Computer Special Systems

decsystem10

OPTION BULLETIN
Section 5.2-12

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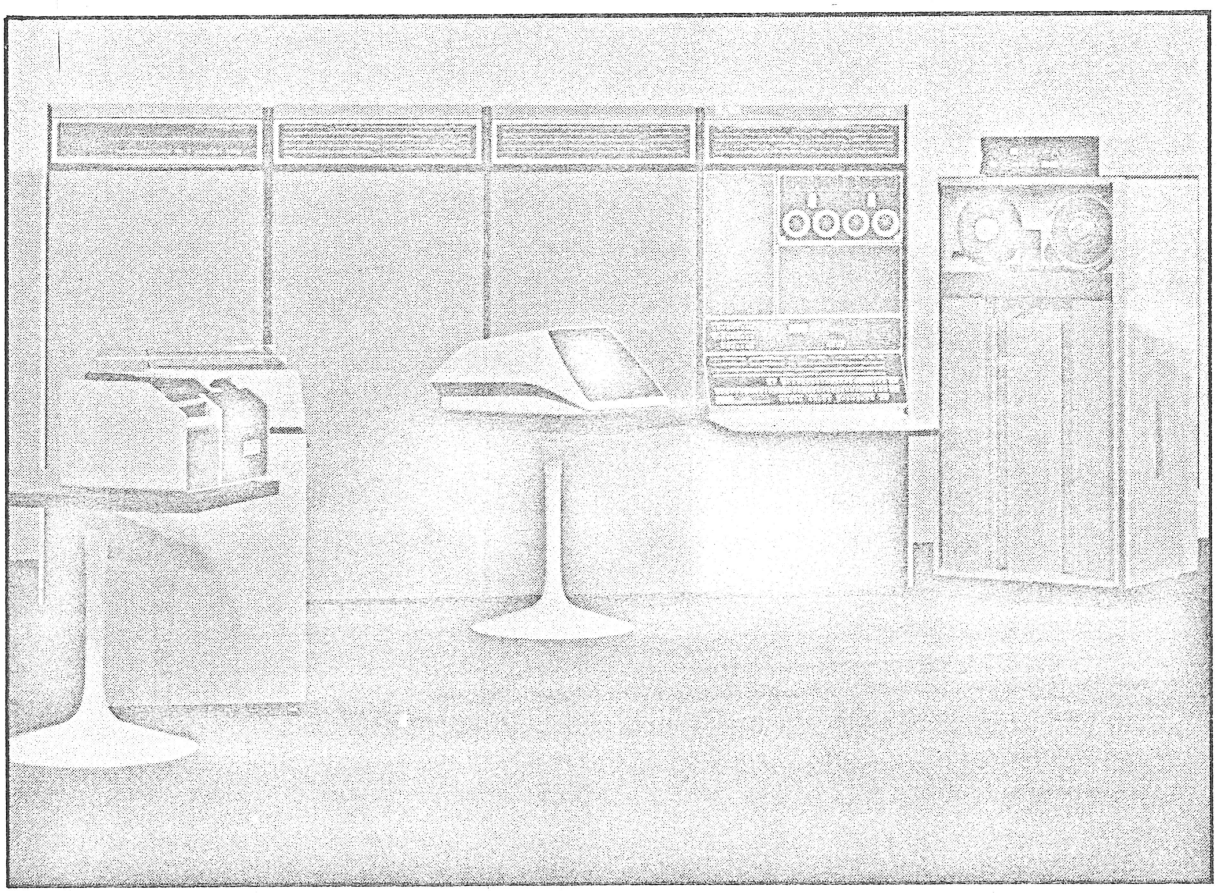
TC10 DECsystem-10 Magnetic Tape Control



FEATURES

- DUAL–DENSITY SYSTEM (NRZI and PHASE–ENCODED)
- HIGH–SPEED TRANSFERS (150 ips)
- INDUSTRY COMPATIBLE FORMATS
- EXPANDABLE CONFIGURATIONS
- 800/1600 CPI DENSITY
- DECsystem-10 MONITOR SUPPORT
- 9–TRACK RECORDING
- DIAGNOSTIC SOFTWARE
- MAINTENANCE CONTRACTS

digital

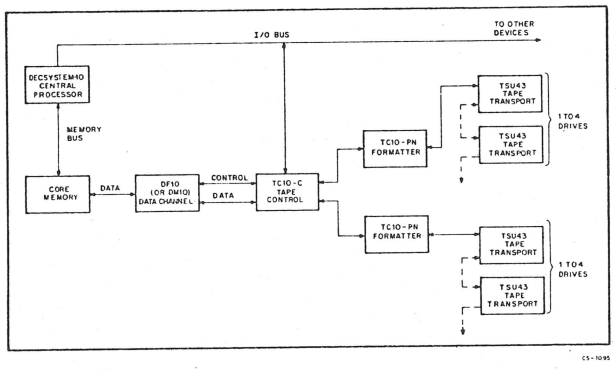
GENERAL

For the first time, DECsystem-10 users are offered a high-speed, high-performance magnetic tape system capable of both phase-encoded and NRZI recording. The TC10 Magnetic Tape System provides control of up to eight dual-density (1600 cpi PE or 800 cpi NRZI, 9-track) transports operating at 150 ips. Fully-supported software is included, providing PDP-10 users transfer speeds of 240K or 120K bytes per second (60K or 30K words per second.

The TC10-C Controller interfaces one or two formatters to a DECsystem-10 data channel. Each formatter handles up to four magnetic tape drives.

FUNCTIONAL DESCRIPTION

In IBM-Mode read operations the TC10-C assembles four 8-bit bytes from the Bucode Formatter into the most significant 32 bits of a PDP-10 word. In write operations, each PDP-10 word is unpacked into four bytes. A core-dump mode is available, wherein a 36-bit PDP-10 computer word is packed into five magnetic-tape bytes. The TC10-C also performs: function decoding; formatter command strobe timing; status generating, checking, and storage; PDP-10 data channel interface and control; and PDP-10 I/O Bus interface and priority interrupt control. The read/write data is double-buffered in the TC10-C to allow the unit to be multiplexed through a DF10 Data Channel and an MX10 Memory Data Multiplexer in large, complex, real-time, data handling systems.



Typical System Configuration

SYSTEM PREREQUISITE

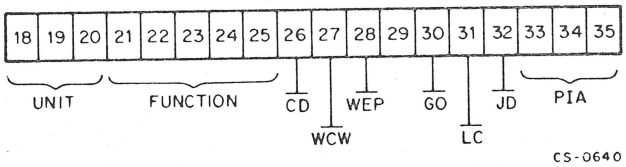
The tape system requires either a DF10 (or DM10) Data Channel to transfer data between the tape control and PDP-10 core memory. The computer program initializes the TC10-C tape control and data channel device command list in core. Data is then transferred without program intervention until the transfer is terminated. At this time, the TC10-C signals the processor that the operation has ended.

COMMAND STRUCTURE

An executive program must control the operation of the data channel and the magnetic tape control. All data transfer operations and Space-N record operations require the data channel. Space To End Of File, Write EOF, Erase, Rewind and Rewind Unload, Clear, and Set Job Done When Transport Ready commands do not require the data channel.

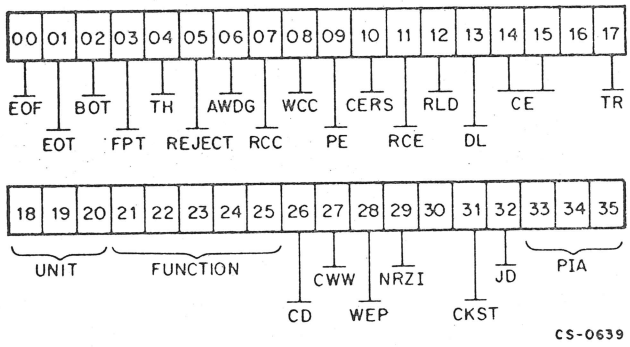
CONO INSTRUCTION

The following is the CONO format:



CONI INSTRUCTION

The following is the CONI format:



DATAO INSTRUCTION

A data channel Initial Address (INAD) must be loaded into the TC10-C INAD Register before any operation requiring the data channel can be initiated. The initial address may be any even address in core memory between locations 20_8 and 776_8. This initial control word address pointer may be loaded into the TC10-C by means of the DATAO instruction. The address is in bits 27 through 35 (Bit-35 is always 0).

DATAI INSTRUCTION

The DATAI instruction reads the contents of the INAD register into the processor.

DIAGNOSTIC SOFTWARE

The TC10-C Diagnostic Test Program provides logic exercisers to demonstrate the operational capability of the tape control unit. The program can also be used to generate specific command sequences to aid in locating hardware failures.

MODELS*

System component designations are as follows:

TC10-CC (CD) — Controller, 1 Formatter, 2 Drives

TC10-CE (CF) — Controller, 2 Formatters, 5 Drives

TC10-PN — Second Formatter

TSU43-A (B) — Additional Drives

AVAILABILITY

The TC10 System is a product of Digital's Computer Special Systems group and is available, with new installations or for add-on to existing compatible systems, from engineering and manufacturing facilities in Maynard, Massachusetts; Santa Ana, California; Kanata, Ontario, Canada; Reading, England; Paris, France; Munich, West Germany and Sydney, Australia. Main offices are at 146 Main Street, Maynard, Massachusetts 01754.

SPECIFICATIONS**

TC10-C (CONTROLLER)

MECHANICAL:	
Logic Housing	Cabinet
Dimensions	69 in. h, 22 in. w, 29 in. d
Weight	450 lb (approx)
Logic Panels	Three Type H911, plus Indicator Panel
Interconnections	PDP-10 I/O Bus, Data Channel Control, Data Channel Bus, Formatter(s)
ELECTRICAL:	
Input Power	115/230 Vac ± 10%, Single-Phase
Line Frequency	60 or 50 Hz
Internal Logic Power	+5 Vdc, −15 Vdc, +6.8 Vdc (Indicator Lamp Supply)
Module Type	M-Series
Logic	Integrated Circuitry
OPERATIONAL:	
Transfer Modes	
Control	Program Control (I/O)
Data	Data Channel (DCH)
Expansion	
Formatters	2 max
Drives	8 max (4 per formatter)
Software	
Diagnostics	EXEC and USER modes
Handler	DECsystem-10 Monitor (Version 506)
Bytes per PDP-10 Transfer	
Read/Write	4-bytes/word
Core Dump	1 word/5 bytes
Transfer Speed	
NRZI (800 cpi)	120K bytes/sec (30K words/sec)
PE (1600 cpi)	240K bytes/sec (60K words/sec)
Simultaneous Operations	Any operation at a given transport can occur simultaneously with rewind on the other transports.
OPTION DESIGNATIONS:	
TC10-CA	60 Hz Version
TC10-CB	50 Hz Version

*Designations in parentheses are 50 Hz versions.

**Specifications are subject to change without notice.

TC10-PN

MECHANICAL:	
Enclosure	Rack-mounted
Dimensions	5-1/4 in. h, 19 in. w, 24 in. d
Weight	25 lb
Front Panel Access	Controls, Indicators
ELECTRICAL:	
Input Power	115/230 Vac ± 10%, Single-Phase
Line Frequency	60 or 50 Hz
Logic	Integrated Circuitry
OPERATIONAL:	
Formatting	NRZI or Phase-Encoded
Expansion	Up to 4 drives
Switch Selections	
Unit Select	Any number (0, 1, 2, 3) assigned to any drive (A, B, C, D)

TSU-43

MECHANICAL:	
Enclosure	Cabinet
Dimensions	67 in. h, 30.5 in. w, 29.5 in. d
Weight	900 lb (approx)
Reel Size	10.5 in. or 8.5 in.
Tape Length	2400 ft or 1200 ft
Tape	IBM Series/500 Dynexcel, IBM heavy duty or equivalent
ELECTRICAL:	
Input Power	208/230 Vac, Three-Phase
Line Frequency	60 or 50 Hz
OPERATIONAL:	
Tape Speed	150 ips
Packing Density	
NRZI	800 cpi
PE	1600 cpi
Tracks Recorded	9
Speed Variation	± 3%
Rewind Speed	500 ips
OPTION DESIGNATIONS:	
TSU43-A	60 Hz Version
TSU43-B	50 Hz Version