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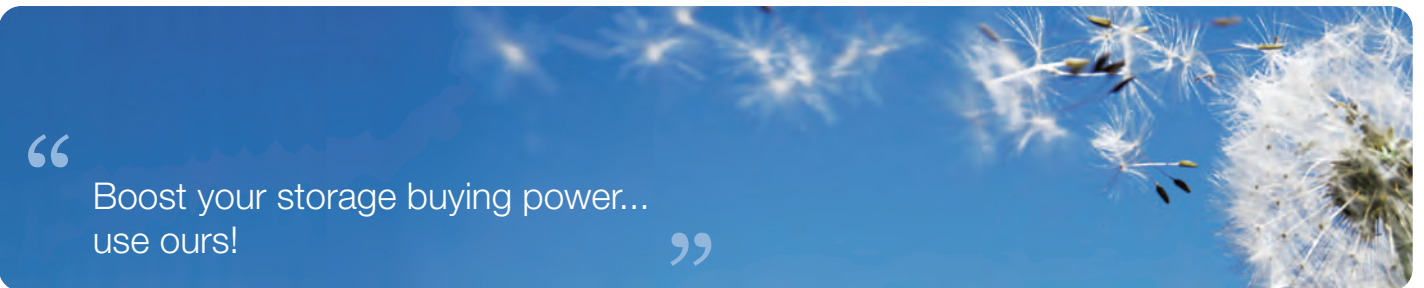
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## Highlights

- IBM 3592 cartridges provide performance of up to 250 MBps and native capacity up to 4TB when use with an IBM Enterprise tape drive.
  - For each IBM Enterprise tape drive, cartridges are available in both high capacity and rapid access versions
  - Available in Re-writable and Write Once, Read Many (WORM) cartridges models
  - Memory chip tracks cartridge and tape drive usage
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# IBM 3592 Tape Cartridge

*High-capacity tape media designed for reliability*

## Overview

IBM 3592 Tape Cartridges are designed to work with IBM® System Storage® TS1140, TS1130 and TS1120 Tape Drives (TS1140 tape drive, TS1130 tape drive, TS1120 tape drive) and the IBM TotalStorage 3592 Tape Drive Model J1A (3592 J1A tape drive).

Cartridges are available in three generations, and in either Rewriteable or Write Once, Read Many (WORM) formats. The new 3592 cartridges for the TS1140 tape drive are available at 4TB (JC and JY) and 500MB (JK) will provide best-in-class performance of up to 250 MBps. Other 3592 cartridges are available for the TS1130, TS1120 and the 3592 J1A tape drives.

## Rewritable cartridges

At typical compression ratios, the 3592 JC cartridge can provide usable capacity of up to 8 TB in an open system environment and up to 12 TB in an IBM System z® environment when used with a TS1140 Tape Drive.

The third-generation TS1130 tape drive can initialize short-length JJ cartridges to 60, 100 or 128 GB and initialize (or reinitialize) standard-length JA cartridges to 300, 500 or 640 GB to support fast access to data or to help address data growth and facilitate interchange.



The IBM 3592 Extended Data JB cartridges can be initialized to 20 percent of capacity for fast access to data or can be segmented to 92 percent of capacity, or used at full capacity. Using typical compression ratios, the 3592 JB cartridge can provide usable capacity of up to 2 TB in an open system environment and up to 3 TB in a System z environment when used with a TS1130 Tape Drive.

The JA, JB, JC and JJ cartridge models are suitable for storing data that has a finite lifespan and are rewriteable.

The second-generation TS1120 tape drive can initialize short-length JJ cartridges to 60 or 100 GB and initialize (or reinitialize) standard-length JA cartridges to 60, 100, 300 or 500 GB to support fast access to data or to help address data growth and facilitate interchange. 3592 Extended Data JB cartridges can be initialized to 140 GB for fast access to data, can be segmented to 609 GB or can be used at full 700 GB capacity. A usable capacity of up to 1.4 TB in open systems environments or up to 2.1 TB in an System z environment can be achieved using standard compression ratios with the TS1120 Tape Drive.

The first-generation 3592 J1A tape drive can initialize short-length JJ cartridges to 60 GB and initialize (or reinitialize) standard JA-length cartridges to either 60 GB (to support fast time to data) or 300 GB (to support high capacity).

## WORM cartridges

The TS1140, TS1130, TS1120 and 3592 J1A tape drives are designed to work with Write Once, Read Many (WORM) JY, JR and JW cartridges to store data in a nonerasable, non-rewriteable format. However, the 3592 Extended WORM JX cartridge is only designed to work with the TS1130 and TS1120 tape drives. WORM cartridges are intended to help support the long-term retention of reference data and meet the requirements of regulatory bodies worldwide. The JY, the short-length JR, the standard-length JW and the extended-length JX cartridges have advanced security features



3592 rewritable cartridge

that are designed to prevent the alteration or deletion of stored data, while allowing data to be appended to existing cartridges or files.

## Supported environments

Special grip points and a form factor that is similar to the TotalStorage 3590 cartridge models allow the 3592 cartridges to coexist in either a TotalStorage Enterprise Tape Library 3494 or a Sun StorageTek 9310 Powderhorn Tape Library. The 3592 cartridges can also coexist in an IBM System Storage TS3500 Tape Library with TotalStorage Ultrium LTO tape cartridges. This may help to reduce the total cost of ownership by reducing physical tape resources and the number of cartridges needed to support your tape environment

## Advanced media

The IBM 3592 tape cartridge contains an advanced fourth-generation metal particle formulation in a dual-layer coating on a half-inch-wide tape. The IBM tape uses an advanced magnetic coating and process designed to provide a high output and signal quality to support the current TS1140, TS1130, TS1120 and 3592 J1A tape drives. The tape features an ultra-smooth and uniform magnetic layer less than 0.2 microns thick and a specially refined coating formulation designed to help improve media reliability and performance as well as minimize wear of the tape heads and components. A precision timing-based servo with enhanced features helps enable high

track densities, high data rates and data access performance as well as high reliability and stop-start performance. In addition, modifications to the cartridge design and construction help improve pin retention, hub and clutch engagement, spool alignment and tape stacking within the cartridge. These enhancements are designed to help improve reliability and durability of not only the media but of the tape drive as well.

## Cartridge memory

A cartridge memory chip that stores access history and media performance information is built into every cartridge. Records are written to the memory chip every time the cartridge is unloaded from a TS1140, TS1130, TS1120 or 3592 J1A tape drive. These records can be used by the IBM Statistical Analysis and Reporting System (SARS) programs to analyze and report on tape drive and cartridge usage and help diagnose and isolate tape errors. SARS can also be used to proactively determine if the tape media or tape drives are degrading over time.

## Ordering options

All 3592 cartridge models are available in 20 packs that contain either unlabeled uninitialized cartridges, labeled initialized cartridges or labeled cartridges. Labels are required for operation in an IBM tape library and are also used to identify cartridges visually for shelf storage or sending offsite to support business continuance. Cleaning cartridges are available in five packs with or without media ID labels.



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3592 WORM cartridge

**Cartridge capacities when used with TS1140 Tape Drives**

Cartridge type	JJ/JR	JA/JW	JB/JX	JC/JY	JK
<b>Native capacity</b>					
Gen 1 mode					
Gen 2 mode			700 GB		
Gen 3 mode			1 TB		
Gen 4 mode			1.6 TB	4 TB	500 GB
<b>Open system capacity (2:1 compression)</b>					
Gen 1 mode					
Gen 2 mode			1.4 TB		
Gen 3 mode			2 TB		
Gen 4 mode			3.2 TB	8 TB	1 TB
<b>System z capacity (3:1 compression)</b>					
Gen 1 mode					
Gen 2 mode			2.1 TB		
Gen 3 mode			3 TB		
Gen 4 mode			4.8 TB	12 TB	1.5 TB
<b>Characteristics</b>					
Long-length durability	300 full file passes				
Short-length durability	40,000 cycles at ambient				
Load/unload	20,000 load, unload and initialization cycles				
Estimated archive life	Up to 30 years				
Warranty	Limited lifetime: Free from manufacturing and material defects useful life of product				
<b>Physical characteristics</b>					
Dimensions	24.5 mm H x 109 mm W x 125 mm D (0.97 in. x 4.3 in x 4.9 in.)				
Weight	239 g (8.4 oz)				
Tape length	JK: xxx Ft nominal (610 m) JC/JY: xxx Ft nominal (825 m)				
<b>Operating environment</b>					
Temperature					
Relative humidity	16° to 32°C (60° to 90°F)				
Wet bulb maximum	23°C (73.4°F)				
<b>Safety characteristics</b>					
Toxicity	Nonhazardous to human health in anticipated use				
Flammability	Self-extinguishing per UL94				

	Cartridge capacities when used with 3592 J1A Tape Drives		Cartridge capacities when used with TS1120 Tape Drives			Cartridge capacities when used with TS1130 Tape Drives		
Cartridge Type	JJ/JR	JA/JW	JJ/JR	JA/JW	JB/JX	JJ/JR	JA/JW	JB/JX
<b>Native Capacity</b>								
Gen 1 mode	60 GB	300 GB	60 GB	300 GB		60 GB	300 GB	
Gen 2 mode			100 GB	500 GB	700 GB	100 GB	500 GB	700 GB
Gen 3 mode						128 GB	640 GB	1 TB
<b>Open system capacity (2:1 compression)</b>								
Gen 1 mode	120 GB	600 GB	120 GB	600 GB		120 GB	600 GB	
Gen 2 mode			200 GB	1 TB	1.4 TB	200 GB	1 TB	1.4 TB
Gen 3 mode						256 GB	1.28 TB	2 TB
<b>System z capacity (3:1 compression)</b>								
Gen 1 mode	180 GB	900 GB	180 GB	900 GB		180 GB	900 GB	
Gen 2 mode			300 GB	1.5 TB	2.1 TB	300 GB	1.5 TB	2.1 TB
Gen 3 mode						384 GB	1.92 TB	3 TB
<b>Characteristics</b>								
Long-length durability	300 full file passes							
Short-length durability	40,000 cycles at ambient							
Load/unload	20,000 load, unload and initialization cycles							
Estimated archive life	Up to 30 years							
Warranty	Limited lifetime: Free from manufacturing and material defects useful life of product							
<b>Physical characteristics</b>								
Dimensions	24.5 mm H x 109 mm W x 125 mm D (0.97 in. x 4.3 in. x 4.9 in.)							
Weight	239 g (8.4 oz)							
Tape Length	JA: 2001 Ft nominal (610 m) JB/JX: 2706 Ft nominal (825 m)							
<b>Operating environment</b>								
Temperature								
Relative humidity	16° to 32°C (60° to 90°F)							
Wet bulb maximum	23°C (73.4°F)							
<b>Safety characteristics</b>								
Toxicity	Nonhazardous to human health in anticipated use							
Flammability	Self-extinguishing per UL94							