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Start Evaluating Immediately Just with Internet Access!

Introduction of Web Simulator to Support Initial Evaluation of RL78 Family

Outline

This TOOLNEWS introduces the Web Simulator that supports initial evaluation of the RL78 family.

The Web Simulator offers two tools (web applications) to support initial evaluation of the RL78 family 8/16-bit MCUs. With the Web Simulator, you can start the initial evaluation of the RL78 family immediately with just a PC with an internet connection, without purchasing development tools.

This product is available free of charge.

1. Web Simulator to Support Initial Evaluation of RL78

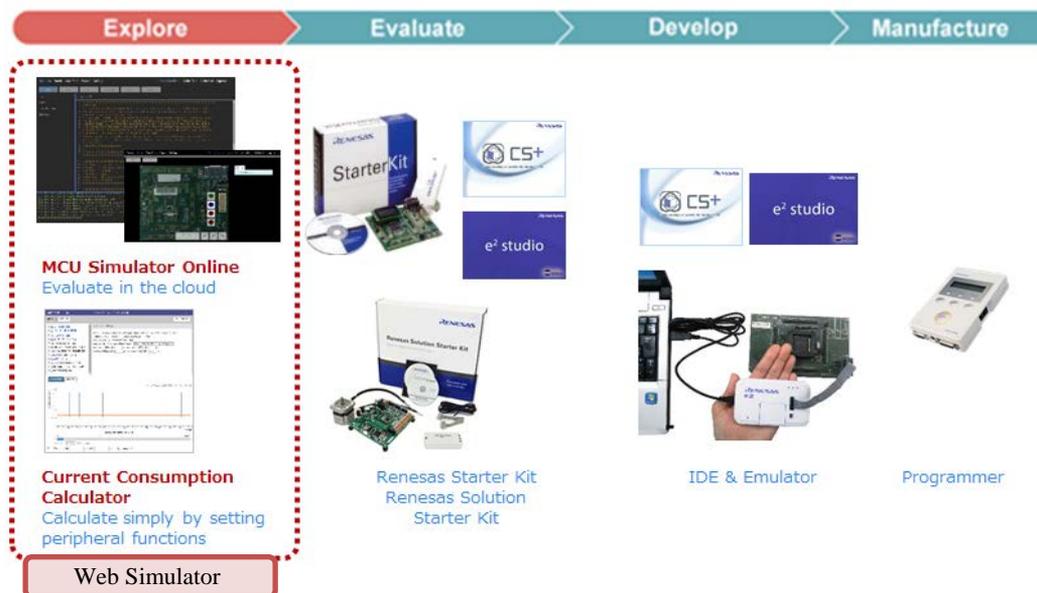


Figure 1-1 RL78 Family Development Environment

The Web Simulator is a tool that enables you to start initial evaluation of the RL78 family with just a PC with an internet connection. There is no need to prepare evaluation boards or development tools.

➤ Web Simulator Tools Lineup

The Web Simulator offers the following tools to support initial evaluation of the RL78 family.

- MCU Simulator Online  
Enables initial evaluation of the RL78 family on a virtual board.
- Current Consumption Calculator  
Calculates the current consumption value simply by setting the operational conditions of the peripheral functions—no programming required.

For details about each tool, refer to section 2 and 3.

➤ Accessing the Web Simulator

You can access each tool from the URL below <sup>(Note 1)</sup>.

<https://www.renesas.com/RL78-WebSimulator>

Since you can use sample projects, build environment, and virtual board (simulator) environment, you can start initial evaluation of the RL78 family immediately. Visit our website as we also offer demo videos of the MCU Simulator Online and Current Consumption Calculator.

Note 1: Please use the latest version of Google Chrome, Mozilla Firefox, or Microsoft Edge.

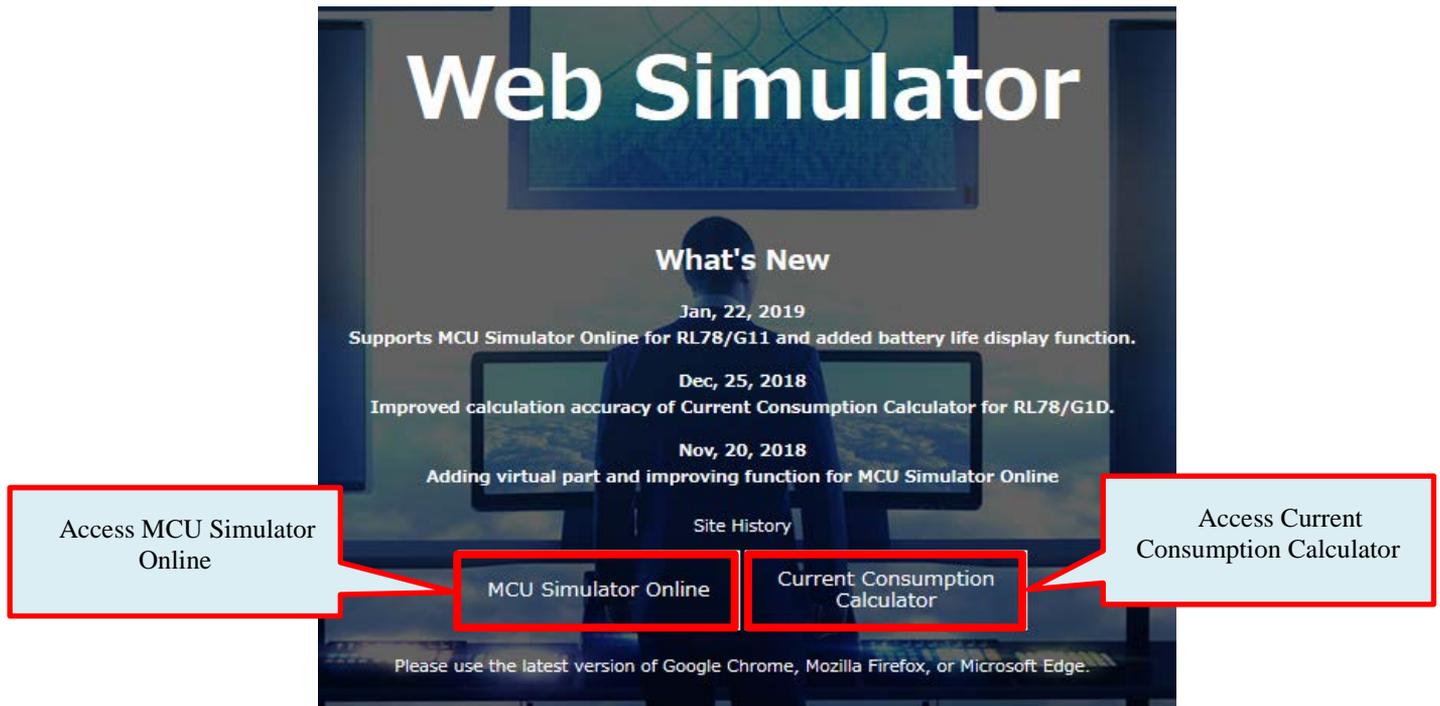


Figure 1-2 Web Simulator Window

## 2. Introduction of MCU Simulator Online

MCU Simulator Online provides sample projects and virtual boards (simulators) for different applications of the RL78/G10, G11, G12, G13, and G14 groups.

You can perform initial evaluation of the RL78 family by building a sample project on the MCU Simulator Online and running it on a virtual board.

Supporting Guide Tour, which navigate users with step-by-step guides as well as Guide Hint, which display hints and tips for each step, the MCU Simulator Online is easy to operate even for novices.

### 2.1 Sample Projects for Different Application Available—No Programming Required

MCU Simulator Online offers sample projects for different applications. See the description of target MCUs, purposes and operations on the web page and simply click on [Start MCU Simulator Online] to start using the sample project. You can build the sample project on the MCU Simulator Online. You can also make changes on the sample project or build a project with a different optimization level (size or execution speed priority, etc.).

MCU Simulator Online offers sample projects for the following applications.

MCU	Application
RL78/G10	Window alarm with buzzer
RL78/G10	Household gas alarm
RL78/G10	Automatic air volume
RL78/G10, RL78/G11, RL78/G12, RL78/G13, RL78/G14	LED on/off switch
RL78/G13, RL78/G14	LED brightness adjustment
RL78/G11, RL78/G12, RL78/G14	A/D conversion
RL78/G13	A/D one-shot conversion mode
RL78/G14	Window comparator
RL78/G11, RL78/G13	Operation mode switching
RL78/G14	Long-hour timer

Select a sample project you want to use on the web page.

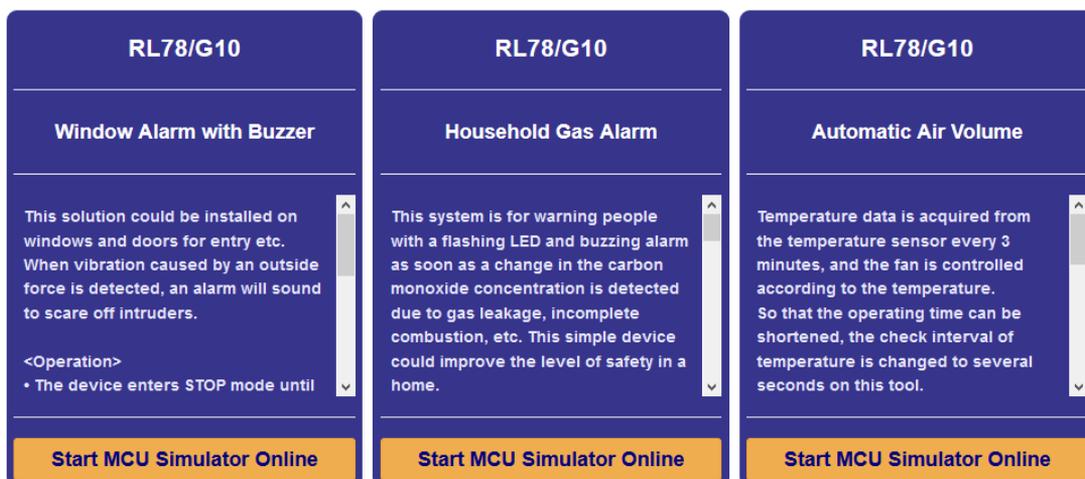


Figure 2-1 Example of Selecting Sample Project in MCU Simulator Online

## 2.2 Virtual Board to Run Sample Project Easily and Check Operations

MCU Simulator Online provides a virtual board to run the sample project. After building a sample project, you can easily run it just by clicking the [Run] button.

Components such as buttons and LEDs can be added on the virtual board, enabling to check the operations of the sample project much like you do on a real evaluation board.

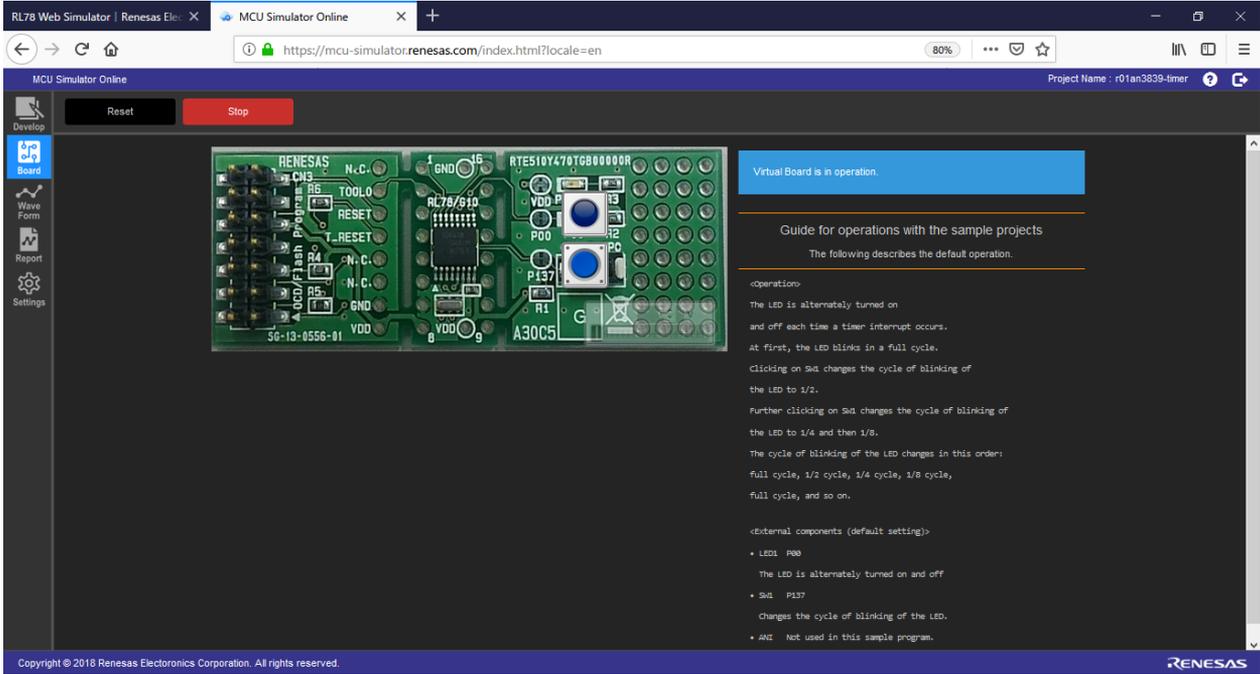


Figure 2-2 Virtual Board for RL78/G10 LED On/Off Switch

MCU Simulator Online can display and monitor the waveforms of I/O pins without using an oscilloscope and logic analyzer which are commonly required when evaluating on a real board.

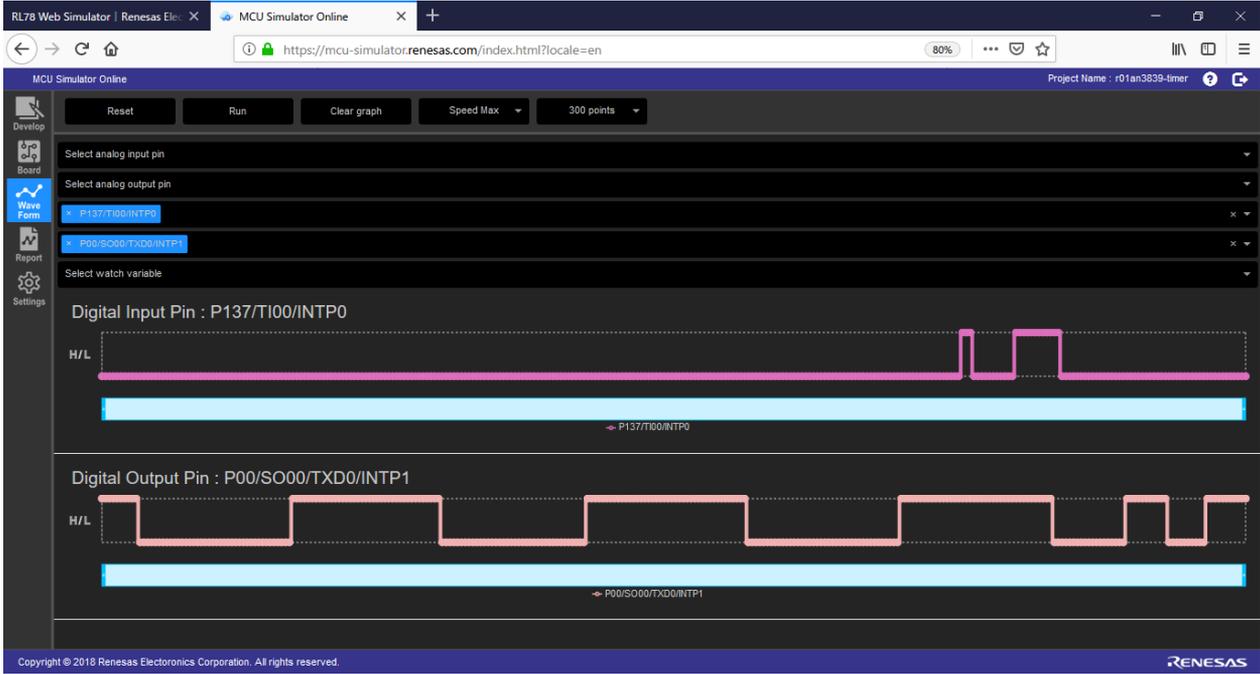


Figure 2-3 Monitoring Waveform

MCU Simulator Online can also display the current consumption values in waveform when running the sample project.

You can check changes in current consumption, maximum and average values, as well as the current consumption of each peripheral module.

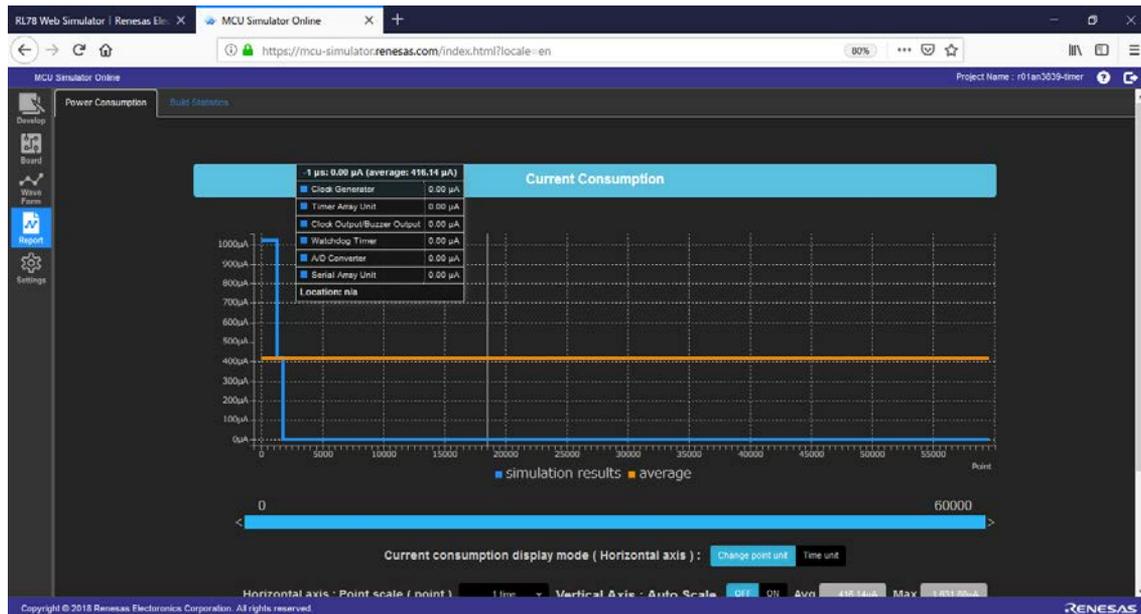


Figure 2-4 Current Consumption Simulation Results

### 2.3 Smooth Transition to a Real Board

You can export the sample project that you have evaluated on the MCU Simulator Online to a PC. Use this function if you wish to evaluate the sample project on a real board using development environment for RL78 such as e<sup>2</sup> studio or CS+ integrated development environment, compilers, and debuggers installed in PC environment.

### 3. Introduction of Current Consumption Calculator

With Current Consumption Calculator, you can check the current consumption values of the RL78/G10, G11, G12, G13, G14, G1D, L12, and L13 groups. You can easily calculate current consumption simply by setting the operating conditions of peripheral functions in the dialog box. No programming is required.

#### 3.1 Instantly Calculate by Selecting Device to Evaluate and Operating Conditions

Current Consumption Calculator supports the following MCUs.

MCU	Product type (number of pins/ROM size)
RL78/G10	10-pin/1-2KB、10-pin/1-2KB、10-pin/4KB、16-pin/1-4KB
RL78/G11	10-25pin/16KB
RL78/G12	20-24pin/2-16KB、30-pin/4-16KB
RL78/G13	20-64pin/16-64KB、30-100pin/96-256KB、44-100pin/384-512KB、128-pin
RL78/G14	30-64pin/16-64KB、30-100pin/96-256KB、48-100pin/384-512KB
RL78/G1D	42-48pin/128-256KB
RL78/L12	32-64pin/8-32KB
RL78/L13	64-80pin/16-128KB

Select the device you want to evaluate on the web page, which promptly open the current consumption calculator of the supported product. After accessing the tool, set the operating parameters of each peripheral functions and click on the [Calculate Current Consumption] button to display the current consumption values in the same window.

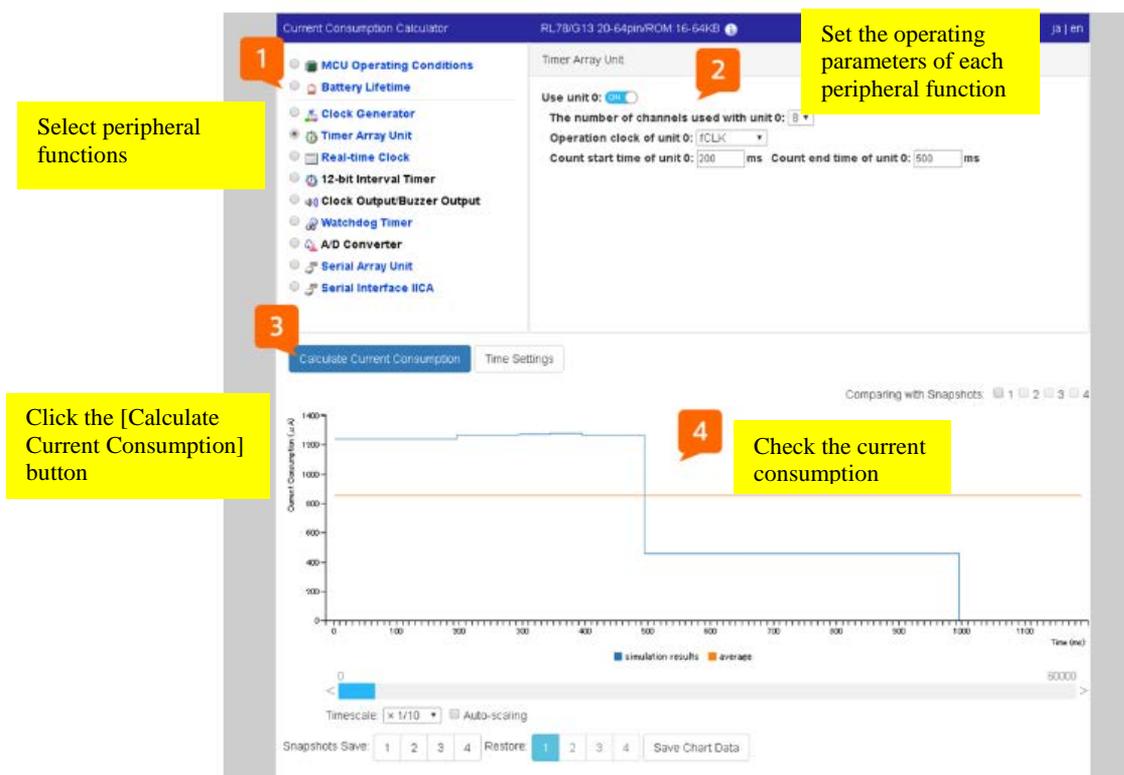


Figure 3-1 Example of Current Consumption Calculator Window

**Revision History**

Rev.	Date	Description	
		Page	Summary
1.00	Feb. 01, 2019	-	First edition issued

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