

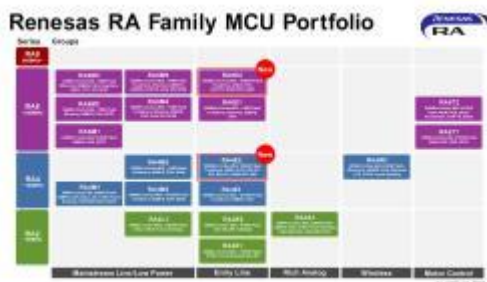
# Renesas Expands RA MCU Family with Two New Entry-Line Groups Offering Optimal Combination of Performance, Features and Value

*New RA4E2 and RA6E2 MCUs Deliver High Performance up to 200 MHz in Compact Packages with Rich Peripheral Options*

March 14, 2023



*Second Generations RA Entry-line MCUs Deliver High-end Performance in Small Packages*



*Renesas RA Family MCU Portfolio*

**TOKYO, Japan** — Renesas Electronics Corporation (TSE:6723), a premier supplier of advanced semiconductor solutions, today announced the expansion of its 32-bit RA family of microcontrollers (MCUs) with two new Groups based on the Arm® Cortex®-M33 core with Arm TrustZone® technology. The new 100-MHz RA4E2 Group and 200-MHz RA6E2 Group are optimized to provide best-in-class power efficiency without compromising performance. With 128 Kbyte and 256 Kbyte flash options and 40 Kbytes of SRAM, the new groups integrate abundant connectivity options such as on-chip CAN FD, USB, QSPI, SSI and I3C interfaces and offer an easy upgrade path to other

members of the RA Family. They are ideal for applications requiring high performance in small packages such as sensing, gaming, wearables and appliances.

The RA4E2 and the RA6E2 are the most cost-effective members of the RA family with integrated CAN FD, and are available with small package options including a space saving 4 x 4 mm 36-pin BGA and a 5 x 5 mm 32-pin QFN to satisfy the needs of cost-sensitive and space-constrained applications. In addition, the low power consumption of the new devices saves energy, enabling end products to contribute to a greener environment.

All RA devices are supported by the Renesas Flexible Software Package (FSP) that includes highly efficient drivers and middleware to ease the implementation of communications and improve functionality of peripherals. The FSP's GUI simplifies and accelerates the development process. It enables flexible use of legacy code as well as easy compatibility and scalability with other RA family devices. Designers using FSP also have access to the full Arm ecosystem as well as Renesas' extensive partner network, offering a wide range of tools that help speed time-to-market.

“Our RA Family continues to exceed expectations by delivering market-leading performance, features, ease-of-design and value,” said **Roger Wendelken, Senior Vice President in the IoT and Infrastructure Business Unit at Renesas**. “The new RA4E2 and RA6E2 Groups are exceptional examples of why many customers have adopted the RA family as their MCU family of choice. We're confident that these parts will hit the sweet spot for a wide range of applications, and that many designers will look to the RA family for future designs as well.”

“Over 90% of processors shipped are microcontrollers. The applications that use these MCUs are exceptionally varied<sup>1</sup>,” said **Tom Hackenberg, Principal Market and Technology Analyst for Computing and Software at the Yole Group**. “By continuing to expand its RA offerings, Renesas can address more customers in more markets with optimized parts for this wide range of specific applications.”

## RA4E2 MCU Group

The [RA4E2 Group](#) includes five different options, spanning from 32-pin to 64-pin packages as small as 4 x 4mm, and 128kB of flash memory along with 40kB of SRAM. The RA4E2 devices offer excellent active power consumption, using 82  $\mu\text{A}$  / MHz while executing from Flash at 100 MHz. They have an extended operating temperature range of -40/105°C. The RA4E2 Group is ideal for cost-sensitive applications and other systems requiring an optimal combination of performance, low power consumption and small package size.

## Key Features of the RA4E2 Group

- 100 MHz Arm Cortex-M33 CPU core
- Integrated flash memory of 128kB; 40kB RAM
- Support for wide temperature range:  $T_a = -40/105^\circ\text{C}$

- Package options from 32- to 64-pin
- Low power operation: 82  $\mu$ A / MHz in active mode while executing at 100 MHz
- Integrated communications options including USB 2.0 Full-Speed Device, SCI, SPI, I3C, HDMI CEC, SSI, and CAN FD
- System costs reduction with internal oscillator, abundant GPIO, advanced analog, low-voltage detection and internal reset function

## RA6E2 MCU Group

The [RA6E2 Group MCUs](#) deliver 200 MHz performance. The group includes 10 different parts, spanning from 32-pin to 64-pin packages as small as 4mm x 4mm, and from 128kB to 256kB of flash memory along with 40kB of SRAM. The RA6E2 devices offer exceptional power consumption specifications, and extensive peripherals and connectivity options, delivering a unique combination of performance and features.

## Key Features of the RA6E2 Group

- 200 MHz Arm Cortex-M33 CPU core
- Integrated flash memory options from 128kB to 256kB; and 40kB RAM
- Package options from 32- to 64-pin
- Low power operation: 80  $\mu$ A / MHz in active mode while executing at 200 MHz
- Integrated communications options including USB 2.0 Full-Speed Device, SCI, SPI, I3C, HDMI CEC, SSI, QSPI, and CAN FD
- Integrated timer
- Advanced Analog

## Winning Combinations

Renesas has designed a full [Add-on Voice User Interface \(VUI\) Solution](#) using the RA6E2 MCU and other compatible devices from the Renesas portfolio. This solution is modular and can easily be added to any application needing a Voice User Interface, such as smart thermostats or appliances. The RA6E2 MCU handles all tasks without burdening the host MCU. This is just one of Renesas' many Winning Combinations, which are technically vetted, full system architectures, optimized to reduce design risk. Renesas offers more than 300 Winning Combinations with a wide range of products from the Renesas portfolio to enable customers to speed up the design process and quickly bring their products to market. They can be found at [renesas.com/win](https://www.renesas.com/win).

## Renesas MCU Leadership

A 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, and is the industry's No. 1 supplier of both 16- and 32-bit MCUs, 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 200 ecosystem partners. For more information about Renesas MCUs, visit [renesas.com/MCUs](https://renesas.com/MCUs).

## Available to See at embedded world 2023

Renesas will showcase the new RA4E2 and RA6E2 devices at embedded world 2023 in Nuremberg, Germany, March 14-16 in Hall 1, Stand 234.

## Availability

All the new RA4E2 and RA6E2 MCUs are available today. Renesas is also offering separate Evaluation Kits and fast prototyping boards for both MCU Groups. More information is available at [renesas.com/RA4E2](https://renesas.com/RA4E2) and [renesas.com/RA6E2](https://renesas.com/RA6E2).

## About Renesas Electronics Corporation

Renesas Electronics Corporation ([TSE: 6723](#)) 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](https://renesas.com). Follow us on [LinkedIn](#), [Facebook](#), [Twitter](#), [YouTube](#), and [Instagram](#).

<sup>1</sup> [Microcontroller \(MCU\) Market Monitor](#), Yole Intelligence, 2023

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