

Elpida, PTI and UMC partner on 3D chip integration development.

I-Micronews

Close integration of DRAM and Logic technologies using Through-Silicon Via (TSV) technology are expected to deliver the performance required for the ongoing convergence of communication, consumer and computing (3C) applications with mobile and handheld electronics. The collaboration will facilitate the development of a total solution that includes Logic+DRAM interface design, TSV formation, wafer thinning, testing and chip stacking assembly for customers. The resulting technology is expected to increase cost competitiveness, improve logic yield impact, and accelerate entry into the 3D IC market.

"Last year Elpida was the first to successfully develop an 8Gb DRAM based on TSV technology. The big advantage of this technology is that it enables a large number of I/O connections between logic and DRAM devices. This can massively increase the data transfer rate and reduce power consumption, making possible completely new kinds of high-performance devices. However, we need a solid partnership with a logic foundry to make this happen. The joint development that we now plan with UMC means that we can use the most advanced TSV integration technology to bring together our advanced DRAM technology and UMC's leading-edge logic foundry technology including experience in providing SoC solutions such as advanced microprocessors. Our plan now is to speed up development in a way that supports ultimate system solutions that will be made possible by freely joining together all kinds of devices through TSV integration," said **Takao Adachi**, director and chief technology officer of Elpida Memory.

"UMC's aggressive pursuit of leading-edge technology solutions for our customers has led to a number of significant milestones. We successfully introduced 40nm high performance production for our customers' ICs in Oct. 2009. Our 28nm, gate-last high-K/metal gate development will be ready to support customer IP verification by the end of 2010. Now, with the increasing technology and cost challenges of CMOS scaling, 3D-IC with TSV becomes another viable 'More than Moore' option. However, customers requiring 3D-IC TSV solutions for next generation products are currently encountering multiple challenges such as standardization, supply chain infrastructure, design solutions, thermal stress, integration of package and testing, cost and etc. As a foundry provider of integrated 3D-IC solutions, we are excited to partner with Elpida and PTI to develop a fully integrated TSV solution suitable for a wide range of applications," said **S. C. Chien**, vice president and head of advanced technology development at UMC.

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Published on Medical Design Technology (<http://www.mdtmag.com>)

Source URL (retrieved on 01/26/2015 - 10:25pm):

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