Synopsys Accelerates Adoption of FinFET Technology with Delivery of Production-Proven Design Tools and IP

FinFET Technology Support Developed over Five-year Collaboration with Industry Leaders

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Highlights:

- Includes proven implementation and manufacturing tools, as well as IP for designing with FinFET devices
- In production use by early adopters of FinFET technology and key foundries
- Includes foundry-endorsed embedded memory and logic library IP

Synopsys, Inc. (Nasdaq:SNPS), a global leader providing software, IP and services used to accelerate innovation in chips and electronic systems, today announced immediate availability of its comprehensive solution for FinFET-based semiconductor designs. The solution includes a range of DesignWare® Embedded Memory and Logic Library IP; silicon-proven design tools from the Galaxy™ Implementation Platform; and foundry-endorsed extraction, simulation and modeling tools. It also includes TCAD and mask synthesis products used by foundries for FinFET process development. The three-dimensional structure of FinFET devices represents a significant change in transistor manufacturing that impacts design implementation tools, manufacturing tools and design IP. Developed over a period of five years through engineering collaboration with leading foundries, research institutes and early adopters, Synopsys' FinFET solution delivers production-proven technologies to manage the change from planar to 3-D transistors. The full-line solution provides a strong foundation of EDA tools and IP needed to accelerate deployment of FinFET technology which offers improved power, performance and area for semiconductor designs.

"Synopsys continues to make significant investments to develop a complete solution for adoption of new process geometries and devices, including FinFETs," said Antun Domic, senior vice president and general manager of Synopsys' Implementation Group. "Synopsys' extensive collaboration with all the partners within the FinFET ecosystem, including foundries, early adopters and research institutions, allows us to deliver best-in-class technologies and to enable the market to realize the full potential of this new transistor design."

"With our new 14nm-XM offering, we have accelerated our leading-edge roadmap to deliver a FinFET technology optimized for the expanding mobile market," said Gregg Bartlett, senior vice president, chief technology officer at GLOBALFOUNDRIES. "Collaboration with partners has been a key element of our ability to deliver this innovative FinFET solution. We have collaborated early with Synopsys in multiple areas, including modeling of the FinFET devices in HSPICE. We continue our collaboration to accelerate adoption of FinFET technology for our mutual customers."

"Our FinFET collaboration with Synopsys is key to maintaining our semiconductor leadership position," said Dr. Kyu-Myung Choi, senior vice president of System LSI Infrastructure Design Center, Samsung Electronics Co., Ltd. "Our foundry and semiconductor design expertise, combined with Synopsys' broad EDA tool and IP development experience enabled us to address FinFET-related challenges effectively. We continue to engage in strong collaboration to maximize the benefits of FinFET technology."

"Very early on, we successfully demonstrated the power and performance benefits of using FinFET 3-D transistors," said Dr. Chenming Hu, distinguished professor of microelectronics at University of California, Berkeley, widely regarded as the pioneer of FinFET technology. "To make these demonstrations possible, my team worked closely with Synopsys R&D on a number of areas including device simulation. We continue to collaborate with Synopsys to deliver more innovations for FinFET deployment."

FinFET-ready IP
Working closely with leading foundries for more than five years enabled Synopsys to gain design expertise and a deep understanding of IP architectures. This close collaboration has resulted in the successful deployment of Synopsys' DesignWare Embedded Memory and Logic Library IP solutions on FinFET to key customers. A broader range of IP is planned for development in 2013. The DesignWare Embedded Memory and Logic Library IP is architected to achieve the full benefits of the FinFET technology, delivering superior results in the areas of performance, leakage and dynamic power, and low voltage operation.

FinFET-ready Design Tools
The shift from planar to FinFET-based 3-D transistors is a significant change that requires close R&D collaboration among tool developers, foundries and early adopters to deliver a strong EDA foundation. Developed through a multi-year collaboration with FinFET ecosystem partners, Synopsys' solution accelerates time to market of FinFET-based designs. The comprehensive solution includes IC Compiler for physical design,

IC Validator for physical verification, StarRC™ for parasitic extraction, SiliconSmart for characterization, CustomSim™ and FineSim for FastSPICE simulation and HSPICE® for device modeling and circuit simulation.

FinFET-ready Manufacturing Tools
The small geometries and 3-D nature of FinFETs require new approaches to optimize device performance and leakage, and to address the effect of process variations. Target device performance and leakage is achieved through the optimization of the fin geometry, stress engineering and other factors. Process variations stem from random dopant fluctuations, line edge roughness, layout-induced stress and other sources, which together impact device and circuit performance. Synopsys has been collaborating with foundries on the Sentaurus™ TCAD and Proteus™ mask synthesis products to address these issues. The Sentaurus product line enables foundries to optimize FinFET processing and design devices that meet the performance and leakage targets while mitigating the impact of process variation. The Proteus product line provides foundries with a comprehensive solution for performing full-chip proximity corrections.

About Synopsys
Synopsys, Inc. (Nasdaq:SNPS) accelerates innovation in the global electronics market. As a leader in electronic design automation (EDA) and semiconductor IP, its software, IP and services help engineers address their design, verification, system and manufacturing challenges. Since 1986, engineers around the world have been using Synopsys technology to design and create billions of chips and systems. Learn more at www.synopsys.com.

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