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Notes on Usage of the C/C++ Compiler Package for H8SX, H8S, H8 Family V.6.01 Release 02 and Corrections in the User's Manual

There are notes on usage of the C/C++ compiler package and corrections in "H8S, H8/300 H8S, H8/300 Series C/C++ Compiler, Assembler, Optimizing Linkage Editor User's Manual" (REJ10B0161-0100) as listed below.

These notes are also informed to you by Tool News at http://tool-support.renesas.com/eng/toolnews/h8_1.htm

1. Notes on Usage

1.1 Floating-Point Library Operation with the structreg Option

When using a floating-point library after the `cpu=300L` or `cpu=300` has been specified, do not select the `structreg` option.

1.2 Use of Intrinsic Functions `movfpe` and `movtpe`

Code expansion of intrinsic functions `movfpt` and `movtpe` may be deleted due to compiler optimization. Thus the arguments must be volatile-qualified variables.

1.3 Inline Expansion of `__asm{ }` that Includes an Instruction to Access a Local Variable

When all of the following conditions are satisfied, an incorrect area will be accessed.

- (1) `cpu=h8sxx`, `h8sxa`, `h8sxm`, `h8sxn`, `2600a`, `2600n`, `2000a` or `2000n` (without `legacy=v4`)
- (2) There is a function specified with `__inline` or `#pragma inline`, or the `speed=inline` option is valid.
- (3) The inline-expanded function includes `__asm`.
- (4) The code of (3) includes an effective address that accesses a local variable or parameter.
- (5) The callee function of the inline-expanded function includes an access to the stack area via a local variable.

2. Corrections in the User's Manual

2.1 Additional Messages

C1330 (W) 'max_unroll' option ignored

The max_unroll option is specified when the CPU type is not H8SX or H8S (without legacy=v4).

C1800 (W) Variable "variable name" type mismatch in files.

Variables types in files do not match.

C5997 (E) Abstract class type "type" is not allowed as catch type.

2.2 Additions and Correction

[Section]

6.2 Starting the Stack Analysis Tool (Page 147)

[Description to be added]

Note: The stack space used by interrupt functions always includes the amount saved from CCR (condition code register) and EXR (extended control register: only for the H8SX, H8S/2600 and H8S/2000).

[Section]

9.4.2 Important Information on Compiling a C Program with the C++ Compiler (Page 275)

[Description to be added]

(4) Bit Field Changed to Integer

The right-hand side value of a bit field is converted to the right-hand side value of int-type. If it cannot be represented as int type, this value will be converted to unsigned int type.

```
struct str {
    long aaa:16 ;
} stst ;
stst.aaa=10 ;
printf("stst.aaa : %ld ¥n",stst.aaa); // Converted to int type
```

[Section]

Example of `__ptr16` (Page 321)

[Description to be corrected]

Example

When `__ptr16` is not specified

```
__abs16 int a;  
int *b;
```

```
func()  
{  
    b = &a;  
}
```

<Code expansion example>

```
__func:  
  
    mov.l    #_a:32,@_b:32
```

When `__ptr16` is specified

```
__abs16 int a;  
int __ptr16 *b;
```

```
func()  
{  
    b=(int __ptr16 *)&a;  
}
```

<Code expansion example>

```
__func:  
  
    mov.w   #LWORD _a:16,@_b:32
```