Micron® e•MMC Memory

For system designs with mass storage needs, developers must keep up with the increasingly complex error correction code (ECC) implementation and data management requirements of MLC NAND Flash devices. Micron’s e•MMC memory can help developers overcome these challenges, offering quick system integration suited for a wide range of automotive, industrial, and consumer applications.

How e•MMC Memory Works

Micron’s e•MMC memory combines a NAND Flash memory device with a JEDEC-compliant controller in an industry-standard BGA package. This single-package solution manages operations internally—such as wear leveling, bad block management, and device mapping—simplifying system development work. e•MMC also implements error handling internally, which removes the burden from the host processor, thereby optimizing system performance. (See figure below.)

4 Ways e•MMC Can Benefit Your Design

1. Broad Portfolio
Choose from automotive-, industrial-, and consumer-grade e•MMC solutions to meet your specific needs.

2. Superior Endurance
Build products that last with our superior e•MMC endurance.

3. Flexibility
Pick the package that’s right for you:
- Industry-standard 153- and 169-ball BGAs
- JEDEC-compliant 100-ball BGA; enables easier routing, lower board cost, and better signal integrity

4. Automotive Qualification
Get the best quality and product longevity for automotive applications from our automotive-qualified e•MMC memory.
Micron e•MMC Memory for Embedded

### Micron e•MMC Memory Performance Summary

<table>
<thead>
<tr>
<th></th>
<th>e•MMC v4.41 Value</th>
<th>e•MMC v4.51/5.0 Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Density</strong></td>
<td>2GB up to 64GB</td>
<td>4GB up to 128GB*</td>
</tr>
<tr>
<td><strong>Ballout and package</strong></td>
<td>Industry-standard 153-/169-ball BGA</td>
<td>JEDEC-standard 100-ball BGA for easy routing</td>
</tr>
<tr>
<td><strong>Sequential write</strong></td>
<td>Up to 13.5 MB/s</td>
<td>Up to 23/70 MB/s</td>
</tr>
<tr>
<td><strong>Sequential read</strong></td>
<td>Up to 44 MB/s</td>
<td>Up to 130/280 MB/s</td>
</tr>
<tr>
<td><strong>Random write</strong></td>
<td>Up to 100 IOPS</td>
<td>Up to 1000/5800 IOPS</td>
</tr>
<tr>
<td><strong>Random read</strong></td>
<td>Up to 1100 IOPS</td>
<td>Up to 3500/4800 IOPS</td>
</tr>
<tr>
<td><strong>Temperature</strong></td>
<td>Commercial (–25°C to 85°C)</td>
<td>Industrial (–40°C to 85°C)</td>
</tr>
</tbody>
</table>

*Automotive-grade parts up to 128GB, industrial- and commercial-grade parts up to 64GB.

### Automotive Applications
- Car Infotainment
- Detailed maps
- Traffic monitoring
- Meteorological information
- Car radio and multimedia
- Satellite radio
- E-call and voice recognition
- Cluster/dashboard

### Industrial Applications
- Rugged tablet PCs
- Industrial equipment
- Medical equipment
- Military equipment

### Consumer Applications
- Digital TVs (DTV)
- Set-top boxes (STB)
- Digital video cameras (DVC)
- Digital still cameras (DSC)
- Gaming
- Printers
- Routers

### Easing the Design Process

With Partner-Validated Solutions

To ease customer design-in activities, we engage with chipset vendors to proactively validate Micron’s memory on chipset platforms. To find out more about Micron’s e•MMC memory chipset-enabling activities, visit micron.com/ecosystem or contact your Micron representative.

### Contact Us

Get the e•MMC solutions and support you need to speed your embedded design to market from a world-class Flash supplier. Visit micron.com/emmc to learn more about product specifications and availability.