Software to maximize the performance of the RX Family

RX Family Software

https://www.renesas.com/rx-software

Introduction to RX Family Development Environments - Software

Available software packages include board-specific programs, peripheral drivers, middleware, and documents illustrating usage procedures to enable customers to get started with development work right away. Numerous sample code and documents are also available, illustrating application examples that make use of these packages as well as examples of device control.

RX Family Middleware and Driver Package (RX Driver Package)

The RX diver package (RDP) is a software package for application functions such as initializing MCUs and enabling the use of peripheral functions. This package allows you to easily use the peripheral functions of RX MCUs and shorten periods for the development of your systems. Each software module employs application program interfaces (APIs) based on the Firmware Integration Technology (FIT) that are common to all RX family devices, and can reduce costs as you expand your product development.

Software Packages

Connectivity
Ethernet, BLE(RX23W)
Wi-Fi (DA16xxx)
BLE(DA14531),Cellular
USB (CDC,MSC,HID)

Sensor
HS300x, HS400x,
FS3000,ZMOD4410,
ZMOD4510,ZMOD4450,
RRH46410

OTA
F/W Update
Secure Boot

Security
AES,SHA,TRNG,
ECC,RSA

Storage
EEPROM, SDHI,
FAT File System

Capacitive Touch
Button/wheel/slider,
self-capacitance,
mutual-capacitance

Graphics
Segger emWin
CRI Aeropoint
Embedded Wizard
LVGL

Reality AI
Signal Classification AI
Anomaly Detection AI

Device Drivers

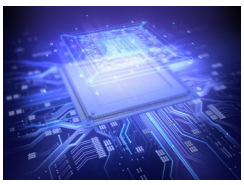
LVD	LPC	VBATT	IRQ	DTC	DMAC	ELC	GPIO	MPC
CMT	CMTW	RTC	LPT	MTU	GPT	TPU	TMR	PPG
POE	POEG	IWDT	WDT	SCI	SCIF	RIIC	RIICHS	RI3C
RSPI	QSPI	QSPIX	USB	EPTPC	ETHERC	ETHERC Light	EtherCAT	IrDA
PDC	CAN	CANFD	RSCAN	SDHI	SDSI	MMCIF	SRC	SSI
S12AD	24-ΔΣAD	DAC	DSMIF	AFE	TSIP/RSIP	SEG-LCDC	TFT-LCDC	DRW2D
CTSU	BLE	REMC	BUS	CAC	Flash	DOC	TFU	Unique ID

Board Support Package (BSP)

+

RTOS

- ITRON OS [RI600V4/PX]
- FreeRTOS
- AzureRTOS
- ZephyrRTOS
- OSs from partners



RX Family

Examples of Renesas middleware drivers implemented

Building automation
TCP/IP | F/W Update
Ethernet | USB
LCD | Security

Smart appliances and housing accommodation
TCP/IP | F/W Update
Ethernet | Graphics
Wi-Fi | Touch

FA and robots
TCP/IP | F/W Update
CAN | ADC
Timer (Motor) | Sensor

Medical devices and healthcare
USB | F/W Update
BLE | Sensor
Graphics | Security

Smart meters
TCP/IP | F/W Update
Cellular | Sensor
ADC | Security

IoT
Cellular | OTA
Ethernet | Sensor
Wi-Fi | Security

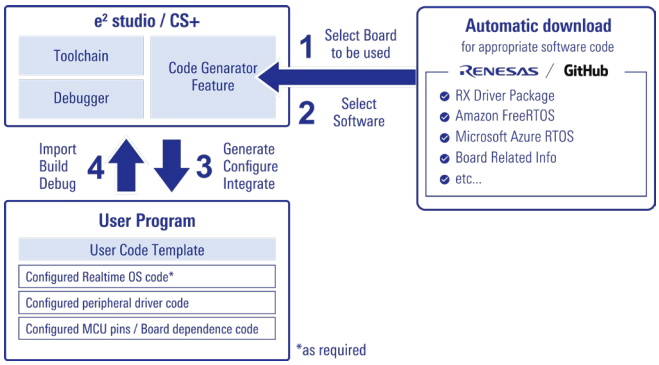
Completing your program configuration in 4 steps

In a Renesas IDE (either e² studio or CS+), select the board you are using and the software you need. The appropriate software, including a real-time OS, peripheral function drivers, middleware, and board-specific programs, will be downloaded automatically from the Renesas Web site or GitHub.
After that, all you have to do is to specify the software settings, download the software to the RX MCU, and start debugging. User programs can be configured in an extremely short time.

Renesas IDEs also offer a variety of features to assist in the porting of user programs from evaluation boards to user-system boards. This will help you start evaluating the program on the user-system board immediately after the initial evaluation.

Program configuration in 4 steps

1. Select the name of the board you are using.
2. Select the software modules you wish to use.
3. Set up the software modules.
4. Download the software modules to the RX MCU and start debugging.



Software packages

The RX Family offers two types of software packages for peripheral function drivers and middleware: the Code Generator and FIT software modules.
The Code Generator automatically generates drivers just by setting parameters in the GUI. The FIT software modules are a set of modules compliant with the Firmware Integration Technology (FIT) specifications. These modules have been provided in the RX Driver Package. Integrating these FIT software modules is also easy.
The Code Generator and FIT software modules can be used with the Smart Configurator included in the IDE. These packages can also be used together.

	Code Generator	FIT Software Module
Features	The generated code is simple, compact, highly readable, and efficient in terms of low memory usage. The generated code is customizable to suit the upper layers of user applications.	The interfaces with user programs provided by the FIT software modules are the same across all RX Family products, making it easy for users to port user programs to other RX Family products. Note: Porting can be performed simply by switching FIT modules out and in, without changing the user program.
Examples of suitable systems	Systems consisting only of functions that can be implemented on standalone devices, such as A/D conversion and timer control	Systems requiring integration of multiple software modules such as a real-time OS or middleware
	Systems developed by individuals or small teams	Systems developed by larger teams

Details www.renesas.com/fit

Videos

We provide numerous videos for RX Family development environments, ranging from beginner-friendly primers to tips and tutorials.

www.renesas.com/rx-how-to-video

FAQ

https://en-support.renesas.com/knowledgeBase

Community

https://community.renesas.com/

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