

Getting Started with a ΣyG™ BSP

Introduction

At Future Designs, our goal is to make it easy for our customers to get their projects up and running as quickly as possible. To enable rapid development of Synergy projects on the ΣyG™, a board support package (BSP) is provided. These BSP pack files (uses the file extension *.pack) are used by the Synergy Configurator to generate certain files necessary for abstracting the ΣyG hardware for the Synergy Software Package (SSP) and ThreadX. This document describes the process for placing the pack files in the proper location, and describes the process for creating a new sample project to flash the on-board LED(s).

Hardware Requirements

- One of the following products:
 - SYG-70CP-DK.....[Product Page](#)
 - SYG-70CR-DK.....[Product Page](#)
 - SYG-S7G2-70C-MDK.....[Product Page](#)
 - SYG-S7G2-43C-MDK.....[Product Page](#)

Software Requirements

- e2studio 6.2.0
- Synergy Software Package (SSP) v1.4.0
- One of the following sets of pack files:
 - SYG-70CP-DK.....[Download](#)
 - SYG-70CR-DK.....[Download](#)
 - SYG-S7G2-70C-MDK.....[Download](#)
 - SYG-S7G2-43C-MDK.....[Download](#)

NOTE: While SYG’s current SSP software requirements is v1.4.0, older versions are also included in the above pack file zip folders.

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1. Importing the Board Support Package (BSP)

To import the BSP pack files, you need to have e2studio installed. If not done yet, create an account on the [Renesas Synergy Gallery](#) and download and install the required software. Follow the steps below to import the BSP into e2studio:

1. Close e2studio if it is open.
2. In Windows Explorer, navigate to the e2studio directory for BSP pack files. If e2studio was installed in the default location, this directory is at [C:\Renesas\Synergy\e2studio_v6.2.0_ssp_v1.4.0\internal\projectgen\arm\packs](#)
3. Copy all the files provided in your products download (from the first page) into the **Packs** directory.

The pack files included in your product's specific download will vary from board to board. A breakdown of what each type of pack file is used for is shown below:

NOTE: Resistive touch panels which use analog signals for touch control such as what is on the SYG-70CR require a different approach to handling touch control. Because of this, the pack file download for resistive touch products may not contain all the below pack files. If you need assistance configuring your project for resistive touch, please contact us or look at some of our [application notes](#).

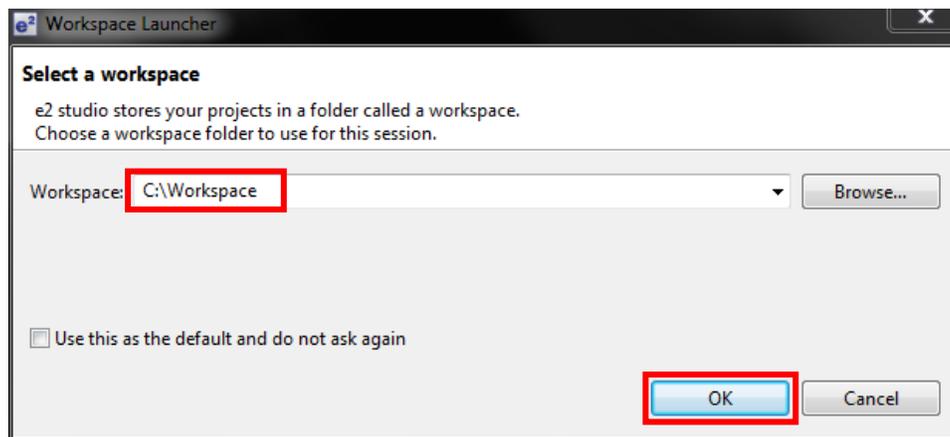
FutureDesignsInc.[Product Name].[SSP Version].pack	Used for generating pin configuration, as well as driver level code for initializing hardware such as SDRAM and QSPI as well as enumerating the on-board LEDs.
FutureDesignsInc.Synergy_touch_panel_i2c_[Touch Chip].[SSP Version].pack	Used for adding a new I ² C touch controller to the list of selectable touch controllers within the Synergy Configurator.
FutureDesignsInc.Synergy_touch_panel_shared_bux_i2c.[SSP Version].pack	Used for adding a new touch framework to the list of selectable modules within the Synergy Configurator.

2. Creating a New Project with the Custom BSP

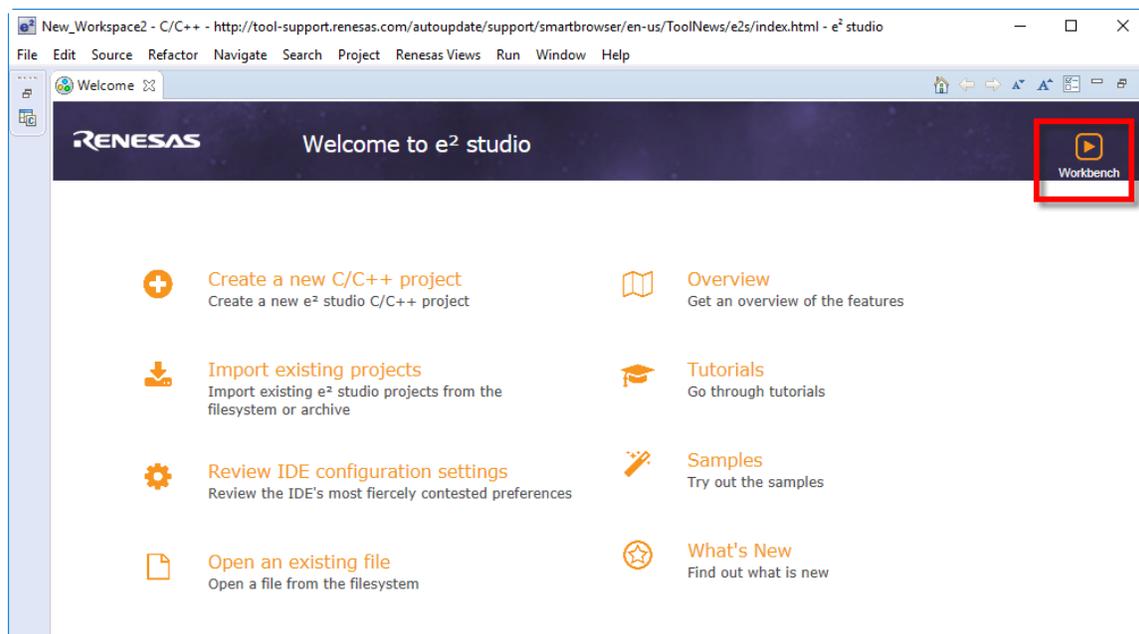
To demonstrate the simplicity of using the pack files for setting up a custom board, follow the instructions below to create a new Synergy C project based on the SYG board that you have.

NOTE: The steps outlined below were performed with multiple custom pack files installed. You may not have all the pack files shown in some of the following images.

1. Open e2studio.
2. When prompted, select or create a new workspace by browsing to the desired project directory, then click OK.

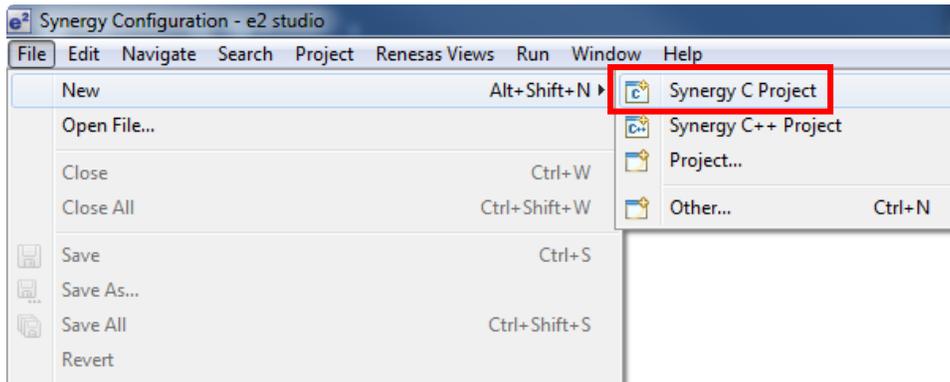


3. If the welcome screen appears, select **Workbench** to continue

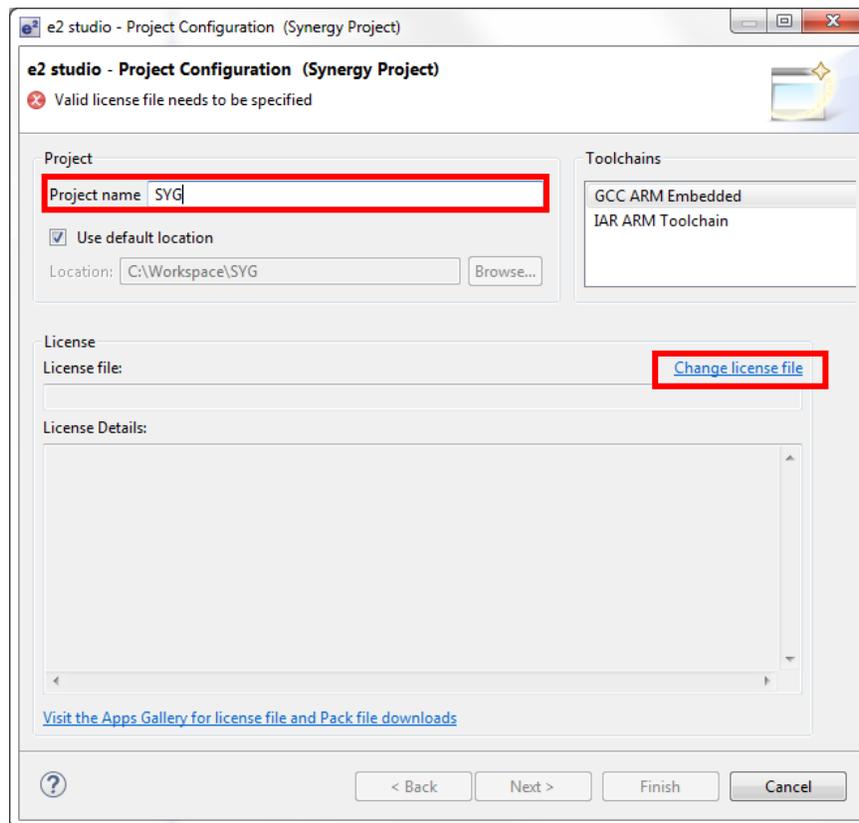


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4. Select **File > New > Synergy C Project**.

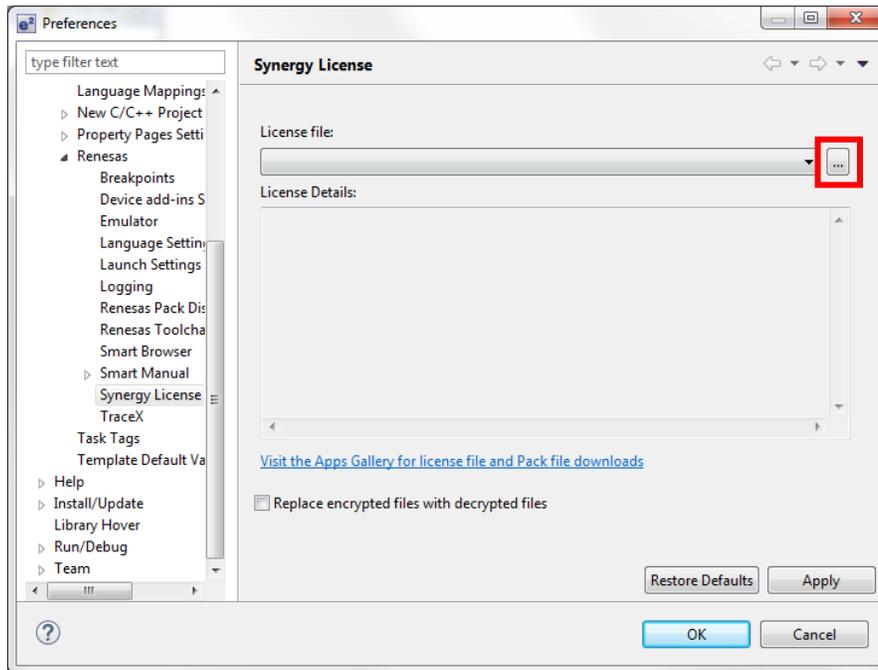


5. In the dialog that opens, insert a Project name. We used “SYG” for this example.
6. Click **Change license file**.

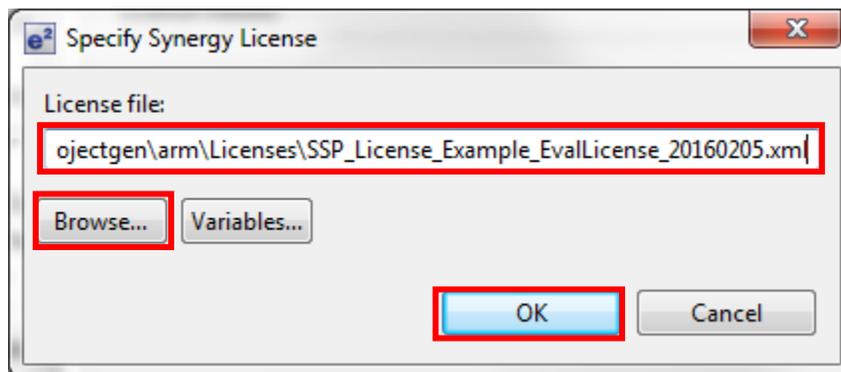


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- Click the ellipsis (...) to bring up the license selection dialog.

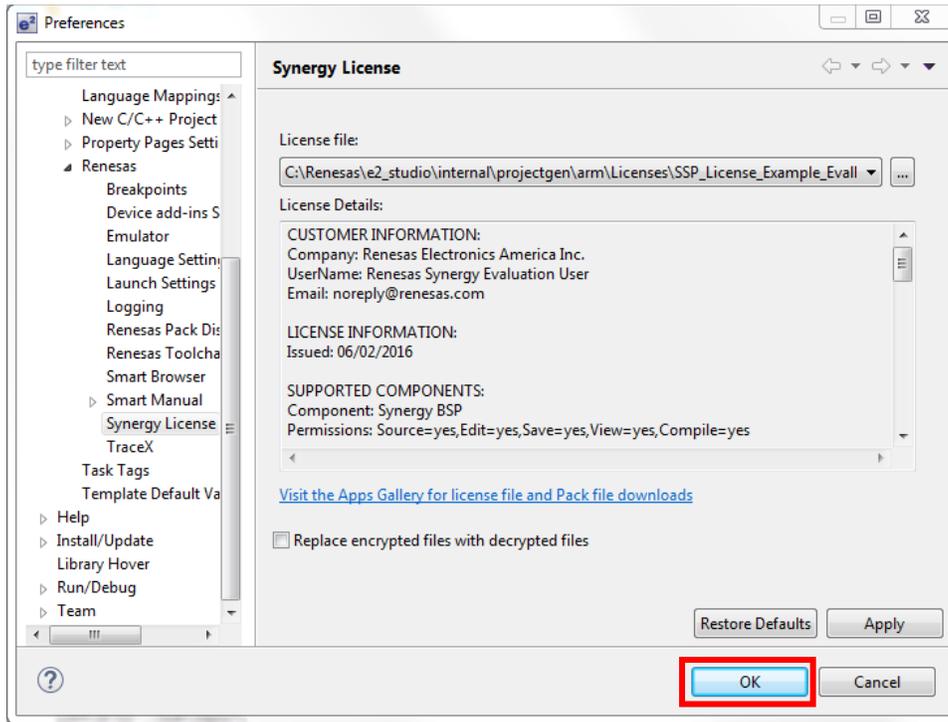


- Click **Browse...**
- Select the license file from the directory.
- Click **Open**.
- Click **OK**.

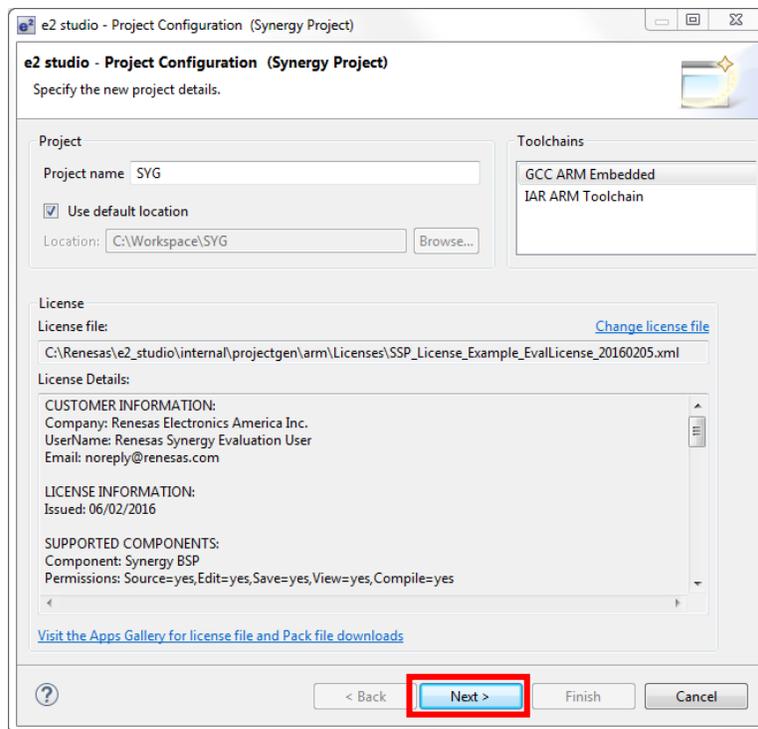


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12. Click **OK**.

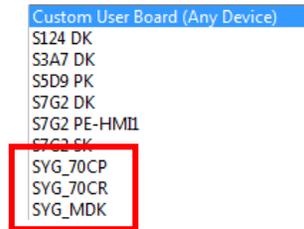


13. Back in the Project Configuration dialog, click **Next**.

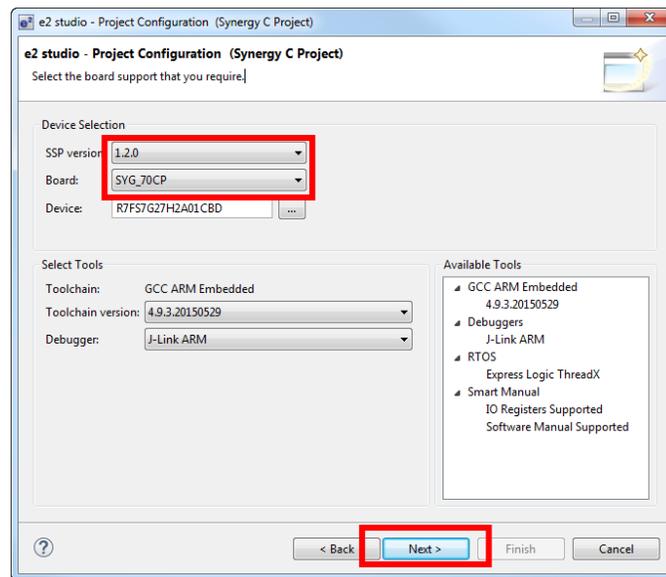


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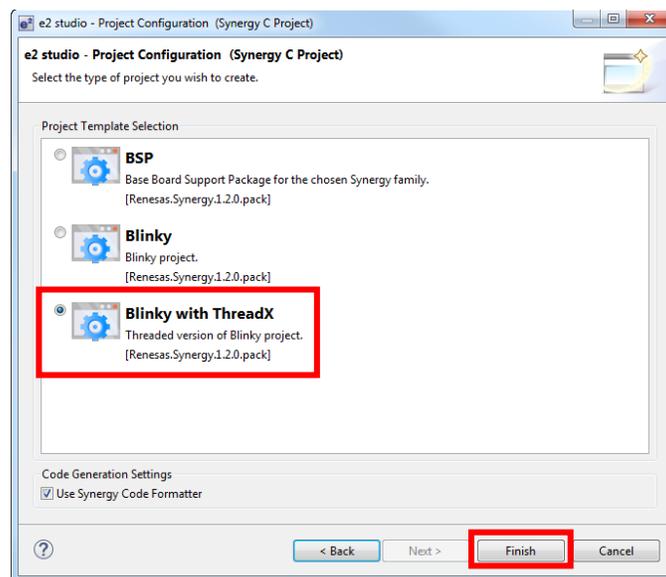
14. For **SSP version**, select **1.4.0**.
15. For **Board**, select your device from the dropdown list:



16. Click **Next**.

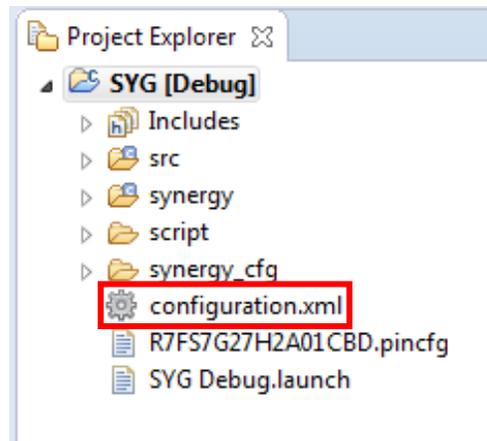


17. Select **Blinky with ThreadX**.
18. Click **Finish**.



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19. The project is created and opens to the e2studio workbench. By default, the configurator will open in your main window. If the configurator is not open, double click **configuration.xml** in the **Project Explorer** pane on the left.

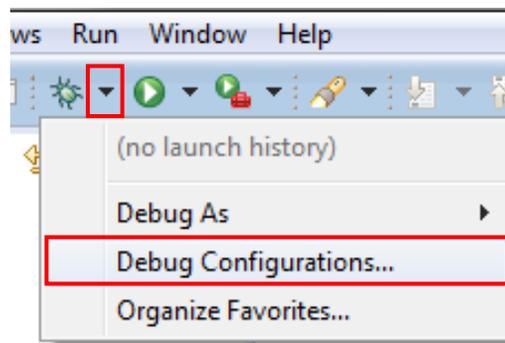


20. Click **Generate Project Content** at the top right of the Synergy Configurator.



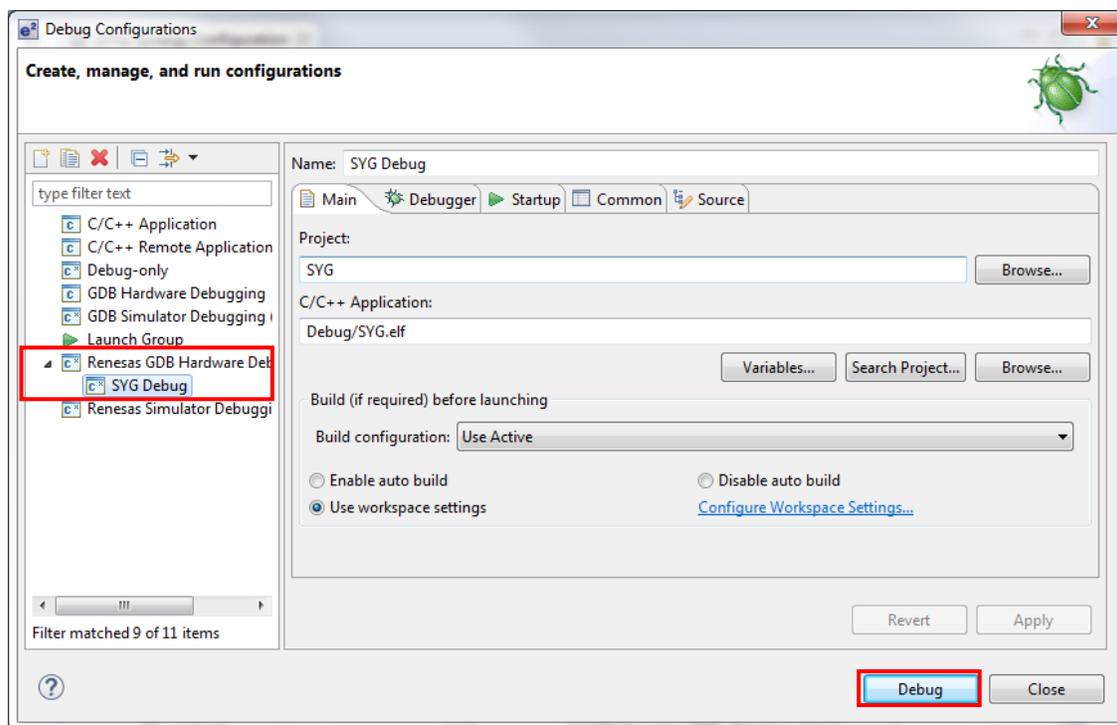
21. Build the project by clicking the hammer icon  on the toolbar.

22. Click the Debug dropdown arrow and select **Debug Configurations...**

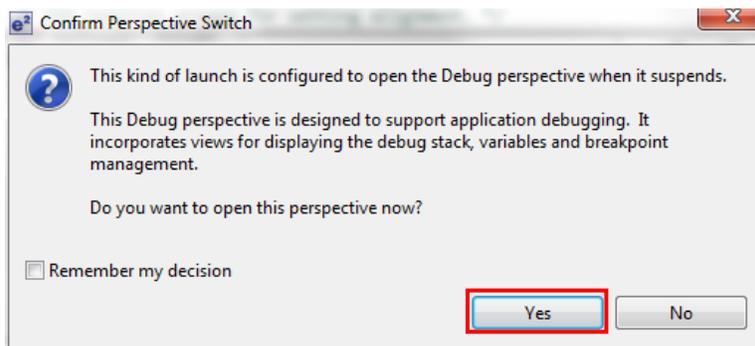


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23. Under **Renesas GDB Hardware Debugging**, select **[Your Project Name] Debug**. In our example, its is **SYG Debug**.
24. Click **Debug** to begin download the program to the device.



25. If asked to open the Debug perspective, click **Yes**.



26. After flashing and resetting the target device, e2studio will show the program counter at the hardware reset location. Press **F8** to proceed to **main()** at which point the program hits another breakpoint. Press **F8** again to run the program and watch any of the on-board LEDs blink.

3. Next Steps

Below is a list of the current application notes (or those being developed). Check our website as we are constantly developing new demos and application notes:

- <http://www.teamfdi.com/syg#syg-appnotes>
 - All SYG Application Notes (in one spot)

4. Website and Support

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