**News Release**

No.: REN2216(A)

**Renesas Debuts Automotive ECU Virtualization Solution Platform to Enable Secure Integration of Multiple Applications for Zone ECU**

*Ready-to-Start Development Platform Includes Renesas High-Performance Automotive RH850/U2x MCUs along with RTA-HVR Software from ETAS*

**Düsseldorf, April 26, 2022 ―** Renesas Electronics Corporation (TSE:6723), a premier supplier of advanced semiconductor solutions, today announced an integrated automotive ECU Virtualization Platform that enables designers to integrate multiple applications into a single ECU (Electronic Control Unit) that are safely and securely separated from each other to avoid interference. The solution enables customers to adopt new electrical-electronic (E/E) architectures using MCU-based zone ECUs supporting multiple logical ECUs on one physical ECU. Migration to the new platform maximizes legacy reuse with minimum development effort to leverage gains in lower power consumption and reduced wiring harness weight and complexity in the vehicle.

The ECU virtualization solution platform combines Renesas’ RH850/U2x MCUs together with ETAS’ RTA-HVR software, a hypervisor designed for microcontrollers with hardware virtualization support. This platform provides a ready-to-use demonstrator environment comprising pre-configured embedded software, tools and an interactive demonstrator environment for RH850/U2x MCUs, allowing automotive customers explore design choices for the development for their individual Zone-ECU project.

“The transition to a zone architecture increases the design burden by changing the functional role assignments between the central ECU and each zone ECU,” said **Satoshi Yoshida, Senior Director, Automotive Digital Products Marketing Division at Renesas**. “In addition to the high performance provided by the RH850/U2x MCUs, I am confident that this new ECU Virtualization Solution Platform will give our customers the advantage of easy, fast development of advanced systems with built-in safety and security features.”

“Working together with Renesas, we were able to leverage the HW capabilities of the RH850/U2x MCUs to deliver a high performance, low overhead, embedded hypervisor for automotive applications that complements class-leading AUTOSAR OS technologies” said **Nigel Tracey, Vice President of Vehicle Operating Systems at ETAS**.

[The RH850/U2x MCUs](https://www.renesas.com/us/en/products/microcontrollers-microprocessors/rh850-automotive-mcus/rh850u2b-zonedomain-and-vehicle-motion-microcontroller) including [RH850/U2A](https://www.renesas.com/eu/en/products/microcontrollers-microprocessors/rh850-automotive-mcus/rh850u2a-zonedomain-microcontroller-series) and [RH850/U2B](https://www.renesas.com/eu/en/products/microcontrollers-microprocessors/rh850-automotive-mcus/rh850u2b-zonedomain-and-vehicle-motion-microcontroller) deliver a cost-efficient and high-performance solution for next generation Zone-/Integration-ECUs due to a rich set of embedded hardware that realizes the integration of multiple ASIL D-compliant software partitions. The MCUs are specifically designed for Zone-applications targeting reduced ECU component count with minimal re-engineering overhead. RH850/U2x MCUs include features such as Hypervisor hardware support, Quality-of-Service (RH850/U2B only) support, Safety & Security functions to enable freedom from interference, and a high-performance NoC (Network-on-Chip) structure to ensure proper real-time behaviour of the individual integrated applications.

[ETAS’ RTA-HVR](https://www.etas.com/en/products/rta-lwhvr.php) software works with the hardware virtualization features of the Renesas RH850U2x MCUs to provide one or more virtual machines (VMs). VMs are separated from each other in both space (using the RH850U2x memory protection unit and guard features) and time (using the RTA-HVR VM scheduler) to meet strict automotive safety and security requirements. RTA-HVR provides a toolkit to build a virtual device extension (VDE). Each VM comprises one or more virtual CPU cores, a subset of device memory space and a collection of peripherals.

**RH850/U2x Zone-ECU Starter Kit**

The unique RH850/U2x Zone-ECU Starter Kit is available as part of the solution. The new kit provides a “ready-to-run” configuration of RTA-HVR showcasing different VM configurations (single core, multi-core and multi-VM per core). Guest software images are provided for each of the configured VMs, including bare metal and guest images using ETAS’s RTA-CAR Classic AUTOSAR solution. It offers example virtual devices for peripheral sharing and virtual inter-VM networking (a “virtual CAN”).

In addition, a PC-hosted application enables users to observe and interact with the VMs at runtime. The PC application supports numerous actions including:

* Triggering faults in the system at runtime to explore VM behaviour during memory violations, timing overruns etc.
* Updating one VM while the other VMs are running using the no-wait OTA capabilities of the RH850/U2x.
* Exploring the performance impact of alternative VM switching mechanisms
* Enabling developers to see the impact of HW QoS features

**Availability**

The ECU Virtualization Software Platform, including the RH850/U2x Zone-ECU Starter Kit, is available from Renesas starting from the end of May. More information is available at <https://www.renesas.com/application/automotive/gateway-domain-control/zone-ecu-virtualization-solution-platform>.

**About Renesas Electronics Corporation**

Renesas Electronics Corporation ([TSE: 6723](http://www.jpx.co.jp/english/)) empowers a safer, smarter and more sustainable future where technology helps make our lives easier. A leading global provider of microcontrollers, Renesas combines our expertise in embedded processing, analog, power and connectivity to deliver complete semiconductor solutions. These Winning Combinations accelerate time to market for automotive, industrial, infrastructure and IoT applications, enabling billions of connected, intelligent devices that enhance the way people work and live. Learn more at [renesas.com](http://www.renesas.com/). Follow us on [LinkedIn](https://www.linkedin.com/company/renesas/), [Facebook](https://www.facebook.com/RenesasElectronics/), [Twitter](https://twitter.com/renesasglobal), [YouTube](https://www.youtube.com/user/RenesasPresents), and [Instagram](https://www.instagram.com/renesas_global/).

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