

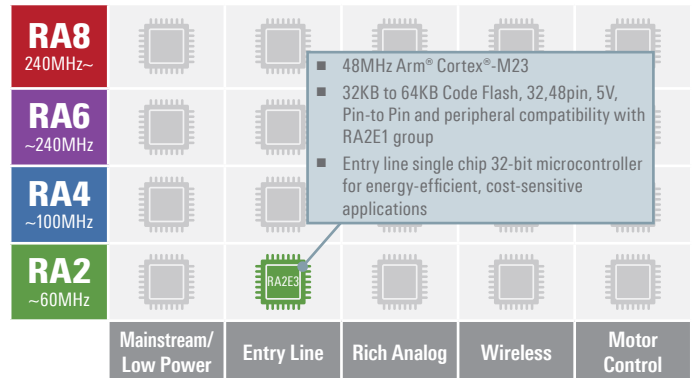
32-BIT MCU FAMILY

RENESAS RA2E3 GROUP

48 MHz Arm® Cortex®-M23 Entry Level Ultra-Low Power General-Purpose Microcontroller

The RA2E3 group is an entry line single-chip microcontroller in the RA family based on the 48 MHz Arm Cortex-M23 core with up to 64kB code flash and 16kB SRAM memory.

RA2E3 MCUs provide an optimized feature set for cost-sensitive applications by supporting pin-to-pin and peripheral compatibility with RA2E1 MCUs. Ultra-low power consumption contributes to energy-efficient system design required for IoT applications and battery-operated systems to achieve longer battery life.



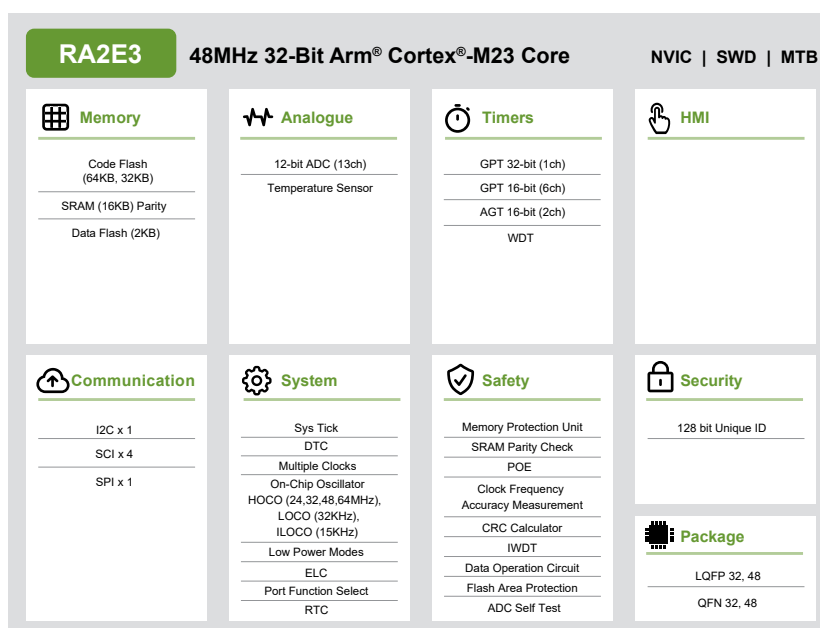
Key Features

- 48 MHz Arm Cortex-M23 core
- Up to 64KB Flash and 16KB SRAM
- 2KB data flash memory (100,000 program / erase (P/E) cycles)
- 32-pin and 48-pin package options
- Wide voltage range of 1.6V to 5.5V
- 32-bit general PWM timers, 16-bit general PWM timer, low-power asynchronous general-purpose timers
- 12-bit A/D converter, temperature sensor
- SCI (UART, Simple SPI, Simple I2C), SPI, I2C bus
- Safety functions

Target Applications

- General purpose systems
- IoT devices
- Industrial automation and sensors
- Consumer applications
- Home appliances
- Building automation
- Medical & Healthcare devices
- Wearable devices

Block Diagram

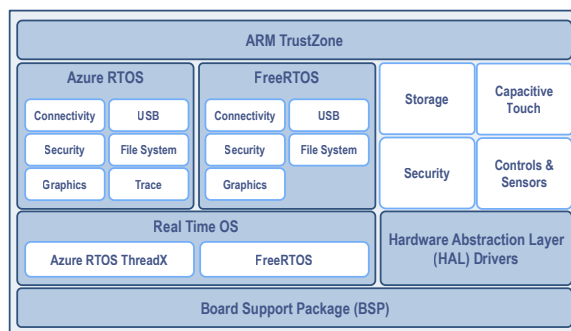


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Software Package

The Renesas Flexible Software Package (FSP) is designed to provide easy-to-use, scalable, high-quality software for embedded system designs using RA MCUs.

The FSP is based on an open software ecosystem of production-ready drivers, supporting Azure[®] RTOS, FreeRTOS[™] or bare-metal programming. It also includes a selection of other middleware stacks, providing great flexibility for migrating code from older systems or developing new applications from scratch.



Tools and Support

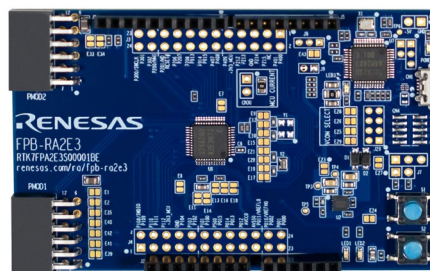
The e² studio IDE provides support with intuitive configurators and intelligent code generation to make programming and debugging easier and faster.

IDE	Renesas e ² studio	Keil MDK	IAR EWARM
Compiler	<ul style="list-style-type: none"> • GCC • LLVM • Arm Compiler* • IAR Arm Compiler* 	<ul style="list-style-type: none"> • Arm Compiler* 	<ul style="list-style-type: none"> • IAR Arm Compiler*
Debug Probe	<ul style="list-style-type: none"> • Renesas E2/E2 Lite • SEGGER J-Link 	<ul style="list-style-type: none"> • SEGGER J-Link • Keil ULINK / CMSIS-DAP (limited support) 	<ul style="list-style-type: none"> • IAR I-jet • SEGGER J-Link • Renesas E2/E2 Lite • CMSIS-DAP (limited support)
Production Programmer	<ul style="list-style-type: none"> • Renesas PG-FP6 	<ul style="list-style-type: none"> • SEGGER J-Flash 	<ul style="list-style-type: none"> • Partner solutions

* Compiler must be purchased and licensed directly from third party

Evaluation Kits

- RA2E3 Fast Prototyping Board is an evaluation board specialized for prototype development for a variety of applications
- Onboard debugging using SEGGER-J-Link[®]
- Order the kit and download documentation, design package, development tools and software at: renesas.com/fpb-ra2e3
- Orderable part number: **RTK7FPA2E3S00001BE**



Ordering References

Flash/RAM	Ta				
64KB/16KB	-40 to 105 °C	R7FA2E3073CNH	R7FA2E3073CFJ	R7FA2E3073CNE	R7FA2E3073CFL
	-40 to 85 °C	R7FA2E3072DNH	R7FA2E3072DFJ	R7FA2E3072DNE	R7FA2E3072DFL
32KB/16KB	-40 to 105 °C	R7FA2E3053CNH	R7FA2E3053CFJ	R7FA2E3053CNE	R7FA2E3053CFL
	-40 to 85 °C	R7FA2E3052DNH	R7FA2E3052DFJ	R7FA2E3052DNE	R7FA2E3052DFL
Pin Count		32-pin	32-pin	48-pin	48-pin
Package		HWQFN	LQFP	HWQFN	LFQFP
Package size (body)		5 x 5 mm	7 x 7 mm	7 x 7 mm	7 x 7 mm
Pitch		0.5 mm	0.8 mm	0.5 mm	0.5 mm

For more details, please visit: renesas.com/ra2e3



renesas.com

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