

## The 3220 Magnetic Tape Subsystem

A high performance, highly reliable, 3420 compatible tape drive subsystem for attachment to System/370, Models 135-168. The 3220 complements and integrates the cost effectiveness of the Memorex® 3670/3675/3650 Disc Storage Subsystems by fulfilling user requirements for a total solution to information storage and retrieval.

Two models of the 3220 Magnetic Tape Drives are available. Each model contains the capability to record and/or read data at either 1600 or 6250 bpi, dual density, and fully automatic loading for operator efficiency, as standard. These models support data transfer rates of up to 781,250 or 1,250,000 bytes-per-second. A 3220 Magnetic Tape Subsystem consists of one to four 3221/3222 Magnetic Tape Controllers and up to sixteen 3226 or 3228 Magnetic Tape Drives in any combination. This high subsystem configuration capability allows the user to custom tailor his subsystem configuration to meet his needs.

The high transfer rates provided by the 3220 Magnetic Tape Subsystem more closely match those provided by Memorex Disc Drives. This makes the 3220 Magnetic Tape Subsystem a highly efficient vehicle for backing up disc drive storage.

High reliability, improved availability and high data integrity are significant themes of the 3220 Magnetic Tape Subsystem. Each 3226 or 3228 tape drive uses the advanced state of high reliability technology. Through the use of a single vacuum capstan and significant air bearings and cleaners in the tape path, more reliable tape motion and purging of the unit for contamination is insured during operation. The 3220 Controller / Drive Subsystem architecture allows for a parallel drive switch capability that will allow, in a multi-controller configuration, one controller to be placed in an inoperative state while allowing all tape drives to remain available to other controllers. Magnetic tape media integrity is maintained through the Memorex exclusive Tape Maintenance Monitor (TMM).

As a conversion convenience, each 3226 Magnetic Tape Drive may be site upgraded to a Model 3228 Magnetic Tape Drive on the user's site, in minimum time.

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## Standard Features

### Auto-Load

Reduced operational time can result through the tape drives automatic load/unload feature.

### Easy Protect

Manual intervention is reduced by the addition of a file protection key on the operator's panel making it possible to protect a data volume created on the previous run without removing a reel of tape from the tape drive.

### Tape Maintenance Monitor (TMM)

A data integrity alert which will provide your tape librarian with a signal that the condition of the media contained on the particular reel has deteriorated to the point of high error rates, allowing time to transfer the data to a new reel before the data has become unusable.

### Dual Density

Allows either 1600 bpi or 6250 bpi reading/recording to take place, all without operator intervention.

### High Performance

High data throughput is achieved through a tape motion speed of 125 or 200 inches per second (ips). This yields transfer rates of up to 781,250 bytes per second or 1,250,000 bytes per second.

## Configuration Flexibility

The user's capability to "custom tailor" subsystem's configuration to meet his needs is provided by the subsystem's architecture to allow up to four controllers, each with its own redundant channel capability, to service a group of up to sixteen 3226 and/or 3228 tape drives, in any combination.

## Subsystem Availability

In order to provide increased tape drive availability, in a multiple-controller subsystem, the 3220 Magnetic Tape Subsystem provides system access to all subsystem tape drives if one controller becomes inoperative.

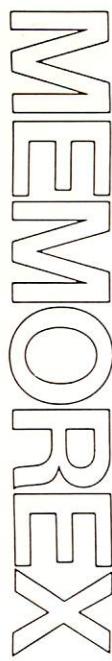
## Reduced Floor Space Requirements

The 3220 Magnetic Tape Controllers are designed to save floor space by allowing each controller cabinet to house one or two controllers. Considering service clearance requirements, the user can save up to 97 sq. ft. of floor space over competitive subsystems.



**3220 Magnetic Tape Storage Subsystem for System/370 Users**

MEMOREX



# 3220 Magnetic Tape Storage Subsystem for System/370 Users

## Product Specifications

	3226 Magnetic Tape Drive		3228 Magnetic Tape Drive	
	6250 BPI	1600 BPI	6250 BPI	1600 BPI
Recording Mode	GCR	PE	GCR	PE
Data Transfer Rate	781,250 BPS	200,000 BPS	1,250,000 BPS	320,000 BPS
Tape Speed	125 IPS	125 IPS	200 IPS	200 IPS
IBG Length	0.3 Inches	0.6 Inches	0.3 Inches	0.6 Inches
Rewind Time (2400 Ft. Reel)	50 Sec.	50 Sec.	45 Sec.	45 Sec.
Rewind/Unload Time (2400 Ft. Reel)	57 Sec.	57 Sec.	52 Sec.	52 Sec.
Autoload Time	7 Sec.	7 Sec.	7 Sec.	7 Sec.
Read Access Time	1.6 M Sec.	2.6M Sec.	1.1M Sec.	1.7M Sec.
Write Access Time	1.5 M Sec.	2.0M Sec.	1.0M Sec.	1.3M Sec.
Forward/Stop Time	1.1M Sec.	1.1M Sec.	0.08 Sec.	0.08M Sec.
Stop Time	1.5M Sec.	1.5M Sec.	1.1 Sec.	1.1M Sec.

### Memorex Product

3226 Magnetic Tape Drive

3228 Magnetic Tape Drive

3221 and/or 3222 Magnetic Tape Controller

### Serviceability

The 3220 Magnetic Tape Subsystem provides enhanced serviceability through these standard features:

1. In order to continuously monitor subsystem availability each controller receives and analyzes full 24 sense bytes from each magnetic tape drive.
2. A full series of comprehensive stand-alone and on-line diagnostics are available.
3. Each magnetic tape drive can be made available for servicing or PM without disturbing the other magnetic tape controllers or drives by the use of a Radial connection between each drive and each controller.

### Optional Features

#### 3220 Magnetic Tape Controllers

**Two Channel Switching**—Allows each controller to be attached to two separate channels, on one CPU, or on separate CPU's.

**16 Drive Expansion**—Allows subsystem capability, in multiple controller configuration, to service up to 16 tape drives.

**Programming Support**—The 3220 Magnetic Tape Subsystem is supported by all IBM System/370 Operating Systems which support the IBM 3803-2 and 3420-6/8 Magnetic Tape Drives.

### Product Attachments

Memorex 3221 and/or 3222 Magnetic Tape Controller  
Memorex 3221 and/or 3222 Magnetic Tape Controller  
IBM S/370-135—Selector Channel  
IBM S/370-135-II—Block Multiplexor Channel  
IBM S/370-138—Block Multiplexor Channel  
IBM S/370-145—Selector Channel  
IBM S/370-145-II—Block Multiplexor Channel  
IBM S/370-148—Block Multiplexor Channel  
IBM S/370-155—Block Multiplexor Channel  
IBM S/370-155-II—Block Multiplexor Channel  
IBM S/370-158—Block Multiplexor Channel  
IBM S/370-165—2860/2880 Block Multiplexor Channel  
IBM S/370-165-II—2860/2880 Block Multiplexor Channel  
IBM S/370-168—2860/2880 Block Multiplexor Channel

**Software Support**—The 3220 Magnetic Tape Drive Subsystem is supported by all IBM operating systems that support IBM 33830-II/3420-6/8 Magnetic Tape Subsystems. In addition, full on-line diagnose/prognose capability is available for use under the following operating systems:

OS/VS1	OS/VS2-SVS
DOS/VS	OS/VS2-MVS
OS/MVT	

Memorex supplied off-line diagnostics are also available.

**Pricing Policy**—Memorex will offer 90-day and extended term leases. Purchase agreements and separate maintenance contracts are available. Contact your local Memorex Sales Representative for more information.

**Delivery**—Orders for all 3220 Magnetic Tape Drive Subsystems will be accepted as of this product announcement date.

First customer shipment for the domestic marketplace will begin in December, 1977. Shipments outside the continental United States will commence in January, 1978.

Delivery schedules for specific on-order customer units will be confirmed within 60 days from the date of this announcement, at which time Memorex will begin normal product availability. Delivery commitments for on-order units will be made upon receipt of confirmed schedules in Memorex Branch Offices.

**Prerequisites**—IBM System/370 Model 135-168 with required channels and features.

One Memorex 3221 Magnetic Tape Controller.

### Customer Demonstrations and Tours

Memorex has an on-going program to support customer visits and demonstrations of equipment capability at Santa Clara, CA. For specific availability and locations for 3220 Magnetic Tape subsystem demonstrations via customer relations, contact your local Memorex Sales Representative.

### 3226 Magnetic Tape Subsystem

#### Publications and Marketing Support Information

3221/3222 Magnetic Tape Controller Specification Sheet

3226 Magnetic Tape Drive Specification Sheet

3228 Magnetic Tape Drive Specification Sheet

3221/3222/3226/3228 Product Description Manual

3220 Magnetic Tape Subsystem Slide Presentation

3220 Magnetic Tape Subsystem Planning Template

#### Field Upgrades

3226 to 3228 Magnetic Tape Unit Upgrade—2Q '78

6211/6212 Two Channel Switch Upgrade—1Q '78

6206/6207/6208 16 Drive Expansion Feature Upgrade—1Q '78

### Memorex Corporation

Equipment Products Group  
San Tomas at Central Expressway  
Santa Clara, California 95052