

Sheet: VeraModule

VERA FPGA

File: vera-fpga.sch

Sheet: BusDecoder

BUS DECODER

File: busdecoder.sch

Sheet: Vera FPGA flash

VERA SPI FLASH
SD CARD INTERFACE

File: vera-fpga-flash.sch

Sheet: CartridgeInterface

CARTRIDGE INTERFACE

File: cartridgeInterface.sch

Sheet: PowerSupply

POWER SUPPLY

File: powersupply.sch

Sheet: VGA Analog

File: vga-analog.sch

FIDUCIAL TOP

FID3
Fiducial

FID4
Fiducial

FIDUCIAL BOTTOM

FID2
Fiducial

FID1
Fiducial

LOG01
VERA X16 LOGO

LOG02
ATARI READY

LOG03
KICAD DESIGN

LOG04
ATARI DUO BUS

LOG05
ESP32_BOBOARD

LBL1

Gianluca Renzi

RetroBit Lab

Sheet: /

File: VERA-MODULE-RBL.sch

Title: VERA FPGA Audio & Video Board

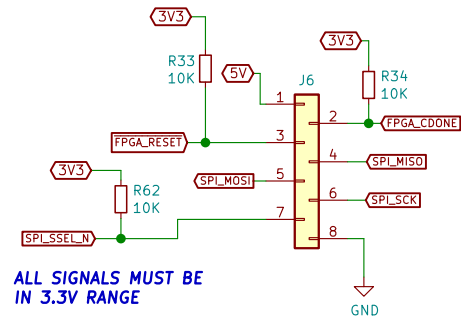
Size: A4

Date: 2025-09-30

KiCad E.D.A. kicad 5.1.9+dfsg1-1+deb11u1

Rev: 1.0

Id: 1/7

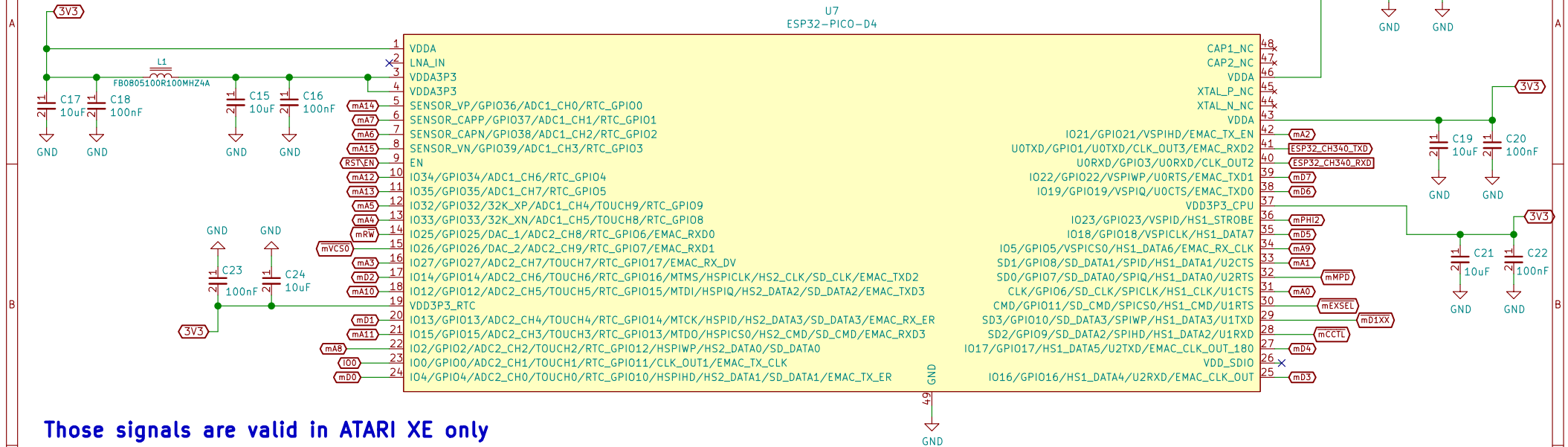
[illegible]

ALL SIGNALS MUST BE
IN 3.3V RANGE

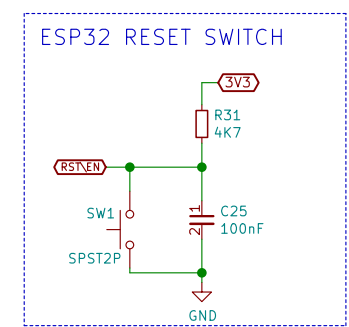
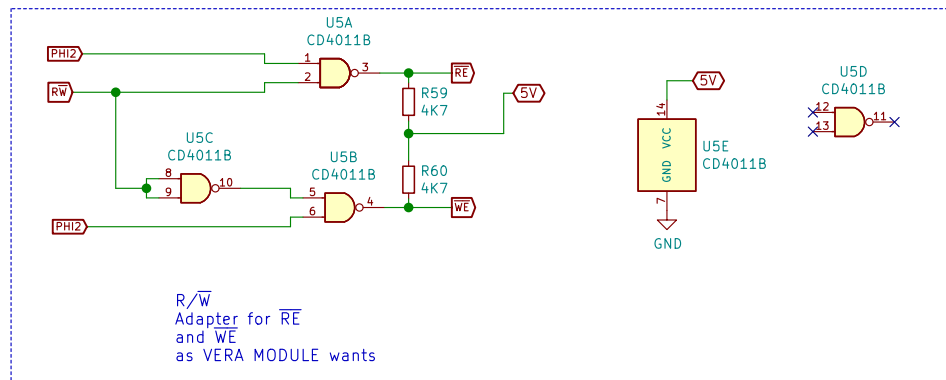
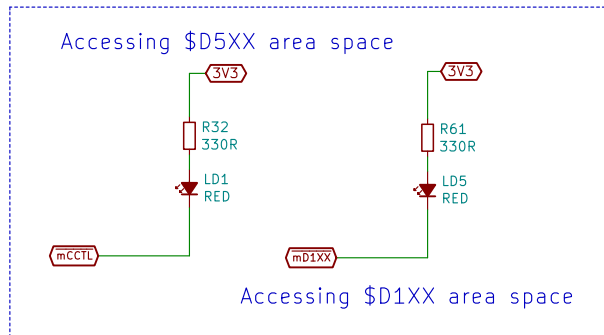
Id: 2/7

PBI Bus Interface Decoder: \$D1XX, \$D1FF, MPD, \$D8XX-\$DFXX, EX(T)SEL

PBI DEVICE ID: software selectable only



Those signals are valid in ATARI XE only



Internal Memory Setup:
The range must be defined in software
EXSEL

In PBI Atari XL there is EXTENB signal output and EXTSEL signal input
In PBI Atari XE there is only the EXSEL signal output

mVCS0 active & A15..A0 \$D8XX-\$DFXX -> MPD active (Internal 2K ROM)

\$D1FF access & DATABUS = PBI DEVICE ID -> mVCS0 active/deactive

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Sheet: /BusDecoder/
File: busdecoder.sch

Title: BUS DECODER

Size: A4 Date: 2025-09-30

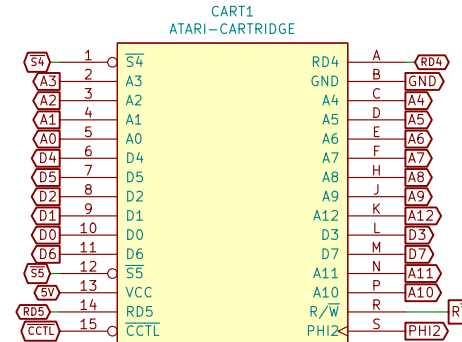
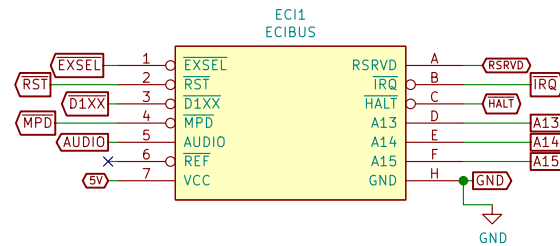
KiCad E.D.A. kicad 5.1.9+dfsg1-1+deb11u1

Rev: 1.0

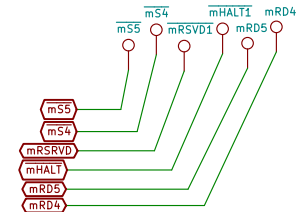
Id: 3/7

ATARI 130XE ECI & CARTRIDGE INTERFACE

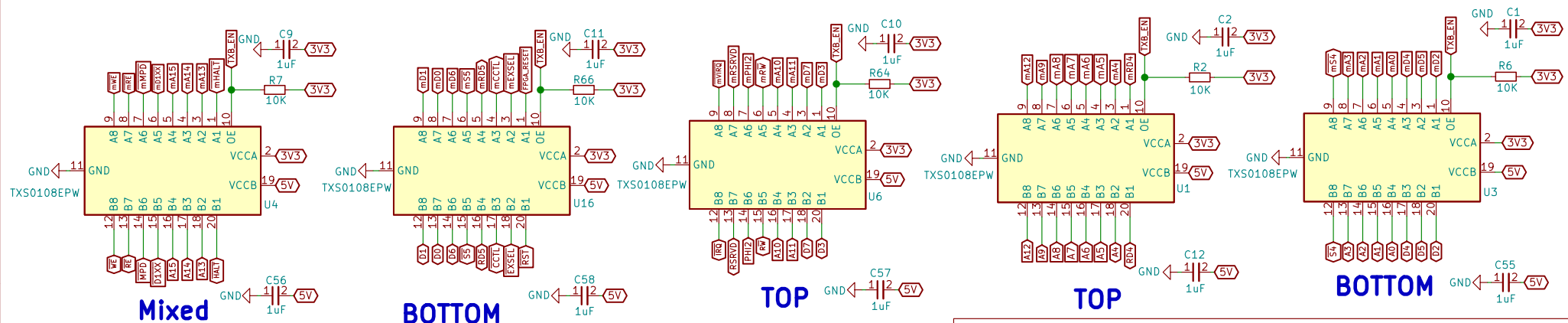
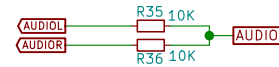
All 8-Bit signals must be shifted from 5V to 3.3V and vice versa



UNCONNECTED IN THIS PROJECT



AUDIO MIXER INSIDE ATARI



BUS LOGIC LEVEL SHIFTERS

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Sheet: /CartridgeInterface/

File: cartridgeInterface.sch

Title: CARTRIDGE INTERFACE AND BUS LEVEL SHIFTERS

Size: A4

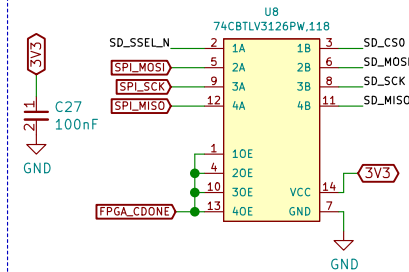
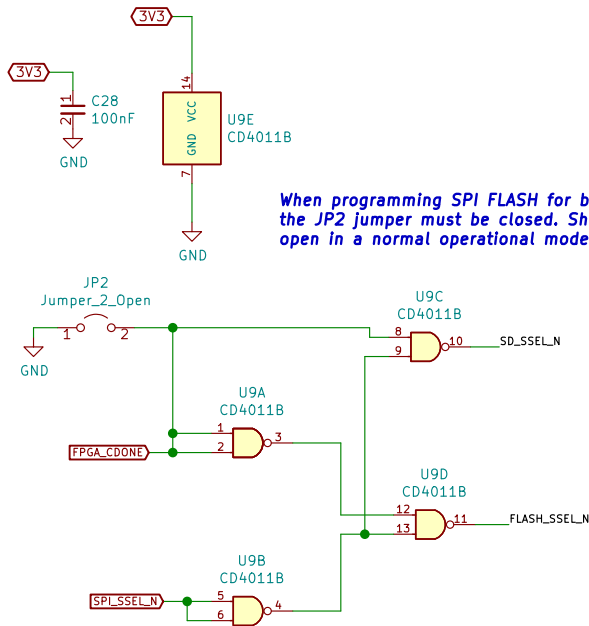
Date: 2025-09-30

Rev: 1.0

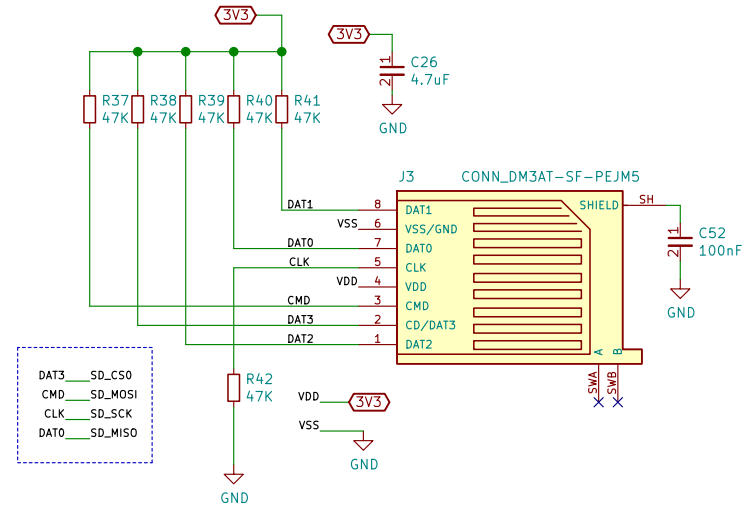
KiCad E.D.A. kicad 5.1.9+dfsg1-1+deb11u1

Id: 4/7

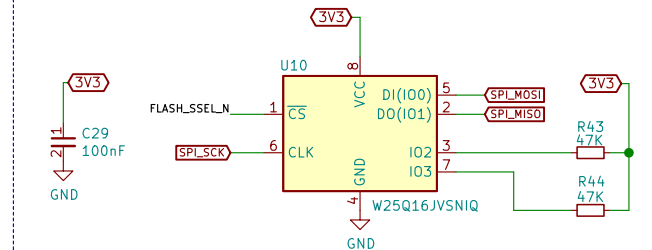
FPGA/SSD Flash Glue Logic



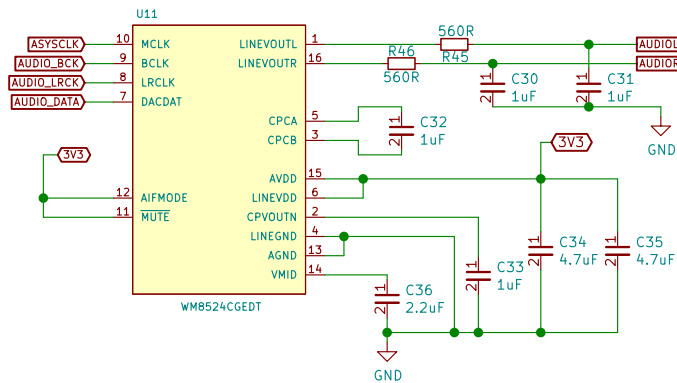
SD/microSD INTERFACE



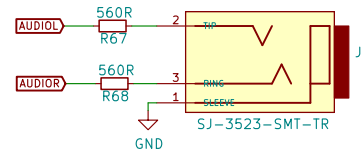
SPI 16MB FLASH



IC DAC/AUDIO 24BIT 192K 16TSSOP



AUDIO 3.5mm OUTPUT



AUDIO SECTION

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Sheet: /Vera FPGA flash/

File: vera-fpga-flash.sch

Title: uSD Card, FPGA FLASH and AUDIO SECTION

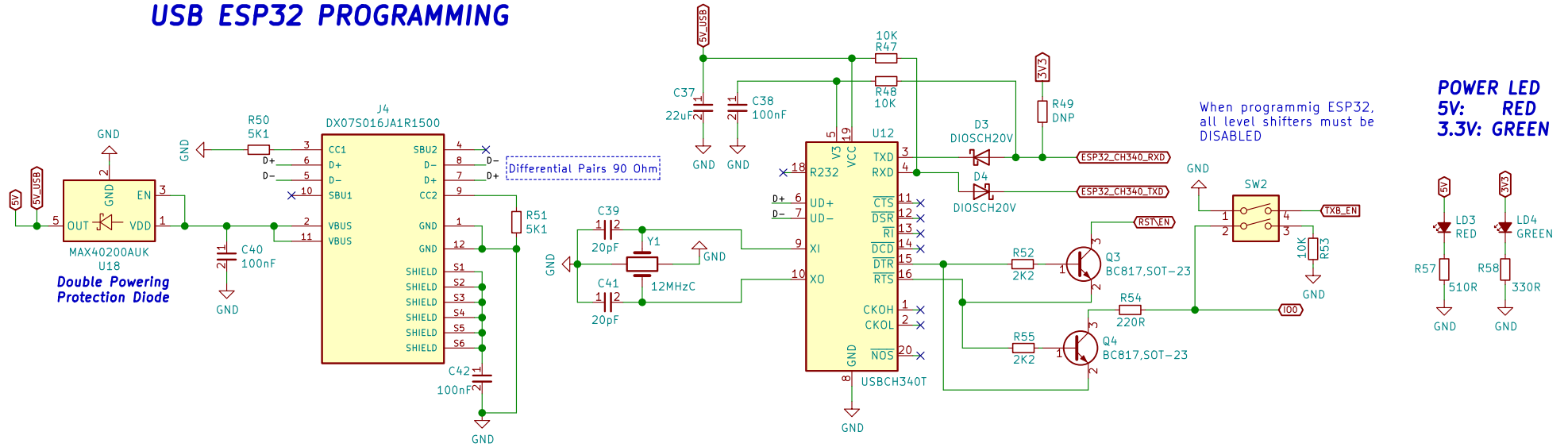
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KiCad E.D.A. kicad 5.1.9+dfsg1-1+deb11u1

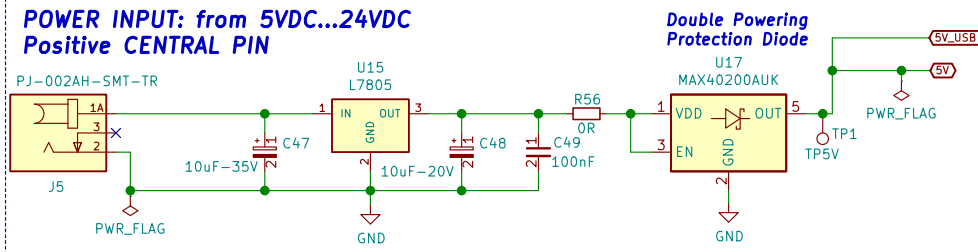
Rev: 1.0

Id: 5/7

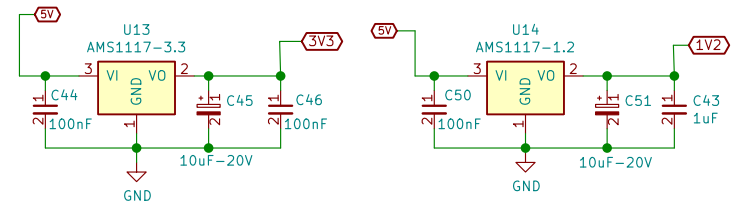
USB ESP32 PROGRAMMING



POWER INPUT: from 5VDC...24VDC
Positive CENTRAL PIN



POWER 3.3V & POWER 1.2V



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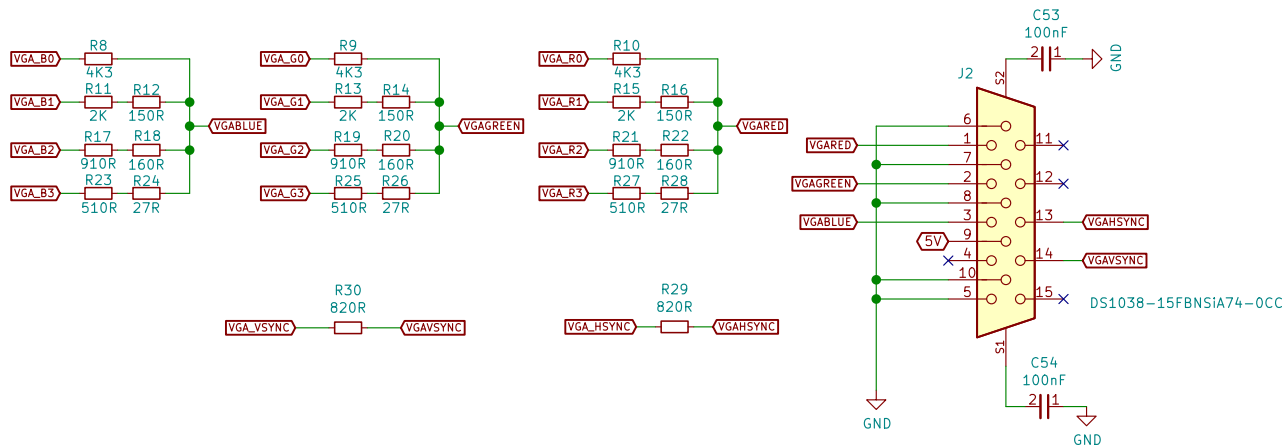
Sheet: /PowerSupply/
File: powersupply.sch

Title: POWERSUPPLY and USB

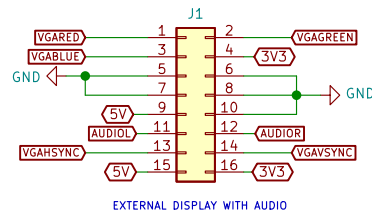
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KiCad E.D.A. kicad 5.1.9+dfsg1-1+deb11u1	

Rev: 1.0
Id: 6/7

ANALOG VGA SIGNALS



EXTERNAL VIDEO CONNECTOR



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Sheet: /VGA Analog/

File: vga-analog.sch

Title: VGA ANALOG AND EXTERNAL VIDEO CONNECTOR

Size: A4

Date: 2025-09-30

Rev: 1.0

KiCad E.D.A. kicad 5.1.9+dfsg1-1+deb11u1

Id: 7/7