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 ΣΔ 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

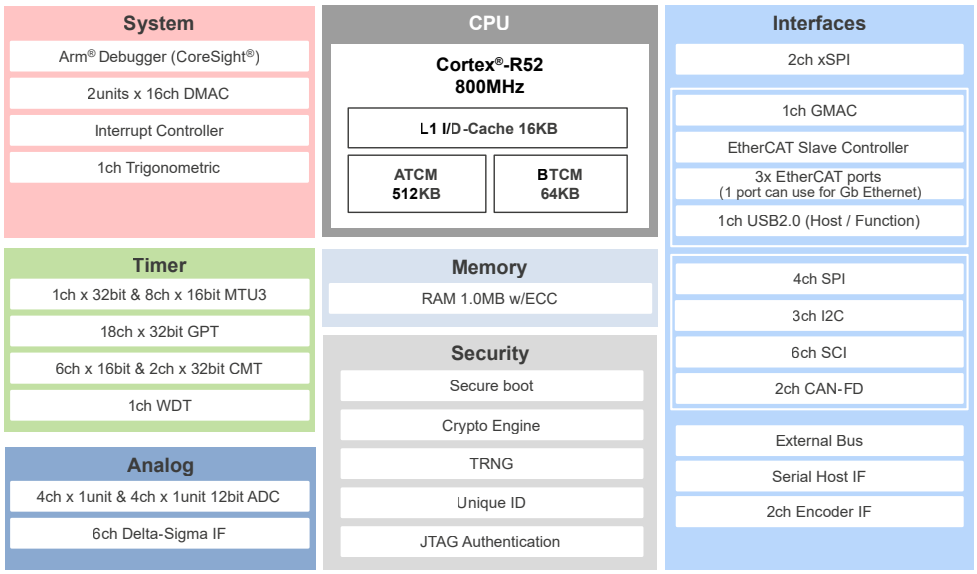
- High performance real-time control
- Motor control system on a single chip
- Easy to utilize customer's S/W assets for new model development
- Supports equipment such as factory automation requiring reliability and synchronization of communication
- Reduce customer's effort and cost for functional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



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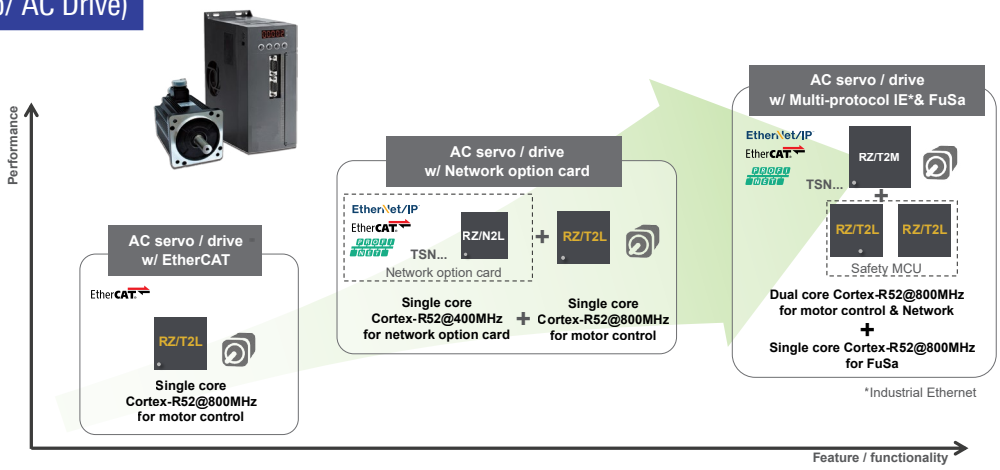
Scalable System Solution (AC Servo/ AC Drive)

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 e²studio + J-Link by Segger
- IAR Embedded Workbench for Arm + I-Jet ICE/ I-Jet Trace by IAR
- Renesas e²studio + 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®-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, ΣΔ Interface, Trigonometric function unit			
Security	Supported	Supported	Not Supported	Not Supported
Power	1.1V,1.8V, 3.3V			
Operating Temperature	Tj = -40 TO +125°C			
Package	FBGA			
Pin Count	196pin			
Package Information	12mm x 12mm, 0.8mm pitch			

Visit renesas.com/rzt2l to learn more about RZ/T2L

Visit renesas.com/rzt2l-rsk for more information about the evaluation kit of RZ/T2L

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