

A Note on Using the C Compiler package--M3T-NC308WA-- - for the M32C MCU Series

Please take note of the following problem in using the C compiler package-- M3T-NC308WA--for the M32C series of MCUs:

- With using the `#pragma DMAC` preprocessing directive in C compilers

M32C series is the generic name of M32C/80 and M16C/80 series.

1. Product and Versions Concerned

The C compiler package--M3T-NC308WA--for the M32C MCU series
V.5.00 Release 1 through V.5.41 Release 01

2. Description

If, in the TRUE statement of an if statement or the TRUE and FALSE statements of an if-else statement, a constant is assigned to the variable defined by preprocessing directive `#pragma DMAC`, such an incorrect code may be generated that does not write the value of the constant into the DMAC register.

2.1 Conditions

This problem occurs if the following conditions are all satisfied:

- (1) A variable is defined by preprocessing directive `#pragma DMAC`.
- (2) In an if statement that does not contain an else statement, the TRUE statement is only an expression where an integer constant is assigned to the variable in (1).

In an if statement that contains an else statement, each of the TRUE and FALSE statements is only an expression where an integer constant is assigned to the variable in (1).

- (3) For the if statement in (2), any of the instructions STZX, STZ, and STNZ is generated.

Note, however, that depending on the condition expression of the

if statement, none of those instructions may be generated, resulting in no problems.

2.2 Example

```
-----  
unsigned int dmd0;  
#pragma DMAC dmd0 DMD0      /* Condition (1) */  
  
/* In no else statement */  
void exam1(int mode)  
{  
    if (mode == 0) {  
        dmd0 = 0x00f0;      /* Condition (2) */  
    }  
}  
  
/* With an else statement */  
void exam2(int mode)  
{  
    if (mode == 0) {  
        dmd0 = 0x0070;      /* Condition (2) */  
    } else {  
        dmd0 = 0x00f0;      /* Condition (2) */  
    }  
}  
-----
```

3. Workaround

To avoid this problem, place a dummy asm function immediately before the TRUE statement of the if statement involved, regardless of whether the if statement contains an else statement or not.

```
-----  
void exam2(int mode)  
{  
    if (mode == 0) {  
        asm();              /* Place asm(); here */  
        dmd0 = 0x0070;  
    } else {  
        dmd0 = 0x00f0;  
    }  
}  
-----
```

4. Schedule of Fixing the Problem

We plan to fix this problem in the 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.