RENESAS Tool News

RENESAS TOOL NEWS [July 1, 2003: RSO-M3T-MR32R-030701D]

Notes on Using Real-Time OSes M3T-MR32R

Please take note of the following problems in using the M3T-MR32R real-time OSes for the M32R family MCUs:

- On using the vdel_mbx system call
- On executing system calls by using an assembler macro

---

1. Problem on Using vdel_mbx System Call

1.1 Versions Concerned

M3T-MR32R V.3.20 Release 1--V.3.40 Release 1

1.2 Description

The waiting state of a task that waits for receiving a message from a mailbox with priority may not be cleared.

1.3 Conditions

This problem occurs if the following five conditions are satisfied in this order:

(1) There exists a mailbox a property of which is TA_TPRI.

(2) A task is waiting for receiving a message from the mailbox in (1).

(3) The mailbox in (1) is deleted by the vdel_mbx system call.

(4) During the vdel_mbx system call's processing in (3), an interrupt request is generated and the ichg_pri system call is issued by the interrupt handler.

(5) The ichg_pri system call in (4) assigns higher priority to the task in (2).

1.4 Workaround

To circumvent this problem, disable any interrupt request until the vdel_mbx system call is complete; then enable it.

Example 1: Using the loc_cpu() and unl_cpu() system calls to disable and enable

interrupt requests

```
------------------------------------------------------------
  void task(stacd)
  {
              :
           loc_cpu();      /* Interrupt request disabled */
       ercd = vdel_mbx(ID_mbx);
           unl_cpu();      /* Interrupt request enabled */
             :
  }
------------------------------------------------------------
```

Example 2: Using asm functions to disable and enable interrupt requests

```
------------------------------------------------------------
  void int_handler(void)
  {
             :
        /* Interrupt request disabled */


          asm(" mvfc      R0,PSW¥n"
             " and3      R0,R0,#0xFFBF¥n"
             " mvtc      R0,PSW¥n");


       ercd = vdel_mbx(ID_mbx);

        /* Interrupt request enabled */
          asm(" mvfc      R0,PSW¥n"
             " or3       R0,R0,#0x0040¥n"
             " mvtc      R0,PSW¥n");
               :
  }
------------------------------------------------------------
```

1.5 Schedule of Fixing the Problem

This problem has already been fixed in M3T-MR32R V.3.50 Release 1.

2. Problem on Executing System Calls by Using an Assembler Macro

2.1 Versions Concerned

M3T-MR32R V.2.00 Release 1--V.3.40 Release 1

2.2 Description

If any of the system calls listed below * is executed using an assembler macro **, an assemble error occurs or no correct parameter is passed to the system call.

NOTES:

* The system calls involved vary according to the combinations of the versions of M3T-MR32R and compilers.

** In the M3T-MR32R, an assembler macro for executing system calls is defined to use system calls in assembly language.

System calls involved:

(a) M3T-MR32R V.3.20 Release 1--V.3.40 Release 1

Compilers		
M3T-CC32R	**M3T-TW32R**	**D-CC/M32R ***
ref_mbf,def_exc vrst_mbf	ref_mbf,def_exc vrst_mbf,irel_blf	ref_mbf,def_exc vrst_mbf,irel_blf tslp_tsk,iset_flg set_tim,get_tim get_ver

NOTE:

* The D-CC/M32R compiler, manufactured by Wind River Systems, Inc., can be used in combination with M3T-MR32R V.3.20 Release 1 or later.

(b) M3T-MR32R V.3.00 Release 1 and V.3.10 Release 1

Compilers	
M3T-CC32R	**M3T-TW32R**
ref_mbf,def_exc vrst_mbf,tslp_tsk tcal_por,tacp_por vrst_msg	ref_mbf,def_exc vrst_mbf,irel_blf tslp_tsk,tcal_por tacp_por,vrst_msg

(c) M3T-MR32R V.2.00 Release 1 and V.2.00 Release 2

Compilers	
M3T-CC32R	**M3T-TW32R**
snd_msg,isnd_msg	snd_msg,isnd_msg

Example of calling ref_mbf using an assembler macro:

```
----------------------------------------
  ; ref_mbf
     LD24    R2,#_rmbf
     ref_mbf 9
----------------------------------------
```

2.4 Workaround

Don't use an assembler macro to execute system calls; execute them by setting parameters in accordance with the descriptions in Chapter 3 "APPENDIX: Assembly Language Interface" of the M3T-MR32R Reference Manual.

Example of executing ref_mbf without using an macro

```
----------------------------------------
  ; ref_mbf
     LD24    R2,#_rmbf
     LDI     R1,#9
     LDI     R0,#TFN_REF_MBF
     TRAP    #8
----------------------------------------
```

2.5 Schedule of Fixing the Problem

This problem has already been fixed in M3T-MR32R V.3.50 Release 1.
