Synopsys and TSMC Deliver Accurate Lithography Verification for 28nm Designs

Encapsulated Access to Foundry Data and Tool Chain Accelerates Time to Market and Improves Yields

MOUNTAIN VIEW, Calif., June 23 /PRNewswire-FirstCall/ -- Synopsys, Inc. (NASDAQ: SNPS), a world leader in software and IP for semiconductor design, verification and manufacturing, today announced the results of a collaboration with TSMC under TSMC's Unified Design-for-Manufacturing (UDFM) architecture effort. This collaboration enables designers to improve yields and accelerate time to market through more accurate lithography simulation at 28 nanometer (nm) and below. Through this joint effort, designers will now have access to the same technology that is in production at TSMC. The solution offers a 28-nm lithography process checking (LPC) engine, which includes Synopsys Proteus mask synthesis technology and TSMC process models. Using an interoperable applications programming interface (API), EDA design tools can now interface with the LPC engine to accurately predict lithography hotspots in a given design before handing-off the designs to manufacturing.

"TSMC is laying the groundwork for 28-nm process technologies and below with the industry's first Unified DFM (UDFM) framework and LPC engine, which is destined to become an important consideration," said ST Juang, senior director of Design Infrastructure Marketing at TSMC. "At those nodes, it will be exceedingly difficult for design tools to accurately assess lithography issues without access to an exact copy of our tool chain and process models. TSMC UDFM's 'copy exact' approach will not only provide actual lithography hotspot data to designers, but will also open the door for all EDA vendors by enabling encapsulated access to a large part of our manufacturing data."

Currently, the only way for design tools to access proprietary foundry data is through abstracted models, which by necessity lose information in the translation process. This can lead to overly aggressive checking during design, wasting chip area and design time to correct false errors. In comparison, using the new approach based on the encapsulated LPC engine, TSMC can provide EDA DFM tools access to the TSMC Unified DFM Design Kit (DDK) that includes an exact copy of the tool chain and process models used in the factory. In the case of Synopsys, this allows PrimeYield LCC and IC Compiler to create a comprehensive DFM solution. PrimeYield LCC can be invoked within Synopsys' IC Compiler place-and-route system to identify lithography hot spots with factory accuracy and offer fix guidance for IC Compiler to auto-fix the hotspot.

"With UDFM and a LPC engine, Synopsys and TSMC enable designers to perform more accurate lithography analysis. With copy-exact accuracy, designers can be confident that they are neither sacrificing chip area, nor wasting time in fixing false hotspots," said Saleem Haider, senior director of marketing for physical design and DFM at Synopsys. "Together with TSMC, we are confident that the EDA community will benefit from this open approach, and we look forward to their participation in this Unified DFM framework."

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 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, software-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 more than 60 offices located throughout North America, Europe, Japan, Asia and India. Visit Synopsys online at https://www.synopsys.com/.

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