

RENESAS TOOL NEWS on March 1, 2004: RSO-M3T-NC30WA\_1-040301D

## A Note on Using C Compiler M3T-NC30WA

--On an OR Operation Between a Variable and a Constant--

Please take note of the following problem in using C compiler (with an assembler and integrated development environment) M3T-NC30WA for the M16C/60, M16C/30, M16C/Tiny, M16C/20, M16C/10, and R8C/Tiny series MCUs:

- On an OR operation between a variable and a constant
- 

### 1. Versions Concerned

M3T-NC30WA V.2.00 Release 1 through V.5.20 Release 1

### 2. Description

Performing an OR operation between a variable of type unsigned or signed long and a constant of powers of 2 may generate incorrect code.

### 3. Conditions

This problem occurs if the following four conditions are satisfied:

- (1) An OR operation between variable A and a constant of powers of 2 is performed.
- (2) The type of variable A is unsigned or signed long.
- (3) Variable A is declared with the volatile qualifier.
- (4) The result of the operation (1) is assigned to variable B, which satisfies the following conditions:
  - a. It is an auto variable.
  - b. It is declared without the volatile qualifier.
  - c. Its address is either of the following:
    - \* the address of register FB - 17 or earlier
    - \* the address of register FB + 16 or later

## 4. Example

```
-----  
volatile long gl;          /* Conditions (2) and (3) */  
void func(void)  
{  
    long bl[6];           /* Condition (4) */  
  
    bl[0] = gl | 0x000001L; /* Conditions (1) and (4) */  
    ...  
}  
-----
```

## 5. Workaround

This problem can be circumvented by going through the following steps:

- (1) Define temporary variable C of type signed or unsigned long.
- (2) Assign to the variable in (1) the constant of powers of 2 between which and variable A an OR operation would be done.
- (3) Perform the OR operation between variables A and C.

```
-----  
volatile long gl;  
void func(void)  
{  
    long bl[6];  
    long tmp;          /* Constant C */  
  
    tmp = 0x000001L;  
    bl[0] = gl | tmp;  
    ...  
}  
-----
```

## 6. Schedule of Fixing the Problem

We plan to fix this problem in our next release of the product.

---

**[Disclaimer]**

The past news contents have been based on information at the time of publication. Now changed or invalid information may be included. The URLs in the Tool News also may be subject to change or become invalid without prior notice.

© 2010-2016 Renesas Electronics Corporation. All rights reserved.