

FUJITSU

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Low-profile, 45- 90 MB 2.5-inch Winchester disk drive



The M263x
combines high
capacity and
performance in
a low-profile,
low-power-
consuming package
that is perfect for
a variety of
portable and
desktop
applications.

The incredible shrinking computer—the desktide workstation has become the desktop PC, the desktop PC has become the laptop, the laptop is now a notebook and the notebook is a handheld. Thanks to new microprocessor technology and miniaturization, the performance once associated with the previous generation of systems has migrated to smaller and smaller platforms. Disk drive designers have kept pace with these platforms' needs for storage devices by moving to increasingly smaller form factors. Introducing the M263x 2.5-inch Winchester disk drive, the first in an evolutionary family of capacity and performance leading ultra-compact disk drives.

THE M263X DELIVERS FOR CRITICAL APPLICATIONS

The M263x 2.5-inch Winchester disk drive is designed for space, weight and power critical applications. No

matter what the platform—workstation, desktop, laptop or notebook PC—the M263x delivers. Its storage capacity is double that of earlier 2.5-inch drives.

NO COMPROMISE 2.5-INCH

DISK STORAGE

System designers no longer must settle for inadequate performance or capacity to realize the benefits of smaller-form-factor storage. Not with the M263x. This Fujitsu drive provides up to 90 megabytes (MB) of storage capacity, 18 milliseconds (ms) average seek time, and data transfer rates of five megabytes per second (MB/s) and higher.

Fujitsu achieves its leading performance and capacity with advanced head, media, mechanical and electronics technology. For instance, the M263x features low-profile, high-performance nano-monolithic metal-in-gap (MIG) recording heads. Coupled with high-coercivity, sputtered thin-film media the M263x achieves an areal density of 84

megabits per square inch, and 22.5 MB of storage per data surface.

The 18 ms seek performance is achieved through the use of a dual-bearing, balanced in-line rotary voice-coil positioner and an advanced digital quadrature servo system. High performance PC-AT or SCSI-2 intelligent interface controllers coupled with a read-look-ahead cache/buffer enable the M263x to deliver high host data transfer rates.

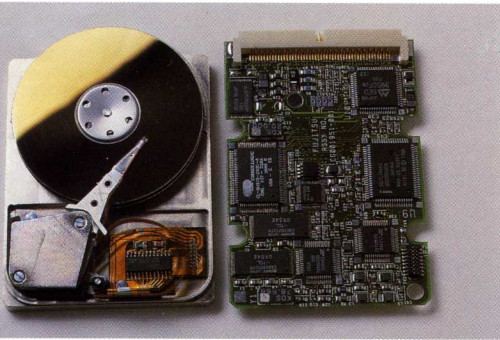
ADVANCED FEATURES WITHOUT

THE POWER PENALTIES

Often, achieving high capacity and performance comes with a power penalty. Not with the M263x. Fujitsu designed Intelligent Power Management™ (IPM) into its new 2.5-inch drives specifically to eliminate that problem. This feature enables system designers to minimize power consumption during drive idle periods. By taking advantage of the operating, idle, standby and sleep modes



The profile of the M263x 2.5-inch disk drive is only 17mm (.67 inches).



Advanced mechanical and electrical integration is achieved in the M263x family.

within Fujitsu's IPM, portable system operating periods and user uptime can be maximized without adding the bulk and weight of larger batteries.

CONFIGURATION CAPABLE™

EASES THE SYSTEM

INTEGRATION PROCESS

Integrating storage devices into your system has never been easier than with the M263x. There are no special jumpers or switch settings to worry about. The entire drive configuration process is handled through the drives SCSI-2 or PC-AT intelligent interfaces, using Fujitsu's Configuration Capable (C²) technology. Fujitsu's C² is a through-the-interface feature that facilitates rapid qualification and design-in, and makes integration easy and less costly.

In addition, the M263x's low profile—17 millimeters (.67 inches)—light weight, and industry-standard mounting features eliminate mechanical system integration problems.

INCREASED DATA INTEGRITY

AND RELIABILITY

Since the introduction of its Eagle 10.5-inch Winchester, Fujitsu has set the standards for disk storage reliability regardless of form factor. The M263x continues that leadership with a 150,000 hours mean-time-between failure rating.

Fujitsu assures M263x data integrity by employing the best disk drive technology available. For instance, the M263x uses optimized, overcoated media and high-performance heads to maximize head/disk interface tolerances and increase reliability. This reliability is further enhanced through advanced data recovery circuits, RLL (1,7) data encoding, 88-bit on-the-fly error correction, and an environmentally tolerant mechanical design.

M263X FEATURES AT A GLANCE:

- ◆ 45-90MB capacity
- ◆ Performance:
 - Seek (Avg) = 18ms
 - Latency (Avg) = 8.3ms
 - Cache ≥ one track
 - Data Rate ≥ 5MB/s
- ◆ Power
 - Voltage = 5VDC-only
 - Operating = 2.2W
 - Idle = 1.3W
 - Standby = 0.2W
 - Sleep = 0.2W
- ◆ Spindle Synchronization
- ◆ Sensorless Spindle Motor
- ◆ Low Profile (17mm/.67 in.)
- ◆ Industry-standard Mounting
- ◆ Industry-compatible Interfaces
- ◆ High Reliability
- ◆ Available Now

In addition, the M263x's integral base/spindle motor assembly withstands high shock and vibration. The dual-bearing, balanced in-line rotary-voice-coil positioner and advanced digital servo system also contribute to superior

operating shock and vibration performance. The device's highly integrated electronics, employing five major LSI circuits, reduces overall component count and thereby increases reliability.

FUJITSU'S GLOBAL COMMITMENT TO

DESIGN AND MANUFACTURING QUALITY

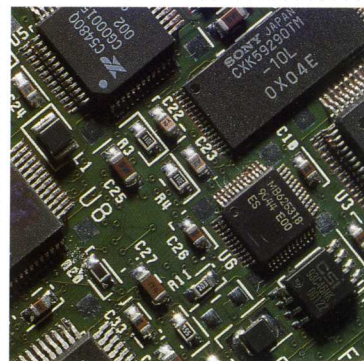
Fujitsu's global commitment to quality spans the company's entire design and manufacturing operation. And there's no better example of this commitment than the M263x product family.

The M263x was designed and developed at Fujitsu's research and development subsidiary in Longmont, Colorado—Intellistor, Inc.—and is manufactured at Fujitsu's plant in Yamagata, Japan.

Intellistor is one of Fujitsu's advanced storage product development facilities. The company has more than 1,000 man-years experience in designing advanced disk drives and data storage subsystems. Engineering expertise includes LSI circuit design, recording technology development, advanced mechanism design, servo systems, and firmware.

Fujitsu's Yamagata manufacturing facility is one of the company's most advanced, high volume drive manufacturing facilities. The company recently completed a totally new, \$50 million, fully automated factory for the manufacture of the M263x at Yamagata. The plant's initial robotic assembly line is capable of producing 50,000-plus drives per month.

M263x
surface-mount
technology
reduces component
count and
increases
reliability.



| | M2631T | M2631S | M2633T | M2633S |
|---------------------------------------|-----------------------------|----------|---------------------|--------|
| CAPACITY | | | | |
| <i>Unformatted(MB)</i> | 58 | 58 | 116 | 116 |
| <i>Formatted @ 512B</i> | 45 | 45 | 90 | 90 |
| DISKS | 1 | 1 | 2 | 2 |
| HEADS | 2 | 2 | 4 | 4 |
| DATA CYLINDERS | 916 | | | |
| SECTORS/TRACK | 48 | | | |
| SEEK TIME (MS) | | | | |
| <i>Single Track</i> | 5 | | | |
| <i>Average</i> | 18 | | | |
| <i>Maximum</i> | 40 | | | |
| LATENCY (MS) | | | | |
| <i>Average</i> | 8.3 | | | |
| <i>Maximum</i> | 16.7 | | | |
| SPINDLE ROTATION | 3,600 | | | |
| DATA RATE(MB/s) | | | | |
| <i>PC-AT/IDE/ISA</i> | 6.3 | | 6.3 | |
| <i>SCSI-2 Synch Burst</i> | | 5.0 | | 5.0 |
| <i>SCSI-2 Asynch</i> | | 3.0 | | 3.0 |
| <i>Internal</i> | 1.2-1.86 | | 1.2-1.86 | |
| INTERFACE | PC-AT | SCSI-2 | PC-AT | SCSI-2 |
| CACHE/BUFFER | UP TO 64KB | | | |
| PHYSICAL SPECIFICATIONS | | | | |
| Size (L x W x D) | 100mmx70mmx17mm | | 4.0" x 2.76" x .67" | |
| Weight | 175 grams | | 6.2 ounces | |
| RELIABILITY SPECIFICATIONS | | | | |
| MTBF | >150,000 hours | | | |
| POWER SPECIFICATIONS (TYPICAL) | | | | |
| VDC | 5 ± 5% | | | |
| Operating | 2.2W | | | |
| Idle | 1.3W | | | |
| Standby | 0.2W | | | |
| Sleep | 0.2W | | | |
| ENVIRONMENTAL SPECIFICATIONS | | | | |
| Thermal | | | | |
| <i>Operating</i> | 5 degrees to 55 degrees C | | | |
| <i>Non-operating</i> | -40 degrees to 70 degrees C | | | |
| Humidity | | | | |
| <i>Operating</i> | 8% to 90% non-condensing | | | |
| <i>Non-operating</i> | 0% to 95% non-condensing | | | |
| Shock | | | | |
| <i>Operating</i> | 10g | 1/2 sine | 11ms | |
| <i>Non-operating</i> | 100g | 1/2 sine | 11ms | |
| Vibration | | | | |
| <i>Operating</i> | .5g | peak | 11-500Hz | |
| <i>Non-operating</i> | 1.0g | peak | 11-500Hz | |

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