

RENESAS TOOL NEWS on April 1, 2005: RSO-M3T-NC308WA-050401D

## A Note on Using the M3T-NC308WA C-Compiler Package

Please take note of the following problem in using the M3T-NC308WA C-compiler package with an assembler and an integrated development environment. This C-compiler package is used for the M32C/90, M32C/80, and M16C/80 series of MCUs:

- On using if-else constructs
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### 1. Versions Concerned

M3T-NC308WA V.5.00 Release 1 through V.5.20 Release 02,  
which are used for the M32C/90, M32C/80, and M16C/80 series of MCUs.

### 2. Description

Regardless of whether the result of evaluation of the controlling expression in an if statement is TRUE or FALSE, incorrect code will be generated if statements for assigning a constant to a member of a bit field exist in the TRUE and FALSE statements.

#### 2.1 Conditions

This problem occurs if the following conditions are all satisfied:

- (1) An if-else construct exists.
- (2) Regardless of whether the result of evaluation of the controlling expression in an if statement in (1) is TRUE or FALSE, constants are assigned to members of bit fields of a structure, where the bit fields have the same name as variables.
- (3) The bit fields to which constants are assigned in (2) are 1 bit wide (those not assigned can be wider than 1).
- (4) The bit fields in (2) are different in bit positions depending on whether each of them is put in the TRUE or FALSE statement.

- (5) The constants in (2) are also different depending on whether each of them is assigned in the TRUE or FALSE statement.

## 2.2 Example

```
-----  
char    c;  
  
struct S  
{  
    int    b0:1;    /* Conditions (3) and (4) */  
    int    b1:1;    /* Conditions (3) and (4) */  
    int    b2:1;  
    int    b3:1;  
    int    b4:1;  
    int    b5:1;  
    int    b6:1;  
    int    b7:1;  
    int    b8:8;  
}s;  
  
void     func( void )  
{  
    if ( c == 1 ){          /* Condition (1) */  
        s.b0 = 0; /* Conditions (2), (3), (4), and (5) */  
    }  
    else{                   /* Condition (1) */  
        s.b1 = 1; /* Conditions (2), (3), (4), and (5) */  
    }  
}  
-----
```

## 3. Workaround

Place a dummy asm() function anywhere in the else block.

```
-----  
char    c;  
  
struct S  
{  
    int    b0:1;  
    asm( "nop" );  
}
```

```
int    b1:1;
int    b2:1;
int    b3:1;
int    b4:1;
int    b5:1;
int    b6:1;
int    b7:1;
int    b8:8;
}s;
```

```
void    func( void )
{
    if ( c == 1 ){
        s.b0 = 0;
    }
    else{
        s.b1 = 1;
        asm();      /* Dummy asm() function placed */
    }
}
```

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#### 4. **Schedule of Fixing the problem**

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

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