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MultiMediaCard Association (MMCA) and the JEDEC Solid State Technology Association (JEDEC) Announce *eMMC*[™] for Embedded Flash Memory Applications

Wide use expected within such applications as mobile phones, navigation systems, portable media players and other portable electronics devices

BEAVERTON, Ore. – December 19, 2006 – The MultiMediaCard Association (MMCA) and the JEDEC Solid State Technology Association (JEDEC) today announced their joint adoption of *eMMC*[™] as the trademark and product category of a class of embedded memory module products built on the joint MMCA/JEDEC MMC Standard specification. The MMCA and JEDEC had entered into a joint standard-setting agreement earlier this year. *eMMC*[™] is the first product standard from the partnership.

eMMC[™] describes an architecture comprised of an embedded storage solution with MMC interface, flash memory and controller, all in a small BGA package. It is based upon the industry-standard MMC System Specification v4.1/4.2 and JEDEC BGA packaging standards. With interface speeds of up to 52 MB per second, *eMMC* provides fast scalable performance. It also allows for an interface voltage of either 1.8v or 3.3v. Accordingly, *eMMC* supports a wide range of applications in consumer electronics, wireless, navigation, industrial uses, and other areas.

A versatile new technology

With the *eMMC* solution, a host system can now gain access to all major classes of mass storage memory sub-systems, including embedded memory (*eMMC*), memory cards, or even hard disk drives (via ATA-on-MMC specification) with one common MMC Interface Protocol Bus. This system architecture is far more flexible than that based upon other memory card-only standards.

eMMC makes it easy to embed mass-storage flash memory on host systems. The standardized *eMMC* protocol interface offers designers high performance and keeps technology complexity, such as NAND flash functional differences among suppliers, invisible to the host. This differs from the conventional architecture, where a host system must support NAND products from multiple companies in a generic manner by necessity.

The conventional approach also increases design complexity to support company-specific functions for better performance.

The design complexity is magnified by generational process geometry shrinks and Multi-Level Cell (MLC) technology. The benefit of eMMC to the host manufacturers is a simpler product design and qualification process and an overall shorter time to market.

Yves Leonard, chairman of the board for the MMCA, said, “By working together to bring this standard to market, the MMCA and JEDEC believe we have opened up new possibilities and growth opportunities to the industry. The addition of eMMC™ completes a total mass memory storage solution (embedded and removable memory card) for portable handheld electronic products based on the MMC standard.”

Because eMMC™ is an industry standard, multiple sources of components will be available.

Mian Quddus, chairman of the board of JEDEC, said, “Embedded MMC fulfills the role of a standard on several different levels. The standard’s physical and electrical specifications are important in fostering its rapid adoption. But even more important may be that this innovative architecture enables system and product designers to use technologies ranging from low-cost legacy chip sets to the most innovative devices on the market.”

Strong industry support exists for eMMC™, and several key consumer electronic and cell phone OEMs are implementing the eMMC™ architecture in their product lines.

Company and association quotes

Jon Kang, Senior VP, **Samsung Semiconductor Inc.**, said, “In embedded MMC, NAND-technology changes are invisible to the host. This eliminates the need for NAND-level testing, which typically comprises the majority of product development time. The resulting shorter time to market provides increased revenue for product developers.”

Matti Floman, Senior Technology Manager of **Nokia**, said: “eMMC introduces an embedded member to the mass memory family developed in cooperation between JEDEC and the MultiMediaCard Association. There has been clear demand for this kind of solution in mobile devices. Now it is possible to have a system with a flexible, fast and – at the same time – easily managed mass memory solution.”

Frankie Roohparvar, VP of NAND Development for **Micron Technology, Inc.**, said, “The new eMMC architecture with all-in-one memory and controller packaging streamlines a manufacturer’s mobile design process and simplifies NAND flash procurement logistics. Following the guidelines of eMMC, Micron will continue to design and innovate next-generation NAND Flash memory, expanding the storage possibilities for today’s portable electronic devices.”

John Kelly, President of **JEDEC**, said, “When we announced JEDEC’s collaboration with the MMCA in March of 2006, we established a Joint Task Force to handle the standardization work so important to the ongoing expansion of the memory card market. The embedded MMC specification represents the high quality and strategic value of the work that the task force will continue to deliver. This will help make possible innovative new products in consumer electronics, wireless, navigation, industrial uses, and other areas.”

George Minassian, vice president of strategic planning and systems engineering, Wireless Solutions Division, **Spansion**, said, “We congratulate the efforts of the JEDEC committee on the creation of this new specification. Embedded MMC will enable Spansion’s customers to more easily design MirrorBit[®] ORNAND[™] Flash memory solutions into their platforms. This flexible architecture will bring added value to the market as an industry standard, increasing the usability of products and advancing new technologies.”

About MMCA

The MultiMediaCard Association (MMCA) is the open standard memory card organization, promoting worldwide adoption of storage media and peripheral I/O devices designed especially for mobile phones and digital imaging devices. It enables a myriad of applications to come together and share digital media contents.

Founded in 1998, the MMCA provides a global forum for memory card and semiconductor component suppliers, software vendors and manufacturers of mobile electronic devices. They jointly endorse and promote the worldwide adoption of MultiMediaCards and the MMC standards.

About JEDEC

JEDEC is the leading developer of standards for the solid-state industry. Almost 2900 participants, appointed by some 280 companies, work together in 50 JEDEC committees to meet the needs of every segment of the industry, manufacturers and consumers alike. The publications and standards that they generate are accepted throughout the world. All JEDEC standards are available online, at no charge.

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eMMC is a registered trademark of the MultiMediaCard Association (MMCA). MultiMediaCard is also a trademark of the MMCA. Other company/trademark names may be trademarks of their respective companies.