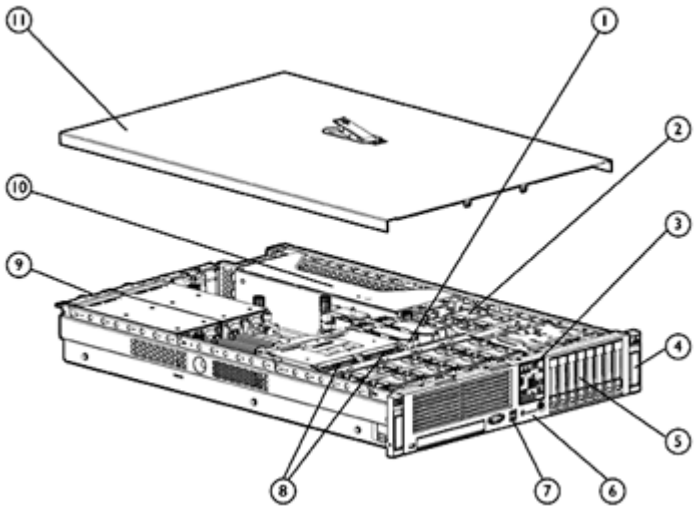
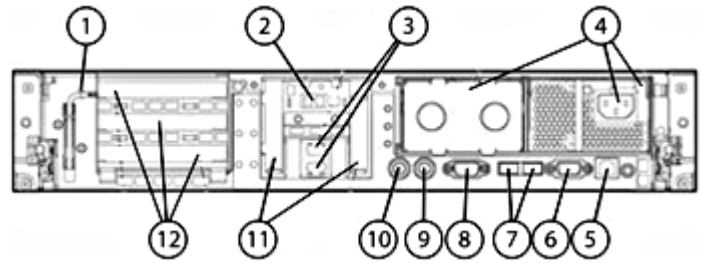
Overview





Front View:

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

Rear View:

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

What's New

- New Intel Xeon E5450 Quad-Core Performance model

At A Glance

Overview

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

- Processors:
  - Quad-Core and Dual-Core Intel® Xeon® processors for blazing performance; systems support up to 2 processors (2 processors standard on all Performance models)
  - Preconfigured Performance models save valuable deployment time at a discounted bundle price
  - Intel® 5000P chipset
- Memory:
  - Up to 64 GB PC2-5300 Fully Buffered DIMMs (DDR2-667) with 4:1 and 2:1 interleaving available, online spare and mirrored memory capabilities
- Storage Controller:
  - Performance Models: HP Smart Array P400/512MB BBWC Controller (RAID 0/1/1+0/5/6)
  - High Efficiency and Base Models: HP Smart Array P400/256MB Controller (RAID 0/1/1+0/5)
  - Entry Models: HP Smart Array E200/64MB Controller (RAID 0/1/1+0)
- Internal Drive Support:
  - (8) small form factor (SFF) hot-plug drive bays to support Serial-attached SCSI (SAS) and Serial ATA (SATA) drives
  - Slimline media bay supporting Optical or Floppy drive
- Network Controller:
  - Two embedded NC373i Multifunction Gigabit Network Adapters with TCP/IP Offload Engine, including support for Accelerated iSCSI through an optional Licensing Kit
- Expansion Slots:
  - Four available PCI-Express slots, optional mixed PCI-X / PCI-Express configurations available (see "Standard Features - Expansion Slots" section below for more details)
- USB Ports:
  - USB 2.0 support
  - 5 total ports: (2) ports up front; (2) ports in back; (1) port internal
- Integrated Hypervisors:
  - VMware 3i virtualization technology
  - Citrix XenServer virtualization technology
- Redundancy:
  - Fully redundant hot plug fans (N+1)
  - Hot plug power supply with optional redundancy (Included in Performance models)
- Management:
  - HP Insight Control Environment server management software
  - Integrated Lights-Out 2 featuring Integrated Remote Console with KVM over IP performance over shared network access
  - HP Power Meter and Power Regulator for ProLiant, delivering integrated power monitoring and 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 System Insight Manager, Status LEDs including system health and UID and SmartStart
  - System Insight Display on the front bezel for quick and easy server diagnostics
- Form Factor:
  - Rack (2U), (3.5-inch); Depth 26 inches (66 cm)
- Deployment/Serviceability:
  - Quick Deploy Rail System includes sliding universal rails, an ambidextrous cable management arm and quick release levers for fast and easy serviceability
  - Tool-less access to all system components for easy in rack serviceability
  - Customer Self Repair (CSR): HP products are designed with many CSR parts to minimize repair time and allow for greater flexibility in performing defective parts replacement
- Warranty:
  - This product is covered by a global limited warranty and supported by HP Services and a worldwide network of HP

Overview

Authorized Channel Partners resellers. Hardware diagnostic support and repair is available for three years from date of purchase. Support for software and initial setup is available for 90 days from date of purchase. Enhancements to warranty services are available through HP Care Pack services or customized service agreements. SATA hard drives have a one-year warranty.

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

Additional information regarding worldwide limited warranty and technical support is available at:

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

Standard Features

NOTE: For 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/5983-0605ENW.pdf.
NOTE: For the Standard Features shipped in the "Factory Integrated Models", please see the "Configuration Information - Factory Integrated Models" section.

Processor One of the following depending on Model	Quad-Core Processors Quad-Core Intel® Xeon® Processor X5460 (3.16 GHz, 120 Watts, 1333 FSB) Quad-Core Intel® Xeon® Processor X5450 (3.0 GHz, 120 Watts, 1333 FSB) Quad-Core Intel® Xeon® Processor E5450 (3.00 GHz, 80 Watts, 1333 FSB) Quad-Core Intel® Xeon® Processor E5440 (2.83 GHz, 80 Watts, 1333 FSB) Quad-Core Intel® Xeon® Processor E5430 (2.66 GHz, 80 Watts, 1333 FSB) Quad-Core Intel® Xeon® Processor E5420 (2.50 GHz, 80 Watts, 1333 FSB) Quad-Core Intel® Xeon® Processor L5420 (2.50 GHz, 50 Watts, 1333 FSB) Quad-Core Intel® Xeon® Processor E5410 (2.33 GHz, 80 Watts, 1333 FSB) Quad-Core Intel® Xeon® Processor L5410 (2.33 GHz, 50 Watts, 1333 FSB) Quad-Core Intel® Xeon® Processor E5405 (2.00 GHz, 80 Watts, 1333 FSB) Quad-Core Intel® Xeon® Processor X5365 (3.00 GHz, 120 Watts, 1333 FSB) Quad-Core Intel® Xeon® Processor X5355 (2.66 GHz, 120 Watts, 1333 FSB) Quad-Core Intel® Xeon® Processor E5345 (2.33 GHz, 80 Watts, 1333 FSB) Quad-Core Intel® Xeon® Processor L5335 (2.00 GHz, 50 Watts, 1333 FSB, Low Voltage) Quad-Core Intel® Xeon® Processor E5335 (2.00 GHz, 80 Watts, 1333 FSB) Quad-Core Intel® Xeon® Processor E5320 (1.86 GHz, 80 Watts, 1066 FSB) Quad-Core Intel® Xeon® Processor L5320 (1.86 GHz, 50 Watts, 1066 FSB) Quad-Core Intel® Xeon® Processor E5310 (1.60 GHz, 80 Watts, 1066 FSB) Dual-Core Processors Dual-Core Intel® Xeon® Processor X5260 (3.33 GHz, 80 Watts, 1333 FSB) Dual-Core Intel® Xeon® Processor L5240 (3.00 GHz, 40Watts, 1333 FSB) Dual-Core Intel® Xeon® Processor E5205 (1.86 GHz, 65 Watts, 1066 FSB) Dual-Core Intel® Xeon® Processor 5160 (3.0 GHz, 80 Watts, 1333 FSB) Dual-Core Intel® Xeon® Processor 5150 (2.66 GHz, 65 Watts, 1333 FSB) Dual-Core Intel® Xeon® Processor 5148 (2.33 GHz, 40 Watts, 1333 FSB, Low Voltage) Dual-Core Intel® Xeon® Processor 5140 (2.33 GHz, 65 Watts, 1333 FSB) Dual-Core Intel® Xeon® Processor 5130 (2.0 GHz, 65 Watts, 1333 FSB) Dual-Core Intel® Xeon® Processor 5120 (1.86 GHz, 65 Watts, 1066 FSB) Dual-Core Intel® Xeon® Processor 5110 (1.6 GHz, 65 Watts, 1066 FSB) NOTE: Up to 2 processors supported. Performance configurations include two processors. Mixing different processor models is not supported.

Standard Features

Cache Memory
One of the following depending on Model

12 MB (2 x 6 MB) Level 2 cache (5400 series)
8 MB (2 x 4 MB) Level 2 cache (5300 series)
6 MB (1 x 6 MB) Level 2 cache (5200 series)
4 MB (1 x 4 MB) Level 2 cache (5100 series)

Chipset

Intel® 5000P Chipset
NOTE: For more information regarding Intel chipsets, please see the following URL: http://www.intel.com/products/server/chipsets/.

Upgradeability

Upgradeable to 2 processors (8 cores)
Future upgradeable to Xeon® Series 5400/5300 Quad-Core processors (Please contact your regional sales support to determine quad core upgradeability. Some of the earlier shipping models may not support this upgrade). 5100 Dual-Core models are not upgradeable to the 5200 Dual-Core processors.

Memory Protection

Advanced ECC (multi-bit error protection), Online Spare, Mirroring
4-way Interleaving

Memory

Type	PC2-5300 Fully Buffered DIMMs (DDR2-667) with 4:1 and 2:1 interleaving available (interleaving requires identical DIMMs)
Standard (Entry Models)	1 GB (2 x 512 MB)
Standard (Base Models)	2 GB (2 x 1 GB)
Standard (Performance Models)	4 GB (4 x 1 GB)
Maximum	64 GB (8 x 8 GB)

NOTE: Memory DIMMs in systems with the Front Side Bus (FSB) running at 1333 MHz will run at 667 MHz and in systems with a FSB running at 1066 MHz or 667 MHz the memory DIMMs will run at 533 MHz.

Network Controller

Two embedded NC373i Multifunction Gigabit Network Adapters with TCP/IP Offload Engine, including support for Accelerated iSCSI through an optional Licensing Kit

Expansion Slots

Embedded Slots

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

	2	PCIe	X4	X8	11	Half length, low profile slot, embedded	N/A

* Default bus assignment (in decimal). Inserting cards with PCI bridges may alter the actual bus assignment number
** Indicates the number of physical electrical lanes running to the connector.

PCIe Riser (Standard)

Expansion Slots #	Technology	Bus Width**	Connector Width	Bus Number*	Form Factor	Notes
3	PCIe	X4	X8	14	Full length, full height slot	Entry models: Reserved Smart Array E200 Controller slot
4	PCIe	X8	x16	23	Full length, full height slot	
5	PCIe	X8	x16	19	Full length, full height slot	

* Default bus assignment (in decimal). Inserting cards with PCI bridges may alter the actual bus assignment number
** Indicates the number of physical electrical lanes running to the connector.

PCIe/PCI-X Riser (Optional)

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

* Default bus assignment (in decimal). Inserting cards with PCI bridges may alter the actual bus assignment number.
** Slots are enumerated differently based on OS. MS OS's enumerate from lowest to highest Device ID by bus (starting with the lowest bus).
*** Indicates the number of physical electrical lanes running to a PCI-e connector.

Storage Controller
One of the following depending on Model

Performance Models:	HP Smart Array P400/512MB BBWC Controller (RAID 0/1/1+0/5/6)
High Efficiency and Base Models:	HP Smart Array P400/256MB Controller (RAID 0/1/1+0/5) **Available upgrades**: 512MB battery-backed write cache (BBWC) or standalone battery for RAID 0/1/1+0/5/6
Entry Models:	HP Smart Array E200/64MB Controller (RAID 0/1/1+0) **Available upgrades**: 128MB battery-backed write cache (BBWC) for RAID 0/1/1+0/5

Standard Features

Storage	Diskette Drive	None Standard	
	Optical Drive	None Standard	
	One of the following depending on Model	IDE DVD-ROM/CDRW Combo included on Performance models	
	Hard Drives	None Standard	
Maximum Internal Storage	Hot Plug SAS	1.168TB	8 x 146GB with standard internal hot plug SFF SAS drive cage
	Hot Plug SATA	960GB	8 x 120GB

Remote Management

Integrated Lights Out 2 (iLO2) Standard Management:

- Virtual Text Remote Console (pre-OS only)
- Remote Serial Console
- Virtual Power Button Control
- Virtual Unit ID control
- Integrated Remote Console
- Dedicated & full function shared network connectivity
- Embedded system health
- 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)
- OS independent hardware health status
- IML and iLO Event Logging
- Support for 12 user accounts with customizable access privilege

Intelligent Manageability

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

Standard Features

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

Graphics

Integrated ATI ES1000, 32MB video standard

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

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

Form Factor

Rack (2U); Height 3.38-inch (8.59 cm); Depth: 26 inches (66 cm)

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
  NOTE: HP Server Migration Pack - Universal Edition is licensed separately from the Insight Control Environment Suite.
- 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 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).
	Integrated Lights-Out Select Pack	Upgrades the iLO 2 processor with enhanced console sharing and replay, virtual media (floppy, CD/DVD, USB key), virtual folders, historical power reporting, power capping and enterprise security (directory services and two-factor authentication) for servers managed using remote consoles available in iLO 2 Standard and iLO 2 Standard Blade Edition.

Standard Features

	iLO Power Management Pack	Energy-efficient management software that delivers centralized control, reliable security, and energy savings for your BladeSystem infrastructure. iPMP combines the total control of iLO 2 Advanced in the area of remote management with the energy monitoring and control of the Insight Power Manager to deliver a robust solution capable of full remote control and power management of ProLiant servers through a unified interface within HP Systems Insight Manager.
	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.
	HP Insight Power Manager (IPM)	Upgrades the single-server remote management capabilities of iLO Select/Advanced to include centralized reporting and policy-based management of power consumption and thermal output provided by the Insight Power Manager. IPM unifies all of this functionality within a single user interface - HP Systems Insight Manager.
	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.	
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 Datasheet, 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 BladeSystem to Superdome
  - HP ProLiant BladeSystem p-Class & c-Class
  - HP ProLiant DL
  - HP ProLiant ML
  - IBM System x
  - Dell PowerEdge
  - Sun x64
  - Fujitsu Siemens PRIMERGY
- Hypervisors
  - HP Integrity Virtual Machines
  - VMware ESX
- Application Integration Toolkits
  - HP Serivceguard for Linux Oracle Database Toolkit
  - HP Serviceguard Extension for SAP on Linux (SGeSAP/LX)
  - Free Application Integration Toolkits:
    - Apache
    - MySQL
    - NFS
    - PostgreSQL
    - Samba
    - Tomcat
    - Sendmail
- Disaster Tolerant Solutions
  - HP 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

Standard Features

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 2.0 Compliant PCI 2.2 Compliant WOL Support Microsoft® Logo certifications USB 2.0 Support
Security	Power-on password Keyboard password Diskette drive control Diskette boot control QuickLock, Network Server Mode Parallel and serial interface control Administrator's password
Server Power Cords	An IEC13 to IEC14 jumper cord ships standard with all part numbers if connecting to a UPS or PDU. If a localized cable is desired or required for each geographic specific model, it needs to be purchased, including the US.
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: http://h18004.www1.hp.com/products/servers/proliantstorage/power-protection/index.html
Power Supply	800Watt, CE Mark Compliant Optional Hot Plug AC Redundant Power Supply Optional 48 Volt DC Power Supply Kit (Factory integration not available)
System Fans	Fully redundant hot plug fans ship standard (N+1).

Standard Features

OS Support

Microsoft Windows Server 2000
Microsoft Windows Server 2003
Microsoft Windows Small Business Server 2003, R2
Microsoft Windows Server 2008
Novell NetWare
Red Hat Enterprise Linux
SUSE Linux Enterprise Server
SCO UnixWare, OpenServer
Citrix XenServer virtualization software
VMware Virtualization Software
Solaris 10 32/64-bit

NOTE: For more complete and up-to-date information on how to buy server operating systems from HP please visit the OS product site at: http://h18004.www1.hp.com/products/servers/software/OEM.html.
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 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 Linux OS support & certification information, please visit our the ProLiant & BladeSystem Server Linux matrix: http://h18004.www1.hp.com/products/servers/linux/hpLinuxcert.html
NOTE: For more information on HP's Certified and Supported ProLiant Servers, please visit the VMware Server Support Matrix at: http://h18004.www1.hp.com/products/servers/software/vmware/hpvmwarecert.html.

Rack Airflow Requirements

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

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

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

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

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

Standard Features

Rack Kit	The HP ProLiant DL380 quick deploy rail system provides tool-free support for racks with square or round mounting holes (including Compaq/HP 7000*, 9000, 10000 and HP series), with an adjustment range of 24" - 36". The ambidextrous cable management arm can be mounted on either the left or right side for improved cable management. * High Airflow Inserts (High Air Flow Rack Door Insert for the 7142 Rack (single) - PN: 327281-B21; or High Air Flow Rack Door Insert for the 7142 Rack (6-pack) - PN: 327281-B22) are required to support the HP ProLiant DL380 G5 in 7000 series racks. The DL380 G5 Cable Management Arm is not supported on 7000 series racks. NOTE: Cable management arm must be removed to access hot-plug power supplies when the cable management arm is mounted on the right.
Telco Rack Support	DL380 G5 Telco Rack Kit: 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.
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.

Standard Features

Service and Support

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

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

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

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

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

- Support: 3-Year Support Plus 24 only

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

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

HPC Interconnects

NOTE: High Performance Computing (HPC) interconnect technologies are available for the DL380 under the Cluster Platform product portfolio. These high-speed interconnects are fully supported by HP when they are part of these configure to order clusters. Solutions can be defined with a lot of flexibility with the help of configuration tools. Please visit the following URL to configure HPC Clusters with InfiniBand, Gigabit Ethernet or Myrinet Interconnects: http://www.hp.com/techservers/clusters/ucp/index.html

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

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

HP DL380 G5 Performance Models Quad-Core Models HP DL380G5 X5460 4G 458561-xx1 HP DL380G5 X5450 4G 458562-xx1 HP DL380G5 E5450 4G 492205-xx1 HP DL380G5 E5345 4G 433524-xx1 Dual-Core Models HP DL380G5 5160 4G HPM 418315-xx1 HP DL380G5 5150 4G HPM 418314-xx1	Processor(s) Two of the following depending on Model	(2) Quad-Core Intel® Xeon® Processors X5460 (3.16 GHz, 120 Watt, 1333 FSB) (2) Quad-Core Intel® Xeon® Processors X5450 (3.00 GHz, 120 Watt, 1333 FSB) (2) Quad-Core Intel® Xeon® Processors E5450 (3.00 GHz, 80 Watts, 1333 FSB) (2) Quad-Core Intel® Xeon® Processors E5345 (2.33 GHz, 80 Watt, 1333 FSB) (2) Dual-Core Intel® Xeon® Processors 5160 (3.00 GHz, 80 Watt, 1333 FSB) (2) Dual-Core Intel® Xeon® Processors 5150 (2.66 GHz, 65 Watt, 1333 FSB)
	Cache Memory Two of the following depending on Model	12MB (2 x 6MB) Level 2 cache - Intel® Xeon® processor 5400 sequence 8MB (2 x 4MB) Level 2 cache - Intel® Xeon® processor 5300 sequence 6MB (1 x 6MB) Level 2 cache - Intel® Xeon® processor 5200 sequence 4MB (1 x 4MB) Level 2 cache - Intel® Xeon® processor 5100 sequence
	Memory	4 GB (4 x 1 GB of PC2-5300 Fully Buffered DIMMs (DDR2-667) with Advanced ECC, mirrored and online spare memory capabilities
	Network Controller	Two Embedded NC373i Multifunction Gigabit Server Adapters
	Storage Controller	HP Smart Array P400/512MB BBWC Controller (RAID 0/1/1+0/5/6)
	Hard Drive	None ship standard
	Internal Storage	960GB SATA; 1.168TB SAS (with optional hard drives)
	Optical Drive	IDE DVD-ROM/CDRW combo
	Form Factor	Rack (2U), Height 3.38-inch/8.59 cm; Depth: 26 inches (66 cm)
	Availability	Hot Plug Fully Redundant Fans and Power Supplies

HP DL380 G5 Base Models Quad-Core Models HP DL380G5 E5440 2G 458563-xx1 HP DL380G5 E5430 2G 458565-xx1 HP DL380G5 E5420 2G 458567-xx1 HP DL380G5 E5335 2G 433525-xx1 HP DL380G5 E5320 2G 433526-xx1 Dual-Core Models HP DL380RG5 X5260 2G 461453-xx1	Processor(s) One of the following depending on Model	(1) Quad-Core Intel® Xeon® Processor E5440 (2.83 GHz, 80 Watts, 1333 FSB) (1) Quad-Core Intel® Xeon® Processor E5430 (2.66 GHz, 80 Watts, 1333 FSB) (1) Quad-Core Intel® Xeon® Processor E5420 (2.50 GHz, 80 Watts, 1333 FSB) (1) Quad-Core Intel® Xeon® Processor E5335 (2.00 GHz, 80 Watts, 1333 FSB) (1) Quad-Core Intel® Xeon® Processor E5320 (1.86 GHz, 80 Watt, 1066 FSB) (1) Dual-Core Intel® Xeon® Processor X5260 (3.33 GHz, 80 Watts, 1333 FSB) (1) Dual-Core Intel® Xeon® Processor 5160 (3.00 GHz, 80 Watt, 1333 FSB) (1) Dual-Core Intel® Xeon® Processor 5150 (2.66 GHz, 65 Watt, 1333 FSB) (1) Dual-Core Intel® Xeon® Processor 5140 (2.33 GHz, 65 Watt, 1333 FSB) (1) Dual-Core Intel® Xeon® Processor 5130 (2.0 GHz, 65 Watt, 1333 FSB)

Models

HP DL380G5 5160 2G 417458-xx1 HP DL380G5 5150 2G 417457-xx1 HP DL380G5 5140 2G 417456-xx1 HP DL380G5 5130 2G 417455-xx1	Cache Memory One of the following depending on Model	12MB (2 x 6MB) Level 2 cache - Intel® Xeon® processor 5400 sequence 8MB (2 x 4MB) Level 2 cache - Intel® Xeon® processor 5300 sequence 6MB (1 x 6MB) Level 2 cache - Intel® Xeon® processor 5200 sequence 4MB (1 x 4MB) Level 2 cache - Intel® Xeon® processor 5100 sequence 4MB (2 x 2MB) Level 2 cache - Intel® Xeon® processor 5000 sequence
	Memory	2 GB (2 x 1 GB) PC2-5300 Fully Buffered DIMMs (DDR2-667) with Advanced ECC, mirrored and online spare memory capabilities
	Network Controller	Two Embedded NC373i Multifunction Gigabit Server Adapters
	Storage Controller	HP Smart Array P400/256MB Controller (RAID 0/1/1+0/5)
	Hard Drive	None ship standard
	Internal Storage	960GB SATA; 1.168TB SAS (with optional hard drives)
	Optical Drive	Optional DVD, DVD/CD-RW combo, DVD+R/RW or floppy drive
	Form Factor	Rack (2U), Height 3.38-inch/8.59cm; Depth: 26 inches (66 cm)
	Availability	Hot Plug Fully Redundant Fans Standard

HP DL380 G5 High Efficiency Models Quad-Core Models DL380 L5420 HE 2GB 465323-xx1	Processor(s)	(1) Quad-Core Intel® Xeon® Processor L5420 (2.5 GHz, 50 Watts)
	Cache Memory	12MB (2 x 6MB) Level 2 cache - Intel® Xeon® processor 5400 sequence
	Memory	2 GB (2 x 1 GB) PC2-5300 Fully Buffered Low Power DIMMs (DDR2-667) with Advanced ECC, mirrored and online spare memory capabilities
	Network Controller	Two Embedded NC373i Multifunction Gigabit Server Adapters
	Storage Controller	HP Smart Array P400/256MB Controller (RAID 0/1/1+0/5)
	Hard Drive	None ship standard
	Internal Storage	960GB SATA; 1.168TB SAS (with optional hard drives)
	Optical Drive	Optional DVD, DVD/CD-RW combo, DVD+R/RW or floppy drive
	Form Factor	Rack (2U), Height 3.38-inch/8.59cm; Depth: 26 inches (66 cm)
	Availability	Hot Plug Fully Redundant Fans Standard

HP DL380 G5 Entry Models Quad-Core Models DL380G5 E5405 1G 458568-xx1 HP DL380G5 E5310 1G 433527-xx1	Processor(s) One of the following depending on Model	(1) Quad-Core Intel® Xeon® Processor E5405 (2.0 GHz, 80 Watt, 1333 FSB (1) Quad-Core Intel® Xeon® Processor E5310 (1.60 GHz, 80 Watt, 1066 FSB) (1) Dual-Core Intel® Xeon® Processor 5120 (1.87 GHz, 65 Watt, 1066 FSB) (1) Dual-Core Intel® Xeon® Processor 5110 (1.60 GHz, 65 Watt, 1066 FSB)
Dual-Core Models HP DL380G5 5120 1G 417454-xx1 HP DL380G5 5110 1G 417453-xx1	Cache Memory Two of the following depending on Model	12MB (2 x 6MB) Level 2 cache - Intel® Xeon® processor 5400 sequence 8MB (2 x 4MB) Level 2 cache - Intel® Xeon® processor 5300 sequence 6MB (1 x 6MB) Level 2 cache - Intel® Xeon® processor 5200 sequence 4MB (1 x 4MB) Level 2 cache - Intel® Xeon® processor 5100 sequence
	Memory	1 GB (2 x 512 MB) PC2-5300 Fully Buffered DIMMs (DDR2-667) with Advanced ECC, mirrored and online spare memory capabilities
	Network Controller	Two Embedded NC373i Multifunction Gigabit Server Adapters
	Storage Controller	HP Smart Array E200/64MB Controller (RAID 0/1/1+0)
	Hard Drive	None ship standard

Models

	Internal Storage	960GB SATA; 1.168TB SAS (with optional hard drives)
	Optical Drive	Optional DVD, DVD/CD-RW combo, DVD+R/RW or floppy drive
	Form Factor	Rack (2U), Height 3.38-inch/8.59cm; Depth: 26 inches (66 cm)
	Availability	Hot Plug Fully Redundant Fans Standard

Country Code Key	XX=00	U.S.
	XX=20	Brazil
	XX=29	Japan
	XX=37	APD
	XX=42	Euro
	XX=AA	PRC

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 (choose one of the following configurable models)

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

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

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

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

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

Quad-Core Intel® Xeon® Processor E5430 (2.66 GHz, 80 Watts, 1333 FSB) DL380 FIO Kit	458575-L21
Quad-Core Intel® Xeon® Processor E5420 (2.50 GHz, 80 Watts, 1333 FSB) DL380 FIO Kit	458577-L21
Quad-Core Intel® Xeon® Processor L5420 (2.50 GHz, 50 Watts, 1333 FSB) DL380 FIO Kit	465324-L21
Quad-Core Intel® Xeon® Processor E5410 (2.33 GHz, 80 Watts, 1333 FSB) DL380 FIO Kit	459142-L21
Quad-Core Intel® Xeon® Processor L5410 (2.33 GHz, 50 Watts, 1333 FSB) DL380 FIO Kit	465326-L21
Quad-Core Intel® Xeon® Processor E5405 (2.00 GHz, 80 Watts, 1333 FSB) DL380 FIO Kit	458579-L21
Quad-Core Intel® Xeon® Processor X5365 (3.0 GHz, 120 Watts, 1333 FSB) DL380 FIO Kit	445560-L21
Quad-Core Intel® Xeon® Processor L5335 (2.0 GHz, 50 Watts, 1333 FSB) DL380 FIO Kit	452640-L21
Quad-Core Intel® Xeon® Processor X5355 (2.66 GHz , 120 Watts, 1333 FSB) DL380 G5 FIO Kit	437939-L21
Quad-Core Intel® Xeon® Processor E5345 (2.33 GHz, 80 Watts, 1333 FSB) DL380 G5 FIO Kit	437940-L21
Quad-Core Intel® Xeon® Processor E5335 (2.00 GHz, 80 Watts, 1333 FSB) DL380 G5 FIO Kit	437941-L21
Quad-Core Intel® Xeon® Processor E5320 (1.86 GHz, 80 Watts, 1066 FSB) DL380 G5 FIO Kit	433522-L21
Quad-Core Intel® Xeon® Processor L5320 (1.86 GHz, 50 Watts, 1066 FSB) DL380 G5 FIO Kit	435934-L21
Quad-Core Intel® Xeon® Processor E5310 (1.60 GHz, 80 Watts, 1066 FSB) DL380 G5 FIO Kit	437943-L21
Dual-Core Processors	
Dual-Core Intel® Xeon® Processor X5260 (3.33 GHz, 80 Watts, 1333 FSB) DL380 FIO Kit	461461-L21
Dual-Core Intel® Xeon® Processor L5240 (3.00 GHZ, 40 Watts, 1333 FSB)	461463-L21
Dual-Core Intel® Xeon® Processor E5205 (1.86 GHz, 65 Watts, 1066 FSB) DL380 FIO Kit	461465-L21
Dual-Core Intel® Xeon® Processor 5160 (3.0 GHz, 80 Watts, 1333 FSB) DL380 G5 FIO Kit	418324-L21
Dual-Core Intel® Xeon® Processor 5150 (2.66 GHz, 65 Watts, 1333 FSB) DL380 G5 FIO Kit	418323-L21
Dual-Core Intel® Xeon® Processor 5148 (2.33 GHz, 40 Watts, 1333 FSB, Low Voltage) DL380 G5 FIO Kit	432333-L21
Dual-Core Intel® Xeon® Processor 5140 (2.33 GHz, 65 Watts, 1333 FSB) DL380 G5 FIO Kit	418322-L21
Dual-Core Intel® Xeon® Processor 5130 (2.0 GHz, 65 Watts, 1333 FSB) DL380 G5 FIO Kit	418321-L21
Dual-Core Intel® Xeon® Processor 5120 (1.86 GHz, 65 Watts, 1066 FSB) DL380 G5 FIO Kit	418320-L21

	Dual-Core Intel® Xeon® Processor 5110 (1.6 GHz, 65 Watts, 1066 FSB) DL380 G5 FIO Kit	418319-L21
Base Memory	1 GB FBD PC2-5300 2 x 512 MB Single Rank Kit	397409-B21
	2 GB FBD PC2-5300 2 x 1 GB Dual Rank Kit	397411-B21
	2 GB FBD PC2-5300 2 x 1 GB Low Power Single Rank Kit	461826-B21
	4 GB FBD PC2-5300 2 x 2 GB Dual Rank Kit	397413-B21
	4 GB FBD PC2-5300 2 x 2 GB Low Power Dual Rank Kit	461828-B21
	8 GB FBD PC2-5300 2 x 4 GB Dual Rank Kit	397415-B21
	8 GB FBD PC2-5300 2 x 4 GB Low Power Dual Rank Kit	466440-B21
	16 GB FBD PC2-5300 2 x 8 GB Dual Rank Kit	413015-B21
	64 GB FBD PC2-5300 8 x 8 GB Dual Rank Kit	495604-B21
	NOTE: Memory Option Kits include Low Power DIMMs. For more information on ProLiant Energy Efficient Features, please visit: http://h18004.www1.hp.com/products/servers/platforms/energyefficient/.	

Step 3: Choose Additional Factory Integratable Options

Integrated hypervisor (iHV)	VMware ESX Server 3i integrated hypervisor	
	integrated VMware ESX Server 3i 2P FIO	464668-B21
	integrated VMware ESX Server 3i Enterprise 2P FIO	464669-B21
	NOTE: For additional information and option kits, please see the QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/12307_div/12307_div.html (Worldwide)	
	Citrix XenServer integrated hypervisor	
	integrated XenServer HP Select Edition 2P/4P	464673-B21
	integrated XenServer HP Enterprise Edition 2P/4P	464674-B21
	NOTE: For additional information and option kits, please see the QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/13018_div/13018_div.html (Worldwide)	
Performance Packs	The HP ProLiant DL380 G5 performance packs are necessary to configure a HP ProLiant DL380 G5 Performance Model. HP ProLiant DL380 G5 Performance model includes the latest performance technologies and enterprise class availability features pre-installed for convenience and value. The performance pack includes a 2nd processor and a redundant power supply. NOTE: Must also select Slimline CD-RW/DVD-ROM Combo Option Kit (331903-B21) to achieve parity to DL380 G5 High Performance Models.	
	HP DL380G5 X5460 HPM FIO Perf Pack	458588-B21
	HP DL380G5 X5450 HPM FIO Perf Pack	458589-B21
	HP DL380G5 E5450 HPM FIO Perf Pack	494037-B21
	HP DL380G5 E5345 HPM FIO Perf Pack	433559-B21
	HP DL380G5 X5160 HPM FIO Perf Pack	419812-B21
	HP DL380G5 X5150 HPM FIO Perf Pack	419811-B21

Step 4: Choose Additional Options for Factory Integration

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

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

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 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.	452148-B22
	HP Insight Control Management Software Media Kit 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.	436222-B21
	NOTE: For additional License Kits, please see the QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/12631_div/12631_div.html	
	HP Insight Control Linux Edition	
	HP Insight Control Environment for Linux v2.0, Media pack (CD) - No licenses included 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).	464422-B21
	HP Insight Control Environment for Linux v2.0, No Media, 1-Server license, including One year of 24x7 Technical Support and Updates 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.	464423-B21
	NOTE: For additional License Kits, please see the QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/13019_div/13019_div.html	
	Integrated Lights-Out Power Management Pack	
	HP iLO Power Management Pack, No Media, 1-Server License, including 1 year of 24x7 Technical Support and Updates NOTE: This option kit includes 1 license for iLO Advanced and Insight Power Manager.	452145-B21
	NOTE: For additional License Kits, please see the QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/12632_div/12632_div.html	

Server Management Stand Alone Software

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_div/11053_div.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_div/12855_div.html

Monitor

HP Insight Dynamics-VSE

HP Insight Dynamics-VSE with Insight Control Environment, 1-server license including 1 year of 24x7 Technical Support and Updates 483527-B21
NOTE: This license supports HP ProLiant ML/DL servers. Customer will receive a printed license entitlement certificate via physical shipment.

HP Insight Dynamics-VSE without Insight Control Environment, 1-server license including 1 year of 24x7 Technical Support and Updates 483531-B21
NOTE: This license supports HP ProLiant ML/DL and c-Class Blade servers. Customer will receive via email a receipt and link to a license entitlement certificate.

NOTE: For additional License Kits, please see the QuickSpecs at:
http://h18000.www1.hp.com/products/quickspecs/13050_div/13050_div.html

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_div/12362_div.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_div/10861_div.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_div/12466_div.html

HP Insight Power Manager (IPM)

HP Insight Power Manager, No Media, 1-Server License, including 1 year of 24x7 Technical Support and Updates 452677-B21
NOTE: Customers purchasing this upgrade must already have an iLO Advanced or Select license on each managed server. 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/12623_div/12623_div.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_div/12328_div.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

Processors	Quad-Core Processors	
	Quad-Core Intel® Xeon® Processor X5460 (3.16 GHz, 120 Watts, 1333 FSB)	458581-B21
	Quad-Core Intel® Xeon® Processor X5450 (3.0 GHz, 120 Watts, 1333 FSB)	462593-B21
	Quad-Core Intel® Xeon® Processor E5450 (3.0 GHz, 80 Watts, 1333 FSB)	458583-B21
	Quad-Core Intel® Xeon® Processor E5440 (2.83 GHz, 80 Watts, 1333 FSB)	458585-B21
	Quad-Core Intel® Xeon® Processor E5430 (2.66 GHz, 80 Watts, 1333 FSB)	458575-B21
	Quad-Core Intel® Xeon® Processor E5420 (2.50 GHz, 80 Watts, 1333 FSB)	458577-B21
	Quad-Core Intel® Xeon® Processor L5420 (2.50 GHz, 50 Watts, 1333 FSB)	465324-B21
	Quad-Core Intel® Xeon® Processor E5410 (2.33 GHz, 80 Watts, 1333 FSB)	459142-B21
	Quad-Core Intel® Xeon® Processor L5410 (2.33 GHz, 50 Watts, 1333 FSB)	465326-B21
	Quad-Core Intel® Xeon® Processor E5405 (2.00 GHz, 80 Watts, 1333 FSB)	458579-B21
	Quad-Core Intel® Xeon® Processor X5365 (3.00GHz , 120 Watts, 1333 FSB)	445560-B21
	Quad-Core Intel® Xeon® Processor L5335 (2.0 GHz, 50 Watts, 1333 FSB)	452640-B21
	Quad-Core Intel® Xeon® Processor X5355 (2.66 GHz, 120 Watts, 1333 FSB)	437939-B21
	Quad-Core Intel® Xeon® Processor E5345 (2.33 GHz, 80 Watts, 1333 FSB)	437940-B21
	Quad-Core Intel® Xeon® Processor E5335 (2.00 GHz, 80 Watts, 1333 FSB)	437941-B21
	Quad-Core Intel® Xeon® Processor E5320 (1.86 GHz, 80 Watts, 1066 FSB)	433522-B21
	Quad-Core Intel® Xeon® Processor L5320 (1.86 GHz, 50 Watts, 1066 FSB)	435934-B21
	Quad-Core Intel® Xeon® Processor E5310 (1.60 GHz, 80 Watts, 1066 FSB)	437943-B21
	Dual-Core Processors	
	Dual-Core Intel® Xeon® Processor X5260 (3.33 GHz, 80 Watts, 1333 FSB)	461461-B21
	Dual-Core Intel® Xeon® Processor L5240 (3.00 GHz, 40 Watts, 1333 FSB)	461463-B21
	Dual-Core Intel® Xeon® Processor E5205 (1.86 GHz, 65 Watts, 1066 FSB)	461465-B21
	Dual-Core Intel® Xeon® Processor 5160 (3.0 GHz, 80 Watts, 1333 FSB)	418324-B21
	Dual-Core Intel® Xeon® Processor 5150 (2.66 GHz, 65 Watts, 1333 FSB)	418323-B21
	Dual-Core Intel® Xeon® Processor 5148 (2.33 GHz, 40 Watts, 1333 FSB, Low Voltage)	432333-B21
	Dual-Core Intel® Xeon® Processor 5140 (2.33 GHz, 65 Watts, 1333 FSB)	418322-B21
	Dual-Core Intel® Xeon® Processor 5130 (2.0 GHz, 65 Watts, 1333 FSB)	418321-B21
	Dual-Core Intel® Xeon® Processor 5120 (1.86 GHz, 65 Watts, 1066 FSB)	418320-B21
	Dual-Core Intel® Xeon® Processor 5110 (1.6 GHz, 65 Watts, 1066 FSB)	418319-B21

Options

Memory (DIMMs)	1 GB FBD PC2-5300 2 x 512 MB Single Rank Kit	397409-B21
	2 GB FBD PC2-5300 2 x 1 GB Dual Rank Kit	397411-B21
	2 GB FBD PC2-5300 2 x 1 GB Low Power Single Rank Kit	461826-B21
	4 GB FBD PC2-5300 2 x 2 GB Dual Rank Kit	397413-B21
	4 GB FBD PC2-5300 2 x 2 GB Low Power Dual Rank Kit	461828-B21
	8 GB FBD PC2-5300 2 x 4 GB Dual Rank Kit	397415-B21
	8 GB FBD PC2-5300 2 x 4 GB Low Power Dual Rank Kit	466440-B21
	16 GB FBD PC2-5300 2 x 8 GB Dual Rank Kit	413015-B21
	64 GB FBD PC2-5300 8 x 8 GB Dual Rank Kit	495604-B21
	NOTE: Memory Option Kits include Low Power DIMMs. For more information on ProLiant Energy Efficient Features, please visit: http://h18004.www1.hp.com/products/servers/platforms/energyefficient/.	
Diskette Drive	Slimline Ejectable Floppy drive	390164-B21
Optical Drives	Slimline CD-RW/DVD-ROM Combo Option Kit	331903-B21
	NOTE: Included in performance models.	
	Slimline DVD-ROM Drive (8x/24x) Option Kit	264007-B21
	HP DVD±R/RW 8X Slim	383975-B21
	Slimline CD-ROM Drive 24X	356963-B21
Riser Cage Options	Mixed Riser Cage Option Kit (PCI-E/PCI-X)	410570-B21
Hard Drives	**SAS Enterprise (ENT) Drives 2.5" Drives, Hot Plug**	
	HP 146GB 3G SAS 10K SFF DP HDD	418367-B21
	HP 146GB 3G SAS 10K SFF SP HDD	431958-B21
	HP 72GB 3G SAS 15K SFF DP HDD	418371-B21
	HP 72GB 3G SAS 15K SFF SP HDD	431935-B21
	HP 72GB 3G SAS 10K SFF DP HDD	384842-B21
	HP 72GB 3G SAS 10K SFF SP HDD	375861-B21
	HP 36GB 3G SAS 15K SFF DP HDD	418369-B21
	HP 36GB 3G SAS 15K SFF SP HDD	431933-B21
	NOTE: Please see the SAS Hard Drive QuickSpecs for Technical Specifications such as capacity, height, width, interface, transfer rate, seek time, physical configuration, and operating temperature: http://h18000.www1.hp.com/products/quickspecs/12244_div/12244_div.html (Worldwide)	
	SFF SATA Hot Plug Entry (ETY) Drives	
	HP 120GB 3G SATA 5.4K SFF ETY HDD	458924-B21

NOTE: SATA drives have a 1 year warranty. Please see the 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/13021_div/13021_div.html (Worldwide)

Storage Controllers	SAS Controllers	
	Smart Array E200 Controller	
	HP Smart Array E200/128 BBWC Controller	411508-B21
	128-MB BBWC (Battery-Backed Write Cache) Enabler NOTE: Supports the Smart Array E200 Controller, Smart Array 641 Controller, and Smart Array 642 Controller.	351580-B21
	Smart Array E500 Controller	
	Smart Array E500/256MB Controller	435129-B21
	HP SA-P400 and SA-E500 24 In Battery Cable Kit NOTE: This option kit contains a 24" battery cable and adhesive material for installing a batter into the server if a Smart Array E500 is integrated outside of the factory. For all solutions, please refer to the server QuickSpecs and User's Manual for detailed installation instructions.	417836-B21
	Smart Array P400 Controller	
	HP Smart Array P400/256MB Controller NOTE: The HP Smart Array P400/256 MB Controller (PN 405132-B21) may only be installed in slots 3, 4, and 5.	405132-B21
	HP Smart Array P400/512MB BBWC Controller NOTE: The HP Smart Array P400/512 MB BBWC Controller (PN 411064-B21) may only be installed in slots 3, 4, and 5.	411064-B21
	512MB Battery-backed cache upgrade NOTE: Contains batter and memory module. For Smart Array P400 Controller.	405148-B21
	Battery-backed write cache upgrade NOTE: Contains battery only. For Smart Array P400 Controller.	383280-B21
	HP SA-P400 and SA-E500 24 In Battery Cable Kit NOTE: This option kit contains a 24" battery cable and adhesive material for installing a batter 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.	417836-B21
	Smart Array P400 Battery Attach Kit NOTE: This option kit contains a 24" battery cable and adhesive material for installing a battery into the HP ProLiant DL380 G5 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.	417836-B21
	Smart Array P600 Controller	
	HP Smart Array P600/256 BBWC Controller NOTE: Requires Mixed PCI-E/X riser cage.	337972-B21
	512 MB Battery-Backed Cache Upgrade NOTE: This 512-MB Battery-Backed Cache Module upgrade kit supports the Smart Array P600 Controller and the Smart Array 6400 series Controller.	372538-B21
	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_div/12460_div.html (Smart Array E200 Controller) http://h18000.www1.hp.com/products/quickspecs/12700_div/12700_div.html (Smart Array E500 Controller) http://h18000.www1.hp.com/products/quickspecs/12400_div/12400_div.html (Smart Array P400 Controller) http://h18000.www1.hp.com/products/quickspecs/12247_div/12247_div.html (Smart Array P600 Controller) http://h18000.www1.hp.com/products/quickspecs/12616_div/12616_div.html (Smart Array P800 Controller)	
SAS HBA	
HP SC08Ge Host Bus Adapter	488765-B21
HP SC44Ge Host Bus Adapter	416096-B21
HP 8 Internal Port SAS HBA with RAID	347786-B21
NOTE: Please see the following QuickSpecs for additional information: http://h18004.www1.hp.com/products/quickspecs/13082_div/13082_div.html (SC08Ge HBA) http://h18004.www1.hp.com/products/quickspecs/12617_div/12617_div.html (SC44Ge HBA) http://h18004.www1.hp.com/products/quickspecs/12332_div/12332_div.html (SAS HBA)	
SCSI Controllers for External Drive/Storage Support NOTE: All Ultra 320 controllers are PCI-X and require the Mixed Riser Cage Option Kit (PCI-E/PCI-X).	
Smart Array 6402/128 Controller NOTE: Ultra320 SCSI.	273915-B21
Smart Array 6404/256 Controller NOTE: Ultra320 SCSI.	273914-B21
Smart Array 642 Controller NOTE: Ultra320 SCSI.	291967-B21
128-MB Battery-Backed Write Cache (BBWC) NOTE: Supports the Smart Array E200 Controller, Smart Array 641 Controller, and Smart Array 642 Controller.	351580-B21
Ultra320 Expansion Module for SA-6402	273911-B21
64-Bit/133-MHz Single Channel Ultra320 SCSI HBA G2	374654-B21
SCSI HBA	
HP SC11Xe Host Bus Adapter	412911-B21
NOTE: Please see the following QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/11943_div/11943_div.html (Single Channel Ultra320 SCSI HBA) http://h18000.www1.hp.com/products/quickspecs/11587_div/11587_div.html (Smart Array 6400 Series) http://h18000.www1.hp.com/products/quickspecs/12069_div/12069_div.html (Smart Array 642)	

http://h18000.www1.hp.com/products/quickspecs/12566_div/12566_div.html (SC11Xe HBA)

Communications	HP NC110T PCI Express Gigabit Server Adapter NOTE: Does not support Windows 2000.	434905-B21
	HP NC360T PCI Express Dual Port Gigabit Server Adapter	412648-B21
	HP NC364T PCI Express Quad Port Gigabit Server Adapter NOTE: Does not support Windows 2000.	435508-B21
	HP NC373F PCI Express Multifunction Gigabit Server Adapter	394793-B21
	HP NC373T PCI Express Multifunction Gigabit Server Adapter	394791-B21
	HP NC380T PCI Express Dual Port Multifunction Gigabit Server Adapter NOTE: Supported on a Full Length-Full Height slot only.	394795-B21
	HP NC510F PCIe 10 Gigabit Server Adapter NOTE: A minimum of 1 gigabyte (1 GB) of server memory is required per each NC510F adapter.	414126-B21
	HP NC510C PCIe 10 Gigabit Server Adapter NOTE: A minimum of 1 gigabyte (1 GB) of server memory is required per each NC510C adapter.	414129-B21
	HP NC7170 PCI-X Dual Port 1000T Gigabit Server Adapter	313881-B21
HPC Specific Options	HP IB 4X DDR PCI-e Dual Port HCA	409376-B21
	HP IB 4X DDR PCI-e single PORT HCA	431039-B21
	HP IB 4X SDR PCI-e single PORT HCA	431038-B21
	HP IB 4X DDR Conn-X PCI-e Dual Port HCA	448397-B21
	HP IB 4X DDR PCI-e DUAL PORT 0 mem HCA	483513-B21
Redundant Options	Redundant Power Supply 350/370/380 G5 AU Kit	399771-011
	Redundant Power Supply 350/370/380 G5 EU Kit	399771-021
	Redundant Power Supply 350/370/380 G5 JP Kit	399771-291
	Redundant Power Supply 350/370/380 G5 Kit (IEC cord)	399771-B21
	Redundant Power Supply 350/370/380 G5 UK Kit	399771-031
	Redundant Power Supply 350/370/380 G5 Kit (NEMA cord)	399771-001
	Redundant Power Supply 380 G5 Worldwide Kit - 48Volt DC NOTE: Factory integration not available for PN 433634-B21.	433634-B21

Options

Power Cords	Nema 5-15P to IEC320-C13, North America low voltage (6 ft/2 m)	AF556A
	Power Cord, Euro, 10A 250V Straight (6 ft/2 m)	AF568A
	Power Cord, UK/HK/SING, 10A 250V Straight (6 ft/2 m)	AF570A
	Power Cord, Danish, 10A 250V Straight (6 ft/2 m)	AF566A
	Power Cord, Swiss, 10A 250V Straight (6 ft/2 m)	AF565A
	Power Cord, Italian/Chile, 10A 250V Straight (6 ft/2 m)	AF571A
	Power Cord, South Africa, 10A 250V Straight (8 ft/2.5 m)	AF567A

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 DL380 G5, HP recommends purchasing the HP SC44Ge HBA (416096-B21) for a dedicated SAS HBA for tape.

HP StorageWorks DAT 160 SAS Internal Tape Drive NOTE: HP recommends combining this tape drive with the 1U SAS Rack-Mount kit (AE459A) for a complete rack-mount solution.	Q1587A
HP StorageWorks LTO-2 Ultrium 448 SAS Internal Tape Drive NOTE: HP recommends combining this tape drive with the 1U SAS Rack-Mount kit (AE459A) for a complete rack-mount solution.	DW085A
HP LTO-3 Ultrium 920 SAS Internal Tape Drive NOTE: HP recommends combining this tape drive with the 1U SAS Rack-Mount kit (AE459A) for a complete rack-mount solution.	EH978A
HP StorageWorks 1U SAS Rack-mount kit with one LTO-4 Ultrium 1760	EH946A

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 DL380 G5, 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 (Carbonite)	DW028B
HP StorageWorks 1U SCSI Rack-mount kit with one LTO-3 Ultrium 920	EH903A
HP StorageWorks 3U SCSI Rack-mount kit with one LTO-4 Ultrium 1840	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_div/11739_div.html (Worldwide) http://h18006.www1.hp.com/products/quickspecs/12128_div/12128_div.html (Worldwide)
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

Options

	HP StorageWorks 1U SCSI Rack-Mount kit 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, LTO-1 Ultrium 232, LTO-2 Ultrium 448, LTO-3 Ultrium 920 and LTO-4 Ultrium 1760 tape drives.	A7445B
	HP StorageWorks 1U USB Rack-Mount Kit 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 tape drives.	A8007A
	HP StorageWorks 1U SAS Rack-Mount Kit NOTE: The 1U SAS Rack-Mount Kit can support up to (2) half-height tape drives and is compatible with the LTO-2 Ultrium 448 SAS, LTO-3 Ultrium 920 SAS and LTO-4 Ultrium 1760 SAS tape drives.	AE459A
	NOTE: Please see the Rack-Mount Tape Drive Kits QuickSpecs for additional information regarding these kits: http://h18000.www1.hp.com/products/quickspecs/10854_div/10854_div.html (Worldwide)	
Disk-Based Backup	RDX Removable Disk Backup	
	HP StorageWorks RDX160 External Removable Disk Backup System NOTE: 160GB of Disk Storage	AJ766A
	HP StorageWorks RDX320 External Removable Disk Backup System NOTE: 320GB of Disk Storage	AJ768A
	NOTE: Please see the HP RDX Removable Disk Backup System QuickSpecs for additional information: http://h18000.www1.hp.com/products/quickspecs/13036_div/13036_div.html	
	D2D Backup	
	HP StorageWorks D2D120 Backup System NOTE: 2TB of Disk Storage.	EH884A
	HP StorageWorks D2D120 Backup System with Data Protector Express Software Kit NOTE: 2TB of Disk Storage.	EH924A
	HP StorageWorks D2D130 Backup System NOTE: 3TB of Disk Storage.	EH950A
	HP StorageWorks D2D130 Backup System with Data Protector Express Software Kit NOTE: 3TB of Disk Storage.	EH951A
	HP StorageWorks D2D130 Backup System with LTO-3 Ultrium 920 SAS Tape Drive NOTE: 3TB of Disk Storage.	EH952A
	HP StorageWorks D2D2503i Backup System NOTE: 3TB of Disk Storage	EH945A
	HP StorageWorks D2D4004i Backup System NOTE: 4.5TB of Disk Storage	EH938A
	NOTE: Please see the HP D2D Backup Systems QuickSpecs for additional information: http://www.hp.com/go/d2d	

Options

Tape Autoloaders	**HP StorageWorks DAT Autoloader**	
	HP StorageWorks DAT 72x10 tape autoloader	AE313B
	HP StorageWorks 1/8 G2 Tape Autoloader	
	HP StorageWorks 1/8 G2 LTO-4 Ultrium 1760 SAS Tape Autoloader	AK377A
	HP StorageWorks 1/8 G2 LTO-4 Ultrium 1760 SCSI Tape Autoloader	AJ816A
	HP StorageWorks 1/8 G2 LTO-3 Ultrium 920 Tape Autoloader	AH165A
	HP StorageWorks 1/8 G2 LTO-3 Ultrium 920 SAS Autoloader	AH558A
	HP StorageWorks 1/8 G2 LTO-2 Ultrium 448 Tape Autoloader	AH164A
	HP StorageWorks 1/8 G2 LTO-1 Ultrium 232 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.	
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-4 Ultrium 1760 SCSI Drive Library	AJ817A
	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 MSL2024 1 LTO-2 Ultrium 448 SCSI Drive Library	AG116A
	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 2 LTO-4 Ultrium 1760 SCSI Drive Library	AJ818A
	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 MSL Tape Library QuickSpecs at: http://www.hp.com/go/automation for additional information needed to create a complete solution; reference current compatibility information at: http://www.hp.com/go/ebs.	

Options

High Availability Cluster Options	HP Serviceguard for Linux	
	HP Serviceguard Linux for HP ProLiant/x86 Servers Licensed per physical server Includes media and One Year 24x7 Software Support & Updates	463831-B21
	HP Serviceguard Linux Oracle Database Toolkit for HP ProLiant/x86 Servers Licensed per cluster Includes media and One Year 24x7 Software Support & Updates	463833-B21
	HP Serviceguard Extension for SAP on Linux for HP ProLiant/x86 Servers Licensed per physical server Includes media and One Year 24x7 Software Support & Updates	463834-B21
	HP Serviceguard Linux Extended Distance Cluster (XDC) for HP ProLiant/x86 Servers Licensed per physical server Includes media and 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 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_div/11518_div.html (Worldwide)	
StorageWorks Options	StorageWorks Fibre Channel HBA	
	NOTE: For the complete listing of Fibre Channel Host Bus Adapters for Windows 2000, Windows Server 2003 and Linux, please see: http://h18006.www1.hp.com/storage/saninfrastructure/hba.html	
	HP StorageWorks FC2142SR 4Gb PCI-e HBA	A8002A
	HP StorageWorks FC2242SR Dual Channel 4 Gb PCI-e HBA	A8003A
	HP StorageWorks FC1142SR 4Gb PCI-e HBA	AE311A
	HP StorageWorks FC1242SR Dual Channel 4 Gb PCI-e HBA	AE312A
	HP StorageWorks FC2143 4Gb PCI-X 2.0 -to-Fibre Channel HBA	AD167A
	HP StorageWorks FC2243 Dual Channel 4Gb PCI-X 2.0 HBA	AD168A
	HP StorageWorks FC1143 4Gb PCI-X 2.0 HBA	AB429A
	HP StorageWorks FC1243 Dual Channel 4Gb PCI-X 2.0 HBA	AE369A
	HP StorageWorks 81Q PCI-e FC HBA	AK344A
	HP StorageWorks 8Gb Simple SAN Connection Kit	AK241A
	HP StorageWorks 8/20q Fibre Channel Switch	AK242A
	HP StorageWorks 81E 8Gb SP PCI-e FC HBA	AJ762A
	HP 82E 8Gb Dual-port PCI-e FC HBA	AJ763A
	HP 82Q 8Gb Dual Port PCI-e FC HBA	AJ764A
	StorageWorks SCSI HBA	

Options

	HP U320e SCSI Host Bus Adapter NOTE: Recommended Dual Channel Ultra320 SCSI Controller for connecting multi-drive MSL tape libraries to ProLiant servers.	AH627A
HP StorageWorks Modular Smart Array 20	HP StorageWorks Modular Smart Array 20 NOTE: Rack-mountable 12 (SATA) drive enclosure with U320 Host connectivity, redundant power supplies. 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_div/11942_div.html (Worldwide)	335921-B21
HP StorageWorks Modular Smart Array 50	HP StorageWorks Modular Smart Array 50 Enclosure NOTE: Please see the Modular Smart Array 50 QuickSpecs for additional information including configuration steps and additional options needed for a complete solution at: http://h18000.www1.hp.com/products/quickspecs/12245_div/12245_div.html (Worldwide)	364430-B21
HP StorageWorks Modular Smart Array 60	HP StorageWorks 60 Modular Smart Array Enclosure NOTE: Please see the Modular Smart Array 60 QuickSpecs for additional information including configuration steps and additional options needed for a complete solution at: http://h18000.www1.hp.com/products/quickspecs/12627_div/12627_div.html (Worldwide)	418408-B21
HP StorageWorks Modular Smart Array 70	HP StorageWorks 70 Modular Smart Array Enclosure NOTE: Please see the Modular Smart Array 70 QuickSpecs for additional information including configuration steps and additional options needed for a complete solution at: http://h18000.www1.hp.com/products/quickspecs/12652_div/12652_div.html (Worldwide)	418800-B21
HP StorageWorks Modular Smart Array 500 G2	HP StorageWorks Modular Smart Array 500 Generation 2 NOTE: Please see the Modular Smart Array 500 Generation 2 QuickSpecs for additional information including configuration steps and additional options needed for a complete solution at: http://h18000.www1.hp.com/products/quickspecs/11956_div/11956_div.html (Worldwide)	335880-B21

Options

HP StorageWorks 2000sa Modular Smart Array	HP 2012sa Single Controller Modular Smart Array	AJ752A
	HP 2012sa Dual Controller Modular Smart Array	AJ753A
	NOTE: Please see the Modular Smart Array 2000sa QuickSpecs for additional options and configuration information at: http://h18000.www1.hp.com/products/quickspecs/13045_div/13045_div.html (Worldwide)	
Uninterruptible Power Systems - Rack	HP R1.5 VA 1U UPS INTL	AF418A
	HP R1.5 VA 1U UPS JPN	AF421A
	HP R1.5 VA 1U UPS NA	AF419A
	HP R/T2200 2-U ERM	AF412A
HP Monitored Power Distribution Unit (PDU)	**HP Monitored Power Distribution Unit: Full Rack Version**	
	17.3 kVA Monitored PDU Model S2324	AF503A
	8.6 kVA Monitored PDU Model S1324	AF504A
	16.6 kVA Monitored PDU Model S2140	AF505A
	8.3 kVA Monitored PDU Model S1140	AF506A
	22 kVA Monitored PDU Model S2316	AF507A
	11 kVA Monitored PDU Model S1316	AF508A
	14.7 kVA Monitored PDU Model S2132	AF509A
	7.3 kVA Monitored PDU Model S1132	AF510A
	4.9kVA Monitored PDU model S124	AF514A
	7.3kVA Monitored PDU model S132	AF515A
USB Options	HP USB 2-Button Optical Scroll Mouse (Carbonite/Silver)	DC172B
	1.44MB External USB Floppy Drive	DC141B
	HP USB 04 Standard Keyboard	DT528A#ABA
	HP 1GB USB 2.0 Floppy Drive Key	442085-B21
	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_div/12074_div.html (Worldwide)	
	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_div/12402_div.html (Worldwide)	
	NOTE: For additional information regarding Rack Cabinets, please see the following URL: http://www.hp.com/go/rackandpower.	
HP Rack 10000 Series (Graphite Metallic)	HP S10614 (14U) Rack Cabinet - Shock Pallet	292302-B22
	NOTE: xxxxxx-B22 (shock pallet) used to ship racks with equipment installed (by custom systems, VARs and Channels).	
	NOTE: It is mandatory to use a shock pallet in order to ship racks with equipment installed. Not all Compaq equipment is qualified to be shipped in the Rack 10000 series.	
	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_div/10995_div.html (Worldwide)	
	NOTE: For additional information regarding Rack Cabinets, please see the following URL: http://www.hp.com/go/rackandpower.	

Options

Keyboards and Monitors	TFT7600 Rackmount Keyboard Monitor US	AG052A
	TFT7600 Rackmount Keyboard Monitor UK	AG053A
	TFT7600 Rackmount Keyboard Monitor GR	AG054A
	TFT7600 Rackmount Keyboard Monitor FR	AG055A
	TFT7600 Rackmount Keyboard Monitor IT	AG056A
	TFT7600 Rackmount Keyboard Monitor SP	AG057A
	TFT7600 Rackmount Keyboard Monitor DEN	AG058A
	TFT7600 Rackmount Keyboard Monitor NOR	AG059A
	TFT7600 Rackmount Keyboard Monitor SE/FI	AG060A
	TFT7600 Rackmount Keyboard Monitor SWI	AG061A
	TFT7600 Rackmount Keyboard Monitor PORT	AG062A
	TFT7600 Rackmount Keyboard Monitor BEL	AG063A
	TFT7600 Rackmount Keyboard Monitor JPN2	AG064A
	TFT7600 Rackmount Keyboard Monitor RUS	AG065A
	TFT7600 Rackmount Keyboard Monitor INTL	AG066A
	1U Rackmount Keyboard with USB, US	AG072A
	1U Rackmount Keyboard with USB, UK	AG073A
	1U Rackmount Keyboard with USB, GR	AG074A
	1U Rackmount Keyboard with USB, FR	AG075A
	1U Rackmount Keyboard with USB, ITL	AG076A
	1U Rackmount Keyboard with USB, SP	AG077A
	1U Rackmount Keyboard with USB, DEN	AG078A
	1U Rackmount Keyboard with USB, NOR	AG079A
	1U Rackmount Keyboard with USB, SE/FI	AG080A
	1U Rackmount Keyboard with USB, SWI	AG081A
	1U Rackmount Keyboard with USB, PORT	AG082A
	1U Rackmount Keyboard with USB, BEL	AG083A
	1U Rackmount Keyboard with USB, JPN2	AG084A
	1U Rackmount Keyboard with USB, RUS	AG085A
	1U Rackmount Keyboard with USB, INTL	AG086A

NOTE: For additional information regarding Rack 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 NOTE: Requires PS/2 and one USB port on server.	AF604A
	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
	NOTE: Cat5e cables are required to connect Interface Adapters to Console Switches. Cat5e cables can be found at the following URL: http://www.hp.com/go/kvm.	
	HP 1x4 Console Switch	AF611A
	HP PS2 Server Console Cable, 6 foot, 2-Pack	AF612A
	HP USB Server Console Cable, 6 foot, 2-Pack NOTE: Required for supporting USB peripherals.	AF613A
	NOTE: For additional information regarding KVM switches, Serial Console servers, rack mount monitors, keyboards and all related options please see the following URL: http://www.hp.com/go/kvm.	

HP Serial Console Server Options	HP 16 Port Serial Console Server (worldwide)	AF101A
	HP 48 Port Serial Console Server (worldwide)	AF102A
	Serial Adapter, RJ45-DB9 DCE Female, 1 Pack	AF103A
	Serial Adapter, RJ45-DB9 DCE Female, 8 Pack	AF110A
	NOTE: Cat5e cables are required to connect Serial Adapters to Serial Console Servers. Additional Serial Adapters and Cat5e cables can be found at the following URL: http://www.hp.com/go/kvm.	
	NOTE: For additional information regarding KVM switches, Serial Console servers, rack mount monitors, keyboards and all related options please see the following URL: http://www.hp.com/go/kvm.	

Options

Service and Support Offerings (HP Care Pack Services)	**Hardware Services On-site Service**	
	4-Hour On-site Service, 5-Day x 13-Hour Coverage, 3 Years, Electronic	U4544E
	4-Hour On-site Service, 7-Day x 24-Hour Coverage, 3 Years, Electronic	U4545E
	Hardware Services 6-Hour Call to Repair On-site Service	
	6-Hour Call to Repair, On-site Service, 7-Day x 24-Hour Coverage, 3 Years, Electronic	U4546E
	Installation & Start-up Services	
	Hardware Installation, Electronic	U4554E
	Installation & Start-Up of a ProLiant server and Microsoft or Linux O/S per the Customer Description and/or Data Sheet. To be delivered on a scheduled basis 8am-5pm, M-F, excl. HP holidays, Electronic	U4555E
	Installation and Startup for Essentials Rapid Deployment Pack, Electronic	U5683E
	Support Plus	
	Onsite HW support, 8am-9pm, M-F, 4hr response and Microsoft O/S SW Tech support offsite, onsite at HP's discretion, 8am-9pm, M-F 2hr response time excl. HP holidays, Electronic	U4556E
	Support Plus 24	
	Onsite HW support 24x7, 4hr response and Microsoft O/S SW Tech support offsite, onsite at HP's discretion, 24x7 2hr response time incl. HP holidays, Electronic	U4557E
	Onsite HW support 24x7, 4hr response and SuSE Linux SW Tech support offsite, onsite at HP's discretion, 24x7 2hr response time incl. HP holidays, Electronic	U6312E
	Onsite HW support 24x7, 4hr response and Red Hat ES Linux SW Tech support offsite, onsite at HP's discretion, 24x7 2hr response time incl. HP holidays, Electronic	U8334E
	NOTE: For more information, customer/resellers can contact: http://www.hp.com/services/carepack	

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

Standard Memory

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

Upgrading Memory and Memory Interleaving

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

Standard Memory Plus Optional Memory

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

Standard Memory Replaced with Optional Memory

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

NOTE: Chart does not represent all possible configurations.

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

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

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

Following are memory options available from HP:

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

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

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

Memory

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

Online spare memory configuration

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

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

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

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

* Configuration 1 is only supported if using bank A, populated with dual-rank FBDIMMs. All FBDIMMs 1GB and above are dual-rank.
After installing FBDIMMs, use RBSU to configure the system for online spare memory support ("Configuring online spare memory" on page 57).

Mirrored memory configuration

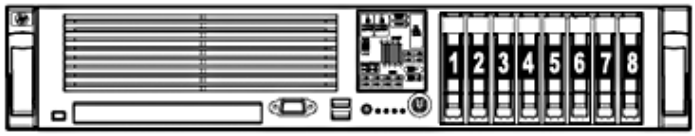
Mirrored memory FBDIMM configuration requirements (in addition to general configuration requirements):

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

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

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

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



1-8 Eight SFF SAS hot plug hard drive bays

Drive Support

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

Hard Drives

SAS Enterprise (ENT) Drives 2.5" Drives, Hot Plug

	Quantity Supported	Position Supported	Controller
146GB 3G SAS 10K SP 146GB 3G SAS 10K DP 72GB 3G SAS 10K SP 72GB 3G SAS 10K DP 72GB 3G SAS 15K SP 72GB 3G SAS 15K DP 36GB 3G SAS 15K SP 36GB 3G SAS 15K DP	Up to 8	1-8	HP Smart Array E200/64 MB Controller HP Smart Array E200/128 BBWC Controller HP Smart Array E500/256 MB Controller HP Smart Array P400/256 MB Controller HP Smart Array P400/512 MB BBWC Controller HP Smart Array P600/256 BBWC Controller NOTE: Optional mixed PCI-X/E required for SA-P600. HP Smart Array P800/512 BBWC Controller

SFF SATA Hot Plug Drives

	Quantity Supported	Position Supported	Controller
60GB 1.5G SATA 5.4K	Up to 8	1-8	HP Smart Array E200/64 MB Controller HP Smart Array E200/128 BBWC Controller

			HP Smart Array E500/256 MB Controller HP Smart Array P400/256 MB Controller HP Smart Array P400/512 MB BBWC Controller HP Smart Array P600/256 BBWC Controller NOTE: Optional mixed PCI-X/E required for SA-P600. HP Smart Array P800/512 BBWC Controller

SFF SATA Hot Plug Entry (ETY) Drives

	Quantity Supported	Position Supported	Controller
120GB 1.5G SATA 5.4K ETY	Up to 8	1-8	HP 8 Internal Port SAS HBA with RAID HP SC44Ge Host Bus Adapter HP Smart Array E200/64 MB Controller HP Smart Array E200/128 BBWC Controller HP Smart Array E500/256 MB Controller HP Smart Array P400/256 MB Controller HP Smart Array P400/512 MB BBWC Controller HP Smart Array P600/256 BBWC Controller NOTE: Optional mixed PCI-X/E required for SA-P600. HP Smart Array P800/512 BBWC Controller

External Storage

	Quantity Supported	Position Supported	Host Controller or Adapter
Modular Smart Array 20 Family	1 per SCSI VHDCI connector	External	Smart Array 6402/128 Controller Smart Array 6404/256 Controller NOTE: Optional mixed PCI-X/E cage required.
Modular Smart Array 50 Enclosure	2 per connector (supports 1+1 cascading)	External	HP Smart Array P600/256 BBWC Controller NOTE: Optional mixed PCI-X/E cage required.
Modular Smart Array 60 Enclosure	Up to 8	External	HP Smart Array E500/256MB Controller
	Up to 4		HP Smart Array P600/256 BBWC Controller
	Up to 8		HP Smart Array P800/512 BBWC Controller
Modular Smart Array 70 Enclosure	Up to 4	External	HP Smart Array E500/256MB Controller
	Up to 2		HP Smart Array P600/256 BBWC Controller
	Up to 4		HP Smart Array P800/512 BBWC Controller
Modular Smart Array 500 G2	1 per SCSI	External	Please see the Modular Smart Array 500 G2 QuickSpecs for the latest list of supported HBAs: http://h18000.www1.hp.com/products/quickspecs/12245_div/12245_div.html
HP 2000sa Modular Smart Array Controller	Up to 4	External	HP SC08Ge Host Bus Adapter

Storage

Maximum Storage Capacity - (with MSA50, SAS HDD)

Internal	1.168TB (8 x 146GB SAS SFF)
External	2.920TB (20 x 146GB SAS SFF)
Total	4.088TB

Maximum Storage Capacity - (with MSA50, SATA HDD)

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

Tape and Disk-Based Backup

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/division/10233.html (Worldwide)

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/division/10809.html (Worldwide)

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	Part Number
HP StorageWorks SCSI Tape Drives, External LTO-1 Ultrium 232 LTO-2 Ultrium 448 LTO-3 Ultrium 960 LTO-3 Ultrium 920 LTO-4 Ultrium 1760 LTO-4 Ultrium 1840 DAT 40 DAT 72 DAT 160 1U Rack-Mount Kit 3U Rack-Mount Kit	External	HP SC11Xe Host Bus Adapter	412911-B21
HP StorageWorks USB Tape Drives, External DAT 40 USB DAT 72 USB DAT 160 USB 1U Rack-Mount Kit	External	USB 2.0 Port	N/A

HP StorageWorks SAS Tape Drives, External DAT 160 SAS LTO-2 Ultrium 448 SAS LTO-3 Ultrium 920 SAS LTO-4 Ultrium 1760 SAS LTO-4 Ultrium 1840 SAS 1U Rack-Mount Kit 3U Rack-Mount Kit	External	HP SC44Ge Host Bus Adapter	416096-B21
HP StorageWorks SCSI Tape Automation, External DAT 72x10 Autoloader 1/8 G2 Autoloader MSL2024 MSL4048 MSL8096 MSL6000	External	HP SC11Xe Host Bus Adapter	412911-B21
		HP U320e SCSI Host Bus Adapter NOTE: Recommended for MSL tape libraries.	AH627A
HP StorageWorks SAS Tape Automation, External 1/8 G2 Autoloader MSL2024 MSL4048 MSL8096	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
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
HP StorageWorks RDX Removable Disk Backup System RDX160 RDX320	External	USB 2.0 Port	N/A
HP StorageWorks D2D Backup Systems D2D120 D2D130 D2D2503i D2D4004i	External	Embedded Network Controller	N/A

Power Specifications

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

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

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/calc/Power%20Calculator%20Catalog.xls

To drill down to calculators:

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

System Unit	**Dimensions** (H x W x D) (with bezel)	3.38 x 17.54 x 26.01 in (8.59 x 44.54 x 66.07 cm)	
	Weight (approximate)	Maximum (all hard drives, power supply, and processor installed)	60 lb (27.22 kg)
		Minimum (one hard drive, power supply, and processor installed)	47.18 lb (20.41 kg)
	Input Requirements (per power supply)	Rated Line Voltage	100 - 132 VAC, 200 - 240 VAC
		Rated Input Current	10A (at 100 VAC) 9A (at 120 VAC) 6.1A (at 200 VAC)
		Rated Input Frequency	50 to 60 Hz
		Rated Input Power	980W (at 100 VAC) 1035W (at 120 VAC) 1170W (at 240 VAC)
	BTU Rating	Maximum	3350 BTU/hr (at 100 VAC) 3530 BTU/hr (at 120 VAC) 3990 BTU/hr (at 240 VAC)
	Power Specifications	To review typical system power ratings use the Power Calculator which is available via the online tool located at URL: http://h30099.www3.hp.com/configurator/calc/Power%20Calculator%20Catalog.xls - Click on the system of interest. Example: DL380 G5 - Follow the instructions of the next screens.	
	Power Supply Output Power (per power supply)	Rated Steady-State Power	800 W (at 100 VAC) 850 W (at 120 VAC) 1000W (qt 200-240 VAC)
		Maximum Peak Power	800 W (at 100 VAC) 850 W (at 120 VAC) 1000W (at 200-240 VAC)
	System Inlet Temperature	Operating	10° to 35°C (50° to 95°F) at sea level with an altitude derating of 1.0°C per every 305 m (1.8°F per every 1000 ft) above sea level to a maximum of 3050 m (10,000 ft), no direct sustained sunlight. Maximum rate of change is 10°C/hr (18°F/hr). The upper limit may be limited by the type and number of options installed. System performance may be reduced if operating with a fan fault or above 30°C (86°F).
		Non-operating	-30° to 60°C (-22° to 140°F). Maximum rate of change is 20°C/hr (36°F/hr).
	Relative Humidity	Operating	10 to 90% relative humidity (Rh), 28°C (82.4°F)

	(non-condensing)		maximum wet bulb temperature, non-condensing.
		Non-operating	5 to 95% relative humidity (Rh), 38.7°C (101.7°F) maximum wet bulb temperature, non-condensing.
	Altitude	Operating	3050 m (10,000 ft). This value may be limited by the type and number of options installed. Maximum allowable altitude change rate is 457 m/min (1500 ft/min).
		Non-operating	9144 m (30,000 ft). Maximum allowable altitude change rate is 457 m/min (1500 ft/min).
	Acoustic Noise	Listed are the declared A-Weighted sound power levels (LWAd) and declared average bystander position A-Weighted sound pressure levels (LpAm) when the product is operating in a 23°C ambient environment. Noise emissions were measured in accordance with ISO 7779 (ECMA 74) and declared in accordance with ISO 9296 (ECMA 109).	
		Idle	
		LWAd	6.1 B
		LpAm	44 dBA
		Operating	
		LWAd	6.1 B
		LpAm	44 dBA
Smart Array P400 Controller	Disk Drive and Enclosure Interface	3G SAS (Serial Attached SCSI) 1.5G SATA (Serial Advanced Technology Attachment)	
	SAS Connectors	2 internal (SFF8484) x4 wide port connectors	
	Cache Memory Speed	DDR2-533MHz with 40 or 72-bit wide bus provides up to 4.2 GB/s maximum bandwidth.	
	Server Interface	x8 2.5G PCIe provides 2GB/s maximum bandwidth.	
	SAS Speed	x8 3G SAS provides 2.4GB/s maximum bandwidth.	
	Cache Memory	40-bit 256MB cache (72-bit 512MB module upgrades available); ECC protection, battery-backed, and transportable	
	Logical Drives Supported	Up to 32 logical drives	
	Host Memory Addressing	64-bit, supporting greater than 4GB server memory space	
	RAID Support	RAID 6 with ADG (Advanced Data Guarding) requires Battery Backed Write Cache Upgrade RAID 5 (Distributed Data Guarding) RAID 1+0 (Striping & Mirroring) RAID 0 (Striping)	

Technical Specifications

Smart Array E200 Controller	Disk Drive and Enclosure Interface	3G SAS (Serial Attached SCSI) 1.5G SATA (Serial Advanced Technology Attachment)	
	SAS Connectors	2 internal (SFF8484) x4 wide port connectors	
	Cache Memory Speed	DDR1-266 MHz provides up to 4.2 GB/s maximum bandwidth.	
	Server Interface	x8 2.5G PCIe provides 2GB/s maximum bandwidth.	
	SAS Speed	x8 3G SAS provides 2.4GB/s maximum bandwidth.	
	Cache Memory	40-bit 64MB cache or a 128MB battery backed cache: ECC protection, battery-backed, and transportable NOTE: The 64MB cache is not battery-backed or transportable.	
	Logical Volumes Supported	Up to 32 logical volumes	
	Host Memory Addressing	64-bit, supporting greater than 4GB server memory space	
	RAID Support	RAID 5 (Distributed Data Guarding) RAID 1, 1+0 (Striping & Mirroring) RAID 0 (Striping)	
Two Embedded NC373i Multifunction Server Adapters	Network Interface	10Base-T/100Base-TX/1000Base-TX	
	Compatibility	IEEE 802.3 10Base-T IEEE 802.3ab 1000Base-T IEEE 802.3u 100Base-TX	
	Data Transfer Method	PCI Express, four lanes (x4)	
	Network Transfer Rate	10Base-T (Half-Duplex)	10 Mb/s
		10Base-T (Full-Duplex)	20 Mb/s
		100Base-TX (Half-Duplex)	100 Mb/s
		100Base-TX (Full-Duplex)	200 Mb/s
		1000Base-TX (Half and Full-Duplex)	2000Mb/s
	Connector	Two RJ-45	
	Cable Support	10Base-T	Categories 3, 4 or 5 UTP; up to 328 ft (100 m)
		100Base-TX	Category 5 or higher UTP; up to 328 ft (100 m)
		1000BaseTX	Category 5 or higher UTP; up to 328 ft (100 m)

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.

© Copyright 2008 Hewlett-Packard Development Company, L.P.

The information contained herein is subject to change without notice.

Microsoft and Windows NT are US registered trademarks of Microsoft Corporation.

Intel, the Intel logo, Xeon and Xeon Inside are trademarks of Intel Corporation in the U.S. and other countries.

The only warranties for HP products and services are set forth in the express warranty statements accompanying such products and services. Nothing herein should be construed as constituting an additional warranty. HP shall not be liable for technical or editorial errors or omissions contained herein.

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