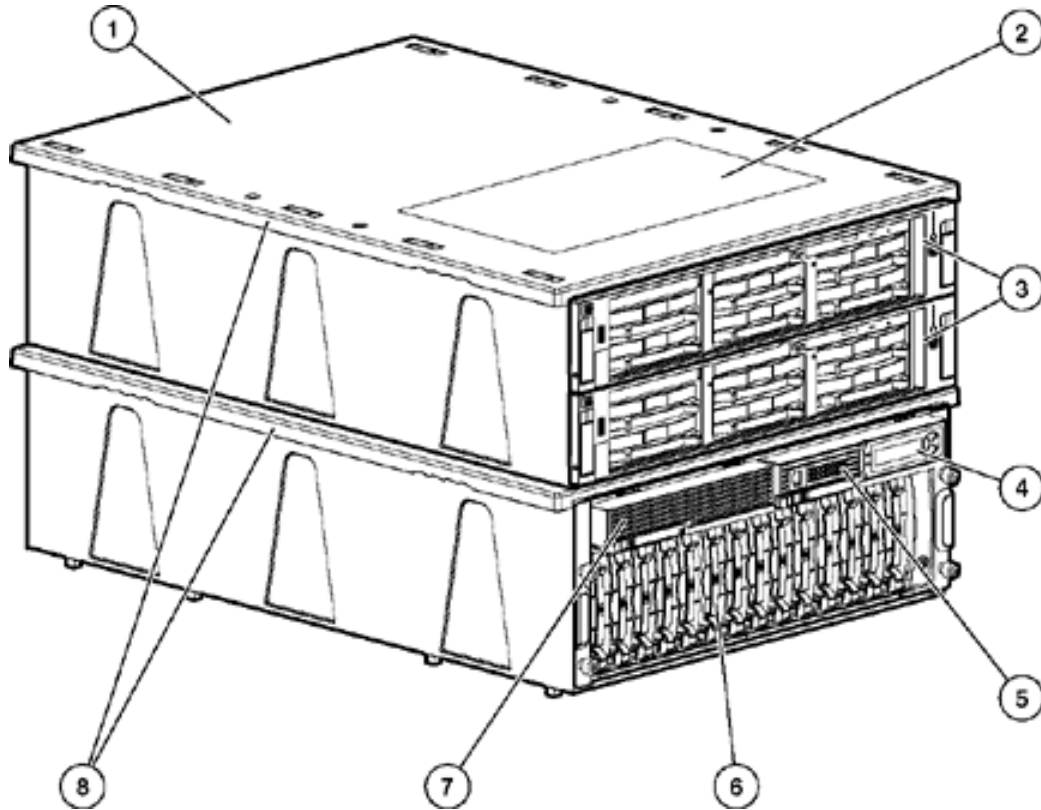# QuickSpecs

Overview

1. Configuration Fixture	5. Modular Smart Array 500 G2 Controller LED
2. Cluster Component Label	6. 4U Shared Storage with 14 1" Hot Plug Hard drives Bays
3. Two 2U Servers	7. Redundant Smart Array Controller Bay
4. Modular Smart Array 500 G2 Controller	8. Lifting Rails

What's New

- Features DL380 G4 3.4 GHz Servers
- Now supports Ultra320 RAID controller with 256-MB battery-backed cache, upgrade to 512-MB cache
- End-to-end Ultra320 SCSI technology
- Increase standard battery-backed cache to 256MB on the MSA500 G2 controller
- New Rapid Drive Rebuild technology in MSA500 G2 for 5X increase in disk drive rebuilds Modular Smart Array 500 G2 High Availability Kit (includes MSA500 G2 controller, 4-Port Shared storage module, Smart Array Multipath Software and 2 SA-642 adapters (360229-B21)
- Up to 4-Node high availability clustering for Linux and NetWare. Up to 2-Node high availability clustering for Windows Server 2003, enterprise edition.

QuickSpecs

Overview

At A Glance

- Two DL380 G4 Servers (1 processor per server) plus the Modular Smart Array 500 G2 system combined in a 8U configuration fixture

2-DL380 (per server) features:

- Integrated Lights-Out (iLO) Management standard on system board
- Intel Xeon 3.4 GHz processors with 64-bit extensions, a 800MHz Front Side Bus and 1MB of L2 cache
- Intel E7520 Chipset
- Integrated Ultra320 Smart Array 6i Plus Controller with 64MB RAM and optional 128MB Battery-Backed Write Cache (BBWC) Enabler option kit
- Three available 64-bit PCI-X slots, including two non-hot pluggable 100MHz slots and one non-hot-pluggable 133MHz slot and optional PCI-X Hot-Plug cage and Optional PCI-E Non-hot plug Cage (2) x 4
- NC7782 Dual Port PCI-X Gigabit Server Adapter (embedded)
- Support for up to six 1" Wide Ultra3/Ultra320 SCSI hot plug hard drives or for five hot plug hard drives and one DAT hot plug tape drive
- Optional dual channel drive backplane
- Internal hot plug capacity 1.80 TB standard (6 x 300 GB 1" HD)
- 575-Watt Hot Plug Power Supply (with optional redundancy)
- Hot Pluggable Fans (with optional redundancy)
- Quick Deploy Rail System includes sliding universal rails and an ambidextrous cable management arm for easy serviceability and in-rack tool-less access to major components
- USB 2.0 support one port up front and two port in back
- Automatic Server Recovery (ASR), ROM Based Setup Utility (RBSU), HP System Insight Manager, Status LEDs including system health and UID and SmartStart

1 Modular Smart Array 500 G2:

- Total storage capacity of 4.20 TB (14 HP Universal disk drives of 300 GB)
- Up to 4-Node high availability clustering for Linux and NetWare.
- Up to 2-Node high availability clustering for Windows Server 2003, enterprise edition.
- Shared storage for up to 4 ProLiant servers
- Boot from storage - move all disks to external storage for best capacity utilization
- Redundant capable Smart Array Controllers
- Multipath connectivity option with load balancing
- Redundant power supplies and fans standard
- Convertible to HP StorageWorks Modular Smart Array 1000
- 3 year warranty with next day on site service
- Pre-failure warranty that covers disk drives
- Protected by HP Services, including a three-year, Next Business Day, on-site limited Global warranty and extended Pre-Failure Warranty, which covers processors, memory, and hard drives - Certain restrictions and exclusions apply. Consult the HP Customer Support Center at 1-800-345-1518 for details

Standard Features (DL380 Generation 4 Packaged Cluster with MSA500 G2)

Packaging	8U Configuration Fixture - Recyclable ABS
	Unique cabling with positive identification (secured to storage configuration fixture)
	Two 6 foot SCSI cables
	One 6 foot Ethernet cross over cables

Server	ProLiant DL380 G4 Server (Qty 2)
	NOTE: Complete information on the server can be found in the following QuickSpecs:
	http://h18004.www1.hp.com/products/servers/proliantdl380/description-g4.html#quickspecs.

Shared Storage	Modular Smart Array 500 G2 (Qty 1)
	NOTE: Complete information on the storage can be found in the following QuickSpecs:
	http://h18004.www1.hp.com/products/servers/proliantstorage/sharedstorage/sacluster/quickspecs.

Documentation	Cluster set-up poster and configuration guide

Software Components

The Packaged Cluster utilizes a single, consistent set of utility software for storage and RAID management, setup, configuration and troubleshooting. This consistency reduces the cost of ownership by reducing the training and technical expertise necessary to install and maintain your HP server storage solution.

Configuration

- Array Configuration Utility (ACU) [On-line/off-line]
- Option ROM Configuration for Arrays (ORCA)
- Selective Storage Present (SSP)
- Rom based set-up utility (RBSU)

Management/Health

- HP Systems Insight Manager
- Smart Start
- Management Agents
- Redundant ROM
- Remote Flash ROM
- Integrated Lights-Out Support
- Remote Insight Lights-Out Edition
- Automatic Server Recovery (ASR)
- Active Update
- ROMPaq, support software and configuration utilities
- Survey Utility and diagnostics utilities
- Drive Parameter Tracking
- Dynamic Sector Repairing
- Hot Spare Boot
  (NOTE: Upon the event of a failed processor or VRM in a multi-processing environment, the system will automatically reboot and use the remaining good processor(s).)
- Pre-Failure Notification (covers processors, hard drives and memory)

Standard Features (DL380 Generation 4 Packaged Cluster with MSA500 G2)

ProLiant Essentials Foundation Pack Software	HP Systems Insight Manger	HP's new HP Systems Insight Manager (HP SIM) helps maximize system uptime and performance and reduce system maintenance costs by providing proactive notification of problems before those problems result in unplanned downtime or reduced productivity. HP SIM are both easy to set up work with the Insight Management Agents, integrated Light-Out and Remote Insight Light-Outs Edition, and Version Control Agents to deliver robust fault, configuration, and asset management as well as remote administration. With HP SIM customers will also be able to take advantage of role-based security; the ability to manage ProLiant, Integrity, and HP 9000 systems; and plug-ins for storage, client, printer, and power management as well as server rapid deployment, performance management, and workload management. For more details on HP HP SIM visit http://www.hp.com/go/hpsim.
	SmartStart	SmartStart is a tool that simplifies server setup, providing a rapid way to deploy reliable and consistent server configurations. For more information, please visit the SmartStart Web site at http://www.hp.com/servers/smartstart. SmartStart version supported (minimum): SmartStart 7.10.
	Management Agents	The Management Agents form the foundation for HP's Intelligent Manageability strategy. They provide direct, browser-based access to in-depth instrumentation built into HP servers, workstations, desktops, and portables, and send alerts to HP System Insight Manager and other enterprise management applications in case of subsystem or environmental failures. For additional information about the Management Agents and other management products from HP, please visit the management Web site at http://www.hp.com/servers/manage.
	Subscriber's Choice	Subscriber's Choice Driver and Support Alerts/Notifications is a web-based email subscription service that provides automatic delivery of software and driver change notifications for ProLiant products. Sign up at http://www.hp.com/go/subscriberschoice and customize your profile to receive various new alerts as they become available, on a weekly or monthly basis.
	ROMPaq, support software, and configuration utilities	The latest software, drivers, and firmware fully optimized and tested for your ProLiant server and options available in SmartStart or downloadable from Software and Drivers download pages, at www.hp.com/go/support.
	Survey Utility and diagnostics utilities	The most advanced configuration analysis, reporting and troubleshooting utilities used by HP and at your fingertips, available in SmartStart.

Optional ProLiant Essentials Value Packs

Optional software offerings that selectively extend the functionality of an Adaptive Infrastructure to address specific business problems and needs:

- Rapid Deployment Pack – an automated solution for multi-server deployment and provisioning, enabling companies to quickly and easily adapt to changing business demands.
- Workload Management Pack – provides easier management of complex environments, improving overall server utilization and enabling Windows 2000 customers for the first time to confidently deploy multiple applications on a single multiprocessor ProLiant server.
- Integrated Lights-Out Advanced Pack – upgrades the Integrated Lights-Out processor to full virtual presence and control with graphical console and virtual media
- Intelligent Networking Pack - detects and analyzes network bottlenecks or broken network linkages and steers traffic to the optimum route based on network conditions.

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

NOTE: Please see the following white paper to utilize Rapid Deployment on the Packaged Cluster: http://www.hp.com/solutions/enterprise/highavailability/whitepapers.html.

Standard Features (DL380 Generation 4 Packaged Cluster with MSA500 G2)

OS Support

Microsoft Cluster Service

- Microsoft Windows Server 2003 Enterprise Edition
- Microsoft Windows 2000 Advanced Server

Novell Cluster Service

- Novell NetWare 5.1
- Novell Netware 6.5

HP Service Guard Cluster Service for Linux

- Red Hat Enterprise Linux
- UnitedLinux
- SuSE Linux Enterprise Server

SteelEye's Lifekeeper for Linux

- Red Hat Linux
- Red Hat Enterprise Linux
- UnitedLinux 1.0
- SUSE Linux Enterprise Server

NOTE: For more complete and up-to-date information on how to buy server operating systems from HP please visit the OS product site at: http://h18004.www1.hp.com/products/servers/software/OEM.html
NOTE: For a more complete and up-to-date listing of supported OSs and versions, please visit our OS Support Matrix at: http://www.hp.com/go/supportos.

NOTE: Please refer to compatibility matrix http://www.hp.com/products/sharedstorage for latest compatibility information.
NOTE: For a more complete and up-to-date information on Linux support, please visit HP Linux Web site at http://h18000.www1.hp.com/products/servers/linux/hpLinuxcert.html.

HP Factory Express Capabilities

HP Factory Express gives you the flexibility to choose from a full menu of factory capabilities all in one manufacturing facility, in one process, with one touch giving you full control and access to HP's World class manufacturing facility anytime. This approach provides you the speed to deploy your IT needs, with total quality assurance, reliability, and predictability to lower your total cost of ownership by letting HP install, rack, and customize your software and hardware options for you.

Standard Features (DL380 Generation 4 Packaged Cluster with MSA500 G2)

Service and Support

Three-year limited warranty, including hardware diagnostic support, pre-failure warranty (coverage of hard drives, memory and processors). The warranty is fully supported by HP Services and a worldwide network of resellers and service providers. In addition 90-day's getting started software telephone support may be covered under the warranty or available for an additional fee. Enhancements to warranty services are available through HP Care Pack services.

NOTE: Limited warranty includes 3 year parts, 3 year labor, 3-year on-site support.

Care Pack services provide a range of life cycle support options that let you choose the service levels that meet your business requirements, from basic to mission-critical.

A full range of HP Care Pack hardware and software services are available including:

- Installation and start up
- Education courses
- Extended onsite hardware coverage hours from same business day 13 hours, 5 day to 24 hours, 7 days call window with options including 4-hour response or 6-hour Call To Repair
- Comprehensive range of software technical support for Microsoft, Linux, ProLiant Essentials and VMWare-based IT solutions helping to deliver high level of application availability. Response times range from 30 mins for critical problems to 2 hours.
- System Management, Performance Services and Mission Critical Support Solution

HP Care Pack Services include HP branded hardware options qualified for the server, purchased at the same time or afterwards, internal to the enclosure, as well as 22" and smaller external monitors and tower UPS options up to 3KVA. 22" and smaller external monitors will be covered at the same service level and coverage period as the server. For servers or storage systems installed within a rack, service also covers all HP qualified rack options installed within the same rack.

NOTE: For more information on HP Care Pack services, contact any of our worldwide sales offices or resellers or visit our worldwide Web site on the internet at: http://www.hp.com/hps/carepack

NOTE: For more complete information on HP Services offerings, customers and resellers, please visit us at: http://www.hp.com/hps

NOTE: Additional information regarding worldwide limited warranty and technical support is available at: http://h18004.www1.hp.com/products/servers/platforms/warranty/index.html

Standard Features (DL380 Generation 4 server)

Processor (per server)	Intel Xeon Processor 3.4 GHz-1MB

Cache Memory (per processor)	1M second-level ECC cache (full speed)

Upgradability (per server)	Upgradable to dual processing

Chipset (per server)	Intel E7520 Chipset
	NOTE: For more information regarding Intel chipsets, please see the following URL: http://www.intel.com/products/server/chipsets/.

Memory Protection	Online spare
	Advanced ECC

Memory (per server)	Type	PC2-3200 400MHz DDR-II SDRAM
	Standard	1 GB
	Maximum	12 GB

Network Controller (per server)	Two NC7782 Dual Port PCI-X Gigabit Server Adapter (embedded)

PCI-X Non Hot-Plug Riser

Expansion Slots	Slot Number	Bus Speed	Bus Number*	Device Number**	Hot Plug	PCI Voltage	Notes
	1	64-bit/133MHz PCI-X	10	1	no	3.3 Volt	Universal cards are supported
	2	64-bit/100MHz PCI-X	6	1	no	3.3 Volt	Universal cards are supported
	3	64-bit/100MHz PCI-X	6	2	no	3.3 Volt	Universal cards are supported

*NOTE: Default bus assignment. Inserting cards with PCI bridges may alter the actual bus assignment number.
**NOTE: Slots are enumerated differently based on OS. MS OS's enumerate from lowest to highest Device ID by bus (starting with the lowest bus).
NOTE: For more information regarding PCI-X, please see the following URL: http://h18004.www1.hp.com/products/servers/technology/pci-x-qa.html
NOTE: All slots can accept universal keyed PCI cards

Storage Controllers (per server)	Smart Array 6i Controller (Ultra320) (integrated on system board)
	NOTE: For complete list of devices supported the Smart array 6i Controller see the following: http://h18000.www1.hp.com/products/quickspecs/12030_div/12030_div.HTML (Worldwide) http://h18000.www1.hp.com/products/quickspecs/12030_na/12030_na.HTML (North America)

Storage (per server)	Optical Drive	24x IDE CD-ROM Drive (Universal Media Bay)
	Hard Drives	None

Standard Features (DL380 Generation 4 server)

Maximum Internal Storage	Hot Plug SCSI	1.80 TB	(6 x 300 GB Ultra320 1")

Interfaces (per server)		
	Serial	1
	Pointing Device (Mouse)	1
	Graphics	1
	Keyboard	1
	External SCSI	1
	Network RJ-45	3 (1 for iLO)
	USB	2

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

Graphics (per server)	Integrated ATI Rage XL Video Controller with 8-MB SDRAM Video Memory

Form Factor (per server)	8U configuration fixture

Standard Features (DL380 Generation 4 server)

ProLiant Essentials Foundation Pack Software	HP Systems Insight Manger	HP's new HP Systems Insight Manager (HP SIM) helps maximize system uptime and performance and reduce system maintenance costs by providing proactive notification of problems before those problems result in unplanned downtime or reduced productivity. HP SIM are both easy to set up work with the Insight Management Agents, integrated Light-Out and Remote Insight Light-Outs Edition, and Version Control Agents to deliver robust fault, configuration, and asset management as well as remote administration. With HP SIM customers will also be able to take advantage of role-based security; the ability to manage ProLiant, Integrity, and HP 9000 systems; and plug-ins for storage, client, printer, and power management as well as server rapid deployment, performance management, and workload management. For more details on HP HP SIM visit http://www.hp.com/go/hpsim.
	SmartStart	SmartStart is a tool that simplifies server setup, providing a rapid way to deploy reliable and consistent server configurations. For more information, please visit the SmartStart Web site at http://www.hp.com/servers/smartstart. SmartStart version supported (minimum): SmartStart 7.10.
	Management Agents	The Management Agents form the foundation for HP's Intelligent Manageability strategy. They provide direct, browser-based access to in-depth instrumentation built into HP servers, workstations, desktops, and portables, and send alerts to HP System Insight Manager and other enterprise management applications in case of subsystem or environmental failures. For additional information about the Management Agents and other management products from HP, please visit the management Web site at http://www.hp.com/servers/manage.
	Subscriber's Choice	Subscriber's Choice Driver and Support Alerts/Notifications is a web-based email subscription service that provides automatic delivery of software and driver change notifications for ProLiant products. Sign up at http://www.hp.com/go/subscriberschoice and customize your profile to receive various new alerts as they become available, on a weekly or monthly basis.
	ROMPaq, support software, and configuration utilities	The latest software, drivers, and firmware fully optimized and tested for your ProLiant server and options available in SmartStart or downloadable from Software and Drivers download pages, at www.hp.com/go/support
	Insight Diagnostics Online Edition	The most advanced configuration analysis, reporting and troubleshooting utilities used by HP and at your fingertips, available in SmartStart.

Industry Standard Compliance	ACPI 1.0b Compliant
	PCI-X and PCI 2.2 Compliant
	WOL Support
	Microsoft® Logo certifications
	USB version 1.1

Security	Power-on password
	Keyboard password
	Diskette drive control
	Diskette boot control
	QuickLock, Network Server Mode
	Serial interface control
	Administrator's password
	Disk configuration lock

Server Power Cords	Four (4) total Lowline power cords ship standard (per cluster) - US, Japan, Europe.
	Sixteen (16) total Lowline power cords ship standard (per cluster) - APD, GCD, PRC

Standard Features (DL380 Generation 4 server)

Power Supply **(per server)**	575 Watt, CE Mark Compliant Optional Hot Plug Redundant Power Supply Capability

System Fans **(per server)**	Each server node contains 5 hot plug fans standard. An optional fan upgrade kit consisting of 3 additional hot plug fans for dual processor configurations. Hot Plug Redundant Fan Option Kit available.

Required Cabling	For required cabling information, refer to the HP Web site at: http://h18000.www1.hp.com/products/servers/ProLiantDL380/.

Rack Airflow Requirements Rack 10000 series Cabinets

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

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

- Front and rear doors: If your 42U server rack includes closing front and rear doors, you must allow 830 square inches (5,350 sq cm) of hole evenly distributed from top to bottom to permit adequate airflow (equivalent to the required 64 percent open area for ventilation).
- Side: The clearance between the installed rack component and the side panels of the rack must be a minimum of 2.75 inches (7 cm).

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

NOTE: For additional information, refer to the Setup and Installation Guide or the Documentation CD provided with the server, or to the server documentation located in the Support section at the following URL: http://h18000.www1.hp.com/products/servers/ProLiantdl760/index.html.

Rack Kit (Servers)	Tool-Free support for racks with square mounting holes (including Compaq/HP 7000, 9000, 10000 and H9 series), with an adjustment range of 24" - 36". **NOTE:** The Modular Smart Array 500 tool-less rack rail included in the Packaged Cluster accommodates most round or square hole rack standard.

Standard Features (Modular Smart Array 500 G2)

Storage Controller	Modular Smart Array 500 G2 Controller, redundant controller capable	

Storage	Drive bays	14 1" Hot pluggable
	Hard Drives	None
	Maximum Internal Storage	4.20 TB (14 x 300 GB Ultra320 1")
	Hard Drive	Pre-failure warranty

**Storage Standard
Contents**

4U Modular Smart Array 500 G2
Modular Smart Array 500 G2 controller with 256 MB cache
2-port SCSI I/O module
Redundant hot pluggable power supply/fans
Modular Smart Array 500 rack mounting kit
Power cables, 2
VHDCI SCSI cables (2) 6' each
Ethernet Crossover cable for clustering

Storage Controller

Modular Smart Array 500 G2 Controller U320 SCSI technology, redundant controller capable
4 SCSI Channels (2 Host; 2 INTL)

Host Bus Adapters

Integrated Ultra320 Smart Array 6i Plus Controller on the servers
Smart Array 642 Controller (optional)

Cache Memory	256 MB Read/Write Cache	Up to 512 MB Read/Write Cache (optional)
	ECC protection, battery backed, removable	**NOTE:** Optional storage memory allows the following configurations: 1 X 128 MB, 2 X 128 MB, 1 X 256 MB, 2 X 256 MB.
	NOTE: When redundant controllers are installed, the cache configurations in both controllers must be identical.	

Cache Batteries

Up to three days of redundant battery life, removed for easy replacement

Upgradable Firmware

2 MB flashable ROM

Power Supply

600 Watt (Dual) Power Supply, CE Mark Compliant
Fans integrated into each power supply, Redundant Functionality (Standard)

**Disk Drive and Enclosure
Protocol Support**

Ultra320, Ultra3 and Ultra 2 SCSI 1 inch Universal drives

Standard Features (Modular Smart Array 500 G2)

DtS (DAS to SAN) Technology	The Smart Array architecture provides a quick and easy way to migrate from the Modular Smart Array 500 G2 to the Modular Smart Array 1000 (MSA1000) for additional scalability. In order to convert the Modular Smart Array 500 G2 to a SAN, simply remove the Modular Smart Array Controller(s) and replace them with StorageWorks MSA1000 Controller(s) and add FC I/O board or FC Switch (please refer to MSA 1000 QuickSpecs for additional SAN requirements information). This is referred to as DtS technology (DAS-to-SAN technology). In addition to convertibility to the SAN, the Modular Smart Array 500 G2 allows the seamless migration of stored data in ProLiant servers protected by Smart Array PCI controllers to a Modular Smart Array 500 system. Data that is currently stored on 1" Universal disk drives using HP Smart Array controllers, as well as data on an RA4100 can easily be migrated to the Modular Smart Array 500 G2. Simply remove the drives from the older systems and insert them into the Modular Smart Array 500 G2. Existing data and configuration will remain intact. In addition, the RAID set and data will be preserved allowing migration to be completed in minutes, not hours.
Form Factor	Rack 4U
Connector Type	Ultra320 SCSI
Ports	2 VHDCI; Ultra320 SCSI
Bandwidth	320 MB/s
Protocols Supported	Wide Ultra320 SCSI (320 MB/s per channel)
User Interface	Controller display with Status Indicators (2) and Push Buttons (4) Status indicators on front of controller (16)
SCSI Ports	2 external VHDCI connectors standard. Optional 4-port Shared Storage Module with 4 VHDCI connectors and multi-path software included
Logical Drives	Up to 32 logical drives
RAID Support	Raid ADG (Advanced Data Guarding Raid 5 (Distributed Data Guarding) Raid 1+0 (Striping and Mirroring) Raid 1 (Mirroring) Raid 0 (Striping)

QuickSpecs

Models

DL380 Generation 4 (G4) Packaged Cluster with MSA500 G2 346899-xx1		
Processor(s)	(1) Intel Xeon Processor 3.4 GHz standard (up to 2 supported)
Cache Memory	1-MB level 2 ECC cache
Memory	1 GB (Standard per server) to 12 GB (Maximum) of 2 way interleaved capable PC3200 DDR SDRAM running at 400MHz, with Advanced ECC capabilities
Network Controller	(2) NC7782 Dual Port PCI-X Gigabit Server Adapter (embedded)
Storage Controller	Ultra320 Smart Array 6i Controller (integrated on system board
Hard Drives	None ship standard
Internal Storage	1.80 TB max (with optional hard drives)
Optical Drive	24x IDE CD-ROM Drive
Modular Smart Array 500 G2	1 Modular Smart Array 500 G2 with 14 1" drive bays. Includes one Smart Array Storage Controller, redundant optional
Form Factor	8U configuration fixture

Country Code Key

XX=00	US
XX=29	Japan
XX=37	APD
XX=42	EURO

Options (DL380 G4 Packaged Cluster with MSA500 G2)

ProLiant DL380 G4 Unique Options (per server)	DL380 G4 Redundant Fan Option Kit NOTE: Hot Plug Redundant Fan Option Kit (PN 293048-B21) contains three fans.	293048-B21
	Hot Plug AC Redundant Power Supply Module (NEMA and IEC cords) (NA and Japan)	355892-001
	Hot Plug AC Redundant Power Supply Module (IEC cord) (WW)	355892-B21
	Floppy Drive Option Kit	364507-B21
	SCSI Configuration Kit	364471-B21
	PCI-X Hot Plug Riser Cage Option Kit	354676-B21
	PCI-Express Riser Cage Option Kit	354675-B21
Processor	Intel Xeon 3.4 GHz-1MB	311583-B21
Memory (SDRAM DIMMs)	1GB of Advanced PC2 PC3200 DDR2 SDRAM DIMM Memory Kit (2 x 512 MB)	343055-B21
	2GB of Advanced PC2 PC3200 DDR2 SDRAM DIMM Memory Kit (2x1024 MB)	343056-B21
	4GB of Advanced PC2 PC3200 DDR2 SDRAM DIMM Memory Kit (2x 2048 MB)	343057-B21
	NOTE: 4GB Kit will be delayed, availability is expected in 4Q04.	
Storage Rail Kit (Round Holes)	Round hole rack cabinet rail kit NOTE: Supports for racks with round mounting holes (including HP rack systems/E and HP systems), with an adjustment range of 24"- 36". NOTE: The standard storage rails already support most square and round hole racks.	293052-B21

Options (DL380 G4 Packaged Cluster with MSA500 G2)

ProLiant Essentials Value Pack Software	Rapid Deployment Pack, 1 User, V1.x NOTE: This license allows 1 server to be managed and deployed via the Deployment Server. NOTE: Please see the following white paper to utilize Rapid Deployment on the Packaged Cluster: http://h18004.www1.hp.com/solutions/enterprise/highavailability/whitepapers/ index.html	267196-B21
	Rapid Deployment Pack, 1 User, V1.x (Japan) NOTE: This license allows 1 server to be managed and deployed via the Deployment Server. NOTE: Please see the following white paper to utilize Rapid Deployment on the Packaged Cluster: http://h18004.www1.hp.com/solutions/enterprise/highavailability/whitepapers/ index.html	267196-291
	Rapid Deployment Pack, 10 Users, V1.x NOTE: This license allows 10 servers to be managed and deployed via the Deployment Server. NOTE: Please see the following white paper to utilize Rapid Deployment on the Packaged Cluster: http://h18004.www1.hp.com/solutions/enterprise/highavailability/whitepapers/ index.html	269817-B21
	Rapid Deployment Pack, 10 Users, V1.x (Japan) NOTE: This license allows 10 servers to be managed and deployed via the Deployment Server. NOTE: Please see the following white paper to utilize Rapid Deployment on the Packaged Cluster: http://h18004.www1.hp.com/solutions/enterprise/highavailability/whitepapers/ index.html	269817-291
	ProLiant Essentials Integrated Lights-out advanced pack (featuring: sophisticated virtual administration)	263825-B21
	Performance Management Pack, single server NOTE: This license allows 1 server to be managed by Performance Management Pack.	306696-B21
	ProLiant Essentials Performance Management Pack, 10 Pack Server License	374055-B21
	Performance Management Pack, flexible license kit NOTE: A single pack is shipped with a single license key for the total number of licenses ordered	306697-B21
	ProLiant Essentials Intelligent Networking Pack, 1 License	372906-B21
	ProLiant Essentials Intelligent Networking Pack Flex License	372950-B21
	ProLiant Essentials Intelligent Networking Pack Track License	372951-B21

NOTE: Flexible and volume quantity license kits are available for ProLiant Essentials Value Packs.
Refer to http://h18000.www1.hp.com/products/servers/proliantessentials/index.html
or the various ProLiant Essentials Value Pack product QuickSpecs for more information.
NOTE: For more information regarding ProLiant Essentials Software, please see the following URL:
http://h18000.www1.hp.com/products/servers/proliantessentials/index.html.

Options

Communications	NC1020 Cu Gigabit Server Adapter 32 PCI Single Port	353377-B21
	NC6170 Dual Port PCI-X 1000SX Gigabit Server Adapter	313879-B21
	NC7170 Dual Port PCI-X 1000T Gigabit Server Adapter	313881-B21
	NC7771 PCI-X 10/100/1000-T Server Adapter	290563-B21

NOTE: Any NIC (except the NC1020) on the option list can be used for redundancy with the embedded NC7781 Network Controller. When teaming with other NICs or with the embedded NIC, the lack of Jumbo Frames and LSO features on the NC1020 will cause high end NICs to have those features disabled. (e.g. incompatibility issues with the other option NICs for that platform).

| Redundant Options | Hot Plug AC Redundant Power Supply Module (NEMA cord) (NA) | 355892-001 |
| | Hot Plug AC Redundant Power Supply Module (IEC cord) (WW) | 355892-B21 |

Optical Drives	Slimline DVD-ROM Drive (8X/24X) Option Kit (Servers)	264007-B21
	Floppy Drive Option Kit	364507-B21
	Slimline CD-RW/DVD-ROM Combo Option Kit	331903-B21

Hard Drives	*Ultra320 SCSI – Universal Hot Plug*	
	300-GB 10,000 rpm U320 Universal Hard Drive (1")	350964-B22
	146.8-GB 10,000 rpm U320 Universal Hard Drive (1")	286716-B22
	72.8-GB 10,000 rpm U320 Universal Hard Drive (1")	286714-B22
	72.8-GB 15,000 rpm U320 Universal Hard Drive (1")	286778-B22
	36.4-GB 15,000 rpm U320 Universal Hard Drive (1")	286776-B22

NOTE: All U320 Universal Hard Drives are backward compatible to U2 or U3 speeds. U320 drives require an optional U320 Smart Array Controller or U320 SCSI HBA to support U320 transfer rates.

NOTE: Please see the Hard Drive QuickSpecs for Technical Specifications such as capacity, height, width, interface, transfer rate, seek time, physical configuration, and operating temperature:
U320 Hard Drive QS:
http://h18000.www1.hp.com/products/quickspecs/11531_div/11531_div.HTML
(Worldwide)
http://h18000.www1.hp.com/products/quickspecs/11531_na/11531_na.HTML
(North America)

| Redundant Storage Controller | Modular Smart Array 500 G2 Redundant Controller Option Kit | 335881-B21 |

| Modular Smart Array 500 G2 High Availability Kit | Modular Smart Array 500 G2 High Availability Kit | 360229-B21 |

NOTE: Includes MSA500 G2 controller, MSA500 G2 4-port IO Module, Smart Array Multipath Software and two Smart Array 642 Adapters.

| 4-Port I/O module | MSA500 G2 4-Port I/O Module with Smart Array Multipath Software | 335882-B21 |

Options

Storage Controllers	Smart Array 6i 128MB Battery Backed Write Cache Enabler Option Kit	346914-B21
	Smart Array 6i 128MB Battery Backed Write Cache Enabler Option Kit (Japan)	346914-291
	Smart Array 642 Controller	291967-B21
	128MB Battery-Backed Cache Enabler NOTE: This 128MB BBWC supports the Smart Array 641 Controller and Smart Array 642 Controller.	351580-B21
	64 MB Battery Backed Write Cache Enabler NOTE: This 64 MB BBWC supports the Smart Array 641 Controller and Smart Array 642 Controller.	291969-B21

NOTE: Please see the following Controller or SCSI Adapter QuickSpecs for Technical Specifications such as PCI Bus, PCI Peak Data Transfer Rate, SCSI Protocols supported, SCSI Peak Data Transfer Rate, Channels, SCSI Ports, Drives supported, Cache, RAID support, and additional information: http://h18000.www1.hp.com/products/quickspecs/11063_div/11063_div.HTML (Smart Array 6i Plus) http://h18000.www1.hp.com/products/quickspecs/12069_div/12069_div.HTML (Smart Array 642)

Management Options	Remote Insight Lights-Out Edition II (NA, LA)	227251-001
	Remote Insight Lights-Out Edition II (EMEA)	227251-021
	Remote Insight Lights-Out Edition II (ROW)	227251-371

Security	HP/Atalla AXL600L SSL Accelerator Card for ProLiant Servers	524545-B21
	AXL300 Accelerator PCI Card (HW SSL Encryption) for ProLiant Servers	227933-B21

Tape Autoloaders	*HP StorageWorks 1/8 Tape Autoloader*	
	1/8 Ultrium 460 Tape Autoloader, Tabletop	AA927A
	1/8 SDLT 320 Tape Autoloader, Tabletop	AA926A
	1/8 DLT VS80 Tape Autoloader, Tabletop	C9264CB

NOTE: Please reference the 1/8 Tape Autoloader QuickSpecs at http://www.hp.com/go/automation for additional information needed to create a complete solution; reference current compatibility information at http://www.hp.com/go/ebs

HP StorageWorks SSL1016 Tape Autoloader

	SSL1016 Ultrium 460 Tape Autoloader	330821-B21
	SSL1016 SDLT 320 Tape Autoloader	330816-B21

NOTE: Please reference the SSL1016 Tape Autoloader QuickSpecs at http://www.hp.com/go/automation for additional information needed to create a complete solution; reference current compatibility information at http://www.hp.com/go/ebs.

Options

Cluster Options	PDC Oracle 9i Cluster for Linux	308225-B23
	HP Serviceguard for Linux ProLiant Cluster (2 node license cluster kit) A.11.15	305199-B24
	NOTE: Kit includes 2 licenses, documentation and an Ethernet crossover cable.	
	HP Serviceguard for Linux (single license version for ordering flexibility and to ease ordering for larger cluster) A.11.15	307754-B24
	NOTE: Kit includes single license version and documentation.	
	NOTE: For additional information regarding the HP Serviceguard for Linux License, please see the following QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/11518_na/11518_na.html (North America) http://h18000.www1.hp.com/products/quickspecs/11518_div/11518_div.html (Worldwide)	
	ProLiant Parallel Database Cluster for Linux-Oracle9i Real Application Cluster	308225-B22
	NOTE: For additional information regarding the ProLiant Parallel Database Cluster for Linux, please see the following QuickSpecs at: http://www5.compaq.com/products/quickspecs/11688_na/11688_na.html (North America) http://www5.compaq.com/products/quickspecs/11688_div/11688_div.html (Worldwide)	

UPS and PDU Power Cord Matrix	*Please see the UPS and PDU cable matrix that lists cable descriptions, requirements, and specifications for UPS and PDU units:* ftp://ftp.compaq.com/pub/products/servers/ProLiantstorage/power-protection/powercordmatrix.pdf.

Uninterruptible Power Systems – Rack Mountable	HP UPS R5500 XR, (5000VA, 4500 Watt), High Voltage (NA/Jpn)	326529-D71
	HP UPS R5500 XR, (6000VA, 5400 Watt), High Voltage (Int'l)	326529-B31
	HP UPS R1500 XR (1440VA, 1340 Watt), Low Voltage (NA)	204404-001
	HP UPS R1500 XR (1500VA, 1340 Watt), High Voltage (Int'l)	204404-B31
	HP UPS R1500 XR (1500VA, 1340 Watt), Low Voltage (Japan)	204404-291
	HP UPS R3000 XR (2880VA, 2700 Watt), Low Voltage (NA)	192186-001
	HP UPS R3000 XR (3000VA, 2700 Watt), High Voltage (NA)	192186-002
	HP UPS R3000 XR (2400VA, 2250 Watt), Low Voltage (Japan)	192186-291
	HP UPS R3000 XR (3000VA, 2700 Watt), High Voltage (Japan)	192186-292
	HP UPS R3000 XR (3000VA, 2700 Watt), High Voltage (Int'l - detachable cord)	192186-B31
	HP UPS R3000 XR (3000VA, 2700 Watt), High Voltage (16A IEC309 Plug)	192186-B32
	HP UPS R3000 XR (3000VA, 2700 Watt), High Voltage (16A CEE 7/7 SCHUKO Plug)	192186-B33
	HP UPS R3000 XR (3000VA, 2700 Watt), High Voltage (16A BS-546 Plug)	192186-AR1
	UPS R12000 XR N+x (200-240V) (WW-hardwired)	207552-B22
	NOTE: The UPS R12000 XR has a hardwired input and output; requires a 100A circuit.	

Options

Modular PDUs 1U/0U (Up to 32 outlets) **NOTE:** 1U/0U mounting brackets shipped with the unit (optimized for 10000 and 9000 series racks).	Fixed Cord Extension Bars **NOTE:** Two extension bar sticks; each with (7) C13 plugs.	351655-B21
	Fixed Cord PDU (NA/JPN) **NOTE:** Four Fixed Cord Extension Bars, and one 24A, HV mPDU L6-30P core.	351655-D72
	Fixed Cord PDU (INTL) **NOTE:** Four Fixed Cord Extension Bars, and one 32A, HV mPDU IEC-309 core.	351655-B31
	HP Modular Power Distribution Units (mPDU), Low Volt Model, 24A (100-127 VAC) (NA, Japan) **NOTE:** This mPDU (252663-D71) may also be used to connect the low volt model of the UPS R3000 XR.	252663-D71
	HP Modular Power Distribution Units (mPDU), High Volt Model, 24A (200-240 VAC) (NA, Japan)	252663-D72
	HP Modular Power Distribution Units (mPDU), High Volt Model, 32A (200-240 VAC) (Int'l)	252663-B31
	HP Modular Power Distribution Units (mPDU), High Volt Model, 40A (200-240 VAC) (WW) **NOTE:** This mPDU (252663-B21), 40A model has a hardwired input.	252663-B21
	HP Modular Power Distribution Units (mPDU), High Volt Model, 16A (200-240 VAC) (WW) **NOTE:** This PDU has a detachable input power cord and allows for adaptability to country specific power requirements. This model may also be used with the high volt UPSs R3000 XR and R6000 For North America, need to order cable PN 340653-001.	252663-B24
	HP Modular Power Distribution Unit (mPDU), High Volt Model, 40A, Attached Cord, (NA/JPN)	252663-D73
	HP Modular Power Distribution Unit (mPDU), High Volt Model, 40A, Attached Cord, (Int'l)	252663-B32
	NOTE: Please see the following Modular Power Distribution Unit (Zero-U/1U Modular PDUs) QuickSpecs for additional options including shorter jumper cables and country specific power cords: http://www5.compaq.com/products/quickspecs/11041_na/11041_na.HTML (North America) http://www5.compaq.com/products/quickspecs/11041_div/11041_div.HTML (Worldwide)	
USB Options	HP USB 2-Button Optical Scroll Mouse (Carbonite/Silver)	DC172B
	USB 1.44-MB External Diskette Drive (Carbonite)	DC141B
	128MB HP Drive Key	DQ819B
	256MB HP Drive Key	DL973B
	Multibay USB cradle	DC373A#ABA
	Multibay USB cradle	DC373A#B13
Custom Builder	Please see the Enterprise Configurator for configuration assistance at: http://www.hp.com/products/configurator.	
HP Rack 5000 Series (Graphite Metallic)	HP 5642 Rack-Unassembled	358254-B21
Rack Options for Rack 5000 Series	Stabilizer Kit for 5642 rack (Graphite Carbon) **NOTE:** The stabilizing kit is used to prevent rack from tipping over.	374493-B21
	Baying Kit for 5642 rack (Graphite Carbon) **NOTE:** The baying kit is used to join two or more HP 5642 racks.	374499-B21

QuickSpecs

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QuickSpecs

QuickSpecs

Options

Rack Options for HP Rack 10000 Series

HP Rack Light Kit (Neon)	361589-B21
HP Rack Plinth Kit (Carbon)	251960-B21
42U Side Panel – Graphite Metallic	246099-B21
36U Side Panel – Graphite Metallic	246102-B21
47U Side Panel – Graphite Metallic	255486-B21
IP CAT5 Cable 12', 8 pack	263474-B23
TFT5600 Rack Keyboard Monitor	221546-xx1
TFT7210R Rack Mounted 17" Monitor	348373-B21

NOTE: For a complete list of Monitors please view the following URL:
http://h18004.www1.hp.com/products/monitors/

1U Rack Keyboard & Drawer (Carbon)	257054-xx1

NOTE: The 1U Rack Keyboard & Drawer (PN 257054-xx1) is to be used with the Keyboards for Racks
with Trackball (PN 158649-xxx).

Country Code Key (for 1U Rack Keyboard & Drawer (PN 257054-xx1))

XX = 001	US	XX = 091	Norway
XX = 031	UK	XX = 101	Sweden/Finland
XX = 041	Germany	XX = 111	Switzerland
XX = 051	France	XX = 131	Portugal
XX = 061	Italy	XX = 181	Belgium
XX = 071	Spain	XX = 291	Japan
XX = 081	Denmark	XX = B31	International

NOTE: For additional information regarding Rack Options, please see the following URL:
http://h18000.www1.hp.com/products/servers/proliantstorage/rack-options/index.html.

HP KVM Switch Options

Server Console Switch (KVM), 0 x 1 x 8 port	336044-B21
Server Console Switch (KVM), 0 x 2 x 16 port	336045-B21
IP Console Switch Box (KVM/IP), 1 x 1 x 16	262585-B21
IP Console Switch Box (KVM/IP), 3 x 1 x 16	262586-B21
HP 1x4 USB/PS2 KVM Switch, RM (ALL)	371302-B21
HP 1x4 USB/PS2 KVM Switch, TT (EURO)	371301-A21
HP 1x4 USB/PS2 KVM Switch, TT (UK)	371301-031
HP 1x4 USB/PS2 KVM Switch, TT (AUST/NZ)	371301-011
HP 1x4 USB/PS2 KVM Switch, TT (NA/JPN)	371301-D71
PS/2 Interface Adapter, 8 pack	262587-B21
PS/2 Interface Adapter, 1 pack	262588-B21
CAT5 KVM Expansion Module	262589-B21
CAT5e Cable 3', 4 pack	263474-B21
CAT5e Cable 6', 8 pack	263474-B22
CAT5e Cable 12', 8 pack	263474-B23
CAT5e Cable 20', 4 pack	263474-B24
CAT5e Cable 40', 1 pack	263474-B25

NOTE: For additional information regarding HP KVM Switches and options, please see the following
URL:
http://h18004.www1.hp.com/products/servers/proliantstorage/rack-options/list.html#console

Options

Rack Options for Third Party Cabinet Racks	Input Device Telco Rails **NOTE:** Input Device Telco Rails (287138-B21) are for use ONLY with the TFT5110R, TFT5600RKM and integrated keyboard/drawer, which is used in mounting into third party racks.	287138-B21
	Round hole rack cabinet rail kit **NOTE:** Support for racks with round mounting holes (include HP Rack System /E and HP Systems) with an adjustment range of 24"- 36".	293052-B21

HP Factory Express	*Factory Installation, Racking, and Customization Services*	
	Factory Express Server Configuration Level 1	293355-888
	NOTE: Free Installation of HP Options - Installation of HP Options memory, NICs, hard drives, controllers, processors, I/O cards, pre-install standard OEM OS image, and tape drives. Installation fees will apply to all non-HP certified hardware and asset tags.	
	Factory Express Server Configuration Level 2	266326-888
	NOTE: Includes Level 1 Customer Intent of a ProLiant server and options configuration, OS installation, custom image download, IP addressing, network setting, and custom packaging. Customer unique requirements (quick restore creation, CD duplication, test reports, real-time reporting of server MAC address, password, and RILOE). Customer access, validation and control through VPN (price/server).	
	Factory Express Rack Integration Level 3 with 1 – 3 servers or storage enclosures	325736-888
	Factory Express Rack Integration Level 3 with 4 – 9 servers or storage enclosures	232539-888
	Factory Express Rack Integration Level 3 with 10 or more servers or storage enclosures	325735-888
	NOTE: Includes Level 1 Customer Intent for standard mounted servers and storage units plus standard cable mgmt, RAID configuration, servers & storage, power distribution, networking gear and accessories (price/ra520ck).	
	Factory Express Rack Integration Level 4 with 1 – 3 servers or storage enclosures	325734-888
	Factory Express Rack Integration Level 4 with 4 – 9 servers or storage enclosures	232540-888
	Factory Express Rack Integration Level 4 with 10 or more servers or storage enclosures	325733-888
	NOTE: Includes Level 2 Customer Intent plus customer defined cable management and naming convention, customer furnished image download, IP addressing, cluster configurations (SQL, External storage RAID). Quick restore creation, CD duplication, test reports, real-time reporting of server MAC address, password, RILOE). Customer access and validation through VPN (price/rack).	
	Factory Express Rack Integration Level 5 with 1 – 3 servers or storage enclosures	325732-888
	Factory Express Rack Integration Level 5 with 4 – 9 servers or storage enclosures	232541-888
	Factory Express Rack Integration Level 5 with 10 or more servers or storage enclosures	325731-888
	NOTE: Includes Level 4 Customer Intent plus Custom SW layering and extended test, Customer access, validation and control through VPN, Clustered racks with networking gear and/or external storage array, Start-up installation services custom quote. (price/rack). **NOTE:** Factory Express Engineered Solution Level 6 is a custom solutions available through Factory Express. Please contact your local reseller or Account Manager.	

Options

Service and Support Offerings (HP Care Pack Services)

Hardware Services 4-Hour On-site Service

4-Hour On-site Service, 13-Hour x 5-Day Coverage, 3 Years	U4560A
4-Hour On-site Service, 13-Hour x 5-Day Coverage, 3 Years, Electronic	U4560E
4-Hour On-site Service, 24-Hour x 7-Day Coverage, 3 Years (U.S. Part Number)	U4561A
4-Hour On-site Service, 24-Hour x 7-Day Coverage, 3 Years (U.S. Part Number), Electronic	U4561E

Installation & Start-up Services

Hardware Installation	U4570A
Hardware Installation, Electronic	U4570E
Installation & Start-Up of a ProLiant server and Microsoft or Linux O/S per the Customer Description and/or Data Sheet. To be delivered on a scheduled basis 8am-5pm, M-F, excl. HP holidays.	U2870A
Installation & Start-Up of a ProLiant server and Microsoft or Linux O/S per the Customer Description and/or Data Sheet. To be delivered on a scheduled basis 8am-5pm, M-F, excl. HP holidays, Electronic	U2870E

W2K AS Cluster Configuration HP Care Pack

Install & Configure MS Windows 2000 Advanced Sever Cluster software on a cluster	U5701A
Install & Configure MS Windows 2000 Advanced Sever Cluster software on a cluster, Electronic	U5701E

Support Plus

Onsite HW support, 8am-9pm, M-F, 4hr response and Microsoft O/S SW Tech support offsite, onsite at HP's discretion, 8am-9pm, M-F 2hr response time excl. HP holidays.	U4571A
Onsite HW support, 8am-9pm, M-F, 4hr response and Microsoft O/S SW Tech support offsite, onsite at HP's discretion, 8am-9pm, M-F 2hr response time excl. HP holidays, Electronic	U4571E

Support Plus 24

Onsite HW support 24x7, 4hr response and Microsoft O/S SW Tech support offsite, onsite at HP's discretion, 24x7 2hr response time incl. HP holidays.	U4572A
Onsite HW support 24x7, 4hr response and Microsoft O/S SW Tech support offsite, onsite at HP's discretion, 24x7 2hr response time incl. HP holidays, Electronic	U4572E
24-Hour x 7-Day, 6-hour Call To Repair, 3 Years	U4562A
24-Hour x 7-Day, 6-hour Call To Repair, 3 Years, Electronic	U4562E

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

Memory

ProLiant DL380 G4 server

Standard Memory

1-GB PC2 3200 MHz Registered DDR2 SDRAM DIMM installed (2 x 512-MB SDRAM)

Standard Memory Plus Optional Memory

Up to 5,120-MB memory is available with the optional installation of PC2 3200 MHz Registered DDR2 SDRAM DIMM memory kits.

Standard Memory Replaced with Optional Memory

Up to 6,144-MB memory is available with the removal of the standard 1-GB of memory and the optional installation of PC2 3200 MHz Registered DDR2 SDRAM DIMM memory option kit.

NOTE: Chart does not represent all possible configurations.

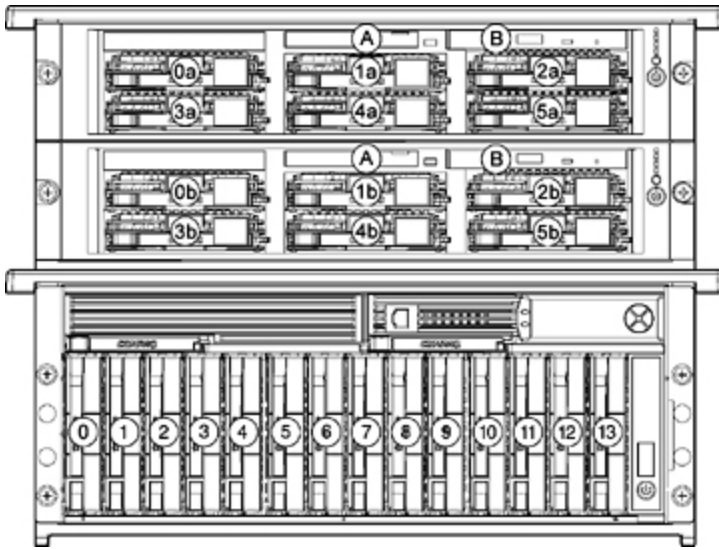| Memory		Slot					
		1	2	3	4	5	6
Standard	1 GB	512 MB	512 MB	Empty	Empty	Empty	Empty
Optional	5,120 MB	512 MB	512 MB	1 GB	1 GB	1 GB	1 GB
Maximum	6,144 MB	1 GB	1 GB	1 GB	1 GB	1 GB	1 GB

NOTE: Slots 3 and 6 can be configured as online spare memory through RBSU.

Following are memory options available from HP:
- 1GB of Advanced PC2 PC3200 DDR2 SDRAM DIMM Memory Kit (2 x 512 MB)   343055-B21
- 2GB of Advanced PC2 PC3200 DDR2 SDRAM DIMM Memory Kit (2x1024 MB)   343056-B21
- 4GB of Advanced PC2 PC3200 DDR2 SDRAM DIMM Memory Kit (2x 2048 MB)   343057-B21

NOTE: 4GB Kit will be delayed. Availability is expected in 4Q04.

Storage

0a - 5a	Six 1" Wide Ultra320 SCSI hot plug hard drive bays
0b-5b	Six 1" Wide Ultra320 SCSI hot plug hard drive bays
0-13	Fourteen 1" Wide Ultra320 SCSI hot plug hard drive bays
A	Optional 1.44-MB Diskette Drive
B	24x IDE CD-ROM (Slimline) **NOTE:** Only a CD-ROM drive is qualified for use in the MultiBay slot.
0a & 0b	Convertible 1.6" drive bay - supports either (1) 1" Hot Plug Drive or (1) 1.6" AIT or 20/40/100-GB DAT Hot Plug Tape Drive

Drive Support

	Quantity Supported	Position Supported	Controller
1.44-MB Diskette Drive	Up to 1	a	Integrated (Optional)
IDE CD-ROM Drive	Up to 1	b	Integrated IDE

Hard Drives

Ultra320 Hot Pluggable Drives

	Quantity Supported	Position Supported	Controller
1-inch	Up to 26	0a-5a, 0b-5b, 0-13	

300-GB 10,000 rpm	Smart Array 6i Controller (integrated on system board)
146.8-GB 10,000 rpm	Modular Smart Array 500 controller
72.8-GB 10,000 rpm	Smart Array 532 Controller
146.8-GB 15,000 rpm	64-bit/66-MHz Dual Channel Wide Ultra3 SCSI Adapter, Alternate OS
72.8-GB 15,000 rpm	64-Bit/133Mhz Dual Channel Ultra320 SCSI Adapter
36.4-GB 15,000 rpm	

NOTE: All U320 Universal Hard Drives are backward compatible to U2 or U3 speeds. U320 drives require an optional U320 Smart Array Controller or U320 SCSI HBA to support U320 transfer rates.

Maximum Storage Capacity – (Per DL380 G4 Server)

Internal	1.80 TB (6 x 300 GB Ultra320 1")

Maximum Shared Storage Capacity (Modular Smart Array 500 G2)

Internal	4.20 TB (14 x 300 GB Ultra320 1")

QuickSpecs

Storage

Tape Autoloaders

	Quantity Supported	Position Supported	Controller
1/8 Ultrium 460 Tape Autoloader, Tabletop, 1/8 Ultrium 230 Tape Autoloader, Tabletop, 1/8 SDLT 320 Tape Autoloader, Tabletop, 1/8 DLT VS80 Tape Autoloader, Tabletop	1	External	64-Bit/133MHz Dual Channel Ultra320 SCSI Adapter
SSL1016 Ultrium 460 Tape Autoloader, Tabletop			
SSL1016 SDLT 320 Tape Autoloader, Tabletop			

QuickSpecs

Power Specifications

Part Number	194989-001
Spare Kit	19982-B21
Operational Input Voltage Range (V rms)	90 to 264
Frequency Range (Nominal) (Hz)	47 to 63 (50/60)

Nominal Input Voltage (Vrms)	100	115	208	220	230	240
Max Rated Output Wattage Rating	400	400	400	400	400	400
Nominal Input Current (A rms)	5.8	5.0	2.7	2.5	2.4	2.3
Max Rated Input Wattage Rating (Watts)	571	563	548	541	541	541
Max. Rated VA (Volt-Amp)	583	575	559	552	552	552
Efficiency (%)	70	71	73	74	74	74
Power Factor	0.98	0.98	0.98	0.98	0.98	0.98
Leakage Current (mA)	0.31	0.36	0.65	0.69	0.72	0.75
Maximum Inrush Current (A peak)	50	50	50	50	50	50
Maximum Inrush Current duration	20	20	20	20	20	20

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

To drill down to calculators:
-    Click on: "ProLiant Servers"
-    Click on the Server of interest. Example: DL380 G4 Packaged Cluster
-     Click on: "Power Calculator" link. (You may need to scroll down to see it)

Power Cords (13 Cord Sets)	
Country	Power Cord Part Number
APD	139867-006
APD	100613-003
APD	100614-003
Australia	100611-007
Europe	100614-003
France	100614-003
Germany	100614-003
Japan	139867-006
PRC	139867-006
PRC	100613-003
PRC	100661-007
UK	100613-003
US	163719-002

QuickSpecs

Technical Specifications

System Unit - DL380 G4 Server	Dimensions (HxWxD)	3.38 x 17.5 x 25.75 in (8.59 x 44.45 x 65.40 cm)	
	Weight	Maximum	60 lb (27.22 kg)
		No drives	47.18 lb (20.41 kg)
	Input Requirements (per power supply)	Range Line Voltage	100-132 VAC to 200-240 VAC
		Rated Input Current	7.5A (100VAC) / 3.8A (200VAC)
		Rated Input Frequency	50 to 60 Hz
		Rated Input Power	735 W
	BTU Rating	2,508 BTU/HR	
	Power Specifications	To review typical system power ratings use the Active Answers Power Calculator which is available via the online tool located at URL: http://h30099.www3.hp.com/configurator/calc/Power%20Calculator%20Catalog.xls To drill down to calculators: - Click on: "ProLiant Servers" - Click on the Server of interest. Example: DL380 G4 Packaged Cluster - Click on: "Power Calculator" link. (You may need to scroll down to see it)	
	SCSI Connectors	One external VHDCI connector	
	Power Supply Output Power (per power supply)	Rated Steady-State Power	575W
		Maximum Peak Power	575W
	Temperature Range	Operating	50° to 95° F (10° to 35° C)
		Shipping	-22° to 122° F (-30° to 50° C)
	Relative Humidity (non-condensing)	Operating	10% to 90%
		Shipping	5% to 95%
	Maximum Wet Bulb Temperature	82.4° F (28° C)	
	Acoustic Noise	Idle (Fixed Disk Drives Spinning)	
		L WAd (BELS)	7.4
		L pAm (dBA)	58
		Operating (Random Seeks to Fixed Disks)	
		L WAd (BELS)	7.4
		L pAm (dBA)	58

Modular Smart Array 500 G2	Dimension	4.5 x 1.375 x 9.5 in (11.4 x 3.5 x 24.1 cm)	
	Weight	Maximum (Net)	50 lb (22.5 kg)
	Input Requirements (per power supply)	Rated Input Voltage	100 to 240 VAC
		Rated Input Frequency	50 to 60 Hz
		Rated Input Current	2.3 A at 120 VAC typical, 6A Maximum
		Input Power (Max)	549 W*
		Heat Dissipation (max)	1876 Btu/hr*
		*Input Power and Heat Dissipation specifications are maximum values and apply to worst-case conditions at full rated power supply load. The power/heat dissipation for your installation will vary depending on the equipment configuration.	
	Temperature Range	Operating	50° to 95° F (10° to 35° C)
		Shipping	-2° to 122° F (-0° to 50° C) NOTE: Rated 1°C per 1000 feet of elevation to 10000 ft.
	Relative Humidity (non-condensing)	Operating	10% to 90%
		Non-operating	Up to 95%

QuickSpecs

HP ProLiant DL380 Generation 4 (G4) Packaged
Cluster with MSA500 G2

Technical Specifications

Packaged Cluster	Dimensions	16 x 21 x 29 in (17.5 x 48.3 x 52.1 cm)
	Weight	Standard Configuration 190 lb (86.18 kg) (No drives dual power supplies)

Integrated Smart Array 6i Plus Controller	Data Compatible with all Smart Array Controllers	Yes
	Instant Upgrades to other Smart Array Controllers	Yes
	Consistent Software Manageability Tools	Yes
	PCI-X Bus	64-bit up to 133 MHz (integrated on system board)
	PCI-X Peak Data Transfer Rate	800 MB/s
	SCSI Protocols Supported	Ultra320, Ultra3, Ultra2
	SCSI Peak Data Transfer Rate	320 MB/s per channel NOTE: For ProLiant servers having TWO internal drive bays on separate SCSI ports: SCSI Peak Data Transfer Rate is 320 MB/s; 160 MB/s per channel and Channels is 2.
	Channels	2 NOTE: For ProLiant servers having two internal drive bays on separate SCSI ports: SCSI Peak Data Transfer Rate is 320 MB/s; 160 MB/s per channel and Channels is 2.
	SCSI Ports (external/internal)	0/2 NOTE: For ProLiant servers having two internal drive bays on separate SCSI ports: SCSI Peak Data Transfer Rate is 320 MB/s; 160 MB/s per channel and Channels is 2.
	Drives Supported (maximum)	Maximum = total number of drives NOTE: Maximum is the total number of internal drives on each specific ProLiant server.
	Cache	64 MB Read Cache
	Battery-Backed Write Cache	Yes, with installation of Battery-Backed Write Cache Enabler, up to 64MB
	RAID Support	0, 1, 1+0, 5
	Logical Drives (maximum)	Maximum = total number of drives
	Online Configuration	Yes
	Online Capacity Expansion	Yes
	Logical Drive Capacity Extension	Yes
	Online Stripe Size Migration	Yes
	Online RAID Level Migration	Yes
	Online Spare Support	Yes
	Automatic Data Recovery	Yes
	Drive Roaming	Yes
	Redundant Controllers	No

Technical Specifications

NC7782 Dual Port PCI-X Gigabit NIC (embedded) 10/100/1000 WOL (Wake On LAN)	Network Interface	10Base-T/100Base-TX/1000 BaseTX	
	Compatibility	IEEE 802.3/802.3u compliant	
	Data Transfer Method	64-bit bus-master PCI-X	
	Network Transfer Rate	10Base-T (Half-Duplex)	10 Mb/s
		10Base-T (Full-Duplex)	20 Mb/s
		100Base-TX (Half-Duplex)	100 Mb/s
		100Base-TX (Full-Duplex)	200 Mb/s
		1000BaseTX (Half-Duplex	1000Mb/s
		1000BaseTX (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 UTP; up to 328 ft (100 m)
		1000BaseTX	Category 5 UTP; up to 328 ft (100 m)