**News Release**

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**New Renesas MCUs with High-Resolution Analog and Over-the-Air Update Support Help Customer Systems Conserve Energy**

*Low-Power, Streamlined Devices Target Energy Management, Home Appliances, Building Automation and Medical Applications*

**Düsseldorf, March 21, 2024 ―** Renesas Electronics Corporation (TSE:6723), a premier supplier of advanced semiconductor solutions, today introduced the RA2A2 microcontroller (MCU) Group based on the Arm® Cortex®-M23 processor. The new, low-power devices offer a 24-bit Sigma-Delta analog-to-digital converter (SDADC), and an innovative dual-bank code flash and bank swap function that make it easy to implement firmware over-the-air (FOTA) updates for smart energy management, building automation, medical devices, consumer electronics and other IoT applications that can benefit from firmware updates.

The RA2A2 devices offer multiple power structures and voltage detection hardware to realize energy-efficient, ultra-low power operation as low as 100 µA/MHz in active mode and 0.40µA in software standby mode. An independent power supply real-time clock extends battery life for applications requiring long lifetime management in extreme conditions. The new MCUs also offer AES hardware acceleration, a high-precision (±1.0%), high-speed on-chip oscillator, a temperature sensor, and a wide operating voltage range from 1.6V to 5.5V.

**Feature Set Optimized for Smart Energy Management**

[RA2A2 MCUs](https://www.renesas.com/products/microcontrollers-microprocessors/ra-cortex-m-mcus/ra2a2-48mhz-arm-cortex-m23-ultra-low-power-general-purpose-microcontroller-rich-peripherals?utm_campaign=f-up-mcu_ra2a2-epsg-iotbd-ipm2-null&utm_source=null&utm_medium=pr&utm_content=pp) contribute to the digitalization of conventional systems with key features including high-level analog sensing, FOTA support, 8KHz/4KHz hybrid sampling, and AES hardware accelerator functions. When the end-systems are digitalized, it is possible to analyze individual systems status seamlessly for further energy-efficient, streamlining system operation. For example, next generation smart electricity meters with Non-Intrusive Load Management (NILM) technology enable energy consumption monitoring based on detailed analysis of the current and voltage of the total load. The adoption of smart meters with NILM is the most cost-effective and scalable solution for increasing energy efficiency and lowering energy consumption.

“Renesas has worked closely with our customers to understand their requirements for next-generation systems that can support critical energy conservation goals,” said **Akihiro Kuroda, Vice President of the Embedded Processing 2nd Division at Renesas**. “The RA2A2 Group MCUs are the result of that collaboration coupled with our world-leading technical expertise. We are proud to provide this solution that will enable significant energy savings in a wide array of systems.”

**Key Features of the RA2A2 Group MCUs**

* **Core:** 48MHz Arm Cortex-M23
* **Memory**: 512KB integrated, dual-bank Flash memory and 48KB SRAM
* **Analog Peripherals:** 24-bit Sigma Delta ADC with digital filter, 12-bit ADC, and temperature sensor.
* **Packages**: 100-, 80- and 64-pin LFQFP

The new RA2A2 Group MCUs are supported by Renesas’ [Flexible Software Package](https://www.renesas.com/software-tool/flexible-software-package-fsp?utm_campaign=f-up-mcu_ra2a2-epsg-iotbd-ipm2-null&utm_source=null&utm_medium=pr&utm_content=sw) (FSP). The FSP enables faster application development by providing all the infrastructure software needed, including multiple RTOS, BSP, peripheral drivers, middleware, connectivity, networking, and security stacks as well as reference software to build complex AI, motor control and cloud solutions. It allows customers to integrate their own legacy code and choice of RTOS with FSP, thus providing full flexibility in application development. Using the FSP will ease migration of RA2A2 designs to larger RA devices if customers wish to do so.

**Winning Combinations**

Renesas has combined the new RA2A2 Group MCUs with numerous compatible devices from its portfolio to offer a wide array of Winning Combinations, including the [3-Phase Smart Electric Meter](https://www.renesas.com/applications/industrial/renewable-energy-grid/3-phase-smart-electric-meter?utm_campaign=f-up-mcu_ra2a2-epsg-iotbd-ipm2-null&utm_source=null&utm_medium=pr&utm_content=wc). 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 to enable customers to speed up the design process and bring their products to market more quickly. They can be found at [renesas.com/win](https://www.renesas.com/applications?utm_campaign=f-up-mcu_ra2a2-epsg-iotbd-ipm2-null&utm_source=null&utm_medium=pr&utm_content=acp).

**Availability**

The RA2A2 Group MCUs are available now, along with the FSP software and the RA2A2 Evaluation Kit. Samples and kits can be ordered either on the Renesas website or through distributors. More information on the new MCUs is available at [renesas.com/RA2A2](https://www.renesas.com/products/microcontrollers-microprocessors/ra-cortex-m-mcus/ra2a2-48mhz-arm-cortex-m23-ultra-low-power-general-purpose-microcontroller-rich-peripherals?utm_campaign=f-up-mcu_ra2a2-epsg-iotbd-ipm2-null&utm_source=null&utm_medium=pr&utm_content=pp).

**Renesas MCU Leadership**

The world leader in MCUs, Renesas ships more than 3.5 billion units per year, with approximately 50% of shipments serving the automotive industry, and the remainder supporting industrial and Internet of Things applications as well as data center and communications infrastructure. Renesas has the broadest portfolio of 8-, 16- and 32-bit devices, delivering unmatched quality and efficiency with exceptional performance. As a trusted supplier, Renesas has decades of experience designing smart, secure MCUs, backed by a dual-source production model, the industry’s most advanced MCU process technology and a vast network of more than 250 ecosystem partners. For more information about Renesas MCUs, visit [renesas.com/MCUs](https://www.renesas.com/products/microcontrollers-microprocessors?utm_campaign=f-up-mcu_ra2a2-epsg-iotbd-ipm2-null&utm_source=null&utm_medium=pr&utm_content=pcp).

**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. The leading [global](https://www.renesas.com/about/company/profile/global.html) 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/)

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**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](mailto:alexandra_janetzko@hbi.de) / [martin\_stummer@hbi.de](mailto:martin_stummer@hbi.de)

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