



IBM TotalStorage Enterprise Storage Server Enhances TPF Support and Expands Fibre Cable Options

Overview

The IBM TotalStorage™ Enterprise Storage Server™ (ESS) support for the Transaction Processing Facility (TPF) environment now includes Peer-to-Peer Remote Copy (PPRC) and FlashCopy. In conjunction with the ESS native Fibre Connection (FICON™) support, previously announced in Hardware Announcement 101-229, dated August 14, 2001, these enhancements provide the following new solution, connectivity, and performance options:

- PPRC, a hardware-based disaster recovery solution, provides real-time synchronous mirroring of logical volumes to a secondary ESS located up to 103 km from the primary site.
- FlashCopy provides a near instantaneous, point-in-time copy of logical volumes, helping to minimize the downtime needed for data backup since both the source and target copy are immediately accessible.
- FICON connectivity provides increased per channel bandwidth and greater simplicity of the channel fabric.

Additionally, many ESS users will benefit from the following new options that have been added to ESS:

- Expanded selection of Fibre Channel and FICON host attachment cables with the availability of fibre cables with Standard Connector (SC)-style and Lucent Connector (LC)-style connectors. For added convenience, host attachment fibre cables are also now available as optional features.

- Feature conversions to exchange existing disk eight-packs for higher capacity disk eight-packs, providing increased flexibility and scalability.

Key Prerequisites

The following are supported on all ESS models:

- Fibre Channel/FICON Host Attachment Cables

The following are supported on the ESS Models F10 and F20 only:

- PPRC and FlashCopy for the TPF environment
- Native FICON attachment for the TPF environment
- Disk eight-pack feature conversions

Refer to the **Technical Information** section for additional prerequisites.

Planned Availability Dates

- February 22, 2002: Fibre Channel/FICON Host Attachment Cables (#285x, 286x, 975x, 976x)
- March 28, 2002: TPF support enhancements
- May 17, 2002: Disk Eight-Pack feature conversions

At a Glance

The ESS is enhanced to offer:

- New solution, connectivity, and performance options for the TPF environment with PPRC and FlashCopy support, along with the previously announced native FICON attachment support.
- Additional convenience with new host attachment cable options for the Fibre Channel and Fibre Channel/FICON Host Adapters. These cables are also available as optional features.
- Increased flexibility and scalability for existing ESS customers with the capability to exchange existing disk eight-packs when purchasing 36.4 GB and 72.8 GB disk eight-packs.

For ordering, contact:

Your IBM representative, an IBM Business Partner, or IBM Americas Call Centers at

800-IBM-CALL

Reference: YE001

Description

New Disaster Recovery and Backup Solutions Options for the TPF Environment

Support for the ESS PPRC and FlashCopy functions is now available in the TPF environment.

PPRC is a hardware-based disaster recovery solution that provides real-time mirroring of logical volumes within an ESS or to another ESS, which can be located up to 103 km from the primary machine. PPRC is a synchronous copy solution where write operations are made to both copies (primary and secondary) before they are considered to be done.

FlashCopy provides a near instantaneous copy of data to help minimize the downtime needed for data backup. FlashCopy creates a physical point-in-time copy of data and makes it possible to immediately access both the source and target copies. By creating an "instant" copy, FlashCopy enables applications using either the source or the target to operate with only a minimal interruption to perform the FlashCopy.

In the TPF environment, both PPRC and FlashCopy are managed via the Web user interface provided through the IBM TotalStorage Enterprise Storage Server Specialist.

FICON Extends the Performance Benefits of ESS in the TPF Environment

As previously announced in Hardware Announcement 101-229, dated August 13, 2001, the ESS supports native FICON connection over short-wave or long-wave fibre links to IBM *e*server zSeries or S/390® servers in the TPF environment. This support is provided via the Fibre Channel/FICON Host Adapters (#3021 and #3023).

The most obvious potential benefits of FICON connectivity are increased per channel bandwidth and greater simplicity of channel fabric. This greater connectivity offers the possibility of consolidating existing ESCON® channels into FICON channels at the rate of up to approximately 4:1.

Greater simplicity of configuration can also be achieved because the FICON architecture allows more devices per channel (up to 16,384) and more Logical Subsystems (LSS) per channel to match the increased channel bandwidth. Single stream sequential operations may experience a significant improvement in throughput (as much as two times), improving elapsed times for key batch, data mining, or dump operations. This can help provide relief if batch or file maintenance windows are constrained.

Another performance advantage offered by FICON is that the ESS accepts multiple channel command words (CCWs) concurrently without waiting for completion of the previous CCW. This allows setup and execution of multiple CCWs from a single channel to happen concurrently.

Finally, significant performance advantages can be realized for remote disk subsystems. FICON reduces or eliminates data rate "droop" for distances up to 100 km for both read and write operations by using enhanced data buffering and pacing schemes.

FICON thus extends the ESS' ability to deliver high bandwidth potential to the logical volumes needing it, when they need it.

Expanded Selection of Fibre Channel and FICON Host Attachment Cables

Specify features and new cable options are now available when selecting host attachment cables for use with the Fibre Channel (#3022) and Fibre Channel/FICON (#3021 and #3023) Host Adapters.

The cables include a Standard Connector (SC)-style connector for attachment to the ESS adapter and are available with either an SC connector or Lucent Connector (LC)-style connector for attachment to servers and fabric components. The cables are 31 meters in length and available in 9 micron (singlemode) and 50 micron (multimode).

For added convenience, the host attachment cables are also available as optional features (#285x and #286x)

Disk Eight-Pack Feature Conversion

To provide existing ESS customers with increased flexibility and scalability, disk eight-pack feature conversions are available. You may exchange existing disk eight-packs for the higher capacity disk eight-packs. The following conversions are available:

- Disk Eight-Pack — 9.1 GB (#2121) to Disk Eight-Pack — 36.4 GB (#2123)
- Disk Eight-Pack — 18.2 GB (#2122) to Disk Eight-Pack — 36.4 GB (#2123)
- Disk Eight-Pack — 18.2 GB (#2122) to Disk Eight-Pack — 73.2 GB (#2124)
- Disk Eight-Pack — 36.4 GB (#2123) to Disk Eight-Pack — 73.2 GB (#2124)

Euro Currency

This product is not impacted by euro currency.

Reference Information

Refer to Hardware Announcement 101-342, dated November 13, 2001, (IBM TotalStorage Enterprise Storage Server Now Includes a 72.8 GB Drive Option for Improved Scalability and Price/Performance).

Refer to Hardware Announcement 101-341, dated November 13, 2001, (IBM TotalStorage Enterprise Storage Server Introduces New Configuration Options).

Refer to Hardware Announcement 101-229, dated August 14, 2001, (IBM Enterprise Storage Server Delivers Increased Performance and Enhanced Connectivity with Native FICON).

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IBM US Announcement Supplemental Information

February 18, 2002

Publications

The *IBM TotalStorage™ Enterprise Storage Server™ Introduction and Planning Guide* (GC26-7294) publication has been updated to reflect this announcement and is now available at:

<http://ssddom02.storage.ibm.com/disk/ess/documentation.html>

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Technical Information

Specified Operating Environment

Hardware Requirements: The ESS ships with IBM Licensed Internal Code (LIC) that is licensed for use by a customer on a specific machine, designated by serial number, under the terms and conditions of the IBM Customer Agreement or the IBM Agreement for Licensed Internal Code.

PPRC and FlashCopy for the TPF Environment

PPRC and FlashCopy are supported on the ESS Models F10 and F20 and require ESS LIC level 1.5.0, or later. These functions are optional features on the ESS (#182x for PPRC and #183x for FlashCopy).

Implementation of PPRC between two ESSs requires the PPRC feature to be purchased and installed on both the primary and secondary ESS. Additionally, PPRC requires the installation of an ESCON® Host Adapter (#3011 or #3012) on both the primary and secondary ESS. The adapter provides the communications link between the primary and secondary server.

PPRC and FlashCopy are supported on TPF V4R1. Operating system PTFs may be required for this support;

consult your IBM Storage or TPF Specialist to obtain further information.

Native FICON™ Attachment for the TPF Environment

Native FICON attachment is supported on the ESS Models F10 and F20. This support requires ESS LIC level 1.5.0, or later, FICON attachment (#9099), and the Fibre Channel/FICON Host Adapter (#3021 or #3023).

This attachment is supported on TPF V4R1. Operating system PTFs may be required for this support; consult your IBM Storage or TPF Specialist to obtain further information.

Complete and current information on servers, operating systems, host adapters, and connectivity products supported by the ESS is available on the Web at:

<http://www.storage.ibm.com/hardsoft/products/ess/supserver.htm>

Disk Eight-Pack Feature Conversion

Disk eight-pack feature conversions are supported for the following disk eight-pack features:

- Feature number 2121 (9.1 GB drives) conversion to feature number 2123 (36.4 GB drives)
- Feature number 2122 (18.2 GB drives) conversion to feature number 2123 (36.4 GB drives)
- Feature number 2122 (18.2 GB drives) conversion to feature number 2124 (72.8 GB drives)
- Feature number 2123 (36.4 GB drives) conversion to feature number 2124 (72.8 GB drives)

These conversions are supported on the ESS Models F10 and F20 and require ESS LIC level 1.5.2, or later. Feature conversions must be ordered in pairs of the same type.

Planning Information

Customer Responsibilities

Physical Planning: Physical planning information can be found in the *IBM TotalStorage Enterprise Storage Server Introduction and Planning Guide* (GC26-7294).

PPRC and FlashCopy for the TPF Environment

The implementation and use of PPRC and FlashCopy require appropriate planning. Detailed information can be found in the following IBM redbook:

- Implementing ESS Copy Services on S/390® (SG24-5680)

Implementation and planning services for PPRC and FlashCopy are also offered by IBM Global Services (IGS).

PPRC and FlashCopy are licensed features (#182x for PPRC and #183x for FlashCopy). The license must be equal to or greater than the total capacity of the ESS.

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

When purchasing a license for a Step Ahead configuration (Model F20 only), the license must be equal to or greater than the total capacity of the machine (including the Step Ahead capacity).

For PPRC, a license must be purchased for both the primary and secondary ESS. PPRC also requires the installation of at least one ESCON Host Adapter (#3011 or #3012) on each ESS to provide the communications link between the ESS primary and ESS secondary server. For highest availability, IBM recommends that more than one ESCON adapter per ESS be used for the PPRC connectivity.

Native FICON Attachment for the TPF Environment

There are multiple, important considerations that need to be understood in order to properly configure a system with FICON interfaces. IBM Storage Specialists can help you plan and anticipate required levels of performance by analyzing your current configuration, utilization and performance, and modeling proposed configurations.

Additional FICON information can be found in the following:

- IBM Enterprise Storage Server FICON Performance White Paper
- ESS FICON Channel Attachment White Paper
- Introduction to IBM S/390 FICON (SG24-5176)
- FICON Native Implementation and Reference Guide (SG24-6266)
- IBM S/390 FICON Implementation Guide (SG24-5169)

Disk Eight-Pack Feature Conversion

The disk eight-pack feature conversion requires the removal of disk eight-packs from the ESS. Removing logically configured disk eight-packs requires the deconfiguration of all disk eight-packs on the SSA loop (not just the deconfiguration of the eight-pack(s) to be removed).

Data contained on the affected SSA loop is not preserved during the deconfiguration. However, data on the remaining SSA loops is not affected and can continue to be accessed.

The customer is responsible for making a copy of the data contained on the affected SSA loop(s) prior to the deconfiguration and restoring the data after the installation of the new disk eight-packs has been completed.

IBM is not responsible for any data contained on the returned disk eight-packs. As required by customer policies and practices, the customer is responsible for erasing and/or invaliding data on disk eight-packs before they are removed from the ESS by IBM service personnel.

The logical configuration of the new disk eight-packs is a customer responsibility.

The additional capacity provided by the new disk eight-packs may require the need to purchase an advanced function license upgrade for Parallel Access Volumes (PAV), Extended Remote Copy (XRC), PPRC, and FlashCopy. The installation of a license upgrade is a concurrent action.

The additional capacity may also require an increase in the maximum number of logical subsystems (LSS) that can be configured. This modification to increase the maximum is a non-concurrent action. Refer to the *IBM TotalStorage Enterprise Storage Server Introduction and Planning Guide (GC26-7294)* for additional information.

Cable Orders

Host Attachment Cables for Fibre Channel and Fibre Channel/FICON Host Adapters

The Fibre Channel (#3022) and Fibre Channel/FICON (#3021 and #3023) Host Adapters provide one port with a SC connector. A fiber optic cable is required to attach the ESS to Fibre Channel/FICON ports on servers and fabric components.

The following features are used to specify the type of cable shipped with the Fibre Channel and Fibre Channel/FICON Host Adapters. The cables include an SC connector for attachment to the ESS adapter and are available with either an SC connector or LC connector for attachment to servers and fabric components. The cables are 31 meters in length and available in 9 micron (singlemode) and 50 micron (multimode).

Specify Number	Description	Corequisites
9750	9 Micron Fibre Cable (Singlemode, SC connectors)	Host Adapter Feature Number 3021
9751	9 Micron Fibre Cable (Singlemode, SC/LC connectors)	Host Adapter Feature Number 3021
9760	50 Micron Fibre Cable (Multimode, SC connectors)	Host Adapter Feature Number 3021, 3022, or 3023
9761	50 Micron Fibre Cable (Multimode, SC/LC connectors)	Host Adapter Feature Number 3021, 3022, or 3023

Additional quantities of these cables can be ordered with feature numbers 285x to 286x.

In many situations, the required lengths and installation of fiber optic cables will be unique to each customer's configuration and facility specifications. Product support services offered by IBM Global Services' Site and Connectivity Solutions can provide assistance for these unique cabling and installation requirements.

Security, Auditability, and Control

This product uses the security and auditability features of the 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.

Terms and Conditions

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

IBM hardware products are manufactured from new parts and used parts. In some cases, the hardware product may have been previously installed. Regardless, IBM's warranty terms apply.

MES Discount Applicable: No

Field Installable Feature: Yes

Warranty Period: Three years

Customer Set-up: No

Licensed Internal Code: Same license terms and conditions as designated machine.

Prices

Description	Feature Number	Purchase Price	Minimum Monthly Maintenance Charge
Machine Type 2105, Model F10			
Fibre Channel/FICON Host Attachment Cables:			
9 Micron Fibre Cable (SC connectors)	2850	\$330	NC
9 Micron Fibre Cable (SC/LC connectors)	2851	330	NC
50 Micron Fibre Cable (SC connectors)	2860	330	NC
50 Micron Fibre Cable (SC/LC connectors)	2861	330	NC
Fibre Channel/FICON Host Attachment Cables:			
9 Micron Fibre Cable (SC connectors)	9750	NC	NC
9 Micron Fibre Cable (SC/LC connectors)	9751	NC	NC
50 Micron Fibre Cable (SC connectors)	9760	NC	NC
50 Micron Fibre Cable (SC/LC connectors)	9761	NC	NC
Machine Type 2105, Model F20			
Fibre Channel/FICON Host Attachment Cables:			
9 Micron Fibre Cable (SC connectors)	2850	\$330	NC
9 Micron Fibre Cable (SC/LC connectors)	2851	330	NC
50 Micron Fibre Cable (SC connectors)	2860	330	NC
50 Micron Fibre Cable (SC/LC connectors)	2861	330	NC

**Minimum
Monthly**

Description	Feature Number	Purchase Price	Maintenance Charge
Fibre Channel/FICON Host Attachment Cables:			
9 Micron Fibre Cable (SC connectors)	9750	NC	NC
9 Micron Fibre Cable (SC/LC connectors)	9751	NC	NC
50 Micron Fibre Cable (SC connectors)	9760	NC	NC
50 Micron Fibre Cable (SC/LC connectors)	9761	NC	NC

Machine Type 2105, Model E10

Fibre Channel Host Attachment Cables:

50 Micron Fibre Cable (SC connectors)	2860	\$330	NC
50 Micron Fibre Cable (SC/LC connectors)	2861	330	NC

Fibre Channel Host Attachment Cables:

50 Micron Fibre Cable (SC connectors)	9760	NC	NC
50 Micron Fibre Cable (SC/LC connectors)	9761	NC	NC

Machine Type 2105, Model E20

Fibre Channel Host Attachment Cables:

50 Micron Fibre Cable (SC connectors)	2860	\$330	NC
50 Micron Fibre Cable (SC/LC connectors)	2861	330	NC

Fibre Channel Host Attachment Cables:

50 Micron Fibre Cable (SC connectors)	9760	NC	NC
50 Micron Fibre Cable (SC/LC connectors)	9761	NC	NC

NC = No Charge

Machine Type/Model	Feature Number	Field Install Only	Plant Install Only	MES Removal	MES Removal Charge	Cables Required
2105-F10	2850	N	N	N	N	N
	2851	N	N	N	N	N
	2860	N	N	N	N	N
	2861	N	N	N	N	N
	9750	N	N	N	N	N
	9751	N	N	N	N	N
	9760	N	N	N	N	N
	9761	N	N	N	N	N
2105-F20	2850	N	N	N	N	N
	2851	N	N	N	N	N
	2860	N	N	N	N	N
	2861	N	N	N	N	N
	9750	N	N	N	N	N
	9751	N	N	N	N	N
	9760	N	N	N	N	N
	9761	N	N	N	N	N

Machine Type/Model	Feature Number	Field Install Only	Plant Install Only	MES Removal	MES Removal Charge	Cables Required
2105-E10	2860	N	N	N	N	N
	2861	N	N	N	N	N
	9760	N	N	N	N	N
	9761	N	N	N	N	N
2105-E20	2860	N	N	N	N	N
	2861	N	N	N	N	N
	9760	N	N	N	N	N
	9761	N	N	N	N	N

Machine Type 2105, Models F10 and F20

Feature From To	Returned Parts	Continuous Maintenance	Feature Description	Feature Conversion Purchase Price
2121 2123	Y*	Y	9.1 GB to 36.4 GB Disks Drives	\$41,300
2122 2123	Y*	Y	18.2 GB to 36.4 GB Disks Drives	41,300
2122 2124	Y*	Y	18.2 GB to 72.8 GB Disks Drives	60,000
2123 2124	Y*	Y	36.4 GB to 72.8 GB Disks Drives	60,000

* Parts removed or replaced become the property of IBM and must be returned.

Order Now

Use Priority/Reference Code: YE001

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

Note: Shipments will begin after the planned availability date.

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