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New flash contender emerges

Posted: 16 Mar 2007

Startup [Grandis](#) Inc. is determined to commercialize its spin-torque transfer [RAM](#) (STT-RAM) technology, one of the approaches vying for acceptance as a "universal" memory.

Farhad Tabrizi, the new president and chief executive of Grandis, revealed the company's ambitious road map that includes the development of embedded and standalone devices based on STT-RAM's spin-torque transfer method for data writes. The company has specific targets in mind. "At 32nm, we think we can take over the flash business," Tabrizi said.

Lofty goals

Grandis will face some major challenges to reach its lofty goals, but its [STT-RAM technology](#) is promising and "looks interesting," said Bob Merritt, an analyst with Semico Research Corp.

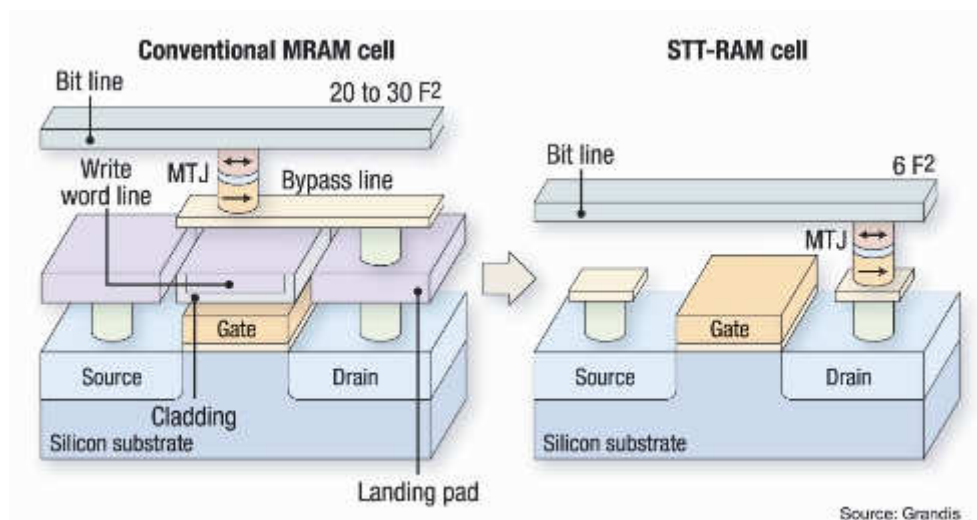
STT-RAM is a second-generation magnetic-RAM technology that is said to solve some of the problems posed by conventional MRAM structures.

Most MRAMs that are now being developed write data by applying the magnetic field generated by a current running through a wire near a tunneling magnetoresistive (TMR) element to change the magnetization. That enables fast operation, but gobbles up power, according to Grandis.

The startup's spin-torque transfer method, by contrast, uses a spin-polarized current to switch magnetic bits, a technique that the company says consumes less power and enhances scalability. An STT-RAM writes data by aligning the spin direction of the electrons flowing through the TMR element.

Fledgling market

STT-RAM is one of several technologies vying for dominance in the fledgling universal-memory market. Several companies are developing technologies that their respective developers claim will combine the capacity and cost benefits of DRAM, the fast read and write performance of SRAM and the various MRAM variants. Universal-memory candidates include ferroelectric RAMs and phase-change memories.



STT-RAM offers key technology advantages over MRAM.

Founded in 2002, Grandis has received total funding of \$15 million from several investors, including Applied Ventures, Sevin Rosen Funds, Matrix Partners, Incubic and Concept Ventures.

In 2005, Renesas Technology Corp. and Grandis announced plans to collaborate on the development of STT writing technology. Renesas intends to develop MCUs and SoCs based on the approach.

Grandis also claims to be in the process of licensing the technology to other companies, although the company would not elaborate.

Finishing touches

The startup is putting the finishing touches on a \$3 million clean room that will pave the way for the commercialization of the technology. The clean room is projected to be up and running this month.

So far, the company has developed a 1Mbit test chip. At the production-ready stage, Grandis hopes to enter the embedded market with an STT-RAM based on 65nm process technology.

The embedded device is due out in late 2007 or early 2008. "We will focus on the embedded market, replacing SRAM and NOR," Tabrizi said.

Following its push into the embedded space, the company hopes to develop a standalone STT-RAM, which will appear at the 45nm node in late 2008 or early 2009, he added.

- [Mark LaPedus](#)
EE Times

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