Keytar Checklist

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Italicized items and modules are those that are optional and will be done if time permits.

Main Module (Hubert)

- Demonstrate the serial protocol for requesting amplitudes corresponding to different note frequencies.

- Show that single notes and chords result in the output of appropriate waveforms.

- *Change frequencies appropriately to implement a pitch bend control.*

Keyboard Module (Hui)

- Demonstrate ability to take keyboard input and produce compound 36-bit output with each bit denoting whether a particular key is depressed or not.

Mouse Module (Hui)

- *Demonstrate ability to use the mouse as a pitch bend input.*

Instrument Bank (Hui)

- Demonstrate capability to retrieve different values for different inputs.

Sine Wave Generator (Hui)

- Demonstrate proper initialization of sine wave table with a 64Hz waveform using the logic analyzer.

- Demonstrate proper value retrieval for a single frequency as the time input varies.

Mixer (Hubert)

- Demonstrate that input from the DSP chain is appropriately serialized for sending to the onboard AC97 chip.

- Demonstrate that the volume of the output varies as the volume control does.

DSP Modules (Hubert, Hui)

- Show that an echo of the originally generated signal can be created. This should be visible with a scope and audible if configured correctly.

- *Create a shared cache of the last N seconds of generated audio, to be used by any of the DSP modules, and a protocol with which to use it.*

- *Use the Fast Fourier Transform module to create more sophisticated DSP units, such as reverb, tremolo, and flange.*