CubeSuite+ IDE

Special Function Register

Introduction

Within the microcomputer, there exists the on-chip peripherals hardware special function registers or SFR. These register supports specific function and are manipulated during the operation of the on-chip peripherals. This application note aims to briefly explain where to locate these SFR registers within CubeSuite+, the latest integrated development environment offered by Renesas. This application note does not set out to describe the file structure system within CubeSuite+ and it also assumes users have some knowledge about CubeSuite+ IDE.

Target Device

For all Renesas microcomputer family supported on CubeSuite+

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1. SFR header file

Special function registers are hardware registers of the on-chip peripherals. It is located at the top of memory space of the microcomputer (FFF00H-FFFFFH). These registers are manipulated during the operation of the on-chip peripherals. In other microcomputer family of Renesas such as H8, SuperH etc., a separate SFR header file is generated during project creation.

Unlike the above mentioned microcomputer family, the microcomputer family supported by CubeSuite+ does not generate the SFR header file during the project generation and user can access to these registers after establishing connection to a debugger is performed.

2. Connect to debug tool

After project creation and successful compilation, user mostly proceeds debugging as a next step in the development phase.

Prior to establish with a debug tool in the CubeSuite+, all debug options in [View] menu are not available to users. Figure 1 show the options available to support debugging as disabled.
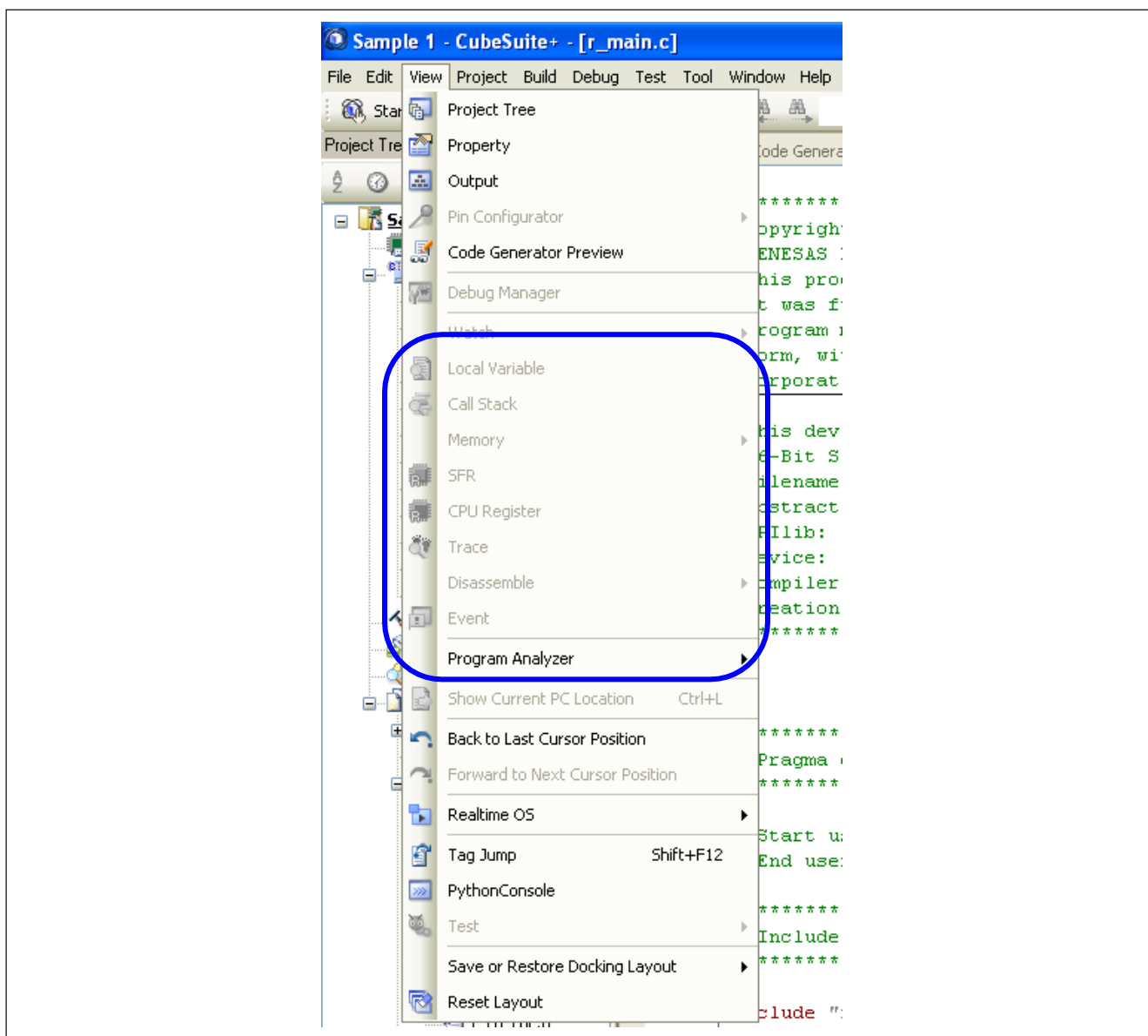

Figure 1   Some options are unavailable when no connection to debug tool

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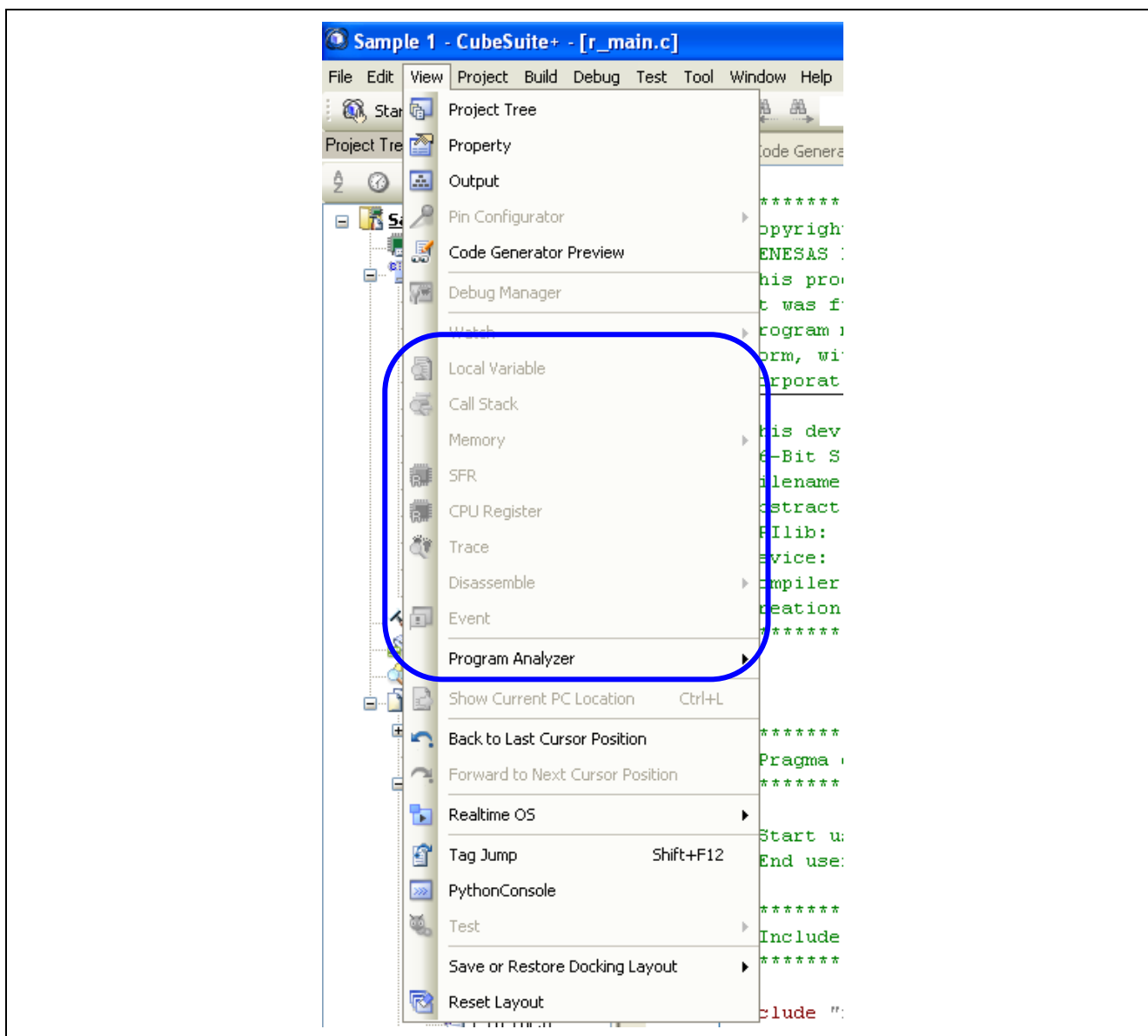

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1. User establishes connection with a debug tool by clicking on the "Connect to Debug Tool" option in the [Debug] menu. Figure 2 shows how to connect to debug tool.
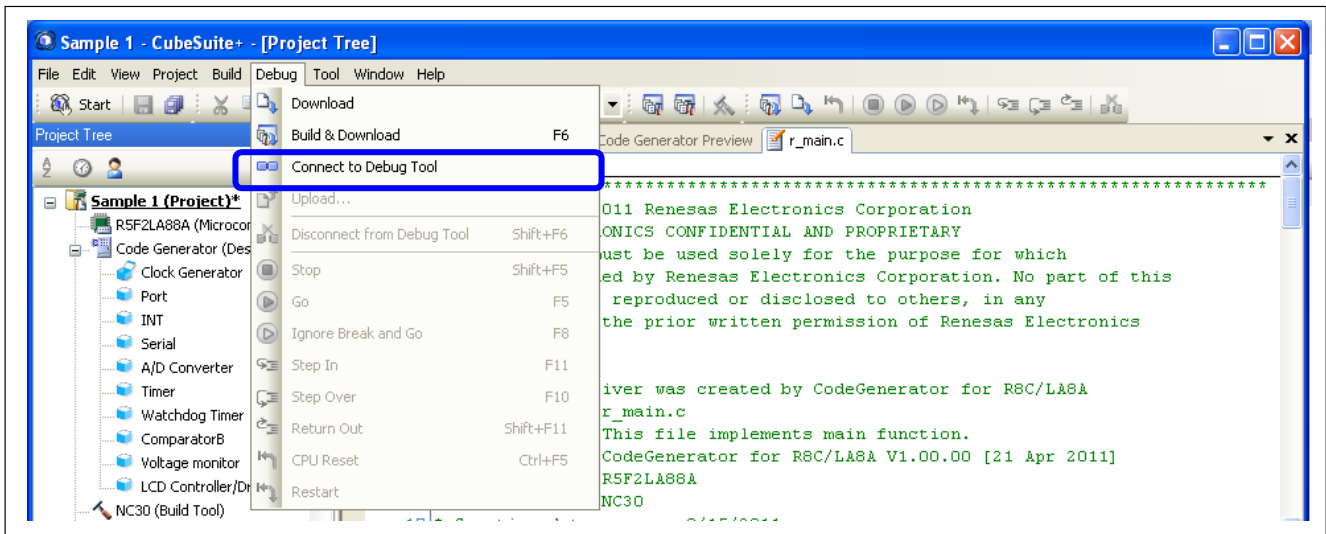

Figure 2   Connect to Debug Tool option

2. When the connection to debug tool is established, user observes that the various options in [View] menu is active and allows user to select the options. Figure 3 shows the options available for user's selection.
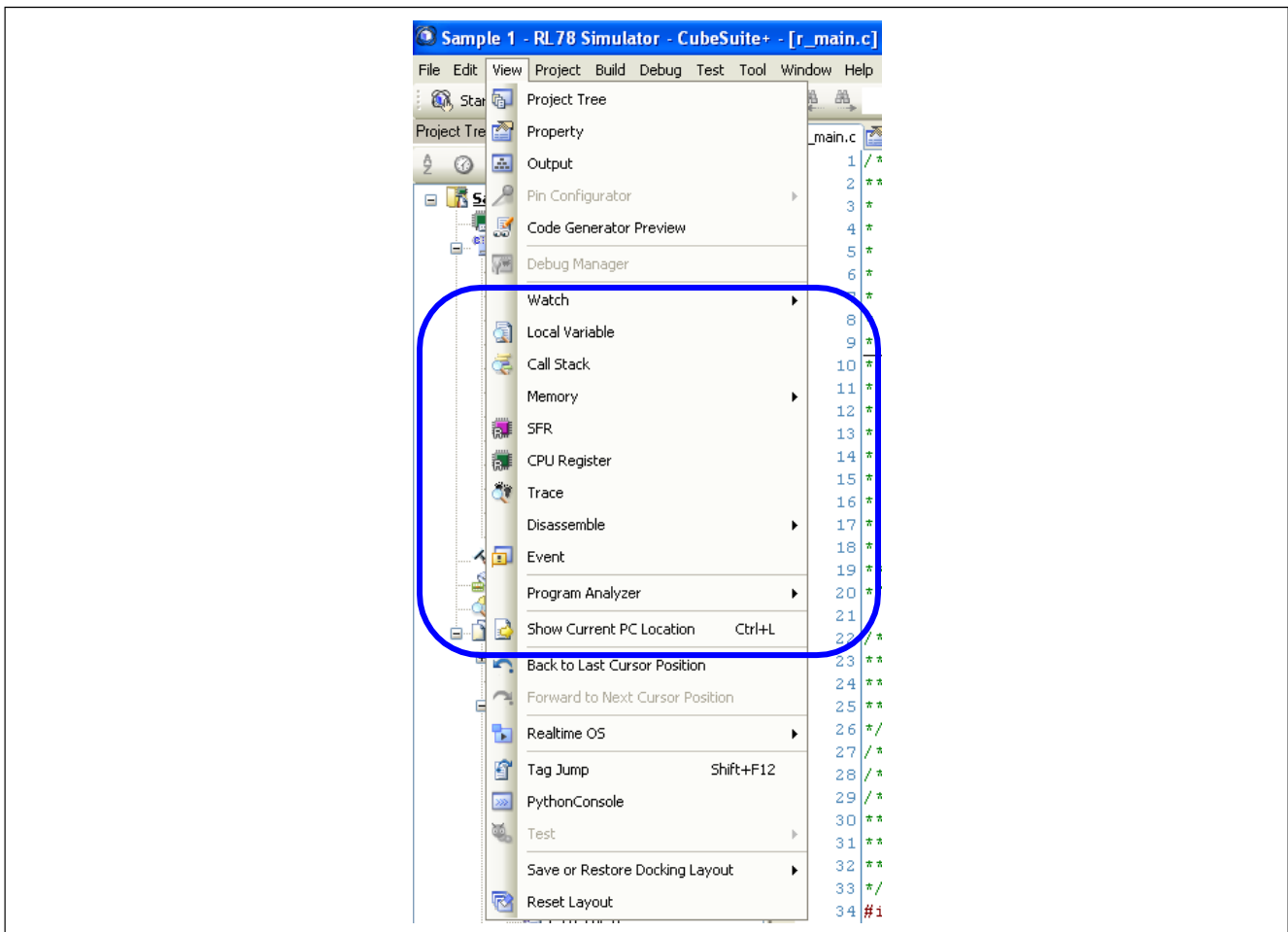

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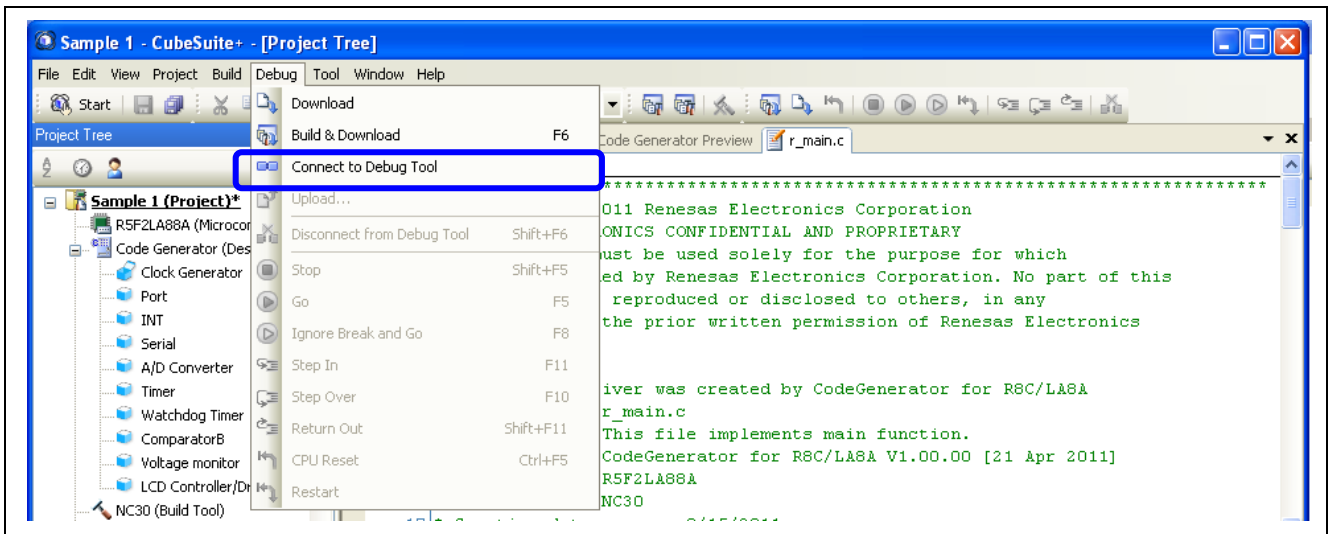

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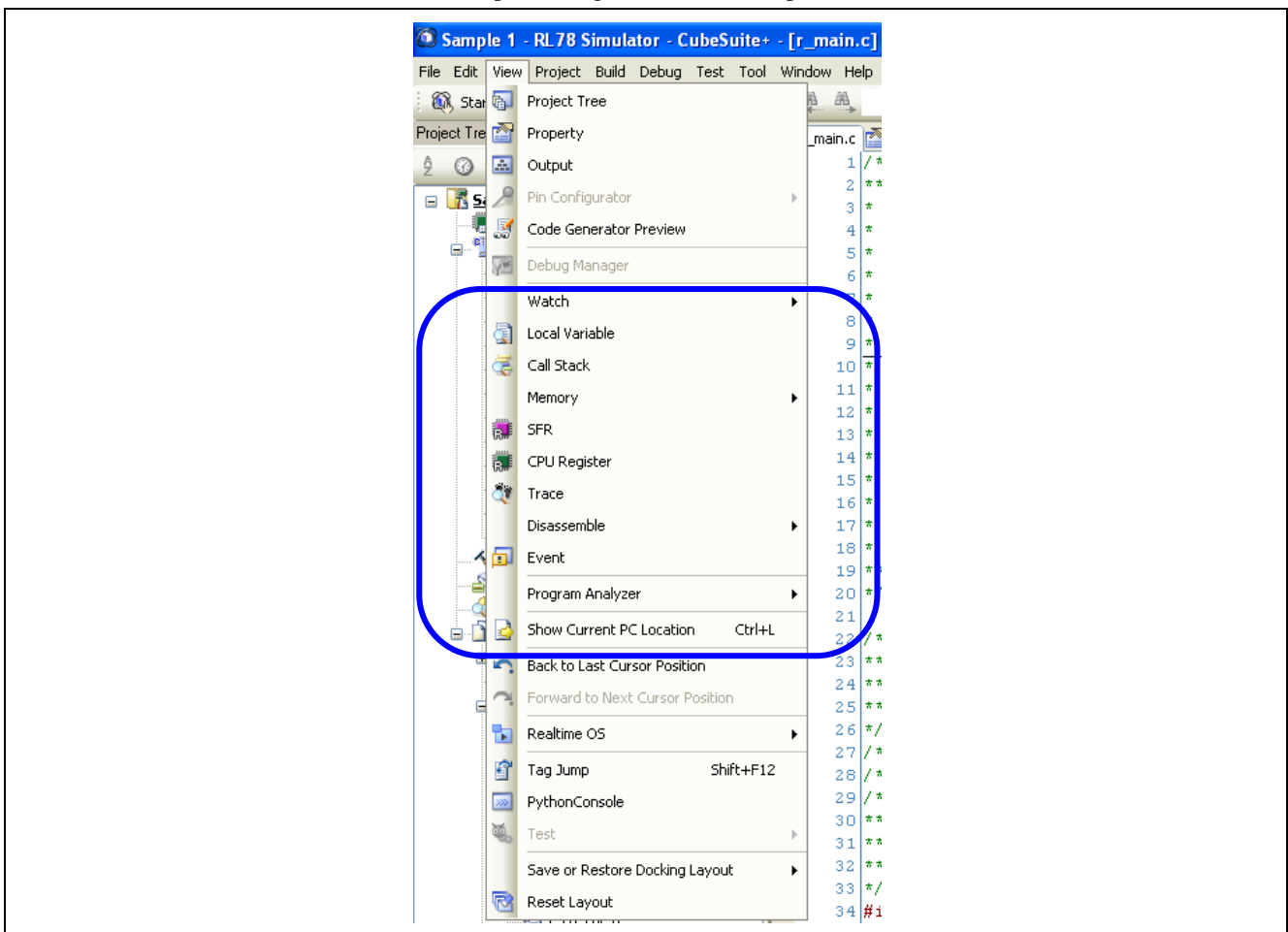

Figure 3   Options available to support debugging

3.   SFR panel

The SFR panel is only displayed after connecting to debug tool. The SFR panel allows user to display the registers, access type, data size, create categories (similar to folder), edit and save the SFR register values into files. Figure 4 shows the SFR panel.

   1.   After successfully connecting with the debug tool, user may click on the option "SFR" in [View] menu to invoke the SFR panel.
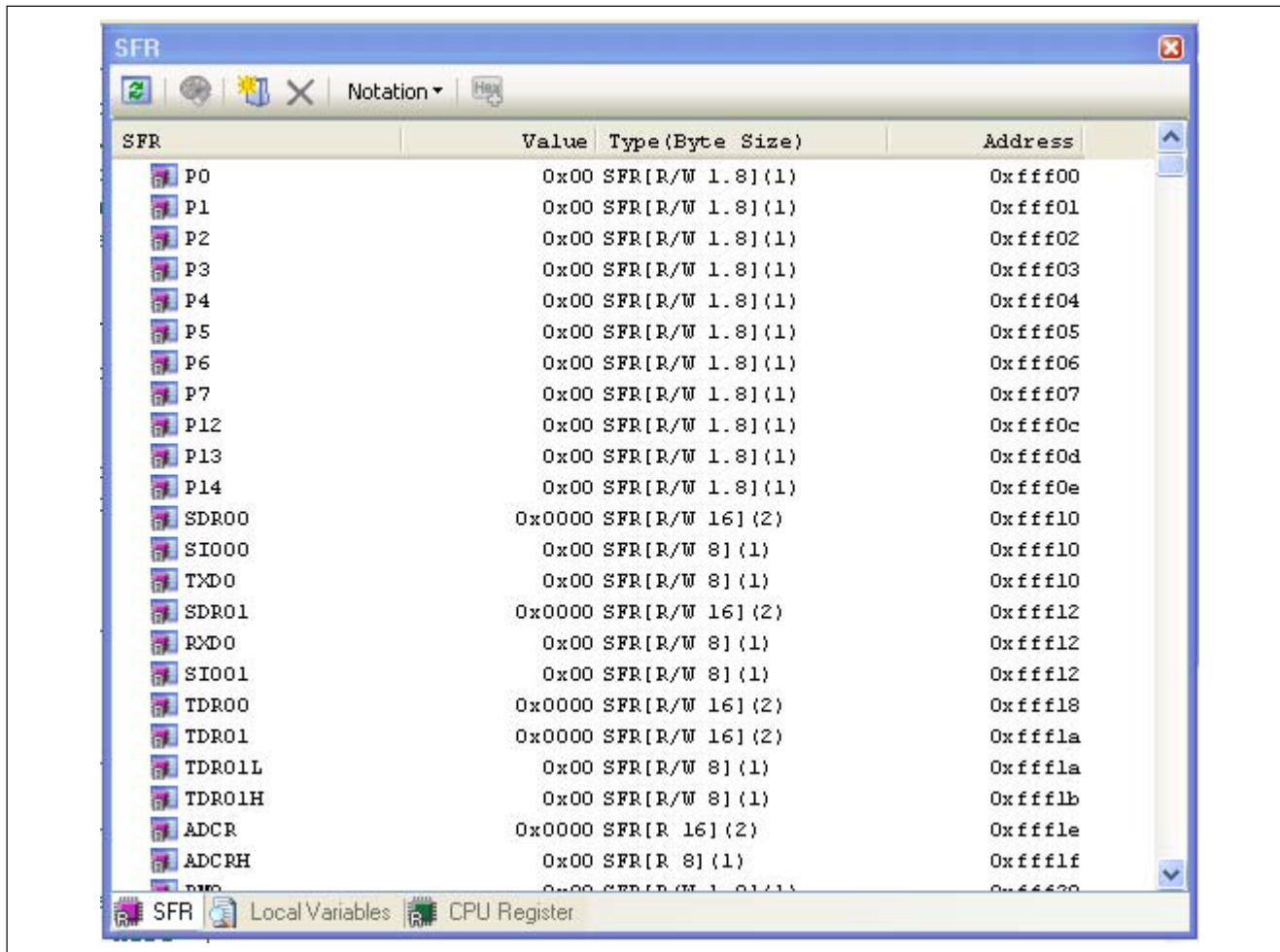

Figure 4   SFR panel invoke in CubeSuite+

   2.   In the SFR panel, user is able to view and edit all the hardware registers of the on-chip peripherals of the targeted microcomputer under debugging.
   3.   During the course of debugging, user can save the content of the SFR register into a text file or CSV file, which allows user to examine the values of SFR register.

   For details on the SFR panel and description of the supported function, please refer to "*CubeSuite+ Integrated Development Environment User's Manual*"for the targeted debug tool.

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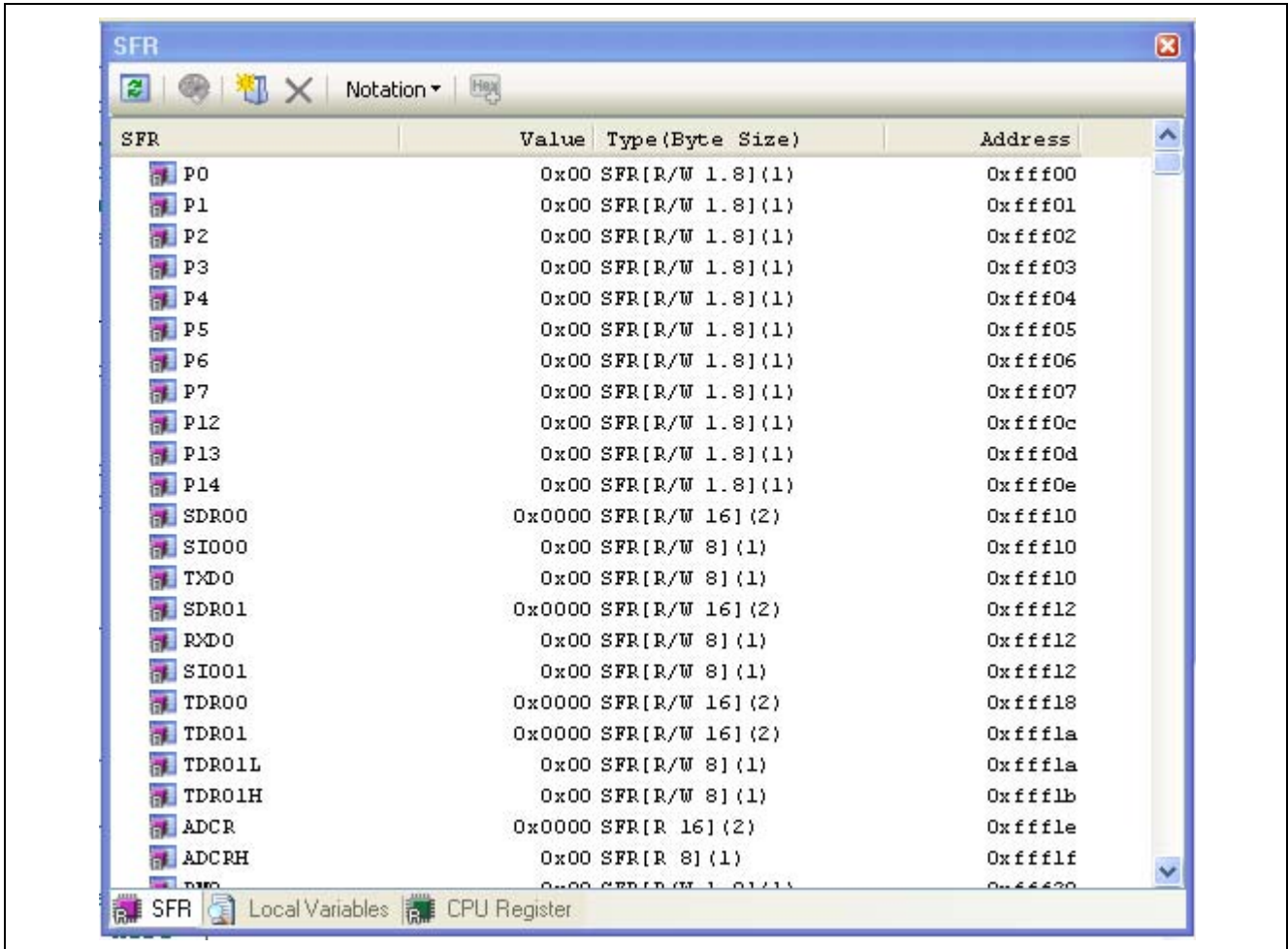

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Website and Support

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