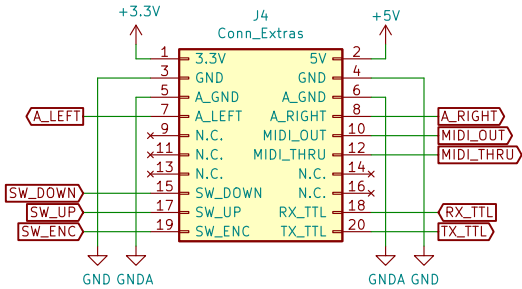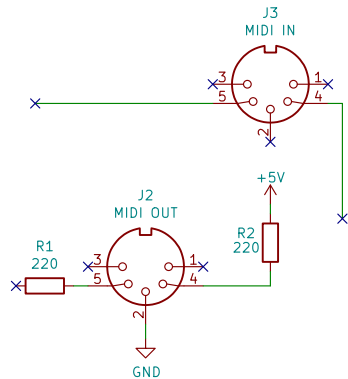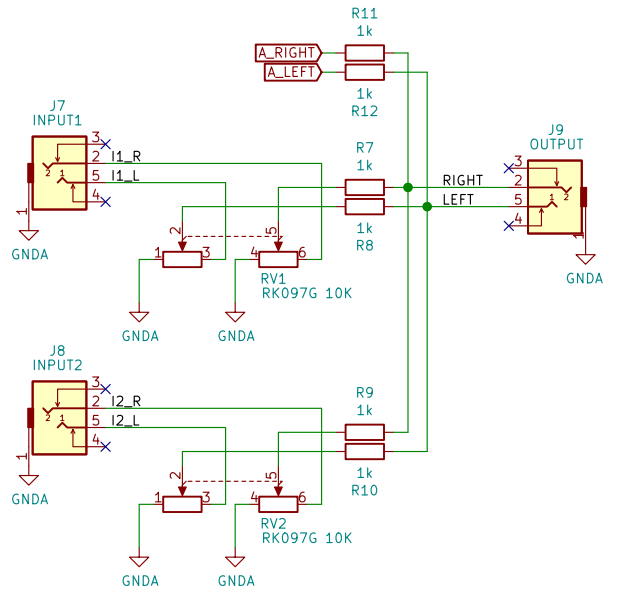**Extras connector**
When the extras board is used along with the BulkyMIDI-32, this connector takes care of all signals to and from the main module. The board is powered from this connector as well, for that reason the barrel connection should not be installed unless you intend to use it this way.

J4
Conn_Extras

3.3V · 5V
GND · GND
A_GND · A_GND
A_LEFT · A_RIGHT
N.C. · MIDI_OUT
N.C. · MIDI_THRU
N.C. · N.C.
SW_DOWN · N.C.
SW_UP · RX_TTL
SW_ENC · TX_TTL

+3.3V · +5V
A_LEFT · A_RIGHT · MIDI_OUT · MIDI_THRU
SW_DOWN · SW_UP · SW_ENC · RX_TTL · TX_TTL
GND · GNDA · GNDA · GND

RS232 Baud rate converter
NOT completed, the connectors are just here as physical placeholders

J3
MIDI IN

J2
MIDI OUT
R1 220
R2 220
+5V
GND

Passive audio mixer
The audio inputs can be routed via the extras connector from the main module, alternatively you can manually route it externally to INPUT1/INPUT2 if you prefer (as this offers a way of controling the signal).
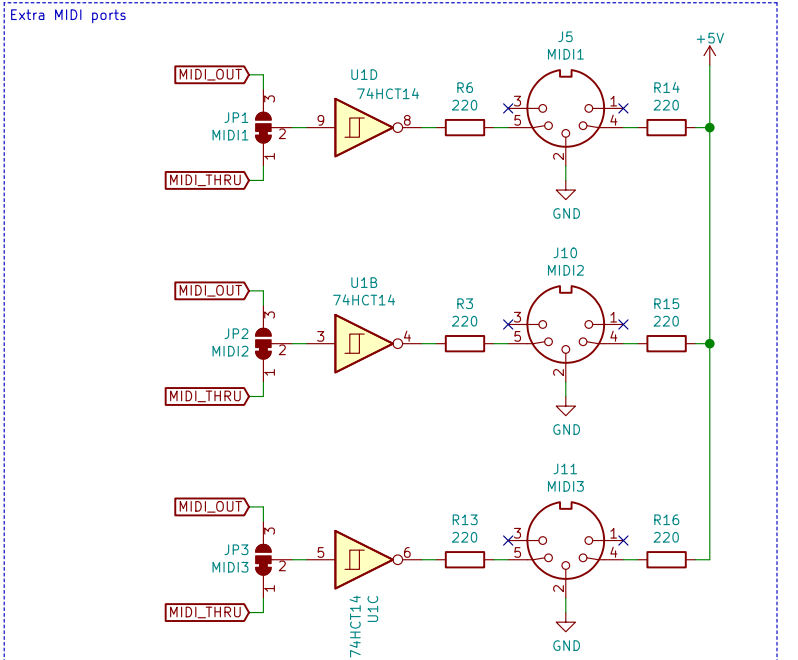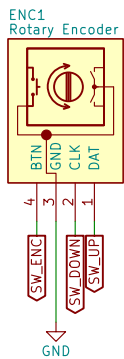
R11 1k
A_RIGHT
A_LEFT
1k R12
R7 1k
J7 INPUT1
I1_R
I1_L
GNDA
RV1 RK097G 10K
GNDA GNDA
R8 1k
RIGHT
LEFT
J9 OUTPUT
GNDA

J8 INPUT2
I2_R
I2_L
GNDA
R9 1k
RV2 RK097G 10K
GNDA GNDA
1k R10

Power section
The power section has been duplicated for the main MT32-PI module, when used together you would normally not install these components as power is supplied via the extras connector.
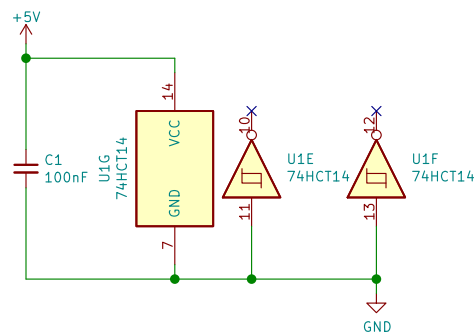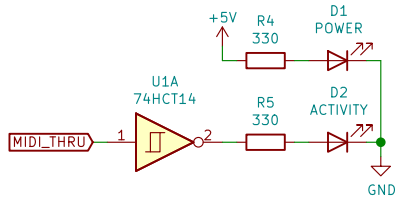
DC_5V
+5V
J1 DC IN
C6 470uF
GND
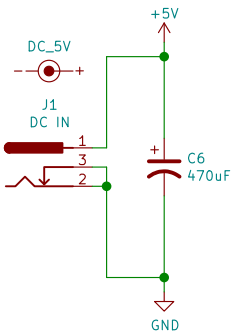
RS-232 or TTL Serial USB adapter (optional)
Installed is a commonly used RS232 converter module. In order to give it a little more rigidity, the module is mounted upside down into the cutout on the board. At the moment this is connected to the Raspberry Pi as is common for MT32-PI, but it is my hope to add an MCU at a later point for baud rate conversion (MIDI is 31500, the closest on a computer is 38400).

J6
RS232 Module
VCC
RxD
TxD
GND
+3.3V
RX_TTL
TX_TTL
GND
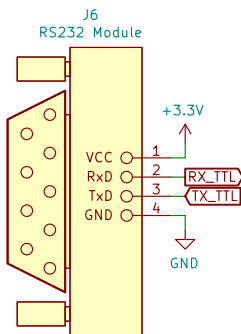
Control scheme ("simple_encoder")
4-pin connector for connecting up a rotary encoder, but because I couldn't find a pre-made module that would fit this is included as a separate PCB. This would have been easier if the real right-angle encoders weren't so expensive.

ENC1
Rotary Encoder
BTN
GND
CLK
DAT
SW_ENC
SW_DOWN
SW_UP
GND

Extra MIDI ports

MIDI_OUT
U1D 74HCT14
JP1 MIDI1
MIDI_THRU
R6 220
J5 MIDI1
R14 220
+5V
GND

MIDI_OUT
U1B 74HCT14
JP2 MIDI2
MIDI_THRU
R3 220
J10 MIDI2
R15 220
GND

MIDI_OUT
U1C 74HCT14
JP3 MIDI3
MIDI_THRU
R13 220
J11 MIDI3
R16 220
GND

Status LEDs
Board status, the ACTIVITY follows data sent to the MT32-PI.

+5V
R4 330
D1 POWER
U1A 74HCT14
MIDI_THRU
R5 330
D2 ACTIVITY
GND

+5V
C1 100nF
U1G 74HCT14
VCC
GND
U1E 74HCT14
U1F 74HCT14
GND

Basically a bunch of features that I wasn't able to fit onto the main PCB.