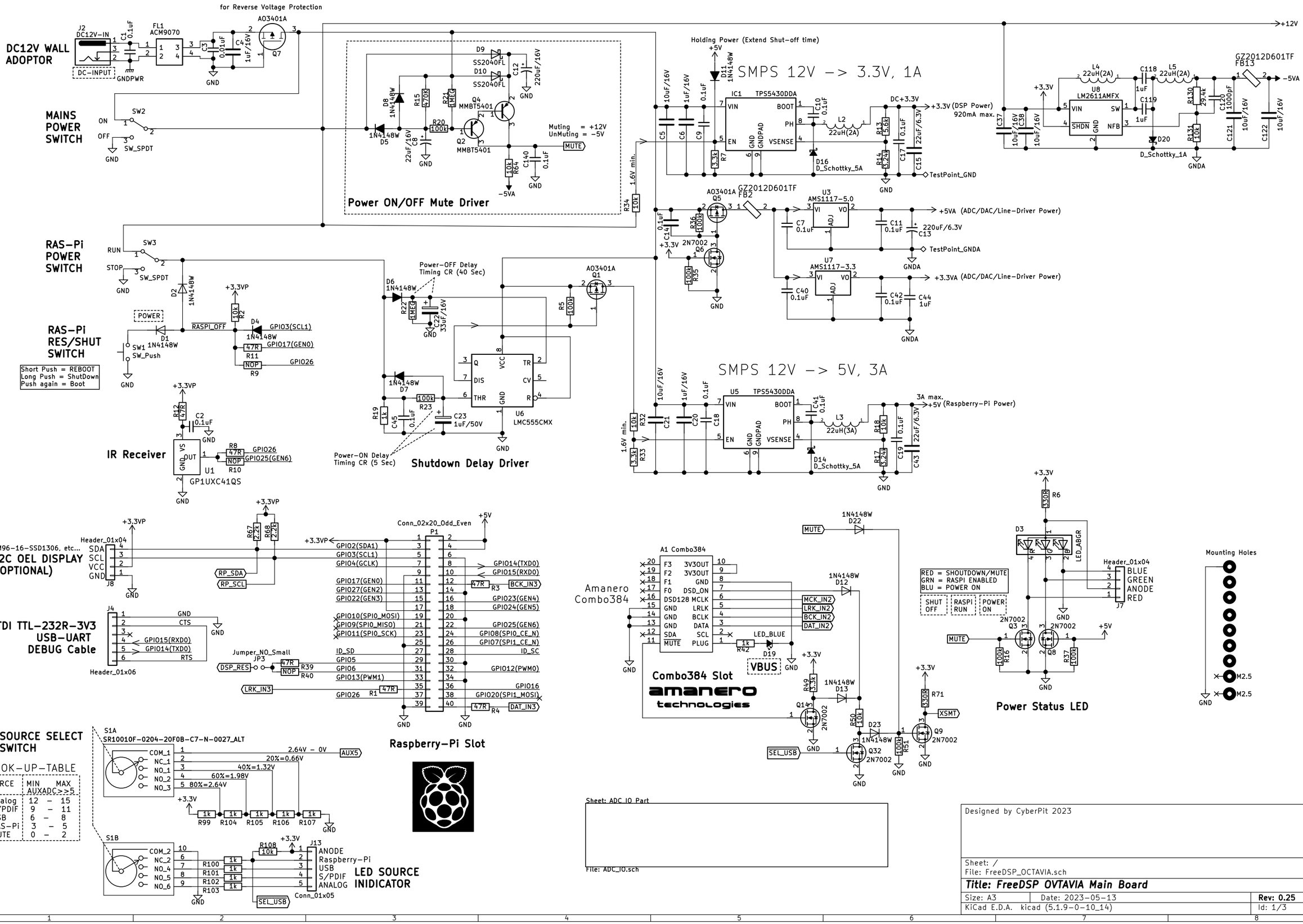

DC12V WALL ADOPTOR
for Reverse Voltage Protection
AO3401A
J2
DC12V-IN
DC-INPUT
GNDPWR
FL1
ACM9070
C1 0.1uF
C3 0.01uF
C4 1uF/16V
Q7
GND
MAINS POWER SWITCH
SW2
ON
OFF
SW_SPDT
Power ON/OFF Mute Driver
D9 SS2040FL
D10 SS2040FL
C12 220uF/16V
D8 1N4148W
D5 1N4148W
R15 470K
R21 1MEG
R20 100k
C8 22uF/16V
Q4 MMBT5401
Q2 MMBT5401
Muting = +12V
UnMuting = -5V
MUTE
R64 10k
C140 0.1uF
-5VA
Holding Power (Extend Shut-off time)
+5V
D11 1N4148W
SMPS 12V -> 3.3V, 1A
IC1 TPS5430DDA
VIN
BOOT
PH
VSENSE
EN
GND
GNDPAD
C5 10uF/16V
C6 10uF/16V
C9 0.1uF
C10 0.1uF
L2 22uH(2A)
R13 5.6k
R14 5.24k
C17 0.1uF
C15 22uF/6.3V
D16 D_Schottky_5A
DC+3.3V
+3.3V (DSP Power)
920mA max.
TestPoint_GND
+12V
GZ2012D601TF
FB13
-5VA
U8 LM2611AMFX
L4 22uH(2A)
L5 22uH(2A)
C118 1uF
C119 1uF
C120 1000pF
R130 29.4k
R131 10k
D20 D_Schottky_1A
C37 10uF/16V
C38 10uF/16V
C121 10uF/16V
C122 10uF/16V
GNDA
RAS-Pi POWER SWITCH
SW3
RUN
STOP
SW_SPDT
D2 1N4148W
+3.3VP
R2 10k
POWER
D1 1N4148W
SW1 SW_Push
RASPI_OFF
D4 1N4148W
GPIO3(SCL1)
GPIO17(GEN0)
GPIO26
R11 47R
R9 NOP
RAS-Pi RES/SHUT SWITCH
Short Push = REBOOT
Long Push = ShutDown
Push again = Boot
Power-OFF Delay Timing CR (40 Sec)
D6 1N4148W
R22 1MEG
C22 33uF/16V
AO3401A Q1
R5 100k
1N4148W D7
100k R23
R19 1k
C45 0.1uF
C23 1uF/50V
U6 LMC555CMX
Q R
DIS TR
THR CV
VCC GND
Power-ON Delay Timing CR (5 Sec)
Shutdown Delay Driver
AO3401A Q5
GZ2012D601TF FB2
U3 AMS1117-5.0
VI VO ADJ
C7 0.1uF
C11 0.1uF
C13 220uF/6.3V
+5VA (ADC/DAC/Line-Driver Power)
TestPoint_GNDA
C14 0.1uF
R36 100k
2N7002 Q6
R35 100k
U7 AMS1117-3.3
C40 0.1uF
C42 0.1uF
C44 1uF
+3.3VA (ADC/DAC/Line-Driver Power)
SMPS 12V -> 5V, 3A
U5 TPS5430DDA
C21 10uF/16V
C20 1uF/16V
C18 0.1uF
C41 0.1uF
L3 22uH(3A)
R32 10k
R33 3.3k
R18 10k
R17 5.24k
C19 0.1uF
C43 22uF/6.3V
D14 D_Schottky_5A
1.6V min.
3A max.
+5V (Raspberry-Pi Power)
IR Receiver
R12 47R
C2 0.1uF
U1 GP1UXC41QS
R8 47R
R10 NOP
GPIO26
GPIO25(GEN6)
I2C OEL DISPLAY (OPTIONAL)
M96-16-SSD1306, etc...
Header_01x04
SDA
SCL
VCC
GND
J8
R67 2.2k
R68 2.2k
RP_SDA
RP_SCL
FTDI TTL-232R-3V3 USB-UART DEBUG Cable
J4
GND
CTS
GPIO15(RXD0)
GPIO14(TXD0)
RTS
Header_01x06
Jumper_NO_Small
JP3
DSP_RES
R39 47R
R40 NOP
LRK_IN3
R1 47R
Conn_02x20_Odd_Even
P1
+3.3VP
+5V
GPIO2(SDA1)
GPIO3(SCL1)
GPIO4(GCLK)
GPIO17(GEN0)
GPIO27(GEN2)
GPIO22(GEN3)
GPIO10(SPI0_MOSI)
GPIO9(SPI0_MISO)
GPIO11(SPI0_SCK)
ID_SD
GPIO5
GPIO6
GPIO13(PWM1)
GPIO26
GPIO14(TXD0)
GPIO15(RXD0)
GPIO23(GEN4)
GPIO24(GEN5)
GPIO25(GEN6)
GPIO8(SPI0_CE_N)
GPIO7(SPI1_CE_N)
ID_SC
GPIO12(PWM0)
GPIO16
GPIO20(SPI1_MOSI)
BCK_IN3
DAT_IN3
Raspberry-Pi Slot
SOURCE SELECT SWITCH
LOOK-UP-TABLE
SOURCE | MIN AUXADC>>5 | MAX
4:Analog 12 - 15
3:S/PDIF 9 - 11
2:USB 6 - 8
1:RAS-Pi 3 - 5
0:MUTE 0 - 2
S1A
SR10010F-0204-20F0B-C7-N-0027_ALT
COM_1 NC_1 NO_1 NO_2 NO_3
2.64V - 0V
20%=0.66V
40%=1.32V
60%=1.98V
80%=2.64V
AUX5
R99 R104 R105 R106 R107 1k
S1B
COM_2 NC_2 NO_4 NO_5 NO_6
R100 R101 R102 R103 1k
R108 10k
J13
ANODE
Raspberry-Pi
USB
S/PDIF
ANALOG
Conn_01x05
SEL_USB
LED SOURCE INIDICATOR
A1 Combo384
Amanero Combo384
F3 3V3OUT
F2 3V3OUT
F1 GND
F0 DSD_ON
DSD128 MCLK
GND LRLK
GND BCLK
GND DATA
SDA SCL
MUTE PLUG
MCK_IN2
LRK_IN2
BCK_IN2
DAT_IN2
LED_BLUE
R42 1k
D19 VBUS
Combo384 Slot
amanero technologies
1N4148W D22
1N4148W D12
1N4148W D13
R49 3.3k
Q14 2N7002
R50 10k
D23 1N4148W
Q32 2N7002
R51 100k
SEL_USB
R71 330R
XSMT
Q9 2N7002
R6 330R
D3 LED_ABGR
RED = SHOUTDOWN/MUTE
GRN = RASPI ENABLED
BLU = POWER ON
SHUT OFF
RASPI RUN
POWER ON
Header_01x04
BLUE
GREEN
ANODE
RED
J7
Q3 2N7002
Q8 2N7002
R16 100k
R37 100k
Power Status LED
Mounting Holes
M2.5
Sheet: ADC_IO_Part
File: ADC_IO.sch
Designed by CyberPit 2023
Sheet: /
File: FreeDSP_OCTAVIA.sch
Title: FreeDSP OVTAVIA Main Board
Size: A3
Date: 2023-05-13
Rev: 0.25
KiCad E.D.A. kicad (5.1.9-0-10_14)
Id: 1/3

(MasterMode) OPEN=96kHz, SHORT=48kHz

24bit ADC

IC2 PCM1808QPWRQ1

AUDIO INPUT — J5 MJ-519

2.09Vrms max. — C26 100pF — C25 100pF (Reference Level 0dB = 2Vr.m.s.)

18k R24 / 18k R25 — C27 2.2uF / C28 2.2uF

R26 27k / R27 27k — C29 100pF / C30 100pF

3.0Vpp max. Zin=60kΩ — Jumper_NC — JP2 — R84 3.3k

VINR VINL FMT MD1 MDO COUT BCK — VREF AGND VCC VDD DGND SCKI LRCK

C31 0.1uF / C33 10uF — C32 0.1uF / C34 10uF — R31 10R — +5VA +3.3V

C35 0.1uF — ADC_MCLK — I2S2_LRCK — MCLK LRK_IN0

R30 47R — GZ2012D601TF FB1

R28 47R / R29 47R — I2S2_BCLK — I2S2_DIN — BCK_IN0 DAT_IN0

GNDA GND

U12 ADAU1452

FB4 GZ1608D601TF — C73 0.1uF

AVDD IOVDD IOVDD IOVDD IOVDD — C52 1uF / C54 1uF / C57 1uF / C62 1uF / C50 10uF / C53 0.1uF / C55 0.1uF / C58 0.1uF / C63 0.1uF — C142 1uF / C143 1uF

VDRIVE — C24 0.1uF — C141 DVDD 1uF — C46 0.1uF — R65 1k — Q1 MJD45H11T4 Q12

DVDD DVDD DVDD DVDD — C64 1uF / C67 1uF / C69 1uF / C71 1uF / C60 10uF / C65 0.1uF / C68 0.1uF / C70 0.1uF / C72 0.1uF

AUXADC_0 AUXADC_1 AUXADC_2 AUXADC_3 AUXADC_4 AUXADC_5 — AUX0 AUX1 AUX2 AUX3 AUX4 AUX5

SPDIF_IN — 958RX

SPDIF_OUT — R87 47R — 958TX

MP6 — DSP_MP6

MP7 — DSP_MP7

Temperature Diode — THD_M THD_P

BCLK_IN0 LRCLK_IN0/MP10 SDATA_IN0 — RCA — BCK_IN0 LRK_IN0 DAT_IN0

BCLK_IN1 LRCLK_IN1/MP11 SDATA_IN1 — EXT — BCK_IN1 LRK_IN1 DAT_IN1

BCLK_IN2 LRCLK_IN2/MP12 SDATA_IN2 — USB — BCK_IN2 LRK_IN2 DAT_IN2

BCLK_IN3 LRCLK_IN3/MP13 SDATA_IN3 — RPI — BCK_IN3 LRK_IN3 DAT_IN3

LRCLK_OUT0/MP4 BCLK_OUT0 SDATA_OUT0 — R110 33R / R111 33R / R112 33R — LRK_OUT0 BCK_OUT0 DAT_OUT0

LRCLK_OUT1/MP5 BCLK_OUT1 SDATA_OUT1 — R113 33R / R114 33R / R115 33R — LRK_OUT1 BCK_OUT1 DAT_OUT1

LRCLK_OUT2/MP8 BCLK_OUT2 SDATA_OUT2 — R116 33R / R117 33R / R118 33R — LRK_OUT2 BCK_OUT2 DAT_OUT2

LRCLK_OUT3/MP9 BCLK_OUT3 SDATA_OUT3 — R119 33R / R120 33R / R121 33R — LRK_OUT3 BCK_OUT3 DAT_OUT3

PVDD — C51 1nF / C36 4700pF / C56 150pF

PLL_FILT — R72 4.3k

RESET — DSP-RESET

SELFBOOT — R73 1k — Jumper_NO — JP1

XTALIN/MCLK — Y1 24.576MHz TCXO OT322524.576MJBA4S — R41 33R

XTALOUT

CLKOUT — MCLK MCLK0 MCLK1 MCLK2 MCLK3 MCLK4 — R77 33R / R78 33R / R79 33R / R80 33R / R81 33R / R82 33R — U15 74LVC1G04 — R109 47R

Master SPI/I2C — SS_M/MP0 MOSI_M/MP1 SCL_M/SCLK_M/MP2 SDA_M/MISO_M/MP3 — R88 33R / R89 33R / R90 33R

Slave SPI/I2C — MISO/SDA SCLK/SCL MOSI/ADDR1 SS/ADDR0 — I2C_SDA I2C_SCL

AGND PGND DGND DGND DGND DGND DGND DGND DGND DGND Exposed_Pad

C48 10nF / C49 0.1uF — C142 1uF / C143 1uF

L1 SDFL2012T220KTF 22uH

Ext. I2S INPUT

J3 Conn_01x08 — BCK_IN1 LRK_IN1 DAT_IN1 MCLK4 — C139 0.1uF

-5VA — FB3 GZ1608D601TF — C47 0.1uF

Optical RX (192k max.)

U2 AUDIO-O OPT-INPUT PLR135-T10 — C16 0.1uF — R38 33R — C59 0.1uF

U10 74LVC1G86 — 958RX

Optical TX

U4 PLT133-T10W — 958TX

J11 Conn_Coaxial — T1 PE-65612NL — C66 NOP — C61 0.1uF — R69 75R — R75 75R — R74 4.7k — U11 74LVC1G04 — R83 33R — R76 330R — C74 0.1uF

USBi

J12 IDC_2x5 — R44 2.2k / R91 2.2k / R92 2.2k — R48 0R — R46 10k — D15 LED_YELLOW — R93 1k — DSP-RESET

2N7002 Q30 — I2C_SDA — RP_SDA — R47 10k

AO3401A Q29

2N7002 Q31 — I2C_SCL — RP_SCL

MASTER VOLUME

+3.3V — R94 100R — C76 10uF — AUX0 — RV1 B10K — C39 0.1uF

AUX VOL HEADER

R92 100R — C75 10uF — AUX1 AUX2 AUX3 AUX4 — RV2 B10K / RV3 B10K / RV4 B10K / RV5 B10K — C77 0.1uF / C78 0.1uF / C79 0.1uF / C81 0.1uF

J1 Conn_01x08 — AUX5 AUX4 AUX3 AUX2 AUX1 AUX0

SW4 SW_NOP_DPDT — EEPROM_1 — R43 0R

OPTIONAL SOCKET

U13 25AA1024 — SCK MOSI MISO WP HOLD CS — GND Vcc — C80 0.1uF — R97 10k — R95 33R — EEPROM_6 EEPROM_5 EEPROM_2

J6 8P_DIP_SOCKET — R45 10k

NOTE:
Remove U13 when use a J6 DIP package instead of SOIC package EEPROM.
Remove R43 when you install the SW4 for selectable dual EEPROMs.

CONFIG EEPROM

SPI EEPROM should be organized by 8 (128kx8, 64kx8, 32kx8, etc..)
The maximum valid memory space is limited up to 512Mbits.
Maybe you can replace U13 EEPROM which contained in the following lists, but you need to change the writting parameters...

25AA1024-I/SM (Microchip, Total=1048576, PageSize=256, N=3)
25AA512-I/SN (Microchip, Total=524288, PageSize=128, N=2)
M95M01-DWMN3TP/K (STM, Total=262144, PageSize=64, N=2)
BR25G1MF-3GE2 (ROHM)
CAT25M01VI-GT3 (OnSemi)
S-25CM01A0I-J8T1U4 (ablic)

DSP RESET BUTTON

2N7002 Q13 — R86 2.2K — D21 1N4148W — XSMT — DSP-RESET — DSP_RES — R85 10k — SW7 DSP_RES

Signal LED (-20dB)

J9 Conn_01x02 — ANODE CATHODE — D17 LED_GRN — R96 1k — DSP_MP6

CLIP LED (-0.5dB)

J10 Conn_01x02 — ANODE CATHODE — D18 LED_RED — R98 1k — DSP_MP7

Sheet: DAC

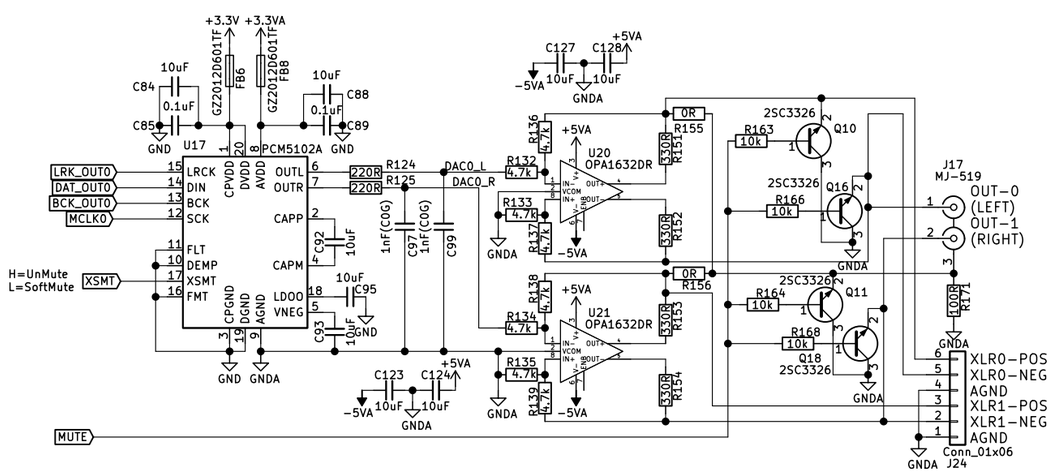
File: DAC.sch

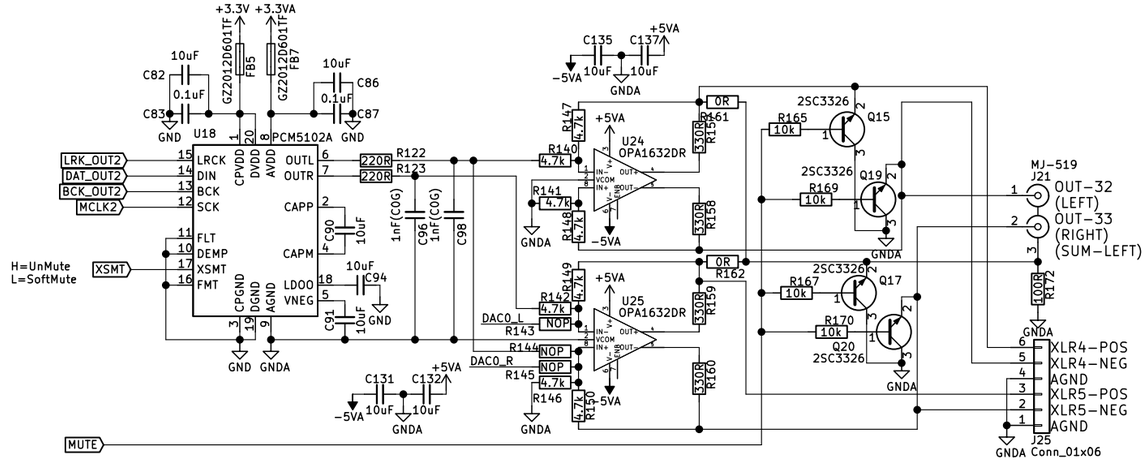
Designed by CyberPit 2023

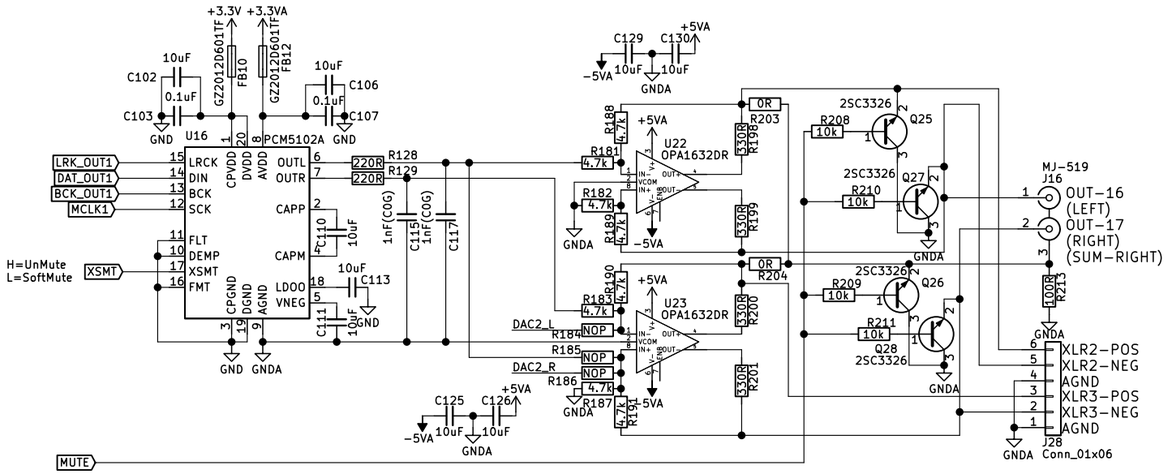
Sheet: /ADC_IO Part/
File: ADC_IO.sch

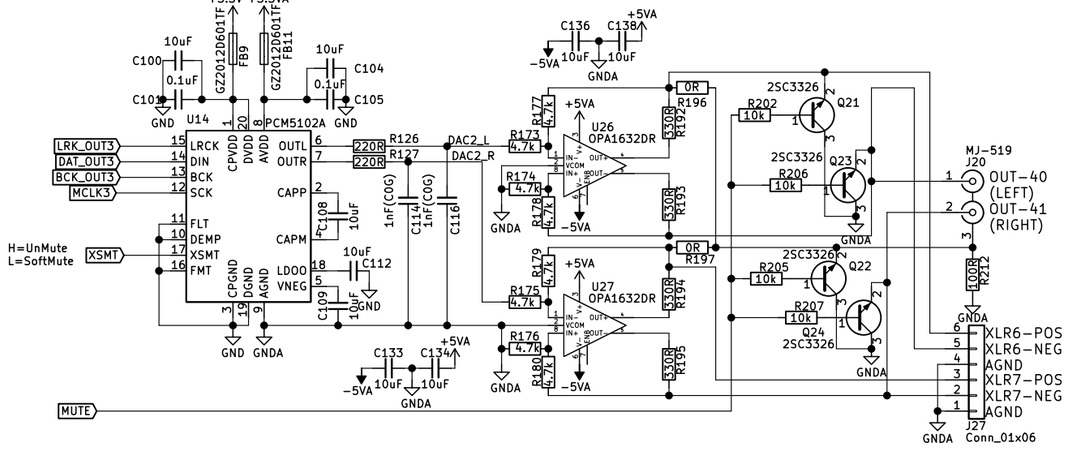
Title: FreeDSP OCTAVIA ADC/DSP Part

Size: A3	Date: 2023-05-13	**Rev: 0.25**
KiCad E.D.A. kicad (5.1.9-0-10_14)		Id: 2/3









FreeDSP OVTAVIA (basic version)

NOT POPULATE : U22, U23, R182, R189, R187, R191, R199, R201, R203, R209, Q26, R208, Q25, R204, R198, R200
CHANE (to Zero Ohm): R181, R188, R183, R190, R213
JUMPER(Between): J28 pin2–Pin3, pin5–pin6

AS WELL TO THE ANOTHER PART ...

FreeDSP OVTAVIA (Differential version)

NOT POPULATE: Q25, R208 (if you want)

AS WELL TO THE ANOTHER PART ...

FreeDSP OVTAVIA (Balanced version)

NOT POPULATE: J16, R213, R203

AS WELL TO THE ANOTHER PART ...

FreeDSP OVTAVIA (Extend S/N 6dB stereo version)

NOT POPULATE:
U26, U21, Q23, Q22, Q24, J20, J27, R202, R206, R205, R207, R212, R196, R197, R192, R193, R194, R195,
R177, R173, R174, R178, R175, R179, R176, R180, U22, Q25, Q27, R208, R210, R209, R210, R203, R198, R199, R188, R181, R189, R182

CHANGE:
(to 10k) R183, R184, R185, R186
(to MJ-518 or Butique Jacks) J16

AS WELL TO THE ANOTHER PART ...

Designed by CyberPit 2023

- ☐ **FreeDSP OVTAVIA (basic version)**
- ☒ **FreeDSP OVTAVIA (Differential version)**
- ☐ **FreeDSP OVTAVIA (Balanced version)**
- ☐ **FreeDSP OVTAVIA (Extend S/N 6dB version)**

Sheet: /ADC_IO Part/DAC/
File: DAC.sch

Title: FreeDSP OCTAVIA DAC part

Size: A3	Date: 2023-05-13	**Rev: 0.25**
KiCad E.D.A. kicad (5.1.9-0-10_14)		Id: 3/3