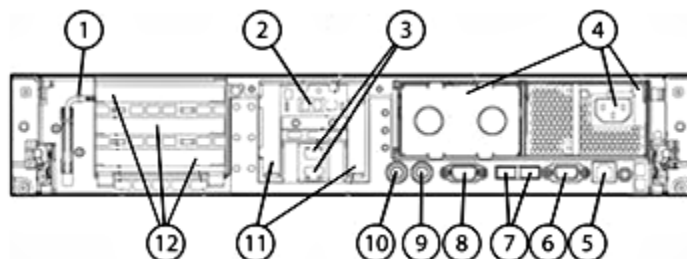
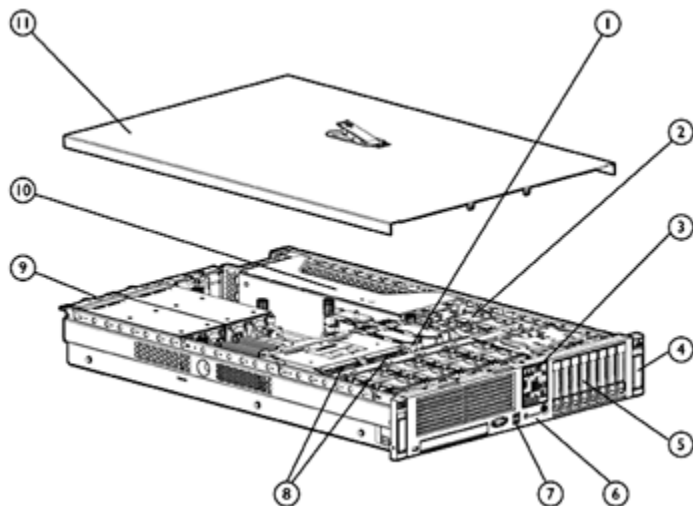


Overview



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® X5270 Dual-Core processor

At A Glance

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:



Overview

- 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
- Redundancy:
 - Fully redundant hot plug fans (N+1)
 - Hot plug power supply with optional redundancy (Included in Performance models)
- Management:
 - HP Insight Control suite delivers essential management, including proactive health management, lights out remote control, optimization of power usage, rapid server deployment, performance analysis, vulnerability scanning and patch management and virtual machine management. Now with Dynamic Power Capping technology, ICE can potentially triple the capacity of your data center by reclaiming trapped power and cooling capacity. For more information, go to: www.hp.com/go/ice.
 - HP ProLiant Onboard Administrator (powered by the Integrated Light-Out 2 management processor) for simplified server setup, health monitoring and recovery, power and thermal control, and lights-out remote administration
 - Integrated Lights-Out 2 Advanced unlocks the full capabilities of the ProLiant Onboard Administrator with high performance Integrated Remote Console, multi-user console sharing, video record and replay, and virtual media, including virtual folders for rapid server updates.
 - 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)
- Operating Systems and Virtualization Software Support for ProLiant Servers:
 - Supports Windows, RHEL, SLES, OEL, Solaris, NetWare, VMware, and HP Citrix Essentials for XenServer
- 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 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

Overview

have a one-year warranty. SAS Enterprise drives have a three-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	Quad-Core Processors
One of the following depending on Model	Quad-Core Intel® Xeon® Processor X5470 (3.33 GHz, 120 Watts, 1333 FSB)
	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 L5430 (2.66 GHz, 50 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 X5270 (3.50 GHz, 80 Watts, 1333 FSB)
	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)

NOTE: Up to 2 processors (8 cores) supported. Performance configurations include two processors. Mixing different processor models is not supported.

NOTE: 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.

Cache Memory	12 MB (2 x 6 MB) Level 2 cache (5400 series)
One of the following depending on Model	8 MB (2 x 4 MB) Level 2 cache (5300 series)
	6 MB (1 x 6 MB) Level 2 cache (5200 series)

Standard Features

Chipset	Intel® 5000P Chipset NOTE: For more information regarding Intel chipsets, please see the following URL: http://www.intel.com/products/server/chipsets/ .
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Memory Protection	Advanced ECC (multi-bit error protection), Online Spare, Mirroring 4-way Interleaving
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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
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Expansion Slots

Expansion Slots	Expansion Slots #	Technology	Bus Width**	Connector Width	Bus Number*	Form Factor	Notes
Embedded Slots	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



Standard Features

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 PCIe connector.

Storage Controller <i>One of the following depending on Model</i>	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

Storage	Diskette Drive	None Standard
	Optical Drive	None Standard
	<i>One of the following depending on Model</i>	IDE DVD-ROM/CDRW Combo included on Performance models
	Hard Drives	None Standard

Maximum Internal Storage	Hot Plug SAS	2.4TB	8 x 300GB with standard internal hot plug SFF SAS drive cage
	Hot Plug	2.0TB	8 x 250GB

Standard Features

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)

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 1 port
- 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)

Standard Features

HP Insight Control suite HP Insight Control suite delivers essential infrastructure management, including proactive health management, lights out remote control, optimization of power usage, rapid server deployment, performance analysis, vulnerability scanning and patch management and virtual machine management.

HP Insight Control suite installs and licenses the following components by default using a wizard-based integrated installer:

- HP Systems Insight Manager (SIM)
- HP iLO Advanced Pack
- HP Insight Rapid Deployment software (RDP)
- HP Insight Power Manager (IPM)
- HP Insight Performance Manager module (PMP)
- HP Insight Vulnerability and Patch Manager module (VPM)
- HP Insight Virtual Machine Manager software for ProLiant (VMM)

Additional Insight software standalone products and management tools included on the Insight Software media kit can be installed manually:

- HP Insight Server Migration software for ProLiant (SMP)
NOTE: HP Insight Server Migration software for ProLiant is licensed separately from the Insight Control suite.
- HP Open Service Event Manager
- HP Insight Remote Support Standard
- HP Insight Remote Support Advanced (previously Service Essentials Remote Support Pack)

NOTE: Insight Server Migration software for ProLiant can be installed from the SMP CD included in the Insight Software media kit.

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

NOTE: As of Feb. 1, 2009, HP iLO Power Management Pack is being discontinued. Customer can either purchase HP Insight Control suite which contains all the components of IPMP or the standalone components which include iLO Advanced, Insight Power Manager and System Insight Manager.

HP Insight Control suite 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 suite and most Insight software products 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/insight>.

Standard Features

HP ProLiant Onboard Administrator

HP ProLiant Onboard Administrator (powered by the Integrated Lights-Out 2 management processor) simplifies server setup, health monitoring, power and thermal control, and lights-out remote administration of ProLiant ML, DL, and BL servers. HP ProLiant Onboard Administrator functions without additional software, and can be accessed from any location via a web browser. It works hand-in-hand with HP Systems Insight Manager, Insight Control, and Insight Dynamics - VSE suite helping customers unlock the value of the ProLiant platform and deliver the highest possible quality of IT service to the business.

Capabilities of the HP ProLiant Onboard Administrator embedded in ProLiant ML/DL servers include, but are not limited to the following:

- Rom-based Setup Utility (RBSU) and Option Rom Configuration for Arrays (ORCA)
- IML and iLO event logging
- Automatic Server Recovery (ASR)
- OS independent hardware health status
- Present server power consumption
- Virtual Unit ID control
- Remote serial console
- Virtual power button control
- 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.

Unlock the full remote administration capabilities of HP ProLiant Onboard Administrator with Integrated Lights-Out 2 Advanced.

Server Management Stand Alone Software Product - Insight software

HP Systems Insight Manager (SIM)

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.

For additional information, please see: www.hp.com/go/hpsim

HP Insight Rapid Deployment software (RDP)

Insight Rapid Deployment software (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>.

HP Insight Server Migration software for ProLiant (SMP)

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. Insight Server Migration software for ProLiant (SMP) automates the manual processes required for migrating servers between physical or virtual platforms, whether migrating to VMware or Microsoft virtual machines. SMP 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>.

Standard Features

HP Insight Dynamics - VSE suite for ProLiant (ID-VSE) The HP Insight Dynamics - VSE suite for ProLiant is advanced infrastructure management software that allows you to analyze and optimize your adaptive infrastructure to manage physical and virtual resources in the same way. HP Insight Dynamics - VSE gives you a powerful toolkit to accelerate complex technology projects and simplify daily operations. It enables you to plan capacity and power continuously, balance across physical and virtual resources, ensure cost-effective high availability and provision infrastructure consistently.

NOTE: For more information, visit:

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

HP Integrated Lights-Out (iLO) Advanced Pack Unlocks the full capabilities of the ProLiant Onboard Administrator with comprehensive remote control including Virtual KVM remote graphical console, power management capabilities such as power measurement, regulation, and capping, new iLO Text Console, automatic and on-demand video recording of server events, global team collaboration for up to four remote users, virtual media (floppy, CD/DVD, USB key), virtual folders, and enterprise security (directory services and two-factor authentication). For additional information, please see: www.hp.com/go/iLO

HP Insight Virtual Machine Manager software for ProLiant (VMM) Get the most out of server virtualization by unifying the management of physical and virtual servers in HP Systems Insight Manager software. The Insight Virtual Machine Manager software for ProLiant provides central management and control of VMware and Microsoft virtual machines and provides physical host to virtual machine association. For additional information, please see: <http://www.hp.com/go/vm-manage>.

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. For additional information, please see: www.hp.com/go/ipm

NOTE: Flexible and volume quantity license kits are available for the Insight software products. Refer to: <http://www.hp.com/go/insightcontrol> or the various Insight software product QuickSpecs for more information.

Standard Features

Core Infrastructure Management

HP Foundation Pack

Managing the growing number of servers can be complex and expensive for your organization. IT managers need to address changing business needs with tools that meet the challenges of managing today's complex Datacenters.

HP provides management solutions that are designed to simplify a server's installation, configuration and maintenance throughout the entire server lifecycle. This provides the customer with higher levels of operational efficiency and highly reliable systems: www.hp.com/go/foundation.

The foundation pack includes:

- HP SmartStart
- HP Management
- HP ProLiant Firmware Maintenance

SmartStart version supported (minimum): SmartStart 7.51

<http://www.hp.com/servers/smartstart>

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>.

Standard Features

HP Serviceguard for Linux (SGLX) provides high availability clustering for Linux applications running on HP Integrity, HP ProLiant and other supported industry-standard servers. Serviceguard for Linux reduces planned and unplanned downtime and delivers efficient, continuous access to business-critical applications - with all of the enterprise features you expect from HP.

This high availability clustering solution is 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.

For the most recent list of Linux distributions & kernels, servers and storage supported with Serviceguard for Linux, please see:

ftp://ftp.compaq.com/pub/products/servers/ha/linux/SGLX_Certification_Matrix.pdf

The following is a quick summary of HP Serviceguard for Linux features and support:

- Supported Virtual Machines
 - SG/LX in HP Integrity Virtual Machines guests
 - SG/LX in VMware ESX guests
 - SG/LX in Red Hat and SUSE Xen hosts (DOM0)
- Application Integration Toolkits
 - HP Serviceguard 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

NOTE: For additional information including software and server support 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>.

Standard Features

Industry Standard Compliance	ACPI 2.0 Compliant PCI 2.2 Compliant WOL Support Microsoft® Logo certifications USB 2.0 Support
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Security	Power-on password Keyboard password Diskette drive control Diskette boot control QuickLock, Network Server Mode Parallel and serial interface control Administrator's password
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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.
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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
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Power Supply	800Watt, CE Mark Compliant Optional Hot Plug AC Redundant Power Supply Optional 48 Volt DC Power Supply Kit (Factory integration not available)
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System Fans	Fully redundant hot plug fans ship standard (N+1)
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Operating Systems and Virtualization Software Support for ProLiant Servers	Microsoft Windows Server Microsoft Windows Server Hyper V Red Hat Enterprise Linux (RHEL) SUSE Linux Enterprise Server (SLES) Oracle Enterprise Linux (OEL) Solaris 10 for x86/x64 based Systems NetWare VMware Citrix Essentials for XenServer NOTE: For more information on HP's Certified and Supported ProLiant Servers for OS and Virtualization Software and latest listing of software drivers available for your server, please visit our Support Matrix at: http://www.hp.com/go/ossupport and our driver download page www.hp.com/support/DL385G5 .
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Standard Features

Rack Airflow Requirements for 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.

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/>.

Standard Features

Factory Express Portfolio HP Factory Express offers configuration, customization, integration and deployment services for HP servers for Servers and Storage 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 Configuration The HP eConfigure-Enterprise Configurator now provides factory default racking for our HP hardware portfolio. This approach is aligned with our strategic direction to meet the needs and expectations of our valued customers. If you require "custom" rack configuration, please contact HP's Customer Business Center or an Authorized Partner for assistance.
<http://www.hp.com/products/configurator>.

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

Models

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	Processor(s)	(2) Quad-Core Intel® Xeon® Processors X5460 (3.16 GHz, 120 Watt, 1333 FSB)
	Two of the following depending on Model	(2) Quad-Core Intel® Xeon® Processors E5450 (3.00 GHz, 80 Watts, 1333 FSB)
Quad-Core Models	Cache Memory	12MB (2 x 6MB) Level 2 cache - Intel® Xeon® processor 5400 sequence
HP DL380G5 X5460 4G 458561-xx1	Two of the following depending on Model	8MB (2 x 4MB) Level 2 cache - Intel® Xeon® processor 5300 sequence
HP DL380G5 E5450 4G 492205-xx1	Memory	6MB (1 x 6MB) Level 2 cache - Intel® Xeon® processor 5200 sequence
	Network Controller	4 GB (4 x 1 GB of PC2-5300 Fully Buffered DIMMs (DDR2-667) with Advanced ECC, mirrored and online spare memory capabilities
	Storage Controller	Two embedded NC373i Multifunction Gigabit Server Adapters
	Hard Drive	HP Smart Array P400/512MB BBWC Controller (RAID 0/1/1+0/5/6)
	Internal Storage	None ship standard
	Optical Drive	2.0TB SATA; 2.4TB SAS (with optional hard drives)
	Power Supply	IDE DVD-ROM/CDRW combo
	Fans	(2) 800Watt, CE Mark Compliant
	Form Factor	Fully redundant hot plug fans ship standard (N+1)
		Rack (2U), Height 3.38-inch/8.59 cm; Depth: 26 inches (66 cm)

HP DL380 G5 Base Models	Processor(s)	(1) Quad-Core Intel® Xeon® Processor E5440 (2.83 GHz, 80 Watts, 1333 FSB)
	One of the following depending on Model	(1) Quad-Core Intel® Xeon® Processor E5430 (2.66 GHz, 80 Watts, 1333 FSB)
Quad-Core Models	Cache Memory	(1) Quad-Core Intel® Xeon® Processor E5420 (2.50 GHz, 80 Watts, 1333 FSB)
HP DL380G5 E5440 2G 458563-xx1	One of the following depending on Model	(1) Dual-Core Intel® Xeon® Processor X5260 (3.33 GHz, 80 Watts, 1333 FSB)
HP DL380G5 E5430 2G 458565-xx1	Memory	12MB (2 x 6MB) Level 2 cache - Intel® Xeon® processor 5400 sequence
HP DL380G5 E5420 2G 458567-xx1	Network Controller	8MB (2 x 4MB) Level 2 cache - Intel® Xeon® processor 5300 sequence
	Storage Controller	6MB (1 x 6MB) Level 2 cache - Intel® Xeon® processor 5200 sequence
Dual-Core Models	Hard Drive	2 GB (2 x 1 GB) PC2-5300 Fully Buffered DIMMs (DDR2-667) with Advanced ECC, mirrored and online spare memory capabilities
HP DL380RG5 X5260 2G 461453-xx1	Internal Storage	Two embedded NC373i Multifunction Gigabit Server Adapters
	Optical Drive	HP Smart Array P400/256MB Controller (RAID 0/1/1+0/5)
	Power Supply	None ship standard
	Fans	2.0TB SATA; 2.4TB SAS (with optional hard drives)
	Form Factor	Optional DVD, DVD/CD-RW combo, DVD+R/RW or floppy drive
		(1) 800Watt, CE Mark Compliant
		Fully redundant hot plug fans ship standard (N+1)
		Rack (2U), Height 3.38-inch/8.59cm; Depth: 26 inches (66 cm)

Models

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	2.0TB SATA; 2.4TB SAS (with optional hard drives)
	Optical Drive	Optional DVD, DVD/CD-RW combo, DVD+R/RW or floppy drive
	Power Supply	(1) 800Watt, CE Mark Compliant
	Fans	Fully redundant hot plug fans ship standard (N+1)
Form Factor	Rack (2U), Height 3.38-inch/8.59cm; Depth: 26 inches (66 cm)	

HP DL380 G5 Entry Models Quad-Core Models DL380G5 E5405 1G 458568-xx1	Processor(s)	(1) Quad-Core Intel® Xeon® Processor E5405 (2.0 GHz, 80 Watt, 1333 FSB)
	Cache Memory	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
	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
	Internal Storage	2.0TB SATA; 2.4TB SAS (with optional hard drives)
	Optical Drive	Optional DVD, DVD/CD-RW combo, DVD+R/RW or floppy drive
	Power Supply	(1) 800Watt, CE Mark Compliant
	Fans	Fully redundant hot plug fans ship standard (N+1)
Form Factor	Rack (2U), Height 3.38-inch/8.59cm; Depth: 26 inches (66 cm)	

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

Configuration Information - Factory Integrated Models

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

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

NOTE: FIO indicates that this option 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	405160-B21
	NOTE: PCI Express	
	HP Smart Array P400/512 BBWC for DL380 G5/ DL385 G2 FIO Controller	405162-B21
	NOTE: PCI Express	
	HP Smart Array E200/128 BBWC Controller	411508-B21
	NOTE: PCI Express	
	HP Smart Array P800/512 BBWC Controller	381513-B21
	NOTE: PCI Express SA-P800 Controller supports both internal and external drives.	
	HP Smart Array P600/256 BBWC Controller	337972-B21
	NOTE: PCI-X. SA-P600 Controller supports both internal and external drives.	
	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 other noted)

Processors	Quad-Core Processors	
	Quad-Core Intel® Xeon® Processor X5470 (3.33 GHz, 120 Watts, 1333 FSB)	484309-L21
	DL380 FIO Kit	
	Quad-Core Intel® Xeon® Processor X5460 (3.16 GHz, 120 Watts, 1333 FSB)	458581-L21
	DL380 FIO Kit	
	Quad-Core Intel® Xeon® Processor X5450 (3.0 GHz, 120 Watts, 1333 FSB)	462593-L21
	DL380 FIO Kit	
	Quad-Core Intel® Xeon® Processor E5450 (3.0 GHz, 80 Watts, 1333 FSB) DL380	458583-L21
	FIO Kit	
	Quad-Core Intel® Xeon® Processor E5440 (2.83 GHz, 80 Watts, 1333 FSB)	458585-L21
	DL380 FIO Kit	
	Quad-Core Intel® Xeon® Processor E5430 (2.66 GHz, 80 Watts, 1333 FSB)	458575-L21
	DL380 FIO Kit	

Configuration Information - Factory Integrated Models

Quad-Core Intel® Xeon® Processor L5430 (2.66 GHz, 50 Watts, 1333 FSB) DL380 FIO Kit	484310-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
Dual-Core Processors	
Dual-Core Intel® Xeon® Processor X5260 (3.50 GHz, 80 Watts, 1333 FSB) DL380 FIO Kit	484311-L21
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

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/>.

Configuration Information - Factory Integrated Models

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

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

Step 4: Choose Additional Options for Factory Integration

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

Core Options

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

Processors		
	Quad-Core Processors	
	Quad-Core Intel® Xeon® Processor X5470 (3.33 GHz, 120 Watts, 1333 FSB)	484309-B21
	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 L5430 (2.66 GHz, 50 Watts, 1333 FSB)	484310-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
	Dual-Core Processors	
	Dual-Core Intel® Xeon® Processor X5270 (3.50 GHz, 80 Watts, 1333 FSB)	484311-B21
	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

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/>.

Diskette Drive		
	Slimline Ejectable Floppy drive	390164-B21

Core Options

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

Hard Drives

NOTE: Transfer rates of drives are dependent on the maximum transfer rate supported by the HBA or Controller. Refer to the HBA or Controller technical specifications for details.

SAS Hot Plug SFF Enterprise (ENT) Drives

HP 300GB 6G SAS 10K SFF DP ENT HDD	507127-B21
HP 300GB 3G SAS 10K SFF DP ENT HDD	492620-B21
HP 146GB 6G SAS 10K SFF DP ENT HDD	507125-B21
HP 146GB 3G SAS 15K SFF DP ENT HDD	504062-B21
HP 146GB 3G SAS 10K SFF DP ENT HDD	418367-B21
HP 146GB 3G SAS 10K SFF SP HDD	431958-B21
HP 72GB 3G SAS 15K SFF DP ENT HDD	418371-B21
HP 72GB 3G SAS 15K SFF SP HDD	431935-B21
HP 72GB 3G SAS 10K SFF DP ENT HDD	384842-B21
HP 72GB 3G SAS 10K SFF SP HDD	375861-B21
HP 36GB 3G SAS 15K SFF DP ENT HDD	418369-B21
HP 36GB 3G SAS 15K SFF SP HDD	431933-B21

NOTE: SAS Enterprise drives have a 3-year warranty. Please see the QuickSpecs for Technical Specifications and additional information:

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

SATA Hot Plug Entry (ETY) Drives

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

NOTE: SATA drives have a 1 year warranty. Please see the QuickSpecs for Technical Specifications and additional information:

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

Small Form Factor (SFF) SATA Hot Plug Drives

HP 120GB 1.5G SATA 5.4K SFF HDD	431786-B21
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NOTE: SATA hard drives have a 1-year warranty. Please see the QuickSpecs for Technical Specifications and additional information:

http://h18000.www1.hp.com/products/quickspecs/11940_div/11940_div.html
(Worldwide)

Core Options

Communications	HP NC110T PCI Express Gigabit Server Adapter	434905-B21
	NOTE: Does not support Windows 2000.	
	HP NC360T PCI Express Dual Port Gigabit Server Adapter	412648-B21
	HP NC364T PCI Express Quad Port Gigabit Server Adapter	435508-B21
	NOTE: Does not support Windows 2000.	
	HP NC373F PCI Express Multifunction Gigabit Server Adapter	394793-B21
	HP NC373T PCI Express Multifunction Gigabit Server Adapter	394791-B21
	HP NC380T PCI Express Dual Port Multifunction Gigabit Server Adapter	394795-B21
NOTE: Supported on a Full Length-Full Height slot only.		
HP NC522SFP Dual Port 10GbE Server Adapter	468332-B21	
NOTE: A minimum of two gigabyte (2 GB) of server memory is required per each NC522SFP adapter.		
HP NC7170 PCI-X Dual Port 1000T Gigabit Server Adapter	313881-B21	
NOTE: Please see the QuickSpecs for Technical Specifications and additional information: www.hp.com/go/ProLiantNICs		

Riser Cage Options	Mixed Riser Cage Option Kit (PCI-E/PCI-X)	410570-B21
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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	433634-B21
NOTE: Factory integration not available for PN 433634-B21.		

Additional Options

HP Insight Control suite	NOTE: Electronic licensing options are available for Insight Control suite software products. Please see the appropriate Insight Control QuickSpecs for additional information. www.hp.com/go/ice	
HP Insight Control Environment		
HP Insight Control Environment, No Media 1-Server License including 1 year of 24x7 Technical Support and Updates		452148-B22
	NOTE: This part number can be purchased as a single license or as multiple licenses with a single activation key. Customer will receive a license entitlement certificate via e-mail. The license entitlement certificate must be redeemed online or via fax in order to obtain the license activation key(s). Includes one year of 24 x 7 HP Software Technical Support and Update Service. Only available directly from HP and select resellers in the Americas region.	
HP Insight Software Media Kit		436222-B21
	NOTE: Insight Software DVD media without licenses. Contains Systems Insight Manager and Insight software products and components licensed by Insight Control suite. Uses an integrated installer to perform quick and accurate software installation and updates.	
	NOTE: For additional License Kits, please see the QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/12631_div/12631_div.html	
HP Insight Control suite for Linux		
HP Insight Control suite for Linux, Media pack (DVD) - No licenses included		464422-B22
	NOTE: This optional Media pack DVD contains the ISO image for HP Insight Control suite for Linux, HP System Insight Manager, HP Insight Power Manager, HP Insight Virtual Machine Manager software for ProLiant and an integrated installer. Servers must be acquired separately.	
	NOTE: This Media pack is optional because the latest ISO image and latest updates may be downloaded at no cost from: http://www.hp.com/go/ice-linux (click on Download button).	
HP Insight Control suite for Linux, No Media, 1-Server license, including one year of 24x7 Technical Support and Updates		464423-B22
	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.	
	NOTE: One certificate is shipped for each license.	
	NOTE: For additional License Kits, please see the QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/13019_div/13019_div.html	

Server Management Stand Alone Software Insight software

NOTE: Electronic licensing options are available for select software products. Please see the appropriate Insight Software standalone product QuickSpecs for additional information.

Deploy

HP Insight Rapid Deployment software (RDP)

HP Insight Rapid Deployment software 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

Additional Options

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 Insight Server Migration software for ProLiant

HP Insight Server Migration software for ProLiant, 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 Insight Server Migration software for ProLiant, 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 Insight Server Migration software for ProLiant, 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 suite for ProLiant

HP Insight Dynamics-VSE suite for ProLiant 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 and c-Class Blade servers. Customer will receive a printed license entitlement certificate via physical shipment.

HP Insight Dynamics-VSE suite for ProLiant 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

HP Integrated Lights-Out Advanced Pack (iLO)

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

512485-B21

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

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

HP iLO Advanced to Insight Control Environment Upgrade, No Media, 1-Server

506503-B21

Additional Options

License including one year of 24x7 support

NOTE: For use in environments where iLO Advanced Pack is already installed and licensed. 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/12631_div/12631_div.html

Optimize

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

HP Insight Virtual Machine Manager software for ProLiant (VMM)

Insight Virtual Machine Manager software for ProLiant, 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 Insight software products. Refer to: <http://www.hp.com/go/insightcontrol> or the various Insight software product QuickSpecs for more information.

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 351580-B21

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

Smart Array E500 Controller

Smart Array E500/256MB Controller 435129-B21

HP SA-P400 and SA-E500 24 In Battery Cable Kit 417836-B21

NOTE: This option kit contains a 24" battery cable and adhesive material for installing a battery into the server if a Smart Array E500 is integrated outside of the factory. For all solutions, please refer to the server QuickSpecs and User's Manual for detailed installation instructions.

Smart Array P400 Controller

HP Smart Array P400/256MB Controller 405132-B21

NOTE: The HP Smart Array P400/256 MB Controller (PN 405132-B21) may only be installed in slots 3, 4, and 5.

Additional Options

HP Smart Array P400/512MB BBWC Controller	411064-B21
NOTE: The HP Smart Array P400/512 MB BBWC Controller (PN 411064-B21) may only be installed in slots 3, 4, and 5.	
512MB Battery-backed cache upgrade	405148-B21
NOTE: Contains battery and memory module. For Smart Array P400 Controller.	
Battery-backed write cache upgrade	383280-B21
NOTE: Contains battery only. For Smart Array P400 Controller.	
HP SA-P400 and SAE500 24 In Battery Cable Kit	417836-B21
NOTE: This option kit contains a 24" battery cable and adhesive material for installing a battery into the server if a Smart Array P400 is integrated outside of the factory. For all solutions, please refer to the server QuickSpecs and User's Manual for detailed installation instructions.	
Smart Array P400 Battery Attach Kit	417836-B21
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.	
Smart Array P600 Controller	
HP Smart Array P600/256 BBWC Controller	337972-B21
NOTE: Requires Mixed PCI-E/X riser cage.	
512 MB Battery-Backed Cache Upgrade	372538-B21
NOTE: This 512-MB Battery-Backed Cache Module upgrade kit supports the Smart Array P600 Controller and the Smart Array 6400 series Controller.	
Smart Array P800 Controller	
HP Smart Array P800/512 BBWC Controller	381513-B21
NOTE: Please see the 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
NOTE: When using the SC44Ge with SATA Hard Drives, 1.5G SATA Hard Drives are required. Transfer rate: 1.5 Gb/s SATA, 3 Gb/s SAS.	
HP 8 Internal Port SAS HBA with RAID	347786-B21
NOTE: Transfer rate: 1.5 Gb/s SATA, 3 Gb/s SAS.	
NOTE: Please see the QuickSpecs for Technical Specifications and additional information:	
http://h18004.www1.hp.com/products/quickspecs/13082_div/13082_div.html (SC08Ge HBA)	
http://h18004.www1.hp.com/products/quickspecs/12617_div/12617_div.html	

Additional Options

(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	273915-B21
NOTE: Ultra320 SCSI.	
Smart Array 6404/256 Controller	273914-B21
NOTE: Ultra320 SCSI.	
Smart Array 642 Controller	291967-B21
NOTE: Ultra320 SCSI.	
128-MB Battery-Backed Write Cache (BBWC)	351580-B21
NOTE: Supports the Smart Array E200 Controller, Smart Array 641 Controller, and Smart Array 642 Controller.	
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 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)	

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

HPC Specific Options	HP IB 4X DDR PCI-e Dual Port HCA	409376-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
	NOTE: Please see the QuickSpecs for additional information: http://h18000.www1.hp.com/products/quickspecs/13078_div/13078_div.html	

Additional Options

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 Rack-Mount Tape Solutions

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

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

SAS Rack-Mount Tape Solutions

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

HP StorageWorks 1U SAS Rack-Mount Kit with one LTO-4 Ultrium 1760 EH946A

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

HP StorageWorks 1U SAS Rack-Mount Kit AE459A

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

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

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

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

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

SCSI Rack-Mount Tape Solutions

NOTE: SCSI Controller required. HP recommends purchasing the HP SC11Xe HBA (412911-B21) for a dedicated SCSI HBA for tape.

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

NOTE: Pre-configured with one LTO-2 Ultrium 448 SCSI tape drive.

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

NOTE: Pre-configured with one LTO-3 Ultrium 920 SCSI tape drive.

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

NOTE: Pre-configured with one LTO-4 Ultrium 1840 SCSI tape drive.

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)

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

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

http://h18000.www1.hp.com/products/quickspecs/10854_div/10854_div.html
 (Worldwide)

Additional Options

Disk-Based Backup	<p>RDX Removable Disk Backup</p> <p>HP StorageWorks RDX160 External Removable Disk Backup System AJ766A NOTE: 160GB of Disk Storage</p> <p>HP StorageWorks RDX320 External Removable Disk Backup System AJ768A NOTE: 320GB of Disk Storage</p> <p>HP StorageWorks RDX500 External Removable Disk Backup System AJ935A NOTE: 500GB of Disk Storage NOTE: Please see the HP RDX Removable Disk Backup System QuickSpecs for additional information: http://h18000.www1.hp.com/products/quickspecs/13036_div/13036_div.html</p> <p>D2D Backup</p> <p>HP StorageWorks D2D120 Backup System with Data Protector Express Software Kit EH924A NOTE: 2TB of Disk Storage.</p> <p>HP StorageWorks D2D130 Backup System with LTO-3 Ultrium 920 SAS Tape Drive EH952A NOTE: 3TB of Disk Storage.</p> <p>HP StorageWorks D2D2503i Backup System EH945A NOTE: 3TB of Disk Storage</p> <p>HP StorageWorks D2D4004i Backup System EH938A NOTE: 4.5TB of Disk Storage NOTE: Please see the HP D2D Backup Systems QuickSpecs for additional information: http://www.hp.com/go/d2d</p>
Tape Autoloaders	<p>HP StorageWorks DAT Autoloader</p> <p>HP StorageWorks DAT 72x10 tape autoloader AE313B</p> <p>HP StorageWorks 1/8 G2 Tape Autoloader</p> <p>HP StorageWorks 1/8 G2 LTO-4 Ultrium 1760 SAS Tape Autoloader AK377A</p> <p>HP StorageWorks 1/8 G2 LTO-3 Ultrium 920 SAS Autoloader AH558A</p> <p>HP StorageWorks 1/8 G2 LTO-2 Ultrium 448 Tape Autoloader AH164A</p> <p>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.</p>

Additional Options

Tape Libraries	HP StorageWorks MSL2024 Tape Library	
	HP StorageWorks MSL2024 1 LTO-4 Ultrium 1840 SCSI Drive Library	AJ033A
	HP StorageWorks MSL2024 1 LTO-4 Ultrium 1760 SAS Drive Library	AK378A
	HP StorageWorks MSL2024 1 LTO-3 Ultrium 960 SCSI Drive Library	AG115A
	HP StorageWorks MSL2024 1 LTO-3 Ultrium 920 SAS Drive Library	AH559A
	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 2 LTO-4 Ultrium 1760 SAS Drive Library	AK380A
	HP StorageWorks MSL4048 1 LTO-3 Ultrium 960 SCSI Drive Library	AG322A
	HP StorageWorks MSL4048 1 LTO-3 Ultrium 920 SAS Drive Library	AH560A
	NOTE: Please reference the MSL Tape Library QuickSpecs at: http://www.hp.com/go/automation for additional information needed to create a complete solution; reference current compatibility information at: http://www.hp.com/go/ebs .	

High Availability ClusterHP Serviceguard for Linux

Options	HP Serviceguard for Linux on HP ProLiant and other third-party x86 Servers - Physical Media Kit	519353-B21
	NOTE: This kit contains media only.	
	HP Serviceguard for Linux on HP ProLiant and other third-party x86 Servers Single-Server License	519354-B21
	Licensed per Server	
	NOTE: This license allows Serviceguard for Linux to be installed on 1 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.	
	HP Serviceguard for Linux - Flexible-Quantity License (for HP ProLiant and other third-party x86 servers)	519355-B21
	Licensed per Server	
	NOTE: This part number can be used to purchase multiple licenses 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	
	HP Serviceguard Linux Oracle Database Toolkit for HP ProLiant/x86 Servers	463833-B21
	Licensed per cluster	
	Includes media and One Year 24x7 Software Support & Updates	
	HP Serviceguard Extension for SAP on Linux for HP ProLiant/x86 Servers	463834-B21
	Licensed per physical server	
	Includes media and One Year 24x7 Software Support & Updates	
	HP Serviceguard Linux Extended Distance Cluster (XDC) for HP ProLiant/x86 Servers	463835-B21
	Licensed per physical server	
	Includes media and One Year 24x7 Software Support & Updates	
	NOTE: The above is not a complete list of all HP Serviceguard for Linux product numbers For a detailed list of supported configuration/certification options for HP Serviceguard for Linux please refer to the HP Serviceguard for Linux Configuration &	

Additional Options

Ordering Guide available 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	
HP U320e SCSI Host Bus Adapter	AH627A

NOTE: Recommended Dual Channel Ultra320 SCSI Controller for connecting multi-drive MSL tape libraries to ProLiant servers.

HP StorageWorks 20 Modular Smart Array	HP StorageWorks 20 Modular Smart Array	335921-B21
	NOTE: Rack-mountable 12 (SATA) drive enclosure with U320 Host connectivity, redundant power supplies.	
	NOTE: Please see the QuickSpecs for additional options and configuration information at:	
	http://h18000.www1.hp.com/products/quickspecs/11942_div/11942_div.html (Worldwide)	

Additional Options

HP StorageWorks 50 Modular Smart Array	<p>HP StorageWorks 50 Modular Smart Array</p> <p>NOTE: Please see the QuickSpecs for additional options and configuration information at: http://h18000.www1.hp.com/products/quickspecs/12245_div/12245_div.html (Worldwide)</p>	364430-B21
HP StorageWorks 60 Modular Smart Array	<p>HP StorageWorks 60 Modular Smart Array</p> <p>NOTE: Please see the QuickSpecs for additional options and configuration information at: http://h18000.www1.hp.com/products/quickspecs/12627_div/12627_div.html (Worldwide)</p>	418408-B21
HP StorageWorks 70 Modular Smart Array	<p>HP StorageWorks 70 Modular Smart Array</p> <p>NOTE: Please see the QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/12652_div/12652_div.html (Worldwide)</p>	418800-B21
HP StorageWorks 2000sa Modular Smart Array	<p>HP 2012sa Single Controller Modular Smart Array</p> <p>HP 2012sa Dual Controller Modular Smart Array</p> <p>NOTE: Please see the QuickSpecs for additional options and configuration information at: http://h18000.www1.hp.com/products/quickspecs/13045_div/13045_div.html (Worldwide)</p>	AJ752A
Uninterruptible Power Systems - Rack	<p>HP R1500 G2 UPS</p> <p>HP, R1.5kVA UPS, 1U, NA</p> <p>HP, R1.5kVA UPS, 1U, INTL</p> <p>HP, R1.5kVA UPS, 1U, JPN/TW</p> <p>NOTE: Please see the QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/12507_div/12507_div.html (Worldwide)</p> <p>HP R3000v Uninterruptible Power System</p> <p>HP R3000v UPS</p> <p>NOTE: The R3000v is available in China and India only.</p> <p>NOTE: Please see the QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/13129_div/13129_div.html (Worldwide)</p> <p>NOTE: For additional information on HP Uninterruptable Power Systems please go to: www.hp.com/servers/rackups.</p>	AF419A
		AF418A
		AF421A
		AF444A

Additional Options

HP Monitored Power Distribution Unit (PDU)	HP Monitored Power Distribution Unit: Full Rack Version	
	HP 17.3 kVA S2324 Monitored PDU- dual input, 3Ø24A (NA/JPN)	AF503A
	HP 8.6 kVA S1324 Monitored PDU- single input, 3Ø, 24A (NA/JPN)	AF504A
	HP 16.6 kVA S2140 Monitored PDU- dual input, 1Ø, 40A (NA/JPN)	AF505A
	HP 8.3 S1140 Monitored PDU- single input, 1Ø, 40A (NA/JPN)	AF506A
	HP 22.1 kVA S2316 Monitored PDU- dual input, 3Ø, 16A (INTL)	AF507A
	HP 11 kVA S1316 Monitored PDU- single input, 3Ø, 16A (INTL)	AF508A
	HP 14.7 kVA S2132 Monitored PDU- dual input, 1Ø, 32A (INTL)	AF509A
	HP 7.3 kVA S1132 Monitored PDU- single input, 1Ø, 32A (INTL)	AF510A
	HP Monitored Power Distribution Unit: Half Rack Version	
	HP 4.9 kVA S124 Monitored PDU- single input, 1Ø, 24A (NA/JPN)	AF914A
	HP 7.3 kVA S132 Monitored PDU- single input, 1Ø, 32A (INTL)	AF915A
	NOTE: Please see the QuickSpecs for Technical Specifications and additional information:	
	http://h18000.www1.hp.com/products/quickspecs/12118_div/12118_div.html (Worldwide)	

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 Rack 5000 Series (Graphite Metallic)	HP 5642 Rack-Unassembled	358254-B21
	NOTE: Please see the QuickSpecs for Technical Specifications and additional information:	
	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 .	

Additional 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
	10642 G2 (42U) Rack Cabinet 1200mm Deep - Shock Pallet	AF034A
	10642 G2 (42U) Rack Cabinet 1200mm Deep - Pallet	AF038A
	10842 G2 (42U) 800mm Wide Rack Cabinet - Pallet	AF041A
	10842 G2 (42U) 800mm Wide Rack Cabinet - Shock Pallet	AF042A
	10647 G2 (47U) Rack Cabinet - Pallet	AF031A
	HP S10614 (14U) Rack Cabinet - Shock Pallet	292302-B22
	10647 G2 (47U) Rack Cabinet 1200mm Deep - Shock Pallet	AF044A
	10647 G2 (47U) Rack Cabinet 1200mm Deep - Pallet	AF045A

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

NOTE: It is mandatory to use a shock pallet when shipping racks with equipment installed.

NOTE: xxxxx-B22 (shock pallet) used to ship racks with equipment installed (by custom systems, VARs and Channels).

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

http://h18000.www1.hp.com/products/quickspecs/12402_div/12402_div.html (Worldwide)

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

Additional 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
	1 U Rackmount Keyboard with USB, US	AG072A
	1 U Rackmount Keyboard with USB, UK	AG073A
	1 U Rackmount Keyboard with USB, GR	AG074A
	1 U Rackmount Keyboard with USB, FR	AG075A
	1 U Rackmount Keyboard with USB, ITL	AG076A
	1 U Rackmount Keyboard with USB, SP	AG077A
	1 U Rackmount Keyboard with USB, DEN	AG078A
	1 U Rackmount Keyboard with USB, NOR	AG079A
	1 U Rackmount Keyboard with USB, SE/FI	AG080A
	1 U Rackmount Keyboard with USB, SWI	AG081A
	1 U Rackmount Keyboard with USB, PORT	AG082A
	1 U Rackmount Keyboard with USB, BEL	AG083A
	1 U Rackmount Keyboard with USB, JPN2	AG084A
	1 U Rackmount Keyboard with USB, RUS	AG085A
	1 U Rackmount Keyboard with USB, INTL	AG086A

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

Additional Options

HP KVM Switch Options	2x1x16 IP Console Switch with Virtual Media	AF601A
	4x1x16 IP Console Switch with Virtual Media	AF602A
	2x16 Server Console Switch with Virtual Media	AF600A
	PS/2 Virtual Media Interface Adapter, 1 pack	AF604A
	NOTE: Requires PS/2 and one USB port on server.	
	Server console switch 0x2x8	AF616A
	Server console switch 0x2x16	AF617A
	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	AF613A
	NOTE: Required for supporting USB peripherals.	
	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 .	

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	

Additional Options

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>

Memory

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):

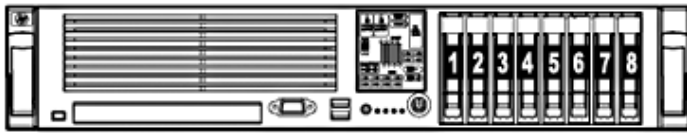
- Banks A and B must be fully populated.
- Bank A and bank B must contain FBDIMMs with identical part numbers. If installed, bank C and bank D must also contain FBDIMMs with identical part numbers.

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).

Storage



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

NOTE: Transfer rates of drives are dependent on the maximum transfer rate supported by the HBA or Controller. Refer to the HBA or Controller technical specifications for details.

SAS Hot Plug SFF Enterprise (ENT) Drives

	Quantity Supported	Position Supported	Controller
300GB 6G SAS 10K DP	Up to 8	1-8	HP Smart Array E200/64 MB Controller
300GB 3G SAS 10K DP			HP Smart Array E200/128 BBWC Controller
146GB 6G SAS 10K DP			HP Smart Array E500/256 MB Controller
146GB 3G SAS 15K DP			HP Smart Array P400/256 MB Controller
146GB 3G SAS 10K SP			HP Smart Array P400/512 MB BBWC Controller
146GB 3G SAS 10K DP			HP Smart Array P600/256 BBWC Controller
72GB 3G SAS 10K SP			NOTE: Optional mixed PCI-X/E required for SA-P600.
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			

SATA Hot Plug Entry (ETY) Drives

Storage

	Quantity Supported	Position Supported	Controller
250GB 3G SATA 5.4K 120GB 1.5G SATA 5.4K	Up to 8	1-8	<p>HP 8 Internal Port SAS HBA with RAID</p> <p>NOTE: Transfer rate: 1.5 Gb/s SATA, 3 Gb/s SAS.</p> <p>HP SC44Ge Host Bus Adapter</p> <p>NOTE: When using the SC44Ge with SATA Hard Drives, 1.5G SATA Hard Drives are required. Transfer rate: 1.5 Gb/s SATA, 3 Gb/s SAS.</p> <p>HP Smart Array E200/64 MB Controller</p> <p>HP Smart Array E200/128 BBWC Controller</p> <p>HP Smart Array E500/256 MB Controller</p> <p>HP Smart Array P400/256 MB Controller</p> <p>HP Smart Array P400/512 MB BBWC Controller</p> <p>HP Smart Array P600/256 BBWC Controller</p> <p>NOTE: Optional mixed PCI-X/E required for SA-P600.</p> <p>HP Smart Array P800/512 BBWC Controller</p>

Small Form Factor (SFF) SATA Hot Plug Drives

	Quantity Supported	Position Supported	Controller
120GB 1.5G SATA 5.4K	6	1-6	<p>HP 8 Internal Port SAS HBA with RAID</p> <p>NOTE: Transfer rate: 1.5 Gb/s SATA, 3 Gb/s SAS.</p> <p>HP SC44Ge Host Bus Adapter</p> <p>NOTE: When using the SC44Ge with SATA Hard Drives, 1.5G SATA Hard Drives are required. Transfer rate: 1.5 Gb/s SATA, 3 Gb/s SAS.</p> <p>HP Smart Array E200i/64MB Controller</p> <p>HP Smart Array E500/256MB Controller</p> <p>HP Smart Array P400i/512MB BBWC Controller</p> <p>HP Smart Array P400i/256MB Controller</p> <p>HP Smart Array P600/256 BBWC Controller</p> <p>HP Smart Array P800/512 BBWC Controller</p> <p>Please see NOTES below regarding hard drive quantity supported by Smart Array Controller.</p>

Storage

External Storage

	Quantity Supported	Position Supported	Host Controller or Adapter
20 Modular Smart Array	1 per SCSI VHDCI connector	External	Smart Array 6402/128 Controller Smart Array 6404/256 Controller <i>NOTE: Optional mixed PCI-X/E cage required.</i>
50 Modular Smart Array	2 per connector (supports 1+1 cascading)	External	HP Smart Array P600/256 BBWC Controller <i>NOTE: Optional mixed PCI-X/E cage required.</i>
60 Modular Smart Array	Up to 4 Up to 8	External	HP Smart Array P600/256 BBWC Controller HP Smart Array E500/256MB Controller HP Smart Array P800/512 BBWC Controller
70 Modular Smart Array	Up to 2 Up to 4	External	HP Smart Array P600/256 BBWC Controller HP Smart Array E500/256MB Controller HP Smart Array P800/512 BBWC Controller
HP 2000sa Modular Smart Array Controller	Up to 4	External	HP SC08Ge Host Bus Adapter

Maximum Storage Capacity - (with MSA50, SAS HDD)

Internal	2.4TB (8 x 300GB SAS SFF)
External	6.0TB (20 x 300GB SAS SFF)
Total	8.4TB

Maximum Storage Capacity - (with MSA50, SATA HDD)

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

Tape and Disk-Based Backup

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

	Position Supported	Controller	Part Number
HP StorageWorks SCSI Tape Drives, External	External	HP SC11Xe Host Bus Adapter	412911-B21
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			

Storage

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 HP U320e SCSI Host Bus Adapter NOTE: Recommended for MSL tape libraries.	412911-B21 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 RDX500	External	USB 2.0 Port	N/A
HP StorageWorks D2D Backup Systems D2D120	External	Embedded Network Controller	N/A

Storage

D2D130

D2D2503i

D2D4004i

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			

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

- 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)

Technical Specifications

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	<p>NOTE: To review typical system power ratings use the HP Power Advisor which is available online located at url: www.hp.com/go/proliant-energy-efficient or www.hp.com/go/hppoweradvisor</p> <p>- Click on the system of interest. Example: DL380 G5</p> <p>- Follow the instructions of the next screens.</p>	
	Power Supply Output Power (per power supply)	Rated Steady-State Power	800 W (at 100 VAC) 850 W (at 120 VAC) 1000W (at 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).

Technical Specifications

Relative Humidity (non-condensing)	Operating	10 to 90% relative humidity (Rh), 28°C (82.4°F) 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	
Emissions Classification (EMC)	FCC Rating	Class A	
	Normative Standards	CISPR 22; EN55022; EN55024; FCC CFR 47, Pt 15; ICES-003; CNS13438; GB9254; K22;K24; EN 61000-3-2; EN 61000-3-3; EN 60950-1; IEC 60950-1	

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

Technical Specifications

Smart Array P400 Controller	Disk Drive and Enclosure Interface	3G SAS (Serial Attached SCSI) 1.5G SATA (Serial Advanced Technology Attachment)
	SAS Connectors	2 internal (SFF8484) x4 wide port connectors
	Cache Memory Speed	DDR2-533MHz with 40 or 72-bit wide bus provides up to 4.2 GB/s maximum bandwidth.
	Server Interface	x8 2.5G PCIe provides 2GB/s maximum bandwidth.
	SAS Speed	x8 3G SAS provides 2.4GB/s maximum bandwidth.
	Cache Memory	40-bit 256MB cache (72-bit 512MB module upgrades available); ECC protection, battery-backed, and transportable
	Logical Drives Supported	Up to 32 logical drives
	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)

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)

Technical Specifications

Two embedded NC373i Network Interface Adapters	Compatibility	10Base-T/100Base-TX/1000Base-TX IEEE 802.3 10Base-T IEEE 802.3ab 1000Base-T IEEE 802.3u 100Base-TX
	Data Transfer Method	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) 1000Base-TX Category 5 or higher UTP; up to 328 ft (100 m)

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

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

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