ITRI Adopts Synopsys' TCAD Sentaurus for Silicon Carbide Technology Development

Advanced Device Simulation Capabilities Support Development of Novel SiC Devices

MOUNTAIN VIEW, Calif., March 16, 2011 /PRNewswire/ -- Synopsys, Inc. (Nasdaq: SNPS), a world leader in software and IP for semiconductor design, verification and manufacturing, today announced that the Industrial Technology Research Institute of Taiwan (ITRI) has adopted Synopsys' TCAD Sentaurus simulation software to support its research and development of silicon carbide (SiC) semiconductor devices. TCAD Sentaurus' accurate modeling enables ITRI to speed up the development of SiC power devices with detailed simulations of their electrical and thermal behavior.

SiC is a wide bandgap semiconductor with superior electrical and thermal properties for power devices. Over the past decade, SiC Schottky barrier diodes have become commercially available, resulting in the development of a new generation of SiC devices targeting applications in hybrid and electric vehicles, smart grid and other innovative power systems. ITRI is researching a wide range of power devices to serve emerging market needs for electric vehicles and solar arrays.

"The market for SiC devices is growing rapidly because of the need for more energy-efficient power switches in major application segments like automotive and energy distribution," said Dr. Ming-Jer Kao, EOL deputy general director of ITRI. "The Synopsys TCAD Sentaurus software allows us to simulate the electrical and thermal performance of our devices in a very realistic way. This capability is essential for understanding the behavior of our new devices and is used to optimize the device characteristics to meet market requirements."

The TCAD Sentaurus product family comprises 2D and 3D process and device simulation tools for exploring and optimizing silicon and compound semiconductor technologies. The TCAD Sentaurus tools implement models specific to SiC simulation.

"Power devices are a fast-moving segment of the semiconductor market, with innovation through new device structures and materials addressing increasingly complex and challenging applications. TCAD simulation can help accelerate the commercial deployment of SiC by supporting the design and optimization of new devices," said Howard Ko, senior vice president and general manager of the Silicon Engineering Group at Synopsys. "As a leader in semiconductor research and development, ITRI's adoption validates the value Synopsys TCAD simulation brings to SiC power device development."

About Synopsys

Synopsys, Inc. (Nasdaq:SNPS) is a world leader in electronic design automation (EDA), supplying the global electronics market with the software, intellectual property (IP) and services used in semiconductor design, verification and manufacturing. Synopsys' comprehensive, integrated portfolio of implementation, verification, IP, manufacturing and field-programmable gate array (FPGA) solutions helps address the key challenges designers and manufacturers face today, such as power and yield management, system-to-silicon verification and time-to-results. These technology-leading solutions help give Synopsys customers a competitive edge in bringing the best products to market quickly while reducing costs and schedule risk. Synopsys is headquartered in Mountain View, California, and has approximately 70 offices located throughout North America, Europe, Japan, Asia and India. Visit Synopsys online at https://www.synopsys.com.

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