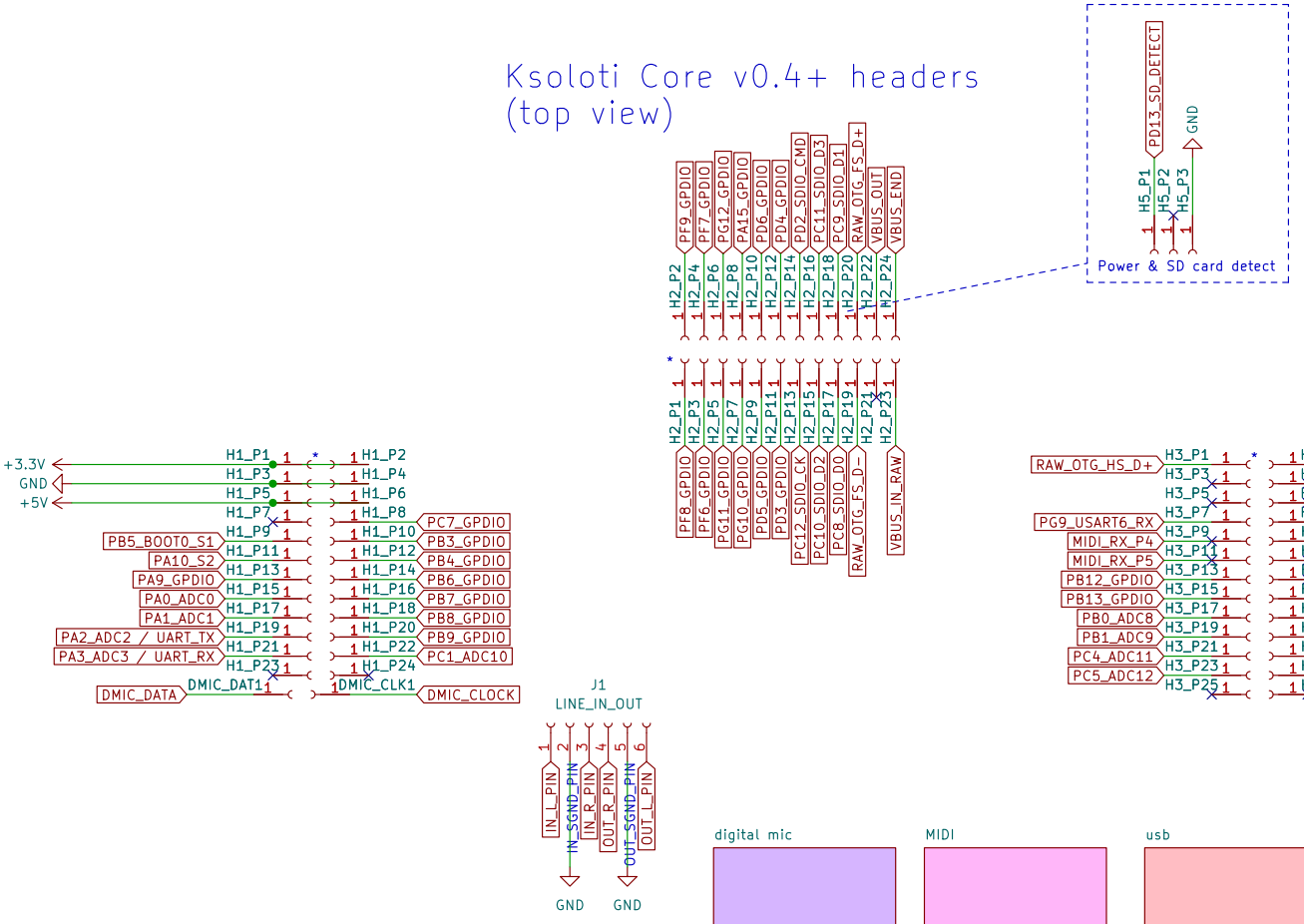
# Ksoloti Core v0.4+ headers (top view)




SDIO

File: sdio.kicad_sch

Audio IO

File: audio_io.kicad_sch

Power

File: power.kicad_sch

CV Inputs

File: cv_in.kicad_sch

LEDs and Buttons

File: led_out.kicad_sch

CV outputs

File: cv_out.kicad_sch

digital mic

File: digital_mic.kicad_sch

MIDI

File: midi.kicad_sch

usb

File: usb.kicad_sch

Gate Outputs

File: gate_io.kicad_sch

expansion_header

File: exp_header.kicad_sch

eeprom

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

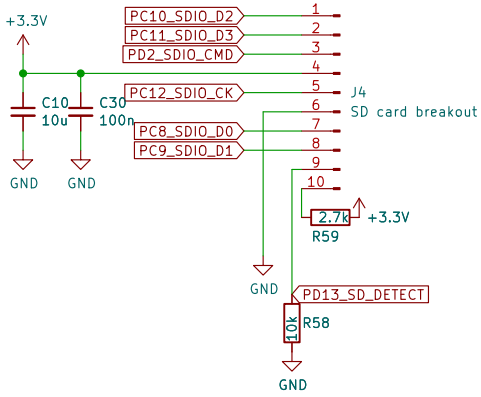
## CHANGELOG

File: changelog.kicad_sch

Sheet: /
File: ksoloti_big_genes.kicad_sch

**Title:**

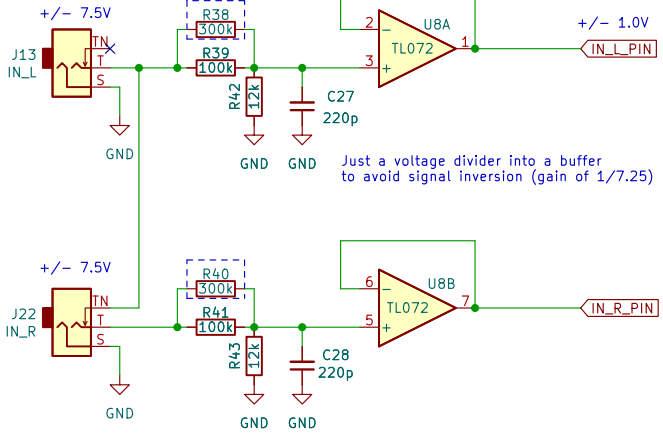
| | | |
|---|---|---|
| Size: A4 | Date: 2024-11-12 | **Rev: v0.8** |
| KiCad E.D.A. kicad (6.0.11) | | Id: 1/14 |

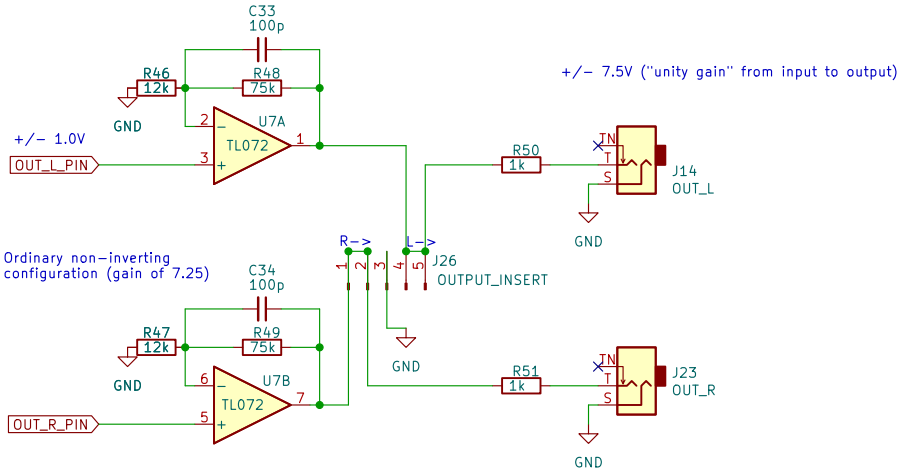


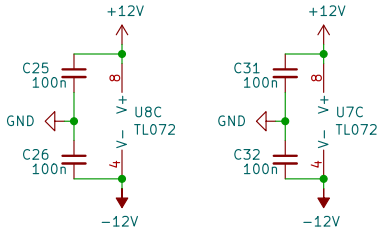

| | | |
|---|---|---|
| Sheet: /SDIO/ | | |
| File: sdio.kicad_sch | | |
| **Title:** | | |
| Size: A4 | Date: 2024-11-12 | **Rev: v0.8** |
| KiCad E.D.A. kicad (6.0.11) | | Id: 2/14 |

+/−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

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**Title:**

| Size: A4 | Date: 2024−11−12 | **Rev: v0.8** |
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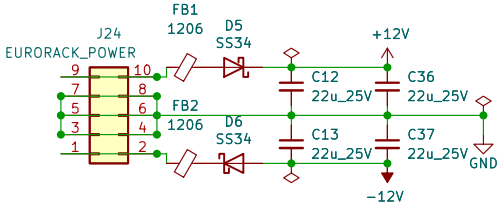
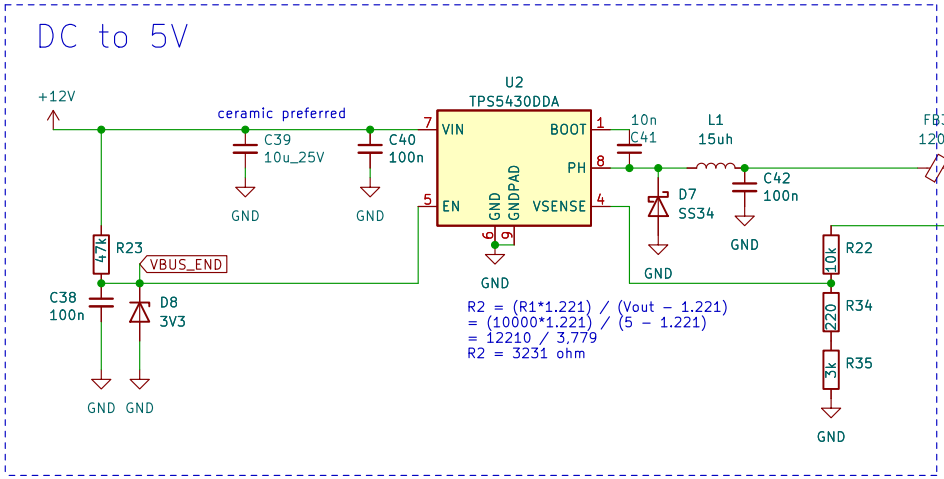
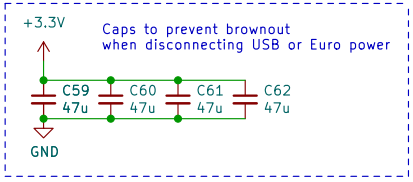
| KiCad E.D.A. kicad (6.0.11) | | Id: 3/14 |



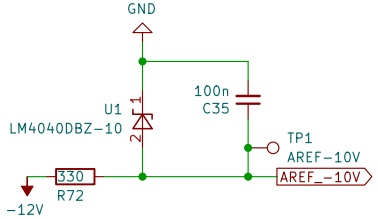




At least ca. 5.3mA delivered with proper −12V rail

**(Note: up to 4.8mA may be required when using B10k pots)**

Ca. 1.82mA required when using B50k pots





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|---|---|---|
| Sheet: /Power/ | | |
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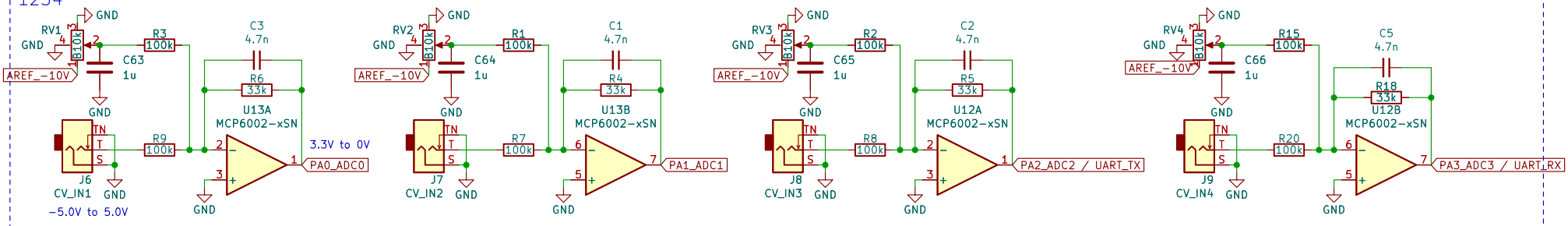
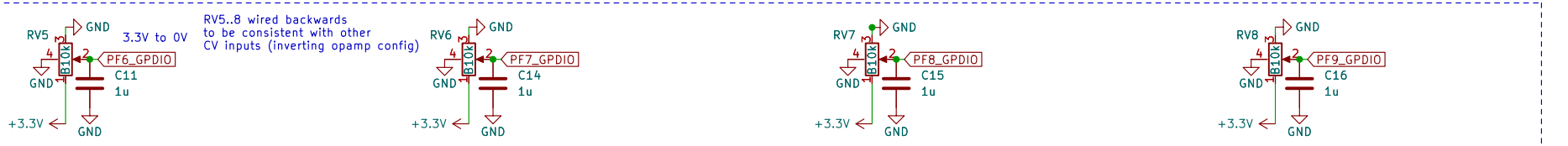
| ***Title:*** | | |
| Size: A4 | Date: 2024−11−12 | **Rev: v0.8** |
| KiCad E.D.A. kicad (6.0.11) | | Id: 4/14 |

# Pots / CV inputs

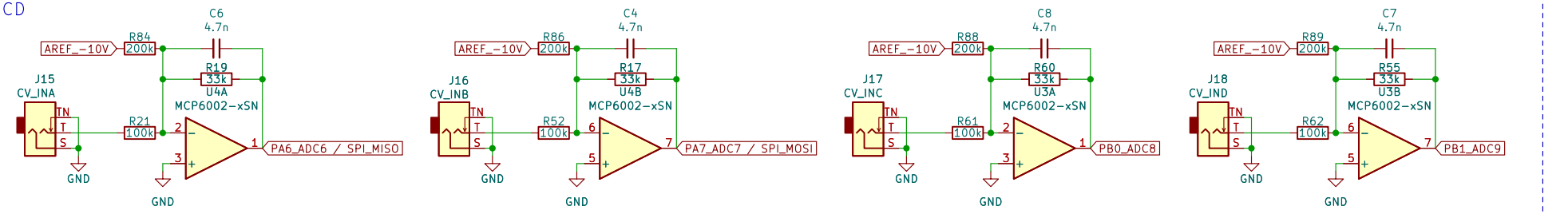
## 1234



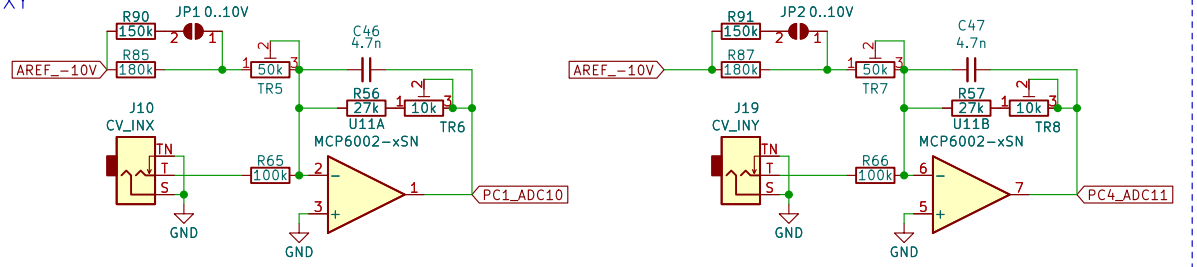

## 5678

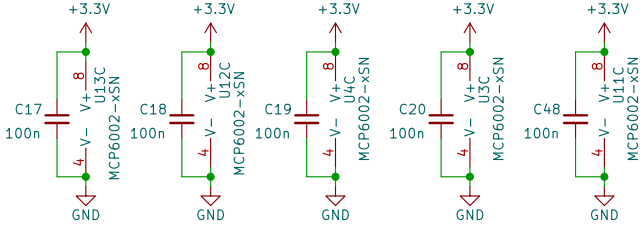



## ABCD




## XY




Sheet: /CV Inputs/
File: cv_in.kicad_sch

**Title:**

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|---|---|---|
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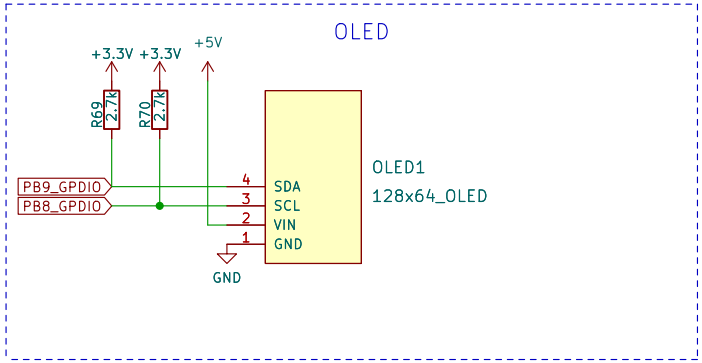
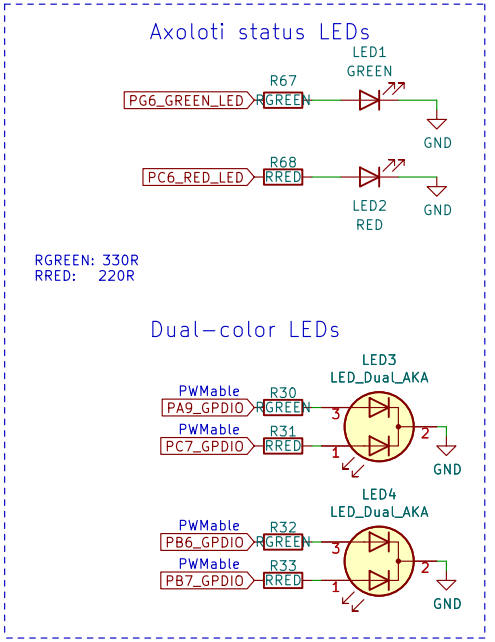
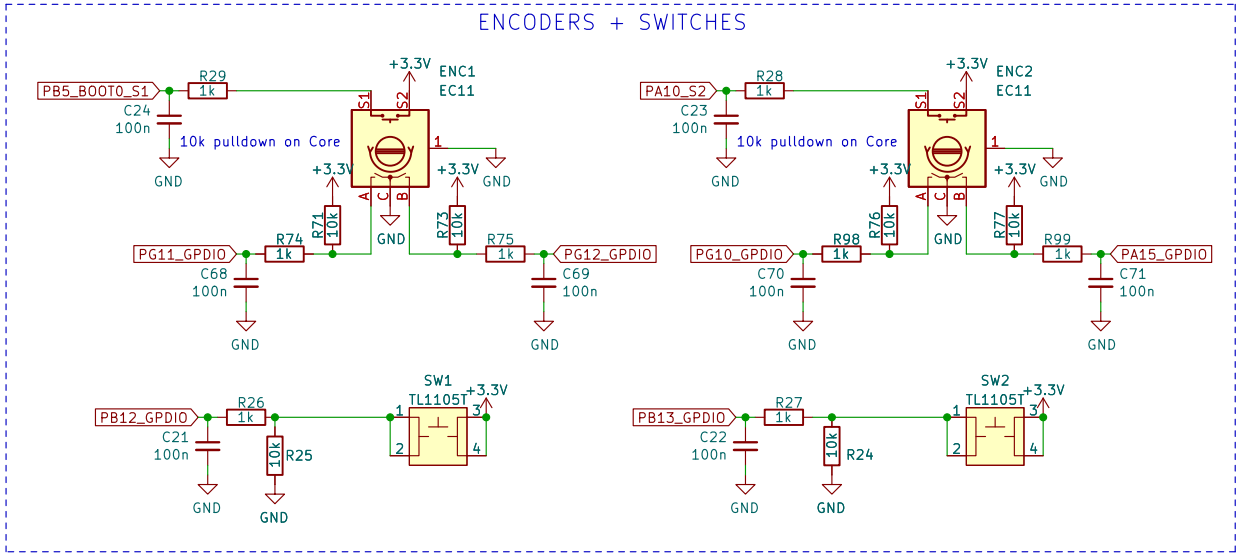
| KiCad E.D.A. kicad (6.0.11) | | Id: 5/14 |

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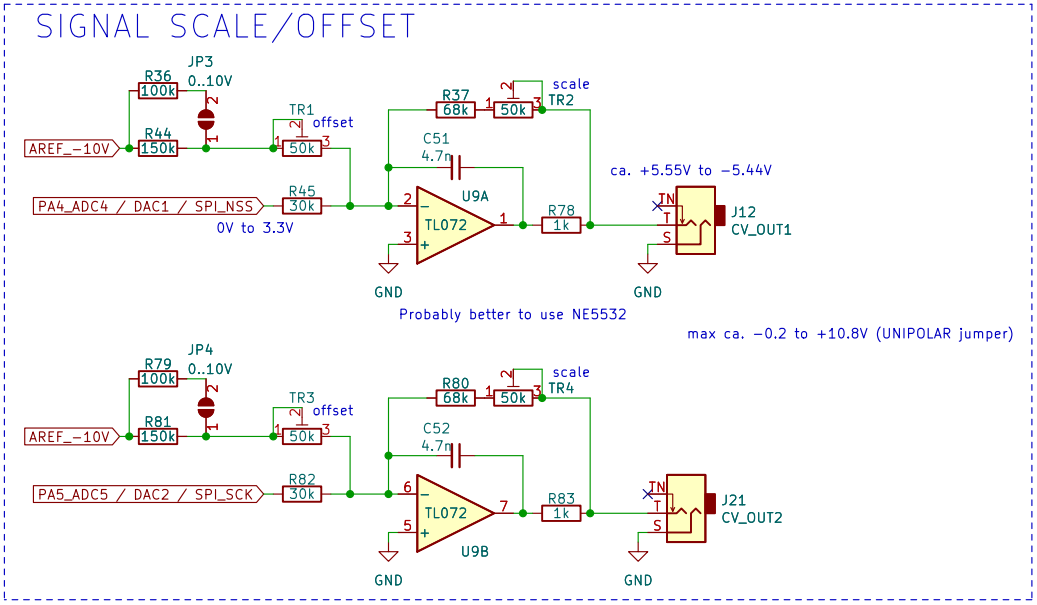
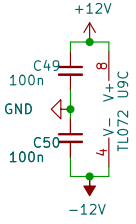
|---|---|---|
| Sheet: /LEDs and Buttons/ | | |
| File: led_out.kicad_sch | | |
| **Title:** | | |
| Size: A4 | Date: 2024-11-12 | **Rev: v0.8** |
| KiCad E.D.A. kicad (6.0.11) | | Id: 6/14 |

# CV outputs

## SIGNAL SCALE/OFFSET

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|---|---|---|
| Sheet: /CV outputs/<br>File: cv_out.kicad_sch | | |
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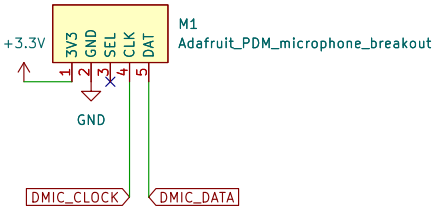


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|---|---|---|
| Sheet: /digital mic/ | | |
| File: digital_mic.kicad_sch | | |
| **Title:** | | |
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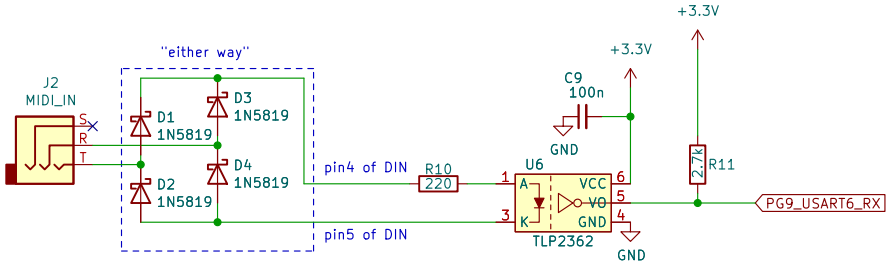
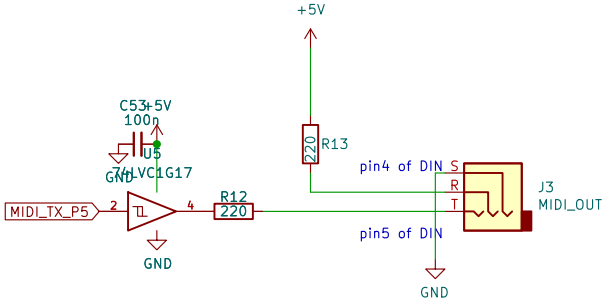



conforming to TRS MIDI specs
https://www.midi.org/midi-articles/trs-specification-adopted-and-released

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|---|---|---|
| Sheet: /MIDI/ | | |
| File: midi.kicad_sch | | |
| **Title:** | | |
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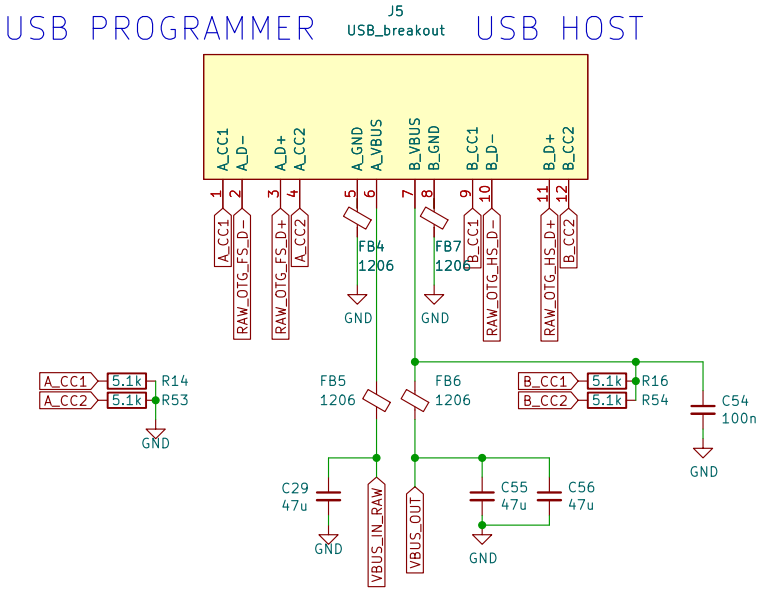
| KiCad E.D.A. kicad (6.0.11) | | Id: 9/14 |

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|---|---|---|
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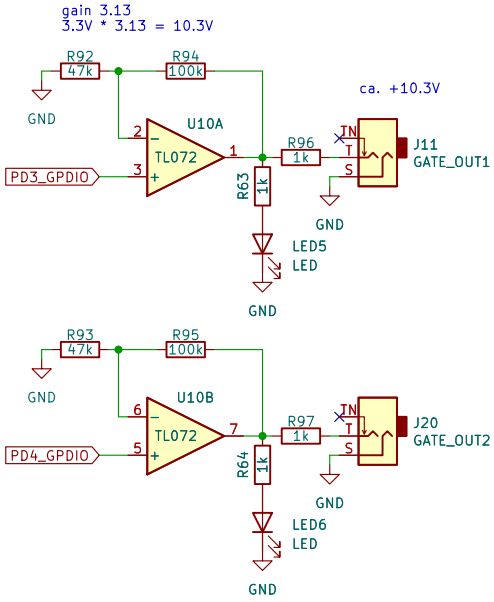


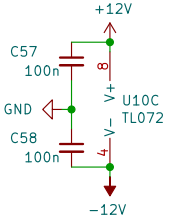


Sheet: /Gate Outputs/
File: gate_io.kicad_sch

**Title:**

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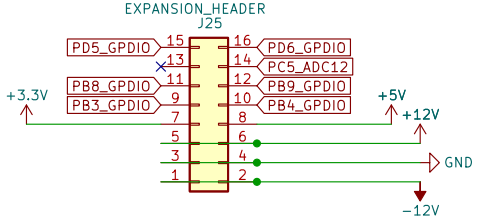


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|---|---|---|
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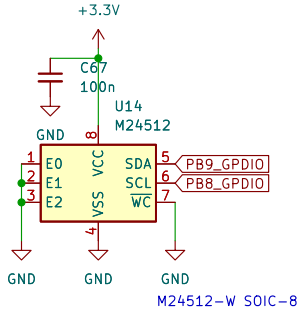


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|---|---|---|
| Sheet: /eeprom/ | | |
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| **Title:** | | |
| Size: A4 | Date: 2024-11-12 | **Rev: v0.8** |
| KiCad E.D.A. kicad (6.0.11) | | Id: 13/14 |

# 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
- Increase pot filter caps C63-C66, C11, C14-C16 to 1uF

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