

A Controllable Function Generator

Sarah Ferguson
Gavin Darcey

Our project will be to implement a digital function generator. We will begin by using the FPGA and labkit to generate sine, square, and ramp waveforms and measuring these with an oscilloscope to make sure they are correct. The analog component of this will be accomplished with a digital to analog converter; the FPGA will control the necessary bits to send to the DAC. The labkit will also include video output representing the waveforms, and display these on a computer monitor. In addition to picture representations of the type of waveform being generated, we will include graphics with frequency and amplitude measurements, as well as on-screen buttons which will allow the user to change the waveform type. Additionally, we will add the ability to change the amplitude and frequency of the waveform using buttons on the labkit. If time permits, we will add mouse control so that these amplitude and frequency changes can be made by clicking and dragging specific points on the on-screen waveform picture. The waveform display will not be an actual real-time display of the waveform, but rather an intuitive method of changing the amplitude and frequency while displaying the type of wave.