



# 32-BIT MCU FAMILY

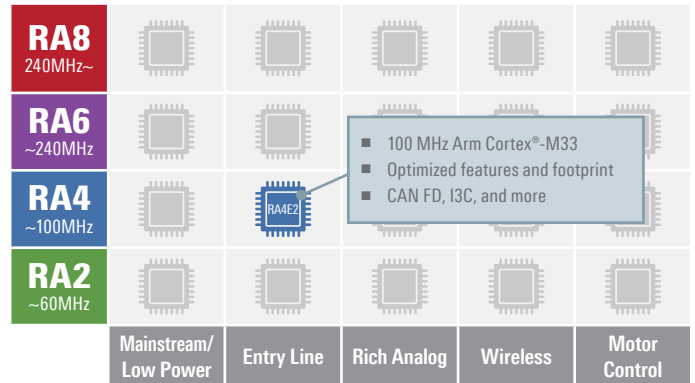
## RENESAS RA4E2 GROUP

### Entry-Line 100MHz Arm® Cortex®-M33 General Purpose Microcontroller

The RA4E2 entry-line microcontroller is based on the 100 MHz Arm® Cortex®-M33 core with TrustZone.

RA4E2 MCUs offer high-performance and optimized peripheral functions along with the smallest package options including space saving 36-pin BGA and 32-pin QFN packages. These satisfy the needs of both cost-sensitive and space-constrained applications.

The RA4E2 provides an entry point to the wider RA family due to its well-balanced performance, advanced peripheral functions, and scalability.



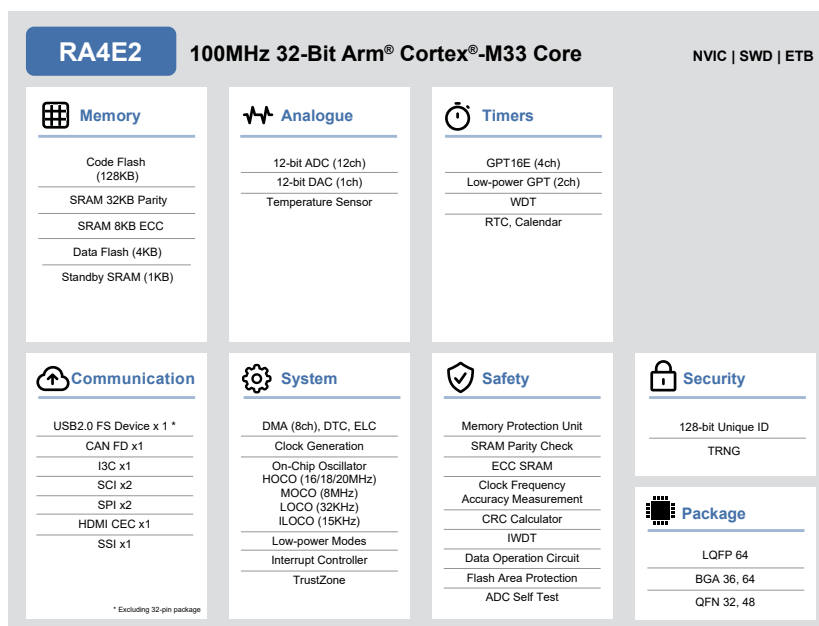
### Target Applications

- General purpose
- Sensor applications (Healthcare, Industrial, Wearable)
- Home appliances
- Entertainment systems
- Gaming, Headset control

### Key Features

- 100MHz Arm Cortex-M33 with TrustZone
- 128KB Flash memory and 40KB SRAM
- 4KB Data Flash to store data as in EEPROM
- 1KB Standby SRAM
- Scalable from 32-pin to 64-pin packages
- USB 2.0 Full Speed
- CAN FD, I3C
- HDMI CEC, SSI
- 12-bit A/D Converter
- 12-bit D/A Converter
- General PWM Timer

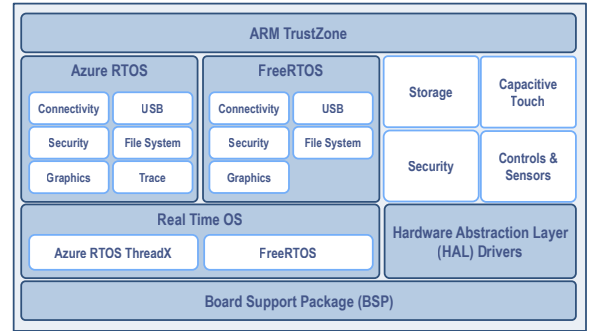
### Block Diagram



# RENESAS RA4E2 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. 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 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>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</li> </ul>	<ul style="list-style-type: none"> <li>IAR I-Jet</li> <li>SEGGER J-Link</li> </ul>
Production Programmer	<ul style="list-style-type: none"> <li>Renesas PG-FP6</li> </ul>	<ul style="list-style-type: none"> <li>SEGGER J-Flash</li> </ul>	<ul style="list-style-type: none"> <li>Partner solutions</li> </ul>

## Evaluation Kit

- Evaluation Kit for RA4E2 MCU Group EK-RA4E2 enables users to evaluate the features of RA4E2 MCU group by utilizing rich on-board features along with popular ecosystem expansion connectors.
- Order the kit and download documentation, design package, development tools and software at: [renesas.com/ek-ra4e2](https://renesas.com/ek-ra4e2)
- Orderable part number: **RTK7EKA4E2S00001BE**



- Fast Prototyping Board for RA4E2 MCU Group FPB-RA4E2 enables users a fast prototype development using Arduino Uno and Pmod™ interfaces included standard and through-hole access to all pins of RA4E2.
- Order the kit and download documentation, design package and development tools at: [renesas.com/fpb-ra4e2](https://renesas.com/fpb-ra4e2)
- Orderable part number: **RTK7FPA4E2S00001BE**



## Ordering References

Flash	128KB							
RAM	40KB	<b>R7FA4E2B93CNH</b>	<b>R7FA4E2B92CBC</b>	<b>R7FA4E2B93CBC</b>	<b>R7FA4E2B93CNE</b>	<b>R7FA4E2B93CFM</b>	<b>R7FA4E2B92CBB</b>	<b>R7FA4E2B93CBB</b>
DataFlash	4KB							
Pin Count		32pin	36pin	36pin	48pin	64pin	64pin	64pin
Package		QFN	BGA	BGA	QFN	LQFP	BGA	BGA
Size (body)		5x5mm	4x4mm	4x4mm	7x7mm	10x10mm	5x5mm	5x5mm
Pitch		0.5mm	0.5mm	0.5mm	0.5mm	0.5mm	0.5mm	0.5mm
Operating Temperature		-40 to +105°C	-40 to +85°C	-40 to +105°C	-40 to +105°C	-40 to +105°C	-40 to +85°C	-40 to +105°C

For more details, please visit: [renesas.com/ra4e2](https://renesas.com/ra4e2)



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