NEWS RELEASE

NEC

NEC Electronics Unveils 90-Nanometer Embedded DRAM Technology

New ZrO_2 Dielectric Material Increases Performance of CMOS-Compatible Embedded DRAM

KAWASAKI, Japan, SANTA CLARA, Calif., DÜSSELDORF, Germany, March 7, 2005 — NEC Electronics Corporation and its subsidiaries in North America and Europe, NEC Electronics America, Inc. and NEC Electronics (Europe) GmbH, today announced its new metal insulator metal (MIM) technology for 90 nanometer (nm) embedded DRAM (eDRAM), called MIM2. In addition, to meet the technical challenges presented by moving the company's established CMOS-compatible eDRAM technology to a 90 nm process, NEC Electronics, ahead of other vendors, has adopted the use of zirconium oxide (ZrO_2), a new dielectric material with a higher-k factor that allows the embedded DRAM's smaller bit cells to retain storage capacitance. With this new ZrO_2 technology, NEC Electronics, a leader and pioneer of CMOS-compatible eDRAM, is well positioned to move its eDRAM technology to even smaller process geometries as it evolves.

The new dielectric material and MIM2 technology enable NEC Electronics to deliver robust eDRAM solutions with smaller cell sizes and higher memory integration, ample storage capacitance and lower cell heights, all the while maintaining the merits of existing eDRAM technology, such as CMOS-compatibility, low power and high-speed random access to the eDRAM.

"We are proud that we have successfully completed 90 nm eDRAM qualification of our leading-edge MIM2 technology that offers our customers some truly compelling improvements in power consumption and performance, while enabling reduced die sizes," said Takaaki Kuwata, general manager, Advanced Device Development Division, NEC Electronics Corporation. "Following our great success in implementing ZrO_2 technology at the 90 nm node, we will apply this technology to our future 65 nm and 45 nm eDRAM offerings."

NEC Electronics' eDRAM technology provides a wide range of macro variants, ranging from the high performance to the low power consumption required by a variety of applications, including high-end networking devices and consumer electronics products such as cell phones, mobile handheld devices and gaming/entertainment devices. The full macro lineup for NEC Electronics' 90 nm ASIC series, CB-90, is scheduled to be ready by September 2005. (Availability is subject to change without notice.) More information can be found at www.necelam.com/eDRAM90.

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About NEC Electronics

NEC Electronics Corporation (TSE: 6723) specializes in semiconductor products encompassing advanced technology solutions for the high-end computing and broadband networking markets, system solutions for the mobile handset, PC peripherals, automotive and digital consumer markets, and platform solutions for a wide range of customer applications. NEC Electronics Corporation has 26 subsidiaries worldwide including NEC Electronics America, Inc. (www.necelam.com) and NEC Electronics (Europe) GmbH (www.ee.nec.de). In addition to marketing, selling and supporting NEC Electronics products to customers in their respective regions, NEC Electronics America and NEC Electronics Europe also operate local manufacturing facilities in Roseville, California, and Ballivor, Ireland, respectively. Additionally, NEC Electronics America for North America and NEC Electronics Europe for Europe are the sales and marketing channels of NEC AM-LCD modules. For additional information about NEC Electronics worldwide, visit www.necel.com .

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