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Z-RAM[®] Technological Breakthrough Enables World's Densest and Lowest Cost Memory Technology

Innovative Silicon's IEDM conference paper reveals details of revolutionary technology

International Electron Devices Meeting (IEDM), Washington D.C.— December 12, 2007 — Today, Dr. Serguei Okhonin, co-founder and chief scientist at Innovative Silicon Inc. (ISi), the developer of Z-RAM[®] high-density memory technology, will present details of the company's technological breakthrough in a "New Generation of Z-RAM" paper at 2:50 p.m. in the International Ballroom East at the Hilton Washington <http://www.his.com/~iedm/>.

For years, companies have been struggling to commercialize the benefits of floating body memory, which promises a true single transistor memory cell – the smallest, densest, and fastest type of memory possible. Z-RAM, like other floating body memories, uses a single SOI (silicon-on-insulator) transistor as the memory bitcell. The breakthrough revealed today describes how a Z-RAM bitcell operates in a fundamentally different way from all other floating body memories. The revolutionary Z-RAM bitcell utilizes not only the MOS transistor, as is the commonly accepted practice, but also the intrinsic bipolar transistor which is present in all SOI MOS structures.

The result is a bitcell that outperforms conventional floating body memories in every way: speed, power, retention time, and manufacturing simplicity. Both read and write operating margin is significantly improved over conventional implementations. Write performance is improved by increasing the amount of stored charge, while read performance is enhanced by improved sensing – a result of using the inherently better amplifying characteristics of the bipolar device in place of the MOS device. The benefits of this revolutionary technology are many: increased operating

speed, lower power, improved data retention time, manufacturing simplicity and far less susceptibility to process variation.

Dr. Okhonin explains: "Other floating body memory designs are slower, consume more power and are harder to implement than Z-RAM, which can operate in excess of 500MHz when optimized for speed, or consume mere tens of microwatts per MHz when configured for low power. This technology is more scalable to smaller process geometries than other floating body memory devices because of its high operating margins. Additionally, Z-RAM is ideal for fully-depleted (FD) SOI and future three-dimensional transistor devices such as FinFETs since it does not need the back gate voltage required by all other floating body memories."

By providing major improvements in speed, power, retention time and manufacturing simplicity, the revolutionary technological breakthrough of Z-RAM makes a true single-transistor memory commercially viable for the first time.

About Innovative Silicon

Innovative Silicon Inc. (ISi) delivers ultra-high density memory IP for embedded SoC, MPU and portable consumer applications requiring low power, high density and high speed. Endorsed by IEEE Spectrum Magazine in January 2007 as the winning semiconductor technology, and again in April 2007 by winning its ACE award for Emerging Technology, ISi's Z-RAM® memory offers up to twice the density of embedded DRAM and is up to four times denser than embedded SRAM. Z-RAM memory is currently being licensed by Hynix Semiconductor for use in its DRAM chips, and is being licensed by AMD for use in its future microprocessors. The company closed its first round of VC funding in 2003, completed its first 90nm megabit Z-RAM memory designs in 2004, its first 65nm designs in 2005 and its first 45nm designs in 2006. With more than 20 patents already granted, Z-RAM's unique single-transistor architecture is the world's lowest cost semiconductor memory solution. The company is incorporated in the USA with R&D in Lausanne, Switzerland. For more information see www.z-ram.com.

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