



Long-Term Support
World Class Quality



eMMC Memory

Managed NAND Solutions for the
Automotive, Industrial, & Medical markets



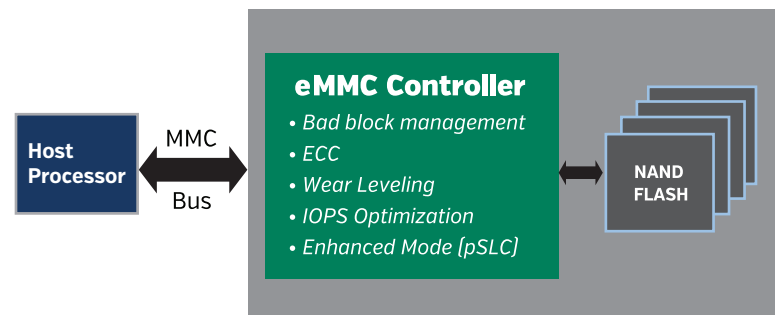
Product Description:

ISSI eMMC product family provides the ideal embedded storage solution for the Automotive, Industrial and Medical applications, which require high performance, endurance across a wide range of operating temperatures, and long-term support. These products are available in Industrial as well as Automotive grade in both 100-ball BGA and 153-ball BGA.

The eMMC integrates NAND Flash memory and an intelligent eMMC controller inside one JEDEC standard package, providing a standard interface to the host. The controller directly manages the NAND flash, implementing functions like bad block management, error handling (ECC), static and dynamic wear-leveling, IOPS optimization and read sensing. ISSI eMMC devices support Enhanced Mode where the device can be configured as pseudo-SLC (pSLC) for higher read/write performance, endurance and reliability.

Key Features:

- eMMC 5.0 or 5.1 interface
- Density: 8GB up to 128GB
- Error Free memory access
- Security features
- Simplify system design
- Reduce Time-To-Market
- Improved system performance
- Enhanced Mode (pSLC)
- Cost-effective and higher capacity storage
- High endurance
- Automotive Grade Qualified
- Multiple packaging options
- Long Term Support



Applications:

- Infotainment
- Telematics
- Satellite Radio
- Cluster/Center Stack Displays
- Body Electronics
- Safety Systems (ADAS)
- Industrial Machine
- Medical Imaging
- Test instruments
- Switches & Routers
- Set-top boxes
- Gaming boxes

ISSI eMMC Part Numbers and Specifications:

Density	Part Number	Package	Temp. Grade	MMC	Seq Rd/Wr [MB/s]*	Ran Rd/Wr [IOPS]*
8GB	IS21ES08GA-JQLI	100 BGA	I-Temp	5.0	250 / 27.3	4866 / 1542
	IS21ES08GA-JCLI	153 BGA				
8GB	IS22TF08G-JQLA1	100 BGA	Auto Grade	5.1	320 / 135	24000 / 28400
	IS22TF08G-JCLA1/A2	153 BGA				
16GB	IS21TF16G-JQLI	100 BGA	I-Temp	5.1	310 / 15	15000 / 4400
	IS22TF16G-JQLA1		Auto Grade			
	IS21TF16G-JCLI	153 BGA	I-Temp			
	IS22TF16G-JCLA1/A2		Auto Grade			
32GB	IS21TF32G-JQLI	100 BGA	I-Temp	5.1	310 / 15	14000 / 3200
	IS22TF32G-JQLA1		Auto Grade			
	IS21TF32G-JCLI	153 BGA	I-Temp			
	IS22TF32G-JCLA1/A2		Auto Grade			
64GB	IS21TF64G-JQLI	100 BGA	I-Temp	5.1	320 / 30	24000 / 8100
	IS22TF64G-JQLA1		Auto Grade			
	IS21TF64G-JCLI	153 BGA	I-Temp			
	IS22TF64G-JCLA1/A2		Auto Grade			
128GB	IS21TF128G-JQLI	100 BGA	I-Temp	5.1	320 / 65	29000 / 14000
	IS22TF128G-JQLA1		Auto Grade			
	IS21TF128G-JCLI	153 BGA	I-Temp			
	IS22TF128G-JCLA1/A2		Auto Grade			

*performance with eMMC_Write_Reliability ON

Feature Summary:

eMMC Features	
Interface Speed / Max Bandwidth	400MB/s
Clock Frequency	200MHz
Data Rate, Mode	HS400, DDR
Bus Width	x4, x8
H/W Reset	Yes
Partitioning	Yes
Enhanced Mode [pseudo-SLC / SLC + MLC]	Yes
Alternative Boot	Yes
Security Features [Trim, RPMB, Secure Erase, Secure Trim]	Yes
High Priority Interrupt	Yes
Back Ground Operation	Yes
Packed Command	Yes
Cache Handling	Yes
Discard	Yes
Dynamic Capacity	Yes
Sanitize	Yes
Power OFF Notification	Yes
Smart Reporting	Yes
Device Health Report	Yes
Field Firmware Update [FFU]	Yes