

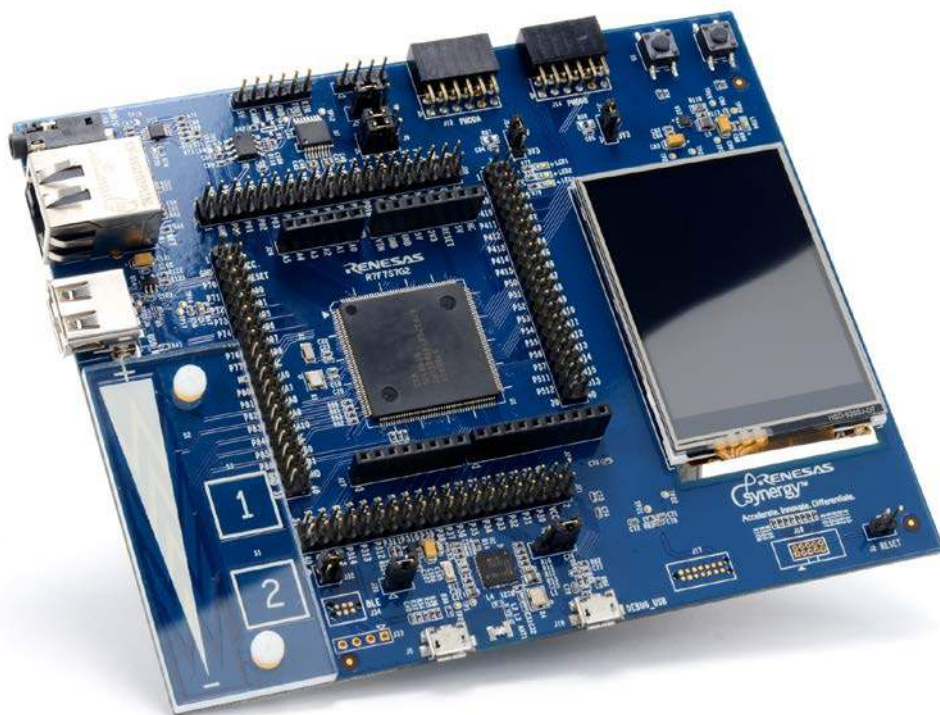
SK-S7G2

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 e² studio Integrated Solution Development Environment (ISDE)
- Renesas Synergy™ Software Package (SSP)

Installation

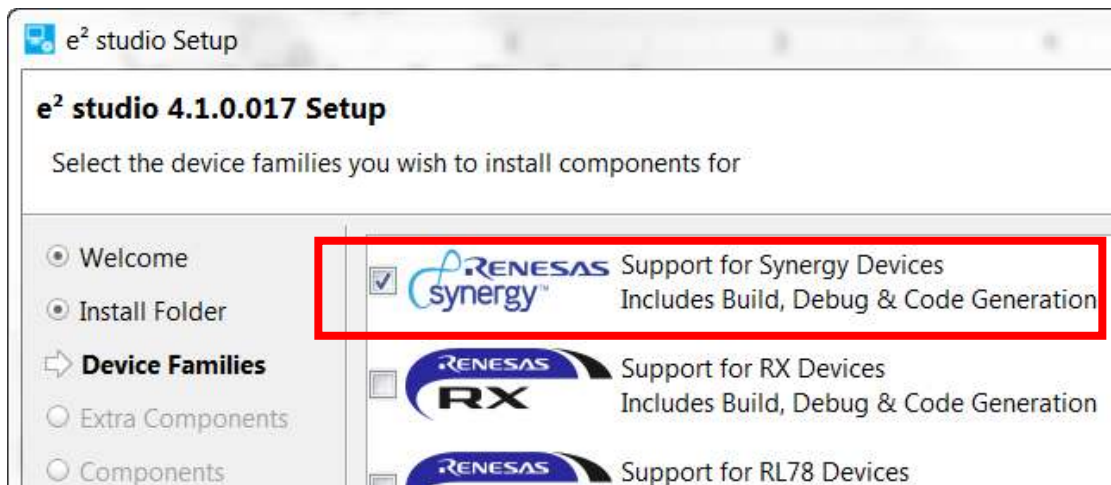
Tools are available for download at: <https://synergygallery.renesas.com>.

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

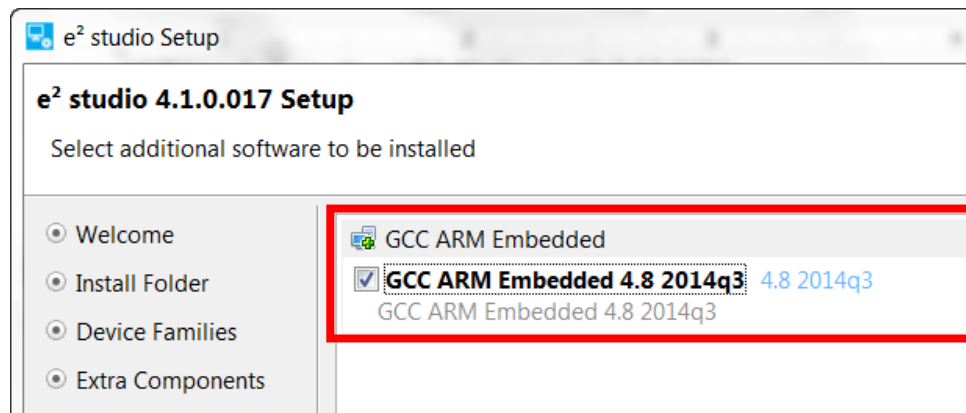
Download and install the latest revision of the e² studio (ISDE) as follows:

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

- 1) In the e² 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:

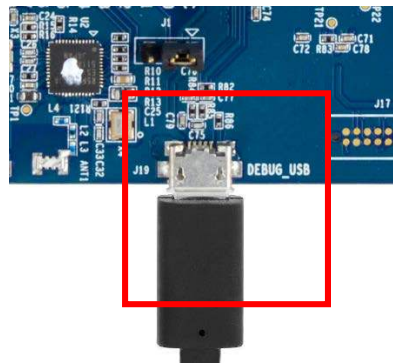


Connecting the board components

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.

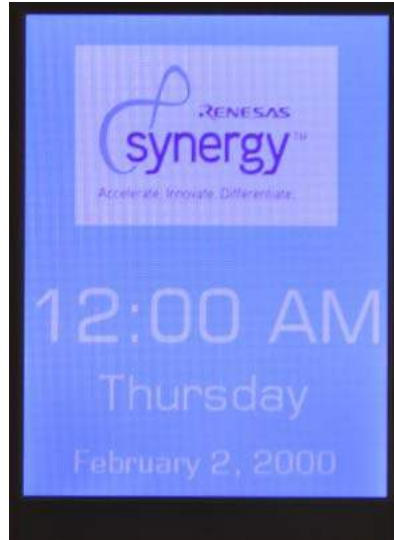


- 2) Connect the other end of the USB cable to the USB port on your workstation.

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 e² 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:

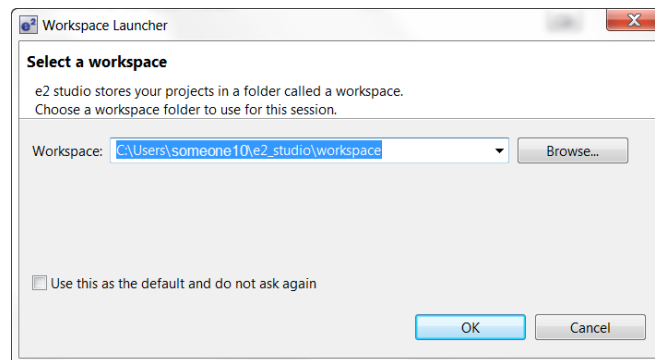
- 1) Start the e² studio ISDE by clicking **Start Menu > Renesas Electronics e2studio > e2 studio**.

NOTES:

- The e² studio ISDE confirms the installed tool chain(s) the first time it is started after installing the toolchains.
- The e² studio ISDE displays the **Welcome to e² 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.

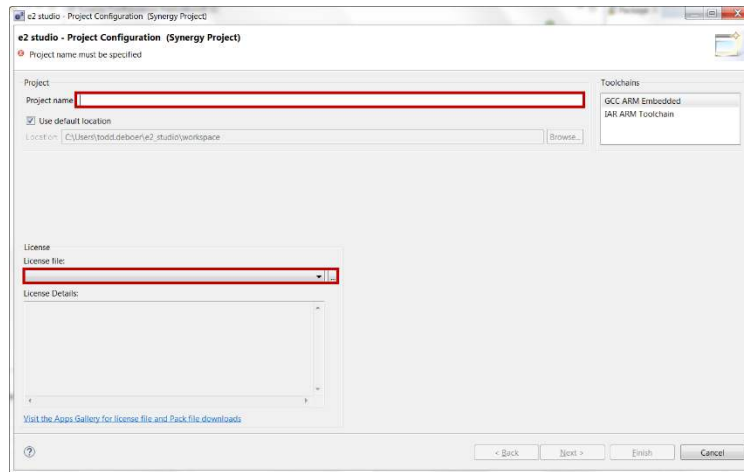
- 2) If the **Workspace Launcher Dialog** box displays, click **OK**.

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\`.

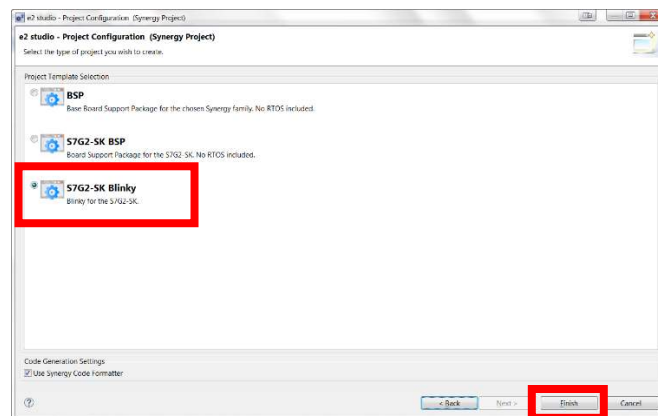
NOTE: After you have loaded the license file, it is loaded and displayed in the **License** window by default.

- 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**.

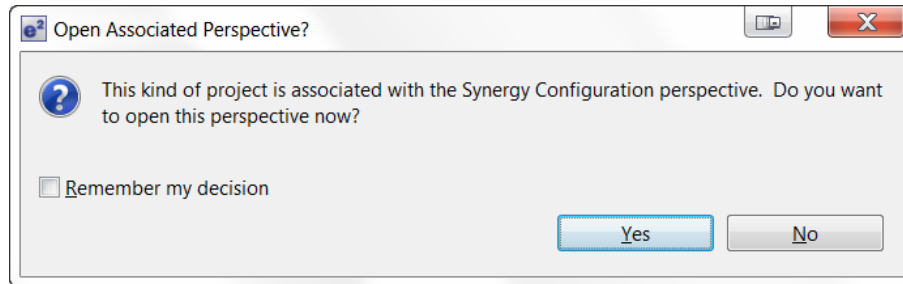
The ISDE displays the **Project Configuration (Synergy Project)** window with the **Project Template Selection** options.



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

- 10) Click **Finish**.
- 11) If the **Open Associated Perspective** dialog box appears, click **Yes**.

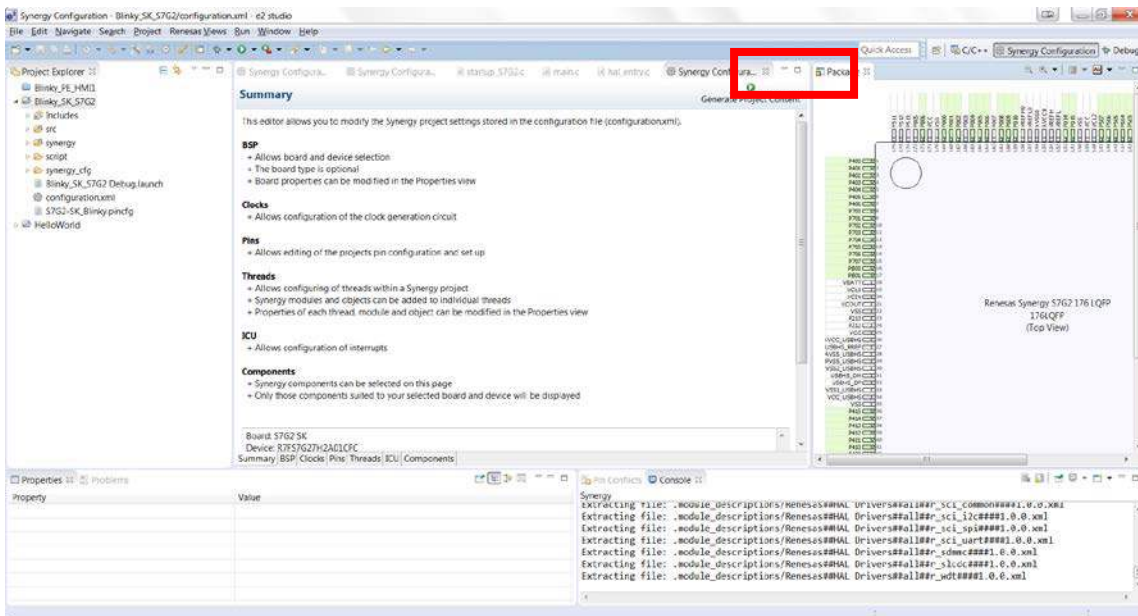
NOTE: The e² studio ISDE has built in Perspectives. Until you inform the tool to **Remember my decision**, it asks if it can use the **Synergy Configuration perspective**:

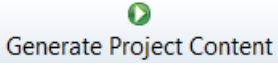



The ISDE automatically configures the SSP to load and generate the necessary configuration files for the microcontroller hardware associated with the selected board.

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.

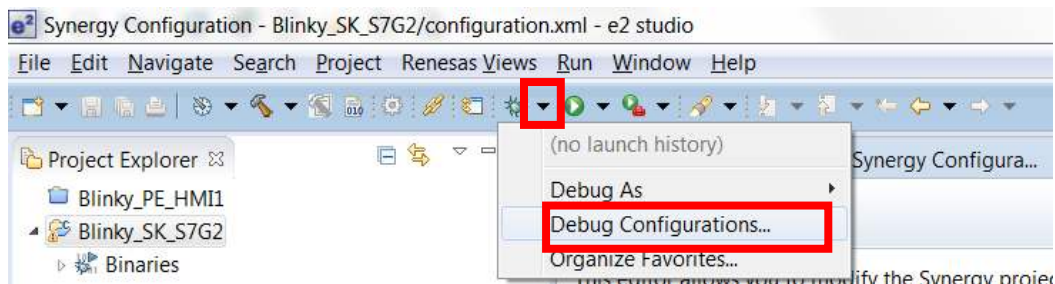


- 12) Generate the project content by clicking  **Generate Project Content**.
- 13) Build the project by selecting **Project > Build Project** or clicking on the Build icon, .

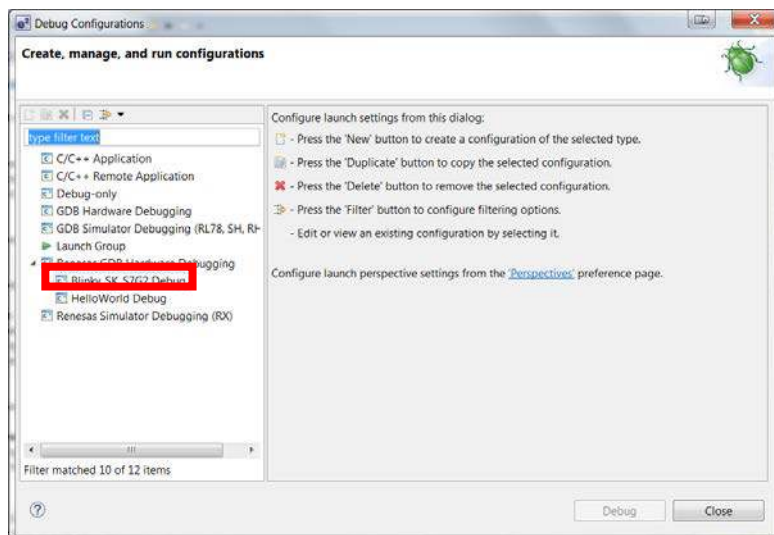
Debugging and running the Blinky Project

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**.

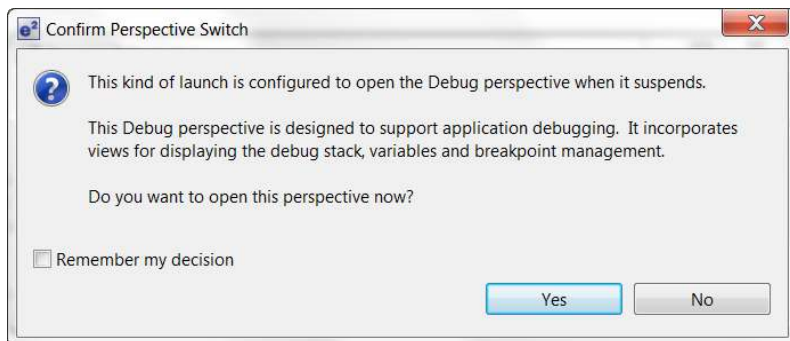


- 2) Select your Blinky Project **Blinky_SK_S7G2 Debug**.

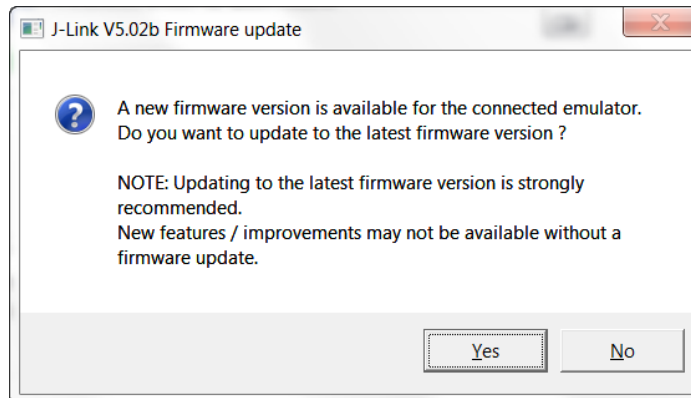


- 3) Click **Debug**.
 - a. If the **Confirm Perspective Switch** dialog displays, click **Yes**.



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**.

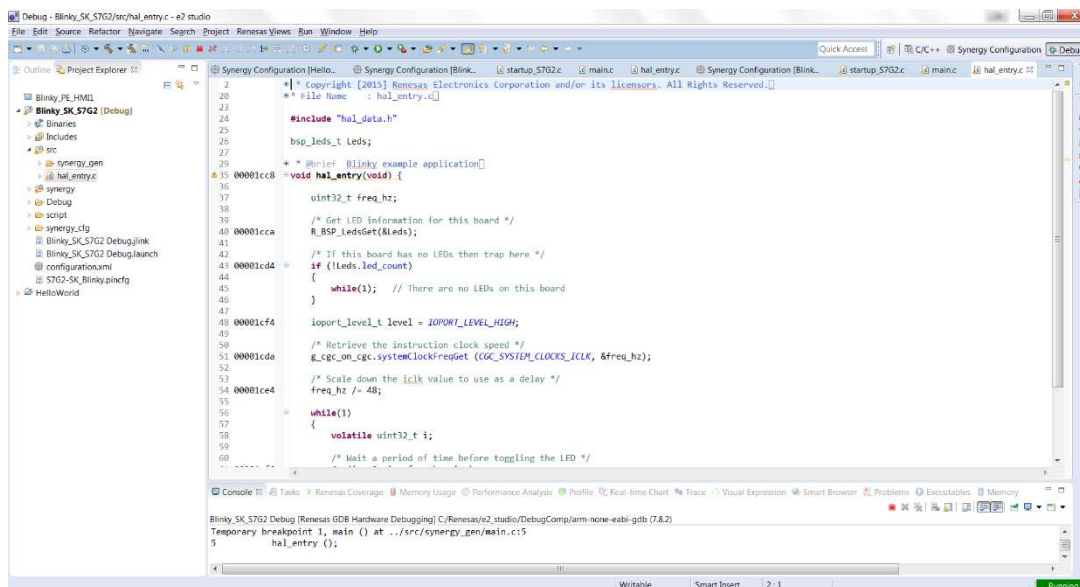


The ISDE downloads the project onto the board.

- 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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