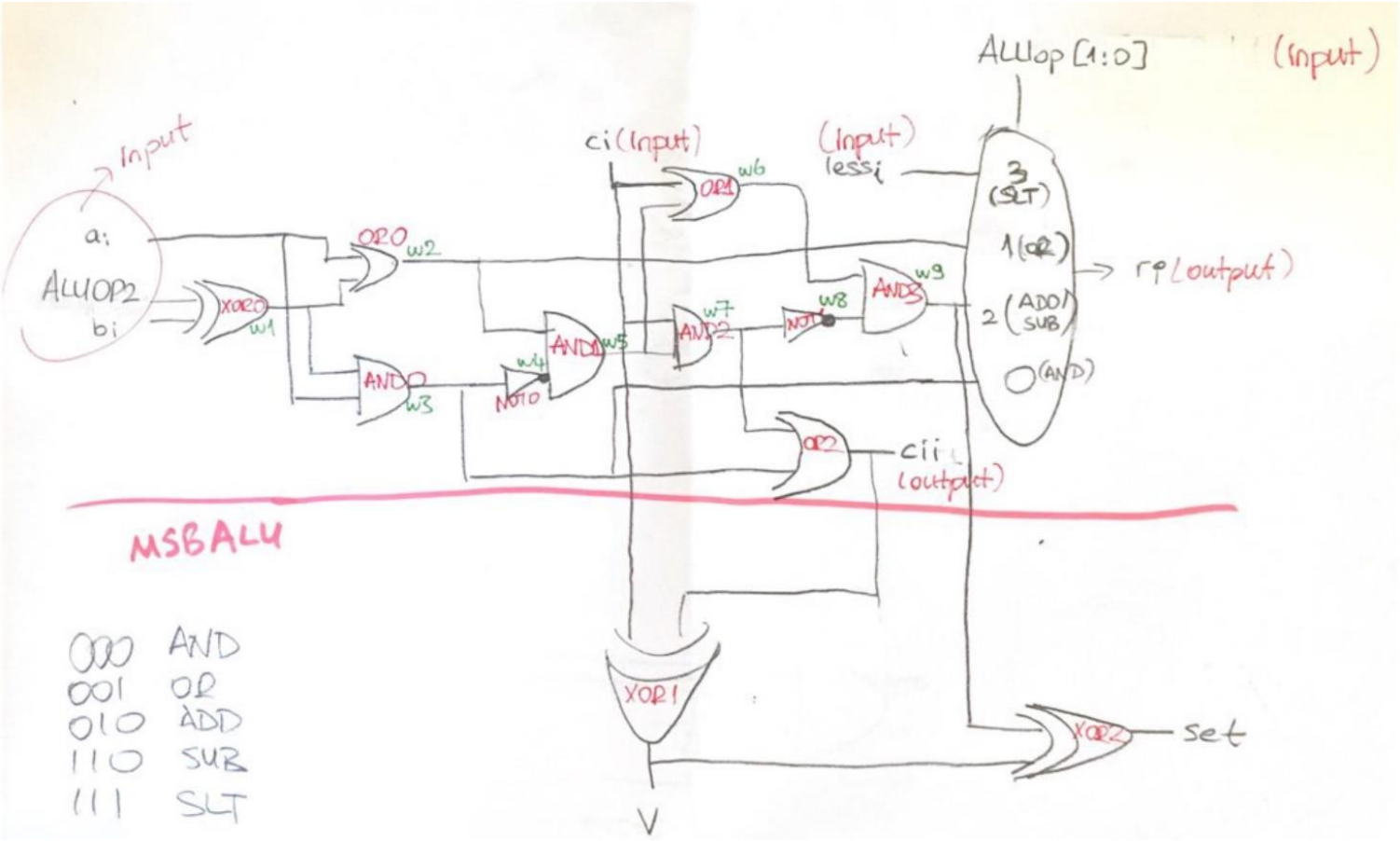
CSE331 COMPUTER ORGANIZATION HW2 REPORT

- I designed my_xor (xor) using 2 not gates, 2 and gates and 1 or gate.
- I designed 2x1 mux using 1 not gate, 2 and gates and 1 or gate.
- I designed 4x1 mux using 3 2x1 muxes.
- I designed alu using 1 my_xor gate, 4 and gates, 3 or gates, 2 not gates, 1 4x1 mux.
- I designed aluMSB using 3 my_xor gate, 4 and gates, 3 or gates, 2 not gates, 1 4x1 mux.
- I designed alu32 using 31 alus, 1 aluMSB.



I tried to show my alu and aluMSB design above so that you can understand the whole verilog code.

Testbench results:

```
# time =  0: 01100000000000000000000000000000 AND 00000000011110010000000001111111 = 00000000000000000000000000000000
# time = 20: 00000000000000000000000000000000 AND 00000000000000000000000000000000 = 00000000000000000000000000000000
# time = 40: 11111111111111111111111111111111 AND 11111111111111111111111111111111 = 11111111111111111111111111111111
# time = 60: 01100000000000000000000000000000 OR 00000000011110010000000001111111 = 01100000011110010000000001111111
# time = 80: 00000000000000000000000000000000 OR 00000000000000000000000000000000 = 00000000000000000000000000000000
# time = 100: 11111111111111111111111111111111 OR 11111111111111111111111111111111 = 11111111111111111111111111111111
# time = 120: 01100000000000000000000000000000 + 00000000011110010000000001111111 = 01100000011110010000000001111111 / carry out = 00000000000000000000000000000000
# time = 140: 00000000000000000000000000000000 + 00000000000000000000000000000000 = 00000000000000000000000000000000 / carry out = 00000000000000000000000000000000
# time = 160: 11111111111111111111111111111111 + 11111111111111111111111111111111 = 11111111111111111111111111111110 / carry out = 11111111111111111111111111111111
# time = 180: 01100000000000000000000000000000 - 00000000011110010000000001111111 = 01011111100001101111111110000001 / carry out = 11100000000000000000000000000000
# time = 200: 00000000000000000000000000000000 - 00000000000000000000000000000000 = 00000000000000000000000000000000 / carry out = 11111111111111111111111111111111
# time = 220: 11111111111111111111111111111111 - 11111111111111111111111111111111 = 00000000000000000000000000000000 / carry out = 11111111111111111111111111111111
# time = 240: 01100000000000000000000000000000 SLT 00000000011110010000000001111111 = 0
# time = 260: 11111111111111111111111111111111 SLT 00000000000000000000000000000000 = 1
# time = 280: 00000000000000000000000000000000 SLT 11111111111111111111111111111111 = 0
```