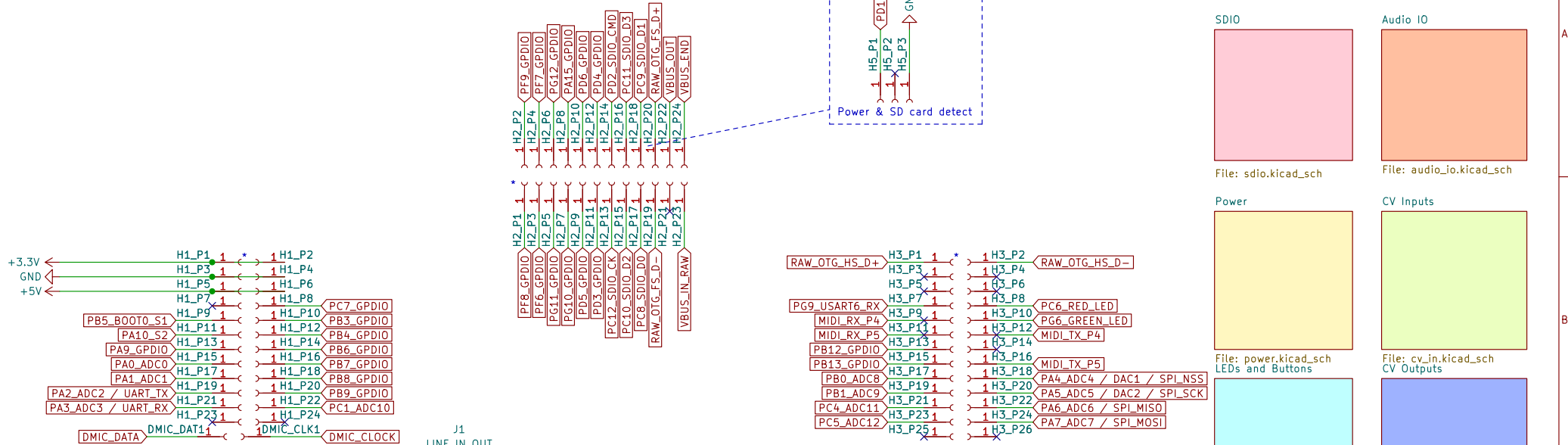
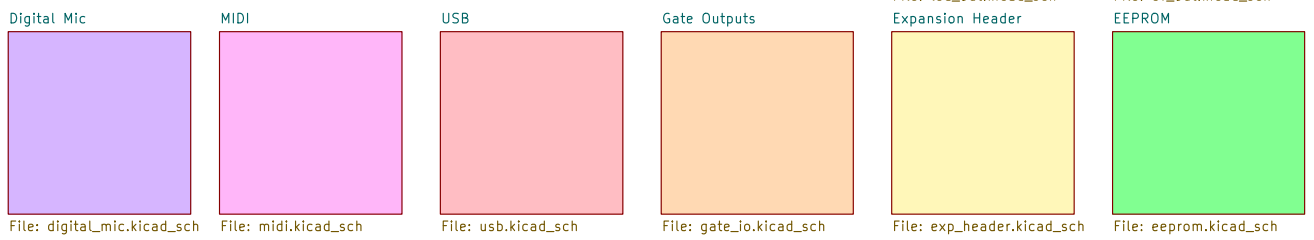


Ksoloti Core v0.4+ headers (top view)



- 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



changelog

CHANGELOG

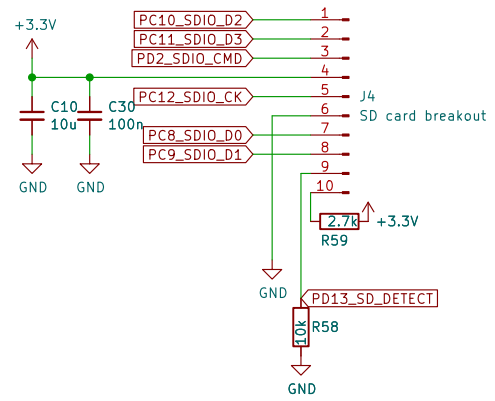
File: changelog.kicad_sch

Sheet: /
File: ksoloti_big_genes.kicad_sch

Title:

Size: A4	Date: 2024-11-12	Rev: v0.8
KiCad E.D.A. kicad (6.0.11)		Id: 1/14

SD Card Header



Sheet: /SDIO/
File: sdio.kicad_sch

Title:

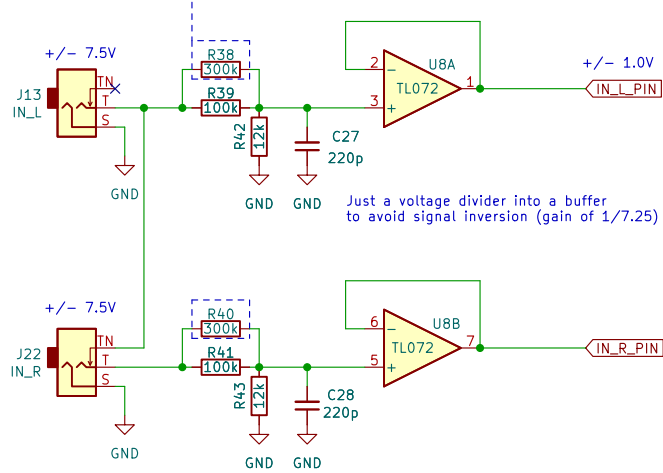
Size: A4 Date: 2024-11-12
KiCad E.D.A. kicad (6.0.11)

Rev: v0.8
Id: 2/14

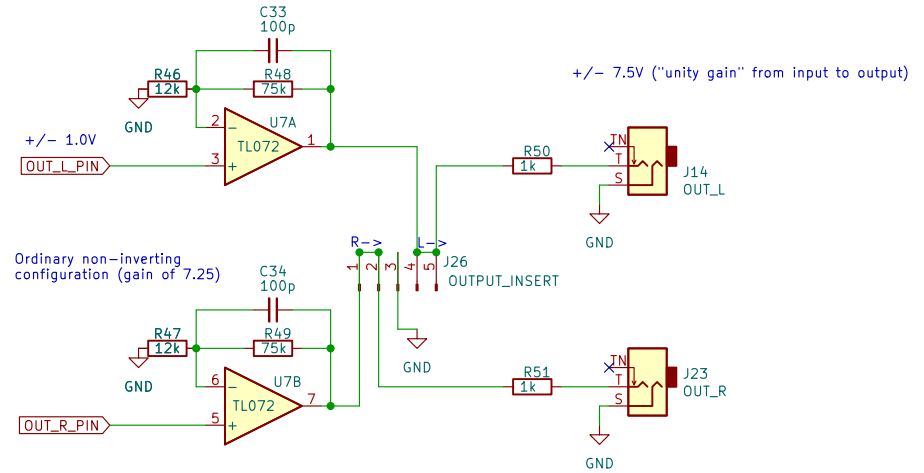
Audio IO

+/-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

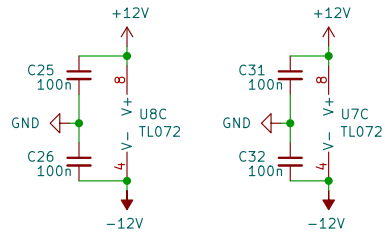


Just a voltage divider into a buffer to avoid signal inversion (gain of 1/7.25)



Ordinary non-inverting configuration (gain of 7.25)

+/- 7.5V ("unity gain" from input to output)



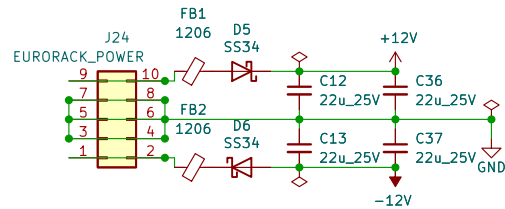
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File: audio_io.kicad_sch

Title:

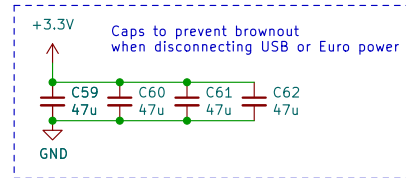
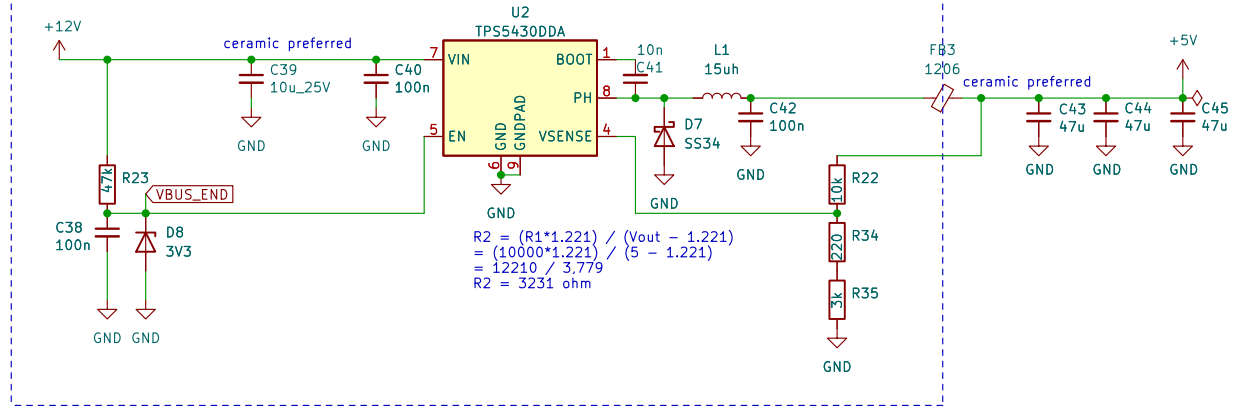
Size: A4 Date: 2024-11-12
KiCad E.D.A. kicad (6.0.11)

Rev: v0.8
Id: 3/14

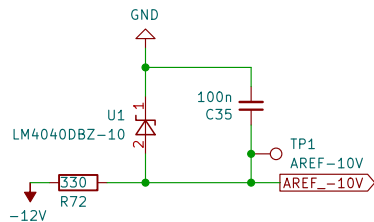
Power



DC to 5V



At least ca. 5.3mA delivered with proper -12V rail
 (Note: up to 4.8mA may be required when using B10k pots)
 Ca. 1.82mA required when using B50k pots



+3.3V

Sheet: /Power/
 File: power.kicad_sch

Title:

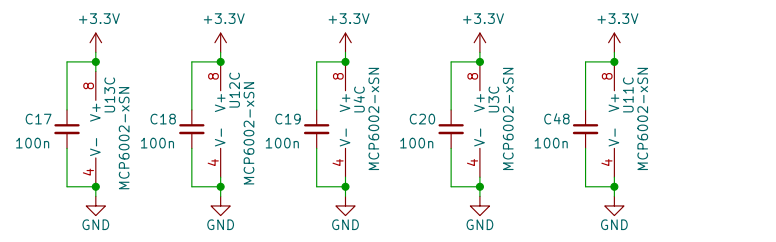
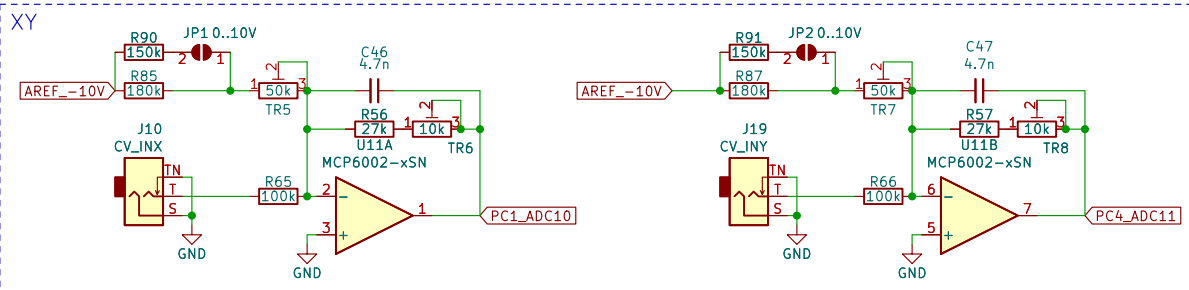
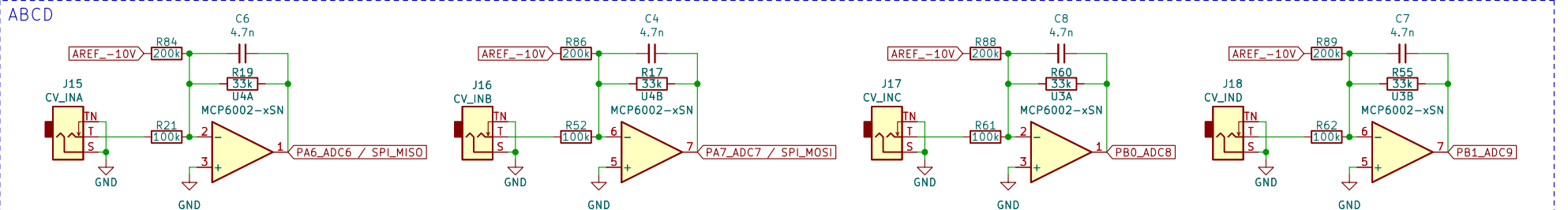
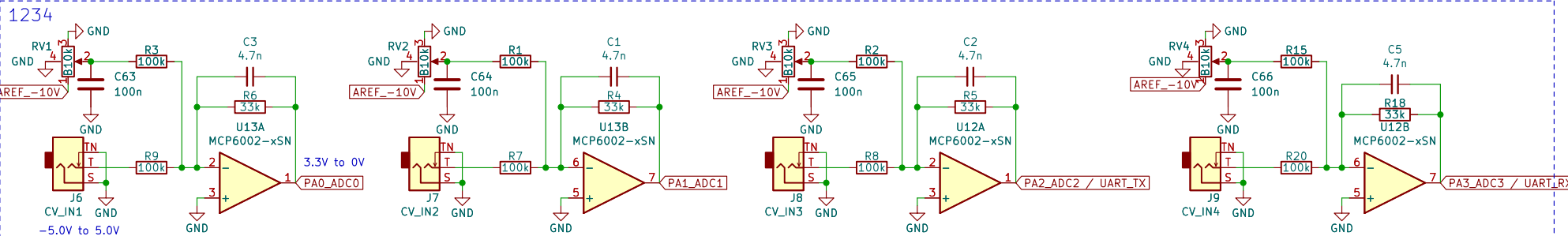
Size: A4 Date: 2024-11-12

KiCad E.D.A. kicad (6.0.11)

Rev: v0.8

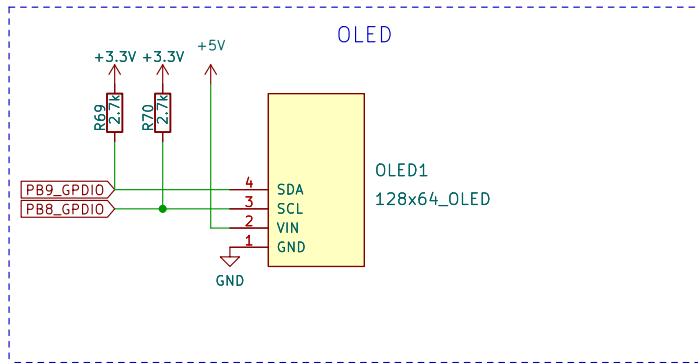
Id: 4/14

Pots / CV inputs



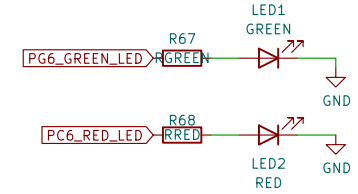
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Title:	
Size: A4	Date: 2024-11-12
KiCad E.D.A. kicad (6.0.11)	Rev: v0.8 Id: 5/14

OLED



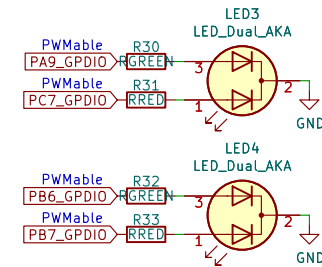
LEDs, Buttons and Encoders

Axoloti status LEDs

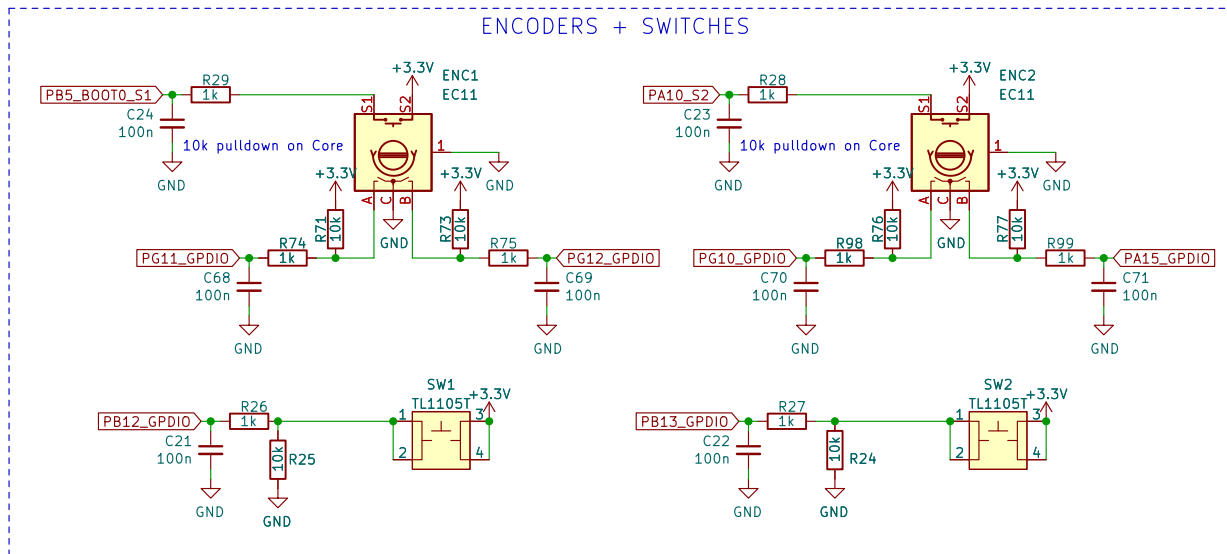


RGREEN: 330R
RRED: 220R

Dual-color LEDs



ENCODERS + SWITCHES



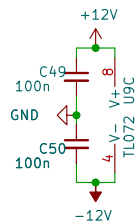
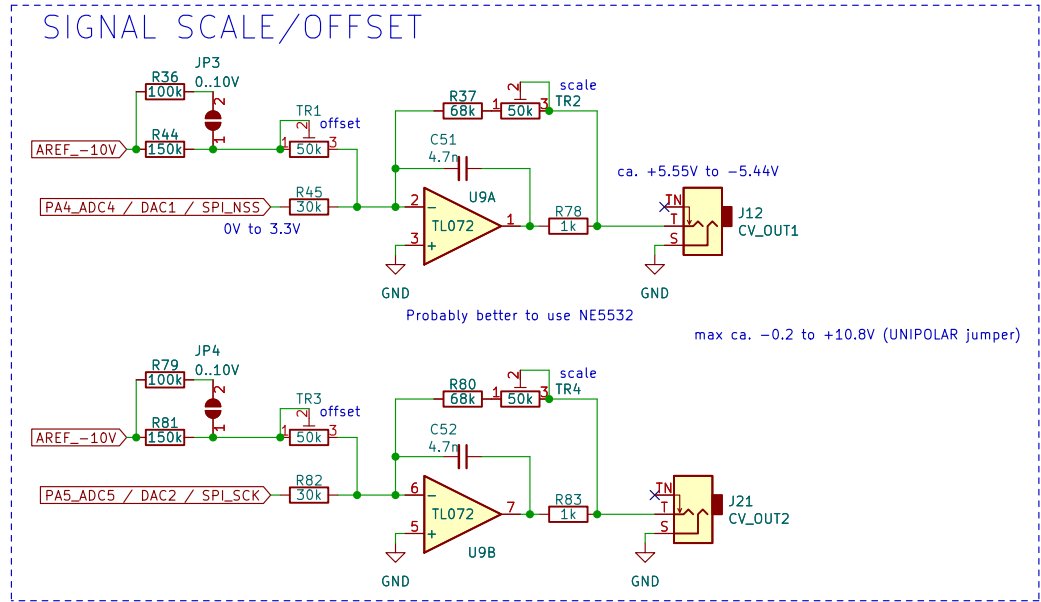
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Title:

Size: A4 Date: 2024-11-12
KiCad E.D.A. kicad (6.0.11)

Rev: v0.8
Id: 6/14

CV outputs



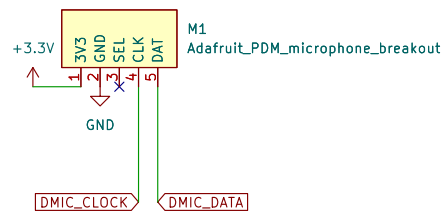
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Title:

Size: A4 Date: 2024-11-12
KiCad E.D.A. kicad (6.0.11)

Rev: v0.8
Id: 7/14

Digital Mic Header



Sheet: /Digital Mic/
File: digital_mic.kicad_sch

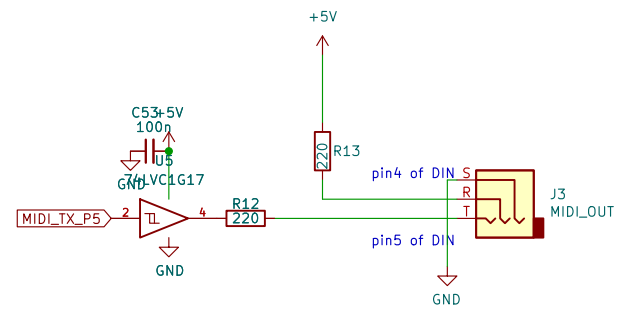
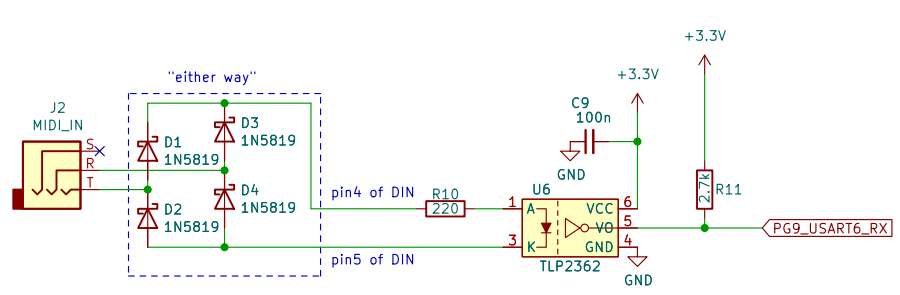
Title:

Size: A4 Date: 2024-11-12
KiCad E.D.A. kicad (6.0.11)

Rev: v0.8
Id: 8/14

MIDI IO

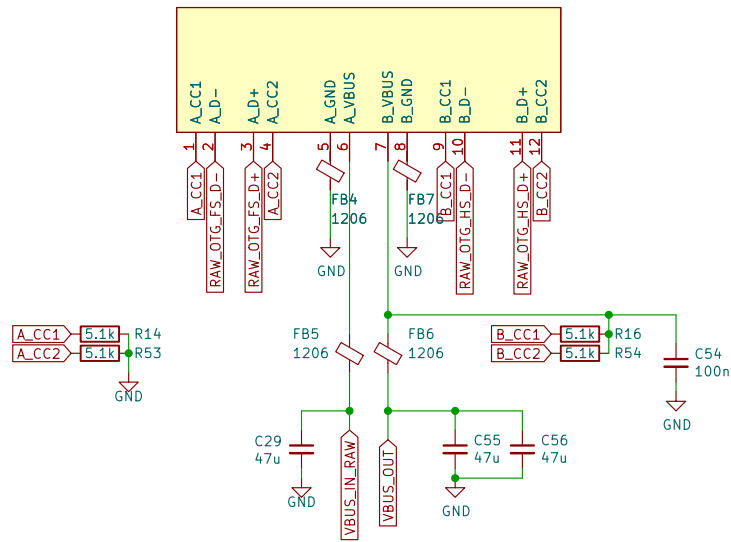
conforming to TRS MIDI specs
<https://www.midi.org/midi-articles/trs-specification-adopted-and-released>



Sheet: /MIDI/		Date: 2024-11-12	
File: midi.kicad_sch		Rev: v0.8	
Size: A4	KiCad E.D.A. kicad (6.0.11)	Id: 9/14	

USB Header

USB PROGRAMMER J5
USB_breakout USB HOST



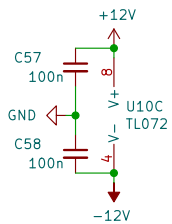
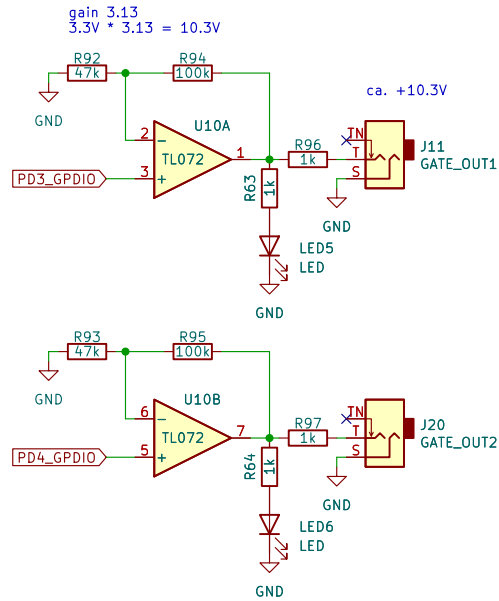
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Title:

Size: A4 Date: 2024-11-12
KiCad E.D.A. kicad (6.0.11)

Rev: v0.8
Id: 10/14

Gate Outputs



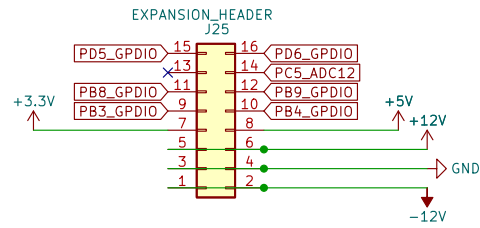
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Title:

Size: A4 Date: 2024-11-12
KiCad E.D.A. kicad (6.0.11)

Rev: v0.8
Id: 11/14

Expansion Header



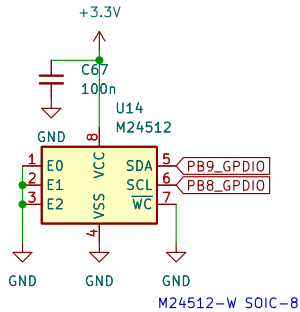
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Size: A4 Date: 2024-11-12
KiCad E.D.A. kicad (6.0.11)

Rev: v0.8
Id: 12/14

EEPROM



Sheet: /EEPROM/
File: eeprom.kicad_sch

Title:

Size: A4 Date: 2024-11-12
KiCad E.D.A. kicad (6.0.11)

Rev: v0.8
Id: 13/14

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 -10V reference series resistor (R72) to 330 ohms
(When using 10k pots and R72 is higher than 390, -10V reference may drift)
- Add RC low pass filters to encoder A, B pins

Sheet: /changelog/
File: changelog.kicad_sch

Title:

Size: A4 Date: 2024-11-12

KiCad E.D.A. kicad (6.0.11)

Rev: v0.8

Id: 14/14