ESDI Disk Controller

WD1007V-SE1/SE2

Features

- ESDI support:
  —56-bit ECC scheme
  —Data transfer rate of 15 Megabits per second
  —Optional on-board BIOS with low-level formatting and surface analysis routines and drive parameter tables
  —Able to read ESDI defect list
- 100% compatible with IBM* PC-AT* port and system BIOS
- Supports 1:1 interleave
- WD42C22A fully integrated Winchester controller
- 32 KByte x 8 RAM for look-ahead track caching
- Optional Floppy Disk Controller supports high capacity 5.25 and 3.5 inch drives
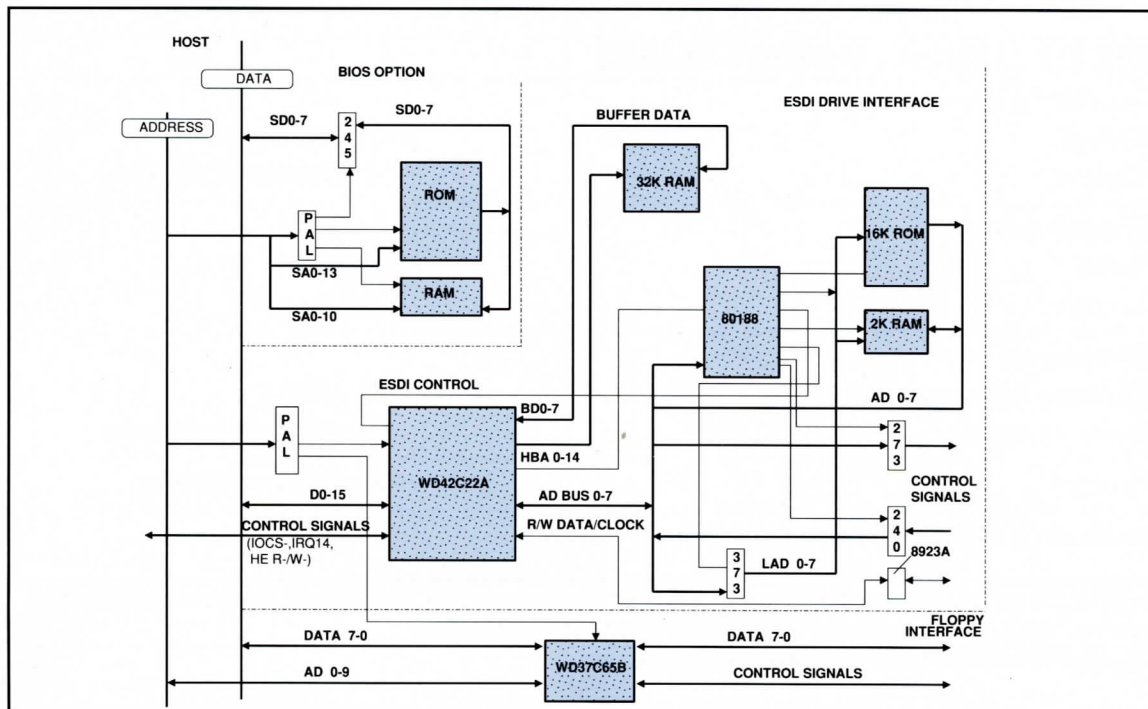- Small form factor (3.85 x 8.3 inches)

Benefits

- Provides significantly improved data integrity
  —Interfaces with all types of ESDI drives without modifying the system BIOS
  —Faster, more reliable system integration
- Ensures operation with all application programs, MS-DOS* and OS/2*
- Improves data retrieval rate for optimal system performance
- Provides leading edge technology, highest integration with low power consumption and enhanced reliability
- Greatly enhances sustained data transfer rates
- Offers flexibility in configuration
- Fits all chassis types, including low profile chassis

Description

The WD1007V family of storage controllers provides maximum performance and flexibility for both host and drive interfaces. The 1007V architecture interfaces two ESDI Winchester Disk drives with the IBM PC/AT and compatibles. Look-ahead caching and 1:1 interleaving significantly improve data throughput and reduce disk access time. Support for two 5.25 or 3.5 inch floppy disk drives is optional.

The fixed disk section of the module includes the WD42C22A Winchester Disk Controller, the 80188 Control Processor, ESDI interface drivers and receivers, a system address and control decoder and a 32K x 8 RAM for sector buffering. The module design allows installation of an optional BIOS ROM with

WD1007V-SE2 BLOCK DIAGRAM

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ESDI Disk Controller

overlay RAM for special applications and support of non-standard drives.

The optional floppy disk section includes the standard WD37C65B Floppy Disk Controller.

WD42C22A Winchester Disk Controller

The 84-pin WD42C22A is an advanced VLSI device that provides high performance control of the Winchester disk drive and the data buffer. It also provides a direct connection to the host's address, data and control signals. The major features of the device are:

- Multiple sector read/write commands with 1:1 interleave
- ECC generation and error detection
- Programmable format and error recovery algorithms

Control Processor

The Control Processor is a 16-bit microcontroller (type 80188) that operates with the WD42C22A to facilitate processing of disk commands. It manages the sector buffer, provides logical-to-physical translation of sector addresses, helps in error recovery, and performs module diagnostics. The control processor support logic includes 16 KBytes of external PROM and 2 KBytes of RAM.

WD37C65B Floppy Disk Controller

The optional WD37C65B Floppy Disk Controller is a standard VLSI device that supports both single and double density diskette formats and provides data and control interfaces for the host and the floppy drive. The unit's major features are:

- Multiple sector and track read/write commands
- Host DMA and programmed I/O data transfers
- High performance digital data separation

BIOS PROM/RAM Option

The BIOS generates drive parameter information by using the ability of the ESDI drive to present actual drive characteristics to the controller. The overlay RAM contains the Winchester drive's parameters thus allowing the WFDC to interface with all types of ESDI drives without modifying the system's BIOS.

SPECIFICATIONS - WD1007V-SE1/SE2

Power Requirements	
Voltage	+5VDC/+12VDC
Current	1.2 Amperes/0.02 Amperes
Physical Dimensions	
Width	3.85 inches
Length	8.3 inches
Environmental	
Operating Temperature	0° C to 55° C
Relative Humidity	8% to 85% non-condensing
Warranty	One year parts and labor

Specifications subject to change without notice.

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