
RA8E1 Group

Handbook for RA8E1

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

RA8E1 Group

Contents

| | |
|---|---|
| 1. The table of information and materials needed for Device Selection, Development and Mass production..... | 2 |
| 1.1 Step1: Device Selection | 2 |
| 1.1.1 Step1-1: Preliminary survey phase | 2 |
| 1.1.2 Step1-2: Evaluation phase of device performance and features | 3 |
| 1.2 Step2: Product Design, Development | 4 |
| 1.3 Step3: Mass Production | 4 |
| Supportive information..... | 5 |

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

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

1.2 Step2: Product Design, Development

This section summarizes useful information for product design and development.

| # | Item | Content | Link |
|----|--------------------------------|---|--------------------------|
| 1 | Board Design | Quick design guide | Doc |
| 2 | | Design Package of the Fast Prototyping Board, FPB * | Zip |
| 3 | | CAD Model 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. | Web site |
| 4 | | board simulation model (IBIS) | Web site |
| 5 | | Design guide for main clock circuit and Sub-Clock circuit | Doc |
| 6 | | Guidelines for full-speed USB2.0 board design | Doc |
| 7 | | Ethernet hardware design guide | Doc |
| 8 | | Package information (package outline information, mount manual, etc.) | Web site |
| 9 | Software Design | RA Flexible Software Package Documentation (Git Hub) | Web site |
| 10 | Development environment | Software and Tools | Web site |
| 11 | | How to videos - RA Family Software & Tool Course | Web site |
| 12 | | Supplemental user's manual for E2 /E2 Lite emulator | Doc |

* It requires My Renesas account to access the content.

1.3 Step3: Mass Production

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

* It requires My Renesas account to access the content.

Supportive information

Get help from our technical staff and community.

| # | | Link |
|---|----------------------------------|--------------------------|
| 1 | FAQ (frequently asked inquiries) | Web site |
| 2 | RA forum (community) | Web site |
| 3 | RA Online Training Modules | Web site |
| 4 | Technical support | Web site |

Revision History

| Rev. | Date | Description | |
|------|-----------|-------------|----------------------|
| | | Page | Summary |
| 1.00 | Sep. 2025 | - | First edition issued |
| 1.01 | Jan. 2026 | 4 | Corrected typos |
| | | | |

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.