



Targeting Your Mobile Multimedia Applications

Micron® e-MMC™ Embedded Memory

New consumer and mobile designs demand high-capacity storage for devices that store pictures, movies, MP3s, or simple data files. NAND Flash memory continues to meet these demands with both SLC and MLC technologies.

Several processors already support the necessary ECC for today's MLC NAND Flash devices. The challenge facing next-generation embedded processor designers is meeting the increasingly complex ECC requirements of future MLC NAND Flash devices. We've addressed that challenge.

How e-MMC™ Embedded Memory Works

Micron's e-MMC embedded memory combines our high-quality, low-cost NAND Flash memory with a high-speed MultiMediaCard (MMC) controller in a low-profile BGA package. Our e-MMC solutions essentially transform a program/erase/read device with bad blocks and bad bits (NAND) into a simple write/read memory. This managed interface addresses potential NAND design concerns internally, using error correction code (ECC), wear leveling, and bad block management technology. Handling errors internally takes the burden off the host controller and increases speed, providing higher system performance.

e-MMC embedded memory also simplifies hardware and software integration by providing a standard interface specification that minimizes the need for host software to accommodate process node migrations and different vendors' NAND Flash devices. It's a consistent, technology-independent solution that streamlines the development and qualification process and alleviates the complexities of designing in current and future NAND devices.

5 Ways e-MMC Solutions Make Life Easier

1. Easy-to-use BGA package

Saves significant resources that would otherwise go to hardware and software development.

2. Managed interface

Eases the design and validation process.

3. Handles errors internally

Increases speed and provides higher system performance.

4. High-performance controller

Removes the burden of several low-level tasks from the processor.

5. Advanced security features

Restrict access to the phone's critical software and provide increased security when erasing data.



e-MMC 4.4 Specification

Micron's e-MMC embedded memory products also offer advanced partitioning and security features, in keeping with JEDEC's e-MMC 4.4 specification. The NAND partitioning feature enables designers to configure partitions in the MLC NAND to act as SLC NAND to safely and securely store and execute handset boot code. The heightened security features restrict access to the phone's critical software, such as the boot code and operating system, and provide increased security when erasing data.

Features

- 1GB–32GB
- 3.3V Vcc (3.3V or 1.8V I/O) or 1.8V Vcc (1.8V I/O)*
- –25°C to +85°C operating temperature
- 1-bit, 4-bit, or 8-bit I/Os
- NAND partitioning
- Advanced security features

*Contact the factory for availability.

Technology Benefits

- JEDEC-standard
- Compliant with the MMC specification
- Supported by major mobile customers and enablers
- Seamless transition from SLC NAND to MLC NAND
- High speed: up to 52 MB/s

Product Benefits

- Compatibility between host and storage devices
- Ease of design and validation
- Speeds time to market
- Scalable for future use
- Space-saving MCPs

Applications

As geometries continue to shrink and the need for a higher-level NAND Flash interface becomes more critical for embedded applications, e-MMC embedded memory will become an increasingly important mass storage solution.

- Cellular phones
- PDAs
- Handheld electronics
- Digital video cameras
- Gaming
- Industrial applications

Contact Us

For the support you need, choose a supplier that's leading the Flash market into the embedded space. Micron's e-MMC embedded memory solutions for feature-rich cell phones and other mobile applications are in production. To find out more about product specifications and availability, visit micron.com/emmc.

micron.com

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