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## **Samsung introduces working prototype of PRAM**

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SEOUL, South Korea — Samsung Electronics Co. Ltd. announced Monday (Sept. 11) it has completed the industry's first fully working prototype of a 512-Mbit Phase-change Random Access Memory (PRAM), what the company claims is expected to become the main memory device to replace high-density NOR flash memories within the next decade.

Samsung said at a news conference here that its PRAM has been developed by adopting the use of vertical diodes with the three-dimensional transistor structure that it now uses to produce a DRAM. The PRAM has the smallest cell size of any working memory that is free of inter-cell noise, allowing virtually unlimited scalability, the company said.

The PRAM features the fast processing speed of RAM for its operating functions combined with the nonvolatile features of flash memory for storage, giving it the nickname of "Perfect RAM", Samsung said.

As the PRAM can rewrite data without having to first erase data previously accumulated, it is effectively 30-times faster than conventional flash memory. It is also expected to have at least 10-times the endurance of the conventional flash memory, Samsung added.

Samsung claimed the PRAM would become a competitive choice over NOR flash, with availability beginning sometime in 2008.

Samsung also said the PRAM's cell size is only half the size of NOR flash memory. In addition, its PRAM requires 20 percent fewer process steps than those for the manufacturing of NOR flash, making it cheaper to produce.

Adoption of PRAM is expected to be more popular in the future designs of multi-function handsets and for other mobile applications, where faster speeds translate into immediately noticeable boosts in performance. High-density versions will be produced first, starting with 512 Mbit, according to Samsung.