

[New release]

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Rev.1.00

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Evaluation Kit RE01 1500KB

- Evaluation Kit with RE01 Group Energy Harvesting Embedded Controller -

Outline

The Renesas RE Family is a new device family that offers a lineup of 32-bit energy harvesting embedded controllers which can implement intelligent functions in equipment powered by low levels of harvested energy through ambient energy such as light, vibration, or fluid flow.

We released Evaluation Kit RE01 1500KB for the RE Family RE01 Group with the Arm Cortex®-M0+ core, which can operate at clock frequencies up to 64MHz, and provide up to 1.5 MB of low-power flash memory.

1. Product Overview

Evaluation Kit RE01 1500KB is an evaluation kit that supports evaluation and development of an energy harvesting system by using the RE01 group that operates semi-permanently just with generated energy (with no need to replace the battery).

Construction of such a system usually requires a lot of time to develop an optimum power circuit configuration and a power management method. However, by using this evaluation kit and sample software, such evaluation and development can be performed in a short period of time.

It comes with the following hardware required for development:

- Hardware
 - RE01 group evaluation board
 - Solar panel
 - Pmod™-compatible, low-power LCD extension board (Memory-In-Pixel LCD)
 - USB cable (Micro-B)

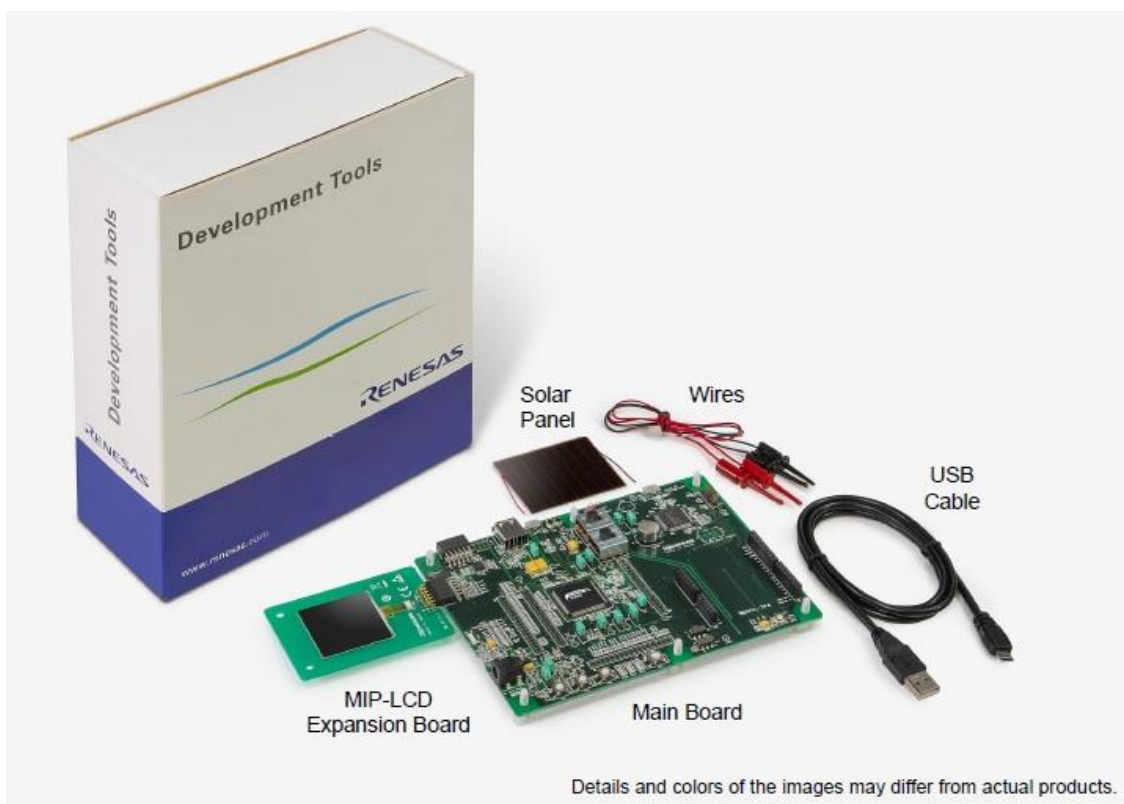


Figure 1 Evaluation Kit RE01 1500KB

➤ Software

- Driver package
 - RE01 1500KB CMSIS Driver Package (R01AN4947)

It is available from the following URL:

<https://www.renesas.com/search/keyword-search.html#genre=document&q=r01an4947>

- Sample code
 - Maintenance free power management by RE energy harvesting controller Application Note (R01AN4837)
 - Sample codes of peripheral functions

It is available from the following URL:

<https://www.renesas.com/search/keyword-search.html#genre=document&q=r01an4837>

For details about the Evaluation Kit RE01 1500KB, see the following URL.

- Evaluation Kit RE01 1500KB Product page

<https://www.renesas.com/ek-re01-1500kb>

2. Features

Evaluation Kit RE01 1500KB has the following features:

- Allows evaluation of an energy harvesting system that uses ambient energy sources such as solar, temperature difference, and vibration.
- Connects user hardware at the Pmod interface and Arduino Header to apply the energy harvesting system.
- Equipped with an on-board debugger that allows debugging of the program only with the included USB cable.

[Main specifications]

- Target device: RE01 group flash, 1.5-MB, 144-pin LQFP (R7F0E015D2CFB)
- On-board debugger: SEGGER J-Link® OB
- Debugging interface: 20-pin box header for IAR I-jet / SEGGER J-Link / Renesas E2 Emulator
- Super capacitor
- External secondary battery interface
- Solar panel interface
- Arduino-compatible interface
- Power connector: 5 V input
- Power IC: 2.6 V input, 3.3 V output (for peripheral circuit power supply when the energy harvesting function is being used)
- Reset switch x 1
- User switch x 3
- FPC connector for the parallel-communication MIP LCD controller (MLCD): 0.3-mm pitch, 19 pin x 1
- USB-serial conversion interface
- Pmod interface x 2
- On-board memory SPI serial flash: 64 Mbits
- USB function: USB Micro-B
- USB Host: USB Std-A

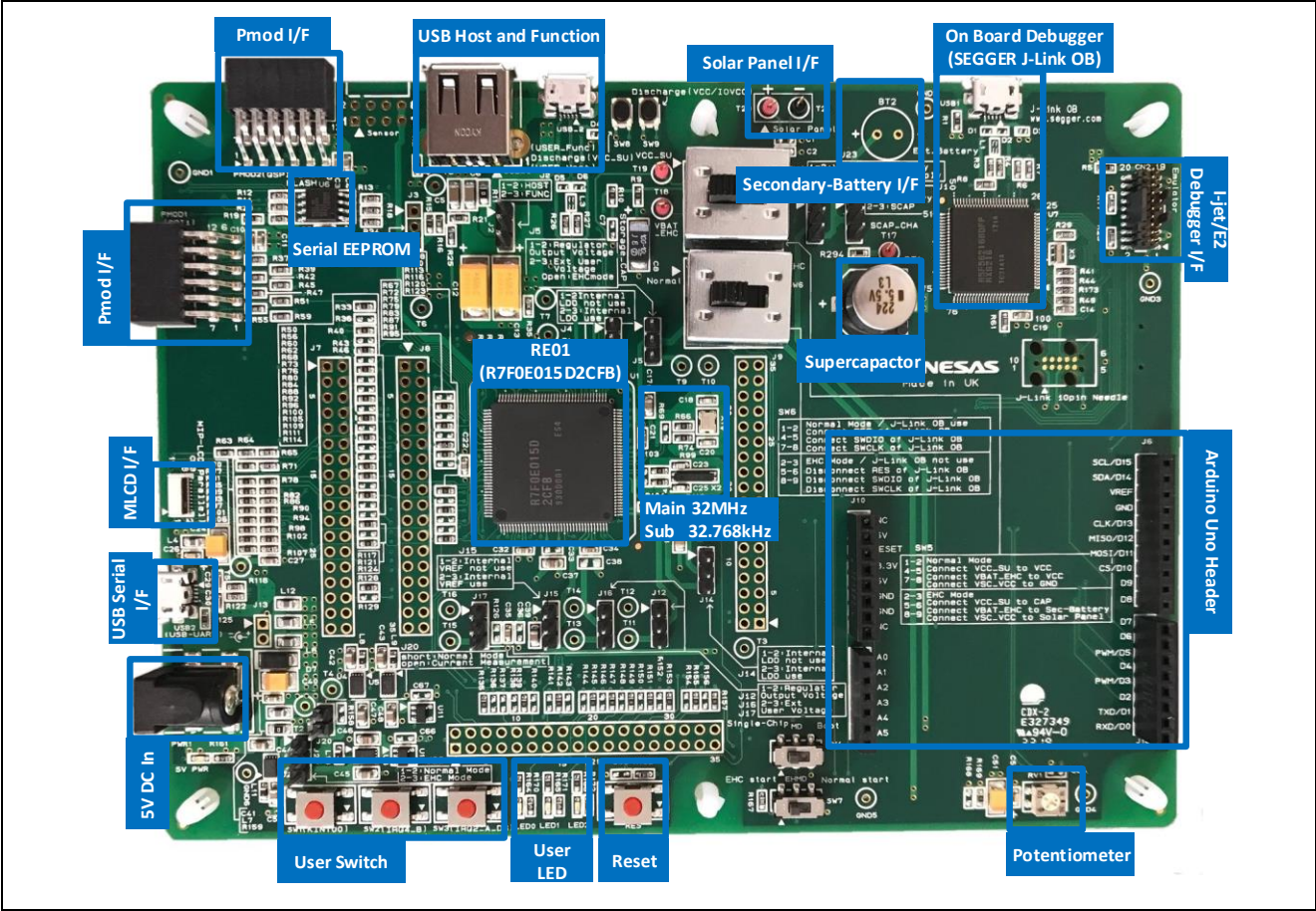


Figure 2 Appearance of Evaluation Kit RE01 1500KB (Component Side)

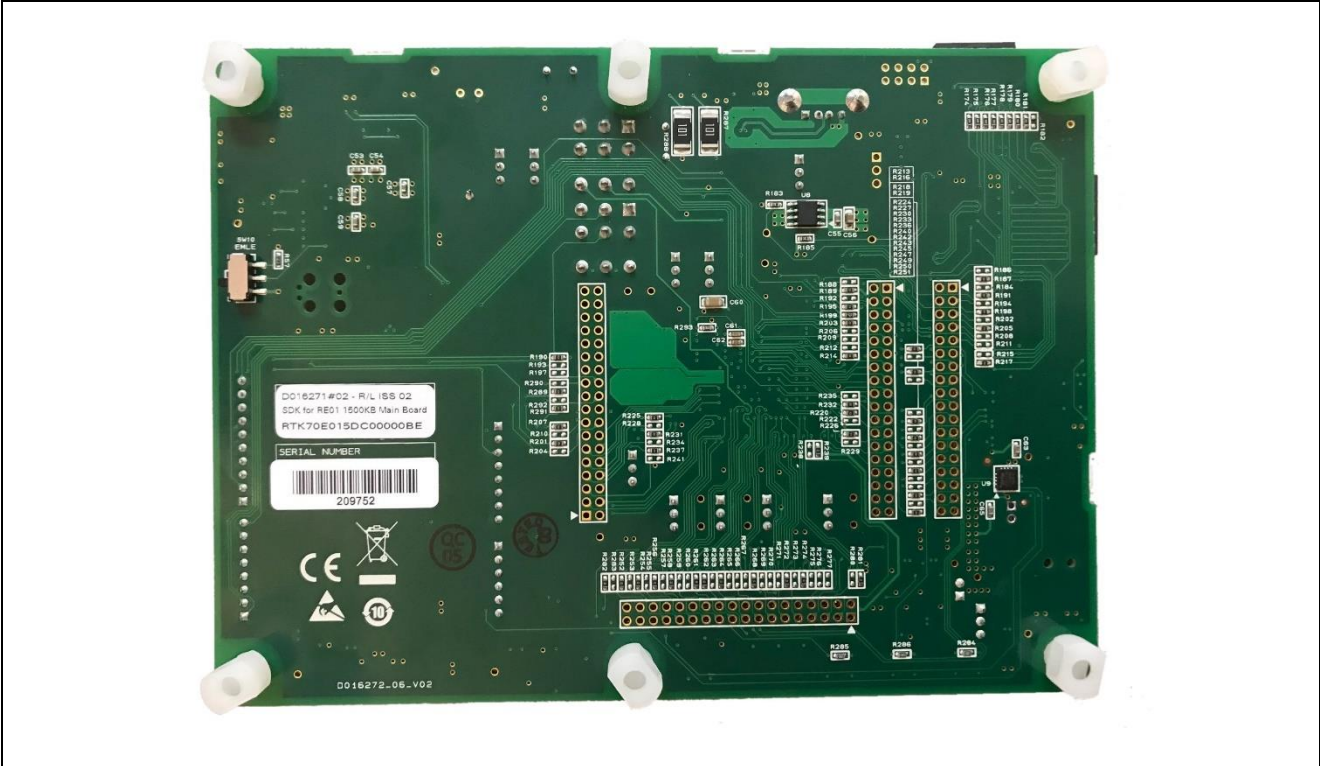


Figure 3 Appearance of Evaluation Kit RE01 1500KB (Solder Side)

3. Development Environment

Development requires the following environment.

Emulator	Integrated development environment/compiler	
	IAR EWARM / IAR C/C++	Renesas e ² studio/ GCC ARM
IAR I-jet	✓	NA
SEGGER J-Link	✓	✓
Renesas E2 emulator	NA	✓

✓: Supported, NA: Not supported

Refer to the following web page “RE Family Development Environment” for details.

https://www.renesas.com/re_tools

4. Purchasing the Product

To order the product, contact your local Renesas Electronics sales office or distributor with the following information.

For product pricing, make inquiries in the same manner.

Product name	Orderable part number
Evaluation Kit RE01 1500KB	RTK70E015DS00000BE

5. Other Information

For Evaluation Kit RE01 1500KB, there is some precautions to be noted when using the temperature sensor function.

Refer to the following web page for details.

<https://www.renesas.com/search/keyword-search.html#genre=document&q=r20zz0208>

Evaluation Kit RE01 1500KB Release Note

Document number: R20ZZ0208

Revision History

Rev.	Date	Description	
		Page	Summary
1.00	Nov.01.19	-	First edition issued

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