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Samsung pushes Hybrid Memory Cubes for super-fast tablets, more

Chris Davies, Oct 7th 2011 Discuss [0]

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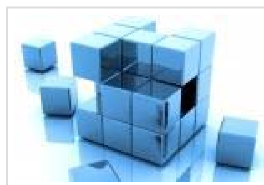

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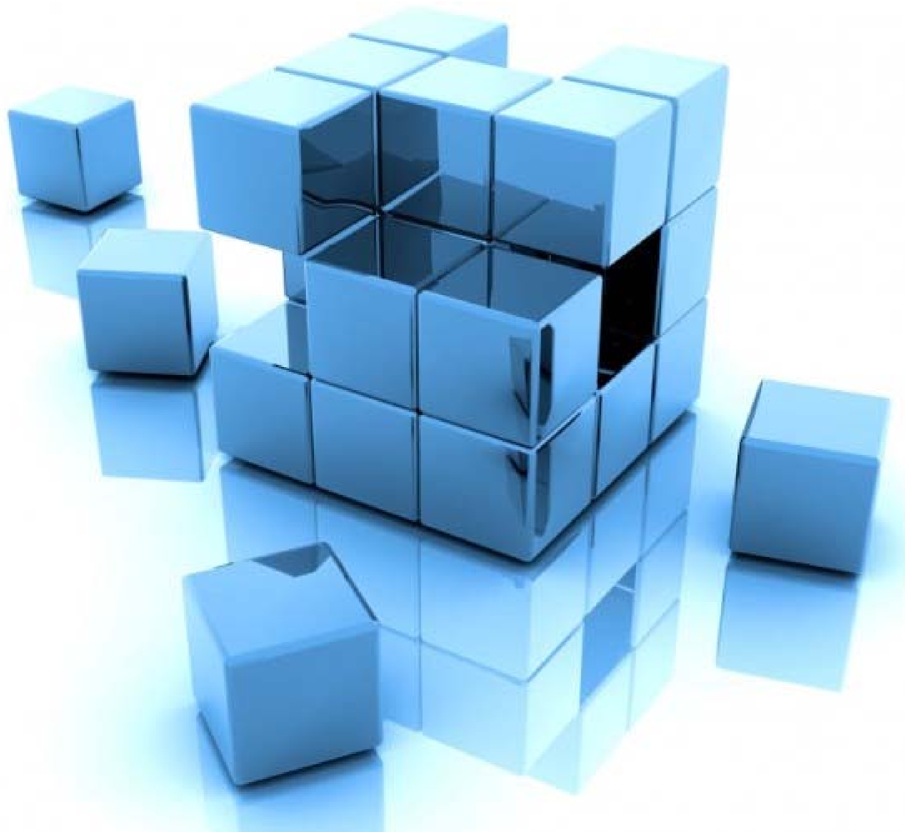
Samsung and Micron have joined forces to create the Hybrid Memory Cube Consortium (HMCC), promoting a new ultra-dense memory technology that promises to be faster, more efficient and cheaper than existing DRAM. Hybrid Memory Cubes (HMC), so the duo claims, would mark a significant departure from both current DRAM architecture and performance: 15x the speed of DDR3 memory, 90-percent less space taken up compared to current RDIMMs, and demanding 70-percent less energy per bit. Potential applications include smartphones, tablets, graphics cards and anything where the power/performance/scale balance is vital.



To achieve what Samsung and Micron insist is a "complete paradigm shift" the companies have developed a brand new memory architecture, pairing high-speed logic process technology with a memory through-silicon-via (TSC) bonded memory die stack. That will allow memory to keep pace with the Moore's Law progress of CPUs and GPUs, which are increasingly using multicore technologies that demand more memory per compute element.

> "HMC blends the best of logic and DRAM processes into a heterogeneous package. At the foundation of HMC is a small logic layer which sits below vertical stacks of DRAM die connected by through-silicon via (TSV) bonds. An energy optimized DRAM array provides efficient access to memory bits via the logic layer, providing an intelligent memory device truly optimized for performance and energy efficiencies" HMCC

Rather than being overwhelmed with the current crop of multicore processors, falling short on memory bandwidth and density, HMC will apparently be able to keep up with even exascale computing expected in the future. At its heart is the 3D construction of the various silicon layers, with the logic layer as the base and then dense layers of memory stacked on top.

The HMCC expects to have an industry-adoptable specification for HMC sometime in 2012, and Samsung and Micron are looking for other memory players to throw in with them.

[via GigaOm]

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