

Felix Pawlowksi

Project 2 Report

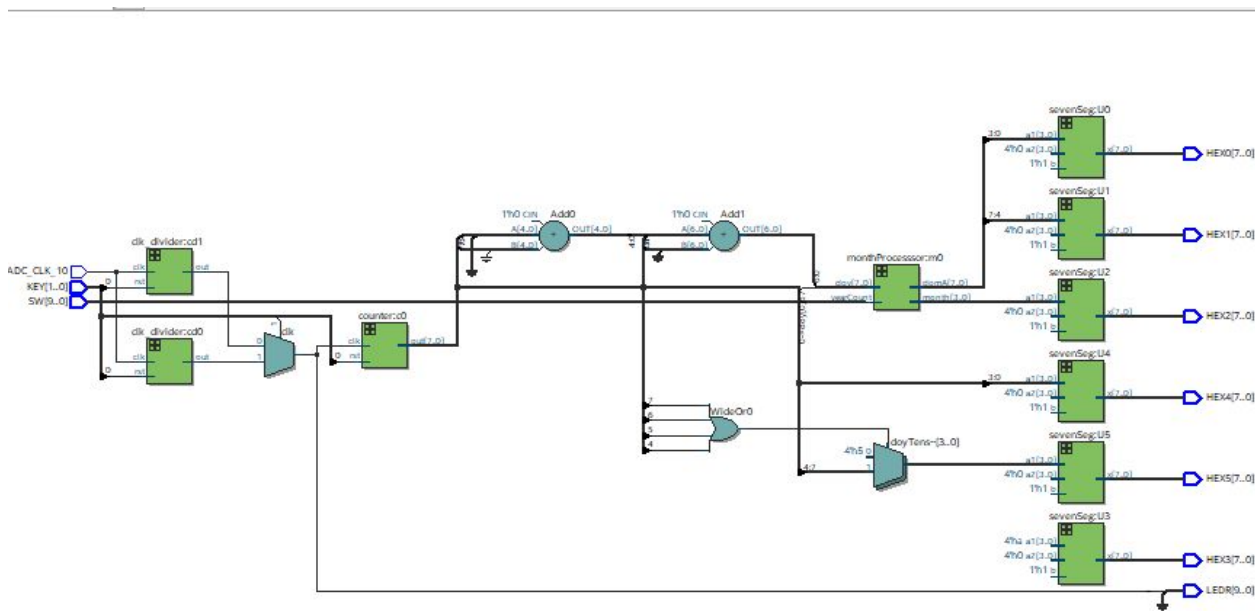
ECEN 2350

The problem is I need to create a counter that counts from 1-99 in a loop. I also need to display the day of the year using MMDD format that corresponds with the value in the counter. Additionally I need to have an LED that flashes at every rising edge clock and a switch that indicates a leap year.

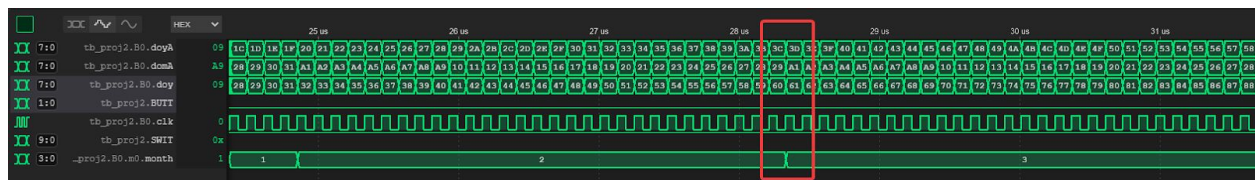
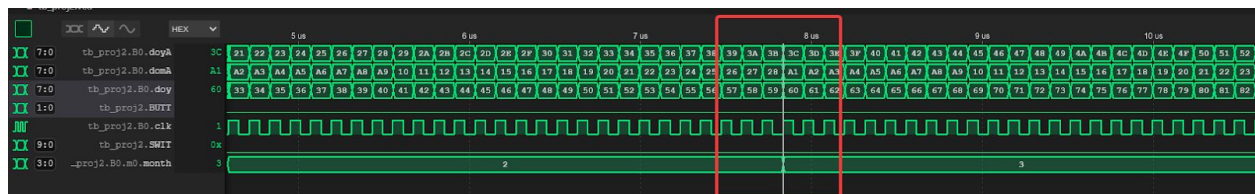
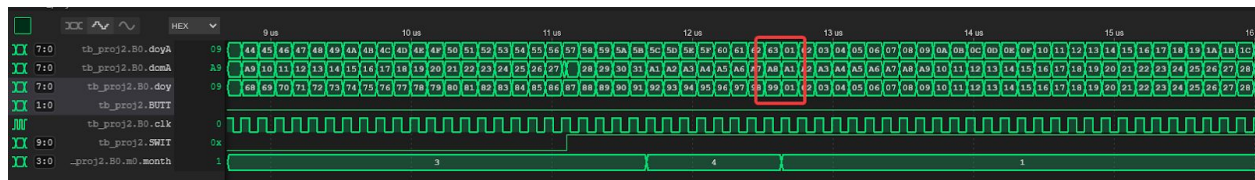
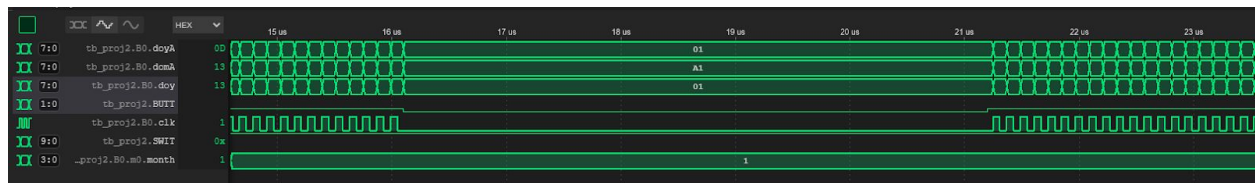
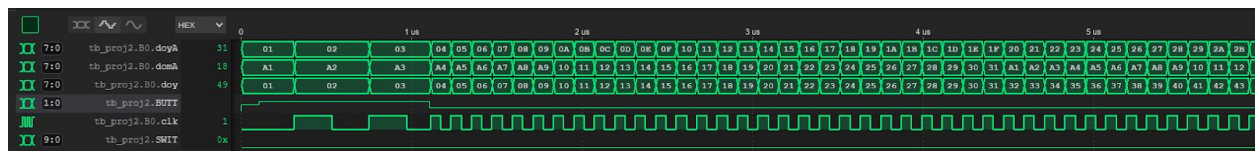
The idea is that I'm taking the on board 10 Mhz clock, use it to create a 5 Mhz and 2 Mhz clock, connect these clocks to a counter with the ability to flip between the two clocks at any time. The counter then increments a value up to 99 and then resets it back to 1 instead of going to 100. Additionally a reset switch must be included to reset both the counter and the clock.

With the counter I then convert the individual digits in the counter to a pair of 4 bit hex values that I feed to my hex displays. Additionally I parse the count into days of the month to display. Additionally, while I do not need to worry about driving the first of the two month displays (the first 100 days do not enter into October), I parse that count into a 4 bit HEX value to feed into the second of the month HEX displays.

Project Navigator									
MAX 10: 10M50DAF484C6GES									
Entity:Instance	Logic Cells	Dedicated Logic Registers	I/O Registers	Memory Bits	M9Ks	UFM Blocks	DSP Elements	DSP 9x9	DSP 18x18
proj2	222 (13)	74 (0)	0 (0)	0	0	1	0	0	0
sevenSeg:U0	7 (7)	0 (0)	0 (0)	0	0	0	0	0	0
sevenSeg:U1	4 (4)	0 (0)	0 (0)	0	0	0	0	0	0
sevenSeg:U2	3 (3)	0 (0)	0 (0)	0	0	0	0	0	0
sevenSeg:U3									
sevenSeg:U4	7 (7)	0 (0)	0 (0)	0	0	0	0	0	0
sevenSeg:U5	7 (7)	0 (0)	0 (0)	0	0	0	0	0	0
counter:c0	12 (12)	8 (8)	0 (0)	0	0	0	0	0	0
clk_divider:cd0	53 (53)	33 (33)	0 (0)	0	0	0	0	0	0
clk_divider:cd1	53 (53)	33 (33)	0 (0)	0	0	0	0	0	0
monthProcessor:m0	63 (63)	0 (0)	0 (0)	0	0	0	0	0	0



The testbench exists to collect information about outputs. I also simulate inputs at certain times to see if things are functioning as expected. The testbench first tests the functionality of the code running with limited modifiers, primarily to see if uninterrupted it counts correctly and that it only counts to 28 for the month of February. Then the switch flips on, I check to see if the reset functions, and then I check to see if February 29th exists. For the clocks, I simulate the button press sooner because I want to fit more information into less time however I do collect information about the lower clock cycle briefly at the start of the simulation.



I was entirely successful but heavily delayed. I had a lot of trouble getting a functional counter, my initial method detailed in the file labeled OLD was ineffective and I had to get assistance from Dr. Robinson. I also had to get help with the day and month counter however the reason behind their non-functioning was due to a minor error on my part. Overall everything worked out in the end but it was a long road.