Lab 9 Design a Simple 8-Bit ALU

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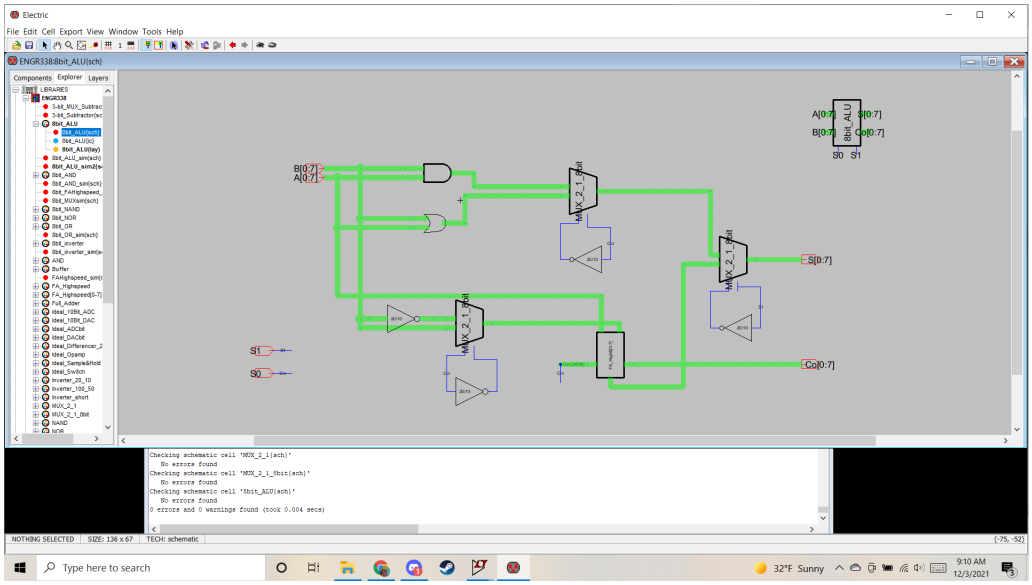
1 Introduction

ALU stands for Arithmetic Logic Unit. This device is designed to add and subtract parallel bit sequences. ALUs are required for most circuits and in of themselves, basic calculators.

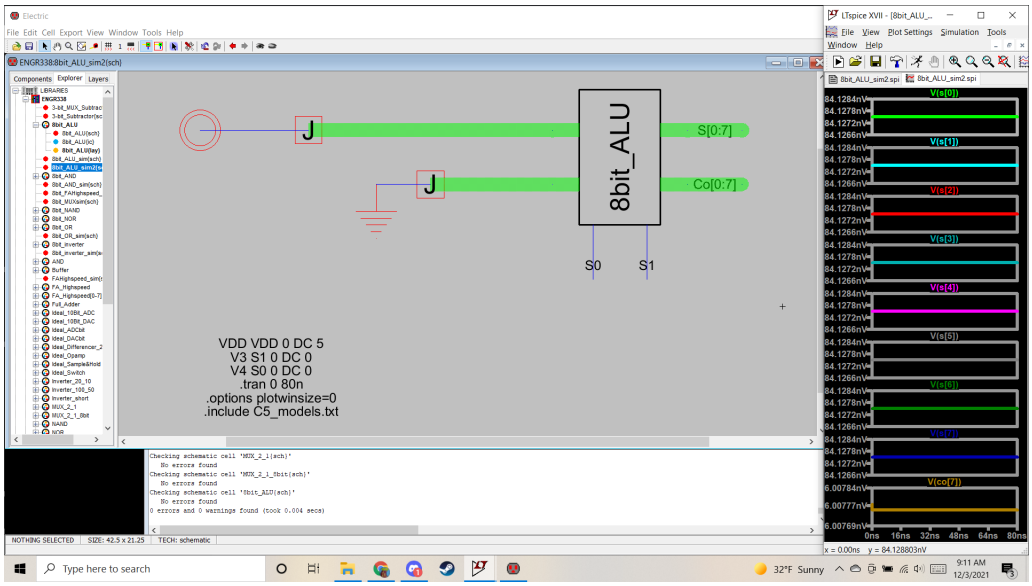
2 Materials and Methods

The tutorial for making this example in ElectricVLSI are found in /urlhttp://www.yilectronics.com/Courses/EN

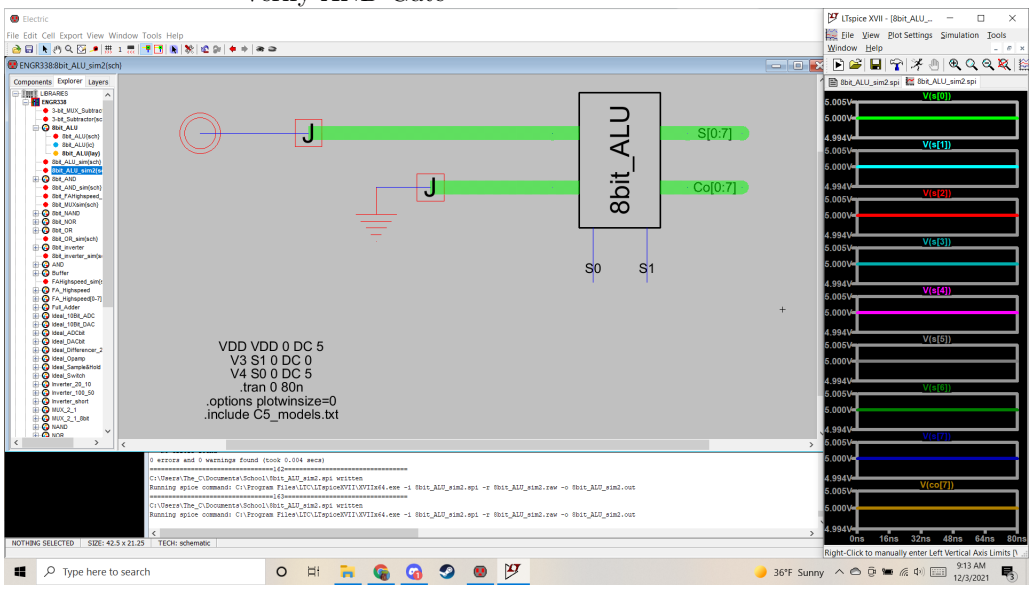
3 Results



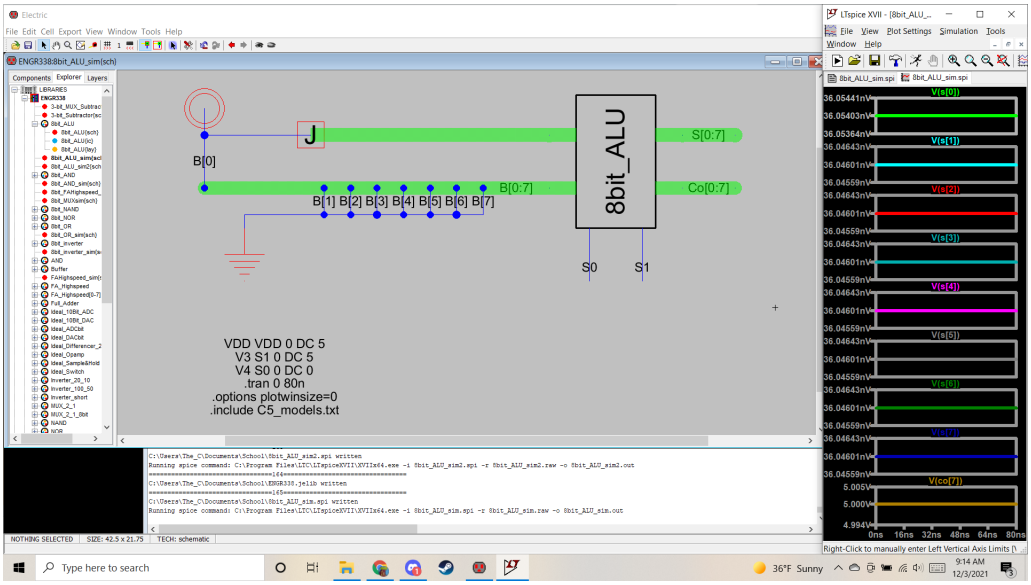
ALU Schematic



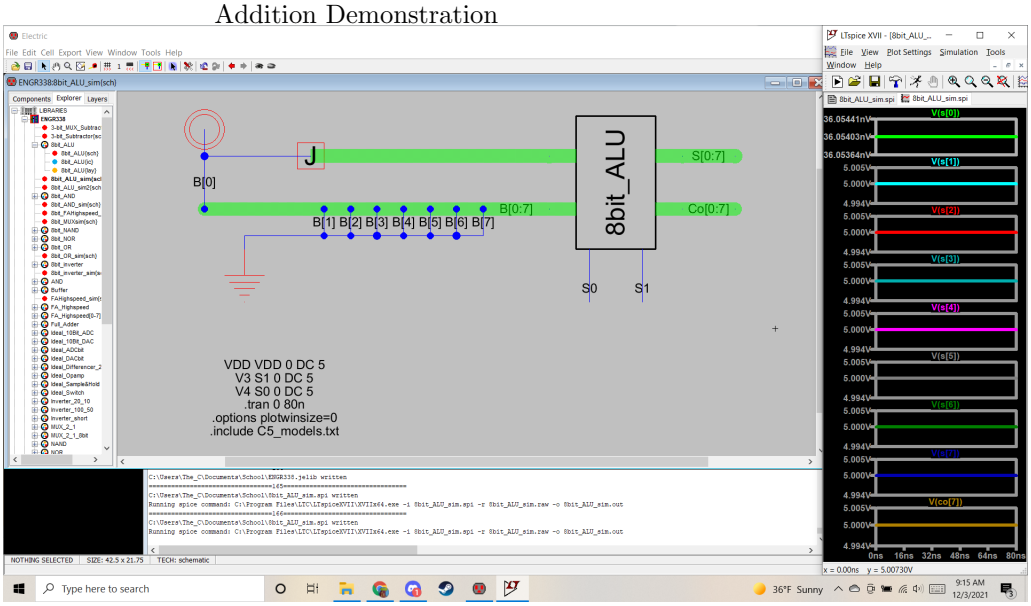
Verify AND Gate



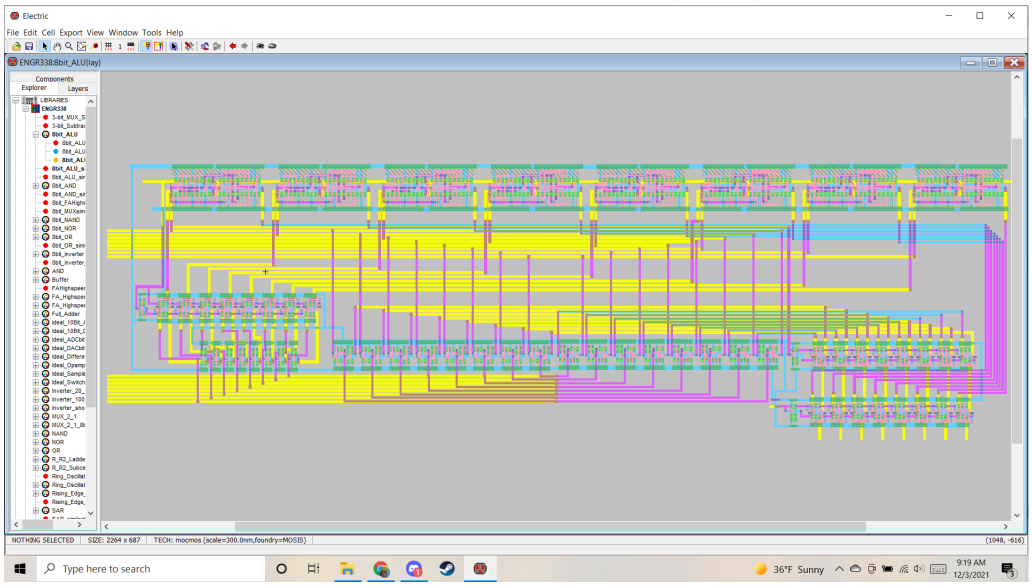
Verify OR Gate



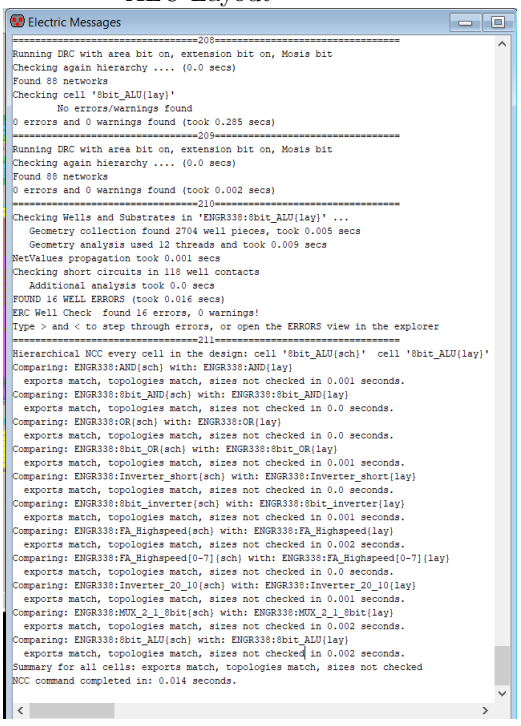
Addition Demonstration



Subtraction Demonstration



ALU Layout



Error Check

4 Discussion

The functionality of the ALU works great, however the DRC has 16 errors because the inverters with the AND and OR gates have 1 error. This error is "No P-Well contact in this area" on the NMOS side. I have tried everything to try and resolve this error, but no matter how much more pure P-Well-Nodes I add or how many times I rebuild it, I get the same error. Other than that one error, everything else worked great and the error messages that were not included in the previous labs were resolved here