[Notes]

C Compiler Package for RL78 Family

Outline

When using the C compiler package for RL family CC-RL, note the following points:

1. Point for caution when the -misra2012 option is specified. (CCRL#023)

   Note: The number following the note is an identifying number for the precautionary note.

1. Point for caution when the -misra2012 option is specified. (CCRL#023)

1.1 Applicable Products

   CC-RL V1.03.00 to V1.07.00 [Professional edition] (Rule 16.1 and 16.4)
   CC-RL V1.06.00 to V1.07.00 [Professional edition] (Rule 15.6, 15.7, and 16.2)

1.2 Details

   When checking source code against MISRA-C:2012 rules by specifying -misra2012 option, the compiler may output a message for a code which does not violate the rules and may not output a message for a code which violates the rules.
   
   MISRA-C is a set of software development guidelines whose purpose is to maintain the safety, portability and reliability of embedded systems programmed in the C language.

1.3 Conditions

   An error occurs when the following rules are specified.

   - Rule 15.6
     No message is output for a code which violates the rule if the -lang=c99 option is specified.
   - Rule 15.7
     No message is output for a code which violates the rule if the -lang=c99 option is specified.
   - Rule 16.1
     No message is output for a code that violates the rule if all of the following conditions are met:
     (1) "{" is written immediately after a switch statement (controlling expression).
     (2) Both a case clause and a default clause are written in the switch statement (1).
     (3) Each case clause and default clause in (2) ends with a break statement or a compound statement (block) which includes a break statement at the end.
     (4) At least one of the case clauses or default clauses in (3) meets all the conditions below.
       (4-1) A compound statement (block) which is neither a selection statement (if or switch) nor a repeat statement (while, do-while, or for) is written at the end.
       (4-2) A statement is written before the compound statement (block) in (4-1).
Rule 16.2
No message is output for a code that violates the rule if all of the following conditions are met.
(1) The -lang=c99 option is specified.
(2) A case or default label is written immediately after switch (controlling expression) without “{”.

Rule 16.4
A message may be output for a code that does not violate the rule if either of the following conditions is met:
(1) -lang=c is specified and a compound statement (block) is written in the function definition.
(2) -lang=c99 is specified, and a compound statement (block), selection statement (if or switch), or repeat statement (while, do-while, or for) is written in the function definition.
This includes a case where a selection statement or repeat statement is written without “{ }”.

Note: A compound statement refers to a statement enclosed with “{ }”. An if statement enclosed with “{ }” is also a compound statement.

1.4 Example
The example of an error is shown below. Characters in red are the parts corresponding to the conditions.

[C source code] (rule 16.1)

```c
int x;
void func(void) {
    switch(x) {
        case 1:
            ++x;
            // Condition (2)
            {
                // Condition (4-1)
                --x;
                break;
                // Condition (3)
            }
            // Condition (4-2)
        default:
            break;
            // Condition (3)
    }
    // Condition (1)
}
```

Although the C source code above violates rule 16.1 of MISRA C: 2012, no message is output.
Lines 3 and 12: Condition (1) is met because “{ }” is written immediately after switch (controlling expression).
Lines 4 and 10: Condition (2) is met because both a case clause and a default clause are written.
Lines 8 and 11: Condition (3) is met because the case clause and default clause end with a break statement.
Lines 6 and 9: Condition (4-1) is met because the case clause ends with a compound statement (block).
Line 5: Condition (4-2) is met because a statement is written before a compound statement (block).
The C source code above violates rule 16.2 of MISRA C:2012. Although a message is output when `-lang=c` is specified, no message is output when `-lang=c99` is specified. Lines 3 and 4: Condition (2) is met because a case label is written without “{” immediately after switch (controlling expression).

1.5 Workaround

There is no workaround for this problem.

1.6 Schedule for Fixing the Problem

This problem is fixed in CC-RL V1.08.00. (Scheduled to be released on January 21.)
### Revision History

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