Sheet: PDSP-I4-08-PSU

File: PDSP-I4-08-PSU.sch

Sheet: PDSP-I4-08-PREAMP-IN

File: PDSP-I4-08-PREAMP-IN.sch

Sheet: PDSP-I4-08-PREAMP-OUT

File: PDSP-I4-08-PREAMP-OUT.sch

Sheet: PDSP-I4-08-ESP32

File: PDSP-I4-08-ESP32.sch

Sheet: PDSP-I4-08-DSP

File: PDSP-I4-08-DSP.sch

Sheet: PDSP-I4-08-CONNECTOR_UI_CONFIG

File: PDSP-I4-08-CONNECTOR_UI_CONFIG.sch

1 1 H1
Trou_3.2mm_6mm_metal

1 1 H2
Trou_3.2mm_6mm_metal

1 1 H3
Trou_3.2mm_6mm_metal

1 1 H4
Trou_3.2mm_6mm_metal

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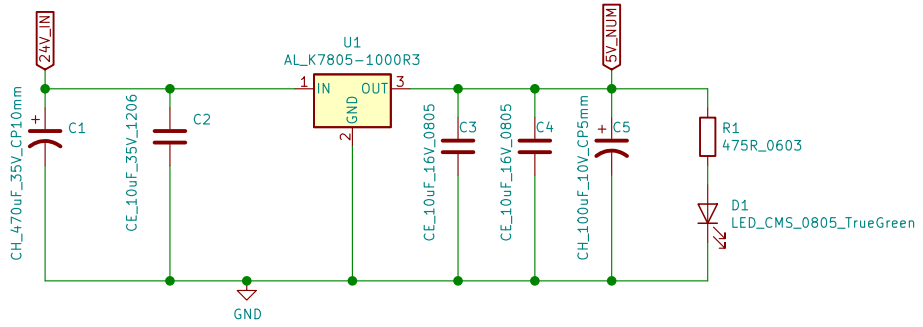
Sheet: /
File: PDSP-I4-08.sch

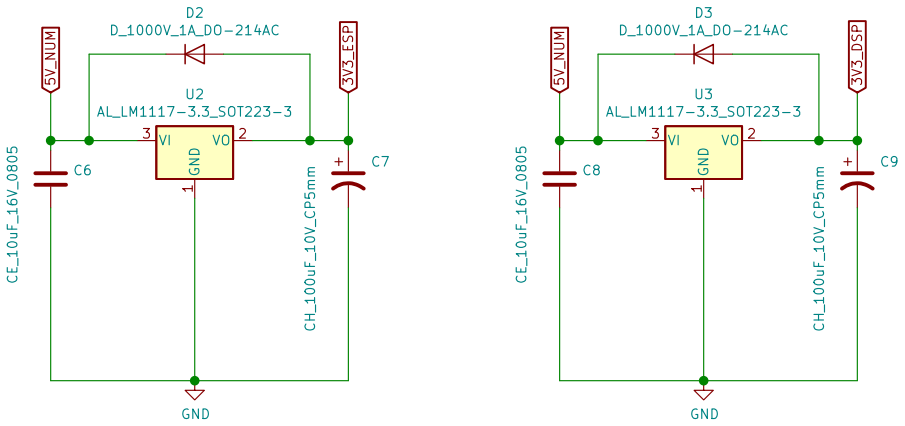
Title: PDSP-I4-08

Size: A4	Date: 2021-11-03	**Rev: V01.00**
KiCad E.D.A. kicad (5.1.5)-3		Id: 1/7

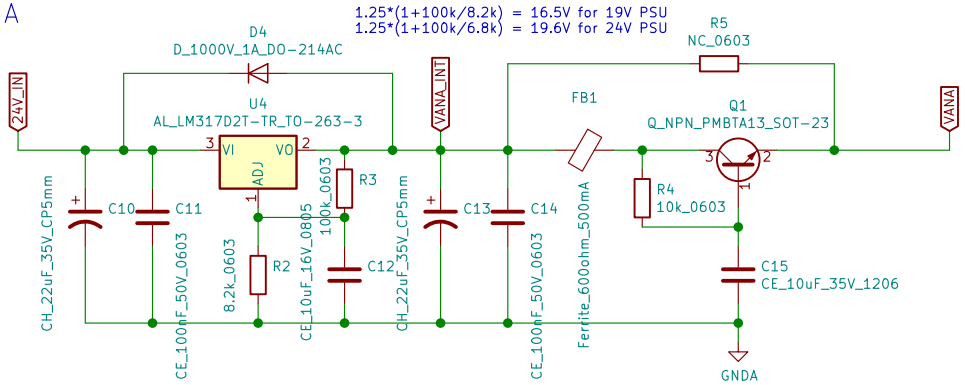
From 24V num to 5V num

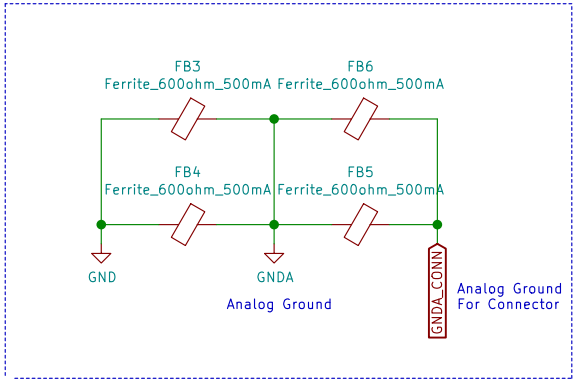


From 5V Num to 3.3V DSP & ESP32

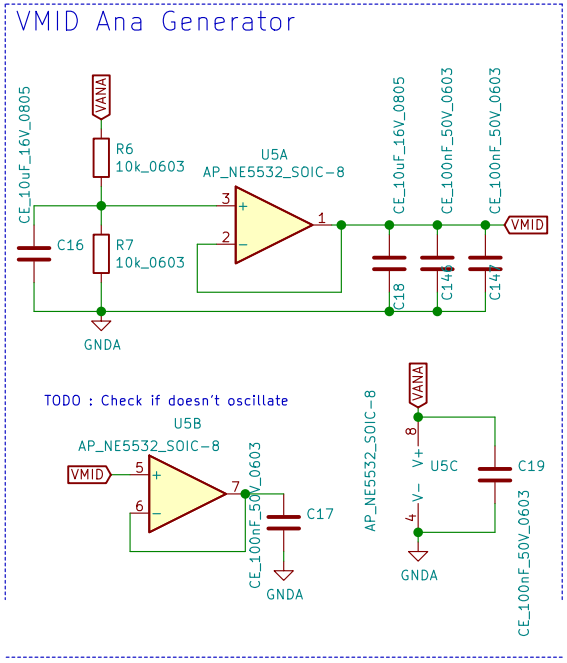


VANA





VMID Ana Generator



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Sheet: /PDSP-14-08-PSU/
File: PDSP-14-08-PSU.sch

Title: PDSP-14-08

Size: A4	Date: 2021-11-03	**Rev: V01.00**
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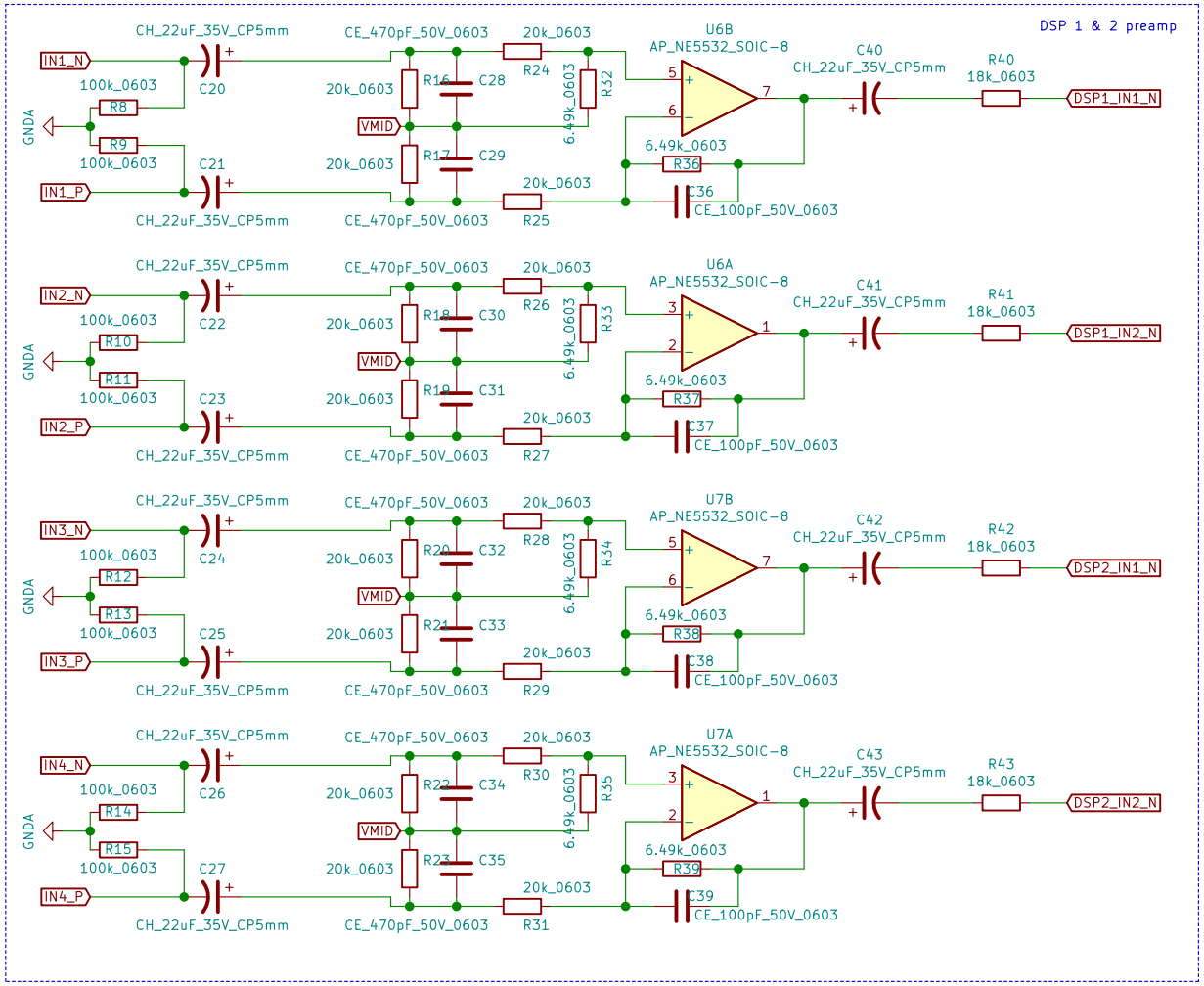

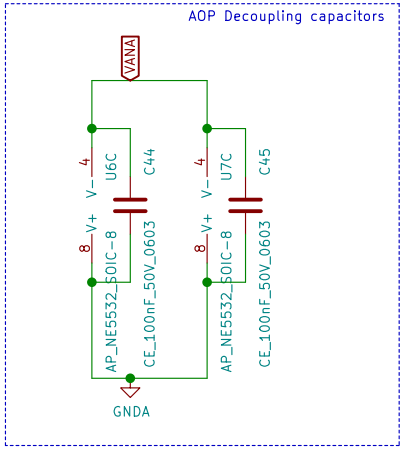

For 18dBu input :
DSP : 2VRMS IN with 18k ((18+2)/100µA = 2Vrms) = 8.239dBu
Need 18dBu = 6.1528V input for 2V, so /3.0764 (-9.761dB)
=> 20k/6.49k = 3.08166 = 9.776dB : OK, 0.015dB higher

For 12dBu input :
DSP : 2VRMS IN with 18k ((18+2)/100µA = 2Vrms)
Need 3.08V input for 2V, so /1.54
=> 10k/6.49k = 1.54, perfect

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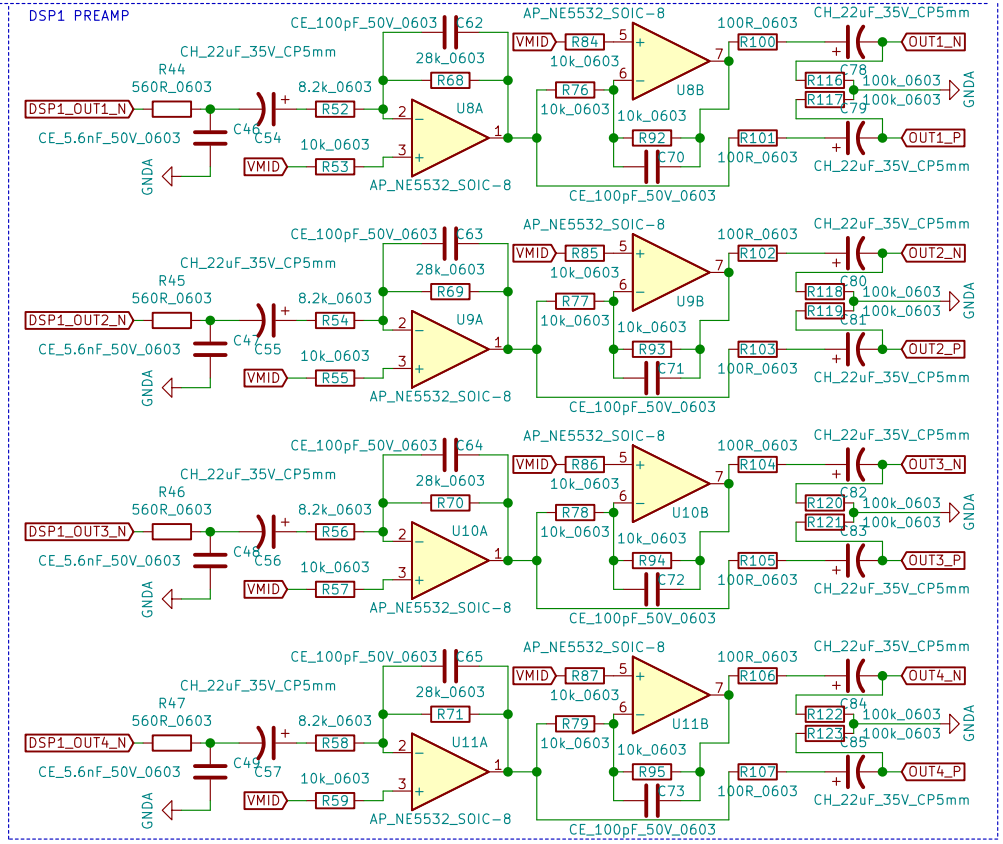
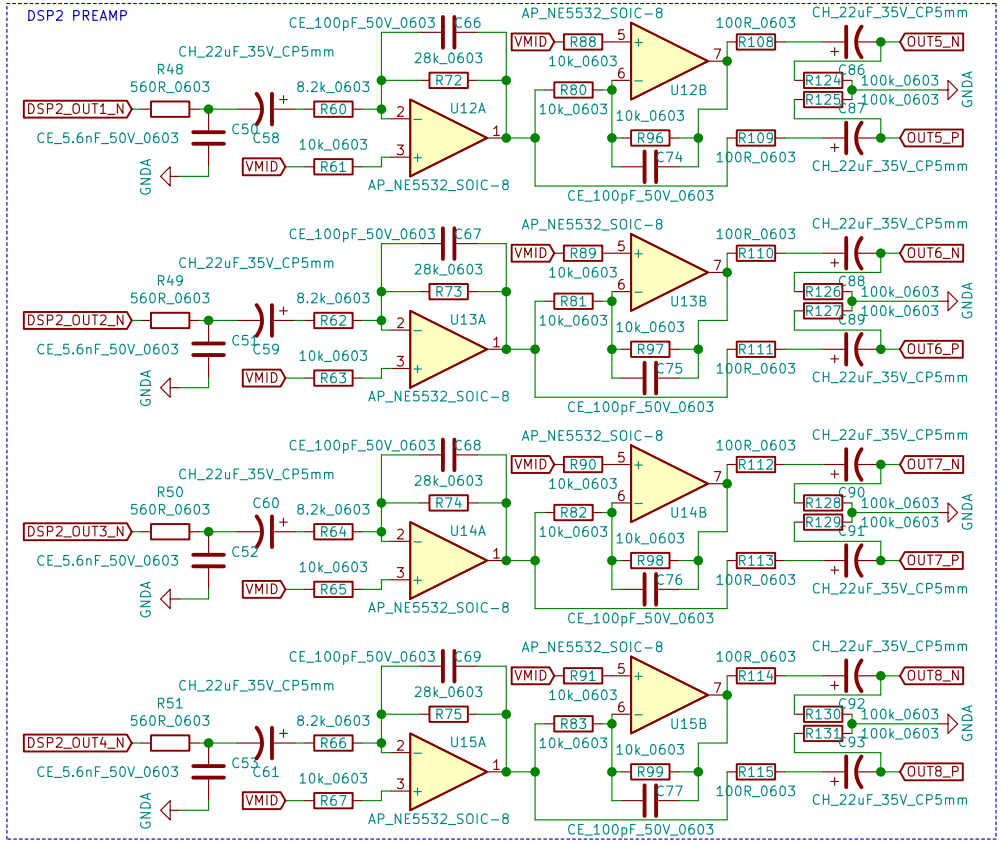
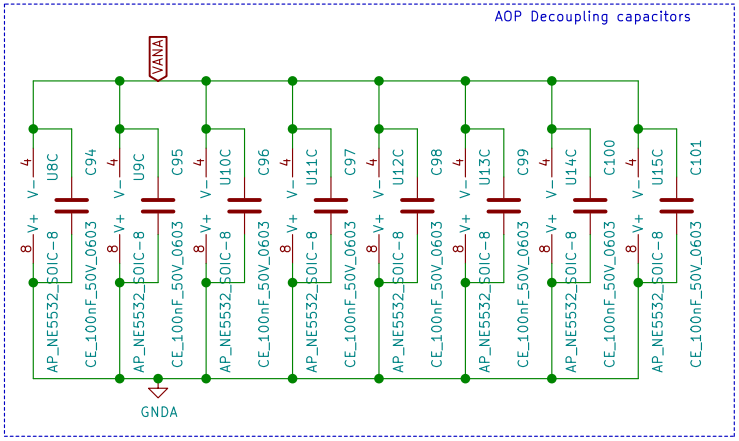
Sheet: /PDSP-I4-08-PREAMP-IN/
File: PDSP-I4-08-PREAMP-IN.sch

Title: PDSP-I4-08

Size: A4	Date: 2021-11-03	**Rev: V01.00**
KiCad E.D.A. kicad (5.1.5)-3		Id: 3/7







18dBu OUTPUT :
DAC OUT = 0.9Vrms = 1.3dBu
=> Requires +10.7dB to reach 18dBu (with 6dB sym) = *3.4277
=> 28k/8.2k gives *3.4146 = 10.667dB. OK, 0.03dB lower

(12dBu OUTPUT :
DAC OUT = 0.9Vrms = 1.3dBu
=> Requires 4.7dB to reach 12dBu (with 6dB sym) = *1.717
=> 8.2k / 4.7k gives *1.745 = 4.83dB. OK, 0.15dB higher, to be removed in DSP)

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Sheet: /PDSP-I4-08-PREAMP-OUT/
File: PDSP-I4-08-PREAMP-OUT.sch

Title: PDSP-I4-08

Size: A4	Date: 2021-11-03	**Rev: V01.00**
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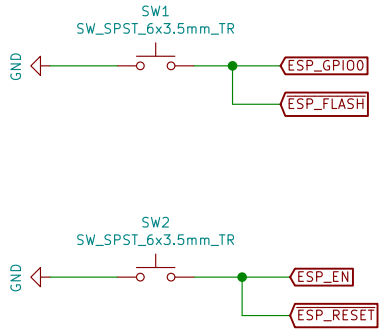
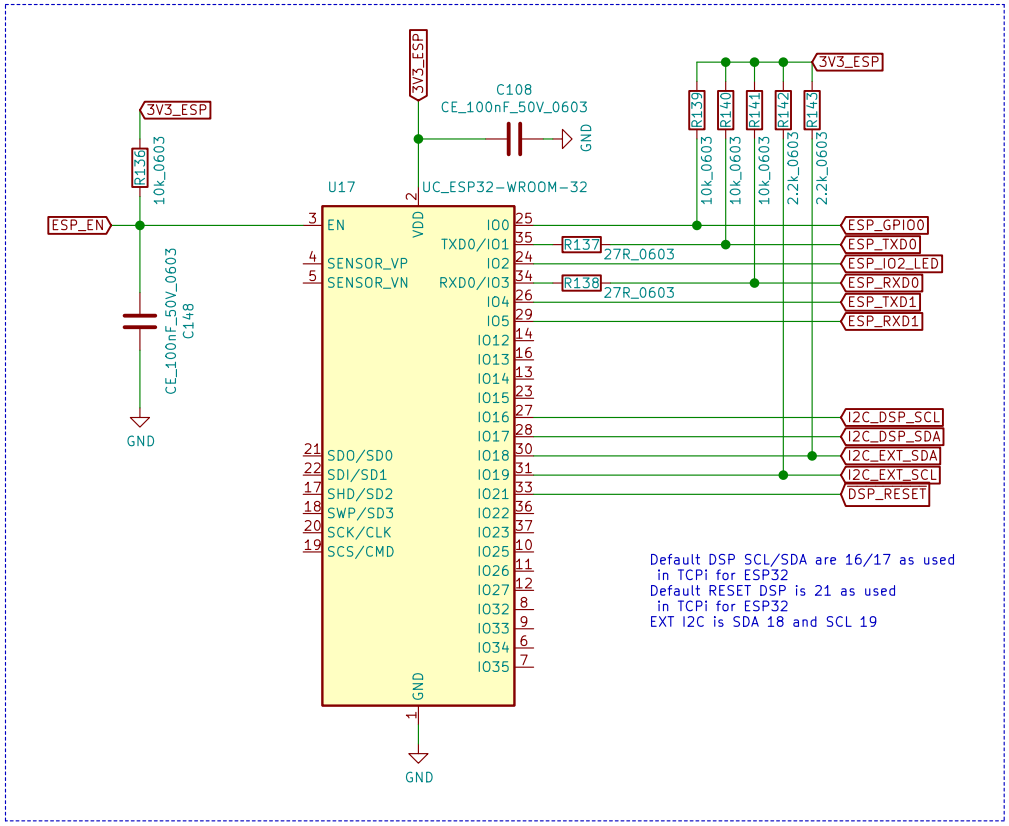
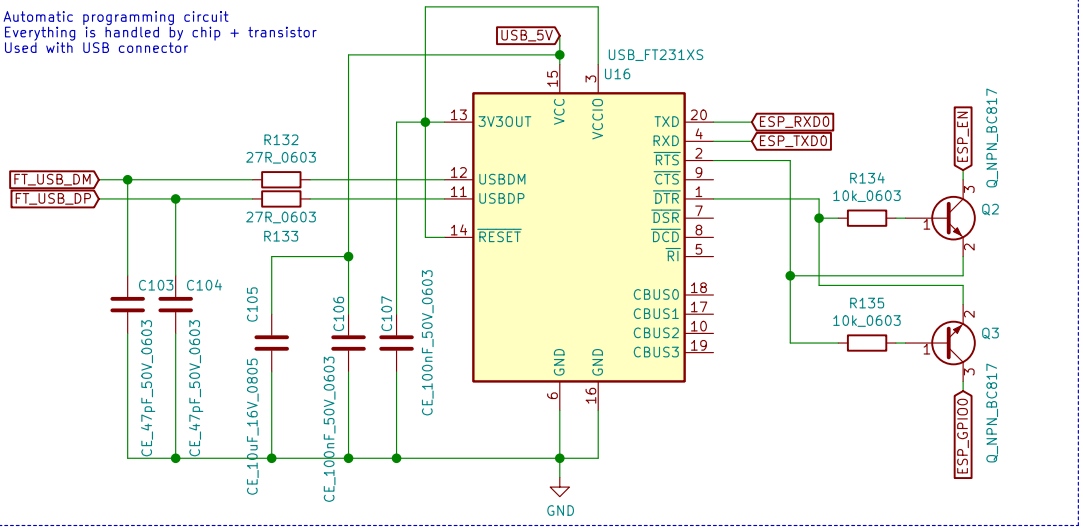
Manual Programming circuit
– To boot ESP in programming mode,
Push GPIO0 (Flash) button then release EN/Reset button
– To boot ESP in normal mode,
Let GPIO0 (Flash) button up, then release EN/Reset button
or simply boot





Automatic programming circuit
Everything is handled by chip + transistor
Used with USB connector



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Sheet: /PDSP-I4-08-ESP32/
File: PDSP-I4-08-ESP32.sch

Title: PDSP-I4-08

Size: A4	Date: 2021-11-03	**Rev: V01.00**
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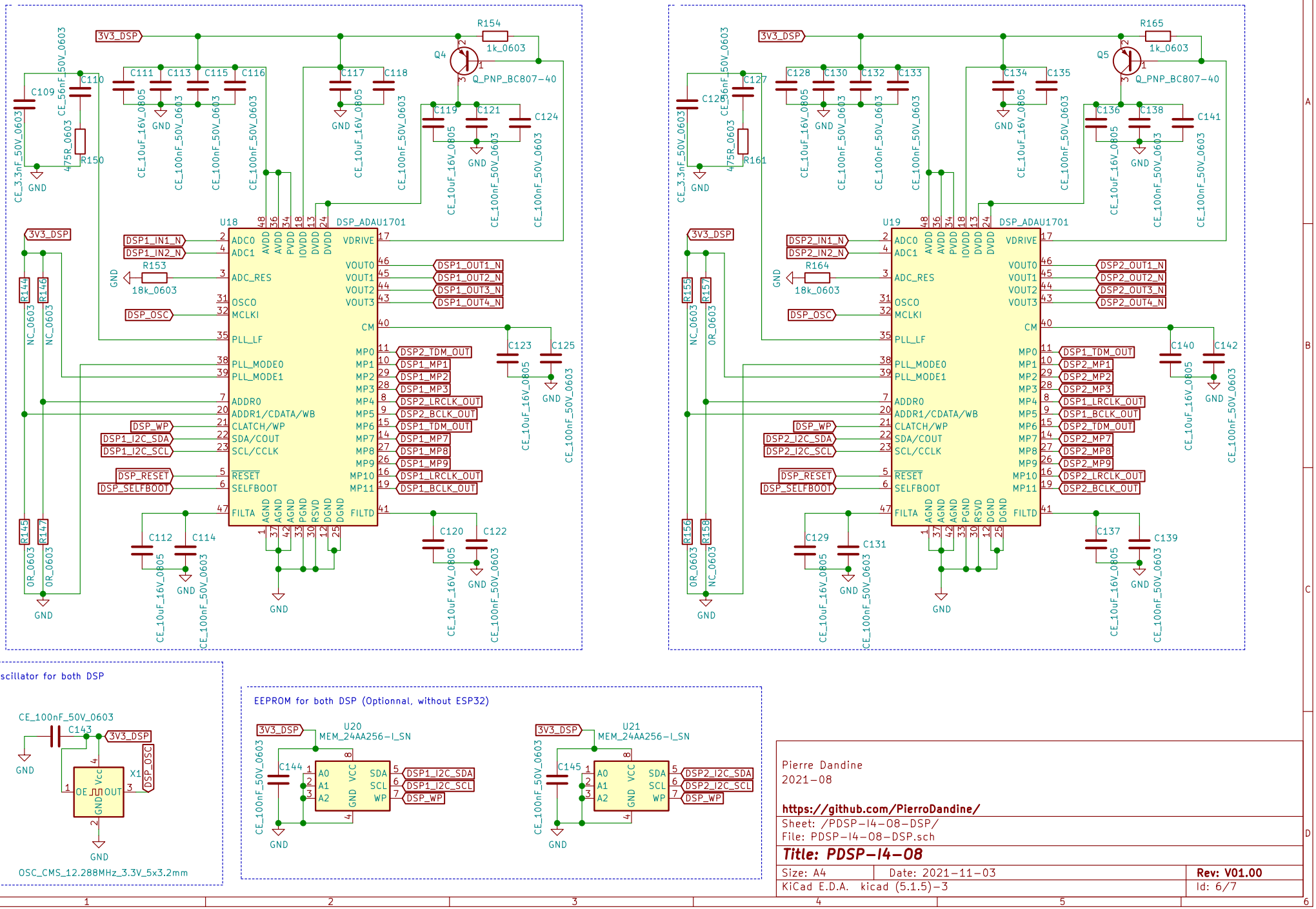
U18
DSP_ADAU1701
U19
DSP_ADAU1701
Oscillator for both DSP
OSC_CMS_12.288MHz_3.3V_5x3.2mm
EEPROM for both DSP (Optionnal, without ESP32)
U20
MEM_24AA256-I_SN
U21
MEM_24AA256-I_SN
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Sheet: /PDSP-I4-08-DSP/
File: PDSP-I4-08-DSP.sch
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Date: 2021-11-03
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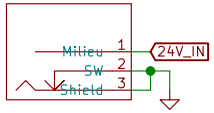
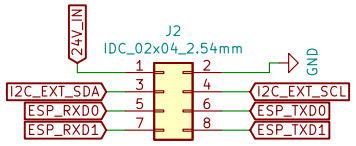
Id: 6/7

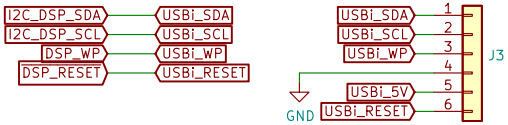
PSU IN
Can be removed for direct wier soldering

J1
Embase_DC_5.5x2.1-2.5mm_TR_CD



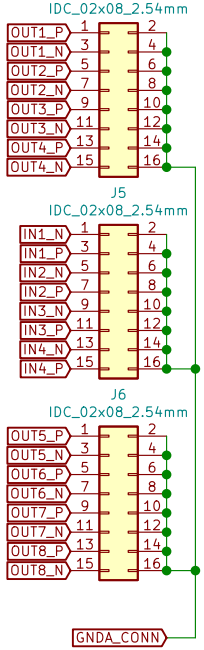


Extension connector for front I/O
For now, just another i2c, 24V and UART to flash ESP32
2 extra pins for future use (other UART ??)



USBi connection using clone WONDOM DB-DP11219 pinout

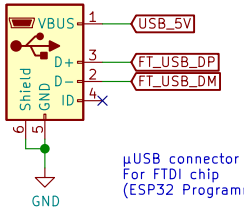
AUDIO EXT CONN



IN polarity
is inverted to
have same XLR
interface board
in mirror

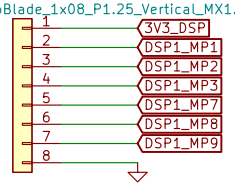
Specific GND to avoid noise

J8
USB_B_Micro_Vertical_TR

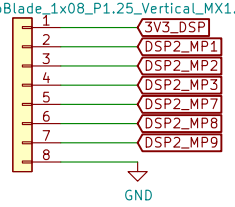


µUSB connector
For FTDI chip
(ESP32 Programming)

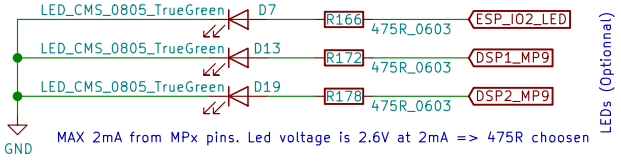
J9
Molex_PicoBlade_1x08_P1.25_Vertical_MX1.25



J10
Molex_PicoBlade_1x08_P1.25_Vertical_MX1.25



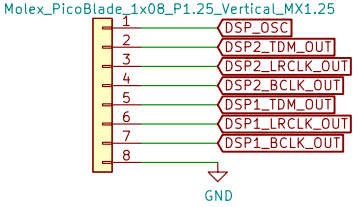
Header for MP pins (Optionnal)
To be used if required external LED, IO, POT etc...
(Remove internal LED then)



MAX 2mA from MPx pins. Led voltage is 2.6V at 2mA => 475R choosen

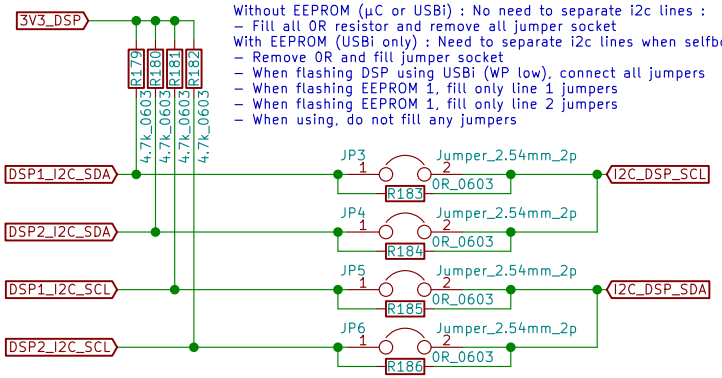
I2S on MP in case of require 2 boards = 4 DSP on same I2S bus

J7
Molex_PicoBlade_1x08_P1.25_Vertical_MX1.25

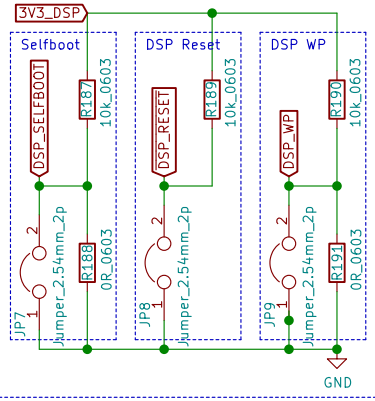


1 = DSP OSC (not required)
2 = DSP1 MP0 / DSP2 MP6
3 = DSP1 MP4 / DSP2 MP10
4 = DSP1 MP5 / DSP2 MP11
5 = DSP1 MP6 / DSP2 MP0
6 = DSP1 MP10 / DSP2 MP4
7 = DSP1 MP11 / DSP2 MP5

Pull-Up supposed to be 2.2k, but sometimes 2 in //, sometimes not



Without EEPROM (µC or USBi) : No need to separate i2c lines :
- Fill all 0R resistor and remove all jumper socket
With EEPROM (USBi only) : Need to separate i2c lines when selfboot
- Remove 0R and fill jumper socket
- When flashing DSP using USBi (WP low), connect all jumpers
- When flashing EEPROM 1, fill only line 1 jumpers
- When flashing EEPROM 1, fill only line 2 jumpers
- When using, do not fill any jumpers



If selfboot with EEPROM :
- On WP, connect 10k pull-up, and jumper down (used to flash DSP & EEPROM)
- On SELFBOOT, connect 10k pull-up (no jumper required)
If µC control :
- Connect 0R down on WP and SELFBOOT (no jumper required)
Note :
- WP of both DSP are connected together to have only one jumper
- On RESET, connect jumper down and 10k pull-up to be able to reset both DSP

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Title: PDSP-I4-08

Size: A4	Date: 2021-11-03	**Rev: V01.00**
KiCad E.D.A. kicad (5.1.5)-3		Id: 7/7