

## RX651, RX65N handbook for engineers

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

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

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## Step2: Designing and evaluating

Item		Content	Link
<b>Common</b>			
1	Hardware information	User's manual: Hardware	<a href="#">Doc</a>
2		RX family hardware manual guidance (how to read user's manual: hardware)	<a href="#">Doc</a>
3		Technical update (errata information)	<a href="#">651: Web site</a> <a href="#">65N: Web site</a>
4		Product change notice (PCN)	<a href="#">651: Web site</a> <a href="#">65N: Web site</a>
5		Part number guide for RX family product (the meaning of character in part number)	<a href="#">Doc</a>
6		Semiconductor reliability handbook	<a href="#">Doc</a>
7		RELIABILITY REPORT	<a href="#">Doc</a>
8		RoHS Product Options → Part Number → Package information → RoHS Info	<a href="#">Web site</a>
9	Software information	Instruction set for RXv2 core architecture (user's manual)	<a href="#">Doc</a>
10	Evaluation board (for general purpose)	Renesas starter kit + for RX65N-2MB (all functions could be evaluated)	<a href="#">Web site</a>
11		Target board for RX65N (low-cost model)	<a href="#">Web site</a>
12	Solution board	CK-RX65N (for cloud evaluation)	<a href="#">Web site</a>
13		RX65N envision kit (for graphics evaluation)	<a href="#">Web site</a>
14	Partner information	Partner products (system solutions provider)	<a href="#">Web site</a>
15		Partner products (trusted technology partners that deliver commercial-grade building blocks)	<a href="#">Web site</a>
<b>Hardware design</b>			
1	Design information	Hardware design guide	<a href="#">Web site</a>
2		Design guide for main clock circuit and Sub-Clock circuit	<a href="#">Doc</a>
3		Notes regarding high-temperature operation	<a href="#">Doc</a>
4		Guidelines for full-speed USB2.0 board design	<a href="#">Doc</a>
5		Ethernet Hardware Design Guide	<a href="#">65N: Doc</a>
6	Board simulates	ECAD, board simulation model (IBIS) Note: ECAD can be found by clicking on the respective part number of the product options.▶	<a href="#">651: Web site</a> <a href="#">65N: Web site</a>
7	Other	Resonator and matching circuit information	<a href="#">651: Web site</a> <a href="#">65N: Web site</a>

Item		Content	Link	
<b>Hardware design</b>				
8	Other	Package information (package outline information, mount manual, etc.)	<a href="#">Web site</a>	
9	Development environment	Supplemental user's manual for E1/E20/E2 Lite/E2 emulator	<a href="#">Doc</a>	
<b>Software design</b>				
1	Software information	Getting started with the RX family development environment	<a href="#">Web site</a>	
2		Development tools for RX family	<a href="#">Web site</a>	
3		Software environment (OS, middleware, drivers)	<a href="#">Web site</a>	
4		RX smart configurator user's guide (tools for code generation)	<a href="#">Doc</a>	
5	Training information	Smart configurator tutorial - create a LED blinking program using RX family MCU	<a href="#">Web site</a>	
6		How to use tools and solutions (video clips)	<a href="#">Web site</a>	
7	System design	Examples of transitioning to low power consumption modes	<a href="#">Doc</a>   <a href="#">Sample</a>	
<b>Solution</b>				
1	Cloud	Portal page	RX cloud connectivity solution	<a href="#">Web site</a>
2		Application notes	How to create Azure ADU environment	<a href="#">Doc</a>
3			AzureRTOS sample projects using e2 studio or IAR EW	<a href="#">Doc</a>
4			RX Family how to implement FreeRTOS OTA using Amazon Web Services in RX65N (for v202210.01-LTS-rx-1.1.0 or later)	<a href="#">Doc</a>
5			SIM activation, Creating the trial account and using dashboard with RYZ014A or ethernet application for AWS - Getting started guide	<a href="#">Sample</a>
6			AWS cloud connectivity on CK-RX65N v2 with Wi-Fi DA16600 – getting started guide	<a href="#">Sample</a>
7			External sites	Getting start guide (GitHub)
8	GUI	Portal page	Graphical user interface (GUI) solutions	<a href="#">Web site</a>
9		Support information	RX family LCD-related FAQ list	<a href="#">Web site</a>
10		Application notes	GUI development sample using QE for display [RX]	<a href="#">Doc</a>   <a href="#">Sample</a>
11			QE for display [RX] user's manual	<a href="#">Doc</a>   <a href="#">Sample</a>
12			WVGA display sample program using GLCDC	<a href="#">Doc</a>   <a href="#">Sample</a>

Item		Content		Link
<b>Solution</b>				
13	GUI	Application notes	WQVGA display sample program using GLCDC	<a href="#">Doc</a>   <a href="#">Sample</a>
14			How to use emWin on the firmware integration technology	<a href="#">Doc</a>   <a href="#">Sample</a>
15	Security	Portal page	RX security solutions	<a href="#">Web site</a>
16		Manual	Security key management tool manual	<a href="#">Doc</a>
17		Application notes	TSIP (Trusted Secure IP) driver (binary version)	<a href="#">Doc</a>   <a href="#">Sample</a>
18			How to use AES cryptography with Trusted Secure IP(TSIP)	<a href="#">Doc</a>
19	Other information	Video	<a href="#">Web site</a>	
20	Voice recognition	Portal page	Voice recognition solutions	<a href="#">Web site</a>
21		Application notes	Voice recognition demo board using RX651	<a href="#">Doc</a>
22	Functional safety	Portal page	IEC61508 functional safety solutions for industry	<a href="#">Web site</a>
23		Other information	Functional safety solution for industrial automation	<a href="#">Doc</a>
24			Introduction to Renesas functional safety (video)	<a href="#">Web site</a>
<b>Support</b>				
1	Support information		FAQ (frequently asked inquiries)	<a href="#">Web site</a>
2			RX forum (community)	<a href="#">Web site</a>
3			Ask to technical support Note: Please click login in the upper right corner	<a href="#">Web site</a>

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### Step3: Mass production

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

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