

800 CPI Magnetic Tape



- 45 IPS 9-Track
- Read-After-Write Check
- Hardware CRC Generation and Check
- ANSI Compatibility
- 36,000 Bytes/Second Transfer Rate
- 1 X 4 Controller

GENERAL DESCRIPTION

The INTERDATA 9-TRACK 800 CPI MAGNETIC TAPE SYSTEM provides a low-cost, sequential access, bulk storage facility for the INTERDATA family of computers. The tape transport is IBM code compatible, conforms to ANSI standards and has a data transfer rate of 36,000 characters per second. Simultaneous read or write and rewind are permitted in multiple transport configurations to minimize delays. Extensive hardware error checking by the controller and transport allows complete data transfer monitoring for use in error detection and recovery programs.

OPERATIONAL CHARACTERISTICS

The magnetic tape controller is capable of controlling up to four read-after-write magnetic tape transports and contains the logic to provide NRZI formatting, error detection and status condition. Operation may be via block mode transfer over the multiplexor bus or high-speed Selector Channel. Peak data transfer rates of 36,000 bytes per second are possible. Program control is exercised over various hardware functions including interrupt, read, write, file mark, rewind, skip file and clear operations. The controller is completely self-contained

on a single 15-inch printed circuit board and employs the latest state of the art LSI techniques.

The controller responds to four different addresses, one assigned to each of the four possible tape transports. An interrupt from any one of the four transports is queued and responded to by the proper interrupt address for the interrupting source.

The controller accepts commands and responds with specific transport status. Error status is provided for write overflow, read error during a write operation, cyclic redundancy character check error during read operations, vertical parity error and longitudinal redundancy check error.

Condition status is provided for file mark sense, load point sense, tape not in motion, end of record and device unavailable.

The Tape Transport is a highly reliable unit having an error rate of one in 5×10^7 bytes transferred. This unit provides a tape speed of 45 inches per second in a forward direction and incorporates many "extras" to ensure IBM and ANSI compatibility as well as reliability and maintainability. Easily accessible "up-front" controls are provided for operator convenience and additional "inside" controls are provided for maintenance purposes.

The information contained herein is intended to be a general product description and should not be utilized as an explicit specification for such product.

The transport incorporates toggle action, automatic reel seating, hold-down hubs and automatic photo-electric controlled retracting buffer arms. Head and spring-loaded guide geometry are designed to minimize dynamic skew difficulties caused by normal tape edge irregularities. Constant tape tension is carefully controlled to maintain IBM standards and minimize tape reel interchange hazards that could arise from tape stretching or cinching.

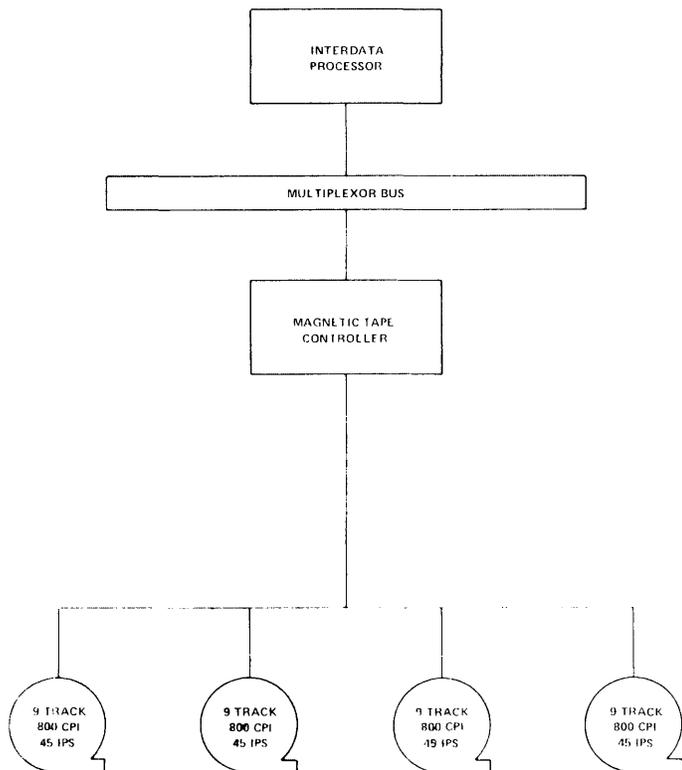
The transport also employs a single capstan drive mechanism. This mechanism maintains a highly accurate tape speed by using a low-inertia, DC servo motor. The motor speed stability is the result of a highly-tuned, analog-type velocity feedback network which causes immediate corrective response if an irregularity should be present.

Read, write, read-after-write and control electronics are housed in the transport. Write deskew is accomplished digitally by timing the data written to minimize gap scatter and other static and dynamic skew effects. Critical turn-on and turn-off of write and erase currents are expertly controlled to prevent spurious signals from being recorded.

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

Complete software support is provided for the MAGNETIC TAPE SYSTEM in INTERDATA's versatile line of operating systems; including the Basic Operating Software System (BOSS), Disc-Operating System (DOS), and Real Time Operating System (RTOS).

FUNCTIONAL BLOCK DIAGRAM



SPECIFICATIONS

CONTROLLER

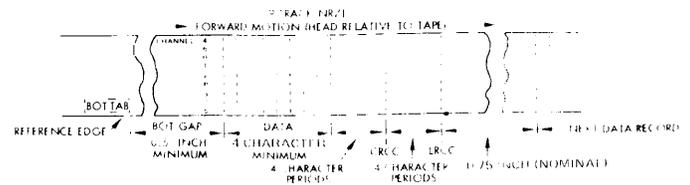
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|---------------------------|--|
| <i>Power Requirements</i> | + 5 VDC, 3.5 amperes |
| <i>Environmental</i> | 0° - 50° C operational -40° — 85° C storage 0 - 90% humidity (without condensation) |
| <i>Dimensions</i> | 15" x 15" Printed Circuit Board |
| <i>Weight</i> | 2 Pounds |
| <i>Commands</i> | Enable Interrupt Disable Interrupt Disarm Read Write Write File Mark Rewind Skip File Forward Skip File Reverse Clear |
| <i>Record Size</i> | Variable, 4 character minimum |

TAPE TRANSPORT

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|--------------------------------------|---|
| <i>Number of Tracks</i> | 9 |
| <i>Tape Speed</i> | |
| <i>Write</i> | 45 inches per second synchronous |
| <i>Rewind</i> | 200 inches per second |
| <i>Instantaneous variation</i> | ± 3% (maximum) |
| <i>Long Term variation</i> | ±1% Forward, ±3% Reverse |
| <i>Start/Stop time (nominal)</i> | 8 milliseconds |
| <i>Start/Stop distance (nominal)</i> | .19 ± .02 inches |
| <i>Inter-Record gap</i> | .75 inch nominal |
| <i>Recording mode</i> | 9-Track, NRZI, IBM and ANSI compatible |
| <i>Recording Head</i> | Magnetic dual gap with erase head |
| <i>Packing Density</i> | 800 Characters per inch |
| <i>Tape Format</i> | IBM Compatible |
| <i>Transfer Rate</i> | 36,000 bytes per second maximum |
| <i>Type of Reel</i> | Hub mounting, 10½" diameter maximum |
| <i>Tape Capacity</i> | 2400 feet, 0.5 inch wide, 1.5 mil thick, approx. 23,000,000 bytes |
| <i>Error Checks</i> | Hardware Read-after-write |

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|--------------------------|--|
| <i>Error Rate</i> | 1 error in 5×10^7 bytes transferred |
| <i>Environmental</i> | 2' - 50° C operational 15 - 95% Relative humidity (without condensation) |
| <i>BOT-EOT Detection</i> | Photo-electric IBM compatible |
| <i>Dimensions</i> | 24 inches high 19 inches wide 16.5 inches deep (13 inches deep from mounting surface) |
| <i>Weight</i> | 85 pounds |
| <i>Power</i> | 115/230 VAC 50/60 300 Watts 48 - 400 HZ |

TAPE FORMAT



INTERDATA PRODUCT NUMBERS

- M46-470 Magnetic Tape Transport Interface. Interface handles up to four 800 cpi Transports. Includes hardware Cyclic Redundancy Check and Read-After Write Check. Interface is one 15" Board.
- M46-460 Magnetic Tape Transport without Interface. IBM compatible 9-track drive, 800 cpi, 45 ips, Read-After-Write. For 115 VAC 50/60 Hz operation.
- M46-461 Magnetic Tape Transport without Interface. IBM compatible 9-track drive, 800 cpi, 45 ips, Read-After-Write. For either 230 VAC 50/60 Hz operation.
- M46-471 Cable A for controller-Magnetic Tape transport connection.
- M46-472 Cable B for controller-Magnetic tape transport connection.

NOTE:

1. Cables are to be ordered according to the following formula. For an expansion order to an already existing system the total number of transports must be calculated.

| Number of Magnetic Tape Transports | Required Cables |
|------------------------------------|--------------------------|
| 1 | 1 each M46-471 |
| 2 | 2 each M46-471 |
| 3 | 1 each M46-471 & M46-472 |
| 4 | 2 each M46-472 |

2. The Magnetic Tape Transport may be mounted in the M49-004 System Cabinet which is optionally available.

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