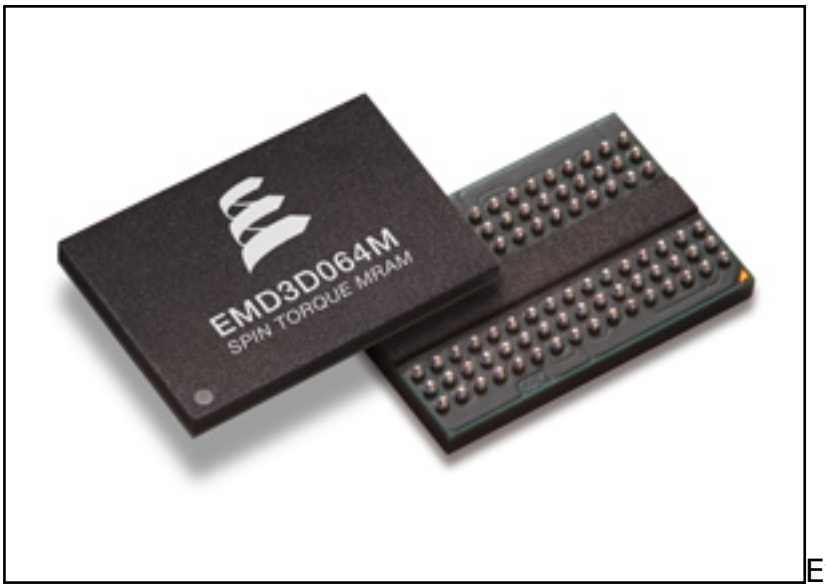
Storage class memory combines DRAM speed with non-volatility of Flash



Everspin Technologies announced Spin-Torque Magnetoresistive RAM (ST-MRAM), a storage class memory (SCM) that provides non-volatility, high endurance and ultra-low latency. The 64 Mb device is the first product in Everspin's ST-MRAM roadmap that is planned to scale to gigabit density memories with faster speeds. Select customers are now evaluating samples of Everspin's EMD3D064M 64Mb DDR3 ST-MRAM. This semiconductor memory combines the speed and endurance of DRAM with the non-volatility of Flash, giving designers of high performance storage systems the ability to increase reliability with high cycling endurance and protect data in the event of power loss. One example of potential use is in the area of cloud storage—even as more users and content are added, faster and consistent data storage access is a necessity. The company's Spin-Torque technology uses a spin-polarized current for switching. Data is stored as a magnetic state versus an electronic charge, providing a non-volatile memory bit that does not suffer wear-out or data retention issues associated with Flash technology. The EMD3D064M 64Mb ST- MRAM is functionally compatible with the industry standard JEDEC specification for the DDR3 interface, which delivers up to 1600 million transfers per second per I/O, translating to memory bandwidth of up to 3.2 GBytes/second at nanosecond class latency.

ST-MRAM gives system designers the benefit of persistent, high endurance storage or memory for applications that demand better reliability and that need the performance boost of DDR3 speed. The 64Mb density MRAM provides an ideal entry point for non-volatile buffer and cache memory in solid state and RAID storage systems as well as storage appliances. The 64Mb device will complement existing low cost memory technologies, reducing overall system cost and complexity.

ST-MRAM ecosystem
Everspin is manufacturing ST-MRAM on its 200mm production line in Chandler, Arizona and is collaborating with industry leaders to establish 300mm MRAM tools

and additional fab capacity. Everspin is also working with design partners to ensure that the required tools and support are in place to drive the rapid adoption of ST-MRAM, including the necessary memory controllers, memory modules (DIMMs) and evaluation platforms.

Availability
Everspin is shipping working samples of the EMD3D064M 64Mb DDR3 ST- MRAM to select customers and will announce details on broad availability in 2013. In addition, Everspin is offering ST-MRAM non-volatile random access memory modules in industry standard configurations, and PCIe FPGA platforms are available now allowing customers to start designs.

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