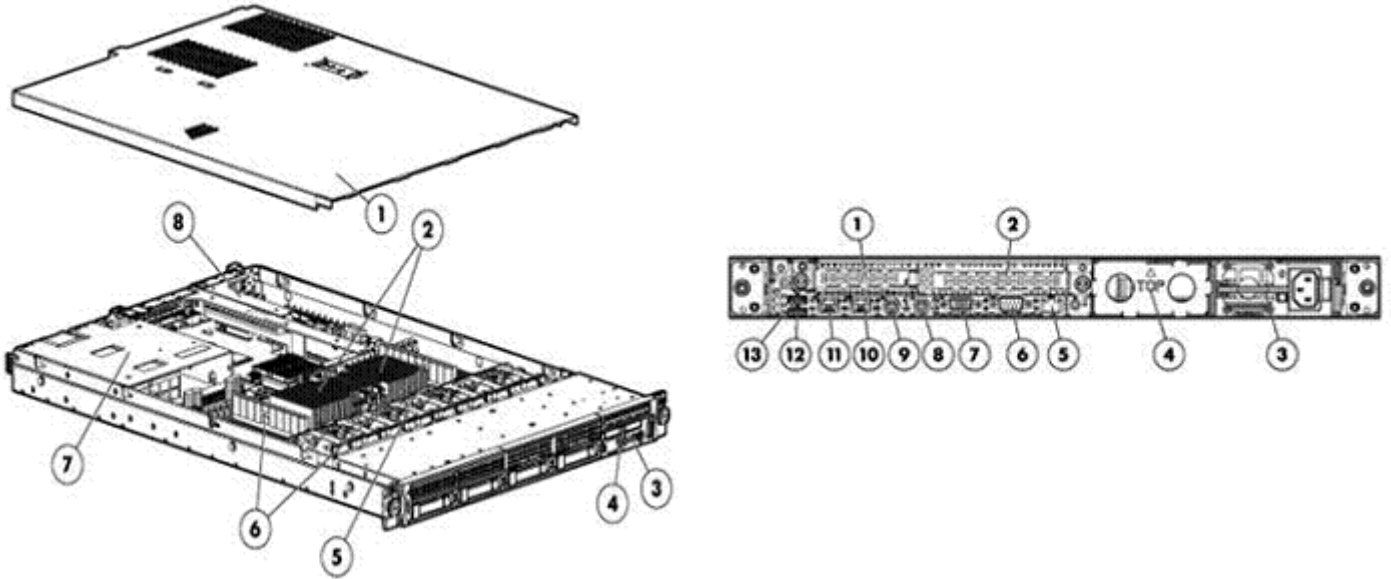*Overview*



**Front View:**

1. Hood Cover
2. Up to two Intel Quad-Core or Dual-Core Xeon™ processors)
3. Video Connector
4. Slide-out System Insight Display
5. Removable fan modules for easy serviceability
6. Eighteen DIMM slots: DDR3 Registered (RDIMM) or Unbuffered (UDIMM) memory
7. Redundant Hot Plug Power Supplies (upgradeable option)
8. 2 PCI-E Slots

**Rear View:**

1. PCI Express expansion slot 1, low-profile, half-length
2. PCI Express expansion slot 2 full height full length x16 (16, 8, 4, 2, 1), 75W +EXT 75W (optional PCI-X support)
3. Power supply bay 1 (populated)
4. Power supply bay 2
5. iLO 2 NIC connector
6. Serial connector
7. Video connector
8. Mouse connector
9. Keyboard connector
10. NIC 2 connector
11. NIC 1 connector
12. USB connector
13. USB connector

## What's New

- Addition of new higher performance/low power Intel® Xeon® Processor L5530 (2.40GHz, 60W) processor.

## At A Glance

Combining improved 1U compute performance, smart power and cooling management with infrastructure management tools and essential fault tolerance, the HP ProLiant DL360 G6 is optimized for space constrained installations.

Latest Intel 5500 Series Xeon® Processors (Quad-Core and Dual-Core), with choice of DDR3 Registered or Unbuffered DIMMs, Serial Attached SCSI (SAS), PCI Express Gen2 technology and ProLiant Onboard Administrator provide a high performance system, ideal for the full range of scale out applications.

*Overview*

What's more, the DL360 G6 steps up the fault tolerant in an ultra-dense platform with redundant power, redundant fans, mirrored memory and embedded RAID capability.

- **Processors**:
    - Up to 2 Quad-Core or Dual-Core Intel® Xeon® processor 5500 sequence
    - Intel® 5520 Chipset
- **Memory**:
    - 18 DDR3 DIMM slots available
    - Up to 192GB, using 16GB Quad Rank PC3-8500R DDR3 Registered (RDIMM) memory, operating at 800MHz when fully populated at 2 DIMMs per Channel in 12 slots.Up to 24GB, using 2GB PC3-10600 DDR3 Unbuffered (UDIMM) memory, operating at 1333MHz when fully populated at 2 DIMMs per Channel in 12 slots.
- **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, Battery kit upgrade (to add BBWC to the 256MB Memory option) or 512MB w/ BBWC, and Smart Array Advanced Pack (SAAP)
- **Internal Drive Support**:
    - Up to (8) small form factor (SFF) hot-plug drive bays
    - Slimline media bay supporting DVD -ROM/DVD-RW (available only on 4 HDD models)
    - Optional DVD-on 4SFF HDD models only
- **Network Controller**:
    - One HP NC382i Dual Port Multifunction Gigabit Server Adapter (two ports total) with TCP/IP Offload Engine, including support for Accelerated iSCSI
- **Expansion Slots**:
    - Two PCI-Express Gen 2 expansion slots: (1) full-length, full-height slot; (1) low-profile slot
    - Optional PCI-X Riser expansion slot
- **Ports**:
    - USB 2.0 Support
    - 4 Total: (1) front, (1) internal and (2) rear accessible ports
    - 1 internal Secure Digital (SD) slot
- **Integrated Hypervisors** (Optional):
    - VMware virtualization technology
    - Citrix XenServer virtualization technology
- **Redundancy**:
    - Multiple layers of fault tolerance through critical component redundancy (power supply and fan redundancy), mirrored memory, embedded RAID capability, and full-featured remote Lights-Out management
- **Power Sources**:
    - Dual Common Slot Bays for High Efficiency, Right Sized, Hot plug and Redundant Power options
        - HP 1200W CS HE Silver Power Supply (optional)
        - HP 750W CS HE Gold Power Supply (optional)
        - HP 460W CS HE Gold Power Supply (ships standard)
- **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)
    o HP ProLiant Onboard Administrator (powered by the HP Integrated Lights-Out 2 management processor) for simplified server setup, health monitoring and recovery, power and thermal control, and lights-out remote administration.
    - HP Insight Control a product option, delivers essential infrastructure management that can help save time and money by making it easy to deploy, migrate, monitor, control and optimize your IT infrastructure through a single, simple

*Overview*

management console. Insight Control supports both Windows and Linux-based central management servers.
- o 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**:
  - o 1U Rack form factor (1.75"), less than 28 inches (70.5 cm) deep
- **Operating Systems and Virtualization Software Support for ProLiant Servers**:
  - o Supports Windows, RHEL, SLES, OEL, Solaris, NetWare, VMware, and Citrix XenServer
- **Deployment/Serviceability**:
  - o Sliding rails for in rack servicing ship standard; optional 1U Cable Management Arm
  - o 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**:
  - o 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**<br>One of the following<br>depending on Model | **Quad-Core Processors**<br><br>Intel® Xeon® Processor X5570 (2.93 GHz,8MB L3 Cache, 95 Watts, DDR3-1333, HT Turbo 2/2/3/3)<br>Intel® Xeon® Processor X5560 (2.80 GHz, 8MB L3 Cache, 95 Watts, DDR3-1333, HT Turbo 2/2/3/3)<br>Intel® Xeon® Processor X5550 (2.66 GHz, 8MB L3 Cache, 95 Watts, DDR3-1333, HT Turbo 2/2/3/3)<br>Intel® Xeon® Processor E5540 (2.53 GHz, 8MB L3 Cache, 80 Watts, DDR3-1066, HT Turbo 1/1/2/2)<br>Intel® Xeon® Processor L5530 (2.40 GHz, 8MB L3 Cache, 60 Watts, DDR3-1066, HT Turbo 1/1/2/2)<br>Intel® Xeon® Processor E5530 (2.40 GHz, 8MB L3 Cache, 80 Watts, DDR3-1066, HT Turbo 1/1/2/2)<br>Intel® Xeon® Processor L5520 (2.26 GHz, 8MB L3 Cache, 60 Watts, DDR3-1066, HT Turbo 1/1/2/2)<br>Intel® Xeon® Processor E5520 (2.26 GHz, 8MB L3 Cache, 80 Watts, DDR3-1066, HT Turbo 1/1/2/2)<br>Intel® Xeon® Processor L5506 (2.13 GHz, 4MB L3 Cache, 60 Watts, DDR3-800)<br>Intel® Xeon® Processor E5506 (2.13 GHz, 4MB L3 Cache, 80 Watts, DDR3-800)<br>Intel® Xeon® Processor E5504 (2.00 GHz, 4MB L3 Cache, 80 Watts, DDR3-800)<br><br>**Dual-Core Processors**<br><br>Intel® Xeon® Processor E5502 (1.86 GHz, 4MB L3 Cache, 80 Watts, DDR3-800)<br><br>NOTE: Up to 2 processors supported. Performance Model configurations include two processors.<br>NOTE: HT indicates that the processor model supports Intel® /Hyper-Threading Technology<br>NOTE: Turbo indicates the maximum potential frequency increment when using Intel® Turbo Boost Technology, with 4,3,2 and 1 cores active.<br>NOTE: DDR3 speed is the maximum memory speed of the processor. Actual memory speed may depend on the quantity and type of DIMMs installed.<br>NOTE: For the Intel 5500 Series, the letter preceding the model number indicated the performance/wattage of the processor. "X" denotes High Performance/Wattage; "E" denotes Enterprise Performance/Wattage (Mainstream); and "L" denotes Lower Wattage. |
| **Cache Memory**<br>One of the following<br>depending on Model | 8MB (1 x 8MB) Level 3 cache<br>NOTE: All processor models except for those identified below.<br><br>4MB (1 x 4MB) Level 3 cache<br>NOTE: For processors E5506/L5506/E5504/E5502. |
| **Chipset** | Intel® 5520 Chipset<br>NOTE: For more information regarding Intel® chipsets, please see the following URL:<br>http://www.intel.com/products/server/chipsets/. |
| **Memory Protection** | Advanced ECC (multi-bit error protection)<br>Mirroring mode<br>Lock-step mode |

## Standard Features

| Memory | Type | DDR3 Registered (RDIMM) or Unbuffered (UDIMM) |
|---|---|---|
| | Standard (Performance Models) | 12 GB (6 x 2 GB) RDIMM |
| | Standard (Base Models) | 6 GB (3 x 2 GB) RDIMM |
| | Standard (Entry Model) | 4 GB (2 x 2 GB) RDIMM |
| | Standard (High Efficiency Model) | 4 GB (2 x 2GB) UDIMM |
| | Maximum (RDIMM) | 192 GB (12 x 16 GB) for Registered Memory configurations |
| | Maximum (UDIMM) | 24 GB (12 x 2 GB) for Unbuffered Memory configurations |

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.

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.

### DDR3 memory options part number decoder

HP ggggg eRxff PC3 v-wwwwwm-aa-bb-ccd Kit

VOLTAGE
- Blank=1.5V
- L=1.35V

RANK
- 1R=single
- 2R=dual
- 3R=quad

CAPACITY
- 1GB
- 2GB
- 4GB
- 8GB
- 16GB

MODULE BANDWIDTH
- 8500MB/s (DDR3-1066)
- 10600MB/s (DDR3-1333)

CAS LATENCY
- 7=7-7-7
- 8=8-8-8
- 9=9-9-9
*Future Speed May Be Two Digits

SPECIAL DESCRIPTOR (If Needed)
- LP (Low Power)

DATA WIDTH
- x8=8
- x4=4

DIMM TYPE
- E=Unbuffered with ECC
- R=Registered

MEMORY TYPE
PC3=DDR3

| Network Controller | One HP NC382i Dual Port Multifunction Gigabit Server Adapter (two ports total) with TCP/IP Offload Engine, including support for Accelerated iSCSI |
|---|---|

# QuickSpecs
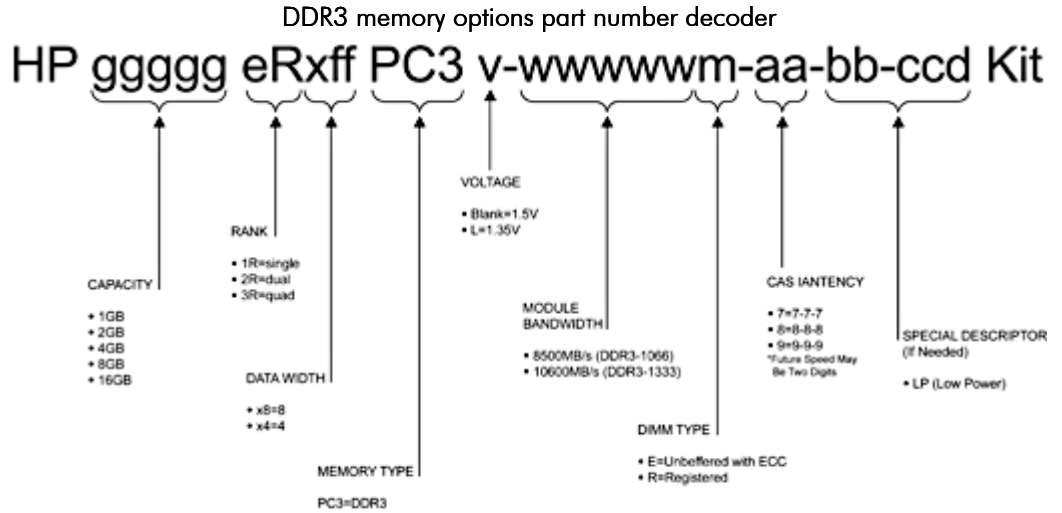
*Standard Features*

| Expansion Slots | Expansion Slots # | Technology | Bus Width** | Connector Width | Bus Number* | Form Factor | Notes |
|---|---|---|---|---|---|---|---|
| | 1 | PCI-e | x8 | x8 | 4 | Low profile slot | |
| | 2 | PCI-e | x16 | x16 | 7 | Full length, full height slot | |
| | 2 | PCI-X (133 MHz, 3.3 Voltage) | 64-bit | x8 | 7 | | |

* 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: For external power requirements for PCI options a PCI Thermal-Power Kit (cable) is offered optionally for higher power requirements.

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| Storage Controller<br>One of the following depending on Model | | |
|---|---|---|
| | 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 Models | HP Smart Array P410i/Zero Memory Controller (RAID 0/1/1+0) |

Available upgrades: 256MB, 512MB with BBWC, 512MB with FBWC, 1G with FBWC, Battery kit upgrade (for 256MB BBWC), and Smart Array Advanced Pack (SAAP-RAID 6 and 6+0).

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| Storage | | |
|---|---|---|
| | Diskette Drive | None Standard |
| | Optical Drive<br>One of the following depending on Model | None Standard<br>NOTE: This option supported on 4 drive models only. |
| | | Optional DVD-ROM, DVD-RW or Slimline floppy drive<br>Optional HP External USB CD/DVD R/RW for 8 drive models |
| | Hard Drives | None Standard |
| | Drive Bays | Up to 8 Small Form Factor drive bays total |
| | | NOTE: 4 bays standard in Entry / Base & High Efficiency models, with optional upgrade of 4 additional bays with the SFF HD Backplane Kit (516966-B21).<br>NOTE: This option available for 8 drive models. HP External USB CD/DVD R/RW Drive available for 8 drive systems. |

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| Maximum Internal Storage Type | | | |
|---|---|---|---|
| | Hot Plug SAS | 4.0TB | 8 x 500GB SAS |
| | Hot Plug SATA | 4.0TB | 8 x 500GB SATA |

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# QuickSpecs

*Standard Features*

| Interfaces | Keyboard | 1 |
|---|---|---|
| | Mouse | 1 |
| | Serial | 1 |
| | Video | 1 |
| | Network RJ-45 | 2 |
| | iLO 2 remote management port | 1 |
| | SD slot | 1 |
| | USB 2.0 Ports | 4 total: 2 rear, 1 front, 1 internal |

NOTE: Please see the following URL for additional information regarding USB support:
http://h18004.www1.hp.com/products/servers/platforms/usb-support.html.

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**Graphics**　　Integrated ATI ES1000, 32MB video standard

- 16 bit color: maximum resolution of 1600 x 1200
- 32 bit color: maximum resolution of 1280 x 1024

NOTE: Maximum resolution available via iLO 2 remote console is 1280 x 1024.

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**Form Factor**　　1U Rack form factor (1.75"), less than 28 inches (70.5 cm) deep

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**HP Insight management software**　　HP Insight Foundation

Managing the growing number of servers can be complex and expensive for your organization. IT managers need to address changing business needs with tools that meet the challenges of managing today's complex Datacenters.
HP provides management solutions that are designed to simplify a server's installation, configuration and maintenance throughout the entire server lifecycle. This provides the customer with higher levels of operational efficiency and highly reliable systems: www.hp.com/go/foundation.

The foundation pack includes:

- HP SmartStart
- HP Management
- HP ProLiant Firmware Maintenance

SmartStart version supported (minimum): SmartStart 8.20.
http://www.hp.com/servers/smartstart

NOTE: 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.

ProLiant Onboard Administrator

HP ProLiant Onboard Administrator (powered by the HP Integrated Lights-Out 2 management processor) simplifies server setup, health monitoring,

*Standard Features*

|  | power and thermal control, and lights-out remote administration of ProLiant ML, DL, and BL servers. HP ProLiant Onboard Administrator functions without additional software, and can be accessed from any location via a web browser. It works hand-in-hand with HP Systems Insight Manager, Insight Control suites, and the Insight Dynamics for ProLiant helping customers unlock the value of the ProLiant platform and deliver the highest possible quality of IT service to the business. See www.hp.com/go/ProLiantOA |
|---|---|
| HP Insight Control | HP Insight Control, a product option, delivers essential infrastructure management that can help save time and money by making it easy to deploy, migrate, monitor, remote control, and optimize your IT infrastructure through a single, simple management console.<br><br>Two versions of Insight Control are available, to serve environments requiring either a Linux-based or a Windows-based central management server: HP Insight Control for Linux, and HP Insight Control. See www.hp.com/go/insightcontrol<br><br>HP Insight Control includes one year of 24 x 7 HP Software Technical Support and Update Service ensuring rapid access to HP support staff and proactive delivery of software updates. For more information about this service, please visit: http://www.hp.com/services/insight. |
| HP Insight Dynamics for ProLiant | HP Insight Dynamics for ProLiant, a product option, is an integrated command center that enables IT Staff personnel to continuously analyze and optimize a converged infrastructure, while automating and reducing the cost of common data center tasks by as much as 40 percent. As a powerfully integrated by design toolkit to accelerate complex technology projects and simplify daily operations that ultimately enable IT Staff personnel to dynamically keep pace with the organizations changing business requirements. It enables them to plan capacity and power continuously, balance across physical and virtual resources, and ensure cost-effective high availability. It also enables IT organizations to provision infrastructure consistently and automatically from pools of shared resources using a self-service portal. Resources provisioned can range from a single virtual machine to complex multi-tier environments and their associated physical and virtual resource requirements. In addition to the previous functional 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.<br><br>NOTE: For more information, visit: http://www.hp.com/go/insightdynamics |

# QuickSpecs

## Standard Features

| | |
|---|---|
| **Industry Standard Compliance** | ACPI 2.0b Compliant<br>PCI 2.2 Compliant<br>WOL Support<br>Microsoft® Logo certifications<br>PXE Support<br>USB 1.1 and 2.0 Compliant<br>SMBIOS 2.6.1 |
| **Security** | Power-on password<br>Keyboard password<br>Diskette drive control<br>Diskette boot control<br>QuickLock, Network Server Mode<br>Removable CD and Diskette Drive Assembly<br>Serial interface control<br>Administrator's password<br>Integrated Lights-Out has 12 customizable user accounts and SSL encryption<br>Integrated Lights-Out can be disabled via a Global Setting<br>iLO Advance Pack supports directory services integration and two-factor authentication |
| **Security Trusted Platform Module** | 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.<br>For more information about TPM, including a white paper, go to www.hp.com/go/TPM<br><br>**NOTE:** ProLiant OS pre-installed units will come with the partition required for TPM deployment.<br>**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. |
| **Server Power Cords** | All Standard Model (BTO) servers ship with a high voltage server to PDU power cord. Localized cables may be included with geographic specific models in other world regions.<br>**NOTE:** ProLiant DL servers do not ship standard with NEMA power cords 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 ship standard with only a PDU power cord (416151-B21). If a user wishes to power a ProLiant DL server using a standard wall receptacle (NEMA-15), the NEMA power cord must be ordered separately and the server will be shipped with both cords. If the order is a Factory-Integration or CTO order only the NEMA-15 power will be shipped. See Power Cords in the Additional Options section below for selection for your region. |
| **UPS Power Cord Matrix** | Please see the UPS and PDU cable matrix that lists cable descriptions, requirements, and specifications for UPS and PDU units:<br>http://h18004.www1.hp.com/products/servers/proliantstorage/power-protection/index.html |

## Standard Features

**Power Supply**

HP has a new design for ProLiant power. The new Common Slot Power Supply bay. This design 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 Common Slot, High Efficiency and Right-Size Power Supplies. Common Slot (CS) designates commonality of the power supply across multiple ProLiant servers. HP's new Common Slot power supplies are designed for highest efficiency to provide power efficiency without degrading performance of the ProLiant. Power Supplies will have efficiency ratings up to 92%. 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.
The HP Power Advisor is located at: www.hp.com/go/proliant-energy-efficient or www.hp.com/go/hppoweradvisor

**Common Slot ProLiant**

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

- HP 460Watts, Common Slot, 92% Efficiency 80PLUS GOLD
- HP 750Watts, Common Slot, 92% Efficiency 80PLUS GOLD
- HP 1200Watts, Common Slot, 90% Efficiency 80PLUS SILVER

HP's ProLiant Common Slot Power supplies (460W & 750W) meet multiple Energy Efficiency Initiatives. Climate Savers Computing Initiative GOLD, 80PLUS GOLD and plans on offering models that meet the Energy Star for Server requirements when they are published.

HP's ProLiant Common Slot Power supplies (1200W) meet multiple Energy Efficiency Initiatives. Climate Savers Computing Initiative Bronze, 80PLUS SILVER Power Supply requirements.

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

**System Fans**

3 fan modules ship standard in 1 processor models
4 fan modules ship standard in 2 processor models
Fan redundancy standard with all modules
NOTE: The processor option kit contains 1 additional fan module, when upgrading from a 1 processor to two processor models. A Fan Module Option kit can also be purchased separately for use with PCI Graphics card upgrades. See HP PCI Thermal Power Kit (519254-B21) in the Core Options section.

**Required Cabling**

For required cabling information, refer to the Web site at:
http://h18000.www1.hp.com/products/servers/proliantdl360/.

## Standard Features

| | |
|---|---|
| Operating Systems and Virtualization Software Support for ProLiant Servers | Microsoft Windows Server<br>Microsoft Windows Server Hyper-V<br>Red Hat Enterprise Linux (RHEL)<br>SUSE Linux Enterprise Server (SLES)<br>Oracle Enterprise Linux (OEL)<br>Solaris<br>NetWare<br>VMware<br>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/DL360G6.

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**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/dl360.

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**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.

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**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: www.hp.com/go/rackandpower

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## Standard Features

**Factory Express Portfolio for Servers and Storage**

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

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

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

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**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

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**Service and Support**

HP Care Pack services provide total care and support expertise with committed response designed to meet your IT and business needs.

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

*Standard Features*

http://www.hp.com/go/proliant/carepack

# QuickSpecs

## Models

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

| HP DL360 G6 Performance Models<br><br>Quad-Core Models DL360R06 X5550 12GB 504633-xx1 | Processor(s) | (2) Intel® Xeon® Processor X5550 (2.66 GHz, 8MB L3 Cache, 95 Watts, DDR3-1333, HT Turbo 2/2/3/3) |
|---|---|---|
| | Cache Memory | 8MB (1 x 8MB) Level 3 cache |
| | Memory | 12 GB (6 x 2 GB) PC3-10600R (DDR3-1333) Registered DIMMs |
| | Network Controller | HP NC382i Dual Port Multifunction Gigabit Server Adapter |
| | Storage Controller | HP Smart Array P410i/512MB with BBWC |
| | Hard Drive | None ship standard |
| | Internal Storage | 8 SFF SAS/SATA HDD Bays |
| | Optical Drive | None ship standard |
| | PCI-Express Slots | PCI-e Gen2 (1 FH/FL, 1 HH/HL) PCI-X support optional in the FH/FL slot |
| | Power Supply | Two 460W Hot Plug Power Supplies, redundant |
| | Fans | 4 total (3 fan modules in 1 Processor Models, 1 additional fan module with second processor), fan redundancy standard |
| | Form Factor | 1U Rack form factor (1.75"), less than 28 inches (70.5 cm) deep |

| HP DL360 G6 Performance Models with Insight Control standard<br><br>Quad-Core Models HP DL360G6 X5550 470065-074 US 470065-075 APJ 470065-073 EURO | Processor(s) | (2) Intel® Xeon® Processor X5550 (2.66 GHz, 8MB L3 Cache, 95W, DDR3-1333, HT, Turbo 2/2/3/3) |
|---|---|---|
| | Cache Memory | 8MB (1 x 8MB) Level 3 cache |
| | Memory | 12 GB (6 x 2 GB) PC3-10600R (DDR3-1333) Registered DIMMs |
| | Network Controller | HP NC382i Dual Port Multifunction Gigabit Server Adapter |
| | Storage Controller | HP Smart Array P410i/512MB with BBWC |
| | Hard Drive | None ship standard |
| | Internal Storage | 8 SFF SAS/SATA HDD Bays |
| | Optical Drive | None ship standard |
| | Power Supply | Two 460W Hot Plug Power Supplies, redundant |
| | Fans | 4 total (3 fan modules in 1 Processor Models, 1 additional fan module with second processor), fan redundancy standard |
| | Insight Control Environment (ICE) | IC 24x7 support |
| | Form Factor | 1U Rack form factor (1.75"), less than 28 inches (70.5 cm) deep |

# QuickSpecs

## Models

| HP DL360 G6 Base Models | Processor(s) | (1) Intel® Xeon® Processor E5540 (2.53 GHz, 8MB L3 Cache, 80 Watts, DDR3-1066, HT Turbo 1/1/2/2) |
|---|---|---|
| | One of the following depending on Model | (1) Intel® Xeon® Processor E5530 (2.40 GHz, 8MB L3 Cache, 80 Watts, DDR3-1066, HT Turbo 1/1/2/2) |
| Quad-Core Models DL360R06 E5540 6GB 504634-xx1 | Cache Memory | 8MB (1 x 8MB) Level 3 cache |
| | Memory | 6 GB (3 x 2 GB) PC3-10600R (DDR3-1333) Registered DIMMs |
| DL360R06 E5530 6GB 504635-xx1 | Network Controller | HP NC382i Dual Port Multifunction Gigabit Server Adapter |
| | Storage Controller | HP Smart Array P410i/256MB Controller |
| | Hard Drive | None ship standard |
| | Internal Storage | 4 SFF SAS/SATA HDD Bays (with optional 4SFF HDD upgrade) |
| | Optical Drive | One Multi-Media bay standard (not available with 4SFF HDD upgrade) |
| | PCI-Express Slots | PCI-e Gen2 (1 FH/FL, 1 HH/HL) PCI-X support optional in the FH/FL slot |
| | Power Supply | One 460W Hot Plug Power Supply |
| | Fans | 3 total (3 fan modules in 1 Processor Models, 1 additional fan module with 2 Processor Model), fan redundancy standard |
| | Form Factor | 1U Rack form factor (1.75"), less than 28 inches (70.5 cm) deep |

| HP DL360 G6 Efficiency Models | Processor(s) | (1) Intel® Xeon® Processor L5520 (2.26 GHz, 8MB L3 Cache, 60 Watts, DDR3-1066, HT Turbo 1/1/2/2) |
|---|---|---|
| | Cache Memory | 8MB (1 x 8MB) Level 3 cache |
| Quad-Core Models DL360R06 L5520 4GB 504636-xx1 | Memory | 4 GB (2 x 2 GB) PC3-10600E (DDR3-1333) Unbuffered DIMMs |
| | Network Controller | HP NC382i Dual Port Multifunction Gigabit Server Adapter |
| | Storage Controller | HP Smart Array P410i/Zero Memory Controller |
| | Hard Drive | None ship standard |
| | Internal Storage | 4 SFF SAS/SATA HDD Bays (with optional 4SFF HDD upgrade) |
| | Optical Drive | One Multi-Media bay standard (not available with 4SFF HDD upgrade) |
| | PCI-Express Slots | PCI-e Gen2 (1 FH/FL, 1 HH/HL) PCI-X support optional in the FH/FL slot |
| | Power Supply | One 460W Hot Plug Power Supply |
| | Fans | 3 total (3 fan modules in 1 Processor Models, 1 additional fan module with 2 Processor Model), fan redundancy standard |
| | Form Factor | 1U Rack form factor (1.75"), less than 28 inches (70.5 cm) deep |

## Models

| HP DL360 G6 Entry Model | Processor(s) | (1) Intel® Xeon® Processor E5504 (2.00 GHz, 4MB L3 Cache, 80 Watts, DDR3-800) |
|---|---|---|
| | Cache Memory | 4MB (1 x 4MB) Level 3 cache |
| Quad-Core Models DL360R06 E5504 4GB | Memory | 4 GB (2 x 2 GB) PC3-10600R (DDR3-1333) Registered DIMMs |
| 504637-xx1 | Network Controller | HP NC382i Dual Port Multifunction Gigabit Server Adapter |
| | Storage Controller | HP Smart Array P410i/Zero Memory Controller |
| | Hard Drive | None ship standard |
| | Internal Storage | 4 SFF SAS/SATA HDD Bays (with optional 4SFF HDD upgrade) |
| | Optical Drive | One Multi-Media bay standard (not available with 4SFF HDD upgrade) |
| | PCI-Express Slots | PCI-e Gen2 (1 FH/FL, 1 HH/HL) PCI-X support optional in the FH/FL slot |
| | Power Supply | One 460W Hot Plug Power Supply |
| | Fans | 3 total (3 fan modules in 1 Processor Models, 1 additional fan module with 2 Processor Model), fan redundancy standard |
| | Form Factor | 1U Rack form factor (1.75"), less than 28 inches (70.5 cm) deep |

| Country Code Key | XX=00 | US |
|---|---|---|
| | XX=20 | Brazil |
| | XX=29 | Japan |
| | XX=37 | APD |
| | XX=42 | EURO |
| | 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 is only available as a Factory Installable Option.

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

| | | |
|---|---|---|
| Models | HP ProLiant DL360 G6 Rack CTO Chassis | 484184-B21 |

**Factory Integrated Model ships with:**

HP NC382i Dual Port Multifunction Gigabit Server Adapter
HP Smart Array P410i/Zero Memory Controller
Integrated Lights-Out 2 (iLO 2) embedded
2 PCIe G2 Slots - 1 full-length x16 and 1 low-profile x8 PCI-Express
4 bay Hot-Plug SAS/SATA Drives(Factory Options for up to 8)
4 USB ports(1-front,1-internal, 2-rear)
1 Internal Secure Digital(SD) slot
3 fan modules; fan redundancy standard
1U Rack form factor (1.75"), less than 28 inches (70.5 cm) deep

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

Processors

**Quad-Core Processors**

| | |
|---|---|
| Intel® Xeon® Processor X5570 (2.93 GHz,8MB L3 Cache, 95 Watts, DDR3-1333, HT Turbo 2/2/3/3) | 507674-L21 |
| Intel® Xeon® Processor X5560 (2.80 GHz, 8MB L3 Cache, 95 Watts, DDR3-1333, HT Turbo 2/2/3/3) | 507676-L21 |
| Intel® Xeon® Processor X5550 (2.66 GHz, 8MB L3 Cache, 95 Watts, DDR3-1333, HT Turbo 2/2/3/3) | 505878-L21 |
| Intel® Xeon® Processor E5540 (2.53 GHz, 8MB L3 Cache, 80 Watts, DDR3-1066, HT Turbo 1/1/2/2) | 505880-L21 |
| Intel® Xeon® Processor L5530 (2.40GHz, 8MB L3 Cache, 60 Watts, DDR3-1066, HT Turbo 1/1/2/2) | 583379-L21 |
| Intel® Xeon® Processor E5530 (2.40 GHz, 8MB L3 Cache, 80 Watts, DDR3-1066, HT Turbo 1/1/2/2) | 505882-L21 |
| Intel® Xeon® Processor E5520 (2.26 GHz, 8MB L3 Cache, 80 Watts, DDR3-1066, HT Turbo 1/1/2/2) | 507680-L21 |
| Intel® Xeon® Processor L5520 (2.26 GHz, 8MB L3 Cache, 60 Watts, DDR3-1066, HT Turbo 1/1/2/2) | 505884-L21 |
| Intel® Xeon® Processor L5506 (2.13 GHz, 4MB L3 Cache, 60 Watts, DDR3-800) | 507678-L21 |
| Intel® Xeon® Processor E5506 (2.13 GHz, 4MB L3 Cache, 80 Watts, DDR3-800) | 505886-L21 |
| Intel® Xeon® Processor E5504 (2.00 GHz, 4MB L3 Cache, 80 Watts, DDR3-800) | 507682-L21 |

**Dual-Core Processors**

| | |
|---|---|
| Intel® Xeon® Processor E5502 (1.86 GHz, 4MB L3 Cache, 80 Watts, DDR3-800) | 507663-L21 |

NOTE: Up to 2 processors supported. Performance Model configurations include two

*Configuration Information - Factory Integrated Models*

processors.

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 indicated the performance/wattage of the processor. "X" denotes High Performance/Wattage; "E" denotes Enterprise Performance/Wattage (Mainstream); and "L" denotes Lower Wattage.

| | | |
|---|---|---|
| **Base Memory** | **Registered DIMMs (RDIMMs)** | |
| | HP 2GB 2Rx8 PC3-10600R-9 Kit | 500656-B21 |
| | HP 4GB 2Rx4 PC3-10600R-9 Kit | 500658-B21 |
| | HP 4GB 4Rx8 PC3-8500R-7 LP Kit | 500660-B21 |
| | HP 8GB 2Rx4 PC3-10600R-9 Kit | 500662-B21 |
| | HP 8GB 2Rx4 PC3-8500R-7 Kit | 516423-B21 |
| | HP 16GB 4Rx4 PC3-8500R-7 Kit | 500666-B21 |
| | **Unbuffered with ECC DIMMs (UDIMMs)** | |
| | HP 1GB 1Rx8 PC3-10600E-9 Kit | 500668-B21 |
| | HP 2GB 2Rx8 PC3-10600E-9 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.

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

**Power Supplies**

NOTE: 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" or www.hp.com/go/hppoweradvisor

| | |
|---|---|
| HP 460W CS HE Power Supply Kit | 503296-B21 |
| HP 750W CS HE Power Supply Kit | 512327-B21 |
| HP 1200W CS HE Power Supply Kit | 500172-B21 |

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

| | | |
|---|---|---|
| Storage Controller(s) | **NOTE:** For additional Memory Cache Modules or Controllers select from the following: | |
| | 256 MB Cache Module | 462968-B21 |
| | **NOTE:** Additional memory for the P410i ZM-Zero Memory models. | |
| | Battery Kit upgrade (for BBWC) | 462969-B21 |
| | **NOTE:** To enable BBWC on the 256MB cache. | |
| | 512MB BBWC | 462967-B21 |
| | **NOTE:** Includes BBWC. | |
| | 512MB Flash Backed Write Cache | 534916-B21 |
| | **NOTE:** Supported on the Smart Array P410i Controller only. | |
| | 1G Flash Backed Write Cache | 534562-B21 |
| | **NOTE:** Supported on the Smart Array P410i Controller only. | |
| | **NOTE:** For additional Storage Controller Options select from these options. See Additional Options section below for more details. | |
| | HP Smart Array P212/Zero Memory Controller | 462828-B21 |
| | HP Smart Array P212/256MB Controller | 462834-B21 |
| | HP Smart Array P411/256MB Controller | 462830-B21 |
| | HP Smart Array P411/512MB BBWC | 462832-B21 |
| Integrated hypervisor (iHV) | **NOTE:** HP VMware ESXi free download from www.software.hp.com - select Virtualization | |
| | HP Essentials -XenServer Platinum Nm Lic | 530753-B21 |
| | HP ProLiant Virtual Console Full License | 508293-B21 |
| | XenServer HP Ent Upg iSW Lic | 464676-B21 |
| | HP Citrix Essentials for XenServer Enterprise Edition | 508294-B21 |
| | **NOTE:** For additional information and options kits, please see the HP Citrix Essentials for XenServer QuickSpecs at www.hp.com/go/citrix | |
| Performance Packs | The HP ProLiant DL360 G6 performance packs are necessary to configure a HP ProLiant DL360 G6 Performance Model. HP ProLiant DL360 G6 Performance model includes the latest performance technologies and enterprise class availability features pre-installed for convenience and value. The performance pack includes a 2nd processor, redundant 460w power supplies, Smart Array P410i Controller with 512MB of BBWC: | |
| | HP DL360G6 X5550 HPM FIO Perf Pack | 507937-B21 |

## Step 4: Choose Additional Options for Factory Integration

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

*Core Options*

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

| HP ProLiant DL360 G6 Unique Options | | |
|---|---|---|
| | Intel® Xeon® Processor X5570 (2.93 GHz,8MB L3 Cache, 95 Watts, DDR3-1333, HT Turbo 2/2/3/3) | 507674-B21 |
| | Intel® Xeon® Processor X5560 (2.80 GHz, 8MB L3 Cache, 95 Watts, DDR3-1333, HT Turbo 2/2/3/3) | 507676-B21 |
| | Intel® Xeon® Processor X5550 (2.66 GHz, 8MB L3 Cache, 95 Watts, DDR3-1333, HT Turbo 2/2/3/3) | 505878-B21 |
| | Intel® Xeon® Processor E5540 (2.53 GHz, 8MB L3 Cache, 80 Watts, DDR3-1066, HT Turbo 1/1/2/2) | 505880-B21 |
| | Intel® Xeon® Processor L5530 (2.40GHz, 8MB L3 Cache, 60 Watts, DDR3-1066, HT Turbo 1/1/2/2) | 583379-B21 |
| | Intel® Xeon® Processor E5530 (2.40 GHz, 8MB L3 Cache, 80 Watts, DDR3-1066, HT Turbo 1/1/2/2) | 505882-B21 |
| | Intel® Xeon® Processor E5520 (2.26 GHz, 8MB L3 Cache, 80 Watts, DDR3-1066, HT Turbo 1/1/2/2) | 507680-B21 |
| | Intel® Xeon® Processor L5520 (2.26 GHz, 8MB L3 Cache, 60 Watts, DDR3-1066, HT Turbo 1/1/2/2) | 505884-B21 |
| | Intel® Xeon® Processor L5506 (2.13 GHz, 4MB L3 Cache, 60 Watts, DDR3-800) | 507678-B21 |
| | Intel® Xeon® Processor E5506 (2.13 GHz, 4MB L3 Cache, 80 Watts, DDR3-800) | 505886-B21 |
| | Intel® Xeon® Processor E5504 (2.00 GHz, 4MB L3 Cache, 80 Watts, DDR3-800) | 507682-B21 |
| | Intel® Xeon® Processor E5502 (1.86 GHz, 4MB L3 Cache, 80 Watts, DDR3-800) | 507663-B21 |
| | HP DL360G6 SFF HD Backplane Kit<br>NOTE: Integrated Optical/DVD cannot be used with this option. Optional External USB CD/DVD Drive available. | 516966-B21 |
| | HP DL360 SL 12.7mm SATA DVD | 532066-B21 |
| | HP DL360 SL 12.7mm SATA DVD-RW Optical kit<br>NOTE: Integrated DVD/Optical drive option is supported on 4 Hard drive models only. | 532068-B21 |
| | PCI-X Riser option<br>NOTE: To convert full-length PCI-Express slot to PCI-X slot. | 518824-B21 |

*Core Options*

| Processor | Quad-Core Processors | |
|---|---|---|
| | Intel® Xeon® Processor X5570 (2.93 GHz,8MB L3 Cache, 95 Watts,DDR3-1333,HT Turbo 2/2/3/3) | 507674-B21 |
| | Intel® Xeon® Processor X5560 (2.80 GHz, 8MB L3 Cache, 95 Watts,DDR3-1333,HT Turbo 2/2/3/3) | 507676-B21 |
| | Intel® Xeon® Processor X5550 (2.66 GHz, 8MB L3 Cache, 95 Watts,DDR3-1333,HT Turbo 2/2/3/3) | 505878-B21 |
| | Intel® Xeon® Processor E5540 (2.53 GHz, 8MB L3 Cache, 80 Watts,DDR3-1066,HT Turbo 1/1/2/2) | 505880-B21 |
| | Intel® Xeon® Processor L5530 (2.40GHz, 8MB L3 Cache, 60 Watts, DDR3-1066, HT Turbo 1/1/2/2) | 583379-B21 |
| | Intel® Xeon® Processor E5530 (2.40 GHz, 8MB L3 Cache, 80 Watts,DDR3-1066,HT Turbo 1/1/2/2) | 505882-B21 |
| | Intel® Xeon® Processor E5520 (2.26 GHz, 8MB L3 Cache, 80 Watts,DDR3-1066,HT Turbo 1/1/2/2) | 507680-B21 |
| | Intel® Xeon® Processor L5520 (2.26 GHz, 8MB L3 Cache, 60 Watts,DDR3-1066,HT Turbo 1/1/2/2) | 505884-B21 |
| | Intel® Xeon® Processor L5506 (2.13 GHz, 4MB L3 Cache, 60 Watts,DDR3-800) | 507678-B21 |
| | Intel® Xeon® Processor E5506 (2.13 GHz, 4MB L3 Cache, 80 Watts,DDR3-800) | 505886-B21 |
| | Intel® Xeon® Processor E5504 (2.00 GHz, 4MB L3 Cache, 80 Watts,DDR3-800) | 507682-B21 |
| | **Dual-Core Processors** | |
| | Intel® Xeon® Processor E5502 (1.86 GHz, 4MB L3 Cache, 80 Watts,DDR3-800) | 507663-B21 |

NOTE: Up to 2 processors supported. Performance Model configurations include two processors.
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 indicated the performance/wattage of the processor. "X" denotes High Performance/Wattage; "E" denotes Enterprise Performance/Wattage (Mainstream); and "L" denotes Lower Wattage.

*Core Options*

| | | |
|---|---|---|
| Memory | **Registered DIMMs (RDIMMs)** | |
| | HP 2GB 2Rx8 PC3-10600R-9 Kit | 500656-B21 |
| | HP 4GB 2Rx4 PC3-10600R-9 Kit | 500658-B21 |
| | HP 4GB 4Rx8 PC3-8500R-7 LP Kit | 500660-B21 |
| | HP 8GB 2Rx4 PC3-10600R-9 Kit | 500662-B21 |
| | HP 8GB 2Rx4 PC3-8500R-7 Kit | 516423-B21 |
| | HP 16GB 4Rx4 PC3-8500R-7 Kit | 500666-B21 |
| | **Unbuffered with ECC DIMMs (UDIMMs)** | |
| | HP 1GB 1Rx8 PC3-10600E-9 Kit | 500668-B21 |
| | HP 2GB 2Rx8 PC3-10600E-9 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.
**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.

| | | |
|---|---|---|
| Hot Plug HDD Backplane Option | HP DL360G6 SFF HD Backplane Kit | 516966-B21 |

**NOTE:** For 4 addition HDs in 5-8 slots.
**NOTE:** Optical/DVD cannot be used with this option.

| | | |
|---|---|---|
| Optical Drives | HP DL360 SL 12.7mm SATA DVD | 532066-B21 |
| | HP DL360 SL 12.7mm SATA DVD-RW Optical kit | 532068-B21 |

**NOTE:** Integrated DVD/Optical drive option is supported on 4 Hard drive models only.

| | | |
|---|---|---|
| | HP External USB CD/DVD R/RW Option Drive | FS943AA |

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

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

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

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

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

*Core Options*

| | |
|---|---|
| HP 500GB 3G SAS 7.2K SFF DP MDL HDD | 507610-B21 |

**NOTE:** SAS Enterprise drives have a 3 year warranty. Please see the QuickSpecs for Technical Specifications and additional information:
http://h18000.www1.hp.com/products/quickspecs/12244_div/12244_div.html (Worldwide)

SATA Hot Plug SFF Midline (MDL) Drives

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

SATA Hot Plug SFF Entry (ETY) Drives

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

**NOTE:** SATA drives have a 1 year warranty. Please see the QuickSpecs for Technical Specifications and additional information:
http://h18000.www1.hp.com/products/quickspecs/13021_div/13021_div.html (Worldwide)

SATA Hot Plug Midline (MDL) Solid State Drives

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

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

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**Communications**

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 |
| 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

| | |
|---|---|
| HP NC522SFP Dual Port 10GbE Server Adapter | 468332-B21 |

**NOTE:** A minimum of two Gigabytes (2 GB) of server memory is required per each NC522SFP adapter.
**NOTE:** Direct Attach Cable (DAC) for copper environments or fiber transceivers and cables for fiber-optic environments must be purchased separately.

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

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## Core Options

| | |
|---|---|
| Power Supplies | **CAUTION:** 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" 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 Power Supply Kit                                         503296-B21

HP 750W CS HE Power Supply Kit                                         512327-B21

HP 1200W CS HE Power Supply Kit                                        500172-B21

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

**NOTE:** For regional specific power cables please refer to Power Cable section below.

### Power Options

HP PCI Thermal Power Kit                                               519254-B21

**NOTE:** Supports 3rd Party PCI Video Graphics cards.

*Additional Options*

| | |
|---|---|
| HP Insight Software | **HP Insight Control server deployment** |

HP Insight Control server deployment, Electronic License including 1 year of 24x7       T9082AAE
Technical Support 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

**HP Insight Control for Linux**

HP Insight Control for Linux, 1-server license, including one year of 24x7 Technical       T9084BAE
Support and Updates, Electronic

HP Insight Control for Linux, No Media, 1-Server license, including one year of 24x7       464423-B22
Technical Support and Updates

HP Insight Control for Linux, Media pack (DVD) - No licenses included       464422-B22
NOTE: Media pack DVD contains the ISO image for HP Insight Control for Linux, HP
Systems Insight Manager, HP Insight Control power management, HP Insight Control
virtual machine management, and an integrated installer. Servers must be acquired
separately.

NOTE: Licenses ship without media. The HP Insight Control Media Kit can be ordered
separately, or can be downloaded at: http://www.hp.com/go/insightupdates.
NOTE: Electronic software is available in all countries except China and Japan.
Customers in China and Japan should order the physical equivalent.
NOTE: Electronic and Flexible-Quantity licenses can be used to purchase multiple
licenses with a single set of activation keys.
NOTE: For additional License Kits, including electronic licensing options, please see
the QuickSpecs at:
http://h18000.www1.hp.com/products/quickspecs/13019_div/13019_div.html

**HP Integrated Lights-Out Advanced**

HP Integrated Lights-Out Advanced, No Media, 1-Server License, including 1 year of       512485-B21
24x7 Technical Support and Updates
NOTE: This license allows 1 server to be deployed and managed via HP iLO
Advanced. Customer will receive a printed license entitlement certificate via physical
shipment. The license entitlement certificate must be redeemed online or via fax in
order to obtain the license activation key(s). Includes one year of 24 x 7 HP Software
Technical Support Service
NOTE: For additional license kits, including electronic delivery options, please see the
QuickSpecs at:
http://h18000.www1.hp.com/products/quickspecs/12362_div/12362_div.html

**HP Insight Rapid Deployment software**

HP Insight Rapid Deployment software No Media 1-Server License, including 1 year of       452151-B21
24x7 Technical Support and Updates

*Additional Options*

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

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

http://h18000.www1.hp.com/products/quickspecs/11053_div/11053_div.html

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

**Storage Controllers**

NOTE: The DL360 G6 Server comes standard with an integrated P410i Smart Array Controller designed to mange up to 8 SFF hard drives from HP. For additional capabilities and capacities HP offers additional Smart Arrays.

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 P411 Controller

| | |
|---|---|
| HP Smart Array P411/256 MB Controller | 462830-B21 |
| HP Smart Array P411/512 MB with BBWC Controller | 462832-B21 |

Optional Upgrades

256 MB Cache Module     462968-B21
NOTE: Supported on HP Smart Array P212 Controller and HP Smart Array P410i Controller.

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.

Battery Kit upgrade     462969-B21
NOTE: To enable BBWC on the 256MB cache.

HP 8484 to Mini SAS 33in Cable Assy     591734-B21
NOTE: To support internal drives on the HP ProLiant DL360 G6 with a Smart Array P800 Controller.

HP Smart Array Advanced Pack No Media 1-Server license including 1yr 24x7 Technical Support     516471-B21
NOTE: 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.

NOTE: Please see the QuickSpecs for Technical Specifications and additional

*Additional Options*

information:
http://h18000.www1.hp.com/products/quickspecs/12616_div/12616_div.html
(Smart Array P800 Controller)
http://h18000.www1.hp.com/products/quickspecs/13203_div/13203_div.html
(Smart Array P212 Controller)
http://h18000.www1.hp.com/products/quickspecs/13201_div/13201_div.html
(Smart Array P410 Controller)
http://h18000.www1.hp.com/products/quickspecs/13202_div/13202_div.html
(Smart Array P411 Controller)
http://h18000.www1.hp.com/products/quickspecs/13200_div/13200_div.html
(Smart Array Advanced Pack)

### SAS HBA

| | |
|---|---|
| HP SC08Ge Host Bus Adapter | 488765-B21 |

**NOTE:** Please see the QuickSpecs for Technical Specifications and additional information:
http://h18004.www1.hp.com/products/quickspecs/13082_div/13082_div.html
(SC08Ge HBA)

### SCSI HBA

| | |
|---|---|
| HP SC11Xe Host Bus Adapter | 412911-B21 |

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

**NOTE:** Please see the QuickSpecs for additional information:
http://h18000.www1.hp.com/products/quickspecs/12566_div/12566_div.html
(SC11Xe HBA)

---

| Power Cords | | |
|---|---|---|
| | **NOTE:** The HP ProLiant DL360 G6 ships with an IEC-IEC power cord used for rack mounting with Power Distribution Units (PDUs). For specific regional power cords purchase from the following. | |
| | Nema 5-15P to IEC320-C13 | 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 |

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| HPC Specific Options | | |
|---|---|---|
| | HP IB 4X DDR PCI-e Dual Port HCA | 409376-B21 |
| | HP IB 4X QDR PCI-e G2 Dual Port HCA | 517721-B21 |
| | HP 4X QDR PCI-e G2 QLogic InfiniBand Dual Port HCA | 583211-B21 |
| | HP IB 4X DDR Conn-X PCI-e G2 Dual Port HCA | 483514-B21 |
| | 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 |

**NOTE:** Please see the QuickSpecs for additional information:
http://h18000.www1.hp.com/products/quickspecs/13078_div/13078_div.html.

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# QuickSpecs

## Additional Options

Tape Storage

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

For recommended tape drive offerings for this ProLiant server see the following:

**Tape Drives**

**USB Rack-Mount Tape Solutions**

| | |
|---|---|
| HP StorageWorks 1U USB Rack-Mount Kit with one DAT 160 USB Tape Drive | AG703A |

**NOTE:** Pre-configured with one DAT 160 USB tape drive.

| | |
|---|---|
| DAT 320 USB External Tape Drive | AJ823A |

**SAS Rack-Mount Tape Solutions**
**NOTE:** HP recommends purchasing the HP Smart Array P212 Controller (462828-B21) for a dedicated SAS HBA for tape.

| | |
|---|---|
| DAT 320 WW SAS External Tape Drive | AJ828A |
| HP StorageWorks 1U SAS Rack-Mount Kit with one LTO-4 Ultrium 1760 | EH946A |

**NOTE:** Pre-configured with one LTO-4 Ultrium 1760 SAS tape drive.

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

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

| | |
|---|---|
| HP StorageWorks LTO-2 Ultrium 448 SAS Internal Tape Drive | DW085A |

**NOTE:** Mounts inside the 1U SAS Rack-Mount Kit (AE459A).

| | |
|---|---|
| HP StorageWorks LTO-3 Ultrium 920 SAS Internal Tape Drive | EH847A |

**NOTE:** Mounts inside the 1U SAS Rack-Mount Kit (AE459A).

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

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

| | |
|---|---|
| HP StorageWorks 1/8 G2 LTO-4 Ultrium 1760 SAS Tape Autoloader | AK377A |
| HP StorageWorks 1/8 G2 LTO-3 Ultrium 920 SAS Autoloader | AH558A |
| HP StorageWorks 1/8 G2 Tape Autoloader Rack Kit | AH166A |

**NOTE:** Required to install the 1/8 G2 Autoloaders in a standard 19-inch rack; includes rails and rackmount instructions.

**NOTE:** Please reference the Tape Autoloader QuickSpecs at: http://www.hp.com/go/automation for additional information needed to create a complete solution.

**HP StorageWorks MSL2024 Tape Library**

| | |
|---|---|
| HP StorageWorks MSL2024 1 LTO-4 Ultrium 1760 SAS Drive Library | AK378A |
| HP StorageWorks MSL2024 1 LTO-3 Ultrium 920 SAS Drive Library | AH559A |

**HP StorageWorks MSL4048 Tape Library**

| | |
|---|---|
| HP StorageWorks MSL4048 2 LTO-4 Ultrium 1760 SAS Drive Library | AK380A |
| HP StorageWorks MSL4048 1 LTO-3 Ultrium 920 SAS Drive Library | AH560A |

**NOTE:** Please reference the MSL Tape Library QuickSpecs at: http://www.hp.com/go/automation for additional information needed to create a complete solution; reference current compatibility information at: http://www.hp.com/go/ebs.

*Additional Options*

| Disk-Based Backup | **RDX Removable Disk Backup** | |
|---|---|---|
| | HP StorageWorks RDX500 External Removable Disk Backup System | AJ935A |
| | **NOTE:** 500GB of Disk Storage | |
| | **NOTE:** Please see the HP RDX Removable Disk Backup System QuickSpecs for additional information: http://h18000.www1.hp.com/products/quickspecs/13036_div/13036_div.html | |
| | **D2D Backup** | |
| | HP StorageWorks D2D2502i Backup System | EJ001A |
| | **NOTE:** 2 TB raw capacity/1.5 TB useable capacity. | |
| | HP StorageWorks D2D2504i Backup System | EJ002A |
| | **NOTE:** 4 TB raw capacity/3 TB useable capacity. | |
| | **NOTE:** Please see the HP D2D Backup Systems QuickSpecs for additional information: http://www.hp.com/go/d2d | |

| StorageWorks Options | **StorageWorks Fibre Channel HBA** | |
|---|---|---|
| | **NOTE:** The following is a list of all Fibre Channel Host Bus Adapters for Windows and Linux. For detailed compatibility information 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. | |

## Additional Options

| | | |
|---|---|---|
| HP StorageWorks Modular Smart Array | **MSA SAN Storage Arrays** | |
| | HP StorageWorks 50 Modular Smart Array | 364430-B21 |
| | NOTE: Please see the QuickSpecs for additional options and configuration information at: http://h18000.www1.hp.com/products/quickspecs/12245_div/12245_div.html (Worldwide) | |
| | HP StorageWorks 60 Modular Smart Array | 418408-B21 |
| | NOTE: Please see the Modular Smart Array 60 QuickSpecs for additional information including configuration steps and additional options needed for a complete solution at: http://h18000.www1.hp.com/products/quickspecs/12627_div/12627_div.html (Worldwide) | |
| | HP StorageWorks 70 Modular Smart Array | 418800-B21 |
| | NOTE: Please see the Modular Smart Array 70 QuickSpecs for additional information including configuration steps and additional options needed for a complete solution at: http://h18000.www1.hp.com/products/quickspecs/12652_div/12652_div.html (Worldwide) | |
| | HP 2012sa Single Controller Modular Smart Array | AJ752A |
| | HP 2012sa Dual Controller Modular Smart Array | AJ753A |
| | NOTE: Please see the Modular Smart Array 2000sa QuickSpecs for additional options and configuration information at: http://h18000.www1.hp.com/products/quickspecs/13045_div/13045_div.html (Worldwide) | |

| | | |
|---|---|---|
| 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 additional information: http://h18000.www1.hp.com/products/quickspecs/12507_div/12507_div.html | |
| | **HP R3000 UPS** | |
| | HP R3000 VA UPS, 2U, DTC, INTL | AF414A |
| | HP R3000 VA UPS, 2U, Low voltage L5-30, NA | AF422A |
| | HP R3000 VA UPS, 2U, High voltage L6-20, NA | AF423A |
| | HP R3000 VA UPS, 2U, High voltage L6-20, JPN | AF424A |
| | HP R3000 VA UPS, 2U, Low voltage L5-30, JPN | AF425A |
| | NOTE: Please see the QuickSpecs for additional information: http://h18000.www1.hp.com/products/quickspecs/10671_div/10671_div.html | |
| | **HP R3000v Uninterruptible Power System** | |
| | HP R3000v UPS | AF444A |
| | NOTE: The R3000v is available in China and India only. | |
| | NOTE: Please see the QuickSpecs for additional information: http://h18000.www1.hp.com/products/quickspecs/13129_div/13129_div.html | |
| | **HP Rack-Mountable R5500 UPS** | |

*Additional Options*

|  |  |
|---|---|
| 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

NOTE: For additional information on HP Uninterruptible Power Systems please go to:
www.hp.com/servers/rackups.

| Power Distribution Units | Monitored PDUs |  |
|---|---|---|
|  | **HP Monitored Power Distribution Unit: Full Rack Version** |  |
|  | HP 17.3 kVA S2324 Monitored PDU- dual input, 3Ø, 24A (NA/JPN) | AF503A |
|  | HP 8.6 kVA S1324 Monitored PDU- single input, 3Ø, 24A (NA/JPN) | AF504A |
|  | HP 16.6 kVA S2140 Monitored PDU- dual input, 1Ø, 40A (NA/JPN) | AF505A |
|  | HP 8.3 S1140 Monitored PDU- single input, 1Ø, 40A (NA/JPN) | AF506A |
|  | HP 22.1 kVA S2316 Monitored PDU- dual input, 3Ø, 16A (INTL) | AF507A |
|  | HP 11 kVA S1316 Monitored PDU- single input, 3Ø, 16A (INTL) | AF508A |
|  | HP 14.7 kVA S2132 Monitored PDU- dual input, 1Ø, 32A (INTL) | AF509A |
|  | HP 7.3 kVA S1132 Monitored PDU- single input, 1Ø, 32A (INTL) | AF510A |
|  | **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 QuickSpecs for Technical Specifications and additional information:
http://h18000.www1.hp.com/products/quickspecs/12118_div/12118_div.html

**Modular PDUs 1U/0U**
NOTE: 1U/0U mounting brackets shipped with the unit (optimized for 10000 G2 and 9000 series racks).

|  |  |
|---|---|
| Fixed Cord Extension Bars | 351655-B21 |

NOTE: Two extension bar sticks; each with (7) C13 plugs.

|  |  |
|---|---|
| 3.6kVA Model - mPDU, 16A, High (WW) | 252663-B24 |
| 2.8 kVA Model - mPDU, 24A, Low (NA/JPN) | 252663-D71 |
| 4.9kVA Model - mPDU, 24A, High (NA/JPN) | 252663-D72 |
| 7.3kVA Model - mPDU, 32A, High (INT'L) | 252663-B31 |
| 8.3kVA Model - mPDU, 40A, High (WW) | 252663-B21 |
| 8.3kVA Model - mPDU, 40A, High (power cord attached) (NA/JPN) | 252663-D73 |
| 9.2kVA Model - mPDU, 40A, High (power cord attached) (INTL) | 252663-B32 |
| 8.3kVA Model - mPDU 40A, High (core only) (NA/JPN) | 252663-D75 |
| 9.2kVA Model - mPDU 40 A, High (core only) (Int'l) | 252663-B34 |
| 8.3kVA Model - mPDU 32A, High (core only) (Int'l) | 252663-B33 |
| 4.9kVA Model - mPDU 24A, High (core only) (NA/JPN) | 252663-D74 |

NOTE: For additional information on HP Power Distribution Units including accessories please go to: www.hp.com/go/pdu.

## Additional Options

| | | |
|---|---|---|
| **HP Rack Series** | **HP Rack 5000 Series** (Graphite Metallic) | |
| | HP 5642 Rack-Unassembled | 358254-B21 |

NOTE: Please see the QuickSpecs for additional information:
http://h18000.www1.hp.com/products/quickspecs/12074_div/12074_div.html
(Worldwide)

**HP Rack 10000 G2 Series** (Carbon/Graphite Metallic)

| | |
|---|---|
| S10614 (14U) Rack Cabinet - Shock Pallet | 292302-B22 |
| 10642 G2 (42U) Rack Cabinet - Pallet | AF001A |
| 10642 G2 (42U) Rack Cabinet - Shock Pallet | AF002A |
| 10642 G2 (42U) Rack Cabinet - Crated | AF003A |
| 10642 G2 (42U) Rack Cabinet, with Extension - Shock Pallet | AF004A |
| 10636 G2 (36U) Rack Cabinet - Pallet | AF011A |
| 10636 G2 (36U) Rack Cabinet - Shock Pallet | AF012A |
| 10636 G2 (36U) Rack Cabinet - Crated | AF013A |
| 10636 G2 (36U) Rack Cabinet, with Extension - Shock Pallet | AF014A |
| 10622 G2 (22U) Rack Cabinet - Pallet | AF021A |
| 10622 G2 (22U) Rack Cabinet - Shock Pallet | AF022A |
| 10642 G2 (42U) Rack Cabinet 1200mm Deep - Shock Pallet | AF034A |
| 10642 G2 (42U) Rack Cabinet 1200mm Deep - Pallet | AF038A |
| 10842 G2 (42U) 800mm Wide Rack Cabinet - Pallet | AF041A |
| 10842 G2 (42U) 800mm Wide Rack Cabinet - Shock Pallet | AF042A |
| 10647 G2 (47U) Rack Cabinet - Pallet | AF031A |
| 10647 G2 (47U) Rack Cabinet 1200mm Deep - Shock Pallet | AF044A |

NOTE: Due to handling and shipping requirements, AF044A is only orderable
through HP Factory Express. It is not for direct sales. Customer site surveys are
required before an order is approved. CTO orders may require additional lead time.

| | |
|---|---|
| 10647 G2 (47U) Rack Cabinet 1200mm Deep - Pallet | AF045A |

NOTE: It is mandatory to use a shock pallet when shipping racks with equipment
installed.
NOTE: xxxxxx-B22 (shock pallet) used to ship racks with equipment installed (by
custom systems, VARs and Channels).

NOTE: Please see the QuickSpecs for additional information:
http://h18000.www1.hp.com/products/quickspecs/12402_div/12402_div.html
(Worldwide)

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

| | | |
|---|---|---|
| **HP Rack Options** | **Keyboards and Monitors** | |
| | TFT7600 Rackmount Keyboard Monitor US | AG052A |
| | TFT7600 Rackmount Keyboard Monitor UK | AG053A |
| | TFT7600 Rackmount Keyboard Monitor GR | AG054A |
| | TFT7600 Rackmount Keyboard Monitor FR | AG055A |
| | TFT7600 Rackmount Keyboard Monitor IT | AG056A |

*Additional Options*

| | |
|---|---|
| TFT7600 Rackmount Keyboard Monitor SP | AG057A |
| TFT7600 Rackmount Keyboard Monitor DEN | AG058A |
| TFT7600 Rackmount Keyboard Monitor NOR | AG059A |
| TFT7600 Rackmount Keyboard Monitor SE/FI | AG060A |
| TFT7600 Rackmount Keyboard Monitor SWI | AG061A |
| TFT7600 Rackmount Keyboard Monitor PORT | AG062A |
| TFT7600 Rackmount Keyboard Monitor BEL | AG063A |
| TFT7600 Rackmount Keyboard Monitor JPN2 | AG064A |
| TFT7600 Rackmount Keyboard Monitor RUS | AG065A |
| TFT7600 Rackmount Keyboard Monitor INTL | AG066A |
| HP TAA TFT7600 US Rkmntkybd 17in Monitor | AG067A |
| 1U Rackmount Keyboard with USB, US | AG072A |
| 1U Rackmount Keyboard with USB, UK | AG073A |
| 1U Rackmount Keyboard with USB, GR | AG074A |
| 1U Rackmount Keyboard with USB, FR | AG075A |
| 1U Rackmount Keyboard with USB, ITL | AG076A |
| 1U Rackmount Keyboard with USB, SP | AG077A |
| 1U Rackmount Keyboard with USB, DEN | AG078A |
| 1U Rackmount Keyboard with USB, NOR | AG079A |
| 1U Rackmount Keyboard with USB, SE/FI | AG080A |
| 1U Rackmount Keyboard with USB, SWI | AG081A |
| 1U Rackmount Keyboard with USB, PORT | AG082A |
| 1U Rackmount Keyboard with USB, BEL | AG083A |
| 1U Rackmount Keyboard with USB, JPN2 | AG084A |
| 1U Rackmount Keyboard with USB, RUS | AG085A |
| 1U Rackmount Keyboard with USB, INTL | AG086A |

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

**HP KVM Switch Options**

| | |
|---|---|
| 2x1x16 IP Console Switch with Virtual Media | AF601A |
| 4x1x16 IP Console Switch with Virtual Media | AF602A |
| 2x16 Server Console Switch with Virtual Media | AF600A |
| 0x2x16 KVM Server Console G2 Switch with Virtual Media and CAC | AF618A |
| 0x2x32 KVM Server Console G2 Switch with Virtual Media and CAC | AF619A |
| PS/2 Virtual Media Interface Adapter, 1 pack | AF604A |

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

| | |
|---|---|
| Server console switch 0x2x8 | AF616A |
| Server console switch 0x2x16 | AF617A |
| 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 |
| PS/2 Interface Adapter, 1 pack | 262588-B21 |

## Additional Options

| | |
|---|---|
| PS/2 Interface Adapter, 8 pack | 262587-B21 |

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

| | |
|---|---|
| HP 1x4 Console Switch (ALL) | AF611A |
| PS2 Server Console Cable, 6 ft, 2 pack | AF612A |
| USB Server Console Cable, 6 ft, 2 pack | AF613A |

NOTE: For additional information regarding KVM switches, Serial Console servers, rack mount monitors, keyboards and all related options please see the following URL: http://www.hp.com/go/kvm.

### HP Serial Console Server Options

| | |
|---|---|
| HP 16 Port Serial Console Server (worldwide) | AF101A |
| HP 48 Port Serial Console Server (worldwide) | AF102A |
| Serial Adapter, RJ45-DB9 DCE Female, 1 Pack | AF103A |
| Serial Adapter, RJ45-DB9 DCE Female, 8 Pack | AF110A |

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

NOTE: For additional information regarding KVM switches, Serial Console servers, rack mount monitors, keyboards and all related options please see the following URL: http://www.hp.com/go/kvm.

### Rack Kits

| | |
|---|---|
| 1U Cable Management Arm | 365403-B21 |

NOTE: Package contains two cable management arms.

| | | |
|---|---|---|
| **USB and SD Options** | HP USB 2-Button Optical Scroll Mouse (Carbonite/Silver) | DC172B |
| | USB 1.44-MB External Diskette Drive (Carbonite) | DC141B |
| | HP USB 04 Standard Keyboard | DT528A#ABA |

| | | |
|---|---|---|
| **Service and Support Offerings** (HP Care Pack Services) | **Hardware Services 4-Hour On-site Service** | |
| | 4-Hour On-site Service, 5-Day x 13-Hour Coverage, 3 Years, Electronic | U4496E |
| | 4-Hour On-site Service, 7-Day x 24-Hour Coverage, 3 Years, Electronic | U4497E |
| | **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 | U4498E |
| | **Hardware Services Next Business Day On-Site Service** | |
| | Hardware Installation, Electronic | U4506E |
| | 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 | U4507E |
| | **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 | U4508E |

*Additional Options*

### 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 | U4509E |
| 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 | U6310E |
| Onsite HW support 24x7, 4hr response and Red Hat ES Linux SW Tech support offsite, onsite at HP's discretion, 24x7 2hr response time incl. HP holidays, Electronic | U8332E |

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

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) | |
|---|---|---|---|---|---|---|---|---|
| DIMM Rank -> | Dual Rank (2R) | | | | Quad Rank (4R) | | Single Rank (1R) | Dual Rank (2R) |
| DIMM Capacity -> | 2GB | 4GB | 8GB | 8GB | 4GB | 16GB | 1GB | 2GB |
| DIMM Native Speed (MHz) -> | 1333 | 1333 | 1333 | 1066 | 1066 | 1066 | 1333 | 1333 |
| Part Number -> | 500656-B21 | 500658-B21 | 500662-B21 | 516423-B21 | 500660-B21 | 500666-B21 | 500668-B21 | 500670-B21 |
| | | | | | | | | |
| SLOTS THAT CAN BE POPULATED | | | | | | | | |
| 9 slot servers | 9 | 9 | 9 | 9 | 6 | 6 | 6 | 6 |
| 12 slot servers | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 |
| 16 slot servers | 16 | 16 | 16 | 16 | 12 | 12 | 12 | 12 |
| 18 slot servers | 18 | 18 | 18 | 18 | 12 | 12 | 12 | 12 |
| | | | | | | | | |
| MAXIMUM CAPACITY (GB) | | | | | | | | |
| 9 slot servers | 18 | 36 | 72 | 72 | 24 | 96 | 6 | 12 |
| 12 slot servers | 24 | 48 | 96 | 96 | 48 | 192 | 12 | 24 |
| 16 slot servers | 32 | 64 | 128 | 128 | 48 | 192 | 12 | 24 |

## Memory

| 18 slot servers | 36 | 72 | 144 | 144 | 48 | 192 | 12 | 24 |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | | |
| POPULATED DIMM SPEED (MHz) | | | | | | | | |
| 1 DIMM Per Channel | 1333 | 1333 | 1333 | 1066 | 1066 | 1066 | 1333 | 1333 |
| 2 DIMM Per Channel | 1333* | 1333* | 1333* | 1066 | 800 | 800 | 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.

| 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

*Memory*

| | 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

- 72GB, consisting of nine (9) 8GB dual-rank PC3-8500 RDIMMs

*Memory*

| | 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; 8GB DIMM | 3 | A; empty | |
| | | | | | |
| Chnl 2 | 4 | H; 8GB DIMM | 4 | H; empty | Chnl 2 |
| | 5 | E; 8GB DIMM | 5 | E; empty | |
| | 6 | B; 8GB DIMM | 6 | B; empty | |
| | | | | | |
| Chnl 3 | 7 | I; 8GB DIMM | 7 | I; empty | Chnl 3 |
| | 8 | F; 8GB DIMM | 8 | F; 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

- 192GB, consisting of twelve (12) 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; 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 (2 CPU model)

- 24GB, consisting of twelve (12) 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; 2GB DIMM | |
| | 3 | A; 2GB DIMM | 3 | A; 2GB DIMM | |
| | | | | | |
| Chnl 2 | 4 | H; empty | 4 | H; empty | Chnl 2 |
| | 5 | E; 2GB DIMM | 5 | E; 2GB DIMM | |
| | 6 | B; 2GB DIMM | 6 | B; 2GB DIMM | |
| | | | | | |
| Chnl 3 | 7 | I; empty | 7 | I; empty | Chnl 3 |
| | 8 | F; 2GB DIMM | 8 | F; 2GB DIMM | |
| | 9 | C; 2GB DIMM | 9 | C; 2GB DIMM | |

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

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

# QuickSpecs

*Memory*

Following are memory options available from HP:

| Memory | Registered DIMMs (RDIMMs) | |
|---|---|---|
| | HP 2GB 2Rx8 PC3-10600R-9 Kit | 500656-B21 |
| | HP 4GB 2Rx4 PC3-10600R-9 Kit | 500658-B21 |
| | HP 4GB 4Rx8 PC3-8500R-7 LP Kit | 500660-B21 |
| | HP 8GB 2Rx4 PC3-10600R-9 Kit | 500662-B21 |
| | HP 8GB 2Rx4 PC3-8500R-7 Kit | 516423-B21 |
| | HP 16GB 4Rx4 PC3-8500R-7 Kit | 500666-B21 |
| | **Unbuffered with ECC DIMMs (UDIMMs)** | |
| | HP 1GB 1Rx8 PC3-10600E-9 Kit | 500668-B21 |
| | HP 2GB 2Rx8 PC3-10600E-9 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.

**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

*Storage*

1-8    8 x SFF SAS Hot Pluggable Hard Drive Bays. Optical Media Bay not available for this configuration
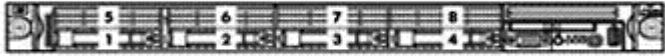
1-4    4 x SFF SAS Hot Pluggable Hard Drives
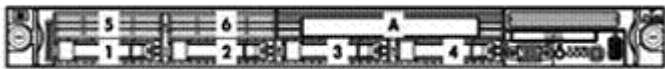
A    Optical Media Bay

5, 6    Blanks (HDD Bays will not function)

## Drive Support

| | Quantity Supported | Position Supported | Controller |
|---|---|---|---|
| **Removable Media** | | | |
| HP DL360 SL 12.7mm SATA DVD-RW | 1 | Slim Line Bay | Integrated SATA |
| HP DL360 SL 12.7mm SATA DVD | 1 | Slim Line Bay | Integrated SATA |

NOTE: DVD/Optical drive options supported on 4 hard drive models only.

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

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

| | Quantity Supported | Position Supported | Controller |
|---|---|---|---|
| 300GB 3G SAS 10K DP | 8 | 1-8 | HP Smart Array P212/Zero Memory Controller |
| 300GB 6G SAS 10K DP | | | HP Smart Array P212/256 MB Controller |
| 146GB 6G SAS 15K DP | | | HP Smart Array P411/256 MB Controller |

## *Storage*

146GB 6G SAS 10K DP
146GB 15K 2.5 SAS DP
146GB 3G SAS 10K DP
72GB 6G SAS 15K DP
72GB 3G SAS 10K DP
72GB 3G SAS 15K DP

HP Smart Array P411/512 MB BBWC Controller

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

| | Quantity Supported | Position Supported | Controller |
|---|---|---|---|
| 500GB 6G SAS 7.2K DP | 8 | 1-8 | HP Smart Array P212/Zero Memory Controller<br>HP Smart Array P212/256 MB Controller<br>HP Smart Array P411/256 MB Controller<br>HP Smart Array P411/512 MB BBWC Controller |

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

| | Quantity Supported | Position Supported | Controller |
|---|---|---|---|
| 500GB 3G SATA 7.2K<br>160GB 3G SATA 7.2K | 8 | 1-8 | HP Smart Array P212/Zero Memory Controller<br>HP Smart Array P212/256 MB Controller<br>HP Smart Array P411/256 MB Controller<br>HP Smart Array P411/512 MB BBWC Controller |

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

| | Quantity Supported | Position Supported | Controller |
|---|---|---|---|
| 250GB 3G SATA 5.4K<br>120GB 1.5G SATA 5.4K | 8 | 1-8 | HP Smart Array P212/Zero Memory Controller<br>HP Smart Array P212/256 MB Controller<br>HP Smart Array P411/256 MB Controller<br>HP Smart Array P411/512 MB BBWC Controller |

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

| | Quantity Supported | Position Supported | Controller |
|---|---|---|---|
| 60GB 3.0G SATA SSD<br>120GB 3.0G SATA SSD | 8 | 1-8 | HP Smart Array P212/Zero Memory Controller<br>HP Smart Array P212/256 MB Controller<br>HP Smart Array P411/256 MB Controller<br>HP Smart Array P411/512 MB BBWC Controller |

## Storage

### External Storage

| | Quantity Supported | Position Supported | Host Controller or Adapter |
|---|---|---|---|
| 50 Modular Smart Array | Up to 4 | External | HP Smart Array P800/512 BBWC Controller |
| 60 Modular Smart Array | Up to 4 | External | HP Smart Array P212/256 MB Controller |
| | Up to 8 | External | HP Smart Array P800/512 BBWC Controller<br>HP Smart Array P411/256 MB Controller<br>HP Smart Array P411/512 MB BBWC Controller |
| 70 Modular Smart Array | Up to 2 | External | HP Smart Array P212/256 MB Controller |
| | Up to 4 | External | HP Smart Array P800/512 BBWC Controller<br>HP Smart Array P411/256 MB Controller |
| HP 2000sa Modular Smart Array Controller | Up to 4 | External | HP SC08Ge Host Bus Adapter |

### Tape and Disk-Based Backup

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

| | Position Supported | Controller | Part Number |
|---|---|---|---|
| **HP StorageWorks SCSI Tape Drives, External**<br>LTO-1 Ultrium 232<br>LTO-2 Ultrium 448<br>LTO-3 Ultrium 960<br>LTO-3 Ultrium 920<br>LTO-4 Ultrium 1760<br>LTO-4 Ultrium 1840<br>DAT 40<br>DAT 72<br>DAT 160<br>1U Rack-Mount Kit<br>3U Rack-Mount Kit | External | HP SC11Xe Host Bus Adapter | 412911-B21 |
| **HP StorageWorks USB Tape Drives, External**<br>DAT 40 USB<br>DAT 72 USB<br>DAT 160 USB<br>1U Rack-Mount Kit | External | USB 2.0 Port | N/A |
| **HP StorageWorks SAS Tape Drives, External**<br>DAT 160 SAS<br>LTO-2 Ultrium 448 SAS<br>LTO-3 Ultrium 920 SAS<br>LTO-4 Ultrium 1760 SAS<br>LTO-4 Ultrium 1840 SAS<br>1U Rack-Mount Kit | External | HP Smart Array P212/Zero Memory Controller | 462828-B21 |

*Storage*

| | | | |
|---|---|---|---|
| **HP StorageWorks SCSI Tape Automation, External**<br>DAT 72x10 Autoloader<br>1/8 G2 Autoloader<br>MSL2024<br>MSL4048<br>MSL8096<br>MSL6000 | External | HP SC11Xe Host Bus Adapter | 412911-B21 |
| | | HP U320e SCSI Host Bus Adapter<br>**NOTE:** Recommended for MSL tape libraries. | AH627A |
| **HP StorageWorks SAS Tape Automation, External**<br>1/8 G2 Autoloader<br>MSL2024<br>MSL4048<br>MSL8096 | External | HP Smart Array P212/Zero Memory Controller | 462828-B21 |
| **HP StorageWorks Fibre Tape Automation, External**<br>MSL2024<br>MSL4048<br>MSL8096<br>MSL6000 | External | Please consult the EBS connectivity matrix at:<br>http://www.hp.com/go/ebs for detailed connectivity information. | N/A |
| **HP StorageWorks RDX Removable Disk Backup System**<br>RDX160<br>RDX320<br>RDX500 | External | USB 2.0 Port | N/A |
| **HP StorageWorks D2D Backup Systems**<br>D2D120<br>D2D130<br>D2D2500i<br>D2D4000i | External | Embedded Network Controller | N/A |

*Power Specifications*

| HP 460W Power Supply Part Number - AC 460W PSU 80PLUS GOLD Rated | 503296-B21 | | | | | | |
|---|---|---|---|---|---|---|---|
| Input Voltage Range (Vrms) | 100 to 240 | | | | | | |
| Frequency Range (Nominal) (Hz) | 50/60 | | | | | | |
| Nominal Input Voltage (Vrms) | 100 | 120 | 208 | 200 | 220 | 230 | 240 |
| Maximum Rated Output Wattage | 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 |
| Max Rated Input Wattage Rating (Watts) | 526 | 520 | 505 | 505 | 503 | 503 | 503 |
| Max. Rated VA (Volt-Amp) | 548 | 542 | 527 | 527 | 524 | 524 | 524 |
| Efficiency (%) at Max. Rated Output Wattage | 87.5 | 88.5 | 91 | 91 | 91.5 | 91.5 | 91.5 |
| Power Factor | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Leakage Current (mA) | 0.42 | 0.50 | 0.83 | 0.87 | 0.92 | 0.96 | 1.00 |
| Max. Inrush Current (A peak) | 30 | 30 | 30 | 30 | 30 | 30 | 30 |
| Max. Inrush Current duration (mS) | 20 | 20 | 20 | 20 | 20 | 20 | 20 |
| Maximum British Thermal Unit Rating (BTU-Hr) | 1794 | 1773 | 1725 | 1725 | 1715 | 1715 | 1715 |

Optional Power Supplies

| HP 750W Power Supply Part Number - AC 750W PSU 80PLUS GOLD Rated | 512327-B21 | | | | | | |
|---|---|---|---|---|---|---|---|
| Input Voltage Range (Vrms) | 100 to 240 | | | | | | |
| Frequency Range (Nominal) (Hz) | 50/60 | | | | | | |
| Nominal Input Voltage (Vrms) | 100 | 120 | 208 | 200 | 220 | 230 | 240 |
| Maximum Rated Output Wattage | 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 |
| Max Rated Input Wattage Rating (Watts) | 857 | 847 | 824 | 825 | 820 | 820 | 820 |
| Max. Rated VA (Volt-Amp) | 894 | 884 | 859 | 859 | 854 | 854 | 854 |
| Efficiency (%) at Max. Rated Output Wattage | 87.5 | 88.5 | 91 | 91 | 91.5 | 91.5 | 91.5 |
| Power Factor | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Leakage Current (mA) | 0.42 | 0.50 | 0.83 | 0.87 | 0.92 | 0.96 | 1.00 |
| Max. Inrush Current (A peak) | 30 | 30 | 30 | 30 | 30 | 30 | 30 |
| Max. Inrush Current duration (mS) | 20 | 20 | 20 | 20 | 20 | 20 | 20 |
| Maximum British Thermal Unit Rating (BTU-Hr) | 2925 | 2892 | 2812 | 2812 | 2797 | 2797 | 2797 |

*Power Specifications*

| HP 1200W Power Supply Part Number - AC1200W PSU 80PLUS SILVER Rated | 500172-B21 | | | | | | |
|---|---|---|---|---|---|---|---|
| Input Voltage Range (Vrms) | 100 to 240 | | | | | | |
| Frequency Range (Nominal) (Hz) | 50/60 | | | | | | |
| Nominal Input Voltage (Vrms) | 100 | 120 | 208 | 200 | 220 | 230 | 240 |
| Maximum Rated Output Wattage | 800 | 900 | 1200 | 1200 | 1200 | 1200 | 1200 |
| Nominal Input Current (A rms) | 9.7 | 9.0 | 7.0 | 6.8 | 6.4 | 9.1 | 5.9 |
| Max Rated Input Wattage Rating (Watts) | 930 | 1034 | 1348 | 1348 | 1348 | 1348 | 1348 |
| Max. Rated VA (Volt-Amp) | 970 | 1079 | 1406 | 1406 | 1406 | 1406 | 1406 |
| Efficiency (%) at Max. Rated Output Wattage | 86 | 87 | 89 | 89 | 89 | 89 | 89 |
| Power Factor | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Leakage Current (mA) | 0.42 | 0.50 | 0.83 | 0.87 | 0.92 | 0.96 | 1.00 |
| Max. Inrush Current (A peak) | 30 | 30 | 30 | 30 | 30 | 30 | 30 |
| Max. Inrush Current duration (mS) | 20 | 20 | 20 | 20 | 20 | 20 | 20 |
| Maximum British Thermal Unit Rating (BTU-Hr) | 3174 | 3530 | 4600 | 4600 | 4600 | 4600 | 4600 |

To review typical system power ratings use the HP Power Advisor which is available via the online tool located at URL:
www.hp.com/go/proliant-energy-efficient or www.hp.com/go/hppoweradvisor

*Technical Specifications*

| System Unit | Dimensions (H x W x D) (with bezel) | | 1.70 x 16.78 x 27.25 in (4.32 x 42.62 x 69.22 cm) |
|---|---|---|---|
| | Weight (approximate) | Maximum (all hard drives, power supplies, and processors installed) | 39.5 lb (17.92 kg) |
| | | Minimum (one hard drive, power supply, and processor installed) | 32 lb (14.51 kg) |
| | Input Requirements (for Standard 460W PSU, see power specifications tables for detail on 460W, 750W and 1200W power supplies) | Rated Line Voltage | 100 to 240 VAC |
| | | Rated Input Current | 4.5 Amps (at 120VAC) to 2.2 Amps (at 240 VAC) |
| | | Rated Input Frequency | 50 to 60 Hz |
| | BTU Rating | Maximum | 1773 BTU / hr (at 120 VAC), 1715 (at 240 VAC) |
| | Power Specifications | | To review typical system power ratings use the HP Power Advisor which is available via the online tool located at URL: www.hp.com/go/proliant-energy-efficient or www.hp.com/go/hppoweradvisor<br><br>- Click on the system of interest. Example: DL360 G6<br>- Follow the instructions of the next screens. |
| | Power Supply Output (per power supply) | Rated Steady-State Power | 460 W (at 100 VAC), 460 W (at 200 VAC) |
| | | Maximum Peak Power | 460 W (at 100 VAC), 460 W (at 200 VAC)<br>NOTE: See Power Supply Specifications tables for complete details on 460W PSU and optional 750W and 1200W Power Supply Options. |
| | System Inlet Temperature | Operating | 10° to 35° C (50° to 95° F) at sea level with an altitude derating of 1.0°C per every 305 m (1.8° F per every 1000 ft) above sea level to a maximum of 3050 m (10,000 ft), no direct sustained sunlight. Maximum rate of change is 10° C/hr (18° F/hr). The upper limit may be limited by the type and number of options installed.<br>System performance may be reduced if operating with a fan fault or above 30° C (86° F). |
| | | Non-operating | -40° to 70° C (-40° to 158° F). Maximum rate of change is 20° C/hr (36° F/hr). |
| | Relative Humidity (non-condensing) | Operating | 10 to 90% relative humidity (Rh), 28° C (82.4° F) maximum wet bulb temperature, non-condensing. |

*Technical Specifications*

|  |  |  |
|---|---|---|
|  | Non-operating | 5 to 95% relative humidity (Rh), 38.7° C (101.7° F) maximum wet bulb temperature, non-condensing. |
| Altitude | Operating | 3050 m (10,000 ft). This value may be limited by the type and number of options installed. Maximum allowable altitude change rate is 457 m/min (1500 ft/min). |
|  | Non-operating | 9144 m (30,000 ft). Maximum allowable altitude change rate is 457 m/min (1500 ft/min). |

Acoustic Noise — Listed are the declared A-Weighted sound power levels (LWAd) and declared average bystander position A-Weighted sound pressure levels (LpAm) when the product is operating in a 23° C ambient environment. Noise emissions were measured in accordance with ISO 7779 (ECMA 74) and declared in accordance with ISO 9296 (ECMA 109).

**Idle (Single Processor, Note 1)**

| L WAd | 4.3 B Average Bystander |
|---|---|
| L pAm | 27 dBA |

**Operating**

| L WAd | 4.8 B Average Bystander |
|---|---|
| L pAm | 32 dBA |

**Idle (Dual Processors, Note 2)**

| L WAd | 4.9 B Average Bystander |
|---|---|
| L pAm | 33 dBA |

**Operating**

| L WAd | 5.4 B Average Bystander |
|---|---|
| L pAm | 38 dBA |

NOTES:
Note 1) Configuration tested included an Intel X5520 quad-core 2.27GHz processor, one 72GB SAS HDD, four 250GB 5400 rpm SATA hard drives, six system fans, three 4GB(2x2GB) DIMM's, and one power supply (1P SKU).
Note 2) Configuration tested included two Intel X5520 quad-core 2.27GHz processors, one 72GB SAS HDD, four 250GB 5400 rpm SATA hard drives, eight system fans, six 4GB(2x2GB) DIMM's, and one power supply (2P SKU).
Note 3) Values are subject to change without notification and are for reference only.
Note 4) Performance of system, options, and ancillary equipment will vary depending on the system configuration.
Note 5) Levels presented do not account for non-Hewlett-Packard installed hardware.

| Emissions Classification (EMC) | FCC Rating | Class A |
|---|---|---|
|  | Normative Standards | CISPR 22; EN55022; EN55024; FCC CFR 47, Pt 15; ICES-003; CNS13438; GB9254; K22; K24; EN 61000-3-2; EN 61000-3-3; EN 60950-1; IEC 60950-1 |

## Technical Specifications

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

| | | |
|---|---|---|
| **Smart Array P410i Controller** | Dimensions (not including bracket) | Low Profile PCIe Form Factor<br>7.5 in x 9.5 in x 2.25 in (19.05 cm x 24.13 cm x 5.72 cm) |
| | Disk Drive and Enclosure Interface - Transfer rate | 6Gb/s SAS (Serial Attached SCSI)<br>3Gb/s SATA (Serial ATA) |
| | SAS Connectors | 2 internal (Mini-SAS) x8 wide port connectors |
| | Cache Memory Speed | DDR2-800MHz with 40 or 72-bit wide bus provides up to 4.2 GB/s maximum bandwidth. |
| | Server Interface | x8 5G PCIe 2.0 provides 4GB/s maximum bandwidth |
| | SAS Speed | x8 3G SAS provides 2.4GB/s maximum bandwidth |
| | Cache Memory | 40-bit 256MB ECC protected cache (72-bit 512MB BBWC module upgrades available); transportable with battery-backed upgrade |
| | Logical Drives Supported | Up to 64 logical drives |
| | Maximum Logical Drive Capacity | Greater than 2TB |
| | Host Memory Addressing | 64-bit, supporting greater than 4GB server memory space |
| | RAID Support | RAID 6, 6+0 (Advanced Data Guarding)<br>**NOTE:** RAID 6, 6+0 can be enabled with either<br><br>• Minimum of 256 MB cache, Battery kit and Smart Array Advanced Pack License key option upgrades<br>• Minimum of 512 MB BBWC and Smart Array Advanced Pack License key option upgrades<br><br>RAID 5, 5+0 (Distributed Data Guarding)<br>**NOTE:** The 256 MB is required to enable RAID 5, 5+0 support of the Smart Array P410i<br>RAID 1+0 (Striping & Mirroring)<br>RAID 0 (Striping) |
| | Upgradeable Firmware | Upgradeable Firmware with recovery ROM feature |

*Technical Specifications*

| Embedded NC382i Dual Port Multifunction Gigabit Server Adapter | Network Interface Compatibility | 10Base-T/100Base-TX/1000Base-TX |
|---|---|---|
| | | IEEE 802.3 10Base-T |
| | | IEEE 802.3ab 1000Base-T |
| | | IEEE 802.3u 100Base-TX |
| | | IEEE 802.3ad 1000Base-TX |
| | | IEEE 802.1p 100Base-TX |
| | | IEEE 802.1q 100Base-TX |
| | Data Transfer Method | PCI Express, four lanes (x4) |

| | Network Transfer Rate | | |
|---|---|---|---|
| | | 10Base-T (Half-Duplex) | 10 Mb/s |
| | | 10Base-T (Full-Duplex) | 20 Mb/s |
| | | 100Base-TX (Half-Duplex) | 100 Mb/s |
| | | 100Base-TX (Full-Duplex) | 200 Mb/s |
| | | 1000Base-TX (Half and Full-Duplex) | 2000 Mb/s |
| | Connector | Two RJ-45 | |

| | Cable Support | | |
|---|---|---|---|
| | | 10Base-T | Categories 3, 4 or 5 UTP; up to 328 ft (100 m) |
| | | 100Base-TX | Category 5 or higher UTP; up to 328 ft (100 m) |
| | | 1000BaseTX | Category 5 or higher UTP; up to 328 ft (100 m) |

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