

# **Elpida's 4 Gigabyte DDR2 Registered DIMMs Offer Highest Density and Performance**

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Elpida Memory, Inc., Japan's leading global supplier of Dynamic Random Access Memory (DRAM), today announced the availability of 4 Gigabyte DDR2 Registered Dual In-Line Memory Modules (DIMMs) that offer high-density and high-performance benefits for server applications. Elpida's new modules can deliver up to 32 Gigabytes of memory in an eight slot server platform, with system data transfer rates up to 8.4 Gigabytes per second (GB/sec). They also utilize Elpida's unique stacked FBGA (sFBGA) technology to achieve a thinner module—about 30 percent thinner than the current JEDEC standard. The module thinness helps increase air flow between DIMMs and improves thermal performance in server systems.

"4 Gigabyte DDR2 Registered DIMMs provide the highest density available for high volume and server blade applications," said Jun Kitano, director of Technical Marketing for Elpida Memory (USA). "By utilizing sFBGA technology to create a thinner module, Elpida can offer a competitive module solution that also addresses industry demand for improved air flow and thermal characteristics in servers."

Elpida's 4 Gigabyte DDR2 Registered DIMM - Technical Details  
Elpida's 4 Gigabyte DDR2 Registered DIMMs (Part numbers: EBE41RE4AAHA-5C-E, EBE41RE4AAHA-4A-E) are organized and 512M words x 72-bits x 2 Ranks. The modules are composed of thirty-six pieces of 1 Gigabit DDR2 SDRAM devices stacked using sFBGA

technology in 240-pin packages. The stacked packages actually improve module yield because they are based on devices that have already been tested. The unique electrical characteristics of Elpida's package include enough headroom to support higher frequencies for modules based on future generation DDR2 devices. The current generation DDR2 devices mounted on the DIMMs each have a CAS latency (CL) of 3-4-5, a burst length of 4 or 8 and 1.8 Volt operation with a data transfer rate of up to 533 Megabits per second (Mbps). This translates to a module data transfer rate of 4.2 GB/sec per channel, or 8.4 GB/sec per system.

Elpida's 4 Gigabyte DDR2 Registered DIMMs (Part numbers: EBE41RE4AAHA-5C-E, EBE41RE4AAHA-4A-E) are currently sampling to customers. Volume production is expected in July 2005.

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