

IBM® TotalStorage® Silo Compatible Tape Frame 3592 Model C20



Overview

The IBM TotalStorage Silo Compatible Tape Drive Frame 3592 Model C20 supports the new IBM TotalStorage Enterprise Tape Drive 3592 Model J1A. The 3592 tape drive is designed to provide additional performance and capacity for StorageTek Automated Cartridge Systems (ACS) users while helping to reduce the requirement for additional automation hardware. Due to the smaller size of the 3592 drive, the new Model C20 frame will hold up to 20 drives, which is over three times the number of drives allowed in any preceding silo compatible frame. The Model C20 Frame provides a redundant line cord and power supplies, which can help improve availability. In addition, environmental and maintenance costs can potentially be lowered along with reduced floor-space requirements.

Highlights

- *Extends use of the IBM TotalStorage Enterprise Tape Drive 3592—designed for capacity, performance and reliability—to Storage Tek 9310 Powderhorn Tape Library users*
- *Provides multiple host connectivity options*
- *Can help protect existing storage Investments*
- *Emulates multiple IBM device types, offering flexibility for application setup and drive integration in the Silo environment*

Multiplatform Attachment

The Model C20 frame supports multiplatform attachment to IBM **@server** zSeries™ (S/390®), IBM **@server** pSeries™ (RS/6000®, SP™), and IBM **@server** xSeries™ servers as well as selected open system servers that include products from Sun Microsystems and Hewlett-Packard, Intel-based systems running Microsoft® Windows® operating systems.

Increased capacity

3592 tape drives attached to a StorageTek ACS can use the IBM TotalStorage Enterprise Tape Cartridge 3592, which has a physical capacity of up to 300GB. With 3:1 LZ1 data compression, cartridge capacity can reach up to 900GB. The 3592 tape drive can also offer five times the capacity of the IBM TotalStorage Enterprise Tape Drive 3590 Model H. If the ACS employs StorageTek 9840B technology, the 3592 can help improve capacity by up to 15 times.

Silo Compatible components

The Silo Compatible Tape Drive Frames consist of the following models:

- *The 3592 Model C 20 frame can contain one to twenty IBM TotalStorage Enterprise Tape Drives 3592 Model J1A*
- *The 3590 Model C10 frame can contain one or two IBM TotalStorage Enterprise Tape Controllers 3592 Model J70 or 3590 Model A60 or one of each. A maximum of twelve drives can attach to each controller.*

IBM TotalStorage Enterprise Tape Controllers

The IBM TotalStorage Enterprise Tape Controller 3592 Model J70 and 3590 Model A60 attach 3592 Model J1A and 3590 tape drives to ESCON® and FICON™ channels on IBM S/390® enterprise servers and IBM zSeries servers. Both ESCON and FICON attachments are supported on the controllers, allowing drives to be shared between ESCON and FICON servers.

The 3592 Model J70 provides up to eight ESCON channel attachments and up to four FICON channel attachments.

The 3590 Model A60 controller provides up to eight ESCON channel attachments and up to two FICON channel attachments. The 3590 Model A60 can be installed in the same C10 frame with a 3592 Model J70 controller.

The IBM TotalStorage SAN Fibre Channel Switch 2109 Model F16 is required for attachment of 3592 Tape Drives to an Enterprise Tape Controller.

Both Enterprise Tape Controllers support high-speed location to relative file position. This capability can help improve read performance for filestacking applications that access by file number rather than block ID. Each controller can also offer excellent write performance for applications that stack multiple small files on a tape. The performance level is achieved through the elimination of redundant, rewritten tape marks, and the associated backhitch. These

performance capabilities can be exploited by OS/390® and z/OS® and are designed to be transparent to host applications.

3592/ACS Silo communication

To support silo operation, each 3592 tape drive in a Model C20 Frame communicates with the Library Control Unit (LCU) of the Library Storage Manager (LSM) by using StorageTek library ports. The Enterprise Tape Controllers provide emulation capability that allows attached 3592 tape drives to appear to the host system as 3490E or 3590 tape drives. This enables 3592 tape drives to be integrated into an existing ACS environment, typically without host software modifications.

In Fibre Channel environments, 3592 tape drives are identified to the StorageTek Automated Cartridge System Library Software (ACSL) as any type of StorageTek drive. The 3592 tape drives are attached to Fibre Channel hosts with the appropriate device drivers.

Flexible configurations

Up to four Model C20 frames with 3592 tape drives can attach to the LSM in an ACS. A maximum of eighty 3592 Tape Drives can reside in a StorageTek LSM. Multiple 3592 Model J70 or 3590 Model A60 Controllers can attach to 3592 Tape Drives in a single Model C20 frame. The same Model C20 frame with controller attached 3592 drives can have 3592 drives attached to Fibre Channel hosts.

Investment protection

The 3590 Model C10 and 3592 Model C20 Silo Compatible Frames allow customers to benefit from the increased capacity, performance, and reliability provided by 3592 Tape Drives. Drives and other storage assets, including the 3592 Model J70 Controller and the 3590 Model A60 Controller can later be used in a variety of IBM tape solutions from stand-alone 3592 tape sub systems to the fully automated Enterprise Tape Library 3494.

Coexistence with STK tape drives

3592 Tape Drives can coexist with varying combinations of StorageTek tape models, based on the level of HSC or ACSLS that is being used. 3592 drives in the same ACS with StorageTek tape drives are configured as follows:

- **HSC 2.x, 4.x, NCS 5.x.** *The 3592 drives are defined to HSC or NCS as an STK drive model. The 3592s can be intermixed in the same ACS with any other STK device models.*
- **ACSL.** *The 3592 tape drives are identified to StorageTek ACSL as an STK drive model. The ACSL client application must maintain the drive to media relationship*

3490E emulation

3592 Tape Drives attached through a Model J70 or Model A60 Controller can appear to the host operating system as 3490E tape drives. Defining the 3592 in the ACS as a 3490E drive offers flexibility for application set up and drive integration in the Silo environment. 3592 Model J70 and 3590 Model A60 Controller enhancements can help improve tape cartridge capacity utilization. Applications operating in 3490E emulation mode that write small blocks are the most likely to benefit from the capacity of the 3592 J1A. This capacity enhancement can also be exploited by DFSMSHsm™.

Service

IBM provides maintenance service programs for StorageTek Silos and drives in the United States and other selected countries. IBM has three service offerings for the Silo Compatible Tape Frame:

- *Maintenance for both the Enterprise Tape Drive 3592 and the StorageTek Silo*
- *Maintenance for the Enterprise Tape Drive 3592 only*
- *Implementation assistance for the Enterprise Tape Drive 3592 in a StorageTek Silo*

Implementation service is recommended for those customers that have a variety of StorageTek and IBM drives attached to a StorageTek Silo.

3592 Media

Tape media can be ordered via Model C20 feature codes or via IBM TotalStorage Enterprise Tape Media 3599 models. The 3592 media cannot be used in StorageTek tape drives. For more information, call your IBM representative or IBM Business Partner or visit ibm.com/storage/media

Call Home function

The IBM "Call Home" function automatically opens a service alert when a problem occurs with a 3592 Model J70 or 3590 Model A60 Controller. A service representative can be sent to the installation and status information can be transmitted to the IBM Support Center for evaluation. In addition, the Call Home function can send alerts to a pager service so that multiple people can be notified.

Silo Compatible Frame 3592 Model C20 at a glance

Packaging

Tape drives	Up to twenty 3592 drives
Control units	None internal
Dimensions	71.0" H x 28.5" W x 30.5" D 1803mm H x 724mm W x 775mm D
Weight	896 lbs. (407 kg) ¹

Operating environment

Temperature	60° F to 90° F (16° C to 32° C) media limited
Relative humidity	20% to 80% limited by media
Wet bulb (operating)	79° F (26° C)
Wet bulb (non-operating)	73° F (23° C)
Heat output	5.1 kBTU/hr ¹
Power requirement	1.5 kVA ¹

Silo Compatible Frame 3590 Model C10 at a glance

Packaging

Tape drives	N/A
Control units	Up to two 3592 Model J70s or 3590 Model A60s, or one of each
Dimensions	70.9" H x 28.5" W x 40.8" D 1800mm H x 724mm W x 1036mm D
Weight	750 lbs. (340 kg) ²

Operating environment

Temperature	60° F to 90° F (16° C to 32° C) media limited
Relative humidity	20% to 80% limited media
Wet bulb (operating)	73° F (23° C)
Heat output	3.4 kBTU/hr ¹
Power requirement	1.0 kVA ¹

Enterprise Tape Controller 3592 Model J70 at a glance

Characteristics

Drive attachment capability	Up to twelve 3592 drives
ESCON attachment	Up to eight per Model J70
FICON attachment	Up to four per Model J70
Dimensions	8.7" x 17.5" x 23.8" 222mm x 445mm x 603mm
Weight	86 lbs. (39 kg)

Performance

ESCON interface max instantaneous data rate	17MB/sec
FICON interface max instantaneous data rate	200MB/sec

Operating environment

Temperature	60° F to 90° F (16° C to 32° C)
Relative humidity	20% to 80%
Wet bulb	73° F (23° C)
Heat output	2.05 kBTU/hr
Power requirement	600 Watts ¹

Enterprise Tape Controller 3590 Model A60 at a glance

Characteristics

Drive attachment capability	Up to twelve 3592 drives
ESCON attachment	Up to eight per Model A60
FICON attachment	Up to two per Model A60
Dimensions	15.8" H x 19.0" W x 24.5" D 401mm x 483mm x 622mm
Weight	165 lbs. (75.0 kg)

Performance

ESCON interface max instantaneous data rate	17MB/sec
FICON interface max instantaneous data rate	200MB/sec

Operating environment

Temperature	60° F to 90° F (16° C to 32° C)
Relative humidity	20% to 80%
Wet bulb	73° F (23° C)
Heat output	1.7 kBTU/hr
Power requirement	0.50 kVA

For more information

For more information, contact your IBM representative or your IBM Business Partner. Or visit ibm.com/storage



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IBM hardware products are manufactured from new parts, or new and used parts. In some cases, the hardware product may not be new and may have been previously installed. Regardless, IBM warranty terms apply.

¹ Assumes 110V power

² Includes twenty 3592 Model J1A drives and support hardware