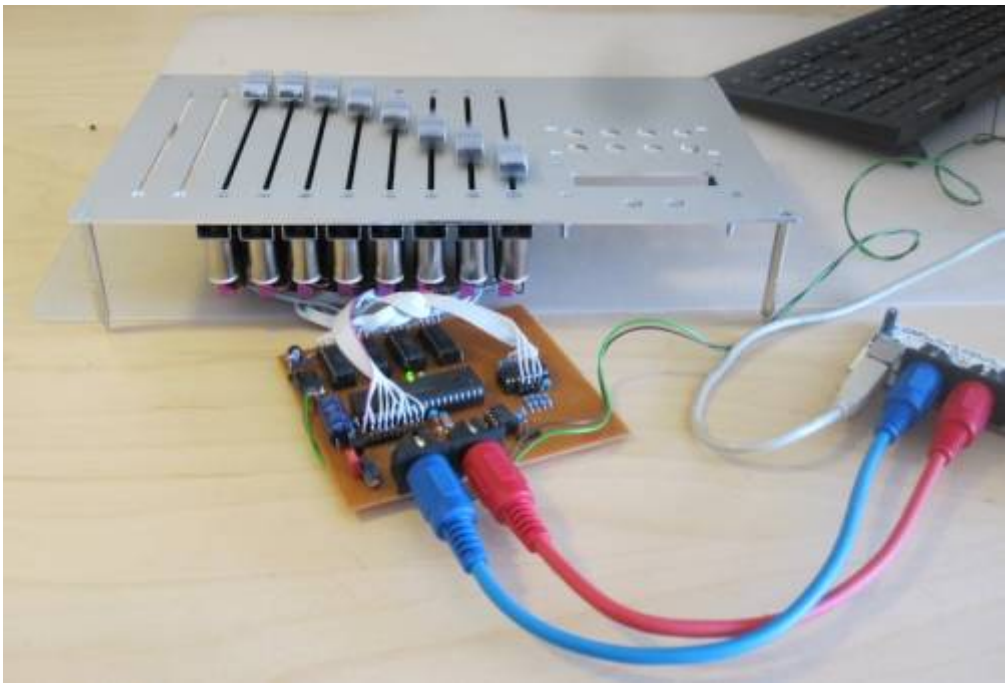
Motorfader-NG Module



Introduction

The MF_NG module is the successor of the MBHP_MF module and has following design targets:

- find a solution to handle high-quality faders like Alps K faders with “coreless” motors
- find a solution for Core32 which doesn't deliver stable enough ADC conversion results due to the reduced 3.3V voltage range
- find a solution for Core32 which cannot handle touch sensors properly without heavy CPU load (resp. without an additional external device or microcontroller)
- find a solution which is compatible with PIC based projects for best usability
- find a solution which is DIY friendly and doesn't require additional gear for something which isn't part of the MBHP yet
- find a solution which can be easily tested and troubleshooted (no need to learn new processes)

And the result is:

- a dedicated PIC controller controls the motorfaders directly.
- the firmware can be updated via MIDI!
- motorfaders are accessed via MIDI - this allows standalone usage, cascading (to chain multiple modules), and the re-use of existing infrastructure such as MIOS, MIOS Studio and MIOS Bootloader
- the module can either be connected to a PC directly, or controlled from a second PIC or STM32 or LPC17 (note that MBHP_CORE_LPC17 has a third and even a fourth MIDI IO port at TTL level so that the available two MIDI IO pairs are still free)
- native support of various protocols (e.g. PitchBender, CCs, even Logic Control and Mackie Control Emulation)
- support for 8 touch sensors

- instead of TC4427 I'm using L293D now - not at least because of the integrated diodes.
- due to the direct motor control connections, the PIC is now able to generate PWM with 50 uS steps for improved motor speed control while a motor is moved
- since the firmware is dedicated for this task, there was enough memory free to integrate advanced features, such as runtime-calibration and motor position tracing which are supported by MIOS Studio:

Parts List

see MF_NG Parts List

- Schematic[UCapps]

Compatible Motorfaders

- ALPS RASON11M9 Interconnection Diagram

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