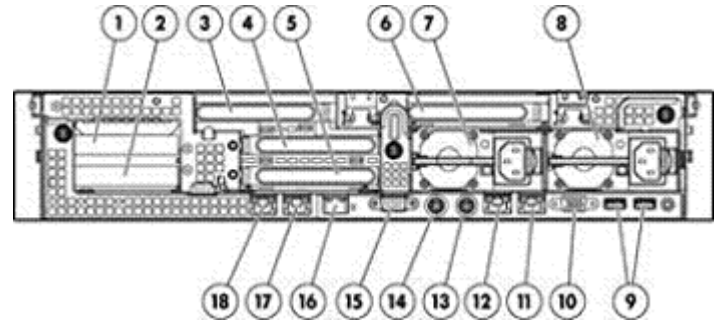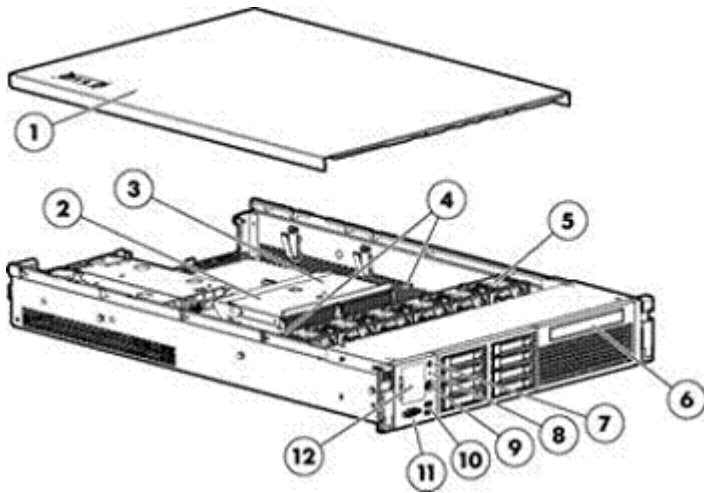# QuickSpecs

Overview

Front View:

1. Quick removal access panel
2. AMD Quad-Core or Six-Core Processors (Performance models include two processors)
3. Second AMD Quad-Core or Six-Core Processor
4. Sixteen sockets for PC2-6400 DIMMs (800MHz) with Advanced ECC
5. Hot-plug fans, full redundancy
6. Slim SATA DVD-RW Optical Drive included on Performance models
7. UID LED button
8. Health LED
9. Power On/Standby button and system power LED
10. USB connectors (2)
11. Video connector
12. Systems Insight Display

Rear View:

1. PCI slot 5
2. PCI slot 6
3. PCI slot 4
4. PCI slot 2
5. PCI slot 3
6. PCI slot 1
7. Power supply 2
8. Power supply 1

9. USB connectors (2)
10. Video connector
11. NIC 1 connector
12. NIC 2 connector
13. Mouse connector
14. Keyboard connector
15. Serial connector
16. iLO2 connector
17. NIC 3 connector
18. NIC 4 connector

What's New

- New Six-Core AMD Opteron processors option kits
- New Modular Smart Array Storage Controllers support

At A Glance

Overview

Deploy more virtual machines with confidence with the new HP ProLiant DL385 G5p that offers twice the memory, double the NICs, and up to 16 drives.

- **Processors**:
    - AMD Quad-Core, 2300 series processors; or Six-Core 2400 series processors with 6MB 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 128 GB (with PC2-5300 8GB DIMMs). PC2-6400 800MHz DDR2 Select models support 2:1 Bank Interleaving. 4:1 Bank Interleaving (Data saved across 2 pairs of DIMMs) and Node interleaving support (data saved across 2 processors memory sets) also available.
- **Storage Controller**:
    - Base Models: HP Smart Array P400/256 MB Controller (RAID 0/1/1+0/5)
        - Upgrade to 512MB cache w/o Battery Backed Write Cache module, optional BBWC
        - The Smart Array P400/256 MB Controller ships installed in slot 3 (slots 1-2 are available)
    - High Performance Models: HP Smart Array P400/512MB BBWC Controller (RAID 0/1/0+1/5/6)
- **Internal Drive Support**:
    - Up to 16 small form factor (SFF) or up to 6 large form factor (LFF) hot-plug drive bays to support Serial-attached SCSI (SAS) and Serial ATA (SATA) drives
- **Network Controller**:
    - Two HP NC382i Dual Port Multifunction Gigabit Server Adapters (four ports total)
- **Expansion Slots**:
    - Up to 6 PCI slots (one occupied by controller)
    - Standard BTO riser with PCIe (1) x8 FL/FH, (2) x4 HL/FH
    - Optional second risers with PCIe (1) x8, (2) x4 or a PCIe/PCI-X mixed riser with (1) PCI-X, (1) x8, (1) x4 or a HiPerf 225w PCIe riser with (1) x16
- **USB 2.0 Ports**:
    - 5 total ports: (2) ports in 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)
- **Power Supply**:
    - Dual Common Slot Bay for Right Sized, Hot plug and Redundant Power options
        - HP 1200W CS HE Silver Power Supply
        - HP 750W CS HE Gold Power Supply
        - HP 460W CS HE Gold Power Supply
        - HP 1200W -48V DC CS Power Supply
- **Infrastructure Management**:
    - Convenient slide-out Systems Insight Display for quick and easy front view server diagnostics, along with status LEDs, Automatic Server Recovery (ASR), ROM Based Setup Utility (RBSU)
    - HP ProLiant Onboard Administrator (powered by the HP Integrated Lights-Out 2 management processor) for simplified server setup, health monitoring and recovery, power and thermal control, and lights-out remote administration.
    - HP Insight Control a product option, delivers essential infrastructure management that can help save time and money by making it easy to deploy, migrate, monitor, control and optimize your IT infrastructure through a single, simple management console. Insight Control supports both Windows and Linux-based central management servers.
    - HP Insight Dynamics for ProLiant, a product option, is an integrated command center that enables IT Staff personnel to continuously analyze and optimize a converged infrastructure, while automating and reducing the cost of common data center tasks by as much as 40 percent. This ultimately enables them to dynamically keep pace with the organization's changing business requirements.
- **Form Factor**:
    - Rack (2U), (3.5-inch)

Overview

- Deployment/Serviceability:
  - System Insight Display on the front bezel for quick and easy server diagnostics
  - Quick Deploy Rail System includes sliding universal rails, an ambidextrous cable management arm and quick release levers for fast and easy serviceability
  - Tool-less access to all system components for easy in rack serviceability
  - Customer Self Repair (CSR): HP products are designed with many CSR parts to minimize repair time and allow for greater flexibility in performing defective parts replacement
- Warranty:
  - This product is covered by a global limited warranty and supported by HP Services and a worldwide network of HP Authorized Channel Partners resellers. Hardware diagnostic support and repair is available for three years from date of purchase. Support for software and initial setup is available for 90 days from date of purchase. Enhancements to warranty services are available through HP Care Pack services or customized service agreements. Hard drives have either a one year or three year warranty; refer to the specific hard drive QuickSpecs for details.
    NOTE: Server Warranty includes 3-Year Parts, 3-Year Labor, 3-Year Onsite support with next business day response. Warranty repairs may be accomplished through the use of Customer Self Repair (CSR) parts. These parts fall into two categories: 1) Mandatory CSR parts are designed for easy replacement. A travel and labor charge will result when customers decline to replace a Mandatory CSR part; 2) Optional CSR parts are also designed for easy replacement but may involve added complexity. Customers may choose to have HP replace Optional CSR parts at no charge. Additional information regarding worldwide limited warranty and technical support is available at:
    http://h18004.www1.hp.com/products/servers/platforms/warranty/index.html

Standard Features

NOTE: For a brief, printer friendly data sheet that describes this product and informs you of the essential capabilities and specifications, please visit: http://h71028.www7.hp.com/ERC/downloads/4AA2-2599ENW.pdf.

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

Processor One of the following depending on Model	**Quad-Core Processors** AMD Opteron™ Processor 2389 (2.9 GHz, 75Watts) AMD Opteron™ Processor 2387 (2.8 GHz, 75Watts) AMD Opteron™ Processor 2381HE (2.5 GHz, 55Watts) AMD Opteron™ Processor 2376HE (2.3 GHz, 55Watts) AMD Opteron™ Processor 2372HE (2.1 GHz, 55Watts) AMD Opteron™ Processor 2384 (2.7 GHz, 75 Watts) AMD Opteron™ Processor 2382 (2.6 GHz, 75 Watts) AMD Opteron™ Processor 2378 (2.4 GHz, 75 Watts) **Six-Core Processors** AMD Opteron™ Processor 2435 (2.6 GHz, 75Watts) (option kit only) AMD Opteron™ Processor 2431 (2.4 GHz, 75Watts) (option kit only) AMD Opteron™ Processor 2427 (2.2 GHz, 75Watts) (option kit only) 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, 4GB system memory, 512MB storage controller memory, BBWC, DVDRW, Redundant Power Supplies, and 6 hot plug redundant fans.
Cache Memory	6MB Level 3 cache
Chipset	Serverworks HT-2100 Northbridge and HT-1000 Southbridge Chipset
Upgradeability	Upgradeable to 2 processors
Memory Protection	Advanced ECC

Standard Features

Memory	Type	PC2-6400 DIMMs (DDR2-800MHz)
		Select models support 2:1 Bank Interleaving, with 4:1 Bank Interleaving (Data saved across 2 pairs of DIMMs) and Node interleaving support (data saved across 2 processors memory sets) available.
		NOTE: If only one processor is installed, only half of the DIMM slots are available.
	Standard (Base Models)	2 GB (2 x 1 GB)
	Standard (Performance Models)	4 GB (4 x 1 GB)
	Maximum	128 GB (16 x 8 GB) (PC2-5300)

Network Controller   Two HP NC382i Dual Port Multifunction Gigabit Server Adapters (four ports total)
NOTE: 1GB of memory is sufficient to support up to eight Total Ports. 2GB of memory is required if nine or more Total Ports have been selected.
NOTE: Accelerated iSCSI available as a standard feature at no additional cost on this server.

Expansion Slots

Non-Hot Plug PCI riser board slot definitions

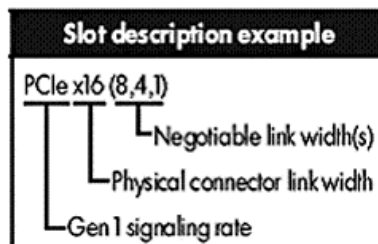| Primary Slot form factor	Secondary Slot form factor	PCIe riser slot description	PCIe x16 riser slot description	PCIe/PCI-X riser slot description
1 - FL/FH	4 - FL/FH	PCIe x16 (8,4,1)	PCIe x16 (16,8,4,1)	PCI-X 64bit/133MHz
2 - HL/FH	5 - LP	PCIe x8 (4,1)		PCIe x16 (8,4,1)
3 - HL/FH	6 - LP	PCIe x8 (4,1)		PCIe x8 (4,1)

NOTE: "Primary" denotes the riser cards are installed in the primary riser connector.
NOTE: "Secondary" denotes the riser cards are installed in the secondary riser connector.
NOTE: FL/FH denotes full-length, full-height. HL/FH denotes half-length, full height. LP denotes lower profile.
NOTE: The PCIe x16 riser supports a maximum power of 225W with an HP power cable. The HP power cable must be used for PCIe card wattages greater than 75W.
NOTE: The System Standard Configuration in this server comes with the following three PCI-Express Slots: (1) FH x8 PCI-Express slots; (2) FH x4 PCI express slots (BTO models only - 1 slot consumed by P400 controller)

```
Slot description example

PCIe x16 (8,4,1)
         └── Negotiable link width(s)
      └── Physical connector link width
  └── Gen 1 signaling rate
```

QuickSpecs

Standard Features

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

Storage	Diskette Drive	None Standard	
	Optical Drive One of the following depending on Model	None Standard HP Slim SATA DVD RW Optical Drive Standard on Performance Models	
	Hard Drives	None Standard	

Maximum Internal Storage	Hot Plug SFF SAS	8.0TB	16 x 500GB with standard internal hot plug SFF SAS (with optional drive cage)
	Hot Plug LFF SAS	12.0TB	6 x 2TB (with optional drive cage)

Intelligent Manageability	HP Systems Insight Manager software
	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)

Interfaces	Serial	1
	Pointing Device (Mouse)	1
	Graphics	1
	Keyboard	1
	VGA	2 (1 front, 1 back)
	Network RJ-45	4
	iLO 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.

Standard Features

Graphics	Integrated ATI ES1000, 32MB video standard

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

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

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

HP Insight management software	**HP Insight Foundation**	Managing the growing number of servers can be complex and expensive for your organization. IT managers need to address changing business needs with tools that meet the challenges of managing today's complex Datacenters. HP provides management solutions that are designed to simplify a server's installation, configuration and maintenance throughout the entire server lifecycle. This provides the customer with higher levels of operational efficiency and highly reliable systems: http://www.hp.com/go/foundation. The foundation pack includes:

- HP SmartStart
- HP Management
- HP ProLiant Firmware Maintenance

SmartStart version supported (minimum): SmartStart 8.15.
http://www.hp.com/servers/smartstart

	ProLiant Onboard Administrator	HP ProLiant Onboard Administrator (powered by the HP Integrated Lights-Out 2 management processor) simplifies server setup, health monitoring, power and thermal control, and lights-out remote administration of ProLiant ML, DL, and BL servers. HP ProLiant Onboard Administrator functions without additional software, and can be accessed from any location via a web browser. It works hand-in-hand with HP Systems Insight Manager, Insight Control suites, and the Insight Dynamics for ProLiant helping customers unlock the value of the ProLiant platform and deliver the highest possible quality of IT service to the business. See www.hp.com/go/ProLiantOA
	HP Insight Control	HP Insight Control, a product option, delivers essential infrastructure management that can help save time and money by making it easy to deploy, migrate, monitor, remote control, and optimize your IT infrastructure through a single, simple management console.

Two versions of Insight Control are available, to serve environments requiring either a Linux-based or a Windows-based central management server: HP Insight Control for Linux, and HP Insight Control. See www.hp.com/go/insightcontrol

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

Standard Features

HP Insight Dynamics for ProLiant	HP Insight Dynamics for ProLiant, a product option, is an integrated command center that enables IT Staff personnel to continuously analyze and optimize a converged infrastructure, while automating and reducing the cost of common data center tasks by as much as 40 percent. As a powerfully integrated by design toolkit to accelerate complex technology projects and simplify daily operations that ultimately enable IT Staff personnel to dynamically keep pace with the organizations changing business requirements. It enables them to plan capacity and power continuously, balance across physical and virtual resources, and ensure cost-effective high availability. It also enables IT organizations to provision infrastructure consistently and automatically from pools of shared resources using a self-service portal. Resources provisioned can range from a single virtual machine to complex multi-tier environments and their associated physical and virtual resource requirements. In addition to the previous functional benefits, it also provides a cost-effective disaster recovery for physical and virtual environments that works with HP StorageWorks Continuous Access software for both the Enterprise Virtual Array and the XP storage array allowing application environments to be reactivated in minutes with the touch of a button to a remote location.

NOTE: For more information, visit: http://www.hp.com/go/insightdynamics |

Industry Standard Compliance	ACPI 2.0 Compliant PCIe 1.1 Compliant PCI 2.2 Compliant PCI-X 2.0a 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

Standard Features

Security - Trusted Platform Module

Trusted Platform Module option kit

The TPM (Trusted Platform Module) is a microcontroller chip that can securely store artifacts used to authenticate the server platform. These artifacts can include passwords, certificates and encryption keys. Windows® BitLocker™ Drive Encryption (BitLocker) is a data protection feature available in Windows Server® 2008. BitLocker leverages the enhanced security capabilities of a Trusted Platform Module (TPM) version 1.2. The TPM works with BitLocker to help protect user data and to ensure that a server running Windows Server 2008 has not been tampered with while the system was offline.
For more information about TPM, including a white paper, go to: www.hp.com/go/TPM

NOTE: ProLiant OS pre-installed units will come with the partition required for TPM deployment.
NOTE: The TPM key is unique to every TPM deployed server and must be retained. Misplacing or losing the key could result in data loss.

Power Supply

HP has a new design for ProLiant power. The new Common Slot Power Supply bay. This design provides the customer with commonality in power supplies across multiple platforms to save on the cost of spares and allows HP to offer multiple power solutions to fit the customers' needs. Many HP ProLiant Servers come with Common Slot, High Efficiency and Right-Size Power Supplies. Common Slot (CS) designates commonality of the power supply across multiple ProLiant servers. HP's new Common Slot power supplies are designed for highest efficiency to provide power efficiency without degrading performance of the ProLiant. Power Supplies will have efficiency ratings up to 92%. There are three Right Size power options available, depending on the configuration of your server. To make sure you select the correct power supply to meet your configuration, we suggest that you use the HP Power Advisor (www.hp.com/go/hppoweradvisor) to decide the "Right-Size" for your configuration. All HP Common Slot power sources are UL, CE Mark Compliant, Hot Plug and Redundant.

Common Slot ProLiant

It is highly recommended that you use the HP Power Calculator in defining the "Right-Size" power supply for your needs. HP offers the following Power Supply Options:

- HP 460Watts, Common Slot,92% Efficiency
- HP 750Watts, Common Slot, 92% Efficiency
- HP 1200Watts, Common Slot, 90% Efficiency
- HP 1200W -48V DC CS Power Supply

HP's ProLiant Common Slot Power supplies (460W & 750W) meet multiple Energy Efficiency Initiatives. Climate Savers Computing Initiative GOLD, ECOS Consulting 80PLUS GOLD and plans on offering models that meet the Energy Star for Server requirements when they are published.

HP's ProLiant Common Slot Power supplies (1200W) meet multiple Energy Efficiency Initiatives. Climate Savers Computing Initiative Bronze, ECOS Consulting 80PLUS Bronze Power Supply requirements.

Redundant Power: Optional (1+ 1 or n+n redundant) power supplies can be purchased through power supply option kits.

NOTE: BTO Performance models include two power supplies; BTO Base and Entry models include one power supply. On CTO models, power supply must be selected from available options.

Standard Features

UPS and PDU Power Cord Matrix	Please see the UPS and PDU cable matrix's on the HP Power Protection and Management page. Under Power Cords, click on the "HP Power Cord Matrix" link. That link will list cable descriptions, requirements, and specifications for UPS and PDU units. Please see the following link: www.hp.com/products/powercords.

System Fans

Hot plug fans ship standard, N+1 fully redundant
3+1 for 1 processor, 5+1 for 2 processors
NOTE: Processor option kits include 2 additional fans when upgrading to 2 processors.

Operating Systems and Virtualization Software Support for ProLiant Servers

Microsoft Windows Server
Microsoft Windows Server Hyper-V
Red Hat Enterprise Linux (RHEL)
SUSE Linux Enterprise Server (SLES)
Oracle Enterprise Linux (OEL)
Solaris
VMware

NOTE: For more information on HP's Certified and Supported ProLiant Servers for OS and Virtualization Software and latest listing of software drivers available for your server, please visit our Support Matrix at: http://www.hp.com/go/ossupport and our driver download page www.hp.com/support/DL385G5p.

Rack Airflow Requirements

Rack 10000 G2 series Cabinets
The increasing power of new high-performance processor technology requires increased cooling efficiency for rack-mounted servers. The 10000 G2 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/proliantdl385-g5p.

Standard Features

Rack Kit

Quick deploy rail system provides tool-free support for racks with square or round mounting holes (including Compaq/HP 7000, 9000, 10000 G2 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.

Telco Rack Support

Support for all 2-post Telco racks requires the use of the standard rack kit and an additional option kit from Rack Solutions at: http://www.hp.com/go/rackandpower.

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

Service and Support

HP Care Pack services 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

Standard Features

- 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

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

QuickSpecs

Models

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

HP DL385 G5p High Performance Models DL385G5P 2384 HPM 500099-001 DL385G5P 2389 HPM 533915-001	Processor(s) *One of the following depending on Model*	(2) Quad-Core AMD Opteron™ 2389 Processors (2.9 GHz, 75 Watts) (2) Quad-Core AMD Opteron™ 2384 Processors (2.7 GHz, 75 Watts)
	Cache Memory	6MB L3 cache
	Memory	4 GB (4 x 1 GB) of 2:1 interleaved PC2-6400 DIMMs (DDR2-800MHz) with Advanced ECC capabilities
	Network Controller	Two HP NC382i Dual Port Multifunction Gigabit Server Adapters (four ports total)
	Storage Controller	HP Smart Array P400/512MB BBWC Controller (RAID 0/1/1+0/5/6)
	Hard Drive	None ship standard
	Internal Storage	Standard: 8 SFF SAS/SATA HDD Bays Optional: 16 SFF SAS/SATA HDD Bays
	Optical Drive	Slim SATA DVD-RW Optical Drive
	Power Supply *One of the following depending on Model*	2384 HPM: (2) 1200W CS HE Silver Power Supply 2389 HPM: (2) 750W CS HE Gold Power Supply
	Fans	6 Hot Plug Fully Redundant Fans
	Form Factor	Rack (2U), (3.5-inch)

HP DL385 G5p Base Models DL385G5P 2378 500106-001	Processor(s)	(1) Quad-Core AMD Opteron™ 2378 Processor (2.4 GHz, 75 Watts)
	Cache Memory	6MB L3 cache
	Memory	2GB (2 x 1 GB) of PC2-6400 DIMMs (DDR2-800MHz) with Advanced ECC capabilities
	Network Controller	Two HP NC382i Dual Port Multifunction Gigabit Server Adapters (four ports total)
	Storage Controller	HP Smart Array P400/256MB Controller (RAID 0/1/1+0/5)
	Hard Drive	None ship standard
	Internal Storage	Standard: 8 SFF SAS/SATA HDD Bays Optional: 16 SFF SAS/SATA HDD Bays
	Optical Drive	Not included on base model
	Power Supply	(1) 1200W CS HE Silver Power Supply
	Fans	4 Hot Plug Fully Redundant Fans
	Form Factor	Rack (2U), (3.5-inch)

Models

HP DL385 G5p Entry Models	Processor(s)	(1) Quad-Core AMD Opteron™ 2372HE Processor (2.1 GHz, 55W) 6MB L3 cache
	Cache Memory	6MB L3 cache
DL385G5P 2372HE 516256-001	Memory	2GB (2 x 1 GB) of PC2-6400 DIMMs (DDR2-800MHz) with Advanced ECC capabilities
	Network Controller	Two HP NC382i Dual Port Multifunction Gigabit Server Adapters (four ports total)
	Storage Controller	HP Smart Array P400/256MB Controller (RAID 0/1/1+0/5)
	Hard Drive	None ship standard
	Internal Storage	Standard: 8 SFF SAS/SATA HDD Bays Optional: 16 SFF SAS/SATA HDD Bays
	Optical Drive	Not Included on entry model
	Power Supply	4 Hot Plug Fully Redundant Fans
	Fans	(1) 460W CS HE Gold Power Supply
	Form Factor	Rack (2U), (3.5-inch)

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.

S-Buy DL385G5p 2378 4GB
470065-039

Processor(s)	(1) Quad Core AMD Opteron™ Processor 2378 (2.4 GHz, 75 Watts)
Cache Memory	6MB Level 3 cache
Memory	4GB (2 x 2GB) Reg PC2-6400
Network Controller	(2) HP NC382i dual-port gigabit server adapter
Storage Controller	Smart Array P400 Controller with 256 with Heat Sink (RAID 0/1/1+0/5)
Hard Drive	None ship standard up to 8SFF hard drives
Optical Drive	HP Slim SATA DVD-RW Drive
Power Supply	(2) HP 1200W CS HE Silver
Form Factor	Rack (2U), (3.5-inch)

S-Buy DL385G5p 2382 2P
501542-005

Processor(s)	(2) Quad Core AMD Opteron™ Processor 2382 (2.6 GHz, 75 Watts)
Cache Memory	6MB Level 3 cache
Memory	8GB (2 x 4GB) PC2-6400 DDR2
Network Controller	(2) HP NC382i dual-port gigabit server adapter
Storage Controller	Smart Array P400 Controller with 256MB Cache (RAID 0/1/1+0/5)
Hard Drive	None ship standard up to 6LFF hard drives
Optical Drive	None ship standard
Power Supply	HP 1200W 12V Hotplug AC Power Supply P+
Form Factor	Rack (2U), (3.5-inch)

Configuration Information - Factory Integrated Models

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

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

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

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

HP Models	HP ProLiant DL385G5p Rack CTO Chassis	500527-B21

Factory Integrated Model ships with:

(8) SFF Serial Attached SCSI (SAS) Drive Bays
Two HP NC382i Dual Port Multifunction Gigabit Server Adapters (four ports total)
PCI-Express Riser Cage
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)

HP Storage Controllers	HP Smart Array P400 with 256MB with Heat Sink	507808-B21
	NOTE: PCI Express. Supported on the DL385 G5p only.	
	HP Smart Array P400 with 512BBWC with Heat Sink	508833-B21
	NOTE: PCI Express. Supported on the DL385 G5p only.	
	HP Smart Array E200/128 BBWC Controller	411508-B21
	NOTE: PCI Express.	
	HP Smart Array P800/512 BBWC Controller	381513-B21
	NOTE: PCI Express.	
	HP Smart Array E200/64 FIO Controller	405528-B21

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

HP Processors	**Quad-Core Processors**	
	AMD Opteron™ Processor 2389 (2.9 GHz, 75 Watts) Kit, FIO	533916-L21
	AMD Opteron™ Processor 2387 (2.8 GHz, 75 Watts) Kit, FIO	533918-L21
	AMD Opteron™ Processor 2381HE (2.5 GHz, 55 Watts) Kit, FIO	535682-L21
	AMD Opteron™ Processor 2376HE (2.3 GHz, 55 Watts) Kit, FIO	516259-L21
	AMD Opteron™ Processor 2372HE (2.1 GHz, 55 Watts) Kit, FIO	516257-L21
	AMD Opteron™ Processor 2384 (2.7 GHz, 75 Watts) Kit, FIO	500535-L21
	AMD Opteron™ Processor 2382 (2.6 GHz, 75 Watts) Kit, FIO	500104-L21
	AMD Opteron™ Processor 2378 (2.4 GHz, 75 Watts) Kit, FIO	500537-L21
HP Memory	**NOTE:** DIMM banks are active only when the corresponding processor socket is populated.	
	2 GB REG PC2-6400 2 x 1 GB Kit	497763-B21
	4 GB REG PC2-6400 2 x 2 GB Kit	497765-B21

Configuration Information - Factory Integrated Models

8 GB REG PC2-6400 2 x 4 GB Kit	497767-B21
8 GB REG PC2-6400 2 x 4 GB Low Power Kit	504351-B21
16 GB REG PC2-5300 2 x 8 GB Dual Rank Kit	408855-B21
64 GB REG PC2-5300 8 x 8 GB Dual Rank Kit	495605-B21

HP Power Supplies

NOTE: Refer to HP Power Advisor when selecting a power supply for your configuration, www.hp.com/go/hppoweradvisor. Many HP ProLiant Servers now offer new power options, including Common Slot Power Supplies. These power supplies come in multiple power ratings and higher efficiency levels to offer the Right Size solution to fit your configuration. This provides improved power delivery and the advantage of reclaiming lost power. Prior to making a power supply selection it is "highly recommended" that the "HP Power Advisor" is run to determine the right size power supply for your server configuration. The HP Power Advisor is located at: www.hp.com/go/proliant-energy-efficient or www.hp.com/go/hppoweradvisor

HP 460W CS HE Gold Power Supply	503296-B21
HP 750W CS HE Gold Power Supply	512327-B21
HP 1200W CS HE Silver Power Supply	500172-B21
HP 1200W-48V DC Common Slot Power Supply	437573-B21

NOTE: DC power supplies contain a -48V DC power cord designed for in rack DC power rectifiers.

Step 3: Choose Additional Factory Integratable Options

HP Drive Cage Options

HP DL385 G5p 6 LFF drive cage kit   505956-B21

NOTE: Supported on the DL385 G5p, FIO only. 6 LFF drive cage replaces 8 SFF drive cage.

NOTE: Selection of this drive cage removes the ability to select optical drives.

HP Insight Software

HP Insight Control suite, No Media 1-Server License Factory-Integratable Option (FIO) including 1 year of 24x7 Technical Support and Updates   582765-B21

HP Performance Packs

The HP ProLiant DL385 G5p performance packs are necessary to configure a HP ProLiant DL385 Gp5 Performance Model. HP ProLiant DL385 G5p 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 DVD-RW Optical Kit (481043-B21).

NOTE: must use default 8 SFF drive cage to build up equivalent preconfigured Performance models.

HP DL385G5p 2384 HPM FIO Perf Pack	500524-B21
HP DL385G5p 2389 HPM FIO Perf Pack	533947-B21

Step 4: Choose Additional Options for Factory Integration

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

Core Options

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

HP Unique Options	HP DL385G5p 8 SFF drive cage	501263-B21
	NOTE: Second drive cage installation replaces internal optical bay.	
	NOTE: Second drive cage requires second controller or HP SAS Expander Card (468406-B21).	
	HP Smart Array P400 with 256MB with Heat Sink	507808-B21
	NOTE: Supported on the DL385 G5p only.	
	HP Smart Array P400 with 512BBWC with Heat Sink	508833-B21
	NOTE: Supported on the DL385 G5p only.	

HP Processors	Quad-Core Processors	
	AMD Opteron™ Processor 2389 (2.9 GHz, 75 Watts) Kit	533916-B21
	AMD Opteron™ Processor 2387 (2.8 GHz, 75 Watts) Kit	533918-B21
	AMD Opteron™ Processor 2381HE (2.5 GHz, 55 Watts) Kit	535682-B21
	AMD Opteron™ Processor 2376HE (2.3 GHz, 55 Watts) Kit	516259-B21
	AMD Opteron™ Processor 2372HE (2.1 GHz, 55 Watts) Kit	516257-B21
	AMD Opteron™ Processor 2384 (2.7 GHz, 75 Watts) Kit	500535-B21
	AMD Opteron™ Processor 2382 (2.6 GHz, 75 Watts) Kit	500104-B21
	AMD Opteron™ Processor 2378 (2.4 GHz, 75 Watts) Kit	500537-B21
	Six-Core Processors	
	AMD Opteron™ Processor 2435 (2.6 GHz, 75 Watts) Kit	570113-B21
	AMD Opteron™ Processor 2431 (2.4 GHz, 75 Watts) Kit	570115-B21
	AMD Opteron™ Processor 2427 (2.2 GHz, 75 Watts) Kit	570117-B21
	NOTE: Second processor kits include additional two fans.	

HP Memory	2 GB REG PC2-6400 2 x 1 GB Kit	497763-B21
	4 GB REG PC2-6400 2 x 2 GB Kit	497765-B21
	8 GB REG PC2-6400 2 x 4 GB Kit	497767-B21
	8 GB REG PC2-6400 2 x 4 GB Low Power Kit	504351-B21
	16 GB REG PC2-5300 2 x 8 GB Dual Rank Kit	408855-B21
	64 GB REG PC2-5300 8 x 8 GB Dual Rank Kit	495605-B21

HP Optical Drives	HP Slim SATA DVD-RW Optical Drive	481043-B21
	NOTE: Included in performance models.	
	HP Slim SATA DVD-ROM Optical Drive	481041-B21

HP Hard Drives	NOTE: The components of a storage subsystem (e.g. the drive, the HBA/controller, firmware, and the server backplane) should operate at the same data transfer rate or the system bandwidth will be negotiated down to an acceptable level for all components.
	NOTE: Hard drives have either a one year or three year warranty; refer to the specific

Core Options

hard drive QuickSpecs for details.

SAS Hot Plug SFF (2.5-inch) Enterprise (ENT) Drives

HP 300GB 6G SAS 10K SFF (2.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	507127-B21
HP 300GB 3G SAS 10K SFF (2.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	492620-B21
HP 146GB 6G SAS 15K SFF (2.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	512547-B21
HP 146GB 3G SAS 15K SFF (2.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	504062-B21
HP 146GB 6G SAS 10K SFF (2.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	507125-B21
HP 146GB 3G SAS 10K SFF (2.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	418367-B21
HP 72GB 6G SAS 15K SFF (2.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	512545-B21
HP 72GB 3G SAS 15K SFF (2.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	418371-B21

SAS Hot Plug LFF (3.5-inch) Enterprise (ENT) Drives

HP 600GB 6G SAS 15K LFF (3.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	516828-B21
HP 450GB 6G SAS 15K LFF (3.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	516816-B21
HP 450GB 3G SAS 15K LFF (3.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	454232-B21
HP 300GB 6G SAS 15K LFF (3.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	516814-B21
HP 300GB 3G SAS 15K LFF (3.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	416127-B21
HP 146GB 3G SAS 15K LFF (3.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	384854-B21

SAS Hot Plug SFF (2.5-inch) Midline (MDL) Drives

HP 500GB 6G SAS 7.2K rpm SFF (2.5inch) Midline 1yr Warranty Hard Drive	507610-B21

SAS Hot Plug LFF (3.5-inch) Midline (MDL) Drives

HP 1TB 3G SAS 7.2K rpm LFF(3.5-inch) Dual Port Midline 1yr Warranty Hard Drive	461137-B21
HP 750GB 3G SAS 7.2K rpm LFF(3.5-inch) Dual Port Midline 1yr Warranty Hard Drive	461135-B21

NOTE: Please see the QuickSpecs for Technical Specifications and additional information:
http://h18000.www1.hp.com/products/quickspecs/12244_na/12244_na.html

SATA Hot Plug SFF (2.5-inch) Midline (MDL) Drives

HP 500GB 3G SATA 7.2K rpm SFF (2.5-inch) Midline 1yr Warranty Hard Drive	507750-B21
HP 160GB 3G SATA 7.2K rpm SFF (2.5-inch) Midline 1yr Warranty Hard Drive	530888-B21

SATA Hot Plug LFF (3.5-inch) Midline (MDL) Drives

HP 2TB 3G SATA 7.2K rpm LFF (3.5-inch) Midline 1yr Warranty Hard Drive	507632-B21
HP 1TB 3G SATA 7.2K rpm LFF (3.5-inch) Midline 1yr Warranty Hard Drive	454146-B21
HP 750GB 3G SATA 7.2K rpm LFF (3.5-inch) Midline 1yr Warranty Hard Drive	458930-B21
HP 500GB 3G SATA 7.2K rpm LFF (3.5-inch) Midline 1yr Warranty Hard Drive	458928-B21
HP 250GB 3G SATA 7.2K rpm LFF (3.5-inch) Midline 1yr Warranty Hard Drive	458926-B21

SATA Hot Plug SFF (2.5-inch) Entry (ETY) Drives

HP 250GB 3G SATA 5.4K rpm SFF (2.5-inch) Entry 1yr Warranty Hard Drive	460355-B21
HP 120GB 1.5G SATA 5.4K rpm SFF (2.5-inch) Entry 1yr Warranty Hard Drive	458924-B21

SATA Hot Plug LFF (3.5-inch) Entry (ETY) Drives

HP 250GB 3G SATA 7.2K rpm LFF (3.5-inch) Entry 1yr Warranty Hard Drive	571230-B21
HP 160GB 3G SATA 7.2K rpm LFF (3.5-inch) Entry 1yr Warranty Hard Drive	458945-B21

Core Options

NOTE: Please see the QuickSpecs for Technical Specifications and additional information:
http://h18000.www1.hp.com/products/quickspecs/13021_na/13021_na.html

3.5" SATA Hot Plug Drives

HP 750GB 1.5G SATA 7.2K 3.5" HDD	432341-B21
HP 500GB 1.5G SATA 7.2K 3.5" HDD	395473-B21
HP 250GB 1.5G SATA 7.2K 3.5" HDD	349239-B21
HP 160GB 1.5G SATA 7.2K 3.5" HDD	349238-B21

NOTE: Please see the QuickSpecs for Technical Specifications and additional information:
http://h18004.www1.hp.com/products/quickspecs/11940_na/11940_na.html

SATA Hot Plug Midline (MDL) Solid State Drives

HP 60GB 3G SATA 2.5in MDL 1y Wty SSD	572071-B21
HP 120GB 3G SATA 2.5in MDL 1y Wty SSD	572073-B21

SATA Hot Plug 3.5" Midline (MDL) Solid State Drives

HP 60GB 3G SATA 3.5in MDL 1y Wty SSD	570761-B21
HP 120GB 3G SATA 3.5in MDL 1y Wty SSD	570763-B21

NOTE: Please see the QuickSpecs for Technical Specifications and additional information:
http://h18000.www1.hp.com/products/quickspecs/13415_na/13415_na.html

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HP Networking

Gigabit Ethernet Adapters

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 NC382T PCI Express Dual Port Multifunction Gigabit Server Adapter	458492-B21

10 Gigabit Ethernet Adapters

HP NC522SFP Dual Port 10GbE Server Adapter	468332-B21

NOTE: A minimum of two gigabyte (2 GB) of server memory is required per each NC522SFP adapter.
NOTE: Direct Attach Cable (DAC) for copper environments or fiber transceivers and cables for fiber-optic environments must be purchased separately.

NOTE: Please see the QuickSpecs for Technical Specifications and additional information: www.hp.com/go/ProLiantNICs.

HP I/O Expansion Options

HP DL38X (1) x16 PCI-E riser kit	494323-B21
HP DL38X (1) x8, (2) x4 PCI-E riser kit	500580-B21
HP DL38X PCI-X riser kit (1) PCI-X, (1) x8, (1) x4	494322-B21

Additional Options

HP Insight Software	**HP Insight Control server deployment**	
	HP Insight Control server deployment, Electronic License including 1 year of 24x7 Technical Support and Updates	T9082AAE
	NOTE: Electronic and Flexible-Quantity licenses can be used to purchase multiple licenses with a single activation key. NOTE: Electronic software is available in all countries except China and Japan. Customers in China and Japan should order the physical equivalent. NOTE: Customer will receive a license entitlement certificate. 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: Licenses ship without media. The HP Insight Control Media Kit can be ordered separately, or can be downloaded at: http://www.hp.com/go/insightupdates. NOTE: For additional license options please see the Insight Control QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/12631_na/12631_na.html	
	HP Insight Control for Linux	
	HP Insight Control for Linux, 1-server license, including one year of 24x7 Technical Support and Updates, Electronic	T9084BAE
	HP Insight Control for Linux, No Media, 1-Server license, including one year of 24x7 Technical Support and Updates	464423-B22
	HP Insight Control for Linux, Media pack (DVD) - No licenses included NOTE: Media pack DVD contains the ISO image for HP Insight Control for Linux, HP Systems Insight Manager, HP Insight Control power management, HP Insight Control virtual machine management, and an integrated installer. Servers must be acquired separately.	464422-B22
	NOTE: Licenses ship without media. The HP Insight Control Media Kit can be ordered separately, or can be downloaded at: http://www.hp.com/go/insightupdates. NOTE: Electronic software is available in all countries except China and Japan. Customers in China and Japan should order the physical equivalent. NOTE: Electronic and Flexible-Quantity licenses can be used to purchase multiple licenses with a single set of activation keys. NOTE: For additional License Kits, including electronic licensing options, please see the QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/13019_na/13019_na.html	
	HP Integrated Lights-Out Advanced	
	HP Integrated Lights-Out Advanced, No Media, 1-Server License, including 1 year of 24x7 Technical Support and Updates NOTE: This license allows 1 server to be deployed and managed via HP iLO Advanced. Customer will receive a printed license entitlement certificate via physical shipment. The license entitlement certificate must be redeemed online or via fax in order to obtain the license activation key(s). Includes one year of 24 x 7 HP Software Technical Support Service NOTE: For additional license kits, including electronic delivery options, please see the QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/12362_na/12362_na.html	512485-B21
	HP Insight Rapid Deployment software	
	HP Insight Rapid Deployment software No Media 1-Server License including 1 year of 24x7 Technical Support and Updates	452151-B21

Additional Options

> **NOTE:** This license allows 1 server to be deployed and managed via RDP. Customer will receive a printed license entitlement certificate via physical shipment. The license entitlement certificate must be redeemed online or via fax in order to obtain the license activation key(s). Includes one year of 24 x 7 HP Software Technical Support Service
> **NOTE:** For additional license kits, including electronic delivery options, please see the QuickSpecs at:
> http://h18000.www1.hp.com/products/quickspecs/11053_na/11053_na.html

HP Drive Cage Options	HP DL385G5p 8 SFF drive cage	501263-B21
	NOTE: This option increases the SFF Hard Drive maximum from 8 to 16. An additional SATA/SAS Smart Array Controller or HP SAS Expander Card (PN 468406-B21) is required with this option. Backplane and required SAS cables are already included with cage.	

HP Security - TPM	HP Trusted Platform Module Option Kit	488069-B21

HP Storage Controllers	SAS Controllers	
	Smart Array E200 Controller	
	HP Smart Array E200/128 BBWC Controller	411508-B21
	Smart Array P400 Controller	
	HP Smart Array P400 with 256MB with Heat Sink	507808-B21
	NOTE: Supported on the DL385 G5p only.	
	HP Smart Array P400 with 512BBWC with Heat Sink	508833-B21
	NOTE: Supported on the DL385 G5p only.	
	Smart Array P800 Controller	
	HP Smart Array P800/512 BBWC Controller	381513-B21
	Smart Array P212 Controller	
	HP Smart Array P212/Zero Memory Controller	462828-B21
	HP Smart Array P212/256 MB Controller	462834-B21
	Smart Array P410 Controller	
	HP Smart Array P410/256 MB Controller	462862-B21
	HP Smart Array P410/512 MB with BBWC Controller	462864-B21
	HP Smart Array P410/512MB with FBWC	578230-B21
	HP Smart Array P410/1G with FBWC	572532-B21
	Smart Array P411 Controller	
	HP Smart Array P411/256 MB Controller	462830-B21
	HP Smart Array P411/512 MB with BBWC Controller	462832-B21
	HP Smart Array P411/512MB Flash Backed Write Cache	578229-B21
	HP Smart Array P411/1G Flash Backed Write Cache	572531-B21
	Smart Array P812 Controller	
	HP Smart Array P812/1G Flash Backed Cache Controller	487204-B21
	Optional Upgrades	

Additional Options

128MB Battery-Backed Write Cache	351580-B21
NOTE: Supports the Smart Array E200 Controller.	
512 MB 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.	
HP SA-P400 and SA-E500 24 In Battery Cable Kit	417836-B21
NOTE: This option kit contains a 24" battery cable and adhesive material for installing a battery into the server if a Smart Array P400 is integrated outside of the factory. For all solutions, please refer to the server QuickSpecs and User's Manual for detailed installation instructions.	
256 MB Cache	462968-B21
NOTE: Supported on HP Smart Array P212 Controller only.	
512MB BBWC	462967-B21
NOTE: Supported on HP Smart Array P410 Controller and HP Smart Array P411 Controller only.	
HP 8484 to Mini SAS 33in Cable Assy	591734-B21
NOTE: Needed to support internal drives on the HP ProLiant DL385 G6 with the Smart Array P800 Controller.	
512MB Flash Backed Write Cache	534916-B21
1G Flash Backed Write Cache	534562-B21
HP Smart Array Advanced Pack No Media 1-Server license including 1yr 24x7 Technical Support	516471-B21
NOTE: This part number can be used to purchase a single license or to order multiple licenses with a single activation key. Customers 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). Include one year of 24x7 HP Software Technical Support Services.	

NOTE: Please see the QuickSpecs for Technical Specifications and additional information:
http://h18000.www1.hp.com/products/quickspecs/12460_na/12460_na.html (Smart Array E200 Controller)
http://h18000.www1.hp.com/products/quickspecs/12400_na/12400_na.html (Smart Array P400 Controller)
http://h18000.www1.hp.com/products/quickspecs/12616_na/12616_na.html (Smart Array P800 Controller)
http://h18000.www1.hp.com/products/quickspecs/13203_na/13203_na.html (Smart Array P212 Controller)
http://h18000.www1.hp.com/products/quickspecs/13201_na/13201_na.html (Smart Array P410 Controller)
http://h18000.www1.hp.com/products/quickspecs/13202_na/13202_na.html (Smart Array P411 Controller)
http://h18000.www1.hp.com/products/quickspecs/13558_na/13558_na.html (Smart Array P812 Controller)
http://h18000.www1.hp.com/products/quickspecs/13200_na/13200_na.html (Smart Array Advanced Pack)

SAS Controller Options

HP SAS Expander Card	468406-B21

Additional Options

NOTE: Please see the QuickSpecs for Technical Specifications and additional information:
http://h18004.www1.hp.com/products/quickspecs/13232_na/13232_na.html
(SAS Expander Card)

SAS HBA

HP SC08Ge Host Bus Adapter	488765-B21
HP SC44Ge Host Bus Adapter	416096-B21

NOTE: When using the SC44Ge with SATA Hard Drives, 1.5G SATA Hard Drives are required. Transfer rate: 1.5 Gb/s SATA, 3 Gb/s SAS.

NOTE: Please see the following QuickSpecs for additional information:
http://h18004.www1.hp.com/products/quickspecs/13082_na/13082_na.html
(SC08Ge HBA)
http://h18004.www1.hp.com/products/quickspecs/12617_na/12617_na.html
(SC44Ge 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

SCSI HBA

HP SC11Xe Host Bus Adapter	412911-B21

NOTE: Recommended HBA for SCSI tape drive connect.

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)

Additional Options

HP Tape Storage

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:

Tape Drives

USB Rack-Mount Tape Solutions

HP StorageWorks 1U USB Rack-Mount Kit with one DAT 160 USB Tape Drive	AG703A
NOTE: Pre-configured with one DAT 160 USB tape drive.	
DAT 320 USB External Tape Drive	AJ823A

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

DAT 320 WW SAS External Tape Drive	AJ828A
HP StorageWorks 1U SAS Rack-Mount Kit with one LTO-4 Ultrium 1760	EH946A
NOTE: Pre-configured with one LTO-4 Ultrium 1760 SAS tape drive.	
HP StorageWorks 1U SAS Rack-Mount Kit	AE459A
NOTE: Supports up to (2) half-height SAS tape drives.	
HP StorageWorks LTO-2 Ultrium 448 SAS Internal Tape Drive	DW085A
NOTE: Mounts inside the 1U SAS Rack-Mount Kit (AE459A).	
HP StorageWorks LTO-3 Ultrium 920 SAS Internal Tape Drive	EH847A
NOTE: Mounts inside the 1U SAS Rack-Mount Kit (AE459A).	

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.

HP StorageWorks 1/8 G2 Tape Autoloader

HP StorageWorks 1/8 G2 LTO-4 Ultrium 1760 SAS Tape Autoloader	AK377A
HP StorageWorks 1/8 G2 LTO-3 Ultrium 920 SAS Autoloader	AH558A
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.

HP StorageWorks MSL2024 Tape Library

HP StorageWorks MSL2024 1 LTO-4 Ultrium 1760 SAS Drive Library	AK378A
HP StorageWorks MSL2024 1 LTO-3 Ultrium 920 SAS Drive Library	AH559A

HP StorageWorks MSL4048 Tape Library

HP StorageWorks MSL4048 2 LTO-4 Ultrium 1760 SAS Drive Library	AK380A
HP StorageWorks MSL4048 1 LTO-3 Ultrium 920 SAS Drive Library	AH560A
NOTE: Please reference the MSL Tape Library QuickSpecs at:
http://www.hp.com/go/automation for additional information needed to create a complete solution.	

Additional Options

HP Based Backup	**RDX Removable Disk Backup**	
	HP StorageWorks RDX500 External Removable Disk Backup System	AJ935A
	NOTE: 500GB of Disk Storage.	
	NOTE: Please see the HP RDX Removable Disk Backup System QuickSpecs for additional information: http://h18000.www1.hp.com/products/quickspecs/13036_na/13036_na.html	
	D2D Backup	
	HP StorageWorks D2D2502i Backup System	EJ001A
	NOTE: 2 TB raw capacity/1.5 TB useable capacity.	
	HP StorageWorks D2D2504i Backup System	EJ002A
	NOTE: 4 TB raw capacity/3 TB useable capacity.	
	NOTE: Please see the HP D2D Backup Systems QuickSpecs for additional information: http://www.hp.com/go/d2d	

HP 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	
	Brocade Fibre Channel HBAs	
	HP StorageWorks 81B PCI-e FC HBA Single Port	AP769A
	HP StorageWorks 82B PCI-e FC HBA Dual Port	AP770A
	HP StorageWorks 41B 4Gb PCI-e FC HBA	AP767A
	HP StorageWorks 42B 4Gb Dual-Port PCI-e FC HBA	AP768A
	Emulex Fibre Channel HBAs	
	HP StorageWorks 81E PCI-e FC HBA Single Port	AJ762A
	HP StorageWorks 82E PCI-e FC HBA Dual Port	AJ763A
	HP StorageWorks FC2142 4Gb PCI-e HBA	A8002A
	HP StorageWorks FC2242 Dual Channel 4Gb PCI-e HBA	A8003A
	QLogic Fibre Channel HBAs	
	HP StorageWorks 81Q PCI-e FC HBA Single Port	AK344A
	HP StorageWorks 82Q PCI-e FC HBA Dual Port	AJ764A
	HP StorageWorks FC1142 4Gb PCI-e HBA	AE311A
	HP StorageWorks FC1242 Dual Channel 4Gb PCI-e HBA	AE312A
	StorageWorks Converged Network Adapter	
	HP CN1000E 2P Converged Network Adapter	AW520A

Additional Options

HP Modular Smart Array	MSA SAN Storage Arrays	
	HP StorageWorks 50 Modular Smart Array	364430-B21

NOTE: Please see the QuickSpecs for additional options and configuration information at:
http://h18000.www1.hp.com/products/quickspecs/12245_na/12245_na.html

| | HP StorageWorks 60 Modular Smart Array | 418408-B21 |

NOTE: Supports 12 SFF drives, and SAS 3 Gb/s and SATA 1.5 Gb/s.
NOTE: Please see the QuickSpecs for additional options and configuration information at:
http://h18000.www1.hp.com/products/quickspecs/12627_na/12627_na.html

| | HP StorageWorks 70 Modular Smart Array | 418800-B21 |

NOTE: Supports 25 SFF drives, and SAS 3 Gb/s and SATA 1.5 Gb/s.
NOTE: Please see the QuickSpecs for additional options and configuration information at:
http://h18000.www1.hp.com/products/quickspecs/12652_na/12652_na.html

| | HP 2012sa Single Controller Modular Smart Array | AJ752A |
| | HP 2012sa Dual Controller Modular Smart Array | AJ753A |

NOTE: Please see the QuickSpecs for additional options and configuration information at:
http://h18000.www1.hp.com/products/quickspecs/13045_na/13045_na.html

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HP Uninterruptible Power Systems	HP Rack-mountable UPS	
	HP R1500 G2 UPS	
	HP R1.5 VA 1U UPS	AF419A

NOTE: Please see the QuickSpecs for additional information:
http://h18000.www1.hp.com/products/quickspecs/12507_na/12507_na.html

HP R3000v Uninterruptible Power System

| | HP R3000v UPS | AF444A |

NOTE: The R3000v is available in China and India only.

NOTE: Please see the QuickSpecs for additional information:
http://h18000.www1.hp.com/products/quickspecs/13129_na/13129_na.html
NOTE: For additional information on HP Uninterruptible Power Systems please go to:
www.hp.com/servers/rackups.
NOTE: For additional information on sizing your server, please reference:
http://www.upssizer.com.

Additional Options

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

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

HP Rack 10000 G2 Series (Carbon/Graphite Metallic)

S10614 (14U) Rack Cabinet - Shock Pallet		292302-B22
10642 G2 (42U) Rack Cabinet - Pallet		AF001A
10642 G2 (42U) Rack Cabinet - Shock Pallet		AF002A
10642 G2 (42U) Rack Cabinet - Crated		AF003A
10642 G2 (42U) Rack Cabinet, with Extension - Shock Pallet		AF004A
10636 G2 (36U) Rack Cabinet - Pallet		AF011A
10636 G2 (36U) Rack Cabinet - Shock Pallet		AF012A
10636 G2 (36U) Rack Cabinet - Crated		AF013A
10636 G2 (36U) Rack Cabinet, with Extension - Shock Pallet		AF014A
10622 G2 (22U) Rack Cabinet - Pallet		AF021A
10622 G2 (22U) Rack Cabinet - Shock Pallet		AF022A
10642 G2 (42U) Rack Cabinet 1200mm Deep - Shock Pallet		AF034A
10642 G2 (42U) Rack Cabinet 1200mm Deep - Pallet		AF038A
10842 G2 (42U) 800mm Wide Rack Cabinet - Pallet		AF041A
10842 G2 (42U) 800mm Wide Rack Cabinet - Shock Pallet		AF042A
10647 G2 (47U) Rack Cabinet - Shock Pallet		AF031A
10647 G2 (47U) Rack Cabinet 1200mm Deep - Shock Pallet		AF044A

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

10647 G2 (47U) Rack Cabinet 1200mm Deep - Pallet		AF045A

NOTE: It is mandatory to use a shock pallet when shipping racks with equipment installed.
NOTE: xxxxxx-B22 (shock pallet) used to ship racks with equipment installed (by custom systems, VARs and Channels).

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 Options	**Keyboards and Monitors**	
	TFT7600 Rackmount Keyboard Monitor	AG052A
	HP TAA TFT7600 Rkmntkybd 17in Monitor	AG067A
	1U Rackmount Keyboard with USB	AG072A

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

Additional Options

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
0x2x16 KVM Server Console G2 Switch with Virtual Media and CAC	AF618A
0x2x32 KVM Server Console G2 Switch with Virtual Media and CAC	AF619A
1x1Ex8 KVM IP Console Switch G2 with Virtual Media and CAC	AF620A
2x1Ex16 KVM IP Console Switch G2 with Virtual Media and CAC	AF621A
4x1Ex32 KVM IP Console Switch G2 with Virtual Media and CAC	AF622A
PS/2 Virtual Media Interface Adapter, 1 pack	AF604A

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

HP Server console switch 0x2x8	AF616A
HP Server console switch 0x2x16	AF617A
HP TAA Server console switch 0x2x16	AF626A
PS/2 Interface Adapter, 1 pack	262588-B21
PS/2 Interface Adapter, 8 pack	262587-B21

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

HP 1 x 4 Console Switch	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	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.

HP Rack Kits

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.

Additional Options

HP USB and SD Options	HP USB 04 Standard Keyboard	DT528A#ABA

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 Insight Rapid Deployment software, 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 Enterprise 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 G5p Base Models

Standard Memory
2 GB REG PC2-6400 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 1 GB or 4 x 2 GB for example) yields 2-way bank interleaving.
2. Two dual ranked DIMMs populated per node (2 x 4 GB or 2 x 8 GB for example) yields 2-way bank interleaving.
3. Four dual ranked DIMMs populated per node (4 x 4 GB or 4 x 8 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 50 GB memory is available with the standard memory and the optional installation of 6 x 8GB PC2-5300 DIMMs.

Standard Memory Replaced with Optional Memory
Up to 64 GB of memory is available with the removal of the standard memory and the optional installation of 8 x 8 GB PC2-5300 DIMMs.

NOTE: Chart does not represent all possible configurations.
NOTE: DIMM banks are active only when the corresponding processor socket is populated.

		Slot															
	Bank A		Bank B		Bank C		Bank D		Bank E		Bank F		Bank G		Bank H		
Config	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Total
Standard	1GB	1GB	Empty	Empty	Empty	Empty	Empty	Empty	Empty	Empty	Empty	Empty	Empty	Empty	Empty	Empty	2GB
Optional	8GB	8GB	8GB	8GB	8GB	8GB	1GB	1GB	Empty	Empty	Empty	Empty	Empty	Empty	Empty	Empty	50GB
Maximum	8GB	8GB	8GB	8GB	8GB	8GB	8GB	8GB	Empty	Empty	Empty	Empty	Empty	Empty	Empty	Empty	64GB

HP ProLiant DL385 G5p Performance Models

Standard Memory
4 GB REG PC2-6400 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 1 GB or 4 x 2 GB for example) yields 2-way bank interleaving.
2. Two dual ranked DIMMs populated per node (2 x 4 GB or 2 x 8 GB for example) yields 2-way bank interleaving.
3. Four dual ranked DIMMs populated per node (4 x 4 GB or 4 x 8 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

Memory

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 112 GB memory is available with the standard memory and the optional installation of 12 x 8GB PC2-5300 DIMMs.

Standard Memory Replaced with Optional Memory
Up to 128 GB of memory is available with the removal of the standard memory and the optional installation of 16 x 8 GB PC2-5300 DIMMs.

NOTE: Chart does not represent all possible configurations.

	Slot																
	Bank A		Bank B		Bank C		Bank D		Bank E		Bank F		Bank G		Bank H		
Config	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Total
Standard	1GB	1GB	Empty	Empty	Empty	Empty	Empty	Empty	1GB	1GB	Empty	Empty	Empty	Empty	Empty	Empty	4GB
Optional	8GB	8GB	8GB	8GB	8GB	8GB	1GB	1GB	8GB	8GB	8GB	8GB	8GB	8GB	1GB	1GB	100GB
Maximum	8GB	8GB	8GB	8GB	8GB	8GB	8GB	8GB	8GB	8 GB	8 GB	8 GB	8 GB	8 GB	8 GB	8 GB	128GB

Following are memory options available from HP:

HP Memory		
	2 GB REG PC2-6400 2 x 1 GB Kit	497763-B21
	4 GB REG PC2-6400 2 x 2 GB Kit	497765-B21
	8 GB REG PC2-6400 2 x 4 GB Kit	497767-B21
	8 GB REG PC2-6400 2 x 4 GB Low Power Kit	504351-B21
	16 GB REG PC2-5300 2 x 8 GB Dual Rank Kit	408855-B21
	64 GB REG PC2-5300 8 x 8 GB Dual Rank Kit	495605-B21

Storage
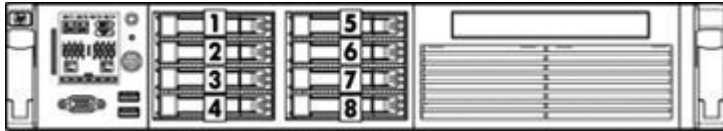
1-8   Eight SFF SAS hot plug hard drive bays
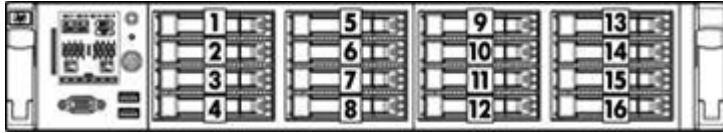
1-16   Sixteen SFF SAS hot plug hard drive bays
  NOTE: This configuration does not support optical drive.
  NOTE: This configuration requires a second controller or SAS Expander Card.

1-6   Six LFF SAS hot plug hard drive bays
  NOTE: This configuration does not support optical drive.
  NOTE: This configuration replaces SFF hard drive cage.

Drive Support

	Quantity Supported	Position Supported	Controller
Removable Media			
Slim SATA DVD RW Optical Drive **NOTE:** Included in performance models.	Only 1 available removable media bay	Slimline bay	Integrated SATA
Slim SATA DVD-ROM Optical Drive	Only 1 available removable media bay	Slimline bay	Integrated SATA

Hard Drives
NOTE: The components of a storage subsystem (e.g. the drive, the HBA/controller, firmware, and the server backplane) should operate at the same data transfer rate or the system bandwidth will be negotiated down to an acceptable level for all components.
NOTE: Hard drives have either a one year or three year warranty; refer to the specific hard drive QuickSpecs for details.

SAS Hot Plug SFF (2.5-inch) Enterprise (ENT) Drives

	Quantity Supported	Position Supported	Controller
300GB 6G SAS 10K DP	Up to 16	1-8	HP Smart Array E200/64 MB Controller
300GB 3G SAS 10K DP		1-16	HP Smart Array E200/128 BBWC Controller
146GB 6G SAS 15K DP		**NOTE:**	HP Smart Array P400/256 MB Controller
146GB 3G SAS 15K DP		Depending on	HP Smart Array P400/512 MB BBWC Controller
146GB 6G SAS 10K DP		Model	HP Smart Array P800/512 BBWC Controller
146GB 3G SAS 10K DP			HP Smart Array P212/Zero Memory Controller
72GB 6G SAS 15K DP			HP Smart Array P212/ 256 MB Controller
72GB 3G SAS 15K DP			HP Smart Array P410/256 MB Controller
			HP Smart Array P410/512 MB BBWC Controller
			HP Smart Array P411/256 MB Controller

Storage

HP Smart Array P411/512 MB BBWC Controller

SAS Hot Plug LFF (3.5-inch) Enterprise (ENT) Drives

	Quantity Supported	Position Supported	Controller
600GB 6G SAS 15K DP	Up to 6	1-6	HP Smart Array E200/64 MB Controller
450GB 6G SAS 15K DP			HP Smart Array E200/128 BBWC Controller
450GB 3G SAS 15K DP			HP Smart Array P400/256 MB Controller
300GB 6G SAS 15K DP			HP Smart Array P400/512 MB BBWC Controller
300GB 3G SAS 15K DP			HP Smart Array P800/512 BBWC Controller
146GB 3G SAS 15K DP			HP Smart Array P212/Zero Memory Controller
			HP Smart Array P212/ 256 MB Controller
			HP Smart Array P410/256 MB Controller
			HP Smart Array P410/512 MB BBWC Controller
			HP Smart Array P411/256 MB Controller
			HP Smart Array P411/512 MB BBWC Controller

SAS Hot Plug SFF (2.5-inch) Midline (MDL) Drives

	Quantity Supported	Position Supported	Controller
500GB 6G SAS 7.2K DP	Up to 16	1-8	HP Smart Array E200/64 MB Controller
		1-16	HP Smart Array E200/128 BBWC Controller
		NOTE:	HP Smart Array P400/256 MB Controller
		Depending on	HP Smart Array P400/512 MB BBWC Controller
		Model	HP Smart Array P800/512 BBWC Controller
			HP Smart Array P212/Zero Memory Controller
			HP Smart Array P212/ 256 MB Controller
			HP Smart Array P410/256 MB Controller
			HP Smart Array P410/512 MB BBWC Controller
			HP Smart Array P411/256 MB Controller
			HP Smart Array P411/512 MB BBWC Controller

SAS Hot Plug LFF (3.5-inch) Midline (MDL) Drives

	Quantity Supported	Position Supported	Controller
1TB 3G SAS 7.2K DP	Up to 6	1-6	HP Smart Array E200/64 MB Controller
750GB 3G SAS 7.2K DP			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 P800/512 BBWC Controller
			HP Smart Array P212/Zero Memory Controller
			HP Smart Array P212/ 256 MB Controller
			HP Smart Array P410/256 MB Controller
			HP Smart Array P410/512 MB BBWC Controller
			HP Smart Array P411/256 MB Controller
			HP Smart Array P411/512 MB BBWC Controller

QuickSpecs

Storage

SATA Hot Plug SFF (2.5-inch) Midline (MDL) Drives

	Quantity Supported	Position Supported	Controller
500GB 3G SATA 7.2K 160GB 3G SATA 7.2K	Up to 16	1-8 1-16 NOTE: Depending on Model	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 P800/512 BBWC Controller HP Smart Array P212/Zero Memory Controller HP Smart Array P212/ 256 MB Controller HP Smart Array P410/256 MB Controller HP Smart Array P410/512 MB BBWC Controller HP Smart Array P411/256 MB Controller HP Smart Array P411/512 MB BBWC Controller

SATA Hot Plug LFF (3.5-inch) Midline (MDL) Drives

	Quantity Supported	Position Supported	Controller
2TB 3G SATA 7.2K 1TB 3G SATA 7.2K 750GB 3G SATA 7.2K 500GB 3G SATA 7.2K 250GB 3G SATA 7.2K	Up to 6	1-6	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 P800/512 BBWC Controller HP Smart Array P212/Zero Memory Controller HP Smart Array P212/ 256 MB Controller HP Smart Array P410/256 MB Controller HP Smart Array P410/512 MB BBWC Controller HP Smart Array P411/256 MB Controller HP Smart Array P411/512 MB BBWC Controller

SATA Hot Plug SFF (2.5-inch) Entry (ETY) Drives

	Quantity Supported	Position Supported	Controller
250GB 3G SATA 5.4K 120GB 1.5G SATA 5.4K	Up to 16	1-8 1-16 NOTE: Depending on Model	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 P800/512 BBWC Controller HP Smart Array P212/Zero Memory Controller HP Smart Array P212/ 256 MB Controller HP Smart Array P410/256 MB Controller HP Smart Array P410/512 MB BBWC Controller HP Smart Array P411/256 MB Controller HP Smart Array P411/512 MB BBWC Controller

Storage

SATA Hot Plug LFF (3.5-inch) Entry (ETY) Drives

	Quantity Supported	Position Supported	Controller
250GB 3G SATA 7.2K 160GB 3G SATA 7.2K	Up to 6	1-6	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 P800/512 BBWC Controller HP Smart Array P212/Zero Memory Controller HP Smart Array P212/ 256 MB Controller HP Smart Array P410/256 MB Controller HP Smart Array P410/512 MB BBWC Controller HP Smart Array P411/256 MB Controller HP Smart Array P411/512 MB BBWC Controller

SATA Hot Plug LFF (3.5-inch) Drives

	Quantity Supported	Position Supported	Controller
750GB 1.5G SATA 7.2K 500GB 1.5G SATA 7.2K 250GB 1.5G SATA 7.2K 160GB 1.5G SATA 7.2K	Up to 4	1-4	HP SC44Ge Host Bus Adapter NOTE: When using the SC44Ge with SATA Hard Drives, 1.5G SATA Hard Drives are required. Transfer rate: 1.5 Gb/s SATA, 3 Gb/s SAS. HP Smart Array E200/128 BBWC Controller HP Smart Array P400/256MB Controller HP Smart Array P400/512MB BBWC Controller HP Smart Array P800/512MB BBWC Controller HP Smart Array P212/Zero Memory Controller HP Smart Array P212/ 256 MB Controller HP Smart Array P410/256 MB Controller HP Smart Array P410/512 MB BBWC Controller HP Smart Array P411/256 MB Controller HP Smart Array P411/512 MB BBWC Controller

SATA Hot Plug Midline (MDL) Solid State Drives

	Quantity Supported	Position Supported	Controller
60GB 3.0G SATA SSD 120GB 3.0G SATA SSD	Up to 16	1-8 1-16	HP Smart Array P212/Zero Memory Controller HP Smart Array P212/ 256 MB Controller HP Smart Array P410/256 MB Controller HP Smart Array P410/512 MB BBWC Controller HP Smart Array P411/256 MB Controller HP Smart Array P411/512 MB BBWC Controller

SATA Hot Plug 3.5" Midline (MDL) Solid State Drives

Storage

	Quantity Supported	Position Supported	Controller
60GB 3.0G SATA SSD 120GB 3.0G SATA SSD	Up to 6	1-6	HP Smart Array P212/Zero Memory Controller HP Smart Array P212/ 256 MB Controller HP Smart Array P410/256 MB Controller HP Smart Array P410/512 MB BBWC Controller HP Smart Array P411/256 MB Controller HP Smart Array P411/512 MB BBWC Controller

External Storage

	Quantity Supported	Position Supported	Host Controller or Adapter
50 Modular Smart Array	Up to 4	External	HP Smart Array E500/256MB Controller HP Smart Array P800/512 BBWC Controller
60 Modular Smart Array	Up to 4 Up to 8	External	HP Smart Array E500/256MB Controller HP Smart Array P212/Zero Memory Controller HP Smart Array P212/ 256 MB Controller HP Smart Array P800/512 BBWC Controller HP Smart Array P411/256 MB Controller HP Smart Array P411/512 MB BBWC Controller
70 Modular Smart Array	Up to 2 Up to 4	External	HP Smart Array E500/256MB Controller HP Smart Array P800/512 BBWC Controller HP Smart Array P411/256 MB Controller HP Smart Array P411/512 MB BBWC Controller
HP 2000sa Modular Smart Array Controller	Up to 4	External	HP SC08Ge Host Bus Adapter

Maximum Storage Capacity - (with MSA50)

Internal	4.0TB (8 x 500GB SATA)
External	6.0TB (20 x 300GB SAS SFF)
Total	10.0TB

Tape and Disk-Based Backup

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

	Position Supported	Controller	Controller Part Number
HP StorageWorks SCSI Tape Drives, External LTO-1 Ultrium 232 LTO-2 Ultrium 448 LTO-3 Ultrium 960 LTO-3 Ultrium 920 LTO-4 Ultrium 1760 LTO-4 Ultrium 1840	External	HP SC11Xe Host Bus Adapter	412911-B21

Storage

DAT 40
DAT 72
DAT 160
1U Rack-Mount Kit
3U Rack-Mount Kit

HP StorageWorks USB Tape Drives, External DAT 40 USB DAT 72 USB DAT 160 USB 1U Rack-Mount Kit	External	USB 2.0 Port	N/A
HP StorageWorks SAS Tape Drives, External DAT 160 SAS LTO-2 Ultrium 448 SAS LTO-3 Ultrium 920 SAS LTO-4 Ultrium 1760 SAS LTO-4 Ultrium 1840 SAS 1U Rack-Mount Kit 3U Rack-Mount Kit	External	HP SC44Ge Host Bus Adapter	416096-B21
HP StorageWorks SCSI Tape Automation, External DAT 72x10 Autoloader 1/8 Tape Autoloader MSL2024 MSL4048 MSL8096 MSL6000	External	HP SC11Xe Host Bus Adapter	412911-B21
HP StorageWorks SAS Tape Automation, External 1/8 G2 Autoloader MSL2024 MSL4048	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

Storage

HP StorageWorks RDX Removable Disk Backup System, External RDX160 RDX320 RDX500	External	USB 2.0 Port	N/A
HP StorageWorks D2D Backup Systems D2D120 D2D130 D2D2500i D2D4000i	External	Embedded Network Controller	N/A

QuickSpecs

Power Specifications

Power Supply Specification	HP's Generic Part Number	499249-001					
	HP's Spares Part Number	511777-001					
Input Voltage Range (V rms)	100-240						
Frequency Range (Nominal) (Hz)	50 / 60						
Nominal Input Voltage (Vrms)	100	120	200	208	220	230	240
Maximum Rated Output Wattage Rating	460	460	460	460	460	460	460
Nominal Input Current (A rms)	5.5	4.5	2.6	2.5	2.4	2.3	2.2
Maximum Rated Input Wattage Rating (Watts)	526	520	505	505	503	503	503
Maximum Rated VA (Volt-Amp)	548	542	527	527	524	524	524
Efficiency (%)	87.5	88.5	91	91	91.5	91.5	91.5
Power Factor	0.97						
Leakage Current (mA)	0.42	0.50	0.83	0.87	0.92	0.96	1.00
Maximum Inrush Current (A peak)	30						
Maximum Inrush Current duration (mS)	20						
Maximum British Thermal Unit Rating (BTU-Hr)	1794	1773	1725	1725	1715	1715	1715

HP 1200Watt High Efficiency Power Supply Specifications (meets Climate Savers Silver ratings @ 90%)

Power Supply Specification - AC	Part number	490594-001				
	Spare Kit	500172-B21				
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	900	1200	1200	1200	1200
Nominal Input Current (A rms)	9.15	8.46	6.44	6.08	5.81	5.59
Max Rated Input Wattage Rating (Watts)	912	1011	1329	1326	1325	1322
Max. Rated VA (Volt-Amp)	915.6	1015	1340	1338	1337	1335
Efficiency (%)	88.2	89.1	90.3	90.5	90.6	90.8
Power Factor	0.996	0.996	0.992	0.991	0.991	0.990

Power Specifications

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)	10	10	10	10	10	10

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

- Click on "ProLiant Servers"
- Click on the Server of interest. Example: DL385 G5p
- Click on: "Power Calculator" link. (You may need to scroll down to see it)

QuickSpecs

Technical Specifications

System Unit	**Dimensions** (H x W x D) (with bezel)		3.38 x 17.54 x 27.25 in (8.59 x 44.54 x 69.98 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	9.15 A (at 100 VAC), 8.4 A (at 120 VAC), 6.7 A (at 200 VAC)
		Rated Input Frequency	50 to 60 Hz
		Rated Input Power	912W (at 100 VAC), 1011 W (at 120 VAC), 1334 W (at 240 VAC)
	BTU Rating	Maximum	3118BTU/hr (at 100 VAC), 3447 BTU/hr (at 120 VAC), 4549 BTU/hr (at 240 VAC)
	Power Specifications		NOTE: To review typical system power ratings use the HP Power Advisor which is available online located at url: www.hp.com/go/proliant-energy-efficient or www.hp.com/go/hppoweradvisor - Click on the system of interest. Example: DL385 G5p - Follow the instructions of the next screens.
	Power Supply Output Power (per power supply)	Rated Steady-State Power For HP 460W HE CS PSU	460 W (at 100-240VAC)
		For HP 1200W HE CS PSU	800 W (at 100 VAC), 900 W (at 120 VAC), 1200 W (at 200-240 VAC)
		Maximum Peak Power For 460W HE CS PSU	460 W (at 100-240VAC)
		For HP 1200W HE CS PSU	800 W (at 100 VAC), 900 W (at 120 VAC), 1200 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

Technical Specifications

		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 (non-condensing)	Operating	10 to 90% relative humidity (Rh), 28°C (82.4°F) maximum wet bulb temperature, non-condensing.
	Non-operating	5 to 95% relative humidity (Rh), 38.7°C (101.7°F) maximum wet bulb temperature, non-condensing.
Altitude	Operating	3050 m (10,000 ft). This value may be limited by the type and number of options installed. Maximum allowable altitude change rate is 457 m/min (1500 ft/min).
	Non-operating	9144 m (30,000 ft). Maximum allowable altitude change rate is 457 m/min (1500 ft/min).

Acoustic Noise   Listed are the declared A-Weighted sound power levels (LWAd) and declared average bystander position A-Weighted sound pressure levels (LpAm) when the product is operating in a 23°C ambient environment. Noise emissions were measured in accordance with ISO 7779 (ECMA 74) and declared in accordance with ISO 9296 (ECMA 109).

Idle

	LWAd	6.3 B
	LpAm	47 dBA

Operating

	LWAd	6.3 B
	LpAm	47 dBA

Emissions Classification (EMC)	FCC Rating	Class A
	Normative Standards	CISPR 22; EN55022; EN55024; FCC CFR 47, Pt 15; ICES-003; CNS13438; GB9254; K22;K24; EN 61000-3-2; EN 61000-3-3; EN 60950-1; IEC 60950-1

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

Technical Specifications

Smart Array P400 Controller	Disk Drive and Enclosure Interface	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)

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)

Technical Specifications

Two HP NC382i Dual Port Multifunction Gigabit Server Adapters	Network Interface Compatibility	10Base-T/100Base-TX/1000Base-TX IEEE 802.3 10Base-T IEEE 802.3ab 1000Base-T IEEE 802.3u 100Base-TX	
	Data Transfer Method	PCI Express, four lanes (x4)	
	Controller	BCM5709C	
	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)

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