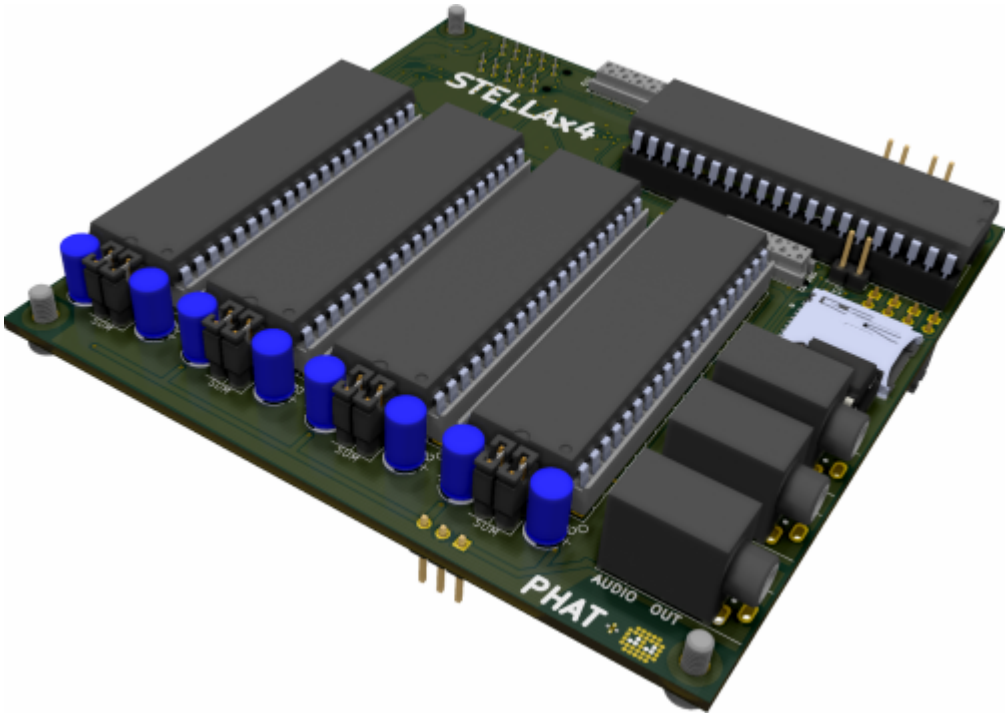
STELLAx4



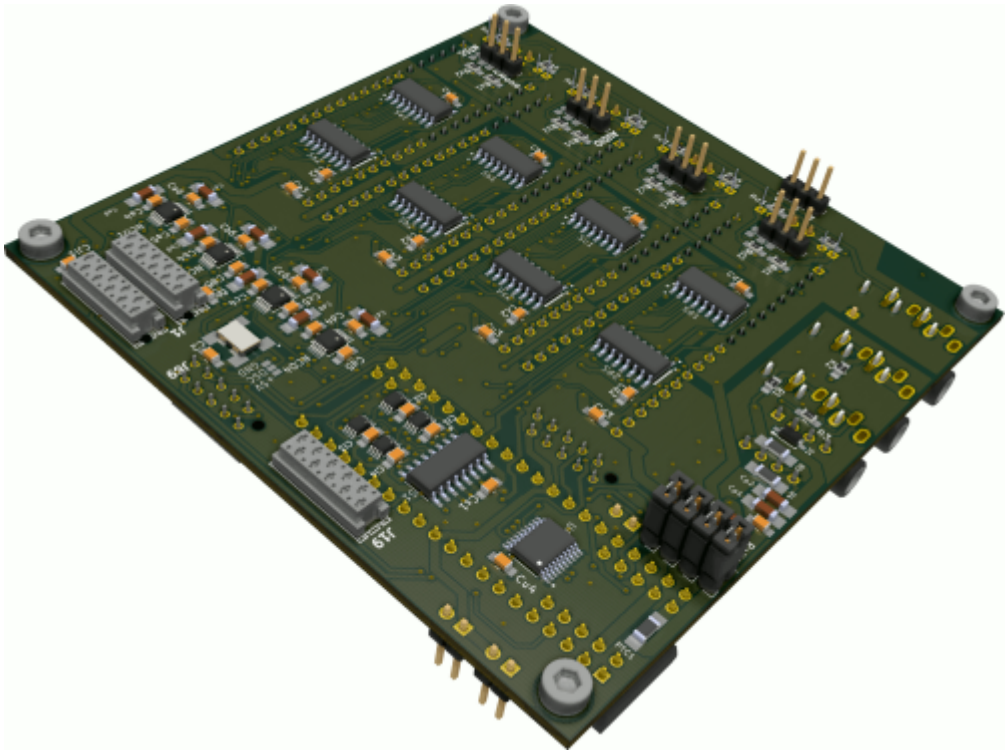
4x 8Bit Soundchips/TIAś on a 10x10cm PCB,
controlled from a STM32F4 Microcontroller dipcoref4,
based on Antichambreś TIA Module, with AD9833ś as External programmable Clock, the Frequency-range is expandet...
The Board acts a Motherboard, for

- 4x Soundchip... AND:

also like the stm32f4_module it provides:

- Midi-IO - 1x IN, 1x OUT > 3,5Jacks/TRS
- µSD-Card - 2 Save Patches
- µController-Socket - 2 Plug the dipcore_f4 in, ask antichambre to get one!
- J19>AoutNG - to connect VCF or VCAs...
- J8/9>DOUT & DIN - 4 the UI
- J15 (JLCD1) which handle from Stock 4x SPI-Displays (SSD1306), - 4 the UI
- J1>chain a nother STELLAx4 as “SLAVE” to it, to expand polyphony

ready for Pick and Place



–all SMD-Parts are on one SIDE and are presoldered..

Features

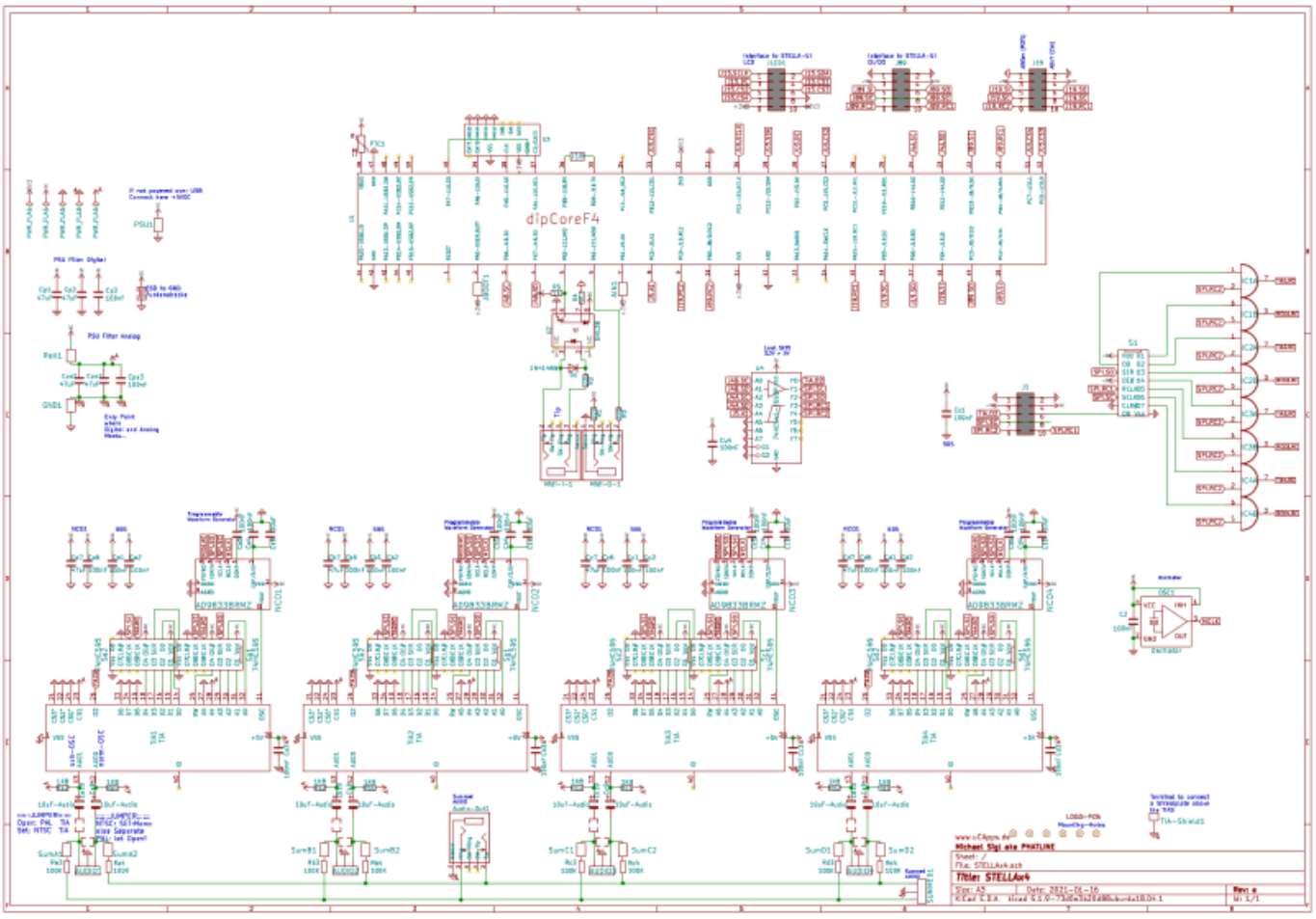
* Summed or Individual Audio-Outs, selectable via normal Jumpers
* NTSC or PAL > select via SMD-Solder-Jumper
* User-Interface is C-Language-Programmable

Hardware Requirements

- dipcoref4
- 4 x TIA/STELLA [PAL or NTSC...)
- Soldering Iron - with a Dip that can Handle Thruhole-Parts, solder Paste...
- 5V from Mini-USB-Plug, or 5V at a 2Pin-Header connected to example a Eurorack Power Source (+5VDC!)
- dont forget Midi TRS Cables

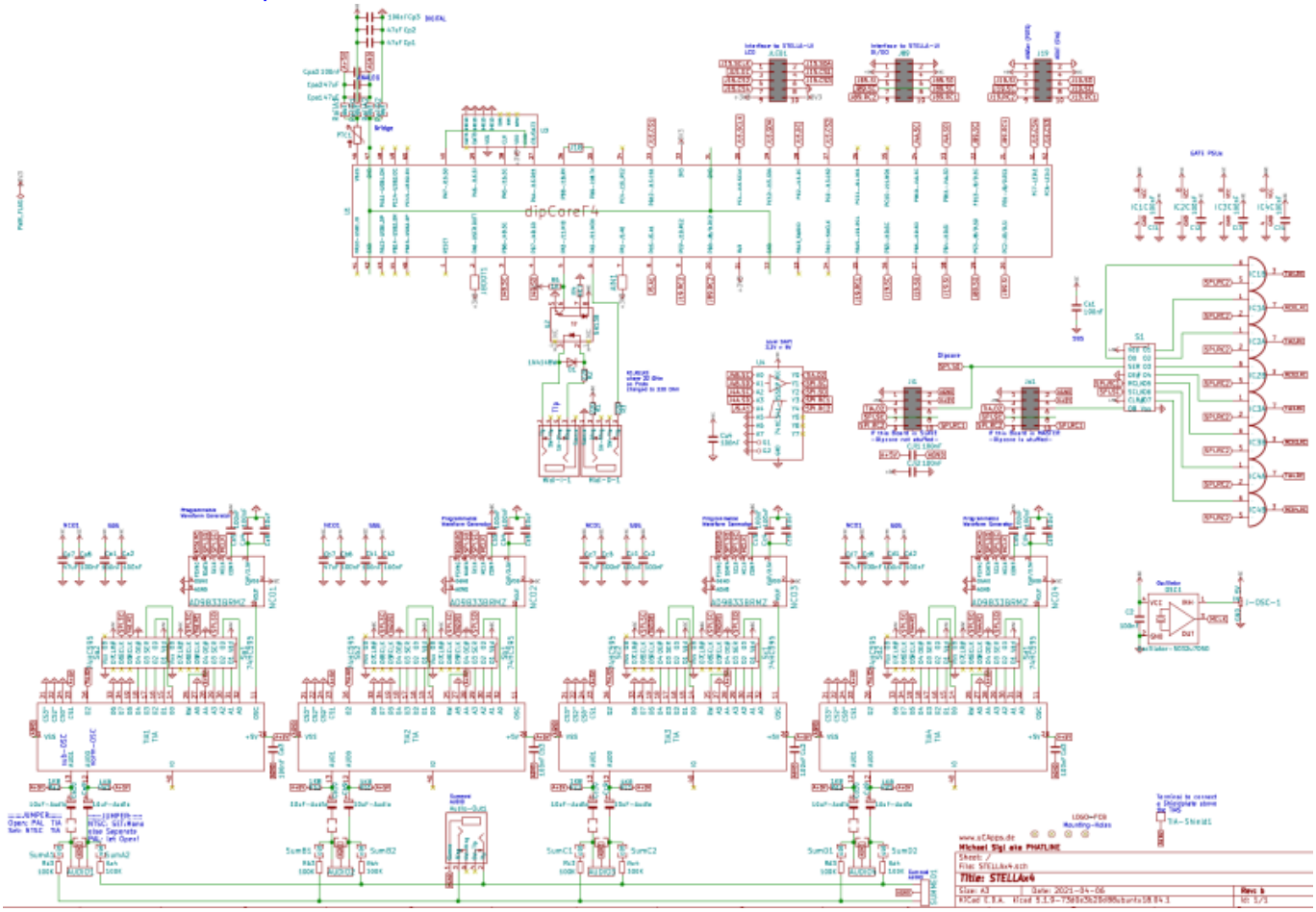
Shematic

Rev.A
stellax4-shematic.pdf



Rev.B

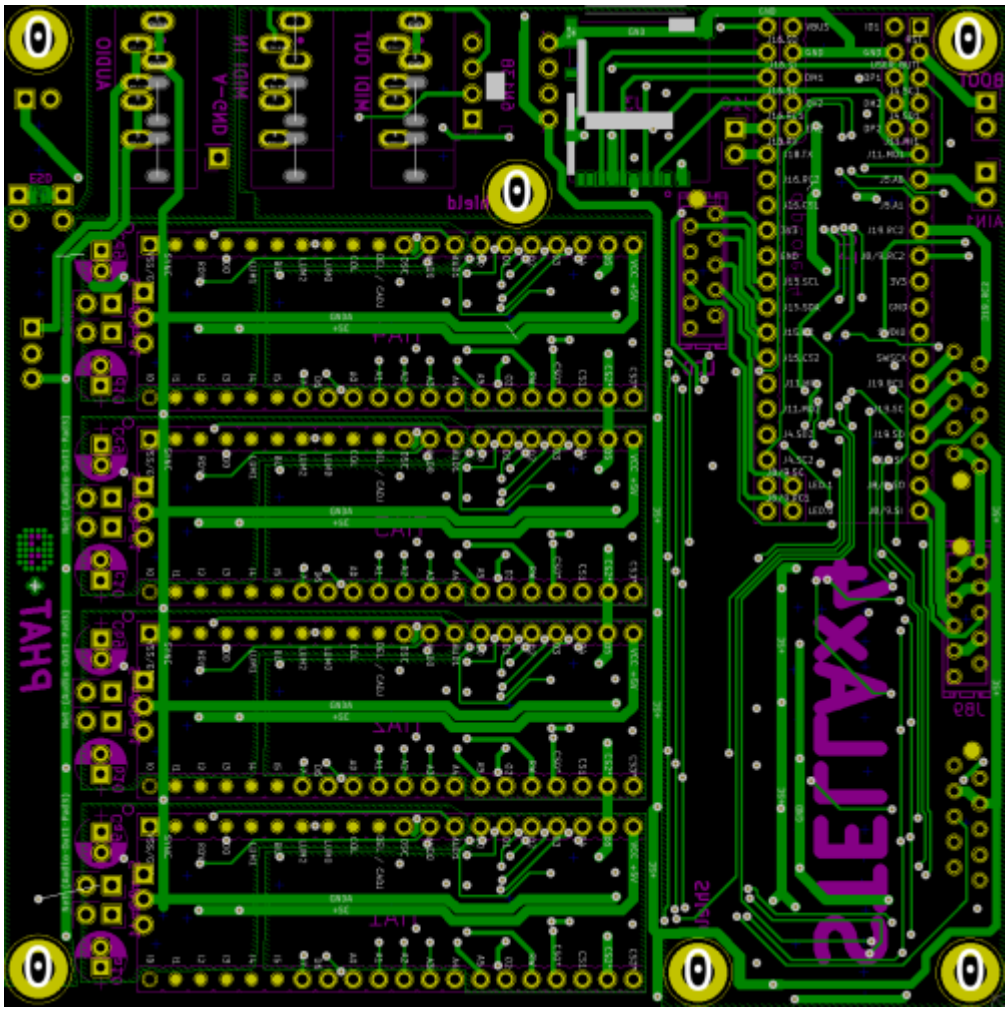
stellax4-shematic-b.pdf

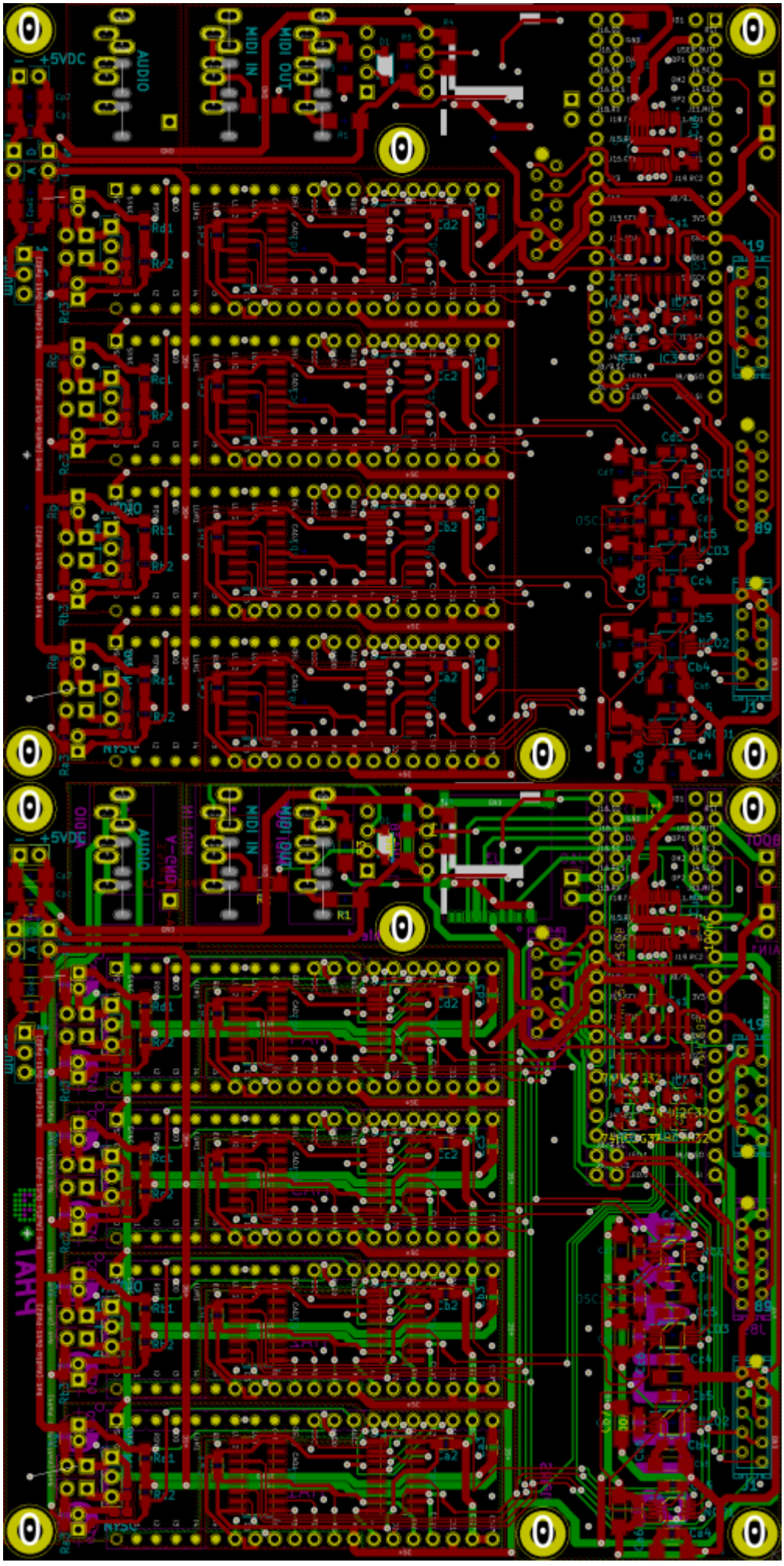


Building

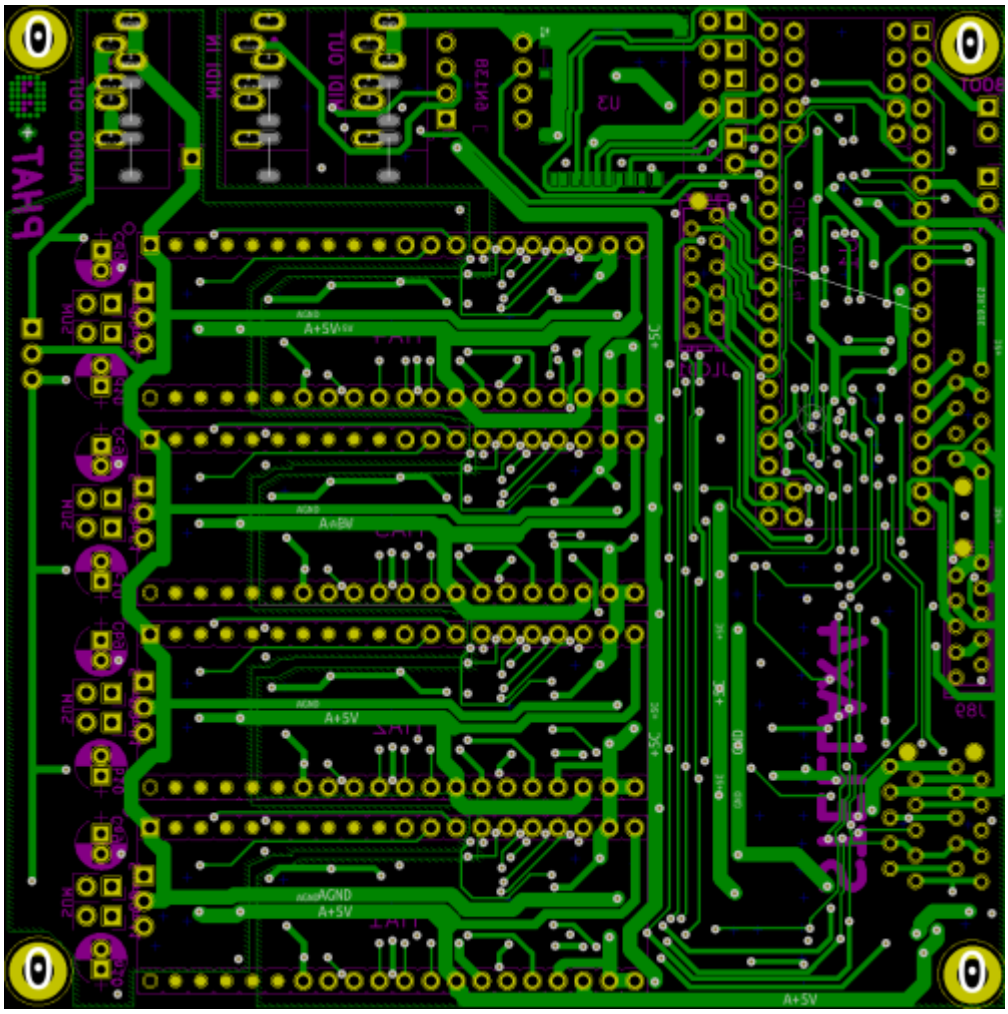
The Design is optimized for Pick and Place > all SMD Parts are on the Top-PCB
The Rest is Thruhole > easy

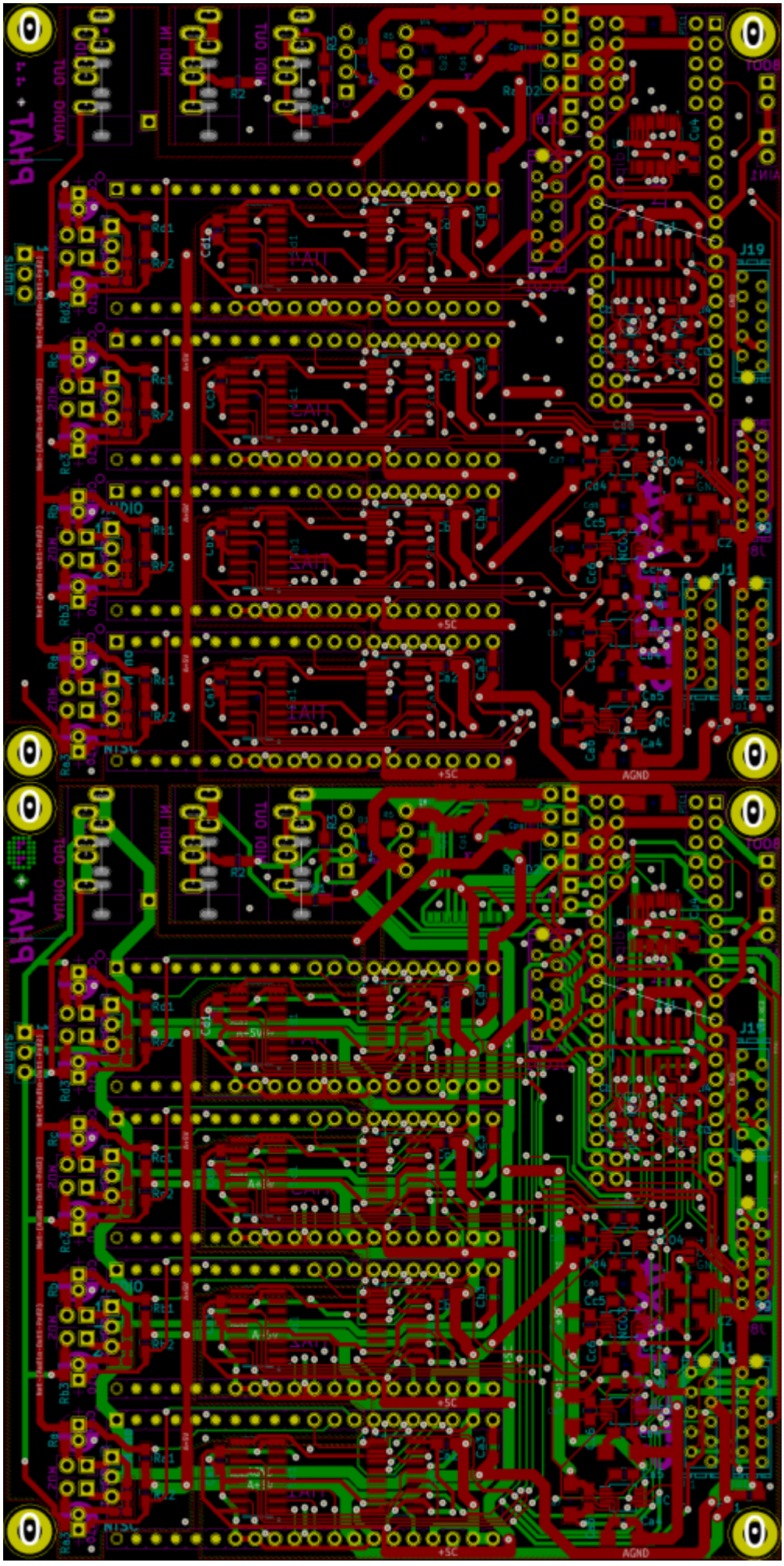
Rev.A




+5VDC
AUDIO
MIDI IN
MIDI OUT

Rev.B





BOM LCSC

these are the parts which are presoldered by the Pick and Place Machine

Comment	Designator	Footprint	LCSC Part Number	Library Type
100K	Ra3,Rb3,Rc3,Rd3,Ra4,Rb4,Rc4,Rd4	midibox:0805-R	C17407	basic
100nF	Ca1,Cb1,Cc1,Cs1,Cd1,Ci1,CJi1,Ca2,Cb2,Cc2,C2,Cd2,Ci2,CJi2,Ca3,Cb3,Cc3,Cd3,Ci3,Cpa3,Cp3,Ca4,Cb4,Cc4,Cd4,Cu4,Ci4,Ca5,Cb5,Cc5,Cd5,Ca6,Cb6,Cc6,Cd6	midibox:0805-C	C49678	basic
10uF	Ca8,Cb8,Cc8,Cd8	midibox:1206-C	C13585	basic
1K	R5	midibox:1206-R	C4410	basic
1K8	Ra1,Rb1,Rc1,Rd1,Ra2,Rb2,Rc2,Rd2	midibox:0805-R	C17398	basic
1N4148W	D1	midibox:SOD123-DIODE	C81598	basic
220	R1,R2,R3	midibox:0805-R	C17557	basic
47uF	Cpa1,Cp1,Cpa2,Cp2,Ca7,Cb7,Cc7,Cd7	midibox:1206-C	C96123	basic
4K7	R4	midibox:1206-R	C17936	basic
74HC2G32	IC1,IC2,IC3,IC4	SOIC:VSSOP-8_2.3x2mm_P0.5mm	C91874	extendet
74HC541-TSSOP	U4	midibox:74HC541-TSSOP20	C406865	extendet
74HC595	Sa1,Sb1,Sc1,Sd1,S1,Sa2,Sb2,Sc2,Sd2	midibox:SOP-16_SOIC-16	C5947	basic
AD9833BRMZ	NCO1,NCO2,NCO3,NCO4	midibox:MSOP-10_3x3mm_P0.5mm	C9652	extendet
PTC	PTC1	midibox:1206-R	C126818	extended

BOM Mouser

ca. <30€ exlc shipping > so better order other stuff too, over 50€ there is free shipping!
Parts for Handsolder:copy list below, and paste in this link

Comment	Designator	Mouser Part Nr

647-UKW1H100MDD|8
490-SJ1-3535NG-GR|3
512-6N138M|1
575-1104730841001000|1
200-CES12001TS|3
649-68000-220HLF|1
151-8010-E|12
649-68000-220HLF|1
571-1-2178710-0|5
732-5032CC25.0HJGA3|1
649-68000-220HLF|1
575-1104764041001000|4
798-DM3AT-SF-PEJM5|1

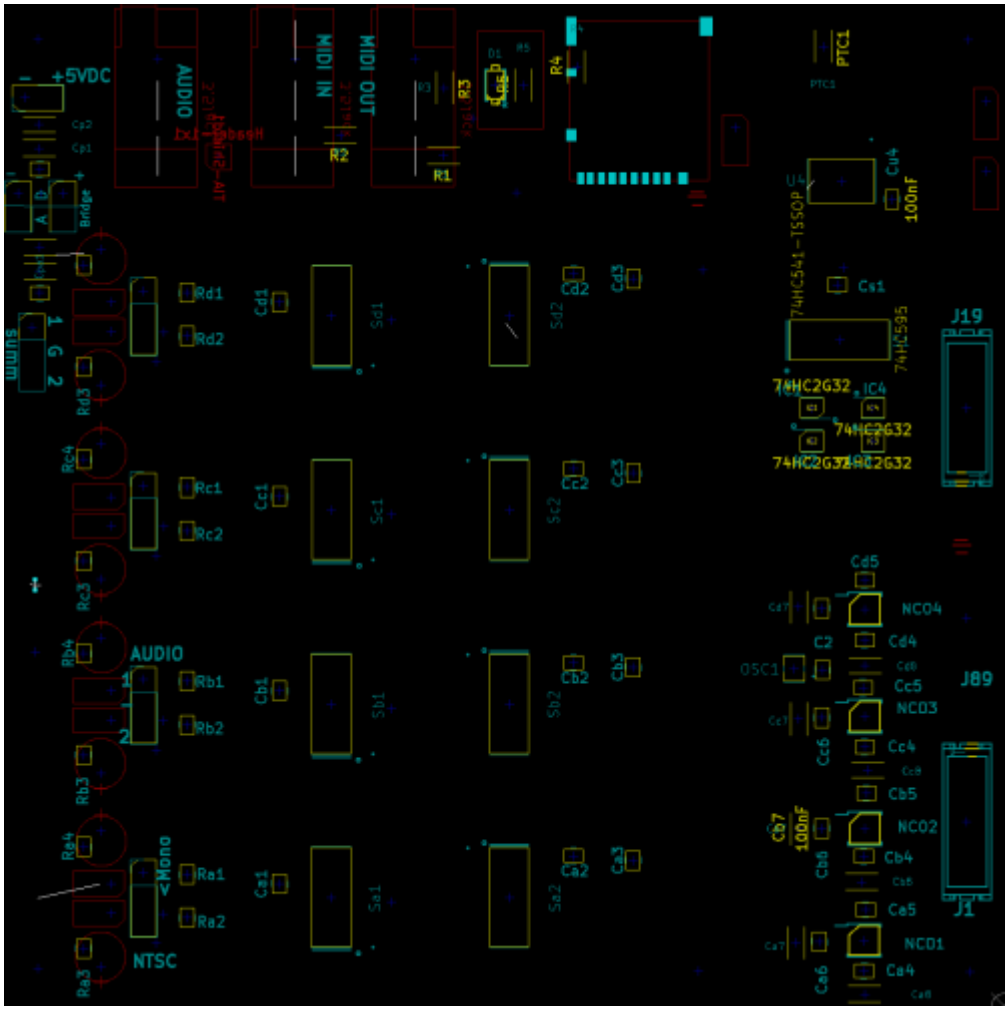
for prototyping i ordered:
490-SJ1-3535NG-GR instead of **490-SJ1-3535NG** because it is out of stock - so **GREEN sockets** for now!

Cable-Connectors for UserInterface and AOUT-Module you will need also:
571-1-2178712-0|8
+ Ribbon Cables for example:
710-63911015521CAB|1

Comment	Designator	Mouser Part Nr	
10uF-Audio	Ca9Cb9Cc9Cd9Ca10Cb10Cc10Cd10	647-UFG1H100MDM	8
3.5Jack	Midi-I-1Midi-O-1Audio-Out1	490-SJ1-3535NG	3

Comment	Designator	Mouser Part Nr	
6N138	U2	512-6N138M & 575-1104730841001000	1
DIPCOREF4_52P	U1	200-CES12001TS	3
Header-1×2-JUMPER	SumA-SumD2SumB2RailD2RailA2	649-68000-220HLF + 151-8010-E	12
Header-1×3	AUDIO1SUMMED1AUDIO2AUDIO3AUDIO4	649-68000-220HLF	1
Header-2×5-Micromatch	JLCD1,Jo1,Ji1,J19,J89	571-1-2178710-0	5
Oscillator-5032u7050	OSC1	732-5032CC25.0HJGA3	1
PinHead-1×2	JBOOT1AIN1J18	649-68000-220HLF	1
TIA	TIA1TIA2TIA3TIA4	575-1104764041001000	4
uSD_DM3ATDM3AT	U3	798-DM3AT-SF-PEJM5	1

PART Locations



To Do

waiting for christmas
UI-PCBs
Debugging First Version

Community users working on it

- **Phatline** = PCB & Shematic, UI-Programming, Documentation...
- **antichambre** = Shematic, Porting 8>32Bit, Programming...

Just let a Private message on the forum to user already involved.

Community users interested on it

- **sajtron** = Chip composer who maybe wanna buy one...

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