e.MMC Standard

The Global Leader in Specialized Storage and Memory Solutions

KEY FEATURES

- Robust Data Integrity*
  (AutoRefresh and Dynamic Data Refresh)
- Extra-high endurance: 2-3X higher than standard e.MMC*
- Complies with JEDEC e.MMC v5.1 Standard (JESD84-B51)
- 153-ball FBGA (RoHS compliant, "green package")
- LDPC ECC engine*

* May vary by product and project support

The ATP industrial e.MMC is an advanced storage solution that integrates NAND flash memory, a sophisticated flash controller, and a fast MultiMedia Card (MMC) interface in the same package. By incorporating these components in an integrated package, ATP e.MMC manages all background operations internally, freeing the host from handling low-level flash operations for faster and more efficient processing.

ATP e.MMC is built to meet the tough demands of industrial applications. As a soldered-down solution, it is secure against constant vibrations. Its industrial temperature rating means that severe scenarios from freezing cold -40°C to 85°C will not cause adverse impact on the device or the data in it.

Compliant with the latest JEDEC e.MMC 5.1 Standard (JESD84-B51), ATP e.MMC features Command Queuing and Cache Barrier to enhance random read/write performance; High Speed 400 (HS400) DDR Mode for a bandwidth of up to 400 MB/s; and field firmware update (FFU). Enhanced Strobe in HS400 Mode facilitates faster synchronization between the host and the e.MMC device; and, Secure Write Protection ensures that only trusted entities can protect or unprotect the e.MMC device.

It is backward compatible with previous versions (v4.41/v4.5/v5.0), supporting features such as power-off notifications, packed commands, cache, boot or replay protected memory block (RPMB) partitions, high priority interrupt (HPI), and hardware (HW) reset.

Specifications

Product Line	Industrial Grade				Commercial Grade			
	Premium		Superior		Premium		Superior	
	E700Pi[1]	E700Pi	E600Si[1]	E600Si	E700Pc[1]	E700Pc	E600Sc[1]	E600Sc
Flash Type	3D TLC (pSLC mode)		3D TLC		3D TLC (pSLC mode)		3D TLC	
IC Package	153-ball FBGA							
JEDEC Specification	v5.1, HS400							
Power Loss Protection Options	Firmware Based							
Operating Temperature	-40°C to 85°C				-25°C to 85°C			
Capacity	20 GB to 80 GB	10 GB to 40 GB	64 GB to 256 GB	32 GB to 128 GB	20 GB to 80 GB	10 GB to 40 GB	64 GB to 256 GB	32 GB to 128 GB
Performance								
Sequential Read/ Write up to (MB/s) (Max.)	310 / 240	290 / 225	310 / 240	290 / 225	310 / 240	290 / 225	310 / 240	290 / 225
Bus Speed Modes	x1 / x4 / x8							
ICC (Typical RMS in Read/Write) mA (Max.)	92 / 144	100 / 110	90 / 146	100 / 110	92 / 144	100 / 110	90 / 146	100 / 110
ICCQ (Typical RMS in Read/Write) mA (Max.)	100 / 153	105 / 100	100 / 151	105 / 100	100 / 153	105 / 100	100 / 151	105 / 100
Endurance and Reliability								
Endurance TBW (Max.)[2]	2,000 TB	1,360 TB	280 TB	110 TB	2,000 TB	1,360 TB	280 TB	110 TB
Reliability MTBF @ 25°C	>3,000,000 hours	>2,000,000 hours	>3,000,000 hours	>2,000,000 hours	>3,000,000 hours	>2,000,000 hours	>3,000,000 hours	>2,000,000 hours
Others								
Dimensions (mm)	11.5 x 13.0 x 1.2							
Certifications	RoHS, REACH							
Warranty	One Year							

1 Product specifications may be subject to change.
2 All performance is collected or measured using ATP proprietary test environment, without file system overhead.

Technologies		S.M.A.R.T/ Life Monitor	Industrial Temperature	SiP	Vibration-Proof BGA Package	Firmware-Based Data-At-Rest Power Loss Protection	Advanced Wear Leveling	AutoRefresh	Dynamic Data Refresh	Auto-Read Calibration	ETEDP	Content Preload	Joint Validation and Test
Premium	E700Pi / E700Pc	○	○	○	○	○	○	○	○	▲	▲	▲	▲
Superior	E600Si / E600Sc	○	○	○	○	○	○	○	○	▲	▲	▲	▲

▲: Customization option available on a project basis.

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WE BUILD WITH YOU

Product spec and its related information are subject to change without advance notice.
Please refer to www.atpinc.com for latest information

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