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Renesas Electronics Corporation

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Introducing I/O Script Sample Programs

1. Outline of I/O Script Sample Programs

Presented here are the I/O script samples that you can use to simulate the built-in devices of the 740 family (3800 group) of Mitsubishi microcomputers. Following sample programs are included:

1. INTO sample
2. Timer 1 sample
3. Timer X pulse output mode sample
4. Timer & event counter mode sample

These sample programs are detailed in Section 3, "Details of I/O Script Sample Programs."

2. Method for Using I/O Script Sample Programs

The I/O script sample programs are made usable by installing them in Simulator Debugger following the procedure described below. Before going on, note that the I/O script sample programs are stored in the directory shown below.

¥Tools¥Renesas¥DebugComp¥Platform¥PDTarget¥PD38SIM¥Samples

1. Start Simulator Debugger. Choose the MCU file "M38000.mcu" at startup.
2. Open the I/O Timing Setting window.
3. Choose LOAD menu from the I/O Timing Setting window. When this menu is selected, a file selection dialog box appears.
4. In this dialog box, choose the I/O script sample programs you want to be set up in Simulator Debugger.

3.Details of I/O Script Sample Programs

3.1.INT0 Interrupt (Edge Interrupt) Sample Program (int0.scr)

This sample program simulates the operation of edge interrupts.

[Operation]

1. The program monitors edges on the INT0 (P4 bit 2) pin. When a falling edge (rising edge) on this pin is detected, it generates an INT0 interrupt.

3.2.Timer 1 (Timer Mode) Sample Program (timer1.scr)

This sample program simulates the operation of timer 1.

[Timer function]

Count source: 16 cycles comprise one count.

[Operation]

1. When the program is executed, it generates a timer 1 interrupt after an elapse of the time (cycles) that have been set in Timer 1 Register and Prescaler 12 Register.
At the same time, the timer 1 interrupt request bit is set.
2. When the interrupt is accepted, the timer A0 interrupt request bit is cleared.

[Differences with the actual chip]

1. The contents of Timer 1 Register and Prescaler 12 Register are not modified.
->The values of Timer 1 Latch Register and Prescaler 12 Latch Register are displayed. (Depending on how the I/O script is written, the contents of Timer 1 Register and Prescaler 12 Register can be simulated.)
2. Even when the timer 1 interrupt request bit is cleared to 0 in a program, the timer interrupt request cannot be canceled.

3.3.Timer X (when Pulse Output Mode Selected) Sample Program (timerXcntr0out.scr)

This sample program simulates the operation of timer X in pulse output mode.

[Timer function]

Count source: 16 cycles comprise one count.

Pulse output function: Output to CNTR0 (P5 bit 4)

[Operation]

1. When various settings are made for timer X pulse output mode and the timer X count stop bit is cleared, a timer X interrupt is generated after an elapse of the time (cycles) that have been set in Timer X Register and Prescaler X Register.

Also, the output on the CNTR0 pin is inverted.

[Differences with the actual chip]

1. The contents of Timer X Register and Prescaler X Register are not modified.
->The values of Timer X Latch Register and Prescaler X Latch Register are displayed.
2. The interrupt request bit is either set nor cleared. (It is possible to simulate the interrupt request bit in the same way as in 3.2, "Timer 1 (Timer Mode) Sample Program (timer1.scr).")
3. When the timer is made to stop by the timer X count stop bit, it actually does not stop until after a timer underflow being measured occurs (after interrupt generation).

3.4.Timer Y (Event Counter Mode) Sample Program (timerXcntr1ev.scr)

This sample program simulates the operation of timer Y in event counter mode.

[Timer function]

Count source: Edge input to CNTR0 (P5 bit 5)

[Operation]

1. When various settings are made for timer Y event counter mode and the timer Y count stop bit is cleared, a timer Y interrupt is generated after events have been input to CNTR1 as many times set in Timer Y Register and Prescaler Y Register.

[Differences with the actual chip]

1. If the values of Timer Y Register and Prescaler Y Register are modified in a program, the modified values are used immediately for Timer Y Register and Prescaler Y Register.
->In the actual chip, the modified values are not used immediately; they are held in the latch registers.
2. The contents of Timer Y Register and Prescaler Y Register are not modified.
->The values of Timer Y Latch Register and Prescaler Y Latch Register are displayed.
3. The interrupt request bit is either set nor cleared. (It is possible to simulate the interrupt request bit in the same way as in 3.2, "Timer 1 (Timer Mode) Sample Program (timer1.scr).")