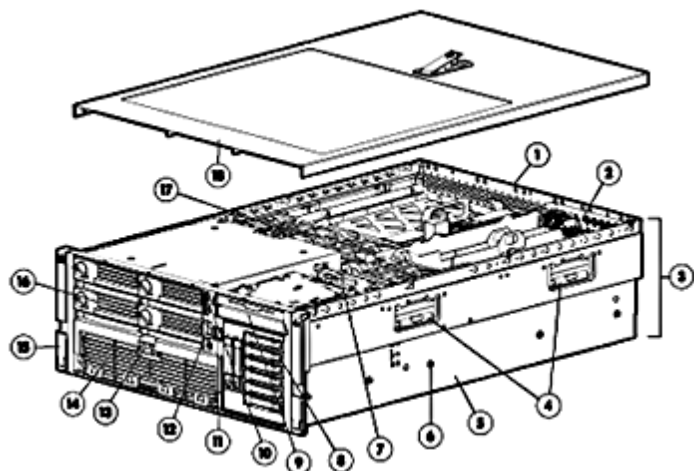*Overview*

Front View:

1. Dual Hot Plug Redundant Power Supplies (one standard with 1P Models, requires optional RPS for redundancy)
2. Up to Six Available I/O Slots: 3 Standard PCI-Express x4 and 1 Standard 64-bit/133MHz PCI-X. Optional Mezzanine adds Two Hot Plug 64-bit/133MHz PCI-X or two X4 PCI Express, or one X8 PCI Express
3. 4U (7" Height) Rack Form Factor
4. Server Lifting Handles
5. Ships with HP Smart Array P400/256MB Controller. Optional 512MB Battery Backed Write Cache (BBWC ships standard with 2P models)
6. Universal Tool-less "Snap In" Sliding Rail Solution
7. Systems Insight Display
8. Support for up to 8 Small Form-Factor (SFF) SAS or Serial ATA (SATA) drives
9. Support for up to Two Slimline Drives (Ejectable, DVD/CD-RW Drive standard, Floppy Drive optional with all models)
10. One front video port.
11. Two front accessible USB 2.0 ports. Two rear accessible USB 2.0 ports (all bootable).
12. Front Panel LED Display (internal and external health, Two Network Port Status, Unit ID light) and Power Button
13. Front accessible Processor drawer (allows access to Processors and Processor Power Modules)
14. Support for up to four Dual-Core 64-bit Intel® Xeon™ Processors
15. Quick release levers for fast server access
16. Front accessible Hot Plug RAID Memory
17. Six Hot Plug Redundant Fans Standard on all models
18. Quick Removal Access Panel
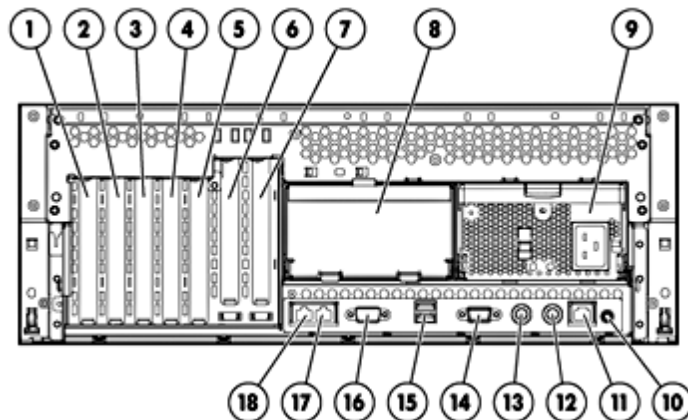
Rear View:

1. PCI-Express x4 slot
2. PCI-Express x4 slot
3. PCI-Express x4 slot
4. PCI-Express x4 slot
5. PCI-X slot
6. Optional Mezzanine adds 2 PCI-X/133 or 2 PCI-E x4 or 1 PCI-E x8
7. Optional Mezzanine adds 2 PCI-X/133 or 2 PCI-E x4 or 1 PCI-E x8
8. Optional redundant power supply
9. Power supply
10. Unit Identification LED
11. Integrated Lights-Out 2 (iLO2) NIC
12. Mouse port
13. Keyboard port
14. Video port
15. 2 USB ports
16. Serial port
17. Multifunction Gigabit NIC port
18. Multifunction Gigabit NIC port

What's New

- New Processors
  - Dual-Core 64-bit Intel® Xeon™ Processor 7140M (3.40GHz, 150 Watts, 800MHz FSB, 16MB L3 Cache)
  - Dual-Core 64-bit Intel® Xeon™ Processor 7130M (3.20GHz, 150 Watts, 800MHz FSB, 8MB L3 Cache)
  - Dual-Core 64-bit Intel® Xeon™ Processor 7120M (3.00GHz, 95 Watts, 800MHz FSB, 4MB L3 Cache)
  - Dual-Core 64-bit Intel® Xeon™ Processor 7110M (2.60GHz, 95 Watts, 800MHz FSB, 4MB L3 Cache)
- Higher Capacity Internal Drive Support:
  - Second generation small form factor (SFF) SAS hard disk drives with double the capacity of current SFF SAS drives up to 146GB.
  - Internal mass storage capacity up to 1.168TB (8 x 146GB hot plug SFF SAS drives)

At A Glance

The ProLiant DL580 G4 server is an enterprise class, 4 socket server designed for maximum scalability and high availability. Its innovative chassis offers unsurpassed flexibility and serviceability in a versatile, rack-optimized form factor. Based upon the latest industry standard processing, memory, I/O and networking technologies, the ProLiant DL580 G4 provides the highest levels of performance demanded by today's compute intensive applications. Unparalleled high availability features, including front-accessible Hot Plug RAID Memory, and hot-plug redundant components, guarantee maximum uptime. Integrated Lights-Out 2 (iLO2) technology allows remote administration from a standard web-browser without ever having to visit the server. Within the 4U dense form factor, it's highly expandable architecture provides maximum application deployment flexibility with the ability to add PCI-Express, hot plug PCI-X or battery-backed write cache options. Innovative features, such as the ability to access processors, memory, hard drives, and power supplies while the unit remains secured in the rack, enable rapid response to service events, radically decreasing overall IT costs and server downtime.

- Processors:
  - Supports up to four Dual-Core 64-bit Intel Xeon Processors and HT Technology, with Dual Independent 800MHz Front Side Buses with L3 shared cache
  - Intel® Dual-Core 64-bit Xeon™ processor 7000 sequence

  - Industry Standard Intel E8501 Chipset
- Memory:
  - Front accessible Hot Plug RAID Memory (Configurable for Standard, Mirrored or RAID) provides maximum up-time, flexibility and serviceability
  - PC2-3200 Registered Memory (DDR2-400) can be configured in Hot Plug Mirrored, Hot Plug RAID, Online Spare or Advanced ECC modes
- Storage Controller:
  - 1P Base Models: HP Smart Array P400/256MB Controller (optional 512MB battery backed write cache)
  - 2P High Performance Models: HP Smart Array P400/512MB BBWC Controller
- Internal Drive Support:
  - Support for up to eight hot-plug SFF SAS drives
  - Slimline DVD Combo Drive standard, Floppy Drive optional on all models (ejectable)
- Network Controller:
  - Two embedded NC371i Multifunction Gigabit Network Adapters with TCP/IP Offload Engine, including support for Accelerated iSCSI through an optional Licensing Kit
- Expansion Slots:
  - More PCI-Express slots with up to five available PCI-Express x4 slots with mezzanine option
  - Up to Six Available I/O Slots: 3 Standard PCI-Express x4 and 1 Standard 64-bit/133MHz PCI-X Optional Mezzanine adds Two Hot Plug 64-bit/133MHz PCI-X, Two X4 PCI Express, or One X8 PCI Express
  - Optional x4-x8 PCI-Express Bus Expander provides flexibility to configure I/O slots for different requirements, specifically by converting a x4 slot to a x8 for greater bandwidth/performance
- USB 2.0 Ports:

Overview

- o 4 Total: (2) front, (2) rear accessible ports (configurable for boot capability)
- • Redundancy:
  - o Rear accessible Hot Plug Redundant Power Supplies (RPS optional on some models)
  - o Hot Plug Fans with full redundancy
- • Management:
  - o Integrated Lights-Out 2 featuring Integrated Remote Console with KVM over IP performance over shared network access
  - o Power Regulator for ProLiant, delivering server level, policy based power management with industry leading energy efficiency and savings on system power and cooling costs
  - o Automatic Server Recovery (ASR), ROM Based Setup Utility (RBSU), HP Systems Insight Manager, Status LED's including system health and UID, and SmartStart
- • Form Factor:
  - o Dense form factor - 4U rack models
- • Deployment/Serviceability:
  - o Front and rear video ports
  - o Front accessible Processor and Processor Power Modules allow server to stay safely secured in the rack during servicing
  - o Quick Deploy Rail System includes sliding universal rails, an ambidextrous cable management arm and quick release levers for fast and easy serviceability and in-rack tool-less access to major components
  - o Tool-less access to all system components for easy in rack serviceability
- • Warranty:
  - o Protected by HP Services and a worldwide network of resellers and service providers. Three-year Next Business Day, on-site limited global warranty. Certain restrictions and exclusions apply. Pre-Failure Notification on processors, memory, and SAS hard drives. SATA hard drives have a one-year warranty.

QuickSpecs

Standard Features

NOTE: For a brief, printer friendly data sheet that describes this product and informs you of the essential capabilities and specifications, please visit: http://h71028.www7.hp.com/ERC/downloads/5982-4118EN.pdf.

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

Processor One or more of the following depending on Model	Dual-Core 64-bit Intel® Xeon™ 7140M Processor (3.40 GHz, 150Watts, 800MHz FSB) Dual-Core 64-bit Intel® Xeon™ 7130M Processor (3.20 GHz, 150 Watts, 800MHz FSB) Dual-Core 64-bit Intel® Xeon™ 7120M Processor (3.00 GHz, 95 Watts, 800MHz FSB) Dual-Core 64-bit Intel® Xeon™ 7110M Processor (2.60 GHz, 95 Watts, 800MHz FSB) Dual-Core 64-bit Intel® Xeon™ 7041 Processor (3.00 GHz, 165 Watts, 800MHz FSB) Dual-Core 64-bit Intel® Xeon™ 7030 Processor (2.80 GHz, 165 Watts, 800MHz FSB)
Cache Memory One of the following depending on Model	16MB Integrated Level 3 Cache NOTE: Dual-Core 7140M Model only. 8MB Integrated Level 3 Cache NOTE: Dual-Core 7130M Model only. 4MB Integrated Level 3 Cache NOTE: Dual-Core 7120M and 7110M Models only. 2x2MB Integrated Level 2 cache NOTE: Dual-Core 7041 Model only. 2x1MB Integrated Level 2 cache NOTE: Dual-Core 7030 Model only.
Upgradeability	HP ProLiant DL580 G4 servers with Intel Xeon 7041 and 7030 processors can be upgraded with Intel Xeon 71x0 processors. All ProLiant DL580 G4 servers can support up to 4 processors.
Chipset	Industry Standard Intel E8501 Chipset NOTE: For more information regarding Intel chipsets, please see the following URL: http://www.intel.com/products/server/chipsets/
Memory Protection	Advanced ECC Hot-Plug RAID Memory Hot-Plug Mirrored Memory Online Spare Memory

Standard Features

Memory	Type	PC2-3200 Registered Memory (DDR2-400)
One of the following depending on Model	Standard (1P Base Models)	2 GB (2 x 1 GB)
	Standard (2P High Performance Models)	4 GB (4 x 1 GB)
	Maximum	64 GB

NOTE: 64 GB achieved with use of four memory cartridges and sixteen 4 GB PC2-3200 Memory Modules. The HP ProLiant DL580 G4 will accept both single rank and dual rank DIMMs in all sockets.

Network Controller	Two embedded NC371i Multifunction Gigabit Network Adapters with TCP/IP Offload Engine, including support for Accelerated iSCSI through an optional ProLiant Essentials Licensing Kit

Expansion Slots with No Mezzanine Option	Bus speed	Bus number	Hot Plug	PCI Voltage	Notes
1	N/A	N/A	N/A	N/A	N/A
2	N/A	N/A	N/A	N/A	N/A
3	64-bit / 133 MHz PCI-X	10	No	3.3 Volt	Standard
4	PCI Express X4	13	No		Recommended for SA-P400
5	PCI Express X4	16	No		Standard
6	PCI Express X4	19	No		Standard
7	PCI Express X4	22	No		Standard
Expansion Slots with PCI-X Mezzanine Option	Bus speed	Bus number	Hot Plug	PCI Voltage	Notes
1	64-bit / 133 MHz PCI-X	3	Yes	3.3 Volt	Optional
2	64-bit / 133 MHz PCI-X	6	Yes	3.3 Volt	Optional
3	64-bit / 133 MHz PCI-X	11	No	3.3 Volt	Standard
4	PCI Express X4	14	No		Recommended for SA-P400
5	PCI Express X4	17	No		Standard
6	PCI Express X4	20	No		Standard
7	PCI Express X4	23	No		Standard

QuickSpecs

Standard Features

Expansion Slots with PCI Express X4 Mezzanine Option	Bus speed	Bus number	Hot Plug	PCI Voltage	Notes
1	PCI Express X4	2	No		Optional
2	PCI Express X4	5	No		Optional
3	64-bit / 133 MHz PCI-X	10	No	3.3 Volt	Standard
4	PCI Express X4	13	No		Recommended for SA-P400
5	PCI Express X4	16	No		Standard
6	PCI Express X4	19	No		Standard
7	PCI Express X4	22	No		Standard
Expansion Slots with PCI Express X8 Mezzanine Option	Bus speed	Bus number	Hot Plug	PCI Voltage	Notes
1	PCI Express X8	2	No		Optional
2	N/A	N/A	N/A	N/A	N/A
3	64-bit / 133 MHz PCI-X	10	No	3.3 Volt	Standard
4	PCI Express X4	13	No		Recommended for SA-P400
5	PCI Express X4	16	No		Standard
6	PCI Express X4	19	No		Standard
7	PCI Express X4	22	No		Standard

Bus Expansion

The x4-x8 PCI Express Bus Expander is a half-length expansion board. When installed into an x4 PCI Express expansion slot, the x4-x8 PCI Express bus expander converts the adjacent x4 PCI Express expansion slot into a x8 PCI Express expansion slot.

The HP ProLiant DL580 G4 Server can support up to two x4-x8 PCI Express bus expander boards. The bus expander can only be installed in expansion slots 5 and 7 to convert the adjacent lower-numbered expansion slot to a PCI Express x8 expansion slot. For example, installing the board into expansion slot 5 converts expansion slot 4 to a PCI Express x8 expansion slot.

QuickSpecs

Standard Features

Manageability	Integrated Lights-Out (iLO 2) Management 2 (integrated on motherboard)

- Virtual Text Remote Console (pre-OS only)
- Remote Serial Console
- Virtual Power Button Control
- Virtual Unit ID control
- Integrated Remote Console (ActiveX Control client)
- Dedicated & full function shared network connectivity with VLAN
- Embedded system health
- Present power consumption
- Browser, command line and scripted access
- Automatic IP Configuration via DHCP/DNS/WINS
- Industry Standard 128-bit Secure Sockets Layer (SSL) and Secure Shell security (SSH)
- Advanced Encryption Standard (AES)/Triple Data Encryption Standard (3DES)
- OS independent hardware health status
- IML and iLO Event Logging
- Support for 12 user accounts with customizable access privilege

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Storage Controllers
One of the following
depending on Model

HP Smart Array P400/256MB Controller (in a PCI-Express slot)
NOTE: Standard on 1P Base Models.

HP Smart Array P400/512MB BBWC Controller (in a PCI-Express slot)
NOTE: Standard on 2P High Performance Models.

Storage Data Protection

The Battery-Backed Write Cache (BBWC) Enabler for the Smart Array P400 Controller protects up to 512-MB write cache memory from hard boot, power, controller, or system board failures.

- Standard on 2P Models, optional with others
- Battery charge/life: Up to 72 hours/3 years
- Transportable data protection
- Increases overall controller performance

NOTE: Safely transport your write cache data to another HP ProLiant DL580 G4 in the data center by removing the BBWC Enabler and Smart Array P400 Controller Memory Module simultaneously (connected by short cable).

Storage

Diskette Drive	None Standard - Optional Slimline Floppy Drive available (ejectable)
Optical Drive	Slimline DVD/CD-RW Drive Standard on all models (ejectable)
Hard Drives	None ship standard
Hard Disk Drive Backplane	Internal SAS backplane supports up to eight SFF hard disk drives

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Maximum Internal Storage Type

Hot Plug SAS	1.168TB	8 x 146GB SFF SAS drives (internal hot plug)
Hot Plug SATA	480GB	8 x 60GB SFF SATA

QuickSpecs

HP ProLiant DL580 Generation 4 (G4)

Standard Features

Interfaces	Serial	1
	Pointing Device (Mouse)	1
	Video	1 front; 1 rear
	Keyboard	1
	USB 2.0 Ports	4 total: 2 front; 2 rear
		NOTE: Please see the following URL for additional information regarding USB support: http://h18004.www1.hp.com/products/servers/platforms/usb-support.html
	iLO2 Remote Management	1
	Network RJ-45	2

Graphics	Integrated ATI-RN50 with 32MB DDR memory

Form Factor	Rack (4U = 7 inches), ships with Quick Deploy Sliding Rail System, an ambidextrous cable management arm and quick release levers for fast and easy serviceability and in-rack tool-less access to major components. Space saving form factor (4U) provides space efficiencies while providing maximum deployment flexibility.

ProLiant Essentials Foundation Pack Software	HP Systems Insight Manager	HP Systems Insight Manager (HP SIM) provides a unified, secure and extensible environment to centrally manage servers, storage and other infrastructure devices across multiple operating system platforms.
		Through a single management view, HP SIM provides core management services that include device discovery and identification, event views, health monitoring, inventory data collection, software version control and reporting. HP SIM is built on industry standards and is extensible with value-added ProLiant Essentials, Integrity Essentials and Storage Essentials software to meet individual management needs. For more details on HP SIM visit http://www.hp.com/go/hpsim.
		HP SIM provides organizations with the following benefits:
		• Simplifies and consolidates infrastructure lifecycle management using task and query based functionality • Provides the foundation for infrastructure automation and virtualization • Enables IT management based on business processes not hardware platforms • Lowers infrastructure maintenance cost and frees resources for innovation • Maximizes resource utilization with virtualization technologies • Provides a central point of integration between infrastructure and Enterprise management tools such as HP OpenView
	SmartStart	SmartStart is a tool that simplifies server setup, providing a rapid way to deploy reliable and consistent server configurations. For more information, please visit the SmartStart Web site at http://www.hp.com/servers/smartstart. SmartStart version supported (minimum): SmartStart 7.50.

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Standard Features

Insight Management Agents	Insight Management Agents should be installed on all HP servers to present system instrumentation, health and configuration information into HP Systems Insight Manager and the HP System Management Homepage. The HP System Management Homepage aggregates systems data from Insight Management Agents and other HP management tools, providing a consolidated browser-based interface for managing individual servers,	

Insight Management Agents and The HP System Management Homepage are included on ProLiant Support Packs, and can also be installed using the server profiles provided with the ProLiant Essentials Rapid Deployment Pack. For additional information about the Management Agents and the HP System Management Homepage please visit the management Web site at http://www.hp.com/servers/manage

Subscriber's Choice — Subscriber's Choice Driver and Support Alerts/Notifications is a web-based email subscription service that provides automatic delivery of software and driver change notifications for ProLiant products. Sign up at http://www.hp.com/go/subscriberschoice and customize your profile to receive various new alerts as they become available, on a weekly or monthly basis.

ROMPaq, support software, and configuration utilities — The latest software, drivers, and firmware fully optimized and tested for your ProLiant server and options available in SmartStart or downloadable from Software and Drivers download pages, linked from the SmartStart website at http://www.hp.com/servers/smartstart.

Survey Utility and diagnostics utilities — The most advanced configuration analysis, reporting and troubleshooting utilities used by HP and at your fingertips, available in SmartStart.

Insight Diagnostics — The most advanced configuration analysis, reporting and troubleshooting utilities used by HP and at your fingertips, available in SmartStart.

Optional ProLiant Essentials Value Packs — Optional software offerings that selectively extend the functionality of an Adaptive Infrastructure to address specific business problems and needs:

- Insight Control Environment - is based on HP Systems Insight Manager and ProLiant Essentials software, and brings the value of Insight Control to ProLiant customers by delivering comprehensive health and performance monitoring, remote control, vulnerability scanning and patch management as well as flexible deployment and power management through an integrated installation package and streamlined licensing. For more information, visit: http://www.hp.com/go/ice
- Accelerated iSCSI Pack - enables the embedded Multifunction network controller to serve as both a NIC and an iSCSI HBA providing access to SAN storage over the same connection used for networking. Processing of the protocol stack is offloaded to the NIC reducing CPU utilization and greatly improving the speed with which the requests are processed and sent to the network.
- Rapid Deployment Pack (RDP) is an automated deployment and provisioning solution for all ProLiant servers. RDP includes the ProLiant Integration Module featuring ProLiant server pre-configured events for OS installation, and optimized software drivers, firmware and management agents. Every RDP disc includes 7-day, 10-node trial licenses for evaluation purposes. RDP requires a license for each server deployed and is available for purchase with HP servers. For more information, visit: http://www.hp.com/servers/rdp.

Standard Features

- Server Migration Pack - The Server Migration Pack automates the manual processes required for migrating servers between physical or virtual platforms (P2V, V2P, and V2V).
- Server Migration Pack - P2P Edition: Upgrading or replacing your existing server? Effortlessly transition to new servers with automated, accurate and affordable migration of OS, application and data.
- Performance Management Pack (offered exclusively through the Insight Control suites) - a performance management solution that identifies and explains hardware performance bottlenecks on ProLiant servers and attached options enabling users to better utilize their valuable resources.
- Virtual Machine Management Pack - provides central management and control of virtual machines from Microsoft and VMware. Integrated approach provides the ability to manage both physical and virtual resources from a single management console.
- Vulnerability and Patch Management Pack (offered exclusively through the Insight Control suites) - identifies and remediates software security vulnerabilities due to missing patches as well operating system configurations that can be exploited by viruses, worms, and other blended threats.

Optional Remote Management Packs

- Integrated Lights-Out Advanced Pack - upgrades the iLO 2 processor with comprehensive remote control including Virtual KVM remote graphical console, enhanced console sharing and replay, virtual media (floppy, CD/DVD, USB key), virtual folders, historical power reporting, power capping and enterprise security (directory services and two-factor authentication).
- Integrated Lights-Out Select Pack - upgrades the iLO 2 processor with enhanced console sharing and replay, virtual media (floppy, CD/DVD, USB key), virtual folders, historical power reporting, power capping and enterprise security (directory services and two-factor authentication) for servers managed using remote consoles available in iLO 2 Standard and iLO 2 Standard Blade Edition.

NOTE: Flexible and volume quantity license kits are available for ProLiant Essentials Value Packs. Refer to http://www.hp.com/servers/proliantessentials or the various ProLiant Essentials Value Pack product QuickSpecs for more information.
NOTE: For more information regarding ProLiant Essentials Software, please see the following URL: http://www.hp.com/servers/proliantessentials.

Industry Standard Compliance

ACPI 1.0a. Compliant

PCI 2.2 Compliant

PXE Support

WOL Support

Physical Address Extension (PAE) Support

Microsoft® Logo certifications

USB 2.0 Support

Standard Features

Intelligent Manageability

HP Systems Insight Manager
SmartStart
Redundant ROM
Remote Flash ROM
Management Agents
Integrated Management Log (IML)
Automatic Server Recovery-2 (ASR-2)
ROM-Based Setup Utility (RBSU)
Dynamic Sector Repairing (with Smart Array Controllers)
Drive Parameter Tracking (with Smart Array Controllers)
Pre-Failure Warranty (covers processors, SAS hard drives and memory)
Redundant/adaptive load balancing NIC Support
Hot Spare Boot
NOTE: Upon the event of a failed processor or VRM in a multi-processing environment, the system will automatically reboot and use the remaining good processor(s).

Availability

HP Advanced Memory Protection Technology - delivers unsurpassed memory protection and server availability with the following supported modes of operation:

- **Advanced ECC (1 or More Memory Boards)**
  Advanced ECC Memory is the default memory protection mode for the HP ProLiant DL580 G4. In Advanced ECC, the server is protected against correctable memory errors. The server will provide notification if the level of correctable errors exceeds a predefined threshold rate. The server does not fail because of correctable memory errors.
  Advanced ECC provides additional protection over Standard ECC in that it is possible to correct certain memory errors that would otherwise be uncorrectable and result in server failure. Whereas Standard ECC can correct single-bit memory errors, Advanced ECC can correct single-bit and multi-bit memory errors if all failed bits are on the same DRAM device on the DIMM. Advanced ECC is the only mode in which hot-add operations are supported by adding a memory board with memory to the server while it is running.
- **Online Spare Memory (1 or More Memory Boards)**
  Offers a higher level of memory protection than Advanced ECC alone. If the number of single-bit correctable errors on a bank exceeds the pre-defined error threshold, that bank will fail over to the online spare bank without intervention or server interruption. The failed memory can then be replaced at the user's convenience during a scheduled maintenance window.
  Online Spare Memory is achieved by protecting active memory with online spare memory on the same memory board. No operating system support is required.
- **Hot Plug Mirrored Memory (2 or 4 Memory Boards)**
  Hot Plug Mirrored Memory provides a higher level of availability than Advanced ECC and Online Spare Memory. With Hot Plug Mirrored Memory, the server is protected against uncorrectable memory errors that would otherwise result in server failure. Hot Plug Mirrored Memory allows the server to keep two copies of all memory data on separate memory boards. If an uncorrectable error is encountered, the proper data is retrieved from the memory board that did not fail. In addition, Hot Plug Mirrored Memory allows failed or degraded DIMMs to be replaced while the server is running without requiring server downtime. The memory board with the failed DIMMs can be removed from the front of the server, failed DIMMs replaced, and the board re-inserted into the server without disengaging the server from the rack or interrupting the operating system.
- **Hot Plug RAID Memory (4 Memory Boards)**
  Hot Plug RAID Memory provides a similar level of protection as Hot Plug Mirrored Memory but obtains this protection using a smaller percentage of the installed memory. While Hot Plug Mirrored Memory keeps two copies of all memory data, Hot Plug RAID Memory keeps only one copy of all memory data and additional parity information. If an uncorrectable memory error is encountered, the server can create the proper data using data from the parity information and the

Standard Features

other memory boards that contain no failures. In a Hot Plug RAID Memory configuration, 75% of the installed memory is available to the Operating System; 50% more than in a Hot Plug Mirrored Configuration. As with Hot Plug Mirrored Memory, Hot Plug RAID Memory allows failed DIMMs to be replaced while the server remains running and safely engaged in the rack.

	# of Memory Boards Installed			
Supported Modes	1 Board	2 Boards	3 Boards	4 Boards
Number of DIMMs Supported	4	8	12	16
Maximum Memory Supported	16 GB	32 GB	48 GB	64 GB
Advanced ECC Memory Protection	Yes	Yes	Yes	Yes
Online Spare Memory	Yes	Yes	Yes	Yes
Hot Plug Mirrored Memory	No	Yes	No	Yes
Hot Plug RAID Memory	No	No	No	Yes

- PCI-X Hot Plug Technology (Two 64bit/133-MHz PCI-X hot plug slots available with the Hot Plug PCI-X Mezzanine Option).
- Smart Array P400 Controller with optional Battery Backed Write Cache (BBWC) Enabler provides transportable data protection and increases overall controller performance. Up to 512MB Battery Backed Write Cache protection optional on HP ProLiant DL580 G4 (512MB BBWC ships standard with 2P models).
- Hot Plug Redundant Fans - Six Hot Plug Redundant Fans ship standard with all models.
- Front Accessible Chassis - Redesigned chassis allows access to memory, processors and hard drives from the front of the server while it remains safely engaged in the rack. This provides easier serviceability and lowers the chance of interfering with neighboring servers' cables and components.
- Hot Plug Universal Drives - Up to eight Hot Plug Universal SFF SAS drives are supported.
- Hot Plug Redundant Power Supplies - Two Hot Plug Redundant Power Supplies ship standard with all 2P High Performance Models (2nd Hot Plug Redundant Power Supply is optional with 1P base models).

Standard Features

Serviceability	• Front and Rear accessibility provides unsurpassed serviceability by allowing the server to remain safely secured in the rack while maintaining Hot Plug RAID Memory, Hot Plug Universal Hard Drives, Hot Plug Redundant Power Supplies, as well as Processors and Processor Power Modules.

- Innovative Diagnostic Lighting
- Systems Insight Display - precisely depicts all major subsystems of the server (PCI I/O, Memory, CPU, Redundant Cooling, Interlock, Thermtrip) and gives instant visual indication of fault status. Located on top front of server.
- LED display on front panel indicates power, internal health, external health, Unit ID light.
- LED display on Memory board indicates Memory status, health, and protection mode.
- LED display on Processor board indicates Processor and Processor Power Module health.
- Tool-less, virtually cable-less interior design
    - Tool-less access to interior of server
    - Up to two, Slimline media drives are removable without the use of tools (ejectable)
    - Rear Access to Hot Plug Redundant Power Supplies
    - PCI Card Guides locks full length PCI cards in place
    - Six individually removable fans connect without cables to the system board
    - Processor/PPM Retention Cage securely locks Processors into their sockets
    - Tool-less removal of system board
- Quick Deploy Rails
    - Tool-less design "snap in" rail and ambidextrous cable management arm

Security

Power-on password
Keyboard password
Diskette drive control enable/disable
Diskette boot control enable/disable
External USB port enable/disable
Network Server Mode
Serial interface control
Administrator's password
Removable Diskette drive (optional)
Removable CD-ROM or DVD drive

Server Power Cords

NOTE: If customers require a local power cord, they can check the power cord matrix for the appropriate county specific sku. Please see the following power cord matrix for details:
http://www.hp.com/go/powercordmatrix

Power Supply

910W (low line), 1300W (high line) with 12V main output. Size is 2.8"(H) X 4.9"(W) X 7.5"(L).
NOTE: One Hot Plug Power Supply ships standard with 1P Base Models (optional Redundant Hot Plug Power Supply Option Kit).
NOTE: Two Hot Plug Power Supplies ship standard with 2P High Performance Models.

UPS and PDU Power Cord Matrix

Please see the UPS and PDU cable matrix that lists cable descriptions, requirements, and specifications for UPS and PDU units:
ftp://ftp.compaq.com/pub/products/servers/ProLiantstorage/power-protection/powercordmatrix.pdf.

System Fans	Standard	6 Hot plug, redundant fans (individually removable)
	Maximum	6 Hot plug, redundant fans (individually removable)

Standard Features

Required Cabling	For required cabling information, refer to the HP Web site at http://h18000.www1.hp.com/products/servers/proliantDL580/.

OS Support

Windows Server 2003
Microsoft Windows 2000
Red Hat Enterprise Linux
SuSE Linux Enterprise Server
Novell NetWare
SCO OpenServer
SCO UnixWare
Sun Solaris Intel Platform Edition
VMware Virtualization Software

NOTE: For a more complete and up-to-date listing of supported OSs and versions, please visit our OS Support Matrix at: http://www.hp.com/go/supportos.

NOTE: For an up-to-date listing of the latest drivers available for the HP ProLiant DL580, please see: http://www.hp.com/support.

NOTE: For more Linux OS support & certification information, please visit our the ProLiant & Bladesystem Server Linux matrix http://h18004.www1.hp.com/products/servers/linux/hpLinuxcert.html

NOTE: For more complete and up-to-date information on how to buy server operating systems from HP please visit the OS product site at: http://h18004.www1.hp.com/products/servers/software/OEM.html

Rack Airflow Requirements

Rack 10000 series Cabinets The increasing power of new high-performance processor technology requires increased cooling efficiency for rack-mounted servers. The 10000 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 5,350 sq cm (830 square inches) 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 7 cm (2.75 inches).

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: http://www5.HP.com/products/servers/proliantdl580/index.html.

Standard Features

Rack Mounting Requirements	HP ProLiant DL580 G4 rack models provide tool-free support for racks with square or round mounting holes (including Compaq/HP 7000, 9000, 10000, HP/E series and H9 series) with an adjustment range from 24" - 36" in depth. The ambidextrous cable management arm can be mounted on either the left or right side for improved cable management. NOTE: Cable management arm must be removed to access Hot Plug Power Supplies when the cable management arm is mounted on the right. **HP ProLiant DL580 G4 in Telco Racks** Support for all 2-post Telco racks requires the use of the standard rack kit and an additional option kit from Rack Solutions (http://www.racksolutions.com/hp/)
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 MSA1000, VA7xxx, EVA, XP, rackable tape libraries and configurable network switches. For more information on Factory Express services for your specific server model please contact your sales representative or go to http://www.hp.com/go/factory-express.
HP Enterprise Configurator	The HP eCo-Enterprise Configurator now provides factory default racking for our HP hardware portfolio. This approach is aligned with our strategic direction to meet the needs and expectations of our valued customers. If you require "custom" rack configuration, please contact HP's Customer Business Center or an Authorized Partner for assistance. http://www.hp.com/products/configurator.
Service and Support	This product is covered by a global limited warranty and supported by HP Services and a worldwide network of resellers and service providers. 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. Additional support may be covered under the warranty or available for an additional fee. Enhancements to warranty services are available through HP Care Pack services or customized service agreements. NOTE: Server Warranty includes 3 year Parts, 3 year Labor, 3-year on-site support. Additional information regarding worldwide limited warranty and technical support is available at: http://h18004.www1.hp.com/products/servers/platforms/warranty/index.html HP Care Pack services include coverage for the HP branded hardware options qualified for the server, purchased at the same time or afterward, internal to the enclosure, as well as 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, 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. HP services provide continuous care and support expertise with committed response designed to meet your IT and business needs.

Standard Features

To fully capitalizing 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 business. Whether an SMB or large global corporation HP has a ProLiant server support offer to help you speedily deploy and maximize system uptime.

Enhanced Care - Minimum recommended service support offer designed to ensure customers have access to expert assistance, whenever they need it.

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

Continuous Care - Recommended service delivering cost-effective support options designed to extend HP Services committed response and guaranteed fix times, designed to speed problem identification and resolution.

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

Total Care - Highest HP Support service level recommend to help increase IT performance and availability with comprehensive, integrated hardware and software services

- *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*

Deployment Services - HP Installation and Start Up services designed to take time, risk, and worry out of the deployment of ProLiant servers - and free customers IT support staff to focus on what they do best, their business.

- *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*

NOTE: For a complete listing of service offerings and information visit:
http://www.hp.com/services/proliantservices
http://www.hp.com/go/proliant/carepack

Solutions

Solutions

The HP ProLiant DL580 G4 server is an enterprise class, 4-processor server designed for maximum scalability and high availability. It's radically redesigned chassis offers unsurpassed flexibility and serviceability in a versatile, rack-optimized form factor.

Based upon the latest industry standard processing, memory, I/O and networking technologies, the HP ProLiant DL580 G4 provides the highest levels of performance demanded by today's compute intensive applications. Unparalleled high availability features, including Hot Plug RAID Memory technology, an integrated Smart Array P400 controller, and hot-plug redundant components guarantee maximum uptime. The HP ProLiant DL580 G4's Integrated Lights-Out 2 technology, allows remote administration from a standard web-browser without ever having to visit the server. Within the 4U dense form factor, the HP ProLiant DL580 G4's highly expandable architecture provides maximum application deployment flexibility with the ability to add PCI-Express, hot plug PCI-X or battery-backed write cache options. Innovative new features, such as the ability to access processors, memory, hard drives, and power supplies while the unit remains secured in the rack, enable rapid response to service events, radically decreasing overall IT costs and server downtime.

Typical Usage:

Space-constrained corporate data centers and service providers

- With up to 1.168TB of internal storage, 16 DIMM sockets and PCI-Express or hot-plug PCI-X mezzanine options; the HP ProLiant DL580 G4 packs the storage, memory, and I/O you need in a versatile, 4U chassis
- Ambidextrous cable management and a quick deploy rail solution make racking a snap
- Availability features including hot plug RAID memory, hot plug redundant power, hot plug redundant fans, hot plug PCI-X and hot plug RAID hard drives keep environments up and running and users productive

Database, Messaging and Business Applications

- The latest 64-bit Intel® Xeon™ processors with Hyper-Threading, DDR-2 memory, and large internal storage capacity provide scalability for everything from web apps to mail servers to databases
- Four standard PCI-Express x4 slots and one standard full-length PCI-X slot and the ability to add either two additional X4 PCI Express, one additional X8 PCI Express, or two additional hot plug PCI-X slots, provide powerful and flexible I/O alternatives
- Two integrated multi-function gigabit NICs give you the connectivity and bandwidth needed in today's database or business applications environments
- Easily attach to SAN or NAS and manage from one location

Server Consolidation

- Scalability, availability and built-in serviceability make the HP ProLiant DL580 G4 the perfect platform for server consolidation solutions
- The ProLiant HP DL580 G4 and ProLiant Essentials make it easy to deploy, manage, and migrate virtualized servers with VMware or Microsoft Virtual Server
- Integrated Lights-Out 2 enables administrators to manage the HP ProLiant DL580 G4 from remote locations

For more solutions visit: http://www.hp.com/solutions/proliantdl580.

Models

HP DL580 G4 High Performance Models HP DL580R04 X7140M 4GB P400 DC 2P 430808-001 HP DL580R04 X7130M 4GB P400 DC 2P 430809-001 HP DL580R04 X7041 4GB P400 DC 2P 403413-001 HP DL580R04 X7030 4GB P400 DC 2P 403412-001	Processor(s) Two of the following depending on Model. Up to 4 supported.	(2) Dual-Core 64-bit Intel® Xeon™ 7140M Processor (3.40 GHz, 150Watts, 800MHz FSB) (2) Dual-Core 64-bit Intel® Xeon™ 7130M Processor (3.20 GHz, 150 Watts, 800MHz FSB) (2) Dual-Core 64-bit Intel® Xeon™ 7041 Processor (3.00 GHz, 165 Watts, 800MHz FSB) (2) Dual-Core 64-bit Intel® Xeon™ 7030 Processor (2.80 GHz, 165 Watts, 800MHz FSB)
	Cache Memory One of the following depending on Model.	16MB Integrated Level 3 Cache 8MB Integrated Level 3 Cache 2 x 2MB level 2 cache 2 x 1MB level 2 cache
	Memory	2) Memory Cartridges (up to 4 supported) 4 GB PC2-3200R registered ECC SDRAM (Standard) to 64 GB (Maximum) (2x1 interleaved memory and Advanced Memory Protection Technology) NOTE: Four memory boards would be required to configure up to 64 GB using 4 GB DIMMs
	Network Controller	Two embedded NC371i Multifunction Gigabit Server Adapters
	Storage Controller	HP Smart Array P400/512MB BBWC Controller
	Manageability	Integrated Lights-Out 2 (iLO 2) Standard Management
	Hard Drives	None ship standard
	Internal Storage	1.168TB max (with optional 146GB SFF SAS Hot Plug hard drives)
	Power Supplies	Two 910W/1300W Power Supplies standard (second power supply for redundancy)
	Optical Drive	Slimline DVD/CD-RW Drive (8X/24X) (ejectable)
	Diskette Drive	None ship standard (optional Ejectable Slimline Floppy Drive)
	Form Factor	Rack 4U

HP DL580 G4 Base Models HP DL580R04 X7120M 2GB P400 DC 1P 430810-001 HP DL580R04 X7110M 2GB P400 DC 1P 430811-001	Processor(s) One of the following depending on Model. Up to 4 supported.	Dual-Core 64-bit Intel® Xeon™ 7120M Processor (3.00 GHz, 95 Watts, 800MHz FSB) Dual-Core 64-bit Intel® Xeon™ 7110M Processor (2.60 GHz, 95 Watts, 800MHz FSB)
	Cache Memory	4MB Integrated Level 3 Cache
	Memory	(1) Memory Cartridge (up to 4 supported) 2 GB PC2-3200R registered ECC SDRAM (Standard) to 64GB (Maximum) (2x1 interleaved memory and Advanced Memory Protection Technology) NOTE: Four memory boards would be required to configure up to 64 GB using 4 GB DIMMs
	Network Controller	Two embedded NC371i Multifunction Gigabit Server Adapters
	Storage Controller	HP Smart Array P400/256MB Controller
	Manageability	Integrated Lights-Out 2 (iLO 2) Standard Management
	Hard Drives	None ship standard
	Internal Storage	1.168TB max (with optional 146GB SFF SAS Hot Plug hard drives)
	Power Supplies	One 910W/1300W Power Supply standard (second power supply for redundancy optional)
	Optical Drive	Slimline DVD/CD-RW Drive (8X/24X) (ejectable)
	Diskette Drive	None ship standard (optional Ejectable Slimline Floppy Drive)

Models

Form Factor	Rack 4U

QuickSpecs

Smart Buys

The ProLiant Smart Buy program offers a collection of promotional server and option products that are configured with SMB in mind, offered at discounted prices, and positioned for quick delivery. Smart Buy server offers are available for a limited time only.

For a full listing of ProLiant Smart Buys available for all server families, visit
ftp://ftp.compaq.com/pub/products/servers/smartbuys.pdf.

S-Buy DL580R04 X7130M 4GB P400 DC 2P AH524A	Processor(s)	(2) Dual-Core 64-bit Intel® Xeon™ 7130M Processor (3.20 GHz, 150 Watts, 800MHz FSB))
	Cache Memory	8MB Integrated Level 3 Cache
	Memory	(2) Memory Cartridges (up to 4 supported) 4 GB PC2-3200R registered ECC SDRAM (Standard) to 64 GB (Maximum) (2x1 interleaved memory and Advanced Memory Protection Technology) NOTE: Four memory boards would be required to configure up to 64 GB using 4 GB DIMMs
	Network Controller	Two embedded NC371i Multifunction Gigabit Server Adapters
	Storage Controller	HP Smart Array P400/256MB Controller
	Hard Drives	None ship standard
	Internal Storage	1.168TB max (with optional 146GB SFF SAS Hot Plug hard drives)
	Power Supplies	Two 910W/1300W Power Supplies standard (second power supply for redundancy)
	Optical Drive	Slimline DVD/CD-RW Drive (8X/24X) (ejectable)
	Diskette Drive	None ship standard (optional Ejectable Slimline Floppy Drive)
	Form Factor	Rack 4U

Configuration Information - Factory Integrated Models

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: This product offering does not support HP Factory Express Server Configuration Level 1.
NOTE: FIO indicates that this option only available as a Factory Installable Option.
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 additional information.

Step 1: Base Configuration

Models	HP ProLiant DL580 G4 Highly Serviceable Rack Chassis	410058-B21

Factory Integrated Model ships with:

Two embedded NC371i Multifunction Gigabit Server Adapters

Four standard PCI-Express x4 slots and one 64-bit/133MHz non-hot plug PCI-X slots

One (1) Hot Plug Power Supply with One high-line IEC power cord

Six (6) Redundant Hot Plug Fans

SFF SAS Drive Cage

Integrated Lights-Out 2 (iLO2) Standard Management

Rack (4U), 7-inch

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

Processors	HP X7140M DC 570 G4 Kit, Factory Integrated Only	430816-L22

NOTE: If more than one processor is desired, additional processor selections would be 430816-B21 unless High Performance Model features are desired, then select 435280-B21 which includes a 2nd processor and select any desired additional processors.

HP X7130M DC 570 G4 Kit, Factory Integrated Only   430817-L22
NOTE: If more than one processor is desired, additional processor selections would be 430817-B21 unless High Performance Model features are desired, then select 435281-B21 which includes a 2nd processor and select any desired additional processors.

HP X7120M DC 570 G4 Kit, Factory Integrated Only   430818-L22
NOTE: If more than one processor is desired, additional processor selections would be 430818-B21.

HP X7110M DC 570 G4 Kit, Factory Integrated Only   430819-L22
NOTE: If more than one processor is desired, additional processor selections would be 430819-B21.

Dual-Core 64-bit Intel Xeon 7041 (3.00GHz, 2x2M L2) 580 G4 FIO   404752-L22
NOTE: If more than one processor is desired, additional processor selections would be 404752-B21 unless High Performance Model features are desired, then select 410059-B21 which includes a 2nd processor and select any desired additional processors.

Dual-Core 64-bit Intel Xeon 7030 (2.80GHz, 2x1M L2) 580 G4 FIO   404753-L22
NOTE: If more than one processor is desired, additional processor selections would be 404753-B21 unless High Performance Model features are desired, then select 410060-B21 which includes a 2nd processor and select any desired additional processors.

Configuration Information - Factory Integrated Models

Base Memory	8 GB (2 x 4 GB 2RANK) PC2-3200 Registered Memory (DDR2-400) Option Kit	348106-B21
	4 GB (2 x 2 GB 2RANK) PC2-3200 Registered Memory (DDR2-400) Option Kit **NOTE**: With Advanced ECC and online spare memory capabilities. 2GB 2RANK DIMM's are recommended with the HP ProLiant DL580 G4. However, 2GB 1RANK DIMM's are also supported for commonality with other HP ProLiant servers.	375004-B21
	4 GB (2 x 2 GB 1RANK) PC2-3200 Registered Memory (DDR2-400) Option Kit **NOTE**: With Advanced ECC and online spare memory capabilities.	343057-B21
	2 GB (2 x 1 GB 1RANK) PC2-3200 Registered Memory (DDR2-400) Option Kit **NOTE**: With Advanced ECC and online spare memory capabilities.	343056-B21
	1 GB (2 x 512 MB 1RANK) PC2-3200 Registered Memory (DDR2-400) Option Kit **NOTE**: With Advanced ECC and online spare memory capabilities.	343055-B21
Storage Controllers	HP Smart Array P400/256MB Controller	405132-B21
	HP Smart Array P400/512MB BBWC Controller	411064-B21
	HP Smart Array P600/256 BBWC Controller	337972-B21
	HP Smart Array 6404/512 FIO CNTRLR	452240-B21
Optical Drive	Slimline CD-RW/DVD-ROM 24X Combo Drive Option Kit (Servers)	331903-B21
	Slimline DVD-ROM Drive (8X/24X) Option Kit (Servers)	264007-B21
	HP DVD+R/RW 8X Slim	383975-B21

Step 3: Choose Additional Factory Integratable Options

High Performance Model Options

The HP ProLiant DL580 G4 Performance Packs include the latest performance technologies and enterprise class availability features pre-installed for convenience and value. In addition to the standard features listed in Step 1, the Performance Packs include the following:

- 2nd Intel Xeon Processor and Processor Power Module
- 2nd Rear Accessible Hot Plug Redundant Power Supplies

DL580G4 X7140M (3.40 GHz, 16MB L3 Cache) HPM Performance Pack	435280-B21
DL580G4 X7130M (3.20 GHz, 8MB L3 Cache) HPM Performance Pack	435281-B21
DL580G4 X7041 (3.00 GHz, 2x2MB L2 Cache) HPM Performance Pack	410059-B21
DL580G4 X7030 (2.80 GHz, 2x1MB L2 Cache) HPM Performance Pack	410060-B21

Step 4: Choose Additional Options for Factory Integration

NOTE: For additional options, please refer to the "Options" section below.

QuickSpecs

HP ProLiant DL580 Generation 4 (G4)

Options

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

ProLiant DL580 Unique Options	Hot Plug 64-bit/133MHz PCI-X Mezzanine Option NOTE: Adds two Hot Plug PCI-X slots.	377520-B21
	PCI Express X4 Mezzanine Option NOTE: Adds two PCI Express (X4) I/O slots. Each slot will accept PCI Express cards with X1 through X8 connectors and utilize X4 lanes.	377522-B21
	PCI Express X8 Mezzanine Option NOTE: Adds one PCI Express (X8) I/O slot. The slot will accept PCI Express Cards with X1 through X8 connectors and utilize X8 lanes.	389876-B21
	DL580 G4 Memory Expansion Board NOTE: The HP ProLiant DL580 G4 utilizes up to four Memory Expansion Boards that support up to four DIMMs each. These memory boards are Front accessible providing unsurpassed levels of memory protection as well as scalability for the most memory-intensive applications. See Memory Configuration Diagram. NOTE: One Memory Expansion Board ships standard with 1P models. Two Memory Expansion Boards ship standard with High Performance 2P models.	410061-B21

ProLiant Essentials Offerings	**ProLiant Essentials Value Pack**	
	Accelerated iSCSI Pack	
	ProLiant Essentials Accelerated iSCSI Pack, No Media, Single License NOTE: For use with a single NIC port. Contains one license with a unique license activation key and documentation. NOTE: For additional License Kits, please see the QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/12466_na/12466_na.HTML	452679-B21
	Insight Control Environment	
	HP Insight Control Environment, No Media 1-Server License including 1 year of 24x7 Technical Support and Updates NOTE: For additional License Kits, please see the QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/12631_na/12631_na.HTML	
	ProLiant Essential RDMA Pack	
	HP ProLiant Essentials RDMA Pack for Embedded Multifunction Gigabit Server Adapters, No Media, 1-Server License NOTE: For additional License Kits, please see the QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/12573_na/12573_na.HTML	452681-B21
	Rapid Deployment Pack	
	ProLiant Essentials Rapid Deployment Pack No Media 1-Server License including 1 year of 24x7 Technical Support and Updates NOTE: This license allows 1 server to be deployed and managed via RDP. NOTE: For additional License Kits, please see the QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/11053_na/11053_na.HTML	452151-B21
	Server Migration Pack	
	ProLiant Essentials Server Migration Pack, No Media, 1-Migration License, including 1 year of 24x7 Technical Support and Updates NOTE: This license allows 1 P2V, V2P, or V2V migration. Contains one license with a unique license activation key and documentation NOTE: For additional License Kits, please see the QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/12328_na/12328_na.HTML	435663-B21
	Server Migration Pack - P2P	

Options

	ProLiant Essentials Server Migration Pack - P2P Edition, 1- Migration License, - License Only, No Media NOTE: This license allows 1 migration. Contains one license with a unique license activation key and documentation NOTE: For additional License Kits, please see the QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/12467_na/12467_na.HTML	417435-B21

Virtual Machine Management Pack

	ProLiant Essentials Virtual Machine Management Pack, No Media, 1-Server License, including 1 year of 24x7 Technical Support and Updates NOTE: For use with a single server. Contains one license with a unique license activation key and documentation. NOTE: For additional License Kits, please see the QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/12328_na/12328_na.HTML	452153-B21

Remote Management

Integrated Lights-Out Advanced Pack

	Integrated Lights-Out Advanced Pack, No Media ,1 Server License NOTE: For additional License Kits, please see the QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/10861_na/10861_na.HTML	452141-B21

Integrated Lights-Out Select Pack

	Integrated Lights-Out Select Pack, No Media, 1 Server License NOTE: For additional License Kits, please see the QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/10861_na/10861_na.HTML	452158-B21
	NOTE: Flexible and volume quantity license kits are available for ProLiant Essentials Value Packs. Refer to http://www.hp.com/servers/proliantessentials or the various ProLiant Essentials Value Pack product QuickSpecs for more information. NOTE: For more information regarding ProLiant Essentials Software, please see the following URL: http://www.hp.com/servers/proliantessentials.	

Processor	Dual-Core 64-bit Intel® Xeon™ 7140M Processor (3.40 GHz, 150Watts, 800MHz FSB) NOTE: This processor option kit supports the HP ProLiant DL580 G4 and the HP ProLiant ML570 G4.	430816-B21
	Dual-Core 64-bit Intel® Xeon™ 7130M Processor (3.20 GHz, 150 Watts, 800MHz FSB) NOTE: This processor option kit supports the HP ProLiant DL580 G4 and the HP ProLiant ML570 G4.	430817-B21
	Dual-Core 64-bit Intel® Xeon™ 7120M Processor (3.00 GHz, 95 Watts, 800MHz FSB) NOTE: This processor option kit supports the HP ProLiant DL580 G4 and the HP ProLiant ML570 G4.	430818-B21
	Dual-Core 64-bit Intel® Xeon™ 7110M Processor (2.60 GHz, 95 Watts, 800MHz FSB) NOTE: This processor option kit supports the HP ProLiant DL580 G4 and the HP ProLiant ML570 G4.	430819-B21
	Dual-Core 64-bit Intel® Xeon™ 7041 Processor (3.00 GHz, 165 Watts, 800MHz FSB) NOTE: This processor option kit supports the HP ProLiant DL580 G4 and the HP ProLiant ML570 G4.	404752-B21

Options

	Dual-Core 64-bit Intel® Xeon™ 7030 Processor (2.80 GHz, 165 Watts, 800MHz FSB) **NOTE:** This processor option kit supports the HP ProLiant DL580 G4 and the HP ProLiant ML570 G4.	404753-B21
Memory (DIMMs)	8 GB (2 x 4 GB 2RANK) PC2-3200 Registered Memory (DDR2-400) Option Kit	348106-B21
	4 GB (2 x 2 GB 2RANK) PC2-3200 Registered Memory (DDR2-400) Option Kit **NOTE:** With Advanced ECC and online spare memory capabilities. 2GB 2RANK DIMM's are recommended with the HP ProLiant DL580 G4. However, 2GB 1RANK DIMM's are also supported for commonality with other HP ProLiant servers.	375004-B21
	4 GB (2 x 2 GB 1RANK) PC2-3200 Registered Memory (DDR2-400) Option Kit **NOTE:** With Advanced ECC and online spare memory capabilities.	343057-B21
	2 GB (2 x 1 GB 1RANK) PC2-3200 Registered Memory (DDR2-400) Option Kit **NOTE:** With Advanced ECC and online spare memory capabilities.	343056-B21
	1 GB (2 x 512 MB 1RANK) PC2-3200 Registered Memory (DDR2-400) Option Kit **NOTE:** With Advanced ECC and online spare memory capabilities.	343055-B21
	DL580 G4 Memory Expansion Board **NOTE:** The HP ProLiant DL580 G4 utilizes up to four Memory Expansion Boards that support up to four DIMMs each. These memory boards are Front accessible providing unsurpassed levels of memory protection as well as scalability for the most memory-intensive applications. See Memory Configuration Diagram. **NOTE:** One Memory Expansion Board ships standard with 1P base models and two Memory Expansion Boards ship standard with 2P High Performance models.	410061-B21
Diskette Drive	Slimline Floppy Diskette Drive Option Kit **NOTE:** Ejectable drive.	390164-B21
Optical Drives	Slimline CD-RW/DVD-ROM Combo Drive Option Kit **NOTE:** Ejectable drive.	331903-B21
	Slimline DVD-ROM Drive (8X/24X) Option Kit **NOTE:** Ejectable drive.	264007-B21
	HP DVD+R/RW 8X Slim **NOTE:** Ejectable drive.	383975-B21
	Slimline CD-ROM Drive 24X	356963-B21

Options

Hard Drives	Serial Attached SCSI (SAS) SFF Hot Plug	
	HP 146GB 3G SAS 10K SFF SP HDD	431958-B21
	HP 72GB 3G SAS 10K SFF SP HDD	375861-B21
	HP 72GB 3G SAS 15K SFF SP HDD	431935-B21
	HP 36GB 3G SAS 10K SFF SP HDD	375859-B21
	HP 36GB 3G SAS 15K SFF SP HDD	431933-B21

NOTE: Please see the SAS Hard Drive QuickSpecs for Technical Specifications such as capacity, height, width, interface, transfer rate, seek time, physical configuration, and operating temperature:
http://h18000.www1.hp.com/products/quickspecs/12224_na/12224_na.HTML

SFF SATA Hot Plug

HP 120GB 1.5G SATA 5.4K SFF HDD		431786-B21
HP 60GB 1.5G SATA 5.4K SFF HDD		379306-B21

NOTE: SATA drives have a 1 year warranty. Please see the SATA Hard Drive QuickSpecs for Technical Specifications such as capacity, height, width, interface, transfer rate, seek time, physical configuration, and operating temperature:
http://h18000.www1.hp.com/products/quickspecs/11940_na/11940_na.HTML

Storage Controllers	PCI Option	
	x4-x8 PCI-Express Bus Expander Option	403724-B21

NOTE: The HP ProLiant DL580 Generation 4 Server can support up to two x4-x8 PCI Express bus expander boards. The bus expander can only be installed in expansion slots 5 and 7 to convert the adjacent lower-numbered expansion slot to a PCI Express x8 expansion slot.

SAS Controllers

Smart Array E200 Controller

HP Smart Array E200/128 BBWC Controller	411508-B21
128-MB BBWC (Battery-Backed Write Cache) Enabler	351580-B21

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

Smart Array E500 Controller

HP Smart Array E500/256MB Controller	435129-B21

Smart Array P400 Controller

HP Smart Array P400/256MB Controller	405132-B21

NOTE: The Smart Array P400 Controller supports internal Serial Attached SCSI and Serial ATA drives. It is supported in all HP ProLiant DL580 G4 Models. This controller model ships standard on 1P Models.

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

NOTE: The Smart Array P400 Controller supports internal Serial Attached SCSI and Serial ATA drives. It is supported in all HP ProLiant DL580 G4 Models. This controller model ships standard on 2P Models.

512MB DDR BBWC Upgrade	405148-B21

NOTE: For Smart Array P400 Controller only.

Battery-backed write cache upgrade	383280-B21

NOTE: For Smart Array P400 Controller only.

Options

Smart Array P400 Battery Attach Kit	417836-B21

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

Smart Array P600 Controller

HP Smart Array P600/256 BBWC Controller	337972-B21

NOTE: The Smart Array P600 Controller supports internal and external Serial Attached SCSI and Serial ATA drives. It is supported in all HP ProLiant DL580 G4 Models.

512MB DDR BBWC Upgrade	372538-B21

NOTE: For Smart Array P600 Controller only.

Smart Array P800 Controller

HP Smart Array P800/512 BBWC Controller	381513-B21

NOTE: Please see the following QuickSpecs for Technical Specifications and additional information:
http://h18000.www1.hp.com/products/quickspecs/12460_na/12460_na.HTML
(Smart Array E200 Controller)
http://h18000.www1.hp.com/products/quickspecs/12700_na/12700_na.HTML
(Smart Array E500 Controller)
http://h18000.www1.hp.com/products/quickspecs/12400_na/12400_na.HTML
(Smart Array P400 Controller)
http://h18000.www1.hp.com/products/quickspecs/12247_na/12247_na.HTML
(Smart Array P600 Controller)
http://h18000.www1.hp.com/products/quickspecs/12616_na/12616_na.HTML
(Smart Array P800 Controller)

SAS HBA

HP SC44Ge Host Bus Adapter	416096-B21
HP 8 Internal Port SAS HBA with RAID	347786-B21

NOTE: Please see the HBA QuickSpecs for additional information:
http://h18004.www1.hp.com/products/quickspecs/12617_na/12617_na.html
(SC44Ge HBA)
http://h18004.www1.hp.com/products/quickspecs/12332_na/12332_na.html
(8 Internal Port SAS HBA)

SCSI Controllers for External Drive/Storage Support

Smart Array 6402/128 Controller	273915-B21
Smart Array 6404/256 Controller	273914-B21
Ultra320 Expansion Module for SA-6402	273911-B21
Smart Array 642 Controller	291967-B21
128-MB BBWC (Battery-Backed Write Cache) Enabler	351580-B21

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

64-Bit/133-MHz Single Channel Ultra320 SCSI HBA G2	374654-B21

Options

NOTE: Please see the following QuickSpecs for Technical Specifications and additional information:
http://h18000.www.1.hp.com/products/quickspecs/12030_na/12030_na.HTML (Smart Array 6i)
http://h18000.www1.hp.com/products/quickspecs/11587_na/11587_na.HTML (Smart Array 6400 Series)
http://h18000.www1.hp.com/products/quickspecs/12069_na/12069_na.HTML (Smart Array 642)
http://h18000.www1.hp.com/products/quickspecs/11943_na/11943_na.HTML (U320 G2 Adapter)

Communications	HP NC110T PCI Express Gigabit Server Adapter	434905-B21
	NOTE: Does not support Windows 2000.	
	HP NC150T PCI 4-port Gigabit 1000T Combo Switch Adapter	367132-B21
	HP NC310F PCI-X 1000SX Gigabit Server Adapter	368169-B21
	HP NC360T PCI Express Dual Port Gigabit Server Adapter	412648-B21
	HP NC364T PCI Express Quad Port Gigabit Server Adapter	435508-B21
	NOTE: Does not support Windows 2000. NOTE: There is a maximum of five NC364T PCI Express Quad Port Gigabit Server Adapter NICs allowed in this server.	
	HP NC373F PCI Express Multifunction Gigabit Server Adapter	394793-B21
	HP NC373T PCI Express Multifunction Gigabit Server Adapter	394791-B21
	HP NC380T PCI Express Dual Port Multifunction Gigabit Server Adapter	394795-B21
	HP NC510F PCIe 10 Gigabit Server Adapter	414126-B21
	NOTE: A minimum of 1 gigabyte (1 GB) of server memory is required per each NC510F adapter.	
	HP NC510C PCIe 10 Gigabit Server Adapter	414129-B21
	NOTE: A minimum of 1 gigabyte (1 GB) of server memory is required per each NC510C adapter.	
	HP NC7771 PCI-X 1000T Gigabit Server Adapter	290563-B21
Redundant Options	910W (low line), 1300W (high line) Hot Plug Redundant Power Supply - includes Nema 5-15P to IEC320-C19	348114-001
	910W (low line), 1300W (high line) Hot Plug Redundant Power Supply - includes C14 to C19 IEC cable	348114-B21
Tape Drives	NOTE: For the complete listing of Tape Drive offerings, please see: http://www.hp.com/products1/storage/compatibility/tapebackup/ISS/index.html	
	USB Tape Drives	
	HP StorageWorks DAT 72 USB Internal Tape Drive (Carbonite)	DW026A
	NOTE: HP recommends combining this tape drive with the 1U USB Rack-Mount kit (A8007A) for a complete rack-mount solution.	

Options

SAS Tape Drives
NOTE: Connecting hard drive cage and SAS tape to the same 8 Internal Port SAS HBA (347786-B21) using split cable (supplied with tape drive) deactivates 1 of the hard drive bays. Actual hard drive bay deactivated depends on where split cable plugs into SAS drive connector. Example: 3x SAS cable connector plugged into SAS drive connector (5-8) on the back of the hard drive cage would mean drive bay 8 is deactivated.

HP StorageWorks Ultrium 448 SAS Internal Tape Drive	DW085A

NOTE: HP recommends combining this tape drive with the 1U SAS Rack-Mount kit (AE459A) for a complete rack-mount solution.

HP StorageWorks Ultrium 920 SAS Internal Tape Drive — EH847A
NOTE: HP recommends combining this tape drive with the 1U SAS Rack-Mount kit (AE459A) for a complete rack-mount solution.

NOTE: Please refer to the "Tape Drives, Tape Autoloaders & Tape Libraries" table in the Storage section of this document for a list of SAS controllers with tape support.

Ultrium Tape Drives

HP StorageWorks Ultrium 232 Internal Tape Drive (Carbonite) — DW064A
NOTE: HP recommends combining this tape drive with the 1U SCSI Rack-Mount kit (A7445B) for a complete rack-mount solution.

HP StorageWorks 3U SCSI Rack-mount kit with one Ultrium 460 (Carbon) — 350546-B22

HP StorageWorks 1U SCSI Rack-mount kit with one Ultrium 448 SCSI Tape Drive (Carbonite) — DW028B

HP StorageWorks 1U SCSI Rack-mount kit with one Ultrium 920 — EH903A

HP StorageWorks 3U SCSI Rack-mount kit with one Ultrium 960 (Carbonite) — Q1595B

NOTE: Please see the HP StorageWorks Ultrium Tape Drive QuickSpecs for additional options such as controllers, media, and other related items:
http://h18006.www1.hp.com/products/quickspecs/11739_na/11739_na.html
http://h18006.www1.hp.com/products/quickspecs/12128_na/12128_na.html

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

Rack-Mount Tape Drive Enclosures

HP StorageWorks 1U SCSI Rack-Mount kit — A7445B
NOTE: The 1U Rack-Mount Kit can support up to (2) half-height tape drives and is compatible with multiple Single-Ended and LVD SCSI tape drives including the DAT 24, DAT 40, DAT 72, DLT VS80, DLT VS160, Ultrium 215, Ultrium 232, Ultrium 448 and Ultrium 920 tape drives.

HP StorageWorks 1U USB Rack-Mount Kit — A8007A
NOTE: The 1U USB Rack-Mount Kit can support up to (2) half-height tape drives and is compatible with the DAT 24 USB, DAT 40 USB and DAT 72 USB tape drives.

HP StorageWorks 1U SAS Rack-Mount Kit — AE459A
NOTE: The 1U SAS Rack-Mount Kit can support up to (2) half-height tape drives and is compatible with the Ultrium 448 SAS and Ultrium 920 SAS tape drives.

HP StorageWorks 3U Rack-mount kit — 274338-B22
NOTE: The 3U Rack-mount Kit can support up to (2) full-height or (4) half-height tape drives and compatible with multiple LVD SCSI tape drives including DAT 40, DAT 72, DLT VS160, SDLT 320, SDLT 600, Ultrium 232, Ultrium 460, Ultrium 448, Ultrium 920 and Ultrium 960 tape drives.

NOTE: Please see the Rack-Mount Tape Drive Kits QuickSpecs for additional information regarding these kits:
http://h18000.www1.hp.com/products/quickspecs/10854_na/10854_na.HTML

Tape Autoloaders	**HP StorageWorks DAT Autoloader**	
	HP StorageWorks DAT 72x10 tape autoloader	AE313A
	HP StorageWorks 1/8 Tape Autoloader	AF204A
	HP StorageWorks 1/8 Ultrium 920 G2 Tape Autoloader	AH165A
	HP StorageWorks 1/8 Ultrium 448 G2 Tape Autoloader	AH164A
	HP StorageWorks 1/8 Ultrium 232 G2 Tape Autoloader	AH163A
	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; reference current compatibility information at http://www.hp.com/go/ebs

Tape Libraries	**HP StorageWorks MSL2024 Tape Library**	
	HP StorageWorks MSL2024 1 Ultrium 960 Drive Library	AG115A
	HP StorageWorks MSL2024 1 Ultrium 960 4GB FC Drive Library	AG326B
	HP StorageWorks MSL2024 1 Ultrium 920 Drive Library	AH169A
	HP StorageWorks MSL2024 2 Ultrium 920 Drive Library	AH170A
	HP StorageWorks MSL2024 1 Ultrium 448 Drive Library	AG116A
	HP StorageWorks MSL2024 2 Ultrium 448 Drive Library	AG117A
	HP StorageWorks MSL4048 Tape Library	
	HP StorageWorks MSL4048 1 Ultrium 448 Drive Library	AG320A
	HP StorageWorks MSL4048 2 Ultrium 448 Drive Library	AG321A
	HP StorageWorks MSL4048 1 Ultrium 920 Drive Library	AH171A
	HP StorageWorks MSL4048 2 Ultrium 920 Drive Library	AH172A
	HP StorageWorks MSL4048 1 Ultrium 960 Drive Library	AG322A
	HP StorageWorks MSL4048 1 Ultrium 960 4GB FC Drive Library	AG324B
	HP StorageWorks MSL4048 2 Ultrium 960 Drive Library	AG323A
	HP StorageWorks MSL4048 2 Ultrium 960 4GB FC Drive Library	AG325B
	HP StorageWorks MSL6000 Tape Library	
	Ultrium 960 technology	
	HP StorageWorks MSL6030 1 Ultrium 960 Dr LVDS Library	AD606B
	HP StorageWorks MSL6030 1 Ultrium 960 Dr FC Library	AD608B
	HP StorageWorks MSL6030 2 Ultrium 960 Dr LVDS Library	AD607B
	HP StorageWorks MSL6030 2 Ultrium 960 Dr FC Library	AD609B
	Ultrium 460 technology	
	HP StorageWorks MSL6030 1 Ultrium 460 Dr LVDS Library	AD598B
	HP StorageWorks MSL6030 1 Ultrium 460 Dr FC Library	AD600B
	HP StorageWorks MSL6030 2 Ultrium 460 Dr LVDS Library	AD599B
	HP StorageWorks MSL6030 2 Ultrium 460 Dr FC Library	AD601B

Options

NOTE: Please reference the MSL2024, MSL4048 and MSL6000 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.

Cluster Options	ProLiant Cluster Starter Kit	364023-B22
	NOTE: For additional information regarding the ProLiant Cluster Starter Kit please see the following QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/11935_na/11935_na.html	
	HP HA/F200 for Entry SAN Cluster	364026-B22
	NOTE: For additional information regarding the ProLiant Cluster for Entry Level SAN please see the following QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/11932_na/11932_na.html	
	ProLiant Cluster HA/F500 for the Enterprise SAN	364024-B21
	NOTE: For additional information regarding the ProLiant Cluster HA/F500 for Enterprise SAN please see the following QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/11933_na/11933_na.html	
	HP Serviceguard for Linux ProLiant Cluster A.11.16 for SUSE SLES 9 & 10 and Red Hat EL 3 & 4 (2 node license cluster kit)	305199-B26
	HP Serviceguard for Linux, A.11.18 (single license version - Red Hat EL 4&5, SUSE SLES9&10)	305199-B27
	HP Serviceguard for Linux A.11.16 for SUSE SLES 9 & 10 and Red Hat EL 3 & 4 (single license version)	307754-B26
	HP Serviceguard for Linux ProLiant Cluster, A.11.18 (2 license version - Red Hat EL 4&5, SUSE SLES9&10)	307754-B27
	HP Serviceguard for Linux and Red Hat Global File System - 1 year subscription	T2798AA#001
	HP Serviceguard for Linux and Red Hat Global File System - 3 years subscription	T2798AA#003
	NOTE: For additional information regarding the HP Serviceguard for Linux License, please see the following QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/11518_na/11518_na.html NOTE: For configuration/certification options for the HP Parallel Database Cluster for Oracle RAC please go to: http://www.hp.com/solutions/highavailability/oracle	
StorageWorks Options	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	
	HP StorageWorks FC2142SR 4Gb PCI-e HBA	A8002A
	HP StorageWorks FC2242SR Dual Channel 4 Gb PCI-e HBA	A8003A
	HP StorageWorks FC1142SR 4Gb PCI-e HBA	AE311A
	HP StorageWorks FC1242SR Dual Channel 4 Gb PCI-e HBA	AE312A
	HP StorageWorks FC2143 4Gb PCI-X 2.0 -to-Fibre Channel HBA	AD167A
	HP StorageWorks FC2243 Dual Channel 4Gb PCI-X 2.0 HBA	AD168A
	HP StorageWorks FC1143 4Gb PCI-X 2.0 HBA	AB429A
	HP StorageWorks FC1243 Dual Channel 4Gb PCI-X 2.0 HBA	AE369A

Options

HP StorageWorks Modular Smart Array 20	HP StorageWorks Modular Smart Array 20 **NOTE:** Rack-mountable 12 (SATA) drive enclosure with U320 Host connectivity, redundant power supplies.	335921-B21
	HP StorageWorks Modular Smart Array 20 Starter Kit **NOTE:** Rack-mountable 12 (SATA) drive enclosure with U320 Host connectivity, redundant power supplies. Includes Smart Array 6402/128 Controller. **NOTE:** The Modular Smart Array Enclosure 20 Family supports the SATA 1.5Gb/s 3.5" Hot Plug Hard Drives.	366172-B21
HP StorageWorks Modular Smart Array 30	HP StorageWorks Modular Smart Array 30 SB **NOTE:** Rack-mountable 14 drive enclosure with single bus, redundant power supplies.	302969-B21
	HP StorageWorks Modular Smart Array 30 DB **NOTE:** Rack-mountable 14 drive enclosure with dual bus, redundant power supplies. **NOTE:** The Modular Smart Array Enclosure 30 Family supports the Wide Ultra3, Ultra320 Hot Plug Hard Drives.	302970-B21
HP StorageWorks Modular Smart Array 50	HP StorageWorks Modular Smart Array 50 Enclosure **NOTE:** Please see the Modular Smart Array 50 QuickSpecs for additional options and configuration information at http://h18000.www1.hp.com/products/quickspecs/12245_na/12245_na.HTML	364430-B21
HP StorageWorks Modular Smart Array 500	HP StorageWorks Modular Smart Array 500 Generation 2 **NOTE:** Please see the Modular Smart Array 500 Generation 2 QuickSpecs for additional information including configuration steps and additional options needed for a complete solution at: http://h18000.www1.hp.com/products/quickspecs/11956_na/11956_na.HTML	335880-B21
HP StorageWorks Modular Smart Array 1000	HP StorageWorks Modular Smart Array 1000 **NOTE:** Please see the Modular Smart Array 1000 QuickSpecs for additional options and configuration information at: http://h18000.www1.hp.com/products/quickspecs/11033_na/11033_na.HTML	201723-B22
HP StorageWorks Modular Smart Array 1500 cs	Modular Smart Array 1500 Controller Shelf **NOTE:** Please see the StorageWorks Modular SAN Array 1500 cs QuickSpecs for additional options and configuration information at: http://www.hp.com/go/MSA1500cs	AA986A

Options

Uninterruptible Power Systems - Rack	HP, R1.5kVA UPS, 1U	AF419A
	HP R3000 VA UPS, 2U, L5-30	AF422A
	NOTE: Replaces non-RoHs compliant part number 192186-001.	
	HP R3000 VA UPS, 2U, L6-20	AF423A
	NOTE: Replaces non-RoHs compliant part number 192186-002.	
	HP R5500 VA UPS	AF426A
	NOTE: Replaces non-RoHs compliant part number 326529-D71.	

HP Monitored Power Distribution Unit (PDU)	**HP Monitored Power Distribution Unit: Full Rack Version**	
	HP 17.3 kVA S2324 Monitored PDU- dual input, 3U, 24A	AF503A
	NOTE: Replaces non-RoHs compliant part number 370959-D71.	
	HP 8.3 kVA S1324 Monitored PDU- single input, 3U, 24A	AF504A
	NOTE: Replaces non-RoHs compliant part number 370960-D71.	
	HP 16.6 kVA S2140 Monitored PDU- dual input, 1U, 40A	AF505A
	NOTE: Replaces non-RoHs compliant part number 37061-D71.	
	HP 8.6 S1140 Monitored PDU- single input, 1U, 40A	AF506A
	NOTE: Replaces non-RoHs compliant part number 370962-D71.	
	HP Monitored Power Distribution Unit: Half Rack Version	
	HP 17.3 kVA S348 Monitored PDU- single input, 3-phase, 60A	AF916A
	HP 4.9kVA S124 Monitored PDU- single input, 1U, 24A	AF914A

Modular Power Distribution Units 1U/0U (Up to 32 outlets) NOTE: 1U/0U mounting brackets shipped with the unit (optimized for 10000 and 9000 series racks).	3.6kVA Model - mPDU, 16A, High	252663-B24
	2.8 kVA Model - mPDU, 24A, Low	252663-D71
	4.9kVA Model - mPDU, 24A, High	252663-D72
	8.3kVA Model - mPDU, 40A, High	252663-B21
	8.3kVA Model - mPDU, 40A, High (power cord attached)	252663-D73
	8.3kVA Model - mPDU 40A, High (core only)	252663-D75
	4.9kVA Model - mPDU 24A, High (core only)	252663-D74
	NOTE: Please see the following Modular Power Distribution Unit (Zero-U/1U Modular PDUs) QuickSpecs for additional options including cables: http://h18000.www1.hp.com/products/quickspecs/11041_na/11041_na.HTML	

USB Options	USB 2-Button Optical Scroll Mouse (Carbonite/Silver)	DC172B
	1.44MB External USB Floppy Drive	DC141B
	HP USB 04 Standard Keyboard	DT528A#ABA
	HP 1GB USB 2.0 Floppy Drive Key	442085-B21
	HP 256MB USB 2.0 Floppy Drive Key	442084-B21

Options

HP Rack 5000 Series (Graphite Metallic)	HP 5642 Rack-Unassembled NOTE: Please see the HP Rack 5642 QuickSpecs for additional part numbers and Technical Specifications such as height, width, depth, weight, and color: http://h18000.www1.hp.com/products/quickspecs/12074_na/12074_na.HTML NOTE: For additional information regarding Rack Cabinets, please see the following URL: http://www.hp.com/go/rackandpower.	358254-B21

HP Rack 10000 G2 Series (Carbon/Graphite Metallic)	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
	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
	NOTE: It is mandatory to use a shock pallet when shipping racks with equipment installed. NOTE: Please see the Rack 10000 G2 QuickSpecs for Technical Specifications such as height, width, depth, weight, and color: http://h18000.www1.hp.com/products/quickspecs/12402_na/12402_na.HTML NOTE: For additional information regarding Rack Cabinets, please see the following URL: http://www.hp.com/go/rackandpower.	

HP Rack 10000 Series (Graphite Metallic)	HP Rack S10614 (14U) Rack Cabinet – Shock Pallet	292302-B22
	NOTE: xxxxxx-B22 (shock pallet) used to ship racks with equipment installed (by custom systems, VARs and Channels). NOTE: Please see the Rack 10000 QuickSpecs for Technical Specifications such as height, width, depth, weight, and color: http://h18000.www1.hp.com/products/quickspecs/10995_na/10995_na.HTML NOTE: For additional information regarding Rack Cabinets, please see the following URL: http://www.hp.com/go/rackandpower.	

Keyboards and Monitors	TFT7210R Rack Mounted 17" Monitor	348373-B21
	TFT7600 Rackmount Keyboard Monitor	AG052A
	1U Rackmount Keyboard with USB	AG072A
	NOTE: For additional information regarding Rack Options, please see the following URL: http://www.hp.com/go/rackandpower.	

Options

HP KVM Switch Options	2x1x16 IP Console Switch with Virtual Media	AF601A
	4x1x16 IP Console Switch with Virtual Media	AF602A
	2x16 Server Console Switch with Virtual Media	AF600A
	PS/2 Virtual Media Interface Adapter, 1 pack	AF604A

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

	Server Console Switch (KVM), 0 x 1 x 8 port	336044-B21
	Server Console Switch (KVM), 0 x 2 x 16 port	336045-B21
	PS/2 Interface Adapter, 1 pack	262588-B21
	PS/2 Interface Adapter, 8 pack	262587-B21
	USB Interface Adapter, 1 pack	336047-B21
	Serial Interface adapter - 1 Pack with power supply	373035-B21

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

	HP 1x4 Console Switch	AF611A
	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	AF101A
	HP 48 Port Serial Console Server	AF102A
	Serial Adapter, RJ45-DB9 DCE Female, 1 Pack	AF103A
	Serial Adapter, RJ45-DB9 DCE Female, 8 Pack	AF110A

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

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

Options

Service and Support	
Offerings (HP Care Pack Services)	*Hardware Services On-site Service*

4-Hour On-site Service, 5-Day x 13-Hour Coverage, 3 Years, Electronic	U4607E
4-Hour On-site Service, 7-Day x 24-Hour Coverage, 3 Years, Electronic	U4608E

6-Hour Call to Repair, On-site Service 7-Day x 24-Hour Coverage, 3 Years (U.S. Part Number)

6-Hour Call to Repair, On-site Service, 7-Day x 24-Hour Coverage, 3 Years, Electronic	U4609E

Installation & Start-up Services

Hardware Installation, Electronic	U4617E
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	U4618E
Installation and Startup for Essentials Rapid Deployment Pack, Electronic	U5683E

Support Plus

Onsite HW support, 8am-9pm, M-F, 4hr response and Microsoft O/S SW Tech support offsite, onsite at HP's discretion, 8am-9pm, M-F 2hr response time excl. HP holidays, Electronic	U4619E

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	U4620E
Onsite HW support 24x7, 4hr response and RedHat AS O/S SW Tech support offsite, onsite at HP's discretion, 24x7 2hr response time incl. HP holidays, Electronic	U9239E
Onsite HW support 24x7, 4hr response and SuSE O/S SW Tech support offsite, onsite at HP's discretion, 24x7 2hr response time incl. HP holidays, Electronic	U6316E

NOTE: For more information, customer/resellers can contact:
http://www.hp.com/services/carepack

QuickSpecs

Memory

HP ProLiant DL580 G4 2P Models
NOTE: Memory configurations listed do not apply to "Factory Integrated Models".
Standard Memory
4 GB PC2-3200 Registered Memory (DDR2-400) with Advanced ECC functionality

Standard Memory Plus Optional Memory and Optional Memory Boards
Up to 52 GB of memory is available with the optional installation of PC2-3200 Registered (DDR2-400) Option Kits and the use of all four memory boards.

Standard Memory Replaced with Optional Memory and Optional memory board
Up to 64 GB of memory is available with the removal of the standard 4 GB of memory, the optional installation of PC2-3200 Registered (DDR2-400) Option Kits and the use of all four memory boards.

NOTE: Memory must be added in banks of two DIMMS. This chart does not represent all possible memory configurations. Additional requirements may apply to enable Advanced Memory Protection features.

Standard Memory			Standard Memory Board (Slots)			
Standard (2P models come standard with 4GB of memory on two memory boards)	4 GB		1	2	3	4
			1 GB	1 GB	Blank	Blank
			Second Memory Board (Slots)			
			1	2	3	4
			1 GB	1 GB	Blank	Blank
			Optional Third Memory Board (Slots)			
			1	2	3	4
			Blank	Blank	Blank	Blank
			Optional Fourth Memory Board (Slots)			
			1	2	3	4
			Blank	Blank	Blank	Blank
Optional Memory Summary			Standard Memory Board (Slots)			
Optional (Standard Memory Plus Optional Memory Boards and Optional Memory)	52 GB		1	2	3	4
			1 GB	1 GB	4 GB	4 GB
			Second Memory Board (Slots)			
			1	2	3	4
			1 GB	1 GB	4 GB	4 GB
			Optional Third Memory Board (Slots)			
			1	2	3	4
			4 GB	4 GB	4 GB	4 GB
			Optional Fourth Memory Board (Slots)			
			1	2	3	4
			4 GB	4 GB	4 GB	4 GB

Memory

Maximum Memory Summary		Standard Memory Board (Slots)			
Maximum (Standard Memory Replaced with Optional Memory with Optional Memory board)	64 GB	1	2	3	4
		4 GB	4 GB	4 GB	4 GB
		Second Memory Board (Slots)			
		1	2	3	4
		4 GB	4 GB	4 GB	4 GB
		Optional Third Memory Board (Slots)			
		1	2	3	4
		4 GB	4 GB	4 GB	4 GB
		Optional Fourth Memory Board (Slots)			
		1	2	3	4
		4 GB	4 GB	4 GB	4 GB

HP ProLiant DL580 G4 1P Models
NOTE: Memory configurations listed do not apply to "Factory Integrated Models".
Standard Memory
2 GB PC2-3200 Registered Memory (DDR2-400) with Advanced ECC functionality

Standard Memory Plus Optional Memory and Optional Memory Boards
Up to 58 GB of memory is available with the optional installation of PC2-3200 Registered (DDR2-400) Option Kits and the use of all four memory boards.

Standard Memory Replaced with Optional Memory and Optional memory board
Up to 64 GB of memory is available with the removal of the standard 2 GB of memory, the optional installation of PC2-3200 Registered (DDR2-400) Option Kits and the use of all four memory boards.

NOTE: Memory must be added in banks of two DIMMS. This chart does not represent all possible memory configurations. Additional requirements may apply to enable Advanced Memory Protection features.

Standard Memory		Standard Memory Board (Slots)			
Standard (1P models come standard with 2GB of memory on one memory boards)	2 GB	1	2	3	4
		1 GB	1 GB	Blank	Blank
		Optional Second Memory Board (Slots)			
		1	2	3	4
		Blank	Blank	Blank	Blank
		Optional Third Memory Board (Slots)			
		1	2	3	4
		Blank	Blank	Blank	Blank
		Optional Fourth Memory Board (Slots)			
		1	2	3	4
		Blank	Blank	Blank	Blank

Memory

Optional Memory Summary		Standard Memory Board (Slots)			
Optional (Standard Memory Plus Optional Memory Boards and Optional Memory)	58 GB	1	2	3	4
		1 GB	1 GB	4 GB	4 GB
		Optional Second Memory Board (Slots)			
		1	2	3	4
		1 GB	1 GB	4 GB	4 GB
		Optional Third Memory Board (Slots)			
		1	2	3	4
		4 GB	4 GB	4 GB	4 GB
		Optional Fourth Memory Board (Slots)			
		1	2	3	4
		4 GB	4 GB	4 GB	4 GB
Maximum Memory Summary		Standard Memory Board (Slots)			
Maximum (Standard Memory Replaced with Optional Memory with Optional Memory boards)	64 GB	1	2	3	4
		4 GB	4 GB	4 GB	4 GB
		Optional Second Memory Board (Slots)			
		1	2	3	4
		4 GB	4 GB	4 GB	4 GB
		Optional Third Memory Board (Slots)			
		1	2	3	4
		4 GB	4 GB	4 GB	4 GB
		Optional Fourth Memory Board (Slots)			
		1	2	3	4
		4 GB	4 GB	4 GB	4 GB

The following memory options are available from HP:

- 8 GB (2 x 4 GB 2RANK) PC2-3200 Registered Memory (DDR2-400) Option Kit — 348106-B21

- 4 GB (2 x 2 GB 2RANK) PC2-3200 Registered Memory (DDR2-400) Option Kit — 375004-B21
  NOTE: With Advanced ECC and online spare memory capabilities. 2GB 2RANK DIMM's are recommended with the HP ProLiant DL580 G4. However, 2GB 1RANK DIMM's are also supported for commonality with other HP ProLiant servers.

- 4 GB (2 x 2 GB 1RANK) PC2-3200 Registered Memory (DDR2-400) Option Kit — 343057-B21
  NOTE: With Advanced ECC and online spare memory capabilities.

- 2 GB (2 x 1 GB 1RANK) PC2-3200 Registered Memory (DDR2-400) Option Kit — 343056-B21
  NOTE: With Advanced ECC and online spare memory capabilities.

- 1 GB (2 x 512 MB 1RANK) PC2-3200 Registered Memory (DDR2-400) Option Kit — 343055-B21
  NOTE: With Advanced ECC and online spare memory capabilities.

- DL580 G4 Memory Expansion Board — 410061-B21
  NOTE: The HP ProLiant DL580 G4 utilizes up to four Memory Expansion Boards that support up to four DIMMs each. These memory boards are Front accessible providing unsurpassed levels of memory protection as well as scalability for the most memory-intensive applications. See Memory Configuration Diagram.
  NOTE: One Memory Expansion Board ships standard with 1P base models and two Memory Expansion Boards ship standard with 2P High Performance models.

NOTE: memory is interchangeable between the HP ProLiant DL580 G3 and HP ProLiant DL580 G4, but the memory boards are not.

Storage
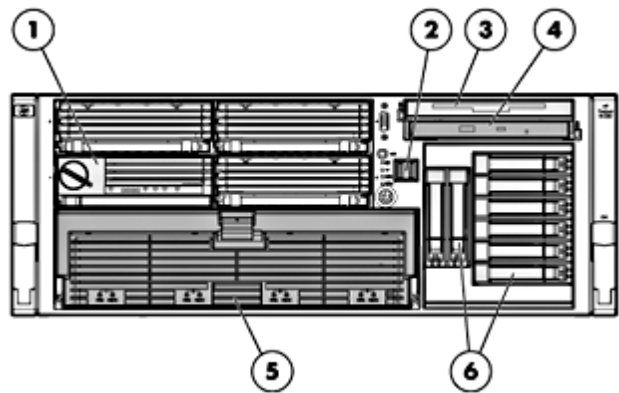
1   Front-accessible DL580 G4 Memory Expansion Boards, up to four configurable

2   Front-accessible USB 2.0 Ports

3   Slimline 1.44-MB Diskette Drive (ejectable, optional)

4   Slimline DVD/CD-RW Drive (8X/24X) (ejectable, standard)

5   Front-accessible DL580 G4 Processor Board (allows front access to processors and Processor Power Modules)

6   8-Bay SAS/SATA Drive Cage. Supports up to 8 Small Form Factor (SFF) SAS or SATA Hot Plug Drives

Drive Support

	Quantity Supported	Position Supported	Controller
Slimline Drives (ejectable)			
1.44-MB Slimline Diskette Drive	Up to 2	3 or 4	Integrated
IDE slimline CD-ROM Drive	Up to 2	3 or 4	Integrated IDE
Slimline DVD-ROM Drive (8X/24X) Option Kit	Up to 2	3 or 4	Integrated IDE

NOTE: The HP ProLiant DL580 G4 can support a maximum of two Slimline drives (ejectable). Additional configuration settings may be required if running 2 Diskette Drives. When running 1 diskette drive, the top bay is the default location, but can be changed with additional configuration settings.

Hard Drives

SAS SFF Hot Pluggable Drives

	Quantity Supported	Position Supported	Controller
146GB 3G SAS 10K SP 72GB 3G SAS 10K SP 72GB 3G SAS 15K SP 36GB 3G SAS 10K SP 36GB 3G SAS 15K SP	Up to 8	6	HP Smart Array E200/128 BBWC Controller HP Smart Array E500/256MB Controller HP Smart Array P400/256MB Controller HP Smart Array P400/512MB BBWC Controller HP Smart Array P600/256 BBWC Controller HP Smart Array P800/512 BBWC Controller

Storage

SATA SFF Hot Pluggable Drives

	Quantity Supported	Position Supported	Controller
120GB 1.5G SATA 5.4K 60GB 1.5G SATA 5.4K	Up to 8	6	HP Smart Array E200/128 BBWC Controller HP Smart Array E500/256MB Controller HP Smart Array P400/256MB Controller HP Smart Array P400/512MB BBWC Controller HP Smart Array P600/256 BBWC Controller HP Smart Array P800/512 BBWC Controller

External Storage

	Quantity Supported	Position Supported	Host Controller or Adapter
Modular Smart Array 30 Family	Up to 28	External	Smart Array 6402/128 Controller Smart Array 6404/256 Controller Smart Array 642 Controller
Modular Smart Array 50 Enclosure	Up to 26	External	HP Smart Array P600/256 BBWC Controller HP Smart Array P800/512 BBWC Controller
Modular Smart Array 500 G2	Please see the Modular Smart Array 500 G2 QuickSpecs below to determine configuration requirements	External	Please see the Modular Smart Array 500 G2 QuickSpecs (URL below) for the latest list of supported HBAs
Modular Smart Array 1000	Please see the Modular Smart Array 1000 QuickSpecs below to determine configuration requirements	External	Please see the Modular Smart Array 1000 QuickSpecs (URL below) for the latest list of supported HBAs
Modular Smart Array 1500 cs	Please see the Modular Smart Array 1500 cs QuickSpecs below to determine configuration requirements	External	Please see the Modular Smart Array 1500 cs QuickSpecs (URL below) for the latest list of supported HBAs

Modular Smart Array 500 G2: http://h18000.www1.hp.com/products/quickspecs/11956_na/11956_na.HTML
Modular Smart Array 1000: http://h18000.www1.hp.com/products/quickspecs/11033_na/11033_na.HTML
Modular Smart Array 1500 cs: http://www.hp.com/go/MSA1500cs

QuickSpecs

Storage

Maximum Storage Capacity - (External SAS Enclosure Attached)

Internal	1.168TB (8 x 146GB SFF SAS Drives)
External	32.120TB (22 MSA50 Enclosures x 10 drive bays each x 146GB SFF SAS Drives)
Total	33.288TB

Tape Drives, Tape Autoloaders, & Tape Libraries

NOTE: For an up-to-date listing of the latest O/S Support details for each of the Tape Drives listed below, please see the following: http://h18000.www1.hp.com/products/quickspecs/North_America/10233.html

NOTE: For an up-to-date listing of the latest O/S Support details for each of the Tape Autoloaders and Tape Libraries listed below, please see the following: http://h18000.www1.hp.com/products/quickspecs/North_America/10809.html

NOTE: For complete listing of tape drive offerings see http://www.hp.com/products1/storage/compatibility/tapebackup/ISS/index.html

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

	Position Supported	Controller	Controller Part Number
HP StorageWorks Tape Drives, External DAT 24 USB DAT 40 USB DAT 72 USB	External	USB 2.0 Port	N/A
HP StorageWorks Tape Drives, External Ultrium 232 Ultrium 448 Ultrium 460 Ultrium 920 Ultrium 960 DAT 40 DAT 72 DLT VS160 SDLT 600	External	HP SC11Xe Host Bus Adapter	412911-B21
HP StorageWorks Tape Drives, SAS External Ultrium 448 SAS Ultrium 920 SAS	External	HP 8 Internal Port SAS HBA with RAID 0/1 HP Smart Array P800/512 BBWC Controller NOTE: Please visit http://www.hp.com/go/connect for details about minimum SAS controller firmware version and SAS cabling requirements.	347786-B21 381513-B21
HP StorageWorks Autoloaders, External DAT 72x10 Autoloader 1/8 G2 Tape Autoloader	External	HP SC11Xe Host Bus Adapter	412911-B21

Storage

HP StorageWorks SCSI Rack-Mount Tape Drive Enclosures 1U Rack-Mount Kit 3U Rack-Mount Kit	External	HP SC11Xe Host Bus Adapter	412911-B21
HP StorageWorks USB Rack-Mount Tape Drive Enclosures 1U Rack-Mount Kit	External	USB 2.0 Port	N/A
			347786-B21
HP StorageWorks SAS Rack-Mount Tape Drive Enclosures 1U Rack-Mount Kit	External	HP 8 Internal Port SAS HBA with RAID 0/1 HP Smart Array P800/512 BBWC Controller NOTE: Please visit http://www.hp.com/go/connect for details about minimum SAS controller firmware version and SAS cabling requirements.	381513-B21
HP StorageWorks Tape Libraries, External MSL2024 (Ultrium 448, Ultrium 920 and 960-based) MSL4048 (Ultrium 448, Ultrium 920 and 960-based) MSL6000 (Ultrium 960 and 460-based) MSL6000 (SDLT 600-based)	External	Please consult the EBS connectivity matrix at http://www.hp.com/go/ebs for detailed connectivity information.	N/A

Power Specifications

Part Number	348114-001
Operational Input Voltage Range (V rms)	90 to 264
Frequency Range (Nominal) (Hz)	47 to 63 (50/60)

Nominal Input Voltage (Vrms)	100	115	208	220	230	240
Max Rated Output Wattage Rating	910	910	1300	1300	1300	1300
Nominal Input Current (A rms)	11.9	10.2	7.7	7.3	6.9	6.6
Max Rated Input Wattage Rating (Watts)	1163	1148	1566	1566	1548	1548
Max. Rated VA (Volt-Amp)	1186	1172	1598	1598	1579	1579
Efficiency (%)	80	81	83	83	84	84
Power Factor	0.98	0.98	0.98	0.98	0.98	0.98
Leakage Current (mA)	.43	.50	.90	.96	1.00	1.04
Maximum Inrush Current (A peak)	100	100	100	100	100	100
Maximum Inrush Current duration	10	10	10	10	10	10

NOTES:
To review typical system power ratings use the Active Answers Power Calculator which is available via the online tool located at URL:
http://h30099.www3.hp.com/configurator/powercalcs.asp.
To drill down to calculators:

- Click on: "ProLiant Servers"
- Click on the Server of interest. Example: DL580 G4
- Click on: "Power Calculator" link. (You may need to scroll down to see it)
- There are certain Dual-Core, lowline, max configurations that are not supported. All highline configurations are supported. Consult the Power Calculator to determine if your lowline configuration is supported.

Standard Rack Model Power Cords / Jumper Cords	Description
	IEC320-C14 to IEC320-C19 Jumper Cord

Optional Country Power Cords and Jumper Cords	Description	Option Kit Part Number
	5-15P to IEC320-C19	235603-001
	6-20P to IEC320-C19	235604-001
	L6-20P to IEC320-C19, 20A, 250V, US	340653-001
	IEC320-C19 to IEC320-C14 Jumper (10A, IEC, 6 ft/2.0m)	313227-B21
	IEC320-C19 to IEC320-C14 Jumper (10A, IEC, 8 ft/2.5m)	291034-B21
	IEC320-C19 to IEC320-C14 Jumper (10A, IEC, 10 ft/3.0m)	310927-B21
	IEC320-C19 to IEC320-C14 Jumper (10A, IEC, 12ft/3.7m)	313228-B21
	IEC320-C19 to IEC320-C20 Jumper (16A, IEC, 8ft/2.5m)	295633-B22

Technical Specifications

System Unit Rack	Chassis Footprint (HxWxD)	6.94 x 19 x 26.5 in (17.6 x 48.3 x 67.3 cm)	
	Weight No hard drives installed, one power supply	80 lb (36.3 kg)	
	Input Requirements	Rated Input Voltage	100 to 120 VAC/200 to 240 VAC
		Rated Input Frequency	50 to 60 Hz
		Input Power	1148W @ 115 VAC/1566W @ 220 VAC
		Rated Input Current	12A (100 to 127 VAC), 8.0A (200 to 240 VAC)
	Max BTU Rating	5457 BTU	
	Power Supply Output Power (per power supply)	Rated Steady-State Power	910W/1300W (lowline/highline)
		Maximum Peak Power	910W/1300W (lowline/highline)
	Temperature Range	Operating	50° to 95° F (10° to 35° C)
		Non-operating	-20° to 140° F (-29° to 60° C)
		Shipping	-22° to 122° F (-30° to 50° C)
	Relative Humidity (non-condensing)	Operating	10% to 70%
		Non-operating	5% to 95%
	Maximum Wet Bulb Temperature	101.7° F (38.7° C)	
	Acoustic Noise	**NOTE:** Listed are the declared A-weighted sound power levels LWAd and the declared average bystander position sound pressure levels LpAm when operating in a 23° C ambient environment. Noise emissions were measured in accordance with ECMA 74 and declared in accordance with ECMA 109.	

Idle (Fixed Disk Drives Spinning)

L WAd (BELS)	7.8
L pAm (dBA)	60

NOTE: These values apply to 4U rack configuration. The configuration tested included 4 processors, 4 15,000 rpm hard drives, (also 8 SFF SAS hard drives), 2 power supplies, and 6 system fans.

Technical Specifications

24X Max (or higher) IDE CD-ROM Drive Slim Line	Disk	Applicable Disk	CD-DA, CD-ROM (Mode 1 and 2)
			CD-XA, CD-I (Mode 2, Form 1 and 2)
			Photo CD (Single and Multi-session)
			Mixed Mode (Audio and Data combined)
		Capacity	540 MB (Mode 1, 12 cm)
			650 MB (Mode 2, 12 cm)
		Diameter	4.7 x 3.15 in (12 x 8 cm)
		Rotational Speed	4200 rpm maximum
		Center Hole	0.6 in (15 mm) diameter
		Thickness	0.05 in (1.2 mm)
		Track Pitch	1.6 μm
	Block Size	Mode 1	2,048
		Mode 2	2,340, 2,336, 1,024 bytes
		CD-DA	2,352 bytes
		CD-XA	2,328 bytes
	Interface	IDE (ATAPI)	
	Access Times (typical)	Random	100 ms
		Full-Stroke	2000 ms
	Audio Output Level	Line-Out	0.7 VRMS at 47 kOhms
		Headphone	0.6 VRMS at 32 kOhms (maximum volume)
	Data Transfer Rate	Sustained	150 KB/s (sustained 1X)
		Burst	2100 to 3600 KB/s
	Cache Buffer	128 KB	
	Start-up Time (typical)	< 7seconds	
	Stop Time	< 4seconds	
	Laser Parameters	Type	Semiconductor Laser GaA1As
		Wave Length	780 ± 25 nm
		Divergence Angle	53.5° ± 1.5°
		Output Power	0.14 mW
	Operating Conditions	Temperature	41° to 113° F (5° to 45° C)
		Humidity	10% to 80%
	Dimensions	(HxWxD, maximum)	1.69 x 5.75 x 8.19 in (4.29 x 15 x 20.8 cm)
		Weight	2.66 lb (1.2 kg)

Slimline CD-RW/DVD-ROM 24X Combo Drive (Multibay)	Shipping Dimensions	13.88 x 11.38 x 9.25 in (35.26 x 28.91 x 23.50 cm)	
	Shipping Weight	5 lb (2.27 kg)	
	Disk	Applicable Disk	DVD-ROM
			DVD-R (Read Only)
			2.6 GB/side DVD-RAM (Read Only)
			5.2 GB/side DVD-RAM (Read Only)
			CD-ROM Mode-1 data disc
			CD-ROM Mode-2 data disc
			CD Audio disc

Technical Specifications

		CD-Extra		
		CD-RW		
		CD-R		
		CD Text		
		PhotoCD		
		CD-I (mode 2)		
		CD-I Ready		
		CD-Bridge		
	Capacity	DVD-ROM	DVD-SL	4.7 GB/side
			DVD-DL	8.5 GB/side
			Double Sided	9.40 GB/side
		DVD-R		3.95 GB/side
		DVD-RAM		2.6 GB/side and 5.2 GB/
		CD-ROM	Mode-1	650 MB (550 MB)
			Mode-2	742 MB (640 MB)
	Block Size	DVD		2,048 bytes
		CD		2,352 (Mode-0)
				2352, 2340, 2336, 2048 bytes (Mode-1)
				2352, 2340, 2336, 2048 bytes (Mode-2)
	Diameter			120 mm (4.7 in), 80 mm (3.1 in)(with adapter at vertical mounting mode)
Loading Mechanism	Tray type			
Interface	EIDE (ATAPI)			
Access Times (typical)	Random			DVD-ROM < 120 ms, CD-ROM < 110 ms
	Full-Stroke			DVD-ROM < 240 ms, CD-ROM < 160 ms
Audio Output Level (typical)	Line-out			CD 0.7 Vrms at 47 Kohms Load
Data Transfer Rate (sustained)	DVD-ROM	Single Layer		10.8 MB/sec. Max.
	DVD-RAM	2.77 MB/sec. Max		
	CD-ROM	7.2 MB/sec. Max.		
Cache Buffer	2 MB			
Spin-up Time (typical)	less than 10 seconds			
MTBF	120,000 Power On Hours (POH)			
Ambient Temperature	Operating			-22° to 140° F (-30° to 60° C)
Relative Humidity	Operating			10% to 80%
	Storage/Transportation			5% to 95%
Dimensions	(HxWxD, maximum)			0.5 x 5.04 x 5.1 in (12.7 x 128 x 129.4 mm)
Option Kit Contents	DVD-ROM drive with installation guide, warranty card, registration card			

Technical Specifications

Integrated Lights-Out 2 Standard (integrated on system board)	Architecture	32-bit PCI-based health and remote management ASIC (Application Specific Integrated Circuit)
	Processor	32-bit RISC processor core running at 66 MHz
	Upgradability	Option firmware upgradable via flash ROM.
	Video Support	Utilizes the host server's embedded video chip. Supports VGA/SVGA, 640 x 480 (256 to 16.7M colors), 800 x 600 (256 to 16.7M colors), 1024 x 768 (256 to 65K colors), 1280 x 1024 (256 colors)
	Interfaces	One Ethernet network connection (10/100 Mb/s)
	Memory	2-MB Flash ROM
		8-MB SDRAM
	Operating System Support	Microsoft Windows NT 4.0 Server
		Windows NT 4.0 Enterprise Edition
		Windows 2000 Server
		Windows 2000 Advanced Server
		Red Hat 7.x
		SuSE 7.0
		Novell NetWare 5.x, 6.x
	Client Browser Support	Microsoft Internet Explorer 5.5 or later.
	iLO 2 Standard Features	Virtual Text Remote Console
		Virtual KVM
		Virtual Power Button Control
		Virtual UID Control
		Power Regulator Control
		Dedicated LAN Connectivity
		Secure access using web browser
		Secure access using Secure Shell (SSH) client
		Serial connectivity
		Automatic IP Configuration via DHCP/DNS/WINS
		Industry Standard 128-bit Secure Sockets Layer (SSL) Security
		IML and iLO2 Event Logging
		Support for up to 12 user accounts with customizable access privileges
	iLO 2 Advanced Features (optional)	Virtual Graphical Remote Console
		Virtual Floppy/USB Key drive
		Virtual CD-ROM drive
		Directory Services Integration
		Processor States Reporting
		Terminal Services Integration

Technical Specifications

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

Two embedded NC371i Multifunction Gigabit Server Adapters	Network Interface	10Base-T/100Base-TX/1000Base-TX	
	Compatibility	IEEE 802.3 10Base-T	
		IEEE 802.3ab 1000Base-T	
		IEEE 802.3u 100Base-TX	
	Data Transfer Method	64-bit/133MHz PCI-X	
	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	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)
		1000Base-TX	Category 5 or higher UTP; up to 328 ft (100 m)

Technical Specifications