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ECE 3430

Lab 10

16 November 2015

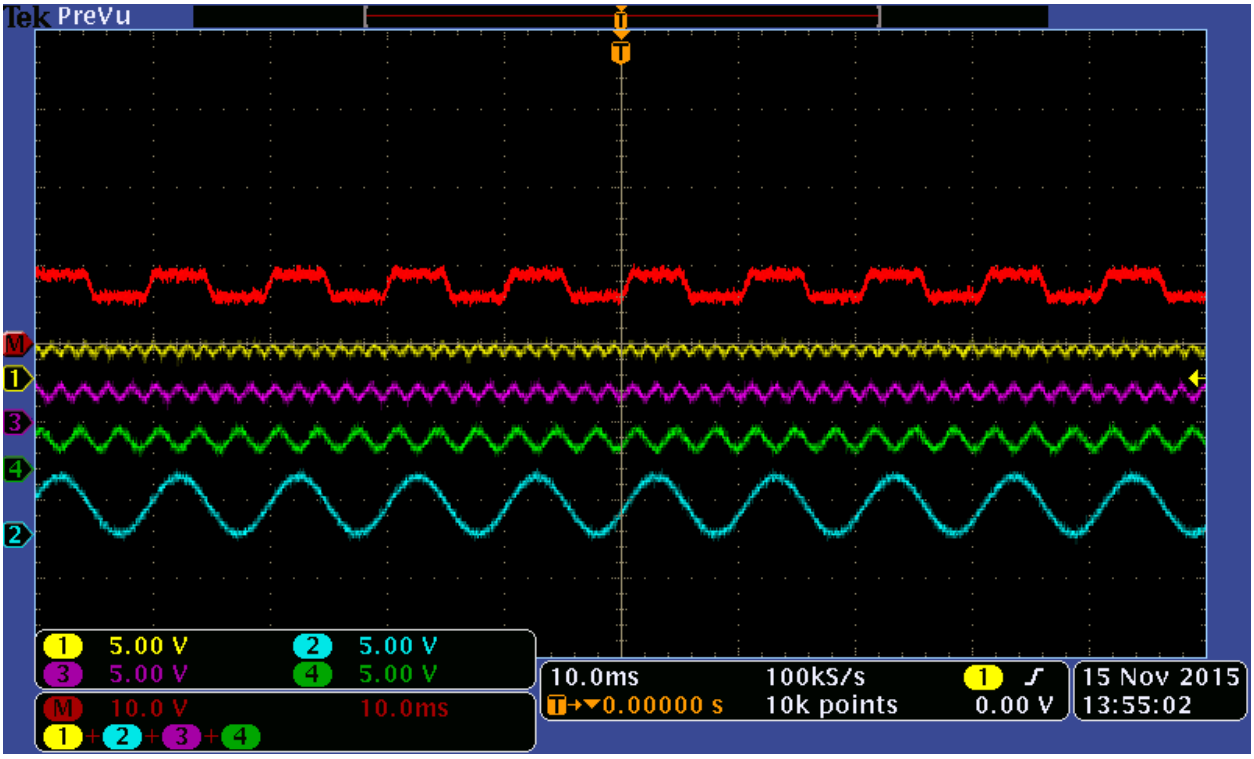
DAC

Goals:

The purpose of this laboratory was to generate a 100 Hz square wave using four different sinusoids. The sinusoids were generated using four different digital to analog converters (DAC) and the hardware SPI onboard the MSP430. Four different arrays of discrete values were sent via SPI to the DACs and through a low-pass filter.

Implementation:

The main program implementation was a timer interrupt set to run 32 times at a frequency of 700 Hz (22400 Hz). At this frequency, the values from the arrays provided were sent to the DACs.



The square wave approximation can be seen above in the math (red) trace. The time scale is set to 10 ms, so the frequency of the square wave is 100 Hz. The most difficult portion of the lab was figuring out the MSP430's hardware SPI. The sinusoid creation was simple and repetitive after the SPI was configured.