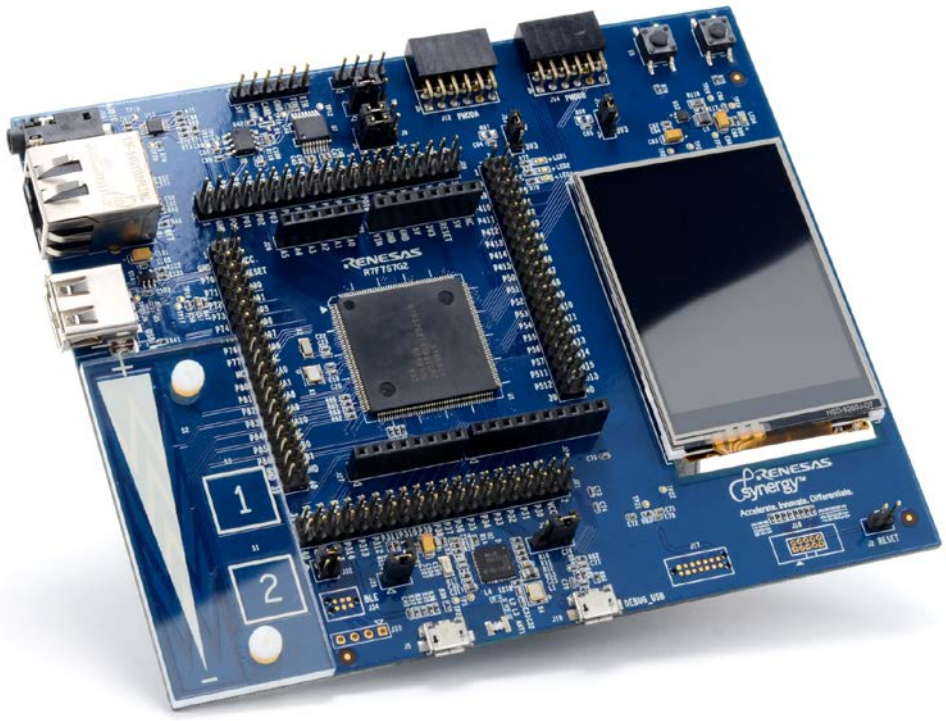
SK-S7G2

February 8, 2016

In the box

The following components are included in the SK-S7G2 Starter Kit:

- SK-S7G2 Main Board
- One USB Type A to Micro-B cable
- Quick Start Guide (this document)



Overview

This kit and the associated development tools allow you to evaluate the Renesas Synergy™ S7G2 platform. The Quick Start Guide walks you through the Out-of-Box Demo and then provides step-by-step directions to load, configure, generate, build, download, and execute the Blinky Project on the Renesas Synergy™ Software Package (SSP).

SK-S7G2 Kit

NOTE: This Quick Start Guide is for the SK-S7G2 Starter Kit.

Prerequisites

Required software and tools

- Minimum workstation requirements: Microsoft® Windows® 7 with Intel® Core™ family processor running at 2.0 GHz or higher (or equivalent processor), 8 GB memory, 250 GB hard disk or SSD, USB 2.0, Internet connection
- Renesas e^2 studio Integrated Solution Development Environment (ISDE)
- Renesas Synergy™ Software Package (SSP)

Installation

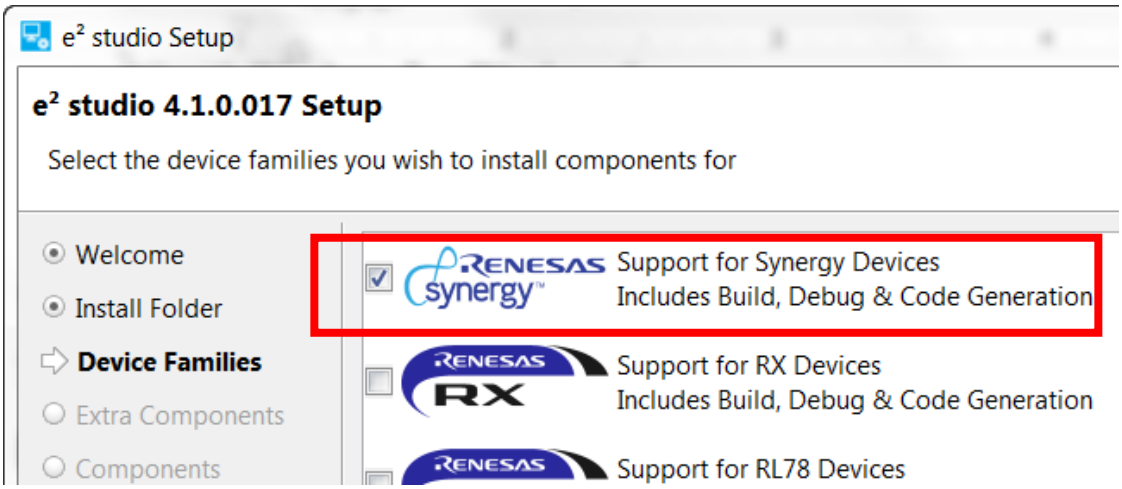
Tools are available for download at: https://synergygallery.renesas.com.

NOTE: Version numbers of the tools may change. Following we show the versions that were available when this document was developed.

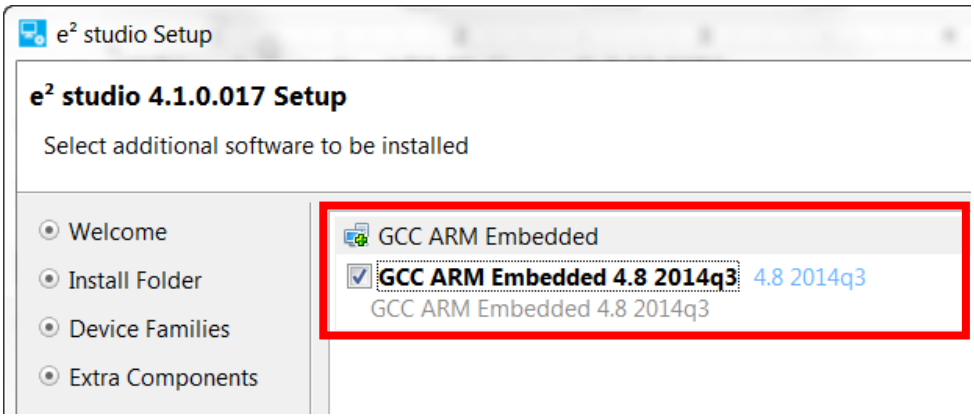
Download and install the latest revision of the e^2 studio (ISDE) as follows:

NOTE: Unless informed otherwise in the following steps, use the default options.

1) In the **e^2 studio Setup** dialog, select at least **Renesas Synergy™** Device Family and the **RZ** Device Family, as the RZ Family components contain the debug functionality for the ARM® series MCUs.



2) Select **GCC ARM Embedded 4.8.2014q3** when the following dialog appears:

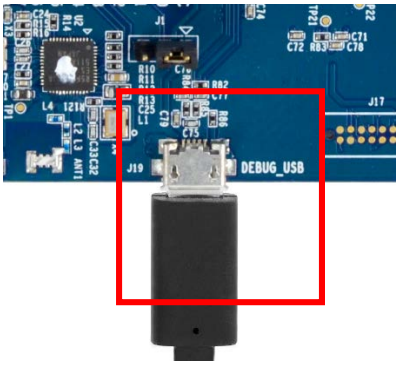


Connecting the board components

To power up the board and get started with the pre-loaded Out-of-Box Demo, follow these steps:

1) Connect the Micro USB end of the supplied USB cable to the SK-S7G2 board J-19 connector (DEBUG_USB).

NOTE: The kit contains a SEGGER J-Link On-board (OB). The J-Link provides full debug and programming capabilities for the SK-S7G2 Kit.

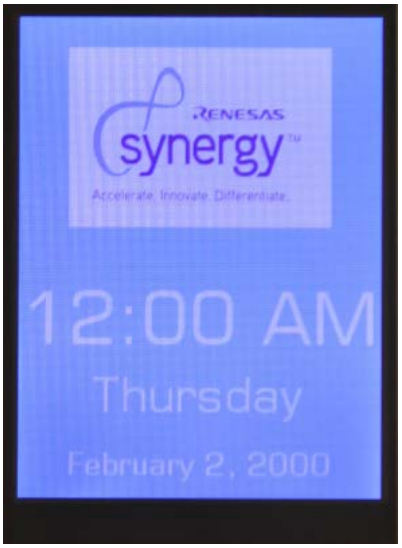


2) Connect the other end of the USB cable to the USB port on your workstation.

   LED4 turns green, indicating a good connection.

Running the Out-of-Box Demo

Once the SK-S7G2 is plugged in, it powers up and performs a self-test. After the test, the LCD displays a splash screen:



1) Tap the splash screen to enter the Thermostat demonstration.

   In this demonstration, the SSP uses the A/D converter to read the internal temperature sensor of the S7G2 MCU and displays this information on the LCD display:

2) Tap the Settings icon, , to make adjustments to the system including **Units**, **Set Time**, and **Set Date**:

Running the Blinky Project

The Blinky Project in the SSP provides a simple example of an SSP application and familiarizes you with the e2 studio environment. Before running the project, ensure that the J-Link On-Board is connected to the workstation. See the steps in *Connecting the board components* on page 3.

To run the Blinky Project, first create a Renesas Synergy Project in the e^2 studio ISDE. You can then debug and run the project on the SK-S7G2.

Creating the Blinky Project

To create a project, do the following steps:

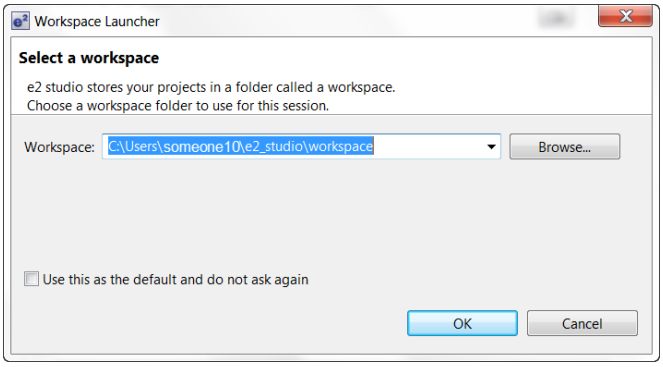
1) Start the e^2 studio ISDE by clicking **Start Menu** > **Renesas Electronics e2studio** > **e2 studio.**

NOTES:

- The e^2 studio ISDE confirms the installed tool chain(s) the first time it is started after installing the toolchains.
- The e^2 studio ISDE displays the **Welcome to e^2 studio** screen by default. If you click the **[X]**, it does not display again.
- If you do not have a compatible tool chain installed, see *Prerequisites* on page 2.

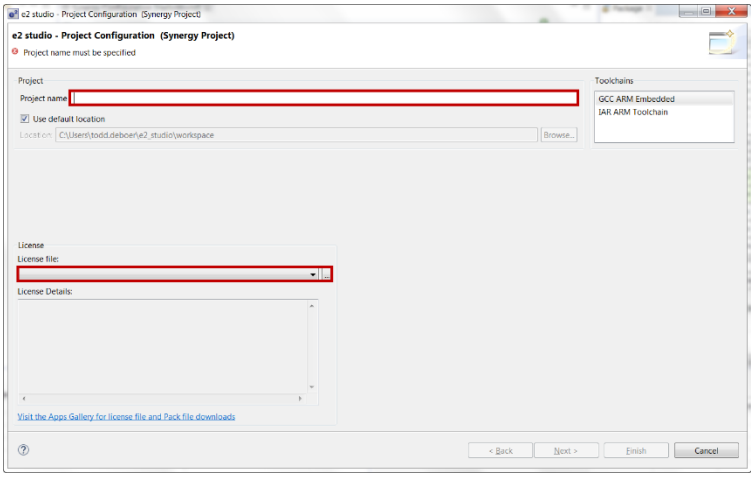
2) If the **Workspace Launcher Dialog** box displays, click **OK**.

NOTE: If you select **Use this as the default** (workspace) **and do not ask again**, the **Workspace Launcher** window does not display.



3) Start a new Synergy Project by clicking **File** > **New** > **Synergy Project**.

   The ISDE displays the **Project Configuration (Synergy Project)** dialog box:



4) Enter **Blinky_SK_S7G2** as the **Project name**.

5) The first time you configure a project you need to load a license file. Click the browse icon of the **License File** field and, if needed and you installed to the default locations, browse to C:\Renesas\e2_studio\internal\projectgen\arm\Licenses\.

NOTE: After you have loaded the license file, it is loaded and displayed in the **License** window by default.

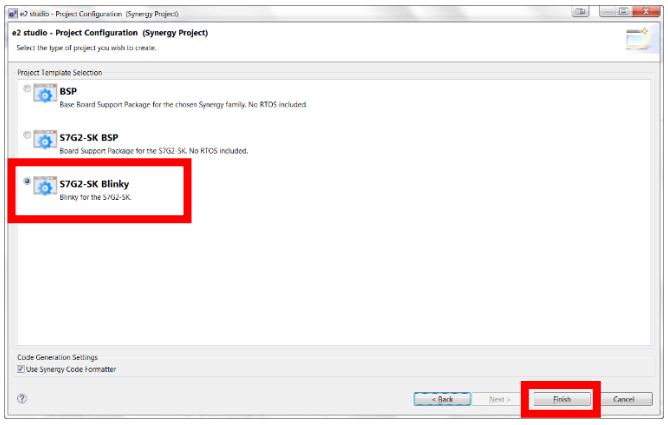
6) Click **Next**.

   The ISDE displays the **Project Configuration (Synergy Project)** window with the **Board** options.

7) Select **S7G2 SK** and leave all other options at their default settings.

8) Click **Next**.

   The ISDE displays the **Project Configuration (Synergy Project)** window with the **Project Template Selection** options.

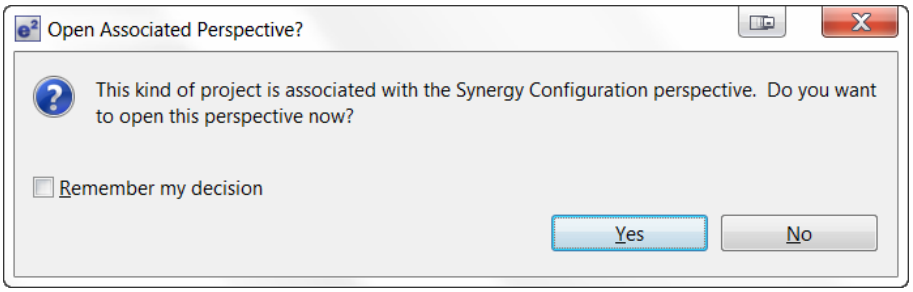


9) Select **S7G2-SK Blinky**.

10) Click **Finish**.

11) If the **Open Associated Perspective** dialog box appears, click **Yes**.

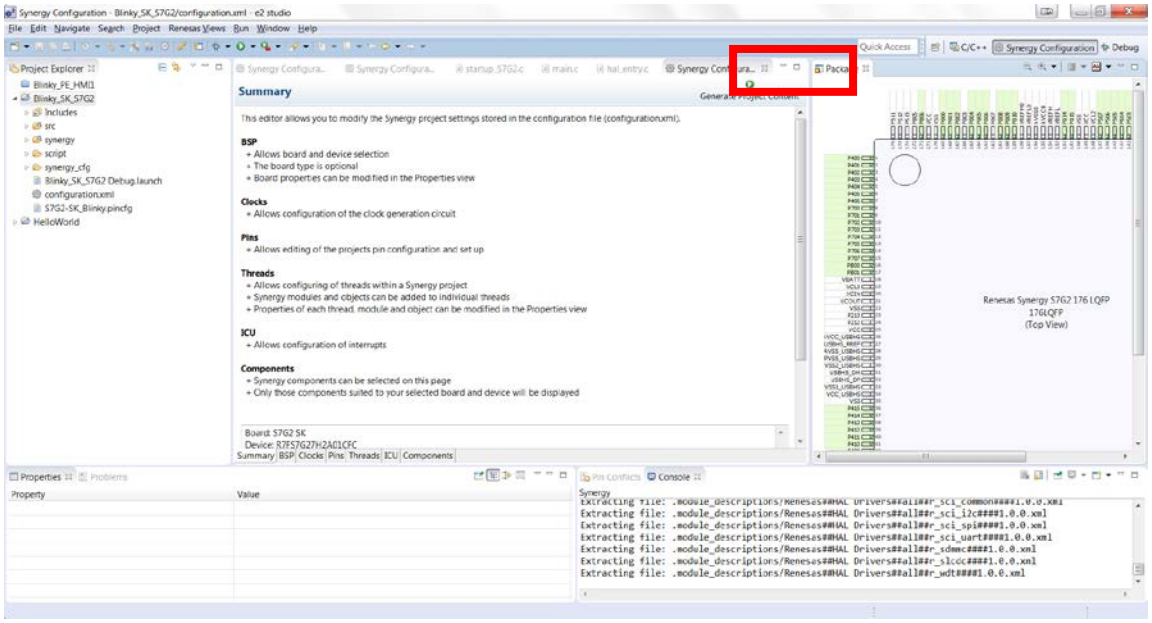
NOTE: The e^2 studio ISDE has built in Perspectives. Until you inform the tool to **Remember my decision**, it asks if it can use the **Synergy Configuration perspective**:



The ISDE automatically configures the SSP to load and generate the necessary configuration files for the microcontroller hardware associated with the selected board.

The ISDE displays the **Synergy Project Editor** where you can see all generated files and configurations by selecting the **Clocks**, **Pins**, **Threads**, **ICU**, and **Components** tabs.

NOTE: Do try different things. **Edit** > **Undo** reverses almost any action you most recently performed.



12) Generate the project content by clicking 

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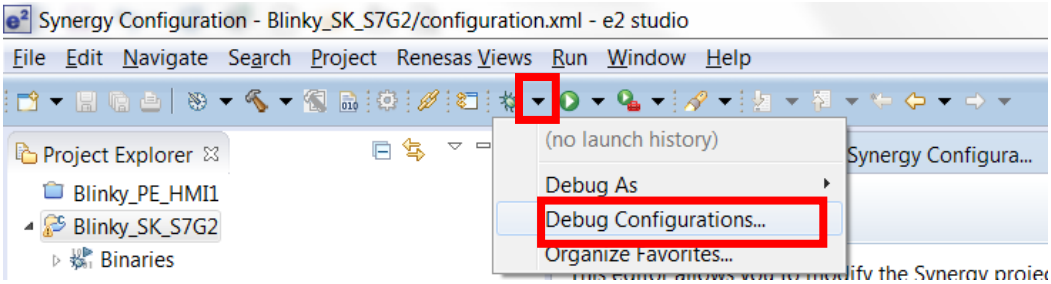
13) Build the project by selecting **Project** > **Build Project** or clicking on the Build icon,  .

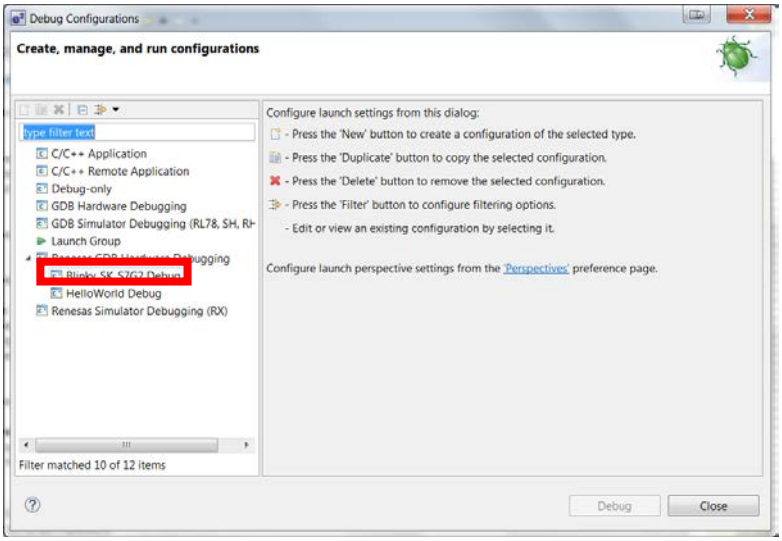
Debugging and running the Blinky Project

To debug and run the project, do the following steps:

1) Configure the debugger by selecting the drop-down menu next to the debug icon and select **Debug Configurations**.



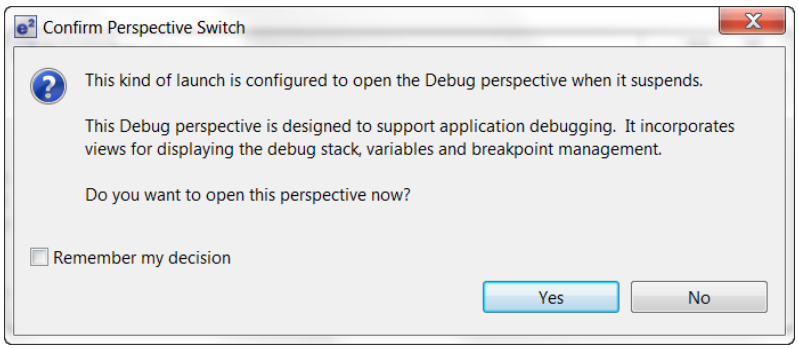
2) Select your Blinky Project **Blinky_SK_S7G2 Debug**.



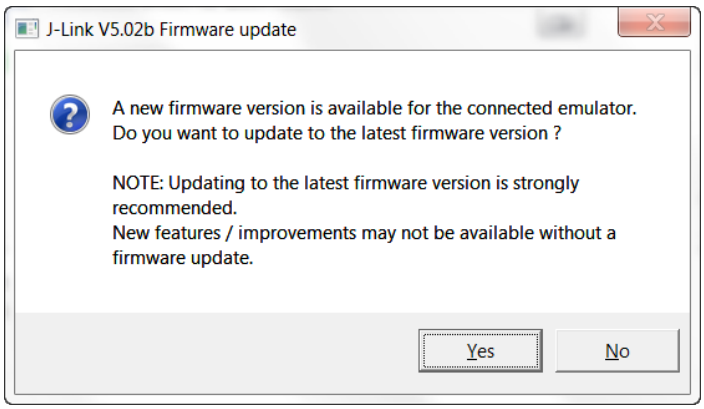
3) Click **Debug**.

   a. If the **Confirm Perspective Switch** dialog displays, click **Yes**.

NOTE: If you click the **Remember my decision** check box before clicking **Yes**, you will not see this dialog again.



b. If the **J-Link Firmware update** dialog displays, we highly recommend that you click **Yes**.



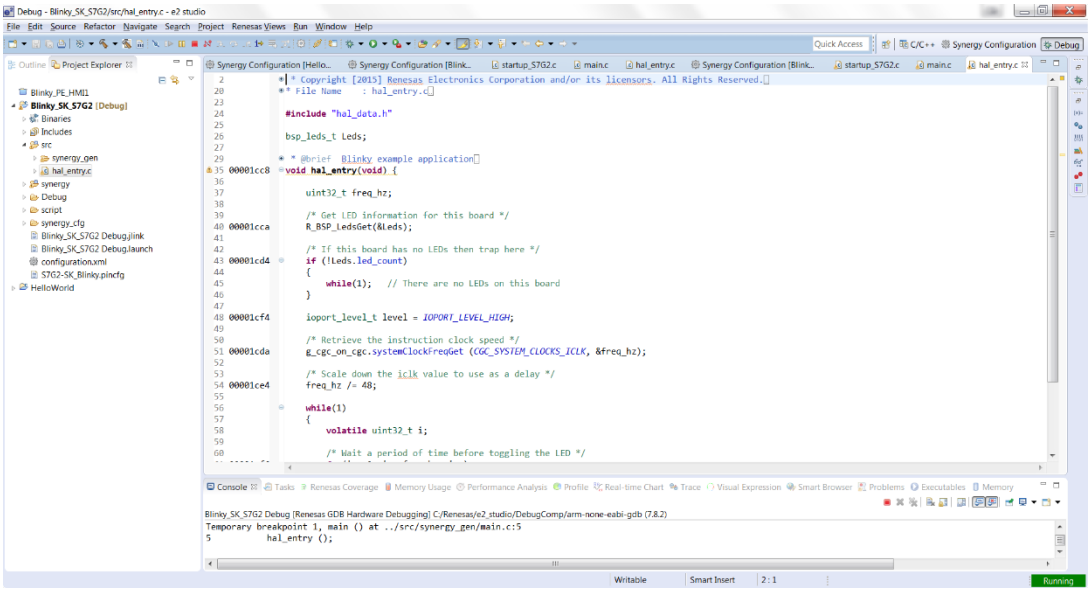
The ISDE downloads the project onto the board.

4) Click on the Resume icon,  and the software runs until `hal_entry ()`.

5) Click on the Resume icon,  , and the software runs turning LED1 on and off.

Next steps

You can review the code for the Blinky Project in the src directory of your project.



Application Notes and Demonstration Applications are available from https://synergygallery.renesas.com/ssp.

Examples of the categories that Renesas is developing are:

- Wired connectivity (CAN, RS232/485, TCP/IP, Web Server, networking services)
- Bluetooth connectivity (Bluetooth Classic and Bluetooth Low Energy connection to mobile devices using various profiles)
- WiFi connectivity (Access Point Enumeration, Access Point connection using secure protocols, TCP/IP, Web Server, networking services)
- Multi-media (webcam, audio playback & record, audio processing, GUIX tutorials)
- MCU performance & power measurement (thread, throughput, and I/O performance, low-power modes & power measurement)
- Security (protected memory and bus access examples, stack security examples, security protocols and services examples)

Reloading the Out-of-Box Demo

If you want to reload the original Out-of-Box Demo application, you can find this application and the instructions to reload at https://synergygallery.renesas.com/ssp.

NOTE: The Out-of-Box Demo on the Synergy Gallery may be an updated and improved Demo. This kit contains version 1.0 of the SK-S7G2 Out-of-Box Demo.

Support

Support: https://synergygallery.renesas.com/support

Technical contact details:

- America: https://renesas.zendesk.com/anonymous_requests/new
- Europe: http://www.renesas.eu/support/index.jsp
- Japan: http://japan.renesas.com/contact/index.jsp

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Renesas Electronics America Inc.
2801 Scott Boulevard Santa Clara, CA 95050-2549, U.S.A.
Tel: +1-408-588-6000, Fax: +1-408-588-6130

Renesas Electronics Canada Limited
9251 Yonge Street, Suite 8309 Richmond Hill, Ontario Canada L4C 9T3
Tel: +1-905-237-2004

Renesas Electronics Europe Limited
Dukes Meadow, Millboard Road, Bourne End, Buckinghamshire, SL8 5FH, U.K
Tel: +44-1628-585-100, Fax: +44-1628-585-900

Renesas Electronics Europe GmbH
Arcadiastrasse 10, 40472 Düsseldorf, Germany
Tel: +49-211-6503-0, Fax: +49-211-6503-1327

Renesas Electronics (China) Co., Ltd.
Room 1709, Quantum Plaza, No.27 ZhiChunLu Haidian District, Beijing 100191, P.R.China
Tel: +86-10-8235-1155, Fax: +86-10-8235-7679

Renesas Electronics (Shanghai) Co., Ltd.
Unit 301, Tower A, Central Towers, 555 Langao Road, Putuo District, Shanghai, P. R. China 200333
Tel: +86-21-2226-0888, Fax: +86-21-2226-0999

Renesas Electronics Hong Kong Limited
Unit 1601-1611, 16/F., Tower 2, Grand Century Place, 193 Prince Edward Road West, Mongkok, Kowloon, Hong Kong
Tel: +852-2265-6688, Fax: +852 2886-9022

Renesas Electronics Taiwan Co., Ltd.
13F, No. 363, Fu Shing North Road, Taipei 10543, Taiwan
Tel: +886-2-8175-9600, Fax: +886 2-8175-9670

Renesas Electronics Singapore Pte. Ltd.
80 Bendemeer Road, Unit #06-02 Hyflux Innovation Centre, Singapore 339949
Tel: +65-6213-0200, Fax: +65-6213-0300

Renesas Electronics Malaysia Sdn.Bhd.
Unit 1207, Block B, Menara Amcorp, Amcorp Trade Centre, No. 18, Jln Persiaran Barat, 46050 Petaling Jaya, Selangor Darul Ehsan, Malaysia
Tel: +60-3-7955-9390, Fax: +60-3-7955-9510

Renesas Electronics India Pvt. Ltd.
No.777C, 100 Feet Road, HAL II Stage, Indiranagar, Bangalore, India
Tel: +91-80-67208700, Fax: +91-80-67208777

Renesas Electronics Korea Co., Ltd.
12F., 234 Teheran-ro, Gangnam-Gu, Seoul, 135-080, Korea
Tel: +82-2-558-3737, Fax: +82-2-558-5141

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