

# Industrial Flash Module Series

The Best Flash Storage Solutions-IEI Technology Corp.



## Industrial Flash Module Solution

Item	Part No.	Description	Capacity															
			128MB	256MB	512MB	1GB	2GB	4GB	8GB	16GB	32GB	64GB	128GB					
<b>Industrial CF Card</b>																		
ICF 1000+	0°C~70°C -40°C~85°C	ICF-1000IPX-XXXXX ICF-1000WPX-XXXXX	CF 50pin	.	.	.	.	.	.	.	.	.						
<b>Industrial IDE Flash Module</b>																		
IFM 4000+	0°C~70°C -40°C~85°C	IFM-4000IPX-XXXXX IFM-4000WPX-XXXXX	IDE 40pin/Vertical	.	.	.	.	.	.	.	.	.						
IFM 4400+	0°C~70°C -40°C~85°C	IFM-4400IPX-XXXXX IFM-4400WPX-XXXXX	IDE 44pin/Vertical	.	.	.	.	.	.	.	.	.						
IFP 2000	0°C~70°C -40°C~85°C	IFP-2000IPX-XXXXX IFP-2000WPX-XXXXX	IDE 44pin/Horizontal															
<b>Industrial SATA Flash Module</b>																		
IFM 3000IS	0°C~70°C -40°C~85°C	IFM-3000IS-XXXXXX IFM-3000WS-XXXXXX	SATA I 7pin/Vertical	.	.	.	.	.	.	.	.	.						
IFM 3000LVS	0°C~70°C -40°C~85°C	IFM-3000LVS-XXXXXX IFM-3000WLVS-XXXXXX	SATA I 7pin/Vertical	.	.	.	.	.	.	.	.	.						
IFM 3000ILPS	0°C~70°C -40°C~85°C	IFM-3000ILPS-XXXXXX IFM-3000WLPS-XXXXXX	SATA I 7pin/Horizontal	.	.	.	.	.	.	.	.	.						
<b>Industrial 2.5" Flash Disk</b>																		
IFD 2500C	0°C~70°C -40°C~85°C	IFD-2500CX-XXXXX IFD-2500WX-XXXXX	SATA I 2.5" 7+15pin	.	.	.	.	.	.	.	.	.						
IFD 2500IS	0°C~70°C	IFD-2500IS-XXXXX	SATA II 2.5" 7+15pin										.	.	.	.	.	.
IFD 2500WT	-40°C~85°C	IFD-2500WT-XXXXX	SATA II 2.5" 7+15pin										.	.	.	.	.	.
IFD 2500IA	0°C~70°C	IFD-2500IA-XXXXX	IDE 2.5" 44pin(2.0mm)										.	.	.	.	.	.
IFD 2500WA	-40°C~85°C	IFD-2500WA-XXXXX	IDE 2.5" 44pin(2.0mm)										.	.	.	.	.	.
IFD 2510IS	0°C~70°C	IFD-2510IS-XXXXX	SATA II 2.5" 7+15pin										.	.	.	.	.	.
IFD 2510WT	-40°C~85°C	IFD-2510WT-XXXXX	SATA II 2.5" 7+15pin										.	.	.	.	.	.




X= S-Single Channel / D-Dual Channel XXXXX=Capacity-128MB/256MB/512MB/1GB/2GB/4GB/8GB/16GB/32GB/64GB/128GB

Item	Part No.	Capacity																
		128MB	256MB	512MB	1GB	2GB	4GB	8GB	16GB	32GB	64GB	128GB						
<b>Wide Temp. Solution</b>																		
<b>Industrial DDR2 Memory Module</b>																		
DDR2 Low Profile	79800-M512-022-RS			.														
	79800-G001-025-RS				.													
DDR2 SO-DIMM	79900-M512-015-RS			.														
	79900-G001-023-RS				.													
<b>Industrial DDR Memory Module</b>																		
DDR Low Profile	79300-M512-070-RS			.														
DDR Long DIMM	79300-G001-044-RS				.													
DDR SO-DIMM	79300-M512-069-RS			.														
	79300-G001-046-RS				.													

# Industrial Flash Module Series





## ICF/IFM Series Specification

NEW

Item	ICF 1000 <sup>+</sup>	IFM 4000 <sup>+</sup> /iFM4400 <sup>+</sup> iFP 2000 <sup>+</sup>	IFM-3000IS(W/S) IFM-3000ILVS(WLVS) IFM-3000ILPS(WLPS)
Picture			
Capacities	128MB~16GB	128MB~8GB	128MB~8GB
Interface	50pin CompactFlash	44pin or 40pin IDE/ATA	SATA I
IDE Transfer Mode	PIO Mode 0-6 MwDMA Mode 0-4 UltraDMA Mode 0-4	PIO Mode 0-4 MwDMA Mode 0-2 UltraDMA Mode 0-4	PIO Mode 0-4 MwDMA Mode 0-2 UltraDMA Mode 0-2
Data Transfer Rate	128MB~2GB(Single):Read-20MB/sec. Write-10MB/sec. 2GB~16GB(Dual):Read-40MB/sec. Write-20MB/sec.	128MB~2GB(Single):Read-20MB/sec. Write-10MB/sec. 2GB~8GB(Dual):Read-40MB/sec. Write-20MB/sec.	Read-24MB/sec. ; Write-14MB/sec.
Protocol Mode	PCMCIA v2.1 and PC Card v3.0 ATA Standard compatible	ATA-6	N/A
Access Mode	Memory mode,I/O Mode, True-IDE mode	IDE Mode	N/A
Operation Temp.		-0°C~+70°C ; -40°C~+85°C	
Storage Temp.		-55°C~+95°C	
Humidity		10%~95% non-condensing	
Vibration		15G(7~2000Hz)	
Shock		1500G/10ms	
ECC Technology		High reliability based on the internal ECC function	
MTBF		>3,000,000 hours	
R/W Endurance		2,000,000 times	
Wear-Leveing		Support	
DC Input Voltage		+3.3V~+5V single power supply operation	+5V single power supply operation
Power Mode		Auto stand-by and sleep mode	
Power Consumption		150mA	200mA
Enclosure Material	CF and plastic frame with metal cover	PC mechanical cover	
Dimension	42.8x36.4x3.3 mm(WxLxH)	Vertical 40pin:60.2x6.4x27.8mm(WxLxH) Vertical 44pin:50.3x5.8x27.3mm(WxLxH)	20.5x39.2x8mm(WxLxH)
Certificate		RoHS/CE/FCC	

## IFD Series Specification

NEW

Item	IFD-2500IA(WA)	IFD-2500C(W)	IFD-2500IS(WT)	IFD-2510IS(WT)
Picture				
Capacities	4GB~128GB	128MB~64GB	8GB~128GB	8GB~128GB
Interface	44pin (2.0mm) IDE/ATA	Serial ATA I	Serial ATA II	Serial ATA II 3.0G
Transfer Mode	PIO Mode 0-4 MwDMA Mode 0-2 UltraDMA Mode 0-5	PIO Mode 0-4 MwDMA Mode 0-2 UltraDMA Mode 0-5	PIO Mode 0-4 UltraDMA Mode 0-6	PIO Mode 0-4 UltraDMA Mode 0-5
Data Transfer Rate(max.)	Read-60MB/sec ; Write-40MB/sec.	Read-37MB/sec ; Write-37MB/sec.	Read-60MB/sec. ; Write-40MB/sec.	Read: 160MB/sec. ; Write: 140MB/sec.
Operation Temp.	iFD-2500IA: 0°C~+70°C iFD-2500WA: -40°C~+85°C	iFD-2500C: 0°C~+70°C iFD-2500W: -40°C~+85°C	iFD-2500IS: 0°C~+70°C iFD-2500WT: -40°C~+85°C	iFD-2510IS: 0°C~+70°C iFD-2510WT: -40°C~+85°C
Storage Temp.			-55°C~+95°C	
Humidity			10%~95% non-condensing	
Vibration			20G(7~2000Hz)	
Shock			1500G/0.5ms	
ECC Technology		High reliability based on the internal ECC function		
MTBF		>2,000,000 hours		
R/W Endurance		2,000,000 times		
Wear-Leveing		Support		
DC Input Voltage		+5V single power supply operation		
Enclosure Material		Metal Mechanical Cover		
Dimension	69.8x100.1x9.5mm(WxLxH)		69.63x99.88x9.3mm(WxHxL)	
Certificate		RoHS/CE/FCC		

# Industrial Flash Module Series

## The Best Flash Storage Solutions-IFD 2.5" Series

### IFD 2.5" Industrial SSD Series

IEI IFD 2.5" SSD supporting SATA and ATA solutions features anti-vibration, low power consumption, high performance and perfect reliability. SSD not only performs much better IOPS than HDD but also can be operated anytime because of no mobile components like the motor, bearing or and rotating head. In addition, SSD can absolutely fulfill specialized application performing in any harsh environment.



IFD 2.5" SATA 2500C IFD 2.5" SATA 2500IS IFD 2.5" ATA 2500IA IFD 2.5" SATA 2510IS



•ATA interface 44pin(2.0mm)



•SATA interface 7+15pin



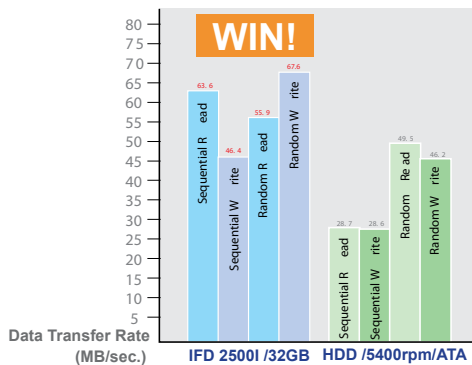
IFD 2.5" SATA 2500W IFD 2.5" SATA 2500WT IFD 2.5" ATA 2500WA IFD 2.5" SATA 2510WT  
Wide Temp. Grade Wide Temp. Grade Wide Temp. Grade Wide Temp. Grade

#### •ATA interface compared with SATA interface

Item	Interface	ATA	SATA I	SATA II
Data Transfer Rate		Ultra DMA Mode 6 133MB/sec.	150MB/ sec.(max)	300MB/ sec.(max)
Reliability		Fair	Better	Better
Power Consumption		Higher	Lower	Lower
Heat Delivery support		Fair	Better	Better
		No	Yes	Yes

### Comparison Chart : IFD SATA 2.5" 2500i & HDD

Performance testing



Data Transfer Rate	Item	IFD 2500i	HDD
Sequential Read		63.6MB/sec.	28.7MB/sec.
Sequential Write		46.4MB/sec.	28.6MB/sec.
Random Read		55.9MB/sec.	49.5MB/sec.
Random Write		67.6MB/sec.	46.2MB/sec.

Booting time testing



Times	Item	IFD 2500i	HDD
sec.		20 sec.	30 sec.

#### Testing environment:

OS	Windows XP SP2	Motherboard	Gigabyte 945GCM-S2
CPU	Celeron@1.60GHz	Chipset	Inter 82801GB ICH7
RAM	1GB	HDD	Seagate 20GB 5400rpm PATA

## Ordering Information

### Industrial SATA 2.5" Flash Disk

Part No.	Interface	Capacity
IFD-2500CX-XXXXX	SATA I 7+15pin	128MB~8GB
IFD-2500WX-XXXXX	SATA I 7+15pin	128MB~ 8GB
IFD-2500IS-XXXXX	SATA II 7+15pin	8GB~128GB
IFD-2500WT-XXXXX	SATA II 7+15pin	8GB~64GB
IFD-2510IS-XXXXX	SATA II 7+15pin	8GB~128GB
IFD-2510WT-XXXXX	SATA II 7+15pin	8GB~128GB

### Industrial ATA 2.5" Flash Disk

Part No.	Interface	Capacity
IFD-2500IA-XXXXX	IDE 44pin 2.0mm	4GB~128GB
IFD-2500WA-XXXXX	IDE 44pin 2.00mm	4GB~ 64GB

X= S-Single Channel / D-Dual Channel

XXXXX=Capacity-128MB/256MB/512MB/1GB/2GB/4GB/8GB/16GB/32GB/64GB/128GB

C,I= Standard Grade Operation Temp.: 0°C~70°C

W=Industrial Grade Operation Temp.: -40°C~85°C

# Industrial Flash Module Series

## The Best Flash Storage Solutions-ICF 1000<sup>+</sup> & iFM/iFP 4000<sup>+</sup>/ 4400<sup>+</sup>

### Points

- Noiseless
- High reliability-Power Cycling
- ISP (In System Programming)upgrade
- Better shock durability
- Low power consumption
- To operate under high temperature and low temperature



### ISP (In System Programming) Architecture

The ISP architecture greatly enables InnoDisk iCF/EDC 4000 series to achieve upgradeable firmware for new application requirements.

### Power Cycling

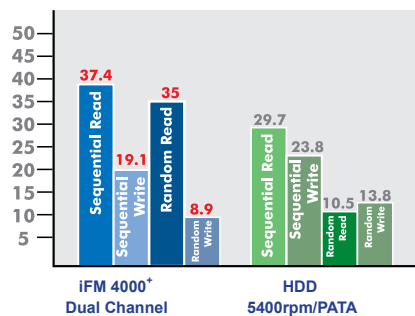
A strong Power Cycling management enhances data integrity and reliability. The new 4000 series passes complete and non-stopping power cycling tests more than 3000 times to achieve the high standard requirement.

Target Device	EDC 4000 40pin 2GB, Dual
OS	Embedded Windows XP
Motherboard	ASUS A7N8X
Power Failure	3,000
Test Result	pass



### Comparison Chart : iFM 4000<sup>+</sup> & HDD

#### Performance testing



#### Performance

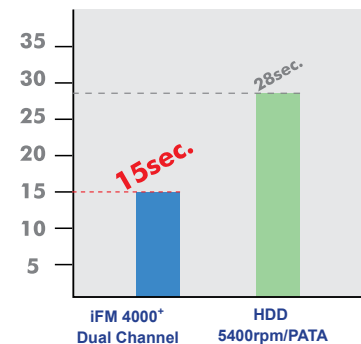
Item	iFM 4000 <sup>+</sup>	HDD
Sequential Read	37.4MB/sec.	29.7MB/sec.
Sequential Write	19.1MB/sec.	23.8MB/sec.
Random Read	35.0MB/sec.	10.5MB/sec.
Random Write	8.9MB/sec.	13.5MB/sec.

- Sequential Access: the data can only be read and written sequentially, starting from the beginning of the file.
- Random Access: the data can be read and written anywhere in the file.
- Dual Channel: 2pcs NAND Flash IC with dual channel data access of faster speed

#### Booting time

Item	iFM 4000 <sup>+</sup>	HDD
Times	15sec.	28 sec.

#### Booting time testing



Testing environment:

OS	Windows XP SP2	Motherboard	Gigabyte 8S661FXMP-RZ	RAM	1GB
CPU	Celeron® 2.66GHz	Chipset	Sis964	HDD	Samsung 40GB 5400rpm PATA

## Ordering Information

### Industrial Compact Flash Card

Part No.	Interface	Capacity
ICF-1000IPX-XXXXX	CF/50pin	128MB~16GB
ICF-1000WPX-XXXXX	CF/50pin	128MB~16GB

### Industrial IDE Flash Module

Part No.	Interface	Capacity
IFM-4000IPX-XXXXX	Vertical IDE 40pin	128MB~8GB
IFM-4000WPX-XXXXX	Vertical IDE 40pin	128MB~8GB
IFM-4400IPX-XXXXX	Vertical IDE 44pin	128MB~8GB
IFM-4400WPX-XXXXX	Vertical IDE 44pin	128MB~8GB
IFP-2000IPX-XXXXXX	Horizontal IDE 44pin	128MB~8GB
IFP-2000WPX-XXXXX	Horizontal IDE 44pin	128MB~8GB

### Industrial SATA Flash Card

Part No.	Interface	Capacity
IFM-3000IS-XXXXX	Vertical SATA I 7pin	128MB~8GB
IFM-3000WS-XXXXX	Vertical SATA I 7pin	128MB~8GB
IFM-3000ILV(S)-XXXXX	Vertical SATA I 7pin	128MB~8GB
IFM-3000WLVS-XXXXX	Vertical SATA I 7pin	128MB~8GB
IFM-3000ILPS-XXXXX	Horizontal SATA I 7pin	128MB~8GB
IFM-3000WLPS-XXXXX	Horizontal SATA I 7pin	128MB~8GB

X= S-Single Channel / D-Dual Channel

XXXXX=Capacity-128MB/256MB/512MB/1GB/2GB/4GB/8GB/16GB/32GB/64GB/128GB

I= Standard Grade Operation Temp.: 0°C~70°C


W=Industrial Grade Operation Temp.: -40°C~85°C

# Industrial Flash Module Series

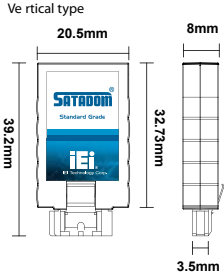
## The Best Flash Storage Solutions

### IFM 3000 Dimension

**Vertical type**




IFM-3000IS(WS)

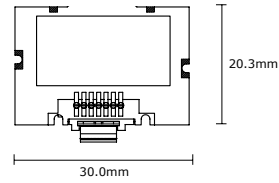


20.5mm, 32.7mm, 8mm, 3.5mm, 39.2mm

**IFM-3000ILPS(WLPS)**




**NEW**

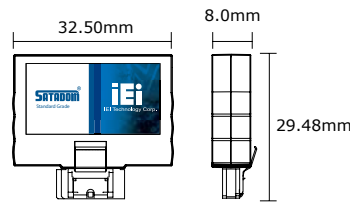


30.0mm, 20.3mm

**IFM-3000ILVS(WLVS)**




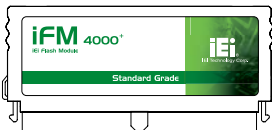
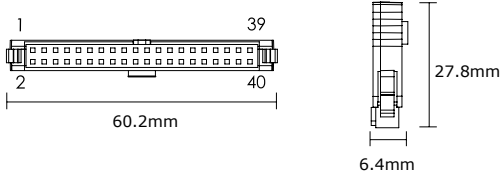
**NEW**



32.50mm, 8.0mm, 29.48mm

### IFM 4000/4400 Dimension

#### IFM 4000+ Series-IDE 40pin

1, 2, 39, 40, 60.2mm, 27.8mm, 6.4mm

#### IFM 4400+ Series-IDE 44pin





1, 2, 43, 44, 50.3mm, 27.3mm, 5.8mm, 3.3mm

#### ICF 1000+ Series-Compact Flash 50pin



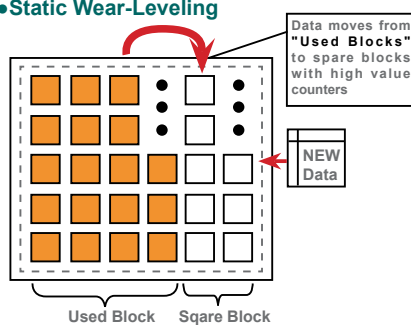


1, 2, 42.8mm, 36.4mm

### Static Wear-Leveling

The Static Wear-Leveling algorithm evenly distributes the data over the entire disk and greatly enables to extend product longevity. The Static Wear-Leveling is calculated to beat least four times the programming endurance of the dynamic wear-leveling.

#### •Static Wear-Leveling



#### •Dynamic Wear-Leveling

