CS+ RL78 Compiler CC-RL V1.08.00 Release Note

R20UT4424EJ0100
Rev.1.00
December 20, 2018

Contents

Chapter 1 Target Devices

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

Please see the URL below.

CS+ Product Page:

https://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	R20UT3123EJ0108
CS+ CC-RL Build Tool Operation	R20UT3284EJ0107

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 V1.08.00" from "Programs and Features" of the control panel.

Chapter 4 Changes

This section describes changes to CC-RL from V1.07.00 to V1.08.00.
The features of the latter can only be used if the compiler is registered under the professional license.
They are indicated by [Professional edition] from here on.

4.1. C99 standard library functions

Support for standard library functions of the C99 language has newly been added and functionality for compliance with the C99 standard have been added to existing standard library functions as listed below.

fpclassify,	isfinite,	isinf,	isnan,	isnormal,	signbit,	
acosl,	asinl,	atanl,	atan2l,	cosl,	sinl,	tanl,
acosh,	acoshf,	acoshl,	asinh,	asinhf,	asinhl,	
atanh,	atanhf,	atanhl,	coshl,	sinhl,	tanhl,	
expl,	frexpl,	ldexpl,	logl,	log10l,		
log1p,	log1pf,	log1pl,	modfl,	fabsl,	powl,	sqrtl,
ceill,	floorl,	fmodl,	scanf*1,	sscanf*1,	vscanf,	vsscanf

*1: Functionality according to the C99 standard has been added.

4.2. Addition of checking source code across multiple files against the MISRA-C:2012 rules [Professional edition]

The -misra_intermodule option has been added to check source code across multiple files against MISRA-C:2012 rules.
Although source code had previously only been checked within the individual files, specifying this option now enables the checking of source code across multiple files.

4.3. Extensions to the checking of source code against the MISRA-C:2012 rules [Professional edition]

The following rule numbers have been added as arguments of the -misra2012 option for checking source code against MISRA-C:2012 rules.

Required rules: **8.5** and **8.6**

The following shows the number of MISRA-C:2012 rules which can be checked by each revision.

Classification of Rules: Number of Rules	V1.07.00	**V1.08.00**
Mandatory rules: 16	7	**7**
Required rules: 108	86	**88**
Advisory rules: 32	26	**26**
Total: 156	119	**121**

4.4. Addition of a feature for changing a section name when a library file is input

The -lib_rename linkage option has been added. With this option, section names or symbol names in a file within a library that is input at the time of linkage can be changed and linked.

4.5. Enhancement of optimization

The performance of generated code has been improved by proceeding with optimization for reducing the type sizes of variables according to the ranges through which variables are updated within loops.

```
< Example of source code>
void func(unsigned char *A) {
  unsigned long i;
  for (i = 0; i < 1000; ++i) {  /* The range of the unsigned short type */
    A[i] = 0;
  }
}
```

```
< Code generated by V1.07.00>
_func:
      .STACK _func = 4
      movw de, ax
      clrw bc
      movw hl, #0x03E8
.BB@LABEL@1_1:       ; bb
      mov [de+0x00], #0x00
      movw ax, hl
      addw ax, #0xFFFF
      movw hl, ax
      skc
.BB@LABEL@1_2:       ; bb
      decw bc
.BB@LABEL@1_3:       ; bb
      movw ax, bc
      addw ax, hl
      incw de
      bnz $.BB@LABEL@1_1
.BB@LABEL@1_4:       ; bb
      bc $.BB@LABEL@1_1
.BB@LABEL@1_5:       ; return
      ret
```

```
< Code generated by V1.08.00>
_func:
      .STACK _func = 4
      movw de, ax
      movw ax, #0x03E8
.BB@LABEL@1_1:       ; bb
      mov [de+0x00], #0x00
      addw ax, #0xFFFF
      incw de
      bnz $.BB@LABEL@1_1
.BB@LABEL@1_2:       ; return
      ret
```

Although the loop counter is declared as being of the unsigned long type, its values are only within the range covered by the unsigned short type. The performance of the generated code is improved by handling the loop counter as the unsigned short type.

4.6. Rectified points for caution

The following points for caution no longer apply. For details, refer to Tool News.

- Point for caution when a 1-bit signed bit field is written in the control expression of a switch statement (CCRL#020)
- Point for caution when a structure or union having a member that is a far pointer is packed and allocated to the far area (CCRL#021)
- Point for caution when the initial value of an integer-type member of a structure or union is an address constant (CCRL#022)
- Point for caution when the -misra2012 option is specified (CCRL#023)

4.7. Other changes and improvements

Other major changes and improvements are described below.

(a) Change to the operation in case the features of the professional edition are not available

Formerly, in the case of attempts to use the standard library for the professional edition when only a license for the standard edition had been registered, a linkage restricting error may have been generated.

This has been corrected and changed so that a message indicating the reason for the error is produced.

E0562600:Library "*library name*" requires "*edition name*"

(b) Correction of internal errors

Internal errors sometimes occurred in the build process in previous versions. These errors have been corrected.

Chapter 5 Points for Caution

Please refer to the user's manual for caution regarding V1.08.00 of the CC-RL compiler.

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(Rev.4.0-1 November 2017)

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