USBSID-Pico PCB revision v1.0 manual

Author: LouD - generated on 2026-02-11

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Disclaimer

I do this stuff in my free time for my enjoyment. Since I like to share my joy in creating this with everyone I try my best to provide a working PCB and Firmware. I am in no way an electronics engineer and can give ***no guarantees*** that this stuff does not break or damage your hardware, computer, phone, or whatever you try to hook it up to. Be sure to take great care when inserting any real MOS SID chips into the board. While everything has been tested with real chips, this is in no way a guarantee that nothing could go wrong. Use of this board and firmware at your own risk! I am in no way responsible for your damaged hardware. That being said, have fun!

PCB top overview

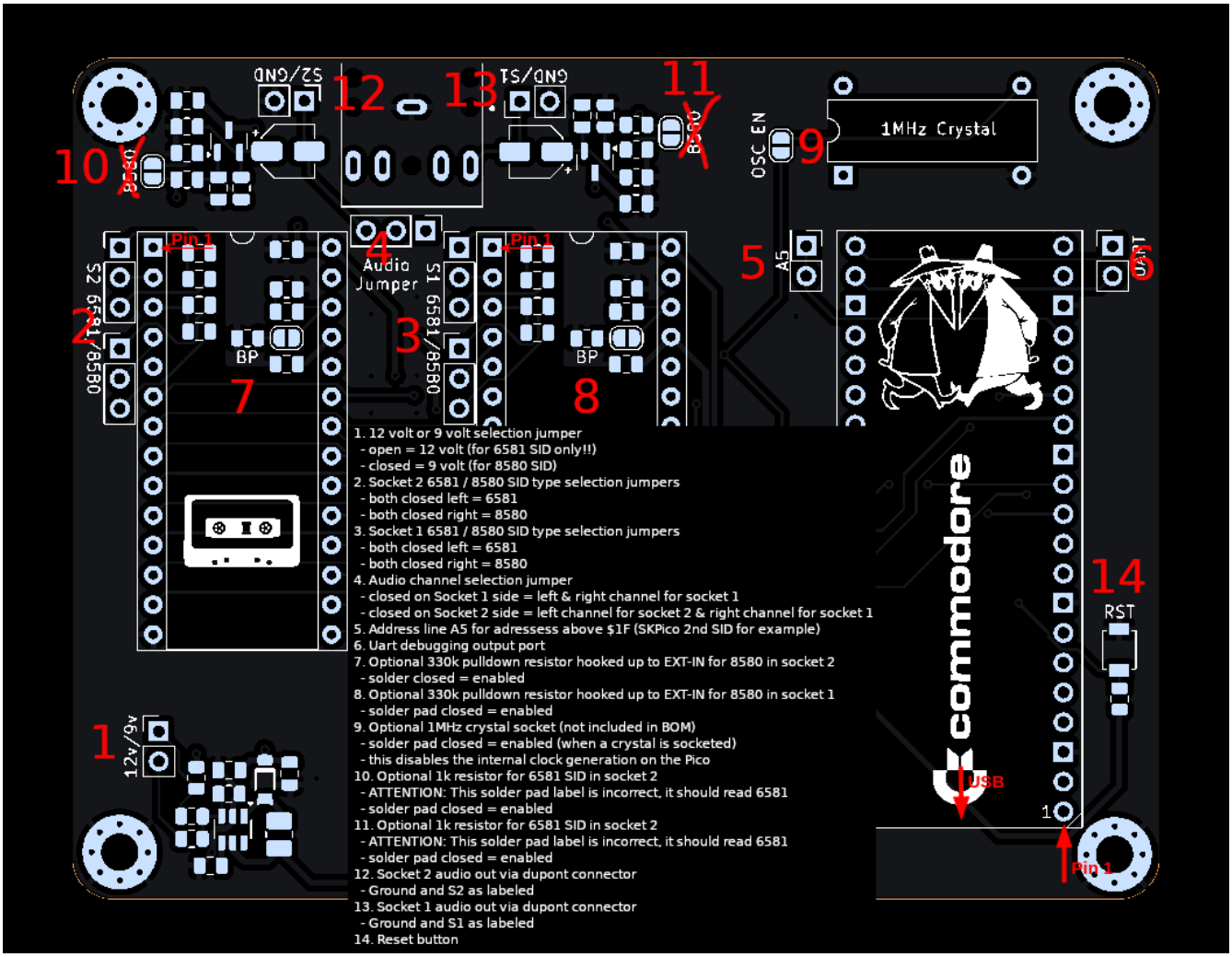


Figure 1. PCB top overview

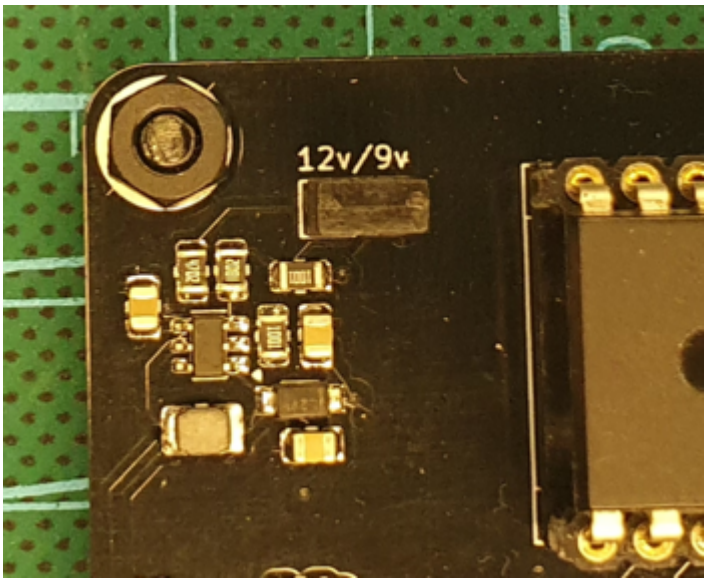
RaspberryPi Pico placement orientation

In the placement overview image above there are 2 markings that designate toward what direction the Pico boards needs to be placed.
The `USB` marking and arrow point in the direction towards where the Pico USB port needs to be.
The `Pin 1` marking and arrow points towards where pin 1 of the Pico board needs to be.

SID placement orientation

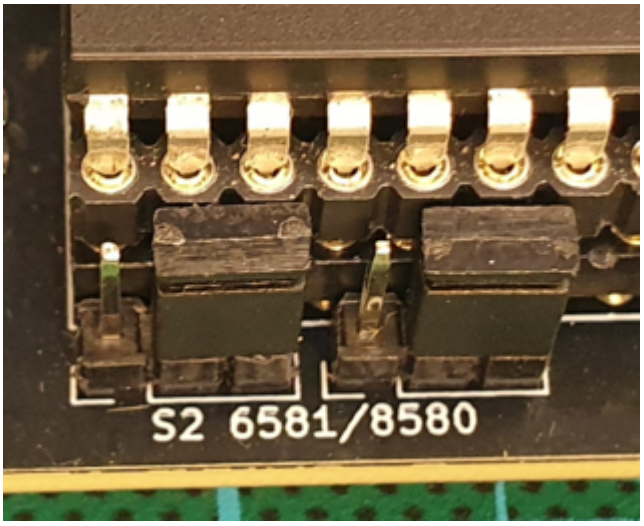
In the PCB overview image at the top of this document each SID socket has `Pin 1` marked with text and an arrow.
Please use your full attention when placing your SID chips on the board so they in the correct orientation.
Incorrect placement orientation will result in frying your precious SID chip unicorn and creating a nice keychain! ***I am not responsible for your broken SID chips!***

1. 12 volt or 9 volt selection jumper



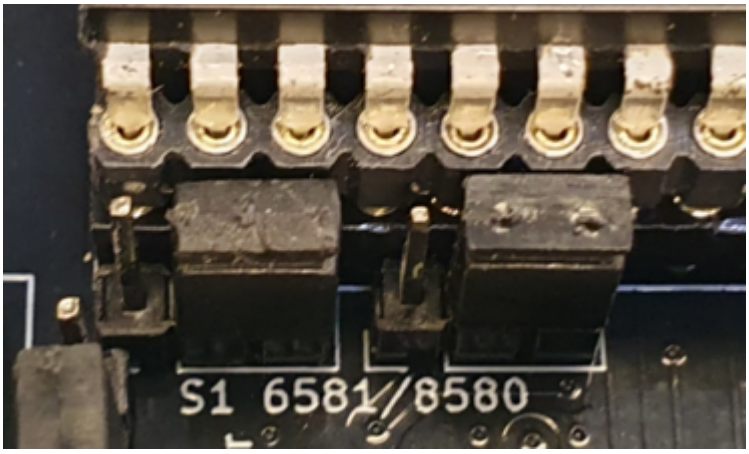
- open = for 6581 SID only!! (12 volts)
- closed = for 8580 SID (9 volts)

2. Socket 2 6581 / 8580 SID type selection jumpers



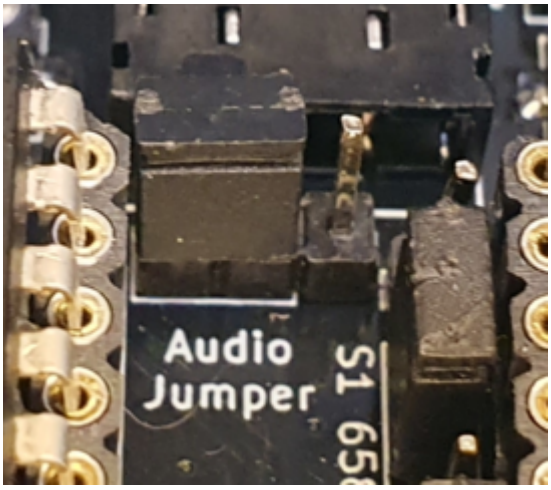
- both closed left = 6581
- both closed right = 8580

3. Socket 1 6581 / 8580 SID type selection jumpers



- both closed left = 6581
- both closed right = 8580

4. Audio channel selection jumper

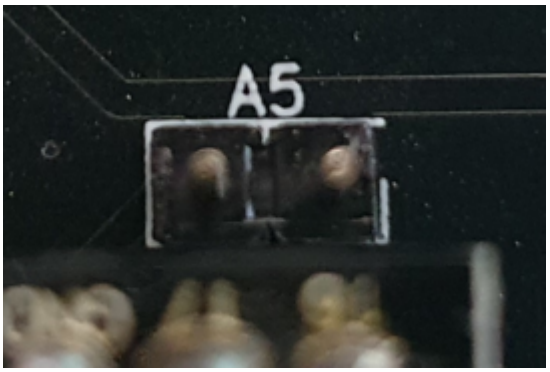


- closed on Socket 1 side = left & right channel for socket 1
- closed on Socket 2 side = left channel for socket 2 & right channel for socket 1

Optionally you could use a 3-way jumper cap for mono audio with both SID chips at the same time.

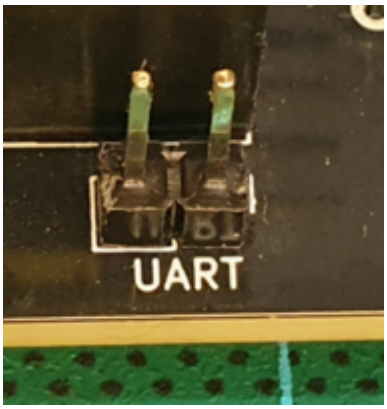
5. Address line A5

For adressess above $1F (SKPico 2nd SID for example)



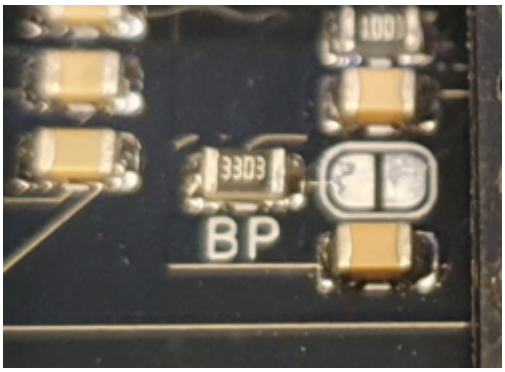
Both pins are routed to the same GPIO for using adresses higher then $20

6. Uart debugging output port



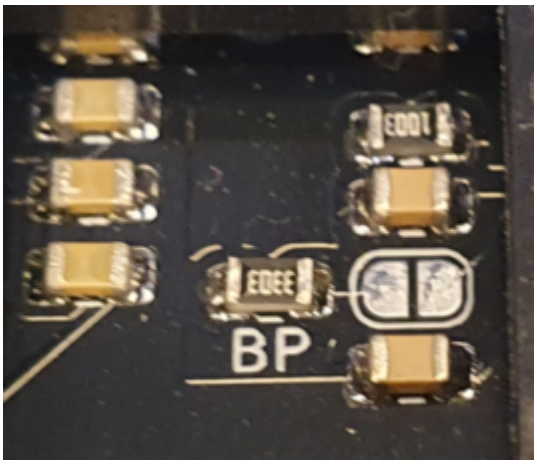
- TX on the right
- RX on the left

7. Optional 330k pulldown resistor hooked up to EXT-IN for 8580 filter bypass in socket 2



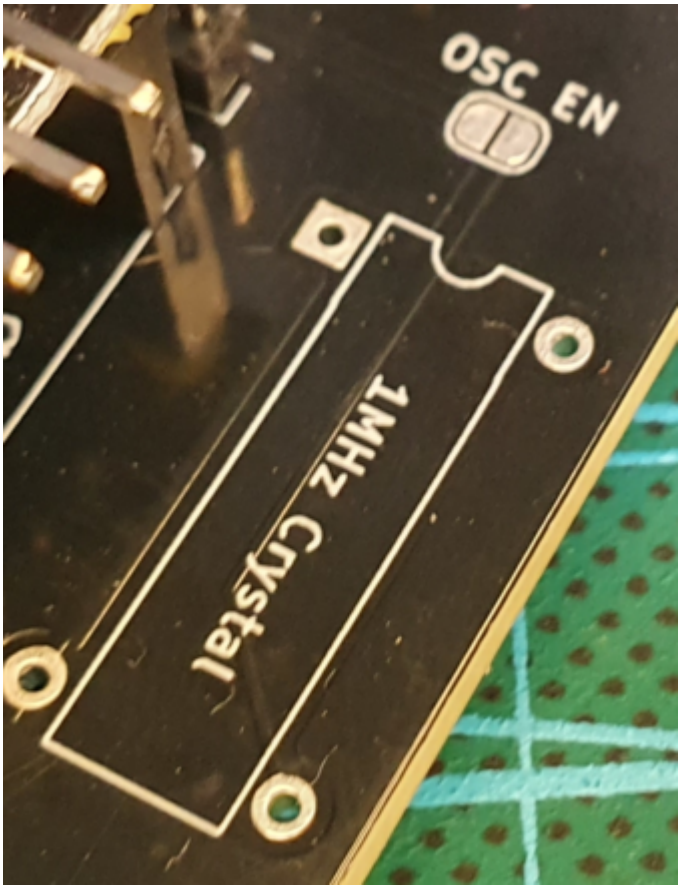
Solder pad closed = enabled

8. Optional 330k pulldown resistor hooked up to EXT-IN for 8580 filter bypass in socket 1



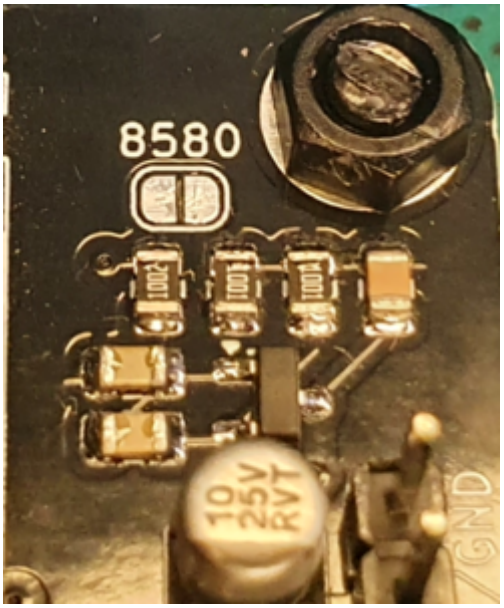
Solder pad closed = enabled

9. Optional 1MHz crystal socket (not included in BOM)



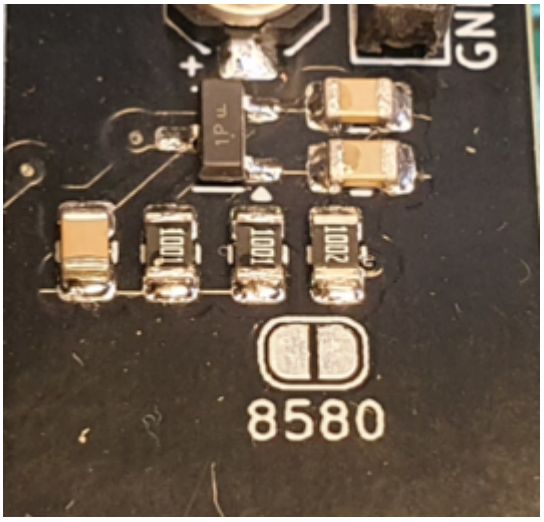
Solder pad closed = enabled (when a crystal is socketed).
This disables the internal clock generation on the Pico

10. Optional 1k resistor for 6581 SID in socket 2



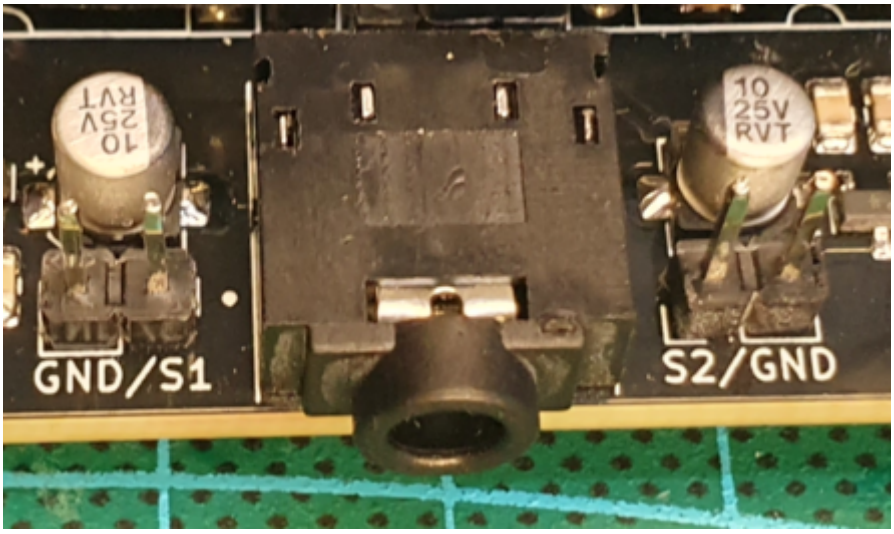
ATTENTION!: *On older v1.0 PCB's this solder pad is incorrectly labelled, it should read 6581!*
Solder pad closed = enabled

11. Optional 1k resistor for 6581 SID in socket 2



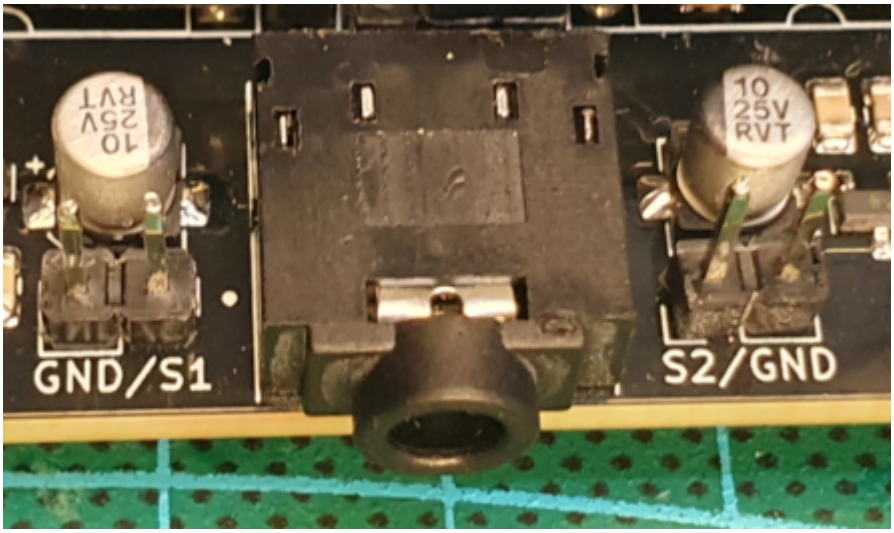
ATTENTION!: *On older v1.0 PCB's this solder pad is incorrectly labelled, it should read 6581!*
Solder pad closed = enabled

12. Socket 2 audio out via dupont connector



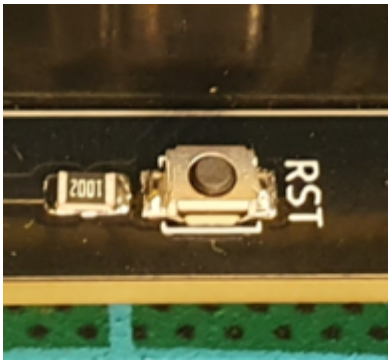
Socket 2 output to the right of the headphone jack
Ground and S2 as labeled

13. Socket 1 audio out via dupont connector



Socket 1 output to the left of the headphone jack
Ground and S1 as labeled

14. Reset button



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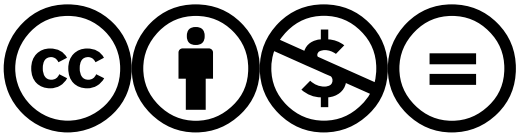

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