RENESAS Tool News

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A Note on Using C Compiler M3T-NC30WA V.5.20 Release 1

Please take note of the following problem in using the M3T-NC30WA V.5.20 Release 1 C compiler (with an assembler and integrated development environment) for the M16C/60, M16C/30, M16C/20, M16C/10, and R8C/Tiny series MCUs:

- On using the standard library function "strcpy"

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1. **Description**
   Copying a character string in the far area into the near area or vice versa by using the standard library function "strcpy" may cause the program to be executed improperly.

2. **Conditions**
   This problem occurs if the following five functions are satisfied:
   (1) Any of these optimizing options -O3, -O4, -O5, -OR, and -OS is selected.
   (2) The -Ono_stdlib optimizing option is not selected.
   (3) The "strcpy" standard library function is used.
   (4) The strcpy function takes its arguments as follows:
   - A pointer to the near area as the first argument and a pointer to the far area as the second one, or
   - A pointer to the far area as the first argument and a pointer to the near area as the second one.
   (5) A character string consisting of an even number of characters is copied, and the string includes NULL characters.

3. **Example**

```
-----------------------------------------------------
    #include <string.h>
```

```
    int a[10];
    void func(void)
    {
          strcpy(a,"abcde");   /* Conditions (3), (4), and (5) */
    }
```
---

4. **Workaround**

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

(1) Select the -Ono_stdlib optimizing option.

(2) Modify the standard library function "strcpy" by editing the library source files nfstrcpy.c and fnstrcpy.c to re-create the standard library file nc30lib.lib in the following steps:

a. Substitute the two lines shown below for the 70th line of the nfstrcpy.c file.

```
---------------------------------------
 _asm("  mov.w $$[FB],R0",s1);
 _asm("  exitd");
---------------------------------------
```

b. Also substitute the three lines shown below for the 71st line of the fnstrcpy.c file.

```
---------------------------------------
 _asm("  mov.w $$[FB],R0",s1);
 _asm("  mov.w $$+2[FB],R2",s1);
 _asm("  exitd");
---------------------------------------
```

c. Execute the command shown below at the MS-DOS command line to re-create the nc30lib.lib file.

```
 make -f makefile.dos<ret>
```

d. Copy the nc30lib.lib file re-created in item c to the directory specified by environment variable LIB30.

NOTE:
The nfstrcpy.c and fnstrcpy.c library source files and the makefile.dos file are found in the /src30/lib directory where the compiler has been installed.

5. Schedule of Fixing the Problem

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