IBM 3584 UltraScalable Tape Library Provides Mid-range Back-up and Archival Data Solutions

Overview

The IBM 3584 UltraScalable Tape Library provides a highly scalable, automated tape repository combining proven IBM automation technology and high-performance IBM LTO Ultrium tape drives for the mid-range to enterprise open systems environment. The 3584 is suitable for use in network attached storage implementations, such as backups, and mass storage archives where multiterabyte capacities are required. The 3584 offers outstanding retrieval performance with typical cartridge move times of less than 3.0 seconds for a two frame library. Customers can tailor the library to match their system capacity and performance needs from 14 TB to 248.1 TB (up to 496.2 TB using 2:1 compression), using up to seventy-two IBM LTO Ultrium tape drives.

Features of the 3584 UltraScalable Tape Library include:

SAN Ready Multi-Path Architecture

Patented Multi-Path architecture supports sharing by homogeneous and heterogeneous open systems servers. The 3584 can be partitioned into one to seventy-two logical libraries.

Six Frames, Scalable Capacity

Scalability from one to six frames, providing a broad range of drive and storage capacities.

Support for IBM LTO Ultrium Tape Drives

IBM LTO Ultrium tape drives offer data rates up to 30 MB/second per drive using 2:1 data compression. Aggregate sustained data rates of up to 7.8 TB/hour with 2:1 compression allow extremely high data transfer performance. Data cartridge capacity is 100 GB in native mode and 200 GB in compressed mode.

Open Systems Server Support

Native device driver support is included for AS/400®, IBM AIX®, Sun Solaris, HP-UX, Windows NT™, and Windows™ 2000.

Product Preview

Future features and capabilities of the IBM 3584 UltraScalable Tape Library that provide additional attachment and expansion capabilities will include:

- Fibre Channel — Arbitrated Loop (FC-AL) attachment
- Expanded Input/Output Station
- Support for Digital Linear Tape technology
- Remote management and support features
- Certification in SAN solutions including LAN-free backup
- LINUX® operating system support for open systems servers

Previews provide insight into IBM plans and direction. Specific availability dates, ordering information, and terms and conditions will be provided when the product is announced.

Key Prerequisites

The IBM 3584 UltraScalable Tape Library with IBM LTO Ultrium Tape Drives is supported on selected AS/400, RS/6000®, RS/6000 SP™, Sun, Windows NT, Windows 2000, and other Unix and PC servers.

Planned Availability Dates

- Model L32 and up to one
  Model D32: September 1, 2000
- Feature numbers 1455, 9003, 9210, and 9211: October 20, 2000
- Feature number 9400: November 17, 2000

At a Glance

The 3584 combines IBM tape and automation reliability at open systems prices. Features include:

- Multi-Path support for single or multiserver attachment of homogeneous or heterogeneous systems
- Native data capacities up to 248.1 TB (up to 496.2 TB using 2:1 compression)
- Configurable for up to seventy-two logical libraries
- Use of IBM LTO Ultrium Tape Drives with a drive data rate of 30 MB/second (2:1 data compression)
- Aggregate sustained data rates from 108 GB to 7.8 TB/hour with 2:1 compression
- Library cartridge move time of less than 3.0 seconds for a two frame library (typical)
- Library inventory time of less than 60 seconds per frame
- Mount rate over 500/hour and fetch rate over 1200/hour in a two frame library

For ordering, contact:
Your IBM representative, an IBM Business Partner, or IBM Americas Call Centers at 800-IBM-CALL

Reference: YE001

This announcement is provided for your information only. For additional information, contact your IBM representative, call 800-IBM-4YOU, or visit the IBM home page at: http://www.ibm.com.
Designed for Automated Tape Handling

The IBM 3584 UltraScalable Tape Library is part of a new family of tape library storage solutions designed for the large, unattended storage requirements from today’s mid-range systems up to high-end network servers. Each aspect of the subsystem is designed to optimize access to data and reliability. IBM LTO Ultrium tape drives are compact storage devices that support the highly intensive read and write operations required by today’s network servers.

The 3584 Ultrascalable Tape Library, in sync with a 3466 Network Storage Manager, provides an excellent network data backup/archive solution. With the granularity and scalability to follow your requirements from a few servers to hundreds of clients, from gigabytes to terabytes, this powerful pairing will grow with you, protecting your investment.

High Performance

Cartridge move time within the 3584 UltraScalable Tape Library is typically less than 3.0 seconds in a single-frame library. A dual-gripper accessor can retrieve the next cartridge to be mounted, unload the current cartridge, and load the next cartridge, providing the following benefits:

- Saves complete move operations
- Further improves overall library performance
- Offers increased redundancy and higher reliability

The average drive search time to first byte of data is 95 seconds. Sustained data rates during reads and writes are 30 MB/second using 2:1 compression and 15 MB/second in native mode. The IBM LTO Ultrium tape drives are designed for high performance in a streaming mode of operation. Automatic data caching, using an expanded cache memory and read/write buffering, enhances performance even further. Aggregate sustained data rates for the library are 108 GB to 7.8 TB/hour with 2:1 compression (six-frame library).

High Reliability

Leading-edge technology positions the IBM LTO Ultrium tape drives as industry leaders. Highly accurate recording is provided by an exclusive thin-film write module designed by IBM with read after write data verification. Data read is managed by IBM’s industry-leading magneto-resistive (MR) heads, designed for accuracy, high reliability, and durability.

The 3584 drives and library robotics are TapeAlert-compatible, providing tape drive and library error and diagnostic reporting.

Drive cleaning is an automatic function performed by the library when required by the drive, without requiring operator intervention.

High Granularity in Library Configurations

Features and capacities are designed to match the wide variety of customer requirements.

Model L32 (Base Frame)

The base library, the Model L32, has 141 to 281 cartridge slots and support for up to twelve IBM LTO Ultrium tape drives with an incremental reduction of storage slots for more than 4 drives. Data capacity for the Model L32 is 14 to 28 TB native and 28 to 56 TB using LTO-DC (LTO Data Compression) (2:1) compression. The aggregate sustained data rate is from 108 GB to 1.3 TB/hour with 2:1 compression. Up to twelve logical libraries and/or up to twelve SCSI control paths can be configured for each frame.

Each Model L32 library has a standard 10-slot cartridge input/output station for importing or exporting cartridges from the library without requiring a re-inventory. For bulk-loading of IBM LTO Ultrium tape cartridges the library door can be opened. Each time the library door is closed, a bar code reader mounted on the autochanger scans the cartridge labels enabling a re-inventory of the cartridges in the library frame in less than 60 seconds. A door lock is included to restrict physical access to cartridges in the library.

Customers can expand library capacity and number of drives to meet their changing needs.
Model D32 (Expansion Frame)

Five expansion frames (Model D32) may be added to the base frame (Model L32) in order to add storage and/or drive capacity. Each 3584 Model D32 frame supports up to 440 storage slots and up to twelve drives, with incremental reduction of storage slots for each set of four of drives installed. A fully configured 3584 with one Model L32 frame and five Model D32 frames will support up to seventy-two drives with an aggregate data rate of 7.8 TB per hour (2:1 compression) or up to 2481 storage slots with a total capacity of 248.1 TB native or 496.2 TB with 2:1 compression. Each frame can have up to 12 logical libraries or 12 control paths.

Multi-Path Support for Heterogeneous Server Platforms With Up to Seventy-two Logical Libraries

The heterogeneous sharing provided by the Multi-Path feature of the 3584 UltraScalable Tape Library is a sharing of the library robotics. This is accomplished by partitioning the library into multiple logical SCSI libraries, up to the number of drives installed. Each logical library has its own separate and distinct drives, storage slots, and control paths. I/O slots are shared on a first-come-first-served basis. This type of partitioning allows heterogeneous applications to share the library robotics independent of each other. Cartridges under library control are not shared between logical libraries, nor allowed to be moved between logical libraries. An example of heterogeneous sharing is a Windows NT application using the drive and storage slots of one logical library while a UNIX® application uses the drive and slots of another logical library.

Logical libraries can also be used for scalable application performance, such as up to seventy-two Tivoli® Storage Manager servers or Network Storage Managers.

High-Performance Tape Cartridge

The IBM LTO Ultrium tape cartridge has been designed to provide several enhancements over previous tape technologies. The case is specially designed for use in automated libraries and is designed for repeated, unattended, trouble-free handling. The tape itself is an advanced metal particle tape developed for durability and capacity.

The IBM LTO Ultrium tape drive supports the new IBM LTO Ultrium High Capacity Tape Cartridge. Designed for increased tape speeds and high-density data recording, data is recorded eight tracks at a time for increased performance.

Year 2000

This product does not have date dependencies and is, therefore, Year 2000 ready.

Euro Currency

This product is not impacted by euro currency.

Product Positioning

The IBM UltraScalable Tape Library Models L32 and D32 are an excellent choice for tape automation for the AS/400, RS/6000 and other popular open systems. The IBM 3584 model L32 and D32 utilize the Multi-Path architecture allowing homogeneous or heterogeneous open systems servers to share the library robotics.

The 3584 UltraScalable Tape Library Model L32 offers 141 to 281 slots and up to twelve IBM LTO Ultrium Tape Drives. It provides excellent price/performance in the Open system environments where the tape automation requirements are satisfied by one to 12 drives or a library capacity of 56 TB (with 2:1 compression) or 28 TB native data.

The 3584 UltraScalable Tape Library Model D32 Expansion Frame offers 440 slots and up to twelve drives. Five model D32 frames can be attached to a Model L32 frame providing a total library capacity of up to seventy-two IBM LTO Ultrium drives or up to 2481 cartridge slots, holding up to 496.2 TB (with 2:1 compression) or 248.1 TB native data.

Refer to Hardware Announcement 100-234, dated August 23, 2000.

Trademarks

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Publications

The following publications are shipped with the product. Additional copies are available. To order, contact your IBM representative:

<table>
<thead>
<tr>
<th>Title</th>
<th>Order Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>3584 UltraScalable Tape Library Planning &amp; Operator Guide</td>
<td>GA32-0408</td>
</tr>
<tr>
<td>IBM Ultrium Device Driver Installation and User's Guide (English)</td>
<td>GA32-0430</td>
</tr>
<tr>
<td>Translated Safety Notices for External Storage Devices</td>
<td>SA26-7197</td>
</tr>
</tbody>
</table>

The publications listed above will be available by September 1, 2000, at the following Web site:

http://www.ibm.com/storage/lto

Technical Information

Specified Operating Environment

Physical Specifications

Model L32
- Width: 725 mm (28.5 in)
- Depth: 1520 mm (59.8 in)
- Height: 1800 mm (70.9 in)
- Minimum Weight: 423 kg (932.4 lb) (Includes 1 drive, 0 cartridges)
- Maximum Weight: 539.4 kg (1189.2 lb) (Includes 12 drives, 227 cartridges)

Model D32
- Width: 725 mm (28.5 in)
- Depth: 1520 mm (59.8 in)
- Height: 1800 mm (70.9 in)
- Minimum Weight: 355.6 kg (784 lb) (Includes 0 drives, 0 cartridges)
- Maximum Weight: 527 kg (1161.9 lb) (Includes 12 drives, 396 cartridges)

Operating Environment

Note: Values shown are for a library with 12 IBM LTO Ultrium tape drives installed.
- Temperature: 16° to 32°C (60.8° to 89.6°F)
- Relative Humidity: 20% to 80%
- Wet Bulb:
  - Operating: 23°C (73.4°F) maximum
  - Power Off: 26°C (78.8°F) maximum
- Electrical Power:
  - Model L32: 8.0 amps at 200-240 V AC, 1.6 kVA, 1.4 kilowatt (nominal). Inrush current: 200 amps peak for 1/2 cycle at 200-240 V AC
  - Model D32: 8.0 amps at 200-240 V AC, 1.6 kVA, 1.4 kilowatt (nominal). Inrush current: 200 amps peak for 1/2 cycle at 200-240 V AC
- Heat Output (kBtu per hour):
  - Model L32: 4.8
  - Model D32: 4.8

The 3584 tape library is classified as a Category 1 product as defined in C-S 1-1710-006. The following table shows the acoustic specifications for a D32/L32 configuration:

<table>
<thead>
<tr>
<th>LWA</th>
<th>LpA</th>
<th>Operating (bels)</th>
<th>Idling (bels)</th>
<th>Operating (dB)</th>
<th>Idling (db)</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.5</td>
<td>7.4</td>
<td>51</td>
<td>50</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Maximum Noise Level (operating/idle) in bels and dB, average 1 m bystander positions:

3584-L32/D32
- Sound Power Level (LwAd):
  - Idle: 7.4 B
  - Operational: 7.5 B
- Sound Pressure Level:
  - Idle: 50 dB(A)
  - Operational: 51 dB(A)

Hardware Requirements: The IBM 3584 UltraScalable Tape Library can be attached to the AS/400®, RS/6000®, RS/6000 SP™, Netfinity® systems, and non-IBM servers, workstations, and personal computers that support Ultra/Wide SCSI HVD and Ultra2/Wide SCSI LVD interface specifications.

One feature number 9002 (First Expansion Frame Attachment) or 9003 (Additional Expansion Frame Attachment) must be added to the 3584 Model L32 for each Model D32 frame that is attached. This assures the proper cables are shipped and configuration records are correct.
The capacity of the base Model L32 can be expanded by enabling an additional four columns in that frame with the addition of the Capacity Expansion (#1603) Field or (#1653) Plant. One of these features (#1603 or #1653) is also required to enable the use of IBM LTO Ultrium drives and storage elements in the optional Model D32 Expansion Frame.

The 3584 UltraScalable Tape Library contains a maximum of 12 LTO Ultrium Tape Drives per frame (total of 72 tape drives), each with an Ultra/Wide SCSI High Voltage Differential (HVD) or an Ultra2/Wide SCSI Low Voltage Differential (LVD) interface. The IBM LTO Ultrium Tape Drive with the desired SCSI interface is chosen by selecting at least one of the following features:

- LTO Ultrium LVD Drive Sled (#1454) — which includes one IBM LTO Ultrium Tape Drive with the Ultra2/Wide SCSI Low Voltage Differential (LVD) interface
- LTO Ultrium HVD Drive Sled (#1455) — which includes one IBM LTO Ultrium Tape Drive with the Ultra/Wide SCSI High Voltage Differential (HVD) interface

A minimum of one of feature number 1454 or 1455 must be specified on that Model D32. If feature numbers 1454 or 1455 are not ordered on a Model D32 then the following feature must be specified on the Model L32.

- Driveless Frame (#9001)

A terminator is included with each tape drive. SCSI cables and appropriate interposers, as required, should be ordered for attachment to a server. Refer to the Cables section for detailed descriptions of these SCSI cable features. A power cord feature number, if applicable, should also be specified.

The 3584 UltraScalable Tape Library has Raven Black covers.

**AS/400:** The 3584 UltraScalable Tape Library can be attached to models that support Version 4 Release 4 (V4R4), or later, and the following adapters:

- PCI Magnetic Media Controller (HVD, HD68)(#2729)
- PCI Ultra Magnetic Media Controller (HVD, HD68)(#2749)(Requires V4R5)
- Magnetic Media Subsystem Controller (HVD)(#6501)
- Magnetic Media Controller (HVD, HD68)(#6534)

**RS/6000 and RS/6000 SP:** The 3584 UltraScalable Tape Library can be attached to models supporting AIX® 4.3.2, or later (depending on adapter type), and the following adapters:

- PCI Universal Differential Ultra SCSI (HVD)(#6204)(requires AIX 4.3.3, or later). This adapter is used in the following RS/6000 models:
  - 7017-S80
  - 7025-F20
  - 7026-H80, 7026-M80
  - 7043-150, 7043-240, 7043-260, 7043-270
  - 7044-170, 7044-270
  - 7046-B50
- PCI Dual Channel Ultra2 SCSI Adapter (LVD/SE with VHDCI connector) (#6205)(requires AIX 4.3.3, or later). This adapter is using in the following RS/6000 models:
  - 7013-S7A
  - 7015-S7A
  - 7017-S7A, 7017-S80
  - 7025-F40, 7025-F50, 7025-F80, 7025-H70
  - 7026-H50, 7026-H70, 7026-H80, 7026-M80

**Note:** Optimal performance is obtained when the 3584 is the sole device attached to the integrated SCSI adapter.

**Netfinity Systems:** The 3584 UltraScalable Tape Library can be attached to Netfinity systems supporting Windows NT™, and Windows™ 2000 operating systems, and the following adapter:

- Netfinity 33L5000 Wide Ultra2 SCSI PCI Adapter (LVD)

**Intel®-based Systems:** The 3584 UltraScalable Tape Library can be attached to systems supporting the following adapters:

- Adaptec SCSI Card 29160 (LVD)
- Adaptec AHA-2944UW PCI-to-Ultra Wide Differential SCSI adapter
- Adaptec SCSI Card 39160 (LVD, VHDCI)
- Adaptec AHA-2940U2W Ultra2/Wide LVD SCSI adapter
- Adaptec AHA-2944UW PCI-to-Ultra Wide Differential SCSI Adapter (HVD)
- LSI Logic SYM22910 64-bit PCI-to-Ultra2/SCSI Dual Channel Host Adapter (LVD, VHDCI)

**Sun SPARC:** The 3584 UltraScalable Tape Library can be attached to models supporting Sun Solaris 2.6, 7, and 8 with the following adapters:

- X1065A, HVD, Ultra DWIS/S Host Adapter (VHDCI connector)
- X6541A, HVD Ultra SCSI Adapter (VHDCI connector)

**Hewlett-Packard**:

- A4800A, Ultra Wide HVD SCSI Adapter
- A5150A, Ultra2 LVD Dual-Port SCSI Adapter (VHDCI)
- A5149A, Ultra2 LVD Single-Port SCSI Adapter (VHDCI)
Other Systems: The 3584 UltraScalable Tape Library may also be compatible with other servers, operating systems, and SCSI adapters. A current list of supported open system configuration and software vendors is available from your IBM representative or at:

http://www.ibm.com/storage/lto

Cables: A SCSI cable is required to attach a 3584 UltraScalable Tape Library to each server connection (up to the number of tape drives installed). One SCSI differential terminator and 0.5 meter drive-to-drive cable is included with each IBM LTO Ultrium drive. An interposer may also be required for attachment to various server adapters.

Features for specifying SCSI cables available for Ultra2 SCSI LVD or ULTRA SCSI HVD attachment, and their respective lengths, are as follows:

Cables with HD68 (high density 68-pin) connectors on both ends:

- 5305 — 5 m HD68/HD68 SCSI Cable
- 5310 — 10 m HD68/HD68 SCSI Cable
- 5318 — 18 m HD68/HD68 SCSI Cable
- 5325 — 25 m HD68/HD68 SCSI Cable

Cables with a VHDCI connector on one end and an HD68 connector on the other end:

- 5604 — 4.5 m VHDCI/HD68 SCSI Cable
- 5610 — 10 m VHDCI/HD68 SCSI Cable
- 5620 — 20 m VHDCI/HD68 SCSI Cable
- 5625 — 25 m VHDCI/HD68 SCSI Cable

An interposer may be required to connect a SCSI cable with HD68 connectors to another connector. The following interposers are available:

- 2895 — Interposer for AS/400 (#6501)
- 5099 — VHDCI/HD68 Cable/Interposer

Refer to the Special Features section of the Sales Manual for detailed descriptions of these features.

3466 Network Storage Manager Model C01:

The 3584 is the perfect partner to the 3466 Model C01 for backups and archiving of network attached systems. The 3584 can communicate with the 3466 either directly or through a SAN. For more detail, refer to the IBM 3466 Network Storage Manager Introduction and Planning Guide.

Software Requirements: The 3584 IBM LTO Ultrium UltraScalable Tape Library is supported on the following operating systems at the minimum levels indicated:

- OS/400® V4R4 or later
- AIX 4.3.2 or later
- Sun Solaris 2.6, Solaris 7, Solaris 8
- Windows NT 4.0 with Service Pack 6
- Windows 2000, build 2195 or greater
- HP-UX 11.0

Support for OS/400 is not planned to be available until November 17, 2000.

Support for Sun, and HP-UX is not planned to be available until October 20, 2000. An update of the device drivers that support these operating systems will be available on the following ftp site:

ftp.software.ibm.com/storage/devdrv

Support for the UltraScalable Tape Library 3584 is planned for the following products:

- Backup Recovery and Media Management for AS/400 (BRMS).
- Computer Associates ARCserveIT.
- Legato Systems NetWorker.
- Sterling Alexandria.
- SCH Technologies REELlibrarian and REELbackup.
- Veritas NetBackup and Backup Exec.
- Help/Systems.

IBM intends to work together with the ISV product manufacturers listed above to support the 3584 UltraScalable Tape Library. Individual application vendors should be contacted for specific information and availability dates. The list represents our best knowledge at the time of publication and does not imply completeness.

Additional software support is available through library management software products. The software to manage the 3584 UltraScalable Tape Library is not provided with the libraries. Supporting software and applications must be obtained separately from IBM, IBM Business Partners, or independent software providers. A list of compatible software is available from your IBM representative or at:

http://www.ibm.com/storage/lto

Limitations: Total LVD SCSI cable length is limited to 25 m (81 ft) using point-to-point interconnection (for example, one host connected to only one tape drive). Total LVD SCSI cable length is 12 m (39 ft) using multidrop interconnection (for example, one host connected to more than one tape drive on the same SCSI bus). Stub length at each device must not exceed 0.1 m (0.33 ft).

Total HVD SCSI cable lengths are limited to 25 m (81 ft.) using point-to-point or multidrop interconnection. Stub length at each device must not exceed 0.2 m (0.66 ft).

Although the compression technology can increase the amount of data stored on the media, the actual degree of compression achieved is highly sensitive to the characteristics of the data being compressed.

For performance reasons, the AS/400 configurator limits the attachment to one device per adapter (IOP/IOA). Installing more than one IBM LTO Ultrium Tape Drive on an IOP/IOA may have an impact on tape performance.

Installing more than one IBM LTO Ultrium drive on a SCSI bus may impact system performance. Intermixing of other SCSI devices on the same SCSI bus as the 3584 UltraScalable Tape Library may impact performance of those devices.

Each IBM 3584 UltraScalable Tape Library can be divided into logical libraries (up to the number of drives).

Each logical library must contain at least one IBM LTO Ultrium tape drive and one cartridge slot.
Example shown is a Model L32 with 5 logical libraries.

<table>
<thead>
<tr>
<th>Logical Library</th>
<th>Drive</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>1</td>
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<tr>
<td>2</td>
<td>2</td>
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<tr>
<td>3</td>
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<td>4</td>
<td>4</td>
</tr>
<tr>
<td>5</td>
<td>5</td>
</tr>
</tbody>
</table>

Drive 1

Drive 2

Drive 3

Drive 4

Drive 5

Drive 6

Drive 7

Drive 8

Drive 9

Drive 10

Drive 11

Drive 12

The following limitations apply to installing drives in the library:

- All drives installed at the plant are IBM LTO Ultrium tape drives and are installed sequentially beginning at position 1, beginning with the HVD tape drives (#1455), followed by the LVD (#1454) tape drives.

Planning Information

Customer Responsibilities: Physical planning is a customer responsibility. Detailed planning information is in the 3584 UltraScalable Tape Library Planning & Operator Guide, IBM publication GA32-0408.

Customers are responsible for obtaining the appropriate SCSI adapters, cables, and interposers (if required) for system attachment. Customers are also responsible for ordering media.

Cable Orders: A SCSI cable is required to attach a 3584 UltraScalable Tape Library to each server connection (up to the number of tape drives installed). One SCSI differential terminator and 0.5 meter drive-to-drive cable is included with each IBM LTO Ultrium drive. An interposer may also be required for attachment to various server adapters.

Features for specifying SCSI cables available for Ultra2 SCSI LVD or ULTRA SCSI HVD attachment, and their respective lengths, are as follows:

Cables with HD68 (high density 68-pin) connectors on both ends:

- 5305 — 5 m HD68/HD68 SCSI Cable
- 5310 — 10 m HD68/HD68 SCSI Cable
- 5318 — 18 m HD68/HD68 SCSI Cable
- 5325 — 25 m HD68/HD68 SCSI Cable

Cables with a VHDCI connector on one end and an HD68 connector on the other end:

- 5604 — 4.5 m VHDCI/HD68 SCSI Cable
- 5610 — 10 m VHDCI/HD68 SCSI Cable
- 5620 — 20 m VHDCI/HD68 SCSI Cable
- 5625 — 25 m VHDCI/HD68 SCSI Cable

An interposer may be required to connect a SCSI cable with HD68 connectors to another connector. The following interposers are available:

- 2895 — Interposer for AS/400 (#6501)
- 5099 — VHDCI/HD68 Cable/Interposer

Refer to the Special Features section of the Sales Manual for detailed descriptions of these features.

Installability: Installation time for the 3584 UltraScalable Tape Library is approximately four hours. Installation time for each field installed tape drive in the IBM 3584 UltraScalable Tape Library is approximately 0.4 hours.

Packaging

<table>
<thead>
<tr>
<th>Product</th>
<th>Items Included</th>
<th>Number of Boxes</th>
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</thead>
<tbody>
<tr>
<td>3584-L32</td>
<td>3584 UltraScalable Tape Library</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>UltraScalable Tape Library Base frame</td>
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<tr>
<td></td>
<td>At least one IBM LTO Ultrium tape drive (Each tape drive includes one SCSI</td>
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<tr>
<td></td>
<td>terminator and one 0.5 meter drive-to-drive SCSI cable)</td>
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<tr>
<td></td>
<td>Two Operator Guides</td>
<td></td>
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<td></td>
<td>Maintenance Information</td>
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<tr>
<td></td>
<td>Power cord</td>
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<tr>
<td></td>
<td>Optional SCSI Cable for server attachment</td>
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<tr>
<td></td>
<td>IBM Ultrium Data cartridge</td>
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<td></td>
<td>IBM Ultrium Cleaning Cartridge</td>
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<td></td>
<td>Open System device drivers</td>
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<td>Device Driver Installation and User’s Guide</td>
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<td>3584-D32</td>
<td>3584 UltraScalable Tape Library</td>
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<td>Expansion Frame</td>
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<td></td>
<td>Optional IBM LTO Ultrium tape drives (Each tape drive includes one SCSI</td>
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<td></td>
<td>terminator and one 0.5 meter drive-to-drive SCSI cable)</td>
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<tr>
<td></td>
<td>Optional SCSI Cable for server attachment</td>
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</table>

Supplies

For End Users: The IBM LTO Ultrium data and cleaning cartridges used in the 3584 UltraScalable Tape Library can be purchased from IBM using feature numbers with the initial order. IBM media can also be ordered directly through AAS using machine type 3589. Refer to the 3589 Sales Manual for further information.
The part numbers for additional supplies are:

<table>
<thead>
<tr>
<th>IBM Part Number</th>
<th>Supply Item</th>
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For additional IBM LTO Ultrium data or cleaning cartridges refer to the Web site:

http://www.storage.ibm.com/media

or contact the appropriate distributor for your location as given below:

For information about Priority Fulfillment Services distribution channels call 888-IBM-MEDIA (426-6334) in the U.S. and Canada or refer to

http://www.storage.ibm.com/media

Other country specific numbers can be found at:

http://www.storage.ibm.com/media

### Security, Auditability, and Control

This product uses the security and auditability features of server hardware, server software, and/or application software to which it is attached.

Additional security and auditability features of this product are:

- A security key lock to restrict physical access to the library
- Intelligent fast re-inventory of the library cartridges each time the customer access door is opened and closed

The customer is responsible for evaluation, selection, and implementation of security features, administrative procedures, and appropriate controls in application systems and communications facilities.

### Terms and Conditions

This product is available for purchase under the terms of the IBM Customer Agreement.

IBM hardware products are manufactured from new parts, or new and used parts. In some cases, the hardware product may have been previously installed.

Regardless, IBM warranty terms apply.

### Volume Orders

Contact your IBM representative.

### IBM Credit Corporation Financing

Yes

### Warranty Period

One year, including IBM LTO Ultrium Tape Drives. IBM LTO Ultrium media warranted separately.

### Warranty Service

IBM On-Site Repair (IOR)

### ServiceSuite and ServiceElect (formerly ESA) Maintenance

IOR

### Usage Plan Machine

No

### IBM Hourly Service Rate Classification

Two Yes

### Machine Type | Discount
---|---
3584 | 12% 17%
Yes

### Discount

<table>
<thead>
<tr>
<th>Network</th>
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<th>20%</th>
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<tbody>
<tr>
<td>System</td>
<td>Five-Year</td>
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When a type of service involves the exchange of a machine part, the replacement may not be new, but will be in good working order.

### Rental Offering

No

### Field-Installable Features

Yes

### Model Conversions

Yes

### Customer Setup

No

### Graduated Charges

No

### Educational Allowance

A reduced charge is available to qualified education customers. The educational allowance may not be added to any other discount or allowance.

### Prices

<table>
<thead>
<tr>
<th>Description</th>
<th>Mach. Type</th>
<th>Model</th>
<th>Feature Number</th>
<th>Purchase Price</th>
<th>Mon. Min. Maint. IOR 24x7</th>
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</table>

100-237 -6-
Description | Mach. Type | Model | Feature Number | Purchase Price | Mon. Min. Maint. | IOR 24x7 | Plant/Field
--- | --- | --- | --- | --- | --- | --- | ---
20-Pack of Ultrium Data Cartridges | | | 8757 | $3,780 | NC | P
Driveless Frame | | | 9001 | 0 | NC | P
Attached to HP-UX System | | | 9210 | 0 | NC | B
Attached to Sun System | | | 9211 | 0 | NC | B
Attached to Windows System | | | 9212 | 0 | NC | B
Attached to Other Non-IBM System | | | 9213 | 0 | NC | B
Attached to AS/400 System | | | 9400 | 0 | NC | B
Attached to RS/6000 System | | | 9600 | 0 | NC | B
Power Cord, 1.8m, Chicago | | | 9986 | 0 | NC | P
Power Cord, 250 V 30 A with Hubbell non-watertight Twist-Lock connector | | | 9987 | 0 | NC | P

There are no field MES removals.

NC = No Charge

**Specify Feature Codes:** The following charges apply to features ordered for field installation:

<table>
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<th>Description</th>
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<td>Attached to AS/400 System</td>
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<td>Attached to RS/6000 System</td>
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**Customer Financing:** IBM Global Financing offers attractive financing to credit-qualified commercial and government customers and Business Partners in more than 40 countries around the world. IBM Global Financing is provided by the IBM Credit Corporation in the United States. Offerings, rates, terms, and availability may vary by country. Contact your local IBM Global Financing organization. Country organizations are listed on the Web at:

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For ServiceSuite and ServiceElect (formerly ESA Maintenance Service Charges, contact Global Services at 888-IBM-4343 (426-4343)).

---

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Mail: IBM Atlanta Sales Center
Dept. YE001
P.O. Box 2690
Atlanta, GA 30301-2690

You can also contact your local IBM Business Partner or IBM representative. To identify them, call 800-IBM-4YOU.

**Note:** Shipments will begin after the planned availability date.
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