Question: 06
DATE: October 6, 2017
Sabbir Ahmed

1 Background

Add **$display** calls to the above code after every assignment statement and resimulate to show that multiple assignments are observable in simulation whereas **$strobe** only prints one final result per change event. Both your **$display** and **$strobe** calls should print time using %0t and **$time**.

2 Implementation

The provided code was directly used to implement the module in Part 7, and can be found in the 'scripts' directory. A sample of the waveform generated is provided:

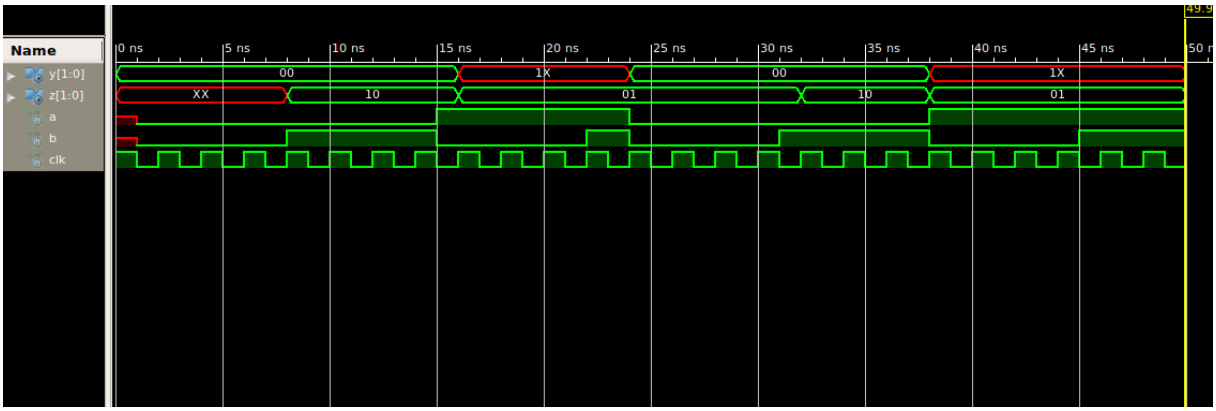

Figure 1: Waveform Generated from Part 7 Test Bench

The following output is dumped from the test bench as well, demonstrating the difference in the usage of **$display**:

The following table is generated from the test bench as well, demonstrating the usage of the circuit:

time	a	b	y	z
2000	0	0	00	xx
3000	0	0	00	xx
4000	0	0	00	xx
6000	0	0	00	xx
8000	0	1	00	xx
8000	0	1	00	xx
8000	0	1	00	xx
8000	0	1	00	10
10000	0	1	00	10
10000	0	1	00	10

10000	0	1	00	10
10000	0	1	00	10
10000	0	1	00	10
12000	0	1	00	10
12000	0	1	00	10
12000	0	1	00	10
12000	0	1	00	10
14000	0	1	00	10
14000	0	1	00	10
14000	0	1	00	10
14000	0	1	00	10
16000	1	0	00	10
16000	1	0	10	10
16000	1	0	1x	10
16000	1	0	1x	01
17000	1	0	1x	01
18000	1	0	00	01
18000	1	0	10	01
18000	1	0	1x	01
18000	1	0	1x	01
20000	1	0	00	01
20000	1	0	10	01
20000	1	0	1x	01
20000	1	0	1x	01
22000	1	1	00	01
22000	1	1	10	01
22000	1	1	1x	01
22000	1	1	1x	01
24000	0	0	00	01
24000	0	0	00	01
26000	0	0	00	01
26000	0	0	00	01
28000	0	0	00	01
30000	0	0	00	01
32000	0	1	00	01
32000	0	1	00	01
32000	0	1	00	01
32000	0	1	00	10
33000	0	1	00	10
34000	0	1	00	10
34000	0	1	00	10
34000	0	1	00	10
34000	0	1	00	10
36000	0	1	00	10
36000	0	1	00	10
36000	0	1	00	10
36000	0	1	00	10
38000	1	0	00	10
38000	1	0	10	10
38000	1	0	1x	10
38000	1	0	1x	01
40000	1	0	00	01
40000	1	0	10	01
40000	1	0	1x	01

40000	1	0	1x	01
40000	1	0	1x	01
42000	1	0	00	01
42000	1	0	10	01
42000	1	0	1x	01
42000	1	0	1x	01
44000	1	0	00	01
44000	1	0	10	01
44000	1	0	1x	01
44000	1	0	1x	01
46000	1	1	00	01
46000	1	1	10	01
46000	1	1	1x	01
46000	1	1	1x	01
47000	1	1	1x	01
48000	1	1	00	01
48000	1	1	10	01
48000	1	1	1x	01
48000	1	1	1x	01

3 Observations

The addition of **$display** obviously generates a greater amount of output, where it outputs when it notices change in any variables.