ARM and Synopsys Expand Collaboration to Improve Quality of Results and Time-to-Results for Leading-Edge ARMv8-A and ARMv7-A Cores

Industry Leaders Sign Multi-year Subscription Agreement to Accelerate Design and Verification of ARM-based SoCs using Synopsys Tools

CAMBRIDGE, United Kingdom and MOUNTAIN VIEW, Calif., Sept. 29, 2014 /PRNewswire/ -- **Highlights:**

- Extended collaboration to benefit mutual customers with optimized Synopsys implementation, verification and software development tools, and methodologies for design with ARM® IP
- Multi-year subscription agreement gives Synopsys pre-production access to ARM Cortex® processors for the ARMv8-A and ARMv7-A ARM architectures, ARM Mali™ GPUs, ARM CoreLink™ system IP, ARM Artisan® physical IP and ARM POP™ IP
- Agreement spans all Synopsys tools, including Galaxy™ Design Platform, Verification Continuum™ Platform including Verification Compiler™ product and ZeBu® emulation, HAPS® FPGA-based prototyping systems, Platform Architect™ MCO and Virtualizer™ Development Kits

ARM (LON: ARM; Nasdaq: ARMH) and Synopsys, Inc. (Nasdaq: SNPS) have signed a multi-year subscription agreement that expands Synopsys' access to a broad range of ARM intellectual property (IP) and related technologies to enable optimization of Synopsys tools and methodologies for ARM-based system-on-chips (SoCs). Through this agreement, Synopsys has pre-production access to ARM Cortex processors for the ARMv8-A and ARMv7-A architectures, ARM Mali graphics processors, ARM CoreLink system IP, ARM Artisan physical IP, and ARM POP IP for implementation acceleration. Building on more than 20 years of collaboration as well as the August 2012 license agreement between the companies for ARMv7-A processors and related IP, this new agreement allows Synopsys to further optimize its design flows and tools for ARM-based SoCs, enabling designers to meet their power, performance and area goals, while reducing cost and time-to-market.

"We have collaborated extensively with Synopsys for more than 20 years to ensure our mutual customers can get innovative products to market quickly and still meet their performance, power and area targets," said Pete Hutton, executive vice president and president of product groups, ARM. "With Synopsys' early access to our latest IP and our ongoing close collaboration, we can provide our customers solutions that work effectively together as they design, implement and verify their SoCs."

With this agreement, Synopsys can develop and distribute optimized Synopsys tool scripts to ARM partners and deliver training on the use of Synopsys tools and flows with the ARM IP. Synopsys' early access to ARM pre-production IP ensures that early licensees of the latest ARM cores have optimized tools and methodology in place when they are ready to begin their design projects. Designers creating products for a broad range of markets, including wearable, mobile, networking and server, will benefit from closer integration of the Synopsys tools and ARM IP together with optimized design flows that can take advantage of process technologies ranging from leading-edge FinFET to mature processes.

Building on the foundation of the companies' previous collaborations, which have delivered solutions that span implementation, verification, system architecture design and software development, this new agreement allows the companies to extend these results to benefit designers using the latest ARM IP. Reference Implementations (RIs) for ARM processors, library and POP IP with Synopsys Galaxy implementation tools deliver optimized power, performance and area. These RIs together with tool optimizations have led to numerous tape out successes for mutual customers with ARM's most advanced IP, including the Cortex-A57 CPU, Cortex-A53 CPU and Mali-T760 GPU. Designers using Synopsys' VCS® functional verification and ZeBu emulation solutions benefit from significantly enhanced simulation performance for ARM processors and perform hardware/software debug on Synopsys' Verdi® debug platform with direct support for ARM Cortex processors. Verification engineers are verifying the cache-coherent subsystems in their SoCs, taking advantage of Synopsys verification IP (VIP), ZeBu transactors and Verdi Protocol Analyzer support of the ARM AMBA® interface specification, including the latest, AMBA 5 CHI. Software developers are using Virtualizer Development Kits (VDKs) for ARM processors to perform early software development, architects are using Synopsys' Platform Architect™ MCO for early power and performance optimization of ARM-based systems and system designers are using HAPS FPGA-based prototyping to accelerate hardware/software integration and validation of systems based on ARM CPUs and GPUs.

Designers benefit not only from these design solutions, but also Synopsys' field expertise andCore Optimization Services developed over many years of enabling ARM-based design success. ARM, Synopsys and mutual customers will present examples of these successes at the upcoming ARM TechCon™, Oct. 1-3, 2014, in Silicon Valley.

"Designers benefit directly from this alignment of the industry's IP and EDA leaders," saidDeirdre Hanford, executive vice

president, customer engagement at Synopsys. "Through collaboration with ARM, we've been able to accelerate many leading semiconductor companies' innovations. This new agreement will allow us to deliver timely design and verification solutions that take advantage of Synopsys' latest tools and methodology together with ARM's newest, most advanced IP."

Availability:

Optimized Reference Implementations for the ARM Cortex-A15 CPU, Cortex-A7 CPU,Mali-T760 GPU and CoreLink CCI-400 interconnect are available today for the Galaxy Implementation Platform as well as the Lynx Design System. Reference Implementations for the Cortex-A53 and Cortex-A57 processors are in early access and are anticipated to be generally available in October, 2014. Reference Implementations for the ARM Cortex-A17 and an additional ARMv8-A processor are anticipated in Q4, 2014.

Verification IP and Protocol Analyzer for AMBA protocols, including AMBA 5 CHI, is available today, separately and included in Verification Compiler. ZeBu transactor support for AMBA protocols, including AMBA 5 CHI are available today. Verdi debug platform support for Cortex processors is available today.

VDKs for ARMv7 and ARMv8 processors, including the Cortex-A53 CPU and Cortex-A57 CPU, are available today.

For more information:

For more information about the ARM-Synopsys collaboration and Synopsys' optimized solutions for ARM Powered products, please navigate to http://www.synopsys.com/ARM.

Also, please come see us and our mutual customers live at ARM TechCon,October 1-3, 2014, in Silicon Valley, where we will share results of successful implementation, verification and system design solutions with the latest ARM processor cores, libraries and interconnects. Visit our technical sessions as well as our booth (#600). More information is available about these ARM TechCon sessions and demos at: http://bit.ly/1uSR52Z.

About ARM

ARM is at the heart of the world's most advanced digital products. Our technology enables the creation of new markets and transformation of industries and society. We design scalable, energy-efficient processors and related technologies to deliver the intelligence in applications ranging from sensors to servers, including smartphones, tablets, enterprise infrastructure and the Internet of Things.

Our innovative technology is licensed by ARM Partners who have shipped more than 50 billion Systems on Chip (SoCs) containing our intellectual property since the company began in 1990. Together with our Connected Community, we are breaking down barriers to innovation for developers, designers and engineers, ensuring a fast, reliable route to market for leading electronics companies. Learn more and join the conversation at http://community.arm.com.

About Synopsys

Synopsys, Inc. (Nasdaq:SNPS) accelerates innovation in the global electronics market. As a leader in electronic design automation (EDA) and semiconductor IP, Synopsys delivers software, IP and services to 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 http://www.synopsys.com.

Safe Harbor Statement

This press release contains forward-looking statements within the meaning of Section 27A of the United States Securities Act of 1933 and Section 21E of the United States Securities Exchange Act of 1934, including statements regarding the expected outcome and benefits of the agreement between Synopsys and ARM, including expected customer results with ARM and Synopsys solutions. These statements are based on current expectations and beliefs. Actual results could differ materially from those described by these statements due to risks and uncertainties including, but not limited to, technical or other difficulties in developing solutions, market acceptance of these solutions, unforeseen production or delivery delays, failure to perform as expected, product errors or defects and other risks as identified in the companies' respective filings with the U.S. Securities and Exchange Commission, including those described in the "Risk Factors" section of Synopsys' latest Quarterly Report on Form 10-Q.

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