

MAEC TOOL NEWS: MAECT-M3T-NC308WA_1-030316D

A Note on Using C Compiler M3T-NC308WA

Please take note of the following problem in using C compiler (with an assembler and integrated development environment) M3T-NC308WA for the M32C/80, M16C/80, and M16C/70 series MCUs:

- On defining bit fields as of type unsigned long
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1. Versions Concerned

M3T-NC308WA V.1.00 Release 1 through V.5.00 Release 1

2. Description

Assigning a bit field of type unsigned long to data of type unsigned int, signed int, unsigned short, or signed short results in an error.

3. Conditions

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

- (1) A bit field of type unsigned long is assigned to any data of type unsigned int, signed int, unsigned short, or signed short.
- (2) The bit field is between 2 and 16 bits in width and does not spread across a word boundary.

4. Example

```
-----  
signed int    si1,si2;  
  
void func( unsigned long ul )  
{  
    union {  
        unsigned long ul;  
    }  
}
```

```

    struct{
        unsigned long  b0:16;
                        /* Condition (2) */
        unsigned long  b1:16;
    }bits;
} x;

x.ul = ul;
si1 = x.bits.b0;      /* Condition (1) */
si2 = x.bits.b1;      /* Condition (1) */
}

```

5. Workaround

This problem can be circumvented in either of the following ways:

- (1) Convert the data type of the variable to which a bit field is assigned to unsigned long.

Example 1:

```

-----
unsigned long  si1,si2;
-----

```

- (2) If the maximum width of the bit field is equal to or less than 16 bits, convert its data type from unsigned long to unsigned int or unsigned short.

Example 2:

```

-----
union {
    unsigned long  ul;
    struct{
        unsigned int  b0:16;
        unsigned int  b1:16;
    }bits;
} x;
-----

```

6. Schedule of Fixing the Problem

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

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