Synopsys and NanoGeometry Collaborate to Deliver Higher Modeling Accuracy and Predictability for 45-Nanometer DFM

Joint Effort Targets Improved OPC Modeling Accuracy, Reduced Time to Model and Enhanced Model Predictability

PHOTOMASK JAPAN, Yokohama, Japan, April 17 /PRNewswire-FirstCall/ -- Synopsys, Inc. (NASDAQ: SNPS), a world leader in semiconductor design software, and NanoGeometry Research, Inc. (NGR), a technology leader in electron beam pattern inspection tools for microelectronics manufacturing, today announced that they are collaborating to enable faster, more accurate, more predictive optical proximity correction (OPC) model-building at 45 nanometers and beyond. This collaboration brings together advanced design-for-manufacturing (DFM) and metrology expertise to focus on building advanced "manufacturing-aware" OPC and reticle-enhancement technology (RET) lithography simulation models.

At 45 nanometers and below, the process window becomes extremely small and a very tight error budget is required for accurate critical-dimension (CD) control. OPC models must accurately capture a wider scope of effects and process variations. This requires a large sampling of physical measurements, including a wide range of critical 2D structures. Synopsys and NGR are working with a joint customer, a large semiconductor manufacturer, to develop a common interface that works with both Synopsys' Proteus OPC tool and NGR's NGR2100 wafer inspection system.

"We believe the accuracy, stability, and time-to-modeling for OPC can be significantly improved by incorporating our wafer pattern data into Proteus modeling," stated Masahiro Yamamoto, CEO, NanoGeometry Research Inc. "By collaborating with Synopsys, the leader in DFM solutions, we can provide better predictive lithography models for our customers, helping them reduce the time required to develop a lithography process."

The interface that Synopsys and NGR are developing will allow Proteus modeling to automatically link to metrology data obtained from NGR's wafer inspection tool NGR2100. With this new integration, Synopsys and NGR's mutual customers can quickly obtain a wide range of scanning electron microscope (SEM) measurements, and accurately overlay over the input layout data. Proteus customers can achieve higher model accuracy, more predictive 2D models and process window models.

"Together, Synopsys and NGR are addressing the escalating need for accurate, high-speed OPC modeling at the 45 nanometer node," said Anantha Sethuraman, Synopsys' vice president of marketing, Design for Manufacturing. "By addressing the complex technology issues our customers face at 45 nanometers and beyond, this collaboration will help them achieve their model production and yield goals, thereby reducing their overall cost of ownership."

About NGR2100

The NGR2100 is uniquely designed to supply customers with millions of data points and feature contours, with a 10X reduction in data acquisition times versus traditional SEM metrology tools. NGR utilizes a large field of view (FOV) SEM image, stitch and butt image assembly and high speed data processing technology to verify every feature shape in the FOV versus its design intent for local regions, hot spots or whole die. With the number of transistor per die increasing exponentially, statistical significance and data confidence is lost using traditional sampling strategies. With its fourth shipment NGR has already shown a strong record for improving customer performance and product yields.

About NanoGeometry

NanoGeometry Research is a privately funded, Tokyo-based company. Working closely with strategic suppliers and partners, NGR is committed to a path of innovative solutions for mass data collection for geometry verification at the 65 nm node and beyond. NGR's customers include some of the industry's most innovative leading-edge companies that must push the envelope to maintain market leadership. NGR's technology roadmap parallels these demands for statistically significant data collection, and features contour extraction in support of rapidly changing modeling and EDA solutions required by each progressive node and ever-changing lithographic strategies. Visit NGR's web site at http://www.nanogeometry.com/ for more information on both the NGR2100 and NGR4000.

About Synopsys DFM

With its design for manufacturing (DFM) tools, Synopsys is expanding on what is already the EDA industry's most comprehensive DFM solution that spans from RTL to silicon. Synopsys' DFM product family addresses critical manufacturability and yield issues with the following products: IC Compiler physical design solution, PrimeYield LCC and PrimeYield CMP, Hercules™ PVS, Proteus OPC, CATS® mask data preparation product, SiVL® lithography verification tool, patented PSM technology, and physics-based TCAD suite of simulation products. Synopsys' Manufacturing Yield Management (MYM) solutions extend directly into the fab, providing customers real time access to yield data and the analysis capability needed to reduce random, systematic and parametric defects.

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-chip (SoCs). Synopsys also provides intellectual property and design services to simplify the design process and accelerate time-to-market for its customers. Synopsys has its headquarters in Mountain View, Calif., and has offices in more than 60 locations throughout North America, Europe, and Asia. Visit Synopsys online at https://www.synopsys.com/.

Forward-Looking Statements

This press release contains forward-looking statements within the meaning of the safe harbor provisions of Section 21E of the Securities Exchange Act of 1934, including statements regarding the expected benefits of the collaboration between Synopsys and NanoGeometry Research to enable faster, more accurate, and more predictive optical proximity correction (OPC) model building at 45nm. These statements are based on Synopsys' and NGR's current expectations and beliefs. The actual results of the collaboration could differ materially from those implied by these statements as a result of unforeseen difficulties encountered during the collaboration in developing solutions for very small geometry processes, uncertainties attendant to any new technology offering and certain statements contained in the section of Synopsys' Quarterly Report on Form 10-Q for the fiscal quarter ended January 31, 2007 entitled "Factors That May Affect Future Results."

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