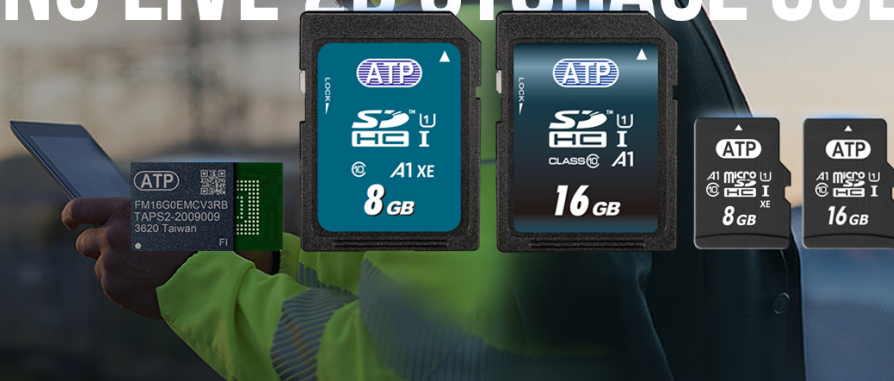# WHEN THE BIGGEST OR THE LATEST ISN'T ALWAYS THE BEST:
LONG LIVE 2D STORAGE SOLUTIONS

- Utilizing MLC and pSLC-configured MLC Technology
- Available in Industrial and Commercial Operating Temperature Ranges
- 5+ Years Supply Longevity

SD/microSD
FEATURE HIGHLIGHTS

- SIP (System In Package) process
  (Water proof, Dust proof and ESD resistant)
- Enhanced endurance enabled by Advanced
  Static/Dynamic Wear-Leveling
- Read Disturb Protector - AutoRefresh technology
  to ensure data integrity in frequent read operations
- Enhanced F/W algorithm to minimize the risk
  of a sudden power-off

e.MMC
FEATURE HIGHLIGHTS

- Backward compatible with prior e.MMC
- Ultra Low Alpha Compound to reduce Soft Error Rate
- Firmware Field Update
- Auto/Dynamic Data Refresh
- Block Early Movement
- Block Early Retirement
- Sudden Power Loss Recovery enhancements
- Advance Health Report Available

e.MMC

Product Line	Automotive Grade 2*		Automotive Grade 3*		Extended Industrial Grade	
	Premium	Superior	Premium	Superior	Premium	Superior
	E700Paa	E600Saa	E700Pia	E600Sia	E700Pa	E600Sa
Flash Type	2D MLC (pSLC mode)	2D MLC	2D MLC (pSLC mode)	2D MLC	2D MLC (pSLC mode)	2D MLC
IC Package	153-ball FBGA					
JEDEC Specification	v5.1, HS400					
Power Loss Protection Options	Firmware Based					
Operating Temperature	-40°C to 105°C		-40°C to 85°C		-40°C to 105°C	
Capacity	4 GB to 8 GB	8 GB to 16 GB	4 GB to 8 GB	8 GB to 16 GB	4 GB to 8 GB	8 GB to 16 GB
Performance						
Sequential Read/ Write up to (MB/s) (Max.)**	230 / 100					
Bus Speed Modes	x1 / x4 / x8					
ICC (Typical RMS in Read/Write) mA (Max.)	85 / 65	85 / 50	85 / 65	85 / 50	85 / 65	85 / 50
ICCQ (Typical RMS in Read/Write) mA (Max.)	60 / 45	60 / 30	60 / 45	60 / 30	60 / 45	60 / 30
Endurance and Reliability						
Endurance TBW** (Max.)	200 TB	40 TB	200 TB	40 TB	200 TB	40 TB
Reliability MTBF @ 25°C	>2,000,000 hours					
Others						
Dimensions (mm)	11.5 x 13.0 x 1.0					
Certifications	AEC-Q100, RoHS, REACH				RoHS, REACH	
Warranty	One Year					

e.MMC

Product Line	Industrial Grade		Commercial Grade	
	Premium	Superior	Premium	Superior
	E700Pi	E600Si	E700Pc	E600Sc
Flash Type	2D MLC (pSLC mode)	2D MLC	2D MLC (pSLC mode)	2D MLC
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	4 GB to 8 GB	8 GB to 16 GB	4 GB to 8 GB	8 GB to 16 GB
Performance				
Sequential Read/ Write up to (MB/s) (Max.)**	230 / 100			
Bus Speed Modes	x1 / x4 / x8			
ICC (Typical RMS in Read/Write) mA (Max.)	85 / 65	85 / 50	85 / 65	85 / 50
ICCQ (Typical RMS in Read/Write) mA (Max.)	60 / 45	60 / 30	60 / 45	60 / 30
Endurance and Reliability				
Endurance TBW** (Max.)	200 TB	40 TB	200 TB	40 TB
Reliability MTBF @ 25°C	>2,000,000 hours			
Others				
Dimensions (mm)	11.5 x 13.0 x 1.0			
Certifications	RoHS, REACH			
Warranty	One Year			

* Automotive grade in development, available 2H 2024
** All performance is collected or measured using ATP proprietary test environment, without file system overhead.

SD/SDHC/SDXC Card		
Product Line	Premium	Superior
	S700Pi / Pc	S600Si / Sc
Interface	UHS-I	
Flash Type	2D MLC (pSLC mode)	2D MLC
Form Factor	SD Card	
Operating Temperature	-40°C to 85°C / -25°C to 85°C	
Power Loss Protection Options	Firmware Based	
Optional SED Features	-	
Capacity	4 GB to 8 GB	8 GB to 16 GB
Performance		
Sequential Read (MB/s) up to	97	97
Sequential Write (MB/s) up to	82	37
Endurance and Reliability		
Endurance (TBW)[1] up to	240 TB	48 TB
Reliability MTBF @ 25°C	>2,000,000 hours	
Reliability Number of Insertions	20,000 (SDA spec minimum 10,000)	
Others		
Dimensions (mm)	32.0 x 24.0 x 2.1	
Certifications	CE, FCC, UKCA, RoHS	
Warranty	5 years	2 years

microSD		
Product Line	Premium	Superior
	S700Pi / Pc	S600Si / Sc
Interface	UHS-I	
Flash Type	2D MLC (pSLC mode)	2D MLC
Form Factor	microSD	
Operating Temperature	-40°C to 85°C / -25°C to 85°C	
Power Loss Protection Options	Firmware Based	
Optional SED Features	-	
Capacity	4 GB to 8 GB	8 GB to 16 GB
Performance		
Sequential Read (MB/s) up to	97	97
Sequential Write (MB/s) up to	82	37
Endurance and Reliability		
Endurance (TBW)[1] up to	240 TB	48 TB
Reliability MTBF @ 25°C	>2,000,000 hours	
Reliability Number of Insertions	20,000 (SDA spec minimum 10,000)	
Others		
Dimensions (mm)	15.0 x 11.0 x 1.0	
Certifications	CE, FCC, UKCA, RoHS	
Warranty	5 years	2 years

1 Under highest Sequential write value.
  May vary by density, configuration and applications.

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