North South University

Department of Electrical & Computer Engineering

LAB REPORT

Course Name: **CSE332L- Computer Organization and Architecture Lab**

Experiment Number: 05

Experiment Name: Design of a register file

Experiment Date: 21.11.21

Report Submission Date: 21.11.21

Section: 07

Group Number:

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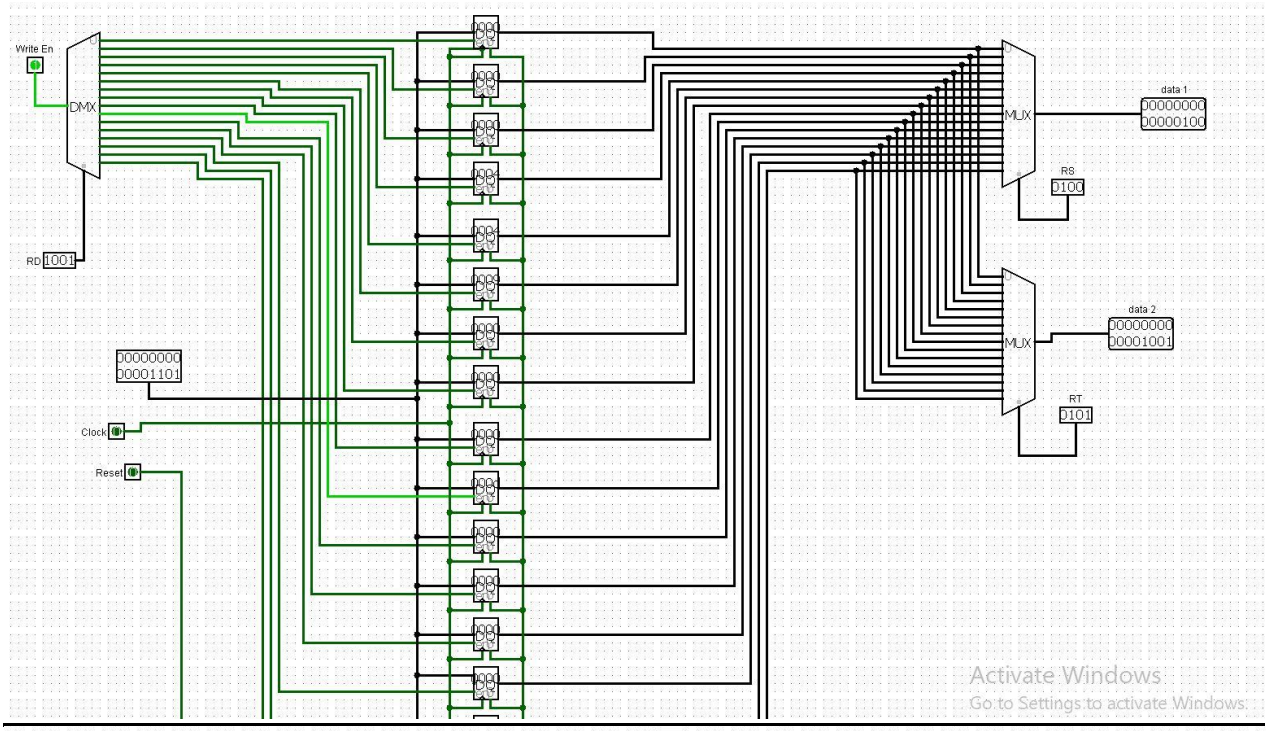
Remarks:	

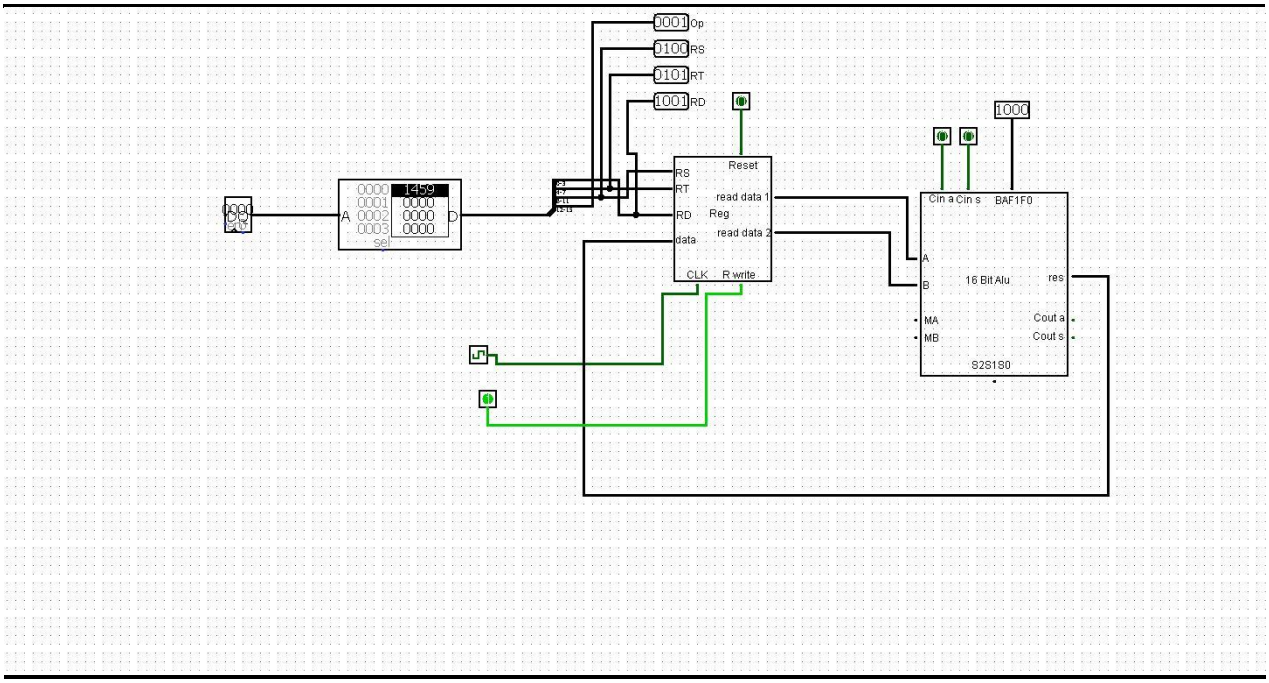
Exp Name: Design of a register file

Objectives:

We will have following objectives to fulfill:
1) Design a register file that is 16 bit wide. Label properly the inputs/outputs/selections .
2) Design the interfacing for reading data from any of those registers.
3) Design the interfacing for writing data to any of those registers. Make sure it has the write control signal.

Circuit Diagrams:


Write En
DMX
RD
1001
00000000
00001101
Clock
Reset
MUX
data 1
00000100
RS
0100
MUX
data 2
00000000
00001001
RT
0101
Activate Windows
Go to Settings to activate Windows.


0001 Op
0100 RS
0101 RT
1001 RD
1000
Reset
RS
RT
RD
data
read data 1
Reg
read data 2
CLK
R write
A
1459
D
sel
Cin a Cin s
BAF1F0
A
B
16 Bit Alu
res
MA
MB
Cout a
Cout s
S2S1S0

Discussion:

In this expriment,i gather knowledge about design of a register file.Firstly,I take D-mux which has write enable and RD is the part of register.Then,I take 16 register which is connected by enable pin with D-mux.In register,there is two more button for reset and clock.Then I take,two mux for reading data 1 nad 2 and two selector RS and RT which is mainly the part of resgister.

Then I take another file .Then I take a Rom and register for controling the register read and write which consist of OP,RS,RT,RD.Then I take the ic of register file .Then I connect everything like RS,RT,RD. After that I take the ic of 16 bit Alu from my project then I connect the result of Alu with the data input of register file which is used for writing.By the help of clock plus ,I can write the data in register file.

During the experiment,I face a problem,like my circuit output is showing wrong output .By the help of my lab instructor ,I solve the problem.Then I do the all thing successfully.