

# HITACHI SEMICONDUCTOR TECHNICAL UPDATE

Classification of Production	Development Environment			No	TN-CSX-037A/E	
THEME	SuperH RISC engine C/C++ Compiler Ver.6.0B bug report	Classification of Information	1. Spec change 2. Supplement of Documents ③ Limitation of Use	4. Change of Mask 5. Change of Production Line		
PRODUCT NAME	SH-1,SH-2,SH-2E, SH2-DSP,SH-3, SH3-DSP,SH-4	Lot No.  All	Reference Documents	—	Rev.  1	Effective Date  Eternity

Attached is the description of the known bugs in Ver. 6.0B of the SuperH RISC engine C/C++ compiler. Inform the customers who have updated to Ver. 6.0B from Ver. 6.0, Ver. 6.0R1, Ver. 6.0A or Ver. 6.0Ar2 of the following packages.

SuperH RISC engine C/C++ compiler package (PC version)  
 SuperH RISC engine C/C++ compiler package (SPARC version)  
 SuperH RISC engine C/C++ compiler package (HP9000 version)

Note that distribution of the patch to update into Ver. 6.0B is ceased. Ver. 6.0C will be released after fixing the bugs described in the attachment.(To be released in June.)

Attached: P0700CAS6-020405E

SuperH RISC engine C/C++ Compiler Ver. 6.0B  
 Known bugs in this release

## SuperH RISC engine C/C++ compiler Ver.6.0B

### Known bugs in this release

The known bugs in this release of the compiler are described below. If your program causes those bugs, avoid them using the methods described below or use Ver.6.0A of the compiler.

#### 1. Illegal restoring order of registers

The restoring order of the registers, which have been saved in the function prolog, may be illegal if a function ends with a function call, and if the `cpu=sh2e` or `sh4` option is specified.

##### [Condition]

The problem may occur when all of the following conditions are satisfied.

- (1) The `optimize=1` option is specified.
- (2) The `cpu=sh2e` or `sh4` option is specified.
- (3) A function calls another function at the end of itself.
- (4) One or more floating-point registers are saved and restored.
- (5) The function calls a function, which can be a runtime routine, other than the function called at the end (refer to (3)).

##### [How to avoid the bug]

Specify the `optimize=0` option.

#### 2. Illegal PR register allocation

The code of a function may be incorrect if each register saved and restored in the function's prolog and epilog is either the PR register or an FPU register and the function is compiled with the `cpu=sh2e` or `sh4` option.

##### [Condition]

The problem may occur when all of the following conditions are satisfied.

- (1) The `optimize=1` option is specified.
- (2) The `cpu=sh2e` or `sh4` option is specified.
- (3) Each register saved and restored in a function's prolog and epilog is either the PR register or an FPU register instead of a general purpose register or other register.
- (4) This function is not specified with `#pragma interrupt`.

[How to avoid the bug]

Specify the optimize=0 option.

### 3. Internal error during linkage of an object compiled with the pic=1 option

An internal error may occur during linkage of an object file if it's source program calls an externally- defined function, and is compiled with the pic=1 option.

[Condition]

The problem may occur when all of the following conditions are satisfied.

- (1) The cpu option specified is other than cpu=sh1.
- (2) The pic=1 option is specified.
- (3) An externally-defined function is called from the program.

[How to avoid the bug]

Do not specify the pic=1 option. (If you want to relocate a block of program to a fixed address range, use the ROM option of the linkage editor.)

[Example of linkage options]

rom=P=R

start=P/100,R/8000

Reserves R section with the same size as P section and relocates symbols defined in the P section to the addresses in the R section.

Note: To change from Ver. 6.0B down to Ver. 6.0A

#### (1) PC version

- (a) Those who have Ver.6.0A, Ver.6.0Ar1 or Ver.6.0Ar2.

Install Ver. 6.0A again to supersede Ver. 6.0B.

- (b) Those who have only Ver.6.0

Remove the folder (i.e. Hew instllation directory\Tools\Hitachi\Sh\6\_0\_A) of Ver. 6.0A and, apply the patch for updating Ver. 6.0 into Ver. 6.0A if both Ver. 6.0 and Ver. 6.0A are already installed.

#### (2) UNIX version

Install Ver. 6.0A again to supersede Ver. 6.0B.