

# Industrial SSD Series

## Breakthrough Technology of IFD-2530ISMD

With the release of the brand-new designed firmware algorithm, and IFD-2530ISMD offer outstanding read and write performance and extended lifespan, and are compliant with the JEDEC 219 specifications. In addition, with the iData Guard Technology, IFD-2530ISMD support data integrity in the event of abnormal power failure. The wide operating temperature ranges from -40 °C to 85 °C.



## Features of IFD-2540A2M & IFD-2530ISMD

IFD-2540A2M and IFD-2530ISMD provide a wide range demand of capacity. IFD-2530ISMD even supports large capacity up to 1TB.

	IFD-2540A2M	IFD-2530ISMD
DRAM-less Design	•	
Price	•	
Random Transfer Performance	• R: 31,000 IOPS/W: 40,000 IOPS (128GB)	• R: 70,000 IOPS/W: 64,000 IOPS (128GB)
Easy to Design in Small Form Factors	•	
Low Power Consumption	•	•
TRIM	•	•

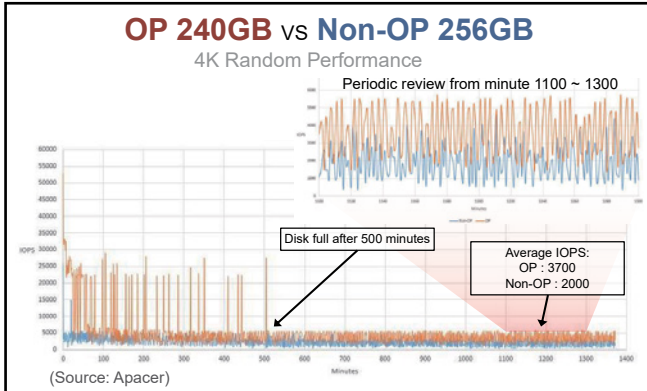
Model Name	2.5" SATA 6Gb/s IFD-2520IS	2.5" SATA 6Gb/s IFD-2530ISMD	2.5" SATA 6Gb/s IFD-2540A2M
Picture			
Key Features	<ol style="list-style-type: none"> <li>Intelligent error recovery system</li> <li>Excellent data transfer speed</li> <li>Enhanced power cycling management</li> </ol>	<ol style="list-style-type: none"> <li>EverGreen L<sup>2</sup> architecture</li> <li>7mm height mechanical design</li> <li>Excellent random performance</li> </ol>	<ol style="list-style-type: none"> <li>7mm height mechanical design</li> <li>Low power consumption</li> <li>Budget-friendly MLC-based solution</li> </ol>
Interface	SATA 6Gb/s	SATA 6Gb/s	SATA 6Gb/s
Flash Type	SLC	MLC	MLC
Capacity (GB)	8GB~128GB	8GB~1TB	32GB~1TB
Sequential R/W	510/340	520/450	560/510
Max. Power Consumption	2.2W (5V x 450mA)	5W (5V x 1A)	0.5W (5V x 100 mA)
Thermal Sensor	Wide temperature model only	Wide temperature model only	Wide temperature model only
ATA Security	Yes	Yes	Yes
S.M.A.R.T	Yes	Yes	Yes
Dimensions (mm)	69.8 x 100.1 x 9.3	70.0 x 100.0 x 6.8	69.85 x 100 x 6.9
Environment	Vibration: 20G@7~2000Hz, Shock: 1500G@0.5ms, Storage Temperature: -55°C ~ +95°C, MTBF: >3 million hours		
P/N	Standard (0°C~+70°C)	IFD-2530ISMD-8GB-R20 IFD-2530ISMD-16GB-R20 IFD-2530ISMD-32GB-R20 IFD-2530ISMD-64GB-R20 IFD-2530ISMD-128GB-R20 IFD-2530ISMD-256GB-R20 IFD-2530ISMD-512GB-R20 IFD-2530ISMD-1TB-R20	IFD-2540A2M-32GB-R10 IFD-2540A2M-64GB-R10 IFD-2540A2M-128GB-R10 IFD-2540A2M-256GB-R10 IFD-2540A2M-512GB-R10 IFD-2540A2M-1TB-R10
	Wide Temperature (-40°C~+85°C)	IFD-2520WT-8GB IFD-2520WT-16GB IFD-2520WT-32GB IFD-2520WT-64GB IFD-2520WT-128GB	IFD-2530WTMD-8GB-R20 IFD-2530WTMD-16GB-R20 IFD-2530WTMD-32GB-R20 IFD-2530WTMD-64GB-R20 IFD-2530WTMD-128GB-R20 IFD-2530WTMD-256GB-R20 IFD-2530WTMD-512GB-R20 IFD-2530WTMD-1TB-R20

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## Over-provisioning for SSDs

### Maintain the high performance of SSDs with over-provisioning

All SSDs feature a reserved space for over-provisioning (OP). This allows the SSD to continue writing data without affecting performance when the SSD is almost out of storage space. However, if this reserved space is used up, the SSD needs to reorganize its internal data before any new data can be written. This data reorganization can have drastic impacts to both SSD performance and lifetime. SSDs with insufficient OP reserved space is like a restaurant where the staff do not have enough time to clean up the tables left by customers, resulting in guests waiting at the door. With additional reserved space for OP, it is like opening separate tables for new customers.



Due to cost considerations of SSD manufacturers and general usage cases, SSDs intended for general consumers only provide a minimal reserved space for OP. For a larger OP reserved space, expensive enterprise-level SSDs are required. Additional space for over-provisioning can be reserved at the OS level (or by other software). Research by mainstream SSD manufacturers has shown that on a 512 GB consumer-level SSD, an additional 5% reserved space for OP can more than double the lifespan (write endurance) of an SSD, and improve performance by nearly 100%.

SSDs with over-provisioning technology, while sacrificing a portion of the physical capacity, have more free blocks for wear-leveling and garbage collection to further improve lifespan and overall performance.

The 3D 2.5" SATA SSD is SATA 6Gb/s solid state disk, which delivers excellent performance, especially in random data transfer rate, and which offers reliability making it the ideal solution for a variety of applications, including embedded system, industrial computing, and enterprise field. The 3D 2.5" SSD not only performs unmatched performance but also designed with industrial storage technologies to ensure the data integrity and highest levels of reliability.

## Features of IFD-2540A3T & IFD-2540I3TD

IFD-2540A3T and IFD-2540I3TD provide a wide range demand of capacity. IFD-2540I3TD even supports large capacity up to 4TB.

	IFD-2540A3T	IFD-2540I3TD
DRAM-less Design	•	•
Price	•	•
Random IOPS	R: 80,000 IOPS/W: 71,000 IOPS (128GB)	R: 87,000 IOPS/W: 66,000 IOPS (128GB)
Easy to Design in SFF	•	•
Low Power Consumption	•	•
TRIM	•	•

Model Name	2.5" SATA 6Gb/s IFD-2540A3T	2.5" SATA 6Gb/s IFD-2540I3TD		
Picture				
Key Features	1. LDPC ECC engine Internal Flash DIE RAID engine 2. End to End Data Protection Original Toshiba Industrial grade 3D TLC 3. End to End Power Protection Optional iCell	1. LDPC ECC engine Internal Flash DIE RAID engine 2. End to End Data Protection Original Toshiba Industrial grade 3D TLC 3. End to End Power Protection Stable and excellent performance Optional iCell		
Interface	SATA 6Gb/s	SATA 6Gb/s		
Flash Type	3D TLC	3D TLC		
Capacity (GB)	30GB~960GB	128GB~4TB		
Sequential R/W	560/515	530/460		
Max. Power Consumption	2.6W (5V x 525mA)	128GB~1TB 3.1W (5V x 620mA) / 2TB~4TB 6W (5V x 1.2A)		
Thermal Sensor	Yes	Yes		
ATA Security	Yes	Yes		
S.M.A.R.T	Yes	Yes		
Dimensions (mm)	69.8 x 100.0 x 6.8	69.8 x 100.1 x 7.0		
Environment	Vibration: 20G@7~2000Hz, Shock: 1500G@0.5ms, Storage Temperature: -55°C ~ +95°C, MTBF: >3 million hours			
P/N	<b>Standard (0°C~+70°C):</b> IFD-2540A3T-30GB-R10 IFD-2540A3T-60GB-R10 IFD-2540A3T-120GB-R10 IFD-2540A3T-240GB-R10 IFD-2540A3T-480GB-R10 IFD-2540A3T-960GB-R10	<b>Wide Temperature (-40°C~+85°C):</b> IFD-2540I3TD-1TB-R10 IFD-2540I3TD-512GB-R10 IFD-2540I3TD-256GB-R10 IFD-2540I3TD-128GB-R10 IFD-2540I3TD-64GB-R10 IFD-2540I3TD-32GB-R10	<b>Standard (0°C~+70°C):</b> IFD-2540I3TD-4TB-R10 IFD-2540I3TD-2TB-R10 IFD-2540I3TD-1TB-R10 IFD-2540I3TD-512GB-R10 IFD-2540I3TD-256GB-R10 IFD-2540I3TD-128GB-R10	<b>Wide Temperature (-40°C~+85°C):</b> IFD-2540I3TD-4TB-R10 IFD-2540I3TD-2TB-R10 IFD-2540I3TD-1TB-R10 IFD-2540I3TD-512GB-R10 IFD-2540I3TD-256GB-R10 IFD-2540I3TD-128GB-R10