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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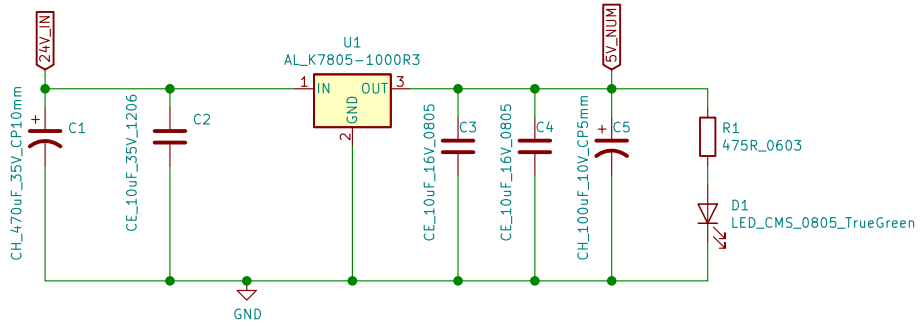
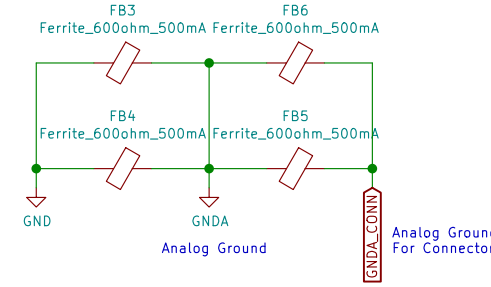
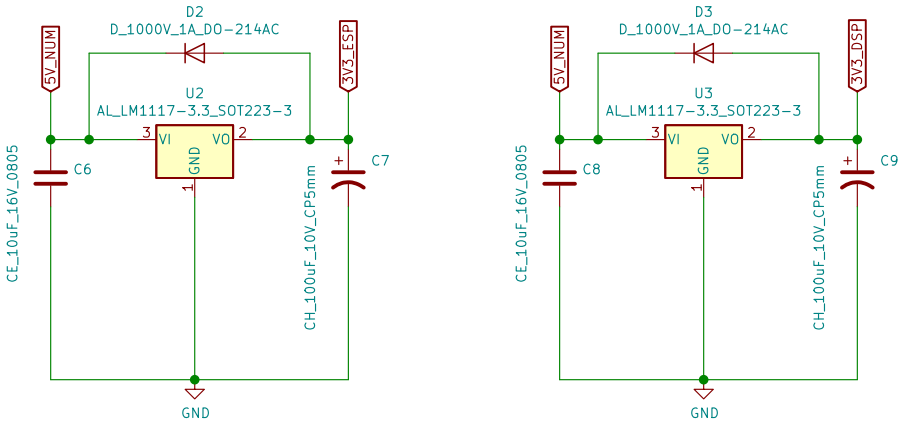
Feuille: /	Auteur: Pierre Dandine
Fichier: PDSP-I4-08.sch	Approbation:
Projet: PDSP-I4-08	
Création: 2021-08 / Modifié: 2021-10-22	**Version: V01.00**
KiCad E.D.A. kicad (5.1.10)-1	Page: 1/7

From 24V num to 5V num

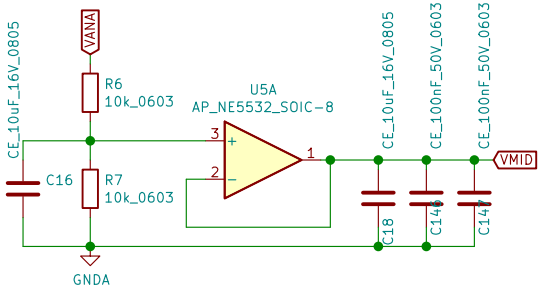


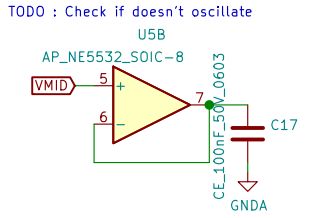


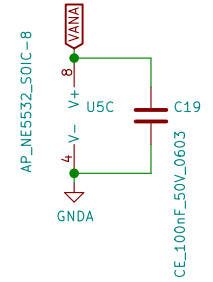
From 5V Num to 3.3V DSP & ESP32



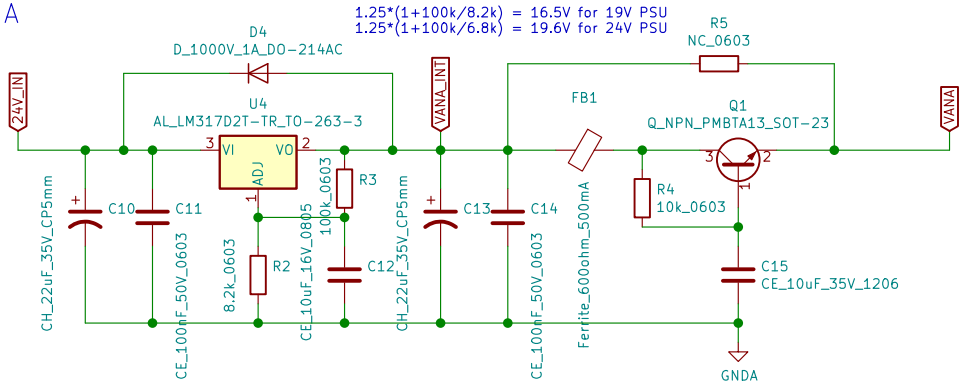
VMID Ana Generator







VANA



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Feuille: /PDSP-I4-08-PSU/	Auteur: Pierre Dandine
Fichier: PDSP-I4-08-PSU.sch	Approbation:
Projet: PDSP-I4-08	
Création: 2021-08 / Modifié: 2021-10-22	**Version: V01.00**
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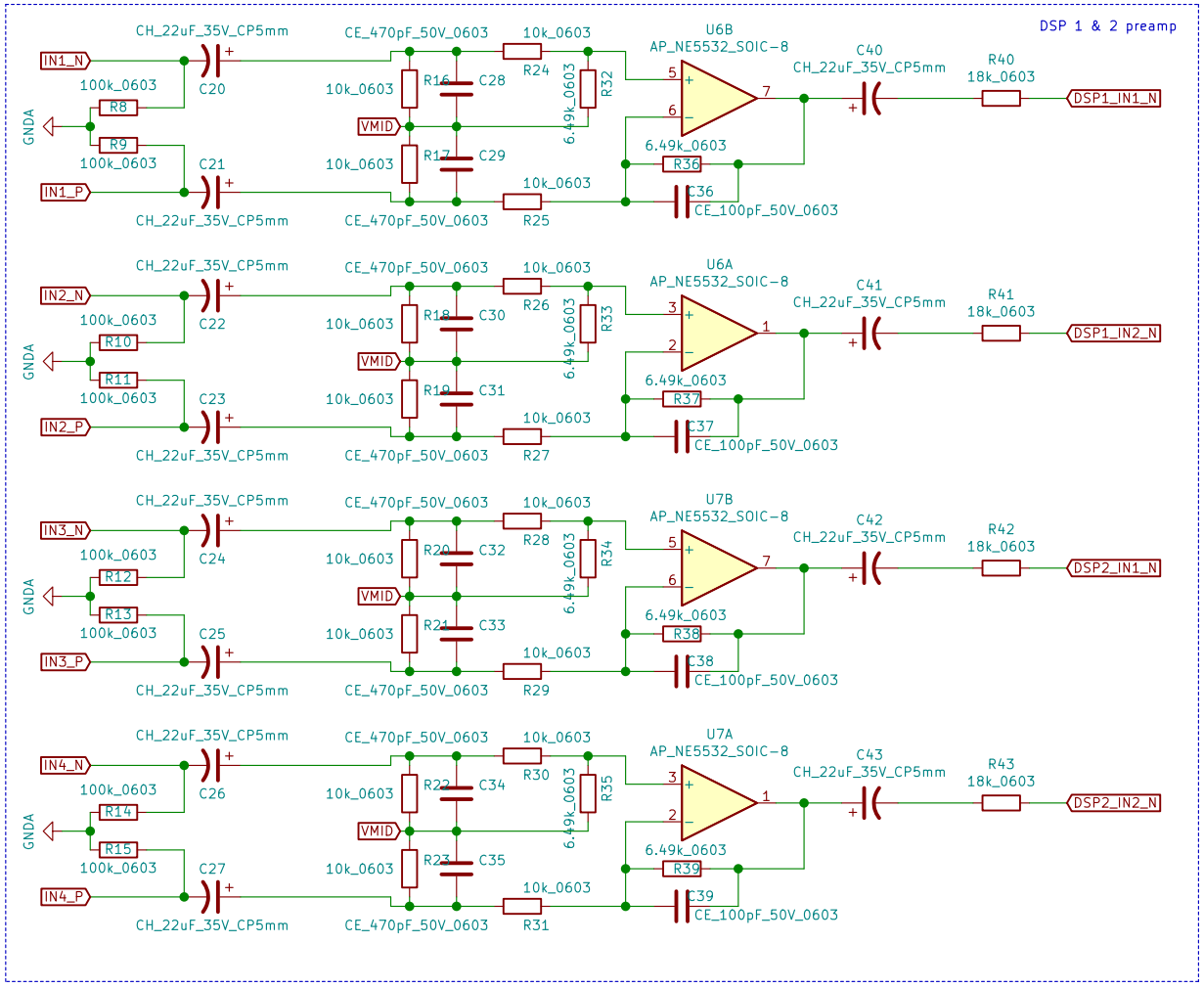

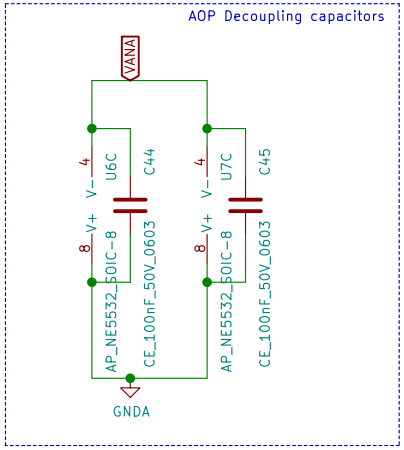

2VRMS IN with 18k ((18+2)/100µA = 2Vrms)
Need 3.08V input for 2V, so x1.54
=> 10k/6.49k = 1.54, perfect

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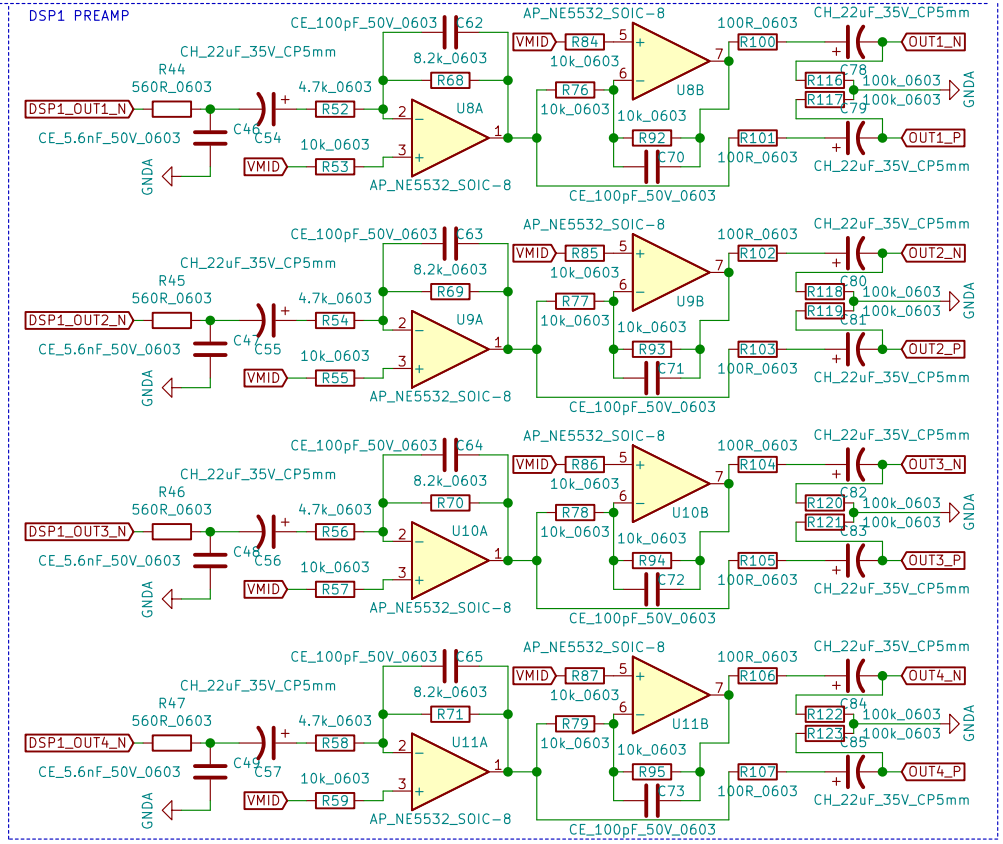
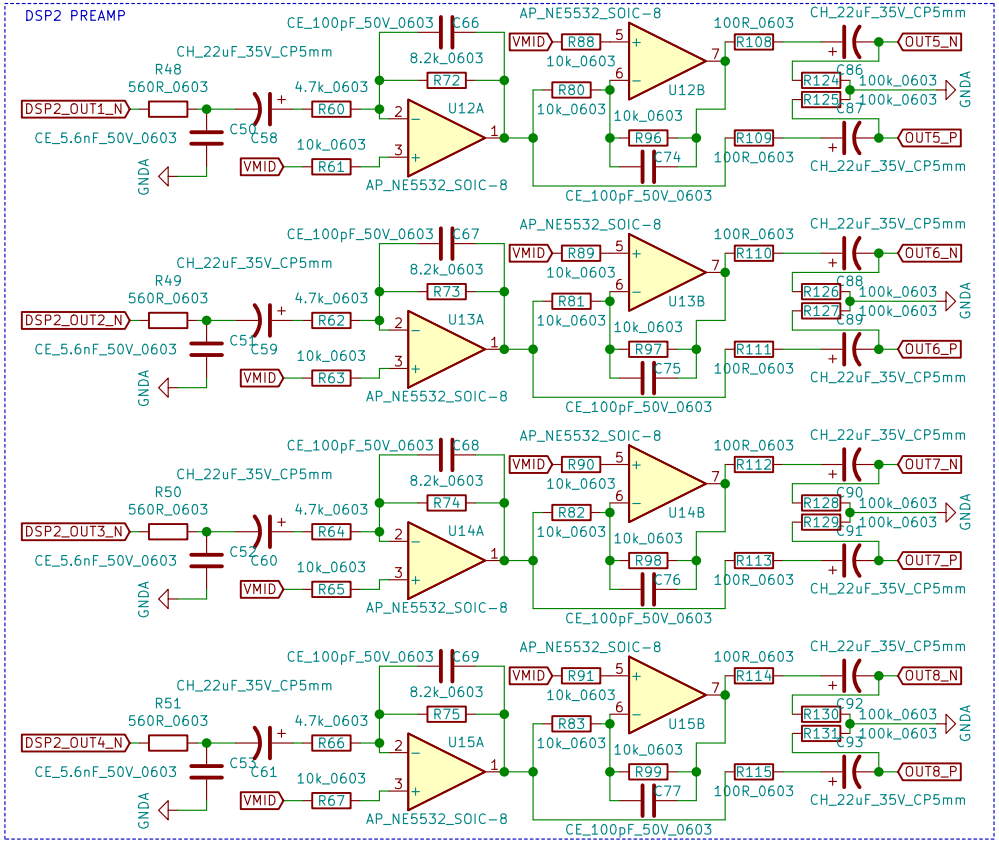
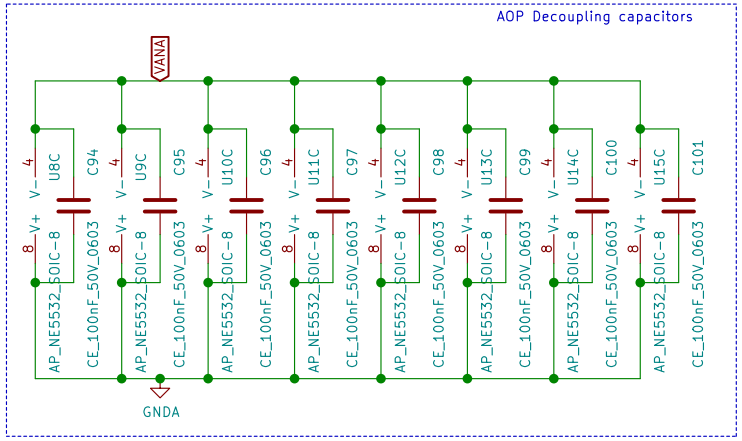
Feuille: /PDSP-I4-08-PREAMP-IN/	Auteur: Pierre Dandine
Fichier: PDSP-I4-08-PREAMP-IN.sch	Approbation:
Projet: PDSP-I4-08	
Création: 2021-08 / Modifié: 2021-10-22	**Version: V01.00**
KiCad E.D.A. kicad (5.1.10)-1	Page: 3/7





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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Feuille: /PDSP-I4-O8-PREAMP-OUT/	Auteur: Pierre Dandine
Fichier: PDSP-I4-O8-PREAMP-OUT.sch	Approbation:
Projet: PDSP-I4-O8	
Création: 2021-08 / Modifié: 2021-10-22	**Version: V01.00**
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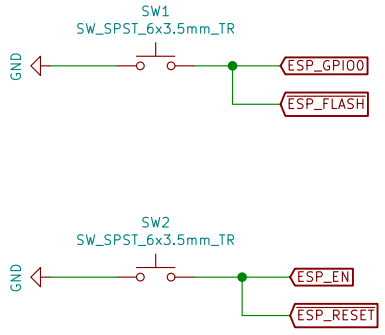
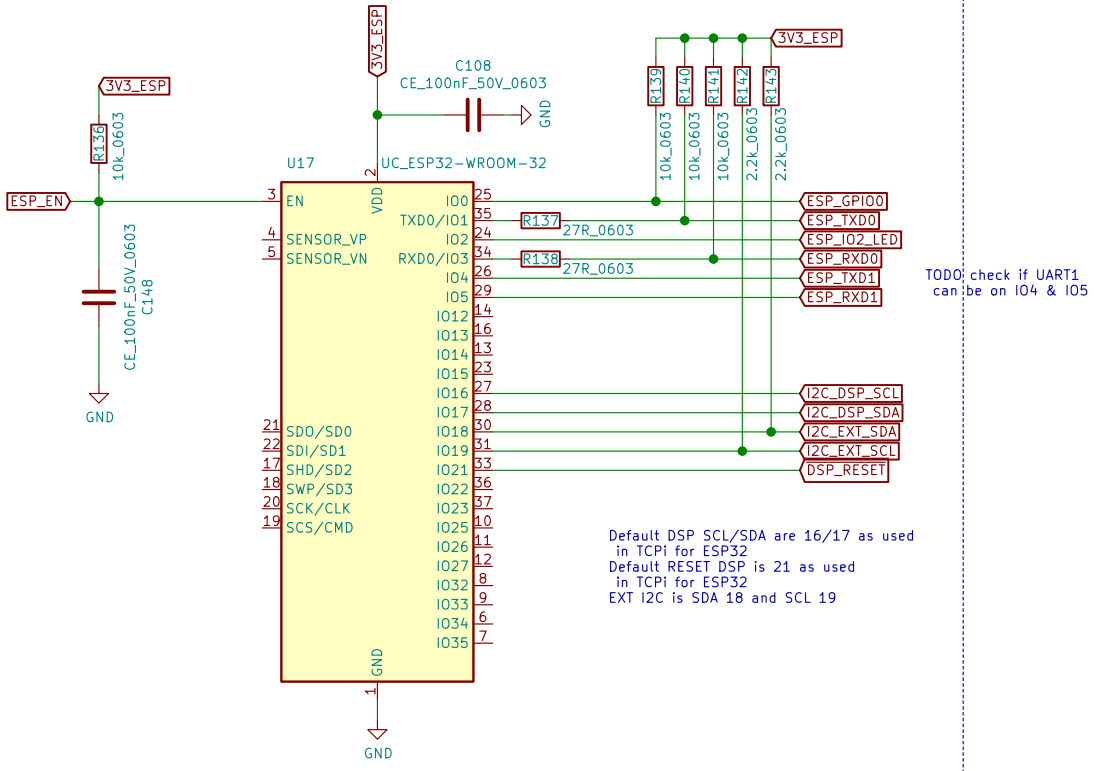
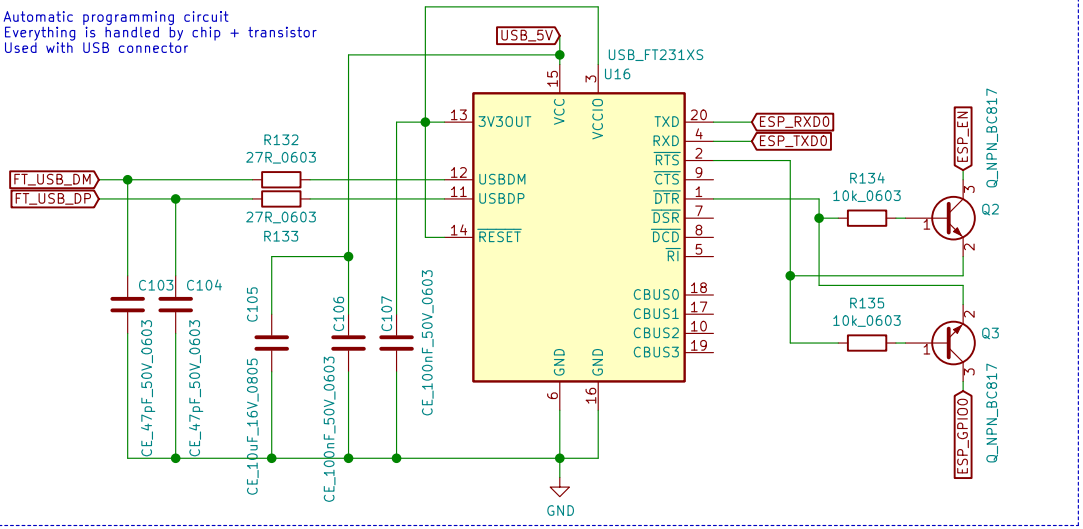
ESP32 programming
When no FTDI chip
Use 2x jumper to flash

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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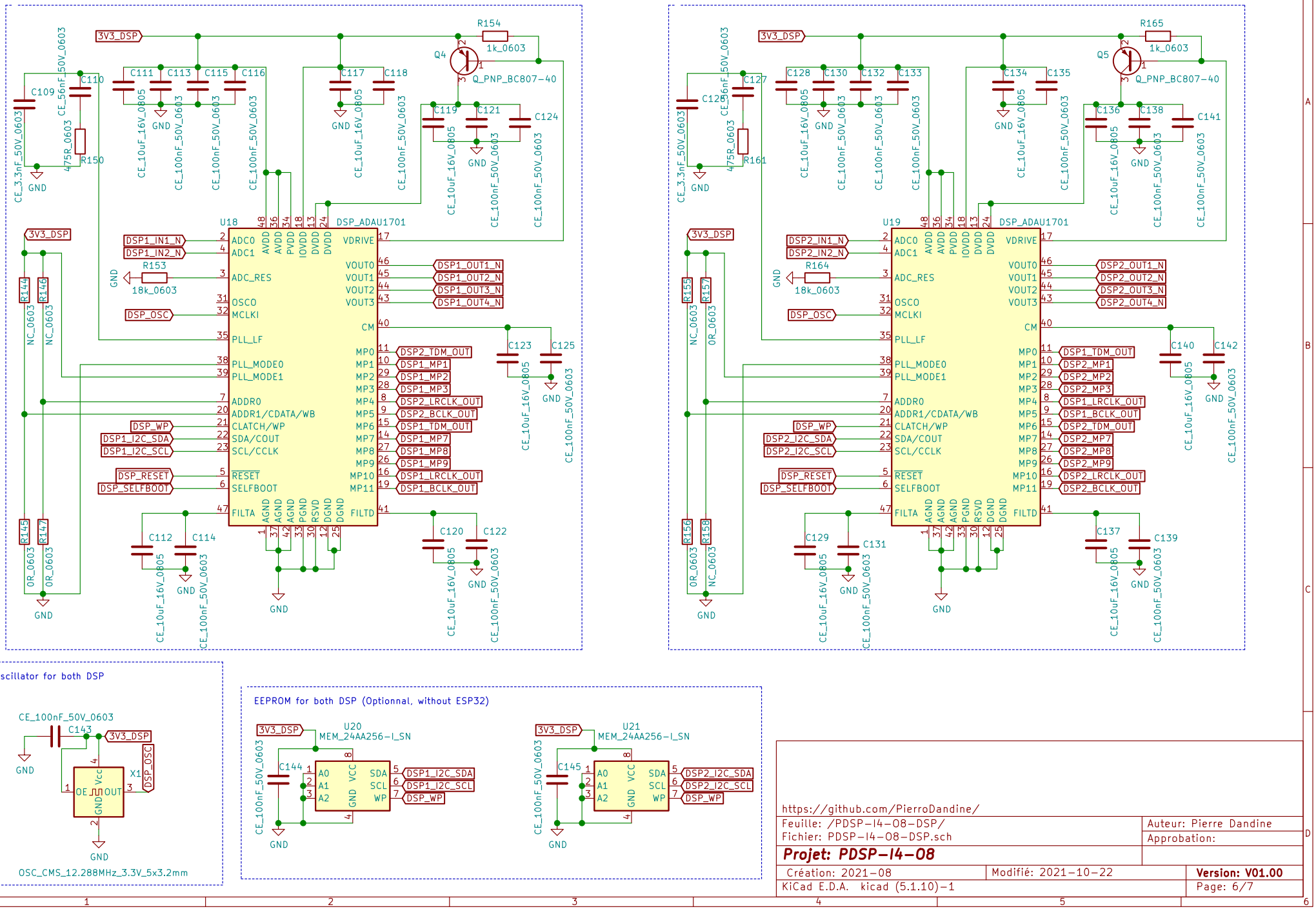
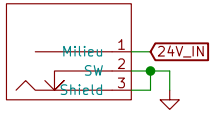
Feuille: /PDSP-I4-08-ESP32/	Auteur: Pierre Dandine
Fichier: PDSP-I4-08-ESP32.sch	Approbation:
Projet: PDSP-I4-08	
Création: 2021-08 / Modifié: 2021-10-22	**Version: V01.00**
KiCad E.D.A. kicad (5.1.10)-1	Page: 5/7

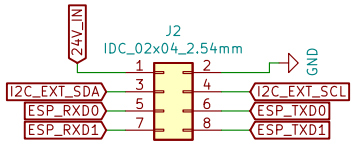

3V3_DSP
R154
1k_0603
Q4
Q_PNP_BC807-40
C109
CE_3.3nF_50V_0603
C110
CE_56nF_50V_0603
R150
475R_0603
C111
C113
C115
C116
CE_10uF_16V_0805
CE_100nF_50V_0603
C117
C118
C119
C121
C124
GND
U18
DSP_ADAU1701
DSP1_IN1_N
DSP1_IN2_N
R153
18k_0603
ADC_RES
DSP_OSC
OSCO
MCLKI
PLL_LF
PLL_MODE0
PLL_MODE1
ADDR0
ADDR1/CDATA/WB
CLATCH/WP
SDA/COUT
SCL/CCLK
DSP_WP
DSP1_I2C_SDA
DSP1_I2C_SCL
RESET
SELFBOOT
DSP_RESET
DSP_SELFBOOT
FILTA
FILTD
VDRIVE
VOUT0
VOUT1
VOUT2
VOUT3
CM
MP0
MP1
MP2
MP3
MP4
MP5
MP6
MP7
MP8
MP9
MP10
MP11
DSP1_OUT1_N
DSP1_OUT2_N
DSP1_OUT3_N
DSP1_OUT4_N
DSP2_TDM_OUT
DSP1_MP1
DSP1_MP2
DSP1_MP3
DSP2_LRCLK_OUT
DSP2_BCLK_OUT
DSP1_TDM_OUT
DSP1_MP7
DSP1_MP8
DSP1_MP9
DSP1_LRCLK_OUT
DSP1_BCLK_OUT
R144
R146
R145
R147
NC_0603
0R_0603
C112
C114
C120
C122
C123
C125
R165
Q5
C125
C127
C128
C130
C132
C133
C134
C135
C136
C138
C141
R161
R164
U19
DSP2_IN1_N
DSP2_IN2_N
DSP2_OUT1_N
DSP2_OUT2_N
DSP2_OUT3_N
DSP2_OUT4_N
R155
R157
R156
R158
C129
C131
C137
C139
C140
C142
Oscillator for both DSP
CE_100nF_50V_0603
C143
X1
OSC_CMS_12.288MHz_3.3V_5x3.2mm
EEPROM for both DSP (Optionnal, without ESP32)
U20
MEM_24AA256-I_SN
C144
A0
A1
A2
VCC
SDA
SCL
WP
U21
C145
https://github.com/PierroDandine/
Feuille: /PDSP-I4-08-DSP/
Fichier: PDSP-I4-08-DSP.sch
Auteur: Pierre Dandine
Approbation:
Projet: PDSP-I4-08
Création: 2021-08
Modifié: 2021-10-22
KiCad E.D.A. kicad (5.1.10)-1
Version: V01.00
Page: 6/7

PSU IN
Can be removed for direct wier soldering

J1
Embase_DC_5.5x2.1-2.5mm_TR_CD

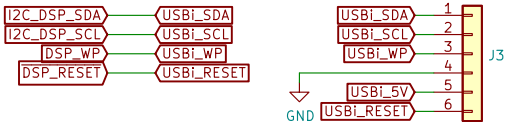


J2
IDC_02x04_2.54mm



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 ??)

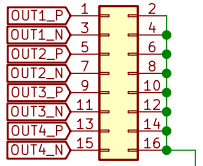
JST_PH-6_2mm_Vertical



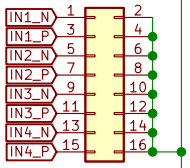
USBi connection using clone WONDOM DB-DP11219 pinout

AUDIO EXT CONN

J4
IDC_02x08_2.54mm

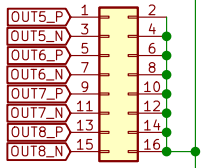


J5
IDC_02x08_2.54mm



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

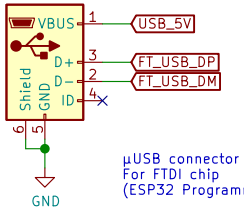
J6
IDC_02x08_2.54mm



GNDA_CONN

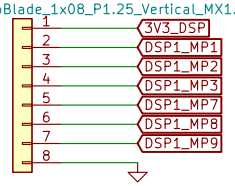
Specific GND to avoid noise

J8
USB_B_Micro_Vertical_TR

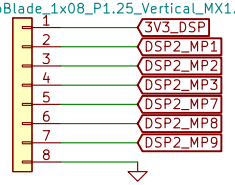


µUSB connector
For FTDI chip
(ESP32 Programming)

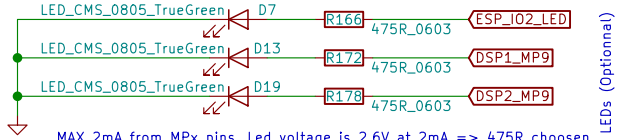
J9
Molex_PicoBlade_1x08_P1.25_Vertical_MX1.25



J10
Molex_PicoBlade_1x08_P1.25_Vertical_MX1.25



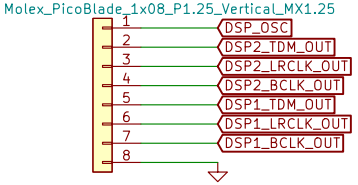
Header for MP pins (Optionnal)
To be used if required external LED, IO, POT etc...
(Remove internal LED then)



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

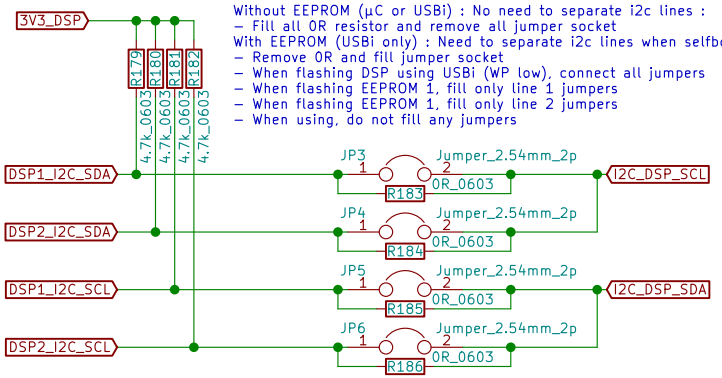
I2S on MP in case of require 2 boards = 4 DSP on same I2S bus

J7
Molex_PicoBlade_1x08_P1.25_Vertical_MX1.25

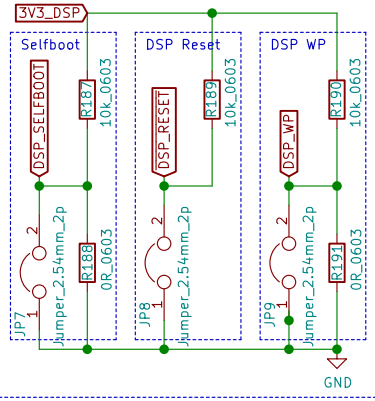


1 = DSP OSC (not required)
2 = DSP1 MP0 / DSP2 MP6
3 = DSP1 MP4 / DSP2 MP10
4 = DSP1 MP5 / DSP2 MP11
5 = DSP1 MP6 / DSP2 MP0
6 = DSP1 MP10 / DSP2 MP4
7 = DSP1 MP11 / DSP2 MP5

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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Fichier: PDSP-I4-08-CONNECTOR_UI_CONFIG.sch	Approbation:
Projet: PDSP-I4-08	
Création: 2021-08 / Modifié: 2021-10-22	**Version: V01.00**
KiCad E.D.A. kicad (5.1.10)-1	Page: 7/7