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A Note on Using the C Compiler Package V.5.42 Release 00 for the M16C Series, R8C Family of MCUs

Please take note of the following problem in using the C compiler package (M3T-NC30WA) V.5.42 Release 00 for the M16C series, R8C family of MCUs:

- With using compiler option -fbit (-fB)

The M16C series is the generic name of the M16C/60, /30, /20, /10, and /Tiny series.

1. Description

Even if compiler option -fbit (-fB) is selected, external variables may not be accessed with bit instruction addressing.

However, they can be accessed with general instruction addressing, and there are no differences between both ways of access in the results of execution.

For details of -fbit (-fB), see the user's manual of the compiler on the Web page at:

http://documentation.renesas.com/eng/products/tool/rej10j1995_nc30_u.pdf

2. Conditions

This problem arises if the following conditions are all satisfied:

- (1) Compiler option -fbit (-fB) is selected.
- (2) In the program exists either of the following expressions that can express the external variable in the cord accessing with bit instruction addressing.
 - a. Changing a bit of the external variable to 0 or 1
 - b. Reading a bit of the external variable
- (3) The external variable in Condition (2) is neither of the following:
 - a. Preprocessing directive #pragma ADDRESS has been issued so that

the address of the variable can be within a range of 0H to 1fffH.
b. Preprocessing directive #pragma BIT has been issued for the variable.

2.1 Examples

Command line:

```
-----  
nc30 -fbit -dS sample.c      /* Condition (1) */  
-----
```

sample.c:

```
-----  
struct S {  
    unsigned char b0 : 1;  
} s;          /* Conditions (3) */  
void func(void)  
{  
    s.b0 = 0;      /* Condition (2) */  
}  
-----
```

sample.a30:

```
-----  
;## # C_SRC :      s.b0 = 0;  
and.b #0feH,_s    /* bclr instruction not generated */  
-----
```

3. Workaround

Issue preprocessing directive #pragma BIT for the external variables to access with bit instruction addressing.

4. Schedule of Fixing the Problem

This problem has already been fixed in the C compiler package (M3T-NC30WA) V.5.43 Release 00 for the M16C series, R8C family. So update yours to the latest version by downloading the update program from:

http://www.renesas.com/nc30wa_download

The above URL is one of our global site (in English).

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