5 1/4-inch Full-Height
Winchester Disk Drive

Capacity: 760 MBytes
Access Time: 16 msec
Interface: SCSI
MTBF: 150,000 hours

The Micropolis 1588 high performance 5 1/4-inch Winchester disk drive offers 760-megabyte capacity and a SCSI interface in a full-height form factor.

Using the same field-proven mechanical platform as the 360-megabyte Micropolis drive, the 1588 is designed to provide a combination of high storage capacity, fast access and data transfer, and long periods of trouble-free operation.

- Fast and Reliable Data is transferred at 15 megahertz with an average access time of 16 milliseconds. And with an outstanding MTBF of 150,000 hours, repair and spare-parts costs are substantially reduced.

- SCSI: The Intelligent Interface The 1588 is equipped with a high-performance, on-board Small Computer System Interface (SCSI) controller. With its own powerful microprocessor, this highly versatile controller is actually a fully featured intelligent sub-system, allowing for a variety of innovative performance and integrity features to be employed.

- Fast Ahead Caching—A highly effective technique that anticipates the next block of data needed by the host. Caching allows most read data requests to be serviced from the 64 KBytes dualported buffer. Caching also eliminates mechanical delays, reducing average "time to data" by 50% or more.

- Fast Command Processing—This feature reduces command process time to less than 600 microseconds, allowing for overall faster command response and greater data throughput.

- Disconnect, Arbitrate, Reconnect—This operation allows the bus to be freed while not in use, maximizing performance on multi-drive systems.

- Improved Data Integrity—Provided by sophisticated defect handling via in-line defect management and optional automatic bad block reassignment for read operations.

- Several unique data integrity and retry mechanisms employed include interface parity, automatic retries using servo and data strobe offsets, and a 48-bit computer-generated ECC.

- Better Design Flexibility The 1588 is available in both single-ended and differential versions which support synchronous data transfers at up to 4.0 megabytes per second.

- Innovative Design Features A sealed head-disk assembly contains all of the moving parts, including a patented high-speed, precision balanced single-piece positioner, 15 read/write heads and eight 5 1/4-inch disks, plus the patented in-aperture motor. The drive is mounted in a rigid metal frame and suspended on specially designed shock mounts.

- Advanced Servo Technology The 1588 drive uses an advanced servo system which provides superior on-track and seek performance throughout the range of environmental conditions. The dedicated disk surface for servo data eliminates format constraints and permits more user-data capacity on each disk surface, as compared to embedded servo systems.

- Maintenance Free Design Micropolis drives consistently top the list for high "plug and play" and 150,000 hour mean-time-between-failure performance. The 1588 board and mechanical assemblies are independently replaceable units. No electronic or mechanical adjustments are ever required, making field replacement of electronic assemblies a simple, 15-minute repair.

Micropolis is the industry leader in volume high-capacity, high-performance 5 1/4-inch full- and half-height disk drives. Micropolis drives offer up to 2.0 gigabytes of storage capacity and are available with either an EDSI or a SCSI interface.

For more information on this and other Micropolis disk drives, contact the Micropolis Sales Office or Authorized Distributor nearest you.
## Specifications:

### Capacity

**Unformatted**
- **Model**: 1588-15
- **Track (B)**: 31,250
- **Surface (MB)**: 1632
- **Cylinders**: 1632
- **Data Heads**: 15

**Formatted**
- **Model**: 1588-15
- **Track (MB)**: 668
- **Sector/Track**: 512
- **Cylinders**: 1628
- **Data Heads**: 15

*Based on typical spacing (user programmed)*

### Performance

**Seek Time (includes settling)**
- **Track to Track**: 4 msec
- **Average**: 16 msec
- **Maximum**: 35 msec

**Effective Access Time**
- 3.9 msec

**Latency Time (average)**
- 8.33 msec

**Rotational Speed**
- 3600 RPM

**Internal Data Rate**
- 15 MHz

### Interface

**Compatibility**: SCSI CCS

**Data Transfers**
- Synchronous: 40.0 MB/sec
- Asynchronous: 1.6 MB/sec

**Command Overhead**
- Less than 750 microseconds

**Buffer**
- 64 KByte with parity

**Defect Management**
- Cylinder oriented
- (Track mode programmable)

**Drivers/Receivers**
- Single-ended standard
- Differential available

### Commands Supported

- **Exclusive Identify**
- **Request Sense**
- **Format Track**
- **Reserve Unit**
- **Unreserve Unit**
- **Unity**
- **Search**
- **Mode Select**
- **Seek**
- **Mode Sense**
- **Seek Extended**
- **Send Diagnostic**
- **Read**
- **Start/Stop Unit**
- **Read Capacity**
- **Read Data Buffer**
- **Test Unit Ready**
- **Read Defect Data**
- **Read Extended**
- **Read Log (if ECC)**
- **Write Data Buffer**
- **Reassign Blocks**
- **Write Extended**
- **Receive Diagnostic**
- **Write Long (if ECC)**
- **ECC Results**
- **Write and Verify**

*Common Command Set*

### Physical

**Form Factor (Industry-standard for 5½-inch full-height)**
- **Height**: 3.25 inches (82.6 mm)
- **Width**: 5.75 inches (146 mm)
- **Depth**: 8.00 inches (203 mm)
- **Weight**: 8.5 pounds (3.8 kg) nominal

### Environmental

**Shock**
- **Operating**: 3 G - 5 msec
- **Non-operating**: 2 G - 11 msec
- **Free-fall drop**: 0.75’
- **1/5 sinusoidal**: 40 G - 5 msec
- **20 G - 11 msec**
- **15 G - 20 msec**
- **15 G - 50 msec**
- **20 G - 100 msec**

**Vibration**
- **Operating**: 5-40 Hz: 0.006”, peak-peak
- **40-300 Hz**: 0.5 G peak
- **Non-operating**: 5-31 Hz: 0.07”, peak-peak
- **31-60 Hz**: 0.01 G peak
- **60-90 Hz**: 0.004”, peak-peak
- **90-300 Hz**: 0.02 G peak

### Ambient Temperature

- **Operating**: 10°C to 50°C
- **Non-operating**: -40°C to 65°C
- **Wet bulb max**: 26.7°C (80°F)

### Power Requirements

- **Power Consumption**: 25 Watts
- **Acoustic Noise**: 40 dBA
- **Mounting**: Standard 5½-inch disk drive, any orientation

### Reliability

- **MTBF**: 150,000 power-on hours
- **MTTR**: 15 minutes
- **Preventive Maintenance**: None
- **Electronic Adjustments**: None
- **Data Integrity**: Automatic retry with early/late strobe, track offset
- **48-bit ECC polynomial
- **Parity through buffer**

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