

RX66T 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.

Table of contents:

[Step1: MCU selection](#)

[Step2: Designing and evaluating](#)


[Step3: Mass production](#)

Step1: MCU selection

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

[Go to Top](#)

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)	Web site	
4		Product change notice (PCN)	Web site	
5		Part number guide for RX family product (the meaning of character in part number)	Doc	
6		Semiconductor reliability handbook	Doc	
7		RELIABILITY REPORT	Doc	
8		RoHS Product Options → Part Number → Package information → RoHS Info	Web site	
9	Software information	Instruction set for RXv3 core architecture (user's manual)	Doc	
10	Evaluation board (for general purpose)	Renesas starter kit for RX66T (all functions could be evaluated)	Web site	
11	Solution board	Solution kit for PROFINET	Web site	
12		Industrial automation functional safety reference board	Web site	
13	Solution board	Inverter board	Evaluation system for BLDC motor	Web site
14		CPU card	CPU card for motor control	Web site
15			User's manual	Doc
16	Partner information	Partner products (system solutions provider)	Web site	
17		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	Board simulates	ECAD, board simulation model (IBIS) Note: ECAD can be found by clicking on the respective part number of the product options. 	Web site	
6	Other	Resonator and matching circuit information	Web site	
7		Package information (package outline information, mount manual, etc.)	Web site	

	Item		Content	Link
Hardware design				
8	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	Motor and inverter control	Portal page	Motor and inverter control solutions	Web site
2		Application notes	Vector control for permanent magnet synchronous motor with encoder (algorithm)	Doc
3			Sensorless vector control for permanent magnet synchronous motor (algorithm)	Doc
4			Vector control for permanent magnet synchronous motor with encoder for evaluation system for BLDC motor	Doc Sample
5			Sensorless vector control of a permanent magnet synchronous motor for the evaluation system for BLDC motor	Doc Sample
6			Vector control for permanent magnet synchronous motor with encoder (implementation) (control over three motors) for evaluation system for BLDC motor	Doc Sample
7			Sensorless vector control for permanent magnet synchronous motor (implementation) (control over four motors) for evaluation system for BLDC motor	Doc Sample

Item		Content		Link		
Solution						
8	Motor and inverter control	Application notes	Vector control for permanent magnet synchronous motor with magnet sensor and inductive sensor (for evaluation system for BLDC motor, structure update version)	Doc Sample		
9			Vector control of Three-Phase induction motor used in driving a fan	Doc Sample		
10			Vector control of Three-Phase induction motor used in driving a pump	Doc Sample		
11			Power supply control of a Three-Level inverter by using SiC power elements	Doc		
12			Sensorless vector control for IPMSM over the whole speed range	Doc Sample		
13			Digital power conversion (totem pole interleaved PFC)	Doc Sample		
14			Digital power conversion (uninterruptible power system (UPS))	Doc Sample		
15			Digital power conversion (uninterruptible power system (LLC))	Doc Sample		
16			Tool	Renesas motor workbench	Web site	
17			Other information	Position control of 3 motors with a single MCU (video)	Web site	
18			Security	Portal page	RX security solutions	Web site
19				Manual	Security key management tool manual	Doc
20				Application notes	TSIP (Trusted Secure IP) driver (binary version)	Doc Sample
21					How to use AES cryptography with Trusted Secure IP(TSIP)	Doc
22				Other information	Video	Web site
23	GUI	Portal page	Graphical user interface (GUI) solutions	Web site		
24		Support information	RX family LCD-related FAQ list	Web site		
25		Application notes	QE for display GUI display application development guide using serial connection LCD	Doc		
26			GUI sample program using serial LCD and emWin library	Doc Sample		
27		Module for image rendering (emWin)	Doc Sample			
28	Functional safety	Portal page	IEC61508 functional safety solutions for industry	Web site		
29		Other information	Functional safety solution for industrial automation	Doc		
30			Introduction to Renesas functional safety (Video)	Web site		

Item		Content	Link
Support			
1	Support information	FAQ (frequently asked inquiries)	Web site
2		RX forum (community)	Web site
3		Ask to technical support Note: Please click login in the upper right corner	Web site

[Go to Top](#)

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 Not available

[Go to Top](#)