Handbook for RX651, RX65N

The information/materials required at the time of product development summarized and listed for each development phase.

Please use it as a handbook when developing.

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Step1: MCU selection

	Item	Content	Link
1	Hardware information	Datasheet	Doc
2	Products & Solutions	Video	651: Web site
			65N: Web site
3		Blog	651: Web site
			65N: Web site
4		Reference designs	651: Web site
		(Winning combination)	65N: Web site
5	Product longevity program	Overview of product longevity program (PLP)	Web site
6	(PLP)	Product selection (product selector)	651: Web site
		Note: Refer to PLP column in the chart.	65N: Web site
7	Replacement information	Differences of specification among RX products	Doc
8		[SH/H8/H8S/H8SX/M16C/V850] → RX microcontroller migration guide	Doc
9		Design guide for migration between RX family differences in package external form	Doc
10		Differences between the products bigger than 1MB code flash ROM and the others	Doc

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Step2: Designing and evaluating

	Item	Content	Link
Common			
1	Hardware information	User's manual: Hardware	Doc
2		RX family hardware manual guidance (how to read user's manual: hardware)	Doc
3		Technical update (errata information) *Select “Technical Update” from the options to the left of the Documentation section.	651: Web site 65N: Web site
4		Product change notice (PCN) *Select “Product change notice” from the options to the left of the Documentation section.	651: Web site 65N: Web site
5		Part number guide for RX family product (the meaning of character in part number)	RX651: Doc RX65N: Doc
6		Semiconductor reliability handbook	Doc
7		RELIABILITY REPORT	RX651: Doc RX65N: Doc
8		RoHS Product Options → Part Number → Package information → RoHS Info	651: Web site 65N: Web site
9	Software information	Instruction set for RXv2 core architecture (user’s manual)	Doc
10	Evaluation board (for general purpose)	Renesas starter kit+ (all functions could be evaluated)	Web site
11		Target board (low-cost model)	Web site
12	Solution board	CK-RX65N (for cloud evaluation)	Web site
13		Envision kit (for graphics evaluation)	Web site
14		Industrial automation functional safety reference board	Web site
15	Partner information	Partner products (system solutions provider)	Web site
16		Partner products (trusted technology partners that deliver commercial-grade building blocks)	Web site
Hardware design			
1	Design information	Hardware design guide	Web site
2		Design guide for main clock circuit and Sub-Clock circuit	Doc
3		Notes regarding high-temperature operation	Doc
4		Guidelines for full-speed USB2.0 board design	Doc
5		Ethernet Hardware Design Guide	65N: Doc

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Item			Content	Link
Hardware design				
6	Board simulates		ECAD, board simulation model (IBIS) Note: ECAD can be found by clicking on the respective part number of the product options.	651: Web site 65N: Web site
7	Other		Resonator and matching circuit information	651: Web site 65N: Web site
8			Package information (package outline information, mount manual, etc.)	Web site
9	Development environment		Supplemental user's manual for E1/E20/E2 Lite/E2 emulator	Doc
Software design				
1	Software information		Getting started with the RX family development environment	Web site
2			Development tools for RX family	Web site
3			Software environment (OS, middleware, drivers)	Web site
4			RX smart configurator user's guide (tools for code generation)	Doc
5	Training information		Smart configurator tutorial - create a LED blinking program using RX family MCU	Web site
6			How to use tools and solutions (video clips)	Web site
7	System design		Examples of transitioning to low power consumption modes	Doc Sample
Solution				
1	Cloud	Portal page	RX cloud connectivity solution	Web site
2		Application notes	AWS cloud connectivity on CK-RX65N v2 with Wi-Fi DA16600 – getting started guide	Doc Sample
3			Getting start guide (GitHub)	Web site
4			RX Family How to implement FreeRTOS OTA using Amazon Web Services in RX65N (for v202210.01-LTS-rx-1.1.0 or later)	Doc
5			RX Family Porting Guide for RYZ014A Cellular Module Control Module Using Firmware Integration Technology	Doc
6			Azure RTOS sample projects using e2 studio or IAR EW	Doc
7			SIM activation, Creating the trial account and using dashboard with RYZ014A or ethernet application for AWS - Getting started guide	Doc Sample

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Item			Content	Link
Solution				
8	Security	Portal page	RX Family TSIP Security Solutions	Web site
9		Support tools for secure functions	Security key management tool manual	Web site
10		Hardware Security IP Driver	TSIP (Trusted Secure IP) driver (binary version)	Doc
				Sample
11		Other information	Video	Web site
12	GUI	Portal page	Graphical user interface (GUI) solutions	Web site
13		Support information	RX family LCD-related FAQ list	Web site
14		Application notes	GUI development sample using QE for display [RX]	Doc
				Sample
15			QE for display [RX] user's manual	Doc
				Sample
16			WVGA display sample program using GLCDC	Doc
				Sample
17			WQVGA display sample program using GLCDC	Doc
				Sample
18			How to use emWin on the firmware integration technology	Doc
				Sample
19	Functional safety	Portal page	Functional safety solutions for industry	Web site
20			Functional safety solution for home appliances	Web site
21		Other information	Functional safety solution for industrial automation	Doc
22			Introduction to Renesas functional safety for industrial appliance(video)	Web site
23			Introduction to Renesas functional safety for home appliance (video)	Web site
24	Voice recognition	Portal page	Voice recognition solutions	Web site
25		Application notes	Voice recognition demo board using RX651	Doc
Support				
1	Support information		FAQ (frequently asked inquiries)	Website
2			RX forum (community)	Website
3			Ask technical/sales support (support tickets)	Website

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Step3: Mass production

Item			Content	Link
1	Writing a program	Programmer	PG-FP6	Web site
2		Writing tool	Renesas flash programmer (GUI tool for PC)	Web site
3	Firmware update	Application notes	Renesas MCU firmware update design policy	Doc
4			Firmware update module using firmware integration technology	Doc
				Sample
5			How to manage the access control for flash memory	Doc
6	Inspection	Design information	Boundary scan description language (BSDL) file	651: Web site
				65N: Web site

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