

ECE 272 Pre-Lab 5  
Fall 2018

Serial Peripheral Interface (SPI)  
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1. Simulate lab 4 in Modelsim.

In lab 4, I compiled and simulated the project on ModelSim and obtained the following waveforms:

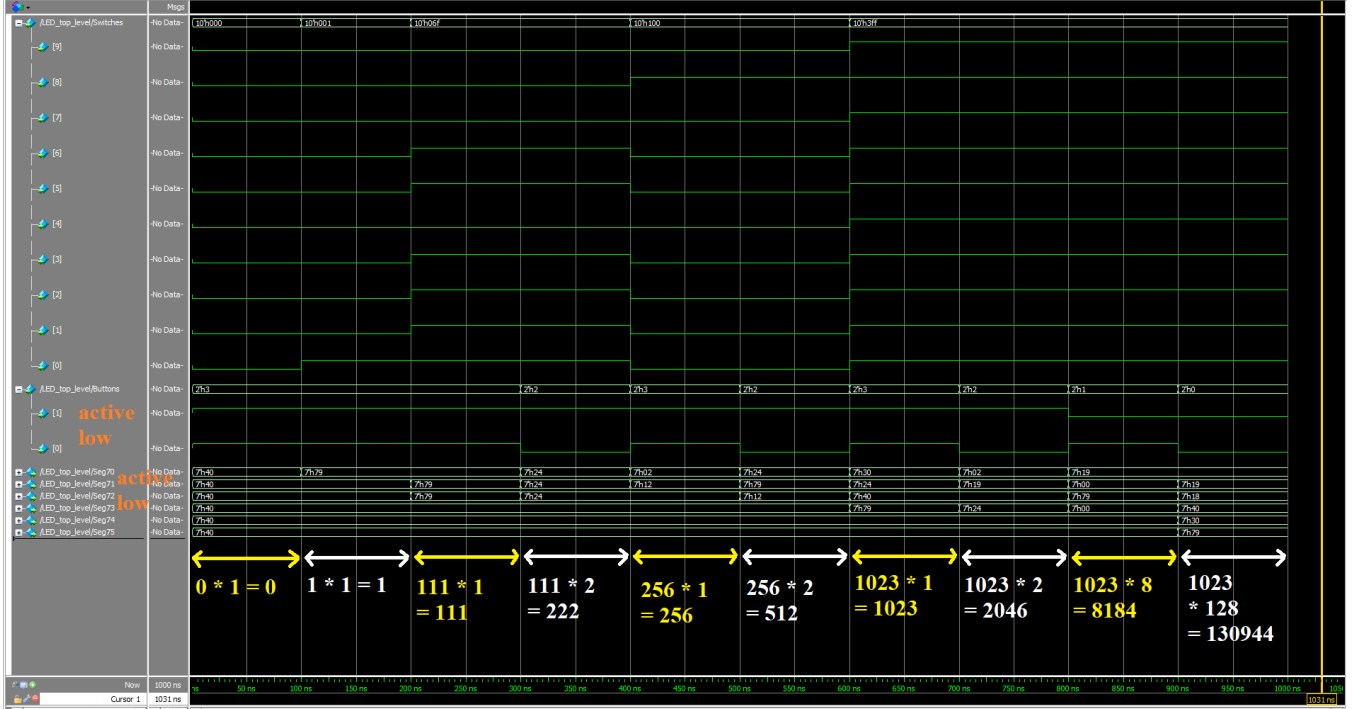


Figure 1: Simulation waveform of a few test examples. [High-resolution image](#)

Each 100-ns interval (2 columns) is a test case. Each of the test cases' inputs and output are specified with a two-way arrow. For example, from 100 ns to 200 ns (from the third column to the fourth column), the switch input is equivalent to a 1 in decimal system (*SW1* turned on and all other switches turned off), and the button input is equivalent to a 1 in decimal system (all buttons not pressed), and the output of all 6 seven-segment displays is 000001 (reading from Seg75 to Seg70).

Using the same way to read the waveforms, I obtained the results of all example test cases. Since the results were consistent with mathematical calculations, it is strongly suggestive that the simulation of the project was a success and that the program was implemented correctly.