

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

Please take note of the following problem in using the C compiler package M3T-NC308WA, which is used for the M32C/90, M32C/80, and M16C/80 series of MCUs:

- On performing a subtraction containing a constant as a subtrahend

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### 1. Versions Concerned

M3T-NC308WA V.5.00 Release 1 through V.5.20 Release 02

### 2. Description

Performing a subtraction containing a constant as a subtrahend results in incorrect code being generated.

#### 2.1 Conditions

This problem may occur if the following conditions are all satisfied:

- (1) In a subtraction expression, a minuend is not a constant and its type is any of the following:
  - signed short
  - unsigned short
  - signed int
  - unsigned int
- (2) A subtrahend is a constant whose value falls within a range of 0xFF01 to 0xFFFF.

#### 2.2 Example

-----  
int array[];

```
int func(int i)
{
```

```
int j

j = array[ i - 0xFFE0 ]; /* Conditions (1) and (2) */
return j;
}
```

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### 3. Workaround

Assign the result of a subtraction to a temporary variable, and place a dummy asm function immediately after the assignment expression. Then, replace the subtraction expression with the temporary variable.

Example:

---

```
int array[];

int func(void)
{
    int j;
    int tmp; /* Declare a tmp variable */

    tmp = i - 0xFFE0; /* Assign result of subtraction
                       to tmp variable */
    asm(); /* Place a dummy asm() function */
    j = array[ tmp ]; /* Use tmp variable */
    return j;
}
```

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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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