

6.III Final Project Abstract

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Team Members:

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Project Description:

The goal this project will be to build a two-channel digital oscilloscope using the Digilent Spartan-6 Atlys board. Unlike most entry-level digital oscilloscopes that display to a small TFT LCD screen, this oscilloscope will have an HDMI output. Sampling will be accomplished using 3 Texas Instruments ADC08200 8-bit parallel ADCs, two for the input channels and one for an external trigger, operating at 100MSPS. Data from the selected trigger channel will be stored to a circular buffer implemented inside the FPGA until a trigger event such as a rising edge is detected. Then, samples from both input channels will be stored to the onboard DDR2 memory bank until the total length of time specified by the timebase has elapsed. The resulting data, once appropriately shifted and scaled, will be drawn on the screen, as well as cursors, soft keys, and measurements. The major components of this project will be an analog front end and ADC sampling board, a trigger detector module, DDR2 controller module, HDMI controller module, I2C module for reading supported screen resolutions from the monitor, and a user interface and display controller module.