The RZ/T2M microprocessor (MPU) combines fast and highly precise real-time motor control capabilities, together with the latest Industrial Ethernet system architecture on a single chip, while supporting functional safety operation. The RZ/T2M provides all essential peripheral functions for motor control, enabling customers to reduce the number of external components reducing BOM costs and product size.

**Key Features**

- Perform high-speed and high-precision real time control by Cortex®-R52 CPU (Max 800MHz), implement large Tightly Coupled Memory(576KB) and Low Latency Peripheral Port bus.
- Support major Industrial Ethernet protocols including PROFINET IRT, and the next-generation network standard – TSN – with an embedded Ethernet switch.
- Support functional safety processing with one of the dual CPU and dedicated peripheral functions used together with Functional Safety Software.
- Support dual axes motor control using rich peripherals. (PWM, ΔΣ I/F, Encoder I/F, etc)

**Benefits**

- Reduce BOM cost of motor control system
- Control dual axes using one chip

**Applications**

- AC servo
- Industrial motor
- Inverter
- Motion controllers
- Robot
Block Diagram

Evaluation Environment and Software

- Renesas e2studio + J-Link by Segger
- IAR Embedded Workbench for Arm + I-Jet ICE/ I-Jet Trace by IAR
- Flexible Software Package (FSP)
- Encoder I/F library
- Industrial network protocols (sample code)
- RZ/T2M Renesas Starter Kit Plus (RSK+)

Evaluation Environment and Software

- CAN FD (2ch)
- SCI (6ch) w/FIFO
- DMA (16ch x 2unit)
- Encoder I/F (6ch)
- External BUS I/F
- 12bit A/D (6ch+16ch)
- Trigonometric

Product Information

Security

<table>
<thead>
<tr>
<th>CPU</th>
<th>Dual Cortex®-R52 (800+800MHz)</th>
<th>Single Cortex®-R52 (800MHz)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Package</td>
<td>BGA320 (17mmx17mm, 0.8mm pitch)</td>
<td>QFP176 (24mmx24mm, 0.5mm pitch)</td>
</tr>
<tr>
<td>TCM Memory</td>
<td>CPU0 : ATCM: 512KB wECC, BTCM: 64KB wECC</td>
<td>CPU0 : ATCM: 512KB wECC, BTCM: 64KB wECC</td>
</tr>
<tr>
<td>ΔΣ interface</td>
<td>3ch x 2 units</td>
<td>Max 3ports (Exclusive with Ethernet)</td>
</tr>
<tr>
<td>Encoder I/F Protocol</td>
<td>A-format™, BiSS-C, EnDat2.2, Tamagawa, HIPERFACE DSL®</td>
<td>None</td>
</tr>
<tr>
<td>Motor Control Peripherals</td>
<td>PWM Timer (MTU3, GPT), ΔΣ Interface, 12bit ADC, Encoder Interface, Trigonometric Accelerator</td>
<td>None</td>
</tr>
<tr>
<td>Ethernet Port</td>
<td>3ports(100/1000Mbps)</td>
<td>None</td>
</tr>
<tr>
<td>EtherCAT Port</td>
<td>Max 3ports (Exclusive with Ethernet)</td>
<td>None</td>
</tr>
<tr>
<td>CAN</td>
<td>CAN FD x2ch, Classic CAN x2ch</td>
<td>CAN FD x2ch, Classic CAN x2ch</td>
</tr>
<tr>
<td>Power Supply</td>
<td>1.1V, 1.8V, 3.3V</td>
<td></td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>Tj = -40 to +125°C</td>
<td></td>
</tr>
</tbody>
</table>

Non-Security

| Package    | BGA225 (13mmx13mm, 0.8mm pitch) | QFP128 (14mmx20mm, 0.5mm pitch) |
| TCM Memory | CPU1 : ATCM: none, BTCM: none | CPU1 : ATCM: 512KB wECC, BTCM: 64KB wECC |

More protocols will be supported in the future

Visit www.renesas.com/rzt2m to learn more about RZ/T2M
Visit www.renesas.com/rzt2m-rsk to learn more about RZ/T2M RSK+

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