



Quantum Digital IDE Flash Disk Module

General Description and Key Features

Quantum Digital's solid-state Flash Disk Module with either a standard 44-Pin connector or a standard 40-Pin connector. The module uses the standard IDE signals, common on IDE hard drives.

The module plugs directly into a standard IDE connector without need for a cable. This eliminates the installation confusion, the cost, and the potential failures commonly associated with interface cables.

The modules are available in vertical and horizontal plug-in. OEM flash disk modules are the product of choice in applications requiring high reliability and high tolerance to shock, vibration, humidity, altitude, and temperature. Because there are no moving parts to service or maintain, flash disk modules are reliable alternatives to mechanical hard disk drives for high availability and mission critical applications.

While the inherent ruggedness and reliability of solid state storage relative to rotating hard drives is intuitive, new applications for OEM flash disk modules are emerging due to the low cost per usable megabyte. Most applications using embedded operating systems such as VxWorks™, Windows XP/embedded™, and Linux™ don't have multi-gigabyte data storage requirements, and therefore a cost savings can be realized when using this robust media.

- * 128MB to 16GB Capacities
- * Compact Form Factor designed to plug into standard IDE Connector (vertical and horizontal plug-in available)
- * Standard IDE Interface
- * Configures as Master or Slave IDE device
- * Endurance Guarantee of 2,000,000 Write/Erase Cycles
- * Replaces IDE hard drive for applications where tough Environments prohibit use of traditional rotating media
- * Solid-State (no moving parts)
- * High Shock and Vibration Limits
- * 512 Byte Sector and ECC Defect Management Compatible to IDE Hard Disk Drives
- * No "Spin" Noise Compared to Traditional Rotating Media
- * Commercial and Industrial Operating Temperature Ranges Available Standard ECC Engine
- * Sustained throughput up to 10MB/s
- * Low power consumption
- * Engineered for harsh environments
- * Industrial operating temperature ranges
- * Automatic bad block management
- * Configurable vendor ID/Product ID (VID/PID)
- * MTBF: Over 3 million hour
- * 5 Year Warranty
- * RoHS compliant

Flash Disk Modules provide non-volatile, solid-state storage in a compact design perfectly suited for embedded applications. Built-in wear leveling algorithms, on-the-fly ECC, and over two million write/erase cycles give you superior data integrity and reliability. Available with industry standard IDE interface; Application software compatibility is ensured as no proprietary software drivers are required. At the heart of all industrial grade solid state storage products is a proprietary controller that incorporates an advanced dynamic wear leveling algorithm in combination with 5 bit EDC / 4 bit ECC delivering exceptional endurance and reliability.

With no moving parts, flash disk modules are inherently more rugged and reliable than rotating hard drives. New applications for flash disk modules are rapidly emerging due to the low cost per megabyte.

Also offers value-added services like customized form factors, testing, custom firmware, software imaging, and controlled bill of materials, customer-specific labeling and serialization.

Ordering Information: Flash Disk Module

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Part Number	Capacity
QDFDM(40/44)LP(V/H)-128MUH1(I)	128 Mbytes
QDFDM(40/44)LP(V/H)-256MUH1(I)	256 Mbytes
QDFDM(40/44)LP(V/H)-512MUH1(I)	512 Mbytes
QDFDM(40/44)LP(V/H)- 1GUH1(I)	1 Gbytes
QDFDM(40/44)LP(V/H)- 2GUH1(I)	2 Gbytes
QDFDM(40/44)LP(V/H)- 4GUH1(I)	4 Gbytes
QDFDM(40/44)LP(V/H)- 8GUH1(I)	8 Gbytes
QDFDM(40/44)LP(V/H)-16GUH1(I)	16 Gbytes

QDFDM= QDT standard Flash Disk Module part number prefix.

(M/G) = preceding capacity (xxx) is in Megabytes (M) or Gigabytes (G).

H1 = QDT H1 controller.

U = RoHS-6 compliant lead-free.

Part numbers without (I) = Commercial temperature range (0°C to 70°C).

(I) = Industrial temperature range (-40°C to +85 °C).

F = media set to fixed storage for non-removable IDE applications. Use with operating systems, such as Windows XP, that require storage media to be identified as a fixed drive before it can be used as a bootable drive.

V = Vertical Type **H** = Horizontal Type

LPV = (Low profile vertical), **LPH** = (Low profile horizontal)

- SLC-NAND type flash technology
 - Standard 40/44-pin female IDE connector
 - Compact form-factor in vertical type and horizontal type
 - Master / Slave selectable by switch
 - Compatible with ATA/APAPI-6 standard
 - Data transfer mode support PIO 0~4 and UDMA 0~4
 - Performance up to 40MB/sec
 - Capacity from 128MB up to 16GB
 - **Compatibility** :ATA/ATAPI-6 Standard
 - **Flash Technology** :NAND type SLC flash based
 - **Form-factor** :Vertical type or Horizontal R / L types ; Female 40 or 44 pins
- Performance :**
- Data Transfer Mode Support : PIO 0, 1, 2, 3, 4 / MWDMA 0, 1, 2 / UDMA 0, 1, 2, 3,4
 - Sequential read: 40 MB/sec (Max. /with dual flash)
 - Sequential write: 20 MB/sec (Max. /with dual flash)
 - Average access time : 0.2ms (estimated)
- Environmental specification :**
- Humidity : 10% ~ 95% non-condensing
 - Acoustic noise : 0dB
 - Vibration : 15G compliance to **MIL-STD-810F**
 - Shock : 1500G compliance to **MIL-STD-810F**
- Reliability :**
- Wear-leveling : Static wear-leveling algorithms
 - MTBF : > 3,000,000 hours
 - Endurance : > 2,000,000 cycles logically contributed by static wear-leveling and advanced bad sector management algorithms
 - ECC : Enhanced management 4-bits per 512bytes block
 - Data retention : 10 Years
- Power consumption :**
- Power requirement : +5V +/- 10%
 - Reading mode : 128 mA (Max.)+3+
 - Writing mode : 118 mA (Max.)
 - Sleeping mode : 1.8 mA (Max.)
- Warranty :**
- 3 years warranty for SLC standard grade
 - 5 years warranty for SLC industrial grade
 - Conformal coating : Option for special request