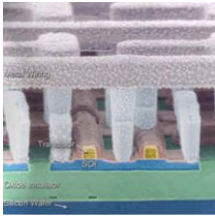


7 December 2006

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## **Next Generation CPUs Could Have 100MB of Cache**

*Z-Ram technology might enlarge the cache memory by a factor of 10*

Innovative Silicon just announced that the second generation of its Z-RAM technology is available. I'm sure that the statement itself doesn't tell you much, motive for which I will detail this Z-RAM idea a little bit. And let me tell you this is no usual stuff since AMD has a partnership with Innovative Silicon concerning Z-RAM technology. Z-RAM (stands for Zero Capacitor DRAM) is a much denser type of memory chip than your ordinary D-Ram and even denser than S-RAM (currently being used to develop cache memory for high-end CPUs). The technology behind this new memory can result in larger cache memory implementations on the same die. And that could be quite a breakthrough especially since CPUs like the quad core Kentsfield (2x4MB level 2 cache) are almost out of space on the die because of their large cache chips. When they launched the first generation of Z-RAM, Innovative Silicon said that its technology was able to reach five times the density of standard S-RAMS using SOI (Silicon on Insulator) technology and 130nm process. The second generation still relies on SOI but is already being manufactured under 90nm process with 65nm and 45nm lines on the way. The second generation of Z-RAM has also lowered the power requirements when fuelling large memory arrays. The company also said that the actual Z-RAM can store "significantly more charge in the memory bitcell," which translates into lower read and write cycles. According to Innovative Silicon, Z-RAM can surpass the 1 GHz barrier. The firm said that the memory can store 5 Mb per mm<sup>2</sup> when using 65 nm process and more than 10 Mb per mm<sup>2</sup> using 45 nm manufacturing process. That could easily translate into L2 cache sizes of about 50 to 100 MB if applied to the die-sizes of actual CPUs. "Our Z-RAM Gen2 technology is a real breakthrough. We have seen no other technology that is remotely similar to it. Z-RAM was already the densest memory technology in the world, and with Z-RAM Gen2, it is now more than twice as fast and cuts memory read power by 75 percent and memory write power by a massive 90 percent," claimed Mark-Eric Jones, president and CEO of Innovative Silicon, in an earlier statement.