RENESAS Tool News

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Note on Using Real-Time OS Products for SuperH Family

When using real-time OS products for the SuperH family of MCUs, take note of the following:

- Five precautions with typing the sizes of specified areas in the configurator

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1. Products and Versions Concerned

- HI7000/4 (for SH-2A, SH2A-FPU, SH-2, SH2-DSP, and SH-1)
  All the versions up to V.2.03 Release 01
- HI7700/4 (for SH4AL-DSP, SH3-DSP, and SH-3)
  All the versions up to V.2.04 Release 00
- HI7750/4 (for SH-4A and SH-4)
  All the versions up to V.2.03 Release 00

2. Description

There are precautions with typing sizes into the Total Size edit boxes of the following sections in the configurator:

Total size of dynamic stack area (CFG_TSKSTKSZ)
Total size of data queue area (CFG_DTQSZ)
Total size of message buffer area (CFG_MBFSZ)
Total size of fixed-size memory pool area (CFG_MPFSZ)
Total size of variable-size memory pool area (CFG_MPLSZ)

Those precautions are explained below.

2.1 Total size of dynamic stack area (CFG_TSKSTKSZ)

Type a size equal to or greater than the one given by the following expression into the Total Size edit box:

Σ (stksz + 16) + 28 (See NOTE 1.)

Otherwise, you may fail at creating a task.

NOTE 1.

The values of stksz are as follows:

(1) When creating a task with the configurator, use the value typed into the Stack Size edit box of the Creation of Task dialog box as that of stksz for the task.
If you click the Specify Address option button, you do not need to include a calculation for the task in the above expression.

(2) When creating a task with the cre_tsk, icre_tsk, acre_tsk, or iacre_tsk service call, use the value typed into T_CTSK.stksz as that of stksz for the task.
If you type any value except NULL into T_CTSK.stk, you do not need to include a calculation for the task in the above expression.

2.2 Total Size of Data Queue Areas (CFG_DTQSZ)

Type a size equal to or greater than the one given by the following expression into the Total Size edit box:

Σ (dtqcnt x 4 + 16) + 28 (See NOTE 2.)

Otherwise, you may fail at creating data queues.

NOTE 2.

(1) When creating a data queue with the configurator, use the value typed into the Number of Data edit box of the Creation of Data Queue dialog box as that of dtqcnt for the data queue.
If you type 0 into the Number of Data edit box, you do not need to include a calculation for the data queue in the above expression.

(2) When creating a data queue with the cre_dtq, icre_dtq, acre_dtq, or iacre_dtq service call, use the value typed into T_CDTQ.dtqcnt as that of dtqcnt for the data queue.
If you type 0 into T_CDTQ.dtqcnt, you do not need to include a calculation for the data queue in the above expression.

2.3 Total Size of Message Buffer Areas (CFG_MBFSZ)

Type a size equal to or greater than the one given by the following expression into the Total Size edit box:

Σ (mbfsz + 16) + 28 (See NOTE 3.)

Otherwise, you may fail at creating message buffers.

NOTE 3.

The values of mbfsz are as follows:

(1) When creating a message buffer with the configurator, use the value typed into the Size edit box of the Creation of Message Buffer dialog box as that of mbfsz for the message buffer.

If you type 0 into the Size edit box, you do not need to include a calculation for the message buffer in the above expression.

(2) When creating a message buffer with the cre_mbf, icre_mbf, acre_mbf, or iacre_mbf service call, use the value typed into T_CMBF.mbfsz as that of mbfsz for the message buffer.
If you type 0 into T_CMBF.mbfsz, you do not need to include a calculation for the message buffer in the above expression.

2.4 Total Size of Fixed-Size Memory Pool Areas (CFG_MPFSZ)

Type a size equal to or greater than the one given by the following expression into the Total Size edit box:

Σ (blksz x blkcnt + 16) + 28 (See NOTE 4.)

Otherwise, you may fail at creating fixed-sized memory pools.

NOTE 4.

The values of blksz and blkcnt are as follows:

(1) When creating a fixed-sized memory pool with the configurator, use the values typed into the Size and the Number of Blocks edit box of the Creation of the Fixed-size Memory Pool dialog box as those of blksz and blkcnt respectively for the fixed-sized memory pool.
If you click the Specify Address option button, you do not need to include a calculation for the fixed-sized memory pool in the above expression.

(2) When creating a fixed-sized memory pool with the cre_mpf, icre_mpf, acre_mpf, or iacre_mpf service call, use the values typed into T_CMPF.blksz and T_CMPF.blkcnt as those of blksz and blkcnt respectively for the fixed-sized memory pool.
If you type any value except NULL into T_CMPF.mpf, you do not need to include a calculation for the fixed-sized memory pool in the above expression.

2.5 Total Size of Variable-Sized Memory Pool Areas (CFG_MPLSZ)

Type a size equal to or greater than the one given by the following expression into the Total Size edit box:

Σ (mplsz + 16) + 28 (See NOTE 5.)

Otherwise, you may fail at creating variable-sized memory pools.

NOTE 5.

The values of mplsz are as follows:

(1) When creating a variable-sized memory pool with the configurator, use the value typed into the Size edit box of the Creation of Variable-size Memory Pool dialog box as that of mplsz for the variable-sized memory pool.
If you click the Specify Address option button, you do not need

to include a calculation for the variable-sized memory pool in the above expression.

(2) When creating a variable-sized memory pool with the cre_mpl, icre_mpl, acre_mpl, or iacre_mpl service call, use the value typed into T_CMPL.mplsz as that of mplsz for the variable-sized memory pool.
If you type any value except NULL into T_CMPL.mpl, you do not need to include a calculation for the variable-sized memory pool in the above expression.

3. Revision of Document

We have appended the above description to the following document:

Title: HI7000/4 Series Supplementary Information
Revision No.: Rev.1.02
Document No.: R20UT0478EJ0102

This revised document will be published on April 5, 2012, on the Web site at HERE.
