

STELLAx4



4x 8Bit Soundchips/TIA's on a 10x10cm PCB,

controlled from a STM32F4 Microcontroller [dipcoref4](#), based on [Antichambre's TIA Module](#), with [AD9833's](#) 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

Schematic

Rev.A

[stellax4-schematic.pdf](#)



Rev.B
 stellax4-schematic-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





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,Cj1,Ck1,Ca2,Cb2,Cc2,Cd2,Ce2,Cf2,Cg2,Ch2,Ci2,Cj2,Ck2,Cl2,Cm2,Cn2,Co2,Cp2,Cq2,Cr2,Cs2,Ct2,Cu2,Cv2,Cw2,Cx2,Cy2,Cz2 | 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 | extended |
| 74HC541-TSSOP | U4 | midibox:74HC541-TSSOP20 | C406865 | extended |
| 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 | extended |
| 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!

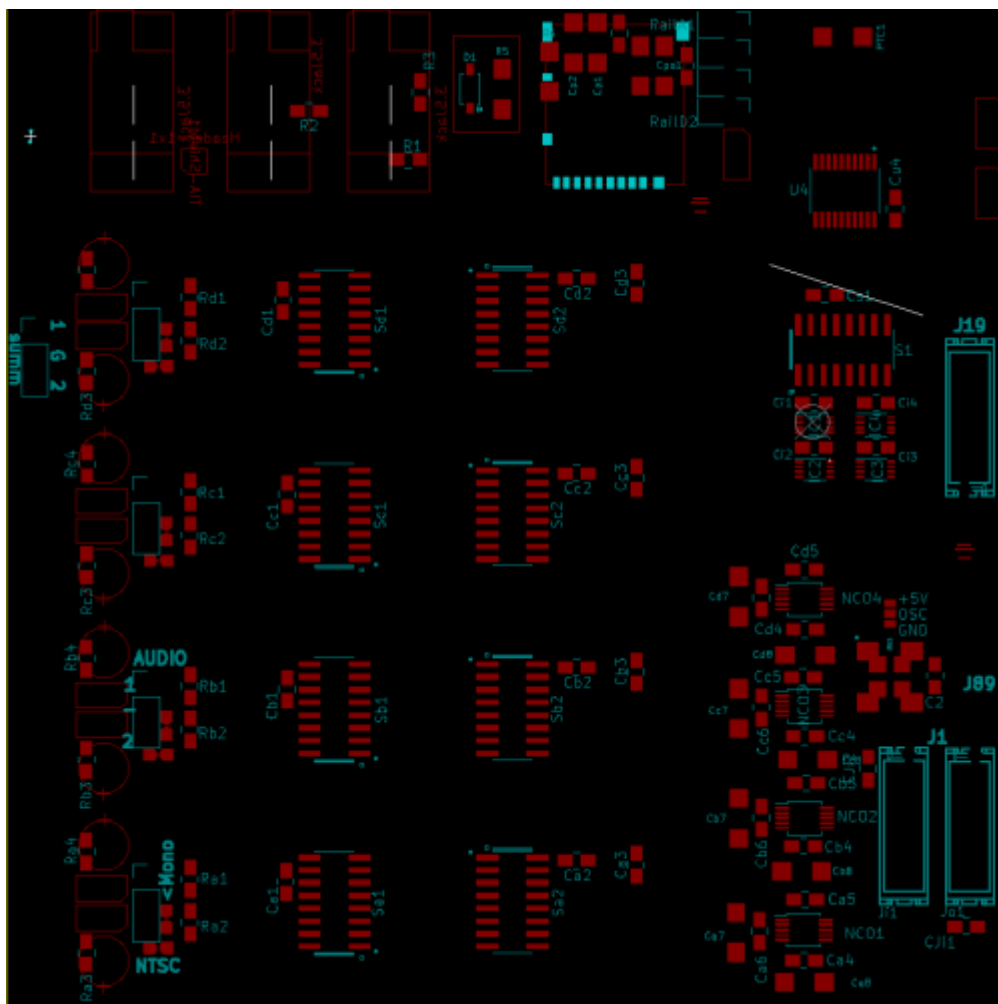
Cable-Connectors for UserInterface and AOUT-Module you will need also:

- 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-1x2-JUMPER | SumA-SumD2SumB2RailD2RailA2 | 649-68000-220HLF + 151-8010-E | 12 |
| Header-1x3 | AUDIO1SUMMED1AUDIO2AUDIO3AUDIO4 | 649-68000-220HLF | 1 |
| Header-2x5-Micromatch | JLCD1,Jo1,ji1,J19,J89 | 571-1-2178710-0 | 5 |
| Oscillator-5032u7050 | OSC1 | 732-5032CC25.0HJGA3 | 1 |
| PinHead-1x2 | 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 & Schematic, UI-Programming, Documentation...
- **antichambre** = Schematic, 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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