Press Release

INCHRON, iSYSTEM, OpenSynergy and Renesas Electronics Europe Team Up to Demonstrate Efficient Development of Automotive Embedded Systems

Potsdam / Schwabhausen / Berlin / Dusseldorf, March 7, 2017. Automotive embedded systems demand the highest degree of reliability and safety in long-term operation. At the same time, the development of these often very complex systems is also subject to high costs and pressure to meet customer's delivery deadline. At the Embedded World 2017, the companies INCHRON, iSYSTEM, OpenSynergy and Renesas Elecronics Europe will jointly present a demonstrator for car driver assistance systems that enables the fulfilment of all these requirements through a consistent use of state of the art platforms, software technologies and development tools.

For this demonstrator several of Renesas' RH850/F1x Series of microcontrollers (MCUs) for automotive applications are networked via a bus system. In the illustrated application two RH850/F1x MCUs are used as a control unit for a camera and a radar sensor respectively. Additionally, crash detection is also carried out on the radar sensor controller. A third RH850/F1x MCU, functioning as a central control unit, combines the sensor data fusion with body functions, such as the central locking system and the activation of brake and direction indicator lights.

OpenSynergy's flexible hypervisor COQOS Micro runs on each of these MCUs enabling the integration of multiple real-time operating systems (such as AUTOSAR software) on a single processor. Each controller application runs in its virtual machine so that applications with different ASIL levels cannot interfere with one another.

All essential information about the behaviour of the hypervisor, virtual machines, applications, and event chains in this system are captured and recorded by iSYSTEM's iC5700 On-Chip Analyser. Furthermore, the CAN/LIN bus add-on module for iC5700 is used to record trace logs of the communication on the CAN bus.

The INCHRON Tool-Suite analyses the information recorded by the iSYSTEM tools, with all MCU and CAN bus traces visualized against a common time base. One can use it to identify event chains, to calculate statistics of run time values and other timing parameters, as well as to check compliance with predefined timing requirements. The data so obtained can be used to feed a model of the entire system with realistic values into the INCHRON Tool-Suite simulation environment. Finally, such a model can be utilised for dedicated optimisation of the system and its timing parameters as well as for cost-effective and automated verification of changes in the system.

About INCHRON GmbH

INCHRON is the world-wide leading provider of solutions for architecture, design, and automated optimization of real-time systems. Our solutions cover the whole range from single-core to multi-core to multi-CPU to distributed systems. Well-known OEMs and component suppliers world-wide rely on INCHRON's methods and tools throughout the whole product life-cycle. Our solutions are being applied successfully across industries like automotive, automation, avionics, defence, healthcare, mobile and M2M/IoT, and cover all phases of the development life cycle. Since INCHRON was founded in 2003, our consulting team delivered key contributions to more than 160 successful customer projects.

The INCHRON Tool-Suite provides an environment with a unique selection of powerful tools, covering simulation, worst-case analysis, automated optimization, and comprehensive visualization and analysis of traces. Our aspiration is to provide the latest, world-wide leading technologies and services to our customers. Therefore, we participate in international research projects, cooperate with renowned universities, and contribute with our expertise to the AUTOSAR consortium.

Meet INCHRON at Embedded World 2017, hall 4, stand 4-300, or visit www.inchron.com.

About iSYSTEM AG

iSYSTEM was founded in 1986 and is a privately held company headquartered in Schwabhausen, close to Munich, with subsidiaries in Slovenia and the USA. For 30 years now, iSYSTEM has specialized in the automotive, aerospace and medical industries where quality and safety play an important role. Customers of iSYSTEM develop embedded systems that can save lives or ensure that they are not put in unnecessary in danger. iSYSTEM develops, manufactures and markets embedded software development and test specialized hardware and software tools. The BlueBox hardware and software allow fast and simple access to all kinds of single and multi-core microcontroller via the many varying forms of debug interfaces. This software can be developed and tested directly on the real hardware without code instrumentation.

Meet iSYSTEM at Embedded World 2017, hall 4, stand 4-202, or visit www.isystem.com.

About OpenSynergy GmbH

OpenSynergy is a high-tech company specializing in embedded automotive software for in-car cockpit solutions. The core products are the modular software development kit COQOS SDK and the leading Bluetooth™ stack Blue SDK.

Our products enable the convergence of instrument cluster, head unit, driver assistance and connectivity systems. Essential technologies are virtualization and Open Source software. Our solutions comply with requirements of standards like AUTOSAR and Bluetooth™. By doing so, we pave the way for autonomous driving.

OpenSynergy is an independently managed company headquartered in Berlin with further locations in Munich and the U.S. We continue to grow through the strong demand for our products. Our company's team consists primarily of highly qualified engineers. Our corporate culture is inspired by the international character that defines our employees, partners and customers.

Read more on www.opensynergy.com.

About Renesas Electronics Europe

Renesas delivers trusted embedded design innovation with complete semiconductor solutions that enable billions of connected, intelligent devices to enhance the way people work and live – securely and safely. The number one global supplier of microcontrollers, and

a leader in A&P and SoC products, Renesas provides the expertise, quality, and comprehensive solutions for a broad range of Automotive, Industrial, Home Electronics (HE), Office Automation (OA) and Information Communication Technology (ICT) applications to help shape a limitless future. Renesas was established in 2010 and is headquartered in Japan. With over 800 hardware and software alliance partners worldwide, it has the industry's largest local support network. Renesas Electronics' European structure is comprised of two business groups – automotive and industrial – as well as the global ADAS solution group and the engineering group.

Further information about Renesas Electronics Europe is available at www.renesas.com.

Renesas Electronics Europe is also on social media at http://twitter.com/Renesas_Europe, http://facebook.com/RenesasEurope and http://youtube.com/RenesasPresents.

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