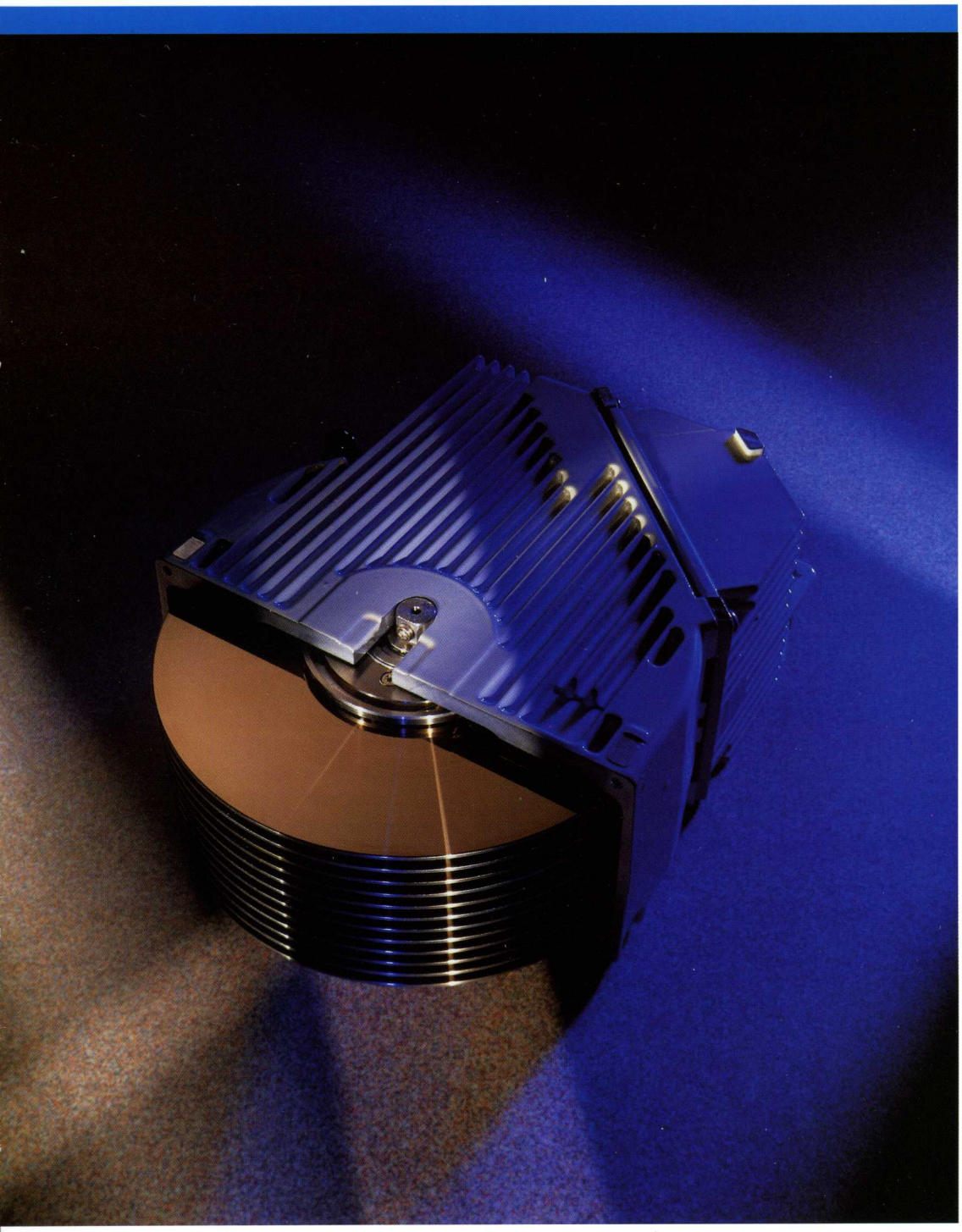
FUJITSU

The M265X Series of Winchester Drives.



High-capacity storage with ultra-high-speed data throughput for advanced computer systems and workstations from super-micros to supercomputers.

- 2.4 Gigabytes Storage Capacity
- 5.25-inch Form Factor
- Highest Single Channel Data Transfer Rate in the Industry
- Three Popular Drive Interfaces:
  - Differential SCSI-2
  - Dual-Ported SCSI-2
  - Single-Ended SCSI-2
- 300,000 Hour Mean-Time-Between-Failure

THE M265X SERIES OF 2.4 GIGABYTE 5.25-INCH WINCHESTER DRIVES

Featuring the highest single-channel data transfer rate in the industry, unformatted 2.4 gigabyte data storage capacity and exceptional reliability, the M265X drive family is designed to boost throughput on a broad range of computer platforms. Its compact footprint is as well suited to supermicros, minis and workstations as it is to mainframes and super-computers.

FASTER DATA ACCESS AND TRANSFER.

The M265X addresses both data access and data transfer issues to allow more effective utilization of the newest high-performance CPUs. Data access is fully 25 percent faster than with conventional Winchester drives, with an average latency of 5.6 ms. Additionally, the seek times are two milliseconds track-to-track and 12 milliseconds average. A Fujitsu-developed single-block, low-mass actuator with a spindle motor spinning at 5,400 RPM is used to achieve these new speed records.

The data transfer rate of 4.758 megabytes per second is the highest sustained data transfer rate available in a 5.25-inch drive. A fourth-generation SCSI-2 I/O integrated circuit supports 10 megabytes per second burst and nearly 5 megabytes per second sustained data rates.

MAINFRAME STORAGE CAPACITY.

Twenty-one data surfaces with more than 115 megabytes of storage per surface ensure that the M265X has the storage capacity needed to allow users to benefit fully from its high throughput. Fujitsu's ultra-stable thin film heads and microsliders enable accurate reading of data at high densities and ultra-fast seek times.

DATA INTEGRITY.

ECC ensures data integrity to and from the media and the encoder/decoder circuit. The data is further protected by path-through parity protection.

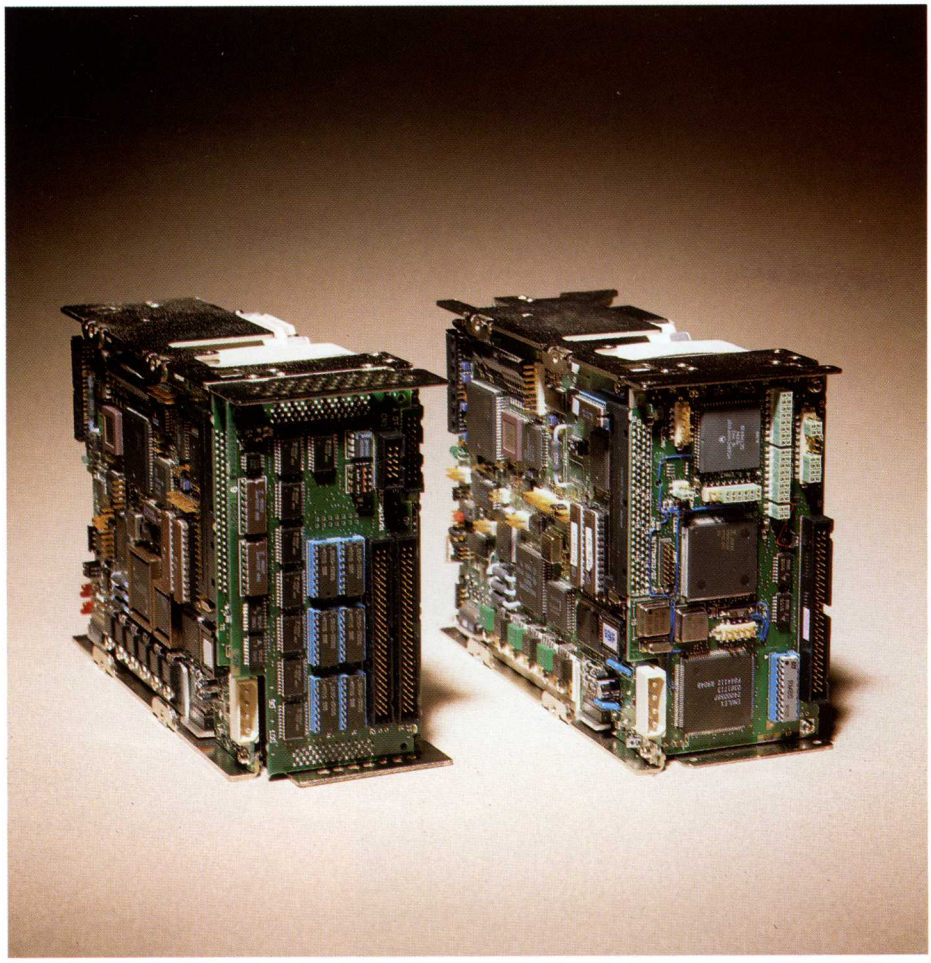
TECHNOLOGY ADVANCEMENTS.

Fujitsu has incorporated a number of technological advances into the M265X family that enable it to achieve its capacity and performance milestones without sacrificing reliability.

The high capacity is achieved by using 12 thin film media disks within the standard 5.25-inch form factor. New in-line, low-profile thin film heads enable the necessary reduced disk spacing.

High performance positioning results from use of new high stability gimbals and flexures, connected to a light weight, solid block actuator. Digital Signal Processing (DSP) provides ultra precise control, even while delivering a fast average seek time of 12 milliseconds.

High data transfer rates result from single-zone recording with a fixed track capacity of 52,864 bytes. This leading track capacity combined with the media spin rate of 5,400 RPM provides 38 MHz data transfer at very low latencies. Fujitsu's 1,7 RLL encoding and unique 5-pole read channel equalizer ensures accurate data recovery at this high level of performance.



The M265X supports a broad range of applications with both differential and single-ended SCSI.

MECHANICAL PACKAGING.

High-volume robotic assembly is achieved through the clam shell casting design. Uniform, rapid heat dissipation results from high surface area and innovative voice coil motor (VCM) mounting. With the VCM integrated into the casting wall, heat is dissipated away from the drive, rather than into the enclosure.

Both actuator and spindle motors have top and bottom bearings. Thus component count is reduced while ensuring assembly stability.

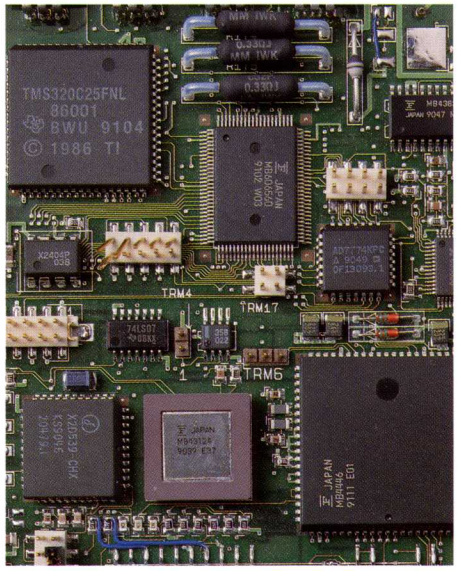
HIGH RELIABILITY.

For high reliability, Fujitsu combined precision construction, extensive use of proprietary large-scale integrated circuits, multi-processor architecture and surface-mount technology with a sophisticated heat-dissipation design. Together, these advanced techniques enable Fujitsu to achieve a 300,000 hour mean-time-between-failure (MTBF) rating.

SCSI INTERFACE.

Years of experience with mass storage peripherals ensure ease of integration over a wide spectrum of systems. The SCSI-2 implementation provides a low cost, high performance storage solution for a wide range of desktop and deskside computers. Choose single or dual-ported differential, or single ended SCSI-2 implementations. (See back.)

The large 256K byte programmable segment cache ensures immediate data access at a 10 megabyte per second burst rate, and nearly 5 megabyte per second sustained rate. Read-Look-Ahead and Zero Latency to data is achieved through the buffer, which supports pre-fetching of up to five tracks of data.



High integration and SMT reduce component count and power consumption.

DUAL PORT CAPABILITY.

The M265X drives support dual port capability, which provides redundant paths to the same data. This is an essential element of fault-tolerant applications and increases system I/O performance.

Dual porting can also be used to improve performance five to ten percent by queuing commands on one port while the other port is actively transferring data. This incremental performance improvement is well suited to scientific and data intensive supercomputer applications.

A two-bus configuration is also possible. In either case, dual access to the cache buffer further reduces time to data.

SPINDLE SYNCHRONIZATION.

Multiple drives can be interconnected to emulate one large file. Synchronizing spindle rotation allows data to be written across several drives, thus supporting disk-array applications.

DRIVE FEATURE	USER BENEFIT
2.4 GB Unformatted Storage	Large Capacity
5.25-inch Form Factor	Easy Computer Integration
5,400 RPM	Short Average Latency time of 5.56 ms
12 ms Average Seek Time	Faster Data Access
4.75 MB/s Data Rate	Faster Data Transfer
12 Disks/21 Heads	Access Over 1MB per Seek for Better Throughput
Fast SCSI	10 MB/s Burst Rate Maximizes Performance

THREE INTERFACE SPECIFICATIONS MATCH EVERY APPLICATION REQUIREMENT.

M265XHA.

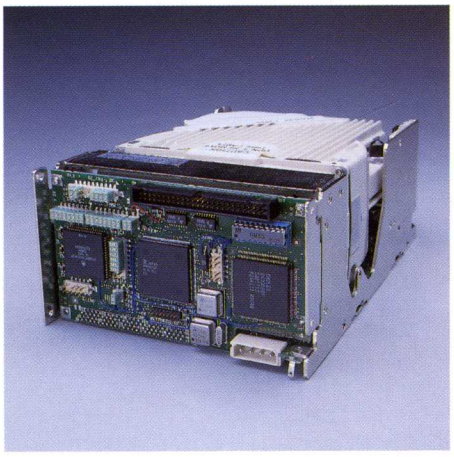
This model, with the ANSI standard SCSI-2 (Small Computer Systems Interface, differential) is one of the first in the industry to provide a FAST SCSI burst data transfer rate of 10 megabytes per second. It also supports the long cable lengths required for high-performance super-minicomputers and mainframes.

M265XHD.

In addition to FAST SCSI, this dual-ported SCSI-2 model allows parallel access to a single storage device. It provides multi-processor improvements, as well as fault tolerance and redundancy.

M265XSA.

This single-ended SCSI-2 model makes the industry-leading FAST SCSI burst data performance of 10 megabytes per second available to compact workstations and supermicrocomputers.



Single-ended and differential SCSI within form factor.

M265X SERIES SPECIFICATIONS

Model	M2653	M2654
Capacity (GB)		
Unformatted	1.6	2.4
Formatted @ 512B	1.4	2.1
Disks	8	12
Data Heads	15	21
Cylinders	2078	2179
Sectors/Track @ 512B	88	
Seek Time (ms)		
Adjacent	2	
Average	12	
Maximum	22	
Latency (ms)		
Average	5.6	
Rotational Speed (RPM)	5,400	
Interface	SCSI Differential (HA), Single-ended (SA)	
Data Rate (MB/s)		
SCSI-2 Synch Burst	10	
SCSI-2 Asynch	4	
Internal	4.758	
Cache/Buffer (KB)	256	
Physical		
Size (H x W x D, inches)	3.3 x 5.7 x 8	
Weight (lbs.)	7.7	
Reliability		
MTBF (Hours)	300,000	
Power (Typical, W)	44	
12 VDC (A)	2.8	
5 VDC (A)	2	
Environmental		
Thermal (°C)		
Operating	10 to 45	
Non-operating	-40 to 60	
Humidity (%)		
Operating	20 to 80	
Non-operating	5 to 90	
Shock (G)		
Operating	2	
Non-operating	20	
Vibration (G)		
Operating	0.2	
Non-operating	0.4	

About Fujitsu Computer Products of America, Inc.

Fujitsu Computer Products of America, Inc. is a part of $21 billion Fujitsu Japan, the world's second largest computer company. Responsible for quality storage, printer and image scanner products in the United States, Fujitsu Computer Products is a part of Fujitsu's worldwide design, development, manufacturing and marketing operations. It encompasses: research and development operations at Intellistor, Longmont, Colorado; manufacturing in Hillsboro, Oregon; marketing operations in San Jose, California; and sales offices throughout the U.S. For more information on the M265X family and any of our other data storage solutions, printers, supplies or scanners, call us at 1-800-626-4686.

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