[Featured Tool]

Minimize the time for optimizing current consumption
with IAR Embedded Workbench®!

Introducing the E2 Emulator current consumption measuring function

Outline

This document provides an overview of the functions for measuring current consumption in the E2 emulator from Renesas.

In combination with the IAR Embedded Workbench®, which is an integrated development environment developed by IAR Systems, this function visualizes the relationship between programs and current consumption thus reducing the time required for optimizing power consumption (such as measuring current consumption and identifying a cause of an unexpected current value).
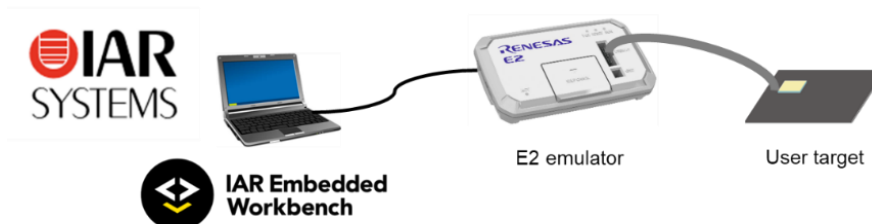
1. Features

The E2 emulator supports the Power Debugging functionalities of the IAR Systems integrated development environment, allowing you to debug a system while measuring current consumption. These functionalities are available in either of the following products:

• For RX family of MCUs: IAR Embedded Workbench® for Renesas RX

• For RL78 family of MCUs: IAR Embedded Workbench® for Renesas RL78

By using the Power Debugging functionalities, you can see the E2 emulator current consumption measurement results through various windows. These functionalities allow you to set up current consumption measurement and display the results, detect unexpected current consumption during execution, and display a power profile for an application and analyze the results, thus reducing the time required for optimizing current consumption.
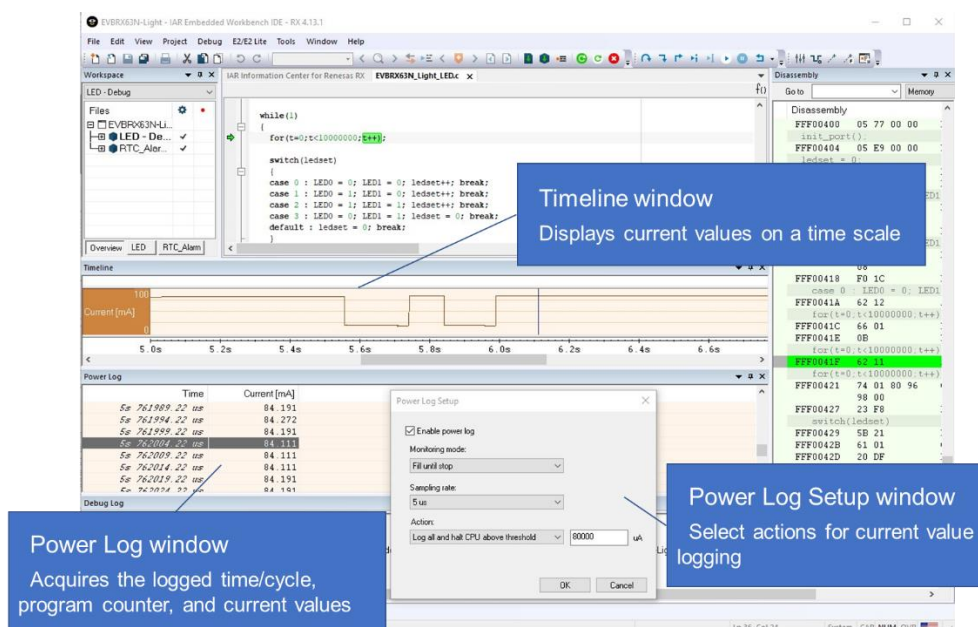

Figure 1. Various Power Debugging windows

● **Detecting unexpected current consumption during application execution**

[Power Log Setup window]

Use this window to configure logging conditions. You can also specify to stop execution of the application and perform a specified action when current consumption exceeds a predefined threshold. This enables easier detection of a fault in current consumption.

● **Displaying a power profile and analyzing the result**

[Power Log window]

You can find peaks in current consumption. You can also double-click to highlight the corresponding code, and smoothly analyze the source code corresponding to the current consumption value in which you are interested.

[Timeline window]

This window graphically displays the current values on a time scale. These current values are correlated to the Power Log window, source code window, and the Disassembly window, which means you can just double-click a value in this window to find the corresponding code.

By viewing and checking the condition of current consumption values in a time scale, you can identify an inactive peripheral unit.

[Function Profiler window]

This window displays current consumption per function. You can check a list of current values per function, and also the average current values together with max and min current values.

Because you can check whether there was an unexpected change in current consumption per function, you can easily consider which area of the application you should focus on for current consumption optimization.

For details about the integrated development environment developed by IAR Systems, see the URL below:

https://www.iar.com/

2. E2 Emulator

2.1 Product Overview

The E2 emulator is an advanced on-chip debugging emulator and flash programmer designed for the purpose of improving development efficiency.

For details about the E2 emulator, see the URL below.

https://www.renesas.com/e2

2.2 Purchasing the Product

For product ordering, contact your local Renesas Electronics sales office or distributor with the following information. For product pricing, make inquiries in the same manner.

Product name	E2 Emulator
Orderable part number	RTE0T00020KCE00000R

Revision History

Rev.	Date	Description	
		Page	**Summary**
1.00	Oct.01.20	-	First edition issued

Corporate Headquarters

TOYOSU FORESIA, 3- 2- 24 Toyosu,

Koto-ku, Tokyo 135- 0061, Japan

www.renesas.com

Trademarks

Renesas and the Renesas logo are trademarks of Renesas Electronics

Corporation. All trademarks and registered trademarks are the property

of their respective owners.

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/