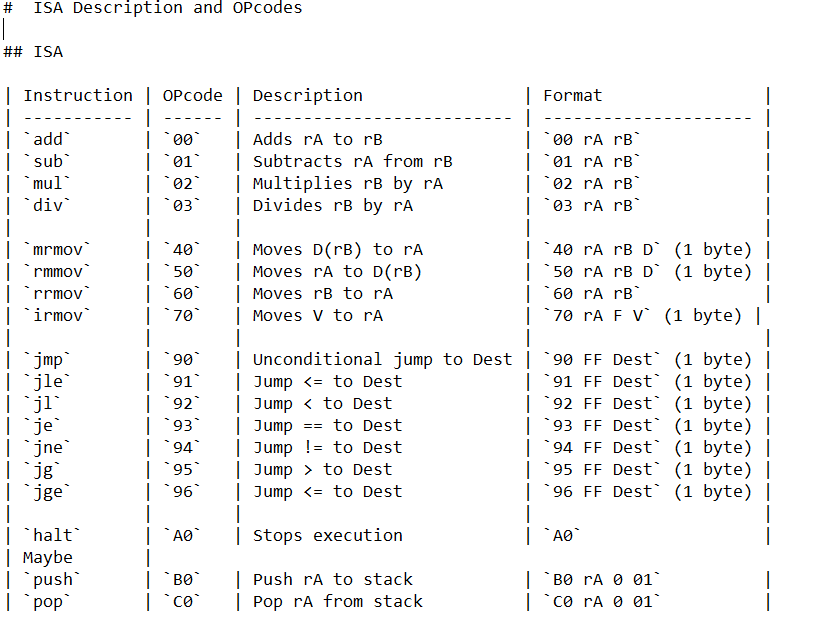
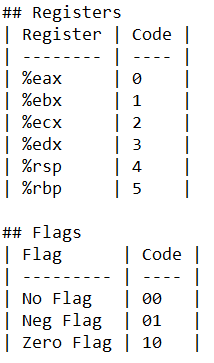
Group 19

Final Project Report

Problem 1)





Problem 2)

The assumptions for Matrix A, B, and C are that they are all 2x2 matrices. The corresponding values from the first value in matrix A and B should be added to produce the first value in matrix C. Continue this for the other 3 values. This produces matrix C. Eax holds the value of matrix A and is added to ebx which holds the matrix B value. The resulting ebx value is pushed for the corresponding matrix C value.

Main:

#\*\*\*\*\*\*\*Setting up base and stack pointer, filling stack

# with matrix values \*\*\*\*\*\*\*\*\*\*\*

irmovl $0xFC, %esp

irmovl $0xFE, %ebp

irmovl $0x05, %eax

pushl %eax

irmovl $0x02, %eax

pushl %eax

irmovl $0x04, %eax

pushl %eax

irmovl $0x03, %eax

pushl %eax

irmovl $0x01, %eax

pushl %eax

irmovl $0x07, %eax

pushl %eax

irmovl $0x09, %eax

pushl %eax

irmovl $0x02, %eax

pushl %eax

#Add first element and push to stack

irmovl $0xF8, %ecx

mrmovl (%ecx), %eax

irmovl $0xe8, %ecx

mrmovl (%ecx), %ebx

addl %eax, %ebx

pushl %ebx

#Add second element and push to stack

irmovl $0xF4, %ecx

mrmovl (%ecx), %eax

irmovl $0xe4, %ecx

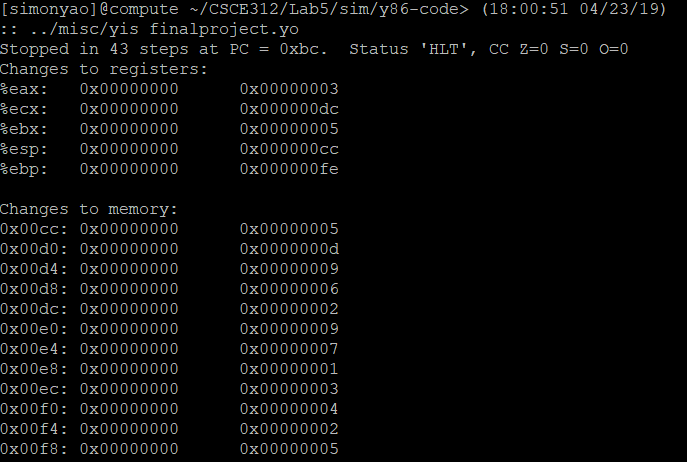
mrmovl (%ecx), %ebx

addl %eax, %ebx

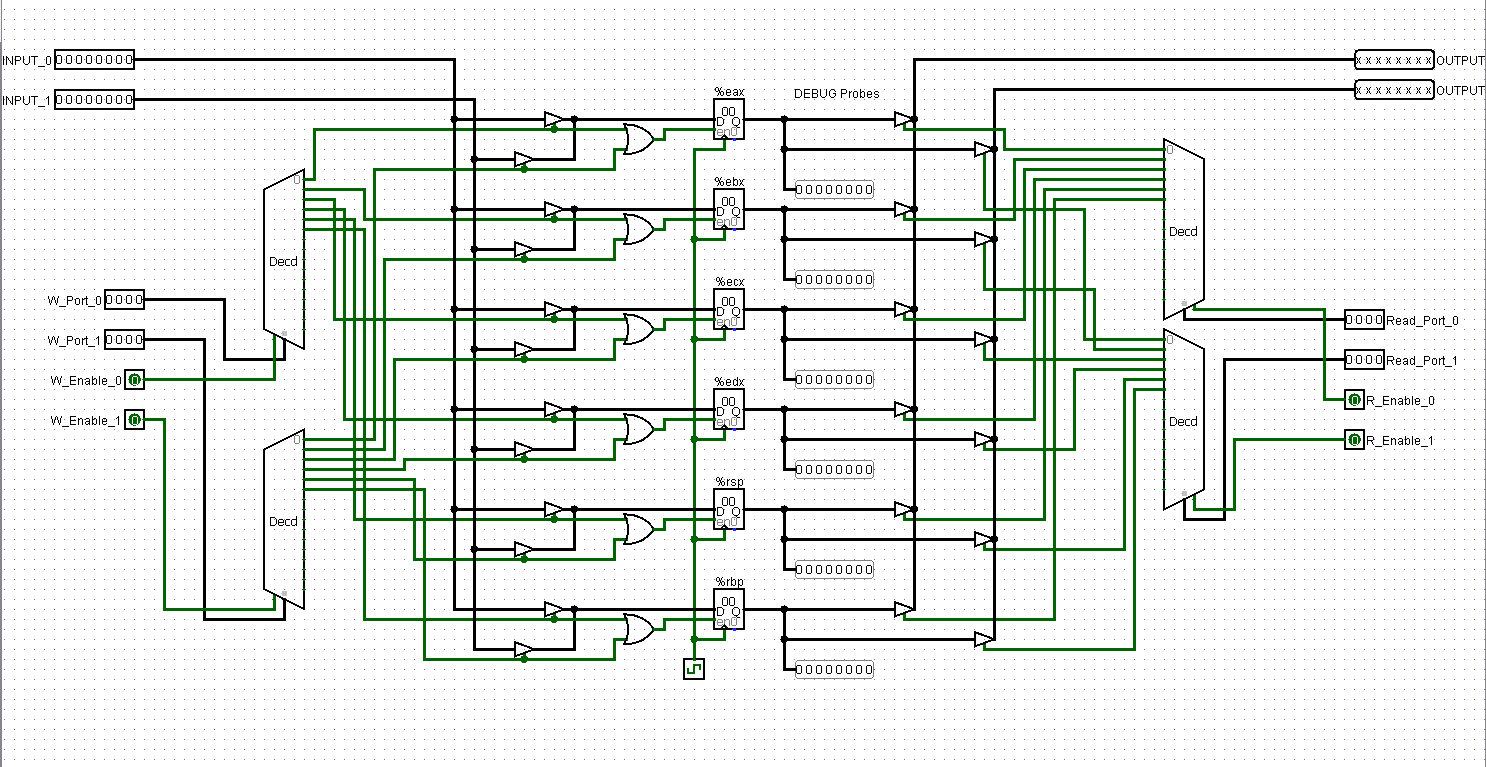
pushl %ebx

#Add third element and push to stack

irmovl $0xF0, %ecx

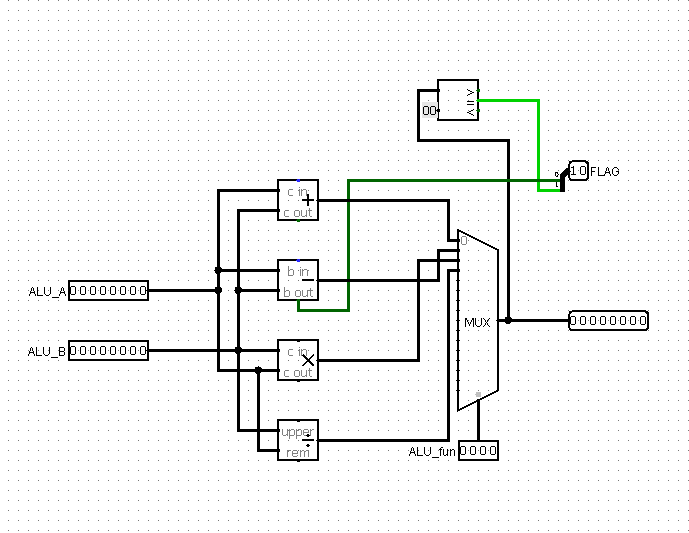


Register File:



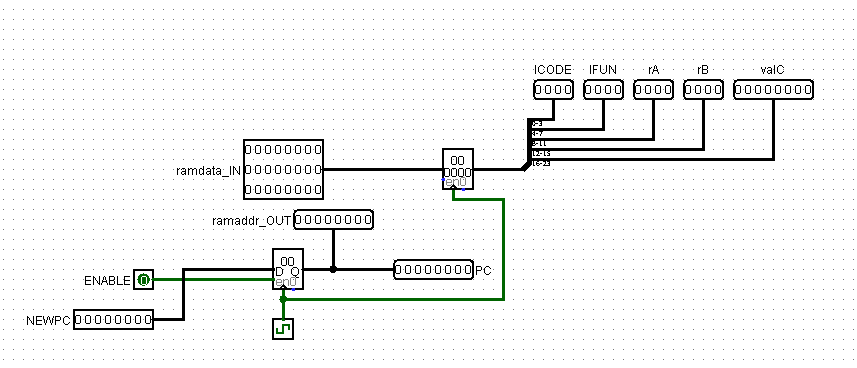
The register file is responsible for storing and updating register values. The 2 input and output values correspond to the 2 matrix values being operated on. The ports determine which register to use. The enable lines determine whether to read from or write to a register. The output will be the values read from the registers.

ALU:



The ALU is in for adding, subtracting, dividing, or multiplying the values inside the matrices corresponding to the ALU\_A and ALU\_B values. The result of the operation is the output. The mux enable determines which operation will be done. The flag is for checking whether or not a jump instruction will be completed. 01 represents negative or less than , 00 represents equal to, and 10 represents positive or greater than.

Instruction Memory:



Data memory: