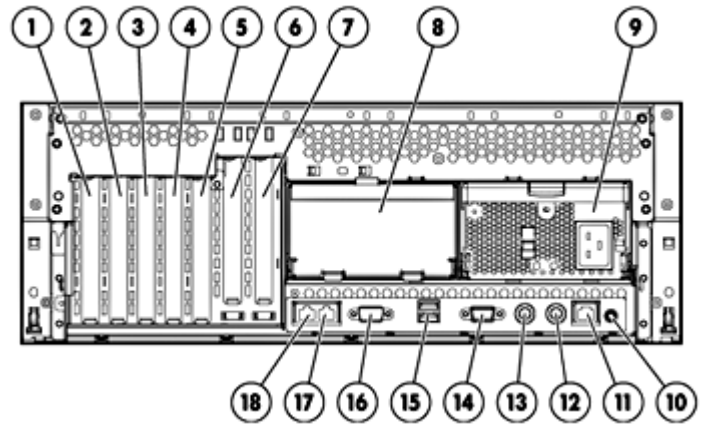
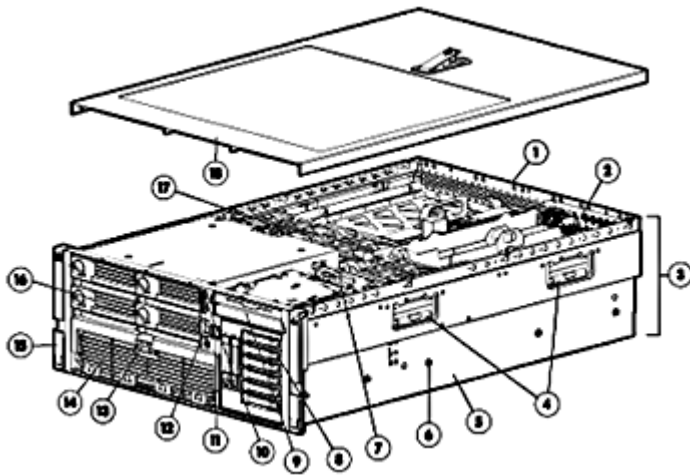


Overview



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

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

Overview

17. Six Hot Plug Redundant Fans Standard on all models
18. Quick Removal Access Panel

What's New

- **New Processors**
 - Dual-Core 64-bit Intel® Xeon® Processor 7140M (3.40GHz, 150 Watts, 800MHz FSB, 16 MB L3 Cache)
 - Dual-Core 64-bit Intel® Xeon® Processor 7130M (3.20GHz, 150 Watts, 800MHz FSB, 8 MB L3 Cache)
 - Dual-Core 64-bit Intel® Xeon® Processor 7120M (3.00GHz, 95 Watts, 800MHz FSB, 4 MB L3 Cache)
 - Dual-Core 64-bit Intel® Xeon® Processor 7110M (2.60GHz, 95 Watts, 800MHz FSB, 4 MB 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

Overview

- 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:**
 - 4 Total: (2) front, (2) rear accessible ports (configurable for boot capability)
- **Redundancy:**
 - Rear accessible Hot Plug Redundant Power Supplies (RPS optional on some models)
 - Hot Plug Fans with full redundancy
- **Management:**
 - Integrated Lights-Out 2 featuring Integrated Remote Console with KVM over IP performance over shared network access
 - Power Regulator for ProLiant, delivering server level, policy based power management with industry leading energy efficiency and savings on system power and cooling costs
 - 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:**
 - Dense form factor - 4U rack models
- **Deployment/Serviceability:**
 - Front and rear video ports
 - Front accessible Processor and Processor Power Modules allow server to stay safely secured in the rack during servicing
 - 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
 - Tool-less access to all system components for easy in rack serviceability
- **Warranty:**
 - 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.

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 Processors

Dual-Core 64-bit Intel® Xeon® 7140M Processor (3.40 GHz, 150 Watts, 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

One of the following depending on Model

Type	PC2-3200 Registered Memory (DDR2-400)
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

Expansion Slots with No Mezzanine Option	Expansion Slot #	Technology	Width	Connector Width*	Bus Number**	Form Factor	Notes
	1	N/A	N/A	N/A	N/A	N/A	
	2	N/A	N/A	N/A	N/A	N/A	
	3	PCI-X	64-bit	N/A	10	FH/HL	133 MHz
	4	PCI Express	x4	x8	13	FH/FL	Reserved for storage controller
	5	PCI Express	x4	x8	16	FH/FL	
	6	PCI Express	x4	x8	19	FH/FL	
	7	PCI Express	x4	x8	22	FH/FL	
Expansion Slots with PCI-X Mezzanine Option	Expansion Slot #	Technology	Width	Connector Width*	Bus Number**	Form Factor	Notes
	1	PCI-X	64-bit	N/A	3	FH/HL	133 MHz
	2	PCI-X	64-bit	N/A	6	FH/HL	133 MHz
	3	PCI-X	64-bit	N/A	11	FH/HL	133 MHz
	4	PCI Express	x4	x8	14	FH/FL	Reserved for storage controller
	5	PCI Express	x4	x8	17	FH/FL	
	6	PCI Express	x4	x8	20	FH/FL	
	7	PCI Express	x4	x8	23	FH/FL	

Standard Features

Expansion Slots with PCI Express X4 Mezzanine Option	Expansion Slot #	Technology	Width	Connector Width*	Bus Number**	Form Factor	Notes
	1	PCI Express	x4	x8	2	FH/HL	
	2	PCI Express	x4	x8	5	FH/HL	
	3	PCI-X	64-bit	N/A	10	FH/HL	133 MHz
	4	PCI Express	x4	x8	13	FH/FL	Reserved for storage controller
	5	PCI Express	x4	x8	16	FH/FL	
	6	PCI Express	x4	x8	19	FH/FL	
	7	PCI Express	x4	x8	22	FH/FL	

Expansion Slots with PCI Express X8 Mezzanine Option	Expansion Slot #	Technology	Width	Connector Width*	Bus Number**	Form Factor	Notes
	1	PCI Express	X8	X16	2	FH/HL	
	2	N/A	N/A	N/A	N/A	N/A	
	3	PCI-X	64-bit	N/A	10	FH/HL	133 MHz
	4	PCI Express	x4	x8	13	FH/FL	Reserved for storage controller
	5	PCI Express	x4	x8	16	FH/FL	
	6	PCI Express	x4	x8	19	FH/FL	
	7	PCI Express	x4	x8	22	FH/FL	

NOTES:
 * Default bus assignment. Inserting cards with PCI bridges may alter the actual bus assignment number.
 ** Slots are enumerated differently based on OS. MS OS's enumerate from lowest to highest Device ID by bus (starting with the lowest bus).
 FL= Full length; HL= Half length; FH = Full height.

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.

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

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

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

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.

HP Insight Control Management Suites

HP Insight Control Environment delivers foundation management, including remote monitoring, hardware resource deployment, health monitoring, software version control, performance monitoring, vulnerability scanning and patch management, and power management.
HP Insight Control Environment installs and licenses the following components by default using a wizard-based integrated installer:

- HP Systems Insight Manager
- HP iLO Advanced Pack
- HP Rapid Deployment Pack
- HP Insight Power Manager
- HP Performance Management Pack
- HP Vulnerability and Patch Management Pack

Additional ProLiant Essentials software and management tools included on the Insight Control Management kit can be installed manually

- HP Server Migration Pack - Universal Edition
- HP Open Service Event Manager
- HP Instant Support Enterprise Edition

NOTE: Server Migration Pack - Universal Edition can be installed from the SMP Universal CD included in the Insight Control Management media kit.

NOTE: For additional product and licensing information about HP Insight Control Environment, visit: <http://www.hp.com/go/ice>.

HP Insight Control Environment for Linux (ICE-Linux) provides comprehensive discovery, imaging & deployment, monitoring, and management for Linux-based ProLiant server platforms. Built on the industry-leading HP Systems Insight Manager framework, this solution integrates open source technology

Standard Features

with experience leveraged from HP's Linux products in HP ICLE and HP XC Clusters, while providing paths to the future with developing management technologies.

HP Insight Control management suites and most HP ProLiant Essentials include a one year of 24 x 7 HP Software Technical Support and Update Service ensuring rapid access to HP support staff and proactive delivery of software updates. For more information about this service, please visit:

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

Server Management Stand Alone Software Product - ProLiant Essentials

HP Systems Insight
Manager

HP Systems Insight Manager (HP SIM) provides a unified, secure and extensible standards-based environment to centrally manage servers, storage and other infrastructure devices, (both HP and non-HP) across multiple operating system platforms.

ProLiant Essentials Rapid
Deployment Pack

Rapid Deployment Pack (RDP) extends HP Systems Insight Manager with a complete deployment solution for HP ProLiant servers. RDP provides a central location to configure server hardware, deploy Windows, Linux and VMware ESX operating environments and install HP ProLiant Support Pack drivers using images and scripted profiles. For more information, visit:

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

ProLiant Essentials Server
Migration Pack - Universal
Edition

Upgrading, replacing, or virtualizing your existing server? Effortlessly transition to new virtual or physical HP ProLiant servers or BladeSystem with automated, accurate and affordable migration of OS, application and data. SMP Universal automates the manual processes required for migrating servers between physical or virtual platforms, whether migrating to VMware or Microsoft virtual machines. SMP Universal allows all of the following migrations:

- physical to ProLiant
- physical to virtual
- virtual to virtual
- virtual to ProLiant

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

ProLiant Essentials
Performance Management
Pack

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

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, and enterprise security (directory services and two-factor authentication).

ProLiant Essentials
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.

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.

Standard Features

Core Infrastructure Management	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 7.51.
	Insight Management Agents	The 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 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.
	ProLiant Support Packs and ROMPaq, software	The latest software, drivers, and firmware fully optimized and tested for your ProLiant server and options, available through ProLiant Support Packs the ProLiant Essentials Rapid Deployment Pack, SmartStart or downloaded from software and drivers download pages website at: http://www.hp.com/go/support .

HP Serviceguard for Linux (SGLX) HP Serviceguard for Linux is a high availability clustering solution designed to protect applications and services from a wide variety of software and hardware failures, monitoring the health of each server (node) and quickly responding to failures such as those that affect system processes, system memory, LAN media and adapters, and application processes.

The following is a quick summary of HP Serviceguard for Linux features and support. For the most recent list of Linux distributions & kernels, servers and storage supported with Serviceguard for Linux, see the Serviceguard for Linux Certification Matrix, available at: <http://www.hp.com/go/sglx/info>.

- Supported Linux Distributions:
 - Red Hat EL 4
 - Red Hat EL 5
 - SUSE SLES10
- Supported Server Platforms
 - HP Integrity
 - HP ProLiant
 - Selected 3rd party x86 class servers
- Physical and virtual server support
- Application Integration Toolkits

Standard Features

- Oracle Single Instance Database
- Serviceguard Extension for SAP for Linux (SGeSAP/LX)
- Other Application Integration Toolkits for sendmail, MySQL and more are free to download at: <http://www.hp.com/go/softwaredepot/ha>
- Disaster Tolerant Solutions
 - Serviceguard for Linux Extended Distance Cluster (XDC) extends cluster distances up to 100 km, utilizes software RAID mirroring for data replication and is storage array independent
 - HP StorageWorks XP/EVA Cluster Extension Software for Linux (CLX) works seamlessly with HP Serviceguard for Linux, HP StorageWorks Continuous Access, and HP Disk Arrays to automate failover and failback between sites
- Software updates are distributed by HP Services to customers with support contracts
NOTE: For additional information on HP Serviceguard for Linux, visit: <http://www.hp.com/go/sglx> or see the HP Serviceguard for Linux QuickSpecs.

NOTE: HP Serviceguard for Linux products for HP ProLiant and select 3rd party x86 class servers include one year of 24 x 7 HP Software Technical Support and Update Service ensuring rapid access to HP support staff and proactive delivery of software updates. For more information about this service, please visit: <http://www.hp.com/services/swsupport>.

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

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

Standard Features

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 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.

Supported Modes	# of Memory Boards Installed			
	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

Standard Features

- 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).

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

Standard Features

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)

Required Cabling

For required cabling information, refer to the HP Web site at: www.hp.com/servers/dl580-g4.

OS Support

Microsoft Windows 2000
Microsoft Windows Server 2003
Microsoft Windows Server 2008
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 an up-to-date listing of the latest software and drivers available for your server, please select your server: <http://h20000.www2.hp.com/bizsupport/TechSupport/Product.jsp?lang=en&cc=us&taskId=135&prodTypeId=15351&prodCatId=241435>.

NOTE: For more information on VMware support, please visit the VMware Server Support Matrix at: <http://h18004.www1.hp.com/products/servers/software/vmware/hpvmwarecert.html>.

Standard Features

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: www.hp.com/servers/dl580-g4.

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 MSAxxxx, VA7xxx, EVA, XP, rackable tape libraries and configurable network switches.

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

Standard Features

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

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

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

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

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

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

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

- Support: 3-Year Support Plus 24 only

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

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

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

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

Solutions

Solutions

The HP ProLiant DL580 G4 server is an enterprise class, 4-processor server designed for maximum scalability and high availability. Its 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

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

<p>HP DL580 G4 High Performance Models</p> <p>HP DL580R04 X7140M 4GB P400 DC 2P 430808-001</p> <p>HP DL580R04 X7130M 4GB P400 DC 2P 430809-001</p>	<p>Processor(s) Two of the following depending on Model. Up to 4 supported</p> <p>Cache Memory One of the following depending on Model</p> <p>Memory</p> <p>Network Controller</p> <p>Storage Controller</p> <p>Manageability</p> <p>Hard Drives</p> <p>Internal Storage</p> <p>Power Supplies</p> <p>Optical Drive</p> <p>Diskette Drive</p> <p>Form Factor</p>	<p>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)</p> <p>16MB Integrated Level 3 Cache 8MB Integrated Level 3 Cache 2 x 2 MB level 2 cache 2 x 1 MB level 2 cache</p> <p>2) Memory Cartridges (up to 4 supported) 4 GB PC2-3200R registered ECC SDRAM (Standard) to 64 GB (Maximum) (2 x 1 interleaved memory and Advanced Memory Protection Technology) NOTE: Four memory boards would be required to configure up to 64 GB using 4 GB DIMMs</p> <p>Two embedded NC371i Multifunction Gigabit Server Adapters</p> <p>HP Smart Array P400/512MB BBWC Controller</p> <p>Integrated Lights-Out 2 (iLO 2) Standard Management</p> <p>None ship standard</p> <p>1.168TB max (with optional 146GB SFF SAS Hot Plug hard drives)</p> <p>Two 910W/1300W Power Supplies standard (second power supply for redundancy)</p> <p>Slimline DVD/CD-RW Drive (8X/24X) (ejectable)</p> <p>None ship standard (optional Ejectable Slimline Floppy Drive)</p> <p>Rack 4U</p>
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<p>HP DL580 G4 Base Models</p> <p>HP DL580R04 X7120M 2GB P400 DC 1P 430810-001</p> <p>HP DL580R04 X7110M 2GB P400 DC 1P 430811-001</p>	<p>Processor(s) One of the following depending on Model. Up to 4 supported.</p> <p>Cache Memory</p> <p>Memory</p> <p>Network Controller</p> <p>Storage Controller</p> <p>Manageability</p> <p>Hard Drives</p> <p>Internal Storage</p> <p>Power Supplies</p> <p>Optical Drive</p>	<p>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)</p> <p>4 MB Integrated Level 3 Cache</p> <p>(1) Memory Cartridge (up to 4 supported) 2 GB PC2-3200R registered ECC SDRAM (Standard) to 64GB (Maximum) (2 x 1 interleaved memory and Advanced Memory Protection Technology) NOTE: Four memory boards would be required to configure up to 64 GB using 4 GB DIMMs</p> <p>Two embedded NC371i Multifunction Gigabit Server Adapters</p> <p>HP Smart Array P400/256MB Controller</p> <p>Integrated Lights-Out 2 (iLO 2) Standard Management</p> <p>None ship standard</p> <p>1.168TB max (with optional 146GB SFF SAS Hot Plug hard drives)</p> <p>One 910W/1300W Power Supply standard (second power supply for redundancy optional)</p> <p>Slimline DVD/CD-RW Drive (8X/24X) (ejectable)</p>
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Models

Diskette Drive
Form Factor

None ship standard (optional Ejectable Slimline Floppy Drive)
Rack 4U

Configuration Information - Factory Integrated Models

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

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

NOTE: 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.

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.	
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	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.	

Configuration Information - Factory Integrated Models

Storage Controllers	HP Smart Array P400/256 MB Controller	405132-B21
	HP Smart Array P400/512 MB 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, 16 MB L3 Cache) HPM Performance Pack	435280-B21
DL580G4 X7130M (3.20 GHz, 8 MB L3 Cache) HPM Performance Pack	435281-B21

Step 4: Choose Additional Options for Factory Integration

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

Options

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

ProLiant DL580 Unique Options	<p>Hot Plug 64-bit/133MHz PCI-X Mezzanine Option NOTE: Adds two Hot Plug PCI-X slots.</p> <p>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.</p> <p>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.</p> <p>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.</p>	<p>377520-B21</p> <p>377522-B21</p> <p>389876-B21</p> <p>410061-B21</p>
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HP Insight Control Management Suites

NOTE: Electronic licensing options are available for Insight Control suites software products. Please see the appropriate Insight Control QuickSpecs for additional information.

HP Insight Control Environment

HP Insight Control Environment, No Media 1-Server License including 1 year of 24x7 Technical Support and Updates 452148-B22

NOTE: This part number can be purchased as a single license or as multiple licenses with a single activation key. Customer will receive a license entitlement certificate via e-mail. The license entitlement certificate must be redeemed online or via fax in order to obtain the license activation key(s). Includes one year of 24 x 7 HP Software Technical Support and Update Service. Only available directly from HP and select resellers in the Americas region.

HP Insight Control Management Software Media Kit 436222-B21

NOTE: Insight Control Management DVD media without licenses. Contains Insight Manager and Essentials software products and components licensed by Insight Control Management suites. Uses an integrated installer to perform quick and accurate software installation and updates.

NOTE: For additional License Kits, please see the QuickSpecs at:
http://h18000.www1.hp.com/products/quickspecs/12631_na/12631_na.html

HP Insight Control Linux Edition

HP Insight Control Environment for Linux v2.0, Media pack (CD) - No licenses included 464422-B21

NOTE: This optional Media pack CD contains the ISO image for HP Insight Control Environment for Linux, HP System Insight Manager, and an integrated installer. Servers must be acquired separately. This Media pack is optional because the latest ISO image and latest updates may be downloaded at no cost from:

<http://www.hp.com/go/ice-linux> (click on Download button).

HP Insight Control Environment for Linux v2.0, No Media, 1-Server license, including One year of 24x7 Technical Support and Updates 464423-B21

Options

NOTE: This part number can be used to purchase one (1) license with a single activation key. Customer will receive a printed license entitlement certificate via physical shipment. The license entitlement certificate must be redeemed online or via fax in order to obtain the license activation key(s). Includes one year of 24 x 7 HP Software Technical Support and Update Service. One certificate is shipped for each license.

NOTE: For additional License Kits, please see the QuickSpecs at:
http://h18000.www1.hp.com/products/quickspecs/13019_na/13019_na.html

Server Management Stand Alone Software Product - ProLiant Essentials

NOTE: Electronic licensing options are available for select ProLiant Essentials software products. Please see the appropriate ProLiant Essentials QuickSpecs for additional information.

Deploy

ProLiant Essentials Rapid Deployment Pack

ProLiant Essentials Rapid Deployment Pack No Media 1-Server License including 1 year of 24x7 Technical Support and Updates 452151-B21

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

NOTE: For additional License Kits, please see the QuickSpecs at:
http://h18000.www1.hp.com/products/quickspecs/11053_na/11053_na.html

HP Server Migration Pack - Universal Edition

HP Server Migration Pack - Universal Edition, No Media, Physical / Virtual to ProLiant Single Migration License, including 1 year of 24x7 Technical Support and Updates 460750-B21

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

HP Server Migration Pack - Universal Edition, No Media, Physical / Virtual to Virtual Single Migration License, including 1 year of 24x7 Technical Support and Updates 460753-B21

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

HP Server Migration Pack - Universal Edition, No Media, 1-Year Unlimited Migration License, including 1 year of 24x7 Technical Support 460756-B21

NOTE: This license allows unlimited migrations (physical to ProLiant, physical to virtual, virtual to virtual, and virtual to ProLiant) for one year. Customer will receive a printed license entitlement certificate and documentation via physical shipment. The license entitlement certificate must be redeemed online or via fax in order to obtain the license activation key(s). Includes one year of 24 x 7 HP Software Technical Support Service.

NOTE: For additional License Kits, please see the QuickSpecs at:
http://h18000.www1.hp.com/products/quickspecs/12855_na/12855_na.html

Options

Control

Integrated Lights-Out Select Pack

ProLiant Essentials Integrated Lights-Out Select Pack, No Media, 1-Server License 452158-B21

NOTE: For additional License Kits, please see the QuickSpecs at:

http://h18000.www1.hp.com/products/quickspecs/12362_na/12362_na.html

Integrated Lights-Out Advanced Pack

Integrated Lights-Out Advanced Pack, No Media ,1 Server License 452141-B21

NOTE: For additional License Kits, please see the QuickSpecs at:

http://h18000.www1.hp.com/products/quickspecs/10861_na/10861_na.html

Optimize

Accelerated iSCSI Pack

ProLiant Essentials Accelerated iSCSI Pack, No Media, Single License 452679-B21

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

ProLiant Essentials Virtual Machine Management Pack

ProLiant Essentials Virtual Machine Management Pack, No Media, 1-Server License, including 1 year of 24x7 Technical Support and Updates 452153-B21

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

NOTE: For additional License Kits, please see the QuickSpecs at:

http://h18000.www1.hp.com/products/quickspecs/12328_na/12328_na.html

RDMA Pack

RDMA Pack for Embedded Multifunction Gigabit Server Adapters, No Media, 1-Server License 452681-B21

NOTE: For additional License Kits, please see the QuickSpecs at:

http://h18000.www1.hp.com/products/quickspecs/12573_na/12573_na.html

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 QuickSpecs for more information.

Options

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
	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
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Options

Optical Drives	Slimline CD-RW/DVD-ROM Combo Drive Option Kit	331903-B21
	NOTE: Ejectable drive.	
	Slimline DVD-ROM Drive (8X/24X) Option Kit	264007-B21
	NOTE: Ejectable drive.	
Optical Drives	HP DVD+R/RW 8X Slim	383975-B21
	NOTE: Ejectable drive.	
	Slimline CD-ROM Drive 24X	356963-B21

Hard Drives	Serial Attached SCSI (SAS) SFF Hot Plug	
	HP 146GB 3 G SAS 10K SFF SP HDD	431958-B21
	HP 72GB 3 G SAS 10K SFF SP HDD	375861-B21
	HP 72GB 3 G SAS 15K SFF SP HDD	431935-B21
	HP 36GB 3 G 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/12244_na/12244_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 and 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 642 Controller.	
64-Bit/133-MHz Single Channel Ultra320 SCSI HBA G2	374654-B21
NOTE: Please see the following QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/12030_na/12030_na.html (Smart Array 6i) http://h18000.www1.hp.com/products/quickspecs/11587_na/11587_na.html	

Options

(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 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
Communications	HP NC380T PCI Express Dual Port Multifunction Gigabit Server Adapter	394795-B21
	NOTE: Supported on a full length-full height slot only.	
	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.		

HPC Specific Options	HP IB 4X DDR PCI-e DUAL PORT 0 mem HCA	483513-B21
	HP IB 4X DDR PCI-e single PORT HCA	431039-B21
	HP IB 4X SDR PCI-e single PORT HCA	431038-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>

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

USB Tape Drives

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

SAS Tape Drives

NOTE: For the DL385 G2, HP recommends purchasing the HP SC44Ge HBA (416096-B21) for a dedicated SAS HBA for tape.

HP StorageWorks DAT 160 SAS Internal Tape Drive Q1587A

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

Options

HP StorageWorks LTO-2 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 LTO-3 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.

HP StorageWorks 1U SAS Rack-mount kit with one LTO-4 Ultrium 1760 EH946A

HP StorageWorks LTO-4 Ultrium 1840 SAS Internal Tape Drive EH860A
NOTE: HP recommends combining this tape drive with the 3U SAS Rack-Mount kit (AG576A) 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.

SCSI Tape Drives

NOTE: For the DL580 G4, HP recommends purchasing the HP SC11Xe HBA (412911-B21) for a dedicated SCSI HBA for tape.

HP StorageWorks 1U SCSI Rack-mount kit with one LTO-2 Ultrium 448 SCSI Tape Drive (Carbonite) DW028B

HP StorageWorks 1U SCSI Rack-mount kit with one LTO-3 Ultrium 920 EH903A

HP StorageWorks 3U SCSI Rack-Mount with 1 LTO-4 Ultrium 1840 Tape Drive EH926A

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 40, DAT 72, DAT 160, DLT VS160, LTO-1 Ultrium 232, LTO-2 Ultrium 448 and LTO-3 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 40 USB, DAT 72 USB and DAT 160 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 DAT 160 SAS, LTO-2 Ultrium 448 SAS, LTO-3 Ultrium 920 SAS tape drives.

HP StorageWorks 3U SCSI Rack-mount Kit 274338-B22
NOTE: The 3U SCSI Rack-mount Kit can support up to (2) full-height or (4) half-height tape drives and is compatible with multiple LVD SCSI tape drives including DAT 40, DAT 72, DAT 160, DLT VS160, SDLT 600, LTO-1 Ultrium 232, LTO-2 Ultrium 460, LTO-2 Ultrium 448, LTO-3 Ultrium 920, LTO-3 Ultrium 960 and LTO-4 Ultrium 1840 tape drives.

Options

HP StorageWorks 3U SAS Rack-mount Kit AG576A
NOTE: The 3U Rack-mount Kit can support up to (2) full-height or (4) half-height tape drives and compatible with multiple SAS tape drives including DAT 160 SAS, LTO-2 Ultrium 448 SAS, LTO-3 Ultrium 920 SAS, and LTO-4 Ultrium 1840 SAS 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

HP D2D Backup System HP StorageWorks D2D110 Backup System EH880A
NOTE: 1TB of Disk Storage

HP StorageWorks D2D110 Backup System with Data Protector Express Software Kit EH923A
NOTE: 1TB of Disk Storage

HP StorageWorks D2D120 Backup System EH884A
NOTE: 2TB of Disk Storage

HP StorageWorks D2D120 Backup System with Data Protector Express Software Kit EH924A
NOTE: 2TB of Disk Storage

HP StorageWorks D2D130 Backup System EH950A
NOTE: 3TB of Disk Storage.

HP StorageWorks D2D130 Backup System with Data Protector Express Software Kit EH951A
NOTE: 3TB of Disk Storage.

HP StorageWorks D2D130 Backup System with LTO-3 Ultrium 920 SAS Tape Drive EH952A
NOTE: 3TB of Disk Storage.
NOTE: Please see the HP D2D Backup Systems QuickSpecs for additional information:
http://h18000.www1.hp.com/products/quickspecs/12651_na/12651_na.html

Tape Autoloaders **HP StorageWorks DAT Autoloader**

HP StorageWorks DAT 72x10 tape autoloader AE313A

HP StorageWorks 1/8 Tape Autoloader

HP StorageWorks 1/8 G2 LTO-4 Ultrium 1760 SAS Tape Autoloader AK377A

HP StorageWorks 1/8 G2 LTO-3 Ultrium 920 G2 Tape Autoloader AH165A

HP StorageWorks 1/8 G2 LTO-3 Ultrium 920 SAS Autoloader AH558A

HP StorageWorks 1/8 G2 Ultrium 448 G2 Tape Autoloader AH164A

HP StorageWorks 1/8 G2 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.

Options

Tape Libraries

HP StorageWorks MSL2024 Tape Library

HP StorageWorks MSL2024 1 LTO-4 Ultrium 1840 SCSI Drive Library	AJ033A
HP StorageWorks MSL2024 1 LTO-4 Ultrium 1840 4GB FC Library	AJ034A
HP StorageWorks MSL2024 1 LTO-4 Ultrium 1760 SAS Drive Library	AK378A
HP StorageWorks MSL2024 1 LTO-3 Ultrium 960 SCSI Drive Library	AG115A
HP StorageWorks MSL2024 1 LTO-3 Ultrium 960 4GB FC Library	AG326B
HP StorageWorks MSL2024 1 LTO-3 Ultrium 920 SAS Drive Library	AH559A
HP StorageWorks MSL2024 1 LTO-3 Ultrium 920 SCSI Drive Library	AH169A

HP StorageWorks MSL4048 Tape Library

HP StorageWorks MSL4048 1 LTO-4 Ultrium 1840 SCSI Drive Library	AJ035A
HP StorageWorks MSL4048 1 LTO-4 Ultrium 1840 4GB FC Library	AJ036A
HP StorageWorks MSL4048 2 LTO-4 Ultrium 1760 SAS Drive Library	AK380A
HP StorageWorks MSL4048 1 LTO-3 Ultrium 960 SCSI Drive Library	AG322A
HP StorageWorks MSL4048 1 LTO-3 Ultrium 960 4GB FC Library	AG324B
HP StorageWorks MSL4048 1 LTO-3 Ultrium 920 SAS Drive Library	AH560A
HP StorageWorks MSL4048 1 LTO-3 Ultrium 920 SCSI Drive Library	AH171A
HP StorageWorks MSL4048 1 LTO-2 Ultrium 448 SCSI Drive Library	AG320A

NOTE: Please reference the [MSL2024](#), [MSL4048](#), [MSL8096](#) 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>.

High Availability Cluster Options

HP Serviceguard for Linux

HP Serviceguard Linux x86 Server License & Media including One Year 24x7 Software Support & Updates	463831-B21
HP Serviceguard Linux Oracle Single Instance Database Toolkit x86 Cluster License & Media including One Year 24x7 Software Support & Updates	463833-B21
HP Serviceguard Linux Extension for SAP (SGeSAP/LX) x86 Server License & Media including One Year 24x7 Software Support & Updates	463834-B21
HP Serviceguard Linux Extended Distance Cluster (XDC) x86 Server License & Media including One Year 24x7 Software Support & Updates	463835-B21

NOTE: For a detailed list of supported configuration/certification options for HP Serviceguard for Linux please refer to the HP Serviceguard for Linux Certification Matrix at: <http://www.hp.com/go/sglx/info> T2798AA#003

NOTE: HP Serviceguard for Linux products running on x86 platforms now include one year of 24 x 7 Software Technical Support and Updates. Please see the Support Information section of the HP Serviceguard for Linux QuickSpecs for details.

NOTE: For additional information including a complete list of Product Numbers for HP Serviceguard for Linux, please see the following QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/11518_na/11518_na.html

Options

StorageWorks Options	<p>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</p> <p>HP StorageWorks FC2142SR 4Gb PCI-e HBA A8002A</p> <p>HP StorageWorks FC2242SR Dual Channel 4 Gb PCI-e HBA A8003A</p> <p>HP StorageWorks FC1142SR 4Gb PCI-e HBA AE311A</p> <p>HP StorageWorks FC1242SR Dual Channel 4 Gb PCI-e HBA AE312A</p> <p>HP StorageWorks FC2143 4Gb PCI-X 2.0 -to-Fibre Channel HBA AD167A</p> <p>HP StorageWorks FC2243 Dual Channel 4Gb PCI-X 2.0 HBA AD168A</p> <p>HP StorageWorks FC1143 4Gb PCI-X 2.0 HBA AB429A</p> <p>HP StorageWorks FC1243 Dual Channel 4Gb PCI-X 2.0 HBA AE369A</p> <p>HP StorageWorks 81Q PCI-e FC HBA AK344A</p> <p>HP StorageWorks 8Gb Simple SAN Connection Kit AK241A</p> <p>HP StorageWorks 8/20q Fibre Channel Switch AK242A</p>	
HP StorageWorks Modular Smart Array 20	<p>HP StorageWorks Modular Smart Array 20 335921-B21</p> <p>NOTE: Rack-mountable 12 (SATA) drive enclosure with U320 Host connectivity, redundant power supplies.</p> <p>NOTE: Please see the Modular Smart Array 20 QuickSpecs for additional information including configuration steps and additional options needed for a complete solution at: http://h18000.www1.hp.com/products/quickspecs/11942_na/11942_na.html</p>	
HP StorageWorks Modular Smart Array 30	<p>HP StorageWorks Modular Smart Array 30 SB 302969-B21</p> <p>NOTE: Rack-mountable 14 drive enclosure with single bus, redundant power supplies.</p> <p>HP StorageWorks Modular Smart Array 30 DB 302970-B21</p> <p>NOTE: Rack-mountable 14 drive enclosure with dual bus, redundant power supplies.</p> <p>NOTE:Please see the Modular Smart Array 30 QuickSpecs for additional information including configuration steps and additional options needed for a complete solution at: http://h18000.www1.hp.com/products/quickspecs/11738_na/11738_na.html</p>	
HP StorageWorks Modular Smart Array 50	<p>HP StorageWorks Modular Smart Array 50 Enclosure 364430-B21</p> <p>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</p>	
HP StorageWorks Modular Smart Array 500	<p>HP StorageWorks Modular Smart Array 500 Generation 2 335880-B21</p> <p>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</p>	

Options

Uninterruptible Power Systems - Rack	HP, R1.5kVA UPS, 1U	AF419A
	HP R3000 VA UPS, 2U, L5-30	AF422A
	HP R3000 VA UPS, 2U, L6-20	AF423A
	HP R5500 VA UPS	AF426A

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
	HP 8.3 kVA S1324 Monitored PDU- single input, 3U, 24A	AF504A
	HP 16.6 kVA S2140 Monitored PDU- dual input, 1U, 40A	AF505A
	HP 8.6 S1140 Monitored PDU- single input, 1U, 40A	AF506A
	HP Monitored Power Distribution Unit: Half Rack Version	
HP 17.3 kVA S348 Monitored PDU- single input, 3Ø, 48A	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

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

Options

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
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NOTE: xxxxx-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)	<p>Hardware Services On-site Service</p> <p>4-Hour On-site Service, 5-Day x 13-Hour Coverage, 3 Years, Electronic U4607E</p> <p>4-Hour On-site Service, 7-Day x 24-Hour Coverage, 3 Years, Electronic U4608E</p> <p>6-Hour Call to Repair, On-site Service 7-Day x 24-Hour Coverage, 3 Years (U.S. Part Number)</p> <p>6-Hour Call to Repair, On-site Service, 7-Day x 24-Hour Coverage, 3 Years, Electronic U4609E</p> <p>Installation & Start-up Services</p> <p>Hardware Installation, Electronic U4617E</p> <p>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</p> <p>Installation and Startup for Essentials Rapid Deployment Pack, Electronic U5683E</p> <p>Support Plus</p> <p>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</p> <p>Support Plus 24</p> <p>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</p> <p>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</p> <p>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</p> <p>NOTE: For more information, customer/resellers can contact: http://www.hp.com/services/carepack</p>
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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.

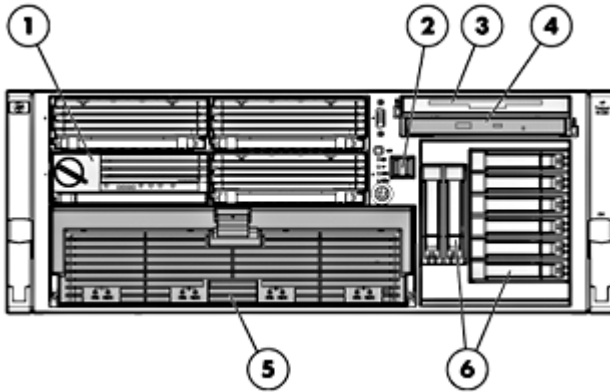
DL580 G4 Memory Expansion Board 410061-B21

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

Storage

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: http://hp.com/go/msa500

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>

NOTE: SAS Tape Drives: Connecting hard drive cage and SAS tape to the same SAS Controller 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.

	Position Supported	Controller	Controller Part Number
HP StorageWorks SCSI Tape Drives, External	External	HP SC11Xe Host Bus Adapter	412911-B21
LTO-1 Ultrium 232			
LTO-2 Ultrium 448			
LTO-2 Ultrium 460			
LTO-3 Ultrium 960			
LTO-3 Ultrium 920			
LTO-4 Ultrium 1840			
DAT 40			

Storage

DAT 72
 DAT 160
 DLT VS160
 SDLT 600
 1U Rack-Mount Kit
 3U Rack-Mount Kit

HP StorageWorks Tape Drives, External DAT 24 USB DAT 40 USB DAT 72 USB	External	USB 2.0 Port	N/A
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HP StorageWorks SAS Tape Drives, External DAT 160 SAS LTO-2 Ultrium 448 SAS LTO-3 Ultrium 920 SAS LTO-4 Ultrium 1840 SAS 1U Rack-Mount Kit 3U Rack-Mount Kit	External	HP SC44Ge Host Bus Adapter NOTE: Recommended. HP Smart Array E500 Controller NOTE: The following SAS Smart Array controllers require ROM Flash version 2.04 or higher for SAS tape support: HP Smart Array P400/256MB Controller HP Smart Array P400/512MB Controller NOTE: Please visit: http://www.hp.com/go/connect for details about minimum SAS controller firmware version and SAS cabling requirements.	416096-B21 435129-B21 405132-B21 411064-B21
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HP StorageWorks SCSI Tape Automation, External DAT 72x10 Autoloader 1/8 G2 Autoloader MSL2024 MSL4048 MSL8096 MSL6000	External	HP SC44Ge Host Bus Adapter NOTE: Please visit: http://www.hp.com/go/connect for details about minimum SAS controller firmware version and SAS cabling requirements.	416096-B21
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HP StorageWorks Fibre Tape Automation, External MSL2024 MSL4048 MSL8096 MSL6000	External	Please consult the EBS connectivity matrix at: http://www.hp.com/go/ebs for detailed connectivity information.	N/A
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HP StorageWorks D2D Backup Systems D2D110 D2D120 D2D130	External	Embedded Network Controller	N/A
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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	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 μ m
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 GaAlAs
		Wave Length	780 \pm 25 nm
		Divergence Angle	53.5 $^{\circ}$ \pm 1.5 $^{\circ}$
		Output Power	0.14 mW
Operating Conditions		Temperature	41 $^{\circ}$ to 113 $^{\circ}$ F (5 $^{\circ}$ to 45 $^{\circ}$ 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

Technical Specifications

		CD-ROM Mode-2 data disc	
		CD Audio disc	
		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%	

Technical Specifications

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	

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			
iLO 2 Advanced Features (optional)	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		
	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 Compatibility	10Base-T/100Base-TX/1000Base-TX		
		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

Environment-friendly Products and Approach

End-of-life Management and Recycling

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

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

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