

Digital Oscilloscope

Team Members:

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Abstract:

Our final project will use the lab FPGA to implement a digital oscilloscope. The analog input will be sampled using an analog to digital converter and ultimately displayed on a VGA output. Sampling will be triggered by detecting when the waveform crosses a configurable trigger level, and will sample input data for the duration of a programmable sampling time after triggering. Both the sampling time and voltage scaling will be programmed through user inputs. This data will be stored in an array in the FPGA BRAM which will then be passed to the graphics module. This will display the waveform on part of the screen, while also displaying parameters such as average voltage, peak to peak, etc. in alpha numeric characters. These characters will be stored in the flash, and the screen will be created using frame buffers to display the final image.