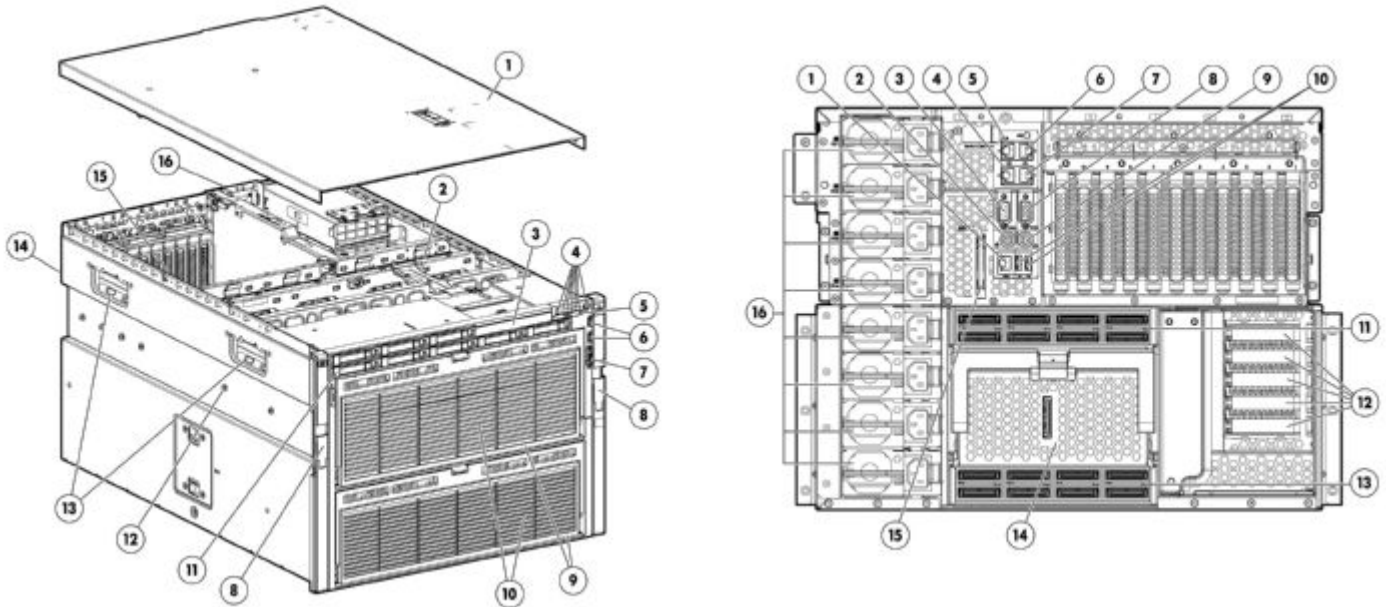## Overview

HP ProLiant DL980 G7 with HP PREMA Architecture is an eight socket server built to handle the largest x86 enterprise environments with confidence. The DL980 G7 blends industry standard economies with advanced mission critical capabilities to deliver balanced scaling, self healing resiliency and breakthrough efficiencies needed in essential enterprise compute environments. Whether housing a single very large data intensive workload, or many consolidated or virtualized workloads to improve resource utilization, the DL980 G7 featuring HP PREMA Architecture with Smart CPU caching and a resilient system fabric, is designed to reduce bottlenecks, improve throughput and performance, as well as deliver enhanced reliability not previously available in an x86 environment.

Front View:

1. Quick removal access panel
2. 8 hot plug redundant fans standard on all models, upper four fan positions shown, lower four not shown
3. DVD drive bay
4. Front panel LED display and Power button
5. Slide-out System Insight Display
6. Two front accessible USB 2.0 ports
7. One front video port
8. Quick release lever for fast server access
9. Upper and lower front accessible processor and memory drawer
10. Support for up to eight 8-core Intel Xeon processors (4 processors in upper and 4 processors in the lower drawer)
11. Support for up to 8 small form factor (SFF) SAS drives
12. Universal tool-less "Snap In" Sliding Rail Solution
13. Server lifting handles
14. 8U rack form factor
15. Up to 11 full height/full length slots supported
16. Hot Plug Redundant Power Supplies (4 or 8 depending on the model)

Rear View:

1. Integrated Lights-Out 3 port
2. Mouse port
3. Serial port
4. Gigabit NIC port
5. Gigabit NIC port
6. Gigabit NIC port
7. Gigabit NIC port
8. Video port
9. Keyboard port
10. Two USB ports
11. Upper XNC ports
12. Up to 5 low profile slots supported
13. Lower XNC ports
14. XNC module
15. Service tool
16. Power supplies (4 or 8 depending on the model)

What's New

- Support for new HP hard drives, UPS and NIC

QuickSpecs

Standard Features

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

Processor Four or eight of the following processors depending on model	**Ten-Core Processors** Intel® Xeon® E7-2850 (2.00GHz/10-core/24MB/130W) Processor Intel® Xeon® E7-2860 (2.26GHz/10-core/24MB/130W) Processor Intel® Xeon® E7-4870 (2.4GHz/10-core/30MB/130W) Processor **Eight-Core Processors** Intel® Xeon® E7-2830 (2.13GHz/8-core/24MB/105W) Processor Intel® Xeon® X7560 (2.27GHz/8-core/24MB/130W) Processor Intel® Xeon® X6550 (2GHz/8-core/18MB/130W) Processor **Six-Core Processors** Intel® Xeon® E7-4807 (1.86GHz/6-core/18MB/95W) Processor Intel® Xeon® E6540 (2GHz/6-core/18MB/105W) Processor **Quad-Core Processors** Intel® Xeon® E7520 (1.86GHz/4-core/18MB/95W) Processor **NOTE:** New Intel Microarchitecture with Intel Virtualization Technology FlexMigration.
Cache Memory One of the following depending on Model	30MB (1x30MB) Level 3 cache **NOTE:** For E7-4870 Processor only. 24MB (1 x 24MB) Level 3 cache **NOTE:** For E7-2830, E7-2850, E7-2860 and X7560 Processor only. 18MB (1 x 18MB) Level 3 cache **NOTE:** For E7-4807, X6550, E6540, E7520, Processor only.
Chipset	Industry Standard Intel® 7500 Chipset Hewlett-Packard DL980 G7 Node Controller **NOTE:** Up to three Industry Standard Intel® 7500 Chipsets with six high-speed interconnects up to 6.4GT/s. **NOTE:** For more information regarding Intel chipsets, please see the following URL: http://www.intel.com/products/server/chipsets/
Upgradeability	Upgradeable to eight processors
Memory Protection	Advanced ECC Mirrored Memory Online Spare Memory Rank Dynamic Device Data Correction (Intel Xeon E7 Family)

Memory One of the following depending on Model	Type	PC3-10600R Registered DIMMs (DDR3)
	Standard (E6540 Model)	128GB (16 x 8GB)
	Standard (X6550 Model)	256GB (32 x 8GB)
	Maximum	2TB (128 x 16GB)

Network Controller	HP NC375i Integrated Quad Port Multifunction Gigabit Server Adapter **NOTE:** Optional Dual Port 10GbE upgrade (replaces two 1G ports).

QuickSpecs

Standard Features

Expansion Slots
NOTE: Up to 16 slots supported: 11 full length/full height and 5 low profile slots. Base I/O backplane configuration: 2 PCI-E 2.0 x8, 3 PCI-E x4. Optional full height/full length I/O backplanes - (choose only one): 2 PCI-E 2.0 x16, 1 PCI-E 2.0 x4, 2 PCI-X OR 4 PCI-E 2.0 x8, 1 PCI-E 2.0 x4, 1 PCI-E 1.1 x4. Optional low profile I/O backplane: 4 PCI-E 2.0 x8, 1 PCI-E 2.0 x4

Expansion Slots with No Option Card	Expansion Slot #	Technology	Width	Connector Width*	Bus Number(*)(**)	Form Factor	Notes
	1	N/A	N/A	N/A	N/A	N/A	N/A
	2	N/A	N/A	N/A	N/A	N/A	N/A
	3	N/A	N/A	N/A	N/A	N/A	N/A
	4	N/A	N/A	N/A	N/A	N/A	N/A
	5	N/A	N/A	N/A	N/A	N/A	N/A
	6	N/A	N/A	N/A	N/A	N/A	N/A
	7	PCI Express Gen2	x4	x8	0x05	FH/FL	
	8	PCI Express Gen2	x4	x8	0x08	FH/FL	
	9	PCI Express Gen2	x8	x16	0x0B	FH/FL	
	10	PCI Express Gen2	x4	x8	0x0E	FH/FL	
	11	PCI Express Gen2	x8	x16	0x11	FH/FL	

* Default bus assignment. Inserting cards with PCI bridges may alter the actual bus assignment number.
** Slots are enumerated differently based on OS. MS OS's enumerate from lowest to highest Device ID by bus (starting with the lowest bus).
FL= Full length; FH = Full height; LP = low-profile.

Expansion Slots with Combination PCI-X, PCI-e and 300W GPU I/O Expander	Expansion Slot #	Technology	Width	Connector Width*	Bus Number(*)(**)	Form Factor	Notes
	1	PCI-X	64-bit	N/A	0x72 (Device 1)	FH/FL	100MHz
	2	PCI-X	64-bit	N/A	0x72 (Device 2)	FH/FL	100MHz
	3	PCI Express Gen2	x16	x16	0x76	FH/FL	
	4	PCI Express Gen2	x4	x8	0x79	FH/FL	
	5	N/A	N/A	N/A	N/A	N/A	N/A
	6	PCI Express Gen2	x16	x16	0x84	FH/FL	
	7	PCI Express Gen2	x4	x8	0x05	FH/FL	
	8	PCI Express Gen2	x4	x8	0x08	FH/FL	
	9	PCI Express Gen2	x8	x16	0x0B	FH/FL	

Standard Features

	10	PCI Express Gen2	x4	x8	0x0E	FH/FL	
	11	PCI Express Gen2	x8	x16	0x11	FH/FL	

* Default bus assignment. Inserting cards with PCI bridges may alter the actual bus assignment number.
** Slots are enumerated differently based on OS. MS OS's enumerate from lowest to highest Device ID by bus (starting with the lowest bus).
FL= Full length; FH = Full height; LP = low-profile.

Expansion Slots with Standard PCI-e option I/O Expander	Expansion Slot #	Technology	Width	Connector Width*	Bus Number(*)(**)	Form Factor	Notes
	1	PCI Express Gen1	x4	x8	0x71	FH/FL	
	2	PCI Express Gen2	x8	x16	0x74	FH/FL	
	3	PCI Express Gen2	x8	x16	0x77	FH/FL	
	4	PCI Express Gen2	x4	x8	0x7A	FH/FL	
	5	PCI Express Gen2	x8	x16	0x84	FH/FL	
	6	PCI Express Gen2	x8	x16	0x87	FH/FL	
	7	PCI Express Gen2	x4	x8	0x05	FH/FL	
	8	PCI Express Gen2	x4	x8	0x08	FH/FL	
	9	PCI Express Gen2	x8	x16	0x0B	FH/FL	
	10	PCI Express Gen2	x4	x8	0x0E	FH/FL	
	11	PCI Express Gen2	x8	x16	0x11	FH/FL	

* Default bus assignment. Inserting cards with PCI bridges may alter the actual bus assignment number.
** Slots are enumerated differently based on OS. MS OS's enumerate from lowest to highest Device ID by bus (starting with the lowest bus).
FL= Full length; FH = Full height; LP = low-profile.

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Standard Features

Expansion Slots with Low Profile I/O expander (PCI-e option)	Expansion Slot #	Technology	Width	Connector Width*	Bus Number(*)(**)	Form Factor	Notes
	7	PCI Express Gen2	x4	x8	0x05	FH/FL	
	8	PCI Express Gen2	x4	x8	0x08	FH/FL	
	9	PCI Express Gen2	x8	x16	0x0B	FH/FL	
	10	PCI Express Gen2	x4	x8	0x0E	FH/FL	
	11	PCI Express Gen2	x8	x16	0x11	FH/FL	
	12	PCI Express Gen2	x8	x16	0x71	LP	
	13	PCI Express Gen2	x8	x16	0x74	LP	
	14	PCI Express Gen2	x4	x8	0x77	LP	
	15	PCI Express Gen2	x8	x16	0x7A	LP	
	16	PCI Express Gen2	x8	x16	0x84	LP	

* Default bus assignment. Inserting cards with PCI bridges may alter the actual bus assignment number.
** Slots are enumerated differently based on OS. MS OS's enumerate from lowest to highest Device ID by bus (starting with the lowest bus).
FL= Full length; FH = Full height; LP = low-profile.

Expansion Slots with Combination PCI-X, PCI-e and 300W GPU and Low Profile PCI-e I/O Expanders	Expansion Slot #	Technology	Width	Connector Width*	Bus Number(*)(**)	Form Factor	Notes
	1	PCI-X	64-bit	N/A	0x52 (Device 1)	FH/FL	100MHz
	2	PCI-X	64-bit	N/A	0x52 (Device 2)	FH/FL	100MHz
	3	PCI Express Gen2	x16	x16	0x56	FH/FL	
	4	PCI Express Gen2	x4	x8	0x59	FH/FL	
	5	N/A	N/A	N/A	N/A	N/A	N/A
	6	PCI Express Gen2	x16	x16	0x5C	FH/FL	
	7	PCI Express Gen2	x4	x8	0x05	FH/FL	
	8	PCI Express Gen2	x4	x8	0x08	FH/FL	

Standard Features

	9	PCI Express Gen2	x8	x16	0x0B	FH/FL	
	10	PCI Express Gen2	x4	x8	0x0E	FH/FL	
	11	PCI Express Gen2	x8	x16	0x11	FH/FL	
	12	PCI Express Gen2	x8	x16	0xA1	LP	
	13	PCI Express Gen2	x8	x16	0xA4	LP	
	14	PCI Express Gen2	x4	x8	0xA7	LP	
	15	PCI Express Gen2	x8	x16	0xAA	LP	
	16	PCI Express Gen2	x8	x16	0xAD	LP	

* Default bus assignment. Inserting cards with PCI bridges may alter the actual bus assignment number.
** Slots are enumerated differently based on OS. MS OS's enumerate from lowest to highest Device ID by bus (starting with the lowest bus).
FL= Full length; FH = Full height; LP = low-profile.

Expansion Slots with Standard PCI-e and Low Profile PCI-e option I/O Expanders	Expansion Slot #	Technology	Width	Connector Width*	Bus Number(*)(**)	Form Factor
	1	PCI Express Gen1	x4	x8	0x51	FH/FL
	2	PCI Express Gen2	x8	x16	0x54	FH/FL
	3	PCI Express Gen2	x8	x16	0x57	FH/FL
	4	PCI Express Gen2	x4	x8	0x5A	FH/FL
	5	PCI Express Gen2	x8	x16	0x5D	FH/FL
	6	PCI Express Gen2	x8	x16	0x60	FH/FL
	7	PCI Express Gen2	x4	x8	0x05	FH/FL
	8	PCI Express Gen2	x4	x8	0x08	FH/FL
	9	PCI Express Gen2	x8	x16	0x0B	FH/FL
	10	PCI Express Gen2	x4	x8	0x0E	FH/FL
	11	PCI Express Gen2	x8	x16	0x11	FH/FL
	12	PCI Express Gen2	x8	x16	0xA1	LP
	13	PCI Express Gen2	x8	x16	0xA4	LP

Standard Features

	14	PCI Express Gen2	x4	x8	0xA7	LP
	15	PCI Express Gen2	x8	x16	0xAA	LP
	16	PCI Express Gen2	x8	x16	0xAD	LP

* Default bus assignment. Inserting cards with PCI bridges may alter the actual bus assignment number.
** Slots are enumerated differently based on OS. MS OS's enumerate from lowest to highest Device ID by bus (starting with the lowest bus).
FL= Full length; FH = Full height; LP = low-profile.

Expansion Slot Restrictions

Up to 16 I/O cards are supported within the DL980 server, however due to I/O port space limitations, no more than 11 of any combination of the following I/O cards may be installed in the DL980 server at one time:

- HP NC360T PCI Express Dual Port Gigabit Server Adapter (PN 412648-B21)
- HP Smart Array P212/256 1-ports Int/1-ports Ext PCIe x8 SAS Controller (PN 462834-B21)
- HP Smart Array P411/256 2-ports Ext PCIe x8 SAS Controller (PN 462830-B21)
- HP Smart Array P411/1G FBWC 2-ports Ext PCIe x8 SAS Controller (PN 572531-B21)
- HP Smart Array P411/512 FBWC 2-ports Ext PCIe x8 SAS Controller (PN 578229-B21)
- HP Smart Array P812/1G FBWC 2-ports Int/2-ports Ext PCIe x8 SAS Controller (PN 487204-B21)
- HP SC08Ge 2-ports Ext PCIe x8 SAS Host Bus Adapter (PN 488765-B21)
- HP StorageWorks 81Q PCI-e FC HBA Single Port (PN AK344A)
- HP StorageWorks 81E PCI-e FC HBA Single Port (PN AJ762A)
- HP StorageWorks 82E PCI-e FC HBA Dual Port (PN AJ763A)
- HP StorageWorks 82Q PCI-e FC HBA Dual Port (PN AJ764A)
- HP StorageWorks FC2142 4Gb PCI-e HBA (PN A8002A)
- HP StorageWorks FC2242 Dual Channel 4Gb PCI-e HBA (PN A8003A)
- HP StorageWorks FC1142 4Gb PCI-e HBA (PN AE311A)
- HP StorageWorks FC1242 Dual Channel 4Gb PCI-e HBA (PN AE312A)

Storage Controller

HP Smart Array P410i controller with optional FBWC

The Flash Backed Write Cache (FBWC) increases cache data retention capabilities from two days of existing battery backed write cache (BBWC) to infinite data retention.

- Standard on 4P Models, optional on factory integrated models
- Transportable data protection
- Increases overall controller performance

Internal Storage Devices

Diskette Drive	None
Optical Drive	Slimline DVD-RW Drive standard
Hard Drives	None ship standard
Hard Disk Drive Backplane	Internal SAS backplane supports up to eight SFF hard disk drives

Maximum Internal Storage

Hot Plug SFF SAS	7.2TB	8 x 900GB
Hot Plug SFF SAS SSD	3.2TB	8 x 400GB

QuickSpecs

Standard Features

Interfaces	Serial	1
	Video	1 front; 1 rear
	SD slot	1
	Network RJ-45	4
	iLO 3 Remote Management	1
	Keyboard	1
	Pointing Device (Mouse)	1
	USB 2.0 Ports	6 total: 2 front (video); 2 rear (video, NIC); 2 internal

NOTE: Please see the following URL for additional information regarding USB support:
http://h18004.www1.hp.com/products/servers/platforms/usb-support.html

Industry Standard Compliance

ACPI 2.0. Compliant

PCIE 2.0 Compliant

PXE Support

WOL Support

Physical Address Extension (PAE) Support

Microsoft® Logo certifications

USB 2.0 Support

Server Power Cords

One 6' highline (IEC-IEC) power cord per power supply is shipped standard with each system.
NOTE: If customers require a local power cord, they can check the power cord matrix for the appropriate country specific sku. Please see the following power cord matrix for details:
http://www.hp.com/go/powercordmatrix

Power Supply

NOTE: Rear accessible Hot Plug Power Supplies with option for redundancy (Redundant power supplies are standard on some models).

| E6540 4P Model: | (4) 1200W Common Slot Platinum Power Supplies (220VAC only) |
| X6550 4P Model: | (8) 1200W Common Slot Platinum Power Supplies (220VAC only) |

NOTE: The HP ProLiant DL980 G7 requires four power supplies to operate. With four power supplies there is no power redundancy. Eight power supplies are required for power redundancy. The level of redundancy will be reported during the system power on.

System Fans

8 Hot plug, redundant fans ship standard

Required Cabling

For required cabling information, refer to the HP Web site at: www.hp.com/servers/dl980

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 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/DL980G7.

QuickSpecs

Standard Features

Graphics	Integrated ATI ES1000 with 32MB embedded video SDRAM Max Resolution 1280 x 1024 x 16M color

Form Factor	Rack (8U = 14 inches) Ships with Quick Deploy Sliding Rail System, an ambidextrous cable management arm and quick release levers for fast and easy serviceability and in-rack tool-less access to major components.

HP Insight management HP Insight Foundation **software**

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

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

The foundation pack includes:

- HP SmartStart
- HP Management DVD
- HP ProLiant Smart Update Firmware DVD

SmartStart version supported (minimum): SmartStart 8.5
http://www.hp.com/servers/smartstart

NOTE: In an effort to support reducing our environmental impact, the HP Insight Foundation Suite for ProLiant media will be available as a selectable option for this server at time of order of a CTO SKU. This will allow customers to order the number of media kits that best meet their needs and eliminate receiving unnecessary duplicate media.

HP Integrated Lights-Out (iLO)

HP Integrated Lights-Out (iLO) simplifies server setup, health monitoring, power and thermal control, and lights-out remote administration of ProLiant ML, DL, and BL servers. HP iLO functions without additional software and can be accessed from any location via a web browser. HP iLO works hand-in-hand with HP Systems Insight Manager, Insight Control suites, and Insight Dynamics for ProLiant, helping customers unleash the value of the ProLiant platform and deliver the highest possible quality of IT service. HP iLO can be purchased stand-alone and it also is included with the purchase of HP Insight Conrol. For more information, visit: www.hp.com/go/iLO

QuickSpecs

Standard Features

Intelligent Manageability	HP Systems Insight Manager SmartStart Redundant ROM Remote Flash ROM Management Agents Integrated Management Log (IML) Automatic Server Recovery-2 (ASR-2) ROM-Based Setup Utility (RBSU) Dynamic Sector Repairing (with Smart Array Controllers) Drive Parameter Tracking (with Smart Array Controllers) Pre-Failure Warranty (covers processors, SAS hard drives and memory) Redundant/adaptive load balancing NIC Support Hot Spare Boot **NOTE:** Upon the event of a failed processor in a multi-processing environment, the system will automatically reboot and use the remaining good processor(s).
Security	Power-on password Keyboard password External USB port enable/disable Network Server Mode Serial interface control Administrator's password Removable CD-ROM or DVD drive
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

Optional Features

HP Insight management software	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.
	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 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
High Performance Clusters	HP Cluster Platforms	HP Cluster Platforms are specifically engineered, factory-integrated large-scale ProLiant clusters optimized for High Performance Computing, with a choice of servers, networks and software. Operating system options include specially priced offerings for Red Hat Enterprise Linux and Novell SLES, as well as Microsoft Windows HPC Server. A Cluster Platform Configurator simplifies ordering. http://www.hp.com/go/clusters
	HP HPC Interconnects	High Performance Computing (HPC) interconnect technologies are available for this server as part of the HP Cluster Platform portfolio. These high-speed InfiniBand and Gigabit interconnects are fully supported by HP when integrated within an HP cluster. Flexible, validated solutions can be defined with the help of configuration tools. http://www.hp.com/techservers/clusters/ucp/index.html
	HP Cluster Management Utility	HP Cluster Management Utility (CMU) is an HP-licensed and HP-supported suite of tools that are used to manage large-scale Linux ProLiant systems. CMU includes software for the centralized provisioning, management and monitoring of nodes. CMU makes the administration of clusters user friendly, efficient, and effective. http://www.hp.com/go/cmu
	HP HPC Linux Value	HP HPC Linux Value Pack (Value Pack) is an HP-licensed and HP-

QuickSpecs

HP ProLiant DL980 Generation 7 (G7)

Optional Features

Pack	supported specially priced software bundle for the development and deployment of applications on HPC Cluster Platforms. Value Pack includes the Platform HPC Enterprise Edition suite of tools including the LSF workload scheduler, the HP-MPI parallelization library. Also included are the HP Unified Parallel C compiler and the HP Shmem library, as well as the execution environments for the libraries and compiler. HP HPC Linux Value Pack

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

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Service and Support

Service and Support	**HP Technology Services for Industry Standard Servers and BladeSystem** Capitalizing on HP ProLiant server and HP BladeSystem capabilities requires a service partner who understands your increasingly complex business technology environment. That's why it makes sense to team up with the people who know HP infrastructure hardware and software best - the experienced professionals at HP Services. **What HP ProLiant and BladeSystem Services can do for you** HP ProLiant and BladeSystem Services can help you design, deploy, test, integrate, support, and manage IT and infrastructure solutions. This way, HP proposes services solutions that include more than just uplift of base warranty. You can get the support you need by choosing from one of a number of service packaged solutions we have designed to address wider set of customer support needs:. HP Technology Services meets business challenges with services offered in three packages - **Optimized Care Package, Standard Care Package, and Basic Care Package** - available for each product group. Such packaged solutions enable customers to optimize technology operations, minimize risk and drive better business outcomes with easy-to-buy, easy-to-use scalable support packages for servers, storage, networking and software.
Optimized Care	**Optimized Care Package: Supports maintaining servers at optimum performance availability** **HP ProLiant Server Hardware Installation** Provides for the basic hardware installation of HP branded servers, storage devices and networking options to assist you in bringing your new hardware into operation in a timely and professional manner. http://h20195.www2.hp.com/V2/GetPDF.aspx/5981-9356EN **HP Installation and Startup for Insight Control Software** Provides for the deployment and basic configuration of HP Insight Control on HP ProLiant ML and DL series servers or HP BladeSystem servers. http://h20195.www2.hp.com/v2/GetPDF.aspx/4AA0-9972ENW.pdf **3-Year HP Critical Advantage** Provides end-to-end infrastructure support solution for business critical applications running on virtualized/x86 infrastructures, enabling the customers to cost effectively build, operate, and continuously improve their IT environment. http://h20195.www2.hp.com/V2/GetDocument.aspx?docname=4AA3-1772ENW **Additional Services**: Data Center Transformation Services
Standard Care	**Standard Care Package: Package that maintains high level of server availability** **HP ProLiant Server Hardware Installation** Provides for the basic hardware installation of HP branded servers, storage devices and networking options to assist you in bringing your new hardware into operation in a timely and professional manner. http://h20195.www2.hp.com/V2/GetPDF.aspx/5981-9356EN **HP Installation and Startup for Insight Control Software** Provides for the deployment and basic configuration of HP Insight Control on HP ProLiant ML and DL series servers or HP BladeSystem servers. http://h20195.www2.hp.com/v2/GetPDF.aspx/4AA0-9972ENW.pdf **3-Year HP 6 hour Hardware Support Onsite Call-to-Repair Service** Provides an IT manager with a team of support specialists who will quickly begin troubleshooting the system to help return the hardware to operating condition within 6 hours of the initial service request to the HP Global Solution Center. http://h20195.www2.hp.com/V2/GetPDF.aspx/5982-6547EN.pdf

Service and Support

3-Year , HP 24x7 Software Support for Insight Control
Provides for the deployment and basic configuration of HP Insight Control on HP ProLiant ML and DL series servers or HP BladeSystem servers. http://h20195.www2.hp.com/V2/GetPDF.aspx/5981-6645EEE.pdf

Additional Services: Software OS (Microsoft, Linux (SUSE/Red Hat) & VMware Installation & Start Up and Software Support); Microsoft or Linux or VMware education courses; +60 Proactive Select Credits

Basic Care	**Basic Care Package: delivers minimum recommended support service level**

HP ProLiant Server Hardware Installation
Provides for the basic hardware installation of HP branded servers, storage devices and networking options to assist you in bringing your new hardware into operation in a timely and professional manner. http://h20195.www2.hp.com/V2/GetPDF.aspx/5981-9356EN

HP Installation and Startup for Insight Control Software
Provides for the deployment and basic configuration of HP Insight Control on HP ProLiant ML and DL series servers or HP BladeSystem servers. http://h20195.www2.hp.com/v2/GetPDF.aspx/4AA0-9972ENW.pdf

3-Year HP 24x7 4 hour Response, Hardware Support Onsite Service
Provides for the deployment and basic configuration of HP Insight Control on HP ProLiant ML and DL series servers or HP BladeSystem servers. http://h20195.www2.hp.com/v2/GetPDF.aspx/4AA0-9972ENW.pdf

3-Year , HP 24x7 Software Support for Insight Control
Provides for the deployment and basic configuration of HP Insight Control on HP ProLiant ML and DL series servers or HP BladeSystem servers. http://h20195.www2.hp.com/V2/GetPDF.aspx/5981-6645EEE.pdf

Additional Services: Software OS (Microsoft, Linux (SUSE/Red Hat) & VMware Installation & Start Up and Software Support); +30 Proactive Select Credits, Factory Express.

Insight Remote Support The packages include HP Insight Remote Support that uses proven technology to deliver secure, reliable 24x7 remote monitoring, diagnoses, and problem resolution. It is available at no additional cost to all warranty, HP Care Pack Service, and service agreement customers.

For more information To learn more on HP ProLiant servers and HP BladeSystem servers, please contact your HP sales representative or HP Authorized Channel Partner. Or visit: http://www.hp.com/services/proliant

Pre-configured Models

HP ProLiant DL980 G7 E6540 2.0GHz 6 Core 4P Rack Server AM445A	Processor(s)	(4) Intel® Xeon® E6540 (2GHz/6-core/18MB/105W) Processors
	Cache Memory	18MB (1 x 18MB) Level 3 cache
	Memory	128GB (16 x 8GB) PC3-10600R Registered DIMMs (DDR3)
	Network Controller	HP NC375i Integrated Quad Port Multifunction Gigabit Server Adapter
	Storage Controller	HP Smart Array P410i Controller with 512MB FBWC
	Hard Drives	None ship standard
	Internal Storage	7.2TB max (with optional 900GB SAS hard drives)
	Optical Drive	Slimline DVD-RW Drive standard
	Power Supply	Four 1200W Common Slot Platinum power supplies standard Optional upgrade to eight power supplies for redundancy
	Fans	8 Hot plug, redundant fans ship standard
	Integrated Lights-Out	HP Integrated Lights-Out 3 (iLO 3) management processor (integrated on system board)
	Insight Control	HP Insight Control No Media single server license, including 1year of 24x7 Technical Support
	Form Factor	Rack 8U
	Warranty	Server Warranty includes 3-Year Parts, 3-Year Labor, 3-Year Onsite support with next business day response

HP ProLiant DL980 G7 X6550 2.0GHz 8 Core 4P Rack Server AM444A	Processor(s)	(4) Intel® Xeon® X6550 (2GHz/8-core/18MB/130W) Processors
	Cache Memory	18MB (1 x 18MB) Level 3 cache
	Memory	256GB (32 x 8GB) PC3-10600R Registered DIMMs (DDR3)
	Network Controller	HP NC375i Integrated Quad Port Multifunction Gigabit Server Adapter
	Storage Controller	HP Smart Array P410i Controller with 512MB FBWC
	Hard Drives	None ship standard
	Internal Storage	7.2TB max (with optional 900GB SAS hard drives)
	Optical Drive	Slimline DVD-RW Drive standard
	Power Supply	Eight 1200W Common Slot Platinum power supplies standard (fifth - eighth power supply are for redundancy)
	Fans	8 Hot plug, redundant fans ship standard
	Integrated Lights-Out	HP Integrated Lights-Out 3 (iLO 3) management processor (integrated on system board)
	Insight Control	HP Insight Control No Media single server license, including 1year of 24x7 Technical Support
	Form Factor	Rack 8U
	Warranty	Server Warranty includes 3-Year Parts, 3-Year Labor, 3-Year Onsite support with next business day response.

QuickSpecs

Pre-configured Models

HP ProLiant DL980 G7 E7-4870 2.4GHz 10 Core 4p Server
AM447A

Processor(s)	(4) Intel® Xeon® E7-4870 (2.4GHz/10-core/30MB/130W) Processors
Cache Memory	30MB (1 x 30MB) Level 3 cache
Memory	256GB (32 x 8GB) PC3-10600R Registered DIMMs (DDR3)
Network Controller	HP NC375i Integrated Quad Port Multifunction Gigabit Server Adapter
Storage Controller	HP Smart Array P410i Controller with 512MB FBWC
Hard Drives	None ship standard
Internal Storage	7.2TB max (with optional 900GB SAS hard drives)
Optical Drive	Slimline DVD-RW Drive standard
Power Supply	Eight 1200W Common Slot Platinum power supplies standard (fifth - eighth power supply are for redundancy)
Fans	8 Hot plug, redundant fans ship standard
Integrated Lights-Out	HP Integrated Lights-Out 3 (iLO 3) management processor (integrated on system board)
Insight Control	HP Insight Control No Media single server license, including 1year of 24x7 Technical Support
Form Factor	Rack 8U
Warranty	Server Warranty includes 3-Year Parts, 3-Year Labor, 3-Year Onsite support with next business day response.

HP ProLiant DL980 G7 E7-2860 2.26GHz 10 Core 4p Server
AM448A

Processor(s)	(4) Intel® Xeon® E7-2860 (2.26GHz/10-core/24MB/130W) Processors
Cache Memory	24MB (1 x 24MB) Level 3 cache
Memory	128GB (16 x 8GB) PC3-10600R Registered DIMMs (DDR3)
Network Controller	HP NC375i Integrated Quad Port Multifunction Gigabit Server Adapter
Storage Controller	HP Smart Array P410i Controller with 512MB FBWC
Hard Drives	None ship standard
Internal Storage	7.2TB max (with optional 900GB SAS hard drives)
Optical Drive	Slimline DVD-RW Drive standard
Power Supply	Four1200W Common Slot Platinum power supplies standard
Fans	8 Hot plug, redundant fans ship standard
Integrated Lights-Out	HP Integrated Lights-Out 3 (iLO 3) management processor (integrated on system board)
Insight Control	HP Insight Control No Media single server license, including 1year of 24x7 Technical Support
Form Factor	Rack 8U
Warranty	Server Warranty includes 3-Year Parts, 3-Year Labor, 3-Year Onsite support with next business day response.

Pre-configured Models

HP ProLiant DL980 G7 E7-2830 2.13GHz 8 Core 4p Server AM449A	**Processor(s)**	(4) Intel® Xeon® E7-2830 (2.13GHz/8-core/24MB/105W) Processors
	Cache Memory	24MB (1 x 24MB) Level 3 cache
	Memory	128GB (16 x 8GB) PC3-10600R Registered DIMMs (DDR3)
	Network Controller	HP NC375i Integrated Quad Port Multifunction Gigabit Server Adapter
	Storage Controller	HP Smart Array P410i Controller with 512MB FBWC
	Hard Drives	None ship standard
	Internal Storage	7.2TB max (with optional 900GB SAS hard drives)
	Optical Drive	Slimline DVD-RW Drive standard
	Power Supply	Four 1200W Common Slot Platinum power supplies standard
	Fans	8 Hot plug, redundant fans ship standard
	Integrated Lights-Out	HP Integrated Lights-Out 3 (iLO 3) management processor (integrated on system board)
	Insight Control	HP Insight Control No Media single server license, including 1year of 24x7 Technical Support
	Form Factor	Rack 8U
	Warranty	Server Warranty includes 3-Year Parts, 3-Year Labor, 3-Year Onsite support with next business day response.

Configuration Information - Factory Integrated Models

Step 1: Base Configuration

HP Models	HP ProLiant DL980 G7 Configure-to-order Server	AM426A

Factory Integrated Model ships with:

HP NC375i Integrated Quad Port Multifunction Gigabit Server Adapter
Eight HP Memory Boards
Five PCI-express slots
HP Smart Array P410i/Zero Memory Controller
Four 1200W Common Slot Platinum hot-plug power supplies
Eight redundant hot plug fans
SFF SAS drive cage
HP Integrated Lights-Out 3 (iLO 3) management processor (integrated on system board)
Rack form factor, 8U

HP ProLiant DL980 G7 Configure-to-order Server	AM451A

NOTE: Use with Intel Xeon® E7-4800 and E7-2800 Series Processors only

Factory Integrated Model ships with:

HP NC375i Integrated Quad Port Multifunction Gigabit Server Adapter
Eight HP Memory Boards
Five PCI-express slots
HP Smart Array P410i/Zero Memory Controller
Four 1200W Common Slot Platinum hot-plug power supplies
Eight redundant hot plug fans
SFF SAS drive cage
HP Integrated Lights-Out 3 (iLO 3) management processor (integrated on system board)
Rack form factor, 8U

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

HP Processors

NOTE: Each processor kit contains four processors.
NOTE: If eight processors are desired select one xxxxxx-L21 and one xxxxxx-B21. Additionally one HP DL980 CPU Assembly: P/N: AM442A Intel® Xeon® 7500/6500 series or AM450A for Intel® Xeon® E7-4800 and E7-2800 Series Processors will be required. AM451A is required base configuration for Intel® Xeon® E7-4800 and E7-2800 Series Processors.

Ten-Core Processors

HP DL980 G7 Intel® Xeon® E7-2850 (2.0Ghz/10-core/24MB/130W) FIO 4-processor Kit **NOTE:** QPI speed is 6.4GT/s	650768-L21
HP DL980 G7 Intel® Xeon® E7-2860 (2.26GHz/10-core/24MB/130W) FIO 4-processor Kit **NOTE:** QPI speed is 6.4GT/s	650769-L21
HP DL980 G7 Intel® Xeon® E7-4870 (2.4GHz/10-core/30MB/130W) FIO 4-processor Kit **NOTE:** QPI speed is 6.4GT/s	650770-L21

Eight-Core Processors

Configuration Information - Factory Integrated Models

	HP DL980 G7 Intel® Xeon® E7-2830 (2.13GHz/8-core/24MB/105W) FIO 4-processor Kit **NOTE:** QPI speed is 6.4GT/s	650767-L21
	HP DL980 G7 Intel® Xeon® X7560 (2.27GHz/8-core/24MB/130W) FIO 4-processor Kit **NOTE:** QPI speed is 6.4GT/s	597871-L21
	HP DL980 G7 Intel® Xeon® X6550 (2GHz/8-core/18MB/130W) FIO 4-processor Kit **NOTE:** QPI speed is 6.4GT/s	597870-L21
	Six-Core Processors	
	HP DL980 G7 Intel® Xeon® E7-4807 (1.86GHz/6-core/18MB/95W) FIO 4-processor Kit **NOTE:** QPI speed is 4.8GT/s	650766-L21
	HP DL980 G7 Intel® Xeon® E6540 (2GHz/6-core/18MB/105W) FIO 4-processor Kit **NOTE:** QPI speed is 6.4GT/s	597869-L21
	Quad-Core Processors	
	HP DL980 G7 Intel® Xeon® E7520 (1.86GHz/4-core/18MB/95W) FIO 4-processor Kit **NOTE:** QPI speed is 4.8GT/s	597868-L21
HP Memory	**Registered DIMMs (RDIMMs)**	
	HP 2GB (1x2GB) Dual Rank x8 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit	500656-B21
	HP 4GB (1x4GB) Single Rank x4 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit	593339-B21
	HP 4GB (1x4GB) Single Rank x4 PC3L-10600 (DDR3-1333) Registered CAS-9 Low Power Memory Kit **NOTE:** For Intel Xeon E7 Family only.	604504-B21
	HP 8GB (1x8GB) Dual Rank x4 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit	500662-B21
	HP 8GB (1x8GB) Dual Rank x4 PC3L-10600 (DDR3-1333) Registered CAS-9 Low Power Memory Kit **NOTE:** For Intel Xeon E7 Family only.	604506-B21
	HP 16GB (1x16GB) Quad Rank x4 PC3-8500 (DDR3-1066) Registered CAS-7 Memory Kit	500666-B21
	HP 16GB (1x16GB) Dual Rank x4 PC3L-10600 (DDR3-1333) Registered CAS-9 LP Memory Kit **NOTE:** For Intel Xeon E7 Family only.	627812-B21
	HP DL580G7/DL980G7 Memory Cartridge	588141-B21
	HP DL580G7/DL980G7 (E7) Memory Cartridge	644172-B21
HP Optical Drives	HP Slim 12.7mm SATA DVD-ROM Optical Drive	481041-B21
	HP Slim 12.7mm SATA DVD-RW Optical Drive	481043-B21

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

HP Insight Software	HP Insight Control including 1yr 24x7 Support ProLiant ML/DL/BL-bundle Single Server FIO License	582765-B21
	HP Insight Control for Linux including 1yr 24x7 Support ML/DL Bundle 1 Server FIO License	TC203A

Configuration Information - Factory Integrated Models

Step 4: Choose Additional Options for Factory Integration

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

QuickSpecs

Core Options

NOTE: Some options may not be integrated at the factory. To ensure only valid configurations are ordered, HP recommends the use of an HP approved configurator. Contact your local sales representative for additional information.

HP Unique Options	HP DL580 G7 PCI Express Kit	588137-B21
	NOTE: Adds four PCI-E 2.0 x8, one PCI-E 2.0 x4 and one PCI-E 1.1 x4.	
	HP DL580 G7 PCI-X Combo Express Kit	588139-B21
	NOTE: Adds two PCI-E 2.0 x16, one PCI-E 2.0 x4 and two PCI-X.	
	NOTE: Suggested Slot placement:	

   1. Slot 3 PCIe2 x 16 (16,8,4,2,1)
   2. Slot 6 PCIe2 x 16 (16,8,4,2,1)
   3. Slot 9 PCIe2 x 16 (8,4,2,1)*
   4. Slot 11 PCIe2 x 16 (8,4,2,1)*
      Slot 9 and 11 are physically a x16 slot but will operate electrically at x8

	HP DL980 LP PCIe I/O Expansion Module	AM434A
	NOTE: Adds four PCI-E 2.0 x8, one PCI-E 2.0 x4.	
	HP DL980 G7 CPU Installation Assembly Kit	AM442A
	NOTE: Required for 8P configurations only. Used for Intel Xeon 7500/6500 Series Processors.	
	HP DL980 E7 Series CPU Installation Assembly	AM450A
	NOTE: Required for 8P configurations only. This part number will be used for Intel Xeon E7-4800 and E7-2800 Series Processors.	

HP Processors	**NOTE:** Each processor kit contains four processors. 8P configurations require one HP DL980 CPU Assembly (P/N: AM442A or AM450A)	
	Ten-Core Processors	
	HP DL980 G7 Intel® Xeon® E7-2850 (2.0Ghz/10-core/24MB/130W) 4-processor Kit	650768-B21
	NOTE: QPI speed is 6.4GT/s	
	HP DL980 G7 Intel® Xeon® E7-2860 (2.26GHz/10-core/24MB/130W) 4-processor Kit	650769-B21
	NOTE: QPI speed is 6.4GT/s	
	HP DL980 G7 Intel® Xeon® E7-4870 (2.4GHz/10-core/30MB/130W) 4-processor Kit	650770-B21
	NOTE: QPI speed is 6.4GT/s	
	Eight-Core Processors	
	HP DL980 G7 Intel® Xeon® E7-2830 (2.13GHz/8-core/24MB/105W) 4-processor Kit	650767-B21
	NOTE: QPI speed is 6.4GT/s	
	HP DL980 G7 Intel® Xeon® X7560 (2.27GHz/8-core/24MB/130W) 4-processor Kit	597871-B21
	NOTE: QPI speed is 6.4GT/s	
	HP DL980 G7 Intel® Xeon® X6550 (2GHz/8-core/18MB/130W) 4-processor Kit	597870-B21
	NOTE: QPI speed is 6.4GT/s	
	Six-Core Processors	
	HP DL980 G7 Intel® Xeon® E7-4807 (1.86GHz/6-core/18MB/95W) 4-processor Kit	650766-B21
	NOTE: QPI speed is 4.8GT/s	
	HP DL980 G7 Intel® Xeon® E6540 (2GHz/6-core/18MB/105W) 4-processor Kit	597869-B21
	NOTE: QPI speed is 6.4GT/s	
	Quad-Core Processors	
	HP DL980 G7 Intel® Xeon® E7520 (1.86GHz/4-core/18MB/95W) 4-processor Kit	597868-B21
	NOTE: QPI speed is 4.8GT/s	

Core Options

HP Memory	**Registered DIMMs (RDIMMs)**	
	HP 2GB (1x2GB) Dual Rank x8 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit	500656-B21
	HP 4GB (1x4GB) Single Rank x4 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit	593339-B21
	HP 4GB (1x4GB) Single Rank x4 PC3L-10600 (DDR3-1333) Registered CAS-9 Low Power Memory Kit **NOTE:** For Intel Xeon E7 Family only.	604504-B21
	HP 8GB (1x8GB) Dual Rank x4 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit	500662-B21
	HP 8GB (1x8GB) Dual Rank x4 PC3L-10600 (DDR3-1333) Registered CAS-9 Low Power Memory Kit **NOTE:** For Intel Xeon E7 Family only.	604506-B21
	HP 16GB (1x16GB) Quad Rank x4 PC3-8500 (DDR3-1066) Registered CAS-7 Memory Kit	500666-B21
	HP 16GB (1x16GB) Dual Rank x4 PC3L-10600 (DDR3-1333) Registered CAS-9 LP Memory Kit **NOTE:** For Intel Xeon E7 Family only.	627812-B21
	HP DL580G7/DL980G7 Memory Cartridge	588141-B21
	HP DL580G7/DL980G7 (E7) Memory Cartridge	644172-B21
	NOTE: Eight memory boards come standard in all pre-configured and CTO models. A maximum of 16 memory boards are supported in the server (requires installation of the HP DL980 CPU Assembly P/N: AM442A or AM450A).	

HP Optical Drives	HP Slim 12.7mm SATA DVD-ROM Optical Drive	481041-B21
	HP Slim 12.7mm SATA DVD-RW Optical Drive	481043-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 hard drive QuickSpecs for details.	
	SAS Hot Plug SFF (2.5-inch) Enterprise (ENT) Drives	
	HP 900GB 6G SAS 10K rpm SFF (2.5-inch) Enterprise 3yr Warranty Hard Drive	619291-B21
	HP 600GB 6G SAS 10K rpm SFF (2.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	581286-B21
	HP 450GB 6G SAS 10K rpm SFF (2.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	581284-B21
	HP 300GB 6G SAS 10K rpm SFF (2.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	507127-B21
	HP 146GB 6G SAS 15K rpm SFF (2.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	512547-B21
	HP 72GB 6G SAS 15K rpm SFF (2.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	512545-B21
	NOTE: Please see the QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/12244_div/12244_div.html (Worldwide)	
	SATA Hot Plug Midline (MDL) Solid State Drives	
	HP 60GB 3G SATA SFF (2.5-inch) Midline 1yr Warranty Solid State Drive	572071-B21
	HP 120GB 3G SATA SFF (2.5-inch) Midline 1yr Warranty Solid State Drive	572073-B21

Core Options

	NOTE: Please see the QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/13415_div/13415_div.html (Worldwide)	
	6G SAS Hot Plug Enterprise Performance Solid State Drives	
	HP 400GB 6G SAS SLC SFF (2.5-inch) Enterprise Performance 3yr Warranty Solid State Drive	632494-B21
	HP 200GB 6G SAS SLC SFF (2.5-inch) Enterprise Performance 3yr Warranty Solid State Drive	632492-B21
	NOTE: Please see the QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/14038_div/14038_div.html (Worldwide)	
HP Networking	**Gigabit Ethernet Adapters**	
	HP NC112T PCI Express Gigabit Server Adapter	503746-B21
	HP NC360T PCI-E Dual Port Gigabit Server Adapter	412648-B21
	HP NC364T PCI-E Quad Port Gigabit Server Adapter	435508-B21
	NOTE: This card is only supported with AM426A Chassis **NOTE:** There is a maximum of five NC364T PCI Express Quad Port Gigabit Server Adapter NICs allowed in this server.	
	HP NC375T PCI Express Quad Port Gigabit Server Adapter	538696-B21
	HP NC365T 4-port Ethernet Server Adapter	593722-B21
	HP NC382T PCI Express Dual Port Multifunction Gigabit Server Adapter	458492-B21
	10 Gigabit Ethernet Adapters **NOTE:** The DL980 G7 can support up to four NC550SFP or four NC523SFP per server under Windows Server 2008, R2, RHEL 5.5 and SLES 11 **NOTE:** A minimum of two Gigabytes (2 GB) of server memory is required per each adapter. **NOTE:** Direct Attach Cable (DAC) for copper environments or fiber transceivers and cables for fiber-optic environments must be purchased separately.	
	HP NC522SFP Dual Port 10GbE Gigabit Server Adapter	468332-B21
	NOTE: This card is only supported with AM426A Chassis	
	HP NC523SFP 10Gb 2-port Server Adapter	593717-B21
	HP NC524SFP Dual Port 10GbE Module	489892-B21
	HP NC550SFP Dual Port 10GbE Server Adapter	581201-B21
	HP NC552SFP 10Gb 2-port Ethernet Server Adapter	614203-B21
	NOTE: Please see the QuickSpecs for Technical Specifications and additional information: www.hp.com/go/ProLiantNICs	
	Smart-mini DIMM Module	
	HP 512MB DDR2 244P Mini DIMM Module Kit	519808-B21
	NOTE: By plugging the Smart-mini DIMM Module to the HP NC375i Integrated Quad Port Multifunction Gigabit Server Adapter, TCP/IP Offload Engine (TOE) for Windows is enabled/supported.	
HP InfiniBand	HP InfiniBand 4X DDR ConnectX-2 PCIe G2 Dual Port HCA	592521-B21
	HP InfiniBand 4X QDR ConnectX-2 PCIe G2 Dual Port HCA	592520-B21
	NOTE: Please see the QuickSpecs for additional information: http://h18000.www1.hp.com/products/quickspecs/13078_div/13078_div.html	

Core Options

HP I/O Expansion Options

HP DL580 G7 PCI-X Combo Express Kit   588139-B21
NOTE: Adds two PCI-E 2.0 x16, one PCI-E 2.0 x4 and two PCI-X.
NOTE: Suggested Slot placement:

1. Slot 3 PCIe2 x 16 (16,8,4,2,1)
2. Slot 6 PCIe2 x 16 (16,8,4,2,1)
3. Slot 9 PCIe2 x 16 (8,4,2,1)*
4. Slot 11 PCIe2 x 16 (8,4,2,1)*
   Slot 9 and 11 are physically a x16 slot but will operate electrically at x8

HP DL580 G7 PCI Express Kit   588137-B21
NOTE: Adds four PCI-E 2.0 x8, one PCI-E 2.0 x4 and one PCI-E 1.1 x4.

Low Profile PCI Express I/O Expansion Kit   AM434A
NOTE: Adds four PCI-E 2.0 x8, one PCI-E 2.0 x4.

HP Power Supplies

NOTE: 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/hppoweradvisor

HP 1200W Common Slot Platinum Hot Plug Power Supply Kit   578322-B21

Additional Options

NOTE: Some options may not be integrated at the factory. To ensure only valid configurations are ordered, HP recommends the use of an HP approved configurator. Contact your local sales representative for additional information.

HP Insight Software	**HP Insight Control**	
	HP Insight Control including 1yr 24x7 Technical Support and Updates Electronic License	T9074BAE
	HP Insight Control including 1yr 24x7 Support ProLiant ML/DL/BL-bundle Electronic License	TC278AAE
	HP Insight Control including 1yr 24x7 Technical Support and Updates Single Server License	452148-B22
	HP Insight Control including 1yr 24x7 Support ProLiant ML/DL/BL-bundle Tracking License	TC275A
	HP Insight Software Media Kit	436222-B21

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_div/12631_div.html

HP Insight Control for Linux

HP Insight Control for Linux including 1yr 24x7 Support Electronic License	TC213AAE
HP Insight Control for Linux including 1yr 24x7 Support Single Server License	TC209A
HP Insight Control for Linux Media Kit	TC208A

NOTE: Licenses ship without media. The Media Kit for Insight Control for Linux can be ordered separately, or can be downloaded at: http://www.hp.com/go/ic-linux (click on Download button).
NOTE: Electronic licenses can be used to purchase multiple licenses with a single activation key, and are 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, which 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 licensing options, please see the QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/13019_div/13019_div.html

HP Integrated Lights-Out Advanced (iLO Advanced)

HP iLO Advanced including 1yr 24x7 Technical Support and Updates Electronic License	TA850AAE
HP iLO Advanced including 1yr 24x7 Technical Support and Updates Single Server License	512485-B21

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: Electronic software is available in all countries except China and Japan. Customers in China and Japan should order the physical equivalent.
NOTE: For additional license kits, including electronic delivery options, please see the QuickSpecs at:

Additional Options

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

HP Insight Control server deployment

HP Insight Control Server Deployment including 1yr 24x7 Support Electronic License	T9082AAE
HP Insight Control Server Deployment including 1yr 24x7 Support Single Server License	452151-B21

NOTE: Licenses ship without media. The Insight Control Media Kit can be ordered separately, or can be downloaded at:
http://www.hp.com/go/insightupdates.
NOTE: Electronic licenses can be used to purchase multiple licenses with a single activation key, and 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, which must be redeemed online or via fax in order to obtain the license activation key(s). Includes one year of 24 x 7 HP Software Technical Support Service.
NOTE: For additional license kits please see the Insight Control QuickSpecs at:
http://h18004.www1.hp.com/products/quickspecs/12631_div/12631_div.html

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High Performance Clusters	**HP Cluster Management Utility**	
	HP Cluster Management Utility Compute Node Flexible License	QL803A

NOTE: This part number can be used to purchase one certificate for multiple licenses with a single activation key. Each license is for one node (server). Customer will receive a printed end user license agreement and license entitlement certificate via physical shipment. The license entitlement certificate must be redeemed online in order to obtain a license key.

HP Cluster Management Utility License and Media	433257-B21

NOTE: Order a minimum of one license per cluster to purchase media including software and documentation, which will be delivered to the customer, and also licenses CMU management. No license key is delivered or required.

NOTE: For additional license kits please see the QuickSpecs at:
http://h18004.www1.hp.com/products/quickspecs/12612_div/12612_div.html

HP HPC Linux Value Pack

HP High Performance Computing Linux Value Pack 1 Processor Flexible License	TC293B

NOTE: This part number can be used to purchase one certificate for multiple licenses with a single activation key. Each license is for one socket (a.k.a. processor). Customer will receive a printed end user license agreement and license entitlement certificate via physical shipment. The license entitlement certificate must be redeemed online in order to obtain a license key.

HP High Performance Computing Linux Value Pack Media Kit	TC294A

NOTE: This part number can be used to purchase media including software and documentation, which will be delivered to the customer.

NOTE: For additional license kits please see the QuickSpecs at:
http://h18004.www1.hp.com/products/quickspecs/13485_div/13485_div.html

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HP Graphics Options	HP DL580/DL585/DL980 G7 Power Cable Kit	631660-B21

NOTE: The HP ProLiant DL980 G7 can support up to 4 (225W) or 3 (300W) Graphic Cards and/or GPGPU Accelerator Options
NOTE: An option kit will be required per Graphic Card and/or GPGPU Accelerator Options.
NOTE: Depending on the number of GPGPUs required, customers will need to purchase the following I/O expansion boards: DL580G7 PCI-X / PCI Express I/O Exp. Kit: PN: 588139-B21 (Adds two PCI-E 2.0 x16, one PCI-E 2.0 x4 and two PCI-X).

Additional Options

HP I/O Accelerator Options	HP 160GB Single Level Cell PCIe ioDrive for ProLiant Servers	600278-B21
	NOTE: A low-profile PCI bracket is included for use in low-profile slots.	
	HP 320GB Multi Level Cell PCIe ioDrive for ProLiant Servers	600279-B21
	NOTE: A low-profile PCI bracket is included for use in low-profile slots.	
	HP 320GB Single Level Cell PCIe ioDrive Duo for ProLiant Servers	600281-B21
	HP 640GB Multi Level Cell PCIe ioDrive Duo for ProLiant Servers	600282-B21
	HP 1.28TB Multi Level Cell PCIe IO Accelerator	641027-B21

NOTE: Please see the QuickSpecs for Technical Specifications and additional information:
http://h18000.www1.hp.com/products/quickspecs/13587_div/13587_div.html (Worldwide)

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

NOTE: 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.

HP Storage Controllers | **SAS Controllers**

Smart Array P212 Controller

HP Smart Array P212/256 1-ports Int/1-ports Ext PCIe x8 SAS Controller	462834-B21

Smart Array P411 Controller

HP Smart Array P411/256 2-ports Ext PCIe x8 SAS Controller	462830-B21
HP Smart Array P411/512 FBWC 2-ports Ext PCIe x8 SAS Controller	578229-B21
HP Smart Array P411/1G FBWC 2-ports Ext PCIe x8 SAS Controller	572531-B21

Smart Array P812 Controller

HP Smart Array P812/1G FBWC 2-ports Int/4-ports Ext PCIe x8 SAS Controller	487204-B21

Optional Upgrades
NOTE: Maximum of two battery or FBWC kits (for Smart Array Controllers) can be installed in upper full height/full length (FH/FL) I/O slot area. Maximum of one battery or FBWC kit (for Smart Array Controller) can be installed in lower low profile (LP) I/O slot area.

HP 650 mAh P-Series Battery	462969-B21

NOTE: Supported on HP Smart Array P212 Controller and HP Smart Array P411 Controller only.

HP 1GB Flash Backed Cache	534562-B21
HP 512MB Flash Backed Write Cache	534916-B21
HP Smart Array Advanced Pack including 1yr 24x7 Technical Support and Updates Single Server License	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.

Additional Options

NOTE: Please see the QuickSpecs for Technical Specifications and additional information:
http://h18000.www1.hp.com/products/quickspecs/13203_div/13203_div.html (Smart Array P212 Controller)
http://h18000.www1.hp.com/products/quickspecs/13202_div/13202_div.html (Smart Array P411 Controller)
http://h18000.www1.hp.com/products/quickspecs/13558_div/13558_div.html (Smart Array P812 Controller)
http://h18000.www1.hp.com/products/quickspecs/13200_div/13200_div.html (Smart Array Advanced Pack)

SAS HBA

HP SC08Ge 2-ports Ext PCIe x8 SAS Host Bus Adapter	488765-B21

NOTE: This card is supported only in the AM426A Chassis

HP Modular Smart Array SC08e 2-ports Ext PCIe x8 SAS Host Bus Adapter	614988-B21

NOTE: This is a 2 x4 External Port HBA
NOTE: This is only approved for the HP P2000 G3 SAS Modular Smart Array.

NOTE: Please see the QuickSpecs for Technical Specifications and additional information:
http://h18004.www1.hp.com/products/quickspecs/13082_div/13082_div.html (SC08Ge HBA)
http://h18004.www1.hp.com/products/quickspecs/13651_div/13651_div.html (SC08e 6Gb HBA)

HP Power Cords

HP 1.83m 10A C13 CZ Power Cord	AF565A
HP 1.83m 10A C13 DK Power Cord	AF566A
HP 1.83m 10A C13 EU Power Cord	AF568A
HP 1.83m 10A C13 UK Power Cord	AF570A
HP 1.83m 10A C13 IT/CL Power Cord	AF571A
HP 2.5m 10A C13 ZA Power Cord	AF567A

HP Tape Backup

NOTE: For the complete range of tape drives, autoloaders, libraries and media see: http://www.hp.com/go/tape. For hardware and software compatibility of HP tape backup products see: http://www.hp.com/go/connect.

HP StorageWorks DAT 320 USB (1) in 1U Rack-mount Kit	AP835A
HP StorageWorks DAT 320 SAS Internal Tape Drive	AJ830A

NOTE: For installation into 1U SAS rack kit (AE459B) or 3U SAS rack kit (AG576B). No peripheral bay available for installation into the server. Connection using HP P212 Smart Array Controller SAS (462828-B21) recommended.

HP StorageWorks Ultrium 920 SAS Internal Tape Drive	EH847A

NOTE: For installation into 1U SAS rack kit (AE459B) or 3U SAS rack kit (AG576B). No peripheral bay available for installation into the server. Connection using HP P212 Smart Array Controller SAS (462828-B21) recommended.

HP StorageWorks LTO-4 Ultrium 1760 SAS Internal WW Tape Drive	EH919A

NOTE: For installation into 1U SAS rack kit (AE459B) or 3U SAS rack kit (AG576B). No peripheral bay available for installation into the server. Connection using HP P212 Smart Array Controller SAS (462828-B21) recommended.

HP StorageWorks LTO-4 Ultrium 1840 SAS Internal Tape Drive	EH860A

NOTE: For installation into 3U SAS rack kit (AG576B). No peripheral bay available for installation into the server. Connection using HP P212 Smart Array Controller SAS (462828-B21) recommended.

HP StorageWorks LTO-5 Ultrium 3280 SAS Internal Tape Drive	EH899A

NOTE: For installation into 3U SAS rack kit (AG576B). No peripheral bay available for installation into the server. Connection using HP P212 Smart Array Controller SAS (462828-B21) recommended.

Additional Options

	HP StorageWorks 1/8 G2 LTO-5 Ultrium 3000 SAS Tape Autoloader **NOTE:** Requires HP 1U Tape Autoloader Rack Kit (AH166A) for rack installation. Connection using HP P212 Smart Array Controller SAS (462828-B21) recommended.	BL536A
	HP StorageWorks MSL2024 1 LTO-5 Ultrium 3000 SAS Tape Library **NOTE:** Connection using HP P212 Smart Array Controller SAS (462828-B21) recommended.	BL537A
	HP StorageWorks MSL4048 2 LTO-5 Ultrium 3000 SAS Tape Library **NOTE:** Connection using HP P212 Smart Array Controller SAS (462828-B21) recommended.	BL538A
	HP StorageWorks MSL8096 2 LTO-5 Ultrium 3000 SAS Tape Library **NOTE:** Connection using HP P212 Smart Array Controller SAS (462828-B21) recommended.	BL539A

HP Disk Backup	**NOTE:** For the complete range of D2D Backup Systems see: http://www.hp.com/go/d2d. For the complete range of RDX drives and media see: http://www.hp.com/go/rdx. For hardware and software compatibility of HP disk backup products see: http://www.hp.com/go/connect.	
	HP D2D Backup Systems with Backup Data Deduplication	
	HP StorageWorks D2D2504i Backup System **NOTE:** 3.0TB of useable network disk backup capacity. Network connected appliance with connectivity using the iSCSI protocol. If the server requires a hardware iSCSI initiator, the QLogic QLA4050 Host Bus Adapter is recommended.	EJ002B
	HP StorageWorks D2D4112 Backup System **NOTE:** 9.0TB (expandable to 18.0TB) of useable network disk backup capacity. Fibre Channel SAN connected appliance. Direct server attach is not supported, requires connection via SAN fabric.	EH993B
	HP RDX Removable Disk Backup Systems USB	
	HP StorageWorks RDX500 Internal Removable Disk Backup System **NOTE:** For installation into 1U USB Rack-Mount Kit (A8007A). No peripheral bay available for drive installation into the server. 500GB of disk capacity per data cartridge.	AJ934A

HP Storage Options	**Storage Fibre Channel HBA** **NOTE:** The following is a list of all Fibre Channel Host Bus Adapters for Windows and Linux. For detailed compatibility information please see: http://h18006.www1.hp.com/storage/saninfrastructure/hba.html	
	Brocade Fibre Channel HBAs	
	HP StorageWorks 81B PCIe 8Gb Fibre Channel Single Port Host Bus Adapter	AP769A
	HP StorageWorks 82B PCIe 8Gb Fibre Channel Dual Port Host Bus Adapter	AP770A
	HP StorageWorks 41B PCIe 4Gb Fibre Channel Single Port Host Bus Adapter	AP767A
	HP StorageWorks 42B PCIe 4Gb Fibre Channel Dual Port Host Bus Adapter	AP768A
	Emulex Fibre Channel HBAs	
	HP StorageWorks 81E 8Gb Single Port PCI-e Fibre Channel Host Bus Adapter	AJ762A
	HP StorageWorks 82E 8Gb Dual Port PCI-e Fibre Channel Host Bus Adapter	AJ763A
	HP StorageWorks FC2142SR 4Gb PCIe Host Bus Adapter	A8002A
	HP StorageWorks FC2242SR 4Gb PCIe DC Host Bus Adapter	A8003A
	QLogic Fibre Channel HBAs	
	HP StorageWorks 81Q PCI-e Fibre Channel Host Bus Adapter	AK344A
	HP StorageWorks 82Q 8Gb Dual Port PCI-e Fibre Channel Host Bus Adapter	AJ764A
	HP StorageWorks FC1142SR 4Gb PCIe Host Bus Adapter	AE311A

Additional Options

	HP StorageWorks FC1242SR 4Gb PCIe DC Host Bus Adapter	AE312A
	Storage SCSI HBA	
	HP StorageWorks U320e SCSI Dual Channel Host Bus Adapter	AH627A
	NOTE: Recommended HBA for MSL SCSI Tape Library connect.	
	Converged Network Adapter	
	HP StorageWorks CN1000E Dual Port Converged Network Adapter	AW520A
	NOTE: There is a maximum of two CN1000E 2P Converged Network Adapters allowed in this server.	
	HP CN1000Q Dual Port Converged Network Adapter	BS668A

HP Disk Storage Systems	**MSA SAN Storage Arrays**	
	HP StorageWorks Modular Smart Array 50 Enclosure	364430-B21
	NOTE: Please see the QuickSpecs for additional options and configuration information at: http://h18000.www1.hp.com/products/quickspecs/12245_div/12245_div.html (Worldwide)	
	Disk Enclosures	
	HP StorageWorks D2600 Disk Enclosure	AJ940A
	HP StorageWorks D2700 Disk Enclosure	AJ941A
	NOTE: Please see the QuickSpecs for additional options and configuration information at: http://h18000.www1.hp.com/products/quickspecs/13404_div/13404_div.html (Worldwide)	

HP Uninterruptible Power Systems	**HP Rack-mountable UPS**	
	HP R1500 G3 Uninterruptible Power Supply (UPS)	
	HP R1.5kVA G3 1U NA Uninterruptible Power System	AF469A
	HP R1.5kVA G3 1U JP/TW Uninterruptible Power System	AF470A
	HP R1.5kVA G3 1U INTL Uninterruptible Power System	AF471A
	NOTE: Please see the QuickSpecs for additional information: http://h18000.www1.hp.com/products/quickspecs/14059_div/14059_div.html (Worldwide)	
	HP R/T3000 Uninterruptible Power System (UPS)	
	HP R/T3000 3300VA High Voltage NA/JPN 2U Rackmount Uninterruptible Power System	AF453A
	HP R/T3000 3300VA INTL 2U Rackmount Uninterruptible Power System	AF454A
	NOTE: Please see the QuickSpecs for additional information: http://h18000.www1.hp.com/products/quickspecs/13417_div/13417_div.html (Worldwide)	
	HP R/T3000 G2 Uninterruptible Power System (UPS)	
	HP R/T3000 G2 2U L530 Low Voltage NA/JP Uninterruptible Power System	AF466A
	HP R/T3000 G2 2U L620 High Voltage NA/JP Uninterruptible Power System	AF467A
	HP R/T3000 G2 2U Detachable Cord High Voltage INTL Uninterruptible Power System	AF468A
	NOTE: Please see the QuickSpecs for additional information: http://h18000.www1.hp.com/products/quickspecs/14058_div/14058_div.html (Worldwide)	
	HP Rack-Mountable R5500 UPS	
	HP R5500 6000VA INTL 3U Rackmount Uninterruptible Power System	AF416A
	HP R5500 5000kVA NA/JP 3U Rackmount Uninterruptible Power System	AF426A

QuickSpecs

Additional Options

NOTE: Please see the QuickSpecs for additional information:
http://h18000.www1.hp.com/products/quickspecs/11871_div/11871_div.html
(Worldwide)

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.

NOTE: 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.

HP Power Distribution Unit		
	HP Monitored Power Distribution Unit: Half Rack Version	
	HP Single Input 1 Phase 24A Monitored Power Distribution Unit	AF914A
	HP Single Input 1 Phase 32A Monitored Power Distribution Unit	AF915A
	HP Monitored Power Distribution Unit: Full Rack Version	
	HP Single Input 3 Phase 24A Monitored Power Distribution Unit	AF504A
	HP Single Input 1 Phase 40A Monitored Power Distribution Unit	AF506A
	HP Single Input 3 Phase 16A Monitored Power Distribution Unit	AF508A
	HP Single Input 1 Phase 32A INT Monitored Power Distribution Unit	AF510A

NOTE: Please see the following QuickSpecs for additional information:
http://h18000.www1.hp.com/products/quickspecs/12118_div/12118_div.html
(Worldwide)

Modular Power Distribution Units 1U/0U (Up to 32 outlets)
NOTE: 1U/0U mounting brackets shipped with the unit (optimized for 10000 and
9000 series racks).

HP 32A High Voltage Modular Power Distribution Unit		252663-B31
HP 16A High Voltage Modular Power Distribution Unit		252663-B24

NOTE: This PDU has a detachable input power cord and allows for adaptability
to country specific power requirements.

NOTE: Please see the following QuickSpecs for additional options including
shorter jumper cables and country specific power cords:
http://h18000.www1.hp.com/products/quickspecs/11041_div/11041_div.html
(Worldwide)
NOTE: For additional information on HP Power Distribution Units including
accessories please go to: www.hp.com/go/pdu.

NOTE: 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.

Additional Options

HP Rack Series	**HP Rack 10000 G2 Series** (Carbon/Graphite Metallic)	
	HP 10642 G2 Pallet Universal Rack	AF001A
	HP 10642 G2 Shock Universal Rack	AF002A
	HP 10647 G2 Pallet Universal Rack	AF031A
	HP 10642 G2 1200mm deep Shock Rack	AF092A
	HP 10647 G2 1200mm deep Shock Rack	AF094A

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.

NOTE: 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 hole evenly distributed from top to bottom to permit adequate airflow (equivalent to the required 64 percent open area for ventilation). Side: The clearance between the installed rack component and the side panels of the rack must be a minimum of 2.75 inches (7 cm).

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

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.

HP Rack Options	**HP KVM Switch Options**	
	HP 2x1Ex16 KVM IP Console Switch G2 with Virtual Media CAC Software	AF621A
	HP 4x1Ex32 KVM IP Console Switch G2 with Virtual Media CAC Software	AF622A
	HP 0x2x16 KVM Server Console Switch G2 with Virtual Media CAC Software	AF618A
	HP 0x2x32 KVM Server Console Switch G2 with Virtual Media CAC Software	AF619A
	HP 1-pack PS/2 Virtual Media Interface Adapter	AF604A

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

	HP Server Console 0x2x8 Port Analog Switch	AF616A
	HP Server Console 0x2x16 Port Analog Switch	AF617A
	HP KVM CAT5 1-pack PS/2 Interface Adapter	262588-B21
	HP KVM CAT5 8-pack PS/2 Interface Adapter	262587-B21

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

	HP 1x4 USB/PS2 KVM Console Switch	AF611A
	HP 1x4 KVM Console 6ft PS2 Cable	AF612A

Additional Options

HP USB and SD Options	HP USB 2-Button Optical Scroll Mouse	DC172B
	HP USB 04 Standard Keyboard	DT528A#ABA
	HP 4GB Secure Digital High Capacity Flash Media Kit	580387-B21
	NOTE: Blank SD media device is supported for use with VMware. SD media must be installed in the internal slot of the ProLiant server. Learn more at: http://www.hp.com/go/proliantvirtualization.	
	HP 2GB USB Flash Media Drive Key Kit	608447-B21
	NOTE: HP qualified blank USB key for use with HP ProLiant servers that support the VMware virtualization environment and other HP value-add software like SmartStart. HP recommends this industry standard USB flash device for use with VMware ESXi. USB device must be installed in the internal slot of the ProLiant server for use with VMware ESXi. Refer to HP VMware Getting Started Guide for installation instructions.	

HP Care Pack Services	**Hardware Services On-site Service**	
	HP 3 year 4 hour 13x5 ProLiant DL980 Hardware Support	UV301E
	HP 3 year 4 hour 24x7 ProLiant DL980 Hardware Support	UV298E
	6-Hour Call to Repair, On-site Service 7-Day x 24-Hour Coverage, 3 Years (U.S. Part Number)	
	HP 3 year 6 hour 24x7 Call To Repair ProLiant DL980 Hardware Support	UV292E
	Installation & Start-up Services	
	HP Install ProLiant DL980 Hardware only	UV304E
	HP Startup ProLiant DL58x Service	U4618E
	HP Installation and Startup for Insight Control Server Deployment - previously Rapid Deployment Pack	U5683E
	Support Plus 24	
	HP 3 year Support Plus 24 for Microsoft OS ProLiant DL980 Service	UX131E
	HP 3 year Support Plus 24 for Linux Red Hat ProLiant DL980 Service	UX132E
	HP 3 year Support Plus 24 for Linux SuSe ProLiant DL980 Service	UX133E
	NOTE: For more information, customer/resellers can contact: http://www.hp.com/services/carepack	

Memory

HP ProLiant DL980 G7 Models

Memory Subsystem Architecture
Intel Xeon E7 Family, 7500 and 6500 series memory architecture is designed to take advantage of multiple stages of memory interleaving to reduce latency and increase bandwidth.

Each Intel Xeon E7, 7500 and 6500 series processor contains two Memory Controllers as shown in the Processor/Memory interconnect figure below. Each Memory controller has two Scalable Memory Interface (SMI) buses operating in lockstep where each SMI bus connects to a memory buffer. The purpose of the buffer is to convert SMI to DDR3. Each buffer has two DDR3 channels and can support up to four DIMMs for a total of eight DIMMs per cartridge.

- The number of DIMMs or ranks does not affect memory frequency, but can affect memory bandwidth and performance. All DIMMs will run at the highest possible frequency for a given processor.
- DDR3 memory speed is a function of the processors QPI bus speed such that
  - Processors with a QPI speed of 6.4GT will run memory at 1066MHz
  - Processors with a QPI speed of 4.8GT will run memory at 800 MHz

DIMM Installation guidelines
Each memory cartridge can support up to 8 DIMMs, for a system total of 128 DIMMs. When installing DIMM modules in the Memory Cartridge observe the following minimum guidelines:

- UDIMMs are not supported
- Minimum allowable configuration is 16 DIMMs (two DIMMs on each of the two cartridges connected to processor one through four.
- DIMMs must be installed as Quads (four DIMMs with identical characteristics). For configuration simplicity HP recommends using identical part numbered DIMMs throughout when possible.
- DIMM Quads MUST be populated in sequence by letter designation. Install DIMMs 1A and 8A on each cartridge first, followed by DIMMs 3B and 6B on each cartridge, then DIMMs 2C and 7C, and finally DIMMs 4D and 5D last.
- Maximum performance is achieved by balancing DIMM Quads by letter groupings across all memory cartridges. All 1A and 8A DIMMs should be installed (preferably with the same size DIMMs in all memory cartridges across the entire system) first, followed by the B DIMMs, C DIMMs and D DIMMs.

AMP modes Online Sparing and Memory Mirroring have further requirements beyond these listed here. Please refer to the user guide for additional memory configuration requirements.

Memory Cartridge population guidelines
This server contains 8 memory cartridge slots within each processor memory drawer. Observe the following guidelines:

- A memory cartridge must be installed in each slot.
- To maximize performance distribute the total memory capacity evenly between all memory cartridges.
- When operating the system in 40-bit address mode and installing 64x 16GB DIMMs (1TB total memory), the 64 DIMMs must be spread evenly across all 16 memory cartridges, or some of the memory will not be recognized.
- Memory configurations larger than 1TB require the use of 44-bit addressing mode.

Hemisphere mode
The Xeon EX architecture incorporates hemisphere mode, a high performance interleaving technology. Hemisphere mode allows interleaving between the two processor memory controllers internal to each processor.

The DL980 G7 always uses Hemisphere mode. This requires that for each processor, the two memory cartridges attached to the processor have matching memory configurations. If the two memory configurations are not equal, the DL980 G7 will ignore (waste) the extra memory in the larger configuration.

Memory Performance Optimization
The DL980 G7 supports 128 DIMMs across eight multi-core processors. While there are many DIMM population configurations that can support any desired total memory size, optimal performance can only be achieved when DIMMs are populated to take advantage of the Xeon EX architecture. The largest contributor to performance is to populate each DDR3 channel in each memory cartridge. To achieve this, the minimum DIMM count per cartridge is four. Maximum bandwidth is reached by fully populating all memory cartridges with the maximum number of eight DIMMs per cartridge.

Memory

- The more ranks per DIMM the higher the performance, so Quad rank DIMMs perform better than dual rank DIMMs.
- Performance is best when the installed DIMMs are all of equal size.

NOTE: Memory configurations listed do not apply to "Factory Integrated Models". Only registered (RDIMM) speeds of 1066 or 1333 running at 1066 are supported. UDIMMs are not supported.
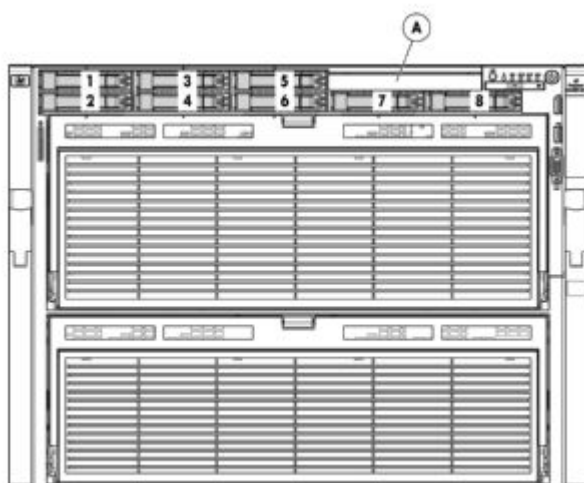
The following memory options are available from HP:

HP Memory	Registered DIMMs (RDIMMs)	
	HP 2GB (1x2GB) Dual Rank x8 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit	500656-B21
	HP 4GB (1x4GB) Single Rank x4 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit	593339-B21
	HP 4GB (1x4GB) Single Rank x4 PC3L-10600 (DDR3-1333) Registered CAS-9 Low Power Memory Kit **NOTE:** For Intel Xeon E7 Family only.	604504-B21
	HP 8GB (1x8GB) Dual Rank x4 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit	500662-B21
	HP 8GB (1x8GB) Dual Rank x4 PC3L-10600 (DDR3-1333) Registered CAS-9 Low Power Memory Kit **NOTE:** For Intel Xeon E7 Family only.	604506-B21
	HP 16GB (1x16GB) Quad Rank x4 PC3-8500 (DDR3-1066) Registered CAS-7 Memory Kit	500666-B21
	HP 16GB (1x16GB) Dual Rank x4 PC3L-10600 (DDR3-1333) Registered CAS-9 LP Memory Kit **NOTE:** For Intel Xeon E7 Family only.	627812-B21
	HP DL580G7/DL980G7 Memory Cartridge	588141-B21
	HP DL580G7/DL980G7 (E7) Memory Cartridge	644172-B21

Storage

A   DVD drive bay

1-8   SFF SAS internal drive cage

Drive Support

	Quantity Supported	Position Supported	Controller
Removable Media			
HP Slimline DVD Optical drive	1	A	Integrated SATA
HP Slim SATA DVD RW Optical Drive	1	A	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
900GB 6G SAS 10K	Up to 8	1-8	HP Smart Array P410i Controller (standard on server)
600GB 6G SAS 10K			HP Smart Array P812/1GB FBWC Controller
450GB 6G SAS 10K			
300GB 6G SAS 10K			
146GB 6G SAS 15K			
72GB 6G SAS 15K			

SATA Hot Plug Midline (MDL) Solid State Drives

	Quantity Supported	Position Supported	Controller
60GB 3G SATA SFF	Up to 8	1-8	HP Smart Array P410i Controller (standard on server)
120GB 3G SATA SFF			HP Smart Array P812/1GB FBWC Controller

6G SAS Hot Plug Enterprise Performance Solid State Drives

	Quantity Supported	Position Supported	Controller

Storage

200GB 6G SAS SLC SFF	Up to 8	1-8	HP Smart Array P410i Controller (standard on server)
400GB 6G SAS SLC SFF			HP Smart Array P812/1GB FBWC Controller

External Storage

	Quantity Supported	Position Supported	Host Controller or Adapter
D2600 Disk Enclosure	Up to 4	External	HP Smart Array P212/ 256 MB Controller
	Up to 8	External	HP Smart Array P411/256 MB Controller HP Smart Array P411/512 MB BBWC Controller HP Smart Array P411/1G FBWC Controller HP Smart Array P812 Controller
D2700 Disk Enclosure	Up to 2	External	HP Smart Array P212/256 MB Controller
	Up to 4	External	HP Smart Array P411/256 MB Controller HP Smart Array P411/512 MB BBWC Controller HP Smart Array P411/1G FBWC Controller HP Smart Array P812 Controller

Maximum Storage Capacity - (External SAS Enclosure Attached)

Internal	4.8TB (8 x 600GB SFF SAS Drives)
External	960TB (80 MSA60 enclosures x 12 drive bays each x 1TB SATA Drives)

Tape and Disk-Based Backup

NOTE: For the complete range of tape drives, autoloaders, libraries and media, including the internal fitting models, see: http://www.hp.com/go/tape. For the complete range of D2D Backup Systems see: http://www.hp.com/go/d2d. For the complete range ofRDX drives and media see: http://www.hp.com/go/rdx. For hardware and software compatibility of HP disk and tape backup products see: http://www.hp.com/go/connect.

	Position Supported	Controller	Controller Part Number
HP USB Tape Drives DAT 40 DAT 72 DAT 160 DAT 320 1U USB Rack-Mount Kit	External	USB 2.0 Port	N/A
HP SAS Tape Drives DAT 160 DAT 320 LTO-2 Ultrium 448 LTO-3 Ultrium 920 LTO-4 Ultrium 1760 LTO-4 Ultrium 1840 LTO-5 Ultrium 3000 LTO-5 Ultrium 3280 1U Rack-Mount Kit 3U Rack-Mount Kit	External	HP Smart Array P212/ZM 1-ports Int/1-ports Ext PCIe x8 SAS Controller	462828-B21

Storage

HP SCSI Tape Libraries MSL2024 MSL4048 MSL8096 MSL6000	External	HP StorageWorks U320e SCSI Dual Channel Host Bus Adapter	AH627A
HP SAS Tape Autoloaders and Libraries 1/8 G2 Autoloader MSL2024 MSL4048 MSL8096	External	HP Smart Array P212/ZM 1-ports Int/1-ports Ext PCIe x8 SAS Controller	462828-B21
HP USB RDX Removable Disk Backup System RDX160 RDX320 RDX500 RDX750	External	USB 2.0 port	N/A
HP D2D Backup Systems, iSCSI D2D2500i D2D4000i	External	Embedded Network Controller. If the server requires a hardware iSCSI initiator, the QLogic QLA4050 Host Bus Adapter is recommended.	
HP D2D Backup Systems, Fibre Channel D2D4000fc	External	Direct server attach is not supported, requires connection via SAN fabric. See: http://www.hp.com/go/connect	

QuickSpecs

Power Specifications

HP 1200W Common Slot Platinum Hot Plug Power Supply Kit					
Part Number	578322-B21				
Input Voltage Range (V rms)	200 to 240				
Frequency Range (Nominal) (Hz)	50/60				
Nominal Input Voltage (Vrms)	**200**	**208**	**220**	**230**	**240**
Maximum Rated Output Wattage Rating	1200	1200	1200	1200	1200
Nominal Input Current (A rms)	6.7	6.5	6.1	5.8	5.6
Maximum Rated Input Wattage Rating (Watts)	1290	1290	1290	1290	1290
Maximum Rated VA (Volt-Amp)	1345	1345	1345	1345	1345
Efficiency (%)	93	93	93	93	93
Power Factor	0.97				
Leakage Current (mA)	0.83	0.87	0.92	0.96	1.00
Maximum Inrush Current (A peak)	30				
Maximum Inrush Current duration (mS)	10				
Maximum British Thermal Unit Rating (BTU-Hr)	4403	4403	4403	4403	4403

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

QuickSpecs

Technical Specifications

System Unit Rack	**Dimensions** (H x W x D) (with bezel and XNC cables installed)	13.92 x 19.0 x 34.5 in (35.36 x 48.26 x 87.63 cm)	
	Weight (approximate)	Maximum (all hard drives, power supplies, and processors installed)	205 lb (93 kg)
		Minimum (one hard drive, power supply, and processor installed)	165 lb (75 kg)
	Input Requirements (per power supply)	Rated Line Voltage	200 - 240 VAC
		Rated Input Current	6.6A @ 200-240VAC
		Rated Input Frequency	50 - 60 Hz +/- 3hz
		Rated Input Power	1375W @ 200-240VAC
	BTU Rating	Maximum	14,330 BTU/hr (worst case configuration and utilization)
	Power Specifications	Maximum	4200 W (worst case configuration and utilization)
			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: DL980 G7 - Follow the instructions of the next screens.
	Power Supply Output (per power supply)	Rated Steady-State Power	1200W @ 200 - 240VAC
		Maximum Peak Power	1440W @ 200 - 240VAC
	System Inlet Temperature	Operating	10° to 35°C (50° to 95°F) at sea level with an altitude derating of 1.0°C per every 305 m (1.8°F per every 1000 ft) above sea level to a maximum of 3050 m (10,000 ft), no direct sustained sunlight. Maximum rate of change is 10°C/hr (18°F/hr). The upper limit may be limited by the type and number of options installed. System performance may be reduced if operating with a fan fault or above 30°C (86°F).
		Non-operating	-30° to 60°C (-22° to 140°F). Maximum rate of change is 20°C/hr (36°F/hr).
	Relative Humidity (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

Technical Specifications

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		
	L WAd	7.5 Bels
	L pAm	59.7 dB
Operating		
	L WAd	7.5 Bels
	L pAm	59.7 dB

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.

HP Slim SATA DVD RW Optical Drive	**Shipping Dimensions**	3.97 x 7.81 x 10.75 in (10.08 x 19.84 x 27.31 cm)		
	Shipping Weight	5 lb (2.27 kg)		
	Disk	**Applicable Disk**	DVD-ROM	
			DVD-R (Read Only)	
			DVD-R DL	
			DVD-RW	
			DVD+R	
			DVD+R DL	
			DVD+RW	
			DVD RAM	
			CD-ROM XA	
			CD-ROM Mode-1 data disc	
			CD-ROM Mode-2 data disc	
			CD Audio disc	
			CD-Extra	
			CD-RW	
			CD-R	
			Photo CD	
			CD-I	
			CD-DA	
		Capacity	DVD-ROM	DVD-SL	4.7 GB/side
				DVD-DL	8.5 GB/side
				Double Sided	9.40 GB/side
			DVD+/-R		4.7 GB/side
			DVD +/-RW		4.7 GB/side
			DVD-RAM		5.2 GB/side
			CD-ROM	Mode-1	650 MB (550 MB)
				Mode-2	742 MB (640 MB)

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		Block Size	DVD	2,048 bytes
			CD	2,352 (Mode-0)
				2352, 2340, 2336, 2048 bytes (Mode-1)
				2352, 2340, 2336, 2048 bytes (Mode-2)
		Diameter		120 mm (4.7 in), 80 mm (3.1 in) (with adapter at vertical mounting mode)
	Loading Mechanism	Tray type Manual Load		
	Interface	SATA 1.5		
	Access Times (typical)	Random	DVD-ROM < 120 ms, CD-ROM < 110 ms	
		Full-Stroke	DVD-ROM < 250 ms, CD-ROM < 210 ms	
	Data Transfer Rate (sustained)	DVD-ROM	Single Layer	10.8 MB/sec. Max.
		CD-ROM	3.6 MB/sec. Max.	
	Cache Buffer	2 MB		
	Spin-up Time (typical)	less than 15 seconds		
	MTBF	60,000 Power On Hours (POH)		
	Ambient Temperature	Operating	-41° to 122° F (5° to 50° C)	
		Storage/Transportation	-401° to 140° F (-30° to 60° C)	
	Dimensions	(HxWxD, maximum)	0.5 x 5.2 x 5.45 in (12.7 x 132 x 138 mm)	
	Option Kit Contents	DVD-RW drive with installation guide, warranty card, registration card		

Integrated Lights-Out 3 Standard (integrated on system board)	Architecture	PCI Express based health and remote management ASIC
	Processor	PCI Express RISC processor core running at 250MHz
	Upgradeability	Option firmware upgradeable via flash ROM
	Video Support	1600 x 1200 DVR max resolution
	Interfaces	One Ethernet Sideband connection (10/100/1000 Mb/s)
		One Ethernet network connection (10/100 Mb/s)
	Memory	128-MB DDR with ECC
	Operating System Support	Microsoft Windows Server 2008 R2 Enterprise Edition (64 bit)
		Microsoft Windows Server 2008 Enterprise Edition (64 bit)
		Red Hat Enterprise Linux 5.5 (64 bit)
		SUSE LINUX Enterprise Server 11 (64 bit)
		SUSE LINUX Enterprise Server 10 (64 bit)
		VMware ESX 4.1
	Client System Support	Microsoft Windows 7
		Microsoft Windows XP Professional Edition
		Microsoft Windows Vista Business and Ultimate Editions
		Red Hat Enterprise Desktop 5.00
		SUSE Linux Enterprise Desktop 11
		SUSE Linux Enterprise Desktop 10

Technical Specifications

	Client Browser Support	Microsoft Internet Explorer 8
		Microsoft Internet Explorer 7
		Microsoft Internet Explorer 6
		Firefox 3.5 (on supported Windows and Linux systems)
		Firefox 3.0 (on supported Windows and Linux systems)
	Command Line Support	Secure Shell and serial port access
		Secure Socket Layer
		Secure Shell version 2
	Security	Advanced Encryption Standard (AES) and Triple Data Encryption Standard (3DES) on browser, CLP and XML scripting interface
		AES encryption of video
		RC4 encryption of video
	Directory Support Services	Active Directory v1.0 (Windows 2003)
	Driver Support	HP ProLiant iLO 3 Management Controller Driver
	Management protocols supported	SNMP, IPMI 2.0 (system and LAN interface), DMTF Systems Management Architecture for Server Hardware Command Line Protocol (SMASH CLP), HP RIBCL XML

Smart Array P410i Controller	**Disk Drive and Enclosure Interface**	6Gb/s SAS (Serial Attached SCSI)
	SAS Connectors	2 internal (mini SAS) x8 wide port connectors
	Cache Memory Speed	DDR2-800MHz with 40 or 72-bit wide bus provides up to 4.2GB/s maximum bandwidth
	Server Interface	x4 PCIe provides 2GB/s maximum bandwidth.
	SAS Speed	x8 6G SAS provides 4.8GB/s maximum bandwidth.
	Cache Memory	72-bit 512MB or 1GB Flash backed write cache transportable with flash upgrade.
	Logical Drives Supported	Up to 64 logical drives
	Maximum Logical Drive Capacity	Greater than 2TB
	Host Memory Addressing	64-bit, supporting greater than 4GB server memory space
	RAID Support	RAID 6, 6+0 (Advanced Data Guarding) **NOTE:** RAID 6, 6+0 can be enabled with either:

* Minimum of 512MB FBWC and Smart Array Advanced Pack License Key option upgrades

RAID 5, 5+0 (Distributed Data Guarding)
NOTE: A minimum of 512MB FBWC is required to enable RAID 5, 5+0 support of the Smart Array P410i
RAID 1+0 (Striping & Mirroring)
RAID 0 (Striping)

QuickSpecs

Technical Specifications

HP NC375i Integrated Quad Port Multifunction Gigabit Server Adapter	Network Interface Compatibility	10Base-T/100Base-TX/1000Base-TX
		IEEE 802.3 10Base-T
		IEEE 802.3ab 1000Base-T
		IEEE 802.3u 100Base-TX
		IEEE 802.3ad 1000Base-TX
		IEEE 802.1p 100Base-TX
		IEEE 802.1q 100Base-TX
	Data Transfer Method	PCI-Express 2.0 (x8)
	Controller	Qlogic/NetXen NX3031
	Network Transfer Rate	10Base-T (Full-Duplex) — 20 Mb/s
		100Base-TX (Full-Duplex) — 200 Mb/s
		1000Base-TX (Full-Duplex) — 2000 Mb/s
	Connector	RJ-45
	Cable Support	10Base-T — Categories 3, 4, or 5 UTP; up to 328 ft (100 m)
		100Base-TX — Category 5 or higher UTP; up to 328 ft (100 m)
		1000Base-TX — Category 5 or higher UTP; up to 328 ft (100 m)

Environment-friendly Products and Approach	End-of-life Management and Recycling	Hewlett-Packard offers end-of-life HP product return, trade-in, and recycling programs in many geographic areas. For trade-in information, please go to: http://www.hp.com/go/green. To recycle your product, please go to: http://www.hp.com/go/green or contact your nearest HP sales office. Products returned to HP will be recycled, recovered or disposed of in a responsible manner.
		The EU WEEE directive (2002/95/EC) requires manufacturers to provide treatment information for each product type for use by treatment facilities. This information (product disassembly instructions) is posted on the Hewlett Packard web site at: http://www.hp.com/go/green. These instructions may be used by recyclers and other WEEE treatment facilities as well as HP OEM customers who integrate and re-sell HP equipment.