

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

FIDUCIAL TOP



FIDUCIAL BOTTOM



LOGO1  
VERA X16 LOGO

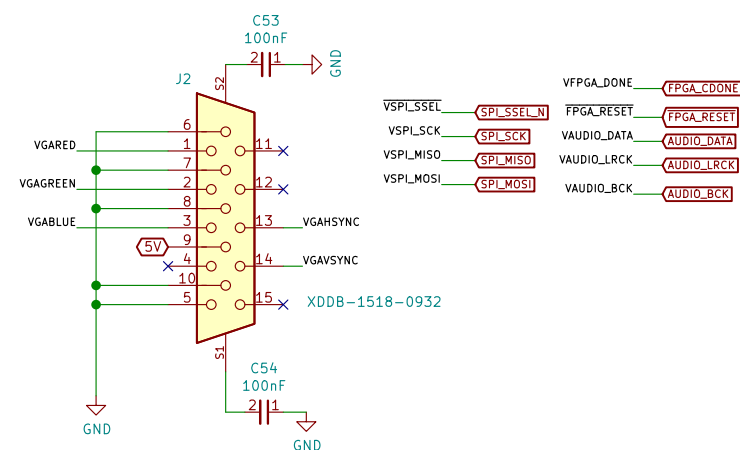
Gianluca Renzi  
**RetroBit Lab**

Sheet: /  
File: VERA-MODULE-RBL.sch

**Title: VERA FPGA Audio & Video Board**

Size: A4	Date: 2025-09-09	Rev: 1.0
KiCad E.D.A. kicad 5.1.9+dfsg1-1+deb11u1		Id: 1/6

EXTERNAL DISPLAY WITH AUDIO



VFPGA\_DONE

MOSFET-BSS138-SOT-23

Q1

R1 2K7

LD2 GREEN

3V5

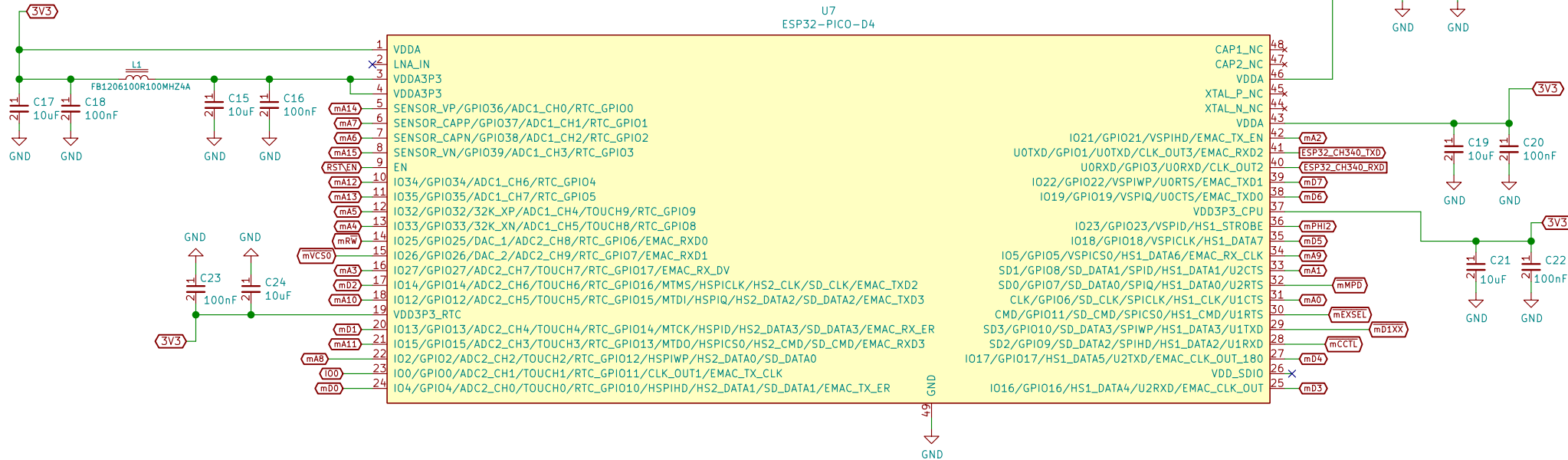
"VERA READY" Internal LED

GND

Rev: 1.0
Id: 2/6

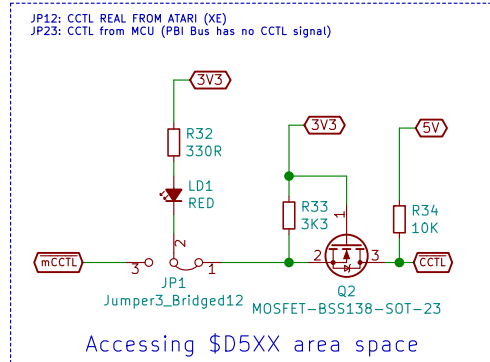
PBI Bus Interface Decoder:  
\$D1XX, \$D1FF, MPD, \$D8XX-\$DFXX, EX(T)SEL

PBI DEVICE ID: software selectable only

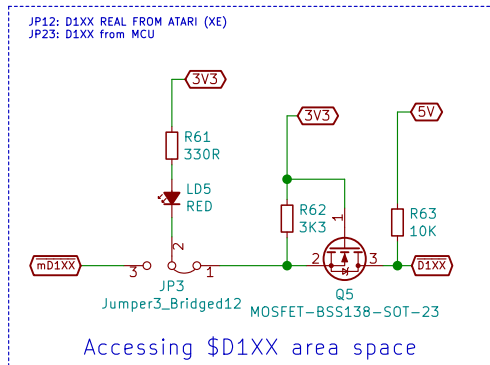


mVCS0 active & A15..A0 \$D8XX-\$DFXX -> MPD active (Internal 2K ROM)

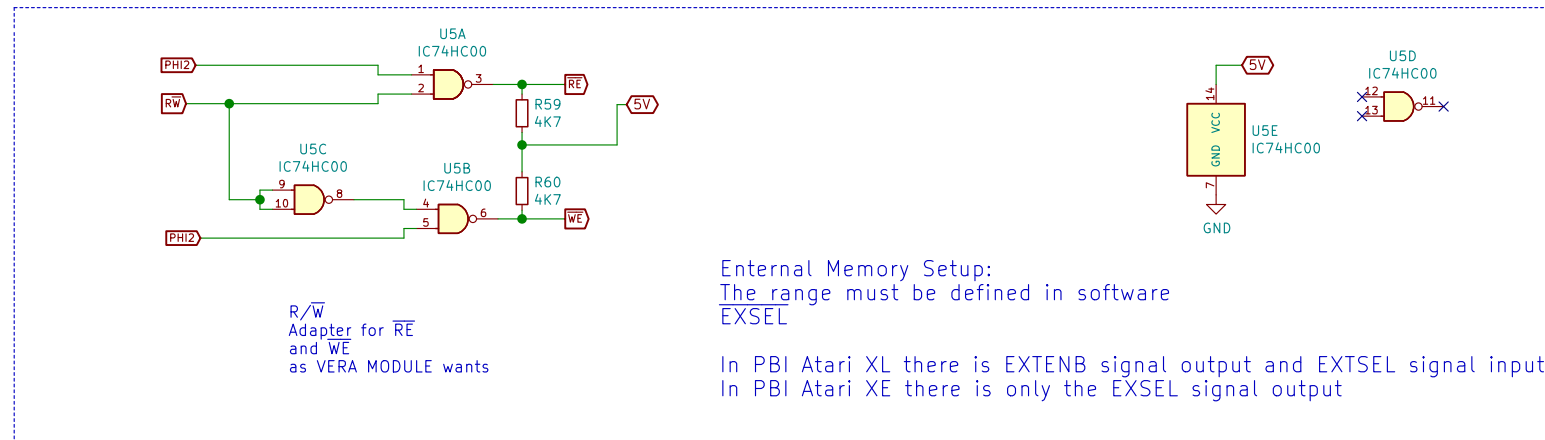
\$D1FF access & DATABUS = PBI DEVICE ID -> mVCS0 active/deactive



Accessing \$D5XX area space



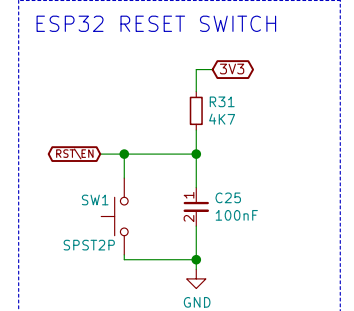
Accessing \$D1XX area space



R/W  
Adapter for RE  
and WE  
as VERA MODULE wants

External 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



Gianluca Renzi

RetroBit Lab

Sheet: /BusDecoder/

File: busdecoder.sch

Title: BUS DECODER

Size: A3

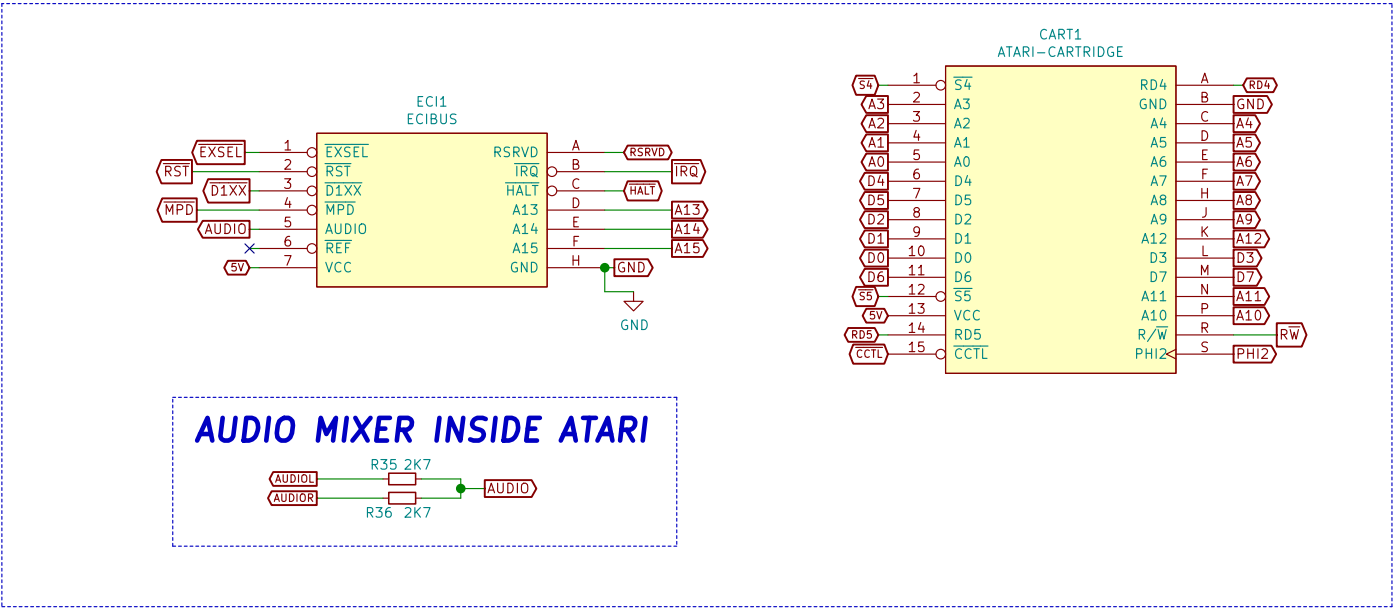
Date: 2025-09-09

Rev: 1.0

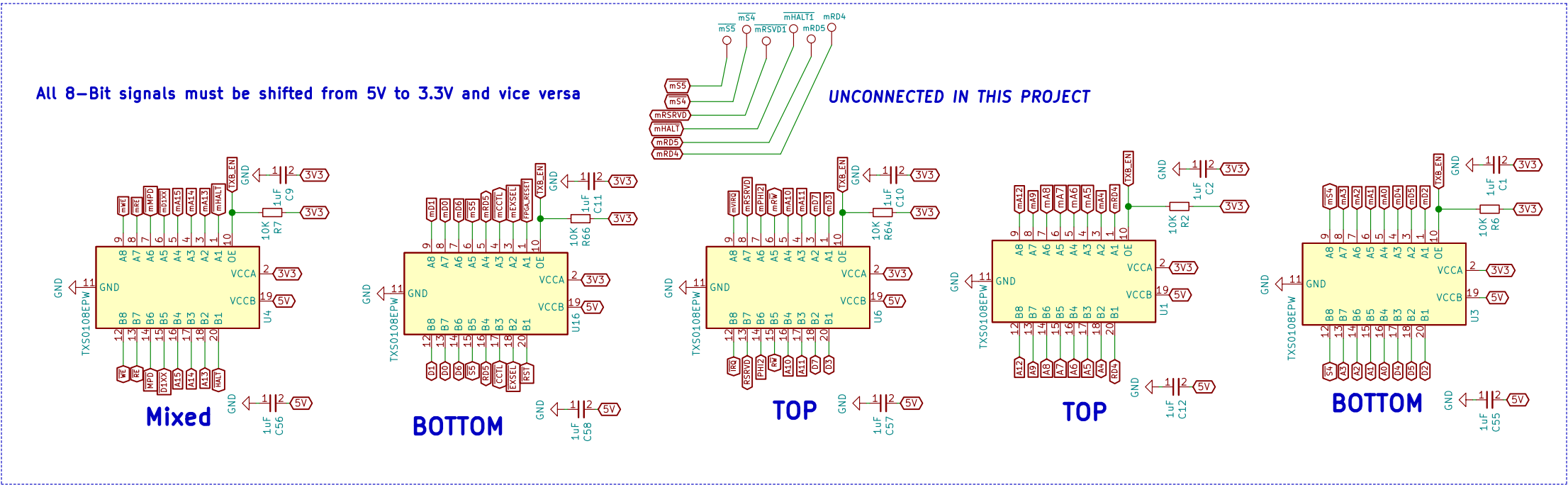
KiCad E.D.A. kicad 5.1.9+dfsg1-1+deb11u1

Id: 3/6

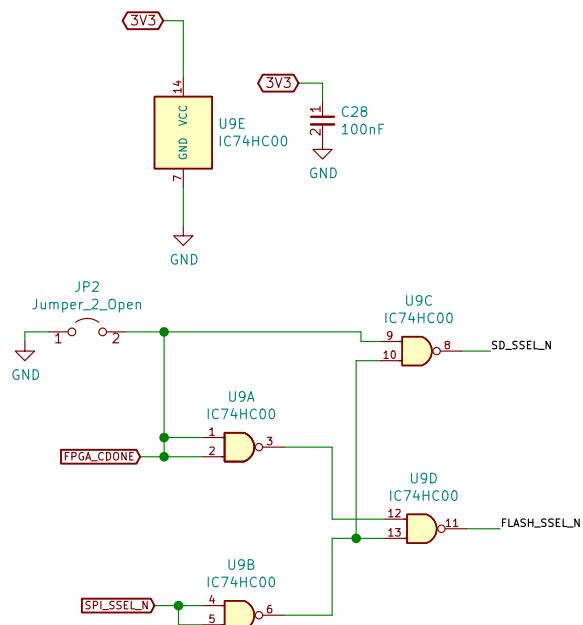
# ATARI 130XE ECI & CARTRIDGE INTERFACE



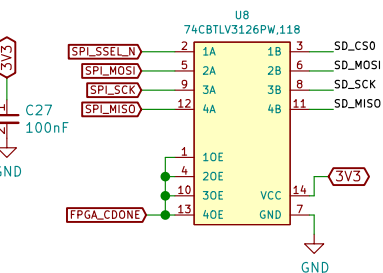
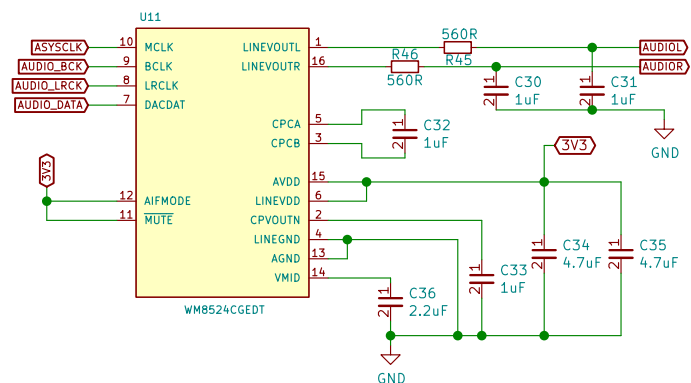
## BUS LOGIC LEVEL SHIFTERS



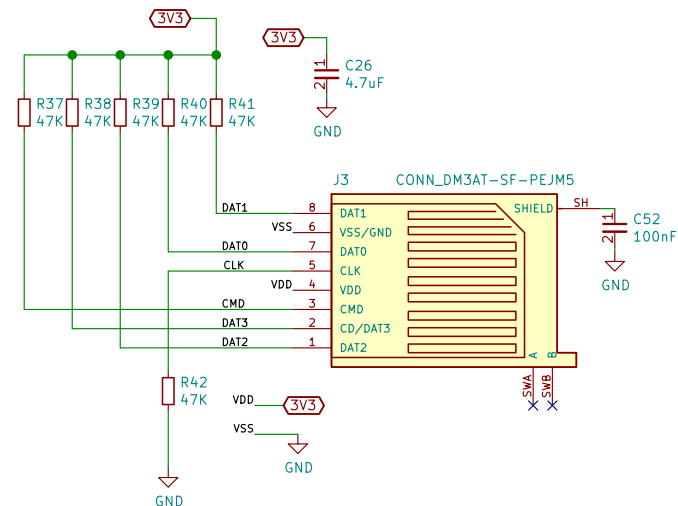
## FPGA/SSD Flash Glue Logic



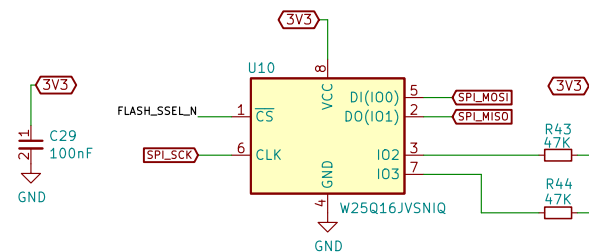
## IC DAC/AUDIO 24BIT 192K 16TSSOP



## SD/microSD INTERFACE



## SPI 16MB FLASH



Gianluca Renzi

**RetroBit Lab**

Sheet: /Vera FPGA flash/

File: vera-fpga-flash.sch

**Title: uSD Card and FLASH for FPGA**

Size: A4 Date: 2025-09-09

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

**Rev: 1.0**

Id: 5/6

[illegible]

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

PJ-002AH-SMT-TR

U15  
L7805

U17  
MAX40200AUK

Double Powering Protection Diode

5V\_USB

5V

TP5V

The diagram illustrates a power input circuit for a device. It starts with a 5VDC...24VDC source connected to a 1A SMD fuse (PJ-002AH-SMT-TR). The circuit then passes through a 10uF-35V capacitor (C47) and a 10uF-20V capacitor (C48) to a 100nF capacitor (C49). The voltage is regulated by an L7805 (U15) and a MAX40200AUK (U17) double powering protection diode. The output is connected to a 5V\_USB and 5V pin, and a TP5V test point is shown.

**POWER LED**  
**5V: RED**  
**3.3V: GREEN**

The diagram illustrates the connection of two power LEDs. The first LED, LD3 (RED), is connected to a 5V supply through a resistor R57 (510R). The second LED, LD4 (GREEN), is connected to a 3.3V supply through a resistor R58 (330R). Both LEDs have their cathodes connected to ground (GND).

### POWER 3.3V & POWER 2.5V

The diagram shows two voltage regulator circuits. The first circuit, labeled 'POWER 3.3V', uses an AMS1117-3.3 regulator (U13) to convert a 5V input to a 3.3V output. The second circuit, labeled 'POWER 2.5V', uses an AMS1117-1.5 regulator (U14) to convert a 5V input to a 2.5V output. Both regulators are powered by a 5V source and have a 100nF input capacitor (C44 and C50) and a 100nF output capacitor (C46 and C43). A 10uF-20V electrolytic capacitor (C45 and C51) is connected between the input and output of each regulator. The output of the 2.5V regulator is connected to the input of the 3.3V regulator.

Rev: 1.0  
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