

RENESAS TOOL NEWS on April 16, 2007: 070416/tn5

The C/C++ Compiler Package for the H8, H8S, and H8SX MCU Families Revised to V.6.01 Release 03

We have revised the C/C++ compiler package for the H8, H8S, and H8SX MCU families from V.6.01 Release 02 to V.6.01 Release 03.

1. Descriptions of Revision

1.1 Included Programs Updated

- (1) High-performance Embedded Workshop (IDE) has been updated to V.4.02.00. For details see RENESAS TOOL NEWS Document No. 061216/tn2, published on December 16, 2006.
- (2) The simulator debugger has been updated to V.5.05.00. For details, see RENESAS TOOL NEWS Document No. 060701/tn2, published on July 1, 2006.

1.2 Feature Introduced in the Compiler

A feature has been introduced which generates the code for avoiding "Restrictions on Block Transfer Instructions of the H8SX Family."
For details of the limitations, see Technical Update No. TN-H8*-A347B/E.

1.3 Functions Introduced and Improved in the Optimizing Linkage Editor

The following two options have been introduced and one improved:

- (1) Option "byte_count": This newly introduced option alters the maximum byte count of data records in INTEL HEX format files.
- (2) Option "space=random": This new option fills random numbers into unoccupied areas of the following types of files:
 - S-type files
 - INTEL HEX format files
 - Binary files
- (3) Option "memory=low": This improved option reduces memory

consumption when you create library files.

1.4 Problems Fixed

1.4.1 In High-performance Embedded Workshop

The problems described in the following items of RENESAS TOOL NEWS have been fixed:

- (1) RENESAS TOOL NEWS Document No. 070316/tn1, published on March 16, 2007.
- (2) RENESAS TOOL NEWS Document No. RSO-HEW-060416D, published on April 16, 2006.
- (3) RENESAS TOOL NEWS Document No. RSO-HEW-051116D, published on November 16, 2005.
- (4) RENESAS TOOL NEWS Document No. RSO-HEW_2-051016D, published on October 16, 2005.
- (5) RENESAS TOOL NEWS Document No. RSO-HEW-050716D, published on July 16, 2005.

1.4.2 In the Compiler

The following problems have been fixed:

- (1) Twelve problems described in RENESAS TOOL NEWS Document No. 070301/tn4, published on March 1, 2007.
- (2) Twelve problems described in RENESAS TOOL NEWS Document No. 061101/tn1, published on November 1, 2006.
- (3) Problem causing the C4098, C4099, and C5000 internal errors arise.

1.4.3 In the Optimizing Linkage Editor

The following problems have been fixed:

- (1) Problem that incorrect object code is generated when an option enabling the optimization of saving and restoring registers (for example, optimize=register) is used: This problem may occur in Case A or B described below.

Case A

The following conditions are all satisfied:

- (a) Option "goptimize" is selected at compilation.
- (b) An option to enable the optimization of saving and restoring registers (for example, optimize=register) is used at linking.
- (c) Either of the following conditions is met:
 - (c-1) Any of the following language-extending specifications is used:
 - Keyword "__regsave"
 - Keyword "__noregsave"
 - "#pragma regsave"

- "#pragma noregsave"

- Keyword "__asm"

(c-2) A label exists at the same address as the function name label in the assembly source code of compile list.*

And, there is an instruction that jumps to the function in other function.

*The compile list file (.lst) shows whether condition (c-2) is met or not. To create a compile list, use the "show=object" list option at compilation.

Case B

The following conditions are all satisfied:

(a) The type of MCU is H8SXN, H8SXM, H8SXA, or H8SXX.

(b) Option "goptimize" is selected at compilation.

(c) An option to enable the optimization of saving and restoring registers (for example, optimize=register) is used at linking.

(d) Any of the following instructions having an addressing as their operand is generated during compilation, where SP, the stack pointer, means register ER7:*

- A MOV instruction whose operand is "@(:16,SP)"

- An ADD instruction whose operand is "@(:2,SP)" or "@(:16,SP)"

- A SUB instruction whose operand is as above.

- A COM instruction whose operand is as above.

(e) The instruction in (d) has another addressing with variable_name.*

Example: MOV.L @(:16,SP),@_:32

*The compile list file (.lst) shows whether condition (d) or (e) is met or not. To create a compile list, use the "show=object" list option.

(2) Problem that the L3300 error arises and no linking is performed if a character containing character code 0x7c exists in the name of the file or folder that is used as the parameter of any of the following three options:

- Option "input" (for selecting an input object file)

- Option "library"

- Option "binary"

(3) The following three problems of INTEL HEX format files* generated by the linker have been fixed:

- (a) When a record of type 04 is generated, that of type 02 will not be generated, which would be generated at base address 0 if the modification were not made.
- (b) The places of the records designating the starting addresses (records of types 03 and 05) have been moved to the front of the end record (type 01)
- (c) Representation of the starting address in a 03-type record has been modified to conform to the INTEL HEX format.

*For the contents of files in the INTEL HEX format, see Section 19.1.2, "HEX File Format," in "H8S, H8/300 Series C/C++ Compiler, Assembler, Optimizing Linkage Editor Compiler Package Ver.6.01 User's Manual."

2. How to Update Your Product and Purchase the Revised One

2.1 Free-of-Charge Update

Free-of-charge online update is available. Download the update program of the product from the Web site.

This site will be opened from April 20 on.

2.2 First Ordering

If you place an order for the product, please supply the following items of information to your local Renesas Technology sales office or distributor (for the price of the product, also contact them):

Version No.: V.6.01

Release No.: Release 03

Host OS: Windows XP or Windows 2000

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