[Featured Tools]
Features and development tools for 32-bit RX140 that realizes the highest level of performance and power efficiency in entry-class

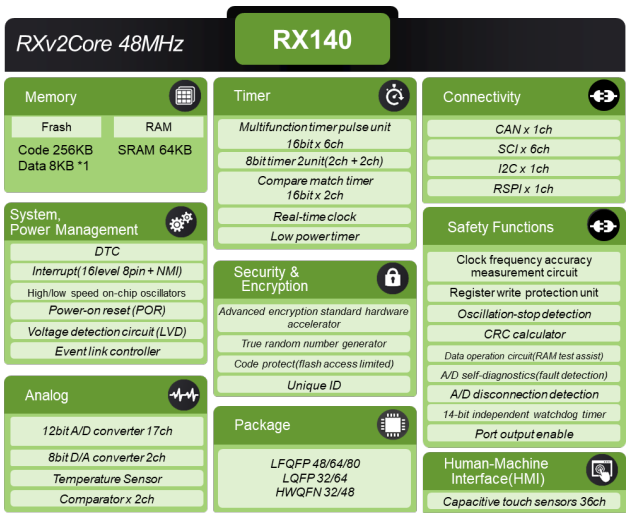
R20TS0777EJ0100
Rev.1.00
Dec.01.21

Outline

This news introduces the features and development tools for the 32-bit RX140 microcontroller that realizes twice the performance and over 30% lower power consumption compared to the previous RX130 MCUs and incorporates the third-generation capacitive touch IP, making it suitable for a wide range of applications, such as home and industrial applications.

1. RX140 product overview

With RXv2 core operating at up to 48MHz, this product realizes outstanding real-time performance with a CoreMark score of 204, which is best-in-class among products with the same frequency. The power consumption is reduced to 52µA/MHz in CPU high-speed operating mode and 0.25µA in software standby mode, achieving the right balance between high performance and low power consumption. In addition, a snooze mode enables to restart operation of peripheral modules andoscillators temporarily while CPU and flash memory remain stopped in software standby mode, realizing lower power consumption for applications that require intermittent operation. It mounts the third-generation capacitive touch IP that dramatically improves noise immunity and increase water resistance compare to earlier product, making it possible to implement HMI using touch key and proximity sensing switch in a wider range of applications.

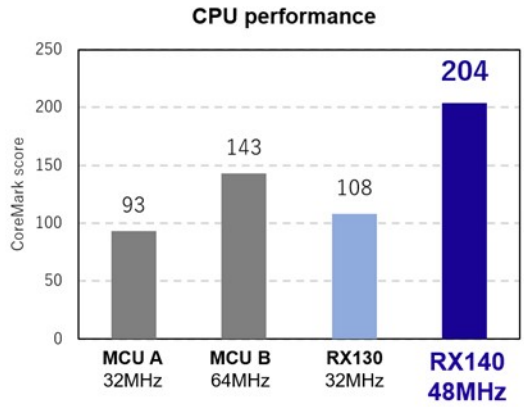


URL: renesas.com/rx140

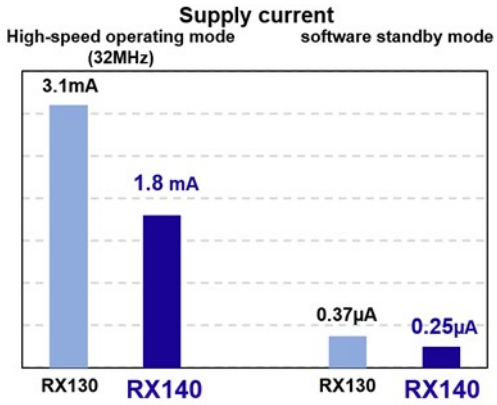
2. RX140 Features

Best-in-class performance

High-performance RXv2 core with 48MHz operating frequency surpass the performance of other products operating at 64MHz.



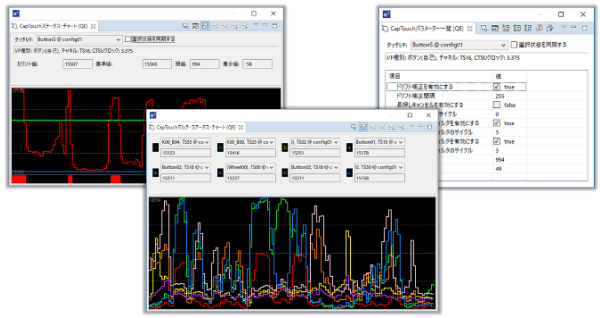
Achieves over 30% reduction in supply current in both operating and standby mode.



Third-generation capacitive touch IP

Advanced water-resistance and noise immunity realizes highly reliable touch keys under various environments like wet area or outdoors.

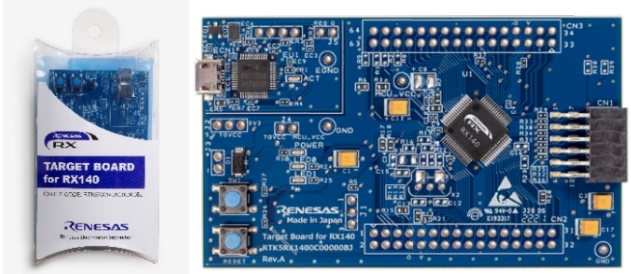
Development Assistance Tool for Capacitive Touch Sensors: QE for Capacitive Touch



URL: renesas.com/qe-capacitive-touch

3. Evaluation Board

Target Board for RX140 (RTK5RX1400C00000BJ) is an inexpensive evaluation board suitable for initial deployment consideration that provides access to all signal pins of RX140. It is equipped with an emulator circuit, making it possible to start development of applications immediately just by connecting to a PC with USB cable. In addition, Pmod connector is included to allow expansion of the function by connecting to the sensor modules. It can also be used for initial evaluation of touch features by implementing the LPF capacitors which are required for touch operation.



URL: renesas.com/RTK5RX1400C00000BJ

4. RX140 Development tools

Renesas Electronics Corporation provides a variety of development tools for RX140.

Renesas website "Getting Started with the RX Family Development Environment" provides a tutorial video on how to install the IDE (Integrated Development Environment). Please refer it for building the development environment.

Table 1 Software development tools

Development Tool	Summary
C/C++ Compiler Package for RX Family (Changeable, trial period provided)	In development of embedded systems, C/C++ Compilers for the RX Family offers powerful optimizations for enhancing execution speed and code efficiency, and the utilities to increase productivity.
e2 studio IDE (Free of charge)	e² studio is an Eclipse-based integrated development environment (IDE) for Renesas MCUs. In addition to Eclipse's own powerful code editor, the e² studio offers a rich range of extended functions. e² studio covers all development processes from the downloading of sample code to debugging.
Flash memory programming software Renesas Flash Programmer (Chargeable, evaluation edition provided)	This software can write data to the flash memory of applicable Renesas MCUs. Even if a program is divided into multiple sets of data, data to be written can be selected and written in a single operation

*The above products are available to download on the Renesas website "Getting Started with the RX Family Development Environment".

Table 2 Evaluation board related documents

Document	Summary
Target Board for RX140 User's Manual (R20UT4893)	Describes the hardware specifications, how to configure switches etc., and basic procedures for setting up.
RX140 Group Target Board for RX140 LED Blink Control Program (R20AN0646)	Sample program for blink control of users LED implemented on the Target Board of RX140
Target Board for RX140 Schematic (R20UT4897)	Schematic for the Target Board of RX140
Target Board for RX140 BOM LIST (R12TU0115)	BOM list for the Target Board of RX140

5. Purchasing the Product

Target Board for RX140 (RTK5RX1400C00000BJ) can be purchased from the online distributors. You can find the stock status of this product in "Product Availability Results ".

Contact your local Renesas Electronics sales office or distributor for the ordering of C/C++ Compiler Package for RX Family or Renesas Flash Programmer. Regarding the product names, refer to the following web page.

C/C++ Compiler Package for RX Family

renesas.com/rx_c

Revision History

Rev.	Date	Description	
		Page	Summary
1.00	Dec.1.21	-	First edition issued

Corporate Headquarters

TOYOSU FORESIA, 3-2-24 Toyosu,
Koto-ku, Tokyo 135-0061, Japan
www.renesas.com

Trademarks

Contact information

For further information on a product, technology, the most up-to-date version of a document, or your nearest sales office, please visit:
www.renesas.com/contact/

TS Colophon 4.2