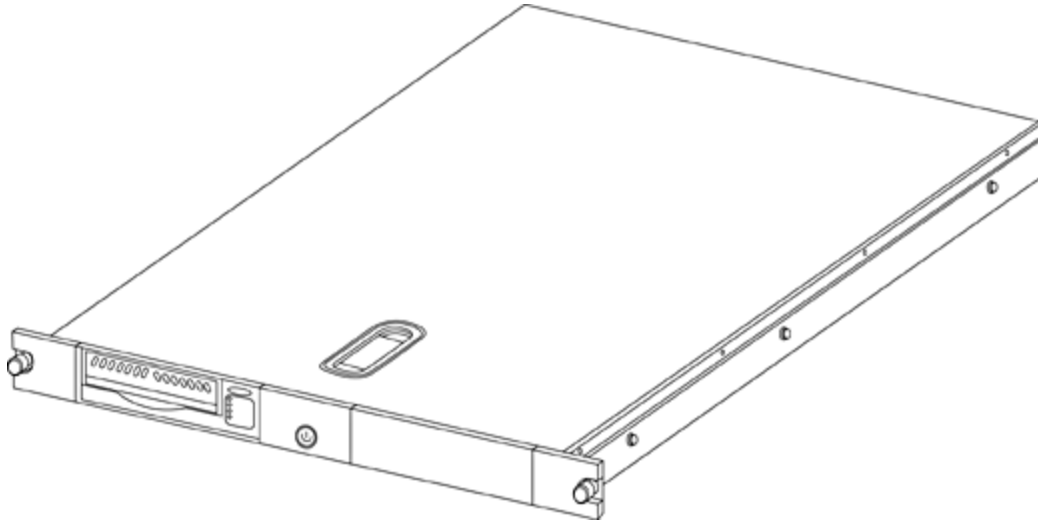


Overview

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

1U Rack-Mount Kit

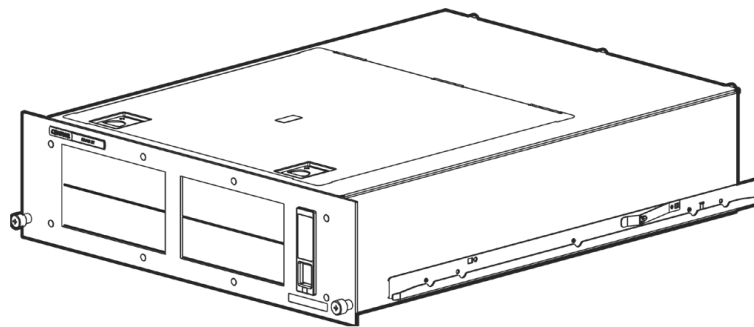
The 1U Rack-Mount Kit holds up to two half-height internal tape drives. This enclosure supports a range of tape technologies, including DAT, DLT VS, and half-height Ultrium, with a maximum capacity of 400 GB per backup session using Ultrium 215 (assuming 2:1 data compression). The enclosure can support up to two separate SCSI buses, allowing tape drives to be configured for best performance.



HP StorageWorks 1U Rack-Mount Kit

3U Rack-Mount Kit

The 3U Rack-Mount Kit holds up to two full-height internal tape drives, four half-height 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, DLT VS, SDLT, and Ultrium, with a maximum capacity of 1.6 TB using Ultrium 960 drives (assuming 2:1 data compression). The enclosure can support up to four separate SCSI buses, allowing tape drives to be configured for best performance.

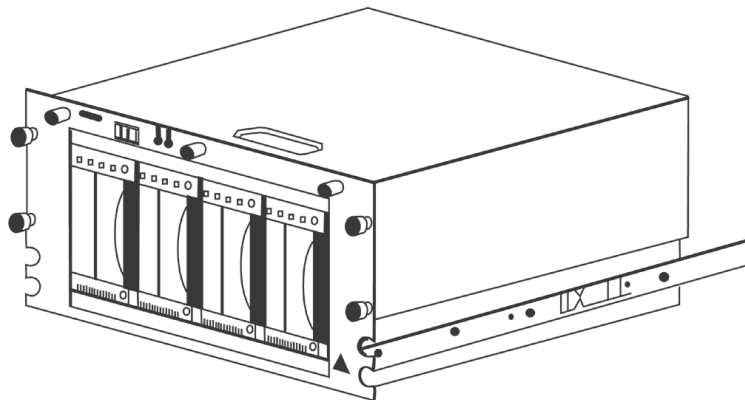


HP StorageWorks 3U Rack-Mount Kit

Overview

5U Rack-Mount Kit

The 5U Rack-mount Kit houses up to four full-height tape drives in 5U of rack space. This rack enclosure supports a variety of full-height tape drives, including SDLT and Ultrium drives. Using four Ultrium 960 drives, the 5U Rack-Mount Kit provides 3.2 TB of storage capacity and a total data transfer rate of 2.3 TB per hour (assuming 2:1 data compression). The enclosure can support up to four separate SCSI buses, allowing tape drives to be configured for best performance.



HP StorageWorks 5U Rack-Mount Kit

What's New

- New high density 1U Rack-Mount Enclosure Kit

Models

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

HP StorageWorks Rack-Mount Tape Drive Kits for ProLiant and AlphaServer	HP StorageWorks 1U Rack-Mount Kit NOTE: #0D1 will appear after the part number on the sales order if HP factory integration is indicated.	A7445A
	HP StorageWorks 3U Rack-Mount Kit NOTE: #0D1 will appear after the part number on the sales order if HP factory integration is indicated.	274338-B21
	HP StorageWorks 5U Rack-Mount Kit	274339-B21

Pre-Configured Models	HP StorageWorks 1U Rack-Mount Kit with one DAT 72 drive	A7443A
	HP StorageWorks 1U Rack-Mount Kit with one Ultrium 215 drive	A7444A
	HP StorageWorks 3U Rack-Mount Kit with one Ultrium 215 drive	350544-B21
	HP StorageWorks 3U Rack-Mount Kit with one Ultrium 230 drive	350545-B21
	HP StorageWorks 3U Rack-Mount Kit with one Ultrium 460 drive	350546-B21
	HP StorageWorks 3U Rack-Mount Kit with one Ultrium 960 drive	Q1595A
	*When ordering this sku 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.

Key Features

HP StorageWorks 1U Rack-Mount Kit

- High-density 1U rack-mount form factor
- Supports up to two half-height drives
- Compatible with a wide range of single-ended and LVD SCSI internal tape drives, including:
 - DAT 24, DAT 40, and DAT 72 Tape drives
 - DLT VS80 Tape drive
 - Ultrium 215 Tape drive
- Ability to mix technologies, DAT, DLT VS, and Ultrium
- Provides up to 200 GB of storage capacity (assuming 2:1 compression using Ultrium 215)
- Data transfer rates up to 108GB/hr (assuming 2:1 compression using Ultrium 215)
- Supports up to 2 separate SCSI buses
- Top access door and removable drive tray allow customers to slide unit out of rack for easier access to tape drives

HP StorageWorks 3U Rack-Mount Kit

- High-density 3U rack-mount form factor
- Supports two full-height or four half-height tape drives or autoloaders, 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 24, DAT 40, and DAT 72 Tape drives
 - DAT 40x6 Autoloader and DAT 72x6 Tape Autoloader
 - DLT VS80 Tape drive
 - SDLT 320 Tape drives
 - Ultrium 215, Ultrium 230, Ultrium 460, and Ultrium 960 Tape drives
- Provides up to 1.6 TB of storage capacity (assuming 2:1 data compression)
- Supports up to four separate SCSI buses
- Top access door and removable drive trays allow customers to slide unit out of rack for easier access to tape drives

HP StorageWorks 5U Rack-Mount Kit

- High-density 5U rack-mount form factor
- Supports up to four full-height tape drives
- Compatible with SE and LVD internal full-height tape drives, including:
 - SDLT 320 Tape drives
 - Ultrium 215, Ultrium 230, Ultrium 460, and Ultrium 960 Tape drives
- Provides up to 3.2 TB of storage capacity (compressed)
- Front-panel LEDs for power and service required indicators

Models

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, which reduces risk and protects customers' investments.
- 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	5U Rack-Mount Kit	Tape Array 5300
Maximum Capacity (native)	200 GB	400 GB	800 GB	400 GB
Maximum Number of Drives	2 half-height	4 half-height or 2 full-height	4 full-height	4 half-height or 2 full-height
Drives Supported	DAT 24, DAT 40, DAT 72, DLT VS80, Ultrium 215,	DAT 24, DAT 40, DAT 72, DLT VS80, SDLT 320, Ultrium 215, Ultrium 230, Ultrium 460, Ultrium 960	SDLT 320, Ultrium 230, Ultrium 460, Ultrium 960	DAT 24, DAT 40, DAT 72, DLT VS80, Ultrium 215, Ultrium 230, Ultrium 460, Ultrium 960, DVD-ROM, DVD+RW
Maximum Number of SCSI Buses	2	4	4	4
SCSI Interface	LVD/SE	LVD/SE	LVD/SE	LVD/SE
High-Availability Features	None	None	None	Offline hot-swap drives Redundant hot-swap PSU and fan (optional)

Product Highlights

Scalability	HP StorageWorks Rack-mount kits support up to four tape drives. Tape drives can be added at any time, allowing flexibility to add capacity or change tape technologies at any time.
Configuration	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 and 5U. Using independent SCSI buses for each drive provides the best performance.
Ease-of-Use Features	HP StorageWorks Rack-mount kits include features designed to provide for easier access and management of installed tape drives. The top access door allows the customer to access the drives (or drive area) while the enclosure remains in the rack. Each unit also includes two slide-out drive trays that allow for easy removal of the internal tape drives through the top access door. LEDs on the front panel indicate when the power is on and when service is required (service light on 5U kit only).
Compatibility and Integration Testing	HP StorageWorks 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 the 3U or 5U Rack-mount Kit to any of the supported ProLiant, AlphaServer, and HP Integrity platforms requires 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 to select the appropriate model.

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

- HP ProLiant DL servers
- HP ProLiant ML servers
- HP Alpha servers
- HP rx and rp series servers
- HP tc series servers
- For details of which tape drive models work with which systems, including third-party systems, visit <http://www.hp.com/go/connect> 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 StorageWorks tape drives, check the tape backup compatibility pages on our web site at: <http://www.hp.com/go/connect>.

Software Support Backup application compatibility also depends on the drives used in the 3U or 5U Rack-Mount Kit. For the latest list of servers, operating systems, and backup software that support HP StorageWorks tape drives, check the tape backup compatibility pages on our web site at: <http://www.hp.com/go/connect>.

Service and Support, HP Care Pack, and Warranty Information

Warranty 3-0-0 (Three year parts)

- 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 product's warranty duration
 - HP Care Pack is available for sale anytime during the warranty period for most products, but the commencement date will be the same as the Warranty Start Date (delivery date to end user customer). Proof of purchase may be required
 - HP Care Pack services are prepaid
 - **NOTE:** For additional HP Care Pack (hardware & software) information, as well as orderable part numbers, please refer to the URL listed below:
<http://h18005.www1.hp.com/services/carepaq/index.html>
-

- Support Services**
- HP Services provides a three-year, limited warranty, fully supported by a worldwide network of resellers, service providers, and hardware technical phone support during the warranty period. In addition, available service offerings include a full range of HP Care Pack packaged hardware and software services or customized service offerings to cover:
- Installation and start up
 - Extended coverage hours and enhanced response times
 - System management and performance services
 - Availability and recovery services

Configuration Information

Step 1 - 1U/3U/5U Rack-Mount Kit

Select one:

Model	Model Description	Part Number
1U Rack-Mount Kit (Carbon)	Wide SCSI LVD rack-mountable enclosure (1U) with power supply, fans, power cord, quick deploy rail kit including sliding universal rails for ProLiant, AlphaServer and Rack System/E racks, an ambidextrous cable management arm 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.	A7445A
3U Rack-Mount Kit (Carbon)	Wide SCSI LVD rack-mountable enclosure (3U) with power supply and fan, Power Cord, 9000 and 10000 series rack compatible rail kit (Optional rail kit available for AlphaServer Rack and Rack System/E) User's Guide on CD, Documentation. NOTE: #0D1 will appear after the part number on the sales order if HP factory integration is indicated.	274338-B21
5U Rack-Mount Kit (Carbon)	Wide SCSI LVD rack-mountable enclosure (5U) with power supply and fan, two SCSI cables, Power Cord, 9000 and 10000 series rack compatible rail kit (Optional rail kit available for AlphaServer Rack and Rack System/E), User's Guide on CD, and Documentation.	274339-B21

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
	DAT 24 Internal Tape Drive (flint) NOTE: Supported by the 1U and 3U Rack-Mount Kit only. NOTE: For the DAT 24 drive the jumpers that ship with the drive are needed to set the SCSI id.	C1555D
	DAT 40 Internal Tape Drive (carbon) NOTE: Supported by the 1U and 3U Rack-Mount Kit only.	C5686B
	DAT 40x6 Internal Autoloader (flint) NOTE: Supported by the 3U Rack-Mount Kit only.	C5716A
	DAT 72 Internal Tape Drive NOTE: Supported by the 1U and 3U Rack-Mount Kit only.	Q1522A
	DAT 72x6 Tape Autoloader (Internal) NOTE: Supported by the 3U Rack-Mount Kit only.	Q1566A
	DLT VS80 Internal Tape Drive (Carbon) NOTE: Supported by the 1U and 3U Rack-Mount Kit only. NOTE: For the DLT VS80 drive the jumpers that ship with the drive are needed to set the SCSI id.	337699-B21
	SDLT 320 Internal Tape Drive NOTE: Supported by the 3U and 5U Rack-mount Kit only.	257319-B21
	Ultrium 215 Internal Tape Drive NOTE: Supported by the 1U and 3U Rack-Mount Kit only.	Q1543A
	Ultrium 230 Internal Tape Drive NOTE: Supported by the 3U and 5U Rack-mount Kit only.	Q1515A
	Ultrium 460 Internal Tape Drive NOTE: Supported by the 3U and 5U Rack-mount Kit only.	Q1518A
	Ultrium 960 Internal Tape Drive NOTE: Supported by the 3U and 5U Rack-mount Kit only.	Q1538A

Configuration Information

Media	HP DDS-3 data cartridge	C5708A
	HP DDS-4 data cartridge	C5718A
	HP DAT 72 data cartridge	C8010A
	HP DDS Universal cleaning cartridge	C5709A
	HP DLTIV data cartridge (single cartridge)	C5141F
	HP DLT VS cleaning cartridge	C7998A
	NOTE: For DLT VS drive only.	
	HP DLT cleaning cartridge	C5142A
	NOTE: For non-DLT VS drives only.	
	HP SDLT 220-320 GB data cartridge	C7980A
	HP SDLT cleaning cartridge	C7982A
	HP Ultrium 200GB data cartridge	C7971A
	HP Ultrium 400GB data cartridge	C7972A
	HP Ultrium 800 GB RW data cartridge (for use with the Ultrium 960 Drive)	C7973A
	HP Ultrium 800 GV WORM cartridge (for use with the Ultrium 960 Drive)	C7973W
HP Ultrium Universal Cleaning Cartridge	C7978A	
Cable Kits - Optional cable kits used to add additional SCSI buses to the 3U and 5U Rack-mount Kits.	HD/VHDCI Cable Option Kit - Includes two internal LVD/SE cables and two external 68-pin HD/68-pin VHDCI, 12 ft/3.66 m SCSI cables. (For use when adding two SCSI buses to 3U or 5U Rack-mount Kits)	168048-B21
	LVD Cable Kit, 68-pin HD/68-Pin HD	242381-B21
	HD/HD Cable Option Kit - Includes two internal LVD/SE cables and two external 68-pin HD/68-pin HD, 12 ft/3.66 m SCSI cables. (For use when adding two SCSI buses to 3U or 5U Rack-mount Kits)	
External SCSI Cables - Required cables needed to connect the enclosure/drives to the host(s). Once cable per bus is needed.	68-pin HD to 68-pin VHDCI, 12ft	341177-B21
	NOTE: For SE and LVD SCSI tape devices.	
	68-pin HD to 68-pin HD, 5m	328215-001
NOTE: For LVD SCSI tape devices only.		
68-pin HD to 68-pin HD, 10m	328215-002	
NOTE: For LVD SCSI tape devices only.		
Rail Kit	5U Alpha Rail Kit	254795-001
	NOTE: Required for installation of 5U Rack-Mount Kit in AlphaServer rack.	
	3U Alpha Rail Kit	280571-001
NOTE: Required for installation of 3U Rack-Mount Kit in AlphaServer rack.		
NOTE: The rail kit options listed above can also be used to install HP Rack-Mount Kits in HP Rack System/E cabinets.		

Configuration Information

Controllers/Host Bus Adapters

Intel-Based Servers

NOTE: This is a list of supported adapters/controllers. Some may be discontinued. Go To <http://www.hp.com/go/connect> for the latest list of supported adapters/controllers.

64-bit/66 MHz Single Channel Wide Ultra3 SCSI Adapter	154457-B21
64-bit/66 MHz Dual Channel Wide Ultra3 SCSI Adapter	129803-B21
64-bit/133 MHz Dual Channel Ultra320 SCSI Adapter	268351-B21
Wide-Ultra SCSI-3 Adapter	272514-001
64-bit Dual Channel Wide Ultra2 SCSI Adapter	348757-B21
Dual Channel Wide-Ultra SCSI 3	295554-B21
32-bit Fast-Wide SCSI-2/E Controller	142290-001

NOTE: Both rack-mount kits are also qualified for use with the integrated Smart Array 5i controller on ProLiant DL380 server.

AlphaServers

Single Channel PCI To Ultra SCSI, UWSE	SN-KZPBA-CA
Single Channel PCI To SCSI UWD (Fast20 Diff)	SN-KZPBA-CB
Comb SCSI/Ether Dual Channel	KZPCM-DA
Single Channel Ultra2 SCSI, LVD	3X-KZPCA-AA
Dual Channel PCI Ultra3 LVD Multimode	3X-KZPEA-DB
PCI three-port RAID (FWSE) Controller with 8-MB cache memory	KZPAC-CB
PCI one-port RAID (FWSE) Controller	KZPAC-AA
PCI three-port RAID (FWSE) Controller with 4-MB cache memory	KZPAC-CA

Technical Specifications

		1U Rack-Mount	3U Rack-Mount	5U Rack-Mount
Dimensions	Form Factor	1U - rack-mount	3U - rack-mount	5U - rack-mount
	Physical (HxWxD)	1.70 x 16.88 x 25.25 in (4.32 x 42.88 x 64.14 cm)	5.20 x 16.80 x 23.00 in (13.20 x 42.70 x 58.40 cm)	8.75 x 19.0 x 18.12 in (22.2 x 48.26 x 46.0 cm)
	Shipping (HxWxD)	12.0 x 23.5 x 33.5 in (30.48 x 59.69 x 85.09 cm)	15.75 x 23.75 x 33.50 in (40.01 x 60.33 x 85.09 cm)	32.25 x 15.38 x 31.0 in (81.92 x 39.07 x 78.74 cm)
Weight	Out of box	17.8 lb (8.07 kg)	27 lb (12.3 kg)	31 lb (14.1 kg)
	Shipping	25 lb (11.3 kg)	45 lb (20.5 kg)	60 lb (27.22 kg)
Interface	SCSI Interface	Wide SCSI LVD & SE	Wide SCSI LVD & SE	Wide SCSI LVD & SE
	SCSI Connector	Two 68-pin HD	Two 68-pin HD standard, Can be expanded to more	Two 68-pin HD standard, Can be expanded to more
	Ports	Two SCSI buses, 1 half-height drive per bus or can be configured with 2 half height on one bus.	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.	Two SCSI buses, 2 drives per bus.
Power Specifications	Power Requirements	136 Watts, max 100 to 240 Vrms Nominal Line Voltage 90 to 264 Vrms Range Line Voltage 47/63 Hz 1.6 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	211 Watts, max 268 Watts 100 to 240 VAC Nominal Line Voltage 90 to 264 VAC Range Line Voltage 47/63 Hz 2.3 A Input Current (@120 VAC)
		Environmental Specifications	Temperature	Operating 41° to 104° F (5° to 40° C) Storage -22° to 104° F (-30° to 60° C)
	Non-Condensing Humidity	Operating 20% to 80% Storage 5% to 95%		
Max Capacity	Native	200 GB with two Ultrium 215 drives	400 GB with two Ultrium 460 drives or four Ultrium 215 drives	800 GB with four Ultrium 460
	Compressed (assumes 2:1 data compression)	400 GB with two Ultrium 215 drives	800 GB with two Ultrium 460 drives or four Ultrium 215 drives	1.6 TB with four Ultrium 460

Technical Specifications

Drives Supported	1U Rack-Mount	3U Rack-Mount	5U Rack-Mount	Capacity	Transfer	Form Factor
				(native)	rate (native)	
	DAT 24	DAT 24	-	12 GB	1 MB/s	Half-Height
	DAT 40	DAT 40	-	20 GB	3 MB/s	Half-Height
	DAT 72	DAT 72	-	36 GB	3 MB/s	Half-Height
	DLT VS80	DLT VS80	-	40 GB	3 MB/s	Half-Height
	Ultrium 215	Ultrium 215	-	100 GB	7.5 MB/s	Half-Height
		Ultrium 230	Ultrium 230	100 GB	15 MB/s	Full-Height
		Ultrium 460	Ultrium 460	200 GB	30 MB/s	Full-Height
		Ultrium 960	Ultrium 960	400 GB	80MB/s	Full-Height
		SDLT 320	SDLT 320	160 GB	16 MB/s	Full-Height
			-			
Max Number of drives	1U Rack-Mount	3U Rack-Mount	5U Rack-Mount			
	Two Half-Height internal drives	Two Full-Height internal drives or Four Half-Height internal drives	Four Full-Height internal drives			
Drive LED Indicators	1U Rack-Mount	3U Rack-Mount	5U Rack-Mount			
	Power Supply	Power Supply	Power Supply Service Required			

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