CS+ RL78 Compiler CC-RL V1.02.00 Release Note

R20UT3555EJ0100
Rev.1.00
Sep. 01, 2015

Contents

Chapter 1 Target Devices

The target devices supported by the CC-RL are listed on the Website.

Please see this URL.

CS+ Product Page:

http://www.renesas.com/cs+

Chapter 2 User's Manuals

Please read the following user's manuals along with this document.

Manual Name	Document Number
CC-RL Compiler	R20UT3123EJ0102
CS+ CC-RL Build Tool Operation	R20UT3284EJ0101

Chapter 3 Keywords When Uninstalling the Product

There are two ways to uninstall this product.

- Use the integrated uninstaller from Renesas (uninstalls all CS+ components)
- Use the Windows uninstaller (only uninstalls this product)

To use the Windows uninstaller, select "CS+ CC-RL V1.02.00" from "Programs and Features" of the control panel.

Chapter 4 Changes

This chapter describes changes in V1.02.00 of the CC-RL compiler.

4.1 Changes to the CC-RL Compiler in V1.02.00

This chapter describes the changes in CC-RL from V1.01.00 to V1.02.00.

4.1.1 Enhanced optimization

The performance of the generated code has been improved.

4.1.2 Added options [Compiler]

The following options have been added.

Option name	Outline
-g_line	The information for the debugging of source code is enhanced in optimization.
-stack_protector [Professional edition only]	Code for detecting stack smashing by a specified function is generated. Specifically, functions having structures, unions, or arrays with local variables exceeding 8 bytes are detected.
-stack_protector_all [Professional edition only]	Code for detecting stack smashing by any function is generated.
-misra2012 [Professional edition only]	The source code is checked against the MISRA-C:2012 rules.
-Osame_code	Multiple instances of the same sequence of instructions in the same section of a compilation unit are integrated and converted into a function.

4.1.3 Added #pragma directives [Compiler]

The following #pragma directives have been added.

#pragma directive	Outline
#pragma stack_protector [Professional edition only]	Code which detects stack smashing by a specified function is generated.
#pragma no_stack_protector [Professional edition only]	Code which detects stack smashing by a specified function is not generated.

4.1.4 Added options [Linker]

The following option has been added.

Option name	Outline
-SYmbol_forbid	The deletion of specified symbols not referred to is inhibited.

4.1.5 Extensions to the –Optimize option [Linker]

symbol_delete, speed, and safe have been added to the parameters of the –Optimize option.

Parameter	Meaning
symbol_delete	Variables and functions to which nothing refers are deleted. Be sure to also specify the “entry” option when using this in compilation.
speed	Only forms of optimization other than those which raise the possibility of lowering the speed of the object code proceed.
safe	Only forms of optimization other than those which raise the possibility of restricting variables and functions through their attributes proceed.

4.1.6 Restriction on the –Binary option [Linker]

A restriction on the –Binary option has been added.

[Restriction]

Binary files for which the –Binary option is specified can only be allocated to the address range from 0 to 0x0FFFF. Create assembly source code as shown below when allocating a binary file to the address range from 0x10000.

```
.SECTION BIN_SEC, TEXTF
$BINCLUDE(tp.bin)
```

4.1.7 Extensions to CRC calculation [Linker]

CCITT, 16-CCITT-MSB, 16-CCITT-MSB-LITTLE-2, 16, and 32-ETHERNET can be specified for the –CRC option operation in addition to 16-CCITT-MSB-LITTLE-4, 16-CCITT-LSB, and SENT-MSB in the previous version.

method	Description
CCITT	The result of calculation is obtained by applying CRC-16-CCITT to the input MSB first, with the initial value of the result being 0xFFFF, and XOR inversion.
16-CCITT-MSB	The result of calculation is obtained by applying CRC-16-CCITT to the input MSB first.
16-CCITT-MSB-LITTLE-2	The input is a 2-byte unit with little endian. The result of calculation is obtained by applying CRC-16-CCITT to the input MSB first.
16	The result of calculation is obtained by applying CRC-16 to the input LSB first.
32-ETHERNET	The result of calculation is obtained by applying CRC-32-ETHERNET to the input. The initial value of the result is 0xFFFFFFFF, and is XOR inverted and the bit order is reversed.

4.1.8 Added functions [Library]

The following functions have been added to the standard library.

Function name	Outline
calloc	A span of memory is allocated and initialized to zero.
free	Releases memory.
malloc	Allocates memory.
realloc	Re-allocates memory.

4.1.9 Changes to startup routines [Startup]

Statements of the const attribute have been deleted from the startup routines for devices which have no mirror space.

4.1.10 Rectified points for caution

Points for caution on the following six items no longer apply.

(1) Function definitions in K&R format (formal parameters of floating-point type)

(2) Function definitions in K&R format (formal parameters of near pointer)

(3) The output of code which rewrites argument values which have been pushed onto the stack

(4) The return values of the memcmp, _COM_memcmp_ff, strcmp and _COM_strcmp_ff functions becoming invalid

(5) The return value of the strtoul and _COM_strtoul_ff function becoming invalid

(6) Non-default section names being used for the reserved words __sectop and __secend, and for the startof and sizeof operators

4.1.11 Added note

A note on the following point has been added.

(1) K&R style definition of the bsearch and qsort comparison functions

[Reference]

CC-RL Compiler (Document Number : R20UT3123EJ0102)

11.2.6 Definition of comparison functions bsearch and qsort in K&R format

4.1.12 Changed note

The details of the note on the following point has been changed.

(1) Separation operator

[Reference]

CC-RL Compiler (Document Number : R20UT3123EJ0102)

11.3.5 Separation operators

Chapter 5 Points for Caution

Please refer to the user's manual for caution regarding V1.02.00 of the CC-RL compiler.

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