

E-Disk® IDE/ATA 2.5" Series



Ideal for storage applications in:

- Military Systems
- Aerospace and Avionics
- Energy and Utilities
- Medical, Laboratory and Scientific Research
- Enterprise Systems
- Industrial Automation
- Real-Time Data Acquisition
- Control and Instrumentation
- Transportation Infrastructures

Inject Speed Into Your Network

Today's data explosion has created the need for a faster and higher performance storage solution for high-speed networking, broadband communications, mobile computing, military, aerospace, and industrial applications. BITMICRO® Networks has responded with a storage solution designed specifically for these emerging high performance applications - Solid State, Flash-based storage - E-Disk®. Incorporate this new storage product as a stand-alone solution or as an embedded plug and play component in the system. E-Disk® provides increased performance by eliminating seek time and latency for faster I/O rates, and provides the advantages of exceptional performance, superior reliability, and unprecedented durability.

Reliable & Secure Solid-State, Flash-Based Storage

BITMICRO® Networks utilizes proven Solid-State Flash-based E-Disk® technology, a non-volatile storage solution in industry 2.5-inch form factor. Ideal as a direct drop-in replacement for conventional rotating media such as hard disks and tape drives that are not only prone to short production life, but often fail in mobile computing and industrial environments where temperature fluctuations, shock, vibration, dust, moisture, or magnetic fields are present. Given today's critical national security and defense requirements, the powerful and user-customizable securErase® data security feature guarantees that device sanitization of your sensitive data is performed beyond retrieval. Patented PowerGuard® also ensures that up to 6 hours of losing power to the disk, securErase® is automatically activated to resume and complete the erase process.

E-Disk® IDE/ATA 2.5-inch Series

BITMICRO® Networks E-Disk® IDE/ATA products deliver a solid solution for data storage and protection while providing the powerful performance and speed that today's data-intensive applications demand. They feature patented FlashBus™ storage technology to speed performance, eliminate system bottlenecks, and offer durable storage for easy installation and start-up. E-Disk® requires no device drivers for installation and operation, and boasts of random I/O rates of up to 16,000/sec, burst rates of up to 66.6 MB/sec, sustained rates of up to 28 MB/sec, and capacities of up to 73.7 GB.

Product Highlights

Increased High Speed Networking

- Operating System Independent
- 1,500 to 16,000 IOPS
- 0.41 to 0.17 msec Access Time

Facilitate Quick Data Transfers

- 16.7 to 66.6 MB/s Burst Rate
- 14 to 28 MB/sec Sustained Rate

Highest Storage Capacities

- 2.5-inch: 512 MB to 73.7 GB

Unparalleled Operating Performance

- Pure Solid State/Non-Volatile
- 1,250 Gs Operating Shock
- -60 to +95 °C*
- 2 Million Hours MTBF
- 120,000 feet Altitude

Industry Standard IDE Interface

- No Device Driver Required
- IDE to UDMA 66 Support
- Completely bootable

Data Security Features

- DataSentinel
- PowerGuard®
- securErase®
- Write Protect**

* -40 to 85°C for units with PowerGuard®

** Available Upon Request

SPECIFICATIONS FOR E-DISK® IDE/ATA 2.5" SERIES
Flash Disk and Solid State Disk Storage Solutions

Physical Specifications:

Form Factor	2.5"		
Storage Capacity	512 MB to 73728 MB		
Dimensions	Width	69.85 mm (2.75 in)	
	Length	101.6 mm (4.00 in)	
	Height	8.51 mm (0.335 in) to 45.54 mm (1.793 in)	
Weight*	89.23 gm (3.148 oz) to 515.4gm (18.18 oz)		
Mounting Considerations	HDD Industry Standard, All Orientations		
Connector	44-pin / 50-pin 2.00 mm IDE/ATA ANSI Standards		

*Weights are approximate

Power Requirements:

Input Voltage	5 VDC (± 5%)		
Current	E-Disk® Capacity	17,408 MB	
	Write	3.3 Watts	
	Read	3.1 Watts	
	Idle	2.4 Watts	

Performance Specifications:

Access Time	0.41 to 0.17 msec		
Burst Rate	16.7, 33.3, 66.6 MB/sec		
Sustained Rate	14, 22, 28 MB/sec		
I/O Operations per Second	1500, 5000, 16000 IOPS		
Read Bit Error Rate	< 10 ⁻³⁰		
Fully Associative Cache	Standard: up to 128 MB		

Environmental Specifications:

Operating Temperature	Commercial	0 to 70 °C	
	Extended	-25 to 75 °C	
	Industrial	-40 to 85 °C	
	Military	-60 to 95 °C*	
Storage Temperature	-55 to 125 °C		
Humidity	5 to 95% (non-condensing)		
Shock (Operating)	1,250 G		
Vibration (Operating)	16.4 G rms**		
Altitude	-1,200 to 120,000 feet		
Airflow	None Required		

* Not available for units with PowerGuard®

** Projected

Reliability:

MTBF	> 1.9 Million Hours @ Bellcore Issue 6, Method I, Case 3		
Undetected Data Errors	< 10 ⁻³⁰		
Data Reliability	Built-in EDC/Interleaved Reed-Solomon ECC Corrects up to Six Random Byte Error per 528-Byte Block; Detects Burst Errors up to 9 Bytes Long		
Data Integrity	10 years		
Write Endurance (Typical)	1 GB E-Disk®	4.6 GB E-Disk®	
	27 years @ 100GB/day erase/write cycles	123 years @ 100GB/day erase/write cycles	
Read Endurance	Unlimited		
Security Erase Compliance	NISPOM DoD 5220.22-M, NSA 130-2, Air Force AFSSI 5020, Army 380-19, IRIG-106		
Diagnostics	Built-in Power-up Self Test		
	Self-Monitoring Diagnostics Database		



SPECIFICATIONS FOR E-DISK® IDE/ATA 2.5" SERIES
Flash Disk and Solid State Disk Storage Solutions

 **User Interface:**

LEDs (Remote Capability)	Idle, Busy, Cache Busy, Fault
Jumper Settings	Save Settings, Write Protect*
Drivers	None Required
Firmware	Field Upgradeable
ATA Compatibility	ANSI X3T13/1153D ATA-4: E-Disk® 2A16: Supports PIO Modes 0-4; DMA Modes 0-2 ANSI NCITS 340-2000 (ATA/ATAPI-5) E-Disk® 2A33: Supports PIO Modes 0-4; UDMA Modes 0-2 E-Disk® 2A66: Supports PIO Modes 0-4; UDMA Modes 0-4
EMI Compliance	CE, FCC, VCCI and AS/NZS Regulations
Safety Compliance	TÜV and UL

* Available Upon Request

 **Performance Matrix:**

MODEL NAME	FORM FACTOR	ATA MODES	SUSTAINED RATES	BURST RATES	STORAGE CAPACITY
E-Disk® 2A16	2.5"	PIO 0-4; DMA 0-2	14 MB/sec	16.7 MB/sec	512 MB – 73728 MB
E-Disk® 2A33	2.5"	PIO 0-4; UDMA 0-2	22 MB/sec	33.3 MB/sec	512 MB – 73728 MB
E-Disk® 2A66	2.5"	PIO 0-4; UDMA 0-4	28 MB/sec	66.6 MB/sec	512 MB – 73728 MB

 **Capacity, Height And Weight Matrix:**

E-DISK® CAPACITY (MB)	E-DISK® HEIGHT* (in)	E-DISK® HEIGHT* (mm)	E-DISK® WEIGHT** (oz)	E-DISK® WEIGHT** (gm)
512, 1024, 2048	0.335	8.51	3.148	89.20
2560, 4096, 5120, 8192, 10240	0.497	12.62	4.818	136.60
4608, 8192, 9216, 16384, 18432	0.659	16.74	6.488	183.90
6656, 12288, 13312, 24576, 26624	0.821	20.85	8.158	231.30
8704, 16384, 17408, 32768, 34816	0.983	24.97	9.828	278.60
40960, 43008	1.145	29.08	11.499	326.00
49152, 51200	1.307	33.20	13.169	373.30
57344	1.469	37.31	14.839	420.70
65536	1.631	41.42	16.509	468.00
73728	1.793	45.54	18.180	515.40

* PowerGuard height not included. For Low Profile heights, please contact sales.

** Weights are approximate

 **Security Erase:**

E-DISK® CAPACITY (MB)	ERASE TIME*	E-DISK® CAPACITY (MB)	ERASE TIME*	E-DISK® CAPACITY (MB)	ERASE TIME*
512, 2560, 4608	8 secs	1024, 4096, 5120, 8192, 9216	16 secs	2048, 8192, 10240, 16384, 18432	33 secs
6656, 8704	16 secs	12288, 13312, 16384, 17408	33 secs	24576, 26624, 32768, 34816, 40960, 43008	66 secs
				49152, 51200, 57344, 65536	98 secs
				73728	131 secs

* Estimated full erase times using default pattern of 1111s or FFFFs.

 **PowerGuard® Height and Weight Matrix:**

2.5" PowerGuard®	PG1 (embedded)	PG1	PG2	PG3
Height (mm)	0	7.90	7.90	11.05
Weight (gm)*	12.77	94.01	94.01	134.97

* Heights and Weights are approximate; For Low Profile heights, please contact sales.



SPECIFICATIONS FOR E-DISK® IDE/ATA 2.5” SERIES
Flash Disk and Solid State Disk Storage Solutions

 **Product Part Number:**

Part Number	Model Number + Capacity + Options + Sub-Part Number	
	PFISSSC + XXXXXX + TGV + (CC)	
Example	D2A066B 075776 CNN (UA) *Note (UA) Sub-Part Number	
Model Number	PFISSSC	
P: Product Type	D: E-Disk®	
F: Form Factor	2: 2.5-inch	
I: Interface	A: ATA/IDE	
S: Burst (Sustained) Rate	016: 16.7 MB/sec (14 MB/sec)	
	033: 33.3 MB/sec (22 MB/sec)	
	066: 66.6 MB/sec (28 MB/sec)	
C: Connector Type	B: 44/50-pin 2.00 mm ANSI IDE/ATA Standard	
Capacity	XXXXXX	
X: Capacity (MB)	512, 2560, 4608, 6656, 8704	
	1024, 4096, 5120, 8192, 9216, 12288, 13312, 16384, 17408	
Options	2048, 8192, 10240, 16384, 18432, 24576, 26624, 32768, 34816, 40960, 43008, 49152, 51200, 57344, 65536, 73728	
	TGV	
	T: Temperature (Operating)	C: Commercial (0 to +70 °C) E: Extended (-25 to +75 °C) I: Industrial (-40 to +85 °C) M: Military (-60 to +95 °C)**
	G: PowerGuard®	N: No PowerGuard® Option (default) 1: Auto-Save Cache to Flash on Power Down 2: Erase Mode on Power Down 3: Standby Erase Mode on Power Down
V: Input Voltage	N: 5V	
Sub-Part Number*	(CC)	
C: Casing	U: Ultra Low Profile without Side Mounting Holes	
	L: Low Profile with Side Mounting Holes	
	P: Low Profile with Side Mounting Holes and Embedded PowerGuard 1	
C: PCB Coating	A: Acrylic Conformal Coating	
	S: Silicone Conformal Coating	

* Consult [E-Disk® Part Numbering Guide](#)
** Not available for units with PowerGuard®

Note: Please contact sales for further details on any of the E-Disk features.



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6,000,006; 6,317,330; 6,496,939;
6,529,416; 6,744,635; 6,757,845;
6,970,890; 6,981,070. Other Patents
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