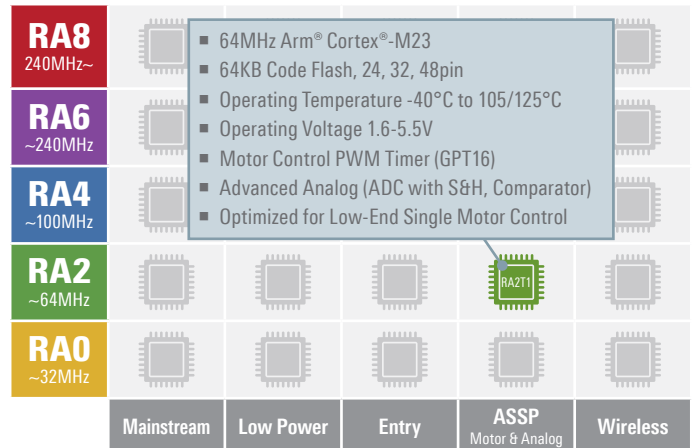


32-BIT MCU FAMILY

RENESAS RA2T1 GROUP

64MHz Arm® Cortex®-M23 Motor Control Microcontroller

The RA2T1 group is the microcontroller optimized for single motor control applications, based on a 64MHz Arm® Cortex®-M23 core. Featuring PWM timer and advanced analog, including 3 sample-and-hold circuits integrated in the A/D converter, it is suitable for efficient low-end motor control applications such as power tools, fans and home appliances. Supporting a wide operating range of 1.6V to 5.5V and offered in a compact 24-pin QFN package, the RA2T1 meets the needs of cost-sensitive and space-constrained designs.



Key Features

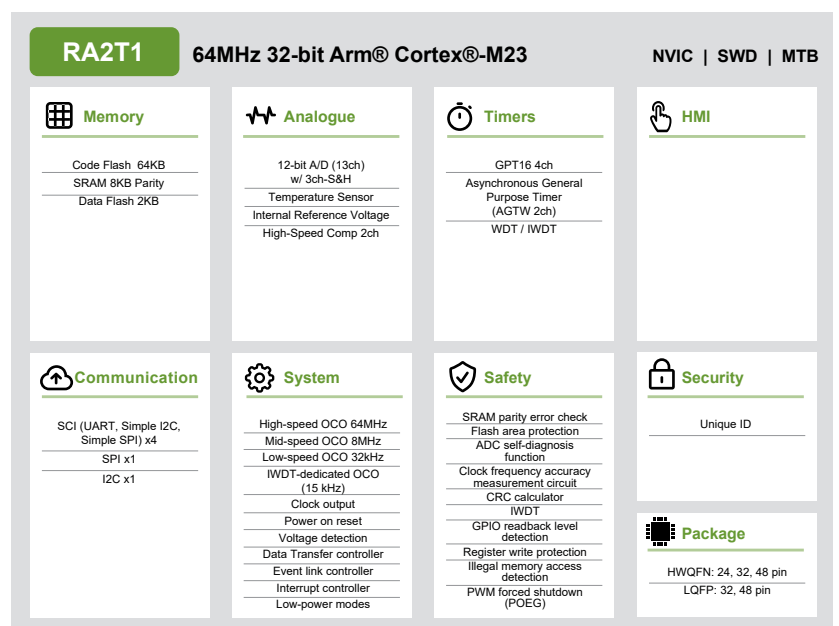
- 64MHz Arm® Cortex®-M23 core
- 64KB flash memory and 8KB SRAM
- 2KB data flash memory to store data as in EEPROM
- Scalable from 24-pin to 48-pin with LQFP & HWQFN packages
- PWM timer
- 12-bit A/D converter with 3 sample-and-hold circuits

- High speed comparator
- SCI (UART, Simple SPI, Simple I2C), SPI, I2C
- Wide voltage range of 1.6V to 5.5V
- Wide operating temperature range from -40 to 125°C
- Safety Functions

Target Applications

- Power Tools & Industrial Applications (Fan, Impact driver, Chainsaw, Conveyor belts)
- Home Appliances (Ceiling Fan, Ventilation fan, Vacuum cleaner, Refrigerator)
- Building system (Ventilation systems, Exhaust fans, Automated blinds and curtains)
- Office Equipment (Printers and copiers, Paper shredders, Projector)
- Commercial Equipment (Hair Dryer, Hand dryers, Vending machines)

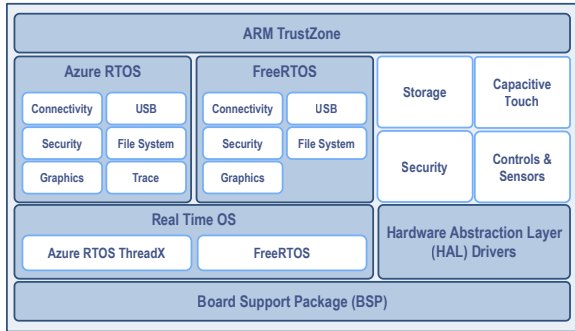
Block Diagram



RENESAS RA2T1 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 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

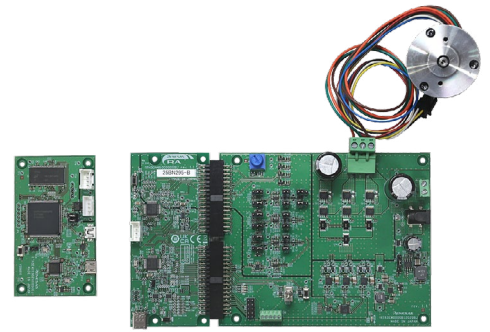
The e²studio IDE provides support with intuitive configurators and intelligent code generation to make programming and debugging easier and faster.

IDE	Renesas e²studio	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** 	<ul style="list-style-type: none"> IAR I-jet SEGGER J-Link Renesas E2/E2 Lite CMSIS-DAP**
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
 ** limited support

Evaluation Kit

- MCK-RA2T1 Renesas Flexible Motor Control Kit for RA2T1 Group including CPU board, inverter board, communication board, PMSM motor and accessories
- MCB-RA2T1 CPU board for RA2T1, enables stand-alone evaluation and motor control evaluation when connected to existing MCK platform boards
- On-board debugging using SEGGER J-Link®
- Order the kit and download documentation, design package, development tools, and software at: renesas.com/mck-ra2t1 or renesas.com/mcb-ra2t1
- Orderable part number:
 - RTK0EMA810S00020BJ (MCK-RA2T1)
 - RTK0EMA810C00000BJ (MCB-RA2T1)



Ordering References

Flash/RAM	Ta					
64KB/8KB	-40 to 125 °C	R7FA2T1074CNK	R7FA2T1074CFJ	R7FA2T1074CNH	R7FA2T1074CFL	R7FA2T1074CNE
64KB/8KB	-40 to 105 °C	R7FA2T1073CNK	R7FA2T1073CFJ	R7FA2T1073CNH	R7FA2T1073CFL	R7FA2T1073CNE
Pin Count		24-pin	32-pin	32-pin	48-pin	48-pin
Package		HWQFN	LQFP	HWQFN	LQFP	HWQFN
Package size (body)		4 x 4 mm	7 x 7 mm	5 x 5 mm	7 x 7 mm	7 x 7 mm
Pitch		0.5 mm	0.8 mm	0.5 mm	0.5 mm	0.5 mm

For more details, please visit: renesas.com/ra2t1



Corporate Headquarters
 TOYOSU FORESIA, 3-2-24 Toyosu, Koto-ku, Tokyo 135-0061, Japan
www.renesas.com

Contact Information
 For further information on a product, technology, the most up-to-date version of a document, or your nearest sales office, please visit: www.renesas.com/contact/

Trademarks
 Renesas and the Renesas logo are trademarks of Renesas Electronics Corporation. All trademarks and registered trademarks are the property of their respective owners.