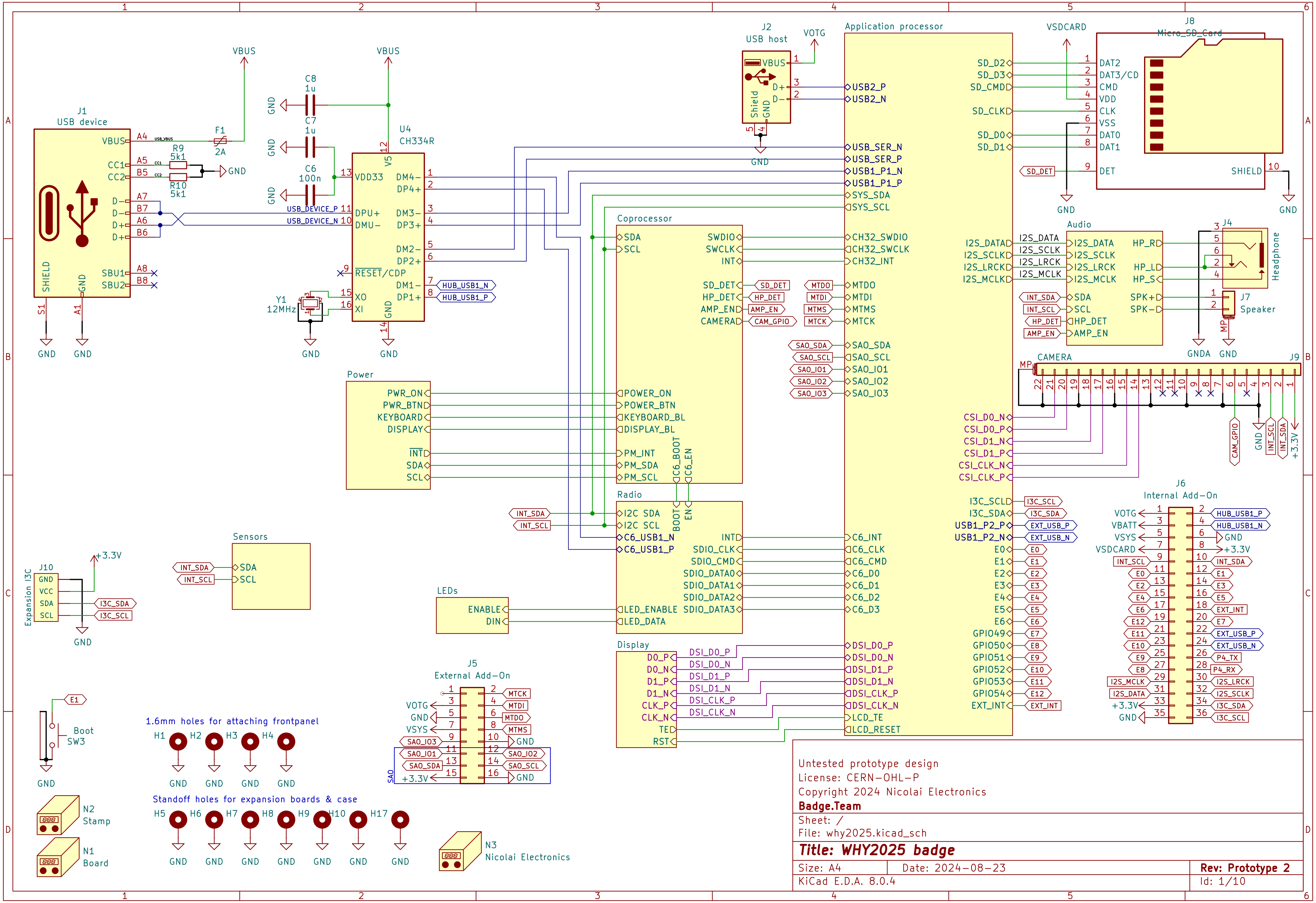

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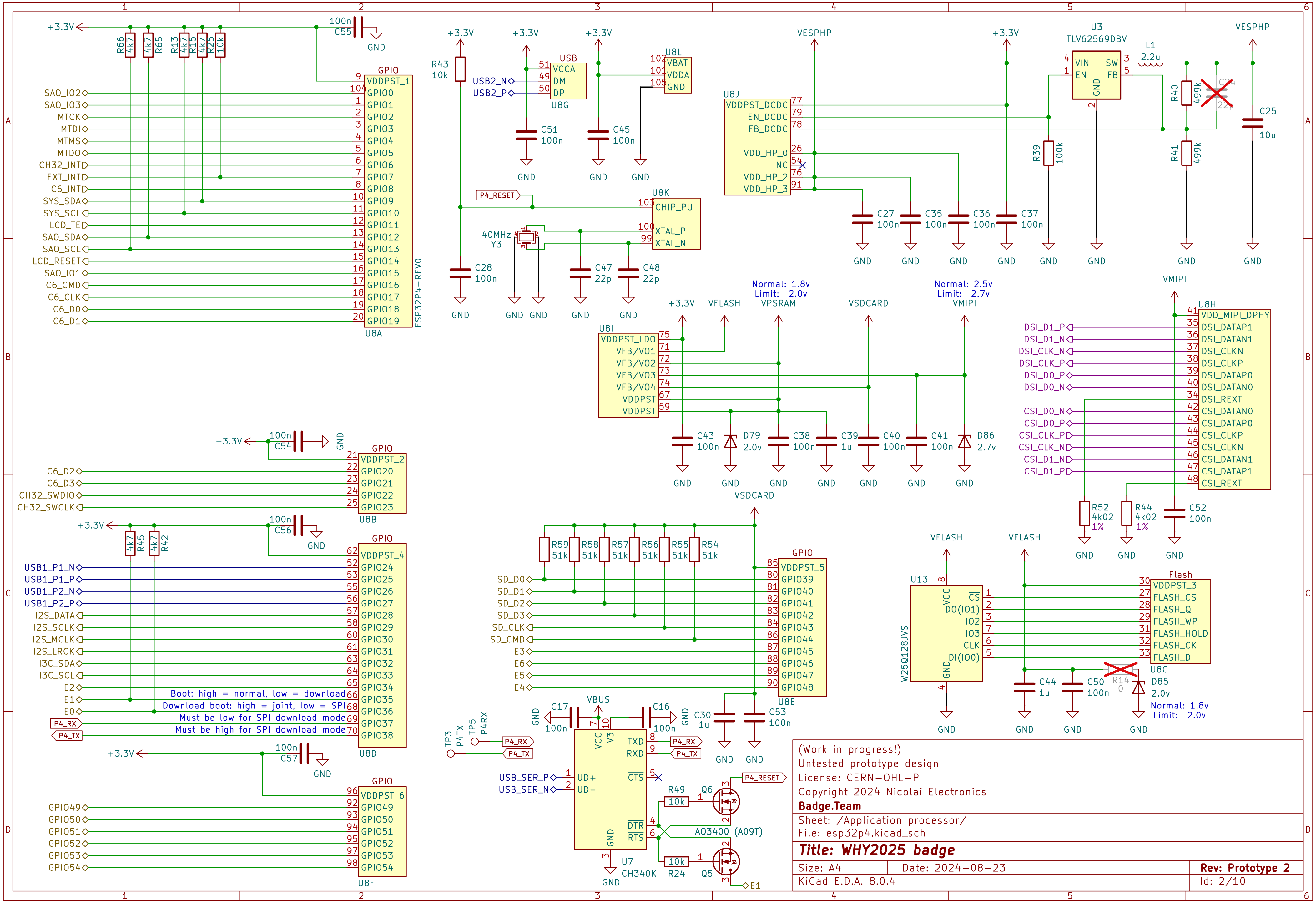
Sheet: /
File: why2025.kicad_sch

Title: WHY2025 badge

Size: A4 | Date: 2024-08-23 | **Rev: Prototype 2**
KiCad E.D.A. 8.0.4 | Id: 1/10



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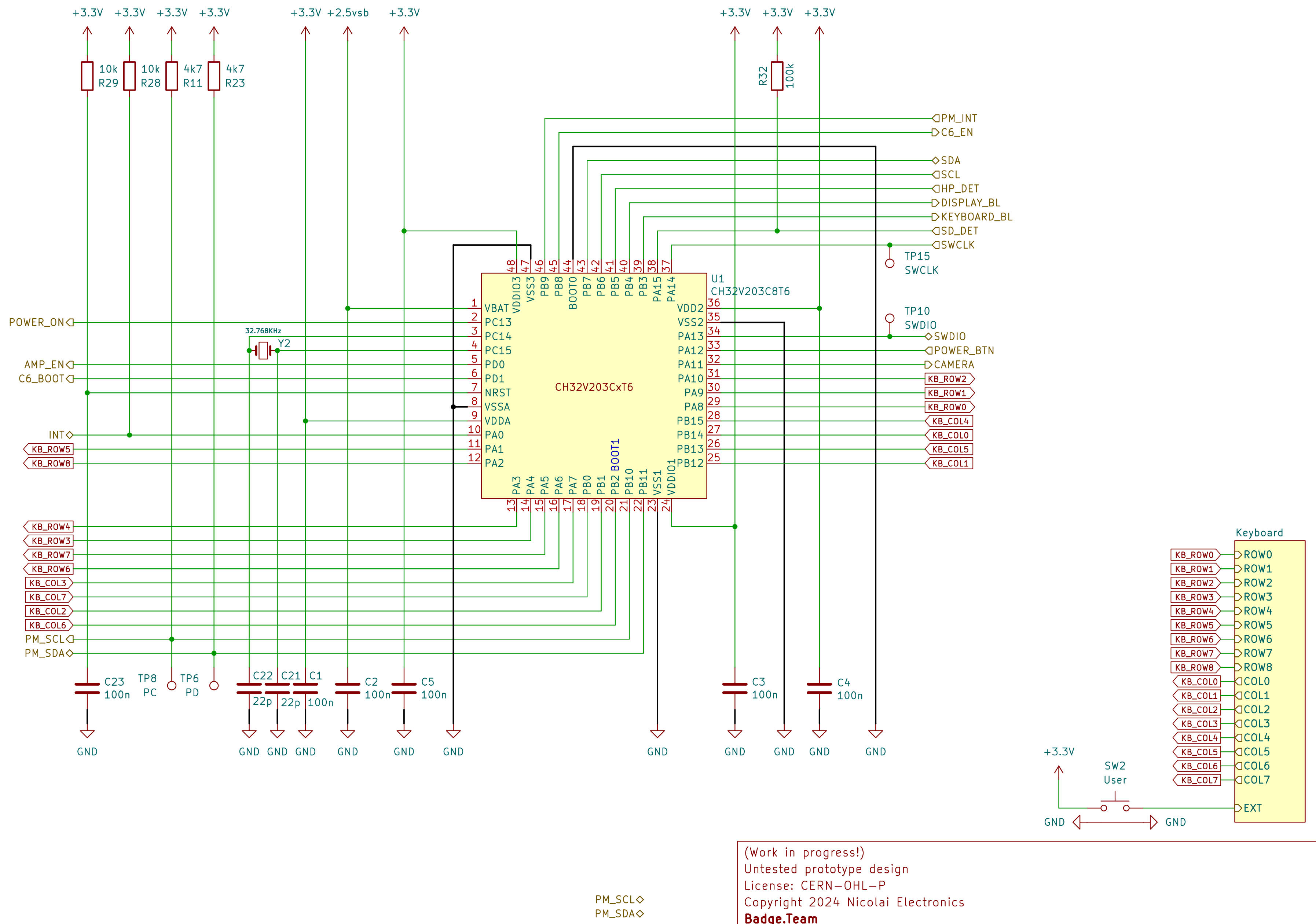
Sheet: /Application processor/
File: esp32p4.kicad_sch

Title: WHY2025 badge

Size: A4
Date: 2024-08-23
Rev: Prototype 2
KiCad E.D.A. 8.0.4
Id: 2/10



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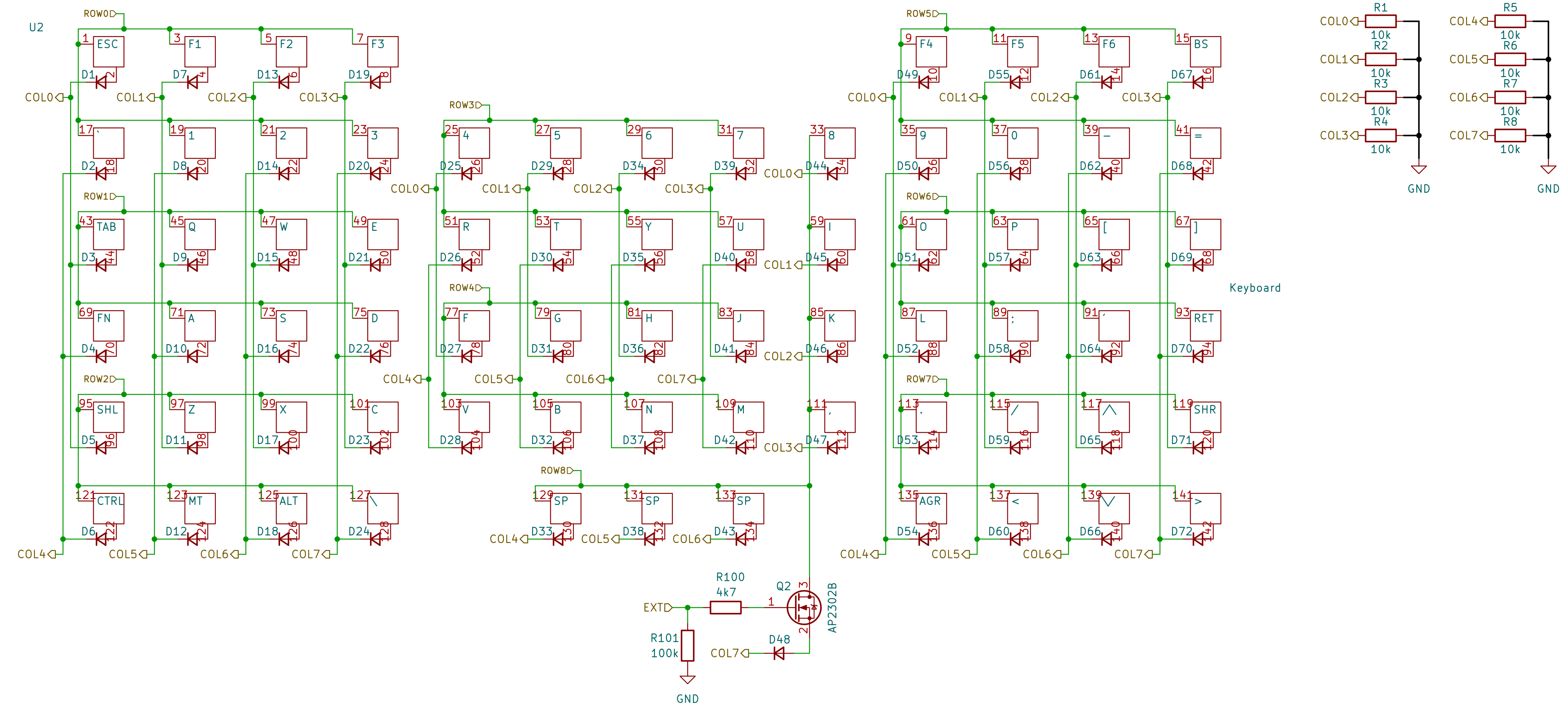
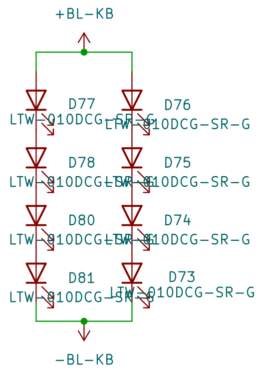
Sheet: /Coprocessor/
File: coprocessor.kicad_sch

Title: WHY2025 badge

Size: A4	Date: 2024-08-23	**Rev: Prototype 2**
KiCad E.D.A. 8.0.4		Id: 4/10





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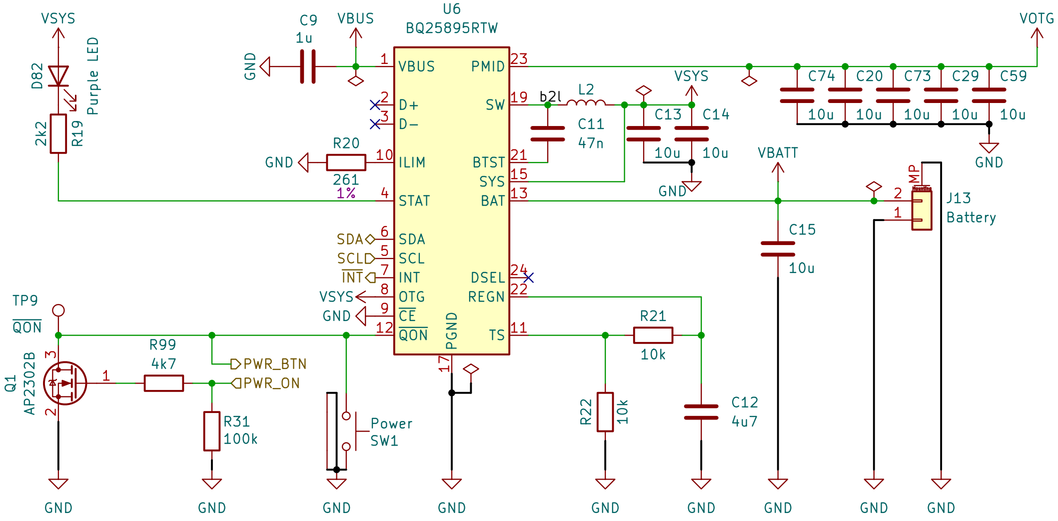
Sheet: /Coprocessor/Keyboard/
File: keyboard_matrix.kicad_sch

Title: WHY2025 badge

Size: A4 Date: 2024-08-23 **Rev: Prototype 2**
KiCad E.D.A. 8.0.4 Id: 1/10

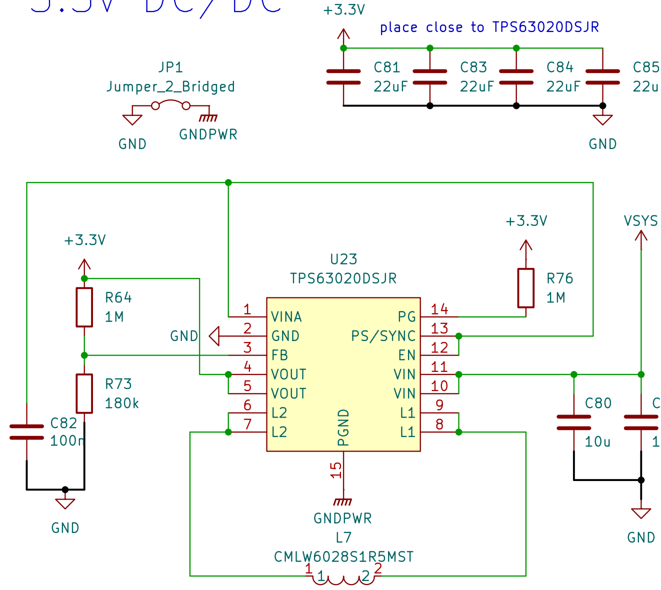
PMIC



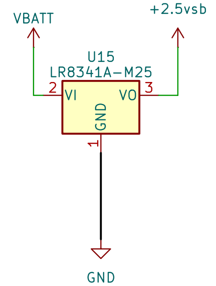
Watch out with the I2C bus of this device, wrong configuration can be dangerous.

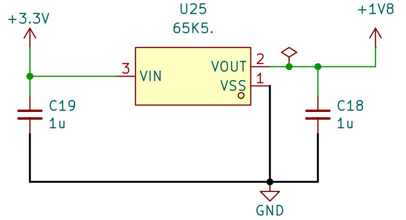
VBUS is the voltage coming from the input USB-C port. This voltage can be 5 up to 14 volts.
VOTG is 5V generated from VBATT or VBUS depending on the power source of the system.
VBATT is connected to the rechargeable battery.
VSYS is an unregulated 3.5 to 4.5v output used to power the DC-DC converters for the rest of the components.

3.3v DC/DC



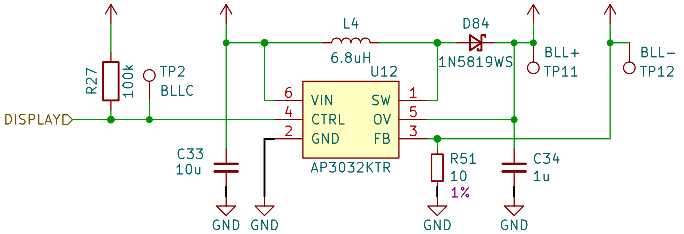
Standby





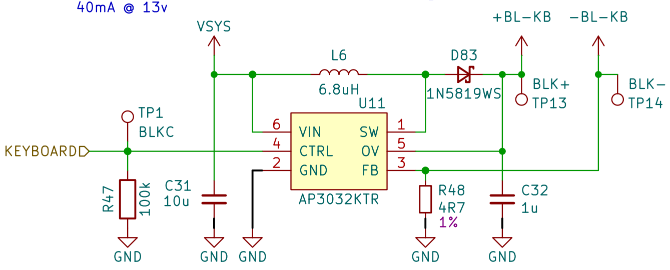
Display backlight DC/DC

20mA @ 24v



Keyboard backlight DC/DC

40mA @ 13v



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Sheet: /Power/
File: power.kicad_sch

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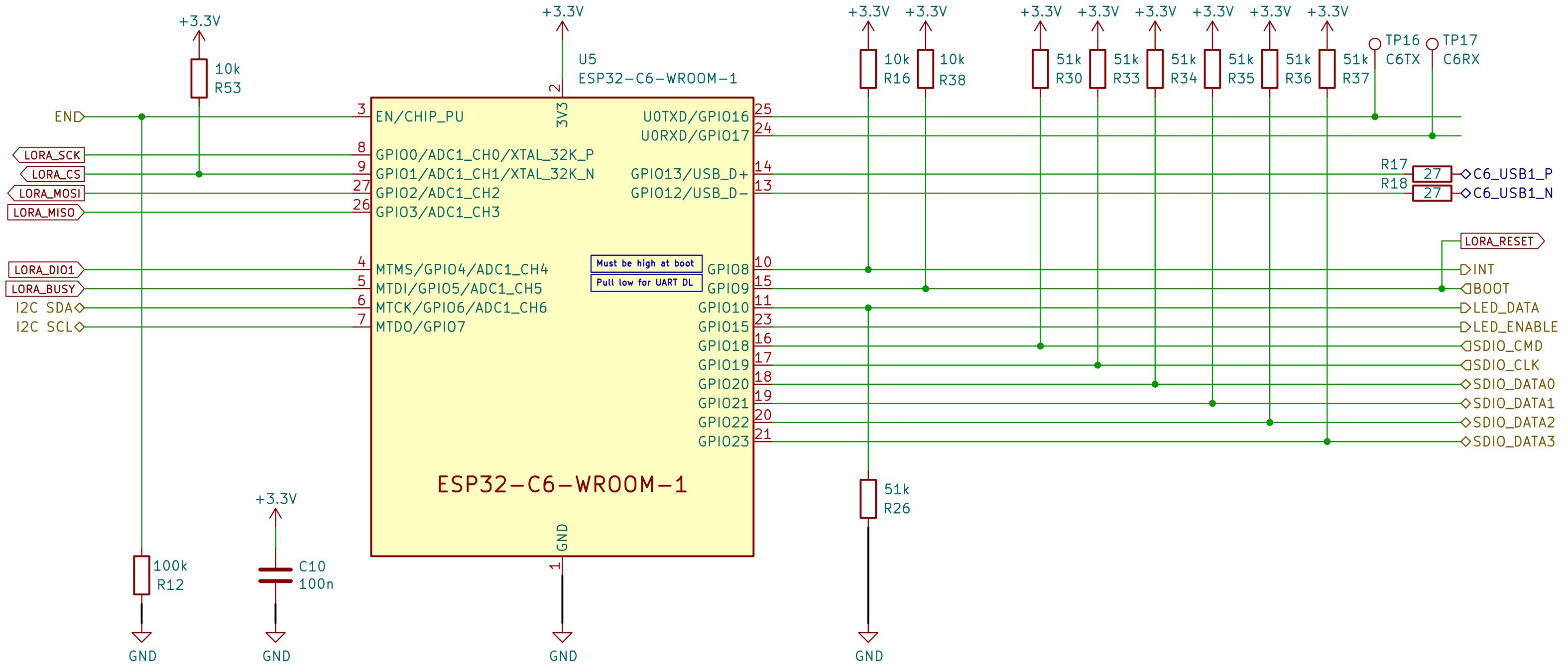

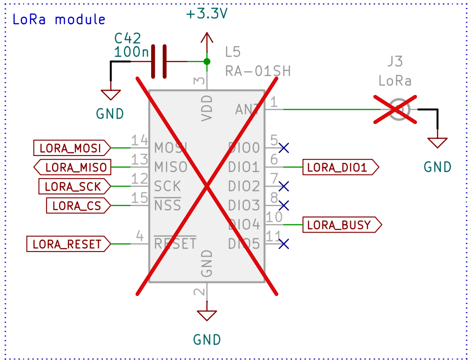

Bootstrapping pins:
- GPIO8: Has to be high at power on
- GPIO9: Connect to pull-up resistor, pull to GND to start download mode

Low power peripherals:
- UART: RX on GPIO4, TX on GPIO5
- I2C: SDA on GPIO6, SCL on GPIO7

(Work in progress!)
Untested prototype design

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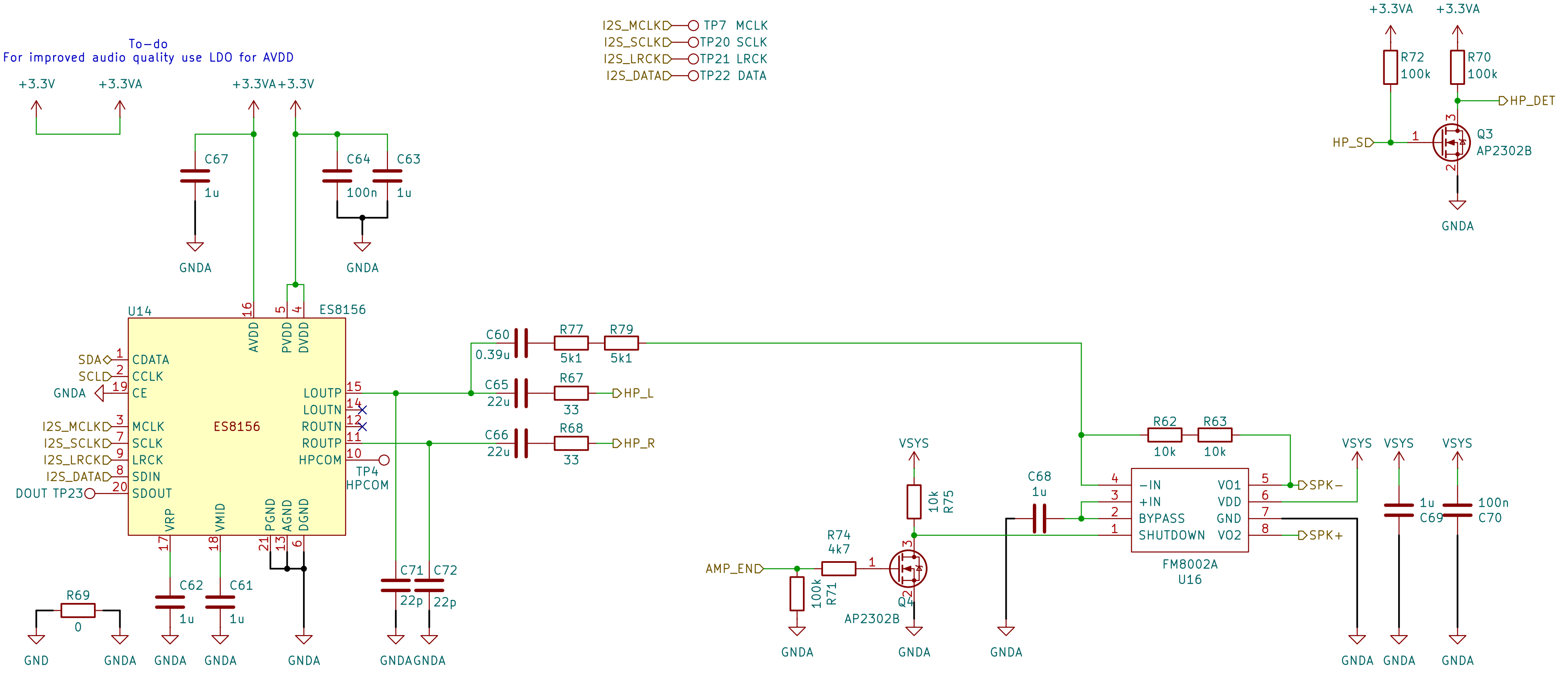
Sheet: /Radio/
File: radio.kicad_sch

Title: WHY2025 badge

Size: A4 Date: 2024-08-23 **Rev: Prototype 2**
KiCad E.D.A. 8.0.4 Id: 7/10



To-do
For improved audio quality use LDO for AVDD

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Sheet: /Audio/
File: audio.kicad_sch

Title: WHY2025 badge

Size: A4	Date: 2024-08-23	**Rev: Prototype 2**
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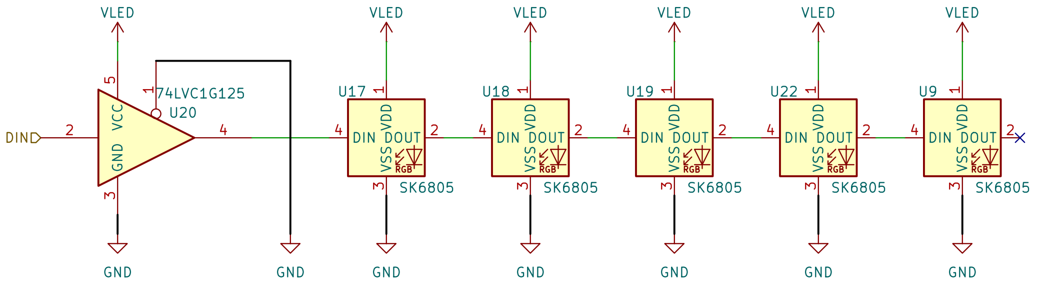
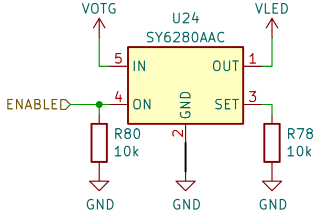


Switched power: Vin for LEDs

Iset = 0.68A = 6800 / 10kOhm



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Sheet: /LEDs/
File: leds.kicad_sch

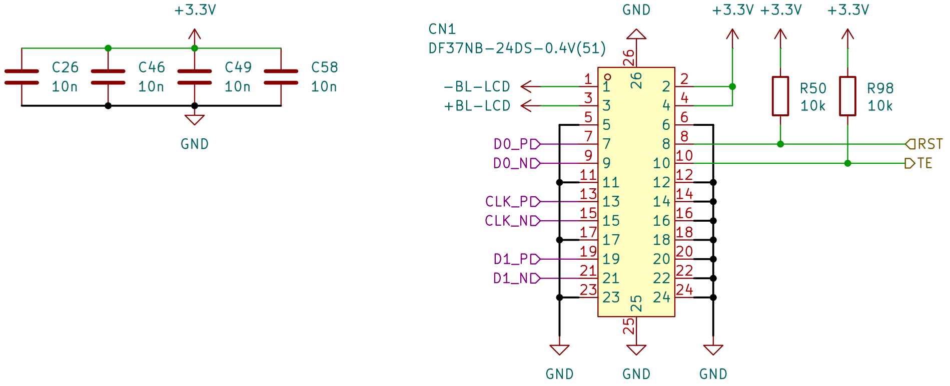
Title: WHY2025 badge

Size: A4	Date: 2024-08-23	**Rev: Prototype 2**
KiCad E.D.A. 8.0.4		Id: 9/10

!! The Footprint is numbered criss cross, in the display datasheet it's not.

In the display datasheet:
start, top left 1 down to 12
then, right bottom up 13 to 24.

So some mapping needs to be done here, if another footprint is inserted here.



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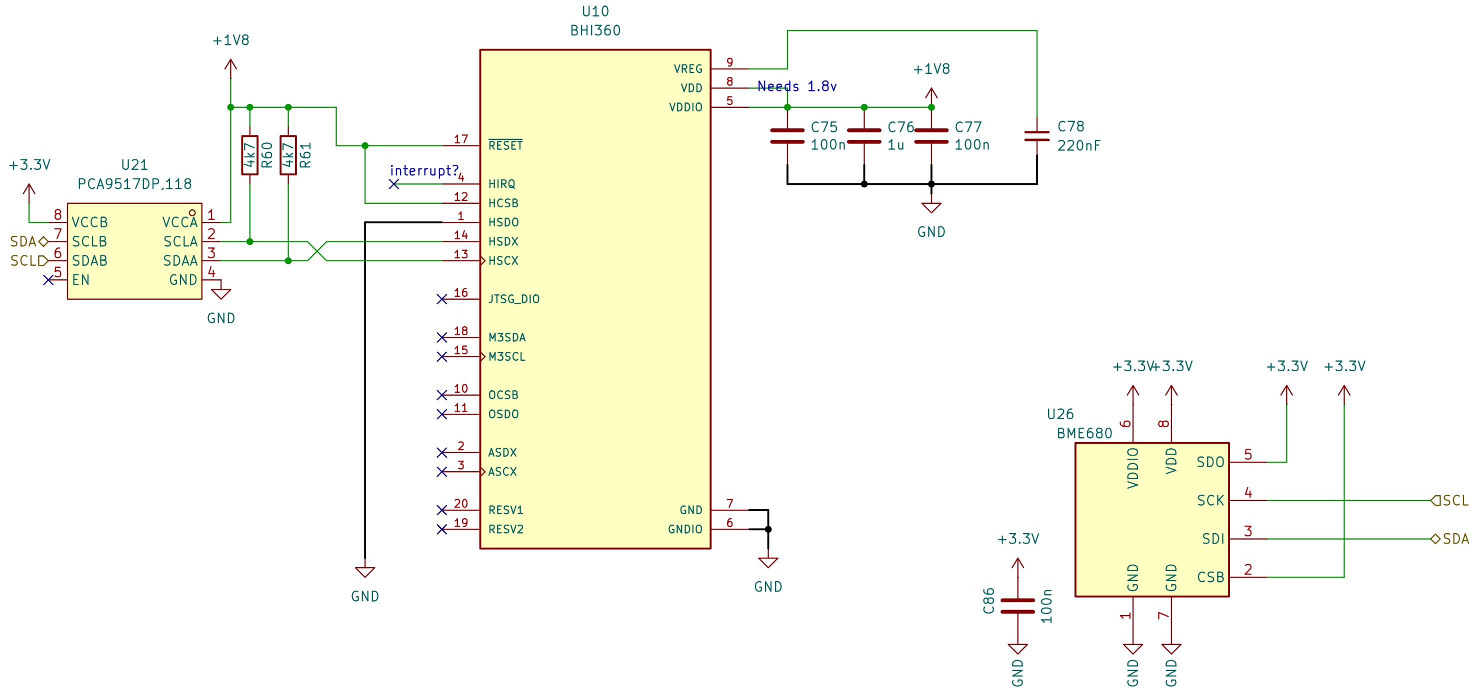
Sheet: /Display/
File: display.kicad_sch

Title: WHY2025 badge

Size: A4 Date: 2024-08-23 **Rev: Prototype 2**
KiCad E.D.A. 8.0.4 Id: 1/10



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Sheet: /Sensors/
File: sensors.kicad_sch

Title: WHY2025 badge

Size: A4
Date: 2024-08-23
Rev: Prototype 2
KiCad E.D.A. 8.0.4
Id: 11/10