Pi1541-HAT Rev. 1

Functional Description

J1 and J2 are the IEC-Bus connectors for the Commodore computers. X1 can be assembled instead of J1 and J2 to make use of an external IEC-Bus PCB.

SW6 is an IEC-Bus RESET switch.

IC1A is the bus driver for the IEC-Bus DATA signal. R3 is the required 1k pull-up-resistor. Since DATA is a bi-directional signal, there is an input stage (IC2A and IC2B), too. This circuit resembled the original 1541 input circuitry. The input signals are inverted twice (which is not required, since the Pi1541 can be configured to use inverted input signals). Q1 in conjunction with R7 and R8 is acting as a 5V/3.3V level shifter. This is a common level shifter circuit as suggested for I^{2}C-bus level shifting by NXP.

The circuit for the CLK signal of the IEC-bus is the same. ATN and /RESET do not have an output stage. The input stage of the /RESET signal is making use of the 74LS06 (IC1). Thus, the pull-up-resistor R6 is required.

M1 is the Raspberry Pi connector.

LD1 is the activity LED. LD2 is the power LED.

Both jumpers JP1 and JP2 should be jumpered 1-2 to drive the display M2 with the primary I^{2}C-Bus of the Raspberry Pi.

A 0.96" OLED-Display can be connected to M3. In case a 1.3" display is used, the LED and the switches cannot be populated anymore and an external Pi1541-Switch board is required.

The display can also be connected to the MicroMatch connector X2.

SW1 to SW5 are the user interface for navigating through the directories of the disk archive on the SD-card.

Q5 is driving the piezo buzzer. D1 is acting as a protection, since piezo crystals are generating a voltage, when they are moved/compressed. R20 is required, since the idle level of the SND_OUT signal is HIGH. C3 can be used for sound shaping and additional protection.

TP1 is a ground connection for measurement/debugging.