CMPE 260 Laboratory

Project 2 Processor Timing

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Setup Time

Setup time is the time the synchronous input takes to show up before the edge of clock. The input should be stable before the edge of clock. This time is for the data to be stored. If the setup time is being violated, then it can be fixed by increasing the period and lowering the delay between the data paths.

Hold Time

Setup time is the time the synchronous input after the edge of clock has been captured. This time is for the data to be stored successfully in storage. If the hold time is being violated, then it can be fixed by decreasing the period and increasing the delay between the data paths.

Tabulated Values

- WNS => Worst Negative Slack
- WHS => Worst Hold Slack
- TNS => Total Negative Slack

| Frequency (mHz)	Setup Time	Hold Time
10	Passed with a WNS of 44.335 ns	Passed with a WHS of 0.027 ns
15	Passed with a WNS of 27.082 ns	Passed with a WHS of 0.056 ns
20	Passed with a WNS of 18.220 ns	Passed with a WHS of 0.048 ns
25	Passed with a WNS of 11.790 ns	Passed with a WHS of 0.054 ns
30	Passed with a WNS of 6.279 ns	Passed with a WHS of 0.081 ns
35	Passed with a WNS of 2.036 ns	Passed with a WHS of 0.080 ns
40	Passed with a WNS of 0.629 ns	Passed with a WHS of 0.052 ns
45	Failed with a WNS of -0.400ns and TNS of -0.979 ns	Passed with a WHS of 0.060 ns

Screenshots
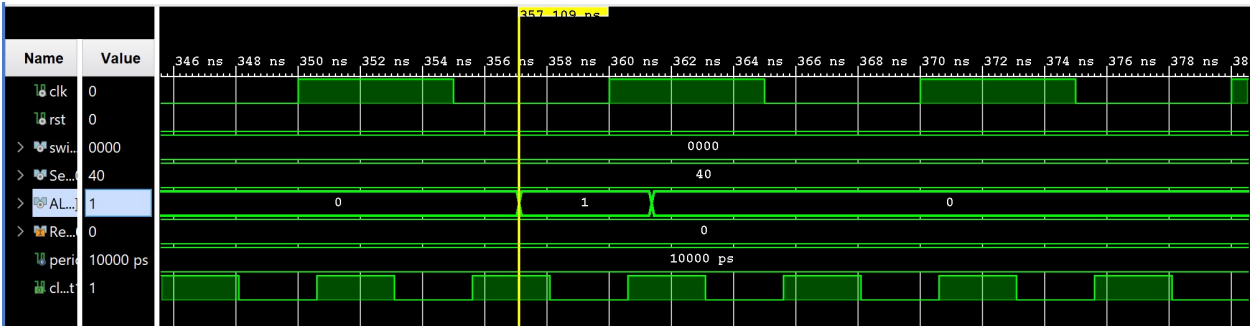
Figure 1 Passed Waveform at a frequency of 10mHz with no violations
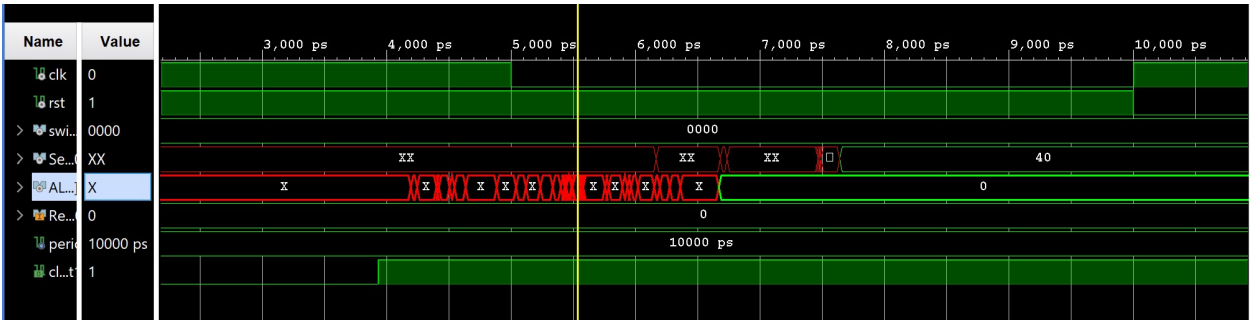

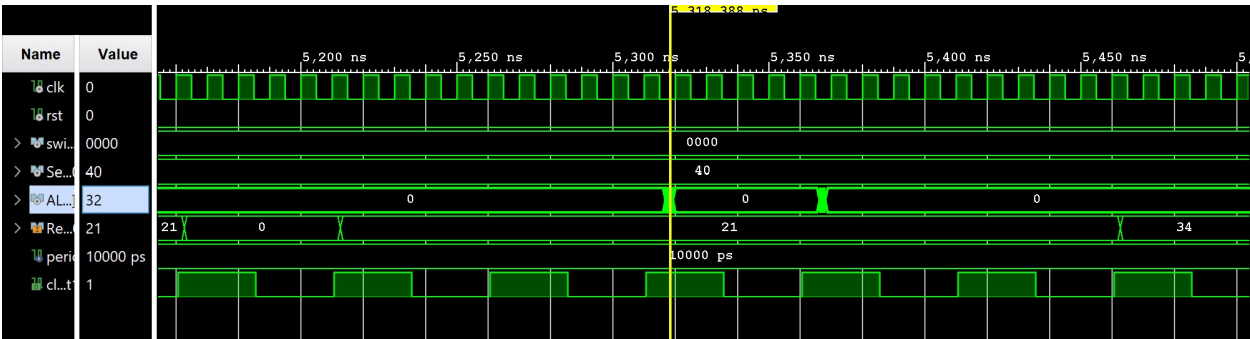*Figure 2 Passed Waveform at a frequency of 15mHz with no violations*

Figure 3 Passed Waveform at a frequency of 20mHz with no violations
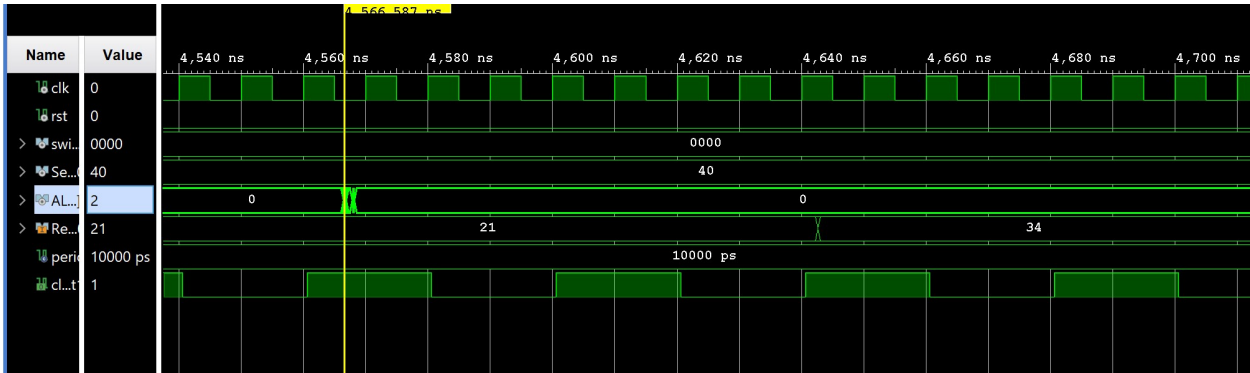

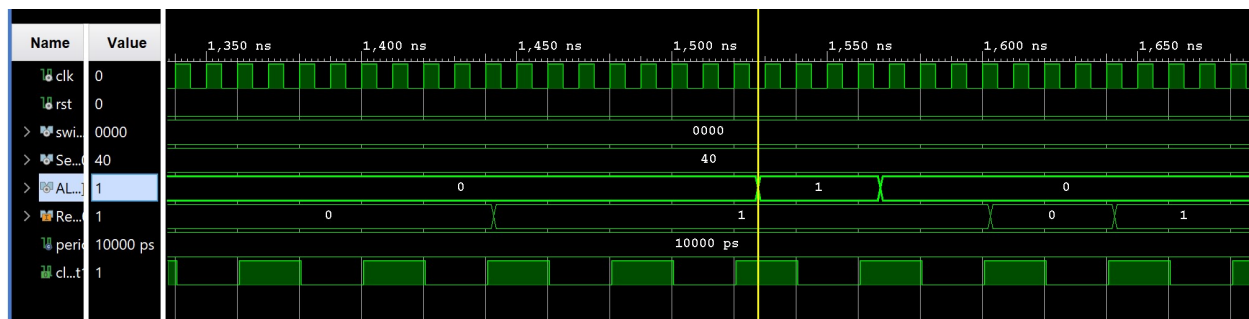*Figure 4 Passed Waveform at a frequency of 25mHz with no violations*

Figure 5 Passed Waveform at a frequency of 30mHz with no violations
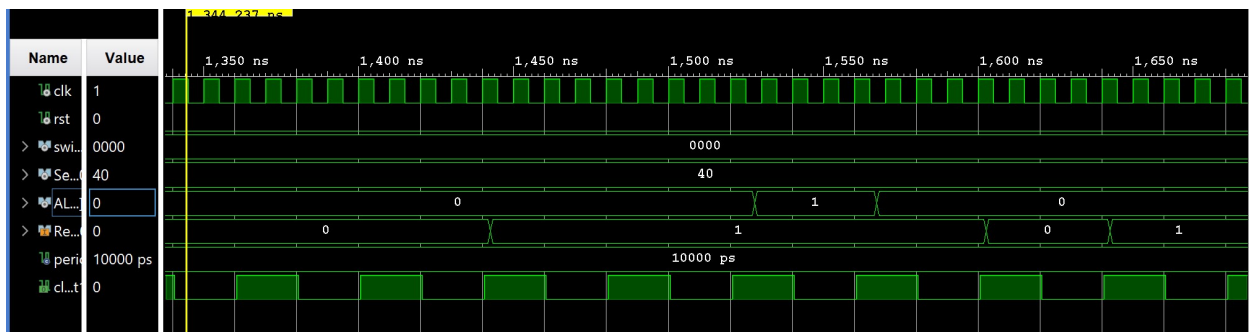

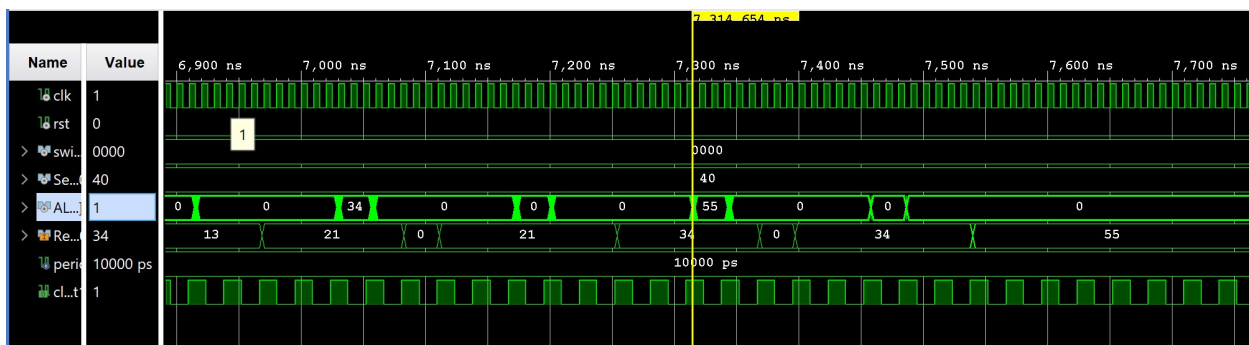*Figure 6 Passed Waveform at a frequency of 35mHz with no violations*
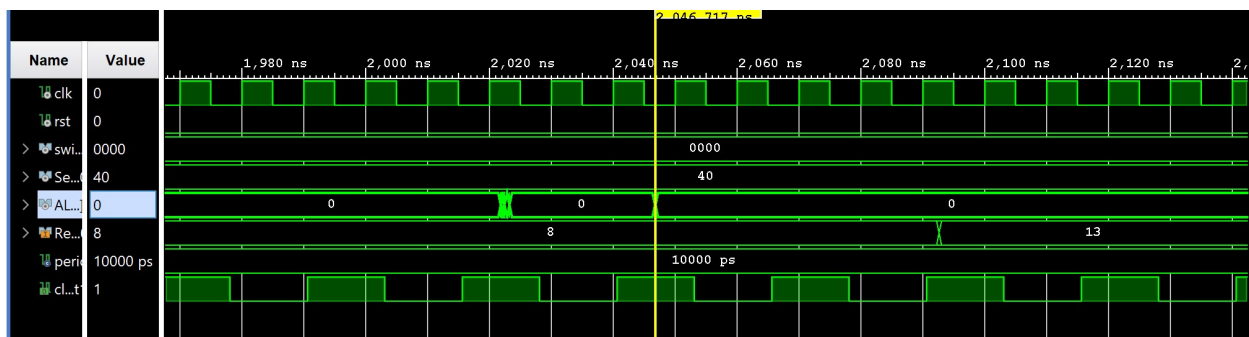

Figure 7 Passed Waveform at a frequency of 40mHz with no violation

Figure 8 Failed Waveform at a frequency of 45mHz