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Chapter 1. Target Devices

The target devices supported by the CC-RX are listed on the Website.

Please see this URL.

CubeSuite+ Product Page:

<http://www.renesas.com/cubesuite+>

Chapter 2. Key Points for Selecting Uninstallation Method

There are two ways to uninstall this product.

- Use the integrated uninstaller (uninstalls CubeSuite+)
- Use separate uninstaller (uninstalls this product only)

To use the separate uninstaller, select the following from the Control Panel:

- Add/Remove Programs (Windows XP)
- Programs and Features (Windows Vista, Windows 7)

Then select "CubeSuite+ CC-RX V1.02.00".

Chapter 3. Cautions

This section describes cautions for using CC-RX.

3.1 Note on a Case of the C1804 Message [C/C++ Compiler]

When the `int_to_short` option is specified and a file including a C standard header is compiled as C++ or EC++, the compiler may show the C1804(W) message. In this case, simply ignore the message because there are no problems.

[NOTE]

In compilation of C++ or EC++, the `int_to_short` option will be invalid.

Data that are shared between C and C++ (EC++) program must be declared as the long or short type rather than as the int type.

3.2 Note on using MVTC or POPC instructions [Assembler]

In the assembly language, the program counter (PC) cannot be specified for MVTC or POPC instructions.

3.3 Note on the delete Option for Linkage [Optimizing linkage editor]

When a function symbol is removed by the delete option, its following function in the source program is not allowed to have a breakpoint at its function name on the editor in your debugging. If you would like to set a breakpoint at the function entrance, set the breakpoint via the Label window or at the prologue code of the function.

Chapter 4. Restrictions

This chapter describes the restrictions of the CC-RX V.1.02.00.

4.1 Restriction of PID function

When using PID function, if the `nouse_pid_register` option is effective for the all program files of master program, the following errors will occur.

- (1) A program of setting address into PID register
- (2) Standard library (Setting it to the library generator 'lbgrx')

[For restriction of (1):]

First, take out a function of setting PID register and put it into an independent C or assembler file.

Next, compile or assemble this file without the `nouse_pid_register` option.

Finally, link it and other master files together.

[For restriction of (2):]

Please cope by following (a) or (b) method.

(a) To include a standard library in application not a master

* Using jump-table is not necessary. (see also chapter 8.4.2(2)).

* Generate standard library with setting the pid option for the library generator 'lbgrx'.

(b) To include a standard library in a master

(i) Generate standard library without setting the pid option for the library generator 'lbgrx'.

(ii) For following examples, change each JMP R14 statements of the all entries in the jump table, and use the changed one.

Example: Changing `_printf` entry

Before:

```
_printf:
```

```
    MOV.L #0ffff90cfH,R14 ; Address 0ffff90cfH is an example
    JMP R14
```

After:

```
_printf:
```

```
    MOV.L #0ffff90cfH,R14
    PUSH.L R13 ; The case of PID register is R13
    JSR    R14
    POP    R13 ; The case of PID register is R13
    RTS
```

4.2 Restriction on usage the some math.h functions of frexp, ldexp, scalbn and remquo on C++ language

By compiling C++ program (includes EC++) of using the some math.h functions of frexp, ldexp, scalbn and remquo with int-type argument, an infinity-loop object will be generated.

Conditions:

If both (1) and (2) as following conditions are satisfied, this problem will occur.

(1) In a C++ program or the lang=cpp option is effective.

(2) Calls following functions with each (a)-(d) conditions and including math.h

(a) Calling the frexp(double, long*) function with the 2nd argument as 'int *' type.

And it is necessary that the 1st argument is float-type and the dbl_size=8 option is effective.

(b) Calling the ldexp(double, long) function with the 2nd argument as 'int *' type.

And it is necessary that the 1st argument is float-type and the dbl_size=8 option is effective.

(c) Calling the scalbn(double, long) function with the 2nd argument as 'int *' type.

And it is necessary that the 1st argument is float-type and the dbl_size=8 option is effective.

(d) Calling the remquo(double, double, long*) function with the 3rd argument as 'int *' type.

And it is necessary that the both 1st,2nd arguments are float-type and the dbl_size=8 option is effective.

Examples:

file.cpp:

```
// An example of it became an infinity-loop by C++ compiling.
#include <math.h>
double d1,d2;
int i;
void func(void)
{
    d2 = frexp(d1, &i);
}
```

Command Line:

```
ccrx -cpu=rx600 -output=src file.cpp
```

file.src: An example the generated assembly program

```
_func:
    ; ... (Omitted)
    ; Calling substitute function of frexp
    BSR __$frexp__tm__2_f__FZ1ZPi_Q2_21_Real_type__tm__4_Z1Z5_Type
    ; ... (Omitted)
```

```
__$frexp_tm_2_f_FZ1ZPi_Q2_21_Real_type_tm_4_Z1Z5_Type:
```

```
L11:
```

```
BRA L11 ; Calls itself ==> infinity-loop
```

Collections:

One of the following methods of (1),(2) and (3) can be used for solving the problem.

(1)To compile with setting the lang=c option.

(2)To change int or int * types into long or long *.

(3)To append following declarations of each function to use.

```
/* For the case of frexp function */
static inline double frexp(double x, int *y)
{ long v = *y; double d = frexp(x,&v); *y = v; return (d); }
/* For the case of ldexp function */
static inline double ldexp(double x, int y)
{ long v = y; double d = ldexp(x,v); return (d); }
/* For the case of scalbn function */
static inline double scalbn(double x, int y)
{ long v = y; double d = scalbn(x,v); return (d); }
/* For the case of remquo function */
static inline double remquo(double x, double y, int *z)
{ long v = *z; double d = remquo(x,y,&v); *z = v; return (d); }
```

An example of the method of (2):

Changed of file.cpp:

```
#include <math.h>
double d1,d2;
int i;
void func(void)
{
    long x = i; /* Accept as long type in temporary */
    d2 = frexp(d1, &x); /* Call with long type argument */
    i = x; /* Set result to the variable 'i' */
}
```

An example of the method of (3):

Changed of file.cpp:

```
#include <math.h>
/* Append declaration */
static inline double frexp(double x, int *y)
{ long v = *y; double d = frexp(x,&v); *y = v; return (d); }
```

```
double d1,d2;  
int i;  
void func(void)  
{  
    d2 = frexp(d1, &i);  
}
```

4.3 Restrictions about choosing 19.17 rule of MISRA-C:2004 in IDE

In the compiler option dialog of the CubeSuite+, please be careful not to choose the rule 19.17 of the MISRA-C:2004. This is because the rule 19.17, that is out of support, is incorrectly registered to this dialog.

If following message is displayed, it is because the 19.17 rule must be selected. If it so, please confirm the "apply" and "ignore" parameters in the MISRA-C:2004 complie option settings.

```
C6703 (F) Rule 19.17 is unsupported
```

Note:

Whenever this compiler compiles a code that violates this 19.17 rule, a syntax error will occur.

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