

Homework 2 Writeup

2-Bit Decoder with Enable

Test Bench Results

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

Waveforms



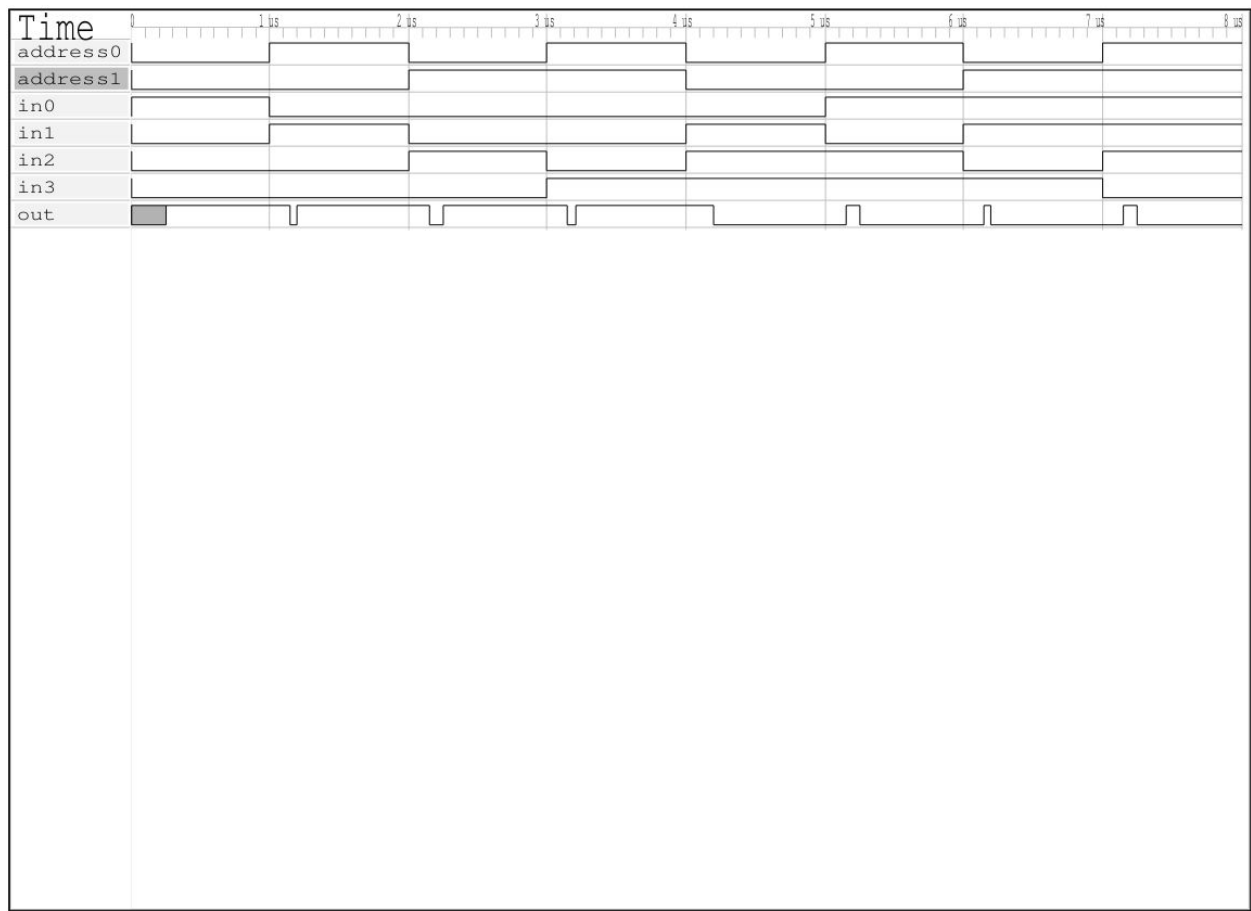
4:1 (Four Input Multiplexer)

Test Bench Results

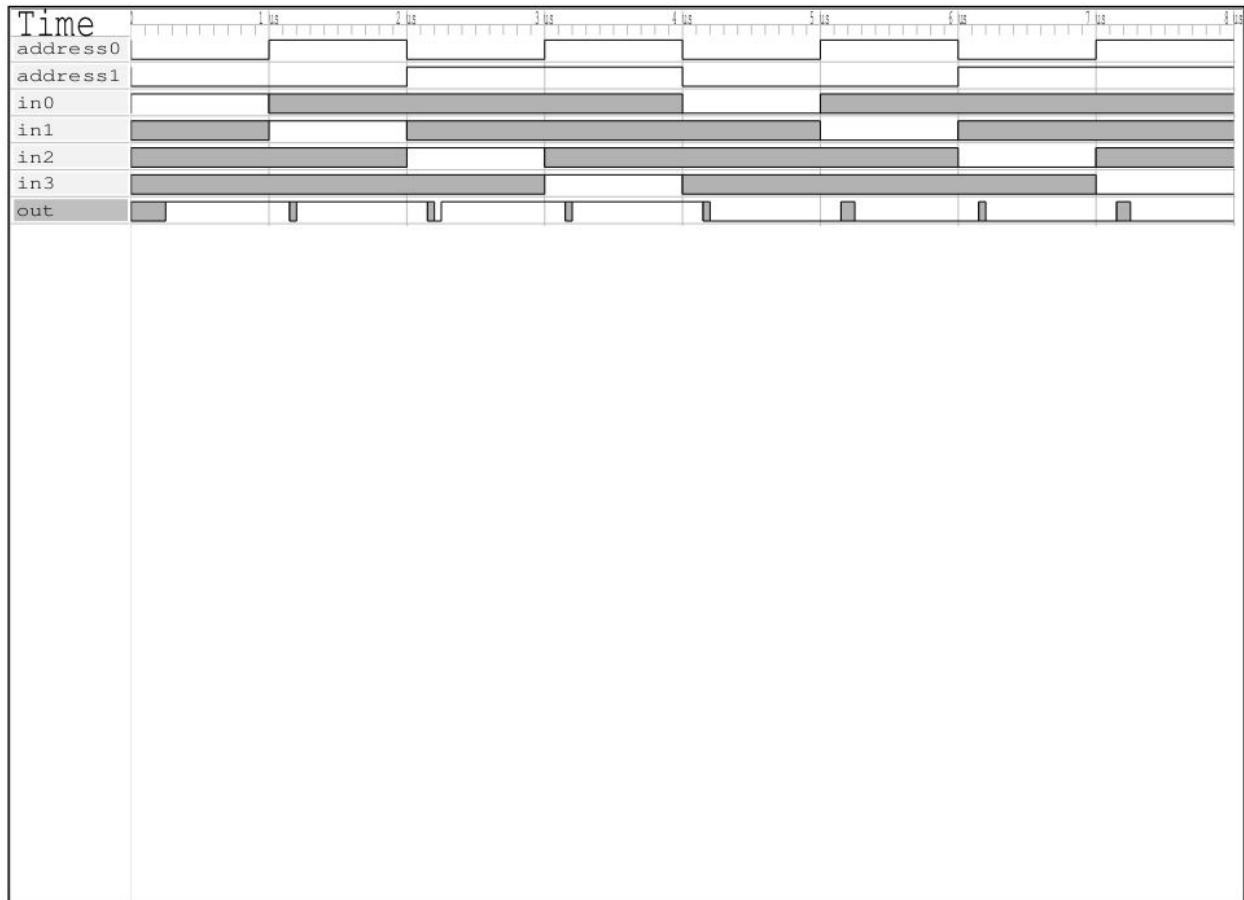
A0	A1	In0	In1	In2	In3	Out	Expected Output
0	0	1	x	x	x	1	1
1	0	x	1	x	x	1	1
0	1	x	x	1	x	1	1
1	1	x	x	x	1	1	1
0	0	0	x	x	x	0	0
1	0	x	0	x	x	0	0
0	1	x	x	0	x	0	0
1	1	x	x	x	0	0	0

Waveforms

With all inputs defined



With some inputs remaining undefined



1-Bit Full Adder

Test Bench Results

A	B	Cin	Cout	S	Expected Output
0	0	0	0	0	Both false, total = 0
1	0	0	0	1	S only, total = 1
0	1	0	0	1	S only, total = 1
0	0	1	0	1	S only, total = 1
1	1	0	1	0	Cout only, total = 2
1	0	1	1	0	Cout only, total = 2
0	1	1	1	0	Cout only, total = 2
1	1	1	1	1	Both true, total = 3

Waveforms

