

Toshiba Licenses Synopsys PSM Technology for 65nm Production of Advanced Logic Microchips and Microprocessors

PSM Technology Enhances Yield and Lithography Resolution for High-Volume Products

Synopsys, Inc. (NASDAQ: SNPS), the world leader in semiconductor design software, today announced that Toshiba Semiconductor Company has licensed the rights, on a per-use basis, to use Synopsys' alternating phase-shift mask (PSM) technology for production of high-performance processors and logic chips. Toshiba expects to enter volume production on the 65 nanometer (nm) process built with this technology in the first half of 2005.

"Our research and development qualification shows that Synopsys PSM technology enables us to increase our yields and control our chip performance at 65 nanometer by substantially improving the resolution of our existing lithography equipment," stated Masakazu Kakumu, technology executive for Toshiba Semiconductor Company. "Having strong control over our lithography process is a critical component in meeting our yield goals for production on this difficult node."

Synopsys' PSM technology will be used to support the ramp of Toshiba's CMOS5 65nm process node. In December 2002, Toshiba developed the CMOS5 65nm production process technology, which offered 30nm transistors and 180nm pitches using 193nm argon fluoride (ArF) lithography and PSM technology. Toshiba's anticipated launch date of April 2004 places them among the very first companies to announce leading-edge 65nm capability.

"Synopsys is committed to delivering technology and software products that accelerate its customers' high-yield chip production on advanced process nodes," said Sanjiv Kaul, general manager of the New Ventures business unit at Synopsys. "Based on multiple sets of silicon results, Synopsys' PSM technology has been proven to deliver the lithography resolution required for the 65 nanometer process node. Our ability to support Toshiba's industry-leading ramp of its CMOS5 process node demonstrates our PSM technology's continued value in a production environment."

About Synopsys phase-shifting technology

Synopsys' production-proven phase-shifting technology enables semiconductor manufacturers to more reliably and cost-effectively fabricate subwavelength integrated circuits (ICs) using available optical lithography equipment. The company's phase-shifting technology is the only commercially available strong phase-shifting technology currently used in IC production. This technology has been used to fabricate transistors as small as 9nm using 248nm lithography equipment -- dramatically smaller than the 30nm transistors used at the 65nm process node.

About Synopsys

Synopsys, Inc. is the world leader in electronic design automation (EDA) software for semiconductor design. The company delivers technology-leading IC design and verification platforms to the global electronics market, enabling the development of complex systems-on-chips (SoCs). Synopsys also provides intellectual property and design services to simplify the design process and accelerate time-to-market for its customers. Synopsys is headquartered in Mountain View, California and has offices in more than 60 locations throughout North America, Europe, Japan and Asia. Visit Synopsys online at <https://www.synopsys.com/>.

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