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Hybrid memory cube interface specification has been finalised

by Mark Tyson on 4 April 2013, 12:30

Tags: Samsung (005935:KS), Hynix, IBM (NYSE:IBM), Micron (NASDAQ:MU), ARM (LON:ARM), Fujitsu (TYO:6702), Hewlett Packard (NYSE:HPQ)

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At a meeting of 100 members of the Hybrid Memory Cube Consortium (HMCC) the specifications for the new faster 3D memory have been **finalised**. This is a *"much anticipated, disruptive memory computing solution"* which will allow manufacturers to start producing hardware that offers approximately **15 times** the throughput of today's DDR3 RAM.

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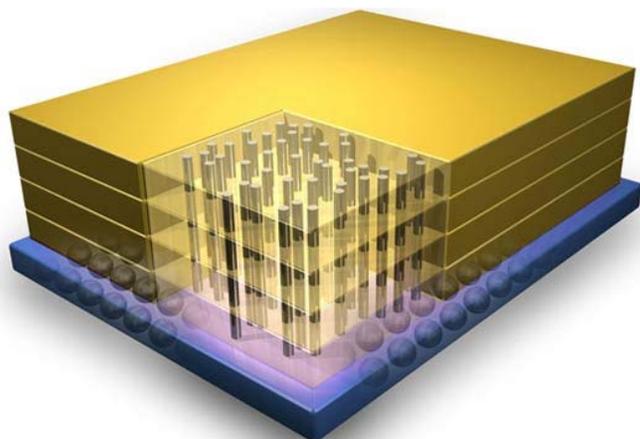
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The new Hybrid Memory Cube (HMC) technology design initiative was started only 17 months ago. Now a wide range of OEMs big and small can start to use the technology, confident in its compatibility with other systems being designed to take advantage of it. The 100 tech companies that worked to create the finalised specification include: ARM, Fujitsu, HP, IBM, Micron, Samsung and SK Hynix.

Jim Elliott, Vice President, Memory Planning and Product Marketing, Samsung Semiconductor, Inc said of the new *standard* "The consensus we have among major memory companies and many others in the industry will contribute significantly to the launch of this promising technology". He continued "As a result of the work of the HMCC, IT system designers and manufacturers will be able to get new green memory solutions that outperform other memory options offered today."

Robert Feurle, Micron's Vice President for DRAM Marketing came out with a very snappy sound-bite, saying the new final specification agreement milestone *"marks the tearing down of the memory wall"*. He believes that there will be *"radical improvements"* to computing systems as a result of the HMCC agreement.



The key motivation for creating the HMC was that memory bandwidth required by high performance computers had increased beyond what the conventional memory architectures could efficiently provide. The consortium's next goal is to further advance the standard to increase data rates, so they already are planning a HMC2.0 standard.

The HMCC site informs us that *"a single HMC can provide more than 15x the performance of a DDR3 module"*. Furthermore it is a revolutionary technology unlike the DDR4 initiative. It is predicted that *"Hybrid Memory Cube could be an absolute game changer for applications ranging from high performance computing to consumer technologies like tablets and graphics cards that value a combination of form factor, energy and bandwidth"*. You can read more about the new memory standard [here](#).

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Posted by scaryjim - Thu 04 Apr 2013 12:37

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Hmmm, fair enough then! Only problem I see is that they'll need to design a new memory controller that can handle the massive bandwidth on offer. It's all very well having a technical specification, but has anyone produced working silicon yet, even on a prototype scale?

EDIT: reading around it appears micron have produced demonstration silicon this year

Posted by Steve - Thu 04 Apr 2013 12:39

Things might get quite odd as a result of this. TSVs are great but stacking die creates heat problems, both in terms of getting rid of it and the fact that the tsvs will expand at a different rate to the silicon.

Lower clock speeds but higher throughput is what we can expect.

Edit: yes Jim there have been a few things made in this way experimentally. Some homogeneous, some not.

Posted by Tarinder - Thu 04 Apr 2013 13:06

Don't be surprised to see this equipped on the next-gen graphics cards.

Posted by maverik-sg1 - Thu 04 Apr 2013 13:33

Nvidia have already included this on their next gen Roadmap for approx 2016 release <http://img.clubic.com/01C200005791082-photo-nvidia-gpu-roadmap-2013.jpg> [img.clubic.com]

Next gen consoles are engaged in DDR5 technology (which devs are loving a lot) and I have to wonder if DDR4 will be used at all and can't wait to see DDR5 hit the streets for desktops.

Posted by Biscuit - Thu 04 Apr 2013 14:34

Tarinder

Don't be surprised to see this equipped on the next-gen graphics cards.

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