

Renesas Synergy™ Platform

Using IAR C-STAT Static Code Analysis with Selected IoT Checks from MISRA C:2012

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Introduction

This application note describes how to enable and execute code analysis with the integrated IAR C-STAT solution in IAR Embedded Workbench® for Renesas Synergy™.

Required Resources

A PC running Microsoft® Windows® 7 or later, with the following Renesas Synergy software installed:

- Synergy Software Platform (SSP) v1.4.0 or later
- IAR EW for Synergy™ v8.21.1
- Synergy Standalone Configurator (SSC) v6.2.0.

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1. Creating the Blinky Project

1. Create a new workspace with IAR EW for Synergy. Select **File > New Workspace**.

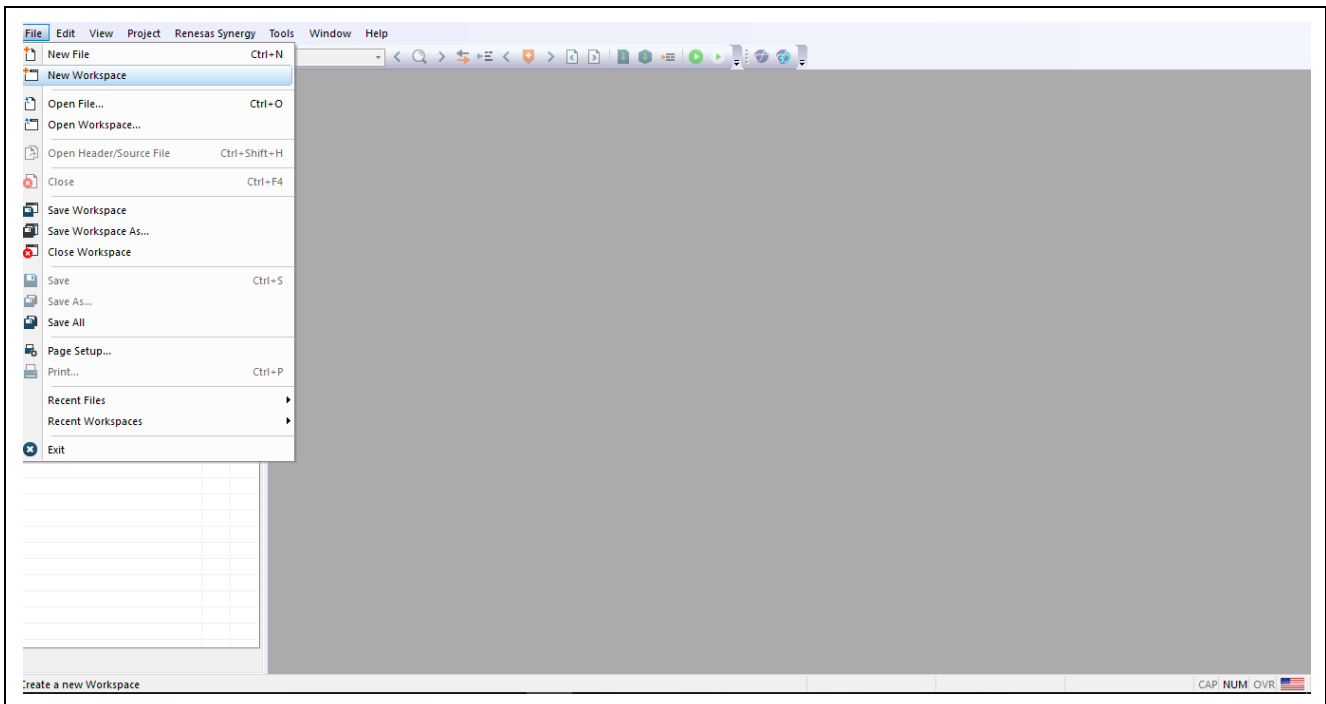


Figure 1 Create Workspace

2. Select the **Renesas Synergy** tab and **> New Synergy Project**.

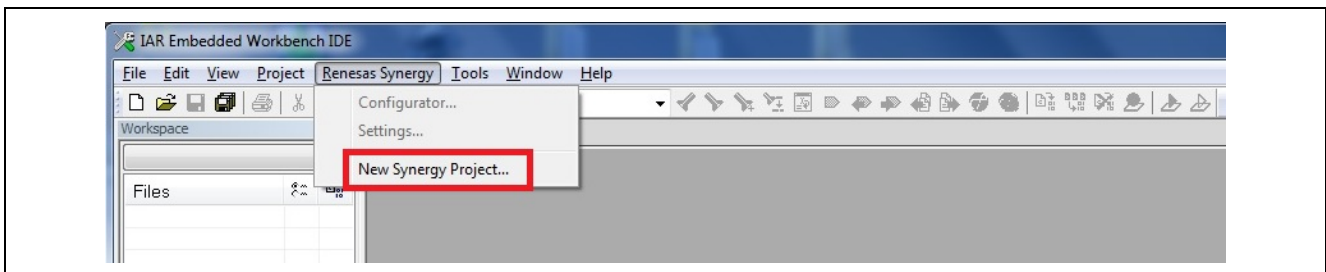


Figure 2 Create a New Synergy Project

3. Set up a folder for your new **Workspace Project**. Create a **Workspace File**. Name the file .eww and save it. Example shown below, **Blinky_DKS7G2.eww**.

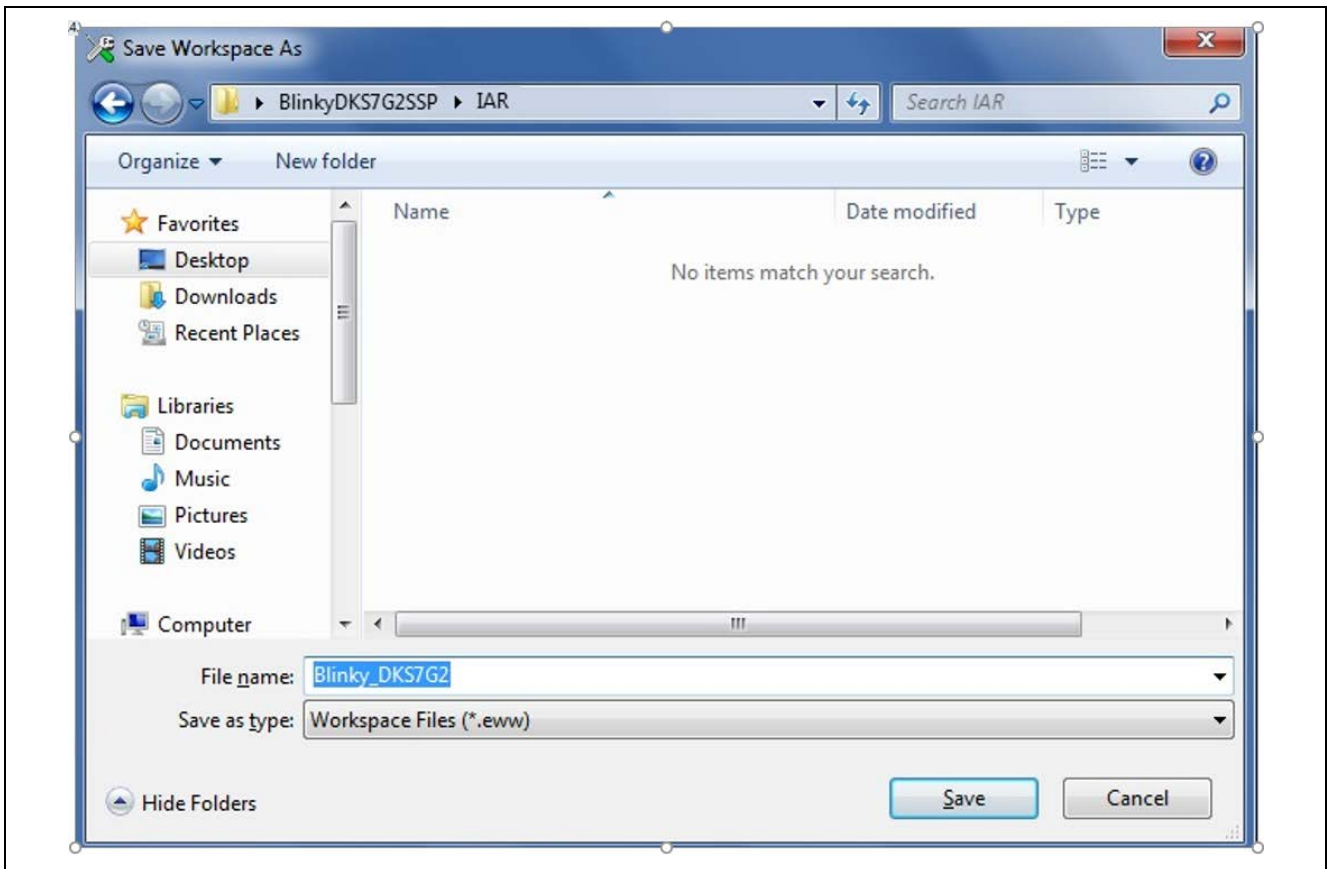


Figure 3 Create a Workspace File, name and save it

4. Select the location in the **Renesas Synergy Settings** where the **License file** is installed and click **OK**.

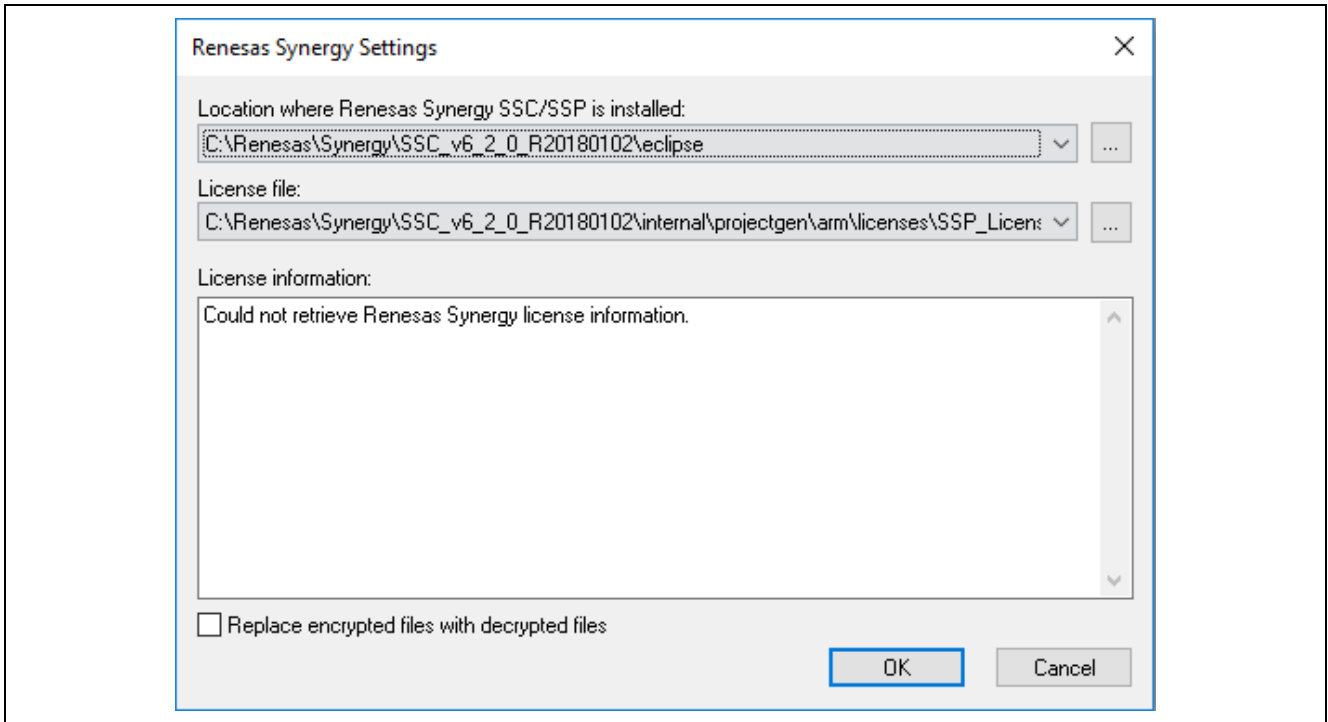


Figure 4 Select Renesas Synergy SSC/SSP and License root directory

5. Create a **Project File**, name the Project file with .ewp and save it. Example, **Blinky_DKS7G2.ewp**.

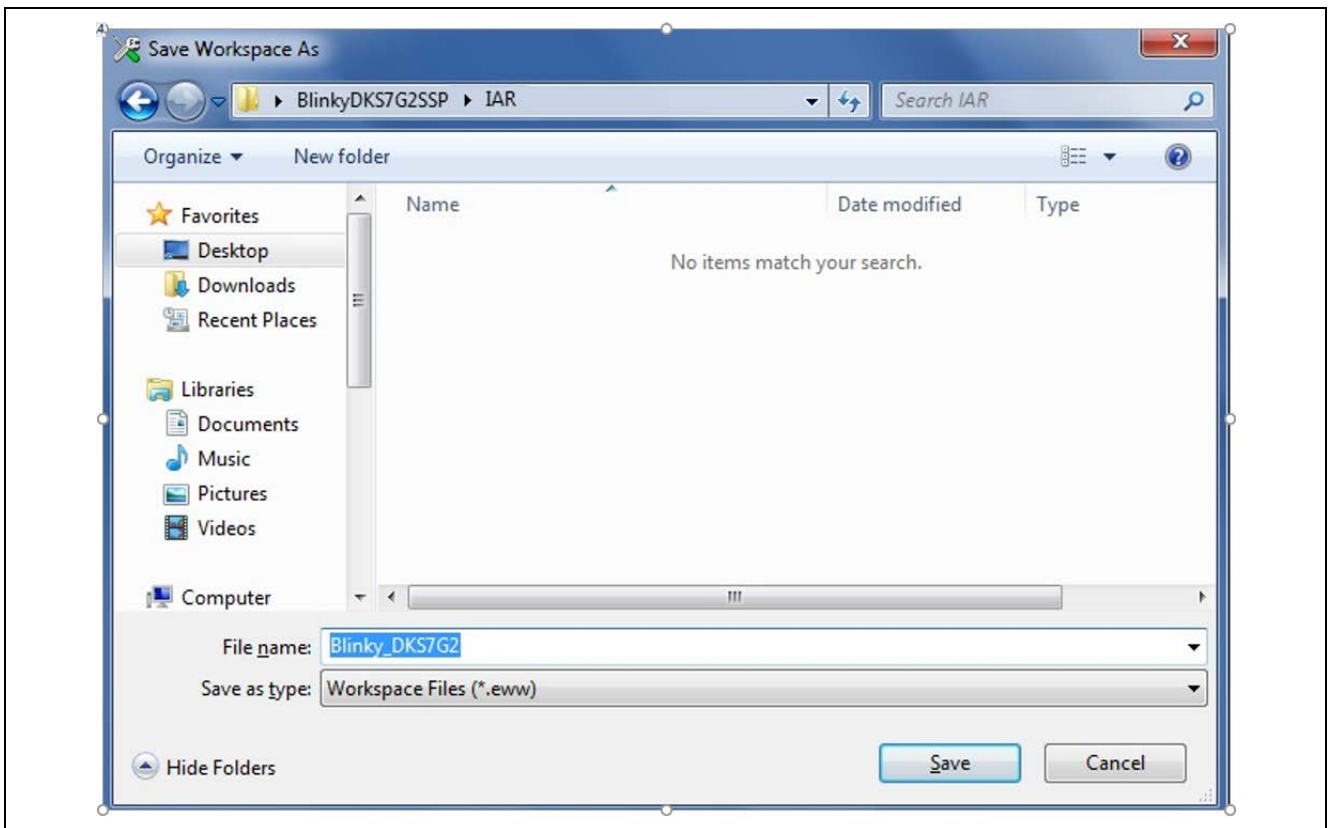


Figure 5 Create project file, name and save it

- After you save it, IAR EW for Synergy will automatically use the SSC (Synergy Standalone Configurator) to create your new project. You must select the **SSP version**, **Board** and **Device**. Click **Next** when you are done with selection.

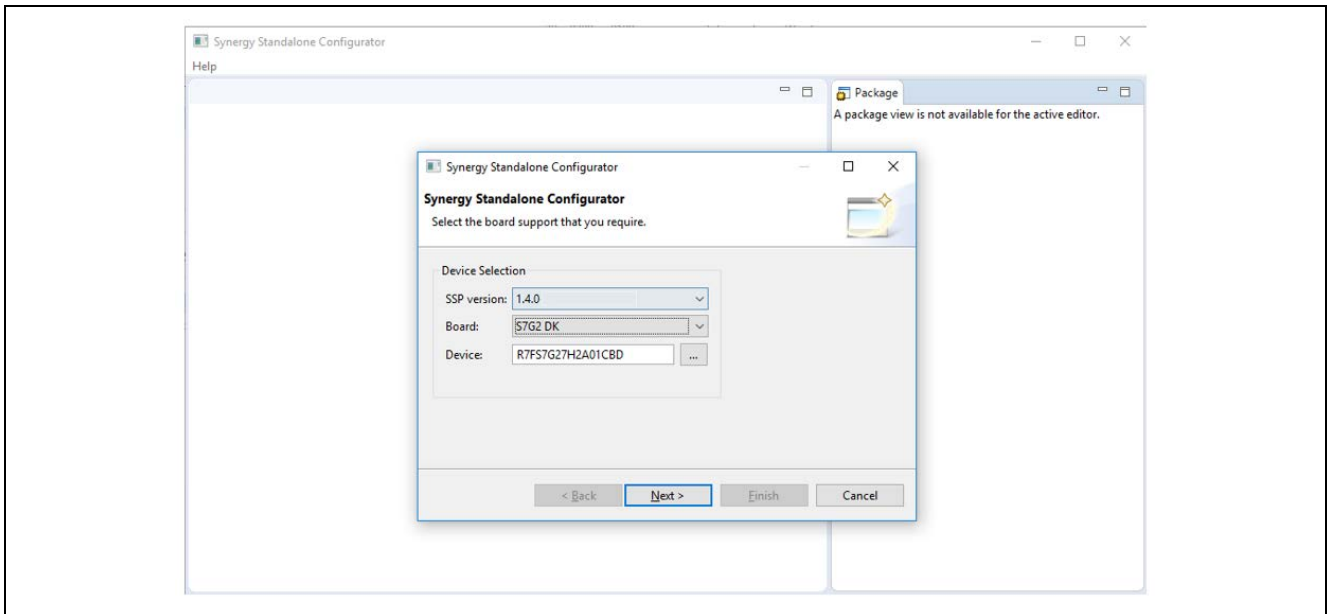


Figure 6 Select SSP, Board and Device

- The Synergy Standalone Configurator window pops up. Scroll down and select **Blinky with ThreadX®** and click the **Finish** button.

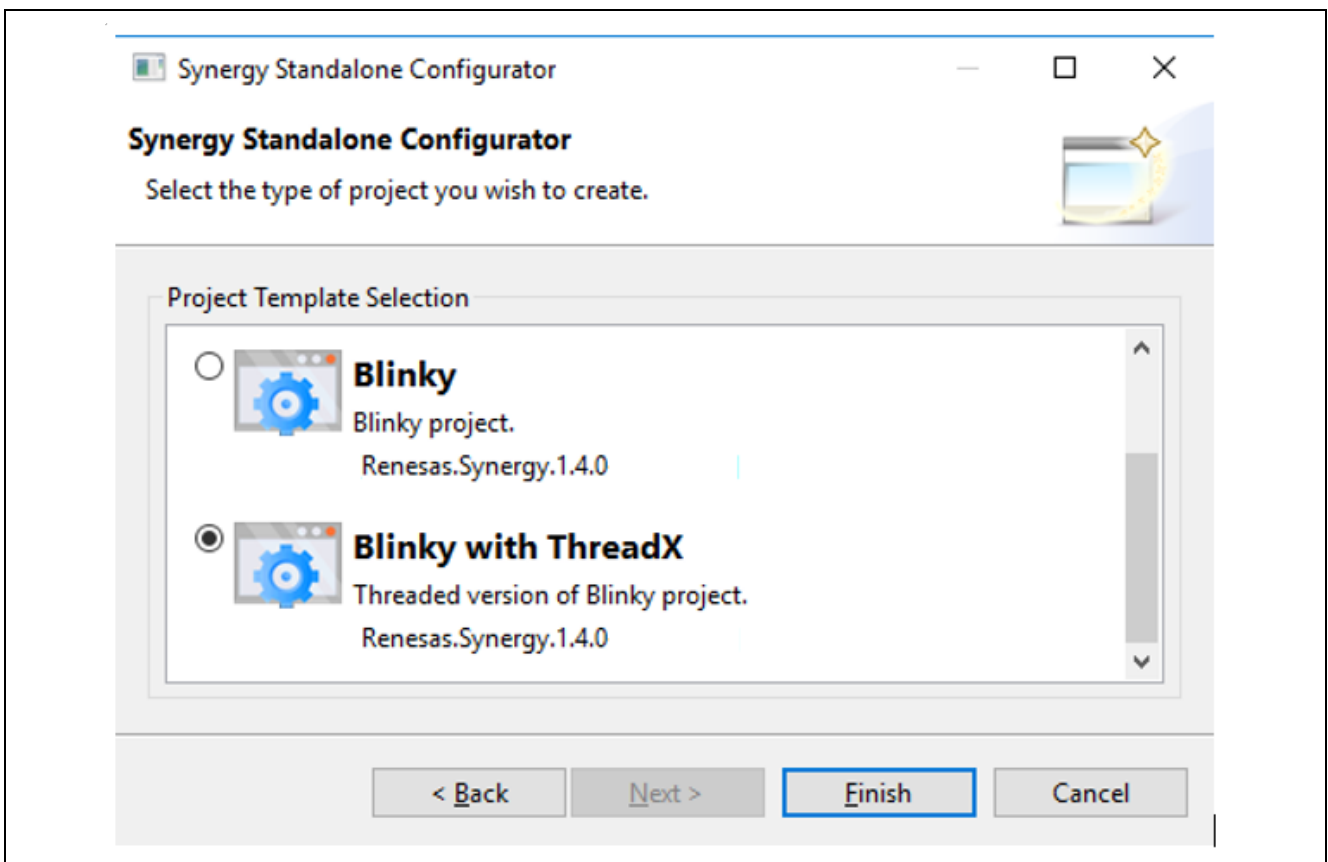


Figure 7 Select Blinky with ThreadX

- 8. Double check your configuration (**SSP, Board and Device**) from the **BSP** tab, then click the **Generate Project Content** button on the upper right side of the window.

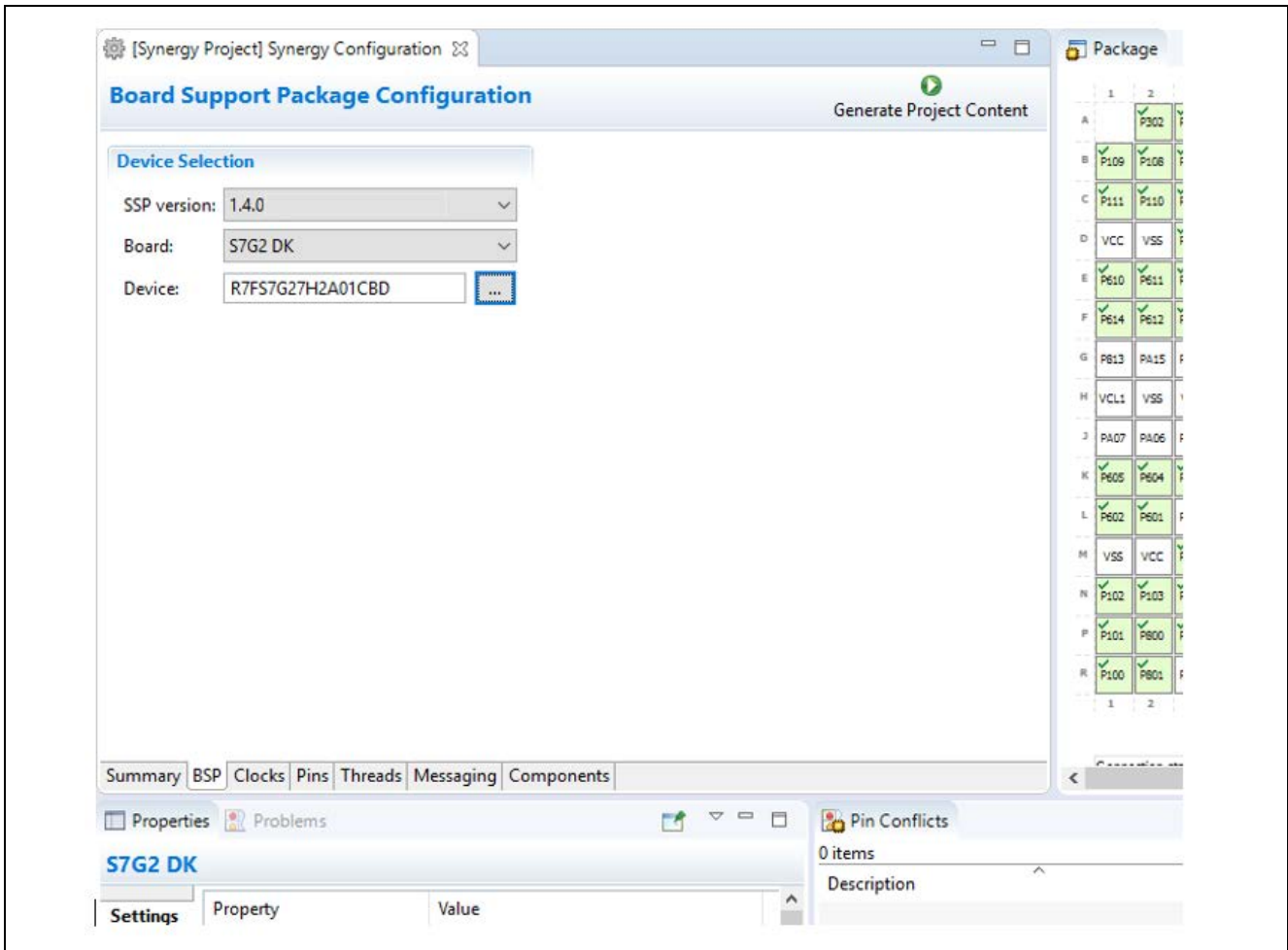


Figure 8 Double check the setting and Generate Project Content

- 9. Click the **Select All** button and click **OK** if the following window pops up.

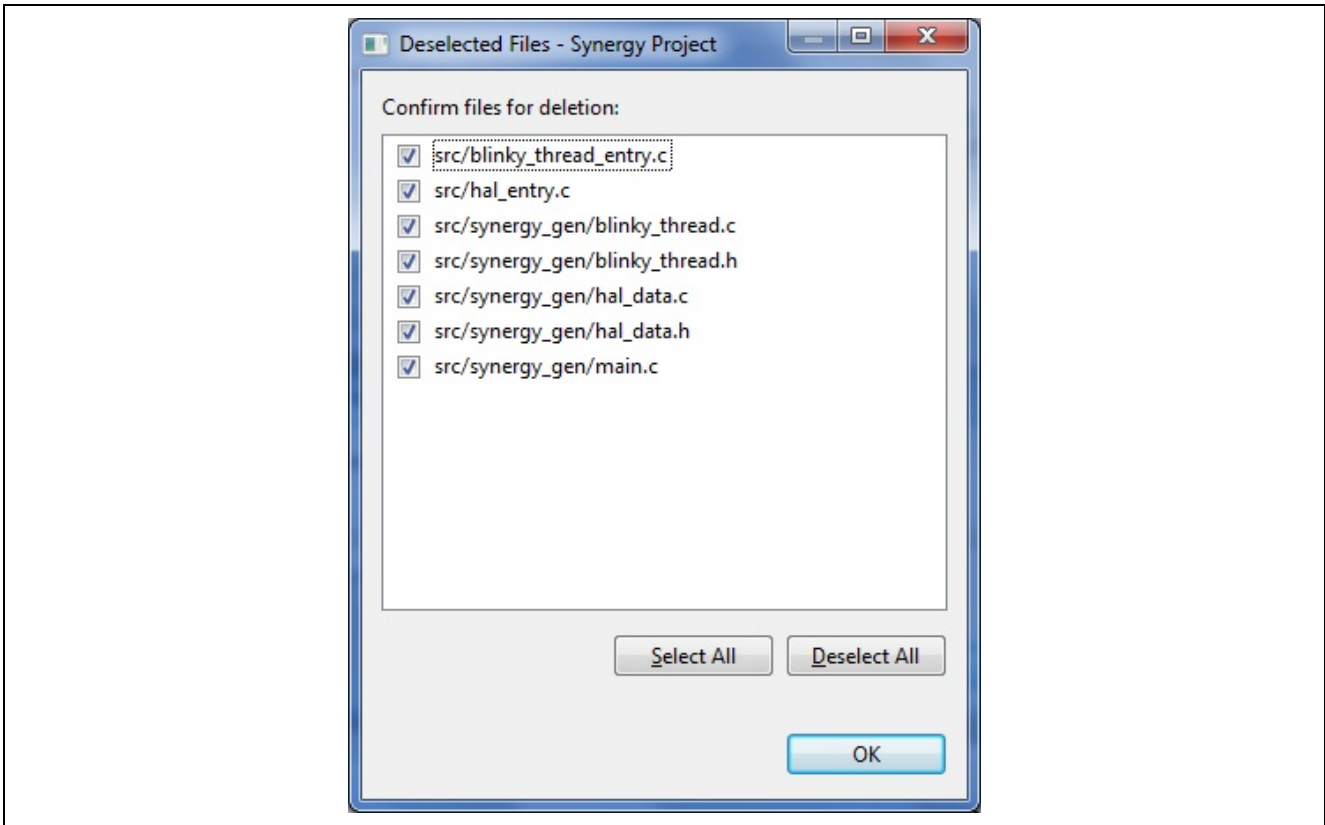


Figure 9 Confirm files for deletion

10. After Generate Project Content and configuration, you must save your configuration with your changes. Click the **Yes** button.

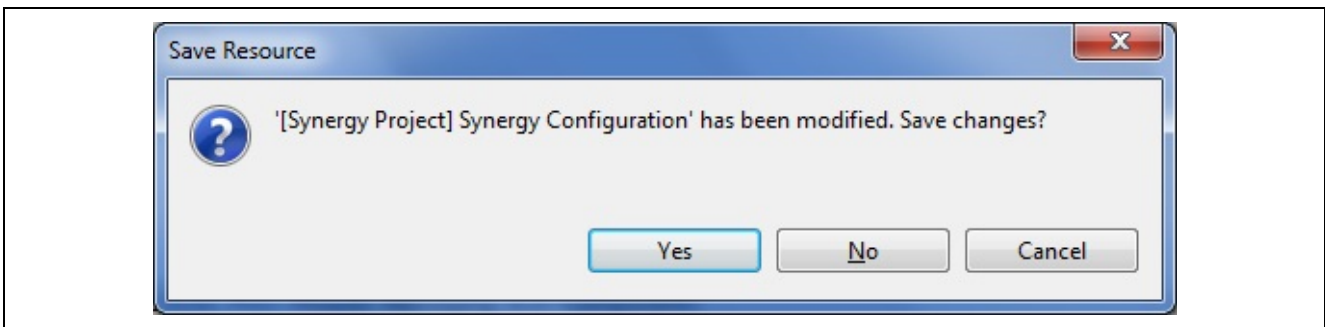


Figure 10 Saving your configuration

11. Build your project by selecting the **Project** tab and scroll down and choose **Make F7** to build your project. You should have 0 error and 0 warning after the build, shown in the following figure.

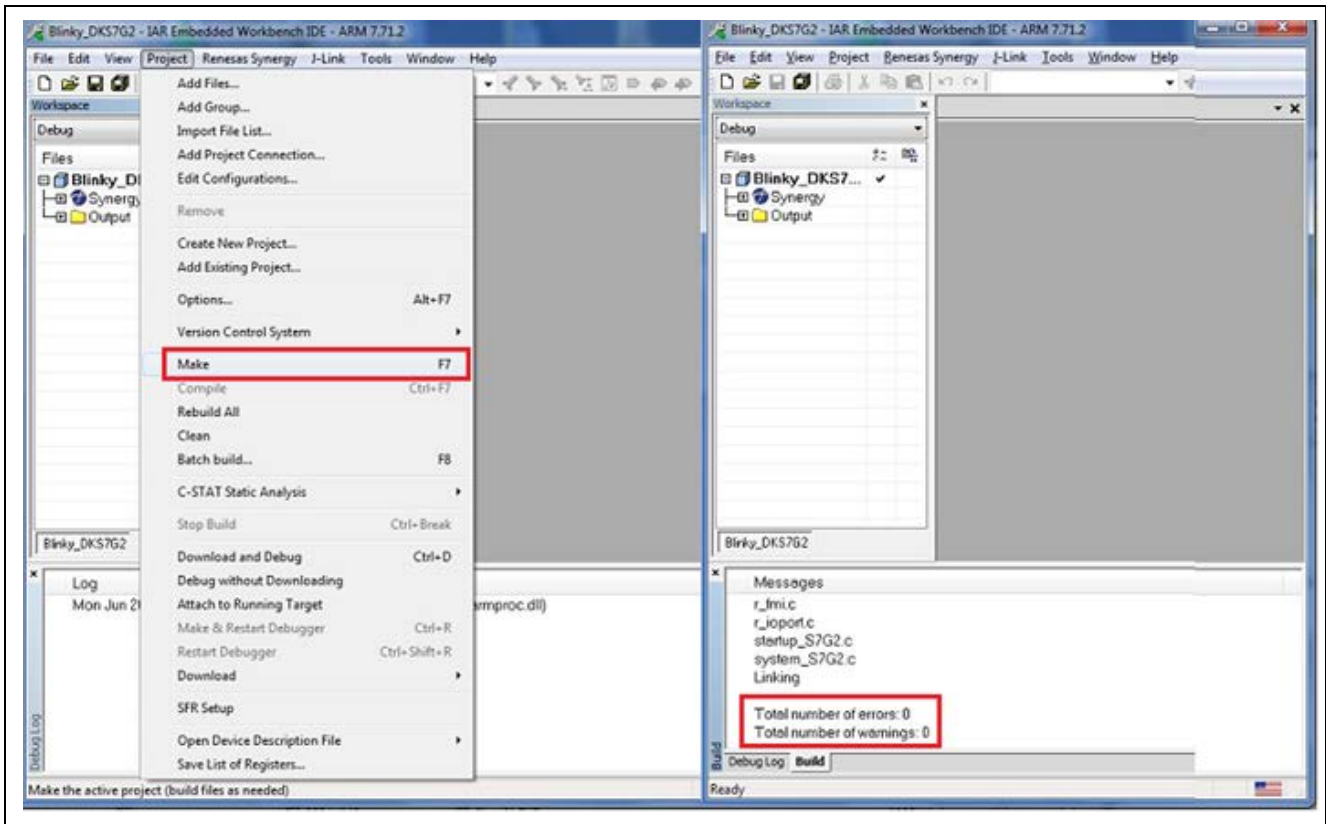


Figure 11 Building your project

2. Analyzing the Project with IAR C-STAT

1. **Right click** on the project name and select **Project > Options > Static Analysis**. In the new version of IAR v8.21.1 or above, the **cstat IoT** setting will be applied when the new project is created or when you click on the **Factor Setting** button as shown in the following figure.
2. From **Category of Options** for node **Blinky_DKS7G2** scroll down and select **Static Analysis**. Click on **Select C-STAT Checks** and make sure that the **MISRAC2012** check box is **enabled** with the selected **IoT checks**. Confirm with **OK**.

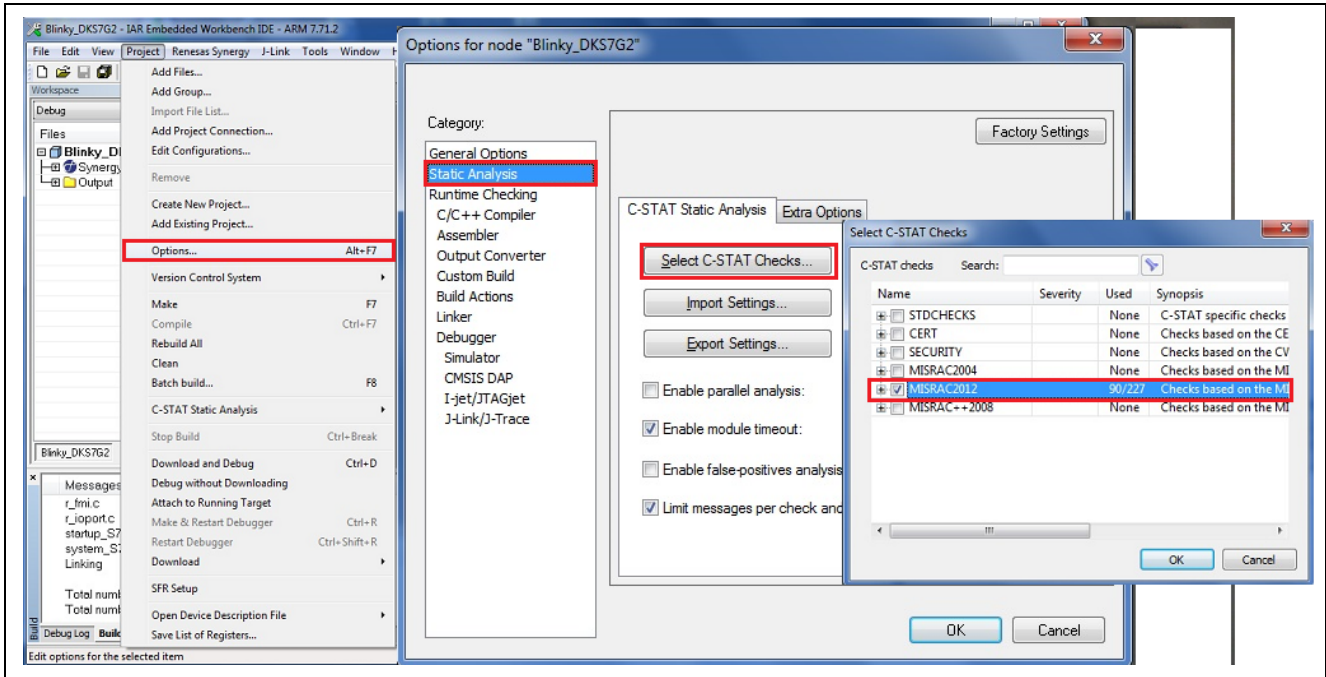


Figure 11 Selecting MISRA C:2012

3. Start the static code analysis over the complete project from **Project > C-STAT Static Analysis > Analyze Project** or use the shortcut key **Shift+F7** in the following figure.

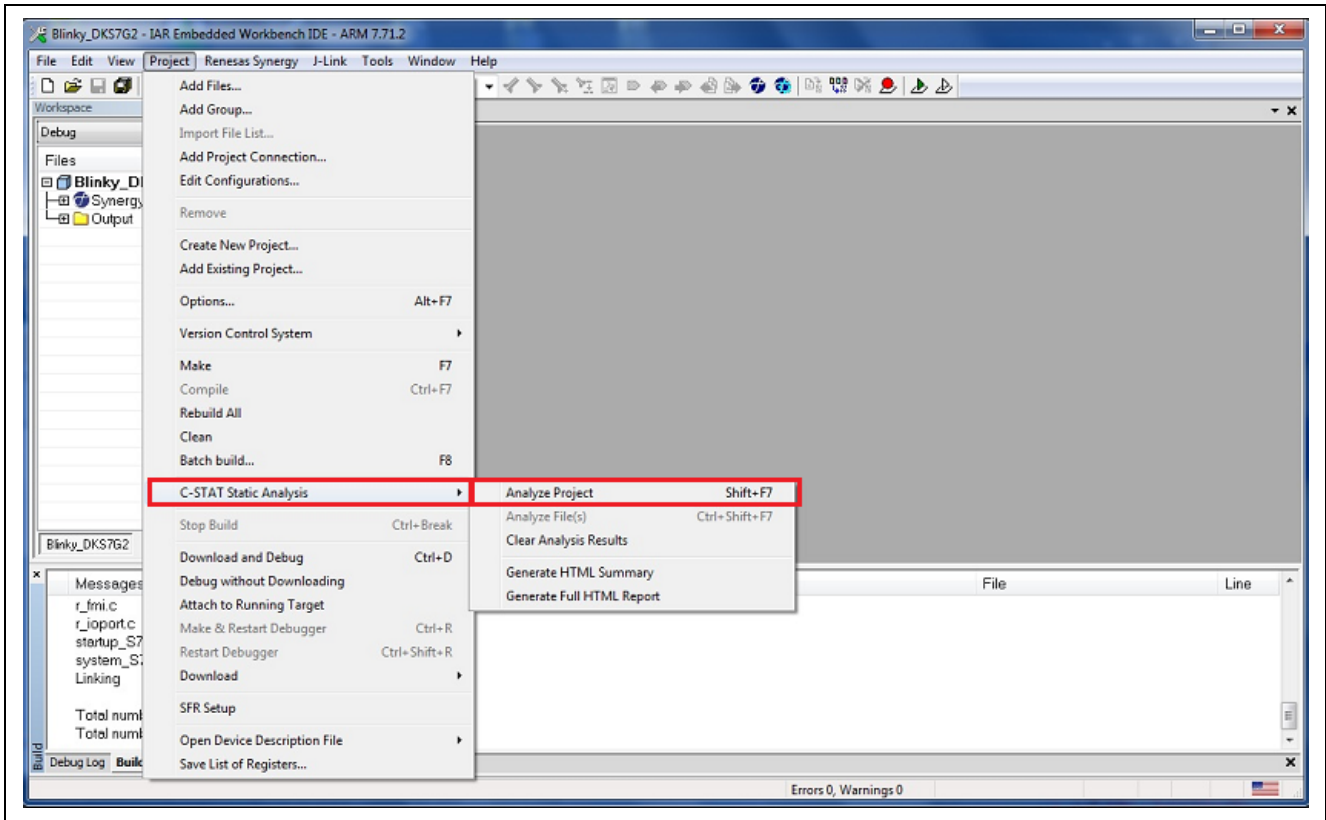


Figure 12 Analyzing project

4. Additionally, it is possible to analyze specific files or a group of files by right clicking on the file or group and using the option **C-STAT Static Analysis > Analyze File(s)**.

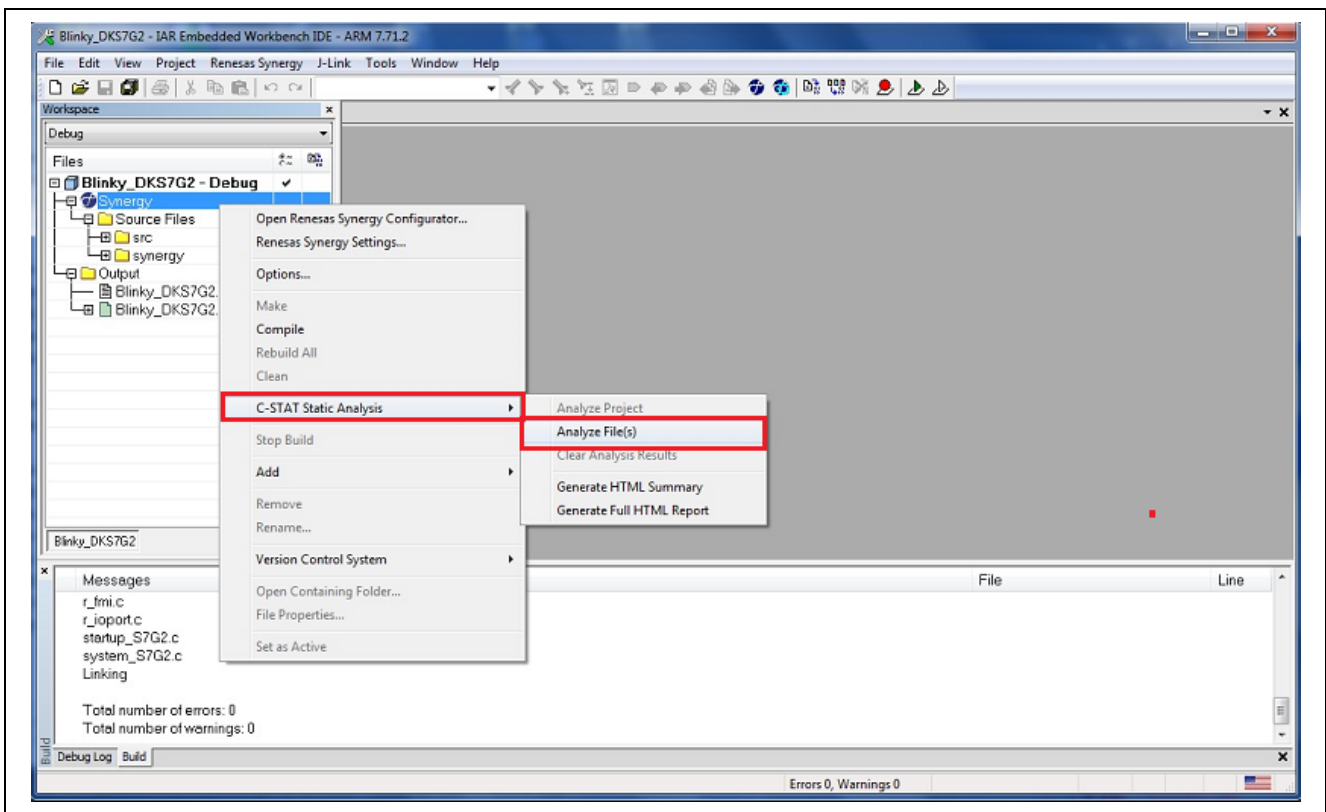


Figure 13 Analyzing file or a group of files

3. Using the Report

1. After 3-4 minutes, depending on the complexity of your project, you should have the static analysis completed and the warnings will be available in the C-STAT messages window. Notice the check names, file details and severity in the warnings.

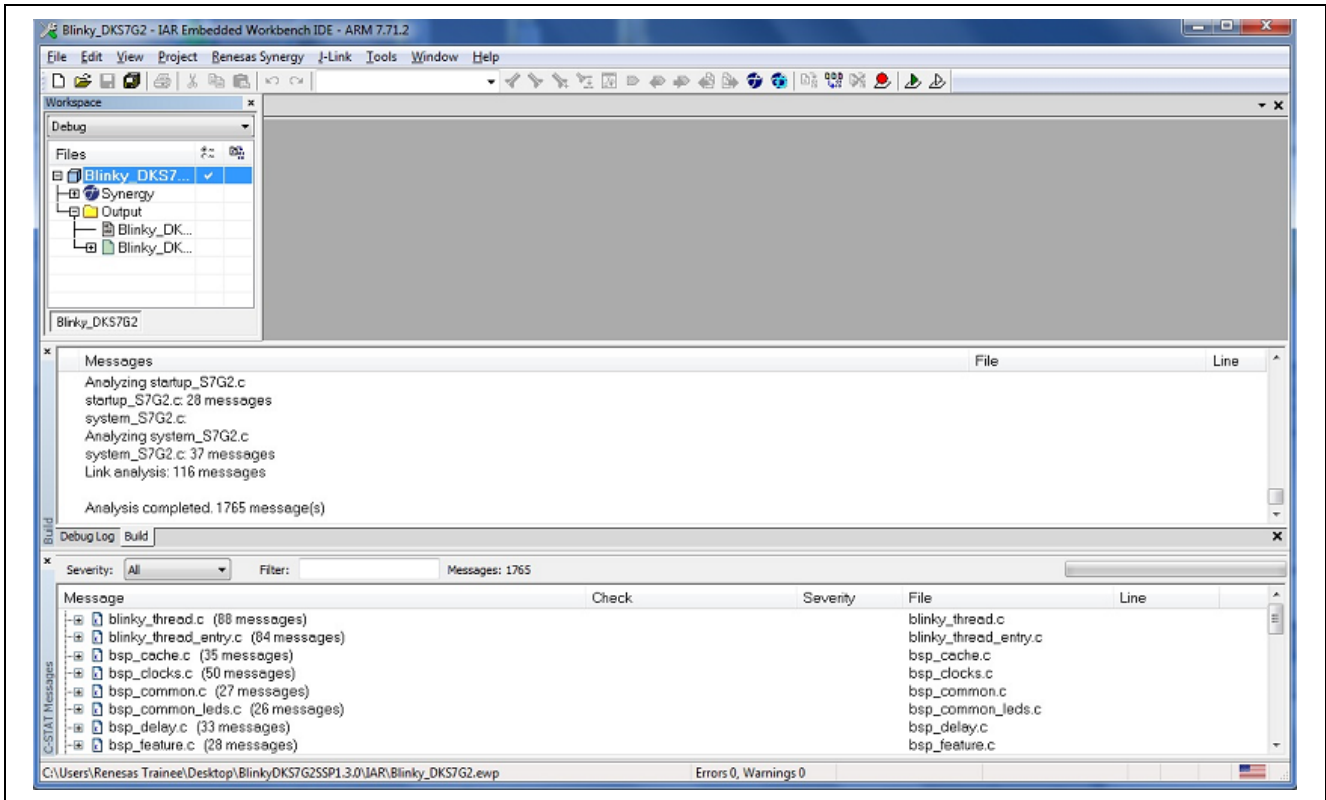


Figure 14 C-STAT report

2. To get additional information about the checks that have been triggered and reference information on how to fix the issues, select the warning and press **F1**.

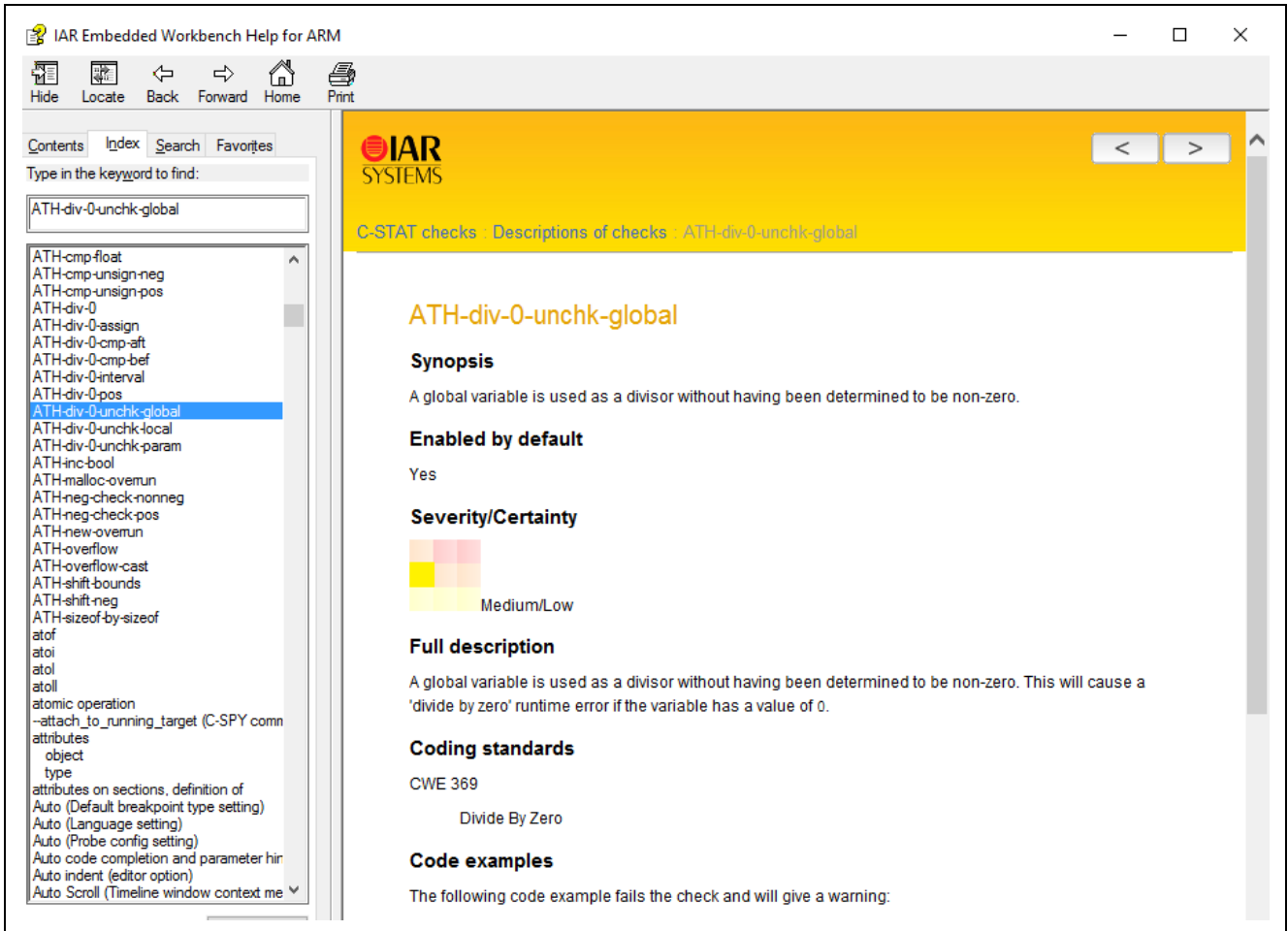


Figure 15 Warning details

Website and Support

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

Technical Contact Details:

- America: <https://www.renesas.com/en-us/support/contact.html>
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Revision History

Rev.	Date	Description	
		Page	Summary
1.00	Feb 2, 2017	-	Initial release
1.01	Feb 8, 2018	-	Updated for SSP v1.4.0

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