

# Synopsys Collaborates with Renesas to Advance Software Development Solutions for Automotive Applications

Joint Engineering Team Will Develop Virtual Prototypes to Speed Software Debug and System Testing for Renesas' RH850 Microcontroller-Based Designs

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## Highlights:

- Collaboration covers development of system-level models and Synopsys® Virtualizer™ Development Kits (VDKs) optimized for Renesas microcontrollers, including the new RH850 family
- Solutions will enable automotive OEMs and electronics suppliers to quickly implement virtual Hardware-in-the-Loop (HIL) testing to accelerate full system integration, test and validation
- Fast simulation with full system visibility and control extends code coverage and fault testing to improve reliability of Renesas' RH850-based electronic control units (ECUs)

Synopsys, Inc. (Nasdaq: SNPS), a world leader in software and IP used in the design, verification and manufacture of electronic components and systems, today announced a collaboration with Renesas Electronics Corporation, a premier provider of advanced semiconductor solutions, to develop and deploy advanced software development solutions optimized for designs based on Renesas microcontrollers (MCUs), including the recently announced RH850 family. The collaboration includes establishment of a Virtual MCU Center of Excellence with a dedicated team of engineers from both companies that will develop, among other commercial products, system-level models and Virtualizer Development Kits (VDKs) to accelerate software development and system testing for Renesas RH850-based designs. VDKs are software development tools integrating functional models of digital hardware, providing full visibility and controllability of single and multicore systems for unparalleled software debug and analysis capabilities.

"Our collaboration with Synopsys represents a long-term investment to improve the way software is developed and integrated into automotive subsystems," said Hisashi Takahashi, general manager of the MCU Software Division, MCU Business Unit, Renesas Electronics Corporation. "The Virtual MCU Center of Excellence brings together the unique expertise of both companies to extend and optimize proven virtual prototyping technology for users of Renesas microcontrollers. The availability of VDKs for Renesas' RH850 MCUs will enable software developers and teams performing system integration and test throughout the automotive supply chain to shorten development cycles and improve product testability and reliability."

Renesas' recently announced 32-bit RH850 MCU family is architected to support single- and multicore configurations that meet the processing requirements of a wide variety of automotive applications such as safety, body and engine control, driver interfaces and infotainment. These applications require designers to debug and validate an increasing amount of software code, often at multiple stages in the system development process. VDKs supporting the Renesas RH850 will allow software developers to start writing and testing code months before hardware availability. In addition, Synopsys' VDKs will enable rapid deployment of virtual Hardware-in-the-Loop test benches to increase code coverage and enhance fault testing, resulting in shorter development cycles, reduced development costs and higher product reliability.

"Modern automobiles contain a diverse and growing collection of electronic control units whose software content and complexity continue to rise," said John Koeter, vice president of marketing for IP and systems at Synopsys. "Through our expanded collaboration with Renesas, automotive engineers will have access to virtual prototyping models and tools that accelerate software development and system testing for leading MCUs like the RH850, both now and in the future."

## Availability & Resources

The VDKs for Renesas' RH850 MCUs are scheduled to be available from Synopsys in the fourth quarter of 2012. For more information about Virtualizer Development Kits visit <https://www.synopsys.com/verification/virtual-prototyping.html>.

## 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>.

### **Forward Looking Statements**

This press release contains forward-looking statements within the meaning of Section 27A of the Securities Act of 1933 and Section 21E of the Securities Exchange Act of 1934, including statements regarding the expected availability and performance of Synopsys VDKs for Renesas' RH850 MCUs. 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, unforeseen production or delivery delays, failure to perform as expected, product errors or defects and other risks detailed in Synopsys' filings with the U.S. Securities and Exchange Commission, including those described in the "Risk Factors" section of Synopsys' Annual Report on Form 10-K for the fiscal year ended October 31, 2011.

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