

STM32F072CBT6 128Kb Flash, crystal-less USB

The diagram shows the pin connections for the STM32F072CBT6 microcontroller. The pins are color-coded: green for power and ground, blue for digital signals, and red for analog signals. The connections are as follows:

- Power and Ground:**
 - VBAT (Pin 1) is connected to +3V3.
 - VDD (Pin 24) is connected to +3V3.
 - VDDA (Pin 48) is connected to +3V3.
 - VDDIO2 (Pin 56) is connected to +3V3.
 - VSS (Pin 23) is connected to GND.
 - VSSA (Pin 8) is connected to GND.
- Digital Signals:**
 - NRST (Pin 7) is connected to GND.
 - BOOT0 (Pin 44) is connected to GND.
 - PF0 (Pin 5) and PF1 (Pin 6) are connected to GND.
 - PC13 (Pin 2), PC14 (Pin 3), and PC15 (Pin 4) are connected to GND.
 - PB0 (Pin 18) through PB15 (Pin 28) are connected to GND.
 - PA0 (Pin 10) through PA15 (Pin 38) are connected to GND.
 - PA11 (Pin 32) and PA12 (Pin 33) are connected to D_N and D_P respectively.
 - PA13 (Pin 34) through PA15 (Pin 38) are connected to GND.
- Analog Signals:**
 - SW100 (Pin 100) is connected to GND.
 - DFU (Pin 101) is connected to GND.
 - BOOT0 (Pin 102) is connected to GND.
 - R3 (Pin 103) is connected to GND.
 - NRST (Pin 104) is connected to GND.
 - C10 (Pin 105) is connected to GND.

The power supply filtering circuit includes:

- A +3V3 supply connected to a network of capacitors: C1 (100nF), C2 (100nF), C3 (100nF), C4 (100nF), and C6 (10uF).
- A +3.3V supply connected to a network of capacitors: C5 (100nF) and C15 (1uF).
- An additional filter for analog signals connected to GND.
- A button (SW100) connected to GND, with a pull-up resistor (R3, 10k) connected to +3V3.
- A button (NRST) connected to GND, with a pull-up resistor (C10, 100nF) connected to +3V3.

Pin Mapping

The diagram illustrates the pin mapping for two components: **key_matrix** and **analog**.

key_matrix (File: key_matrix.kicad_sch) has the following pins and connections:

- Inputs:** C13, A2, A6, C14.
- Internal Labels:** ROW0, ROW1, ROW2, ROW3.
- Outputs:** COL0, COL1, COL2, COL3, COL4, COL5, COL6, COL7, COL8, COL9, COL10, COL11, COL12.

analog (File: analog.kicad_sch) has the following pins and connections:

- Inputs:** B1, B0, B11, B10, B2.
- Internal Labels:** APLEX0_EN, APLEX1_EN, APLEX_SELO, APLEX_SEL1, APLEX_SEL2.
- Outputs:** DISCHARGE, ADC.

Connections:

- COL0 connects to APLEX0_3.
- COL1 connects to APLEX0_0.
- COL2 connects to APLEX0_1.
- COL3 connects to APLEX0_2.
- COL4 connects to APLEX0_4.
- COL5 connects to APLEX0_6.
- COL6 connects to APLEX1_3.
- COL7 connects to APLEX1_0.
- COL8 connects to APLEX1_1.
- COL9 connects to APLEX1_2.
- COL10 connects to APLEX1_4.
- COL11 connects to APLEX1_6.
- COL12 connects to APLEX1_5.

Unified daughterboard Legacy C3 connector

SM04B-SRSS-TB(LF)(SN)

1
2
3
4

+5V

D_N
D_P

J1

GND

Legacy unified daughterboard C
JST-SH

usb signal impedance ref:
4 layer PCB, stack up: JLC04161H-7628
coplanar differential pair
signal spacing: 0.2mm
signal to ground spacing: 0.2mm
signal trace width: 0.2644mm

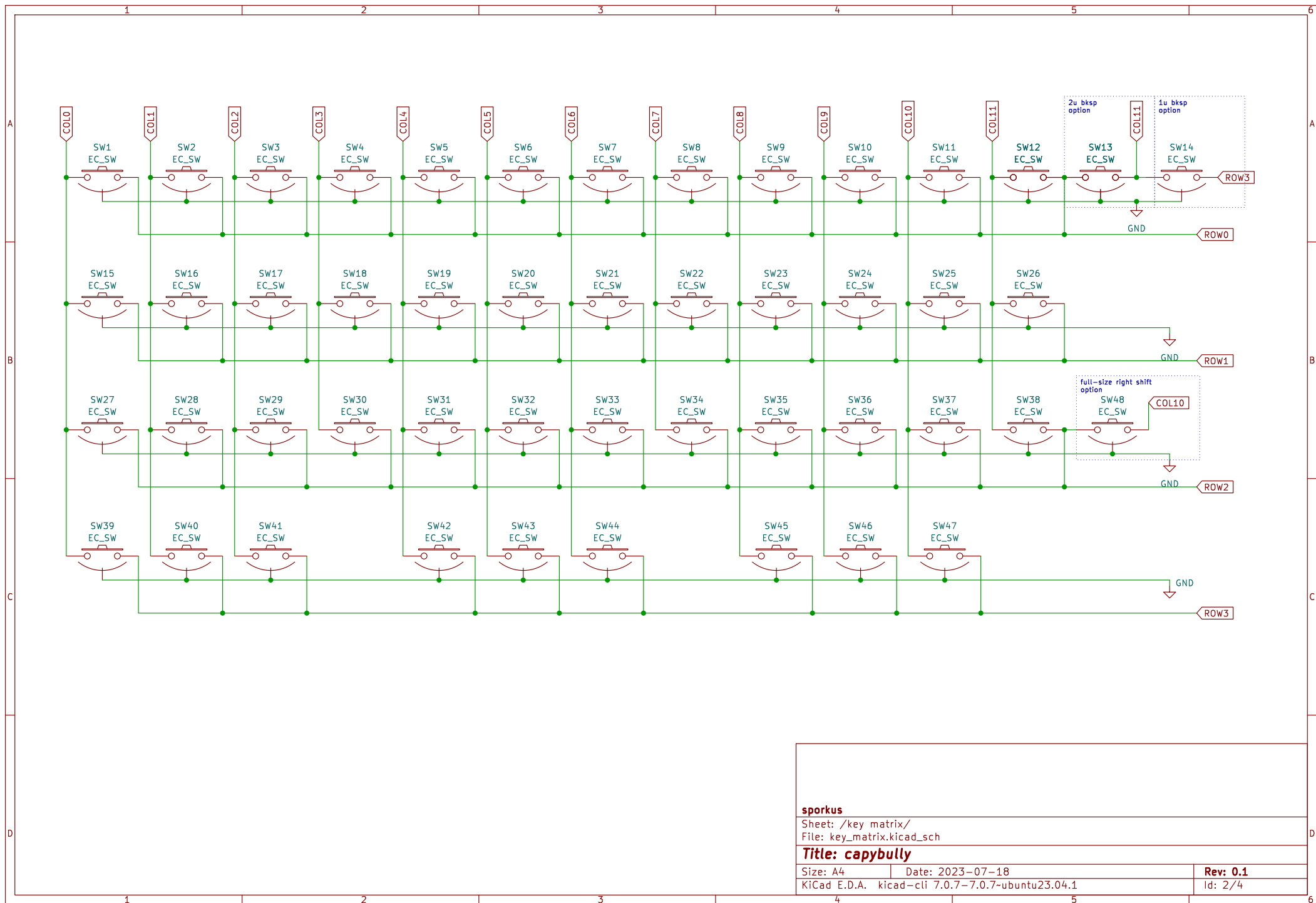
3V3 LDO

mounting_holes.kicad_sch

File: mounting_holes.kicad_sch

sporkus		
Sheet: /		
File: capybully.kicad_sch		
Title: capybully		
Size: A4	Date: 2023-07-18	Rev: 0.1
KiCad E.D.A. kicad-cli 7.0.7-7.0.7-ubuntu23.04.1		Id: 1/4

Rev: 0.1
Id: 1/4



sporkus

Sheet: /key matrix/

File: key_matrix.kicad_sch

Title: capybully

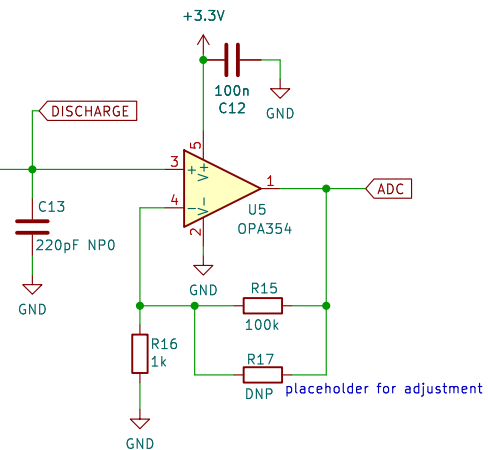
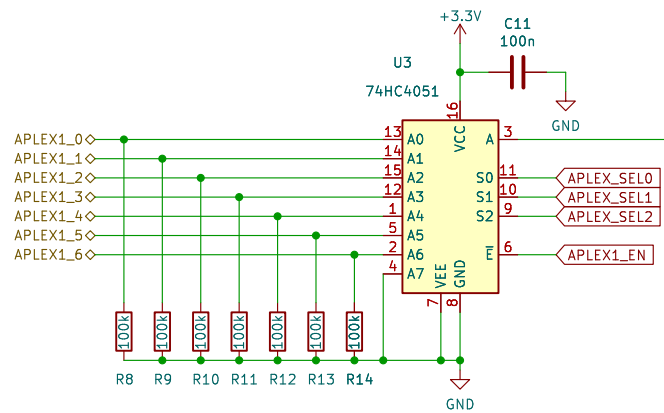
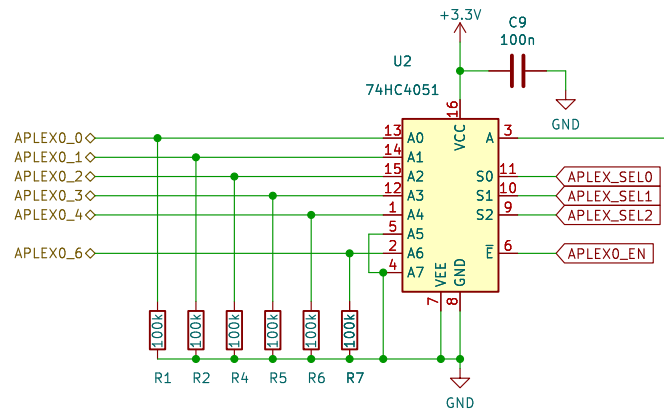
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Alternatives:
SC-70-6
OPA358AIDCKR
LMV861

SOT-23-5 seems to have better availability
OPA354 to 358 seems ok

sporkus

Sheet: /analog/
File: analog.kicad_sch

Title: capybully

Size: A4 Date: 2023-07-18

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Rev: 0.1

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