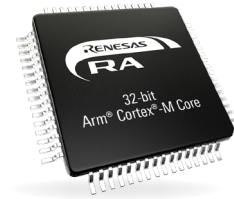


32-bit MCU with Arm® Cortex®-M Core

RENESAS RA FAMILY

Delivering the Ultimate Promise of IoT with Software Flexibility

The Renesas RA Family is a new 32-bit MCU family built on the Arm® Cortex®-M core architecture. Offering a wide range of performance and features, the Renesas RA Family meet the scalability, power consumption and performance needs of nearly any embedded systems end-product.



Strong Security

- Secure Crypto Engine (SCE) IP
- An extra layer of embedded hardware security providing tamper detection and resistance to side-channel attacks
- Integrated Arm® v8-M TrustZone®



Arm Core

- Based on Arm's next-generation Cortex-M23/M33 processor cores, and Cortex-M4 core



Flexible Software Solution

- Supported by an open and flexible ecosystem concept, the Flexible Software Package (FSP)
- Can be replaced and expanded by any other RTOS or middleware



Best-in-Class Peripheral IP

- Excellent HMI capacitive touch technology
- The industry's highest code flash memory capacity
- Wide range of connectivity solutions

Renesas RA Product Series

The four Renesas RA Family MCU series are based on 32-bit Arm® Cortex®-M cores. All four Renesas RA Series have been designed on common DNA, making these products feature- and pin-compatible. This allows easy scalability and code reuse from one device to another.

	Performance Range	Feature	Series Memory Ranges	ASSP Extensions
 RA8	Over 240MHz 1.8-3.6V	Highest Performance, HMI, Connectivity, Security, Analog	Highest Memory Integration: up to 2MB Flash, 2MB SRAM	Motor/Inverter AI/ML, HMI
RA6	Up to 240MHz 2.7-3.6V	Advanced Performance, Connectivity, Security	High Memory Integration: up to 2MB Flash, 640kB SRAM	Motor/Inverter AI/ML, HMI
RA4	Up to 100MHz 1.6V-5.5V	Excellent Power, High Performance Mix Paired with Security	Medium Memory Integration: up to 1MB Flash, 128kB SRAM	Motor/Inverter Sensor, Wireless
 RA2	Up to 60MHz 1.6V-5.5V	Low Power	Medium memory integration: up to 256kB Flash, 32kB SRAM	Rich Analog

RENESAS RA FAMILY

Target Markets and Benefits

Industrial Automation

- Long product life
- Temperature up to 105°C
- Industrial quality grade
- Strongest robustness
- 24-bit $\Sigma\Delta$ ADC for sensors

Security

- Isolated crypto subsystem
- Symmetric/asymmetric hardware acceleration
- True Random Number Generator (TRNG)
- NIST-certified algorithms
- Key isolation and management

Connectivity

- Large on-chip RAM suitable for stacks
- CAN/USB/Ethernet
- Large amount on serial interfaces
- QSPI interfaces
- Integrated crypto module

Building Automation

- High Flash/RAM ratio
- Wide range of connectivity
- Rich analog features
- Small packages

Metering

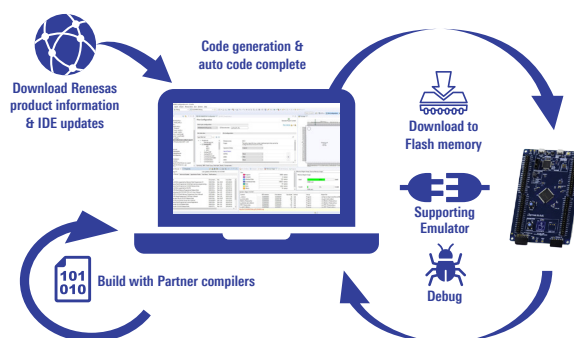
- Scalable lineup
- Industrial quality grade
- Long product life
- Integrated crypto module

Whitegoods

- Temperature up to 105°C
- Scalable lineup
- Motor control solutions
- Capacitive touch interface
- LCD control

Tools and Support

IDE	Renesas e ² studio	Keil MDK	IAR EWARM
Compiler	<ul style="list-style-type: none"> ■ GCC ■ Arm Compiler 	<ul style="list-style-type: none"> ■ Arm Compiler 	<ul style="list-style-type: none"> ■ IAR Arm Compiler
Debugger	<ul style="list-style-type: none"> ■ Renesas E2/E2 Lite ■ SEGGER J-Link 	<ul style="list-style-type: none"> ■ SEGGER J-Link 	<ul style="list-style-type: none"> ■ IAR I-Jet ■ SEGGER J-Link
Programmer		<ul style="list-style-type: none"> ■ Renesas PG-FP6 ■ SEGGER J-Flash ■ Third party solutions 	



Evaluation Kit

- Full MCU evaluation including on-chip debugger
- Individual kits for several products of each Renesas RA Series are available



For more information about the Renesas RA MCU family, please visit: www.renesas.com/RA

renesas.com

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