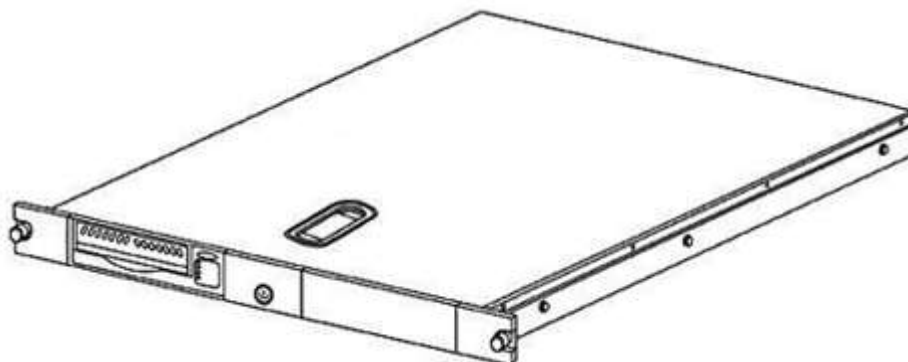# QuickSpecs

Overview

HP StoreEver Rack-mount Kits

The HP StoreEver Rack-mount Kits provide a high-density, rack-mountable tape drive and removable hard disk drive enclosure for direct-attach SCSI, USB, and SAS backup and archiving applications. Because these enclosures use standard internal tape drives and internal removable hard disk drives, they provide a cost-effective means of mounting tape drives and removable hard disk drives in rack server environments. These enclosures provide customers with scalability, allowing the customer to add drives and migrate to new tape or removable hard disk drive technologies as their capacity and performance needs grow. HP Rack-mount Kits are supported by ProLiant, HP Integrity, and AlphaServer platforms.
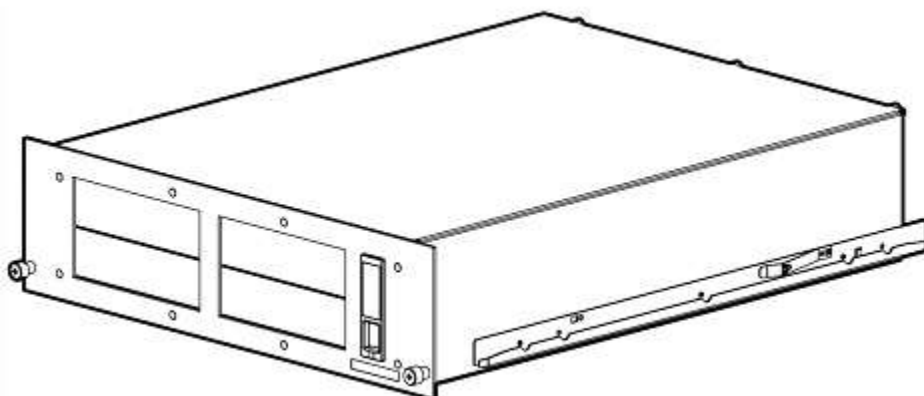
1U Rack-mount Kit

Available in SCSI, SAS and USB interfaces, the 1U Rack-mount Kit accommodates up to two half-height internal tape drives and supports a range of tape technologies, including DAT, and half-height Ultrium, with a maximum capacity of 6 TB using two LTO-5 Ultrium 3000 drives. The USB enclosure supports DAT 160 tape drives with a maximum capacity of 320 GB per backup session when using two DAT 160 USB drives. The 1U USB enclosure also supports HP RDX 320, 500 and 1 TB Removable Disk Backup Systems with a maximum capacity of 2 TB per backup session when using two RDX 1 TB USB removable hard disk drives. The 1U SAS enclosure supports up to two DAT 160 SAS, LTO-3 Ultrium 920 SAS, LTO-4 Ultrium 1760 SAS, LTO-5 Ultrium 3000 SAS and LTO-6 Ultrium 6250 tape drives with a maximum capacity of 12.5 TB when using two LTO-6 Ultrium 6250 SAS drives (assuming 2.5:1 data compression).

HP 1U Rack-mount Kit

3U Rack-mount Kit

Available in SCSI and SAS interfaces. The 3U Rack-mount Kit holds up to two full-height internal tape drives, four half-height internal tape drives, or a combination of one full-height and two half-height tape drives. This enclosure supports a wide range of tape technologies, including DAT, and Ultrium, with a maximum capacity of 12.5 TB using two LTO-6 Ultrium 6650 or 25 TB with four LTO-6 Ultrium 6250 SAS drives (assuming 2.5:1 data compression).

HP 3U Rack-mount Kit

Overview

What's New

- Support for LTO-6 tape drives
- Compliance to 2013 ROHS requirements

QuickSpecs

Features

Key Features

1U SCSI Rack-mount Kit
- High-density 1U Rack-mount form factor
- The SCSI enclosure is capable of mixing technologies and is compatible with a wide range of single-ended and LVD SCSI internal tape drives, including:
    - DAT 160 SCSI Tape Drives
    - LTO-3 Ultrium 920 and LTO-4 Ultrium 1760 SCSI Tape Drives
- SCSI enclosure Provides up to 3.2 TB of storage capacity (assuming 2:1 compression using two LTO-4 Ultrium 1760 drives)
- Data transfer rates up to 1 TB/hr (assuming 2:1 data compression using two LTO-4 Ultrium 1760 drives)
- Latching switch for the 1U rack allows for auto restart after power has been interrupted and restore
- SAS Upgrade Kit available in order to support one SAS drive and one SCSI drive.

1U USB Rack-mount Kit
- High-density 1U Rack-mount form factor
- The USB enclosure supports DAT 160 USB tape drives and also supports RDX 320GB, RDX 500GB and RDX 1TB removable hard disk drives.
- USB enclosure provides up to 320 GB of storage capacity, using two DAT 160 USB drives and up to 2 TB of storage capacity using two RDX 1 TB removable hard disk drives.
- Data transfer rates of 49.6.G/hour (assuming 2:1 data compression) using two DAT 160 drives and up to 216GB/hour using two RDX 1 TB removable hard disk drives.
- Latching switch for the 1U rack allows for auto restart after power has been interrupted and restore
SAS Upgrade Kit available in order to support one SAS drive and one USB drive

1U SAS Rack-mount Kit
- High-density 1U Rack-mount form factor with auto-configuring 1.5Gb, 3Gb and 6Gb SAS support
- The SAS enclosure supports up to two DAT 160 SAS, LTO-3 Ultrium 920 SAS, LTO-4 Ultrium 1760 SAS, LTO-5 Ultrium 3000 SAS or LTO-6 Ultrium 6250 tape drives.
- Provides up to 12.5 TB of storage capacity (assuming 2.5:1 compression) using two LTO-6 Ultrium 6250 drives.
- Data transfer rates up to 2.8 TB/hr (assuming 2.5:1 compression) using two LTO-6 Ultrium 6250 drives
- Latching switch for the 1U rack allows for auto restart after power has been interrupted and restore
- Supports up to two separate SAS channels for connectivity to two separate servers or two separate HBA ports.

3U SCSI Rack-mount Kit
- Provides up to 6.4 TB of compressed storage capacity using four LTO-4 Ultrium 1760 tape drives
- 3U Rack-mount form factor.
- Supports two full-height or four half-height SCSI-based tape drives, or a combination one full-height and two half-height devices.
- Includes new ease-of-use features for easier integration and management of HP tape devices
- Compatible with a wide range of single-ended and LVD SCSI internal tape drives, including:
    - DAT 160 SCSI Tape Drives

Features

- o LTO-3 Ultrium 920 and LTO-4 Ultrium 1760 SCSI Tape Drives
- Supports up to four separate SCSI buses
- Top access and removable drive trays allow customers to slide unit out of rack for easier access to tape drives

3U SAS Rack-mount Kit
- Provides up to 12.5 TB of compressed storage capacity using two LTO-6 Ultrium 6650 SAS drives or 25 TB using four LTO-6 Ultrium 6250 SAS drives.
- 3U Rack-mount form factor with auto-configuring 1.5Gb, 3Gb and 6Gb SAS support
- Supports up to four SAS-based, half-height tape drives (DAT 160 SAS, LTO-3 Ultrium 920 SAS, LTO-4 Ultrium 1760 SAS, LTO-5 Ultrium 3000 SAS, LTO-6 Ultrium 6250 SAS) or two SAS-based, full-height tape drives (LTO-4 Ultrium 1840 SAS, LTO-5 Ultrium 3280 SAS, LTO-6 Ultrium 6650 SAS)
- Includes new ease-of-use features for easier integration and management of HP tape devices
- Supports up to four separate SAS channels for connectivity to four separate servers or four separate HBA ports. Top access and removable drive trays allow customers to slide unit out of rack for easier access to tape drives

Customer Benefits

- Small footprint allows the customer to consolidate external storage needs within a high-density form factor.
- Scalability allows customers to add tape drives and migrate to new tape drive technologies that meet their capacity and performance needs as their storage requirements change.
- Support of multiple tape drive technologies as well as RDX removable hard disk drive technology, which reduces risk and protect customers' investments.
- Support of multiple interfaces including SCSI, SAS, and USB.
- Latching switch for all 3U and 1U Rack-mount kits allows auto restart after power has been interrupted and restored
- New ease-of-use features increase the customer's efficiency in configuring, integrating, and managing external storage devices.
- Affordable pricing allows customer to match their level investment in storage to their current or future business needs.
- Thoroughly tested and qualified with HP ProLiant, HP Integrity and AlphaServer platforms and industry leading software, resulting in easier installation and fewer problems.

Family Comparison

	1U Rack-mount Kit	3U Rack-mount Kit
Maximum Capacity (compressed)	3.2 TB (SCSI) 12.5 TB (SAS) 1 TB (USB)	6.4 TB (SCSI) 25 TB (SAS)
Maximum Number of Drives	2 half-height	4 half-height or 2 full-height
Drives Supported	RDX 320 RDX 500 RDX 1TB DAT 160 LTO-3 Ultrium 920	Half-Height Devices: DAT 160 LTO-3 Ultrium 920 LTO-4 Ultrium 1760 LTO-5 Ultrium 3000

QuickSpecs

Features

	LTO-4 Ultrium 1760 LTO-5 Ultrium 3000 LTO-6 Ultrium 6250	LTO-6 Ultrium 6250 Full-Height Devices: LTO-5 Ultrium 3280 LTO-6 Ultrium 6650
Interface	SCSI (LVD/SE), 6Gb SAS, USB	SCSI (LVD/SE), 6Gb SAS
High-Availability Features	None	None

Product Highlights

Scalability	HP Rack-mount kits support up to four tape drives in the 3U and two tape drives or two RDX removable hard disk drives in the 1U. Tape drives and RDX removable hard disk drives can be added at any time, allowing flexibility to add capacity or change tape technologies at any time.
Configuration	**SCSI**: The standard bus configuration includes two SCSI buses with support for up to two drives per bus. Customers can purchase an LVD Cable Kit that will extend the unit to four SCSI buses supporting one drive per bus on the 3U Using independent SCSI buses for each drive provides the best performance. **SAS**: The standard configuration includes two SAS channels on the 1U and four SAS channels on the 3U. **USB**: The standard configuration includes two USB ports on the 1U.
Ease-of-Use Features	HP Rack-mount kits include features designed to provide for easier access and management of installed tape drives and RDX removable hard disk drives. The cover is easily unscrewed and slid off for ease of access. Each unit also includes two slide-out drive trays that allow for easy removal of the internal tape drives and RDX removable hard disk drives through the top access cover. LEDs on the front panel indicate when the power is on and when service is required.
Compatibility and Integration Testing	HP Rack-mount Kits use in-house technology, which ensures the customer of full compatibility with HP ProLiant, Integrity and AlphaServer platforms. HP thoroughly tests products with leading backup software and operating systems.

HP Server Compatibility

NOTE: Connecting a Rack-mount Kit to any of the supported ProLiant, AlphaServer, and HP Integrity platforms may require the use of a secondary controller, host bus adapter, or Smart Array controller. Please see the list of supported controllers, host bus adapters, and Smart Array controllers at: http://www.hp.com/storage/SPOCK to select the appropriate model.

HP Rack-mount Kits are supported on the following classes of HP systems:

- HP ProLiant servers
- HP Alpha servers
- HP rx and rp series servers
- HP tc series servers

For details of which tape drive and RDX removable hard disk drive models work with which systems, including third-party systems, visit: http://www.hp.com/storage/SPOCK for the latest hardware compatibility information

OS Support	Operating system compatibility will depend on the drives used in the rack enclosure. For the latest list of servers, operating systems, and backup software that support HP tape drives and RDX removable hard disk drives, check the tape/RDX removable hard disk drive backup compatibility pages on our web site at: http://www.hp.com/storage/SPOCK.
Software Support	Backup application compatibility also depends on the drives used in the Rack-mount Kit. For the latest list of servers, operating systems, and backup software that support HP tape drives and RDX removable hard disk drives, check the tape/RDX removable hard disk drive backup compatibility pages on our web site at: http://www.hp.com/storage/SPOCK.

Service and Support, HP Care Pack, and Warranty Information

Warranty	3-0-0 (Three year parts)

HP Care Pack Services: Packaged server and storage services for increased uptime, productivity and ROI
When you buy HP server and storage products and solutions, it's also a good time to think about what levels of support you may need. Our portfolio of service options reduce deployment and management worries while helping you get the most out of your server and storage investments. We take a holistic approach to your environment, bridging servers, blades, storage, software and network infrastructures with our packaged HP Care Pack Services for servers and storage.

Protect your business beyond warranty
When it comes to robustness and reliability, standard computing equipment warranties have matured along with technology. Good news that can also create problems stemming from depending on standard warranties designed to only protect against product defects and some downtime causes. Using a standard approach to warranty uplifts, such as HP Care Pack Services, helps reduce downtime risks and provides operational consistency for mission-critical and standard business computing.

HP Care Pack Services: Upgrading or extending standard server and storage warranties cost effectively
HP Care Pack Services offer a standard reactive hardware and software support services suite sold separately, or combined with our Support Plus and Support Plus 24 services. The portfolio also provides a combination of integrated proactive and reactive services, such as Proactive 24 Service and Critical Service. In addition with HP Proactive Select, you can acquire the specific proactive constancy and technical services. HP Proactive Select menu offers a broad set of service options that you can mix and match depending on your specific requirements. Proactive service options include offers for server, storage, network, SAN device, software, environment and education services.

HP server and storage lifecycle support services offer a full spectrum of customer care-from technology support to complex migrations to complete managed services. HP Factory Express provides customization, integration and deployment services for turnkey solutions. HP Education Services offer flexible, comprehensive training on to help your IT staff get the most out of your server and storage investments. HP Financial solutions extend innovative financing and cost-effective asset management programs-from purchase to equipment retirement.
Learn more: www.hp.com/services/servers and www.hp.com/services/storage

NOTE: Care Pack Services availability may vary by product and country.

HP Care Pack Services are sold by HP and HP Authorized Service Partners:

- Services for customers purchasing from HP or an enterprise reseller are quoted using HP order configuration tools.
- Customers purchasing from a commercial reseller can find HP Care Pack Services at: http://www.hp.com/go/lookuptool

Recommended HP Care Pack Services for optimal satisfaction with your HP product.

Recommended Support	**3-Year HP Support Plus 24**
	HP Foundation Care 24x7 connects you to HP 24 hours a day, seven days a week for assistance on resolving issues - hardware onsite response within four hours and software call back within two hours after opening your case. Three years' coverage recommended with HP Care Pack Service.
Recommended Deployment	**HP Install Storage Autoloader/Tape Drive Array Service**
	For smooth start up and better business outcomes, HP Install Storage Autoloader/Tape Drive Array Service- this service provides initial hardware installation into your server technology environment (system configuration is not included). Leverage the full strength of HP Technology Services - customers can trust the services professionals at HP to work collaboratively with them, putting our

Service and Support, HP Care Pack, and Warranty Information

strategic and technical know-how to work across their entire infrastructure.

- Allows your IT resources to stay focused on their core tasks and priorities
- Reduces implementation time, impact and risk to your storage environment

http://h71028.www7.hp.com/ERC/downloads/5981-9356EN.pdf

Related Services

HP Backup and Recovery Solution Service

Rapid recovery from system downtime can hinge on the efficiency of your backup and recovery management environment - and on how well that environment is integrated with your storage infrastructure. But integration processes can be time-consuming and complex, and your IT resources are already stretched thin. Where can you find the expert help you need?

For fast, effective integration of your backup solution into an existing or new storage infrastructure, turn to the storage experts at HP Services. Our Backup and Recovery Solution Service (BRSS) provides end-to-end management of your backup integration process. The BRSS team works with you to analyze your business and IT environment; develop a comprehensive integration plan and timetable; design an architecture that suits your critical requirements; install backup software; implement your solution; and validate your configuration.

- By engaging HP to implement HP Data Protector, customers' IT staff can stay focused on their core tasks and priorities, resulting in less impact to your business
- Professional backup and recovery planning that aligns with customer's business needs and implementation that reduces project execution time and risk to the storage environment
- HP's expertise with backup and recovery helps ensure issues are avoided

http://h20195.www2.hp.com/V2/GetPDF.aspx/5982-5442EN.pdf

5-Year HP Support Plus 24

As an alternative to our recommended support level, for customers who need to improve uptime with responsive 24x7 product support:

HP Support Plus 24 helps you increase performance and availability with comprehensive, consistent hardware and software services. Working with your IT team, HP Services engineers deliver onsite hardware support and over-the-phone software support around-the-clock 365 days per year. Service coverage encompasses HP products and selected multivendor hardware and software.

In addition, this convenient HP Care Pack packaged service makes software updates available to you at substantial savings.

Choose Support Plus 24 when you need to:

- Improve uptime with responsive hardware and software services available anytime
- Cost-effectively obtain expert 24x7 multivendor hardware and software support
- 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

Service and Support, HP Care Pack, and Warranty Information

http://h20195.www2.hp.com/V2/GetPDF.aspx/5981-6638EN.pdf

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
Customer Technical Training	HP Education Services In today's cost-conscious business environment, IT professionals, developers, consultants and users face an interesting challenge: how to keep up with the latest technologies and expand important skills while delivering profitable results on current projects. To help address this challenge, HP offers innovative training solutions that help keep you up-to-date on virtualization, server, storage, Insight Control, Citrix, Microsoft® and open source/Linux-related topics-while spending less time away from business-critical activities.
HP Services Awards	HP Technology Services continues to be recognized for service and support excellence by customers, partners, industry organizations and publications around the world. Recent honors and award reflect our services team's dedications, technical expertise, professionalism and uncompromising commitment to customer satisfaction.
Additional Services Information	To learn more on HP ProLiant servers, HP BladeSystem servers and HP storage products, please contact your HP sales representative or HP Authorized Channel Partner. Or visit: www.hp.com/services/proliant or www.hp.com/services/bladesystem or www.hp.com/services/storage

Configuration Information

Pre-Configured Models

NOTE: The HP Rack-mount Kits are supported by HP ProLiant, AlphaServer, and HP-UX platforms.

HP StoreEver DAT 160 USB in 1U Rack-mount Kit	AG703C
HP StoreEver LTO-3 Ultrium 920 SCSI in 1U Rack-mount Kit	EH903C
HP StoreEver LTO-4 Ultrium 1760 SAS (1) in 1U Rack-mount Kit	EH946C
HP StoreEver LTO-5 Ultrium 3000 SAS Tape Drive in 1U Rack-mount	EJ014B
HP StoreEver LTO-6 Ultrium 6250 Tape Drive in 1U Rack-mount Kit	C0L99A
HP StoreEver LTO-5 Ultrium 3280 SAS Tape Drive in 3U Rack-mount	EJ013B

NOTE: When ordering this product factory racked, an additional drive cannot be added in the factory. An additional drive can be installed by the customer.

NOTE: #0D1 will appear after the part number on the sales order if HP factory integration is indicated.

Step 1 - 1U/3U Rack-mount Kit

Select one:

Model	Part Number
HP StoreEver 1U USB Rack-mount Kit	A8007B

USB rack-mountable enclosure (1U) with power supply, 4 meter USB cable, fans, power cord, quick deploy rail kit including sliding universal rails for ProLiant, AlphaServer and Rack System/E racks quick release levers for fast and easy serviceability and in-rack tool-less access, user's guide on CD and documentation.

NOTE: #0D1 will appear after the part number on the sales order if HP factory integration is indicated.

HP StoreEver 1U SCSI Rack-mount Kit	A7445C

Wide SCSI LVD rack-mountable enclosure (1U) with power supply, HD - VHDC 12' SCSI cable, fans, power cord, quick deploy rail kit including sliding universal rails for ProLiant, AlphaServer and Rack System/E racks, Velcro hood/loop strap and quick release levers for fast and easy serviceability and in-rack tool-less access, user's guide on CD and documentation.

NOTE: #0D1 will appear after the part number on the sales order if HP factory integration is indicated.

HP StoreEver 1U SAS Rack-mount Kit	AE459B

6Gb/sec SAS rack-mountable enclosure (1U) with power supply, fans, power cord, external 2M mini-SAS (8088) cable, quick deploy rail kit including sliding universal rails for ProLiant, AlphaServer and Rack System/E racks, Velcro hood/loop strap and quick release levers for fast and easy serviceability and in-rack tool-less access, user's guide on CD and documentation.

NOTE: #0D1 will appear after the part number on the sales order if HP factory integration is indicated.

HP StoreEver 3U SCSI Rack-mount Kit	274338-B22

Wide SCSI LVD rack-mountable enclosure (3U) with power supply, HD - VHDC 12' SCSI cable, Ultra 320 SCSI Cable Kit, fans, power cord, 9000 and 10000 series rack compatible rail kit User's Guide on CD, Documentation.

Configuration Information

NOTE: #0D1 will appear after the part number on the sales order if HP factory integration is indicated.

HP StoreEver 3U SAS Rack-mount Kit   AG576B

6Gb/sec SAS rack-mountable enclosure (3U) with power supply, fans, power cord, external
2M mini-SAS (8088) cable , 9000 and 10000 series rack compatible rail kit
User's Guide on CD, Documentation.
NOTE: #0D1 will appear after the part number on the sales order if HP factory integration is indicated.

Step 2 – Additional/Related Options

Select each required option with quantities specified

NOTE: The following is a list of additional/related options. Some may be discontinued.

Tape Drives	Description	Part Number
	HP StoreEver LTO-3 Ultrium 920 SCSI Internal Tape Drive **NOTE:** Supported by the 1U SCSI and 3U SCSI Rack-mount Kit.	EH841B
	HP StoreEver LTO-3 Ultrium 920 SAS Internal Tape Drive **NOTE:** Supported by the 1U SAS and 3U SAS Rack-mount Kit.	EH847B
	HP StoreEver LTO-4 Ultrium 1760 SCSI Internal Tape Drive **NOTE:** Supported by the 1U SCSI and 3U SCSI Rack-mount Kits.	EH921B
	HP StoreEver LTO-4 Ultrium 1760 SAS Internal WW Tape Drive **NOTE:** Supported by the 1U SAS and 3U SAS Rack-mount Kit.	EH919B
	HP StoreEver LTO-5 Ultrium 3000 SAS Internal Tape Drive **NOTE:** Supported by the 1U (AE459B) and 3U (AG576B) SAS rack-mount kits.	EH957B
	HP StoreEver LTO-5 Ultrium 3280 SAS Internal Tape Drive **NOTE:** Supported by the 3U (AG576B) SAS Rack-mount Kit.	EH899B
	HP StoreEver LTO-6 Ultrium 6250 Internal Tape Drive **NOTE:** Supported by the 1U (AE459B) and 3U (AG576B) SAS rack-mount kits.	EH969A
	HP StoreEver LTO-6 Ultrium 6650 SAS Internal Tape Drive **NOTE:** Supported by the 3U (AG576B) SAS rack-mount kits	EH963A

Removable Disk Drive	Description	Part Number
	HP RDX320 USB3.0 Internal Disk Backup System **NOTE**: Supported by the 1U USB Rack-mount Kit.	B7B62A
	HP RDX500 USB3.0 Internal Disk Backup System **NOTE**: Supported by the 1U USB Rack-mount Kit.	B7B64A
	HP RDX1000 USB3.0 Internal Disk Backup System **NOTE:** Supported by the 1U USB Rack-mount Kit.	B7B67A

Q Media		
	HP DDS-3 24GB 125m Data Cartridge	C5708A
	HP DDS-4 40 GB Data Cartridge (150m)	C5718A
	HP DAT 72 Data Cartridge (170m)	C8010A
	HP DAT 160 160GB Data Cartridge	C8011A
	HP DDS Cleaning Cartridge	C5709A
	HP RDX 160GB Removable Disk Cartridge	Q2040A

Configuration Information

HP RDX 320GB Removable Disk Cartridge	Q2041A
HP RDX 500GB Removable Disk Cartridge	Q2042A
HP RDX 1TB Removable Disk Cartridge	Q2044A
HP DLTtape IV Data Cartridge	C5141F
HP DLTtape Cleaning Cartridge **NOTE:** For non-DLT VS drives only.	C5142A
HP SDLT I 220-320 GB Data Cartridge	C7980A
HP SDLT II 600 GB Data Cartridge	Q2020A
HP SDLT Cleaning Cartridge (For use with the SDLT 320 and SDLT 600)	C7982A
HP LTO1 Ultrium 200GB RW Data Tape	C7971A
HP LTO2 Ultrium 400GB RW Data Tape	C7972A
HP LTO-3 Ultrium 800 GB Re-writable Data Cartridge (For use with the Ultrium 960 Drive)	C7973A
HP LTO-3 Ultrium 800 GB WORM Data Cartridge (For use with the Ultrium 960 Drive)	C7973W
HP LTO-4 Ultrium 1.6TB Read/Write Data Cartridge (For use with the LTO-4 Drives)	C7974A
HP LTO-4 Ultrium 1.6TB WORM Data Tape Cartridge (For use with the LTO-4 Drives)	C7974W
HP LTO-5 Ultrium 3TB RW Data Cartridge (For use with the LTO-5 Drives)	C7975A
HP LTO-5 Ultrium 3TB WORM Data Cartridge (For use with the LTO-5 Drives)	C7975W
HP LTO-6 Ultrium 6.25TB MP RW Data Cartridge (For use with the LTO-6 Drives)	C7976A
HP Ultrium Universal Cleaning Cartridge	C7978A

SAS Upgrade Kit	HP 1U SAS Cable/Tray Option Kit This upgrade kit provides the tools needed to upgrade a 1U SCSI rack-mount enclosure to a SAS interface. It includes cables and interface for back panel.	AE463A

NOTE: Go to http://www.hp.com/storage/SPOCK to confirm what cable is needed.

Optional SCSI Cable - add additional SCSI buses to the 3U Rack-mount Kits for use with certain legacy tape drives.	HP Ultra 320 SCSI Cable Kit A field upgrade kit required when going from 2 to 4 ports on the 3U Rack-mount kit. Also required for the following Rack-mount kits when adding ultra 160 or greater drives (350546-B21, 350545-B21, 350544-B21, 274338-B21), or to any of the 5U Rack-mount Kits.	DW063B
Required External SCSI Cables - Required cables needed to connect the enclosure/drives to the host(s). Once cable per	VHDCI/Wide 12 Ft. Cable 68-pin HD to 68-pin **NOTE:** For SE and LVD SCSI tape devices.	341177-B21

Configuration Information

bus is needed.

Optional External SAS Cable	HP 1U SAS TP I-E 3HDDs X 1Tape Drive X4M Server Cable Assembly Kit **NOTE:** This cable is needed to connect SAS enclosure/drives to the motherboard on certain servers. See http://www.hp.com/storage/SPOCK for support details.	AE464A
	HP SAS MIN-MIN 3X1X-5M Cable Assembly Kit **NOTE:** This cable is required to connect SAS enclosure/drives to the motherboard on HP ProLiant DL360G5 and DL365G5 SAS servers	AG452A
	HP 1U SAS Ext-Min 1x-4M Cable Assembly Kit **NOTE:** This cable is needed to connect to SAS SC44Ge HBA external port on server	AE468A
	HP SAS External-Min 1x-2M Cable Assembly Kit **NOTE:** This cable is used to connect to SAS SC44Ge HBA external port on server	AE466A
	HP SAS Min-Min 1x-2M Cable Assembly Kit (8088) Cable Assembly Kit **NOTE:** This cable is used to connect to SAS HBA mini-SAS external port on server (e.g., P212, P411, P800 Smart Array Controllers)	AE470A
	HP SAS MIN-MIN 1X-4M Cable Assembly Kit **NOTE:** This cable is used to connect to SAS HBA mini-SAS external port on server (e.g., P212, P411, P800 Smart Array Controllers)	AE465A
	HP 2m External Mini-SAS to 4x1 Mini-SAS Cable (8088) to 4x1 Mini-SAS Cable **NOTE:** This cable is used to connect up to 4 SAS tape drives to one SAS HBA mini-SAS external port on server (e.g., P212, P411, P800 Smart Array Controllers)	AN975A
	HP 4m External Mini-SAS to 4x1 Mini-SAS Cable (8088) to 4x1 Mini-SAS Cable **NOTE:** This cable is used to connect up to 4 SAS tape drives to one SAS HBA mini-SAS external port on server (e.g., P212, P411, P800 Smart Array Controllers)	AN976A
Host Bus Adapters, Controllers, and Accessories for ProLiant Servers	**SCSI Controllers**	
	HP SC11Xe Ultra320 Single Channel/ PCIe x4 SCSI Host Bus Adapter **NOTE:** Recommended SCSI HBA for connecting Ultrium tape drives to G6/G7/Gen8 ProLiant servers. Please visit: http://www.hp.com/storage/SPOCK for a complete list of Ultrium tape drive compatibility with ProLiant servers and other industry standard servers.	412911-B21
	SAS Controllers	
	HP H222 Host Bus Adapter **NOTE:** Recommended SAS HBA for connecting DAT and LTO Ultrium tape drives to Gen8 ProLiant servers.	650926–B21
	HP Smart Array P222/512 FBWC 6Gb 1-port Int/1-port Ext SAS Controller **NOTE:** SAS HBA for connecting DAT and LTO Ultrium tape drives to Gen8 ProLiant servers.	631667-B21
	HP Smart Array P212/ZM 1-ports Int/1-ports Ext PCIe x8 SAS Controller **NOTE:** Recommended SAS HBA for connecting LTO Ultrium tape drives to G6/G7 ProLiant servers. Please visit: http://www.hp.com/storage/SPOCK for a complete list of LTO Ultrium tape drive compatibility with ProLiant servers and other industry standard servers.	462828-B21

Configuration Information

You will need to connect Ultrium 460 ,Ultrium 960 and Ultrium 1840 tape drives to a dedicated SCSI Host Bus Adaptor (HBA) that is Ultra160 or higher. To supply data to the drive fast enough to achieve full performance from the tape drive, you will need at least eight disks as part of a RAID 5 array with read cache enabled. You can test the speed of your system with tools provided at http://www.hp.com/support/pat or with HP's Library and Tape Tools application.

To achieve full performance from your tape drive, do not use the native backup application within the operating system (e.g., NT® Backup, Windows® 2000 Backup). For full details of supported backup applications, see http://www.hp.com/products1/storage/compatibility/tapebackup/index.html

Technical Specifications

		1U Rack-mount	3U Rack-mount
Dimensions	**Form Factor**	1U - Rack-mount	3U - Rack-mount
	Physical (HxWxD)	1.7 x 19 x 25.3 in (4.32 x 42.88 x 64.14 cm)	5.2 x 16.8 x 23.0 in (13.20 x 42.70 x 58.40 cm)
	Shipping (HxWxD)	12.0 x 23.5 x 33.5 in (30.48 x 59.69 x 85.09 cm)	15.8 x 23.8 x 33.5 in (40.01 x 60.33 x 85.09 cm)
Weight	**Out of box**	17.8 lb (8.07 kg)	27 lb (12.3 kg)
	Shipping	25 lb (11.3 kg)	45 lb (20.5 kg)
Interface	**SCSI/USB/SAS Interface**	Wide SCSI LVD/SE USB2.0 3Gb and 6Gb SAS	Wide SCSI LVD & SE 3Gb and 6Gb SAS
	SCSI/USB/SAS Connector	Two 68-pin HD Two USB 2.0 ports Two mini-SAS 8088 connectors	Two 68-pin HD standard, Can be expanded to more Four mini-SAS 8088 connectors
	Ports	1U SCSI--Two SCSI buses, 1 half-height drive per bus or can be configured with 2 half height on one bus. 1U USB-Two USB buses, 1 half-height drive per bus. 1U SAS - Two SAS ports, 1 half-height drive per port	3U SCSI - Two SCSI buses, 2 half-height or 1 full-height drive per bus. Optional: Can increase to four SCSI buses with one half-height drive per bus with LVD Cable Kit. 3U SAS - Four SAS ports, 1 half-height drive per port
Power Specifications	**Power Requirements**	140 Watts, max 100 to 240 Vrms Nominal Line Voltage 90 to 264 Vrms Range Line Voltage 47/63 Hz 2.4 A max Input Current (@120 VAC)	200 Watts, max 100 to 240 Vrms Nominal Line Voltage 90 to 264 Vrms Range Line Voltage 47/63 Hz 3.1 A max Input Current

Environmental Specifications	**Temperature**	**Operating**	50° to 95° F (10° to 35° C)		
		Storage	-22° to 140° F (-30° to 60° C)		
	Non-Condensing Humidity	**Operating**	20% to 80%		
		Storage	5% to 95%		
Drives Supported	**1U Rack-mount**	**3U Rack-mount**	**Capacity** (native)	**Transfer rate** (native)	**Form Factor**
	DAT 160 SCSI	DAT 160 SCSI	80 GB	6.9 MB/s	Half-Height
	DAT 160 USB	-	80 GB	6.9MB/s	Half-Height
	RDX 160GB USB	-	160 GB	30 MB/s	Half-Height
	RDX 320GB USB	-	320 GB	30 MB/s	Half-Height
	RDX 500GB USB	-	500 GB	30 MB/s	Half-Height
	RDX 1 TB USB	-	1 TB	30 MB/s	Half-Height

Technical Specifications

	LTO-3 Ultrium 920 SCSI	LTO-3 Ultrium 920 SCSI	400 GB	60 MB/s	Half-Height
	LTO-3 Ultrium 920 SAS	LTO-3 Ultrium 920 SAS	400 GB	60 MB/s	Half-Height
	-	LTO-3 Ultrium 960	400 GB	80MB/s	Full-Height
	LTO-4 Ultrium 1760 SAS	LTO-4 Ultrium 1760 SAS	800 GB	80MB/s	Half-Height
	LTO-4 Ultrium 1760 SCSI--	LTO-4 Ultrium 1760 SCSI	800 GB	80MB/s	Half-Height
		LTO-4 Ultrium 1840 SCSI	800 GB	120MB/s	Full-Height
		LTO-4 Ultrium 1840 SAS	800 GB	120MB/s	Full-Height
	LTO-5 Ultrium 3000 SAS	LTO-5 Ultrium 3000 SAS	3TB	280MB/s	Half-Height
		LTO-5 Ultrium 3280 SAS	3TB	280MB/s	Full-Height
	LTO-6 Ultrium 6250	LTO-6 Ultrium 6250	6.25TB	400MB/s	Half-Height
		LTO-6 Ultrium 6650	6.25TB	400MB/s	Full-Height
Max Number of drives	**1U Rack-mount**	**3U Rack-mount**			
	Two half-height internal drives	Two full-height internal drives or			
		Four half-height internal drives			
LED Indicators	**1U Rack-mount**	**3U Rack-mount**			
	Power Supply	Power Supply			

Summary of Changes

Date:	Version History:	Action:	Description of change:
13-Feb-2015	From Version 72 to 73	Changed	Updated the Technical Specifications section. Obsolete SKUs removed.
18-Jul-2014	From Version 71 to 72	Changed	Key Features - 3U SCSI Rack-mount Kit – changed 3.2 TB to 6.4 TB and removed "two LTO 4 Ultrium 1840 or 6.4 TB with" and removed "LTO 3 Ultrium 960 and LTO 4 Ultrium 1840"; Family Comparison table – 3U Rack-mount Kit – drives supported – removed LTO 4 Ultrium 1840; Configuration Information – Pre-configured models – removed AG594C, DW028D and EH926B; Step 2 – Additional/Related Options – removed Q1587B, EH853B and EH960B; USB Cable Kit – removed section and 396114-B21; Technical Specifications – Drives Supported – 1U and 3U Rack-mount – removed DAT 160 SAS information;
25 Apr 2014	From v70 to v71	Changed	3-Year HP Support Plus 24 paragraph for a new one
4 Apr 2014	From v20 to v21	Changed	Additional Options: Updated Rail Kits in the HP Rack Options section.
		Added	Configuration Information: Added a NOTE to the HP Power Supplies section. Core Options: Added 695510-B21 to HP Hard Drives, 717491-B21 to HP Networking, 684539-B21 and a note to HP Power supplies, 728593-B21 to HP Graphic Options. Additional Options: HP PCIe Workload Accelerator Options complete section, HP Basic Power Distribution Units complete section.
		Removed	Additional Options: Removed 641027-B21, 600279-B21 and 600282-B21 from the HP I/O Accelerator Options.
31 Mar 2014	From v19 to v20	Changed	Changes were made throughout
24 Mar 2014	From v18 to v19	Changed	Image correction
17 Jan 2014	From v17 to v18	Changed	Maximum initiators supported was revised in the overview chart
10 Dec 2013	From v16 to v17	Added	Added the missing image to Step 1
9 Dec 2013	From v15 to v16	Changed	Overview and Configuration were revised
19 Jun 2013	From v14 to v15	Removed	Removed a Note from Configuration Information and Additional Options sections.
28 Jan 2015		Changed	Updated operating temperature range as requested by Kelly Reasoner from 5-40C to 10-35C

Summary of Changes