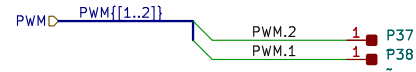
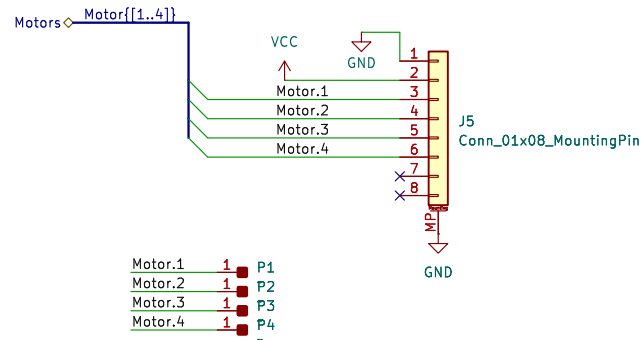


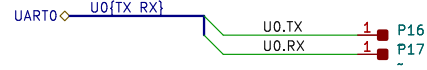


ESC

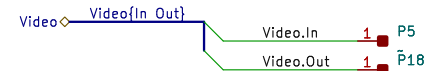
uses Mamba pinout



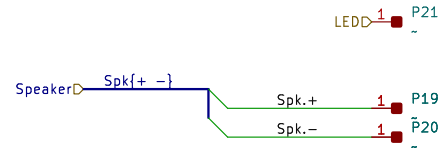
ELRS UART



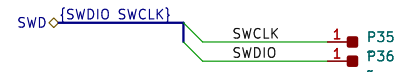
Analog Video



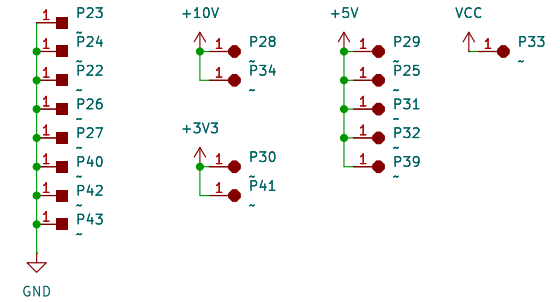
LED, Speaker



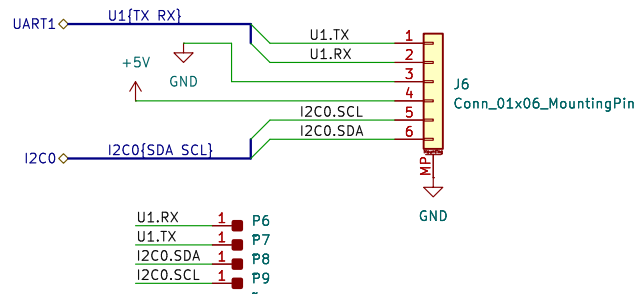
SWD



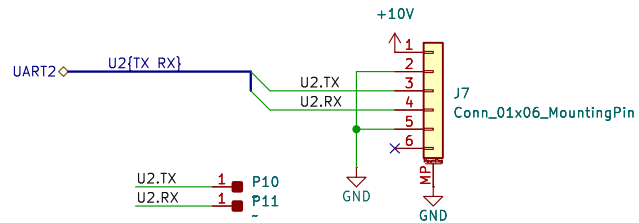
Power, GND



GPS



Digital VTX



Sheet: /Connectors/
File: connectors.kicad_sch

Title: Kolibri FC – External Connections

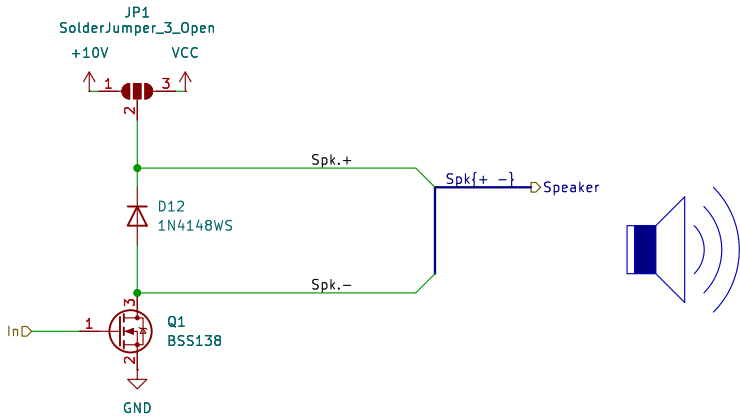
Size: A4
KiCad E.D.A. 9.0.5

Date:

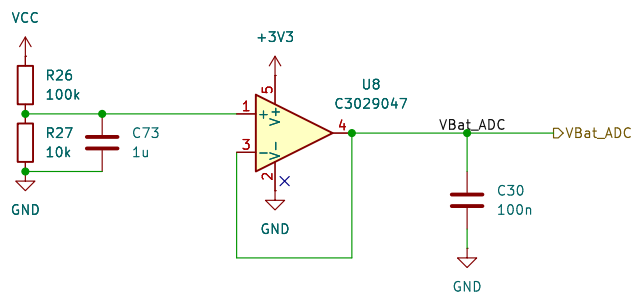
Rev:
Id: 3/13

PWM Speaker driver

Q1 acts as a pulldown, D12 is the flyback. Q1's gate is PWMed at 44.1kHz. By adjusting the duty cycle of the PWM, we can either pull Spk.- lower (higher duty cycle) or higher (lower duty cycle), to write our sound samples to Spk.-. This way, we get a DAC without proper DAC hardware. Alternatively, we can PWM at lower frequencies to write a raw rectangle wave.



Sheet: /Speaker/		
File: speaker.kicad_sch		
Title: Kolibri FC – Speaker Driver		
Size: A5	Date:	Rev:
KiCad E.D.A. 9.0.5		Id: 4/13



Sheet: /ADC/
File: ADC.kicad_sch

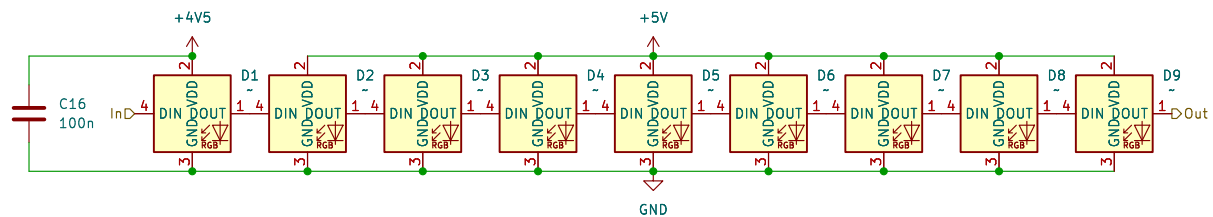
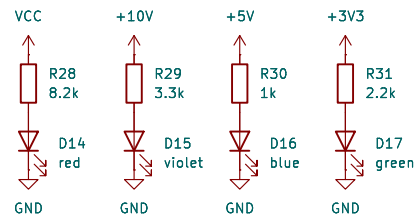
Title: Kolibri FC – ADC Buffers

Size: A5
KiCad E.D.A. 9.0.5

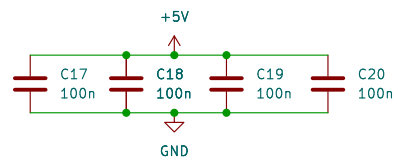
Date:

Rev:

Id: 5/13



D1 is the status LED. It is powered from ca. 4.2V so its second use is a level shifter for the next 8 diodes (placed on the border of the PCB as illumination). The color on the status LED is irrelevant, so the fact that blue is dimmer on that one doesn't really matter. But the 3.3V logic of the RP2350 would theoretically not be ok with the 5V logic of the LEDs (min $0.7 \cdot V_{DD}$ for V_{IH}). All the others get one decoupling capacitor per two diodes (they're next to each other).



Sheet: /LED/
File: LED.kicad_sch

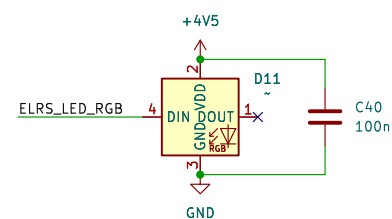
Title: Kolibri FC – Status + Illumination LEDs

Size: A4
KiCad E.D.A. 9.0.5

Date:

Rev:

Id: 6/13



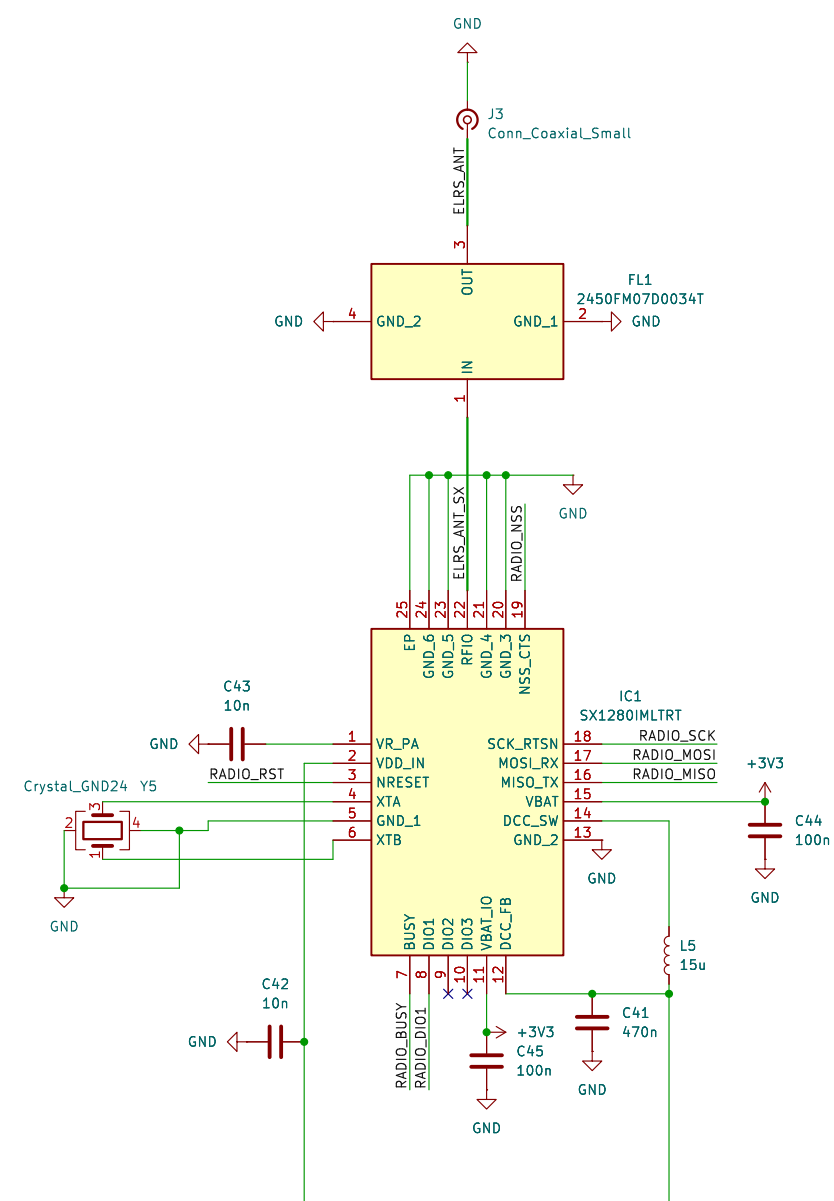
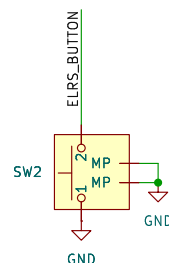
Boot mode	GPIO2 ²	GPIO8	GPIO9
SPI Boot mode	1	Any value 1	0
Joint download boot mode ³	1	1	0

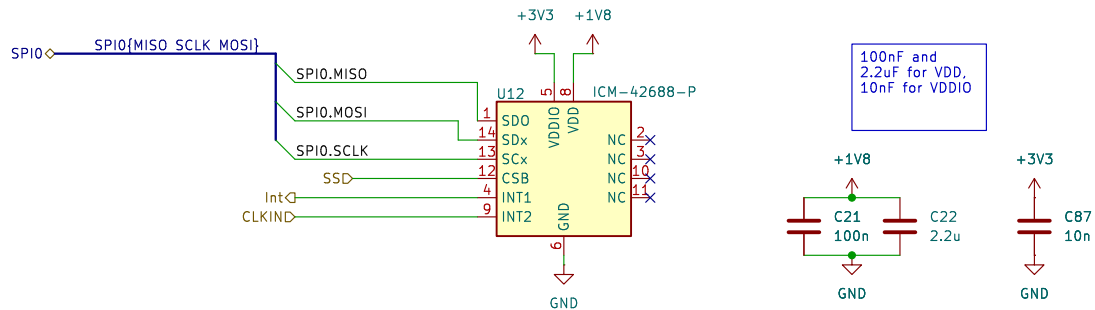
¹ Bold marks the default value and configuration.

² GPIO2 actually does not determine SPI Boot and Joint Download Boot mode, but it is recommended to pull this pin up due to glitches.

³ Joint Download Boot mode supports the following download methods:

- USB-Serial-JTAG Download Boot
- UART Download Boot





Sheet: /Gyro/
File: gyro.kicad_sch

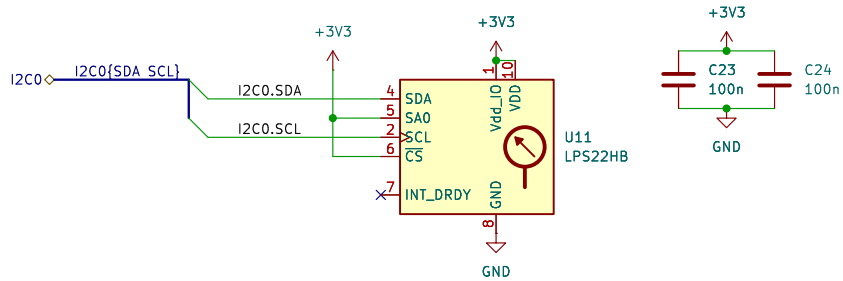
Title: Kolibri FC – Gyro

Size: A5
KiCad E.D.A. 9.0.5

Date:

Rev:

Id: 8/13



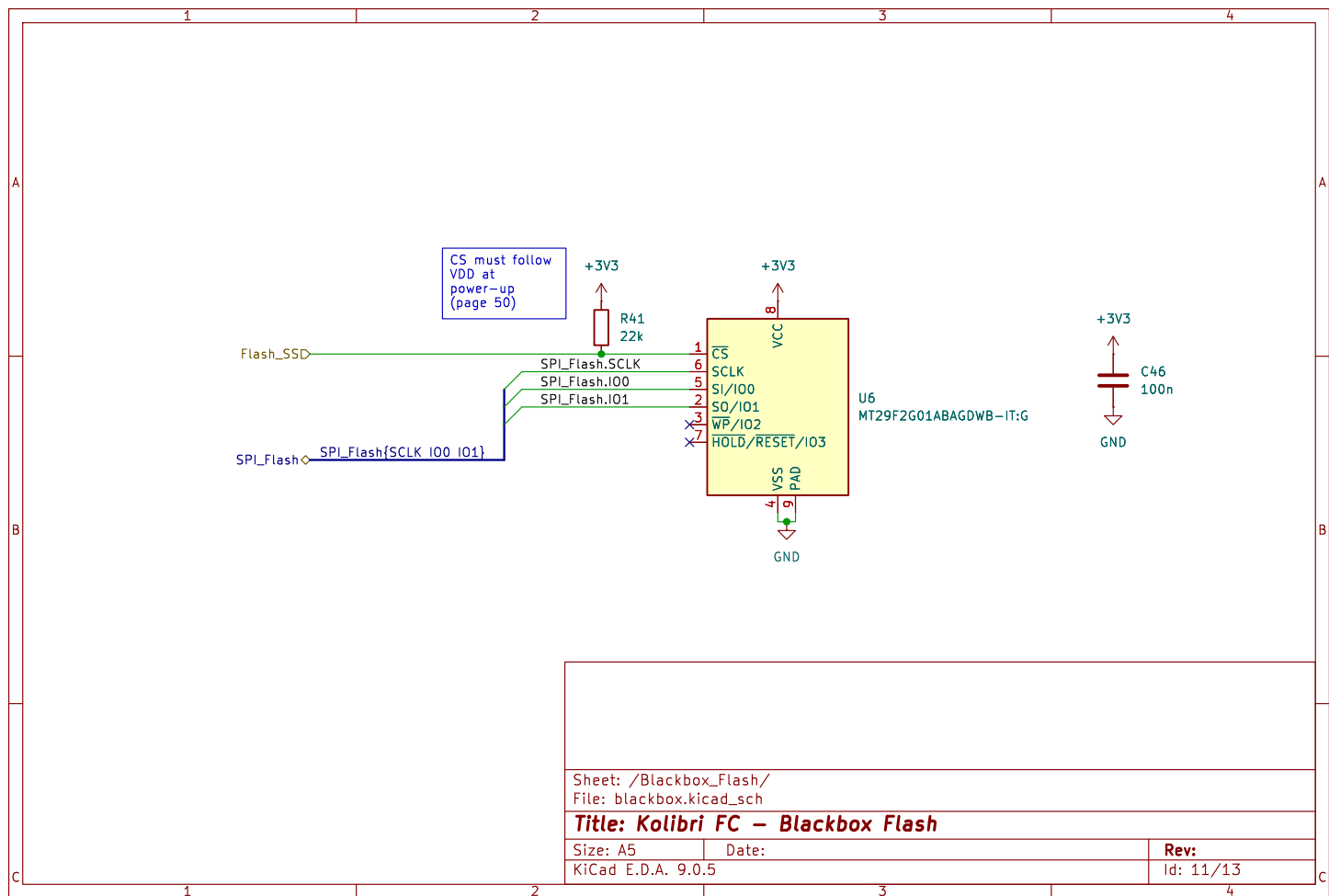
Sheet: /Baro/
File: baro.kicad_sch

Title: Kolibri FC – Barometer

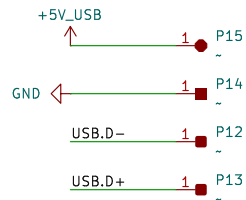
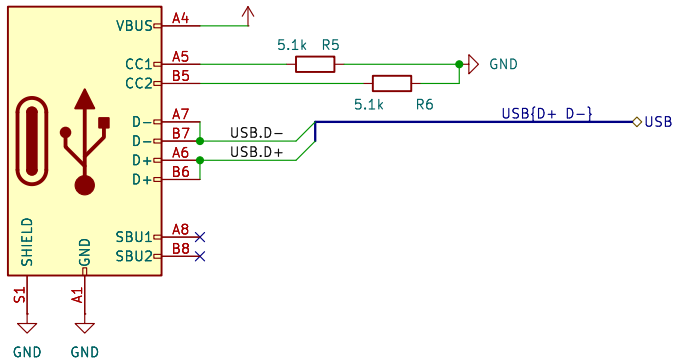
Size: A5
KiCad E.D.A. 9.0.5

Date:

Rev:
Id: 10/13



J1
USB_C_Receptacle_USB2.0_16P +5V_USB



Sheet: /USB/
File: usb.kicad_sch

Title: Kolibri FC – USB Plug

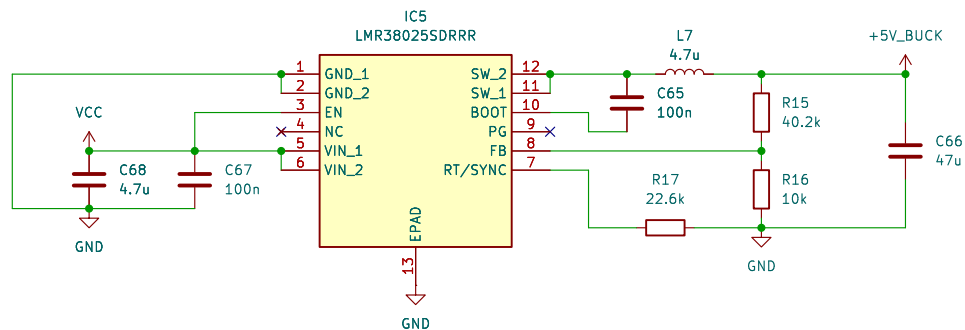
Size: A5
KiCad E.D.A. 9.0.5

Date:

Rev:
Id: 12/13

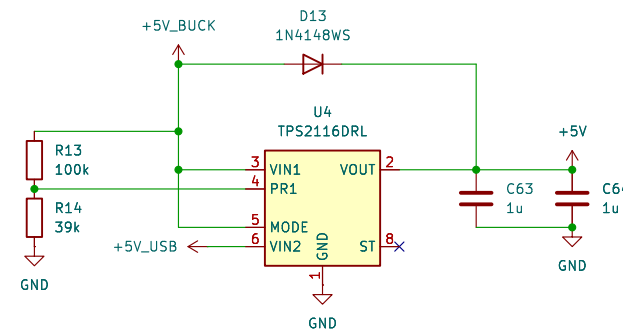
5V SMPS

12-45V -> 5V 2.5A



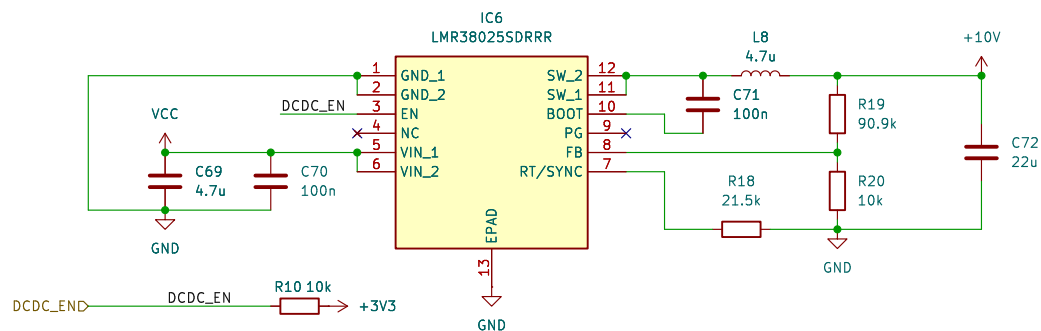
5V Power MUX

Switches up to 4A (TPS2117) from +5V_USB or +5V_BUCK to +5V. Prefers buck over USB, threshold voltage is about 3.5V. The threshold voltage is low to prevent accidental switchover to USB during peak consumption (worst case in flight). Emergency diode for if that happens during flight.

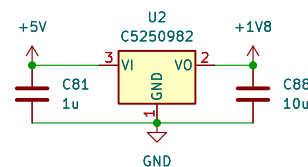


10V SMPS

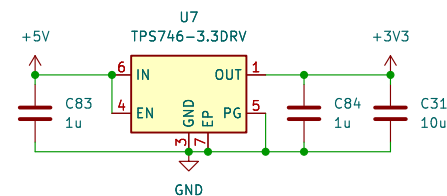
12-45V -> 10V 2.5A (6.8uH inductor recommended, but this works)



1.8V 300mA LDO (Gyro)

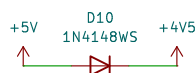


3.3V 1A LDO



4.2V Supply

Used for the first RGB LED in each strip, not broken out.



Sheet: /Power/
File: power.kicad_sch

Title: Kolibri FC - DCDC + LDO

Size: A4

Date:

KiCad E.D.A. 9.0.5

Rev:

Id: 13/13