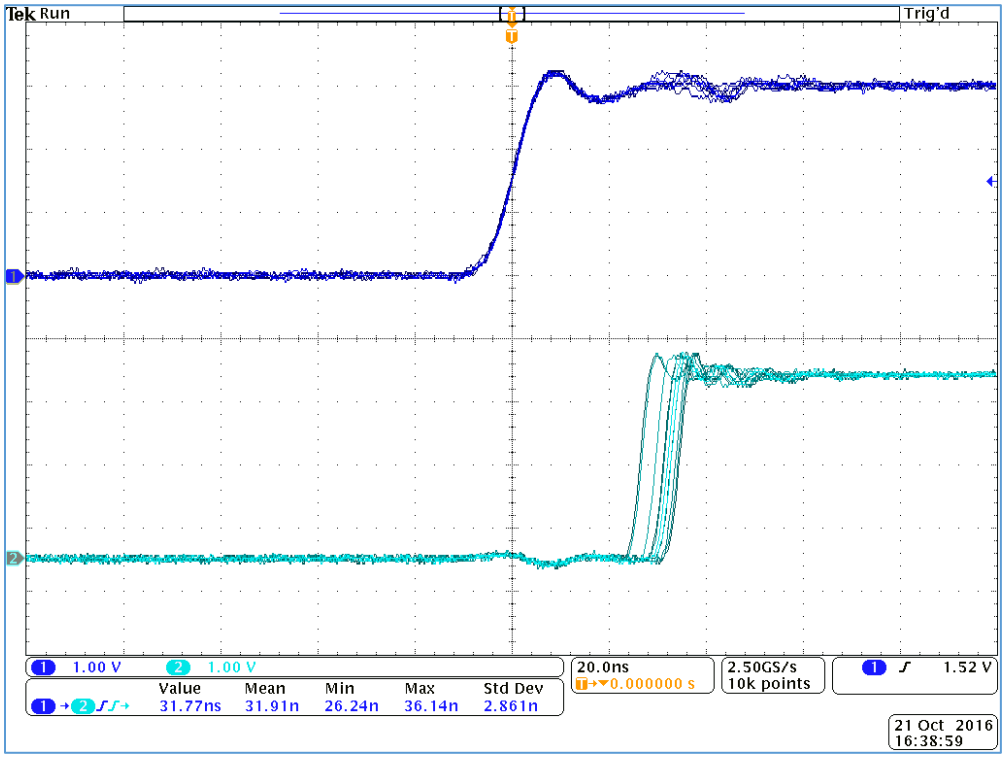
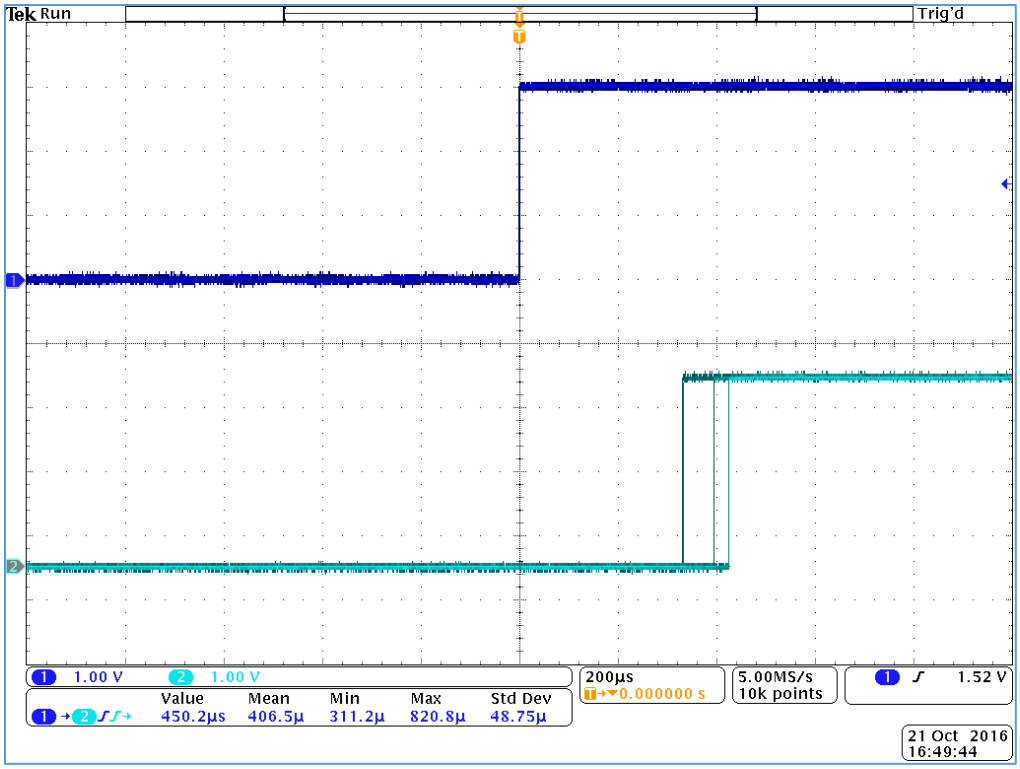
Bo Pang
CM1222

ECE414 Homework7 GPIO Through Test

1. PRU



2. Kernel Module



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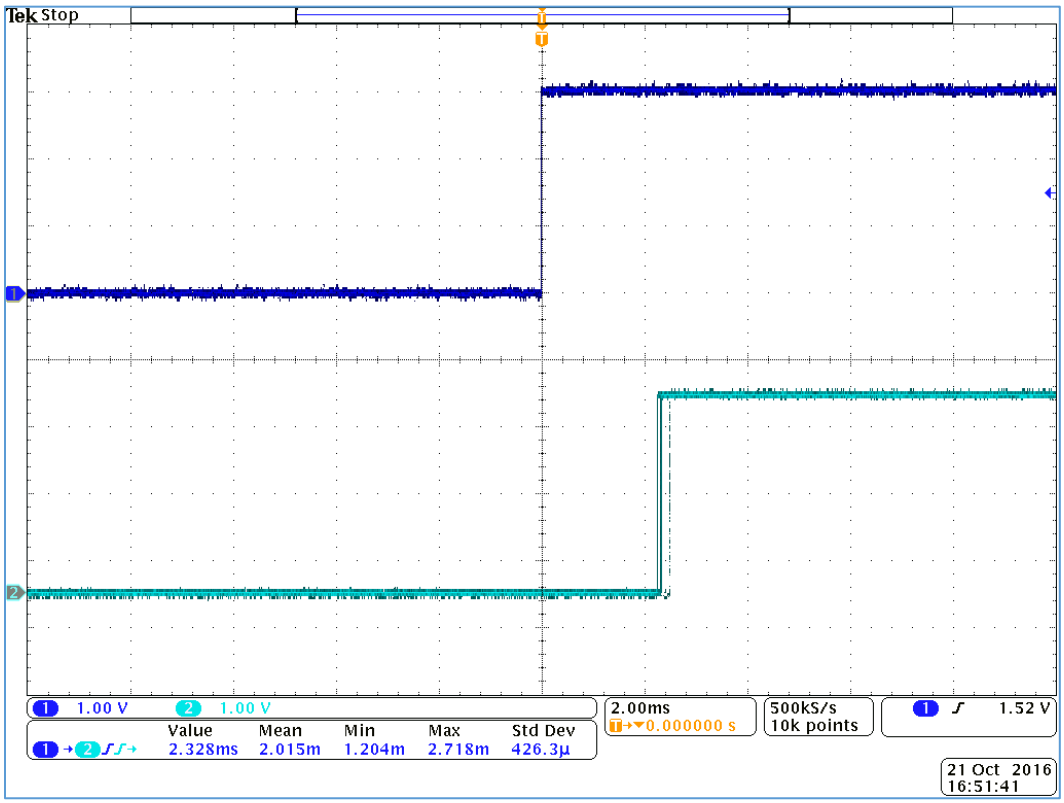
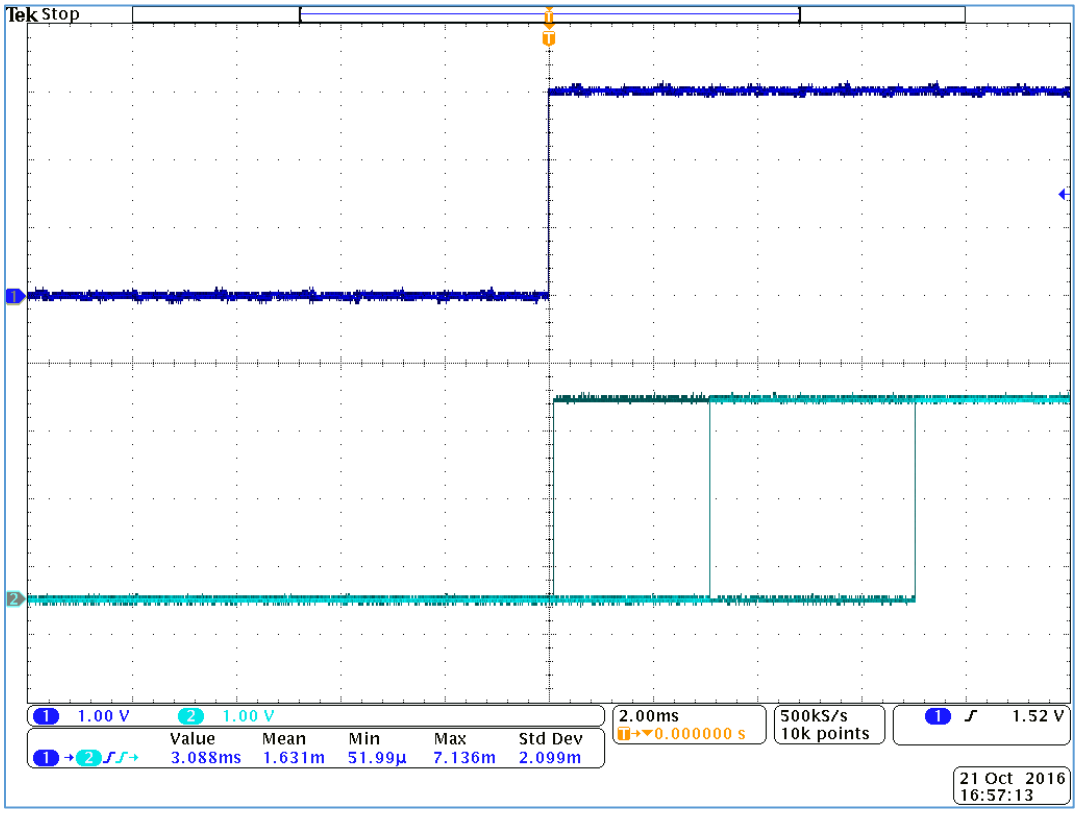
3. JavaScript using interrupt



4. C using while loop



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In comparison:

Method	Avg. Delay	Std. Dev.	CPU Usage
PRU	32 ns	3 ns	
Kernel Module	400 us	50 us	
JavaScript Interrupt	2 ms	330 us	~ 7-10% Node.js
C while loop	1.6 ms	2 ms	100%

Conclusion:

The table shows a good comparison between these 4 methods when performing GPIO through. PRU performs the best on minimum delay time. The kernel module has larger delay but easier to implement than a PRU program. The GPIO input interrupt using JavaScript and while loop using C has similar delay, but the C while loop has much higher deviation, and also consumes almost all the CPU resource.