Synopsys and Varian Collaborate on Process Models for Advanced Logic and Memory Technologies

New TCAD Sentaurus Models Address Cryogenic Ion Implantation for Leakage Reduction of Leading-edge Logic and Memory Devices

MOUNTAIN VIEW, Calif. and GLOUCESTER, Mass., Feb. 10, 2011 /PRNewswire/ -- Synopsys, Inc. (Nasdaq: SNPS), a world leader in software and IP for semiconductor design, verification and manufacturing, and Varian Semiconductor Equipment Associates, Inc. (Nasdaq: VSEA), the leading producer of ion implantation equipment used in the manufacture of semiconductors, today announced a collaboration to develop Technology CAD (TCAD) models for cryogenic ion implantation. By enabling faster optimization of the cryogenic implant process through simulation, the models derived from this collaboration will speed up process development of advanced CMOS and memory technologies and reduce process development cost and time-to-market.

Ion implantation forms transistor structures in semiconductor silicon through energetic ion beams. These ions disrupt the crystal structure of the silicon, creating end-of-range damage that impacts device performance as devices shrink. To neutralize the damage, Varian's latest generation of high current implanters enables the ion implantation process to occur at reduced wafer temperature (cryogenic implant), resulting in significant reduction of end-of-range damage, minimizing device leakage and widening process margins.

"Today semiconductor manufacturers face tremendous challenges in improving device performance, achieving high product yield, reducing process R&D costs and meeting time-to-market targets. Therefore, it is increasingly critical for simulation to support novel process techniques to reduce technology development time and cost," said Dr Yuri Erokhin, senior director for strategic technologies at Varian. "Cryogenic ion implant has been proven to significantly improve transistor performance and is a key enabler in the manufacture of advanced devices. This collaboration with Synopsys will enable our mutual customers to explore and optimize the cryogenic implant process with simulation, reducing time-to-market."

Through this collaboration, Synopsys will use experimental data from Varian's cryogenic implant process to develop and calibrate models for its TCAD Sentaurus tools, which are widely used by semiconductor companies in the development and optimization of new manufacturing technologies.

"To reduce development time and cost, our customers need TCAD models that are calibrated to the actual equipment used to fabricate the silicon," said Howard Ko, senior vice president and general manager of the Silicon Engineering Group at Synopsys. "Our joint work with Varian to develop TCAD models for this new cryogenic implant process is an example of our commitment to keep our TCAD Sentaurus tools at the forefront of semiconductor process 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/.

About Varian Semiconductor

Varian Semiconductor Equipment Associates is the leading supplier of ion implant equipment to semiconductor manufacturers, enabling them to pack more, higher performing transistors into computer chips that are revolutionizing the electronics industry. Varian Semiconductor's products are used by chip manufacturers worldwide to produce high-performance semiconductor devices. Customers have made Varian Semiconductor the market leader in ion implant because of its architecturally superior products that lower their costs and improve their productivity. Varian Semiconductor operates globally and is headquartered in Gloucester, Massachusetts. More information can be found on Varian Semiconductor's web site at www.vsea.com.

Forward Looking Statements

This press release contains forward-looking statements within the meaning of Section 27A of the Securities Act of 1933 and Section 21E of the Securities Exchange Act of 1934, including statements regarding the expected benefits and results of the collaboration to develop Technology CAD (TCAD) models for cryogenic ion implantation, between Synopsys and Varian

Semiconductor Equipment Associates. These statements are based on Synopsys' current expectations and beliefs. Actual results could differ materially from these statements as a result of unforeseen difficulties in completing the collaboration and the other factors contained in the section of Synopsys' Annual Report on Form 10-K for the fiscal year ended October 31, 2010 entitled "Risk Factors."

Synopsys is a registered trademark of Synopsys, Inc. Any other trademarks or registered trademarks mentioned in this release are the intellectual property of their respective owners.

Editorial Contacts:

Sheryl Gulizia
Synopsys, Inc.
650-584-8635
sgulizia@synopsys.com

Bob Halliday
Executive Vice President and CFO
Varian Semiconductor Equipment Associates
978-282-7597

Lisa Gillette-Martin
MCA, Inc.
650-968-8900 x115
lgmartin@mcapr.com

Tom Baker
Vice President, Finance
Varian Semiconductor Equipment Associates
978-282-2301

SOURCE Synopsys, Inc.