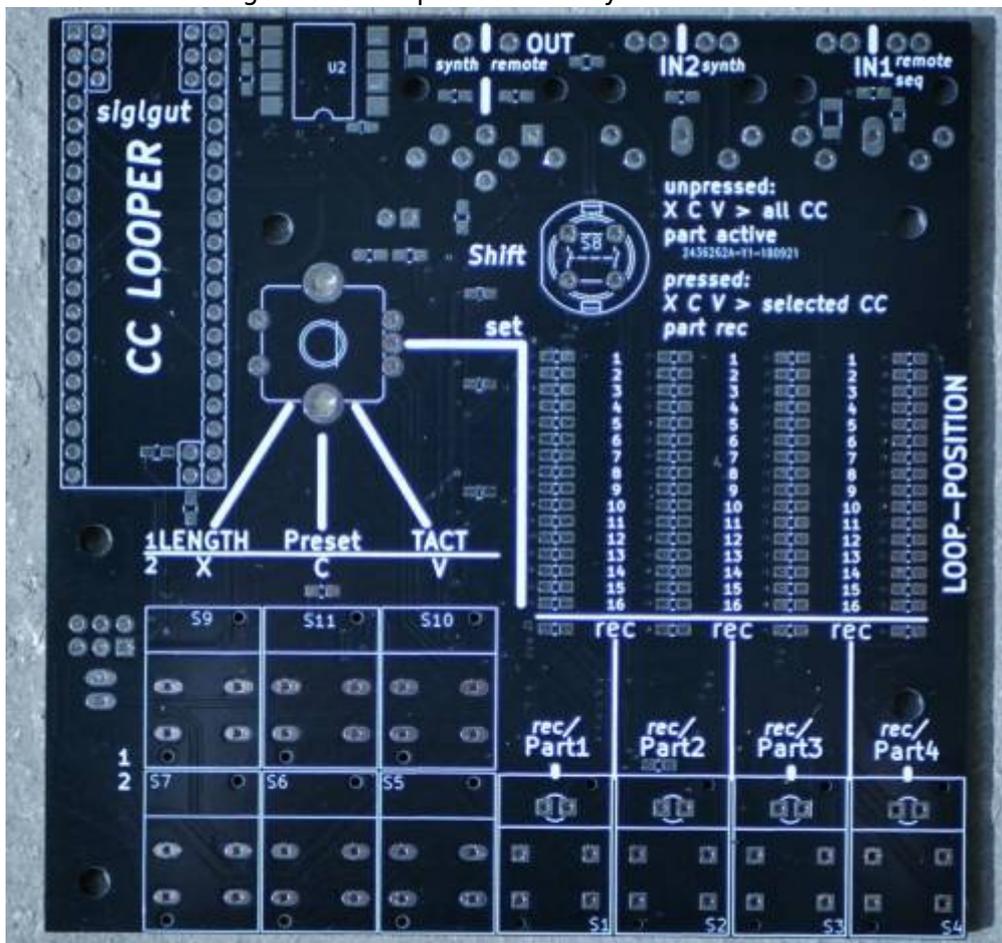# CC-Looper

CC-Automation
Midi Control Change MotionSequencer - for Synthesizer with LEDRINGS

Features

* 4Midichannels @ each 512Steps X 32th-looprate X 128 CCs
* only a few of the 128CC should be used @ once - 4x128xCCs @ 32th is Midi Data MESS and µC Death
* maybe only 256Steps, will depend on RAM.... RealWorld will tell
* each TRACK has a shared Track length for all its 128 CCs
* Copy, Paste, Clear: for the all 128CCs/or single CC
* There is no EDIT, you can clear a CC or Track and make a new Take
* ProgramChange Load and Store on microSD-Card, Load and Store are CC-Commands, so you can remote the device
* The Sequencer can be set to Tact Systems: 3/4 4/4 5/4 7/4 9/4 11/4 13/4

Hardware Requirements

External Requirement:(for example)

- You need a Synth with LEDRINGs - otherwise you have no Feedback and Overview - NordRack III is such one
- Melody/Clock Source with ProgramChange-Output: midibox_seq_v4l oops that dont do PC…
- Melody/Clock/CC Destination: NordRack III or any other Synth with Visual Feedback off CC-States

Midibox:

- dipcoref4 - this is the µC Brain for the Looper
- cc-looper - this is the UI-PCB of the Looper
- no other PCBs needet

- µSD-Card, formated with FAT32
- Soldering Iron - with a Dip that can Handle SMD-Parts, Wires, solder Paste for the µC….
- USB Power Supply with µUSB-Connector

Set

Cabeling

Midi IN1 »> MelodySequencer and Remote Devices
Midi IN2 »> Midi Out from Synthesizer - which sends out the Moved CCs
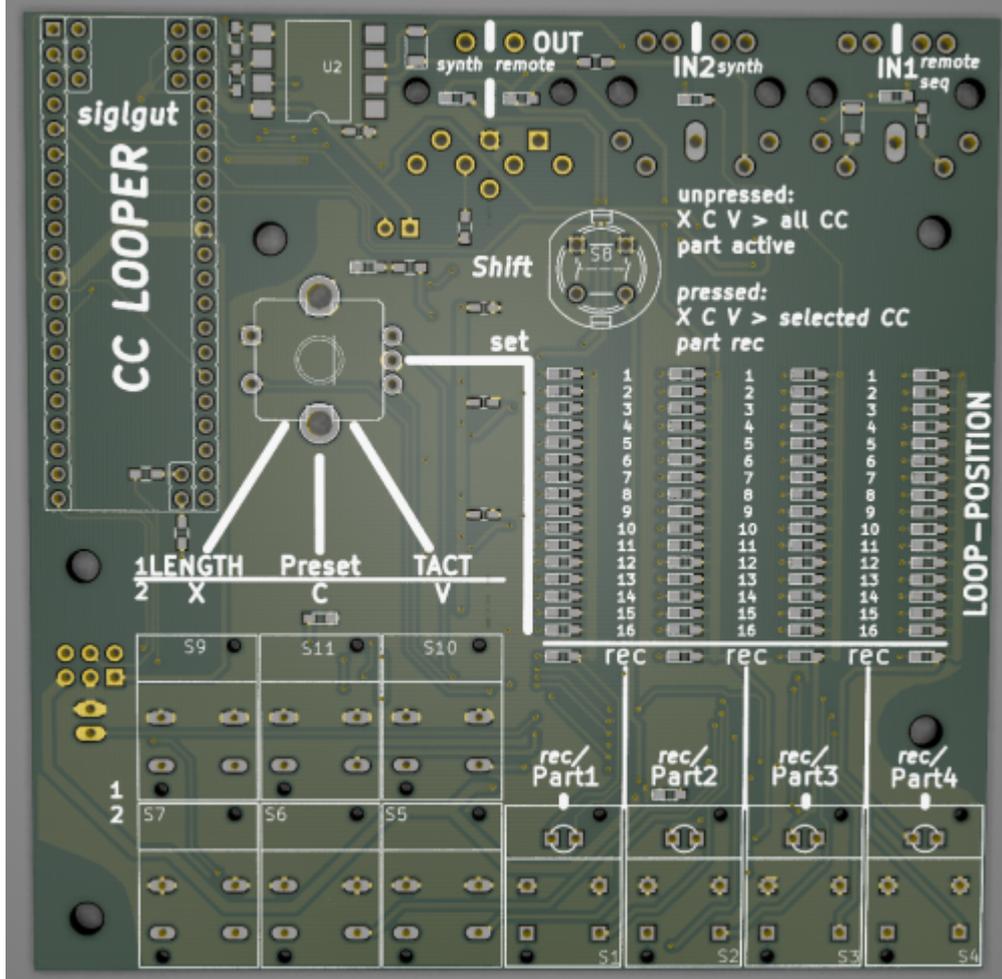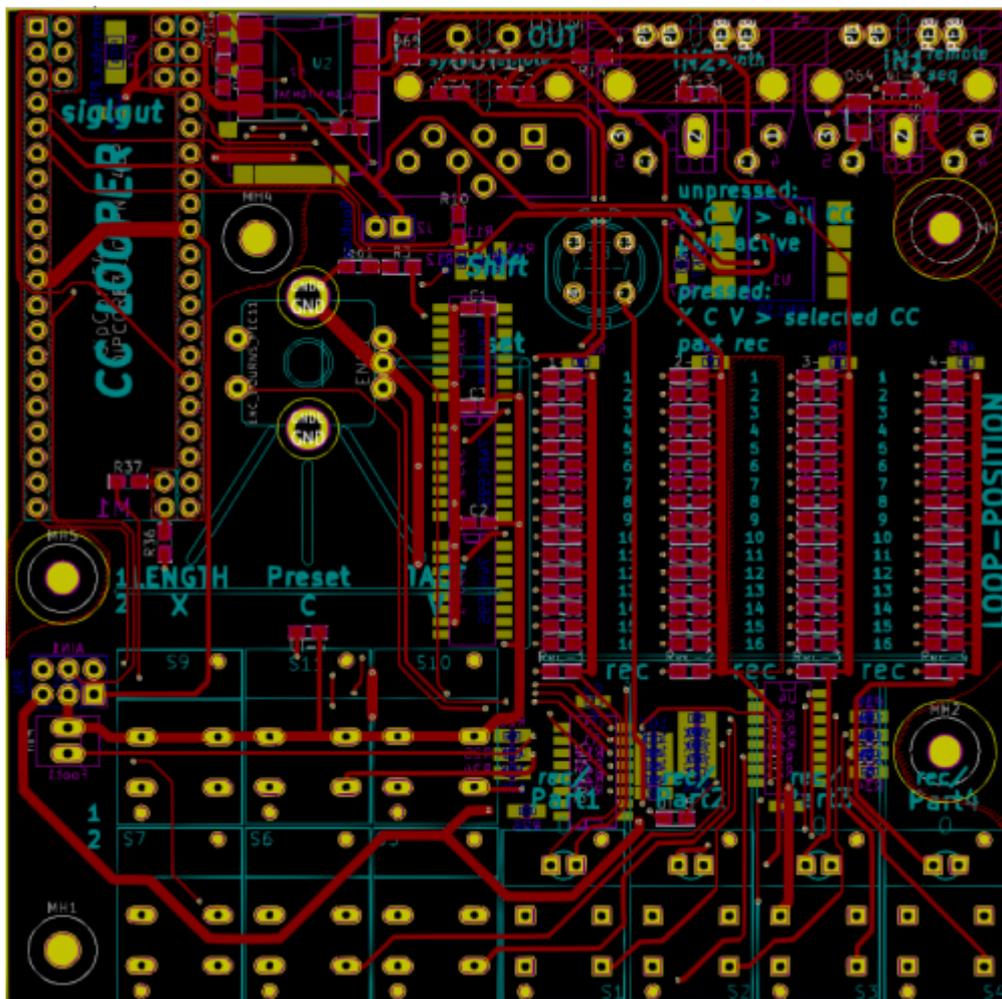Midi OUT »> Midi IN of Synthesizer input (Automated CCs merged with mididata from Midi IN1)
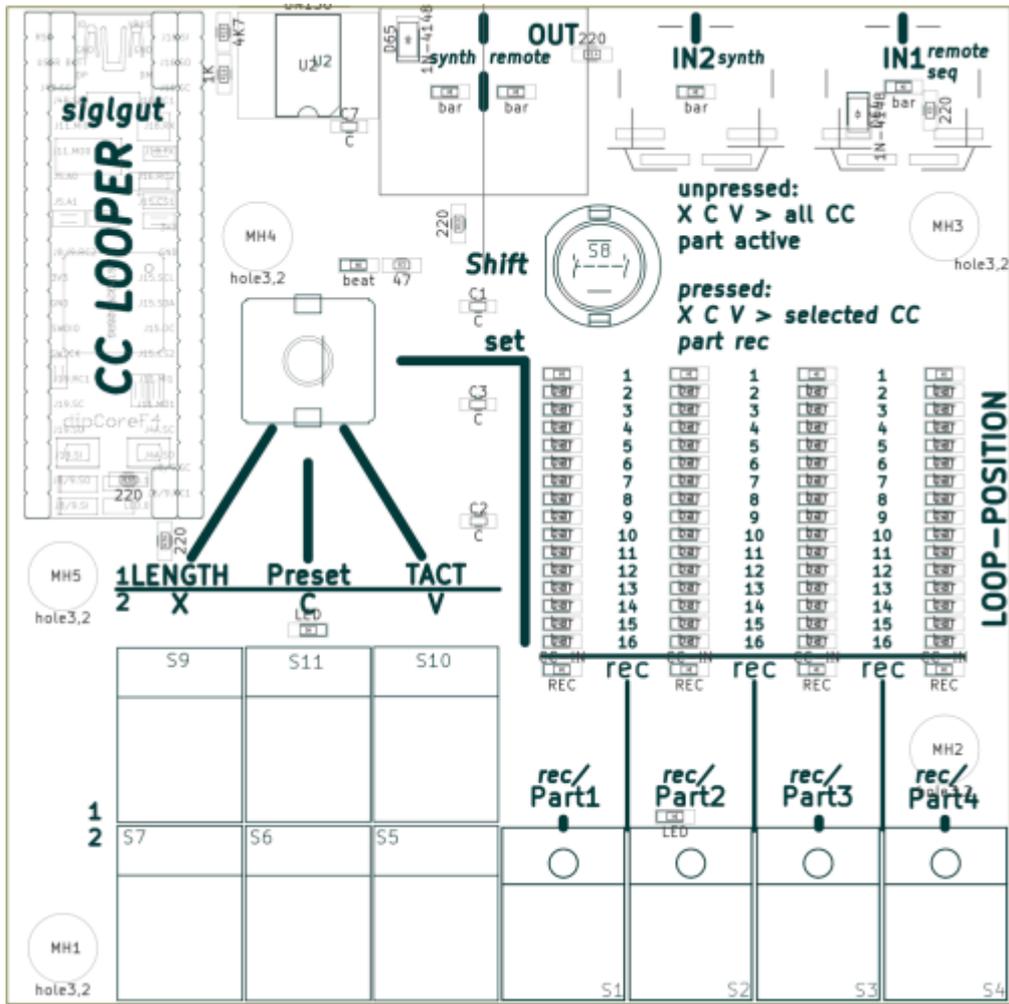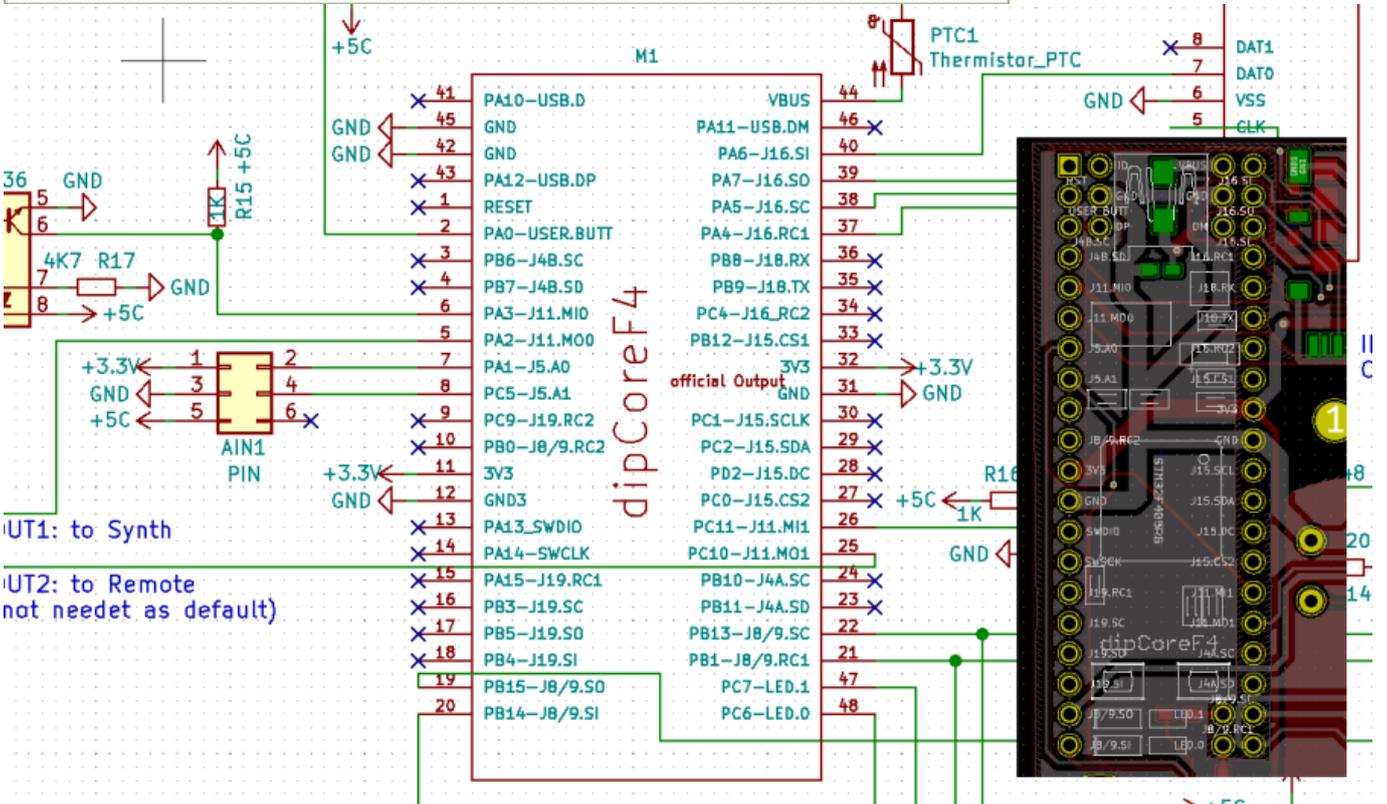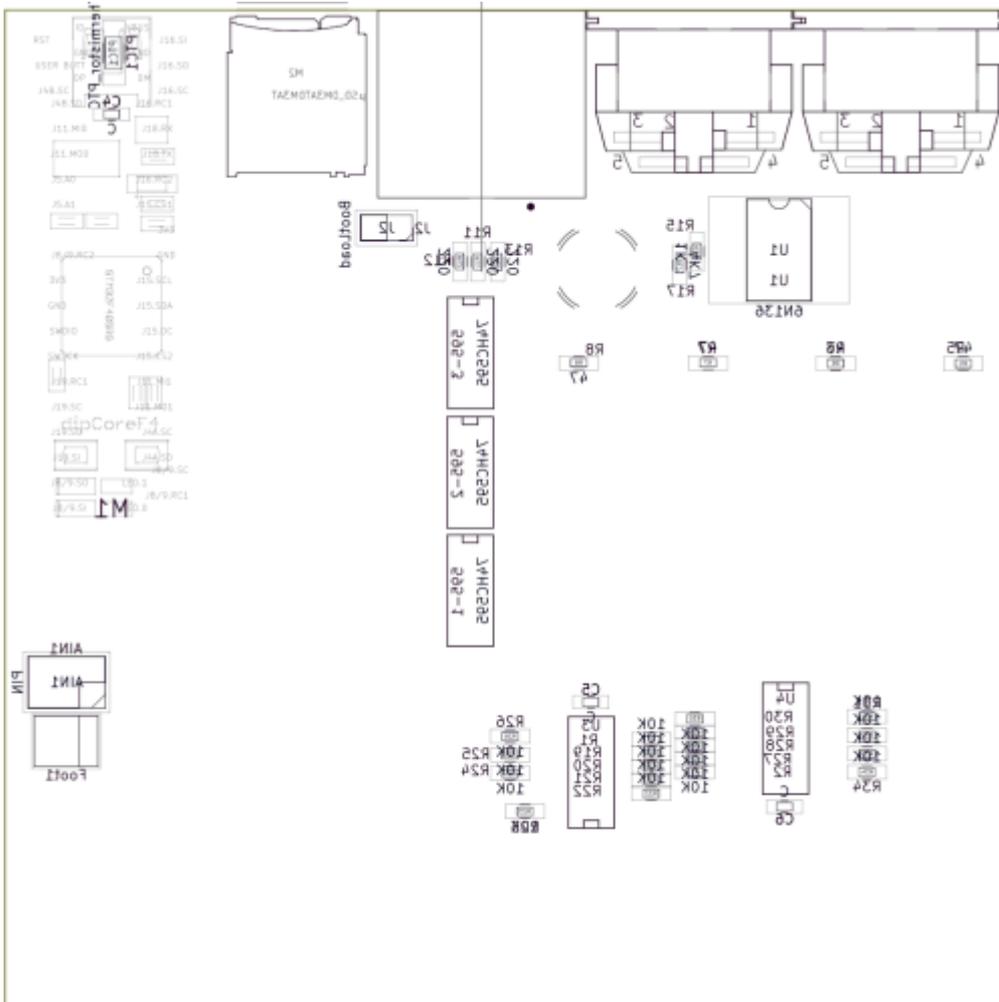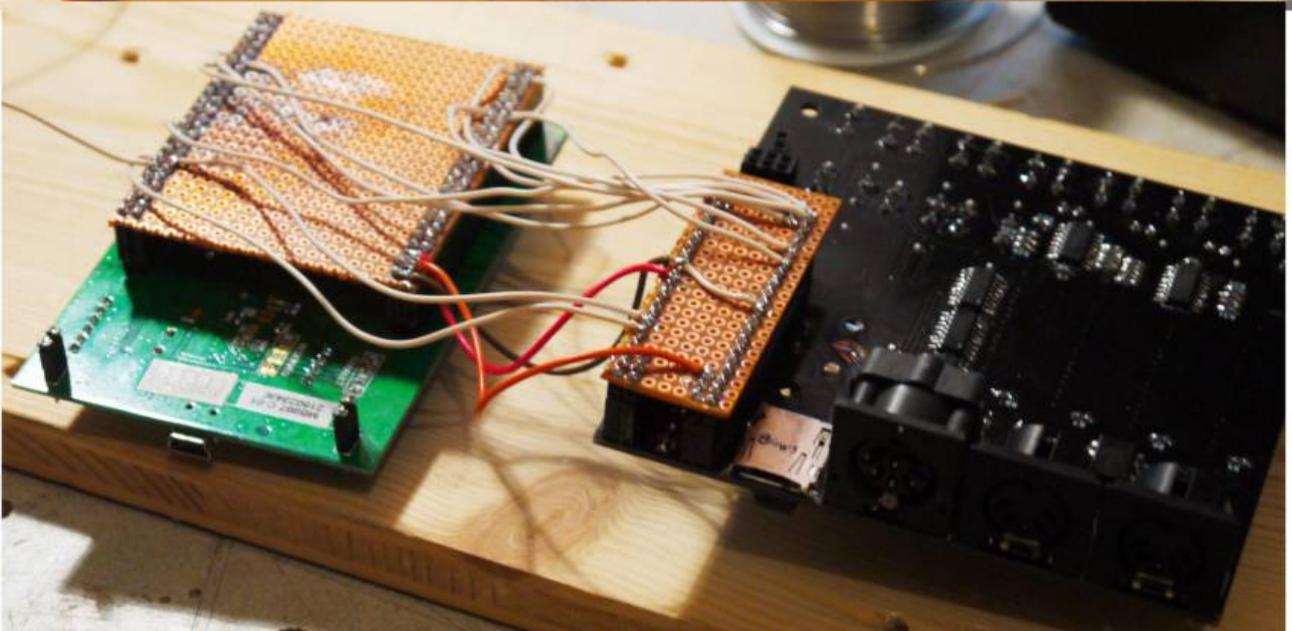
Software

Firmware

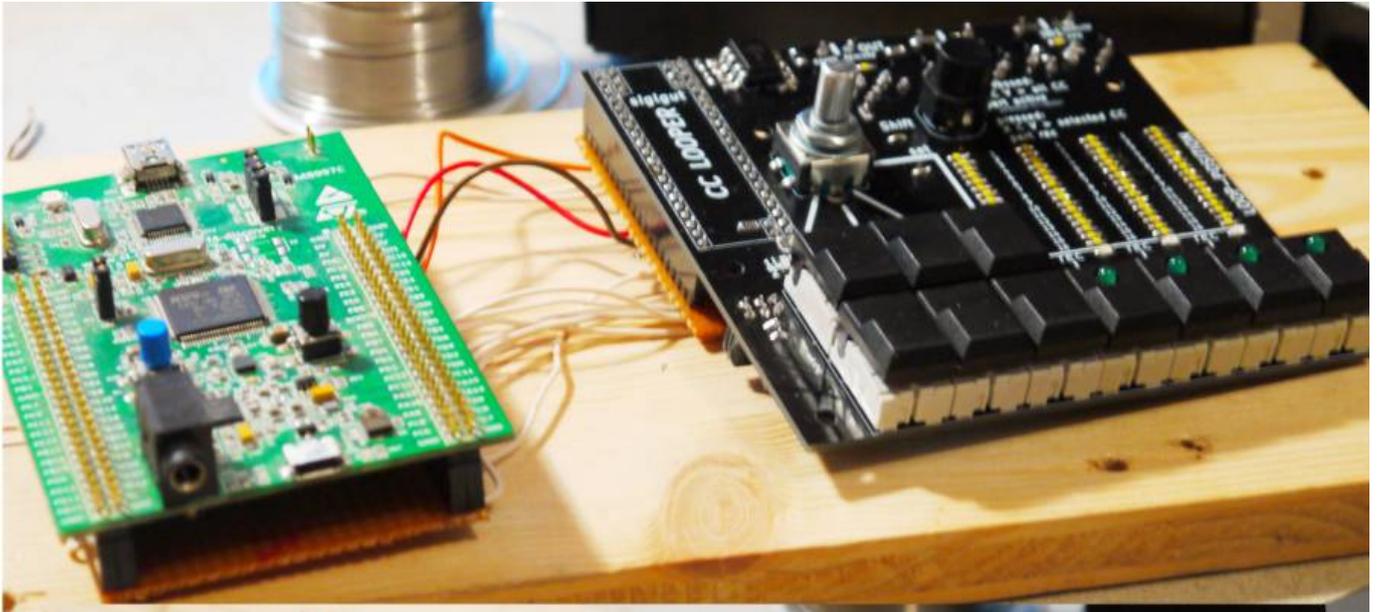🔧 **Fix Me!** Firmware not made yet

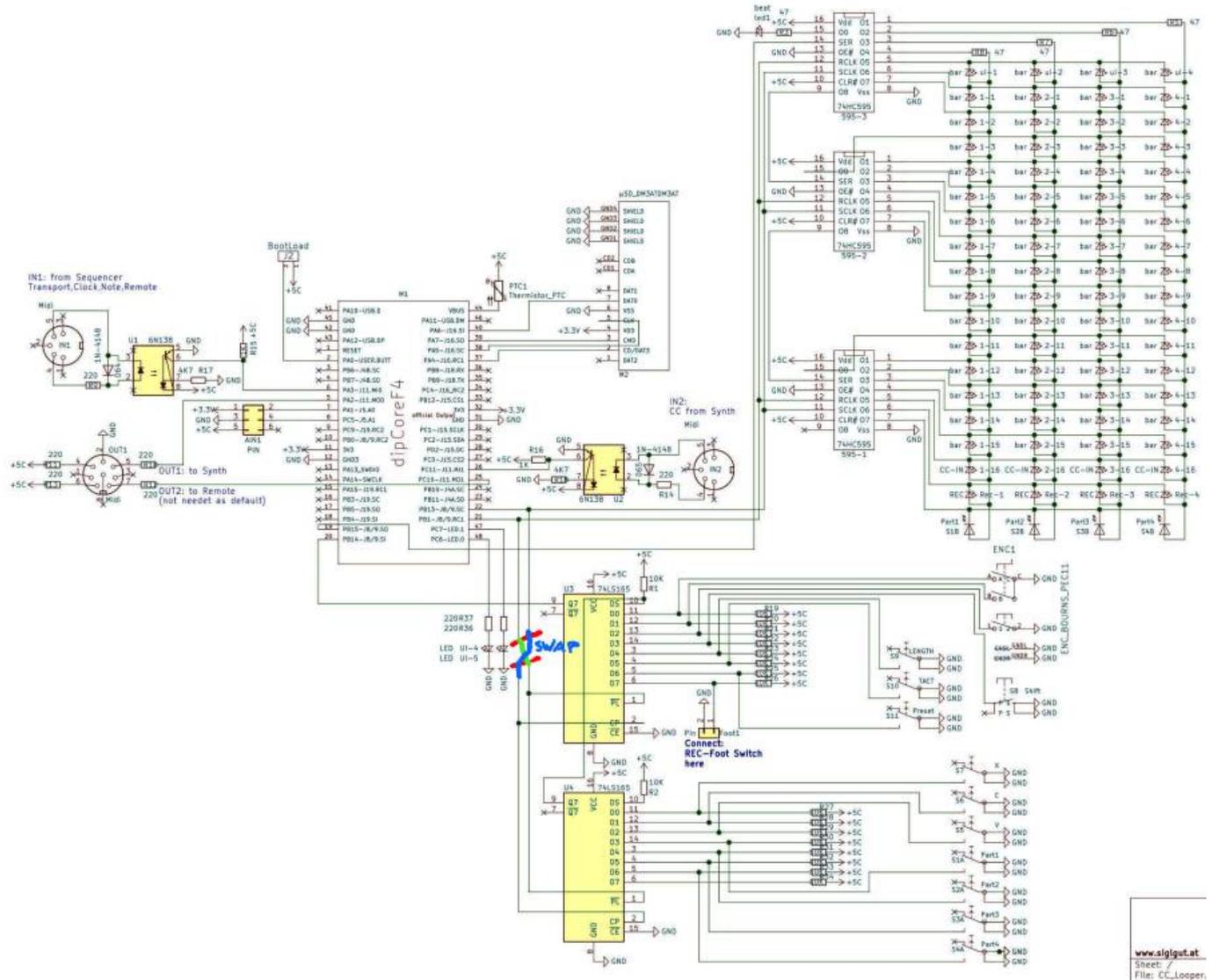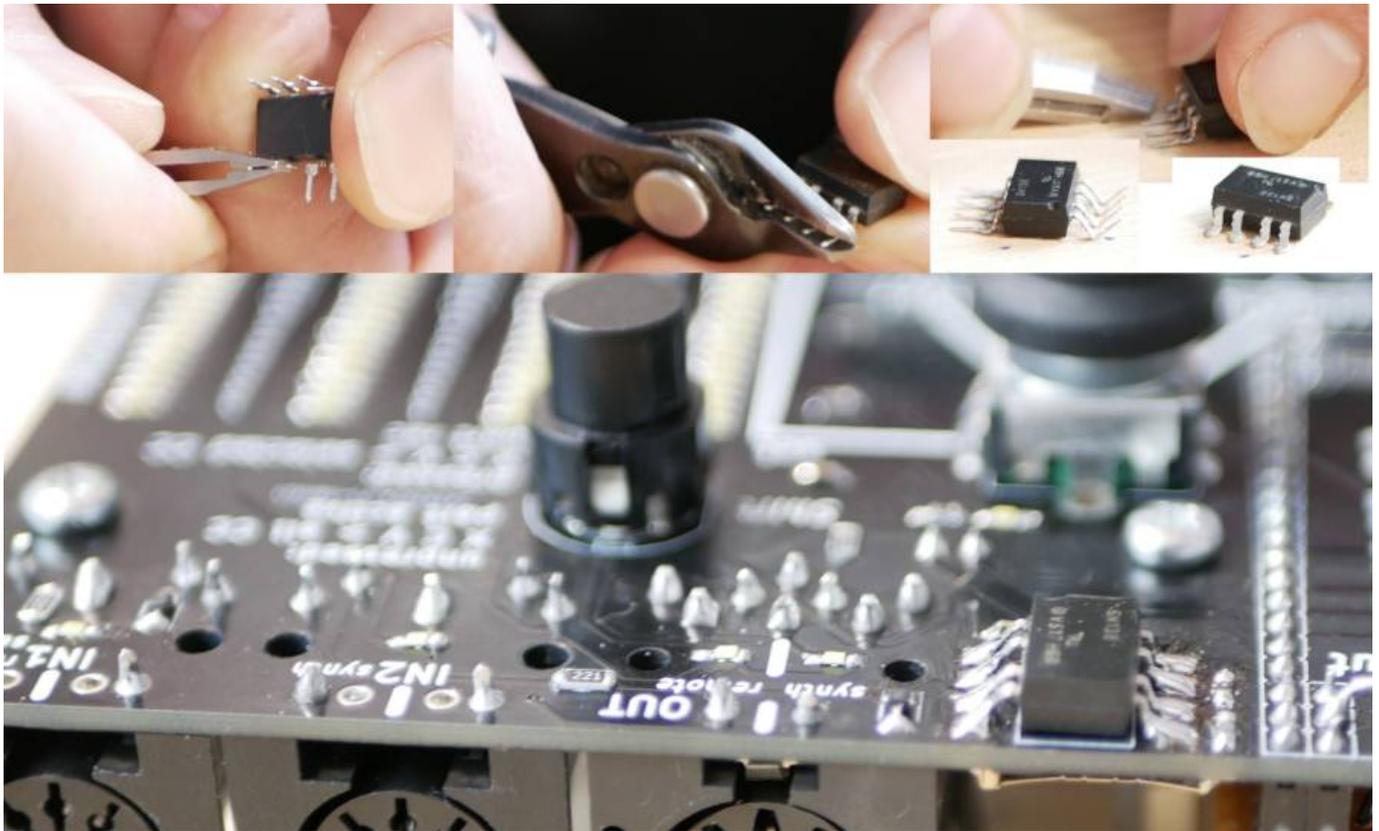# Building

M1

PTC1
Thermistor_PTC

+5C

		dipCoreF4		
41	PA10—USB.D	VBUS	44	
45	GND	PA11—USB.DM	46	
42	GND	PA6—J16.SI	40	
43	PA12—USB.DP	PA7—J16.SO	39	
1	RESET	PA5—J16.SC	38	
2	PA0—USER.BUTT	PA4—J16.RC1	37	
3	PB6—J4B.SC	PB8—J18.RX	36	
4	PB7—J4B.SD	PB9—J18.TX	35	
6	PA3—J11.MI0	PC4—J16_RC2	34	
5	PA2—J11.MO0	PB12—J15.CS1	33	
7	PA1—J5.A0	3V3	32	+3.3V official Output
8	PC5—J5.A1	GND	31	GND
9	PC9—J19.RC2	PC1—J15.SCLK	30	
10	PB0—J8/9.RC2	PC2—J15.SDA	29	
11	3V3	PD2—J15.DC	28	
12	GND3	PC0—J15.CS2	27	+5C
13	PA13_SWDIO	PC11—J11.MI1	26	
14	PA14—SWCLK	PC10—J11.MO1	25	GND
15	PA15—J19.RC1	PB10—J4A.SC	24	
16	PB3—J19.SC	PB11—J4A.SD	23	
17	PB5—J19.SO	PB13—J8/9.SC	22	
18	PB4—J19.SI	PB1—J8/9.RC1	21	
19	PB15—J8/9.SO	PC7—LED.1	47	
20	PB14—J8/9.SI	PC6—LED.0	48	

GND
GND

+3.3V
GND
+5C

AIN1
PIN

+3.3V
GND

R15 +5C
1K

36 GND

4K7 R17

GND
+5C

OUT1: to Synth

OUT2: to Remote
(not needet as default)

8 DAT1
7 DAT0
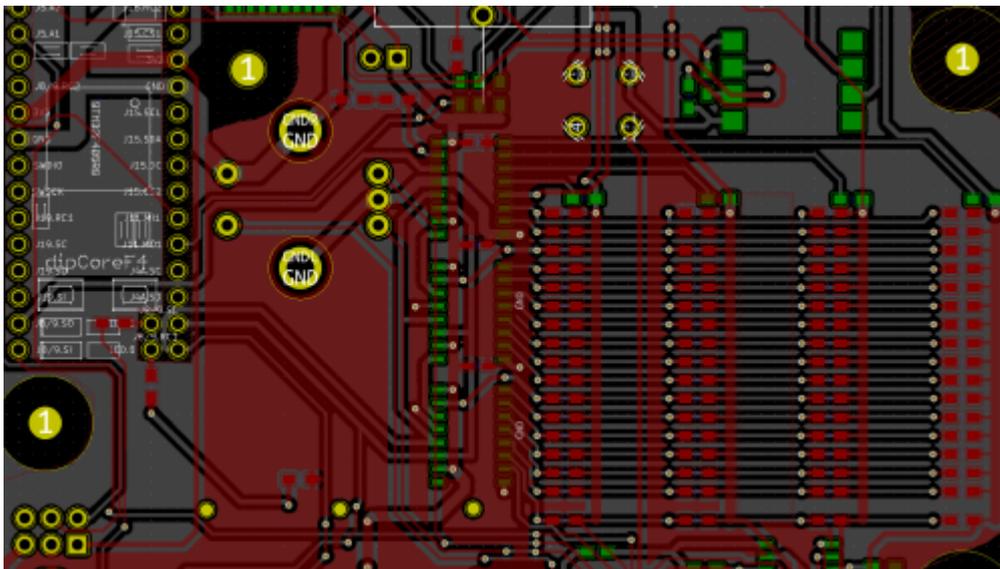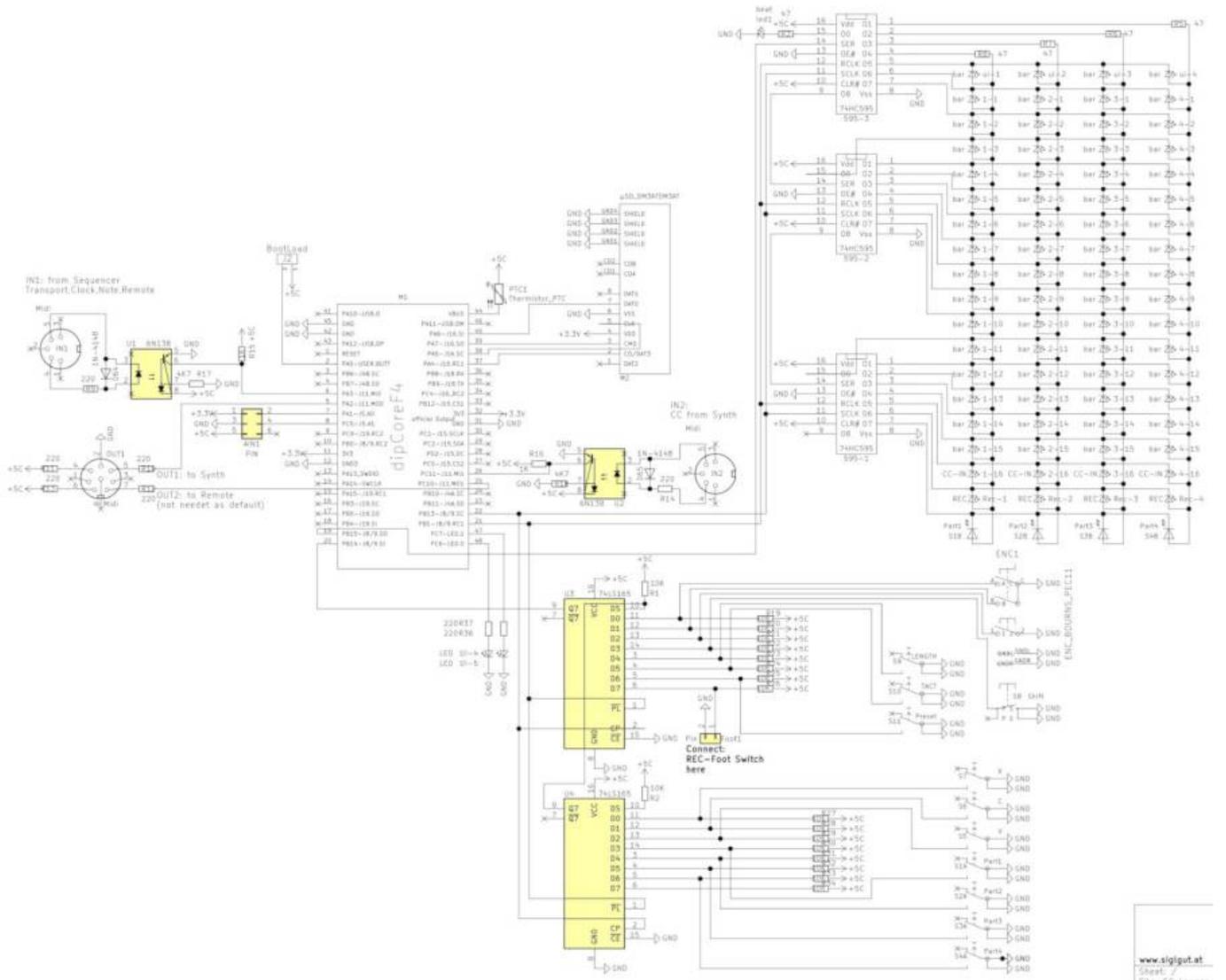GND 6 VSS
5 CLK

R16
1K

+3.3V
GND

Frontpanel

Fix Me! - a clear Acrylic Frontplate, with NO Engravings, UI-Labeling is viewable from PCB

Case

BOM

Ref	Qty	Value	Footprint	MouserPart	
C1 – C7	7	100nF	0603 Capacitor	81-GRM33C71C104ME14D	Mouser
Rec–1 – Rec—4, UI–5 UI—4, led1, -1 -2 -3 -4	11	REC, LED, beat, CC-IN,	0603 LED	630-ASMT-RR45-AQ902	Mouser
1-16 (LED-BAR)	64	bar	0603 LED	755-SMLEN3WBC8W1	Mouser
D64 D65	2	1N-4148	1206 Diode	833-1N4148W-TP	Mouser
PTC1	1	Thermistor_PTC	1206 Resistor	576-1206L150THWR	Mouser
R1, R2, R19 – R34	18	10K	1206 Resistor	603-AC0603FR-0710KL	Mouser
R3 R5 R6 R7 R8	5	47	1206 Resistor	603-RC0603FR-0747RL	Mouser
R9-R14, R36, R37	8	220	1206 Resistor	603-RC0603FR-07220RL	Mouser
R15 R16	2	1K	1206 Resistor	603-RC0603JR-071KL	Mouser
R17 R18	2	4K7	1206 Resistor	603-RC0603FR-074K7L	Mouser
OUT1	1	Midi	DIN-8-SDF-80J	490-SDF-80J	Mouser
M1	1	DIPCORE32_CMPNT_48P	517-929870-01-20-RA	DIP-40	Mouser
S8	1	Shift	DT6	611-D6R00F1LFS	Mouser
S1 – S4	1	Part1	611-SERWHAUOA	DTL2-1-LED	Mouser
S5 – S7, S9 – S10	6	X,C,V,Len,Pre,Tac	611-SERRDAUOA	DTL2-1-NO-LED	Mouser
ENC1	1	ENC_BOURNS_PEC11	ENC_BOURNS_PEC11+SW	652-PEC11R-4215F-S24	Mouser
IN1 IN2	2	Midi	Midi-Socket-MAB5SH-DIN-5	566-MAB5SH	Mouser
Foot1	1	Pin			
J2	1	BootLoad			
AIN1	1	PIN			
U1 U2	2	6N136	SMDIP-8_W11.48mm	782-6N136-X009	Mouser
-595	3	74HC595	SO-16-N	621-74AHC595S16-13	Mouser
U3 U4	2	74LS165	SO-16-N	595-SN74LS165ADR	Mouser
M2	1	µSD_DM3ATDM3AT	MSD_DM3AT	798-DM3AT-SF-PEJM5	Mouser

To Do

alot, beta test, programming the firmware, housing

Resources

KiCad-Data[ccl-dipcore.7z](#)
its based on a mixture off:

- [msq-cc-lre](#)
- [msq-cc-bcr](#)

but its a complete new design, and firmware

Community users working on it

- **Phatline** = Programming, Documentation…

Just let a Private message on the forum to user already involved.
I have 10 ProtoBoards here - i test one, and if it works, i can share them for Beta Testing-if you pay
the postage

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