

USBSID-Pico PCB revision v1.5 manual

Author: LouD - generated on 2026-07-08

Table of Contents

Disclaimer	2
PCB top overview	2
Extra protection	3
Jumperless design	3
Automatic settings	3
RaspberryPi Pico placement orientation	3
Optional Pico placements	3
SID placement orientation	4
Address line	4
Audio pins	4
UART pins	4
PCB bottom overview	5
License	5
Software License ~ GNUv2	5
Configtool Software License ~ EPLv2	5
USBSID-Pico v1.5 PCB Hardware License ~ CC BY-NC-ND 4.0	6
USBSID-Pico v1.3 PCB Hardware License ~ CC BY-SA 4.0	6
USBSID-Pico v1.0 PCB Hardware License ~ CC BY-SA 4.0	6
USBSID-Volume-daughterboard v1.0 PCB Hardware License ~ CC BY-SA 4.0	6

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

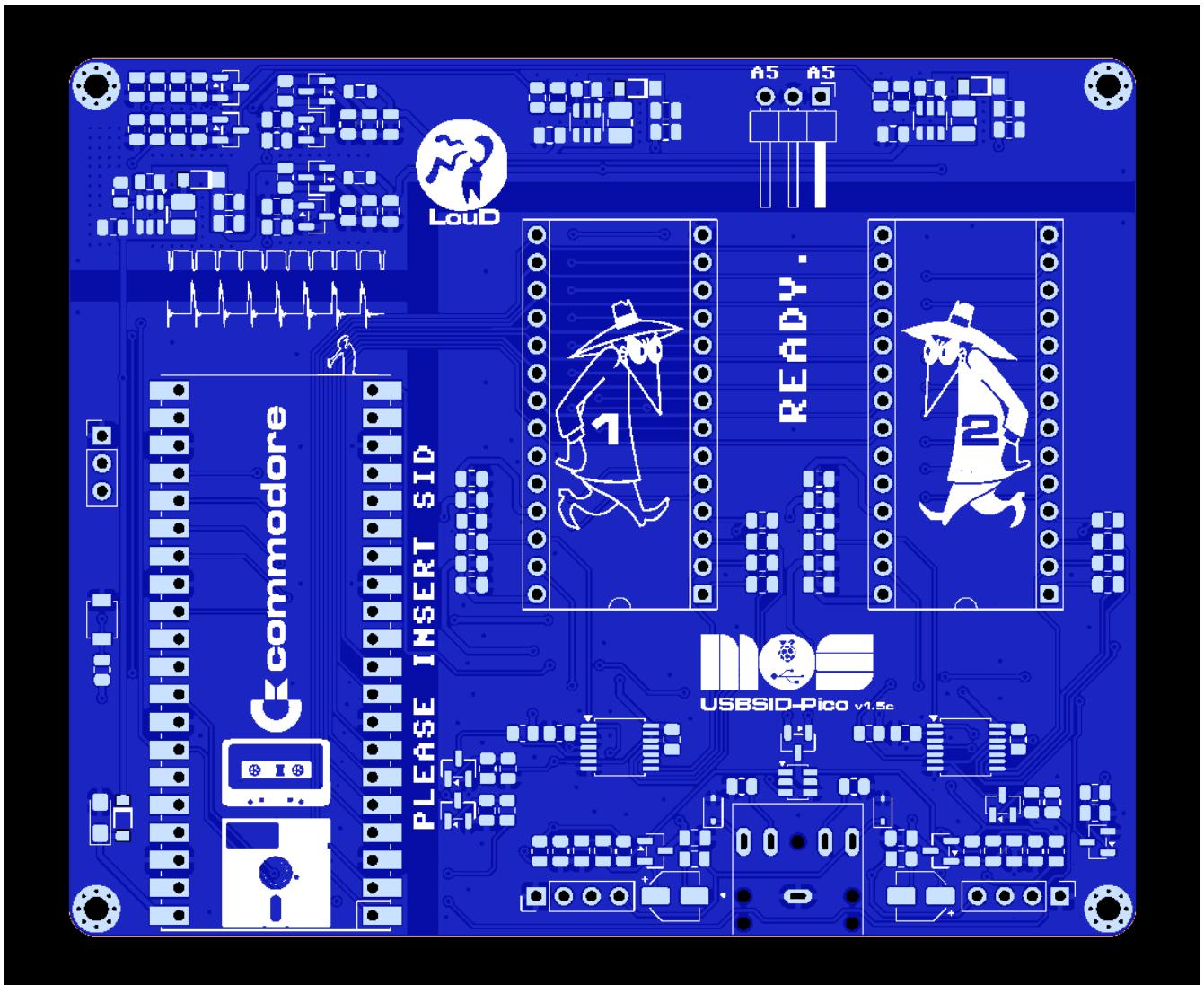


Figure 1. PCB top overview

Extra protection

The audio out jack and pins are now protected with ESD protection diodes. And the left and right channel in the audio jack will be pulled to ground with a 10k softpull resistor when no jack is inserted by using the jack switches.

Jumperless design

The v1.5 board is a jumperless design. This means that settings that were previously controlled with jumpers are now configured with settings in the firmware. The settings can be configured with the USBSID-Configtool.

Automatic settings

In line with the jumperless design some settings are set automatically.

SID type controls the voltage:

- The firmware will do a chip detect on startup to figure out if there is a clone chip or a real SID and what real SID is seated.
- This detection routine detects any change on startup and will lock the board with a blinking LED indicating you need to verify the socket configuration in the configtool.
- 8580 means 9 volts
- 6581 means 12 volts
- All clone SID chips will be automatically powered with 9 volts.
- It is possible to turn off this detection routine at startup and override the voltage setting.

SID type also controls the filter capacitor setting, the 8580 digiboost resistor and 6581 shunt resistor:

- 8580 means automatic digiboost and 22nF filter capacitors
- 6581 means no digiboost, shunt resistor enabled and 470pF filter capacitors

RaspberryPi Pico placement orientation

In the PCB overview image at the top of this document there are 2 ways from which you can get what direction the Pico boards needs to be placed.

The **diskette** marking is where the Pico USB port needs to be.

The **Pin 1** marking, the little square around the solder pad at the outer edge of the board is where the Pico USB port needs to be.

Optional Pico placements

The USBSID-Pico v1.3 PCB has the option for you to solder your Pico directly to the PCB using the Pico's castellated edges.

This creates more space and can be useful if you want to use a SID clone like FPGASID in socket 1.

SID placement orientation

In the PCB overview image at the top of this document each SID socket has a little cut out which indicates the SID placement orientation.

Please use your full attention when placing your SID chips on the board so they are 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!***

Address line

The pins at the top of the board marked with A5 are for connecting an optional extra wire for some clone SID chips that support a second SID.

Audio pins

Each SID socket has an optional header with 4 pins.

The pinout for SID1 is from left to right **VDD, GND, IN, OUT**

And the pinout for SID2 is from left to right **OUT, IN, GND, VDD**

(markings are on the bottom of the PCB) **IMPORTANT:**

There is no audio filter circuit connected to the EXT IN pin, you have to provide the audio in filter yourself!

I take no responsibility if you break your SID chip by using this pin!

UART pins

Optional header for UART pins.

(markings are on the bottom of the PCB)

PCB bottom overview

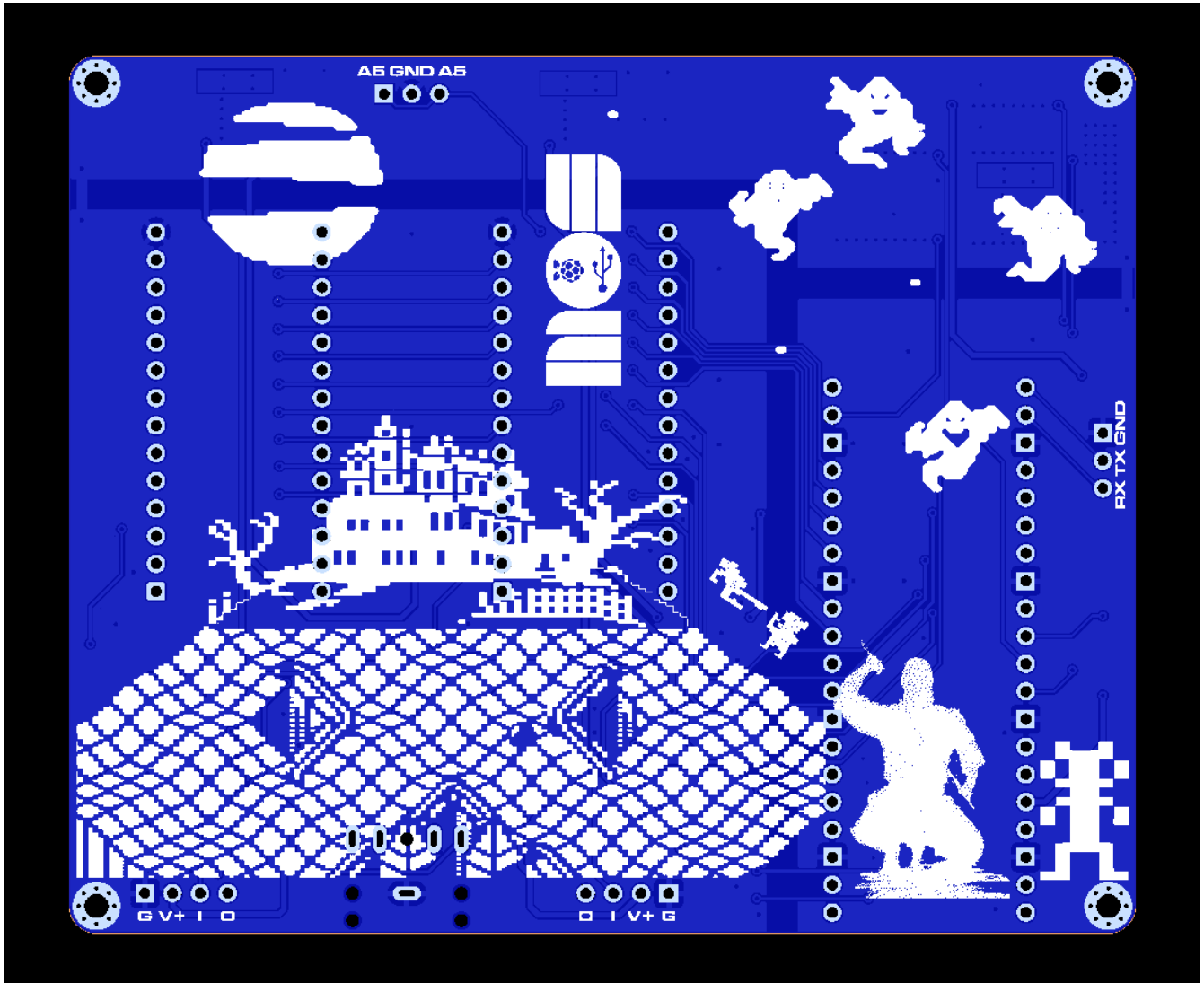


Figure 2. PCB bottom overview

License

Software License ~ GNUv2

All code written by me in this repository is licensed under the terms of the GNU General Public License as published by the Free Software Foundation, version 2. Any code in this repository that is not written by me automatically falls under the licensing conditions by the authors of said code as mentioned in the source code header. For more information about this license please read the LICENSE document in the root of the USBID-Pico repository.

Configtool Software License ~ EPLv2

This program and the accompanying materials are made available under the terms of the Eclipse Public License 2.0 which is available at <http://eclipse.org>.

SPDX-License-Identifier: EPL-2.0

USBSID-Pico v1.5 PCB Hardware License ~ CC BY-NC-ND 4.0

USBSID-Pico v1.5 PCB © 2026 by [LouD](#) is licensed under
[Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International](#)



USBSID-Pico v1.3 PCB Hardware License ~ CC BY-SA 4.0

USBSID-Pico v1.3 PCB © 2025-2026 by [LouD](#) is licensed under
[Creative Commons Attribution-ShareAlike 4.0 International](#)



USBSID-Pico v1.0 PCB Hardware License ~ CC BY-SA 4.0

USBSID-Pico v1.0 PCB © 2024-2026 by [LouD](#) is licensed under
[Creative Commons Attribution-ShareAlike 4.0 International](#)



USBSID-Volume-daughterboard v1.0 PCB Hardware License ~ CC BY-SA 4.0

Volume-daughterboard v1.0 PCB © 2026 by [LouD](#) is licensed under
[Creative Commons Attribution-ShareAlike 4.0 International](#)



Author: LouD - generated on 2026-07-08