[Upgrade to version]
C Compiler Package for RH850 Family V2.00.00

R20TS0318EJ0100
Rev.1.00
Jul. 16, 2018

Outline

We upgraded CC-RH C compiler package for the RH850 family from V1.07.00 to V2.00.00.

V2.00.00 now supports the G4MH core. Support of the G4MH core instruction set and functions enables efficient system development of an MCU equipped with the G4MH core. We also added functions for improving execution efficiency, such as inline expansion of standard library functions, which shortens a library function call requiring multiple instructions to a single instruction at minimum.

A V2 license is required to use V2.00.00 or a later version. Note that the V2 license is different from the V1 license for V1.00.00 to V1.07.00.

1. Products and Versions to Be Updated

CC-RH V1.00.00 to V1.07.00

2. Description of Upgrade

The main contents of the upgrade are described below. Note that the features which are only available to users holding a registered license for the Professional edition are indicated as [Professional edition]. Features specific to MCUs equipped with the G4MH core are indicated as [G4MH]. For details, refer to the Release Notes at the URL below.

This information will be available from July 20.
https://www.renesas.com/search/keyword-search.html#genre=document&q=r20ut4303

2.1 G4MH Core Instruction Set [G4MH]

The G4MH core instruction set has been supported. The G4MH core instruction set is used during compilation to generate a code considering the pipeline. In addition, assembling the G4MH core instruction set is possible.

2.2 Extended Floating-Point Operation Instruction [G4MH]

A compile option to output save and restoration codes for an extended floating-point system register in an interrupt function has been added. This allows floating-point operation instructions to be used in an interrupt function.

2.3 Register Bank Function [G4MH]

A compile option to output save and restoration codes according to save mode in an interrupt function that uses the register bank function has been added. This enables a faster interrupt response time.

2.4 G4MH Core Interrupt/Exception Processing [G4MH]

Interrupt specifications that can be specified in the #pragma interrupt instruction have been added. This allows G4MH core interrupt/exception processing to be coded in C.

2.5 G4MH Core Embedded Functions [G4MH]

Embedded functions that use the G4MH core instruction set have been added. This allows part of an assembly instruction to be coded in the C source as a built-in function.

2.6 Debug Instruction Embedded Functions

Debug instruction embedded functions have been added.

2.7 C99 Standard Library Functions

The following C99 standard library functions have been supported:

- fmax(), fmaxf()
- fmin(), fminf()
- copysign(), copysignf()

2.8 Inline Expansion of Standard Library Functions

A compile option to control whether to use function calls or inline expansion to generate a code that calls some standard library functions has been added. Inline expansion by using FPU instructions shortens a library function call whose execution requires multiple instructions to a single instruction at minimum.

2.9 Code Generation for Efficient Execution of Floating-point Operations

A compile option to generate operation codes for efficient execution of floating-point operations has been added. This improves execution efficiency as a trade-off to ease the strict rules of the C language standard and IEEE754.

2.10 Code Generation for Floating-point Reciprocal Operations

A compile option to generate the recipf instruction for floating-point reciprocal operations has been added. In V2.00.00, the divf instruction is generated for floating-point reciprocal operations. This improves execution efficiency by generating the recipf instruction rather than the divf instruction.

2.11 Expansion of the Function to Detect Illegal Indirect Function Calls [Professional edition]

The function to detect indirect function calls to illegal addresses (supported in V1.07.00) has been expanded so that a library file (*.lib) can be removed from the function list used for illegal indirect function calls.

2.12 Output of CRC Operation Results for Binary Files

CRC operation results for binary files can now be output.

2.13 Changing the First Load Address of a Hex File

A function to change the first load address of an Intel expanded hex file or Motorola S type file being output has been added. This function is helpful for creating files that use the PIC function.

2.14 Problem Fixed

The following problems have been fixed.

- RENESAS TOOL NEWS, Document No. R20TS0317EJ0100

1. Static declaration of a structure, an array, or a union that has an initializer (No. 19)

2. Assembly-language code using reserved symbol (No. 20)

3.

Section where the initializers of auto variables are allocated when the -Xmulti_level option is specified

(No. 21)

4. Compiler option “-store_reg” (No. 22)

For details about the problem, refer to the following URL:
https://www.renesas.com/search/keyword-search.html#genre=document&q=r20ts0317

3. Updating Your Product

A V2 license is required to use CC-RH V2.00.00. See Section 4 before the update.

3.1 Online Updating

On the Start menu, select Programs and then Renesas Electronics CS+ to start the Update Manager. This service will be available from July 20.

When you use floating licenses, you also need to download V2.02.00 of Floating License Management Software from the URL below to install the program.
https://www.renesas.com/rh850-c-download

3.2 Download the Installer of the Product from Our Web Site

Download the installer from the following URL and install the product. This program will be available from July 20.
https://www.renesas.com/rh850-c-download

Also download V2.02.00 of License Manager from the URL above to install the program.

When you use floating licenses, you also need to download V2.02.00 of Floating License Management Software from the above URL to install the program.

4. How to Purchase the Product

For product ordering, contact your local Renesas Electronics marketing office or distributor with the product name and orderable part name.

For product pricing, make inquiries in the same manner.

Revision History

Rev.	Date	Description	
		Page	Summary
1.00	Jul. 16, 2018	-	First edition issued

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