



## **SOI cost not the whole story, Semico says**

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SAN FRANCISCO — Contrary to popular belief, the growth of silicon-on-insulator (SOI) will not be limited by the cost of the material, according to a report by market analyst firm Semico Research Corp.

As semiconductor process technologies move down the nanometer scale, silicon-on-insulator (SOI) can actually be less expensive than bulk silicon, and thus a cost-effective and attractive solution, the report contends.

The prevailing theory has been that the added cost of SOI has hindered more widespread adoption of the substrate material. But Semico (Phoenix) says the results of an analysis of the impact of SOI wafers on the costs of operation and manufacturing as well as the ultimate end-product cost, found differently.

"On a straight manufacturing cost basis, the 10-15 percent SOI cost-of-ownership (COO) figure does not tell the whole story," said Joanne Itow, Semico's managing director of manufacturing, in a statement. "Moving further into the semiconductor manufacturing process, looking at the cost of SOI once the wafer is tested, diced and the good die packaged, the Semico analysis has found the SOI COO adds only 4-6 percent to the total manufacturing cost."

Other factors improving the benefits of SOI include new design solutions and logic architectures, Semico said. While sometimes overlooked, the relationship between the performance of logic and the amount of on-die memory required in support of that logic has become a growing portion of the die area, Semico said.

"Use of SOI-enabled memory optimization tools can increase the benefits of SOI from breakeven to a cost reduction of over 40 percent, depending on the product, technology and process complexity," Itow said.

Dan Tracy, an analyst with the Semiconductor Equipment and Materials International (SEMI) trade group, said in January that SOI adoption expected to grow, especially thin-film technologies. Thin-film SOI is projected to grow from \$263 million in 2005, to \$632 million in 2008, he said, while thick-film SOI growth is expected to be flat, from \$84 million in 2005 to \$94 million in 2009.

Semico's recent study, entitled "SOI=Big ROI," is available for purchase through the firm at a cost of \$3,500.