CompArch HW2 Writeup

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1 Truth Tables

```
En A0 A1| O0 O1 O2 O3 | Expected Output
0  0  0 | 0  0  0  0  | All false
0  1  0 | 0  0  0  0  | All false
0  0  1 | 0  0  0  0  | All false
0  1  1 | 0  0  0  0  | All false
1  0  0 | 1  0  0  0  | O0 Only
1  1  0 | 0  1  0  0  | O1 Only
1  0  1 | 0  0  1  0  | O2 Only
1  1  1 | 0  0  0  1  | O3 Only
```

Figure 1: Decoder Truth Table

```
A0 A1 In0 In1 In2 In3 | Out | Expected Output
0  0  0   0   0   0   |  0  | 0 (Follows In0)
0  0  1   0   0   0   |  1  | 1 (Follows In0)
0  1  0   0   0   0   |  0  | 0 (Follows In1)
0  1  0   1   0   0   |  1  | 1 (Follows In1)
1  0  0   0   0   0   |  0  | 0 (Follows In2)
1  0  0   0   1   0   |  1  | 1 (Follows In2)
1  1  0   0   0   0   |  0  | 0 (Follows In3)
1  1  0   0   0   1   |  1  | 1 (Follows In3)
```

Figure 2: Multiplexer Truth Table

```
A B Cin | S Cout | Expected Output
0 0  0  | 0  0   | Sum 0, Carryout 0
0 1  0  | 1  0   | Sum 1, Carryout 0
1 0  0  | 1  0   | Sum 1, Carryout 0
1 1  0  | 0  1   | Sum 0, Carryout 1
0 0  1  | 1  0   | Sum 1, Carryout 0
0 1  1  | 0  1   | Sum 0, Carryout 1
1 0  1  | 0  1   | Sum 0, Carryout 1
1 1  1  | 1  1   | Sum 1, Carryout 1
```

Figure 3: Adder Truth Table

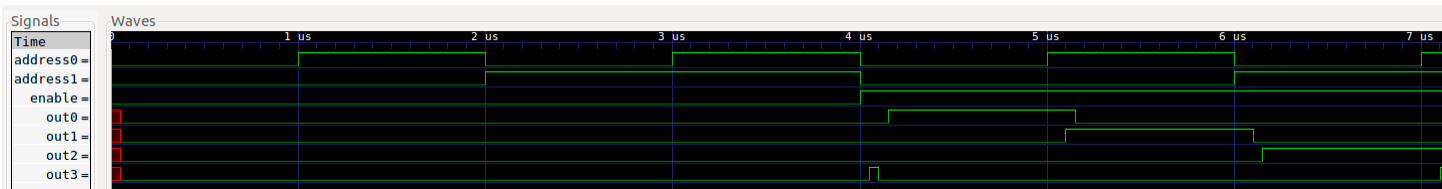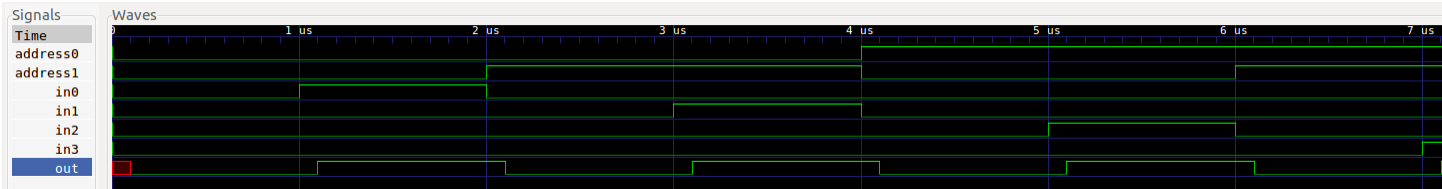# 2 GTKWave Results

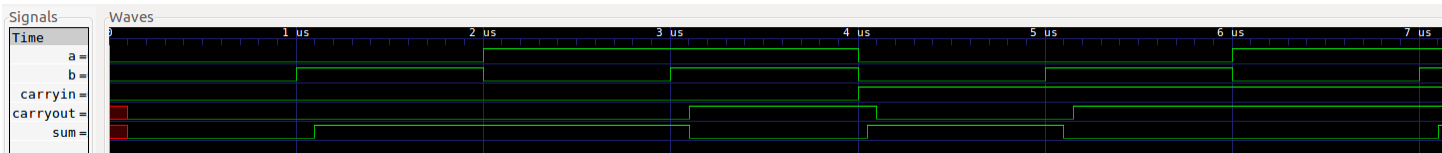**Figure 4:** Decoder GTKWave Results

Figure 5: Multiplexer GTKWave Results

Figure 6: Adder GTKWave Results