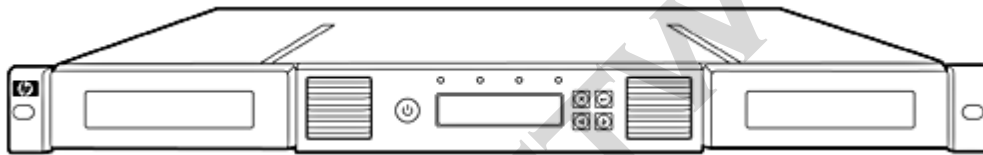# QuickSpecs

HP StorageWorks 1/8 G2 Tape Autoloader

Overview

Designed for basic data protection, the HP StorageWorks 1/8 G2 Tape Autoloader is the ideal entry-level automated backup solution that combines exceptional storage density and tape library features into the compact form of a tape autoloader. With compressed capacity (2:1) of up to 12.8TB using HP StorageWorks LTO-4 Ultrium 1760 Tape Drive technology, the 1/8 G2 Tape Autoloader will provide cost-effective, easy-to-install unattended backup. No more struggling to remember to change tapes or start backup programs. Reliable backup equals peace of mind.

Equally at home in a data center rack or on a desk next to the office server, the 1/8 G2 Tape Autoloader, in a 1U form factor, is equipped with one LTO Ultrium SCSI or SAS Tape Drive and can hold up to eight data cartridges. In order to easily manage your media, standard features include a bar code reader and two removable 4-slot magazines. All 1/8 G2 Tape Autoloaders arrive rack-ready for installation in a standard 19" rack. Optional accessory kits are available for rack-mounting the unit or converting the unit to tabletop use. The autoloader can be used in either a direct-attached backup solution for multiple servers or across the LAN. Perfect for replicated systems, the web-based remote management interface reduces the dependencies on local IT resources, allowing multiple sites to be supported centrally. Protect your investment as backup capacity and performance needs change by interchanging 1/8 G2 Tape Autoloader tape drives into HP StorageWorks MSL2024, MSL4048 or MSL8096 Tape Libraries. All 1/8 G2 models include HP StorageWorks Data Protector Express, Single Server Edition for Windows/Linux/NetWare. At an affordable price, the 1/8 G2 Tape Autoloader is a complete solution in the box.

What's New

- Integration of the HP StorageWorks LTO-4 Ultrium 1760 SAS Tape Drive. The HP StorageWorks 1/8 G2 Tape Autoloader with a 3Gb/sec SAS interface offers a direct connect option to SAS-based servers, such as HP ProLiant Servers.
- Encryption support with the LTO-4 Ultrium 1760 configured libraries; hardware encrypting LTO-4 Ultrium 1760 tape drive for secure high performance backups.

Key Features
- Up to 12.8 TB of compressed storage capacity (2:1) in a 1U form factor
- Integrated barcode reader
- Two 4-slot removable magazines with single mail slot
- Rack or tabletop use
- LTO-4 Ultrium 1760 SAS, Ultrium 920 SCSI and SAS, Ultrium 448 SCSI and Ultrium 232 SCSI configurations
- Web-based remote management capability
- Easy-to-enable AES 256-bit embedded hardware encryption with compression
- Customer replaceable components
- Investment protection as capacity and performance needs change
- Complete solution in the box

QuickSpecs

Overview

Customer benefits

- Provides an exceptional amount of backup and recovery storage without consuming valuable rack space.
- Provides faster inventory times and facilitates tracking of media.
- Offers single cartridge or bulk loading of media, as well as providing for bulk storage of media off-site.
- Reduce installation time with rack-ready units; optional rack kits are available for rack-mounting. The unit can also be used on a desktop by simply installing the enclosed rubber feet.
- Flexible tape technology and interface choices to best suit your backup storage needs.
- Allows a remote administrator to control, configure, monitor and troubleshoot the device, thus relieving the customer of requiring onsite IT resources.
- LTO-4 Ultrium 1840 configuration provides highest level of encryption security, with compression, for strong backup data privacy to secure confidential information and address compliance quickly. Encryption key management support via HP Data Protector Software and other ISV backup applications.
- Modular design of tape library allows for quick repair of unit to reduce product downtime.
- Interchange 1/8 G2 Tape Autoloader drives into HP StorageWorks MSL2024, MSL4048 or MSL8096 Tape Libraries as performance and capacity needs change.
- Includes HP Data Protector Express Software, Single Server Edition for Windows.

Family Comparison	1/8 G2 LTO-4 Ultrium 1760 Tape Autoloader	1/8 G2 Ultrium 920 Tape Autoloader	1/8 G2 Ultrium 448 Tape Autoloader	1/8 G2 Ultrium 232 Tape Autoloader
Drive Technology	Ultrium 1760	Ultrium 920	Ultrium 448	Ultrium 232
Capacity (compressed 2:1)	12.8 TB	6.4 TB	3.2 TB	1.6 TB
Maximum Data Transfer (compressed 2:1)	576 GB/hr	432 GB/hr	172.8 GB/hr	115.2 GB/hr
Interface	3Gb/sec SAS	3Gb/sec SAS Ultra320 SCSI LVD/SE	Ultra160 SCSI LVD/SE	Ultra160 SCSI LVD/SE

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Product Highlights

Easy Installation

The 1/8 G2 Tape Autoloader ships as a rack-ready unit. A separate 1/8 G2 Tape Autoloader Rack Kit must be purchased to allow installation in a variety of HP racks which include the 10000 series, 9000 series, 5000 series and System/E racks.

A set of rubber feet are included in the box if you choose to use the unit on a tabletop or desk. For additional structural rigidity, HP recommends the purchase of the 1/8 G2 Rack-to-Tabletop conversion kit which has a maximum load of 33 pounds (15 kilograms) and fully encloses the unit.

Software in the Box

The 1/8 G2 Tape Autoloader includes HP StorageWorks Data Protector Express, Single Server Edition for Windows/Linux/NetWare. This application allows you to securely back up, and if necessary recover, a single Windows/Linux/NetWare machine to/from your HP StorageWorks tape drive or tape autoloader.

NOTE: HP Data Protector Express Software, Single Server Edition and HP OpenView Storage Data Protector, Single Server Edition are NOT compatible. Tape cartridges should NOT be shared between autoloaders and libraries running Data Protector and Data Protector Express.

Manageability

The 1/8 G2 Tape Autoloader allows web-based remote manageability; the unit can be monitored and managed from across the room or across the globe. Functions included in the management tool include:

- Status information on the drive and system
- System configuration operations and reporting
- System error and status logs
- Library and drive firmware upload capabilities
- Diagnostic tests and information
- Cartridge movement for maintenance and management purposes
- Cleaning cartridge support
- Security and access control
- SNMP support for IP communications

Proven Reliability

With a rating of 2,000,000 robot load/unload cycles, the 1/8 G2 Tape Autoloader provides necessary high reliability for today's demanding environment. To improve reliability and longevity, all HP Ultrium products feature Data Rate Matching (DRM). This allows the tape drive to dynamically and continuously adjust the speed of the drive, from 13 MB/s to 80 MB/s, to match the speed of the host or network. This increases performance, reduces mechanical wear on the tape drive and extends tape life.

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Product Highlights

Data Privacy

To greatly enhance data privacy, HP StorageWorks 1/8 G2 Tape Autoloaders are now available with LTO-4 Ultrium 1760 hardware encrypting tape drives for secure high performance backups meeting consortium specifications for LTO-4. HP Data Protector Software can enable the drive encryption and provide basic key management capabilities. Additional ISV supporting hardware encryption information is available on the HP StorageWorks Enterprise Backup Solution website at www.hp.com/go/ebs. The encryption on LTO-4 media occurs with or without compression, and without speed or capacity penalties. You can read LTO-2 and LTO-3 tapes, and write LTO-3 tapes, but hardware encryption is not supported in these formats.

LTO-4 uses the Advanced Encryption Standard (AES) with the longest and most secure keys -- 256 bits. AES-256 is implemented within Galois Counter Mode (GCM). This is a method of increasing AES security by efficiently adding Message Authentication Codes to ensure the integrity of the backup data stored on tape. The HP LTO-4 Ultrium 1760 Tape Drive is designed to be compliant with the emerging standard for tape drive security (IEEE 1619.1).

Serviceability

Modular in construction, the 1/8 G2 Tape Autoloader has easily replaceable components minimizing the Mean-Time-to-Repair on the unit. Replaceable components include the tape drive, the magazines, and the chassis (includes robot, power supply, and controller board). HP StorageWorks Library and Tape Tools (L&TT) provides easy access to the 1/8 G2 Tape Autoloader error log, generates support tickets, and enables firmware downloads. L&TT can be downloaded for free at http://www.hp.com/support/tapetools

LTO Ultrium Technology

HP StorageWorks LTO (Linear Tape Open) Ultrium Tape Drives use best of breed technology. By taking the best features from other tape technologies and combining them into a single new technology, Ultrium tape drives are in a league of their own. Inclusion of innovative features such as Adaptive Tape Speed (ATS) ensure that Ultrium drives can meet the performance and reliability demands of a library environment. LTO technology is an open industry standard format; thus data written on HP StorageWorks Ultrium Tape Drives can be interchanged directly with Ultrium Tape Drives from other vendors.

Data Rate Matching

Data Rate Matching combines sophisticated buffer management with HP's exclusive variable Adaptive Tape Speed technology, to allow the tape drive to match its transfer rate to the host speed dynamically and continuously across the wide range of transfer rates. This feature ensures that the tape drive continues to stream data regardless of the environment, and brings three big advantages:

- It optimizes performance and maximizes overall efficiency, allowing the drive to respond immediately to any speed changes from the host.
- It minimizes rewinding and repositioning of the tape, significantly reducing physical wear and increasing reliability.
- It minimizes the power requirements for the drive by reducing the number of repositions needed.

LTO Ultrium Tape Drive	ATS data transfer rate range (native)
HP LTO-4 Ultrium 1760	27 to 80 MB/s
HP LTO-3 Ultrium 920	27 to 60 MB/s
HP LTO-2 Ultrium 448	8 to 24 MB/s
HP LTO-1 Ultrium 232	7 to 16 MB/s

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HP StorageWorks 1/8 G2 Tape Autoloader

Product Highlights

HP Ultrium WORM

Critical to the success of data retention policies in highly regulated environments is the ability to store and manage data in an unalterable state. Following stringent guidelines set forth by regulatory agencies such as the SEC and HIPPA, IT organizations must now integrate new solutions and policies that can verify the integrity of stored data for periods that can extend well beyond seven years.

The LTO-4 Ultrium and LTO-3 Ultrium tape drives feature the ability to archive and store data in a non-rewriteable format that meets the most stringent regulatory guidelines. Using a combination of integrated fail-safe features in the drive firmware, cartridge memory, and tape formatting, the LTO-4 Ultrium and LTO-3 Ultrium can archive large amounts of data for periods of up to 30 years in a secure, untampered state. Since all LTO-4 Ultrium and LTO-3 Ultrium tape drives include support for both rewritable and WORM media, IT organizations can now easily integrate a secure, long-term archiving solution into their current data protection strategy. As compared to other technologies that feature support for WORM storage, the LTO-4 Ultrium and LTO-3 Ultrium tape drives offer the advantages of:

- A single drive to support all backup and archiving needs
- Two distinctive tape cartridges to easily distinguish and manage both rewriteable and WORM data cartridges
- A specially designed WORM data cartridge with multiple integrated fail-safe features to prevent accidental or intentional overwriting of data
- High-capacity, low-cost HP WORM media that can store up to 1.6TB of data on a single data cartridge
- Support from many backup and archiving software vendors, providing the most comprehensive and mainstream support in the industry
- The LTO open standard that offers greater choice and compatibility across all third- and fourth-generation LTO Ultrium products

NOTE: While all HP LTO-4 Ultrium and LTO-3 Ultrium tape drives support LTO Ultrium WORM media, some third- and fourth-generation LTO Ultrium tape drives from other manufacturers may not include read and write support for LTO Ultrium WORM media. For non-HP third- and fourth-generation LTO Ultrium tape drives, please check the manufacturers' specifications to ensure this support is provided if you are using your WORM media. If WORM support is not provided, the drive will eject the WORM tape cartridge immediately upon insertion into to the tape drive.

HP StorageWorks Library and Tape Tools

The 1/8 G2 Tape Autoloader is supported on HP's industry-leading diagnostic tool - HP StorageWorks Library and Tape Tools (L&TT). L&TT is a single, convenient program that's a snap to install and simple to operate. L&TT's intuitive user interface eliminates the need for training and deploys in less than five minutes. This robust diagnostic tool is designed for both the experienced professional and the untrained administrator. It ensures product integrity through self-diagnostics and fast resolution to device concerns. Additional information on L&TT plus download information can be found at http://www.hp.com/support/tapetools.

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HP StorageWorks 1/8 G2 Tape Autoloader

Product Highlights

HP Storage Media

HP recommends that you use HP-branded cartridges in the 1/8 G2 Tape Autoloader to assure the highest level of protection for your valuable data. The test program for HP media is the most thorough and comprehensive in the industry.

All HP cartridges must satisfy an exhaustive battery of additional tests that relate directly to real life situations, where real data and real businesses are at stake. The benefit of the HP brand specification for media is consistent quality. Through the testing of thousands of HP drives and HP cartridges, the ideal formulation for backup performance is defined and then continuously monitored. This hugely resource-intensive process is unique to HP and affords deep insight into the HP+HP backup solution for a wide range of environments and duty cycles. Your best choice for ease of support and maximum dependability is to use HP-branded Ultrium cartridges at all times.

Factory Express Portfolio for Servers and Storage

HP Factory Express offers configuration, customization, integration and deployment services for HP servers and storage products. Customers can choose how their factory solutions are built, tested, integrated, shipped and deployed. Customization must comply with all relevant product specifications and factory supported configurations.

Factory Express offers service packages for simple configuration, racking, installation, complex configuration and design services as well as individual factory services, such as image loading, asset tagging, and custom packaging. HP products supported through Factory Express include a wide array of servers and storage: HP Integrity, HP ProLiant, HP ProLiant Server Blades, HP BladeSystem, and HP 9000 servers as well as MSA, VA7xxx, EVA, and XP disk arrays, rackable tape libraries and configurable network switches.

Type of service support varies by platform and product family. For more information on Factory Express services for your specific server model or storage device please contact your sales representative or go to http://www.hp.com/go/factory-express.

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Compatibility

HP's extensive compatibility testing program assures that your HP StorageWorks 1/8 G2 Tape Autoloader works with leading servers, operating systems, and backup applications - and not just those sold by HP. The 1/8 G2 Tape Autoloader works seamlessly in many environments, making them especially suitable if you have a mixed system environment. For the latest list of servers, workstations, operating systems, and backup software that support the 1/8 G2 Tape Autoloader, check the HP StorageWorks Enterprise Backup Solution compatibility matrix at http://www.hp.com/go/ebs.

NOTE: The 1/8 G2 Tape Autoloader requires an HBA with multiple LUN support and should not be used with RAID or Array controllers.

Server Compatibility	The 1/8 G2 Tape Autoloader is supported on a wide range of HP systems. For details of which 1/8 G2 Tape Autoloader works with which systems, including third-party systems, reference the EBS compatibility matrix at http://www.hp.com/go/ebs for the latest hardware compatibility information.
OS Support	Reference the EBS compatibility matrix for the most up-to-date OS compatibility information at http://www.hp.com/go/ebs.
Software Support	Reference the EBS compatibility matrix for the most up-to-date software compatibility information at http://www.hp.com/go/ebs.

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Service and Support, HP Care Pack, and Warranty Information

Warranty	The warranty for this product consists of 1-year parts exchange, next business day.

Warranty Upgrade Options
- Response - Upgrade on-site response from next business day to same day 4-hours
- Coverage - Extend hours of coverage from 5 days x 9 hours to 7 days x 24 hours
- Duration - Select duration of coverage for a minimum period of 1 year or multiple years

HP Care Pack Information 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 products 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 HP Care Pack (hardware & software) information, as well as orderable part numbers, please refer to the URL http://www.hp.com/hps/carepack/.

Hardware Product Services
- Installation services
- On-site Maintenance (includes warranty support)
- Response time upgrades during the warranty period
- Post-warranty coverage
- RAID setup and performance consulting via statement of work

For additional hardware installation and maintenance information, please refer to the URL listed below: http://www.hp.com/hps/hardware/

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

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Service and Support, HP Care Pack, and Warranty Information

Support Services

HP Services provides up to a three-year, limited warranty, fully supported by a worldwide network of resellers and service providers and 9x5 hardware technical phone support during the warranty period. In addition, available service offerings include a full range of optional packaged hardware and software services:

- Installation and start up
- Extended coverage hours and enhanced response times
- System management and performance services
- Availability and recovery services

Components

The following brick level options/components do not have individual HP Care Pack Services. These items will be included in product HP Care Pack Services into which they are installed.

Disk Drives	Tape Drives	CD/DVD ROM	SCSI Hubs in SBBs	Adapters
Bus Converters	Backplane RAID Controllers	Power Supplies	Cabling	Fans

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Configuration Information

NOTE: The HP StorageWorks 1/8 G2 Tape Autoloader comes standard as a one drive, 8-slot unit (includes both a right and left 4-slot magazine) which is shipped rack-ready. The separate 1/8 G2 Tape Autoloader Rack Kit must be purchased to complete the rack installation. Each library includes a US power cord (C13, 10A) and PDU power cord (C13/C14, 10A). For additional or specific regional power cord requirements, a separate power cord must be ordered.

Step 1 – Base Configuration

Select one:

Model Name	Model Description	Part Number
HP StorageWorks 1/8 G2 Tape Autoloader	HP 1/8 G2 LTO-4 Ultrium 1760 SAS Tape Autoloader	AK377A
	HP 1/8 G2 LTO-3 Ultrium 920 SAS Tape Autoloader	AH558A
	HP 1/8 G2 LTO-3 Ultrium 920 Tape Autoloader	AH165A
	HP 1/8 G2 LTO-2 Ultrium 448 Tape Autoloader	AH164A
	HP 1/8 G2 LTO-1 Ultrium 232 Tape Autoloader	AH163A

Kit Contents (for each autoloader):

- **SCSI models:**
  - (1) 1.83M US Power Cord, C13, 10A
  - (1) 2.5M PDU Power Cord, C13/C14, 10A
  - (1) 6' VHDCI to HDTS68 SCSI cable
  - (1) RJ-45 Ethernet cable
  - (1) HDTS68 SCSI terminator
  - Set of six rubber feet (for tabletop use)
  - HP Data Protector Express Software CD (for use in downloading the Single Server Edition for Windows/Linux/NetWare)
  - Documentation kit including User & Service Guide (CD) and Getting Started Poster
- **SAS models:**
  - (1) 1.83M US Power Cord, C13, 10A
  - (1) 2.5M PDU Power Cord, C13/C14, 10A
  - (1) 2M External Infiniband (SFF8470) to Mini SAS (SFF8088) 1x SAS Cable
  - (1) RJ-45 Ethernet cable
  - Set of six rubber feet (for tabletop use)
  - HP Data Protector Express Software CD (for use in downloading the Single Server Edition for Windows/Linux/NetWare)
  - Documentation kit including User & Service Guide (CD) and Getting Started Poster

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Configuration Information

Step 2 – Required Options

Select each required option with quantities specified:

Power Cord	Description	Quantity	Part Number
	Power Cord, US, C13, 10A, 1.83m	1 each	AF556A
	NOTE: This cord ships standard with each 1/8 G2 Tape Autoloader; can be used to connect the rack-mounted device to PDUs with NEMA 5-15R receptacles.		
	PDU Power Cord, C13/C14, 10A, 2.5m	1 each	142257-002
	NOTE: This cord ships standard with each 1/8 G2 Tape Autoloader; can be used to connect the rack-mounted device to PDUs with IEC-320 receptacles.		
	Power Cord, Euro, C13, 10A, 1.83m	1 each	AF568A
	Power Cord, UK, C13, 10A, 1.83m	1 each	AF570A
	Power Cord, Danish, C13, 10A, 1.83m	1 each	AF566A
	Power Cord, Swiss, C13, 10A, 1.83m	1 each	AF565A
	Power Cord, Italian, C13, 10A, 1.83m	1 each	AF571A
	Power Cord, South Africa, C13, 10A, 2.5m	1 each	AF567A
	Power Cord, Taiwan, C13, 12A, 1,83m	1 each	AF561A
	Power Cord, China, C13, 10A, 1.83m	1 each	AF557A
	Power Cord, Japan, C13, 12A, 2.0m	1 each	AF572A
	Power Cord, Australia, C13, 10A, 2.5m	1 each	AF569A
	Power Cord, Argentina, C13, 10A, 2.5m	1 each	AF558A
	Power Cord, Brazil, C13, 10A, 1.83m	1 each	AF559A
	Power Cord, Korea, C13, 10A, 1.83m	1 each	AF560A
	Power Cord, Israel, C13, 10A, 1.83m	1 each	AF564A
	Power Cord, India, C13, 10A, 2.0m	1 each	AF562A

NOTE: One power cord is required; please select the correct power cord for your geographical location.

WARNING: This product can ONLY be used with an HP approved power cord for your specific geographic region. Use of a non-HP approved power cord may result in: 1) not meeting individual country specific safety requirements; 2) insufficient conductor ampacity that could result in overheating with potential personal injury and/or property damage; and 3) an unapproved power cord could fracture resulting in the internal contacts being exposed, which potentially could subject the user to a shock hazard. HP disclaims all liability in the event a non-HP approved power cord is used.

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Related Options

Factory Racking	Factory integrate the 1/8 G2 Tape Autoloader with other HP products such as HP ProLiant Servers. **NOTE:** #0D1 will appear after the 1/8 G2 Tape Autoloader part number on the sales order if HP factory integration is indicated.	#0D1
	HP Factory Rack Mount Shelf Kit **NOTE:** Required to safely ship the 1/8 G2 Tape Autoloader via the factory integration option (#0D1); shelf can be removed after the rack is received at the customer site.	AB469A
Rack Kit	HP 1/8 G2 Tape Autoloader Rack Kit **NOTE:** Required to install the unit in a standard 19-inch rack; includes rails and rackmount instructions.	AH166A
Rack-to-Tabletop Conversion Kit	HP 1/8 G2 Rack-to-Tabletop Conversion Kit **NOTE:** For use in converting the rack-ready 1/8 G2 Tape Autoloader into a structurally rigid and fully enclosed tabletop model; maximum load up to 33 pounds (15 kilograms).	AH199A
Magazine Kit	HP 1/8 G2 Right Magazine Kit **NOTE:** For use only on the right side of the 1/8 G2 Tape Autoloader; additional 4-slot magazine.	AH167A
	HP 1/8 G2 Left Magazine Kit **NOTE:** For use only on the left side of the 1/8 G2 Tape Autoloader; additional 4-slot magazine which includes an import/export slot.	AH862A
Rack Cabinets	10622 (22U) Universal Rack Cabinet - Shock Pallet	AF022A
	10636 (36U) Universal Rack Cabinet - Shock Pallet	AF012A
	10636 (36U) Universal Rack Cabinet with extension - Shock Pallet	AF014A
	10642 (42U) Universal Rack Cabinet - Shock Pallet	AF002A
	10642 (42U) Universal Rack Cabinet with extension - Shock Pallet	AF004A
	NOTE: The 1/8 G2 Tape Autoloader is certified to ship in HP 10000 series racks which include a shock pallet. It is mandatory to use a shock pallet in order to ship racks with equipment installed.	
	5642 (42U) Rack Cabinet	358254-B21
	NOTE: This rack ships unassembled and boxed on a standard size pallet. It is an industry standard 19" wide rack with side panels and rear doors; it does not ship with the front door or casters.	
	NOTE: For additional HP ProLiant rack information, visit http://h18004.www1.hp.com/products/servers/proliantstorage/racks/index.html	

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Related Options

Host Bus Adapters	HP SC44Ge Host Bus Adapter	416096-B21
	NOTE: Recommended serial-attached SCSI (SAS) HBA for connecting a1/8 G2 LTO Ultrium SAS Tape Autoloaders to HP ProLiant Servers.	
	Reference the EBS compatibility matrix for the most up-to-date HBA compatibility information at: http://www.hp.com/go/ebs	

Cable Kits	6 ft VHDCI/HDTS68 SCSI Cable Kit	341176-B21
	12 ft VHDCI/HDTS68 SCSI Cable Kit	341177-B21
	2M External Infiniband (SFF8470) to Mini SAS (SFF8088) 1x SAS Cable Kit	AE466A
	NOTE: This cable ships standard with every 1/8 G2 LTO Ultrium SAS Tape Autoloader. If converting from a SCSI autoloader to a SAS autoloader, one cable is required.	

Media	HP Ultrium 800GB RW Data Cartridge (1 pack)	C7973A
	HP Ultrium 800GB WORM Data Cartridge (1 pack)	C7973W
	HP Ultrium 400GB Data Cartridge (1 pack)	C7972A
	HP Ultrium 200GB Data Cartridge (1 pack)	C7971A
	HP Ultrium Universal Cleaning Cartridge (1 pack)	C7978A
	HP Ultrium 3 RW Bar Code Labels (100 pack)	Q2007A
	HP Ultrium 3 WORM Bar Code Labels (100 pack)	Q2008A
	HP Ultrium 2 Bar Code Labels (100 pack)	Q2002A
	HP Ultrium 1 Bar Code Labels (100 pack)	Q2001A
	Custom labeled Data Cartridges	
	NOTE: Custom labeled products allow customers to customize a specific sequence printed on each label.	
	HP Ultrium 800GB RW Custom Labeled Data Cartridge (20 pack)	C7973AL
	HP Ultrium 800GB WORM Custom Labeled Data Cartridge (20 pack)	C7973WL
	HP Ultrium 400GB Custom Labeled Data Cartridge (20 pack)	C7972AL
	HP Ultrium 200GB Custom Labeled Data Cartridge (20 pack)	C7971AL
	Non-Custom Labeled Data Cartridges	
	NOTE: Non-Custom labels will come pre-labeled with a pre-determined number sequence.	
	HP Ultrium 800GB RW Non-Custom Labeled Data Cartridge (20 pack)	C7973AN
	HP Ultrium 400GB Non-Custom Labeled Data Cartridge (20 pack)	C7972AN
	HP Ultrium 200GB Non-Custom Labeled Data Cartridge (20 pack)	C7971AN
	Storage Media Kits	
	NOTE: Kit includes 20 HP Ultrium data cartridges, one HP Ultrium Universal cleaning cartridge, 20 colored labels, a protective carrying case that can be used to securely store or transport data cartridges, one copy of "The Essentials of Successful Tape Backup", and one copy of HP StorageWorks Data Protector Express Evaluation Software (60 day free trial).	
	HP Ultrium 800GB Storage Media Kit	C8017A
	HP Ultrium 400GB Storage Media Kit	C8014A
	HP Ultrium 200GB Storage Media Kit	C8013A

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HP StorageWorks 1/8 G2 Tape Autoloader

Related Options

HP Care Pack Options		
Same Day Response		
	Warranty upgrade to 1-year, 13x5, 4 hour response/onsite, electronic	U6364E
	Warranty upgrade to 1-year, 24x7, 4 hour response/onsite, electronic	U6365E
	Warranty upgrade to 1-year, 24x7, call-to-repair, 6 hour response/onsite, electronic	U6366E
	Warranty upgrade to 3-year, 13x5, 4 hour response/onsite, electronic	H5526E
	Warranty upgrade to 3-year, 24x7, 4 hour response/onsite, electronic	H4624E
	Warranty upgrade to 3-year, 24x7, call-to-repair, 6 hour response/onsite, electronic	U6367E
	Warranty upgrade to 5-year, 13x5, 4 hour response/onsite, electronic	U9376E
	Warranty upgrade to 5-year, 24x7, call-to-repair, 6 hour response/onsite, electronic	U9377E
Next Business Day Response		
	Warranty upgrade to 3-year next business day/parts exchange, electronic	H2698E
	Warranty upgrade to 3-year next business day/onsite, electronic	H4619E
Hardware Services		
	Installation services, electronic	U2090E

NOTE: In order to maximize ROI and product uptime, and minimize the cost of ownership, Hewlett-Packard recommends the 3-year, 24 x 7 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.

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Technical Specifications

		1/8 G2 LTO-4 Ultrium 1760 Tape Autoloader	1/8 G2 LTO-3 Ultrium 920 Tape Autoloader	1/8 G2 LTO-2 Ultrium 448 Tape Autoloader	1/8 G2 LTO-1 Ultrium 232 Tape Autoloader
Drive Technology		Ultrium 1760	Ultrium 920	Ultrium 448	Ultrium 232
Number of Drives		1	1	1	1
Number of Slots		8	8	8	8
Interface		3Gb/sec SAS	3Gb/sec SAS Ultra320 SCSI LVD/SE	Ultra160 SCSI LVD/SE	Ultra160 SCSI LVD/SE
Capacity	Native	6.4 TB	3.2 TB	1.6 TB	800 GB
	Compressed (2:1)	12.8 TB	6.4 TB	3.2 TB	1.6 TB
Maximum Transfer Rate	Native	288 GB/hr	216 GB/hr	86.4 GB/hr	57.6 GB/hr
	Compressed (2:1)	576 GB/hr	432 GB/hr	172.8 GB/hr	115.2 GB/hr
Dimensions	Out-of-Box (HxWxD)	1.7 x 19 x 31.9 in (4.4 x 48.2 x 80.9 cm)			
	Shipping (HxWxD)	10 x 23 x 39 in (25 x 58 x 99 cm)			
Weight	Out-of-Box	25.4 lb (11.5 kg)			
	Shipping	33.7 lb (15.3 kg)			
Reliability	MSBF (mean swaps between failures)	2 Million robot load/unload cycles			
	MTBF (mean time between failures)	100,000 hours (based on 1M MSBF)			
Cartridge Swap Time		34 seconds average (drive to slot, slot to drive)			
Initialization Time		76 seconds			
Inventory Time		52 seconds (with bar code labeled cartridges)			
Connectors		Mini-SAS (located on back of 1/8 G2 SAS models only) 68-pin HDTS (located on back of 1/8 G2 SCSI models only) (1) RJ-45 (located on back of 1/8 G2) (1) USB port (diagnostic only; located on back of 1/8 G2)			
LED Indicators (on front panel)		Ready LED (Green): shows ready status information Clean LED (Amber): shows fault status information Attention LED (Amber): shows fault status information Error LED (Amber): shows fault status information			
Power		100 to 240 VAC, 50 to 60 Hz			
Input Requirements		110 to 240 VAC, 50 to 60 Hz			
Relative Humidity (non-condensing)	Operating	20% to 80%			
	Shipping	20% to 90%			
Temperature Range (wet bulb)	Operating	50° to 95° F (10° to 35° C)			
	Shipping	-40° to 140° F (-40° to 60° C)			
Altitude	Operating	10,000 ft (3,048 m)			
	Shipping	35,000 ft (10,668 m)			

QuickSpecs

HP StorageWorks 1/8 G2 Tape Autoloader

Technical Specifications

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For tape drives and media, 1 GB = 1 billion bytes. Actual formatted capacity is less.