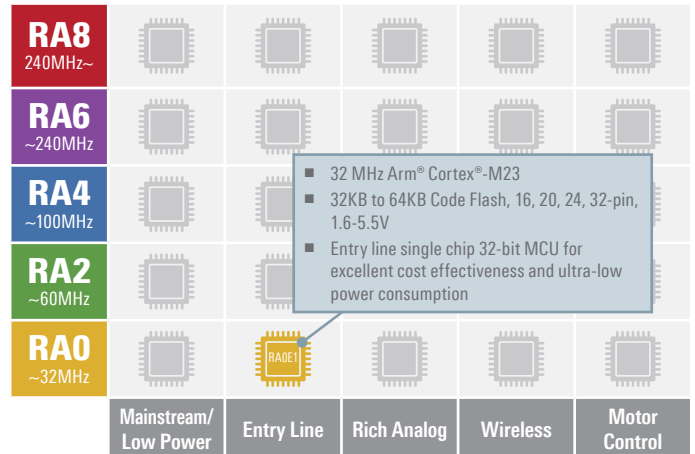


# 32-BIT MCU FAMILY

## RENESAS RA0E1 GROUP

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

The RA0E1 group are basic, simple MCUs in the entry line RA0 series offering excellent cost effectiveness and ultra-low power consumption. The MCUs deliver up to 32 MHz of CPU performance with up to 64KB embedded flash memory and a wide supply voltage range from 1.6V to 5.5V. In addition, RA0E1 implements optimized peripherals for reduced BOM cost and simplified design for the low-end MCU market. The RA0 series is ideal for cost-sensitive applications such as consumer electronics, system control for small appliances, industrial system control and building automation.



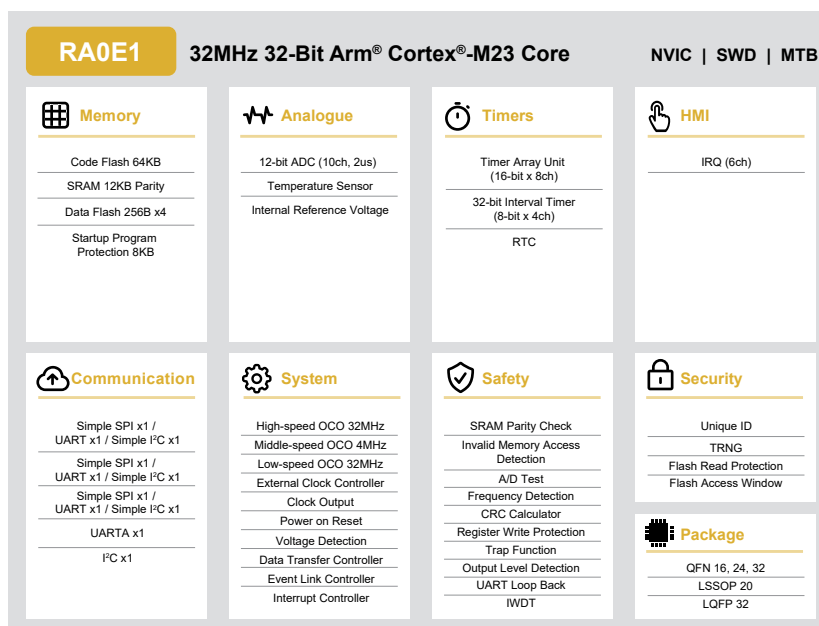
### Key Features

- 32 MHz Arm Cortex-M23 core
- Up to 64KB Flash and 12KB SRAM
- 1KB data flash memory (100,000 program / erase (P/E) cycles)
- 16-pin and 32-pin package options
- Wide voltage range of 1.6V to 5.5V
- TAU (16-bit general PWM timer ), TML32 (32-bit interval timers), RTC
- 12-bit A/D converter, temperature sensor
- SAU (UART, Simple SPI, Simple I2C), UART, I2C
- Random number generator
- Safety functions

### Target Applications

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

### Block Diagram

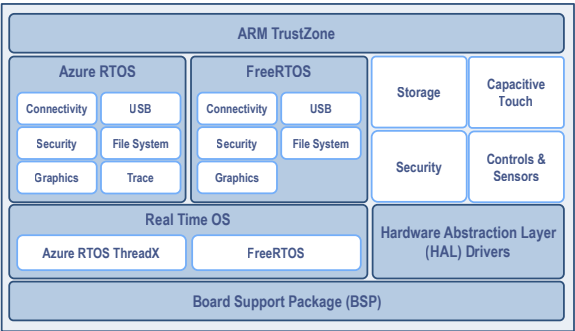


# RENESAS RA0E1 GROUP

## Software Package

The Renesas Flexible Software Package (FSP) is designed to provide easy-to-use, scalable, high-quality software for embedded system designs using the Renesas RA family. FSP includes best-in-class HAL drivers with high performance and low memory footprint.

Based on an open software ecosystem, FSP provides customers with flexibility in product development, including the use of existing software assets and partner ecosystem solutions.



## Tools and Support

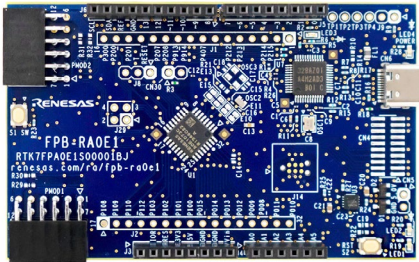
The e<sup>2</sup> studio IDE provides support with intuitive configurators and intelligent code generation to make programming and debugging easier and faster.

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

\* Compiler must be purchased and licensed directly from third party

## Evaluation Kit

- RA0E1 Fast Prototyping Board is an evaluation board specialized for prototype development for a variety of applications
- Onboard debugging using SEGGER-J-Link
- Order the FPB and download documentation, design package, development tools and software at: [renesas.com/fpb-ra0e1](https://renesas.com/fpb-ra0e1)
- Orderable part number: **RTK7FPA0E1S00001BJ**



## Ordering References

Flash/RAM	Ta					
64KB/16KB	-40 to 105 °C	<b>R7FA0E1073CNL</b>	<b>R7FA0E1073CSC</b>	<b>R7FA0E1073CNK</b>	<b>R7FA0E1073CNH</b>	<b>R7FA0E1073CFJ</b>
32KB/16KB	-40 to 105 °C	<b>R7FA0E1053CNL</b>	<b>R7FA0E1053CSC</b>	<b>R7FA0E1053CNK</b>	<b>R7FA0E1053CNH</b>	<b>R7FA0E1053CFJ</b>
Pin Count		16-pin	20-pin	24-pin	32-pin	32-pin
Package		HWQFN	LSSOP	HWQFN	HWQFN	LQFP
Package size (body)		3 x 3 mm	4.4 x 6.5 mm	4 x 4 mm	5 x 5 mm	7 x 7 mm
Pitch		0.5 mm	0.65 mm	0.5 mm	0.5 mm	0.8 mm

For more details, please visit: [renesas.com/ra0e1](https://renesas.com/ra0e1)



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