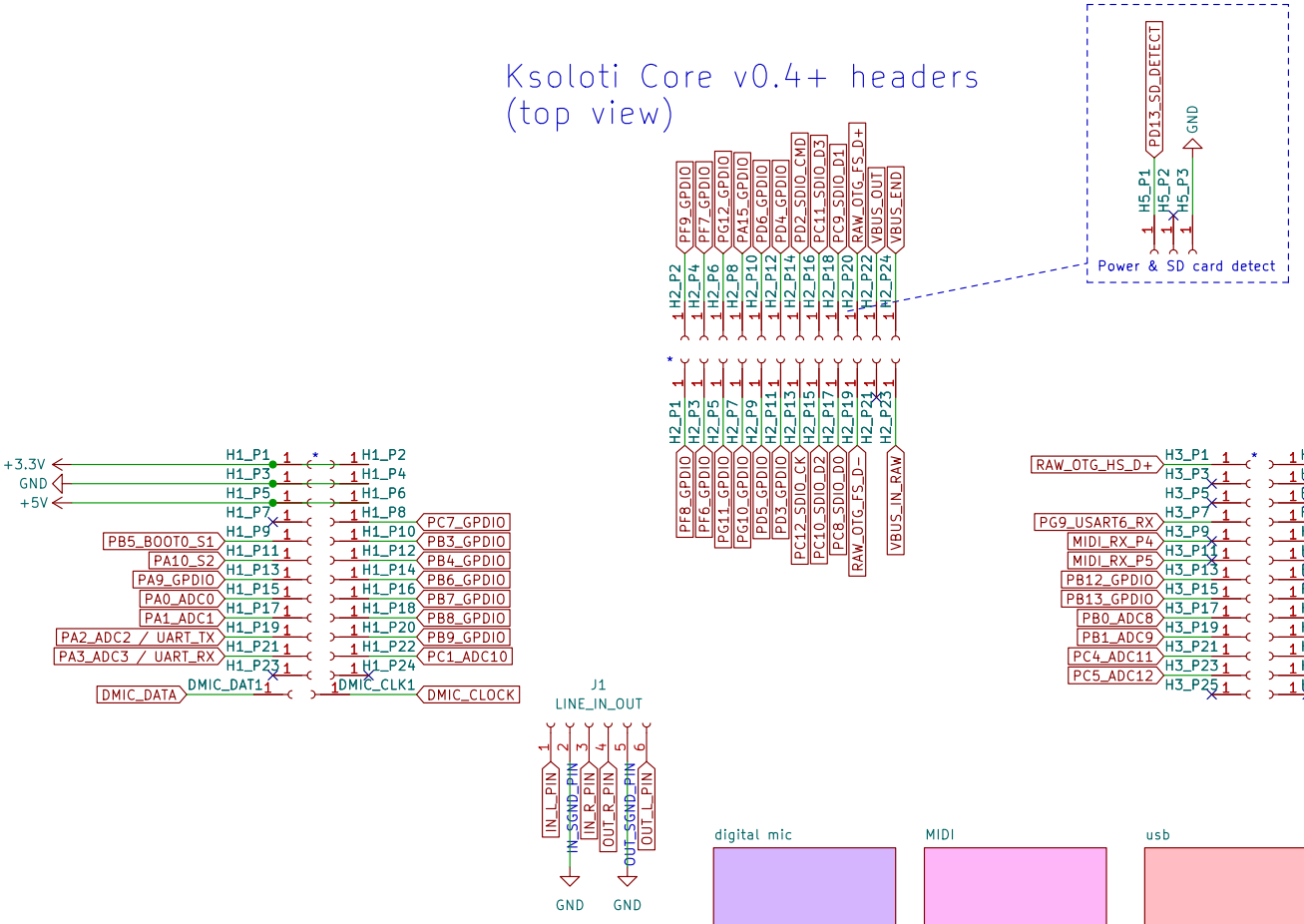
Ksoloti Core v0.4+ headers (top view)



SDIO

checked

File: sdio.kicad_sch

Audio IO

checked

File: audio_io.kicad_sch

Power

checked

File: power.kicad_sch

CV Inputs

checked

File: cv_in.kicad_sch

LEDs and Buttons

checked

File: led_out.kicad_sch

CV outputs

checked

File: cv_out.kicad_sch

digital mic

checked

File: digital_mic.kicad_sch

MIDI

checked

File: midi.kicad_sch

usb

checked

File: usb.kicad_sch

Gate Outputs

checked

File: gate_io.kicad_sch

expansion_header

checked

File: exp_header.kicad_sch

eeprom

checked

File: eeprom.kicad_sch

2 audio inputs, 2 audio outputs, Eurorack level

8 pots
4 CV inputs (P1–P4) are summed with pots 1–4
4 independent CV inputs (A–D), non-trimmable (+/–5V)
2 independent CV inputs (X, Y), trimmable offset and V/oct (+/–5V or 0..10V via jumper)

2 encoders with switch (E1, E2)
2 buttons (S3, S4)

2 fade-able Axo status LEDs, 2 fade-able duo-color LEDs

2 gate outputs, ca. 10.3V, optional gate indicator LEDs
2 CV outputs, trimmable offset and V/oct (+/–5V or 0..10V via jumper)

1 OLED display, 128x64px, I2C, SH1106

FID1 Fiducial

FID2 Fiducial

FID3 Fiducial

changelog

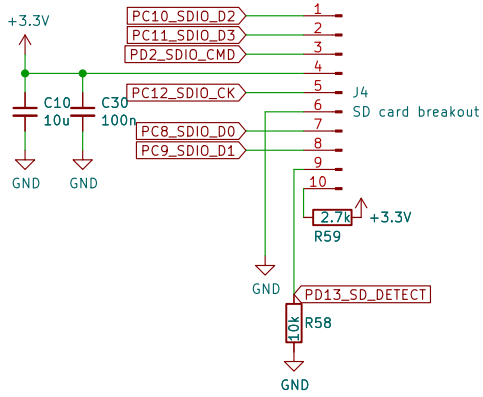
CHANGELOG

File: changelog.kicad_sch

Sheet: /
File: ksoloti_big_genes.kicad_sch

Title:

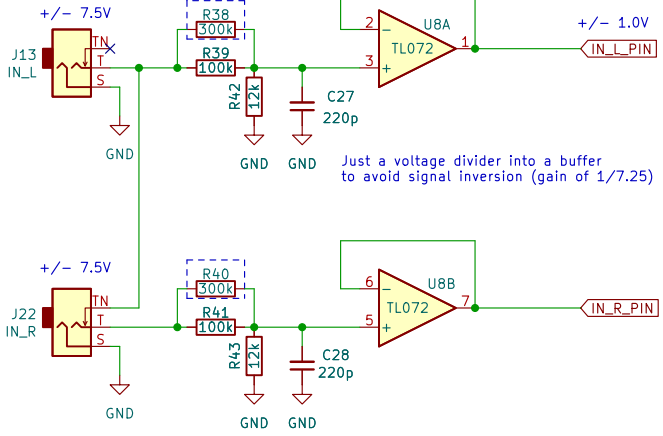
Size: A4	Date: 2024-10-03	**Rev: v0.8**
KiCad E.D.A. kicad (6.0.11)		Id: 1/14

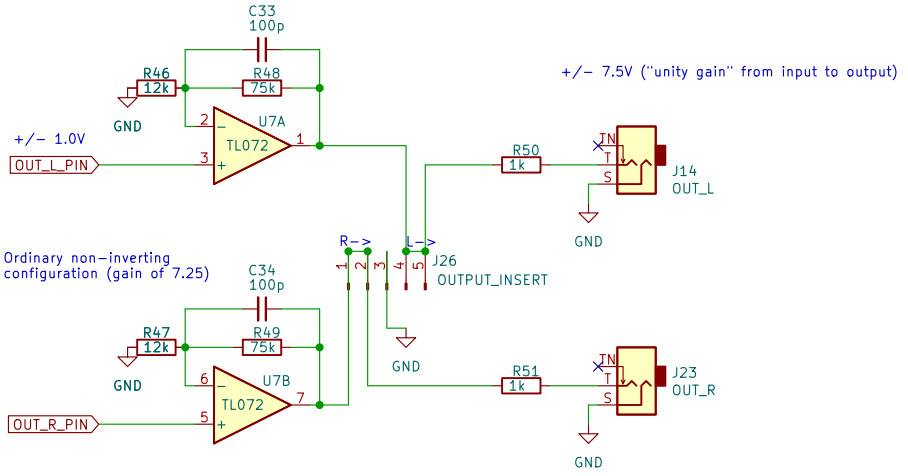


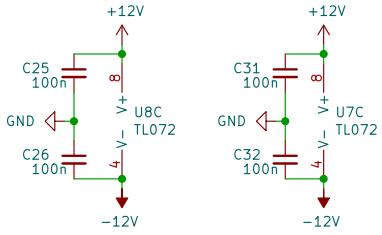
Sheet: /SDIO/		
File: sdio.kicad_sch		
Title:		
Size: A4	Date: 2024-10-03	**Rev: v0.8**
KiCad E.D.A. kicad (6.0.11)		Id: 2/14

+/−7.5V input level (+/−5V seemed to distort easily)

if you're feeding Big Genes particularly hot input levels,
remove R38, R40 to allow for ca. +/−10V headroom







Sheet: /Audio IO/
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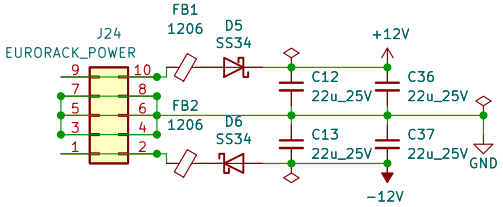
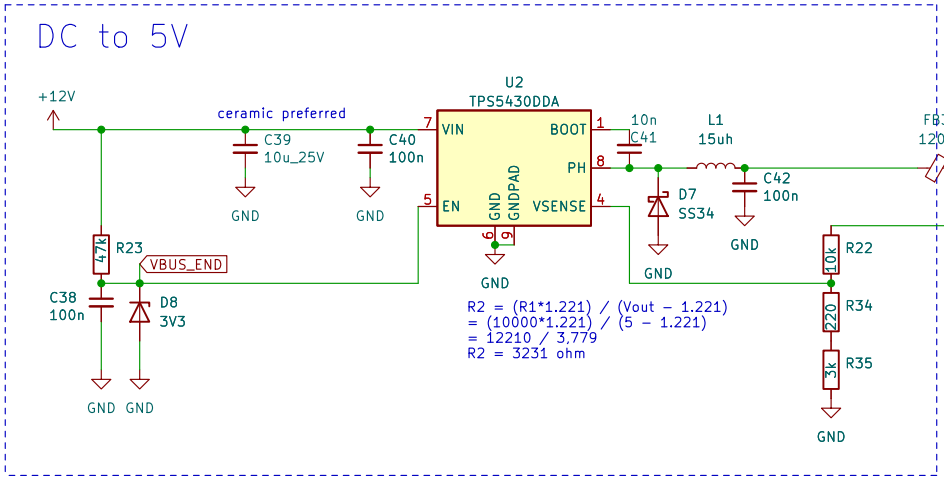
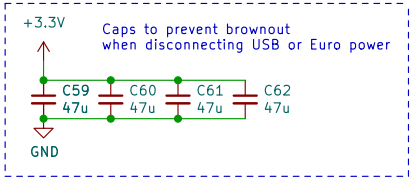
Title:

Size: A4	Date: 2024−10−03	**Rev: v0.8**
KiCad E.D.A. kicad (6.0.11)		Id: 3/14



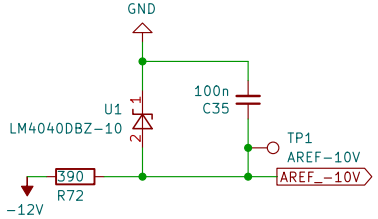




At least ca. 3.2mA delivered

Up to 1.82mA required when using B50k pots

(Note: up to 5.0mA may be required when using B10k pots!
If you encounter pot positions affecting each other and/or CV values shifting,
you will have to reduce R72 a bit further. Down to 330 ohm sounds about right.
You can solder a 2.2k resistor in parallel with R72)



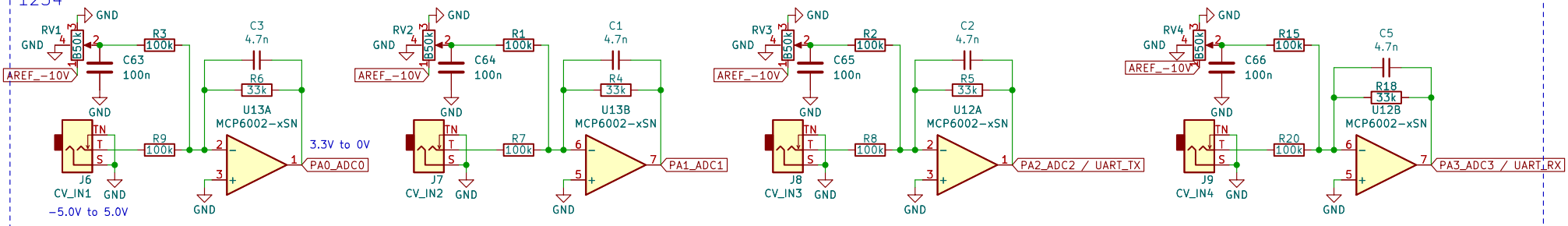
Sheet: /Power/
File: power.kicad_sch

Title:

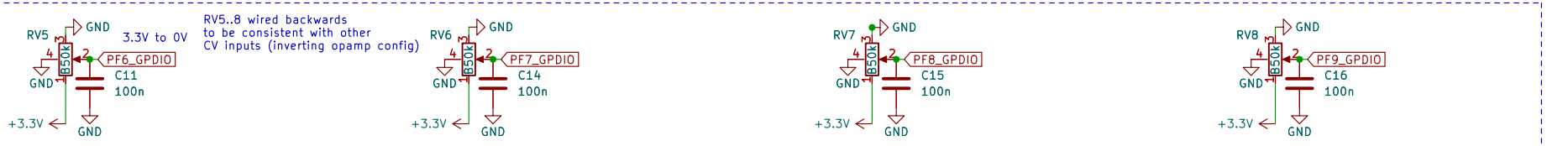
Size: A4	Date: 2024-10-03	**Rev: v0.8**
KiCad E.D.A. kicad (6.0.11)		Id: 4/14

Pots / CV inputs

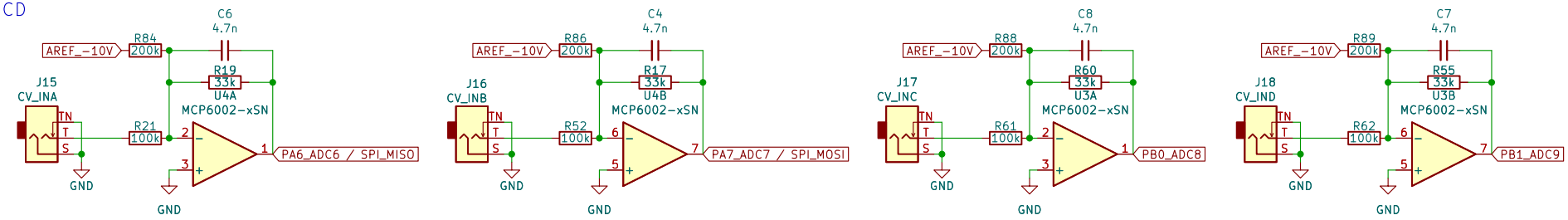
1234



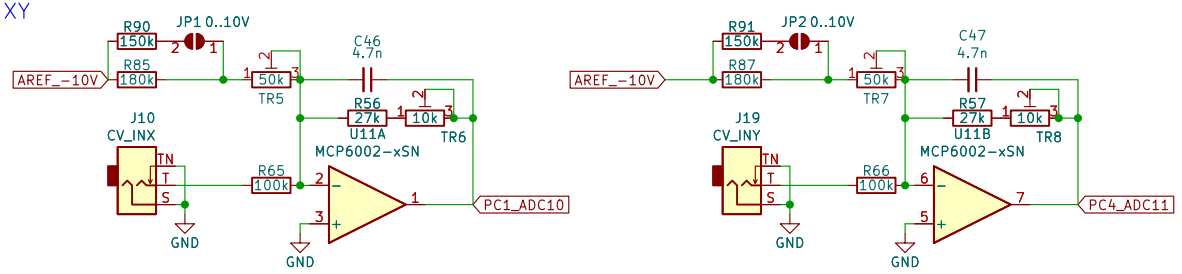
5678

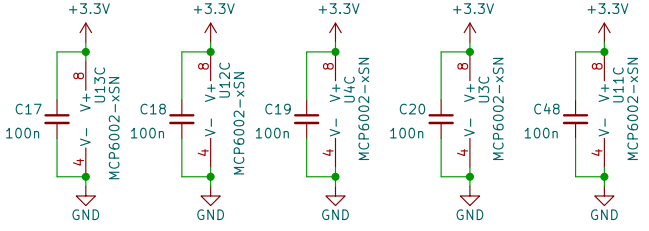


ABCD

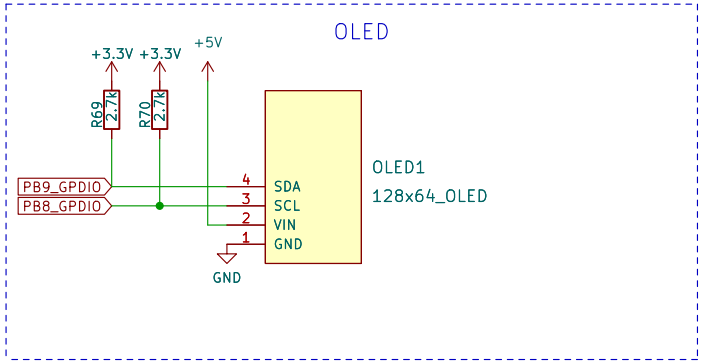


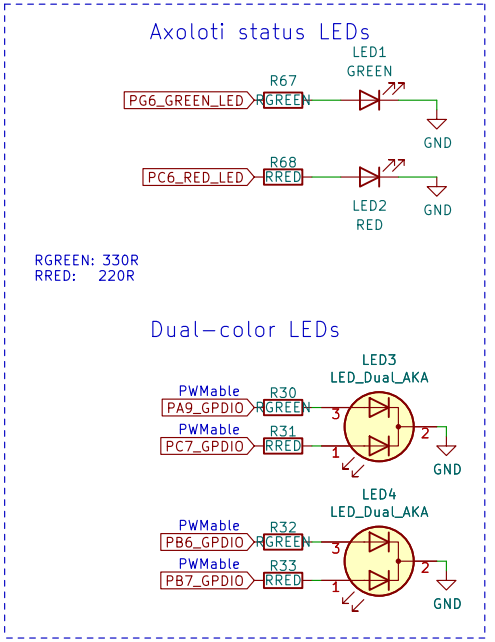
XY

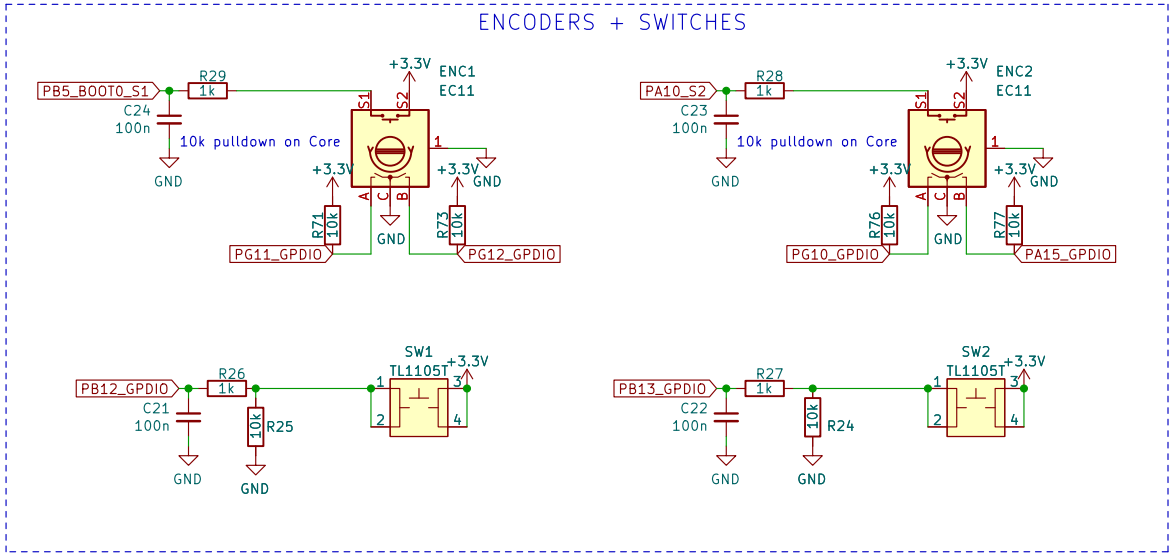




Sheet: /CV Inputs/		
File: cv_in.kicad_sch		
Title:		
Size: A4	Date: 2024-10-03	**Rev: v0.8**
KiCad E.D.A. kicad (6.0.11)		Id: 5/14



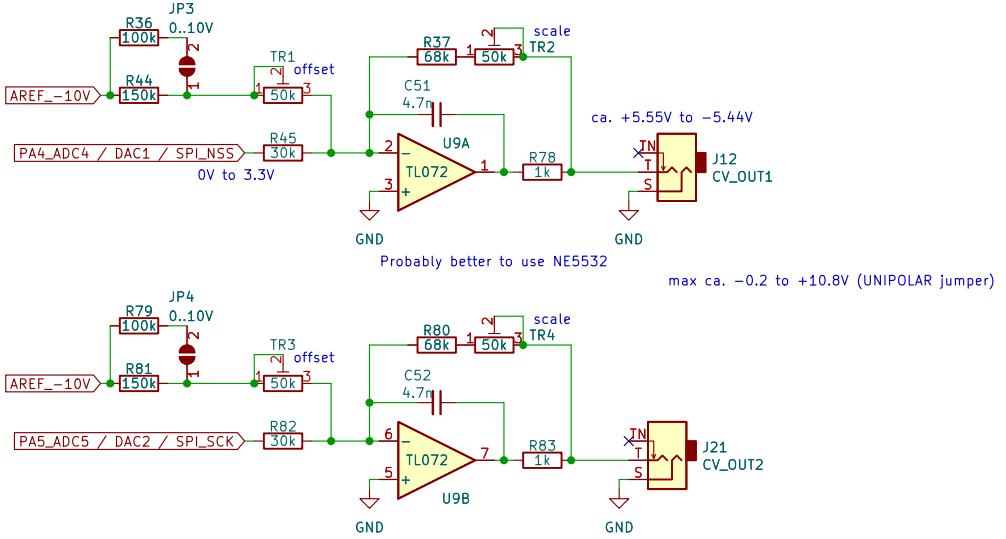


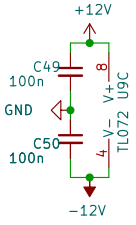


Sheet: /LEDs and Buttons/		
File: led_out.kicad_sch		
Title:		
Size: A4	Date: 2024-10-03	**Rev: v0.8**
KiCad E.D.A. kicad (6.0.11)		Id: 6/14

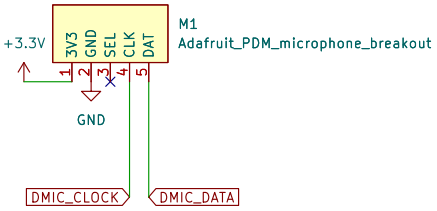
CV outputs

SIGNAL SCALE/OFFSET





Sheet: /CV outputs/ File: cv_out.kicad_sch		
Title:		
Size: A4	Date: 2024-10-03	**Rev: v0.8**
KiCad E.D.A. kicad (6.0.11)		Id: 7/14



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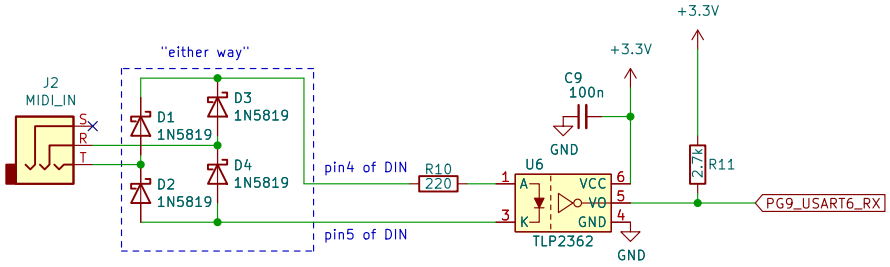
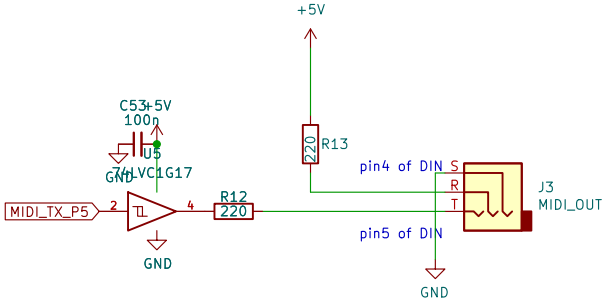
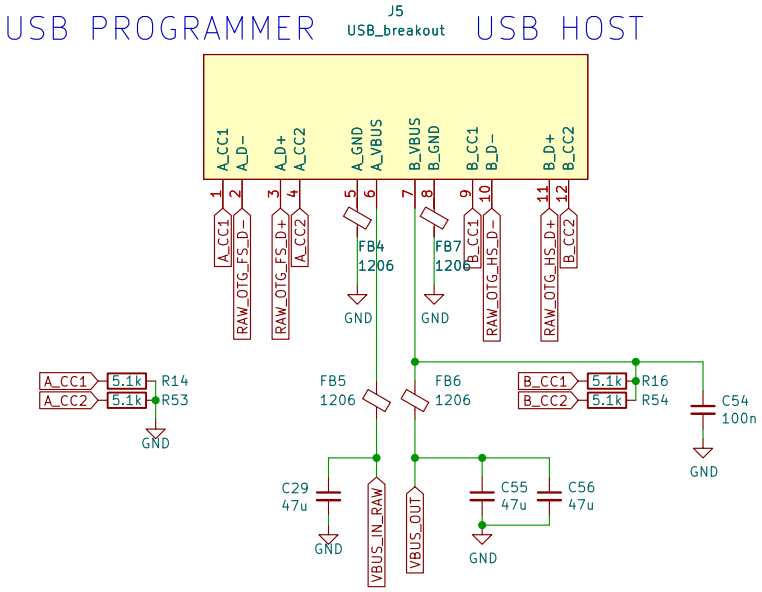
File: digital_mic.kicad_sch		
Title:		
Size: A4	Date: 2024-10-03	**Rev: v0.8**
KiCad E.D.A. kicad (6.0.11)		Id: 8/14



conforming to TRS MIDI specs
https://www.midi.org/midi-articles/trs-specification-adopted-and-released



Sheet: /MIDI/		
File: midi.kicad_sch		
Title:		
Size: A4	Date: 2024-10-03	**Rev: v0.8**
KiCad E.D.A. kicad (6.0.11)		Id: 9/14



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Title:		
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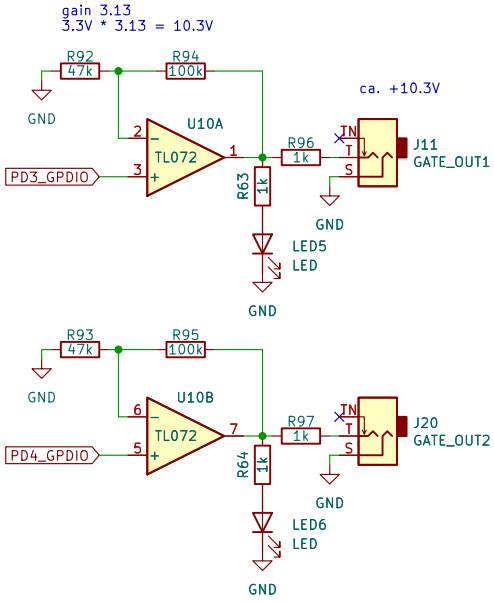
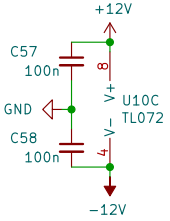
KiCad E.D.A. kicad (6.0.11)		Id: 10/14





Sheet: /Gate Outputs/
File: gate_io.kicad_sch

Title:

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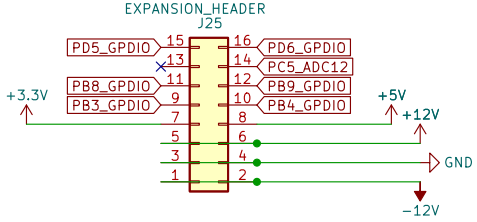

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Title:		
Size: A4	Date: 2024-10-03	**Rev: v0.8**
KiCad E.D.A. kicad (6.0.11)		Id: 12/14

Changelog

v0.3 done – prototype ordered 2024-02-07

v0.4 done – prototype ordered 2024-03-06

- swap pins PD5 and PD6 on expansion header (consistency)
- rework USB connector and SD card connector footprints, panel holes
- Use pseudo-SMD pin socket for J1 line in/out to Core
- Use LM4040-10 instead of CJ431 for stabler VREF
- Add extra caps on 3.3V rail
- Use "thin" OLED footprint (slightly different dimensions)
- Adjust Thonkiconn stereo jacks footprint size, position
- Fix encoder pins not connecting to any MCU pin

v0.5 done – Prototype ordered 2024-06

- Add filter caps to pots 1-4
- Rework USB connectors: design breakout board holding two horizontal connectors and pin headers
- Revert OLED to "non-thin" version (same like Gills), run on 5V instead of 3.3V
- Reduce series resistors for optional Gate LEDs to 2.7k

v0.6 done – production

- Further reduce series resistors for optional Gate LEDs to 1k
- Improve SD card and USB breakouts: use 2.0 mm pin headers instead of 1.27 mm ones (a pain to solder)
- Improve Thonkiconn mono and stereo footprints
- Change audio in/out amplification to non-inverted
- Rework power and grounding, add ferrite beads etc.

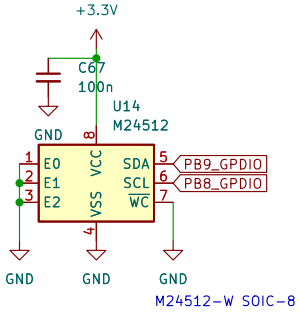
v0.7 done – production

- Add I2C EEPROM for easy preset memory handling (or other data)
- Add "Ksoloti unified" output insert header. Perhaps for a stereo filter daughterboard?
- BUG: Fix swapped CLOCK and DATA pins for PDM mic header.

v0.8 done – production

- Reduce voltage reference series resistor (R72) to 390 ohms, recommend B50k pots (when using 10k pots, -10V reference may become unstable)

Sheet: /changelog/		
File: changelog.kicad_sch		
Title:		
Size: A4	Date: 2024-10-03	**Rev: v0.8**
KiCad E.D.A. kicad (6.0.11)		Id: 14/14



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KiCad E.D.A. kicad (6.0.11)		Id: 14/14