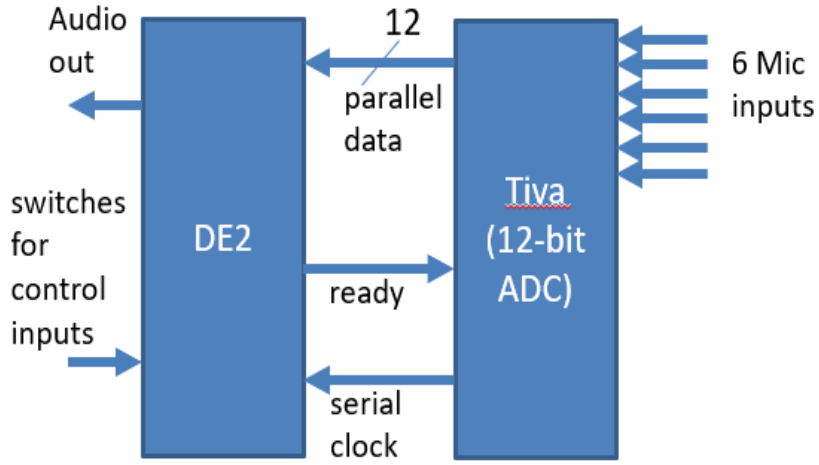
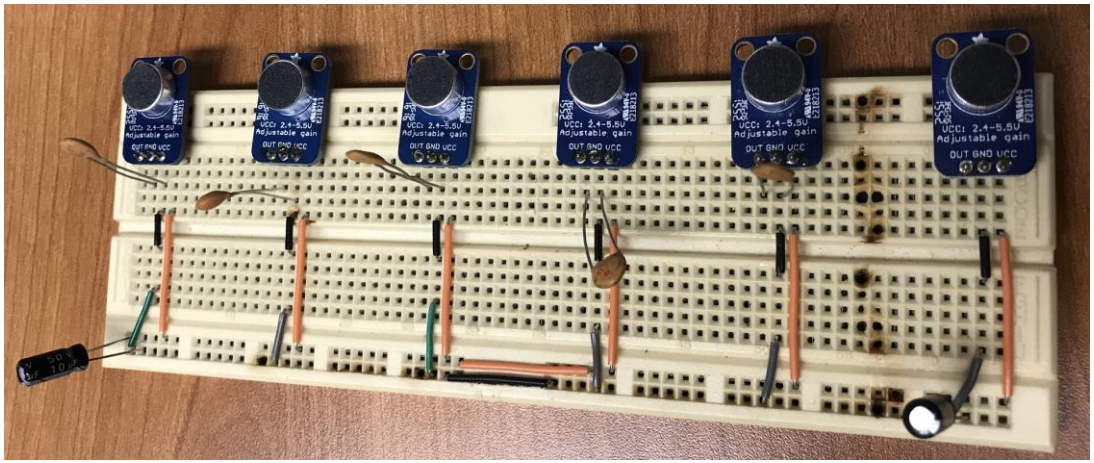
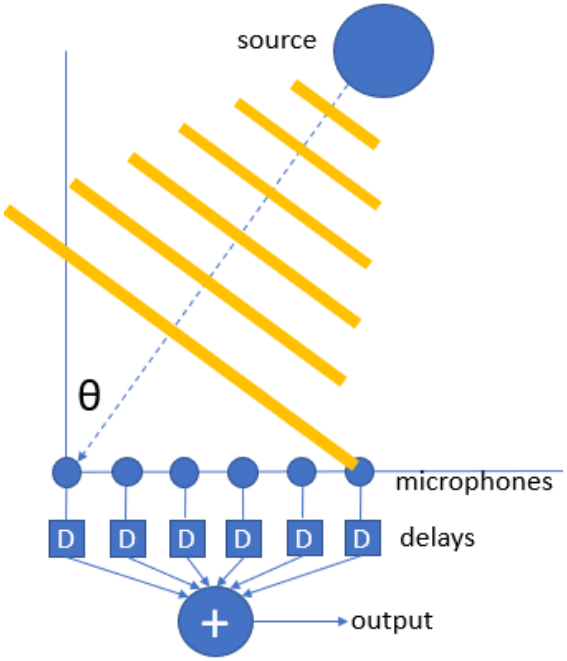
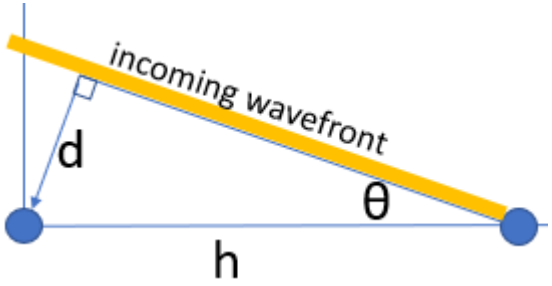
Top-level system diagram

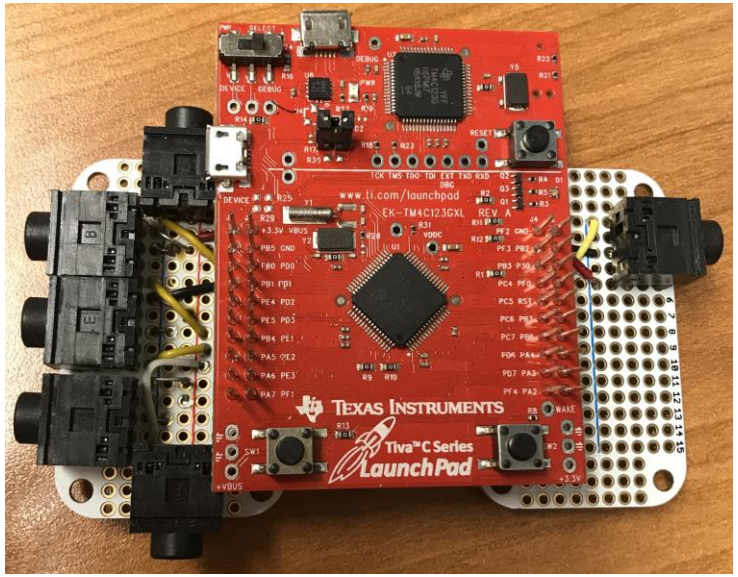


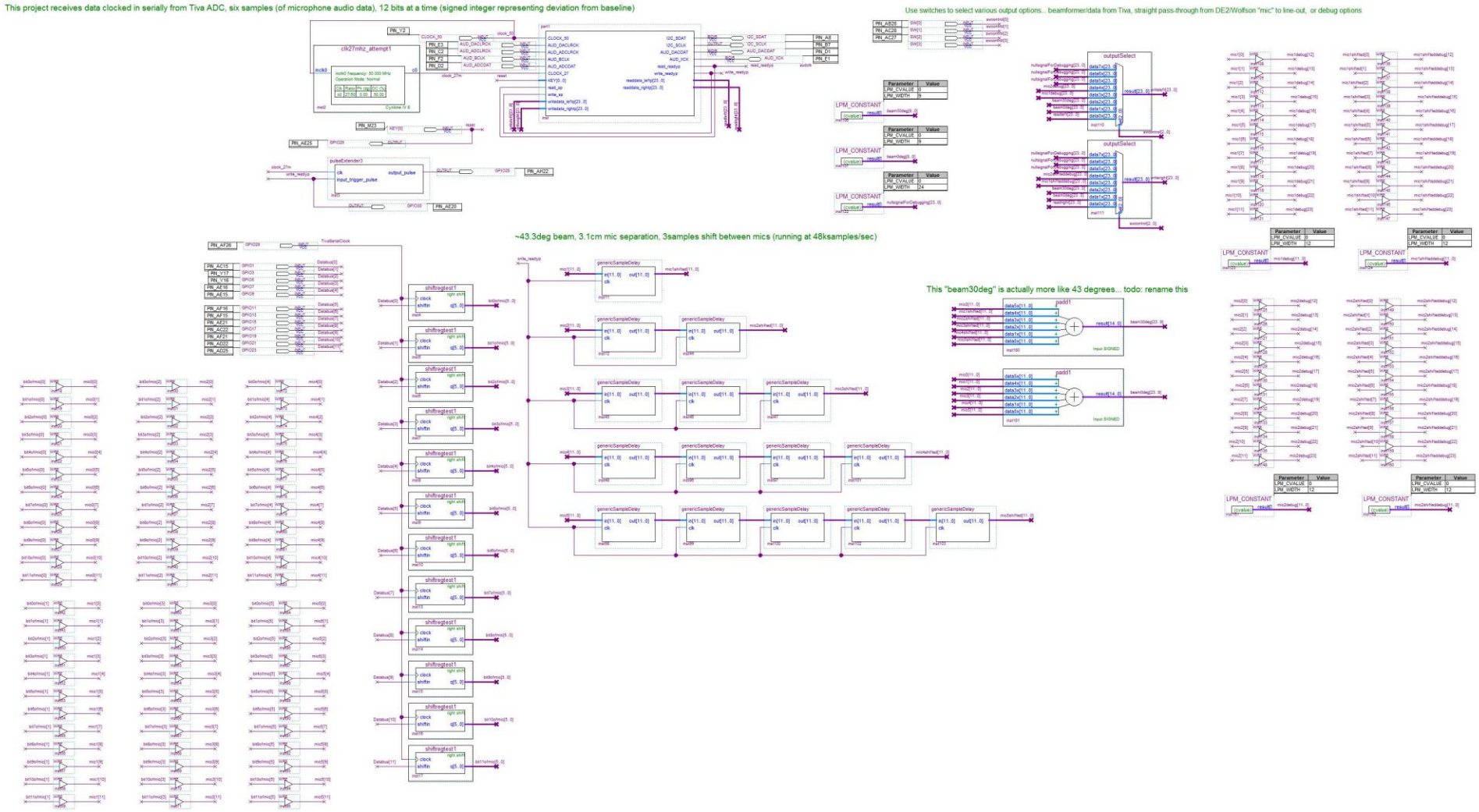


Geometry of system (notice that the “D” delay blocks do not all delay by the same amount… they have a linearly increasing amount of delay to allow the wavefront to add constructively in a particular electronically-steered direction at angle θ).



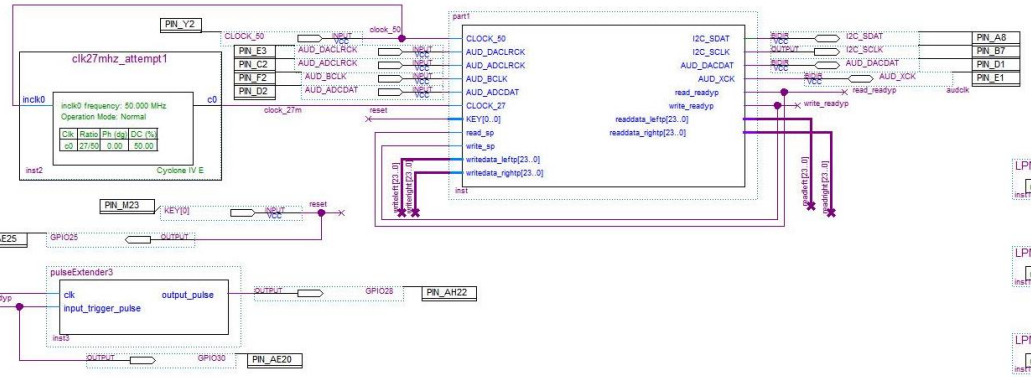




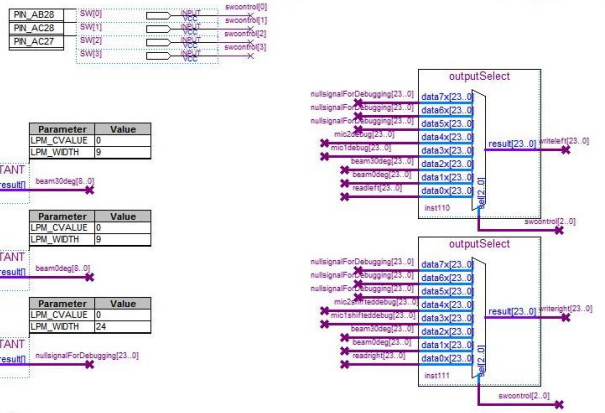


Next page shows a zoomed-in version

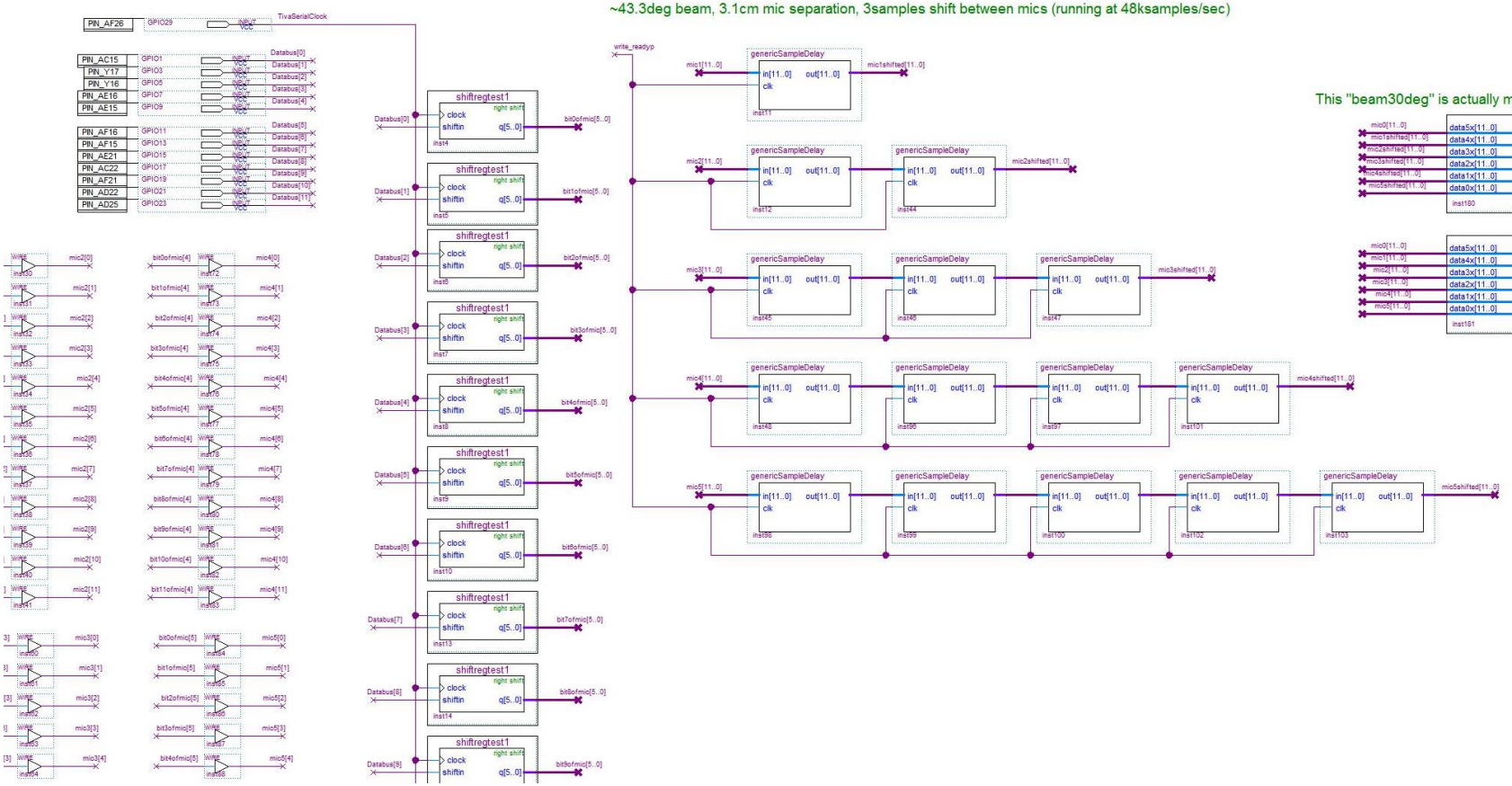
This project receives data clocked in serially from Tiva ADC, six samples (of microphone audio data), 12 bits at a time (signed integer representing deviation from baseline)



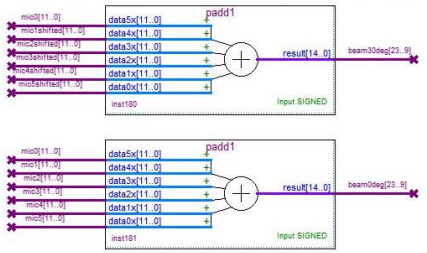
Use switches to select various output options... beamformer/data from Tiva, straight pass-thro



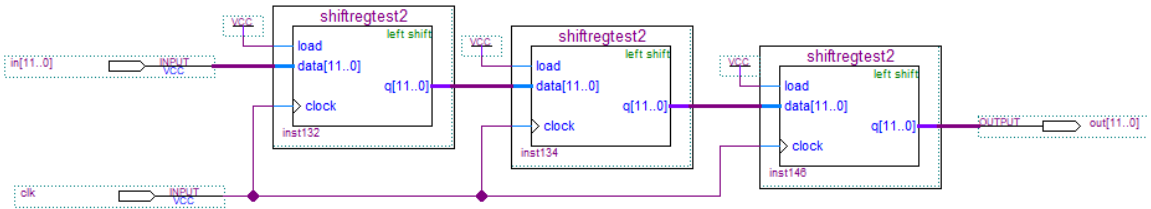
~43.3deg beam, 3.1cm mic separation, 3samples shift between mics (running at 48ksamples/sec)



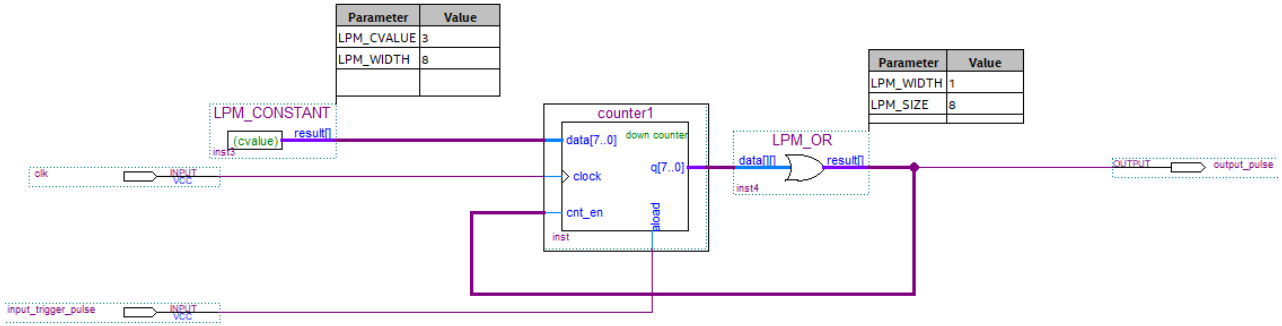
This "beam30deg" is actually more like 43 degrees... todo: rename this



GenericSampleDelay



PulseExtender



Oscilloscope trace: top/yellow is “TivaSerialClock”, bottom/blue is “Ready” signal