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Note on Using C/C++ Compiler Package for RX Family (IDE: CubeSuite+), C/C++ Compiler Package for RX Family (IDE: High-performance Embedded Workshop), and C/C++ Compiler Package for RX Family (without IDE)

When using the C/C++ Compiler Package for RX Family (IDE: CubeSuite+), the C/C++ Compiler Package for RX Family (IDE: High-performance Embedded Workshop), or the C/C++ Compiler Package for RX Family (without IDE), take note of the problem regarding the following point.

- Aggregates having initial values (RXC#034)

Note: The number at the end of the above item is from a consecutive index of problems in the compiler packages for the RX family of MCUs.

1. Product and Versions Concerned

- C/C++ Compiler Package for RX Family (IDE: CubeSuite+) V1
Order type name: R0C5RX00QSW01D and R0C5RX00QSW01N
CC-RX compiler V1.02.00 through V1.02.01
- C/C++ Compiler Package for RX Family (IDE: CubeSuite+) V2
Order type name: RTCRX0000CL02WDR and RTCRX0000CL02WNR
CC-RX compiler V2.00.00 through V2.02.00
- C/C++ Compiler Package for RX Family (IDE: High-performance Embedded Workshop) V.1.00 Release 00 through V.1.02 Release 01
Order type name: R0C5RX00XSW01R
CC-RX compiler V1.00.00 through V1.02.01
- C/C++ Compiler Package for RX Family (without IDE)

2. Description

When an aggregate with an initial value is defined as an automatic variable in the C99 or C++ language, in the case of "(number of initializers) < (number of elements)", elements whose initial values have not been set will not be initialized to 0 and they will become indeterminate values.

3. Conditions

This problem arises if the following conditions are all met:

- (1) Either `-lang=c99` or `-lang=cpp` is specified as a compiler option (see Note 1).
- (2) There is a definition of an aggregate (structure or array) of an automatic variable with an initial value.
- (3) In the aggregate of (2), the number of initializers is smaller than the number of elements.
- (4) In the aggregate of (2), there is not even one constant expression (see Note 2) as an initializer.

Note 1:

When an aggregate with an initial value is defined as an automatic variable in a language other than C99 and C++, describing an initializer that is not a constant expression breaches the language specifications. Under present circumstances, however, a compile error does not occur and the result is not guaranteed.

For languages other than C99 and C++, likewise as shown above, if the above conditions (1) to (4) are all met, the initial value will become an indeterminate value.

Note 2:

A constant expression stands for an arithmetic expression consisting of only constant values and addresses for static variables.

Example 1: Case of C99 language - sample1.c

```
-----  
// Compile option: -cpu=rx600 -lang=c99 /* Condition (1) */  
int get01a(void);  
int get01b(void);  
void check_ptr01(int *);  
void func01(void)  
{  
    int array01[8] = /* Condition (2) */  
    { get01a(), get01b(), }; /* Conditions (3) and (4) */  
}
```



```

        /* array[3] to array[7] are also */
        /* initialized to 0. */
    check_ptr01(array01);
}

```

Example of applying workaround (2) to Example 2 of above 1.3:

```

#include          /* Because memset is used */
struct Str02
{
    short a02, b02, c02, d02;
};
short var02a;
short var02z;
void check_ptr01(int *);
void func01(void) {
    struct Str02 st02;          /* Initial value is not set */
                                /* in the definition. */
    memset(&st02,0,sizeof(st02)); /* The entire st02 is */
                                /* initialized to 0. */
    st02.a02 = var02a;          /* Initialized by assignment. */
    var02z = st02.c02;
}

```

5. Schedule for Fixing the Problem

- C/C++ Compiler Package for RX Family (IDE: CubeSuite+) V1 and C/C++ Compiler Package for RX Family (IDE: High-performance Embedded Workshop)

We do not plan to make modifications. Please apply any of the above workarounds to avoid the problem.

- C/C++ Compiler Package for RX Family (IDE: CubeSuite+) V2 and C/C++ Compiler Package for RX Family (without IDE)

This problem will be fixed in the next version.

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