RENESAS Tool News

A Note on Using the C Compiler Packages for the M32C and the M16C MCU Series

Please take note of the following problem in using the C compiler packages for the M32C and the M16C MCU Series:

- With performing operations of constants only

1. Products and Versions Concerned
(1) The C compiler package--M3T-NC308WA--for the M32C series*
    V.1.00 Release 1 through V.5.40 Release 00
(2) The C compiler package--M3T-NC30WA--for the M16C series**
    V.1.00 Release 1 through V.5.40 Release 00A

 *Generic name of the M32C/80 and M16C/80 series
**Generic name of the M16C/60, /30, /20, /10, /Tiny, and R8C/Tiny
  series

2. Description
Performing operations of constants only may result in incorrect code
being generated.

3. Conditions
This problem occurs if the following conditions are both satisfied:
(1) 0perations of constants only are performed in an expression.
(2) While the operations in (1) are performed, the result of an
    operation exceeds the limit expressible in signed int or
    signed short.

Note that when any of the following compiler packages is used and the
constant expression in (1) is passed as an argument to a function,
this problem does not occur even if the above conditions are satisfied:
 - The C compiler package for the M32C series V.5.40 Release 00

- The C compiler package for the M16C series V.5.40 Release 00
- The C compiler package for the M16C series V.5.40 Release 00A

Example:
```
----------------------------------------------------------------
    int data;
    int func()
    {
        if( data < 500*300/200) /* Conditions (1) and (2) */
            return 1;

        sub(500*300/200);

    }
----------------------------------------------------------------
```
If this problem did not occur, the overflown result would be disregarded and the expression be evaluated as of type signed int or signed short when Condition (2) above was satisfied.

In this example, however, the overflown result is used for further evaluation; that is, data is compared with 0x2EE, not with the correct value of 0x5E.

4. Schedule of Fixing the Problem
This problem has already been fixed in the following products:
- The C compiler package for the M32C series
    V.5.41 Release 00 and later
- The C compiler package for the M16C series
    V.5.42 Release 00 and later
So please use these problem-fixed compiler packages.