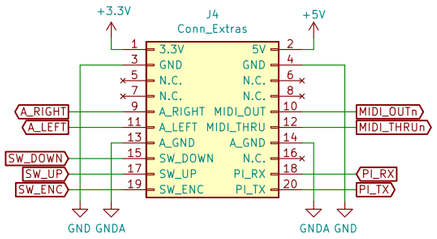
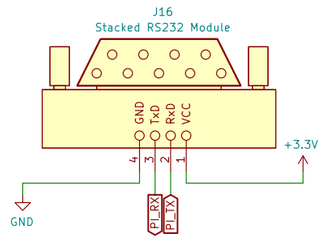
Extras connector

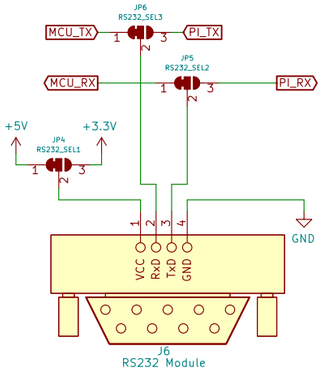
When the extras board is used along with the BulkyMIDI-32, this connector takes care of all signals to and from the main module. The board is powered from this connector as well, for that reason the barrel connection should not be installed unless you intend to use it this way.



RS-232 Modules (1 or 2 stacked)

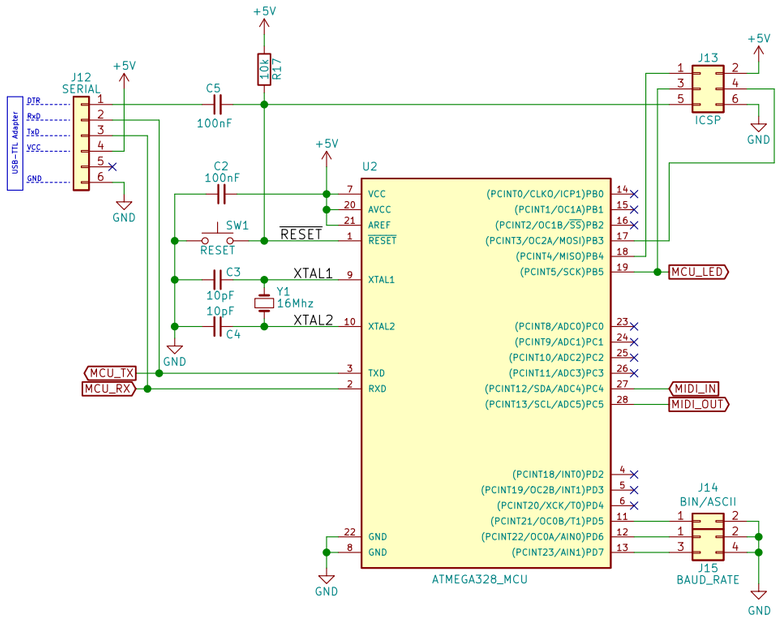
A set of two RS232 modules can be stacked upside down, the second one on top is usually just connected to the Raspberry Pi. The primary module can either be linked to the MCU for baud rate convertersion by linking 1-2 across JP4-JP6, 2-3 is instead used when we just want the adapter without any conversion.

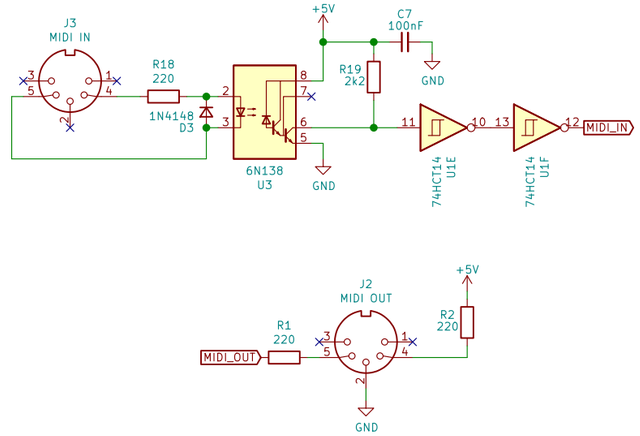




RS-232 Baud rate converter

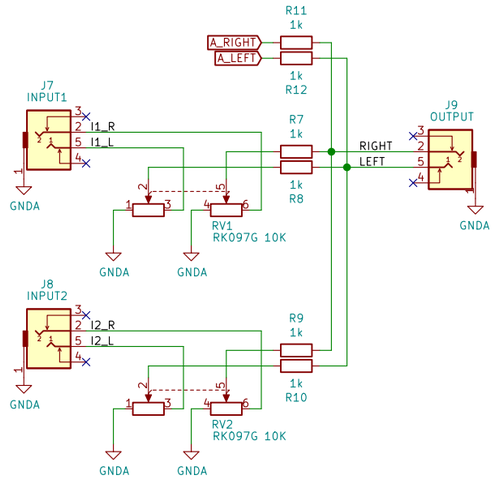
1 or 2 RS-232 modules may be installed on the board, this section uses an Atmega328 MCU in order to convert the incoming serial data to the baud rate used by the MIDI protocol (31500 baud). A regular PC serial port can use different baud rates, but the closest is 38400 baud rate and that is still too far out of spec. Note that the MT32-PI itself is able to handle these non-standard baud rates via a configuration option, this is more intended for real MIDI devices.



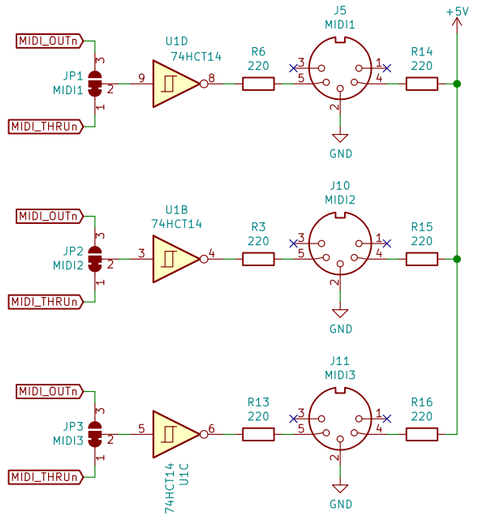


Passive audio mixer

The audio inputs can be routed via the extras connector from the main module, alternatively you can manually route it externally to INPUT1/INPUT2. The two inputs will passively be mixed into the output sound, note that the level will be slightly lower on the output as compared to directly from the DAC.



Extra MIDI ports

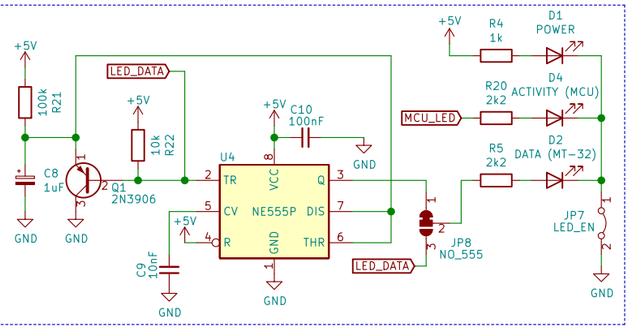


Status LEDs

Board status, shows that the boards are powered as well as separate LED for the MCU functionality.

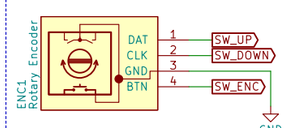
DATA received on MIDI input for main board is also shown, but as I didn't like the flickering we'll light it up solid as long as there is activity (pulses extend period). A simpler version can be built without these components, linking NO_555 pins 2-3 instead.

This is calculated as
T = 1.1 * R21 * C8 = 0.11s



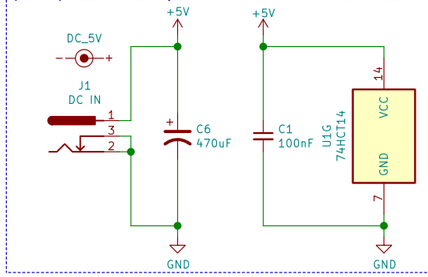
Control scheme ("simple_encoder")

4-pin connector for connecting up vertical rotary encoder module, found in "adapters".



Power section

The power section has been duplicated for the main MT32-PI module, you only need the barrel jack when extras is used without MT32-PI.



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

Sheet: /
File: BulkyMIDI-32 Extras.sch

Title: BulkyMIDI-32 Extras

Size: A3	Date:	Rev: B
KiCad E.D.A. kicad (5.1.8)-1		Id: 1/1