Synopsys' HSPICE Advances Circuit Simulation Performance and Analysis

HSPICE Achieves Up to 20X Performance Improvement and Supports High Frequency And RF Designs

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Synopsys, Inc. (NASDAQ: SNPS), the world leader in semiconductor design software, today announced significant performance enhancements and extended high-frequency design support in HSPICE®, the industry standard for accurate circuit simulation and cornerstone product within the Discovery AMS verification solution. The new release of HSPICE offers up to 20 times runtime improvement for transient analysis and a new state-of-the-art harmonic balance engine for effective simulation of high frequency designs. Using the new features, designers can simulate designs significantly faster than before and perform comprehensive analysis of high frequency and RF circuits, thereby speeding total design time. All this is achieved while maintaining the golden level of accuracy expected of HSPICE.

An enhanced time-step control algorithm, combined with a simplified simulation control interface, is the key enabler of HSPICE's improved performance. With the new features, all simulation tolerances are scaled simultaneously using a single control option, eliminating the need for users to adjust multiple option settings. HSPICE automatically maximizes each time- step size to meet the desired accuracy level.

"HSPICE has long been a key simulator for characterizing our widely-used semiconductor IP. We rely on HSPICE's foundry-certified models to accurately characterize libraries for timing, power and noise," said Neal Carney, vice president of marketing at Artisan Components, Inc. "We are impressed with the new features of HSPICE, which deliver up to 20 times performance improvement over previous versions with the same high level of accuracy. We have already deployed it into our production flow."

With the addition of the harmonic balance engine, HSPICE now supports high-capacity non-linear simulation for high frequency designs. HSPICE performs periodic steady-state (PSS) analysis, periodic noise and phase-noise analysis, and periodic AC analysis. These analyses are used to make critical measurements on building block components of wireless applications such as RF transceivers found in cell phones, wireless LAN, and PDA's. HSPICE handles these circuits efficiently with the ability to support more than 8,000 transistors. An entire block or design can be simulated with confidence that convergence will be achieved while retaining HSPICE's golden accuracy.

"Our advanced analog IP and wireless designs must meet extremely strict linearity, phase noise and jitter specifications," said Nuno Ramalho, vice president of System Solutions at ChipIdea. "HSPICE's high frequency simulation capability enables us to simulate our designs efficiently, in the frequency domain, and helps us to compute highly accurate phase noise and linearity values."

"As design complexity increases, so does the need for higher performance and more extensive simulation which speeds time to design completion," said Bijan Kiani, vice president of marketing for the mixed-signal products at Synopsys. "The new version of HSPICE redefines the expectations of accuracy and performance in circuit simulation for all designs, and underscores Synopsys' commitment to providing a comprehensive mixed-signal verification solution."

About Synopsys Mixed-Signal Verification

Discovery AMS is Synopsys' mixed-signal verification solution based on industry leading golden simulators VCS®, NanoSim™ and HSPICE. These simulators are best-in-class stand alone tools and when unified in a common environment provide a unique combination of accuracy, performance, and capacity with the flexibility of simulating design abstractions in any combination of Verilog, SPICE, Verilog-A and Verilog-AMS.

About Synopsys

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

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