User's Manual

CS+

Integrated Development Environment

User's Manual: CC-RH Build Tool Operation

Target Device

RH850 Family

Target Version

V3.00.00 or higher

Renesas Electronics
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Rev.1.12 2023.12

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(Rev.5.0-1 October 2020)

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How to Use This Manual

This manual describes the role of the CS+ integrated development environment for developing applications and systems for RH850 family, and provides an outline of its features.

CS+ is an integrated development environment (IDE) for RH850 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

Related Documents

The related documents indicated in this publication may include preliminary versions. However, preliminary versions are not marked as such.

TABLE OF CONTENTS

1. GENERAL

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

1.1 Overview

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

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).
- 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, user library, and multi-core load module.

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.

(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 "2.2Speeding-up of Build").

(5) Set the type of the output file
Select the type of the load module to be generated (see "2.3Set the Type of the Output File").

(6) Set build options
Set the options for the compiler, assembler, linker, and the like (see "2.4Set Compile Options", "2.5Set Assemble Options", "2.6Set 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 "2.11Automatically 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.

(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 "2.2Speeding-up of Build").

(5) Set build options
Set the options for the compiler, assembler, librarian, and the like (see "2.4Set Compile Options", "2.5Set Assemble Options", "2.8Set 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.

2.1.3 Create a multi-core load module

The procedure for creating a multi-core load module is shown below.

Remark See "CS+ Integrated Development Environment User's Manual: Project Operation" for details about (1), (2), (3), (9), and (10).

(1) Create or load a project
Create a new project, or load an existing one.
When creating a new project, set up a single boot loader project as a project describing the start-up processing for the multi-cores. After that, set up a project describing the application processing for each of the required number of cores.

(2) Set a build target project
Set a build target project.
Make connections between the boot loader project for the multi-cores and the application projects for each of the cores (see "2.10Set Multi-core 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 "2.2Speeding-up of Build").

(5) Set the type of the output file
Select the type of the load module to be generated (see "2.3Set the Type of the Output File").

(6) Set build options
Set the options for the compiler, assembler, linker, and the like (see "2.4Set Compile Options", "2.5Set Assemble Options", "2.6Set Link Options", and the like).

(7) Set a multi-core project
Set up a project which configures the projects for the multi-cores.(see "2.10Set Multi-core Project").

(8) 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 "2.11Automatically Update the I/O Header File").

(9) 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).

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

2.1.4 Create a multi-core load module (Combined hex file)

The procedure for creating a multi-core load module (combined hex file) is shown below.

Remark See "CS+ Integrated Development Environment User's Manual: Project Operation" for details about (1), (2), (3), (9), and (10).

(1) Create or load a project
Create a new project, or load an existing one.
When creating a new project, set up a single boot loader project as a project describing the start-up processing for the multi-cores. After that, set up a project describing the application processing for each of the required number of cores.

(2) Set a build target project
Set a build target project.
Make connections between the boot loader project for the multi-cores and the application projects for each of the cores (see "2.10Set Multi-core 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 "2.2Speeding-up of Build").

(5) Set the type of the output file
Select the type of the load module to be generated (see "2.3Set the Type of the Output File").

(6) Set build options
Set the options for the compiler, assembler, linker, and the like (see "2.4Set Compile Options", "2.5Set Assemble Options", "2.6Set Link Options", and the like).

(7) Set a multi-core project
Set the output of combined hex files after setting up a project which configures the projects for the multi-cores (see "2.10Set Multi-core Project").

(8) 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 "2.11Automatically Update the I/O Header File").

(9) 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).

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

2.2 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 "2.2.1Running simultaneous build" for details about simultaneous build.
Parallel build	Multiple build commands are executed in parallel. See "2.2.2Running parallel build" for details about parallel build.

2.2.1 Running simultaneous build

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

An image of calling the ccrh command is shown below.

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

- When a build is run simultaneously

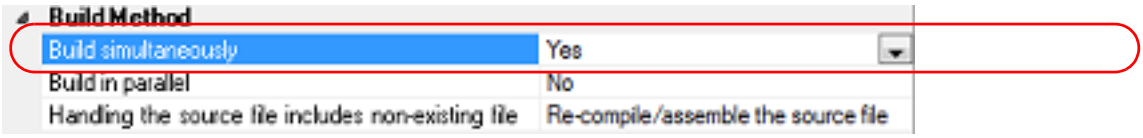
```
>ccrh -Xcommon=rh850 aaa.c bbb.c ccc.c <- "aaa.abs" is generated.
```

- When a build is not run simultaneously

```
>ccrh -Xcommon=rh850 aaa.c <- "aaa.obj" is generated.
>ccrh -Xcommon=rh850 bbb.c <- "bbb.obj" is generated.
>ccrh -Xcommon=rh850 ccc.c <- "ccc.obj" is generated.
>ccrh -Xcommon=rh850 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 2.1 [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 "2.2.2Running parallel build" for details about parallel build.

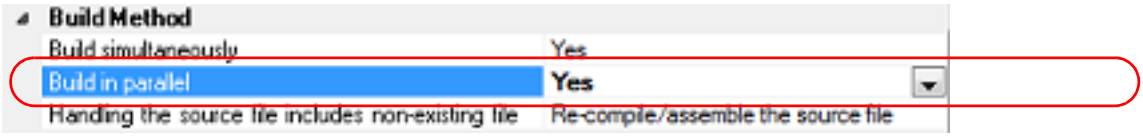
2.2.2 Running parallel build

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.

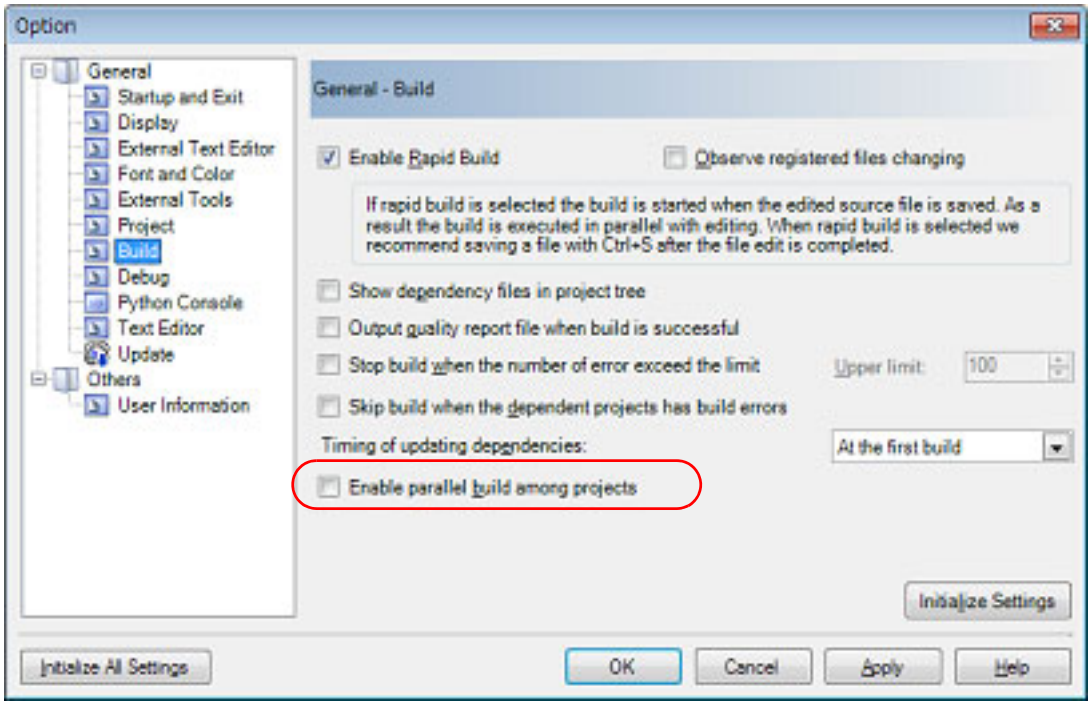
Figure 2.2 [Build in parallel] Property



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 "2.2.1Running 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 2.3 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".

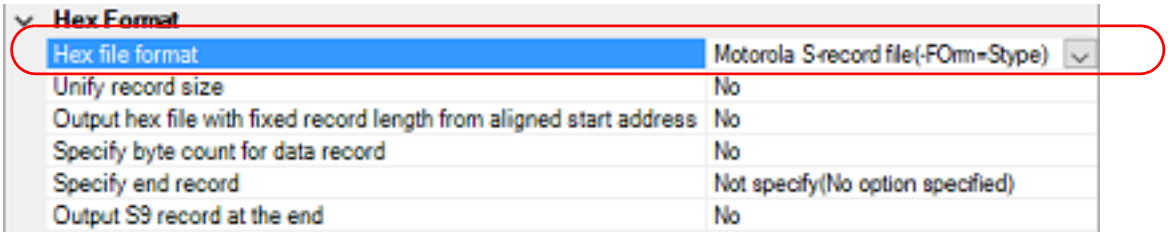
2.3 Set the Type of the Output File

Set the type of the file to be output as the product of the build.

(1) For the application project
A load module file is generated.
The load module file will be the debug target.
Select the type of the convert file to be output as the product of the build other than the load module file.

Select the build tool node on the project tree and select the [Hex Output Options] tab on the Property panel. Select the file type in the [Hex file format] property in the [Hex Format] category.

Figure 2.4 [Hex file format] Property

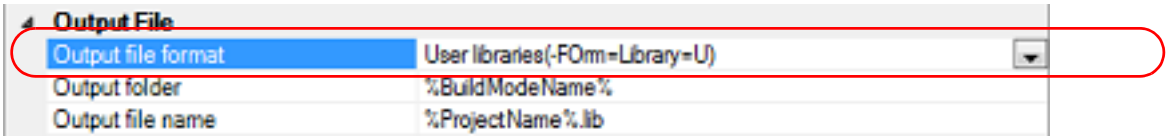


- When [Intel HEX file(-FOrm=Hexadecimal)] is selected
  An Intel HEX file is output from the generated load module file.
- When [Motorola S-record file(-FOrm=Stype)] is selected (default)
  A Motorola S-record file is output from the generated load module file.
- When [Binary file(-FOrm=Binary)] is selected
  A binary file is output from the generated load module file.

Caution See [Output file type] property in the [Output File Type and Path] category on the [Common Options] tab about the setting of the debug target.

(2) For the library project
Select the build tool node on the project tree and select the [Create Library Options] tab on the Property panel.
Select the format of the file in the [Output file format] property in the [Output File] category.

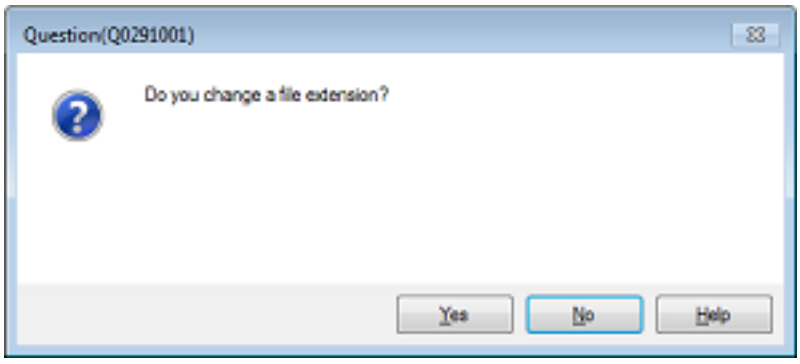
Figure 2.5 [Output file format] Property



- When [User libraries(-FOrm=Library=U)] is selected (default)
  A user library file is output.
- When [System libraries(-FOrm=Library=S)] is selected
  A system library file is output.
- When [Relocatable file(-FOrm=Relocate)] is selected
  A relocatable module file is output.

If the extension of output files is changed, the following message dialog box will open.

Figure 2.6 Message Dialog Box



Clicking [Yes] in the dialog box replaces the current file extension with the one for the output file type. Clicking [No], on the other hand, does not replace the current file extension.

2.3.1 Change the output file name

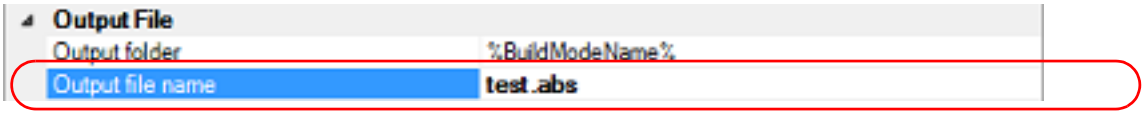
The names of the load module file, hex file, and library file output by the build tool are set as follows by default.
Load module file name: %ProjectName%.abs
Hex file name: %ProjectName%.mot
Library file name: %ProjectName%.lib

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
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 2.7 [Output file name] Property

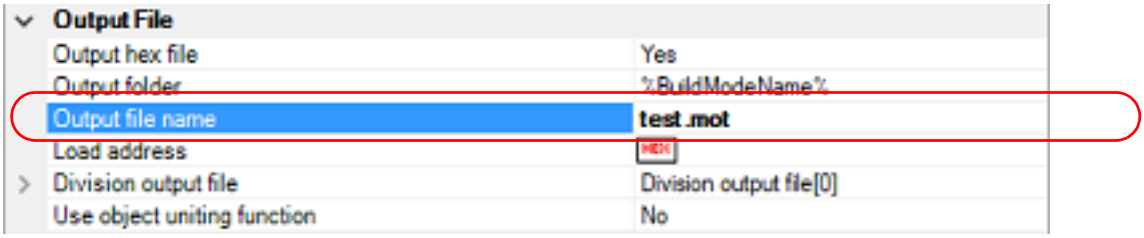


This property supports the following placeholders.
%ActiveProjectName%: Replaces with the active project name.
%MainProjectName%: Replaces with the main project name.
%ProjectName%: Replaces with the project name.

Remark You can also change the option in the same way with the [Output file name] property in the [Frequently Used Options(for 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 2.8 [Output file name] Property

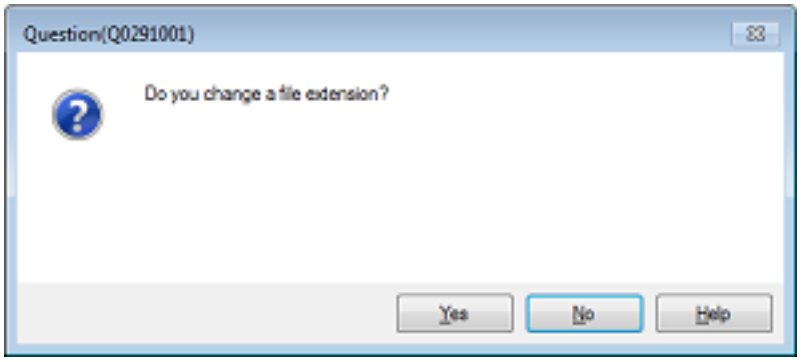


This property supports the following placeholders.
%ActiveProjectName%: Replaces with the active project name.
%MainProjectName%: Replaces with the main project name.
%ProjectName%: Replaces with the project name.

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.

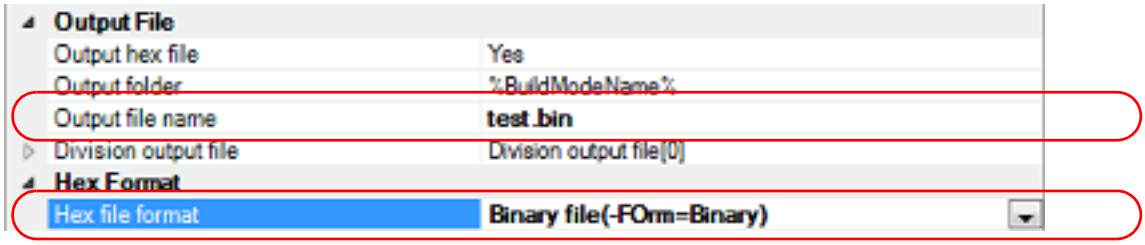
If the [Hex file format] property in the [Hex Format] category is changed, the following message dialog box will open.

Figure 2.9 Message Dialog Box



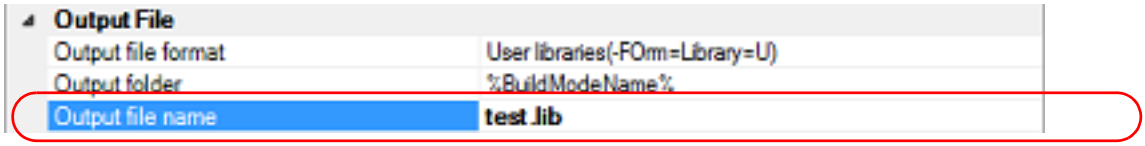
When [Yes] is selected in the dialog box, the extension of the output file name is changed according to the format selected in the [Hex file format] property.

Figure 2.10 [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 2.11 [Output file name] Property

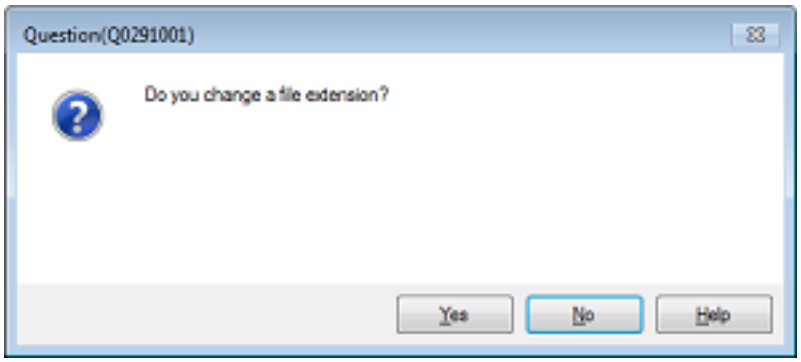


This property supports the following placeholders.
%ActiveProjectName%: Replaces with the active project name.
%MainProjectName%: Replaces with the main project name.
%ProjectName%: Replaces with the project name.

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.

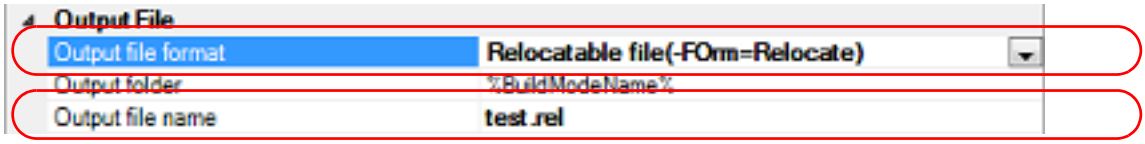
If the [Output file format] property is changed, the following message dialog box will open.

Figure 2.12 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.

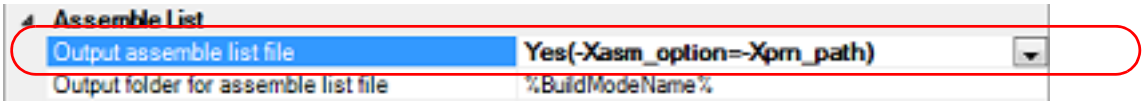
Figure 2.13 [Output file format] and [Output file name] Property



2.3.2 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 or [Assemble Options] tab on the Property panel.
To output the assemble list file, select [Yes(-Xasm_option=-Xprn_path)] in the [Output assemble list file] property in the [Assemble List] category.

Figure 2.14 [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".

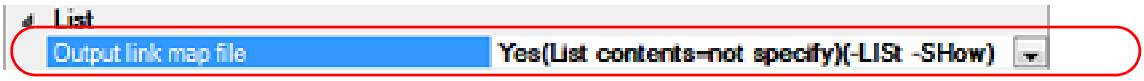
Remark See "CC-RH Compiler User's Manual" for details about the assemble list file.

2.3.3 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 2.15 [Output link map file] Property (When Information According To Output Format Is Output)



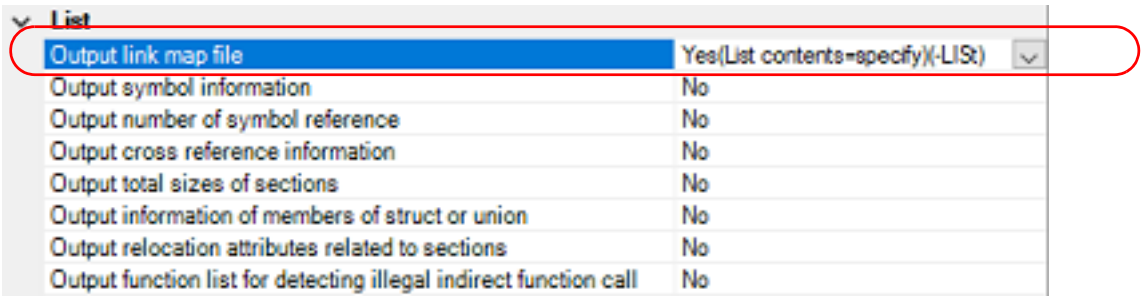
Remark See "CC-RH Compiler User's Manual" for differences between the -SHow and -SHow=ALL options.

(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 information of members of struct or union] property
- [Output relocation attributes related to sections] property
- [Output function list for detecting illegal indirect function call] property

Select [Yes] for each output information property.

Figure 2.16 [Output link map file] Property (When Information To Be Output Is Specified)



The link map file is output to the folder specified in the [Output folder] property in the [Output File] category.
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".

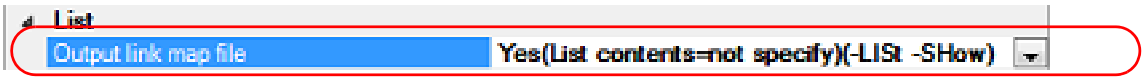
Remark See "CC-RH Compiler User's Manual" for details about the link map file.

2.3.4 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 2.17 [Output link map file] Property (When Information According To Output Format Is Output)



Remark See "CC-RH 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]

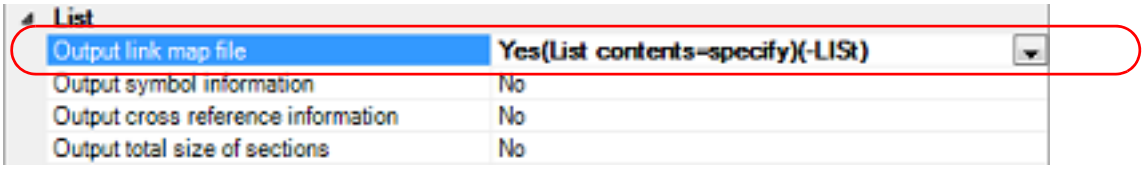
- [Output total sizes of sections] property[Note 2]

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



The library list file is output to the [Output folder] property in the [Output File] category.
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-RH Compiler User's Manual" for details about the library list file.

2.4 Set Compile Options

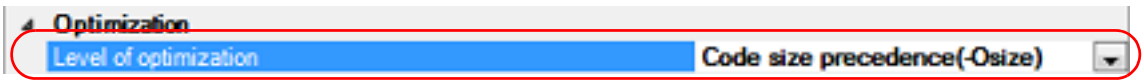
To set options for the compile phase, select the Build tool node on the project tree and select the [Compile Options] tab on the Property panel.
You can set the various compile options by setting the necessary properties in this tab.

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

2.4.1 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)

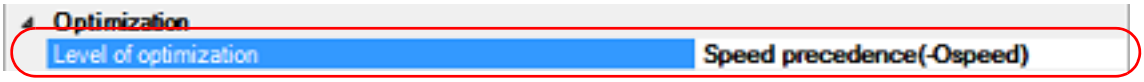


Remark You can also set the option in the same way with the [Optimization Level] property in the [Frequently Used Options(for Compile)] category on the [Common Options] tab.

2.4.2 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)

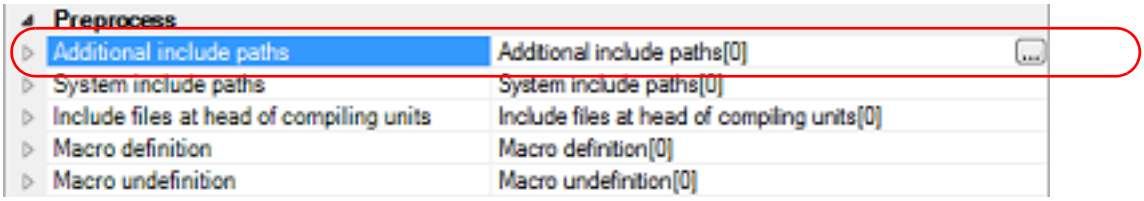


Remark You can also set the option in the same way with the [Optimization Level] property in the [Frequently Used Options(for Compile)] category on the [Common Options] tab.

2.4.3 Add an include path

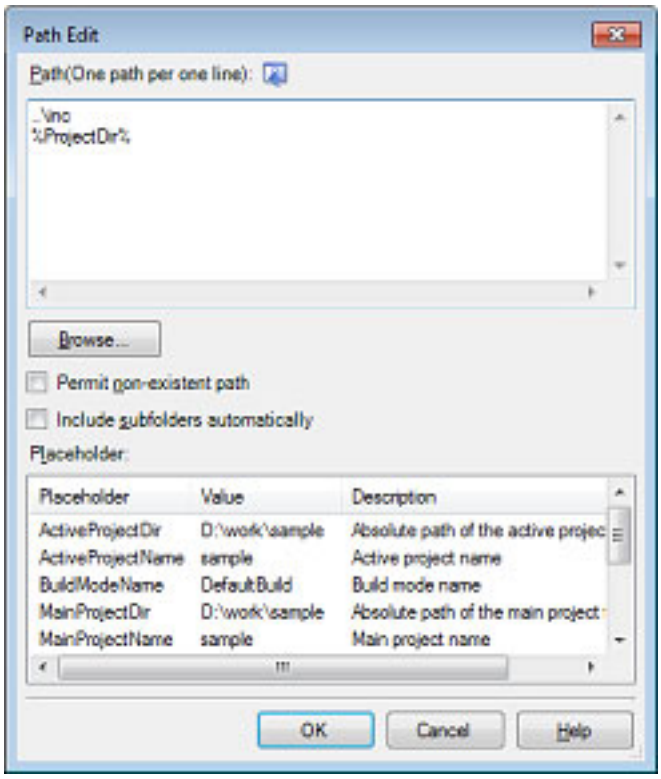
Select the build tool node on the project tree and select the [Compile Options] tab on the Property panel.
The include path setting is made with the [Additional include paths] property in the [Preprocess] category.

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 259 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)].

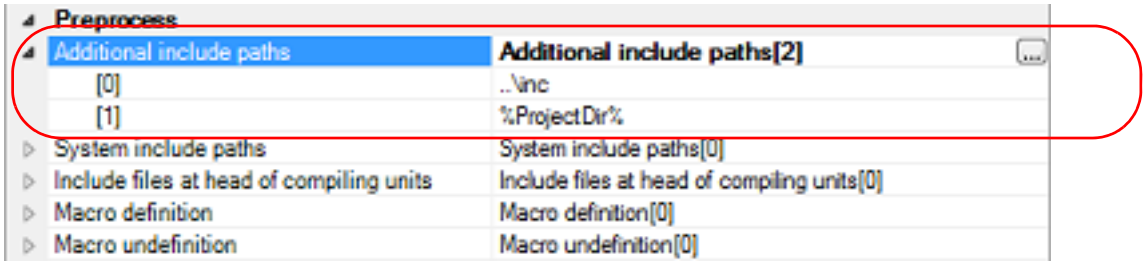
Remark 2. You can also specify the include path by one of the following procedures.

- 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)



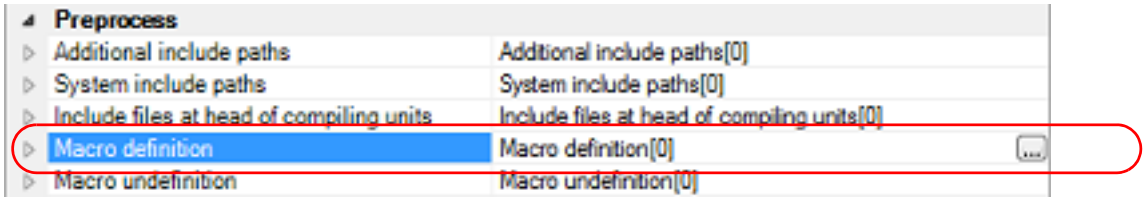
To change the include paths, you can use the [...] button or enter the path directly in the text box of the subproperty.
When the include path is added to the project tree, the path is added to the top of the subproperties automatically.

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.

2.4.4 Set a macro definition

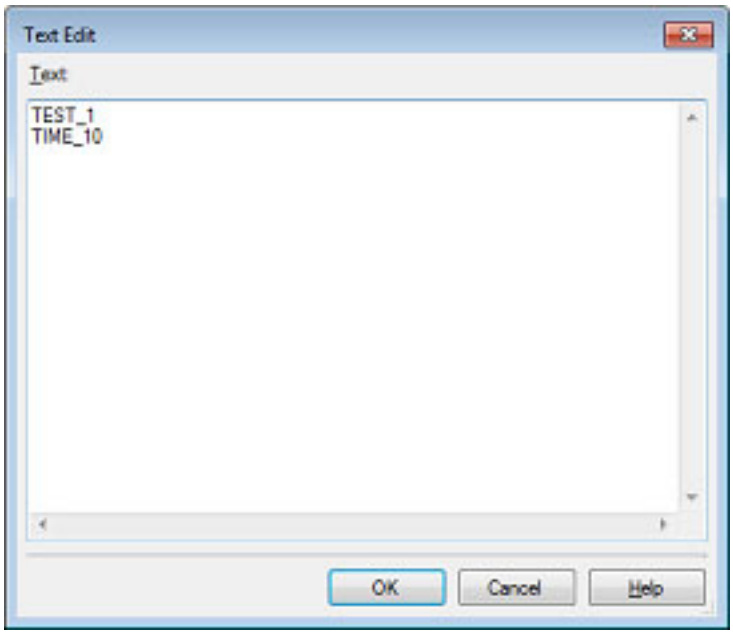
Select the build tool node on the project tree and select the [Compile Options] tab on the Property panel.
The macro definition setting is made with the [Macro definition] property in the [Preprocess] category.

Figure 2.24 [Macro definition] Property



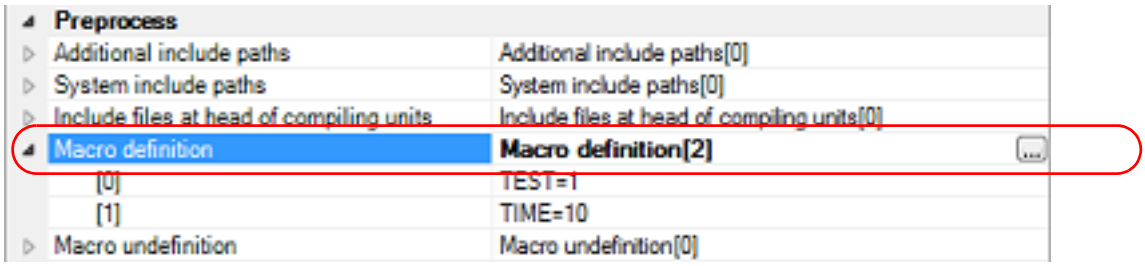
If you click the [...] button, the Text Edit dialog box will open.

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)



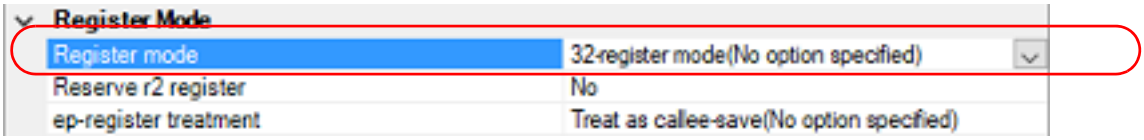
To change the macro definitions, you can use the [...] button or enter the path directly in the text box of the subproperty.

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.

2.4.5 Change the register mode

Select the build tool node on the project tree and select the [Common Options] tab on the Property panel.
Select the register mode to on the [Register mode] property in the [Register Mode] category.

Figure 2.27 [Register mode] Property



You can select from the following register modes.

Register Mode	Working Registers	Registers for Register Variables
32-register mode(No option specified)	r10 to r19	r20 to r29
22-register mode(-Xreg_mode=22)	r10 to r14	r25 to r29
Universal register mode(-Xreg_mode=common)	r10 to r14	r25 to r29

Remark See "CC-RH Compiler User's Manual" for details about register modes.

2.5 Set Assemble Options

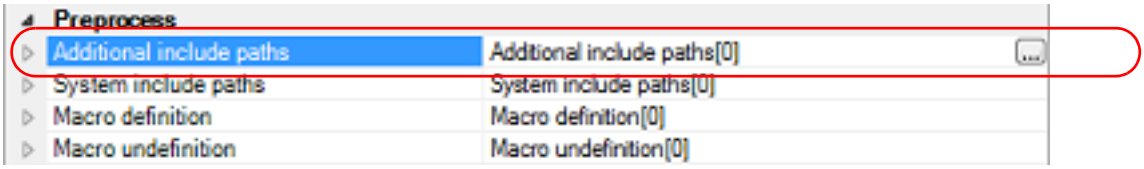
To set options for the assemble phase, select the Build tool node on the project tree and select the [Assemble Options] tab on the Property panel.
You can set the various assemble options by setting the necessary properties in this tab.

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

2.5.1 Add an include path

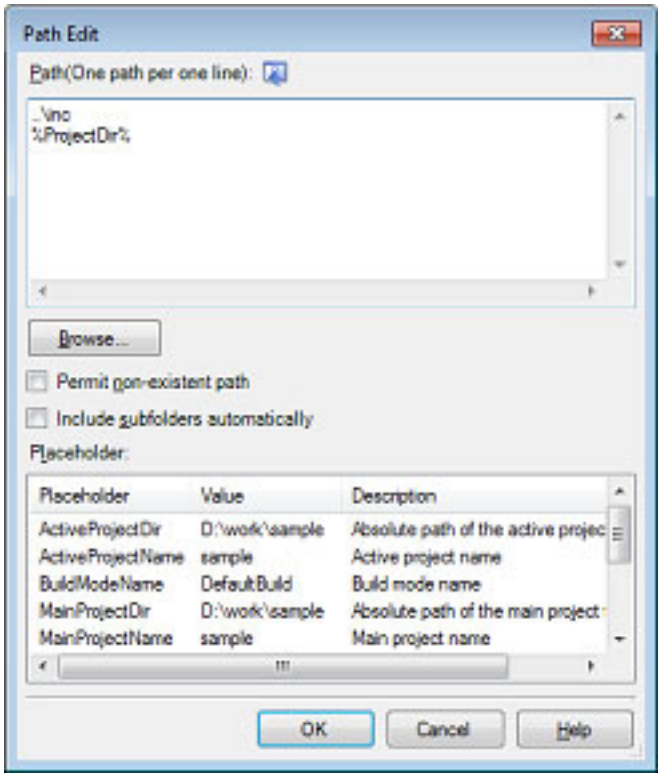
Select the build tool node on the project tree and select the [Assemble Options] tab on the Property panel.
The include path setting is made with the [Additional include paths] property in the [Preprocess] category.

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 259 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.

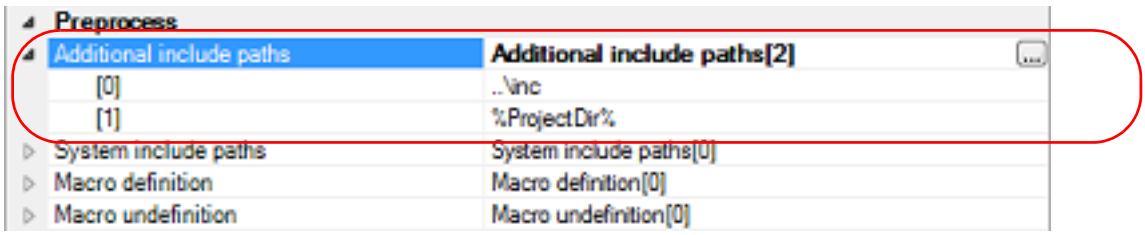
- Drag and drop the folder using such as Explorer.
- Click the [Browse...] button, and then select the folder in the Browse For Folder dialog box.

- 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)



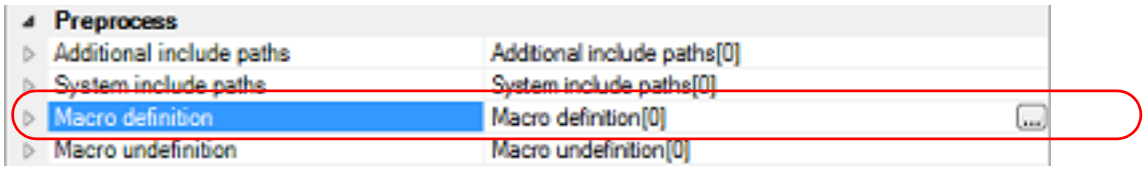
To change the include paths, you can use the [...] button or enter the path directly in the text box of the subproperty. When the include path is added to the project tree, the path is added to the top of the subproperties automatically.

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.

2.5.2 Set a macro definition

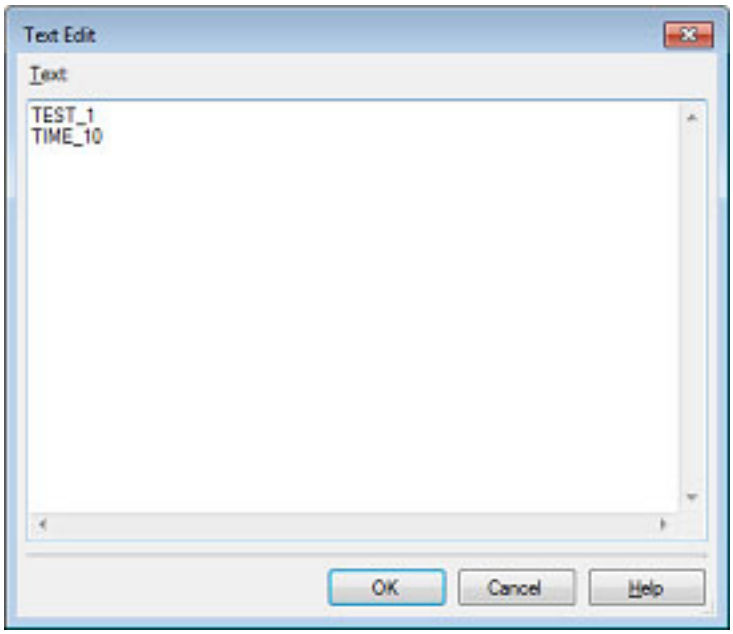
Select the build tool node on the project tree and select the [Assemble Options] tab on the Property panel. The macro definition setting is made with the [Macro definition] property in the [Preprocess] category.

Figure 2.31 [Macro definition] Property



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

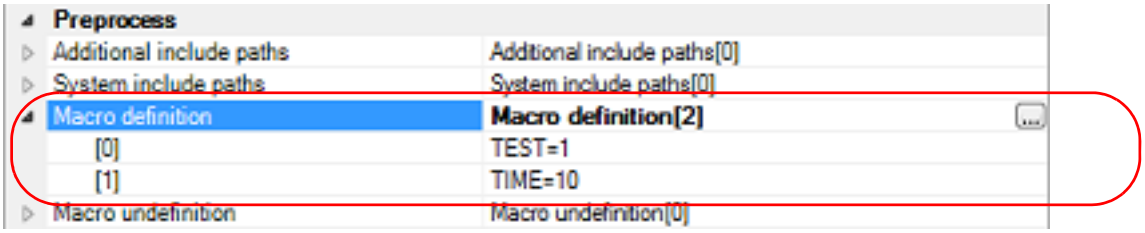
Figure 2.32 Text Edit Dialog Box



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.

2.6 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.

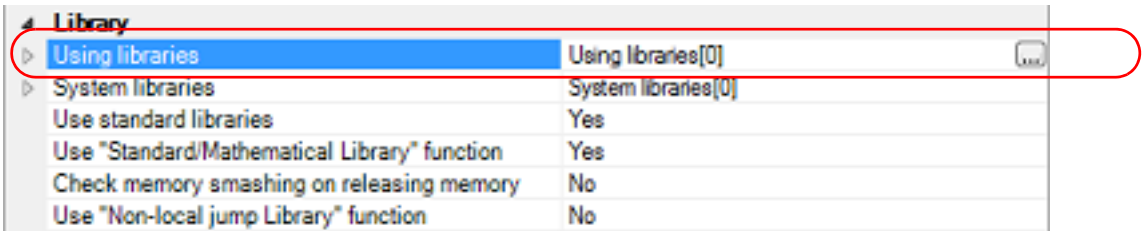
Caution This tab is not displayed for the library project.

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

2.6.1 Add a user library

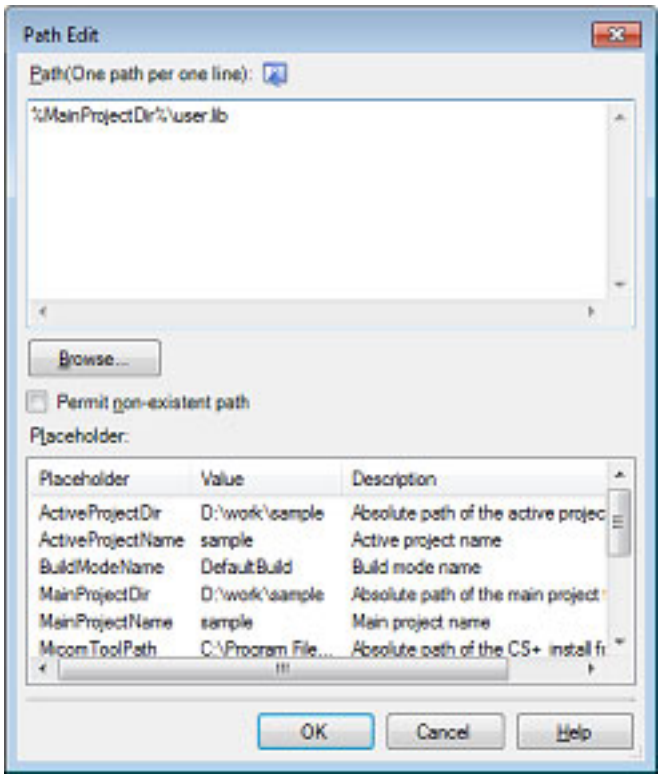
Select the build tool node on the project tree and select the [Link Options] tab on the Property panel.
Adding a user library is made with the [Using libraries] property in the [Library] category.

Figure 2.34 [Using libraries] Property



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

Figure 2.35 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.

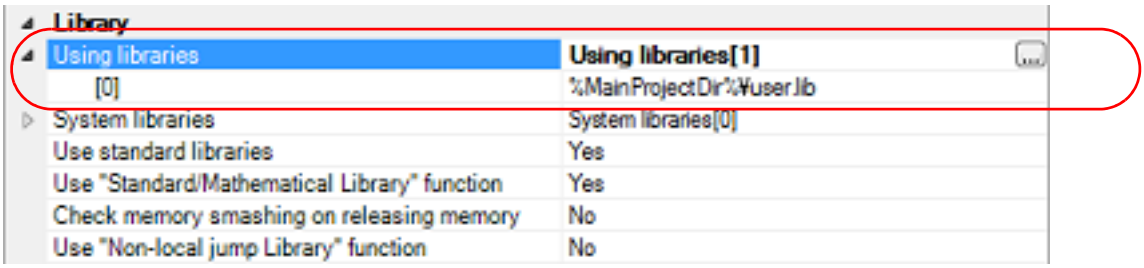
Remark 1. This property supports placeholders.
If a line is double clicked in [Placeholder], the placeholder will be reflected in [Path(One path per one line)].

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 2.36 [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.

2.6.2 Prepare for using the overlaid section selection function

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

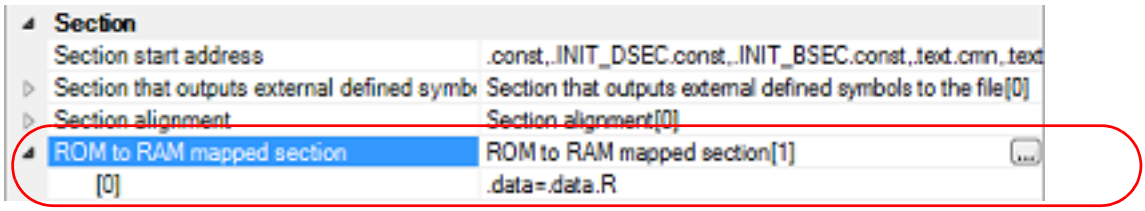
The method for generating a load module to use the overlaid section selection function is shown below.

(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.

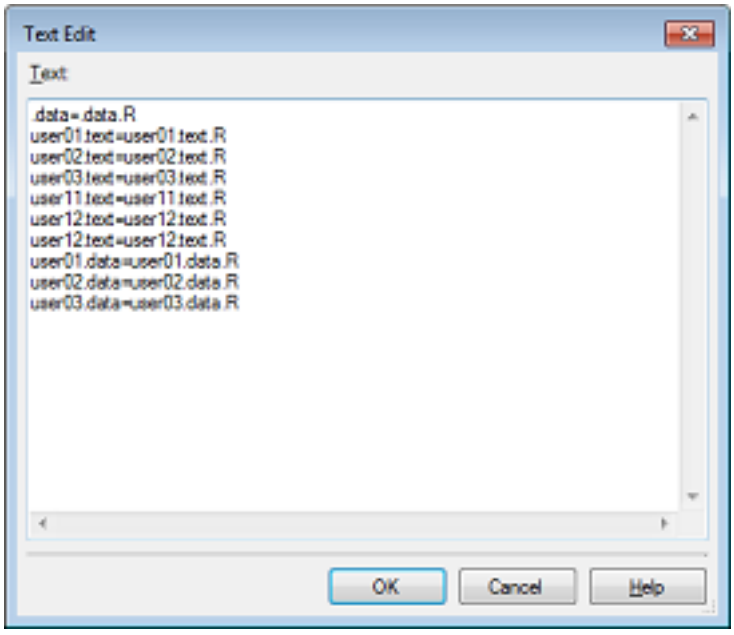
(a) Set ROM-to-RAM mapped sections
Setting the ROM-to-RAM mapped sections is made with the [ROM to RAM mapped section] property in the [Section] category.
This reserves the RAM section with the same size as that of the ROM section and relocates the symbols defined in the ROM section to addresses in the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

Figure 2.37 [ROM to RAM mapped section] Property



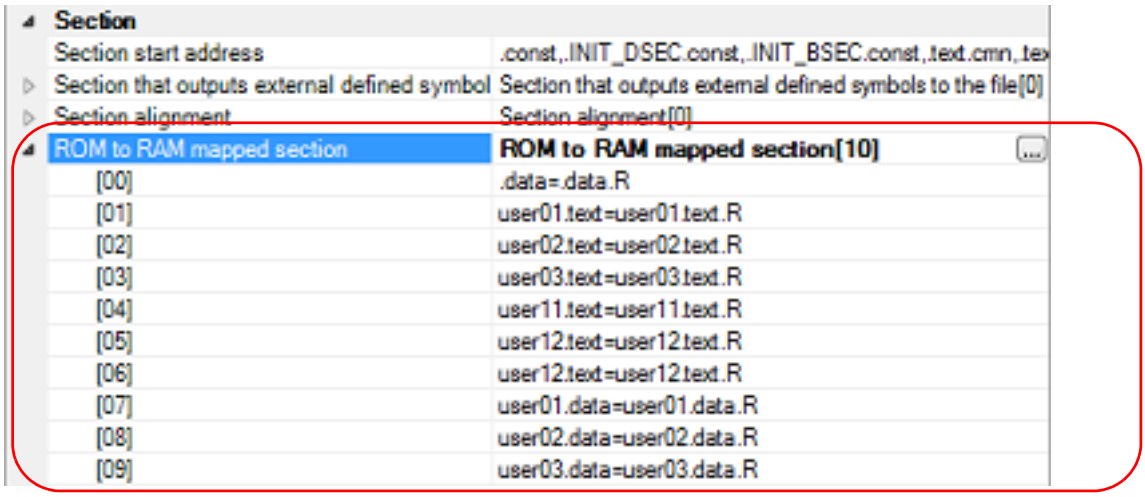
If you click the [...] button, the Text Edit dialog box will open.

Figure 2.38 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.

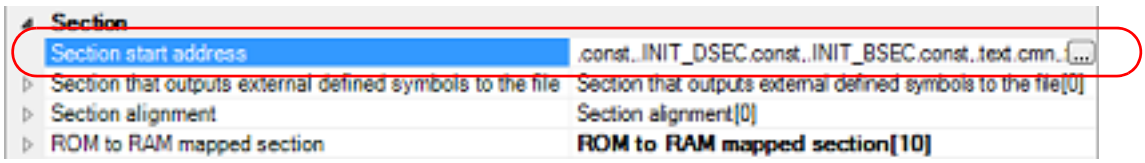
Figure 2.39 [ROM to RAM mapped section] Property (After Setting Sections)



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

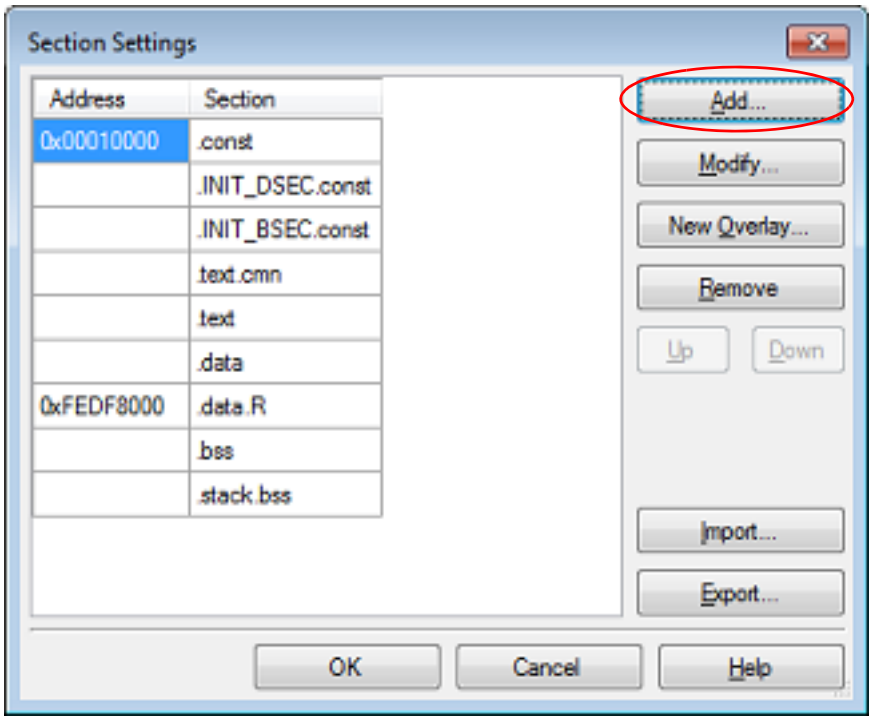
(b) Set ROM sections and RAM sections (overlaid sections)
Setting the sections is made with the [Section start address] property in the [Section] category.

Figure 2.40 [Section start address] Property



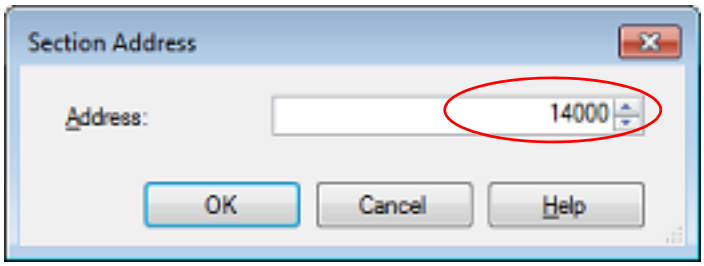
<1> Set ROM sections
If you click the [...] button, the Section Settings dialog box will open.

Figure 2.41 Section Settings Dialog Box



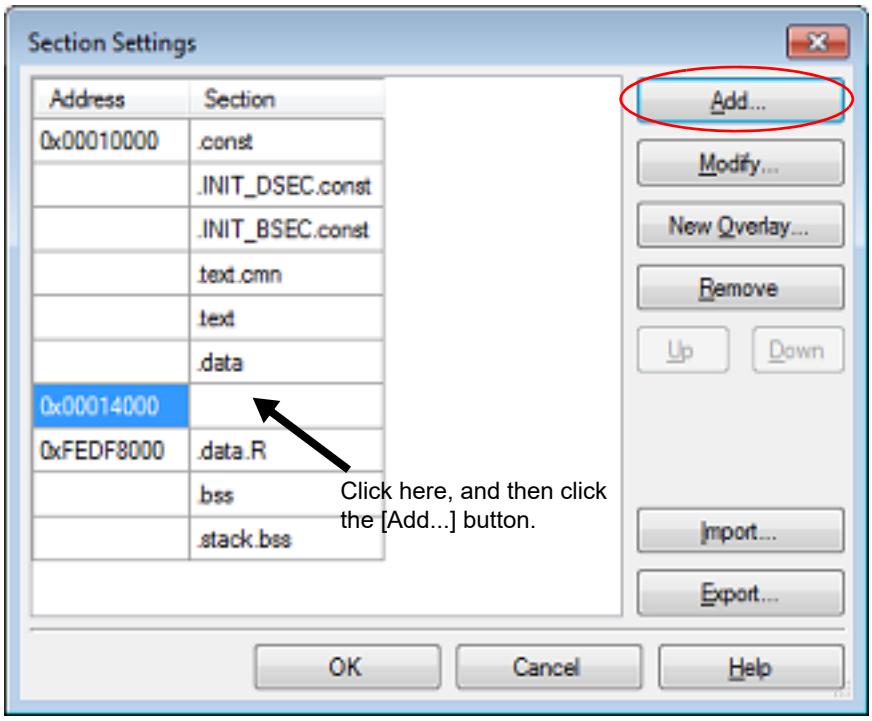
If you click the [Add...] button, the Section Address dialog box will open.

Figure 2.42 Section Address Dialog Box



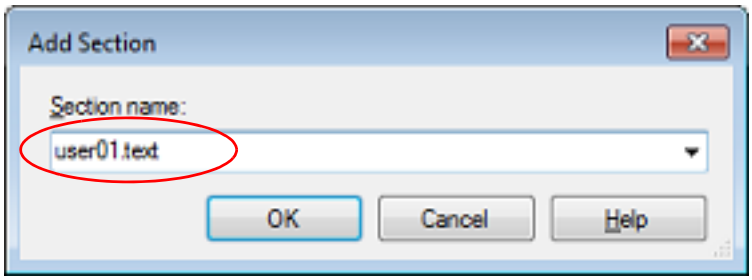
Enter in [Address] the address of the ROM section to be added and click the [OK] button to add the entered address to [Address] in the Section Settings dialog box.

Figure 2.43 Section Settings Dialog Box (After ROM Section Addresses Are Added)



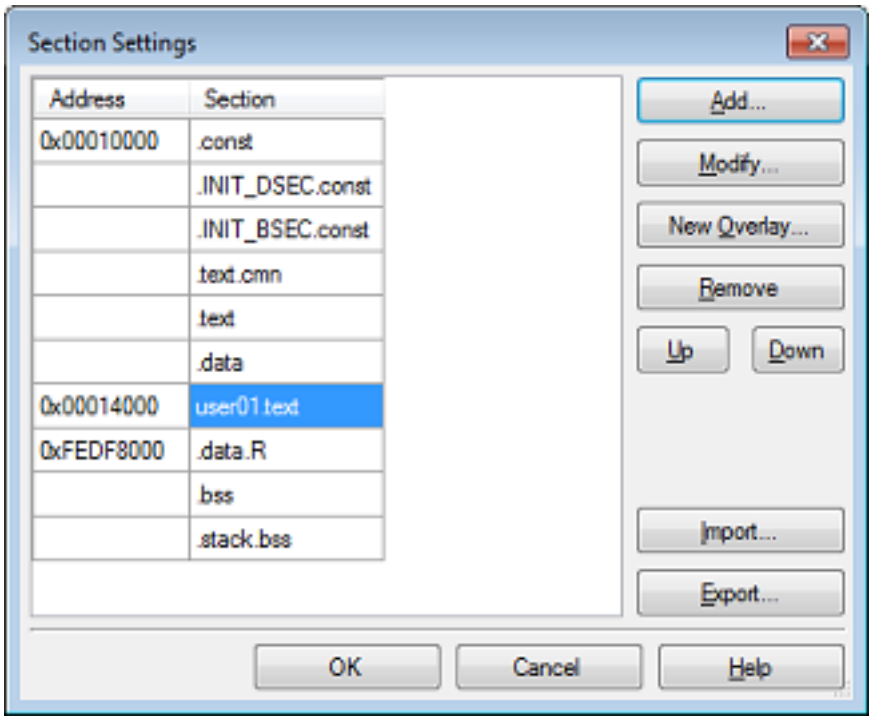
Click the Section column on the added address row and click the [Add...] button to open the Add Section dialog box.

Figure 2.44 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.

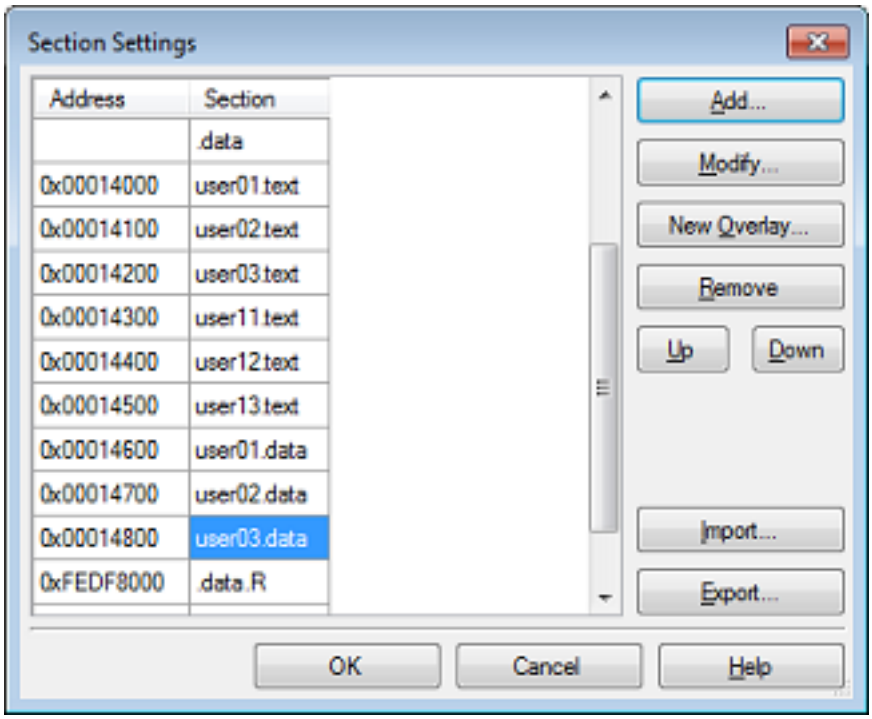
Figure 2.45 Section Settings Dialog Box (After ROM Sections Are Added)



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

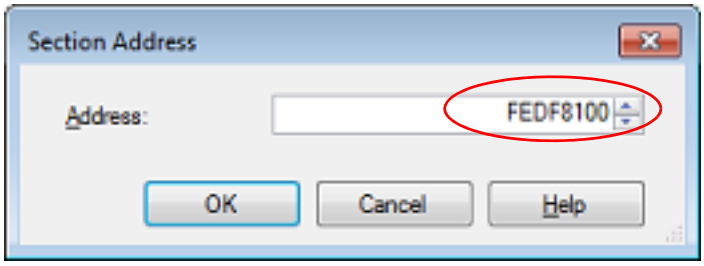
Remark Click the Address column and click the [Add...] button to open the Section Address dialog box, allowing you to add a new address.

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



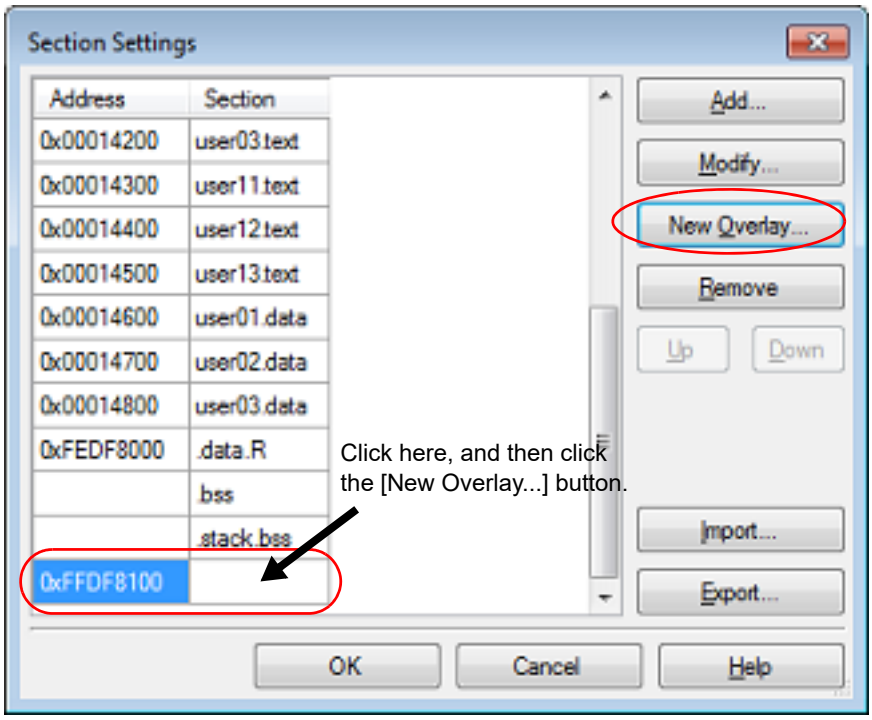
<2> Set RAM sections (overlaid sections)
Click an added address and click the [Add...] button to open the Section Address dialog box.

Figure 2.47 Section Address Dialog Box



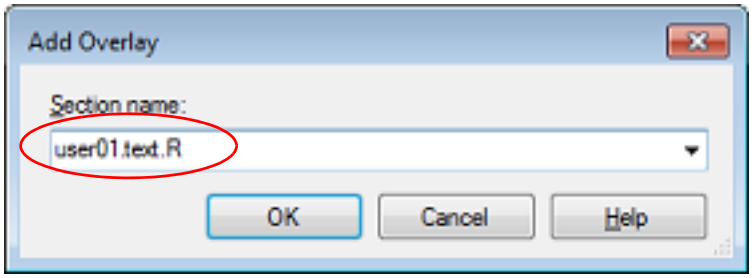
Enter in [Address] the address of the RAM section to be added and click the [OK] button to add the entered address to [Address] in the Section Settings dialog box.

Figure 2.48 Section Settings Dialog Box (After RAM Section Addresses Are Added)



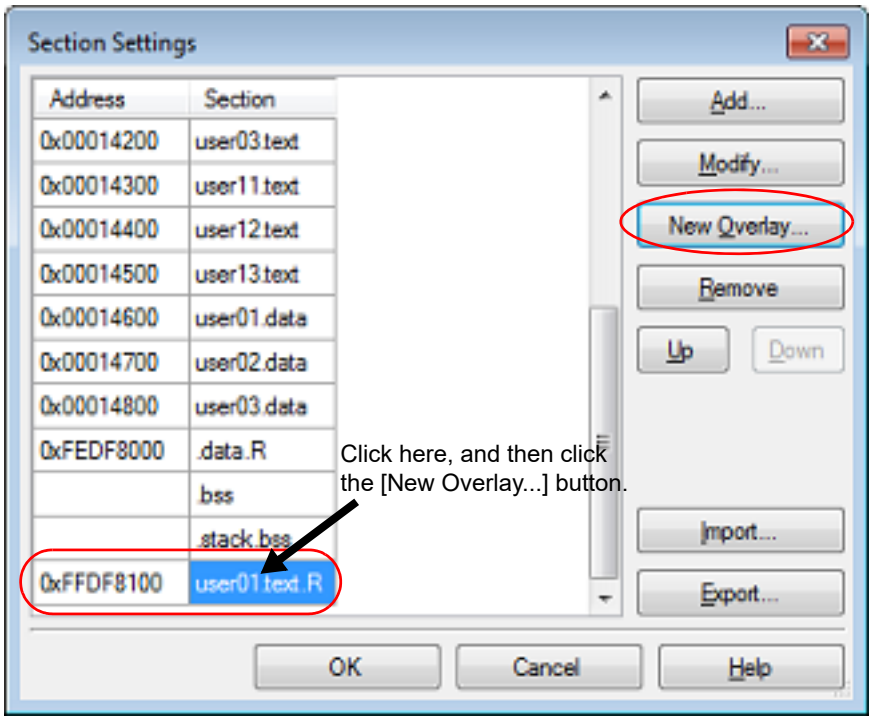
Click the added address row (Address column or Section column) and click the [New Overlay...] button to open the Add Overlay dialog box.

Figure 2.49 Add Overlay Dialog Box



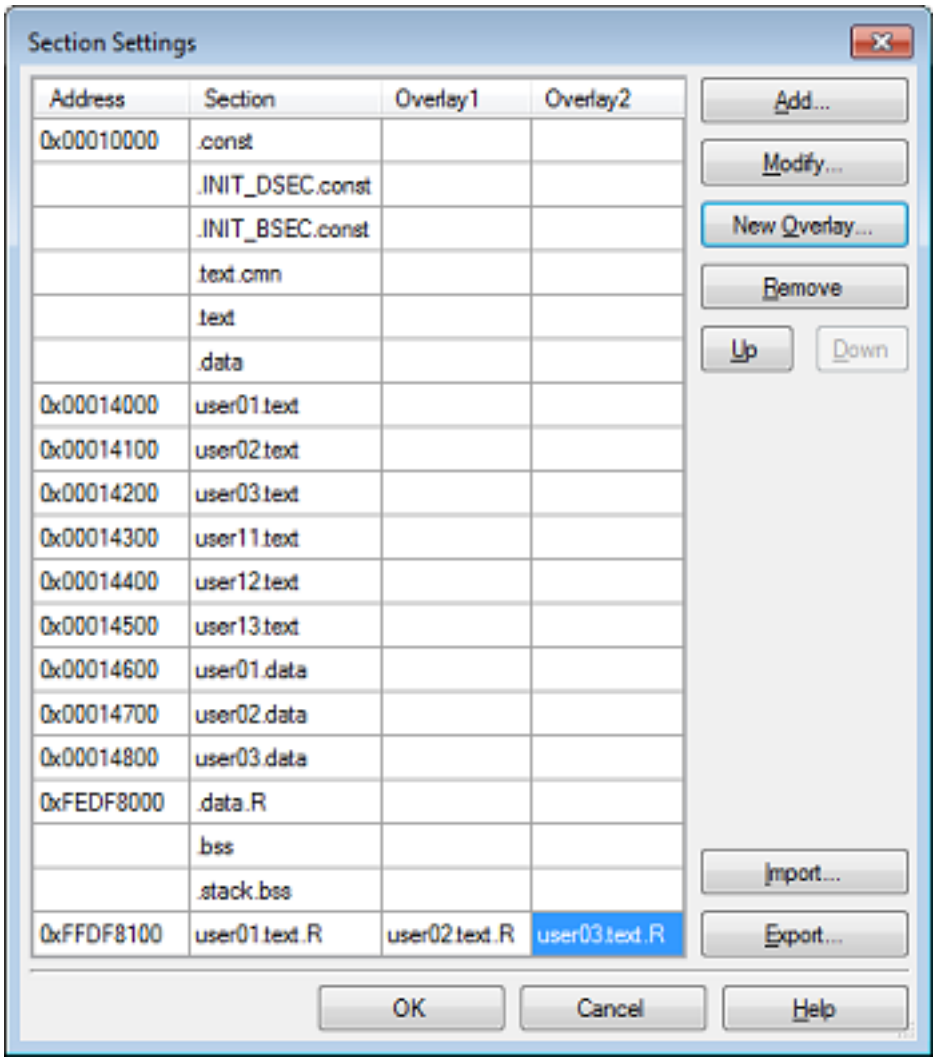
Enter in [Section name] the name of the RAM section to be added and click the [OK] button to add the entered section to [Section] in the Section Settings dialog box.

Figure 2.50 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").

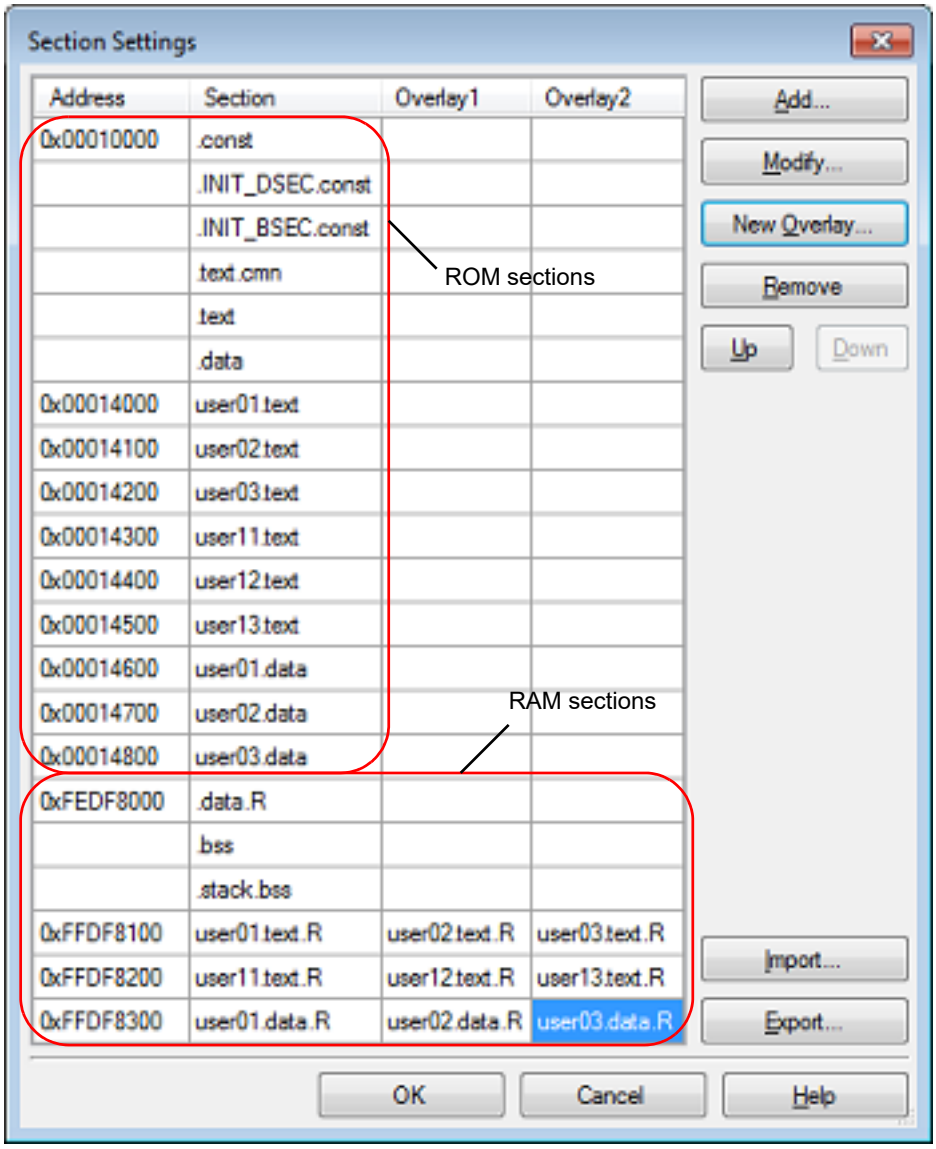
Figure 2.51 Section Settings Dialog Box (After Overlaid Sections Are Added)



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

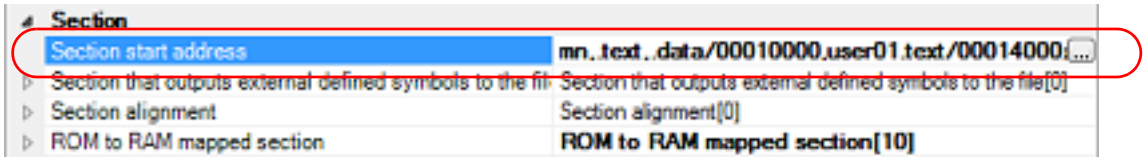
Remark Click the Address column and click the [Add...] button to open the Section Address dialog box, allowing you to add a new address.

Figure 2.52 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 2.53 [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.

2.7 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.

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

2.7.1 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 2.54 [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.

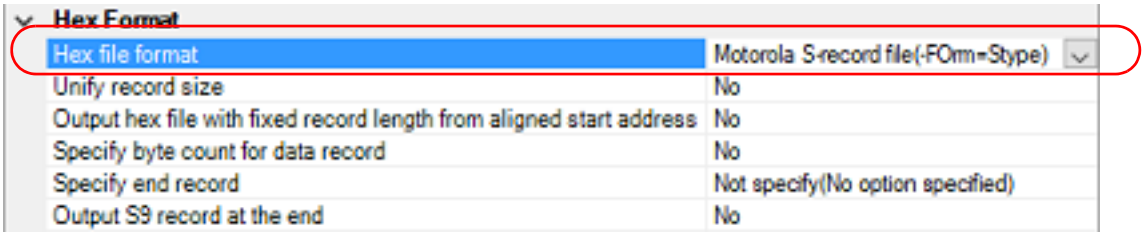
(b) Set the output file name
Setting the output file is made with the [Output file name] property by directly entering to the text box.
Up to 259 characters can be specified in the text box.
This property supports the following placeholders.

%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 2.55 [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-RH Compiler User's Manual" for details about the Intel Hex file and Motorola S-record file.

2.7.2 Fill the vacant area

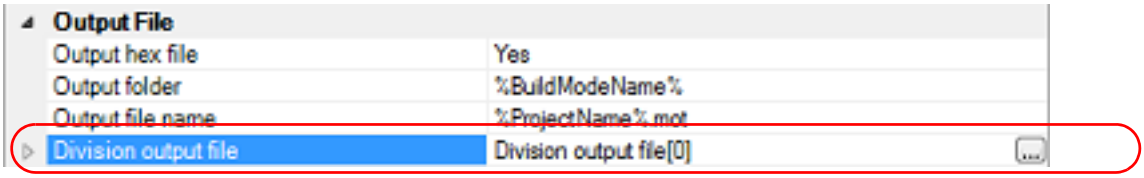
You need to set the hex file output range to fill the vacant area. The property to fill the vacant area is displayed after setting the hex file output range.
The procedure for the setting is shown below.

- Set the hex file output range
- Set the method for filling the vacant area

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

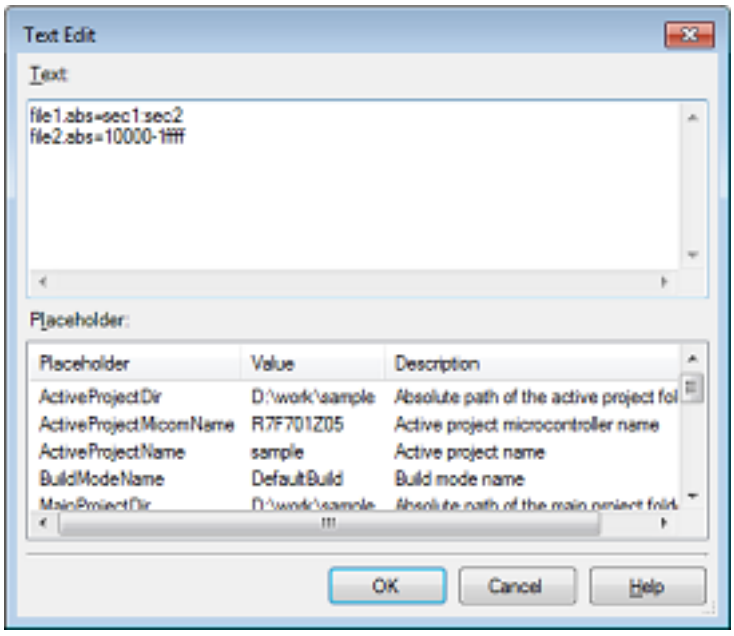
(1) Set the hex file output range
The setting of the hex file output range is made with the [Division output file] property in the [Output File] category.

Figure 2.56 [Division output file] Property



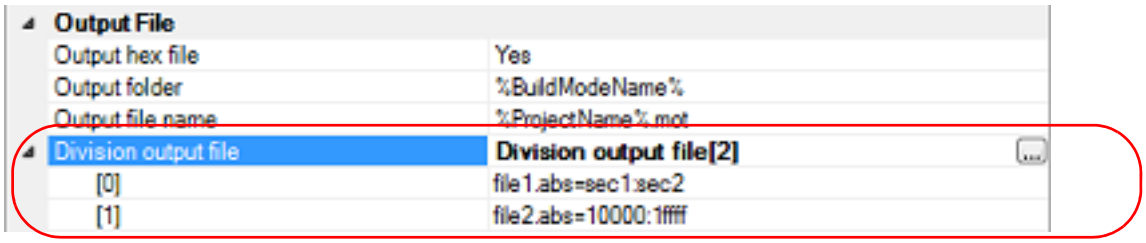
If you click the [...] button, the Text Edit dialog box will open.

Figure 2.57 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 2.58 [Division output file] Property (After Setting Division Output File Names)

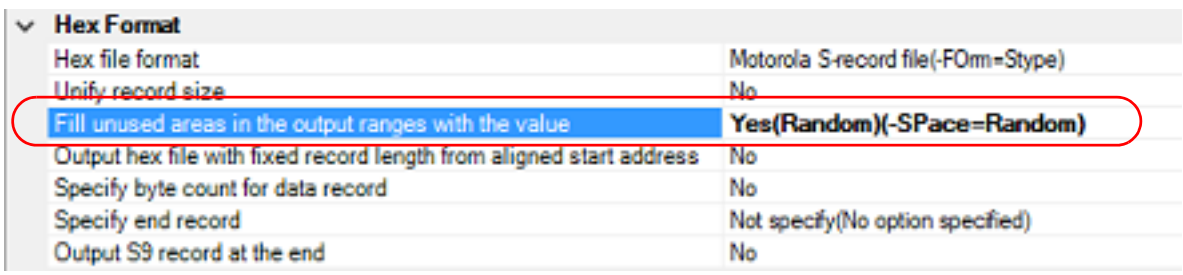


To change the division output file names, you can use the [...] button or enter them directly in the text box of the subproperty.

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

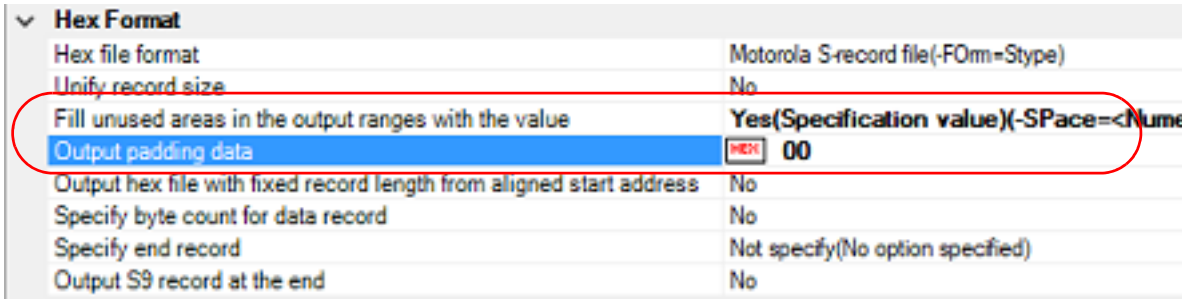
(a) Fill the vacant area with random numbers
Select [Yes(Random)(-SPace=Random)] in the [Fill unused areas in the output ranges with the value] property in the [Hex Format] category.

Figure 2.59 [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 2.60 [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 FFFFFFFFFF (hexadecimal number).
"FF" is set by default.

2.8 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.

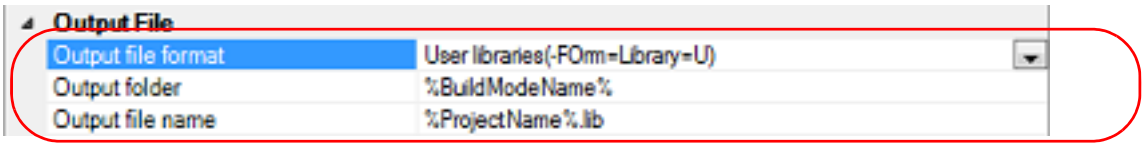
Caution This tab is displayed for the library project.

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

2.8.1 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 2.61 [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.
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.

2.9 Set Build Options Separately

Build options are set at the project or file level.
Project level: See "2.9.1Set build options at the project level"
File level: See "2.9.2Set build options at the file level"

2.9.1 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

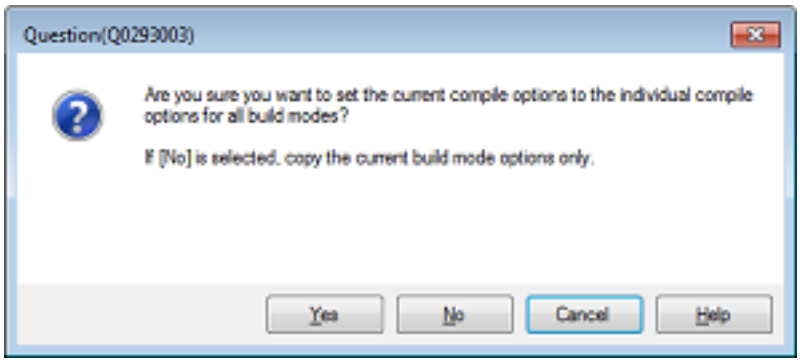
2.9.2 Set build options at the file level

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 2.62 [Set individual compile option] Property

Figure 2.63 Message Dialog Box



Click [Yes] in the dialog box. The [Individual Compile Options] tab will be displayed.
You can set compile options for the C source file by setting the necessary properties in this tab.

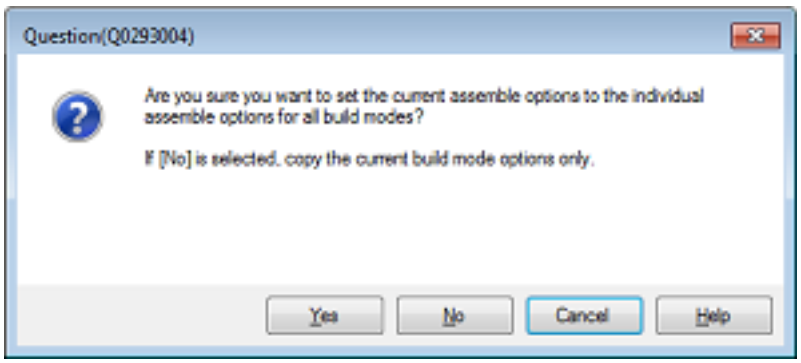
Note that this tab takes over the settings of the [Common Options] tab and [Compile Options] tab by default except the properties shown below.

- [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 2.64 [Set individual assemble option] Property

Figure 2.65 Message Dialog Box



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

2.10 Set Multi-core Project

As a multi-core project, set information on the individual application projects related to the boot loader project in the boot loader project.

Afterwards, the application projects are automatically built and associations with the addresses of the symbols this produces are set up whenever you debug the boot loader project, which eases debugging. The hex files generated from the individual projects are also combined in a single file.

See "2.10.1Set the constituent application projects" for details about setting up the associations. See "2.10.2Combine multiple objects" for details about producing a combined hex file.

Caution Changing the microcontroller for a project will disable the settings specified in the [Constituent application projects] property for the [Constituent Projects] category on the [Boot Loader] tabbed page. To change the microcontroller while retaining the associations, select multiple related projects in the Project Tree panel.

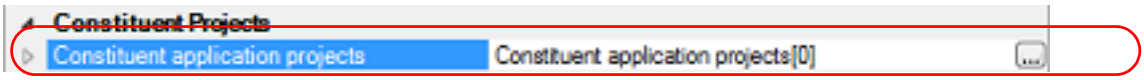
2.10.1 Set the constituent application projects

By setting up the constituent application projects, the application projects are automatically built and associations with the addresses of the symbols are made whenever you debug the boot loader project, which eases debugging. Details of the procedure for making the settings are given below.

Select the Configuration Tool for Multi-core node on the project tree and select the [Boot Loader] tab on the Property panel.

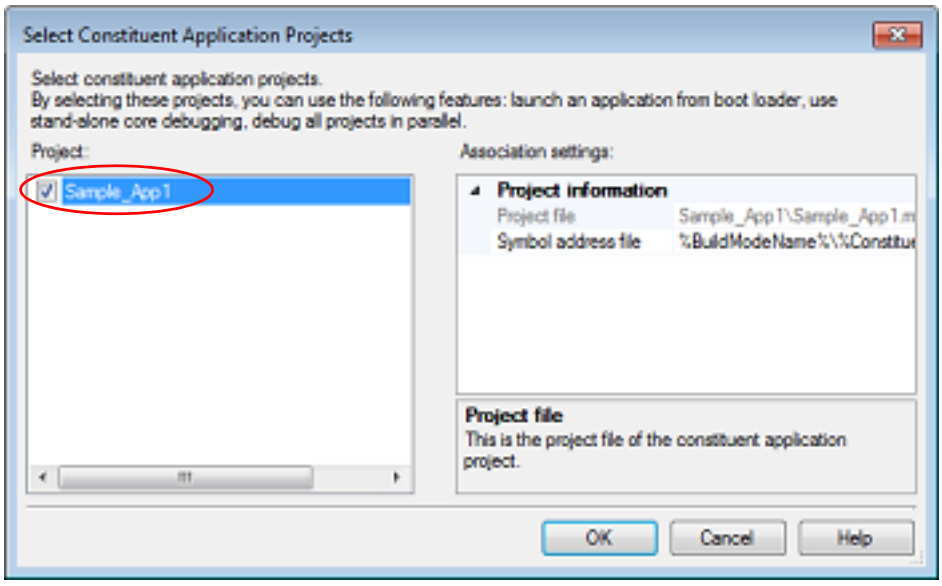
The setting of the constituent application projects is made with the [Constituent application projects] property in the [Constituent Projects] category.

Figure 2.66 [Constituent application projects] Property



If you click the [...] button, the Select Constituent Application Projects dialog box will open.

Figure 2.67 Select Constituent Application Projects Dialog Box



Select the check boxes of the target application projects in [Project].

Remark Only those application projects which meet the following conditions are selectable.

- The same microcontroller is used.
- The project type is either of [Application(CC-RH)], [Empty Application(CC-RH)], or [Application for Multi-core(CC-RH)]

Note that a project will not be within the scope of being automatically set up as a constituent application project if it does not meet the above conditions. When application projects which meet the conditions are created or added, they will automatically be set up as constituent application projects.

If you click the [OK] button, the specified application projects are displayed as subproperties.

Figure 2.68 [Constituent application projects] Property (After Setting Application Projects)

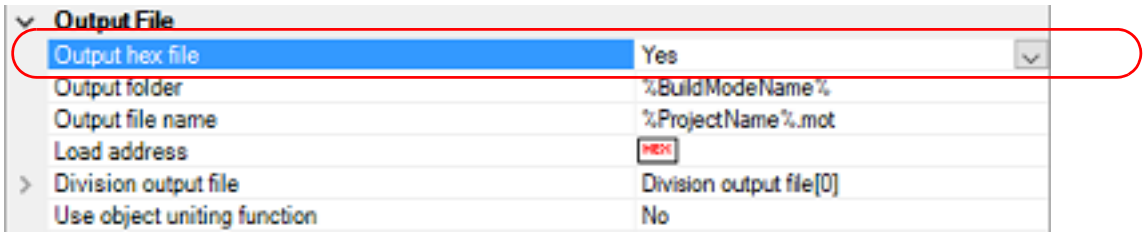
The constituent application projects can be changed by the [...] button.

2.10.2 Combine multiple objects

For a multi-core project, the Intel HEX files or Motorola S-record files in the projects specified as constituent applications can be combined into a single hex file (This is called the object combine function).
Note that Intel HEX files and Motorola S-record files cannot be mixed.

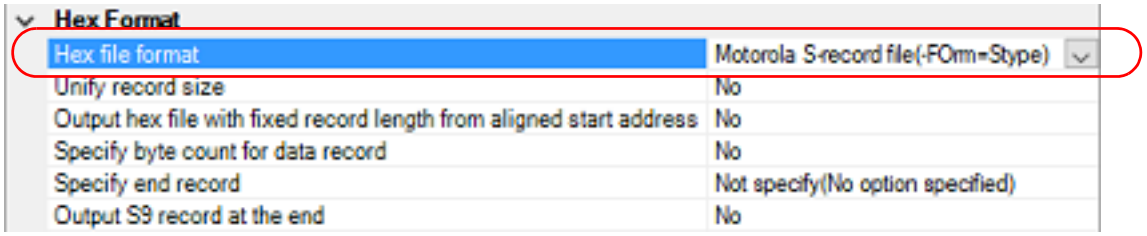
(1) Set the output of a hex file
Set the output of a hex file and the hex file format in the boot loader project and each application project.
Select the build tool node on the project tree and select the [Hex Output Options] tab on the Property panel.
Select [Yes] in the [Output hex file] property in the [Output File] category.

Figure 2.69 [Output hex file] Property



Select [Intel HEX file(-FOrm=Hexadecimal)] or [Motorola S-record file(-FOrm=Stype)] in the [Hex file format] property in the [Hex Format] category.

Figure 2.70 [Hex file format] Property



Caution The same format should be selected in the boot loader project and all application projects.

(2) Specify combining into a hex file
Specify combining into a hex file in the boot loader project.
Select [Yes] in the [Use object uniting function] property in the [Output File] category.

Figure 2.71 [Use object uniting function] Property

The destination where the combined hex file is to be output can be specified in [Output folder for united hex file] property (default: %BuildModeName%_merged).
The name in the [Output file name] property is used as the combined file name.

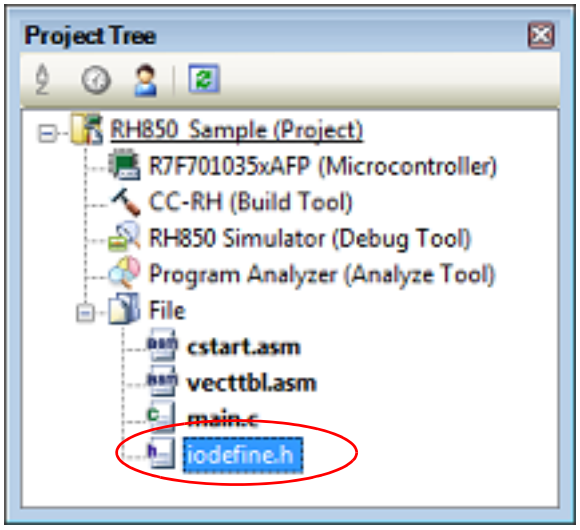
2.11 Automatically Update the I/O Header File

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 2.72 I/O Header File (iodefine.h)

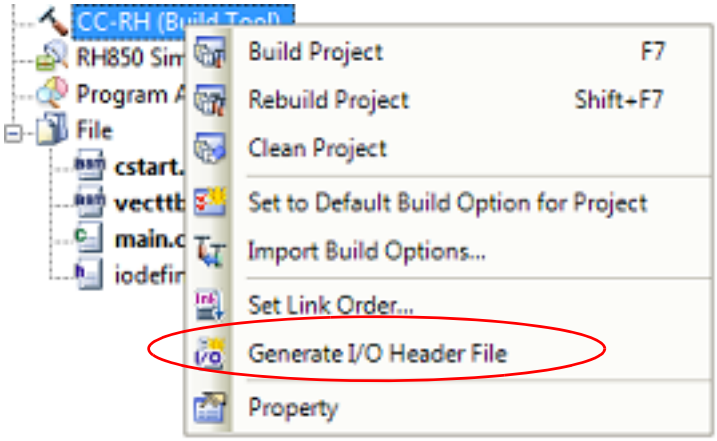


Remark The I/O header file is generated in the same folder containing the project file. If a file with the same name already exists, the existing file is renamed as "iodefine.bak" as a backup.

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

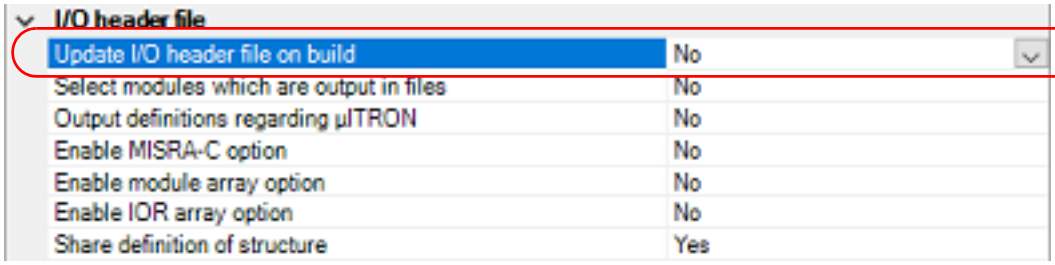
- At opening of the project
  CS+ checks the version of the device file when a project is opened.
  If the device file has been updated and there is a possibility that the I/O header file needs to be updated, a message is displayed on the Output panel. Update the I/O header file with the method below 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 2.73 [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 2.74 [Update I/O header file on build] Property



2.12 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.

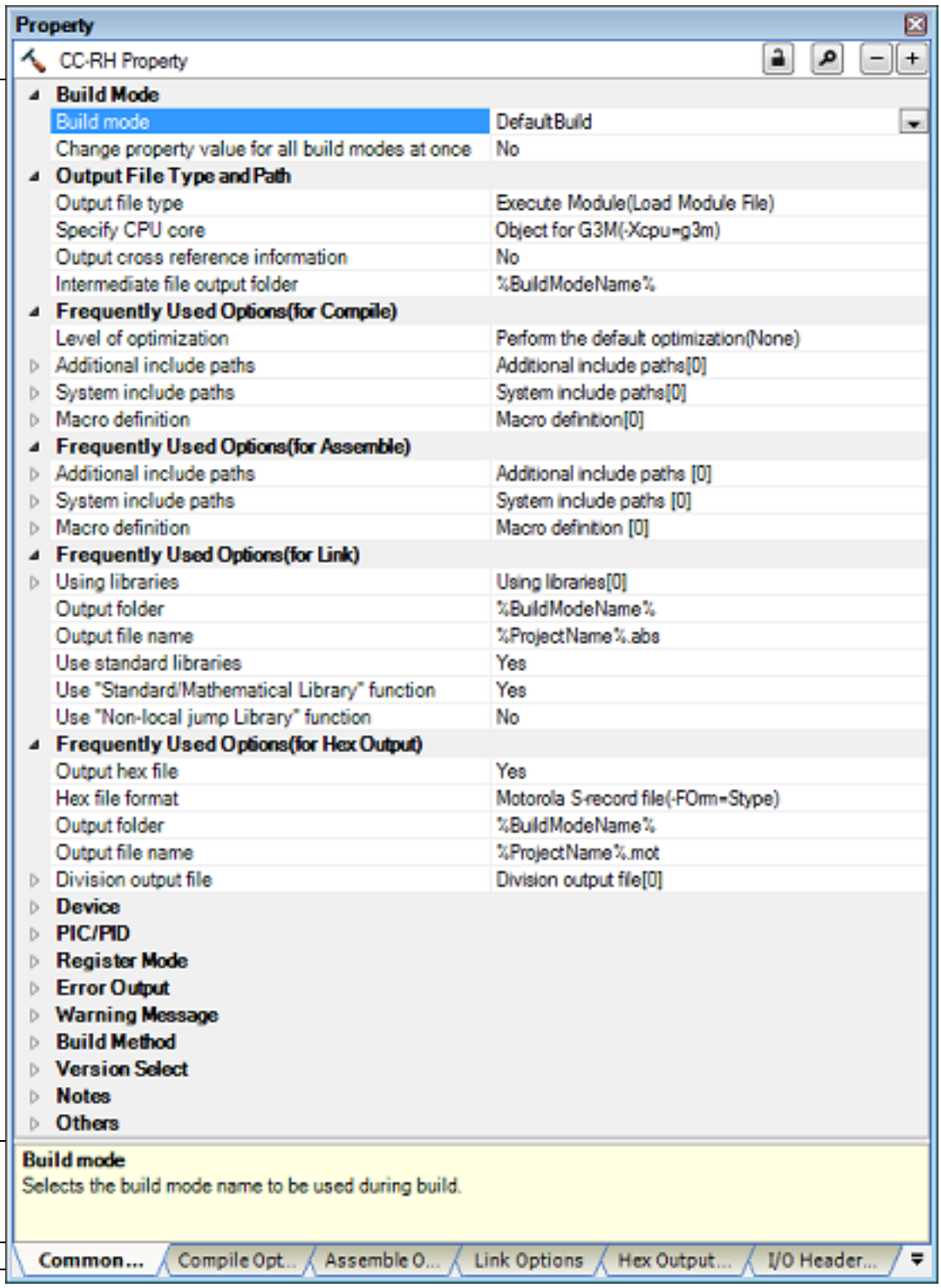
Table A.1 List of Panels/Dialog Boxes

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.
CRC Operations dialog box	This dialog box is used to add, modify, or delete the CRC operation settings.
Select Modules Which Are Output in Files dialog box	This dialog box is used to set modules which are output to the I/O header file.
Select Constituent Application Projects dialog box	This dialog box is used to set the constituent application projects.

Property panel

This panel is used to display the detailed information on the Build tool node, file, or Configuration Tool for Multi-core node 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, file, or Configuration Tool for Multi-core node and then select [Property] from the [View] menu or [Property] from the context menu.

Remark When either one of the Build tool node, file, or Configuration Tool for Multi-core node 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, file, or Configuration Tool for Multi-core node 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 HEX 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.

(a) When the Configuration Tool for Multi-core node is selected on the Project Tree panel

- [Boot Loader] 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.

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

[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) [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.

<table>
<tr><td>Output common object file for various devices</td><td colspan="3">Specify the output of an object file common to the various devices.
This property corresponds to the -Xcommon option of the ccrh command.
This property is displayed in any one of the following cases.
- In an environment where V2.00.00 or a later version of the CC-RH compiler has not been installed
- When a version number earlier than V2.00.00 is selected for the [Using compiler package version] property under the [Version Select] category in an environment where a version of the CC-RH compiler earlier than V2.00.00 has been installed</td></tr>
<tr><td></td><td>Default</td><td colspan="2">Yes(RH850 architecture common)(-Xcommon=rh850)</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>Restriction</td><td>Yes(RH850 architecture common)(-Xcommon=rh850)</td><td>The result is the same as when [Yes(V850E3V5 architecture common)(-Xcommon=v850e3v5)] is specified.</td></tr>
<tr><td></td><td></td><td>Yes(V850E3V5 architecture common)(-Xcommon=v850e3v5)</td><td>Outputs the object file compatible with models having the V850E3V5 instruction set architecture.</td></tr>
<tr><td>Specify CPU core</td><td colspan="3">Specify the CPU core.
This property corresponds to the -Xcpu option of the ccrh command.
[Object for G3MH(-Xcpu=g3mh)] is displayed when [Always latest version which was installed] or V1.02.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category in an environment where V1.02.00 or a later version of the CC-RH compiler has been installed.
[Object for G3KH(-Xcpu=g3kh)] is displayed when [Always latest version which was installed] or V1.03.00 or a later version is selected for the [Using compiler package version] property in an environment where V1.03.00 or a later version of the CC-RH compiler has been installed.
[Object for G4MH(-Xcpu=g4mh)] is displayed when [Always latest version which was installed] or V2.00.00 or a later version is selected for the [Using compiler package version] property in an environment where V2.00.00 or a later version of the CC-RH compiler has been installed.
The Restriction values depend on the device in use.</td></tr>
<tr><td></td><td>Default</td><td colspan="2">- The project type is [Application(CC-RH)], [Empty Application(CC-RH)], or [Library(CC-RH)]
Object for G3K(-Xcpu=g3k)
- The project type is [Boot Loader for Multi-core(CC-RH)] or [Application for Multi-core(CC-RH)]
Object for G3M(-Xcpu=g3m)</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>Restriction</td><td>Object for G3M(-Xcpu=g3m)</td><td>Generates an object for G3M.</td></tr>
<tr><td></td><td></td><td>Object for G3MH(-Xcpu=g3mh)</td><td>Generates an object for G3MH.</td></tr>
<tr><td></td><td></td><td>Object for G3K(-Xcpu=g3k)</td><td>Generates an object for G3K.</td></tr>
<tr><td></td><td></td><td>Object for G3KH(-Xcpu=g3kh)</td><td>Generates an object for G3KH.</td></tr>
<tr><td></td><td></td><td>Object for G4MH(-Xcpu=g4mh)</td><td>Generates an object for G4MH.</td></tr>
</table>

<table>
<tr><td>Output cross reference information</td><td colspan="3">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(-Xcref)] 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(-Xcref)] during a build.
This property corresponds to the -Xcref option of the ccrh command.</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="2">Restriction</td><td>Yes(-Xcref)</td><td>Outputs the cross reference information.
The build processing speed slows down, but "jump to function" can be used.</td></tr>
<tr><td></td><td>No</td><td>Does not output the cross reference information.</td></tr>
<tr><td>Intermediate file output folder</td><td colspan="3">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 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.
%ActiveProjectDir%: Replaces with the absolute path of the active project folder.
%BuildModeName%: Replaces with the build mode name.
%MainProjectDir%: Replaces with the absolute path of the main project folder.
%ProjectDir%: Replaces with the absolute path of the project folder.
If this is blank, it is assumed that the project folder has been specified.
This property corresponds to the -Xobj_path option of the ccrh command.
The setting of this property affects the destination of output for the following files.
- Object file (*.obj)
- Subcommand file for the compiler (*.ccr)
- Subcommand file for the assembler (*.cas)
- Subcommand file for the optimizing linker (For other than the library project) (*.clnk)
- Subcommand file for the optimizing linker (For the library project) (*.ccl)

The subcommand file for the compiler or assembler lists the compiler or assembler options delimited with a space. This is output only when the command line of the compiler or assembler is long.
The subcommand file for the optimizing linker lists the optimizing linker options delimited with CR+LF.
Subcommand files are used internally by CS+, and they will be overwritten when there are already existing files at the time of building.</td></tr>
<tr><td></td><td>Default</td><td colspan="2">%BuildModeName%</td></tr>
<tr><td></td><td>How to change</td><td colspan="2">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 colspan="2">Up to 247 characters</td></tr>
</table>

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

<table>
<tr><td rowspan="6">Level of optimization</td><td colspan="3">Select the level of the optimization for compiling.
This property corresponds to the -O option of the ccrh command.</td></tr>
<tr><td>Default</td><td colspan="2">Perform the default optimization(No option specified)</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>Perform the default optimization(No option specified)</td><td>Performs optimization that debugging is not affected (optimization of expressions and register allocation, and the like).</td></tr>
<tr><td>Code size precedence(-Osize)</td><td>Performs optimization with the object size precedence.
Regards reducing the ROM/RAM capacity as important and performs the maximum optimization that is effective for general programs.</td></tr>
<tr><td>Speed precedence(-Ospeed)</td><td>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.</td></tr>
<tr><td></td><td>Debug precedence(-Onothing)</td><td>Performs optimization with the debug precedence.
Regards debugging as important and suppresses all optimization including default optimization.</td></tr>
<tr><td rowspan="4">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-RH.
The reference point of the path is the project folder.
When this property is omitted, only the standard folder of CC-RH is searched.
This property corresponds to the -I option of the ccrh 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>Default</td><td colspan="2">Additional include paths[number of defined items]</td></tr>
<tr><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>Restriction</td><td colspan="2">Up to 259 characters
Up to 256 items can be specified.</td></tr>
</table>

<table>
<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 property corresponds to the -I option of the ccrh 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>
<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 property corresponds to the -D option of the ccrh 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>
</table>

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

<table>
<tr><td>Additional include paths</td><td colspan="2">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-RH.
The reference point of the path is the project folder.
When this property is omitted, only the standard folder of CC-RH is searched.
This property corresponds to the -I option of the ccrh 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 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 property corresponds to the -I option of the ccrh 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 property corresponds to the -D option of the ccrh 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 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.

Using libraries	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 property 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.

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 property 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. %MainProjectName%: Replaces with the main project name. %ProjectName%: Replaces with the project name. This property 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	
Use standard libraries	Select whether to use the standard libraries provided by the compiler. This property corresponds to the -LIBrary option of the rlink command. [Yes(V1.01 compatible)] is displayed when [Always latest version which was installed] or V1.02.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category in an environment where V1.02.00 or a later version of the CC-RH compiler has been installed.		
	Default	Yes	
	How to change	Select from the drop-down list.	
	Restriction	Yes	Uses the standard libraries.
		Yes(V1.01 compatible)	Uses the libraries compatible with CC-RH V1.01.
		No	Does not use the standard libraries.

<table>
<tr><td>Use "Standard Library" function</td><td colspan="3">Select whether to use the standard library functions.
This property is changed to [Yes(-LIBrary=libc)] when [Yes] in the [Use "Mathematical Library (Double precision)" function] or [Use "Mathematical Library (Single precision)" function] property is selected.
This property corresponds to the -LIBrary option of the rlink command.
This property is displayed in the following cases.
- When [Always latest version which was installed] or a version number earlier than V1.02.00 is selected for the [Using compiler package version] property under the [Version Select] category in an environment where a version of the CC-RH compiler earlier than V1.02.00 has been installed
- When [Yes] in the [Use standard libraries] property is selected

or
- When [Always latest version which was installed] or V1.02.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category in an environment where V1.02.00 or a later version of the CC-RH compiler has been installed
- When [Yes(V1.01 compatible)] in the [Use standard libraries] property is selected</td></tr>
<tr><td rowspan="4"></td><td>Default</td><td colspan="2">Yes(-LIBrary=libc)</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(-LIBrary=libc)</td><td>Uses the standard library functions.</td></tr>
<tr><td>No</td><td>Does not use the standard library functions.</td></tr>
<tr><td>Use "Mathematical Library (Double precision)" function</td><td colspan="3">Select whether to use the mathematical library (double precision) functions.
This property is changed to [No] when [No] in the [Use standard libraries] property is selected.
This property corresponds to the -LIBrary option of the rlink command.
This property is displayed in the following cases.
- When [Always latest version which was installed] or a version number earlier than V1.02.00 is selected for the [Using compiler package version] property under the [Version Select] category in an environment where a version of the CC-RH compiler earlier than V1.02.00 has been installed
- When [Yes] in the [Use standard libraries] property is selected

or
- When [Always latest version which was installed] or V1.02.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category in an environment where V1.02.00 or a later version of the CC-RH compiler has been installed
- When [Yes(V1.01 compatible)] in the [Use standard libraries] property is selected</td></tr>
<tr><td rowspan="4"></td><td>Default</td><td colspan="2">Yes(-LIBrary=libm)</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(-LIBrary=libm)</td><td>Uses the mathematical library (double precision) functions.</td></tr>
<tr><td>No</td><td>Does not use the mathematical library (double precision) functions.</td></tr>
</table>

<table>
<tr><td>Use "Mathematical Library (Single precision)" function</td><td colspan="3">Select whether to use the mathematical library (single precision) functions.
This property is changed to [No] when [No] in the [Use standard libraries] property is selected.
This property corresponds to the -LIBrary option of the rlink command.
This property is displayed in the following cases.
- When [Always latest version which was installed] or a version number earlier than V1.02.00 is selected for the [Using compiler package version] property under the [Version Select] category in an environment where a version of the CC-RH compiler earlier than V1.02.00 has been installed
- When [Yes] in the [Use standard libraries] property is selected
or
- When [Always latest version which was installed] or V1.02.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category in an environment where V1.02.00 or a later version of the CC-RH compiler has been installed
- When [Yes(V1.01 compatible)] in the [Use standard libraries] property is selected</td></tr>
<tr><td></td><td>Default</td><td colspan="2">Yes(-LIBrary=libmf)</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(-LIBrary=libmf)</td><td>Uses the mathematical library (single precision) functions.</td></tr>
<tr><td></td><td>No</td><td>Does not use the mathematical library (single precision) functions.</td></tr>
<tr><td>Use "Standard/Mathematical Library" function</td><td colspan="3">Select whether to use the standard/mathematical library functions.
This property corresponds to the -LIBrary option of the rlink command.
This property is displayed in the following cases.
- When [Always latest version which was installed] or V1.02.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category in an environment where V1.02.00 or a later version of the CC-RH compiler has been installed
- When [Yes] in the [Use standard libraries] property is selected</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>Uses the standard/mathematical library functions.</td></tr>
<tr><td></td><td>No</td><td>Does not use the standard/mathematical library functions.</td></tr>
<tr><td>Use "Non-local jump Library" function</td><td colspan="3">Select whether to use the non-local jump library functions.
This property corresponds to the -LIBrary option of the rlink command.
This property is displayed only when other than [No] in the [Use standard libraries] property is selected.</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="2">Restriction</td><td>Yes(-LIBrary=libsetjmp)</td><td>Uses the non-local jump library functions.</td></tr>
<tr><td></td><td>No</td><td>Does not use the non-local jump library functions.</td></tr>
</table>

(6) [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 property 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.
		No	Does not output the hex file.
Hex file format	Select the format of the hex file to be output. This property 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=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.
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 property 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	

<table>
<tr><td>Output file name</td><td colspan="2">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 property corresponds to the -OUtput option of the rlink command.
This property is displayed only when [Yes] in the [Output hex file] property is selected.</td></tr>
<tr><td></td><td>Default</td><td>%ProjectName%.mot</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>
<tr><td>Division output file</td><td colspan="2">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 property 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.</td></tr>
<tr><td></td><td>Default</td><td>Division output 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 259 characters
Up to 65535 items can be specified.</td></tr>
</table>

(7) [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 property 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 property 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 property 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	

<table>
<tr><td rowspan="5">Use standard libraries</td><td colspan="3">Select whether to use the standard libraries provided by the compiler.
This property corresponds to the -LIBrary option of the rlink command.
[Yes(V1.01 compatible)] is displayed when [Always latest version which was installed] or V1.02.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category in an environment where V1.02.00 or a later version of the CC-RH compiler has been installed.</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</td><td>Uses the standard libraries.</td></tr>
<tr><td>Yes(V1.01 compatible)</td><td>Uses the libraries compatible with CC-RH V1.01.</td></tr>
<tr><td>No</td><td>Does not use the standard libraries.</td></tr>
<tr><td rowspan="5">Use "Standard Library" function</td><td colspan="3">Select whether to use the standard library functions.
This property is changed to [Yes(-LIBrary=libc)] when [Yes] in the [Use "Mathematical Library (Double precision)" function] or [Use "Mathematical Library (Single precision)" function] property is selected.
This property corresponds to the -LIBrary option of the rlink command.
This property is displayed in the following cases.
- When [Always latest version which was installed] or a version number earlier than V1.02.00 is selected for the [Using compiler package version] property under the [Version Select] category in an environment where a version of the CC-RH compiler earlier than V1.02.00 has been installed
- When [Yes] in the [Use standard libraries] property is selected
or
- When [Always latest version which was installed] or V1.02.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category in an environment where V1.02.00 or a later version of the CC-RH compiler has been installed
- When [Yes(V1.01 compatible)] in the [Use standard libraries] property is selected</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(-LIBrary=libc)</td><td>Uses the standard library functions.</td></tr>
<tr><td>No</td><td>Does not use the standard library functions.</td></tr>
</table>

<table>
<tr><td>Use "Mathematical Library (Double precision)" function</td><td colspan="3">Select whether to use the mathematical library (double precision) functions.
This property is changed to [No] when [No] in the [Use standard libraries] property is selected.
This property corresponds to the -LIBrary option of the rlink command.
This property is displayed in the following cases.
- When [Always latest version which was installed] or a version number earlier than V1.02.00 is selected for the [Using compiler package version] property under the [Version Select] category in an environment where a version of the CC-RH compiler earlier than V1.02.00 has been installed
- When [Yes] in the [Use standard libraries] property is selected

or

- When [Always latest version which was installed] or V1.02.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category in an environment where V1.02.00 or a later version of the CC-RH compiler has been installed
- When [Yes(V1.01 compatible)] in the [Use standard libraries] property is selected</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="2">Restriction</td><td>Yes(-LIBrary=libm)</td><td>Uses the mathematical library (double precision) functions.</td></tr>
<tr><td></td><td>No</td><td>Does not use the mathematical library (double precision) functions.</td></tr>
<tr><td>Use "Mathematical Library (Single precision)" function</td><td colspan="3">Select whether to use the mathematical library (single precision) functions.
This property is changed to [No] when [No] in the [Use standard libraries] property is selected.
This property corresponds to the -LIBrary option of the rlink command.
This property is displayed in the following cases.
- When [Always latest version which was installed] or a version number earlier than V1.02.00 is selected for the [Using compiler package version] property under the [Version Select] category in an environment where a version of the CC-RH compiler earlier than V1.02.00 has been installed
- When [Yes] in the [Use standard libraries] property is selected

or

- When [Always latest version which was installed] or V1.02.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category in an environment where V1.02.00 or a later version of the CC-RH compiler has been installed
- When [Yes(V1.01 compatible)] in the [Use standard libraries] property is selected</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="2">Restriction</td><td>Yes(-LIBrary=libmf)</td><td>Uses the mathematical library (single precision) functions.</td></tr>
<tr><td></td><td>No</td><td>Does not use the mathematical library (single precision) functions.</td></tr>
</table>

Use "Standard/Mathematical Library" function	Select whether to use the standard/mathematical library functions. This property corresponds to the -LIBrary option of the rlink command. This property is displayed in the following cases. - When [Always latest version which was installed] or V1.02.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category in an environment where V1.02.00 or a later version of the CC-RH compiler has been installed - When [Yes] in the [Use standard libraries] property is selected		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes	Uses the standard/mathematical library functions.
		No	Does not use the standard/mathematical library functions.
Use "Non-local jump Library" function	Select whether to use the non-local jump library functions. This property corresponds to the -LIBrary option of the rlink command. This property is displayed only when other than [No] in the [Use standard libraries] property is selected.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-LIBrary=libsetjmp)	Uses the non-local jump library functions.
		No	Does not use the non-local jump library functions.

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

Reset vector address	This is the reset vector address of the device. If there is a property with the same name in the Microcontroller node, this value is changed to that value. See the user's manual of the device for the reset vector address. This contents are common to all the build modes. This property is displayed in the following cases. - For other than the library project - When the device has PE1 or is a single-core device	
	Default	*The peculiar value for the target device*
	How to change	Directly enter in the text box.
	Restriction	0 to FFFFFFFF (hexadecimal number without 0x)

Reset vector address of PE*n*	This is the reset vector address of PE*n* (*n*: core number). If there is a property with the same name in the Microcontroller node, this value is changed to that value. See the user's manual of the device for about the reset vector address. This contents are common to all the build modes. This property is displayed in the following cases. - For other than the library project - When the device has PE*n*		
	Default	*The peculiar value for the target device*	
	How to change	Directly enter in the text box.	
	Restriction	0 to FFFFFFFF (hexadecimal number without 0x)	

(9) [PIC/PID]
The detailed information on PIC/PID is displayed and the configuration can be changed.

Enable PIC and PIROD function	Select whether to enable the PIC (position independent code) and PIROD (position independent read only data) facilities. The PIC facility selects the default allocation of functions to the .pctext section. The PIROD facility selects the default allocation of constants to the .pcconst32 section. Selecting [Yes(-pic -pirod)] for this property enables PC-relative access to these sections and the allocation of these sections to desired addresses after linkage. This property corresponds to the -pic and -pirod options of the ccrh command. This property is displayed when [Always latest version which was installed] or V1.07.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category in an environment where V1.07.00 or a later version of the CC-RH compiler has been installed.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-pic -pirod)	Enables the PIC and PIROD facilities.
		No	Disables the PIC and PIROD facilities.
Enable PID function	Select whether to enable the PID (position independent data) facility. The PID facility selects the default allocation of initialized data to the .sdata32 section and of non-initialized data to the .sbss32 section. Selecting [Yes(-pid)] for this property enables GP- or EP-relative access to these sections and the allocation of these sections to desired addresses after linkage. This property corresponds to the -pid option of the ccrh command. This property is displayed when [Always latest version which was installed] or V1.07.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category in an environment where V1.07.00 or a later version of the CC-RH compiler has been installed.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-pid)	Enables the PID facility.
		No	Disables the PID facility.

Use of r4 register	Select the use of the r4 register. This property corresponds to the -r4 option of the ccrh command. This property is displayed in the following cases. - When [Always latest version which was installed] or V1.07.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category in an environment where V1.07.00 or a later version of the CC-RH compiler has been installed - When [No] in the [Enables the PID function] property is selected		
	Default	GP-relative base register(No option specified)	
	How to change	Select from the drop-down list.	
	Restriction	GP-relative base register(No option specified)	Register r4 will be used as the base register in GP-relative addressing mode.
		None(-r4=none)	Register r4 will not be used as the base register.

(10) [Register Mode]
The detailed information on register modes is displayed and the configuration can be changed.

Register mode	Select the register mode (number of registers used by the Compiler)[Note] of the software register bank function. This property corresponds to the -Xreg_mode option of the ccrh command.		
	Default	32-register mode(No option specified)	
	How to change	Select from the drop-down list.	
	Restriction	32-register mode(No option specified)	Sets the register mode to 32.
		22-register mode(-Xreg_mode=22)	Sets the register mode to 22.
		Universal register mode(-Xreg_mode=common)	Sets the register mode to 22. Use this item to generate the object module file that does not depend on the register mode.
Reserve r2 register	Select whether to reserve the r2 register. This property corresponds to the -Xreserve_r2 option of the ccrh command.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-Xreserve_r2)	Reserves the r2 register and generates code that does not use this register by the compiler.
		No	The compiler uses the r2 register without reserving it.

ep-register treatment	Select how to handle the ep register. Specify [Fix in project(-Xep=fix)] when any of the following attribute strings in a #pragma section in the project is used. ep_auto, ep_disp4, ep_disp5, ep_disp7, ep_disp8, ep_disp16, ep_disp23 Only [Treat as callee-save(No option specified)] is displayed when [Yes] in the [Optimize accesses to external variables] property in the [Optimization(Details)] category from the [Compile Options] tab is selected. This property corresponds to the -Xep option of the ccrh command.		
	Default	Treat as callee-save(No option specified)	
	How to change	Select from the drop-down list.	
	Restriction	Treat as callee-save(No option specified)	Treats the ep register as a register guaranteeing the value before and after the function call.
		Fix in project(-Xep=fix)	Fixes the value of the ep register for the entire project.

Note The register modes provided by CC-RH are shown below.

Register Mode	Working Registers	Registers for Register Variables
common	r10 to r14	r25 to r29
22-register mode	r10 to r14	r25 to r29
32-register mode	r10 to r19	r20 to r29

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

Merge error message file	Select whether to merge the error message file. This property corresponds to the -Xerror_file option of the ccrh command. Error messages are displayed on the Output panel regardless of this property's.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-Xerror_file)	Merges the error message file.
		No	Does not merge the error message file.
Merged error message file output folder	Specify the folder which the merged 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 property corresponds to the -Xerror_file option of the ccrh command. This property is displayed only when [Yes(-Xerror_file)] in the [Merge 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	

Merged error message file name	Specify the merged 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 property corresponds to the -Xerror_file option of the ccrh command. This property is displayed only when [Yes(-Xerror_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

(12) [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: 02042,02107). Also, the range can be set using "-" (hyphen) (example: 02222-02554,02699-02782). This property corresponds to the -Xno_warning option of the ccrh 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

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

Build simultaneously	Select whether to compile/assemble 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 "2.2.1Running simultaneous build" for details about running a build simultaneously.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes	Compiles and assembles multiple files simultaneously.
		No	Compiles and assembles 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 "2.2.2Running parallel build" for details about parallel build.		
	Default	Yes	
	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.

(14) [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

(15) [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.

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

Output message format	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.		
	Default	%TargetFiles%	
	How to change	Directly enter in the text box (up to 256 characters) or select from the drop-down list.	
	Restriction	%TargetFiles%	Displays the file name in the output message.
		%TargetFiles%: %Options%	Displays the file name and command line options in the output message.
		%Program% %Options%	Displays the program name and command line options in the output message.

<table>
<tr><td rowspan="4">Format of build option list</td><td colspan="2">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>%TargetFiles% : %Program% %Options%</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 256 characters</td></tr>
<tr><td rowspan="4">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>Default</td><td>Commands executed before build 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 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>Default</td><td>Commands executed after build 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 option to be added additionally.
The options set here are added at the end of the ccrh 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>

[Compile Options] tab

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

[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 property corresponds to the -g option of the ccrh 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 property corresponds to the -g_line option of the ccrh command. This property is displayed in the following cases. - When [Always latest version which was installed] or V1.05.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.05.00 or a later version of the CC-RH compiler has been installed - When [Yes(-g)] in the [Add debug information] property is selected		
	Default	Yes(-g_line)	
	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 property corresponds to the -O option of the ccrh command.		
	Default	Perform the default optimization(No option specified)	
	How to change	Select from the drop-down list.	
	Restriction	Perform the default optimization(No option specified)	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 capacity 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, the -Ounroll option is not added to the command line. In this case, a value in accordance with the selection of the [Level of optimization] property is used by the compiler. This property corresponds to the -Ounroll option of the ccrh command.		
	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 property corresponds to the -Odelete_static_func option of the ccrh command.		
	Default	To adjust the level of optimization(No option specified)	
	How to change	Select from the drop-down list.	
	Restriction	To adjust the level of optimization(No option specified)	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 property corresponds to the -Oinline option of the ccrh command. This property is displayed only when [Code size precedence(-Osize)] or [Speed precedence(-Ospeed)] in the [Level of optimization] property is selected.		
	Default	To adjust the level of optimization(No option specified)	
	How to change	Select from the drop-down list.	
	Restriction	To adjust the level of optimization(No option specified)	Performs optimization according to the [Level of optimization] property.
		Yes(Only specified functions)(-Oinline=1)	Performs inline expansion at the location calling the function for which #pragma inline is specified.
		Yes(Auto-detect)(-Oinline=2)	Distinguishes the function that is the target of inline expansion automatically and expands it.
		Yes(Auto-detect without code size increase)(-Oinline=3)	Distinguishes the function that is the target of inline expansion automatically and expands it, while minimizing the increase in code size.
		No(-Oinline=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 property corresponds to the -Oinline_size option of the ccrh command. This property is displayed only when [Yes(Auto-detect)(-Oinline=2)] in the [Perform inline expansion] property is selected, or when [To adjust the level of optimization(No option specified)] 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)	
Perform pipeline optimization	Select whether to improve the program's execution performance by reordering instructions at the machine-language level. This property corresponds to the -Opipeline option of the ccrh command.		
	Default	To adjust the level of optimization(No option specified)	
	How to change	Select from the drop-down list.	
	Restriction	To adjust the level of optimization(No option specified)	Performs optimization according to the [Level of optimization] property.
		Yes(-Opipeline)	Performs pipeline optimization.
		No(-Opipeline=off)	Does not perform pipeline optimization.

Use jr instruction to call a function at the end of the function	Select whether to give precedence to using jr instructions in the place of jarl instructions when the function ends with a function call. This property corresponds to the -Otail_call option of the ccrh command.		
	Default	To adjust the level of optimization(No option specified)	
	How to change	Select from the drop-down list.	
	Restriction	To adjust the level of optimization(No option specified)	Performs optimization according to the [Level of optimization] property.
		Yes(-Otail_call)	Gives precedence to using jr instructions in the place of jarl instructions when the function ends with a function call. The code size can be reduced by removing the store/restore instructions for lp. However, some debug functions cannot be used.
		No(-Otail_call=off)	Uses jarl instructions when the function ends with a function call.
Initialize automatic variables with immediate values	Select whether to use immediate values to initialize automatic variables. This property corresponds to the -Oinline_init option of the ccrh command. This property is displayed when you have selected [Always latest version which was installed] or V1.07.00 or a later version for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.07.00 or a later version of the CC-RH compiler has been installed.		
	Default	To adjust the level of optimization(No option specified)	
	How to change	Select from the drop-down list.	
	Restriction	To adjust the level of optimization(No option specified)	Performs optimization according to the [Level of optimization] property.
		Yes(-Oinline_init)	Always uses immediate values to initialize automatic variables.
		No(-Oinline_init=off)	The CC-RH selects the optimum initialize method for automatic variables.

<table>
<tr><td rowspan="5">Perform optimization by changing alignment conditions</td><td colspan="3">Select whether to proceed with optimization through a change of the alignment conditions.
This property corresponds to the -Oalign option of the ccrh command.
This property is displayed in the following cases.
- When [Always latest version which was installed] or V2.03.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V2.03.00 or a later version of the CC-RH compiler has been installed.
- When [Code size precedence(-Osize)] or [Speed precedence(-Ospeed)] in the [Level of optimization] property is selected
- When [No] in the [Allocate uninitialized variables in sections according to number of alignments] property is selected
- When [No] in the [Allocate initialized variables in sections according to number of alignments] property is selected
- When [No] in the [Allocate const qualified variables in sections according to number of alignments] property is selected</td></tr>
<tr><td>Default</td><td colspan="2">To adjust the level of optimization(No option specified)</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>To adjust the level of optimization(No option specified)</td><td>Performs optimization according to the [Level of optimization] property.</td></tr>
<tr><td>Yes(-Oalign)</td><td>Performs optimization through a change of the alignment conditions.</td></tr>
<tr><td>No(-Oalign=off)</td><td>Does not perform optimization through a change of the alignment conditions.</td></tr>
<tr><td rowspan="5">Optimize accesses to external variables</td><td colspan="3">Select whether to optimize accesses to external variables.
This property corresponds to the -Osmap and -Omap options of the ccrh command.</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(Optimizes the inner-module)(-Osmap)</td><td>Sets a base address for external or static variables defined in the file to be compiled, and generates code that accesses these relative to the base address.</td></tr>
<tr><td>Yes(Optimizes the inner-module)(-Omap)</td><td>Generates an external symbol allocation information file. According to the information, recompilation is done to generate code that performs access to external or static variables relative to the base address.</td></tr>
<tr><td>No</td><td>Does not optimize accesses to external variables.</td></tr>
</table>

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 property corresponds to the -Xwhole_program, -Xmerge_files, and -Xintermodule options of the ccrh command.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(Level 3)(Perform with assuming it the whole program)(-Xwhole_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-RH Compiler User's Manual" for details about the preconditions.
		Yes(Level 2)(Perform with merging files)(-Xmerge_files, -Xintermodule)	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)(-Xintermodule)	Performs inter-module optimization for each file.
		No	Does not perform inter-module optimization.
Expansion method of library function	Select the method for expanding library functions. This property corresponds to the -library option of the ccrh command. This property is displayed when you have selected [Always latest version which was installed] or V2.00.00 or a later version for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V2.00.00 or a later version of the CC-RH compiler has been installed.		
	Default	Calls library functions(No option specified)	
	How to change	Select from the drop-down list.	
	Restriction	Calls library functions(No option specified)	Calls all standard library functions.
		Performs instruction expansion of several library functions(-library=intrinsic)	Performs instruction expansion of several standard library function calls.

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 property corresponds to the -Xalias option of the ccrh command.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-Xalias=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.
Perform inline expansion of strcpy/strcmp/memcpy/memset	Select whether to perform inline expansion of functions "strcpy()", "strcmp()", "memcpy()", and "memset()" calls, with regarding the alignment conditions of the array (including character strings) and the structure as 4 bytes. This improves the execution speed of the program to be generated, but it increases the code size. This property corresponds to the -Xinline_strcpy option of the ccrh command. This property is displayed only when [No] in the [Structure packing] property in the [Output Code] category is selected.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-Xinline_strcpy)	Performs inline expansion of functions "strcpy()", "strcmp()", "memcpy()", and "memset()" calls.
		No	Does not perform inline expansion of functions "strcpy()", "strcmp()", "memcpy()", and "memset()" calls.
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 property corresponds to the -Xmerge_string option of the ccrh command.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-Xmerge_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.

Output additional information for optimization at time of linkage	Select whether to output additional information for optimization at the time of linkage. Optimization at time of linkage is applied to files for which this option has been specified. This property corresponds to the -goptimize option of the ccrh command. This property is displayed when you have selected [Always latest version which was installed] or V2.01.00 or a later version for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V2.01.00 or a later version of the CC-RH compiler has been installed.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-goptimize)	Outputs additional information for optimization at the time of linkage.
		No	Does not output additional information for optimization at the time of linkage.

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

Additional include paths	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-RH. The reference point of the path is the project folder. When this property is omitted, only the standard folder of CC-RH is searched. This property corresponds to the -I option of the ccrh 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.

<table>
<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 property corresponds to the -I option of the ccrh 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>
<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 property corresponds to the -Xpreinclude option of the ccrh 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>
</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 property corresponds to the -D option of the ccrh 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 property corresponds to the -U option of the ccrh 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.	
Output C source comments to preprocessed file	Select whether to output the comments of the C source to the preprocessed file. This property corresponds to the -Xpreprocess option of the ccrh 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(-Xpreprocess=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 property corresponds to the -Xpreprocess option of the ccrh 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(-Xpreprocess=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.

<table>
<tr><td rowspan="5">Detect stack smashing</td><td colspan="3">Select whether to detect the stack smashing.
This property is usable only in the Professional Edition.
Detection of stack smashing 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-RH Compiler User's Manual" about the difference between [Yes(-Xstack_protector)] and [Yes(All)(-Xstack_protector_all)].
This property corresponds to the -Xstack_protector and -Xstack_protector_all options of the ccrh command.
This property is displayed when [Always latest version which was installed] or V1.03.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.03.00 or a later version of the CC-RH compiler has been installed.</td></tr>
<tr><td>Default</td><td colspan="2">No(No option specified)</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(-Xstack_protector)</td><td>Detects the stack smashing.</td></tr>
<tr><td>Yes(All)(-Xstack_protector_all)</td><td>Detects the stack smashing for all functions.</td></tr>
<tr><td>No(No option specified)</td><td>Does not detect the stack smashing.</td></tr>
<tr><td rowspan="4">Value to be embedded for detecting stack smashing</td><td colspan="3">Specify the value to be embedded for detecting the stack smashing.
This property is usable only in the Professional Edition.
This property corresponds to the -Xstack_protector and -Xstack_protector_all options of the ccrh command.
This property is displayed in the following cases.
- When [Always latest version which was installed] or V1.03.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.03.00 or a later version of the CC-RH compiler has been installed
- When other than [No(No option specified)] in the [Detect stack smashing] property is selected</td></tr>
<tr><td>Default</td><td colspan="2">Blank</td></tr>
<tr><td>How to change</td><td colspan="2">Directly enter in the text box.</td></tr>
<tr><td>Restriction</td><td colspan="2">0 to 4294967295 (decimal number)</td></tr>
</table>

Detect illegal indirect function call	Select whether to output code for detecting illegal indirect function calls. Enable this facility to check the destination addresses of branches caused by each indirect function call. The output code will call the user-defined __control_flow_chk_fail() function in response to the detection of a problem. This property is usable only in the Professional Edition. This property corresponds to the -control_flow_integrity option of the ccrh command. This property is displayed when you have selected [Always latest version which was installed] or V1.07.00 or a later version for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.07.00 or a later version of the CC-RH compiler has been installed.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-control_flow_integrity)	Outputs code for detecting illegal indirect function calls.
		No	Does not output code for detecting illegal indirect function calls.

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

Standard of C language	Select the standard of C language. This property corresponds to the -lang option of the ccrh command. This property is displayed when [Always latest version which was installed] or V1.07.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.07.00 or a later version of the CC-RH compiler has been installed.		
	Default	C(C90)(No option specified)	
	How to change	Select from the drop-down list.	
	Restriction	C(C90)(No option specified)	Compilation will proceed in compliance with the C90 standard.
		C99(-lang=c99)	Compilation will proceed in compliance with the C99 standard.
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 property corresponds to the -Xansi option of the ccrh command. This property is displayed when [Always latest version which was installed] or V1.06.00 or an earlier version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.06.00 or an earlier version of the CC-RH compiler has been installed.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-Xansi)	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.

Compile strictly according to the standards	Select whether to process as making C source program comply strictly with the C90 or C99 standard and output an error or warning for a specification that violates the standard. This property corresponds to the -strict_std option of the ccrh command. This property is displayed when [Always latest version which was installed] or V1.07.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.07.00 or a later version of the CC-RH compiler has been installed.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-strict_std)	Processes as making C source program comply strictly with the C90 or C99 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.
Enumeration type	Select which integer type the enumeration type handles. This property corresponds to the -Xenum_type option of the ccrh command.		
	Default	signed int(No option specified)	
	How to change	Select from the drop-down list.	
	Restriction	signed int(No option specified)	The enumeration type is handled as int type.
		auto(-Xenum_type=auto)	Handles each enumerated type as the smallest integer type capable of expressing all the enumerators in that type.
Handle external variables as if they are volatile qualified	Select whether to handle all external variables as if they were volatile-declared. This property corresponds to the -Xvolatile option of the ccrh command.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-Xvolatile)	Handles all external variables as if they were volatile-declared.
		No	Handles only the volatile-qualified variables as they were volatile-declared.

Check C program compatibility	Select whether to check the compatibility of a C program. This property corresponds to the -Xcheck option of the ccrh command.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(for SuperH RISC engine C/C++ compiler)(-Xcheck=shc)	Checks the compatibility with the SuperH family C/C++ compiler.
		No	Does not check the compatibility with existing programs.

(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 property corresponds to the -Xcharacter_set option of the ccrh command.		
	Default	Auto(No option specified)	
	How to change	Select from the drop-down list.	
	Restriction	Auto(No option specified)	Interprets the Japanese character codes in the source file as SJIS.
		SJIS(-Xcharacter_set=sjis)	Interprets the Japanese character codes in the source file as SJIS.
		EUC(-Xcharacter_set=euc_jp)	Interprets the Japanese character codes in the source file as EUC.
		UFT-8(-Xcharacter_set=utf8)	Interprets the Japanese character codes in the source file as UFT-8.
		Big5(-Xcharacter_set=big5)	Interprets the Chinese character codes in the source file as Traditional Chinese.
		GB2312(-Xcharacter_set=gb2312)	Interprets the Chinese character codes in the source file as Simplified Chinese.
		No-process(-Xcharacter_set=none)	Does not interpret the Japanese/Chinese character codes in the source file.

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

Structure packing	Select whether to perform structure packing. The specified alignment can be used without aligning structure members according to the type of each member. This property corresponds to the -Xpack option of the ccrh command.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	1 byte(-Xpack=1)	Aligns structure members on a 1-byte boundary.
		2 bytes(-Xpack=2)	Aligns structure members on a 2-byte boundary.
		4 bytes(-Xpack=4)	Aligns structure members on a 4-byte boundary.
		No	Does not perform structure packing.
Generate instructions that access to mis-aligned memory	Generates instructions on the assumption that the device supports misaligned access. This option corresponds to the -misalign option of the ccrh command. This property is displayed when [Always latest version which was installed] or V2.04.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V2.04.00 or a later version of the CC-RH compiler has been installed.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-misalign)	Generates instructions that access to misaligned memory
		No	Does not generate instructions that access to misaligned memory

<table>
<tr><td rowspan="8">Alignment of branch address</td><td colspan="3">Select the alignment of the branch address.
This property corresponds to the -Xalign4 option of the ccrh command.
This property is displayed when [Always latest version which was installed] or V1.02.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.02.00 or a later version of the CC-RH compiler has been installed.
[4 bytes(Contains each loop head)(-Xalign4=loop)], [4 bytes(Contains each innermost loop head)(-Xalign4=innermostloop)], and [4 bytes(All branches)(-Xalign4=all)] are displayed when [Always latest version which was installed] or V1.03.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.03.00 or a later version of the CC-RH compiler has been installed</td></tr>
<tr><td>Default</td><td colspan="2">2 bytes(No option specified)</td></tr>
<tr><td>How to change</td><td colspan="2">Select from the drop-down list.</td></tr>
<tr><td rowspan="5">Restriction</td><td>2 bytes(No option specified)</td><td>Sets the alignment of the start address of a function to 2.</td></tr>
<tr><td>4 bytes(Only start address of a function)(-Xalign4)</td><td>Sets the alignment of the start address of a function to 4.</td></tr>
<tr><td>4 bytes(Contains each loop head)(-Xalign4=loop)</td><td>Sets the alignment of the start address of a function and the start address of all loops to 4.</td></tr>
<tr><td>4 bytes(Contains each innermost loop head)(-Xalign4=innermostloop)</td><td>Sets the alignment of the start address of a function and the start address of the innermost loop to 4.</td></tr>
<tr><td>4 bytes(All branches)(-Xalign4=all)</td><td>Sets the alignment of the start address of a function and all branch destination addresses to 4.</td></tr>
<tr><td rowspan="4">Order of bit-field members</td><td colspan="3">Select the order of bit-field members.
This property corresponds to the -Xbit_order option of the ccrh command.</td></tr>
<tr><td>Default</td><td colspan="2">Allocates from right(No option specified)</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>Allocates from left(-Xbit_order=left)</td><td>Allocates the members from the upper bit.</td></tr>
<tr><td>Allocates from right(No option specified)</td><td>Allocates the members from the lower bit.</td></tr>
</table>

<table>
<tr><td rowspan="4">Output comment to assembly source file</td><td colspan="3">Select whether to output a C source program as a comment to the assembly source file to be output.
This property corresponds to the -Xpass_source option of the ccrh command.
This property is displayed only when [Yes(-Xasm_path)] in the [Output assembly source file] property is selected or when [Yes(-Xasm_option=-Xprn_path)] in the [Output assemble list file] property in the [Assemble List] category is selected.</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(-Xpass_source)</td><td>Outputs a C source program as a comment to the assembly source file.</td></tr>
<tr><td>No</td><td>Does not output a C source program as a comment to the assembly source file.</td></tr>
</table>

Output code of switch statement	Select the code output mode for switch statements in programs. This property corresponds to the -Xswitch option of the ccrh command.		
	Default	Auto(No option specified)	
	How to change	Select from the drop-down list.	
	Restriction	Auto(No option specified)	The ccrh selects the optimum output format.
		if-else(-Xswitch=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(-Xswitch=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(-Xswitch=table)	Outputs the code in the table jump format 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>
<tr><td rowspan="6">Handling mode of writing control register</td><td colspan="3">Select how the compiler will behave in response to writing to control registers defined as #pragma register_group.
This property is usable only in the Professional Edition.
This property corresponds to the -store_reg option of the ccrh command.
This property is displayed when [Always latest version which was installed] or V1.06.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.06.00 or a later version of the CC-RH compiler has been installed.</td></tr>
<tr><td>Default</td><td colspan="2">Not specify(No option specified)</td></tr>
<tr><td>How to change</td><td colspan="2">Select from the drop-down list.</td></tr>
<tr><td rowspan="4">Restriction</td><td>Insert synchronization processing(-store_reg=sync)</td><td>The compiler detects writing to the control registers defined as #pragma register_group and inserts syncp instructions after write instructions for these registers, except where the next instruction will clearly be for writing to the same group, in which case the compiler does not insert a syncp instruction.</td></tr>
<tr><td>Output list of writing control register(-store_reg=list)</td><td>The compiler detects writing to the control registers defined as #pragma register_group and displays the addresses of the write instructions in the Output panel, except where the next instruction will clearly be for writing to the same group, in which case the compiler does not display the address in the panel.</td></tr>
<tr><td>Output all list of writing control register(-store_reg=list_all)</td><td>The compiler detects writing to the control registers defined as #pragma register_group and displays the addresses of the write instructions in the Output panel.</td></tr>
<tr><td>Ignore peripheral group specification by #pragma(-store_reg=ignore)</td><td>#pragma register_group is ignored but a warning is not output.</td></tr>
<tr><td>Not specify(No option specified)</td><td>Select this item when you have not used #pragma register_group in the source code. No action will proceed in response to writing to control registers.</td></tr>
</table>

<table>
<tr><td>Save mode of register bank</td><td colspan="3">Specify the save mode of the register bank.
This property corresponds to the -Xresbank_mode option of the ccrh command.
This property is displayed only in the following cases.
- When [Always latest version which was installed] or V2.00.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V2.00.00 or a later version of the CC-RH compiler has been installed
- When the RH850G4MH device is used</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">0, 1 (decimal number), or blank</td></tr>
<tr><td>Floating-point calculating type</td><td colspan="3">Select whether to generate runtime library call instructions for floating-point calculations, or to generate floating-point instructions for the floating point unit (FPU).
This property corresponds to the -Xfloat option of the ccrh command.
This property is displayed only when other than [Object for G3K(-Xcpu=g3k)] in the [Specify CPU core] property in the [Output File Type and Path] category from the [Common Options] tab is selected.</td></tr>
<tr><td></td><td>Default</td><td colspan="2">Auto(No option specified)</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>Auto(No option specified)</td><td>Generates floating-point calculation instructions.</td></tr>
<tr><td>Software Calculating(-Xfloat=soft)</td><td>Generates runtime library call instructions for floating-point calculations.</td></tr>
<tr><td>FPU Calculating(-Xfloat=fpu)</td><td>Generates floating-point calculation instructions of FPU for floating-point calculations.</td></tr>
<tr><td>Rounding method for floating-point constant operations</td><td colspan="3">Select the rounding method for floating-point constant operations.
This property corresponds to the -Xround option of the ccrh command.
This property is displayed only in the following cases.
- When [Always latest version which was installed] or V1.02.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.02.00 or a later version of the CC-RH compiler has been installed
- When other than [Object for G3K(-Xcpu=g3k)] in the [Specify CPU core] property in the [Output File Type and Path] category from the [Common Options] tab is selected
- When [Auto(No option specified)] or [FPU Calculating(-Xfloat=fpu)] in the [Floating-point calculating type] property is selected</td></tr>
<tr><td></td><td>Default</td><td colspan="2">round to nearest(No option specified)</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>round to zero(-Xround=zero)</td><td>Rounds floating-point constants to 0.</td></tr>
<tr><td>round to nearest(No option specified)</td><td>Rounds floating-point constants to the nearest value that can be expressed.</td></tr>
</table>

<table>
<tr><td>Generate codes that supports FXU</td><td colspan="3">Select whether to generate codes that supports the FXU (extended floating-point operation unit).
This property corresponds to the -Xfxu option of the ccrh command.
This property is displayed only in the following cases.
- When [Always latest version which was installed] or V2.00.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V2.00.00 or a later version of the CC-RH compiler has been installed
- When the RH850G4MH device is used
The Restriction values depend on the device in use.</td></tr>
<tr><td></td><td>Default</td><td colspan="2">The default value is set by selected device on creating project.</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>Generates codes that supports the FXU.</td></tr>
<tr><td></td><td>No(-Xfxu=off)</td><td>Does not generate codes that supports the FXU.</td></tr>
<tr><td>Enable half precision floating-point type</td><td colspan="3">Select whether to enable the half precision floating-point type.
This property is usable only in the Professional Edition.
This property corresponds to the -Xuse_fp16 option of the ccrh command.
This property is displayed only in the following cases.
- When [Always latest version which was installed] or V1.05.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.05.00 or a later version of the CC-RH compiler has been installed
- When other than [Object for G3K(-Xcpu=g3k)] in the [Specify CPU core] property in the [Output File Type and Path] category from the [Common Options] tab is selected
-When [No] in the [Compile strictly according to ANSI standards] property in the [C Language] category is selected
- When other than [Software Calculating(-Xfloat=soft)] in the [Floating-point calculating type] property is selected
- When [round to nearest(No option specified)] in the [Rounding method for floating-point constant operations] property is selected</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="2">Restriction</td><td>Yes(-Xuse_fp16=on)</td><td>Enables the half precision floating-point type.</td></tr>
<tr><td></td><td>No</td><td>Does not enable the half precision floating-point type.</td></tr>
</table>

Precision of double type / long double type	Select the precision of double type and long double type. This property corresponds to the -Xdbl_size option of the ccrh command. This property is displayed when [Always latest version which was installed] or V1.02.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.02.00 or a later version of the CC-RH compiler has been installed.		
	Default	8 bytes(No option specified)	
	How to change	Select from the drop-down list.	
	Restriction	4 bytes(-Xdbl_size=4)	Handles double type and long double type as single-precision floating-point type (4 bytes).
		8 bytes(No option specified)	Handles double type and long double type as double-precision floating-point type (8 bytes).
Generate div/divu instructions	Select whether to generate the div and divu instructions instead of the divq and divqu instructions for division. Although the divq and divqu instructions are fast, the number of execution cycles will differ depending on the values of the operands. This property corresponds to the -Xdiv option of the ccrh command.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-Xdiv)	Generates the div and divu instructions for division.
		No	Generates the divq and divqu instructions for division.
Generate OV flag check code in division operation	Select whether to generate code (fetrap instruction) that checks the OV flag after division instructions and generate an FE level software exception when the OV flag is 1. This property corresponds to the -Xcheck_div_ov option of the ccrh command.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-Xcheck_div_ov)	Generates code that checks the OV flag at division.
		No	Generates code that does not check the OV flag at division.
Vector number of fetrap instruction in divide exception	Specify the vector number of the fetrap instruction generated when the OV flag is 1. This property corresponds to the -Xcheck_div_ov option of the ccrh command. This property is displayed only when [Yes(-Xcheck_div_ov)] in the [Generate OV flag check code in division operation] property is selected.		
	Default	1	
	How to change	Directly enter in the text box.	
	Restriction	1 to 15 (decimal number)	

<table>
<tr><td>Type of generating floating-point calculation codes</td><td colspan="3">Select the type of generating floating-point calculation codes.
This property corresponds to the -relaxed_math option of the ccrh command.
This property is displayed when [Always latest version which was installed] or V2.00.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V2.00.00 or a later version of the CC-RH compiler has been installed.</td></tr>
<tr><td></td><td>Default</td><td colspan="2">Custom(No option specified)</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>Efficiency precedence(-relaxed_math)</td><td>Efficiency is emphasized in the generation of code.</td></tr>
<tr><td></td><td>Custom(No option specified)</td><td>Efficiency is not emphasized in the generation of code. With this option, details of the operation of compilation are specified in the [Generate product-sum operation instruction] and [Generate recipf instruction] properties.
If [No] is selected for both properties, the CC-RH compiler generates code which is strictly in accordance with the C-language standard or IEEE 754.</td></tr>
<tr><td>Generate product-sum operation instruction</td><td colspan="3">Select whether to generate product-sum operation instructions (fmaf.s, fmsf.s, fnmaf.s, and fnmsf.s) for single-precision floating-point product-sum operations.
This property corresponds to the -Xuse_fmaf option of the ccrh command.
This property is displayed in any one of the following cases.
- In an environment where V2.00.00 or a later version of the CC-RH compiler has not been installed
- When a version number earlier than V2.00.00 is selected for the [Using compiler package version] property under the [Version Select] category from the [Common Options] tab in an environment where a version of the CC-RH compiler earlier than V2.00.00 has been installed
- When [Always latest version which was installed] or V2.00.00 or a later version is selected for the [Using compiler package version] property and [Custom(No option specified)] is selected for the [Type of generating floating-point calculation codes] property under the [Version Select] category from the [Common Options] tab in an environment where V2.00.00 or a later version of the CC-RH compiler has been installed</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="2">Restriction</td><td>Yes(-Xuse_fmaf)</td><td>Generates product-sum operation instructions for single-precision floating-point product-sum operations.
Specifying this option will accelerate the execution speed but change the operation precision.</td></tr>
<tr><td></td><td>No</td><td>Does not generate product-sum operation instructions.</td></tr>
</table>

<table>
<tr><td>Generate recipf instruction</td><td colspan="3">Select whether to generate recipf instructions (recipf.d, recipf.s).
This property corresponds to the -use_recipf option of the ccrh command.
This property is displayed only in the following cases.
- When [Always latest version which was installed] or V2.00.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category from the [Common Options] tab in an environment where V2.00.00 or a later version of the CC-RH compiler has been installed
- When [Custom(No option specified)] is selected for the [Type of generating floating-point calculation codes] property</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="2">Restriction</td><td>Yes(-use_recipf)</td><td>Generates recipf instructions.
Specifying this option will accelerate the execution speed but change the operation precision.</td></tr>
<tr><td></td><td>No</td><td>Does not generate recipf instructions.</td></tr>
<tr><td>Generate approximate calculation code</td><td colspan="3">Select whether to generate code to produce approximate results for floating-point calculations.
This property corresponds to the -approximate option of the ccrh command.
This property is displayed only in the following cases.
- When [Always latest version which was installed] or V2.02.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category from the [Common Options] tab in an environment where V2.02.00 or a later version of the CC-RH compiler has been installed
- When [Custom(No option specified)] is selected for the [Type of generating floating-point calculation codes] property</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="2">Restriction</td><td>Yes(-approximate)</td><td>Generates code to produce approximate results for floating-point calculations.
Specifying this option leads to the generation of efficient code to handle calculations but the precision of the results of operations will differ from that obtained by calculations as strictly defined in the language standard.</td></tr>
<tr><td></td><td>No</td><td>Does not generate code to produce approximate results for floating-point calculations.</td></tr>
</table>

Check invalid exception in cmpf instruction	Select whether to generate code by using the comparison condition for generating an invalid operation exception when any of the comparison values is a not-a-number in floating-point comparison. This property corresponds to the -Xunordered_cmpf option of the ccrh command. This property is displayed only when other than [Object for G3K(-Xcpu=g3k)] in the [Specify CPU core] property in the [Output File Type and Path] category from the [Common Options] tab is selected.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-Xunordered_cmpf)	Generates code by using the comparison condition for generating an invalid operation exception when any of the comparison values is a not-a-number in floating-point comparison.
		No	Does not detect invalid operation exceptions in floating-point comparison.
Specify jump instruction	Specify the instruction to be generated for function-call branches. This property corresponds to the -Xcall_jump option of the ccrh command.		
	Default	Create jarl and jr instructions(No option specified)	
	How to change	Select from the drop-down list.	
	Restriction	Create jarl32 and jr32 instructions(-Xcall_jump=32)	Generates the jarl32 and jr32 instructions for function-call branches.
		Create jarl and jr instructions(No option specified)	Generates the jarl and jr instructions for function-call branches.
Far Jump file names	Specify the Far Jump file name. The code that uses the jarl32 and jr32 instruction for branch instructions of functions described in a file is output to the Far Jump file. The ccrh command outputs an error if the function is in a range that cannot be branched to by the jarl or jr directive (±2MB or more), in which case the Far Jump file is used to recompile. Use the extension ".fjp". This property corresponds to the -Xfar_jump option of the ccrh command.		
	Default	Far Jump file name	
	How to change	Directly enter in the text box or edit by the Specify Far Jump File dialog box which appears when clicking the [...] button.	
	Restriction	Up to 259 characters	

Default section of data area	Select the default section of the data area. This property corresponds to the -Xsection option of the ccrh command. This property is displayed when [Always latest version which was installed] or V1.02.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.02.00 or a later version of the CC-RH compiler has been installed. See "Table A.2Default Section of Data Area" for details about the section attribute.		
	Default	Not specify(No option specified)	
	How to change	Select from the drop-down list.	
	Restriction	Not specify(No option specified)	Uses the default section of the data area.
		r0_disp16(-Xsection=data=r0_disp16)	Uses r0_disp16 as the default section attribute of the data area.
		r0_disp23(-Xsection=data=r0_disp23)	Uses r0_disp23 as the default section attribute of the data area.
		ep_disp16(-Xsection=data=ep_disp16)	Uses ep_disp16 as the default section attribute of the data area.
		ep_disp23(-Xsection=data=ep_disp23)	Uses ep_disp23 as the default section attribute of the data area.
		gp_disp16(-Xsection=data=gp_disp16)	Uses gp_disp16 as the default section attribute of the data area.
		gp_disp23(-Xsection=data=gp_disp23)	Uses gp_disp16 as the default section attribute of the data area.
Default section of const area	Select the default section of the const area. This property corresponds to the -Xsection option of the ccrh command. This property is displayed when [Always latest version which was installed] or V1.02.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.02.00 or a later version of the CC-RH compiler has been installed. [pcconst16(-Xsection=const=pcconst16)] and [pcconst23(-Xsection=const=pcconst23)] are displayed when V1.07.00 or a later version of the CC-RH compiler is selected. See "Table A.3Default Section of Const Area" for details about the section attribute.		
	Default	Not specify(No option specified)	
	How to change	Select from the drop-down list.	
	Restriction	Not specify(No option specified)	Uses the default section of the const area.
		zconst(-Xsection=const=zconst)	Uses zconst as the default section attribute of the const area.
		zconst23(-Xsection=const=zconst23)	Uses zconst23 as the default section attribute of the const area.
		pcconst16(-Xsection=const=pcconst16)	Uses pcconst16 as the default section attribute of the const area.
		pcconst23(-Xsection=const=pcconst23)	Uses pcconst23 as the default section attribute of the const area.

Allocate uninitialized variables in sections according to number of alignments	Select whether to allocate the uninitialized variables to sections in accord with their alignment sizes. This property corresponds to the -stuff option of the ccrh command. This property is displayed when [Always latest version which was installed] or V2.03.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V2.03.00 or a later version of the CC-RH compiler has been installed.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-stuff=bss)	Allocates the uninitialized variables to sections in accord with their alignment sizes.
		No	Does not allocate the uninitialized variables to sections in accord with their alignment sizes.
Allocate initialized variables in sections according to number of alignments	Select whether to allocate the initialized variables to sections in accord with their alignment sizes. This property corresponds to the -stuff option of the ccrh command. This property is displayed when [Always latest version which was installed] or V2.03.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V2.03.00 or a later version of the CC-RH compiler has been installed.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-stuff=data)	Allocates the initialized variables to sections in accord with their alignment sizes.
		No	Does not allocate the initialized variables to sections in accord with their alignment sizes.
Allocate const qualified variables in sections according to number of alignments	Select whether to allocate the const qualified variables to sections in accord with their alignment sizes. This property corresponds to the -stuff option of the ccrh command. This property is displayed when [Always latest version which was installed] or V2.03.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V2.03.00 or a later version of the CC-RH compiler has been installed.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-stuff=const)	Allocates the const qualified variables to sections in accord with their alignment sizes.
		No	Does not allocate the const qualified variables to sections in accord with their alignment sizes.

Use software trace (DBTAG) for exclusion control check	Select whether to use software trace (DBTAG) for exclusion control check. This property corresponds to the -Xcheck_exclusion_control option of the ccrh command. This property is displayed when you have selected [Always latest version which was installed] or V1.04.00 or a later version for the [Using compiler package version] property under the [Version Select] category as well as [Yes(-g)] for the [Add debug information] property under the [Debug Information] category on the [Common Options] tab in an environment where V1.04.00 or a later version of the CC-RH compiler has been installed.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-Xcheck_exclusion_control)	Uses software trace (DBTAG) for exclusion control check.
		No	Does not use software trace (DBTAG) for exclusion control check.
Variables to be checked for software trace (DBTAG) for exclusion control check	The variables to be checked for software trace (DBTAG) for exclusion control check are displayed. Set the value in the Functions and Variables Access Table panel. Note that this property is not applied to [Reset All to Default] from the context menu. This property corresponds to the -Xcheck_exclusion_control option of the ccrh command. This property is displayed when you have selected [Always latest version which was installed] or V1.04.00 or a later version for the [Using compiler package version] property under the [Version Select] category as well as [Yes(-g)] for the [Add debug information] property under the [Debug Information] category on the [Common Options] tab in an environment where V1.04.00 or a later version of the CC-RH compiler has been installed.		
	Default	Variables to be checked for software trace (DBTAG) for exclusion control check[*number of defined items*]	
	How to change	Changes not allowed	
Control starting functions for software trace (DBTAG) for exclusion control check	The control starting functions for software trace (DBTAG) for exclusion control check are displayed. Set the value in the Exclusive Control Check Tool dialog box. Note that this property is not applied to [Reset All to Default] from the context menu. This property corresponds to the -Xcheck_exclusion_control option of the ccrh command. This property is displayed when you have selected [Always latest version which was installed] or V1.04.00 or a later version for the [Using compiler package version] property under the [Version Select] category as well as [Yes(-g)] for the [Add debug information] property under the [Debug Information] category on the [Common Options] tab in an environment where V1.04.00 or a later version of the CC-RH compiler has been installed.		
	Default	Control starting functions for software trace (DBTAG) for exclusion control check[*number of defined items*]	
	How to change	Changes not allowed	

<table>
<tr><td rowspan="3">Control ending functions for software trace (DBTAG) for exclusion control check</td><td colspan="3">The control ending functions for software trace (DBTAG) for exclusion control check are displayed.
Set the value in the Exclusive Control Check Tool dialog box. Note that this property is not applied to [Reset All to Default] from the context menu.
This property corresponds to the -Xcheck_exclusion_control option of the ccrh command.
This property is displayed when you have selected [Always latest version which was installed] or V1.04.00 or a later version for the [Using compiler package version] property under the [Version Select] category as well as [Yes(-g)] for the [Add debug information] property under the [Debug Information] category on the [Common Options] tab in an environment where V1.04.00 or a later version of the CC-RH compiler has been installed.</td></tr>
<tr><td>Default</td><td colspan="2">Control ending functions for software trace (DBTAG) for exclusion control check[number of defined items]</td></tr>
<tr><td>How to change</td><td colspan="2">Changes not allowed</td></tr>
<tr><td rowspan="5">Use software trace (DBTAG) for measuring CAN bus reception processing time</td><td colspan="3">Select whether to use software trace (DBTAG) for measuring CAN bus reception processing time.
This property corresponds to the -insert_dbtag_with_label option of the ccrh command.
This property is displayed when [Always latest version which was installed] or V1.06.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.06.00 or a later version of the CC-RH compiler has been installed.
Caution If you select [Yes(-insert_dbtag_with_label)] but the current setting for the [Add debug information] property in the [Debug Information] category is [No], a warning is output and the -g option added automatically. To suppress the output of the warning, select [Yes(-g)] in the [Add debug information] 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(-insert_dbtag_with_label)</td><td>Uses software trace (DBTAG) for measuring CAN bus reception processing time.</td></tr>
<tr><td>No</td><td>Does not use software trace (DBTAG) for measuring CAN bus reception processing time.</td></tr>
</table>

Parameters of software trace (DBTAG) for measuring CAN bus reception processing time	The parameters of software trace (DBTAG) for measuring CAN bus reception processing time are displayed. Set the position where DBTAG is output in the Editor panel. Note that this property is not applied to [Reset All to Default] from the context menu. This property corresponds to the -insert_dbtag_with_label option of the ccrh command. This property is displayed only in the following cases. - When [Always latest version which was installed] or V1.06.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.06.00 or a later version of the CC-RH compiler has been installed - When [Yes(-insert_dbtag_with_label)] in the [Use software trace (DBTAG) for measuring CAN bus reception processing time] property is selected		
	Default	Parameters of software trace (DBTAG) for measuring CAN bus reception processing time[*number of defined items*]	
	How to change	Changes not allowed	
Method for controlling multi-core functions	Select the method for controlling the multi-core functions. This property corresponds to the -Xmulti_level option of the ccrh command. This property is displayed only for the multi-core project.		
	Default	Ignore "#pragma pmodule"(No option specified)	
	How to change	Select from the drop-down list.	
	Restriction	Ignore "#pragma pmodule"(No option specified)	The #pragma pmodule directives in the program are ignored.
		Enable "#pragma pmodule"(-Xmulti_level=1)	The #pragma pmodule directives in the program become valid.

Table A.2 Default Section of Data Area

Section Attribute	Default Section	
	Non-initialized Data	Initialized Data
r0_disp16	.zbss	.zdata
r0_disp23	.zbss23	.zdata23
ep_disp16	.ebss	.edata
ep_disp23	.ebss23	.edata23
gp_disp16	.sbss	.sdata
gp_disp23	.sbss23	.sdata23

Table A.3 Default Section of Const Area

Section Attribute	Default Section
zconst	.zconst
zconst23	.zconst23
pcconst16	.pcconst16
pcconst23	.pcconst23

(9) [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 property corresponds to the -Xasm_path option of the ccrh command.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-Xasm_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 property corresponds to the -Xasm_path option of the ccrh command. This property is displayed only when [Yes(-Xasm_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 property corresponds to the -P option of the ccrh 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 pre-processed 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 property corresponds to the -Xprep_path option of the ccrh 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

(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 property corresponds to the -Xasm_option=-Xprn_path option of the ccrh command.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-Xasm_option=-Xprn_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 property corresponds to the -Xasm_option=-Xprn_path option of the ccrh command. This property is displayed only when [Yes(-Xasm_option=-Xprn_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	

(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] or V1.03.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.03.00 or a later version of the CC-RH compiler has been installed.		
	Default	MISRA-C 2012	
	How to change	Select from the drop-down list.	
	Restriction	MISRA-C 2012	Settings for MISRA-C2012 are made in the subsequent properties.
		MISRA-C 2004	Settings for MISRA-C2004 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 property corresponds to the -Xmisra20*XX* option of the ccrh command.		
	Default	Not apply rule(No option specified)	
	How to change	Select from the drop-down list.	
	Restriction	Apply all rules(-Xmisra20*XX*=all)	Checks the source code against all of the rules which are supported.
		Apply specified rule number(-Xmisra20*XX*=apply)	Checks the source code against the rules with the specified numbers among the rules which are supported.
		Ignore specified rule number(-Xmisra20*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"(-Xmisra20*XX*=required)	Checks the source code against the rules of the "required" type.
		Apply rules that are classified as "required" and specified rule number(-Xmisra20*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"(-Xmisra20*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(-Xmisra20*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(No option specified)	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. When misra2012 is selected, the CC-RH compiler always checks the code against rule numbers 13.6, 17.3, and 17.4 (as well as 9.1 if the compiler is V1.05.00 or later, 12.5 and 21.13 if the compiler is V1.06.00 or later, and 17.6 if the compiler is V1.07.00 or later) regardless of which rule numbers have been specified through the properties setting. 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 property corresponds to the -Xmisra20*XX* option of the ccrh command. This property is displayed only when [Apply rules that are described in the specified file(-Xmisra20*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. When misra2012 is selected, the CC-RH compiler always checks the code against rule numbers 13.6, 17.3, and 17.4 (as well as 9.1 if the compiler is V1.05.00 or later, 12.5 and 21.13 if the compiler is V1.06.00 or later, and 17.6 if the compiler is V1.07.00 or later) regardless of which rule numbers have been specified through the properties setting. Specify at least one rule number in decimal. This property corresponds to the -Xmisra20*XX* option of the ccrh command. This property is displayed only when [Apply specified rule number(-Xmisra20*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. When misra2012 is selected, the CC-RH compiler always checks the code against rule numbers 13.6, 17.3, and 17.4 (as well as 9.1 if the compiler is V1.05.00 or later, 12.5 and 21.13 if the compiler is V1.06.00 or later, and 17.6 if the compiler is V1.07.00 or later) regardless of which rule numbers have been specified through the properties setting. Specify at least one rule number in decimal. This property corresponds to the -Xmisra20*XX* option of the ccrh command. This property is displayed only when [Ignore specified rule number(-Xmisra20*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. When misra2012 is selected, the CC-RH compiler always checks the code against rule numbers 13.6, 17.3, and 17.4 (as well as 9.1 if the compiler is V1.05.00 or later, 12.5 and 21.13 if the compiler is V1.06.00 or later, and 17.6 if the compiler is V1.07.00 or later) regardless of which rule numbers have been specified through the properties setting. Specify at least one rule number in decimal. This property corresponds to the -Xmisra20*XX* option of the ccrh command. This property is displayed only when [Apply rules that are classified as "required" and specified rule number(-Xmisra20*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. When misra2012 is selected, the CC-RH compiler always checks the code against rule numbers 13.6, 17.3, and 17.4 (as well as 9.1 if the compiler is V1.05.00 or later, 12.5 and 21.13 if the compiler is V1.06.00 or later, and 17.6 if the compiler is V1.07.00 or later) regardless of which rule numbers have been specified through the properties setting. Specify at least one rule number in decimal. This property corresponds to the -Xmisra20*XX* option of the ccrh command. This property is displayed only when [Ignore specified rule number from rules that are classified as "required"(-Xmisra20*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 property corresponds to the -Xignore_files_misra option of the ccrh 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>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 property corresponds to the -Xcheck_language_extention option of the ccrh 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 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="2">Restriction</td><td>Yes(-Xcheck_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></td><td>No</td><td>Disables MISRA-C rule check is disabled, which are partially suppressed by the extended language specifications.</td></tr>
</table>

Enable checking that spans files	Select whether to enable checking that spans files. This property is usable only in the Professional Edition. This property corresponds to the -misra_intermodule option of the ccrh command. This property is displayed only in the following cases. - When [Always latest version which was installed] or V2.01.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V2.01.00 or a later version of the CC-RH compiler has been installed - When [MISRA-C 2012] in the [MISRA-C specification] property is selected - When other than [Not apply rule(No option specified)] in the [Apply rule] property is selected **Caution** If the C source files of the project are removed or renamed while [Yes(-misra_intermodule)] is selected, information on checking that spans files will be cleared. Rebuild the project to obtain correct checking of files on this point.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-misra_intermodule)	Enables checking that spans files.
		No	Does not enable checking that spans files.

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

Change warning message to error message	Select whether to change the type of warning messages to error. This property corresponds to the -change_message option of the ccrh command. This property is displayed when [Always latest version which was installed] or V1.07.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.07.00 or a later version of the CC-RH compiler has been installed.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(All)(-change_message=error)	Changes the type of all warning messages to error.
		Yes(Specify message number)(-change_message=error=<Message number>)	Specifies the number of warning message of which type is to be changed to error.
		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: 23028,23086). Also, a range of message numbers can be specified using "-" (hyphen) (example:23028-23086). This property corresponds to the -change_message option of the ccrh command. This property is displayed only in the following cases. - When [Always latest version which was installed] or V1.07.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.07.00 or a later version of the CC-RH compiler has been installed - When [Yes(Specify message number)(-change_message=error=<Message number>)] in the [Change 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 32767 characters

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

Commands executed before compile processing	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 (except in case of simultaneous building). %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.	
	Default	Commands executed before compile 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 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 (except in case of simultaneous building).
%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.

[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 property corresponds to the -g option of the ccrh 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.

Output additional information for optimization at time of linkage	Select whether to output additional information for optimization at the time of linkage. Optimization at time of linkage is applied to files for which this option has been specified. This property corresponds to the -goptimize option of the ccrh command. This property is displayed when you have selected [Always latest version which was installed] or V2.01.00 or a later version for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V2.01.00 or a later version of the CC-RH compiler has been installed.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-goptimize)	Outputs additional information for optimization at the time of linkage.
		No	Does not output additional information for optimization at the time of linkage.

(3) [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 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-RH.
The reference point of the path is the project folder.
When this property is omitted, only the standard folder of CC-RH is searched.
This property corresponds to the -I option of the ccrh 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 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 property corresponds to the -I option of the ccrh 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 property corresponds to the -D option of the ccrh 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 property corresponds to the -U option of the ccrh 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 Japanese comments and character strings in the source file. This property corresponds to the -Xcharacter_set option of the ccrh command.		
	Default	Auto(No option specified)	
	How to change	Select from the drop-down list.	
	Restriction	Auto(No option specified)	Interprets the Japanese character codes in the source file as SJIS.
		SJIS(-Xcharacter_set=sjis)	Interprets the Japanese character codes in the source file as SJIS.
		EUC(-Xcharacter_set=euc_jp)	Interprets the Japanese character codes in the source file as EUC.
		UFT-8(-Xcharacter_set=utf8)	Interprets the Japanese character codes in the source file as UFT-8.
		Big5(-Xcharacter_set=big5)	Interprets the Chinese character codes in the source file as Traditional Chinese.
		GB2312(-Xcharacter_set=gb2312)	Interprets the Chinese character codes in the source file as Simplified Chinese.
		No-process(-Xcharacter_set=none)	Does not interpret the Japanese/Chinese character codes in the source file.

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

Use 32-bit branch instruction	Select whether to use the far jump function for the jarl and jr instructions. By using the far jump function, it is assumed that the jarl and jr instructions are jarl32 and jr32 instructions, and assembling is performed. This property corresponds to the -Xasm_option=-Xasm_far_jump option of the ccrh command.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-Xasm_option=-Xasm_far_jump)	Assumes that the jarl and jr instructions are jarl32 and jr32 instructions, and performs assembling.
		No	Performs assembly as a jarl or jr instruction.

(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 property corresponds to the -Xasm_option=-Xprn_path option of the ccrh command.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-Xasm_option=-Xprn_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 property corresponds to the -Xasm_option=-Xprn_path option of the ccrh command. This property is displayed only when [Yes(-Xasm_option=-Xprn_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	

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

<table>
<tr><td>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 (except in case of simultaneous building).
%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>Commands executed before assemble 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>

<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 (except in case of simultaneous building).
%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 ccrh.exe. Add "-Xasm_option=" 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.

[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 property 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 property 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 shorten.

Delete local symbol name information	Select whether to delete local symbol name information. This property 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.

Perform optimization at time of linkage	Select whether to perform optimization at the time of linkage. Optimization at time of linkage is performed for modules to which -goptimize was added at compilation or assemble. This property corresponds to the -NOOPtimize and -OPtimize option of the rlink command. This property is displayed when [Always latest version which was installed] or V2.01.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V2.01.00 or a later version of the CC-RH compiler has been installed. Remark To apply optimization at the time of linkage, select [Yes (-goptimize)] for the [Output additional information for optimization at time of linkage] property described under category (3)[Optimization(Details)] in the section on the [Compile Options] tab and under category (2)[Optimization] in the section on the [Assemble Options] tab before compiling or assembling the files. This can also be done by using the same property on the [Individual Compile Options] and [Individual Assemble Options] tabs.		
	Default	No(-NOOPtimize)	
	How to change	Select from the drop-down list.	
	Restriction	No(-NOOPtimize)	Performs optimization at the time of linkage.
		All(-OPtimize)	Does not perform optimization at the time of linkage.

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

<table>
<tr><td rowspan="5">Optimize area allocated before execution start symbol</td><td colspan="3">Select whether to optimize the area allocated before the execution start symbol.
The area allocated to lower addresses than the symbol specified with the -ENTRY option is to be optimized. When the address has been specified with the -ENTRY option, this option is disabled.
This corresponds to the -ALLOW_OPTIMIZE_ENTRY_BLOCK option of the rlink command.
This property is displayed in the following cases.
- When [Always latest version which was installed] or V2.06.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V2.06.00 or a later version of the CC-RH compiler has been installed
- When other than [No(-NOOPtimize)] in the [Perform optimization at time of linkage] property is selected
- When [Yes(-ENTry)] in the [Specify execution start address] property is selected
- When [Execution start address] property is not blank</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(-ALLOW_OPTIMIZE_ENTRY_BLOCK)</td><td>Optimizes the area allocated before the execution start symbol.</td></tr>
<tr><td>No</td><td>Does not optimize the area allocated before the execution start symbol.</td></tr>
<tr><td rowspan="4">Symbols excluded from optimization of unreferenced symbol deletion</td><td colspan="3">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] or V2.01.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V2.01.00 or a later version of the CC-RH compiler has been installed
- When other than [No(-NOOPtimize)] in the [Perform optimization at time of linkage] property under the [Optimization] category is selected</td></tr>
<tr><td>Default</td><td colspan="2">Symbols excluded from optimization of unreferenced symbol deletion[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 32767 characters
Up to 65535 items can be specified.</td></tr>
</table>

<table>
<tr><td>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 property corresponds to the -SEction_forbid option of the rlink command.
This property is displayed in the following cases.
- When [Always latest version which was installed] or V2.01.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V2.01.00 or a later version of the CC-RH compiler has been installed
- When other than [No(-NOOPtimize)] in the [Perform optimization at time of linkage] property under the [Optimization] category is selected</td></tr>
<tr><td></td><td>Default</td><td>Section to disable optimization[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 32767 characters
Up to 65535 items can be specified.</td></tr>
<tr><td>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 property corresponds to the -Absolute_forbid option of the rlink command.
This property is displayed in the following cases.
- When [Always latest version which was installed] or V2.01.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V2.01.00 or a later version of the CC-RH compiler has been installed
- When other than [No(-NOOPtimize)] in the [Perform optimization at time of linkage] property under the [Optimization] category is selected</td></tr>
<tr><td></td><td>Default</td><td>Address range to disable optimization[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 32767 characters
Up to 65535 items can be specified.</td></tr>
</table>

Output external symbol allocation information file	Select whether to output an external symbol allocation information file. This property is changed to [Yes(-Map)] when [Yes(Optimizes the inter-module)(-Omap)] in the [Optimize accesses to external variables] property in the [Optimization(Details)] category from the [Compile Options] tab is selected. This property corresponds to the -MAp option of the rlink command.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-MAp)	Outputs an external symbol allocation information file.
		No	Does not output an external symbol allocation information file.

(4) [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 property 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.

<table>
<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 property 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>
<tr><td>Symbol definition</td><td colspan="2">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.
This property corresponds to the -DEFine option of the rlink command.
The symbol name is displayed as the subproperty.</td></tr>
<tr><td></td><td>Default</td><td>Symbol 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>
</table>

(5) [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 property 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. %MainProjectName%: Replaces with the main project name. %ProjectName%: Replaces with the project name. This property 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

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

<table>
<tr><td>Using libraries</td><td colspan="3">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 property 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 colspan="2">Using libraries[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.
-> 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 colspan="2">Up to 259 characters
Up to 65536 items can be specified.</td></tr>
<tr><td>System libraries</td><td colspan="3">The system library files are displayed.
This property corresponds to the -LIBrary option of the rlink command.
The system library file name is displayed as the subproperty.</td></tr>
<tr><td></td><td>Default</td><td colspan="2">System libraries[number of defined items]</td></tr>
<tr><td></td><td>How to change</td><td colspan="2">Changes not allowed</td></tr>
<tr><td>Use standard libraries</td><td colspan="3">Select whether to use the standard libraries provided by the compiler.
This property corresponds to the -LIBrary option of the rlink command.
[Yes(V1.01 compatible)] is displayed when [Always latest version which was installed] or V1.02.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.02.00 or a later version of the CC-RH compiler has been installed.</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="3">Restriction</td><td>Yes</td><td>Uses the standard libraries.</td></tr>
<tr><td></td><td>Yes(V1.01 compatible)</td><td>Uses the libraries compatible with CC-RH V1.01.</td></tr>
<tr><td></td><td>No</td><td>Does not use the standard libraries.</td></tr>
</table>

<table>
<tr><td>Use "Standard Library" function</td><td colspan="3">Select whether to use the standard library functions.
This property is changed to [Yes(-LIBrary=libc)] when [Yes] in the [Use "Mathematical Library (Double precision)" function] or [Use "Mathematical Library (Single precision)" function] property is selected.
This property corresponds to the -LIBrary option of the rlink command.
This property is displayed in the following cases.
- When [Always latest version which was installed] or a version number earlier than V1.02.00 is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where a version of the CC-RH compiler earlier than V1.02.00 has been installed
- When [Yes] in the [Use standard libraries] property is selected

or
- When [Always latest version which was installed] or V1.02.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.02.00 or a later version of the CC-RH compiler has been installed
- When [Yes(V1.01 compatible)] in the [Use standard libraries] property is selected</td></tr>
<tr><td></td><td>Default</td><td colspan="2">Yes(-LIBrary=libc)</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(-LIBrary=libc)</td><td>Uses the standard library functions.</td></tr>
<tr><td></td><td>No</td><td>Does not use the standard library functions.</td></tr>
<tr><td>Use "Mathematical Library (Double precision)" function</td><td colspan="3">Select whether to use the mathematical library (double precision) functions.
This property is changed to [No] when [No] in the [Use standard libraries] property is selected.
This property corresponds to the -LIBrary option of the rlink command.
This property is displayed in the following cases.
- When [Always latest version which was installed] or a version number earlier than V1.02.00 is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where a version of the CC-RH compiler earlier than V1.02.00 has been installed
- When [Yes] in the [Use standard libraries] property is selected

or
- When [Always latest version which was installed] or V1.02.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.02.00 or a later version of the CC-RH compiler has been installed
- When [Yes(V1.01 compatible)] in the [Use standard libraries] property is selected</td></tr>
<tr><td></td><td>Default</td><td colspan="2">Yes(-LIBrary=libm)</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(-LIBrary=libm)</td><td>Uses the mathematical library (double precision) functions.</td></tr>
<tr><td></td><td>No</td><td>Does not use the mathematical library (double precision) functions.</td></tr>
</table>

<table>
<tr><td>Use "Mathematical Library (Single precision)" function</td><td colspan="3">Select whether to use the mathematical library (single precision) functions.
This property is changed to [No] when [No] in the [Use standard libraries] property is selected.
This property corresponds to the -LIBrary option of the rlink command.
This property is displayed in the following cases.
- When [Always latest version which was installed] or a version number earlier than V1.02.00 is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where a version of the CC-RH compiler earlier than V1.02.00 has been installed
- When [Yes] in the [Use standard libraries] property is selected

or

- When [Always latest version which was installed] or V1.02.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.02.00 or a later version of the CC-RH compiler has been installed
- When [Yes(V1.01 compatible)] in the [Use standard libraries] property is selected</td></tr>
<tr><td rowspan="4"></td><td>Default</td><td colspan="2">Yes(-LIBrary=libmf)</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(-LIBrary=libmf)</td><td>Uses the mathematical library (single precision) functions.</td></tr>
<tr><td>No</td><td>Does not use the mathematical library (single precision) functions.</td></tr>
<tr><td>Use "Standard/Mathematical Library" function</td><td colspan="3">Select whether to use the standard and mathematical library functions.
This property corresponds to the -LIBrary option of the rlink command.
This property is displayed in the following cases.
- When [Always latest version which was installed] or V1.02.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.02.00 or a later version of the CC-RH compiler has been installed
- When [Yes] in the [Use standard libraries] property is selected</td></tr>
<tr><td rowspan="4"></td><td>Default</td><td colspan="2">Yes</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>Uses the standard and mathematical library functions.</td></tr>
<tr><td>No</td><td>Does not use the standard and mathematical library functions.</td></tr>
</table>

Check memory smashing on releasing memory	Selects whether to check memory smashing on releasing the memory. This property is usable only in the Professional Edition. The user-defined __heap_chk_fail() function is called if an illegal address has been specified or an address outside the allocated memory area has been written to when the memory that was dynamically allocated by malloc or another function is released or re-allocated by this function. See "CC-RH Compiler User's Manual" for details. This property corresponds to the -LIBrary option of the rlink command. This property is displayed only in the following cases. - When [Always latest version which was installed] or V1.04.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.04.00 or a later version of the CC-RH compiler has been installed - When [Yes] in the [Use standard/mathematical libraries] property is selected		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes	Checks memory smashing on releasing the memory.
		No	Does not check memory smashing on releasing the memory.
Use "Non-local jump Library" function	Select whether to use the non-local jump library functions. This property corresponds to the -LIBrary option of the rlink command. This property is displayed only when other than [No] in the [Use standard libraries] property is selected.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-LIBrary=libsetjmp)	Uses the non-local jump library functions.
		No	Does not use the non-local jump library functions.

(7) [Output Code]
The detailed information on output code 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 property 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. This property 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 property 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.
Work around overrun fetch	Select whether to prevent reading of vacant areas due to overrun fetch. This property corresponds to the -OVERRUN_FETCH option of the rlink command.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-OVERRUN_FETCH)	Inserts 128-byte NOP instructions in a vacant area when a 128-byte or larger vacant area exists between sections or immediately after the end code section.
		No	Does not prevent reading of vacant areas due to overrun fetch.

<table>
<tr><td rowspan="5">Reserve prefetch area</td><td colspan="3">Select whether to generate and reserve a section immediately after an area for use with prefetching.
This property corresponds to the -RESERVE_PREFETCH_AREA option of the rlink command.
This property is displayed when you have selected [Always latest version which was installed] or V2.04.01 or a later version for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V2.04.01 or a later version of the CC-RH compiler has been installed.</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>No(No option specified)</td><td>Does not reserve prefetch area</td></tr>
<tr><td>Yes(auto allocation)(-RESERVE_PREFETCH_AREA)</td><td>Reserves prefetch area</td></tr>
<tr><td>Yes(after specified section)(-RESERVE_PREFETCH_AREA=section)</td><td>Reserves an area for use with prefetching for the specified section.</td></tr>
<tr><td rowspan="4">Section in the reserved prefetch area</td><td colspan="3">Specify section in the reserved prefetch area.
This property corresponds to the -RESERVE_PREFETCH_AREA option of the rlink command.
This property is displayed in the following cases.
- When you have selected [Always latest version which was installed] or V2.04.01 or a later version for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V2.04.01 or a later version of the CC-RH compiler has been installed.
- When [Yes(after specified section)(-RESERVE_PREFETCH_AREA=section)] in the [Reserve prefetch area] property is selected</td></tr>
<tr><td>Default</td><td colspan="2">Blank</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 32767 characters</td></tr>
</table>

<table>
<tr><td>Generate function list used for detecting illegal indirect function call</td><td colspan="3">Select whether to generate a list of functions that are safe in terms of the detection of illegal indirect function calls.
This property is changed to [Yes(-CFI)] when [Yes(-control_flow_integrity)] in the [Detect illegal indirect function call] property in the [Quality Improvement] category from the [Compile Options] tab is selected.
This property is usable only in the Professional Edition.
This property corresponds to the -CFI option of the rlink command.
This property is displayed when you have selected [Always latest version which was installed] or V1.07.00 or a later version for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.07.00 or a later version of the CC-RH compiler has been installed.</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="2">Restriction</td><td>Yes(-CFI)</td><td>Generates a list of functions that are safe in terms of the detection of illegal indirect function calls.</td></tr>
<tr><td></td><td>No</td><td>Does not generate a list of functions that are safe in terms of the detection of illegal indirect function calls.</td></tr>
<tr><td>Additional function symbols or addresses to function list</td><td colspan="3">Specify the symbols or addresses of functions that you wish to add to the list of functions that are safe in terms of the detection of illegal indirect function calls.
In the process of detecting illegal indirect function calls, the linker generates a list of safe functions and embeds this list in the load module. Then the code output by the compiler with [Detect illegal indirect function call] enabled will refer to the list while the user-created application is running. Use this property if you wish to add any symbols or addresses of functions to the list, which is otherwise automatically configured based on the information input to the linker.
Specify in the format of "function symbol|address[,...]", with one function name per line.
This property is usable only in the Professional Edition.
This property corresponds to the -CFI_ADD_Func option of the rlink command.
This property is displayed only in the following cases.
- When you have selected [Always latest version which was installed] or V1.07.00 or a later version for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.07.00 or a later version of the CC-RH compiler has been installed
- When [Yes(-CFI)] in the [Generate function list used for detecting illegal indirect function call] property is selected</td></tr>
<tr><td></td><td>Default</td><td colspan="2">Additional function symbols or addresses to function list[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 32767 characters
Up to 65536 items can be specified.</td></tr>
</table>

Excluded modules from function list	Specify modules that you wish to exempt from the list of functions that are safe in terms of the detection of illegal indirect function calls. In the process of detecting illegal indirect function calls, the linker generates a list of safe functions and embeds this list in the load module. Then the code output by the compiler with [Detect illegal indirect function call] enabled will refer to the list while the user-created application is running. Use this property if you wish to exempt all functions of any modules from the list, which is otherwise automatically configured based on the information input to the linker. Specify in the format of "*object file name*[,...]" or "*library file name*[(<*module name in library*>[,<*module name in library*>]...)][,...]", with one file name per line. The library file name can be specified only when the CC-RH compiler is V2.00.00 or later. All functions in the specified module are excluded from the function list. This property is usable only in the Professional Edition. This property corresponds to the -CFI_IGNORE_Module option of the rlink command. This property is displayed only in the following cases. - When you have selected [Always latest version which was installed] or V1.07.00 or a later version for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.07.00 or a later version of the CC-RH compiler has been installed - When [Yes(-CFI)] in the [Generate function list used for detecting illegal indirect function call] property is selected	
	Default	Excluded modules from function list[*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 32767 characters Up to 65536 items can be specified.

(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 property 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 property 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 property 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 property 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 property 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.

<table>
<tr><td>Output information of members of struct or union</td><td colspan="3">Select whether to output the member information of the structure or union.
This property 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] or V1.02.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.02.00 or a later version of the CC-RH compiler has been installed
- When [Yes(List contents=specify)(-LISt)] in the [Output link map file] property is selected
- When [No(-NOCOmpress)] in the [Compress debug information] property is selected
- When [No] in the [Delete local symbol name information] property is selected
- When [No(-NOOPtimize)] in the [Perform optimization at time of linkage] property is selected</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="2">Restriction</td><td>Yes(-SHow=STRUCT)</td><td>Outputs the member information of the structure or union.</td></tr>
<tr><td></td><td>No</td><td>Does not output the member information of the structure or union.</td></tr>
<tr><td>Output relocation attributes related to sections</td><td colspan="3">Select whether to output relocation attributes related to sections.
This property corresponds to the -SHow=RELOCATION_ATTRIBUTE option of the rlink command.
This property is displayed in the following cases.
- When [Always latest version which was installed] or V1.06.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.06.00 or a later version of the CC-RH compiler has been installed
- When [Yes(List contents=specify)(-LISt)] in the [Output link map file] property is selected</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="2">Restriction</td><td>Yes(-SHow=RELOCATION_ATTRIBUTE)</td><td>Outputs relocation attributes related to sections.</td></tr>
<tr><td></td><td>No</td><td>Does not output relocation attributes related to sections.</td></tr>
</table>

Output function list for detecting illegal indirect function call	Select whether to output a list of functions that are safe in terms of the detection of illegal indirect function calls. This property corresponds to the -SHow=CFI option of the rlink command. This property is displayed only in the following cases. - When you have selected [Always latest version which was installed] or V1.07.00 or a later version for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.07.00 or a later version of the CC-RH compiler has been installed - When [Yes(-CFI)] in the [Generate function list used for detecting illegal indirect function call] property in the [Output Code] category is selected - 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=CFI)	Outputs a list of functions that are safe in terms of the detection of illegal indirect function calls.
		No	Does not output a list of functions that are safe in terms of the detection of illegal indirect function calls.

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

Section start address	Specify the start address of the section. The sample value is set in this property by default. You need to set the appropriate value. This property corresponds to the -STARt option of the rlink command.	
	Default	VECT,.const,.text,.data/00000000,RESET/ 01000000,.data.R,.bss,.stack.bss/FEBF8000
	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 includes startup function	Specify the section including the startup function. Specify one section name per line. When this property is specified, the startup symbol called from the multi-core boot loader is registered in the boot loader project. This property corresponds to the -FSymbol option of the rlink command. The section name is displayed as the subproperty. This property is displayed only for the project set in the [Constituent application projects] property from the [Boot Loader] tab for the Boot loader node.	
	Default	Section that includes startup function[*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.

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 property 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.
Section alignment	Specify the name of the section to change the number of alignment to 16 bytes. Specify one section name per line. This property corresponds to the -ALIGNED_SECTION option of the rlink command. The section name is displayed as the subproperty.	
	Default	Section alignment[*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 property 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" is 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.

(10) [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 property 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.
		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. This property 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.

(11) [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 property 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 property 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 property 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 and error message to information message	Select whether to change the type of warning and error messages to information. This property 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 and error messages to information.
		Yes(Specify message number)(-CHange_message=Information=<Message number>)	Specifies the number of warning and error message of which type is to be changed to information.
		No	Does not change the type of warning and error messages.
Number of warning and error message	Specify the number of the warning and error 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 property 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 and error 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 error message to warning message	Select whether to change the type of information and error messages to warning. This property 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 and error messages to warning.
		Yes(Specify message number)(-CHange_message=Warning=<Message number>)	Specifies the number of information and error message of which type is to be changed to warning.
		No	Does not change the type of information and error messages.
Number of information and error message	Specify the number of the information and error 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 property corresponds to the -CHange_message option of the rlink command. This property is displayed only when [Yes(Specify message number)(-CHange_message=Warning=<Message number>)] in the [Change information and error 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 property 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 and 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 property 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 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	

(12) [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 property 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.

<table>
<tr><td>Reduce memory occupancy</td><td colspan="3">Select whether to reduce the memory capacity.
This property 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 [No] in the [Output external symbol allocation information file] property in the [Optimization(Details)] category is selected
- When any one of the conditions below is met.
(1) When [No] in the [Output link map file] property in the [List] category is selected
(2) When [Yes(List contents=not specify)(-LISt -SHow)] in the [Output link map file] property in the [List] category is selected
(3) When [Yes(List contents=specify)(-LISt)] in the [Output link map file] property, [No] in the [Output number of symbol reference] property, [No] in the [Output cross reference information] property, and [No] in the [Output information of members of struct or union] property in the [List] category are selected
- When [No] in the [Output stack information file] property is selected</td></tr>
<tr><td></td><td>Default</td><td colspan="2">No(-MEMory=High)</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(-MEMory=Low)</td><td>Reduces the memory capacity.
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.</td></tr>
<tr><td></td><td>No(-MEMory=High)</td><td>Executes the same processing as usual.</td></tr>
<tr><td>Display total size of sections</td><td colspan="3">Select whether to display the total size of sections after the linking.
This property corresponds to the -Total_size option of the rlink command.</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="2">Restriction</td><td>Yes(-Total_size)</td><td>Displays the total size of sections after the linking.</td></tr>
<tr><td></td><td>No</td><td>Does not display the total size of sections after the linking.</td></tr>
<tr><td>Display copyright information</td><td colspan="3">Select whether to display copyright information.
This property corresponds to the -LOgo and -NOLOgo options of the rlink command.</td></tr>
<tr><td></td><td>Default</td><td colspan="2">No(-NOLOgo)</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(-LOgo)</td><td>Displays copyright information.</td></tr>
<tr><td></td><td>No(-NOLOgo)</td><td>Suppresses the output of copyright information.</td></tr>
</table>

<table>
<tr><td rowspan="4">Commands executed before link processing</td><td colspan="2">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.</td></tr>
<tr><td>Default</td><td>Commands executed before 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>
</table>

<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.</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.

Caution This tab is not displayed for the library project.

[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 property 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.
		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 property 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	

<table>
<tr><td>Output file name</td><td colspan="2">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 property corresponds to the -OUtput option of the rlink command.
This property is displayed only when [Yes] in the [Output hex file] property is selected.</td></tr>
<tr><td></td><td>Default</td><td>%ProjectName%.mot</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>
<tr><td>Load address</td><td colspan="2">Specifies the load address of the hex file in hexadecimal.
This property corresponds to the -OUtput option of the linker.
This property is displayed only in the following cases.
- When [Always latest version which was installed] or V2.00.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V2.00.00 or a later version of the CC-RH compiler has been installed
- When a choice other than [Binary file (-FOrm=Binary)] was made in the [Hex file format] property under the [Hex Format] category</td></tr>
<tr><td></td><td>Default</td><td>Blank</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>0 to FFFFFFFF (hexadecimal number) or blank</td></tr>
</table>

<table>
<tr><td>Division output file</td><td colspan="2">Specify the division output files.
Specify in the format of "file name=start address-end address[/load address]" (start address, end address: The start address and end address of the output range) or "file name=section name[/load address]" (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).
[/load address] can be specified only when the CC-RH compiler is V2.00.00 or later and when a choice other than [Binary file (-FOrm=Binary)] was made in the [Hex file format] property in the [Hex Format] category.
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 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 property 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.
Caution If you prefer the output of a single file and thus need not enter the start and end addresses or section names, delete the setting of this property and use the [Output folder] and [Output file name] properties instead.</td></tr>
<tr><td>Default</td><td>Division output file[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 259 characters
Up to 65535 items can be specified.</td></tr>
</table>

Use object uniting function	Select whether to combine the hex files of the projects specified as constituent applications into a file. This property corresponds to the -FOrm option of the rlink command. This property is displayed only in the following cases. - For the multi-core boot loader project - When [Yes] is selected in the [Output hex file] property for the boot loader project and all component application projects. - When the same item is selected in the [Hex file format] property in the [Hex Format] category for the boot loader project and all component application projects.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes	Combines the hex files of the projects specified as constituent applications into a file.
		No	Outputs the hex file for each project.
Output folder for united hex file	Specify the folder which the combined hex file is output. 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 property corresponds to the -OUtput option of the rlink command. This property is displayed only when [Yes] in the [Use object uniting function] property is selected.		
	Default	%BuildModeName%_merged	
	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	

(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 property 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 property 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 property 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 property corresponds to the -SPace option of the rlink command. This property is displayedin any one of the following cases. - When a file is specified in the [Division output file] property in the [Output File] category. - When [Yes(-FIX_RECORD_LENGTH_AND_ALIGN)] in the [Output hex file with fixed record length from aligned start address] property is selected.		
	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 fills the vacant area.

Output padding data	Specify the hexadecimal value to fill the vacant area. This property 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)	
Output hex file with fixed record length from aligned start address	Select whether to output the hex file with the fixed record length from an aligned start address. This property corresponds to the -FIX_RECORD_LENGTH_AND_ALIGN of the rlink command. This property is displayed only in the following cases. - When you have selected [Always latest version which was installed] or V1.07.00 or a later version for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.07.00 or a later version of the CC-RH compiler has been installed - When other than [Binary file(-FOrm=Binary)] in the [Hex file format] property is selected		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-FIX_RECORD_LENGTH_AND_ALIGN)	Outputs the hex file with the fixed record length from an aligned start address.
		No	Does not output the hex file with the fixed record length from an aligned start address.
Alignment of start address	Specify the alignment of the start address. You can enter 1 or a greater value for the alignment. This property corresponds to the -FIX_RECORD_LENGTH_AND_ALIGN option of the rlink command. This property is displayed only when [Yes(-FIX_RECORD_LENGTH_AND_ALIGN)] in the [Output hex file with fixed record length from aligned start address] property is selected.		
	Default	1	
	How to change	Directly enter to the text box.	
	Restriction	1 Or A Greater Hexadecimal Number	

<table>
<tr><td>Specify byte count for data record</td><td colspan="3">Select whether to specify the maximum byte count for a data record.
This property corresponds to the -BYte_count option of the rlink command.
This property is displayed only in either of the following cases.
- When you have selected [Always latest version which was installed] or V1.07.00 or a later version for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.07.00 or a later version of the CC-RH compiler has been installed
- When other than [Binary file(-FOrm=Binary)] in the [Hex file format] property is selected
- Other than above
- When [Intel HEX file(-FOrm=Hexadecimal)] in the [Hex file format] property is selected</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="2">Restriction</td><td>Yes(-BYte_count)</td><td>Specifies the maximum byte count for a data record.</td></tr>
<tr><td></td><td>No</td><td>Specifies 0xFF as the maximum byte count for a data record.</td></tr>
<tr><td>Maximum byte count for data record</td><td colspan="3">Specify the maximum byte count for a data record.
This property 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.</td></tr>
<tr><td></td><td>Default</td><td colspan="2">- When [Intel HEX file(-FOrm=Hexadecimal)] in the [Hex file format] property is selected
FF
- When [Motorola S-record file(-FOrm=Stype)] in the [Hex file format] property is selected
10</td></tr>
<tr><td></td><td>How to change</td><td colspan="2">Directly enter to the text box.</td></tr>
<tr><td></td><td>Restriction</td><td colspan="2">1 to FF (hexadecimal number)</td></tr>
</table>

Specify end record	Select the end record of the Motorola S-record file. This property corresponds to the -END_RECORD option of the rlink command. This property is displayed in the following cases. - When [Always latest version which was installed] or V1.06.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.06.00 or a later version of the CC-RH compiler has been installed - When [Motorola S-record file(-FOrm=Stype)] in the [Hex file format] property is selected		
	Default	Not specify(No option specified)	
	How to change	Select from the drop-down list.	
	Restriction	S7(-END_RECORD=S7)	Outputs the end record as a 32-bit S-record file.
		S8(-END_RECORD=S8)	Outputs the end record as a 24-bit S-record file.
		S9(-END_RECORD=S9)	Outputs the end record as a 16-bit S-record file.
		Not specify(No option specified)	Outputs the end record to suit the address of the entry point.
Output S9 record at the end	Select whether to output the S9 record at the end. This property 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.
This category is displayed only in the following cases.

- When [Always latest version which was installed] or V1.03.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.03.00 or a later version of the CC-RH compiler has been installed
- When other than [Binary file(-FOrm=Binary)] is selected in the [Hex file format] property in the [Hex Format] category
  (However, this category is displayed when the CC-RH compiler is V2.00.00 or later even if [Binary file(-FOrm=Binary)] is selected)

CRC Operations	Show and set the settings of one or more CRC operations. This property corresponds to the -CRc option of the rlink command. This property is displayed only when [Always latest version which was installed] or V2.05.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V2.05.00 or a later version of the CC-RH compiler has been installed. When versions of CC-RH are earlier than V2.05.00, the existing -CRc-related properties are displayed. Note If a project in which two or more -CRc options have been specified is opened and saved in CS+ V8.09.00 or a previous version, the settings of the second and subsequent -CRc options will be deleted.		
	Default	CRC Operations[*numbers of defined items*]	
	How to change	Edit by the CRC Operations dialog box which appears when clicking the [...] button.	
Outputs the calculation result of CRC	Select whether to perform the CRC (Cyclic Redundancy Check) operation. This property corresponds to the -CRc option of the rlink command. This property is displayed when [Always latest version which was installed] or a version number earlier than V2.05.00 is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where a version of the CC-RH compiler earlier than V2.05.00 has been installed.		
	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 property corresponds to the -CRc option of the rlink command. This property is displayed in the following cases. - When [Always latest version which was installed] or a version number earlier than V2.05.00 is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where a version of the CC-RH compiler earlier than V2.05.00 has been installed - 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 FFFFFFFF (hexadecimal number)	

<table>
<tr><td>Target range</td><td colspan="3">Specify the CRC calculation range in the format of "start address - end address" or "section name".
Specify the address in hexadecimal without 0x.
The range of specifiable address values is 0 to FFFFFFFF.
This property corresponds to the -CRc option of the rlink command.
This property is displayed in the following cases.
- When [Always latest version which was installed] or a version number earlier than V2.05.00 is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where a version of the CC-RH compiler earlier than V2.05.00 has been installed
- When [Yes(-CRc)] in the [Outputs the calculation result of CRC] 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">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 32767 characters
Up to 65535 items can be specified.</td></tr>
<tr><td>Type of CRC</td><td colspan="3">Select the method of CRC operation.
See the user's manual of the device and "CC-RH Compiler User's Manual" for details about each operation.
This property corresponds to the -CRc option of the rlink command.
This property is displayed in the following cases.
- When [Always latest version which was installed] or a version number earlier than V2.05.00 is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where a version of the CC-RH compiler earlier than V2.05.00 has been installed
- When [Yes(-CRc)] in the [Outputs the calculation result of CRC] property is selected</td></tr>
<tr><td></td><td>Default</td><td colspan="2">32-ETHERNET type</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="9">Restriction</td><td>CRC-CCITT(MSB) type</td><td>Outputs the calculation result of CRC-16-CCITT-MSB first operation.</td></tr>
<tr><td>CRC-CCITT(MSB,LITTLE,4 bytes) type</td><td>Outputs the calculation result of CRC-16-CCITT-MSB first operation with the input specified as 4-byte units in little-endian mode.</td></tr>
<tr><td>CRC-CCITT(MSB,LITTLE,2 bytes) type</td><td>Outputs the calculation result of CRC-16-CCITT-MSB first operation with the input specified as 2-byte units in little-endian mode.</td></tr>
<tr><td>32-ETHERNET type</td><td>Outputs the calculation result of CRC-32-ETHERNET operation.</td></tr>
<tr><td>CCITT type</td><td>Outputs the calculation result of CRC-16-CCITT-MSB first operation with an initial value of 0xffff and inverse of XOR.</td></tr>
<tr><td>CRC-CCITT(LSB) type</td><td>Outputs the calculation result of CRC-16-CCITT-LSB first operation.</td></tr>
<tr><td>16</td><td>Outputs the calculation result of CRC-16-LSB first operation.</td></tr>
<tr><td>SENT(MSB) type</td><td>Outputs the calculation result of operation conforming to SENT.</td></tr>
</table>

<table>
<tr><td>Initial value</td><td colspan="3">Specify the initial value for the CRC operation in the format of "initial value".
This property corresponds to the -CRc option of the rlink command.
This property is displayed in the following cases.
- When [Always latest version which was installed] or a version number earlier than V2.05.00 is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where a version of the CC-RH compiler earlier than V2.05.00 has been installed
- When [Yes(-CRc)] in the [Outputs the calculation result of CRC] 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 to the text box.</td></tr>
<tr><td></td><td>Restriction</td><td colspan="2">- 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)</td></tr>
<tr><td>Endian</td><td colspan="3">Select the endian for CRC output.
This property corresponds to the -CRc option of the rlink command.
This property is displayed in the following cases.
- When [Always latest version which was installed] or a version number earlier than V2.05.00 is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where a version of the CC-RH compiler earlier than V2.05.00 has been installed
- When [Yes(-CRc)] in the [Outputs the calculation result of CRC] property is selected</td></tr>
<tr><td></td><td>Default</td><td colspan="2">Little endian</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>Little endian</td><td>Outputs the value in little-endian mode.</td></tr>
<tr><td></td><td>Big endian</td><td>Outputs the value in big-endian mode.</td></tr>
<tr><td>Output size</td><td colspan="3">Specify the output size for the CRC code.
This property corresponds to the -CRc option of the rlink command.
This property is displayed in the following cases.
- When [Always latest version which was installed] or a version number earlier than V2.05.00 is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where a version of the CC-RH compiler earlier than V2.05.00 has been installed
- When [Yes(-CRc)] in the [Outputs the calculation result of CRC] 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 to the text box.</td></tr>
<tr><td></td><td>Restriction</td><td colspan="2">2, 4, or blank</td></tr>
</table>

Displays the result of CRC calculation and output address	Select whether to display the results of CRC calculation and the output address on the Output panel. This property corresponds to the -VERBOSE option of the rlink command. This property is displayed only in the following cases. - When [Always latest version which was installed] or V2.05.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V2.05.00 or a later version of the CC-RH compiler has been installed - When [Always latest version which was installed] or V2.03.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V2.03.00 or a later version of the CC-RH compiler has been installed, and when [Yes(-CRc)] in the [Outputs the calculation result of CRC] property is selected		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-VERBOSE=CRC)	Displays the results of CRC calculation and the output address.
		No	Does not display the results of CRC calculation and the output address.

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

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 property 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 property 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 and error message to information message	Select whether to change the type of warning and error messages to information. This property 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 and error messages to information.
		Yes(Specify message number)(-CHange_message=Information=<Message number>)	Specifies the number of warning and error message of which type is to be changed to information.
		No	Does not change the type of warning and error messages.
Number of warning and error message	Specify the number of the warning and error 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 property 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 and error 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 error message to warning message	Select whether to change the type of information and error messages to warning. This property 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 and error messages to warning.
		Yes(Specify message number)(-CHange_message=Warning=<Message number>)	Specifies the number of information and error message of which type is to be changed to warning.
		No	Does not change the type of information and error messages.
Number of information and error message	Specify the number of the information and error 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 property 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 and error 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 property 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 and 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 property 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.

Confirm that SYNCP is inserted at entry of exception handler	Select whether to confirm that the SYNCP instruction is inserted at the beginning of an exception handler after hex output finishes. See "RH850G3M User's Manual: Software" (Rev1.10 or later) for details.		
	Default	Yes	
	How to change	Select from the drop-down list.	
	Restriction	Yes	Confirms that the SYNCP instruction is inserted at the beginning of an exception handler after hex output finishes.
		No	Does not confirm that the SYNCP instruction is inserted at the beginning of an exception handler after hex output finishes.
Base address of exception vector	Specify the base address of the exception vector. This property corresponds to the -b option of the tool to confirm that the SYNCP instruction is inserted at the entry of the exception handler.		
	Default	*The peculiar value for the target device*	
	How to change	Directly enter to the text box.	
	Restriction	0 to FFFFFE00 (hexadecimal number without 0x)	
Number of entries of interrupts	Specify the number of entries of interrupts. Specifying this property appropriately allows redundant check to be suppressed. This property corresponds to the -n option of the tool to confirm that the SYNCP instruction is inserted at the entry of the exception handler.		
	Default	16	
	How to change	Directly enter to the text box.	
	Restriction	0 to 16 (decimal number)	

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.

[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 property 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 property 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.

<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 property 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 property 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.</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>

(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 property 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 property 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. %MainProjectName%: Replaces with the main project name. %ProjectName%: Replaces with the project name. This property 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. 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 property 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. This property 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 libraries	Select whether to use the standard libraries provided by the compiler. This property corresponds to the -LIBrary option of the rlink command. [Yes(V1.01 compatible)] is displayed when [Always latest version which was installed] or V1.02.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.02.00 or a later version of the CC-RH compiler has been installed.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes	Uses the standard libraries.
		Yes(V1.01 compatible)	Uses the libraries compatible with CC-RH V1.01.
		No	Does not use the standard libraries.

<table>
<tr><td>Use "Standard Library" function</td><td colspan="3">Select whether to use the standard library functions.
This property is changed to [Yes(-LIBrary=libc)] when [Yes] in the [Use "Mathematical Library (Double precision)" function] or [Use "Mathematical Library (Single precision)" function] property is selected.
This property corresponds to the -LIBrary option of the rlink command.
This property is displayed in the following cases.
- When [Always latest version which was installed] or a version number earlier than V1.02.00 is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where a version of the CC-RH compiler earlier than V1.02.00 has been installed
- When [Yes] in the [Use standard libraries] property is selected

or

- When [Always latest version which was installed] or V1.02.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.02.00 or a later version of the CC-RH compiler has been installed
- When [Yes(V1.01 compatible)] in the [Use standard libraries] property is selected</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="2">Restriction</td><td>Yes(-LIBrary=libc)</td><td>Uses the standard library functions.</td></tr>
<tr><td></td><td>No</td><td>Does not use the standard library functions.</td></tr>
<tr><td>Use "Mathematical Library (Double precision)" function</td><td colspan="3">Select whether to use the mathematical library (double precision) functions.
This property is changed to [No] when [No] in the [Use standard libraries] property is selected.
This property corresponds to the -LIBrary option of the rlink command.
This property is displayed in the following cases.
- When [Always latest version which was installed] or a version number earlier than V1.02.00 is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where a version of the CC-RH compiler earlier than V1.02.00 has been installed
- When [Yes] in the [Use standard libraries] property is selected

or

- When [Always latest version which was installed] or V1.02.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.02.00 or a later version of the CC-RH compiler has been installed
- When [Yes(V1.01 compatible)] in the [Use standard libraries] property is selected</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="2">Restriction</td><td>Yes(-LIBrary=libm)</td><td>Uses the mathematical library (double precision) functions.</td></tr>
<tr><td></td><td>No</td><td>Does not use the mathematical library (double precision) functions.</td></tr>
</table>

<table>
<tr><td>Use "Mathematical Library (Single precision)" function</td><td colspan="3">Select whether to use the mathematical library (single precision) functions.
This property is changed to [No] when [No] in the [Use standard libraries] property is selected.
This property corresponds to the -LIBrary option of the rlink command.
This property is displayed in the following cases.
- When [Always latest version which was installed] or a version number earlier than V1.02.00 is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where a version of the CC-RH compiler earlier than V1.02.00 has been installed
- When [Yes] in the [Use standard libraries] property is selected

or

- When [Always latest version which was installed] or V1.02.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.02.00 or a later version of the CC-RH compiler has been installed
- When [Yes(V1.01 compatible)] in the [Use standard libraries] property is selected</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="2">Restriction</td><td>Yes(-LIBrary=libmf)</td><td>Uses the mathematical library (single precision) functions.</td></tr>
<tr><td></td><td>No</td><td>Does not use the mathematical library (single precision) functions.</td></tr>
<tr><td>Use "Standard/Mathematical Library" function</td><td colspan="3">Select whether to use the standard/mathematical library functions.
This property corresponds to the -LIBrary option of the rlink command.
This property is displayed in the following cases.
- When [Always latest version which was installed] or V1.02.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.02.00 or a later version of the CC-RH compiler has been installed
- When [Yes] in the [Use standard libraries] property is selected</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="2">Restriction</td><td>Yes</td><td>Uses the standard/mathematical library functions.</td></tr>
<tr><td></td><td>No</td><td>Does not use the standard/mathematical library functions.</td></tr>
</table>

<table>
<tr><td>Check memory smashing on releasing memory</td><td colspan="3">Selects whether to check memory smashing on releasing the memory.
This property is usable only in the Professional Edition.
The user-defined __heap_chk_fail() function is called if an illegal address has been specified or an address outside the allocated memory area has been written to when the memory that was dynamically allocated by malloc or another function is released or re-allocated by this function. See "CC-RH Compiler User's Manual" for details.
This property corresponds to the -LIBrary option of the rlink command.
This property is displayed only in the following cases.
- When [Always latest version which was installed] or V1.04.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.04.00 or a later version of the CC-RH compiler has been installed
- When [Yes] in the [Use standard/mathematical libraries] property is selected</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="2">Restriction</td><td>Yes</td><td>Checks memory smashing on releasing the memory.</td></tr>
<tr><td></td><td>No</td><td>Does not check memory smashing on releasing the memory.</td></tr>
<tr><td>Use "Non-local jump Library" function</td><td colspan="3">Select whether to use the non-local jump library functions.
This property corresponds to the -LIBrary option of the rlink command.
This property is displayed only when other than [No] in the [Use standard libraries] property is selected.</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="2">Restriction</td><td>Yes(-LIBrary=libsetjmp)</td><td>Uses the non-local jump library functions.</td></tr>
<tr><td></td><td>No</td><td>Does not use the non-local jump library functions.</td></tr>
<tr><td>Allow duplicate module names</td><td colspan="3">Selects whether to allow the specification of input files having the same module names during the generation of a library.
This property corresponds to the -ALLOW_DUPLICATE_MODULE_NAME option of the rlink command.
This property is displayed when [Always latest version which was installed] or V2.02.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V2.02.00 or a later version of the CC-RH compiler has been installed.</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="2">Restriction</td><td>Yes(-ALLOW_DUPLICATE_MODULE_NAME)</td><td>Allows duplicate module names.</td></tr>
<tr><td></td><td>No</td><td>Does not allow duplicate module names.</td></tr>
</table>

(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 property 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 property 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 property 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 property 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 property 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 property 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 property 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 and error message to information message	Select whether to change the type of warning and error messages to information. This property 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 and error messages to information.
		Yes(Specify message number)(-CHange_message=Information=<Message number>)	Specifies the number of warning and error message of which type is to be changed to information.
		No	Does not change the type of warning and error messages.
Number of warning and error message	Specify the number of the warning and error 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 property 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 and error 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 error message to warning message	Select whether to change the type of information and error messages to warning. This property 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 and error messages to warning.
		Yes(Specify message number)(-CHange_message=Warning=<Message number>)	Specifies the number of information and error message of which type is to be changed to warning.
		No	Does not change the type of information and error messages.

Number of information and error message	Specify the number of the information and error 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 property corresponds to the -CHange_message option of the rlink command. This property is displayed only when [Yes(Specify message number)(-CHange_message=Warning=<Message number>)] in the [Change information and error 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 property 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 and 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 property 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 capacity. This property 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 capacity. 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.
Display total size of sections	Select whether to display the total size of sections after the linking. This property 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.		
	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 linki4ng.
Display copyright information	Select whether to display copyright information. This property 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(-LOgo)	Displays copyright information.
		No(-NOLOgo)	Suppresses the output of copyright information.

<table>
<tr><td rowspan="4">Commands executed before create library processing</td><td colspan="2">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.</td></tr>
<tr><td>Default</td><td>Commands executed before 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>
</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.</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.

[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	

Select modules which are output in files	Select whether to select modules which are output to the I/O header file.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes	Displays the [Modules which are defined in device file] property to select modules which are output to the I/O header file. Only the I/O register in the selected module is output to the I/O header file.
		No	Outputs all modules to the I/O header file.
Modules which are defined in device file	The list of modules which are defined in the device file are displayed. Note that this property is not applied to [Reset to Default] and [Reset All to Default] from the context menu. The following items are displayed in the subproperty. Module name: The names of modules which are defined in the device file File name: The names of the I/O header files to which the modules are output Output: Whether to enable or disable output to the I/O header file This property is displayed only when [Yes] in the [Select modules which are output in files] property is selected.		
	Default	[*Total number of modules defined in device file*]	
	How to change	Edit by the Select Modules Which Are Output in Files dialog box which appears when clicking the [...] button. Editing by directly entering the subproperty is not allowed.	
	Restriction	Up to 259 characters	
Output definitions regarding µITRON	Select whether to output definitions regarding µITRON.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-uitron=on)	Outputs definitions regarding µITRON.
		No	Does not output definitions regarding µITRON.
Enable MISRA-C option	Select whether to output an I/O header file compatible with the MISRA-C rules.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-misra_c=on2)	Outputs an I/O header file compatible with the MISRA-C rules. Access to the I/O register allocated to the same address can be made in only the maximum access size because no union is output.
		No	The MISRA-C rules are not considered.

Enable module array option	Select whether definitions which become accessible in arrays are to be output to the header file for modules that have numbers starting with 0.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-modulearray=on)	Enables the module array option.
		No	Does not enable the module array option.
Define blocks in modules	Select whether to define blocks in modules. Note that this property is displayed only when there is an information file for defining blocks.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes	Defines blocks in a module to generate an array for the blocks and for the I/O registers.
		No	Does not define blocks in modules.
Enable IOR array option	Select whether definitions which become accessible in arrays are to be output to IORs that have numbers starting with 0.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-iorarray=on)	Enables the IOR array option.
		No	Does not enable the IOR array option.
Share definition of structure	Select whether to share definitions of structures.		
	Default	Yes	
	How to change	Select from the drop-down list.	
	Restriction	Yes	Shares definitions of structures.
		No(-share_structure=off)	Does not share definitions of structures.
Output pragma directives for peripheral groups	Select whether to output pragma directives for peripheral groups. Note that this property is displayed only when the RH850G4MH device is used.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-pragma_peripheral_group=on)	Outputs pragma directives for peripheral groups.
		No	Does not output pragma directives for peripheral groups.

(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]

[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)(-Xwhole_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 from this 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 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)(-Xwhole_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 from this 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.

[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 property corresponds to the -g option of the ccrh 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 property corresponds to the -g_line option of the ccrh command. This property is displayed in the following cases. - When [Always latest version which was installed] or V1.05.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.05.00 or a later version of the CC-RH compiler has been installed - 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 property corresponds to the -O option of the ccrh command.		
	Default	*Configuration of the compile option*	
	How to change	Select from the drop-down list.	
	Restriction	Perform the default optimization(No option specified)	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 capacity 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, the -Ounroll option is not added to the command line. In this case, a value in accordance with the selection of the [Level of optimization] property is used by the compiler. This property corresponds to the -Ounroll option of the ccrh command.	
	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 property corresponds to the -Odelete_static_func option of the ccrh command.		
	Default	*Configuration of the compile option*	
	How to change	Select from the drop-down list.	
	Restriction	To adjust the level of optimization(No option specified)	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 property corresponds to the -Oinline option of the ccrh command. This property is displayed only when [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	To adjust the level of optimization(No option specified)	Performs optimization according to the [Level of optimization] property.
		Yes(Only specified functions)(-Oinline=1)	Performs inline expansion at the location calling the function for which #pragma inline is specified.
		Yes(Auto-detect)(-Oinline=2)	Distinguishes the function that is the target of inline expansion automatically and expands it.
		Yes(Auto-detect without code size increase)(-Oinline=3)	Distinguishes the function that is the target of inline expansion automatically and expands it, while minimizing the increase in code size.
		No(-Oinline=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 property corresponds to the -Oinline_size option of the ccrh command. This property is displayed only when [Yes(Auto-detect)(-Oinline=2)] in the [Perform inline expansion] property is selected, or when [To adjust the level of optimization(No option specified)] 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)	

Perform pipeline optimization	Select whether to improve the program's execution performance by reordering instructions at the machine-language level. This property corresponds to the -Opipeline option of the ccrh command.		
	Default	*Configuration of the compile option*	
	How to change	Select from the drop-down list.	
	Restriction	To adjust the level of optimization(No option specified)	Performs optimization according to the [Level of optimization] property.
		Yes(-Opipeline)	Performs pipeline optimization.
		No(-Opipeline=off)	Does not perform pipeline optimization.
Use jr instruction to call a function at the end of the function	Select whether to give precedence to using jr instructions in the place of jarl instructions when the function ends with a function call. This property corresponds to the -Otail_call option of the ccrh command.		
	Default	*Configuration of the compile option*	
	How to change	Select from the drop-down list.	
	Restriction	To adjust the level of optimization(No option specified)	Performs optimization according to the [Level of optimization] property.
		Yes(-Otail_call)	Gives precedence to using jr instructions in the place of jarl instructions when the function ends with a function call. The code size can be reduced by removing the store/restore instructions for lp. However, some debug functions cannot be used.
		No(-Otail_call=off)	Uses jarl instructions when the function ends with a function call.
Initialize automatic variables with immediate values	Select whether to use immediate values to initialize automatic variables. This property corresponds to the -Oinline_init option of the ccrh command. This property is displayed when you have selected [Always latest version which was installed] or V1.07.00 or a later version for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.07.00 or a later version of the CC-RH compiler has been installed.		
	Default	*Configuration of the compile option*	
	How to change	Select from the drop-down list.	
	Restriction	To adjust the level of optimization(No option specified)	Performs optimization according to the [Level of optimization] property.
		Yes(-Oinline_init)	Always uses immediate values to initialize automatic variables.
		No(-Oinline_init=off)	The CC-RH selects the optimum initialize method for automatic variables.

<table>
<tr><td rowspan="5">Perform optimization by changing alignment conditions</td><td colspan="3">Select whether to proceed with optimization through a change of the alignment conditions.
This property corresponds to the -Oalign option of the ccrh command.
This property is displayed in the following cases.
- When [Always latest version which was installed] or V2.03.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V2.03.00 or a later version of the CC-RH compiler has been installed.
- When [Code size precedence(-Osize)] or [Speed precedence(-Ospeed)] in the [Level of optimization] property is selected
- When [No] in the [Allocate uninitialized variables in sections according to number of alignments] property is selected
- When [No] in the [Allocate initialized variables in sections according to number of alignments] property is selected
- When [No] in the [Allocate const qualified variables in sections according to number of alignments] property is selected</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="3">Restriction</td><td>To adjust the level of optimization(No option specified)</td><td>Performs optimization according to the [Level of optimization] property.</td></tr>
<tr><td>Yes(-Oalign)</td><td>Performs optimization through a change of the alignment conditions.</td></tr>
<tr><td>No(-Oalign=off)</td><td>Does not perform optimization through a change of the alignment conditions.</td></tr>
<tr><td rowspan="5">Optimize accesses to external variables</td><td colspan="3">Select whether to optimize accesses to external variables.
This property corresponds to the -Osmap and -Omap options of the ccrh command.</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="3">Restriction</td><td>Yes(Optimizes the inner-module)(-Osmap)</td><td>Sets a base address for external or static variables defined in the file to be compiled, and generates code that accesses these relative to the base address.</td></tr>
<tr><td>Yes(Optimizes the inner-module)(-Omap)</td><td>Generates an external symbol allocation information file. According to the information, recompilation is done to generate code that performs access to external or static variables relative to the base address.</td></tr>
<tr><td>No</td><td>Does not optimize accesses to external variables.</td></tr>
</table>

Perform inter-module optimization	Specify the level of inter-module optimization (such as function merging). This property corresponds to the -Xintermodule option of the ccrh command.		
	Default	*Configuration of the compile option*	
	How to change	Select from the drop-down list.	
	Restriction	Yes(Level 1)(Perform)(-Xintermodule)	Performs inter-module optimization for each file.
		No	Does not perform inter-module optimization.
Expansion method of library function	Select the method for expanding library functions. This property corresponds to the -library option of the ccrh command. This property is displayed when you have selected [Always latest version which was installed] or V2.00.00 or a later version for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V2.00.00 or a later version of the CC-RH compiler has been installed.		
	Default	*Configuration of the compile option*	
	How to change	Select from the drop-down list.	
	Restriction	Calls library functions(No option specified)	Calls all standard library functions.
		Performs instruction expansion of several library functions(-library=intrinsic)	Performs instruction expansion of several standard library function calls.
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 property corresponds to the -Xalias option of the ccrh command.		
	Default	*Configuration of the compile option*	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-Xalias=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.

Perform inline expansion of strcpy/strcmp/memcpy/memset	Select whether to perform inline expansion of functions "strcpy()", "strcmp()", "memcpy()", and "memset()" calls, with regarding the alignment conditions of the array (including character strings) and the structure as 4 bytes. This improves the execution speed of the program to be generated, but it increases the code size. This property corresponds to the -Xinline_strcpy option of the ccrh command. This property is displayed only when [No] in the [Structure packing] property in the [Output Code] category from the [Compile Options] tab is selected.		
	Default	*Configuration of the compile option*	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-Xinline_strcpy)	Performs inline expansion of functions "strcpy()", "strcmp()", "memcpy()", and "memset()" calls.
		No	Does not perform inline expansion of functions "strcpy()", "strcmp()", "memcpy()", and "memset()" calls.
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 property corresponds to the -Xmerge_string option of the ccrh command.		
	Default	*Configuration of the compile option*	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-Xmerge_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.
Output additional information for optimization at time of linkage	Select whether to output additional information for optimization at the time of linkage. Optimization at time of linkage is applied to files for which this option has been specified. This property corresponds to the -goptimize option of the ccrh command. This property is displayed when you have selected [Always latest version which was installed] or V2.01.00 or a later version for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V2.01.00 or a later version of the CC-RH compiler has been installed.		
	Default	*Configuration of the compile option*	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-goptimize)	Outputs additional information for optimization at the time of linkage.
		No	Does not output additional information for optimization at the time of linkage.

(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-RH.
The reference point of the path is the project folder.
When this property is omitted, only the standard folder of CC-RH is searched.
This property corresponds to the -I option of the ccrh 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 259 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 property corresponds to the -I option of the ccrh 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 property corresponds to the -Xpreinclude option of the ccrh 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 247 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 property corresponds to the -D option of the ccrh 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 property corresponds to the -U option of the ccrh 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 property corresponds to the -Xpreprocess option of the ccrh 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(-Xpreprocess=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 property corresponds to the -Xpreprocess option of the ccrh 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(-Xpreprocess=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.

<table>
<tr><td>Detect stack smashing</td><td colspan="3">Select whether to detect the stack smashing.
In this case, a value in accordance with the selection of the [Level of optimization] property is used by the compiler.
This property is usable only in the Professional Edition.
Detection of stack smashing 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-RH Compiler User's Manual" about the difference between [Yes(-Xstack_protector)] and [Yes(All)(-Xstack_protector_all)].
This property corresponds to the -Xstack_protector and -Xstack_protector_all options of the ccrh command.
This property is displayed when [Always latest version which was installed] or V1.03.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.03.00 or a later version of the CC-RH compiler has been installed.</td></tr>
<tr><td></td><td>Default</td><td colspan="2">Configuration of the compile option</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(-Xstack_protector)</td><td>Detects the stack smashing.</td></tr>
<tr><td></td><td>Yes(All)(-Xstack_protector_all)</td><td>Detects the stack smashing for all functions.</td></tr>
<tr><td></td><td>No(No option specified)</td><td>Does not detect the stack smashing.</td></tr>
<tr><td>Value to be embedded for detecting stack smashing</td><td colspan="3">Specify the value to be embedded for detecting the stack smashing.
This property is usable only in the Professional Edition.
This property corresponds to the -Xstack_protector and -Xstack_protector_all options of the ccrh command.
This property is displayed in the following cases.
- When [Always latest version which was installed] or V1.03.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.03.00 or a later version of the CC-RH compiler has been installed
- When other than [No(No option specified)] in the [Detect stack smashing] property is selected</td></tr>
<tr><td></td><td>Default</td><td colspan="2">Configuration of the compile option</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 4294967295 (decimal number)</td></tr>
</table>

Detect illegal indirect function call	Select whether to output code for detecting illegal indirect function calls. Enable this facility to check the destination addresses of branches caused by each indirect function call. The output code will call the user-defined __control_flow_chk_fail() function in response to the detection of a problem. This property is usable only in the Professional Edition. This property corresponds to the -control_flow_integrity option of the ccrh command. This property is displayed when you have selected [Always latest version which was installed] or V1.07.00 or a later version for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.07.00 or a later version of the CC-RH compiler has been installed.		
	Default	*Configuration of the compile option*	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-control_flow_integrity)	Outputs code for detecting illegal indirect function calls.
		No	Does not output code for detecting illegal indirect function calls.

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

Standard of C language	Select the standard of C language. This property corresponds to the -lang option of the ccrh command. This property is displayed when you have selected [Always latest version which was installed] or V1.07.00 or a later version for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.07.00 or a later version of the CC-RH compiler has been installed.		
	Default	*Configuration of the compile option*	
	How to change	Select from the drop-down list.	
	Restriction	C(C90)(No option specified)	Compilation will proceed in compliance with the C90 standard.
		C99(-lang=c99)	Compilation will proceed in compliance with the C99 standard.
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 property corresponds to the -Xansi option of the ccrh command. This property is displayed when you have selected [Always latest version which was installed] or V1.06.00 or an earlier version for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.06.00 or an earlier version of the CC-RH compiler has been installed.		
	Default	*Configuration of the compile option*	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-Xansi)	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.

Compile strictly according to the standards	Select whether to process as making C source program comply strictly with the C90 or C99 standard and output an error or warning for a specification that violates the standard. This property corresponds to the -strict_std option of the ccrh command. This property is displayed when you have selected [Always latest version which was installed] or V1.07.00 or a later version for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.07.00 or a later version of the CC-RH compiler has been installed.		
	Default	*Configuration of the compile option*	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-strict_std)	Processes as making C source program comply strictly with the C90 or C99 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.
Handle external variables as if they are volatile qualified	Select whether to handle all external variables as if they were volatile-declared. This property corresponds to the -Xvolatile option of the ccrh command.		
	Default	*Configuration of the compile option*	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-Xvolatile)	Handles all external variables as if they were volatile-declared.
		No	Handles only the volatile-qualified variables as they were volatile-declared.
Check C program compatibility	Select whether to check the compatibility of a C program. This property corresponds to the -Xcheck option of the ccrh command.		
	Default	*Configuration of the compile option*	
	How to change	Select from the drop-down list.	
	Restriction	Yes(for SuperH RISC engine C/C++ compiler)(-Xcheck=shc)	Checks the compatibility with the SuperH family C/C++ compiler.
		No	Does not check the compatibility with existing programs.

(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 comments and character strings in the source file. This property corresponds to the -Xcharacter_set option of the ccrh command.		
	Default	*Configuration of the compile option*	
	How to change	Select from the drop-down list.	
	Restriction	Auto(No option specified)	Interprets the Japanese character codes in the source file as SJIS.
		SJIS(-Xcharacter_set=sjis)	Interprets the Japanese character codes in the source file as SJIS.
		EUC(-Xcharacter_set=euc_jp)	Interprets the Japanese character codes in the source file as EUC.
		UFT-8(-Xcharacter_set=utf8)	Interprets the Japanese character codes in the source file as UFT-8.
		Big5(-Xcharacter_set=big5)	Interprets the Chinese character codes in the source file as Traditional Chinese.
		GB2312(-Xcharacter_set=gb2312)	Interprets the Chinese character codes in the source file as Simplified Chinese.
		No-process(-Xcharacter_set=none)	Does not interpret the Japanese/Chinese character codes in the source file.

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

Generate instructions that access to misaligned memory	Generates instructions on the assumption that the device supports misaligned access. This option corresponds to the -misalign option of the ccrh command. This property is displayed when [Always latest version which was installed] or V2.04.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V2.04.00 or a later version of the CC-RH compiler has been installed.		
	Default	*Configuration of the compile option*	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-misalign)	Generates instructions that access to misaligned memory
		No	Does not generate instructions that access to misaligned memory

<table>
<tr><td>Alignment of branch address</td><td colspan="3">Select the alignment of the branch address.
This property corresponds to the -Xalign4 option of the ccrh command.
This property is displayed when [Always latest version which was installed] or V1.02.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.02.00 or a later version of the CC-RH compiler has been installed.
[4 bytes(Contains each loop head)(-Xalign4=loop)], [4 bytes(Contains each innermost loop head)(-Xalign4=innermostloop)], and [4 bytes(All branches)(-Xalign4=all)] are displayed when [Always latest version which was installed] or V1.03.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.03.00 or a later version of the CC-RH compiler has been installed</td></tr>
<tr><td></td><td>Default</td><td colspan="2">Configuration of the compile option</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="5">Restriction</td><td>2 bytes(No option specified)</td><td>Sets the alignment of the start address of a function to 2.</td></tr>
<tr><td></td><td>4 bytes(Only start address of a function)(-Xalign4)</td><td>Sets the alignment of the start address of a function to 4.</td></tr>
<tr><td></td><td>4 bytes(Contains each loop head)(-Xalign4=loop)</td><td>Sets the alignment of the start address of a function and the start address of all loops to 4.</td></tr>
<tr><td></td><td>4 bytes(Contains each innermost loop head)(-Xalign4=innermostloop)</td><td>Sets the alignment of the start address of a function and the start address of the innermost loop to 4.</td></tr>
<tr><td></td><td>4 bytes(All branches)(-Xalign4=all)</td><td>Sets the alignment of the start address of a function and all branch destination addresses to 4.</td></tr>
<tr><td>Output comment to assembly source file</td><td colspan="3">Select whether to output a C source program as a comment to the assembly source file to be output.
This property corresponds to the -Xpass_source option of the ccrh command.
This property is displayed only when [Yes(-Xasm_path)] in the [Output assembly source file] property in the [Output File] category is selected or when [Yes(-Xasm_option=-Xprn_path)] in the [Output assemble list file] property in the [Assemble List] category is selected.</td></tr>
<tr><td></td><td>Default</td><td colspan="2">Configuration of the compile option</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(-Xpass_source)</td><td>Outputs a C source program as a comment to the assembly source file.</td></tr>
<tr><td></td><td>No</td><td>Does not output a C source program as a comment to the assembly source file.</td></tr>
</table>

Output code of switch statement	Select the code output mode for switch statements in programs. This property corresponds to the -Xswitch option of the ccrh command.		
	Default	*Configuration of the compile option*	
	How to change	Select from the drop-down list.	
	Restriction	Auto(No option specified)	The ccrh selects the optimum output format.
		if-else(-Xswitch=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(-Xswitch=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(-Xswitch=table)	Outputs the code in the table jump format 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>
<tr><td rowspan="6">Handling mode of writing control register</td><td colspan="3">Select how the compiler will behave in response to writing to control registers defined as #pragma register_group.
This property is usable only in the Professional Edition.
This property corresponds to the -store_reg option of the ccrh command.
This property is displayed when [Always latest version which was installed] or V1.06.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.06.00 or a later version of the CC-RH compiler has been installed.</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="4">Restriction</td><td>Insert synchronization processing(-store_reg=sync)</td><td>The compiler detects writing to the control registers defined as #pragma register_group and inserts syncp instructions after write instructions for these registers, except where the next instruction will clearly be for writing to the same group, in which case the compiler does not insert a syncp instruction.</td></tr>
<tr><td>Output list of writing control register(-store_reg=list)</td><td>The compiler detects writing to the control registers defined as #pragma register_group and displays the addresses of the write instructions in the Output panel, except where the next instruction will clearly be for writing to the same group, in which case the compiler does not display the address in the panel.</td></tr>
<tr><td>Output all list of writing control register(-store_reg=list_all)</td><td>The compiler detects writing to the control registers defined as #pragma register_group and displays the addresses of the write instructions in the Output panel.</td></tr>
<tr><td>Ignore peripheral group specification by #pragma(-store_reg=ignore)</td><td>#pragma register_group is ignored but a warning is not output.</td></tr>
<tr><td colspan="2">Not specify(No option specified)</td><td>Select this item when you have not used #pragma register_group in the source code. No action will proceed in response to writing to control registers.</td></tr>
</table>

<table>
<tr><td>Enable half precision floating-point type</td><td colspan="3">Select whether to enable the half precision floating-point type.
This property is usable only in the Professional Edition.
This property corresponds to the -Xuse_fp16 option of the ccrh command.
This property is displayed only in the following cases.
- When [Always latest version which was installed] or V1.05.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.05.00 or a later version of the CC-RH compiler has been installed
- When other than [Object for G3K(-Xcpu=g3k)] in the [Specify CPU core] property in the [Output File Type and Path] category from the [Common Options] tab is selected
- When [No] in the [Compile strictly according to ANSI standards] property in the [C Language] category is selected
- When other than [Software Calculating(-Xfloat=soft)] in the [Floating-point calculating type] property in the [Output Code] category from the [Compile Options] tab is selected
- When [round to nearest(No option specified)] in the [Rounding method for floating-point constant operations] property in the [Output Code] category from the [Compile Options] tab is selected</td></tr>
<tr><td></td><td>Default</td><td colspan="2">Configuration of the compile option</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(-Xuse_fp16=on)</td><td>Enables the half precision floating-point type.</td></tr>
<tr><td></td><td>No</td><td>Does not enable the half precision floating-point type.</td></tr>
<tr><td>Generate div/divu instructions</td><td colspan="3">Select whether to generate the div and divu instructions instead of the divq and divqu instructions for division.
Although the divq and divqu instructions are fast, the number of execution cycles will differ depending on the values of the operands.
This property corresponds to the -Xdiv option of the ccrh command.</td></tr>
<tr><td></td><td>Default</td><td colspan="2">Configuration of the compile option</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(-Xdiv)</td><td>Generates the div and divu instructions for division.</td></tr>
<tr><td></td><td>No</td><td>Generates the divq and divqu instructions for division.</td></tr>
<tr><td>Generate OV flag check code in division operation</td><td colspan="3">Select whether to generate code (fetrap instruction) that checks the OV flag after division instructions and generate an FE level software exception when the OV flag is 1.
This property corresponds to the -Xcheck_div_ov option of the ccrh command.</td></tr>
<tr><td></td><td>Default</td><td colspan="2">Configuration of the compile option</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(-Xcheck_div_ov)</td><td>Generates code that checks the OV flag at division.</td></tr>
<tr><td></td><td>No</td><td>Generates code that does not check the OV flag at division.</td></tr>
</table>

Vector number of fetrap instruction in divide exception	Specify the vector number of the fetrap instruction generated when the OV flag is 1. This property corresponds to the -Xcheck_div_ov option of the ccrh command. This property is displayed only when [Yes(-Xcheck_div_ov)] in the [Generate OV flag check code in division operation] property is selected.		
	Default	*Configuration of the compile option*	
	How to change	Directly enter in the text box.	
	Restriction	1 to 15 (decimal number)	
Type of generating floating-point calculation codes	Select the type of generating floating-point calculation codes. This property corresponds to the -relaxed_math option of the ccrh command. This property is displayed when [Always latest version which was installed] or V2.00.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V2.00.00 or a later version of the CC-RH compiler has been installed.		
	Default	*Configuration of the compile option*	
	How to change	Select from the drop-down list.	
	Restriction	Efficiency precedence(-relaxed_math)	Efficiency is emphasized in the generation of code.
		Custom(No option specified)	Efficiency is not emphasized in the generation of code. With this option, details of the operation of compilation are specified in the [Generate product-sum operation instruction] and [Generate recipf instruction] properties. If [No] is selected for both properties, the CC-RH compiler generates code which is strictly in accordance with the C-language standard or IEEE 754.

<table>
<tr><td>Generate product-sum operation instruction</td><td colspan="3">Select whether to generate product-sum operation instructions (fmaf.s, fmsf.s, fnmaf.s, and fnmsf.s) for single-precision floating-point product-sum operations.
This property corresponds to the -Xuse_fmaf option of the ccrh command.
This property is displayed in any one of the following cases.
- In an environment where V2.00.00 or a later version of the CC-RH compiler has not been installed
- When a version number earlier than V2.00.00 is selected for the [Using compiler package version] property under the [Version Select] category from the [Common Options] tab in an environment where a version of the CC-RH compiler earlier than V2.00.00 has been installed
- When [Always latest version which was installed] or V2.00.00 or a later version is selected for the [Using compiler package version] property and [Custom(No option specified)] is selected for the [Type of generating floating-point calculation codes] property under the [Version Select] category from the [Common Options] tab in an environment where V2.00.00 or a later version of the CC-RH compiler has been installed</td></tr>
<tr><td></td><td>Default</td><td colspan="2">Configuration of the compile option</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(-Xuse_fmaf)</td><td>Generates product-sum operation instructions for single-precision floating-point product-sum operations.
Specifying this option will accelerate the execution speed but change the operation precision.</td></tr>
<tr><td></td><td>No</td><td>Does not generate product-sum operation instructions.</td></tr>
<tr><td>Generate recipf instruction</td><td colspan="3">Select whether to generate recipf instructions (recipf.d, recipf.s).
This property corresponds to the -use_recipf option of the ccrh command.
This property is displayed only in the following cases.
- When [Always latest version which was installed] or V2.00.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category from the [Common Options] tab in an environment where V2.00.00 or a later version of the CC-RH compiler has been installed
- When [Custom(No option specified)] is selected for the [Type of generating floating-point calculation codes] property</td></tr>
<tr><td></td><td>Default</td><td colspan="2">Configuration of the compile option</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(-use_recipf)</td><td>Generates recipf instructions.
Specifying this option will accelerate the execution speed but change the operation precision.</td></tr>
<tr><td></td><td>No</td><td>Does not generate recipf instructions.</td></tr>
</table>

<table>
<tr><td>Generate approximate calculation code</td><td colspan="3">Select whether to generate code to produce approximate results for floating-point calculations.
This property corresponds to the -approximate option of the ccrh command.
This property is displayed only in the following cases.
- When [Always latest version which was installed] or V2.02.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category from the [Common Options] tab in an environment where V2.02.00 or a later version of the CC-RH compiler has been installed
- When [Custom(No option specified)] is selected for the [Type of generating floating-point calculation codes] property</td></tr>
<tr><td></td><td>Default</td><td colspan="2">Configuration of the compile option</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(-approximate)</td><td>Generates code to produce approximate results for floating-point calculations.
Specifying this option leads to the generation of efficient code to handle calculations but the precision of the results of operations will differ from that obtained by calculations as strictly defined in the language standard.</td></tr>
<tr><td></td><td>No</td><td>Does not generate code to produce approximate results for floating-point calculations.</td></tr>
<tr><td>Check invalid exception in cmpf instruction</td><td colspan="3">Select whether to generate code by using the comparison condition for generating an invalid operation exception when any of the comparison values is a not-a-number in floating-point comparison.
This property corresponds to the -Xunordered_cmpf option of the ccrh command.
This property is displayed only when other than [Object for G3K(-Xcpu=g3k)] in the [Specify CPU core] property in the [Output File Type and Path] category from the [Common Options] tab is selected.</td></tr>
<tr><td></td><td>Default</td><td colspan="2">Configuration of the compile option</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(-Xunordered_cmpf)</td><td>Generates code by using the comparison condition for generating an invalid operation exception when any of the comparison values is a not-a-number in floating-point comparison.</td></tr>
<tr><td></td><td>No</td><td>Does not detect invalid operation exceptions in floating-point comparison.</td></tr>
<tr><td>Specify jump instruction</td><td colspan="3">Specify the instruction to be generated for function-call branches.
This property corresponds to the -Xcall_jump option of the ccrh command.</td></tr>
<tr><td></td><td>Default</td><td colspan="2">Configuration of the compile option</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>Create jarl32 and jr32 instructions(-Xcall_jump=32)</td><td>Generates the jarl32 and jr32 instructions for the branch to the function.</td></tr>
<tr><td></td><td>Create jarl and jr instructions(No option specified)</td><td>Generates the jarl and jr instructions for the branch to the function.</td></tr>
</table>

Far Jump file names	Specify the Far Jump file name. The code that uses the jarl32 and jr32 instruction for branch instructions of functions described in a file is output to the Far Jump file. The ccrh command outputs an error if the function is in a range that cannot be branched to by the jarl or jr directive (±2MB or more), in which case the Far Jump file is used to recompile. Use the extension ".fjp". This property corresponds to the -Xfar_jump option of the ccrh command.		
	Default	*Configuration of the compile option*	
	How to change	Directly enter in the text box or edit by the Specify Far Jump File dialog box which appears when clicking the [...] button.	
	Restriction	Up to 259 characters	
Allocate uninitialized variables in sections according to number of alignments	Select whether to allocate the uninitialized variables to sections in accord with their alignment sizes. This property corresponds to the -stuff option of the ccrh command. This property is displayed when [Always latest version which was installed] or V2.03.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V2.03.00 or a later version of the CC-RH compiler has been installed.		
	Default	*Configuration of the compile option*	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-stuff=bss)	Allocates the uninitialized variables to sections in accord with their alignment sizes.
		No	Does not allocate the uninitialized variables to sections in accord with their alignment sizes.
Allocate initialized variables in sections according to number of alignments	Select whether to allocate the initialized variables to sections in accord with their alignment sizes. This property corresponds to the -stuff option of the ccrh command. This property is displayed when [Always latest version which was installed] or V2.03.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V2.03.00 or a later version of the CC-RH compiler has been installed.		
	Default	*Configuration of the compile option*	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-stuff=data)	Allocates the initialized variables to sections in accord with their alignment sizes.
		No	Does not allocate the initialized variables to sections in accord with their alignment sizes.

Allocate const qualified variables in sections according to number of alignments	Select whether to allocate the const qualified variables to sections in accord with their alignment sizes. This property corresponds to the -stuff option of the ccrh command. This property is displayed when [Always latest version which was installed] or V2.03.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V2.03.00 or a later version of the CC-RH compiler has been installed.		
	Default	*Configuration of the compile option*	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-stuff=const)	Allocates the const qualified variables to sections in accord with their alignment sizes.
		No	Does not allocate the const qualified variables to sections in accord with their alignment sizes.
Type of a generating program	Select the type of the program to be generated. This property corresponds to the -Xmulti_level option of the ccrh command. This property is displayed only for the multi-core project.		
	Default	*Configuration of the compile option*	
	How to change	Select from the drop-down list.	
	Restriction	Generate a program for single-core(No option specified)	Generates a single-core program. The #pragma pmodule directives in the program are ignored.
		Generate a program for multi-core(-Xmulti_level=1)	Generates a multi-core program. The #pragma pmodule directives in the program become valid and the PM number is added to the end of the section name.

(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 property corresponds to the -o option of the ccrh 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 property corresponds to the -Xasm_path option of the ccrh command.		
	Default	*Configuration of the compile option*	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-Xasm_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 property corresponds to the -Xasm_path option of the ccrh command. This property is displayed only when [Yes(-Xasm_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 property corresponds to the -P option of the ccrh 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 preprocess-ing for the source file to a file.

Output folder for pre-processed 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 property corresponds to the -Xprep_path option of the ccrh 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 property corresponds to the -Xasm_option=-Xprn_path option of the ccrh command.		
	Default	*Configuration of the compile option*	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-Xasm_option=-Xprn_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 property corresponds to the -Xasm_option=-Xprn_path option of the ccrh command. This property is displayed only when [Yes(-Xasm_option=-Xprn_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] or V1.03.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.03.00 or a later version of the CC-RH compiler has been installed.		
	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 property corresponds to the -Xmisra20*XX* option of the ccrh command.		
	Default	*Configuration of the compile option*	
	How to change	Select from the drop-down list.	
	Restriction	Apply all rules(-Xmisra20*XX*=all)	Checks the source code against all of the rules which are supported.
		Apply specified rule number(-Xmisra20*XX*=apply)	Checks the source code against the rules with the specified numbers among the rules which are supported.
		Ignore specified rule number(-Xmisra20*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"(-Xmisra20*XX*=required)	Checks the source code against the rules of the "required" type.
		Apply rules that are classified as "required" and specified rule number(-Xmisra20*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"(-Xmisra20*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(-Xmisra20*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(No option specified)	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. When misra2012 is selected, the CC-RH compiler always checks the code against rule numbers 13.6, 17.3, and 17.4 (as well as 9.1 if the compiler is V1.05.00 or later, 12.5 and 21.13 if the compiler is V1.06.00 or later, and 17.6 if the compiler is V1.07.00 or later) regardless of which rule numbers have been specified through the properties setting. 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 property corresponds to the -Xmisra20*XX* option of the ccrh command. This property is displayed only when [Apply rules that are described in the specified file(-Xmisra20*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. When misra2012 is selected, the CC-RH compiler always checks the code against rule numbers 13.6, 17.3, and 17.4 (as well as 9.1 if the compiler is V1.05.00 or later, 12.5 and 21.13 if the compiler is V1.06.00 or later, and 17.6 if the compiler is V1.07.00 or later) regardless of which rule numbers have been specified through the properties setting. Specify at least one rule number in decimal. This property corresponds to the -Xmisra20*XX* option of the ccrh command. This property is displayed only when [Apply specified rule number(-Xmisra20*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. When misra2012 is selected, the CC-RH compiler always checks the code against rule numbers 13.6, 17.3, and 17.4 (as well as 9.1 if the compiler is V1.05.00 or later, 12.5 and 21.13 if the compiler is V1.06.00 or later, and 17.6 if the compiler is V1.07.00 or later) regardless of which rule numbers have been specified through the properties setting. Specify at least one rule number in decimal. This property corresponds to the -Xmisra20*XX* option of the ccrh command. This property is displayed only when [Ignore specified rule number(-Xmisra20*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. When misra2012 is selected, the CC-RH compiler always checks the code against rule numbers 13.6, 17.3, and 17.4 (as well as 9.1 if the compiler is V1.05.00 or later, 12.5 and 21.13 if the compiler is V1.06.00 or later, and 17.6 if the compiler is V1.07.00 or later) regardless of which rule numbers have been specified through the properties setting. Specify at least one rule number in decimal. This property corresponds to the -Xmisra20*XX* option of the ccrh command. This property is displayed only when [Apply rules that are classified as "required" and specified rule number(-Xmisra20*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. When misra2012 is selected, the CC-RH compiler always checks the code against rule numbers 13.6, 17.3, and 17.4 (as well as 9.1 if the compiler is V1.05.00 or later, 12.5 and 21.13 if the compiler is V1.06.00 or later, and 17.6 if the compiler is V1.07.00 or later) regardless of which rule numbers have been specified through the properties setting. Specify at least one rule number in decimal. This property corresponds to the -Xmisra20*XX* option of the ccrh command. This property is displayed only when [Ignore specified rule number from rules that are classified as "required"(-Xmisra20*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 property corresponds to the -Xignore_files_misra option of the ccrh 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>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 property corresponds to the -Xcheck_language_extention option of the ccrh 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 colspan="2">Configuration of the compile option</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(-Xcheck_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></td><td>No</td><td>Disables MISRA-C rule check is disabled, which are partially suppressed by the extended language specifications.</td></tr>
</table>

Enable checking that spans files	Select whether to enable checking that spans files. This property is usable only in the Professional Edition. This property corresponds to the -misra_intermodule option of the ccrh command. This property is displayed only in the following cases. - When [Always latest version which was installed] or V2.01.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V2.01.00 or a later version of the CC-RH compiler has been installed - When [MISRA-C 2012] in the [MISRA-C specification] property is selected - When other than [Not apply rule(No option specified)] in the [Apply rule] property is selected **Caution** If the C source files of the project are removed or renamed while [Yes(-misra_intermodule)] is selected, information on checking that spans files will be cleared. Rebuild the project to obtain correct checking of files on this point.		
	Default	*Configuration of the compile option*	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-misra_intermodule)	Enables checking that spans files.
		No	Does not enable checking that spans files.

(12) [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 property corresponds to the -Xerror_file option of the ccrh command. Error messages are displayed on the Output panel regardless of this property's.		
	Default	*Configuration of the common option*	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-Xerror_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 property corresponds to the -Xerror_file option of the ccrh command. This property is displayed only when [Yes(-Xerror_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 property corresponds to the -Xerror_file option of the ccrh command. This property is displayed only when [Yes(-Xerror_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: 02042,02107). Also, the range can be set using "-" (hyphen) (example: 02222-02554,02699-02782). This property corresponds to the -Xno_warning option of the ccrh 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) [Message]
The detailed information on messages is displayed and the configuration can be changed.

Change warning message to error message	Select whether to change the type of warning messages to error. This property corresponds to the -change_message option of the ccrh command. This property is displayed when [Always latest version which was installed] or V1.07.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.07.00 or a later version of the CC-RH compiler has been installed.		
	Default	*Configuration of the compile option*	
	How to change	Select from the drop-down list.	
	Restriction	Yes(All)(-change_message=error)	Changes the type of all warning messages to error.
		Yes(Specify message number)(-change_message=error=<Message number>)	Specifies the number of warning message of which type is to be changed to error.
		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: 23028,23086). Also, a range of message numbers can be specified using "-" (hyphen) (example:23028-23086). This property corresponds to the -change_message option of the ccrh command. This property is displayed only in the following cases. - When [Always latest version which was installed] or V1.07.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.07.00 or a later version of the CC-RH compiler has been installed - When [Yes(Specify message number)(-change_message=error=<Message number>)] in the [Change warning message to error message] property is selected	
	Default	*Configuration of the compile 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 32767 characters

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

Commands executed before compile processing	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 (except in case of simultaneous building). %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.	
	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 1023 characters Up to 64 items can be specified.

<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 (except in case of simultaneous building).
%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.

Remark 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.

[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 property corresponds to the -g option of the ccrh 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.

Output additional information for optimization at time of linkage	Select whether to output additional information for optimization at the time of linkage. Optimization at time of linkage is applied to files for which this option has been specified. This property corresponds to the -goptimize option of the ccrh command. This property is displayed when you have selected [Always latest version which was installed] or V2.01.00 or a later version for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V2.01.00 or a later version of the CC-RH compiler has been installed.		
	Default	*Configuration of the assemble option*	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-goptimize)	Outputs additional information for optimization at the time of linkage.
		No	Does not output additional information for optimization at the time of linkage.

(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-RH.
The reference point of the path is the project folder.
When this property is omitted, only the standard folder of CC-RH is searched.
This property corresponds to the -I option of the ccrh 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 259 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 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 [Assemble Options] tab
- Paths displayed in the [System include paths] property from the [Assemble Options] tab
This property corresponds to the -I option of the ccrh 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>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 property corresponds to the -D option of the ccrh 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 property corresponds to the -U option of the ccrh 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.

Character encoding	Select the character code to be used for Japanese comments and character strings in the source file. This property corresponds to the -Xcharacter_set option of the ccrh command.		
	Default	*Configuration of the assemble option*	
	How to change	Select from the drop-down list.	
	Restriction	Auto(No option specified)	Interprets the Japanese character codes in the source file as SJIS.
		SJIS(-Xcharacter_set=sjis)	Interprets the Japanese character codes in the source file as SJIS.
		EUC(-Xcharacter_set=euc_jp)	Interprets the Japanese character codes in the source file as EUC.
		UFT-8(-Xcharacter_set=utf8)	Interprets the Japanese character codes in the source file as UFT-8.
		Big5(-Xcharacter_set=big5)	Interprets the Chinese character codes in the source file as Traditional Chinese.
		GB2312(-Xcharacter_set=gb2312)	Interprets the Chinese character codes in the source file as Simplified Chinese.
		No-process(-Xcharacter_set=none)	Does not interpret the Japanese/Chinese character codes in the source file.

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

Use 32-bit branch instruction	Select whether to use the far jump function for the jarl and jr instructions. By using the far jump function, it is assumed that the jarl and jr instructions are jarl32 and jr32 instructions, and assembling is performed. This property corresponds to the -Xasm_option=-Xasm_far_jump option of the ccrh command.		
	Default	*Configuration of the assemble option*	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-Xasm_option=-Xasm_far_jump)	Assumes that the jarl and jr instructions are jarl32 and jr32 instructions, and performs assembling.
		No	Performs assembly as a jarl or jr instruction.

(6) [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 property corresponds to the -o option of the ccrh command.	
	Default	Blank
	How to change	Directly enter in the text box.
	Restriction	Up to 259 characters

(7) [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 property corresponds to the -Xasm_option=-Xprn_path option of the ccrh command.		
	Default	*Configuration of the assemble option*	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-Xasm_option=-Xprn_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 property corresponds to the -Xasm_option=-Xprn_path option of the ccrh command. This property is displayed only when [Yes(-Xasm_option=-Xprn_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

(8) [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 property corresponds to the -Xerror_file option of the ccrh command. Error messages are displayed on the Output panel regardless of this property's.		
	Default	*Configuration of the common option*	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-Xerror_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 property corresponds to the -Xerror_file option of the ccrh command. This property is displayed only when [Yes(-Xerror_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 property corresponds to the -Xerror_file option of the ccrh command. This property is displayed only when [Yes(-Xerror_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

(9) [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: 02042,02107). Also, the range can be set using "-" (hyphen) (example: 02222-02554,02699-02782). This property corresponds to the -Xno_warning option of the ccrh 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

(10) [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 (except in case of simultaneous building).
%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.
<table><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></table></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 (except in case of simultaneous building).
%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 assembler is executed via ccrh.exe. Add "-Xasm_option=" as required.
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>

[Boot Loader] tab

This tab shows the detailed information on the boot loader (configuration tool for multi-core) categorized by the following and the configuration can be changed.

(1)[Constituent Projects]
(2)[Debugging]
(3)[Notes]

Caution The boot loader (configuration tool for multi-core) is displayed for the boot loader project. See "CS+ Integrated Development Environment User's Manual: Project Operation" for details about creating a multi-core project.

[Description of each category]

(1) [Constituent Projects]
The detailed information on the constituent projects for multi-core is displayed and the configuration can be changed.

Constituent application projects	Specify the constituent application projects for multi-core. Designating the application projects makes functions such as starting the individual applications from the boot loader, debugging the individual application projects, and debugging the application projects simultaneously. The application project is displayed as the subproperty.	
	Default	Constituent application projects[*number of defined items*]
	How to change	Edit by the Select Constituent Application Projects dialog box which appears when clicking the [...] button.

(2) [Debugging]
The detailed information on stand-alone core debugging for multi-core is displayed and the configuration can be changed.

Macro definition for stand-alone core debugging	Specify a macro definition to be added in building when starting to debug a core as stand-alone. 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 setting is saved as user information in the project. This property corresponds to the -D option of the ccrh command. The specified macro is displayed as the subproperty.	
	Default	Macro definition for stand-alone core debugging[*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.

Priority debugging	Select Yes or No from the drop-down list when debugging a core as stand-alone in a project which has multiple boot loader projects. This setting is not needed if there is only one boot loader project.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes	This boot loader project takes priority over the other boot loader projects.
		No	This boot loader project does not take priority over the other boot loader projects.

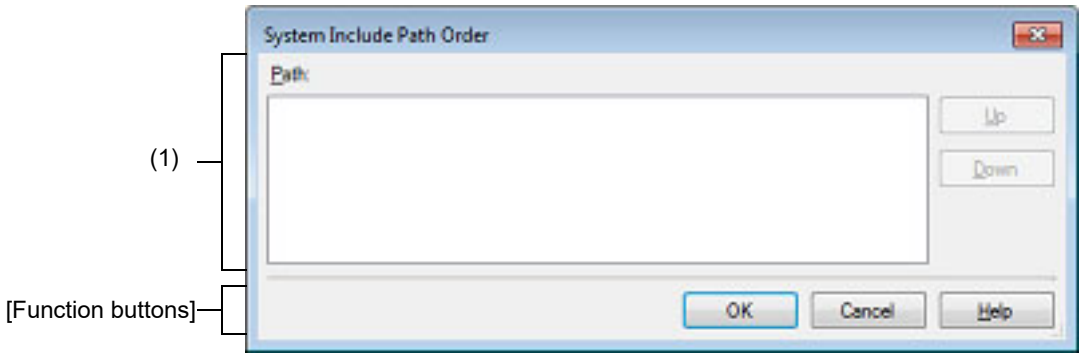
(3) [Notes]
The detailed information on notes is displayed and the configuration can be changed.

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.

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.2 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.

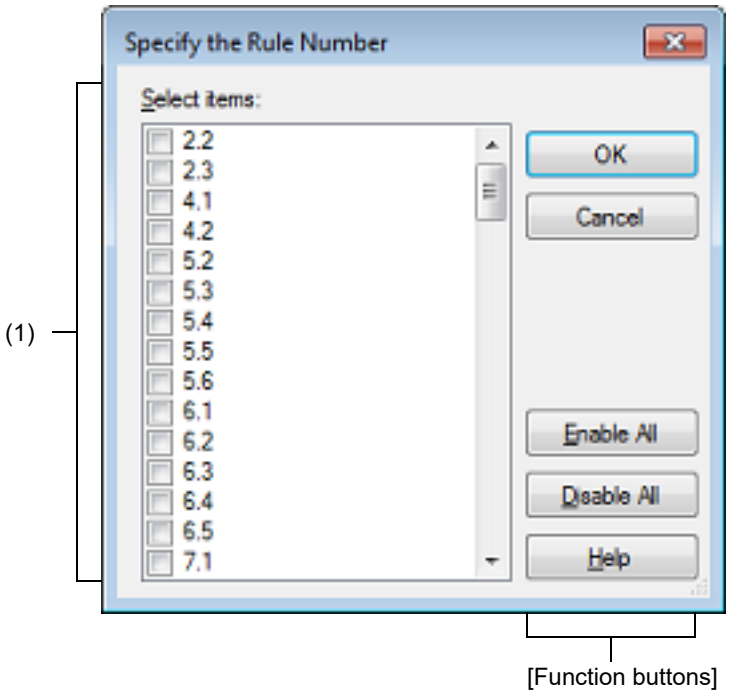
[Function buttons]

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.3 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.

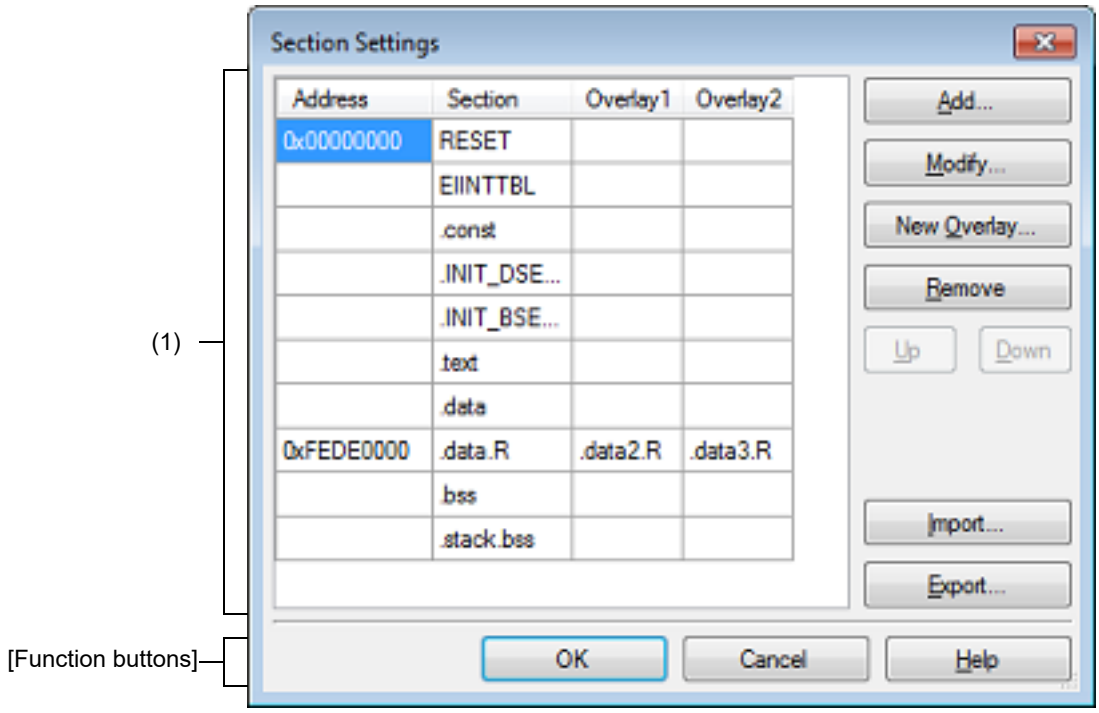
[Function buttons]

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.4 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.5 Add Section Dialog Box

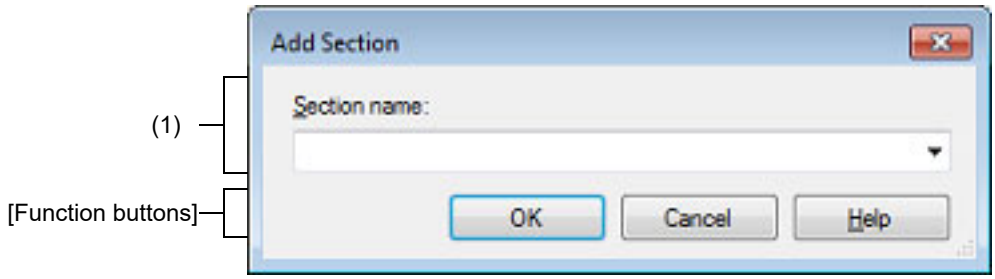


Figure A.6 Modify Section Dialog Box

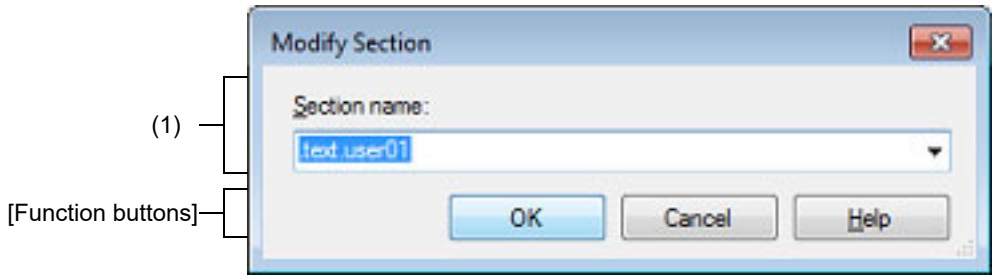
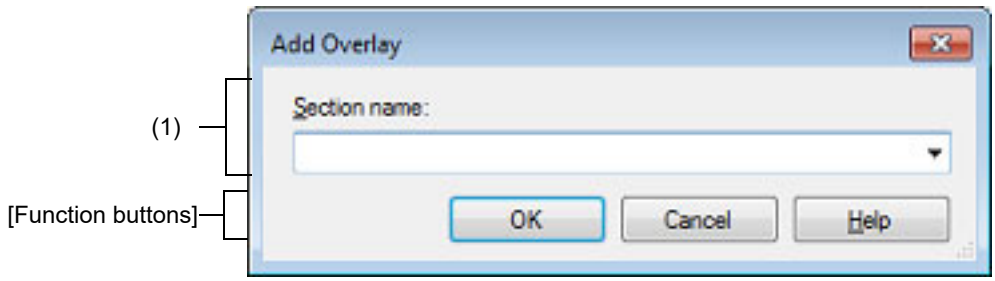


Figure A.7 Add Overlay Dialog Box



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) 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

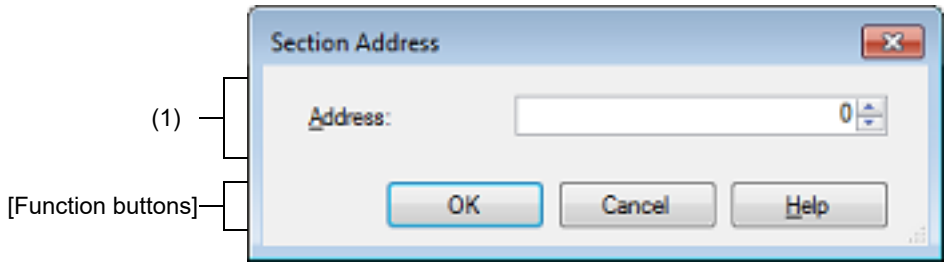
[Function buttons]

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.8 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 FFFFFFFF (hexadecimal number) (default: 0).

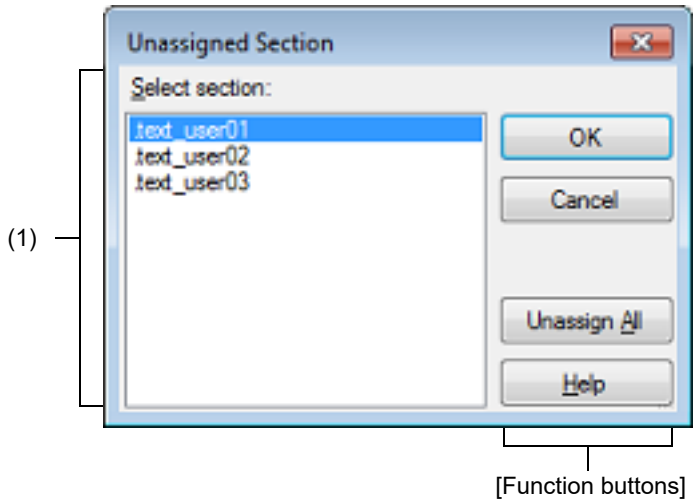
[Function buttons]

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.9 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.

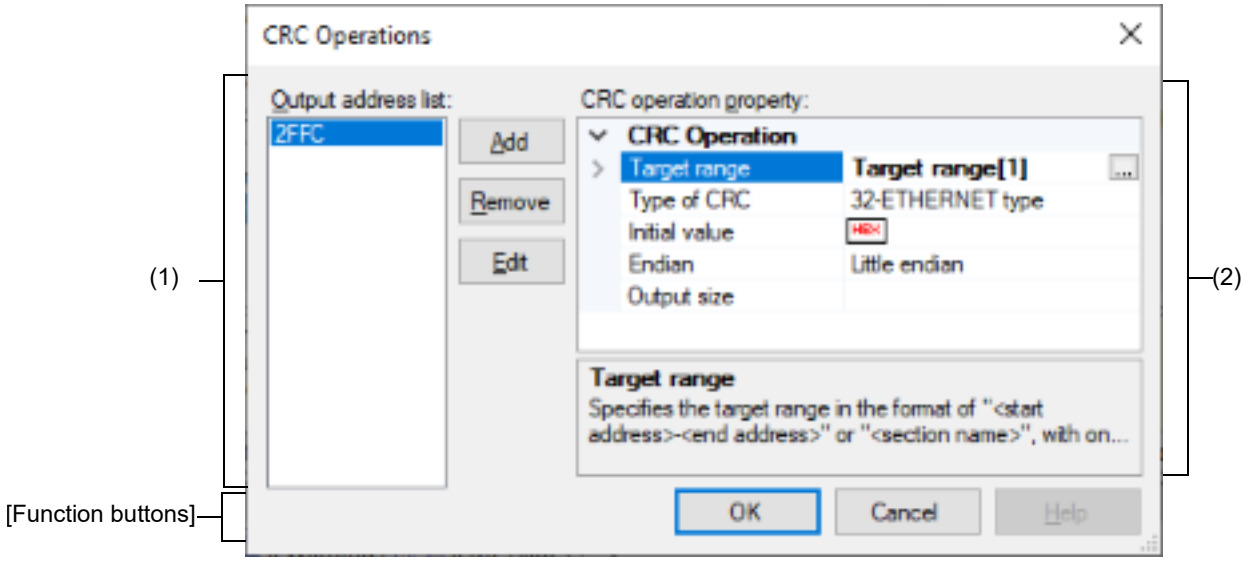
[Function buttons]

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.

CRC Operations dialog box

This dialog box is used to set the CRC operation.

Figure A.10 CRC Operations 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 [Hex Output Options] tab, [CRC Operations] in the [CRC Operation] category

[Description of each area]

(1) Output address list area

(a) Output address list
A list of output addresses is displayed.
The output address is a key for recognizing multiple CRC operation settings.

(b) Button

Add	Opens the Character String Input dialog box. The address specified in the dialog box is appended to the end of a list of output addresses. The address is entered as a hexadecimal value from 0 to FFFFFFFE.
Remove	Deletes the selected output address from the list.
Edit	Opens the Character String Input dialog box to change the output address selected in the list. The address is entered as a hexadecimal value from 0 to FFFFFFFE.

(2) [CRC operation property] area

Displays and sets the properties of the CRC operation for the output address selected in the Output address list area.

(a) [CRC Operations]

The detailed information on CRC operation is displayed and the configuration can be changed.

Target range	Specify the CRC calculation range in the format of "*start address* - *end address*" or "*section name*". Specify the address in hexadecimal without 0x. The range of specifiable address values is 0 to FFFFFFFF. This property corresponds to the -CRc option of the rlink command.	
	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 the user's manual of the device and "CC-RH Compiler User's Manual" for details about each operation. This property corresponds to the -CRc option of the rlink command.		
	Default	32-ETHERNET type	
	How to change	Select from the drop-down list.	
	Restriction	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.
		32-ETHERNET type	Outputs the calculation result of CRC-32-ETHERNET operation.
		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(LSB) type	Outputs the calculation result of CRC-16-CCITT-LSB first operation.
		16	Outputs the calculation result of CRC-16-LSB first operation.
		SENT(MSB) type	Outputs the calculation result of operation conforming to SENT.
Initial value	Specify the initial value for the CRC operation in the format of "*initial value*". This property corresponds to the -CRc option of the rlink command.		
	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 property corresponds to the -CRc option of the rlink command.		
	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 property corresponds to the -CRc option of the rlink command.	
	Default	Blank
	How to change	Directly enter to the text box.
	Restriction	2, 4, or blank

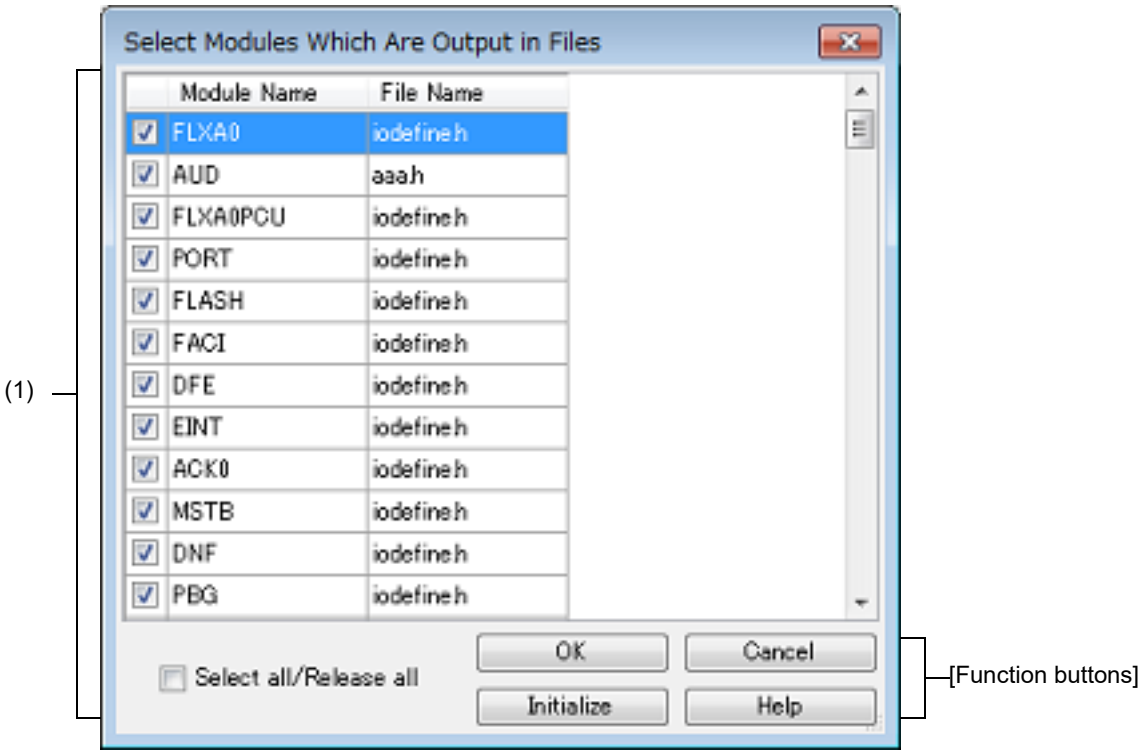
[Function Buttons]

Button	Function
OK	Reflects the settings to the property 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.

Select Modules Which Are Output in Files dialog box

This dialog box is used to set modules which are output to the I/O header file.

Figure A.11 Select Modules Which Are Output in Files 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 [I/O Header File Generation Options] tab, [Modules which are defined in device file] in the [I/O Header File] category

[Description of each area]

(1) Area for specifying module name/file name
This area displays a list of the names of modules defined in the device file and the names of the I/O header files to which the modules are output.

(a) [Module Name]
This area displays the names of modules which are defined in the device file.
If any of the check boxes is selected, the relevant module is output to the I/O header file shown under [File Name].
The check boxes are selected by default.

(b) [File Name]
This area displays the names of the I/O header files to which the modules are output.
You can also directly enter a desired file name to change the I/O header file to which the module is output.
The default file name is “iodefine.h”.

(c) [Select all/Release all]
This check box is used to select or deselect all of the check boxes under [Module Name].
If this check box is selected, check boxes under [Module Name] will all be selected.
If this check box is deselected, selection of the check boxes under [Module Name] will all be cleared.

Remark When the same file name is specified for multiple modules, code for those modules is output to the same file. There is no case sensitivity for file names.

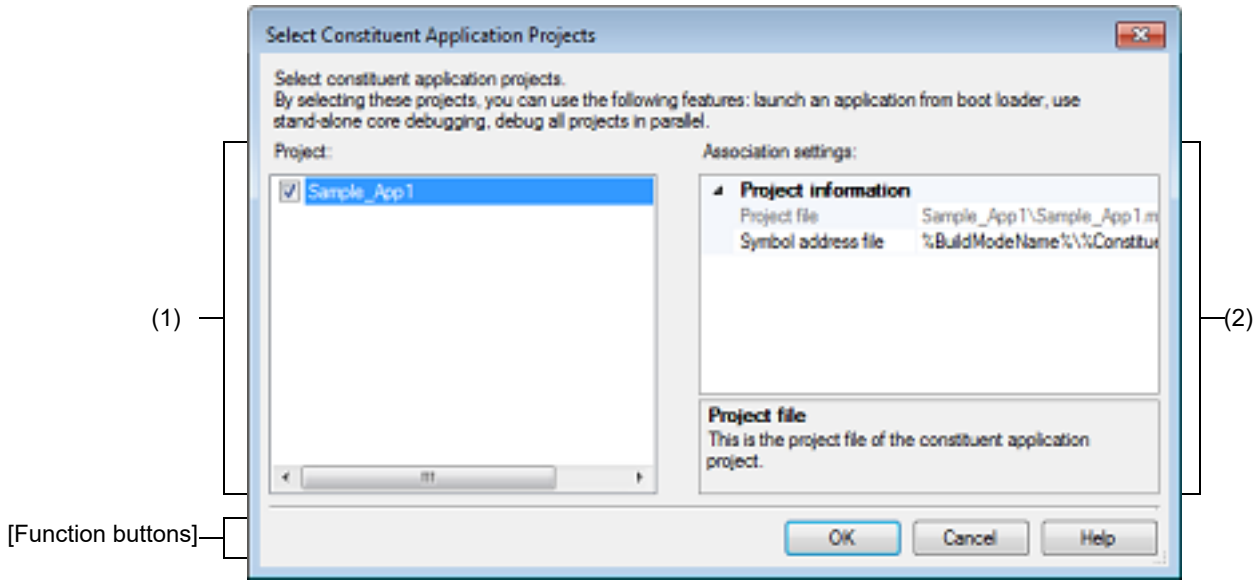
[Function buttons]

Button	Function
OK	Closes this dialog box and calls the settings to reflect them in the previous properties.
Initialize	Sets all check boxes under [Module Name] and [File Name] settings to their default values.
Cancel	Cancels the settings and closes this dialog box.
Help	Displays the help of this dialog box.

Select Constituent Application Projects dialog box

This dialog box is used to set the constituent application projects.

Figure A.12 Select Constituent Application Projects Dialog Box



The following items are explained here.

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

[How to open]

- On the Property panel of the Configuration Tool for Multi-core node, select the following property, and then click the [...] button.
  - From the [Boot Loader] tab, [Constituent application projects] in the [Constituent Projects] category

[Description of each area]

(1) [Project]
This area displays the list of the application projects.
If any of the check boxes is selected, the project is set as a constituent application project, and dependence relations between the projects are assumed.
Non-selectable projects are displayed in gray.

(2) [Association settings]
This area displays the property of the application project selected in [Project].

(a) [Project information]
The detailed information on the application project is displayed and the configuration can be changed.

Project file	The path to the project file which is currently highlighted under [Project] is displayed as a relative path from the folder of the boot loader project.	
	Default	*Path of the project file*
	How to change	Changes not allowed

Symbol address file	The symbol address file of the project which is currently highlighted under [Project] is displayed or modified. When building (including rebuilding, batch building, and rapid building) a boot loader project, a command line which includes this file in assembly is added. After this addition, the symbols on the constituent application project side can be resolved on the boot loader project side. The following placeholders are supported. %BuildModeName%: Replaces with the build mode name of the boot loader project. %ConstituentProjectLinkerOutputFileLeaf%: Replaces with the output file name (excluding extension) of the optimizing linker of the constituent application project.	
	Default	%BuildModeName%\%ConstituentProjectLinkerOutputFileLeaf%.fsy
	How to change	Directly enter in the text box.
	Restriction	Up to 259 characters

[Function buttons]

Button	Function
OK	Reflects the specified constituent application projects 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.

Revision Record

Rev.	Date	Description	
		Page	Summary
1.00	Feb 01, 2015	-	First Edition issued
1.01	Aug 01, 2015	12	"Figure 2.3 Option Dialog Box ([General - Build] Category)" is replaced.
		13-14	The entire description of "2.3 Set the Type of the Output File" is amended.
		17	The description of the link map file name in "2.3.3 Output map information" is amended.
		17	The description of the link map file name in "2.3.4 Output library information" is amended.
		19	"Figure 2.19 Property Panel: [Compile Options] Tab" is replaced.
		19	"Figure 2.20 [Level of optimization] Property (Code Size Precedence)" is replaced.
		20	"Figure 2.21 [Level of optimization] Property (Execution Speed Precedence)" is replaced.
		36	"Figure 2.57 Property Panel: [Hex Output Options] Tab" is replaced.
		43	"Figure 2.69 Property Panel: [Individual Compile Options] Tab" is replaced.
		48	"Figure 2.81 [Update I/O header file on build] Property" is replaced.
		50	The description of "Specify Rule Number dialog box" in table A.1 is amended.
		50	The following dialog box is added to table A.1. Select Modules Which Are Output in Files dialog box
		51	"Figure A.1 Property Panel" is replaced.
		55	"Figure A.2 Property Panel: [Common Options] Tab" is replaced.
		56	The following property is added to "(1) [Build Mode]". Change property value for all build modes at once
		56	The description of the [Output file type] property in "(2) [Output File Type and Path]" is amended.
		57	The display condition for Restriction is added to the description of the [Specify CPU core] property in "(2) [Output File Type and Path]". The following is added to Restriction. Object for G3KH(-Xcpu=g3kh)
		58	The description of the files whose destination of output is affected is added to the description of the [Intermediate file output folder] property in "(2) [Output File Type and Path]".
		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 "(5) [Frequently Used Options(for Link)]".
		63	The display condition is deleted from the description of the [Output file name] property in "(5) [Frequently Used Options(for Link)]".

Rev.	Date	Description	
		Page	Summary
		63	The description of [Yes(V1.01 compatible)] in Restriction of the [Use standard libraries] property in "(5) [Frequently Used Options(for Link)]" is amended.
		69	The description of [Yes(V1.01 compatible)] in Restriction of the [Use standard libraries] property in "(7) [Frequently Used Options(for Create Library)" is amended.
		71	The display condition is amended in the description of the [Reset vector address] property in "(8) [Device]".
		72	The display condition is amended in the description of the [Reset vector address of PE*n*] property in "(8) [Device]".
		73-74	The following properties are deleted from "(10) [Error Output]". Output error message file Error message file output folder Error message file name The following properties are added. Merge error message file Merged error message file output folder Merged error message file name
		79	The list of category names on the [Compile Options] tab is amended.
		79	"Figure A.3 Property Panel: [Compile Options] Tab" is replaced.
		80	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)
		81	In the description of the [Maximum number of loop expansions] property in "(3) [Optimization(Details)]", the description on the case where the property is blank is amended.
		83	The display condition is deleted from the description of [Yes(Optimizes the inner-module)(-Omap)] in Restriction of the [Optimize accesses to external variables] property in "(3) [Optimization(Details)]".
		83	The description of [Yes(Level 3)(Perform with assuming it the whole program)(-Xwhole_program)] in Restriction of the [Perform inter-module optimization] property in "(3) [Optimization(Details)]" is amended.
		87-88	The following category is added to the [Compile Options] tab. (5) [Quality Improvement]
		90	The name and description of the [Alignment of start address of a function] property in "(8) [Output Code]" is amended. Alignment of start address of a function -> Alignment of branch address Restriction is amended. 4 bytes(-Xalign4) -> 4 bytes(Only start address of a function)(-Xalign4) The followings are added. 4 bytes(Contains each loop head)(-Xalign4=loop) 4 bytes(Contains each innermost loop head)(-Xalign4=innermostloop) 4 bytes(All branches)(-Xalign4=all) In accordance with the above changes, the display condition for Restriction is added to the description of the property.
		99	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.

Rev.	Date	Description	
		Page	Summary
		99	The following property is added to "(11) [MISRA-C Rule Check]". MISRA-C specification
		99- 103	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
		116	The description of [Yes(V1.01 compatible)] in Restriction of the [Use standard libraries] property in "(5) [Library]" is amended.
		129	The list of category names on the [Hex Output Options] tab is amended.
		129	"Figure A.6 Property Panel: [Hex Output Options] Tab" is replaced.
		134- 136	The following category is added to the [Hex Output Options] tab. (3) [CRC Operation]
		144	The description of [Yes(V1.01 compatible)] in Restriction of the [Use standard libraries] property in "(4) [Library]" is amended.
		154	"Figure A.8 Property Panel: [I/O Header File Generation Options] Tab" is replaced.
		154	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)
		155- 156	The following properties are added to "(1) [I/O Header File]". Select modules which are CS+CS+output in files Modules which are defined in device file Enable MISRA-C option Define blocks in modules
		160	The list of category names on the [Individual Compile Options] tab is amended.
		160	"Figure A.13 Property Panel: [Individual Compile Options] Tab" is replaced.
		161	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	In the description of the [Maximum number of loop expansions] property in "(3) [Optimization(Details)]", the description on the case where the property is blank is amended.
		164	The display condition is deleted from the description of [Yes(Optimizes the inner-module)(-Omap)] in Restriction of the [Optimize accesses to external variables] property in "(3) [Optimization(Details)]".
		168- 169	The following category is added to the [Individual Compile Options] tab. (5) [Quality Improvement]

Rev.	Date	Description	
		Page	Summary
		171	The name and description of the [Alignment of start address of a function] property in "(8) [Output Code]" is amended. Alignment of start address of a function -> Alignment of branch address Restriction is amended. 4 bytes(-Xalign4) -> 4 bytes(Only start address of a function)(-Xalign4) The followings are added. 4 bytes(Contains each loop head)(-Xalign4=loop) 4 bytes(Contains each innermost loop head)(-Xalign4=innermostloop) 4 bytes(All branches)(-Xalign4=all) In accordance with the above changes, the display condition for Restriction is added to the description of the property.
		176	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.
		177	The following property is added to "(11) [MISRA-C Rule Check]". MISRA-C specification
		177-180	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
		197	The following amendment is made throughout the description of the Specify Rule Number dialog box. MISRA-C:2004 -> MISRA-C
		206-207	The following dialog box is added to table A.1. Select Modules Which Are Output in Files dialog box
1.02	Mar 01, 2016	26	"Figure 2.36 Property Panel: [Link Options] Tab" is replaced.
		26, 27	"Figure 2.37 [Using libraries] Property" and "Figure 2.39 [Using libraries] Property (After Setting Library Files)" are replaced.
		40	"Figure 2.65 Property Panel: [Create Library Options] Tab" is replaced.
		48	"Figure 2.81 [Update I/O header file on build] Property" is replaced.
		60	The display condition for the category is deleted from the description directly under "(4) [Frequently Used Options(for Assemble)".
		87-88	The following expression is changed in "(5) [Quality Improvement]". stack overflow -> stack smashing
		95	The display condition is added to the description of the [Check invalid exception in cmpf instruction] property in "(8) [Output Code]".
		97-98	The following properties are added to "(8) [Output Code]". Use software trace (DBTAG) for exclusion control check Variables to be checked for software trace (DBTAG) for exclusion control check Control starting functions for software trace (DBTAG) for exclusion control check Control ending functions for software trace (DBTAG) for exclusion control check
		104	The display condition for the category is deleted from the description directly under "(12) [Others]".
		107	The caution just before "Figure A.4 Property Panel: [Assemble Options] Tab" is deleted.
		113	"Figure A.5 Property Panel: [Link Options] Tab" is replaced.

Rev.	Date	Description	
		Page	Summary
		120	The following property is added to "(5) [Library]". Check memory smashing on releasing memory
		128- 130	The display conditions are deleted from the description of the following properties in "(11) [Others]". Display copyright information Commands executed before link processing Commands executed after link processing
		141- 142	The following properties are added to "(5) [Others]". Confirm that SYNCP is inserted at entry of exception handler Base address of exception vector Number of entries of interrupts
		143	"Figure A.7 Property Panel: [Create Library Options] Tab" is replaced.
		150	The following property is added to "(4) [Library]". Check memory smashing on releasing memory
		155- 156	The display conditions are deleted from the description of the following properties in "(11) [Others]". Display copyright information Commands executed before create library processing Commands executed after create library processing
		157	"Figure A.8 Property Panel: [I/O Header File Generation Options] Tab" is replaced.
		158, 159	The following properties are added to "(1) [I/O Header File]". Output definitions regarding μITRON Share definition of structure
		172	The following expression is changed in "(5) [Quality Improvement]". stack overflow -> stack smashing
		175	The display condition is added to the description of the [Check invalid exception in cmpf instruction] property in "(8) [Output Code]".
		186- 187	The default of the following properties in "(14) [Others]" are amended. Commands executed before compile processing Commands executed after compile processing Other additional options
		188	The default of the following property in "(1) [Debug Information]" is amended. Output debug information
		189	The description of the [Use whole include paths specified for build tool] property in "(2) [Preprocess]" is amended.
		190	The default of the following properties in "(2) [Preprocess]" are amended. Macro definition Macro undefinition
		190	The default of the following property in "(3) [Character Encoding]" is amended. Character encoding
		191	The default of the following property in "(4) [Output Code]" is amended. Use 32-bit branch instruction
		191- 192	The default of the following properties in "(6) [Assemble List]" are amended. Output assemble list file Output folder for assemble list file

Rev.	Date	Description	
		Page	Summary
		194-195	The default of the following properties in "(6) [Others]" are amended. Commands executed before assemble processing Commands executed after assemble processing Other additional options
1.03	Dec 01, 2016	14	The default library file name in "2.3.1 Change the output file name" is amended.
		23	The caution is deleted from "2.5 Set Assemble Options".
		80	The following property is added to "(1) [Debug Information]". Enhance debug information with optimization
		94	The following property is added to "(8) [Output Code]". Enable half precision floating-point type
		98-99	The descriptions of the following properties in "(8) [Output Code]" are amended. Variables to be checked for software trace (DBTAG) for exclusion control check Control starting functions for software trace (DBTAG) for exclusion control check Control ending functions for software trace (DBTAG) for exclusion control check
		104-105	The descriptions of the following properties in "(11) [MISRA-C Rule Check]" are amended. Rule number description file Rule number Exclusion rule number Check rule number besides required rule Exclusion rule number from required rule
		126	The display conditions are added in the description of the [Output information of members of struct or union] property in "(7) [List]".
		131	The display condition is amended in the description of the [Reduce memory occupancy] property in "(11) [Others]".
		140	The description of the [Type of CRC] property in "(3) [CRC Operation]" is amended.
		140	The order of Restriction values of the [Type of CRC] property in "(3) [CRC Operation]" is changed.
		161	The description of the [Modules which are defined in device file] property in "(1) [I/O Header File]" is amended.
		167	The following property is added to "(1) [Debug Information]". Enhance debug information with optimization
		180	The following property is added to "(8) [Output Code]". Enable half precision floating-point type
		185-187	The descriptions of the following properties in "(11) [MISRA-C Rule Check]" are amended. Rule number description file Rule number Exclusion rule number Check rule number besides required rule Exclusion rule number from required rule
1.04	Jun 01, 2017	13	"Figure 2.4 [Hex file format] Property" is replaced.
		17	"Figure 2.16 [Output link map file] Property (When Information To Be Output Is Specified)" is replaced.
		36	"Figure 2.57 Property Panel: [Hex Output Options] Tab" is replaced.
		37	"Figure 2.59 [Hex file format] Property" is replaced.

Rev.	Date	Description	
		Page	Summary
		38-39	The following figures are replaced. Figure 2.63 [Fill unused areas in the output ranges with the value] Property Figure 2.64 [Fill unused areas in the output ranges with the value] and [Output padding data] Property
		94, 101	The following properties are added to "(8) [Output Code]". Handling mode of writing control register Use software trace (DBTAG) for measuring CAN bus reception processing time Parameters of software trace (DBTAG) for measuring CAN bus reception processing time
		95	The error in the display condition is corrected in the description of the [Floating-point calculating type] property in "(8) [Output Code]".
		106-107	The descriptions of the following properties in "(11) [MISRA-C Rule Check]" are amended. Rule number description file Rule number Exclusion rule number Check rule number besides required rule Exclusion rule number from required rule
		128	The following property is added to "(7) [List]". Output relocation attributes related to sections
		128	The description of the [Section start address] property in "(8) [Section]" is amended.
		137	"Figure A.6 Property Panel: [Hex Output Options] Tab" is replaced.
		142	The following property is added to "(2) [Hex Format]". Specify end record
		142	The display condition for the category is added to the description directly under "(3) [CRC Operation]".
		143-145	The display conditions are amended in the descriptions of all properties in "(3) [CRC Operation]".
		184	The following property is added to "(8) [Output Code]". Handling mode of writing control register
		190-192	The descriptions of the following properties in "(11) [MISRA-C Rule Check]" are amended. Rule number description file Rule number Exclusion rule number Check rule number besides required rule Exclusion rule number from required rule
1.05	Nov 01, 2017	17	In "(2) Specify information to be output", properties displayed when [Yes(List contents=specify)(-LISt)] in the [Output link map file] property is selected are added.
		17	"Figure 2.16 [Output link map file] Property (When Information To Be Output Is Specified)" is replaced.
		19	"Figure 2.19 Property Panel: [Compile Options] Tab" is replaced.
		27	"Figure 2.36 Property Panel: [Link Options] Tab" is replaced.
		37	"Figure 2.57 Property Panel: [Hex Output Options] Tab" is replaced.
		38	In "2.7.2 Fill the vacant area", a sentence at the beginning is amended.
		44	"Figure 2.69 Property Panel: [Individual Compile Options] Tab" is replaced.

Rev.	Date	Description	
		Page	Summary
		52	"Figure A.1 Property Panel" is replaced.CS+
		55	The list of category names on the [Common Options] tab is amended.
		56	"Figure A.2 Property Panel: [Common Options] Tab" is replaced.
		73-74	The following category is added to the [Common Options] tab. (9) [PIC/PID]
		81	The list of category names on the [Compile Options] tab is amended.
		81	"Figure A.3 Property Panel: [Compile Options] Tab" is replaced.
		85	The following property is added to "(3) [Optimization(Details)]". Initialize automatic variables with immediate values
		91	The following property is added to "(5) [Quality Improvement]". Detect invalid indirect function call
		91, 92	The following properties are added to "(6) [C Language]". Standard of C language Compile strictly according to the standards
		92	The display condition is added in the description of the [Compile strictly according to ANSI standards] property in "(6) [C Language]".
		102	The display condition is amended in the description of the [Default section of const area] property in "(8) [Output Code]". The followings are added to Restriction. pcconst16(-Xsection=const=pcconst16) pcconst23(-Xsection=const=pcconst23)
		109-110	The descriptions of the following properties in "(11) [MISRA-C Rule Check]", the descriptions on the case when misra2012 is selected are amended. Rule number description file Rule number Exclusion rule number Check rule number besides required rule Exclusion rule number from required rule
		112-113	The following category is added to the [Compile Options] tab. (12) [Message]
		122	"Figure A.5 Property Panel: [Link Options] Tab" is replaced.
		132-133	The following properties are added to "(6) [Output Code]". Generate function list used for detecting invalid indirect function call Additional function symbols or addresses to function list Excluded modules from function list
		136	The following property is added to "(7) [List]". Output function list for detecting invalid indirect function call

Rev.	Date	Description	
		Page	Summary
		139-140	The names and descriptions of the following properties in "(10) [Message]" are amended. Change warning message to information message -> Change warning and error message to information message Number of warning message -> Number of warning and error message Change information message to warning message -> Change information and error message to warning message Number of information message -> Number of information and error message
		145	"Figure A.6 Property Panel: [Hex Output Options] Tab" is replaced.
		147	A caution is added to the description of the [Division output file] property in "(1) [Output File]".
		150	The following properties are added to "(2) [Hex Format]". Output hex file with fixed record length from aligned start address Alignment of start address
		150	The display condition is amended in the description of the [Specify byte count for data record] property in "(2) [Hex Format]".
		151	The default of the following property in "(2) [Hex Format]" is amended. Maximum byte count for data record
		155-156	The names and descriptions of the following properties in "(4) [Message]" are amended. Change warning message to information message -> Change warning and error message to information message Number of warning message -> Number of warning and error message Change information message to warning message -> Change information and error message to warning message Number of information message -> Number of information and error message
		168-169	The names and descriptions of the following properties in "(6) [Message]" are amended. Change warning message to information message -> Change warning and error message to information message Number of warning message -> Number of warning and error message Change information message to warning message -> Change information and error message to warning message Number of information message -> Number of information and error message
		179	The list of category names on the [Individual Compile Options] tab is amended.
		179	"Figure A.13 Property Panel: [Individual Compile Options] Tab" is replaced.

Rev.	Date	Description	
		Page	Summary
		183	The following property is added to "(3) [Optimization(Details)]". Initialize automatic variables with immediate values
		189	The following property is added to "(5) [Quality Improvement]". Detect invalid indirect function call
		189, 190	The following properties are added to "(6) [C Language]". Standard of C language Compile strictly according to the standards
		189	The display condition is added in the description of the [Compile strictly according to ANSI standards] property in "(6) [C Language]".
		201-202	The descriptions of the following properties in "(11) [MISRA-C Rule Check]", the descriptions on the case when misra2012 is selected are amended. Rule number description file Rule number Exclusion rule number Check rule number besides required rule Exclusion rule number from required rule
		205-206	The following category is added to the [Individual Compile Options] tab. (14) [Message]
1.06	Jun 01, 2018	17	The following item in "(2) Specify information to be output" is amended. - [Output function list for detecting invalid indirect function call] property -> - [Output function list for detecting illegal indirect function call] property
		17	"Figure 2.16 [Output link map file] Property (When Information To Be Output Is Specified)" is replaced.
		19	"Figure 2.19 Property Panel: [Compile Options] Tab" is replaced.
		27	"Figure 2.36 Property Panel: [Link Options] Tab" is replaced.
		37	"Figure 2.57 Property Panel: [Hex Output Options] Tab" is replaced.
		44	"Figure 2.69 Property Panel: [Individual Compile Options] Tab" is replaced.
		49	"Figure 2.81 [Update I/O header file on build] Property" is replaced.
		52	"Figure A.1 Property Panel" is replaced.
		56	"Figure A.2 Property Panel: [Common Options] Tab" is replaced.
		58	The display condition is added in the description of the [Output common object file for various devices] property in "(2) [Output File Type and Path]".
		58	The display condition for Restriction is added to the description of the [Specify CPU core] property in "(2) [Output File Type and Path]". The following is added to Restriction. Object for G4MH(-Xcpu=g4mh)
		81	"Figure A.3 Property Panel: [Compile Options] Tab" is replaced.
		87	The following property is added to "(3) [Optimization(Details)]". Expansion method of library function
		92	The name of the following property in "(5) Quality Improvement" is amended. Detect invalid indirect function call -> Detect illegal indirect function call

Rev.	Date	Description	
		Page	Summary
		99, 100, 102, 103	The following properties are added to "(8) [Output Code]". Save mode of register bank Generate codes that supports FXU Type of generating floating-point calculation codes Generate recipf instruction
		102	The display condition is added in the description of the [Generate product-sum operation instruction] property in "(8) [Output Code]".
		117-118	The description of the "%InputFile%" placeholder is amended in the description of the following properties in "(13) [Others]". Commands executed before compile processing Commands executed after compile processing
		123-124	The description of the "%InputFile%" placeholder is amended in the description of the following properties in "(6) [Others]". Commands executed before assemble processing Commands executed after assemble processing
		124	"Figure A.5 Property Panel: [Link Options] Tab" is replaced.
		135	The name of the following property in "(6) [Output Code]" is amended. Generate function list used for detecting invalid indirect function call -> Generate function list used for detecting illegal indirect function call
		136	The description of the specification format is amended in the description of the [Excluded modules from function list] property in "(6) [Output Code]".
		139	The name of the following property in "(7) [List]" is amended. Output function list for detecting invalid indirect function call -> Output function list for detecting illegal indirect function call
		148	"Figure A.6 Property Panel: [Hex Output Options] Tab" is replaced.
		150	The following properties is added to "(1) [Output File]". Load address
		150	The description of the specification format is amended in the description of the [Division output file] property in "(1) [Output File]".
		155	The display condition for the category is amended in the description directly under "(3) [CRC Operation]".
		177	"Figure A.8 Property Panel: [I/O Header File Generation Options] Tab" is replaced.
		179	The following properties are added to "(1) [I/O Header File]". Enable module array option Enable IOR array option
		184	"Figure A.13 Property Panel: [Individual Compile Options] Tab" is replaced.
		189	The following property is added to "(3) [Optimization(Details)]". Expansion method of library function
		195	The name of the following property in "(5) Quality Improvement" is amended. Detect invalid indirect function call -> Detect illegal indirect function call
		202, 203	The following properties are added to "(8) [Output Code]". Type of generating floating-point calculation codes Generate recipf instruction
		203	The display condition is added in the description of the [Generate product-sum operation instruction] property in "(8) [Output Code]".

Rev.	Date	Description	
		Page	Summary
		215-216	The description of the "%InputFile%" placeholder is amended in the description of the following properties in "(15) [Others]". Commands executed before compile processing Commands executed after compile processing
		223-224	The description of the "%InputFile%" placeholder is amended in the description of the following properties in "(9) [Others]". Commands executed before assemble processing Commands executed after assemble processing
1.07	Nov 01, 2018	13	"Figure 2.4 [Hex file format] Property" is replaced.
		14	"Figure 2.8 [Output file name] Property" is replaced.
		19	"Figure 2.19 Property Panel: [Compile Options] Tab" is deleted.
		22	"Figure 2.27 [Register mode] Property" is replaced.
		22-212	All Restriction values of the properties are amended. (None) -> (No option specified)
		23	"Figure 2.29 Property Panel: [Assemble Options] Tab" is deleted.
		26	"Figure 2.36 Property Panel: [Link Options] Tab" is deleted.
		36	"Figure 2.57 Property Panel: [Hex Output Options] Tab" is deleted.
		36, 37	The following figures are replaced. Figure 2.54 [Output hex file] Property Figure 2.55 [Hex file format] Property
		38, 39	The following figures are replaced. Figure 2.59 [Fill unused areas in the output ranges with the value] Property Figure 2.60 [Fill unused areas in the output ranges with the value] and [Output padding data] Property
		40	"Figure 2.65 Property Panel: [Create Library Options] Tab" is deleted.
		42-43	The following figures are deleted. Figure 2.69 Property Panel: [Individual Compile Options] Tab Figure 2.72 Property Panel: [Individual Assemble Options] Tab
		45	The following figures are replaced. Figure 2.69 [Output hex file] Property Figure 2.70 [Hex file format] Property Figure 2.71 [Use object uniting function] Property
		53	"Figure A.2 Property Panel: [Common options] Tab" is deleted.
		78	"Figure A.3 Property Panel: [Compile Options] Tab" is deleted.
		79-81	All Restriction values of the properties are amended. Yes(To adjust the level of optimization)(None) -> To adjust the level of optimization(No option specified)
		84	The following property is added to "(3) [Optimization(Details)]". Output additional information for optimization at time of linkage
		103	The [Type of a generating program] property is deleted from "(8) [Output Code]". The following property is added. Method for controlling multi-core functions
		112	The following property is added to "(11) [MISRA-C Rule Check]". Enables inter-module checking

Rev.	Date	Description	
		Page	Summary
		115	The list of category names on the [Assemble Options] tab is amended.
		115	"Figure A.4 Property Panel: [Assemble Options] Tab" is deleted.
		115	The following category is added to the [Assemble Options] tab. (2) [Optimization]
		121	The list of category names on the [Link Options] tab is amended.
		121	"Figure A.5 Property Panel: [Link Options] Tab" is deleted.
		122	The following category is added to the [Link Options] tab. (2) [Optimization]
		122-123	The following properties are added to "(3) [Optimization(Details)]". Symbols excluded from optimization of unreferenced symbol deletion Section to disable optimization Address range to disable optimization
		145	"Figure A.6 Property Panel: [Hex Output Options] Tab" is deleted.
		159	"Figure A.7 Property Panel: [Create Library Options] Tab" is deleted.
		172	"Figure A.8 Property Panel: [I/O Header File Generation Options] Tab" is deleted.
		176	The following figures are deleted. 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)
		178	"Figure A.13 Property Panel: [Individual Compile Options] Tab" is deleted.
		180-181	All Restriction values of the properties are amended. Yes(To adjust the level of optimization)(None) -> To adjust the level of optimization(No option specified)
		184	The following property is added to "(3) [Optimization(Details)]". Output additional information for optimization at time of linkage
		206	The following property is added to "(11) [MISRA-C Rule Check]". Enables inter-module checking
		210	The list of category names on the [Individual Assemble Options] tab is amended.
		210	"Figure A.14 Property Panel: [Individual Assemble Options] Tab" is deleted.
		210	The following category is added to the [Individual Assemble Options] tab. (2) [Optimization]
		218	"Figure A.15 Property Panel: [Boot Loader] Tab" is deleted.
		232	The remark is added to "(1) Area for specifying module name/file name".

Rev.	Date	Description	
		Page	Summary
1.08	Nov 01, 2019	73-74	The default of the following properties in "(13) [Build Method]" are amended. Build simultaneously Build in parallel
		78	The display condition is changed in the description of the [Enhance debug information with optimization] property in "(1) [Debug Information]".
		99	The following property is added to "(8) [Output Code]". Generate approximate calculation code
		165	The following property is added to "(4) [Library]". Allow duplicate module names
		178	The display condition is changed in the description of the [Enhance debug information with optimization] property in "(1) [Debug Information]".
		197	The following property is added to "(8) [Output Code]". Generate approximate calculation code
1.09	Nov 01, 2020	44	A caution related to the multi-core project and changing the microcontroller is added.
		83	The following property is added to "(3) [Optimization(Details)]". Perform optimization by changing alignment conditions
		104	The following property is added to "(8) [Output Code]". Allocate uninitialized variables in sections according to number of alignments Allocate initialized variables in sections according to number of alignments Allocate const qualified variables in sections according to number of alignments
		158	The following property is added to "(3) [CRC Operation]". Displays the result of CRC calculation and output address
		187	The following property is added to "(3) [Optimization(Details)]". Perform optimization by changing alignment conditions
		204, 205	The following property is added to "(8) [Output Code]". Allocate uninitialized variables in sections according to number of alignments Allocate initialized variables in sections according to number of alignments Allocate const qualified variables in sections according to number of alignments
1.10	Nov 01, 2021	57	The description of the [Intermediate file output folder] property in "(2) [Output File Type and Path]" is amended.
		93, 197	The following property is added to "(8) [Output Code]". Generate instructions that access to misaligned memory
		126	The remark is added to the [Perform optimization at time of linkage] property in "(2) Optimization".
		154	The restriction of the [Alignment of start address] property in “(2) Hex Format” is amended.
1.11	Dec 01, 2022	99	The default of the [Generate codes that supports FXU] property in "(8) [Output Code]" is amended.
		136	The following property is added to "(7) [Output Code]". Reserve prefetch area Section in the reserved prefetch area
		154	The display condition for the [Fill unused areas in the output ranges with the value] property in "(2) [Hex Format]" is amended.
1.12	Dec 01, 2023	50	The following dialog box is added to "Table A.1 List of Panels/Dialog Boxes". CRC Operations dialog box

Rev.	Date	Description	
		Page	Summary
		127	The following property is added to "(3) [Optimization(Details)]". Optimize area allocated before execution start symbol
		141	The display conditions are amended in the description of the [Output information of members of struct or union] property in "(8) [List]".
		159	The following property is added to "(3) [CRC Operation]". CRC Operations
		159 ~162	The display conditions are amended in the description of the properties below [Outputs the calculation result of CRC] property in "(3) [CRC Operation]".
		160	The range of values are amended in the description of the [Target range] property in "(3) [CRC Operation]".
		242 ~245	CRC Operations dialog box is added.

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

Publication Date: Rev.1.00 Feb 01, 2015
Rev.1.12 Dec 01, 2023
Published by: Renesas Electronics Corporation

CS+

Renesas Electronics Corporation

R20UT3283EJ0112