

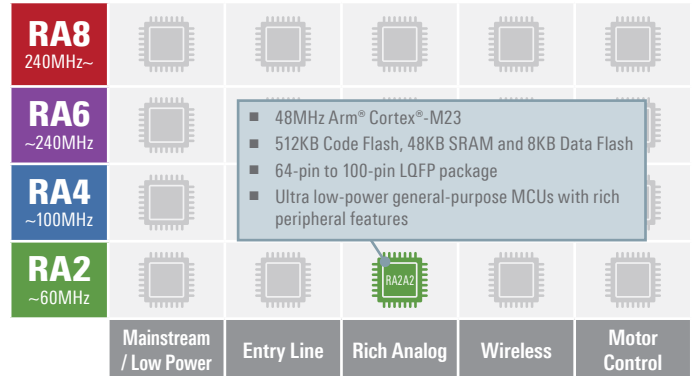


# 32-BIT MCU FAMILY

## RENESAS RA2A2 GROUP

### 48 MHz Arm® Cortex®-M23 Ultra-Low Power General-Purpose Microcontroller with Rich Peripherals

The RA2A2 group has an Arm Cortex-M23 core with rich peripheral features to deliver a better design experience that allows high level analog sensing while reducing power consumption, system cost and overall footprint by using dual bank flash, segment LCD and low-power operation.



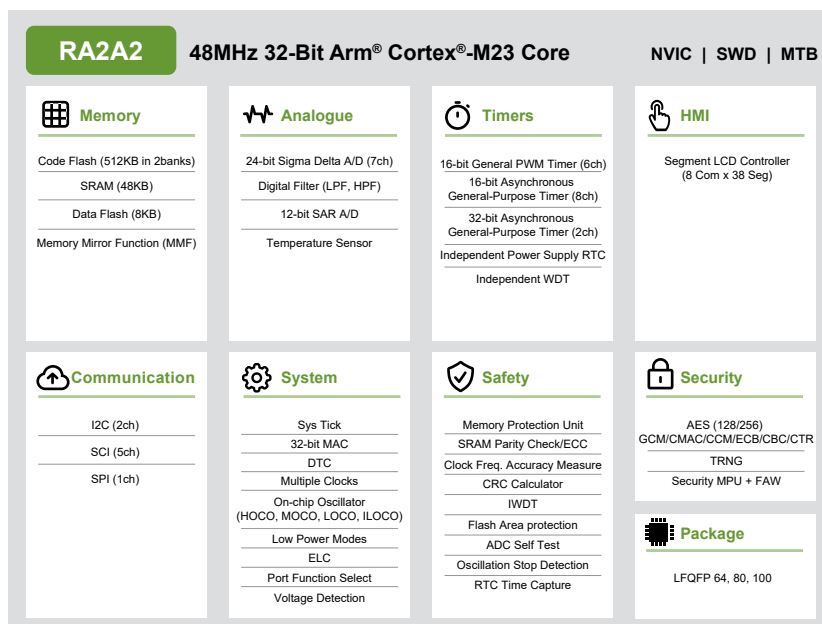
#### Target Applications

- Energy management devices
- Industrial automation
- Building automation
- Home appliances
- Medical and healthcare
- Consumer electronics

#### Key Features

- 48 MHz Arm Cortex-M23 core
- 512KB Flash (dual bank) and 48KB SRAM
- 8KB data flash memory (100,000 program/erase (P/E) cycles)
- 64-pin, 80-pin and 100-pin LQFP package options
- Up to 7ch 24-bit Sigma-Delta A/D converter with digital filter, 12-bit A/D converter and temp sensor
- 16-bit general purpose timers, 32-bit and 16-bit low power AGT timers and independent power supply RTC
- Segment LCD controller
- SCI (UART, Simple SPI, Simple I<sup>2</sup>C), SPI and I<sup>2</sup>C bus
- Security functions including AES, Secure MPU, Flash Access Window and TRNG

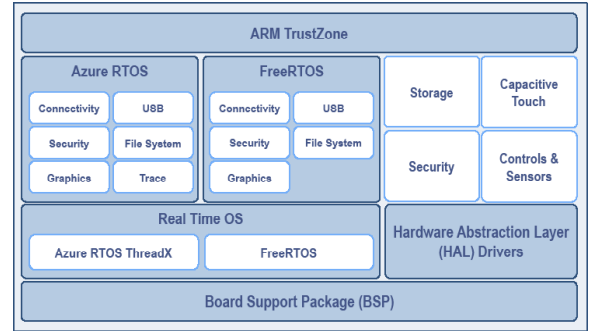
#### Block Diagram



# RENESAS RA2A2 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<sup>®</sup> RTOS, FreeRTOS<sup>™</sup> 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

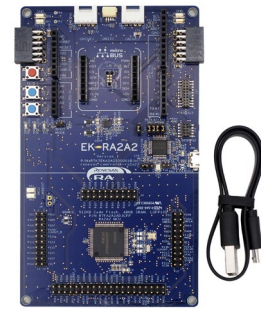
The e<sup>2</sup> studio IDE provides support with intuitive configurators and intelligent code generation to make programming and debugging easier and faster.

IDE	Renesas e <sup>2</sup> studio	Keil MDK	IAR EWARM
Compiler	<ul style="list-style-type: none"> <li>• GCC</li> <li>• 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

- The RA2A2 MCU Group evaluation board enables users to seamlessly evaluate the MCU features and develop embedded systems applications using the FSP and example projects
- Onboard debugging using SEGGER-J-Link<sup>®</sup>
- Orderable part number: **RTK7EKA2A2S00001BJ**
- Order the kit and download documentation, design package, development tools and software at: [renesas.com/ek-ra2a2](https://renesas.com/ek-ra2a2)



## Ordering References

FLASH/RAM	Ta (°C)	SDADC			
512KB/48KB	-40 to +105	7ch			<b>R7FA2A2AD3CFP</b>
		4ch	<b>R7FA2A2BD3CFM</b>	<b>R7FA2A2BD3CFN</b>	<b>R7FA2A2BD3CFP</b>
Pin Count			64-pin	80-pin	100-pin
Package			LFQFP	LFQFP	LFQFP
Size (body)			10 x 10 mm	12 x 12 mm	14 x 14 mm
Pitch			0.5 mm	0.5 mm	0.5 mm

For more details, please visit: [renesas.com/ra2a2](https://renesas.com/ra2a2)

