

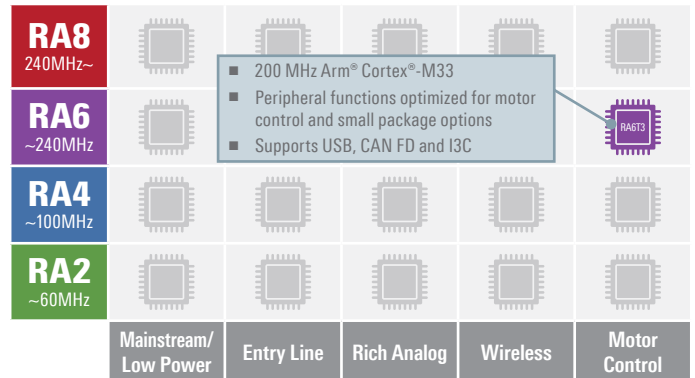
32-BIT MCU FAMILY

RENESAS RA6T3 GROUP

RA6 Series 200MHz Arm® Cortex®-M33 Motor Control Microcontroller

The RA6T3 group is the third microcontroller for motor control in the RA6 series, designed for an optimum balance of peripheral functions and cost suitable for motor control, based on the 200 MHz Arm® Cortex®-M33 core with TrustZone®.

The RA6T3 is pin and function compatible with the RA4T1 group and can be seamlessly upgraded, making it an ideal solution for motor control and inverter control applications requiring higher performance.



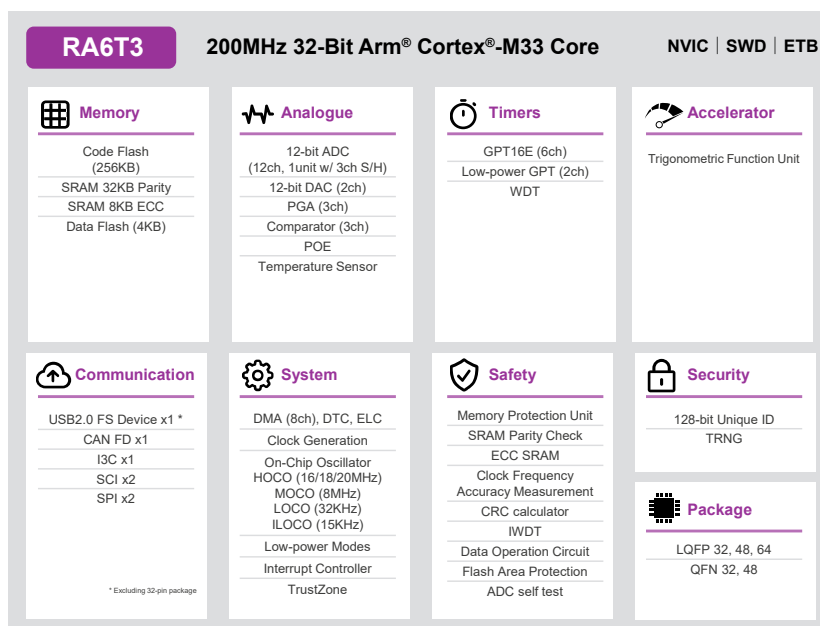
Target Applications

- Air conditioner
- Washing machine
- Refrigerator
- Fan, Pump, Compressor
- AC drive, AC servo
- Power tools
- Small robot
- Small mobility (e-scooter, e-bike)

Key Features

- 200MHz Arm® Cortex®-M33 with TrustZone®
- 256KB Flash memory and 40KB SRAM
- 4KB Data Flash to store data as in EEPROM
- Scalable from 32-pin to 64-pin packages
- PWM timer
- 12-bit ADC
- Programmable gain amp
- High speed comparator
- 12-bit DAC
- Trigonometric Function Unit
- USB 2.0 Full Speed
- CAN FD
- I3C, SCI, SPI

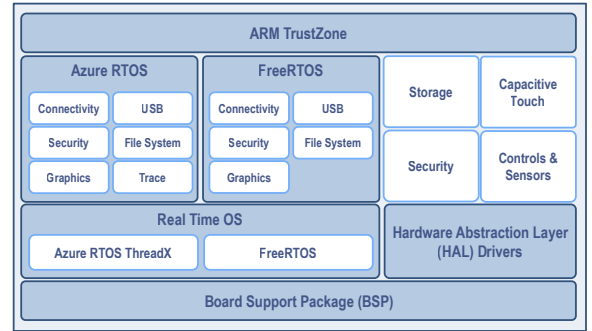
Block Diagram



RENESAS RA6T3 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 e² studio IDE provides support with intuitive configurators and intelligent code generation to make programming and debugging easier and faster.

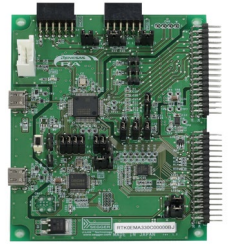
IDE	Renesas e ² studio	Keil MDK	IAR EWARM
Compiler	<ul style="list-style-type: none"> • GCC • Arm Compiler • IAR Arm Compiler 	<ul style="list-style-type: none"> • Arm Compiler 	<ul style="list-style-type: none"> • IAR Arm Compiler
Debug Probe	<ul style="list-style-type: none"> • Renesas E2/E2 Lite •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

Evaluation Kit

- MCK-RA6T3 Renesas Flexible Motor Control Kit for RA6T3 MCU Group
- Includes CPU board, inverter board, PMSM motor, and accessories
- Documentation and more information: renesas.com/mck-ra6t3
- Orderable part number: **RTK0EMA330S00020BJ**



- MCB-RA6T3 CPU Board for RA6T3 MCU Group
- On-board debugging using SEGGER J-Link®
- Documentation and more information: renesas.com/mcb-ra6t3
- Orderable part number: **RTK0EMA330C00000BJ**



Ordering References

Flash	256KB	R7FA6T3BB3CNH	R7FA6T3BB3CFJ	R7FA6T3BB3CNE	R7FA6T3BB3CFL	R7FA6T3BB3CFM
RAM	40KB					
DataFlash	4KB					
Pin Count		32pin	32pin	48pin	48pin	64pin
Package		QFN	LQFP	QFN	LQFP	LQFP
Size (body)		5x5mm	7x7mm	7x7mm	7x7mm	10x10mm
Pitch		0.5mm	0.8mm	0.5mm	0.5mm	0.5mm
Operating Temperature		-40 to +105°C	-40 to +105°C	-40 to +105°C	-40 to +105°C	-40 to +105°C

For more details, please visit: renesas.com/ra6t3



renesas.com

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

Document No.: R01PF023/EU0100

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

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/

© 2023 Renesas Electronics Corporation. All rights reserved.