ECE 443 - Homework #1

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1 Findings

Overall, this experience was very familiar to me. Practically every lab of ECE 340 reinforced the basic concepts of reading inputs and applying outputs, so the trivial task of reading two buttons and toggling two LED's was not difficult. For my timing implementation, I chose to use a one-millisecond interrupt that decremented each LED's specific 'rate', but I could have easily used a software-only or hardware-assisted delay for the one millisecond increment. The only thing about this experience that was new / unique was utilizing the *Waveforms* software, as opposed to the physical oscilloscopes. The software was very intuitive and simple to use and setup. Although this particular use-case did not require any logical analysis, I see how that would be easily implemented.

2 Results

Each button combination, except for no button presses (as neither LED toggles) is shown below. In each waveform, the top wave is **LEDA**, and the bottom wave is **LEDB**. The toggling timings are displayed on the very bottom.

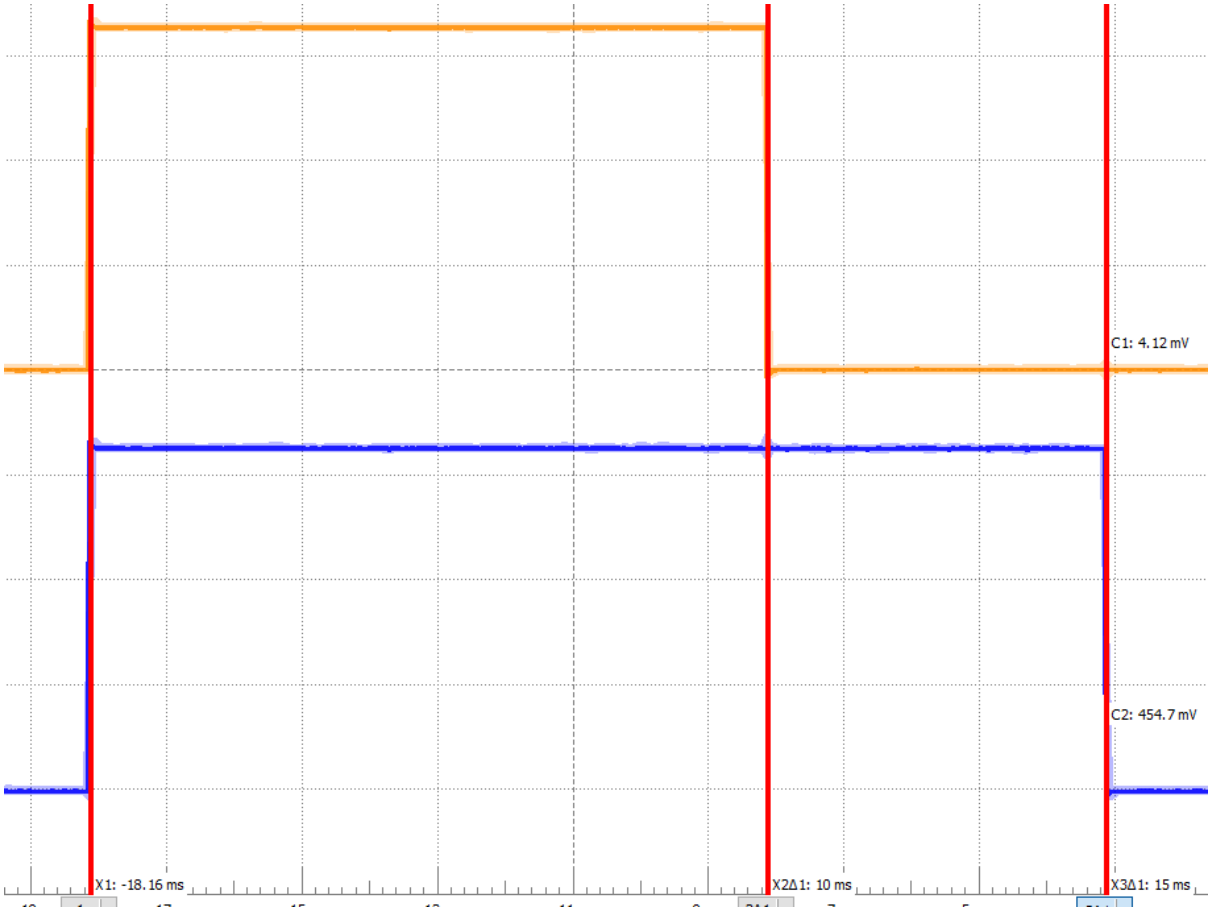

Figure 1: Only Button 1 Pressed - LEDA: 10ms, LEDB: 15ms

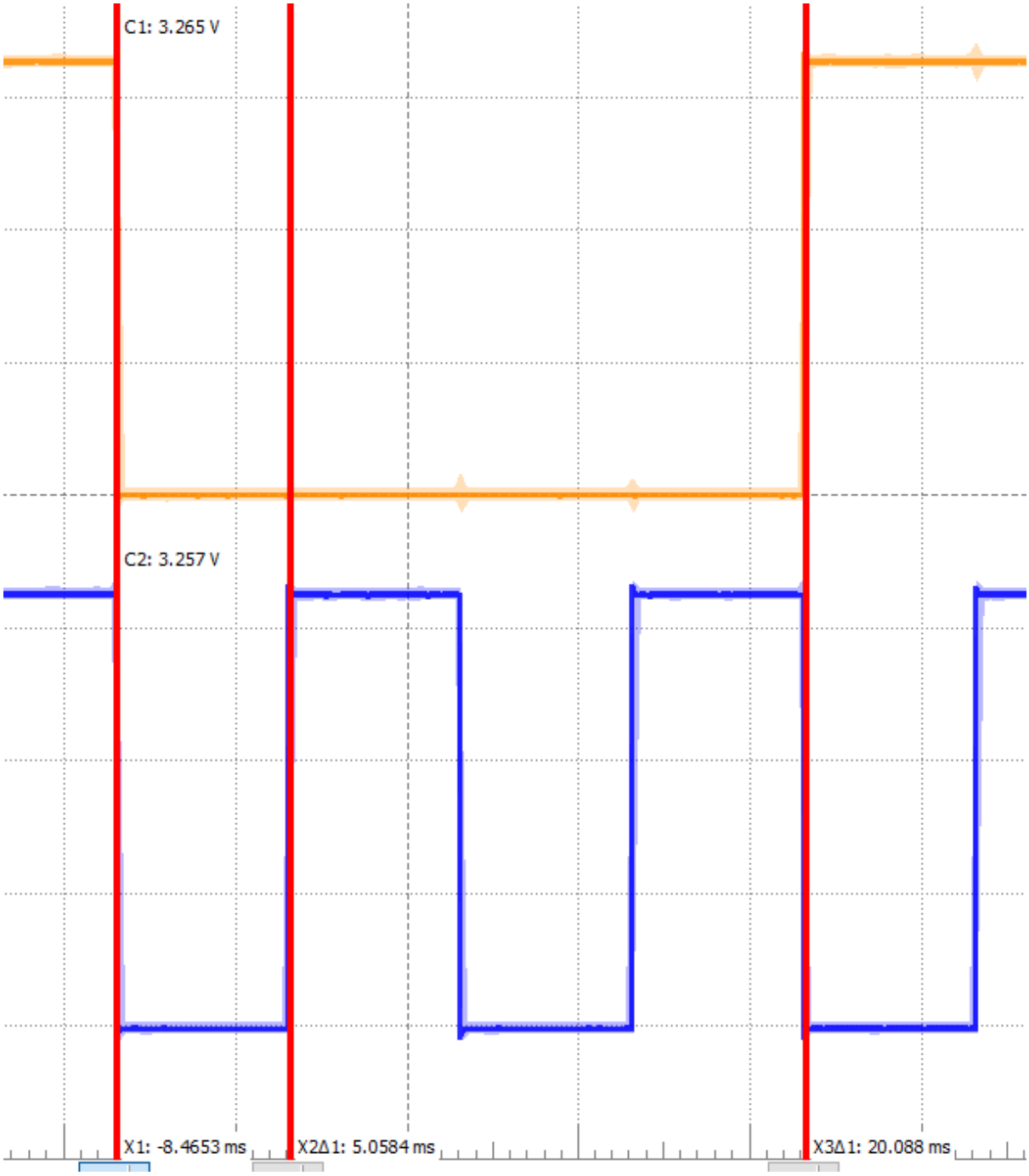

Figure 2: Only Button 2 Pressed - LEDA: 20ms, LEDB: 5ms

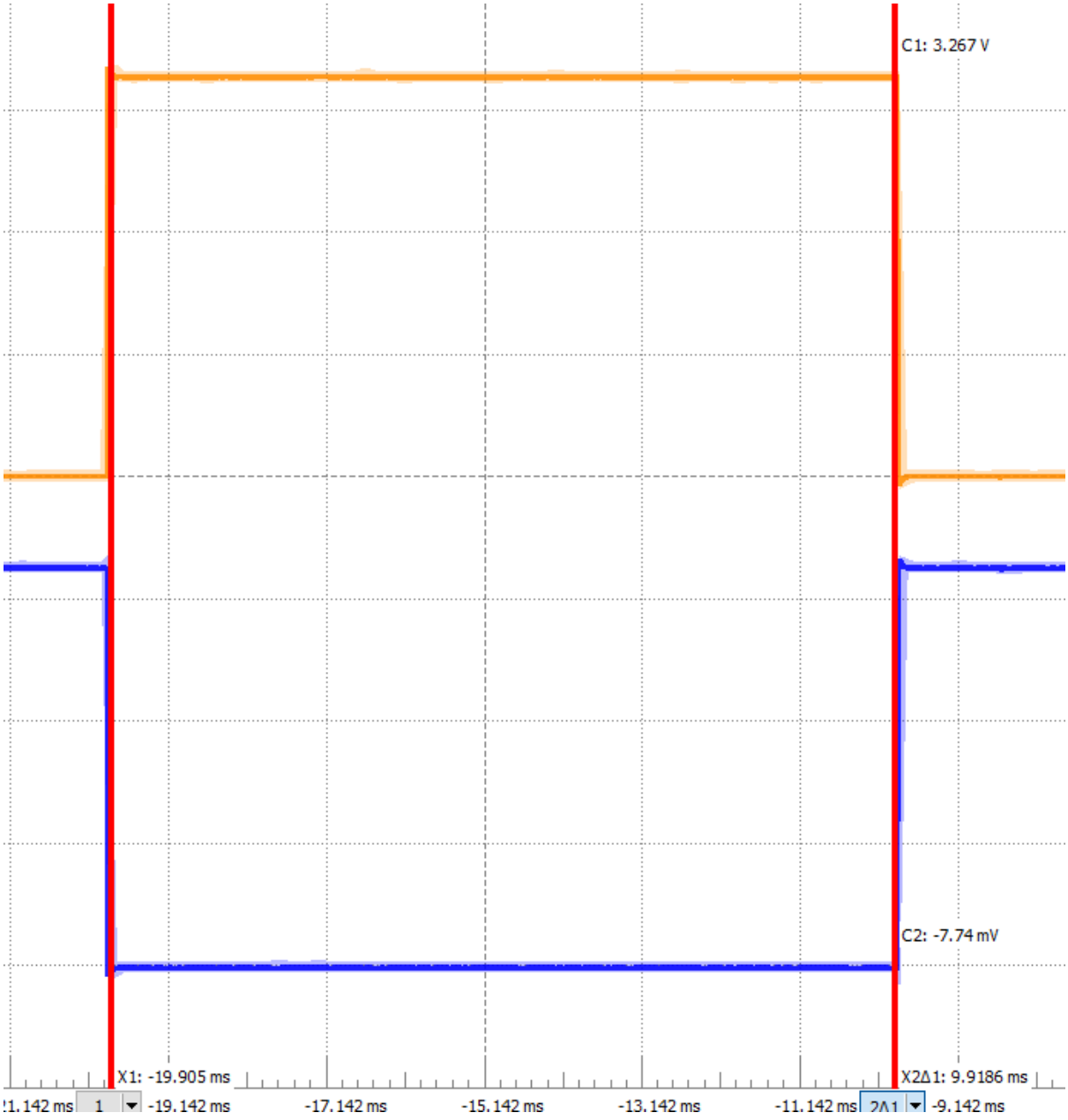

Figure 3: Button 1 and 2 Pressed - LEDA: 10ms, LEDB: 10ms