RENESAS Tool News

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A Note on Using C-Compiler Package M3T-NC30WA

--On Calling String Handling Functions in the Standard Library--

Please take note of the following problem in using the M3T-NC30WA C-compiler package, which is used for the M16C/60, M16C/30, M16C/Tiny, M16C/20, M16C/10, and R8C/Tiny series of MCUs:

- On calling string handling functions in the standard library

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1. **Versions Concerned**
   M3T-NC30WA V.5.00 Release 1 through V.5.30 Release 02

2. **Description**
   If a source program that calls a library function declared in the standard header file <string.h> is compiled, an application error may arise, resulting in compilation being unsuccessfully terminated.

   2.1 Conditions
   This problem may occur if the following conditions are all satisfied.
   If no application error arises, however, code is properly generated:

   (1) Compile option -OR is selected.

   (2) Compile option -Ono_stdlib(-ONS) is not selected.

   (3) A function makes calls to a library function twice or more.

   (4) The library function called twice or more in (3) is any of the following:
   memcmp, memcpy, memicmp, memmove, strcat, strcmp, strcoll, strcpy, strcspn, stricmp, strncat, strncmp, strncpy, strnicmp, strpbrk, strspn, strstr, and strxfrm
   (All the above functions take two parameters of type

pointer.)

(5) At any of the calls to the library function in (3), far pointers (including address constants) are passed to both of the parameters.

(6) The same function to which far pointers were passed in (5) is again called later, and a far pointer (including an address constant) is passed to either of the parameters, and a near pointer to the other.

(7) At both calls in (5) and (6), the return value of the function in (3) is not referenced.

(8) After both calls in (5) and (6), both the flows of processing merge. (If not so explicitly in the source program, optimization may bring such a result.)

2.2 Example

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

char near   nearstr[10];
char far    far1str[10], far2str[10];
int        cond;

void func(void)
{
  if (cond == 0x0001) {
     strcpy(nearstr, far2str);  /* Conditions (3), (4), (6), and (7) */
  } else {
     strcpy(far1str, far2str);  /* Conditions (3), (4), (5), and (7) */
  }
  cond = 0;                  /* Condition (8) */
}
---------------------------------------------------------------------
```

3. Workaround

Select compile option -Ono_stdlib(-ONS) in addition to -OR.

4. Schedule of Fixing the Problem

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

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