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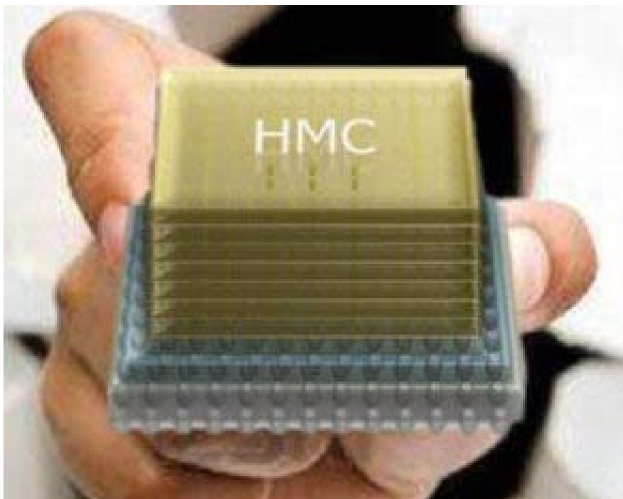
Micron, Samsung Form 3-D Memory Consortium

By Mark Lapedus, SemiMD senior editor

Memory rivals Samsung Electronics Co. Ltd. and Micron Technology Inc. Thursday (Oct. 6) announced the creation of a consortium to develop an open interface specification for a 3-D memory technology called the Hybrid Memory Cube (HMC).

Micron and Samsung are the founding members of the Hybrid Memory Cube Consortium (HMCC), which will develop a combination 3-D DRAM/logic device based on through-silicon-via (TSV) technology.



Hybrid Memory Cube (HMC). (Source: Micron Technology)

During a press event at Micron's office in San Jose, Calif., representatives from Micron and Samsung said they will work with Altera Corp., Open Silicon Inc., and Xilinx Inc. to define the interface, which will be based on serial technology. Other vendors are also expected to join the consortium.

At the recent Intel Developer Forum in San Francisco, Intel disclosed a few details about the Hybrid Memory Cube. At the time, Intel demonstrated a proprietary serial technology, but said it had not developed the memory.

Micron and Samsung have been separately developing 3-D memory technologies. The companies decided to come together to propel HMC technology, which is geared for high-performance computing and networking systems.

HMC will incorporate DRAM arrays stacked on a logic chip. The device is connected with 2,000 to 3,000 TSVs, said Scott Graham, general manager of the DRAM solutions group at Micron. Up to eight DRAM arrays can be stacked within an HMC. Each array has 16 "vaults," he said.

By the time the products hit the market, HMC will incorporate memories based on the 2xnm node, said Pablo Temprano, director of marketing for DRAM and GFX products at Samsung Semiconductor Inc.

The technology claims to be a new approach to memory design. The technology is said to deliver a sevenfold improvement in energy-efficiency over today's DDR3.

For years, DRAMs have used parallel signaling technology, which is running out of gas. “Memory is the last holdout” to move to a serial I/O technology, Graham said.

HMC could lead to unprecedented levels of memory performance and facilitate new applications in networking, medical, energy, wireless communications, transportation, security, and other markets. For example, the development of systems and technologies will enable a more efficient, reliable and secure smart grid infrastructure with integrated renewable energy resources, the executives said.

HMCC will define a specification for the serial interface. The final specification will be announced in 2012. Products are expected to hit the market by late 2013 or early 2014.

Tags: 3-D Memory Consortium, Micron, Samsung

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