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UMC has said that it has successfully taped-out a test chip using libraries from ARM via its acquisition of Soisic last year, with 65nm feature sizes based on SOI wafer technology. The test chip consists of a set of ARM physical IP that uses a standard cell library, an I/O library and a single-port SRAM memory compiler, UMC said. UMC is the first Taiwanese-based foundry to offer SOI technology.

A specific process platform has been created by UMC that is designed to accommodate 65nm features for complex system on chips (SOCs). The L65SOI process features nominal 1V multi-threshold voltage thin gate oxide transistors, nominal 2.5V thick gate oxide transistors for I/O and a nominal 1V 0.62 square-micron 6-transistors SRAM bitcell, which is now supported by a full process design kit, according to UMC.

The ARM standard cells used in the test chip support multi-VT and multi-power supply circuit designs, the I/O is 3.3V signal tolerant and the memory compiler is optimized for high-speed and low-power consumption.

UMC claims that the design saves up to 20 percent in area and 30 percent in power consumption, compared to a 65nm bulk CMOS process. The SOI technology is also claimed to give up to a 28 percent speed boost with a 10 percent power reduction compared to bulk CMOS.

"We are very happy with the result of this partnership, which has allowed us to become the first foundry to develop and offer a complete 65nm SOI solution," stated Lee Chung, vice president of Corporate Marketing at UMC. "We leveraged ARM's strong SOI expertise from the design support side along with our volume production 65nm process to quickly develop and bring this SOI process to the market. We look forward to offering this competitive technology to our foundry customers."

"Strong demand from IDMs for the performance provided by SOI technology exists in the market today," said Tom Lantzsch, vice president, Marketing, Physical IP, ARM. "We anticipate that this new process, available through UMC, will enable leading fabless design companies to assess SOI technology and begin pilot projects. The next step will be to broaden the offerings, extend to more advanced process nodes and introduce a full foundry program similar to our offerings in the bulk CMOS space."

"Semico believes companies that invest in SOI at 65 and 45nm will be best positioned for market opportunities at 32nm," stated Jim Feldhan, president of Semico Research.. "ARM and UMC's venture into SOI is a significant step. It represents the first strong commitment of a Taiwanese-based foundry to SOI technology and will provide fabless and IDM companies additional market choices."

UMC is targeting the new SOI process at high-performance computing, communications and network IC applications.

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