MIDI IN (optional)

J3 MIDI IN
RX_TTL
U2 H11L1M
GND
D1 1N4148
R4 220
R3 1k
+3.3V
C3 100nF
GND

MIDI THRU (optional)

74HCT14 U1C
MIDI_THRUn
74HCT14 U1D
J5 MIDI THRU
+5V
R5 220
220 R6
GND

A2 GY-PCM5102
JP4 1 R — A_RIGHT
JP5 1 G — A_GND
JP6 1 L — A_LEFT
FLT DEMP XSMT FMT A3V3 AGND ROUT AGND LOUT
I2C_BCLK — SCK
BCK
I2C_DATA — DIN
I2C_LRCLK — LCK
GND
VIN
+5V
C5 100uF
C4 100nF
GND

MIDI Out (optional)

U1A 74HCT14
MIDI_OUTn
U1B 74HCT14
R1 220
J2 MIDI OUT
+5V
R2 220
TX_TTL
GND

RS-232 or TTL Serial USB adapter (optional)

+3.3V
J6 Serial
RX_TTL — VCC / RxD
TX_TTL — TxD / GND
GND

A1 Raspberry PI
+5V +3.3V
5V 5V 3V3 3V3
TX_TTL — 8 GPIO14/TXD   ID_SD/GPIO0 27
RX_TTL — 10 GPIO15/RXD   ID_SC/GPIO1
SW_SYNTH — 36 GPIO16   SDA/GPIO2 3 — I2C_SDA
11 GPIO17   SCL/GPIO3 5 — I2C_SCL
I2S_BCLK — 12 GPIO18/PWM0
35 GPIO19/MISO1   GCLK0/GPIO4 7 — SW_ENC
I2S_LRCLK — 38 GPIO20/MOSI1   GCLK1/GPIO5
I2S_DATA — 40 GPIO21/SCLK1   GCLK2/GPIO6
CE1/GPIO7 26
SW_DOWN — 15 GPIO22   CE0/GPIO8
SW_UP — 16 GPIO23   MISO0/GPIO9
18 GPIO24   MOSI0/GPIO10
22 GPIO25   SCLK0/GPIO11
37 GPIO26
SW_ROM — 13 GPIO27   PWM0/GPIO12 32
PWM1/GPIO13
GND
GND

Power section

DC_5V
J1 DC IN
+5V
C6 470uF
GND

Control scheme ("simple_encoder")

5-pin connector for connecting up a rotary encoder such as the KY-040, note that we'll still need the SYNTH/ROM buttons from the "simple_buttons" control scheme as well. Currently the board does not have any proper methods for mounting it, unless you're mounting the whole thing in a separate case.

ENC1 KY-040
+3.3V
GND
SW DAT CLK
SW_ENC SW_UP SW_DOWN
GND

Control scheme ("simple_buttons")

Volume UP/DOWN is not needed when rotary encoder is used, some versions of faceplates may include SYNTH and VOL_UP and the duplicated switch should not be installed. JP3 is used to have the ROM switch replace VOL_UP.

SW1 SYNTH — SW_SYNTH
SW2 ROM — SW_ROM
SW3 VOL_DOWN — SW_DOWN
SW4 VOL_UP
JP3 SW4_SEL — SW_UP
SW_ROM
GND

OLED display and faceplate connector

OLED displays have unfortunately been produced with varying pinouts, we therefore need to add solder bridges to specify what the pins are used for. Faceplate connector includes signals for both screen and control scheme pins, just in case a specific faceplate reimplements them in some way.

+3.3V
JP1 P1_GND
JP2 P2_VCC
GND   GND
I2C_SCL
I2C_SDA
GND VCC SCL SDA
OLED IC1
+3.3V
J4 Faceplate
1 VCC
2 SCL
3 SDA
4 GND
5 N.C.
6 ENC — SW_ENC
7 SYNTH — SW_SYNTH
8 ROM — SW_ROM
9 UP — SW_UP
10 DOWN — SW_DOWN

Connector for optional extras:

Optional support for the extras board, duplicating most of the connectors not included on the main board. Includes RS232 as additional MIDI ports (note that these must be inverted in a separate stage).

+3.3V   +5V
J7 Conn_Extras
1 3.3V   5V 2
3 GND   GND 4
5 N.C.   N.C. 6
7 N.C.   N.C. 8
GND
A_RIGHT — 9 A_RIGHT   MIDI_OUT 10 — MIDI_OUTn
A_LEFT — 11 A_LEFT   MIDI_THRU 12 — MIDI_THRUn
A_GND — 13 A_GND   A_GND 14 — A_GND
SW_DOWN — 15 SW_DOWN RX_TTL 18 — RX_TTL
SW_UP — 17 SW_UP
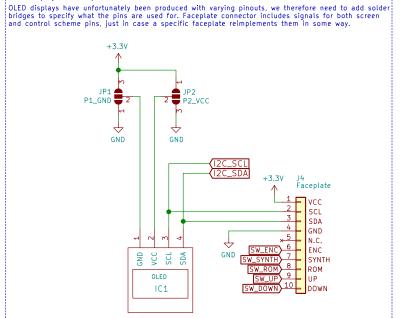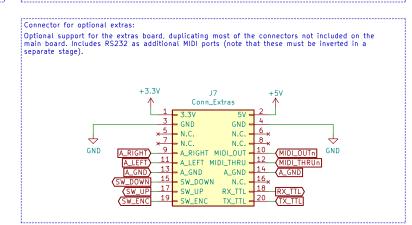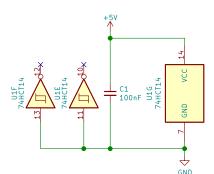SW_ENC — 19 SW_ENC   TX_TTL 20 — TX_TTL

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

Based on clumsyMIDI, itself an implemented version of MT-32 PI.

Sheet: /
File: BulkyMIDI-32 Module.sch
Title: BulkyMIDI-32 Module
Size: A3   Date: Rev: B
KiCad E.D.A. kicad (5.1.8)-1   Id: 1/1