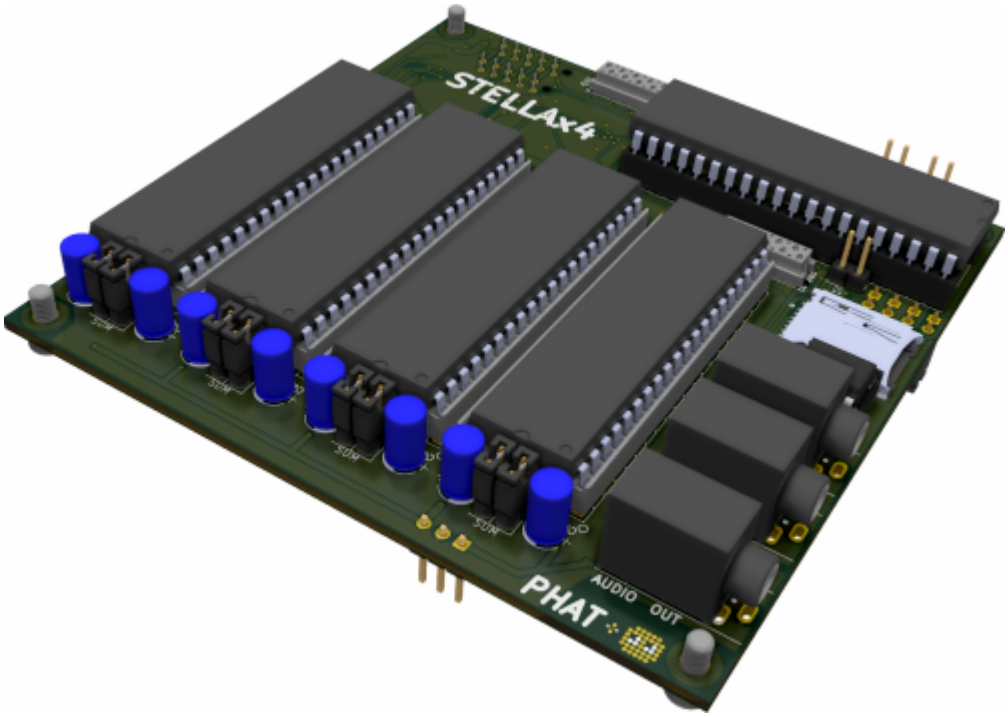
STELLAx4



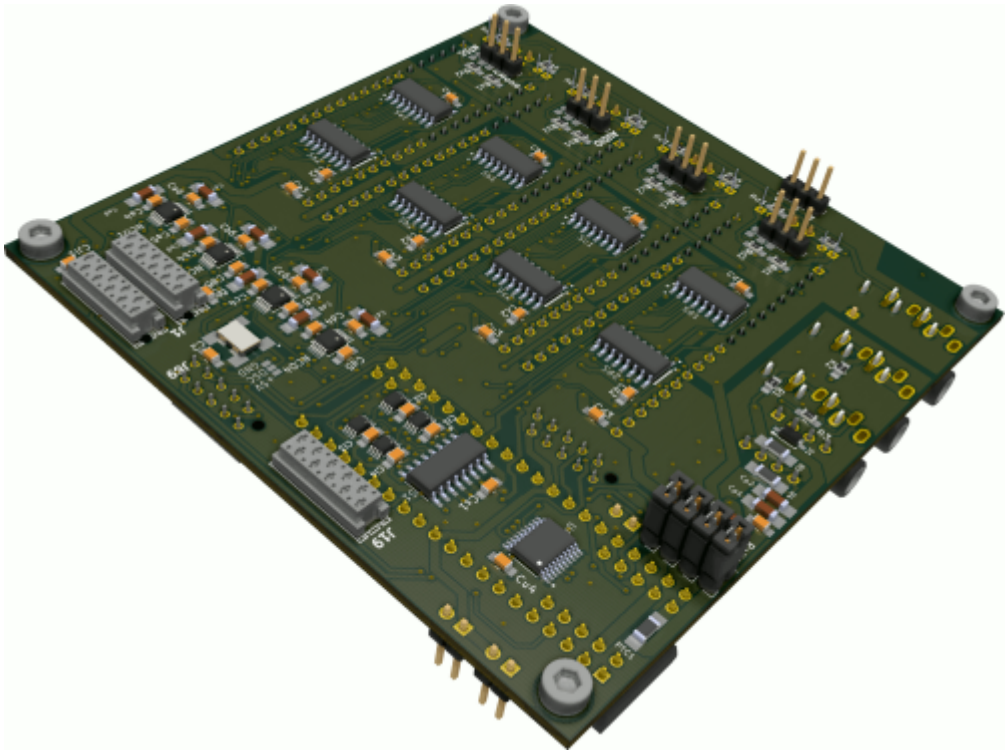
4x 8Bit Soundchips/TIAś on a 10x10cm PCB,
controlled from a STM32F4 Microcontroller dipcoref4,
based on Antichambreś TIA Module, with AD9833ś as External programmable Clock, the Frequency-range is expandet...
The Board acts a Motherboard, for

- 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

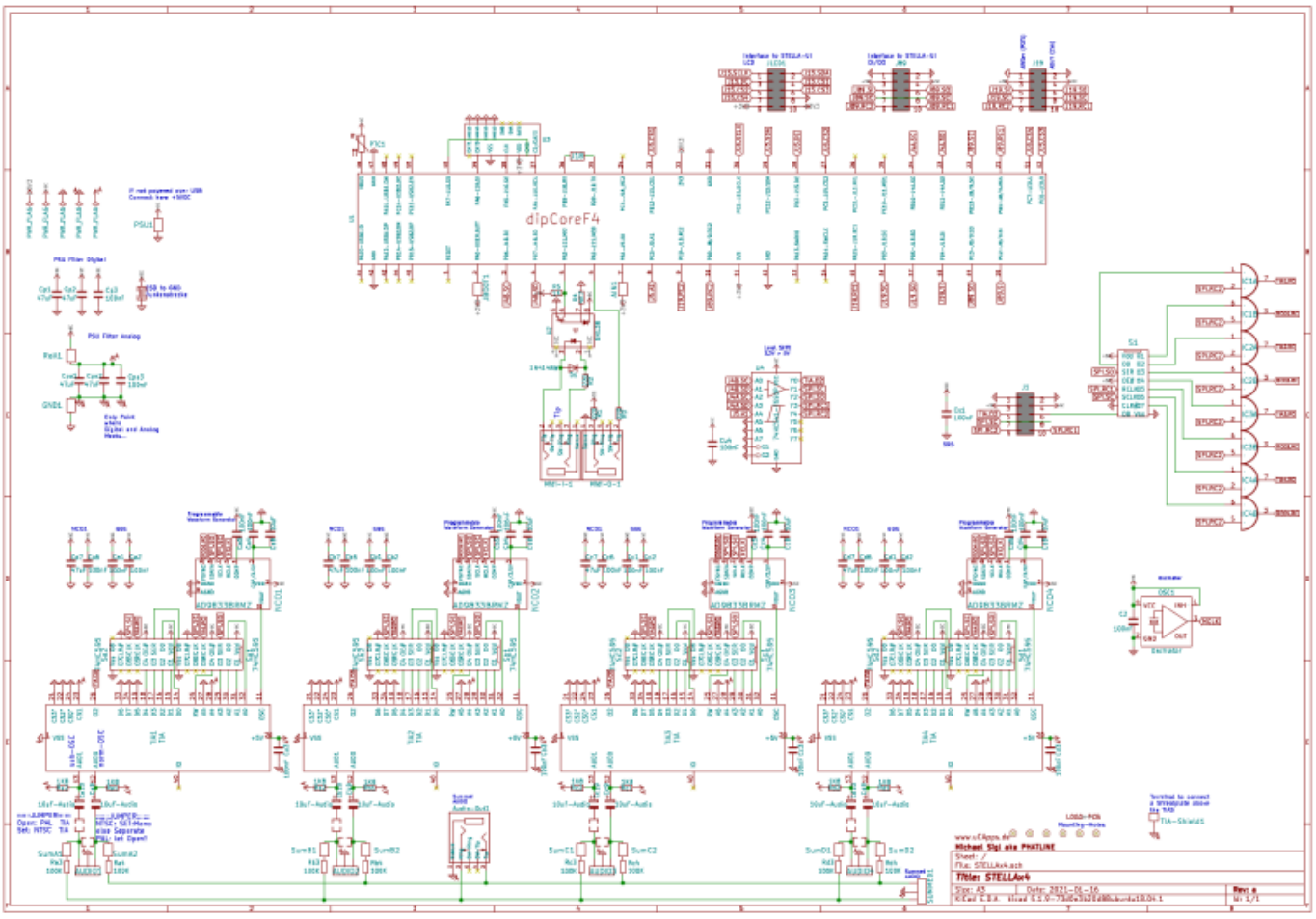
* Summed or Individual Audio-Outs, selectable via normal Jumpers
* NTSC or PAL > select via SMD-Solder-Jumper
* User-Interface is C-Language-Programmable

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

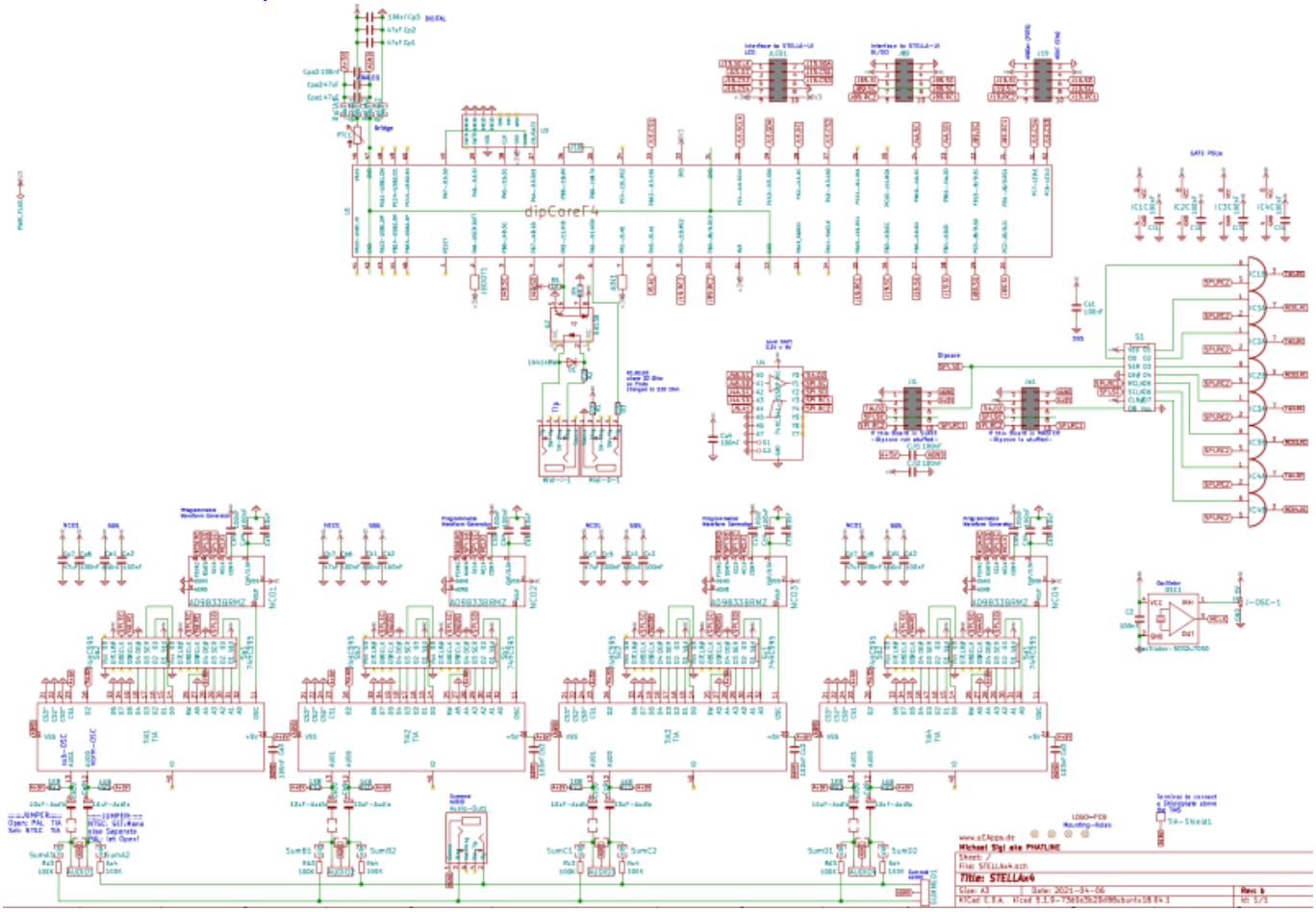
Shematic

Rev.A
stellax4-shematic.pdf



Rev.B

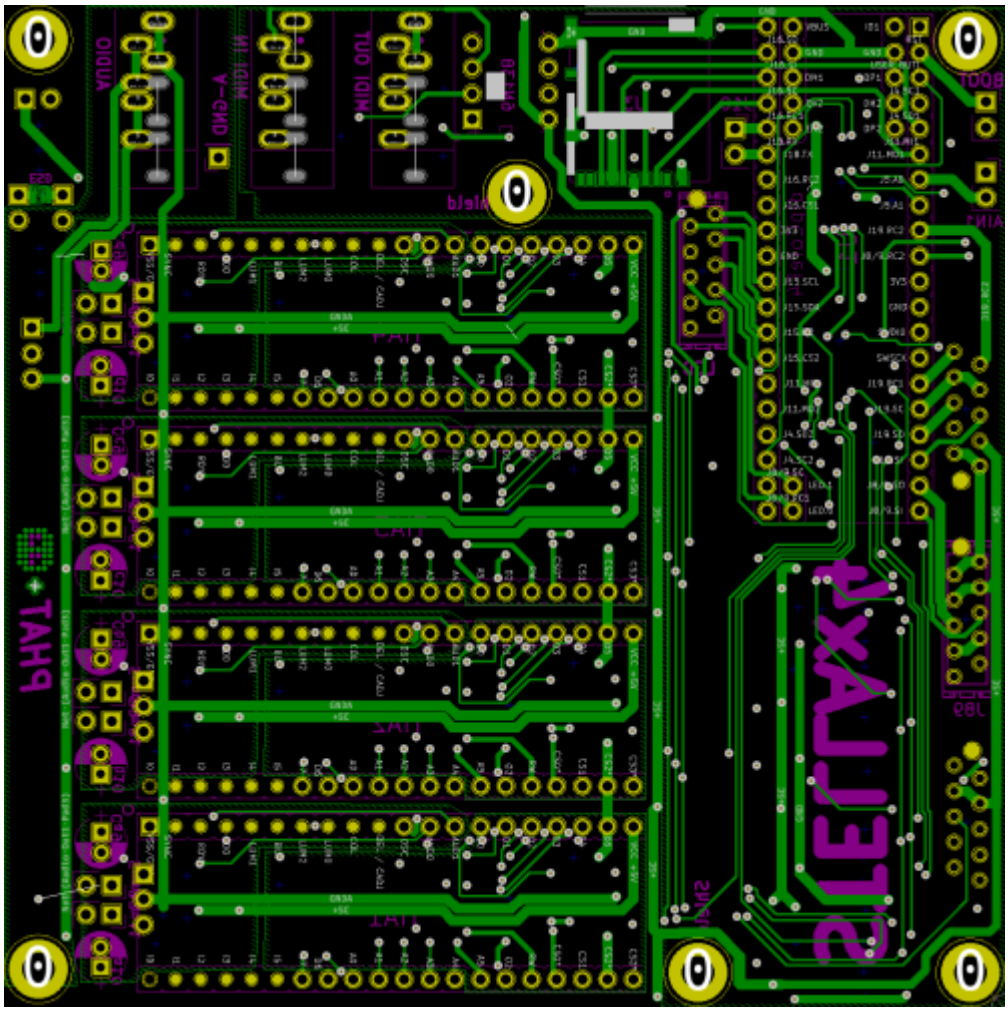
stellax4-shematic-b.pdf

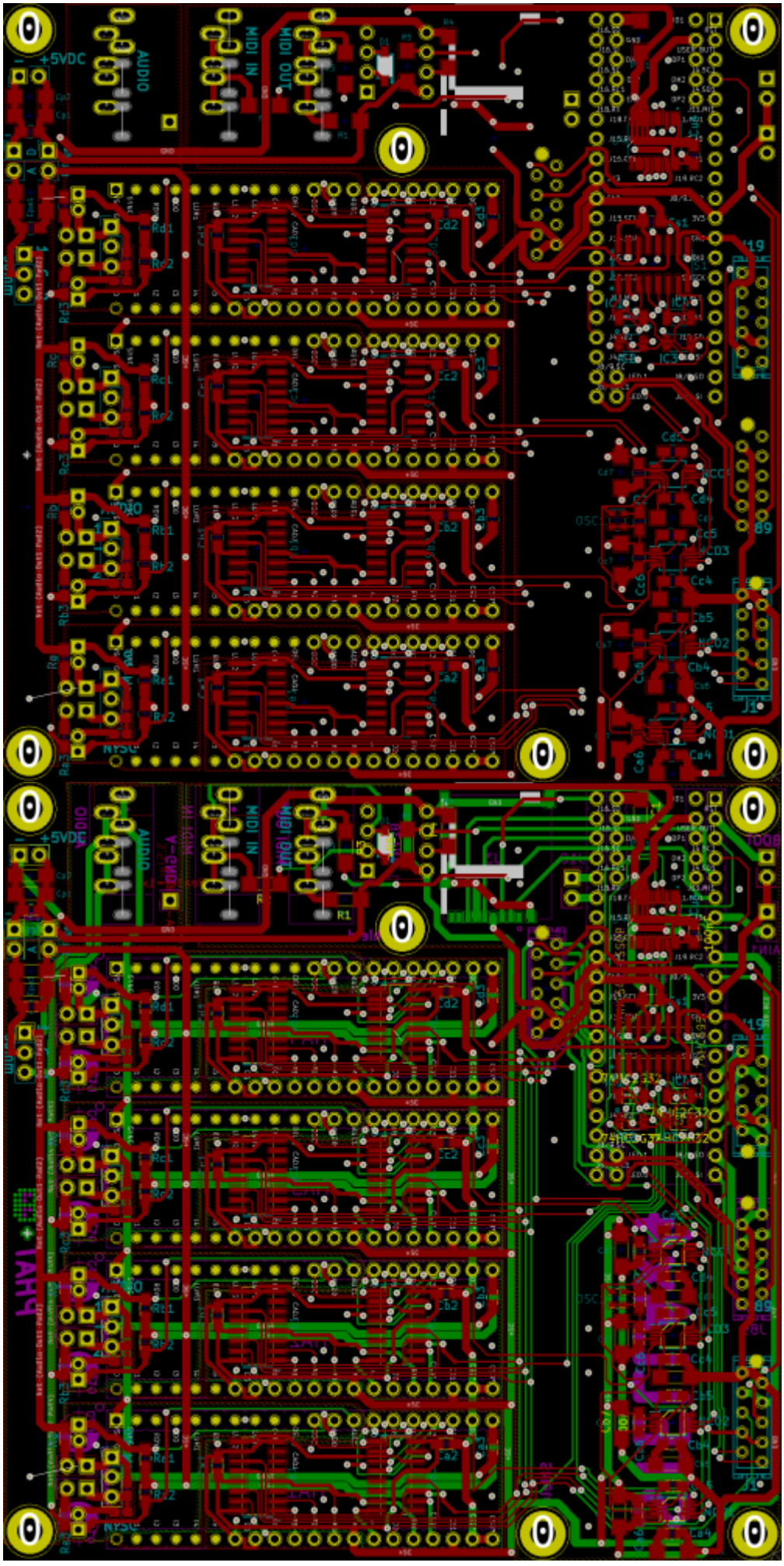


Building

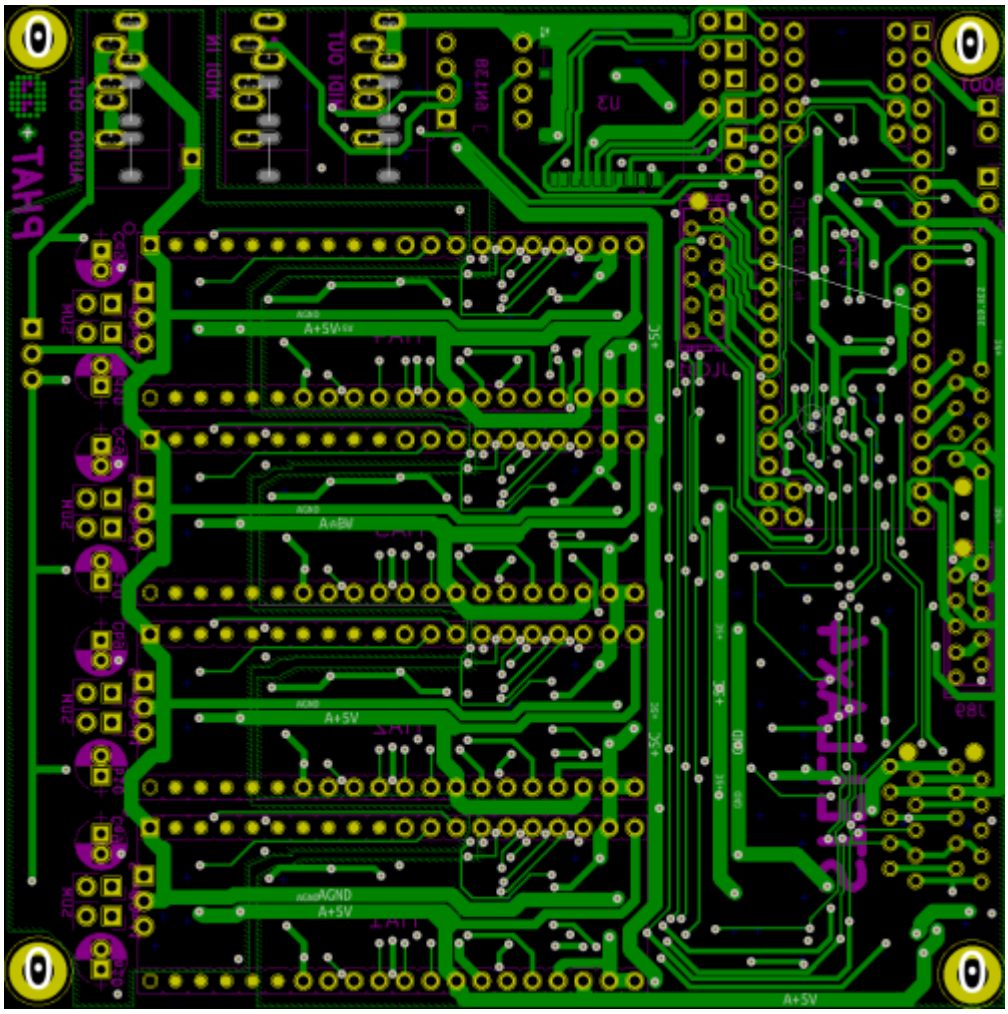
The Design is optimized for Pick and Place > all SMD Parts are on the Top-PCB
The Rest is Thruhole > easy

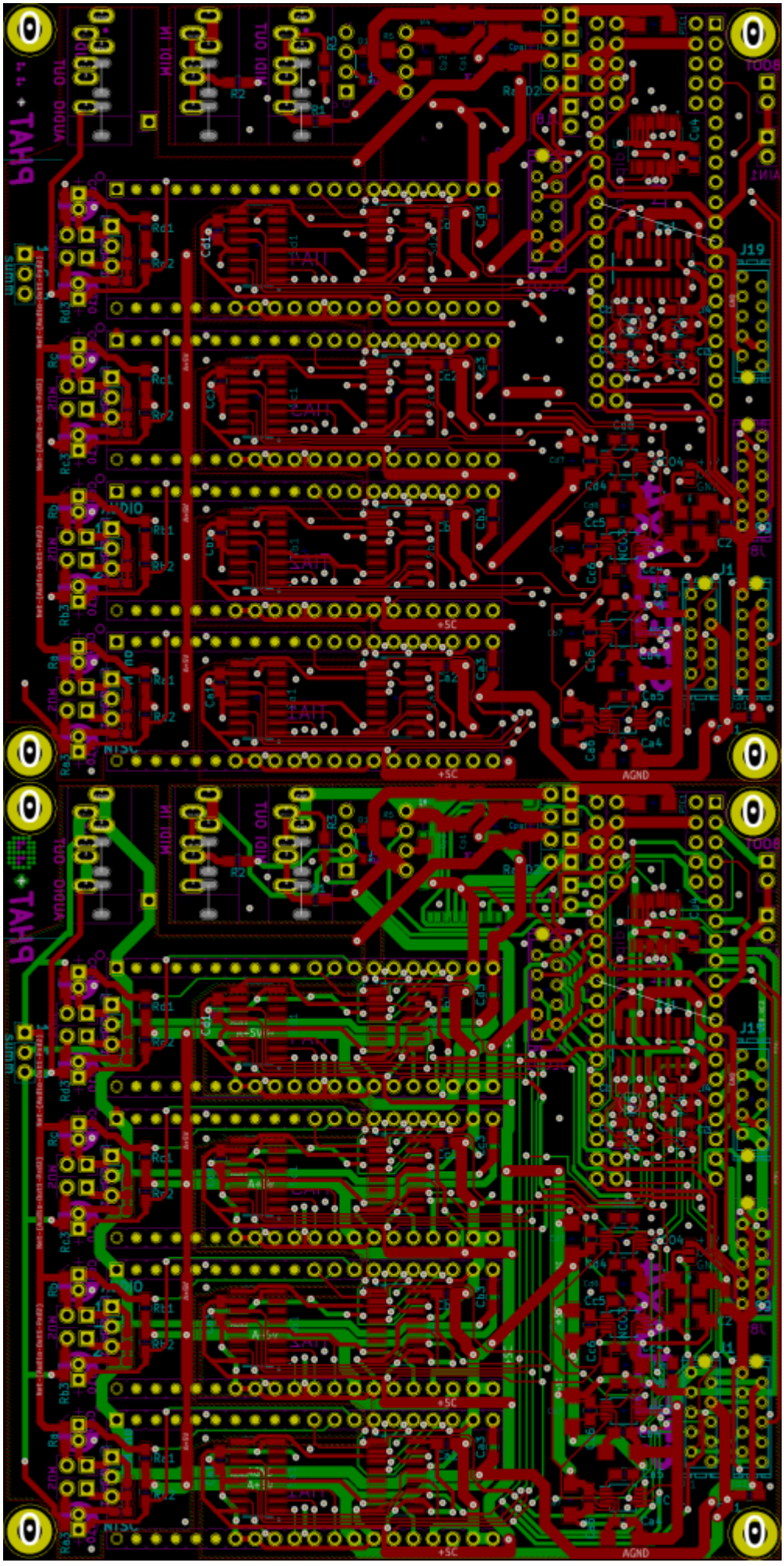
Rev.A




+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
100nF	Ca1,Cb1,Cc1,Cs1,Cd1,Ca2,Cb2,Cc2,C2,Cd2,Ca3,Cb3,Cc3,Cp3,Cpa3,Cd3,Ca4,Cb4,Cc4,Cd4,Cu4,Ca5,Cb5,Cc5,Cd5,Ca6,Cb6,Cc6,Cd6	0805	C49678
47uF	Cp1,Cpa1,Cp2,Cpa2,Ca7,Cb7,Cc7,Cd7	1206	C96123
10uF	Ca8,Cb8,Cc8,Cd8	1206	C13585
1N4148W	D1	SOD123	C81598
74HC2G32	IC1,IC2,IC3,IC4	VSSOP-8_2.3x2mm_P0.5mm	C91874
AD9833BRMZ	NCO1,NCO2,NCO3,NCO4	MSOP-10_3x3mm_P0.5mm	C9652
Oscillator	OSC1	25×20-4Pole-SMD	C90621
220	R1,R2,R3	1206	C17958
4K7	R4	1206	C17936
1K	R5	1206	C4410
1K8	Ra1,Rb1,Rc1,Rd1,Ra2,Rb2,Rc2,Rd2	0805	C17398
100K	“Ra3,Rb3,Rc3,Rd3,Ra4,Rb4,Rc4,Rd4”	0805	C17407
74HC595	Sa1,Sb1,Sc1,Sd1,S1,Sa2,Sb2,Sc2,Sd2	SOIC-16	C5947
74HC541-TSSOP	U4	TSSOP20	C406865

BOM Mouser

30,39€ 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

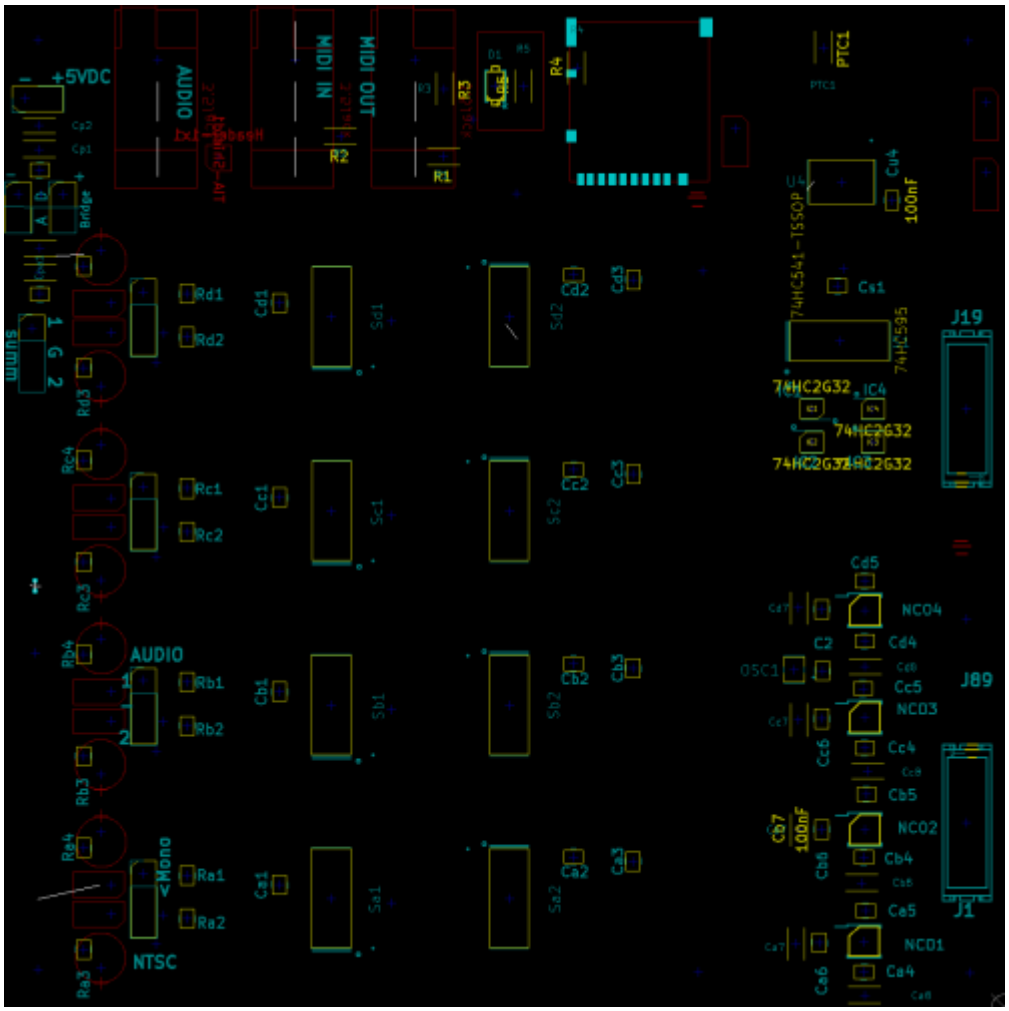
647-UKW1H100MDD|8
490-SJ1-3535GR|3
512-6N138M|1
575-1104730841001000|1
200-CES12001TS|3
649-68000-220HLF|1
151-8010-E|12
649-68000-220HLF|1
571-1-2178710-0|5
732-5032CC25.0HJGA3|1
649-68000-220HLF|1
575-1104764041001000|4
798-DM3AT-SF-PEJM5|1

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
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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Last update: **2021/04/06 20:55**