### Key Features
- 48 MHz Arm® Cortex-M23 core
- Up to 64KB Flash and 16KB SRAM
- 2KB data flash memory (100,000 program / erase (P/E) cycles)
- 32-pin and 48-pin package options
- Wide voltage range of 1.6V to 5.5V
- 32-bit general PWM timers, 16-bit general PWM timer, low-power asynchronous general-purpose timers
- 12-bit A/D converter, temperature sensor
- SCI (UART, Simple SPI, Simple I2C), SPI, I2C bus
- Safety functions

### Target Applications
- General purpose systems
- IoT devices
- Industrial automation and sensors
- Consumer applications
- Home appliances
- Building automation
- Medical & Healthcare devices
- Wearable devices

### Block Diagram

<table>
<thead>
<tr>
<th>RA2E3</th>
<th>48MHz 32-Bit Arm® Cortex®-M23 Core</th>
<th>NVIC</th>
<th>SWD</th>
<th>MTB</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Memory</th>
<th>Time</th>
<th>Analogue</th>
<th>HMI</th>
<th>Security</th>
<th>Package</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code Flash</td>
<td>12-bit ADC (13ch)</td>
<td>Code Flash</td>
<td>48MHz Arm® Cortex®-M23</td>
<td>128 bit Unique ID</td>
<td>LQFP 32, 48</td>
</tr>
<tr>
<td>SRAM (16KB)</td>
<td>Temperature Sensor</td>
<td>SRAM Parity</td>
<td>32KB to 64KB Code Flash, 32, 48pin, 5V</td>
<td>POE</td>
<td>QFN 32, 48</td>
</tr>
<tr>
<td>Data Flash (2KB)</td>
<td></td>
<td>Data Flash</td>
<td>Pin-to Pin and peripheral compatibility with RA2E1 group</td>
<td>Clock Frequency Accuracy Measurement</td>
<td></td>
</tr>
</tbody>
</table>

### 48 MHz Arm® Cortex®-M23 Entry Level Ultra-Low Power General-Purpose Microcontroller

The RA2E3 group is an entry line single-chip microcontroller in the RA family based on the 48 MHz Arm Cortex-M23 core with up to 64KB code flash and 16KB SRAM memory.

RA2E3 MCUs provide an optimized feature set for cost-sensitive applications by supporting pin-to-pin and peripheral compatibility with RA2E1 MCUs. Ultra-low power consumption contributes to energy-efficient system design required for IoT applications and battery-operated systems to achieve longer battery life.

### RA8
- 240MHz

### RA6
- 240MHz

### RA4
- 100MHz

### RA2
- 60MHz

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Software Package

The Renesas Flexible Software Package (FSP) is designed to provide easy-to-use, scalable, high-quality software for embedded systems 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 e² studio IDE provides support with intuitive configurators and intelligent code generation to make programming and debugging easier and faster.

Evaluation Kits

- **RA2E3 Fast Prototyping Board** is an evaluation board specialized for prototype development for a variety of applications
- Onboard debugging using SEGGER-J-Link®
- Order the kit and download documentation, design package, development tools and software at: renesas.com/fpb-ra2e3
- Orderable part number: RTK7FPA2E3S00001BE

Ordering References

<table>
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<tr>
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<tr>
<td>64KB/16KB</td>
<td>-40 to 105 °C</td>
<td>R7FA2E3073CNH</td>
<td>R7FA2E3073CFJ</td>
<td>R7FA2E3073CNE</td>
<td>R7FA2E3073CFL</td>
<td>R7FA2E3073DNH</td>
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For more details, please visit: renesas.com/ra2e3