



Business and Law

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Boston (MA) - On Monday, nineteen leading semiconductor industry companies came together and created a new group called SOI Industry Consortium (SIC). The group's goals are aimed at promoting SOI as a viable material, reaching new markets and reducing costs. The nineteen founding members are a veritable Who's Who list of the semiconductor world.

SOI refers to a manufacturing process used to create a Silicon-On-Insulator, which is silicon on top of an insulating layer, typically SiO₂ (silicon dioxide) or sapphire. The semiconductor properties of SOI claim to allow smaller features with less power loss and subsequent heat generation than non-SOI, or bulk CMOS solutions, due to less parasitic capacitance and resistance along electrical lines. SOI also provides the necessary vehicle for the "floating body effect," an SOI peculiarity which is currently being exploited in a new form of very dense, high speed memory technology called Z-RAM.

The consortium's founding members include AMD, ARM, Cadence, CEA-Léti, Chartered, Freescale, IBM, Innovative Silicon, KLA-Tencor, Lam Research, NXP (formerly Philips), Samsung, Semico, Soitec, SEH Europe, STMicroelectronics, Synopsys, TSMC and UMC. The group's goals include reaching new customers and industries, spreading the design and technology around a little bit through global collaboration and unifying the SOI industry voice.

The benefits and claims of SOI advantage have been the matter of much debate, however. For example, AMD has used SOI throughout all of K8's life, aided by technology provided by IBM who also used it in PowerPC. During that same period of time Intel has never used SOI in their processors, and continues to not use it in them even today. Yet, the process technology and manufacturing that Intel employs have produced products which are at least as capable as those from AMD in speed and power consumption, despite AMD their having the SOI technology's claimed advantages. Interestingly though, in 2005 Intel created their first single-chip silicon laser, and it was based on SOI. Today, Intel is creating 40 Gbps single-module laser modulators built with a rainbow of laser wavelengths based on that early research.

SIO wafers are the raw materials used in semiconductor manufacturing. They are provided primarily by a French company called Soitech. In Q1, 2007 Soitech shipped 68.5 million Euros (\$97 million) worth of SOI wafer products, making it the single largest SOI maker in the world.

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