**News Release**

No.: REN2439(A)

**Renesas Extends Line-up For Industrial Ethernet and Multi-Axis Motor Control Solutions with High Performance Quad-Core Application Processor**

*RZ/T2H MPU is Ideal for Industrial Robots, PLCs, and Motion Controllers Thanks to High-Performance Application Processing and Fast Real-Time Control*

**Düsseldorf, November 26, 2024 ―** Renesas Electronics Corporation (TSE:6723), a premier supplier of advanced semiconductor solutions, today launched the RZ/T2H, the highest performance microprocessor (MPU) offered by Renesas for industrial equipment. Thanks to its powerful application processing and real-time performance, the RZ/T2H is capable of high-speed, high-precision control of industrial robot motors for up to 9 axes. It supports a variety of network communications including Industrial Ethernet on a single chip. The MPU targets industrial controller equipment such as programmable logic controllers (PLCs), motion controllers, distributed control systems (DCSs), and computerized numerical controls (CNCs).

With the growing demand for unmanned and labor-saving manufacturing, industrial robots such as vertically articulated robots, and industrial controller equipment are being deployed to accelerate automated production. The Renesas RZ/T2H MPU combines all the functionality and performance required for developing these applications. While industrial systems traditionally required multiple MPUs or a combination of field programmable gate arrays (FPGAs) to control these applications, the RZ/T2H MPU can now meet all the requirements on a single chip. This reduces the number of components and saves time and costs of FPGA program development.

“We have enjoyed outstanding market success with RZ/T2M and RZ/T2L,” said **Daryl Khoo, Vice President of Embedded Processing 1st Business Division at Renesas.** “The RZ/T2H builds on that momentum, allowing our industrial customers to leverage their existing design assets while addressing even more innovative, demanding industrial motor control and Linux applications. Our customers have been particularly impressed that the RZ/T2H enables them to implement a 9-axis motor control all on just one chip!”

**High-Performance Application Processing and Fast Real-Time Control on a Single Chip**

The RZ/T2H is equipped with four Arm® Cortex®-A55 application CPUs with a maximum operating frequency of 1.2 GHz. For external memory, it supports 32-bit LPDDR4-3200 SDRAM. Two Cortex-R52 CPUs with a maximum operating frequency of 1 GHz handle the real-time processing, with each core equipped with a total of 576 KB of high-capacity tightly coupled memory (TCM). This allows high CPU- and memory-intensive tasks such as running Linux applications, robot trajectory generation, and PLC sequence processing, to be executed on a single chip. At the same time, the RZ/T2H can handle fast and precise real-time control such as motor control and Industrial Ethernet protocol processing.

**Motor control of up to 9 axes reduces component costs and development time**

The Renesas RZ/T2H controls up to 9-axis servo motors in industrial robots with high-speed and accurate operation. The RZ/T2H comes with everything required for up to 9 axes of motor control including 3-phase PWM timers, delta-sigma interfaces for measuring current values, and encoder interfaces (A-format™, EnDat, BiSS®, Hyperface DSL, and FA-CODER are all supported). Furthermore, peripheral functions for motor control are placed on a Low Latency Peripheral Port (LLPP) bus of the Cortex-R52 real-time CPU core, allowing high-speed access from the CPU.

**Flexible support for network communications including Industrial Ethernet**

The RZ/T2H has four Ethernet ports, three Gigabit Ethernet MAC (GMAC), plus an Ethernet switch. It also supports EtherCAT, PROFINET, EtherNet/IP, OPC UA, and the next-generation Time-Sensitive Networking (TSN) standard. The combination of these Ethernet switches and GMAC allows the MPU to support multiple Industrial Ethernet controllers and devices, providing flexibility to adapt to a wide range of controller requirements, such as upper-layer Ethernet communications.

**Specialized boards and software available for industrial robots and controllers**

The RZ/T2H comes with the Renesas Flexible Software Package (FSP), as with all Renesas MPUs, together with a Linux package that comes with long term support. An out-of-the-box multi-axis motor control evaluation solution is available including inverter boards for driving 9-axis motors, a multi-axis motor control software package, and Motion Utility Tool (a motor control software tool). Sample protocols for industrial Ethernet and software PLC package are also included to kick-start system development.

“As industrial equipment continues to evolve, these systems increasingly require more complex functions and performance,” **said Micael Borgefeldt, Product Manager at IAR Systems.** “Including the latest RZ/T2H MPU from Renesas, we empower the developers to unlock flexible application configurations across 32-bit MCUs and 64-bit high-end MPUs multi-core environments. Our IAR development solution enables engineers to accelerate next-generation industrial innovation, streamlining development and boosting efficiency like never before.”

**Winning Combinations**

Renesas also offers “[9-axis Industrial Motor Control with Ethernet](https://www.renesas.com/applications/industrial/motor-drives-robotics/9-axis-industrial-motor-control-ethernet?utm_campaign=mpu_rzt2h-empr&utm_medium=pr&utm_content=wc&type=feat)” solution that combined the RZ/T2H with numerous compatible devices such as the [RV1S9231A IGBT Drive Photocoupler](https://www.renesas.com/products/interface/photocouplers-optocouplers/photocouplers-optocouplers-motor-drive/igbt-drive-photocouplers-optocouplers/rv1s9231a-25-output-current-high-cmr-igbt-gate-drive-5-pin-ssop-lsso5-82mm-creepage-distance-photocoupler?utm_campaign=mpu_rzt2h-empr&utm_medium=pr&utm_content=pp&type=feat) and [RV1S9353A Optically Isolated Delta-Sigma Modulator](https://www.renesas.com/products/interface/photocouplers-optocouplers/photocouplers-optocouplers-ic-output/isolation-amplifier-digital-output-photocouplers-optocouplers/rv1s9353a-optically-isolated-delta-sigma-modulator?utm_campaign=mpu_rzt2h-empr&utm_medium=pr&utm_content=pp&type=feat) to offer a wide array of Winning Combinations. These Winning Combinations are technically vetted system architectures from mutually compatible devices that work together seamlessly to bring an optimized, low-risk design for faster time to market. Renesas offers more than 400 Winning Combinations with a wide range of products from the Renesas portfolio: [**renesas.com/win**](https://www.renesas.com/applications?utm_campaign=mpu_rzt2h-empr&utm_medium=pr&utm_content=pp&type=feat).

**Availability**

The RZ/T2H is available today. Renesas plans to release the new RZ/N2H device in Q1/2025, which offers the same performance as the RZ/T2H in a smaller package. This is ideal for industrial controller equipment such as PLCs and motion controllers.

The RZ/T2H is managed under the [Product Longevity Program (PLP)](https://www.renesas.com/support/product-longevity-program-plp) for industrial equipment that requires long life cycles. For more information on the RZ/T2H, visit: [https://www.renesas.com/rzt2h](https://www.renesas.com/products/microcontrollers-microprocessors/rz-mpus/rzt2h-advanced-high-end-mpu-integrated-powerful-application-processing-and-high-precision-real-time?utm_campaign=mpu_rzt2h-empr&utm_medium=pr&utm_content=pp&type=feat).

**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/), [X](https://twitter.com/renesasglobal), [YouTube](https://www.youtube.com/user/RenesasPresents), and [Instagram](https://www.instagram.com/renesas_global/).

###

(Remarks) Arm and Arm Cortex are trademarks or registered trademarks of Arm Limited in the EU and other countries. All names of products and services mentioned in this release are trademarks or registered trademarks of their respective owners.

**Media contact for further information, text and graphics or to discuss feature article opportunities:**

Alexandra Janetzko / Martin Stummer

HBI Communication Helga Bailey GmbH(PR agency), Hermann-Weinhauser-Str. 73, 81673 Munich, Germany

Tel.: +49 89 99 38 87-32 / -34

Email: alexandra\_janetzko@hbi.de / martin\_stummer@hbi.de

Web: [www.hbi.de](http://www.hbi.de/)