

# CS+

# Integrated Development Environment

User's Manual: CC-RH Build Tool Operation

Target Device RH850 Family

Target Version V3.00.00 or higher

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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 design software and hardwa	users who wish to understand the functions of the CS+ and are application systems.
Purpose	This manual is intended to g for reference in developing t	ive users an understanding of the functions of the CS+ to use he 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 reade circuits, and microcontrollers	rs of this manual have general knowledge of electricity, logic 5.
Conventions	Data significance: Active low representation: Note: Caution: Remarks: Numeric representation:	<u>High</u> er digits on the left and lower digits on the right XXX (overscore over pin or signal name) Footnote for item marked with Note in the text Information requiring particular attention Supplementary information Decimal XXXX Hexadecimal 0xXXXX
Related Documents	The related documents indic However, preliminary versio	cated in this publication may include preliminary versions. ns are not marked as such.

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# 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).
- 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



## 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).
- 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", "2.5Set 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



## 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.

- 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).
- 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



## 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.

- 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



## 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.</pre>

- 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.</pre>
```

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] Pro	perty
------------	----------------------------	-------

4 Build Method	Build Method			
Build simultaneously		Yes		
Build in parallel		No		
Handing the source file in	cludes non-existing file	Re-compile/assemble	the source file	

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

# Build Method

-	Dullu Methou		
_	Build simultaneously	Yes	
(	Build in parallel	Yes	
~	Handing the source file includes non-existing file	Re-compile/assemble the source file	

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

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.

General - Build		
<ul> <li>Enable Bapid Build</li> <li>If rapid build is selected the build is a result the build is executed in parallel recommend saving a file with Ctrl+S is</li> <li>Show degendency files in project tree</li> <li>Output guality report file when build is a</li> <li>Stop build when the number of error exc</li> </ul>	Enable Bapid Build Description of the second	
Timing of updating dependencies:	At the first build	
	Initaljze	Settings
	General - Build	General - Build          Qbserve registered files changing         If rapid build is selected the build is started when the edited source file is saved         result the build is executed in parallel with editing. When rapid build is selected         recommend saving a file with Ctrl+S after the file edit is completed.          Show degendency files in project tree           Output guality report file when build is successful          Stop build when the number of error exceed the limit          Upper limit:         100          Skip build when the gependent projects has build errors           At the first build          Enable parallel build among projects           Initialjze

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".

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## 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

V.	Hex Format		
(	Hex file format	Motorola S-record file(-FOrm=Stype) 🔍	
	Unify record size	No	
	Output hex file with fixed record length from aligned start address	No	
	Specify byte count for data record	No	
	Specify end record	Not specify(No option specified)	
	Output S9 record at the end	No	

- 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.
- CautionSee [Output file type] property in the [Output File Type and Path] category on the [Common<br/>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

4	Output File		
(	Output file format	User libraries(-FOrm=Library=U)	)
	Output folder	%BuildModeName%	
	Output file name	%ProjectName%.lib	

- 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.





Question(Q	0291001) 83
0	Do you change a file extension?
	Yes No Help

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

4	Output File		
_	Output folder	%BuildModeName%	
(	Output file name	test.abs	

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

~	Output File		
	Output hex file	Yes	
	Output folder	%BuildModeName%	
(	Output file name	test.mot	
	Load address	HER	
>	Division output file	Division output file[0]	
	Use object uniting function	No	

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

Question(Q	0291001)	83
0	Do you change a file extension?	
	Yes No Help	

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

$\left( \right)$	Hex file format	Binary file(-FOrm=Binary)	
4	Hex Format		
⊳	Division output file	Division output file(0)	
(	Output file name	test.bin	
	Output folder	%BuildModeName%	
	Output hex file	Yes	
4	Output File		

#### (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

4	Output File		
	Output file format	User libraries(-FOm=Library=U)	
	Output folder	%BuildModeName%	
(	Output file name	test_lib	

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.

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



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.

Figure 2.12 Message Dialog Box

Question(Q	0291001) 83
0	Do you change a file extension?
	Yes No Help

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

Ć	Output file format	Relocatable file(-FOrm=Relocate)	
$\geq$	Output folder	%BuildModeName%	
(	Output file name	test.rel	

## 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

4	Assemble List		
(	Output assemble list file	Yes(-Xasm_option=-Xpm_path)	
_	Output folder for assemble list file	%BuildModeName%	

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.

 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)

Output link map file Yes(List contents=not specify)(-LISt -SHow)

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)

Y	18		
(	Output link map file	Yes(List contents=specify)(-LISt) 🔍	
	Output symbol information	No	
	Output number of symbol reference	No	
	Output cross reference information	No	
	Output total sizes of sections	No	
	Output information of members of struct or union	No	
	Output relocation attributes related to sections	No	
	Output function list for detecting illegal indirect function call	No	

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.

 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)

a List	
Output link map file	Yes(List contents=not specify)(-LISt -SHow) 🖵

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<sup>Note 1</sup>
- [Output cross reference information] property<sup>Note 2</sup>

- [Output total sizes of sections] propertyNote 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)

4 List		
Output link map file	Yes(List contents=specify)(-LISt)	
Output symbol information	No	
Output cross reference information	No	
Output total size of sections	No	

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 [Level of optimization] property in the [Optimization] category.

Optimization		
Level of optimization	Code size precedence(-Osize)	-

Remark You can also set the option in the same way with the [Level of optimization] 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 [Level of optimization] property in the [Optimization] category.

Figure 2.20	[Level of o	ptimization]	Proper	ty (E	Execution	Speed	Precedence)
	E			J \			,

	zation	
Level of	optimization	Speed precedence(-Ospeed)
Demonstr		

Remark You can also set the option in the same way with the [Level of optimization] 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

4	Preprocess		
(⊳	Additional include paths	Additional include paths[0]	
⊳	System include paths	System include paths[0]	_
⊳	Include files at head of compiling units	Include files at head of compiling units[0]	
⊳	Macro definition	Macro definition[0]	
⊳	Macro undefinition	Macro undefinition[0]	

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



Eiguro 2.22	Dath Edit Dialog Poy
Figule 2.22	Fall Eul Dialog box

Path(One path per or	ne line): 🔀		
_Vino %ProjectDir%			
Browse	ant enth		
Browse Permit gon-existe Include gubfolder Baceholder: Placeholder	ent path rs automatically Value	Description	ľ
Browse Permit gon-existe Include gubfolder Saceholder Placeholder ActiveProjectDr	ent path rs automatically Value D:\work\sample	Description Absolute path of the a	ctive projec
Browse Permit gon-exists Include gubfolder Paceholder Placeholder ActiveProjectDir ActiveProjectName	ent path rs automatically Value D:\work\sample sample	Description Absolute path of the a Active project name	ctive projec =
Browse Permit gon-exists Include gubfolder Isceholder Placeholder ActiveProjectDir ActiveProjectDir BuldModeName	ent path rs automatically Value D'work'sample sample DefaultBuild	Description Absolute path of the a Active project name Build mode name	ictive projec
Browse Permit gon-exists Include gubfolder Include gubfolder Include gubfolder Placeholder Placeholder ActiveProjectDir ActiveProjectName BuldModeName MainProjectDir	ent path rs automatically Value D'\work\sample sample DefaultBuild D:\work\sample	Description Absolute path of the a Active project name Build mode name Absolute path of the n	ictive projec
Browse Permit gon-existe Include gubfolder Placeholder Placeholder ActiveProjectDir ActiveProjectName BuldModeName MainProjectDir MainProjectName	ent path rs automatically Value D'\work\sample sample DefaultBuild D:\work\sample sample	Description Absolute path of the a Active project name Build mode name Absolute path of the n Main project name	ictive projec

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)

4	Preprocess		_
4	Additional include paths	Additional include paths[2]	
	[0]	Vinc	
	[1]	%ProjectDir%	
⊳	System include paths	System include paths[0]	_
⊳	Include files at head of compiling units	Include files at head of compiling units[0]	
⊳	Macro definition	Macro definition[0]	
⊳	Macro undefinition	Macro undefinition[0]	

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

Additional include	paths	Additional include paths[0]	
System include participation in the system include participatio	ths	System include paths[0]	
Include files at heat	d of compiling units	Include files at head of compiling units[0]	
Macro definition		Macro definition[0]	
Macro undefinition		Macro undefinition[0]	

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

Figure 2.25 Text Edit Dialog Box

-26
*
-

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)

4	Preprocess			
⊳	Additional include paths	Additional include paths[0]		
⊳	System include paths	System include paths[0]		
Þ	Include files at head of compiling units	Include files at head of compiling units[0]		
1				· · · · · · · · · · · · · · · · · · ·
4	Macro definition	Macro definition[2]	)	
(	Macro definition [0]	Macro definition[2] TEST=1		
(-	Macro definition [0] [1]	Macro definition[2] TEST=1 TIME=10		

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

Y	Register Mode				
(	Register mode	32-register mode(No option specified)			
	Reserve r2 register	No			
	ep-register treatment	Treat as callee-save(No option specified)			

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

4	Preprocess		
⊳	Additional include paths	Additional include paths[0]	
⊳	System include paths	System include paths[0]	
⊳	Macro definition	Macro definition[0]	
⊳	Macro undefinition	Macro undefinition[0]	

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

Figure 2.29 Path Edit Dialog Box

			25
Path(One path per or	se line): 🔀		
_\no %ProjectDir%			*
			÷
4			
-			
Browse			
Permit gon-existe	ent path		
Browse Permit gon-exists Include gubfolder Decembolder	ent path is automatically		
Browse  Permit gon-exists Include gubfolder Paceholder: Placeholder	ent path is automatically Value	Description	•
	ent path is automatically Value D:\work\sample	Description Absolute path of the active project	· ·
Browse  Permit gon-existe Include gubfolder Placeholder Placeholder ActiveProjectDir ActiveProjectName	ent path s automatically Value D'twork'sample sample	Description Absolute path of the active project Active project name	- m.
Browse  Permit gon-existe Include gubfolder Include gubfolder Placeholder Placeholder ActiveProjectDir ActiveProjectName BuldModeName	ent path s automatically Value D:\work\sample sample DefaultBuild	Description Absolute path of the active project Active project name Build mode name	·
	ent path s automatically Value D:\work\sample sample DefaultBuild D:\work\sample	Description Absolute path of the active project Active project name Build mode name Absolute path of the main project	< III -
	ent path s automatically Value D:\work\sample sample DefaultBuild D:\work\sample sample	Description Absolute path of the active project Active project name Build mode name Absolute path of the main project Main project name	• <u> </u>

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.

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- 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)

4	Preprocess		
4	Additional include paths	Additional include paths[2]	
	[0]	Vinc	
	[1]	%ProjectDir%	
⊳	System include paths	System include paths[0]	
⊳	Macro definition	Macro definition[0]	
⊳	Macro undefinition	Macro undefinition[0]	

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
-------------	--------------------	----------

4	Preprocess			
Þ	Additional include paths	Additional include paths[0]		
D	System include paths	System include paths[0]	 	~
0	Macro definition	Macro definition[0]		J
Þ	Macro undefinition	Macro undefinition[0]		

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

~ ~ ~	Figure 2.32	Text Edit Dialog Box
-------	-------------	----------------------

Text Edit	
Text	
TEST_1 TIME_10	*
	-
	ок Cancel <u>H</u> elp

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)
---------------	--------------------	-----------------	-----------------

4	Preprocess		
⊳	Additional include paths	Additional include paths[0]	
⊳	System include paths	System include paths[0]	
4	Macro definition	Macro definition[2]	
	[0]	TEST=1	
$\left \right\rangle$	[1]	TIME=10	
⊳	Macro undefinition	Macro undefinition[0]	

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.



4	Library		
Þ	Using libraries	Using libraries[0]	
⊳	System libraries	System libraries[0]	
	Use standard libraries	Yes	
	Use "Standard/Mathematical Library" function	Yes	
	Check memory smashing on releasing memory	No	
	Use "Non-local jump Library" function	No	

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

Figure 2.35	Path Edit Dialog Box
-------------	----------------------

			22
ath(One path per or	se line): 🔀		
፡/MainProjectDir%\us	erlib		
			,
4			
Browse			
Browse     Permit <u>n</u> on-existe     Jaceholder:     Placeholder	int path Value	Description	
Browse     Permit gon-existe     Jaceholder:     Placeholder     ActiveProjectDir     ActiveProjectName	Int path Value D:\work\sample sample	Description Absolute path of the active project Active project name	m s
Permit gon-existe Paceholder: Placeholder ActiveProjectDir ActiveProjectName BuildModeName	value Value D:\work\sample sample DefaultBuild	Description Absolute path of the active project Active project name Build mode name	- m - 1
Browse     Permit gon-exists     Paceholder:     Placeholder     ActiveProjectDir     ActiveProjectDir     BuildModeName     MainProjectDir	value D:\work\sample sample DefaultBuild D:\work\sample	Description Absolute path of the active project Active project name Build mode name Absolute path of the main project	- m - 1
	Value D:\work\sample sample DefaultBuild D:\work\sample sample	Description Absolute path of the active project Active project name Build mode name Absolute path of the main project Main project name	

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.

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- 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)

4	Library		
4	Using libraries	Using libraries[1]	
	[0]	%MainProjectDir%¥userJib	
⊳	System libraries	System libraries[0]	
	Use standard libraries	Yes	
	Use "Standard/Mathematical Library" function	Yes	
	Check memory smashing on releasing memory	No	
	Use "Non-local jump Library" function	No	

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

4	Section		
	Section start address	.const,.INIT_DSEC.const,.INIT_BSEC.const,.text.cmn,.text	
⊳	Section that outputs external defined symbol	Section that outputs external defined symbols to the file[0]	
Þ	Section alignment	Section alignment[0]	
4	ROM to RAM mapped section	ROM to RAM mapped section[1]	
	[0]	.data=.data.R	

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





Text Edit		×
Text		
.data=.data.R user01 text.user01 text.R		~
user02.text=user02.text.R user03.text=user03.text_R		
user11 text-user11 text.R		
user12 text = user12 text.R		
user02.data=user02.data R		
user voldata Huser voldata In		
		*
•		P.
	OK Cancel He	6

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)

4	Section	
	Section start address	.const,.INIT_DSEC.const,.INIT_BSEC.const,.text.cmn,tex
⊳	Section that outputs external defined symbol	Section that outputs external defined symbols to the file[0]
⊳	Section alignment	Section alignment[0]
	ROM to RAM mapped section	ROM to RAM mapped section[10]
	[00]	.data=.data.R
	[01]	user01.text=user01.text.R
	[02]	user02.text=user02.text.R
	[03]	user03.text=user03.text.R
	[04]	user11.text=user11.text.R
	[05]	user12.text=user12.text.R
	[06]	user12.text=user12.text.R
	[07]	user01.data=user01.data.R
	[08]	user02.data=user02.data.R
	[09]	user03.data=user03.data.R

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  Se	ection start	address]	Property
-----------------	--------------	----------	----------

4	Section		
(	Section start address	.constINIT_DSEC.constINIT_BSEC.consttext.cmn.	
Þ	Section that outputs external defined symbols to the file	Section that outputs external defined symbols to the file[0]	_
Þ	Section alignment	Section alignment[0]	
Þ	ROM to RAM mapped section	ROM to RAM mapped section[10]	

#### <1> Set ROM sections

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

CS+
-----

Section Setting	js		<b>—</b> ×
Address	Section		Add
0x00010000	.const		Madita
	.INIT_DSEC.const		Modey
	.INIT_BSEC.const		New Qverlay
	text.cmn		Bemove
	text		
	.data		Up Down
0xFEDF8000	.data.R		
	bss		
	.stack.bss		
	•		mport
			Export
	ОК	Cancel	Help

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

Section Address	<b>——</b>
<u>A</u> ddress:	14000 💼
ок	Cancel Help

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.



Address	Section		Add
0x00010000	.const		Madika
	.INIT_DSEC.const		Modely
	.INIT_BSEC.const	]	New Qverlay
	.text.cmn		Remove
	.text		
	.data	1	Up Down
0x00014000	K	]	
0xFEDF8000	.data.R		
	bss Clic	k here, and then click	
	.stack.bss	[Add] button.	mport
			Export

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

Add Section	(	×
Section name: user01.text	OK Cancel Help	•

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.



Section Setting	js		<b>—</b> ×
Address	Section		<u>A</u> dd
0x00010000	.const		Madte
	.INIT_DSEC.const		Modry
	.INIT_BSEC.const		New Qverlay
	text.cmn		Bemove
	text		
	.data		<u>U</u> p <u>D</u> own
0x00014000	user01.text		
0xFEDF8000	.data.R		
	bss		
	.stack.bss		mport
			Export
	ОК	Can	cel <u>H</u> elp

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

Section Address	<b></b>
<u>A</u> ddress:	FEDF8100
ок	Cancel Help

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.

Section Setting	35		<b>—</b> × <b>—</b>
Address	Section	*	<u>A</u> dd
0x00014200	user03.text		Madži
0x00014300	user11.text		Modey
0x00014400	user12.text		New Qverlay
0x00014500	user13.text		Remove
0x00014600	user01.data	1 1	
0x00014700	user02.data	1	Up Down
0x00014800	user03.data	1	
0xFEDF8000	.data.R	Click here, and then click	
	bss	the [New Overlay] button.	
	.stack.bss		mport
0xFFDF8100		-	Export
		OK Cancel	] <u>H</u> elp

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

Add Overlay				<b>X</b>
Section name:				
user01.text.R	>			•
	ОК	Cancel	Help	

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.

Address	Section	*	Add
0x00014200	user03.text		Madda
0x00014300	user11.text		Modify
0x00014400	user12.text		New Qverlay
0x00014500	user13.text		Bemove
0x00014600	user01.data		
0x00014700	user02.data		<u>U</u> p <u>D</u> own
0x00014800	user03.data		
0xFEDF8000	.data.R	Click here, and then click	
	bss	the [New Overlay] button.	
	.stack.bss		mport
0xFFDF8100	user01.text.R	-	Export
	_		

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").



Address	Section	Overlay1	Overlay2	Add
0x00010000	const			Marth
	.INIT_DSEC.const			Modry
	.INIT_BSEC.const			New Qverlay
	text.cmn			Remove
	text			
	.data			<u>U</u> p <u>D</u> own
0x00014000	user01.text			
0x00014100	user02.text			
0x00014200	user03.text			
0x00014300	user11.text			
0x00014400	user12.text			
0x00014500	user13.text			
0x00014600	user01.data			
0x00014700	user02.data			
0x00014800	user03.data			
0xFEDF8000	.data.R			
	bss			
	.stack.bss			Import
0xFFDF8100	user01.text.R	user02.text.R	user03.text.R	Export

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.



Section Settings						
Address	Section	Overlay1	Overlay2	Add		
0x00010000	.const					
	.INIT_DSEC.const			Modery		
	.INIT_BSEC.const			New <u>Q</u> verlay		
	text.cmn	ROM se	ctions	Remove		
	text					
	.data			Up Down		
0x00014000	user01.text					
0x00014100	user02.text					
0x00014200	user03.text					
0x00014300	user11.text					
0x00014400	user12.text					
0x00014500	user13.text					
0x00014600	user01.data					
0x00014700	user02.data	R	AM sections			
0x00014800	user03.data					
0xFEDF8000	.data.R					
	bss					
	.stack.bss					
0xFFDF8100	user01.text.R	user02.text.R	user03.text.R			
0xFFDF8200	user11.text.R	user12.text.R	user13.text.R	import		
0xFFDF8300	user01.data.R	user02.data.R	user03.data.R	Export		
		ок	Cancel	Help		

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)

	4	Section		
(		Section start address	mn_text.data/00010000.user01.text/00014000:	
	>	Section that outputs external defined symbols to the fil-	Section that outputs external defined symbols to the file[0]	$\sim$
	>	Section alignment	Section alignment[0]	
1	>	ROM to RAM mapped section	ROM to RAM mapped section[10]	

## (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

$\sim$	Output File		
(	Output hex file	Yes 🗸	
	Output folder	%BuildModeName%	
	Output file name	%ProjectName%.mot	
	Load address	HEX	
>	Division output file	Division output file[0]	

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.
%ProjectDir%: Replaces with the absolute path of the project folder.
%ProjectName%: Replaces with the absolute path of the project folder.
%ProjectName%: Replaces with the absolute path of the project folder.
%ProjectName%: 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.



Select the format in the [Hex file format] property in the [Hex Format] category.


Figure 2.55 [Hex file format] Property

V.	Hex Format		_
(	Hex file format	Motorola S-record file(-FOrm=Stype) 🔍	
_	Unify record size	No	_
	Output hex file with fixed record length from aligned start address	No	
	Specify byte count for data record	No	
	Specify end record	Not specify(No option specified)	
	Output S9 record at the end	No	

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

4	Output File		
	Output hex file	Yes	
	Output folder	%BuildModeName%	
-	Output file name	%ProjectName% mot	$\square$
⊳	Division output file	Division output file[0]	

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



ext Edit			×
<u>F</u> ext			
file1.abs=sec1:sec2 file2.abs=10000-1ffff			*
4		,	Ŧ
Placeholder:			
Placeholder	Value	Description	
ActiveProjectDir ActiveProjectMcomName ActiveProjectName	D:/work/sample R7F701Z05 sample DefaultBuild	Absolute path of the active project fol Active project microcontroller name Active project name Build mode name	1

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)

4	Output File		
	Output hex file	Yes	
	Output folder	%BuildModeName%	
	Output file name	%ProjectName% mot	
	Division output file	Division output file[2]	
	[0]	file1.abs=sec1:sec2	
	[1]	file2.abs=10000:1ffff	

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

✓ Hex Format		
	Hex file format	Motorola S-record file(-FOrm=Stype)
	Unify record size	No
(	Fill unused areas in the output ranges with the value	Yes(Random)(-SPace=Random)
	Output hex file with fixed record length from aligned start address	No
	Specify byte count for data record	No
	Specify end record	Not specify(No option specified)
	Output S9 record at the end	No

Figure 2.57 Text Edit Dialog Box

## (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

~	Hex Format	
	Hex file format	Motorola S-record file(-FOrm=Stype)
	Unify record size	No
$\left( \right)$	Fill unused areas in the output ranges with the value	Yes(Specification value)(-SPace= <nume< th=""></nume<>
	Output padding data	HERI 00
	Output hex file with fixed record length from aligned start address	No
	Specify byte count for data record	No
	Specify end record	Not specify(No option specified)
	Output S9 record at the end	No

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 FFFFFFFFF (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

4	Output File		
$\left( \right)$	Output file format	User libraries(-FOrm=Library=U)	1
	Output folder	%BuildModeName%	
$\langle$	Output file name	%ProjectName%.lib	Ϊ

### (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 absolute path of the install folder of this product.
%MicomToolPath%: Replaces with the absolute path of the project folder.
%ProjectDir%: Replaces with the absolute path of the project folder.
%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
-------------	-----------------	---------	---------	----------

4	Build		
	Set as build-target	Yes	_
(	Set individual compile option	Yes	
_	File type	C source file	_

### Figure 2.63 Message Dialog Box

Question(Q	0293003)
0	Are you sure you want to set the current compile options to the individual compile options for all build modes?
	If [No] is selected, copy the current build mode options only.
	Yea No Cancel Help

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

4	Build		
	Set as build-target	Yes	
	Set individual assemble option	Yes	
	File type	Assembly source file	

### Figure 2.65 Message Dialog Box

Question(Q	0293004)	
2	Are you sure you want to set the current assemble options to the individual assemble options for all build modes?	
If [No] is selected, copy the current build mode options only.		
	Yea No Cancel Help	

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

A	Constituent Projects		
⊳	Constituent application projects	Constituent application projects[0]	

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



Select Constituent Application Projects	- ×-
Select constituent application projects. By selecting these projects, you can use the following stand-alone core debugging, debug all projects in par	features: launch an application from boot loader, use allel.
Project:	Association settings:
Sample_App1	Project Information     Project file     Sample_App1\Sample_App1.m     Symbol address file     *BuildModeName%\%Constitue
< +	Project file This is the project file of the constituent application project.
	OK Cancel Help

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)

4	Constituent Projects		 
4	Constituent application projects	Constituent application projects[1]	
	[0]	Sample_App1	

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

Y	Output File		
>	Output hex file	Yes	
	Output folder	%BuildModeName%	
	Output file name	%ProjectName%.mot	
	Load address	HEX	
	Division output file	Division output file[0]	
	Use object uniting function	No	

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

$\sim$	Hex Format		
(	Hex file format	Motorola S-record file(-FOrm=Stype) 🔍	
	Unify record size	No	_
	Output hex file with fixed record length from aligned start address	No	
	Specify byte count for data record	No	
	Specify end record	Not specify(No option specified)	
	Output S9 record at the end	No	

**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

×	Output File		
	Output hex file	Yes	
	Output folder	%BuildModeName%	
	Output file name	%ProjectName%.mot	
	Load address	HEX	
	Division output file	Division output file[0]	
(	Use object uniting function	Yes 🗸	
	Output folder for united hex file	%BuildModeName%_merged	_

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/C	) Header F	ile] Item
-------------	---------------	------------	-----------

CC-RH (Build Tool)		
	Build Project	F7
🕀 Program A 🕁	Rebuild Project	Shift+F7
E- File	Clean Project	
- 🔤 vecttl: 🎦	Set to Default Build Optic	on for Project
	Import Build Options	
ing ingeni	Set Link Order	
	Generate I/O Header File	>
<b>1</b>	Property	

Remark

When you have selected multiple build tool nodes for projects in the same device family, you can simultaneously update the I/O header files.

- 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.

$\sim$	I/O header file		
(	Update I/O header file on build	No	
$\sim$	Select modules which are output in files	No	
	Output definitions regarding µITRON	No	
	Enable MISRA-C option	No	
	Enable module array option	No	
	Enable IOR array option	No	
	Share definition of structure	Yes	



# 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 dia- log box	This dialog box is used to set the constituent application projects.

CS+



# 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

Pro	operty	
1	CC-RH Property	a / -
	Build Mode	0000
	Build mode	DefaultBuild
	Change property value for all build modes at once	No
4	Output File Type and Path	
	Output file type	Execute Module(Load Module File)
	Specify CPU core	Object for G3M(-Xcou=a3m)
	Output cross reference information	No
	Intermediate file output folder	%BuildModeName%
4	Frequently Used Options(for Compile)	
	Level of optimization	Perform the default optimization(None)
Þ	Additional include paths	Additional include paths[0]
Þ	System include paths	System include paths[0]
D	Macro definition	Macro definition[0]
4	Frequently Used Options(for Assemble)	
Þ	Additional include paths	Additional include paths [0]
Þ	System include paths	System include paths [0]
Þ	Macro definition	Macro definition [0]
4	Frequently Used Options(for Link)	
Þ	Using libraries	Using libraries[0]
	Output folder	%BuildModeName%
	Output file name	%ProjectName% abs
	Use standard libraries	Yes
	Use "Standard/Mathematical Library" function	Yes
	Use "Non-local jump Library" function	No
4	Frequently Used Options(for Hex Output)	
	Output hex file	Yes
	Hex file format	Motorola S-record file(-FOrm=Stype)
	Output folder	%BuildModeName%
	Output file name	%ProjectName% mot
D.	Division output file	Division output file[0]
b.	Device	purport option motol
b.	PIC/PID	
b.	Register Mode	
D.	Fror Output	
D	Warning Message	
Þ	Build Method	
Þ	Version Select	
Þ	Notes	
Þ	Others	
	14	
Se	lects the build mode name to be used during build.	
	Common / Compile Opt / Assemble O / L	ink Options 🖌 Hex Output 🖌 I/O Header

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 <i>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<sup>Note</sup>
    - 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

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.
Сору	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.

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

# [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.
Сору	Copies the selected characters of the property to the clipboard.
Paste	While editing the value of the property, inserts the contents of the clipboard.
Delete	While editing the value of the property, deletes the selected characters.
Select All	While editing the value of the property, selects all the characters of the selected property.
Reset to Default	Restores the configuration of the selected item to the default configuration of the project. For the [Individual Compile Options] tab and [Individual Assemble Options] tab, restores to the configuration of the general option.
Reset All to Default	Restores all the configuration of the current tab to the default configuration of the project. For the [Individual Compile Options] tab and [Individual Assemble Options] tab, restores to the configuration of the general option.



# [Common Options] tab

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

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

# (16)[Others]

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

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

# [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 Note that this p	d mode to be used during property is not applied to [	a build. 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 this property. Be careful since	er to reflect the value newly set to all build modes when a value is set in nee the value set may not be an appropriate value for other build modes.           No           Select from the drop-down list.		
	Default			
	How to change			
	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	<ul> <li>For other than the library project Execute Module(Load Module File)</li> <li>For the library project Library</li> </ul>		
	How to change	Select from the drop-down list.		
	Restriction	Execute Module(Load Module File)	Generates a load module file dur- ing 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 tar- get. This item is displayed only when [Yes] in the [Output hex file] prop- erty in the [Output File] category from the [Hex Output Options] tab is selected.	
		Library	Generates a library file during a build.	



Output common object file for various devices	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			
	Default	Yes(RH850 architecture common)	(-Xcommon=rh850)	
	How to change	Select from the drop-down list.		
	Restriction	Yes(RH850 architecture com- mon)(-Xcommon=rh850)	The result is the same as when [Yes(V850E3V5 architecture common)(-Xcom- mon=v850e3v5)] is specified.	
		Yes(V850E3V5 architecture common)(-Xcommon=v850e3v5)	Outputs the object file compati- ble with models having the V850E3V5 instruction set archi- tecture.	
Specify CPU core	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. [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. [Dbject 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			
	Default       - 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)			
	How to Select from the drop-down list. change			
	Restriction	Object for G3M(-Xcpu=g3m)	Generates an object for G3M.	
		Object for G3MH(-Xcpu=g3mh)	Generates an object for G3MH.	
		Object for G3K(-Xcpu=g3k)	Generates an object for G3K.	
		Object for G3KH(-Xcpu=g3kh)	Generates an object for G3KH.	
Object for G4MH(-Xcpu=g4mh)			Generates an object for G4MH.	



Output cross reference information	Select whether to output the cross reference information to a file. The file is output to the folder specified in the [Output folder] property in the [Output File] category from the [Link Options] tab. The file is output under the file name specified in the [Output file name] property with the extension replaced by ".cref". However, if the [Object file name] property in the [Output File] category from the [Indi- vidual 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.			
	Default	No		
	How to change	Select from the	e drop-down list.	
	Restriction	Yes(-Xcref)	Outputs the cross reference information. The build processing speed slows down, but "jump to function" can be used.	
		No Does not output the cross reference information.		
folder	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. %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 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)			
	- Subcomman	iu nie ior the con	embler (* cas)	
	- Subcomman	id file for the ont	imizing linker (For other than the library project) (* clnk)	
	- Subcomman	id file for the opt	imizing 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.			
	Default	%BuildModeN	ame%	
	How to change	How to changeDirectly enter in the text box or edit by the Browse For Folder dialog box which appears when clicking the [] button.		
	Restriction	Restriction Up to 247 characters		

(3) [Frequently Used Options(for Compile)]

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

Level of optimization	Select the level of the optimization for compiling. This 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 prece- dence(-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 pro- grams.	
		Speed precedence(- Ospeed)	Performs optimization with the execution speed precedence. Regards shortening the execution speed as important and performs the maximum opti- mization that is effective for general pro- grams.	
		Debug precedence(- Onothing)	Performs optimization with the debug pre- cedence. Regards debugging as important and sup- presses all optimization including default optimization.	
Additional include paths	Specify the add The following p %ActiveProje %BuildMode %MainProje %MicomToo product. %ProjectDir %ProjectDir %ProjectDir %ProjectDir %ProjectInr %Pro	Optimization.           eecify the additional include paths during compiling.           ue following placeholders are supported.           %ActiveProjectDir%: Replaces with the absolute path of the active project folder.           %ActiveProjectName%: Replaces with the absolute path of the main project folder.           %MainProjectDir%: Replaces with the absolute path of the main project folder.           %MainProjectName%: Replaces with the absolute path of the main project folder.           %MicomToolPath%: Replaces with the absolute path of the project folder.           %ProjectDir%: Replaces with the absolute path of the project folder.           %ProjectName%: Replaces with the absolute path of the project folder.           %ProjectName%: Replaces with the absolute path of the project folder.           %ProjectName%: Replaces with the absolute path of the temporary folder.           %ProjectName%: Replaces with the absolute path of the temporary folder.           %WinDir%: Replaces with the absolute path of the Vindows system folder.           %Worder of CC-RH.           we reference point of the path is the project folder.           hen this property is omitted, only the standard folder of CC-RH is searched.           is property corresponds to the -I option of the carh command.           we specified include path is displayed as the subproperty.           hen the include path is added to the project tree, the path is added to the top of the bproperties.           opperca		
	Restriction			



System include paths	Change the specified order of the include paths which the system set during compil- ing. 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 absolute path of the install folder of this product. %ProjectDir%: 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 temporary folder. %WinDir%: Replaces with the absolute path of the temporary 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.		
	The include pa	th is displayed as the subproperty.	
	Default	System include paths[number of defined items]	
	How to change	Edit by the System Include Path Order dialog box which appears when clicking the [] button.	
	Restriction	Changes not allowed (Only the specified order of the include paths can be changed.)	
Macro definition	Specify the name of the macro to be defined. Specify in the format of " <i>macro name=defined value</i> ", with one macro name per The " <i>=defined value</i> " part can be omitted, and in this case, "1" is used as the de 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.	

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



Additional include paths	Specify the additional include paths during assembling. The following placeholders are supported. %ActiveProjectDir%: Replaces with the absolute path of the active project folder. %ActiveProjectName%: Replaces with the active project name. %BuildModeName%: Replaces with the build mode name. %MainProjectDir%: Replaces with the absolute path of the main project folder. %MainProjectName%: Replaces with the absolute path of the install folder of this product. %ProjectDir%: Replaces with the absolute path of the project folder. %ProjectDir%: Replaces with the absolute path of the project folder. %ProjectDir%: Replaces with the absolute path of the project folder. %ProjectName%: Replaces with the absolute path of the project folder. %ProjectName%: Replaces with the absolute path of the temporary folder. %VinDir%: 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.	
System include paths	Change the specified order of the include paths which the system set during bling. The following placeholders are supported. %ActiveProjectDir%: Replaces with the absolute path of the active project %ActiveProjectName%: Replaces with the active project name. %BuildModeName%: Replaces with the build mode name. %MainProjectDir%: Replaces with the absolute path of the main project fol %MainProjectName%: Replaces with the absolute path of the install folder of product. %ProjectDir%: Replaces with the absolute path of the install folder of 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 temporary folder. The system include path is searched with lower priority than the additional impath. 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.		
	Default	System include paths[number of defined items]	
	How to changeEdit by the System Include Path Order dialog box which appe when clicking the [] button.		
	Restriction Changes not allowed (Only the specified order of the inclu- can be changed.)		



Macro definition	Specify the nar Specify in the f The "= <i>defined</i> value. This property o The specified r	Specify the name of the macro to be defined. Specify in the format of " <i>macro name=defined value</i> ", with one macro name per line. The " <i>=defined value</i> " 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 libr The following p %ActiveProj %ActiveProj %BuildMode %MainProje %MicomToo product. %ProjectDir %ProjectNar %ProjectNar %TempDir% %WinDir%: This property of The library file	<ul> <li>ary files to be used.</li> <li>blaceholders are supported.</li> <li>ectDir%: Replaces with the absolute path of the active project folder.</li> <li>ectName%: Replaces with the active project name.</li> <li>eName%: Replaces with the absolute path of the main project folder.</li> <li>ctDir%: Replaces with the absolute path of the main project folder.</li> <li>ctName%: Replaces with the absolute path of the install folder of this</li> <li>%: Replaces with the absolute path of the project folder.</li> <li>me%: Replaces with the absolute path of the project folder.</li> <li>me%: Replaces with the absolute path of the project folder.</li> <li>ctReplaces with the absolute path of the project folder.</li> <li>me%: Replaces with the absolute path of the temporary folder.</li> <li>creplaces with the absolute path of the Vindows system folder.</li> <li>corresponds to the -LIBrary option of the rlink command.</li> <li>name is displayed as the subproperty.</li> </ul>
	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 absolute path of the install folder of this product. %ProjectDir%: Replaces with the absolute path of the install folder of this product. %ProjectDir%: Replaces with the absolute path of the project folder. %ProjectDir%: Replaces with the absolute path of the temporary folder. %TempDir%: Replaces with the absolute path of the temporary folder. %WinDir%: Replaces with the absolute path of the temporary 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 b box which appears when	ox or edit by the Browse For Folder dialog 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 in or V1.02.00 or a later version is selected for the [Using compiler package vers property under the [Version Select] category in an environment where V1.02.0 later version of the CC-RH compiler has been installed.		es provided by the compiler. option of the rlink command. n [Always latest version which was installed] for the [Using compiler package version] ory in an environment where V1.02.00 or a een installed.	
	Default	Yes		
	How to change	Select from the drop-down	n 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.	



Use "Standard Library" function	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(\	/1.01 compatible)] in the [Us	se standard libraries] property is selected	
	Default	Yes(-LIBrary=libc)		
	How to change	Select from the drop-down	list.	
	Restriction	Yes(-LIBrary=libc)	Uses the standard library functions.	
		No	Does not use the standard library func- tions.	
Use "Mathematical Library (Double preci- sion)" function	<ul> <li>Select whether to use the mathematical library (double precision) functions.</li> <li>This property is changed to [No] when [No] in the [Use standard libraries] property is selected.</li> <li>This property corresponds to the -LIBrary option of the rlink command.</li> <li>This property is displayed in the following cases.</li> <li>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</li> </ul>			
	- When [Yes] i	in the [Use standard libraries	s] property is selected	
	or			
	<ul> <li>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</li> </ul>			
	- When [Yes(\	/1.01 compatible)] in the [Us	se standard libraries] property is selected	
	Default	Yes(-LIBrary=libm)		
	How to change	Select from the drop-down	l list.	
	Restriction         Yes(-LIBrary=libm)         Uses the mathematical library (do precision) functions.			
		Does not use the mathematical library (double precision) functions.		



Use "Mathematical Library (Single preci- sion)" function	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 [Alwa V1.02.00 is [Version Sel earlier than V	- 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	or			
	- When [Alway selected for <u>Select</u> ] categ compiler has	<ul> <li>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</li> </ul>			
	- When [Yes(\	/1.01 compatible	e)] in the [U	se standard libraries] property is selected	
	Default	Yes(-LIBrary=li	ibmf)		
	How to change	Select from the	e drop-dowr	n list.	
	Restriction	Yes(-LIBrary=libmf)		Uses the mathematical library (single pre- cision) functions.	
		No		Does not use the mathematical library (single precision) functions.	
Use "Standard/Mathe- matical Library" func- tion	Select whether This property o This property is	er to use the standard/mathematical library functions. corresponds to the -LIBrary option of the rlink command.			
	- When [Alwa selected for Select] cated compiler has	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 stand	lard librarie	s] property is selected	
	Default	Yes			
	How to change	Select from the	e drop-dowr	n list.	
	Restriction	Yes	Uses the	standard/mathematical library functions.	
		No	Does not tions.	use the standard/mathematical library func-	
Use "Non-local jump Library" function	Select whether This property of This property is property is sele	er to use the non-local jump library functions. corresponds to the -LIBrary option of the rlink command. is displayed only when other than [No] in the [Use standard libraries] elected.		ibrary functions. option of the rlink command. than [No] in the [Use standard libraries]	
	Default	No			
	How to change	Select from the	e drop-dowr	n list.	
	Restriction	Yes(-LIBrary=li	ibsetjmp)	Uses the non-local jump library functions.	
		No		Does not use the non-local jump library functions.	



## (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 I	nex file.
Hex file format	Select the form This property c This property is	nat of the hex file to be output. corresponds to the -FOrm option of the rlink command. s displayed only when [Yes] in the [Output hex file] property is selected.		
	Default	Motorola S-rec	ord 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-rec FOrm=Stype)	ord file(-	Outputs a Motorola S-record file.
		Binary file(-FO	rm=Binary)	Outputs a binary file.
Output folder	FOrm=Stype)         file.           Binary file(-FOrm=Binary)         Outputs a binary file.           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 subproject folder.           If an absolute path is specified, the reference point of the path is the main project or subproject folder.         If an absolute path is specified, the reference point of the path is the main project or subproject folder (unless the drives are different).           The following placeholders are supported.         %ActiveProjectDir%: Replaces with the absolute path of the active project folder.           %ActiveProjectDir%: Replaces with the absolute path of the main project folder.         %MainProjectDir%: Replaces with the absolute path of the main project folder.           %MainProjectDir%: Replaces with the absolute path of the install folder of this product.         %ProjectDir%: Replaces with the absolute path of the install folder of this product.           %ProjectDir%: Replaces with the absolute path of the project folder.         %MicomToolPath%: Replaces with the absolute path of the project folder.           %VerojectDir%: Replaces with the absolute path of the project folder.         %ProjectDir%: Replaces with the absolute path of the temporary folder.           %WinDir%: Replaces with the absolute path of the temporary folder.         %Interpolir%: Replaces with the absolute path of the temporary folder.           %If any point%: Replaces with the absolute path of the temporary folder.         %Inther project folder has been specified. </td <td>e path is the main project or sub- the path is the main project or ath of the active project folder. roject name. e name. h of the main project folder. ect name. th of the install folder of this he project folder. e temporary folder. Windows system folder. s been specified. e rlink command. put hex file] property is selected. y the Browse For Folder dialog [] button.</td>		e path is the main project or sub- the path is the main project or ath of the active project folder. roject name. e name. h of the main project folder. ect name. th of the install folder of this he project folder. e temporary folder. Windows system folder. s been specified. e rlink command. put hex file] property is selected. y the Browse For Folder dialog [] button.	



Output file name	Specify the hex file name. If the extension is omitted, it is automatically added according to the selection in the [Hex file format] property. When [Intel HEX file(-FOrm=Hexadecimal)] is selected: .hex When [Motorola S-record file(-FOrm=Stype)] is selected: .mot When [Binary file(-FOrm=Binary)] is selected: .bin The following placeholders are supported. %ActiveProjectName%: Replaces with the active project name. %MainProjectName%: Replaces with the main project name. %ProjectName%: Replaces with the project name. %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.		
	Default	%ProjectName%.mot	
	How to change	Directly enter in the text box.	
	Restriction	Up to 259 characters	
Division output file	change       Image: Construction of the project folder.         Restriction       Up to 259 characters         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".       If multiple 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 [Intel HEX file(-FOrm=Hexadecimal)] is selected: .mot         When [Intel HEX file(-FOrm=Binary)] is selected: .bin       The following placeholders are supported.         %ActiveProjectDir%: Replaces with the absolute path of the active project folder.       %ActiveProjectDir%: Replaces with the absolute path of the main project folder.         %MainProjectDir%: Replaces with the absolute path of the main project folder.       %MainProjectDir%: Replaces with the absolute path of the install folder of this product.         %ProjectDir%: Replaces with the absolute path of the project folder.       %ProjectDir%: Replaces with the absolute path of the project folder.         %MicomToolPath%: Replaces with the absolute path of the project folder.       %ProjectDir%: Replaces with the absolute path of the project folder.         %ProjectDir%: Replaces with the absolute path of the project folder.		
	Default       Division output hie[number of defined hems]         How to change       Edit by the Text Edit dialog box which appears when clicking the button. For the subproperty, you can enter directly in the text box.         Restriction       Up to 259 characters Up to 65535 items can be specified.		

(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=Libr	ary=U)	
	How to change	Select from the drop-dowr	n 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	<ul> <li>Specify the output folder.</li> <li>The following placeholders are supported.</li> <li>%ActiveProjectDir%: Replaces with the absolute path of the active project fol %ActiveProjectName%: Replaces with the active project name.</li> <li>%BuildModeName%: Replaces with the absolute path of the main project folder.</li> <li>%MainProjectDir%: Replaces with the absolute path of the install folder of the product.</li> <li>%ProjectDir%: Replaces with the absolute path of the project folder.</li> <li>%ProjectDir%: Replaces with the absolute path of the project folder.</li> <li>%ProjectDir%: Replaces with the absolute path of the project folder.</li> <li>%ProjectDir%: Replaces with the absolute path of the project folder.</li> <li>%ItempDir%: Replaces with the absolute path of the temporary folder.</li> <li>%WinDir%: Replaces with the absolute path of the Vindows system folder.</li> <li>If this is blank, it is assumed that the project folder has been specified.</li> <li>This property corresponds to the -OUtput option of the rlink command.</li> </ul>		absolute path of the active project folder. the active project name. build mode name. bosolute path of the main project folder. ie main project name. absolute path of the install folder of this ute path of the project folder. bject name. e path of the temporary folder. path of the Windows system folder. ect folder has been specified. 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 out If the extension [Hex file format When [User When [Syste When [Reloc The following p %ActiveProje %MainProje %ProjectNai This property c	butput file name. ion is omitted, it is automatically added according to the selection in the nat] property. er libraries(-FOrm=Library=U)] is selected: .lib stem libraries(-FOrm=Library=S)] is selected: .lib clocatable file(-FOrm=Relocate)] is selected: .rel g placeholders are supported. rojectName%: Replaces with the active project name. bjectName%: Replaces with the main project name. Name%: Replaces with the project name. y corresponds to the -OUtput option of the rlink command.		
	Default	%ProjectName%.lib		
	How to change	Directly enter in the text be	ox.	
	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	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.
Use "Standard Library" function	No         Does not use the standard libraries.           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 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 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	No	
	How to change	Select from the drop-down	n list.
	Restriction	Yes(-LIBrary=libc)	Uses the standard library functions.
		No	Does not use the standard library func- tions.



Use "Mathematical Library (Double preci- sion)" function	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	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-RF compiler has been installed			
	- When [Yes(\	- When [Yes(V1.01 compatible)] in the [Use standard libraries] property is selected         Default       No         How to change       Select from the drop-down list.		
	Default			
	How to change			
	Restriction	Yes(-LIBrary=libm)	Uses the mathematical library (double precision) functions.	
		No	Does not use the mathematical library (double precision) functions.	
Use "Mathematical Library (Single preci- sion)" function	<ul> <li>Select whether to use the mathematical library (single precision) functions.</li> <li>This property is changed to [No] when [No] in the [Use standard libraries] property is selected.</li> <li>This property corresponds to the -LIBrary option of the rlink command.</li> <li>This property is displayed in the following cases.</li> <li>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</li> </ul>			
	- When [Yes]	in the [Use standard libraries	s] 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(\	/1.01 compatible)] in the [Us	se standard libraries] property is selected	
	Default	No		
	How to change	Select from the drop-dowr	n list.	
	Restriction         Yes(-LIBrary=libmf)         Uses the mathematical library (single cision) functions.           No         Does not use the mathematical library (single precision) functions.			



Use "Standard/Mathe- matical Library" func- tion	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 tions.	use the standard/mathematical library func-	
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=li	bsetjmp)	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 FFFFFFF (hexadecimal number without 0x)		



Reset vector address of PE <i>n</i>	This is the rese If there is a pro- changed to tha See the user's This contents a This property is	he reset vector address of PE <i>n</i> ( <i>n</i> : core number). is a property with the same name in the Microcontroller node, this value is d to that value. user's manual of the device for about the reset vector address. ntents are common to all the build modes. operty is displayed in the following cases.		
	- For other than the library project			
	- When the device has PE <i>n</i>			
	Default	The peculiar value for the target device		
	How to change	Directly enter in the text box.		
	Restriction	0 to FFFFFFF (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 independent re The PIC facility PIROD facility Selecting [Yes( tions and the a This property of This property is V1.07.00 or a l erty under the version of the 0	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	unction Select whether to enable the PID (position independent data) facility. The PID facility selects the default allocation of initialized data to the .sdata3 and of non-initialized data to the .sbss32 section. Selecting [Yes(-pid)] for this property enables GP- or EP-relative access to t tions 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] of V1.07.00 or a later version is selected for the [Using compiler package versi erty under the [Version Select] category in an environment where V1.07.00 of 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.			
	<ul> <li>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</li> </ul>			
	- When [No] in the [Enables the PID function] property is selected			
	Default	GP-relative base register(No option specified)       Select from the drop-down list.		
	How to change			
	Restriction	GP-relative base regis- ter(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) <sup>Note</sup> of the soft- ware 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 optior 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 H Specify [Fix in #pragma section ep_auto, ep_ Only [Treat as mize accesses from the [Comp This property comp	to handle the ep register. in project(-Xep=fix)] when any of the following attribute strings in a action in the project is used. ep_disp4, ep_disp5, ep_disp7, ep_disp8, ep_disp16, ep_disp23 as callee-save(No option specified)] is displayed when [Yes] in the [Opt ses to external variables] property in the [Optimization(Details)] category ompile Options] tab is selected. ty 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 regist	The register modes provided by CC-RH are shown below.			

 0		,	
Reaister	Mode		Workir

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 This property c Error message	r to merge the error message file. corresponds to the -Xerror_file option of the ccrh command. es are displayed on the Output panel regardless of this property's. No		
	Default			
	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 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 -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 changeDirectly enter in the text box or edit by the Browse For Folder d box which appears when clicking the [] button.			
	Restriction	Up to 247 characters		



Merged error message file name	<ul> <li>Specify the merged error message file name. The extension can be freely specified.</li> <li>The following placeholders are supported. %ActiveProjectName%: Replaces with the active project name. %MainProjectName%: Replaces with the main project name.</li> <li>%ProjectName%: Replaces with the project name.</li> <li>If this is blank, it is assumed that "%ProjectName%.err" has been specifi This property corresponds to the -Xerror_file option of the ccrh commanc This property is displayed only when [Yes(-Xerror_file)] in the [Output err file] property is selected.</li> </ul>		
	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) (e 02042,02107). Also, the range can be set using "-" (hyphen) (example: 02222-02554,0269 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 dia- log 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 The files with the excluded from See "2.2.1Rund ously.	r to compile/assemble multiple files simultaneously. he individual build options and files to be executed prior to the build are running a build simultaneously. ning simultaneous build" for details about running a build simultane-		
	Default	No Select from the drop-down list.		
	How to change			
	Restriction	Yes	Compiles and assembles multiple files simultane- ously.	
		No	Compiles and assembles for each file.	



Build in parallel	Select whether The parallel bu parallel using a assemble. In addition, par [Option] and the log box. See "2.2.2Run	er to enable the parallel build facility. uild facility enables CS+ to compile/assemble multiple source files in all processors mounted on the computer. This speeds up compilation/ arallel build between projects can be set by selecting [Tool] menu >> hen making a setting in the [General - Build] category of the Option dia- nning parallel build" for details about parallel build. Yes Select from the drop-down list.		
	Default			
	How to change			
	Restriction	Yes	Enables th	e parallel build facility.
		No	Disables th	ne parallel build facility.
Group messages by each source file/target in the parallel build	Select whethe When [Yes] is timing of comp This property i	hether to group messages by each source file/target in the parallel build. es] is selected, CS+ synchronizes the output timing of messages with the en- compile/assemble, etc. for each source file. perty is displayed when [Yes] is selected for the [Build in parallel] property.		
	Caution	Messages are not grouped if [Enable parallel build among projects] in the [General - Build] category is selected in the Option dialog bo:		
	Default	No		
	How to change	Select from the	e drop-down	list.
	Restriction	Yes	Groups me parallel bui	essages by each source file/target in the ild.
		No	Does not group messages by each source file/target in the parallel build.	
Handling the source file includes unfound	Select whether found in the sta	r to recompile/assemble the source file if it includes a file that is not tandard and additional include paths.		
file	Default	Re-compile/as	semble the s	source file
	How to change	Select from the drop-down list.		list.
	Restriction	Re-compile/ass source file	semble the	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 pack-	The folder in w	which the compiler package to be used is installed is displayed.	
age install loider	Default	Install folder name	
	How to change	Changes not allowed	



Using compiler pack- age version	Select the vers	elect the version of the compiler package to be used. his 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 pack- age version which was installed	The version of the compiler package to be used when [Always latest version wh was installed] is selected in the [Using compiler package version] property is dis played. This setting is common to all the build modes. This property is displayed only when [Always latest version which was installed] [Using compiler package version] property is selected.		<ul> <li>used when [Always latest version which mpiler package version] property is dis-</li> <li>des.</li> <li>ays latest version which was installed] in the y is selected.</li> </ul>	
	Default	Latest version of the insta	alled compiler packages	
	How to Changes not allowed change			

## (15) [Notes]

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

Memo	Add memos to Add one item in This setting is o The specified r	the build tool. n one line. common to all the build modes. nemo 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 for- mat	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 (u drop-down list.	ip to 256 characters) or select from the	
	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 com- mand line options in the output mes- sage.	
Format of build option list	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.			
	Default	%TargetFiles% : %Program%	%Options%	
	How to changeDirectly enter in the text box or edit by the Character String Input log box which appears when clicking the [] button.			
	Restriction	estriction Up to 256 characters		



Commands executed before build process- ing	Specify the cor Use the call ins The following p %ActiveProj %BuildMode %MainProje %MicomToo product. %OutputDir% %OutputFile %ProjectDir% %ProjectNan %TempDir% %WinDir%: 1 When "#!pytho last line are reg build processir The placeholde The specified of	<ul> <li>mmand to be executed before build processing.</li> <li>struction to specify a batch file (example: call a.bat).</li> <li>blaceholders are supported.</li> <li>ectDir%: Replaces with the absolute path of the active project folder.</li> <li>ectName%: Replaces with the active project name.</li> <li>eName%: Replaces with the build mode name.</li> <li>ctDir%: Replaces with the absolute path of the main project folder.</li> <li>ctName%: Replaces with the absolute path of the main project folder.</li> <li>ctName%: Replaces with the absolute path of the install folder of this</li> <li>%: Replaces with the absolute path of the output folder.</li> <li>%: Replaces with the absolute path of the output file.</li> <li>%: Replaces with the absolute path of the project folder.</li> <li>me%: Replaces with the absolute path of the project folder.</li> <li>me%: Replaces with the absolute path of the project folder.</li> <li>me%: Replaces with the absolute path of the project folder.</li> <li>me%: Replaces with the absolute path of the project folder.</li> <li>me%: Replaces with the absolute path of the project folder.</li> <li>me%: Replaces with the absolute path of the project folder.</li> <li>me%: Replaces with the absolute path of the temporary folder.</li> <li>Replaces with the absolute path of the temporary folder.</li> <li>me%: Replaces with the absolute path of the Windows system folder.</li> <li>min is described in the first line, the contents from the second line to the garded as the script of the Python console, and then executed before folg.</li> <li>ers can be described in the script.</li> <li>command is displayed as the subproperty.</li> </ul>	
	Default	Commands executed before build 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.	
Commands executed after build processing	Specify the cor Use the call ins The following p %ActiveProj %BuildMode %MainProje %MicomToo product. %OutputDir %OutputDir %ProjectDir %ProjectDir %ProjectNan %TempDir% %WinDir%: 1 When "#!pytho last line are reg build processin The placeholde	<ul> <li>mmand to be executed after build processing.</li> <li>struction to specify a batch file (example: call a.bat).</li> <li>blaceholders are supported.</li> <li>ectDir%: Replaces with the absolute path of the active project folder.</li> <li>ectName%: Replaces with the build mode name.</li> <li>etDir%: Replaces with the absolute path of the main project folder.</li> <li>ctDir%: Replaces with the absolute path of the main project folder.</li> <li>ctName%: Replaces with the absolute path of the install folder of this</li> <li>W: Replaces with the absolute path of the output folder.</li> <li>w: Replaces with the absolute path of the output file.</li> <li>%: Replaces with the absolute path of the project folder.</li> <li>me%: Replaces with the absolute path of the project folder.</li> <li>me%: Replaces with the absolute path of the project folder.</li> <li>me%: Replaces with the absolute path of the project folder.</li> <li>me%: Replaces with the absolute path of the project folder.</li> <li>me%: Replaces with the absolute path of the project folder.</li> <li>me%: Replaces with the absolute path of the project folder.</li> <li>me%: Replaces with the absolute path of the temporary folder.</li> <li>me%: Replaces with the absolute path of the temporary folder.</li> <li>me%: Replaces with the absolute path of the temporary folder.</li> <li>me%: Replaces with the absolute path of the temporary folder.</li> <li>me%: Replaces with the absolute path of the temporary folder.</li> <li>me%: Replaces with the absolute path of the temporary folder.</li> <li>me%: absolute path of the Windows system folder.</li> <li>mi is described in the first line, the contents from the second line to the garded as the script of the Python console, and then executed after folg.</li> <li>ers can be described in the script.</li> <li>command is displayed as the subproperty.</li> </ul>	
	Default	Commands executed after build 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.	
	RestrictionUp to 1023 charactersUp to 64 items can be specified.		



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



# [Compile Options] tab

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

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

# [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 infor- mation with optimiza- tion	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 selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.0 or a later version of the CC-RH compiler has been installed		which was installed] or V1.05.00 or a later version is iler package version] property under the [Version mon Options] tab in an environment where V1.05.00 RH compiler has been installed
	- When [Yes(-	g)] in the [Add d	ebug information] property is selected
	Default	Yes(-g_line)	
	How to Select from the drop-down list.		e 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 Restrictio	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 prece- dence(-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 pro- grams.
		Speed precedence(- Ospeed)	Performs optimization with the execution speed precedence. Regards shortening the execution speed as important and performs the maximum optimi- zation that is effective for general programs.
		Debug precedence(- Onothing)	Performs optimization with the debug prece- dence. Regards debugging as important and sup- presses 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] prop- erty.	
		Yes(-Odelete_static_func)	Removes the unused static func- tions which are not called.	
		No(-Odelete_static_func=off)	Does not remove the unused static functions which are not called.	



Perform inline expan- sion	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 pre- cedence(-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, to specify max- imum increasing rate)(-Oin- line=2 -Oinline_size)	Distinguishes the function that is the target of inline expansion automatically and expands it. Specify the maximum rate of increase.	
		Yes(Auto-detect, maximum increasing rate : to adjust the level of optimization)(-Oinline=2)	Distinguishes the function that is the target of inline expansion automatically and expands it. The compiler takes a value that suits the optimization level as the maxi- mum rate of increase.	
		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 expan- sion size	Specify the ma sion is perform until the code s This property of This property is rate)(-Oinline= or when [To ad expansion] pro property are se	aximum increasing rate (%) of the code size up to which inline expan- med. (Example: When "100" is specified, inline expansion will be apple size increases by 100% (becomes twice the initial size).) corresponds to the -Oinline_size option of the ccrh command. is displayed when [Yes(Auto-detect, to specify maximum increasing =2 -Oinline_size)] in the [Perform inline expansion] property is select idjust the level of optimization(No option specified)] in the [Perform inline roperty and [Speed precedence(-Ospeed)] in the [Level of optimization selected.		
	How to	Directly enter in the text box		
	change			
	Restriction	0 to 65535 (decimal number)		



Perform pipeline opti- mization	Select whether instructions at This property o	whether to improve the program's execution performance by reordering ctions at the machine-language level. roperty 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] prop- erty.	
		Yes(-Opipeline)	Performs pipeline optimization.	
		No(-Opipeline=off)	Does not perform pipeline optimi- zation.	
Use jr instruction to call a function at the end of the function	Select whether tions when the This property o	r to give precedence to using jr instr function ends with a function call. corresponds to the -Otail_call option	uctions in the place of jarl instruc- 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] prop- erty.	
		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 immedi- ate values	Select whether This property of This property is installed] or V1 erty under the ment where V2	er to use immediate values to initialize automatic variables. corresponds to the -Oinline_init option of the ccrh command. is displayed when you have selected [Always latest version which was /1.07.00 or a later version for the [Using compiler package version] prop e [Version Select] category on the [Common Options] tab in an environ- /1.07.00 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] prop- erty.	
		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.	



Perform optimization	Select whether	r to proceed with optimization throug	gh a change of the alignment condi-	
by changing align- ment conditions	tions. 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 [Level of optimization] property is selected			
	- When [No] ir alignments]	n the [Allocate uninitialized variables property is selected	in sections according to number of	
	- When [No] ir alignments]	n the [Allocate initialized variables ir property is selected	າ sections according to number of	
	- When [No] ir of alignment	<ul> <li>When [No] in the [Allocate const qualified variables in sections according to number of alignments] property is selected</li> </ul>		
	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] prop- erty.	
		Yes(-Oalign)	Performs optimization through a change of the alignment condi- tions.	
		No(-Oalign=off)	Does not perform optimization through a change of the align- ment conditions.	
Optimize accesses to external variables	Select whether This property c	r to optimize accesses to external va corresponds to the -Osmap and -On	ariables. nap options of the ccrh command.	
	Default	No		
	How to change	Select from the drop-down list.		
	Restriction	Yes(Optimizes the inner-mod- ule)(-Osmap)	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.	
		Yes(Optimizes the inner-mod- ule)(-Omap)	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.	
		No	Does not optimize accesses to external variables.	



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 -Xintermod- ule 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 pro- gram)(-Xwhole_program)	Performs inter-module optimiza- tion assuming that the source files comprise the entire program. However, operation is not guaran- teed if the preconditions are not met. See "CC-RH Compiler User's Manual" for details about the pre- conditions.	
		Yes(Level 2)(Perform with merg- ing files)(-Xmerge_files, -Xinter- module)	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)(-Xinter- module)	Performs inter-module optimiza- tion for each file.	
		No	Does not perform inter-module optimization.	
Expansion method of library function	Select the meth This property c This property is installed] or V2 erty under the ment where V2	hod for expanding library functions. corresponds to the -library option of s displayed when you have selected 2.00.00 or a later version for the [Usi [Version Select] category on the [Co 2.00.00 or a later version of the CC-	the ccrh command. J [Always latest version which was ing compiler package version] prop- ommon Options] tab in an environ- RH compiler has been installed.	
	Default	Calls library functions(No option s	pecified)	
	How to change	Select from the drop-down list.		
	Restriction	Calls library functions(No option specified)	Calls all standard library func- tions.	
		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	Select whether to perform optimization with consideration for the type of the data indi- cated by the pointer, based on the ANSI standard. This property corresponds to the -Xalias option of the ccrh command.			
pointer	Default	No		
	How to change	Select from the	e 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 perfor- mance, but the execution result may differ from the case when [No] is selected.	
		No	Does not perform the type of the da	optimization with consideration for ta indicated by the pointer.
Perform inline expan- sion of strcpy/strcmp/ memcpy/memset	Select whether cpy()", and "ma (including char This improves the code size. This property of This property i [Output Code]	r to perform inlin emset()" calls, w racter strings) an the execution sp corresponds to th s displayed only category is sele	e expansion of fund ith regarding the all id the structure as 4 beed of the program ne -Xinline_strcpy of when [No] in the [S cted.	ctions "strcpy()", "strcmp()", "mem- ignment conditions of the array 4 bytes. In to be generated, but it increases option of the ccrh command. Structure packing] property in the
	Default	No		
	How to change	Select from the drop-down list.		
	Restriction	Yes(-Xinline_s	trcpy)	Performs inline expansion of func- tions "strcpy()", "strcmp()", "mem- cpy()", and "memset()" calls.
		No		Does not perform inline expan- sion of functions "strcpy()", "strcmp()", "memcpy()", and "memset()" calls.
Merge string literals	When the sam and allocate to This property o	he string literals e the one area. corresponds to th	exist in the source fine -Xmerge_string o	le, specify whether to merge them 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 allo- cates to the one area.
		No		Each allocates the same string lit- erals exist in the source file to separate areas.



Output additional infor- mation for optimiza- tion at time of linkage	Select whether Optimization at fied. This property of This property is installed] or V2 erty under the ment where V2	to output additional information for t time of linkage is applied to files for corresponds to the -goptimize option s displayed when you have selected 2.01.00 or a later version for the [Us [Version Select] category on the [Co 2.01.00 or a later version of the CC-	optimization at the time of linkage. or which this option has been speci- n of the ccrh command. d [Always latest version which was ing compiler package version] prop- ommon Options] tab in an environ- 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 infor- mation 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 add The following p %ActiveProj %BuildMode %MainProje %MicomToo product. %ProjectDir %ProjectDir %ProjectDir %ProjectNar %ProjectNar %ProjectNar %ProjectNar %ProjectInr %Proj	ditional include paths during compiling. blaceholders are supported. ectDir%: Replaces with the absolute path of the active project folder. ectName%: Replaces with the absolute project name. eName%: Replaces with the build mode name. ctDir%: Replaces with the absolute path of the main project folder. ctName%: Replaces with the absolute path of the install folder of this "Replaces with the absolute path of the install folder of this "Replaces with the absolute path of the project folder. me%: Replaces with the project name. "Replaces with the absolute path of the project folder. me%: Replaces with the absolute path of the temporary folder. Replaces with the absolute path of the Windows system folder. nclude path is searched with higher priority than the standard include C-RH. point of the path is the project folder. point of the path is the project folder. corresponds to the -I option of the ccrh command. nclude path is displayed as the subproperty. ude path is added to the project tree, the path is added to the top of the aracters and lowercase characters are not distinguished for the include
	Default	Additional include paths[number of defined items]
	How to change	Edit by the Path Edit dialog box which appears when clicking the [] button. For the subproperty, you can enter directly in the text box.
	Restriction	Up to 259 characters Up to 256 items can be specified.



System include paths	Change the sp ing. The following p %ActiveProj %ActiveProj %BuildMode %MainProje %MicomToo product. %ProjectDir %ProjectDir %ProjectNar %P	ecified order of the include paths which the system set during compil- placeholders are supported. ectDir%: Replaces with the absolute path of the active project folder. ectName%: Replaces with the active project name. eName%: Replaces with the build mode name. ctDir%: Replaces with the absolute path of the main project folder. ctName%: Replaces with the absolute path of the install folder of this IPath%: Replaces with the absolute path of the install folder of this %: Replaces with the absolute path of the project folder. me%: Replaces with the project name. : Replaces with the absolute path of the temporary folder. Replaces with the absolute path of the temporary folder. Clude path is searched with lower priority than the additional include point of the path is the project folder. corresponds to the -I option of the ccrh command. th is displayed as the subproperty.
	Default	System include paths[number of defined items]
	How to change	Edit by the System Include Path Order dialog box which appears when clicking the [] button.
	Restriction	Changes not allowed (Only the specified order of the include paths can be changed.)
Include files at head of compiling units	Specify the file The following p %ActiveProj %BuildMode %MainProje %MicomToo product. %ProjectDir %ProjectNar %TempDir% %WinDir%: The reference This property of The specified i	that is included at the top of the compilation unit. blaceholders are supported. ectDir%: Replaces with the absolute path of the active project folder. ectName%: Replaces with the active project name. eName%: Replaces with the build mode name. ctDir%: Replaces with the absolute path of the main project folder. ctName%: Replaces with the absolute path of the main project folder. ctName%: Replaces with the absolute path of the install folder of this W: Replaces with the absolute path of the project folder. me%: Replaces with the project name. : Replaces with the absolute path of the temporary folder. Replaces with the absolute path of the temporary folder. Replaces with the absolute path of the temporary folder. corresponds to the -Xpreinclude option of the ccrh command. nclude file name is displayed as the subproperty.
	Default	Include files at head of compiling units[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 247 characters Up to 256 items can be specified.



Macro definition	Specify the nan Specify in the f The "= <i>defined</i> value. This property o The specified r	ecify the name of the macro to be defined. ecify in the format of " <i>macro name=defined value</i> ", with one macro name per line. e " <i>=defined value</i> " part can be omitted, and in this case, "1" is used as the defined lue. is property corresponds to the -D option of the ccrh command. e specified macro is displayed as the subproperty.			
	Default	Macro definition[number of defi	ined 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 specifie	ed.		
Macro undefinition	Specify the ma Specify in the f This property c The specified r	cro name to be undefined. ormat of " <i>macro name</i> ", with one macro name per line. orresponds to the -U option of the ccrh command. nacro is displayed as the subproperty.			
	Default	Macro undefinition[number of a	lefined items]		
	How to change	<ul> <li>Edit by the Text Edit dialog box which appears when clicking the [ button.</li> <li>For the subproperty, you can enter directly in the text box.</li> <li>Up to 256 characters</li> <li>Up to 256 items can be specified.</li> </ul>			
	Restriction				
Output C source com- ments to preprocessed file	Select whether This property o This property is property in the	er to output the comments of the C source to the preprocessed file. corresponds to the -Xpreprocess option of the ccrh command. is displayed only when [Yes(-P)] in the [Output preprocessed source file] e [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 prepro- cessed file	Select whether cessed file. This property of This property is property in the	There to output the line number information of the C source to the prepro- y corresponds to the -Xpreprocess option of the ccrh command. y is displayed only when [Yes(-P)] in the [Output preprocessed source file] he [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.



Detect stack smashing	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-definedstack_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] prop- erty under the [Version Select] category on the [Common Options] tab in an environ- ment where V1.03.00 or a later version of the CC-RH compiler has been installed.			
	Default	No(No option specified)		
	How to change	Select from the drop-down list.		
	Restriction	Yes(-Xstack_protector)	Detects the stack smashing.	
		Yes(All)(- Xstack_protector_all)	Detects the stack smashing for all func- tions.	
		No(No option specified)	Does not detect the stack smashing.	
Value to be embed- ded for detecting stack smashing	<ul> <li>Specify the value to be embedded for detecting the stack smashing.</li> <li>This property is usable only in the Professional Edition.</li> <li>This property corresponds to the -Xstack_protector and -Xstack_protector_all options of the ccrh command.</li> <li>This property is displayed in the following cases.</li> <li>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</li> </ul>			
	- When other than [No(No option specified)] in the [Detect stack smashing] property is selected			
	Default	Blank		
	How to change	How to Directly enter in the text box.		
	Restriction	0 to 4294967295 (decima	al number)	



Detect illegal indirect function call	Select whether Enable this fact indirect function The output coor response to the This property is This property is installed] or V1 erty under the ment where V2	ether to output code for detecting illegal indirect function calls.         s facility to check the destination addresses of branches caused by each notion call.         t code will call the user-definedcontrol_flow_chk_fail() function in to the detection of a problem.         erty is usable only in the Professional Edition.         erty corresponds to the -control_flow_integrity option of the ccrh command.         erty is displayed when you have selected [Always latest version which was or V1.07.00 or a later version for the [Using compiler package version] propthe [Version Select] category on the [Common Options] tab in an environ-re V1.07.00 or a later version of the CC-RH compiler has been installed.         No         Select from the drop-down list.         n       Yes(- control_flow_integrity)         Outputs code for detecting illegal indirect function calls.		
	Default			
	How to change			
	Restriction			
		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 lan- guage	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] prop- erty under the [Version Select] category on the [Common Options] tab in an environ- ment 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 opt	tion specified)	Compilation will proceed in compli- ance with the C90 standard.
		C99(-lang=c99)		Compilation will proceed in compli- ance with the C99 standard.
Compile strictly according to ANSI standards	Select whether standard and of This property is V1.06.00 or an property under ronment where installed.	whether to process as making C source program comply strictly with the ANSI d and output an error or warning for a specification that violates the standard. operty corresponds to the -Xansi option of the ccrh command. operty is displayed when [Always latest version which was installed] or 0 or an earlier version is selected for the [Using compiler package version] / under the [Version Select] category on the [Common Options] tab in an envi-t where V1.06.00 or an earlier version of the CC-RH compiler has been d.		
	Default	No		
	How to change	Select from the drop-down list.		
	Restriction	Yes(-Xansi) Processes as making C source program compl strictly with the ANSI standard and outputs an e or warning for a specification that violates the s dard.		naking C source program comply ANSI standard and outputs an error a specification that violates the stan-
		No	Compatibility w ifications is con warning is outp	ith the conventional C language spec- ferred and processing continues after out.



Compile strictly according to the stan- dards	Select whether or C99 standard standard. This property of This property is V1.07.00 or a l erty under the ment where V	r to process as making C source program comply strictly with the C90 rd and output an error or warning for a specification that violates the corresponds to the -strict_std option of the ccrh command. s displayed when [Always latest version which was installed] or later version is selected for the [Using compiler package version] prop- [Version Select] category on the [Common Options] tab in an environ-1.07.00 or a later version of the CC-RH compiler has been installed.			
	Default				
	How to change	Select from the	e drop-down list.		
	Restriction	Yes(- strict_std)	Processes as n strictly with the error or warning standard.	naking C source program comply C90 or C99 standard and outputs an g for a specification that violates the	
		No	Compatibility with the conventional C language specifications is conferred and processing continues after warning is output.		
Enumeration type	Select which in This property of	ch integer type the enumeration type handles. erty 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 s	signed int(No c	option specified)	The enumeration type is handled as int type.	
		auto(-Xenum_t	type=auto)	Handles each enumerated type as the smallest integer type capable of expressing all the enumerators in that type.	
Handle external vari- ables as if they are	Select whether to handle all external variables as if they were volatile-declared. This property corresponds to the -Xvolatile option of the ccrh command.				
volatile qualified	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 This property of	er to check the compatibility of a C program. / 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 Chi- nese.	
		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/Chi- nese character codes in the source file.	

(8) [Output Code]

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



	1			
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] erty under the [Version Select] category on the [Common Options] tab in an env ment where V2.04.00 or a later version of the CC-RH compiler has been installed		t the device supports misaligned n of the ccrh command. t version which was installed] or [Using compiler package version] prop- e [Common Options] tab in an environ- 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	



Alignment of branch address	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] prop- erty under the [Version Select] category on the [Common Options] tab in an environ- ment 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 innermos 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 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	2 bytes(No option specified)		
	How to change	Select from the drop-down list		
	Restriction	2 bytes(No option specified)	Sets the alignment of the start address of a function to 2.	
		4 bytes(Only start address of a function)(-Xalign4)	Sets the alignment of the start address of a function to 4.	
		4 bytes(Contains each loop head)(-Xalign4=loop)	Sets the alignment of the start address of a function and the start address of all loops to 4.	
		4 bytes(Contains each inner- most loop head)(- Xalign4=innermostloop)	Sets the alignment of the start address of a function and the start address of the innermost loop to 4.	
		4 bytes(All branches)(- Xalign4=all)	Sets the alignment of the start address of a function and all branch destination addresses to 4.	
Order of bit-field mem- bers	Select the orde This property o	er of bit-field members. corresponds to the -Xbit_order o	ption of the ccrh command.	
	Default	Allocates from right(No option	specified)	
	How to change	Select from the drop-down list		
	Restriction	Allocates from left(- Xbit_order=left)	Allocates the members from the upper bit.	
		Allocates from right(No option specified)	Allocates the members from the lower bit.	



Output comment to assembly source file	Select whether file to be output This property of This property is source file] pro put assemble I	To output a C source program as a comment to the assembly source ut. corresponds to the -Xpass_source option of the ccrh command. is displayed only when [Yes(-Xasm_path)] in the [Output assembly operty is selected or when [Yes(-Xasm_option=-Xprn_path)] in the [Out- list file] property in the [Assemble List] category is selected.		
	Default	No		
	How to change	Select from the drop-down list.		
	Restriction	Yes(-Xpass_source)	Outputs a C source program as a comment to the assembly source file.	
		No	Does not output a C source program as a comment to the assembly source file.	



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	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 pro- grams. Searches for a matching case state- ment by using a binary search algo- rithm. 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 pro- grams. 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.	



Handling mode of writ- ing control register	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] prop- erty under the [Version Select] category on the [Common Options] tab in an environ- ment where V1.06.00 or a later version of the CC-RH compiler has been installed.			
	Default	Not specify(No option specifie	d)	
	How to change	Select from the drop-down list.		
	Restriction	Insert synchronization pro- cessing(-store_reg=sync)	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.	
		Output list of writing control register(-store_reg=list)	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 writ- ing to the same group, in which case the compiler does not display the address in the panel.	
		Output all list of writing con- trol register(- store_reg=list_all)	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.	
		Ignore peripheral group specification by #pragma(- store_reg=ignore)	#pragma register_group is ignored but a warning is not output.	
		Not specify(No option specified)	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 regis- ters.	



Save mode of register bank	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 [Alway selected for <u>Select</u> ] categ or a later ver	ys latest version which was installed] or V2.00.00 or a later version is the [Using compiler package version] property under the [Version gory on the [Common Options] tab in an environment where V2.00.00 rsion of the CC-RH compiler has been installed			
	- When the RI	tH850G4MH device is used			
	Default	Blank	Blank		
	How to change	Directly enter in the text box.			
	Restriction	0, 1 (decimal number), or blan	k		
Floating-point calculat- ing type	Select whether tions, or to gen This property of This property is [Specify CPU of [Common Opti	r to generate runtime library call instructions for floating-point calcula- nerate floating-point instructions for the floating point unit (FPU). corresponds to the -Xfloat option of the ccrh command. s displayed only when other than [Object for G3K(-Xcpu=g3k)] in the core] property in the [Output File Type and Path] category from the ions] tab is selected.			
	Default	Auto(No option specified)			
	How to change	Select from the drop-down list.			
	Restriction	Auto(No option specified)	Generates floating-point calculation instructions.		
		Software Calculating(- Xfloat=soft)	Generates runtime library call instruc- tions for floating-point calculations.		
		FPU Calculating(-Xfloat=fpu)	Generates floating-point calculation instructions of FPU for floating-point calculations.		
Rounding method for floating-point constant operations	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				
	Default	round to nearest(No option sp	ecified)		
	How to change	Select from the drop-down list			
	Restriction	round to zero(-Xround=zero)	Rounds floating-point constants to 0.		
		round to nearest(No option specified)	Rounds floating-point constants to the nearest value that can be expressed.		



Generate codes that supports FXU	<ul> <li>Select whether to generate codes that supports the FXU (extended floating-point operation unit).</li> <li>This property corresponds to the -Xfxu option of the ccrh command.</li> <li>This property is displayed only in the following cases.</li> <li>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</li> <li>When the RH850G4MH device is used</li> <li>The Restriction values depend on the device in use.</li> </ul>			
	Default	The default value is set by selected device on creating project.Select from the drop-down list.		
	How to change			
	Restriction	Yes	Generates co	des that supports the FXU.
		No(-Xfxu=off)	Does not gen	erate codes that supports the FXU.
Enable half precision floating-point type	<ul> <li>Select whether to enable the half precision floating-point type.</li> <li>This property is usable only in the Professional Edition.</li> <li>This property corresponds to the -Xuse_fp16 option of the ccrh command.</li> <li>This property is displayed only in the following cases.</li> <li>When [Always latest version which was installed] or V1.05.00 or a later version 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</li> <li>When other than [Object for G3K(-Xcpu=g3k)] in the [Specify CPU core] property the [Output File Type and Path] category from the [Common Options] tab is selected</li> <li>When [No] in the [Compile strictly according to ANSI standards] property in the [Canguage] category is selected</li> </ul>			ating-point type. I Edition. option of the ccrh command. cases. alled] or V1.05.00 or a later version is rsion] property under the [Version ab in an environment where V1.05.00 s been installed ()] in the [Specify CPU core] property in m the [Common Options] tab is to ANSI standards] property in the [C
	- When other ing type] pro	than [Software C perty is selected	Calculating(-Xflc	at=soft)] in the [Floating-point calculat-
	- When [round point consta	to nearest(No c nt operations] pr	option specified operty is select	)] in the [Rounding method for floating- ed
	Default	No		
	How to Select from the drop-down list. change			
	Restriction	Yes(-Xuse_fp1	6=on)	Enables the half precision floating- point type.
		No		Does not enable the half precision floating-point type.



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] prop- erty under the [Version Select] category on the [Common Options] tab in an environ- ment where V1.02.00 or a later version of the CC-RH compiler has been installed.				
	Default	8 bytes(No opt	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 opt	ion specified)	Handles double type and long double type as double-precision floating- point type (8 bytes).	
Generate div/divu instructions	Select whether instructions for Although the d differ dependir This property of	er to generate the div and divu instructions instead of the divq and div or division. divq and divqu instructions are fast, the number of execution cycles v ling on the values of the operands. v 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 instruction		e div and divu instructions for division.	
		No	Generates the sion.	e divq and divqu instructions for divi-	
Generate OV flag check code in division operation	Select whether sion instruction This property o	r to generate coo ns and generate corresponds to th	de (fetrap instru an FE level sof ne -Xcheck_div	ction) that checks the OV flag after divi- tware exception when the OV flag is 1. _ov option of the ccrh command.	
	Default	No			
	How to change	Select from the drop-down list.			
	Restriction	Yes(-Xcheck_c	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 vec This property of This property is check code in	vector number of the fetrap instruction generated when the OV fla ty corresponds to the -Xcheck_div_ov option of the ccrh command ty is displayed only when [Yes(-Xcheck_div_ov)] in the [Generate in division operation] property is selected.		tion generated when the OV flag is 1. _ov option of the ccrh command. neck_div_ov)] in the [Generate OV flag elected.	
	Default	1			
	How to change	Directly enter i	n the text box.		
	Restriction	1 to 15 (decimal number)			



Type of generating floating-point calcula- tion codes	Select the type This property of This property is V2.00.00 or a l erty under the ment where V2	ect the type of generating floating-point calculation codes. s property corresponds to the -relaxed_math option of the ccrh command. s property is displayed when [Always latest version which was installed] or 00.00 or a later version is selected for the [Using compiler package version] p v under the [Version Select] category on the [Common Options] tab in an envir nt where V2.00.00 or a later version of the CC-RH compiler has been installed			
	Default	Custom(No option specified)			
	How to change	Select from the drop-down list.			
	Restriction	Efficiency prec relaxed_math)	edence(-	Efficiency is emphasized in the generation of code.	
		Custom(No op	tion 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.	
Generate product-sum operation instruction	<ul> <li>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.</li> <li>This property corresponds to the -Xuse_fmaf option of the ccrh command.</li> <li>This property is displayed in any one of the following cases.</li> </ul>			ation instructions (fmaf.s, fmsf.s, ng-point product-sum operations. option of the ccrh command. lowing cases.	
	- In an enviror been installe	nment where V2. d	00.00 or a later	version of the CC-RH compiler has not	
	<ul> <li>When a version number earlier than V2.0 package version] property under the [Vers Options] tab in an environment where a v V/2 00 00 has been installed</li> </ul>			0.00 is selected for the [Using compiler sion Select] category from the [Common rersion of the CC-RH compiler earlier than	
	- 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				
	Default	No			
	How to change	Select from the drop-down list.			
	Restriction	Yes(- Xuse_fmaf)	Generates pro single-precisio tions. Specifying this speed but cha	oduct-sum operation instructions for on floating-point product-sum opera- s option will accelerate the execution ange the operation precision.	
		No	Does not genetions.	erate product-sum operation instruc-	



Generate recipf instruction	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 [Alway selected for Select] categ or a later ver	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			
	<ul> <li>When [Custom(No option specified)] is selected for the [Type of generating flop point calculation codes] property</li> </ul>				
	Default No				
	How to change	Select from the	e drop-down list.		
	Restriction	Yes(- use_recipf)	Generates recipf instructions. Specifying this option will accelerate the execution speed but change the operation precision.		
		No	Does not generate recipf instructions.		
Generate approxi- mate calculation code	<ul> <li>Select whether to generate code to produce approximate results for floating-point culations.</li> <li>This property corresponds to the -approximate option of the ccrh command.</li> <li>This property is displayed only in the following cases.</li> <li>When [Always latest version which was installed] or V2.02.00 or a later version selected for the [Using compiler package version] property under the [Version Select] category from the [Common Options] tab in an environment where V2.1 or a later version of the CC-RH compiler has been installed</li> </ul>				
	- When [Custo point calcula	m(No option specified)] is selected for the [Type of generating floating- tion codes] property			
	Default	No			
	How to change	Select from the drop-down list.			
	Restriction	Yes(-approxi- mate)	Generates code to produce approximate results for floating-point calculations. Specifying this option leads to the generation of effi- cient 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.		
		No	Does not generate code to produce approximate results for floating-point calculations.		



Check invalid excep- tion 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 compar- ison 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 compari- son.	
Specify jump instruc- tion	Specify the ins This property o	the instruction to be generated for function-call branches. perty 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 instruc- tions for function-call branches.	
		Create jarl and jr instruc- tions(No option specified)	Generates the jarl and jr instructions for function-call branches.	
Far Jump file names	<ul> <li>Specify the Far Jump file name. The code that uses the jarl32 and jr32 instruction for branch instructions of 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 branched to by the jarl or jr directive (±2MB or more), in which case the Fa is used to recompile. Use the extension ".fjp". This property corresponds to the -Xfar jump option of the ccrh command.</li> </ul>			
	Default	Far Jump file name		
	How to change	Directly enter in the text box or edit by the Specify Far Jump File dia- log 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] prop- erty under the [Version Select] category on the [Common Options] tab in an environ- ment 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 specifie	d)	
	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(-Xsec- tion=data=r0_disp16)	Uses r0_disp16 as the default section attribute of the data area.	
		r0_disp23(-Xsec- tion=data=r0_disp23)	Uses r0_disp23 as the default section attribute of the data area.	
		ep_disp16(-Xsec- tion=data=ep_disp16)	Uses ep_disp16 as the default sec- tion attribute of the data area.	
		ep_disp23(-Xsec- tion=data=ep_disp23)	Uses ep_disp23 as the default sec- tion attribute of the data area.	
		gp_disp16(-Xsec- tion=data=gp_disp16)	Uses gp_disp16 as the default sec- tion attribute of the data area.	
		gp_disp23(-Xsec- tion=data=gp_disp23)	Uses gp_disp16 as the default sec- tion 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] p erty under the [Version Select] category on the [Common Options] tab in an envir ment where V1.02.00 or a later version of the CC-RH compiler has been installed [pcconst16(-Xsection=const=pcconst16)] and [pcconst23(-Xsec- tion=const=pcconst23)] are displayed when V1.07.00 or a later version of the CC compiler is selected. See "Table A 3Default Section of Const Area" for details about the section attribu			
	Default	Not specify(No option specifie	d)	
	How to change	Select from the drop-down list.		
	Restriction	Not specify(No option specified)	Uses the default section of the const area.	
		zconst(-Xsec- tion=const=zconst)	Uses zconst as the default section attribute of the const area.	
		zconst23(-Xsec- tion=const=zconst23)	Uses zconst23 as the default section attribute of the const area.	
		pcconst16(-Xsec- tion=const=pcconst16)	Uses pcconst16 as the default section attribute of the const area.	
		pcconst23(-Xsec- tion=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 alignment size This property of V2.03.00 or a l erty under the ment where V2	es to allocate the uninitialized variables to sections in accord with their es. corresponds to the -stuff option of the ccrh command. is displayed when [Always latest version which was installed] or later version is selected for the [Using compiler package version] prop- [Version Select] category on the [Common Options] tab in an environ- /2.03.00 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 align- ment sizes.	
		Νο	Does not allocate the uninitialized variables to sections in accord with their alignment sizes.	
Allocate initialized vari- ables in sections according to number of alignments	<ul> <li>Select whether to allocate the initialized variables to sections in accord valignment sizes.</li> <li>This property corresponds to the -stuff option of the ccrh command.</li> <li>This property is displayed when [Always latest version which was install V2.03.00 or a later version is selected for the [Using compiler package verty under the [Version Select] category on the [Common Options] tab in ment where V2.03.00 or a later version of the CC-RH compiler has been</li> </ul>		oles to sections in accord with their of the ccrh command. version which was installed] or Using compiler package version] prop- e [Common Options] tab in an environ- 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 vari- ables to sections in accord with their alignment sizes.	
Allocate const quali- fied variables in sec- tions according to number of alignments	Select whether alignment size This property of This property is V2.03.00 or a l erty under the ment where V2	whether to allocate the const qualified variables to sections in acc nt sizes. In perty corresponds to the -stuff option of the ccrh command. In perty is displayed when [Always latest version which was installed 0 or a later version is selected for the [Using compiler package version select] category on the [Common Options] tab in there V2.03.00 or a later version of the CC-RH compiler has beer		
	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.	
		Νο	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 This property of mand. This property is installed] or V1 erty under the mation] proper tab in an enviro been installed.	er to use software trace (DBTAG) for exclusion control check. corresponds to the -Xcheck_exclusion_control option of the ccrh com- is displayed when you have selected [Always latest version which was (1.04.00 or a later version for the [Using compiler package version] prop- e [Version Select] category as well as [Yes(-g)] for the [Add debug infor- erty under the [Debug Information] category on the [Common Options] ironment where V1.04.00 or a later version of the CC-RH compiler has d.		
	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	<ul> <li>The variables to be checked for software trace (DBTAG) for exclusion control check are displayed.</li> <li>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.</li> <li>This property corresponds to the -Xcheck_exclusion_control option of the ccrh command.</li> <li>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.</li> </ul>			
	Default	Variables to be checked for software trace (DBTAG) for exclusion control check[ <i>number of defined items</i> ]		
	How to change	Changes not allowed		
Control starting func- tions for software trace (DBTAG) for exclusion control check	<ul> <li>The control starting functions for software trace (DBTAG) for exclusion control of are displayed.</li> <li>Set the value in the Exclusive Control Check Tool dialog box. Note that this proposed not applied to [Reset All to Default] from the context menu.</li> <li>This property corresponds to the -Xcheck_exclusion_control option of the ccrh mand.</li> <li>This property is displayed when you have selected [Always latest version which installed] or V1.04.00 or a later version for the [Using compiler package version erty under the [Version Select] category as well as [Yes(-g)] for the [Add debug mation] property under the [Debug Information] category on the [Common Optitab in an environment where V1.04.00 or a later version of the CC-RH compiler been installed.</li> </ul>			
		control starting functions for s	ed items]	
	How to change	Changes not allowed		



Control ending func- tions for software trace (DBTAG) for exclusion control check	The control en are displayed. Set the value in not applied to This property of mand. This property is installed] or V1 erty under the mation] proper tab in an enviro been installed.	ding functions for software trace in the Exclusive Control Check T [Reset All to Default] from the co corresponds to the -Xcheck_exc s displayed when you have sele 1.04.00 or a later version for the [Version Select] category as we ty under the [Debug Information onment where V1.04.00 or a lat	e (DBTAG) for exclusion control check fool dialog box. Note that this property is ontext menu. clusion_control option of the ccrh com- ected [Always latest version which was [Using compiler package version] prop- ell as [Yes(-g)] for the [Add debug infor- n] category on the [Common Options] er version of the CC-RH compiler has	
	Default	Control ending functions for software trace (DBTAG) for exclusion control check[ <i>number of defined items</i> ]		
	How to change	Changes not allowed		
Use software trace (DBTAG) for measur- ing CAN bus recep- tion processing time	Select whether cessing time. This property of mand. This property is V1.06.00 or a l erty under the ment where V <sup>2</sup>	) for measuring CAN bus reception pro- g_with_label option of the ccrh com- t version which was installed] or [Using compiler package version] prop- e [Common Options] tab in an environ- 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 auto- matically. To suppress the output of the warning, select [Yes(-g)] in the [Add debug information] property.		
	Default	No		
	How to change	Select from the drop-down list.		
	Restriction	Yes(- insert_dbtag_with_label)	Uses software trace (DBTAG) for measuring CAN bus reception pro- cessing time.	
		No	Does not use software trace (DBTAG) for measuring CAN bus reception pro-	

cessing time.


Parameters of soft- ware trace (DBTAG) for measuring CAN bus reception process- ing time	The parameters of software trace (DBTAG) for measuring CAN bus reception pro- cessing 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 com- mand. This property is displayed only in the following cases.			
	<ul> <li>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</li> <li>When [Yes(-insert_dbtag_with_label)] in the [Use software trace (DBTAG) for measuring CAN bus reception processing time] property is selected</li> </ul>			
	Default	Parameters of software trace (DBTAG) for measuring CAN bus reception processing time[ <i>number of defined items</i> ]		
	How to change	Changes not allowed		
Method for controlling multi-core functions	Select the met This property c This property is	hod for controlling the multi-core functions. corresponds to the -Xmulti_level option of the ccrh command. s 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 pmod- ule"(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	а
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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.3Default Section of Const Area

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

(9) [Output File]



Output assembly source file	Select whether to output the assembly source file of the compile result for the 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_pa	th)	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 fold If a relative path project folder. If an absolute subproject fold The following p %BuildMode The assembly replaced by ".a If this is blank, This property of This property i source file] pro	pecify the folder which the assembly source file is output. a relative path is specified, the reference point of the path is the main project or sub- roject folder. an absolute path is specified, the reference point of the path is the main project or ubproject folder (unless the drives are different). he following placeholder is supported. %BuildModeName%: Replaces with the build mode name. he assembly source file is saved under the C source file name with the extension eplaced by ".asm". this is blank, it is assumed that the project folder has been specified. his property corresponds to the -Xasm_path option of the ccrh command. his property is displayed only when [Yes(-Xasm_path)] in the [Output assembly ource 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 char	acter	S
Output preprocessed source file	Select whether to output the execution result of preprocessing for the source file. This property corresponds to the -P option of the ccrh command.			on result of preprocessing for the source file to a option of the ccrh command.
	Default	No		
	How to change	Select from the drop-down list.		
	Restriction	Yes(-P)	Out sou	puts the execution result of preprocessing for the rce file to a file.
		No	Doe ing	es not output the execution result of preprocess- for the source file to a file.

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



Output folder for pre- processed source file	Specify the fold The file is outp If a relative pat project folder. If an absolute p subproject fold The following p %BuildMode If this is blank, This property is property is sele	der which the preprocessed source file is output. ut under the source file name with the extension replaced by ".i". th is specified, the reference point of the path is the main project or sub- path is specified, the reference point of the path is the main project or er (unless the drives are different). blaceholder is supported. eName%: Replaces with the build mode name. it is assumed that the project folder has been specified. corresponds to the -Xprep_path option of the ccrh command. s displayed only when [Yes(-P)] in the [Output preprocessed source file] ected.	
	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 This property c mand.	her to output the assemble list file. y corresponds to the -Xasm_option=-Xprn_path option of the ccrh com-		
	Default			
	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 fold The assemble by ".prn". If a relative pat project folder. If an absolute p subproject fold The following p %BuildMode If this is blank, This property of mand. This property is assemble list fi	older which the assemble list file is output. le list file is output under the source file name with the extension replaced path is specified, the reference point of the path is the main project or sub- r. e path is specified, the reference point of the path is the main project or older (unless the drives are different). g placeholder is supported. deName%: Replaces with the build mode name. k, it is assumed that the project folder has been specified. y corresponds to the -Xasm_option=-Xprn_path option of the ccrh com- y is displayed only when [Yes(-Xasm_option=-Xprn_path)] in the [Output t file] property is selected.		
	Default	%BuildModeName%		
	How to change	w toDirectly enter in the text box or edit by the Browse For Folder dialogingebox 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. 20XX 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] prop- erty under the [Version Select] category on the [Common Options] tab in an environ- ment 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 proper- ties.		
		MISRA-C 2004	Settings for MISRA-C2004 are made in the subsequent proper- ties.		
Apply rule	Select the MIS This property is This property o	RA-C rules to be applied. s usable only in the Professional E corresponds to the -Xmisra20 <i>XX</i> op	dition. otion of the ccrh command.		
	Default	Not apply rule(No option specifie	d)		
	How to change	Select from the drop-down list.			
	Restriction	Apply all rules(- Xmisra20 <i>XX</i> =all)	Checks the source code against all of the rules which are sup- ported.		
		Apply specified rule number(- Xmisra20 <i>XX</i> =apply)	Checks the source code against the rules with the specified num- bers among the rules which are supported.		
		Ignore specified rule number(- Xmisra20 <i>XX</i> =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 <i>XX</i> =required)	Checks the source code against the rules of the "required" type.		
		Apply rules that are classified as "required" and specified rule number(- Xmisra20 <i>XX</i> =required_add)	Checks the source code against the rules of the "required" type and the rules with the specified num- bers among the rules which are supported.		
		Ignore specified rule number from rules that are classified as "required"(- Xmisra20 <i>XX</i> =required_remove)	Checks the source code against the rules of the "required" type except for the rules with the speci- fied numbers among the rules which are supported.		
		Apply rules that are described in the specified file(- Xmisra20 <i>XX</i> = <file name="">)</file>	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 descrip- tion file	<ul> <li>Specify the rule number description file (MISRA-C rule file).</li> <li>This property is usable only in the Professional Edition.</li> <li>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.</li> <li>The following placeholders are supported.</li> <li>%BuildModeName%: Replaces with the build mode name.</li> <li>%MicomToolPath%: Replaces with the absolute path of the install folder of this product.</li> <li>%ProjectName%: Replaces with the project name.</li> <li>This property corresponds to the -Xmisra20XX option of the ccrh command.</li> <li>This property is displayed only when [Apply rules that are described in the specified file(-Xmisra20XX=<file name="">)] in the [Apply rule] property is selected.</file></li> </ul>		
	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 -Xmisra20XX option of the ccrh command. This property is displayed only when [Apply specified rule number(- Xmisra20XX=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 dia- log box which appears when clicking the [] button.	
	Restriction	Up to 259 characters	
Exclusion rule number	Specify the rule This property is When misra20 rule numbers 1 12.5 and 21.13 or later) regard setting. Specify at leas This property is Xmisra20XX=i	e number to be excluded from the check. s usable only in the Professional Edition. 12 is selected, the CC-RH compiler always checks the code against 13.6, 17.3, and 17.4 (as well as 9.1 if the compiler is V1.05.00 or later, B if the compiler is V1.06.00 or later, and 17.6 if the compiler is V1.07.00 lless of which rule numbers have been specified through the properties t one rule number in decimal. corresponds to the -Xmisra20XX option of the ccrh command. s displayed only when [Ignore specified rule number(- gnore)] 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 dia- log 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 -Xmisra20XX option of the ccrh command. This property is displayed only when [Apply rules that are classified as "required" and specified rule number(-Xmisra20XX=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 dia- log box which appears when clicking the [] button.	
	Restriction	Up to 259 characters	
Exclusion rule number from required rule	<ul> <li>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 ag rule numbers 13.6, 17.3, and 17.4 (as well as 9.1 if the compiler is V1.05.00 o 12.5 and 21.13 if the compiler is V1.06.00 or later, and 17.6 if the compiler is V or later) regardless of which rule numbers have been specified through the pro- setting. Specify at least one rule number in decimal. This property corresponds to the -Xmisra20XX option of the ccrh command. This property is displayed only when [Ignore specified rule number from rules classified as "required"(-Xmisra20XX=required_remove)] in the [Apply rule] pr is selected.</li> </ul>		
	Default	Blank	
	How to change	Directly enter in the text box or edit by the Specify Rule Number dia- log box which appears when clicking the [] button.	
	Restriction	Up to 259 characters	



Rule check exclusion file	Specify files the This property is The following p %BuildMode %MicomToo product. %ProjectNar This property o This property is	at will not be checked against the MISRA-C rules. s usable only in the Professional Edition. blaceholders are supported. Name%: Replaces with the build mode name. IPath%: Replaces with the absolute path of the install folder of this me%: Replaces with the project name. corresponds to the -Xignore_files_misra option of the ccrh command. s displayed only in the following cases.		
	- When [Apply	/ all rules] is selected in the [Apply rule] property		
	<ul> <li>When [Apply rules that are classified as "required"] is selected in the [Apply rule] property</li> </ul>			
	- 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 [Appl rule] property and a rule number description file is specified in the [Rule number description file] property			
	Default	Rule check exclusion file[number of defined items]		
	How to change	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.		
	1			

Up to 259 characters

Restriction



Output message of the enhanced key word	Select whether to output the message of the enhanced key word and extended specifications.				
and extended specifi- cations	This property is usable only in the Professional Edition. This property corresponds to the -Xcheck_language_extention option of the ccrh com- mand.				
	- 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 rule number	r specified rule number] is selected is specified in the [Rule number] p	in the [Apply rule] property and a roperty		
	- When [Ignor rule number	e specified rule number] is selected is specified in the [Rule number] p	d in the [Apply rule] property and a roperty		
	- When [Apply selected in the rule number	rules that are classified as "requir he [Apply rule] property and a rule besides required rule] property	ed" and specified rule number] is number is specified in the [Check		
	- 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				
	Default	No			
	How to change Restriction	Select from the drop-down list.			
		Yes(- Xcheck_language_extension)	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.		
		Νο	Disables MISRA-C rule check is disabled, which are partially sup- pressed by the extended language specifications.		



Enable checking that spans files	<ul> <li>Select whether to enable checking that spans files.</li> <li>This property is usable only in the Professional Edition.</li> <li>This property corresponds to the -misra_intermodule option of the ccrh command.</li> <li>This property is displayed only in the following cases.</li> <li>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</li> </ul>			
	- 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 selected			
	Caution	If the C source files of the projec [Yes(-misra_intermodule)] is sele spans files will be cleared. Rebuild the project to obtain corr	rce files of the project are removed or renamed while _intermodule)] is selected, information on checking that will be cleared. 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 mes- sage 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] prop- erty under the [Version Select] category on the [Common Options] tab in an environ- ment 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= <mes- sage number&gt;)</mes- 	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 nut If multiple mes 23028,23086). Also, a range of ple:23028-230 This property of	mber of the warning message. sage numbers are specified, delimit them with "," (comma) (example: of message numbers can be specified using "-" (hyphen) (exam- 86). 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</message>		
	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 pro- cessing	Specify the cor Use the call ins The following p %ActiveProju %BuildMode %CompiledF ing. %InputFile% case of simu %MainProje %MicomToo product. %Options%: %OutputDir% %OutputDir% %OutputFile %Program% %ProjectDir% %ProjectNar %TempDir% %WinDir%: I When "#!pytho last line are reg compile process The placeholde The specified of	<ul> <li>mmand to be executed before compile processing.</li> <li>struction to specify a batch file (example: call a.bat).</li> <li>blaceholders are supported.</li> <li>ectDir%: Replaces with the absolute path of the active project folder.</li> <li>ectName%: Replaces with the build mode name.</li> <li>File%: Replaces with the absolute path of the output file under compil-</li> <li>b): Replaces with the absolute path of the file to be compiled (except in ultaneous building).</li> <li>ctDir%: Replaces with the absolute path of the main project folder.</li> <li>ctName%: Replaces with the absolute path of the install folder of this</li> <li>Replaces with the absolute path of the install folder of this</li> <li>Replaces with the absolute path of the output file.</li> <li>c: Replaces with the absolute path of the output folder.</li> <li>%: Replaces with the absolute path of the output folder.</li> <li>%: Replaces with the absolute path of the project folder.</li> <li>%: Replaces with the absolute path of the output folder.</li> <li>%: Replaces with the absolute path of the output folder.</li> <li>%: Replaces with the absolute path of the project folder.</li> <li>me%: Replaces with the absolute path of the project folder.</li> <li>me%: Replaces with the absolute path of the temporary folder.</li> <li>Replaces with the absolute path of the temporary folder.</li> <li>me%: Replaces with the absolute path of the temporary folder.</li> <li>me%: Replaces with the absolute path of the temporary folder.</li> <li>me%: Replaces with the absolute path of the temporary folder.</li> <li>me%: Replaces with the absolute path of the temporary folder.</li> <li>me%: Replaces with the absolute path of the temporary folder.</li> <li>me%: Replaces with the absolute path of the temporary folder.</li> <li>me%: Replaces with the absolute path of the temporary folder.</li> <li>me%: Replaces with the absolute path of the temporary folder.</li> <li>me%: Replaces with the absolute path of the temporary folder.</li> </ul>
	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.
	RestrictionUp to 1023 charactersUp to 64 items can be specified.	



Commands executed after compile process- ing	Specify the con Use the call ins The following p %ActiveProj %BuildMode %CompiledF ing. %InputFile% case of simu %MainProje %MicomToo product. %Options%: %OutputDir% %OutputDir% %ProjectDir %ProjectDir %ProjectNat %TempDir% %WinDir%: When "#!pytho last line are reactioned The placeholder	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 compil- ing. %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. %MainProjectDir%: Replaces with the absolute path of the main project folder. %MainProjectName%: 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. %OutputDir%: Replaces with the absolute path of the output folder. %OutputDir%: Replaces with the absolute path of the output folder. %OutputDir%: Replaces with the absolute path of the output folder. %OutputFile%: Replaces with the absolute path of the output folder. %OutputFile%: Replaces with the absolute path of the project folder. %ProjectDir%: Replaces with the absolute path of the project folder. %ProjectDir%: Replaces with the absolute path of the project folder. %ProjectDir%: Replaces with the absolute path of the temporary folder. %WinDir%: Replaces with the absolute path of the temporary folder. %WinDir%: Replaces with the absolute path of the temporary folder. %WinDir%: Replaces with the absolute path of the temporary folder. %WinDir%: Replaces with the absolute path of the temporary folder. %WinDir%: Replaces with the absolute path of the temporary folder. %WinDir%: Replaces with the absolute path of the temporary folder. %WinDir%: Replaces with the absolute path of the temporary folder. %WinDir%: Replaces with the absolute path of the windows system folder. Whe	
	Default	Commands executed after compile processing[ <i>number of defined items</i> ]	
	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.	
Other additional options	Input the compile option to be added additionally. The options set here are added at the end of the compile options group.		
	Default	Blank	
	How to change	Directly enter in the text box or edit by the Character String Input dia- log box which appears when clicking the [] button.	
	Restriction	Up to 259 characters	



# [Assemble Options] tab

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

(1)[Debug Information]
(2)[Optimization]
(3)[Preprocess]
(4)[Character Encoding]
(5)[Output Code]
(6)[Assemble List]
(7)[Others]

# [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 It is possible to for source deb This property c	er to generate the debug information. to perform source debugging with the debugger by outputting information bugging to the output file. 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 infor- mation for optimiza- tion 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 speci- fied. 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] prop- erty under the [Version Select] category on the [Common Options] tab in an environ- ment 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 infor- mation for optimization at the time of linkage.

### (3) [Preprocess]

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



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



Macro definition	Specify the na Specify in the t The "= <i>defined</i> value. This property o The specified	me of the macro to be defined. format of " <i>macro name=defined value</i> ", with one macro name per line. <i>value</i> " part can be omitted, and in this case, "1" is used as the defined corresponds to the -D option of the ccrh command. 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	<ul> <li>Specify the macro name to be undefined.</li> <li>Specify in the format of "<i>macro name</i>", with one macro name per line.</li> <li>This property corresponds to the -U option of the ccrh command.</li> <li>The specified macro is displayed as the subproperty.</li> </ul>			
	Default	Macro undefinition[number of defined items]		
	How to changeEdit 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 Chi- nese.
		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.



### [Output Code] (5)

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 com- mand.			
	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 com- mand. 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 early which appears when clicking	dit by the Browse For Folder dialog the [] button.	
	Restriction	ion Up to 247 characters		

### (7) [Others]

Other detailed information on assembly is displayed and the configuration can be changed.





Commands executed after assemble pro- cessing	Specify the cor Use the call ins The following p %ActiveProj %Assembled bling. %BuildMode %InputFile% case of simu %MainProje %MicomToo product. %OutputDirf %OutputDirf %OutputDirf %OutputDirf %ProjectDirf %ProjectDirf %ProjectDirf %ProjectNan %TempDir% %WinDir%: When "#!pytho last line are rea assemble proc	y the command to be executed after assemble processing. e call instruction to specify a batch file (example: call a.bat). llowing placeholders are supported. tiveProjectDir%: Replaces with the absolute path of the active project folder. tiveProjectName%: Replaces with the active project name. seembledFile%: Replaces with the absolute path of the output file under assem- j. ildModeName%: Replaces with the build mode name. putFile%: Replaces with the absolute path of the file to be assembled (except in e of simultaneous building). ainProjectDir%: Replaces with the absolute path of the main project folder. ainProjectName%: Replaces with the absolute path of the main project folder. ainProjectName%: Replaces with the absolute path of the install folder of this fuct. ptomToolPath%: Replaces with the absolute path of the install folder of this fuct. ptomS%: Replaces with the absolute path of the output folder. utputDir%: Replaces with the absolute path of the output folder. utputFile%: Replaces with the absolute path of the output folder. utputFile%: Replaces with the absolute path of the output folder. utputFile%: Replaces with the absolute path of the output folder. utputFile%: Replaces with the absolute path of the project folder. ojectDir%: Replaces with the absolute path of the project folder. ojectName%: Replaces with the absolute path of the project folder. ojectName%: Replaces with the absolute path of the project folder. "mpDir%: Replaces with the absolute path of the temporary folder. "mpDir%: Replaces with the absolute path of the temporary folder. "#!python" is described in the first line, the contents from the second line to the e are regarded as the script of the Python console, and then executed after the processing. aceholders can be described in the script		
	Default	Commands executed after assemble 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.		
Other additional options	Input the asser The assembler The options se	mble option to be added additionally. r is executed via ccrh.exe. Add "-Xasm_option=" as required. et here are added at the end of the assemble options group.		
	Default	Blank		
	How to change	Directly enter in the text box or edit by the Character String Input dia- log box which appears when clicking the [] button.		
	Restriction	Up to 259 characters		



# [Link Options] tab

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

(1)[Debug Information]
(2)[Optimization]
(3)[Optimization(Details)]
(4)[Input File]
(5)[Output File]
(6)[Library]
(7)[Output Code]
(8)[List]
(9)[Section]
(10)[Verify]
(11)[Message]
(12)[Others]

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 informa- tion	Select whether to output debug information. This property corresponds to the -DEBug and -NODEBug options of the rlink com- mand.			
	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 infor- mation	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 com- mand.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] prop- 		
	Default	No(-NOOPtimize)	
	How to change         Select from the drop-down list.           Restriction         No(-NOOPtimize)         Performs optimization at the All(-OPtimize)           All(-OPtimize)         Does not perform optimization		down list.
			Performs optimization at the time of linkage.
			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.



Optimize area allo- cated before execution start symbol	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.			
	<ul> <li>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</li> </ul>			
	<ul> <li>When other than [No(-NOOPtimize)] in the [Perform optimization at time of linkage] property is selected</li> </ul>			
	- When [Yes(-	ENTry)] in the [Specify	execution start address] property is selected	
	- When [Exec	ution start address] pro	perty is not blank	
	Default	t No Select from the drop-down list.		
	How to change			
	Restriction	Yes(- ALLOW_OPTIMIZE _ENTRY_BLOCK)	Optimizes the area allocated before the exe- cution start symbol.	
		No	Does not optimize the area allocated before the execution start symbol.	
Symbols excluded from optimization of unreferenced symbol deletion	Specify unreferenced symbols that you do not wish to be deleted by optimization. Specify in the format of " <i>symbol name</i> ", 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.			
	<ul> <li>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</li> </ul>			
	- When other than [No(-NOOPtimize)] in the [Perform optimization at time of linkage] property under the [Optimization] category is selected			
	Default	Symbols excluded from optimization of unreferenced symbol dele- tion[ <i>number of defined items</i> ]		
	How to change	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	n be specified.		



Section to disable opti- mization	<ul> <li>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.</li> <li>The following placeholders are supported.</li> <li>%ActiveProjectDir%: Replaces with the absolute path of the active project folder.</li> <li>%ActiveProjectName%: Replaces with the absolute path of the main project folder.</li> <li>%MainProjectDir%: Replaces with the absolute path of the main project folder.</li> <li>%MainProjectName%: Replaces with the absolute path of the main project folder.</li> <li>%MainProjectName%: Replaces with the absolute path of the install folder of this product.</li> <li>%ProjectDir%: Replaces with the absolute path of the install folder of this product.</li> <li>%ProjectDir%: Replaces with the absolute path of the project folder.</li> <li>%ProjectName%: Replaces with the absolute path of the install folder.</li> <li>%ProjectDir%: Replaces with the absolute path of the project folder.</li> <li>%ProjectDir%: Replaces with the absolute path of the install folder of this product.</li> <li>%ProjectDir%: Replaces with the absolute path of the project folder.</li> <li>%ProjectName%: Replaces with the absolute path of the temporary folder.</li> <li>%TempDir%: Replaces with the absolute path of the temporary folder.</li> <li>%WinDir%: Replaces with the absolute path of the Windows system folder.</li> <li>This property corresponds to the -SEction_forbid option of the rlink command.</li> </ul>			
	<ul> <li>When [Always latest version which was installed] or V2.01.00 or a later version selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V2.0 or a later version of the CC-RH compiler has been installed</li> </ul>			
	- When other property und	than [No(-NOOPtimize)] in the [Perform optimization at time of linkage] ler the [Optimization] category is selected		
	Default	Section to disable optimization[number of defined items]		
	How to change	Edit by the Text Edit dialog box which appears when clicking the [] button. For the subproperty, you can enter directly in the text box.		
	Restriction	Up to 32767 characters Up to 65535 items can be specified.		
Address range to dis- able optimization	<ul> <li>dis- 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.</li> <li>When [Always latest version which was installed] or V2.01.00 or a later version selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V2.01. or a later version of the CC-RH compiler has been installed</li> </ul>			
	- When other property und	than [No(-NOOPtimize)] in the [Perform optimization at time of linkage] ler the [Optimization] category is selected		
	Default	Address range to disable optimization[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	striction Up to 32767 characters Up to 65535 items can be specified.		



Output external sym- bol allocation informa- tion 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 [Optimiza- tion(Details)] category from the [Compile Options] tab is selected. This property corresponds to the -MAp option of the rlink command.			
	Default	No Select from the drop-down list.		
	How to change			
	Restriction	Yes(-MAp)	Outputs an external symbol allocation information file.	
		No	Does not output an external symbol allocation infor- mation file.	

# (4)

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

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



Binary file	Specify in the format of " <i>file name</i> (section name[:number of alignment][/section attri- bute][,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 exe- cute, will be all valid. The following placeholders are supported. %ActiveProjectDir%: Replaces with the absolute path of the active project folder. %ActiveProjectName%: Replaces with the absolute path of the main project folder. %MainProjectDir%: Replaces with the absolute path of the main project folder. %MainProjectDir%: Replaces with the absolute path of the install folder of this product. %MicomToolPath%: Replaces with the absolute path of the install folder of this product. %ProjectName%: Replaces with the absolute path of the install folder of this product. %ProjectDir%: Replaces with the absolute path of the project folder. %WinDir%: Replaces with the absolute path of the temporary folder. %WinDir%: Replaces with the absolute path of the temporary folder. %WinDir%: Replaces with the absolute path of the temporary folder. %WinDir%: Replaces with the absolute path of the temporary folder. %WinDir%: Replaces with the absolute path of the temporary folder. %WinDir%: Replaces with the absolute path of the temporary folder. %WinDir%: Replaces with the absolute path of the link command. The binary file name is displayed as the subproperty.		
	Default How to change	Binary file[ <i>number of defined items</i> ] 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.	
Symbol definition	Define the symbols. Specify in the format of "symbol name=symbol name" or "symbol name=numer 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.		
	Default	Symbol definition[number of defined items]	
	How to change	Edit by the Text Edit dialog box which appears when clicking the [] button. For the subproperty, you can enter directly in the text box.	
	Restriction	Up to 256 characters Up to 256 items can be specified.	

# (5)

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



Output folder	Specify the ou	utput folder.			
•	The following	The following placeholders are supported. %ActiveProjectDir%: Replaces with the absolute path of the active project folder. %ActiveProjectName%: Replaces with the active project name.			
	%ActivePro %ActivePro				
	%BuildMod	%BuildModeName%: Replaces with the build mode name			
	%MainProje	%MainProjectDir%: Replaces with the absolute path of the main project folder.			
		ectivatine%. Replaces with the sheatute path of the install folder of this			
	product				
	%ProjectDi	r%: Replaces with the absolute path of the project folder			
	%ProjectNa	%ProjectName% Replaces with the project name			
	%TempDir%	%TempDir%: Replaces with the absolute nath of the temporary folder			
	%WinDir%:	%WinDir%: Replaces with the absolute path of the Windows system folder.			
	If this is blank	If this is blank, it is assumed that the project folder has been specified.			
	This property	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 ou	Specify the output file name.			
	If the extension	If the extension is omitted, ".abs" is automatically added.			
	The following	placeholders are supported.			
	%ActivePro	ojectName%: Replaces with the active project name.			
	%MainProje	%MainProjectName%: Replaces with the main project name.			
	%ProjectNa	%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.



Using libraries	<ul> <li>Specify the library files to be used.</li> <li>The following placeholders are supported.</li> <li>%ActiveProjectDir%: Replaces with the absolute path of the active project folder.</li> <li>%ActiveProjectName%: Replaces with the active project name.</li> <li>%BuildModeName%: Replaces with the build mode name.</li> <li>%MainProjectDir%: Replaces with the absolute path of the main project folder.</li> <li>%MainProjectName%: Replaces with the absolute path of the install folder of this product.</li> <li>%ProjectDir%: Replaces with the absolute path of the install folder of this product.</li> <li>%ProjectDir%: Replaces with the absolute path of the project folder.</li> <li>%MicomToolPath%: Replaces with the absolute path of the project folder.</li> <li>%ProjectDir%: Replaces with the absolute path of the project folder.</li> <li>%ProjectName%: Replaces with the absolute path of the project folder.</li> <li>%ProjectName%: Replaces with the absolute path of the project folder.</li> <li>%DrojectName%: Replaces with the absolute path of the project folder.</li> <li>%ProjectName%: Replaces with the absolute path of the project folder.</li> <li>%TempDir%: Replaces with the absolute path of the temporary folder.</li> <li>%WinDir%: Replaces with the absolute path of the Vindows system folder.</li> <li>This property corresponds to the -LIBrary option of the rlink command.</li> <li>The library file name is displayed as the subproperty.</li> </ul>			
	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.		
	RestrictionUp to 259 charactersUp 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 installe 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 er ronment 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 r		Does not use the standard libraries.	



Use "Standard Library" function	Select whether This property is Library (Double function] proper This property of This property is	elect whether to use the standard library functions. is property is changed to [Yes(-LIBrary=libc)] when [Yes] in the [Use "Mathematical prary (Double precision)" function] or [Use "Mathematical Library (Single precision)" action] property is selected. is property corresponds to the -LIBrary option of the rlink command. is 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] i	in the [Use standard librarie	es] 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(\	/1.01 compatible)] in the [U	se standard libraries] property is selected	
	Default	Yes(-LIBrary=libc)		
	How to change	Select from the drop-down	n list.	
	Restriction	Yes(-LIBrary=libc)	Uses the standard library functions.	
		No	Does not use the standard library func- tions.	
Use "Mathematical Library (Double preci- sion)" function	Select whether This property is selected. This property of This property is	orary (double precision) functions. b] in the [Use standard libraries] property is option of the rlink command. cases.		
	- When [Alway V1.02.00 is s [Version Sele version of th	ys latest version which was selected for the [Using com ect] category on the [Comm e CC-RH compiler earlier th	installed] or a version number earlier than piler package version] property under the non Options] tab in an environment where a nan V1.02.00 has been installed	
	- When [Yes] i	in the [Use standard librarie	es] property is selected	
	or			
	- When [Alway selected for Select] categ or a later ver	ys latest version which was the [Using compiler packag gory on the [Common Optio rsion of the CC-RH compile	installed] or V1.02.00 or a later version is e version] property under the [Version ons] tab in an environment where V1.02.00 r has been installed	
	- When [Yes(\	/1.01 compatible)] in the [U	se standard libraries] property is selected	
	Default	Yes(-LIBrary=libm)		
	How to change	Select from the drop-dow	n list.	
	Restriction	Yes(-LIBrary=libm)	Uses the mathematical library (double pre- cision) functions.	
		No	Does not use the mathematical library (double precision) functions.	



Use "Mathematical Library (Single preci- sion)" function	Select whether This property is selected. This property of This property is	hether to use the mathematical library (single precision) functions. perty is changed to [No] when [No] in the [Use standard libraries] property is perty corresponds to the -LIBrary option of the rlink command. perty is displayed in the following cases.			
	- When [Alway V1.02.00 is a [Version Seleversion of th	ys latest version which was installed] or a version number earlier than selected for the [Using compiler package version] property under the lect] category on the [Common Options] tab in an environment where a ne CC-RH compiler earlier than V1.02.00 has been installed			
	- When [Yes]	in the [Use stand	dard librarie	es] property is selected	
	or				
	- When [Alway selected for Select] categ or a later ver	ys latest version the [Using comp gory on the [Con rsion of the CC-F	which was viler packag nmon Optio RH compile	installed] or V1.02.00 or a later version is ge version] property under the [Version ons] tab in an environment where V1.02.00 or has been installed	
	- When [Yes(\	/1.01 compatible	e)] in the [L	lse standard libraries] property is selected	
	Default	Yes(-LIBrary=li	ibmf)		
	How to change	Select from the	e drop-dow	n list.	
	Restriction	Yes(-LIBrary=libmf)		Uses the mathematical library (single pre- cision) functions.	
				Does not use the mathematical library (single precision) functions.	
Use "Standard/Mathe- matical Library" func- tion	Select whether This property o This property is	er to use the standard and mathematical library functions. corresponds to the -LIBrary option of the rlink command. is displayed in the following cases.			
	- When [Alway selected for <u>Select</u> ] categ or a later ver	ways latest version which was installed] or V1.02.00 or a later version is for the [Using compiler package version] property under the [Version ategory on the [Common Options] tab in an environment where V1.02.00 version of the CC-RH compiler has been installed			
	- When [Yes]	] in the [Use standard libraries] property is selected			
	Default	Yes			
	How to change	Select from the drop-down list.			
	Restriction	Yes	standard and mathematical library func-		
		No Does not use the standard and mathematical functions.			



Check memory smashing on releas- ing memory	Selects whether This property is The user-defin specified or an the memory th or re-allocated This property of This property is	whether to check memory smashing on releasing the memory. Derty is usable only in the Professional Edition. -definedheap_chk_fail() function is called if an illegal address has been or an address outside the allocated memory area has been written to when ory that was dynamically allocated by malloc or another function is released cated by this function. See "CC-RH Compiler User's Manual" for details. Derty corresponds to the -LIBrary option of the rlink command. Derty is displayed only in the following cases.			
	- When [Alwa selected for Select] categ or a later ver	ivs latest version which was installed] or V1.04.00 or a later version is the [Using compiler package version] property under the [Version gory on the [Common Options] tab in an environment where V1.04.00 ersion of the CC-RH compiler has been installed			
	Default				
	Delault	NO			
	How to change	Select from the drop-down list.			
	Restriction	Yes Checks memory smashing on releasing		nemory smashing on releasing the memory.	
		No Does not check memory smashing on relea memory.			
Use "Non-local jump Library" function	Select whether This property of This property is property is sele	r to use the non-local jump library functions. corresponds to the -LIBrary option of the rlink command. is displayed only when other than [No] in the [Use standard libraries] ected.			
	Default	No			
	How to change	Select from the drop-down list.			
	Restriction	Yes(-LIBrary=li	ibsetjmp)	Uses the non-local jump library functions.	
		No Does not use the non-local jump li functions.		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 or address. This property c	r to specify the execution start address with the external defined symbol corresponds to the -ENTry option of the rlink command.		
	Default	No		
	How to change	Select from the drop-down list.         Yes(-ENTry)       Specifies the execution start address with the external defined symbol or address.		
	Restriction			
		No	Does not specify the execution start address with the external defined symbol or address.	



Execution start address	Specify the exe Specify in the d Specify the ad This property of The execution This property i address] propert	Recution start address. format of "symbol name" or "address". ddress in hexadecimal. corresponds to the -ENTry option of the rlink command. In start address is displayed as the subproperty. is displayed only when [Yes(-ENTry)] in the [Specify execution start perty is selected.		
	Default	Blank		
	How to change	Directly enter in the tex log box which appears	xt box or edit by the Character String Input dia- when clicking the [] button.	
	Restriction	Up to 32767 character	S	
Fill with padding data at the end of a section	Select whether This property of	er to fill with padding data at the end of a section. corresponds to the -PADDING option of the rlink command.		
	Default	No		
	How to change	Select from the drop-d	own 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 This property of	r to prevent reading of vacous of the corresponds to the -OVE	acant areas due to overrun fetch. RRUN_FETCH option of the rlink command.	
	Default	No		
	How to change	Select from the drop-d	own 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.	



Reserve prefetch area	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.			
	Default	No		
	How to change	Select from the drop-d	own list.	
	Restriction	No(No option speci- fied)	Does not reserve prefetch area	
		Yes(auto allocation)(- RESERVE_PREFET CH_AREA)	Reserves prefetch area	
		Yes(after specified section)(- RESERVE_PREFET CH_AREA=section)	Reserves an area for use with prefetching for the specified section.	
Section in the reserved prefetch area	<ul> <li>Specify section in the reserved prefetch area.</li> <li>This property corresponds to the -RESERVE_PREFETCH_AREA option of the rlink command.</li> <li>This property is displayed in the following cases.</li> <li>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.</li> </ul>			
	- When [Yes(after specified section)(-RESERVE_PREFETCH_AREA=section)] in the [Reserve prefetch area] property is selected         Default       Blank			
	How to change	Directly enter in the text box or edit by the Character String Input log box which appears when clicking the [] button.		
	Restriction Up to 32767 characters			



Generate function list used for detecting illegal indirect function call	Select whether illegal indirect f This property is [Detect illegal if from the [Com This property is This property of This property is installed] or V1 erty under the ment where V1	er to generate a list of functions that are safe in terms of the detection of t function calls. is changed to [Yes(-CFI)] when [Yes(-control_flow_integrity)] in the l indirect function call] property in the [Quality Improvement] category npile Options] tab is selected. is usable only in the Professional Edition. corresponds to the -CFI option of the rlink command. is displayed when you have selected [Always latest version which was '1.07.00 or a later version for the [Using compiler package version] prop e [Version Select] category on the [Common Options] tab in an environ- '1.07.00 or a later version of the CC-RH compiler has been installed. No		
	Default			
	How to change	Select from the	e drop-down list.	
	Restriction	Yes(-CFI)	Generates a list of functions that are safe in terms of the detection of illegal indirect function calls.	
		No	Does not generate a list of functions that are safe in terms of the detection of illegal indirect function calls.	
Additional function symbols or addresses to function list	Specify the symbols of addresses of functions that you wish to add to the list of func- tions 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 " <i>function symbol</i>   <i>address</i> [,]", 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 had a later version Select] categor or a later ver	When you have selected [Always latest version which was installed] or V1.07.0 a later version for the [Using compiler package version] property under the [Ver Select] category on the [Common Options] tab in an environment where V1.07 or a later version of the CC-RH compiler has been installed		
	- When [Yes(- function call]	nerate function list used for detecting illegal indirect ected		
	Default	Additional fund defined items]	ction symbols or addresses to function list[ <i>number of</i>	
	How to change	Edit by the Par button. For the subpro	th Edit dialog box which appears when clicking the [] operty, you can enter directly in the text box.	
	Restriction	Up to 32767 c Up to 65536 it	haracters ems can be specified.	



Excluded modules from function list	Specify module terms of the de In the process safe functions compiler with [I user-created a tions of any mo on the informat Specify in the f <i>library</i> >[,< <i>mod</i> . The library file later. All functions in This property is This property is	es that you wish to exempt from the list of functions that are safe in etection of illegal indirect function calls. of detecting illegal indirect function calls, the linker generates a list of and embeds this list in the load module. Then the code output by the Detect illegal indirect function call] enabled will refer to the list while the pplication is running. Use this property if you wish to exempt all func- bodules from the list, which is otherwise automatically configured based tion input to the linker. format of "object file name[,]" or " <i>library file name</i> [( <i><module in<br="" name="">ule name in library</module></i> >])][,]", with one file name per line. name can be specified only when the CC-RH compiler is V2.00.00 or the specified module are excluded from the function list. s usable only in the Professional Edition. corresponds to the -CFI_IGNORE_Module option of the rlink command. s displayed only in the following cases.	
	- When you have selected [Always latest version which was installed] or V1.07.00 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		
	<ul> <li>When [Yes(-CFI)] in the [Generate function list used for detecting illegal in function call] property is selected</li> </ul>		
	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 out- put 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=spec- ify)(-LISt)	Outputs the specified information to the link map file.	
		No	Does not output the link map file.	



Output symbol infor- mation	Select whether mization conte This property o This property is link map file] pu	<ul> <li>to output the symbol information (symbol address, size, type, and optints).</li> <li>corresponds to the -SHow=SYmbol option of the rlink command.</li> <li>s displayed only when [Yes(List contents=specify)(-LISt)] in the [Output roperty is selected.</li> </ul>			
	Default	Yes(-SHow=SYmbol)			
	How to change	Select from the drop-down	ı list.		
	Restriction	Yes(-SHow=SYmbol)	Outputs the symbol information.		
		No	Does not output the symbol information.		
Output number of symbol reference	Select whether This property o This property is link map file] p	to output the number of syr corresponds to the -SHow=R s displayed only when [Yes(I roperty is selected.	mbol references. Reference option of the rlink command. List contents=specify)(-LISt)] in the [Output		
	Default	No			
	How to change	Select from the drop-down	n 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 This property o This property is link map file] pl	to output the cross reference corresponds to the -SHow=X s displayed only when [Yes(I roperty is selected.	ce information. (Reference option of the rlink command. List contents=specify)(-LISt)] in the [Output		
	Default	No			
	How to change	Select from the drop-down	ı list.		
	Restriction	Yes(-SHow=Xreference)	Outputs the cross reference information.		
		No	Does not output the cross reference infor- mation.		
Output total sizes of sections	Select whether This property c This property is link map file] p	ether to output the total size of sections. erty corresponds to the -SHow=Total_size option of the rlink co erty is displayed only when [Yes(List contents=specify)(-LISt)] i ile] property is selected.			
	Default	Yes(-SHow=Total_size)			
	How to change	Select from the drop-down list.			
	Restriction	Yes(-SHow=Total_size)	Outputs the total sizes of sections sepa- rately for ROM-allocated sections and RAM-allocated sections.		
		No	Does not output the total size of sections.		



Output information of members of struct or union	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(L selected	.ist contents=specify)(-LISt)]	in the [Output link map file] property is	
	- When [No(-N selected	NOCOmpress)] in the [Comp	press debug information] property is	
	- When [No] ir	n the [Delete local symbol na	ame information] property is selected	
	- When [No(-N selected	NOOPtimize)] in the [Perform	n optimization at time of linkage] property is	
	Default	No		
	How to change	Select from the drop-down	ı list.	
	Restriction	Yes(-SHow=STRUCT)	Outputs the member information of the structure or union.	
		No	Does not output the member information of the structure or union.	
Output relocation attri- butes related to sec- tions	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			
	<ul> <li>When [Yes(List contents=specify)(-LISt)] in the [Output link map file] property is selected</li> </ul>			
	Default	No		
	How to Select from the drop-down list. change			
	Restriction	Yes(- SHow=RELOCATION_A TTRIBUTE)	Outputs relocation attributes related to sections.	
		No	Does not output relocation attributes related to sections.	



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			
	<ul> <li>When [Yes(-CFI)] in the [Generate function list used for detecting illegal indirect function call] property in the [Output Code] category is selected</li> </ul>			
	- 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 proj- ects] 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 sym- bols 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[ <i>number of defined items</i> ]	
	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 " <i>ROM section name=RAM section name</i> ", 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[ <i>number of defined items</i> ] ".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 allo- cated. 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	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 com- mand.			
	Default	No(-NOMessage)		
	How to change	Select from the drop-down list.		
	Restriction	Yes(-Message)	Outputs information messages.	
		No(-NOMessage)	Suppresses the output of informa- tion messages.	
Suppress number of information message	of       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	How to changeDirectly enter in the text box or edit by the Character String Input dia- log 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 mes- sage 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 infor-	Select whether This property of	r to change the type of warning and corresponds to the -CHange_messa	error messages to information. age option of the rlink command.	
mation message	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 informa- tion.	
		Yes(Specify message number)(- CHange_message=Informa- tion= <message number="">)</message>	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 null If multiple mes 4,200). Also, a range of ple:4,200-203, This property of This property is CHange_mess error message	mber of the warning and error mess sage numbers are specified, delimit of message numbers can be specified 1300). corresponds to the -CHange_messa s displayed only when [Yes(Specify sage=Information= <message number<br="">to information message] property is</message>	age. t them with "," (comma) (example: ed using "-" (hyphen) (exam- age option of the rlink command. message number)(- er>)] in the [Change warning and s selected.	
	Default	Blank		
	How to change	Directly enter in the text box or ed log box which appears when click	it by the Character String Input dia- ing the [] button.	
	Restriction	Up to 2048 characters		



Change information and error message to	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.				
warning message	Default	No			
	How to change	Select from the drop-down list.			
	Restriction	Yes(All)(- CHange_message=Warning)	Changes the type of all informa- tion and error messages to warn- ing.		
		Yes(Specify message number)(- CHange_message=Warn- ing= <message number="">)</message>	Specifies the number of informa- tion and error message of which type is to be changed to warning.		
		No	Does not change the type of infor- mation and error messages.		
Number of information and error message	<ul> <li>Specify the number of the information and error message.</li> <li>If multiple message numbers are specified, delimit them with "," (comm 4,200).</li> <li>Also, a range of message numbers can be specified using "-" (hyphen) ple:4,200-203,1300).</li> <li>This property corresponds to the -CHange_message option of the rlink This property is displayed only when [Yes(Specify message number)(-CHange_message=Warning=<message number="">)] in the [Change info error message to warning message] property is selected.</message></li> </ul>				
	Default	Blank			
	How to change	Directly enter in the text box or edit by the Character String Input dia- log box which appears when clicking the [] button.			
	Restriction	Up to 2048 characters			
Change information and warning message	Select whether This property of	r to change the type of information a corresponds to the -CHange_messa	and warning messages to error. ge option of the rlink command.		
to error message	Default	No			
	How to change	Select from the drop-down list.			
	Restriction	Yes(All)(- CHange_message=Error)	Changes the type of all informa- tion and warning messages to error.		
		Yes(Specify message number)(- CHange_message=Error= <mes- sage number&gt;)</mes- 	Specifies the number of information and warning message of which type is to be changed to error.		
		No	Does not change the type of infor- mation and warning messages.		



Number of information and warning message	Specify the nur If multiple mes 4,200). Also, a range of ple:4,200-203, This property of This property is CHange_mess ing message to	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) (exam- ple: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 warn- ing message to error message] property is selected</message>		
	Default Blank			
	How to change	Directly enter in the text box or edit by the Character String Input dia- log 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 informa- tion file	Select whether This property c	to output the stack information file. corresponds to the -STACk option of the rlink command.		
	Default	No		
	How to change	Select from the drop-down list.		
	Restriction	Yes(-STACk) Outputs the stack information file.		
		No	Does not output the stack information file.	



Reduce memory occupancy	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 Infor- mation] category is selected			
	- When [No] in [Optimization	n the [Output external s n(Details)] category is s	ymbol allocation information file] property in the elected	
	- When any o	ne of the conditions bel	ow is met.	
	(1) When selecte	[No] in the [Output link ed	map file] property in the [List] category is	
	(2) When file] pro	[Yes(List contents=not s operty in the [List] categ	specify)(-LISt -SHow)] in the [Output link map jory is selected	
	(3) When [No] in cross r memb	<ul> <li>(3) When [Yes(List contents=specify)(-LISt)] in the [Output link map file] property,</li> <li>[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</li> </ul>		
	- When [No] ii	n the [Output stack info	rmation file] property is selected	
	Default	No(-MEMory=High)		
	How to change	Select from the drop-o	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 comma		e of sections after the linking. al_size option of the rlink command.	
	Default	No		
	How to change	Select from the drop-down list.		
	Restriction	Yes(-Total_size)	Displays the total size of sections after the linking.	
		No	Does not display the total size of sections after the linking.	
Display copyright infor- mation	Select whether This property of	r to display copyright in corresponds to the -LOg	formation. go and -NOLOgo options of the rlink command.	
	Default No(-NOLOgo)			
	How to change	Select from the drop-o	down list.	
	Restriction	Yes(-LOgo)	Displays copyright information.	
		No(-NOLOgo)	Suppresses the output of copyright informa- tion.	



CS+



Commands executed after link processing	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 pro- cessing. %MainProjectDir%: Replaces with the absolute path of the main project folder. %MainProjectName%: Replaces with the absolute path of the main project folder. %MainProjectName%: 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 file. %Program%: Replaces with the absolute path of the output file. %ProjectDir%: Replaces with the absolute path of the project folder. %OutputFile%: Replaces with the absolute path of the project folder. %OutputFile%: Replaces with the absolute path of the project folder. %ProjectDir%: Replaces with the absolute path of the project folder. %ProjectDir%: Replaces with the absolute path of the project folder. %ProjectName%: Replaces with the absolute path of the project folder. %ProjectName%: Replaces with the absolute path of the temporary folder. %WinDir%: 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.			
	Default	Commands executed after link processing[number of defined items]		
	How to change	Edit by the Text Edit dialog box which appears when clicking the [] button. For the subproperty, you can enter directly in the text box.		
	RestrictionUp to 1023 charactersUp to 64 items can be specified.			
Other additional options	Input the link o The options se	ption to be added additionally. It here are added at the end of the link options group.		
	Default	Blank		
	How to change	Directly enter in the text box or edit by the Character String Input dia- log box which appears when clicking the [] button.		



Up to 259 characters

Restriction

## [Hex Output Options] tab

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

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

Caution This tab is not displayed for the library project.

## [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 fold If a relative pat project folder. If an absolute p subproject fold The following p %ActiveProje %BuildMode %MainProjec %MicomTool product. %ProjectDir %ProjectDir %ProjectDir %ProjectNar %TempDir% %WinDir%: If this is blank, This property of This property of This property of This property of This property of This property of This property of Th	ler which the heiler h is specified, the path is specified, er (unless the dro- placeholders are ectDir%: Replace ectName%: Replace ctDir%: Replace ctName%: Replace ctName%: Replace ctName%: Replaces ctName%: Replaces is Replaces with me%: Replaces with me%: Replaces with the sassumed the corresponds to the satisplayed only %BuildModeNa Directly enter in box which app Up to 247 char	x file is output. e reference point of the path is the main project or sub- the reference point of the path is the main project or sub- ives are different). supported. es with the absolute path of the active project folder. laces with the active project name. es with the absolute path of the main project folder. aces with the absolute path of the main project folder. aces with the absolute path of the install folder of this n the absolute path of the project folder. with the project name. the absolute path of the project folder. with the project name. the absolute path of the project folder. with the project name. the absolute path of the project folder. with the project name. the absolute path of the project folder. with the project name. the absolute path of the project folder. with the project folder has been specified. te -OUtput option of the rlink command. when [Yes] in the [Output hex file] property is selected. ame% n the text box or edit by the Browse For Folder dialog ears when clicking the [] button.	

Output file name	Specify the hex file name. Be sure to specify this property. If the extension is omitted, it is automatically added according to the selection in the [Hex file format] property in the [Hex Format] category. When [Intel HEX file(-FOrm=Hexadecimal)] is selected: .hex When [Motorola S-record file(-FOrm=Stype)] is selected: .mot When [Binary file(-FOrm=Binary)] is selected: .bin The following placeholders are supported. %ActiveProjectName%: Replaces with the active project name. %BuildModeName%: Replaces with the build mode name. %MainProjectName%: Replaces with the main project name.				
	This property o This property is	corresponds to the -OUtput option of the rlink command. s displayed only when [Yes] in the [Output hex file] property is selected.			
	Default	%ProjectName%.mot			
	How to change	Directly enter in the text box.			
	Restriction	Up to 259 characters			
Load address	<ul> <li>Specify the load address of the hex file in hexadecimal.</li> <li>This property corresponds to the -OUtput option of the linker.</li> <li>This property is displayed only in the following cases.</li> <li>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</li> <li>When a choice other than [Binary file (-FOrm=Binary)] was made in the [Hex file format] property under the [Hex Format] category</li> </ul>				
	Default Blank				
	How to change	Directly enter in the text box.			
	Restriction	0 to FFFFFFF (hexadecimal number) or blank			



Division output file	Specify the div Specify in the address, end a name=section with one entry If multiple sect tion name:sec [/load address and when a ch format] proper Specify the ad If the extensio [Hex file format] When [Intel When [Intel When [Intel When [Intel When [Binat The following ] %ActiveProj %ActiveProj %ActiveProj %BuildMode %MainProje %MicomToo product. %ProjectDir %ProjectNa %TempDir% %WinDir%: This property of The division of This property is <b>Caution</b>	ision output files. ormat of "file name=start address-end address[/load address]" (start ddress: The start address and end address of the output range) or "in name[/load address]" (section name: The name of the output section per line. on names are specified, delimit them with a colon as in "file name=s ion name" (example: file1.mot=sec1:sec2). can be specified only when the CC-RH compiler is V2.00.00 or late oice other than [Binary file (-FOrm=Binary)] was made in the [Hex fill y in the [Hex Format] category. dress in hexadecimal (example: file2.mot=400-4ff). n is omitted, it is automatically added according to the selection in the [] property in the [Hex Format] category. HEX file(-FOrm=Hexadecimal)] is selected: .hex rola S-record file(-FOrm=Stype)] is selected: .mot y file(-FOrm=Binary)] is selected: .mot Name%: Replaces with the absolute path of the active project folder. actDir%: Replaces with the absolute path of the main project folder. the selaces with the absolute path of the install folder of this %: Replaces with the absolute path of the install folder of this %: Replaces with the absolute path of the project folder. ne%: Replaces with the absolute path of the temporary folder. Replaces with the absolute path of the temporary folder. represponds to the -OUtput option of the rlink command. tiput file name is displayed as the subproperty. s displayed only when [Yes] in the [Output hex file] property is select 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 th property and use the [Output folder] and [Output file name] prope ties instead.		
		property and use the [Output folder] and [Output file name] proper- ties instead.		
	Default	Division output file[number of defined items]		
	How to change	Edit by the Text Edit dialog box which appears when clicking the [] button. For the subproperty, you can enter directly in the text box.		
	Restriction Up to 259 characters Up to 65535 items can be specified.			



Use object uniting function	Select whether to combine the hex files of the projects specified as constituent appli- cations 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	i-core boot loade	er project
	<ul> <li>When [Yes] is selected in the [Output hex file] property for the boot loader project and all component application projects.</li> </ul>		
	- When the sa category for	ame item is selec the boot loader	cted in the [Hex file format] property in the [Hex Format] project and all component application projects.
	Default	No	
	How to change	Select from the	e 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	<ul> <li>Specify the folder which the combined hex file is output.</li> <li>The following placeholders are supported.</li> <li>%ActiveProjectDir%: Replaces with the absolute path of the active project</li> <li>%ActiveProjectName%: Replaces with the active project name.</li> <li>%BuildModeName%: Replaces with the absolute path of the main project for</li> <li>%MainProjectDir%: Replaces with the absolute path of the main project for</li> <li>%MainProjectName%: Replaces with the absolute path of the install folder or</li> <li>%MicomToolPath%: Replaces with the absolute path of the install folder or</li> <li>product.</li> <li>%ProjectDir%: Replaces with the absolute path of the project folder.</li> <li>%ProjectDir%: Replaces with the absolute path of the temporary folder.</li> <li>%UinDir%: Replaces with the absolute path of the temporary folder.</li> <li>%WinDir%: Replaces with the absolute path of the Vindows system folde</li> <li>If this is blank, it is assumed that the project folder has been specified.</li> <li>This property corresponds to the -OUtput option of the rlink command.</li> <li>This property is displayed only when [Yes] in the [Use object uniting function] is selected.</li> </ul>		mbined hex file is output. supported. the swith the absolute path of the active project folder. blaces with the active project name. ces with the build mode name. is with the absolute path of the main project folder. aces with the main project name. es with the absolute path of the install folder of this the absolute path of the project folder. with the project name. the absolute path of the temporary folder. the absolute path of the Windows system folder. at the project folder has been specified. he -OUtput option of the rlink command. when [Yes] in the [Use object uniting function] property
	Default	%BuildModeN	ame%_merged
	How to change	Directly enter i box which app	n the text box or edit by the Browse For Folder dialog ears 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 [He 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]	File] Select whether to output a specified data record regardless of the add This property corresponds to the -RECord option of the rlink command This property is displayed only when [Motorola S-record file(-FOrm=St [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 displayed in any one of the following cases				
	- When a file i gory.	s specified in the [Division output file] p	property in the [Output File] cate-		
	- When [Yes(- fixed record	FIX_RECORD_LENGTH_AND_ALIGN length from aligned start address] prop	I)] in the [Output hex file with erty is selected.		
	Default	No			
	How to change	Select from the drop-down list.			
	Restriction	Yes(Random)(-SPace=Random)	Fills the vacant area with ran- dom numbers.		
		Yes(Specification value)(- SPace= <numerical value="">)</numerical>	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&gt;)] in the [Fill unused areas in the output ranges with the value] property is selected.</numerical 					
	Default	FF				
	How to change	Directly enter in the text box.				
	Restriction	0 to FFFFFFFF (hexadecimal numbe	er)			
Output hex file with fixed record length from aligned start address	<ul> <li>Select whether to output the hex file with the fixed record length from an aligned address.</li> <li>This property corresponds to the -FIX_RECORD_LENGTH_AND_ALIGN of the r command.</li> <li>This property is displayed only in the following cases.</li> <li>When you have selected [Always latest version which was installed] or V1.07.0 a later version for the [Using compiler package version] property under the [Ver Select] category on the [Common Options] tab in an environment where V1.07 or a later version of the CC-RH compiler has been installed</li> </ul>					
	- 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_ALI GN)	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				



Specify byte count for data record	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					
	<ul> <li>When other than [Binary file(-FOrm=Binary)] in the [Hex file format] property i selected</li> <li>Other than above</li> </ul>					
	<ul> <li>When [Intel HEX file(-FOrm=Hexadecimal)] in the [Hex file format] property selected</li> </ul>					
	Default	No				
	How to change	Select from the drop-down list.				
	Restriction	Yes(- BYte_count)	Specifies the maximum byte count for a data record.			
		No	Specifies 0xFF as the maximum byte count for a data record.			
Maximum byte count for data record	Specify the ma This property o This property is data record] pr	naximum byte count for a data record. y corresponds to the -BYte_count option of the rlink command. y is displayed only when [Yes(-BYte_count)] in the [Specify byte count fc property is selected.				
	Default	- When [Intel property is s FF	HEX file(-FOrm=Hexadecimal)] in the [Hex file format] elected			
		- When [Moto property is s 10	<ul> <li>When [Motorola S-record file(-FOrm=Stype)] in the [Hex file format] property is selected 10</li> </ul>			
	How to change	Directly enter t	o the text box.			
	Restriction	1 to FF (hexadecimal number)				



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 [Alwa selected for Select] cate or a later ve	- 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] prope selected					
	Default	Default Not specify(No option specified)				
	How to change	Select from the				
	Restriction	S7(-END_REC	CORD=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 whethe This property o This property i [Hex file forma	ether to output the S9 record at the end. erty corresponds to the -S9 option of the rlink command. erty is displayed only when [Motorola S-record file(-FOrm=Styp ormat] property is selected.				
	Default	No				
	How to change	Select from the drop-down list.				
	Restriction	Yes(-S9)	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 This property of This property is V2.05.00 or a left erty under the ment where V2 When versions ties are display	the settings of one or more CRC operations. corresponds to the -CRc option of the rlink command. s displayed only when [Always latest version which was installed] or later version is selected for the [Using compiler package version] prop- [Version Select] category on the [Common Options] tab in an environ- 2.05.00 or a later version of the CC-RH compiler has been installed. s of CC-RH are earlier than V2.05.00, the existing -CRc-related proper- ved. 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 set- tings of the second and subsequent -CRc options will be deleted. CRC Operations[ <i>numbers of defined items</i> ]			
	Note				
	Default				
	How to change	Edit by the CRC Operations dialog box which appears whe the [] button.			
Outputs the calculation result of CRC	Select whether This property of This property is sion number ea sion] property of environment w installed.	to perform the CRC (Cyclic Redundancy Check) operation. corresponds to the -CRc option of the rlink command. s displayed when [Always latest version which was installed] or a ver- arlier than V2.05.00 is selected for the [Using compiler package ver- under the [Version Select] category on the [Common Options] tab in an there a version of the CC-RH compiler earlier than V2.05.00 has been			
	Default No				
	How to change	Select from the drop-down list.			
	Restriction	Yes(-CRc) The CRC operation is performed on the hex- objects in the specified range, from low addr high address, and the results of the operatio output to the specified address.			
		No	The CRC operation and outputting the result are not performed.		
Output address	Specify the add out 0x (exampl Be sure to spe This property o This property is	ddress that the result of the CRC operation is output in hexadecimal with- ple: FFF0). ecify this property. corresponds to the -CRc option of the rlink command. is displayed in the following cases.			
	- When [Alway V2.05.00 is s [Version Sele version of the	[Always latest version which was installed] or a version number earlier than 00 is selected for the [Using compiler package version] property under the n Select] category on the [Common Options] tab in an environment where a n of the CC-RH compiler earlier than V2.05.00 has been installed			
	- When [Yes(-	CRc)] in the [Out	tputs the calculation result of CRC] property is selected		
	Default	0			
	How to change	Directly enter in	n the text box.		
	Restriction	0 to FFFFFFF	<sup>-</sup> (hexadecimal number)		

Target range	Specify the CRC calculation range in the format of " <i>start address</i> - <i>end address</i> " or " <i>section name</i> ". Specify the address in hexadecimal without 0x. The range of specifiable address values is 0 to FFFFFFF. This property corresponds to the -CRc option of the rlink command. This property is displayed in the following cases.				
	<ul> <li>When [Always latest version which was installed] or a version number earlier the 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 version of the CC-RH compiler earlier than V2.05.00 has been installed</li> </ul>				
	- When [Yes(-CRc)] in the [Outputs the calculation result of CRC] property is selected				
	Default	Blank			
	How to change	Edit by the Text Edit dialog box which appears when clicking the [] button. For the subproperty, you can enter directly in the text box.			
	Restriction	Up to 32767 characters Up to 65535 items can be specified.			
Type of CRC	Select the method of CRC operation. See the user's manual of the device and "CC-RH Compiler User's Manual" for d about each operation. This property corresponds to the -CRc option of the rlink command. This property is displayed in the following cases.				
	- When [Alway V2.05.00 is s [Version Sele version of the	ys latest version whic selected for the [Usin ect] category on the [ e CC-RH compiler ea	s latest version which was installed] or a version number earlier than elected for the [Using compiler package version] property under the ct] category on the [Common Options] tab in an environment where a CC-RH compiler earlier than V2.05.00 has been installed		
	- vvnen [Yes(-CKC)] in the [Outputs the calculation result of CRC] property is selected				
	Default	32-ETHERNET typ	e		
	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,LIT- TLE,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,LIT- TLE,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 con- forming to SENT.		



Initial value	Specify the initial value for the CRC operation in the format of " <i>initial value</i> ". 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 that 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 version of the CC-RH compiler earlier than V2.05.00 has been installed				
	- When [Yes(-	CRc)] in the [Ou	tputs the calculation result of CRC] property is selected		
	Default	Blank			
	How to change	Directly enter t	o the text box.		
	Restriction	- When other CRC] proper 0 to FFFF (h	than [32-ETHERNET type] is selected in the [Type of rty lexadecimal number)		
		<ul> <li>When [32-ETHERNET type] is selected in the [Type of erty</li> <li>0 to FFFFFFF (hexadecimal number)</li> </ul>			
Endian	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 [Ou	tputs the calculation result of CRC] property is selected		
	Default	Little endian			
	How to change	Select from the drop-down list.			
	Restriction	Little endian	Outputs the value in little-endian mode.		
		Big endian	Outputs the value in big-endian mode.		
Output size	Specify the out This property c This property is	put size for the ( corresponds to the sourcesponds to the sourcesponds to the sourcesponds to the sourcespond sourcespond to the sourcespond sources	CRC code. ne -CRc option of the rlink command. e 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	Blank			
	How to change	Directly enter t	o the text box.		
	Restriction	2, 4, or blank			



	1			
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 Select from the drop-down list. change			
	Restriction	Yes(-VER- BOSE=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	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 This property of mand. This property is as Link Option	Select whether to enable the output of information messages. This property corresponds to the -Message and -NOMessage options of the rlink c mand. This property is displayed only when [No] in the [Use same message-related settir as Link Options tab] property is selected.			
	Default	No(-NOMessa	No(-NOMessage)		
	How to change	Select from the drop-down list.			
	Restriction	Yes(-Message)	)	Outputs information messages.	
	No(-NOMessag		ge)	Suppresses the output of informa- tion 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) (exam- ple: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 ed log box which appears when click	it by the Character String Input dia- ing the [] button.			
	Restriction	Up to 2048 characters				
Change warning and error message to infor- mation message	Select whether This property of This property is as Link Option	r to change the type of warning and error messages to information. corresponds to the -CHange_message option of the rlink command. is displayed only when [No] in the [Use same message-related settings ns 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 informa- tion.			
		Yes(Specify message number)(- CHange_message=Informa- tion= <message number="">)</message>	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 nur If multiple mes 4,200). Also, a range of ple:4,200-203, This property of This property is as Link Option CHange_mess error message	<ul> <li>cify the number of the warning and error message.</li> <li>iultiple message numbers are specified, delimit them with "," (comma) (exam 00).</li> <li>o, a range of message numbers can be specified using "-" (hyphen) (exam- :4,200-203,1300).</li> <li>s property corresponds to the -CHange_message option of the rlink comman s property is displayed only when [No] in the [Use same message-related set Link Options tab] property is selected and when [Yes(Specify message numb ange_message=Information=<message number="">)] in the [Change warning a property is selected.</message></li> </ul>				
	Default	t Blank				
How to changeDirectly enter in the text box or edit by the Character St log 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 informa- tion and error messages to warn- ing.		
		Yes(Specify message number)(- CHange_message=Warn- ing= <message number="">)</message>	Specifies the number of informa- tion and error message of which type is to be changed to warning.		
		No	Does not change the type of infor- mation and error messages.		
Number of information and error message	<ul> <li>Specify the number of the information and error message.</li> <li>If multiple message numbers are specified, delimit them with "," (comma) (exampl 4,200).</li> <li>Also, a range of message numbers can be specified using "-" (hyphen) (example:4,200-203,1300).</li> <li>This property corresponds to the -CHange_message option of the rlink command.</li> <li>This property is displayed only when [No] in the [Use same message-related settin as Link Options tab] property is selected and when [Yes(Specify message number CHange_message=Warning=<message number="">)] in the [Change information an array message to user the user of the second to user to user</message></li></ul>				
	Default	Default Blank			
	How to change	Directly enter in the text box or edit by the Character String Input dia- log box which appears when clicking the [] button.			
	Restriction	Up to 2048 characters			
Change information and warning message to error message	Select whether This property of This property i as Link Option	ether to change the type of information and warning messages to error. erty corresponds to the -CHange_message option of the rlink command. erty is displayed only when [No] in the [Use same message-related settings ptions 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 informa- tion and warning messages to error.		
		Yes(Specify message number)(- CHange_message=Error= <mes- sage number&gt;)</mes- 	Specifies the number of information and warning message of which type is to be changed to error.		
		No	Does not change the type of infor- mation and warning messages.		



Number of information and warning message	Specify the num If multiple mes 4,200). Also, a range of ple:4,200-203, This property of This property is as Link Option CHange_mess ing message to	mber of the information and warning message. sage numbers are specified, delimit them with "," (comma) (example: of message numbers can be specified using "-" (hyphen) (exam- 1300). corresponds to the -CHange_message option of the rlink command. s displayed only when [No] in the [Use same message-related settings s tab] property is selected and when [Yes(Specify message number)(- sage=Error= <message number="">)] in the [Change information and warn- o error message] property is selected.</message>		
	Default Blank			
	How to changeDirectly enter in the text box or edit by the Character String log box which appears when clicking the [] button.RestrictionUp 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 an exception h See "RH850G3	e "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 bas This property c instruction is in	ase address of the exception vector. corresponds to the -b option of the tool to confirm that the SYNCP inserted at the entry of the exception handler.			
	Default	The peculiar v	alue for the target device		
	How to change	Directly enter t	o the text box.		
	Restriction	0 to FFFFFE00	) (hexadecimal number without 0x)		
Number of entries of interrupts	Specify the nur Specifying this This property c instruction is in	mber of entries of interrupts. property appropriately allows redundant check to be suppressed. corresponds to the -n option of the tool to confirm that the SYNCP nserted at the entry of the exception handler.			
	Default	16			
	How to Directly enter to the text box. change				
	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.

```
(1)[Debug Information]
(2)[Input File]
(3)[Output File]
(4)[Library]
(5)[List]
(6)[Message]
(7)[Others]
```

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 informa- tion	Select whether This property of mand. This property is put file format]	r to output debug information. corresponds to the -DEBug and -NODEBug options of the rlink com- s displayed only when [Relocatable file(-FOrm=Relocate)] in the [Out- property in the [Output File] category.		
	Default	Yes(Output to t	the outp	put file)(-DEBug)
	How to change	Select from the drop-down list.		
	Restriction	Yes(Output to the output file)(-DEBug) No		Outputs debug information.
				Does not output debug information.
Delete local symbol name information	Select whether This property of	er to delete local symbol name information. corresponds to the -Hide option of the rlink command.		
	Default	No		
	How to change	Select from the drop-down list.		
	Restriction	Yes(-Hide) Delete		es information of the local symbol name.
		No	Does name	not delete information of the local symbol

(2) [Input File]

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



Object file	<ul> <li>Specify the object files.</li> <li>Specify in the format of "<i>library(module</i>)", with one entry name per line.</li> <li>The following placeholders are supported.</li> <li>%ActiveProjectDir%: Replaces with the absolute path of the active project folder.</li> <li>%ActiveProjectName%: Replaces with the active project name.</li> <li>%BuildModeName%: Replaces with the build mode name.</li> <li>%MainProjectDir%: Replaces with the absolute path of the main project folder.</li> <li>%MainProjectName%: Replaces with the absolute path of the main project folder.</li> <li>%MainProjectName%: Replaces with the absolute path of the install folder of this product.</li> <li>%ProjectDir%: Replaces with the absolute path of the project folder.</li> <li>%ProjectDir%: Replaces with the project name.</li> <li>%MicomToolPath%: Replaces with the project name.</li> <li>%MicomToolPath%: Replaces with the absolute path of the install folder of this product.</li> <li>%ProjectDir%: Replaces with the absolute path of the project folder.</li> <li>%ProjectDir%: Replaces with the absolute path of the project folder.</li> <li>%ProjectDir%: Replaces with the absolute path of the project folder.</li> <li>%ProjectName%: Replaces with the absolute path of the project folder.</li> <li>%ProjectName%: Replaces with the absolute path of the temporary folder.</li> <li>%TempDir%: Replaces with the absolute path of the temporary folder.</li> <li>This property corresponds to the -Input option of the rlink command.</li> <li>The object file name is displayed as the subproperty.</li> </ul>				
	Default	Object file[number of defined items]			
	How to change	Edit by the Text Edit dialog box which appears when clicking the [] button. For the subproperty, you can enter directly in the text box.			
	Restriction	Up to 1024 characters Up to 256 items can be specified.			
Binary file	Specify the binary files. Specify in the format of "file name(section name[:number of alignment][/section attri- bute][,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 exe- cute, will be all valid. The following placeholders are supported. %ActiveProjectDir%: Replaces with the absolute path of the active project folder. %ActiveProjectDir%: Replaces with the absolute path of the main project folder. %MainProjectDir%: Replaces with the absolute path of the main project folder. %MainProjectDir%: Replaces with the absolute path of the main project folder. %MainProjectDir%: Replaces with the absolute path of the install folder of this product. %ProjectDir%: Replaces with the absolute path of the install folder of this product. %ProjectDir%: Replaces with the absolute path of the project folder. %MicomToolPath%: Replaces with the absolute path of the project folder. %ProjectDir%: Replaces with the absolute path of the project folder. %WinDir%: Replaces with the absolute path of the project folder. %WinDir%: Replaces with the absolute path of the temporary folder. %WinDir%: Replaces with the absolute path of the temporary folder. %WinDir%: Replaces with the absolute path of the temporary 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 [Out- put file format] property in the [Output File] category.				
	Default	Binary file[ <i>number of defined items</i> ]			
	How to changeEdit by the Text Edit dialog box which appears when clicking the button. For the subproperty, you can enter directly in the text box.RestrictionUp to 1024 characters Up to 256 items can be specified.				

(3) [Output File]

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



Output file format	Select the format of the output file. This 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	<ul> <li>Specify the output folder.</li> <li>The following placeholders are supported.</li> <li>%ActiveProjectDir%: Replaces with the absolute path of the active %ActiveProjectName%: Replaces with the active project name.</li> <li>%BuildModeName%: Replaces with the absolute path of the main projectDir%: Replaces with the absolute path of the main pro%MainProjectName%: Replaces with the absolute path of the install product.</li> <li>%ProjectDir%: Replaces with the absolute path of the project folde %ProjectName%: Replaces with the absolute path of the project folde %ProjectDir%: Replaces with the absolute path of the project folde %ProjectName%: Replaces with the absolute path of the project folde %ProjectName%: Replaces with the absolute path of the temporary fole %WinDir%: Replaces with the absolute path of the temporary fole %WinDir%: Replaces with the absolute path of the temporary fole %WinDir%: Replaces with the absolute path of the temporary fole %WinDir%: Replaces with the absolute path of the temporary fole %WinDir%: Replaces with the absolute path of the temporary fole %WinDir%: Replaces with the absolute path of the temporary fole %WinDir%: Replaces with the absolute path of the temporary fole %WinDir%: Replaces with the absolute path of the temporary fole %WinDir%: Replaces with the absolute path of the temporary fole %WinDir%: Replaces with the absolute path of the temporary fole %WinDir%: Replaces with the absolute path of the temporary fole %WinDir%: Replaces with the absolute path of the temporary fole %WinDir%: Replaces with the absolute path of the temporary fole %WinDir%: Replaces with the absolute path of the temporary fole %WinDir%: Replaces with the absolute path of the temporary fole %WinDir%: Replaces with the absolute path of the temporary fole %WinDir%: Replaces with the absolute path of the Windows syste If this is blank, it is assumed that the project folder has been specifie</li> </ul>		ath of the active project folder. project name. e name. th of the main project folder. oject name. ath of the install folder of this the project folder. the temporary folder. Windows system folder. as been specified. he 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 out If the extension [Output file forr When [User When [Syste When [Reloo The following p %ActiveProje %MainProje %ProjectNar This property o	put file name. n is omitted, it is automatically added a mat] property. libraries(-FOrm=Library=U)] is select m libraries(-FOrm=Library=S)] is select catable file(-FOrm=Relocate)] is select blaceholders are supported. ectName%: Replaces with the active p ctName%: Replaces with the main pro- me%: Replaces with the project name. corresponds to the -OUtput option of the	according to the selection in the ed: .lib cted: .lib red: .rel project name. oject name. ne 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	<ul> <li>Specify the library files to be used.</li> <li>The following placeholders are supported.</li> <li>%ActiveProjectDir%: Replaces with the absolute path of the active project folder.</li> <li>%BuildModeName%: Replaces with the build mode name.</li> <li>%BuildModeName%: Replaces with the absolute path of the main project folder.</li> <li>%MainProjectDir%: Replaces with the absolute path of the main project folder.</li> <li>%MainProjectName%: Replaces with the absolute path of the install folder of this product.</li> <li>%ProjectDir%: Replaces with the absolute path of the project folder.</li> <li>%ProjectDir%: Replaces with the absolute path of the project folder.</li> <li>%ProjectDir%: Replaces with the absolute path of the project folder.</li> <li>%ProjectName%: Replaces with the absolute path of the project folder.</li> <li>%ProjectName%: Replaces with the absolute path of the project folder.</li> <li>%ProjectName%: Replaces with the absolute path of the project folder.</li> <li>%ProjectName%: Replaces with the absolute path of the temporary folder.</li> <li>%TempDir%: Replaces with the absolute path of the temporary folder.</li> <li>%WinDir%: Replaces with the absolute path of the temporary folder.</li> <li>This property corresponds to the -LIBrary option of the rlink command.</li> <li>The library file name is displayed as the subproperty.</li> </ul>				
	Default	Using libraries[number of	defined items]		
	How to change	og box which appears when clicking the [] ng Library File dialog box which appears e] button. 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	of defined items]		
	How to change	Changes not allowed			
Use standard libraries	Select whether This property of [Yes(V1.01 cor or V1.02.00 or property under ronment where	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 env ronment 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.		

Use "Standard Library" function	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 [Alway selected for Select] categ or a later ver	ys latest version which was the [Using compiler packag gory on the [Common Optio 'sion of the CC-RH compile	installed] or V1.02.00 or a later version is le version] property under the [Version ons] tab in an environment where V1.02.00 r has been installed		
	- When [Yes(\	/1.01 compatible)] in the [U	se standard libraries] property is selected		
	Default	No			
	How to change	Select from the drop-down	n list.		
	Restriction	Yes(-LIBrary=libc)	Uses the standard library functions.		
		No	Does not use the standard library func- tions.		
Use "Mathematical Library (Double preci- sion)" function	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] i	in the [Use standard librarie	es] 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(\	/1.01 compatible)] in the [U	se standard libraries] property is selected		
	Default     No       How to change     Select from the drop-down list.				
	Restriction	Yes(-LIBrary=libm)	Uses the mathematical library (double pre- cision) functions.		
		No	Does not use the mathematical library (double precision) functions.		



Use "Mathematical Library (Single preci- sion)" function	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 [Alway V1.02.00 is s [Version Sele version of th	- 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] i	in the [Use stand	lard librarie	es] property is selected	
	or				
	- When [Alway selected for Select] categ or a later ver	ys latest version the [Using comp gory on the [Com rsion of the CC-F	which was iler packag nmon Optic RH compile	installed] or V1.02.00 or a later version is ge version] property under the [Version ons] tab in an environment where V1.02.00 r has been installed	
	- When [Yes(\	/1.01 compatible	e)] in the [U	se standard libraries] property is selected	
	Default	No			
	How to change	Select from the drop-down list.			
	Restriction	Yes(-LIBrary=libmf)		Uses the mathematical library (single pre- cision) functions.	
		No		Does not use the mathematical library (single precision) functions.	
Use "Standard/Mathe- matical Library" func- tion	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.				
	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] i	in the [Use stand	ard librarie	es] property is selected	
	Default	efault No bow to Select from the drop-down list. bange			
	How to change				
	Restriction	Yes	Uses the	standard/mathematical library functions.	
		No	Does not tions.	use the standard/mathematical library func-	



Check memory smashing on releas- ing memory	<ul> <li>Selects whether to check memory smashing on releasing the memory. This property is usable only in the Professional Edition.</li> <li>The user-definedheap_chk_fail() function is called if an illegal address has been specified or an address outside the allocated memory area has been written to we the memory that was dynamically allocated by malloc or another function is releas 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.</li> <li>This property is displayed only in the following cases.</li> <li>When [Always latest version which was installed] or V1.04.00 or a later version selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.04 or a later version of the CC-RH compiler has been installed</li> <li>When [Yes] in the [Use standard/mathematical libraries] property is selected</li> </ul>				
	Default	No			
	How to change	Select from the	e drop-dow	n list.	
	Restriction	Yes	Checks n	nemory smashing on releasing the memory.	
		No	Does not memory.	check memory smashing on releasing the	
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 liproperty is selected.			library functions. option of the rlink command. r than [No] in the [Use standard libraries]	
	Default	No	No		
	How to change	Select from the drop-down list.			
	Restriction	Yes(-LIBrary=li	bsetjmp)	Uses the non-local jump library functions.	
		No		Does not use the non-local jump library functions.	
Allow duplicate mod- ule names	Selects whether names during to This property of the rlink comm This property is V2.02.00 or a l erty under the ment where V2	whether to allow the specification of input files having the same module during the generation of a library. operty corresponds to the -ALLOW_DUPLICATE_MODULE_NAME option command. operty is displayed when [Always latest version which was installed] or 0 or a later version is selected for the [Using compiler package version] pr der the [Version Select] category on the [Common Options] tab in an envir here V2.02.00 or a later version of the CC-RH compiler has been installed		of input files having the same module 	
	Default	No			
	How to change	o Select from the drop-down list.		n list.	
	Restriction	Yes(- ALLOW_DUPL MODULE_NAM	LICATE_ ME)	Allows duplicate module names.	
		No		Does not allow duplicate module names.	

(5) [List]

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



Output link map file	Select whether This property of	r to output the library list file. 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 spec- ify)(-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 infor- mation	Select whether This property o This property is link map file] p	r to output the symbol information corresponds to the -SHow=SYmb s displayed only when [Yes(List o roperty is selected.	n (symbol names within a module). ool option of the rlink command. contents=specify)(-LISt)] in the [Output	
	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 informa- tion.	
Output section list in a module	Select whether This property of This property is link map file] p libraries(-FOrm egory is select	her to output the list of the section names within the module. y corresponds to the -SHow=SEction option of the rlink command. y is displayed only when [Yes(List contents=specify)(-LISt)] in the [Output ] property is selected and [User libraries(-FOrm=Library=U)] or [System Drm=Library=S)] in the [Output file format] property in the [Output File] cat		
	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 This property of This property is link map file] p mat] property i	ether to output the cross reference information. erty corresponds to the -SHow=XReference option of the rlink command. erty is displayed only when [Yes(List contents=specify)(-LISt)] in the [Output le] property and [Relocatable file(-FOrm=Relocate)] in the [Output file for- erty in the [Output File] category are selected.		
	Default			
	How to Select from the drop-down list. change			
	Restriction	Yes(-SHow=Xreference)	Outputs the cross reference informa- tion.	
		No	Does not output the cross reference information.	



Output total sizes of sections	Select whether This property of This property is link map file] p matl property is	r to output the total size of sections. corresponds to the -SHow=Total_size option of the rlink command. s displayed only when [Yes(List contents=specify)(-LISt)] in the [Output roperty and [Relocatable file(-FOrm=Relocate)] in the [Output file for-		
	mail property i			
	Default	No Select from the drop-down list.		
	How to change			
	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 sec- tions.	

### (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 com- mand.		
	Default	No(-NOMessage)	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-Message)	Outputs information messages.
		No(-NOMessage)	Suppresses the output of informa- tion 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) (exam- ple: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 mes- sage output] property is selected.		
	Default	Blank	
	How to change	Directly enter in the text box or edit by the Character String Input dia- log box which appears when clicking the [] button.	
	Restriction	Up to 2048 characters	



Change warning and error message to infor-	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.			
mation message	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 informa- tion.	
		Yes(Specify message number)(- CHange_message=Informa- tion= <message number="">)</message>	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) (exam- ple: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.</message>			
	Default	Blank		
	How to change	Directly enter in the text box or edit by the Character String Input dia- log box which appears when clicking the [] button.		
	Restriction	Up to 2048 characters		
Change information and error message to	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.			
warning message	Default	No		
	How to change	Select from the drop-down list.		
	Restriction	Yes(All)(- CHange_message=Warning)	Changes the type of all informa- tion and error messages to warn- ing.	
		Yes(Specify message number)(- CHange_message=Warn- ing= <message number="">)</message>	Specifies the number of informa- tion and error message of which type is to be changed to warning.	
		No	Does not change the type of infor- mation 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.</message>			
	Default	Blank		
	How to change	Directly enter in the text box or edit by the Character String Input dia- log 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 informa- tion and warning messages to error.	
		Yes(Specify message number)(- CHange_message=Error= <mes- sage number&gt;)</mes- 	Specifies the number of information and warning message of which type is to be changed to error.	
		No	Does not change the type of infor- mation 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) (exam- ple:4,200-203,1300). This property corresponds to the .CHange message option of the rlink command			
	This property corresponds to the -Change_message option of the mink 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.</message>			
	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.

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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			
	<ul> <li>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</li> </ul>			
	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 [Out- put 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 infor- mation	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 informa- tion.	



Commands executed before create library processing	Specify the corr Use the call ins The following p %ActiveProj %BuildMode %LibraryFile generation p %MainProje %MicomToo product. %Options%: %OutputDir% %OutputDir% %ProjectDir% %ProjectNar %ProjectNar %TempDir% %WinDir%: When "#!pytho last line are reg library generat The placeholde The specified of	<ul> <li>mmand to be executed before library generation processing.</li> <li>struction to specify a batch file (example: call a.bat).</li> <li>blaceholders are supported.</li> <li>ectDir%: Replaces with the absolute path of the active project folder.</li> <li>ectName%: Replaces with the active project name.</li> <li>eName%: Replaces with the build mode name.</li> <li>eW: Replaces with the absolute path of the output file under the library processing.</li> <li>ctDir%: Replaces with the absolute path of the main project folder.</li> <li>ctName%: Replaces with the absolute path of the main project folder.</li> <li>ctName%: Replaces with the absolute path of the install folder of this</li> <li>replaces with the absolute path of the output folder.</li> <li>ctName%: Replaces with the absolute path of the output folder.</li> <li>iPath%: Replaces with the absolute path of the output folder.</li> <li>exelaces with the absolute path of the output folder.</li> <li>exelaces with the absolute path of the output folder.</li> <li>exelaces with the absolute path of the output folder.</li> <li>w: Replaces with the absolute path of the project folder.</li> <li>w: Replaces with the absolute path of the project folder.</li> <li>w: Replaces with the absolute path of the project folder.</li> <li>w: Replaces with the absolute path of the project folder.</li> <li>w: Replaces with the absolute path of the project folder.</li> <li>w: Replaces with the absolute path of the project folder.</li> <li>w: Replaces with the absolute path of the temporary folder.</li> <li>Replaces with the absolute path of the Windows system folder.</li> <li>m'' is described in the first line, the contents from the second line to the garded as the script of the Python console, and then executed before ion processing.</li> <li>ers can be described in the script.</li> <li>command is displayed as the subproperty.</li> </ul>
	Default	Commands executed before library generate 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.


Commands executed after create library pro- cessing	Specify the con Use the call in: The following p %ActiveProj %ActiveProj %BuildMode %LibraryFile generation p %MainProje %MainProje %MicomToo product. %Options%: %OutputDir %OutputFile %ProjectDir %ProjectDir %ProjectNal %ProjectNal %ProjectNal %ProjectNal %ProjectNal %ProjectNal %ProjectNal %ProjectNal %NonDir%: When "#!pytho last line are re- library generat The placehold The specified of	y the command to be executed after library generation processing. le call instruction to specify a batch file (example: call a.bat). llowing placeholders are supported. ztiveProjectDir%: Replaces with the absolute path of the active project folder. ztiveProjectName%: Replaces with the build mode name. braryFile%: Replaces with the absolute path of the output file under the library eration processing. ainProjectDir%: Replaces with the absolute path of the main project folder. ainProjectName%: Replaces with the absolute path of the main project folder. ainProjectName%: Replaces with the absolute path of the install folder of this fuct. ptions%: Replaces with the command line option under build execution. utputDir%: Replaces with the absolute path of the output folder. utputFile%: Replaces with the absolute path of the output folder. utputFile%: Replaces with the absolute path of the output folder. utputFile%: Replaces with the absolute path of the output folder. utputFile%: Replaces with the absolute path of the output folder. rojectDir%: Replaces with the absolute path of the project folder. rojectDir%: Replaces with the absolute path of the project folder. rojectDir%: Replaces with the absolute path of the project folder. rojectName%: Replaces with the absolute path of the project folder. "mpDir%: Replaces with the absolute path of the temporary folder. "inDir%: Replaces with the absolute path of the temporary folder. "#!python" is described in the first line, the contents from the second line to the the are regarded as the script of the Python console, and then executed after regeneration processing. laceholders can be described in the script. aceholders can be described in the script.		
	Default	Commands executed after library generate 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.		
Other additional options	Input the create library options to be added additionally. The options set here are added at the end of the create library 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		



# [I/O Header File Generation Options] tab

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

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

# [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 the I/O header file or properties related to generation of the I/O header file have be updated. Update is performed by automatic overwriting and a backup file with the I extension is created. This contents are common to all the build modes.			
	Default	lt 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 generat- ing I/O header file	The file name and version of the device file when the I/O header file was generate are displayed. Note that this property is displayed only when a choice other than [No] was made the [Update I/O header file on build] property.			
	Default	The file name and version of the was generated	e device file when the I/O header file	
	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 ronment are displayed. Note that this property is displayed only when a choice other than [No] was may the [Update I/O header file on build] property.			
	Default	Current device file		
How to Changes not allowed change				



Select modules which	Select whether to select modules which are output to the I/O header file.			
are output in files	Default	No		
	How to change	Select from the	e drop-down list.	
	Restriction	Yes	Displays the [Mo file] property to the I/O header f Only the I/O reg to the I/O header	odules which are defined in device select modules which are output to ile. ister in the selected module is output er file.
		No	No Outputs all modules to the I/O header file.	
Modules which are defined in device file	<ul> <li>The list of modules which are defined in the device file are displayed.</li> <li>Note that this property is not applied to [Reset to Default] and [Reset All to from the context menu.</li> <li>The following items are displayed in the subproperty.</li> <li>Module name: The names of modules which are defined in the device fi File name: The names of the I/O header files to which the modules are Output: Whether to enable or disable output to the I/O header file</li> <li>This property is displayed only when [Yes] in the [Select modules which are files] property is selected.</li> </ul>		ice file are displayed. Default] and [Reset All to Default] perty. are defined in the device file to which the modules are output o the I/O header file [Select modules which are output in	
	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 char	racters	
Output definitions	Select whether	r to output definit	tions regarding μl	TRON.
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 $\mu$ ITRON.
Enable MISRA-C	Select whether to output an I/O header file compatible with the MISRA-C rules.			
option	Default	No		
	How to change	Select from the drop-down list.		
	Restriction	Yes(-misra_c=	on2)	Outputs an I/O header file compati- ble 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. The MISRA-C rules are not consid-
				ered.



Enable module array option	Select whether header file for	definitions which become accessible in arrays are to be output to the 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 mod- ules	Select whether Note that this p blocks.	r to define blocks in modules. property is displayed only when there is an information file for definir		ere is an information file for defining	
	Default	No			
	How to change	Select from the	e drop-down list.		
	Restriction	Yes	Defines blocks i the blocks and f	n a module to generate an array for or the I/O registers.	
		No	Does not define	blocks in modules.	
Enable IOR array option	Select whether that have num	definitions which	h become accessi n 0.	ble in arrays are to be output to IORs	
	Default	No			
	How to change	w to Select from the dro		lrop-down list.	
		iction Yes(-iorarray=on)			
	Restriction	Yes(-iorarray=0	on)	Enables the IOR array option.	
	Restriction	Yes(-iorarray=0	on)	Enables the IOR array option. Does not enable the IOR array option.	
Share definition of	Restriction Select whether	Yes(-iorarray=o No r to share definiti	on)	Enables the IOR array option. Does not enable the IOR array option.	
Share definition of structure	Restriction Select whether Default	Yes(-iorarray=o No to share definiti Yes	on)	Enables the IOR array option. Does not enable the IOR array option.	
Share definition of structure	Restriction Select whether Default How to change	Yes(-iorarray=o No to share definiti Yes Select from the	on) ions of structures. e drop-down list.	Enables the IOR array option. Does not enable the IOR array option.	
Share definition of structure	Restriction Select whether Default How to change Restriction	Yes(-iorarray=o No to share definiti Yes Select from the Yes	on) ions of structures. e drop-down list.	Enables the IOR array option. Does not enable the IOR array option. Shares definitions of structures.	
Share definition of structure	Restriction Select whether Default How to change Restriction	Yes(-iorarray=o No to share definiti Yes Select from the Yes No(-share_stru	on) ons of structures. e drop-down list. ucture=off)	Enables the IOR array option. Does not enable the IOR array option. Shares definitions of structures. Does not share definitions of struc- tures.	
Share definition of structure	Restriction Select whether Default How to change Restriction Select whether When [Yes(-pr iodefine_pgrou ual" for details Note that this p	Yes(-iorarray=o No to share definiti Yes Select from the Yes No(-share_stru to output pragm agma_periphera about #pragma property is displa	on) fons of structures. e drop-down list. ucture=off) na directives for p al_group=on)] is so a register_group. register_group. iyed only when the	Enables the IOR array option. Does not enable the IOR array option. Shares definitions of structures. Does not share definitions of struc- tures. eripheral groups. elected, the tool outputs an additional See "CC-RH Compiler User's Man- e RH850G4MH device is used.	
Share definition of structure	Restriction Select whether Default How to change Restriction Select whether When [Yes(-pr iodefine_pgrou ual" for details Note that this p Default	Yes(-iorarray=o No to share definiti Yes Select from the Yes No(-share_stru to output pragm agma_periphera about #pragma property is displa	on) fons of structures. e drop-down list. ucture=off) na directives for p al_group=on)] is so a register_group. register_group. yed only when the	Enables the IOR array option. Does not enable the IOR array option. Shares definitions of structures. Does not share definitions of struc- tures. eripheral groups. elected, the tool outputs an additional See "CC-RH Compiler User's Man- e RH850G4MH device is used.	
Share definition of structure	Restriction Select whether Default How to change Restriction Select whether When [Yes(-pr iodefine_pgrou ual" for details Note that this p Default How to change	Yes(-iorarray=o No to share definiti Yes Select from the Yes No(-share_stru to output pragma agma_periphera about #pragma property is displa No Select from the	on) ions of structures. e drop-down list. ucture=off) na directives for pr al_group=on)] is so a register_group. register_group. nyed only when the e drop-down list.	Enables the IOR array option. Does not enable the IOR array option. Shares definitions of structures. Does not share definitions of struc- tures. eripheral groups. elected, the tool outputs an additional See "CC-RH Compiler User's Man- e RH850G4MH device is used.	
Share definition of structure	Restriction Select whether Default How to change Restriction Select whether When [Yes(-pr iodefine_pgrou ual" for details Note that this p Default How to change Restriction	Yes(-iorarray=o No to share definiti Yes Select from the Yes No(-share_stru to output pragma agma_periphera about #pragma broperty is displa No Select from the Yes(- pragma_periph	on) ions of structures. e drop-down list. icture=off) na directives for pr al_group=on)] is so a register_group. register_group. nyed only when the e drop-down list. heral_group=on)	Enables the IOR array option. Does not enable the IOR array option. Shares definitions of structures. Does not share definitions of struc- tures. eripheral groups. elected, the tool outputs an additional See "CC-RH Compiler User's Man- e RH850G4MH device is used. Outputs 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 he The options se group.	nput 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 proup.		
	Default	Blank		
	How to change	Directly enter in the text box or edit by the Character String Input dia- log 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	er to run a build of the selected file.		
	Default	Yes		
	How to change	Select from the	e 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 selected C sou If [Yes(Level 3) selected in the tion(Details)] ca and changed to This property is [Yes] in the [Se	ner to set the compile option that differs from the project settings to the source file. I 3)(Perform with assuming it the whole program)(-Xwhole_program)] is the [Perform inter-module optimization] property in the [Optimiza- ] category from the [Compile Options] tab, this property will be grayed of d to [No]. y is displayed only when a C source file is selected on the project tree ar [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 assem- ble option	Select whether selected assen If [Yes(Level 3) selected in the tion(Details)] ca and changed to This property is ect tree and [Ye	t whether to set the assemble option that differs from the project settings to ted assembly source file. s(Level 3)(Perform with assuming it the whole program)(-Xwhole_program)] ted in the [Perform inter-module optimization] property in the [Optimiza- Details)] category from the [Compile Options] tab, this property will be grayed hanged to [No]. property is displayed only when the assembly source file is selected on the see 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	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.

- (1)[Debug Information] (2)[Optimization] (3)[Optimization(Details)] (4)[Preprocess] (5)[Quality Improvement] (6)[C Language] (7)[Character Encoding] (8)[Output Code] (9)[Output File] (10)[Assemble List] (11)[MISRA-C Rule Check] (12)[Error Output] (13)[Warning Message] (14)[Message] (15)[Others]
- 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.

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	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 infor- mation with optimiza- tion	<ul> <li>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.</li> <li>When [Always latest version which was installed] or V1.05.00 or a later version selected for the [Using compiler package version] property under the [Vers Select] category on the [Common Options] tab in an environment where V or a later version of the CC-RH compiler has been installed</li> </ul>			
	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.	

## [Description of each category]

[Debug Information] (1)

-1 + 1-



#### (2) [Optimization]

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

Level of optimization	Select the leve This property	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 optimi- zation(No option specified)	Performs optimization that debugging is not affected (optimization of expres- sions 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 execu- tion 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 ma If 0 or 1 is spec If this is blank, value in accord the compiler. This property c	ximum number of times to expand the loops such as "for" and "while". cified, expansion is suppressed. the -Ounroll option is not added to the command line. In this case, a ance with the selection of the [Level of optimization] property is used by 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 optio	n	
	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] prop- erty.	
		Yes(-Odelete_static_func)	Removes the unused static func- tions which are not called.	
		No(-Odelete_static_func=off)	Does not remove the unused static functions which are not called.	
Perform inline expan- sion	Specify whethe This property of This property is dence(-Ospee	er to perform inline expansion at the corresponds to the -Oinline option of s displayed only when [Code size pr d)] in the [Level of optimization] prop	f location calling functions. f the ccrh command. recedence(-Osize)] or [Speed prece- perty is selected.	
	Default	Configuration of the compile optio	n	
	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] prop- erty.	
		Yes(Only specified functions)(- Oinline=1)	Performs inline expansion at the location calling the function for which #pragma inline is specified.	
		Yes(Auto-detect, to specify max- imum increasing rate)(-Oin- line=2 -Oinline_size)	Distinguishes the function that is the target of inline expansion auto- matically and expands it. Specify the maximum rate of increase.	
			Yes(Auto-detect, maximum increasing rate : to adjust the level of optimization)(-Oinline=2)	Distinguishes the function that is the target of inline expansion auto- matically and expands it. The compiler takes a value that suits the optimization level as the maxi- mum rate of increase.
		Yes(Auto-detect without code size increase)(-Oinline=3)	Distinguishes the function that is the target of inline expansion auto- matically 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 expan- sion size	Specify the main is performed. ( the code size in This property of This property is rate)(-Oinline= or when [To ad expansion] property are set	fy the maximum increasing rate (%) of the code size up to which inline expansion formed. (Example: When "100" is specified, inline expansion will be applied until ode size increases by 100% (becomes twice the initial size).) property corresponds to the -Oinline_size option of the ccrh command. property is displayed when [Yes(Auto-detect, to specify maximum increasing -Oinline=2 -Oinline_size)] in the [Perform inline expansion] property is selected, en [To adjust the level of optimization(No option specified)] in the [Perform inline nsion] property and [Speed precedence(-Ospeed)] in the [Level of optimization] erty are selected.		
	Default	It Configuration of the compile option		
	How to change	Directly enter in the text box.		
	Restriction	0 to 65535 (decimal number)		
Perform pipeline opti- mization	Select whether tions at the ma This property o	er to improve the program's execution performance by reordering instruction nachine-language level. corresponds to the -Opipeline option of the ccrh command.		
	Default	Configuration of the compile optio	n	
	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 optimi- zation.	
Use jr instruction to call a function at the end of the function	Select whether tions when the This property o	r to give precedence to using jr instr function ends with a function call. corresponds to the -Otail_call option	uctions in the place of jarl instruc- of the ccrh command.	
	Default	Configuration of the compile optio	n	
	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 instruc- tions 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 immedi- ate 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] prop erty under the [Version Select] category on the [Common Options] tab in an environ- ment 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] prop- erty.			
		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.			
Perform optimization by changing align- ment conditions	Select whether to proceed with optimization through a change of the alignment condi- tions. This property corresponds to the -Oalign option of the ccrh command. This property is displayed in the following cases.					
	<ul> <li>When [Always latest version which was installed] or V2.03.00 or a later version selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V2.03.0 a later version of the CC-RH compiler has been installed.</li> </ul>					
	- When [Code [Level of opt	e size precedence(-Osize)] or [Speed imization] property is selected	d precedence(-Ospeed)] in the			
	- When [No] ir alignments]	ղ the [Allocate uninitialized variables property is selected	in sections according to number of			
	- When [No] ir alignments]	n the [Allocate initialized variables ir property is selected	າ sections according to number of			
	- When [No] ir of alignment	ו the [Allocate const qualified variab s] property is selected	les in sections according to number			
	Default	Configuration of the compile optio	n			
	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] prop- erty.			
		Yes(-Oalign)	Performs optimization through a change of the alignment condi- tions.			
		No(-Oalign=off)	Does not perform optimization through a change of the alignment conditions.			



Optimize accesses to external variables	Select whether to optimize accesses to external variables. This property corresponds to the -Osmap and -Omap options of the ccrh command.					
	Default	Configuration of the compile option				
	How to change	Select from the drop-down list.				
	Restriction	Yes(Optimizes the inner-mod- ule)(-Osmap)	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.			
		Yes(Optimizes the inner-mod- ule)(-Omap)	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.			
		No	Does not optimize accesses to external variables.			
Perform inter-module optimization	Specify the lev This property c	the level of inter-module optimization (such as function merging). operty 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)(-Xinter- module)	Performs inter-module optimiza- tion for each file.			
		No	Does not perform inter-module optimization.			
Expansion method of library function	I of 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 vers installed] or V2.00.00 or a later version for the [Using compiler packag erty under the [Version Select] category on the [Common Options] tab ment where V2.00.00 or a later version of the CC-RH compiler has be					
	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	Select whether to perform optimization with consideration for the type of the data indi- cated by the pointer, based on the ANSI standard. This property corresponds to the -Xalias option of the ccrh command.					
pointer	Default	Configuration of	of the compile optic	n		
	How to change	Select from the	Select from the drop-down list.			
	Restriction	Yes(- Xalias=ansi)	Performs optimiza of the data indica In general, this op mance, but the ex case when [No] is	ation with consideration for the type ted by the pointer. otion improves the object perfor- xecution result may differ from the s selected.		
		No	Does not perform the type of the da	optimization with consideration for ta indicated by the pointer.		
Perform inline expan- sion of strcpy/strcmp/ memcpy/memset	Select whether cpy()", and "me (including char This improves the code size. This property of This property is [Output Code]	Select whether to perform inline expansion of functions "strcpy()", "strcmp()", "mem- cpy()", 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 func- tions "strcpy()", "strcmp()", "mem- cpy()", and "memset()" calls.		
		No		Does not perform inline expansion of functions "strcpy()", "strcmp()", "memcpy()", and "memset()" calls.		
Merge string literals	When the sam and allocate to This property c	me string literals exist in the source file, specify whether to merge them to the one area. 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_s	string)	Merges the same string literals exist in the source file and allo- cates to the one area.		
		No		Each allocates the same string lit- erals exist in the source file to sep- arate areas.		



Output additional infor- mation for optimiza- tion at time of linkage	Select whether Optimization a fied. This property of This property is installed] or V2 erty under the ment where V2	nether to output additional information for optimization at the time of linkage tion at time of linkage is applied to files for which this option has been speci- perty corresponds to the -goptimize option of the ccrh command. perty is displayed when you have selected [Always latest version which was or V2.01.00 or a later version for the [Using compiler package version] proj er the [Version Select] category on the [Common Options] tab in an environ- ere 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.         Yes(-goptimize)         Outputs additional information optimization at the time of links			
	Restriction				
		No	Does not output additional infor- mation 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 add The following p %ActiveProj %ActiveProj %BuildMode %MainProje %MicomToo product. %ProjectDir %ProjectDir %ProjectNan %TempDir% %WinDir%: 1 The specified i file folder of CC The reference When this prop This property of The specified i Uppercase cha paths.	ditional include paths during compiling. olaceholders are supported. ectDir%: Replaces with the absolute path of the active project folder. ectName%: Replaces with the absolute path of the main project folder. ctDir%: Replaces with the absolute path of the main project folder. ctName%: Replaces with the absolute path of the install folder of this IPath%: Replaces with the absolute path of the install folder of this %: Replaces with the absolute path of the project folder. me%: Replaces with the absolute path of the project folder. me%: Replaces with the absolute path of the temporary folder. Replaces with the absolute path of the temporary folder. Replaces with the absolute path of the Windows system folder. nclude path is searched with higher priority than the standard include C-RH. point of the path is the project folder. berty is omitted, only the standard folder of CC-RH is searched. corresponds to the -I option of the ccrh command. include path is displayed as the subproperty. aracters and lowercase characters are not distinguished for the include
	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.



Use whole include paths specified for build tool	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 specifi	Paths specified in the [Additional include paths] property from the [Compile Options] tab					
	- Paths displation tab	yed in the [Syste	em include paths] property from the [Compile Options]				
	This property c	y corresponds to the -I option of the ccrh command.					
	Default	Yes					
	How to change	Select from the drop-down list.					
	Restriction	Yes Compiles using the include path specified in the property of the build tool to be used.					
		No	Does not use the include path specified in the prop- erty of the build tool to be used.				
Include files at head of compiling units	<ul> <li>Specify the file that is included at the top of the compilation unit.</li> <li>The following placeholders are supported.</li> <li>%ActiveProjectDir%: Replaces with the absolute path of the active project folder.</li> <li>%BuildModeName%: Replaces with the build mode name.</li> <li>%MainProjectDir%: Replaces with the absolute path of the main project folder.</li> <li>%MainProjectName%: Replaces with the absolute path of the main project folder.</li> <li>%MicomToolPath%: Replaces with the absolute path of the install folder of this product.</li> <li>%ProjectDir%: Replaces with the absolute path of the project folder.</li> <li>%ProjectDir%: Replaces with the absolute path of the project folder.</li> <li>%ProjectDir%: Replaces with the absolute path of the project folder.</li> <li>%ProjectDir%: Replaces with the absolute path of the project folder.</li> <li>%ProjectDir%: Replaces with the absolute path of the project folder.</li> <li>%ProjectDir%: Replaces with the absolute path of the project folder.</li> <li>%ItempDir%: Replaces with the absolute path of the temporary folder.</li> <li>%WinDir%: Replaces with the absolute path of the temporary folder.</li> <li>The reference point of the path is the project folder.</li> <li>This property corresponds to the -Xpreinclude option of the ccrh command.</li> <li>The specified include file name is displayed as the subproperty.</li> </ul>						
	Default How to change	Configuration of Edit by the Tex button.	of the compile option t Edit dialog box which appears when clicking the []				
		For the subpro	perty, you can enter directly in the text box.				
	Restriction	Up to 247 char Up to 256 item	acters is can be specified.				
Macro definition	Specify the name of the macro to be defined. Specify in the format of " <i>macro name=defined value</i> ", with one macro n The " <i>=defined value</i> " part can be omitted, and in this case, "1" is used a value. This property corresponds to the -D option of the ccrh command. The specified macro is displayed as the subproperty.						
	Default	Configuration of	of the compile option				
	How to change	Edit by the Tex button. For the subpro	t Edit dialog box which appears when clicking the []				
	Restriction	Up to 256 char Up to 256 item	racters is can be specified.				



Macro undefinition	Specify the macro name to be undefined. Specify in the format of " <i>macro name</i> ", 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 specifie	ed.		
Output C source com- ments to preprocessed file	Select whether This property of This property is property in the	r to output the comments of the C source to the preprocessed file. corresponds to the -Xpreprocess option of the ccrh command. is displayed only when [Yes(-P)] in the [Output preprocessed source file] e [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 prepro- cessed file	Select whether cessed file. This property of This property is property in the	er to output the line number information of the C source to the prepro- y corresponds to the -Xpreprocess option of the ccrh command. y is displayed only when [Yes(-P)] in the [Output preprocessed source file he [Output File] category is selected.			
	Default	Configuration of the compile op	otion		
	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.



Detect 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-definedstack_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.				
	Default	Configuration of the co	mpile option		
	How to change	Select from the drop-down list.			
	Restriction	Yes(- Xstack_protector)	Detects the stack smashing.		
		Yes(All)(- Xstack_protector_all)	Detects the stack smashing for all functions.		
		No(No option Does not detect the stack smashing. specified)			
Value to be embed- ded for detecting stack smashing	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				
	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 is selected	- When other than [No(No option specified)] in the [Detect stack smashing] property is selected			
	Default	Configuration of the col	mpile option		
	How to change	Directly enter in the tex	t box.		
	Restriction	0 to 4294967295 (decir	mal number)		



Detect illegal indirect function call	Select whether Enable this fact indirect functio The output coor response to the This property is This property is installed] or V1 erty under the ment where V2	elect whether to output code for detecting illegal indirect function calls. hable this facility to check the destination addresses of branches caused by each direct function call. he output code will call the user-definedcontrol_flow_chk_fail() function in sponse to the detection of a problem. his property is usable only in the Professional Edition. his property corresponds to the -control_flow_integrity option of the ccrh command. his property is displayed when you have selected [Always latest version which was stalled] or V1.07.00 or a later version for the [Using compiler package version] prop- ty under the [Version Select] category on the [Common Options] tab in an environ- ent 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.         Yes(- control_flow_integrity)       Outputs code for detecting illegal indirect function calls.         No       Does not output code for detecting illegal indirect indirect function calls.			
	Restriction				

## (6)

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

Standard of C lan- guage	Select the stan This property of This property is installed] or V1 erty under the ment where V1	e standard of C language. erty corresponds to the -lang option of the ccrh command. erty is displayed when you have selected [Always latest version which was or V1.07.00 or a later version for the [Using compiler package version] prop r the [Version Select] category on the [Common Options] tab in an environ- ere 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 opt specified)	ion	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 standard and of This property of This property is installed] or V1 property under ronment where installed.	her to process as making C source program comply strictly with the ANSI id output an error or warning for a specification that violates the standard. ty corresponds to the -Xansi option of the ccrh command. ty is displayed when you have selected [Always latest version which was V1.06.00 or an earlier version for the [Using compiler package version] der the [Version Select] category on the [Common Options] tab in an envi iere V1.06.00 or an earlier version of the CC-RH compiler has been			
	Default	Configuration of the compile option			
	How to change	Select from the drop-down list.			
	Restriction	Yes(-Xansi)	Process strictly v or warn dard.	ses as making C source program comply with the ANSI standard and outputs an error ing for a specification that violates the stan-	
		No	Compat ification warning	ibility with the conventional C language spec- s is conferred and processing continues after is output.	



Compile strictly according to the stan- dards	Select whether to process as making C source program comply strictly with the CS 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 wa installed] or V1.07.00 or a later version for the [Using compiler package version] pr erty under the [Version Select] category on the [Common Options] tab in an enviro ment 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	e drop-dov	wn list.	
	Restriction	Yes(- strict_std)	Processes as making C source program comply strictly with the C90 or C99 standard and outputs error or warning for a specification that violates the standard.		
		No	Compat ification warning	ibility with the conventional C language spec- s is conferred and processing continues after is output.	
Handle external vari- ables as if they are	Select whether to handle all external variables as if they were volatile-declared. This property corresponds to the -Xvolatile option of the ccrh command.				
volatile qualified	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 This property c	to check the co corresponds to th	mpatibility ie -Xchec	/ of a C program. k option of the ccrh command.	
	Default	Configuration of the compile option			
	How to change	Select from the drop-down list.		<i>w</i> n list.	
	Restriction	Yes(for Super- engine C/C++ piler)(-Xcheck=	I RISC com- ⁼shc)	Checks the compatibility with the SuperH family C/C++ compiler.	
		No		Does not check the compatibility with exist- ing 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 Chi- nese.	
		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/Chi- nese 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 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] prop- erty under the [Version Select] category on the [Common Options] tab in an environ- ment where V2.04.00 or a later version of the CC-RH compiler has been installed.		
	Default	e 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	

Alignment of branch address	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] prop- erty under the [Version Select] category on the [Common Options] tab in an environ- ment 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 ver- sion 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 I	ist.	
	Restriction	2 bytes(No option specified)	Sets the alignment of the start address of a function to 2.	
		4 bytes(Only start address of a function)(-Xalign4)	Sets the alignment of the start address of a function to 4.	
		4 bytes(Contains each loop head)(-Xalign4=loop)	Sets the alignment of the start address of a function and the start address of all loops to 4.	
	4 bytes(Contains each innermost loop head)(- Xalign4=innermostloop)	Sets the alignment of the start address of a function and the start address of the innermost loop to 4.		
		4 bytes(All branches)(- Xalign4=all)	Sets the alignment of the start address of a function and all branch destination addresses to 4.	
Output comment to assembly source file	Select whether file to be output This property of This property is source file] pro Xasm_option= List] category i	• to output a C source program it. corresponds to the -Xpass_so s displayed only when [Yes(-X operty in the [Output File] cate -Xprn_path)] in the [Output as s selected.	n as a comment to the assembly source urce option of the ccrh command. (asm_path)] in the [Output assembly gory is selected or when [Yes(- ssemble list file] property in the [Assemble	
	Default	Configuration of the compile	option	
	How to change	Select from the drop-down list.		
	Restriction	Yes(-Xpass_source)	Outputs a C source program as a comment to the assembly source file.	
		No	Does not output a C source program as a comment to the assembly source file.	



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	efault Configuration of the compile option		
	How to change	list.		
	Restriction	Auto(No option specified)	The ccrh selects the optimum output for- mat.	
		if-else(-Xswitch=ifelse)	Outputs the switch statements in the same format as the if-else statement along a string of case statements in pro- grams. 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 com- pared starting from the top, unneces- sary 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 pro- grams. Searches for a matching case state- ment by using a binary search algo- rithm. 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 for- mat for switch statements in programs. References a table indexed on the val- ues 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.		



Handling mode of writ- ing control register	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] prop- erty under the [Version Select] category on the [Common Options] tab in an environ- ment where V1.06.00 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	Insert synchronization pro- cessing(-store_reg=sync)	The compiler detects writing to the con- trol 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 com- piler does not insert a syncp instruction.		
	Output list of writing con- trol register(- store_reg=list)	The compiler detects writing to the con- trol 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 com- piler does not display the address in the panel.		
		Output all list of writing control register(- store_reg=list_all)	The compiler detects writing to the con- trol registers defined as #pragma register_group and displays the addresses of the write instructions in the Output panel.	
		Ignore peripheral group specification by #pragma(- store_reg=ignore)	#pragma register_group is ignored but a warning is not output.	
		Not specify(No option specified)	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.	



Enable half precision floating-point type	Select whether This property is This property o This property is	<sup>r</sup> to enable the half precision floating-point type. s usable only in the Professional Edition. corresponds to the -Xuse_fp16 option of the ccrh command. s displayed only in the following cases.			
	- When [Alway selected for <u>Select</u> ] categ or a later ver	ys latest version which was installed] or V1.05.00 or a later version is the [Using compiler package version] property under the [Version gory on the [Common Options] tab in an environment where V1.05.00 rsion of the CC-RH compiler has been installed			
	- When other the [Output F selected	than [Object for ( <sup>-</sup> ile Type and Pa	G3K(-Xcpu=g th] category f	(3k)] in the [Specify CPU core] property in from the [Common Options] tab is	
	- When [No] ir Language] c	n the [Compile st ategory is select	rictly accordined	ng to ANSI standards] property in the [C	
	- When other ing type] pro selected	than [Software C perty in the [Out	alculating(-X put Code] cat	float=soft)] in the [Floating-point calculat- tegory from the [Compile Options] tab is	
	- When [round point constar Options] tab	hen [round to nearest(No option specified)] in the [Rounding method for point constant operations] property in the [Output Code] category from the [ptions] tab is selected			
	Default	Configuration of	of the compile	option	
	How to change	Select from the drop-d		ist.	
	Restriction	Yes(-Xuse_fp16=on)		Enables the half precision floating-point type.	
		No		Does not enable the half precision float- ing-point type.	
Generate div/divu instructions	Select whether instructions for Although the d differ dependin This property c	er to generate the div and divu instructions instead of the divq and div or division. divq and divqu instructions are fast, the number of execution cycles ling on the values of the operands.			
	Default	Configuration of	of the compile	option	
	How to change	Select from the	drop-down l	ı list.	
	Restriction	Yes(-Xdiv)	Generates t	the div and divu instructions for division.	
		No	Generates t sion.	the divq and divqu instructions for divi-	
Generate OV flag check code in division operation	Select whether sion instruction This property c	to generate cod s and generate corresponds to th	le (fetrap inst an FE level s ıe -Xcheck_d	ruction) that checks the OV flag after divi- oftware exception when the OV flag is 1. iv_ov option of the ccrh command.	
	Default	Configuration of	of the compile	option	
	How to change	Select from the	drop-down l	ist.	
	Restriction	Yes(-Xcheck_d	liv_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	Configuration of the compile	e option	
		How to change	Directly enter in the text box.		
		Restriction	1 to 15 (decimal number)		
	Type of generating floating-point calcula- tion codes	Select the type This property of This property is V2.00.00 or a l erty under the ment where V2	lect the type of generating floating-point calculation codes. is property corresponds to the -relaxed_math option of the ccrh command. is property is displayed when [Always latest version which was installed] or .00.00 or a later version is selected for the [Using compiler package version] prop- y under the [Version Select] category on the [Common Options] tab in an environ- ent 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 genera- tion of code.	
			Custom(No option specified)	Efficiency is not emphasized in the gen- eration of code. With this option, details of the operation of compilation are spec- ified in the [Generate product-sum oper- ation 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.	



Generate product-sum operation instruction	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 compile package version] property under the [Version Select] category from the [Commo Options] tab in an environment where a version of the CC-RH compiler earlier t 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			
	Default	Configuration c	of the compile	option
	How to change	Select from the drop-down list.		
F	Restriction	Yes(-Xuse_fma	af)	Generates product-sum operation instructions for single-precision floating- point product-sum operations. Specifying this option will accelerate the execution speed but change the opera- tion precision.
		No		Does not generate product-sum opera- tion instructions.
Generate recipf instruction	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			is (recipf.d, recipf.s). f option of the ccrh command. ng cases. stalled] or V2.00.00 or a later version is version] property under the [Version]
	Select] categ or a later ver	jory from the [Co rsion of the CC-F	ommon Option RH compiler h	ns] tab in an environment where V2.00.00 has been installed
	- When [Custo point calcula	om(No option spe tion codes] prop	ecified)] is se erty	lected for the [Type of generating floating-
	Default	Configuration c	of the compile	e option
	How to change	Select from the drop-down list.		
	Restriction	Yes(- use_recipf)	Generates Specifying t speed but c	recipf instructions. his option will accelerate the execution hange the operation precision.
		No	Does not ge	enerate recipf instructions.



Generate approxi- mate calculation code	Select whether to generate code to produce approximate results for floating-point ca culations. 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 [Custo point calcula	lected for the [Type of generating floating-		
	Default	Configuration of	of the compile	e option
	How to change	Select from the	e drop-down l	ist.
	Restriction	Yes(-approxi- mate)	Generates code to produce approximate results f floating-point calculations. Specifying this option leads to the generation of e cient code to handle calculations but the precision the results of operations will differ from that obtain by calculations as strictly defined in the language standard.	
		No	Does not ge results for f	enerate code to produce approximate loating-point calculations.
Check invalid excep- tion in cmpf instruction	Select whether invalid operation floating-point of This property of This property is [Specify CPU of [Common Option]	to generate cod on exception whe omparison. corresponds to th s displayed only core] property in ons] tab is selec	le by using the en any of the ne -Xunordere when other the the [Output F ted.	e comparison condition for generating an comparison values is a not-a-number in ed_cmpf option of the ccrh command. han [Object for G3K(-Xcpu=g3k)] in the file Type and Path] category from the
	Default	Configuration of the compile option		
	How to change	Select from the drop-down list.		
	Restriction	Yes(-Xunordered_cmpf)		Generates code by using the compari- son condition for generating an invalid operation exception when any of the comparison values is a not-a-number in floating-point comparison.
				Does not detect invalid operation excep- tions in floating-point comparison.
Specify jump instruc- tion	Specify the ins This property o	truction to be ge corresponds to th	nerated for function for function for function for the second sec	inction-call branches. p option of the ccrh command.
	Default	Configuration of	n of the compile option	
	How to change	Select from the	e drop-down l	ist.
	Restriction	Create jarl32 a instructions(- Xcall_jump=32	nd jr32	Generates the jarl32 and jr32 instruc- tions for the branch to the function.
		Create jarl and jr instruc- tions(No option specified)		Generates the jarl and jr instructions for the branch to the function.



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	ault Configuration of the compile option		
	How to change	Directly enter in the text box or edit by the Specify Far Jump File dia- log box which appears when clicking the [] button.		
	Restriction	Up to 259 characters		
Allocate uninitialized variables in sections according to number of alignments	Select whether alignment size This property of This property is V2.03.00 or a l erty under the ment where V2	ariables to sections in accord with their n of the ccrh command. est version which was installed] or e [Using compiler package version] prop- the [Common Options] tab in an environ- 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 vari- ables to sections in accord with their alignment sizes.	
Allocate initialized vari- ables in sections according to number of alignments	ized vari- ons number This property corresponds to the -stuff option of the ccrh command. This property is displayed when [Always latest version which was in V2.03.00 or a later version is selected for the [Using compiler packa erty under the [Version Select] category on the [Common Options] ment where V2.03.00 or a later version of the CC-RH compiler has			
	Default	Configuration of the compile	e option	
	How to change	Select from the drop-down list.		
	Restriction	Yes(-stuff=data)	Allocates the initialized variables to sec- tions in accord with their alignment sizes.	
		No	Does not allocate the initialized vari- ables to sections in accord with their alignment sizes.	



Allocate const quali- fied variables in sec- tions according to number of alignments	Select whether to allocate the const qualified variables to sections in accord with the 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	e 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 num- ber 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 source. This property c	sembly source file of the compile result for the C e -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_pat	h) 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 fold If a relative pat project folder. If an absolute p subproject fold The following p %BuildMode The assembly replaced by ".a If this is blank, This property of source file] pro	Ider which the assembly source file is output. Ith is specified, the reference point of the path is the main project or sub- path is specified, the reference point of the path is the main project or der (unless the drives are different). placeholder is supported. leName%: Replaces with the build mode name. / source file is saved under the C source file name with the extension asm". .; it is assumed that the project folder has been specified. corresponds to the -Xasm_path option of the ccrh command. is displayed only when [Yes(-Xasm_path)] in the [Output assembly			
	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 file. This property c	r to output the ex corresponds to th	ecution result of preprocessing for the source file to a e -P option of the ccrh command.		
	Default	Configuration of	f 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	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 com- mand.		
	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 replace by ".prn". If a relative path is specified, the reference point of the path is the main project or sul 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 com- mand. This property is displayed only when [Yes(-Xasm_option=-Xprn_path)] in the [Outpu 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. 20XX in the following table corresponds to 2012 or 2004 in particular.





Rule number descrip- tion 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 -Xmisra20XX option of the ccrh command. This property is displayed only when [Apply rules that are described in the specified file(-Xmisra20XX= <file name="">)] in the [Apply rule] property is selected.</file>		
	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 -Xmisra20XX option of the ccrh command. This property is displayed only when [Apply specified rule number(- Xmisra20XX=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 dia- log 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 -Xmisra20XX option of the ccrh command. This property is displayed only when [Ignore specified rule number(- Xmisra20XX=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 dia- log 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 -Xmisra20XX option of the ccrh command. This property is displayed only when [Apply rules that are classified as "required" and specified rule number(-Xmisra20XX=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 dia- log box which appears when clicking the [] button.	
	Restriction	Up to 259 characters	
Exclusion rule number from required rule	<ul> <li>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 a rule numbers 13.6, 17.3, and 17.4 (as well as 9.1 if the compiler is V1.05.00 12.5 and 21.13 if the compiler is V1.06.00 or later, and 17.6 if the compiler is V or later) regardless of which rule numbers have been specified through the p setting. Specify at least one rule number in decimal. This property corresponds to the -Xmisra20XX option of the ccrh command. This property is displayed only when [Ignore specified rule number from rules classified as "required"(-Xmisra20XX=required_remove)] in the [Apply rule] p is selected.</li> </ul>		
	Default	Configuration of the compile option	
	How to change	Directly enter in the text box or edit by the Specify Rule Number dia- log box which appears when clicking the [] button.	
	Restriction	Up to 259 characters	



Rule check exclusion file	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		
	Default	Configuration of the compile option	
	How to change	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.	

Up to 259 characters

Restriction


Output message of the	Select whether	to output the message of the er	hanced key word and extended speci-	
and extended specifi- cations	This property is This property of mand.	s usable only in the Professional orresponds to the -Xcheck_lang	Edition. uage_extention option of the ccrh com-	
	- When [Apply	all rules] is selected in the [App	ly rule] property	
	- When [Apply property	rules that are classified as "requ	uired"] is selected in the [Apply rule]	
	- When [Apply rule number	specified rule number] is select is specified in the [Rule number]	ed in the [Apply rule] property and a   property	
	- When [Ignor rule number	e specified rule number] is selec is specified in the [Rule number]	ted in the [Apply rule] property and a   property	
	- When [Apply selected in th rule number	- 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		
	<ul> <li>When [Ignore specified rule number from rules that are classified as "required selected in the [Apply rule] property and a rule number is specified in the [Excl rule number from required rule] property</li> </ul>			
	<ul> <li>When [Apply rules that are described in the specified file] is selected in the [A rule] property and a rule number description file is specified in the [Rule num description file] property</li> </ul>			
	Default	Configuration of the compile op	otion	
	How to change	Select from the drop-down list.		
	Restriction	Yes(- Xcheck_language_extension)	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 stan- dard.	
		Νο	Disables MISRA-C rule check is dis- abled, which are partially sup- pressed by the extended language specifications.	



Enable checking that spans files	Select whether This property i This property o This property i	r to enable checking that spans f s usable only in the Professional corresponds to the -misra_interm s displayed only in the following	iles. Edition. odule option of the ccrh command. cases.	
	- When [Alwa selected for Select] cates or a later ver	- 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 [MISF	- When [MISRA-C 2012] in the [MISRA-C specification] property is selected		
	- When other selected	- When other than [Not apply rule(No option specified)] in the [Apply rule] property is selected		
	CautionIf 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 of	otion	
	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 This property c Error message	to output the error message file. corresponds to the -Xerror_file option of the ccrh command. s are displayed on the Output panel regardless of this property's.	
	Default	Configuration of the	e common option
	How to change	Select from the dro	p-down list.
	Restriction	Yes(-Xerror_file)	Outputs the error message file.
		No	Does not output the error message file.
Error message file out- put 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 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 -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	fault Configuration of the common option	
	How to change	Directly enter in the box which appears	text box or edit by the Browse For Folder dialog when clicking the [] button.
	Restriction	Up to 247 characters	



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.         %ProjectName%: Replaces with the 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 dia- log 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 mes- sage 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] prop- erty under the [Version Select] category on the [Common Options] tab in an environ- ment where V1.07.00 or a later version of the CC-RH compiler has been installed.		
	Default	Configuration of the compile option	n
	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= <mes- sage number&gt;)</mes- 	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) (exam- ple:23028-23086). This property corresponds to the -change_message option of the ccrh command.	
	This property is	s 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	
	<ul> <li>When [Yes(Specify message number)(-change_message=error=<message number="">)] in the [Change warning message to error message] property is selected</message></li> </ul>	
	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 pro- cessing	Specify the corr Use the call ins The following p %ActiveProju %ActiveProju %BuildMode %CompiledF ing. %InputFile% case of simu %MainProje %MicomToo product. %Options%: %OutputDir% %OutputFile %ProjectDir% %ProjectDir% %ProjectNar %TempDir% %WinDir%: I When "#!pytho last line are reg compile proces The placeholde The specified of	nmand to be executed before compile processing. struction to specify a batch file (example: call a.bat). blaceholders are supported. ectDir%: Replaces with the absolute path of the active project folder. ectName%: Replaces with the build mode name. File%: Replaces with the absolute path of the output file under compil- blaceholding). ctDir%: Replaces with the absolute path of the file to be compiled (except in litaneous building). ctDir%: Replaces with the absolute path of the main project folder. ctName%: Replaces with the absolute path of the main project folder. ctName%: Replaces with the absolute path of the install folder of this Replaces with the absolute path of the install folder of this Replaces with the absolute path of the output file. %: Replaces with the absolute path of the output file. %: Replaces with the absolute path of the output folder. %: Replaces with the absolute path of the project folder. me%: Replaces with the absolute path of the project folder. %: Replaces with the absolute path of the project folder. me%: Replaces with the absolute path of the project folder. me%: Replaces with the absolute path of the project folder. me%: Replaces with the absolute path of the temporary folder. Replaces with the absolute path of the temporary folder. Replaces with the absolute path of the temporary folder. me%: Replaces with the absolute path of the temporary folder. n" is described in the first line, the contents from the second line to the garded as the script of the Python console, and then executed before ssing. ers can be described in the script. 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.



Commands executed after compile process- ing	Specify the con Use the call in: The following p %ActiveProj %BuildMode %CompiledF ing. %InputFile% case of simu %MainProje %MicomToo product. %OutputDir% %OutputDir% %OutputFile %Program% %ProjectDir %ProjectNan %ProjectN	nmand to be executed after compile processing. struction to specify a batch file (example: call a.bat). blaceholders are supported. ectDir%: Replaces with the absolute path of the active project folder. ectName%: Replaces with the build mode name. eName%: Replaces with the build mode name. File%: Replaces with the absolute path of the output file under compil- bile%: Replaces with the absolute path of the file to be compiled (except in altaneous building). ctDir%: Replaces with the absolute path of the main project folder. ctName%: Replaces with the absolute path of the main project folder. ctName%: Replaces with the absolute path of the install folder of this Replaces with the command line option under build execution. %: Replaces with the absolute path of the output folder. %: Replaces with the absolute path of the project folder. %: Replaces with the absolute path of the project folder. %: Replaces with the absolute path of the project folder. %: Replaces with the absolute path of the output folder. %: Replaces with the absolute path of the project folder. %: Replaces with the program name under execution. %: Replaces with the program name under execution. %: Replaces with the project name. : Replaces with the absolute path of the temporary folder. Replaces with the absolute path of the temporary folder. nn" is described in the first line, the contents from the second line to the garded as the script of the Python console, and then executed after ssing. ers can be described in the script. ers can be described in the script.
	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.
Other additional options	Input the comp The options se	bile option to be added additionally. It here are added at the end of the compile options group.
	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 259 characters



### [Individual Assemble Options] tab

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

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

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

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

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

#### (2) [Optimization]

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

Output additional infor- mation for optimiza- tion 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 speci- fied. 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] prop- erty under the [Version Select] category on the [Common Options] tab in an environ- ment where V2.01.00 or a later version of the CC-RH compiler has been installed.		
	Default	Default Configuration of the assemble option	
	How to change	How to Select from the drop-down list. change	
	Restriction	Yes(-goptimize)	Outputs additional information for optimization at the time of linkage.
		No	Does not output additional infor- mation for optimization at the time of linkage.



Additional include	Specify the ac	dditional inclu	ide paths during assembling.	
	%ActivePro %ActivePro %BuildMod %MainProj %MicomTo product. %ProjectDi %ProjectNa %TempDir %WinDir% The specified file folder of C The reference When this pro This property The specified Uppercase ch paths.	<ul> <li>bipectDir%: Replaces with the absolute path of the active project folder.</li> <li>bipectName%: Replaces with the build mode name.</li> <li>leName%: Replaces with the absolute path of the main project folder.</li> <li>ectDir%: Replaces with the absolute path of the main project folder.</li> <li>ectName%: Replaces with the absolute path of the install folder of this</li> <li>r%: Replaces with the absolute path of the project folder.</li> <li>ame%: Replaces with the project name.</li> <li>%: Replaces with the absolute path of the project folder.</li> <li>ame%: Replaces with the project name.</li> <li>%: Replaces with the absolute path of the temporary folder.</li> <li>ame%: Replaces with the absolute path of the temporary folder.</li> <li>ame%: Replaces with the absolute path of the Windows system folder.</li> <li>include path is searched with higher priority than the standard include CC-RH.</li> <li>apoint of the path is the project folder.</li> <li>operty is omitted, only the standard folder of CC-RH is searched.</li> <li>corresponds to the -l option of the ccrh command.</li> <li>include path is displayed as the subproperty.</li> <li>maracters and lowercase characters are not distinguished for the include</li> </ul>		
	Default	Additional include paths[number of defined items]		
	How to change Edit by the Path Edit dialog box which appears when clicking button. For the subproperty, you can enter directly in the text box.			
	Restriction	Up to 259 Up to 256	characters items can be specified.	
Use whole include paths specified for build tool	Select whethe paths] proper build tool to b The include p	er to assembl ty in the [Pre] e used. paths are add	e using the include path specified in the [Additional incl process] category from the [Assemble Options] tab of the ed by the following procedure.	
	<ul> <li>Paths specified in the [Additional include paths] property from this tab</li> <li>Paths specified in the [Additional include paths] property from the [Assemble Options] tab</li> <li>Paths displayed in the [System include paths] property from the [Assemble Otab</li> </ul>		dditional include paths] property from the [Assemble	
	This property	This property corresponds to the -I option of the ccrh command.		
	Default	Default Yes		
	How to change	How to Select from the drop-down list.		
	Restriction	Yes	Assembles using the include path specified in the property of the build tool to be used.	
		No	Does not use the include path specified in the pro	

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Macro definition	Specify the na Specify in the The "= <i>defined</i> value. This property The specified	me of the macro to be defined. format of " <i>macro name=defined value</i> ", with one macro name per line. <i>I value</i> " part can be omitted, and in this case, "1" is used as the defined corresponds to the -D option of the ccrh command. 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	Restriction Up to 256 characters Up to 256 items can be specified.	
Macro undefinition	Specify the ma Specify in the This property The specified	acro name to be undefined. format of " <i>macro name</i> ", with one macro name per line. corresponds to the -U option of the ccrh command. 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 Chi- nese.
		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-d	own 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 com- mand.		
	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 fold The assemble by ".prn". If a relative pat project folder. If an absolute p subproject fold The following p %BuildMode If this is blank, This property of mand.	der which the assemble list file is output. list file is output under the source file name with the extension replaced th is specified, the reference point of the path is the main project or sub- path is specified, the reference point of the path is the main project or ler (unless the drives are different). blaceholder is supported. Name%: Replaces with the build mode name. it is assumed that the project folder has been specified. corresponds to the -Xasm_option=-Xprn_path option of the ccrh com- s displayed only when [Yes(-Xasm_option=-Xprn_path)] in the [Output lice] expentive expendent
	Default	Configuration of the assemble option
	Doladit	
	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 out- put 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 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 -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	Default Configuration of the common option		
	How to changeDirectly enter in the text box or edit by the Browse For Folder dialog box which appears when clicking the [] button.			
	Restriction	Up to 247 characte	rs	



Error message file name	Specify the error The extension The following p %ActiveProj %MainProject %ProjectNan If this is blank, This property of This property is file] property is	or message file name. can be freely specified. blaceholders are supported. ectName%: Replaces with the active project name. ctName%: Replaces with the main project name. me%: Replaces with the project name. it is assumed that "%ProjectName%.err" has been specified. corresponds to the -Xerror_file option of the ccrh command. s displayed only when [Yes(-Xerror_file)] in the [Output error message 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 nur If multiple mes 02042,02107). Also, the range This property o	mber of the warning message not to be displayed. sage numbers are specified, delimit them with "," (comma) (example: e can be set using "-" (hyphen) (example: 02222-02554,02699-02782). 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 dia- log 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.





Commands executed after assemble pro- cessing	Specify the cor Use the call ins The following p %ActiveProj %ActiveProj %Assembled bling. %BuildMode %InputFile% case of simu %MainProje %MicomToo product. %Options%: %OutputDir% %OutputFile %Program% %ProjectDir %ProjectDir %ProjectDir %ProjectNar %TempDir% %WinDir%: 1 When "#!pytho last line are reg assemble proc	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 absolute path of the output file under assem- bling. %BuildModeName%: Replaces with the absolute path of the output file under assem- bling. %BuildModeName%: 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 absolute path of the main project folder. %MainProjectName%: Replaces with the absolute path of the install folder of this product. %Options%: Replaces with the absolute path of the output folder. %OutputFile%: Replaces with the absolute path of the output folder. %OutputFile%: Replaces with the absolute path of the output folder. %OutputFile%: Replaces with the absolute path of the output folder. %OutputFile%: Replaces with the absolute path of the output file. %Program%: Replaces with the absolute path of the output file. %ProjectDir%: Replaces with the absolute path of the project folder. %ProjectDir%: Replaces with the absolute path of the project folder. %ProjectDir%: Replaces with the absolute path of the project folder. %ProjectDir%: Replaces with the absolute path of the project folder. %ProjectDir%: Replaces with the absolute path of the project folder. %ProjectName%: Replaces with the absolute path of the temporary folder. %WinDir%: Replaces with the absolute path of the temporary folder. %WinDir%: 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.		
	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 1023 characters Up to 64 items can be specified.		
Other additional options	Input the asser The assembler The options se	mble option to be added additionally. r is executed via ccrh.exe. Add "-Xasm_option=" as required. t here are added at the end of the assemble options group.		
	Default	Configuration of the assemble option		
	How to change	Directly enter in the text box or edit by the Character String Input dia- log box which appears when clicking the [] button.		
	Restriction	Up to 259 characters		



### [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

ion 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 multicore 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 indi applications from the boot loader, debugging the individual application project 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 " <i>macro name=defined value</i> ", with one macro name per line. The " <i>=defined value</i> " 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[ <i>number of defined items</i> ]	
	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 Add one item ir This setting is o The specified n	Id memos to the build tool. Id one item in one line. his setting is common to all the build modes. he 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.

Button	Function
ОК	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.



Button	Function
ОК	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.

	Section Setting	IS			<b>—</b>
	Address	Section	Overlay1	Overlay2	Add
	0x00000000	RESET			
		EIINTTBL			Modry
		.const			New Qverlay
		.INIT_DSE			Remove
		.INIT_BSE			Temore
(1) —		text			Up Down
		.data			
	0xFEDE0000	.data.R	.data2.R	.data3.R	
		bss			
		.stack.bss			mport
					Export
[Function buttons]		0	К	Cancel	Help

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]

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



(d)

Button	
Add	<ul> <li>When selecting an address in this area Opens the Section Address dialog box.</li> <li>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).</li> </ul>
	<ul> <li>When selecting a section in this area</li> <li>Opens the Add Section dialog box.</li> <li>Adds the section specified in the dialog box to this area.</li> <li>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.</li> <li>When there is an empty column, the section is added there.</li> </ul>
Modify	<ul> <li>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.</li> <li>When selecting a section in this area</li> </ul>
	Opens the Modify Section dialog box. Replaces the section name selected in this area with the one specified in the dia- log box. Note that this button is disabled when the selected sell is blank.
New Overlay	Opens the Add Overlay dialog box. Adds the [Overlayn] column in this area and sets the section specified in the dialog box in the column that corresponds to the selected section group.
Remove	<ul> <li>When selecting an address in this area</li> <li>Opens the Unassigned Section dialog box.</li> <li>Deletes the section selected in the dialog box from this area.</li> <li>If no sections are left in the section group, the section group itself is deleted.</li> </ul>
	<ul> <li>When selecting a section in this area Deletes the selected section from this area.</li> <li>If no sections are left in the section group, the section group itself is deleted.</li> <li>If no section names are left in the [Overlayn] column, the column itself is deleted.</li> <li>Note that this button is disabled when the selected sell is blank.</li> </ul>
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 col- umn 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 col- umn 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.



Button	Function
ОК	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 Secti	ion Dialog Box			
(1) —	Add Section			<b>•••</b>	
	Section name:				
[Function bu	ittons]—		ОК	Cancel	Help

Figure A.6 Modify Section Dialog Box

	Modify Sec	tion		<b>×</b>
(1) —	Section na	me: 11		-
[Function buttons]		ок	Cancel	Help

#### Figure A.7 Add Overlay Dialog Box

	Add Overlay			<b></b>
(1) —	Section name	c,		•
[Function buttons]—		ОК	Cancel	Help

#### 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.

RENESAS

### [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

Button	Function
ОК	<ul> <li>Add Section dialog box</li> <li>Closes this dialog box and adds the specified section to the address-section area in the Section Settings dialog box.</li> <li>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.</li> </ul>
	<ul> <li>Modify Section dialog box</li> <li>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.</li> </ul>
	<ul> <li>Add Overlay dialog box</li> <li>Closes this dialog box and adds the [Overlayn] column (n: number starting with "1") to the address-section area in the Section Settings dialog box.</li> <li>Sets the specified section in the column that corresponds to the selected section group.</li> </ul>
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

	Section Address		×
(1) —	<u>A</u> ddress:	0	3
[Function buttons]—	ок	Cancel <u>H</u> elp	]

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 subtron. The range that can be specified for the value is 0 to FFFFFFFF (hexadecimal number) (default: 0).

Button	Function
ОК	- 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

	Unassigned Section	<b></b>
	Select section:	
(1) —	text_user01 text_user02 text_user03	OK Cancel
		Unassign <u>A</u> ll <u>H</u> elp
		[Function buttons]

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]

[Select sections] (1)

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.

Button	Function
ОК	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 <i>n</i> ] 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

	CRC Operations				×
(1)	Qutput address list:	Add Remove	CRC operation groperty: CRC Operation Target range Type of CRC Initial value Endian Output size	Target range[1] 32-ETHERNET type Hex Little endian	-(2)
			Target range Specifies the target range address>- <end address="">"</end>	in the format of " <start or "<section name="">", with</section></start 	on
[Function buttons]—			ОК	Cancel Help	

#### 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 FFFFFFE.
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 FFFFFFE.

### (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 " <i>start address - end address</i> " or " <i>section name</i> ". Specify the address in hexadecimal without 0x. The range of specifiable address values is 0 to FFFFFFF. 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 typ	e		
	How to change	Select from the dro	pp-down list.		
	Restriction	CRC- CCITT(MSB) type	Outputs the calculation result of CRC-16-CCITT- MSB first operation.		
		CRC- CCITT(MSB,LIT- TLE,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,LIT- TLE,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 con- forming to SENT.		
Initial value	Specify the initial value for the CRC operation in the format of " <i>initial value</i> ". 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 CRC] property 0 to FFFF (hexa	[32-ETHERNET type] is selected in the [Type of decimal number)		
		<ul> <li>When [32-ETHERNET type] is selected in the [Type of CRC] property</li> <li>0 to FFFFFFFF (hexadecimal number)</li> </ul>			
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.			



Outputs the value in big-endian mode.

Big endian

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	

Button	Function
ОК	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.

Module Name	File Name	A	
FLXA0	iodefine h	E	
AUD 🛛	aaah		
FLXA0PCU	iodefine h		
PORT	iodefine h		
FLASH	iodefine h		
FACI	iodefine h		
☑ DFE	iodefine h		
EINT	iodefine h		
ACK0	iodefine h		
MSTB	iodefine h		
DNF	iodefine h		
V PBG	iodefine h	-	
📄 Select all/Rele	ease all	OK Cancel [Function	1 buttor

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.

Button	Function
ОК	Closes this dialog box and calls the settings to reflect them in the previous proper- ties.
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

	Select Constituent Application Projects Select constituent application projects. By selecting these projects, you can use the follow stand-alone core debugging, debug all projects in	ing features: launch an application from boot loader, use parallel.	
П	Project	Association settings:	
(1) —	Sample_App1	Project information     Project file     Sample_App1\Sample_App1.m     Symbol address file     %BuildModeName%\%Constitue	-(2)
	< +	Project file This is the project file of the constituent application project.	
[Function buttons]—		OK Cancel Help	

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



	1		
Symbol address file	The symbol a is displayed of When buildin loader project this addition, resolved on t The following %BuildMoo project. %Constitut (excluding ect.	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 proj- ect.	
	Default	%BuildModeName%\%ConstituentProjectLinkerOutputFile- Leaf%.fsy	
	How to change	Directly enter in the text box.	
	Restriction	Up to 259 characters	

Button	Function
ОК	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)	
		ę	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 librar- ies] property in "(5) [Frequently Used Options(for Link)]" is amended.
		69	The description of [Yes(V1.01 compatible)] in Restriction of the [Use standard librar- ies] 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 <i>n</i> ] 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) [Opti- mization(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.	Rev. Date		Description
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		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 -> -Xmisra20XX MISRA-C:2004 -> MISRA-C
		116	The description of [Yes(V1.01 compatible)] in Restriction of the [Use standard librar- ies] 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 librar- ies] 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) [Opti- mization(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 -> -Xmisra20XX 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 occu- pancy] 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 Opera- tion]" 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 Spec- ified)" 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 process- ing 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 con- tents=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 Spec- ified)" 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) [Out- put 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 Spec- ified)" 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 oper- ation 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 oper- ation 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 optimiza- tion(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	<ul> <li>The following figures are deleted.</li> <li>Figure A.9 Property Panel: [Build Settings] Tab (When Selecting C Source File)</li> <li>Figure A.10 Property Panel: [Build Settings] Tab (When Selecting Assembly</li> <li>Source File)</li> <li>Figure A.11 Property Panel: [Build Settings] Tab (When Selecting Object File)</li> <li>Figure A.12 Property Panel: [Build Settings] Tab (When Selecting Library File)</li> </ul>
		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 optimiza- tion(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 informa- tion 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 informa- tion 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 [Out- puts 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.
1.13	Nov 01, 2024	47	Add a note following Figure 2.73 on the previous page.
		75	The following property is added to "(13) [Build Method]". Group messages by each source file/target in the parallel build
		82, 190	Items are added/changed to the restriction of the [Perform inline expansion] property.
		82, 191	The display condition of the [Maximum increasing rate of inline expansion size] property is amended.
		141	The default of the following properties in "(8) [List]" is amended. Output symbol information Output total sizes of sections
		184	The description of the [Output pragma directives for peripheral groups] property in "(1) [I/O Header File]" is amended.

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