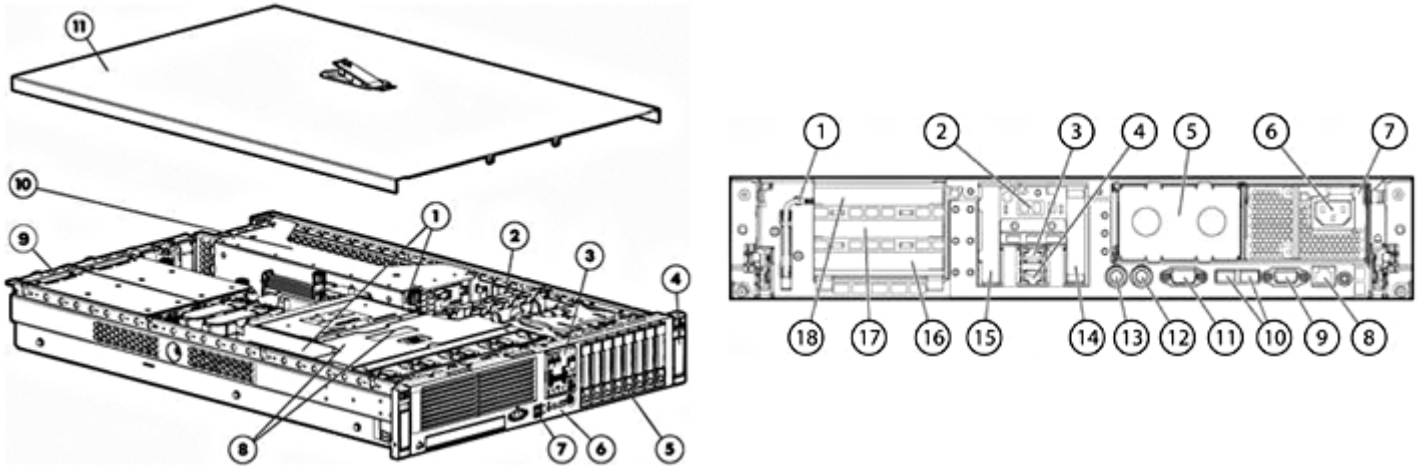


Overview



Front View:

1. Eight sockets for PC2-5300 DIMMs (DDR2-667) with Advanced ECC
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 (+two rear, one internal USB port)
8. AMD Quad-Core Processor (Performance models include two processors)
9. Hot plug power supply, redundancy option (High performance models include redundant power supply)
10. Three PCI-E non-hot plug expansion slots (or optional mixed PCI-X/E expansion cage or optional x16 PCI-E 225W expansion cage). Two additional PCI-E slots embedded on system board. This provides Four available PCI-E non-hot plug expansion slots for use; one consumed by Smart Array Controller
11. Quick removal access panel

Rear View:

1. T-10/T-15 Torx screwdriver
2. External option blank
3. NIC 2 connector
4. NIC 1 connector
5. Power supply bay 2
6. Power cord connector
7. Power supply bay 1 (populated)
8. Integrated Lights-Out 2 (iLO 2) connector
9. Video connector
10. USB connectors (2)
11. Serial connector
12. Mouse connector
13. Keyboard connector
14. Expansion slot 1
15. Expansion slot 2
16. Expansion slot 3
17. Expansion slot 4
18. Expansion slot 5

What's New

- New AMD Opteron 2300 Series Low Voltage (HE) processor

At A Glance



Overview

The new HP ProLiant DL385 G5 delivers on the DL385 performance and the DL380's history of design excellence with enterprise-class uptime and manageability, and now with Quad-Core AMD Opteron™ performance, power, efficiency, and 2U density for a variety of rack deployments and applications.

- **Processors:**
 - AMD Quad-Core, 2300 series processors with 2MB Level 3 cache 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
 - Serverworks HT-2100 Northbridge and HT-1000 Southbridge chipset
- **Memory:**
 - Up to 32 GB PC2-5300 DIMMs (DDR2-667). Standard models support 2:1 Interleaving. Bank Interleaving (Data saved across 2 pairs of DIMMs) and Node interleaving support (data saved across 2 processors memory sets) also available.
- **Storage Controller:**
 - Entry/High Efficiency Models: HP Smart Array E200/64MB Controller (RAID 0/1/5)
 - Upgrade to 128 MB cache, adds Raid 5 and BBWC
 - The Smart Array E200/64MB Controllers ships installed in slot 3 (slots 1,2,4,&5 available)
 - Base Models: HP Smart Array P400/256MB Controller (RAID 0/1/1+0/5)
 - Upgrade to 512 MB cache w/o Battery Backed Cache module, optional BBWC
 - The Smart Array P400/256MB Controller ships installed in slot 1 (slots 2-5 are available)
 - Performance Models: HP Smart Array P400/512MB BBCW Controller (RAID 0/1/5/6)
- **Internal Drive Support:**
 - (8) small form factor (SFF) hot-plug drive bays to support Serial-attached SCSI (SAS) and Serial ATA (SATA) drives
- **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:**
 - 4 Total PCI-Express slots: three x8 and one x4.
 - Optional mixed 2 PCI-X / two x8 PCI-Express
 - Optional cage with PCI-Express with one x8; one x16 (225W) and one x4 configurations available
- **USB 2.0 Ports:**
 - 5 total ports: (2) ports up front; (2) ports in back; (1) port internal
- **Graphics Processing Unit (GPU):**
 - Support for Nvidia FX5600 1.5GB PCIe
- **Integrated Hypervisors:**
 - VMware 3i virtualization technology
 - Citrix XenServer virtualization technology
- **Redundancy:**
 - Fully redundant hot plug fans
 - Hot plug power supply with optional redundancy (Included in Performance models)
- **Management:**
 - Integrated Lights-Out 2 featuring Integrated Remote Console with KVM over IP performance over shared network access
 - Automatic Server Recovery (ASR), ROM Based Setup Utility (RBSU), HP System Insight Manager, Status LEDs including system health and UID and SmartStart
 - System Insight Display on the front bezel for quick and easy server diagnostics
- **Form Factor:**
 - Rack (2U), (3.5-inch)
- **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
- **Warranty:**

Overview

- 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 have a one-year warranty.

NOTE: Server Warranty includes 3-Year Parts, 3-Year Labor, 3-Year Onsite support with next business day response. 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/4AA1-7824ENW.pdf>.

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

Processor AMD Opteron™ Processor 2356 (2.3 GHz, 75 Watts)
One of the following depending on Model AMD Opteron™ Processor 2352 (2.1 GHz, 75 Watts)
AMD Opteron™ Processor 2347 HE (1.9 GHz, 55 Watts)
NOTE: Processor wattage references reflect Average CPU Power (ACP). For more information on ACP visit: <http://www.amd.com/powernow>.
NOTE: Up to 2 processors supported. High Performance Model configurations include two processors, Upgraded memory to 512, BBWC, DVD/CDRW and Redundant Power Supply.

Cache Memory 2MB (2 x 1MB) Level 3 cache (2000 series)

Chipset Serverworks HT-2100 Northbridge and HT-1000 Southbridge Chipset

Upgradeability Upgradeable to 2 processors

Memory Protection Advanced ECC

Memory

Type	PC2-5300 DIMMs (DDR2-667) Standard models support 2:1 Interleaving, with Bank Interleaving (Data saved across 2 pairs of DIMMs) and Node interleaving support (data saved across 2 processors memory sets) available. NOTE: DIMM banks are active only when the corresponding processor socket is populated.
Standard (Entry, Base Models)	2 GB (2 x 1 GB)
Standard (Performance Models)	4 GB (4 x 1 GB)
Maximum	32 GB (8 x 4 GB)

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

Standard Features

Expansion Slots

With Standard PCIe Riser Installed

NOTE: For PCIe only situations.

Expansion Slots #	Technology	Bus Width**	Connector Width	Bus Number*	Form Factor	Notes
1	PCIe	x8	x8	70	Low profile slot	Reserved slot for Smart Array P400 Controller
2	PCIe	x8	x8	67	Low profile slot	
3	PCIe	x4	x8	11	Full length, full height slot	
4	PCIe	x8	x16	8	Full length, full height slot	
5	PCIe	x8	x16	5	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.

With Optional PCIe x16 Riser 225W Installed

NOTE: For PCIe only situations.

Expansion Slots #	Technology	Bus Width**	Connector Width	Bus Number*	Form Factor	Notes
1	PCIe	x8	x8	70	Low profile slot	Reserved slot for Smart Array P400 Controller
2	PCIe	x8	x8	67	Low profile slot	
3	PCIe	x4	x8	8	Full length, full height slot	
4	PCIe	x16	x16	5	Full length, full height slot	Supports 225W card

* 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.

Standard Features

With Optional PCIe/PCI-X Riser Installed <i>NOTE: For PCI-X mixed situations.</i>	Expansion Slots #	Technology	Bus Width**	Connector Width	Bus Number*	Device Number	Form Factor	Notes
	1	PCIe	x8	x8	70	0	Low profile slot	Reserved slot for Smart Array P400 Controller
	2	PCIe	X8	x8	67	0	Low profile slot	
	3	PCIe	x8	x16	10	0	Full length, full height slot	
	4	PCI-X (133MHz, 3.3 Volt)	64-bit	Not applicable	6	1	Full length, full height slot	
	5	PCI-X (133MHz, 3.3 Volt)	64-bit	Not applicable	6	2	Full length, full height slot	

* Default bus assignment (in decimal). Inserting cards with PCI bridges may alter the actual bus assignment number.

** Slots are enumerated differently based on OS. MS OS's enumerate from lowest to highest Device ID by bus (starting with the lowest bus).

*** Indicates the number of physical electrical lanes running to a PCI-e connector.

Storage Controller *One of the following depending on Model*

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

Storage

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

Maximum Internal Storage

Hot Plug SAS	1.168TB	8 x 146GB with standard internal hot plug SFF SAS drive cage
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Standard Features

Remote Management	Integrated Lights Out 2 (iLO2) Standard Management: <ul style="list-style-type: none">• Virtual Text Remote Console (pre-OS only)• Remote Serial Console• Virtual Power Button Control• Virtual Unit ID control• Integrated Remote Console• Dedicated & full function shared network connectivity• Embedded system health• Browser, command line and scripted access• Automatic IP Configuration via DHCP/DNS/WINS• Industry Standard 128-bit Secure Sockets Layer (SSL) and Secure Shell security (SSH)• OS independent hardware health status• IML and iLO Event Logging• Support for 12 user accounts with customizable access privilege
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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) Pre-Failure Warranty (covers processors, SAS hard drives and memory)
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Interfaces	Serial	1
	Pointing Device (Mouse)	1
	Graphics	1
	Keyboard	1
	VGA	2 (1 front, 1 back)
	Network RJ-45	2
	iLO 2 remote management port	1
	USB 2.0 Ports	5 (2 front, 2 back, 1 inside)
		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 <ul style="list-style-type: none">• 16 bit color: maximum resolution of 1600 x 1200• 32 bit color: maximum resolution of 1280 x 1024 NOTE: Maximum resolution available via iLO 2 remote console is 1280 x 1024.
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Standard Features

Form Factor Rack (2U), (3.5-inch)

HP Insight Control Management Suites

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

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

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

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

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

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

HP Insight Control Environment for Linux (ICE-Linux) provides comprehensive discovery, imaging & deployment, monitoring, and management for Linux-based ProLiant server platforms. Built on the industry-leading HP Systems Insight Manager framework, this solution integrates open source technology with experience leveraged from HP's Linux products in HP ICLE and HP XC Clusters, while providing paths to the future with developing management technologies.

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

Standard Features

Server Management Stand Alone Software Product - ProLiant Essentials	HP Systems Insight Manager	HP Systems Insight Manager (HP SIM) provides a unified, secure and extensible standards-based environment to centrally manage servers, storage and other infrastructure devices, (both HP and non-HP) across multiple operating system platforms.
	ProLiant Essentials Rapid Deployment Pack	Rapid Deployment Pack (RDP) extends HP Systems Insight Manager with a complete deployment solution for HP ProLiant servers. RDP provides a central location to configure server hardware, deploy Windows, Linux and VMware ESX operating environments and install HP ProLiant Support Pack drivers using images and scripted profiles. For more information, visit: http://www.hp.com/go/rdp .
	ProLiant Essentials Server Migration Pack – Universal Edition	Upgrading, replacing, or virtualizing your existing server? Effortlessly transition to new virtual or physical HP ProLiant servers or BladeSystem with automated, accurate and affordable migration of OS, application and data. SMP Universal automates the manual processes required for migrating servers between physical or virtual platforms, whether migrating to VMware or Microsoft virtual machines. SMP Universal allows all of the following migrations: <ul style="list-style-type: none">○ physical to ProLiant○ physical to virtual○ virtual to virtual○ virtual to ProLiant
	ProLiant Essentials Performance Management Pack	Performance Management Pack (offered exclusively through the Insight Control suites) - a performance management solution that identifies and explains hardware performance bottlenecks on ProLiant servers and attached options enabling users to better utilize their valuable resources
	Integrated Lights-Out Advanced Pack	Upgrades the iLO 2 processor with comprehensive remote control including Virtual KVM remote graphical console, enhanced console sharing and replay, virtual media (floppy, CD/DVD, USB key), virtual folders, and enterprise security (directory services and two-factor authentication).
	ProLiant Essentials Accelerated iSCSI Pack	Enables the embedded Multifunction network controller to serve as both a NIC and an iSCSI HBA providing access to SAN storage over the same connection used for networking. Processing of the protocol stack is offloaded to the NIC reducing CPU utilization and greatly improving the speed with which the requests are processed and sent to the network.
	HP Insight Power Manager (IPM)	Upgrades the single-server remote management capabilities of iLO Select/Advanced to include centralized reporting and policy-based management of power consumption and thermal output provided by the Insight Power Manager. IPM unifies all of this functionality within a single user interface - HP Systems Insight Manager.

NOTE: Flexible and volume quantity license kits are available for ProLiant Essentials Value Packs. Refer to <http://www.hp.com/servers/proliantessentials> or the various ProLiant Essentials Value Pack product QuickSpecs for more information.

Standard Features

Core Infrastructure Management	SmartStart	SmartStart is a tool that simplifies server setup, providing a rapid way to deploy reliable and consistent server configurations. For more information, please visit the SmartStart Web site at: http://www.hp.com/servers/smartstart . SmartStart version supported (minimum): SmartStart 7.80.
	Insight Management Agents	The Insight Management Agents should be installed on all HP servers to present system instrumentation, health and configuration information into HP Systems Insight Manager and the HP System Management Homepage. The HP System Management Homepage aggregates systems data from Insight Management Agents and other HP management tools, providing a consolidated browser-based interface for managing individual servers. Insight Management Agents and The HP System Management Homepage are included on ProLiant Support Packs, and can also be installed using the server profiles provided with the ProLiant Essentials Rapid Deployment Pack For additional information about the Management Agents and the HP System Management Homepage please visit the management Web site at: http://www.hp.com/servers/manage .
	Subscriber's Choice	Subscriber's Choice Driver and Support Alerts/Notifications is a web-based email subscription service that provides software and driver change notifications for ProLiant products. Sign up at: http://www.hp.com/go/subscriberschoice and customize your profile to receive various new alerts as they become available, on a weekly or monthly basis.
	ProLiant Support Packs and ROMPaq, software	The latest software, drivers, and firmware fully optimized and tested for your ProLiant server and options, available through ProLiant Support Packs the ProLiant Essentials Rapid Deployment Pack, SmartStart or downloaded from software and drivers download pages website at: http://www.hp.com/go/support .

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

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

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

Standard Features

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

NOTE: For additional information on HP Serviceguard for Linux, visit: <http://www.hp.com/go/sglx> or see the HP Serviceguard for Linux QuickSpecs.

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

Industry Standard Compliance

ACPI 2.0 Compliant
PCI 2.2 Compliant
WOL Support
Microsoft® Logo certifications
USB 2.0 Support

Security

Power-on password
Keyboard password
Diskette drive control
Diskette boot control
QuickLock, Network Server Mode
Parallel and serial interface control
Administrator's password

Server Power Cords

High voltage power cord ships standard.

NOTE: HP ProLiant DL servers no longer ship standard with NEMA power cords (163719-002) that allow connection to 110V US wall outlets in a home or office. ProLiant DL servers are primarily connected to PDU's in data center racks so they now ship standard with only a PDU power cord (416151-B21). If a user wishes to power a ProLiant DL server using a 110V receptacle (NEMA-15), the NEMA power cord (227099-001) must be ordered separately.

UPS and PDU Power Cord Matrix

Please see the UPS and PDU cable matrix that lists cable descriptions, requirements, and specifications for UPS and PDU units:

<ftp://ftp.compaq.com/pub/products/servers/ProLiantstorage/power-protection/powercordmatrix.pdf>

Power Supply

800 Watt, CE Mark Compliant
Optional Hot Plug AC Redundant Power Supply

Standard Features

System Fans Hot plug fans ship standard, fully redundant
Fully redundant hot plug fans ship standard (N+1)

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

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

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

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

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

NOTE: For more information on HP's Certified and Supported ProLiant Servers, please visit the VMware Server Support Matrix at: <http://h18004.www1.hp.com/products/servers/software/vmware/hpvmwarecert.html>.

Rack Airflow Requirements

Rack 10000 series Cabinets

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

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

- Front and rear doors: If your 42U server rack includes closing front and rear doors, you must allow 830 square inches (5,350 sq cm) of holes 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/dl385.

Standard Features

Rack Kit

The HP ProLiant DL385 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.

NOTE: Cable management arm must be removed to access hot-plug power supplies when the cable management arm is mounted on the right.

NOTE: 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 DL385 G5 in 7000 series racks. The DL385 Cable Management Arm is not supported on 7000 series racks.

Telco Rack Support

DL385 Telco Rack Kit:

Support for all 2-post Telco racks requires the use of the standard rack kit and an additional option kit from Rack Solutions (<http://www.racksolutions.com/hp/>)

Factory Express Portfolio for Servers and Storage

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

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

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

HP Enterprise Configurator

The HP eCo-Enterprise Configurator now provides factory default racking for our HP hardware portfolio. This approach is aligned with our strategic direction to meet the needs and expectations of our valued customers. If you require "custom" rack configuration, please contact HP's Customer Business Center or an Authorized Partner for assistance.

<http://www.hp.com/products/configurator>.

Standard Features

Service and Support

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

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

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

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

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

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

- Support: 3-Year Support Plus 24 only

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

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

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

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

HPC Interconnects

NOTE: High Performance Computing (HPC) interconnect technologies are available for the DL385 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 DL385 G5 Performance Models HP DL385R05 2356 HPM 449764-001	Processor(s)	(2) Quad-Core AMD Opteron 2356 Processors (2.3 GHz, 75 Watts)
	Cache Memory	2MB (1 x 2MB) Level 3 cache - 2000 Series
	Memory	4 GB (4 x 1 GB) of 2:1 interleaved PC2-5300 DIMMs (DDR2-667) with Advanced ECC capabilities
	Network Controller	Two Embedded NC373i Multifunction Gigabit Server Adapters
	Storage Controller	HP Smart Array P400/512MB BBWC Controller (RAID 0/1/5/6)
	Hard Drive	None ship standard
	Internal Storage	1.168TB max - 8 x 146GB SAS drives (with optional hard drives)
	Optical Drive	IDE DVD-ROM/CDRW combo
	Form Factor	Rack (2U), (3.5-inch)
	Availability	Hot Plug Fully Redundant Fans and Redundant Power Supplies

HP DL385 G5 Base Models HP DL385R05 2352 449768-001 HP DL385R05 2356 449767-001	Processor(s)	(1) Quad-Core AMD Opteron 2356 Processor (2.3 GHz, 75 Watts) (1) Quad-Core AMD Opteron 2352 Processor (2.1 GHz, 75 Watts)
	Cache Memory	2MB (2 x 1MB) Level 3 cache - 2000 Series
	Memory	2 GB (2 x 1 GB) PC2-5300 DIMMs (DDR2-667) with Advanced ECC capabilities
	Network Controller	Two Embedded NC373i Multifunction Gigabit Server Adapters
	Storage Controller	HP Smart Array P400/256MB Controller (RAID 0/1/5)
	Hard Drive	None ship standard
	Internal Storage	1.168TB max - 8 x 146GB SAS drives (with optional hard drives)
	Optical Drive	Optional DVD, DVD/CD-RW combo, DVD+R/RW
	Form Factor	Rack (2U), (3.5-inch)
	Availability	Hot Plug Fully Redundant Fans Standard

HP DL385 G5 Entry/High Efficiency Model HP DL385R05 2347 HE 459800-001	Processor(s)	(1) Quad-Core AMD Opteron 2347 HE Processor (1.9 GHz, 55 Watts)
	Cache Memory	2MB (2 x 1MB) Level 3 cache - 2000 Series
	Memory	2 GB (2 x 1 GB) PC2-5300 Low Power DIMMs (DDR2-667) with Advanced ECC capabilities
	Network Controller	Two Embedded NC373i Multifunction Gigabit Server Adapters
	Storage Controller	HP Smart Array E200/64MB Controller (RAID 0/1/5)
	Hard Drive	None ship standard
	Internal Storage	1.168TB max - 8 x 146GB SAS drives (with optional hard drives)
	Optical Drive	Optional DVD, DVD/CD-RW combo, DVD+R/RW
	Form Factor	Rack (2U), (3.5-inch)
	Availability	Hot Plug Fully Redundant Fans Standard

Smart Buys

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

**HP S-Buy DL385G5
2352 2P**
464211-005

Processor(s)	(2) AMD Opteron™ Processor 2352 (2.1 GHz, 75 Watts)
Cache Memory	2 MB (1 x 2 MB) Level 3 cache
Memory	4GB (4 x 1GB) PC2-5300 DIMMs (DDR2-667) with Advanced ECC capabilities
Network Controller	Two Embedded NC373i Multifunction Gigabit Server Adapters
Storage Controller	Smart Array P400 Controller with 256MB Cache (RAID 0/1/1+0/5)
Hard Drive	None Ship Standard
Internal Storage	Maximum 2TB (4 x 500GB) SATA
Optical Drive	Slimline DVD/CD-RW Drive (8X/24X)
Form Factor	Rack (2U), (3.5-inch)
Availability	Hot Plug Fully Redundant Fans and Redundant Power Supplies

Configuration Information - Factory Integrated Models

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

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

NOTE: This product offering does not support HP Factory Express Server Configuration Level 1.

NOTE: FIO indicates that this option only available as a Factory Installable Option.

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

Models	HP ProLiant DL385G5 Rack CTO Chassis	453060-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	
	800 Watt hot plug power supply, CE Mark Compliant	
	One IEC Power cord	
	Hot plug fans (fully redundant)	
	Rack (2U), (3.5-inch)	

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

Storage Controllers	HP Smart Array P400/256 DL38x LP FIO Ctr	405160-B21
	NOTE: PCI Express.	
	HP Smart Array P400/512 DL38x LP FIO Ctr	405162-B21
	NOTE: PCI Express.	
	HP Smart Array E200/128 BBWC Controller	411508-B21
	NOTE: PCI Express.	
	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 P800/512 BBWC Controller	381513-B21
	NOTE: PCI Express.	
	HP Smart Array E200/64 FIO Controller	405528-B21

Configuration Information - Factory Integrated Models

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

Processors	AMD Opteron™ Processor 2356 (2.3 GHz, 75 Watts) Kit	449774-L21
	AMD Opteron™ Processor 2352 (2.1 GHz, 75 Watts) Kit	449776-L21
	AMD Opteron™ Processor 2347 HE (1.9 GHz, 55 Watts) Kit	457557-L21
Base Memory	NOTE: DIMM banks are active only when the corresponding processor socket is populated.	
	1 GB REG PC2-5300 2 x 512 MB Single Rank Kit	408850-B21
	2 GB REG PC2-5300 2 x 1 GB Single Rank Kit	408851-B21
	2 GB REG PC2-5300 2 x 1 GB Low Power Single Rank Kit	483399-B21
	4 GB REG PC2-5300 2 x 2 GB Dual Rank Kit	408853-B21
	4 GB REG PC2-5300 2 x 2 GB Low Power Single Rank Kit	483401-B21
	8 GB REG PC2-5300 2 x 4 GB Dual Rank Kit	408854-B21
	8 GB REG PC2-5300 2 x 4 GB Low Power Dual Rank Kit	483403-B21

Step 3: Choose Additional Factory Integratable Options

Integrated hypervisor (iHV)	VMware ESX Server 3i integrated hypervisor	
	integrated VMware ESX Server 3i 2P FIO	464668-B21
	integrated VMware ESX Server 3i Enterprise 2P FIO	464669-B21
	NOTE: For additional information and option kits, please see the QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/12307_na/12307_na.html (Worldwide)	
	Citrix XenServer integrated hypervisor	
	integrated XenServer HP Select Edition 2P/4P	464673-B21
	integrated XenServer HP Enterprise Edition 2P/4P	464674-B21
	NOTE: For additional information and option kits, please see the QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/13018_na/13018_na.html (Worldwide)	
Performance Packs	The HP ProLiant DL385 G5 performance packs are necessary to configure a HP ProLiant DL385 G5 Performance Model. HP ProLiant DL385 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. To complete the configuration of a Performance model, select the Slimline CD-RW/DVD-ROM Combo Option Kit (331903-B21).	
	HP DL385G5 2356 HPM FIO PERF PACK	454024-B21

Step 4: Choose Additional Options for Factory Integration

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

Options

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

<p>HP ProLiant DL385 G5 Unique Options</p>	<p>HP DL385G5 Nvidia FX5600 1.5GB PCIe NOTE: Requires the 2 Slot x16/x4 DL385G5 225W Riser (PN 464271-B21). Only compatible with HP ProLiant DL385 G5 server.</p>	<p>464272-B21</p>
	<p>HP 2 Slot x16/x4 DL385G5 225W Riser NOTE: This riser is only supported on the DL385G5. The G5 does not support the x16 riser from the DL385G2 system.</p>	<p>464271-B21</p>

HP Insight Control Management Suites

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

HP Insight Control Environment

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

<p>HP Insight Control Management Software Media Kit</p>	<p>436222-B21</p>
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NOTE: Insight Control Management DVD media without licenses. Contains Insight Manager and Essentials software products and components licensed by Insight Control Management suites. Uses an integrated installer to perform quick and accurate software installation and updates.

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

HP Insight Control Environment for Linux

<p>HP Insight Control Environment for Linux v2.0, Media pack (CD) - No licenses included</p>	<p>464422-B21</p>
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NOTE: This optional Media pack CD contains the ISO image for HP Insight Control Environment for Linux, HP System Insight Manager, and an integrated installer. Servers must be acquired separately. This Media pack is optional because the latest ISO image and latest updates may be downloaded at no cost from:

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

<p>HP Insight Control Environment for Linux v2.0, No Media, 1-Server license, including One year of 24x7 Technical Support and Updates</p>	<p>464423-B21</p>
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NOTE: This part number can be used to purchase one (1) license with a single activation key. Customer will receive a printed license entitlement certificate via physical shipment. The license entitlement certificate must be redeemed online or via fax in order to obtain the license activation key(s). Includes one year of 24 x 7 HP Software Technical Support and Update Service. One certificate is shipped for each license.

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

Integrated Lights-Out Power Management Pack

Options

HP iLO Power Management Pack, No Media, 1-Server License, including 1 year of 24x7 Technical Support and Updates 452145-B21
NOTE: This option kit includes 1 license for iLO Advanced and Insight Power Manager.
NOTE: For additional License Kits, please see the QuickSpecs at:
http://h18000.www1.hp.com/products/quickspecs/12632_na/12632_na.html

Server Management Stand Alone Software Product – ProLiant Essentials

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

Deploy

HP Server Migration Pack – Universal Edition

HP Server Migration Pack - Universal Edition, No Media, Physical / Virtual to ProLiant Single Migration License, including 1 year of 24x7 Technical Support and Updates 460750-B21
NOTE: This license allows 1 physical to ProLiant or virtual to ProLiant migration. Customer will receive a printed license entitlement certificate and documentation via physical shipment. The license entitlement certificate must be redeemed online or via fax in order to obtain the license activation key(s). Includes one year of 24 x 7 HP Software Technical Support and Update Service.

HP Server Migration Pack - Universal Edition, No Media, Physical / Virtual to Virtual Single Migration License, including 1 year of 24x7 Technical Support and Updates 460753-B21
NOTE: This license allows 1 physical to virtual or virtual to virtual migration. Customer will receive a printed license entitlement certificate and documentation via physical shipment. The license entitlement certificate must be redeemed online or via fax in order to obtain the license activation key(s). Includes one year of 24 x 7 HP Software Technical Support and Update Service.

HP Server Migration Pack – Universal Edition, No Media, 1-Year Unlimited Migration License, including 1 year of 24x7 Technical Support 460756-B21
NOTE: This license allows unlimited migrations (physical to ProLiant, physical to virtual, virtual to virtual, and virtual to ProLiant) for one year. Customer will receive a printed license entitlement certificate and documentation via physical shipment. The license entitlement certificate must be redeemed online or via fax in order to obtain the license activation key(s). Includes one year of 24 x 7 HP Software Technical Support Service

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

Control

Integrated Lights-Out Select Pack

ProLiant Essentials Integrated Lights-Out Select Pack, No Media, 1-Server License 452158-B21
NOTE: For additional License Kits, please see the QuickSpecs at:
http://h18000.www1.hp.com/products/quickspecs/12362_na/12362_na.html

Integrated Lights-Out Advanced Pack

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

Optimize

Accelerated iSCSI Pack

Options

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

NOTE: For use with a single NIC port. Contains one license with a unique license activation key and documentation.

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

http://h18000.www1.hp.com/products/quickspecs/12466_na/12466_na.html

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_na/12623_na.html

ProLiant Essentials Virtual Machine Management Pack

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

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

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

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

NOTE: Flexible and volume quantity license kits are available for ProLiant Essentials Value Packs. Refer to <http://www.hp.com/servers/proliantessentials> or the various ProLiant Essentials QuickSpecs for more information.

ProLiant Software Maintenance Subscription ProLiant Software Maintenance Single Release 356573-B21

NOTE: Please see the SmartStart QuickSpecs for additional information regarding the subscription purchase:

http://h18000.www1.hp.com/products/quickspecs/12250_na/12250_na.html

Processors AMD Opteron™ Processor 2356 (2.3 GHz, 75 Watts) Kit 449774-B21

AMD Opteron™ Processor 2352 (2.1 GHz, 75 Watts) Kit 449776-B21

AMD Opteron™ Processor 2347 HE (1.9 GHz, 55 Watts) Kit 457557-B21

Memory 1 GB REG PC2-5300 2 x 512 MB Single Rank Kit 408850-B21

2 GB REG PC2-5300 2 x 1 GB Single Rank Kit 408851-B21

2 GB REG PC2-5300 2 x 1 GB Low Power Single Rank Kit 483399-B21

4 GB REG PC2-5300 2 x 2 GB Dual Rank Kit 408853-B21

4 GB REG PC2-5300 2 x 2 GB Low Power Single Rank Kit 483401-B21

8 GB REG PC2-5300 2 x 4 GB Dual Rank Kit 408854-B21

8 GB REG PC2-5300 2 x 4 GB Low Power Dual Rank Kit 483403-B21

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

Riser Cage Options	HP DL385G5 Nvidia FX5600 1.5 GB PCIe	464272-B21
	NOTE: Requires the 2 Slot x16/x4 DL385G5 225W Riser (PN 464271-B21). Only compatible with HP ProLiant DL385 G5 server.	
	HP 2 Slot x16/x4 DL385G5 225W Riser	464271-B21
	Mixed Riser Cage Option Kit (PCI-E/PCI-X)	410570-B21

Hard Drives	Hot Plug SFF SAS 2.5" Drives	
	HP 146GB 3G SAS 10K SFF DP HDD	418367-B21
	HP 146GB 3G SAS 10K SFF SP HDD	431958-B21
	HP 72GB 3G SAS 15K SFF DP HDD	418371-B21
	HP 72GB 3G SAS 15K SFF SP HDD	431935-B21
	HP 72GB 3G SAS 10K SFF DP HDD	384842-B21
	HP 72GB 3G SAS 10K SFF SP HDD	375861-B21
	HP 36GB 3G SAS 15K SFF DP HDD	418369-B21
	HP 36GB 3G SAS 15K SFF SP HDD	431933-B21

NOTE: Please see the QuickSpecs for Technical Specifications such as capacity, height, width, interface, transfer rate, seek time, physical configuration, and operating temperature:

http://h18000.www1.hp.com/products/quickspecs/12244_na/12244_na.html

SFF SATA Hot Plug

HP 60GB 1.5G SATA 5.4K SFF HDD	379306-B21
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NOTE: SATA drives have a 1 year warranty. Please see the QuickSpecs for Technical Specifications such as capacity, height, width, interface, transfer rate, seek time, physical configuration, and operating temperature:

http://h18000.www1.hp.com/products/quickspecs/11940_na/11940_na.html

SATA Hot Plug Entry (ETY) Drives

HP 120GB 1.5G SATA 5.4K SFF ETY HDD	458924-B21
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NOTE: SATA drives have a 1 year warranty. Please see the QuickSpecs for Technical Specifications such as capacity, height, width, interface, transfer rate, seek time, physical configuration, and operating temperature:

http://h18000.www1.hp.com/products/quickspecs/13021_na/13021_na.html

Storage Controllers	SAS Controllers	
	Smart Array E200 Controller	
	HP Smart Array E200/128 BBWC Controller	411508-B21

Options

128-MB BBWC (Battery-Backed Write Cache) Enabler NOTE: Supports the Smart Array E200 Controller, Smart Array 641 Controller, and Smart Array 642 Controller.	351580-B21
Smart Array P400 Controller	
HP Smart Array P400/256MB Controller NOTE: The HP Smart Array P400/256 MB Controller (PN 405132-B21) may only be installed in slots 3, 4, and 5.	405132-B21
HP Smart Array P400/512MB BBWC Controller NOTE: The HP Smart Array P400/512 MB BBWC Controller (PN 411064-B21) may only be installed in slots 3, 4, and 5.	411064-B21
512MB Battery-backed cache upgrade NOTE: For Smart Array P400 Controller.	405148-B21
Battery-backed write cache upgrade NOTE: For Smart Array P400 Controller.	383280-B21
Smart Array P400 Battery Attach Kit NOTE: This option kit contains a 24" battery cable and adhesive material for installing a battery into the server if a Smart Array P400 is integrated outside of the factory. For all solutions, please refer to the server QuickSpecs and User's Manual for detailed installation instructions.	417836-B21
Smart Array P600 Controller	
HP Smart Array P600/256 BBWC Controller NOTE: Requires Mixed PCI-E/X riser cage.	337972-B21
512 MB Battery-Backed Cache Upgrade NOTE: This 512-MB Battery-Backed Cache Module upgrade kit supports the Smart Array P600 Controller and the Smart Array 6400 series Controller.	372538-B21
Smart Array P800 Controller	
HP Smart Array P800/512 BBWC Controller NOTE: Please see the following Controller QuickSpecs for Technical Specifications such as PCI Bus, PCI Peak Data Transfer Rate, SCSI Protocols supported, SCSI Peak Data Transfer Rate, Channels, SCSI Ports, Drives supported, Cache, RAID support, and additional information: http://h18000.www1.hp.com/products/quickspecs/12460_na/12460_na.html (Smart Array E200 Controller) http://h18000.www1.hp.com/products/quickspecs/12400_na/12400_na.html (Smart Array P400 Controller) http://h18000.www1.hp.com/products/quickspecs/12247_na/12247_na.html (Smart Array P600 Controller) http://h18000.www1.hp.com/products/quickspecs/12616_na/12616_na.html (Smart Array P800 Controller)	381513-B21
SAS HBA	
HP SC44Ge Host Bus Adapter NOTE: Please see the following QuickSpecs for additional information: http://h18004.www1.hp.com/products/quickspecs/12617_na/12617_na.html (SC44Ge HBA)	416096-B21
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).	

Options

Smart Array 6402/128 Controller NOTE: Ultra320 SCSI.	273915-B21
Smart Array 6404/256 Controller NOTE: Ultra320 SCSI.	273914-B21
Smart Array 642 Controller NOTE: Ultra320 SCSI.	291967-B21
128-MB Battery-Backed Write Cache (BBWC) NOTE: Supports the Smart Array E200 Controller, Smart Array 641 Controller, and Smart Array 642 Controller.	351580-B21
Ultra320 Expansion Module for SA-6402	273911-B21
SCSI HBA	
HP SC11Xe Host Bus Adapter NOTE: Please see the following QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/11943_na/11943_na.html (Single Channel Ultra320 SCSI HBA) http://h18000.www1.hp.com/products/quickspecs/11587_na/11587_na.html (Smart Array 6400 Series) http://h18000.www1.hp.com/products/quickspecs/12069_na/12069_na.html (Smart Array 642) http://h18000.www1.hp.com/products/quickspecs/12566_na/12566_na.html (SC11Xe HBA)	412911-B21

Communications

HP NC110T PCI Express Gigabit Server Adapter	434905-B21
HP NC360T PCI Express Dual Port Gigabit Server Adapter	412648-B21
HP NC364T PCI Express Quad Port Gigabit Server Adapter	435508-B21
HP NC373F PCI Express Multifunction Gigabit Server Adapter	394793-B21
HP NC373T PCI Express Multifunction Gigabit Server Adapter	394791-B21
HP NC380T PCI Express Dual Port Multifunction Gigabit Server Adapter	394795-B21
HP NC510F PCIe 10 Gigabit Server Adapter NOTE: A minimum of 1 gigabyte (1 GB) of server memory is required per each NC510F adapter.	414126-B21
HP NC510C PCIe 10 Gigabit Server Adapter NOTE: A minimum of 1 gigabyte (1 GB) of server memory is required per each NC510C adapter.	414129-B21

HPC Specific Options

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

Redundant Options

Redundant Power Supply 350/370/380 G5 Kit	399771-B21
Redundant Power Supply 350/370/380 G5 NEMA Kit	399771-001
Redundant Power Supply 380 G5 - 48Volt DC	433634-B21

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 Tape Drives

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

SAS Tape Drives

NOTE: For the DL385 G5, HP recommends purchasing the HP SC44Ge HBA (416096-B21) for a dedicated SAS HBA for tape.

HP StorageWorks DAT 160 SAS Internal Tape Drive Q1587A

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

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

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

HP LTO-3 Ultrium 920 SAS Internal Tape Drive EH978A

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

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

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

SCSI Tape Drives

NOTE: For the DL385 G5, HP recommends purchasing the HP SC11Xe HBA (412911-B21) for a dedicated SCSI HBA for tape.

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

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

HP StorageWorks 3U SCSI Rack-mount kit with one LTO-4 Ultrium 1840 EH926A

NOTE: Please see the HP StorageWorks Ultrium Tape Drive QuickSpecs for additional options such as controllers, media, and other related items:

http://h18006.www1.hp.com/products/quickspecs/11739_na/11739_na.html

http://h18006.www1.hp.com/products/quickspecs/12128_na/12128_na.html

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

Rack-Mount Tape Drive Enclosures

HP StorageWorks 1U SCSI Rack-Mount kit A7445B

NOTE: The 1U Rack-Mount Kit can support up to (2) half-height tape drives and is compatible with multiple Single-Ended and LVD SCSI tape drives including the DAT 40, DAT 72, DAT 160, LTO-1 Ultrium 232, LTO-2 Ultrium 448 and LTO-3 Ultrium 920 tape drives.

HP StorageWorks 1U USB Rack-Mount Kit A8007A

NOTE: The 1U USB Rack-Mount Kit can support up to (2) half-height tape drives and is compatible with the DAT 40 USB, DAT 72 USB and DAT 160 USB tape drives.

HP StorageWorks 1U SAS Rack-Mount Kit AE459A

NOTE: The 1U SAS Rack-Mount Kit can support up to (2) half-height tape drives and is compatible with the DAT 160 SAS, LTO-2 Ultrium 448 SAS, LTO-3 Ultrium 920 SAS and LTO-4 Ultrium 1760 tape drives.

Options

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

HP D2D Backup System	HP StorageWorks D2D110 Backup System	EH880A
	NOTE: 1TB of Disk Storage.	
	HP StorageWorks D2D110 Backup System with Data Protector Express Software Kit	EH923A
	NOTE: 1TB of Disk Storage.	
	HP StorageWorks D2D120 Backup System	EH884A
	NOTE: 2TB of Disk Storage.	
	HP StorageWorks D2D120 Backup System with Data Protector Express Software Kit	EH924A
NOTE: 2TB of Disk Storage.		
HP StorageWorks D2D130 Backup System	EH950A	
NOTE: 3TB of Disk Storage.		
HP StorageWorks D2D130 Backup System with Data Protector Express Software Kit	EH951A	
NOTE: 3TB of Disk Storage.		
HP StorageWorks D2D130 Backup System with LTO-3 Ultrium 920 SAS Tape Drive	EH952A	
NOTE: 3TB of Disk Storage.		
NOTE: Please see the HP D2D Backup Systems QuickSpecs for additional information: http://h18000.www1.hp.com/products/quickspecs/12651_na/12651_na.html		

Tape Autoloaders	HP StorageWorks DAT Autoloader	
	HP StorageWorks DAT 72x10 tape autoloader	AE313B
	HP StorageWorks 1/8 Tape Autoloader	
	HP StorageWorks 1/8 G2 LTO-4 Ultrium 1760 SAS Tape Autoloader	AK377A
	HP StorageWorks 1/8 G2 LTO-3 Ultrium 920 Tape Autoloader	AH165A
	HP StorageWorks 1/8 G2 LTO-3 Ultrium 920 SAS Autoloader	AH558A
	HP StorageWorks 1/8 G2 LTO-2 Ultrium 448 Tape Autoloader	AH164A
	HP StorageWorks 1/8 G2 LTO-1 Ultrium 232 Tape Autoloader	AH163A
	HP StorageWorks 1/8 G2 Tape Autoloader Rack Kit	AH166A
	NOTE: Required to install the 1/8 G2 Autoloaders in a standard 19-inch rack; includes rails and rackmount instructions	
NOTE: Please reference the Tape Autoloader QuickSpecs at: http://www.hp.com/go/automation for additional information needed to create a complete solution.		

Options

Tape Libraries

HP StorageWorks MSL2024 Tape Library

HP StorageWorks MSL2024 1 LTO-4 Ultrium 1840 SCSI Drive Library	AJ033A
HP StorageWorks MSL2024 1 LTO-4 Ultrium 1840 4GB FC Library	AJ034A
HP StorageWorks MSL2024 1 LTO-4 Ultrium 1760 SAS Drive Library	AK378A
HP StorageWorks MSL2024 1 LTO-3 Ultrium 960 SCSI Drive Library	AG115A
HP StorageWorks MSL2024 1 LTO-3 Ultrium 960 4GB FC Library	AG326B
HP StorageWorks MSL2024 1 LTO-3 Ultrium 920 SAS Drive Library	AH559A
HP StorageWorks MSL2024 1 LTO-3 Ultrium 920 SCSI Drive Library	AH169A
HP StorageWorks MSL2024 1 LTO-2 Ultrium 448 SCSI Drive Library	AG116A

HP StorageWorks MSL4048 Tape Library

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

NOTE: Please reference the MSL Tape Library QuickSpecs at:

<http://www.hp.com/go/automation> for additional information needed to create a complete solution.

High Availability Cluster Options

HP Serviceguard for Linux

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

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

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

NOTE: For additional information including a complete list of Product Numbers for HP Serviceguard for Linux, please see the following QuickSpecs at:

http://h18000.www1.hp.com/products/quickspecs/11518_na/11518_na.html

Options

StorageWorks Options	<p>StorageWorks Fibre Channel HBA</p> <p>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</p> <p>HP StorageWorks FC2142SR 4 Gb PCI-e HBA A8002A</p> <p>HP StorageWorks FC2242SR Dual Channel 4 Gb PCI-e HBA A8003A</p> <p>HP StorageWorks FC1142SR 4 Gb PCI-e HBA AE311A</p> <p>HP StorageWorks FC1242SR Dual Channel 4 Gb PCI-e HBA AE312A</p> <p>HP StorageWorks FC2143 4 Gb PCI-X 2.0 -to-Fibre Channel HBA AD167A</p> <p>HP StorageWorks FC2243 Dual Channel 4 Gb PCI-X 2.0 HBA AD168A</p> <p>HP StorageWorks FC1143 4 Gb PCI-X 2.0 HBA AB429A</p> <p>HP StorageWorks FC1243 Dual Channel 4 Gb PCI-X 2.0 HBA AE369A</p> <p>StorageWorks SCSI HBA</p> <p>HP U320e SCSI Host Bus Adapter AH627A</p> <p>NOTE: Recommended Dual Channel Ultra320 SCSI Controller for connecting multi-drive MSL tape libraries to ProLiant servers.</p>
<hr/>	
HP StorageWorks Modular Smart Array 20	<p>HP StorageWorks Modular Smart Array 20 335921-B21</p> <p>NOTE: Rack-mountable 12 (SATA) drive enclosure with U320 Host connectivity, redundant power supplies.</p> <p>HP StorageWorks Modular Smart Array 20 Starter Kit 366172-B21</p> <p>NOTE: Rack-mountable 12 (SATA) drive enclosure with U320 Host connectivity, redundant power supplies. Includes Smart Array 6402/128 Controller.</p> <p>NOTE: Please see the Modular Smart Array 20 QuickSpecs for additional information including configuration steps and additional options needed for a complete solution at: http://h18000.www1.hp.com/products/quickspecs/11942_na/11942_na.html</p>
<hr/>	
HP StorageWorks Modular Smart Array 50	<p>HP StorageWorks Modular Smart Array 50 Enclosure 364430-B21</p> <p>NOTE: Please see the Modular Smart Array 50 QuickSpecs for additional information including configuration steps and additional options needed for a complete solution at: http://h18000.www1.hp.com/products/quickspecs/12245_na/12245_na.html</p>
<hr/>	
HP StorageWorks Modular Smart Array 60	<p>HP StorageWorks 60 Modular Smart Array Enclosure 418408-B21</p> <p>NOTE: Please see the Modular Smart Array 60 QuickSpecs for additional information including configuration steps and additional options needed for a complete solution at: http://h18000.www1.hp.com/products/quickspecs/12627_na/12627_na.html</p>
<hr/>	
HP StorageWorks Modular Smart Array 70	<p>HP StorageWorks 70 Modular Smart Array Enclosure 418800-B21</p> <p>NOTE: Please see the Modular Smart Array 70 QuickSpecs for additional information including configuration steps and additional options needed for a complete solution at: http://h18000.www1.hp.com/products/quickspecs/12652_na/12652_na.html</p>

Options

HP StorageWorks Modular Smart Array 500 G2	HP StorageWorks Modular Smart Array 500 Generation 2 NOTE: Please see the Modular Smart Array 500 Generation 2 QuickSpecs for additional information including configuration steps and additional options needed for a complete solution at: http://h18000.www1.hp.com/products/quickspecs/11956_na/11956_na.html	335880-B21
Uninterruptible Power Systems - Rack	HP R1.5 VA 1U UPS HP R/T2200 2-U ERM	AF419A AF412A
USB Options	HP USB 2-Button Optical Scroll Mouse (Carbonite/Silver) USB 1.44 MB External Diskette Drive (Carbonite) HP USB 04 Standard Keyboard HP 1 GB USB 2.0 Floppy Drive Key HP 256 MB USB 2.0 Floppy Drive Key	DC172B DC141B DT528A#ABA 442085-B21 442084-B21
Third Party Rack Adapter Kit (for wide racks)	Rack Adapter Kit NOTE: Not required for most racks. This kit allows HP rack servers to fit in racks that are 24" wide.	332815-B21
HP Rack 5000 Series (Graphite Metallic)	HP 5642 Rack-Unassembled NOTE: Please see the HP Rack 5642 QuickSpecs for additional part numbers and Technical Specifications such as height, width, depth, weight, and color: http://h18000.www1.hp.com/products/quickspecs/12074_na/12074_na.html NOTE: For additional information regarding Rack Cabinets, please see the following URL: http://www.hp.com/go/rackandpower .	358254-B21
HP Rack 10000 G2 Series (Carbon/Graphite Metallic)	10642 G2 (42U) Rack Cabinet - Pallet 10642 G2 (42U) Rack Cabinet - Shock Pallet 10642 G2 (42U) Rack Cabinet - Crated 10642 G2 (42U) Rack Cabinet, with Extension - Shock Pallet 10636 G2 (36U) Rack Cabinet - Pallet 10636 G2 (36U) Rack Cabinet - Shock Pallet 10636 G2 (36U) Rack Cabinet - Crated 10636 G2 (36U) Rack Cabinet, with Extension - Shock Pallet 10622 G2 (22U) Rack Cabinet - Pallet 10622 G2 (22U) Rack Cabinet - Shock Pallet 10842 G2 (42U) 800mm Wide Rack Cabinet - Pallet 10842 G2 (42U) 800mm Wide Rack Cabinet - Shock Pallet 10647 G2 (47U) Rack Cabinet - Pallet	AF001A AF002A AF003A AF004A AF011A AF012A AF013A AF014A AF021A AF022A AF041A AF042A AF031A
	NOTE: It is mandatory to use a shock pallet when shipping racks with equipment installed.	

Options

NOTE: Please see the Rack 10000 G2 QuickSpecs for Technical Specifications such as height, width, depth, weight, and color:

http://h18000.www1.hp.com/products/quickspecs/12402_na/12402_na.html

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

HP Rack 10000 Series (Graphite Metallic)	HP S10614 (14U) Rack Cabinet - Shock Pallet	292302-B22
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NOTE: xxxxx-B21 (pallet) used to ship empty racks shipped on a truck. -B22 (shock pallet) used to ship racks with equipment installed (by custom systems, VARs and Channels). xxxxx-B23 (crated) used for air shipments of empty racks.

NOTE: It is mandatory to use a shock pallet in order to ship racks with equipment installed. Not all HP or Compaq equipment is qualified to be shipped in the Rack 10000 series.

NOTE: Please see the Rack 10000 QuickSpecs for Technical Specifications such as height, width, depth, weight, and color:

http://h18000.www1.hp.com/products/quickspecs/10995_na/10995_na.html

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

Keyboards and Monitors	TFT7210R Rack Mounted 17" Monitor	348373-B21
	TFT7600 Rackmount Keyboard Monitor	AG052A
	1U Rackmount Keyboard with USB	AG072A

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

HP KVM Switch Options	2 x 1 x 16 IP Console Switch with Virtual Media	AF601A
	4 x 1 x 16 IP Console Switch with Virtual Media	AF602A
	2 x 16 Server Console Switch with Virtual Media	AF600A
	PS/2 Virtual Media Interface Adapter, 1 pack	AF604A

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

Server Console Switch (KVM), 0 x 1 x 8 port	336044-B21
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Server Console Switch (KVM), 0 x 2 x 16 port	336045-B21
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PS/2 Interface Adapter, 1 pack	262588-B21
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PS/2 Interface Adapter, 8 pack	262587-B21
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USB Interface Adapter, 1 pack	336047-B21
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Serial Interface adapter - 1 Pack with power supply	373035-B21
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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 1 x 4 Console Switch (ALL)	AF611A
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PS2 Server Console Cable, 6 ft, 2 pack	AF612A
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USB Server Console Cable, 6 ft, 2 pack	AF613A
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NOTE: Required for supporting USB peripherals.

Options

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

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

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

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

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

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

Memory

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

HP ProLiant DL385 G5 Base Models

Standard Memory

2 GB REG PC2-5300 2 x 1 GB installed

Upgrading Memory and Memory Interleaving

DIMMs must be installed in identical pairs. Bank interleaving is automatically enabled on a processor node under the following conditions:

1. Four single ranked DIMMs populated per node (4 x 512 MB or 4 x 1 GB for example) yields 2-way bank interleaving.
 2. Two dual ranked DIMMs populated per node (2 x 2 GB or 2 x 4 GB for example) yields 2-way bank interleaving.
 3. Four dual ranked DIMMs populated per node (4 x 2 GB or 4 x 4 GB for example) yields 4-way bank interleaving.
- If single and dual ranked DIMMs are mixed on the same node, bank interleaving will not be enabled.

Node interleaving can be configured via RBSU if both processors have the same memory footprint and it is independent of bank interleaving.

DIMMs must be installed in decreasing capacity with the largest DIMMs installed in the banks furthest away from each processor.

Standard Memory Plus Optional Memory

Up to 26 GB memory is available with the standard memory and the optional installation of REG PC2-5300 DIMMs. - 6 slots would be available, and potentially could be filled with 4GB DIMMs.

Standard Memory Replaced with Optional Memory

Up to 32 GB of memory is available with the removal of the standard memory and the optional installation of REG PC2-5300 4 GB DIMMs.

NOTE: Chart does not represent all possible configurations.

NOTE: DIMM banks are active only when the corresponding processor socket is populated.

Memory		Slot							
		1	2	3	4	5	6	7	8
Standard	2 GB	1 GB	1 GB	Empty	Empty	Empty	Empty	Empty	Empty
Optional	26 GB	4 GB	4 GB	1 GB	1 GB	4 GB	4 GB	4 GB	4 GB
Maximum	32 GB	4 GB	4 GB	4 GB	4 GB	4 GB	4 GB	4 GB	4 GB

Memory

HP ProLiant DL385 G5 Performance Models

Standard Memory

4 GB REG PC2-5300 4 x 1 GB installed

Upgrading Memory and Memory Interleaving

DIMMs must be installed in identical pairs. Bank interleaving is automatically enabled on a processor node under the following conditions:

1. Four single ranked DIMMs populated per node (4 x 512 MB or 4 x 1 GB for example) yields 2-way bank interleaving.
 2. Two dual ranked DIMMs populated per node (2 x 2 GB or 2 x 4 GB for example) yields 2-way bank interleaving.
 3. Four dual ranked DIMMs populated per node (4 x 2 GB or 4 x 4 GB for example) yields 4-way bank interleaving.
- If single and dual ranked DIMMs are mixed on the same node, bank interleaving will not be enabled.

Node interleaving can be configured via RBSU if both processors have the same memory footprint and it is independent of bank interleaving.

DIMMs must be installed in decreasing capacity with the largest DIMMs installed in the banks furthest away from each processor.

Standard Memory Plus Optional Memory

Up to 20 GB memory is available with the standard memory and the optional installation of REG PC2-5300 DIMMs - 4 slots available.

Standard Memory Replaced with Optional Memory

Up to 32 GB of memory is available with the removal of the standard memory and the optional installation of REG PC2-5300 4 GB DIMMs.

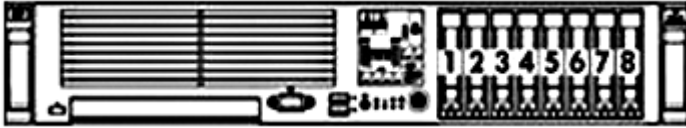
NOTE: Chart does not represent all possible configurations.

Memory		Slot							
		1	2	3	4	5	6	7	8
Standard	4 GB	1 GB	1 GB	Empty	Empty	1 GB	1 GB	Empty	Empty
Optional	20 GB	4 GB	4 GB	1 GB	1 GB	4 GB	4 GB	1 GB	1 GB
Maximum	32 GB	4 GB	4 GB	4 GB	4 GB	4 GB	4 GB	4 GB	4 GB

Following are memory options available from HP:

1 GB REG PC2-5300 2 x 512 MB Single Rank Kit	408850-B21
2 GB REG PC2-5300 2 x 1 GB Single Rank Kit	408851-B21
2 GB REG PC2-5300 2 x 1 GB Low Power Single Rank Kit	483399-B21
4 GB REG PC2-5300 2 x 2 GB Dual Rank Kit	408853-B21
4 GB REG PC2-5300 2 x 2 GB Low Power Single Rank Kit	483401-B21
8 GB REG PC2-5300 2 x 4 GB Dual Rank Kit	408854-B21
8 GB REG PC2-5300 2 x 4 GB Low Power Dual Rank Kit	483403-B21

Storage



1-8 Eight SFF SAS hot plug hard drive bays

Drive Support

	Quantity Supported	Position Supported	Controller
Removable Media			
Slimline CD-RW/DVD-ROM Combo Option Kit	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 DVD±R/RW 8X Slim	Only 1 available removable media bay	Slimline bay	Integrated IDE NOTE: Optional.

Hard Drives

SAS - Hot Plug Drives

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

SATA SFF - Hot Plug Drives

	Quantity Supported	Position Supported	Controller
60GB 1.5G SATA 5.4K	Up to 8	1-8	HP Smart Array E200/64 MB Controller
			HP Smart Array E200/128 BBWC Controller
			HP Smart Array P400/256 MB Controller
			HP Smart Array P400/512 MB BBWC Controller
			HP Smart Array P600/256 BBWC Controller
			NOTE: Optional mixed PCI-X/E required for SA-P600.
	HP Smart Array P800/512 BBWC Controller		

Storage

SFF SATA Hot Plug Entry (ETY) Drives

	Quantity Supported	Position Supported	Controller
120GB 1.5G SATA 5.4K	Up to 8	1-8	HP 8 Internal Port SAS HBA with RAID HP Smart Array E200/64 MB Controller HP Smart Array E200/128 BBWC Controller HP Smart Array E500/256 MB Controller HP Smart Array P400/256 MB Controller HP Smart Array P400/512 MB BBWC Controller HP Smart Array P600/256 BBWC Controller HP Smart Array P800/512 BBWC Controller

External Storage

	Quantity Supported	Position Supported	Host Controller or Adapter
Modular Smart Array 20 Enclosure	1 per external VHDCI SCSI connector	External	Smart Array 6402/128 Controller Smart Array 6404/256 Controller
Modular Smart Array 50 Enclosure	Up to 4 Up to 2 Up to 4	External	HP Smart Array E500/256MB Controller HP Smart Array P600/256 BBWC Controller HP Smart Array P800/512 BBWC Controller
Modular Smart Array 60 Enclosure	Up to 8 Up to 4 Up to 8	External	HP Smart Array E500/256MB Controller HP Smart Array P600/256 BBWC Controller HP Smart Array P800/512 BBWC Controller
Modular Smart Array 70 Enclosure	Up to 4 Up to 2 Up to 4	External	HP Smart Array E500/256MB Controller HP Smart Array P600/256 BBWC Controller HP Smart Array P800/512 BBWC Controller
Modular Smart Array 500 G2	1 per SCSI	External	Please see the Modular Smart Array 500 or 500 G2 QuickSpecs for the latest list of supported HBAs: http://www.hp.com/go/msa500 .

Maximum Storage Capacity - (with MSA50)

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

Storage

Tape Drives, Tape Autoloaders, Tape Libraries & D2D Backup

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

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

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

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

	Position Supported	Controller	Controller Part Number
HP StorageWorks SCSI Tape Drives, External LTO-1 Ultrium 232 LTO-2 Ultrium 448 LTO-3 Ultrium 960 LTO-3 Ultrium 920 LTO-4 Ultrium 1840 DAT 40 DAT 72 DAT 160 1U Rack-Mount Kit 3U Rack-Mount Kit	External	HP SC11Xe Host Bus Adapter	412911-B21
HP StorageWorks USB Tape Drives, External DAT 40 USB DAT 72 USB DAT 160 USB 1U Rack-Mount Kit	External	USB 2.0 Port	N/A
HP StorageWorks SAS Tape Drives, External DAT 160 SAS LTO-2 Ultrium 448 SAS LTO-3 Ultrium 920 SAS LTO-4 Ultrium 1760 SAS LTO-4 Ultrium 1840 SAS 1U Rack-Mount Kit 3U Rack-Mount Kit	External	HP SC44Ge Host Bus Adapter	416096-B21
HP StorageWorks SCSI Tape Automation, External DAT 72x10 Autoloader	External	HP SC11Xe Host Bus Adapter	412911-B21

Storage

1/8 Tape Autoloader MSL2024 MSL4048 MSL8096 MSL6000		HP U320e SCSI Host Bus Adapter NOTE: Recommended for MSL tape libraries.	AH627A
HP StorageWorks SAS Tape Automation, External 1/8 G2 Autoloader MSL2024 MSL4048 MSL8096	External	HP SC44Ge Host Bus Adapter	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 D2D Backup Systems D2D110 D2D120 D2D130	External	Embedded Network Controller	N/A

Power Specifications

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

Power Supply Specification - DC	Part number		412837-001			
	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	1200	1200	1200			
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			

Power Specifications

NOTES:

- To review typical system power ratings use the Active Answers Power Calculator which is available via the online tool located at url:
<http://h30099.www3.hp.com/configurator/calc/Power%20Calculator%20Catalog.xls>

To drill down to calculators:

- Click on: "ProLiant Servers"
- Click on the Server of interest. Example: DL385 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 VAC, 120VAC, 200-240 VAC
		Rated Input Current	10 A (at 100 VAC), 9 A (at 120 VAC), 6.1 A (at 200 VAC)
		Rated Input Frequency	50 to 60 Hz
		Rated Input Power	980 W (at 100 VAC), 1035 W (at 120 VAC), 1170 W (at 240 VAC)
	BTU Rating	Maximum	3350 BTU/hr (at 100 VAC), 3530 BTU/hr (at 120 VAC), 3990 BTU/hr (at 240 VAC)
	Power Specifications	To review typical system power ratings use the Power Calculator which is available via the online tool located at URL: http://h30099.www3.hp.com/configurator/calc/Power%20Calculator%20Catalog.xls - Click on the system of interest. Example: DL385 G5 - Follow the instructions of the next screens.	
	Power Supply Output Power (per power supply)	Rated Steady-State Power	800 W (at 100 VAC), 850 W (at 120 VAC), 1000 W (at 200-240 VAC)
		Maximum Peak Power	800 W (at 100 VAC), 850 W (at 120 VAC), 1000 W (at 200-240 VAC)
	System Inlet Temperature	Operating	10° to 35°C (50° to 95°F) at sea level with an altitude derating of 1.0°C per every 305 m (1.8°F per every 1000 ft) above sea level to a maximum of 3050 m (10,000 ft), no direct sustained sunlight. Maximum rate of change is 10°C/hr (18°F/hr). The upper limit may be limited by the type and number of options installed. System performance may be reduced if operating with a fan fault or above 30°C (86°F).
		Non-operating	-30° to 60°C (-22° to 140°F). Maximum rate of change is 20°C/hr (36°F/hr).
	Relative Humidity	Operating	10 to 90% relative humidity (Rh), 28°C (82.4°F)

Technical Specifications

	(non-condensing)	maximum wet bulb temperature, non-condensing.
	Non-operating	5 to 95% relative humidity (Rh), 38.7°C (101.7°F) maximum wet bulb temperature, non-condensing.
Altitude	Operating	3050 m (10,000 ft). This value may be limited by the type and number of options installed. Maximum allowable altitude change rate is 457 m/min (1500 ft/min).
	Non-operating	9144 m (30,000 ft). Maximum allowable altitude change rate is 457 m/min (1500 ft/min).
Acoustic Noise	Listed are the declared A-Weighted sound power levels (LWAd) and declared average bystander position A-Weighted sound pressure levels (LpAm) when the product is operating in a 23°C ambient environment. Noise emissions were measured in accordance with ISO 7779 (ECMA 74) and declared in accordance with ISO 9296 (ECMA 109).	
	Idle	
		LWAd 6.3 B
		LpAm 47 dBA
	Operating	
	LWAd 6.3 B	
	LpAm 47 dBA	

Smart Array P400 Controller	Disk Drive and Enclosure Interface	3 G SAS (Serial Attached SCSI) 1.5 G 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 2.5 G PCIe provides 2GB/s maximum bandwidth.	
	SAS Speed	x8 3 G SAS provides 2.4GB/s maximum bandwidth.	
	Cache Memory	40-bit 256 MB cache (72-bit 512MB module upgrades available); ECC protection, battery-backed, and transportable	
	Logical Drives Supported	Up to 32 logical drives	
	Maximum Logical Drive Capacity	3TB (6 x 500 GB)	
	Host Memory Addressing	64-bit, supporting greater than 4GB server memory space	
	RAID Support	RAID 6 with ADG (Advanced Data Guarding) requires Battery Backed Write Cache Upgrade	
		RAID 5 (Distributed Data Guarding)	
		RAID 1+0 (Striping & Mirroring)	
		RAID 0 (Striping)	

Technical Specifications

Smart Array E200 Controller	Disk Drive and Enclosure Interface	3 G SAS (Serial Attached SCSI) 1.5 G 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 2.5 G PCIe provides 2 GB/s maximum bandwidth.
	SAS Speed	x8 3 G SAS provides 2.4 GB/s maximum bandwidth.
	Cache Memory	40-bit 64MB cache or a 128 MB battery backed cache: ECC protection, battery-backed, and transportable
	Logical Volumes Supported	Up to 32 logical volumes
	Maximum Volume Capacity	3 TB (6 x 500 GB)
	Host Memory Addressing	64-bit, supporting greater than 4GB server memory space
	RAID Support	RAID 5 (Distributed Data Guarding) RAID 1+0 (Striping & Mirroring) RAID 0 (Striping)

Two Embedded NC373i Multifunction Gigabit Server Adapters	Network Interface Compatibility	10Base-T/100Base-TX/1000Base-TX	
	Data Transfer Method	IEEE 802.3 10Base-T	
		IEEE 802.3ab 1000Base-T	
		IEEE 802.3u 100Base-TX	
		PCI Express, four lanes (x4)	
	Network Transfer Rate	10Base-T (Half-Duplex)	10 Mb/s
		10Base-T (Full-Duplex)	20 Mb/s
		100Base-TX (Half-Duplex)	100 Mb/s
		100Base-TX (Full-Duplex)	200 Mb/s
		1000Base-TX (Half and Full-Duplex)	2000Mb/s
Connector	Two RJ-45		
Cable Support	10Base-T	Categories 3, 4 or 5 UTP; up to 328 ft (100 m)	
	100Base-TX	Category 5 or higher UTP; up to 328 ft (100 m)	
	1000BaseTX	Category 5 or higher UTP; up to 328 ft (100 m)	

Technical Specifications

Environment-friendly Products and Approach

End-of-life Management and Recycling

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

Products returned to HP will be recycled, recovered or disposed of in a responsible manner.

The EU WEEE directive (2002/95/EC) requires manufacturers to provide treatment information for each product type for use by treatment facilities.

This information (product disassembly instructions) is posted on the Hewlett Packard web site at: <http://www.hp.com/go/green>. These instructions may be used by recyclers and other WEEE treatment facilities as well as HP OEM customers who integrate and re-sell HP equipment.

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