**News Release**

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**Renesas Electronics’ New RZ/G2 64-Bit MPUs Deliver Industry- Leading Performance with Super Long-Term Linux Support**

*All Four RZ/G2 MPUs Deliver Secure and Reliable Operation with ECC on All Memories, and More Than 10 Years of Linux Kernel Support*

Düsseldorf, February 21, 2019 – Renesas Electronics Corporation (TSE: 6723), a premier supplier of advanced semiconductor solutions, today introduced the RZ/G2 Group of 64-bit Arm® Cortex®-A57 and Cortex®-A53-based microprocessors (MPUs) for industrial automation and building automation applications, as the second generation of the RZ/G Series. The four new RZ/G2 MPUs are supported by the Renesas [RZ/G Linux Platform](https://www.renesas.com/products/rzg-linux-platform.html) for industrial applications, bringing increased performance, reliability, security, and long-term software support to mission-critical applications as well as standard applications with high quality requirements.

“RZ/G2 MPUs are designed to meet the needs of developers using embedded controllers in industrial automation and building automation applications,” **said Shigeki Kato, Vice President of Renesas’ Enterprise Infrastructure Business Division, Industrial Solution Business Unit.** “These applications demand higher performance, comprehensive integrated interfaces, higher reliability, and long-term software support, exactly what RZ/G2 MPUs deliver.”

The RZ/G2 MPUs feature a combination of high-performance 64-bit MPUs, a comprehensive set of integrated interfaces, error checking and correction (ECC) protection on both internal and external memories, and a full Verified Linux Package (VLP) featuring a [Civil Infrastructure Platform (CIP)](https://www.cip-project.org/) Super Long-Term Support (SLTS) Linux kernel, bundled with a software development environment that binds safety, security, and reliability across the software and hardware. The RZ/G2 MPUs are the first embedded MPUs on the market offering more than 10 years of support for the 64-bit Linux kernel.

“Renesas is the first member to support the new 64-bit Arm CIP kernel, and we are delighted that the new RZ/G2 MPUs will serve as the [first reference hardware for Arm64](https://www.cip-project.org/blog/2018/10/23/renesas-rz-g2m-96ce-board-adopted-as-arm64-reference-board-for-the-next-cip-slts-kernel) for the certification and release of CIP Linux packages,” **said Urs Gleim, CIP Governing Board Chairman and Head of Smart Embedded Systems for Siemens AG.** “Ultimately, this gets us one step closer to our mission of SLTS for critical systems that are the backbone of our communities worldwide.”

Early technology adapters such as Pioneer DJ Corporation, a leader in the DJ/club and professional audio equipment market, have already started to implement the RZ/G2M, recognizing the MPU’s high performance and graphic functions.

**Main Features of the RZ/G2 MPUs**

**Increased performance for industrial applications:**

* Built around 64-bit Arm Cortex A57 and Cortex-A53 64-bit cores, the RZ/G2 MPUs deliver substantial processing performance improvements over the preceding RZ/G1-Group – up to maximum 2.7 times the CPU processing performance.
* RZ/G2 MPUs deliver up to 27 percent higher performance than any other embedded 64-bit MPU on the market.
* Support for the latest high-speed protocols for external memories including LPDDR4 or DDR3L up to 3200 MT/s.
* Fast communication with support for the USB 3.0, SATA, and PCI-e high-speed interfaces, and QSPI and eMMC gigabit interfaces.
* On-chip 3D graphics engine, H.264 and H.265 codec with 4K support, and HDMI, LVDS, and MIPI-CSI2 camera input interfaces as graphics and video functions enable high-end human-machine interface (HMI) applications.

**High reliability and security:**

* ECC functionality detects and corrects memory errors as a countermeasure for the increased susceptibility to software errors (Note 1) that accompanies small geometry semiconductor processes.
* RZ/G2 MPUs are the only embedded MPUs offering ECC on all internal and external memory interfaces for all devices in the group.
* ECC works with both the on-chip L1/L2-cache memory and external DDR3L or LPDDR4 memory.
* ECC helps eliminate risks associated with malfunctions due to corruption of data in memory, thereby enhancing the reliability of industrial equipment.

**Super long-term support:**

* The SLTS Linux kernel enables Linux-based embedded systems to be maintained by offering support and security maintenance for more than 10 years, allowing users to reduce Linux maintenance costs and easily adopt reliable industrial-grade Linux.
* A complete VLP and verification test software includes a graphics user interface (GUI) framework with support for HTML5 and Qt, 3D graphics, H.264/H.265 video, and security functions.
* The VLP and test software make it easy for users to develop human machine interface (HMI) and networking functions while also enabling manufacturers to quickly bring to market industrial equipment with rich graphics display functionality similar to that found on mobile devices.

**About the RZ/G Linux Platform**

The RZ/G Linux Platform is a one-stop solution combining a high-performance processor, verified software with a long-term support, development tools and a reference board. In addition to supporting super long-term Linux kernel stability, which can potentially reduce maintenance costs by hundreds of thousands of dollars per year, the RZ/G Linux Platform significantly reduces development time and Linux set-up costs for industrial equipment – two key barriers to open source software adoption. With the platform, users can adopt Linux in their projects with confidence and bring new products to market quickly and efficiently.

**Partners supporting RZ/G2 Group** (Note 2)

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| Company name | Service offerings for RZ/G Series |
| acontis technologies GmbH | EtherCat Master Stack |
| Advanced Media, Inc. | Speech recognition function built-in kit  “AmiVoice SDK for ARM/Y” |
| AlphaProject Co., Ltd. | RZ/G2 Evaluation board |
| Control System Security Center | Certification of the International Standards  Development support and consulting about the security solution. |
| Cybertrust Japan Co., Ltd. | Embedded Linux OS "EMLinux",  maximum enterprise support 15 years.  High-speed boot, Coexistence of RTOS&Linux, Security OS and other solutions. |
| DTS INSIGHT CORPORATION | Development tool, verification tool,  Arm genuine development environment |
| Emtrion GmbH | Linux and Android Integration |
| Enea Software AB | Linux Integration Services and Linux Training |
| GlobalLogic Inc. | Engineering Service of Embedded, Android and Communication domains Development |
| International Laboratory Corporation | Smart device linked GUI development  environment GENWARE AIR |
| iWave Japan, Inc. | RZ/G2 Evaluation board |
| Kyoto Microcomputer Co., Ltd. | JTAG debugger ”PARTNER-Jet2”  Integrated development environment "LIQUID" for Linux  Integrated development environment "SOLID" for RTOS |
| L&T Technology Services Limited | Development and deployment of the RZ/G2 series of next-gen microprocessors |
| Lineo Solutions, Inc. | quick-start solution “Warp!!”  System Integrator |
| NEC Corporation | System Integrator  Face detection/Face recognition ”NeoFace”  Person attribute estimation “FieldAnalyst” |
| RelySys Technologies India Pvt Ltd. | Solution Partner of M2M, IoT product |
| SEGGER Microcontroller GmbH | JTAG ICE |
| Sensory, Inc. / Shinko Shoji Co., Ltd. | "TrulyHandsfree" Speech recognition middleware |
| Silicon Linux Corporation | RZ/G2 Evaluation board |
| SoftBank Technology Corp. | Marketplace operating service |
| Software Research Associates, Inc. | GUI framework "Qt" support  Development support |
| Theobroma Systems Design und Consulting  GmbH | Design and manufacturing of modules and Single Board Computers (SBCs) |
| Timesys Corporation | Linux Integration |
| Toshiba Information Systems (Japan) Corp. | Embedded BluetoothSDK “NetNucleus BT” |
| Trend Micro Incorporated | Trend Micro IoT Security™ |
| Ubiquitous AI Corporation | DTCP/HDCP middleware  Fast boot solution "QuickBoot"  Compact and high-speed database "DeviceSQL" |
| VVDN Technologies Pvt Ltd. | Solution Partner of Camera, IoT product |
| WebDINO Japan | Development support and consulting when using the GUI framework "HTML 5" |
| Western Digital Corporation | Flash storage solutions for industrial applications |
| wolfSSL Inc. | SSL/TLS embedded Library “wolfSSL” |
| ZUKEN ELMIC, INC. | Middleware ONVIF, RTP, EthernetAVB |

Renesas is demonstrating the RZ/G2 MPUs in Booth 1-310 (Hall 1) at embedded world, February 26-28, 2019 in Nuremberg, Germany.

**Availability**

The RZ/G2 MPUs will be available in four devices – RZ/G2E, RZ/G2N, RZ/G2M, and RZ/G2H – with configurations including the eight-core RZ/G2H, the six-core RZ/G2M, and the two-core RZ/G2N and RZ/G2E. Sample shipments of the six-core RZ/G2M and two-core RZ/G2E are available now; the other MPU models will be released over time. Mass production is scheduled to start in Q1 2020. (Availability are subject to change without notice.)

**More Information**

Watch the video “[RZ/G2 64-bit MPUs Overview](https://www.renesas.com/support/videos/rzg2-64-bit-mcu-video.html)”, and learn more about RZ/G2 MPUs, visit <https://www.renesas.com/rzg2>.

To learn more about the RZ/G Linux Platform, visit <https://www.renesas.com/products/rzg-linux-platform.html>.

(Note)

1. Software errors are caused when radiation from space causes errors to arise in the data stored in the memory, resulting in incorrect values.

2. Service offerings and support provided by each company vary by region.

**About Renesas Electronics Corporation**

Renesas Electronics Corporation ([TSE: 6723](http://www.jpx.co.jp/english/)) delivers trusted embedded design innovation with complete semiconductor solutions that enable billions of connected, intelligent devices to enhance the way people work and live. A [global](https://www.renesas.com/about/company/profile/global.html) leader in microcontrollers, analog, power, and SoC products, Renesas provides comprehensive solutions for a broad range of automotive, industrial, home electronics, office automation, and information communication technology applications that help shape a limitless future. Learn more at [renesas.com](http://www.renesas.com/).

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