

IBM System Storage TS7650G ProtecTIER Gateway and IBM System Storage TS7650 ProtecTIER Deduplication Appliance offer new gateway performance enhancements and support CIFS backup interface

Table of contents

2	Overview	5	Publications
3	Key prerequisites	7	Technical information
3	Planned availability date	12	Terms and conditions
3	Description	16	Pricing
4	Product positioning	17	Order now
5	Product number		

At a glance



TS7650G ProtecTIER® Deduplication Gateway is designed to deliver high performance of inline data deduplication and robust scalability for the enterprise data center.

The use of disk cache as a deduplicated storage pool with existing backup applications offers a potentially lower total cost than conventional disk. To facilitate backup applications designed for use with tape storage, TS7650G ProtecTIER Deduplication Gateway solution emulates a traditional tape library unit so deployment does not typically force any changes to existing data protection processes. Symantec NetBackup users may choose to use the OpenStorage interface to communicate with the TS7650G Gateway.

Solution advantages

- Fast backup and recovery addresses shrinking backup windows
- Significant reduction in the amount of disk storage needed for the backup/restore application
- Backup reliability improvements
- Minimal change requirements to the data protection infrastructure

IBM® System Storage® TS7650 ProtecTIER Deduplication Appliance is designed to support the necessary performance required for enterprise-level data protection and high availability.

For ordering, contact your IBM representative, an IBM Business Partner, or IBM Americas Call Centers at 800-IBM-CALL (Reference: YE001).

Overview

IBM System Storage TS7650G ProtecTIER Deduplication Gateway, comprised of the IBM System Storage TS7650G Server combined with IBM System Storage ProtecTIER Enterprise Edition software, is designed to address the data protection needs of enterprise data centers. This solution is designed to offer high performance, high capacity, robust scalability, and a choice of disk-based targets for backup and archive data.

ProtecTIER Enterprise Edition V3.2 introduces the Common Internet File System (CIFS) backup interface. ProtecTIER V3.2 supports replication between a maximum of eight ProtecTIER CIFS systems. Any one ProtecTIER CIFS system is limited to a maximum of three target systems within the replication grid.

TS7650G Model DD5 Gateway with ProtecTIER Enterprise Edition V3.2 delivers up to 25% faster throughput for multiple stream backups than ProtecTIER Enterprise Edition V3.1 running on a TS7650G Model DD4 gateway.

TS7650G ProtecTIER Deduplication Gateway offers:

- Inline data deduplication performance up to 2,400 MB/s (clustered node) powered by HyperFactor® technology
- Powerful multicore virtualization and deduplication
- Clustering support for higher performance and availability
- Fibre Channel (FC) ports for host and server connectivity
- Flexible storage choices and options

TS7650G Server hardware platform includes:

- Two 10-core processor cards included in the base model and two 10-core processor cards included as a mandatory feature
- Two 600 GB SAS boot disks
- Two dual-port 8Gb FC Qlogic host bus adapters (HBAs) included in the base model
- One LSI MegaRAID (MR5015) card (different than SMB) and battery backup
- Four memory cards with two 4 GB memory DIMMs per card included in the base model and four memory cards with two 4 GB memory DIMMs per card included as a mandatory feature (64 GB total)
- One 1 GbE quad-port copper included in base model
- Optional Ethernet adapters for Open System Technology (OST) or File System Interface (FSI) (two dual-port 10Gb or two quad-port 1Gb cards)
- Optional two dual-port Emulex LPe12002 8Gb FC HBA for Virtual Tape Library (VTL)

TS7650G ProtecTIER Deduplication Gateway is an data protection platform designed to protect business information while reducing the amount of space required to store data. Deploying the TS7650G ProtecTIER Deduplication Gateway can help organizations more efficiently protect corporate data on disk-based storage while helping to manage the exponential growth of new data through reduction and elimination of duplicate data in their backups.

The IBM System Storage TS7650 ProtecTIER Deduplication Appliances are designed to provide an data protection solution that combines an IBM Systems storage system, TS7650 ProtecTIER data deduplication software, and a multicore IBM server to help meet the performance and capacity needs of a wide variety of environments.

The IBM System Storage ProtecTIER Appliance Edition V3.2 software loaded on the IBM System Storage TS7650 Appliance to create a valid TS7650 ProtecTIER

Deduplication Appliance solution has been enhanced to support CIFS backup interface.

ProtectTIER V3.2 continues support for the Symantec NetBackup OpenStorage API announced with ProtectTIER V2.5, and for the Virtual Tape Library (VTL) interface that has been the foundation of ProtectTIER offerings. Supported replication grid configurations for ProtectTIER OST and ProtectTIER VTL systems are unchanged with ProtectTIER V3.2.

Key prerequisites

IBM System Storage TS7650G ProtectTIER Deduplication Gateway requires a standard FC storage area network (SAN) environment. A wide variety of disk-based storage can be attached to this server gateway. Check the *IBM Interoperability Guide* for specific environmental information.

IBM System Storage ProtectTIER Enterprise Edition preload software is loaded on the IBM System Storage TS7650G Server to create a valid TS7650G ProtectTIER Deduplication Gateway. A separate order for ProtectTIER Enterprise Edition is required.

IBM System Storage ProtectTIER Appliance Edition software is loaded on the IBM System Storage TS7650 Appliance to create a valid TS7650 ProtectTIER Deduplication Appliance solution. A separate order for ProtectTIER Appliance Edition is required.

Planned availability date

- June 8, 2012: MTM 3958-DD5 and all features, except feature numbers 2704, 2724, and 2734
- August 31, 2012: Feature number 2704 Console Expansion 26 Port, 2724 Rackmount TS3000 System Console, and 2734 USB Modem

Description

IBM System Storage TS7650G ProtectTIER Deduplication Gateway is a VTL that appears to backup applications as one or many automated tape libraries. This supports implementation of the TS7650G and ProtectTIER software V3.2 with minimal change to existing backup policies, practices, or procedures. The backup application accesses VTLs, robotics, and cartridges just as it would in a physical tape library environment.

Typical virtual tape library solutions provide about 2:1 compression of the data backed up. TS7650G ProtectTIER Deduplication Gateway, featuring HyperFactor data deduplication technology, provides up to 25:1 for more data volume reduction.

IBM System Storage ProtectTIER Enterprise Edition V3.2 software loaded on the IBM System Storage TS7650G ProtectTIER Deduplication Gateway introduces File System Interface Common Internet File System (FSI-CIFS) support for Microsoft™ Windows-based network attached storage (NAS) backup environments. The ProtectTIER FSI interface is intended to be used for backup and restore of data sets using a backup application. Use of the ProtectTIER FSI interface for primary storage is not supported at this time. Cluster mode is not supported with FSI at this time.

ProtectTIER FSI support must be installed on the initial system order. Field conversions of existing systems to utilize the FSI function are not supported.

ProtectTIER systems may also be configured as a VTL system or as an OpenStorage interface system. At this time, a ProtectTIER system may only function as a VTL system, an OpenStorage interface system, or a FSI system; it cannot function as a combination of any two or three of these system types.

ProtectTIER Replication for FSI systems is supported between up to eight ProtectTIER FSI systems. However, any single ProtectTIER FSI system may only replicate to a maximum of three other ProtectTIER FSI systems within the replication topology.

Existing TS7650G gateway systems may upgrade to ProtectTIER Enterprise Edition V3.2. Existing TS7650 appliance systems may update to ProtectTIER Appliance Edition V3.2. Upgraded systems must continue to be used as the same system type, VTL or OST, as previously configured.

TS7650G Model DD5 gateway with ProtectTIER Enterprise Edition V3.2 installed as a VTL system has been designed to provide single stream throughput performance improvements of up to 25% or more, and total system throughput performance improvements up to 25% or more when compared to V3.1 running on the TS7650G Model DD4 gateway.

Refer to IBM System Storage ProtectTIER Entry Edition V3.2 Software Announcement [212-195](#), dated June 04, 2012 , and IBM System Storage ProtectTIER Enterprise and Appliance Edition V3.2 Software Announcement [212-196](#), dated June 04, 2012 .

Accessibility by people with disabilities

A US Section 508 Voluntary Product Accessibility Template (VPAT) containing details on accessibility compliance can be requested at

http://www.ibm.com/able/product_accessibility/index.html

Product positioning

IBM System Storage TS7650G ProtectTIER Deduplication Gateway is a high-performance, high-capacity open systems disk-based data protection solution for large and mid-sized data center environments. The TS7650G solution can aid in data protection by delivering significant increases in operational efficiency, throughput, and data management capabilities via tape virtualization and data reduction.

TS7650G is designed to help:

- Address shrinking backup windows with faster backup and recovery
- Reduce cost and increase storage capacity utilization
- Improve the reliability and quality of backups
- Increase levels of data protection with enterprise-class data integrity
- Support deployment with minimal change to IT infrastructure

TS7650G is a tape virtualization data deduplication server for open systems attached to SAN environments over FC connections. Data centers improve their data protection operations, while reducing the storage required. TS7650G presents itself to backup applications as a standard tape device, while offering the benefit of disk-based storage for fast backup and restores. TS7650G features HyperFactor technology, a data deduplication technology which searches for redundancy in the data while it is backed up. It only stores unique data but tracks all references, maintaining full quality of backup data. With the space saved through elimination of redundant data, organizations can retain more backups online, for a longer period of time, enabling faster recovery of critical data and files.

IBM System Storage TS7650G ProtectTIER Deduplication Gateway server differs from many other open systems virtual tape offerings through its inline deduplication performance. The TS7650G Server can back up and deduplicate data in less time, enabling customers to address their archiving and replication service level agreements.

Reference information

For information on IBM System Storage ProtecTIER Entry Edition V3.2, refer to Software Announcement [212-195](#), dated June 04, 2012 .

For information on IBM System Storage ProtecTIER Enterprise and Appliance Edition V3.2, refer to Software Announcement [212-196](#), dated June 04, 2012 .

Product number

Description	Machine	Model	Feature
TS7650G Server	3958	DD5	
Console Expansion 26 Port			2704
Console Attachment			2715(1)
TS3000 System Console			2722(1)
Rackmount TS3000 System Console			2724
Internal Modem			2733(1)
USB Modem			2734
Cluster Connection Kit			3437(1)
1 GB quad port Ethernet adapter			3456(1)
10 GB dual Port Ethernet adapter			3457(1)
8Gb FC Dual Port HBA - Host			3458(1)
10 Core processor card			3468
8 GB Memory card			3469
Install KVM Switch			5510(1)
KVM Display, Keyboard, Mouse			5512(1)
KVM adjacent frame connection			5513(1)
2nd server in adjacent frame			5514(1)
25 Meter LC/LC FC Cable			6025(1)
VTL			9022(1)
OST			9023(1)
FSI			9024
Attach DS8000®			9030(1)
Attach DS5000			9031(1)
Attach XIV®			9033(1)
Attach new Storwiz V7000			9034(1)
Attach to other IBM Disk			9038(1)
No New IBM Disk			9039(1)
ProtecTIER V3.2 EE preload			9307
Rack Mount			9340(1)
No Factory Cables			9700(1)

Description	Machine type	Model	Feature
FSI	3958	AP1	9024

¹ These features have been previously announced in other models.

Business Partner information

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® ID and password are required (use IBM ID).

<https://www.ibm.com/partnerworld/mem/sla.jsp?num=112-102>

Publications

The following publications are shipped with the product or are provided on the TS7650 Publications CD-ROM:

Title	Order number	Part number
IBM System Storage TS7650 ProtecTIER 3.2 Deduplication Appliance and TS7650G Deduplication Gateway Introduction and Planning Guide	GA32-0918	N/A
IBM System Storage TS7600 with ProtecTIER Installation Roadmap Guide for the TS7650G (Gateway), v.3.2	GA32-0921	N/A
IBM System Storage ProtecTIER User's Guide for Enterprise Edition & Appliance Edition	GA32-0922	95P8938
ProtecTIER v.3.2 Software Upgrade and Replication Enablement Guide	SC27-3643	95P8939
IBM System Storage TS7600 with ProtecTIER Problem Determination Guide for the TS7650 Appliance and TS7650G Gateway (3958 DD1, 3958 DD3, 3958 DD4, 3958 DD5, and 3958 AP1), v.3.2	GA32-0923	N/A
IBM System Storage TS7650 ProtecTIER Customer Information Center DVD	N/A	95P8941
IBM System Storage TS7600 ProtecTIER Service Information Center DVD	N/A	95P8936

Publications are available on the IBM Publications Center website and are included on the *IBM System Storage TS7600 ProtecTIER - TS7650 & TS7650G Publications CD-ROM LCD7-4788-04 (part number 95P8940)*.

The IBM Systems Information 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. The IBM Systems Information Center is at

<http://publib14.boulder.ibm.com/infocenter/systems>

IBM Publications Center Portal

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

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, as well as payment options via credit card. A large number of publications are available online in various file formats, which can currently be downloaded free of charge.

Services

Global Technology Services

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

<http://www.ibm.com/services/learning/index.html>

Select your country, and then select the product as the category.

Technical information

Specified operating environment

Physical specifications

TS7650G ProtecTIER Deduplication Gateway

4 U rack drawer

- Width: 443.6 mm (17.46 in)
- Depth: 712.1 mm (28.04 in)
- Height: 172.8 mm (6.80 in)
- Weight: 43.2 kg (95 lb)

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° to 35° C (50° to 95° F) at 0 to 914 m (0 to 3,000 ft)
 - 10° to 32° C (50° to 90° F) at 914 m to 2,133 m (3,000 to 7,000 ft)
- Relative humidity: 8 to 80%
- Wet bulb (caloric value):
 - Ship configuration: 1,297 Btu/hr (380 watts)
 - Typical configuration: 3,753 Btu/hr (1100 watts)
 - Full configuration: 6,739 Btu/hr (2150 watts)
- Electrical power:
 - Minimum configuration: 0.39 kVA (two power supplies)
 - Typical configuration: 1.12 kVA (two power supplies)
 - Maximum configuration: 2.17 kVA (two power supplies)
- Capacity of exhaust: 00 cubic meter/minute
- Noise level: 6.6 dBa
- Leakage and starting current: 00/00 ampere

Equipment approvals and safety:

- FCC Verified to comply with Part 15 of the FCC Rules, Class A
- Canada ICES-003, issue 4, Class A
- IEC/UL 60950-1, 1st Edition

- CAN/CSA C22.2 No. 60950-1-03
- NOM-019 *

TS7650 ProtecTIER Deduplication Appliances

Refer to IBM System Storage TS7650 ProtecTIER Deduplication Appliances (3958-AP1) Hardware Announcement [109-088](#), dated February 10, 2009 .

Hardware requirements

General platform prerequisites

Tested platforms are listed in the Installation Guide under **Release Notes** .

A TS7650G clustered solution with IBM ProtecTIER Deduplication software requires the following hardware, included in the Cluster Connection Kit (feature number 3447):

- **Power switch:** A network power switch is used to automatically control the power to a failed node.
- **Network switch:** Two Ethernet switches are used to connect the TS7650G Servers with the network power switch, the user console, and the TS3000 System Console (TSSC).

ProtecTIER Manager

ProtecTIER Manager is required for service or maintenance of ProtecTIER systems, and must be installed on a customer provided workstation.

The customer provided workstation must be capable of operating one of the following operating systems:

- Windows™ 2003, Windows XP, or Windows 7
- Red Hat Enterprise 4 or 5

The workstation must also have:

- At least 1.2 GB of available disk space
- At least 256 MB of RAM

The workstation must have access to the ProtecTIER service nodes at IP address (port 3501 is open on the firewall).

ProtecTIER Manager can support more than one ProtecTIER server. If the ProtecTIER Manager workstation is connected to more than one ProtecTIER server, they can be connected to a workstation via a switch box or via a terminal server. The workstation and switch box must be provided by the customer.

TS7650 ProtecTIER Deduplication Appliances

Refer to IBM System Storage TS7650 ProtecTIER Deduplication Appliances (3958-AP1) Hardware Announcement [109-088](#), dated February 10, 2009 .

Contact with your IBM representative for console configuration alternatives.

Supported storage systems

A current list of supported open system configurations for the TS7650G server is available from the following website

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

Software requirements

Ordering the ProtecTIER PID is required when the gateway hardware is ordered.

To create a valid TS7650G ProtecTIER Deduplication Gateway, the customer must order the following software PIDs and hardware features in the initial order:

- 3958-DD5, TS7650G Gateway with feature #9307
- 5639-PTA, ProtecTIER Enterprise Edition V3.2 software
- One of the following software maintenance PIDs:
 - 5639-XXC 1 year registration
 - 5639-XXJ 2 year registration
 - 5639-XXE 3 year registration
 - 5639-XXK 4 year registration
 - 5639-XXL 5 year registration

Refer to IBM System Storage ProtecTIER Enterprise and Appliance Edition V3.2 Software Announcement [212-196](#), dated June 04, 2012 , for more information on the IBM System Storage ProtecTIER Enterprise and Appliance Edition V3.2 software.

To create a valid TS7650 ProtecTIER Deduplication Appliance, the customer must order the following software PIDs and hardware features in the initial order:

- 3958-AP1, TS7650 Appliance with feature #9308,
- 5639-PTB, ProtecTIER Appliance Edition V3.2 software
- One of the following software maintenance PIDs:
 - 5639-XXQ 1 year registration
 - 5639-XXV 2 year registration
 - 5639-XXS 3 year registration
 - 5639-XXW 4 year registration
 - 5639-XXX 5 year registration

Refer to IBM System Storage ProtecTIER Enterprise and Appliance Edition V3.2 Software Announcement [212-196](#), dated June 04, 2012 , for more information on the IBM System Storage ProtecTIER Enterprise and Appliance Edition V3.2 software.

Operating system prerequisites

The appropriate Linux™ operating system is included with the IBM System Storage ProtecTIER Enterprise Edition V3.2 software or the IBM System Storage ProtecTIER Appliance Edition V3.2 software.

Connectivity prerequisites

The supported FC switches are listed in the System Storage Operation Center (SSIC) located at

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

If this IBM System Storage TS7650G ProtecTIER Deduplication Gateway server is to be accessed via ProtecTIER Manager installed on another computer, network connections must be configured to allow access.

IBM System Storage TS7650G ProtecTIER Deduplication Gateway front end links will be up only after configuring a repository.

File system prerequisites

IBM System Storage TS7650G ProtecTIER Deduplication Gateway stores data in Red Hat Global File Systems (GFS). The number and size of the file systems depends on the size and parameters of your configured repository.

Tivoli® Storage Manager and other compatible software offerings can provide storage and tape management software for TS7650G. Supporting software and

applications must be obtained separately from IBM , IBM Business Partners, or ISVs. For a current list of compatible software, call your IBM representative, or visit

<http://www.ibm.com/servers/storage/tape>

Refer to IBM System Storage TS7650 ProtecTIER Deduplication Appliances (3958-AP1) Hardware Announcement [109-088](#), dated February 10, 2009 .

Compatibility

Virtual emulation

An IBM System Storage TS7650G ProtecTIER Gateway VTL system emulates, in both stand-alone and clustered configurations, the IBM System Storage TS3500 tape library with IBM Ultrium™ 2 Tape Drives or Ultrium 3 Tape Drives, and the Quantum P3000 tape library with DLT Tape Drives.

Limitations

Both TS7650G Servers in a clustered configuration must be installed in the same rack.

When the TS7650 is attached to an external TSSC with features #2714 or #2715, the external TSSC must be within 100 feet of the TS7650.

The internal modem option (#2733) and USB modem option (#2734) are qualified for use in the following countries:

- Abu Dhabi City, Afghanistan, Albania, Andorra, Angola, Antigua & Barbuda, Argentina, Armenia, Aruba, Australia, Bahamas (The), Bahrain, Bangladesh, Barbados, Belize, Bermuda, Bolivia, Bosnia & Herzegovina, Brazil, British Virgin Islands, Cameroon, Canada, Cayman Islands, Chile, China CCC, China NALTE, Colombia, Congo (Republic of the), Croatia, Dominica, Dominican Republic, Ecuador, EEA**, Egypt, El Salvador, Equatorial Guinea, Faroe Islands, Federated States of Micronesia, Fiji, French Polynesia, Georgia, Gibraltar, Greenland, Guatemala, Guernsey, Guinea, Guinea-Bissau, Guyana, Honduras, Hong Kong, India, Indonesia, Isle of Man, Israel, Jamaica, Japan, Jersey, Jordan, Kazakhstan, Kenya, Korea (South), Kosovo, Kuwait, Kyrgyzstan, Lebanon, Macedonia, Malaysia, Mauritius, Mexico, Montenegro, Monaco, Montserrat, Morocco (Western Sahara), Namibia, Netherlands Antilles, New Caledonia, New Zealand, Nicaragua, Nigeria, Oman, Pakistan, Panama, Papua New Guinea, Paraguay, Peru, Philippines, Qatar, Russia, Saint Lucia, Saint Pierre and Miquelon, Saint Vincent and the Grenadines, San Marino, Saudi Arabia, Serbia, Seychelles, Singapore, South Africa, Suriname, Swaziland, Taiwan, Thailand, Trinidad and Tobago, Tunisia, Turkey, Turks and Caicos Islands, UAE, Ukraine, United States, Uruguay, Vatican City, Venezuela, Vietnam, Wallis and Futuna, and Zimbabwe.
- EEA = EU and EFTA: Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Liechtenstein, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, and UK.
- Oversea areas part of EU: Portugal: Acores, Madeira, Spain: Canarias,
- France: Guyane, Guadeloupe, Martinique, Mayotte, and Reunion.
- USA includes US Territories: American Samoa, Baker Island, Guam, the Commonwealth of the Northern Mariana Islands, Howland Islands, Jarvis Island, Johnson Island, Kingma Reef, Midway Islands, Navarra Islands, Palmyra, Puerto Rico, US Virgin Islands, and Wake Island.
- Console Expansion 26Port Enet Switch/Rackmount feature #2704 is not available in Egypt, Haiti, Honduras, Iran, Madagascar, Moldavia, Mozambique, Oman, Panama, Qatar, or Rwanda.

Planning information

Customer responsibilities

Physical planning is a customer responsibility. Detailed planning information is in the *IBM System Storage TS7650 ProtecTIER 3.2 Deduplication Appliance and TS7650G Deduplication Gateway Introduction and Planning Guide, GA32-0918*.

Rack installations

The TS7650G Server is a 4U rack-drawer model designed to be installed in a 19-inch rack cabinet designed for 26-inch deep devices, such as the NetBAY42 ER, NetBAY42 SR, NetBAY25 SR, or NetBAY11.

When TSSC, feature number 2722, is purchased with the TS7650G Server, it must be installed in the same rack as the TS7650G Server at a suggested height between 14U (24.5 inches) and 22U (38.5 inches). The TSSC requires 2U space in the rack.

When two TS7650G Servers are purchased and installed to form a two node cluster, both servers must be installed in within the same rack. It is encouraged to install the servers in contiguous space.

If using a non-IBM rack, the cabinet must meet the EIA-310-D standards with a depth of at least 71.1 cm (28 in). Also, adequate space (approximately 5 cm (2 in) for the front bezel and 2.5 cm (1 in) for air flow) must be maintained from the slide assembly to the front door of the rack cabinet to allow sufficient space for the door to close and provide adequate air flow.

Customers are responsible for obtaining the appropriate adapters and cables.

This product may not be certified in your country for connection by any means whatsoever to interfaces of public telecommunications networks. Further certification may be required by law prior to making any such connection. Contact IBM for information.

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

Fibre Channel cables are required for ProtecTIER VTL systems to connect the TS7650G Server (3958 Model DD5) or the TS77650 Appliance (3958 Model AP1) to various server adapters. The cables can be customer supplied or ordered with the TS7650G Server or the TS7650 Appliance with feature number 6025.

25 Meter LC/LC Fibre Channel Cable (#6025)

This feature provides a 25 m (82 ft.) 50.0/125 micrometer short wavelength multimode fiber-optic cable with LC duplex connectors on both ends.

Note: This cable is for attaching a TS7650G Server (that has an LC duplex connector) to switches, disk subsystem, or hosts with LC duplex Fibre Channel connectors.

Direct customer support

Eligible customers can obtain installation and usage assistance through ASK Support using the search words TS7650G, 3958-DD5, or 5639-PTA.

IBM Global Services

IBM Technical Support Services provides comprehensive hardware and software support, including hardware and software implementation for the IBM System Storage TS7650G Server. Technical Support Services are designed to support your installations of IBM Virtualization Engine hardware and software. Offering the best solutions for storage management and data migration, IBM Technical Support Services can assist you in developing and deploying storage solutions to enable your success and satisfaction. For more information, contact your IBM representative or Business Partner.

Security, auditability, and control

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

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

IBM Electronic Services

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>

Terms and conditions

Volume orders: Contact your IBM representative.

IBM Global Financing

Yes

Warranty period

One year

An IBM part or feature installed during the initial installation of an IBM machine is subject to a full warranty effective on the date of installation of the machine. 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 effective on its date of installation. 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.

Extended Warranty Service

This product is provided with one year of standard warranty. For your convenience, IBM has provided additional year(s) of extended warranty services to make this offering. Please consult with your advisors about the appropriate financial treatment for this offering.

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-specific and location-specific information.

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 level is:

- 24 hours per day, 7 days a week, 4 hour average, same day response. Same day service level includes the installation of Tier 1 CRUs at no additional charge.

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

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. The following on-site response-time objectives are available as warranty service upgrades for your machine. Available offerings are:

- 24 hours per day, 7 days a week, 4 hour average response, same day
- 24 hours per day, 7 days a week, 2 hour average response, same day

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 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.

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:

- 24 hours per day, 7 days a week, 4 hour average response, same day
- 24 hours per day, 7 days a week, 2 hour average response, same day

Customer Replaceable Unit (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.

Warranty service upgrades

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.

Field-installable features

Yes

Model conversions

No

Machine installation

Installation is performed by IBM . IBM will install the machine in accordance with the IBM installation procedures for the machine. In the United States, contact IBM at 1-800-IBM-SERV (426-7378). In other countries, contact the local IBM office.

The Installation Guide specifies site preparation, physical requirements, and installation (operating) environment and any cabling included in the installation along with the approximate installation time in hours. Customer requests for installation of items not covered in the installation guide may be performed at IBM's hourly service rate designated for 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

IBM may release changes to the Machine Code. IBM plans to make the Machine Code changes available for download from the IBM System Storage technical support website

<http://www.ibm.com/servers/storage/support/>

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.

Pricing

Product charges

Description	Machine Type	Model	Feature Number
TS7650G Server	3958	DD5	
Console Expansion 26 Port			2704
Console Attachment			2715
TS3000 System Console			2722
Rackmount TS3000 System Console			2724
Internal Modem			2733
USB Modem			2734
Cluster Connection Kit			3437
1 GB quad port Ethernet adapter			3456
10 GB Dual Port Ethernet adapter			3457
8Gb FC Dual Port HBA - Host			3458
10 Core processor card			3468
8 GB Memory card			3469
Install KVM Switch			5510
KVM Display, Keyboard, Mouse			5512
KVM adjacent frame connection			5513
2nd server in adjacent frame			5514
25 Meter LC/LC FC Cable			6025
VTL			9022
OST			9023
FSI			9024
Attach DS8000			9030
Attach DS5000			9031
Attach XIV			9033
Attach new Storwiz V7000			9034
Attach to other IBM Disk			9038
No New IBM Disk			9039
ProtectTIER V3.2 EE preload			9307
Rack Mount			9340
No Factory Cables			9700
FSI	3958	AP1	9024

MMMC = Monthly Minimum Maintenance Charge
 No cables are required with these feature numbers.

Model number	Feature number	Field install only	Plant install only	MES removal	MES removal charge
DD5	2704	N	N	Y	N
DD5	2715	N	N	Y	N
DD5	2722	N	N	Y	N
DD5	2724	N	N	Y	N
DD5	2733	N	N	Y	N
DD5	2734	N	N	Y	N
DD5	3437	N	Y	N	N
DD5	3456	N	Y	N	N
DD5	3457	N	N	N	N
DD5	3458	N	Y	N	N
DD5	3468	N	Y	N	N
DD5	3469	N	Y	N	N
DD5	5510	N	N	Y	N
DD5	5512	N	N	Y	N
DD5	5513	N	N	Y	N
DD5	5514	N	N	Y	N
DD5	6025	N	N	N	N
DD5	9022	N	Y	N	N

DD5	9023	N	Y	N	N
DD5	9024	N	Y	N	N
DD5	9030	N	Y	N	N
DD5	9031	N	Y	N	N
DD5	9033	N	Y	N	N
DD5	9034	N	Y	N	N
DD5	9038	N	Y	N	N
DD5	9039	N	Y	N	N
DD5	9307	N	Y	N	N
DD5	9340	N	Y	Y	N
DD5	9700	N	Y	Y	N
AP1	9024	N	Y	N	N

If field installed on a purchased machine, parts removed or replaced become the property of IBM and must be returned.

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-112-102-LIST_PRICES_2012_06_04.PDF](#)

ServicePac prices

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

IBM Global Financing

IBM Global Financing offers competitive financing to credit-qualified customers to assist them in acquiring IT solutions. Offerings include financing for IT acquisition, including hardware, software, and services, from both IBM and other manufacturers or vendors. Offerings (for all customer segments: small, medium, and large enterprise), rates, terms, and availability can vary by country. Contact your local IBM Global Financing organization or visit

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

IBM Global Financing offerings are provided through IBM Credit LLC in the United States, and other IBM subsidiaries and divisions worldwide to qualified commercial and government customers. Rates are based on a customer's credit rating, financing terms, offering type, equipment type, and options, and may vary by country. Other restrictions may apply. Rates and offerings are subject to change, extension, or withdrawal without notice.

Financing solutions from IBM Global Financing can help you stretch your budget and affordably acquire the new product. But beyond the initial acquisition, our end-to-end approach to IT management can also help keep your technologies current, reduce costs, minimize risk, and preserve your ability to make flexible equipment decisions throughout the entire technology life cycle.

Order now

To order, contact the Americas Call Centers or your local IBM representative, or your IBM Business Partner.

To identify your local IBM representative or IBM Business Partner, call 800-IBM-4YOU (426-4968).

Phone: 800-IBM-CALL (426-2255)
 Fax: 800-2IBM-FAX (242-6329)

Internet: callserv@ca.ibm.com
Mail: IBM Teleweb Customer Support
ibm.com® Sales Execution Center, Americas North
3500 Steeles Ave. East, Tower 3/4
Markham, Ontario
Canada
L3R 2Z1

Reference: YE001

The Americas Call Centers, our national direct marketing organization, can add your name to the mailing list for catalogs of IBM products.

Note: Shipments will begin after the planned availability date.

Trademarks

Electronic Service Agent is a trademark of IBM Corporation in the United States, other countries, or both.

ProtectTIER, IBM, System Storage, HyperFactor, DS8000, XIV, PartnerWorld, Tivoli and ibm.com are registered trademarks of IBM Corporation in the United States, other countries, or both.

Microsoft and Windows are trademarks of Microsoft Corporation in the United States, other countries, or both.

Linux is a registered trademark of Linus Torvalds in the United States, other countries, or both.

Other company, product, and service names may be trademarks or service marks of others.

Terms of use

IBM products and services which are announced and available in your country can be ordered under the applicable standard agreements, terms, conditions, and prices in effect at the time. IBM reserves the right to modify or withdraw this announcement at any time without notice. This announcement is provided for your information only. Additional terms of use are located at:

<http://www.ibm.com/legal/us/en/>

For the most current information regarding IBM products, consult your IBM representative or reseller, or visit the IBM worldwide contacts page

<http://www.ibm.com/planetwide/us/>