ELT220

Data Transfer Using Shift Registers Experiment

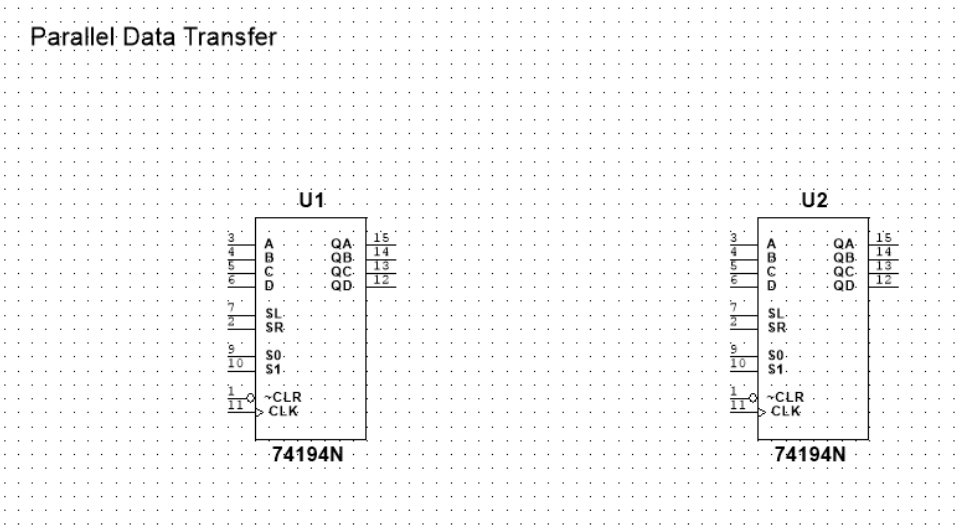
Objectives:

Using two 74194 shift registers the students will design and build a parallel data transfer system and a serial data transfer system.

Procedure:

1. Using the data sheets for the 74194 determine what connections must be made to allow a four-bit data value to be parallel transferred from one 74194 to a second 74194. Record each step of your design in your lab notebook.

2. Complete the wiring diagram based on your results from step 1. Use one analog discovery for connections to each of the 74194 IC to provide switches and data indicators as necessary. Be sure to indicate which switches, indicators etc will be used on the Analog Discovery. It would be advisable to label the send and receive indicators differently. For example label the sent data indicators SD0-SD3 and the received data indicators RD0-RD3.



3. Determine the order in which the control signals, clock, etc. must occur in order to clear each register and then transfer the data. Create a step-by step sequence that you will follow in testing your design.

4. Using your wiring diagram construct the circuit you designed.

5. Using your sequence test your system and determine if the data has successfully transferred. If your design did not work troubleshoot the circuit and determine why you think it didn't work and make the appropriate corrections. Repeat until your system is working correctly. *Be sure to log what corrections had to be made as you went through the troubleshooting process!*

6. Once your system is working and you have screen capture of the system operation have your instructor verify it's operation and initial.

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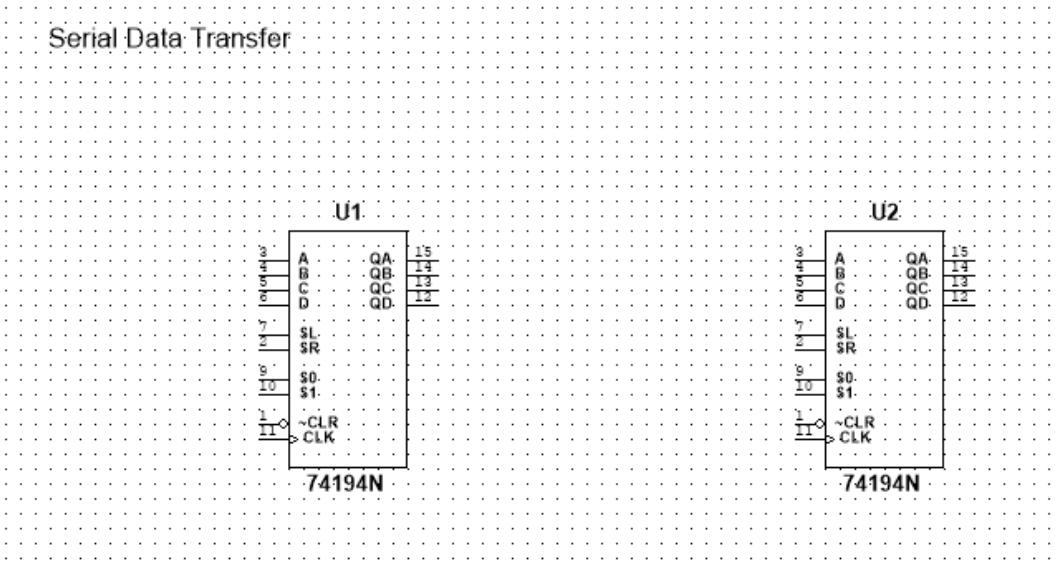
7. Repeat steps 1-6, designing a system that will transfer data via a serial connection.



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