



High-Capacity Disk Drives for Value-Oriented Personal Computers

Overview

Quantum Bigfoot™ 5.25-inch hard disk drives, designed for value-oriented personal computer systems, combine very high capacity with excellent cost-per-megabyte economics. Offered in formatted capacities of 1,286, 2,110, and 2,577 megabytes (MB) of storage, these products are particularly well-suited to multimedia systems and applications that require large storage capacities.

The Quantum Bigfoot drives' ultra slim-line design, which measures 8 by 5.75 by 0.75 inches, fits into any available 5.25-inch bay in most modular PCs without any customization to system enclosures. Since Quantum Bigfoot drives mount exactly like a CD-ROM unit, installation is actually easier than a traditional 3.5-inch drive, since no brackets or mounting rails are required.

These products are engineered specifically to balance maximum storage capacity, consumer multimedia performance requirements, and attractive cost-per-MB economics. By applying field-proven components to the 5.25-inch form factor, Quantum also provides the highest levels of quality and reliability.

High-Performance Data Transfers

Quantum Bigfoot drives provide high-speed data transfers through a well-designed, Fast ATA-2 interface. The combination of a 128-kilobyte buffer and the increased track capacities available with 5.25-inch disks allow these drives to meet the performance requirements of the newest generation of consumer PC systems. These features also result in improved sequential performance at the application level because, for any single

transaction, there are fewer seeks and head switches. This speed particularly enhances multimedia playback and virtual memory use of the disk drive.

Quantum's implementation of a Fast ATA-2 interface supports local-bus AT Programmed Input/Output (PIO) Mode 4 and Multiword DMA Mode 2 data transfers at speeds of up to 16.6 MB per second. Enhanced Quantum AutoTransfer™ technology takes advantage of the intelligent processing features of the drives and uses a proprietary ASIC design to speed data transfers by minimizing drive-to-host overhead delays.

Multiple AutoRead™ and Multiple AutoWrite™—industry-first solutions for increasing sequential data transfers—allow multiple-sector transfers for a given data request. This combination of firmware and hardware also enhances AutoTransfer capabilities.

Reliability and Versatility

Quantum Bigfoot drives meet the highest standards for data integrity. Automatic, double-burst, on-the-fly error detection and correction are implemented using an advanced custom ASIC and firmware.

These drives also come with an AT-Bus Cable Select™ feature that supports the latest Plug-and-Play ATA specifications. When combined with host system support,* this simplifies disk drive installation by automatically configuring the drive and eliminating the need for manual jumper settings. This feature is particularly beneficial for users who are upgrading their system through the addition of a second hard disk drive.

*Host system support is defined as Quantum's Disk Manager Software (supplied with drive).

Key Features

- High capacity (more than 1,280 MB per disk)
- 5.25-inch, ultra slim-line (0.75-inch-high) form factor
- Fast ATA-2 PIO Mode 4 and Multiword DMA Mode 2 support
- AutoTransfer technology
- Multiple AutoRead/Multiple AutoWrite
- 160-bit Reed Solomon double-burst ECC on-the-fly
- Adaptive Segmented Buffer
- DisCache® and WriteCache® firmware
- Advanced Embedded Servo
- S.M.A.R.T. (Self-Monitoring, Analysis, and Reporting Technology) Revision 2 Support
- AT-Bus Cable Select
- System-Controlled Power Modes
- Defect Free Interface® firmware
- DiskWare™ downloadable firmware
- 300,000-hour MTBF

Quantum™

 BIGFOOT™

SPECIFICATIONS

Quantum Bigfoot

| | 1.2 | 2.1 | 2.5 |
|---------------------------------------|-----------------------------------|-------|-------|
| Form Factor | 5.25 inch (Ultra Slim-Line) | | |
| Interface | Fast ATA-2 40-pin dual in-line | | |
| Formatted Capacity (MB ¹) | 1,286 | 2,110 | 2,577 |

Disk Drive Configuration

| | | | |
|------------------------------|------------|---|---|
| Disks | 1 | 2 | 2 |
| Heads/Recording Surfaces | 2 | 4 | 4 |
| Tracks per Surface | 5,738 | | |
| Sectors per Track | 149 to 276 | | |
| Bytes per Sector | 512 | | |
| Track Density (tpi) | 4,298 | | |
| Max. Flux Density (fci) | 113,922 | | |
| Max. Recording Density (bpi) | 107,221 | | |
| Encoding/Detection Method | 16/17 PRML | | |

Performance Specifications

| | |
|---------------------------------------|----------|
| Typical Seek Times ² (ms) | |
| Average (read) | 15.5 |
| Track-to-Track | 3.5 |
| Full Stroke | 30.0 |
| Average Rotational Latency (ms) | 8.33 |
| Rotational Speed (RPM) | 3,600 |
| Internal Data Rate (Mb/sec) | 48 to 84 |
| Data Transfer Rates (MB/sec) | |
| PIO Mode 4 | 16.6 |
| DMA Mode 2 | 16.6 |
| Buffer Size ³ (KB) | 128 |
| Typical Power On to Drive Ready (sec) | 11.5 |

Reliability Specifications

| | |
|--|-----------------------------|
| Projected Field MTBF (hours) | 300,000 |
| Start/Stop Cycles (controlled) | 20,000 with dynamic braking |
| Preventive Maintenance | Not required |
| Nonrecoverable Data Errors (per bits read) | <10 per 10 ¹⁵ |
| Error-Correction Method | 160-bit Reed Solomon |
| Warranty ⁴ (years) | 3 |

Physical Specifications

| Dimensions—inches (mm) | | | |
|------------------------|---------------|---------------|---------------|
| Width | 5.75 (146.05) | 5.75 (146.05) | 5.75 (146.05) |
| Length | 8.0 (203.2) | 8.0 (203.2) | 8.0 (203.2) |
| Height | 0.75 (19.05) | 0.75 (19.05) | 0.75 (19.05) |
| Weight—pounds (kg) | 1.55 (0.711) | 1.64 (0.752) | 1.64 (0.752) |

Environmental Limits

| | |
|--|----------------|
| Operating | |
| Temperature (°C) | 0 to 55 |
| Non-Condensing Humidity (%) | 5 to 85 |
| Maximum Wet Bulb (°C) | 29 |
| Shock (G, 11ms) | 10 |
| Vibration (G, 5 to 200 Hz, peak-to-peak) | 1 |
| Altitude (ft.) | -650 to 10,000 |
| Non-Operating | |
| Temperature (°C) | -40 to 75 |
| Non-Condensing Humidity (%) | 5 to 95 |
| Maximum Wet Bulb (°C) | 46 |
| Shock (G, 11ms) | 70 |
| Vibration (G, 5 to 300 Hz, peak-to-peak) | 2 |
| Altitude (ft.) | -650 to 40,000 |
| Idle Sound (typ) | |
| Pressure (dBA) | 34 |
| Power (bels) | 3.9 |

Power Specifications

| | | | |
|-----------------------------|----------|-----|-----|
| Nominal Voltage (V) | +5/+12 | | |
| Voltage Margin (%) | ±5/±10 | | |
| Typical Power Draw (W) | | | |
| Read/Write | 5.0 | 5.5 | 5.5 |
| Standby/Sleep | 1.0 | 1.0 | 1.0 |
| Idle | 4.0 | 4.5 | 4.5 |
| Operating ⁵ | 6.5 | 7.0 | 7.0 |
| Peak Current (mA on +5/+12) | 425/1400 | | |

¹ Quantum defines a megabyte (MB) as 10⁶ or 1,000,000 bytes.

² Seek times are at nominal environmental conditions and include settling.

³ Up to 41KB used for firmware.

⁴ This warranty is standard when products are purchased directly through authorized Quantum distributors/dealers. Unless otherwise agreed, a one-year warranty is provided to all OEMs purchasing directly from Quantum. End-user warranties provided by computer manufacturers may vary.

⁵ Operating is defined as 40% seeking, 30% reading, 10% writing, and 20% idle.



For More Information

For more information about Quantum's quality products, call toll-free: 1-800-624-5545 in the U.S.A. and Canada, or visit our World Wide Web site: <http://www.quantum.com>

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