

# ECE 265

## Computer Problem #4

In the previous computer problem, the `CHANGE_TEMP` feature was implemented through polling. In this computer problem, it will be converted so that it is implemented through an interrupt. This insures a faster response when the `CHANGE_TEMP` pushbutton is depressed.

Complete the following in order to set up the `CHANGE_TEMP` interrupt:

1. *Initialization:* in the `MAIN` section of the program, add instructions to enable interrupts on the rising edge of `STRA` (`CHANGE_TEMP`). Also, enable interrupts on `IRQ`.
2. *Remove polling:* remove polling of `STRA` by eliminating the `JSR UP_DOWN` instruction in the main `LOOP`.
3. *Interrupt service routine:* convert the `UP_DOWN` subroutine to an interrupt service routine.
4. *Interrupt vector:* set up the `IRQ` interrupt vector.

To test your program, you may want to single-step through your program to be sure that the M68HC11 is immediately responsive to the interrupt invoked on a rising edge of `STRA` (`CHANGE_TEMP`).

After you have successfully written and tested the program to produce the desired results, then upload the assembly language program (`pht4.asm`) to the *Computer Problem #4* dropbox on Carmen. Also, print copies of the following two pages and turn them in during class on the due date:

1. `pht4.LST`
2. `THRSim11 IO Box Window`

The `THRSim11 IO Box Window` should show some typical results. Only one hardcopy of the program and results needs to be turned in for each group, but each person should upload `pht4.asm` through their Carmen account.