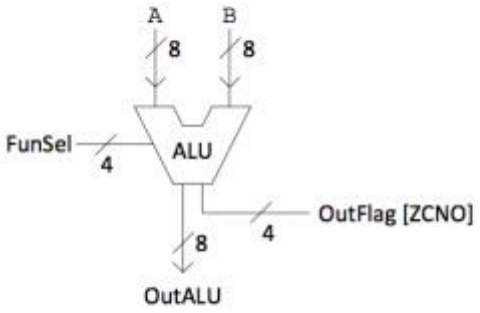
BLG222E
Computer Organization
Project 2

Group Number: 37
Group Members:

1 - 150150729 Elif Nur Hasgül (hasgule15@itu.edu.tr)
2 - 150140055 İsmail Salih Namdar (namdari@itu.edu.tr)
3 - 150150151 İsmet Ata Yardımcı (yardimci15@itu.edu.tr)
4 - 150140032 Kadir Emre Oto (otok@itu.edu.tr)

1 INTRODUCTION

We designed a 8-bit input and 8-bit output Arithmetic Logic Unit which performs some arithmetic, logic and shifting operations with a register in this project according to the Figure 1.



FunSel	OutALU	Z	C	N	O
0000	A	√	–	√	–
0001	A + B	√	√	√	√
0010	A + B + Carry	√	√	√	√
0011	A - B	√	√	√	√
0100	A AND B	√	–	√	–
0101	A OR B	√	–	√	–
0110	NOT A	√	–	√	–
0111	A XOR B	√	–	√	–
1000	LSL A	√	√	√	–
1001	LSR A	√	–	√	–
1010	ASL A	√	–	√	√
1011	ASR A	√	–	–	√
1100	CSL A	√	√	√	√
1101	CSR A	√	√	√	√
1110	B	√	–	√	–
1111	NOT B	√	–	√	–

Figure 1: The ALU (Left) and its characteristic table (Right)

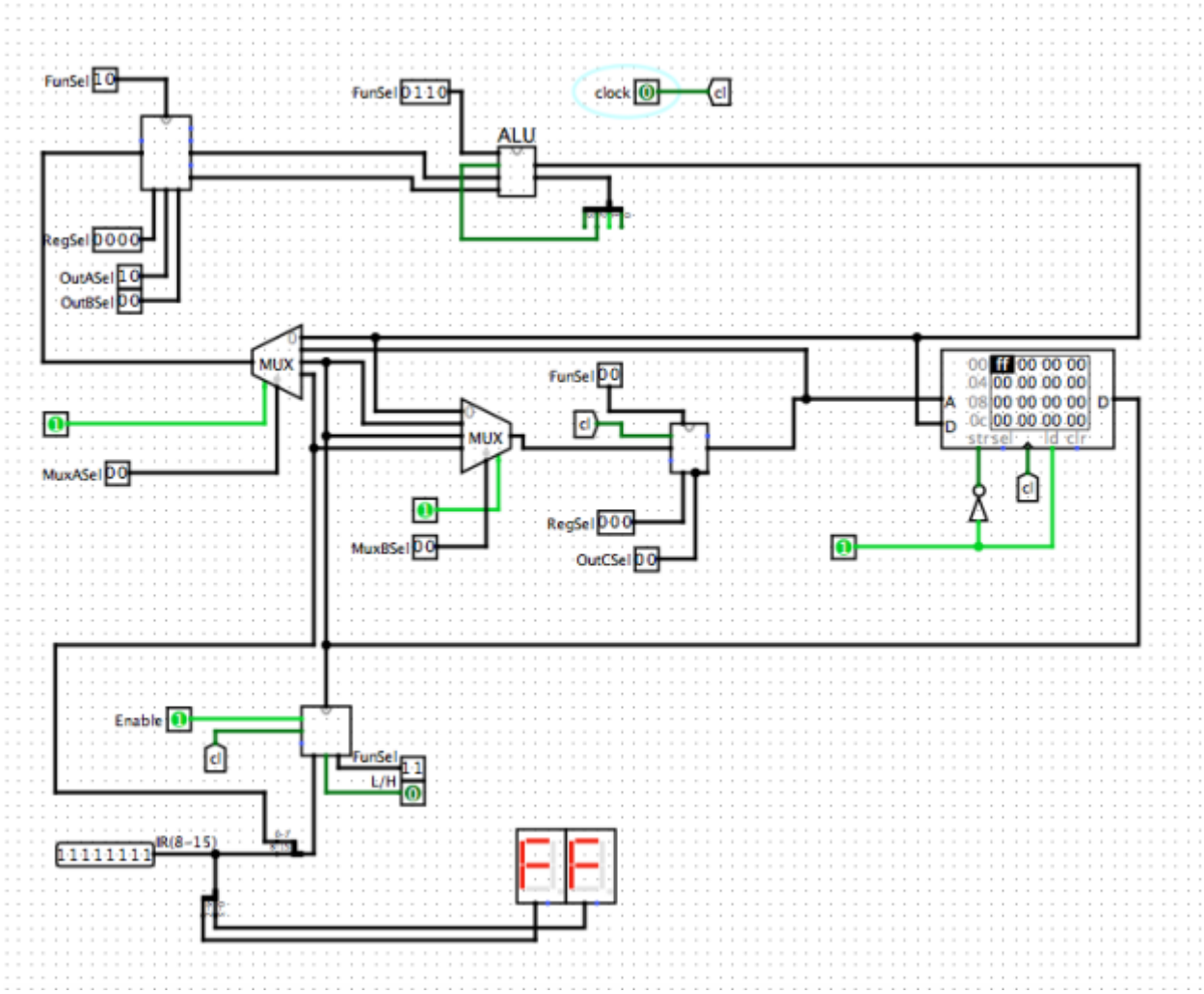
Then we designed an ALU System implementation according to this table.

MuxASel	MuxAOut
00	OutALU
01	Address
10	Memory Output
11	IROut (0-7)

MuxBSel	MuxBOut
00	OutALU
01	ϕ
10	Memory Output
11	IROut (0-7)

2 CONCLUSION

Those are our final circuits.



8 Bit - ALU