



Business Benefits

- Drives faster time to market with quick system integration
- Enables real-time analytics at the edge
- Enables cloud augmentation, reduces network traffic
- Improves connected user experience
- Provides reliable local storage, as primary or backup
- Optimizes system performance
- Improves cost per GB over 2D memory

Serving Industrial Applications

- Industrial boards and PCs
- Factory automation
- Medical
- Smart meters and utilities
- Smart buildings and homes
- IoT gateways
- Surveillance
- Drones
- SOM
- Networking

(→) SANDISK® iNAND® IX EM132 Industrial Embedded Flash Devices

Proven Reliability and Endurance for Embedded Platforms

The Industrial iNAND® IX EM132¹ Embedded Flash Drive (EFD) is Sandisk's most advanced e.MMC flash storage solution for industrial applications, with high reliability and endurance across a wide range of operational requirements.

Designed and tested to withstand demanding environmental conditions, these industrial grade flash devices feature advanced flash memory management firmware that provides enhanced power immunity, ECC, wear levelling, and bad block management. Data intensive applications can rely on the IX EM132 to capture every critical moment, log each event, and to help ensure quality-of-service to end-users.

The Smart Partitioning feature of the iNAND® IX EM132 EFD Industrial flash devices enables boot partitions, RPMB, different TLC and SLC partitions, User Data Area and Enhanced User Data Area, providing OEMs the flexibility to choose different attributes on a single device depending on storage requirements.

With optimized 3D NAND memory, iNAND® IX EM132 offers a significant capacity increase compared with the previous generation of iNAND products.

Key Features and Benefits

- Operating temperature range: -25°C to 85°C (16GB-256GB) on Industrial SKUs; -40°C to 85°C (32GB-256GB) on Industrial extended-temperature SKUs
- Broad portfolio: 16GB to 256GB²
- Advanced controller built for endurance and reliability
- High endurance: up to 3K P/E cycles in TLC & up to 100K P/E cycles in SLC
- Smart Partitioning, Advanced Health Report and Manual Refresh (Industrial Grade)
- Enhanced User Data Area (EUDA)
- Nominal operating voltage: Vcc = 3.3V ; Vccq = 1.8V or 3.3V

Specifications

	16GB	32GB	64GB	128GB	256GB
Interface	eMMC 5.1 HS400	eMMC 5.1 HS400	eMMC 5.1 HS400	eMMC 5.1 HS400	eMMC 5.1 HS400
Form Factor (mm)	11.5mm × 13mm × 1.0mm	11.5mm × 13mm × 1.0mm	11.5mm × 13mm × 1.0mm	11.5mm × 13mm × 1.0mm	11.5mm × 13mm × 1.2mm
NAND Flash Technology	3D NAND BiCS3 64L	3D NAND BiCS3 64L	3D NAND BiCS3 64L	3D NAND BiCS3 64L	3D NAND BiCS3 64L
Formatted Capacity ²	16GB	32GB	64GB	128GB	256GB

Operating Voltage

Core Voltage (VCC):	2.7–3.6V	2.7–3.6V	2.7–3.6V	2.7–3.6V	2.7–3.6V
I/O (VCCQ) Voltage:	1.7–1.95V or 2.7–3.6V	1.7–1.95V or 2.7–3.6V	1.7–1.95V or 2.7–3.6V	1.7–1.95V or 2.7–3.6V	1.7–1.95V or 2.7–3.6V

Operating Temperature

Industrial Wide Temperature	–25°C to 85°C	–25°C to 85°C	–25°C to 85°C	–25°C to 85°C	–25°C to 85°C
Industrial Extended Temperature		–40°C to 85°C	–40°C to 85°C	–40°C to 85°C	–40°C to 85°C

Performance³

Sequential Read/Write (MB/s)	Up to 300/180	Up to 300/180	Up to 310/240	Up to 310/250	Up to 310/250
Random Read/Write (IOPS)	Up to 14K/12K	Up to 14K/12K	Up to 21K/12K	Up to 21K/12K	Up to 21K/12K

Write Endurance

Total Terabytes Written (TBW) ⁴	Up to 44TBW (100% TLC)	Up to 87TBW (100% TLC)	Up to 173TBW (100% TLC)	Up to 346TBW (100% TLC)	Up to 693TBW (100% TLC)
	Up to 420TBW (100% SLC)	Up to 860TBW (100% SLC)	Up to 1720TBW (100% SLC)	Up to 3430TBW (100% SLC)	Up to 6800TBW (100% SLC)

Ordering Information

Commercial Grade	SDINBDA6–16G	SDINBDA6–32G	SDINBDA6–64G	SDINBDA6–128G	SDINBDA6–256G
Industrial Wide Temperature	SDINBDA6–16G–I1	SDINBDA6–32G–I1	SDINBDA6–64G–I1	SDINBDA6–128G–I1	SDINBDA6–256G–I1
Industrial Extended Temperature		SDINBDA6–32G–X11	SDINBDA6–64G–X11	SDINBDA6–128G–X11	SDINBDA6–256G–X11

¹ Formerly known as iNAND 75501.

² 1GB=1,000,000,000 bytes. 1TB=1,000,000,000,000 bytes. Actual user capacity less.

³ Performance will vary by capacity point or with the changes in useable capacity. Consult product manual for further details. 1 MB/s = 1 million bytes per second. Based on internal testing; performance may vary depending upon host device, usage conditions, drive capacity, and other factors.

⁴ TBW (terabytes written) values calculated using JEDEC client workload. Maximum TBW values given are for sequential workload (with IDLE).