

Bus and lcd module interfacing 15338

[Technology](#), [Computer](#)



Introduction In this lab we learned how to use two different sources to control an LCD module. The two sources were both hooked to the LCD at the same time. An enable line was used to choose which source the LCD received the information from.

Design Description Our first step in this design was to derive the equations for the counter. Information was to be sent from the computer to the PAL through a buffer. The PAL contained the equations to control the LCD module. The outputs of the PAL were connected to LCD inputs. The strobe output from the parallel port buffer was also connected to the PAL. Another input, which was connected to either ground or Vcc, was connected to the PAL. Along with the strobe input and the clock, it controlled the enable line of the LCD. A D flip-flop was used to control the busy line of the parallel port. The strobe line from the parallel port was connected to this input. The Q-bar output of the flip-flop was then connected to the busy line of the parallel port.

Results and Deviations

Our first step when we got to lab was to program the PAL. Once this was done we hooked up our circuit. First we tested the circuit with the computer as the input. This worked fine. We then set the enable lines so that the flash memory was our source of input. When we turn the circuit on there was no result. We checked the inputs and the enable lines and everything was hooked correctly. We then checked the PAL chip and found that there was an error when we programmed the chip. We changed chips and programmed our new PAL. We hooked the chip to the circuit and tested it. We received the correct message on the LCD, so the circuit worked.

Conclusions We can conclude from the lab that we can simultaneously use two separate sources of input to control one interface. This information is obviously useful for other

designs. We can use this when connecting devices to the parallel ports of a computer. Using the information from this lab, we could choose which of the devices sent information to the computer and when the computer received it.