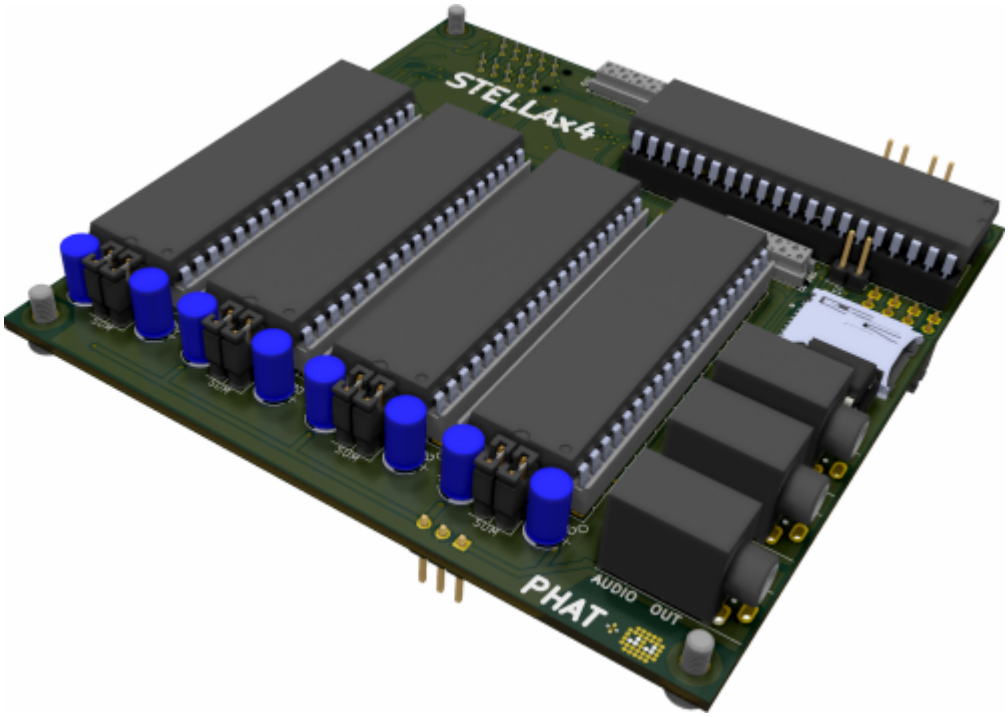
# STELLAx4



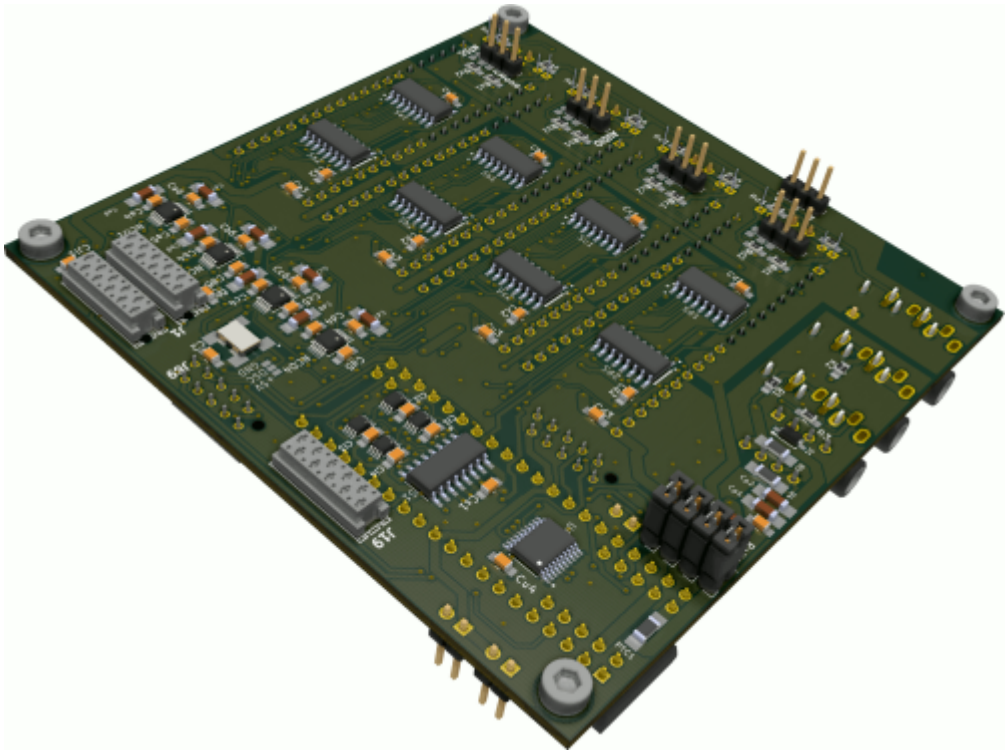

**4x 8Bit Soundchips/TIAś on a 10x10cm PCB,**
controlled from a STM32F4 Microcontroller dipcoref4,
based on Antichambreś TIA Module, with AD9833ś as External programmable Clock, the Frequency-range is expandet...
**The Board acts a Motherboard,** for

- 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

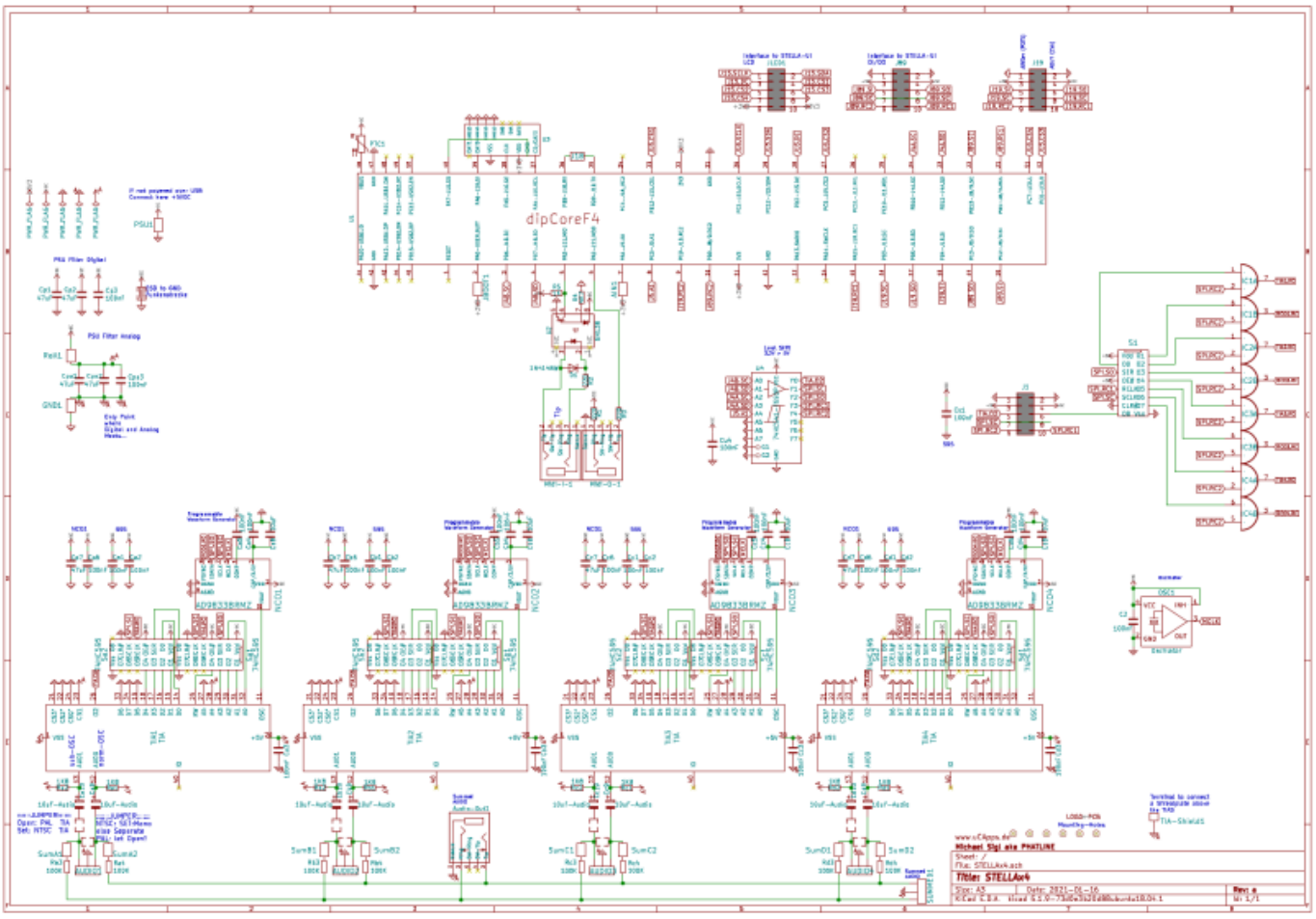
* Summed or Individual Audio-Outs, selectable via normal Jumpers
* NTSC or PAL > select via SMD-Solder-Jumper
* User-Interface is C-Language-Programmable

# 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

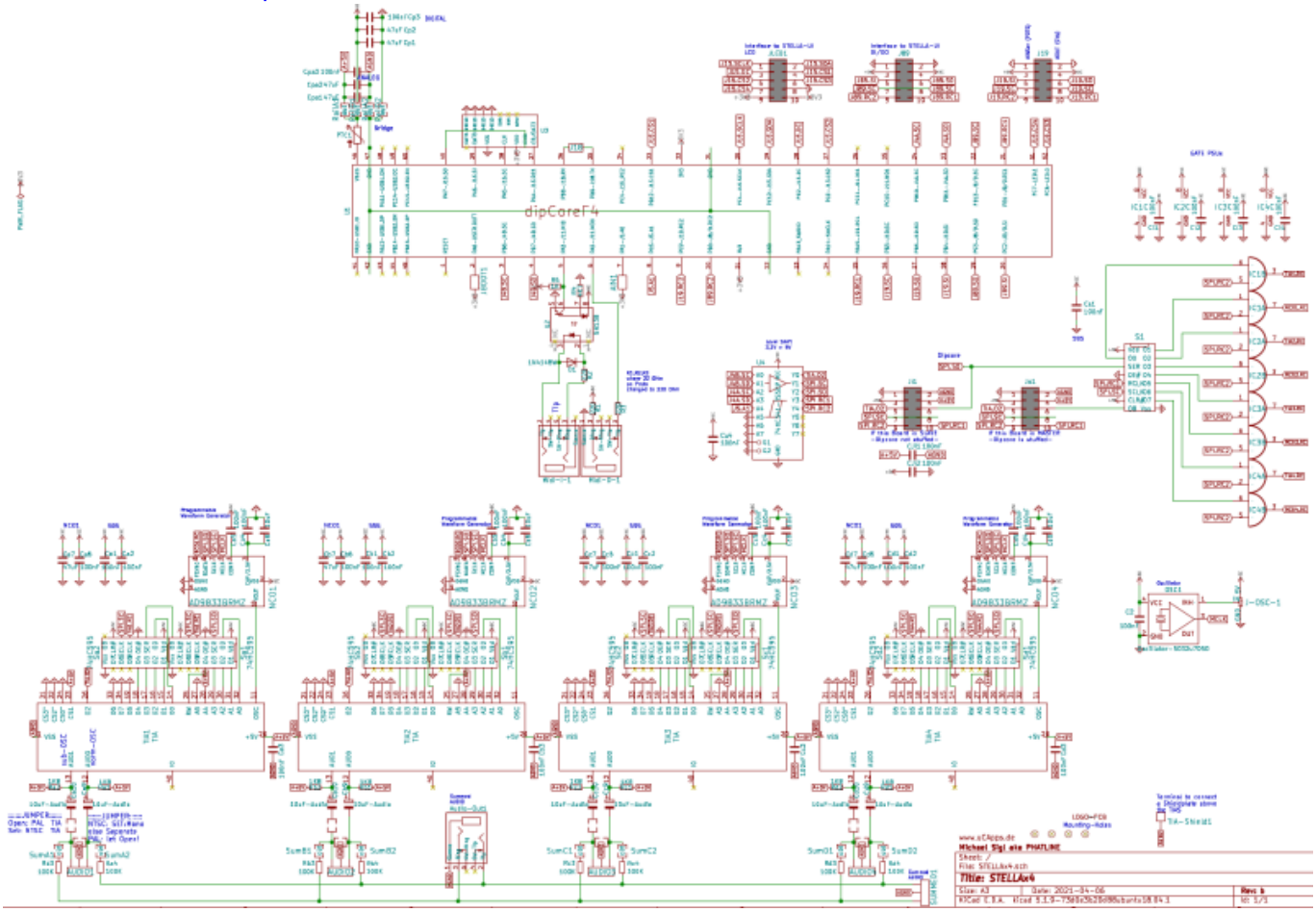
# Shematic

Rev.A
stellax4-shematic.pdf




Rev.B

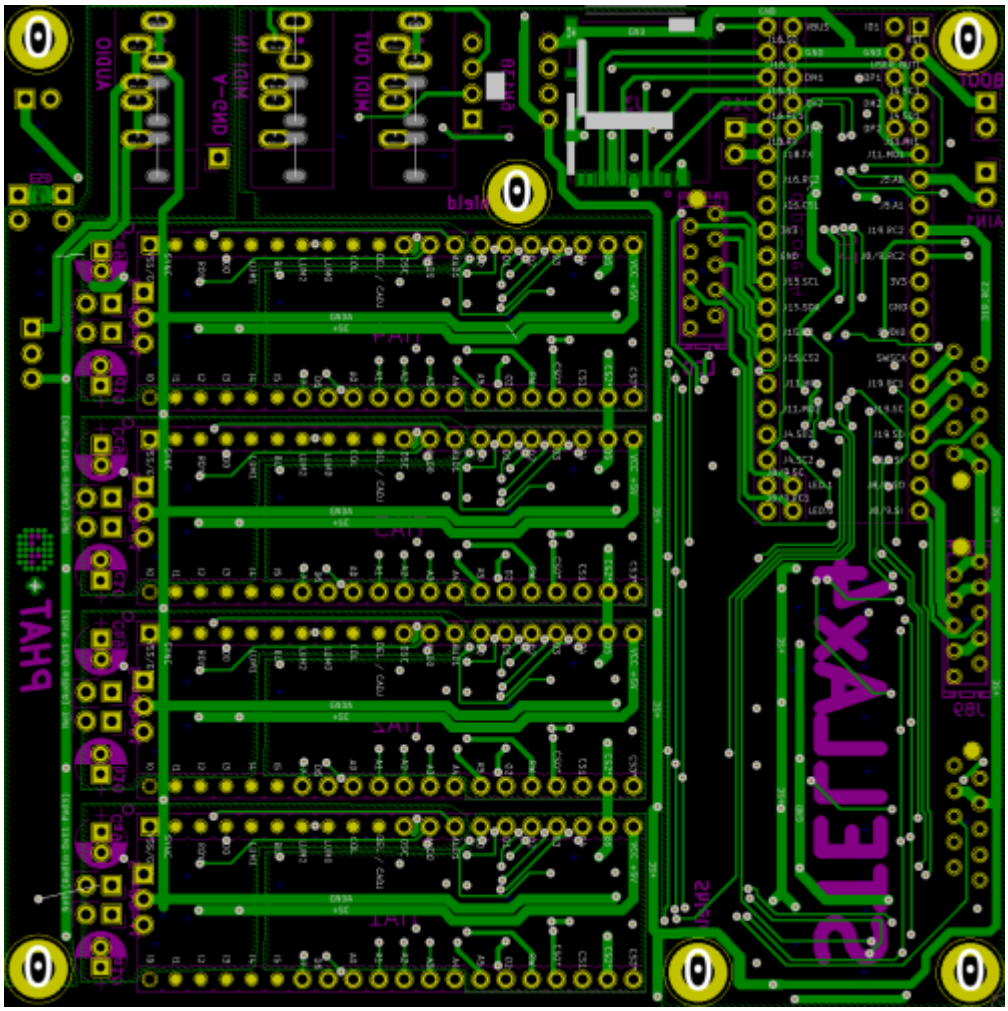
stellax4-shematic-b.pdf

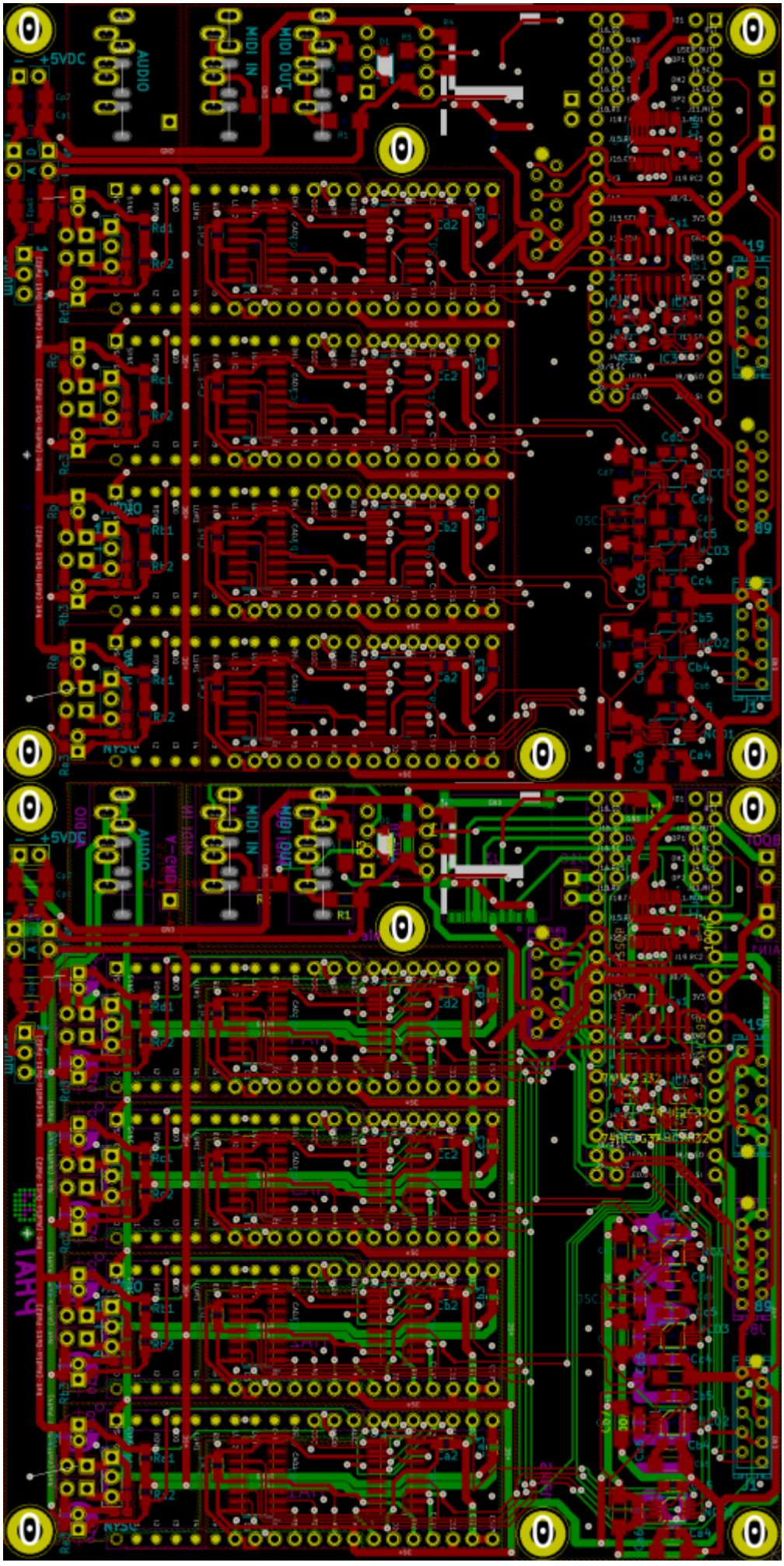


# Building

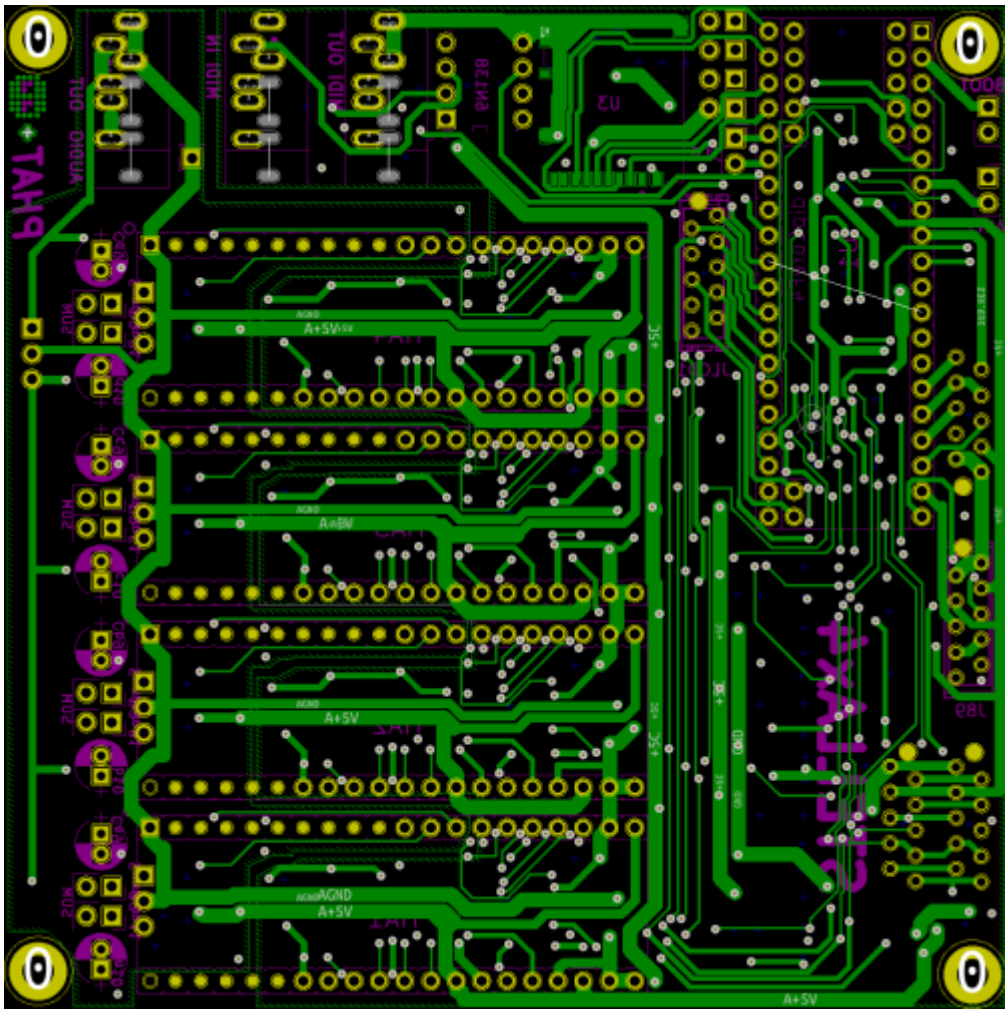
The Design is optimized for Pick and Place > all SMD Parts are on the Top-PCB
The Rest is Thruhole > easy

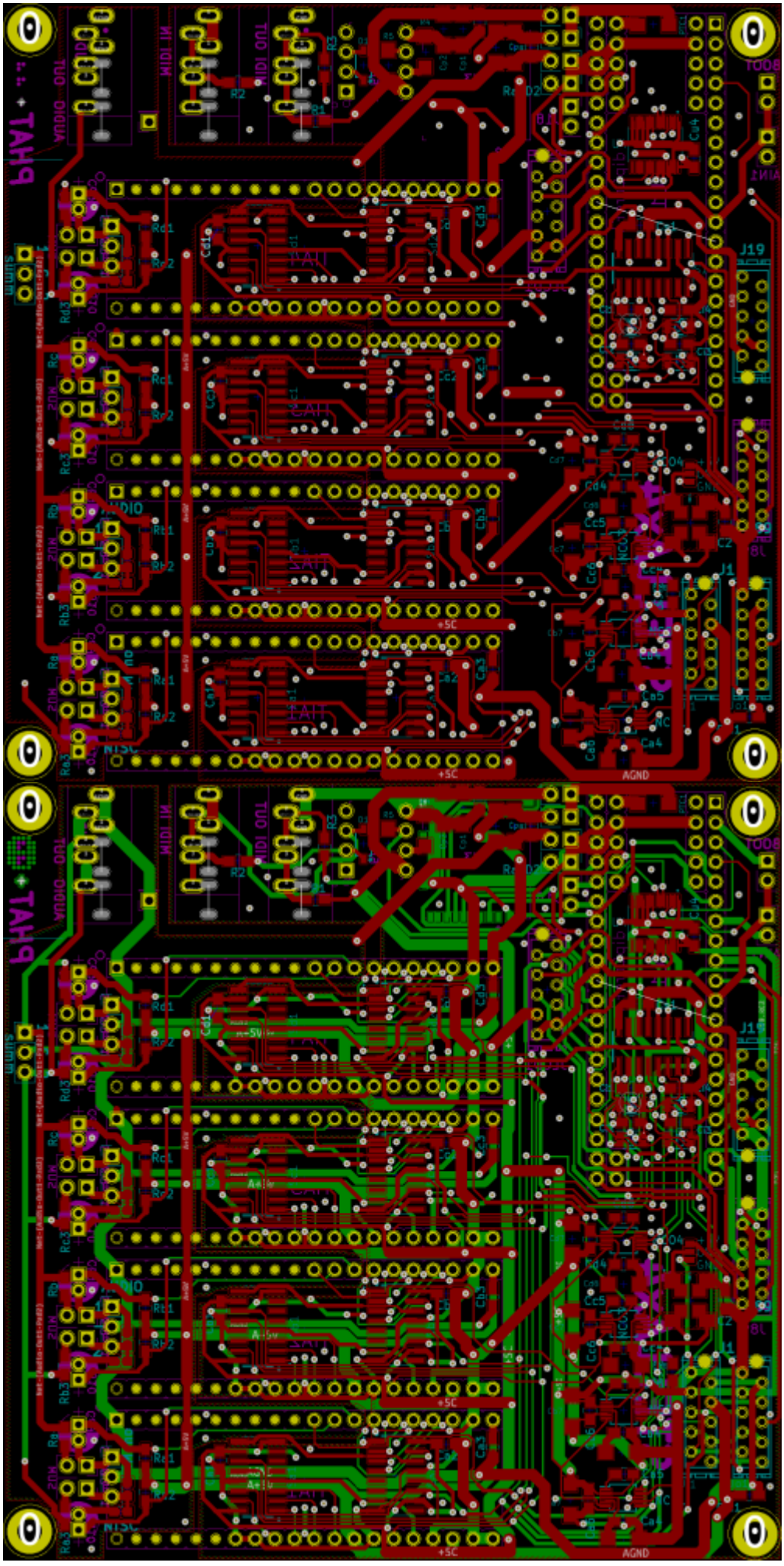
Rev.A




+5VDC
AUDIO
MIDI IN
MIDI OUT
PHAT

Rev.B




PHAT +
MIDI IN
MIDI OUT
MIDI THRU
J19
J1
+5C
AGND
NC

# 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

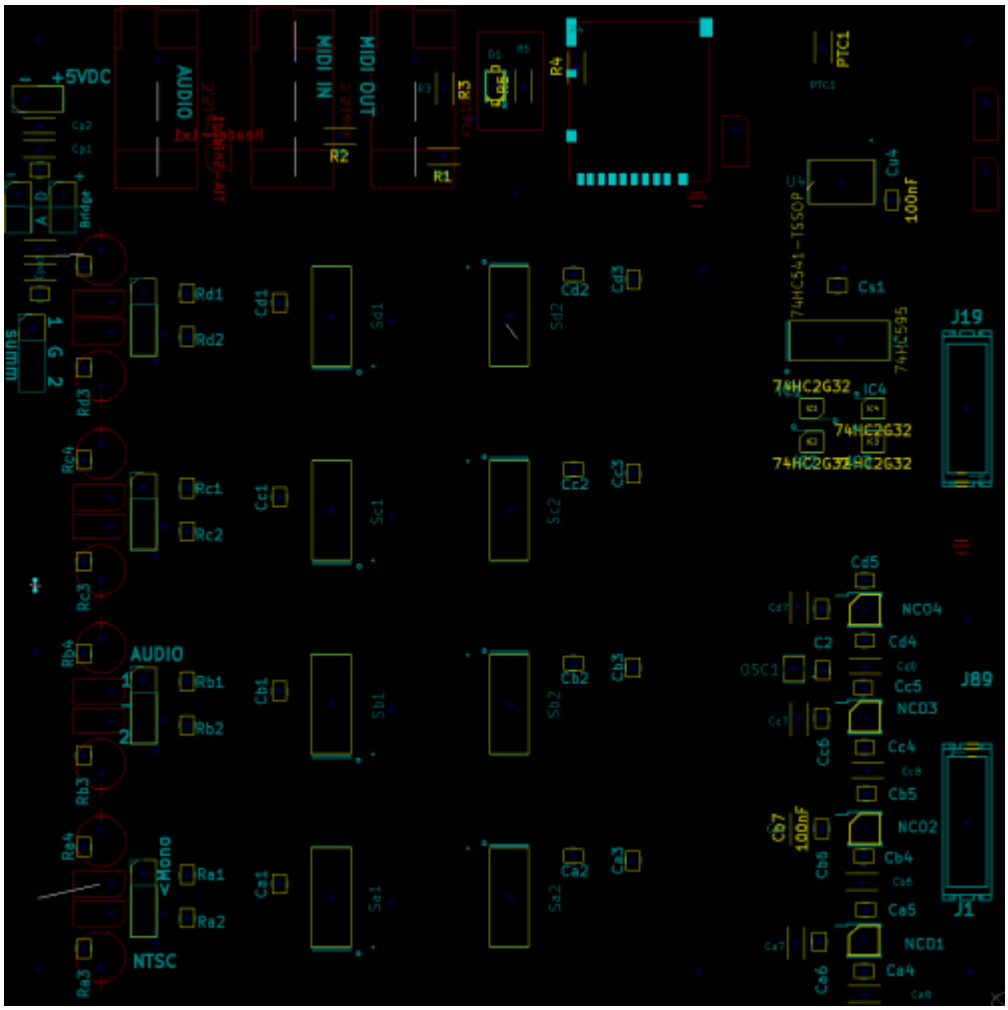
for prototyping i ordered:
**490-SJ1-3535NG-GR** instead of **490-SJ1-3535NG** because it is out of stock - so **GREEN sockets** for now!

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 |
| 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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Permanent link:
**https://wiki.midibox.org/doku.php?id=stellax4&rev=1617742868**

Last update: **2021/04/06 21:01**