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R20TS0374EJ0101

Get Started Fast on System Development with RXv3 Core-based RX66T Group!

Rev.1.01

Dec. 01, 2018

Introducing Our Development Software and Tools
Designed to Maximize Features of RXv3 Core

Outline

This toolnews introduces our development software and tools for the RXv3 core architecture of the RX family and their new features.

We offer high-quality software that helps reduce your development time, boards and kits for more efficient system designing, and advanced tools that are easy-to-use to deliver efficient system development to our users.

1. Features

1.1 RX Family Software and Tools for Efficient Development of Our Innovative RXv3 Core-based System

The innovative RXv3 core boosts the proven Renesas RX CPU core architecture with up to 5.8 CoreMark®/MHz, as measured by EEMBC® Benchmarks, to deliver industry-leading performance, power efficiency, and responsiveness.

Renesas RX development ecosystem offers tools such as integrated development environment, real-time OS, middleware, and programming tools to support every step necessary to develop RX applications so users can develop efficiently. Furthermore, our IDEs facilitate a series of development process from code generation, building to debugging to help reduce the development time.

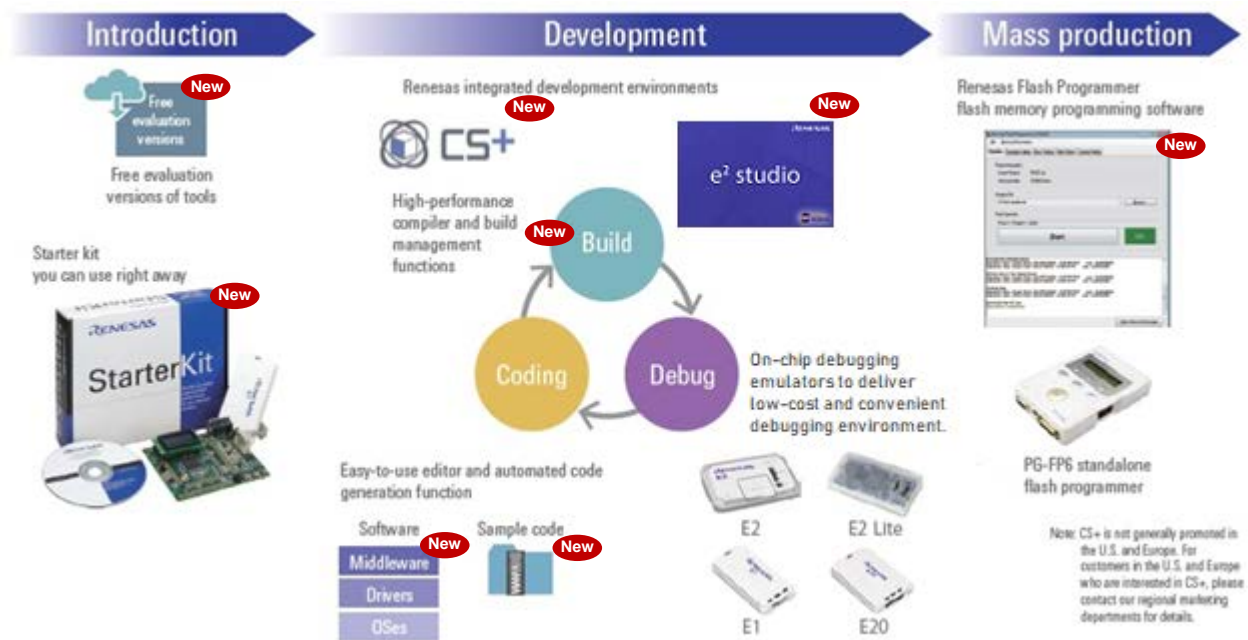


Figure 1-1 RX Family Development Ecosystem

Developers who have been using the RXv1 or RXv2 core can start working with the RXv3 core-based MCUs using familiar RX family development software and tools. In figure 1-1 above, “New” indicates new products or upgraded products for the RX66T group.

RXv3 core is binary compatible with the RXv2 and RXv1 cores of the RX family and uses the same CPU core instruction sets. Binary compatibility ensures that applications written for the previous-generation RXv2 and RXv1 cores can carry forward to the RXv3-based MCUs. Developers can re-use existing design resources and focus on innovating new features.

1.2 C/C++ Compiler Package for RX Family CC-RX V3.00.00 Designed to Maximize Industry-Leading Performance of RXv3 CPU Core

CC-RX V3.00.00 has added support for the RXv3 core-based MCUs. It supports the RXv3 core instruction sets and pipelines and generates optimized codes for execution performance and ROM size.

Measured in combination with RX66T, the CC-RX V3.00.00 has achieved 5.8 CoreMark®/MHz to score industry-leading performance.

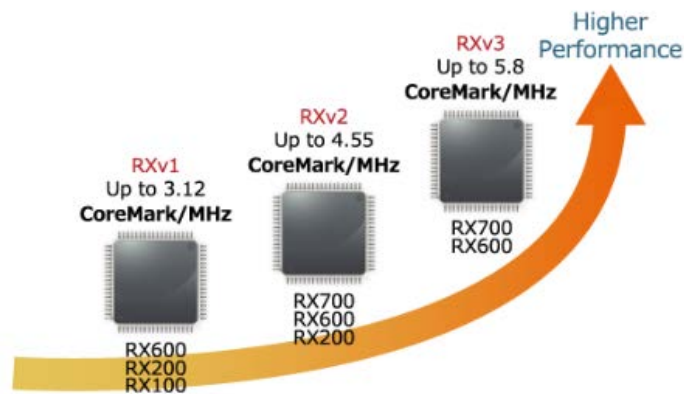


Figure 1-2 Comparison of RXv1 core, RXv2 core and RXv3 core

CC-RX V3.00.00 maintains compatibility with the functions and operations of the previous-generation CC-RX V1 and CC-RX V2 to carry forward the MCUs which employ the RXv1 and RXv2 cores. Furthermore, features have been enhanced for more useful and efficient code generation.

For details, refer to the TOOLNEWS listed below.

<https://www.renesas.com/search/keyword-search.html#genre=document&q=r20ts0363>

We offer a free evaluation edition of CC-RX for users to quickly evaluate the RXv3 core features.

For purchasing the CC-RX V3.00.00 or upgrading (version) from CC-RX V2 compiler at a lower price, refer to the TOOLNEWS listed above.

For details about C/C++ Compiler Package for RX family CC-RX, see the URL below:

https://www.renesas.com/rx_c

2. Development Software and Tools to Get You Started Immediately on RXv3 core-based MCU System Development

2.1 IDEs with Advanced Tools and Features to Choose From

- e² studio integrated development environment ~Eclipse-based IDE~

e² studio is an integrated developed environment tool for Renesas MCU family, based on the open source IDE “Eclipse” and CDT (C/C++ Development Tooling) Plug-in which supports C/C++ project creation. e² studio offers many tools to choose from including compilers and debuggers from Renesas as well as GNU and our partners. In addition to the robust editor and project management tools of the Eclipse CDT standard, features of the e² studio include many functions of Renesas tools as well.

In the e² studio V7.2.0, you can create a project, build, and debug for the RXv3 core-based MCUs (RX66T group). Support has been added for the new compiler product CC-RX V3.00 and GCC for Renesas RX toolchain as well. For details about e² studio V7.2.0, refer to the TOOLNEWS listed below.

<https://www.renesas.com/search/keyword-search.html#genre=document&q=r20ts0369>

For details about the product, see the URL below:

<https://www.renesas.com/e2studio>

- CS+ integrated development environment ~Renesas Original IDE~

CS+ is an integrated development environment designed to deliver “simplicity”, “security”, and “ease of use” to a software development where you repeat a process of edit, build, and debug. The basic software tools you need for Renesas MCUs software development are ready-to-use after installation. The CS+ can also support more advanced debugging by using it in combination with the hardware tools such as on-chip debuggers E2 or E2 lite emulators (sold separately). Furthermore, a variety of other features and user support functions are also available.

In the CS+ V8.00.00, you can create a project, build, and debug for the RXv3 core-based MCUs (RX66T group). For details about CS+ V8.00.00, refer to the TOOLNEWS listed below.

<https://www.renesas.com/search/keyword-search.html#genre=document&q=r20ts0359>

For details about the product, see the URL below:

<https://www.renesas.com/cs+>

2.2 Easy Start Up with Ready-to-Use Starter Kit

We have released the Renesas Starter Kit, a starter kit for ideal for developers who are getting started with the RX66T.

Renesas Starter Kit for RX66T includes a CPU board which employs the RX66T MCU, Pmod™ Compatible LCD board, and E2 emulator Lite. You can also download the Renesas Starter Kit for RX66T Installer from the website to use the IDE and sample code for code generation and debugging. This enables you to start evaluating the Renesas MCUs immediately after purchase.

For details about the Renesas Starter Kit for RX66T, refer to the TOOLNEWS listed below.

<https://www.renesas.com/search/keyword-search.html#genre=document&q=r20ts0365>

For details about the product, see the URL below.

<https://www.renesas.com/rskrx66t>

2.3 Smart Configurator to Accelerate Program Designing Time

The key feature of the Smart Configurator is “you can customize software anyway you want.” Three functions of the Smart Configurator are importing middleware that supports MCU peripheral functions (FIT module), automatic driver code generation of the peripherals, and pin configuration to help reduce the system development time.

We have released the RX Driver Package Ver. 1.16, which supports the RX66T group. For details such as supported FIT modules, refer to the TOOLNEWS listed below.

<https://www.renesas.com/search/keyword-search.html#genre=document&q=r20ts0372>

User guide for Smart Configurator is also available on the website. For details, see the following URL:

<https://www.renesas.com/smart-configurator>

2.4 High-Speed and Compact μITRON4.0 OS for High-Quality Product Development

We offer a real-time OS conforming to the μITRON4.0 specifications with industry-leading performance as an embedded OS. Its compact design as well as excellent real-time features and abundant service calls deliver the high-quality real-time multitasking environment to our users’ embedded system.

For details, see the URLs below:

- RI600V4 μITRON4.0 Real-time OS for RX Family

<https://www.renesas.com/ri600v4>

- RI600PX Real-time OS for RX Family

Developed based on the "RI600V4" with additional memory protection function of the “μITRON4.0 protection extension.”

<https://www.renesas.com/ri600px>

2.5 Selection of On-chip Debugging Emulators for Your Use and Development Scale

There are four types of on-chip debugging emulators which support the RX66T group: a high-functionality E2 designed for more efficient development, a low-cost E2 lite, E20 with a high-volume trace capacity, and the standard E1. You can pick the best tool for your use and development scale.

For details, see the URL below:

<https://www.renesas.com/ocd>

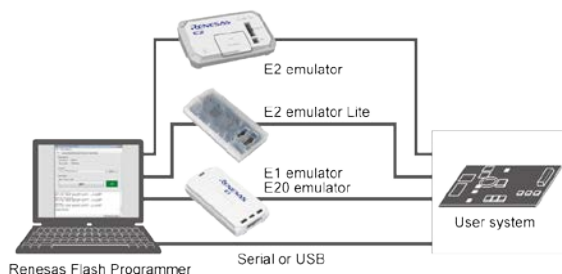
2.6 Flash Programming Tool for Each Use Case

- Renesas Flash Programmer on-board programming software ~for developing, prototyping and a small-scale programming~

Renesas Flash Programmer is an on-board programming software that uses on-chip debugging emulator--E2 emulator, E2 emulator Lite, E1 Emulator and E20 emulator--via a serial or USB interface of the RX family to program on a target system. It is the best tool for flash programming if you are prototyping/developing or producing in a small-scale.

For details, see the URL below:

<https://www.renesas.com/rfp>



- PG-FP6 Flash Memory Programmer ~for programming in PC-less environment~

PG-FP6 is a high-speed flash programming tool which supports a standalone programming without using PC. It is ideal for programming in mass production or for field updates.

For details, see the URL below:

<https://www.renesas.com/pg-fp6>



3. Renesas Partners' Development Software and Tools

There will also be more development software and tools for the RX family from Renesas partners in upcoming releases. You will be able to find the best tools that meet your needs.

<https://www.renesas.com/products/microcontrollers-microprocessors/rx/rx600/rx66t.html#tools>

4. How to Purchase a Product

For downloading a free evaluation edition/commercial edition, and for purchasing a product, refer to the following table.

To order a product, contact your local Renesas Electronics sales office or distributor with the following information. For product pricing, contact us in the same manner.

(1/2)

Product/Service	How to Get a New Product/Service	Memo How to Use Your Existing Product/Service with RX66T
Renesas Starter Kit for RX66T	Purchase. Refer to "How to Purchase a Product" in the TOOLNEWS. https://www.renesas.com/search/keyword-search.html#genre=document&q=r20ts0365	/
e ² studio IDE	Download from the web. *1 https://www.renesas.com/e2studio#downloads For details, refer to the TOOLNEWS listed below. https://www.renesas.com/search/keyword-search.html#genre=document&q=r20ts0369	Revision update is available. See the TOOLNEWS (left) for details.
CS+ IDE	Purchase [Free evaluation edition available *2, *3] Refer to "How to Purchase a Product" in the TOOLSNEWS. https://www.renesas.com/search/keyword-search.html#genre=document&q=r20ts0359	Version upgrade is available. See the TOOLNEWS (left) for details.
C/C++ Compiler Package for RX family (CC-RX V3)	Purchase [Free evaluation edition available] Refer to "How to Purchase a Product" in the TOOLSNEWS. https://www.renesas.com/search/keyword-search.html#genre=document&q=r20ts0363	If you have a CC-RX V2 license, purchase the CC-RX V3 license. See the TOOLNEWS (left) for details.
Smart Configurator	Download form the web *1 https://www.renesas.com/smart-configurator#downloads Refer to the "How to Purchase a Product" in the TOOLNEWS. https://www.renesas.com/search/keyword-search.html#genre=document&q=r20ts0360	Revision update is available. See the TOOLNEWS (left) for details.
RX Family RX Driver Package Ver.1.16	Obtain using the Smart Configurator *1 For details, refer to the TOOLNEWS listed below. https://www.renesas.com/search/keyword-search.html#genre=document&q=r20ts0372	Revision update is available. See the TOOLNEWS (left) for details.
Real-time OS RI600V4 for RX Family (For CS+)	Purchase [Trial edition available] Refer to "How to Purchase New Software" in the TOOLNEWS. https://www.renesas.com/search/keyword-search.html#genre=document&q=r20ts0361 Download the Trial edition from the URL below. https://www.renesas.com/ri600v4#downloads	Revision update is available. See the TOOLNEWS (left) for details.
Real-time OS RI600PX for RX Family	Purchase Refer to "How to Purchase New Software" in the TOOLNEWS. https://www.renesas.com/search/keyword-search.html#genre=document&q=r20ts0362	Revision update is available. See the TOOLNEWS (left) for details.

Product/Service	How to Get a New Product/Service	Memo How to Use Your Existing Product/Service for RX66T
E2 emulator	Purchase For details, refer to the following URL. https://www.renesas.com/e2#orders	Use it as is.
E2 emulator Lite	Purchase For details, refer to the following URL https://www.renesas.com/e2_lite#orders	Use it as is.
E20 emulator	Purchase For details, refer to the following URL https://www.renesas.com/e20#orders	Use it as is.
E1emulator	Purchase For details, refer to the following URL. https://www.renesas.com/e1#orders	Use it as is.
Renesas Flash Programmer (Programming GUI)	Purchase [Free evaluation edition available] *4 Refer to the TOOLNEWS, “How to Purchase New Software.” https://www.renesas.com/search/keyword-search.html#genre=document&q=r20ts0368 Download the free evaluation edition from the URL below. https://www.renesas.com/rfp#downloads	Revision update is available. See the TOOLNEWS (left) for details.
PG-FP6	Purchase For details, refer to the following URL and the TOOLNEWS listed below. https://www.renesas.com/pg-fp6#orders https://www.renesas.com/search/keyword-search.html#genre=document&q=r20ts0367	Revision update for Programming GUI “FP6 Terminal” is available. See the TOOLNEWS (left) for details.

*1: The product is available free of charge, but it is not an evaluation edition, and therefore can also be used during product development process.

*2: The evaluation edition is meant to be used for “evaluating performance and functionalities of a product.” Do not use it in a product development process. To use for product development, consider purchasing a product.

You can also download the free evaluation edition from the following URL.

https://www.renesas.com/tool_evaluation

*3: When you register a license key, the product can be used as a commercial edition.

*4: For details about free evaluation edition, refer to the URL below.

<https://www.renesas.com/rfp>

Revision History

Rev.	Date	Description	
		Page	Summary
1.00	Dec. 01, 2018	-	First edition issued
1.01	May. 24, 2019	4	Corrected the product name of real-time OS.

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■Inquiry

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