QuickSpecs

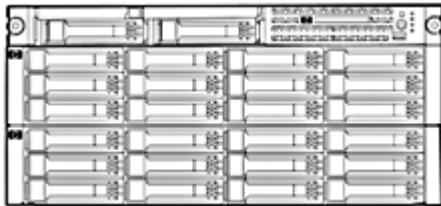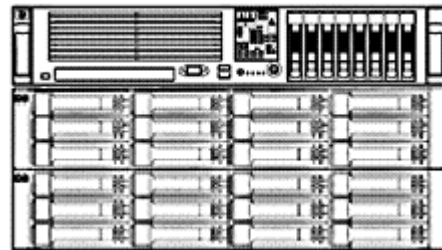*Overview*

The HP StorageWorks 6000 Virtual Library System offers fast data protection and backup in complex SAN environments. It is a single-node solution that easily scales in performance and capacity to 600 MB/sec and 106 TB of useable storage with 2:1 hardware compression (VLS 6600 only). The HP VLS6000 now supports the licensing of Accelerated deduplication which retains up to 50 times more data readily available on disk. Accelerated deduplication delivers fast backup and restore performance since the deduplication is post backup process, the most recent backup is always in tact.

The HP StorageWorks 6000 Virtual Library System offers cost-effective data protection and ongoing management. It integrates seamlessly into existing backup applications and processes. It is a self-managed, auto configured, auto monitored and performance-tuned appliance that is easily installed through a simple interface. Your valuable data is protected by HP, your trusted and experienced storage vendor. The VLS6000 uses proven hardware RAID 6 technology that reduces the risk of data loss. It is a highly available solution using HP ProLiant servers with redundant subsystems: fans, power supply units, and hardware-mirrored system disks.

HP StorageWorks 6000 Virtual Library System

HP StorageWorks 6200 Virtual Library System

HP StorageWorks 6600 Virtual Library System

Models

HP StorageWorks 6000 Virtual Library System	HP StorageWorks 6218 Virtual Library System	AH809A*
	HP StorageWorks 6227 Virtual Library System	AH810A*
	HP StorageWorks 6636 Virtual Library System	AH811A*
	HP StorageWorks 6653 Virtual Library System	AH812A*
	HP StorageWorks 6000 Virtual Library System Data Deduplication Capacity LTU	T9707A

* #0D1 will appear after this part number on your sales order when factory integration is indicated.

Standard Features

VLS6000 Virtual Library
System Customer benefits

- Seamless integration into current backup and recovery processes
- Fast data restoration and backup performance
- Cost-effective data protection and on-going management
- Your valuable data is protected by HP, your trusted and experienced storage vendor.

Key Features

- Accelerated deduplication can now be licensed for the VLS6000
- A single-node solution that offers industry-leading performance and easily scales in performance and capacity to 600 MB/sec and 106 TB of useable storage, with 2:1 hardware compression (VLS6600 only)
- Hardware RAID 6 reduces the risk of data loss
- Certified with popular backup software packages through HP StorageWorks Enterprise Backup Solution
- A highly available solution using HP ProLiant servers with redundant subsystems: fans, power supply units,, hardware-mirrored systems disks and hot swap array drives
- Ships with Automigration - software included with the VLS GUI which simplifies moving cartridge data from the VLS to a tape library or another VLS.
- The VLS6000 now supports up to 10,000 slots and 32,000 cartridges (only when using the VLS firmware version 3.0 required for Accelerated deduplication).

Product Highlights

Seamless integration	The HP 6000 Virtual Library System is deployed, managed and operated just like a tape library minimizing disruptions to your environment. Emulations include the HP ESL E-series and MSL tape libraries as well as 1/8 autoloaders. The VLS6000 also emulates the HP Ultrium 230 (LTO-1), HP Ultrium 460 (LTO-2), HP Ultrium 960 (LTO-3), HP Ultrium 1840 (LTO-4 In September, 2008), DLT 7000, DLT 8000, and SDLT 320.
Fast data restoration and backup performance	A single-node solution that offers industry-leading performance and easily scales in performance and capacity to 600 MB/sec and 106 TB of useable storage, with 2:1 hardware compression (VLS6600 only) without impact on performance. Accelerated deduplication (an optional license) retains up to 50 times more data readily available on disk. Accelerated deduplication delivers fast backup performance since the deduplication process does not impact the backup.
Cost-effective data protection and on-going management	A self-managed, auto configuration, auto monitoring and self diagnosis, auto performance-tuning and load-balancing appliance that is easily installed through a simple interface. As environments and needs change, so does the VLS6000.
Reliability	While the HP 6000 Virtual Library Systems contains reliable hardware featuring hot plug disk drives, standard redundant power supplies and fans as well as hardware RAID 6 protection, the real reliability is for your data protection process. Simplifying the process by which storage is shared means fewer errors occur, allowing your process to run more smoothly and faster.
Automigration	The HP StorageWorks 6200 and 6600 Virtual Library Systems support Automigration. The initial release of these services is in the form of a "disk cache to tape", called "echo copy", which allows copies of data to be moved off the virtual library to a physical library or another VLS under the control of the VLS, not the backup application. Future updates will allow full integration with ISVs via SMI-S 1.3 specifications supporting what we will call "smart copy". Automigration is an HP developed intellectual property. It will be further leveraged when HP delivers Accelerated deduplication enabling low-bandwidth replication.
Automigration - Echo Copy	Echo copy can streamline the process and reduce the costs of making physical tape cartridges from virtual tape cartridges, for vaulting and off-sitting purposes. Echo copy is run through the Automigration software (a tab on the VLS GUI), not the backup application. It acts as a transparent disk cache to the physical library, so that the backup application writes to virtual cartridges in the virtual library, and Automigration then automatically schedules the copies from virtual cartridges to their matching physical cartridges (with the same barcodes) based on the Automigration policies the user establishes. Since Echo copy is managed through the Automigration software, not the backup application, the destination library is not visible to the backup application - so no licensing is required. Copy traffic is no longer routed through the SAN which speeds up the copy process. Since the tape library is dedicated to the VLS no copy servers are required. Echo copy also eliminates the need for tape-to-tape copy administration since this is automated through copy policy management. All destination tapes created by echo copy are in the native tape format, so they can be easily restored directly from any tape drive or library that is visible to the backup application. However, keep in mind that since the backup application does not have visibility to the physical tape library, the backup application will not be aware of any copy failures. These errors are visible and must be managed though VLS. In addition, any mistakes in destination library media management will also

Product Highlights

affect the virtual cartridges. For example, if new tapes are not loaded into the destination library, both the virtual copy and the physical copy will not exist. Finally, the destination library is dedicated to VLS and can only be used for copy operations.

Automigration - Smart Copy	Smart copy provides the same capabilities with one important exception. Smart copy allows the backup ISV to initiate the copy with the VLS6000 actually implementing the move. The cartridge bar codes between the two copies are different and the backup ISV is able to track the move. SMI-S 1.3 support is required by the ISV to be able to implement Smart copy.
Accelerated Deduplication	The VLS6000 now supports capacity licensing for Accelerated deduplication. At introduction in June 2008 the VLS6600 will be supported. The VLS6200 will be supported in September 2008. One VLS6000 license T9707A is required for each shelf with 500 GB disks (4.4 TB) and two licenses are required for each shelf with 750 GB disks (6.6 TB). Accelerated deduplication retains up to 50 times more data readily available on disk by replacing redundant blocks of data with pointers to the original block. Accelerated deduplication delivers fast backup performance since the deduplication process does not impact the backup. Accelerated deduplication delivers fast restore performance since the latest backup copy is always retained in its entirety while data reduction occurs on the previous backups. Accelerated deduplication needs to recognize the specific backup application being used since it initially strips out the cartridge headers in order to decompose all the files and data types in order to do file-level comparisons to previous backups.
Data Protection Software & ISV support	Check the EBS website for the latest VLS and Accelerated deduplication supported backup ISVs and data types http://www.hp.com/go/ebs
Compatibility	HP's Enterprise Business Solutions (EBS) assures that your HP StorageWorks 6000 Virtual Library System works with leading servers, operating systems, and backup applications - and not just those sold by HP. Based on a foundation of extensive interoperability testing, EBS 1-2-3 provides a step-by-step methodology for designing, configuring, and implementing your SAN ensuring HP VLS6000 Virtual Library System will work seamlessly in many environments. HP VLS6000s are especially suitable in a mixed system environment. For the latest list of servers, workstations, operating systems, and backup software that support HP 6000 Virtual Library System, check the tape backup compatibility pages on our web site at: http://www.hp.com/go/ebs.
Server Compatibility	The HP StorageWorks 6000 Virtual Library Systems are supported on many popular industry servers including HP ProLiant and HP-UX servers. For a complete list of HP and third party servers, please visit the Enterprise Backup Solution on the Worldwide web at http://www.hp.com/go/ebs.
OS Support	HP provides extensive support on most major operating systems. For the most up-to-date information, please visit the latest compatibility matrix at http://www.hp.com/go/ebs
Backup Software Support	The HP StorageWorks 6000 Virtual Library System is supported on leading backup software applications. As new certifications are achieved, they are posted on the Enterprise Backup Solution Compatibility Matrix. Please visit http://www.hp.com/go/ebs for the latest compatibility information.

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.

Why purchase an HP Care Pack service?

Your standard warranty protects against product defects. HP Care Pack Services help you guard against unplanned downtime, which can reduce your productivity and profitability. These convenient service packages:

- Protect your investment in HP products
- Provide consistent, predictable levels of support across your entire department or business
- Ease budget planning with fixed-cost support that includes parts and labor
- Give you direct access to proven technical and problem-solving expertise
- Offer a choice of response-time and repair-time commitments
- Deliver prompt, measurable results
- Are available whenever and wherever you do business

HP Care Pack availability may vary by country and product.

Supporting your Adaptive Enterprise journey

HP Services helps you make the Adaptive Enterprise real for your organization. The breadth, depth, and quality of HP hardware and software support services can help you **improve the performance** of your IT support processes and resolve the complex software and hardware problems that tax user productivity. HP Care Pack services help you **increase IT environment stability**, efficiency, and agility from the desktop to the data center, and improve the productivity of your employees.

Warranty and Services Included with the Product   HP warrants only that the Software media will be free of physical defects for a period of ninety (90) days from delivery.

For more information about HP's Global Limited Warranty and Technical Support, visit:
http://h18006.www1.hp.com/products/storageworks/warranty.html

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Service and Support, HP Care Pack, and Warranty Information

Recommended Services HP Software Support 24x7 HA107A1

One year of HP Software Support 24x7 is recommended

- Improve the productivity of system managers and operators
- Improve system performance and reduce downtime due to software defects
- Expedite problem resolution through expert-level technical resources
- Enjoy consistent service coverage across geographically dispersed sites
- Update HP and selected third-party software at a predictable cost
- Take advantage of subscription savings on software updates
- Keep your license compliancy up-to-date
   - Rights to updates
   - 90 days SW warranty
   - 24x7x365 includes Phone-in Assistance, License to use (LTU) and SW updates.
   - Online self support.
   - Available in 1, 3, 4 or 5 year Care Packs

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. Additional information about HP Care Pack Service features and benefits is available at http://www.hp.com/hps/carepack/services/.

Key for HP Care Pack Service availability in the table below:
E = Service available for customers purchasing direct and via enterprise resellers
C = Service available for customers purchasing via commercial resellers
na = Service not applicable

HP Care Pack Services Deployment and Per Event Services	Service Available
HP Installation	HA113A1
HP Installation & Startup	N/A
HP Implementation	N/A

For more information about Deployment and Per Event Services for HP Storage, visit http://www.hp.com/hps/storage/.

HP Care Pack Services Availability Services		1 yr	3 yr	4 yr	5 yr
SW Phone	HA106A1	E/C	E/C	E/C	E/C
SW Updates*	HA108A1	-	-	-	-
HP Software Support 24x7	HA107A1	E/C	E/C	E/C	E/C
HP Support Plus	HA109A1	E/C	E/C	E/C	E/C
HP Support Plus 24	HA110A1	E/C	E/C	E/C	E/C
HP Proactive 24 Service	HA111A1	E	E	E	E
HP Critical Service	HA112A1	E	E	E	E
NOTE: Since the De-duplication is part of the library firmware there will no cost associated with the SW Updates					

Service and Support, HP Care Pack, and Warranty Information

HP Care Pack Service Product Numbers

This service leverages HP's industry-leading clustering and HP Continuous Access technologies plus HP's worldwide recovery centers to provide customers with a cost-effective, proven approach to disaster tolerance. A complete life cycle suite of services addresses customer facilities, infrastructure design and implementation, monitoring and management of the infrastructure, a comprehensive disaster recovery plan, staff training, and periodic rehearsals. The service provides a business solution approach to disaster tolerance with proven quality of service and a single point of accountability. It delivers predictable recovery times and right-first-time implementation with worldwide, multi-site solution deployment.

SW Phone	1 year	HA106A1
	3 year	HA106A3
	4 year	HA106A4
	5 year	HA106A5
SW Updates*	1 year	HA108A1
	3 year	HA108A3
	4 year	HA108A4
	5 year	HA108A5
HP Software Support 24x7	1 year	HA107A1
	3 year	HA107A3
	4 year	HA107A4
	5 year	HA107A5
HP Support Plus	1 year	HA109A1
	3 year	HA109A3
	4 year	HA109A4
	5 year	HA109A5
HP Support Plus 24	1 year	HA110A1
	3 year	HA110A3
	4 year	HA110A4
	5 year	HA110A5
HP Proactive 24 Service	1 year	HA111A1
	3 year	HA111A3
	4 year	HA111A4
	5 year	HA111A5
HP Critical Service	1 year	HA112A1
	3 year	HA112A3
	4 year	HA112A4
	5 year	HA112A5

- Support Plus
  HP Support Plus provide integrated hardware & software support services designed specifically for your technology.

Service and Support, HP Care Pack, and Warranty Information

- o 4 hour hardware support13 x 5
- o Software technical assistance
- o Software updates
- o Available in 1, 3, 4 or 5 year Care Packs
- Support Plus 24
  Support Plus24 provide integrated hardware & software support services designed specifically for your technology.
  - o 4 hour hardware support 24 x 7
  - o Software technical assistance
  - o Software updates
  - o Available in 1, 3, 4 or 5 year Care Packs
- Proactive 24
  - o HP Proactive 24 Service is an integrated hardware and software support solution designed to help customers get more from its IT investment. Combining HP's expertise in preventing problems before they occur with HP's industry-leading reactive technical assistance, Proactive 24 improves the effectiveness and availability of all technologies in an IT infrastructure. The Proactive 24 service establishes a relationship between customers and HP that strengthens the IT team and gives access to the needed technical specialists when issues arise.
  - o Available in 1, 3, 4 or 5 year Care Packs
- Critical Service is recommended for mission critical environments
  - o Customers who are operating mission critical environments can benefit from the robust set of proactive support and highest level of reactive support, 6hr call to repair, provided by Critical Service
  - o Available in 1, 3, 4 or 5 year HP Care Packs

Deployment and Per Event Service Descriptions

HP Installation & Startup for HP StorageWorks

- Provides for the implementation of the HP StorageWorks VLS6000 products in SAN environments (ESL/ESL E/EML/MSL service also available), including the installation of all VLS6000 hardware.
- Minimizes implementation-related disruptions to your environment and helps ensure increased system reliability and more effective data management

Due to the complexities involved with the initial installation of a HP Virtual Library System into a SAN environment, Hewlett Packard recommends that the SAN Implementation Service (HA114A1) is purchased. This service covers pre-installation preparation activities, installation and configuration of VLS6000 hardware, configuration of hosts (up to 5, additional handled via HA124A1 5B2 per additional 10) and switches, verification testing and customer orientation.
For more information please visit: http://www.hp.com/hps/storage/ns_info.html#related

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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

Service Essentials Remote Support Pack (RSP) - remote monitoring with proactive problem-resolution and fault diagnosis

The Service Essentials Remote Support pack plug-in module easily integrates with HP Systems Insight Manager 5.1, HP's popular bundled hardware management and monitoring solution. The result: a powerful, unified, "single pane of glass" solution for onsite and remote management - and a more proactive approach to IT support.

- 24x7 remote and local monitoring
- Service response during contracted, HP Care Pack service or warranty coverage hours for qualified devices
- Highly secure Internet connection to HP
- Detailed problem resolution information including part location in device, replacement part number and access to self-repair streaming videos
- Rapid electronic access to device entitlement information for all SIM-detected devices: system ID information; service entitlement information; automatic retrieval of warranty, HP Care Pack service and support contract details; automatic notification 90, 60 and 30 days before warranty, service or contract expiration

RPS is a feature of HP Hardware Support Onsite Service with Next-Day response or better, Proactive Essentials, Proactive 24, Critical Service and warranty support for the selected products.

For more information or to download Remote Support Technologies, visit
http://h20219.www2.hp.com/services/cache/452199-0-0-225-121.html

Remote Support Technologies and Service Automation Integrated remote storage management positioning paper
http://h71028.www7.hp.com/erc/downloads/4aa1-7927enw.pdf

HP Education Services

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

Service and Support, HP Care Pack, and Warranty Information

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
Additional Services Information	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

Installation Services via HP authorized commercial resellers

Description	VLS6200	VLS6600	VLS Capacity Bundle
Tape Library Installation And Start Up	UC927E	UC927E	N/A
Tape Installation HW Installation Only	UD056E	UD056E	UD056E

Installation Services via HP Direct and HP authorized enterprise resellers

Care Pack	Description	Band
For the VLS 6200 and 6600		
HA114A1*	Tape Library Installation And Start Up	5KG
HA113A1	Tape Installation HW Installation Only	5KG
Additional VLS 6200 and 6600**		
HA124A1	Each additional library on the same site	5B1
Migration of capacity bundle when upgrading system node***		
HA124A1	Additional half day; Additional SAN Host connections up to 10	5B2
For the 6000 Virtual Library System 2.5TB, 4.4TB or 6.6TB Capacity Bundle		
HA113A1	Tape Installation HW Installation Only	564
6000 Virtual Library System Capacity License (Includes installation of customers MSA20)		
HA113A1	Command View VLS Installation Into SAN	564

Service and Support, HP Care Pack, and Warranty Information

*NOTE: Installation and Start up (HA114A1) includes the installation of all subcomponents. i.e. If HA114A1 is ordered for the VLS6000 no HA113A1 are needed for any additional capacity bundle purchased at the same time as the library.
**NOTE: If the additional library is to be configured at a different site the customer must purchase an additional instance of HA114A1#5KG
***NOTE: New system node must include installation and startup (HA114A1 5KG)

Support Services via HP Direct and HP authorized enterprise resellers

Description	VLS6200 band	VLS6600 band	Capacity Bundle band	Capacity License band	Care Pack
HW, "3-year", "next-day", "13x5", "on-site"	8XM	8XN	8XP	699	HA101A3
HW, "3-year", "4-hour", "13x5", "on-site"	8XM	8XN	8XP	699	HA103A3
HW, "3-year", "4-hour", "24x7", "on-site"	8XM	8XN	8XP	699	HA104A3
HW, "3-year", "6hr CTR", "24x7", "on-site"*	8XM	8XN	8XP	699	HA105A3
HW Only, Support Plus, "3-year", "13x5"**	8XM	8XN	8XP	699	HA109A3
HW Only Support Plus 24, "3-year", "24x7"**	8XM	8XN	8XP	699	HA110A3
HW Only, Proactive 24, "3-year", "24x7"***	8XM	8XN	8XP	699	HA111A3
HW Only, Critical Service, "3-year", "24x7"***	8XM	8XN	8XP	699	HA112A3

* 6hr CTR 'standalone' service is not offered in Latin or North America.
** Support Plus covers 4hr Hardware response (Software support is not applicable).
*** Both Proactive 24 & Critical Service only relate to 'reactive elements', work is ongoing to offer the 'proactive elements' in the near future (Software support is not applicable).

The HP Care Pack information quoted above relates to 3 year offerings only, 1yr, 4yr and 5yr packs are available for each offering (replace A3 with A1, A4, A5 respectively).

In order to maximize ROI and product uptime, and minimize the cost of ownership, Hewlett Packard recommends the 3-year, 24x7 service options. These offerings will ensure that any product issue can be tackled when they occur (most back up issues will occur outside standard business hours) and that the service coverage regarding period, covers the minimum expected life of the host system.

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

Service and Support, HP Care Pack, and Warranty Information

Services Example

Hardware purchased: 6218 Virtual Library System (AH809A) and one 6000 Virtual Library System 4.4 TB Capacity Bundle (AG170A)

Desire HP installation and Start Up and 3yr 24x7 uplift
Services needed:
HA114A1 5KG (Installation and Startup for VLS6000 and all subcomponents)
HA104A3 8XM (VLS6218 3 yr 24X7 Uplift)
HA104A3 8XP (VLS6000 4.4 TB Capacity Bundle 3 yr 24X7 Uplift)

Hardware purchased: 6636 Virtual Library System (AH811A) and Two 6000 Virtual Library System 4.4TB Capacity Bundle (2X AG170A)

Desire HP installation and Start Up and 3yr 24x7 uplift
Services needed:
HA114A1 5KG (Installation and Startup for VLS6000 and all subcomponents)
HA104A3 8XN (VLS6636 3 yr 24X7 Uplift)
2X HA104A3 8XP (VLS6000 4.4 TB Capacity Bundle 3 yr 24X7 Uplifts)

QuickSpecs

HP StorageWorks 6000 Virtual Library System

Kit Contents

Model	Description	Part Number
HP 6218 Virtual Library System	HP StorageWorks 6218 Virtual Library System	AH809A*

Supplied with each Virtual Library System

- HP StorageWorks 6200 Virtual Library System node
- HP StorageWorks MSA20 Storage Enclosure configured with twelve 500 GB SATA disk drives
- Serial Cable
- Command View Tape Library Software CD
- Installation Poster
- HP 6000 Virtual Library System Documentation CD
- HP Command View Tape Library Software Documentation CD
- System recovery CD
- 4 IEC power cords (2 for the node, 2 for the MSA20)

Model	Description	Part Number
HP 6227 Virtual Library System	HP StorageWorks 6227 Virtual Library System	AH810A*

Supplied with each Virtual Library System

- HP StorageWorks 6200 Virtual Library System node
- HP StorageWorks MSA20 Storage Enclosure configured with twelve 750 GB SATA disk drives
- Serial Cable
- Command View Tape Library Software CD
- Installation Poster
- HP 6000 Virtual Library System Documentation CD
- HP Command View Tape Library Software Documentation CD
- System recovery CD
- 4 IEC power cords (2for the node, 2 for the MSA20)

Model	Description	Part Number
HP 6636 Virtual Library System	HP StorageWorks 6636 Virtual Library System	AH811A*

Supplied with each Virtual Library System

- HP StorageWorks 6600 Virtual Library System node
- Two HP StorageWorks MSA20 Storage Enclosure each configured with twelve 500 GB SATA disk drives
- Serial Cable
- Command View Tape Library Software CD
- Installation Poster
- HP 6000 Virtual Library System Documentation CD
- HP Command View Tape Library Software Documentation CD
- System recovery CD
- 6 IEC power cords (2 for the node, 2 for each MSA20)

Model	Description	Part Number
HP 6653 Virtual Library System	HP StorageWorks 6653 Virtual Library System	AH812A*

Supplied with each Virtual Library System

- HP StorageWorks 6600 Virtual Library System node
- Two HP StorageWorks MSA20 Storage Enclosure each configured with twelve 750 GB SATA disk drives
- Serial Cable
- Command View Tape Library Software CD

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Kit Contents

- Installation Poster
- HP 6000 Virtual Library System Documentation CD
- HP Command View Tape Library Software Documentation CD
- System recovery CD
- 6 IEC power cords (2 for the node, 2 for each MSA20)

HP 6000 Virtual Library System 2.5 TB Capacity Bundle	HP StorageWorks 6000 Virtual Library System 2.5 TB Capacity Bundle Supplied with each Virtual Library System Capacity Bundle - HP 6000 Virtual Library System Capacity License (T4259A) - HP StorageWorks MSA20 Storage Enclosure configured with twelve 250 GB SATA disk drives - 2 IEC power cords - Installation Poster	AF730A*
HP 6000 Virtual Library System 4.4 TB Capacity Bundle	HP StorageWorks 6000 Virtual Library System 4.4 TB Capacity Bundle Supplied with each Virtual Library System Capacity Bundle - HP 6000 Virtual Library System Capacity License (T4259A) - HP StorageWorks MSA20 Storage Enclosure configured with twelve 500 GB SATA disk drives - 2 IEC power cords - Installation Poster	AG170A*
HP 6000 Virtual Library System 6.6 TB Capacity Bundle	HP StorageWorks 6000 Virtual Library System 6.6 TB Capacity Bundle Supplied with each Virtual Library System Capacity Bundle - HP 6000 Virtual Library System Capacity License (T4259A) - contains quantity 2 - HP StorageWorks MSA20 Storage Enclosure configured with twelve 750 GB SATA disk drives - 2 IEC power cords - Installation Poster * #0D1 will appear after this part number on your sales order when factory integration is indicated.	AH813A*
VLS 6000 Capacity License	HP StorageWorks 6000 Virtual Library System Capacity License Supplied with each Virtual Library System Capacity License - HP 6000 Virtual Library System Capacity License NOTE: This product enables a customer supplied MSA20 with twelve 250 GB, 500 GB, or 750 GB hard disk drives (HDDs) to be licensed to an existing HP 6000 Virtual Library system. If you require the hardware and the license, purchase the HP 6000 Virtual Library System 2.5TB Capacity Bundle (AF730A), the HP 6000 Virtual Library System 4.4 TB Capacity Bundle (AG170A) or the HP 6000 Virtual Library System 6.6 TB Capacity Bundle (AH813A). NOTE: Partial configurations cannot be added to the HP 6000 Virtual Library system - each MSA20 must have 12 HDDs of the same capacity installed.	T4259A
HP 6000 VLS Data	HP StorageWorks 6000 Virtual Library system Deduplication Capacity LTU	T9707A

Kit Contents

Deduplication Capacity LTU	Supplied with license

- At introduction in June 2008 the VLS6600 will be supported. The VLS6200 will be supported in September 2008.
- One VLS6000 license T9707A is required for each shelf with 500 GB disks (4.4 TB) and two licenses are required for each shelf with 750 GB disks (6.6 TB).

NOTE: In addition to the capacity deduplication licensing for VLS here are four other key considerations:

1. There is a REQUIREMENT to add 12 GB RAM (16 GB RAM required) to each ProLiant server node of the VLS platform to support data deduplication. This involves ordering the following part numbers for each node:
   397413-B21 HP 4GB FBD PC2-5300 2x2GB Kit
   397415-B21 HP 8GB FBD PC2-5300 2x4GB Kit
2. VLS firmware level 3.0 must be used to support data deduplication. This firmware will only be available (initially) as a web download. An optional half day HP service is available to upgrade the VLS firmware and install the additional 12 GB of memory (customer must order this separately).
3. You will need to reference the following website for configuration, capacity and performance considerations for sizing VLS Accelerated deduplication configurations and use models. http://h20180.www2.hp.com/apps/nav?h_pagetype=s-001&h_lang=en&h_cc=us&h_product=470404&h_client=s-a-r163-1&h_page=hpcom&lang=en&cc=us
4. Accelerated deduplication needs to recognize the specific backup application being used since it initially strips out the cartridge headers in order to decompose all the files and data types in order to do file-level comparisons to previous backups. Check the EBS website for the latest Accelerated deduplication supported backup ISVs and data types http://www.hp.com/go/ebs.deduplication
   NOTE: The entire VLS device must be licensed for deduplication - no partial licenses supported. Deduplication licenses will be installed via the VLS GUI license plug-in, or via a CommandView for Tape Libraries management station

Related Options

Power Distribution units	NOTE: For more information on power distribution units, please consult the QuickSpecs on the Worldwide web at: http://h18000.www1.hp.com/products/quickspecs/11041_div/11041_div.html	
Low Voltage Modular PDU Model, 100 - 127 VAC	24A Model - mPDU, 24A, Low	252663-D71
High Voltage Modular PDU Model(s), 200 - 240 VAC	16A Model - mPDU, 16A, High	252663-B24
	24A Model - mPDU, 24A, High	252663-D72
	40A Model - mPDU, 40A, High	252663-B21
	40A Model - mPDU, 40A, High (power cord attached)	252663-D73
Power Cords (for connection to standard wall outlets)	Power Cord, North American C13, 10A, 1.83m	AF556A
	Power Cord, Euro, C13,10A , 1.83m	AF568A
	Power Cord, UK, C13,10A , 1.83m	AF570A
	Power Cord, Danish, C13, 10A , 1.83m	AF566A
	Power Cord, Swiss, C13,10A , 1.83m	AF565A
	Power Cord, Italian, C13,10A , 1.83m	AF571A
	Power Cord, South Africa, C13,10A , 1.83m	AF567A
	Power Cord, Taiwan, C13,10A , 1,83m	AF561A
	Power Cord, China, C13,10A 1.83m	AF557A
	Power Cord, Japan, C13,10A , 1.83m	AF572A
	Power Cord, Australia, C13,10A , 2.5m	AF569A
	Power Cord, Argentina, C13,10A , 2.5m	AF558A
	Power Cord, Brazil, C13,10A , 1.83m	AF559A
	Power Cord, Korea, C13,10A , 1.83m	AF560A
	Power Cord, Israel, C13,10A , 1.83m	AF564A
	Power Cord, India, C13,10A , 2.0m	AF562A
	NOTE: Each unit comes with 2 IEC power cord for the node and two power cords for each MSA20 included (4 cords with the VLS6100 & 6200, 6 cords with the VLS6500 and 6600 and 10 cords with the VLS6800).	
FC Host Bus Adapters	For more information on FC HBAs please consult the EBS connectivity matrix at http://www.hp.com/go/ebs.	

QuickSpecs

Related Options

HP OpenView Storage Data Protector Backup Software	**LTU (license-to-use), media and manuals**	
	Data Protector Starter Pack Single Drive, for Windows	B6961AA
	Data Protector Starter Pack Single Drive, for HP-UX	B6951AA
	Data Protector Starter Pack Single Drive, for Sun Solaris	B6951DA
	LTU only	
	Data Protector Starter Pack Single Drive, for Windows LTU only	B6961BA
	Data Protector Starter Pack Single Drive, for HP-UX LTU only	B6951BA
	Data Protector Starter Pack Single Drive, for Sun Solaris LTU only	B6951CA
	Media	
	Data Protector Media	B6960MA
	Manuals	
	Data Protector Manuals	B6960LA
	Drive Extensions	
	Data Protector drive license for Windows, NetWare, or Linux (Intel)	B6963AA
	Data Protector drive license for UNIX, NAS, or SAN	B6953AA
	Data Protector Library Extension, 61-250 Slots	B6957BA
	Data Protector Library Extension, unlimited Slots	B6958BA
	Functional Extensions	
	Data Protector on-line extension for Windows	B6965BA
	Data Protector on-line extension for UNIX	B6955BA
	Data Protector open file backup license for 1 server	BA153AA
	Data Protector open file backup license for 10 servers	BA153BA
	Data Protector open file backup license for 5 workstations	BA154AA
	Data Protector open file backup license for 1 Enterprise Server	BA155AA
	Data Protector open file backup media. no license	BA152AA
	Data Protector Manager-of-Managers extension for Windows	B6966AA
	Data Protector Manager-of- Managers extension for UNIX	B6956AA
	Advanced backup to disk license, 1 TB	B7038AA
	Manuals for Functional extensions	B6960EA

QuickSpecs

Configuration Information

Step 1 – Select a Configuration

HP StorageWorks 6653 Virtual Library System	AH812A*
HP StorageWorks 6636 Virtual Library System	AH811A*
HP StorageWorks 6227 Virtual Library System	AH810A*
HP StorageWorks 6218 Virtual Library System	AH809A*

* #0D1 will appear after this part number on your sales order when factory integration is indicated

Step 2 – Add additional capacity (optional)

HP StorageWorks 6000 Virtual Library System 6.6 TB Capacity Bundle	AH813A*
HP StorageWorks 6000 Virtual Library System 4.4 TB Capacity Bundle	AG170A*
HP StorageWorks 6000 Virtual Library System 2.5 TB Capacity Bundle	AF730A*

HP 6200 Virtual Library System:
up to three additional capacity bundles may be added to the base unit.

HP 6600 Virtual Library System:
up to six additional capacity bundles may be added to the base unit.

Capacity kits (enclosures) can be mixed within VLS6000 units. All 12 drives within each enclosure (shelf) must be of the same capacity. For example if you have a VLS6218 that has one 500 GB drive enclosure, you can add an additional drive enclosure (capacity bundle) with any one of the three available capacity bundles, 250 GB, 500 GB or 750 GB.

* #0D1 will appear after this part number on your sales order when factory integration is indicated.

Step 3 - Select appropriate Services/Support (optional)

- Determine whether you require services via HP direct/HP authorized enterprise resellers or HP authorized commercial resellers.
- Choose Installation or Installation and Startup service desired. HP recommends Installation and Startup for SAN based libraries. (Details of specific part numbers in service section.)
- Choose support uplift type. There are different service uplifts uplifting years of service, hours of availability and response time. HP recommends three year 24X7 support uplifts for SAN libraries. (Details of specific part numbers in service section.)

Configuration Information

Step 4 - Select the Appropriate Rack

Description	Part Number	Supports Factory Racking	Supports Field Racking
S10614 (14U) Rack Cabinet - Shock Pallet[2]	292302-B22	X	X
10622 (22U) Rack Cabinet - Shock Pallet	AF022A	X	X
10622 (22U) Rack Cabinet - Pallet	AF021A		X
10636 G2 (36U) Rack Cabinet - Shock Pallet	AF012A	X	X
10636 G2 (36U) Rack Cabinet - w/Extension - Shock Pallet	AF014A	X	X
10636 G2 (36U) Rack Cabinet - Pallet	AF011A		X
10636 G2 (36U) Rack Cabinet - Crate	AF013A	X	X
10642 G2 (42U) Rack Cabinet - Shock Pallet	AF002A	X	X
10642 G2 (42U) Rack Cabinet - w/ Extension - Shock Pallet	AF004A	X	X
10642 G2 (42U) Rack Cabinet - Pallet	AF001A		X
10642 G2 (42U) Rack Cabinet - Crated	AF003A		X
Modular Cooling System (MCS) - 42U Cabinet	AF098A	X	X

[2]14U racks cannot be used for the VLS6600.

NOTE: (Pallet) used to ship empty racks shipped on a truck
(Shock pallet) used to ship racks with equipment installed (by custom systems, VARs and Channels)
(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.

NOTE: The full line of VLS6000 products can now be integrated and shipped installed in racks

QuickSpecs

Technical Specifications

	VLS6218*	VLS6227*	VLS6636	VLS6653
Usable Capacity (std - non compressed)	4.4 TB	6.6 TB	8.8 TB	13.2 TB
Usable Capacity (2:1 compression)	8.8 TB	13.2 TB	17.6 TB	26.4 TB
Max Usable Capacity (std – non compressed)	17.6 TB	26.4 TB	35.2 TB	52.8 TB
Max Usable Capacity (2;1 compression)	35.2 TB	52.8 TB	70.4 TB	105.6 TB

* These products employee software compression which will impact performance

Performance by configuration 4Gb Models	HP 6200 Virtual Library System	HP 6600 Virtual Library System	
	w/ compression disabled	w/ uncompressible data	w/ 2:1 compressible data
1 disk enclosure	0.4 TB/hr (100 MB/s)	n/a	n/a
2 disk enclosures	0.7 TB/hr (200 MB/s)	0.7 TB/hr (200 MB/s)	1.4 TB/hr (400 MB/s)
3 disk enclosures	1.1 TB/hr (300 MB/s)	1.1 TB/hr (300 MB/s)	2.2 TB/hr (600 MB/s)
4 disk enclosures	1.4 TB/hr (400 MB/s)	1.4 TB/hr (400 MB/s)	2.2 TB/hr (600 MB/s)
5 to 8 enclosures	n/a	2.0 TB/hr (560 MB/s)	2.2 TB/hr (600 MB/s)

NOTE: Maximum theoretical performance values. Actual performance is dependent on environment. Software compression on VLS6200 impacts performance by up to 50%
NOTE: 1MB = 1,000,000 bytes

	HP 6200 Virtual Library System	HP 6600 Virtual Library System
Number of Virtual Libraries	1 to 16	1 to 16
Number of Virtual Tape Drives	1 to 128	1 to 128
Interface	6200 is Two 4 Gb Fibre Channel Ports (LC connectors, auto-negotiating)	6600 is Four 4 Gb Fibre Channel Ports (LC connectors, auto-negotiating)

Power Consumption by Component

VLS6200 Node	852 W
VLS6600 Node	1035 W
MSA20 Enclosure each (with disks)	345 W

RAID Level	VLS6200, VLS6600	RAID 5 or RAID 6

QuickSpecs

Technical Specifications

Dimensions and Physical Characteristics	**HP 6200 Virtual Library System**		
	Form Factor	3U (total installed form factor – base unit)	
	Physical Dimensions (HxWxD):	Node	1.7 x 16.8 x 27.8 in (4.3 x 42.6 x 70.5 cm)
	NOTE: 1 enclosure standard	Disk enclosure	3.5 x 19.2 x 23.5 in (8.8 x 48.8 x 59.7 cm)
		Shipping (HxWxD)	41.0 x 48.0 x 40.0 in (104 x 122 x 102 cm)
	Out of Box Weight	Node	37 lb (16.78 kg)
		Disk Enclosure	53 lb (24 kg) (per enclosure)
	Shipping Weight	143 lb (64.9 kg)	

	HP 6600 Virtual Library System		
	Form Factor	6U (total installed form factor – base unit)	
	Physical Dimensions (HxWxD):	Node	1.7 x 16.8 x 27.8 in (4.3 x 42.6 x 70.5 cm)
	NOTE: 2 enclosures standard	Disk Enclosure	3.5 x 19.2 x 23.5 in (8.8 x 48.8 x 59.7 cm)
		Shipping (HxWxD)	48.0 x 40.0 x 40.0 in (121.9 x 101.6 x 101.6 cm)
	Out of Box Weight	Node	37 lb (16.78 kg)
		Disk Enclosure	54.3 lb (24.6 kg) (per enclosure)
	Shipping Weight	168 lb (76.2 kg)	

HP 6000 Virtual Library System 2.5 TB Capacity Bundle Kit ,HP 6000 Virtual Library System 4.4 TB Capacity and HP 6000 Virtual Library System 6.6 TB Bundle Kit

Form Factor	2U		
Dimensions	Physical Dimensions (HxWxD)	3.5 x 19.2 x 23.5 in (8.8 x 48.8 x 59.7 cm)	
	Shipping (HxWxD)	33.5 x 32.5 x 28.0 in (85.1 x 82.6 x 71 cm)	
Weight	Out of Box Weight	53 lb (24 kg) (per enclosure)	
	Shipping Weight	68 lb (30.8 kg)	

VLS 6000 Capacity License

Shipping (HxWxD)	8.5 x 11.0 in (21.6 x 27.9 cm)
Shipping Weight	1 lb (0.5 kg)

Technical Specifications

Environmental	Operating temperature range	10° to 35° C (50° to 95° F)
	Shipping temperature range	-40° to 66° C (-40° to 150° F)
	Operating Humidity (non-condensing)	20 to 80% Relative Humidity

Worldwide Product Safety and EMC Approvals

Safety: Worldwide compliance to 60950-1

EMC: MSA 20 Regulatory Model Number HSTNM-S001 CISPR 22 CISPR 24 & FCC Class A
VLS 61000 and VLS65000 heads: Regulatory Model Number HSTNM-2105 CISPR 22 CISPR 24 & FCC Class B

NOTE: For country specific compliance contact your local sales representative