Synopsys Introduces PrimeYield for 100X Faster SoC Yield Analysis and Optimization

Breakthrough Technology Redefines Design Signoff by Leveraging Industry's Golden Timing Signoff and Machine Learning Technology to Accelerate Statistical Yield Analysis

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Highlights:

- Patented full-chip-scale parametric design yield analysis delivers accurate statistical yield with over 1000X faster performance than Monte Carlo static timing analysis
- Unique design robustness analysis and optimization to identify and fix yield hotspots pre-silicon
- Innovative, intelligent path simulation with true HSPICE accuracy and 100X-1000X faster than traditionalMonte Carlo simulation

Synopsys, Inc. (Nasdaq: SNPS) today announced the availability of its PrimeYield™ solution, a breakthrough for pre-silicon design yield analysis enabled by patented fast statistical methods and accelerated with advanced machine learning technology. It delivers design yield analysis and optimization over 1000X faster than existing solutions and is scalable to volume production system-on-chips (SoCs) with billions of transistors, enabling SoC designers to shift-left design yield optimization to pre-silicon design phases.

"The ability to identify and fix yield hotspots during the pre-silicon design phase is a game-changer," saidDan Hutcheson, chief executive officer and chairman at VLSI Research. "Shifting-left design yield optimization before trial production without the need for a full Monte Carlo statistical simulation significantly lowers non-recurring engineering cost, improves productivity, and, more importantly, shortens the time-to-money for a new design."

PrimeYield's innovative fast statistical engine uniquely leverages the core engines of Synopsys' gold-standard PrimeTime® signoff and HSPICE® simulation tools and overcomes the turnaround time challenges that previously prohibited full statistical pre-silicon yield analysis with machine learning technologies, enabling pre-silicon design yield analysis and optimization for every design of any size. With the addition of yield as a fourth design quality metric, now PPA-Y (power, performance, area, and yield), the Synopsys Fusion Design Platform™ can deliver silicon designs that are faster, lower power, and the most cost effective.

Accelerated by machine learning technology, PrimeYield performs fastMonte Carlo statistical simulation on critical timing paths with true HSPICE accuracy within minutes, versus the days or weeks required by full statistical simulations. Its patented parametric yield analysis with statistical correlation modeling enables true statistical-based yield analysis and optimization on large-scale SoCs with billions of cells, an analysis previously feasible only for a few dozen cells.

PrimeYield can rapidly identify and drive optimization of yield-impacting cells caused by statistical correlation and sensitivity to various design variations, such as supply voltage drops or manufacturing variability, while using industry standard inputs for immediate deployment.

"Synopsys has a long history of close customer collaborations to drive technology innovations for the growing challenges of SoC design," said Jacob Avidan, senior vice president of engineering in Synopsys' Design Group. "The introduction of PrimeYield represents a novel approach to yield analysis delivering a shift-left in design yield optimization and lowering manufacturing overhead."

With the introduction of PrimeYield, Synopsys expands its strong leadership in semiconductor yield analysis from Yield Explorer® post-silicon yield analysis and management to pre-silicon statistical yield analysis and optimization, delivering solutions that accelerate predictable customer success.

About Synopsys

Synopsys, Inc. (Nasdaq: SNPS) is the Silicon to Software™ partner for innovative companies developing the electronic products and software applications we rely on every day. As the world's 15th largest software company, Synopsys has a long history of being a global leader in electronic design automation (EDA) and semiconductor IP and is also growing its leadership in software security and quality solutions. Whether you're a system-on-chip (SoC) designer creating advanced semiconductors, or a software developer writing applications that require the highest security and quality, Synopsys has the solutions needed to

deliver innovative, high-quality, secure products. Learn more at www.synopsys.com.

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