



# IBM TS2270 SAS Tape Drive Model H7S incorporates IBM Half-High LTO Ultrium 7 tape drive technology for increased performance and reliability

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## At a glance

The IBM<sup>®</sup> TS2270 Tape Drive is designed to deliver IBM tape reliability and performance at open systems prices. Features of the new Ultrium<sup>™</sup> 7 model include:

- Specification data transfer rate of up to 300 MB/sec native compared to 160 MB/sec native for Linear Tape-Open<sup>™</sup> (LTO<sup>™</sup>) Ultrium 6
- Support for LTO Generation 7 media specification tape cartridge compressed capacity of up to 15 TB with 2.5 to 1 compression
- The ability to read and write on Ultrium 7 and Ultrium 6 data cartridges, and read Ultrium 5 data cartridges
- 6 Gbps Serial Attached SCSI (SAS) attachment for Model H7S
- Encryption support in the tape drive to work with application-managed encryption
- 19-inch rack mount shelf option to accommodate two TS2270 tape drives side by side in the rack using just 2U of rack space
- Dual SAS ports per drive to improve availability
- Half-high drive form factor
- Support for media partitioning and self-describing tape

## Order now

For ordering, contact your IBM representative or an IBM Business Partner. For more information, contact the Americas Call Centers at: 800-IBM-CALL (426-2255).

Reference: YE001

## Overview

The IBM TS2270 Tape Drive (machine type 3580 model H7S) is the newest external, stand-alone or rack mountable unit, designed to offer high capacity and performance for the midrange systems environment. The TS2270 incorporates the IBM Linear Tape-Open (LTO) Ultrium 7 Half-High SAS Tape Drive and is designed to support LTO Generation 7 media specification native data rate performance of up to 300 MB/sec compared to the IBM TS2260 LTO Half-High tape drive (Ultrium 6) of up to 160 MB/sec native data transfer rate. The TS2270 tape drive supports the LTO Generation

7 specifications for LTO tape drive technology, and LTO Generation 7 media to a compressed capacity of up to 15 TB with 2.5 to 1 compression (up to 6 TB native capacity) compared to previous LTO 6 compressed capacity of up to 6.25 TB with 2.5:1 compression (up to 2.5 TB native capacity) per tape cartridge. The TS2270 can read and write to Ultrium 7 and Ultrium 6 cartridges, and is read compatible with Ultrium 5 data cartridges. The Ultrium 7 tape drive is encryption-capable and designed to support application-managed encryption.

The TS2270 tape drive uses a 6 Gbps dual-port SAS interface for connection to a wide spectrum of system servers, including select IBM Power Systems™ models, IBM PureFlex™ systems, and IBM BladeCenters. The TS2270 also supports Microsoft™ Windows™ and UNIX™ operating systems.

The following IBM TS2270 Half-High LTO Ultrium 7 tape drive enhancements are designed to help improve performance, capacity, and reliability:

- Native LTO Generation 7 media specification data transfer rate of up to 300 MB/sec
- LTO Generation 7 media specification tape cartridge native capacity support of 6 TB and compressed capacity of up to 15 TB with 2.5 to 1 compression
- 6 Gbps SAS attachment support
- A 1 GB internal buffer
- Application-managed encryption support for half-high LTO Generation 7 SAS tape drive
- 16 KB cartridge memory with Ultrium 7 media
- Half-high drive form factor
- Two SAS ports per drive for improved availability and attachability

The enclosure width enables two TS2270 storage units to be mounted side by side in a 19-inch IBM server rack mount shelf kit, requiring 2U of rack space.

The TS2270 tape drive provides an excellent migration path from digital linear tape (DLT or SDLT), 1/4 in (QIC), 4 mm (DAT), 8 mm, or older LTO generation tape drives.

Other media forms like disk have never really replaced tape in most data centers. Instead, tape has continued to be number one for storage archival, and thanks to continued improvement in tape technology, tape is taking a more prominent role in a data center for both backup and archive. LTO tape is high capacity and performance, very reliable, and still the lowest priced save/restore solution on the market today.

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## Key prerequisites

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Appropriate levels of host software are required to attach the IBM TS2270 tape drive to select IBM Power Systems, UNIX, and PC servers.

Refer to the [Technical information](#) section for details.

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## Planned availability date

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November 20, 2015

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## Description

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The 3580 Tape Drive Model H7S (TS2270) is an external, stand-alone or rack shelf mountable half-high LTO tape unit designed to offer high capacity and performance for IBM Power Systems, Lenovo<sup>®</sup> (formerly IBM System x), and other OEM system

environments. The LTO7 tape drive in the 3580 is available with a SAS electronic interface.

The TS2270 incorporates IBM LTO Gen 7 half-high tape drives which are designed to provide maximum tape drive throughput native data rate performance of up to 300 MB/sec and a storage capacity of up to 6 TB with the introduction of the IBM LTO Ultrium 7 6 TB data cartridge. The LTO Gen 7 Tape Drive delivers more than double the tape cartridge capacity of the LTO Ultrium 6 Tape Drives. IBM LTO Gen 7 Tape Drives can read and write LTO Ultrium 6 data cartridges, and can read LTO Ultrium 5 data cartridges. In addition, the Gen 7 SAS Tape Drive is encryption-capable and designed to support application-managed encryption.

The TS2270 attaches to IBM Power Systems, IBM PureFlex servers, and supports Microsoft Windows and UNIX operating systems.

Specifications:

- Native LTO Generation 7 media specification data transfer rate of up to 300 MB/sec
- Support for LTO Generation 7 media specification tape cartridges with 6 TB native capacity, and a compressed capacity of up to 15 TB assuming 2.5 to 1 compression
- 6 Gbps SAS attachment support
- A 1 GB buffer
- Application-managed encryption support for half-high LTO Generation 7 SAS tape drives
- 16 KB cartridge memory with Ultrium 7 media
- Half-high drive form factor
- Two SAS ports per drive to improve availability and attachability
- Support for media partitioning and self-describing tape

IBM LTO Ultrium 7 Tape Cartridges will be available by ordering machine type 3589.

The Ultrium 7 6 TB data cartridge can also be ordered directly through 1-888-IBM-MEDIA (462-6334) in the US and Canada.

### **Product preview**

IBM intends to introduce IBM Spectrum Archive™ Single Drive Edition support to LTO Ultrium 7 tape drives in the fourth quarter of 2015.

IBM's statements regarding its plans, directions, and intent are subject to change or withdrawal without notice at IBM's sole discretion. Information regarding potential future products is intended to outline our general product direction and it should not be relied on in making a purchasing decision. The information mentioned regarding potential future products is not a commitment, promise, or legal obligation to deliver any material, code, or functionality. Information about potential future products may not be incorporated into any contract. The development, release, and timing of any future features or functionality described for our products remains at our sole discretion.

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## **Product positioning**

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As you compare competitive tape solutions, consider:

- Capacity and performance requirements
- Data integrity, reliability, and availability
- Data security and encryption
- Storage usage and application requirements
- Affordability

- Loyalty to legacy or existing tape formats
- Work environment where space is limited

The IBM TS2270 tape drive and software applications are designed to address these requirements and deliver a functionally rich tape storage solution incorporating LTO Ultrium 7 tape drive technology.

TS2270 is an excellent choice if you use tape drives that require large-capacity or high-performance tape backup. The TS2270, an entry offering to the family of IBM Ultrium tape products, is the answer to growing storage requirements and shrinking backup windows.

The TS2270 tape drive is an excellent tape storage solution if you use digital linear tape drives or require high-performance tape backup. In addition to reading and writing on IBM LTO Ultrium 6 or 7 format tape cartridges, the TS2270 tape drive provides an excellent functional alternative to DLT/SDLT, 1/4 in, 4 mm, 8 mm, IBM Magstar<sup>®</sup> MP 3570, or older LTO generation tape drives.

For capacity requirements greater than 15 TB (compressed) and for incorporating LTO Ultrium technology, the IBM TS2900 Tape Autoloader, IBM TS3100 or TS3200 Tape Library, or the IBM TS3310 and TS4500 Tape Libraries should be considered.

For mission-critical data protection needs, optimized for enterprise multimode and host attachment, or high-cycle and start/stop intensive tape applications, consider IBM TS1140 or TS1150 tape drives with the IBM TS4500 Tape Library.

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## Product number

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Description	Machine type	Model	Feature number
TS2270 Tape Drive Model H7S with HHLTO7 SAS Tape Drive with enclosure and power supply	3580	H7S	
SEO Options Routing	3580	H7S	0789 *
SEO Translation AdminCode - Options	3580	H7S	0791 *
TAA Compliance	3580	H7S	0983 *
SEO SCSI Routing Code	3580	H7S	0993 *
Admin SEO TranslationCode	3580	H7S	0996 *
Hungary CHW Plant 9SH	3580	H7S	1764 *
Guad CHW Plant 9KQ	3580	H7S	1765 *
ISTC CHW 9K2	3580	H7S	1766 *
RTP CHW 9NR	3580	H7S	1767 *
China Offload Routing	3580	H7S	1770 *
Capacity Sched Svc	3580	H7S	1772 *
Custom SLA Sched	3580	H7S	1796 *
2.0M SAS/Mini-SAS 1x Cable	3580	H7S	5402 *
1m Hi-Perf SAS External Cable	3580	H7S	5501 *
2.0M Mini-SAS/Mini-SAS 1x Cable	3580	H7S	5502 *

<b>Description</b>	<b>Machine type</b>	<b>Model</b>	<b>Feature number</b>
HD SAS to Mini-SAS Cable	3580	H7S	5507 *
Y SAS HD to Mini-SAS Cable	3580	H7S	5509 *
Rack Mount Shelf Kit w/PDU Line Cord	3580	H7S	7003 *
Ultrium Cleaning Cartridge	3580	H7S	8002 *
Consolidate Shipment	3580	H7S	8031 *
Ultrium 4 Data Cartridge (5-Pack)	3580	H7S	8405 *
Ultrium 5 Data Cartridge (5-Pack)	3580	H7S	8505 *
Ultrium 6 Data Cartridge (Single)	3580	H7S	8601 *
Ultrium 6 Data Cartridge (5-Pack)	3580	H7S	8605 *
Attached to Windows System	3580	H7S	9212 *
Attached to Linux™ System	3580	H7S	9215 *
Attached to IBM AIX <sup>(R)</sup> System	3580	H7S	9600 *
Power Cord Options:			
2.8m Power Cord 125V US/Canada	3580	H7S	9800 *
2.8m Power Cord 250V France/Germany	3580	H7S	9820 *
2.8m Power Cord 250V Denmark	3580	H7S	9821 *
2.8m Power Cord 250V UK/China	3580	H7S	9825 *
2.8m Power Cord 250V Israel	3580	H7S	9827 *
2.8m Power Cord 250V Switzerland	3580	H7S	9828 *
2.8m Power Cord 250V S. Africa	3580	H7S	9829 *
2.8m Power Cord 250V Italy	3580	H7S	9830 *
2.8m Power Cord 250V Australia	3580	H7S	9831 *
2.8m Power Cord 250V US/Canada	3580	H7S	9833 *
2.8m Power Cord 250V Uruguay/Argentina	3580	H7S	9834 *
2.8m Power Cord 125V Taiwan	3580	H7S	9835 *
2.8m Power Cord 250V China (PRC)	3580	H7S	9840 *
2.8m Power Cord 250V Taiwan	3580	H7S	9841 *
2.8m Power Cord 125V Japan	3580	H7S	9842 *
2.8m Power Cord 250V Korea	3580	H7S	9844 *
2.8m Power Cord 250V India	3580	H7S	9845 *

Description	Machine type	Model	Feature number
2.8m Power Cord 250V Brazil	3580	H7S	9847 *
Rack Device to PDU Line Cord	3580	H7S	9848 *
OEM 1 Order Indicator	3580	H7S	ACY1 *
No Rules Order Indicator	3580	H7S	ADNR *
Shipping and Handling - No charge	3580	H7S	AG00 *
Shipping and Handling - Charge	3580	H7S	AGGE *
LTO7 Half-High Bare Drive Brick	3580	H7S	AGGR

\* Previously announced feature in other model.

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## Business Partner information

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If you are a Direct Reseller - System Reseller acquiring products from IBM, you may link directly to Business Partner information for this announcement. A PartnerWorld<sup>(R)</sup> ID and password are required (use IBM ID).

[BP Attachment for Announcement Letter 115-136](#)

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## Publications

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The following publication is shipped with the product. Additional copies are available.

Title	Order number
IBM TS2270 Tape Drive model H7S Setup, Operator and Service Guide	SC27-8519-00

The following publications are available. To order, contact your IBM representative.

Title	Order number
IBM TS2270 Tape Drive Model H7S Setup, Operator, and Service Guide	SC27-8519-00
IBM Half Height LTO Tape Drive (SAS) Installation Quick Reference (English)	GC27-2276-03
IBM Tape Device Driver Installation and Users Guide (English)	GC27-2130
IBM Tape Device Driver Programming Reference (English)	GA32-0566

These publications are also available at

<http://www-05.ibm.com/e-business/linkweb/publications/servlet/pbi.wss>

Click on country, then enter publication number.

The device driver publications are also available at

<ftp://ftp.software.ibm.com/storage/devdrv/Doc/>

**Note:** All new IBM tape device drivers will only be posted to the web through the Fix Central download portal.

IBM maintains the latest levels of Storage tape drive and library device drivers and documentation on the Internet. Utilize the Fix Central download portal by accessing the following website

<http://www.ibm.com/support/fixcentral>

There are a few pull down menus to navigate to the correct download as follows:

1. In the first pull down menu labeled **Product Group**, select **System Storage<sup>(R)</sup>**.
2. In the next pull down menu that appears which is labeled **Product Family**, select **Tape Systems**.
3. With the next pull down menu, **Product Type**, select **Tape drivers and software**.
4. This will bring up the **Product** menu, which provides selections for **Platform drivers, Tools, or Software**.
5. In order to download your driver, select the correct operating system under **Platform drivers**.
6. Two more pull down menus will appear with information. Click **Continue**.
7. The next screen can be used to narrow the search, however, just click **Continue** to view what is available.

The *IBM Tape Device Drivers Installation and User's Guide* can be found at the following website

<http://www-01.ibm.com/support/docview.wss?rs=577&uid=ssg1S7002972>

IBM Knowledge Center provides you with a single information center where you can access product documentation for IBM systems hardware, operating systems, and server software. Through a consistent framework, you can efficiently find information and personalize your access. IBM Knowledge Center is located at

<http://www.ibm.com/support/knowledgecenter>

### **IBM Publications Center Portal**

The Publications Center is a worldwide central repository for IBM product publications and marketing material with a catalog of 70,000 items. Extensive search facilities are provided. A large number of publications are available online in various file formats, which can currently be downloaded.

The IBM Publications Center Portal is located at

<http://www.ibm.com/shop/publications/order>

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## **Services**

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### **Global Technology Services**

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IBM services include business consulting, outsourcing, hosting services, applications, and other technology management.

These services help you learn about, plan, install, manage, or optimize your IT infrastructure to be an on-demand business. They can help you integrate your high-speed networks, storage systems, application servers, wireless protocols, and an array of platforms, middleware, and communications software for IBM and many non-IBM offerings. IBM is your one-stop shop for IT support needs.

For details on available services, contact your IBM representative or visit

<http://www.ibm.com/services/>

For details on available IBM Business Continuity and Recovery Services, contact your IBM representative or visit

<http://www.ibm.com/services/continuity>

For details on education offerings related to specific products, visit

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## Technical information

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### **Specified operating environment**

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#### **Physical specifications**

- Width: 213 mm (8.4 in)
- Depth: 332 mm (13.1 in)
- Height: 58 mm (2.3 in)
- Weight: 4.3 kg (9.4 lbs)

To assure installability and serviceability in non-IBM industry-standard racks, review the installation planning information for any product-specific installation requirements.

#### **Operating environment**

- Temperature: 10°C to 38°C (50°F to 100°F)
- Relative humidity: 20 -80%
- Wet bulb (caloric value): 26°C (78.8°F)
- Electrical power: 0.21 kVA 1.0 amps at 100 V ac, 0.5 amps at 240 V ac

#### **Hardware requirements**

The TS2270 tape drive comes with raven black covers and uses a SAS interface. The TS2270 tape drive can be attached to IBM Power Systems and non-IBM servers that support those interface specifications. A current list of supported open system configurations is available from the following website

<http://www-1.ibm.com/storage/tape/lto>

Select the **model**, then **Product Details**, and **LTO Compatibility** to view the Independent Software Vendor Matrix (ISV) for the product.

A power cord option number, if applicable, should also be specified.

**Cables:** For TS2270 Model H7S, a SAS cable is required to attach a TS2270 tape drive to host a SAS adapter.

- SAS/Mini-SAS cables provide attachment from HBA with SFF-8470 to the TS2270 Ultrium 7 SAS drive with SFF-8088
- Mini-SAS/Mini-SAS cables provide attachment from HBA with SFF-8088 SAS/Mini-SAS external cable to the TS2270 Ultrium 7 SAS drive with SFF-8088
- Mini-SAS/HD-SAS cables provide attachment from and HD HBA with HD-SAS/Mini-SAS external cable to the TS2270 Ultrium 7 SAS drive with SFF-8088

At least one of the above cables should be specified on the initial plant order.

The following cable options are available for SAS attachment:

- Feature #5402 - 2 m SAS/Mini-SAS Cable (from HBA with SFF-8470 to drive with SFF-8088)
- Feature #5501 - 1 m Mini-SAS/Mini-SAS Cable (from HBA with SFF-8088 to drive with SFF-8088)
- Feature #5502 - 2 m Mini-SAS/Mini-SAS Cable (from HBA with SFF-8088 to drive with SFF-8088)
- Feature #5507 - 2 m HD- SAS/Mini-SAS Cable
- Feature #5509 - 2 m HD-SAS/Mini-SAS Y Cable (from HBA with SFF-8088 to drive with SFF-8088)

Refer to the **Special Features** section of the TS2270 (3580) tape drive sales manual for detailed descriptions of these features.

For a current list of HBAs that support the TS2270, visit

<http://www-03.ibm.com/systems/support/storage/config/ssic/index.jsp>

### **Software requirements**

For a current list of host software versions and release levels that support the TS2270, refer to the following website

<http://www-03.ibm.com/systems/support/storage/config/ssic/index.jsp>

Spectrum Protect, BRMS, and other compatible software offerings provide storage and tape management software for the 3580 or TS2270 family of products. Supporting software and applications must be obtained separately from IBM, IBM Business Partners, or independent software vendors (ISVs). A list of compatible software is available from your IBM representative or at

<http://www-1.ibm.com/storage/tape/lto>

Select the **model**, then **Product Details**, then **LTO Compatibility**, and view **Independent Software Vendor (ISV) matrix for LTO** for the product.

IBM continues to work together with the ISVs to support the IBM LTO Ultrium tape drives or TS2270 family of products. Individual application vendors should be contacted for specific information and availability dates.

IBM maintains the latest levels of Storage tape drive and library device drivers and documentation on the Internet. Utilize the Fix Central download portal by accessing the following website

<http://www.ibm.com/support/fixcentral>

There are a few pull down menus to navigate to the correct download as follows:

1. In the first pull down menu labeled **Product Group**, select **System Storage**.
2. In the next pull down menu that appears which is labeled **Product Family**, select **Tape Systems**.
3. With the next pull down menu, **Product Type**, select **Tape drivers and software**.
4. This will bring up the **Product** menu, which provides selections for **Platform drivers, Tools, or Software**.
5. In order to download your driver, select the correct operating system under **Platform drivers**.
6. Two more pull down menus will appear with information. Click **Continue**.
7. The next screen can be used to narrow the search, however, just click **Continue** to view what is available.

The *IBM Tape Device Drivers Installation and User's Guide* can be found at the following website

<http://www-01.ibm.com/support/docview.wss?rs=577&uid=ssg1S7002972>

## **Compatibility**

IBM LTO Ultrium 7 tape drives can read and write IBM LTO 7 and 6 data cartridges, and read IBM LTO Ultrium 5 data cartridges. The LTO Generation 7 media specification of 15 TB compressed data cartridges can only be used on the new IBM LTO Ultrium 7 tape drives.

## **Limitations**

SAS cable lengths are limited to 5.5 m (18 ft).

Installing more than one TS2270 tape drive on a SAS bus may impact tape drive or system performance. Intermixing of other SAS devices on the same bus as the TS2270 may also impact performance of those devices.

Although multiple systems may be attached to a tape drive, the systems cannot use the drive simultaneously.

While 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.

## **Planning information**

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### **Customer responsibilities**

Physical planning is a customer responsibility. Detailed planning information is in the *IBM TS2270 Tape Drive Model H7S Setup, Operator, and Service Guide*(SC27-8519). The TS2270 tape drive is designated as a customer setup unit (CSU). It is the customers' responsibility to install the unit. Customers are responsible for obtaining the appropriate SAS adapters, cables, and interposers (if required) for system attachment. Customers are also responsible for ordering media. For optimum performance, the customer must obtain the latest level of firmware prior to installing the unit. Customers can download the latest level of firmware from the LTO website

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

You are responsible for downloading or obtaining from IBM, and installing designated Machine Code (microcode, basic input/output system code (called BIOS), utility programs, device drivers, and diagnostics delivered with an IBM machine) and other software updates in a timely manner from an IBM Internet website or from other electronic media, and following the instructions that IBM provides. You may request IBM to install Machine Code changes; however, you may be charged for that service.

### **Cable orders**

For TS2270 Model H7S, a SAS cable is required to attach a TS2270 tape drive to a host SAS adapter. SAS/Mini-SAS cables provide attachment from HBA with SFF-8470 to the drive with SFF-8088. Mini-SAS/Mini-SAS cables provide attachment from HBA SFF-8088 to the drive with SFF-8088. SAS high-density (HD) cables are also available. At least one SAS cable should be specified on the initial plant order.

The following cable options are available for SAS attachment:

- Feature #5402 - 2.0 m SAS/Mini-SAS Cable (from HBA with SFF-8470 to drive with SFF-8088)
- Feature #5501 - 1.0 m Mini-SAS/Mini-SAS Cable (from HBA with SFF-8088 to drive with SFF-8088)
- Feature #5502 - 2.0 m Mini-SAS/Mini-SAS Cable (from HBA with SFF-8088 to drive with SFF-8088)
- Feature #5507 - 2.0 m HD SAS/Mini-SAS Cable
- Feature #5509 - 2.0 m HD-SAS/Mini-SAS Y Cable (from HBA with SFF-8088 to drive with SFF-8088)

Refer to the **Specify or Special Features** section of the 3580 Sales Manual for a detailed description of the cables available.

### ***Installability***

Installation time for the TS2270 tape drive is approximately 0.5 to 0.7 hours.

### ***Packaging***

<b>Product</b>	<b>Shipment group</b>	<b>Number of boxes</b>
3580-H7S	TS2270 with Tape Drive (3580 Model H7S)	1
	Power cord option	
	One cleaning cartridge	
	Documentation CD that includes: <ul style="list-style-type: none"><li>• <i>IBM TS2270 Model H7S Tape Drive Setup, Operator, and Service Guide</i></li><li>• IBM TS2270 Statement of Limited Warranty</li><li>• IBM Translated Safety Notices</li></ul>	
	Documentation kit that includes: <ul style="list-style-type: none"><li>• License Agreement</li><li>• IBM TS2270 Statement of Limited Warranty</li><li>• IBM TS2270 Model H7S Quick Reference</li><li>• CD pointer document</li><li>• Device Driver pointer document</li><li>• Compliance document</li></ul>	

### **Security, auditability, and control**

This product uses the security and auditability features of the host hardware, host software, and application software.

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

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## **IBM Electronic Services**

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IBM has transformed its delivery of hardware and software support services to help you achieve higher system availability. Electronic Services is a web-enabled solution that offers an exclusive, no-additional-charge enhancement to the service and support available for IBM servers. These services are designed to provide the opportunity for greater system availability with faster problem resolution and preemptive monitoring. Electronic Services comprises two separate, but complementary, elements: Electronic Services news page and Electronic Services Agent.

The Electronic Services news page is a single Internet entry point that replaces the multiple entry points traditionally used to access IBM Internet services and support. The news page enables you to gain easier access to IBM resources for assistance in resolving technical problems.

The Electronic Service Agent™ is no-additional-charge software that resides on your server. It monitors events and transmits system inventory information to IBM on a periodic, client-defined timetable. The Electronic Service Agent automatically reports hardware problems to IBM. Early knowledge about potential problems enables IBM to deliver proactive service that may result in higher system availability and performance. In addition, information collected through the Service Agent is made available to IBM service support representatives when they help answer your questions or diagnose problems. Installation and use of IBM Electronic Service Agent for problem reporting enables IBM to provide better support and service for your IBM server.

To learn how Electronic Services can work for you, visit

<http://www.ibm.com/support/electronic>

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## Terms and conditions

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### **Volume orders**

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Contact your IBM representative.

### **IBM Global Financing**

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Yes

### **Products - terms and conditions**

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#### ***Warranty period***

Three years.

To obtain copies of the IBM Statement of Limited Warranty, contact your reseller or IBM.

An IBM part or feature installed during the initial installation of an IBM machine is subject to the full warranty period specified by IBM. An IBM part or feature that replaces a previously installed part or feature assumes the remainder of the warranty period for the replaced part or feature. An IBM part or feature added to a machine without replacing a previously installed part or feature is subject to a full warranty. Unless specified otherwise, the warranty period, type of warranty service, and service level of a part or feature are the same as those for the machine in which it is installed.

#### ***Warranty Service***

If required, IBM provides repair or exchange service depending on the types of warranty service specified for the machine. IBM will attempt to resolve your problem over the telephone, or electronically via an IBM website. Certain Machines contain remote support capabilities for direct problem reporting, remote problem determination, and resolution with IBM. You must follow the problem determination and resolution procedures that IBM specifies. Following problem determination, if IBM determines on-site service is required, scheduling of service will depend upon the time of your call, machine technology and redundancy, and availability of parts. If applicable to your product, parts considered Customer Replaceable Units (CRUs) will be provided as part of the machine's standard warranty service.

Service levels are response-time objectives and are not guaranteed. The specified level of warranty service may not be available in all worldwide locations. Additional charges may apply outside IBM's normal service area. Contact your local IBM representative or your reseller for country and location-specific information.

### **CRU Service**

IBM provides replacement CRUs to you for you to install. CRU information and replacement instructions are shipped with your machine and are available from IBM upon your request. CRUs are designated as being either a Tier 1 (mandatory) or a Tier 2 (optional) CRU.

#### **Tier 1 (mandatory) CRU**

Installation of Tier 1 CRUs, as specified in this announcement, is your responsibility. If IBM installs a Tier 1 CRU at your request, you will be charged for the installation.

#### **Tier 2 (optional) CRU**

You may install a Tier 2 CRU yourself or request IBM to install it, at no additional charge.

Based upon availability, CRUs will be shipped for next business day (NBD) delivery. IBM specifies, in the materials shipped with a replacement CRU, whether a defective CRU must be returned to IBM. When return is required, return instructions and a container are shipped with the replacement CRU. You may be charged for the replacement CRU if IBM does not receive the defective CRU within 15 days of your receipt of the replacement.

The following parts have been designated as Tier 1 CRUs:

- 3580 enclosure with power supply and fan
- I/O adapters
- Processor power regulator
- Service processor

#### **CRU and On-site Service**

At IBM's discretion, you will receive specified CRU service, or IBM will repair the failing machine at your location and verify its operation. You must provide a suitable working area to allow disassembly and reassembly of the IBM machine. The area must be clean, well lit, and suitable for the purpose.

Service level is:

- 9 hours per day, Monday through Friday, excluding holidays, next business day response. Calls must be received by 6:00 PM local time in order to qualify for next business day response.

#### **CRU and Courier or Depot Service**

At IBM's discretion, you will receive specified CRU service, or you will disconnect the failing machine for collection arranged by IBM. IBM will provide you with a shipping container for you to return your machine to a designated service center. A courier will pick up your machine and deliver it to the designated service center. Following its repair or exchange, IBM will arrange the return delivery of the machine to your location. You are responsible for its installation and verification.

#### **CRU and Customer Carry-In or Mail-In Service**

At IBM's discretion, you will receive specified CRU service, or you will deliver or mail, as IBM specifies (prepaid unless IBM specifies otherwise), the failing machine suitably packaged to a location IBM designates. After IBM has repaired or exchanged the machine, IBM will make it available for your collection or, for mail-in service,

IBM will return it to you at IBM's expense, unless IBM specifies otherwise. You are responsible for the subsequent installation and verification of the machine.

### ***CRU and Machine Exchange Service***

At IBM's discretion, you will receive specified CRU service, or IBM will initiate shipment of a replacement machine to your location. You are responsible for its installation and verification of operation. You must pack the failed machine into the shipping container that contained the replacement machine and return the failed machine to IBM. Transportation charges, both ways, are paid by IBM. You may be charged for the replacement machine if IBM does not receive the failed machine within 15 days of your receipt of the replacement.

### **Non-IBM parts service**

#### ***Warranty service***

IBM is now shipping machines with selected non-IBM parts that contain an IBM field replaceable unit (FRU) part number label. These parts are to be serviced during the IBM machine warranty period. IBM is covering the service on these selected non-IBM parts as an accommodation to their customers, and normal warranty service procedures for the IBM machine apply.

#### ***Warranty service upgrades***

During the warranty period, warranty service upgrades provide an enhanced level of On-site Service for an additional charge. Service levels are response-time objectives and are not guaranteed. See the Warranty services section for additional details.

IBM will attempt to resolve your problem over the telephone or electronically by access to an IBM website. Certain machines contain remote support capabilities for direct problem reporting, remote problem determination, and resolution with IBM. You must follow the problem determination and resolution procedures that IBM specifies. Following problem determination, if IBM determines on-site service is required, scheduling of service will depend upon the time of your call, machine technology and redundancy, and availability of parts.

### ***Maintenance service options***

#### ***CRU and On-site Service***

At IBM's discretion you will receive CRU service or IBM will repair the failing machine at your location and verify its operation. You must provide a suitable working area to allow disassembly and reassembly of the IBM machine. The area must be clean, well lit, and suitable for the purpose. The following on-site response-time objectives are available as warranty service upgrades for your machine. Available offerings are:

- 9 hours per day, Monday through Friday, excluding holidays, 4 hour average, same business day response
- 24 hours per day, 7 days a week, 4 hour average response
- 24 hours per day, 7 days a week, 2 hour average response

Customer Replaceable Units (CRUs) may be provided as part of the machine's standard warranty CRU Service except that you may install a CRU yourself or request IBM installation, at no additional charge, under the CRU and On-site Service level specified above. For additional information on the CRU Service, see the warranty information.

### **Maintenance services**

If required, IBM provides repair or exchange service depending on the types of maintenance service specified for the machine. IBM will attempt to resolve your problem over the telephone or electronically, via an IBM website. Certain machines contain remote support capabilities for direct problem reporting, remote problem determination, and resolution with IBM. You must follow the problem determination

and resolution procedures that IBM specifies. Following problem determination, if IBM determines on-site service is required, scheduling of service will depend upon the time of your call, machine technology and redundancy, and availability of parts. Service levels are response-time objectives and are not guaranteed. The specified level of maintenance service may not be available in all worldwide locations. Additional charges may apply outside IBM's normal service area. Contact your local IBM representative or your reseller for country-specific and location-specific information. The following service selections are available as maintenance options for your machine type.

### ***On-site Service***

IBM will repair the failing machine at your location and verify its operation. You must provide a suitable working area to allow disassembly and reassembly of the IBM machine. The area must be clean, well lit, and suitable for the purpose.

Service levels are:

- 9 hours per day, Monday through Friday, excluding holidays, next business day response

### ***CRU Service***

If your problem can be resolved with a CRU (for example, keyboard, mouse, speaker, memory, or hard disk drive), and depending upon the maintenance service offerings in your geography, IBM will ship the replacement CRU to you for you to install. CRU information and replacement instructions are shipped with your machine and are available from IBM upon your request.

Based upon availability, CRUs will be shipped for next business day delivery. IBM specifies, in the materials shipped with a replacement CRU, whether a defective CRU must be returned to IBM. When return is required, 1) return instructions and a container are shipped with the replacement CRU, and 2) you may be charged for the replacement CRU if IBM does not receive the defective CRU within 15 days of your receipt of the replacement.

CRUs may be provided as part of the machine's standard maintenance service except that you may install a CRU yourself or request IBM installation, at no additional charge, under any of the On-site Service levels specified above.

### ***CRU and Courier or Depot Service***

At IBM's discretion you will receive CRU service or you must disconnect the failing machine for collection arranged by IBM. IBM will provide you with a shipping container for you to return your machine to a designated service center. A courier will pick up your machine and deliver it to the designated service center. Following its repair or exchange, IBM will arrange the return delivery of the machine to your location. You are responsible for its installation and verification.

### ***CRU and Customer Carry-In or Mail-In Service***

At IBM's discretion you will receive CRU service or you will deliver or mail, as IBM specifies (prepaid, unless IBM specifies otherwise) the failing machine suitably packaged to a location IBM designates. After IBM has repaired or exchanged the machine, IBM will make it available for your collection or, for mail-in service, IBM will return it to you at IBM's expense, unless IBM specifies otherwise. You are responsible for the subsequent installation and verification of the machine.

### ***CRU and Machine Exchange Service***

At IBM's discretion you will receive CRU service or IBM will initiate shipment of a replacement machine to your location. You are responsible for its installation and verification of operation. You must pack the failed machine into the shipping container that contained the replacement machine and return the failed machine to IBM. Transportation charges, both ways, are paid by IBM. You may be charged for

the replacement machine if IBM does not receive the failed machine within 15 days of your receipt of the replacement.

### **Non-IBM parts service**

Under certain conditions, IBM provides services for selected non-IBM parts at no additional charge for machines that are covered under warranty service upgrades or maintenance services.

This service includes hardware problem determination (PD) on the non-IBM parts (for example, adapter cards, PCMCIA cards, disk drives, memory) installed within IBM machines and provides the labor to replace the failing parts at no additional charge.

If IBM has a Technical Service Agreement with the manufacturer of the failing part, or if the failing part is an accommodations part (a part with an IBM FRU label), IBM may also source and replace the failing part at no additional charge. For all other non-IBM parts, customers are responsible for sourcing the parts. Installation labor is provided at no additional charge, if the machine is covered under a warranty service upgrade or a maintenance service.

### **Usage plan machine**

No

### **IBM hourly service rate classification**

Two

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.

## **General terms and conditions**

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### **Field-installable features**

No

### **Model conversions**

No

### **Machine installation**

Customer setup. Customers are responsible for installation according to the instructions IBM provides with the machine.

### **Graduated program license charges apply**

No

### **Licensed Machine Code**

IBM Machine Code is licensed for use by a customer on the IBM machine for which it was provided by IBM under the terms and conditions of the IBM License Agreement for Machine Code, to enable the machine to function in accordance with its specifications, and only for the capacity authorized by IBM and acquired by the customer. You can obtain the agreement at

[http://www.ibm.com/servers/eserver/support/machine\\_warranties/machine\\_code.html](http://www.ibm.com/servers/eserver/support/machine_warranties/machine_code.html)

Access to Machine Code updates is conditioned on entitlement and license validation in accordance with IBM policy and practice. IBM may verify entitlement through customer number, serial number, electronic restrictions, or any other means or methods employed by IBM in its discretion.

You may also obtain updated code by contacting your IBM representative.

If the machine does not function as warranted and your problem can be resolved through your application of downloadable Machine Code, you are responsible for downloading and installing these designated Machine Code changes as IBM specifies. If you would prefer, you may request IBM to install downloadable Machine Code changes; however, you may be charged for that service.

### **Educational allowance**

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

The educational allowance is 15% for the products in this announcement.

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## **Prices**

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For additional information and current prices, contact your local IBM representative.

<b>Description</b>	<b>Machine type</b>	<b>Model</b>	<b>Feature number</b>
TS2270 Tape Drive Model H7S with HHLTO7 SAS Tape Drive with enclosure and power supply	3580	H7S	
SEO Options Routing	3580	H7S	0789 *
SEO Translation Admin Code - Options	3580	H7S	0791 *
TAA Compliance	3580	H7S	0983 *
SEO SCSI Routing Code	3580	H7S	0993 *
Admin SEO Translation Code	3580	H7S	0996 *
Hungary CHW Plant 9SH	3580	H7S	1764 *
Guad CHW Plant 9KQ	3580	H7S	1765 *
ISTC CHW 9K2	3580	H7S	1766 *
RTP CHW 9NR	3580	H7S	1767 *
China Offload Routing	3580	H7S	1770 *
Capacity Sched Svc	3580	H7S	1772 *
Custom SLA Sched	3580	H7S	1796 *
2.0M SAS/Mini-SAS 1x Cable	3580	H7S	5402 *
1m Hi-Perf SAS External Cable	3580	H7S	5501 *
2.0M Mini-SAS/Mini-SAS 1x Cable	3580	H7S	5502 *
HD SAS to Mini-SAS Cable	3580	H7S	5507 *
Y SAS HD to Mini-SAS Cable	3580	H7S	5509 *
Rack Mount Shelf Kit w/PDU Line Cord	3580	H7S	7003 *
Ultrium Cleaning Cartridge	3580	H7S	8002 *

<b>Description</b>	<b>Machine type</b>	<b>Model</b>	<b>Feature number</b>
Consolidate Shipment	3580	H7S	8031 *
Ultrium 4 Data Cartridge (5-Pack)	3580	H7S	8405 *
Ultrium 5 Data Cartridge (5-Pack)	3580	H7S	8505 *
Ultrium 6 Data Cartridge (Single)	3580	H7S	8601 *
Ultrium 6 Data Cartridge (5-Pack)	3580	H7S	8605 *
Attached to Windows System	3580	H7S	9212 *
Attached to Linux System	3580	H7S	9215 *
Attached to IBM AIX System	3580	H7S	9600 *
Power Cord Options:			
2.8m Power Cord 125V US/Canada	3580	H7S	9800 *
2.8m Power Cord 250V France/Germany	3580	H7S	9820 *
2.8m Power Cord 250V Denmark	3580	H7S	9821 *
2.8m Power Cord 250V UK/China	3580	H7S	9825 *
2.8m Power Cord 250V Israel	3580	H7S	9827 *
2.8m Power Cord 250V Switzerland	3580	H7S	9828 *
2.8m Power Cord 250V S. Africa	3580	H7S	9829 *
2.8m Power Cord 250V Italy	3580	H7S	9830 *
2.8m Power Cord 250V Australia	3580	H7S	9831 *
2.8m Power Cord 250V US/Canada	3580	H7S	9833 *
2.8m Power Cord 250V Uruguay/Argentina	3580	H7S	9834 *
2.8m Power Cord 125V Taiwan	3580	H7S	9835 *
2.8m Power Cord 250V China (PRC)	3580	H7S	9840 *
2.8m Power Cord 250V Taiwan	3580	H7S	9841 *
2.8m Power Cord 125V Japan	3580	H7S	9842 *
2.8m Power Cord 250V Korea	3580	H7S	9844 *
2.8m Power Cord 250V India	3580	H7S	9845 *
2.8m Power Cord 250V Brazil	3580	H7S	9847 *
Rack Device to PDU Line Cord	3580	H7S	9848 *
OEM 1 Order Indicator	3580	H7S	ACY1 *
No Rules Order Indicator	3580	H7S	ADNR *

<b>Description</b>	<b>Machine type</b>	<b>Model</b>	<b>Feature number</b>
Shipping and Handling - No charge	3580	H7S	AG00 *
Shipping and Handling - Charge	3580	H7S	AGGE *
LTO7 Half-High Bare Drive Brick	3580	H7S	AGGR
<b>Feature number</b>	<b>Field install only</b>	<b>Plant install only</b>	<b>MES removal</b>
0789 *	N	Y	N
0791 *	N	Y	N
0983 *	N	Y	N
0993 *	N	Y	N
0996 *	N	Y	N
1764 *	N	Y	N
1765 *	N	Y	N
1766 *	N	Y	N
1767 *	N	Y	N
1770 *	N	Y	N
1772 *	N	Y	N
1796 *	N	Y	N
5402 *	N	N	N
5501 *	N	N	N
5502 *	N	N	N
5507 *	N	N	N
5509 *	N	N	N
7003 *	N	N	N
8002 *	N	Y	N
8031 *	N	Y	N
8405 *	N	Y	N
8505 *	N	Y	N
8601 *	N	Y	N
8605 *	N	Y	N
9212 *	N	Y	N
9215 *	N	Y	N
9600 *	N	Y	N
9800 *	Y	Y	N
9820 *	Y	Y	N
9821 *	Y	Y	N
9825 *	Y	Y	N
9827 *	Y	Y	N
9828 *	Y	Y	N
9829 *	Y	Y	N
9830 *	Y	Y	N
9831 *	Y	Y	N
9833 *	Y	Y	N
9834 *	Y	Y	N
9835 *	Y	Y	N
9840 *	Y	Y	N
9841 *	Y	Y	N
9842 *	Y	Y	N
9844 *	Y	Y	N
9845 *	Y	Y	N
9847 *	Y	Y	N
9848 *	Y	Y	N
ACY1 *	N	Y	N
ADNR *	N	Y	N

Feature number	Field install only	Plant install only	MES removal
AG00 *	N	Y	N
AGGE *	N	Y	N
AGGR	N	Y	N

\* Feature previously announced in other model

### Pricing terms

Prices in the following PDF prices link are suggested list prices on day of announcement for the U.S. only. They are provided for your information only. Dealer prices may vary, and prices may also vary by country. IBM list price does not include tax or shipping and is subject to change without notice.

[ENUS-115-136-LIST\\_PRICES\\_2015\\_10\\_06.PDF](#)

### Alternative service

Machine type-model	IE8 IBM On-site Exchange (IO8, 9 x 5)	IOE IBM On-site Exchange (IOE, 24 x 7)
3580-H7S		

### Warranty Option Charges

Machine type-model	IE8 IBM Next-day On-site Exchange (IO8, 9 x 5)	IOE IBM Same day On-site Exchange (IOE, 24 x 7)
3580-H7S		

### ServiceElect (ESA) charges

For ServiceElect (ESA) maintenance service charges, contact IBM Global Services at 888-IBM-4343 (426-4343).

### Billable exchange price

For all local charges contact your IBM representative

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