

Overview

The HP ProLiant DL380 G4 Data Protection Storage Server is a network attached storage (NAS) appliance that utilizes Microsoft System Center Data Protection Manager 2006 (DPM) to provide rapid & reliable recovery, near continuous data protection, and operational simplicity for disk-based backup of Windows file servers in an Active Directory domain. Disk based backup and simple end-user file recovery deliver a low total cost of ownership.

As a member of the Windows Server System Manager family, DPM has been designed to optimize disk-based backup and recovery of Windows file servers and is a fast and cost effective method to recover file data lost to user error or equipment corruption. HP has worked closely with Microsoft on DPM and as such, ProLiant Data Protection Storage Servers have been optimized to deliver simplicity without compromise, resulting in a solution that is cost effective and easy to implement while providing immediate business value.

Data Protection Storage Servers complement existing IT data protection infrastructures and are non-disruptive to IT environments. They can be extended further into the data protection value chain through optional SCSI interface and tape backup software to deliver a disk-to-disk-to-tape data protection framework.

The HP ProLiant DL380 G4 Data Protection Storage Server is currently available in a bundled 9TB configuration comprised of the DL380 G4 Data Protection Storage Server and two MSA30 external storage cabinets each fully loaded with 300GB SCSI drives.

What is Microsoft System Center Data Protection Manager (DPM)? Data Protection Manager, the newest member of the Microsoft® Windows Server™ System focuses on disk-based data protection and recovery of Windows based File Servers in an Active Directory domain. DPM works with Microsoft Windows 2000 Server, Microsoft Windows Server 2003, and Windows Storage Server 2003 to deliver best-in-class disk-based data protection services. DPM uses replication, Volume Shadow Copy Services infrastructure and a rich, policy-driven engine to provide businesses of all sizes with better control of their recovery infrastructure, continuous protection, and rapid data recovery at the lowest TCO.

Product Highlights	Rapid and Reliable Recovery	<ul style="list-style-type: none">• Disk based backup and recovery provides a fast and reliable method to recover individual lost files and end-user restore functionality allows users to instantly recover previous versions of their own files from snapshots stored on the server. The DL380 G4 base platform offers reliability through hot-swappable power supplies, redundant cooling fans, failover to spare disk drives, and integrated lights out (iLO) management.
	Cost Effective Near Continuous Protection	<ul style="list-style-type: none">• Synchronizes byte level changes on an hourly basis which reduces the risk exposure associated with data loss by 96% when compared to daily backups. This product includes the operating system, Microsoft Data Protection Manager (DPM) software, and 9TB of pre-configured storage in an easy to implement and administer appliance.
	Scalable Capacity	<ul style="list-style-type: none">• Bundled with internal storage along with a Smart Array 6402 Controller and two MSA30 Storage Enclosures each containing 14 x 300GB drives delivering a total of 9TB available raw storage. This base configuration can be extended through additional Smart Array Controllers and MSA Enclosures; however, performance considerations above 20TB total capacity in high data churn environments indicates the need for additional DL380 G4 Data Protection Storage Servers to help distribute work load.

Overview

Benefits Of Data Protection Storage Servers running Microsoft Data Protection Manager (DPM)

Near continuous protection

End-user file restore

Faster backup and recovery

High reliability

Start protecting network file servers in minutes

Low total cost of ownership (TCO)

Integrates into existing IT environments

Eliminates backup window issues on production servers

Flexible backup scheduling and verification

Bundled with full support for Data Protection Manager

- Backs up data snapshots at fixed intervals and synchronizes data between snapshots based on business policy so that critical data can be protected at all times, minimizing potential data loss between backups to an as little as an hour. Capable of storing up to 64 snapshots.
- Enables end users to perform point-in-time file recoveries via Windows Explorer and Microsoft Office for accidental file deletion or corruption.
- Disk based backup and recovery provides the one of the fastest ways to recover individual lost files and end-user restore functionality allows users to instantly recover previous versions of their own files.
- The HP ProLiant Storage Server platform, RAID configured Modular Smart Array, disk-based storage, and online verification and administrative alert functionality ensures a reliable backup and recovery experience.
- Fully pre-configured and optimized for out of the box deployment, this solution automatically discovers and alerts administrators that unprotected servers are on the network and the comprehensive wizard interface reduces the time it takes to protect valuable file data and delivers simplicity without compromise.
- Estimates put 70% of the cost of backup and recovery related to manual labor. This solution integrates within the existing Windows environment, utilizes industry standard components, automates much of the backup/restore function, and overcomes many issues associated with legacy or proprietary systems.
- Works with existing tape backup and data protection strategies as well as file servers in Active Directory domains running Windows Server 2000, 2003 or Windows Storage Server 2003 based products such as the HP ProLiant Storage Server family. Supports network throttling to maximize network performance. Customer's existing tape backup software can be used to backup this server to tape.
- Eliminates the need to plan backup windows for production file servers. Storage growth due to regulatory compliance, business expansion, and increasing globalization has caused businesses to no longer have time to do a backup and for those backups to take longer than the time available.
- Production file server replication and shadow copy settings can be independently managed to meet the recovery objectives of individual customers. Verification is as easy as browsing the disk on the Data Protection Storage Server.
- HP Data Protection Storage Server includes 1 full year of software support for Microsoft Data Protection Manager.

Overview

Technical Specifications DL380 G4 Data Protection Storage Server

- 2U form factor
- Single Intel Xeon 3.4 GHz/800MHz FSB with 2MB L2 Cache
- 1 GB memory standard expandable to 4 GB); PC2-3200R 400MHz
- Windows Storage Server 2003 Standard Operating System
- Three 64-bit PCI-X slots, including two non-hot plug 100MHz slots and one non-hot plug 133MHz slot
- NC7782 Dual Port PCI-X Gigabit NICs (embedded)
- Redundant Power Supplies; 2 x 575-Watt Hot Plug Power Supplies
- Redundant Cooling; 8 hot-plug Fans total
- Integrated Lights-Out (iLO) Management standard on system board, Advanced License Pack included
- 6402 External Smart Array Controller with 128MB Write Cache

Bundled Modular Smart Array 30 (MSA30)

- Two Modular Smart Array 30 (MSA30) storage cabinets each with fourteen 300GB SCSI hard drives (1 hot-swappable spare per MSA30)
- 3U form factor per MSA30.
- Supports up to 14 (1-inch) Ultra320 (as well as legacy Ultra3 and Ultra2 drives) Universal hard disk drives.
- Award-winning innovative SCA (Single Connect Attach) direct connect drive carrier - provides better cooling and reliability for 10K and 15K drives.
- Hot pluggable disk drives, power supplies, and fans.
- Redundant fans and dual power supplies
- Environmental Monitoring Unit (EMU) - Monitors environmental conditions within the enclosure and components such as the power supplies and fans.

Optional Software

Optional Software

- **HP OpenView Management tools** - The ProLiant DL380 G4 Data Protection Storage Server supports Open View through SNMP. For more information HP OpenView: <http://www.managementsoftware.hp.com/>
- **HP OpenView Storage Data Protector** - The HP OpenView Storage Data Protector software is enterprise data protection and disaster recovery, ensuring recovery from any disruption. Data Protector integrates a variety of techniques to eliminate backup and recovery windows. The capabilities to eliminate planned downtime range from online backup and backup of open files to zero-downtime, zero-impact backup. The software provides industry-leading instant recovery as well as several disaster recovery alternatives to eliminate unplanned downtime, allowing recovery of entire data centers in minutes.

Data Protector is enabling organizations to reduce costs by automating routine tasks to maximize the effectiveness of the data protection staff. For the price of an entry-level product, it provides the enterprise functionality customers need. Data Protector scales from single server to distributed enterprise, covering an extensive range of heterogeneous applications, operating environments and storage configurations with a single solution.

The ProLiant DL380 G4 Data Protection Storage Server supports using Data Protector as the tape and disk backup software solution for heterogeneous O/S as well as application data protection. For more information on HP OpenView Data Storage Protector:

<http://h18006.www1.hp.com/products/storage/software/dataprotector/index.html>

Service and Support, HP Care Pack, and Warranty Information

HP Care Pack Services offer upgraded service levels to extend and expand your standard product warranty with easy to buy, easy to use support packages that help you make the most of your hardware and software investments. They let you choose the support levels that meet your business requirements, from basic to mission-critical. They help you contain total cost of ownership.

HP Care Pack warranty extensions can be purchased along with HP products to cost-effectively upgrade or extend your warranty. For many products, post-warranty HP Care Pack Services are available when your original warranty has expired.

- Warranty and Services Included with the Product** The HP ProLiant DL380 G4 Data Protection Server comes with a 3-3-3 warranty (3 years parts exchange, 3 years labor, and 3 years on-site, next business day response) for product hardware.
- Note that standard HP warranty ensures Software media will be free of physical defects for a period of 90 days from delivery. However the HP ProLiant Data Protection Storage Server products all come with a full year of 9 hours by 5 days software advisory and remedial software telephone support, new version license rights, and media and documentation distribution service.
 - The HP ProLiant Data Protection Manager product software support can be uplifted to include
 - SW Phone-In, 24x7, 2 hr call back
 - SW Support for Storage, 24x7 2hr call back

For more information about HP's Global Limited Warranty and Technical Support, visit ftp://ftp.compaq.com/pub/products/storageworks/warranty/EN_321708-008.pdf

HP offers a portfolio of services ranging from Storage Design and Architecture that provides a complete multi-site design and implementation, to various levels of on-going maintenance support. Additionally the basic warranty service can be enhanced and/or HP Installation services can be purchased.

Available HP Care Pack Services Extend your product warranty with a wide choice of cost-saving support packages.

HP Care Pack Services are sold by HP and HP authorized enterprise and commercial resellers. Services for customers purchasing via direct and enterprise resellers are quoted using HP order configuration tools.

- HP Care Pack is defined as an upgrade to the product warranty attribute, available for a specific duration and hours of coverage.
- HP Care Pack is not available for less than the product's warranty duration.
- HP Care Pack is available for sale anytime during the warranty period for most products, but the commencement date will be the same as the Warranty Start Date (delivery date to end user customer). Proof of purchase may be required.
- HP Care Pack services are prepaid.

For additional information on Product Services and HP Care Pack, as well as orderable part numbers, please refer to the URL: <http://www.hp.com/hps/carepack/>.

If you have specific questions about availability or how to obtain services contact your local HP representative. Contact information for your local area can be found at: <http://www.hp.com/services>.

Service and Support, HP Care Pack, and Warranty Information

Care Pack	Duration	Commercial reseller channels	Direct & Enterprise channels
Support Plus for Storage	1 year	available	HA110A1 - xxx
	3 years	available	HA110A3 - xxx
	4 years	n/a	HA110A4 - xxx
	5 years	n/a	HA110A5 - xxx
Support Plus 24 for Storage	1 year	available	HA109A1 - xxx
	3 years	available	HA109A3 - xxx
	4 years	n/a	HA109A4 - xxx
	5 years	n/a	HA109A5 - xxx
Proactive 24 (P24)	1 year	n/a	HA111A1 - xxx
	3 years	n/a	HA111A3 - xxx
	4 years	n/a	HA111A4 - xxx
	5 years	n/a	HA111A5 - xxx
SW Phone-In, 24x7, 2 hr call back	1 year	available	HA106A1 - xxx
	3 years	available	HA106A3 - xxx
	4 years	n/a	HA106A4 - xxx
	5 years	n/a	HA106A5 - xxx
SW Support for Storage, 24x7 2hr call back	1 year	available	HA107A1 - xxx
	3 years	available	HA107A3 - xxx
	4 years	n/a	HA107A4 - xxx
	5 years	n/a	HA107A5 - xxx
Where the Flex band is:			
		397593-B21	xxx is 82L
		397594-B21	xxx is not yet available
		398714-B21	xxx is 82M
		398715-B21	xxx is 82N
		398893-B21	xxx is 82P

To find HP Care Pack Services available via HP authorized commercial resellers, visit http://h30125.www3.hp.com/csn/salesmktg/elfpack/elf_nonlkup_crylang.asp?code=ELNL

Deployment and Per Event Service Descriptions

The Installation service deployment activities will include:

- Unpacking the product, performing initial inspection, and setting up product hardware and power connectivity
- Connecting Customer-provided cables
- Setting the network address and setting appropriate domain variables in the NAS operating system
- Configuring the storage by creating a file share
- Configuring user mapping to make the share available for access

Care Pack	Duration	Commercial reseller channels	Direct & Enterprise channels
Installation for Storage (per event)	One time	available	HA113A1 - 5D6

Service and Support, HP Care Pack, and Warranty Information

eSupport

HP eSupport is a portfolio of technology-based services that assist you with managing your business environment - from the desktop to the data center.

Support Portal

The HP support portal provides one-stop access to the information, tools and services you need to manage the daily operations of your IT environment.

Features include:

- Access to self-solve tools (including search technical knowledge base)
- Efficient logging and tracking of support cases
- Collaboration with other business and IT professionals
- Download of patches and drivers
- Access to diagnostic tools
- Proactive notification of relevant information

Access to certain features of the support portal requires an HP service agreement. To access the support portal, visit <http://www.hp.com/support>

HP Education Services

For more information about HP Education Services for Storage and SAN, visit <http://education.hp.com/curr-storsan.htm>

Awards

HP IT Resource Center (ITRC) and HP Business Support Center (BSC) were selected as two of the Association of Support Professional's (ASP) Top Ten award winners in its seventh annual Ten Best Web Support Sites competition for 2004, an award that showcases excellence in online service and support. <http://www.hp.com/hpinfo/newsroom/press/2004/040616a.html>

HP earned the No. 1 ranking in customer satisfaction among vendors of corporate information technology (IT) service and support, according to the newly released Technology Business Research Inc.'s Corporate IT Service and Support survey covering the first quarter of 2004. <http://www.hp.com/hpinfo/newsroom/press/2004/040624a.html>

Components

For more information about Deployment, Per Event, Consulting and Education services for HP Storage, visit: <http://www.hp.com/hps/storage/>

For more information about HP Care Pack Services for Storage, visit: http://www.hp.com/hps/carepack/storage/cp_networked.html

For more information about HP Storage Software, services and updates, visit: <http://h18006.www1.hp.com/storage/software.html>

If you have specific questions, contact your local HP representative. Contact information for a representative in your area can be found at "Contact HP" <http://www.hp.com>

Product Configuration Wizard

In the following steps you will be guided through a series of steps to help you configure a customized model.

NOTE: Options ship separately and are not factory integrated.

Step 1 - Order base configuration

<p>HP ProLiant DL380 G4 9 TB Data Protection Storage Server 398893-B21</p>	<p>Processor Cache Memory Memory Network Controller Storage Controller Hard Drive (Internal Storage) Diskette Drive Optical Drive Storage Enclosures Form Factor Remote Management Data Protection Profile</p>	<p>(1) Intel Xeon Processor 3.4 GHz/ 800MHz FSB standard (up to 2 supported) 2 MB L2 Cache 1 GB 2-way interleaved PC2-3200R 400MHz DDR2 SDRAM (Standard) up to 4 GB (Maximum) NC7782 Dual Port PCI-X Gigabit NIC (embedded) Ultra 320 Smart Array 6i Controller with 128MB BBWC (integrated on system board) (2) 36.4 GB Ultra320 15K 1" drives (for mirrored OS internal to server) (4) 300 GB Ultra320 15K 1" drives 1.44 MB Diskette Drive Slimline DVD-ROM Drive (8x24) Standard two (2) Modular Smart Array 30 SCSI enclosure complete with dual power supply and fourteen (14) 300 GB 1" Ultra320 10K RPM drives.</p> <p>NOTE: External user storage is installed in the included Modular Smart Array 30 SB storage.</p> <p>DL380 G4 with (2) MSA30 Cabinets: (8U Total) iLO Port with Advance License Pack Included</p> <p>On average, the 9TB Data Protection Storage Server will protect approximately 5TB of file data residing on Windows file servers. The remaining raw capacity is used for DPM snapshots and overhead while some is lost to RAID. This factor is based on an average change rate of 10% per snapshot. Many installations will be able to realize larger protection groups due to lower churn profiles.</p> <p>Each Data Protection Storage Server ships with three (3) Data Protection Management Licenses (DPML) which license the server to protect 3 production file servers. See step 4 for information on adding additional licenses.</p>
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Step 2 - add optional second processor

You may add a second processor to a ProLiant DL380 G4 Data Protection Storage Server Base,

Processor	Intel Xeon X3.4 - 2 MB/800MHz Processor Option Kit	378750-B21
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Product Configuration Wizard

Step 3 - add optional additional memory

Memory	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: Base Model comes standard with 1 GB of memory and is expandable to 4 GB.

Step 4 - add additional DPM Server Agent LTU's

Server Agent License Packs	Microsoft System Center Data Protection Management License, 1 Server Agent NOTE: The base configuration ships with license to protect 3 Windows file server. One Data Protection Management License (DPML) is required for each additional Windows file server that is protected by the Data Protection Storage Server.	403557-B21
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Step 5 - add SCSI interface to connect to tape devices

SCSI HBA	64-Bit/133-MHz Dual Channel Ultra320 SCSI Adapter	268351-B21
	64-Bit/133-MHz Single Channel Ultra320 SCSI HBA G2	374654-B21

Step 6 - add tape backup solution

Tape Drives	The DL380 G4 Data Protection Storage Server can be part of a complete disk-to-disk-to-tape data protection infrastructure by integrating a tape backup solution. HP offers industry leading tape backup solutions. For more information and assistance in determining which solution is right for your needs, please visit: http://www.hp.com/go/tape
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Step 7 - additional network cards

The system comes with an embedded NC7782 Dual Port PCI-X Gigabit NIC. Select additional cards for higher performance and further redundancy.

Product Configuration Wizard

NC1020 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 NC7782 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).

Alacritech 1000x1 Single Port Gigabit Server and Storage Accelerator Copper wire (Model Number: 2000-100007)

Alacritech 1000x1 Single Port Gigabit Server and Storage Accelerator Fibre (Model Number: 2000-100009)

Alacritech 100x4 Quad-Port Fast Ethernet Server Accelerator (Model Number: 2000-100000)

NOTE: Additional technical and purchasing information regarding Alacritech can be obtained at <http://www.alacritech.com/hp/>

Step 8 - add UPS, rack and power distribution unit (pdu)

NOTE: The ProLiant DL380 G4 Data Protection Storage Server includes a standard rail kit for HP racks.

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	HP UPS R1500 XR (100 to 127) (NA)	204404-001
	HP UPS R1500 XR (208 to 480) (Int'l)	204404-B31
	HP UPS R1500 XR (100 to 127) (Japan)	204404-291
	HP UPS R3000 XR (120V) (NA)	192186-001
	HP UPS R3000 XR (208V) (NA)	192186-002
	HP UPS R3000 XR (100V) (Japan)	192186-291
	HP UPS R3000 XR (208V) (Japan) HP UPS R3000 XR (200V) (Japan)	192186-292
	HP UPS R3000 XR (230V) (Int'l - detachable cord)	192186-B31
	HP UPS R3000 XR (230V) (16A IEC309 Plug)	192186-B32
	HP UPS R3000 XR (230V) (16A CEE 7/7 SCHUKO Plug)	192186-B33
	HP UPS R3000 XR (230V) (16A BS-546 Plug)	192186-AR1
	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 R12000 XR N+x (200-240V) (WW-hardwired)	207552-B22

NOTE: The UPS R12000 XR has a hardwired input and output connection.

Product Configuration Wizard

Modular PDUs 1U/0U (Up to 32 outlets)	HP Modular Power Distribution Units (mPDU), Low Volt Model, 24A (100-127 VAC) (NA, Japan)	252663-D71
	NOTE: This mPDU (252663-D71) may also be used to connect the low volt model of the UPS R3000 XR.	
	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)	252663-B21
	NOTE: This mPDU (252663-B21), 40A model has a hardwired input.	
	HP Modular Power Distribution Units (mPDU), High Volt Model, 16A (200-240 VAC) (WW)	252663-B24
	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.	
	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://h18000.www1.hp.com/products/quickspecs/11041_na/11041_na.HTML (North America) http://h18000.www1.hp.com/products/quickspecs/11041_div/11041_div.HTML (Worldwide)	
Third Party Rack Adapter Kit (for wide racks)	Rack Adapter Kit NOTE: Not required for most racks. This kit allows HP rack servers to fit in racks that are 24" wide.	332815-B21
Rack Shipping Kit	Shipping Kit for Round Hole Racks	371482-B21
HP Rack 10000 Series (Graphite Metallic)	HP Rack S10614 (14U) Rack Cabinet - Shock Pallet	292302-B22
	HP Rack 10842 (42U, 800mm wide) – Pallet	257415-B21
	HP Rack 10842 (42U, 800mm wide) – Shock Pallet	257415-B22
	HP Rack 10647 (47U) – Pallet	245160-B21
	HP Rack 10647 (47U) – Crated	245160-B23
	HP Rack 10642 (42U) – Pallet	245161-B21
	HP Rack 10642 (42U) – Shock Pallet	245161-B22
	HP Rack 10642 (42U) – Crated	245161-B23
	HP Rack 10636 (36U) – Pallet	245162-B21
	HP Rack 10636 (36U) – Shock Pallet	245162-B22
	HP Rack 10636 (36U) – Crated	245162-B23
	HP Rack 10622 (22U) – Pallet	245163-B21
	HP Rack 10622 (22U) – Shock Pallet	245163-B22
	HP Rack 10622 (22U) – Crated	245163-B23

Product Configuration Wizard

NOTE: -B21 (pallet) used to ship empty racks shipped on a truck
 -B22 (shock pallet) used to ship racks with equipment installed (by custom systems, VARs and Channels)
 -B23 (crated) used for air shipments of empty racks

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

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

http://h18000.www1.hp.com/products/quickspecs/10995_div/10995_div.HTML
 (Worldwide)

http://h18000.www1.hp.com/products/quickspecs/10995_na/10995_na.HTML
 (North America)

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

Rack Options for Rack 10000 Series

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

KVM USB Interface Adapter	336047-B21
Server Console Switch 1 x 4 port (100-230 VAC)	400336-001
Server Console Switch, 0 x 1 x 8 port	336044-B21
Server Console Switch, 0 x 2 x 16 port	336045-B21
Server Console Switch 1 x 4 port (100-230 VAC) (Int'l)	400336-B31
Server Console Switch 1 x 4 port (100-230 VAC) (Japan)	400336-291
IP Console Switch Box, 1 x 1 x 16	262585-B21
IP Console Switch Box, 3 x 1 x 16	262586-B21
Switch Box Connector Kit (high voltage) (Int'l)	144007-B33
TFT7210R Rack Mounted 17" Monitor	348373-B21
TFT5600 Rack Keyboard Monitor	221546-xx1

Country Code Key (for TFT5600 RKM Rack Keyboard Monitor (PN 221546-xx1))

XX = 00	US	XX = 09	Norway
XX = 03	UK	XX = 10	Sweden/Finland
XX = 04	Germany	XX = 11	Switzerland
XX = 05	France	XX = 13	Portugal
XX = 06	Italy	XX = 18	Belgium
XX = 07	Spain	XX = 29	Japan
XX = 08	Denmark	XX = B3	International

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

Product Configuration Wizard

Step 9 - Order HPTS Service Care Packs

Service Care Packs or warranty upgrades enhance the base hardware warranty provided with the HP ProLiant Storage Server. The Care Packs provide support for product software and operating system with extended hours of coverage and reduced response time. And Care Packs allow the customer to budget fixed cost support rather than variable costs that include parts and labor.

Note that the standard HP warranty ensures software media will be free of physical defect for a period of 90 days from delivery. However the HP ProLiant Data Protection Server products all come with a full year of 9 hours by 5 days software advisory and remedial software telephone support, new version license rights, and media and documentation distribution service. Extended hours of coverage and additional years of service are available should the customer require more protection.

Power Specifications

Models with Hot Plug Power

Part Number	280127-001
Spare Kit	305447-001
Operational Input Voltage Range (V rms)	90 - 264
Frequency Range (Nominal) (Hz)	47 - 63 (50/60)

Nominal Input Voltage (Vrms)	100	115	208	220	230	240
Max Rated Output Wattage Rating	325	325	325	325	325	325
Nominal Input Current (A rms)	4.5	3.9	2.1	2.0	1.9	1.8
Max Rated Input Wattage Rating (Watts)	445	442	433	428	425	422
Max. Rated VA (Volt-Amp)	454	451	442	437	434	431
Efficiency (%)	73.1	73.6	75.1	75.9	76.4	77
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)	30	30	30	30	30	30
Maximum Inrush Current duration (milliseconds)	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/powercalcs.asp>.
- To drill down to calculators:
 - Click on: "ProLiant Servers"
 - Click on the Server of interest. Example: DL380 G4
 - Click on: "Power Calculator" link. (You may need to scroll down to see it)

Power Cords (Nema 5-15P to IEC320-C13)

Country	Standard Power Cord Part Number	Option Power Cord Part Number
JPN	139867-006	227100-291
US	163719-002	227099-001

Power Cords (IEC320-C13 to IEC320-C14)

Country	Standard Power Cord Part Number	Option Power Cord Part Number
US	142263-003	142257-003
JPN	142263-003	142257-003
APD	142263-003	142257-003
EURO	142263-003	142257-003
PRC	142263-003	142257-003

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

Technical Specifications

System Unit Rack	Dimensions (HxWxD)	3.38 x 17.54 x 26.01 in (8.59 x 44.54 x 66.07 cm)												
	Weight	<table border="0"> <tr> <td>Maximum</td> <td>60 lb (27.22 kg)</td> </tr> <tr> <td>No drives</td> <td>47.18 lb (20.41 kg)</td> </tr> </table>	Maximum	60 lb (27.22 kg)	No drives	47.18 lb (20.41 kg)								
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	Input Requirements (per power supply)	<table border="0"> <tr> <td>Rated Input Voltage</td> <td>100 to 132 VAC/200 to 240 VAC</td> </tr> <tr> <td>Rated Input Current</td> <td>7.5A (100V) to 3.8A (200V)</td> </tr> <tr> <td>Rated Input Frequency</td> <td>50 to 60 Hz</td> </tr> <tr> <td>Rated Input Power</td> <td>635W</td> </tr> </table>	Rated Input Voltage	100 to 132 VAC/200 to 240 VAC	Rated Input Current	7.5A (100V) to 3.8A (200V)	Rated Input Frequency	50 to 60 Hz	Rated Input Power	635W				
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Rated Input Power	635W													
	BTU Rating	2,508 BTU/HR												
	Power Specifications	<p>To review typical system power ratings use the Active Answers Power Calculator which is available via the online tool located at URL: http://h30099.www3.hp.com/configurator/powercalcs.asp.</p> <p>To drill down to calculators:</p> <ul style="list-style-type: none"> - Click on: "ProLiant Servers" - Click on the Server of interest. Example: DL380 G4 - 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)	<table border="0"> <tr> <td>Rated Steady-State Power</td> <td>575W</td> </tr> <tr> <td>Maximum Peak Power</td> <td>575W</td> </tr> </table>	Rated Steady-State Power	575W	Maximum Peak Power	575W								
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	Relative Humidity (non-condensing)	<table border="0"> <tr> <td>Operating</td> <td>10% to 90%</td> </tr> <tr> <td>Non-operating</td> <td>5% to 95%</td> </tr> </table>	Operating	10% to 90%	Non-operating	5% to 95%								
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	Maximum Wet Bulb Temperature	82.4° F (28° C)												
	Acoustic Noise	<table border="0"> <tr> <td colspan="2">Idle Minimum (Fixed Disk Drives Spinning)</td> </tr> <tr> <td>L WAd (BELS)</td> <td>7.4</td> </tr> <tr> <td>L pAm (dBA)</td> <td>58</td> </tr> <tr> <td colspan="2">Operating Minimum (Random Seeks to Fixed Disks)</td> </tr> <tr> <td>L WAd (BELS)</td> <td>7.4</td> </tr> <tr> <td>L pAm (dBA)</td> <td>58</td> </tr> </table>	Idle Minimum (Fixed Disk Drives Spinning)		L WAd (BELS)	7.4	L pAm (dBA)	58	Operating Minimum (Random Seeks to Fixed Disks)		L WAd (BELS)	7.4	L pAm (dBA)	58
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L pAm (dBA)	58													

Technical Specifications

Smart Array 6i Controller (integrated on system board)	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 (integrated on system board)
	PCI-X Peak Data Transfer Rate	800 MB/s
	SCSI Protocols Supported	Ultra 320, 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: True Maximum is 14HDs per channel with up to 2TB per logical volume.
	Cache	64 MB Read Cache
	Battery-Backed Write Cache	Yes, with installation of Battery-Backed Write Cache Enabler, up to 128MB
	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

Embedded NC7782 Dual Port NIC 10/100/1000 WOL	Network Interface	10Base-T/100Base-T/1000Base-TX	
	Compatibility	EEE 802.3 10Base-T IEEE 802.3ab 1000Base-T IEEE 80.3u 100Base-TX	
	Data Transfer Method	64-bit/66MHz 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
		100Base-TX (Half-Duplex)	1000 Mb/s
	Connector	RJ-45	
	Cable Support	10Base-T	Categories 3, 4 or 5 UTP up to 328 ft (100 m)
10/100/1000 Base-TX		Category 5 UTP up to 328 ft (100 m)	

Technical Specifications for MSA30 Enclosure	Protocol Support	Wide Ultra320 (LVD) Wide Ultra3 (LVD) Wide Ultra2 (LVD)
	O/S Support	Defined by specific HP array controller or SCSI adapter used; please refer to the QuickSpecs and/or User Guide of the specific array controller or SCSI adapter
	Dimensions (HxWxD)	Rack 5.2 x 19 x 20.5 in (13.1 x 47.88 x 51.66 cm)
	Shipping Dimensions (HxWxD)	Rack 34.25 x 14.5 x 31.25 in (86.31 x 36.54 x 78.75 cm)
	Weight	Rack 68 lb (30.9 kg)
	LED Indicators (on front panel)	EMU Status LED (left)
		Enclosure Power LED (middle)
		Fault LED (right)
	Drive LED Indicators (on drive trays)	Drive LED (top)
		On Line LED (middle)
Drive Failure LED (bottom)		
Enclosure LED Indicators (back of unit)	I/O Module (top)	
	EMU (middle)	
	Power supplies (bottom)	

Technical Specifications

Input Requirements	Nominal Line Voltage	110 to 240 V AC
	Range Line Voltage	90 to 264 V AC
	Line Frequency	47 to 63 Hz
	Typical Input Current	2.3A at 120 V AC
Relative Humidity (non-condensing)	Operating	10% to 90%
	Shipping	5% to 90%
I/O Module Connector	Very High Density Cable Interconnect (VHDCI)	
Power	377 Watts per supply (load)	
BTU (220 volts)	Single power supply 14 drives	1164 BTUs/hour
	Single power supply 5 drives	536 BTUs/hour
	Single power supply 1 drive	273 BTUs/hour
	Dual power supply 14 drives	1232 BTUs/hour
	Dual power supply 5 drives	625 BTUs/hour
	Dual power supply 1 drive	352 BTUs/hour
Temperature Range	Operating	50° to 94° F (10° to 35° C°)
	Shipping	-40° to 151° F (-40° to 66° C)

NOTE: To maintain proper cooling and airflow, a drive blank or drive must occupy all bays during operation.

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