

Elpida Memory Develops Two New High-Speed DRAM Technologies Designed to Increase IT Infrastructure Performance

June 28 2004

DRAM Speed as Fast as SRAM and DDR1/DDR2 SDRAM Produced on a Single 1 Gigabit Chip

TOKYO, June 28, 2004 - Elpida Memory, Inc (Elpida), Japan's leading global supplier of Dynamic Random Access Memory (DRAM), today announced that has developed two new high-speed DRAM technologies designed to boost the performance of servers, network routers, PCs and other IT infrastructure components. Elpida presented technical papers on the two technologies at the 2004 Symposium on VLSI Circuits, an international conference on integrated circuits held in Honolulu June 17-19, 2004.

The first technology, developed in cooperation with Hitachi, Ltd., accelerates route-finding in network routers and cache memory applications in servers. The technology incorporates high-speed memory arrays that use two memory cells per bit called "twin-cell memory", along with a high-speed data amplification method called "three-stage sensing". Based on these technologies, a 144 Megabit prototype was fabricated and evaluated using Elpida's original 0.11-micron DRAM process for general-purpose DRAM. The prototype achieves exceptional performance with random access time comparable to fast SRAM.

The second new technology developed is a circuit technique for 1 Gigabit DRAM devices that supports both DDR1 and DDR2 on a single

chip by combining high speed with high layout efficiency. Incorporated in 1 Gigabit mass-production chips, the technology enables high-speed data rates of 400 Megabits per second (Mbps) for DDR1 and 800 Mbps for DDR2, making it possible to offer large-capacity, high-speed memory for servers and high-end PCs.

The original press release can be found [here](#).

Citation: Elpida Memory Develops Two New High-Speed DRAM Technologies Designed to Increase IT Infrastructure Performance (2004, June 28) retrieved 24 April 2024 from <https://phys.org/news/2004-06-elpida-memory-high-speed-dram-technologies.html>

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