

A Note on Using the Real-Time OSes HI2000/3 and HI8-2600 (Discontinued Products), Which Are Used for the H8S MCU Family

Please take note of the following problem in using the real-time OSes HI2000/3 and HI8-2600*, which are used for the H8S MCU family (spare and repair parts only):

- With clearing an event flag waited for by two or more tasks

* These have been discontinued products.

1. Products and Versions Concerned

- (1) HI2000/3 V.1.03 Release 00 and earlier versions
- (2) HI8-2600 V2.0B and earlier versions

2. Descriptions

Any of the two or more tasks that are waiting for an event flag (consisting of 16 bits) to be set may not be released from their WAITING states even if the conditions for canceling these WAITING states are satisfied.

However, the unreleased tasks will exit from their WAITING states if other conditions for canceling them that are independent of the conditions described in Section 3 below are fulfilled.

3. Conditions

If the following conditions are all satisfied, the tasks that would be released from the WAITING states by the issuance of the set_flg or iset_flg service call in (3) below will not be done so in some cases:

- (1) Two or more tasks are waiting for an event flag F to be set to the value represented by the bit pattern that satisfies the conditions for canceling their WAITING states. This flag is hereafter called F.
- (2) The set_flg or iset_flg service call is issued to set F to the

value represented by the bit pattern that satisfy the conditions for canceling the WAITING states of any of tasks in (1).

(3) While the kernel is handling set_flg or iset_flg in (3), an interrupt is requested.

(4) The interrupt in (3) invokes the interrupt handler or cyclic handler, which performs any of the following processing:

- a. Issues iset_flg to set F to the value represented by the bit pattern in (1), and the task in (1) has specified TWF_CLR (clears all the F's bits to 0s if the WAITING states are canceled) as a waiting-mode parameter.
- b. Issues the ipol_flg service call that takes F as a flgid parameter and TWF_CLR as a waiting-mode parameter, and then ends it properly.
- c. Issues the iclr_flg service call to clear the bits in F that are included in those set in (2) and satisfy the conditions for canceling the WAITING states of the tasks in (1).

4. Workaround

Before and after issuing set_flg or iset_flg in Condition (3), change the level of the interrupt mask to that of the kernel interrupt mask as follows:

4.1 In HI2000/3

(1) If set_flg issued

```
UINT old_imask;  
ref_ims(&old_imask);  
chg_ims(1); /* Interrupt mask level changed to kernel interrupt  
            mask level (1 in this example) */  
iset_flg(...); /* As context is interpreted as non-task one while  
                interrupt is masked in product specifications,  
                set_flg is changed to iset_flg */  
chg_ims(old_imask); /* Interrupt mask level resumed */
```

(2) If iset_flg issued

```
UINT old_imask;  
ref_ims(&old_imask);  
chg_ims(1); /* Interrupt mask level changed to kernel interrupt  
            mask level (1 in this example) */  
iset_flg(...);  
chg_ims(old_imask); /* Interrupt mask level resumed */
```

4.2 In HI8-2600

(1) If set_flg issued

```
MASK old_imask;  
ims_sts(&old_imask);  
chg_ims(1); /* Interrupt mask level changed to kernel interrupt  
            mask level (1 in this example) */  
iset_flg(...); /* As context is interpreted as non-task one while  
                interrupt is masked in product specifications,  
                set_flg is changed to iset_flg */  
chg_ims(old_imask); /* Interrupt mask level resumed */
```

(2) If iset_flg issued

```
MASK old_imask;  
ims_sts(&old_imask);  
chg_ims(1); /* Interrupt mask level changed to kernel interrupt  
            mask level (1 in this example) */  
iset_flg(...);  
chg_ims(old_imask); /* Interrupt mask level resumed */
```

5. Schedule of Fixing the Problem

Sorry we have no plan to fix this problem because we have discontinued marketing of the products concerned. So please avoid the problem by using any of the methods described in Section 4 according to your cases.

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