

RA4M1 Group

Handbook for RA4M1

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

RA4M1 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	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	Product longevity program (PLP)	Renesas academy	Web site
8		Overview of product longevity program (PLP)	Web site
9		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		Capacitive Touch Sensor Solution Brochure	Doc
12		White Paper: Solving IoT Security Issues with Embedded Microcontrollers	Doc
13		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 board			
8	Evaluation board (for general purpose)	Evaluation Kit (EK)	Web site
9		RA4M1 Clicker	Web site
10		Arduino UNO R4 32-bit MCU Prototyping Board	Web site
11		Seeed Studio XIAO RA4M1	Web site
12	Solution board Reference design	US110-420RECEVZ Standard 4-20mA Loop - Industrial Receiver Development Kit	Web site
Evaluation environment (set up method)			
13	Setup method	RA family beginner's guide	Doc
14	Software tool	RA Family Development Environment - RA Flexible Software Package (FSP)	Web site
15		Migrating Projects to New FSP Version	Doc
16		EK - Quick Start Guide	Doc
17		EK Example Project Bundle	Doc
18		RA smart configurator user's guide (tools for code generation)	Web site
Solution			
19	Security	IoT Security	Web site
20		Security key management tool manual	Web site
21		Flexible Software Package (FSP)	Web site
22	Capacitive touch	Capacitive touch sensor solution	Doc
23		First step guide (CTSU capacitive touch introduction guide)	Doc
24	Functional safety	Functional safety solutions for Industrial automation	Web site
25		Functional safety solution for home appliances	Web site
26		Functional safety solution for industrial automation	Doc
27		Introduction to Renesas functional safety for industrial appliance(video)	Web site
28		Introduction to Renesas functional safety for home appliance (video)	Web site
29	Artificial Intelligence (AI)	AI solutions	Web site
Training			
30	Training information	RA Family Video Library	Web site
31		Software & Tool Course solution menu	Web site
32		RA Family Software&Tool Course(Video Collection)	Web site
Partner			
33	Partner information	Partner products (system solutions provider)	Web site
34		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 Evaluation Kit, EK *	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		Notes regarding high-temperature operation	Doc
7		Guidelines for full-speed USB2.0 board design	Doc
8		QFN Mounting Manual	Doc
9		Package information (package outline information, mount manual, etc.)	Web site
10		The electrode design guide for capacitive touch (CSTU)	Doc
11		Capacitive touch noise immunity guide	Doc
12	Software Design	RA Flexible Software Package Documentation (Git Hub)	Web site
13		Flash Memory Programming	Doc
14	Development environment	Software and Tools	Web site
15		How to videos - RA Family Software & Tool Course	Web site
16		Supplemental user's manual for E1/E20/E2 Lite/E2 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

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

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.