RENESAS Tool News

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A Note on Using the C Compiler Packages M3T-NC308WA and M3T-NC30WA

Please take note of the following problem in using the C compiler packages M3T-NC308WA and M3T-NC30WA, which are used for the M16C family of MCUs:

- On machine-language files created by the load module converter (lmc308 or lmc30) with the "-F" option selected

1. **Products and Versions Concerned**
   M3T-NC308WA V.3.00 Release 1 through V.5.20 Release 02
   (for the M32C/90, M32C/80, and M16C/80 series)

   M3T-NC30WA V.4.00 Release 1 through V.5.30 Release 02
   (for the M16C/60, M16C/30, M16C/20, M16C/10, M16C/Tiny, and R8C/Tiny series)

2. **Description**
   The ID code* may be duplicated when outputted to a machine-language file.

   * The ID code can take any value, and this value is checked by
     the ID code check function, which is used for restricting
     reprogramming of on-chip flash memory.
     For details of the ID code check function, see the hardware
     manual of each MCU.

   2.1 Conditions
       This problem occurs if the following conditions are all
       satisfied:

       (1) No code exists in the ID code setting address, and
           the address next to it is defined as the beginning
           address of a section using the assembler directive

command ".ORG."

(2) Either of the following ways is used to output the ID code:

  (a) The -ID option of the load module converter (lmc308 or lmc30) is selected.

  (b) The .ID assembler directive command is used in either of the following compilers:
    ◦ The M3T-NC308WA V.5.20 Release 1
    ◦ Any of the M3T-NC30WA V.5.20 Release 1 through V.5.30 Release 1

(3) The beginning address of the data-writing area; or its beginning and ending addresses are not designated as parameters of the -F option of the load module converter (lmc308 or lmc30) but only the value of data written to the free space is designated.

2.2 Examples

Example of an assembly-language source file:
Here the address 0FFFFCH, which is next to the ID code setting address, is defined as the beginning address of the fvector section by the assembler directive command ".ORG."

```
-------------------------------------------------------------
---------
    .section   vector,ROMDATA  ; variable vector table
    .org      0FFEDCH
    .lword    dummy_int      ; vector 0
       ;
    .lword    dummy_int      ; vector 63

    .section   fvector,ROMDATA ; fixed vector table
    .org      0FFFFCH
    .lword    start
    .end
-------------------------------------------------------------
---------
```

Example of invoking the lmc30:
In this example, value "11223344556677" is designated as the ID code by option -ID.

```
------------------------------------------------------------
---------
> lmc30 -ID#11223344556677 -F 0FF sample.x30
------------------------------------------------------------
---------
```

Example of a machine-language file outputted:
Here, the whole of the third line is output to a machine-language file in error. As a result, the ID code (77H) output to address FFFFBH is duplicated in the third and fourth lines.

```
Line No.  Machine-language code
------------------------------------------------------------
---------
1
S2140FFFD4FFFFFFFFFFFFFFFFFFFFFFFF11FFFFFF22E4
2
S2140FFFE4FFFFFFFFFFFFFFF33FFFFFF44FFFFFF553A
3       S2050FFFFB777A
4       S20C0FFFF4FFFFFF66FFFFFF771A
5       S2080FFFFC00800FFF5F
6       S804000000FB
------------------------------------------------------------
---------
```

2.3   Workaround
When outputting the ID code to a machine-language file, designate the beginning address of the data-writing area; or its beginning and ending addresses as parameters of the -F option of the load module converter (lmc308 or lmc30), as well as designating the value of data written into the free space.

Example of invoking the lmc30 with command option -ID selected:
```
------------------------------------------------------------
---------
>lmc30 -ID#11223344556677 -F 0FF:0F8000:0FFFFF
sample.x30
------------------------------------------------------------
---------
```

Example of invoking the lmc30 with assembler directive

command

.ID used:

>lmc30 -F 0FF:0F8000:0FFFFF sample.x30

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3. **Schedule of Fixing the Problem**

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