RENESAS Tool News

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A Note on Using MISRA-C Rule Checker SQMlint

Please take note of the following problem in using the MISRA-C rule checker SQMlint (This expands functions of Renesas-made C compilers):

- On using a typedef name as the operand of a sizeof operator

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1. **Versions Concerned**
   SQMlint V.1.00 Release 1 and V.1.01 Release 00

2. **Description**
   Using a typedef name as the operand of a sizeof operator may cause a system error to arise.

3. **Conditions**
   This problem occurs if the following conditions are all satisfied:
   (1) An incomplete type of structure is declared using typedef.
   (2) This structure is defined after its declaration in (1).
   (3) A typedef name is used as the operand of a sizeof operator.

   Example:

```
------------------------------------------------------------------
typedef struct TAG    typedef_name;     /* Condition (1) */

struct TAG                          /* Condition (2) */
{
 char    member1;
};

void func(void)
```

```
{
  int i = sizeof(typedef_name);         /* Condition (3) */
}
-----------------------------------------------------------------
```

4. **Workaround**

   This problem can be circumvented in either of the following ways:

   (1) First, define an incomplete type of structure, and then declare it using typedef.

```
   -----------------------------------------------------------------
   struct TAG
   {
     char    member1;
   };

   typedef struct TAG    typedef_name;

   void func(void)
   {
     int i = sizeof(typedef_name);
   }
   -----------------------------------------------------------------
```

   (2) Use the structure tag in the typedef declaration as the operand of a sizeof operator, instead of a typedef name.

```
   -----------------------------------------------------------------
   typedef struct TAG    typedef_name;

   struct TAG
   {
     char    member1;
   };

   void func(void)
   {
     int i = sizeof(struct TAG);
   }
   -----------------------------------------------------------------
```

5. **Schedule of Fixing the Problem**

   We plan to fix this problem in our next release of the product.

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