# TECHNICAL SPECIFICATIONS

# IDE 15 SERIES FLASH DRIVE 2.5”

**7P064 IDE 1511C25 64MB**
**7P128 IDE 1511C25 128MB**

## Description

Models 7P064IDE15 through 7P128IDE15 are 2.5” Flash IDE drives, built with Intel StrataFlash™ components. They are non-volatile, mass-memory storage systems, ideal for mobile computing and industrial applications. Our flash drives fit into standard disk drive bays, and use the industry standard IDE interface. They can be used as a replacement for standard 2.5” magnetic disk drives with IDE interfaces. They are lightweight, low profile devices. Because there are no moving parts, our IDE15 drives have an inherent high shock resistance, and are able to perform reliably under harsh environmental conditions.

## System Features

- MS DOS compatible
- IDE compatible
- 5V - only supply
- Low power consumption
- Automatic error detection and correction
- Shock/vibration resistant

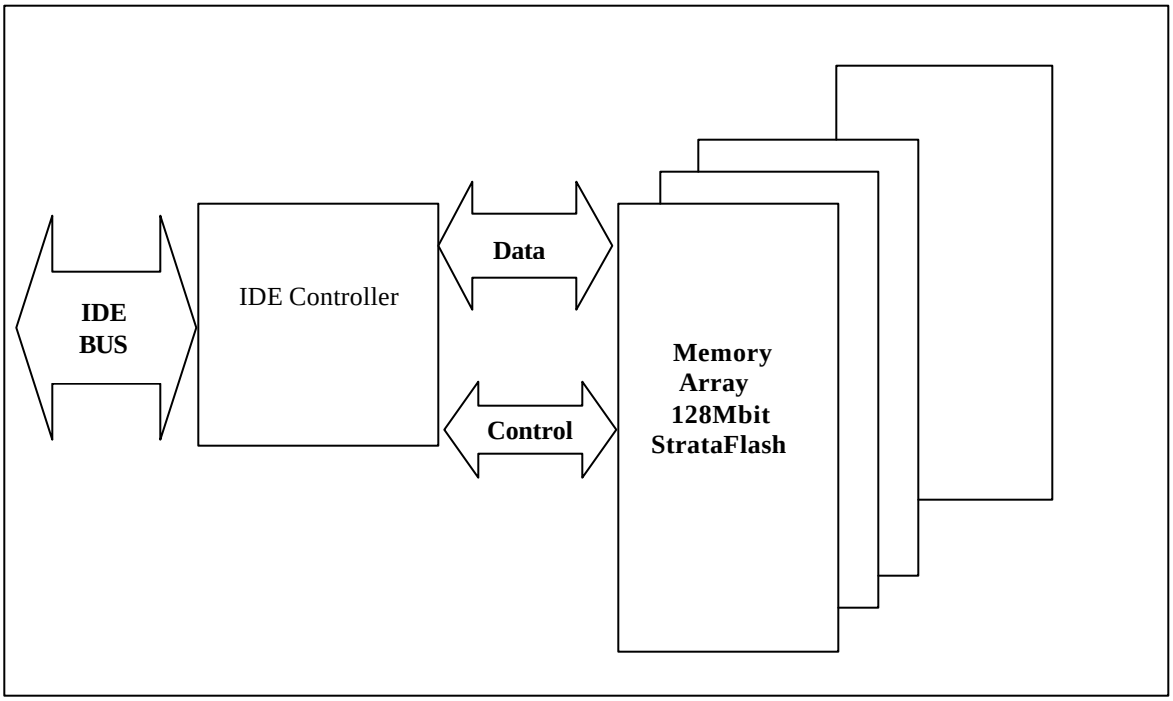



**Figure 1: Card Block Diagram**

## Interface Description

The IDE15 flash drive complies with the ATA-3 standard.

Supported modes:

- PIO mode 1, 2, 3 and 4

Related document: **American National Standard X3T9.2 AT Attachment Interface document**

## Drive Line Up

| Drive type | Drive density | Capacity (3) | Total sectors/ card (2) | Sectors / track | Number of heads | Number of cylinders |
|---|---|---|---|---|---|---|
| 7P064IDE1503C25 | 64MB | 62,685,184 | 122,976 | 18 | 14 | 488 |
| 7P128IDE1503C25 | 128MB | 123,979,776 | 242,928 | 18 | 14 | 964 |

Notes: 1. Total tracks = number of heads × number of cylinders.
2. Total sectors/card = sectors/track × number of heads × number of the cylinders.
3. It is the logical address capacity including the area which is used for file system.

## Card Pin Assignment

| | True IDE mode | | | True IDE mode | |
|---|---|---|---|---|---|
| **Pin NO.** | **Signal name** | **I/O** | **Pin NO.** | **Signal name** | **I/O** |
| 1 | -RESET | I | 2 | GND | Ground |
| 3 | D7 | I/O | 4 | D8 | I/O |
| 5 | D6 | I/O | 6 | D9 | I/O |
| 7 | D5 | I/O | 8 | D10 | I/O |
| 9 | D4 | I/O | 10 | D11 | I/O |
| 11 | D3 | I/O | 12 | D12 | I/O |
| 13 | D2 | I/O | 14 | D13 | I/O |
| 15 | D1 | I/O | 16 | D14 | I/O |
| 17 | D0 | I/O | 18 | D15 | I/O |
| 19 | GND | Ground | 20 | key | *removed* |
| 21 | Reserved | NC | 22 | GND | Ground |
| 23 | -IOW | I | 24 | GND | Ground |
| 25 | -IOR | I | 26 | GND | Ground |
| 27 | WAIT | O | 28 | CSEL | I |
| 29 | reserved | NC | 30 | GND | Ground |
| 31 | IRQ | O | 32 | -IOCS16 | O |
| 33 | A1 | I | 34 | -PDIAG | I/O |
| 35 | A0 | I | 36 | A2 | I |
| 37 | -CE1 | I | 38 | -CE2 | I |
| 39 | -DASP | I/O | 40 | GND | Ground |
| 41 | Vcc | power | 42 | Vcc | power |
| 43 | GND | Ground | 44 | reserved | NC |
| 45 | key | *removed* | 46 | key | *removed* |
| 47 | GND | Ground | 48 | -SLAVE | I |
| 49 | -SLAVE | I | 50 | GND | Ground |

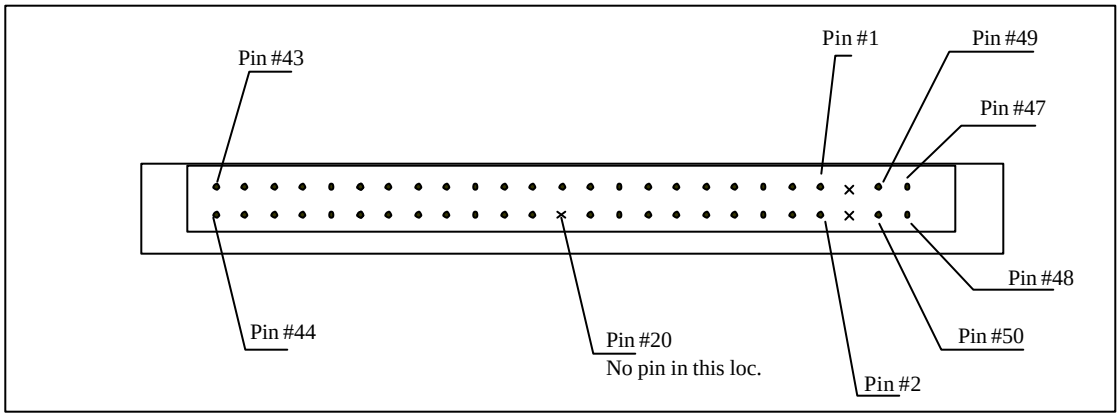



**Figure 2: Pin Configuration**

## Drive Pin Explanation

**Address bus (A0 to A2: input):** In True IDE Mode only A [2 : 0] are used for selecting the one of eight registers in the Task File.

**Data bus (D0 to D15: input/output):** Data bus is D0 to D15. D0 is the LSB of the Even Byte of the Word. D8 is the LSB of the Odd Byte of the Word.

**Card enable (-CE1, -CE2: input):** In True IDE Mode -CE2 is used for select the Alternate Status Register and the Device Control Register while -CE1 is the chip select for the other task file registers.

**I/O read (-IORD: input):** -IORD is used for control of read data in the Task File area.

**I/O write (-IOWR: input):** -IOWR is used for control of data write in the Task File area.

**Interrupt request (IRQ: output):** In True IDE Mode the signal is the active high Interrupt Request to the host.

**-IOIS16: (output)** In True IDE Mode this output signal is asserted low when this device is expecting a word data transfer cycle.

**Disk active/slave present (-DASP: input/output):** In True IDE Mode -DASP is the Disk Active/Slave Present signal in the Master/Slave handshake protocol.

**Reset (-RESET: input):** By assertion of the RESET signal, all registers of this card are cleared and the RDY/-BSY signal turns to high level. In True IDE Mode -RESET is the active low hardware reset from the host.

**Wait (-WAIT, IORDY: output):**. In True IDE Mode this output signal may be used as IORDY. As for this controller, this output is high impedance state constantly.

**Pass diagnostic (-PDIAG: input/output):**. In True IDE Mode, -PDIAG is the Pass Diagnostic signal in the Master/Slave handshake protocol.

**Card select (-CSEL: input):** This internally pulled up signal is used to configure this device as a Master or a Slave when configured in the True IDE Mode. When this pin is grounded, this device is configured as a Master. When the pin is open, this device is configured as a Slave.

**Master/Slave configuration:** The drive can be installed as a Primary or Secondary drive, as either a Master or a Slave. If the flash drive is being installed as a Slave, pin 48 or pin 49 must be grounded. Pins 48 and 49 are inputs with pull up resistors. If both pins are open, the flash drive is configured as the Master drive.

## DC Characteristic

| Symbol | Parameter | Vcc=5V±5% | | | Unit |
|---|---|---|---|---|---|
| | | Min | Typ | Max | |
| $I_{CCI}$ | $V_{CC}$ Idle Current | - | 90 | - | mA |
| $I_{CCP}$ | $V_{CC}$ Read Current | - | 80 | - | mA |
| $I_{CCR}$ | $V_{CC}$ Read Current | - | 185 | - | mA |
| $I_{CCW}$ | $V_{CC}$ Write Current | - | 210 | - | mA |
| $I_{CCE}$ | $V_{CC}$ Erase Current | - | 210 | - | mA |
| $V_{IL}$ | Input Low Voltage | - | - | 0.8 | V |
| $V_{IH}$ | Input High Voltage | 2.0 | - | - | V |
| $V_{OL}$ | Output Low Voltage | - | - | 0.4 | V |
| $V_{OH}$ | Output High Voltage | 2.4 | - | - | V |

## Physical Outline

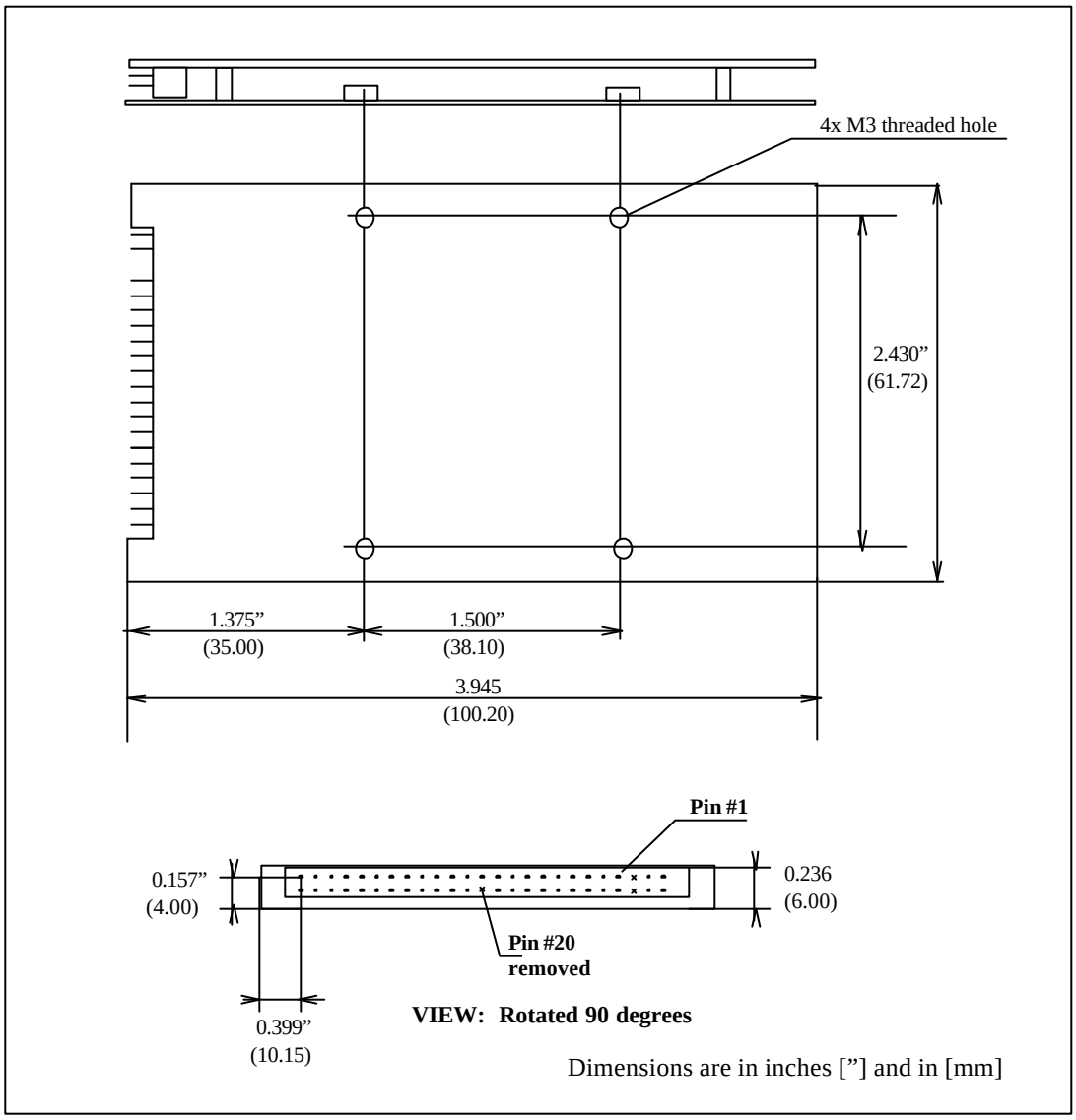
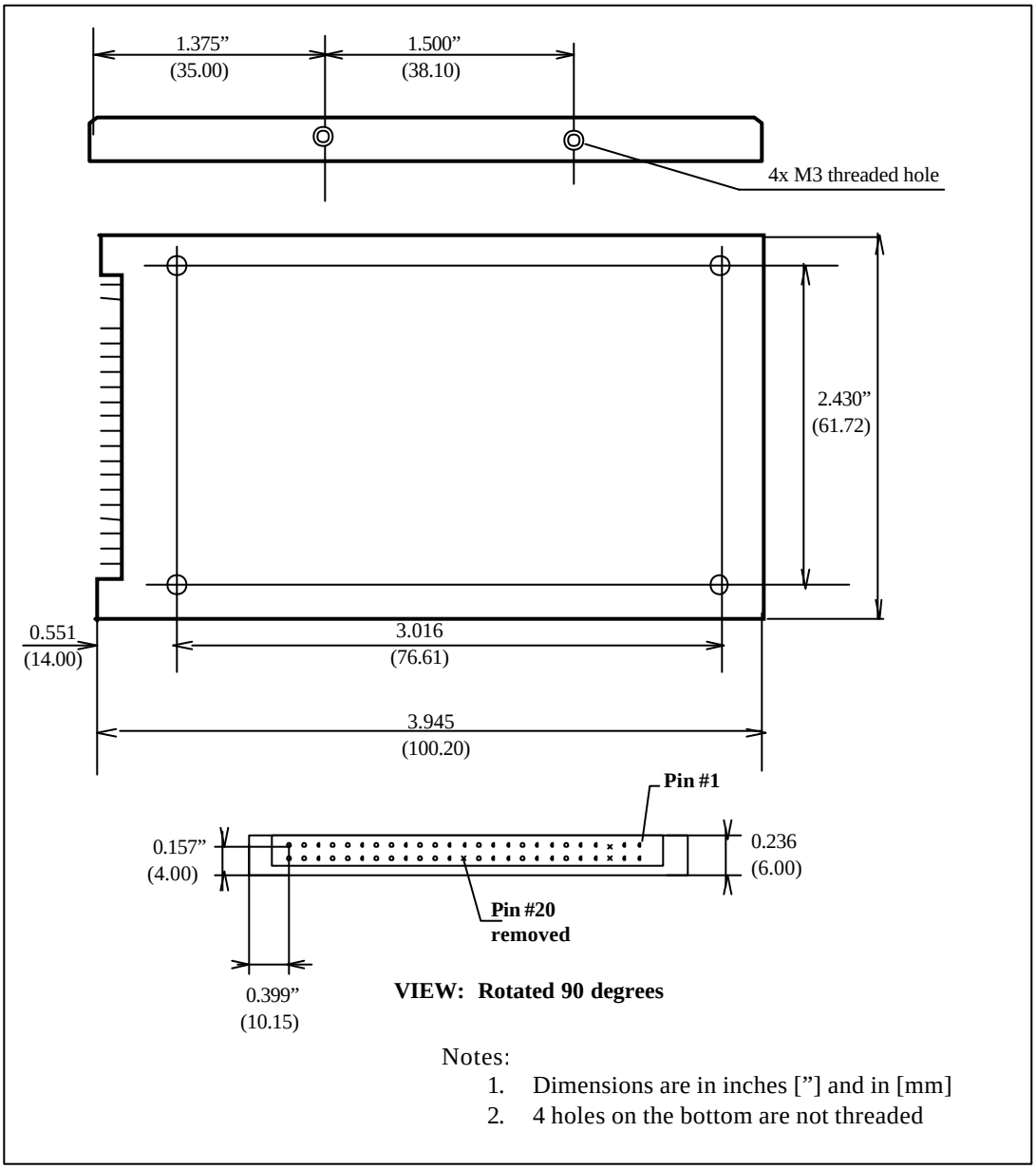



**Figure 3: Physical Dimensions – Version 1**




Notes:

1. Dimensions are in inches [”] and in [mm]
2. 4 holes on the bottom are not threaded

**Figure 4: Physical Dimensions – Version 2**

## Ordering Information

**7P** XXX **IDE** YY SS T ZZ

Where

XXX (unformatted capacity):

| | | |
|---|---|---|
| | 064 | 64MB |
| | 128 | 128MB |
| | in future higher capacities will be available: | |
| YY: | 15 | Standard, 5V: (Controller type = MXB) |
| SS: | 11 | 2.5” IDE format: Version 1 |
| | 12 | 2.5” IDE format: Version 2 |
| T: | C | Commercial Temperature Range |
| ZZ: | 25 | 250ns |

## Revision Record

| Rev. | Date | Contents of Modification | Drawn by |
|---|---|---|---|
| 0.0 | June 13, 2000 | Initial issue | M. Garrett |

*File:* F:\Marcom\Data Sheets-New\Data Sheets - Commercial\IDE15 Dsht Rev 0.doc

# ADDENDUM

# IDE 15 PERFORMANCE TESTING

This testing was performed by the WEDC Engineering Department. The following tables are a tabulation of the results. The tests were performed numerous times, and the results shown are the typical values.

Test System: Intel Celeron 366MHz, DOS computer

**Table 1: Timing Comparison Between 64IDE15 and the 128IDE15**

| Function | Time | |
|---|---|---|
| | 064IDE15 | 128IDE15 |
| Erasing Blocks | 91 sec | 91 sec |
| Formatting | 42 sec | 84 sec |

**Table 2: Timing Comparison Between 19.2MHz and 25MHz Crystals for the 128IDE15 Drive**

| Function | Time | |
|---|---|---|
| | 19.2MHz X-Tal | 25MHz X-Tal |
| Writing a 2MB File | 14 sec | - |
| Writing a 64MB File (67,268,608 bytes) | 443 sec | 414 sec |
| Writing 32 2MB Files (67,108,804 bytes) | 443 sec | 416 sec |
| File Comparison of 32 2MB files | 210 sec | 198 sec |