[Notes]

C Compiler CA78K0R for RL78 Family and 78K0R

C Compiler CA78K0 and CC78K0 for 78K0

Outline

When using the C compiler CA78K0R for RL78 family and 78K0R, and C compiler CA78K0 and CC78K0 for 78K0, note the following point.

1. An expression for casting to the boolean type or a function that returns the boolean type returns incorrect values.

1. An Expression for Casting to the Boolean Type or a Function that Returns the Boolean Type Returns Incorrect Values.

1.1 Applicable Products

CA78K0R V1.70 to V1.72 (CS+ integrated development environment)

CA78K0R V1.50 to V1.70 (CubeSuite+ integrated development environment)

CA78K0 V1.30 (CS+ integrated development environment)

CA78K0 V1.20 to V1.21 (CubeSuite+ integrated development environment)

CA78K0 V1.10 to V1.11 (CubeSuite integrated development environment)

CC78K0 V4.10 (PM+ integrated development environment)

1.2 Details

When a bit field is described in an expression for casting to the boolean type or the return statement of a function that returns the boolean type, the bit location becomes 0 rather than the value specified by the bit field.

1.3 Conditions

The problem arises when either of the conditions listed below is met.

(1) A bit field is explicitly cast to the boolean type.

(2) A bit field is described in the expression of the return statement of a function that returns the boolean type.

RENESAS

1.4 Example

The following is an example of the problem.

[C source]

```
__sreg struct _st{
    unsigned char uc1;
    unsigned char b0:1;
    unsigned char b1:1;
    unsigned char b2:1;
    unsigned char b3:1;
    unsigned char b4:1;
    unsigned char b5:1;
    unsigned char b6:1;
    unsigned char b7:1;
} st1, st2;
__boolean b1;

void func1(void)
{
    b1 = (__boolean)st1.b5; /* Condition (1) */
}


__boolean func2(void)
{
    return st2.b6;          /* Condition (2) */
}
```

[Example of output assembler code]

```
; line 16 :      b1 = (__boolean)st1.b5; /* Condition (1) */
    mov1  CY,_st1+1.0      ; mov1 CY,_st1+1.5 is correct.
    mov1  _b1,CY
; line 21 :      return st2.b6;          /* Condition (2) */
    mov1  CY,_st2+1.0      ; mov1 CY,_st2+1.6 is correct.
```

In the above example of output assembler code, the specification location of the bit is 0 rather than the described value.

1.5   Workarounds

To avoid this problem, do either of the following:

(1) Do not explicitly cast a bit field to the boolean type for Condition (1).

Change "b1 = (__boolean)st1.b5;" to "b1 = st1.b5;".

(2) Change Condition (2) as follows:

Change "return st2.b6;" to

"return (st2.b6 & st2.b6);"

or

"return (st2.b6 == 1);".

1.6   Schedule for Fixing the Problem

We do not plan to make modifications.

Revision History

		Description	
Rev.	**Date**	**Page**	**Summary**
1.00	Sep. 16, 2017	-	First edition issued

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