Smart Configurator, Code Generator

Project Porting Procedures for CS+ and e² studio

Introduction

This application note describes the porting procedures between IDE (e² studio, CS+) for projects using Smart Configurator or Code Generator.

- Porting from e² studio development environment to CS+ development environment
- Porting from CS+ development environment to e² studio development environment
- Porting from MCU Simulator Online to e² studio or CS+ development environment

Target Device

RX Family※, RL78 Family※

※Only devices supported by the following tools are eligible.

Tool	Version
e² studio	2021-10 or later
CS+ for CC	V8.06.00 or later
Smart Configurator	Smart Configurator for RX V2.11.0 or later Smart Configurator for RL78 V1.1.0 or later
Code Generator	CS+ Code Generator for RX V1.16.00 or later CS+ Code Generator for RL78 V2.21.00 or later
MCU Simulator Online	V2.06 (2023/6/20) or later

Point for cautions

・Individual file options' settings will not be ported to the new development environment.

Please re-configure the options settings after porting.

・RTOS project is not supported by this porting manual.

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1. Porting from e² studio to CS+

This chapter describes how to port an e² studio project to CS+.

For Smart Configurator users, please refer to “1.1 Procedure for porting a project that is using Smart Configurator”

For Code Generator users, please refer to “1.2 Procedure for porting a project that is using Code Generator”

1.1 Procedure for porting a project that is using Smart Configurator

This section describes the procedure for porting an e² studio project to CS+ that is using Smart Configurator.

1.1.1 Export an e² studio project file

*Note: If Common Project File(.*rcpc) exists in the project folder, skip this sub-chapter and continue the steps in 1.1.2.*

Follow the steps below to export an e² studio project file.

(a) Open e² studio workspace that contains the project for porting.

(b) In “Project Explorer”, select project for porting.

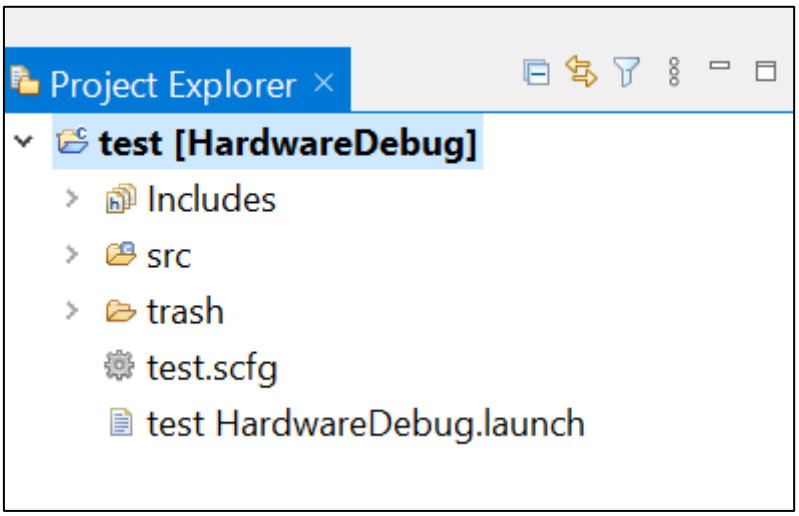

Figure 1-1 Select the project folder for porting

(c) In “File” menu, select “Export”.

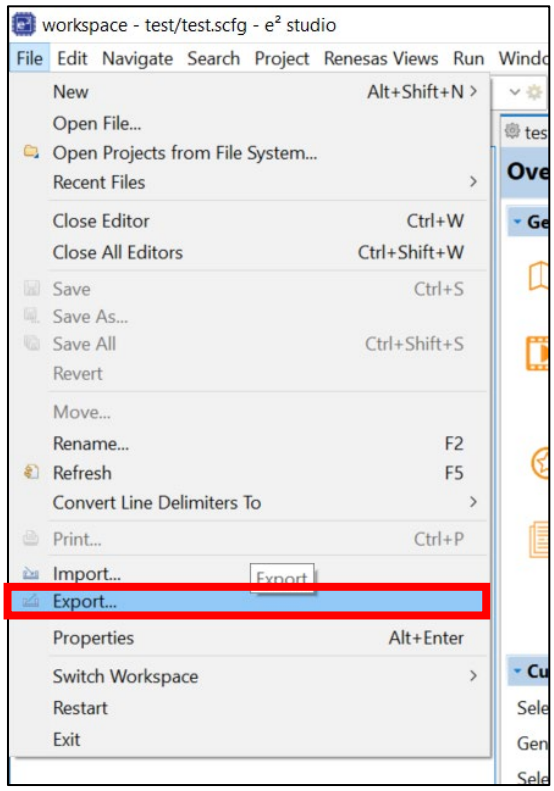

Figure 1-2 Export

(d) Select “Renesas Common Project File” and click “Next”.

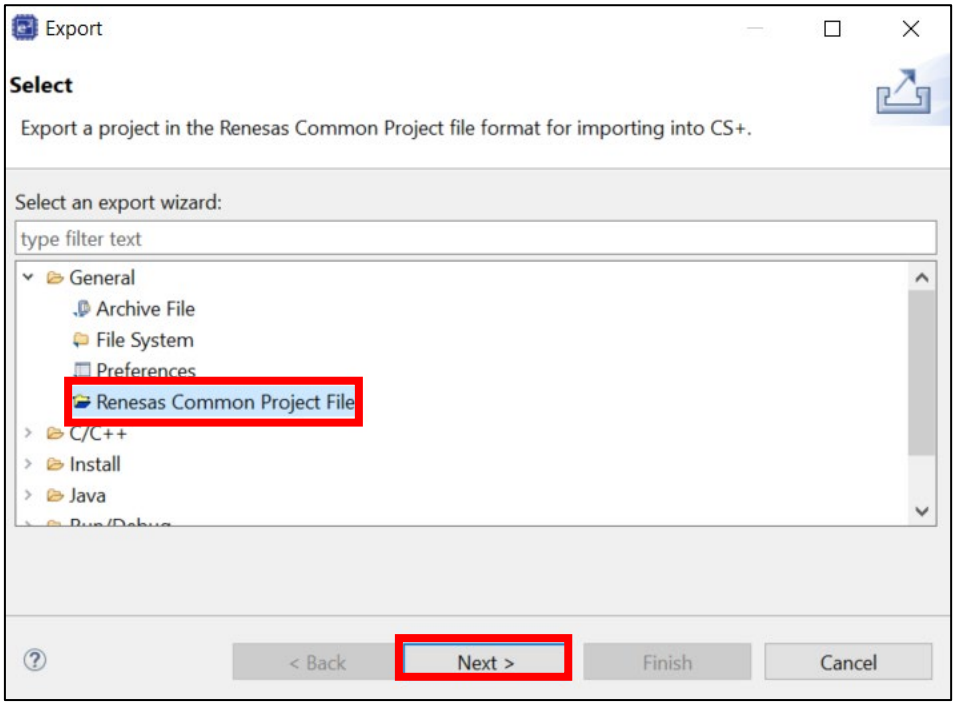

Figure 1-3 Select Renesas Common Project File

(e) Click “Finish” to complete the export procedure.
If changing the output location of Common Project File from the default location, all files in the project folder have to be copied to the new location manually.

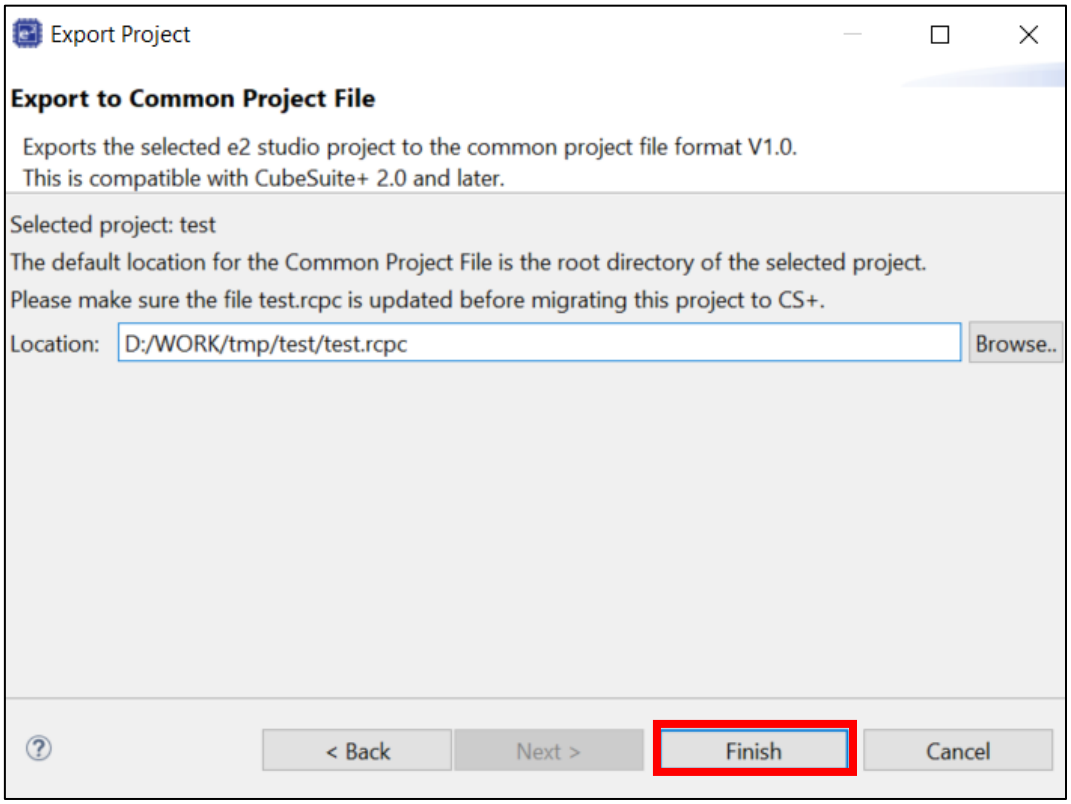

Figure 1-4 Specify the output location

1.1.2 Import an e² studio project file to CS+

Follow the steps below to import the exported project file to CS+.

(a) Launch CS+. In “Open Existing MCU Simulator Online/ e² studio/CubeSuite/High-performance Embedded Workshop/PM+ Project” category, click “GO”

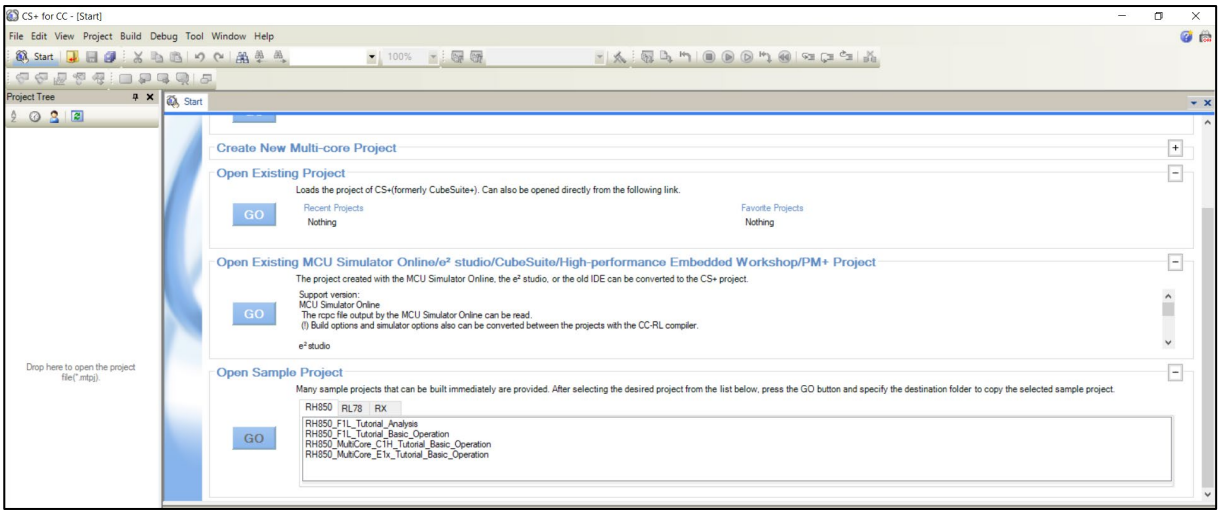

Figure 1-5 Open e² studio project

(b) Select the exported Common Project File (.rcpc).

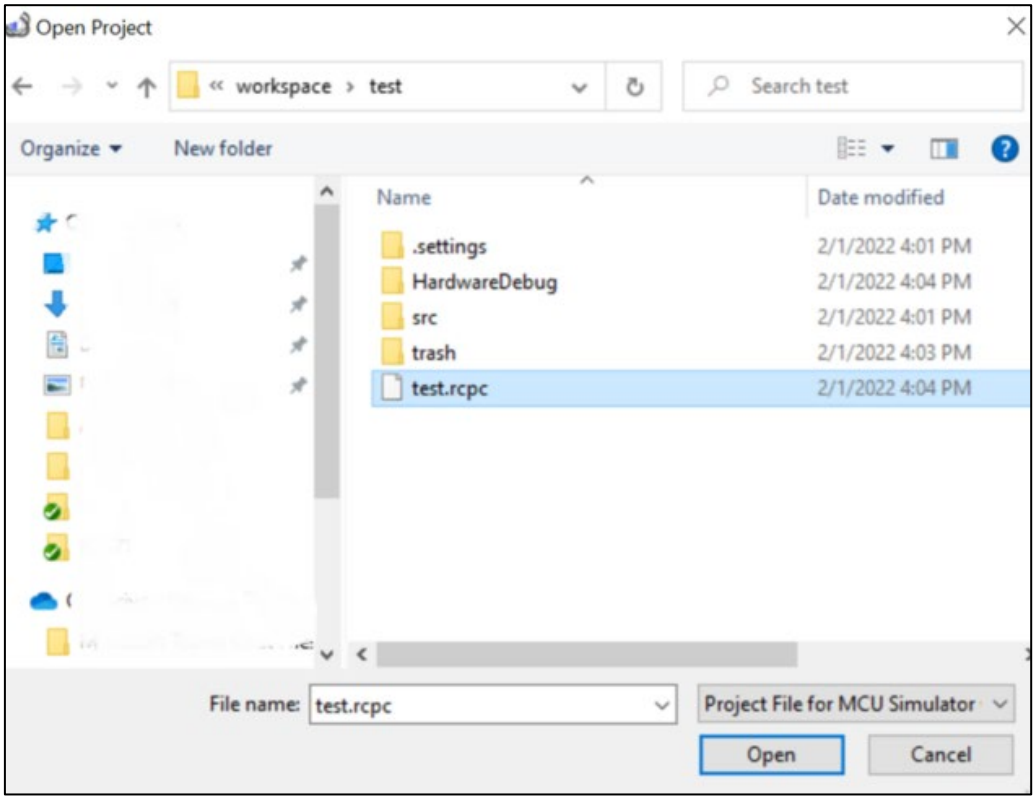

Figure 1-6 Select Common Project File (*.rcpc file)

(c) Click “OK” to convert project settings.

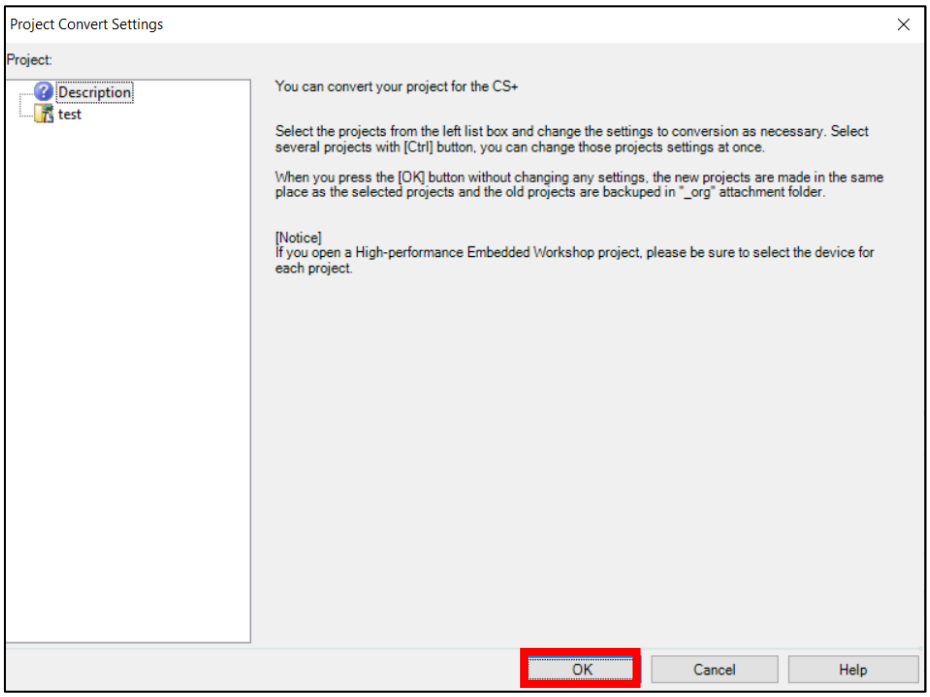

Figure 1-7 Project Convert Settings

1.1.3 Configure build target for CS+ project

Follow the steps below to configure build target for CS+ project.

(a) In “Project Tree”, exclude “trash” folder from build target.
(“Trash” folder is the backup folder of generated code and has to be excluded from build.)

(a) -1 Select “trash” folder and click “Property” from menu.

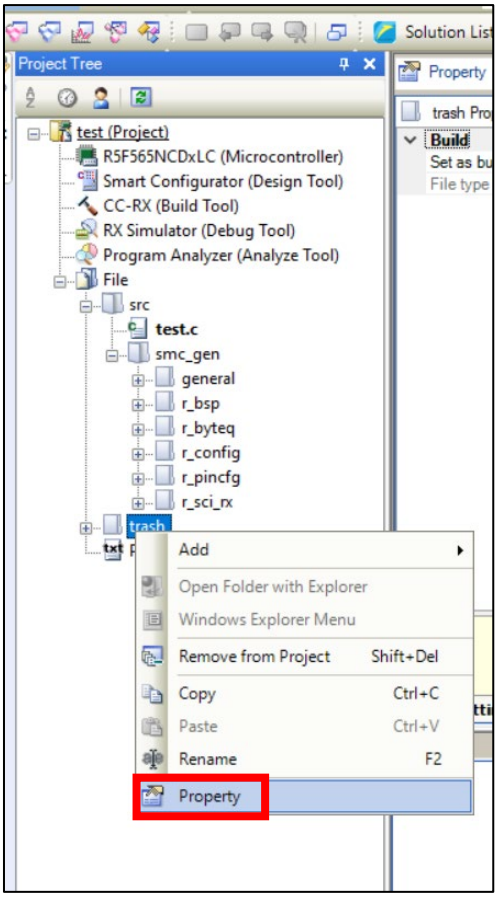

Figure 1-8 Property of “trash” folder

(a) -2 Check the setting of “Set as build-target”. It should have been selected as “No” by default.
Change to “No” if otherwise.

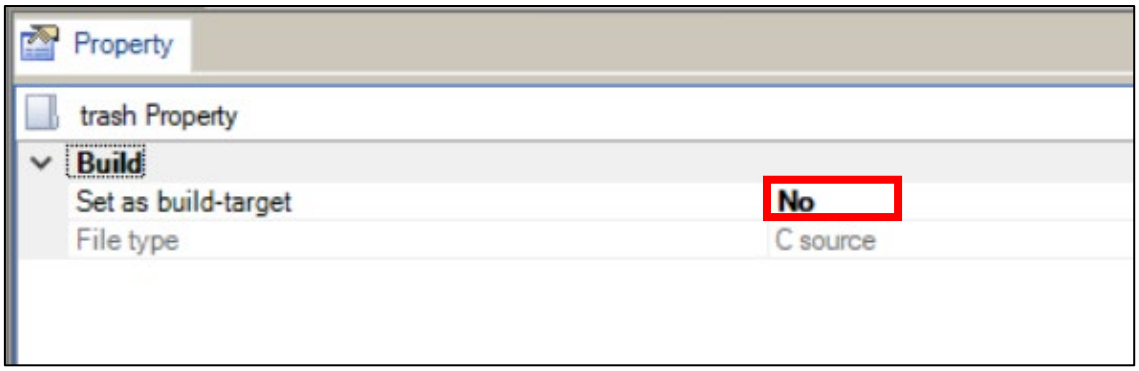

Figure 1-9 Setting for build target

(b) If there is a need to generate code after porting to CS+, “smc_gen” folder ported from e^2 studio has to be removed manually before build.

Follow the steps below to remove it from the project.
Note: “Smart Configurator” folder will be created at Project Tree after generate code.

(b) -1 Remove from Project
Select “smc_gen” folder and select “Remove from Project “from menu.

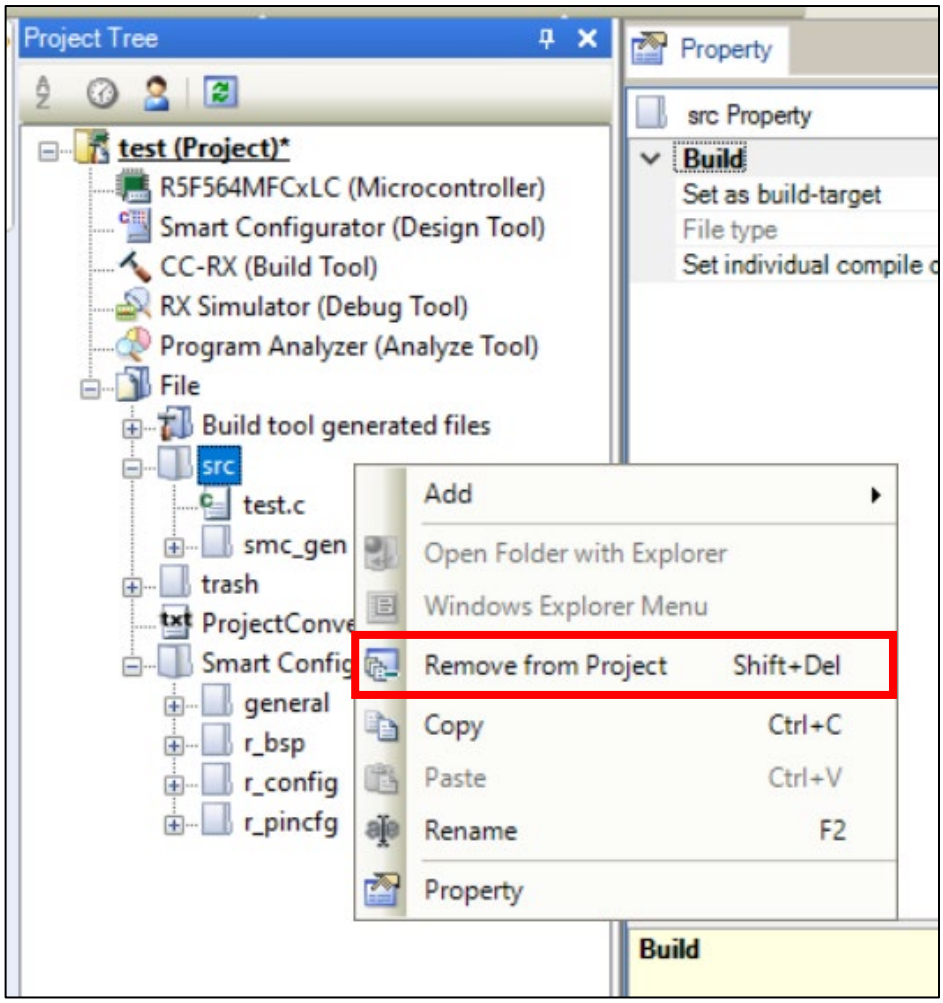

Figure 1-10 Remove from project

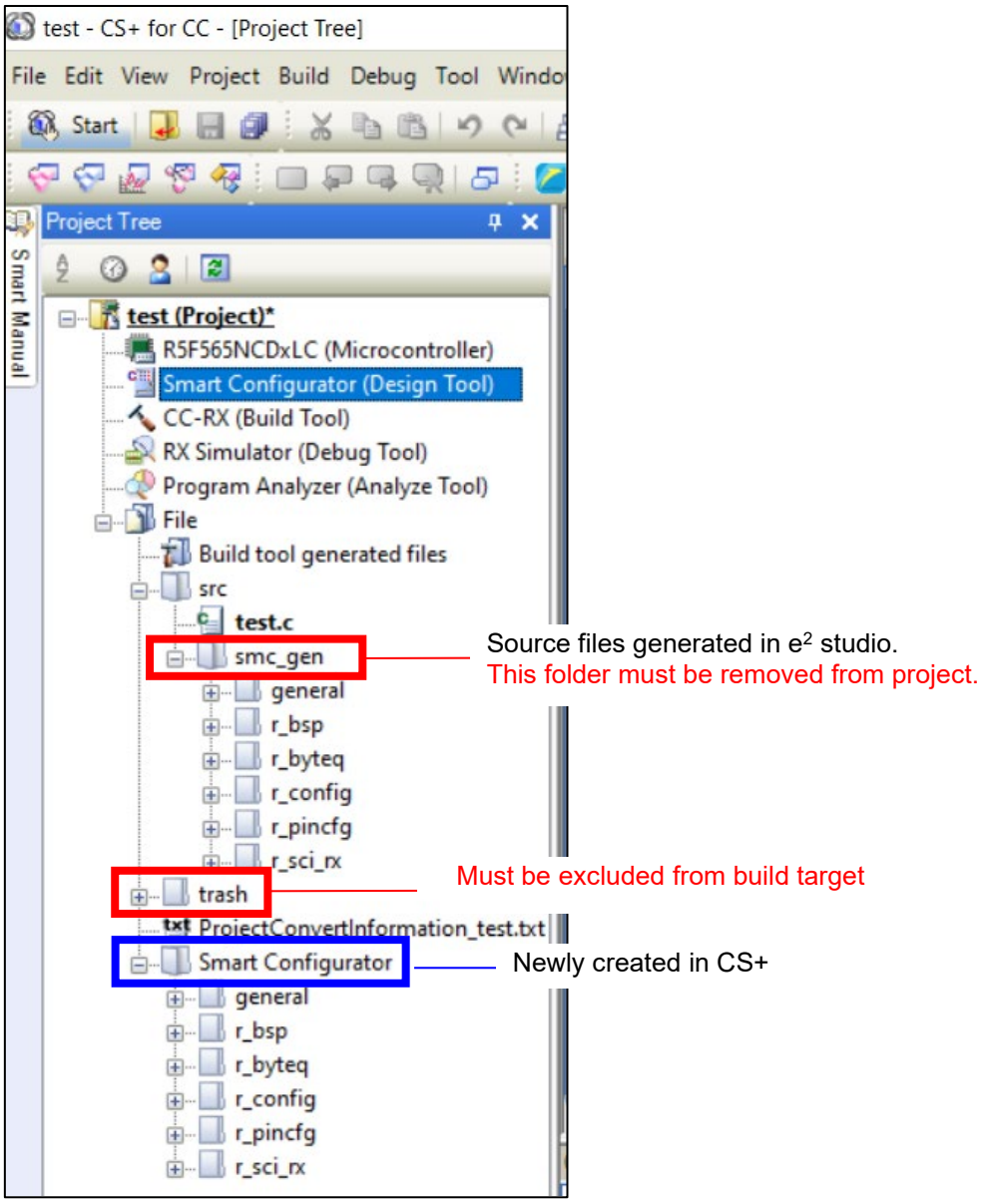

Figure 1-11 Configuration of Project Tree

1.2 Procedure for porting a project that is using Code Generator

This section describes the procedure for porting an e² studio project to CS+ that is using Code Generator.

1.2.1 Export an e² studio project file

This section describes the export procedure of e² studio project file.

The procedures are the same as 1.1.1. Refer to 1.1.1 for more details.

1.2.2 Import an e² studio project file to CS+

This section describes how to Import the exported project file in 1.2.1 in CS+.

The procedures are the same as 1.1.2. Refer to 1.1.2 for more details.

1.2.3 Select the output location of code generation files

Follow the steps below to select the output location of code generation files.

(a) In “Project Tree”, select “Code Generator” and click “Property” from menu.

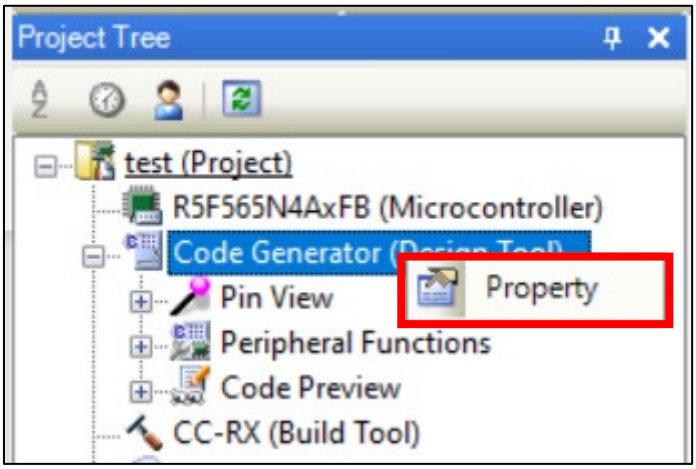

Figure 1-12 Property of Code Generator

(b) Specify the location of existing source files.

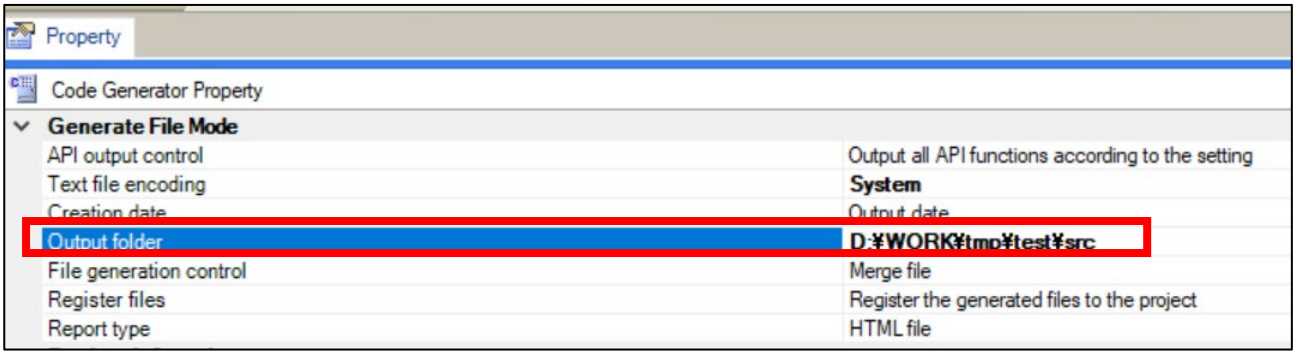

Figure 1-13 Output folder of Code Generator

2. Porting from CS+ to e² studio

This chapter describes how to port a CS+ project to e² studio.

For Smart Configurator users, please refer to “2.1 Procedure for porting a project that is using Smart Configurator”

For Code Generator users, please refer to “2.2 Procedure for porting a project that is using Code Generator”

2.1 Procedure for porting a project that is using Smart Configurator

This section describes the procedure for porting a CS+ project to e² studio that is using Smart Configurator.

2.1.1 Create a common project file for porting to e² studio

Follow the steps below to create Common Project File in CS+ for porting to e² studio.

(a) Open CS+ project for porting.

(b) In “Tool” menu, select “Options…” and select “Project”.

(c) Check the setting of “Output the common project file for e² studio too when the project is saved”. It should have been selected by default.

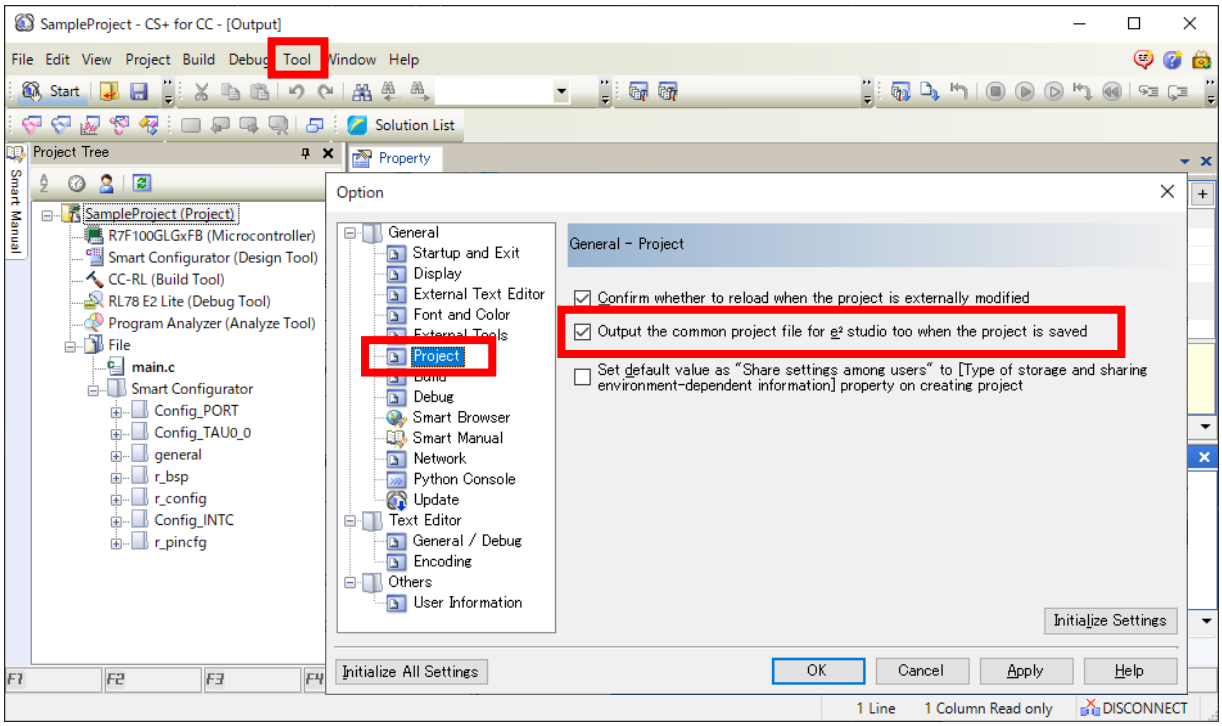

Figure 2-1 Project file output settings for e² studio

(d) Save CS+ project. The common project file (.rcpe) can be found in the same location as CS+ project file(.mtpj).

2.1.2 Import a common project file to e² studio

Import the Common Project File generated in 2.1.1 to e² studio by following the steps below.

(a) Launch e² studio.

(b) In “File” menu, select “Import”.

(c) Select “Renesas CS+ Project for CC-RX, CC-RL and CC-RH” and click “Next”

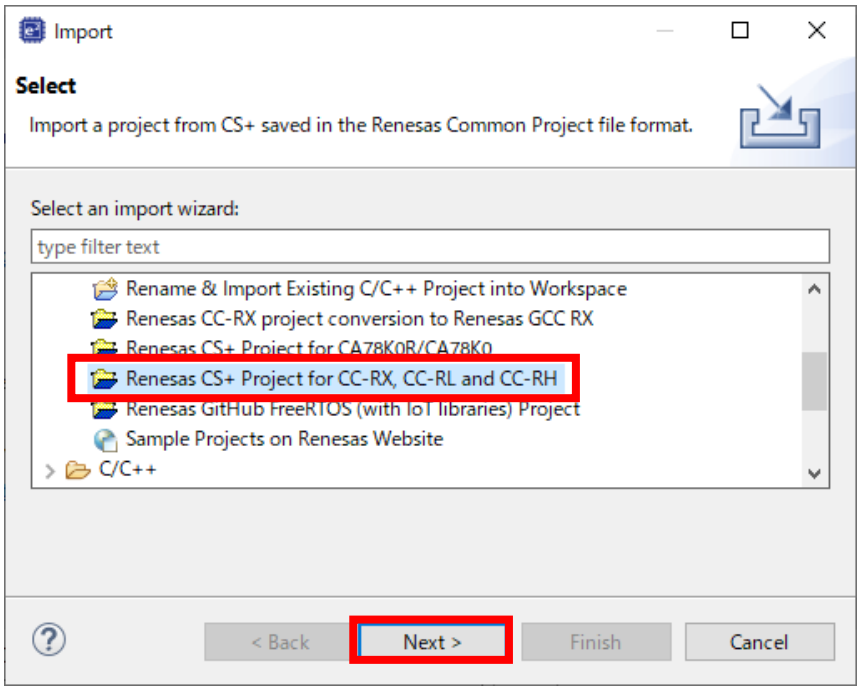

Figure 2-2 Renesas CS+ Project for CC-RX, CC-RL and CC-RH

(d) Specify file location of Common Project File (.rcpe). Select the suitable emulator from “Debug Hardware” list and click “Finish”.

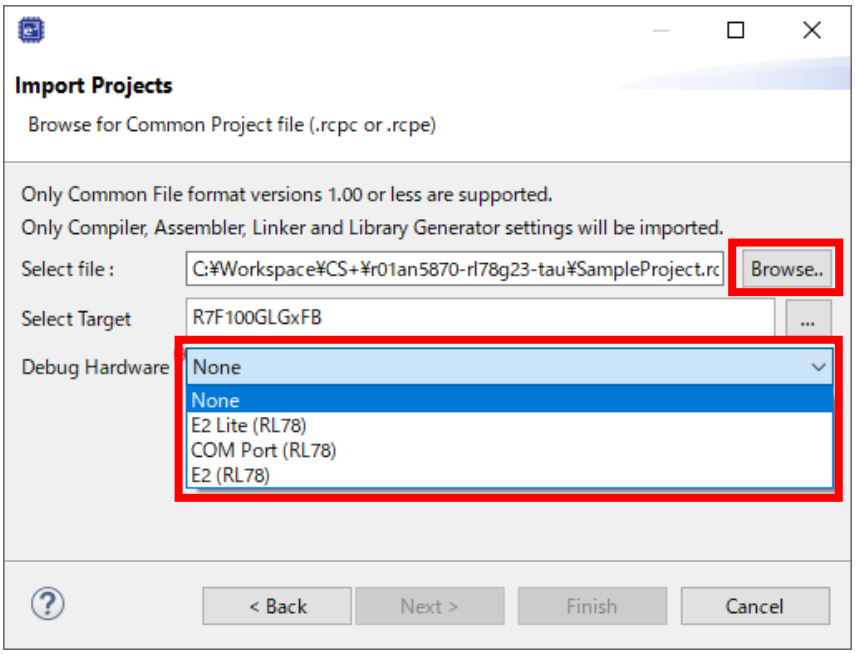

Figure 2-3 File selection

2.1.3 Configure build target for e² studio project

This section describes the steps to configure build target for e² studio project.

(a) Add the "smc_gen" folder in the Project Explorer of e² studio to the build target, and exclude the "Smart Configurator" and "trash" folders from the build target.

("Trash" folder is a backup folder for generated code. It has to be excluded from the build target manually after importing the project from CS+.)

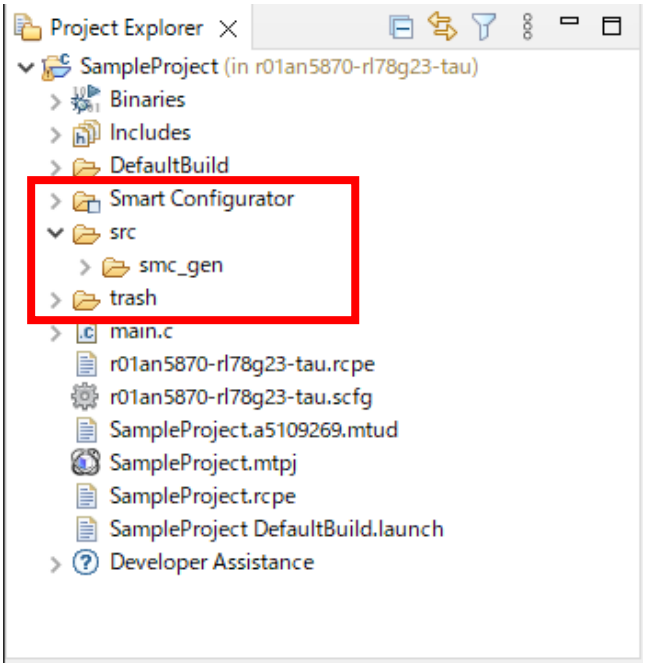

Figure 2-4 Project Explorer of e² studio

(a) -1 Open the project properties and select [Edit Filter] for [Source Location] tab in [Paths and Symbols].

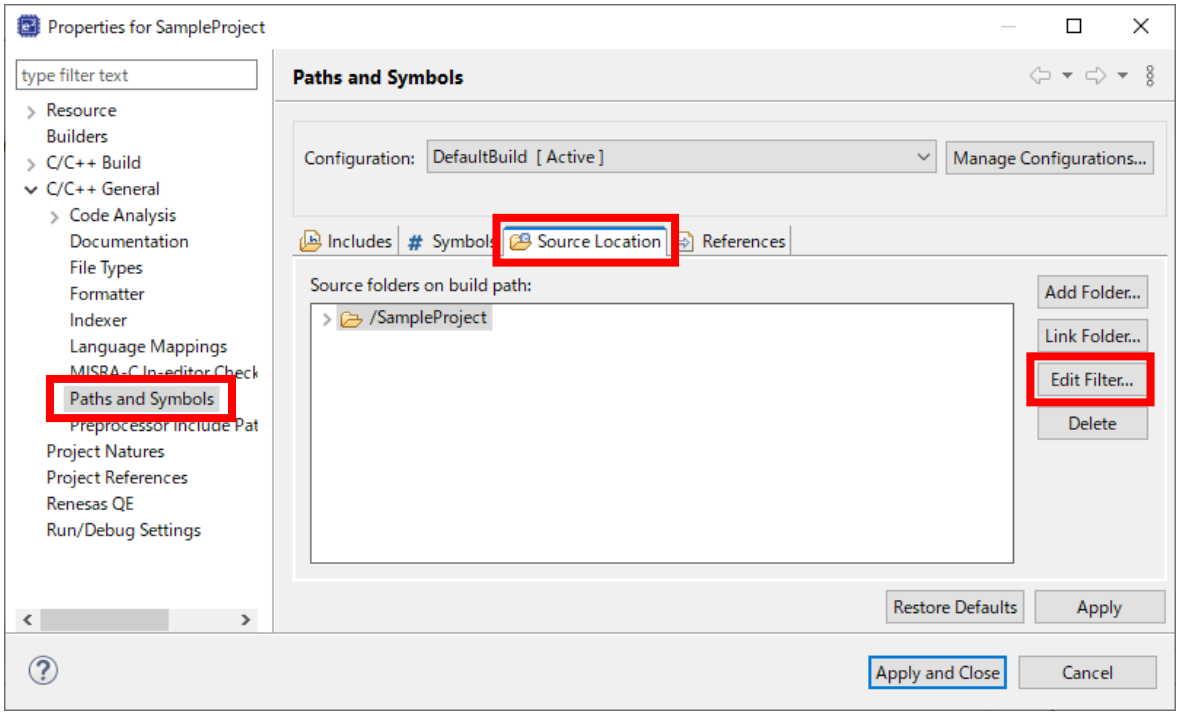

Figure 2-5 [Source Location] of [Paths and Symbols] in Properties

(a) -2 Select the file below "src/smc_gen" and click [Remove].

To select multiple exclusion patterns, hold down the Shift key while selecting.

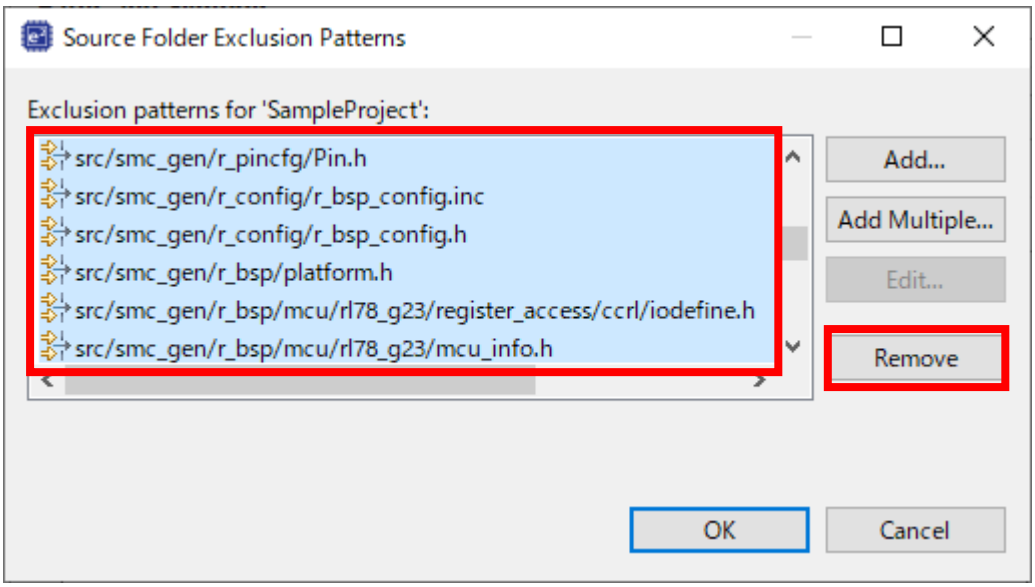

Figure 2-6 Remove source folder exclusion pattern

(a) -3 Click [Add] and add the "trash" and "Smart Configurator" folders to the Exclusion patterns.

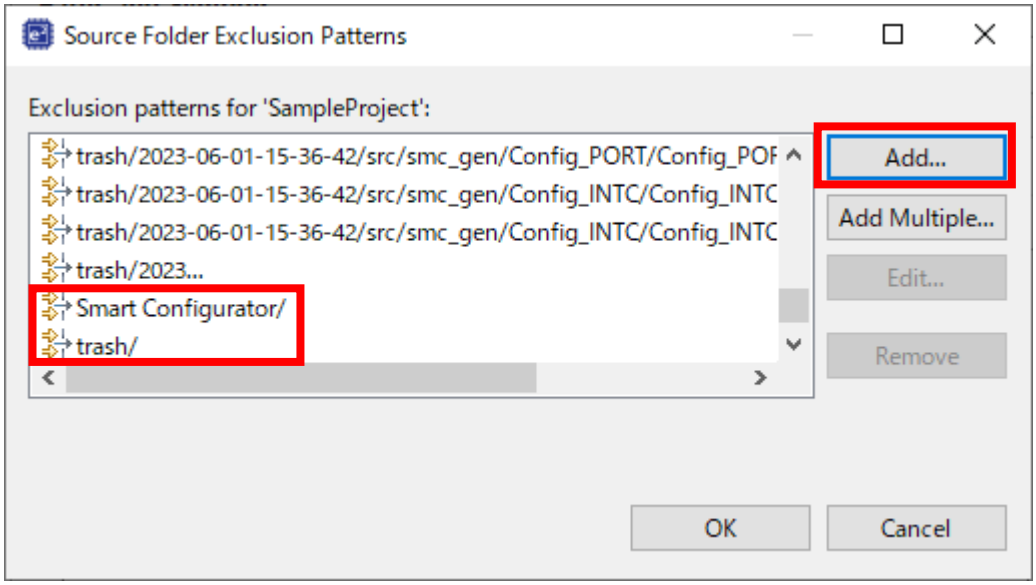

Figure 2-7 Add source folder exclusion pattern

Note: W0511106 in build message after component removal.
If you delete a component added in a CS+ project after importing to e² studio, the following message will be displayed because the include path added in CS+ will not be removed.

W0511106:The folder "C:/xxxxxxx/xxxxxxx" specified by the "-I" option is not found.

Open the [Includes] tab of the properties and manually remove the include path added by CS+. The include path specified "${ProjDirPath}/src/smc_gen/..." is the path added in CS+.

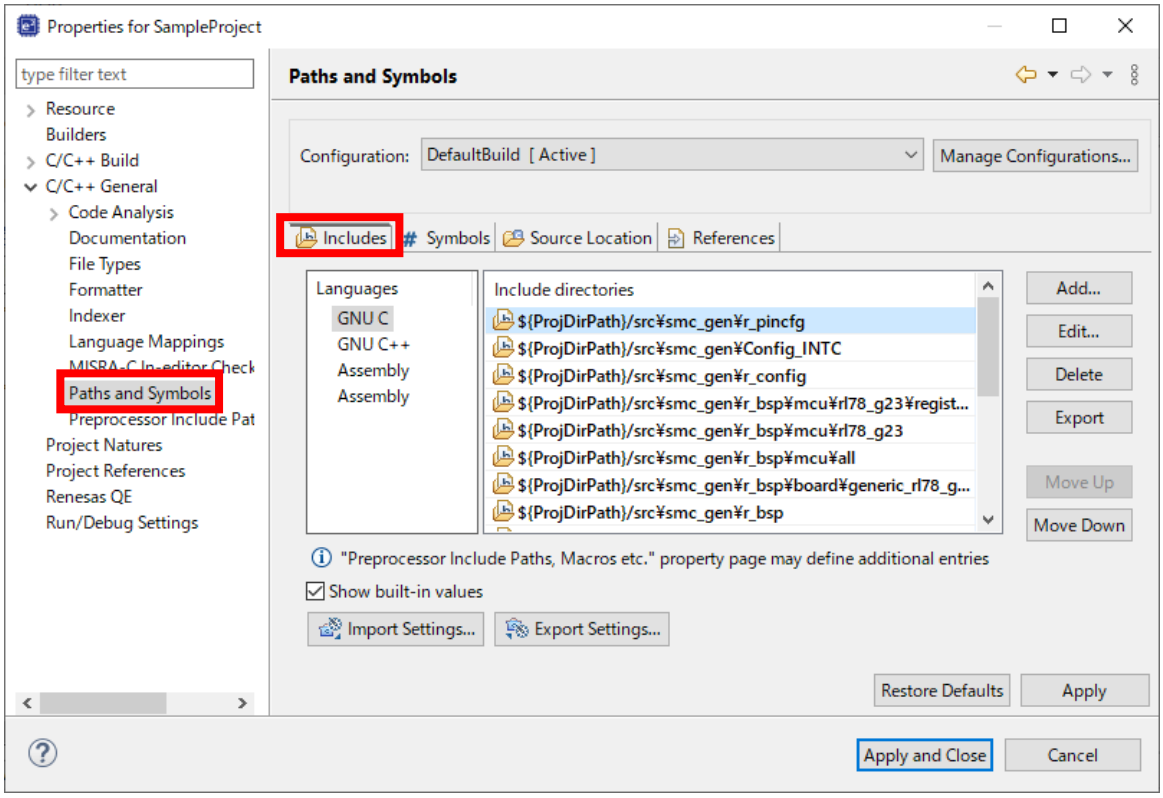

Figure 2-8 [Includes] tab in [Paths and Symbols]

2.2 Procedure for porting a project that is using Code Generator

This section describes the procedure for porting a CS+ project to e² studio that is using Code Generator.

2.2.1 Create a common project file for porting to e² studio

This section describes how to create the Common Project File in CS+ for porting to e² studio.

The procedures are the same as 2.1.1. Refer to 2.1.1. for more details.

2.2.2 Import a common project file to e² studio

Import the common project file created in 2.2.1 into e² studio.

The procedures are the same as 2.1.2. Refer to 2.1.2 for more details.

2.2.3 Rename the folder name of imported project

This section describes the steps to rename the folder name of imported project in e² studio.

(a) In “Project Explorer”, select “cg_src” folder and click “Rename” from menu.

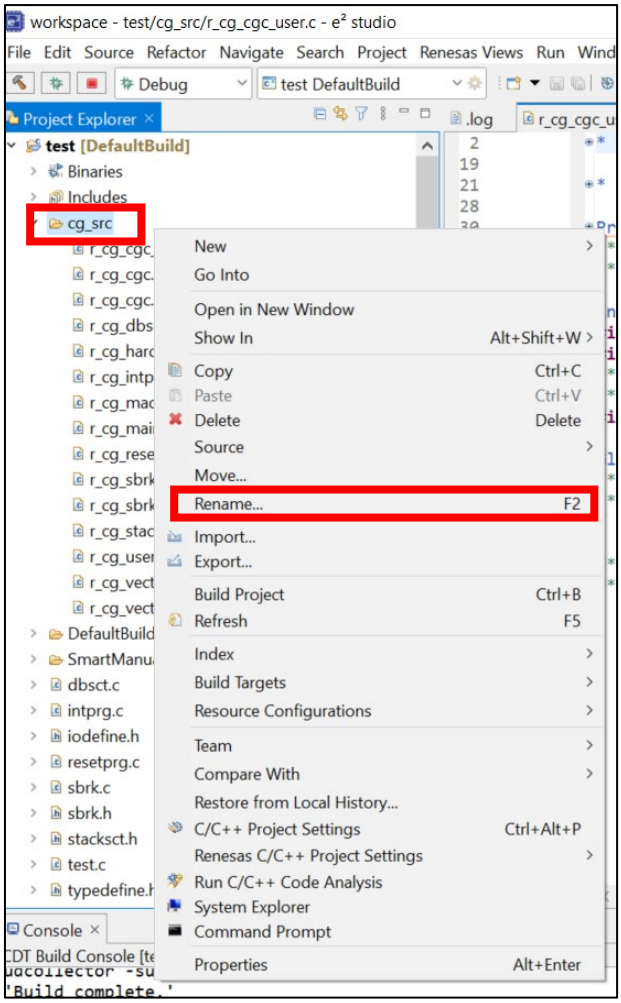

Figure 2-9 Rename

(b) Specify “src” as the “New name” of the folder

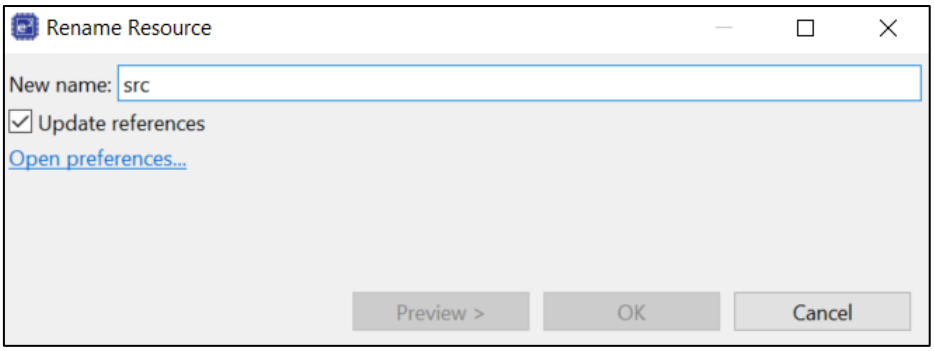

Figure 2-10 New name for the Imported Folder

3. Porting from MCU Simulator Online to Integrated Development Environments

This chapter describes how to port a project exported from MCU Simulator Onlin project to e² studio or CS+.

For porting to e² studio, please refer to “3.1 Porting to e² studio”.

For porting to CS+, please refer to “3.2 Porting to CS+”.

3.1 Porting to e² studio

Refer to "2.1.2 Import a common project file to e² studio" or later, and set the build target files after importing the MCU Simulator Online project.

3.2 Porting to CS+

Refer to "1.1.2 Import an e² studio project file to CS+", and import the MCU Simulator Online project.

3.2.1 Configure build target for CS+ project

After importing the project, executing code generation from the Smart Configurator regenerates the files under the "Smart Configurator" folder. Therefore, exclude the "Smart Configurator" folder generated before import from the project by selecting "Remove from Project" from the context menu.

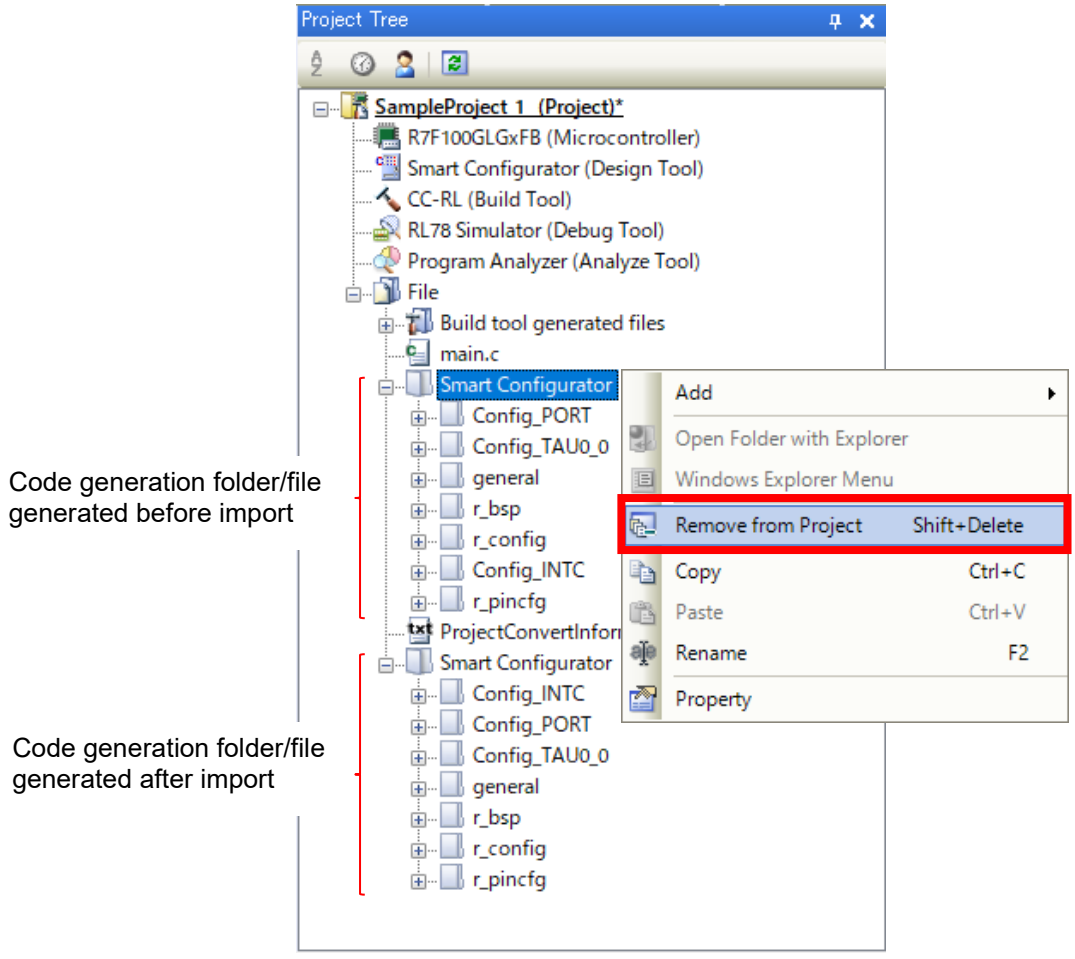

Figure 3-1 Remove from Project

Revision History

Rev.	Section	Description
1.00	-	New Creation
1.10	Introduction	Added MCU Simulator Online.
	2.1.3	Updated the build target setting procedure.
	3	Added procedure to porting from MCU Simulator Online to Integrated Development Environments.

General Precautions in the Handling of Microprocessing Unit and Microcontroller Unit Products

The following usage notes are applicable to all Microprocessing unit and Microcontroller unit products from Renesas. For detailed usage notes on the products covered by this document, refer to the relevant sections of the document as well as any technical updates that have been issued for the products.

1. Precaution against Electrostatic Discharge (ESD)

   A strong electrical field, when exposed to a CMOS device, can cause destruction of the gate oxide and ultimately degrade the device operation. Steps must be taken to stop the generation of static electricity as much as possible, and quickly dissipate it when it occurs. Environmental control must be adequate. When it is dry, a humidifier should be used. This is recommended to avoid using insulators that can easily build up static electricity. Semiconductor devices must be stored and transported in an anti-static container, static shielding bag or conductive material. All test and measurement tools including work benches and floors must be grounded. The operator must also be grounded using a wrist strap. Semiconductor devices must not be touched with bare hands. Similar precautions must be taken for printed circuit boards with mounted semiconductor devices.
2. Processing at power-on

   The state of the product is undefined at the time when power is supplied. The states of internal circuits in the LSI are indeterminate and the states of register settings and pins are undefined at the time when power is supplied. In a finished product where the reset signal is applied to the external reset pin, the states of pins are not guaranteed from the time when power is supplied until the reset process is completed. In a similar way, the states of pins in a product that is reset by an on-chip power-on reset function are not guaranteed from the time when power is supplied until the power reaches the level at which resetting is specified.
3. Input of signal during power-off state

   Do not input signals or an I/O pull-up power supply while the device is powered off. The current injection that results from input of such a signal or I/O pull-up power supply may cause malfunction and the abnormal current that passes in the device at this time may cause degradation of internal elements. Follow the guideline for input signal during power-off state as described in your product documentation.
4. Handling of unused pins

   Handle unused pins in accordance with the directions given under handling of unused pins in the manual. The input pins of CMOS products are generally in the high-impedance state. In operation with an unused pin in the open-circuit state, extra electromagnetic noise is induced in the vicinity of the LSI, an associated shoot-through current flows internally, and malfunctions occur due to the false recognition of the pin state as an input signal become possible.
5. Clock signals

   After applying a reset, only release the reset line after the operating clock signal becomes stable. When switching the clock signal during program execution, wait until the target clock signal is stabilized. When the clock signal is generated with an external resonator or from an external oscillator during a reset, ensure that the reset line is only released after full stabilization of the clock signal. Additionally, when switching to a clock signal produced with an external resonator or by an external oscillator while program execution is in progress, wait until the target clock signal is stable.
6. Voltage application waveform at input pin

   Waveform distortion due to input noise or a reflected wave may cause malfunction. If the input of the CMOS device stays in the area between V_{IL} (Max.) and V_{IH} (Min.) due to noise, for example, the device may malfunction. Take care to prevent chattering noise from entering the device when the input level is fixed, and also in the transition period when the input level passes through the area between V_{IL} (Max.) and V_{IH} (Min.).
7. Prohibition of access to reserved addresses

   Access to reserved addresses is prohibited. The reserved addresses are provided for possible future expansion of functions. Do not access these addresses as the correct operation of the LSI is not guaranteed.
8. Differences between products

   Before changing from one product to another, for example to a product with a different part number, confirm that the change will not lead to problems. The characteristics of a microprocessing unit or microcontroller unit products in the same group but having a different part number might differ in terms of internal memory capacity, layout pattern, and other factors, which can affect the ranges of electrical characteristics, such as characteristic values, operating margins, immunity to noise, and amount of radiated noise. When changing to a product with a different part number, implement a system-evaluation test for the given product.

Notice

1. Descriptions of circuits, software and other related information in this document are provided only to illustrate the operation of semiconductor products and application examples. You are fully responsible for the incorporation or any other use of the circuits, software, and information in the design of your product or system. Renesas Electronics disclaims any and all liability for any losses and damages incurred by you or third parties arising from the use of these circuits, software, or information.
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6. Renesas Electronics products are classified according to the following two quality grades: “Standard” and “High Quality”. The intended applications for each Renesas Electronics product depends on the product’s quality grade, as indicated below.
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Corporate Headquarters

TOYOSU FORESIA, 3-2-24 Toyosu,
Koto-ku, Tokyo 135-0061, Japan

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