

# RA8M1 Group

## Handbook for RA8M1

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### Introduction

This document compiles useful information for each stage of device selection, development, and Mass production.

Please utilize this information, materials and application notes as a handbook when developing.

### Target Device

RA8M1 Group

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1. The table of information and materials needed for Device Selection, Development and Mass production.

### 1.1 Step1: Device Selection

This section summarizes the information that is useful for the preliminary survey phase (Step1-1) and for the evaluation phase of device performance and features (Step1-2) when selecting the device.

#### 1.1.1 Step1-1: Preliminary survey phase

| #  | Item                                           | Content                                                                         | Link                     |
|----|------------------------------------------------|---------------------------------------------------------------------------------|--------------------------|
| 1  | <b>Hardware information</b>                    | Datasheet                                                                       | <a href="#">Doc</a>      |
| 2  |                                                | RA Family Flyer                                                                 | <a href="#">Doc</a>      |
| 3  |                                                | RA Family Brochure                                                              | <a href="#">Doc</a>      |
| 4  | <b>Products &amp; Solutions</b>                | Video                                                                           | <a href="#">Web site</a> |
| 5  |                                                | Blog                                                                            | <a href="#">Web site</a> |
| 6  |                                                | Reference designs<br>(Winning combination)                                      | <a href="#">Web site</a> |
| 7  |                                                | Renesas academy                                                                 | <a href="#">Web site</a> |
| 8  | <b>Product longevity<br/>program<br/>(PLP)</b> | Overview of product longevity program (PLP)                                     | <a href="#">Web site</a> |
| 9  |                                                | Product selection (product selector)<br>Note: Refer to PLP column in the chart. | <a href="#">Web site</a> |
| 10 | <b>Product Specification<br/>Comparison</b>    | RA Family Product Selector                                                      | <a href="#">Web site</a> |
| 11 |                                                | Industrial Networks Brochure                                                    | <a href="#">Doc</a>      |
| 12 |                                                | White Paper: Solving IoT Security Issues with<br>Embedded Microcontrollers      | <a href="#">Doc</a>      |
| 13 |                                                | White Paper: Securing your IP and Protecting<br>Sensitive Data                  | <a href="#">Doc</a>      |
| 14 |                                                | White Paper: Security for the Connected World                                   | <a href="#">Doc</a>      |

## 1.1.2 Step1-2: Evaluation phase of device performance and features

| #                                      | Item                                      | Content                                                                          | Link                     |
|----------------------------------------|-------------------------------------------|----------------------------------------------------------------------------------|--------------------------|
| User's Manual / Documentation          |                                           |                                                                                  |                          |
| 1                                      | Document                                  | User's manual: Hardware                                                          | <a href="#">Doc</a>      |
| 2                                      |                                           | Technical update (errata information)                                            | <a href="#">Web site</a> |
| 3                                      |                                           | Product change notice (PCN)                                                      | <a href="#">Web site</a> |
| 4                                      |                                           | RA Family NOMENCLATURE<br>(the meaning of character in part number)              | <a href="#">Doc</a>      |
| 5                                      |                                           | Semiconductor reliability handbook                                               | <a href="#">Doc</a>      |
| 6                                      |                                           | RELIABILITY REPORT                                                               | <a href="#">Doc</a>      |
| 7                                      |                                           | RoHS<br>Product Options → Part Number →Environmental &<br>Export Classifications | <a href="#">Web site</a> |
| Evaluation board                       |                                           |                                                                                  |                          |
| 8                                      | Evaluation board (for<br>general purpose) | Evaluation Kit (EK)                                                              | <a href="#">Web site</a> |
| 9                                      | Solution<br>board Reference<br>design     | TW001-VUIA4E1POCZ                                                                | <a href="#">Web site</a> |
| Evaluation environment (set up method) |                                           |                                                                                  |                          |
| 10                                     | Setup method                              | RA family beginner's guide                                                       | <a href="#">Doc</a>      |
| 11                                     | Software tool                             | RA Family Development Environment - RA Flexible<br>Software Package (FSP)        | <a href="#">Web site</a> |
| 12                                     |                                           | Migrating Projects to New FSP Version                                            | <a href="#">Doc</a>      |
| 13                                     |                                           | EK - Quick Start Guide                                                           | <a href="#">Doc</a>      |
| 14                                     |                                           | EK Example Project Bundle                                                        | <a href="#">Doc</a>      |
| 15                                     |                                           | RA smart configurator user's guide (tools for code<br>generation)                | <a href="#">Web site</a> |
| Solution                               |                                           |                                                                                  |                          |
| 16                                     | Security                                  | IoT Security                                                                     | <a href="#">Web site</a> |
| 17                                     |                                           | Security key management tool manual                                              | <a href="#">Web site</a> |
| 18                                     |                                           | Flexible Software Package (FSP)                                                  | <a href="#">Web site</a> |
| 19                                     | Functional safety                         | Functional safety solutions for Industrial automation                            | <a href="#">Web site</a> |
| 20                                     |                                           | Functional safety solution for industrial automation                             | <a href="#">Doc</a>      |
| 21                                     |                                           | Introduction to Renesas functional safety for industrial<br>appliance(video)     | <a href="#">Web site</a> |
| 22                                     | Artificial Intelligence<br>(AI)           | AI solutions                                                                     | <a href="#">Web site</a> |
| Training                               |                                           |                                                                                  |                          |
| 23                                     | Training information                      | RA Family Video Library                                                          | <a href="#">Web site</a> |
| 24                                     |                                           | Software & Tool Course solution menu                                             | <a href="#">Web site</a> |
| 25                                     |                                           | RA Family Software&Tool Course(Video Collection)                                 | <a href="#">Web site</a> |
| Partner                                |                                           |                                                                                  |                          |
| 26                                     | Partner information                       | Partner products (system solutions provider)                                     | <a href="#">Web site</a> |
| 27                                     |                                           | RA Family Partner Ecosystem                                                      | <a href="#">Web site</a> |

## 1.2 Step2: Product Design, Development

This section summarizes useful information for product design and development.

| #  | Item                           | Content                                                                                                                                                                       | Link                     |
|----|--------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|
| 1  | <b>Board Design</b>            | Quick design guide                                                                                                                                                            | <a href="#">Doc</a>      |
| 2  |                                | Design Package of the Evaluation Kit, EK *                                                                                                                                    | <a href="#">Zip</a>      |
| 3  |                                | CAD Model<br>Note: When you click the link in the CAD model column in the "Product Options" table on the product page, the CAD model information for each part# is displayed. | <a href="#">Web site</a> |
| 4  |                                | board simulation model (IBIS)                                                                                                                                                 | <a href="#">Web site</a> |
| 5  |                                | Design guide for main clock circuit and Sub-Clock circuit                                                                                                                     | <a href="#">Doc</a>      |
| 6  |                                | Notes regarding high-temperature operation                                                                                                                                    | <a href="#">Doc</a>      |
| 7  |                                | Guidelines for full-speed USB2.0 board design                                                                                                                                 | <a href="#">Doc</a>      |
| 8  |                                | Ethernet hardware design guide                                                                                                                                                | <a href="#">Doc</a>      |
| 9  |                                | Board design guideline for BGA products                                                                                                                                       | <a href="#">Doc</a>      |
| 10 |                                | Package information (package outline information, mount manual, etc.)                                                                                                         | <a href="#">Web site</a> |
| 11 | <b>Software Design</b>         | RA Flexible Software Package Documentation (Git Hub)                                                                                                                          | <a href="#">Web site</a> |
| 12 |                                | Flash Memory Programming                                                                                                                                                      | <a href="#">Doc</a>      |
| 13 | <b>Development environment</b> | Software and Tools                                                                                                                                                            | <a href="#">Web site</a> |
| 14 |                                | How to videos - RA Family Software & Tool Course                                                                                                                              | <a href="#">Web site</a> |
| 15 |                                | Supplemental user's manual for E1/E20/E2 Lite/E2 emulator                                                                                                                     | <a href="#">Doc</a>      |

\* It requires My Renesas account to access the content.

## 1.3 Step3: Mass Production

| # | Item                                   | Content                                          | Link                     |
|---|----------------------------------------|--------------------------------------------------|--------------------------|
| 1 | <b>Writing a program(Programmer)</b>   | PG-FP6                                           | <a href="#">Web site</a> |
| 2 | <b>Writing a program(Writing tool)</b> | Renesas flash programmer (GUI tool for PC)       | <a href="#">Web site</a> |
| 3 | <b>Inspection(Application notes)</b>   | Boundary Scan Description Language (BSDL) file * | <a href="#">Web site</a> |

## Supportive information

Get help from our technical staff and community.

| # |                                  | Link                     |
|---|----------------------------------|--------------------------|
| 1 | FAQ (frequently asked inquiries) | <a href="#">Web site</a> |
| 2 | RA forum (community)             | <a href="#">Web site</a> |
| 3 | RA Online Training Modules       | <a href="#">Web site</a> |
| 4 | Technical support                | <a href="#">Web site</a> |

## Revision History

| Rev. | Date      | Description |                      |
|------|-----------|-------------|----------------------|
|      |           | Page        | Summary              |
| 1.00 | Sep. 2025 | -           | First edition issued |
|      |           |             |                      |
|      |           |             |                      |

For the most up-to-date information, please also refer to the product pages on our website (<https://www.renesas.com/en>). We appreciate your understanding.