Overview
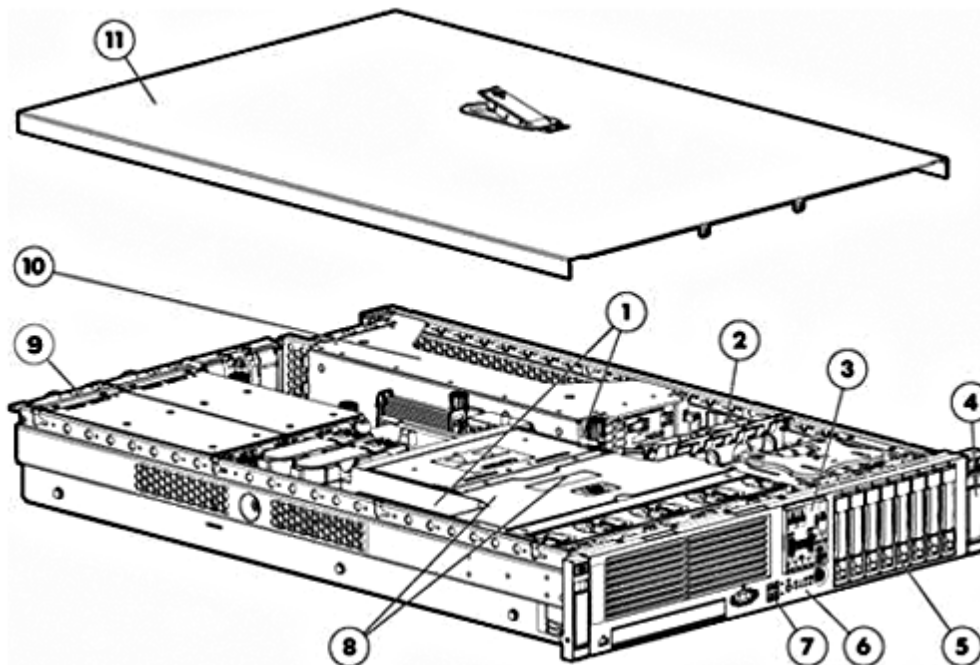
1. Eight sockets for PC2-5300 DIMMs (DDR2-667) with Advanced ECC

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 Dual Core Rev. F 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 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

What's New

- New speed for Rev F: AMD Opteron Processor 2218 HE (High Efficiency) (2.6 GHz / 68 Watts)

Overview

At A Glance

The HP ProLiant DL385, the world's largest selling AMD server, delivers on its history of design excellence with enterprise-class uptime and manageability, proven 2-way, dual core AMD Opteron performance, and 2U density for a variety of rack deployments and applications.

- Processors:
  - AMD Dual-core Rev F, 2000 series processors with 2MB Level 2 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 HT1000 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 supported (data saved across 2 processors memory sets) also available.
- Storage Controller:
  - Performance Models: Smart Array P400/512MB BBCW Controller (RAID 0/1/5/6)
  - Base Models: Smart Array P400/256MB Controller (RAID 0/1/5)
    - 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)
  - Entry Model: Smart Array E200/64MB Controller (RAID 0/1)
    - Upgrade to 128 MB cache, adds Raid 5 and BBWC
    - The Smart Array E200/64MB Controllers ships installed in slot 3
- 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 Server Adapters with TCP/IP Offload Engine, including support for Accelerated iSCSI and RDMA through optional ProLiant Essentials Licensing Kits
- Expansion Slots:
  - 4 Total PCI-Express slots: three x8 and one x4.
  - Optional mixed 2 PCI-X / two x8 PCI-Express and Optional cage with PCI-Express with one x8, one x16 and one x4 configurations available.
- USB 2.0 Ports:
  - 5 total ports: (2) ports up front; (2) ports in back; (1) port internal
- Redundancy:
  - Fully redundant hot plug fans
  - Hot plug power supply with optional redundancy (Included in Performance models)
- Management:
  - New 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:
  - Protected by HP Services and a worldwide network of resellers and service providers. Three-year Next Business Day, on-site limited global warranty. Certain restrictions and exclusions apply. Pre-Failure Notification on processors, memory, and SAS hard drives. SATA hard drives have a one-year warranty.

Standard Features

Processor One of the following depending on Model	AMD Opteron Processor 2220 (2.8 GHz / 95 Watts)
	AMD Opteron Processor 2218 (2.6 GHz, 95 Watts)
	AMD Opteron Processor 2218 HE (2.6 GHz, 68 Watts) NOTE: CTO only.
	AMD Opteron Processor 2216 HE (2.4 GHz, 68 Watts)
	AMD Opteron Processor 2216 (2.4 GHz, 95 watts) NOTE: CTO only.
	AMD Opteron Processor 2214 HE (2.2 GHz, 68 Watts)
	AMD Opteron Processor 2212 HE (2.0 GHz, 68 Watts) NOTE: CTO only.
	AMD Opteron Processor 2210 HE (1.8 GHz, 68 Watts)
	AMD Opteron Processor 2210 (1.8 GHz, 95 Watts) NOTE: CTO only.
	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 2 cache (2000 series) NOTE: 1MB Level 2 cache per core.

Chipset	Serverworks HT-2100 Northbridge and HT1000 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 supported (data saved across 2 processors memory sets) available.
	Standard (Entry Models)	1GB (2 x 512 MB)
	Standard (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 Server Adapters with TCP/IP Offload Engine, including support for Accelerated iSCSI and RDMA through optional ProLiant Essentials Licensing Kits

Standard Features

Expansion Slots

Embedded Slots

Slot Number	Bus Speed	Bus Number**	Device Number***	Hot Plug	PCI Voltage
1	X8 PCIe	70	0	no	N/A
2	X8 PCIe	67	0	no	N/A

NOTE: For Base and Performance Models, the Smart Array P400/256MB Controller is installed in Slot 1.
NOTE: For Entry Model, the Smart Array E200/64 MB Controller is installed in Slot 3.
**NOTE: Default bus assignment. Inserting cards with PCI bridges may alter the actual bus assignment number.
***NOTE: Slots are enumerated differently based on OS. MS OS's enumerate from lowest to highest Device ID by bus (starting with the lowest bus).

PCIe Riser

Slot Number	Bus Speed*	Bus Number**	Device Number***	Hot Plug	PCI Voltage
3	x4 PCIe	11	0	no	N/A
4	x8 PCIe	8	0	no	N/A
5	x8 PCIe	5	0	no	N/A

*NOTE: x4 slots support x8 cards, but will run at x4 speeds. x8 slots supports x16 cards, but will run at x8 speeds.
**NOTE: Default bus assignment. Inserting cards with PCI bridges may alter the actual bus assignment number.
***NOTE: Slots are enumerated differently based on OS. MS OS's enumerate from lowest to highest Device ID by bus (starting with the lowest bus).

PCIe/PCI-X Riser
(Optional)

Slot Number	Bus Speed*	Bus Number**	Device Number***	Hot Plug	PCI Voltage
3	x8 PCIe	10	0	no	N/A
4	64-bit/133MHz PCI-X	6	1	no	3.3 Volt
5	64-bit/133MHz PCI-X	6	2	no	3.3 Volt

*NOTE: x8 slot supports x16 cards, but will run at x8 speed.
**NOTE: Default bus assignment. Inserting cards with PCI bridges may alter the actual bus assignment number.
***NOTE: Slots are enumerated differently based on OS. MS OS's enumerate from lowest to highest Device ID by bus (starting with the lowest bus).

Standard Features

PCIe/ x16 Riser (Optional)	Slot Number	Bus Speed*	Bus Number**	Device Number***	Hot Plug	PCI Voltage
	3	x4 PCIe	8	0	no	N/A
	4	x16 PCIe	5	0	no	3.3 Volt

*NOTE: x4 slot support x8 cards, but will run at x4 speed.
**NOTE: Default bus assignment. Inserting cards with PCI bridges may alter the actual bus assignment number.
***NOTE: Slots are enumerated differently based on OS. MS OS's enumerate from lowest to highest Device ID by bus (starting with the lowest bus).

Storage Controller *One of the following depending on Model*	Performance Models:	HP Smart Array P400/512MB BBWC Controller (RAID 0/1/5/6)
	Base Models:	HP Smart Array P400/256MB Controller (RAID 0/1/5) **Available upgrades:** 512MB memory module for RAID 0/1/5/6, battery for battery-backed write cache (BBWC).
	Entry Models:	HP Smart Array E200/64MB Controller (RAID 0/1) **Available upgrades:** 128MB memory module for RAID 0/1/5, battery for battery-backed write cache (BBWC).

Storage	Diskette Drive	None Standard
	Optical Drive *One of the following depending on Model*	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

Remote Management Integrated Lights Out 2 (iLO 2) Standard Management:

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

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)

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 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 1280 x 1024 x 16M color (32MB video standard)

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

Standard Features

ProLiant Essentials Foundation Pack Software	HP Systems Insight Manager	HP Systems Insight Manager (HP SIM) provides a unified, secure and extensible environment to centrally manage servers, storage and other infrastructure devices across multiple operating system platforms.

Through a single management view, HP SIM provides core management services that include device discovery and identification, event views, health monitoring, inventory data collection, software version control and reporting. HP SIM is built on industry standards and is extensible with value-added ProLiant Essentials, Integrity Essentials and Storage Essentials software to meet individual management needs. For more details on HP SIM visit http://www.hp.com/go/hpsim.

HP SIM provides organizations with the following benefits:

- Simplifies and consolidates infrastructure lifecycle management using task and query based functionality
- Provides the foundation for infrastructure automation and virtualization
- Enables IT management based on business processes not hardware platforms
- Lowers infrastructure maintenance cost and frees resources for innovation
- Maximizes resource utilization with virtualization technologies
- Provides a central point of integration between infrastructure and Enterprise management tools such as HP OpenView

SmartStart

SmartStart simplifies server setup by providing a quick, easy way to deploy reliable and consistent server configurations. For more information, please visit the SmartStart Web site at http://www.hp.com/servers/manage. SmartStart version supported (minimum): SmartStart 7.51

Insight Management Agents

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

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

Subscriber's Choice

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

ROMPaq, support software, and configuration utilities

The latest software, drivers, and firmware fully optimized and tested for your ProLiant server and options
Available in SmartStart or downloadable from the Software and Drivers download pages at http://www.hp.com/go/support.

Standard Features

Insight Diagnostics	The most advanced configuration analysis, reporting and troubleshooting utilities used by HP and at your fingertips, available in SmartStart.
Optional ProLiant Essentials Value Packs	Optional software offerings that extend the functionality of an Adaptive Infrastructure to address specific business problems and needs:

- Rapid Deployment Pack (RDP) is an automated deployment and provisioning solution for all ProLiant servers. RDP includes the ProLiant Integration Module featuring ProLiant server pre-configured events for OS installation, and optimized software drivers, firmware and management agents. Every RDP disc includes 7-day, 10-node trial licenses for evaluation purposes. RDP requires a license for each server deployed and is available for purchase with HP servers. For more information, visit: http://www.hp.com/servers/rdp.
- Workload Management Pack - provides easier management of complex environments, improving overall server utilization and enabling Windows 2003 customers for the first time to confidently deploy multiple applications on a single multiprocessor ProLiant Server.
- Performance Management Pack - 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.
- Intelligent Networking Pack - detects and analyzes network bottlenecks or broken network linkages and steers traffic to the optimum route based on network conditions, plus it provides an extra layer of protection. The virus throttle feature of the solution slows the propagation of fast spreading viruses.
- Vulnerability and Patch Management Pack - identifies and remediates software security vulnerabilities due to missing patches as well operating system configurations that can be exploited by viruses, worms, and other blended threats.
- Virtual Machine Management Pack - provides central management and control of virtual machines from Microsoft and VMware. Integrated approach provides the ability to manage both physical and virtual resources from a single management console.
- Server Migration Pack - The Server Migration Pack automates the manual processes required for migrating servers between physical or virtual platforms (P2V, V2P, and V2V).
- Server Migration Pack - P2P Edition: Upgrading or replacing your existing server? Effortlessly transition to new servers with automated, accurate and affordable migration of OS, application and data.
- 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.
- Remote Direct Memory Access (RDMA) Pack for Embedded Multifunction Gigabit Server Adapters - provides direct and faster communication between application buffers in separate servers for tasks that involves moving large amounts of data, such as network backups, database read/write, and high performance computing.

Standard Features

	Optional Remote Management Packs	• Integrated Lights-Out Advanced Pack - upgrades the iLO 2 processor with comprehensive remote control including Virtual KVM remote graphical console, virtual media (floppy, CD/DVD, USB key), historical power reporting and enterprise security (directory services and two-factor authentication). • Integrated Lights-Out Select Pack - upgrades the iLO 2 processor with virtual media (floppy, CD/DVD, USB key), historical power reporting and enterprise security (directory services and two-factor authentication) for servers managed using iLO 2 Standard remote consoles. • 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.
NOTE: For more information regarding ProLiant Essentials Software, please see the following URL: http://www.hp.com/servers/proliantessentials.

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 Disk configuration lock
Server Power Cords	One Highline IEC Power cord ships standard (6')
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)

Required Cabling   For required cabling information, refer to the Web site at:
http://h10010.www1.hp.com/wwpc/us/en/ss/WF05a/15351-241434-241475-241475-f79-3219233.html

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OS Support   Microsoft Windows Server 2003
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 drivers available for the HP ProLiant DL385 G2, please see: http://h18023.www1.hp.com/support/files/server/us/index.html.
NOTE: For more Linux OS support & certification information, please visit our the ProLiant & Bladesystem Server Linux matrix: http://h18004.www1.hp.com/products/servers/linux/hpLinuxcert.html
NOTE: For more information on HP's Certified and Supported ProLiant Servers, please visit the VMware Server Support Matrix at:
http://h18004.www1.hp.com/products/servers/software/vmware/hpvmwarecert.html.

Rack Airflow Requirements

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

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

- Front and rear doors: If your 42U server rack includes closing front and rear doors, you must allow 830 square inches (5,350 sq cm) of 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: http://h18000.www1.hp.com/products/servers/proliantdl385/index.html.

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 G2 in 7000 series racks. The DL385 G2 Cable Management Arm is not supported on 7000 series racks.

Telco Rack Support
DL385 G2 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 MSA1000, VA7xxx, EVA, XP, rackable tape libraries and configurable network switches.

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

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

Standard Features

Service and Support

This product is covered by a global limited warranty and supported by HP Services and a worldwide network of resellers and service providers. Hardware diagnostic support and repair is available for three years from date of purchase. Support for software and initial setup is available for 90 days from date of purchase. Additional support may be covered under the warranty or available for an additional fee. Enhancements to warranty services are available through HP Care Pack services or customized service agreements.

NOTE: Server Warranty includes 3 year Parts, 3 year Labor, 3-year on-site support. Additional information regarding worldwide limited warranty and technical support is available at: http://h18004.www1.hp.com/products/servers/platforms/warranty/index.html

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

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

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

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

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

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

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

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

- *Support Plus 24 - Onsite HW support 24x7, 4hr response and Microsoft O/S SW Tech support offsite, onsite at HP's discretion, 24x7 2hr response time incl. HP holidays*

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

- *Installation & Start-Up of a ProLiant server and Microsoft or Linux O/S per the Customer Description and/or Data Sheet. To be delivered on a scheduled basis 8am-5pm, M-F, excl. HP holidays*

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

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

HP DL385 G2 Performance Models	Processor(s) One of the following depending on Model	(2) Dual-Core AMD Opteron 2218 Processors (2.6 GHz, 95 Watts) (2) Dual-Core AMD Opteron 2220 Processors (2.8 GHz, 95 Watts)
HP DL385G2 2218 4G HPM 432195-xx1	Cache Memory	2MB (1 x 2MB) Level 2 cache - 2000 Series
	Memory	4 GB (4 x 1 GB of 2:1 interleaved PC2-5300 DIMMs (DDR2-667) with Advanced ECC capabilities
HP DL385G2 2220 4G HPM 438816-xx1	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 G2 Base Models	Processor(s) One of the following depending on Model	(1) Dual-Core AMD Opteron 2218 Processor (2.6 GHz, 95 Watts) (1) Dual-Core AMD Opteron 2216 HE Processor (2.4 GHz, 68 Watts) (1) Dual-Core AMD Opteron 2214 HE Processor (2.2 GHz, 68 Watts) (1) Dual-Core AMD Opteron 2200 Processor (2.8 GHz, 95 watts)
HP DL385G2 2218 2G 407424-xx1 HP DL385G2 2216 2G 408838-xx1 HP DL385G2 2214 2G 407429-xx1 HP DL385G2 2220 2G 438815-xx1	Cache Memory	2MB (2 x 1MB) Level 2 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 or floppy drive
	Form Factor	Rack (2U), (3.5-inch)
	Availability	Hot Plug Fully Redundant Fans Standard

HP DL385 G2 Entry Models	Processor(s)	(1) Dual Core AMD Opteron 2210 HE Processor (1.8 GHz, 68 Watts)
HP DL385G2 2210 1G 434940-xx1	Cache Memory	2MB (2 x 1MB) Level 2 cache - 2000 Series
	Memory	1 GB (2 x 512 MB) PC2-5300 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)
	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 or floppy drive
	Form Factor	Rack (2U), (3.5-inch)
	Availability	Hot Plug Fully Redundant Fans Standard

Models

Country Code Key

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

QuickSpecs

Configuration Information - Factory Integrated Models (North America only)

NOTE: This section lists some of the steps required to configure a Factory Integrated Model. To ensure only valid configurations are ordered, HP recommends the use of an HP approved configurator. Contact your local sales representative for additional information.
NOTE: For Configure to Order requirements within EMEA region, please consult local Sales Contact.
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 is only available as a Factory Installable Option.

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

Models	HP ProLiant DL385G2 Rack CTO Chassis	414109-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 SAS Controller (must choose only one of the following)

SAS 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 P600/256 BBWC Controller	337972-B21
	NOTE: PCI-X. SA-P600 Controller supports both internal and external drives.	
	HP Smart Array E200/64 FIO Controller	405528-B21
	HP Smart Array 6402/512 FIO Controller	441508-B21

Configuration Information - Factory Integrated Models (North America only)

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

Processors	HP OPTRN 2.6/1000-1M DC DL385R02 FIO processor	407433-L21
	HP OPTRN 2.6/1000-1M DC HE DL385R02 FIO processor	438826-B21
	HP OPTRN 2.2/1000-1M DC HE DL385R02 FIO processor	407435-L21
	HP OPTRN 2.0/1000-1M DC HE DL385R02 FIO processor	408837-L21
	HP OPTRN 2.4/1000-1M DC HE DL385R02 FIO processor	408840-L21
	HP OPTRN 2.4/1000-1M DC DL385R02 FIO processor	434945-L21
	HP OPTRN 1.8 GHz/1000-1M DC HE DL385R02 FI0 processor	434943-L21
	HP OPTRN 1.8 GHz/1000-1M DC DL385R02 FIO processor	434947-L21
	HP OPTRN 2.8/1000-1M DC DL385G2 FIO processor	438825-L21
Base Memory	1 GB PC2-5300 DDR2 2 x 512 MB Kit	408850-B21
	2 GB PC2-5300 DDR2 2 x 1 GB Kit	408851-B21
	4 GB PC2-5300 DDR2 2 x 2 GB Kit	408853-B21
	8 GB REG PC2-5300 (2 x 4GB) dual rank	408854-B21

Step 3: Choose Additional Factory Integratable Options

Performance Packs   The HP ProLiant DL385 G2 performance packs are necessary to configure a HP ProLiant DL385 G2 Performance Model. HP ProLiant DL385 G2 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 DL385G2 2220 HPM FIO Perf Pack	442239-B21
	HP DL385G2 2218 HPM FIO Perf Pack	432858-B21

Step 4: Choose Additional Options for Factory Integration

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

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

| HP ProLiant DL385 G2 Unique Options | HP 2 Slot PCI-Express x16 & x4 Riser DL385G2 ALL | 410571-B21 |
| | HP PCI-X/PCI-E NHP RISER DL385G2 ALL | 410570-B21 |

ProLiant Essentials Value Pack Software

ProLiant Essentials Accelerated iSCSI Pack

| ProLiant Essentials Accelerated iSCSI Pack, 1 License | 407484-B21 |

NOTE: For additional Accelerated iSCSI Pack License Kits, please see the QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/12466_div/12466_div.HTML

ProLiant Essentials Intelligent Networking Pack

| ProLiant Essentials Intelligent Networking Pack - Windows Edition, Single Server License | 436225-B21 |

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

NOTE: For additional ProLiant Intelligent Networking Pack - Windows License Kits please see the QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/12062_div/12062_div.HTML

| ProLiant Essentials Intelligent Networking Pack - Linux Edition, Single Server License | 436229-B21 |

NOTE: For additional ProLiant Intelligent Networking Pack - Linux License Kits please see the QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/12327_div/12327_div.HTML

ProLiant Essentials Performance Management Pack

| ProLiant Essentials Performance Management Pack, Single-Server License | 436770-B21 |

NOTE: For use with a single server. Contains one license with a unique license activation key, HP Management CD and documentation.
NOTE: The most recent version of the software can always be downloaded at http://www.hp.com/products/pmp.

NOTE: For additional ProLiant Performance Management Pack License Kits please see the QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/11925_div/11925_div.HTML

HP ProLiant Essentials Remote Directory Memory Access (RDMA) Pack

| HP ProLiant Essentials RDMA Pack for Embedded Multifunction Gigabit Server Adapters, 1 License | 407478-B22 |

| HP ProLiant Essentials RDMA Pack for Standup Multifunction Gigabit Server Adapters, 1 License | 407481-B22 |

NOTE: For additional ProLiant Essentials RDM Pack License Kits please see the QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/12573_div/12573_div.HTML

ProLiant Essentials Rapid Deployment Pack

| Rapid Deployment Pack, Single-Server License | 267196-B21 |

NOTE: This license allows 1 server to be deployed and managed via RDP.

| Rapid Deployment Pack, Single-Server License (Japan) | 267196-291 |

NOTE: This license allows 1 server to be deployed and managed via RDP.

| ProLiant Essentials Rapid Deployment Pack, Flatpack - single server license | 434560-B21 |
| ProLiant Essentials Rapid Deployment Pack - Physical Media Kit | 434559-B21 |

Options

ProLiant Essentials Workload Management Pack

ProLiant Essentials Workload Management Pack, Single Server License   303284-B21

ProLiant Essentials Virtualization Management Software

ProLiant Essentials Virtual Machine Management Pack, Single-Server License   435661-B21
NOTE: For use with a single server. Contains one license with a unique license activation key and documentation.

ProLiant Essentials Server Migration Pack, Single-Migration License   435663-B21
NOTE: Contains one license, enabling 1 server migration, with a unique license activation key and documentation.

ProLiant Essentials Server Migration Pack - Physical to ProLiant Edition, Single-   412978-B21
Migration License

ProLiant Essentials Server Migration Pack - P2P Edition, 1 Year Unlimited Migration   412982-B21
License

ProLiant Essentials Server Migration Pack - P2P Edition, Single-Migration License   412978-B21

NOTE: This license allows 1 server to be migrated from a physical server to a virtual machine. Or this license can be used to migrate a virtual machine from one virtualization layer i.e. VMware GSX to a different virtualization layer such as VMware ESX or Microsoft Virtual Server 2005.

ProLiant Essentials Vulnerability and Patch Management Pack

ProLiant Essentials Vulnerability and Patch Management Pack, Single-Server License   371645-B21
NOTE: For use with a single server. Contains one license with a unique license activation key and documentation.

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

Options

Remote Management	**ProLiant Essentials Integrated Lights-Out Advanced Pack**	
	ProLiant Essentials Integrated Lights-Out Advanced Pack, 1 server License	263825-B21
	Featuring: sophisticated virtual administration features for ultimate control of servers in the data centers and remote sites.	
	ProLiant Essentials Integrated Lights-Out Select Pack	
	ProLiant Essentials Integrated Lights-Out Select Pack, 1 server License	413119-B21
	Featuring: sophisticated remote control and security features for HP BladeSystem servers and ProLiant ML/DL servers in text console environments.	
	HP iLO Power Management Pack, No Media Single-Server License	436210-B21
	NOTE: This option kit includes 1 license for iLO Advanced and Insight Power Manager.	
	NOTE: For additional ProLiant Integrated Light-Out License Kits please see the QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/12362_div/12362_div.HTML	
	HP Insight Power Manager (IPM)	
	HP Insight Power Manager Pack, No Media, Single-Server License	433691-B21
	NOTE: This option kit includes 1 license for Insight Power Manager. **NOTE:** For additional ProLiant Integrated Light-Out Select Pack License Kits please see the QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/12623_div/12623_div.HTML	

ProLiant Software Maintenance Subscription	ProLiant Software Maintenance Subscription	355060-B21
	ProLiant Software Maintenance Single Release	356573-B21
	ProLiant Foundation Pack Single Release	356604-B21
	NOTE: Please see the SmartStart QuickSpecs for additional information regarding the subscription purchase: http://h18000.www1.hp.com/products/quickspecs/Division/11073.html (Worldwide)	

Processors	HP OPTRN 2.6/1000-1M DC DL385R02 ALL	407433-B21
	HP OPTRN 2.6/1000-1M DC HE DL385R02 ALL	438824-B21
	HP OPTRN 2.2/1000-1M DC HE DL385R02 ALL	407435-B21
	HP OPTRN 2.8/1000-1M DC DL385R02 ALL	438825-B21
	HP OPTRN 2.0/1000-1M DC HE DL385R02 ALL	408837-B21
	HP OPTRN 2.4/1000-1M DC HE DL385R02 ALL	408840-B21
	HP OPTRN 2.4/1000-1M DC DL385R02 ALL	434945-B21
	HP OPTRN 1.8/1000-1M DC HE DL385R02 ALL	434943-B21
	HP OPTRN 1.8/1000-1M DC DL385R02 ALL	434947-B21

Memory	1 GB PC2-5300 DDR2 2 x 512 MB Kit	408850-B21
	2 GB PC2-5300 DDR2 2 x 1 GB Kit	408851-B21
	4 GB PC2-5300 DDR2 2 x 2 GB Kit	408853-B21
	8 GB REG PC2-5300 (2 x 4GB) dual rank	408854-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

Hard Drives	**SFF SAS - Universal Hot Plug**	
	HP 146GB 3G SAS 10K SFF SP HDD	431958-B21
	HP 72GB 3G SAS 10K SFF SP HDD	375861-B21
	HP 72GB 3G SAS 15K SFF SP HDD	431935-B21
	HP 36GB 3G SAS 10K SFF SP HDD	375859-B21
	HP 36GB 3G SAS 15K SFF SP HDD	431933-B21

NOTE: Please see the SAS Hard Drive QuickSpecs for Technical Specifications such as capacity, height, width, interface, transfer rate, seek time, physical configuration, and operating temperature: http://h18000.www1.hp.com/products/quickspecs/12244_div/12244_div.HTML (Worldwide)

SFF SATA Hot Plug

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

NOTE: SATA drives have a 1 year warranty. Please see the SATA Hard Drive QuickSpecs for Technical Specifications such as capacity, height, width, interface, transfer rate, seek time, physical configuration, and operating temperature: http://h18000.www1.hp.com/products/quickspecs/12091_div/12091_div.HTML (Worldwide)

Storage Controllers

NOTE: Please refer to the HP ProLiant DL385 G2 SCSI Cabling Matrix for information on what's required to cable optional array controllers: ftp://ftp.compaq.com/pub/products/servers/proliantdl380/dl380g4-cabling-matrix.pdf

SAS Controllers

Smart Array E200 Controller

HP Smart Array E200/128 BBWC Controller	411508-B21
HP Smart Array E200/64MB Controller	409180-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

Smart Array P400 Controller

HP Smart Array P400/256MB Controller	405132-B21
HP Smart Array P400/512MB BBWC Controller	411064-B21
512MB Battery-backed cache upgrade	405148-B21

NOTE: For Smart Array P400 Controller.

Battery-backed write cache upgrade	383280-B21

NOTE: For Smart Array P400 Controller.

Smart Array P400 Battery Attach Kit   417836-B21
NOTE: This option kit contains a 24" battery cable and adhesive material for installing a battery into the server if a Smart Array P400 is integrated outside of the factory. For all solutions, please refer to the server QuickSpecs and User's Manual for detailed installation instructions.

Smart Array P600 Controller

HP Smart Array P600/256 BBWC Controller   337972-B21
NOTE: 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 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_div/12460_div.HTML
(Smart Array E200 Controller)
http://h18000.www1.hp.com/products/quickspecs/xxxxx_div/xxxxx_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 SC44Ge Host Bus Adapter   416096-B21

HP 8 Internal Port SAS HBA with RAID   347786-B21

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

SCSI Controllers for External Drive/Storage Support
NOTE: All Ultra 320 controllers are PCI-X and require the Mixed Riser Cage Option Kit (PCI-E/PCI-X).

Smart Array 6402/128 Controller   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

Options

	SCSI HBA	
	HP SC11Xe Host Bus Adapter	412911-B21

NOTE: Please see the following QuickSpecs for Technical Specifications and additional information:
http://h18000.www1.hp.com/products/quickspecs/11943_div/11943_div.HTML (Single Channel Ultra320 SCSI HBA)
http://h18000.www1.hp.com/products/quickspecs/11587_div/11587_div.HTML (Smart Array 6400 Series)
http://h18000.www1.hp.com/products/quickspecs/12069_div/12069_div.HTML (Smart Array 642)
http://h18000.www1.hp.com/products/quickspecs/12566_div/12566_div.HTML (SC11Xe HBA)

Communications		
	HP NC110T PCI Express Gigabit Server Adapter	434905-B21
	HP NC150T PCI 4-port Gigabit 1000T Combo Switch Adapter	367132-B21
	HP NC310F PCI-X 1000SX Gigabit Server Adapter	368169-B21
	HP NC340T PCI-X 4-port 1000T Gigabit Server Adapter	391661-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	414126-B21

NOTE: A minimum of 1 gigabyte (1 GB) of server memory is required per each NC510F adapter.

	HP NC510C PCIe 10 Gigabit Server Adapter	414129-B21

NOTE: A minimum of 1 gigabyte (1 GB) of server memory is required per each NC510C adapter.

	HP NC7771 PCI-X 1000T Gigabit Server Adapter	290563-B21
	HP IB 4X SDR PCI-e single PORT HCA	431038-B21
	HP IB 4X DDR PCI-e Single PORT HCA	431039-B21

Redundant Options		
	Redundant Power Supply 350/370/380 G5 AU Kit	399771-011
	Redundant Power Supply 350/370/380 G5 EU Kit	399771-021
	Redundant Power Supply 350/370/380 G5 JP Kit	399771-291
	Redundant Power Supply 350/370/380 G5 Worldwide Kit	399771-B21
	Redundant Power Supply 350/370/380 G5 UK Kit	399771-031
	Redundant Power Supply 350/370/380 G5 US Kit	399771-001
	Redundant Power Supply 380 G5 Worldwide Kit - 48Volt DC	433634-B21

Tape Drives

NOTE: For the complete listing of Tape Drive offerings, please see:
http://www.hp.com/products1/storage/compatibility/tapebackup/ISS/index.html

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

USB Tape Drives

Options

HP StorageWorks 1U USB Rack-Mount Kit with one DAT 72 USB Tape Drive	AG594A

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

HP StorageWorks Ultrium 448 SAS Internal Tape Drive	DW085A

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

HP StorageWorks Ultrium 920 SAS Internal Tape Drive	EH847A

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

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

Ultrium Tape Drives

HP StorageWorks Ultrium 232 Internal Tape Drive (Carbonite)	DW064A

NOTE: HP recommends combining this tape drive with the 1U SCSI Rack-Mount kit (A7445B) for a complete rack-mount solution.

HP StorageWorks 3U SCSI Rack-mount kit with one Ultrium 460 (Carbon)	350546-B22
HP StorageWorks 1U SCSI Rack-mount kit with one Ultrium 448 SCSI Tape Drive (Carbonite)	DW028B
HP StorageWorks 1U SCSI Rack-mount kit with one Ultrium 920	EH903A
HP StorageWorks 3U SCSI Rack-mount kit with one Ultrium 960 (Carbonite)	Q1595B

NOTE: Please see the HP StorageWorks Ultrium Tape Drive QuickSpecs for additional options such as controllers, media, and other related items:
http://h18006.www1.hp.com/products/quickspecs/11739_div/11739_div.html (Worldwide)
http://h18006.www1.hp.com/products/quickspecs/12128_div/12128_div.html (Worldwide)
For an up-to-date listing of the latest O/S and software support details for HP Ultrium tape drives, please visit: http://www.hp.com/go/connect.

Rack-Mount Tape Drive Enclosures

HP StorageWorks 1U SCSI Rack-Mount kit	A7445B

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

HP StorageWorks 1U USB Rack-Mount Kit	A8007A

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

HP StorageWorks 1U SAS Rack-Mount Kit	AE459A

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

Options

	HP StorageWorks 3U Rack-mount kit	274338-B22

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

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

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.

NOTE: Please see the HP D2D Backup Systems QuickSpecs for additional information: http://h18000.www1.hp.com/products/quickspecs/12651_div/12651_div.HTML (Worldwide)

Tape Autoloaders	**HP StorageWorks DAT Autoloader**	
	HP StorageWorks DAT 72x10 tape autoloader	AE313B
	HP StorageWorks 1/8 Tape Autoloader	
	HP StorageWorks 1/8 G2 Ultrium 920 SAS Autoloader	AH558A
	HP StorageWorks 1/8 Ultrium 920 G2 Tape Autoloader	AH165A
	HP StorageWorks 1/8 Ultrium 448 G2 Tape Autoloader	AH164A
	HP StorageWorks 1/8 Ultrium 232 G2 Tape Autoloader	AH163A
	HP StorageWorks 1/8 G2 Tape Autoloader Rack Kit	AH166A

NOTE: Required to install the 1/8 G2 Autoloaders in a standard 19-inch rack; includes rails and rackmount instructions

NOTE: Please reference the Tape Autoloader QuickSpecs at http://www.hp.com/go/automation for additional information needed to create a complete solution; reference current compatibility information at http://www.hp.com/go/ebs

Options

Tape Libraries

HP StorageWorks MSL2024 Tape Library

HP StorageWorks MSL2024 1 Ultrium 960 Drive Library	AG115A
HP StorageWorks MSL2024 1 Ultrium 960 4GB FC Drive Library	AG326B
HP StorageWorks MSL2024 1 Ultrium 920 SAS Drive Library	AH559A
HP StorageWorks MSL2024 1 Ultrium 920 Drive Library	AH169A
HP StorageWorks MSL2024 2 Ultrium 920 Drive Library	AH170A
HP StorageWorks MSL2024 1 Ultrium 448 Drive Library	AG116A
HP StorageWorks MSL2024 2 Ultrium 448 Drive Library	AG117A

HP StorageWorks MSL4048 Tape Library

HP StorageWorks MSL4048 1 Ultrium 448 Drive Library	AG320A
HP StorageWorks MSL4048 2 Ultrium 448 Drive Library	AG321A
HP StorageWorks MSL4048 1 Ultrium 920 SAS Drive Library	AH560A
HP StorageWorks MSL4048 1 Ultrium 920 Drive Library	AH171A
HP StorageWorks MSL4048 2 Ultrium 920 Drive Library	AH172A
HP StorageWorks MSL4048 1 Ultrium 960 Drive Library	AG322A
HP StorageWorks MSL4048 1 Ultrium 960 4GB FC Drive Library	AG324B
HP StorageWorks MSL4048 2 Ultrium 960 Drive Library	AG323A
HP StorageWorks MSL4048 2 Ultrium 960 4GB FC Drive Library	AG325B

HP StorageWorks MSL8096 Tape Library

HP StorageWorks MSL8096 2 Ultrium 920 SAS Drive Library	AH561A
HP StorageWorks MSL8096 2 Ultrium 960 4GB FC Library	AH218A
HP StorageWorks MSL8096 2 Ultrium 960 Drive Library	AH219A

HP StorageWorks MSL6000 Tape Library

Ultrium 960 technology

HP StorageWorks MSL6030 1 Ultrium 960 Dr LVDS Library	AD606B
HP StorageWorks MSL6030 1 Ultrium 960 Dr FC Library	AD608B
HP StorageWorks MSL6030 2 Ultrium 960 Dr LVDS Library	AD607B
HP StorageWorks MSL6030 2 Ultrium 960 Dr FC Library	AD609B

Ultrium 460 technology

HP StorageWorks MSL6030 1 Ultrium 460 Dr LVDS Library	AD598B
HP StorageWorks MSL6030 1 Ultrium 460 Dr FC Library	AD600B
HP StorageWorks MSL6030 2 Ultrium 460 Dr LVDS Library	AD599B
HP StorageWorks MSL6030 2 Ultrium 460 Dr FC Library	AD601B

NOTE: Please reference the MSL2024, MSL4048 and MSL6000 Tape Library QuickSpecs at http://www.hp.com/go/automation for additional information needed to create a complete solution; reference current compatibility information at http://www.hp.com/go/ebs

Options

HP Data Protector Express Software	HP DP Express Backup Server Upgrade for ProLiant Software	BB117AP
	HP DP Express Package for Microsoft Small Business Server	BB118AA

NOTE: To obtain a free licensed copy of HP Data Protector Express for ProLiant edition software, please visit the "Protect Your Data" link accessible from your ProLiant server's System Management Homepage (SMH) software (SmartStart 7.5 or later).

NOTE: Please see the HP Data Protector Express QuickSpecs for additional information regarding the purchase of HP Data Protector Express software: http://h18000.www1.hp.com/products/quickspecs/12337_div/12337_div.html (Worldwide)

Cluster Options	ProLiant Cluster Starter Kit	364023-B22

NOTE: For additional information regarding the ProLiant Cluster Starter Kit please see the following QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/11935_div/11935_div.html (Worldwide)

HP HA/F200 for Entry SAN Cluster	364026-B22

NOTE: For additional information regarding the ProLiant Cluster for Entry Level SAN please see the following QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/11932_div/11932_div.html (Worldwide)

NOTE: For configuration/certification options for the HP Parallel Database Cluster for Oracle RAC please go to: http://www.hp.com/solutions/highavailability/oracle

HP Serviceguard for Linux ProLiant Cluster A.11.16 for SUSE SLES 9 & 10 and Red Hat EL 3 & 4 (2 node license cluster kit)	305199-B26
HP Serviceguard for Linux A.11.16 for SUSE SLES 9 & 10 and Red Hat EL 3 & 4 (single license version)	307754-B26
HP Serviceguard for Linux and Red Hat Global File System - 1 year subscription	T2798AA#001
HP Serviceguard for Linux and Red Hat Global File System - 3 years subscription	T2798AA#003

NOTE: For additional information regarding HP Serviceguard for Linux, please see the following QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/11518_div/11518_div.html (Worldwide)
NOTE: For configuration/certification options for HP Serviceguard for Linux please go to: http://www.hp.com/info/sglx

Options

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 FC1142SR 4Gb PCI-e HBA	AE311A
	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
	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 Modular Smart Array 50	HP StorageWorks Modular Smart Array 50 Enclosure	364430-B21
	NOTE: Please see the Modular Smart Array 50 QuickSpecs for additional information including configuration steps and additional options needed for a complete solution at: http://h18000.www1.hp.com/products/quickspecs/12245_div/12245_div.HTML (Worldwide)	

HP StorageWorks Modular Smart Array 500 G2	HP StorageWorks Modular Smart Array 500 Generation 2	335880-B21
	NOTE: Please see the Modular Smart Array 500 Generation 2 QuickSpecs for additional information including configuration steps and additional options needed for a complete solution at: http://h18000.www1.hp.com/products/quickspecs/11956_div/11956_div.HTML (Worldwide)	

Uninterruptible Power Systems - Rack	HP R1.5 VA 1U UPS INTL	AF418A
	HP R1.5 VA 1U UPS JPN	AF421A
	HP R1.5 VA 1U UPS NA	AF419A
	HP R/T2200 2-U ERM	AF412A

USB Options	HP USB 2-Button Optical Scroll Mouse (Carbonite/Silver)	DC172B
	HP USB 04 Standard Keyboard	DT528A#xxx
	USB 2.0 4-port HUB	DG954A
	HP 1GB Drive Key II- USB 2.0 Flash Drive	AG382AA
	HP 512MB DriveKey II- USB Flash Drive	ED516AA

Third Party Rack Adapter Kit (for wide racks)	Rack Adapter Kit	332815-B21
	NOTE: Not required for most racks. This kit allows HP rack servers to fit in racks that are 24" wide.	

Options

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

NOTE: Please see the HP Rack 5642 QuickSpecs for additional part numbers and Technical Specifications such as height, width, depth, weight, and color: http://h18000.www1.hp.com/products/quickspecs/12074_div/12074_div.HTML (Worldwide)

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

HP Rack 10000 G2 Series	10642 G2 (42U) Rack Cabinet - Pallet	AF001A
(Carbon/Graphite Metallic)	10642 G2 (42U) Rack Cabinet - Shock Pallet	AF002A
	10642 G2 (42U) Rack Cabinet - Crated	AF003A
	10642 G2 (42U) Rack Cabinet, with Extension - Shock Pallet	AF004A
	10636 G2 (36U) Rack Cabinet - Pallet	AF011A
	10636 G2 (36U) Rack Cabinet - Shock Pallet	AF012A
	10636 G2 (36U) Rack Cabinet - Crated	AF013A
	10636 G2 (36U) Rack Cabinet, with Extension - Shock Pallet	AF014A
	10622 G2 (22U) Rack Cabinet - Pallet	AF021A
	10622 G2 (22U) Rack Cabinet - Shock Pallet	AF022A
	10842 G2 (42U) 800mm Wide Rack Cabinet - Pallet	AF041A
	10842 G2 (42U) 800mm Wide Rack Cabinet - Shock Pallet	AF042A
	10647 G2 (47U) Rack Cabinet - Pallet	AF031A

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

NOTE: Please see the Rack 10000 G2 QuickSpecs for Technical Specifications such as height, width, depth, weight, and color: http://h18000.www1.hp.com/products/quickspecs/12402_div/12402_div.HTML (Worldwide)

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

HP Rack 10000 Series	HP S10614 (14U) Rack Cabinet - Shock Pallet	292302-B22
(Graphite Metallic)	HP 10842 (42U) Rack Cabinet - Pallet	257415-B21
	HP 10842 (42U) Rack Cabinet - Shock Pallet	257415-B22
	HP 10647 (47U) Rack Cabinet - Pallet	245160-B21
	HP 10647 (47U) Rack Cabinet - Crated	245160-B23
	HP 10622 (22U) Rack Cabinet - Pallet	245163-B21
	HP 10622 (22U) Rack Cabinet - Shock Pallet	245163-B22
	HP 10622 (22U) Rack Cabinet - Crated	245163-B23

NOTE: xxxxxx-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). xxxxxx-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 Compaq equipment is qualified to be shipped in the Rack 10000 series.

Options

NOTE: Please see the Rack 10000 QuickSpecs for Technical Specifications such as height, width, depth, weight, and color: http://h18000.www1.hp.com/products/quickspecs/10995_div/10995_div.HTML (Worldwide)

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

Keyboards and Monitors		
TFT7210R Rack Mounted 17" Monitor	348373-B21
TFT7600 Rackmount Keyboard Monitor US	AG052A
TFT7600 Rackmount Keyboard Monitor UK	AG053A
TFT7600 Rackmount Keyboard Monitor GR	AG054A
TFT7600 Rackmount Keyboard Monitor FR	AG055A
TFT7600 Rackmount Keyboard Monitor IT	AG056A
TFT7600 Rackmount Keyboard Monitor SP	AG057A
TFT7600 Rackmount Keyboard Monitor DEN	AG058A
TFT7600 Rackmount Keyboard Monitor NOR	AG059A
TFT7600 Rackmount Keyboard Monitor SE/FI	AG060A
TFT7600 Rackmount Keyboard Monitor SWI	AG061A
TFT7600 Rackmount Keyboard Monitor PORT	AG062A
TFT7600 Rackmount Keyboard Monitor BEL	AG063A
TFT7600 Rackmount Keyboard Monitor JPN2	AG064A
TFT7600 Rackmount Keyboard Monitor RUS	AG065A
TFT7600 Rackmount Keyboard Monitor INTL	AG066A
1U Rackmount Keyboard with USB, US	AG072A
1U Rackmount Keyboard with USB, UK	AG073A
1U Rackmount Keyboard with USB, GR	AG074A
1U Rackmount Keyboard with USB, FR	AG075A
1U Rackmount Keyboard with USB, ITL	AG076A
1U Rackmount Keyboard with USB, SP	AG077A
1U Rackmount Keyboard with USB, DEN	AG078A
1U Rackmount Keyboard with USB, NOR	AG079A
1U Rackmount Keyboard with USB, SE/FI	AG080A
1U Rackmount Keyboard with USB, SWI	AG081A
1U Rackmount Keyboard with USB, PORT	AG082A
1U Rackmount Keyboard with USB, BEL	AG083A
1U Rackmount Keyboard with USB, JPN2	AG084A
1U Rackmount Keyboard with USB, RUS	AG085A
1U Rackmount Keyboard with USB, INTL	AG086A

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

Options

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

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

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

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

	HP 1x 4 Console Switch (ALL)	AF611A
	PS2 Server Console Cable, 6 ft, 2 pack	AF612A
	USB Server Console Cable, 6 ft, 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.

Options

Service and Support Offerings (HP Care Pack Services)

Hardware Services On-site Service

4-Hour On-site Service, 5-Day x 13-Hour Coverage, 3 Years, Electronic	U4544E
4-Hour On-site Service, 7-Day x 24-Hour Coverage, 3 Years, Electronic	U4545E

Hardware Services 6-Hour Call to Repair On-site Service

6-Hour Call to Repair, On-site Service, 7-Day x 24-Hour Coverage, 3 Years, Electronic	U4546E

Installation & Start-up Services

Hardware Installation, Electronic	U4554E
Installation & Start-Up of a ProLiant server and Microsoft or Linux O/S per the Customer Description and/or Data Sheet. To be delivered on a scheduled basis 8am-5pm, M-F, excl. HP holidays, Electronic	U4555E
Installation and Startup for Essentials Rapid Deployment Pack, Electronic	U5683E

Support Plus

Onsite HW support, 8am-9pm, M-F, 4hr response and Microsoft O/S SW Tech support offsite, onsite at HP's discretion, 8am-9pm, M-F 2hr response time excl. HP holidays, Electronic	U4556E

Support Plus 24

Onsite HW support 24x7, 4hr response and Microsoft O/S SW Tech support offsite, onsite at HP's discretion, 24x7 2hr response time incl. HP holidays, Electronic	U4557E
Onsite HW support 24x7, 4hr response and SuSE Linux SW Tech support offsite, onsite at HP's discretion, 24x7 2hr response time incl. HP holidays, Electronic	U6312E
Onsite HW support 24x7, 4hr response and Red Hat ES Linux SW Tech support offsite, onsite at HP's discretion, 24x7 2hr response time incl. HP holidays, Electronic	U8334E

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

QuickSpecs

Memory

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

HP ProLiant DL385 G2 Base Models

Standard Memory
2 GB PC2-5300 DDR2 DIMMs (667 MHz) installed (2 x 1 GB)

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 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 of 1GB and the optional installation of PC2-5300 DDR2 DIMMs (667 MHz) memory kits. - 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 1GB of memory and the optional installation of PC2-5300 DDR2 4 GB DIMMs (667 MHz) 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	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

Following are memory options available from HP:
1 GB PC2-5300 DDR2 2 x 512 MB Kit	408850-B21
2 GB PC2-5300 DDR2 2 x 1 GB Kit	408851-B21
4 GB PC2-5300 DDR2 2 x 2 GB Kit	408853-B21
8 GB REG PC2-5300 (2 x 4GB) dual rank	408854-B21

Memory

HP ProLiant DL385 G2 Performance Models

Standard Memory
4 GB PC2-5300 DDR2 DIMMs (667 MHz) (4 x 1GB)

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:
4) Four single ranked DIMMs populated per node (4x512 MB or 4x1 GB for example) yields 2-way bank interleaving.
5) Two dual ranked DIMMs populated per node (2x2 GB or 2x4 GB for example) yields 2-way bank interleaving.
6) Four dual ranked DIMMs populated per node (4x2 GB or 4x4 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 of 4*1 GB and the optional installation PC2-5300 DDR2 DIMMs (667 MHz) memory kits. - 4 slots available (4*4 GB = 16GB + 4*1 GB standard = 20 GB).

Standard Memory Replaced with Optional Memory
Up to 32 GB of memory is available with the removal of the standard 1GB of memory and the optional installation of PC2-5300 DDR2 4 GB DIMMs (667 MHz) memory kits.

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 PC2-5300 DDR2 2 x 512 MB Kit	408850-B21
2 GB PC2-5300 DDR2 2 x 1 GB Kit	408851-B21
4 GB PC2-5300 DDR2 2 x 2 GB Kit	408853-B21
8 GB REG PC2-5300 (2 x 4GB) dual rank	408854-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 **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 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 72GB 3G SAS 10K SP 72GB 3G SAS 15K SP 36GB 3G SAS 10K SP 36GB 3G SAS 15K SP	Up to 8	1-8	HP Smart Array E200/64MB Controller HP Smart Array E200/128 BBWC Controller HP Smart Array E500/256MB Controller HP Smart Array P400/256MB Controller HP Smart Array P400/512MB BBWC Controller HP Smart Array P600/256 BBWC Controller **NOTE:** Optional mixed PCI-X/E required for SA-P600. HP Smart Array P800/512 BBWC Controller

SATA - Hot Plug Drives

	Quantity Supported	Position Supported	Controller
120GB 1.5G SATA 5.4K 60GB 1.5G SATA 5.4K	Up to 8	1-8	HP Smart Array E200/64MB Controller HP Smart Array E200/128 BBWC Controller HP Smart Array E500/256MB Controller HP Smart Array P400/256MB Controller HP Smart Array P400/512MB BBWC Controller HP Smart Array P600/256 BBWC Controller **NOTE:** Optional mixed PCI-X/E required for SA-P600. HP Smart Array P800/512 BBWC Controller

Storage

External Storage

	Quantity Supported	Position Supported	Host Controller or Adapter
Modular Smart Array 50 Enclosure	2 per connector (supports 1+1 cascading)	External	HP Smart Array P600/256 BBWC Controller NOTE: Optional mixed PCI-X/E cage required.
Modular Smart Array 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.

Modular Smart Array 1000: http://h18000.www1.hp.com/products/quickspecs/11033_div/11033_div.HTML (Worldwide)
Modular Smart Array 1500 cs: http://www.hp.com/go/MSA1500cs

Maximum Storage Capacity - (with MSA50)

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

Tape Drives, Tape Autoloaders, Tape Libraries & D2D Backup Systems

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

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

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

NOTE: For complete listing of tape drive offerings see
http://www.hp.com/products1/storage/compatibility/tapebackup/ISS/index.html
For recommended tape drive offerings for this ProLiant server see the following:

	Position Supported	Controller	Controller Part Number
HP StorageWorks USB Tape Drives, External DAT 40 USB DAT 72 USB 1U Rack-Mount Kit	External	USB 2.0 Port	N/A

Storage

HP StorageWorks SCSI Tape Drives, External Ultrium 232 Ultrium 448 Ultrium 460 Ultrium 920 Ultrium 960 DAT 40 DAT 72 DLT VS160 SDLT 600 1U Rack-Mount Kit 3U Rack-Mount Kit	External	HP SC11Xe Host Bus Adapter	412911-B21
HP StorageWorks Tape Drives, SAS External Ultrium 448 SAS Ultrium 920 SAS 1U Rack-Mount Kit	External	HP SC44Ge Host Bus Adapter HP Smart Array P800/512 BBWC Controller Smart Array E500/256MB Controller **NOTE:** The following SAS Smart Array controllers require ROM Flash version 2.04 or higher for SAS tape support: HP Smart Array P400/256MB Controller HP Smart Array P400/512MB Controller **NOTE:** Please visit http://www.hp.com/go/connect for details about minimum SAS controller firmware version and SAS cabling requirements.	416096-B21 381513-B21 435129-B21 405132-B21 411064-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:** Only valid 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 Smart Array E500/256MB Controller **NOTE:** Please visit http://www.hp.com/go/connect for details about minimum SAS controller firmware version and SAS cabling requirements.	416096-B21 435129-B21
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

Storage

| HP StorageWorks D2D Backup Systems D2D110 D2D120 | 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 (V)	-36.0 to -72.0V DC					
Frequency Range (Nominal) (Hz)	DC					
Nominal Input Voltage (V)	-36	-48	-72			
Max Rated Output Wattage Rating	1200	1200	1200			
Nominal Input Current (A)	38	29	20			
Max Rated Input Wattage Rating (Watts)	1368	1392	1440			
Efficiency (%)	87.6	87.6	86			
Max. Inrush Current (A peak)	60	60	60			
Max. Inrush Current duration (mS)	100	100	100			

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

- Click on: "ProLiant Servers"
- Click on the Server of interest. Example: DL385 G2
- Click on: "Power Calculator" link. (You may need to scroll down to see it)

Technical Specifications

System Unit	Dimensions (HxWxD) (with feet/bezel)		3.38 x 17.54 x 26.01 in (8.59 x 44.54 x 66.07 cm)
	Weight (approximate)	Maximum	60 lb (27.22 kg)
		Minimum	47.18 lb (20.41 kg)
	Input Requirements (per power supply)	Rated Line Voltage	100-132 VAC, 200-240 VAC
		Rated Input Current	10A (100VAC), 10A (120VAC), 6.1A (200VAC)
		Rated Input Frequency	50 to 60 Hz
		Rated Input Power	1000/1056/1205 W
	BTU Rating	BTU/HR	3490/3680/4150

Power Specifications

To review typical system power ratings use the Active Answers Power Calculator which is available via the online tool located at URL: http://h30099.www3.hp.com/configurator/powercalcs.asp.
To drill down to calculators:
- Click on: "ProLiant Servers"
- Click on the Server of interest. Example: DL385 G2
- Click on: "Power Calculator" link. (You may need to scroll down to see it.)

Power Supply Output Power (per power supply)	Rated Steady-State Power	800/850/1000 W
	Maximum Peak Power	800/850/1000 W
Temperature Range	Operating	50° to 95° F (10° to 35° C) at sea level with an altitude de-rating of 1.8° F per 1000 ft (1.0° C per 304.8 m) to 10,000 ft (3048 m) no direct sunlight allowed. Maximum rate of change is 18° F/Hr (10° C/Hr). Upper operating limit is 10,000 ft (3,048 m) or 70 Kpa/10.1 psia. System performance may be reduced if operating with a fan fault or above 30° C.
	Non-operating	-22° to 140° F (-30° to 60° C) Maximum rate of change is36° F/Hr (20° C/Hr). Upper non-operating limit is 30,000 ft (9,144 m) or 30.3KPa/4.4 psia.
Maximum Wet Bulb Temperature	101.7° F (38.7° C)	
Relative Humidity (non-condensing)	Operating	10% to 90% relative humidity (Rh), 28° C maximum wet bulb temperature.
	Non-operating	5% to 95% relative humidity (Rh), 38.7° C maximum wet bulb temperature.
Acoustic Noise	Idle Minimum (Fixed Disk Drives Spinning)	
	L WAd (BELS)	6.4
	L pAm (dBA)	47
	Operating Minimum (Random Seeks to Fixed Disks)	
	L WAd (BELS)	6.6
	L pAm (dBA)	49

QuickSpecs

Technical Specifications

Smart Array P400 Controller	Disk Drive and Enclosure Interface	3G SAS (Serial Attached SCSI) 1.5G SATA (Serial Advanced Technology Attachment)
	SAS Connectors	2 internal (SFF8484) x4 wide port connectors
	Cache Memory Speed	DDR2-533MHz with 40 or 72-bit wide bus provides up to 4.2 GB/s maximum bandwidth.
	Server Interface	x8 2.5G PCIe provides 2GB/s maximum bandwidth.
	SAS Speed	x8 3G SAS provides 2.4GB/s maximum bandwidth.
	Cache Memory	40-bit 256MB cache (72-bit 512MB module upgrades available); ECC protection, battery-backed, and transportable
	Logical Drives Supported	Up to 32 logical drives
	Maximum Logical Drive Capacity	3TB (6 x 500GB)
	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
	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)

Technical Specifications

Two Embedded NC373i Multifuntion Gigabit Server Adapters	Network Interface	10Base-T/100Base-TX/1000Base-TX	
	Compatibility	IEEE 802.3 10Base-T	
		IEEE 802.3ab 1000Base-T	
		IEEE 802.3u 100Base-TX	
	Data Transfer Method	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)