User's Manual

CS+

Integrated Development Environment

User's Manual: CC-RL Build Tool Operation

Target Device

RL78 Family

Target Version

V3.00.00 or higher

Renesas Electronics
www.renesas.com

Rev.1.01 2015.08

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 of these circuits, software, and information in the design of your equipment. Renesas Electronics assumes no responsibility for any losses incurred by you or third parties arising from the use of these circuits, software, or information.
2. Renesas Electronics has used reasonable care in preparing the information included in this document, but Renesas Electronics does not warrant that such information is error free. Renesas Electronics assumes no liability whatsoever for any damages incurred by you resulting from errors in or omissions from the information included herein.
3. Renesas Electronics does not assume any liability for infringement of patents, copyrights, or other intellectual property rights of third parties by or arising from the use of Renesas Electronics products or technical information described in this document. No license, express, implied or otherwise, is granted hereby under any patents, copyrights or other intellectual property rights of Renesas Electronics or others.
4. You should not alter, modify, copy, or otherwise misappropriate any Renesas Electronics product, whether in whole or in part. Renesas Electronics assumes no responsibility for any losses incurred by you or third parties arising from such alteration, modification, copy or otherwise misappropriation of Renesas Electronics product.
5. Renesas Electronics products are classified according to the following two quality grades: “Standard” and “High Quality”. The recommended applications for each Renesas Electronics product depends on the product’s quality grade, as indicated below.

   “Standard”: Computers; office equipment; communications equipment; test and measurement equipment; audio and visual equipment; home electronic appliances; machine tools; personal electronic equipment; and industrial robots etc.

   “High Quality”: Transportation equipment (automobiles, trains, ships, etc.); traffic control systems; anti-disaster systems; anti-crime systems; and safety equipment etc.

   Renesas Electronics products are neither intended nor authorized for use in products or systems that may pose a direct threat to human life or bodily injury (artificial life support devices or systems, surgical implantations etc.), or may cause serious property damages (nuclear reactor control systems, military equipment etc.). You must check the quality grade of each Renesas Electronics product before using it in a particular application. You may not use any Renesas Electronics product for any application for which it is not intended. Renesas Electronics shall not be in any way liable for any damages or losses incurred by you or third parties arising from the use of any Renesas Electronics product for which the product is not intended by Renesas Electronics.
6. You should use the Renesas Electronics products described in this document within the range specified by Renesas Electronics, especially with respect to the maximum rating, operating supply voltage range, movement power voltage range, heat radiation characteristics, installation and other product characteristics. Renesas Electronics shall have no liability for malfunctions or damages arising out of the use of Renesas Electronics products beyond such specified ranges.
7. Although Renesas Electronics endeavors to improve the quality and reliability of its products, semiconductor products have specific characteristics such as the occurrence of failure at a certain rate and malfunctions under certain use conditions. Further, Renesas Electronics products are not subject to radiation resistance design. Please be sure to implement safety measures to guard them against the possibility of physical injury, and injury or damage caused by fire in the event of the failure of a Renesas Electronics product, such as safety design for hardware and software including but not limited to redundancy, fire control and malfunction prevention, appropriate treatment for aging degradation or any other appropriate measures. Because the evaluation of microcomputer software alone is very difficult, please evaluate the safety of the final products or systems manufactured by you.
8. Please contact a Renesas Electronics sales office for details as to environmental matters such as the environmental compatibility of each Renesas Electronics product. Please use Renesas Electronics products in compliance with all applicable laws and regulations that regulate the inclusion or use of controlled substances, including without limitation, the EU RoHS Directive. Renesas Electronics assumes no liability for damages or losses occurring as a result of your noncompliance with applicable laws and regulations.
9. Renesas Electronics products and technology may not be used for or incorporated into any products or systems whose manufacture, use, or sale is prohibited under any applicable domestic or foreign laws or regulations. You should not use Renesas Electronics products or technology described in this document for any purpose relating to military applications or use by the military, including but not limited to the development of weapons of mass destruction. When exporting the Renesas Electronics products or technology described in this document, you should comply with the applicable export control laws and regulations and follow the procedures required by such laws and regulations.
10. It is the responsibility of the buyer or distributor of Renesas Electronics products, who distributes, disposes of, or otherwise places the product with a third party, to notify such third party in advance of the contents and conditions set forth in this document, Renesas Electronics assumes no responsibility for any losses incurred by you or third parties as a result of unauthorized use of Renesas Electronics products.
11. This document may not be reproduced or duplicated in any form, in whole or in part, without prior written consent of Renesas Electronics.
12. Please contact a Renesas Electronics sales office if you have any questions regarding the information contained in this document or Renesas Electronics products, or if you have any other inquiries.

(Note 1) “Renesas Electronics” as used in this document means Renesas Electronics Corporation and also includes its majority-owned subsidiaries.

(Note 2) “Renesas Electronics product(s)” means any product developed or manufactured by or for Renesas Electronics.

How to Use This Manual

This manual describes the role of the CS+ integrated development environment for developing applications and systems for RL78 family, and provides an outline of its features.

CS+ is an integrated development environment (IDE) for RL78 family, integrating the necessary tools for the development phase of software (e.g. design, implementation, and debugging) into a single platform.

By providing an integrated environment, it is possible to perform all development using just this product, without the need to use many different tools separately.

Readers	This manual is intended for users who wish to understand the functions of the CS+ and design software and hardware application systems.
Purpose	This manual is intended to give users an understanding of the functions of the CS+ to use for reference in developing the hardware or software of systems using these devices.
Organization	This manual can be broadly divided into the following units. 1.GENERAL 2.FUNCTIONS A.WINDOW REFERENCE
How to Read This Manual	It is assumed that the readers of this manual have general knowledge of electricity, logic circuits, and microcontrollers.

Conventions

Data significance:	Higher digits on the left and lower digits on the right
Active low representation:	XXX (overscore over pin or signal name)
Note:	Footnote for item marked with Note in the text
Caution:	Information requiring particular attention
Remarks:	Supplementary information
Numeric representation:	Decimal ... XXXX Hexadecimal ... 0xXXXX

TABLE OF CONTENTS

1. GENERAL

This chapter explains the overview of the build tool plug-in of CC-RL.

1.1 Overview

The build tool plug-in can be used to set build options for creating load modules or user libraries.

1.2 Features

The features of the build tool plug-in are shown below.

- Build option setting
  Most build options can be set via the graphical user interface (GUI).
- Project conversion
  A project for the CA78K0R compiler created by using CS+ or CubeSuite+ can be converted into a project for the CC-RL compiler.
- Speeding-up of build
  Two types of facilities are provided to speed up build: simultaneous build and parallel build.
  The build time can be shortened in simultaneous build by simultaneously compiling or assembling the files with a single call of the build command and in parallel build by executing multiple build commands in parallel.

2. FUNCTIONS

This chapter describes the build procedure using CS+ and about the main build functions.

2.1 Overview

This section describes how to create a load module and user library.

2.1.1 Create a load module

The procedure for creating a load module is shown below.

Remark See "CS+ Integrated Development Environment User's Manual: Project Operation" for details about (1), (2), (3), (8), and (9).

(1) Create or load a project
Create a new project, or load an existing one.

Remark When converting a CA78K0R project into a CC-RL project, see "2.2 Convert a CA78K0R project into a CC-RL project".

(2) Set a build target project
Set a build target project.

(3) Set build target files
Add or remove build target files and update the dependencies.

(4) Set speeding-up of build
Set a build speed-up facility as required (see "2.3 Speeding-up of Build").

(5) Set the type of the output file
Select the type of the load module to be generated (see "2.4 Set the Type of the Output File").

(6) Set build options
Set the options for the compiler, assembler, linker, and the like (see "2.5 Set Compile Options", "2.6 Set Assemble Options", "2.7 Set Link Options", and the like).

(7) Set the update method of the I/O header file
Update the I/O header file in accordance with the update of the device file (see "2.12 Automatically Update the I/O Header File").

(8) Run a build
Run a build.

Remark If there are any commands you wish to run before or after the build process, on the Property panel, from the [Common Options] tab, in the [Others] category, set the [Commands executed before build processing] and [Commands executed after build processing] properties.
If there are any commands you wish to run before or after the build process at the file level, you can set them from the [Individual Compile Options] tab (for a C source file) and [Individual Assemble Options] tab (for an assembly source file).

(9) Save the project
Save the setting contents of the project to the project file.

2.1.2 Create a user library

The procedure for creating a user library is shown below.

Remark See "CS+ Integrated Development Environment User's Manual: Project Operation" for details about (1), (2), (3), (6), and (7).

(1) Create or load a project
Create a new project, or load an existing one.
When you create a new project, set a library project.

Remark When converting a CA78K0R project into a CC-RL project, see "2.2 Convert a CA78K0R project into a CC-RL project".

(2) Set a build target project
Set a build target project.

(3) Set build target files
Add or remove build target files and update the dependencies.

(4) Set speeding-up of build
Set a build speed-up facility as required (see "2.3 Speeding-up of Build").

(5) Set build options
Set the options for the compiler, assembler, librarian, and the like (see "2.5 Set Compile Options", "2.6 Set Assemble Options", "2.9 Set Create Library Options").

(6) Run a build
Run a build.

Remark If there are any commands you wish to run before or after the build process, on the Property panel, from the [Common Options] tab, in the [Others] category, set the [Commands executed before build processing] and [Commands executed after build processing] properties.
If there are any commands you wish to run before or after the build process at the file level, you can set them from the [Individual Compile Options] tab (for a C source file) and [Individual Assemble Options] tab (for an assembly source file).

(7) Save the project
Save the setting contents of the project to the project file.

2.2 Convert a CA78K0R project into a CC-RL project

A project for the CA78K0R compiler created by using CS+ or CubeSuite+ can be converted into a project for the CC-RL compiler. Make use of the existing file configuration to create a new project for the CC-RL compiler.

The properties of the build tool are also maintained, and converted for use with the CC-RL.

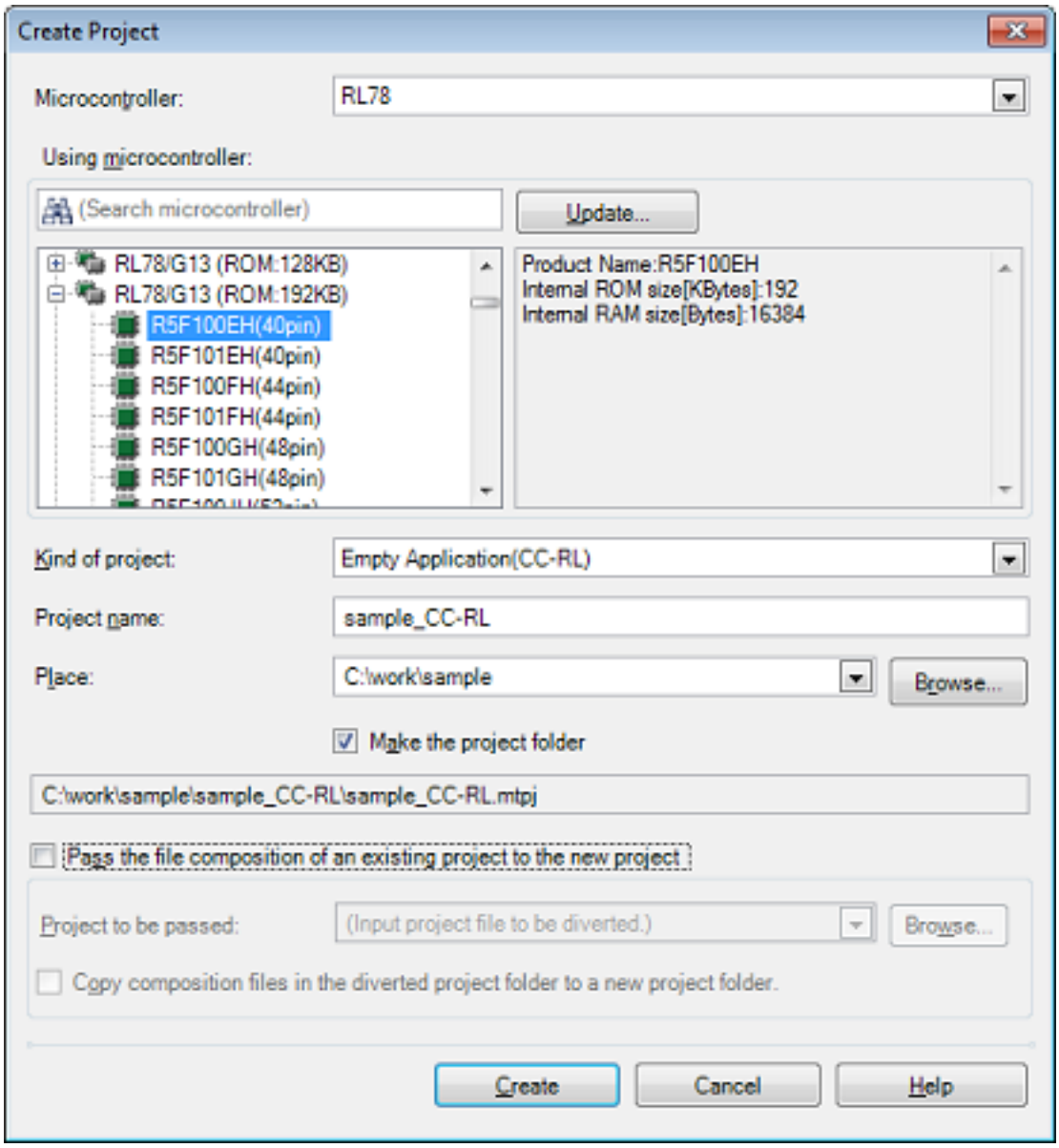
Remark When newly creating a project, see "CS+ Integrated Development Environment User's Manual: Project Operation".

Caution 1. Since the source files are not converted, a build error may occur in some source files immediately after conversion.

Caution 2. If you wish to reuse an existing PM+ project, open the project in CS+, then save it as a CS+ project (for the method of converting a PM+ project into a CS+ project, see "CS+ Integrated Development Environment User's Manual: Project Operation").

First, from the [Project] menu, select [Create New Project...], the Create Project dialog box will open.

Figure 2.1 Create Project Dialog Box



Set the items in the order below and click the [Create] button.

(1) Select the microcontroller type
Select "RL78" on [Microcontroller].

(2) Select the microcontroller
Select the microcontroller to use in the project on [Using microcontroller].

(3) Select the project type
Under [Kind of project], select "Empty Application(CC-RL)" or "Library(CC-RL)", in accordance with the source project.

(4) Specify the project name and location to create the project file
Specify the name of the project and the location to create the project file in [Project name] and [Place].
If you don't create a folder with the project name under the specified location, clear the [Make the project folder] check box.

Remark It is recommended to specify the same folder as the diverted project for the location to create the project file.
If a folder different from the diverted project is specified, there is a possibility that path determination fails and a build error is occurred.

(5) Specify the reuse of a CA78K0R project
Check [Pass the file composition of an existing project to the new project] and specify the location of the project filename to reuse in [Project to be passed].

Remark The result that a CC-RL project is created by reusing a CA78K0R project (the versions of the IDE and compiler package, and conversion information of options) is output to a file as project divert information.

- The project divert information file name is "ProjectDivertInformation*n*.txt" (*n* = 2 to 100).
  n is not added normally. It is added if the file to be created already exist.
- The project divert information file is output for each created project (subproject).
- The project divert information file is output to the project folder of the project (subproject).
- The project divert information file is added to the File node of the project (subproject) on the Project Tree panel.

The output format of the project divert information file is shown below.

```
(1)Time and date on which a project was created

(2)<CS+ IDE(Integrated Development Environment Framework) version>
    CS+ IDE: Version of IDE of CA78K0R project -> Version of IDE of CC-RL
project

(3)<Compiler package version>
    CA78K0R: Version -> CC-RL: Version

(4)<Options not to use(Build mode)>
    Command name(Tab name of build tool property)
     Option
        :

(5)<Options to change(Build mode)>
    Command name(Tab name of build tool property)
     Option of CA78K0R project -> Option of CC-RL project
        :
```

Number	Description
(1)	Time and date on which a project was created The time and date on which a CC-RL project was created by reusing a CA78K0R project is output using format "*dddd*, *mmmm dd*, *yyyy hh*:*mm*:*ss AM*/*PM*".

Number	Description
(2)	CS+ IDE(Integrated Development Environment Framework) version The version of IDE of a CA78K0R project and the version of IDE of a CC-RL project are output.
(3)	Compiler package version The compiler package used in a CA78K0R project and the version, and the compiler package used in a CC-RL project and the version are output. The version of CC-RL is the latest version in the compiler packages which are installed in the CS+ environment.
(4)	Options not to use(*Build mode*) If an option that has been set in a CA78K0R project and is not used in a CC-RL project exists, the information is output for each build mode in the format shown below. *Command name*(*Tab name of build tool property*) *Option* : - This item is output only when the corresponding option exists. - CA78K0R options are converted into CC-RL options which have the same function. The option that has the same function and different name is not output. - Build modes are output in the following order: "DefaultBuild", user-created build mode ("DefaultBuild" is the build mode that CS+ provides by default). See "CS+ Integrated Development Environment User's Manual: Project Operation" for detail about a build mode.
(5)	Options to change(*Build mode*) If an option that has been set in a CA78K0R project and has been changed to use in a CC-RL project exists (in the case that the function is same as CA78K0R, but the parameter does not exist in CC-RL, so it is changed to other one, and the like), the information is output for each build mode in the format shown below. *Command name*(*Tab name of build tool property*) *Option of CA78K0R project -> Option of CC-RL project* : - This item is output only when the corresponding option exists. - CA78K0R options are converted into CC-RL options which have the same function. The option that has the same function and different name is not output. - Build modes are output in the following order: "DefaultBuild", user-created build mode ("DefaultBuild" is the build mode that CS+ provides by default). See "CS+ Integrated Development Environment User's Manual: Project Operation" for detail about a build mode.

2.3 Speeding-up of Build

The build speed-up facilities of this build tool are described here.

There are the following types of build speed-up facilities.

Simultaneous build	Multiple files are simultaneously passed by a single call of the build command. See "2.3.1 Running simultaneous build" for details about simultaneous build.
Parallel build	Multiple build commands are executed in parallel. See "2.3.2 Running parallel build" for details about parallel build.

2.3.1 Running simultaneous build

Simultaneous build is a facility to simultaneously compile or assemble the files with a single call of the ccrl command when there are multiple files to be built.

An image of calling the ccrl command is shown below.

Example When build target files are aaa.c, bbb.c, and ccc.c

- When a build is run simultaneously

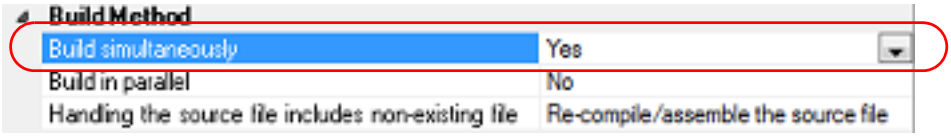
```
>ccrl aaa.c bbb.c ccc.c        <- "aaa.obj", "bbb.obj", and "ccc.obj" are
                                  generated.
>rlink aaa.obj bbb.obj ccc.obj <- "aaa.abs" is generated.
```

- When a build is not run simultaneously

```
>ccrl aaa.c                    <- "aaa.obj" is generated.
>ccrl bbb.c                    <- "bbb.obj" is generated.
>ccrl ccc.c                    <- "ccc.obj" is generated.
>rlink aaa.obj bbb.obj ccc.obj <- "aaa.abs" is generated.
```

Whether to run a build simultaneously is made with the property.
Select the build tool node on the project tree and select the [Common Options] tab on the Property panel.
Select [Yes] in the [Build simultaneously] property in the [Build Method] category.

Figure 2.2 [Build simultaneously] Property



Remark 1. The files with the individual build options and files to be executed prior to the build are excluded from running build simultaneously.
A build of the file that is not targeted for a simultaneous build is run separately.

Remark 2. If the source file is older than the generated object module file or related properties and project or the like, the object module file will be used for the build instead of the source file.

Another facility to speed up build is parallel build.
See "2.3.2 Running parallel build" for details about parallel build.

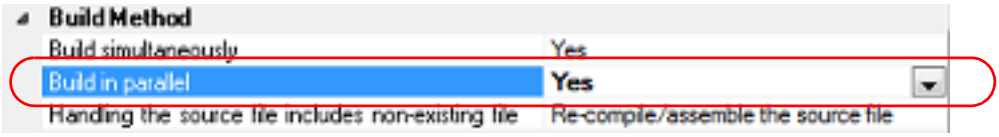
2.3.2 Running parallel build

Parallel build is a facility to build multiple source files in parallel at build in order to reduce the build time.
In parallel build, since build is performed simultaneously for the number of logical CPUs in the host machine, the effect is greater in a machine with a large number of CPU cores.

There are two types of parallel build facilities. Each processing and its setting method are given below.

(1) Parallel build between source files
When running parallel build between multiple source files registered in a project, make the setting in the [Build in parallel] property in the [Common Options] tab on the Property panel.

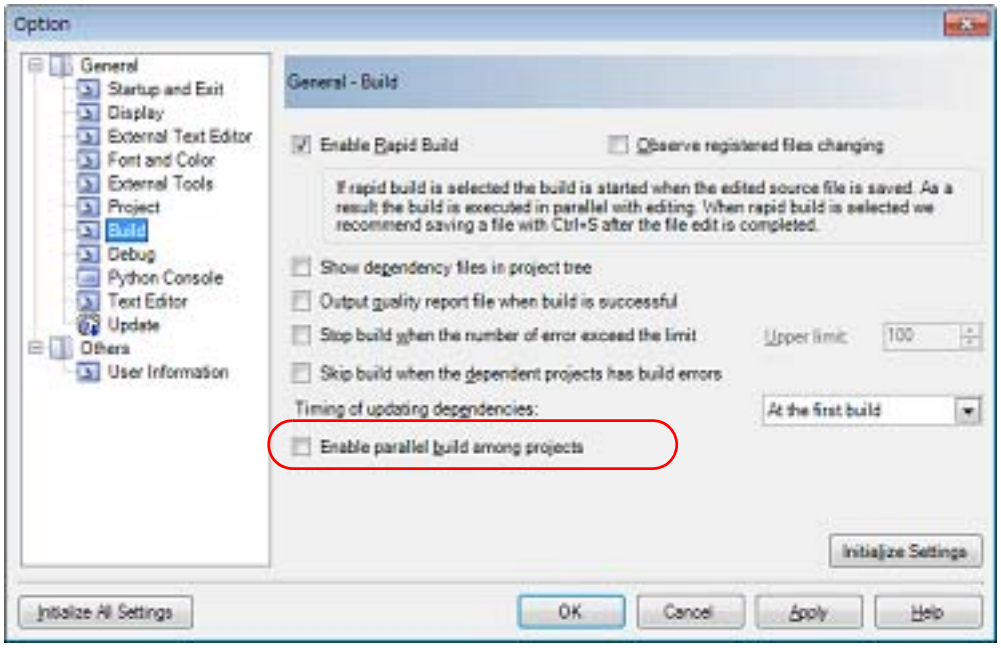
Figure 2.3 [Build in parallel] Property



Remark Another facility to speed up build is simultaneous build.
Simultaneous build is a facility to process the build command for multiple source files at once, and specifying it simultaneously with parallel build has no effect due to its nature. Generally, the more CPU cores there are in the host machine in use or the more source files there are registered in a project, parallel build is faster than simultaneous build.
However, as there are properties that need to be used together with simultaneous build, such as inter-module optimization, use the suitable facility for the situation.
See "2.3.1 Running simultaneous build" for details about simultaneous build.

(2) Parallel build between projects
When running parallel build between the main project and subprojects, make the setting in [Enable parallel build among projects] of the [General - Build] category of the Option dialog box.

Figure 2.4 Option Dialog Box ([General - Build] Category)



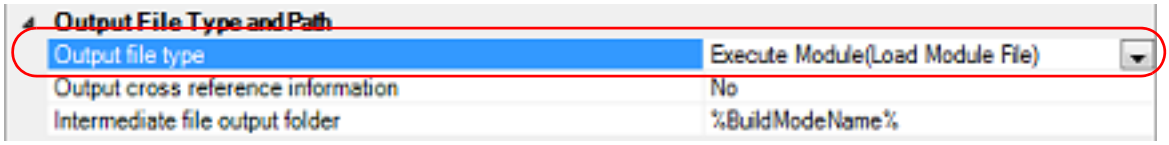
In addition, select [Yes] in the [Build in parallel] property in the [Common Options] tab on the Property panel.

Remark When there are dependencies between projects, set the dependencies between the projects correctly before using the parallel build facility. If a parallel build is performed for the main project and subprojects without the dependencies being set, build is performed in parallel regardless of the build order of the projects.
For details on setting the dependencies between projects, see "CS+ Integrated Development Environment User's Manual: Project Operation".

2.4 Set the Type of the Output File

Set the type of the file to be output as the product of the build.
Select the build tool node on the project tree and select the [Common Options] tab on the Property panel.
Select the file type in the [Output file type] property in the [Output File Type and Path] category.

Figure 2.5 [Output file type] Property



(1) When [Execute Module(Load Module File)] is selected (Default)
The load module file will be the debug target.

(2) When [Execute Module(Hex File)] is selected
The hex file will be the debug target.

Caution For the library project, this property is always [Library] and cannot be changed.

2.4.1 Change the output file name

The names of the load module file, hex file, and library file output by the build tool are set as follows by default.

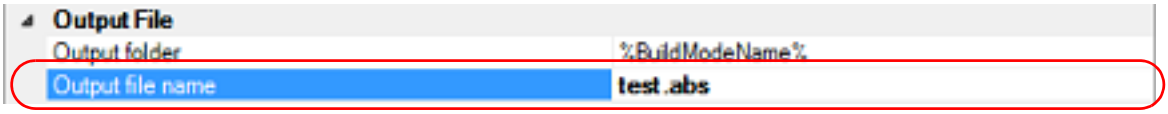
Load module file name: %ProjectName%.abs
Hex file name: %ProjectName%.mot
Library file name: lib%ProjectName%.lib

Remark "%ProjectName%" is a placeholder. It is replaced with the project name.

The method to change these file names is shown below.

(1) When changing the load module file name and non-ROMized load module file name
Select the build tool node on the project tree and select the [Link Options] tab on the Property panel.
Enter the file name to be changed to in the [Output file name] property in the [Output File] category.

Figure 2.6 [Output file name] Property



This property supports the following placeholders.
%ActiveProjectName%: Replaces with the active project name.
%MainProjectName%: Replaces with the main project name.
%ProjectName%: Replaces with the project name.

Remark You can also change the option in the same way with the [Output file name] property in the [Frequently Used Options(for Link)] category on the [Common Options] tab.

(2) When changing the hex file name
Select the build tool node on the project tree and select the [Hex Output Options] tab on the Property panel.
Enter the hex file name to be changed to in the [Output file name] property in the [Output File] category.

Figure 2.7 [Output file name] Property

This property supports the following placeholders.
%ActiveProjectName%: Replaces with the active project name.

%MainProjectName%: Replaces with the main project name.
%ProjectName%: Replaces with the project name.

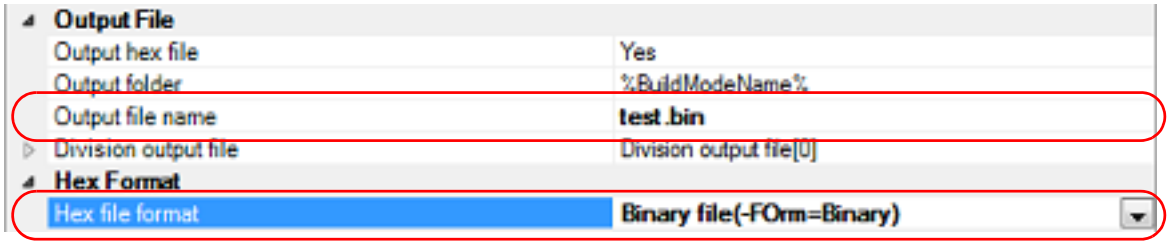
Remark You can also change the option in the same way with the [Output file name] property in the [Frequently Used Options(for Hex Output)] category on the [Common Options] tab.

If the [Hex file format] property in the [Hex Format] category is changed, the following message dialog box will open.

Figure 2.8 Message Dialog Box

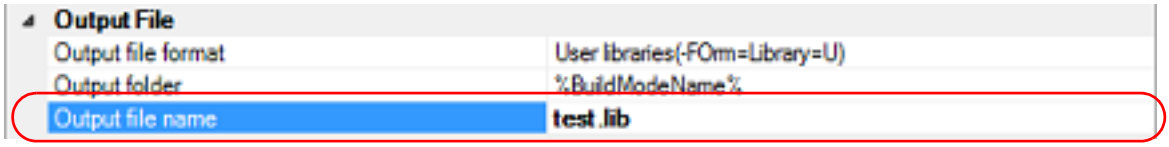
When [Yes] is selected in the dialog box, the extension of the output file name is changed according to the format selected in the [Hex file format] property.

Figure 2.9 [Output file name] and [Hex file format] Property



(3) When changing the library file name
Select the build tool node on the project tree and select the [Create Library Options] tab on the Property panel.
Enter the library file name to be changed to on the [Output file name] property in the [Output File] category.

Figure 2.10 [Output file name] Property



This property supports the following placeholders.
%ActiveProjectName%: Replaces with the active project name.
%MainProjectName%: Replaces with the main project name.
%ProjectName%: Replaces with the project name.

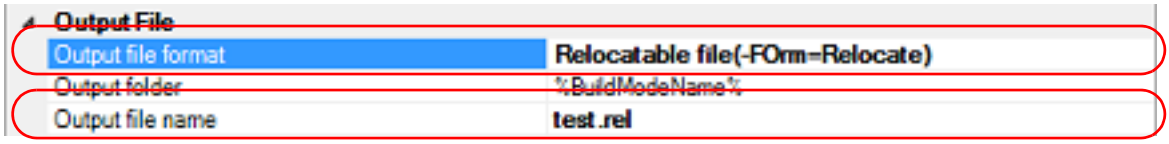
Remark You can also change the option in the same way with the [Output file name] property in the [Frequently Used Options(for Create Library)] category on the [Common Options] tab.

If the [Output file format] property is changed, the following message dialog box will open.

Figure 2.11 Message Dialog Box

When [Yes] is selected in the dialog box, the extension of the output file name is changed according to the format selected in the [Output file format] property.

Figure 2.12 [Output file format] and [Output file name] Property



2.4.2 Output an assemble list

The assemble list (the code of the assemble result) is output to the assemble list file.
Select the build tool node on the project tree and select the [Compile Options] tab on the Property panel.
To output the assemble list file, select [Yes(-asm_option=-prn_path)] in the [Output assemble list file] property in the [Assemble List] category.

Figure 2.13 [Output assemble list file] Property

When outputting the assemble list file, you can set the output folder and output file name.

(1) Set the output folder
Setting the output folder is made with the [Output folder for assemble list file] property by directly entering in the text box or by the [...] button.
This property supports the following placeholder.
%BuildModeName%: Replaces with the build mode name.
"%BuildModeName%" is set by default.

The file name will be the source file name with the extension replaced by ".prn".

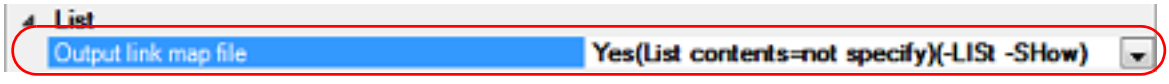
Remark See "CC-RL Compiler User's Manual" for details about the assemble list file.

2.4.3 Output map information

The map information (the information of the link result) is output to the link map file.
Select the build tool node on the project tree and select the [Link Options] tab on the Property panel.
To output the link map file, set the [Output link map file] property in the [List] category.

(1) Output information according to the output format
Select [Yes(List contents=not specify)(-LISt -SHow)] or [Yes(List contents=ALL)(-LISt -SHow=ALL)] in the [Output link map file] property.

Figure 2.14 [Output link map file] Property (When Information According To Output Format Is Output)



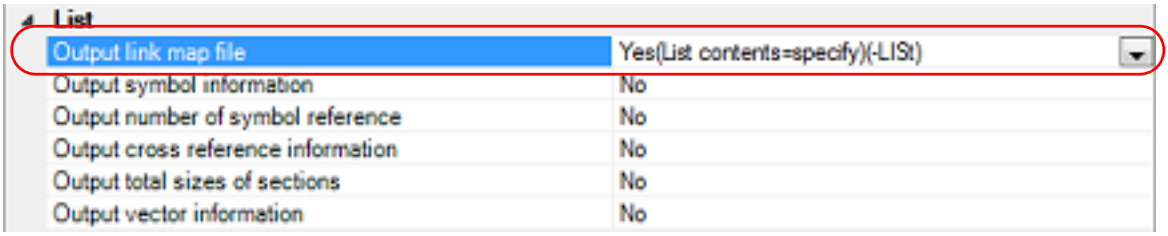
Remark See "CC-RL Compiler User's Manual" for differences between the -SHow and -SHow=ALL options.

(2) Specify information to be output
Select [Yes(List contents=specify)(-LISt)] in the [Output link map file] property. The following property will be displayed.

- [Output symbol information] property
- [Output number of symbol reference] property
- [Output cross reference information] property
- [Output total sizes of sections] property
- [Output vector information] property

Select [Yes] for each output information property.

Figure 2.15 [Output link map file] Property (When Information To Be Output Is Specified)



The link map file is output to the project folder.
It is also shown on the project tree, under the Build tool generated files node.
The file name will be the project file name with the extension replaced by ".map".

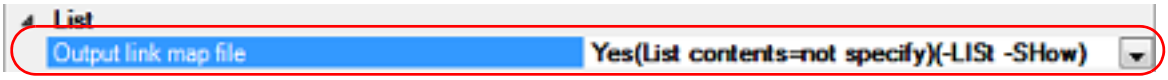
Remark See "CC-RL Compiler User's Manual" for details about the link map file.

2.4.4 Output library information

The library information (information from the library creation result) is output to the library list file.
Select the build tool node on the project tree and select the [Create Library Options] tab on the Property panel.
To output the library list file, set the [Output link map file] property in the [List] category.

(1) Output information according to the output format
Select [Yes(List contents=not specify)(-LISt -SHow)] or [Yes(List contents=ALL)(-LISt -SHow=ALL)] in the [Output link map file] property.

Figure 2.16 [Output link map file] Property (When Information According To Output Format Is Output)



Remark See "CC-RL Compiler User's Manual" for differences between the -SHow and -SHow=ALL options.

(2) Specify information to be output
Select [Yes(List contents=specify)(-LISt)] in the [Output link map file] property. The following property will be displayed.

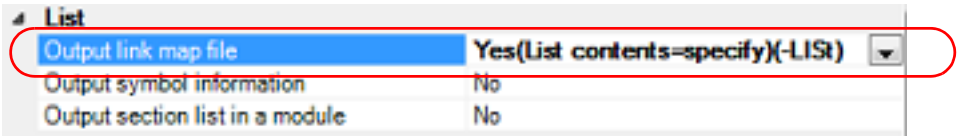
- [Output symbol information] property
- [Output section list in a module] property[Note 1]
- [Output cross reference information] property[Note 2]
- [Output total sizes of sections] property[Note 2]

Note 1. This property is displayed only when [User libraries(-FOrm=Library=U)] or [System libraries(-FOrm=Library=S)] in the [Output file format] property in the [Output File] category is selected.

Note 2. This property is displayed only when [Relocate file(-FOrm=Relocate)] in the [Output file format] property in the [Output File] category is selected.

Select [Yes] for each output information property.

Figure 2.17 [Output link map file] Property (When Information To Be Output Is Specified)



The library list file is output to the project folder.
It is also shown on the project tree, under the Build tool generated files node.
The file name will be the project file name with the extension replaced by ".lbp".

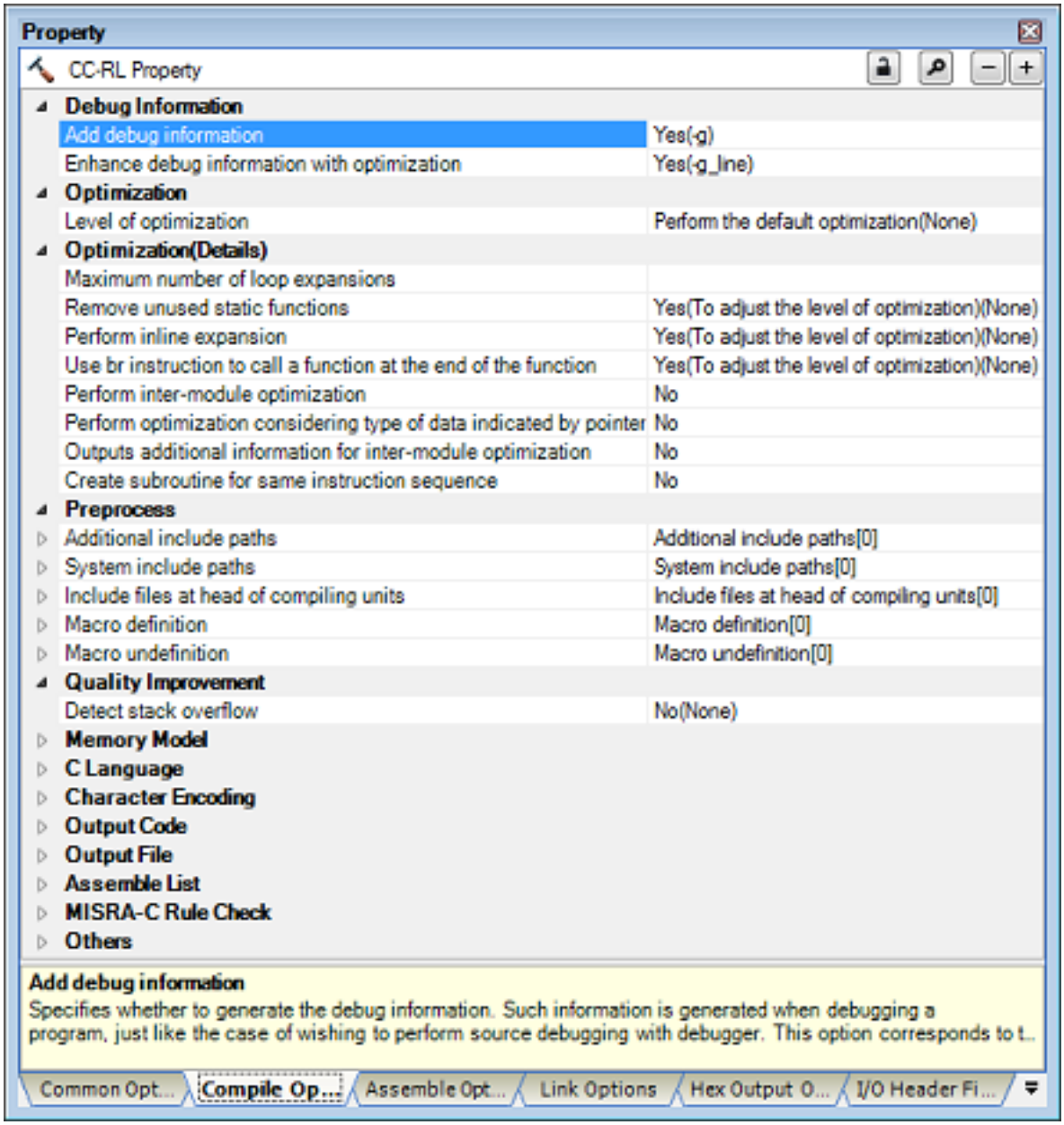
Remark See "CC-RL Compiler User's Manual" for details about the library list file.

2.5 Set Compile Options

To set options for the compile phase, select the Build tool node on the project tree and select the [Compile Options] tab on the Property panel.

You can set the various compile options by setting the necessary properties in this tab.

Figure 2.18 Property Panel: [Compile Options] Tab



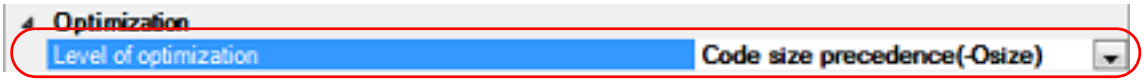
Remark Often used options have been gathered under the [Frequently Used Options(for Compile)] category on the [Common Options] tab.

2.5.1 Perform optimization with the code size precedence

Select the build tool node on the project tree and select the [Compile Options] tab on the Property panel.

To perform optimization with the code size precedence, select [Code size precedence(-Osize)] in the [Optimization Level] property in the [Optimization] category.

Figure 2.19 [Level of optimization] Property (Code Size Precedence)

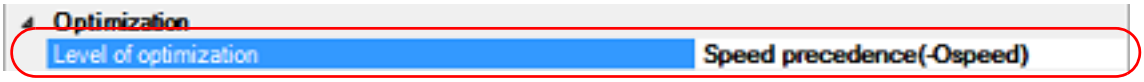


Remark You can also set the option in the same way with the [Optimization Level] property in the [Frequently Used Options(for Compile)] category on the [Common Options] tab.

2.5.2 Perform optimization with the execution speed precedence

Select the build tool node on the project tree and select the [Compile Options] tab on the Property panel.
To perform optimization with the execution speed precedence, select [Speed precedence(-Ospeed)] in the [Optimization Level] property in the [Optimization] category.

Figure 2.20 [Level of optimization] Property (Execution Speed Precedence)



Remark You can also set the option in the same way with the [Optimization Level] property in the [Frequently Used Options(for Compile)] category on the [Common Options] tab.

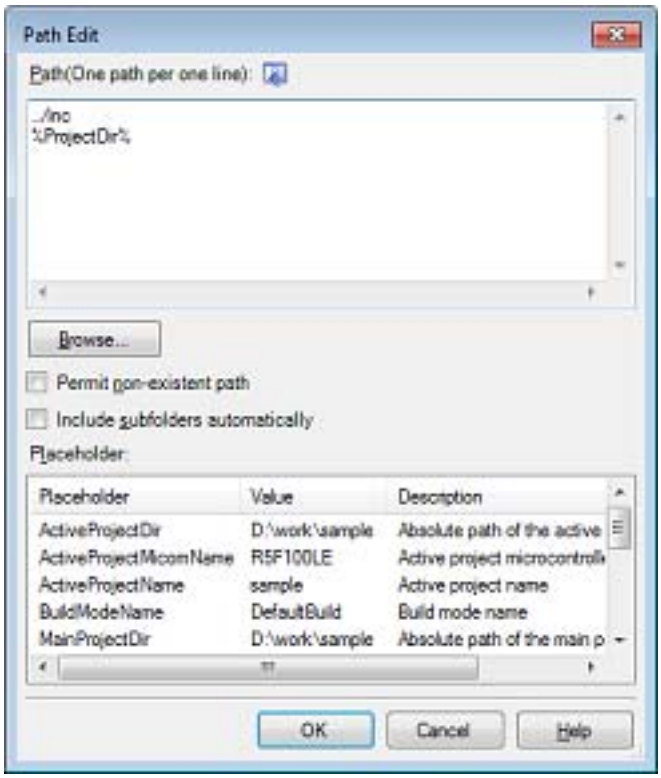
2.5.3 Add an include path

Select the build tool node on the project tree and select the [Compile Options] tab on the Property panel.
The include path setting is made with the [Additional include paths] property in the [Preprocess] category.

Figure 2.21 [Additional include paths] Property

If you click the [...] button, the Path Edit dialog box will open.

Figure 2.22 Path Edit Dialog Box



Enter the include path per line in [Path(One path per one line)].
You can specify up to 247 characters per line, up to 256 lines.

Remark 1. This property supports placeholders.
If a line is double clicked in [Placeholder], the placeholder will be reflected in [Path(One path per one line)].

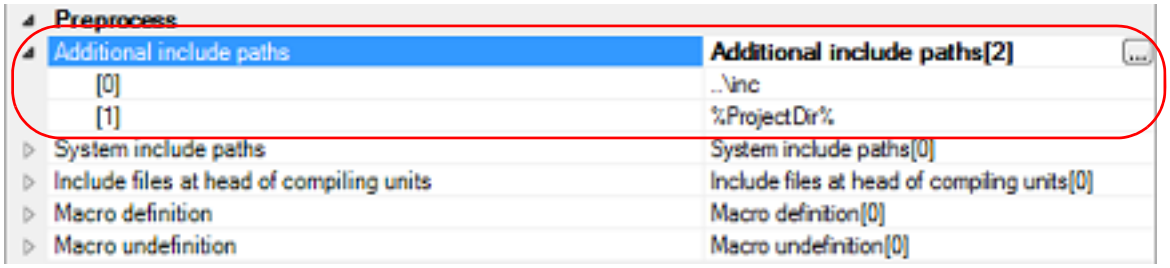
Remark 2. You can also specify the include path by one of the following procedures.

- Drag and drop the folder using such as Explorer.
- Click the [Browse...] button, and then select the folder in the Browse For Folder dialog box.
- Double click a row in [Placeholder].

Remark 3. Select the [Include subfolders automatically] check box before clicking the [Browse...] button to add all paths under the specified one (down to 5 levels) to [Path(One path per one line)].

If you click the [OK] button, the entered include paths are displayed as subproperties.

Figure 2.23 [Additional include paths] Property (After Adding Include Paths)



To change the include paths, you can use the [...] button or enter the path directly in the text box of the subproperty.
When the include path is added to the project tree, the path is added to the top of the subproperties automatically.

Remark You can also set the option in the same way with the [Additional include paths] property in the [Frequently Used Options(for Compile)] category on the [Common Options] tab.

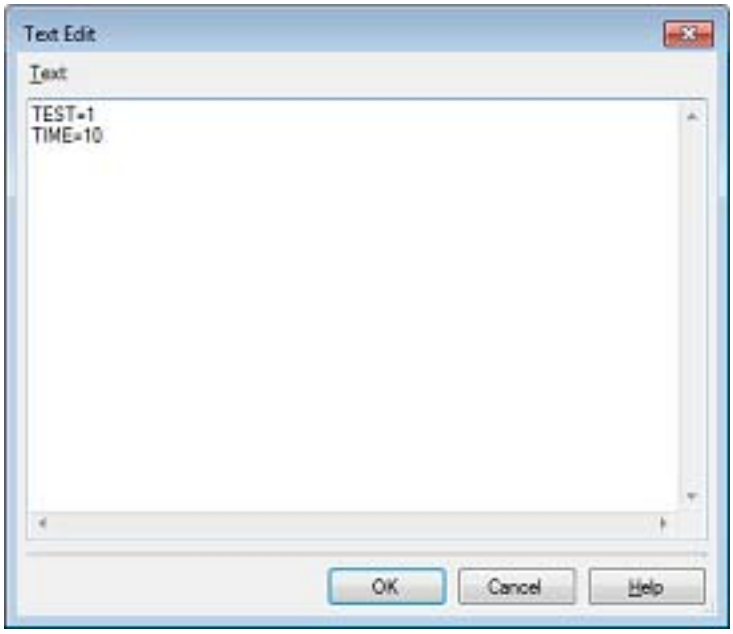
2.5.4 Set a macro definition

Select the build tool node on the project tree and select the [Compile Options] tab on the Property panel.
The macro definition setting is made with the [Macro definition] property in the [Preprocess] category.

Figure 2.24 [Macro definition] Property

If you click the [...] button, the Text Edit dialog box will open.

Figure 2.25 Text Edit Dialog Box



Enter the macro definition in [Text] in the format of "*macro name=defined value*", with one macro name per line.
You can specify up to 256 characters per line, up to 256 lines.
The "*=defined value*" part can be omitted, and in this case, "1" is used as the defined value.
If you click the [OK] button, the entered macro definitions are displayed as subproperties.

Figure 2.26 [Macro definition] Property (After Setting Macros)

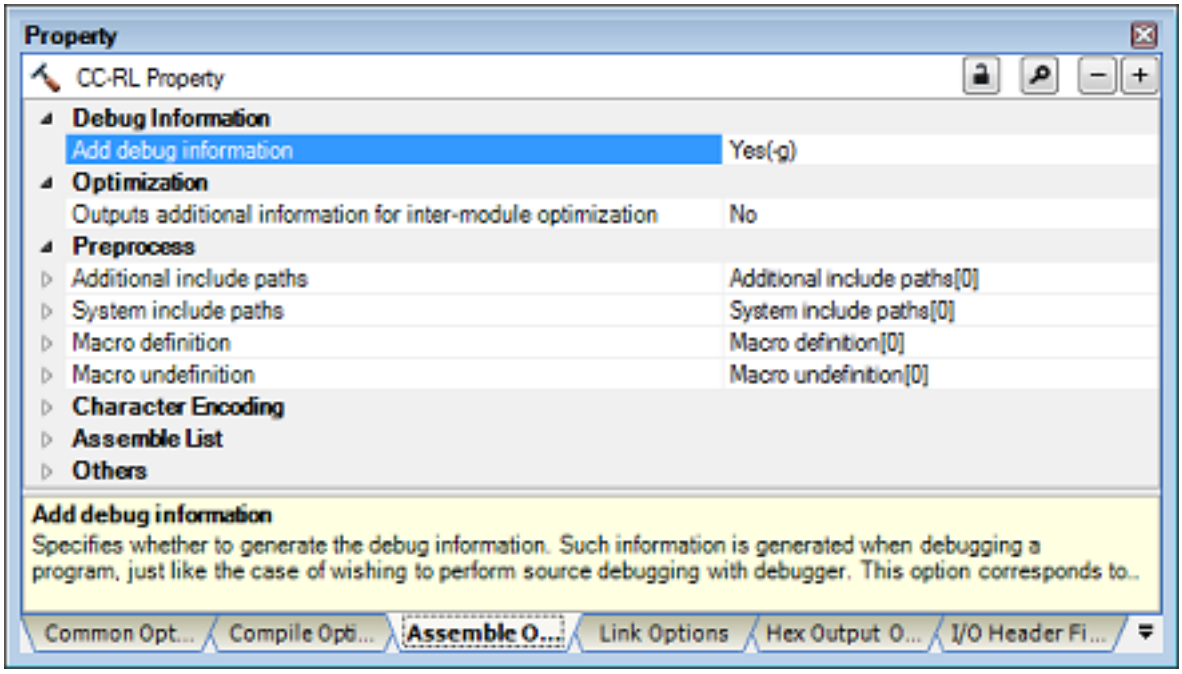
To change the macro definitions, you can use the [...] button or enter the path directly in the text box of the subproperty.

Remark You can also set the option in the same way with the [Macro definition] property in the [Frequently Used Options(for Compile)] category on the [Common Options] tab.

2.6 Set Assemble Options

To set options for the assemble phase, select the Build tool node on the project tree and select the [Assemble Options] tab on the Property panel.
You can set the various assemble options by setting the necessary properties in this tab.

Figure 2.27 Property Panel: [Assemble Options] Tab



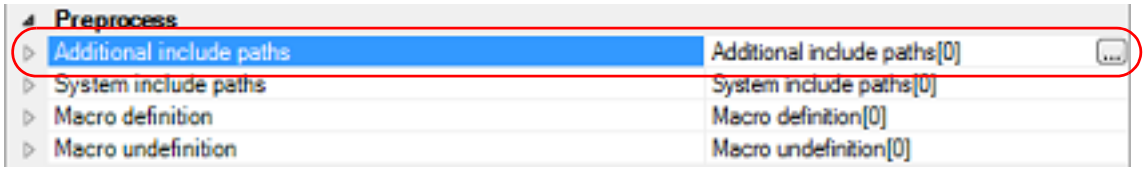
Remark Often used options have been gathered under the [Frequently Used Options(for Assemble)] category on the [Common Options] tab.

Caution This tab is displayed only when [No] in the [Build simultaneously] property in the [Build Method] category from the [Common Options] tab is selected.

2.6.1 Add an include path

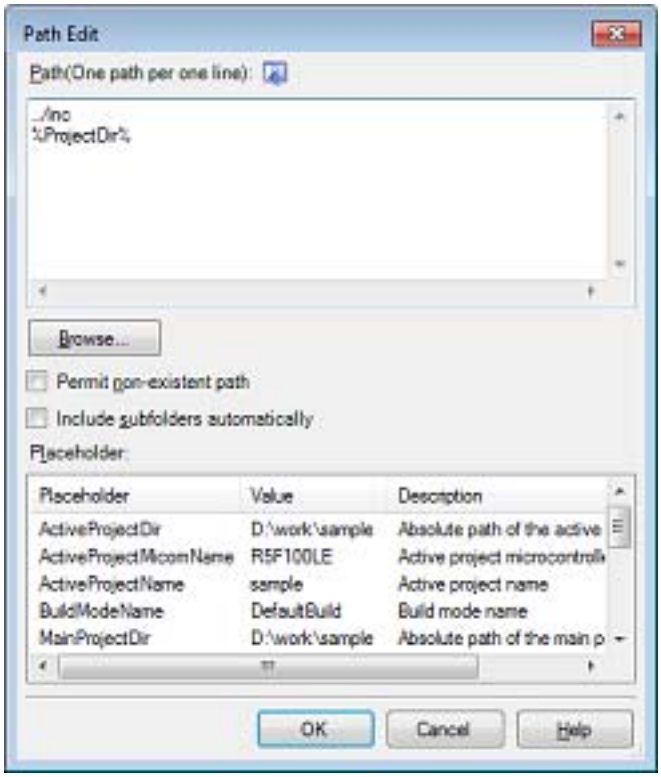
Select the build tool node on the project tree and select the [Assemble Options] tab on the Property panel.
The include path setting is made with the [Additional include paths] property in the [Preprocess] category.

Figure 2.28 [Additional include paths] Property



If you click the [...] button, the Path Edit dialog box will open.

Figure 2.29 Path Edit Dialog Box



Enter the include path per line in [Path(One path per one line)].
You can specify up to 247 characters per line, up to 256 lines.

Remark 1. This property supports placeholders.
If a line is double clicked in [Placeholder], the placeholder will be reflected in [Path(One path per one line)].

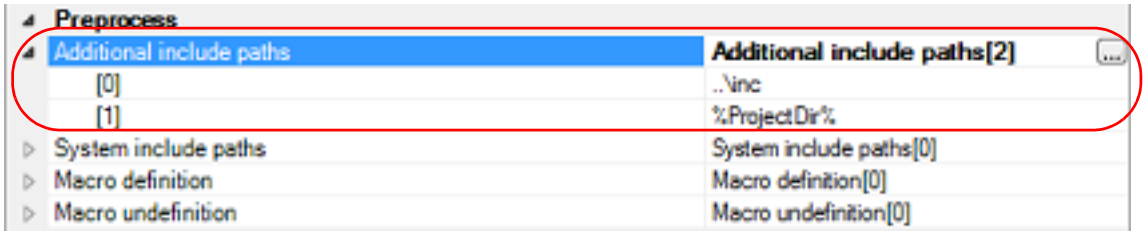
Remark 2. You can also specify the include path by one of the following procedures.

- Drag and drop the folder using such as Explorer.
- Click the [Browse...] button, and then select the folder in the Browse For Folder dialog box.
- Double click a row in [Placeholder].

Remark 3. Select the [Include subfolders automatically] check box before clicking the [Browse...] button to add all paths under the specified one (down to 5 levels) to [Path(One path per one line)].

If you click the [OK] button, the entered include paths are displayed as subproperties.

Figure 2.30 [Additional include paths] Property (After Adding Include Paths)



To change the include paths, you can use the [...] button or enter the path directly in the text box of the subproperty.
When the include path is added to the project tree, the path is added to the top of the subproperties automatically.

Remark You can also set the option in the same way with the [Additional include paths] property in the [Frequently Used Options(for Assemble)] category on the [Common Options] tab.

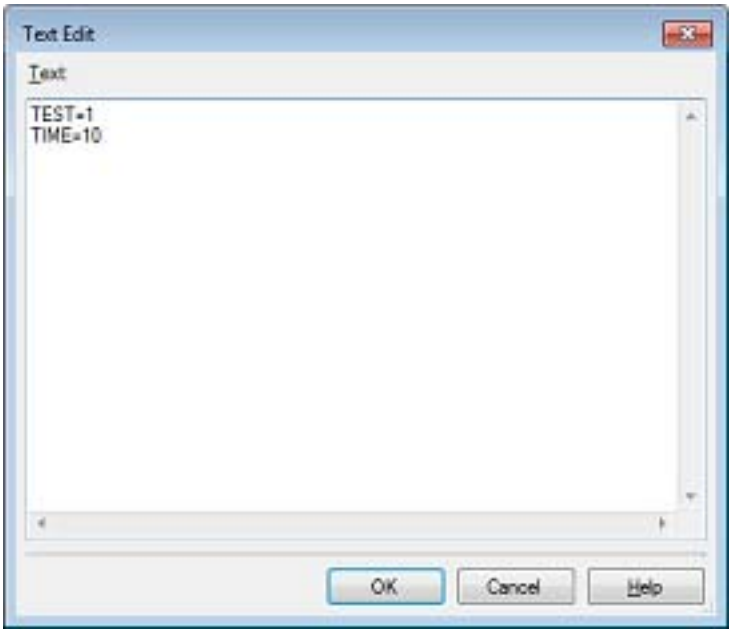
2.6.2 Set a macro definition

Select the build tool node on the project tree and select the [Assemble Options] tab on the Property panel.
The macro definition setting is made with the [Macro definition] property in the [Preprocess] category.

Figure 2.31 [Macro definition] Property

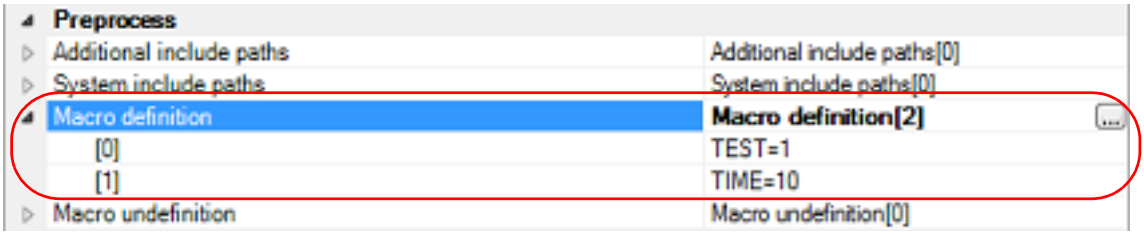
If you click the [...] button, the Text Edit dialog box will open.

Figure 2.32 Text Edit Dialog Box



Enter the macro definition in [Text] in the format of "*macro name=defined value*", with one macro name per line.
You can specify up to 256 characters per line, up to 256 lines.
The "*=defined value*" part can be omitted, and in this case, "1" is used as the defined value.
If you click the [OK] button, the entered macro definitions are displayed as subproperties.

Figure 2.33 [Macro definition] Property (After Setting Macros)



To change the macro definitions, you can use the [...] button or enter the path directly in the text box of the subproperty.

Remark You can also set the option in the same way with the [Macro definition] property in the [Frequently Used Options(for Assemble)] category on the [Common Options] tab.

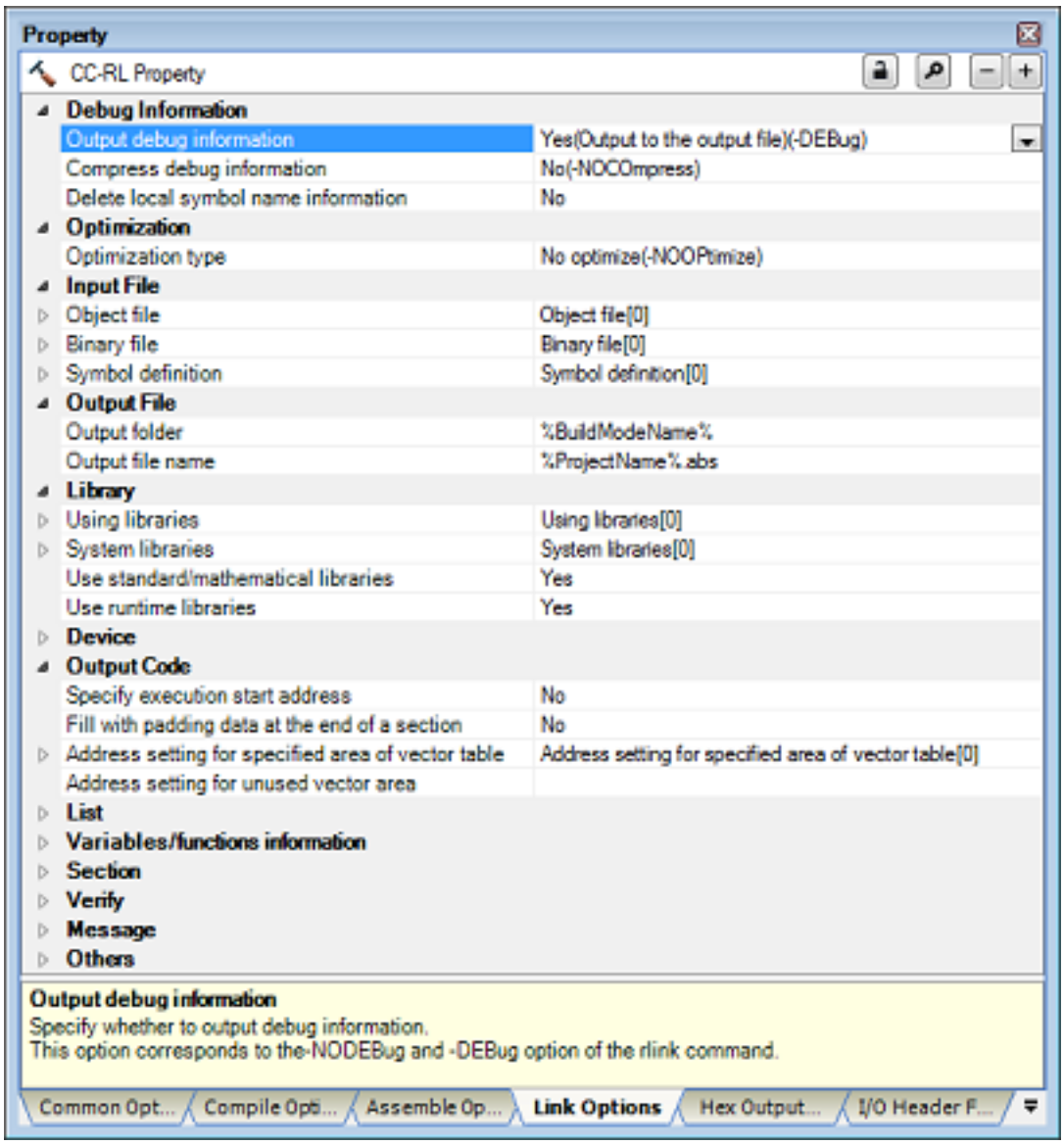
2.7 Set Link Options

To set options for the link phase, select the Build tool node on the project tree and select the [Link Options] tab on the Property panel.

You can set the various link options by setting the necessary properties in this tab.

Caution This tab is not displayed for the library project.

Figure 2.34 Property Panel: [Link Options] Tab



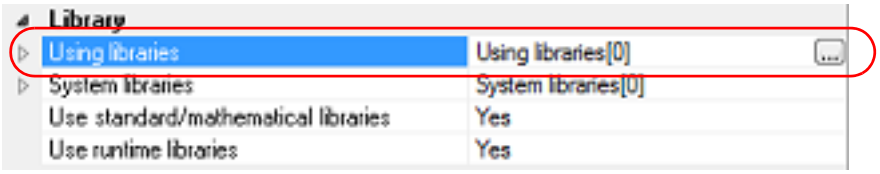
Remark Often used options have been gathered under the [Frequently Used Options(for Link)] category on the [Common Options] tab.

2.7.1 Add a user library

Adding a user library is made with the property or on the project tree.

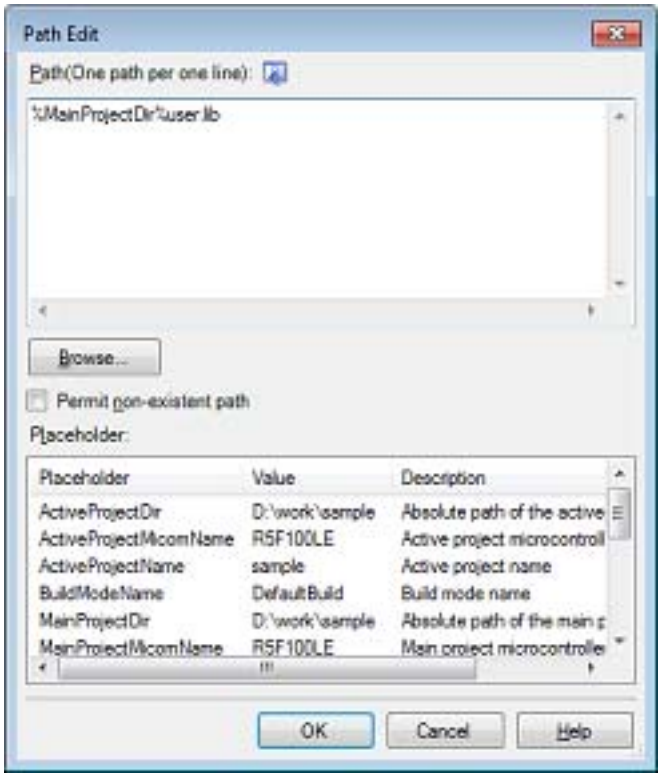
(1) Addition using the property
Select the build tool node on the project tree and select the [Link Options] tab on the Property panel.
Adding a user library is made with the [Using libraries] property in the [Library] category.

Figure 2.35 [Using libraries] Property



If you click the [...] button, the Path Edit dialog box will open.

Figure 2.36 Path Edit Dialog Box



Enter the library file (including the path) per line in [Path(One path per one line)].
You can specify up to 259 characters per line, up to 65536 lines.

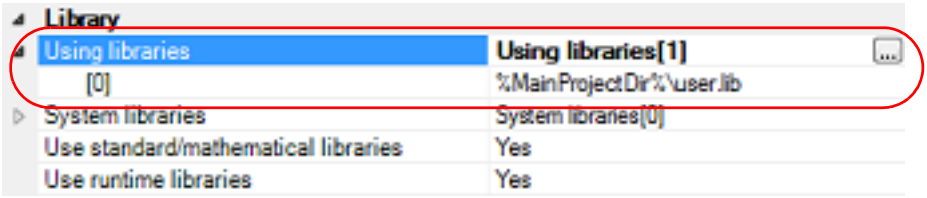
Remark 1. This property supports placeholders.
If a line is double clicked in [Placeholder], the placeholder will be reflected in [Path(One path per one line)].

Remark 2. You can also specify the library file by one of the following procedures.

- Drag and drop the folder using such as Explorer.
- Click the [Browse...] button, and then select the folder in the Specify Using Library File dialog box.
- Double click a row in [Placeholder].

If you click the [OK] button, the entered library files are displayed as subproperties.

Figure 2.37 [Using libraries] Property (After Setting Library Files)



To change the library files, you can use the [...] button or enter the path directly in the text box of the subproperty.

Remark You can also set the option in the same way with the [Using libraries] property in the [Frequently Used Options(for Link)] category on the [Common Options] tab.

(2) Addition from the project tree
Adding a library file to the project tree is performed from the Add Existing File dialog box.
Dropping a library file in the project tree is also possible.
When a library file is added from the project tree, it is subject to timestamp comparison with the load module at build, and the link processing is executed when the added library file is updated.

2.7.2 Prepare for using the overlaid section selection function

The optimizing linker (rlink) used by CC-RL can allocate multiple sections defined in a program to the same address. The sections allocated in this way are called "overlaid sections".

The debug tool provides a function to select the debug target section from the overlaid sections (priority sections) allocated to the same address. The function is called "overlaid section selection function".

A load module using overlaid sections can be debugged with switching of the priority section before program execution.

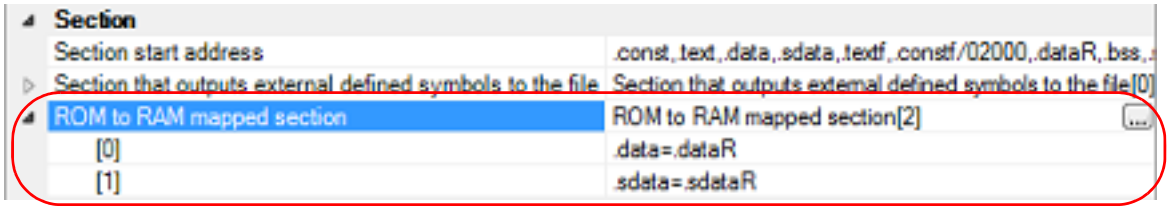
The method for generating a load module to use the overlaid section selection function is shown below.

(1) Copy the ROM area contents to RAM
Copy the ROM area contents to the RAM area to expand the code and data in the RAM.

(2) Set build options
Set the ROM-to-RAM mapped sections and overlaid sections to use the overlaid section selection function.
Select the build tool node on the project tree and select the [Link Options] tab on the Property panel.

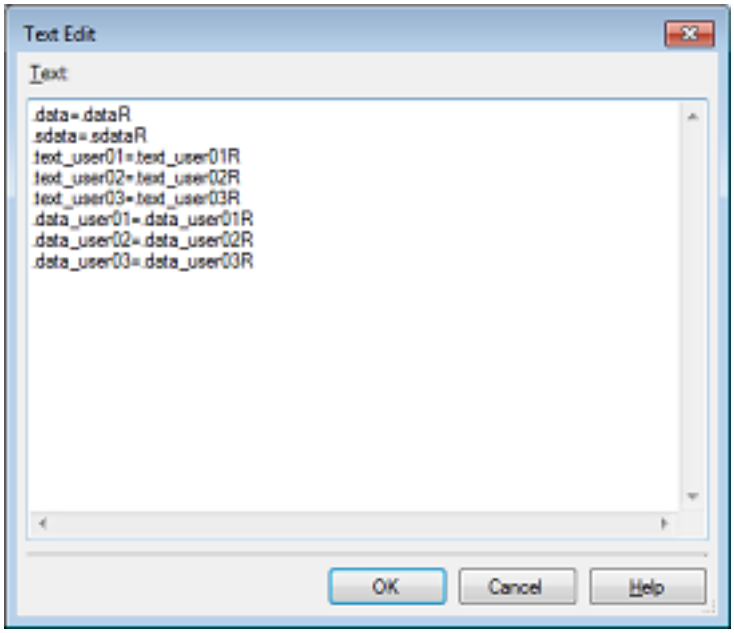
(a) Set ROM-to-RAM mapped sections
Setting the ROM-to-RAM mapped sections is made with the [ROM to RAM mapped section] property in the [Section] category.
This reserves the RAM section with the same size as that of the ROM section and relocates the symbols defined in the ROM section to addresses in the RAM section.

Figure 2.38 [ROM to RAM mapped section] Property



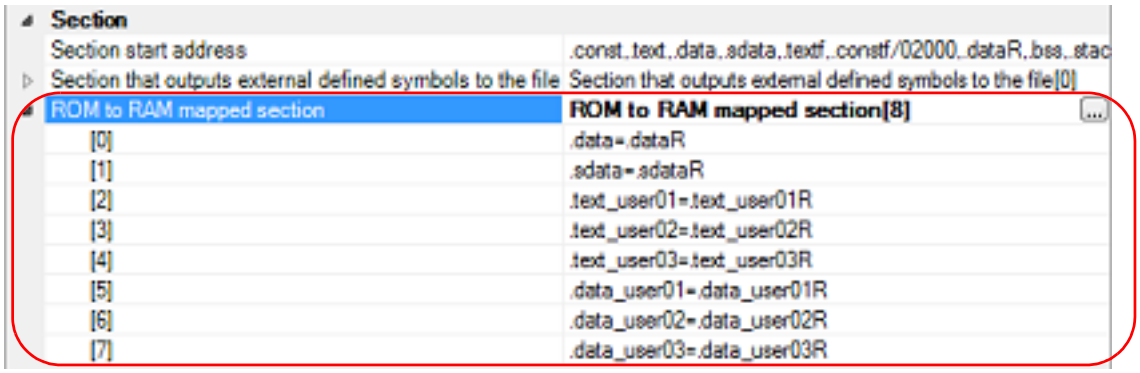
If you click the [...] button, the Text Edit dialog box will open.

Figure 2.39 Text Edit Dialog Box



Enter the section name in [Text] in the format of "*ROM section name=RAM section name*", with one section name per line.
You can specify up to 32767 characters per line, up to 65535 lines.
If you click the [OK] button, the entered section names are displayed as subproperties.

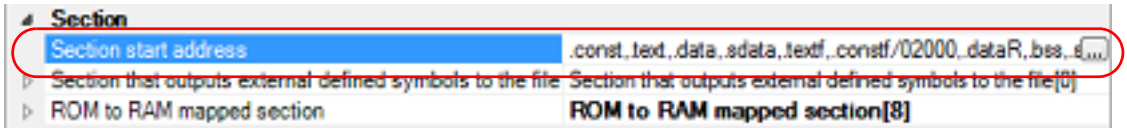
Figure 2.40 [ROM to RAM mapped section] Property (After Setting Sections)



To change the section names, you can use the [...] button or enter them directly in the text box of the subproperty.

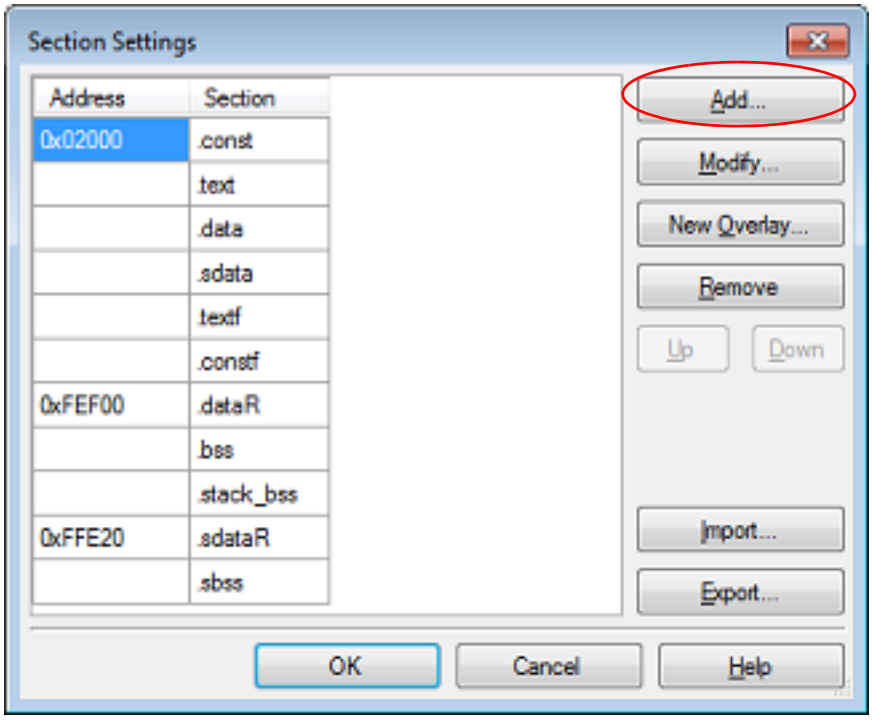
(b) Set ROM sections and RAM sections (overlaid sections)
Setting the sections is made with the [Section start address] property in the [Section] category.

Figure 2.41 [Section start address] Property



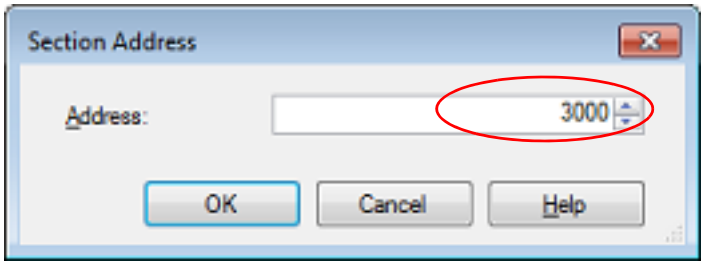
<1> Set ROM sections
If you click the [...] button, the Section Settings dialog box will open.

Figure 2.42 Section Settings Dialog Box



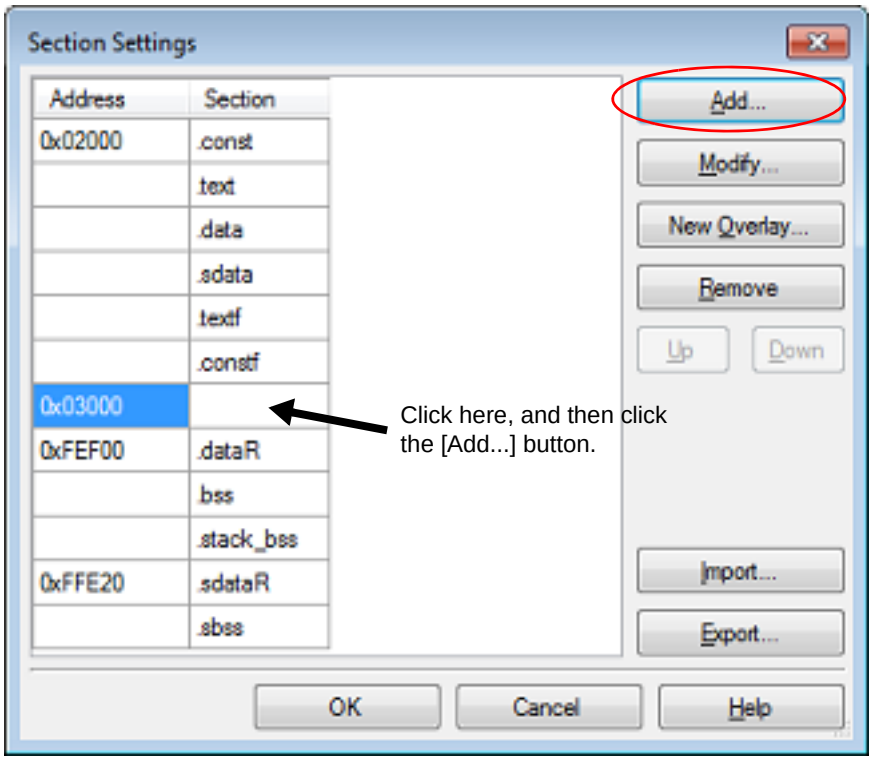
If you click the [Add...] button, the Section Address dialog box will open.

Figure 2.43 Section Address Dialog Box



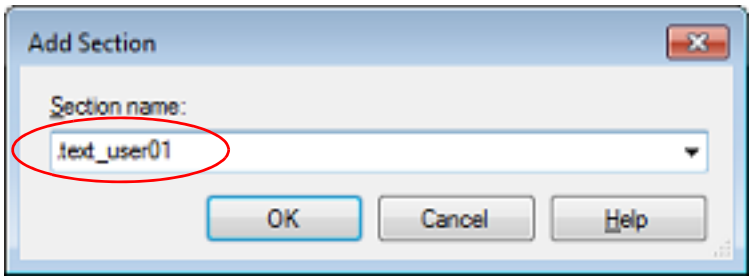
Enter in [Address] the address of the ROM section to be added and click the [OK] button to add the entered address to [Address] in the Section Settings dialog box.

Figure 2.44 Section Settings Dialog Box (After ROM Section Addresses Are Added)



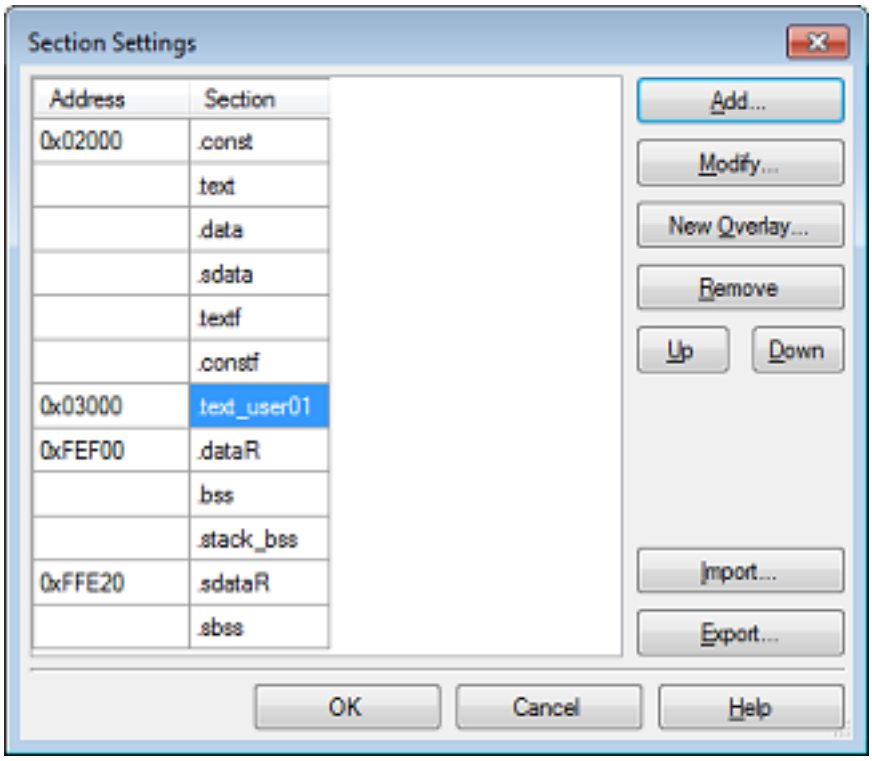
Click the Section column on the added address row and click the [Add...] button to open the Add Section dialog box.

Figure 2.45 Add Section Dialog Box



Enter in [Section name] the name of the ROM section to be added and click the [OK] button to add the entered section to [Section] in the Section Settings dialog box.

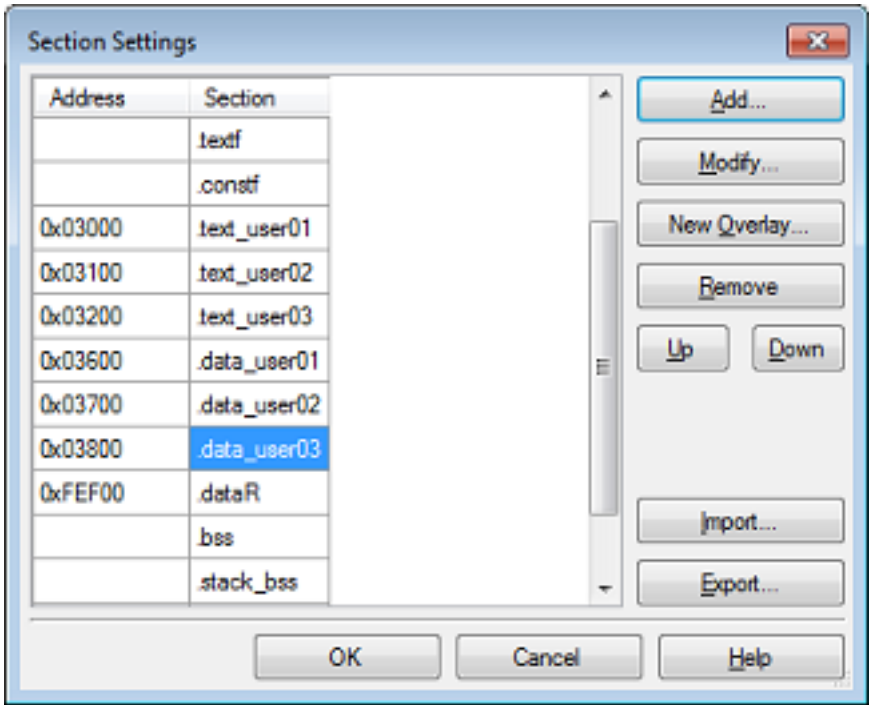
Figure 2.46 Section Settings Dialog Box (After ROM Sections Are Added)



For other ROM sections, set addresses and section names in the same way.

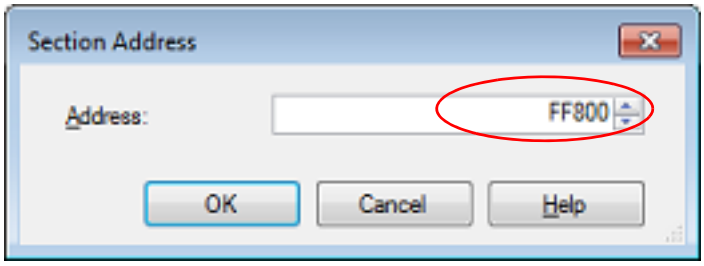
Remark Click the Address column and click the [Add...] button to open the Section Address dialog box, allowing you to add a new address.

Figure 2.47 Section Settings Dialog Box (After Multiple ROM Sections Are Added)



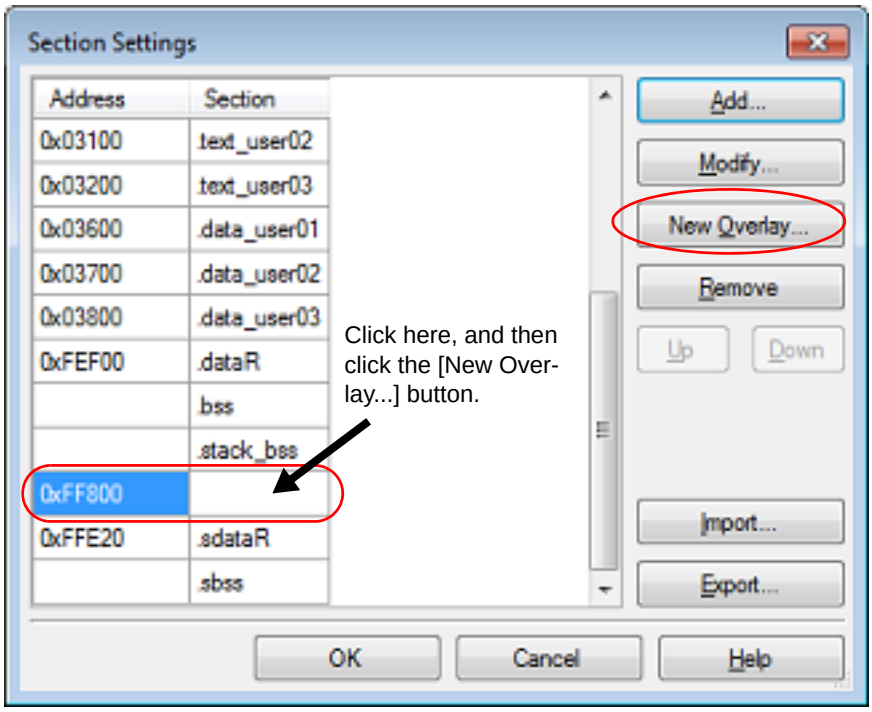
<2> Set RAM sections (overlaid sections)
Click an added address and click the [Add...] button to open the Section Address dialog box.

Figure 2.48 Section Address Dialog Box



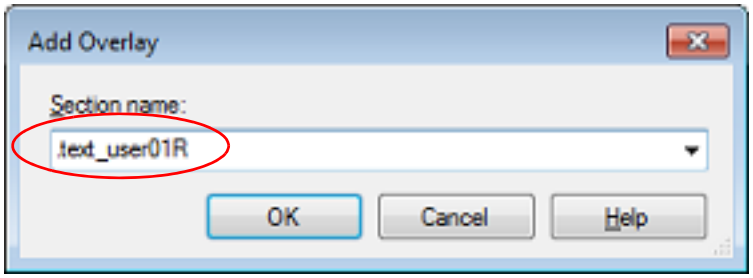
Enter in [Address] the address of the RAM section to be added and click the [OK] button to add the entered address to [Address] in the Section Settings dialog box.

Figure 2.49 Section Settings Dialog Box (After RAM Section Addresses Are Added)



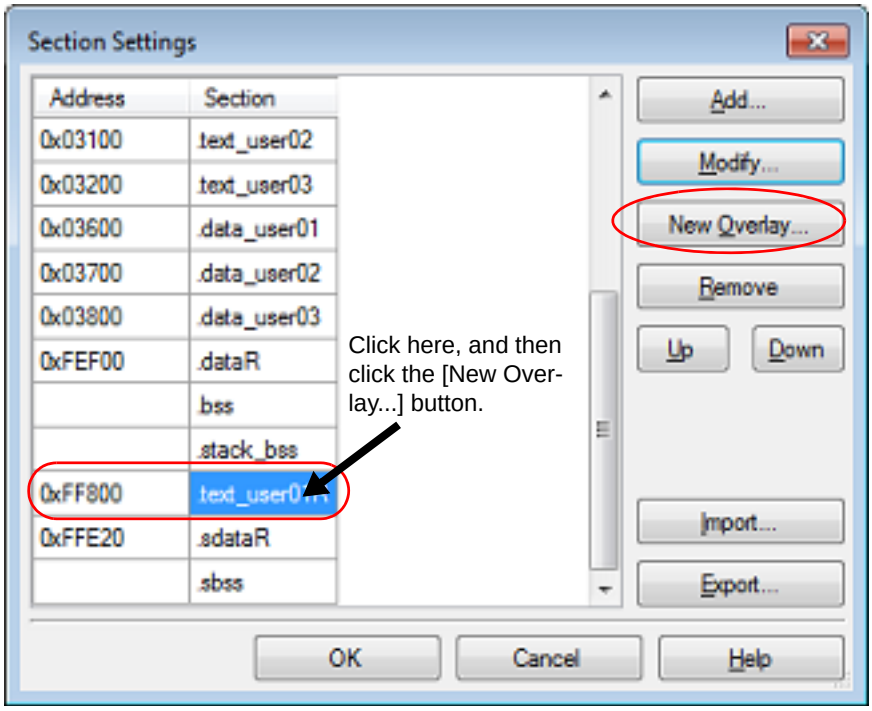
Click the added address row (Address column or Section column) and click the [New Overlay...] button to open the Add Overlay dialog box.

Figure 2.50 Add Overlay Dialog Box



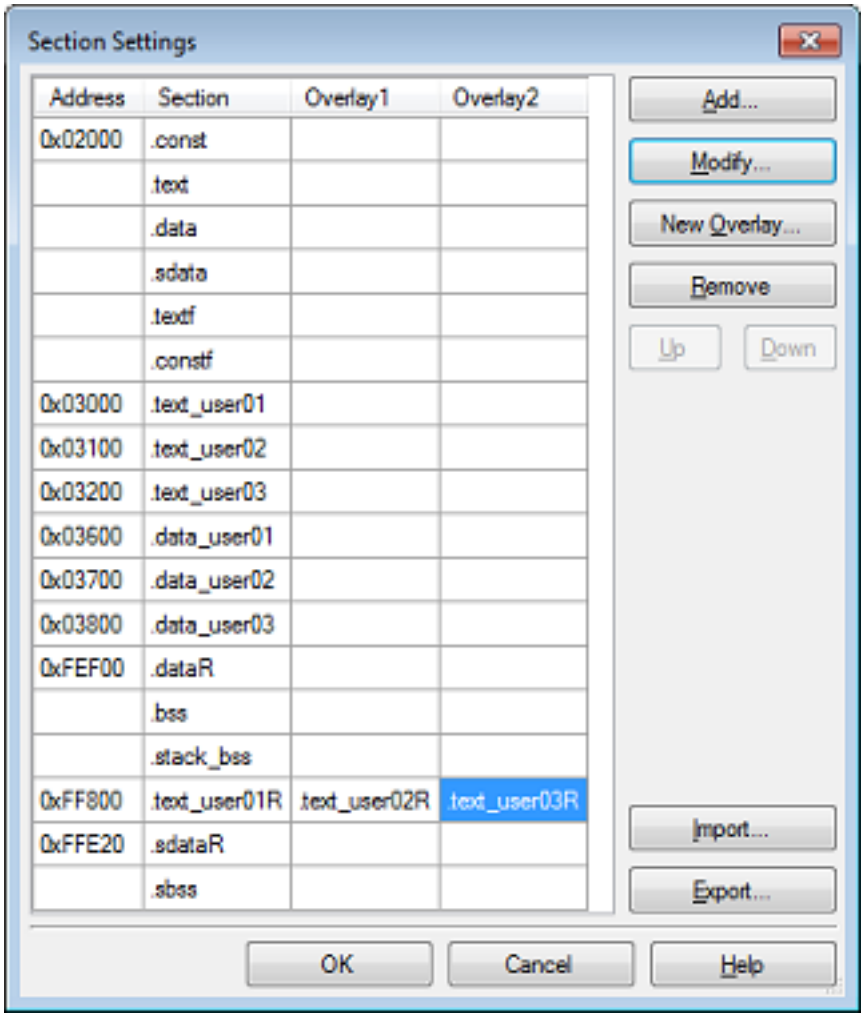
Enter in [Section name] the name of the RAM section to be added and click the [OK] button to add the entered section to [Section] in the Section Settings dialog box.

Figure 2.51 Section Settings Dialog Box (After RAM Sections Are Added)



Add the sections to be allocated to the same address by using the [New Overlay...] button in the same way. The added sections are displayed under [Overlay *n*] (*n*: number starting with "1").

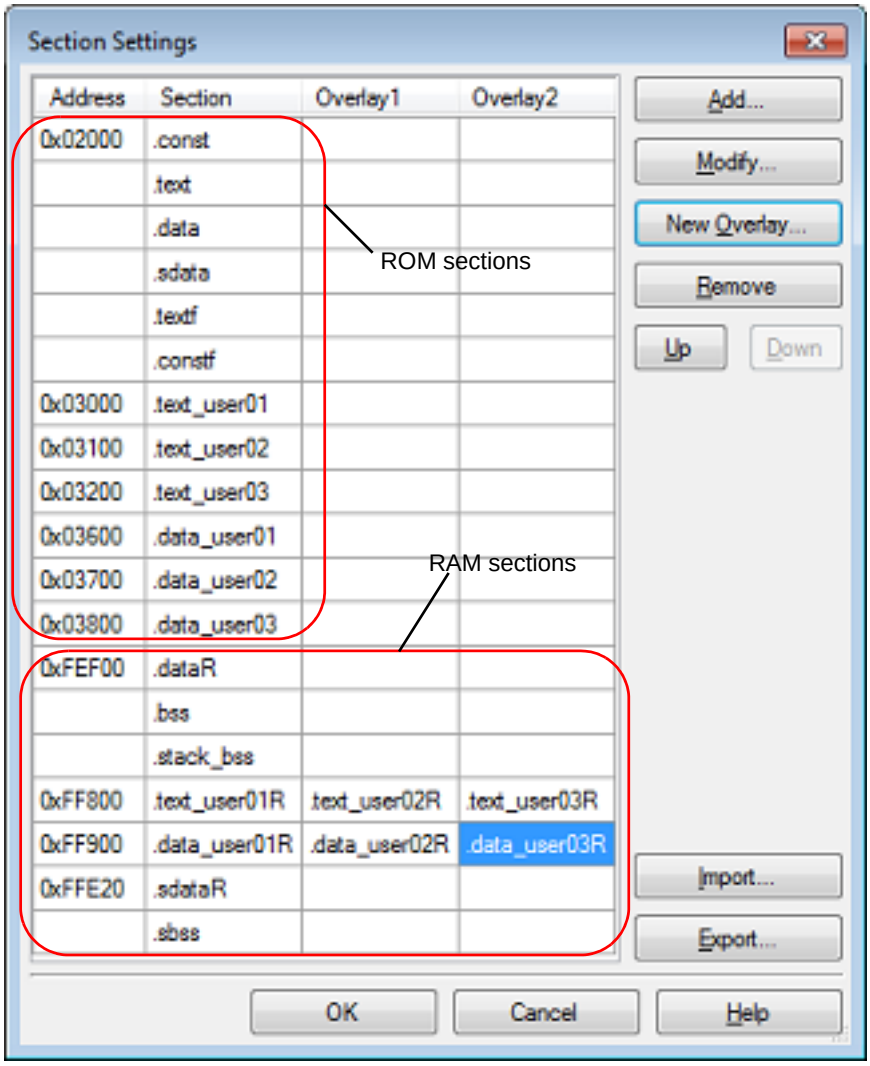
Figure 2.52 Section Settings Dialog Box (After Overlaid Sections Are Added)



For other RAM sections, set addresses and section names in the same way.

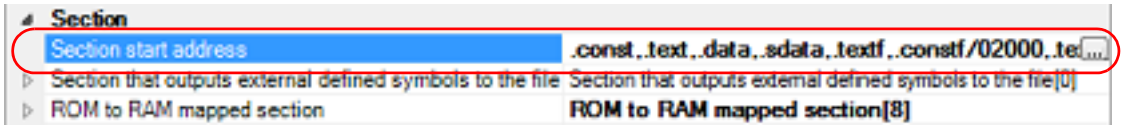
Remark Click the Address column and click the [Add...] button to open the Section Address dialog box, allowing you to add a new address.

Figure 2.53 Section Settings Dialog Box (After Multiple RAM Sections Are Added)



Click the [OK] button. The specified ROM sections and RAM sections (overlaid sections) will be displayed in the text boxes.

Figure 2.54 [Section start address] Property (After Setting Sections)



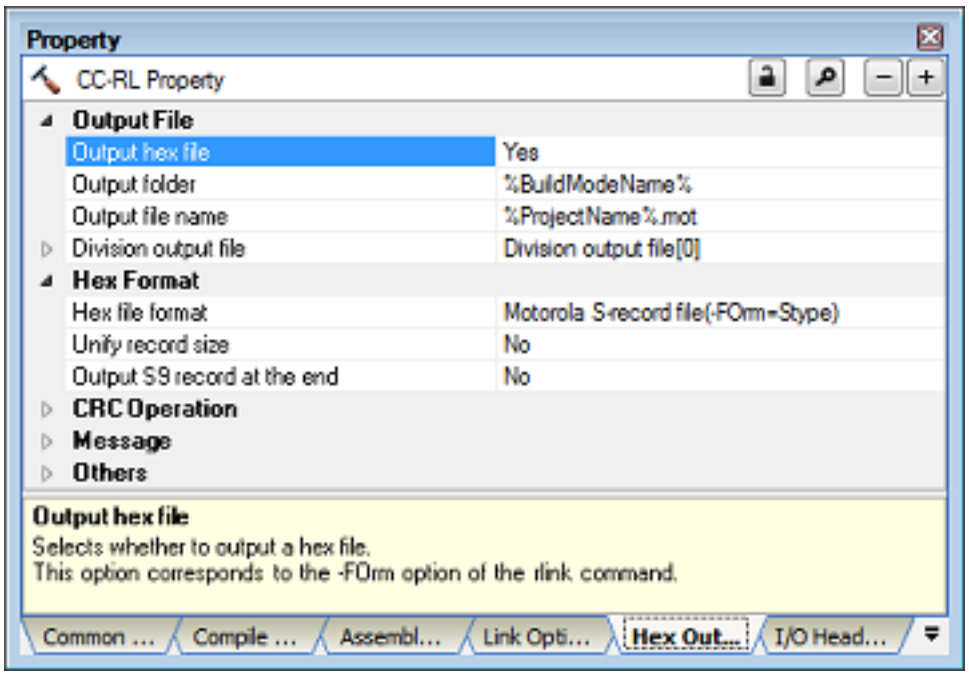
(3) Run a build of the project
Run a build of the project.
A load module file to use the overlaid section selection function is generated.

2.8 Set Hex Output Options

To set options for the hex output phase, select the Build tool node on the project tree and select the [Hex Output Options] tab on the Property panel.
You can set the various hex output options by setting the necessary properties in this tab.

Caution This tab is not displayed for the library project.

Figure 2.55 Property Panel: [Hex Output Options] Tab



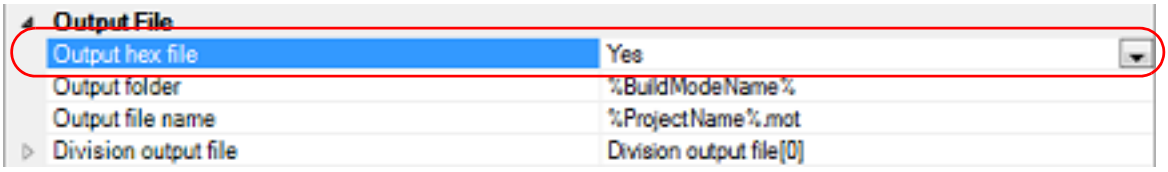
Remark Often used options have been gathered under the [Frequently Used Options(for Hex Output)] category on the [Common Options] tab.

2.8.1 Set the output of a hex file

Select the build tool node on the project tree and select the [Hex Output Options] tab on the Property panel.

(1) Set the output of a hex file
The setting to output a hex file is made with the [Output hex file] property in the [Output File] category.
To output a hex file, select [Yes], to not output a hex file, select [No].

Figure 2.56 [Output hex file] Property



When outputting a hex file, you can set the output folder and output file name.

(a) Set the output folder
Setting the output folder is made with the [Output folder] property by directly entering to the text box or by the [...] button.
Up to 247 characters can be specified in the text box.
This property supports the following placeholder.

%ActiveProjectDir%: Replaces with the absolute path of the active project folder.
%ActiveProjectName%: Replaces with the active project name.
%BuildModeName%: Replaces with the build mode name.
%MainProjectDir%: Replaces with the absolute path of the main project folder.

%MainProjectName%: Replaces with the main project name.
%MicomToolPath%: Replaces with the absolute path of the install folder of this product.
%ProjectDir%: Replaces with the absolute path of the project folder.
%ProjectName%: Replaces with the project name.
%TempDir%: Replaces with the absolute path of the temporary folder.
%WinDir%: Replaces with the absolute path of the Windows system folder.

"%BuildModeName%" is set by default.

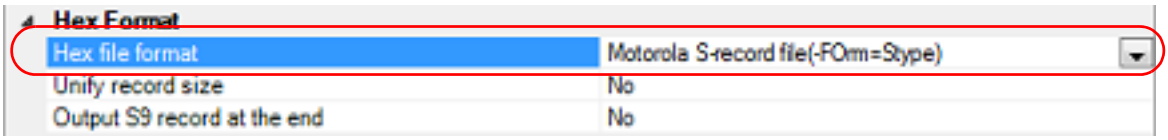
(b) Set the output file name
Setting the output file is made with the [Output file name] property by directly entering to the text box.
Up to 259 characters can be specified in the text box.
This property supports the following placeholders.

%ActiveProjectName%: Replaces with the active project name.
%MainProjectName%: Replaces with the main project name.
%ProjectName%: Replaces with the project name.

"%ProjectName%.mot" is set by default.

(2) Set the hex file format
Select the format in the [Hex file format] property in the [Hex Format] category.

Figure 2.57 [Hex file format] Property



You can select any of the formats below.

Format	Configuration
Intel HEX file(-FOrm=Hexadecimal)	Outputs an Intel HEX file.
Motorola S-record file(-FOrm=Stype)	Outputs a Motorola S-record file.
Binary file(-FOrm=Binary)	Outputs a binary file.

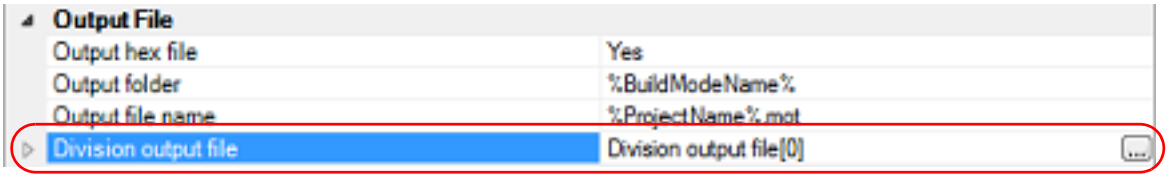
Remark See "CC-RL Compiler User's Manual" for details about the Intel Hex file and Motorola S-record file.

2.8.2 Fill the vacant area

Select the build tool node on the project tree and select the [Hex Output Options] tab on the Property panel.

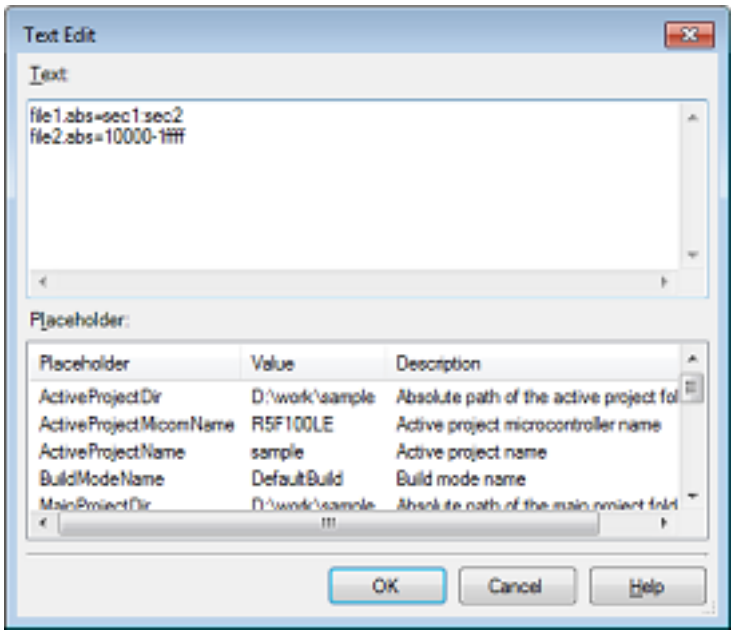
(1) Set the hex file output range
The setting of the hex file output range is made with the [Division output file] property in the [Output File] category.

Figure 2.58 [Division output file] Property



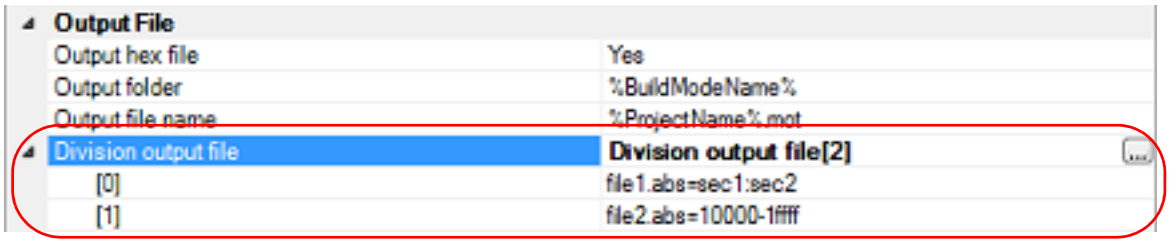
If you click the [...] button, the Text Edit dialog box will open.

Figure 2.59 Text Edit Dialog Box



Specify the division output file name in [Text] in the format of "*file name=start address-end address*" (*start address*, *end address*: The start address and end address of the output range) or "*file name=section name*" (*section name*: The name of the output section), with one file name per line.
If multiple section names are specified, delimit them with a colon as in "*file name=section name*:*section name*".
Specify the start address and end address in hexadecimal.
You can specify up to 259 characters per line, up to 65535 lines.
If you click the [OK] button, the entered division output file names are displayed as subproperties.

Figure 2.60 [Division output file] Property (After Setting Division Output File Names)

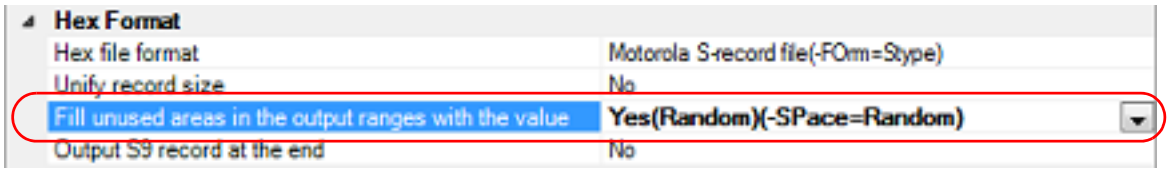


To change the division output file names, you can use the [...] button or enter them directly in the text box of the subproperty.

(2) Set the method for filling the vacant area
Set the method for filling the vacant area in the output range.

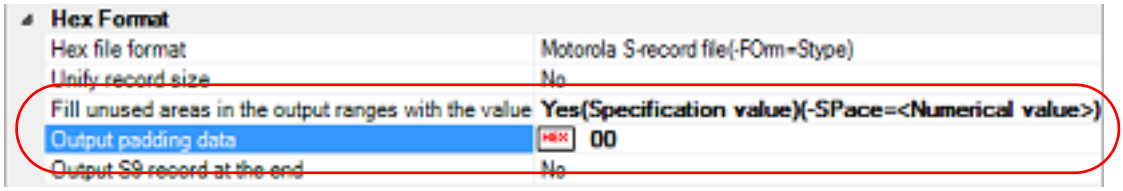
(a) Fill the vacant area with random numbers
Select [Yes(Random)(-SPace=Random)] in the [Fill unused areas in the output ranges with the value] property in the [Hex Format] category.

Figure 2.61 [Fill unused areas in the output ranges with the value] Property



(b) Specify data to fill the vacant area
Select [Yes(Specification value)(-SPace=<Numerical value>)] in the [Fill unused areas in the output ranges with the value] property in the [Hex Format] category. The [Output padding data] property will be displayed.

Figure 2.62 [Fill unused areas in the output ranges with the value] and [Output padding data] Property



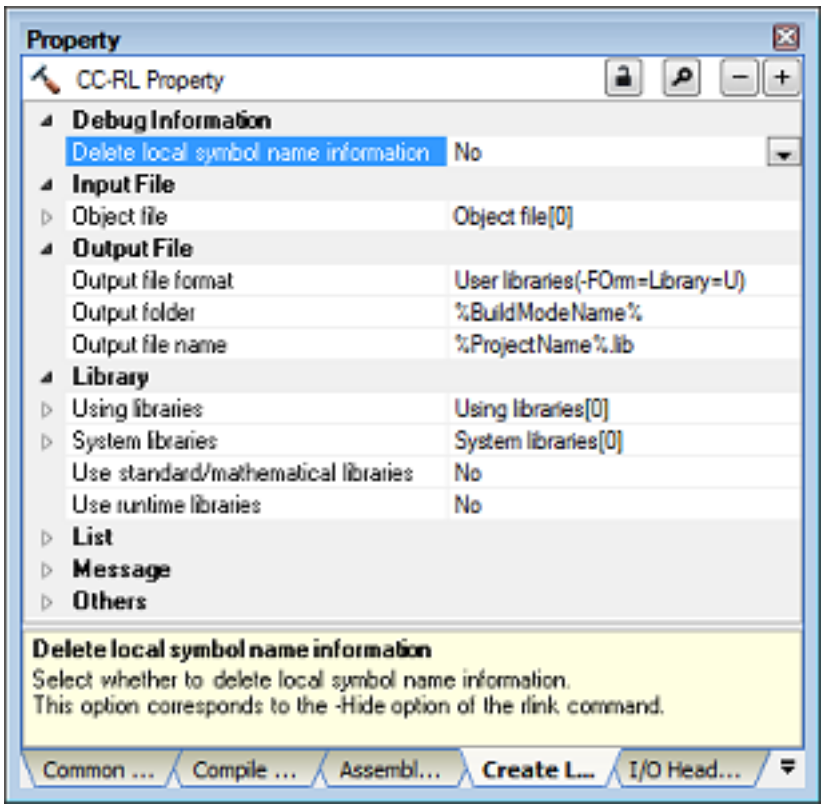
Enter the fill value for the vacant area directly in the text box.
The range that can be specified for the value is 00 to FFFFFFFF (hexadecimal number).
"FF" is set by default.

2.9 Set Create Library Options

To set options for the librarian, select the Build tool node on the project tree and select the [Create Library Options] tab on the Property panel.
You can set the various create library options by setting the necessary properties in this tab.

Caution This tab is displayed for the library project.

Figure 2.63 Property Panel: [Create Library Options] Tab

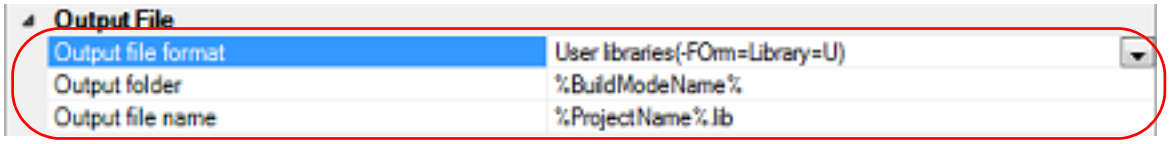


Remark Often used options have been gathered under the [Frequently Used Options(for Create Library)] category on the [Common Options] tab.

2.9.1 Set the output of a library file

Select the build tool node on the project tree and select the [Create Library Options] tab on the Property panel.
The setting to output a library file is made with the [Output File] category.

Figure 2.64 [Output File] Category



(1) Set the output format
Select the format in the [Output file format] property.
You can select any of the formats below.

Format	Configuration
User libraries(-FOrm=Library=U)	Outputs a user library file.

Format	Configuration
System libraries(-FOrm=Library=S)	Outputs a system library file. The system library file is linked after the user library file. Select this item to create a library that is to be linked after the user library file.
Relocatable file(-FOrm=Relocate)	Outputs a relocatable file.

(2) Set the output folder

Setting the output folder is made with the [Output folder] property by directly entering to the text box or by the [...] button.
Up to 247 characters can be specified in the text box.
This property supports the following placeholder.

%ActiveProjectDir%: Replaces with the absolute path of the active project folder.
%ActiveProjectName%: Replaces with the active project name.
%BuildModeName%: Replaces with the build mode name.
%MainProjectDir%: Replaces with the absolute path of the main project folder.
%MainProjectName%: Replaces with the main project name.
%MicomToolPath%: Replaces with the absolute path of the install folder of this product.
%ProjectDir%: Replaces with the absolute path of the project folder.
%ProjectName%: Replaces with the project name.
%TempDir%: Replaces with the absolute path of the temporary folder.
%WinDir%: Replaces with the absolute path of the Windows system folder.

"%BuildModeName%" is set by default.

(3) Set the output file name

Setting the output file is made with the [Output file name] property by directly entering to the text box.
If the extension is omitted, it is automatically added according to the selection in the [Output file format] property.

When [User libraries(-FOrm=Library=U)] is selected: .lib
When [System libraries(-FOrm=Library=S)] is selected: .lib
When [Relocatable file(-FOrm=Relocate)] is selected: .rel

Up to 259 characters can be specified in the text box.
This property supports the following placeholders.

%ActiveProjectName%: Replaces with the active project name.
%MainProjectName%: Replaces with the main project name.
%ProjectName%: Replaces with the project name.

"%ProjectName%.lib" is set by default.

2.10 Set Build Options Separately

Build options are set at the project or file level.

Project level: See "2.10.1 Set build options at the project level"
File level: See "2.10.2 Set build options at the file level"

2.10.1 Set build options at the project level

To set options for build options for the project (main project or subproject), select the Build tool node on the project tree to display the Property panel.
Select the phase tab and set build options by setting the necessary properties.

Compile phase: [Compile Options] tab
Assemble phase: [Assemble Options] tab
Link phase: [Link Options] tab
Hex output phase: [Hex Output Options] tab
Create library phase: [Create Library Options] tab
I/O header file generation tool: [I/O Header File Generation Options] tab

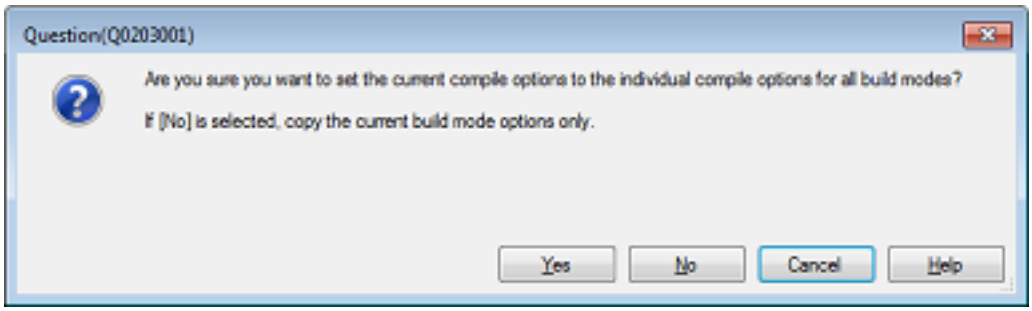
2.10.2 Set build options at the file level

You can individually set compile and assemble options for each source file added to the project.

(1) When setting compile options for a C source file
Select the C source file on the project tree and select the [Build Settings] tab on the Property panel.
Select [Yes] in the [Set individual compile option] property in the [Build] category. The Message Dialog Box will open.

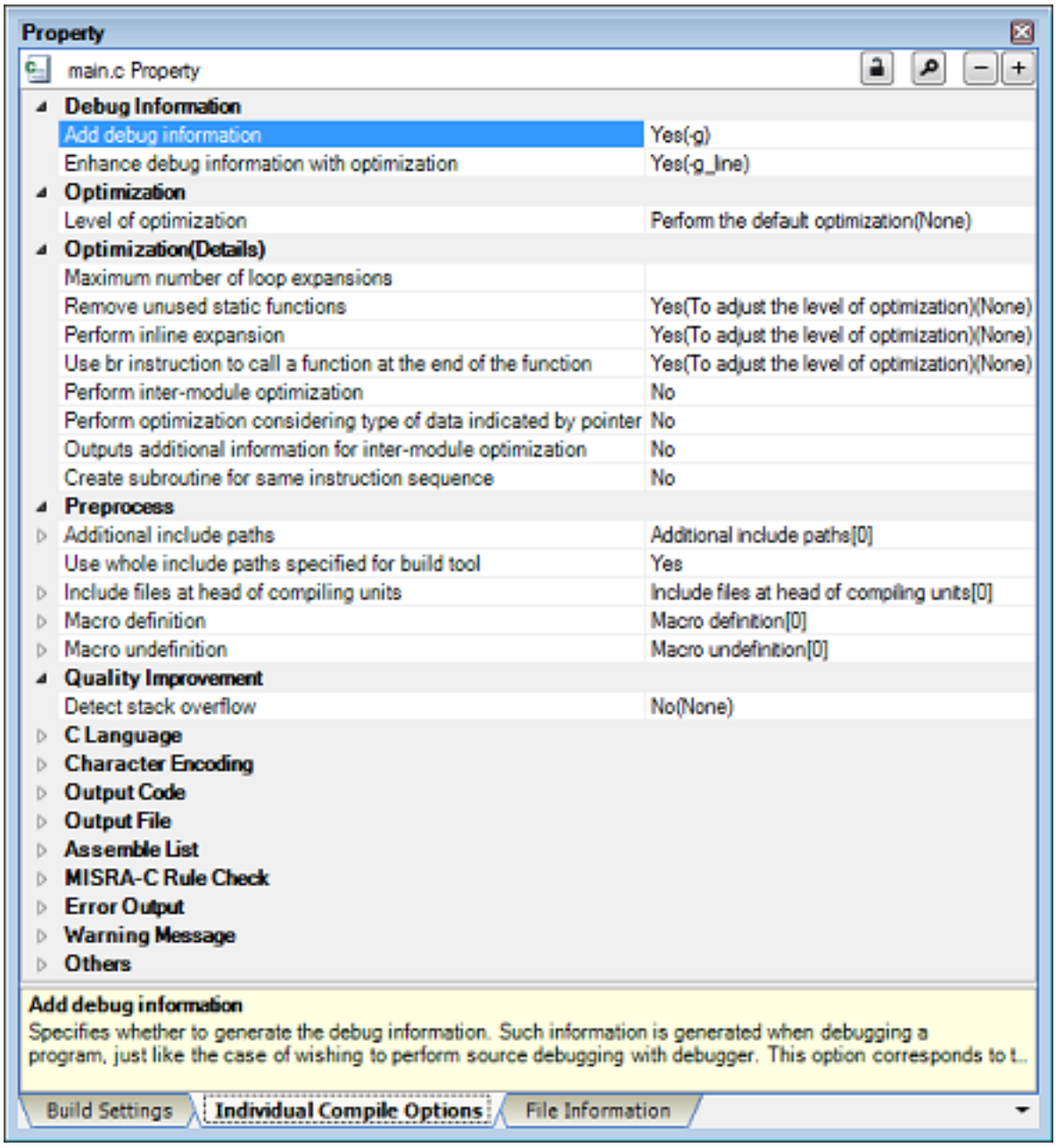
Figure 2.65 [Set individual compile option] Property

Figure 2.66 Message Dialog Box



Click [Yes] in the dialog box. The [Individual Compile Options] tab will be displayed.

Figure 2.67 Property Panel: [Individual Compile Options] Tab



You can set compile options for the C source file by setting the necessary properties in this tab.

Note that this tab takes over the settings of the [Common Options] tab and [Compile Options] tab by default except the properties shown below.

- [Additional include paths] and [Use whole include paths specified for build tool] in the [Preprocess] category
- [Object module file name] in the [Output File] category

(2) When setting assemble options for an assembly source file
Select the assembly source file on the project tree and select the [Build Settings] tab on the Property panel. Select [Yes] in the [Set individual assemble option] property in the [Build] category. The Message Dialog Box will open.

Figure 2.68 [Set individual assemble option] Property

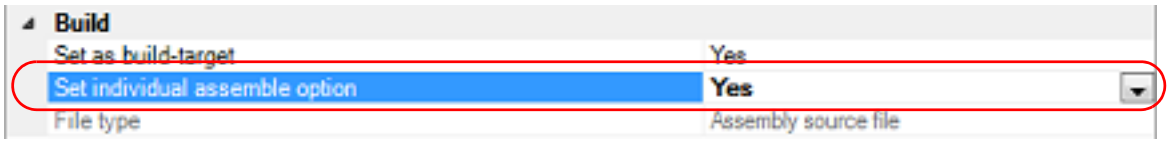
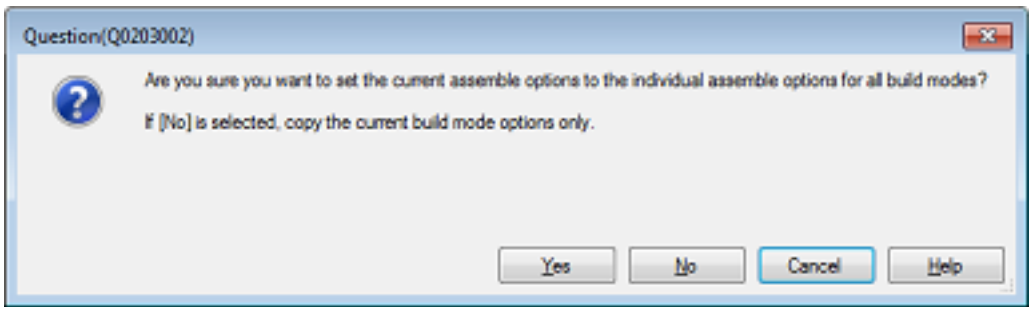
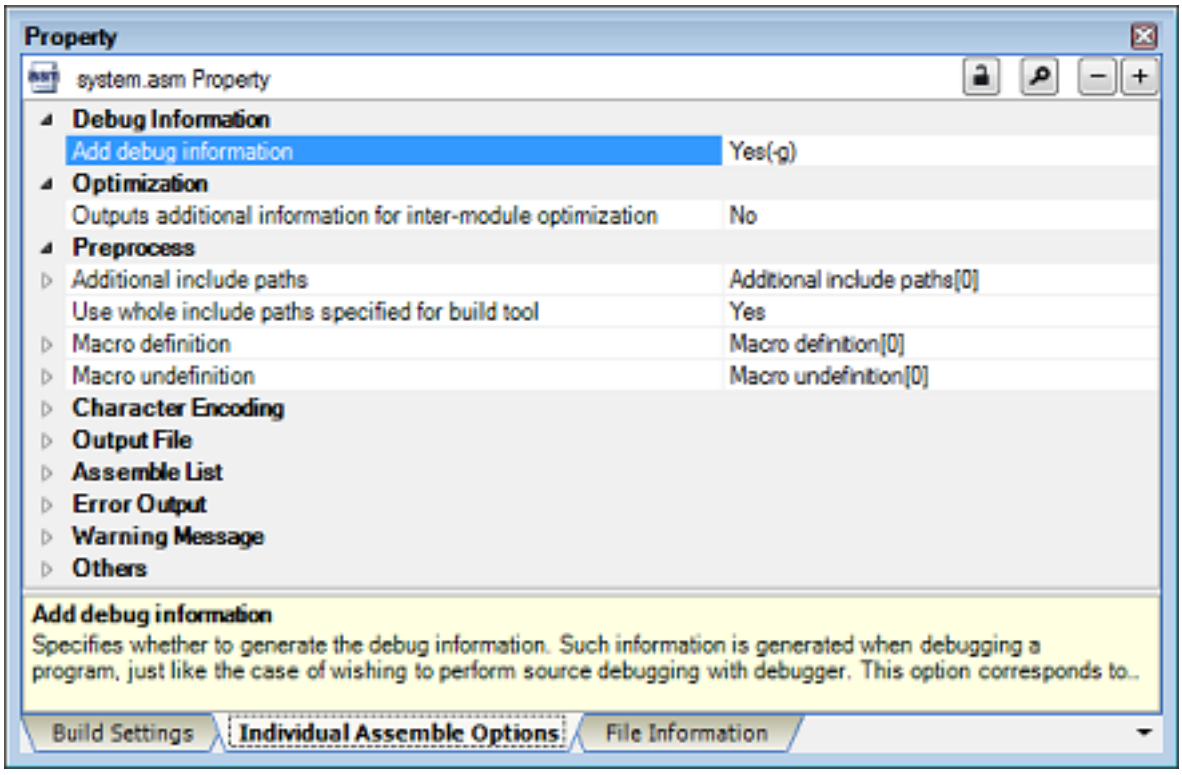


Figure 2.69 Message Dialog Box



Click [Yes] in the dialog box. The [Individual Assemble Options] tab will be displayed.

Figure 2.70 Property Panel: [Individual Assemble Options] Tab



You can set assemble options for the assembly source file by setting the necessary properties in this tab.

Note that this tab takes over the settings of the [Common Options] tab and [Compile Options] tab/[Assemble Options] tab by default except the properties shown below.

- [Additional include paths] and [Use whole include paths specified for build tool] in the [Preprocess] category
- [Object module file name] in the [Output File] category

2.11 Efficiently Allocate Variables and Functions

Generate and use the variables/functions information header file to efficiently allocate variables and functions. A variables/functions information header file (header file used to efficiently assign the saddr area and callt area based on the number of times and order in which the variables and functions are referenced) is generated by setting the [Output variables/functions information header file] property from the [Link Options] tab on the Property panel. Variables will be allocated to the saddr area, and functions to the callt area by performing compilation using that file.

The procedures for performing this operation are described below.

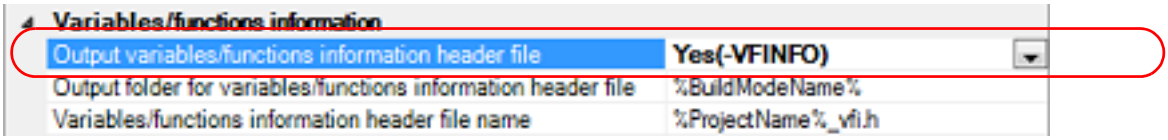
- Generating a variables/functions information header file automatically and allocating variables and functions
- Editing and using an auto-generated variables/functions information header file

Make sure to confirm that build has completed successfully and a load module file has been generated before using this function.

(1) Generating a variables/functions information header file automatically and allocating variables and functions
Below is the procedure for generating a variables/functions information header file automatically and using that file to allocate variables and functions, via one build.

(a) Set the generation of the variables/functions information header file
Select the build tool node on the project tree and select the [Link Options] tab on the Property panel.
Set the [Output variables/functions information header file] property to [Yes] to generate an empty variables/functions information header file, and add it to the project (it will also appear in the File node of the project tree).
The output destination is the file set in the [Output folder for variables/functions information header file] property and the [Variables/functions information header file name] property.

Figure 2.71 [Output variables/functions information header file] Property



The settings of the output folder and file of the variables/functions information header file are can be changed.

<1> Set the output folder
Setting the output folder is made with the [Output folder for variables/functions information header file] property by directly entering to the text box or by the [...] button.
Up to 247 characters can be specified in the text box.
This property supports the following placeholders.

%ActiveProjectDir%: Replaces with the absolute path of the active project folder.
%ActiveProjectName%: Replaces with the active project name.
%BuildModeName%: Replaces with the build mode name.
%MainProjectDir%: Replaces with the absolute path of the main project folder.
%MainProjectName%: Replaces with the main project name.
%MicomToolPath%: Replaces with the absolute path of the install folder of this product.
%ProjectDir%: Replaces with the absolute path of the project folder.
%ProjectName%: Replaces with the project name.
%TempDir%: Replaces with the absolute path of the temporary folder.
%WinDir%: Replaces with the absolute path of the Windows system folder.

"%BuildModeName%" is set by default.
If this property is changed, an empty variables/functions information header file is generated and added to the project (it will also appear in the File node of the project tree).

<2> Set the output file name
Setting the output file is made with the [Variables/functions information header file name] property by directly entering to the text box.
Up to 259 characters can be specified in the text box.
This property supports the following placeholders.

%ActiveProjectName%: Replaces with the active project name.
%MainProjectName%: Replaces with the main project name.
%ProjectName%: Replaces with the project name.
"%ProjectName%_vfi.h" is set by default.

If this property is changed, an empty variables/functions information header file is generated and added to the project (it will also appear in the File node of the project tree).

(b) Run a build of the project
Run a build of the project.
A variables/functions information header file is generated. It will be included in the C source automatically and a rebuild will be executed again.

Remark The variables/functions information header file in "(a) Set the generation of the variables/functions information header file" is overwritten by running a build.

If the build completes successfully, a load module file is generated with the variables and functions allocated.

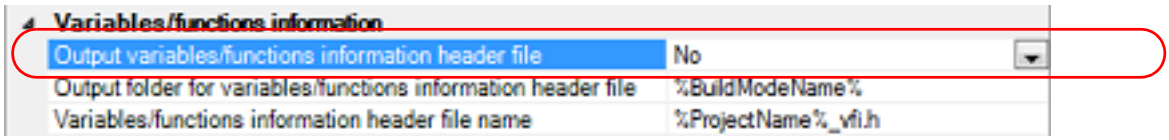
(2) Editing and using an auto-generated variables/functions information header file
Users can edit a variables/functions information header file.
Below is the procedure for editing the generated variables/functions information header file in "(1) Generating a variables/functions information header file automatically and allocating variables and functions" by the user and using that file to allocate variables and functions.

(a) Edit the variables/functions information header file
Edit the variables/functions information header file generated automatically in "(1) Generating a variables/functions information header file automatically and allocating variables and functions".

Remark See "CC-RL Compiler User's Manual" for details about the format of the auto-generated variables/functions information header file.

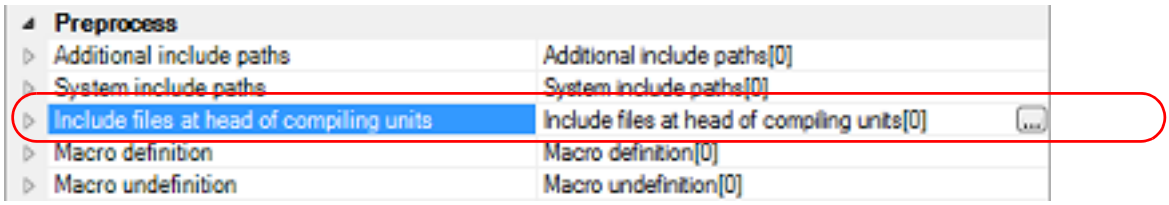
(b) Set the generation of the variables/functions information header file
Select the build tool node on the project tree and select the [Link Options] tab on the Property panel.
Select [No] on the [Output variables/functions information header file] property.

Figure 2.72 [Output variables/functions information header file] Property



Next, select the [Compile Options] tab.
Specify the edited variables/functions information header file on the [Include files at head of compiling units] property.

Figure 2.73 [Include files at head of compiling units] Property



(c) Run a build of the project
Run a build of the project.
A load module file is generated with the variables and functions allocated as specified in the variables/functions information header file.

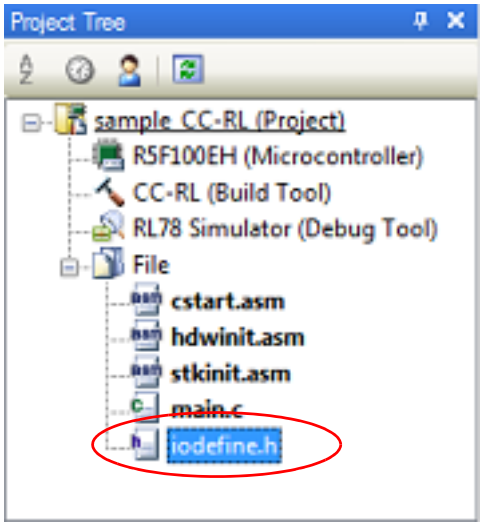
2.12 Automatically Update the I/O Header File

When an application project is newly created, an I/O header file corresponding to the selected device is automatically generated.

If the I/O header file needs to be automatically updated in response to the update of the device file, use the following update method.

The I/O header file is automatically generated as "iodefine.h" when an application project is newly created and it is registered in the project tree.

Figure 2.74 I/O Header File (iodefine.h)

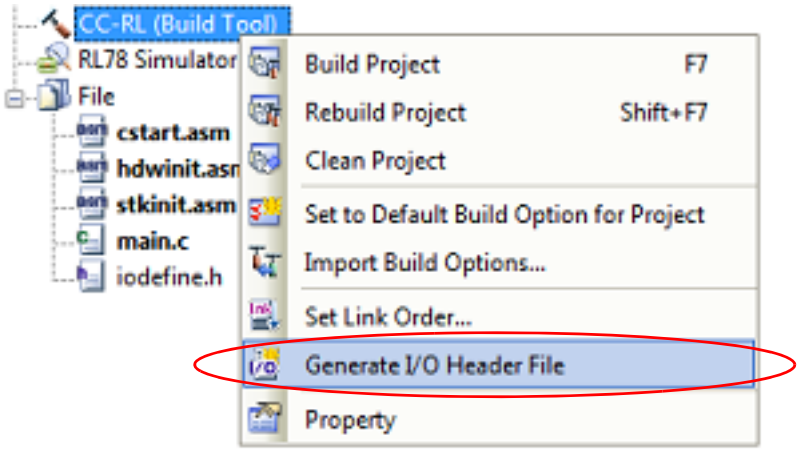


Remark The I/O header file is generated in the same folder containing the project file. If a file with the same name already exists, the existing file is renamed as "iodefine.bak" as a backup.

The timing to update the I/O header file and the update method are shown below.

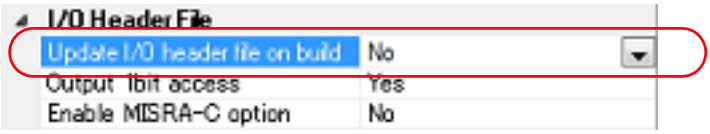
- At opening of the project
  CS+ checks the version of the device file when a project is opened.
  If the device file has been updated and there is a possibility that the I/O header file needs to be updated, a message is displayed on the Output panel. Update the I/O header file with the method below as required.
  - On the Project Tree panel, select the Build tool node, and then select [Generate I/O Header File] from the context menu

Figure 2.75 [Generate I/O Header File] Item



- At build
  The I/O header file can be updated automatically when the build process is performed and immediately before build. Set the [Update I/O header file on build] property of the [I/O Header File Generation Options] tab in the Property panel. The update conditions can also be changed in the property of the same category.

Figure 2.76 [Update I/O header file on build] Property



2.13 Estimate the Stack Capacity

To estimate the stack capacity, use Call Walker.

Call Walker performs a static analysis, and displays the symbols and their callers in a tree format, as well as stack information for each symbol (symbol name, attribute, address, size, stack size, and file name) in list format.

To start Call Walker, select [Tool] menu >> [Startup Stack Usage Tracer].

To exit from Call Walker, select Call Walker [File] menu >> [Exit].

See Call Walker [Help] menu >> [Help Topics] for Call Walker operations.

A. WINDOW REFERENCE

This appendix explains panels/dialog boxes used in the build tool.

A.1 Description

The following lists the panels/dialog boxes used in the build tool.

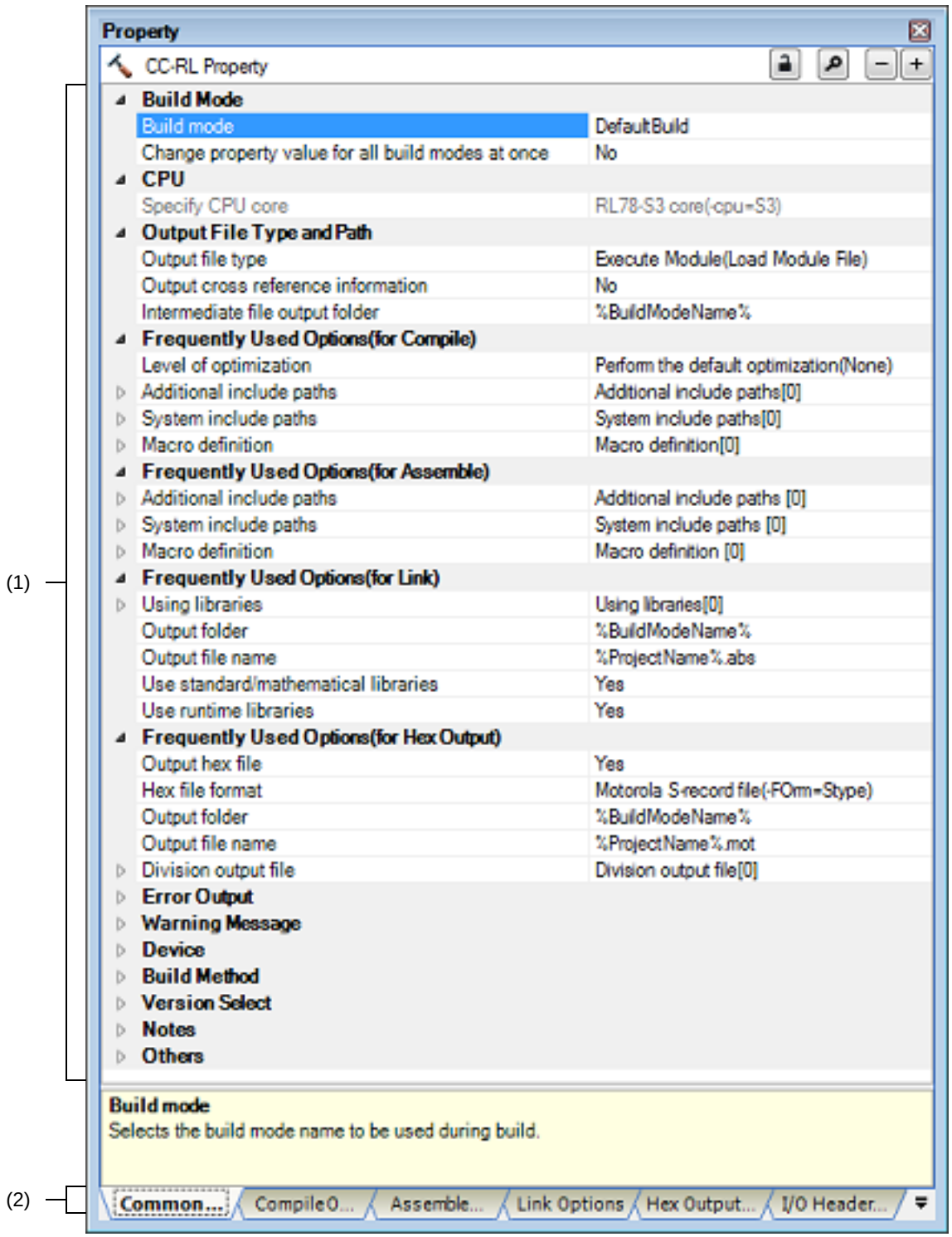
Table A.1 List of Panels/Dialog Boxes

Panel/Dialog Box Name	Function Description
Property panel	This panel is used to display the detailed information on the Build tool node or file that is selected on the Project Tree panel and change the settings of the information.
System Include Path Order dialog box	This dialog box is used to refer the system include paths specified for the compiler and set their specified sequence.
Specify Rule Number dialog box	This dialog box is used to select the number of the MISRA-C rule and set it to the area that this dialog box is called from.
Section Settings dialog box	This dialog box is used to add, modify, or delete sections.
Add Section dialog box Modify Section dialog box Add Overlay dialog box	These dialog boxes are used to set a section name when adding, modifying, or overlaying a section, respectively.
Section Address dialog box	This dialog box is used to set an address when adding or modifying a section.
Unassigned Section dialog box	This dialog box is used to delete sections.

Property panel

This panel is used to display the detailed information on the Build tool node or file that is selected on the Project Tree panel by every category and change the settings of the information.

Figure A.1 Property Panel



The following items are explained here.

- [How to open]
- [Description of each area]
- [[Edit] menu (only available for the Property panel)]
- [Context menu]

[How to open]

- On the Project Tree panel, select the Build tool node or file and then select [Property] from the [View] menu or [Property] from the context menu.

Remark When either one of the Build tool node or file on the Project Tree panel is selected while the Property panel has been opened, the detailed information of the selected item is displayed.

[Description of each area]

(1) Detailed information display/change area
In this area, the detailed information on the Build tool node or file that is selected on the Project Tree panel is displayed by every category in the list. And the settings of the information can be changed directly.
Mark  indicates that all the items in the category are expanded. Mark  indicates that all the items are collapsed. You can expand/collapse the items by clicking these marks or double clicking the category name.
Mark  indicates that only a hexadecimal number is allowed to input in the text box.
See the section on each tab for the details of the display/setting in the category and its contents.

(2) Tab selection area
Categories for the display of the detailed information are changed by selecting a tab.
In this panel, the following tabs are contained (see the section on each tab for the details of the display/setting on the tab).

Remark When multiple components are selected on the Project Tree panel, only the tab that is common to all the components is displayed.
If the value of the property is modified, that is taken effect to the selected components all of which are common to all.

(a) When the Build tool node is selected on the Project Tree panel

- [Common Options] tab
- [Compile Options] tab
- [Assemble Options] tab
- [Link Options] tab
- [Hex Output Options] tab
- [Create Library Options] tab
- [I/O Header File Generation Options] tab

(b) When a file is selected on the Project Tree panel

- [Build Settings] tab (for C source file, assembly source file, object file, and library file)
- [Individual Compile Options] tab (for C source file)
- [Individual Assemble Options] tab (for assembly source file)
- [File Information] tab[Note]

Note See "CS+ Integrated Development Environment User's Manual: Project Operation" for details about the [File Information] tab.

[[Edit] menu (only available for the Property panel)]

Undo	Cancels the previous edit operation of the value of the property.
Cut	While editing the value of the property, cuts the selected characters and copies them to the clipboard.
Copy	Copies the selected characters of the property to the clipboard.
Paste	While editing the value of the property, inserts the contents of the clipboard.
Delete	While editing the value of the property, deletes the selected characters.
Select All	While editing the value of the property, selects all the characters of the selected property.

[Context menu]

Undo	Cancels the previous edit operation of the value of the property.
Cut	While editing the value of the property, cuts the selected characters and copies them to the clipboard.
Copy	Copies the selected characters of the property to the clipboard.
Paste	While editing the value of the property, inserts the contents of the clipboard.
Delete	While editing the value of the property, deletes the selected characters.
Select All	While editing the value of the property, selects all the characters of the selected property.
Reset to Default	Restores the configuration of the selected item to the default configuration of the project. For the [Individual Compile Options] tab and [Individual Assemble Options] tab, restores to the configuration of the general option.
Reset All to Default	Restores all the configuration of the current tab to the default configuration of the project. For the [Individual Compile Options] tab and [Individual Assemble Options] tab, restores to the configuration of the general option.

[Common Options] tab

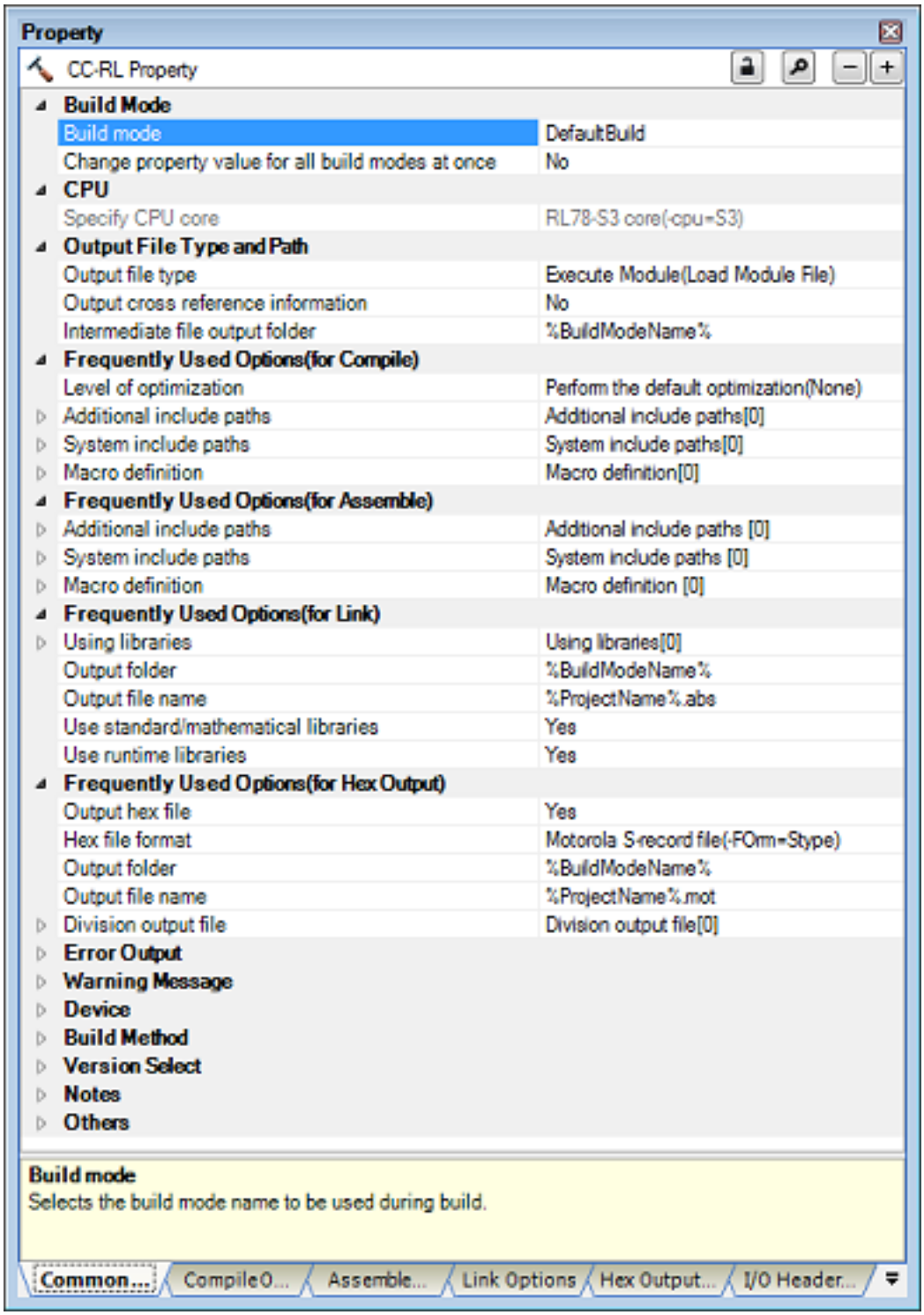
This tab shows the detailed information on the build tool categorized by the following and the configuration can be changed.

(1) [Build Mode]
(2) [CPU]
(3) [Output File Type and Path]
(4) [Frequently Used Options(for Compile)]
(5) [Frequently Used Options(for Assemble)]
(6) [Frequently Used Options(for Link)]
(7) [Frequently Used Options(for Hex Output)]
(8) [Frequently Used Options(for Create Library)]
(9) [Error Output]
(10) [Warning Message]
(11) [Device]
(12) [Build Method]
(13) [Version Select]
(14) [Notes]
(15) [Others]

Remark If the property in the [Frequently Used Options] category is changed, the value of the property having the same name contained in the corresponding tab will be changed accordingly.

Category from [Common Options] Tab	Corresponding Tab
[Frequently Used Options(for Compile)] category	[Compile Options] tab
[Frequently Used Options(for Assemble)] category	[Assemble Options] tab
[Frequently Used Options(for Link)] category	[Link Options] tab
[Frequently Used Options(for Hex Output)] category	[Hex Output Options] tab
[Frequently Used Options(for Create Library)] category	[Create Library Options] tab

Figure A.2 Property Panel: [Common Options] Tab



[Description of each category]

(1) [Build Mode]
The detailed information on the build mode is displayed and the configuration can be changed.

Build mode	Select the build mode to be used during a build. Note that this property is not applied to [Reset All to Default] from the context menu.		
	Default	DefaultBuild	
	How to change	Select from the drop-down list.	
	Restriction	DefaultBuild	Runs a build with the default build mode that is set when a new project is created.
		Build mode that is added to the project	Runs a build with the build mode that is added to the project (other than Default-Build).
Change property value for all build modes at once	Select whether to reflect the value newly set to all build modes when a value is set in this property. Be careful since the value set may not be an appropriate value for other build modes.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes	Reflects the value newly set to all build modes when a value is set in this property.
		No	Does not reflect the value newly set to all build modes when a value is set in this property.

(2) [CPU]
The detailed information on CPU is displayed and the configuration can be changed.

Specify CPU core	The core of the device selected in the project is displayed. This corresponds to the -cpu option of the ccrl command.		
	Default	*Core of the device selected in the project*	
	How to change	Changes not allowed	
Use arithmetic unit	Specify whether to use the arithmetic unit. This corresponds to the -use_mda option of the ccrl command. This property is displayed only when [RL78-S2 core(-cpu=S2)] in the [Specify CPU core] property is selected.		
	Default	Mul/div/accumulator(None)	
	How to change	Select from the drop-down list.	
	Restriction	Not use(-use_mda=not_use)	Generates a code that does not use the arithmetic unit.
		Mul/div/accumulator(None)	Generates a code that uses the arithmetic unit.

(3) [Output File Type and Path]
The detailed information on output file types and paths is displayed and the configuration can be changed.

Output file type	The file type set here will be the debug target for other than the library project. For other than library projects, only [Execute Module(Load Module File)] and [Execute Module(Hex File)] are displayed. For the library project, only [Library] is displayed.		
	Default	- For other than the library project Execute Module(Load Module File) - For the library project Library	
	How to change	Select from the drop-down list.	
	Restriction	Execute Module(Load Module File)	Generates a load module file during a build. The load module file will be the debug target.
		Execute Module(Hex File)	Generates a hex file during a build. The hex file will be the debug target. This item is displayed only when [Yes] in the [Output hex file] property in the [Output File] category from the [Hex Output Options] tab is selected.
		Library	Generates a library file during a build.
Output cross reference information	Select whether to output the cross reference information to a file. The file is output to the folder specified in the [Output folder] property in the [Output File] category from the [Link Options] tab. The file is output under the file name specified in the [Output file name] property with the extension replaced by ".cref". However, if the [Object file name] property in the [Output File] category from the [Individual Compile Options] tab is specified, the file is output under the file name specified in the property with the extension replaced by ".cref". This property is changed to [Yes(-cref)] when [Yes] in the [Compulsorily output cross reference file] property of the analyze tool is selected. If this property is changed to [No] when [Yes] in the [Compulsorily output cross reference file] property is selected, this property will be changed to [Yes(-cref)] during a build. This corresponds to the -cref option of the ccrl command.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-cref)	Outputs the cross reference information. The build processing speed slows down, but "jump to function" can be used.
		No	Does not output the cross reference information.

Intermediate file output folder	Specify the folder which the intermediate file is output. If a relative path is specified, the reference point of the path is the main project or sub-project folder. If an absolute path is specified, the reference point of the path is the main project or subproject folder (unless the drives are different). The following placeholder is supported. %BuildModeName%: Replaces with the build mode name. If this is blank, it is assumed that the project folder has been specified. This corresponds to the -obj_path option or -o option of the ccrl command.	
	Default	%BuildModeName%
	How to change	Directly enter in the text box or edit by the Browse For Folder dialog box which appears when clicking the [...] button.
	Restriction	Up to 247 characters

(4) [Frequently Used Options(for Compile)]
The detailed information on frequently used options during compilation is displayed and the configuration can be changed.

Level of optimization	Select the level of the optimization for compiling. This corresponds to the -O option of the ccrl command.		
	Default	Perform the default optimization(None)	
	How to change	Select from the drop-down list.	
	Restriction	Perform the default optimization(None)	Performs optimization that debugging is not affected (optimization of expressions and register allocation, and the like).
		Code size precedence(-Osize)	Performs optimization with the object size precedence. Regards reducing the ROM/RAM usage as important and performs the maximum optimization that is effective for general programs.
		Speed precedence(-Ospeed)	Performs optimization with the execution speed precedence. Regards shortening the execution speed as important and performs the maximum optimization that is effective for general programs.
		Debug precedence(-Onothing)	Performs optimization with the debug precedence. Regards debugging as important and suppresses all optimization including default optimization.

<table>
<tr><td>Additional include paths</td><td colspan="2">Specify the additional include paths during compiling.
The following placeholders are supported.
%ActiveProjectDir%: Replaces with the absolute path of the active project folder.
%ActiveProjectName%: Replaces with the active project name.
%BuildModeName%: Replaces with the build mode name.
%MainProjectDir%: Replaces with the absolute path of the main project folder.
%MainProjectName%: Replaces with the main project name.
%MicomToolPath%: Replaces with the absolute path of the install folder of this product.
%ProjectDir%: Replaces with the absolute path of the project folder.
%ProjectName%: Replaces with the project name.
%TempDir%: Replaces with the absolute path of the temporary folder.
%WinDir%: Replaces with the absolute path of the Windows system folder.
The specified include path is searched with higher priority than the standard include file folder of CC-RL.
The reference point of the path is the project folder.
When this property is omitted, only the standard folder of CC-RL is searched.
This corresponds to the -I option of the ccrl command.
The specified include path is displayed as the subproperty.
When the include path is added to the project tree, the path is added to the top of the subproperties.
Uppercase characters and lowercase characters are not distinguished for the include paths.</td></tr>
<tr><td></td><td>Default</td><td>Additional include paths[number of defined items]</td></tr>
<tr><td></td><td>How to change</td><td>Edit by the Path Edit dialog box which appears when clicking the [...] button.
For the subproperty, you can enter directly in the text box.</td></tr>
<tr><td></td><td>Restriction</td><td>Up to 259 characters
Up to 256 items can be specified.</td></tr>
<tr><td>System include paths</td><td colspan="2">Change the specified order of the include paths which the system set during compiling.
The following placeholders are supported.
%ActiveProjectDir%: Replaces with the absolute path of the active project folder.
%ActiveProjectName%: Replaces with the active project name.
%BuildModeName%: Replaces with the build mode name.
%MainProjectDir%: Replaces with the absolute path of the main project folder.
%MainProjectName%: Replaces with the main project name.
%MicomToolPath%: Replaces with the absolute path of the install folder of this product.
%ProjectDir%: Replaces with the absolute path of the project folder.
%ProjectName%: Replaces with the project name.
%TempDir%: Replaces with the absolute path of the temporary folder.
%WinDir%: Replaces with the absolute path of the Windows system folder.
The system include path is searched with lower priority than the additional include path.
The reference point of the path is the project folder.
This corresponds to the -I option of the ccrl command.
The include path is displayed as the subproperty.</td></tr>
<tr><td></td><td>Default</td><td>System include paths[number of defined items]</td></tr>
<tr><td></td><td>How to change</td><td>Edit by the System Include Path Order dialog box which appears when clicking the [...] button.</td></tr>
<tr><td></td><td>Restriction</td><td>Changes not allowed (Only the specified order of the include paths can be changed.)</td></tr>
</table>

Macro definition	Specify the name of the macro to be defined. Specify in the format of "*macro name=defined value*", with one macro name per line. The "=*defined value*" part can be omitted, and in this case, "1" is used as the defined value. This corresponds to the -D option of the ccrl command. The specified macro is displayed as the subproperty.	
	Default	Macro definition[*number of defined items*]
	How to change	Edit by the Text Edit dialog box which appears when clicking the [...] button. For the subproperty, you can enter directly in the text box.
	Restriction	Up to 256 characters Up to 256 items can be specified.

(5) [Frequently Used Options(for Assemble)]
The detailed information on frequently used options during assembling is displayed and the configuration can be changed.

Additional include paths	Specify the additional include paths during assembling. The following placeholders are supported. %ActiveProjectDir%: Replaces with the absolute path of the active project folder. %ActiveProjectName%: Replaces with the active project name. %BuildModeName%: Replaces with the build mode name. %MainProjectDir%: Replaces with the absolute path of the main project folder. %MainProjectName%: Replaces with the main project name. %MicomToolPath%: Replaces with the absolute path of the install folder of this product. %ProjectDir%: Replaces with the absolute path of the project folder. %ProjectName%: Replaces with the project name. %TempDir%: Replaces with the absolute path of the temporary folder. %WinDir%: Replaces with the absolute path of the Windows system folder. The specified include path is searched with higher priority than the standard include file folder of CC-RL. The reference point of the path is the project folder. When this property is omitted, only the standard folder of CC-RL is searched. This corresponds to the -I option of the ccrl command. The specified include path is displayed as the subproperty. When the include path is added to the project tree, the path is added to the top of the subproperties. Uppercase characters and lowercase characters are not distinguished for the include paths.	
	Default	Additional include paths[*number of defined items*]
	How to change	Edit by the Path Edit dialog box which appears when clicking the [...] button. For the subproperty, you can enter directly in the text box.
	Restriction	Up to 259 characters Up to 256 items can be specified.

System include paths	Change the specified order of the include paths which the system set during assembling. The following placeholders are supported. %ActiveProjectDir%: Replaces with the absolute path of the active project folder. %ActiveProjectName%: Replaces with the active project name. %BuildModeName%: Replaces with the build mode name. %MainProjectDir%: Replaces with the absolute path of the main project folder. %MainProjectName%: Replaces with the main project name. %MicomToolPath%: Replaces with the absolute path of the install folder of this product. %ProjectDir%: Replaces with the absolute path of the project folder. %ProjectName%: Replaces with the project name. %TempDir%: Replaces with the absolute path of the temporary folder. %WinDir%: Replaces with the absolute path of the Windows system folder. The system include path is searched with lower priority than the additional include path. The reference point of the path is the project folder. This corresponds to the -I option of the ccrl command. The include path is displayed as the subproperty.	
	Default	System include paths[*number of defined items*]
	How to change	Edit by the System Include Path Order dialog box which appears when clicking the [...] button.
	Restriction	Changes not allowed (Only the specified order of the include paths can be changed.)
Macro definition	Specify the name of the macro to be defined. Specify in the format of "*macro name*=*defined value*", with one macro name per line. The "=*defined value*" part can be omitted, and in this case, "1" is used as the defined value. This corresponds to the -asmopt=-define option of the ccrl command. The specified macro is displayed as the subproperty.	
	Default	Macro definition[*number of defined items*]
	How to change	Edit by the Text Edit dialog box which appears when clicking the [...] button. For the subproperty, you can enter directly in the text box.
	Restriction	Up to 256 characters Up to 256 items can be specified.

(6) [Frequently Used Options(for Link)]
The detailed information on frequently used options during linking is displayed and the configuration can be changed.
This category is not displayed for the library project.

<table>
<tr><td>Using libraries</td><td colspan="2">Specify the library files to be used.
The following placeholders are supported.
%ActiveProjectDir%: Replaces with the absolute path of the active project folder.
%ActiveProjectName%: Replaces with the active project name.
%BuildModeName%: Replaces with the build mode name.
%MainProjectDir%: Replaces with the absolute path of the main project folder.
%MainProjectName%: Replaces with the main project name.
%MicomToolPath%: Replaces with the absolute path of the install folder of this product.
%ProjectDir%: Replaces with the absolute path of the project folder.
%ProjectName%: Replaces with the project name.
%TempDir%: Replaces with the absolute path of the temporary folder.
%WinDir%: Replaces with the absolute path of the Windows system folder.
This corresponds to the -LIBrary option of the rlink command.
The library file name is displayed as the subproperty.</td></tr>
<tr><td></td><td>Default</td><td>Using libraries[number of defined items]</td></tr>
<tr><td></td><td>How to change</td><td>Edit by the Path Edit dialog box which appears when clicking the [...] button.
-> Edit by the Specify Using Library File dialog box which appears when clicking the [Browse...] button.
For the subproperty, you can enter directly in the text box.</td></tr>
<tr><td></td><td>Restriction</td><td>Up to 259 characters
Up to 65536 items can be specified.</td></tr>
<tr><td>Output folder</td><td colspan="2">Specify the output folder.
The following placeholders are supported.
%ActiveProjectDir%: Replaces with the absolute path of the active project folder.
%ActiveProjectName%: Replaces with the active project name.
%BuildModeName%: Replaces with the build mode name.
%MainProjectDir%: Replaces with the absolute path of the main project folder.
%MainProjectName%: Replaces with the main project name.
%MicomToolPath%: Replaces with the absolute path of the install folder of this product.
%ProjectDir%: Replaces with the absolute path of the project folder.
%ProjectName%: Replaces with the project name.
%TempDir%: Replaces with the absolute path of the temporary folder.
%WinDir%: Replaces with the absolute path of the Windows system folder.
If this is blank, it is assumed that the project folder has been specified.
This corresponds to the -OUtput option of the rlink command.</td></tr>
<tr><td></td><td>Default</td><td>%BuildModeName%</td></tr>
<tr><td></td><td>How to change</td><td>Directly enter in the text box or edit by the Browse For Folder dialog box which appears when clicking the [...] button.</td></tr>
<tr><td></td><td>Restriction</td><td>Up to 247 characters</td></tr>
<tr><td>Output file name</td><td colspan="2">Specify the output file name.
If the extension is omitted, ".abs" is automatically added.
The following placeholders are supported.
%ActiveProjectName%: Replaces with the active project name.
%MainProjectName%: Replaces with the main project name.
%ProjectName%: Replaces with the project name.
This corresponds to the -OUtput option of the rlink command.</td></tr>
<tr><td></td><td>Default</td><td>%ProjectName%.abs</td></tr>
<tr><td></td><td>How to change</td><td>Directly enter in the text box.</td></tr>
<tr><td></td><td>Restriction</td><td>Up to 259 characters</td></tr>
</table>

Use standard/mathe-matical libraries	Select whether to use the standard/mathematical libraries provided by the compiler. This corresponds to the -LIBrary option of the rlink command.		
	Default	Yes	
	How to change	Select from the drop-down list.	
	Restriction	Yes	Uses the standard/mathematical libraries.
		No	Does not use the standard/mathematical libraries.
Use runtime libraries	Select whether to use the runtime libraries provided by the compiler. This corresponds to the -LIBrary option of the rlink command.		
	Default	Yes	
	How to change	Select from the drop-down list.	
	Restriction	Yes	Uses the runtime libraries.
		No	Does not use the runtime libraries.

(7) [Frequently Used Options(for Hex Output)]
The detailed information on frequently used options during hex outputting is displayed and the configuration can be changed.
This category is not displayed for the library project.

Output hex file	Select whether to output the hex file. This corresponds to the -FOrm option of the rlink command.		
	Default	Yes	
	How to change	Select from the drop-down list.	
	Restriction	Yes	Outputs the hex file.
	Default	No	Does not output the hex file.
Hex file format	Select the format of the hex file to be output. This corresponds to the -FOrm option of the rlink command. This property is displayed only when [Yes] in the [Output hex file] property is selected.		
	Default	Motorola S-record file(-FOrm=Stype)	
	How to change	Select from the drop-down list.	
	Restriction	Intel HEX file(-FOrm=Hexa-decimal)	Outputs an Intel HEX file.
		Motorola S-record file(-FOrm=Stype)	Outputs a Motorola S-record file.
		Binary file(-FOrm=Binary)	Outputs a binary file.

Output folder	Specify the folder which the hex file is output. If a relative path is specified, the reference point of the path is the main project or sub-project folder. If an absolute path is specified, the reference point of the path is the main project or subproject folder (unless the drives are different). The following placeholders are supported. %ActiveProjectDir%: Replaces with the absolute path of the active project folder. %ActiveProjectName%: Replaces with the active project name. %BuildModeName%: Replaces with the build mode name. %MainProjectDir%: Replaces with the absolute path of the main project folder. %MainProjectName%: Replaces with the main project name. %MicomToolPath%: Replaces with the absolute path of the install folder of this product. %ProjectDir%: Replaces with the absolute path of the project folder. %ProjectName%: Replaces with the project name. %TempDir%: Replaces with the absolute path of the temporary folder. %WinDir%: Replaces with the absolute path of the Windows system folder. If this is blank, it is assumed that the project folder has been specified. This corresponds to the -OUtput option of the rlink command. This property is displayed only when [Yes] in the [Output hex file] property is selected.	
	Default	%BuildModeName%
	How to change	Directly enter in the text box or edit by the Browse For Folder dialog box which appears when clicking the [...] button.
	Restriction	Up to 247 characters
Output file name	Specify the hex file name. If the extension is omitted, it is automatically added according to the selection in the [Hex file format] property. When [Intel HEX file(-FOrm=Hexadecimal)] is selected: .hex When [Motorola S-record file(-FOrm=Stype)] is selected: .mot When [Binary file(-FOrm=Binary)] is selected: .bin The following placeholders are supported. %ActiveProjectName%: Replaces with the active project name. %MainProjectName%: Replaces with the main project name. %ProjectName%: Replaces with the project name. This corresponds to the -OUtput option of the rlink command. This property is displayed only when [Yes] in the [Output hex file] property is selected.	
	Default	%ProjectName%.mot
	How to change	Directly enter in the text box.
	Restriction	Up to 259 characters

Division output file	Specify the division output files. Specify in the format of "*file name=start address-end address*" or "*file name=section name*", with one entry per line. If multiple section names are specified, delimit them with a colon as in "*file name=section name*:*section name*" (example: file1.mot=sec1:sec2). Specify the address in hexadecimal (example: file2.mot=400-4ff). If the extension is omitted, it is automatically added according to the selection in the [Hex file format] property. When [Intel HEX file(-FOrm=Hexadecimal)] is selected: .hex When [Motorola S-record file(-FOrm=Stype)] is selected: .mot When [Binary file(-FOrm=Binary)] is selected: .bin The following placeholders are supported. %ActiveProjectDir%: Replaces with the absolute path of the active project folder. %ActiveProjectName%: Replaces with the active project name. %BuildModeName%: Replaces with the build mode name. %MainProjectDir%: Replaces with the absolute path of the main project folder. %MainProjectName%: Replaces with the main project name. %MicomToolPath%: Replaces with the absolute path of the install folder of this product. %ProjectDir%: Replaces with the absolute path of the project folder. %ProjectName%: Replaces with the project name. %TempDir%: Replaces with the absolute path of the temporary folder. %WinDir%: Replaces with the absolute path of the Windows system folder. This corresponds to the -OUtput option of the rlink command. The division output file name is displayed as the subproperty. This property is displayed only when [Yes] in the [Output hex file] property is selected.	
	Default	Division output file[*number of defined items*]
	How to change	Edit by the Text Edit dialog box which appears when clicking the [...] button. For the subproperty, you can enter directly in the text box.
	Restriction	Up to 259 characters Up to 65535 items can be specified.

(8) [Frequently Used Options(for Create Library)]

The detailed information on frequently used options during library generation is displayed and the configuration can be changed.

This category is displayed only for the library project.

Output file format	Select the format of the output file. This corresponds to the -FOrm option of the rlink command.		
	Default	User libraries(-FOrm=Library=U)	
	How to change	Select from the drop-down list.	
	Restriction	User libraries(-FOrm=Library=U)	Outputs a user library file.
		System libraries(-FOrm=Library=S)	Outputs a system library file.
		Relocatable file(-FOrm=Relocate)	Outputs a relocatable file.

Output folder	Specify the output folder. The following placeholders are supported. %ActiveProjectDir%: Replaces with the absolute path of the active project folder. %ActiveProjectName%: Replaces with the active project name. %BuildModeName%: Replaces with the build mode name. %MainProjectDir%: Replaces with the absolute path of the main project folder. %MainProjectName%: Replaces with the main project name. %MicomToolPath%: Replaces with the absolute path of the install folder of this product. %ProjectDir%: Replaces with the absolute path of the project folder. %ProjectName%: Replaces with the project name. %TempDir%: Replaces with the absolute path of the temporary folder. %WinDir%: Replaces with the absolute path of the Windows system folder. If this is blank, it is assumed that the project folder has been specified. This corresponds to the -OUtput option of the rlink command.		
	Default	%BuildModeName%	
	How to change	Directly enter in the text box or edit by the Browse For Folder dialog box which appears when clicking the [...] button.	
	Restriction	Up to 247 characters	
Output file name	Specify the output file name. If the extension is omitted, it is automatically added according to the selection in the [Hex file format] property. When [User libraries(-FOrm=Library=U)] is selected: .lib When [System libraries(-FOrm=Library=S)] is selected: .lib When [Relocatable file(-FOrm=Relocate)] is selected: .rel The following placeholders are supported. %ActiveProjectName%: Replaces with the active project name. %MainProjectName%: Replaces with the main project name. %ProjectName%: Replaces with the project name. This corresponds to the -OUtput option of the rlink command.		
	Default	%ProjectName%.lib	
	How to change	Directly enter in the text box.	
	Restriction	Up to 259 characters	
Use standard/mathematical libraries	Select whether to use the standard/mathematical libraries provided by the compiler. This corresponds to the -LIBrary option of the rlink command.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes	Uses the standard/mathematical libraries.
		No	Does not use the standard/mathematical libraries.
Use runtime libraries	Select whether to use the runtime libraries provided by the compiler. This corresponds to the -LIBrary option of the rlink command.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes	Uses the runtime libraries.
		No	Does not use the runtime libraries.

(9) [Error Output]
The detailed information on the error output is displayed and the configuration can be changed.

Output error message file	Select whether to output the error message file. This corresponds to the -error_file option of the ccrl command. Error messages are displayed on the Output panel regardless of this property's . This property is displayed only when [No] in the [Build in parallel] property is selected.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-error_file)	Outputs the error message file.
		No	Does not output the error message file.
Error message file output folder	Specify the folder which the error message file is output. If a relative path is specified, the reference point of the path is the main project or subproject folder. If an absolute path is specified, the reference point of the path is the main project or subproject folder (unless the drives are different). The following placeholder is supported. %BuildModeName%: Replaces with the build mode name. If this is blank, it is assumed that the project folder has been specified. This corresponds to the -error_file option of the ccrl command. This property is displayed only when [Yes(-error_file)] in the [Output error message file] property is selected.		
	Default	%BuildModeName%	
	How to change	Directly enter in the text box or edit by the Browse For Folder dialog box which appears when clicking the [...] button.	
	Restriction	Up to 247 characters	
Error message file name	Specify the error message file name. The extension can be freely specified. The following placeholders are supported. %ActiveProjectName%: Replaces with the active project name. %MainProjectName%: Replaces with the main project name. %ProjectName%: Replaces with the project name. If this is blank, it is assumed that "%ProjectName%.err" has been specified. This corresponds to the -error_file option of the ccrl command. This property is displayed only when [Yes(-error_file)] in the [Output error message file] property is selected.		
	Default	%ProjectName%.err	
	How to change	Directly enter in the text box.	
	Restriction	Up to 259 characters	

(10) [Warning Message]
The detailed information on warning messages is displayed and the configuration can be changed.

Undisplayed warning message	Specify the number of the warning message not to be displayed. If multiple message numbers are specified, delimit them with "," (comma) (example: 20009,20011). Also, the range can be set using "-" (hyphen) (example: 20000-20100,20300-20500). This corresponds to the -no_warning option of the ccrl command.	
	Default	Blank
	How to change	Directly enter in the text box or edit by the Character String Input dialog box which appears when clicking the [...] button.
	Restriction	Up to 2048 characters

(11) [Device]
The detailed information on device is displayed and the configuration can be changed.

Specify mirror area	Select the area to allocate the segment that is mirrored in the RAM space. This corresponds to the -asmopt=-mirror_source option of the ccrl command.		
	Default	MAA=0(None)	
	How to change	Select from the drop-down list.	
	Restriction	MAA=0(None)	Specifies the mirror source section to be allocated at address 0x0xxxx.
		MAA=1(-asmopt=-mirror_source=1)	Specifies the mirror source section to be allocated at address 0x1xxxx. This item is displayed only when [RL78-S2 core(-cpu=S2)] or [RL78-S3 core(-cpu=S3)] in the [Specify CPU core] property in the [CPU] category is selected.
		Common(-asmopt=-mirror_source=common)	Does not support reference to symbols allocated to the mirror source area and does not perform mirror conversion of the mirror source address.
Security ID	Specify the security ID of an on-chip flash memory device. Enter a 20-digit (10-byte) value in hexadecimal. This corresponds to the -SECURITY_ID option of the rlink command.		
	Default	0	
	How to change	Directly enter in the text box.	
	Restriction	00000000000000000000 to FFFFFFFFFFFFFFFFFFFE (hexadecimal number) or blank	

(12) [Build Method]
The detailed information on the build method is displayed and the configuration can be changed.

Build simultaneously	Select whether to generate the load module file by compiling/assembling/linking multiple files simultaneously. The files with the individual build options and files to be executed prior to the build are excluded from running a build simultaneously. See "2.3.1 Running simultaneous build" for details about running a build simultaneously.		
	Default	Yes	
	How to change	Select from the drop-down list.	
	Restriction	Yes	Compiles, assembles, and links multiple files simultaneously. The assembly source file (except the file with the individual options) is assembled using the settings of the [Compile Options] tab.
		No	Compiles, assembles, and links for each file.
Build in parallel	Select whether to enable the parallel build facility. The parallel build facility enables CS+ to compile/assemble multiple source files in parallel using all processors mounted on the computer. This speeds up compilation/assemble. In addition, parallel build between projects can be set by selecting [Tool] menu >> [Option] and then making a setting in the [General - Build] category of the Option dialog box. See "2.3.2 Running parallel build" for details about parallel build.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes	Enables the parallel build facility.
		No	Disables the parallel build facility.
Handling the source file includes unfound file	Select whether to recompile/assemble the source file if it includes a file that is not found in the standard and additional include paths.		
	Default	Re-compile/assemble the source file	
	How to change	Select from the drop-down list.	
	Restriction	Re-compile/assemble the source file	Recompiles/assembles the source file if it includes a file that is not found.
		Ignore re-compiling/assembling the source file	Does not recompile/assemble the source file even if it includes a file that is not found.

(13) [Version Select]
The detailed information on the build tool version is displayed and the configuration can be changed.

Using compiler package install folder	The folder in which the compiler package to be used is installed is displayed.	
	Default	*Install folder name*
	How to change	Changes not allowed

Using compiler package version	Select the version of the compiler package to be used. This setting is common to all the build modes.		
	Default	Always latest version which was installed	
	How to change	Select from the drop-down list.	
	Restriction	Always latest version which was installed	Uses the latest version in the installed compiler packages.
		Versions of the installed compiler packages	Uses the selected version in the compiler package.
Latest compiler package version which was installed	The version of the compiler package to be used when [Always latest version which was installed] is selected in the [Using compiler package version] property is displayed. This setting is common to all the build modes. This property is displayed only when [Always latest version which was installed] in the [Using compiler package version] property is selected.		
	Default	*Latest version of the installed compiler packages*	
	How to change	Changes not allowed	

(14) [Notes]
The detailed information on notes is displayed and the configuration can be changed.

Memo	Add memos to the build tool. Add one item in one line. This setting is common to all the build modes. The specified memo is displayed as the subproperty.	
	Default	Memo[*number-of-items*]
	How to change	Edit by the Text Edit dialog box which appears when clicking the [...] button. For the subproperty, you can enter directly in the text box.
	Restriction	Up to 256 characters Up to 256 items can be specified.

(15) [Others]
Other detailed information on the build tool is displayed and the configuration can be changed.

<table>
<tr><td rowspan="5">Output message format</td><td colspan="3">Specify the format of the message under build execution.
This applies to the messages output by the build tool to be used, and commands added by plugins.
It does not apply to the output messages of commands specified in the [Commands executed before build processing] or [Commands executed after build processing] property.
The following placeholders are supported.
%Options%: Replaces with the command line option under build execution.
%Program%: Replaces with the program name under execution.
%TargetFiles%: Replaces with the file name being compile/assemble or making link.
If this is blank, "%Program% %Options%" will be set automatically.</td></tr>
<tr><td>Default</td><td colspan="2">%TargetFiles%</td></tr>
<tr><td>How to change</td><td colspan="2">Directly enter in the text box (up to 256 characters) or select from the drop-down list.</td></tr>
<tr><td rowspan="3">Restriction</td><td>%TargetFiles%</td><td>Displays the file name in the output message.</td></tr>
<tr><td>%TargetFiles%: %Options%</td><td>Displays the file name and command line options in the output message.</td></tr>
<tr><td>%Program% %Options%</td><td>Displays the program name and command line options in the output message.</td></tr>
<tr><td rowspan="4">Format of build option list</td><td colspan="3">Specify the display format of the build option list.
This applies to the options of the build tool to be used, and commands added by plugins.
It does not apply to the options of commands specified in the [Commands executed before build processing] or [Commands executed after build processing] property.
The following placeholders are supported.
%Options%: Replaces with the command line option under build execution.
%Program%: Replaces with the program name under execution.
%TargetFiles%: Replaces with the file name being compile/assemble or making link.
If this is blank, "%TargetFiles% : %Program% %Options%" will be set automatically.</td></tr>
<tr><td>Default</td><td colspan="2">%TargetFiles% : %Program% %Options%</td></tr>
<tr><td>How to change</td><td colspan="2">Directly enter in the text box or edit by the Character String Input dialog box which appears when clicking the [...] button.</td></tr>
<tr><td>Restriction</td><td colspan="2">Up to 256 characters</td></tr>
</table>

<table>
<tr><td>Commands executed before build processing</td><td colspan="2">Specify the command to be executed before build processing.
Use the call instruction to specify a batch file (example: call a.bat).
The following placeholders are supported.
%ActiveProjectDir%: Replaces with the absolute path of the active project folder.
%ActiveProjectName%: Replaces with the active project name.
%BuildModeName%: Replaces with the build mode name.
%MainProjectDir%: Replaces with the absolute path of the main project folder.
%MainProjectName%: Replaces with the main project name.
%MicomToolPath%: Replaces with the absolute path of the install folder of this product.
%OutputDir%: Replaces with the absolute path of the output folder.
%OutputFile%: Replaces with the absolute path of the output file.
%ProjectDir%: Replaces with the absolute path of the project folder.
%ProjectName%: Replaces with the project name.
%TempDir%: Replaces with the absolute path of the temporary folder.
%WinDir%: Replaces with the absolute path of the Windows system folder.
When "#!python" is described in the first line, the contents from the second line to the last line are regarded as the script of the Python console, and then executed before build processing.
The placeholders can be described in the script.
The specified command is displayed as the subproperty.</td></tr>
<tr><td></td><td>Default</td><td>Commands executed before build processing[number of defined items]</td></tr>
<tr><td></td><td>How to change</td><td>Edit by the Text Edit dialog box which appears when clicking the [...] button.
For the subproperty, you can enter directly in the text box.</td></tr>
<tr><td></td><td>Restriction</td><td>Up to 1023 characters
Up to 64 items can be specified.</td></tr>
<tr><td>Commands executed after build processing</td><td colspan="2">Specify the command to be executed after build processing.
Use the call instruction to specify a batch file (example: call a.bat).
The following placeholders are supported.
%ActiveProjectDir%: Replaces with the absolute path of the active project folder.
%ActiveProjectName%: Replaces with the active project name.
%BuildModeName%: Replaces with the build mode name.
%MainProjectDir%: Replaces with the absolute path of the main project folder.
%MainProjectName%: Replaces with the main project name.
%MicomToolPath%: Replaces with the absolute path of the install folder of this product.
%OutputDir%: Replaces with the absolute path of the output folder.
%OutputFile%: Replaces with the absolute path of the output file.
%ProjectDir%: Replaces with the absolute path of the project folder.
%ProjectName%: Replaces with the project name.
%TempDir%: Replaces with the absolute path of the temporary folder.
%WinDir%: Replaces with the absolute path of the Windows system folder.
When "#!python" is described in the first line, the contents from the second line to the last line are regarded as the script of the Python console, and then executed after build processing.
The placeholders can be described in the script.
The specified command is displayed as the subproperty.</td></tr>
<tr><td></td><td>Default</td><td>Commands executed after build processing[number of defined items]</td></tr>
<tr><td></td><td>How to change</td><td>Edit by the Text Edit dialog box which appears when clicking the [...] button.
For the subproperty, you can enter directly in the text box.</td></tr>
<tr><td></td><td>Restriction</td><td>Up to 1023 characters
Up to 64 items can be specified.</td></tr>
</table>

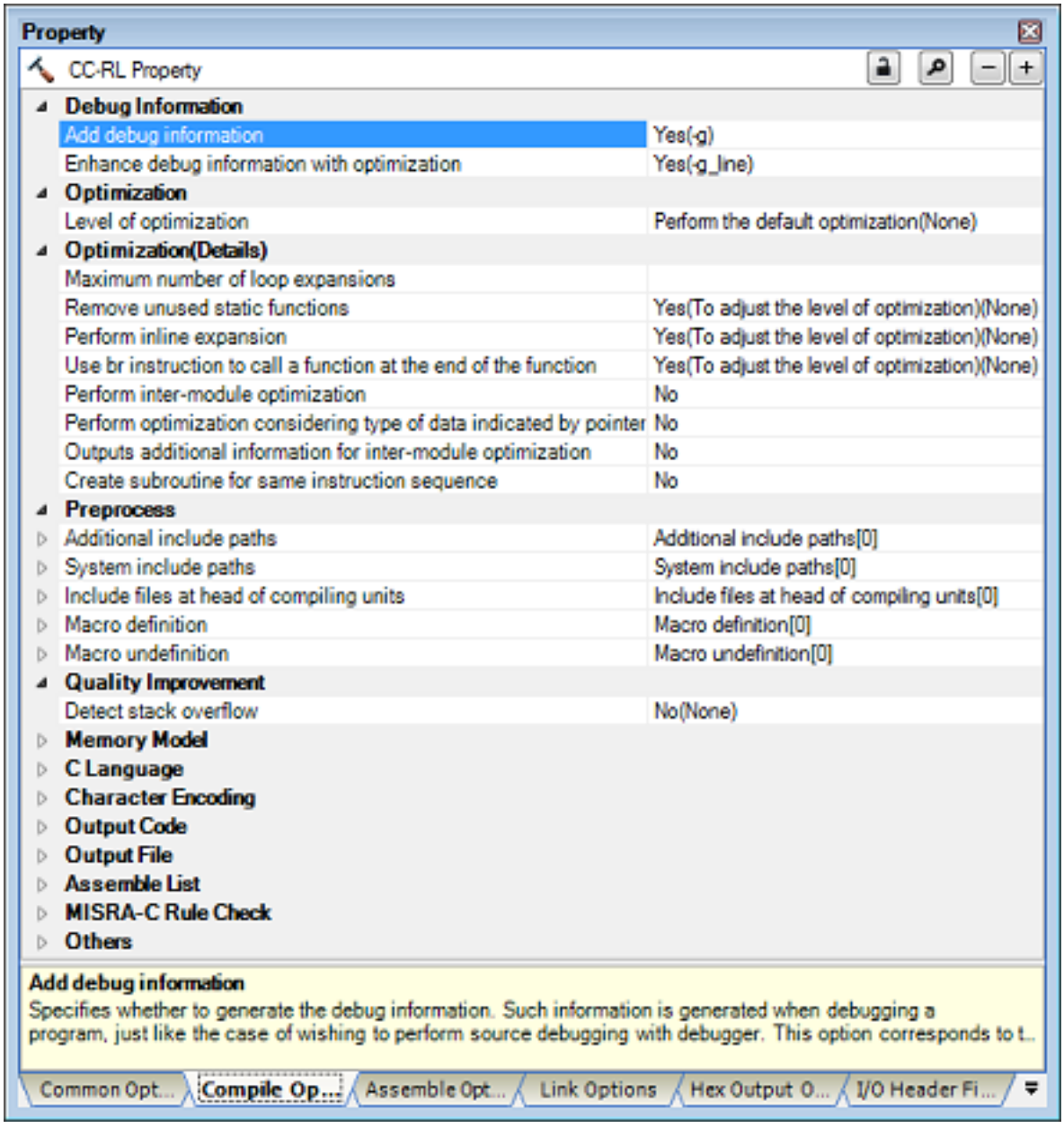
Other additional options	Input the option to be added additionally. The options set here are added at the end of the ccrl options group.	
	Default	Blank
	How to change	Directly enter in the text box or edit by the Character String Input dialog box which appears when clicking the [...] button.
	Restriction	Up to 259 characters

[Compile Options] tab

This tab shows the detailed information on the compile phase categorized by the following and the configuration can be changed.

(1) [Debug Information]
(2) [Optimization]
(3) [Optimization(Details)]
(4) [Preprocess]
(5) [Quality Improvement]
(6) [Memory Model]
(7) [C Language]
(8) [Character Encoding]
(9) [Output Code]
(10) [Output File]
(11) [Assemble List]
(12) [MISRA-C Rule Check]
(13) [Others]

Figure A.3 Property Panel: [Compile Options] Tab



[Description of each category]

(1) [Debug Information]
The detailed information on debug information is displayed and the configuration can be changed.

Add debug information	Select whether to generate the debug information. It is possible to perform source debugging with the debugger by outputting information for source debugging to the output file. This corresponds to the -g option of the ccrl command.		
	Default	Yes(-g)	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-g)	Generates the debug information.
		No	Does not generate the debug information.
Enhance debug information with optimization	Select whether to enhance debug information at optimization. This corresponds to the -g_line option of the ccrl command. This property is displayed in the following cases. - When [Always latest version which was installed] in the [Using compiler package version] property in the [Version Select] category from the [Common Options] tab is selected and the latest version is V1.02.00 or higher or when V1.02.00 or higher is selected in the [Using compiler package version] property - When [Yes(-g)] in the [Add debug information] property is selected		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-g_line)	Enhances debug information at optimization.
		No	Does not enhance debug information at optimization.

(2) [Optimization]
The detailed information on the optimization is displayed and the configuration can be changed.

Level of optimization	Select the level of the optimization for compiling. This corresponds to the -O option of the ccrl command.		
	Default	Perform the default optimization(None)	
	How to change	Select from the drop-down list.	
	Restriction	Perform the default optimization(None)	Performs optimization that debugging is not affected (optimization of expressions and register allocation, and the like).
		Code size precedence(-Osize)	Performs optimization with the object size precedence. Regards reducing the ROM/RAM usage as important and performs the maximum optimization that is effective for general programs.
		Speed precedence(-Ospeed)	Performs optimization with the execution speed precedence. Regards shortening the execution speed as important and performs the maximum optimization that is effective for general programs.
		Debug precedence(-Onothing)	Performs optimization with the debug precedence. Regards debugging as important and suppresses all optimization including default optimization.

(3) [Optimization(Details)]
The detailed information on the optimization is displayed and the configuration can be changed.

Maximum number of loop expansions	Specify the maximum number of times to expand the loops such as "for" and "while". If 0 or 1 is specified, expansion is suppressed. If this is blank, it is assumed that "2" has been specified. This corresponds to the -Ounroll option of the ccrl command. This property is displayed only when [Perform the default optimization(None)], [Code size precedence(-Osize)] or [Speed precedence(-Ospeed)] in the [Level of optimization] property is selected.		
	Default	Blank	
	How to change	Directly enter in the text box.	
	Restriction	0 to 999 (decimal number) or blank	
Remove unused static functions	Select whether to remove the static functions which are not called. This corresponds to the -Odelete_static_func option of the ccrl command.		
	Default	Yes(To adjust the level of optimization)(None)	
	How to change	Select from the drop-down list.	
	Restriction	Yes(To adjust the level of optimization)(None)	Performs optimization according to the [Level of optimization] property.
		Yes(-Odelete_static_func)	Removes the unused static functions which are not called.
		No(-Odelete_static_func=off)	Does not remove the unused static functions which are not called.

Perform inline expansion	Specify whether to perform inline expansion at the location calling functions. This corresponds to the -Oinline_level option of the ccrl command. This property is displayed only when [Perform the default optimization(None)], [Code size precedence(-Osize)] or [Speed precedence(-Ospeed)] in the [Level of optimization] property is selected.		
	Default	Yes(To adjust the level of optimization)(None)	
	How to change	Select from the drop-down list.	
	Restriction	Yes(To adjust the level of optimization)(None)	Performs optimization according to the [Level of optimization] property.
		Yes(Only specified functions)(-Oinline_level=1)	Performs inline expansion at the location calling the function for which #pragma inline is specified.
		Yes(Auto-detect)(-Oinline_level=2)	Distinguishes the function that is the target of inline expansion automatically and expands it.
		Yes(Auto-detect without code size increase)(-Oinline_level=3)	Distinguishes the function that is the target of inline expansion automatically and expands it, while minimizing the increase in code size.
		No(-Oinline_level=0)	Suppresses all inline expansion including the function for which "#pragma inline" is specified.
Maximum increasing rate of inline expansion size	Specify the maximum increasing rate (%) of the code size up to which inline expansion is performed. (Example: When "100" is specified, inline expansion will be applied until the code size increases by 100% (becomes twice the initial size).) This corresponds to the -Oinline_size option of the ccrl command. This property is displayed only when [Yes(Auto-detect)(-Oinline=2)] in the [Perform inline expansion] property is selected, or when [Yes(To adjust the level of optimization)] in the [Perform inline expansion] property and [Speed precedence(-Ospeed)] in the [Optimization Level] property are selected.		
	Default	100	
	How to change	Directly enter in the text box.	
	Restriction	0 to 65535 (decimal number)	

Use br instruction to call a function at the end of the function	Select whether to give precedence to using br instructions in the place of call instructions when the function ends with a function call. This corresponds to the -Otail_call option of the ccrl command.		
	Default	Yes(To adjust the level of optimization)(None)	
	How to change	Select from the drop-down list.	
	Restriction	Yes(To adjust the level of optimization)(None)	Performs optimization according to the [Level of optimization] property.
		Yes(-Otail_call)	Gives precedence to using br instructions in the place of call instructions when the function ends with a function call. The code size can be reduced by removing the ret instruction. However, some debug functions cannot be used.
		No(-Otail_call=off)	Uses call instructions when the function ends with a function call.
Perform inter-module optimization	Specify the level of inter-module optimization (such as function merging). Only [Yes(Level 1)(Perform)(-Xintermodule)] and [No] are displayed when [No] in the [Build simultaneously] property in the [Build Method] category from the [Common Options] tab is selected. This corresponds to the -Owhole_program, -Omerge_files, and -Ointermodule options of the ccrl command.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(Level 3)(Perform with assuming it the whole program)(-Owhole_program)	Performs inter-module optimization assuming that the source files comprise the entire program. However, operation is not guaranteed if the preconditions are not met. See "CC-RL Compiler User's Manual" for details about the preconditions.
		Yes(Level 2)(Perform with merging files)(-Omerge_files, -Ointermodule)	Merges two or more C source files and performs inter-module optimization. This item is displayed only when two or more source files are added to the project.
		Yes(Level 1)(Perform)(-Ointermodule)	Performs inter-module optimization for each file.
		No	Does not perform inter-module optimization.

Perform optimization considering type of data indicated by pointer	Select whether to perform optimization with consideration for the type of the data indicated by the pointer, based on the ANSI standard. This corresponds to the -Oalias option of the ccrl command.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-Oalias=ansi)	Performs optimization with consideration for the type of the data indicated by the pointer. In general, this option improves the object performance, but the execution result may differ from the case when [No] is selected.
		No	Does not perform optimization with consideration for the type of the data indicated by the pointer.
Create subroutine for same instruction sequence	Select whether to create a subroutine for the same instruction sequence. This corresponds to the -Osame_code option of the ccrl command. This property is displayed in the following cases. - When [Always latest version which was installed] in the [Using compiler package version] property in the [Version Select] category from the [Common Options] tab is selected and the latest version is V1.02.00 or higher or when V1.02.00 or higher is selected in the [Using compiler package version] property - When [Perform the default optimization(None)], [Code size precedence(-Osize)] or [Speed precedence(-Ospeed)] in the [Level of optimization] property is selected		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-Osame_code)	Creates a subroutine for the same instruction sequence.
		No	Does not create a subroutine for the same instruction sequence.
Outputs additional information for inter-module optimization	Select whether to output additional information for inter-module optimization. At linkage, inter-module optimization is applied to files for which this option has been specified. This corresponds to the -goptimize option of the ccrl command.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-goptimize)	Outputs additional information for inter-module optimization.
		No	Does not outputs additional information for inter-module optimization.

(4) [Preprocess]
The detailed information on preprocessing is displayed and the configuration can be changed.

<table>
<tr><td>Additional include paths</td><td colspan="2">Specify the additional include paths during compiling.
The following placeholders are supported.
%ActiveProjectDir%: Replaces with the absolute path of the active project folder.
%ActiveProjectName%: Replaces with the active project name.
%BuildModeName%: Replaces with the build mode name.
%MainProjectDir%: Replaces with the absolute path of the main project folder.
%MainProjectName%: Replaces with the main project name.
%MicomToolPath%: Replaces with the absolute path of the install folder of this product.
%ProjectDir%: Replaces with the absolute path of the project folder.
%ProjectName%: Replaces with the project name.
%TempDir%: Replaces with the absolute path of the temporary folder.
%WinDir%: Replaces with the absolute path of the Windows system folder.
The specified include path is searched with higher priority than the standard include file folder of CC-RL.
The reference point of the path is the project folder.
When this property is omitted, only the standard folder of CC-RL is searched.
This corresponds to the -I option of the ccrl command.
The specified include path is displayed as the subproperty.
When the include path is added to the project tree, the path is added to the top of the subproperties.
Uppercase characters and lowercase characters are not distinguished for the include paths.</td></tr>
<tr><td></td><td>Default</td><td>Additional include paths[number of defined items]</td></tr>
<tr><td></td><td>How to change</td><td>Edit by the Path Edit dialog box which appears when clicking the [...] button.
For the subproperty, you can enter directly in the text box.</td></tr>
<tr><td></td><td>Restriction</td><td>Up to 247 characters
Up to 256 items can be specified.</td></tr>
<tr><td>System include paths</td><td colspan="2">Change the specified order of the include paths which the system set during compiling.
The following placeholders are supported.
%ActiveProjectDir%: Replaces with the absolute path of the active project folder.
%ActiveProjectName%: Replaces with the active project name.
%BuildModeName%: Replaces with the build mode name.
%MainProjectDir%: Replaces with the absolute path of the main project folder.
%MainProjectName%: Replaces with the main project name.
%MicomToolPath%: Replaces with the absolute path of the install folder of this product.
%ProjectDir%: Replaces with the absolute path of the project folder.
%ProjectName%: Replaces with the project name.
%TempDir%: Replaces with the absolute path of the temporary folder.
%WinDir%: Replaces with the absolute path of the Windows system folder.
The system include path is searched with lower priority than the additional include path.
The reference point of the path is the project folder.
This corresponds to the -I option of the ccrl command.
The include path is displayed as the subproperty.</td></tr>
<tr><td></td><td>Default</td><td>System include paths[number of defined items]</td></tr>
<tr><td></td><td>How to change</td><td>Edit by the System Include Path Order dialog box which appears when clicking the [...] button.</td></tr>
<tr><td></td><td>Restriction</td><td>Changes not allowed (Only the specified order of the include paths can be changed.)</td></tr>
</table>

<table>
<tr><td>Include files at head of compiling units</td><td colspan="2">Specify the file that is included at the top of the compilation unit.
The following placeholders are supported.
%ActiveProjectDir%: Replaces with the absolute path of the active project folder.
%ActiveProjectName%: Replaces with the active project name.
%BuildModeName%: Replaces with the build mode name.
%MainProjectDir%: Replaces with the absolute path of the main project folder.
%MainProjectName%: Replaces with the main project name.
%MicomToolPath%: Replaces with the absolute path of the install folder of this product.
%ProjectDir%: Replaces with the absolute path of the project folder.
%ProjectName%: Replaces with the project name.
%TempDir%: Replaces with the absolute path of the temporary folder.
%WinDir%: Replaces with the absolute path of the Windows system folder.
The reference point of the path is the project folder.
This corresponds to the -preinclude option of the ccrl command.
The specified include file name is displayed as the subproperty.</td></tr>
<tr><td></td><td>Default</td><td>Include files at head of compiling units[number of defined items]</td></tr>
<tr><td></td><td>How to change</td><td>Edit by the Text Edit dialog box which appears when clicking the [...] button.
For the subproperty, you can enter directly in the text box.</td></tr>
<tr><td></td><td>Restriction</td><td>Up to 247 characters
Up to 256 items can be specified.</td></tr>
<tr><td>Macro definition</td><td colspan="2">Specify the name of the macro to be defined.
Specify in the format of "macro name=defined value", with one macro name per line.
The "=defined value" part can be omitted, and in this case, "1" is used as the defined value.
This corresponds to the -D option of the ccrl command.
The specified macro is displayed as the subproperty.</td></tr>
<tr><td></td><td>Default</td><td>Macro definition[number of defined items]</td></tr>
<tr><td></td><td>How to change</td><td>Edit by the Text Edit dialog box which appears when clicking the [...] button.
For the subproperty, you can enter directly in the text box.</td></tr>
<tr><td></td><td>Restriction</td><td>Up to 256 characters
Up to 256 items can be specified.</td></tr>
<tr><td>Macro undefinition</td><td colspan="2">Specify the macro name to be undefined.
Specify in the format of "macro name", with one macro name per line.
This corresponds to the -U option of the ccrl command.
The specified macro is displayed as the subproperty.</td></tr>
<tr><td></td><td>Default</td><td>Macro undefinition[number of defined items]</td></tr>
<tr><td></td><td>How to change</td><td>Edit by the Text Edit dialog box which appears when clicking the [...] button.
For the subproperty, you can enter directly in the text box.</td></tr>
<tr><td></td><td>Restriction</td><td>Up to 256 characters
Up to 256 items can be specified.</td></tr>
</table>

Output C source comments to preprocessed file	Select whether to output the comments of the C source to the preprocessed file. This corresponds to the -preprocess option of the ccrl command. This property is displayed only when [Yes(-P)] in the [Output preprocessed source file] property in the [Output File] category is selected.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-preprocess=comment)	Outputs the comments of the C source to the preprocessed file.
		No	Does not output the comments of the C source to the preprocessed file.
Output line number information to preprocessed file	Select whether to output the line number information of the C source to the preprocessed file. This corresponds to the -preprocess option of the ccrl command. This property is displayed only when [Yes(-P)] in the [Output preprocessed source file] property in the [Output File] category is selected.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-preprocess=line)	Outputs the line number information of the C source to the preprocessed file.
		No	Does not output the line number information of the C source to the preprocessed file.

(5) [Quality Improvement]
The detailed information on the quality improvement is displayed and the configuration can be changed.

Detect stack overflow	Select whether to detect the stack overflow. This property is usable only in the Professional Edition. Detection of stack overflow is a feature for writing a value outside the valid stack area before entering a function and checking whether that value is rewritten before exiting the function. Upon detection, the user-defined __stack_chk_fail() function is called. See "CC-RL Compiler User's Manual" about the difference between [Yes(-stack_protector)] and [Yes(All)(-stack_protector_all)]. This corresponds to the -stack_protector and -stack_protector_all options of the ccrl command. This property is displayed when [Always latest version which was installed] in the [Using compiler package version] property in the [Version Select] category from the [Common Options] tab is selected and the latest version is V1.02.00 or higher or when V1.02.00 or higher is selected in the [Using compiler package version] property.		
	Default	No(None)	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-stack_protector)	Detects the stack overflow.
		Yes(All)(-stack_protector_all)	Detects the stack overflow for all functions.
		No(None)	Does not detect the stack overflow.

Value to be embedded for detecting stack overflow	Specify the value to be embedded for detecting the stack overflow. This property is usable only in the Professional Edition. This corresponds to the -stack_protector and -stack_protector_all options of the ccrl command. This property is displayed in the following cases. - When [Always latest version which was installed] in the [Using compiler package version] property in the [Version Select] category from the [Common Options] tab is selected and the latest version is V1.02.00 or higher or when V1.02.00 or higher is selected in the [Using compiler package version] property - When other than [No(None)] in the [Detect stack overflow] property is selected	
	Default	Blank
	How to change	Directly enter in the text box.
	Restriction	0 to 65535 (decimal number)

(6) [Memory Model]
The detailed information on the memory model is displayed and the configuration can be changed.

Memory model	Specify the type of memory model. This corresponds to the -memory_model option of the ccrl command.		
	Default	Auto(None)	
	How to change	Select from the drop-down list.	
	Restriction	Auto(None)	Automatically interprets the value of the [Specify CPU core] property in the [CPU] category in the [Common Options] tab (small when -cpu=S1 is selected, medium when -cpu=S2 or -cpu=S3 is selected).
		Small model(-memory_model=small)	Specifies the small model(Code 64 K bytes/Data 64 K bytes) as the memory model.
		Medium model(-memory_model=medium)	Specifies the medium model(Code 1 M bytes/Data 64 K bytes) as the memory model.
Locate ROM data to far area	Specify the allocation destination of ROM data. This corresponds to the -far_rom option of the ccrl command.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	No	Allocates ROM data depending on the value of the [Memory Model] property.
		Yes(-far_rom)	Allocates ROM data to the far area.

(7) [C Language]
The detailed information on C language is displayed and the configuration can be changed.

Compile strictly according to ANSI standards	Select whether to process as making C source program comply strictly with the ANSI standard and output an error or warning for a specification that violates the standard. This corresponds to the -ansi option of the ccrl command.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-ansi)	Processes as making C source program comply strictly with the ANSI standard and outputs an error or warning for a specification that violates the standard.
		No	Compatibility with the conventional C language specifications is conferred and processing continues after warning is output.
Check function without prototype declaration	Select whether to generate an error when using a function whose prototype declaration was not made in advance or a function without a prototype declaration. This corresponds to the -refs_without_declaration option of the ccrl command.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-refs_without_declaration)	Checks functions without prototype declarations.
		No	Does not check functions without prototype declarations.
Set 0xffff bytes to maximum variable size	Select whether to increase the maximum variable size from 0x7fff to 0xffff. This corresponds to the -large_variable option of the ccrl command.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-large_variable)	Increases the maximum variable size.
		No	Does not increase the maximum variable size.
Allow nested comments	Select whether to allow the nest use of comments ("/* ... */"). This corresponds to the -nest_comment option of the ccrl command.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-nest_comment)	Allows the nest use of comments.
		No	Does not allow the nest use of comments.

(8) [Character Encoding]
The detailed information on character encoding is displayed and the configuration can be changed.

Character encoding	Select the character code to be used for Japanese/Chinese comments and character strings in the source file. This corresponds to the -character_set option of the ccrl command.		
	Default	Auto(None)	
	How to change	Select from the drop-down list.	
	Restriction	Auto(None)	Interprets the Japanese character code in the source file as SJIS on Japanese OS. On other than Japanese OS, does not interpret the character code in the source file.
		SJIS(-character_set=sjis)	Interprets the Japanese character code in the source file as SJIS.
		EUC(-character_set=euc_jp)	Interprets the Japanese character code in the source file as EUC.
		UTF-8(-character_set=utf8)	Interprets the Japanese character code in the source file as UTF-8.
		Big5(-character_set=big5)	Interprets the Chinese character code in the source file as Traditional Chinese.
		GBK(-character_set=gbk)	Interprets the Chinese character code in the source file as Simplified Chinese.
		No-process(-character_set=none)	Does not interpret the Japanese/Chinese character code in the source file.

(9) [Output Code]
The detailed information on output codes is displayed and the configuration can be changed.

Process double type / long double type as float type	Select whether to handle the double or long double type as the float type. This corresponds to the -dbl_size option of the ccrl command.		
	Default	Yes	
	How to change	Select from the drop-down list.	
	Restriction	Yes	Processes the double or long double type as the float type.
		No(-dbl_size=8)	Does not process the double or long double type as the float type.
Sign of the char type	Select sign of the char type with no sign specification. This corresponds to the -signed_char option of the ccrl command.		
	Default	Handles as unsigned char(None)	
	How to change	Select from the drop-down list.	
	Restriction	Handles as signed char(-signed_char)	Handles the char type as signed char.
		Handles as unsigned char(None)	Handles the char type as unsigned char.

Sign of the bit-field type	Select sign of the bit-field type with no sign specification. This corresponds to the -signed_bitfield option of the ccrl command.		
	Default	Handles as unsigned(None)	
	How to change	Select from the drop-down list.	
	Restriction	Handles as signed(-signed_bitfield)	Handles the bit-field type as signed.
		Handles as unsigned(None)	Handles the bit-field type as unsigned.
Structure packing	Select whether to perform structure packing. This corresponds to the -pack option of the ccrl command. This property is displayed when [Always latest version which was installed] in the [Using compiler package version] property in the [Version Select] category from the [Common Options] tab is selected and the latest version is V1.01.00 or higher or when V1.01.00 or higher is selected in the [Using compiler package version] property.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-pack)	Performs alignment of members in a structure in 1-byte units instead of performing alignment according to the member type.
		No	Performs alignment of members in a structure according to the member type.
Handle external variables as if they are volatile qualified	Select whether to handle all external variables and variables specified with #pragma address as if they are volatile qualified. This corresponds to the -volatile option of the ccrl command.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-volatile)	Handles all external variables and variables specified with #pragma address as if they are volatile qualified.
		No	Optimizes external variables that are not volatile qualified.

Output code of switch statement	Select the code output mode for switch statements in programs. This corresponds to the -switch option of the ccrl command.		
	Default	Auto(None)	
	How to change	Select from the drop-down list.	
	Restriction	Auto(None)	The ccrl selects the optimum output format.
		if-else(-switch=ifelse)	Outputs the switch statements in the same format as the if-else statement along a string of case statements in programs. Select this item if the case statements are written in the order of frequency or if only a few labels are used. Because the case statements are compared starting from the top, unnecessary comparison can be reduced and the execution speed can be increased if the case statement that most often matches is written first.
		Binary search(-switch=binary)	Outputs the code in the binary search format for switch statements in programs. Searches for a matching case statement by using a binary search algorithm. If this item is selected when many labels are used, any case statement can be found at almost the same speed.
		Table jump(absolute)(-switch=abs_table)	Outputs the code in the table jump format (absolute branch) for switch statements in programs. References a table indexed on the values in the case statements, and selects and processes case labels from the switch statement values. The code will branch to all the case statements with about the same speed. However, if case values are not used in succession, an unnecessary area will be created.
		Table jump(relative)(-switch=rel_table)	Outputs the code in the table jump format (relative branch) for switch statements in programs. References a table indexed on the values in the case statements, and selects and processes case labels from the switch statement values. The code will branch to all the case statements with about the same speed. However, if case values are not used in succession, an unnecessary area will be created.

Output comment to assembly source file	Select whether to output a C source program as a comment to the assembly source file to be output. This corresponds to the -pass_source option of the ccrl command. This property is displayed only when [Yes(-asm_path)] in the [Output assembly source file] property in the [Output File] category is selected or when [Yes(-asmopt=-prn_path)] in the [Output assemble list file] property in the [Assemble List] category is selected.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-pass_source)	Outputs a C source program as a comment to the assembly source file.
		No	Does not output a C source program as a comment to the assembly source file.
Merge string literals	When the same string literals exist in the source file, specify whether to merge them and allocate to the one area. This corresponds to the -merge_string option of the ccrl command.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-merge_string)	Merges the same string literals exist in the source file and allocates to the one area.
		No	Each allocates the same string literals exist in the source file to separate areas.

(10) [Output File]
The detailed information on output files is displayed and the configuration can be changed.

Output assembly source file	Select whether to output the assembly source file of the compile result for the C source. This corresponds to the -asm_path option of the ccrl command.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-asm_path)	Outputs the assembly source file of the compile result for the C source.
		No	Does not output the assembly source file of the compile result for the C source.

Output folder for assembly source file	Specify the folder which the assembly source file is output. If a relative path is specified, the reference point of the path is the main project or sub-project folder. If an absolute path is specified, the reference point of the path is the main project or subproject folder (unless the drives are different). The following placeholder is supported. %BuildModeName%: Replaces with the build mode name. The assembly source file is saved under the C source file name with the extension replaced by ".asm". If this is blank, it is assumed that the project folder has been specified. This corresponds to the -asm_path option of the ccrl command. This property is displayed only when [Yes(-asm_path)] in the [Output assembly source file] property is selected.		
	Default	%BuildModeName%	
	How to change	Directly enter in the text box or edit by the Browse For Folder dialog box which appears when clicking the [...] button.	
	Restriction	Up to 247 characters	
Output preprocessed source file	Select whether to output the execution result of preprocessing for the source file to a file. This corresponds to the -P option of the ccrl command.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-P)	Outputs the execution result of preprocessing for the source file to a file.
		No	Does not output the execution result of preprocessing for the source file to a file.
Output folder for preprocessed source file	Specify the folder which the preprocessed source file is output. The file is output under the source file name with the extension replaced by ".i". If a relative path is specified, the reference point of the path is the main project or sub-project folder. If an absolute path is specified, the reference point of the path is the main project or subproject folder (unless the drives are different). The following placeholder is supported. %BuildModeName%: Replaces with the build mode name. If this is blank, it is assumed that the project folder has been specified. This corresponds to the -prep_path option of the ccrl command. This property is displayed only when [Yes(-P)] in the [Output preprocessed source file] property is selected.		
	Default	%BuildModeName%	
	How to change	Directly enter in the text box or edit by the Browse For Folder dialog box which appears when clicking the [...] button.	
	Restriction	Up to 247 characters	

(11) [Assemble List]
The detailed information on the assemble list is displayed and the configuration can be changed.

Output assemble list file	Select whether to output the assemble list file. This corresponds to the -asmopt=-prn_path option of the ccrl command.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-asmopt=-prn_path)	Outputs the assemble list file.
		No	Does not output the assemble list file.
Output folder for assemble list file	Specify the folder which the assemble list file is output. The assemble list file is output under the source file name with the extension replaced by ".prn". If a relative path is specified, the reference point of the path is the main project or subproject folder. If an absolute path is specified, the reference point of the path is the main project or subproject folder (unless the drives are different). The following placeholder is supported. %BuildModeName%: Replaces with the build mode name. If this is blank, it is assumed that the project folder has been specified. This corresponds to the -asmopt=-prn_path option of the ccrl command. This property is displayed only when [Yes(-asmopt=-prn_path)] in the [Output assemble list file] property is selected.		
	Default	%BuildModeName%	
	How to change	Directly enter in the text box or edit by the Browse For Folder dialog box which appears when clicking the [...] button.	
	Restriction	Up to 247 characters	

(12) [MISRA-C Rule Check]
The detailed information on the MISRA-C rule check are displayed and the configuration can be changed.
20*XX* in the following table corresponds to 2012 or 2004 in particular.

MISRA-C specification	Select the MISRA-C specification. This property is usable only in the Professional Edition. This property is displayed when [Always latest version which was installed] in the [Using compiler package version] property in the [Version Select] category from the [Common Options] tab is selected and the latest version is V1.02.00 or higher or when V1.02.00 or higher is selected in the [Using compiler package version] property.		
	Default	MISRA-C 2012	
	How to change	Select from the drop-down list.	
	Restriction	MISRA-C 2012	Settings for MISRA-C 2012 are made in the subsequent properties.
		MISRA-C 2004	Settings for MISRA-C 2004 are made in the subsequent properties.

Apply rule	Select the MISRA-C rules to be applied. This property is usable only in the Professional Edition. This corresponds to the -misra20*XX* option of the ccrl command.		
	Default	Not apply rule(None)	
	How to change	Select from the drop-down list.	
	Restriction	Apply all rules(-misra20*XX*=all)	Checks the source code against all of the rules which are supported.
		Apply specified rule number(-misra20*XX*=apply)	Checks the source code against the rules with the specified numbers among the rules which are supported.
		Ignore specified rule number(-misra20*XX*=ignore)	Checks the source code against the rules that do not match the specified numbers among the rules which are supported.
		Apply rules that are classified as "required"(-misra20*XX*=required)	Checks the source code against the rules of the "required" type.
		Apply rules that are classified as "required" and specified rule number(-misra20*XX*=required_add)	Checks the source code against the rules of the "required" type and the rules with the specified numbers among the rules which are supported.
		Ignore specified rule number from rules that are classified as "required"(-misra20*XX*=required_remove)	Checks the source code against the rules of the "required" type except for the rules with the specified numbers among the rules which are supported.
		Apply rules that are described in the specified file(-misra20*XX*=<file name>)	Checks the source code against the rules with the numbers described in specified file among the rules which are supported.
		Not apply rule(None)	Does not apply the MISRA-C rules.
Rule number description file	Specify the rule number description file (MISRA-C rule file). This property is usable only in the Professional Edition. The following placeholders are supported. %BuildModeName%: Replaces with the build mode name. %MicomToolPath%: Replaces with the absolute path of the install folder of this product. %ProjectName%: Replaces with the project name. This corresponds to the -misra20*XX* option of the ccrl command. This property is displayed only when [Apply rules that are described in the specified file(-misra20*XX*=<file name>)] in the [Apply rule] property is selected.		
	Default	Blank	
	How to change	Directly enter in the text box or edit by the Specify MISRA-C Rule File dialog box which appears when clicking the [...] button.	
	Restriction	Up to 259 characters	

Rule number	Specify the rule number to be checked. This property is usable only in the Professional Edition. Specify at least one rule number in decimal. This corresponds to the -misra20*XX* option of the ccrl command. This property is displayed only when [Apply specified rule number(-misra20*XX*=apply)] in the [Apply rule] property is selected.	
	Default	Blank
	How to change	Directly enter in the text box or edit by the Specify Rule Number dialog box which appears when clicking the [...] button.
	Restriction	Up to 259 characters
Exclusion rule number	Specify the rule number to be excluded from the check. This property is usable only in the Professional Edition. Specify at least one rule number in decimal. This corresponds to the -misra20*XX* option of the ccrl command. This property is displayed only when [Ignore specified rule number(-misra20*XX*=ignore)] in the [Apply rule] property is selected.	
	Default	Blank
	How to change	Directly enter in the text box or edit by the Specify Rule Number dialog box which appears when clicking the [...] button.
	Restriction	Up to 259 characters
Check rule number besides required rule	Specify the rule number to be checked besides the required rules. This property is usable only in the Professional Edition. Specify at least one rule number in decimal. This corresponds to the -misra20*XX* option of the ccrl command. This property is displayed only when [Apply rules that are classified as "required" and specified rule number(-misra20*XX*=required_add)] in the [Apply rule] property is selected.	
	Default	Blank
	How to change	Directly enter in the text box or edit by the Specify Rule Number dialog box which appears when clicking the [...] button.
	Restriction	Up to 259 characters
Exclusion rule number from required rule	Specify the required rule number to be excluded from the check. This property is usable only in the Professional Edition. Specify at least one rule number in decimal. This corresponds to the -misra20*XX* option of the ccrl command. This property is displayed only when [Ignore specified rule number from rules that are classified as "required"(-misra20*XX*=required_remove)] in the [Apply rule] property is selected.	
	Default	Blank
	How to change	Directly enter in the text box or edit by the Specify Rule Number dialog box which appears when clicking the [...] button.
	Restriction	Up to 259 characters

<table>
<tr><td>Rule check exclusion file</td><td colspan="2">Specify files that will not be checked against the MISRA-C rules.
This property is usable only in the Professional Edition.
The following placeholders are supported.
%BuildModeName%: Replaces with the build mode name.
%MicomToolPath%: Replaces with the absolute path of the install folder of this product.
%ProjectName%: Replaces with the project name.
This corresponds to the -ignore_files_misra option of the ccrl command.
This property is displayed only in the following cases.
- When [Apply all rules] is selected in the [Apply rule] property
- When [Apply rules that are classified as "required"] is selected in the [Apply rule] property
- When [Apply specified rule number] is selected in the [Apply rule] property and a rule number is specified in the [Rule number] property
- When [Ignore specified rule number] is selected in the [Apply rule] property and a rule number is specified in the [Rule number] property
- When [Apply rules that are classified as "required" and specified rule number] is selected in the [Apply rule] property and a rule number is specified in the [Check rule number besides required rule] property
- When [Ignore specified rule number from rules that are classified as "required"] is selected in the [Apply rule] property and a rule number is specified in the [Exclusion rule number from required rule] property
- When [Apply rules that are described in the specified file] is selected in the [Apply rule] property and a rule number description file is specified in the [Rule number description file] property</td></tr>
<tr><td></td><td>Default</td><td>Rule check exclusion file[number of defined items]</td></tr>
<tr><td></td><td>How to change</td><td>Edit by the Path Edit dialog box which appears when clicking the [...] button.
-> Edit by the Add Excluding File dialog box which appears when clicking the [Browse...] button.
For the subproperty, you can enter directly in the text box.</td></tr>
<tr><td></td><td>Restriction</td><td>Up to 259 characters</td></tr>
</table>

<table>
<tr><td rowspan="5">Output message of the enhanced key word and extended specifications</td><td colspan="3">Select whether to output the message of the enhanced key word and extended specifications.
This property is usable only in the Professional Edition.
This corresponds to the -check_language_extention option of the ccrl command.
This property is displayed only in the following cases.
- When [Apply all rules] is selected in the [Apply rule] property
- When [Apply rules that are classified as "required"] is selected in the [Apply rule] property
- When [Apply specified rule number] is selected in the [Apply rule] property and a rule number is specified in the [Rule number] property
- When [Ignore specified rule number] is selected in the [Apply rule] property and a rule number is specified in the [Rule number] property
- When [Apply rules that are classified as "required" and specified rule number] is selected in the [Apply rule] property and a rule number is specified in the [Check rule number besides required rule] property
- When [Ignore specified rule number from rules that are classified as "required"] is selected in the [Apply rule] property and a rule number is specified in the [Exclusion rule number from required rule] property
- When [Apply rules that are described in the specified file] is selected in the [Apply rule] property and a rule number description file is specified in the [Rule number description file] property</td></tr>
<tr><td>Default</td><td colspan="2">No</td></tr>
<tr><td>How to change</td><td colspan="2">Select from the drop-down list.</td></tr>
<tr><td rowspan="2">Restriction</td><td>Yes(-check_language_extension)</td><td>Enables MISRA-C rule check and outputs messages when the rule check is partially suppressed by the unique language specifications extended from the C language standard.</td></tr>
<tr><td>No</td><td>Disables MISRA-C rule check is disabled, which are partially suppressed by the extended language specifications.</td></tr>
</table>

(13) [Others]
Other detailed information on compilation is displayed and the configuration can be changed.

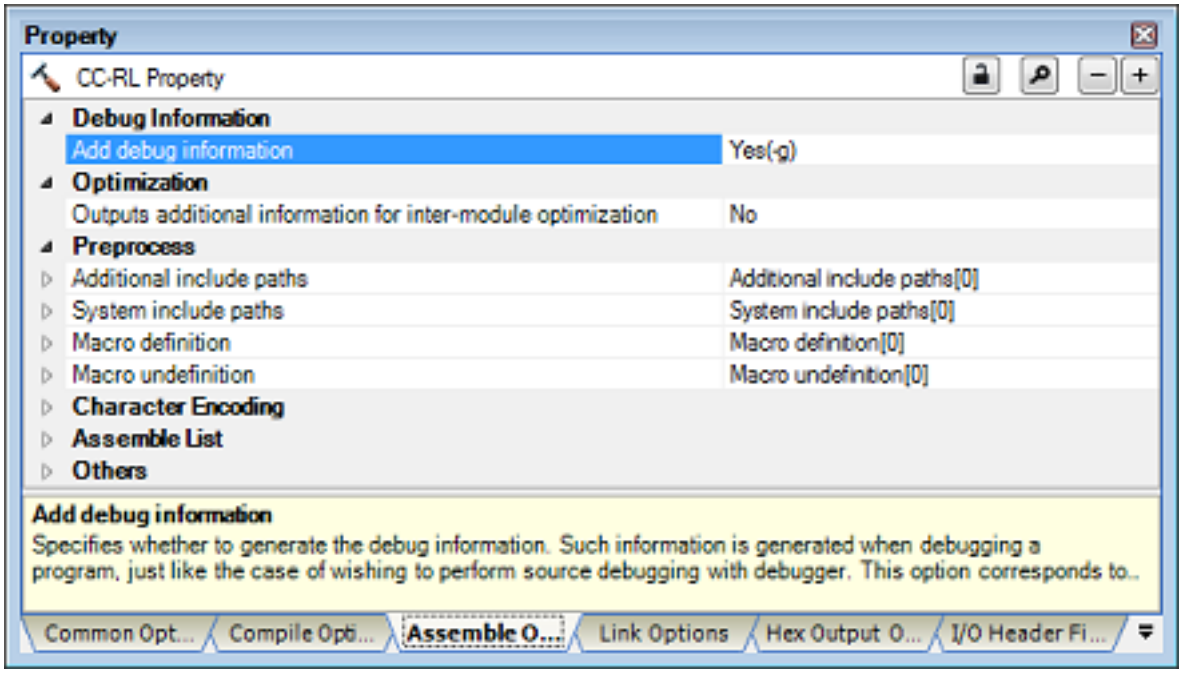
<table>
<tr><td>Use support for porting from other compiler</td><td colspan="3">Select whether to use support for porting from other compilers.
This corresponds to the -convert_cc option of the ccrl command.
This property is displayed when [Always latest version which was installed] in the [Using compiler package version] property in the [Version Select] category from the [Common Options] tab is selected and the latest version is V1.01.00 or higher or when V1.01.00 or higher is selected in the [Using compiler package version] property.</td></tr>
<tr><td></td><td>Default</td><td colspan="2">No(None)</td></tr>
<tr><td></td><td>How to change</td><td colspan="2">Select from the drop-down list.</td></tr>
<tr><td></td><td rowspan="4">Restriction</td><td>Yes(CA78K0R)(-convert_cc=ca78k0r)</td><td>Uses support for porting from the CA78K0R compiler.</td></tr>
<tr><td></td><td>Yes(NC30)(-convert_cc=nc30)</td><td>Uses support for porting from the NC30 compiler.</td></tr>
<tr><td></td><td>Yes(IAR)(-convert_cc=iar)</td><td>Uses support for porting from the IAR compiler.</td></tr>
<tr><td></td><td>No(None)</td><td>Uses support for porting from other compiler.</td></tr>
<tr><td>Commands executed before compile processing</td><td colspan="3">Specify the command to be executed before compile processing.
Use the call instruction to specify a batch file (example: call a.bat).
The following placeholders are supported.
%ActiveProjectDir%: Replaces with the absolute path of the active project folder.
%ActiveProjectName%: Replaces with the active project name.
%BuildModeName%: Replaces with the build mode name.
%CompiledFile%: Replaces with the absolute path of the output file under compiling.
%InputFile%: Replaces with the absolute path of the file to be compiled.
%MainProjectDir%: Replaces with the absolute path of the main project folder.
%MainProjectName%: Replaces with the main project name.
%MicomToolPath%: Replaces with the absolute path of the install folder of this product.
%Options%: Replaces with the command line option under build execution.
%OutputDir%: Replaces with the absolute path of the output folder.
%OutputFile%: Replaces with the absolute path of the output file.
%Program%: Replaces with the program name under execution.
%ProjectDir%: Replaces with the absolute path of the project folder.
%ProjectName%: Replaces with the project name.
%TempDir%: Replaces with the absolute path of the temporary folder.
%WinDir%: Replaces with the absolute path of the Windows system folder.
When "#!python" is described in the first line, the contents from the second line to the last line are regarded as the script of the Python console, and then executed before compile processing.
The placeholders can be described in the script.
The specified command is displayed as the subproperty.</td></tr>
<tr><td></td><td>Default</td><td colspan="2">Commands executed before compile processing[number of defined items]</td></tr>
<tr><td></td><td>How to change</td><td colspan="2">Edit by the Text Edit dialog box which appears when clicking the [...] button.
For the subproperty, you can enter directly in the text box.</td></tr>
<tr><td></td><td>Restriction</td><td colspan="2">Up to 1023 characters
Up to 64 items can be specified.</td></tr>
</table>

<table>
<tr><td rowspan="4">Commands executed after compile processing</td><td colspan="2">Specify the command to be executed after compile processing.
Use the call instruction to specify a batch file (example: call a.bat).
The following placeholders are supported.
%ActiveProjectDir%: Replaces with the absolute path of the active project folder.
%ActiveProjectName%: Replaces with the active project name.
%BuildModeName%: Replaces with the build mode name.
%CompiledFile%: Replaces with the absolute path of the output file under compiling.
%InputFile%: Replaces with the absolute path of the file to be compiled.
%MainProjectDir%: Replaces with the absolute path of the main project folder.
%MainProjectName%: Replaces with the main project name.
%MicomToolPath%: Replaces with the absolute path of the install folder of this product.
%Options%: Replaces with the command line option under build execution.
%OutputDir%: Replaces with the absolute path of the output folder.
%OutputFile%: Replaces with the absolute path of the output file.
%Program%: Replaces with the program name under execution.
%ProjectDir%: Replaces with the absolute path of the project folder.
%ProjectName%: Replaces with the project name.
%TempDir%: Replaces with the absolute path of the temporary folder.
%WinDir%: Replaces with the absolute path of the Windows system folder.
When "#!python" is described in the first line, the contents from the second line to the last line are regarded as the script of the Python console, and then executed after compile processing.
The placeholders can be described in the script.
The specified command is displayed as the subproperty.</td></tr>
<tr><td>Default</td><td>Commands executed after compile processing[number of defined items]</td></tr>
<tr><td>How to change</td><td>Edit by the Text Edit dialog box which appears when clicking the [...] button.
For the subproperty, you can enter directly in the text box.</td></tr>
<tr><td>Restriction</td><td>Up to 1023 characters
Up to 64 items can be specified.</td></tr>
<tr><td rowspan="4">Other additional options</td><td colspan="2">Input the compile option to be added additionally.
The options set here are added at the end of the compile options group.</td></tr>
<tr><td>Default</td><td>Blank</td></tr>
<tr><td>How to change</td><td>Directly enter in the text box or edit by the Character String Input dialog box which appears when clicking the [...] button.</td></tr>
<tr><td>Restriction</td><td>Up to 259 characters</td></tr>
</table>

[Assemble Options] tab

This tab shows the detailed information on the assemble phase categorized by the following and the configuration can be changed.

Figure A.4 Property Panel: [Assemble Options] Tab



[Description of each category]

(1) [Debug Information]
The detailed information on debug information is displayed and the configuration can be changed.

Add debug information	Select whether to generate the debug information. It is possible to perform source debugging with the debugger by outputting information for source debugging to the output file. This corresponds to the -g option of the ccrl command.		
	Default	Yes(-g)	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-g)	Generates the debug information.
		No	Does not generate the debug information.

(2) [Optimization]
The detailed information on the optimization is displayed and the configuration can be changed.

Outputs additional information for inter-module optimization	Select whether to output additional information for inter-module optimization. At linkage, inter-module optimization is applied to files for which this option has been specified. This corresponds to the -goptimize option of the ccrl command.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-goptimize)	Outputs additional information for inter-module optimization.
		No	Does not outputs additional information for inter-module optimization.

(3) [Preprocess]
The detailed information on preprocessing is displayed and the configuration can be changed.

Additional include paths	Specify the additional include paths during assembling. The following placeholders are supported. %ActiveProjectDir%: Replaces with the absolute path of the active project folder. %ActiveProjectName%: Replaces with the active project name. %BuildModeName%: Replaces with the build mode name. %MainProjectDir%: Replaces with the absolute path of the main project folder. %MainProjectName%: Replaces with the main project name. %MicomToolPath%: Replaces with the absolute path of the install folder of this product. %ProjectDir%: Replaces with the absolute path of the project folder. %ProjectName%: Replaces with the project name. %TempDir%: Replaces with the absolute path of the temporary folder. %WinDir%: Replaces with the absolute path of the Windows system folder. The specified include path is searched with higher priority than the standard include file folder of CC-RL. The reference point of the path is the project folder. When this property is omitted, only the standard folder of CC-RL is searched. This corresponds to the -I option of the ccrl command. The specified include path is displayed as the subproperty. When the include path is added to the project tree, the path is added to the top of the subproperties. Uppercase characters and lowercase characters are not distinguished for the include paths.	
	Default	Additional include paths[*number of defined items*]
	How to change	Edit by the Path Edit dialog box which appears when clicking the [...] button. For the subproperty, you can enter directly in the text box.
	Restriction	Up to 247 characters Up to 256 items can be specified.

System include paths	Change the specified order of the include paths which the system set during assembling. The following placeholders are supported. %ActiveProjectDir%: Replaces with the absolute path of the active project folder. %ActiveProjectName%: Replaces with the active project name. %BuildModeName%: Replaces with the build mode name. %MainProjectDir%: Replaces with the absolute path of the main project folder. %MainProjectName%: Replaces with the main project name. %MicomToolPath%: Replaces with the absolute path of the install folder of this product. %ProjectDir%: Replaces with the absolute path of the project folder. %ProjectName%: Replaces with the project name. %TempDir%: Replaces with the absolute path of the temporary folder. %WinDir%: Replaces with the absolute path of the Windows system folder. The system include path is searched with lower priority than the additional include path. The reference point of the path is the project folder. This corresponds to the -I option of the ccrl command. The include path is displayed as the subproperty.	
	Default	System include paths[*number of defined items*]
	How to change	Edit by the System Include Path Order dialog box which appears when clicking the [...] button.
	Restriction	Changes not allowed (Only the specified order of the include paths can be changed.)
Macro definition	Specify the name of the macro to be defined. Specify in the format of "*macro name*=*defined value*", with one macro name per line. The "=*defined value*" part can be omitted, and in this case, "1" is used as the defined value. This corresponds to the -asmopt=-define option of the ccrl command. The specified macro is displayed as the subproperty.	
	Default	Macro definition[*number of defined items*]
	How to change	Edit by the Text Edit dialog box which appears when clicking the [...] button. For the subproperty, you can enter directly in the text box.
	Restriction	Up to 256 characters Up to 256 items can be specified.
Macro undefinition	Specify the macro name to be undefined. Specify in the format of "*macro name*", with one macro name per line. This corresponds to the -asmopt=-undefine option of the ccrl command. The specified macro is displayed as the subproperty.	
	Default	Macro undefinition[*number of defined items*]
	How to change	Edit by the Text Edit dialog box which appears when clicking the [...] button. For the subproperty, you can enter directly in the text box.
	Restriction	Up to 256 characters Up to 256 items can be specified.

(4) [Character Encoding]
The detailed information on character encoding is displayed and the configuration can be changed.

Character encoding	Select the character code to be used for comments and character strings in the source file. This corresponds to the -character_set option of the ccrl command.		
	Default	Auto(None)	
	How to change	Select from the drop-down list.	
	Restriction	Auto(None)	Interprets the Japanese character code in the source file as SJIS on Japanese OS. On other than Japanese OS, does not interpret the character code in the source file.
		SJIS(-character_set=sjis)	Interprets the Japanese character code in the source file as SJIS.
		EUC(-character_set=euc_jp)	Interprets the Japanese character code in the source file as EUC.
		UTF-8(-character_set=utf8)	Interprets the Japanese character code in the source file as UTF-8.
		Big5(-character_set=big5)	Interprets the Chinese character code in the source file as Traditional Chinese.
		GB2312(-character_set=gbk)	Interprets the Chinese character code in the source file as Simplified Chinese.
		No-process(-character_set=none)	Does not interpret the Japanese/Chinese character code in the source file.
Format of numerical constant	Specify the representation format of the base number of numerical constants. example) Prefix format: 0xFFFF, Suffix format: FFFFH This corresponds to the -asmopt=-base_number option of the ccrl command.		
	Default	Prefix format(None)	
	How to change	Select from the drop-down list.	
	Restriction	Prefix format(None)	Handles numerical constants in the Prefix format.
		Suffix format(-asmopt=-base_number=suffix)	Handles numerical constants in the Suffix format.

(5) [Assemble List]
The detailed information on the assemble list is displayed and the configuration can be changed.

Output assemble list file	Select whether to output the assemble list file. This corresponds to the -asmopt=-prn_path option of the ccrl command.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-asmopt=-prn_path)	Outputs the assemble list file.
		No	Does not output the assemble list file.

Output folder for assemble list file	Specify the folder which the assemble list file is output. The assemble list file is output under the source file name with the extension replaced by ".prn". If a relative path is specified, the reference point of the path is the main project or sub-project folder. If an absolute path is specified, the reference point of the path is the main project or subproject folder (unless the drives are different). The following placeholder is supported. %BuildModeName%: Replaces with the build mode name. If this is blank, it is assumed that the project folder has been specified. This corresponds to the -asmopt=-prn_path option of the ccrl command. This property is displayed only when [Yes(-asmopt=-prn_path)] in the [Output assemble list file] property is selected.	
	Default	%BuildModeName%
	How to change	Directly enter in the text box or edit by the Browse For Folder dialog box which appears when clicking the [...] button.
	Restriction	Up to 247 characters

(6) [Others]
Other detailed information on assembly is displayed and the configuration can be changed.

Use support for porting from assembler of CA78K0R	Select whether to use support for porting from the CA78K0R assembler. This corresponds to the -asmopt=-convert_asm option of the ccrl command.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-asmopt=-convert_asm)	Uses support for porting from the CA78K0R assembler.
		No	Does not use support for porting from the CA78K0R assembler.

<table>
<tr><td rowspan="4">Commands executed before assemble processing</td><td colspan="2">Specify the command to be executed before assemble processing.
Use the call instruction to specify a batch file (example: call a.bat).
The following placeholders are supported.
%ActiveProjectDir%: Replaces with the absolute path of the active project folder.
%ActiveProjectName%: Replaces with the active project name.
%AssembledFile%: Replaces with the absolute path of the output file under assembling.
%BuildModeName%: Replaces with the build mode name.
%InputFile%: Replaces with the absolute path of the file to be assembled.
%MainProjectDir%: Replaces with the absolute path of the main project folder.
%MainProjectName%: Replaces with the main project name.
%MicomToolPath%: Replaces with the absolute path of the install folder of this product.
%Options%: Replaces with the command line option under build execution.
%OutputDir%: Replaces with the absolute path of the output folder.
%OutputFile%: Replaces with the absolute path of the output file.
%Program%: Replaces with the program name under execution.
%ProjectDir%: Replaces with the absolute path of the project folder.
%ProjectName%: Replaces with the project name.
%TempDir%: Replaces with the absolute path of the temporary folder.
%WinDir%: Replaces with the absolute path of the Windows system folder.
When "#!python" is described in the first line, the contents from the second line to the last line are regarded as the script of the Python console, and then executed before assemble processing.
The placeholders can be described in the script.
The specified command is displayed as the subproperty.</td></tr>
<tr><td>Default</td><td>Commands executed before assemble processing[number of defined items]</td></tr>
<tr><td>How to change</td><td>Edit by the Text Edit dialog box which appears when clicking the [...] button.
For the subproperty, you can enter directly in the text box.</td></tr>
<tr><td>Restriction</td><td>Up to 1023 characters
Up to 64 items can be specified.</td></tr>
</table>

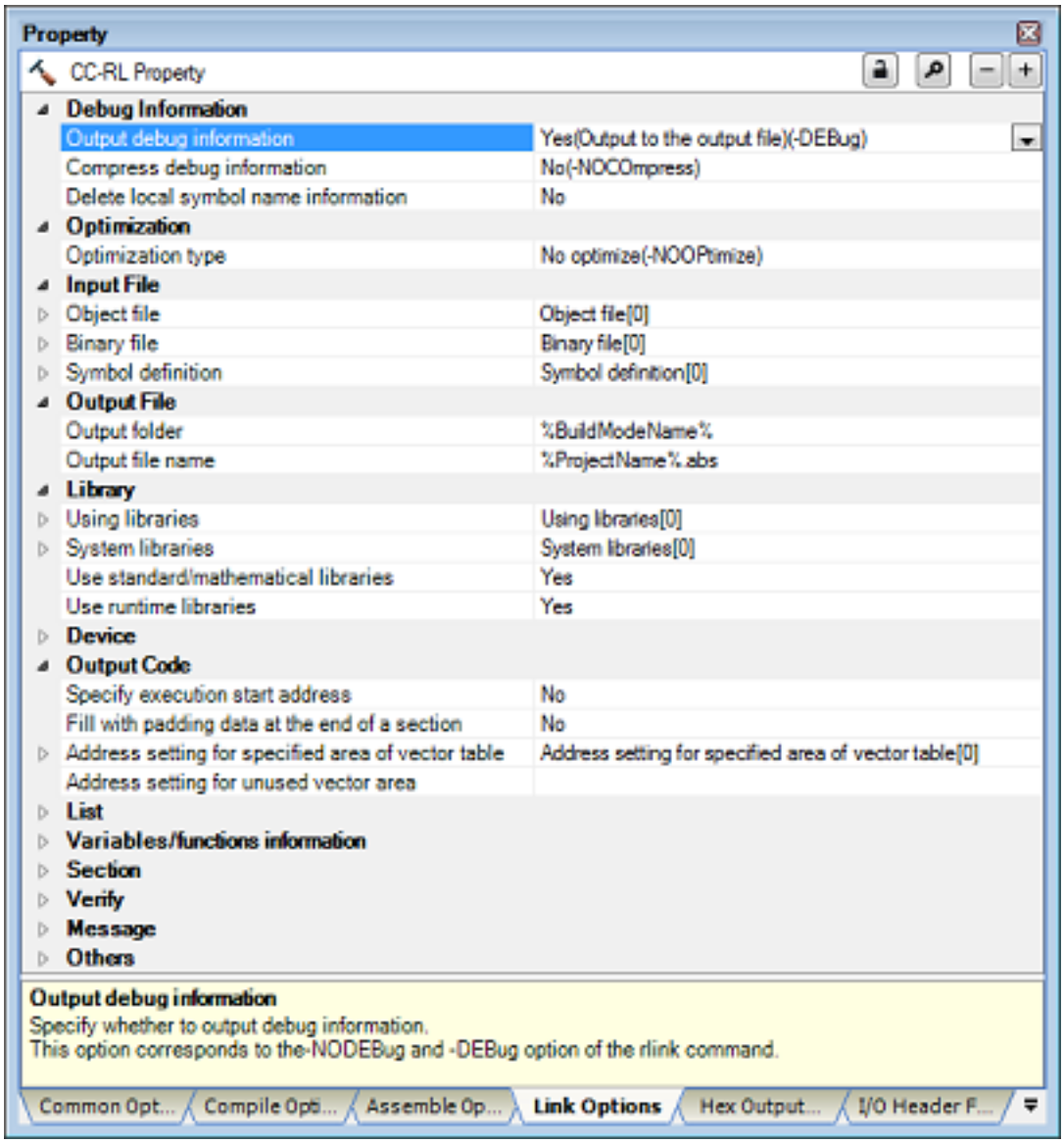
<table>
<tr><td rowspan="4">Commands executed after assemble processing</td><td colspan="2">Specify the command to be executed after assemble processing.
Use the call instruction to specify a batch file (example: call a.bat).
The following placeholders are supported.
%ActiveProjectDir%: Replaces with the absolute path of the active project folder.
%ActiveProjectName%: Replaces with the active project name.
%AssembledFile%: Replaces with the absolute path of the output file under assembling.
%BuildModeName%: Replaces with the build mode name.
%InputFile%: Replaces with the absolute path of the file to be assembled.
%MainProjectDir%: Replaces with the absolute path of the main project folder.
%MainProjectName%: Replaces with the main project name.
%MicomToolPath%: Replaces with the absolute path of the install folder of this product.
%Options%: Replaces with the command line option under build execution.
%OutputDir%: Replaces with the absolute path of the output folder.
%OutputFile%: Replaces with the absolute path of the output file.
%Program%: Replaces with the program name under execution.
%ProjectDir%: Replaces with the absolute path of the project folder.
%ProjectName%: Replaces with the project name.
%TempDir%: Replaces with the absolute path of the temporary folder.
%WinDir%: Replaces with the absolute path of the Windows system folder.
When "#!python" is described in the first line, the contents from the second line to the last line are regarded as the script of the Python console, and then executed after assemble processing.
The placeholders can be described in the script.
The specified command is displayed as the subproperty.</td></tr>
<tr><td>Default</td><td>Commands executed after assemble processing[number of defined items]</td></tr>
<tr><td>How to change</td><td>Edit by the Text Edit dialog box which appears when clicking the [...] button.
For the subproperty, you can enter directly in the text box.</td></tr>
<tr><td>Restriction</td><td>Up to 1023 characters
Up to 64 items can be specified.</td></tr>
<tr><td rowspan="4">Other additional options</td><td colspan="2">Input the assemble option to be added additionally.
The assembler is executed via ccrl.exe. Add -asmopt= as required.
The options set here are added at the end of the assemble options group.</td></tr>
<tr><td>Default</td><td>Blank</td></tr>
<tr><td>How to change</td><td>Directly enter in the text box or edit by the Character String Input dialog box which appears when clicking the [...] button.</td></tr>
<tr><td>Restriction</td><td>Up to 259 characters</td></tr>
</table>

[Link Options] tab

This tab shows the detailed information on the link phase categorized by the following and the configuration can be changed.

Caution This tab is not displayed for the library project.

Figure A.5 Property Panel: [Link Options] Tab



[Description of each category]

(1) [Debug Information]
The detailed information on debug information is displayed and the configuration can be changed.

Output debug information	Select whether to output debug information. This corresponds to the -DEBug and -NODEBug options of the rlink command.		
	Default	Yes(Output to the output file)(-DEBug)	
	How to change	Select from the drop-down list.	
	Restriction	Yes(Output to the output file)(-DEBug)	Outputs debug information.
		No(-NODEBug)	Does not output debug information.
Compress debug information	Select whether to compress debug information. This corresponds to the -COmpress and -NOCOmpress options of the rlink command. This property is displayed only when [Yes(Output to the output file)(-DEBug)] in the [Output debug information] property is selected.		
	Default	No(-NOCOmpress)	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-COmpress)	Compresses debug information. The loading speed of the debugger will be improved.
		No(-NOCOmpress)	Does not compress the debug information. The link time will be shortened.
Delete local symbol name information	Select whether to delete local symbol name information. This corresponds to the -Hide option of the rlink command.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-Hide)	Deletes information of the local symbol name.
		No	Does not delete information of the local symbol name.

(2) [Optimization]
The detailed information on the optimization is displayed and the configuration can be changed.

Optimization type	Select optimization type. Inter-module optimization is performed for modules to which -goptimize was added at compilation or assemble. This corresponds to the -NOOPtimize and -OPtimize option of the rlink command. [Speed-oriented optimization(-OPtimize=SPeed)] and [Safe optimization(-OPtimize=SAFe)] are displayed when [Always latest version which was installed] in the [Using compiler package version] property in the [Version Select] category from the [Common Options] tab is selected and the latest version is V1.02.00 or higher or when V1.02.00 or higher is selected in the [Using compiler package version] property.		
	Default	No optimize(-NOOPtimize)	
	How to change	Select from the drop-down list.	
	Restriction	No optimize(-NOOPtimize)	Does not execute optimization for a module.
		All(-OPtimize)	Provides all optimizations.
		Speed-oriented optimization(-OPtimize=SPeed)	Performs optimization with emphasis on execution speed.
		Safe optimization(-OPtimize=SAFe)	Performs safe optimization.
		Custom	Performs optimization for the specified options.
Deletes variables/ functions that are not referenced	Select whether to delete symbols that are not referenced. This corresponds to the -OPtimize=SYmbol_delete option of the rlink command. This property is displayed in the following cases. - When [Always latest version which was installed] in the [Using compiler package version] property in the [Version Select] category from the [Common Options] tab is selected and the latest version is V1.02.00 or higher or when V1.02.00 or higher is selected in the [Using compiler package version] property - When [Custom] in the [Optimization type] property is selected		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-OPtimize=SYmbol_delete)	Deletes symbols that are not referenced.
		No	Does not delete symbols that are not referenced.
Optimizes branch instruction size	Select whether to optimize the branch instruction size based on the program allocation information. This corresponds to the -OPtimize=Branch option of the rlink command. This property is displayed only when [Custom] in the [Optimization type] property is selected.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-OPtimize=Branch)	Optimizes the branch instruction size.
		No	Does not optimize the branch instruction size.

<table>
<tr><td rowspan="4">Unreferenced symbol that disables deletion by optimization</td><td colspan="2">Specify unreferenced symbols that you do not wish to be deleted by optimization.
Specify in the format of "symbol name", with one specification on one line.
This option corresponds to the -Symbol_forbid option of the linker.
This property is displayed in the following cases.
- When [Always latest version which was installed] in the [Using compiler package version] property in the [Version Select] category from the [Common Options] tab is selected and the latest version is V1.02.00 or higher or when V1.02.00 or higher is selected in the [Using compiler package version] property
- When other than [No optimize(-NOOPtimize)] in the [Optimization type] property is selected</td></tr>
<tr><td>Default</td><td>Unreferenced symbol that disables deletion by optimization[number of defined items]</td></tr>
<tr><td>How to change</td><td>Edit by the Text Edit dialog box which appears when clicking the [...] button.
For the subproperty, you can enter directly in the text box.</td></tr>
<tr><td>Restriction</td><td>Up to 32767 characters
Up to 65536 items can be specified.</td></tr>
<tr><td rowspan="4">Section to disable optimization</td><td colspan="2">Specify sections that you do not wish to be optimized in the format of "file name|module name](section name[,...])", with one specification on one line.
The following placeholders are supported.
%ActiveProjectDir%: Replaces with the absolute path of the active project folder.
%ActiveProjectName%: Replaces with the active project name.
%BuildModeName%: Replaces with the build mode name.
%MainProjectDir%: Replaces with the absolute path of the main project folder.
%MainProjectName%: Replaces with the main project name.
%MicomToolPath%: Replaces with the absolute path of the install folder of this product.
%ProjectDir%: Replaces with the absolute path of the project folder.
%ProjectName%: Replaces with the project name.
%TempDir%: Replaces with the absolute path of the temporary folder.
%WinDir%: Replaces with the absolute path of the Windows system folder.
This corresponds to the -SEction_forbid option of the rlink command.
This property is not displayed when [No optimize (-NOOPtimize)] in the [Optimization type] property is selected.</td></tr>
<tr><td>Default</td><td>Section to disable optimization[number of defined items]</td></tr>
<tr><td>How to change</td><td>Edit by the Text Edit dialog box which appears when clicking the [...] button.
For the subproperty, you can enter directly in the text box.</td></tr>
<tr><td>Restriction</td><td>Up to 32767 characters
Up to 65535 items can be specified.</td></tr>
<tr><td rowspan="4">Address range to disable optimization</td><td colspan="2">Specify the address range in which to suppress optimization in the format of "address[+ size]", with one specification on one line.
This corresponds to the -Absolute_forbid option of the rlink command.
This property is not displayed when [No optimize (-NOOPtimize)] in the [Optimization type] property is selected.</td></tr>
<tr><td>Default</td><td>Address range to disable optimization[number of defined items]</td></tr>
<tr><td>How to change</td><td>Edit by the Text Edit dialog box which appears when clicking the [...] button.
For the subproperty, you can enter directly in the text box.</td></tr>
<tr><td>Restriction</td><td>Up to 32767 characters
Up to 65535 items can be specified.</td></tr>
</table>

(3) [Input File]
The detailed information on input files is displayed and the configuration can be changed.

<table>
<tr><td>Object file</td><td colspan="2">Specify the object files.
Specify in the format of "library(module)", with one entry name per line.
The following placeholders are supported.
%ActiveProjectDir%: Replaces with the absolute path of the active project folder.
%ActiveProjectName%: Replaces with the active project name.
%BuildModeName%: Replaces with the build mode name.
%MainProjectDir%: Replaces with the absolute path of the main project folder.
%MainProjectName%: Replaces with the main project name.
%MicomToolPath%: Replaces with the absolute path of the install folder of this product.
%ProjectDir%: Replaces with the absolute path of the project folder.
%ProjectName%: Replaces with the project name.
%TempDir%: Replaces with the absolute path of the temporary folder.
%WinDir%: Replaces with the absolute path of the Windows system folder.
This corresponds to the -Input option of the rlink command.
The object file name is displayed as the subproperty.</td></tr>
<tr><td></td><td>Default</td><td>Object file[number of defined items]</td></tr>
<tr><td></td><td>How to change</td><td>Edit by the Text Edit dialog box which appears when clicking the [...] button.
For the subproperty, you can enter directly in the text box.</td></tr>
<tr><td></td><td>Restriction</td><td>Up to 1024 characters
Up to 256 items can be specified.</td></tr>
<tr><td>Binary file</td><td colspan="2">Specify the binary files.
Specify in the format of "file name(section name[:number of alignment][/section attribute][,symbol name])", with one entry per line.
[:number of alignment], [/section attribute], and [,symbol name] can be omitted.
The value that can be specified for number of alignment is 1, 2, 4, 8, 16, or 32.
If the specification is omitted, it is assumed that 1 has been specified.
"CODE" or "DATA" can be specified as section attribute.
If the specification is omitted, all attributes such as the ability to write, read, and execute, will be all valid.
The following placeholders are supported.
%ActiveProjectDir%: Replaces with the absolute path of the active project folder.
%ActiveProjectName%: Replaces with the active project name.
%BuildModeName%: Replaces with the build mode name.
%MainProjectDir%: Replaces with the absolute path of the main project folder.
%MainProjectName%: Replaces with the main project name.
%MicomToolPath%: Replaces with the absolute path of the install folder of this product.
%ProjectDir%: Replaces with the absolute path of the project folder.
%ProjectName%: Replaces with the project name.
%TempDir%: Replaces with the absolute path of the temporary folder.
%WinDir%: Replaces with the absolute path of the Windows system folder.
This corresponds to the -Binary option of the rlink command.
The binary file name is displayed as the subproperty.</td></tr>
<tr><td></td><td>Default</td><td>Binary file[number of defined items]</td></tr>
<tr><td></td><td>How to change</td><td>Edit by the Text Edit dialog box which appears when clicking the [...] button.
For the subproperty, you can enter directly in the text box.</td></tr>
<tr><td></td><td>Restriction</td><td>Up to 1024 characters
Up to 256 items can be specified.</td></tr>
</table>

Symbol definition	Define the symbols. Specify in the format of "*symbol name=symbol name*" or "*symbol name=numerical value*", with one entry name per line. Specify the numerical value in hexadecimal without 0x. This corresponds to the -DEFine option of the rlink command. The symbol name is displayed as the subproperty.	
	Default	Symbol definition[*number of defined items*]
	How to change	Edit by the Text Edit dialog box which appears when clicking the [...] button. For the subproperty, you can enter directly in the text box.
	Restriction	Up to 256 characters Up to 256 items can be specified.

(4) [Output File]
The detailed information on output files is displayed and the configuration can be changed.

Output folder	Specify the output folder. The following placeholders are supported. %ActiveProjectDir%: Replaces with the absolute path of the active project folder. %ActiveProjectName%: Replaces with the active project name. %BuildModeName%: Replaces with the build mode name. %MainProjectDir%: Replaces with the absolute path of the main project folder. %MainProjectName%: Replaces with the main project name. %MicomToolPath%: Replaces with the absolute path of the install folder of this product. %ProjectDir%: Replaces with the absolute path of the project folder. %ProjectName%: Replaces with the project name. %TempDir%: Replaces with the absolute path of the temporary folder. %WinDir%: Replaces with the absolute path of the Windows system folder. If this is blank, it is assumed that the project folder has been specified. This corresponds to the -OUtput option of the rlink command.	
	Default	%BuildModeName%
	How to change	Directly enter in the text box or edit by the Browse For Folder dialog box which appears when clicking the [...] button.
	Restriction	Up to 247 characters
Output file name	Specify the output file name. If the extension is omitted, ".abs" is automatically added. The following placeholders are supported. %ActiveProjectName%: Replaces with the active project name. %BuildModeName%: Replaces with the build mode name. %MainProjectName%: Replaces with the main project name. %ProjectName%: Replaces with the project name. This corresponds to the -OUtput option of the rlink command.	
	Default	%ProjectName%.abs
	How to change	Directly enter in the text box.
	Restriction	Up to 259 characters

(5) [Library]
The detailed information on the library is displayed and the configuration can be changed.

Using libraries	Specify the library files to be used. If a relative path is specified, it is converted into an absolute path using the main project or subproject folder as the reference point of the path. The following placeholders are supported. %ActiveProjectDir%: Replaces with the absolute path of the active project folder. %ActiveProjectName%: Replaces with the active project name. %BuildModeName%: Replaces with the build mode name. %MainProjectDir%: Replaces with the absolute path of the main project folder. %MainProjectName%: Replaces with the main project name. %MicomToolPath%: Replaces with the absolute path of the install folder of this product. %ProjectDir%: Replaces with the absolute path of the project folder. %ProjectName%: Replaces with the project name. %TempDir%: Replaces with the absolute path of the temporary folder. %WinDir%: Replaces with the absolute path of the Windows system folder. This corresponds to the -LIBrary option of the rlink command. The library file name is displayed as the subproperty.		
	Default	Using libraries[*number of defined items*]	
	How to change	Edit by the Path Edit dialog box which appears when clicking the [...] button. -> Edit by the Specify Using Library File dialog box which appears when clicking the [Browse...] button. For the subproperty, you can enter directly in the text box.	
	Restriction	Up to 259 characters Up to 65536 items can be specified.	
System libraries	The system library files are displayed. If a relative path is specified, it is converted into an absolute path using the main project or subproject folder as the reference point of the path. This corresponds to the -LIBrary option of the rlink command. The system library file name is displayed as the subproperty.		
	Default	System libraries[*number of defined items*]	
	How to change	Changes not allowed	
Use standard/mathematical libraries	Select whether to use the standard/mathematical libraries provided by the compiler. This corresponds to the -LIBrary option of the rlink command.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes	Uses the standard/mathematical libraries.
		No	Does not use the standard/mathematical libraries.
Use runtime libraries	Select whether to use the runtime libraries provided by the compiler. This corresponds to the -LIBrary option of the rlink command.		
	Default	Yes	
	How to change	Select from the drop-down list.	
	Restriction	Yes	Uses the runtime libraries.
		No	Does not use the runtime libraries.

(6) [Device]
The detailed information on the device is displayed and the configuration can be changed.

Set enable/disable on-chip debug by link option	Select whether to set enabling/disabling the on-chip debug by the link option. This corresponds to the -OCDBG option of the rlink command. Be sure to set the control value of the on-chip debug option byte. To set it, select [Yes] and specify the control value of the on-chip debug option byte on the [Option byte values for OCD] property. Or, set the control value of the on-chip debug option byte by using an assembler source file. The control value for the on-chip debug option byte depends on the device in use. See the user's manual of the device for the value to be specified. This property is not displayed when the device does not have an on-chip debug function.		
	Default	Yes(-OCDBG)	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-OCDBG)	Sets the control value of the on-chip debug.
		No	Does not set the control value of the on-chip debug.
Option byte values for OCD	Specify the control value of the on-chip debug option byte in hexadecimal without 0x. This corresponds to the -OCDBG option of the rlink command. Be sure to set the control value for the on-chip debug option byte by using this property or an assembler source file. The control value for the on-chip debug option byte depends on the device in use. See the user's manual of the device for the value to be specified. This property is not displayed when the device does not have an on-chip debug function and when [No] in the [Set enable/disable on-chip debug by link option] property is selected.		
	Default	Blank	
	How to change	Directly enter in the text box.	
	Restriction	0 to FF (hexadecimal number without 0x)	
Set debug monitor area	Select whether to set the debug monitor area. This corresponds to the -DEBUG_MONITOR option of the rlink command. This property is displayed when [Always latest version which was installed] in the [Using compiler package version] property in the [Version Select] category from the [Common Options] tab is selected and the latest version is V1.01.00 or higher or when V1.01.00 or higher is selected in the [Using compiler package version] property.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-DEBUG_MONITOR)	Specifies the debug monitor area within the default range.
		Yes(Specify address range)(-DEBUG_MONITOR=<Address range>)	Specifies the address range of the debug monitor area.
		No	Does not set the debug monitor area.

<table>
<tr><td>Range of debug monitor area</td><td colspan="3">Specify the range of the debug monitor area in the format of "start address-end address".
This corresponds to the -DEBUG_MONITOR option of the rlink command. See "CC-RL Compiler User's Manual" for details about the option.
This property is displayed only in the following cases.
- When [Always latest version which was installed] in the [Using compiler package version] property in the [Version Select] category from the [Common Options] tab is selected and the latest version is V1.01.00 or higher or when V1.01.00 or higher is selected in the [Using compiler package version] property
- When [Yes(Specify address range)(-DEBUG_MONITOR=<Address range>)] in the [Set debug monitor area] property is selected</td></tr>
<tr><td></td><td>Default</td><td colspan="2">The peculiar value for the target device</td></tr>
<tr><td></td><td>How to change</td><td colspan="2">Directly enter in the text box.</td></tr>
<tr><td></td><td>Restriction</td><td colspan="2">0 to FFFFF (hexadecimal number without 0x)</td></tr>
<tr><td>Set user option byte</td><td colspan="3">Select whether to set the user option byte.
This corresponds to the -USER_OPT_BYTE option of the rlink command.
Be sure to set the user option byte value.
To set it, select [Yes] and specify the user option byte value on the [User option byte value] property.
Or, set the user option byte value by using an assembler source file.
The user option byte value depends on the device in use.
See the user's manual of the device for the value to be specified.</td></tr>
<tr><td></td><td>Default</td><td colspan="2">Yes(-USER_OPT_BYTE)</td></tr>
<tr><td></td><td>How to change</td><td colspan="2">Select from the drop-down list.</td></tr>
<tr><td></td><td rowspan="2">Restriction</td><td>Yes(-USER_OPT_BYTE)</td><td>Sets a value to the user option byte.
However, if the [User option byte value] property is blank, the user option byte is not set.</td></tr>
<tr><td>No</td><td>Does not set a value to the user option byte.</td></tr>
<tr><td>User option byte value</td><td colspan="3">Specify the user option byte value in hexadecimal without 0x.
This corresponds to the -USER_OPT_BYTE option of the rlink command.
Be sure to set the user option byte value by using this property or an assembler source file.
The user option byte value depends on the device in use.
See the user's manual of the device for the value to be specified.
This property is not displayed when [No] in the [Set user option byte] property is selected.</td></tr>
<tr><td></td><td>Default</td><td colspan="2">Blank</td></tr>
<tr><td></td><td>How to change</td><td colspan="2">Directly enter in the text box.</td></tr>
<tr><td></td><td>Restriction</td><td colspan="2">Hexadecimal number without 0x (The range that can be specified depends on the selected device)</td></tr>
</table>

<table>
<tr><td>Control allocation to self RAM area</td><td colspan="3">Select whether to control the allocation to the self RAM area.
This corresponds to the -SELF/-SELFW option of the rlink command.
This property is displayed only in the following cases.
- When [Always latest version which was installed] in the [Using compiler package version] property in the [Version Select] category from the [Common Options] tab is selected and the latest version is V1.01.00 or higher or when V1.01.00 or higher is selected in the [Using compiler package version] property
- For a device in which allocation to the self RAM area is controllable</td></tr>
<tr><td></td><td>Default</td><td colspan="2">No</td></tr>
<tr><td></td><td>How to change</td><td colspan="2">Select from the drop-down list.</td></tr>
<tr><td></td><td rowspan="3">Restriction</td><td>Yes(Error message)(-SELF)</td><td>Prohibits the allocation to the self RAM area and displays an error.</td></tr>
<tr><td></td><td>Yes(Warning message)(-SELFW)</td><td>Outputs a warning when allocating to the self RAM area.</td></tr>
<tr><td></td><td>No</td><td>Uses the self RAM area as the internal RAM area. An error or warning is not displayed.</td></tr>
<tr><td>Control allocation to trace RAM area</td><td colspan="3">Select whether to control the allocation to the trace RAM area.
This corresponds to the -OCDTR/-OCDTRW option of the rlink command. Note that specifying this option makes the -SELF/-SELFW option assumed to be specified.
This property is displayed only in the following cases.
- When [Always latest version which was installed] in the [Using compiler package version] property in the [Version Select] category from the [Common Options] tab is selected and the latest version is V1.01.00 or higher or when V1.01.00 or higher is selected in the [Using compiler package version] property
- For a device in which allocation to the trace RAM area is controllable</td></tr>
<tr><td></td><td>Default</td><td colspan="2">No</td></tr>
<tr><td></td><td>How to change</td><td colspan="2">Select from the drop-down list.</td></tr>
<tr><td></td><td rowspan="3">Restriction</td><td>Yes(Error message)(-OCDTR)</td><td>Prohibits the allocation to the trace RAM area and displays an error.</td></tr>
<tr><td></td><td>Yes(Warning message)(-OCDTRW)</td><td>Outputs a warning when allocating to the trace RAM area.</td></tr>
<tr><td></td><td>No</td><td>Uses the trace RAM area as the internal RAM area. An error or warning is not displayed.</td></tr>
</table>

<table>
<tr><td rowspan="5">Control allocation to hot plug-in RAM area</td><td colspan="3">Select whether to control the allocation to the hot plug-in RAM area.
This corresponds to the -OCDHPI/-OCDHPIW option of the rlink command. Note that specifying this option makes the -SELF/-SELFW and -OCDTR/-OCDTRW options assumed to be specified.
This property is displayed only in the following cases.
- When [Always latest version which was installed] in the [Using compiler package version] property in the [Version Select] category from the [Common Options] tab is selected and the latest version is V1.01.00 or higher or when V1.01.00 or higher is selected in the [Using compiler package version] property
- For a device in which allocation to the hot plug-in RAM area is controllable</td></tr>
<tr><td>Default</td><td colspan="2">No</td></tr>
<tr><td>How to change</td><td colspan="2">Select from the drop-down list.</td></tr>
<tr><td rowspan="3">Restriction</td><td>Yes(Error message)(-OCDHPI)</td><td>Prohibits the allocation to the hot plug-in RAM area and displays an error.</td></tr>
<tr><td>Yes(Warning message)(-OCDHPIW)</td><td>Outputs a warning when allocating to the hot plug-in RAM area.</td></tr>
<tr><td>No</td><td>Uses the hot plug-in RAM area as the internal RAM area. An error or warning is not displayed.</td></tr>
<tr><td rowspan="5">Reserve working memory for RRM/ DMM function</td><td colspan="3">Select whether to reserve a 4-byte memory as the work area for the RRM/DMM function.
This corresponds to the -RRM option of the rlink command.
This property is displayed only in the following cases.
- When [Always latest version which was installed] in the [Using compiler package version] property in the [Version Select] category from the [Common Options] tab is selected and the latest version is V1.01.00 or higher or when V1.01.00 or higher is selected in the [Using compiler package version] property
- When the device is the 8-bit bus width type
- When [Yes(-DEBUG_MONITOR)] in the [Set debug monitor area] property is selected
- When a value is specified in the [Range of debug monitor area] property</td></tr>
<tr><td>Default</td><td colspan="2">No</td></tr>
<tr><td>How to change</td><td colspan="2">Select from the drop-down list.</td></tr>
<tr><td rowspan="2">Restriction</td><td>Yes(-RRM)</td><td>Reserves a 4-byte memory as the work area for the RRM/DMM function.</td></tr>
<tr><td>No</td><td>Does not reserve the work area for the RRM/DMM function.</td></tr>
</table>

Start address of working memory for RRM/DMM function	Specify the start address of the work area for the RRM/DMM function in hexadecimal without 0x. Four bytes starting from the specified address in the internal RAM area are reserved as the work area for the RRM/DMM function. This corresponds to the -RRM option of the rlink command. This property is displayed only in the following cases. - When [Always latest version which was installed] in the [Using compiler package version] property in the [Version Select] category from the [Common Options] tab is selected and the latest version is V1.01.00 or higher or when V1.01.00 or higher is selected in the [Using compiler package version] property - When [Yes(-RRM)] in the [Reserve working memory for RRM/DMM function] property is selected	
	Default	Blank
	How to change	Directly enter in the text box.
	Restriction	Even address from the lowest address up to the highest address minus 3 in the internal RAM area (in hexadecimal)

(7) [Output Code]
The detailed information on output codes is displayed and the configuration can be changed.

Specify execution start address	Select whether to specify the execution start address with the external defined symbol or address. This corresponds to the -ENTry option of the rlink command.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-ENTry)	Specifies the execution start address with the external defined symbol or address.
		No	Does not specify the execution start address with the external defined symbol or address.
Execution start address	Specify the execution start address. Specify in the format of "*symbol name*" or "*address*". Specify the address in hexadecimal without 0x. This corresponds to the -ENTry option of the rlink command. The execution start address is displayed as the subproperty. This property is displayed only when [Yes(-ENTry)] in the [Specify execution start address] property is selected.		
	Default	Blank	
	How to change	Directly enter in the text box or edit by the Character String Input dialog box which appears when clicking the [...] button.	
	Restriction	Up to 32767 characters	

Fill with padding data at the end of a section	Select whether to fill with padding data at the end of a section. This corresponds to the -PADDING option of the rlink command.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-PADDING)	Fills in data at the end of a section so that the section size is a multiple of the alignment of the section.
		No	Does not fill with padding data at the end of a section.
Address setting for specified area of vector table	Specify an address value to be set for a specific address in the vector table in the format of "*vector table address*={*symbol*|*address*}", with one specification on one line. Specify the vector table address as a hexadecimal value within the range between 0 and 7E. Specify *symbol* using an external name of the target function. Specify the address in hexadecimal without 0x. This corresponds to the -VECTN option of the rlink command.		
	Default	Address setting for specified area of vector table[*number of defined items*]	
	How to change	Edit by the Text Edit dialog box which appears when clicking the [...] button. For the subproperty, you can enter directly in the text box.	
	Restriction	Up to 32767 characters Up to 65535 items can be specified.	
Address setting for unused vector area	Specify the address of the empty area in the vector table in the format of "{*symbol*|*address*}". Specify the address in hexadecimal without 0x. This corresponds to the -VECT option of the rlink command.		
	Default	Blank	
	How to change	Directly enter in the text box or edit by the Character String Input dialog box which appears when clicking the [...] button.	
	Restriction	Up to 32767 characters	

(8) [List]
The detailed information on the list is displayed and the configuration can be changed.

Output link map file	Select whether to output the link map file. This corresponds to the -LISt and -SHow options of the rlink command.		
	Default	Yes(List contents=specify)(-LISt)	
	How to change	Select from the drop-down list.	
	Restriction	Yes(List contents=not specify)(-LISt -SHow)	Outputs information according to the output format to the link map file.
		Yes(List contents=ALL)(-LISt -SHow=ALL)	Outputs all information according to the output format to the link map file.
		Yes(List contents=specify)(-LISt)	Outputs the specified information to the link map file.
		No	Does not output the link map file.

Output symbol information	Select whether to output the symbol information (symbol address, size, type, and optimization contents). This corresponds to the -SHow=SYmbol option of the rlink command. This property is displayed only when [Yes(List contents=specify)(-LISt)] in the [Output link map file] property is selected.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-SHow=SYmbol)	Outputs the symbol information.
		No	Does not output the symbol information.
Output number of symbol reference	Select whether to output the number of symbol references. This corresponds to the -SHow=Reference option of the rlink command. This property is displayed only when [Yes(List contents=specify)(-LISt)] in the [Output link map file] property is selected.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-SHow=Reference)	Outputs the number of symbol references.
		No	Does not output the number of symbol references.
Output cross reference information	Select whether to output the cross reference information. This corresponds to the -SHow=XReference option of the rlink command. This property is displayed only when [Yes(List contents=specify)(-LISt)] in the [Output link map file] property is selected.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-SHow=Xreference)	Outputs the cross reference information.
		No	Does not output the cross reference information.
Output total sizes of sections	Select whether to output the total size of sections. This corresponds to the -SHow=Total_size option of the rlink command. This property is displayed only when [Yes(List contents=specify)(-LISt)] in the [Output link map file] property is selected.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-SHow=Total_size)	Outputs the total sizes of sections separately for ROM-allocated sections and RAM-allocated sections.
		No	Does not output the total size of sections.

Output vector information	Select whether to output the vector information. This corresponds to the -SHow=VECTOR option of the rlink command. This property is displayed only when [Yes(List contents=specify)(-LISt)] in the [Output link map file] property is selected.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-SHow=VECTOR)	Outputs vector information to the linkage list file.
		No	Does not output vector information to the linkage list file.
Output information of members of struct or union	Select whether to output the member information of the structure or union. To output it, specify the -g option when compiling. This corresponds to the -SHow=STRUCT option of the rlink command. This property is displayed in the following cases. - When [Always latest version which was installed] in the [Using compiler package version] property in the [Version Select] category from the [Common Options] tab is selected and the latest version is V1.02.00 or higher or when V1.02.00 or higher is selected in the [Using compiler package version] property - When [Yes(List contents=specify)(-LISt)] in the [Output link map file] property is selected		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-SHow=STRUCT)	Outputs the member information of the structure or union.
		No	Does not output the member information of the structure or union.

(9) [Variables/functions information]
The detailed information on variables/functions is displayed and the configuration can be changed.

<table>
<tr><td>Output variables/functions information header file</td><td colspan="3">Select whether to output the variables/functions information header file.
If [Yes(-VFINFO)] is selected, commands are called in the following order. Compiler and assembler commands will be called twice in a single build processing.
1. Compiler (CC-RL)
2. Assembler (CC-RL)
3. Optimizing linker (rlink) -VFINFO
4. Compiler (CC-RL) -preinclude=variables/functions information header file
5. Assembler (CC-RL)
6. Optimizing linker (rlink)
To edit the variables/functions information header file which has been output when using it, change this property to [No] and specify the edited file in the [Include files at head of compiling units] property of the [Compile Options] tab.
The variables/functions information header file is registered in the File node of the project tree under the file name specified in the [Variables/functions information header file name] property. However, if a file with the same name has already been registered, this file is not registered.
The variables/functions information header file of the project tree is not affected by the -preinclude option of the [Include files at head of compiling units] property at build, and the file specified by the [Variables/functions information header file name] property will be specified.
This corresponds to the -VFINFO option of the rlink command.
This property is displayed when [Always latest version which was installed] in the [Using compiler package version] property in the [Version Select] category from the [Common Options] tab is selected and the latest version is V1.01.00 or higher or when V1.01.00 or higher is selected in the [Using compiler package version] property.</td></tr>
<tr><td>Default</td><td colspan="2">No</td></tr>
<tr><td>How to change</td><td colspan="2">Select from the drop-down list.</td></tr>
<tr><td rowspan="2">Restriction</td><td>Yes(-VFINFO)</td><td>Outputs the variables/functions information header file.</td></tr>
<tr><td>No</td><td>Does not output the variables/functions information header file.</td></tr>
</table>

<table>
<tr><td>Output folder for variables/functions information header file</td><td colspan="2">Specify the folder for saving the variables/functions information header file.
If a relative path is specified, the reference point of the path is the main project or subproject folder.
If an absolute path is specified, the reference point of the path is the main project or subproject folder (unless the drives are different).
The following placeholders are supported.
%ActiveProjectDir%: Replaces with the absolute path of the active project folder.
%ActiveProjectName%: Replaces with the active project name.
%BuildModeName%: Replaces with the build mode name.
%MainProjectDir%: Replaces with the absolute path of the main project folder.
%MainProjectName%: Replaces with the main project name.
%MicomToolPath%: Replaces with the absolute path of the install folder of this product.
%ProjectDir%: Replaces with the absolute path of the project folder.
%ProjectName%: Replaces with the project name.
%TempDir%: Replaces with the absolute path of the temporary folder.
%WinDir%: Replaces with the absolute path of the Windows system folder.
If this is blank, it is assumed that the project folder has been specified.
This corresponds to the -VFINFO option of the rlink command.
This property is displayed only in the following cases.
- When [Always latest version which was installed] in the [Using compiler package version] property in the [Version Select] category from the [Common Options] tab is selected and the latest version is V1.01.00 or higher or when V1.01.00 or higher is selected in the [Using compiler package version] property
- When [Yes(-VFINFO)] in the [Output variables/functions information header file] property is selected</td></tr>
<tr><td></td><td>Default</td><td>%BuildModeName%</td></tr>
<tr><td></td><td>How to change</td><td>Directly enter in the text box or edit by the Browse For Folder dialog box which appears when clicking the [...] button.</td></tr>
<tr><td></td><td>Restriction</td><td>Up to 247 characters</td></tr>
<tr><td>Variables/functions information header file name</td><td colspan="2">Specify the variables/functions information header file name.
If the extension is omitted, ".h" is automatically added.
The following placeholders are supported.
%ActiveProjectName%: Replaces with the active project name.
%MainProjectName%: Replaces with the main project name.
%ProjectName%: Replaces with the project name.
This corresponds to the -VFINFO option of the rlink command.
This property is displayed only in the following cases.
- When [Always latest version which was installed] in the [Using compiler package version] property in the [Version Select] category from the [Common Options] tab is selected and the latest version is V1.01.00 or higher or when V1.01.00 or higher is selected in the [Using compiler package version] property
- When [Yes(-VFINFO)] in the [Output variables/functions information header file] property is selected</td></tr>
<tr><td></td><td>Default</td><td>%ProjectName%_vfi.h</td></tr>
<tr><td></td><td>How to change</td><td>Directly enter in the text box.</td></tr>
<tr><td></td><td>Restriction</td><td>Up to 259 characters</td></tr>
</table>

(10) [Section]
The detailed information on the section is displayed and the configuration can be changed.

Layout sections automatically	Select whether to allocate sections automatically. This corresponds to the -AUTO_SECTION_LAYOUT option of the rlink command. This property is displayed when [Always latest version which was installed] in the [Using compiler package version] property in the [Version Select] category from the [Common Options] tab is selected and the latest version is V1.01.00 or higher or when V1.01.00 or higher is selected in the [Using compiler package version] property.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-AUTO_SECTION_LAYOUT)	Allocates sections automatically.
	Default	No	Does not allocate sections automatically.
Section start address	Specify the start address of the section. This corresponds to the -STARt option of the rlink command.		
	Default	- When [Yes(-AUTO_SECTION_LAYOUT)] in the [Layout sections automatically] property is selected Blank - Other than above *The peculiar value for the target device*	
	How to change	Directly enter in the text box or edit by the Section Settings dialog box which appears when clicking the [...] button.	
	Restriction	Up to 32767 characters	
Section that outputs external defined symbols to the file	Specify the section whose external defined symbols are output to a file. Specify one section name per line. This corresponds to the -FSymbol option of the rlink command. The section name is displayed as the subproperty.		
	Default	Section that outputs external defined symbols to the file[*number of defined items*]	
	How to change	Edit by the Text Edit dialog box which appears when clicking the [...] button. For the subproperty, you can enter directly in the text box.	
	Restriction	Up to 32767 characters Up to 65535 items can be specified.	
ROM to RAM mapped section	Specify the section that maps symbols from ROM to RAM. Specify in the format of "*ROM section name=RAM section name*", with one section name per line. This corresponds to the -ROm option of the rlink command. The section name is displayed as the subproperty.		
	Default	ROM to RAM mapped section[*number of defined items*] ".data=.data.R" and ".sdata=.sdata.R" are specified in the subproperty.	
	How to change	Edit by the Text Edit dialog box which appears when clicking the [...] button. For the subproperty, you can enter directly in the text box.	
	Restriction	Up to 32767 characters Up to 65535 items can be specified.	

(11) [Verify]
The detailed information on verification is displayed and the configuration can be changed.

Check section larger than specified range of address	Select whether to check the consistency of the address to which the section is allocated. This corresponds to the -CPu option of the rlink command.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-CPu)	Checks the consistency of the address to which the section is allocated.
	Default	No	Does not check the consistency of the address to which the section is allocated.
Address range of memory type	Specify the address range of the memory type. Specify in the format of "*memory type=start address-end address*", with one entry per line. Any of "ROm", "RAm", or "FIX" can be specified as *memory type*. Specify *start address* and *end address* in hexadecimal without 0x. This corresponds to the -CPu option of the rlink command. The address range of the memory type is displayed as the subproperty. This property is displayed only when [Yes(-CPu)] in the [Check section larger than specified range of address] property is selected.		
	Default	Address range of memory type[*number of defined items*]	
	How to change	Edit by the Text Edit dialog box which appears when clicking the [...] button. For the subproperty, you can enter directly in the text box.	
	Restriction	Up to 32767 characters Up to 65535 items can be specified.	
Check specifications of device	Select whether to check the specification of the device file. This corresponds to the -CHECK_DEVICE option of the rlink command. This property is displayed when [Always latest version which was installed] in the [Using compiler package version] property in the [Version Select] category from the [Common Options] tab is selected and the latest version is V1.01.00 or higher or when V1.01.00 or higher is selected in the [Using compiler package version] property.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-CHECK_DEVICE)	Checks whether the device file is the same using the device file when an input file was generated and the option for specifying the device file.
		No	Does not check the specification of the device file.

Suppress checking section allocation that crosses (64KB-1) boundary	Select whether to suppress checking section allocation that crosses the (64 Kbytes - 1) boundary. Section allocation that crosses the (64 Kbytes - 1) boundary means that the lower 16 bits of the address of the section exceeds 0xFFFE and continues to 0xFFFF. This corresponds to the -CHECK_64K_ONLY option of the rlink command. This property is displayed when [Always latest version which was installed] in the [Using compiler package version] property in the [Version Select] category from the [Common Options] tab is selected and the latest version is V1.01.00 or higher or when V1.01.00 or higher is selected in the [Using compiler package version] property.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-CHECK_64K_ONLY)	Suppresses checking section allocation that crosses the (64 Kbytes - 1) boundary.
		No	Does not suppress checking section allocation that crosses the (64 Kbytes - 1) boundary.
Do not check memory allocation of sections	Select whether to link without checking memory allocation of sections. This corresponds to the -NO_CHECK_SECTION_LAYOUT option of the rlink command. This property is displayed when [Always latest version which was installed] in the [Using compiler package version] property in the [Version Select] category from the [Common Options] tab is selected and the latest version is V1.01.00 or higher or when V1.01.00 or higher is selected in the [Using compiler package version] property.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-NO_CHECK_SECTION_LAYOUT)	Does not check memory allocation of sections.
		No	Checks memory allocation of sections.

(12) [Message]
The detailed information on messages is displayed and the configuration can be changed.

Enable information message output	Select whether to enable the output of information messages. This corresponds to the -Message and -NOMessage options of the rlink command.		
	Default	No(-NOMessage)	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-Message)	Outputs information messages.
		No(-NOMessage)	Suppresses the output of information messages.

Suppress number of information message	Specify the number of the information message of which output is to be suppressed. If multiple message numbers are specified, delimit them with "," (comma) (example: 4,200). Also, a range of message numbers can be specified using "-" (hyphen) (example:4,200-203,1300). This corresponds to the -NOMessage option of the rlink command. This property is displayed when [No(-NOMessage)] in the [Enable information message output] property is selected.		
	Default	Blank	
	How to change	Directly enter in the text box or edit by the Character String Input dialog box which appears when clicking the [...] button.	
	Restriction	Up to 2048 characters	
Notify unused symbol	Select whether to notify the defined symbol that is not referenced. This corresponds to the -MSg_unused option of the rlink command. This property is displayed only when [Yes(-Message)] in the [Enable information message output] property is selected or the [Suppress number of information message] property is specified.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-MSg_unused)	Notifies the defined symbol that is not referenced.
		No	Does not notify the defined symbol that is not referenced.
Change warning message to information message	Select whether to change the type of warning messages to information. This corresponds to the -CHange_message option of the rlink command.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(All)(-CHange_message=Information)	Changes the type of all warning messages to information.
		Yes(Specify message number)(-CHange_message=Information=<Message number>)	Specifies the number of warning message of which type is to be changed to information.
		No	Does not change the type of warning messages.
Number of warning message	Specify the number of the warning message. If multiple message numbers are specified, delimit them with "," (comma) (example: 4,200). Also, a range of message numbers can be specified using "-" (hyphen) (example:4,200-203,1300). This corresponds to the -CHange_message option of the rlink command. This property is displayed only when [Yes(Specify message number)(-CHange_message=Information=<Message number>)] in the [Change warning message to information message] property is selected.		
	Default	Blank	
	How to change	Directly enter in the text box or edit by the Character String Input dialog box which appears when clicking the [...] button.	
	Restriction	Up to 2048 characters	

Change information message to warning message	Select whether to change the type of information messages to warning. This corresponds to the -CHange_message option of the rlink command.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(All)(-CHange_message=Warning)	Changes the type of all information messages to warning.
		Yes(Specify message number)(-CHange_message=Warning=<Message number>)	Specifies the number of information message of which type is to be changed to warning.
		No	Does not change the type of information messages.
Number of information message	Specify the number of the information message. If multiple message numbers are specified, delimit them with "," (comma) (example: 4,200). Also, a range of message numbers can be specified using "-" (hyphen) (example:4,200-203,1300). This corresponds to the -CHange_message option of the rlink command. This property is displayed only when [Yes(Specify message number)(-CHange_message=Information=<Message number>)] in the [Change warning message to information message] property is selected.		
	Default	Blank	
	How to change	Directly enter in the text box or edit by the Character String Input dialog box which appears when clicking the [...] button.	
	Restriction	Up to 2048 characters	
Change information and warning message to error message	Select whether to change the type of information and warning messages to error. This corresponds to the -CHange_message option of the rlink command.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(All)(-CHange_message=Error)	Changes the type of all information and warning messages to error.
		Yes(Specify message number)(-CHange_message=Error=<Message number>)	Specifies the number of information or warning message of which type is to be changed to error.
		No	Does not change the type of information and warning messages.

Number of information and warning message	Specify the number of the information and warning message. If multiple message numbers are specified, delimit them with "," (comma) (example: 4,200). Also, a range of message numbers can be specified using "-" (hyphen) (example:4,200-203,1300). This corresponds to the -CHange_message option of the rlink command. This property is displayed only when [Yes(Specify message number)(-CHange_message=Error=<Message number>)] in the [Change warning message to information message] property is selected.	
	Default	Blank
	How to change	Directly enter in the text box or edit by the Character String Input dialog box which appears when clicking the [...] button.
	Restriction	Up to 2048 characters

(13) [Others]
Other detailed information on linking is displayed and the configuration can be changed.

Output stack information file	Select whether to output the stack information file. This corresponds to the -STACk option of the rlink command.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-STACk)	Outputs the stack information file.
		No	Does not output the stack information file.

Reduce memory occupancy of linker	Select whether to reduce the memory usage of the linker.
	This corresponds to the -MEMory option of the rlink command.
	This property is displayed only in the following cases.
	- When [No(-NODEBug)] in the [Output debug information] property or [No(-NOCOmpress)] in the [Compress debug information] property in the [Debug Information] category is selected
	- When any one of the conditions below is met.
	  - When [No] in the [Output link map file] property in the [List] category is selected
	  - When [Yes(List contents=not specify)(-LISt -SHow)] in the [Output link map file] property in the [List] category is selected
	  - When [Yes(List contents=specify)(-LISt)] in the [Output link map file] property, [No] in the [Output number of symbol reference] property, and [No] in the [Output cross reference information] property in the [List] category are selected
	- When [No] in the [Output stack information file] property is selected		

	Default	No(-MEMory=High)	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-MEMory=Low)	Reduces the memory usage of the linker. Select this item if processing is slow because a large project is linked and the memory size occupied by the linker exceeds the available memory in the PC used.
		No(-MEMory=High)	Executes the same processing as usual.

Display total size of sections	Select whether to display the total size of sections after the linking. This corresponds to the -Total_size option of the rlink command.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-Total_size)	Displays the total size of sections after the linking.
		No	Does not display the total size of sections after the linking.
Display copyright information	Select whether to display copyright information. This corresponds to the -LOgo and -NOLOgo options of the rlink command.		
	Default	No(-NOLOgo)	
	How to change	Select from the drop-down list.	
	Restriction	Yes	Displays copyright information.
		No(-NOLOgo)	Suppresses the output of copyright information.
Commands executed before link processing	Specify the command to be executed before link processing. Use the call instruction to specify a batch file (example: call a.bat). The following placeholders are supported. %ActiveProjectDir%: Replaces with the absolute path of the active project folder. %ActiveProjectName%: Replaces with the active project name. %BuildModeName%: Replaces with the build mode name. %LinkedFile%: Replaces with the absolute path of the output file under link processing. %MainProjectDir%: Replaces with the absolute path of the main project folder. %MainProjectName%: Replaces with the main project name. %MicomToolPath%: Replaces with the absolute path of the install folder of this product. %Options%: Replaces with the command line option under build execution. %OutputDir%: Replaces with the absolute path of the output folder. %OutputFile%: Replaces with the absolute path of the output file. %Program%: Replaces with the program name under execution. %ProjectDir%: Replaces with the absolute path of the project folder. %ProjectName%: Replaces with the project name. %TempDir%: Replaces with the absolute path of the temporary folder. %WinDir%: Replaces with the absolute path of the Windows system folder. When "#!python" is described in the first line, the contents from the second line to the last line are regarded as the script of the Python console, and then executed before link processing. The placeholders can be described in the script. The specified command is displayed as the subproperty. This property is displayed only when [No] in the [Build simultaneously] property in the [Build Method] category from the [Common Options] tab is selected.		
	Default	Commands executed before link processing[*number of defined items*]	
	How to change	Edit by the Text Edit dialog box which appears when clicking the [...] button. For the subproperty, you can enter directly in the text box.	
	Restriction	Up to 1023 characters Up to 64 items can be specified.	

<table>
<tr><td rowspan="4">Commands executed after link processing</td><td colspan="2">Specify the command to be executed after link processing.
Use the call instruction to specify a batch file (example: call a.bat).
The following placeholders are supported.
%ActiveProjectDir%: Replaces with the absolute path of the active project folder.
%ActiveProjectName%: Replaces with the active project name.
%BuildModeName%: Replaces with the build mode name.
%LinkedFile%: Replaces with the absolute path of the output file under link processing.
%MainProjectDir%: Replaces with the absolute path of the main project folder.
%MainProjectName%: Replaces with the main project name.
%MicomToolPath%: Replaces with the absolute path of the install folder of this product.
%Options%: Replaces with the command line option under build execution.
%OutputDir%: Replaces with the absolute path of the output folder.
%OutputFile%: Replaces with the absolute path of the output file.
%Program%: Replaces with the program name under execution.
%ProjectDir%: Replaces with the absolute path of the project folder.
%ProjectName%: Replaces with the project name.
%TempDir%: Replaces with the absolute path of the temporary folder.
%WinDir%: Replaces with the absolute path of the Windows system folder.
When "#!python" is described in the first line, the contents from the second line to the last line are regarded as the script of the Python console, and then executed after link processing.
The placeholders can be described in the script.
The specified command is displayed as the subproperty.
This property is displayed only when [No] in the [Build simultaneously] property in the [Build Method] category from the [Common Options] tab is selected.</td></tr>
<tr><td>Default</td><td>Commands executed after link processing[number of defined items]</td></tr>
<tr><td>How to change</td><td>Edit by the Text Edit dialog box which appears when clicking the [...] button.
For the subproperty, you can enter directly in the text box.</td></tr>
<tr><td>Restriction</td><td>Up to 1023 characters
Up to 64 items can be specified.</td></tr>
<tr><td rowspan="4">Other additional options</td><td colspan="2">Input the link option to be added additionally.
The options set here are added at the end of the link options group.</td></tr>
<tr><td>Default</td><td>Blank</td></tr>
<tr><td>How to change</td><td>Directly enter in the text box or edit by the Character String Input dialog box which appears when clicking the [...] button.</td></tr>
<tr><td>Restriction</td><td>Up to 259 characters</td></tr>
</table>

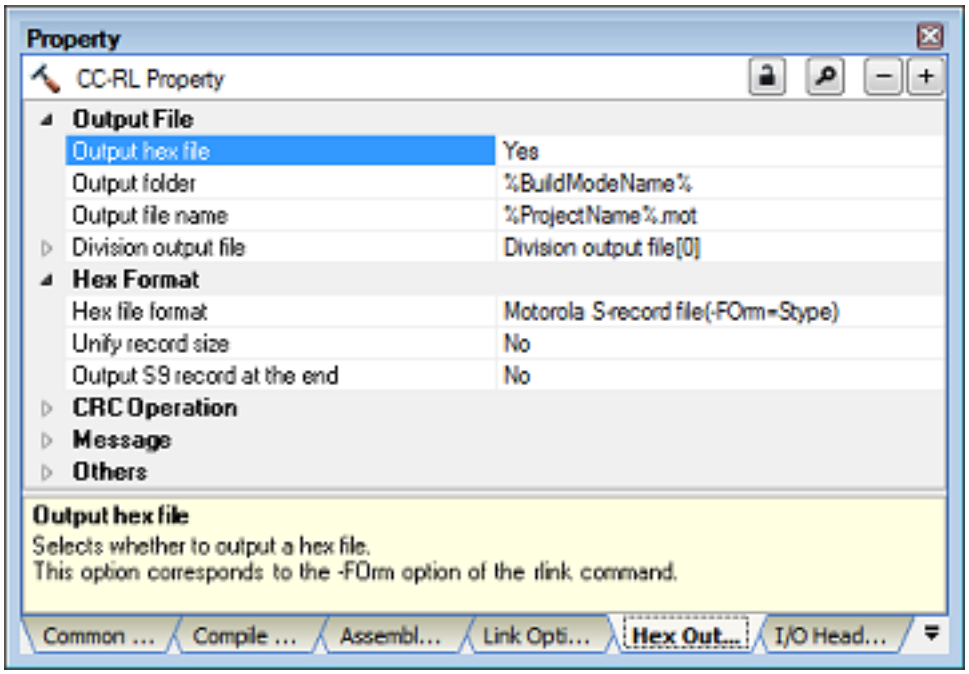
[Hex Output Options] tab

This tab shows the detailed information on the Hex output phase categorized by the following and the configuration can be changed.

(1) [Output File]
(2) [Hex Format]
(3) [CRC Operation]
(4) [Message]
(5) [Others]

Caution This tab is not displayed for the library project.

Figure A.6 Property Panel: [Hex Output Options] Tab



[Description of each category]

(1) [Output File]
The detailed information on output files is displayed and the configuration can be changed.

Output hex file	Select whether to output the hex file. This corresponds to the -FOrm option of the rlink command.		
	Default	Yes	
	How to change	Select from the drop-down list.	
	Restriction	Yes	Outputs the hex file.
	Default	No	Does not output the hex file.

Output folder	Specify the folder which the hex file is output. If a relative path is specified, the reference point of the path is the main project or sub-project folder. If an absolute path is specified, the reference point of the path is the main project or subproject folder (unless the drives are different). The following placeholders are supported. %ActiveProjectDir%: Replaces with the absolute path of the active project folder. %ActiveProjectName%: Replaces with the active project name. %BuildModeName%: Replaces with the build mode name. %MainProjectDir%: Replaces with the absolute path of the main project folder. %MainProjectName%: Replaces with the main project name. %MicomToolPath%: Replaces with the absolute path of the install folder of this product. %ProjectDir%: Replaces with the absolute path of the project folder. %ProjectName%: Replaces with the project name. %TempDir%: Replaces with the absolute path of the temporary folder. %WinDir%: Replaces with the absolute path of the Windows system folder. If this is blank, it is assumed that the project folder has been specified. This corresponds to the -OUtput option of the rlink command. This property is displayed only when [Yes] in the [Output hex file] property is selected.	
	Default	%BuildModeName%
	How to change	Directly enter in the text box or edit by the Browse For Folder dialog box which appears when clicking the [...] button.
	Restriction	Up to 247 characters
Output file name	Specify the hex file name. Be sure to specify this property. If the extension is omitted, it is automatically added according to the selection in the [Hex file format] property in the [Hex Format] category. When [Intel HEX file(-FOrm=Hexadecimal)] is selected: .hex When [Motorola S-record file(-FOrm=Stype)] is selected: .mot When [Binary file(-FOrm=Binary)] is selected: .bin The following placeholders are supported. %ActiveProjectName%: Replaces with the active project name. %BuildModeName%: Replaces with the build mode name. %MainProjectName%: Replaces with the main project name. %ProjectName%: Replaces with the project name. This corresponds to the -OUtput option of the rlink command. This property is displayed only when [Yes] in the [Output hex file] property is selected.	
	Default	%ProjectName%.mot
	How to change	Directly enter in the text box.
	Restriction	Up to 259 characters

Division output file	Specify the division output files. Specify in the format of "*file name=start address-end address*" (*start address*, *end address*: The start address and end address of the output range) or "*file name=section name*" (*section name*: The name of the output section), with one entry per line. If multiple section names are specified, delimit them with a colon as in "*file name=section name*:*section name*" (example: file1.mot=sec1:sec2). Specify the address in hexadecimal without 0x (example: file2.mot=400-4ff). If the extension is omitted, it is automatically added according to the selection in the [Hex file format] property in the [Hex Format] category. When [Intel HEX file(-FOrm=Hexadecimal)] is selected: .hex When [Motorola S-record file(-FOrm=Stype)] is selected: .mot When [Binary file(-FOrm=Binary)] is selected: .bin The following placeholders are supported. %ActiveProjectDir%: Replaces with the absolute path of the active project folder. %ActiveProjectName%: Replaces with the active project name. %BuildModeName%: Replaces with the build mode name. %MainProjectDir%: Replaces with the absolute path of the main project folder. %MainProjectName%: Replaces with the main project name. %MicomToolPath%: Replaces with the absolute path of the install folder of this product. %ProjectDir%: Replaces with the absolute path of the project folder. %ProjectName%: Replaces with the project name. %TempDir%: Replaces with the absolute path of the temporary folder. %WinDir%: Replaces with the absolute path of the Windows system folder. This corresponds to the -OUtput option of the rlink command. The division output file name is displayed as the subproperty. This property is displayed only when [Yes] in the [Output hex file] property is selected.	
	Default	Division output file[*number of defined items*]
	How to change	Edit by the Text Edit dialog box which appears when clicking the [...] button. For the subproperty, you can enter directly in the text box.
	Restriction	Up to 259 characters Up to 65535 items can be specified.

(2) [Hex Format]

The detailed information on the hex format is displayed and the configuration can be changed.
This category is displayed only when [Yes] in the [Output hex file] property in the [Output File] category is selected.

Hex file format	Select the format of the hex file to be output. This corresponds to the -FOrm option of the rlink command.		
	Default	Motorola S-record file(-FOrm=Stype)	
	How to change	Select from the drop-down list.	
	Restriction	Intel HEX file(-FOrm=Hexadecimal)	Outputs an Intel HEX file.
		Motorola S-record file(-FOrm=Stype)	Outputs a Motorola S-record file.
		Binary file(-FOrm=Binary)	Outputs a binary file.

Unify record size [Intel HEX file]	Select whether to output a specified data record regardless of the address range. This corresponds to the -RECord option of the rlink command. This property is displayed only when [Intel HEX file(-FOrm=Hexadecimal)] in the [Hex file format] property is selected.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(Intel hex record)(-REcord=H16)	Outputs the Intel hex record.
		Yes(Intel expanded hex record)(-REcord=H20)	Outputs the Intel expanded hex record.
		Yes(Intel 32-bit hex record)(-REcord=H32)	Outputs the Intel 32-bit hex record.
		No	Outputs various data records according to each address.
Unify record size [Motorola S-record file]	Select whether to output a specified data record regardless of the address range. This corresponds to the -RECord option of the rlink command. This property is displayed only when [Motorola S-record file(-FOrm=Stype)] in the [Hex file format] property is selected.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(S1 record)(-REcord=S1)	Outputs the S1 record.
		Yes(S2 record)(-REcord=S2)	Outputs the S2 record.
		Yes(S3 record)(-REcord=S3)	Outputs the S3 record.
		No	Outputs various data records according to each address.
Fill unused areas in the output ranges with the value	Select whether to fill the vacant area of the output range with data. This corresponds to the -SPace option of the rlink command. This property is displayed only when a file is specified in the [Division output file] property in the [Output File] category.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(Random)(-SPace=Random)	Fills the vacant area with random numbers.
		Yes(Specification value)(-SPace=<Numerical value>)	Fills the vacant area with the specified hexadecimal value.
		No	Does not fill the vacant area.

Output padding data	Specify the hexadecimal value to fill the vacant area. This corresponds to the -SPace option of the rlink command. This property is displayed only when [Yes(Specification value)(-SPace=<Numerical value>)] in the [Fill unused areas in the output ranges with the value] property is selected.		
	Default	FF	
	How to change	Directly enter in the text box.	
	Restriction	0 to FFFFFFFF (hexadecimal number)	
Specify byte count for data record	Select whether to specify the maximum byte count for a data record. This corresponds to the -BYte_count option of the rlink command. This property is displayed only when [Intel HEX file(-FOrm=Hexadecimal)] in the [Hex file format] property is selected.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-BYte_count)	Specifies the maximum byte count for a data record.
		No	Specifies 0xFF as the maximum byte count for a data record.
Maximum byte count for data record	Specify the maximum byte count for a data record. This corresponds to the -BYte_count option of the rlink command. This property is displayed only when [Yes(-BYte_count)] in the [Specify byte count for data record] property is selected.		
	Default	FF	
	How to change	Directly enter to the text box.	
	Restriction	1 to FF (hexadecimal number)	
Output S9 record at the end	Select whether to output the S9 record at the end. This corresponds to the -S9 option of the rlink command. This property is displayed only when [Motorola S-record file(-FOrm=Stype)] in the [Hex file format] property is selected.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-S9)	Outputs the S9 record at the end.
		No	Does not output the S9 record at the end.

(3) [CRC Operation]
The detailed information on CRC operation is displayed and the configuration can be changed.

Outputs the calculation result of CRC	Select whether to perform the CRC (Cyclic Redundancy Check) operation. This corresponds to the -CRc option of the rlink command.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-CRc)	The CRC operation is performed on the hex-format objects in the specified range, from low address to high address, and the results of the operation are output to the specified address.
		No	The CRC operation and outputting the result are not performed.
Output address	Specify the address that the result of the CRC operation is output in hexadecimal without 0x (example: FFF00). Be sure to specify this property. This corresponds to the -CRc option of the rlink command. This property is displayed only when [Yes(-CRc)] in the [Outputs the calculation result of CRC] property is selected.		
	Default	0	
	How to change	Directly enter in the text box.	
	Restriction	0 to FFFFF (hexadecimal number)	
Target range	Specify the CRC calculation range in the format of "*start address - end address*" or "*section name*". However, "*section name*" can be specified in only CC-RL V1.02.00 or higher version. Specify the address in hexadecimal without 0x. The range of specifiable address values is 0 to FFFFF. This corresponds to the -CRc option of the rlink command. This property is displayed only when [Yes(-CRc)] in the [Outputs the calculation result of CRC] property is selected.		
	Default	Blank	
	How to change	Edit by the Text Edit dialog box which appears when clicking the [...] button. For the subproperty, you can enter directly in the text box.	
	Restriction	Up to 32767 characters Up to 65535 items can be specified.	

Type of CRC	Select the method of CRC operation. See "CC-RL Compiler User's Manual" for details about each operation. [CRC-CCITT(MSB,LITTLE,4 bytes) type] corresponds to [CRC-CCITT(MSB) type] in CS+ V3.01.00. This corresponds to the -CRc option of the rlink command. See [Remark] for the correspondence with the [Type of CRC] property of CA78K0R. This property is displayed only when [Yes(-CRc)] in the [Outputs the calculation result of CRC] property is selected.		
	Default	CRC-CCITT(MSB,LITTLE,4 bytes) type	
	How to change	Select from the drop-down list.	
	Restriction	CCITT type	Outputs the calculation result of CRC-16-CCITT-MSB first operation with an initial value of 0xffff and inverse of XOR.
		CRC-CCITT(MSB) type	Outputs the calculation result of CRC-16-CCITT-MSB first operation.
		CRC-CCITT(MSB,LITTLE,4 bytes) type	Outputs the calculation result of CRC-16-CCITT-MSB first operation with the input specified as 4-byte units in little-endian mode.
		CRC-CCITT(MSB,LITTLE,2 bytes) type	Outputs the calculation result of CRC-16-CCITT-MSB first operation with the input specified as 2-byte units in little-endian mode.
		16	Outputs the calculation result of CRC-16-LSB first operation.
		SENT(MSB) type	Outputs the calculation result of operation conforming to SENT.
		CRC-CCITT(LSB) type	Outputs the calculation result of CRC-16-CCITT-LSB first operation.
		32-ETHERNET type	Outputs the calculation result of CRC-32-ETHERNET operation.
Initial value	Specify the initial value for the CRC code in the format of "*initial value*". This corresponds to the -CRc option of the rlink command. This property is displayed only when [Yes(-CRc)] in the [Outputs the calculation result of CRC] property is selected.		
	Default	Blank	
	How to change	Directly enter to the text box.	
	Restriction	- When other than [32-ETHERNET type] is selected in the [Type of CRC] property 0 to FFFF (hexadecimal number) - When [32-ETHERNET type] is selected in the [Type of CRC] property 0 to FFFFFFFF (hexadecimal number)	

Endian	Select the endian for CRC output. This corresponds to the -CRc option of the rlink command. This property is displayed only when [Yes(-CRc)] in the [Outputs the calculation result of CRC] property is selected.		
	Default	Little endian	
	How to change	Select from the drop-down list.	
	Restriction	Little endian	Outputs the value in little-endian mode.
		Big endian	Outputs the value in big-endian mode.
Output size	Specify the output size for the CRC code. This corresponds to the -CRc option of the rlink command. This property is displayed only when [Yes(-CRc)] in the [Outputs the calculation result of CRC] property is selected.		
	Default	Blank	
	How to change	Directly enter to the text box.	
	Restriction	2, 4, or blank	

Remark The correspondence between the [Type of CRC] property of CA78K0R and the [Type of CRC] property of CC-RL is as follows.

CA78K0R	CC-RL
High-speed CRC(CRC-16-CCITT)	CRC-CCITT(MSB) type
High-speed CRC(SENT)	SENT(LSB) type
General-purpose CRC	CRC-CCITT(LSB) type

(4) [Message]

The detailed information on messages is displayed and the configuration can be changed.
This category is displayed only when [Yes] in the [Output hex file] property in the [Output File] category is selected.

Use same message-related settings as Link Options tab	Select whether to make the message-related settings the same as those of the [Link Options] tab.		
	Default	Yes	
	How to change	Select from the drop-down list.	
	Restriction	Yes	Makes the message-related settings the same as those of the [Link Options] tab.
		No	Makes the message-related settings in the property of the [Hex Output Options].

Enable information message output	Select whether to enable the output of information messages. This corresponds to the -Message and -NOMessage options of the rlink command. This property is displayed only when [No] in the [Use same message-related settings as Link Options tab] property is selected.		
	Default	No(-NOMessage)	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-Message)	Outputs information messages.
		No(-NOMessage)	Suppresses the output of information messages.
Suppress number of information message	Specify the number of the information message of which output is to be suppressed. If multiple message numbers are specified, delimit them with "," (comma) (example: 4,200). Also, a range of message numbers can be specified using "-" (hyphen) (example:4,200-203,1300). This corresponds to the -NOMessage option of the rlink command. This property is displayed only when [No] in the [Use same message-related settings as Link Options tab] property is selected and when [No(-NOMessage)] in the [Enable information message output] property is selected.		
	Default	Blank	
	How to change	Directly enter in the text box or edit by the Character String Input dialog box which appears when clicking the [...] button.	
	Restriction	Up to 2048 characters	
Change warning message to information message	Select whether to change the type of warning messages to information. This corresponds to the -CHange_message option of the rlink command. This property is displayed only when [No] in the [Use same message-related settings as Link Options tab] property is selected.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(All)(-CHange_message=Information)	Changes the type of all warning messages to information.
		Yes(Specify message number)(-CHange_message=Information=<Message number>)	Specifies the number of warning message of which type is to be changed to information.
		No	Does not change the type of warning messages.

Number of warning message	Specify the number of the warning message. If multiple message numbers are specified, delimit them with "," (comma) (example: 4,200). Also, a range of message numbers can be specified using "-" (hyphen) (example:4,200-203,1300). This corresponds to the -CHange_message option of the rlink command. This property is displayed only when [No] in the [Use same message-related settings as Link Options tab] property is selected and when [Yes(Specify message number)(-CHange_message=Information=<Message number>)] in the [Change warning message to information message] property is selected.		
	Default	Blank	
	How to change	Directly enter in the text box or edit by the Character String Input dialog box which appears when clicking the [...] button.	
	Restriction	Up to 2048 characters	
Change information message to warning message	Select whether to change the type of information messages to warning. This corresponds to the -CHange_message option of the rlink command. This property is displayed only when [No] in the [Use same message-related settings as Link Options tab] property is selected.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(All)(-CHange_message=Warning)	Changes the type of all information messages to warning.
		Yes(Specify message number)(-CHange_message=Warning=<Message number>)	Specifies the number of information message of which type is to be changed to warning.
		No	Does not change the type of information messages.
Number of information message	Specify the number of the information message. If multiple message numbers are specified, delimit them with "," (comma) (example: 4,200). Also, a range of message numbers can be specified using "-" (hyphen) (example:4,200-203,1300). This corresponds to the -CHange_message option of the rlink command. This property is displayed only when [No] in the [Use same message-related settings as Link Options tab] property is selected and when [Yes(Specify message number)(-CHange_message=Warning=<Message number>)] in the [Change information message to warning message] property is selected.		
	Default	Blank	
	How to change	Directly enter in the text box or edit by the Character String Input dialog box which appears when clicking the [...] button.	
	Restriction	Up to 2048 characters	

Change information and warning message to error message	Select whether to change the type of information and warning messages to error. This corresponds to the -CHange_message option of the rlink command. This property is displayed only when [No] in the [Use same message-related settings as Link Options tab] property is selected.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(All)(-CHange_message=Error)	Changes the type of all information and warning messages to error.
		Yes(Specify message number)(-CHange_message=Error=<Message number>)	Specifies the number of information or warning message of which type is to be changed to error.
		No	Does not change the type of information and warning messages.
Number of information and warning message	Specify the number of the information and warning message. If multiple message numbers are specified, delimit them with "," (comma) (example: 4,200). Also, a range of message numbers can be specified using "-" (hyphen) (example:4,200-203,1300). This corresponds to the -CHange_message option of the rlink command. This property is displayed only when [No] in the [Use same message-related settings as Link Options tab] property is selected and when [Yes(Specify message number)(-CHange_message=Error=<Message number>)] in the [Change information and warning message to error message] property is selected.		
	Default	Blank	
	How to change	Directly enter in the text box or edit by the Character String Input dialog box which appears when clicking the [...] button.	
	Restriction	Up to 2048 characters	

(5) [Others]
Other detailed information on the hex output is displayed and the configuration can be changed.
This category is displayed only when [Yes] in the [Output hex file] property in the [Output File] category is selected.

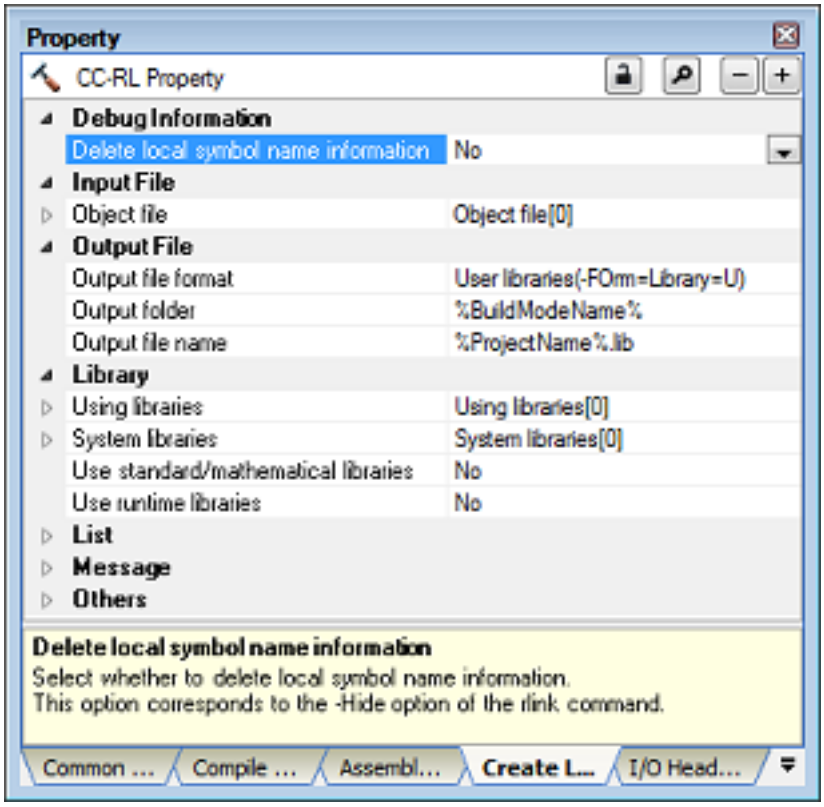
Other additional options	Input the hex output options to be added additionally. The options set here are added at the end of the hex output options group.	
	Default	Blank
	How to change	Directly enter in the text box or edit by the Character String Input dialog box which appears when clicking the [...] button.
	Restriction	Up to 259 characters

[Create Library Options] tab

This tab shows the detailed information on the create library phase categorized by the following and the configuration can be changed.

Caution This tab is displayed for the library project.

Figure A.7 Property Panel: [Create Library Options] Tab



[Description of each category]

(1) [Debug Information]
The detailed information on debug information is displayed and the configuration can be changed.

Output debug information	Select whether to output debug information. This corresponds to the -DEBug and -NODEBug options of the rlink command. This property is displayed only when [Relocatable file(-FOrm=Relocate)] in the [Output file format] property in the [Output File] category.		
	Default	Yes(Output to the output file)(-DEBug)	
	How to change	Select from the drop-down list.	
	Restriction	Yes(Output to the output file)(-DEBug)	Outputs debug information.
		No	Does not output debug information.

Delete local symbol name information	Select whether to delete local symbol name information. This corresponds to the -Hide option of the rlink command.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-Hide)	Deletes information of the local symbol name.
		No	Does not delete information of the local symbol name.

(2) [Input File]
The detailed information on input files is displayed and the configuration can be changed.

Object file	Specify the object files. Specify in the format of "*library*(*module*)", with one entry name per line. The following placeholders are supported. %ActiveProjectDir%: Replaces with the absolute path of the active project folder. %ActiveProjectName%: Replaces with the active project name. %BuildModeName%: Replaces with the build mode name. %MainProjectDir%: Replaces with the absolute path of the main project folder. %MainProjectName%: Replaces with the main project name. %MicomToolPath%: Replaces with the absolute path of the install folder of this product. %ProjectDir%: Replaces with the absolute path of the project folder. %ProjectName%: Replaces with the project name. %TempDir%: Replaces with the absolute path of the temporary folder. %WinDir%: Replaces with the absolute path of the Windows system folder. This corresponds to the -Input option of the rlink command. The object file name is displayed as the subproperty.	
	Default	Object file[*number of defined items*]
	How to change	Edit by the Text Edit dialog box which appears when clicking the [...] button. For the subproperty, you can enter directly in the text box.
	Restriction	Up to 1024 characters Up to 256 items can be specified.

Binary file	Specify the binary files. Specify in the format of "*file name*(*section name*[:*number of alignment*][/*section attribute*][,*symbol name*])", with one entry per line. [:*number of alignment*], [/*section attribute*], and [,*symbol name*] can be omitted. The value that can be specified for *number of alignment* is 1, 2, 4, 8, 16, or 32. If the specification is omitted, it is assumed that 1 has been specified. "CODE" or "DATA" can be specified as *section attribute*. If the specification is omitted, all attributes such as the ability to write, read, and execute, will be all valid. The following placeholders are supported. %ActiveProjectDir%: Replaces with the absolute path of the active project folder. %ActiveProjectName%: Replaces with the active project name. %BuildModeName%: Replaces with the build mode name. %MainProjectDir%: Replaces with the absolute path of the main project folder. %MainProjectName%: Replaces with the main project name. %MicomToolPath%: Replaces with the absolute path of the install folder of this product. %ProjectDir%: Replaces with the absolute path of the project folder. %ProjectName%: Replaces with the project name. %TempDir%: Replaces with the absolute path of the temporary folder. %WinDir%: Replaces with the absolute path of the Windows system folder. This corresponds to the -Binary option of the rlink command. The binary file name is displayed as the subproperty. This property is displayed only when [Relocatable file(-FOrm=Relocate)] in the [Output file format] property in the [Output File] category.	
	Default	Binary file[*number of defined items*]
	How to change	Edit by the Text Edit dialog box which appears when clicking the [...] button. For the subproperty, you can enter directly in the text box.
	Restriction	Up to 1024 characters Up to 256 items can be specified.

(3) [Output File]

The detailed information on output files is displayed and the configuration can be changed.

Output file format	Select the format of the output file. This corresponds to the -FOrm option of the rlink command.		
	Default	User libraries(-FOrm=Library=U)	
	How to change	Select from the drop-down list.	
	Restriction	User libraries(-FOrm=Library=U)	Outputs a user library file.
		System libraries(-FOrm=Library=S)	Outputs a system library file.
		Relocatable file(-FOrm=Relocate)	Outputs a relocatable file.

Output folder	Specify the output folder. The following placeholders are supported. %ActiveProjectDir%: Replaces with the absolute path of the active project folder. %ActiveProjectName%: Replaces with the active project name. %BuildModeName%: Replaces with the build mode name. %MainProjectDir%: Replaces with the absolute path of the main project folder. %MainProjectName%: Replaces with the main project name. %MicomToolPath%: Replaces with the absolute path of the install folder of this product. %ProjectDir%: Replaces with the absolute path of the project folder. %ProjectName%: Replaces with the project name. %TempDir%: Replaces with the absolute path of the temporary folder. %WinDir%: Replaces with the absolute path of the Windows system folder. If this is blank, it is assumed that the project folder has been specified. This corresponds to the -OUtput option of the rlink command.	
	Default	%BuildModeName%
	How to change	Directly enter in the text box or edit by the Browse For Folder dialog box which appears when clicking the [...] button.
	Restriction	Up to 247 characters
Output file name	Specify the output file name. If the extension is omitted, it is automatically added according to the selection in the [Output file format] property. When [User libraries(-FOrm=Library=U)] is selected: .lib When [System libraries(-FOrm=Library=S)] is selected: .lib When [Relocatable file(-FOrm=Relocate)] is selected: .rel The following placeholders are supported. %ActiveProjectName%: Replaces with the active project name. %BuildModeName%: Replaces with the build mode name. %MainProjectName%: Replaces with the main project name. %ProjectName%: Replaces with the project name. This corresponds to the -OUtput option of the rlink command.	
	Default	%ProjectName%.lib
	How to change	Directly enter in the text box.
	Restriction	Up to 259 characters

(4) [Library]
The detailed information on the library is displayed and the configuration can be changed.

Using libraries	Specify the library files to be used. If a relative path is specified, the reference point of the path is the main project or sub-project folder. The following placeholders are supported. %ActiveProjectDir%: Replaces with the absolute path of the active project folder. %ActiveProjectName%: Replaces with the active project name. %BuildModeName%: Replaces with the build mode name. %MainProjectDir%: Replaces with the absolute path of the main project folder. %MainProjectName%: Replaces with the main project name. %MicomToolPath%: Replaces with the absolute path of the install folder of this product. %ProjectDir%: Replaces with the absolute path of the project folder. %ProjectName%: Replaces with the project name. %TempDir%: Replaces with the absolute path of the temporary folder. %WinDir%: Replaces with the absolute path of the Windows system folder. This corresponds to the -LIBrary option of the rlink command. The library file name is displayed as the subproperty.		
	Default	Using libraries[*number of defined items*]	
	How to change	Edit by the Path Edit dialog box which appears when clicking the [...] button. -> Edit by the Specify Using Library File dialog box which appears when clicking the [Browse...] button. For the subproperty, you can enter directly in the text box.	
	Restriction	Up to 259 characters Up to 65536 items can be specified.	
System libraries	The system library files are displayed. For the relative path, the reference point of the path is the main project or subproject folder. This corresponds to the -LIBrary option of the rlink command. The system library file name is displayed as the subproperty.		
	Default	System libraries[*number of defined items*]	
	How to change	Changes not allowed	
Use standard/mathematical libraries	Select whether to use the standard/mathematical libraries provided by the compiler. This corresponds to the -LIBrary option of the rlink command.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes	Uses the standard/mathematical libraries.
		No	Does not use the standard/mathematical libraries.
Use runtime libraries	Select whether to use the runtime libraries provided by the compiler. This corresponds to the -LIBrary option of the rlink command.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes	Uses the runtime libraries.
		No	Does not use the runtime libraries.

(5) [List]
The detailed information on the list is displayed and the configuration can be changed.

Output link map file	Select whether to output the library list file. This corresponds to the -LISt and -SHow options of the rlink command.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(List contents=not specify)(-LISt -SHow)	Outputs information according to the output format to the library list file.
		Yes(List contents=ALL)(-LISt -SHow=ALL)	Outputs all information according to the output format to the library list file.
		Yes(List contents=specify)(-LISt)	Outputs the specified information to the library list file.
		No	Does not output the library list file.
Output symbol information	Select whether to output the symbol information (symbol names within a module). This corresponds to the -SHow=SYmbol option of the rlink command. This property is displayed only when [Yes(List contents=specify)(-LISt)] in the [Output link map file] property is selected.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-SHow=SYmbol)	Outputs the symbol information.
		No	Does not output the symbol information.
Output section list in a module	Select whether to output the list of the section names within the module. This corresponds to the -SHow=SEction option of the rlink command. This property is displayed only when [Yes(List contents=specify)(-LISt)] in the [Output link map file] property is selected and [User libraries(-FOrm=Library=U)] or [System libraries(-FOrm=Library=S)] in the [Output file format] property in the [Output File] category is selected.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-SHow=SEction)	Outputs the list of the section names within the module.
		No	Does not output the list of the section names within the module.
Output cross reference information	Select whether to output the cross reference information. This corresponds to the -SHow=XReference option of the rlink command. This property is displayed only when [Yes(List contents=specify)(-LISt)] in the [Output link map file] property and [Relocatable file(-FOrm=Relocate)] in the [Output file format] property in the [Output File] category are selected.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-SHow=Xreference)	Outputs the cross reference information.
		No	Does not output the cross reference information.

Output total sizes of sections	Select whether to output the total size of sections. This corresponds to the -SHow=Total_size option of the rlink command. This property is displayed only when [Yes(List contents=specify)(-LISt)] in the [Output link map file] property and [Relocatable file(-FOrm=Relocate)] in the [Output file format] property in the [Output File] category are selected.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-SHow=Total_size)	Outputs the total sizes of sections separately for ROM-allocated sections and RAM-allocated sections.
		No	Does not output the total size of sections.

(6) [Message]
The detailed information on messages is displayed and the configuration can be changed.

Enable information message output	Select whether to enable the output of information messages. This corresponds to the -Message and -NOMessage options of the rlink command.		
	Default	No(-NOMessage)	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-Message)	Outputs information messages.
		No(-NOMessage)	Suppresses the output of information messages.
Suppress number of information message	Specify the number of the information message of which output is to be suppressed. If multiple message numbers are specified, delimit them with "," (comma) (example: 4,200). Also, a range of message numbers can be specified using "-" (hyphen) (example:4,200-203,1300). This corresponds to the -NOMessage option of the rlink command. This property is displayed when [No(-NOMessage)] in the [Enable information message output] property is selected.		
	Default	Blank	
	How to change	Directly enter in the text box or edit by the Character String Input dialog box which appears when clicking the [...] button.	
	Restriction	Up to 2048 characters	
Change warning message to information message	Select whether to change the type of warning messages to information. This corresponds to the -CHange_message option of the rlink command.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(All)(-CHange_message=Information)	Changes the type of all warning messages to information.
		Yes(Specify message number)(-CHange_message=Information=<Message number>)	Specifies the number of warning message of which type is to be changed to information.
		No	Does not change the type of warning messages.

Number of warning message	Specify the number of the warning message. If multiple message numbers are specified, delimit them with "," (comma) (example: 4,200). Also, a range of message numbers can be specified using "-" (hyphen) (example:4,200-203,1300). This corresponds to the -CHange_message option of the rlink command. This property is displayed only when [Yes(Specify message number)(-CHange_message=Information=<Message number>)] in the [Change warning message to information message] property is selected.		
	Default	Blank	
	How to change	Directly enter in the text box or edit by the Character String Input dialog box which appears when clicking the [...] button.	
	Restriction	Up to 2048 characters	
Change information message to warning message	Select whether to change the type of information messages to warning. This corresponds to the -CHange_message option of the rlink command.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(All)(-CHange_message=Warning)	Changes the type of all information messages to warning.
		Yes(Specify message number)(-CHange_message=Warning=<Message number>)	Specifies the number of information message of which type is to be changed to warning.
		No	Does not change the type of information messages.
Number of information message	Specify the number of the information message. If multiple message numbers are specified, delimit them with "," (comma) (example: 4,200). Also, a range of message numbers can be specified using "-" (hyphen) (example:4,200-203,1300). This corresponds to the -CHange_message option of the rlink command. This property is displayed only when [Yes(Specify message number)(-CHange_message=Information=<Message number>)] in the [Change warning message to information message] property is selected.		
	Default	Blank	
	How to change	Directly enter in the text box or edit by the Character String Input dialog box which appears when clicking the [...] button.	
	Restriction	Up to 2048 characters	

Change information and warning message to error message	Select whether to change the type of information and warning messages to error. This corresponds to the -CHange_message option of the rlink command.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(All)(-CHange_message=Error)	Changes the type of all information and warning messages to error.
		Yes(Specify message number)(-CHange_message=Error=<Message number>)	Specifies the number of information or warning message of which type is to be changed to error.
		No	Does not change the type of information and warning messages.
Number of information and warning message	Specify the number of the information and warning message. If multiple message numbers are specified, delimit them with "," (comma) (example: 4,200). Also, a range of message numbers can be specified using "-" (hyphen) (example:4,200-203,1300). This corresponds to the -CHange_message option of the rlink command. This property is displayed only when [Yes(Specify message number)(-CHange_message=Error=<Message number>)] in the [Change warning message to information message] property is selected.		
	Default	Blank	
	How to change	Directly enter in the text box or edit by the Character String Input dialog box which appears when clicking the [...] button.	
	Restriction	Up to 2048 characters	

(7) [Others]
Other detailed information on creating a library is displayed and the configuration can be changed.

Reduce memory occupancy	Select whether to reduce the memory usage. This corresponds to the -MEMory option of the rlink command. This property is displayed only in the following cases. - When [No] in the [Delete local symbol name information] property in the [Debug Information] category is selected - When [User libraries(-FOrm=Library=U)] or [System libraries(-FOrm=Library=S)] in the [Output file format] property in the [Output File] category is selected		
	Default	No(-MEMory=High)	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-MEMory=Low)	Reduces the memory usage. Select this item if processing is slow because a large project is linked and the memory size occupied by the linker exceeds the available memory in the machine used.
		No(-MEMory=High)	Executes the same processing as usual.

<table>
<tr><td rowspan="5">Display total size of sections</td><td colspan="3">Select whether to display the total size of sections after the linking.
This corresponds to the -Total_size option of the rlink command.
This property is displayed only when [Relocatable file(-FOrm=Relocate)] in the [Output file format] property in the [Output File] category.</td></tr>
<tr><td>Default</td><td colspan="2">No</td></tr>
<tr><td>How to change</td><td colspan="2">Select from the drop-down list.</td></tr>
<tr><td rowspan="2">Restriction</td><td>Yes(-Total_size)</td><td>Displays the total size of sections after the linking.</td></tr>
<tr><td>No</td><td>Does not display the total size of sections after the linki4ng.</td></tr>
<tr><td rowspan="5">Display copyright information</td><td colspan="3">Select whether to display copyright information.
This corresponds to the -LOgo and -NOLOgo options of the rlink command.</td></tr>
<tr><td>Default</td><td colspan="2">No(-NOLOgo)</td></tr>
<tr><td>How to change</td><td colspan="2">Select from the drop-down list.</td></tr>
<tr><td rowspan="2">Restriction</td><td>Yes</td><td>Displays copyright information.</td></tr>
<tr><td>No(-NOLOgo)</td><td>Suppresses the output of copyright information.</td></tr>
<tr><td rowspan="4">Commands executed before create library processing</td><td colspan="3">Specify the command to be executed before library generation processing.
Use the call instruction to specify a batch file (example: call a.bat).
The following placeholders are supported.
%ActiveProjectDir%: Replaces with the absolute path of the active project folder.
%ActiveProjectName%: Replaces with the active project name.
%BuildModeName%: Replaces with the build mode name.
%LibraryFile%: Replaces with the absolute path of the output file under the library generation processing.
%MainProjectDir%: Replaces with the absolute path of the main project folder.
%MainProjectName%: Replaces with the main project name.
%MicomToolPath%: Replaces with the absolute path of the install folder of this product.
%Options%: Replaces with the command line option under build execution.
%OutputDir%: Replaces with the absolute path of the output folder.
%OutputFile%: Replaces with the absolute path of the output file.
%Program%: Replaces with the program name under execution.
%ProjectDir%: Replaces with the absolute path of the project folder.
%ProjectName%: Replaces with the project name.
%TempDir%: Replaces with the absolute path of the temporary folder.
%WinDir%: Replaces with the absolute path of the Windows system folder.
When "#!python" is described in the first line, the contents from the second line to the last line are regarded as the script of the Python console, and then executed before library generation processing.
The placeholders can be described in the script.
The specified command is displayed as the subproperty.
This property is displayed only when [No] in the [Build simultaneously] property in the [Build Method] category from the [Common Options] tab is selected.</td></tr>
<tr><td>Default</td><td colspan="2">Commands executed before library generate processing[number of defined items]</td></tr>
<tr><td>How to change</td><td colspan="2">Edit by the Text Edit dialog box which appears when clicking the [...] button.
For the subproperty, you can enter directly in the text box.</td></tr>
<tr><td>Restriction</td><td colspan="2">Up to 1023 characters
Up to 64 items can be specified.</td></tr>
</table>

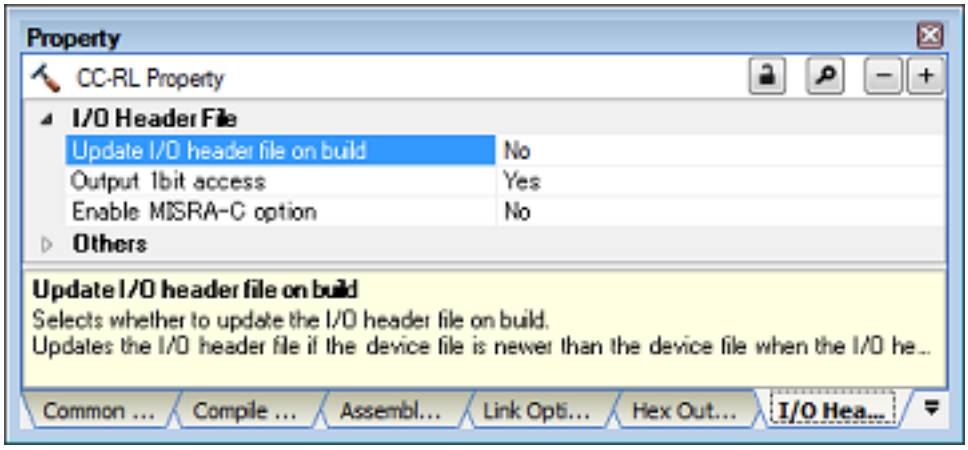
<table>
<tr><td rowspan="4">Commands executed after create library processing</td><td colspan="2">Specify the command to be executed after library generation processing.
Use the call instruction to specify a batch file (example: call a.bat).
The following placeholders are supported.
%ActiveProjectDir%: Replaces with the absolute path of the active project folder.
%ActiveProjectName%: Replaces with the active project name.
%BuildModeName%: Replaces with the build mode name.
%LibraryFile%: Replaces with the absolute path of the output file under the library generation processing.
%MainProjectDir%: Replaces with the absolute path of the main project folder.
%MainProjectName%: Replaces with the main project name.
%MicomToolPath%: Replaces with the absolute path of the install folder of this product.
%Options%: Replaces with the command line option under build execution.
%OutputDir%: Replaces with the absolute path of the output folder.
%OutputFile%: Replaces with the absolute path of the output file.
%Program%: Replaces with the program name under execution.
%ProjectDir%: Replaces with the absolute path of the project folder.
%ProjectName%: Replaces with the project name.
%TempDir%: Replaces with the absolute path of the temporary folder.
%WinDir%: Replaces with the absolute path of the Windows system folder.
When "#!python" is described in the first line, the contents from the second line to the last line are regarded as the script of the Python console, and then executed after library generation processing.
The placeholders can be described in the script.
The specified command is displayed as the subproperty.
This property is displayed only when [No] in the [Build simultaneously] property in the [Build Method] category from the [Common Options] tab is selected.</td></tr>
<tr><td>Default</td><td>Commands executed after library generate processing[number of defined items]</td></tr>
<tr><td>How to change</td><td>Edit by the Text Edit dialog box which appears when clicking the [...] button.
For the subproperty, you can enter directly in the text box.</td></tr>
<tr><td>Restriction</td><td>Up to 1023 characters
Up to 64 items can be specified.</td></tr>
<tr><td rowspan="4">Other additional options</td><td colspan="2">Input the create library options to be added additionally.
The options set here are added at the end of the create library options group.</td></tr>
<tr><td>Default</td><td>Blank</td></tr>
<tr><td>How to change</td><td>Directly enter in the text box or edit by the Character String Input dialog box which appears when clicking the [...] button.</td></tr>
<tr><td>Restriction</td><td>Up to 259 characters</td></tr>
</table>

[I/O Header File Generation Options] tab

This tab shows the detailed information on the I/O header file generation tool categorized by the following and the configuration can be changed.

(1) [I/O Header File]
(2) [Others]

Figure A.8 Property Panel: [I/O Header File Generation Options] Tab



[Description of each category]

(1) [I/O Header File]
The detailed information on the I/O header file is displayed and the configuration can be changed.

Update I/O header file on build	Select whether to update the I/O header file at build. The I/O header file is updated when the device file is newer than that at generation of the I/O header file or properties related to generation of the I/O header file have been updated. Update is performed by automatic overwriting and a backup file with the bak extension is created. This contents are common to all the build modes.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(Checking the device file)	Updates the I/O header file when the device file has been updated at build.
		Yes(Checking the property)	Updates the I/O header file when the properties have been updated at build.
		Yes(Checking the device file and the property)	Updates the I/O header file when the device file or properties have been updated at build.
		No	Does not update the I/O header file at build.

Device file on generating I/O header file	The file name and version of the device file when the I/O header file was generated are displayed. Note that this property is displayed only when a choice other than [No] was made in the [Update I/O header file on build] property.		
	Default	*The file name and version of the device file when the I/O header file was generated*	
	How to change	Changes not allowed	
Current device file	The file name and version of the device file which is installed in the running CS+ environment are displayed. Note that this property is displayed only when a choice other than [No] was made in the [Update I/O header file on build] property.		
	Default	*Current device file*	
	How to change	Changes not allowed	
Output 1bit access	Select whether to output the 1-bit macro definition for IOR access in the I/O header file. This contents are common to all the build modes.		
	Default	Yes	
	How to change	Select from the drop-down list.	
	Restriction	Yes	Outputs 1-bit access.
		No	Does not output 1-bit access.
Enable MISRA-C option	Select whether to output an I/O header file compatible with the MISRA-C rules. This contents are common to all the build modes.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-misra_c=on)	Outputs an I/O header file compatible with the MISRA-C rules.
		No	The MISRA-C rules are not considered.

(2) [Others]
Other detailed information on the I/O header file is displayed and the configuration can be changed.

Other additional options	Input the I/O header file options to be added additionally. The options set here are added at the end of the I/O header file generation options group.	
	Default	Blank
	How to change	Directly enter in the text box or edit by the Character String Input dialog box which appears when clicking the [...] button.
	Restriction	Up to 259 characters

[Build Settings] tab

This tab shows the detailed information on each C source file, assembly source file, object file, and library file categorized by the following and the configuration can be changed.

(1) [Build]

Figure A.9 Property Panel: [Build Settings] Tab (When Selecting C Source File)

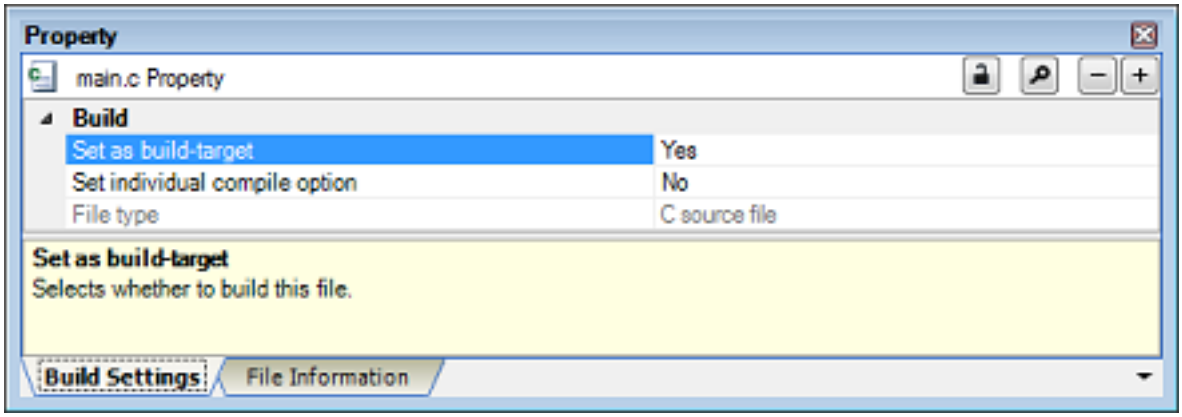


Figure A.10 Property Panel: [Build Settings] Tab (When Selecting Assembly Source File)

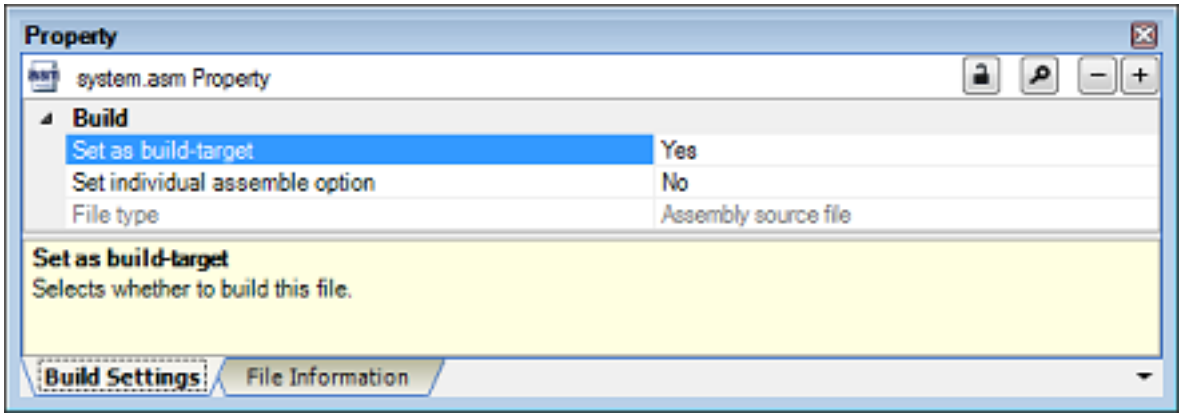


Figure A.11 Property Panel: [Build Settings] Tab (When Selecting Object File)

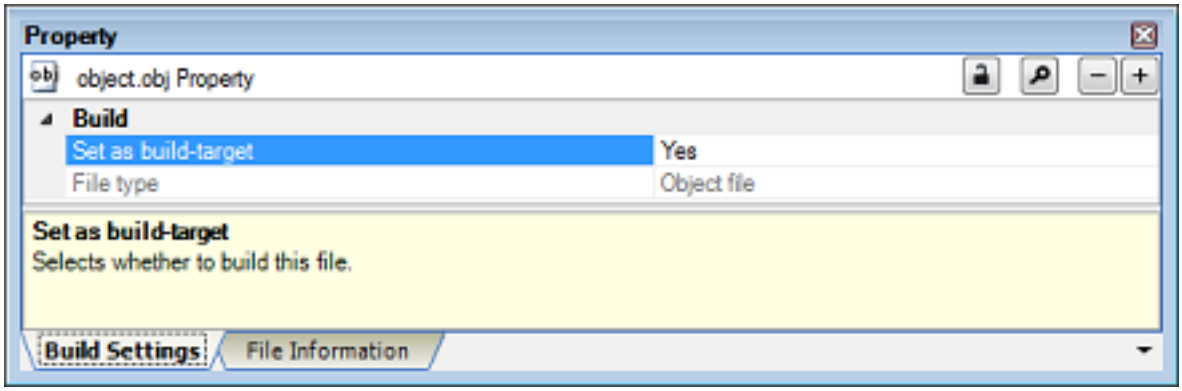
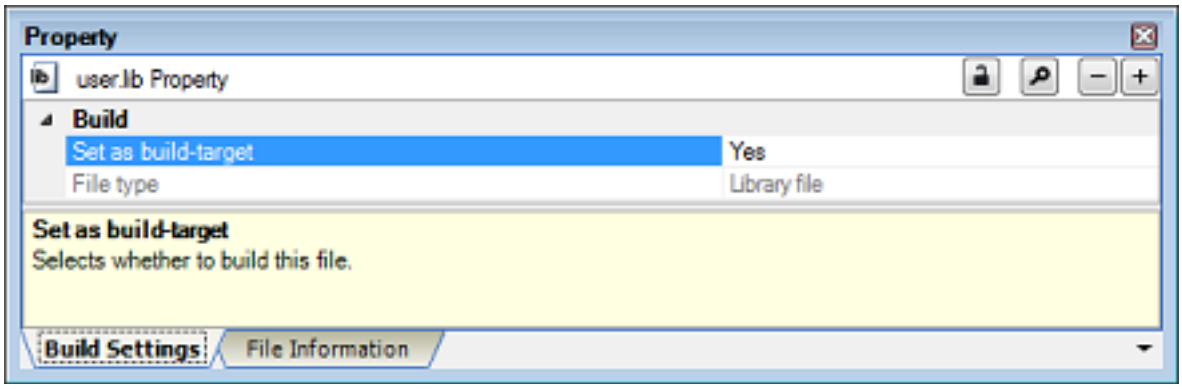


Figure A.12 Property Panel: [Build Settings] Tab (When Selecting Library File)



[Description of each category]

(1) [Build]
The detailed information on the build is displayed and the configuration can be changed.

Set as build-target	Select whether to run a build of the selected file.		
	Default	Yes	
	How to change	Select from the drop-down list.	
	Restriction	Yes	Runs a build of the selected file.
		No	Does not run a build of the selected file.
Set individual compile option	Select whether to set the compile option that differs from the project settings to the selected C source file. If [Yes(Level 3)(Perform with assuming it the whole program)(-Owhole_program)] is selected in the [Perform inter-module optimization] property in the [Optimization(Details)] category from the [Compile Options] tab, this property will be grayed out and changed to [No]. This property is displayed only when a C source file is selected on the project tree and [Yes] in the [Set as build-target] property is selected.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes	Sets the option that differs from the project settings to the selected C source file.
		No	Does not set the option that differs from the project settings to the selected C source file.

Set individual assemble option	Select whether to set the assemble option that differs from the project settings to the selected assembly source file. If [Yes(Level 3)(Perform with assuming it the whole program)(-Owhole_program)] is selected in the [Perform inter-module optimization] property in the [Optimization(Details)] category from the [Compile Options] tab, this property will be grayed out and changed to [No]. This property is displayed only when the assembly source file is selected on the project tree and [Yes] in the [Set as build-target] property tab is selected.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes	Sets the option that differs from the project settings to the selected assembly source file.
		No	Does not set the option that differs from the project settings to the selected assembly source file.
File type	The type of the selected file is displayed.		
	Default	C source file (when the C source file is selected) Assembly source file (when the assembly source file is selected) Object file (when the object file is selected) Library file (when the library file is selected)	
	How to change	Changes not allowed	

[Individual Compile Options] tab

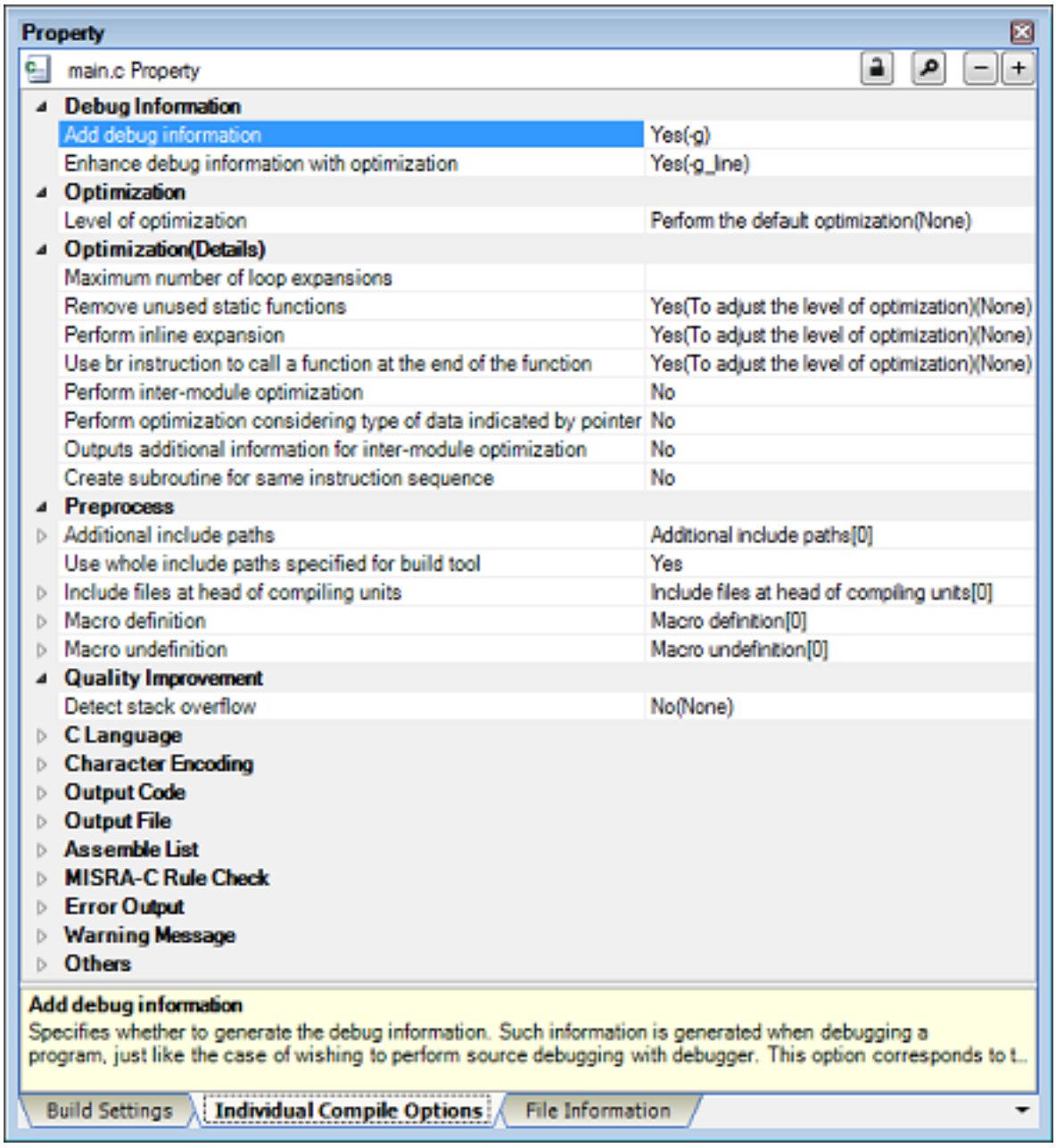
This tab shows the detailed information on a C source file categorized by the following and the configuration can be changed.

Note that this tab takes over the settings of the [Common Options] tab and [Compile Options] tab.

When the settings are changed from these tabs, the properties are displayed in boldface.

Remark This tab is displayed only when [Yes] in the [Set individual compile option] property in the [Build] category from the [Build Settings] tab is selected.

Figure A.13 Property Panel: [Individual Compile Options] Tab



[Description of each category]

(1) [Debug Information]
The detailed information on debug information is displayed and the configuration can be changed.

Add debug information	Select whether to generate the debug information. It is possible to perform source debugging with the debugger by outputting information for source debugging to the output file. This corresponds to the -g option of the ccrl command.		
	Default	*Configuration of the compile option*	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-g)	Generates the debug information.
		No	Does not generate the debug information.

Enhance debug information with optimization	Select whether to enhance debug information at optimization. This corresponds to the -g_line option of the ccrl command. This property is displayed in the following cases. - When [Always latest version which was installed] in the [Using compiler package version] property in the [Version Select] category from the [Common Options] tab is selected and the latest version is V1.02.00 or higher or when V1.02.00 or higher is selected in the [Using compiler package version] property - When [Yes(-g)] in the [Add debug information] property is selected		
	Default	*Configuration of the compile option*	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-g_line)	Enhances debug information at optimization.
		No	Does not enhance debug information at optimization.

(2) [Optimization]
The detailed information on the optimization is displayed and the configuration can be changed.

Level of optimization	Select the level of the optimization for compiling. This corresponds to the -O option of the ccrl command.		
	Default	*Configuration of the compile option*	
	How to change	Select from the drop-down list.	
	Restriction	Perform the default optimization(None)	Performs optimization that debugging is not affected (optimization of expressions and register allocation, and the like).
		Code size precedence(-Osize)	Performs optimization with the object size precedence. Regards reducing the ROM/RAM usage as important and performs the maximum optimization that is effective for general programs.
		Speed precedence(-Ospeed)	Performs optimization with the execution speed precedence. Regards shortening the execution speed as important and performs the maximum optimization that is effective for general programs.
		Debug precedence(-Onothing)	Performs optimization with the debug precedence. Regards debugging as important and suppresses all optimization including default optimization.

(3) [Optimization(Details)]
The detailed information on the optimization is displayed and the configuration can be changed.

Maximum number of loop expansions	Specify the maximum number of times to expand the loops such as "for" and "while". If 0 or 1 is specified, expansion is suppressed. If this is blank, it is assumed that "2" has been specified. This corresponds to the -Ounroll option of the ccrl command. This property is displayed only when [Perform the default optimization(None)], [Code size precedence(-Osize)] or [Speed precedence(-Ospeed)] in the [Level of optimization] property is selected.		
	Default	*Configuration of the compile option*	
	How to change	Directly enter in the text box.	
	Restriction	0 to 999 (decimal number) or blank	
Remove unused static functions	Select whether to remove the static functions which are not called. This corresponds to the -Odelete_static_func option of the ccrl command.		
	Default	*Configuration of the compile option*	
	How to change	Select from the drop-down list.	
	Restriction	Yes(To adjust the level of optimization)(None)	Performs optimization according to the [Level of optimization] property.
		Yes(-Odelete_static_func)	Removes the unused static functions which are not called.
		No(-Odelete_static_func=off)	Does not remove the unused static functions which are not called.
Perform inline expansion	Specify whether to perform inline expansion at the location calling functions. This corresponds to the -Oinline_level option of the ccrl command. This property is displayed only when [Perform the default optimization(None)], [Code size precedence(-Osize)] or [Speed precedence(-Ospeed)] in the [Level of optimization] property is selected.		
	Default	*Configuration of the compile option*	
	How to change	Select from the drop-down list.	
	Restriction	Yes(To adjust the level of optimization)(None)	Performs optimization according to the [Level of optimization] property.
		Yes(Only specified functions)(-Oinline_level=1)	Performs inline expansion at the location calling the function for which #pragma inline is specified.
		Yes(Auto-detect)(-Oinline_level=2)	Distinguishes the function that is the target of inline expansion automatically and expands it.
		Yes(Auto-detect without code size increase)(-Oinline_level=3)	Distinguishes the function that is the target of inline expansion automatically and expands it, while minimizing the increase in code size.
		No(-Oinline_level=0)	Suppresses all inline expansion including the function for which "#pragma inline" is specified.

Maximum increasing rate of inline expansion size	Specify the maximum increasing rate (%) of the code size up to which inline expansion is performed. (Example: When "100" is specified, inline expansion will be applied until the code size increases by 100% (becomes twice the initial size).) This corresponds to the -Oinline_size option of the ccrl command. This property is displayed only when [Yes(Auto-detect)(-Oinline=2)] in the [Perform inline expansion] property is selected, or when [Yes(To adjust the level of optimization)] in the [Perform inline expansion] property and [Speed precedence(-Ospeed)] in the [Optimization Level] property are selected.		
	Default	*Configuration of the compile option*	
	How to change	Directly enter in the text box.	
	Restriction	0 to 65535 (decimal number)	
Use br instruction to call a function at the end of the function	Select whether to give precedence to using br instructions in the place of call instructions when the function ends with a function call. This corresponds to the -Otail_call option of the ccrl command.		
	Default	*Configuration of the compile option*	
	How to change	Select from the drop-down list.	
	Restriction	Yes(To adjust the level of optimization)(None)	Performs optimization according to the [Level of optimization] property.
		Yes(-Otail_call=on)	Gives precedence to using br instructions in the place of call instructions when the function ends with a function call. The code size can be reduced by removing the ret instruction. However, some debug functions cannot be used.
		No(-Otail_call=off)	Uses call instructions when the function ends with a function call.
Perform inter-module optimization	Specify the level of inter-module optimization (such as function merging). This corresponds to the -Ointermodule option of the ccrl command.		
	Default	*Configuration of the compile option*	
	How to change	Select from the drop-down list.	
	Restriction	Yes(Level 1)(Perform)(-Ointermodule)	Performs inter-module optimization for each file.
		No	Does not perform inter-module optimization.

Perform optimization considering type of data indicated by pointer	Select whether to perform optimization with consideration for the type of the data indicated by the pointer, based on the ANSI standard. This corresponds to the -Oalias option of the ccrl command.		
	Default	*Configuration of the compile option*	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-Oalias=ansi)	Performs optimization with consideration for the type of the data indicated by the pointer. In general, this option improves the object performance, but the execution result may differ from the case when [No] is selected.
		No	Does not perform optimization with consideration for the type of the data indicated by the pointer.
Create subroutine for same instruction sequence	Select whether to create a subroutine for the same instruction sequence. This corresponds to the -Osame_code option of the ccrl command. This property is displayed in the following cases. - When [Always latest version which was installed] in the [Using compiler package version] property in the [Version Select] category from the [Common Options] tab is selected and the latest version is V1.02.00 or higher or when V1.02.00 or higher is selected in the [Using compiler package version] property - When [Perform the default optimization(None)], [Code size precedence(-Osize)] or [Speed precedence(-Ospeed)] in the [Level of optimization] property is selected		
	Default	*Configuration of the compile option*	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-Osame_code)	Creates a subroutine for the same instruction sequence.
		No	Does not create a subroutine for the same instruction sequence.
Outputs additional information for inter-module optimization	Select whether to output additional information for inter-module optimization. At linkage, inter-module optimization is applied to files for which this option has been specified. This corresponds to the -goptimize option of the ccrl command.		
	Default	*Configuration of the compile option*	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-goptimize)	Outputs additional information for inter-module optimization.
		No	Does not outputs additional information for inter-module optimization.

(4) [Preprocess]
The detailed information on preprocessing is displayed and the configuration can be changed.

<table>
<tr><td>Additional include paths</td><td colspan="3">Specify the additional include paths during compiling.
The following placeholders are supported.
%ActiveProjectDir%: Replaces with the absolute path of the active project folder.
%ActiveProjectName%: Replaces with the active project name.
%BuildModeName%: Replaces with the build mode name.
%MainProjectDir%: Replaces with the absolute path of the main project folder.
%MainProjectName%: Replaces with the main project name.
%MicomToolPath%: Replaces with the absolute path of the install folder of this product.
%ProjectDir%: Replaces with the absolute path of the project folder.
%ProjectName%: Replaces with the project name.
%TempDir%: Replaces with the absolute path of the temporary folder.
%WinDir%: Replaces with the absolute path of the Windows system folder.
The specified include path is searched with higher priority than the standard include file folder of CC-RL.
The reference point of the path is the project folder.
When this property is omitted, only the standard folder of CC-RL is searched.
This corresponds to the -I option of the ccrl command.
The specified include path is displayed as the subproperty.
Uppercase characters and lowercase characters are not distinguished for the include paths.</td></tr>
<tr><td></td><td>Default</td><td colspan="2">Additional include paths[number of defined items]</td></tr>
<tr><td></td><td>How to change</td><td colspan="2">Edit by the Path Edit dialog box which appears when clicking the [...] button.
For the subproperty, you can enter directly in the text box.</td></tr>
<tr><td></td><td>Restriction</td><td colspan="2">Up to 247 characters
Up to 256 items can be specified.</td></tr>
<tr><td>Use whole include paths specified for build tool</td><td colspan="3">Select whether to compile using the include path specified in the [Additional include paths] property in the [Preprocess] category from the [Compile Options] tab of the build tool to be used.
The include paths are added by the following procedure.
- Paths specified in the [Additional include paths] property from this tab
- Paths specified in the [Additional include paths] property from the [Compile Options] tab
- Paths displayed in the [System include paths] property from the [Compile Options] tab
This corresponds to the -I option of the ccrl command.</td></tr>
<tr><td></td><td>Default</td><td colspan="2">Yes</td></tr>
<tr><td></td><td>How to change</td><td colspan="2">Select from the drop-down list.</td></tr>
<tr><td></td><td rowspan="2">Restriction</td><td>Yes</td><td>Compiles using the include path specified in the property of the build tool to be used.</td></tr>
<tr><td></td><td>No</td><td>Does not use the include path specified in the property of the build tool to be used.</td></tr>
</table>

Include files at head of compiling units	Specify the file that is included at the top of the compilation unit. The following placeholders are supported. %ActiveProjectDir%: Replaces with the absolute path of the active project folder. %ActiveProjectName%: Replaces with the active project name. %BuildModeName%: Replaces with the build mode name. %MainProjectDir%: Replaces with the absolute path of the main project folder. %MainProjectName%: Replaces with the main project name. %MicomToolPath%: Replaces with the absolute path of the install folder of this product. %ProjectDir%: Replaces with the absolute path of the project folder. %ProjectName%: Replaces with the project name. %TempDir%: Replaces with the absolute path of the temporary folder. %WinDir%: Replaces with the absolute path of the Windows system folder. The reference point of the path is the project folder. This corresponds to the -preinclude option of the ccrl command. The specified include file name is displayed as the subproperty.	
	Default	*Configuration of the compile option*
	How to change	Edit by the Text Edit dialog box which appears when clicking the [...] button. For the subproperty, you can enter directly in the text box.
	Restriction	Up to 259 characters Up to 256 items can be specified.
Macro definition	Specify the name of the macro to be defined. Specify in the format of "*macro name=defined value*", with one macro name per line. The "*=defined value*" part can be omitted, and in this case, "1" is used as the defined value. This corresponds to the -D option of the ccrl command. The specified macro is displayed as the subproperty.	
	Default	*Configuration of the compile option*
	How to change	Edit by the Text Edit dialog box which appears when clicking the [...] button. For the subproperty, you can enter directly in the text box.
	Restriction	Up to 256 characters Up to 256 items can be specified.
Macro undefinition	Specify the macro name to be undefined. Specify in the format of "*macro name*", with one macro name per line. This corresponds to the -U option of the ccrl command. The specified macro is displayed as the subproperty.	
	Default	*Configuration of the compile option*
	How to change	Edit by the Text Edit dialog box which appears when clicking the [...] button. For the subproperty, you can enter directly in the text box.
	Restriction	Up to 256 characters Up to 256 items can be specified.

Output C source comments to preprocessed file	Select whether to output the comments of the C source to the preprocessed file. This corresponds to the -preprocess option of the ccrl command. This property is displayed only when [Yes(-P)] in the [Output preprocessed source file] property in the [Output File] category is selected.		
	Default	*Configuration of the compile option*	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-preprocess=comment)	Outputs the comments of the C source to the preprocessed file.
		No	Does not output the comments of the C source to the preprocessed file.
Output line number information to preprocessed file	Select whether to output the line number information of the C source to the preprocessed file. This corresponds to the -preprocess option of the ccrl command. This property is displayed only when [Yes(-P)] in the [Output preprocessed source file] property in the [Output File] category is selected.		
	Default	*Configuration of the compile option*	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-preprocess=line)	Outputs the line number information of the C source to the preprocessed file.
		No	Does not output the line number information of the C source to the preprocessed file.

(5) [Quality Improvement]
The detailed information on the quality improvement is displayed and the configuration can be changed.

Detect stack overflow	Select whether to detect the stack overflow. This property is usable only in the Professional Edition. Detection of stack overflow is a feature for writing a value outside the valid stack area before entering a function and checking whether that value is rewritten before exiting the function. Upon detection, the user-defined __stack_chk_fail() function is called. See "CC-RL Compiler User's Manual" about the difference between [Yes(-stack_protector)] and [Yes(All)(-stack_protector_all)]. This corresponds to the -stack_protector and -stack_protector_all options of the ccrl command. This property is displayed when [Always latest version which was installed] in the [Using compiler package version] property in the [Version Select] category from the [Common Options] tab is selected and the latest version is V1.02.00 or higher or when V1.02.00 or higher is selected in the [Using compiler package version] property.		
	Default	*Configuration of the compile option*	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-stack_protector)	Detects the stack overflow.
		Yes(All)(-stack_protector_all)	Detects the stack overflow for all functions.
		No(None)	Does not detect the stack overflow.

Value to be embedded for detecting stack overflow	Specify the value to be embedded for detecting the stack overflow. This property is usable only in the Professional Edition. This corresponds to the -stack_protector and -stack_protector_all options of the ccrl command. This property is displayed in the following cases. - When [Always latest version which was installed] in the [Using compiler package version] property in the [Version Select] category from the [Common Options] tab is selected and the latest version is V1.02.00 or higher or when V1.02.00 or higher is selected in the [Using compiler package version] property - When other than [No(None)] in the [Detect stack overflow] property is selected	
	Default	*Configuration of the compile option*
	How to change	Directly enter in the text box.
	Restriction	0 to 65535 (decimal number)

(6) [C Language]
The detailed information on C language is displayed and the configuration can be changed.

Compile strictly according to ANSI standards	Select whether to process as making C source program comply strictly with the ANSI standard and output an error or warning for a specification that violates the standard. This corresponds to the -ansi option of the ccrl command.		
	Default	*Configuration of the compile option*	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-ansi)	Processes as making C source program comply strictly with the ANSI standard and outputs an error or warning for a specification that violates the standard.
		No	Compatibility with the conventional C language specifications is conferred and processing continues after warning is output.
Check function without prototype declaration	Select whether to generate an error when using a function whose prototype declaration was not made in advance or a function without a prototype declaration. This corresponds to the -refs_without_declaration option of the ccrl command.		
	Default	*Configuration of the compile option*	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-refs_without_declaration)	Checks functions without prototype declarations.
		No	Does not check functions without prototype declarations.
Set 0xffff bytes to maximum variable size	Select whether to increase the maximum variable size from 0x7fff to 0xffff. This corresponds to the -large_variable option of the ccrl command.		
	Default	*Configuration of the compile option*	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-large_variable)	Increases the maximum variable size.
		No	Does not increase the maximum variable size.

Allow nested comments	Select whether to allow the nest use of comments ("/**/"). This corresponds to the -nest_comment option of the ccrl command.		
	Default	*Configuration of the compile option*	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-nest_comment)	Allows the nest use of comments.
		No	Does not allow the nest use of comments.

(7) [Character Encoding]
The detailed information on character encoding is displayed and the configuration can be changed.

Character encoding	Select the character code to be used for Japanese/Chinese comments and character strings in the source file. This corresponds to the -character_set option of the ccrl command.		
	Default	*Configuration of the compile option*	
	How to change	Select from the drop-down list.	
	Restriction	Auto(None)	Interprets the Japanese character code in the source file as SJIS on Japanese OS. On other than Japanese OS, does not interpret the character code in the source file.
		SJIS(-character_set=sjis)	Interprets the Japanese character code in the source file as SJIS.
		EUC(-character_set=euc_jp)	Interprets the Japanese character code in the source file as EUC.
		UTF-8(-character_set=utf8)	Interprets the Japanese character code in the source file as UTF-8.
		Big5(-character_set=big5)	Interprets the Chinese character code in the source file as Traditional Chinese.
		GBK(-character_set=gbk)	Interprets the Chinese character code in the source file as Simplified Chinese.
		No-process(-character_set=none)	Does not interpret the Japanese/Chinese character code in the source file.

(8) [Output Code]
The detailed information on output codes is displayed and the configuration can be changed.

Handle external variables as if they are volatile qualified	Select whether to handle all external variables and variables specified with #pragma address as if they are volatile qualified. This corresponds to the -volatile option of the ccrl command.		
	Default	*Configuration of the compile option*	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-volatile)	Handles all external variables and variables specified with #pragma address as if they are volatile qualified.
		No	Optimizes external variables that are not volatile qualified.

Output code of switch statement	Select the code output mode for switch statements in programs. This corresponds to the -switch option of the ccrl command.		
	Default	*Configuration of the compile option*	
	How to change	Select from the drop-down list.	
	Restriction	Auto(None)	The ccrl selects the optimum output format.
		if-else(-switch=ifelse)	Outputs the switch statements in the same format as the if-else statement along a string of case statements in programs. Select this item if the case statements are written in the order of frequency or if only a few labels are used. Because the case statements are compared starting from the top, unnecessary comparison can be reduced and the execution speed can be increased if the case statement that most often matches is written first.
		Binary search(-switch=binary)	Outputs the code in the binary search format for switch statements in programs. Searches for a matching case statement by using a binary search algorithm. If this item is selected when many labels are used, any case statement can be found at almost the same speed.
		Table jump(absolute)(-switch=abs_table)	Outputs the code in the table jump format (absolute branch) for switch statements in programs. References a table indexed on the values in the case statements, and selects and processes case labels from the switch statement values. The code will branch to all the case statements with about the same speed. However, if case values are not used in succession, an unnecessary area will be created.
		Table jump(relative)(-switch=rel_table)	Outputs the code in the table jump format (relative branch) for switch statements in programs. References a table indexed on the values in the case statements, and selects and processes case labels from the switch statement values. The code will branch to all the case statements with about the same speed. However, if case values are not used in succession, an unnecessary area will be created.

Output comment to assembly source file	Select whether to output a C source program as a comment to the assembly source file to be output. This corresponds to the -pass_source option of the ccrl command. This property is displayed only when [Yes(-asm_path)] in the [Output assembly source file] property in the [Output File] category is selected or when [Yes(-asmopt=-prn_path)] in the [Output assemble list file] property in the [Assemble List] category is selected.		
	Default	*Configuration of the compile option*	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-pass_source)	Outputs a C source program as a comment to the assembly source file.
		No	Does not output a C source program as a comment to the assembly source file.
Merge string literals	When the same string literals exist in the source file, specify whether to merge them and allocate to the one area. This corresponds to the -merge_string option of the ccrl command.		
	Default	*Configuration of the compile option*	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-merge_string)	Merges the same string literals exist in the source file and allocates to the one area.
		No	Each allocates the same string literals exist in the source file to separate areas.

(9) [Output File]
The detailed information on output files is displayed and the configuration can be changed.

Object file name	Specify the name of the object file generated after compilation. The extension other than ".obj" cannot be specified. If the extension is omitted, ".obj" is automatically added. If this is blank, the file name will be the source file name with the extension replaced by ".obj". This corresponds to the -o option of the ccrl command.		
	Default	Blank	
	How to change	Directly enter in the text box.	
	Restriction	Up to 259 characters	
Output assembly source file	Select whether to output the assembly source file of the compile result for the C source. This corresponds to the -asm_path option of the ccrl command.		
	Default	*Configuration of the compile option*	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-asm_path)	Outputs the assembly source file of the compile result for the C source.
		No	Does not output the assembly source file of the compile result for the C source.

Output folder for assembly source file	Specify the folder which the assembly source file is output. If a relative path is specified, the reference point of the path is the main project or subproject folder. If an absolute path is specified, the reference point of the path is the main project or subproject folder (unless the drives are different). The following placeholder is supported. %BuildModeName%: Replaces with the build mode name. The assembly source file is saved under the C source file name with the extension replaced by ".asm". If this is blank, it is assumed that the project folder has been specified. This corresponds to the -asm_path option of the ccrl command. This property is displayed only when [Yes(-asm_path)] in the [Output assembly source file] property is selected.		
	Default	*Configuration of the compile option*	
	How to change	Directly enter in the text box or edit by the Browse For Folder dialog box which appears when clicking the [...] button.	
	Restriction	Up to 247 characters	
Output preprocessed source file	Select whether to output the execution result of preprocessing for the source file to a file. This corresponds to the -P option of the ccrl command.		
	Default	*Configuration of the compile option*	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-P)	Outputs the execution result of preprocessing for the source file to a file.
		No	Does not output the execution result of preprocessing for the source file to a file.
Output folder for preprocessed source file	Specify the folder which the preprocessed source file is output. The file is output under the source file name with the extension replaced by ".i". If a relative path is specified, the reference point of the path is the main project or subproject folder. If an absolute path is specified, the reference point of the path is the main project or subproject folder (unless the drives are different). The following placeholder is supported. %BuildModeName%: Replaces with the build mode name. If this is blank, it is assumed that the project folder has been specified. This corresponds to the -prep_path option of the ccrl command. This property is displayed only when [Yes(-P)] in the [Output preprocessed source file] property is selected.		
	Default	*Configuration of the compile option*	
	How to change	Directly enter in the text box or edit by the Browse For Folder dialog box which appears when clicking the [...] button.	
	Restriction	Up to 247 characters	

(10) [Assemble List]
The detailed information on the assemble list is displayed and the configuration can be changed.

Output assemble list file	Select whether to output the assemble list file. This corresponds to the -asmopt=-prn_path option of the ccrl command.		
	Default	*Configuration of the compile option*	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-asmopt=-prn_path)	Outputs the assemble list file.
		No	Does not output the assemble list file.
Output folder for assemble list file	Specify the folder which the assemble list file is output. The assemble list file is output under the source file name with the extension replaced by ".prn". If a relative path is specified, the reference point of the path is the main project or sub-project folder. If an absolute path is specified, the reference point of the path is the main project or subproject folder (unless the drives are different). The following placeholder is supported. %BuildModeName%: Replaces with the build mode name. If this is blank, it is assumed that the project folder has been specified. This corresponds to the -asmopt=-prn_path option of the ccrl command. This property is displayed only when [Yes(-asmopt=-prn_path)] in the [Output assemble list file] property is selected.		
	Default	*Configuration of the compile option*	
	How to change	Directly enter in the text box or edit by the Browse For Folder dialog Box which appears when clicking the [...] button.	
	Restriction	Up to 247 characters	

(11) [MISRA-C Rule Check]
The detailed information on the MISRA-C rule check are displayed and the configuration can be changed.
20*XX* in the following table corresponds to 2012 or 2004 in particular.

MISRA-C specification	Select the MISRA-C specification. This property is usable only in the Professional Edition. This property is displayed when [Always latest version which was installed] in the [Using compiler package version] property in the [Version Select] category from the [Common Options] tab is selected and the latest version is V1.02.00 or higher or when V1.02.00 or higher is selected in the [Using compiler package version] property.		
	Default	*Configuration of the compile option*	
	How to change	Select from the drop-down list.	
	Restriction	MISRA-C 2012	Settings for MISRA-C 2012 are made in the subsequent properties.
		MISRA-C 2004	Settings for MISRA-C 2004 are made in the subsequent properties.

Apply rule	Select the MISRA-C rules to be applied. This property is usable only in the Professional Edition. This corresponds to the -misra20*XX* option of the ccrl command.		
	Default	*Configuration of the compile option*	
	How to change	Select from the drop-down list.	
	Restriction	Apply all rules(-misra20*XX*=all)	Checks the source code against all of the rules which are supported.
		Apply specified rule number(-misra20*XX*=apply)	Checks the source code against the rules with the specified numbers among the rules which are supported.
		Ignore specified rule number(-misra20*XX*=ignore)	Checks the source code against the rules that do not match the specified numbers among the rules which are supported.
		Apply rules that are classified as "required"(-misra20*XX*=required)	Checks the source code against the rules of the "required" type.
		Apply rules that are classified as "required" and specified rule number(-misra20*XX*=required_add)	Checks the source code against the rules of the "required" type and the rules with the specified numbers among the rules which are supported.
		Ignore specified rule number from rules that are classified as "required"(-misra20*XX*=required_remove)	Checks the source code against the rules of the "required" type except for the rules with the specified numbers among the rules which are supported.
		Apply rules that are described in the specified file(-misra20*XX*=<file name>)	Checks the source code against the rules with the numbers described in specified file among the rules which are supported.
		Not apply rule(None)	Does not apply the MISRA-C rules.
Rule number description file	Specify the rule number description file (MISRA-C rule file). This property is usable only in the Professional Edition. The following placeholders are supported. %BuildModeName%: Replaces with the build mode name. %MicomToolPath%: Replaces with the absolute path of the install folder of this product. %ProjectName%: Replaces with the project name. This corresponds to the -misra20*XX* option of the ccrl command. This property is displayed only when [Apply rules that are described in the specified file(-misra20*XX*=<file name>)] in the [Apply rule] property is selected.		
	Default	*Configuration of the compile option*	
	How to change	Directly enter in the text box or edit by the Specify MISRA-C Rule File dialog box which appears when clicking the [...] button.	
	Restriction	Up to 259 characters	

Rule number	Specify the rule number to be checked. This property is usable only in the Professional Edition. Specify at least one rule number in decimal. This corresponds to the -misra20*XX* option of the ccrl command. This property is displayed only when [Apply specified rule number(-misra20*XX*=apply)] in the [Apply rule] property is selected.	
	Default	*Configuration of the compile option*
	How to change	Directly enter in the text box or edit by the Specify Rule Number dialog box which appears when clicking the [...] button.
	Restriction	Up to 259 characters
Exclusion rule number	Specify the rule number to be excluded from the check. This property is usable only in the Professional Edition. Specify at least one rule number in decimal. This corresponds to the -misra20*XX* option of the ccrl command. This property is displayed only when [Ignore specified rule number(-misra20*XX*=ignore)] in the [Apply rule] property is selected.	
	Default	*Configuration of the compile option*
	How to change	Directly enter in the text box or edit by the Specify Rule Number dialog box which appears when clicking the [...] button.
	Restriction	Up to 259 characters
Check rule number besides required rule	Specify the rule number to be checked besides the required rules. This property is usable only in the Professional Edition. Specify at least one rule number in decimal. This corresponds to the -misra20*XX* option of the ccrl command. This property is displayed only when [Apply rules that are classified as "required" and specified rule number(-misra20*XX*=required_add)] in the [Apply rule] property is selected.	
	Default	*Configuration of the compile option*
	How to change	Directly enter in the text box or edit by the Specify Rule Number dialog box which appears when clicking the [...] button.
	Restriction	Up to 259 characters
Exclusion rule number from required rule	Specify the required rule number to be excluded from the check. This property is usable only in the Professional Edition. Specify at least one rule number in decimal. This corresponds to the -misra20*XX* option of the ccrl command. This property is displayed only when [Ignore specified rule number from rules that are classified as "required"(-misra20*XX*=required_remove)] in the [Apply rule] property is selected.	
	Default	*Configuration of the compile option*
	How to change	Directly enter in the text box or edit by the Specify Rule Number dialog box which appears when clicking the [...] button.
	Restriction	Up to 259 characters

<table>
<tr><td>Rule check exclusion file</td><td colspan="2">Specify files that will not be checked against the MISRA-C rules.
This property is usable only in the Professional Edition.
The following placeholders are supported.
%BuildModeName%: Replaces with the build mode name.
%MicomToolPath%: Replaces with the absolute path of the install folder of this product.
%ProjectName%: Replaces with the project name.
This corresponds to the -ignore_files_misra option of the ccrl command.
This property is displayed only in the following cases.
- When [Apply all rules] is selected in the [Apply rule] property
- When [Apply rules that are classified as "required"] is selected in the [Apply rule] property
- When [Apply specified rule number] is selected in the [Apply rule] property and a rule number is specified in the [Rule number] property
- When [Ignore specified rule number] is selected in the [Apply rule] property and a rule number is specified in the [Rule number] property
- When [Apply rules that are classified as "required" and specified rule number] is selected in the [Apply rule] property and a rule number is specified in the [Check rule number besides required rule] property
- When [Ignore specified rule number from rules that are classified as "required"] is selected in the [Apply rule] property and a rule number is specified in the [Exclusion rule number from required rule] property
- When [Apply rules that are described in the specified file] is selected in the [Apply rule] property and a rule number description file is specified in the [Rule number description file] property</td></tr>
<tr><td></td><td>Default</td><td>Configuration of the compile option</td></tr>
<tr><td></td><td>How to change</td><td>Edit by the Path Edit dialog box which appears when clicking the [...] button.
-> Edit by the Add Excluding File dialog box which appears when clicking the [Browse...] button.
For the subproperty, you can enter directly in the text box.</td></tr>
<tr><td></td><td>Restriction</td><td>Up to 259 characters</td></tr>
</table>

<table>
<tr><td rowspan="5">Output message of the enhanced key word and extended specifications</td><td colspan="3">Select whether to output the message of the enhanced key word and extended specifications.
This property is usable only in the Professional Edition.
This corresponds to the -check_language_extention option of the ccrl command.
This property is displayed only in the following cases.
- When [Apply all rules] is selected in the [Apply rule] property
- When [Apply rules that are classified as "required"] is selected in the [Apply rule] property
- When [Apply specified rule number] is selected in the [Apply rule] property and a rule number is specified in the [Rule number] property
- When [Ignore specified rule number] is selected in the [Apply rule] property and a rule number is specified in the [Rule number] property
- When [Apply rules that are classified as "required" and specified rule number] is selected in the [Apply rule] property and a rule number is specified in the [Check rule number besides required rule] property
- When [Ignore specified rule number from rules that are classified as "required"] is selected in the [Apply rule] property and a rule number is specified in the [Exclusion rule number from required rule] property
- When [Apply rules that are described in the specified file] is selected in the [Apply rule] property and a rule number description file is specified in the [Rule number description file] property</td></tr>
<tr><td>Default</td><td colspan="2">Configuration of the compile option</td></tr>
<tr><td>How to change</td><td colspan="2">Select from the drop-down list.</td></tr>
<tr><td rowspan="2">Restriction</td><td>Yes(-check_language_extension)</td><td>Enables MISRA-C rule check and outputs messages when the rule check is partially suppressed by the unique language specifications extended from the C language standard.</td></tr>
<tr><td>No</td><td>Disables MISRA-C rule check is disabled, which are partially suppressed by the extended language specifications.</td></tr>
</table>

(12) [Error Output]
The detailed information on the error output is displayed and the configuration can be changed.

<table>
<tr><td rowspan="4">Output error message file</td><td colspan="3">Select whether to output the error message file.
This corresponds to the -error_file option of the ccrl command.
Error messages are displayed on the Output panel regardless of this property's .
This property is displayed only when [No] in the [Build in parallel] property in the [Build Method] category from the [Common Options] tab is selected</td></tr>
<tr><td>Default</td><td colspan="2">Configuration of the common option</td></tr>
<tr><td>How to change</td><td colspan="2">Select from the drop-down list.</td></tr>
<tr><td rowspan="2">Restriction</td><td>Yes(-error_file)</td><td>Outputs the error message file.</td></tr>
<tr><td>No</td><td>Does not output the error message file.</td></tr>
</table>

Error message file output folder	Specify the folder which the error message file is output. If a relative path is specified, the reference point of the path is the main project or subproject folder. If an absolute path is specified, the reference point of the path is the main project or subproject folder (unless the drives are different). The following placeholder is supported. %BuildModeName%: Replaces with the build mode name. If this is blank, it is assumed that the project folder has been specified. This corresponds to the -error_file option of the ccrl command. This property is displayed only when [Yes(-error_file)] in the [Output error message file] property is selected.	
	Default	*Configuration of the common option*
	How to change	Directly enter in the text box or edit by the Browse For Folder dialog box which appears when clicking the [...] button.
	Restriction	Up to 247 characters
Error message file name	Specify the error message file name. The extension can be freely specified. The following placeholders are supported. %ActiveProjectName%: Replaces with the active project name. %MainProjectName%: Replaces with the main project name. %ProjectName%: Replaces with the project name. If this is blank, it is assumed that "%ProjectName%.err" has been specified. This corresponds to the -error_file option of the ccrl command. This property is displayed only when [Yes(-error_file)] in the [Output error message file] property is selected.	
	Default	*Configuration of the common option*
	How to change	Directly enter in the text box.
	Restriction	Up to 259 characters

(13) [Warning Message]
The detailed information on warning messages is displayed and the configuration can be changed.

Undisplayed warning message	Specify the number of the warning message not to be displayed. If multiple message numbers are specified, delimit them with "," (comma) (example: 20009,20011). Also, the range can be set using "-" (hyphen) (example: 20000-20100,20300-20500). This corresponds to the -no_warning option of the ccrl command.	
	Default	*Configuration of the common option*
	How to change	Directly enter in the text box or edit by the Character String Input dialog box which appears when clicking the [...] button.
	Restriction	Up to 2048 characters

(14) [Others]
Other detailed information on compilation is displayed and the configuration can be changed.

<table>
<tr><td>Commands executed before compile processing</td><td colspan="2">Specify the command to be executed before compile processing.
Use the call instruction to specify a batch file (example: call a.bat).
The following placeholders are supported.
%ActiveProjectDir%: Replaces with the absolute path of the active project folder.
%ActiveProjectName%: Replaces with the active project name.
%BuildModeName%: Replaces with the build mode name.
%CompiledFile%: Replaces with the absolute path of the output file under compiling.
%InputFile%: Replaces with the absolute path of the file to be compiled.
%MainProjectDir%: Replaces with the absolute path of the main project folder.
%MainProjectName%: Replaces with the main project name.
%MicomToolPath%: Replaces with the absolute path of the install folder of this product.
%Options%: Replaces with the command line option under build execution.
%OutputDir%: Replaces with the absolute path of the output folder.
%OutputFile%: Replaces with the absolute path of the output file.
%Program%: Replaces with the program name under execution.
%ProjectDir%: Replaces with the absolute path of the project folder.
%ProjectName%: Replaces with the project name.
%TempDir%: Replaces with the absolute path of the temporary folder.
%WinDir%: Replaces with the absolute path of the Windows system folder.
When "#!python" is described in the first line, the contents from the second line to the last line are regarded as the script of the Python console, and then executed before compile processing.
The placeholders can be described in the script.
The specified command is displayed as the subproperty.</td></tr>
<tr><td></td><td>Default</td><td>Configuration of the compile option</td></tr>
<tr><td></td><td>How to change</td><td>Edit by the Text Edit dialog box which appears when clicking the [...] button.
For the subproperty, you can enter directly in the text box.</td></tr>
<tr><td></td><td>Restriction</td><td>Up to 1023 characters
Up to 64 items can be specified.</td></tr>
</table>

<table>
<tr><td rowspan="4">Commands executed after compile processing</td><td colspan="2">Specify the command to be executed after compile processing.
Use the call instruction to specify a batch file (example: call a.bat).
The following placeholders are supported.
%ActiveProjectDir%: Replaces with the absolute path of the active project folder.
%ActiveProjectName%: Replaces with the active project name.
%BuildModeName%: Replaces with the build mode name.
%CompiledFile%: Replaces with the absolute path of the output file under compiling.
%InputFile%: Replaces with the absolute path of the file to be compiled.
%MainProjectDir%: Replaces with the absolute path of the main project folder.
%MainProjectName%: Replaces with the main project name.
%MicomToolPath%: Replaces with the absolute path of the install folder of this product.
%Options%: Replaces with the command line option under build execution.
%OutputDir%: Replaces with the absolute path of the output folder.
%OutputFile%: Replaces with the absolute path of the output file.
%Program%: Replaces with the program name under execution.
%ProjectDir%: Replaces with the absolute path of the project folder.
%ProjectName%: Replaces with the project name.
%TempDir%: Replaces with the absolute path of the temporary folder.
%WinDir%: Replaces with the absolute path of the Windows system folder.
When "#!python" is described in the first line, the contents from the second line to the last line are regarded as the script of the Python console, and then executed after compile processing.
The placeholders can be described in the script.
The specified command is displayed as the subproperty.</td></tr>
<tr><td>Default</td><td>Configuration of the compile option</td></tr>
<tr><td>How to change</td><td>Edit by the Text Edit dialog box which appears when clicking the [...] button.
For the subproperty, you can enter directly in the text box.</td></tr>
<tr><td>Restriction</td><td>Up to 1023 characters
Up to 64 items can be specified.</td></tr>
<tr><td rowspan="4">Other additional options</td><td colspan="2">Input the compile option to be added additionally.
The options set here are added at the end of the compile options group.</td></tr>
<tr><td>Default</td><td>Configuration of the compile option</td></tr>
<tr><td>How to change</td><td>Directly enter in the text box or edit by the Character String Input dialog box which appears when clicking the [...] button.</td></tr>
<tr><td>Restriction</td><td>Up to 259 characters</td></tr>
</table>

[Individual Assemble Options] tab

This tab shows the detailed information on an assemble source file categorized by the following and the configuration can be changed.

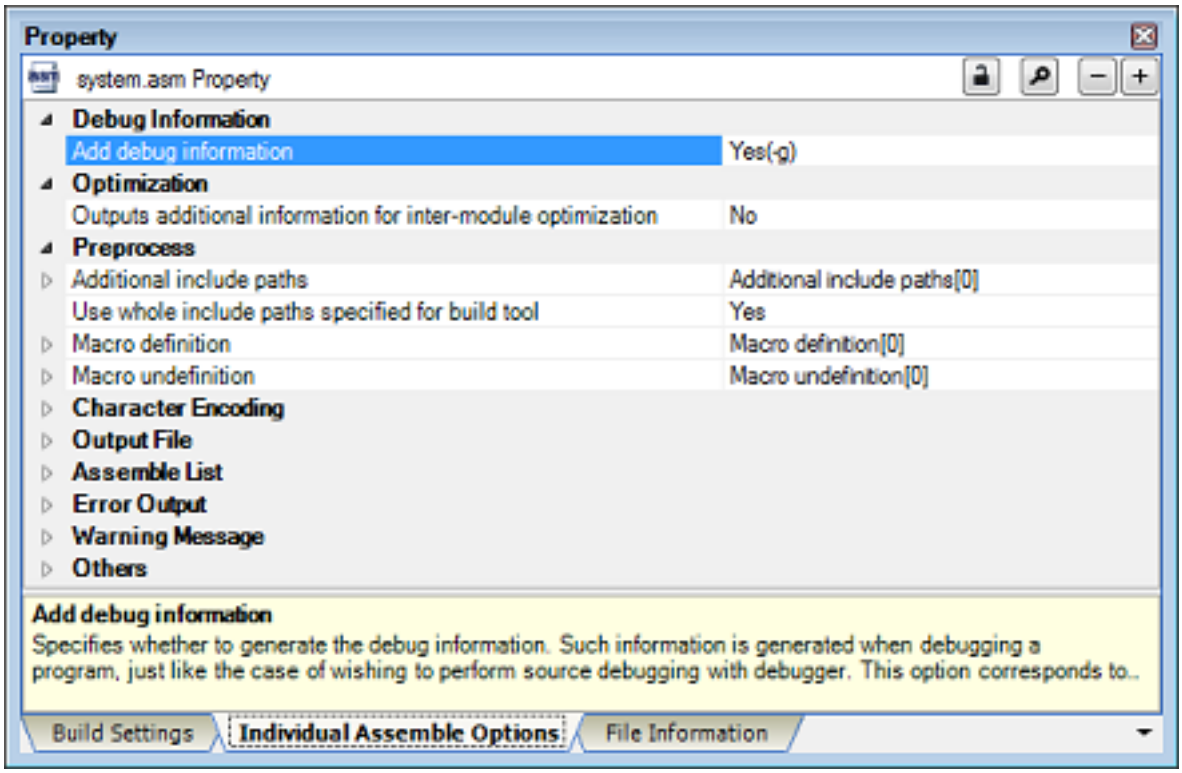
Note that this tab takes over the settings of the [Common Options] tab, [Compile Options] tab, and [Assemble Options] tab.

When the settings are changed from these tabs, the properties are displayed in boldface.

(1) [Debug Information]
(2) [Optimization]
(3) [Preprocess]
(4) [Character Encoding]
(5) [Output File]
(6) [Assemble List]
(7) [Error Output]
(8) [Warning Message]
(9) [Others]

備考 This tab is displayed only when [Yes] in the [Set individual assemble option] property in the [Build] category from the [Build Settings] tab is selected.

図 A.14 Property Panel: [Individual Assemble Options] Tab



[Description of each category]

(1) [Debug Information]
The detailed information on debug information is displayed and the configuration can be changed.

Add debug information	Select whether to generate the debug information. It is possible to perform source debugging with the debugger by outputting information for source debugging to the output file. This corresponds to the -g option of the ccrl command.		
	Default	*Configuration of the assemble option*	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-g)	Generates the debug information.
		No	Does not generate the debug information.

(2) [Optimization]
The detailed information on the optimization is displayed and the configuration can be changed.

Outputs additional information for inter-module optimization	Select whether to output additional information for inter-module optimization. At linkage, inter-module optimization is applied to files for which this option has been specified. This corresponds to the -goptimize option of the ccrl command.		
	Default	*Configuration of the assemble option*	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-goptimize)	Outputs additional information for inter-module optimization.
		No	Does not outputs additional information for inter-module optimization.

(3) [Preprocess]
The detailed information on preprocessing is displayed and the configuration can be changed.

<table>
<tr><td>Additional include paths</td><td colspan="3">Specify the additional include paths during assembling.
The following placeholders are supported.
%ActiveProjectDir%: Replaces with the absolute path of the active project folder.
%ActiveProjectName%: Replaces with the active project name.
%BuildModeName%: Replaces with the build mode name.
%MainProjectDir%: Replaces with the absolute path of the main project folder.
%MainProjectName%: Replaces with the main project name.
%MicomToolPath%: Replaces with the absolute path of the install folder of this product.
%ProjectDir%: Replaces with the absolute path of the project folder.
%ProjectName%: Replaces with the project name.
%TempDir%: Replaces with the absolute path of the temporary folder.
%WinDir%: Replaces with the absolute path of the Windows system folder.
The specified include path is searched with higher priority than the standard include file folder of CC-RL.
The reference point of the path is the project folder.
When this property is omitted, only the standard folder of CC-RL is searched.
This corresponds to the -I option of the ccrl command.
The specified include path is displayed as the subproperty.
Uppercase characters and lowercase characters are not distinguished for the include paths.</td></tr>
<tr><td></td><td>Default</td><td colspan="2">Additional include paths[number of defined items]</td></tr>
<tr><td></td><td>How to change</td><td colspan="2">Edit by the Path Edit dialog box which appears when clicking the [...] button.
For the subproperty, you can enter directly in the text box.</td></tr>
<tr><td></td><td>Restriction</td><td colspan="2">Up to 247 characters
Up to 256 items can be specified.</td></tr>
<tr><td>Use whole include paths specified for build tool</td><td colspan="3">Select whether to assemble using the include path specified in the [Additional include paths] property in the [Preprocess] category from the [Assemble Options] tab of the build tool to be used.
The setting of the [Compile Options] tab is used when [Yes] in the [Build simultaneously] property in the [Build Method] category from the [Common Options] tab is selected.
This corresponds to the -I option of the ccrl command.
- Paths specified in the [Additional include paths] property from this tab
- Paths specified in the [Additional include paths] property from the [Assemble Options] tab
- Paths displayed in the [System include paths] property from the [Assemble Options] tab</td></tr>
<tr><td></td><td>Default</td><td colspan="2">Yes</td></tr>
<tr><td></td><td>How to change</td><td colspan="2">Select from the drop-down list.</td></tr>
<tr><td></td><td rowspan="2">Restriction</td><td>Yes</td><td>Assembles using the include path specified in the property of the build tool to be used.</td></tr>
<tr><td></td><td>No</td><td>Does not use the include path specified in the property of the build tool to be used.</td></tr>
</table>

Macro definition	Specify the name of the macro to be defined. Specify in the format of "*macro name*=*defined value*", with one macro name per line. The "=*defined value*" part can be omitted, and in this case, "1" is used as the defined value. This corresponds to the -asmopt=-define option of the ccrl command. The specified macro is displayed as the subproperty.	
	Default	*Configuration of the assemble option*
	How to change	Edit by the Text Edit dialog box which appears when clicking the [...] button. For the subproperty, you can enter directly in the text box.
	Restriction	Up to 256 characters Up to 256 items can be specified.
Macro undefinition	Specify the macro name to be undefined. Specify in the format of "*macro name*", with one macro name per line. This corresponds to the -asmopt=-undefine option of the ccrl command. The specified macro is displayed as the subproperty.	
	Default	*Configuration of the assemble option*
	How to change	Edit by the Text Edit dialog box which appears when clicking the [...] button. For the subproperty, you can enter directly in the text box.
	Restriction	Up to 256 characters Up to 256 items can be specified.

(4) [Character Encoding]

The detailed information on character encoding is displayed and the configuration can be changed.

Format of numerical constant	Specify the representation format of the base number of numerical constants. Example) Prefix format: 0xFFFF, Suffix format: FFFFH This corresponds to the -asmopt=-base_number option of the ccrl command.		
	Default	*Configuration of the assemble option*	
	How to change	Select from the drop-down list.	
	Restriction	Prefix format(None)	Handles numerical constants in the Prefix format.
		Suffix format(-asmopt=-base_number=suffix)	Handles numerical constants in the Suffix format.

Character encoding	Select the character code to be used for Japanese comments and character strings in the source file. This corresponds to the -character_set option of the ccrl command.		
	Default	*Configuration of the assemble option*	
	How to change	Select from the drop-down list.	
	Restriction	Auto(None)	Interprets the Japanese character code in the source file as SJIS on Japanese OS. On other than Japanese OS, does not interpret the character code in the source file.
		SJIS(-character_set=sjis)	Interprets the Japanese character code in the source file as SJIS.
		EUC(-character_set=euc_jp)	Interprets the Japanese character code in the source file as EUC.
		UTF-8(-character_set=utf8)	Interprets the Japanese character code in the source file as UTF-8.
		Big5(-character_set=big5)	Interprets the Chinese character code in the source file as Traditional Chinese.
		GB2312(-character_set=gb2312)	Interprets the Chinese character code in the source file as Simplified Chinese.
		No-process(-character_set=none)	Does not interpret the Japanese/ Chinese character code in the source file.

(5) [Output File]
The detailed information on output files is displayed and the configuration can be changed.

Object file name	Specify the name of the object file generated after assembling. The extension other than ".obj" cannot be specified. If the extension is omitted, ".obj" is automatically added. If this is blank, the file name will be the source file name with the extension replaced by ".obj". This corresponds to the -o option of the ccrl command.	
	Default	Blank
	How to change	Directly enter in the text box.
	Restriction	Up to 259 characters

(6) [Assemble List]
The detailed information on the assemble list is displayed and the configuration can be changed.

Output assemble list file	Select whether to output the assemble list file. This corresponds to the -asmopt=-prn_path option of the ccrl command.		
	Default	*Configuration of the assemble option*	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-asmopt=-prn_path)	Outputs the assemble list file.
		No	Does not output the assemble list file.

Output folder for assemble list file	Specify the folder which the assemble list file is output. The assemble list file is output under the source file name with the extension replaced by ".prn". If a relative path is specified, the reference point of the path is the main project or subproject folder. If an absolute path is specified, the reference point of the path is the main project or subproject folder (unless the drives are different). The following placeholder is supported. %BuildModeName%: Replaces with the build mode name. If this is blank, it is assumed that the project folder has been specified. This corresponds to the -asmopt=-prn_path option of the ccrl command. This property is displayed only when [Yes(-asmopt=-prn_path)] in the [Output assemble list file] property is selected.	
	Default	*Configuration of the assemble option*
	How to change	Directly enter in the text box or edit by the Browse For Folder dialog box which appears when clicking the [...] button.
	Restriction	Up to 247 characters

(7) [Error Output]
The detailed information on the error output is displayed and the configuration can be changed.

Output error message file	Select whether to output the error message file. This corresponds to the -error_file option of the ccrl command. Error messages are displayed on the Output panel regardless of this property's. This property is displayed only when [No] in the [Build in parallel] property in the [Build Method] category from the [Common Options] tab is selected		
	Default	*Configuration of the common option*	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-error_file)	Outputs the error message file.
		No	Does not output the error message file.
Error message file output folder	Specify the folder which the error message file is output. If a relative path is specified, the reference point of the path is the main project or subproject folder. If an absolute path is specified, the reference point of the path is the main project or subproject folder (unless the drives are different). The following placeholder is supported. %BuildModeName%: Replaces with the build mode name. If this is blank, it is assumed that the project folder has been specified. This corresponds to the -error_file option of the ccrl command. This property is displayed only when [Yes(-error_file)] in the [Output error message file] property is selected.		
	Default	*Configuration of the common option*	
	How to change	Directly enter in the text box or edit by the Browse For Folder dialog box which appears when clicking the [...] button.	
	Restriction	Up to 247 characters	

Error message file name	Specify the error message file name. The extension can be freely specified. The following placeholders are supported. %ActiveProjectName%: Replaces with the active project name. %MainProjectName%: Replaces with the main project name. %ProjectName%: Replaces with the project name. If this is blank, it is assumed that "%ProjectName%.err" has been specified. This corresponds to the -error_file option of the ccrl command. This property is displayed only when [Yes(-error_file)] in the [Output error message file] property is selected.	
	Default	*Configuration of the common option*
	How to change	Directly enter in the text box.
	Restriction	Up to 259 characters

(8) [Warning Message]
The detailed information on warning messages is displayed and the configuration can be changed.

Undisplayed warning message	Specify the number of the warning message not to be displayed. If multiple message numbers are specified, delimit them with "," (comma) (example: 20009,20011). Also, the range can be set using "-" (hyphen) (example: 20000-20100,20300-20500). This corresponds to the -no_warning option of the ccrl command.	
	Default	*Configuration of the common option*
	How to change	Directly enter in the text box or edit by the Character String Input dialog box which appears when clicking the [...] button.
	Restriction	Up to 2048 characters

(9) [Others]
Other detailed information on assembly is displayed and the configuration can be changed.

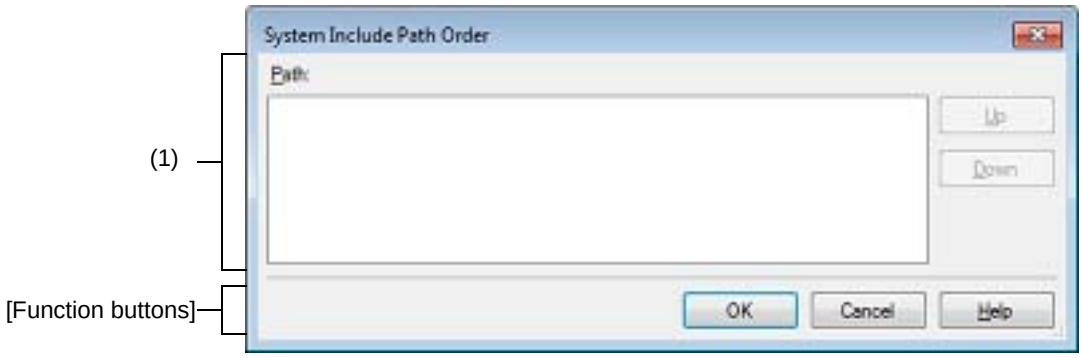
<table>
<tr><td>Commands executed before assemble processing</td><td>Specify the command to be executed before assemble processing.
Use the call instruction to specify a batch file (example: call a.bat).
The following placeholders are supported.
%ActiveProjectDir%: Replaces with the absolute path of the active project folder.
%ActiveProjectName%: Replaces with the active project name.
%AssembledFile%: Replaces with the absolute path of the output file under assembling.
%BuildModeName%: Replaces with the build mode name.
%InputFile%: Replaces with the absolute path of the file to be assembled.
%MainProjectDir%: Replaces with the absolute path of the main project folder.
%MainProjectName%: Replaces with the main project name.
%MicomToolPath%: Replaces with the absolute path of the install folder of this product.
%Options%: Replaces with the command line option under build execution.
%OutputDir%: Replaces with the absolute path of the output folder.
%OutputFile%: Replaces with the absolute path of the output file.
%Program%: Replaces with the program name under execution.
%ProjectDir%: Replaces with the absolute path of the project folder.
%ProjectName%: Replaces with the project name.
%TempDir%: Replaces with the absolute path of the temporary folder.
%WinDir%: Replaces with the absolute path of the Windows system folder.
When "#!python" is described in the first line, the contents from the second line to the last line are regarded as the script of the Python console, and then executed before assemble processing.
The placeholders can be described in the script.
The specified command is displayed as the subproperty.</td></tr>
<tr><td></td><td>Default</td><td>Configuration of the assemble option</td></tr>
<tr><td></td><td>How to change</td><td>Edit by the Text Edit dialog box which appears when clicking the [...] button.
For the subproperty, you can enter directly in the text box.</td></tr>
<tr><td></td><td>Restriction</td><td>Up to 1023 characters
Up to 64 items can be specified.</td></tr>
</table>

<table>
<tr><td rowspan="4">Commands executed after assemble processing</td><td colspan="2">Specify the command to be executed after assemble processing.
Use the call instruction to specify a batch file (example: call a.bat).
The following placeholders are supported.
%ActiveProjectDir%: Replaces with the absolute path of the active project folder.
%ActiveProjectName%: Replaces with the active project name.
%AssembledFile%: Replaces with the absolute path of the output file under assembling.
%BuildModeName%: Replaces with the build mode name.
%InputFile%: Replaces with the absolute path of the file to be assembled.
%MainProjectDir%: Replaces with the absolute path of the main project folder.
%MainProjectName%: Replaces with the main project name.
%MicomToolPath%: Replaces with the absolute path of the install folder of this product.
%Options%: Replaces with the command line option under build execution.
%OutputDir%: Replaces with the absolute path of the output folder.
%OutputFile%: Replaces with the absolute path of the output file.
%Program%: Replaces with the program name under execution.
%ProjectDir%: Replaces with the absolute path of the project folder.
%ProjectName%: Replaces with the project name.
%TempDir%: Replaces with the absolute path of the temporary folder.
%WinDir%: Replaces with the absolute path of the Windows system folder.
When "#!python" is described in the first line, the contents from the second line to the last line are regarded as the script of the Python console, and then executed after assemble processing.
The placeholders can be described in the script.
The specified command is displayed as the subproperty.</td></tr>
<tr><td>Default</td><td>Configuration of the assemble option</td></tr>
<tr><td>How to change</td><td>Edit by the Text Edit dialog box which appears when clicking the [...] button.
For the subproperty, you can enter directly in the text box.</td></tr>
<tr><td>Restriction</td><td>Up to 1023 characters
Up to 64 items can be specified.</td></tr>
<tr><td rowspan="4">Other additional options</td><td colspan="2">Input the assemble option to be added additionally.
The options set here are added at the end of the assemble options group.</td></tr>
<tr><td>Default</td><td>Configuration of the assemble option</td></tr>
<tr><td>How to change</td><td>Directly enter in the text box or edit by the Character String Input dialog box which appears when clicking the [...] button.</td></tr>
<tr><td>Restriction</td><td>Up to 259 characters</td></tr>
</table>

System Include Path Order dialog box

This dialog box is used to refer the system include paths specified for the compiler and set their specified sequence.

Figure A.15 System Include Path Order Dialog Box



The following items are explained here.

- [How to open]
- [Description of each area]
- [Function buttons]

[How to open]

- On the Property panel, select the following properties, and then click the [...] button.
  - From the [Common Options] tab, [System include paths] in the [Frequently Used Options(for Compile)] category, and [System include paths] in the [Frequently Used Options(for Assemble)] category
  - From the [Compile Options] tab, [System include paths] in the [Preprocess] category
  - From the [Assemble Options] tab, [System include paths] in the [Preprocess] category

[Description of each area]

(1) Path list display area
This area displays the list of the system include paths specified for the compiler.

(a) [Path]
This area displays the list of the system include paths in the specified sequence for the compiler.
The default order is the order that the files are registered to the project.
By changing the display order of the paths, you can set the specified order of the paths to the compiler.
To change the display order, use the [Up] and [Down] buttons, or drag and drop the path names.

Remark 1. Move the mouse cursor over a file name to display a tooltip with the absolute path of that file.

Remark 2. Newly added system include paths are added next to the last path of the list.

Remark 3. When the path names are dragged and dropped, the multiple path names which are next to each other can be selected together.

(b) Button

Up	Moves the selected path to up.
Down	Moves the selected path to down.

Remark Note that above buttons are disabled when any path is not selected.

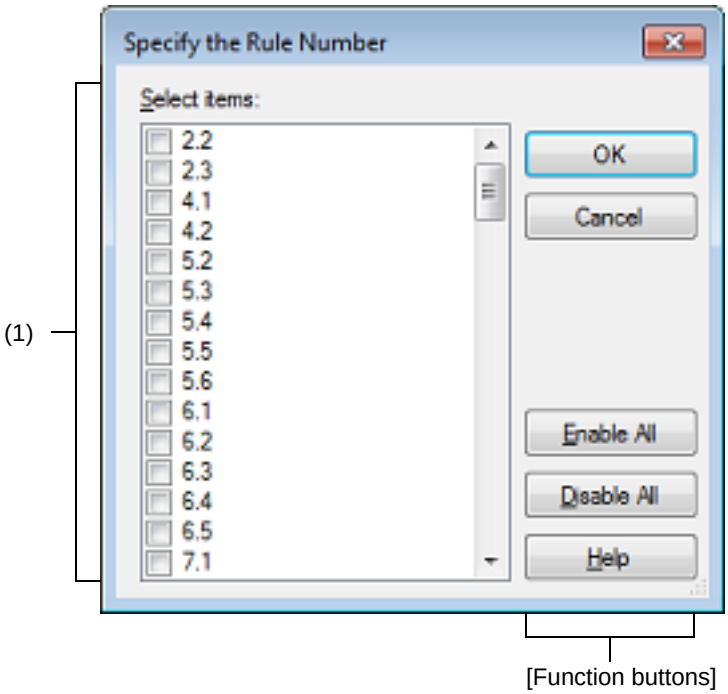
[Function buttons]

Button	Function
OK	Sets the specified order of the paths to the compiler as the display order in the Path list display area and closes this dialog box.
Cancel	Cancels the specified order of the paths and closes the dialog box.
Help	Displays the help of this dialog box.

Specify Rule Number dialog box

This dialog box is used to select the number of the MISRA-C rule and set it to the area that this dialog box is called from.

Figure A.16 Specify Rule Number Dialog Box



The following items are explained here.

- [How to open]
- [Description of each area]
- [Function buttons]

[How to open]

- On the Property panel, select the following properties, and then click the [...] button.
  - From the [Compile Options] tab, [Rule number], [Exclusion rule number], [Check rule number besides required rule], [Exclusion rule number from required rule] in the [MISRA-C Rule Check] category
  - From the [Individual Compile Options] tab, [Rule number], [Exclusion rule number], [Check rule number besides required rule] [Exclusion rule number from required rule] in the [MISRA-C Rule Check] category

[Description of each area]

(1) [Select items]
The list of the MISRA-C rule numbers which can be specified for the area that this dialog box is called from is displayed (ascending order).
Select the check boxes to set the rule number.

Remark In the area that this dialog box is called from, if a rule number is already set, the check box for that rule number will be selected by default.

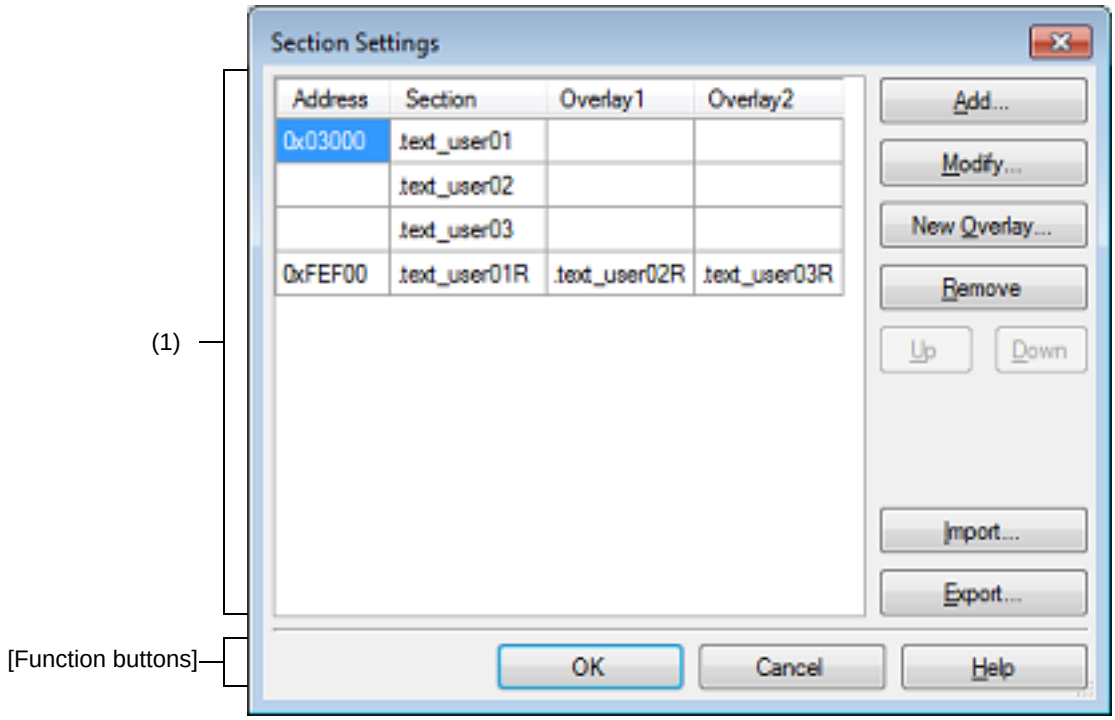
[Function buttons]

Button	Function
OK	Closes this dialog box and sets the selected rule number to the area that this dialog box is called from.
Cancel	Cancels the rule number selecting and closes the dialog box.
Enable All	Selects all the check boxes in [Select items].
Disable All	Clears all the check boxes in [Select items].
Help	Displays the help of this dialog box.

Section Settings dialog box

This dialog box is used to add, modify, or delete sections.

Figure A.17 Section Settings Dialog Box



The following items are explained here.

- [How to open]
- [Description of each area]
- [Function buttons]

[How to open]

- On the Property panel, select the following property, and then click the [...] button.
  - From the [Link Options] tab, [Section start address] in the [Section] category

[Description of each area]

(1) Address-section area
This area displays the list of currently configured section allocations.

(a) [Address]
This area displays the start addresses of the sections.

(b) [Section]
This area displays the names of the sections.

(c) [Overlay*n*]
This area displays the names of the sections to be overlaid (*n*: number starting with "1").

(d) Button

Add...	- When selecting an address in this area Opens the Section Address dialog box. Adds the address specified in the dialog box to this area so that the addresses are listed in the ascending order (the section column remains empty). - When selecting a section in this area Opens the Add Section dialog box. Adds the section specified in the dialog box to this area. When there is no empty column in the section group (an address and the sections allocated to the address) where the specified section is to be included, a new section row is added to the bottom of the section group. When there is an empty column, the section is added there.
Modify...	- When selecting an address in this area Opens the Section Address dialog box. Moves the section group according to the address specified in the dialog box so that the addresses are listed in the ascending order in this area. - When selecting a section in this area Opens the Modify Section dialog box. Replaces the section name selected in this area with the one specified in the dialog box. Note that this button is disabled when the selected sell is blank.
New Overlay...	Opens the Add Overlay dialog box. Adds the [Overlay*n*] column in this area and sets the section specified in the dialog box in the column that corresponds to the selected section group.
Remove	- When selecting an address in this area Opens the Unassigned Section dialog box. Deletes the section selected in the dialog box from this area. If no sections are left in the section group, the section group itself is deleted. - When selecting a section in this area Deletes the selected section from this area. If no sections are left in the section group, the section group itself is deleted. If no section names are left in the [Overlay*n*] column, the column itself is deleted. Note that this button is disabled when the selected sell is blank.
Up	Moves up the selected section. However, if the column above the selected section is blank, no move can be made. Input in advance a section name to the above column. Note that this button is disabled when an address is selected or a blank section column is selected.
Down	Moves down the selected section. However, if the column below the selected section is blank, no move can be made. Input in advance a section name to the column below. Note that this button is disabled when an address is selected or a blank section column is selected.
Import...	Opens the Select Import File dialog box. Acquires the section settings from the file specified in the dialog box and updates this area to reflect the acquired settings.
Export...	Opens the Select Export File dialog box. Outputs the contents of this area to the file specified in the dialog box.

[Function buttons]

Button	Function
OK	Reflects the specified section to the text box that opened this dialog box and closes this dialog box.
Cancel	Cancels the settings and closes this dialog box.
Help	Displays the help of this dialog box.

Add Section dialog box
Modify Section dialog box
Add Overlay dialog box

These dialog boxes are used to set a section name when adding, modifying, or overlaying a section, respectively.

Figure A.18 Add Section Dialog Box

Figure A.19 Modify Section Dialog Box

Figure A.20 Add Overlay Dialog Box

The following items are explained here.

- [How to open]
- [Description of each area]
- [Function buttons]

[How to open]

- Add Section dialog box
  - On the Section Settings dialog box, select a section in the address-section area, and then click the [Add...] button.
- Modify Section dialog box
  - On the Section Settings dialog box, select a section in the address-section area, and then click the [Modify...] button.
- Add Overlay dialog box
  - On the Section Settings dialog box, click the [New Overlay...] button.

[Description of each area]

(1) [Section name]
Specify the section name.
Directly enter the section name in the text box or select from the drop-down list.
The following characters can be used only: A-Z, a-z, 0-9, @, _, *, dot(.).
Wildcard characters (*) can also be used.
Note that numeric characters (0 to 9) and dot(.) cannot be used at the beginning of a section name.
The following reserved sections are set in the drop-down list.
.bss, .const, .data, .text

[Function buttons]

Button	Function
OK	- Add Section dialog box Closes this dialog box and adds the specified section to the address-section area in the Section Settings dialog box. When there is no empty column in the section group (an address and the sections allocated to the address) where the specified section is to be included, a new section row is added to the bottom of the section group. When there is an empty column, the section is added there. - Modify Section dialog box Closes this dialog box and replaces the section name selected in the address-section area in the Section Settings dialog box with the one specified. - Add Overlay dialog box Closes this dialog box and adds the [Overlay*n*] column (*n*: number starting with "1") to the address-section area in the Section Settings dialog box. Sets the specified section in the column that corresponds to the selected section group.
Cancel	Cancels the settings and closes this dialog box.
Help	Displays the help of this dialog box.

Section Address dialog box

This dialog box is used to set an address when adding or modifying a section.

Figure A.21 Section Address Dialog Box

The following items are explained here.

- [How to open]
- [Description of each area]
- [Function buttons]

[How to open]

- On the Section Settings dialog box, select an address in the address-section area, and then click the [Add...] or [Modify...] button.

[Description of each area]

(1) [Address]
Specify the start address of the section.
Directly enter the address in the text box or select from the button.
The range that can be specified for the value is 0 to FFFFF (hexadecimal number) (default: 0).

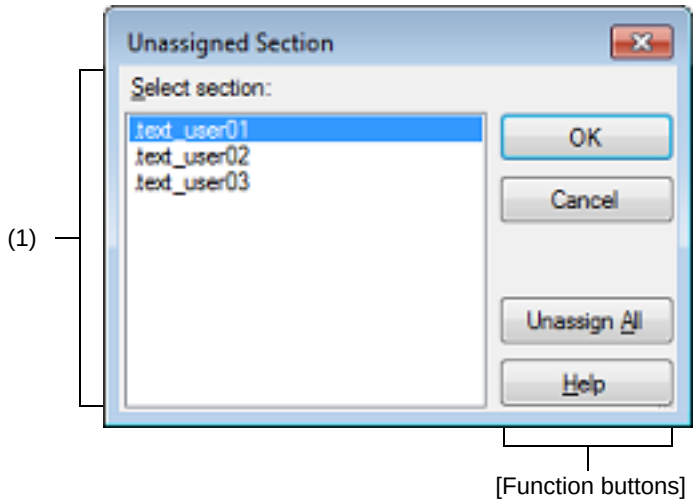
[Function buttons]

Button	Function
OK	- When opening from the [Add...] button in the Section Settings dialog box Closes this dialog box and adds the specified address to an appropriate location in the address-section area in the Section Settings dialog box (the section column remains empty). - When opening from the [Modify...] button in the Section Settings dialog box Closes this dialog box and moves the section group (an address and the sections allocated to the address) to an appropriate location in the address-section area in the Section Settings dialog box.
Cancel	Cancels the settings and closes this dialog box.
Help	Displays the help of this dialog box.

Unassigned Section dialog box

This dialog box is used to delete sections.

Figure A.22 Unassigned Section Dialog Box



The following items are explained here.

- [How to open]
- [Description of each area]
- [Function buttons]

[How to open]

- On the Section Settings dialog box, select an address in the address-section area, and then click the [Remove] button.

[Description of each area]

(1) [Select sections]
This area displays the name of all sections allocated to the address selected in the Section Settings dialog box.
Select sections to be deleted by clicking their names.
You can select multiple sections by left clicking while holding down the [Ctrl] or [Shift] key.

[Function buttons]

Button	Function
OK	Closes this dialog box and deletes the selected section from the address-section area in the Section Settings dialog box. Deletes the section group when the section group (an address and the sections allocated to the address) includes no section. If no sections are left in the [Overlay*n*] column in the address-section area, the column itself is deleted.
Cancel	Cancels the settings and closes this dialog box.
Unassign All	Closes this dialog box and deletes all the sections (the section group selected in the address-section area in the Section Settings dialog box).
Help	Displays the help of this dialog box.

Revision Record

Rev.	Date	Description	
		Page	Summary
1.00	Feb 01, 2015	-	First Edition issued
1.01	Aug 01, 2015	13	"Figure 2.4 Option Dialog Box ([General - Build] Category)" is replaced.
		17	The description of the link map file name in "2.4.3 Output map information" is amended.
		18	The description of the link map file name in "2.4.4 Output library information" is amended.
		19	"Figure 2.18 Property Panel: [Compile Options] Tab" is replaced.
		20	"Figure 2.19 [Level of optimization] Property (Code Size Precedence)" is replaced.
		20	"Figure 2.20 [Level of optimization] Property (Execution Speed Precedence)" is replaced.
		44	"Figure 2.67 Property Panel: [Individual Compile Options] Tab" is replaced.
		49	"Figure 2.76 [Update I/O header file on build] Property" is replaced.
		51	The description of "Specify Rule Number dialog box" in table A.1 is amended.
		52	"Figure A.1 Property Panel" is replaced.
		56	"Figure A.2 Property Panel: [Common Options] Tab" is replaced.
		57	The following property is added to "(1) [Build Mode]". Change property value for all build modes at once
		58	The description of the [Output file type] property in "(3) [Output File Type and Path]" is amended.
		59	The Restriction values of the [Level of optimization] property in "(3) [Frequently Used Options(for Compile)]" are amended. Default Optimization(None) -> Perform the default optimization(None) Code Size Precedence(-Osize) -> Code size precedence(-Osize) Speed Precedence(-Ospeed) -> Speed precedence(-Ospeed) Debug Precedence(-Onothing) -> Debug precedence(-Onothing)
		63	The display condition is deleted from the description of the [Output folder] property in "(6) [Frequently Used Options(for Link)]".
		63	The display condition is deleted from the description of the [Output file name] property in "(6) [Frequently Used Options(for Link)]".
		75	The list of category names on the [Compile Options] tab is amended.
		75	"Figure A.3 Property Panel: [Compile Options] Tab" is replaced.
		76	The following property is added to "(1) [Debug Information]". Enhance debug information with optimization
		77	The Restriction values of the [Level of optimization] property in "(3) [Frequently Used Options(for Compile)]" are amended. Default Optimization(None) -> Perform the default optimization(None) Code Size Precedence(-Osize) -> Code size precedence(-Osize) Speed Precedence(-Ospeed) -> Speed precedence(-Ospeed) Debug Precedence(-Onothing) -> Debug precedence(-Onothing)
		80	The following property is added to "(3) [Optimization(Details)]". Create subroutine for same instruction sequence

Rev.	Date	Description	
		Page	Summary
		83-84	The following category is added to the [Compile Options] tab. (5) [Quality Improvement]
		87	The Restriction value of the [Structure packing] property in "(9) [Output Code]" is amended. No(None) -> No
		91	The category name of (12) is amended as shown below. [MISRA-C:2004 Rule Check] → [MISRA-C Rule Check] A sentence at the beginning is amended.
		91	The following property is added to "(12) [MISRA-C Rule Check]". MISRA-C specification
		92-95	The fact that properties are usable only in the Professional Edition is added to the description of all properties in "(12) [MISRA-C Rule Check]". The following amendments are made in the description and Restriction. -Xmisra2004 -> -Xmisra20*XX* MISRA-C:2004 -> MISRA-C
		102	The Restriction value of the [Use support for porting from assembler of CA78K0R] property in "(6) [Others]" is amended. No(None) -> No
		107	The display condition for Restriction is added to the description of the [Optimization type] property in "(2) [Optimization]". The followings are added to Restriction. Speed-oriented optimization(-OPtimize=SPeed) Safe optimization(-OPtimize=SAFe)
		107, 108	The following properties are added to "(2) [Optimization]". Deletes variables/functions that are not referenced Unreferenced symbol that disables deletion by optimization
		108	The default of the [Section to disable optimization] property in "(2) [Optimization]" is amended.
		108	The default of the [Address range to disable optimization] property in "(2) [Optimization]" is amended.
		121	In the description of the [Variables/functions information header file name] property in "(9) [Variables/functions information]", the description on the case where the extension was omitted is amended.
		124	The name of the [Check allocation that crosses 64KB boundary] property in "(11) [Verify]" is amended. Check allocation that crosses 64KB boundary -> Suppress checking section allocation that crosses (64KB-1) boundary In accordance with the above change, the description of the property and the description of the Restriction values are amended.
		135	The description of the [Target range] property in "(3) [CRC Operation]" is amended.
		136	The description of the [Type of CRC] property in "(3) [CRC Operation]" is amended. The followings are added to Restriction. CCITT type CRC-CCITT(MSB,LITTLE,4 bytes) type CRC-CCITT(MSB,LITTLE,2 bytes) type 16 32-ETHERNET type
		136	The Restriction values of the [Initial value] property in "(3) [CRC Operation]" are amended.

Rev.	Date	Description	
		Page	Summary
		152	"Figure A.8 Property Panel: [I/O Header File Generation Options] Tab" is replaced.
		152	The description of the following Restriction values of the [Update I/O header file on build] property in "(1) [I/O Header File]" is amended. Yes(Checking the device file) Yes(Checking the property) Yes(Checking the device file and the property)
		153	The display condition is deleted from the description of the [Output 1bit access] property in "(1) [I/O Header File]".
		153	The following property is added to "(1) [I/O Header File]". Enable MISRA-C option
		157	The list of category names on the [Individual Compile Options] tab is amended.
		158	"Figure A.13 Property Panel: [Individual Compile Options] Tab" is replaced.
		159	The following property is added to "(1) [Debug Information]". Enhance debug information with optimization
		159	The Restriction values of the [Level of optimization] property in "(2) [Optimization]" are amended. Default Optimization(None) -> Perform the default optimization(None) Code Size Precedence(-Osize) -> Code size precedence(-Osize) Speed Precedence(-Ospeed) -> Speed precedence(-Ospeed) Debug Precedence(-Onothing) -> Debug precedence(-Onothing)
		162	The following property is added to "(3) [Optimization(Details)]". Create subroutine for same instruction sequence
		165-166	The following category is added to the [Individual Compile Options] tab. (5) [Quality Improvement]
		171	The category name of (11) is amended as shown below. [MISRA-C:2004 Rule Check] -> [MISRA-C Rule Check] A sentence at the beginning is amended.
		171	The following property is added to "(11) [MISRA-C Rule Check]". MISRA-C specification
		172-175	The fact that properties are usable only in the Professional Edition is added to the description of all properties in "(11) [MISRA-C Rule Check]". The following amendments are made in the description and Restriction. -Xmisra2004 -> -Xmisra20*XX* MISRA-C:2004 -> MISRA-C
		190	The following amendment is made throughout the description of the Specify Rule Number dialog box. MISRA-C:2004 -> MISRA-C

CS+ User's Manual:
CC-RL Build Tool Operation

Publication Date: Rev.1.00 Feb 01, 2015
Rev.1.01 Aug 01, 2015
Published by: Renesas Electronics Corporation

SALES OFFICES Renesas Electronics Corporation http://www.renesas.com

Refer to "http://www.renesas.com/" for the latest and detailed information.

Renesas Electronics America Inc.
2801 Scott Boulevard Santa Clara, CA 95050-2549, U.S.A.
Tel: +1-408-588-6000, Fax: +1-408-588-6130

Renesas Electronics Canada Limited
9251 Yonge Street, Suite 8309 Richmond Hill, Ontario Canada L4C 9T3
Tel: +1-905-237-2004

Renesas Electronics Europe Limited
Dukes Meadow, Millboard Road, Bourne End, Buckinghamshire, SL8 5FH, U.K
Tel: +44-1628-585-100, Fax: +44-1628-585-900

Renesas Electronics Europe GmbH
Arcadiastrasse 10, 40472 Düsseldorf, Germany
Tel: +49-211-6503-0, Fax: +49-211-6503-1327

Renesas Electronics (China) Co., Ltd.
Room 1709, Quantum Plaza, No.27 ZhiChunLu Haidian District, Beijing 100191, P.R.China
Tel: +86-10-8235-1155, Fax: +86-10-8235-7679

Renesas Electronics (Shanghai) Co., Ltd.
Unit 301, Tower A, Central Towers, 555 Langao Road, Putuo District, Shanghai, P. R. China 200333
Tel: +86-21-2226-0888, Fax: +86-21-2226-0999

Renesas Electronics Hong Kong Limited
Unit 1601-1611, 16/F., Tower 2, Grand Century Place, 193 Prince Edward Road West, Mongkok, Kowloon, Hong Kong
Tel: +852-2265-6688, Fax: +852 2886-9022

Renesas Electronics Taiwan Co., Ltd.
13F, No. 363, Fu Shing North Road, Taipei 10543, Taiwan
Tel: +886-2-8175-9600, Fax: +886 2-8175-9670

Renesas Electronics Singapore Pte. Ltd.
80 Bendemeer Road, Unit #06-02 Hyflux Innovation Centre, Singapore 339949
Tel: +65-6213-0200, Fax: +65-6213-0300

Renesas Electronics Malaysia Sdn.Bhd.
Unit 1207, Block B, Menara Amcorp, Amcorp Trade Centre, No. 18, Jln Persiaran Barat, 46050 Petaling Jaya, Selangor Darul Ehsan, Malaysia
Tel: +60-3-7955-9390, Fax: +60-3-7955-9510

Renesas Electronics India Pvt. Ltd.
No.777C, 100 Feet Road, HALII Stage, Indiranagar, Bangalore, India
Tel: +91-80-67208700, Fax: +91-80-67208777

Renesas Electronics Korea Co., Ltd.
12F., 234 Teheran-ro, Gangnam-Gu, Seoul, 135-080, Korea
Tel: +82-2-558-3737, Fax: +82-2-558-5141

Colophon 4.0

CS+

Renesas Electronics Corporation

R20UT3284EJ0101