

7.1.2.2: FPGA Top level

Notes:

- Switches "Sound-sw" ReverbSwitch, "looper-en" and "reverse" pass through a debouncer (not shown) indicated by an appended "-db".
- Buttons "add-track", "rec-over", "speed-up" and "slow-down" each pass through a debouncer and a monomarker (not shown), indicated by an appended "-mp".

- The AD Converter, Reverbator, Looper and DA Converter operate almost independently of each other in our design. Since there are not many control signals, we decided to incorporate the control into the datapath rather than have a full-blown Controller.

Constants: INPUT-OFFSET = $\times 400$
 BIT-DEPTH = # of bits in audio
 Signal = 12

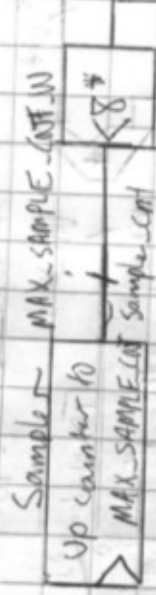
MAX_SAMPLE_CNT =

CLOCK_RATE/SAMPLE_RATE - 1

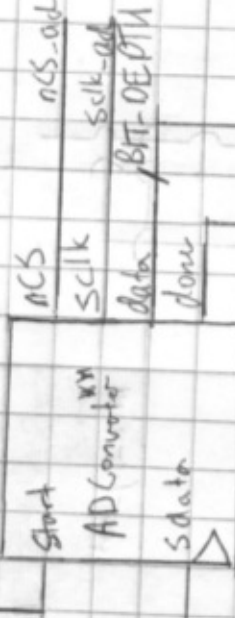
- Components with a * are necessary because the AD converter runs on a slower clock than the rest of the circuit.

*: minimally modified from
 circuit available at digilent.com.
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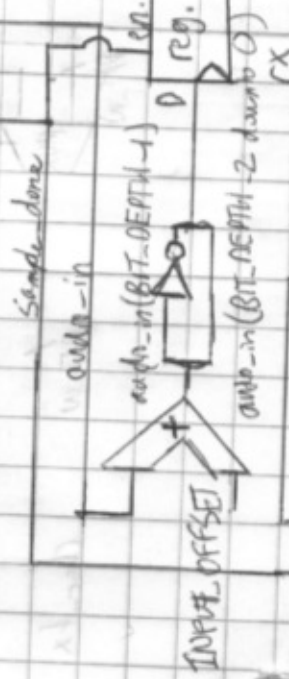
time-led



Start_Sample



SRam_in



INPUT-OFFSET



ReverbSwitch-db

tx-fan-reg-i

tx-fan-reg-i

tx-fan-reg-i

tx-fan-reg-i

tx-fan-reg-i

tx-fan-reg-i

tx-fan-reg-i

tx-fan-reg-i

tx-fan-reg-i

tx-fan-reg-i

tx-fan-reg-i

tx-fan-reg-i

tx-fan-reg-i

tx-fan-reg-i

tx-fan-reg-i

tx-fan-reg-i

tx-fan-reg-i

tx-fan-reg-i

tx-fan-reg-i

LED decoder (8K5-bit Rom)

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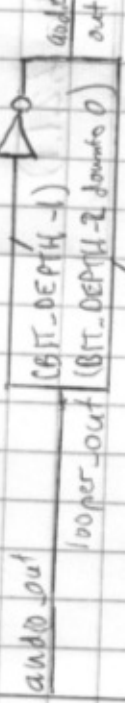
LED decoder (8K5-bit Rom)

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LED decoder (8K5-bit Rom)

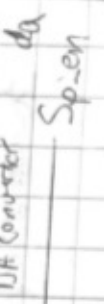
da_done



minimally modified from given DA converter (adda)

gain

Sound-sw-db



Sp-en