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Lab 4 Writeup

Code hierarchy:

```
        Nbit_ALU_Register
       /                 \
Nbit_ALU              Nbit_Register
   |                      |
bitSlice                 dff
   |
  FA
```
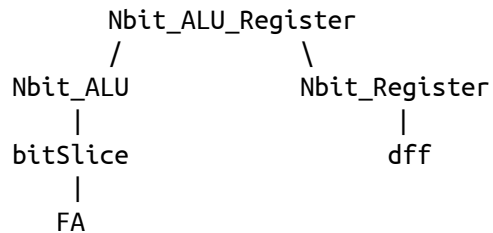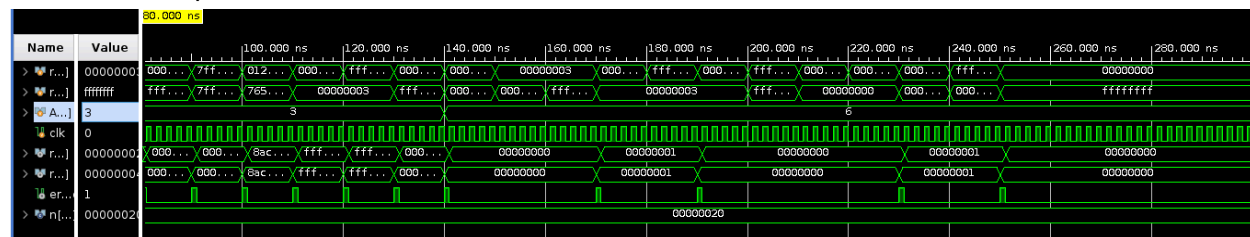
Waveform screenshots: testbench for Nbit_ALU_Register (Nbit_ALU_tb)
MOV, NOT, OR, AND, and ADD operations
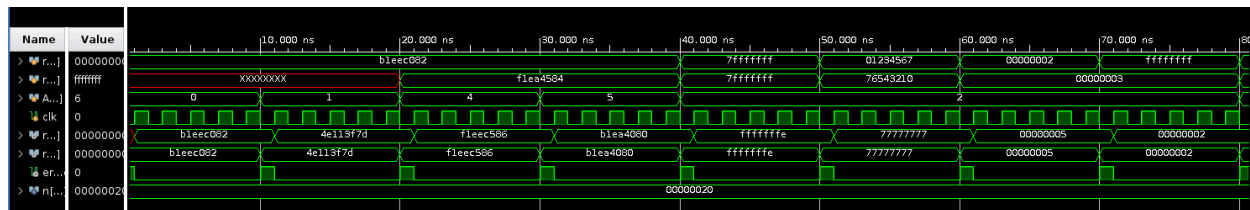
SUB and SLT operations

Module Descriptions:

FA
Full Adder

bitSlice
A 1-bit ALU which performs MOV, NOT, AND, OR, ADD, SUB, and SLT operations on 2 1-bit
inputs and selected the appropriate output based on an operation code ALUop using a
3-bit MUX

Nbit_ALU
Generates n many bitSlice blocks which work together to perform the same operations
on any given amount of bits based on the given parameter

dff
D flip-flop; catches input and stores in a register

Nbit_Register
Generates n many dffs to store any given amount of bits into a register, based on the given parameter

Nbit_ALU_Register
Combines Nbit_ALU and Nbit_Register to perform operation on 2 inputs of a given size and store the result in a register.