Synopsys Extends TCAD Leadership With the Introduction of Sentaurus

Sentaurus Sets New Standard in TCAD Simulation Capabilities for Semiconductor Process, Device, Circuit and System Analysis, and Parametric Yield Optimization

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Synopsys, Inc. (NASDAQ: SNPS), a world leader in semiconductor design software, today announced the availability of the new Sentaurus Technology CAD (TCAD) tool suite. Sentaurus sets a new standard for TCAD technology by embedding a comprehensive suite of core TCAD products for multi-dimensional process, device and system simulation into a powerful user interface. Created by integrating the industry-leading features of Synopsys and former ISE TCAD products, Sentaurus includes a wide range of new features and capabilities. Together with TSuprem4™, Medici™ and Raphael™ existing Synopsys products, Sentaurus will put Synopsys customers in a strong position to address future challenges in semiconductor development while maintaining continuity with their existing software installations.

The application space of Sentaurus spans the complete range of semiconductor technologies, from deep submicron logic, memory and mixed signal to smart power, sensors, compound semiconductor, optoelectronics and RF. The combined capabilities in the Sentaurus tool suite enables customers to easily explore and optimize a broad range of process and device alternatives, as well as provide powerful new concepts to improve parametric yield in manufacturing, thereby reducing technology development cost and increasing productivity.

A number of worldwide leading semiconductor companies have been using Synopsys' Sentaurus TCAD technologies as a critical part of their technology development flow. "Toshiba is using TCAD tools in a variety of ways to help explore new concepts, to develop next-generation advanced technologies and to address and optimize parametric yield issues," said Shigeru Komatsu, chief knowledge officer at Toshiba. "From substrate engineering to advanced process control, TCAD provides important insight that is not easily attainable from measurements. TCAD simulation results are a perfect complement to silicon experiments, allowing us to save cost and time throughout the product development cycle in order to attain target yield and meet time-to-market constraints. The enhanced capabilities in the Sentaurus tool suite will allow us to harvest the benefits of TCAD for the development and improvement of new processes and devices."

The knowledge gained through TCAD simulation has been used to optimize processes and identify potential yield problems that need to be addressed in the design prior to volume production. Through proper calibration with prototype wafers, TCAD can accurately predict the behavior of silicon in the manufacturing line for new technology nodes. This information, coupled with design tools, will enable Synopsys' DFM solution to reach beyond the traditional boundaries of EDA by identifying and addressing manufacturing problems early in the design process. Ultimately, higher yield can be achieved with Synopsys' bi-directional link between design and manufacturing, all the way from place and route to physical verification (RET -- resolution enhancement technology), mask optimization and TCAD.

"TCAD has played a significant role in our technology development flow," said Scott Irving, director of TCAD at Fairchild Semiconductor in South Portland, Maine. "Simulation results are invaluable when silicon data are scarce, and running additional wafer splits is too time-consuming. The full suite of Synopsys TCAD products gives us a reliable framework to explore future devices and technologies with advanced modeling capabilities, such as Monte Carlo, optimizing new processes with predictable simulation results and improving production yield with statistical modeling and analysis capabilities."

The 2004 International Technology Roadmap for Semiconductor (ITRS) states that the use of TCAD will provide as much as a 40 percent reduction in technology development costs. "In this highly competitive environment, more and more of our customers take full advantage of the predictive power of TCAD to reduce cost and time in product development and get their products out on time," said Wolfgang Fichtner, vice president of Engineering and general manager of TCAD at Synopsys. "The newly released Sentaurus provides the superior modeling capabilities to our customers, allowing them to continue to push the technology envelope in a time- and cost-effective manner. With Sentaurus, Synopsys offers highly advanced technology that bridges the gap between manufacturing and EDA and further cements Synopsys' leadership in TCAD and design for manufacturing (DFM)."

Availability
The Sentaurus TCAD tool suite is available today.

About Synopsys TCAD

Technology CAD (TCAD) refers to the use of computer simulation to model semiconductor processing and device operation.

TCAD provides insight into the fundamental physical phenomena that ultimately impact performance and yield. TCAD has become a critical part of the Synopsys design for manufacturing (DFM) solution as it provides a bi-directional link between manufacturing and design.

About Synopsys

Synopsys, Inc. is a world leader in electronic design automation (EDA) software for semiconductor design. The company delivers technology-leading semiconductor design and verification platforms and IC manufacturing software products to the global electronics market, enabling the development and production 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 http://www.synopsys.com/ .

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