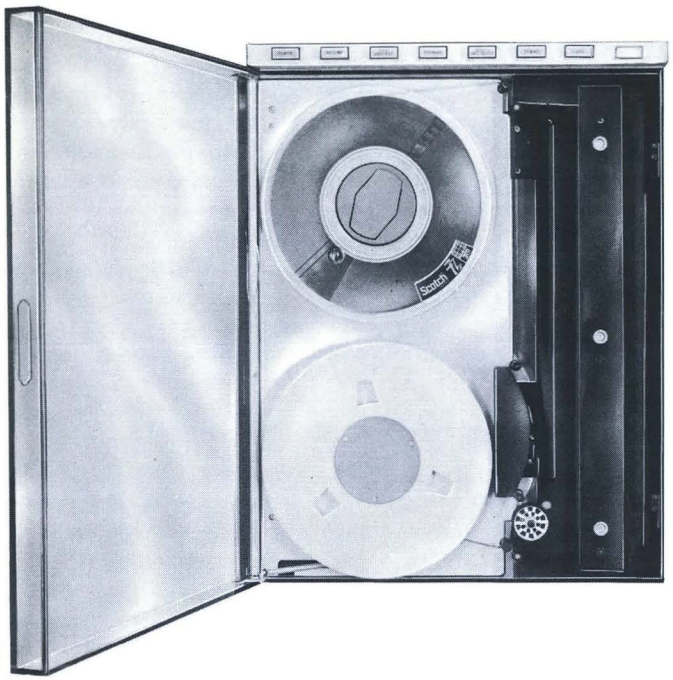

TPAC Magnetic Tape Systems

[75 ips]

PRODUCT DESCRIPTION

This series of low-cost magnetic tape subsystems and complete systems provides the user with an industry-compatible (75 ips) storage facility for the Perkin-Elmer family of 16- and 32-bit computer systems. The sequential access, high-density, bulk storage, magnetic tape "packages" are used extensively in business, industrial, instrumentation and data communication applications. These systems, used as low-cost alternatives to other mass storage media devices, provide data back-up, transportability, or retention storage devices.

The basic 75 ips, vacuum column magnetic tape subsystem incorporates a controller with the expansion capability to support from one to four transports. Each transport uses a 267mm (10.5 inch) reel which accommodates 732m (2400 feet) of magnetic tape. These systems and "packages" range from a single 75 ips, 800 cpi version to a 75 ips, dual density (800/1600 cpi) package which includes Direct Memory Access (DMA) control. With a single transport, data storage is over 20 million bytes at 800 cpi and over 40 million bytes at 1600 cpi.

FEATURES

- 75 ips, 9-track
- 800 or 800/1600 cpi recording density
- Read-after-write check
- Hardware CRC generation and check
- IBM and ANSI compatibility
- DMA support
- 60,000 character per second transfer rate — 800 cpi
- 120,000 character per second transfer rate — 1600 cpi
- 1 x 4 controller

OPERATIONAL CHARACTERISTICS

The magnetic tape controllers can interface up to four read-after-write magnetic tape transports and contain the logic to provide error detection and status condition. Operation is via the high-speed direct memory access port. Peak data transfer rates of 60,000 characters per second (800 cpi) and 120,000 character per second (1600 cpi) are attainable. Via program control, various hardware functions are exercised including interrupt, read, write, rewind, skip file, write file mark, and clear operations.

The controller responds to four different addresses, one for each of the four tape transports. An interrupt from any one of the four transports is queued and responded to by the assigned address interrupt routine for the interrupting source. The controller accepts a series of transport commands and responds with specific transport status. Error status is provided for write overflow, read error during a write operation, a single channel dropout, vertical parity error, and a false preamble/postamble detection. Device status is provided for the file mark sense, load point sense, tape sense, tape not in motion, end of record, and device unavailable.

TRANSPORT

The tape transports are highly reliable: the error rate is one in 2 x 10^8 bits transferred. The units have a tape speed of 75 inches per second forward and 200 inches per second for rewind. The transport design ensures IBM and ANSI compatibility. Easily accessible up-front controls are provided for operator convenience and additional inside controls are provided for maintenance purposes.

The transports have a single capstan drive mechanism which maintains highly accurate tape speeds with a low-inertia DC servo motor. Motor speed stability is the result of a highly tuned analog velocity feedback network that causes immediate corrective response if an irregularity is present.

Write deskew is accomplished digitally by timing the data written to minimize gap scatter and other static or dynamic skew effects. Read-after-write and control circuitry is housed in the transport. Critical turn-on and turn-off of write and erase currents are precisely controlled to prevent recording spurious signals.

Manual control is provided for load point, on/off line, rewind, and power on/off. The maintenance controls located within the unit are for forward, reverse, and stop.

FORMATTER

The "phase-encoder" formatter (1600) cpi only) acts as the intermediary between the tape transport and the controller. The formatter contains all the logic for generation of preamble, postamble, phase encoded data, file mark patterns and recovery of read data to include error and file mark detection and error correction. In addition, the formatter features precise timing circuitry for the generation of IBM-compatible interblock gaps for correct head positioning between records, automatic recording of the phase mode identification burst prior to recording the first record on a tape, automatic testing and identification of the phase mode identification burst on a read operation, and continuous status monitoring and recording.

SOFTWARE

The 75 ips magnetic tape systems and subsystems are fully supported by the wide range of standard Perkin-Elmer software: the powerful OS/16 and OS/32 operating systems, and high-level languages such as FORTRAN, COBOL, RPG II, and BASIC II.

SPECIFICATIONS

Features

	TPAC 758/16	TPAC 758/32	Expansion Transport	TPAC 750/16	TPAC 750/32	Expansion Transport
Characters per inch	800 cpi			800/1600 cpi (dual)		
Recording mode	NRZI			NRZI/Phase Encoded		
Transfer rate	60,000 cpi			60,000/120,000 cpi		
DMA capability	16-bit	32-bit		16-bit	32-bit	
Number of tracks	9					
Transport read/write speed	75 ips					
Transport rewind speed	200 ips					
Transport start/stop time	5.3 milliseconds					
Inter-record gap	19mm (.75 inch)					
Recording head	Dual Gap					
Error rate	2 in. 10^8 bits transferred					
Type of reel	Hub, 267mm (10.5 inches)					
Tape capacity	732 meters (2,400 feet) length 12.7mm (.5 inch) width 1.5 mil thickness					

Dimensions

	800 CPI	800/1600 CPI
Tape Transport Height Width Depth	 610mm (24 inches) 483mm (19 inches) 483mm (19 inches)	 610mm (24 inches) 483mm (19 inches) 483mm (19 inches)
Formatter		133mm (5.25 inches) 483mm (19 inches) 533mm (21 inches)
Controller	381mm x 381mm (15 inches x 15 inches) PCB	178mm x 381mm (7 inches x 15 inches) PCB
DMA Controller	381mm x 381mm (15 inches x 15 inches) PCB	381mm x 381mm (15 inches x 15 inches) PCB
Weight	215.5kg (475 pounds)	238kg (525 pounds)

Power

Tape Transports (800 and dual)	115 VAC, 8.5 amps single phase, 47 to 63Hz. 230 VAC, 4.2 amps single phase, 47 to 63Hz.	
Formatter	115 VAC, 3 amps single phase, 47 to 63Hz. 230 VAC, 1.5 amps single phase, 47 to 63Hz.	
Controller	+5VDC, 3.5 amp	+5VDC, 1.8 amp
DMA Controller	+5VDC, 2.3 amp for (n)/16	+5VDC, 6 amp for (n)/32

Environmental

Temperature	16° to 32°C operating (60° to 90°F)
Humidity	20-80% (no condensation) operating
Altitude	0-1524m (0-5000 ft) operating

PRODUCT NUMBERS

800 cpi

M46-519 Magnetic tape interface. Interface handles up to four 800 cpi, 75 ips transports. Includes hardware cyclic redundancy check and read-after-write check.

M46-490 9-track, 800 cpi, 75 ips magnetic tape system. Includes a vacuum column continuous read-after-write tape transport, cabinet, cables and an interface capable of handling up to four tape drives. 115VAC, 50/60Hz.

M46-491 9-track, 800 cpi, 75 ips magnetic tape expansion transport for use with the M46-490 system. Includes cabinet, 115VAC 50/60Hz.

M46-492 Same as the M46-490 except the system is for 230VAC, 50/60Hz operation.

M46-493 Same as the M46-491 except for 230VAC, 50/60Hz operation.

M46-532 TPAC 758/16. Magnetic tape system which includes interface cables, cabinet transport and DMA controller for Perkin-Elmer 16-bit CPUs (except 5/16). This system is 9-track, 75 ips, 800 cpi, 115VAC 50/60Hz.

M46-533 Same as M46-532 except for 230VAC 50/60Hz.

M46-534 TPAC 758/32. Magnetic tape system which includes interface, cables, transport cabinet, and DMA controller for all Perkin-Elmer 32-bit CPUs (except 3240). This system is 9-track, 75 ips, 800 cpi, 115VAC 50/60Hz.

M46-535 TPAC 758/32. Same as M46-534 except for 230VAC 50/60Hz.

1600 cpi

M46-520 Magnetic tape interface consisting of a controller and formatter. This interface combo will support up to four 1600 cpi transports and supports read-after-write check. 115VAC 50/60Hz.

M46-521 Same as M46-520 except for use on 230VAC 50/60Hz.

M46-494 9-track, 800/1600 Dual Density, 75 ips magnetic tape system. Includes a vacuum column continuous read-after-write tape transport, NRZI/PE formatter, cabinet, cables, and a controller capable of handling up to four drives. 115VAC 50/60Hz.

M46-495 9-track, 800/1600 Dual Density, 75 ips magnetic tape expansion transport for use with M46-494. Includes cabinet and cables. 115VAC 50/60Hz.

M46-496 Same as M46-494 except for 230VAC 50/60Hz.

M46-497 Same as M46-495 except for 230VAC 50/60Hz.

M46-536 TPAC 75D/16. Magnetic tape system which includes interface, cables, transport, cabinet and DMA controller for all Perkin-Elmer 16-bit CPUs (except 5/16). This system is 9-track, 75 ips, Dual Density, 115VAC 50/60Hz.

M46-537 Same as M46-536 except for 230VAC 50/60Hz.

M46-538 TPAC 75D/32. Magnetic tape system which includes interface, cables, transport, cabinet and DMA controller for all Perkin-Elmer 32-bit CPUs (except 3240). This system is 9-track, 75 ips, Dual Density, 115VAC 50/60Hz.

M46-539 Same as M46-538 except for 230VAC 50/60Hz.

RELATED DOCUMENTATION

29-556	Dual Density Formatter Manual
29-557	Dual Density Drive Manual
29-558	800 cpi Drive (75 ips) Maintenance Manual
29-559	Dual Density Drive Maintenance
29-560	Dual Density Programming Manual

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