PerfectPitch

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Fall 2007 6.111 Final Project
Checkoff Checklist

Overall System Requirements

☐ System correctly transcribes a monophonic audio sample generated by synthesizer.
☐ System correctly transcribes a polyphonic audio sample generated by synthesizer.
☐ System correctly transcribes a single instrument, monophonic audio sample.
☐ System correctly transcribes a single instrument, polyphonic audio sample.
☐ (If time permits) System correctly transcribes a multi-instrument, monophonic audio sample.
☐ (If time permits) System correctly transcribes a multi-instrument, polyphonic audio sample.

Signal Processing Requirements (Karl Rieb)

☐ **FFT**
FFT module should correctly calculate the fourier transform of a digital wave signal.
Test using basic sine waves and logic analyzer.

☐ **Magnitude**
Magnitude module computes the magnitude of a complex value given by its real and imaginary parts.
Test by generating real and imaginary values and checking the output via the logic analyzer

☐ **Peak Detector**
Finds 8 or less largest peaks in the frequency spectrum of a signal.
Test by using synthesizer and logic analyzer.

☐ **Note Look-Up**
Given a group of frequencies, finds the note closest associated to that frequency.
Test by inputting a wide range of frequencies and using the hex display on the 6.111 labkit.

☐ **Timing**
Determines the duration of notes played and sends the appropriate signals to video display module.
Test by generating notes with different timings and reading the output using the logic analyzer.

Video Display Requirements (Grace Cheung)

☐ **Note Position**
Determines the x- and y-coordinates of a set of given notes to display on a 1024 x 768 monitor.
Test by generating notes and reading the output using the logic analyzer (send repeated notes to ensure y-coordinates remain the same).

☐ **Note Sprite**
Determines the color of the pixel to be displayed as the monitor screen is refreshed.
Test by ensuring Note Display and XVGA modules are working properly, and then viewing the output on a monitor.

☐ **Note Display**
Sends appropriate signals to the monitor for displaying sheet music.
Test by generating basic images to display on the monitor using the internal frame buffer and ensuring the test images look correct.