

Class:	CPE100L - 1002		Semester:	Spring 2020
Points		Document author:	Kristy Nguyen	
		Author's email:	nguyek20@unlv.nevada.edu	
		Document topic:	Postlab 7	
Instructor's comments:				

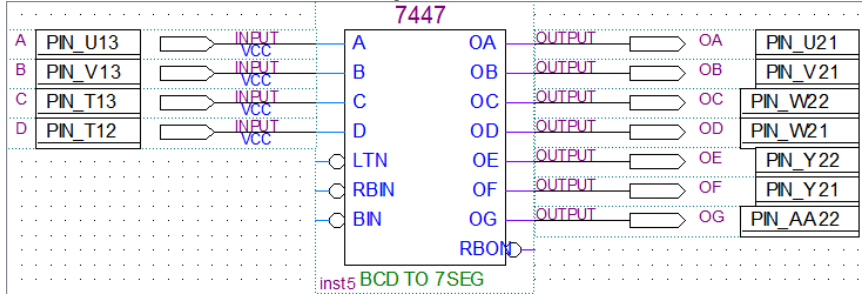
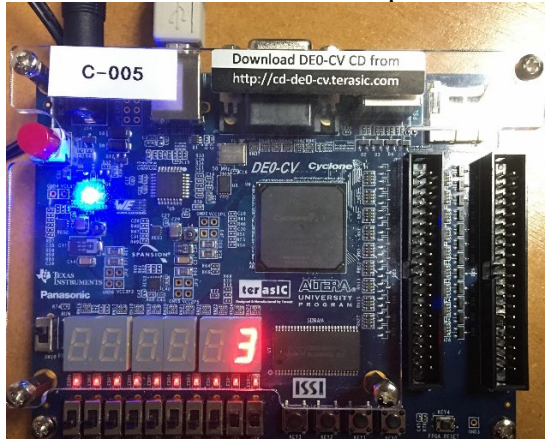
1. Introduction / Theory of Operation

Lab 7 is about 2-bit ALU and 7-segment display, where we design 1-bit and 2-bit arithmetic logic units and implement the circuits on the DE2 board. We will also learn how to use DE2's 7-segment display.

2. Prelab Report

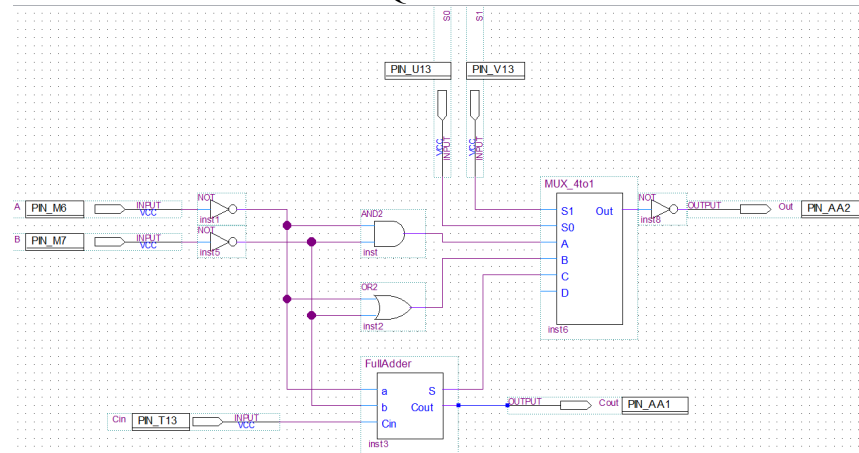
My prelab report will be attached with the submission.

3. Results of the Experiments

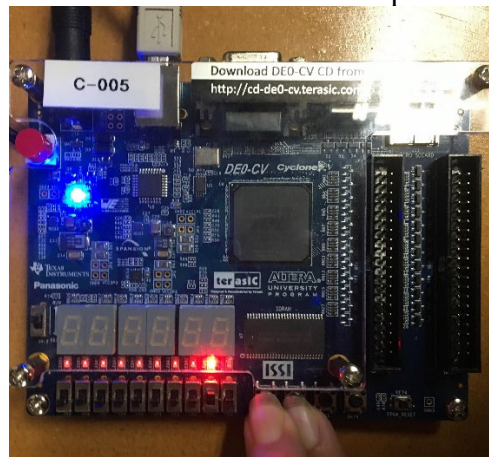
Experiment	Experiment Results
1	<p>a. Schematic created in Quartus</p>  <p>b. Picture of schematic operation</p> 

2

a. Schematic created in Quartus

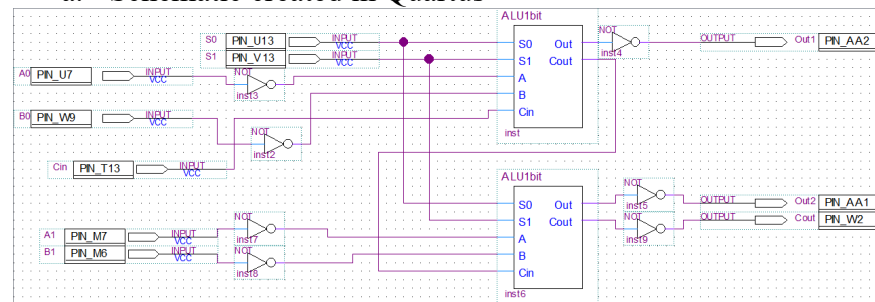


b. Picture of schematic operation

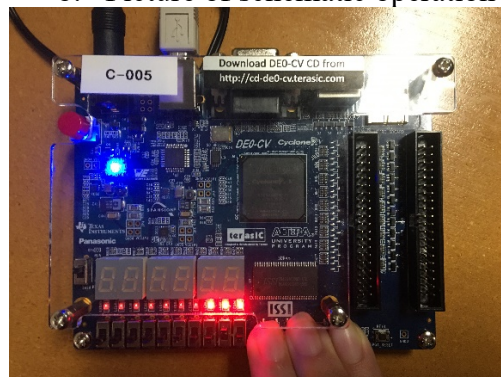


3

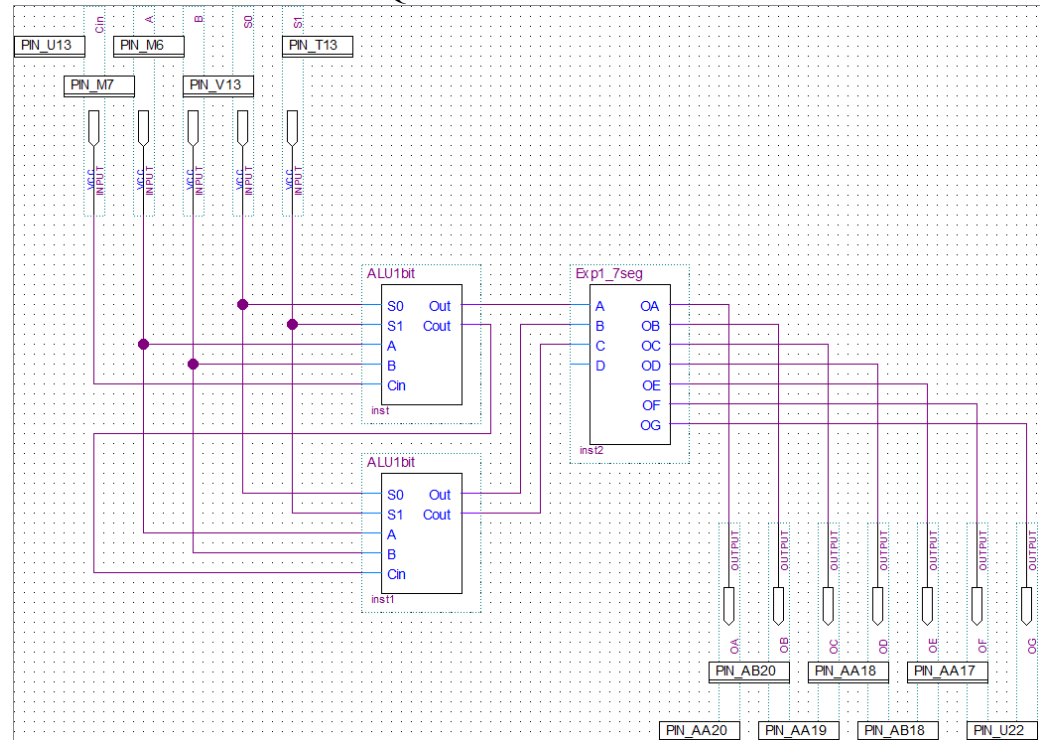
a. Schematic created in Quartus



b. Picture of schematic operation



a. Schematic created in Quartus



b. Picture of schematic operation

In regards to the schematic operation, due to the corona virus incident, me and my partner (Isabella Capriotti), we decided to do the best that we could and simply upload the schematic that we have. I decided to assign the pins in the pin planner in order to attempt the process to see if that would be how to show the experiment.

4. Answer the questions

1. Table 1 shows a common anode display, where displaying numerals from 0-9 requires enabling logical high wherever there is a 0 for each respective input.
2. In a 1-bit ALU, 00 represents SUM, 10 represents AND, 01 represents OR, and 11 represents XOR. In a 2-bit ALU, the operations are the same, but with more inputs.

5. Conclusions

In this lab, we learned how to implement the 1-bit ALU and 2-bit ALU on the DE0 board. We realized that the 2-bit ALU is simply two 1-bit ALUs, but it was slightly more difficult to demonstrate the 2-bit ALU because we did not remove the inverters on the 1-bit ALU schematic so the 2-bit ALU was being inverted twice for the inputs. Thankfully, due to the TA's understanding, we managed to successfully demonstrate the 2-bit ALU. We learned that different selectors for S0 and S1 allows the ALU to perform different operations such as sum, and, or, and xor.

