IBM 3581 Ultrium Tape Autoloader

Overview

The 3581 Ultrium Tape Autoloader is an external, stand-alone or rack-mounted autoloader that incorporates an IBM Ultrium Tape Drive. It attaches to AS/400®, RS/6000®, RS/6000 SP™, Netfinity®, and other UNIX® and PC servers supporting OS/400®, AIX®, Sun Solaris, HP-UX, Windows™ 2000, and Windows NT™ open systems with a Small Computer Systems Interface (SCSI). The 3581 Ultrium Tape Autoloader capacity is seven tape cartridges, providing a media capacity of up to 700 GB (1.4 TB with 2:1 compression) data storage per library and a sustained data rate of up to 15 MB per second (uncompressed).

In addition to reading and writing on IBM LTO Ultrium-format tape data cartridges, the 3581 provides an excellent migration path from DLT, 4-mm, or 8-mm autoloaders or libraries. The 3581 is a very cost-effective solution for backup, save-and-restore, and archiving functions and is part of a family of IBM Ultrium tape automation solutions.

Product Preview

Future features and capabilities of the 3581 Tape Autoloader that provide additional attachment and functional capabilities will include:

- Fibre Channel ─ Arbitrated Loop (FC-AL) attachment

  As a SCSI-attached tape solution, the IBM 3581 will connect to fibre channel server adapters through selected IBM Storage Area Network Data Gateway products.

- 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 3581 Ultrium Tape Autoloader with an IBM LTO Ultrium Tape Drive is supported on selected AS/400, RS/6000, RS/6000 SP, Sun, Windows NT, Windows 2000, and other UNIX and PC servers. The appropriate attachment adapter and software are required.

Planned Availability Dates

- Model L17 and H17: October 20, 2000
- Feature 9400: November 17, 2000

Description

The 3581 is a stand-alone or rack-mounted tape autoloader with a sustained data transfer rate of up to 15 MB per second uncompressed, up to 30 MB with 2:1 compression, depending on the characteristics of the data transferred. The 3581 features data compression hardware that provides an effective capacity of up to 200 GB per cartridge. The 3581 provides a cost-effective solution for save/restore and archiving functions. The number of cartridges is up to seven for a total data capacity of 700 GB native mode, 1.4 TB with 2:1 compression.

The 3581 is server-sized, allowing convenient placement on top of a system server, or two units mounted side-by-side in only 5U of 19-inch rack space. The IBM 3581 Ultrium Tape Autoloader is designed for easy, unattended operation. The 3581 can be operated in sequential or random-access modes. In sequential mode, the 3581 manages cartridge access. In random-access mode, the 3581 relies on application software for cartridge management.

The two 3581 models differ in the interface they provide. Model H17 is equipped with a High-Voltage Differential (HVD) Ultra SCSI interface, and Model L17 is equipped with a Low-Voltage Differential (LVD) Ultra2 SCSI interface. Each model appears as two drives on the SCSI bus. Indicators on the operator's panel provide status on power, autoloader and drive activity, error status, and message information. Controls provide display, mode, and power controls.

Note: Although the 3581 provides the capability for high tape performance, other components of the system may limit the actual performance achieved. Also, although the compression technology used in the tape drive can typically double the amount of data that can be stored on the media, the actual degree of compression achieved is highly sensitive to the characteristics of the data being compressed.

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 new IBM 3581 Ultrium Tape Autoloader is an excellent solution for customers who use tape or require a larger-capacity or higher-performance tape backup with or without random access. It can be an alternative product to other externally attached Digital Linear Tape, ¼-inch, 4-mm, or 8-mm tape devices for RS/6000, AS/400, RS/6000 SP, Netfinity, and other non-IBM UNIX and Windows servers.

With its higher capacity and performance, the 3581 an excellent replacement for IBM ¼-inch models (7207), 4-mm models (7206, 7332), 8-mm models (7208, 7331), or DLT models (7205, 7337), and other competitive products where this capability is needed.

For capacity and performance requirements beyond one IBM Ultrium Drive and seven IBM Ultrium Tape Cartridges, consider other solutions in the IBM Ultrium family. These include the IBM 3583 Ultrium Scalable Tape Library and the IBM 3584 UltraScalable Tape Library.

For mission-critical data protection, optimized for enterprise multimode and server attachment and read- and write-intensive applications, consider the proven IBM Magstar® 3590 Tape Subsystem or the IBM Magstar 3494 Tape Library.

For fast access, near online performance, and multiple retrieve storage applications, consider the IBM Magstar MP 3570 or 3575 Tape Subsystem.

Reference Information

Refer to HardwareAnnouncement 100-234 dated August 23, 2000.

Trademarks

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AS/400, RS/6000, Netfinity, OS/400, AIX, and Magstar are registered trademarks of International Business Machines Corporation in the United States or other countries or both.

Windows NT and Windows are trademarks of Microsoft Corporation.

UNIX is a registered trademark in the United States and other countries exclusively through X/Open Company Limited.

LINUX is a registered trademark of Linus Torvalds.

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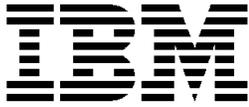
Publications

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

Title	Order Number
3581 Ultrium Tape Autoloader Setup, Operator, and Service Guide (English)	GA32-0412
3581 Ultrium Tape Autoloader Quick Reference Card (English)	GX35-5056
IBM Ultrium Device Driver Installation Installation and User's Guide (English)	GA32-0430
Translated Safety Notices for External Storage Devices	SA26-7197

The publications listed above will be available by October 20, 2000, at the following Web site:

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

The following publications will also be available by October 20, 2000, at the above Web site:

- 3581 Ultrium Tape Autoloader SCSI Reference (English)

- IBM Ultrium Device Driver Programming Reference (English)

Technical Information

Specified Operating Environment

Physical Specifications

Model H17 and L17

- Height: 19.0 cm (7.48 in) (5 EIA units if rack-mounted)
- Width: 21.9 cm (8.62 in)
- Depth: 58.1 cm (22.87 in)
- Maximum Weight: 13.0 kg (28.7 lb)

Operating Environment

- Temperature: 10° to 38°C (50° to 100°F)
- Relative Humidity: 20% to 80%
- Wet Bulb: 26°C (78.8°F) maximum
- Voltage: 100-240 V AC, 50-60 Hz auto-ranging
- Electrical Power: 1.3 amps at 100 V AC, 0.7 amps at 240 V AC 0.168 kVA
- Heat Output (Calories per Hour/Watts): 113/131
- Maximum Noise Level in Bels (Operating/Idle): 62/60

Hardware Requirements: The 3581 Tape Autoloader Model H17 features an Ultra/Wide SCSI High Voltage Differential (HVD) interface. The 3581 Tape Autoloader Model L17 features an Ultra2/Wide SCSI Low Voltage Differential (LVD) interface. The 3581 Tape Autoloader can be attached to AS/400®, RS/6000®, RS/6000 SP™, Netfinity®, and non-IBM servers, workstations, and personal computers that support Ultra/Wide SCSI HVD and Ultra2/Wide SCSI LVD interface specifications.

SCSI cables and appropriate interposers, as required, should be ordered for attachment to a server. A power cord feature number, if applicable, should also be specified.

The 3581 Tape Autoloader has Raven Black covers.

AS/400: The 3581 Tape Autoloader can be attached to models that support Version 4 Release 4 (V4R4), or later, and the following adapters:

- Feature number 2729, PCI Magnetic Media Controller (HVD, HD68)

- Feature number 2749, PCI Ultra Magnetic Media Controller (HVD, HD68) (requires Version 4 Release 5)

- Feature number 6501, Magnetic Media Subsystem Controller (HVD)

- Feature number 6534, Magnetic Media Controller (HVD, HD68)

RS/6000 and RS/6000 SP: The 3581 Tape Autoloader can be attached to models supporting AIX® 4.3.2, or later (depending on adapter type), and the following adapters:

- Feature number 6204, PCI Universal Differential Ultra SCSI (HVD) (requires AIX 4.3.3, or later). This adapter is used in the following RS/6000 models:

Type	Model
7017	S80
7025	F80
7026	H80
7026	M80
7043	270
7044	170
7044	270
7046	B50

- Feature number 6205, PCI Dual Channel Ultra2 SCSI Adapter (LVD/SE with VHDCI connector) (requires AIX 4.3.3, or later). This adapter is using in the following RS/6000 models:

Type	Model
7013	S7A
7015	S7A
7017	S7A
7017	S80
7025	F40
7025	F50
7025	F80
7025	H70
7026	H50
7026	H70
7026	H80
7026	M80
7043	150
7043	240
7043	260
7043	270
7044	170
7044	270
7046	B50

- Feature number 6207, PCI Differential Ultra SCSI Adapter (HVD). This adapter is used in the following RS/6000 models and requires AIX 4.3.2 unless otherwise noted:

Type	Model
7013	S7A
7013	S70
7015	S7A
7015	S70
7017	S7A
7017	S70
7017	S80 (AIX 4.3.3, or later)
7024	E20
7024	E30
7025	F30
7025	F40
7025	F50
7025	F80 (AIX 4.3.3, or later)
7025	H70
7026	H10
7026	H50
7026	H70
7026	H80 (AIX 4.3.3, or later)
7026	M80
7043	140
7043	150
7043	240
7043	260
7043	270 (AIX 4.3.3, or later)
7046	B50 (AIX 4.3.3, or later)
7317	F3L

- Integrated Ultra2 SCSI Adapter (LVD with VHDCI connector) (requires AIX 4.3.3, or later). This adapter is used in the following RS/6000 models:

Type	Model
7044	170
7044	270

Note: Optimal performance is obtained when the 3581 is the sole device attached to the integrated SCSI adapter.

Netfinity Systems: The 3581 Tape Autoloader 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 3581 Tape Autoloader can be attached to systems supporting the Windows NT and Windows 2000 operating systems, and the following adapters:

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

Sun SPARC: The 3581 Tape Autoloader 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: The 3581 Tape Autoloader can be attached to A-, L-, and N-Class systems supporting HP-UX 11.0 and one of the following adapters:

- 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 3581 Tape Autoloader 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 for each server connection to a SCSI bus. If no cable is available, one should be specified on the initial order for each library. A SCSI differential terminator is included with each cable. An interposer may also be required.

Features for specifying SCSI cables available for the 3581 Tape Autoloader, and their respective lengths, are as follows:

The following cables are available for Ultra2 SCSI LVD or Ultra SCSI HVD attachment.

Cables with HD68 connectors on both ends:

- 5302 — 2.5 meters
- 5305 — 5 meters
- 5310 — 10 meters
- 5318 — 18 meters
- 5325 — 25 meters
- 9702 — 2.5 meters

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

- 5602 — 2.5 meters
- 5604 — 4.5 meters
- 5610 — 10 meters
- 5620 — 20 meters

- 5625 ─ 25 meters
- 9703 ─ 2.5 meters

An interposer may be required to connected a SCSI cable with HD/68 connectors to another connector. The following interposers are available:

- 2895 ─ For AS/400 feature number 6501
- 5099 ─ VHDCI/HD68 Cable/Interposer

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

Software Requirements: The 3581 Ultrium Tape Autoloader is supported on the following operating systems at the minimum levels indicated:

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

Support for the Tape Autoloader 3581 is planned for the following products:

- Tivoli® Storage Manager for AIX, Sun, Hewlett-Packard, Windows 2000, and Windows NT. Tivoli Storage Manager offers highly automated, centrally-scheduled, policy-managed backup and archive facilities to protect data in distributed enterprises using AIX/6000®, Sun, Hewlett-Packard, Windows 2000, and Windows NT systems as servers.

- 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 3581 Tape Autoloader. Individual application vendors should be contacted for specific information and availability dates. The list represents out 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 3581 Tape Autoloader 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 12 m (39 ft) using multidrop interconnection (multidrop interconnection is internal to the autoloader). 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 (for example, one host connected to more than one tape drive on the same SCSI bus). Stub length at each device must not exceed 0.2 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 3581 Tape Autoloader on an IOP/IOA may have an impact on tape performance.

Installing more than one Ultrium Drive on a SCSI bus may impact system performance. Intermixing of other SCSI devices on the same SCSI bus as the 3581 Tape Autoloader may impact performance of those devices.

The 3581 Tape Autoloader operating environment must not conflict with media operating and storage requirements. If media is stored in the 3581 Tape Autoloader for more than 10 hours, the media storage temperature requirements must be met.

Planning Information

Customer Responsibilities: Physical planning is a customer responsibility. Detailed planning information is in the *3581 Setup and Operator Guide* (GA32-0412).

Customers are responsible for obtaining the appropriate SCSI-2 adapters, cables, and interposers (if required) for system attachment. Customers are also responsible for ordering media.

Cable Orders: A SCSI cable is required for server connection. If no cable is available, one must be specified on the initial order for each library. A SCSI differential terminator is included with each library. An interposer may also be required for attachment to various server adapters.

Features for specifying SCSI cables available for the 3581 Tape Autoloader, and their respective lengths, are as follows:

The following cables are available for Ultra2 SCSI LVD or Ultra SCSI HVD attachment.

Cables with HD68 connectors on both ends:

- 5302 ─ 2.5 meters
- 5305 ─ 5 meters
- 5310 ─ 10 meters
- 9702 ─ 2.5 meters

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

- 5602 ─ 2.5 meters
- 5604 ─ 4.5 meters
- 5610 ─ 10 meters
- 9703 ─ 2.5 meters

An interposer is required to connect a SCSI cable with HD/68 connectors to a VHDCI connector. The following interposers are available:

- 2895 ─ For AS/400 feature number 6501
- 5099 ─ VHDCI/HD68 Cable/Interposer

Refer to the **Specify Features** section of the Sales Manual for a detailed description of the above features.

Installability: Installation time for the 3581 Ultrium Tape Autoloader when rack-mounted is approximately 3.5-4 hours and when tabletop-installed is approximately 1.5 hours.

Packaging

Product	Items Included	Number of Boxes
3581	IBM 3581 Ultrium Tape Autoloader Power cord SCSI cable (2.5 m as specified or ordered) SCSI Terminator Setup, Operator, and Service Guide (English only. A CD-ROM with Spanish, Japanese, German, and Traditional Chinese translations will be included when available.) Maintenance Information IBM Ultrium Data Cartridge IBM Ultrium Cleaning Cartridge SCSI wrap tool Quick Reference Card, Warranty Card Open Systems device drivers Device Driver Installation and User's Guide	1

Supplies: The IBM Ultrium Data and Cleaning Cartridges used in the IBM 3581 Ultrium Tape Autoloader 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:

Supply Item	Part Number
IBM LTO Ultrium Data Cartridge (100 GB)	08L9120
IBM LTO Ultrium Cleaning Cartridge	08L9124
Leader Pin Attachment Kit	08L9129
Manual Rewind Tool	08L9130

For additional IBM 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 (426-6332) 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 re-inventory of the library cartridges each time the customer access door is opened and any cartridges are accessed

User management 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. IBM Ultrium media warranted separately.

Warranty Service: IBM Annual Minimum Maintenance Next Day 9x5 (IE8)

ServiceSuite and ServiceElect (Formerly ESA) Maintenance: IE8

Maintenance Service: IE8

Usage Plan Machine: No

IBM Hourly Service Rate Classification: One

Mid-Range System Option: Yes

Machine Type	Discount	
	Three-Year	Five-Year
3581	12%	17%

Corporate Service Option: Yes

Machine Type	Discount	
	Three-Year	Five-Year
Network	15%	20%
System	12%	17%

Extended Maintenance Option: Yes

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: No

Customer Setup: Yes

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

Product Charges

Description	Machine Type/ Model	Feature Number	Purchase Price	Plant/ Field
Ultrium Autoloader	3581-H17		$13,532	Plant
Custom QuickShip		1748	NC	Plant
Interposer, AS/400 Feature 6501		2895	100	Both
VHDCI/HD68 Cable/Interposer		5099	180	Both
0.4 m HD68/HD68 SCSI Cable		5301	125	Both
2.5 m HD68/HD68 SCSI Cable		5302	150	Both
5 m HD68/HD68 SCSI Cable		5305	175	Both
10 m HD68/HD68 SCSI Cable		5310	225	Both
18 m HD68/HD68 SCSI Cable		5318	250	Both
25 m HD68/HD68 SCSI Cable		5325	295	Both
2.5 m VHDCI/HD68 SCSI Cable		5602	165	Both
4.5 m VHDCI/HD68 SCSI Cable		5604	195	Both
10 m VHDCI/HD68 SCSI Cable		5610	250	Both
20 m VHDCI/HD68 SCSI Cable		5620	275	Both
25 m VHDCI/HD68 SCSI Cable		5625	325	Both
5U Rack Mount Option		7003	1,125	Both
Bar Code Reader		7004	900	Both
1 Data Cartridge		8001	189	Plant
1 Cleaning Cartridge		8002	113	Plant
Attached to HP-UX System		9210	NC	Both
Attached to Sun System		9211	NC	Both
Attached to Windows System		9212	NC	Both
Attached to Other Non-IBM System		9213	NC	Both
Attached to AS/400 System		9400	NC	Both
Attached to RS/6000 System		9600	NC	Both
2.5 m HD68/HD68 SCSI Cable		9702	NC	Plant
2.5 m VHDCI/HD68 SCSI Cable		9703	NC	Plant
2.7 M Power Cord 125 V, 15 A, U.S./Canada		9800	NC	Plant
2.7 M Power Cord 250 V, 16 A (AC), France, Germany, and Others		9820	NC	Plant
2.7 M Power Cord 250 V, 11 A, Denmark		9821	NC	Plant
2.7 M Power Cord 250 V, 13 A, United Kingdom, China, and Others		9825	NC	Plant
2.7 M Power Cord 250 V, 6-16A, Israel		9827	NC	Plant
2.7 M Power Cord 255 V, 10 A, Switzerland		9828	NC	Plant
2.7 M Power Cord 250 V, 16 A, South Africa		9829	NC	Plant
2.7 M Power Cord 250 V, 10 and 16 A, Italy		9830	NC	Plant
2.7 M Power Cord 250 V, 10 A, Australia		9831	NC	Plant
2.7 M Power Cord 250 V, 15 A, U.S./Canada		9833	NC	Plant
2.7 M Power Cord 250 V, 10 A, Uruguay		9834	NC	Plant
Power Cord, 1.8 M, Chicago		9986	NC	Plant

Description	Machine Type/ Model	Feature Number	Purchase Price	Plant/ Field
Ultrium Autoloader	3581-L17		$13,532	Plant
Custom QuickShip		1748	NC	Plant
VHDCI/HD68 Cable/Interposer		5099	180	Both
0.4 m HD68/HD68 SCSI Cable		5301	125	Both
2.5 m HD68/HD68 SCSI Cable		5302	150	Both
5 m HD68/HD68 SCSI Cable		5305	175	Both
10 m HD68/HD68 SCSI Cable		5310	225	Both
2.5 m VHDCI/HD68 SCSI Cable		5602	165	Both
4.5 m VHDCI/HD68 SCSI Cable		5604	195	Both
10 m VHDCI/HD68 SCSI Cable		5610	250	Both
5U Rack Mount Option		7003	1,125	Both
Bar Code Reader		7004	900	Both
1 Data Cartridge		8001	189	Plant
1 Cleaning Cartridge		8002	113	Plant
Attached to HP-UX System		9210	NC	Both
Attached to Sun System		9211	NC	Both
Attached to Windows System		9212	NC	Both
Attached to Other Non-IBM System		9213	NC	Both
Attached to RS/6000 System		9600	NC	Both
2.5 m HD68/HD68 SCSI Cable		9702	NC	Plant
2.5 m VHDCI/HD68 SCSI Cable		9703	NC	Plant
2.7 M Power Cord 125 V, 15 A, U.S./Canada		9800	NC	Plant
2.7 M Power Cord 250 V, 16 A (AC), France, Germany, and Others		9820	NC	Plant
2.7 M Power Cord 250 V 11 A, Denmark		9821	NC	Plant
2.7 M Power Cord 250 V, 13 A, United Kingdom, China, and Others		9825	NC	Plant
2.7 M Power Cord 250 V, 6-16 A, Israel		9827	NC	Plant
2.7 M Power Cord 255 V, 10 A, Switzerland		9828	NC	Plant
2.7 M Power Cord 250 V, 16 A, South Africa		9829	NC	Plant
2.7 M Power Cord 250 V, 10 and 16 A, Italy		9830	NC	Plant
2.7 M Power Cord 250 V, 10 A, Australia		9831	NC	Plant
2.7 M Power Cord 250 V, 15 A, U.S./Canada		9833	NC	Plant
2.7 M Power Cord 250 V, 10 A, Uruguay		9834	NC	Plant
Power Cord, 1.8 M, Chicago		9986	NC	Plant

There are no field MES removals.

ServiceSuite and ServiceElect (Formerly ESA) Maintenance

Warranty Service Upgrade

Description	Machine Type/ Model	W24 IOR (7x24)
Ultrium Autoloader	3581-H17	$600
Ultrium Autoloader	3581-L17	600

IOE = IBM On-Site Exchange

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

Annual Minimum Maintenance Charges

Warranty Service Upgrade

Description	Machine Type/ Model	Feature Number	W24 IOE (7x24)
Ultrium Autoloader	3581-H17		$600
Custom QuickShip		1748	NC
Interposer, AS/400 Feature 6501		2895	NC
VHDCI/HD68 Cable/Interposer		5099	NC
0.4 m HD68/HD68 SCSI Cable		5301	NC
2.5 m HD68/HD68 SCSI Cable		5302	NC
5 m HD68/HD68 SCSI Cable		5305	NC
10 m HD68/HD68 SCSI Cable		5310	NC
18 m HD68/HD68 SCSI Cable		5318	NC
25 m HD68/HD68 SCSI Cable		5325	NC
2.5 m VHDCI/HD68 SCSI Cable		5602	NC
4.5 m VHDCI/HD68 SCSI Cable		5604	NC
10 m VHDCI/HD68 SCSI Cable		5610	NC
20 m VHDCI/HD68 SCSI Cable		5620	NC
25 m VHDCI/HD68 SCSI Cable		5625	NC
5U Rack Mount Option		7003	NC
Bar Code Reader		7004	NC
1 Data Cartridge		8001	NC
1 Cleaning Cartridge		8002	NC
Attached to HP-UX System		9210	NC
Attached to Sun System		9211	NC
Attached to Windows System		9212	NC
Attached to Other System		9213	NC
Attached to AS/400 System		9400	NC
Attached to RS/6000 System		9600	NC
2.5 m HD68/HD68 SCSI Cable		9702	NC
2.5 m VHDCI/HD68 SCSI		9703	NC
2.7 M Power Cord 125 V, 15 A, U.S./Canada		9800	NC
2.7 M Power Cord 250 V, 16 A (AC), France, Germany, and Others		9820	NC
2.7 M Power Cord 250 V, 11 A, Denmark		9821	NC
2.7 M Power Cord 250 V, 13 A, United Kingdom, China, and Others		9825	NC
2.7 M Power Cord 250 V, 6-16 A, Israel		9827	NC
2.7 M Power Cord 255 V, 10 A, Switzerland		9828	NC
2.7 M Power Cord 250 V, 16 A,South Africa		9829	NC
2.7 M Power Cord 250 V, 10 and 16 A, Italy		9830	NC
2.7 M Power Cord 250 V, 10 A, Australia		9831	NC
2.7 M Power Cord 250 V, 15 A, U.S./Canada		9833	NC
2.7 M Power Cord 250 V, 10 A, Uruguay		9834	NC
Power Cord, 1.8 M, Chicago		9986	NC

Description	Machine Type/ Model	Feature Number	W24 IOE (7x24)
Ultrium Autoloader	3581-L17		$600
Custom QuickShip		1748	NC
VHDCI/HD68 Cable/ Interposer		5099	NC
0.4 m HD68/HD68 SCSI Cable		5301	NC
2.5 m HD68/HD68 SCSI Cable		5302	NC
5 m HD68/HD68 SCSI Cable		5305	NC
10 m HD68/HD68 SCSI Cable		5310	NC
2.5 m VHDCI/HD68 SCSI Cable		5602	NC
4.5 m VHDCI/HD68 SCSI Cable		5604	NC
10 m VHDCI/HD68 SCSI Cable		5610	NC
5U Rack Mount Option		7003	NC
Bar Code Reader		7004	NC
1 Data Cartridge		8001	NC
1 Cleaning Cartridge		8002	NC
Attached to HP-UX System		9210	NC
Attached to Sun System		9211	NC
Attached to Windows System		9212	NC
Attached to Other System		9213	NC
Attached to RS/6000 System		9600	NC
2.5 m HD68/HD68 SCSI Cable		9702	NC
2.5 m VHDCI/HD68 SCSI Cable		9703	NC
2.7 M Power Cord 125 V, 15 A, U.S./Canada		9800	NC
2.7 M Power Cord 250 V, 16 A (AC), France, Germany, and Others		9820	NC
2.7 M Power Cord 250 V, 11 A, Denmark		9821	NC
2.7 M Power Cord 250 V, 13 A, United Kingdom, China, and Others		9825	NC
2.7 M Power Cord 250 V, 6-16 A, Israel		9827	NC
2.7 M Power Cord 255 V, 10 A, Switzerland		9828	NC
2.7 M Power Cord 250 V, 16 A, South Africa		9829	NC
2.7 M Power Cord 250 V, 10 and 16 A, Italy		9830	NC
2.7 M Power Cord 250 V, 10 A, Australia		9831	NC
2.7 M Power Cord 250 V, 15 A, U.S./Canada		9833	NC
2.7 M Power Cord 250 V, 10 A, Uruguay		9834	NC
Power Cord, 1.8 M, Chicago		9986	NC

Maintenance Service

Description	Machine Type/ Model	Feature Number	E95 IOE (9x5)	E24 IOE (7x24)
Ultrium Autoloader	3581-H17		$1,500	$2,100
Custom QuickShip		1748	NC	NC
Interposer, AS/400 Feature 6501		2895	NC	NC
VHDCI/HD68 Cable/ Interposer		5099	NC	NC
0.4 m HD68/HD68 SCSI Cable		5301	NC	NC
2.5 m HD68/HD68 SCSI Cable		5302	NC	NC
5 m HD68/HD68 SCSI Cable		5305	NC	NC
10 m HD68/HD68 SCSI Cable		5310	NC	NC
18 m HD68/HD68 SCSI Cable		5318	NC	NC
25 m HD68/HD68 SCSI Cable		5325	NC	NC
2.5 m VHDCI/HD68 SCSI Cable		5602	NC	NC
4.5 m VHDCI/HD68 SCSI Cable		5604	NC	NC
10 m VHDCI/HD68 SCSI Cable		5610	NC	NC
20 m VHDCI/HD68 SCSI Cable		5620	NC	NC
25 m VHDCI/HD68 SCSI Cable		5625	NC	NC
5U Rack Mount Option		7003	NC	NC
Bar Code Reader		7004	NC	NC
1 Data Cartridge		8001	NC	NC
1 Cleaning Cartridge		8002	NC	NC
Attached to HP-UX System		9210	NC	NC
Attached to Sun System		9211	NC	NC
Attached to Windows System		9212	NC	NC
Attached to Other System		9213	NC	NC
Attached to AS/400 System		9400	NC	NC
Attached to RS/6000 System		9600	NC	NC
2.5 m HD68/HD68 SCSI Cable		9702	NC	NC
2.5 m VHDCI/HD68 SCSI Cable		9703	NC	NC
2.7 M Power Cord 125V, 15 A, U.S./Canada		9800	NC	NC
2.7 M Power Cord 250V, 16 A (AC), France, Germany, and Others		9820	NC	NC
2.7 M Power Cord 250 V, 11 A, Denmark		9821	NC	NC
2.7 M Power Cord 250 V, 13 A, United Kingdom, China, and Others		9825	NC	NC
2.7 M Power Cord 250V, 6-16 A, Israel		9827	NC	NC
2.7 M Power Cord 255 V, 10 A, Switzerland		9828	NC	NC
2.7 M Power Cord 250 V, 16 A, South Africa		9829	NC	NC
2.7 M Power Cord 250 V, 10 and 16 A, Italy		9830	NC	NC
2.7 M Power Cord 250 V, 10 A, Australia		9831	NC	NC
2.7 M Power Cord 250 V, 15 A, U.S./Canada		9833	NC	NC
2.7 M Power Cord 250 V, 10 A, Uruguay		9834	NC	NC
Power Cord, 1.8 M, Chicago		9986	NC	NC

Description	Machine Type/ Model	Feature Number	E95 IOE (9x5)	E24 IOE (7x24)
Ultrium Autoloader	3581-L17		$1,500	$2,100
Custom QuickShip		1748	NC	NC
VHDCI/HD68 Cable/ Interposer		5099	NC	NC
0.4 m HD68/HD68 SCSI Cable		5301	NC	NC
2.5 m HD68/HD68 SCSI Cable		5302	NC	NC
5 m HD68/HD68 SCSI Cable		5305	NC	NC
10 m HD68/HD68 SCSI Cable		5310	NC	NC
2.5 m VHDCI/HD68 SCSI Cable		5602	NC	NC
4.5 m VHDCI/HD68 SCSI Cable		5604	NC	NC
10 m VHDCI/HD68 SCSI Cable		5610	NC	NC
5U Rack Mount Option		7003	NC	NC
Bar Code Reader		7004	NC	NC
1 Data Cartridge		8001	NC	NC
1 Cleaning Cartridge		8002	NC	NC
Attached to HP-UX System		9210	NC	NC
Attached to Sun System		9211	NC	NC
Attached to Windows System		9212	NC	NC
Attached to Other System		9213	NC	NC
Attached to RS/6000 System		9600	NC	NC
2.5 m HD68/HD68 SCSI Cable		9702	NC	NC
2.5 m VHDCI/HD68 SCSI Cable		9703	NC	NC
2.7 M Power Cord 125 V, 15 A, U.S./Canada		9800	NC	NC
2.7 M Power Cord 250 V, 16 A (AC), France, Germany, and Others		9820	NC	NC
2.7 M Power Cord 250 V, 11A, Denmark		9821	NC	NC
2.7 M Power Cord 250 V, 13 A, United Kingdom, China, and Others		9825	NC	NC
2.7 M Power Cord 250 V, 6-16 A, Israel		9827	NC	NC
2.7 M Power Cord 255 V, 10 A, Switzerland		9828	NC	NC
2.7 M Power Cord 250 V, 16 A, South Africa		9829	NC	NC
2.7 M Power Cord 250 V, 10 and 16 A, Italy		9830	NC	NC
2.7 M Power Cord 250 V, 10 A, Australia		9831	NC	NC
2.7 M Power Cord 250 V, 15 A, U.S./Canada		9833	NC	NC
2.7 M Power Cord 250 V, 10 A, Uruguay		9834	NC	NC
Power Cord, 1.8 M, Chicago		9986	NC	NC

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