Renesas Synergy™ Platform

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

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.

Contents

1. Creating the Blinky Project

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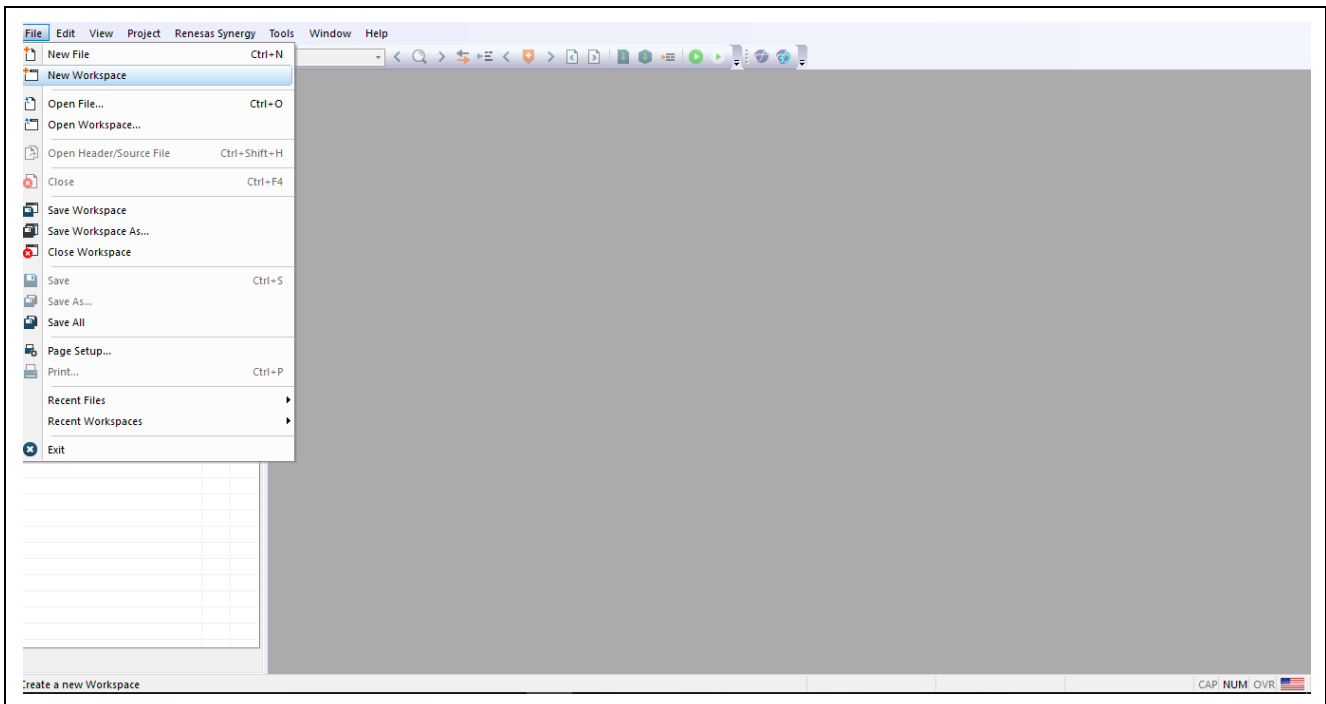

Figure 1   Create Workspace

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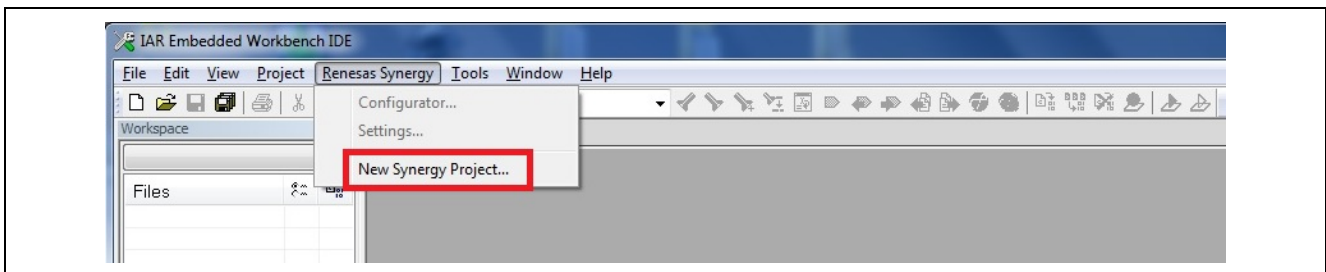

Figure 2   Create a New Synergy Project

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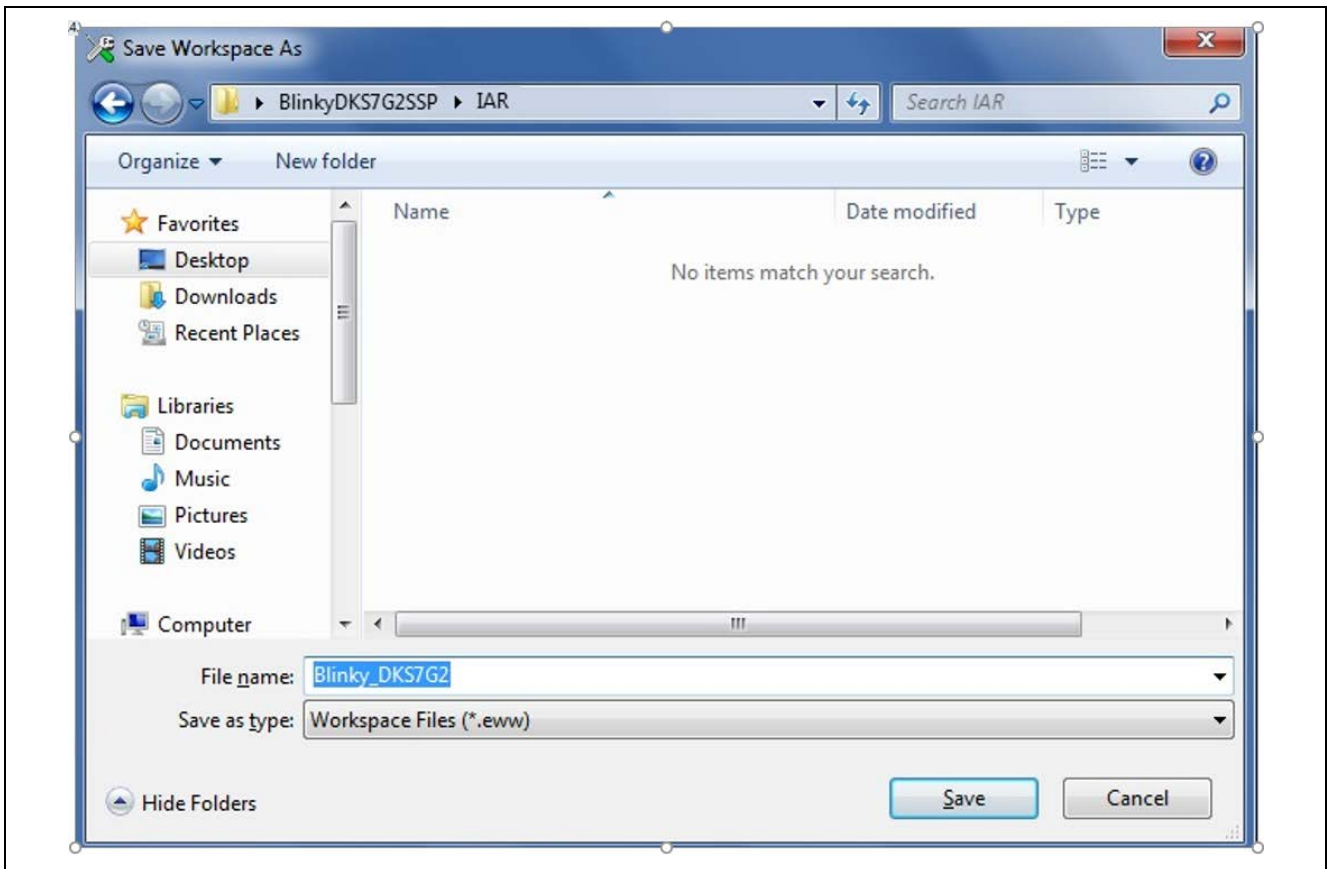   Example shown below, **Blinky_DKS7G2.eww**.

Figure 3   Create a Workspace File, name and save it

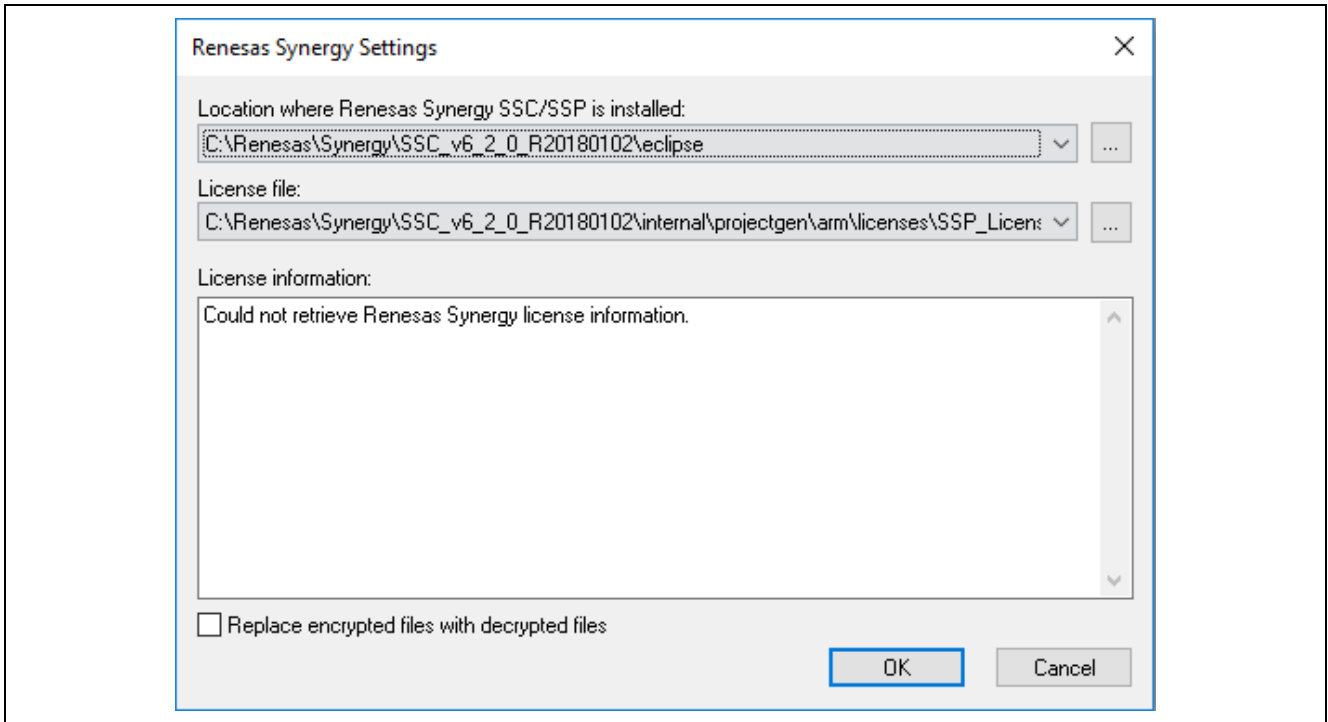4. Select the location in the **Renesas Synergy Settings** where the **License file** is installed and click **OK**.

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

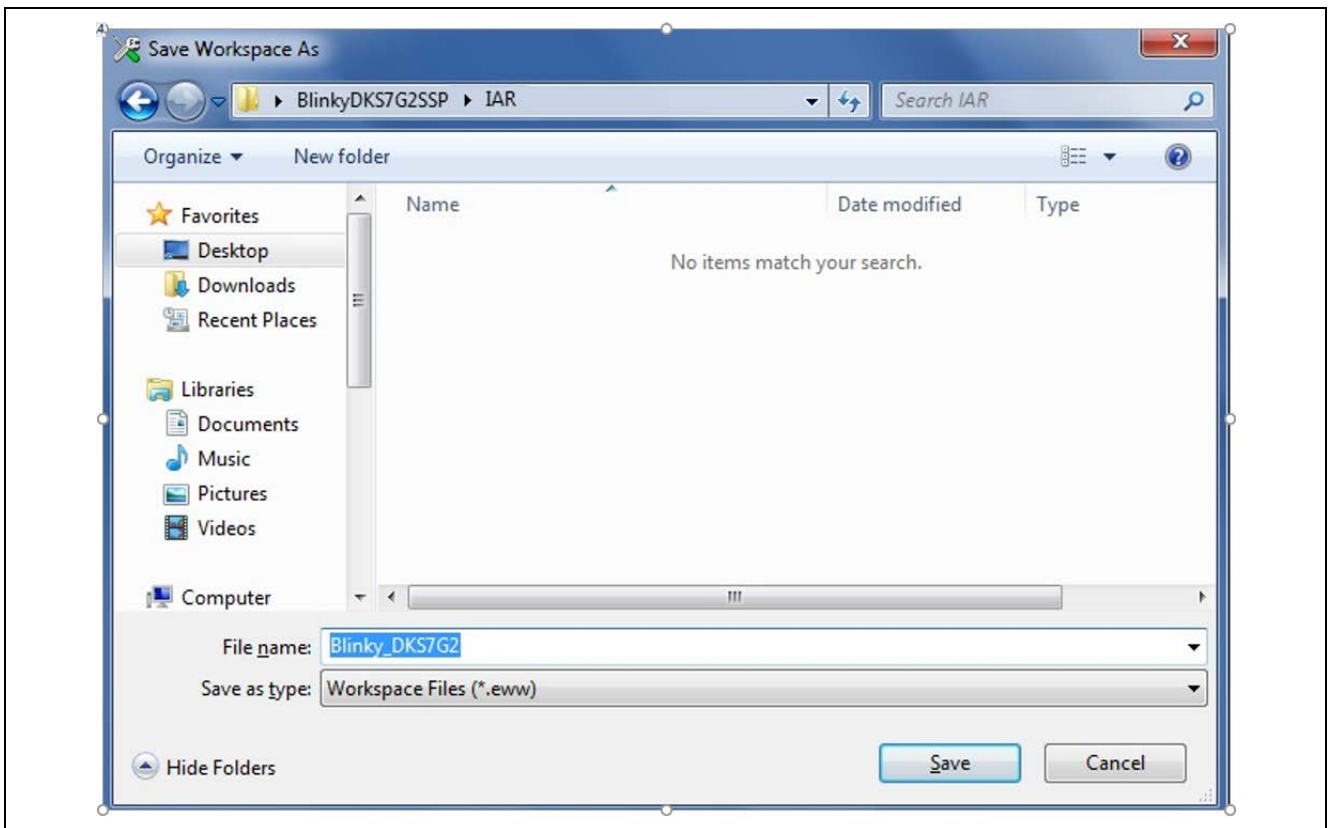5.   Create a **Project File**, name the Project file with .ewp and save it. Example, **Blinky_DKS7G2.ewp**.

Figure 5   Create project file, name and save it

6. 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.
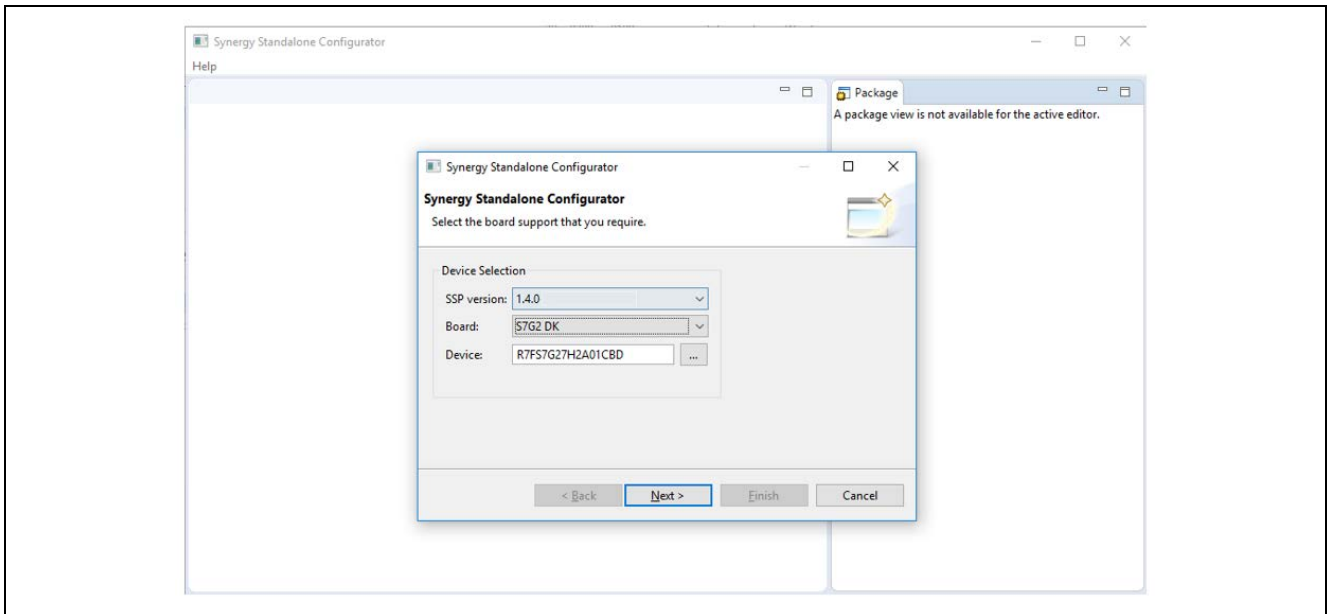

Figure 6   Select SSP, Board and Device

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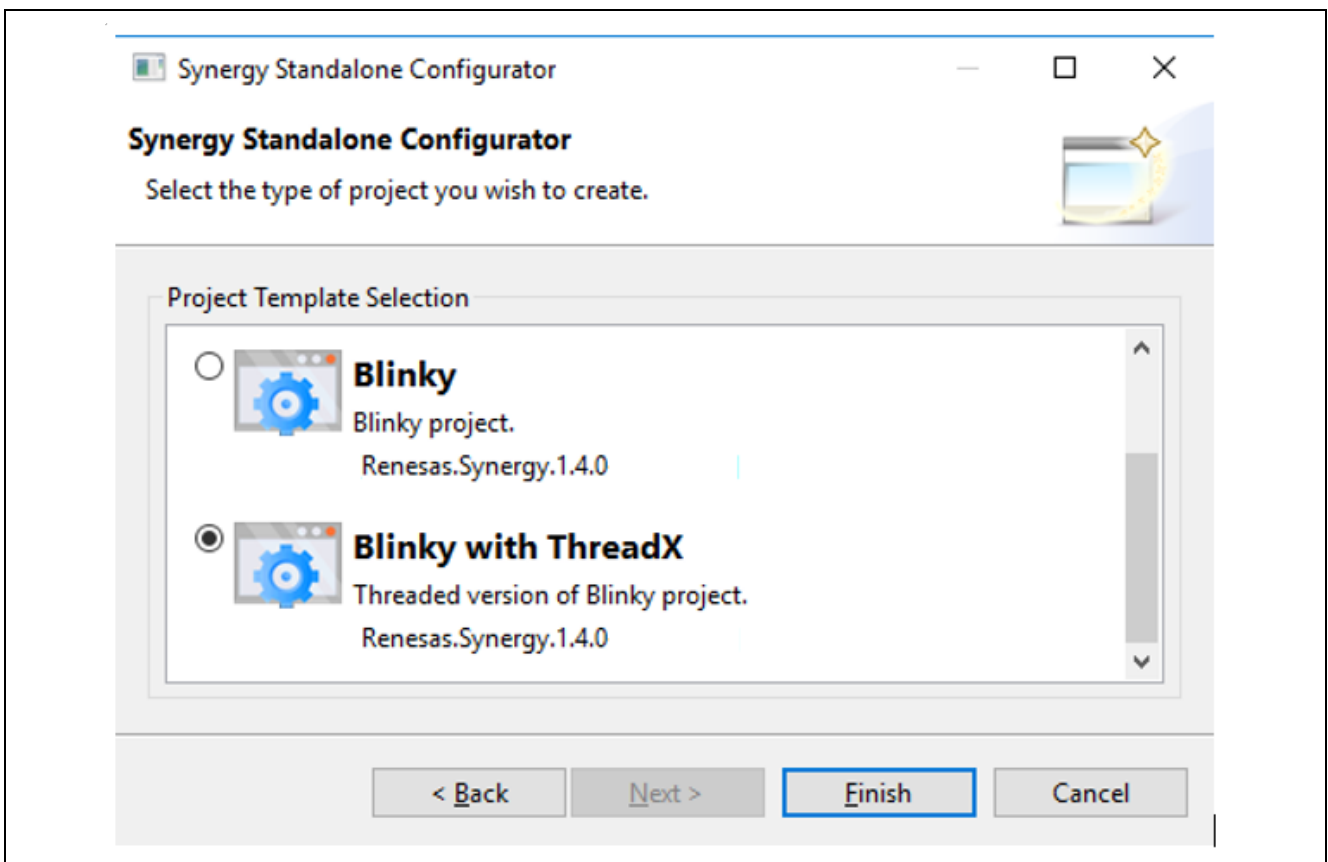

Figure 7   Select Blinky with ThreadX

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.
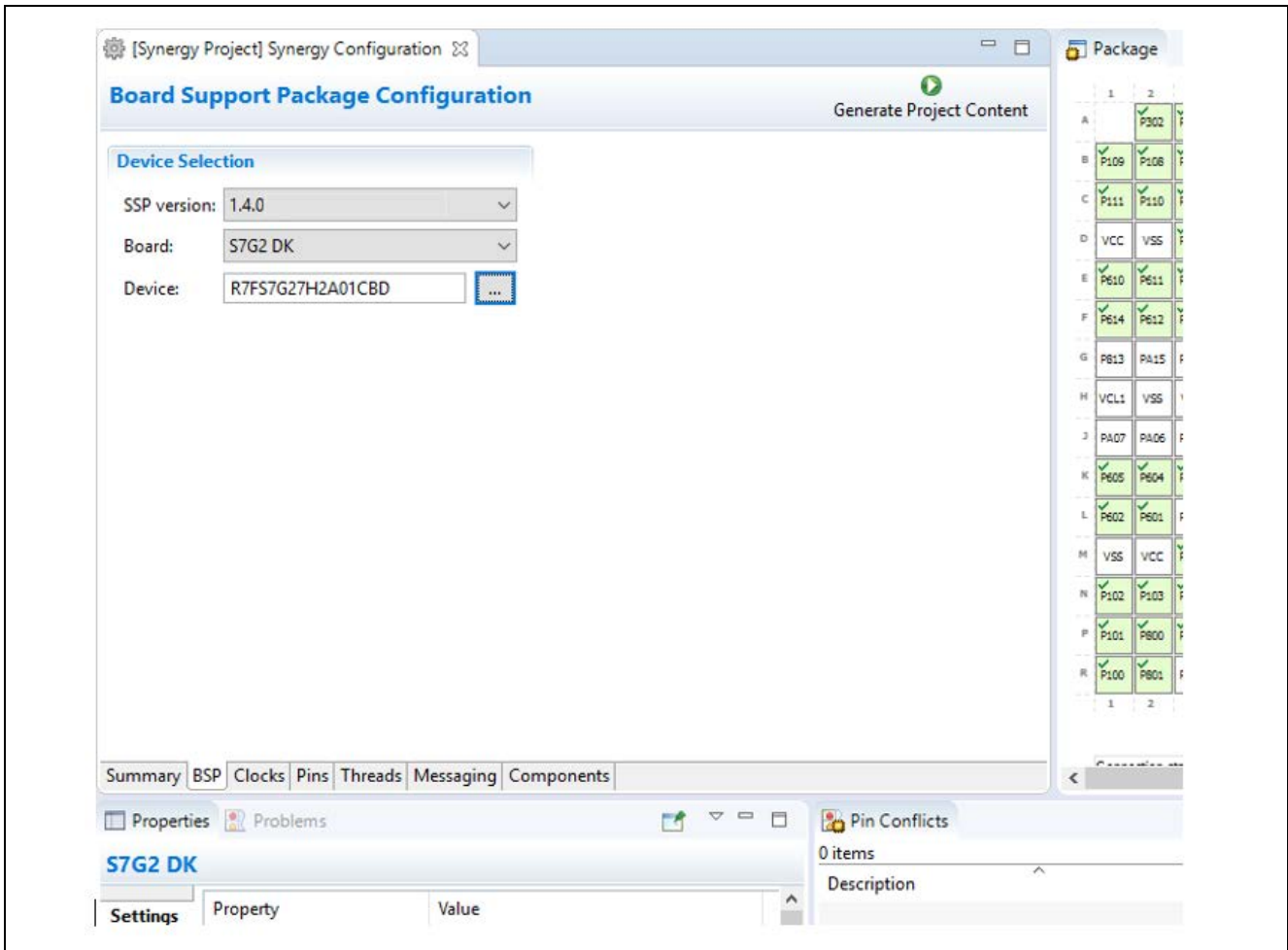

Figure 8   Double check the setting and Generate Project Content

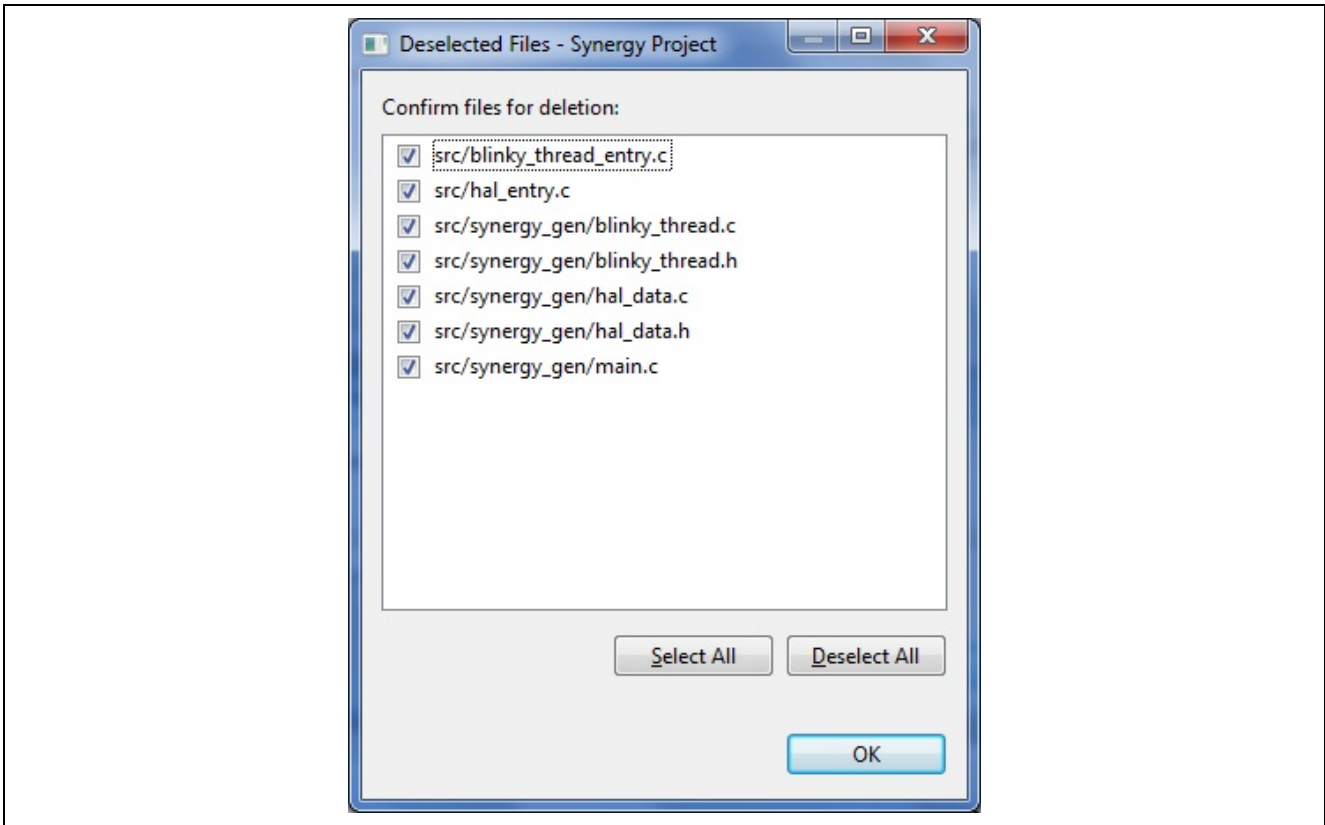9. Click the **Select All** button and click **OK** if the following window pops up.

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.
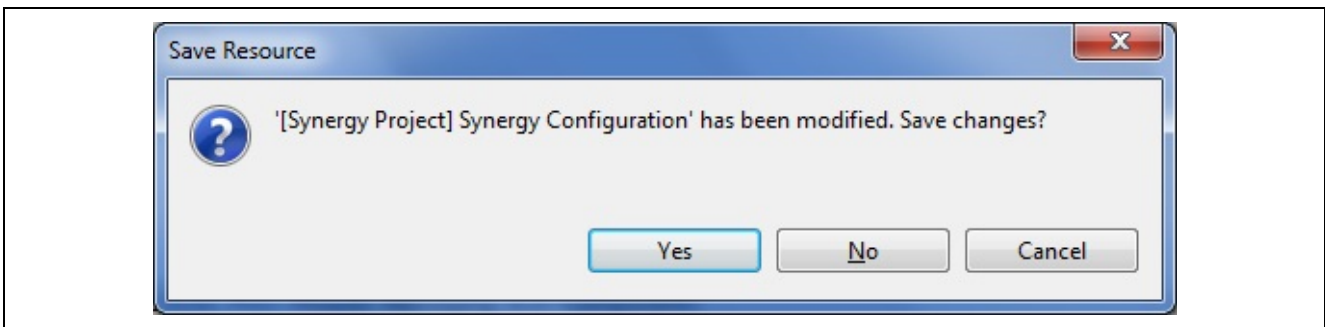
Figure 10   Saving your configuration

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.
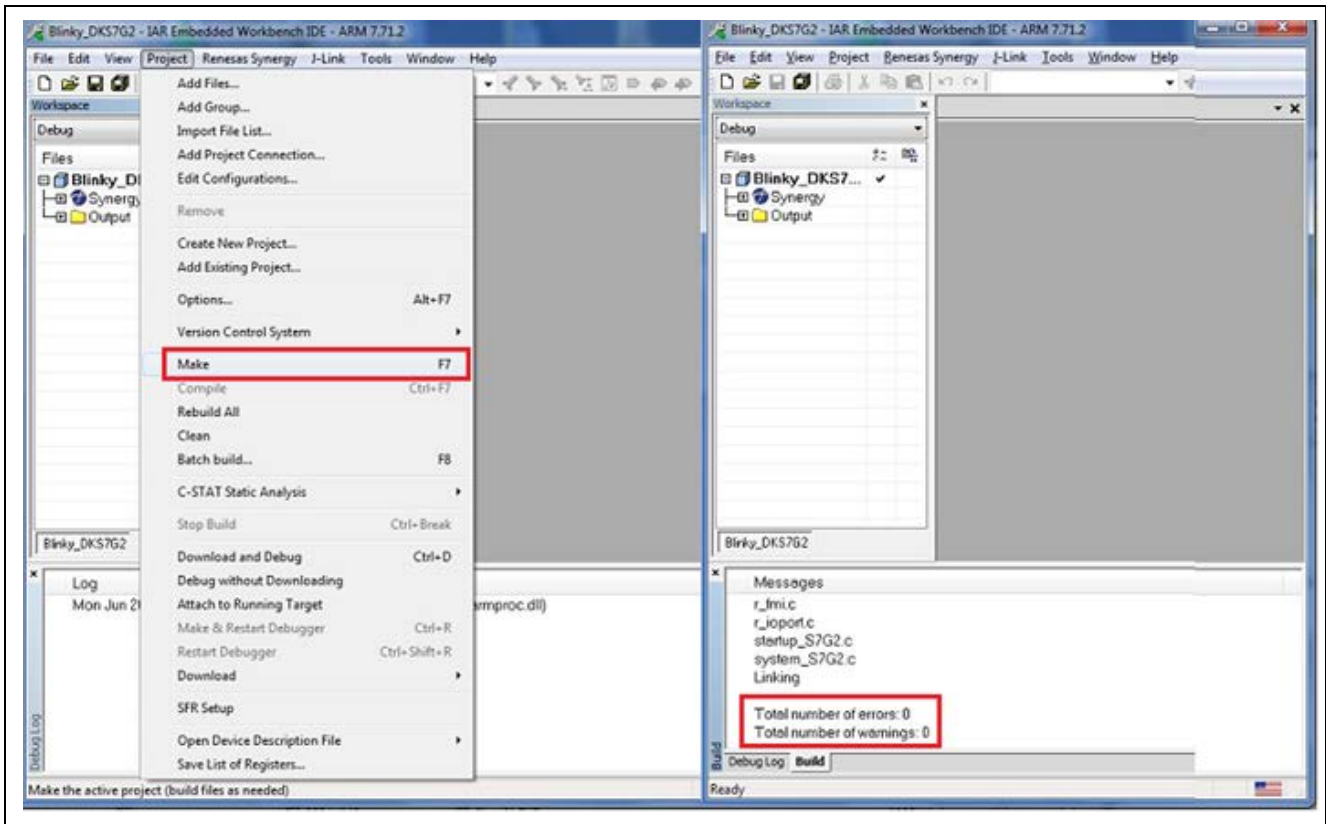

Figure 11   Building your project

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**.
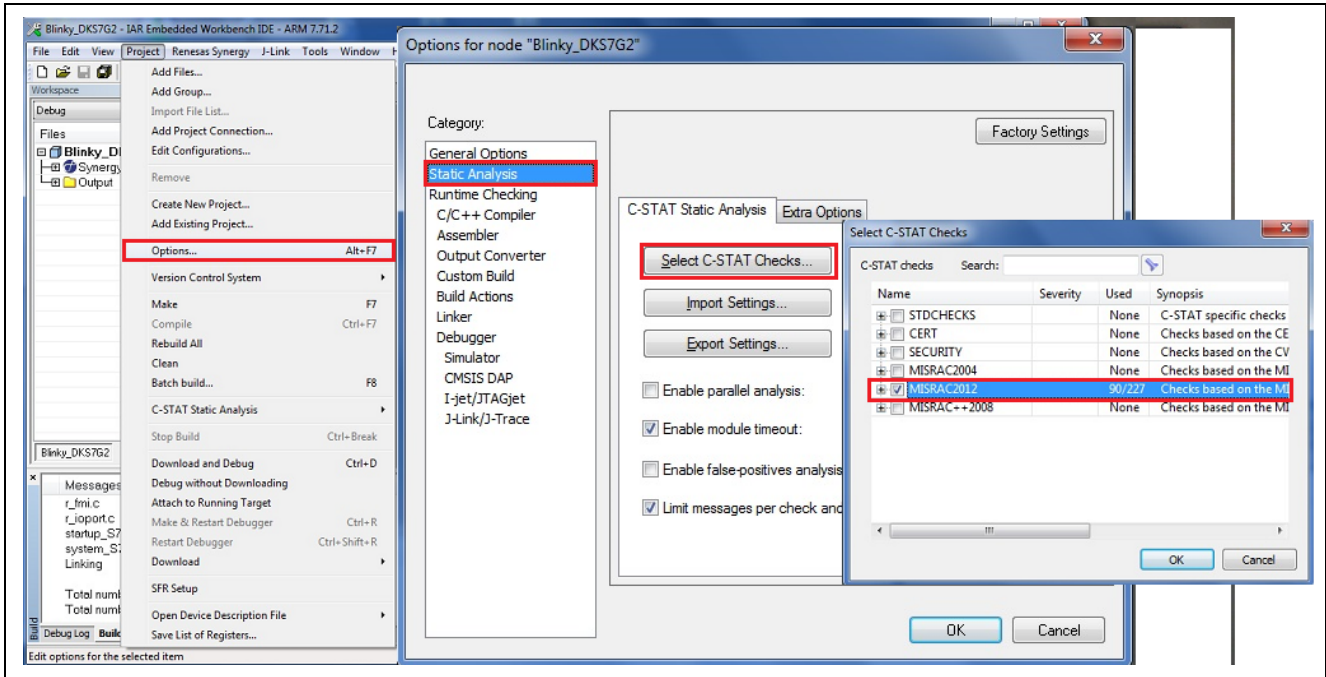
Figure 11   Selecting MISRA C:2012

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.
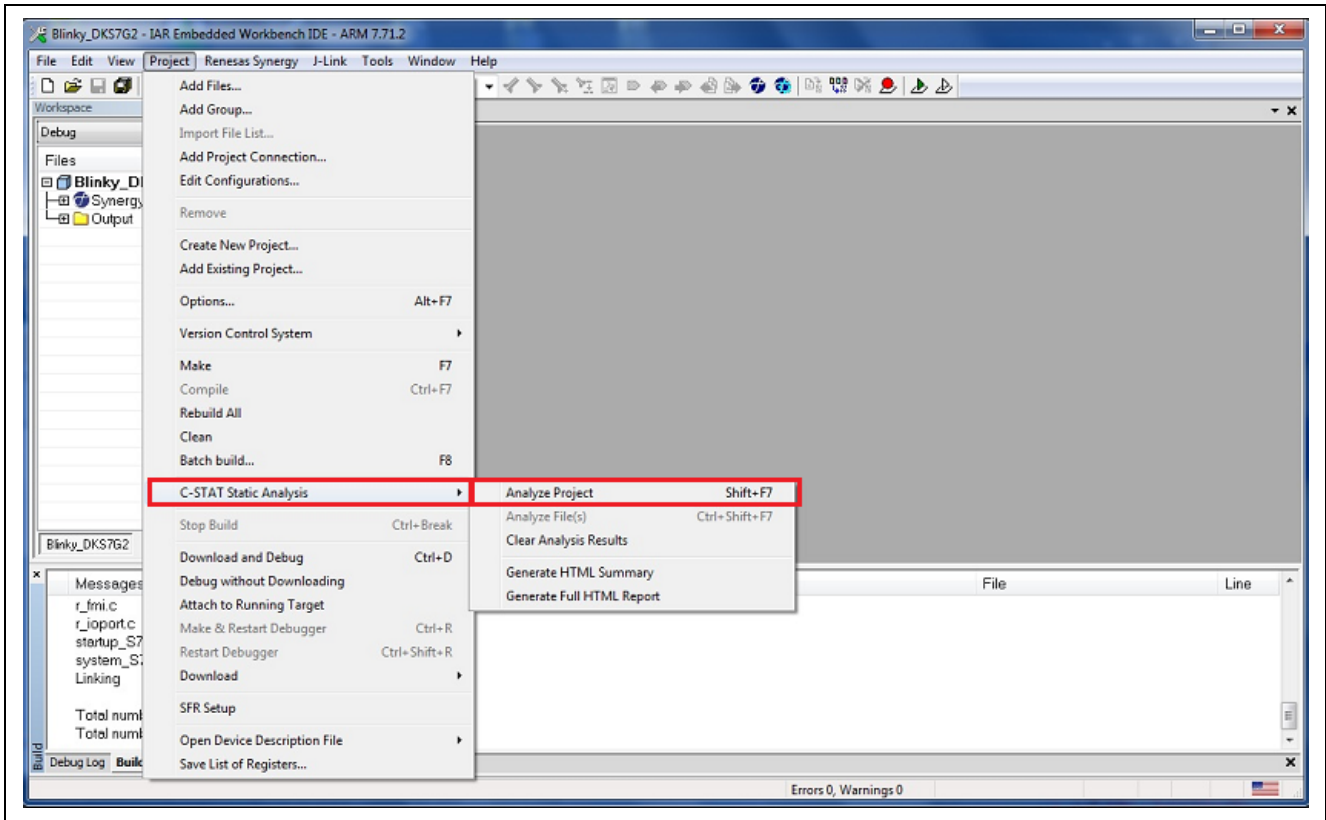
Figure 12   Analyzing project

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)**.
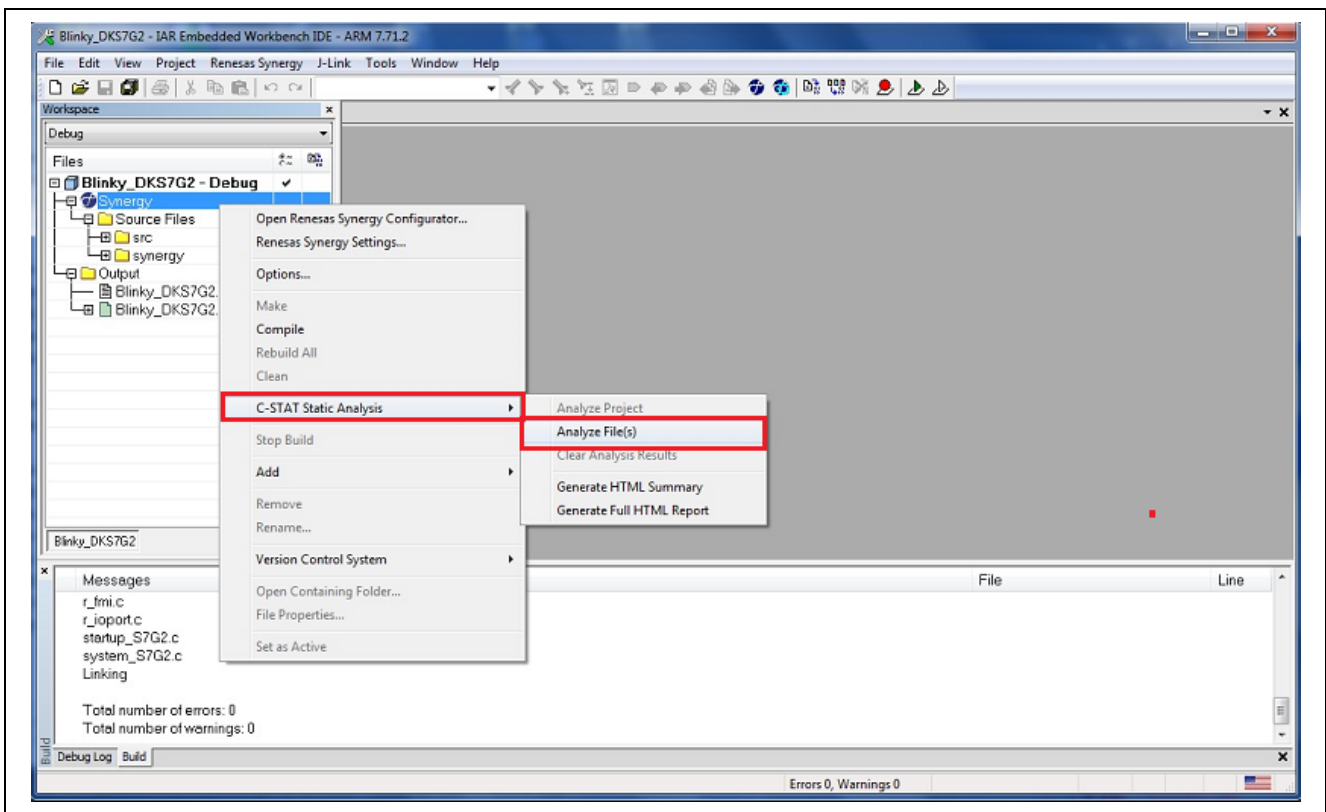
Figure 13   Analyzing file or a group of files

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.
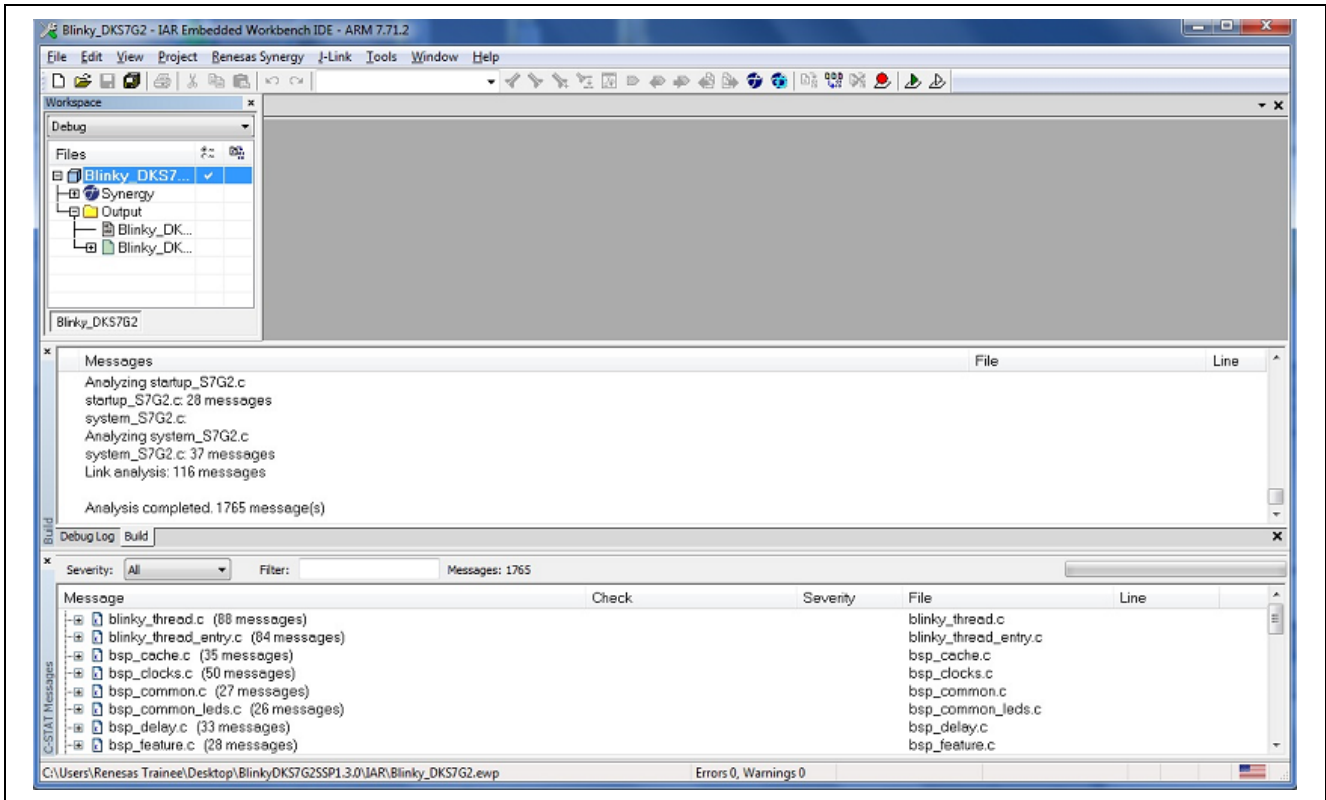
Figure 14   C-STAT report

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**.
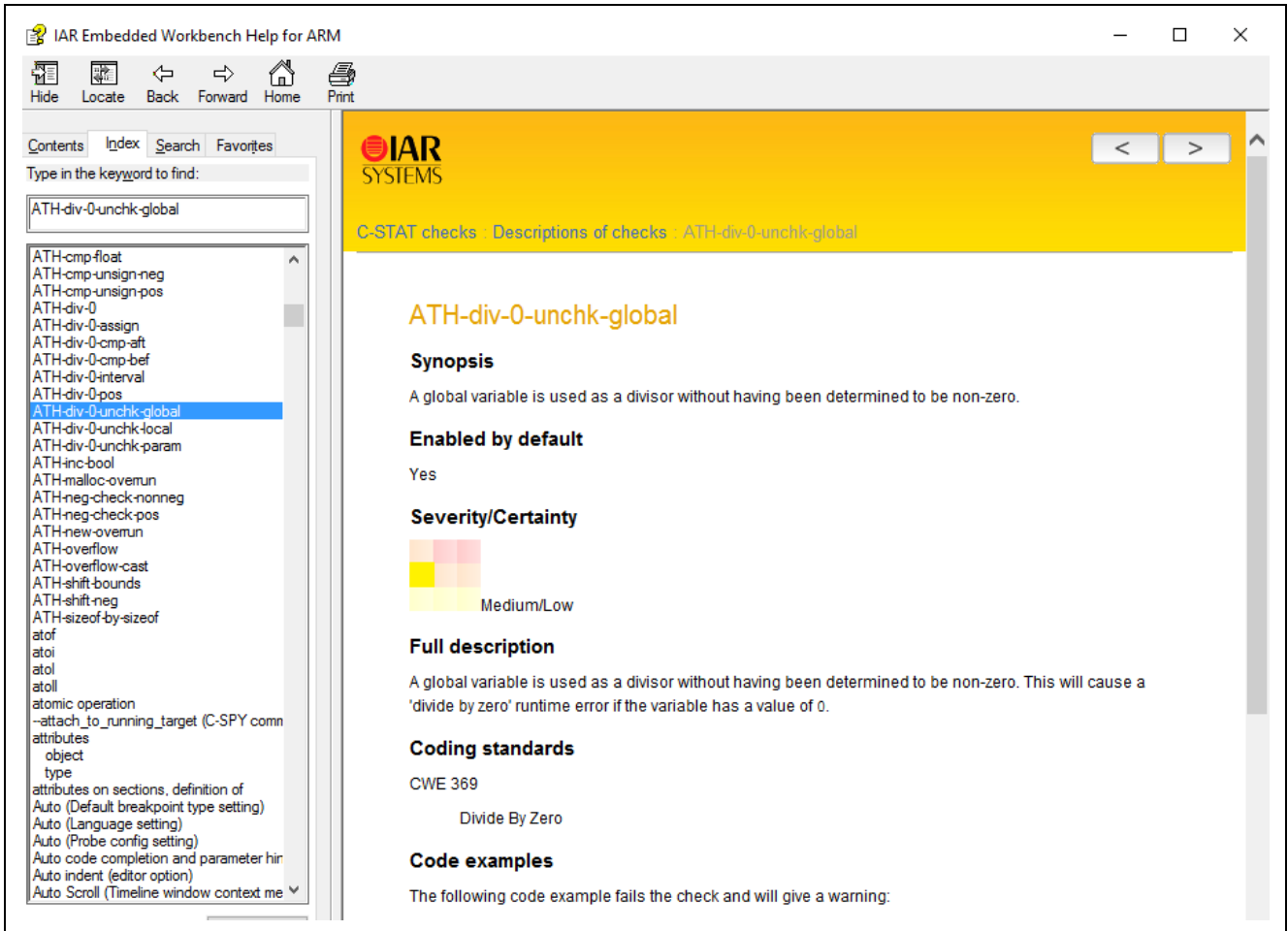
Figure 15   Warning details

Website and Support

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

Technical Contact Details:

- America: https://www.renesas.com/en-us/support/contact.html
- Europe: https://www.renesas.com/en-eu/support/contact.html
- Japan: https://www.renesas.com/ja-jp/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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