal) ( Hz )	50/60						
Nominal Input Voltage ( Vrms )	<b>100</b>	<b>120</b>	<b>200</b>	<b>208</b>	<b>220</b>	<b>230</b>	<b>240</b>
Maximum Rated Output Wattage Rating	800	900	1200	1200	1200	1200	1200
Nominal Input Current ( A rms )	9.7	9.0	7.0	6.8	6.4	6.1	5.9
Maximum Rated Input Wattage Rating ( Watts )	930	1034	1348	1348	1348	1348	1348
Maximum Rated VA ( Volt-Amp )	970	1079	1406	1406	1406	1406	1406
Efficiency ( % )	86	87	89	89	89	89	89
Power Factor	0.97						
Leakage Current ( mA )	0.42	0.50	0.83	0.87	0.92	0.96	1.00
Maximum Inrush Current ( A peak )	30						
Maximum Inrush Current duration ( mS )	20						
Maximum British Thermal Unit Rating ( BTU-Hr )	3174	3530	4600	4600	4600	4600	4600

HP 1200W CS Platinum Power Supply Kit							
Part Number	578322-B21						
Input Voltage Range ( V rms )	100 to 240						
Frequency Range (Nominal) ( Hz )	50/60						
Nominal Input Voltage ( Vrms )	<b>100</b>	<b>120</b>	<b>200</b>	<b>208</b>	<b>220</b>	<b>230</b>	<b>240</b>
Maximum Rated Output Wattage Rating	800	900	1200	1200	1200	1200	1200
Nominal Input Current ( A rms )	9.3	8.6	6.7	6.5	6.1	5.8	5.6
Maximum Rated Input Wattage Rating ( Watts )	889	989	1290	1290	1290	1290	1290
Maximum Rated VA ( Volt-Amp )	927	1031	1345	1345	1345	1345	1345
Efficiency ( % )	90	91	93	93	93	93	93
Power Factor	0.97						
Leakage Current ( mA )	0.42	0.50	0.83	0.87	0.92	0.96	1.00
Maximum Inrush Current ( A peak )	30						
Maximum Inrush Current duration ( mS )	20						
Maximum British Thermal Unit Rating ( BTU-Hr )	3033	3375	4403	4403	4403	4403	4403

### Power Specifications

HP 1200W 48VDC CS HE Power Supply Kit			
Part Number	437573-B21		
Input Voltage Range ( V rms )	36-72		
Frequency Range (Nominal) ( Hz )	DC		
Nominal Input Voltage ( Vrms )	<b>36</b>	<b>48</b>	<b>72</b>
Maximum Rated Output Wattage Rating	1200	1200	1200
Nominal Input Current ( A rms )	38	28	19
Maximum Rated Input Wattage Rating ( Watts )	1380	1350	1365
Maximum Rated VA ( Volt-Amp )	1380	1350	1365
Efficiency ( % )	87	89	88
Power Factor	N/A		
Leakage Current ( mA )	N/A		
Maximum Inrush Current ( A peak )	20	25	35
Maximum Inrush Current duration ( mS )	1	1	3
Maximum British Thermal Unit Rating ( BTU-Hr )	4713	4610	4662

**NOTES:** 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)

### Technical Specifications

<b>System Unit</b>	<b>Dimensions</b> (H x W x D) (with bezel)	SFF Drives: 3.38 x 17.54 x 27.25 in (8.59 x 44.55 x 69.22 cm) LFF Drives: 3.38 x 17.54 x 29.25 in (8.59 x 44.55 x 74.30 cm)							
	<b>Weight</b> (approximate)	<table border="0"> <tr> <td>Maximum</td> <td>60.00 lb (27.27 kg)</td> </tr> <tr> <td colspan="2">(all hard drives, power supply, and processor installed)</td> </tr> <tr> <td>Minimum</td> <td>47.18 lb (21.45 kg)</td> </tr> <tr> <td colspan="2">(one hard drive, power supply, and processor installed)</td> </tr> </table>	Maximum	60.00 lb (27.27 kg)	(all hard drives, power supply, and processor installed)		Minimum	47.18 lb (21.45 kg)	(one hard drive, power supply, and processor installed)
Maximum	60.00 lb (27.27 kg)								
(all hard drives, power supply, and processor installed)									
Minimum	47.18 lb (21.45 kg)								
(one hard drive, power supply, and processor installed)									
<b>Input Requirements</b> (per power supply)	Rated Line Voltage	100 to 120 VAC 200 to 240 VAC							
	Rated Input Current	For 1200 W Power Supply: 10 A (at 100 VAC), 4.9 A (at 200 VAC) For 750 W Power Supply: 8.9 A (at 100 VAC), 4.3 A (at 200 VAC) For 460 W Power Supply: 5.5 A (at 100 VAC), 2.6 A (at 200 VAC)							
	Rated Input Frequency	50 to 60 Hz							
	Rated Input Power	For 1200 W Power Supply: 930 W (at 100 VAC), 1348 W (at 200 VAC) For 750 W Power Supply: 857 W (at 100 VAC), 824 W (at 200 VAC) For 460 W Power Supply: 526 W (at 100 VAC), 505 W (at 200 VAC)							
<b>BTU Rating</b>	Maximum	For 1200 W Power Supply: 3530 BTU/hr (at 100 VAC), 4600 BTU/hr (at 200 VAC) For 750 W Power Supply: 2925 BTU/hr (at 100 VAC), 2812 BTU/hr (at 200 VAC) For 460 W Power Supply: 1794 BTU/hr (at 100 VAC), 1725 BTU/hr (at 200 VAC)							
<b>Power Specifications</b>	<b>NOTE:</b> To review typical system power ratings use the <a href="http://www.hp.com/go/proliant-energy-efficient">HP Power Advisor</a> 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>								
<b>Power Supply Output</b> (per power supply)	Rated Steady-State Power	For 1200 W Power Supply: 800 W (at 100 VAC), 900 W (at 120 VAC), 1200 W (at 200 to 240 VAC) For 750 W Power Supply: 750 W (at 100 to 120 VAC), 750 W (at 200 to 240 VAC) For 460 W Power Supply: 460 W (at 100 to 120 VAC), 460 W (at 200 to 240 VAC)							
	Maximum Peak Power	For 1200 W Power Supply: 800 W (at 100 VAC), 900 W (at 120 VAC), 1200 W (at 200 to 240 VAC) For 750 W Power Supply: 750 W (at 100 to 120 VAC), 750 W (at 200 to 240 VAC) For 460 W Power Supply: 460 W (at 100 to 120 VAC), 460 W (at 200 to 240 VAC)							
<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							

### Technical Specifications

		installed.	
		System performance may be reduced if operating with a fan fault or above 30°C (86°F).	
<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	10 to 90% relative humidity (Rh), 28°C (82.4°F) maximum wet bulb temperature, non-condensing.	
<b>Altitude</b>	Non-operating	5 to 95% relative humidity (Rh), 38.7°C (101.7°F) maximum wet bulb temperature, non-condensing.	
	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).	
<b>Acoustic Noise</b>	Non-operating	9144 m (30,000 ft). Maximum allowable altitude change rate is 457 m/min (1500 ft/min).	
	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>NOTE:</b> The Listed sound levels apply to standard shipping configurations. Additional options may result in increased sound levels.		
<b>Emissions Classification (EMC)</b>	<b>Idle</b>	<b>1P SKU</b>	<b>2P SKU</b>
	LWAd	4.1 B	4.7 B
	LpAm	22 dBA	28 dBA
	<b>Operating</b>	<b>1P SKU</b>	<b>2P SKU</b>
	LWAd	4.1 B	4.7 B
	LpAm	22 dBA	28 dBA
	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	
<b>NOTE:</b> Product conformance to cited product specifications is based on sample (type) testing, evaluation, or assessment. This product or family of products is eligible to bear the appropriate compliance logos and statements.			
<b>NOTE:</b> The Listed sound levels apply to standard shipping configurations. Additional options may result in increased sound levels.			

### Smart Array P410i Controller

<b>Dimensions</b> (not including bracket)	Low Profile PCIe Form Factor 7.5 in x 9.5 in x 2.25 in (19.05 cm x 24.13 cm x 5.72 cm)
<b>Disk Drive and Enclosure Interface - transfer rate</b>	6Gb/s SAS (Serial Attached SCSI) 3Gb/s SATA (Serial ATA)
<b>SAS Connectors</b>	2 internal (Mini-SAS) x8 wide port connectors
<b>Cache Memory Speed</b>	DDR2-533MHz with 40 or 72-bit wide bus provides up to 4.2 GB/s maximum bandwidth.
<b>Server Interface</b>	x8 2.5G PCIe 2.0 provides 2GB/s maximum bandwidth
<b>SAS Speed</b>	x8 3G SAS provides 2.4GB/s maximum bandwidth
<b>Cache Memory</b>	40-bit 256MB ECC protected cache (72-bit 512MB BBWC module upgrades available); transportable with battery-backed upgrade
<b>Logical Drives Supported</b>	Up to 64 logical drives
<b>Maximum Logical Drive Capacity</b>	Greater than 2TB
<b>Host Memory Addressing</b>	64-bit, supporting greater than 4GB server memory space
<b>RAID Support</b>	RAID 6, 6+0 (Advanced Data Guarding) <b>NOTE:</b> RAID 6, 6+0 can be enabled with either

- Minimum of 256 MB cache, Battery kit and Smart Array Advanced Pack License key option upgrades



### Technical Specifications

- [Minimum of 512 MB BBWC and Smart Array Advanced Pack License key option upgrades](#)

RAID 5, 5+0 (Distributed Data Guarding)

**NOTE:** [The 256 MB is required to enable RAID 5, 5+0 support of the Smart Array P410i](#)

RAID 1+0 (Striping & Mirroring)

RAID 0 (Striping)

**Upgradeable Firmware** Upgradeable Firmware with Recovery ROM feature

#### HP NC382i Dual Port Multifunction Gigabit Server Adapters

<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 802.3ad 1000Base-TX IEEE 802.1p 100Base-TX IEEE 802.1q 100Base-TX	
<b>Data Transfer Method</b>	PCI Express, four lanes (x4)	
<b>Controller</b>	BCM5709C	
<b>Network Transfer Rate</b>	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
<b>Connector</b>	Two RJ-45	
<b>Cable Support</b>	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)

#### HP Integrated Lights-Out 2 (iLO 2) integrated on system board

<b>Architecture</b>	32-bit PCI-based health and remote management ASIC
<b>Processor</b>	32-bit RISC processor core running at 66MHz
<b>Upgradeability</b>	Option firmware upgradeable via Flash ROM.
<b>Operating System Support</b>	Microsoft Windows Server 2008 Standard Edition (32bit and 64bit) Microsoft Windows Server 2008 Enterprise Edition (32bit and 64bit) Microsoft Windows Server 2003 and Windows Server 2003 R2, and Windows Server 2003 for Extended Systems Standard Edition, Enterprise Edition Red Hat Enterprise Linux 5.4 (32bit and 64bit) SUSE LINUX Enterprise Server 11 (32bit and 64bit) SUSE LINUX Enterprise Server 10 (32bit and 64bit) VMware ESX 4.0 VMware ESX 3.5.0 Microsoft Windows XP Professional Edition Microsoft Windows Vista Business and Ultimate Editions Red Hat Enterprise Linux Desktop 5.00 SUSE Linux Enterprise Desktop 11 SUSE Linux Enterprise Desktop 10
<b>Client Browser Support</b>	Microsoft Internet Explorer 7 Microsoft Internet Explorer 6 Firefox 3.5 (on supported Windows and Linux systems) Firefox 3.0 (on supported Windows and Linux systems)
<b>Command Line Support</b>	Telnet, Secure Shell and serial port access Secure Socket Layer Secure Shell version 2 (Password and certificate)

### Technical Specifications

<b>Security</b>	Advanced Encryption Standard (AES) and Triple Data Encryption Standard (3DES) on browser, CLP and XML scripting interface RC4 encryption of video
<b>Directory Support Services</b>	Active Directory v1.0 (Windows 2003)
<b>Driver Support</b>	Health Driver (HP ProLiant iLO 2 Management Controller Driver) iLO Management Channel Interface Driver
<b>Management protocols supported</b>	SNMP 2, IPMI 2.0 (KCS interface), DMTF Server Management Command Line Protocol Specification (SM CLP), DMTF Web Services Management Specification (WS Management)

### Environment-friendly Products and Approach

### End-of-life Management and Recycling

Hewlett-Packard offers end-of-life HP product return, trade-in, and recycling programs in many geographic areas. For trade-in information, please go to: <http://www.hp.com/go/green>. To recycle your product, please go to: <http://www.hp.com/go/green> or contact your nearest HP sales office. Products returned to HP will be recycled, recovered or disposed of in a responsible manner.

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