

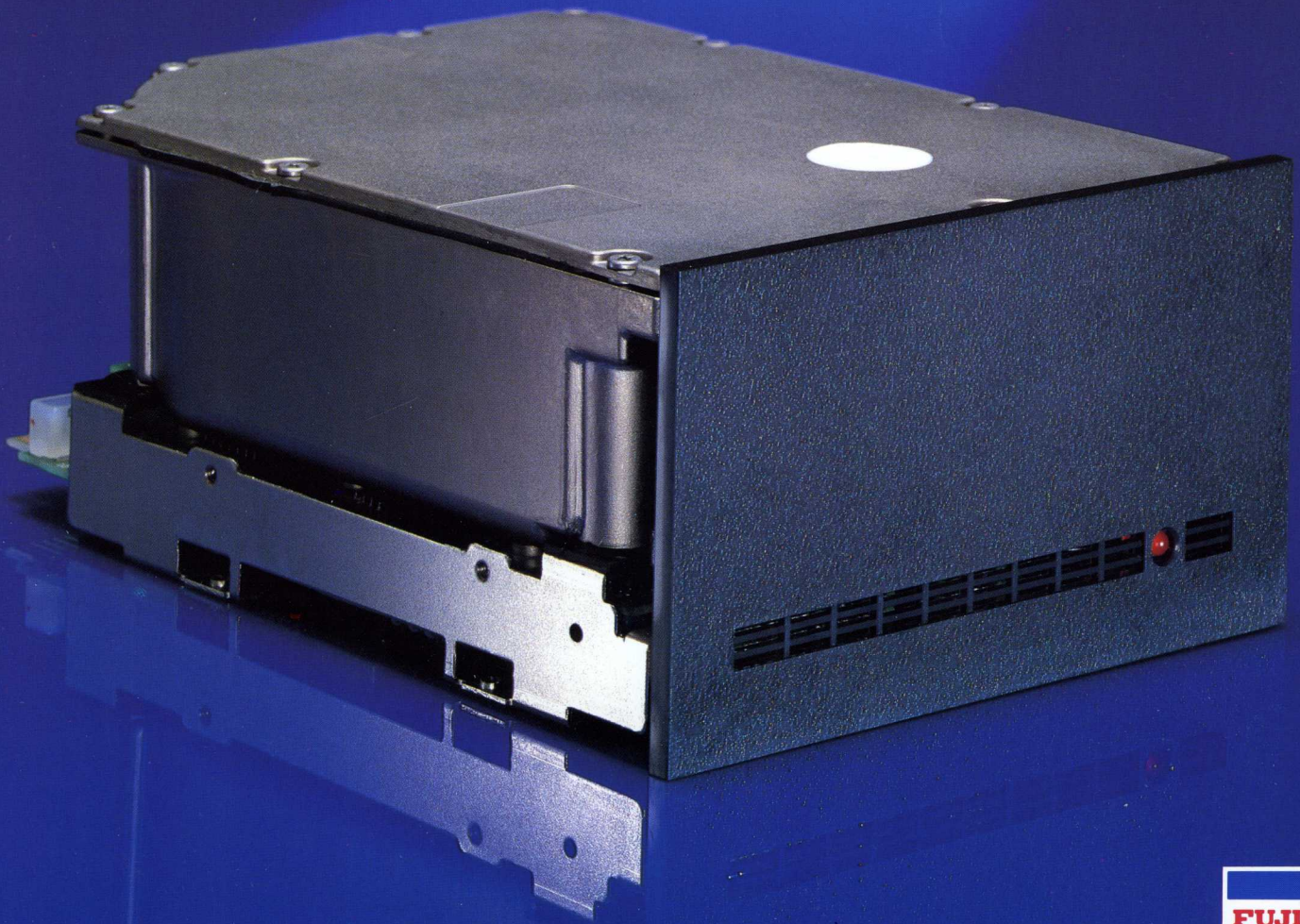
# FUJITSU

Quality OEM Products

Extra-large-capacity, high-performance  
5¼-inch disk drives

MAR 15 1986

**M2244E**  
**M2245E**  
**M2246E**





Fujitsu expands its 5¼-inch disk drive line with three new large-capacity, high-performance models – the M2244E, M2245E, and the M2246E. All of them have the Enhanced Small Disk Interface (ESDI). Each model's disk enclosure is completely sealed, integrating three to six disks, six to eleven Whitney heads, a rotary voice coil motor (VCM), and a DC spindle motor. They are ideal for intelligent office systems which can handle even images, voices, and video data. An optional front panel is available.

### **85.8 to 171.7 megabytes of storage**

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The M2244E, M2245E, and M2246E disk drives have new large capacities which were available only with conventional 8-inch disk drives. The M2244E is provided with 85.8 megabytes, the M2245E with 120 megabytes, and the M2246E with 171.7 megabytes – all unformatted.

### **High performance**

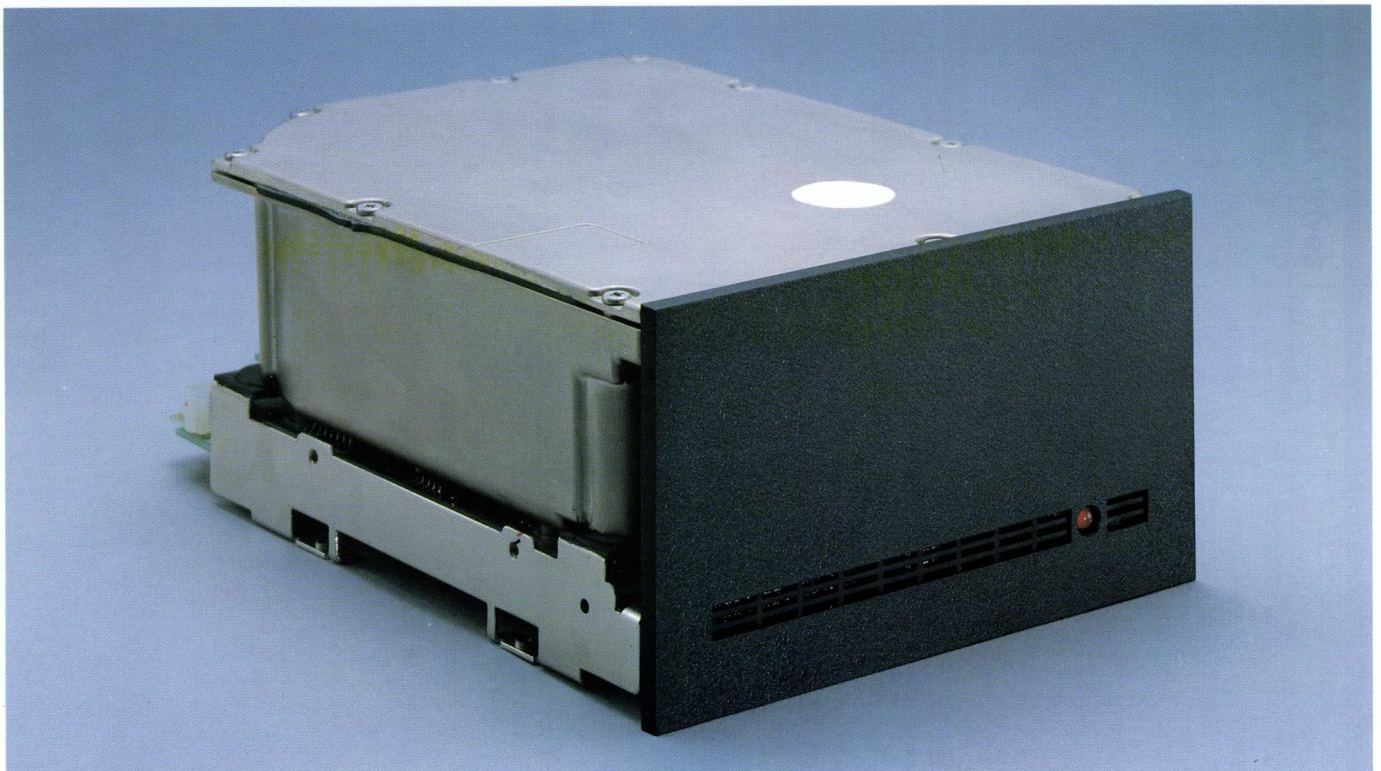
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The M2244E, M2245E, and M2246E have achieved fast positioning times – 5 milliseconds track-to-track, 28 milliseconds average, and 55 milliseconds maximum, including the settling time. The data transfer rate is 1,250 kilobytes per second. Also the start time is less than 20 seconds, and a dynamic brake reduces the stop time to less than 15 seconds.

### **Microprocessor controlled**

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The voice coil motor of these drives is controlled by a microprocessor. As a result, the seek control circuit is greatly simplified and reliability is further increased.



M2246E (with optional front panel attached)



## Reliable, maintenance free

The completely sealed disk enclosure contains a breathing filter and a recirculation filter to provide a contamination-free environment. Whitney heads eliminate moving parts for head loading and unloading. All models use LSI drive logic, and the Head IC prevents read errors caused by external electrical noise. With these features, the drives' mean-time-between-failures (MTBF) is more than 20,000 power-on hours, and their mean-time-to-repair (MTTR) is less than 30 minutes.

## Compact, economical

The new drives' large capacities and high performances have not been achieved at the expense of their compactness. Their physical size is the same as that of a minifloppy disk drive, and can be installed in minifloppy disk drive cabinets to increase storage capacity. They can be mounted horizontally or vertically. Each disk drive consumes only 30 watts. Noise and vibration have also been minimized. These features make the drives ideal choice for office applications.

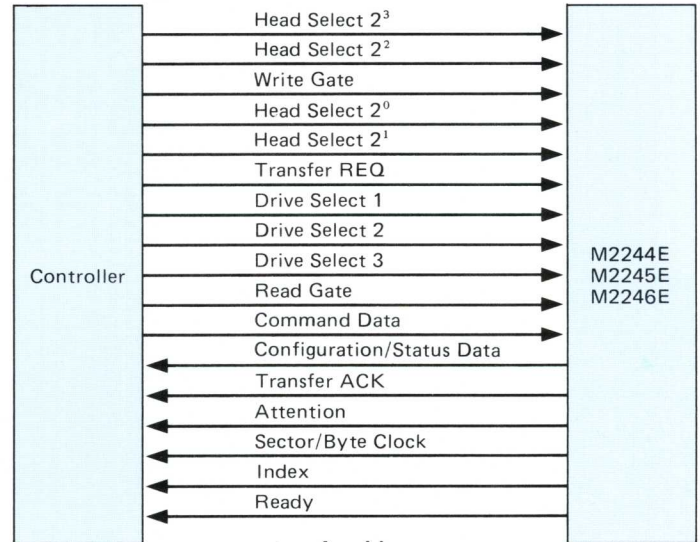
## ESDI interface

The M2244E, M2245E, and M2246E each offer the Enhanced Small Disk Interface (ESDI). The ESDI allows two modes of disk control – serial mode and step mode. In the serial mode 7 drives can be controlled, and in the step mode 3 drives can be controlled.

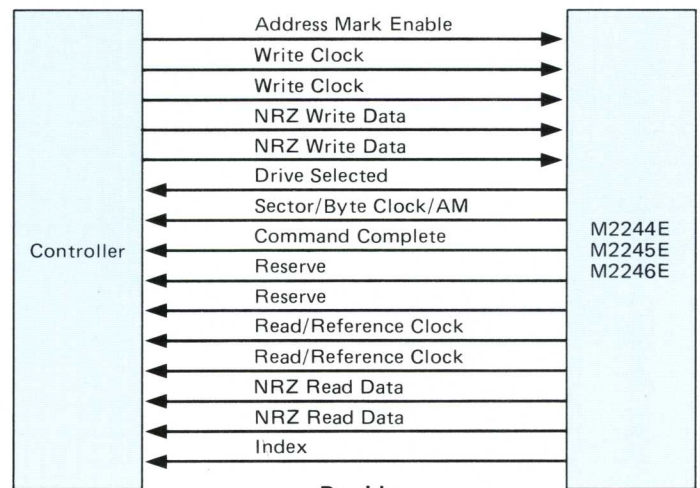
## Internationally compatible

The M2244E, M2245E, and M2246E disk drives use low-voltage DC power of +12V and +5V, permitting international applications and freedom from the effects of power line fluctuations.

### ESDI interface



A-cable



B-cable



# FUJITSU QUALITY OEM PRODUCTS

## FUNCTIONAL SPECIFICATIONS

		M2244E	M2245E	M2246E
Storage capacity	Unformatted	85.8 megabytes	120 megabytes	171.7 megabytes
	Formatted	67.4 megabytes	94.4 megabytes	134.8 megabytes
Disks (5¼-inch)		3	5	6
Heads	Read/write	5	7	10
	Servo		1	
Track capacity	Unformatted	20,864 bytes		
	Formatted	16,384 bytes (64 sectors)		
Tracks per cylinder		5	7	10
Cylinders		823		
Sectors		6 to 65		
Positioning time (including settling time)	Track-to-track	5 milliseconds		
	Average	25 milliseconds		
	Maximum	50 milliseconds		
Average latency time		8.3 milliseconds		
Rotational speed		3,600 rotations/minute		
Recording density		20,400 bits/inch		
Track density		850 tracks/inch		
Data transfer rate		1,250 kilobytes/second		
Recording code		RLI (2/7)		
Interface code		NRZ		
Interface		ESDI (Enhanced Small Disk Interface)		
Start time		Less than 20 seconds		
Stop time		Less than 15 seconds		
Option		Front Panel		

## RELIABILITY SPECIFICATIONS

		M2244E, M2245E, M2246E
Mean-time-between-failures (MTBF)		More than 20,000 power-on hours
Mean-time-to-repair (MTTR)		Less than 30 minutes
Component life		5 years
Error rates	Recoverable errors	10 per 10 <sup>11</sup> bits read
	Unrecoverable errors	10 per 10 <sup>13</sup> bits read
	Seek errors	10 per 10 <sup>7</sup> seeks

## PHYSICAL SPECIFICATIONS

		M2244E, M2245E, M2246E
Power requirements		12VDC±5%, 1.8 A (max. 4.8 A) 5VDC±5%, 1.6 A
Dimensions	Height	83 mm (3.3 in)
	Width	146 mm (5.7 in)
	Depth	203 mm (8.0 in)
Weight		3 kg (6.6 lb)
Ambient temperature	Operating	5°C to 45°C (41°F to 113°F)
	Not operating	-40°C to 60°C (-40°F to 140°F)
	Gradient	Less than 15°C (27°F)/hour
Relative humidity	Operating	20% to 80%, non condensing
	Not operating	5% to 95%, non condensing
Vibration	Operating	Max. 0.2 G (3Hz to 100Hz)
	Not operating	Max. 0.4 G (3Hz to 100Hz)
Shock resistance	Operating	Max. 2G (max. 10 ms)
	Not operating	Max. 20G (max. 10 ms)
Altitude	Operating	3,000 m (10,000 ft)
	Not operating	12,000 m (40,000 ft)

Specifications are subject to change without notice.  
For the latest information, contact your local  
Fujitsu representative.

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