Renesas Electronics Achieves 4X Faster Performance with Synopsys' HAPS® FPGA-Based Prototyping Solution

Renesas Electronics Adopts HAPS-64 Systems and UMRBus in their EDA Teams for FPGA Prototyping Used by Multiple Design Groups

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Highlights:

- Renesas Electronics EDA teams adopt Synopsys' HAPS-64 FPGA-based prototyping systems for their FPGA prototyping environment.
- The HAPS-64 system enables higher productivity resulting in time savings and high quality of results over their previous FPGA prototyping environment.
- Synopsys' Universal Multi-Resource Bus (UMRBus) enables Renesas Electronics to concurrently utilize virtual (transaction-level simulation-based) and FPGA-based prototyping for advanced system & software development, debug and validation.

Synopsys, Inc. (Nasdaq: SNPS), a world leader in software and IP for semiconductor design, verification and manufacturing, today announced that Renesas Electronics Corporation (TSE: 6723), a premier supplier of advanced semiconductor solutions, adopted Synopsys' HAPS-64 FPGA-based prototyping systems for their prototyping environment for systems-on-chips (SoCs) and microcontrollers. By deploying the HAPS systems, Renesas Electronics achieved more than a 4X speed-up in prototype performance over their previous FPGA prototyping solution. In addition, the Renesas Electronics design team took advantage of the HAPS Universal Multi-Resource Bus (UMRBus) interface to connect their virtual and hardware prototypes, creating an advanced hybrid prototyping environment for faster system and software development, debug and validation.

"HAPS-64 systems deliver increased performance with UMRBus and the flexibility to link the HAPS hardware to our virtual prototype for advanced hybrid prototyping," said Kazunori Goto, department manager of Front-end Design Technology Development Department, EDA & Design Methodology Division, Technology Development Unit at Renesas Electronics Corporation. "The HAPS system saved us considerable time and effort and helped us achieve high quality of results faster."

In addition to achieving faster performance for their hybrid prototyping environment, the HAPS system's modularity enables the team to easily scale to support both small and large system designs for future projects as well as the current one. The UMRBus provided Renesas Electronics with a well-defined standard and efficient communication channel between the host machine's virtual environment and the HAPS hardware prototyping system that was easy to implement. Overall, the team achieved higher quality of results over their previous FPGA prototyping environment.

"Renesas Electronics' outstanding results are an example of the gains in design productivity consistently realized by our customers," said John Koeter, vice president of marketing for IP and Systems at Synopsys. "Because we optimize our HAPS systems for fastest ramp up to optimal performance through faster silicon, high-quality PCB technology, high-speed connectors and high-speed time division multiplexing (HSTDM) communication, customers like Renesas Electronics can rely on us for near real world speeds – critical when creating a hybrid prototyping environment."

Both design and verification teams leverage FPGA-based prototypes to improve their SoC design schedules and avoid costly device re-spins. Synopsys' FPGA-based prototyping solution is a suite of modular, easy-to-use products for SoC prototyping that includes HAPS hardware systems supported by an integrated tool flow including Synplify® FPGA synthesis, Certify® high-performance design partitioning with high-speed time domain multiplexing (HSTDM), and Identify® interactive debugging software for high visibility.

For more information on Synopsys FPGA-based prototyping solution, visit http://www.synopsys.com/FPGA-based-prototyping. To obtain a copy of the *FPGA-Based Prototyping Methodology Manual* (FPMM), a practical guide to using FPGAs as a platform for system-on-chip (SoC) development, visit http://www.synopsys.com/FPMM.

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, verification 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, system-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 approximately 70 offices located throughout North America, Europe, Japan, Asia and India. Visit Synopsys online at http://www.synopsys.com/.

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