With every new generation of mobile multimedia handsets, more applications are converging into a single device. Feature-rich handsets offer music playback, high-quality video and TV applications, navigation services and gaming. Storage is an essential part of the multimedia user experience and embedded storage is a natural choice.

The SanDisk® iNAND™ eSD/eMMC family of high capacity Embedded Flash Drives (EFDs) allows mobile handset designers to give users more memory for more multimedia functionality. iNAND provides up to 32GB* of storage, the highest capacity available in a JEDEC standard package, utilizing the most advanced multilevel cell (MLC) NAND flash technology.

iNAND uses standard interfaces and ball-out configurations, combined with advanced, cost-effective MLC NAND flash in a small form factor with an internal controller and dedicated firmware. Designed specifically for advanced multimedia handsets, iNAND offers high performance and reliability for the ultimate mobile user experience.

Standard Interface — Easy Integration
SanDisk’s iNAND family of embedded flash drives utilizes industry standard eSD and eMMC interfaces. This makes integration a snap. A high-speed data bus delivers maximum performance, while providing an optimal solution for multimedia handsets that require tight routing due to design constraints and limited space.

Reliability You Can Trust
The true value behind the iNAND family of embedded flash drives is advanced flash management that handles MLC NAND transparently to the host, while providing full block device emulation and a disk-like interface. Robust error detection and correction engines, automated bad block management and advanced wear leveling ensure optimal storage and boot functionality.

Replacing the Boot Device
iNAND is a reliable code storage and boot device. Managed physical partitions, customizable levels of protection and power failure immunity, offer a system solution which allows boot code to be safely stored and accessed via the standard interface. Eliminating the need for an additional boot code storage device and a NOR or NAND interface substantially reduces system design complexity and cost.

Scalability is Key
iNAND comes in a wide range of storage capacities and packages with up to 32GB NAND flash. It is also available as part of an MCP configuration with up to 4Gb of low-power DRAM. All iNAND and iNAND-based MCP products share the same ballout and design requirements, allowing customers to design once for several projects with scaling storage capacities.
iNAND-based Multi Chip Package (MCP)

The SanDisk® iNAND™-based multichip package (MCP) offers a range of high-capacity storage and low power DRAM combinations. They all share the same standard architecture, footprint and package. A single device enables tailored storage, code execution and boot requirements to free up precious real estate, reduce design complexity and give designers the flexibility to support multiple handset designs.

SanDisk iNAND-based MCP offers high-capacity storage of up to 16GB with high-performance low-power DRAM up to 4GB (512MB) in a small, standard form factor that is designed especially for mobile devices. SanDisk technology ensures MCP design is optimized to meet the strict signal integrity and power routing requirements of high-speed LP-DRAM (DDR), without compromising package height and cost constraints.

Why iNAND?

• Advanced flash technology
  Access the latest, most cost-effective generation of SanDisk advanced MLC NAND flash technology.

• Standard interface and form factor
  Simplify integration with industry leading eSD and eMMC interfaces and standard packaging.

• Powerful flash management
  Depend on SanDisk technology to internally ensure flash reliability and off-load tasks from the host.

• Boot and storage in one device
  Save space and reduce design complexity by catering to both boot and storage needs.

SanDisk iNAND

<table>
<thead>
<tr>
<th>SanDisk iNAND</th>
<th>SanDisk iNAND-Based MCP Products</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capacity**</td>
<td>8Gb-256Gb (1GB-32GB)</td>
</tr>
<tr>
<td>Interface</td>
<td>eSD 2.1/eMMC4.3</td>
</tr>
<tr>
<td>NAND flash technology</td>
<td>SanDisk MLC</td>
</tr>
<tr>
<td>Flash management</td>
<td>Embedded firmware</td>
</tr>
<tr>
<td>Performance***</td>
<td>Sustained read: 30MB/sec</td>
</tr>
<tr>
<td>Operating voltage</td>
<td>Core: 3.3V, I/O: 3.3V/1.8V (auto-detect)</td>
</tr>
<tr>
<td>Package (mm)</td>
<td>11.5x13, 12x16, 14x18</td>
</tr>
<tr>
<td>Power-save mode</td>
<td>250μA</td>
</tr>
<tr>
<td>Active current</td>
<td>Default: 100mA, high speed: 200mA</td>
</tr>
</tbody>
</table>

* 1 gigabyte (GB) = 1 billion bytes; 1 megabyte (MB) = 1 million bytes; speed based on internal testing; performance may be lower depending on host device.
** Capacity ranges for reference only. Not all iNAND and DRAM capacities are available.
*** Performance based on eMMC high speed interface, using an 8-bit bus. Read and write speed may vary depending on read/write conditions.

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