Synopsys Introduces PrimeLib Unified Library Characterization and Validation Solution for Accelerated Access to Advanced Process Nodes

Golden Signoff Accuracy Coupled with 10X Cloud-optimized Performance Speeds Turnaround Time and Reduces Hardware Costs

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Highlights of this Announcement:

- Integrated PrimeSim simulation technology, PrimeTime signoff STA validation and SmartScaling for multi-PVT yields high-quality libraries for faster design convergence
- PrimeLib ML and advanced variation modeling technologies accelerate library characterization by 4X, reducing turnaround time from months to weeks
- Optimized scaling technology delivers a faster cloud-ready solution utilizing hundreds of thousands of processor cores for advanced-node demands of applications such as 5G, AI, HPC, automotive and aerospace

Synopsys, Inc. (Nasdaq: SNPS) today introduced at SNUG® World international user conference, PrimeLib™, a high-performance, comprehensive characterization and validation solution that produces signoff quality libraries targeted for system-on-chip (SoC) design at advanced process nodes. As part of Synopsys' design analysis and signoff solution portfolio, the PrimeLib library characterization solution includes SmartScaling for multi-process, voltage and temperature (PVT), advanced machine learning (ML) and integrated validation technologies to deliver the highest level of validation for golden signoff quality libraries, with a 4X improvement in turnaround time.

"The demand for library characterization cycles continues to multiply with each advanced node, requiring more process corners and new modeling requirements for variation, aging and reliability, all within a shrinking time-to-market window," said Philippe Moyer, vice president of Design Enablement, Physical Design Group at Arm. "Partnering with Synopsys, we have been able to meet these massive compute demands through a combination of Arm-based AWS Graviton 2 processors and Synopsys PrimeLib to provide a cost-effective, linear scaling solution which accelerates throughput for library characterization, reducing turnaround time from weeks to days."

Designers and foundries depend on high-quality libraries as building blocks for SoC designs as they impact time to market. The timely availability of quality signoff libraries for advanced process nodes are often a critical bottleneck for chip designers, potentially delaying project schedules. Library characterization typically takes months and with each advanced node, the challenges grow to include a 3X increase of PVT corners, variation modeling, reliability and aging effects. PrimeLib provides superior scalability to existing solutions beyond 100,000 parallel jobs on the cloud or a compute cluster by delivering 10X faster turnaround time.

"As semiconductor companies innovate to create new products, their increasing EDA compute requirements pose a significant challenge for scalability and cost of ownership," said Dave Brown, vice president at Amazon EC2 at AWS. "Our close collaboration with Synopsys is helping drive innovations that help our customers scale their EDA workloads to AWS. Together, we have enabled customers to scale their library characterization workloads to over 120,000 parallel jobs on AWS. Synopsys' next-generation PrimeLib library characterization solution will allow customers to leverage AWS for even higher levels of performance."

Synopsys PrimeLib combines embedded Synopsys PrimeSim™ SPICE engine and signoff validation capabilities to produce PrimeTime® golden signoff quality libraries. Key innovations in PrimeLib include:

- Advanced ML algorithms and an adaptive flow generates accurate statistical variation models at ultra-low voltage corners 5X faster while reducing overall compute cost
- Innovative SmartScaling technology for multi-PVT characterization, built on top of Synopsys PrimeTime scaling engine enables instant library generation with minimum characterized corners
- Aging characterization and analysis generates reliability models required for AI and automotive applications
- Adaptive cloud scaling technology minimizes hardware costs, accelerates migration, improves access and reliability for any workload, enhancing overall business productivity

"Synopsys is in the forefront of innovation and customer collaboration providing high-quality, scalable solutions to address the latest design challenges," said Shankar Krishnamoorthy, general manager of Digital Design Group at Synopsys. "Synopsys

PrimeLib library characterization and validation solution encapsulates differentiated technologies that will provide next-level performance, productivity and an accelerated path to silicon production."

Availability

More details about the PrimeLib library characterization solution are now available.

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 an S&P 500 company, Synopsys has a long history of being a global leader in electronic design automation (EDA) and semiconductor IP and offers the industry's broadest portfolio of application security testing tools and services. Whether you're a system-on-chip (SoC) designer creating advanced semiconductors, or a software developer writing more secure, high-quality code, Synopsys has the solutions needed to deliver innovative products. Learn more at www.synopsys.com.

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