RENESAS Tool News

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Note on Using C/C++ Compiler Package V.6.00 Release 00 for M16C Series and R8C Family

When using the C/C++ compiler package V.6.00 Release 00 for the M16C series and the R8C family of MCUs, take note of the following problem:

- With referencing external variables in debuggers

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1. Description

When you use some types of standard library functions, the values of external variables may incorrectly be displayed in the debugger's Watch window. However, this problem does not affect the execution of user programs.

2. Conditions

2.1 Conditions 1

If the following conditions are all satisfied, the values of external variables described in (2) below may incorrectly be displayed:

(1) A source file includes string.h and uses any of the following standard library functions:
strcpy, strncpy, strcat, strncat, strcmp, strcoll, stricmp, strncmp, strnicmp, strchr, strcspn, strpbrk, strrchr, strspn, strstr, strtok, strlen, strerror, strxfrm, bzero, bcopy, memcpy, memset, memcmp, memicmp, and memchr

(2) In the source file in (1), external variables defined in other files are accessed.

(3) Either of the following conditions is satisfied in compile options:
(A) The -R8C option is used.
(B) The -R8C and -Ono_stdlib (-ONS) options are not used, and any of the following options is used:

-O1 through -05, -OR, -OS, -OR_MAX(-ORM), -OS_MAX(-OSM)

Example where -R8C used as compile option (Condition (3)(A)):

```
#include <string.h>
char p[3];
int gi1;
extern int gi2;
extern int gi3;
void func(void)
{
  memset(p, 1, 1);     // Condition (1)
  gi1=1;
  gi2=2;               // Condition (2)
  gi3=3;               // Condition (2)
}
```

In the above example, the values of external variables gi2 and gi3 may not correctly be displayed.

2.2 Conditions 2

If the following conditions are all satisfied, the values of external variables described in (2) below may incorrectly be displayed:

(1) A source file includes math.h or mathf.h and uses any of the following standard library functions:

acos, asin, atan, atan2, ceil, cos, cosh, exp, fabs, floor, fmod, frexp, ldexp, log, log10, modf, pow, sin, sinh, sqrt, tan, and tanh

Or, a source file includes stdlib.h and uses any of the following standard library functions:

atof and strtod

(2) In the source file in (1), external variables defined in other files are accessed.

(3) Any of the following compile options is used:

-fdouble_32(-fD32), -OR_MAX(-ORM), -OS_MAX(-OSM)

Example where -fdouble_32 used as compile option (Condition (3)):

```
#include <math.h>
double d;
extern long gl1;
extern long gl2;
```

```
void func(void)
{
  d= acos( 0.1 );    // Condition (1)
  gl1 = 1;           // Condition (2)
  gl2 = 2;           // Condition (2)
}
```

In the above example, the values of external variables gl1 and gl2 may not correctly be displayed.

3. Workaround

To reference any external variable whose value is incorrectly displayed in the Watch window, convert it to the symbol represented in assembler language.

Example: Convert variable gi1 to _gi1.

In the emulators provided with the C and ASM Watch windows, make the above conversion in the ASM Watch window.

4. Schedule of Fixing Problem

We plan to fix this problem by revising the assembler (scheduled in February, 2012).
