RENESAS Tool News

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Note on Using the CS+ CX Compiler

When using the CS+ CX Compiler (for the V850E2M core), take note of the problem described in this note regarding the following point.

- Point to note regarding the allocation of 8-byte variables across 64-Kbyte boundaries (No.16)

Note: The number which follows the description in the precautionary note above is an identifying number for the precaution.

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1. Products Concerned
   CX V1.20 to V1.31

2. Description
   Access might not proceed correctly when an 8-byte variable is allocated across a 64-Kbyte (0x10000) boundary.

3. Conditions
   Access to 8-byte variable as described in (1) below will not proceed correctly if the following conditions (1) and (2) are both met.

   (1) Accessing is to an external variable of 8-byte type (long long or double) or a static variable (including a member of a structure or union, or an array).

   (2) The variable in (1) meets any of the following conditions.
   (2-1) The variable is for the data attribute section (such as .data or .bss) and is allocated to an address satisfying the formula below.

   The value of the GP register - (32K + 4) + (64K x N)
   where N=1, 2, 3, ... or -1,-2,-3, ...

   (2-2) The variable is for the const attribute section (such as

.const) and is allocated to an address satisfying the formula below.

(32K - 4) + (64K x N)
N=0, 1, 2, 3...

(2-3) The variable is a member of a structure or an array of structure having at least 96 Kbytes, and is accessed at the following offset by a pointer.

(96K - 4) + (64K x N)
N=0, 1, 2, 3, ...

Example of condition: Condition (2-3)

```
-------------------------------------------------------------
struct ST {
   char array[0x17ffc];     // 0x17ffc = 96K -4
   long long ll;
} ss, *p;

...
p->ll = 0;                  //  The case where N = 0 in condition (2-3)

-------------------------------------------------------------
```

4. Workaround

Change the address of the given 8-byte variable by assigning a dummy variable.

Example of the workaround to apply in case of condition (2-3)

```
-------------------------------------------------------------------------
struct ST {
   char array[0x17ffc];
   char dummy;             //Define a dummy variable.
   long long ll;
} ss, *p;

...
p->ll = 0;
-------------------------------------------------------------
```

5. Schedule for Fixing the Problem

This problem will be fixed in a forthcoming version of the product (the date of the next release has not yet been determined).

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