DC12V WALL ADOPTOR

for Reverse Voltage Protection

J2 DC12V-IN · DC-INPUT · GNDPWR
C1 0.1uF
FL1 ACM9070
C3 0.01uF
C4 1uF/16V
AO3401A Q7
GND

MAINS POWER SWITCH

SW2 SW_SPDT (ON / OFF) · GND

RAS-Pi POWER SWITCH

SW3 SW_SPDT (RUN / STOP) · GND
D2 1N4148W · +3.3VP · R2 10k
POWER · D1 1N4148W · RASPI_OFF
D4 1N4148W · R11 47R · R9 NOP
GPIO3(SCL1) · GPIO17(GEN0) · GPIO26

RAS-Pi RES/SHUT SWITCH

SW1 SW_Push · GND

Short Push = REBOOT
Long Push = ShutDown
Push again = Boot

IR Receiver

+3.3VP · R12 47R · C2 0.1uF · GND
U1 GP1UXC41QS (GND / VS / OUT)
R8 47R · R10 NOP · GPIO26 · GPIO25(GEN6)

Power ON/OFF Mute Driver

D9 SS2040FL · D10 SS2040FL · C12 220uF/16V · +3.3V
D8 1N4148W · R15 470K · R21 1MEG
Q4 MMBT5401 · Q2 MMBT5401
R20 100k · C8 22uF/16V · GND
R71 330R · XSMT · Q9 2N7002
R64 10k · C140 0.1uF · -5VA
MUTE
1.09V/4.8V · R34 10k

Power-OFF Delay Timing CR (40 Sec)

D6 1N4148W · R22 1MEG · C22 33uF/16V · GND
AO3401A Q1 · R5 100k

Shutdown Delay Driver

U6 LMC555CMX (GND / TR / Q / CV / R / VCC / DIS / THR)
D7 1N4148W · R23 100k · R19 1k · C45 0.1uF · C23 1uF/50V
Power-ON Delay Timing CR (.1 Sec)

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 1uF/16V · C9 0.1uF · C10 0.1uF
L2 22uH(2A) · D16 D_Schottky_5A
R7 1k · R13 5.6k · R14 5.24k · C17 0.1uF · C15 22uF/6.3V
DC+3.3V · +3.3V (DSP Power) 920mA max.

SMPS 12V -> 5V, 3A

U5 TPS5430DDA (VIN / BOOT / PH / VSENSE / EN / GND / GNDPAD)
C21 10uF/16V · C20 1uF/16V · C18 0.1uF · C41 0.1uF
L3 22uH(3A) · D14 D_Schottky_5A
R32 10k · R33 1k · R18 10k · R17 5.24k · C19 0.1uF · C43 22uF/6.3V
3A max. · +5V (Raspberry-Pi Power)

+12V -> -5VA

L4 22uH(2A) · L5 22uH(2A) · C118 1uF · C119 1uF
U8 LM2611AMFX (VIN / SW / SHDN / GND / NFB)
FB13 GZ2012D601TF · D20 D_Schottky_1A
R430 29.4K · R431 10K · C120 1000pF
C121 10uF/16V · C122 10uF/16V · C37 10uF/16V · C38 10uF/16V
-5VA · GNDA

+5VA (ADC/DAC Power)

AO3401A Q5 · FB2 GZ2012D601TF · 2N7002 Q6
R36 10k · R35 100k · C14 0.1uF
U3 AMS1117-5.0 · C7 0.1uF · C11 0.1uF · C13 220uF/6.3V

+3.3VA (ADC/DAC Power)

U7 AMS1117-3.3 · C40 0.1uF · C42 0.1uF · C44 1uF
GNDA

FTDI TTL-232R-3V3 USB-UART DEBUG Cable

J4 Header_01x06 · GND · CTS · GPIO15(RXD0) · GPIO14(TXD0) · RTS

I2C OEL DISPLAY (OPTIONAL)

M96-16-SSD1306, etc...
J8 Header_01x04 · GND · +3.3VP
R67 2.2k · R68 2.2k · RP_SDA · RP_SCL

Raspberry-Pi Slot

Conn_02x20_Odd_Even (P1)
+3.3VP · +5V · GND
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) · BCK_IN3 · GPIO23(GEN4) · GPIO24(GEN5) · GPIO25(GEN6) · GPIO8(SPI0_CE_N) · GPIO7(SPI1_CE_N) · ID_SC · GPIO12(PWM0) · GPIO16 · GPIO20(SPI1_MOSI) · DAT_IN3
R1 47R · R4 47R · R3 47R
Jumper_NO_Small JP3 · DSP_RES · R39 47R · R40 NOP
LRK_IN3

Amanero Combo384

A1 Combo384 (F3 3V3OUT / F2 3V3OUT / F1 GND / F0 DSD_ON / DSD128 MCLK / GND LRLK / GND BCLK / GND DATA / SDA SCL / MUTE PLUG)
D12 1N4148W · MCK_IN2 · LRK_IN2 · BCK_IN2 · DAT_IN2 · USB_MUTE
D13 1N4148W
VBUS · D19 LED_BLUE · R42 1k

Combo384 Slot

SOURCE SELECT SWITCH

LOOK-UP-TABLE

SOURCE	MIN AUXADC>>5	MAX
RAS-Pi	12	15
Amanero	9	11
S/PDIF	6	8
Analog	3	5
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 · Q14 2N7002 · USB_MUTE · R108 10k
+3.3V · R99 1k · R104 1k · R105 1k · R106 1k · R107 1k
S1B (COM_2 / NC_2 / NO_4 / NO_5 / NO_6)
R100 330R · R101 330R · R102 330R · R103 330R
+5V · J13 Conn_01x05 (ANODE / ANALOG / S/PDIF / USB / Raspberry-Pi)

LED SOURCE INIDICATOR

Power Status LED

+3.3V · R6 330R · D3 LED_ABGR
RED = SHOUTDOWN/MUTE
GRN = RASPI ENABLED
BLU = POWER ON
SHUT OFF · RASPI RUN · POWER ON
MUTE · Q3 2N7002 · Q8 2N7002 · +5V
R16 100k · R37 100k · GND

Mounting Holes

M2.5 · M2.5 · GND

amanero technologies

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: 2023-03-11	**Rev: 0.2**
KiCad E.D.A. kicad (5.1.9-0-10_14)		Id: 1/3

Sheet: DAC

File: DAC.sch

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

24bit ADC

IC2 PCM1808QPWRQ1

AUDIO INPUT

J5 Conn_Coaxial_x2

2.09Vrms max.

3.0Vpp max.
Zin=60kΩ

(Reference Level 0dB = 2Vr.m.s.)

Jumper_NO JP2

ADC_MCLK

I2S2_LRCK

I2S2_BCLK

I2S2_DIN

GZ2012D601TF FB1

U12 ADAU1452

GZ1608D601TF FB4

MJD45H11T4 Q12

SDFL2012T220KTF L1 22uH

958RX

958TX

DSP_MP6

DSP_MP7

Temperature Diode

Master SPI/I2C

Slave SPI/I2C

Ext. I2S INPUT

J3 Conn_01x08

Optical RX

(192k max.)

U2 AUDIO-O OPT-INPUT PLR135-T10

Optical TX

U4 PLT133-T10W

J11 Conn_Coaxial

T1 PE-65612NL

Y1 24.576MHz TCXO OT322524.576MJBA4S

Jumper_NO JP1

DSP-RESET

MASTER VOLUME

RV1 B10K

AUX VOL HEADER

J1 Conn_01x08

RV2 B10K

RV3 B10K

RV4 B10K

RV5 B10K

DSP RESET BUTTON

SW7 DSP_RES

Signal LED

(-20dB)

D17 LED_GRN

CLIP LED

(-1dB)

D18 LED_RED

SW4 SW_NOP_DPDT

CONFIG EEPROM

U13 25LC_1024

J6 8P_DIP_SOCKET

NOTE:
Remove U13 when use the J6 DIP package EEPROMs.

OPTIONAL SOCKET

USBi

J12 IDC_2x5

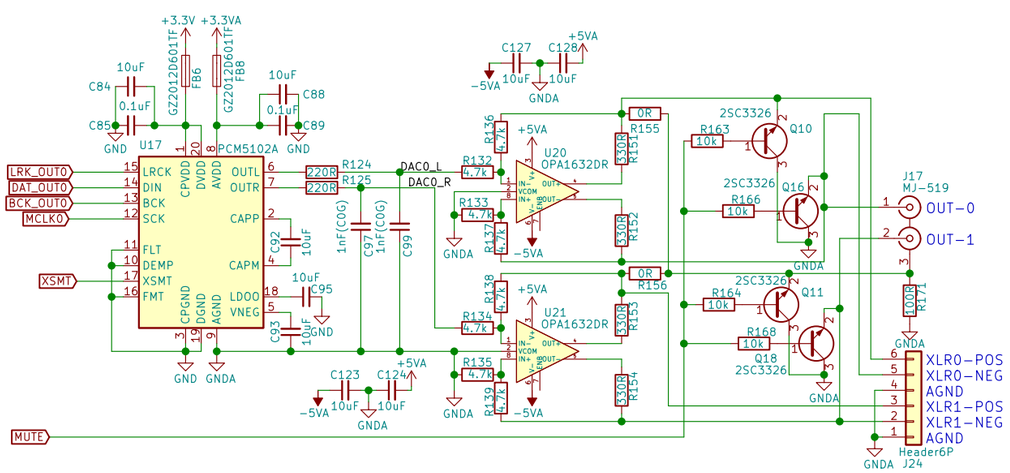
D15 LED_YELLOW

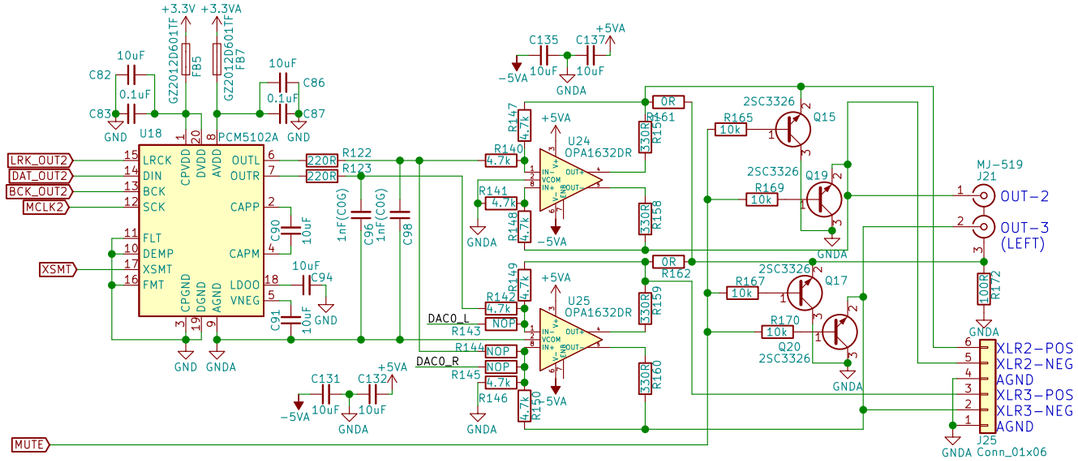
Designed by CyberPit 2023

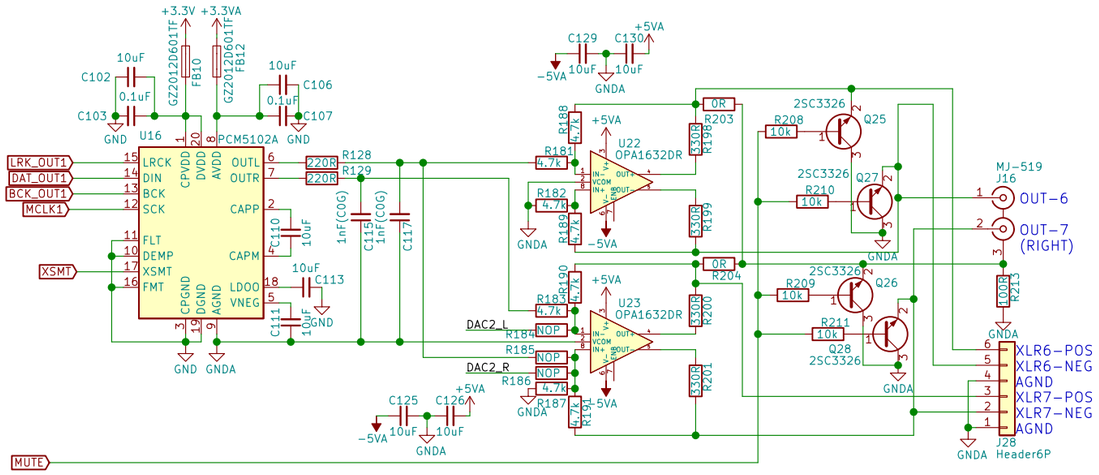
Sheet: /ADC_IO Part/
File: ADC_IO.sch

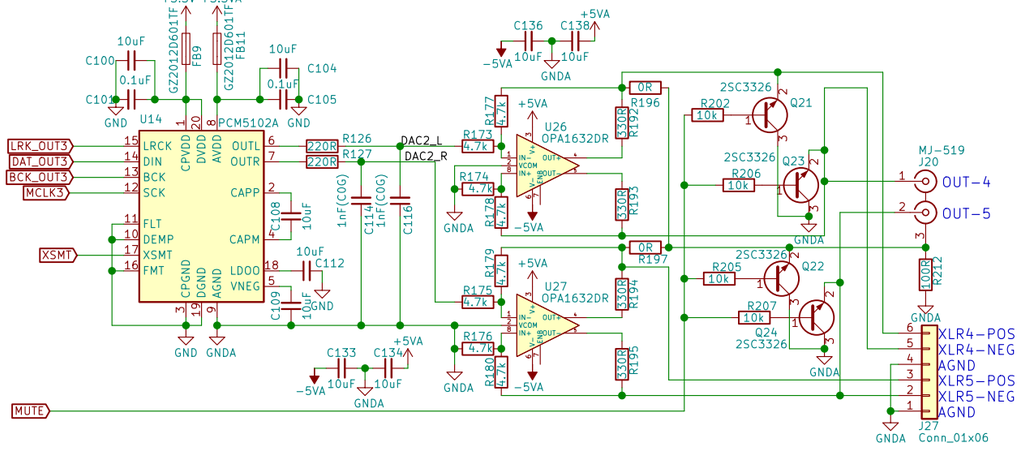
Title: FreeDSP OCTAVIA ADC/DSP Part

Size: A3	Date: 2023-03-11	Rev: 0.2
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: 2023-03-11	Rev: 0.2
KiCad E.D.A. kicad (5.1.9-0-10_14)		Id: 3/3