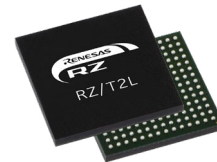




# High-Performance MPU for Real-Time Control with EtherCAT

## RENESAS RZ/T2L GROUP

RZ/T2L is a high-performance MPU that realizes high-speed processing and high-precision real-time control with EtherCAT. With a similar hardware (H/W) architecture as RZ/T2M, and scalable & compatible software (S/W) platform with Renesas MPU and MCU, RZ/T2L enables customers to easily scale product development.



196pin, 12x12mm FBGA  
(0.8mm pitch)

### Key Features

- Integrated Arm® Cortex®-R52 @ Max 800MHz, a tightly coupled memory (576KB) directly connected to CPU and Low Latency Peripheral port(LLPP) bus
- Integrated rich peripheral functions such as  $\Sigma\Delta$  I/F, A/D converter and multi-protocol encoder I/F
- Seamless H/W architecture with RZ/T2M, and scalable & compatible S/W platform such as FSP with Renesas MPU and MCU
- Integrated EtherCAT slave controller and supports ECC for all internal RAM
- Supports security functions such as secure boot, JTAG authentication and unique ID
- Can be used as safety MCU in the functional safety S/W solution

### Benefits

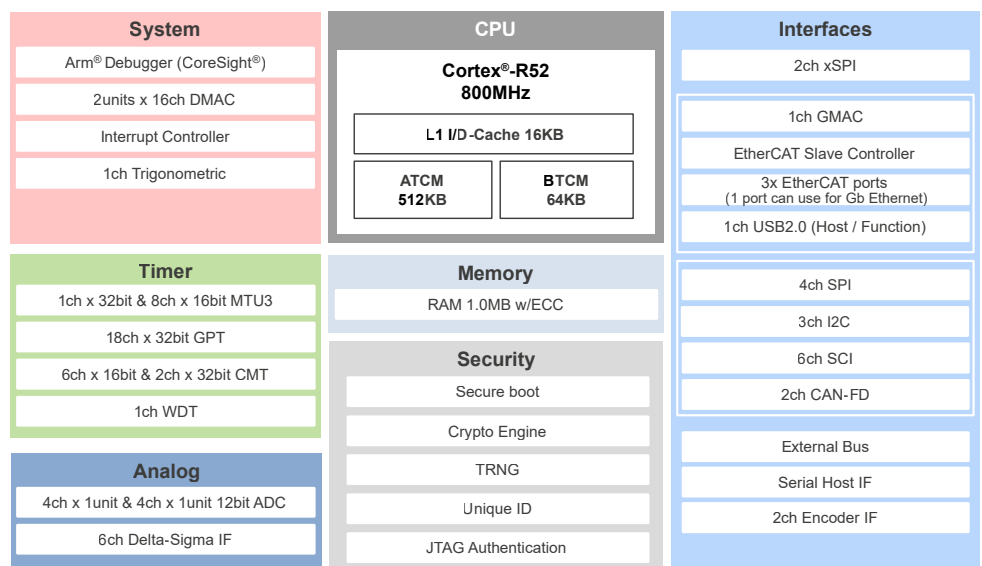
- High performance real-time control
- Motor control system on a single chip
- Easy to utilize customer's S/W assets for new model development
- Supports equipment such as factory automation requiring reliability and synchronization of communication
- Reduce customer's effort and cost for functional safety development

### Applications

- AC servo
- Inverter
- Industrial robot
- Medical equipment
- Wind turbine
- Elevator

### Block Diagram

- Arm Cortex-R52 800MHz
- Floating-Point Unit
- TCM 576KB (with ECC)
- RAM 1MB (with ECC)
- EtherCAT Slave controller
- Giga-bit Ether MAC
- Serial Host I/F
- xSPI
- CAN-FD
- PWM timer
- $\Sigma\Delta$  I/F
- ADC
- Trigonometric Function Unit

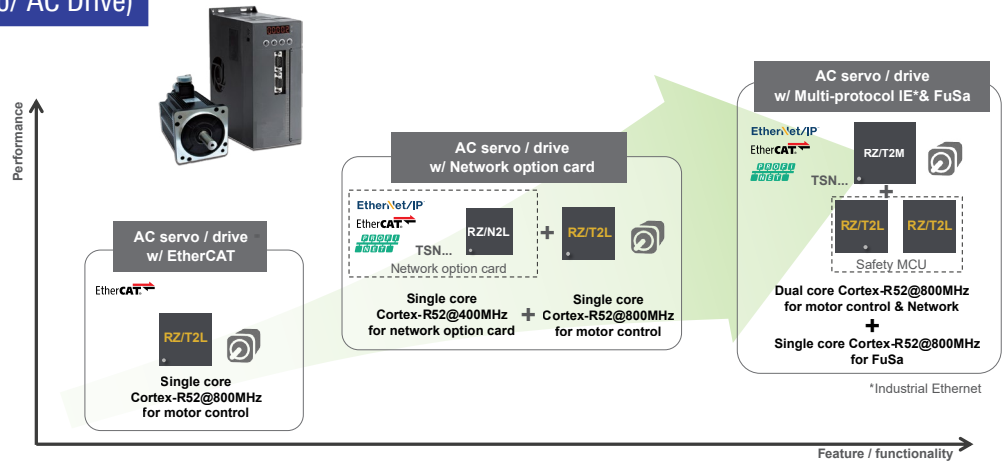


# RENESAS RZ/T2L GROUP

## Scalable System Solution (AC Servo/ AC Drive)

Users can select the MPU suitable for their products from Renesas' MPU lineup that is developed based on similar H/W architecture.

Also, users can use the compatible software platform between Renesas MPU and MCU to utilize existing S/W assets and easily scale their product development.



## Development Environment and Software

- Renesas e<sup>2</sup>studio + J-Link by Segger
- IAR Embedded Workbench for Arm + I-Jet ICE/ I-Jet Trace by IAR
- Renesas e<sup>2</sup>studio + TRACE32 PowerDebug & PowerTrace by Lauterbach
- Flexible Software Package (FSP)
  - Free RTOS, HAL driver
- Encoder library
- EtherCAT protocol
- Security software package



Renesas Starter Kit+ for RZ/T2L  
(P/N:RTK9RZT2L0S00000BJ)

## Product Information

Part Number	R9A07G074M08GBG	R9A07G074M05GBG	R9A07G074M04GBG	R9A07G074M01GBG
CPU	Cortex <sup>®</sup> -R52 (Max 800MHz)			
TCM Memory	ATCM 512KB (w/ECC) / BTCM 64KB (w/ECC)			
RAM	1.0MB (w/ECC)			
External bus	8,16 bit			
EtherCAT	Supported	Not Supported	Supported	Not Supported
GMAC	1ch			
Ether Port	3 ports			
CAN	CAN-FD	CAN	CAN-FD	CAN
Motor Control Peripherals	PWM Timer(MTU3, GPT), ADC, $\Sigma\Delta$ Interface, Trigonometric function unit			
Security	Supported	Supported	Not Supported	Not Supported
Power	1.1V,1.8V, 3.3V			
Operating Temperature	T <sub>j</sub> = -40 TO +125°C			
Package	FBGA			
Pin Count	196pin			
Package Information	12mm x 12mm, 0.8mm pitch			

Visit [renesas.com/rzt2l](https://www.renesas.com/rzt2l) to learn more about RZ/T2L

Visit [renesas.com/rzt2l-rsk](https://www.renesas.com/rzt2l-rsk) for more information about the evaluation kit of RZ/T2L

renesas.com

© 2023 Renesas Electronics Corporation. All rights reserved.

Corporate Headquarters  
TOYOSU FORESIA, 3-2-24 Toyosu, Koto-ku, Tokyo 135-0061, Japan  
[www.renesas.com](http://www.renesas.com)

Trademarks  
Arm<sup>®</sup> and Cortex<sup>®</sup> 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/](http://www.renesas.com/contact/)