Z80 Retro! – ESP32 Interface and Programmer Board with WiFi

Z80 Retro Interface
File: Z80Interface_sch.kicad_sch

SPI<–>Z80 Bus
File: SPItoZ80Bus.kicad_sch

RS232
File: RS232.kicad_sch

ESP32
File: ESP32.kicad_sch

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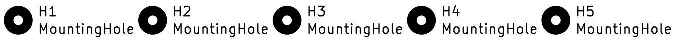
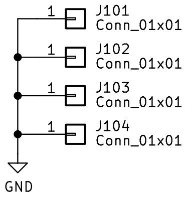
PAGE 5 : ESP32 PROGRAMMER & WIFI ACCESS

MOUNTING HOLES

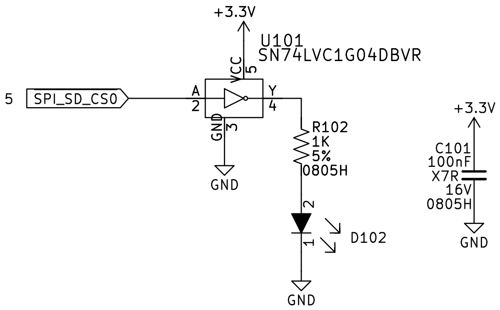
- 4 required for tooling
- 4 required for mechanical
- 1 extra if board connects directly above Z80–Retro main



PROBE GND PINS



MICRO SD CARD ACTIVITY



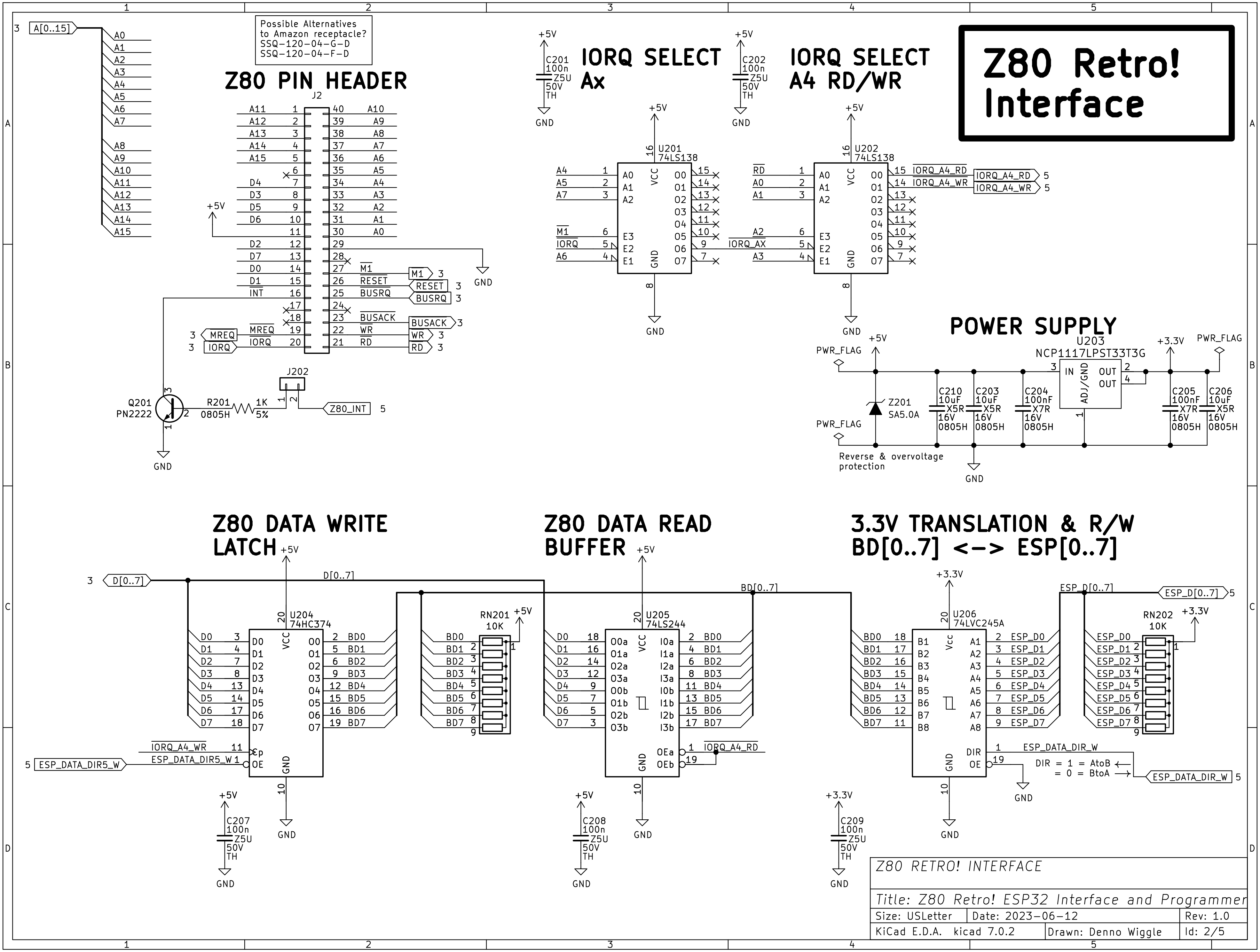
PCB STACKUP NOTE

Use JLC04161H–3313 stackup to give :
* Lower trace impedance (~50ohms).
* GND plane closer to signal layer routing for improved signal integrity.

LOGO11 LOGO10

Z80 Retro! – ESP32–S3 Interface and Programmer With WiFi

Title: Z80 Retro! ESP32 Interface and Programmer		
Size: USLetter	Date: 2023–06–12	Rev: 1.0
KiCad E.D.A. kicad 7.0.2	Drawn: Denno Wiggle	Id: 1/5



Z80 RETRO! INTERFACE

Title: Z80 Retro! ESP32 Interface and Programmer

Size: USLetter	Date: 2023-06-12	Rev: 1.0
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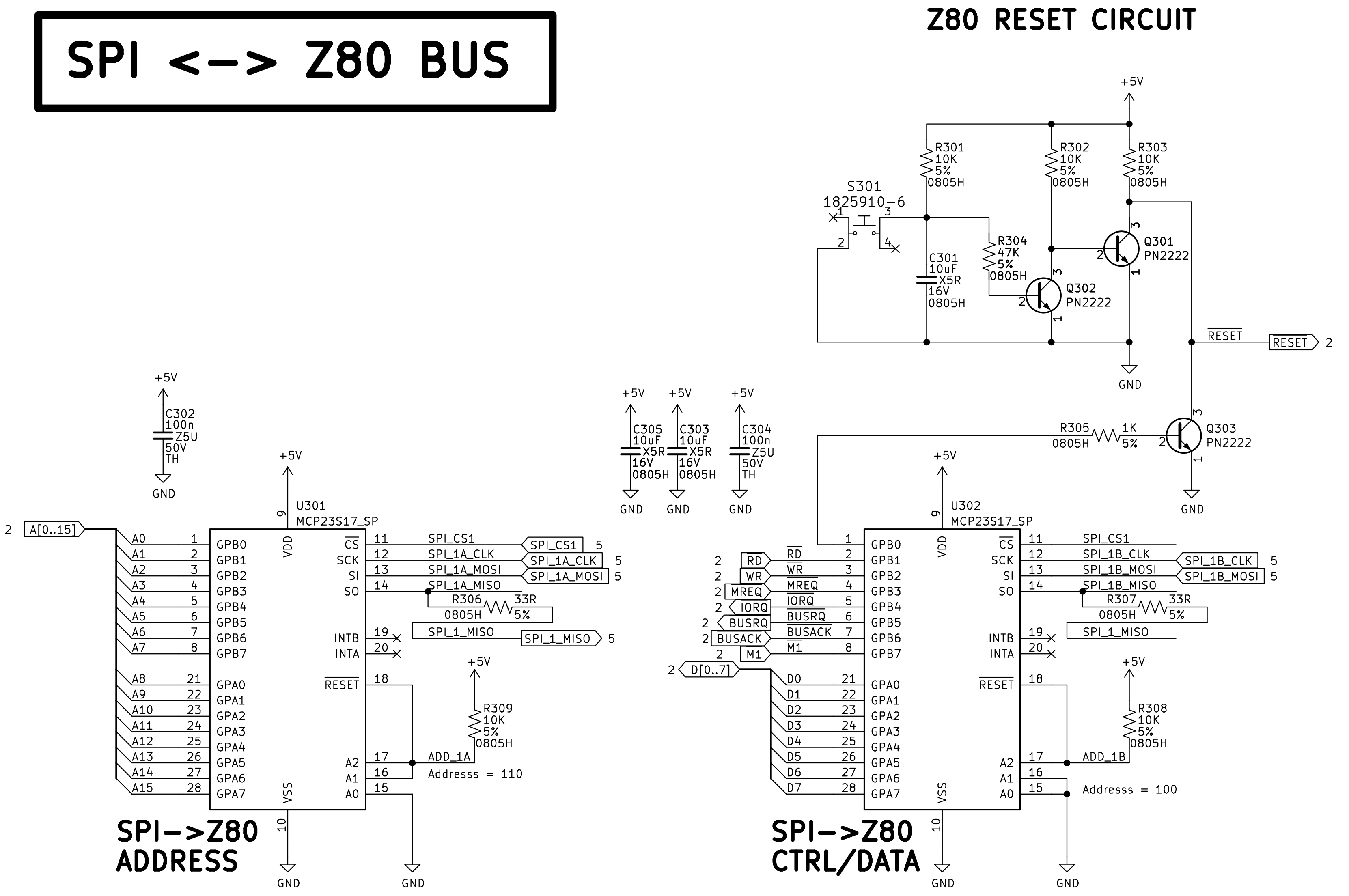
SPI <-> Z80 BUS



SPI <-> Z80 ADDRESS, DATA, CONTROL EXPANSION

Title: Z80 Retro! ESP32 Interface and Programmer

Size: USLetter | Date: 2023-06-12 | Rev: 1.0

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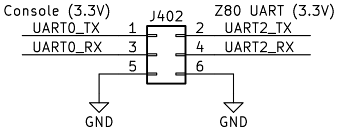
RS232

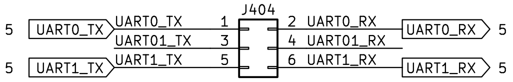
TTL RS232 HEADER



A place to add connection to external TTL level RS232 modules.

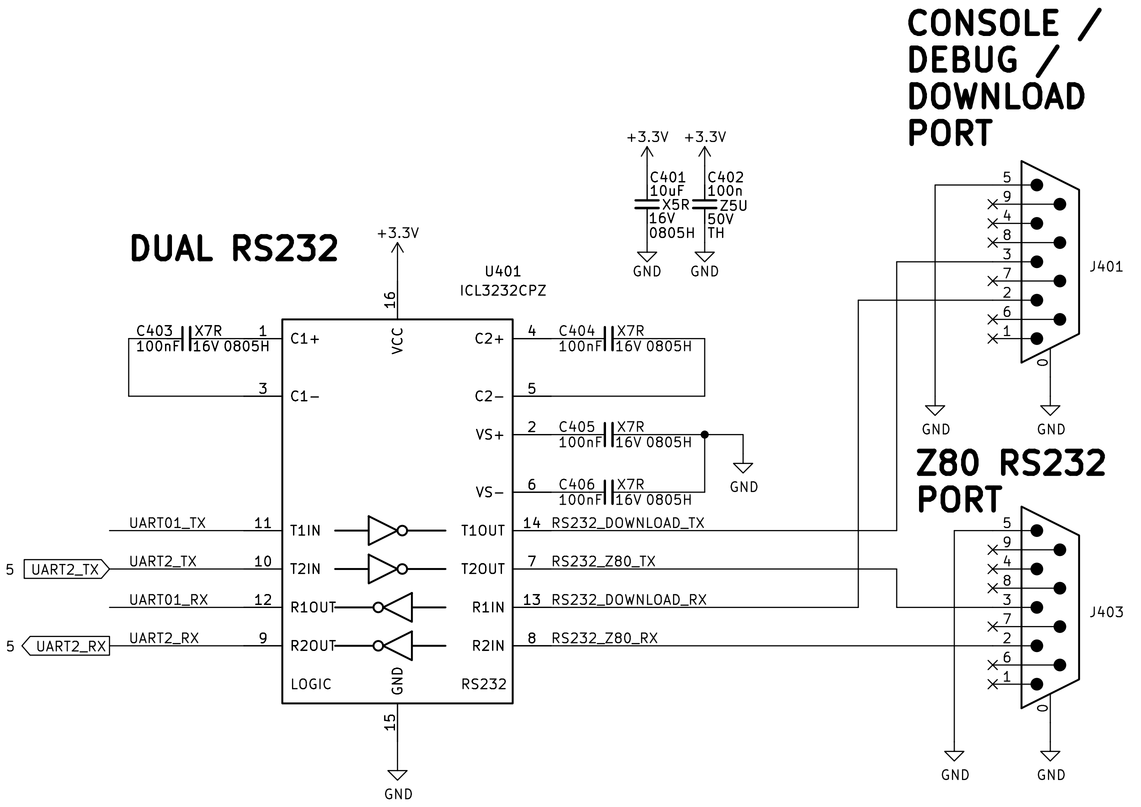
Do not connect UART0_RX to a TX source as the ESP32 USB-Serial IC is driving this signal.

J401 TTL RS232 DB9 SELECTOR



J401 RS232 Output Options
To select ESP32 Console add jumpers
3-5, 4-6 (Uart 1 selected)
To select ESP32 Debug messages add jumper
1-3 (Uart 0 selected)
Default jumper settings = Console
3-5, 4-6 (Uart 1)

ESP32 Console / Download option on uart 1 set in SW.



RS232 EXTERNAL INTERFACES		
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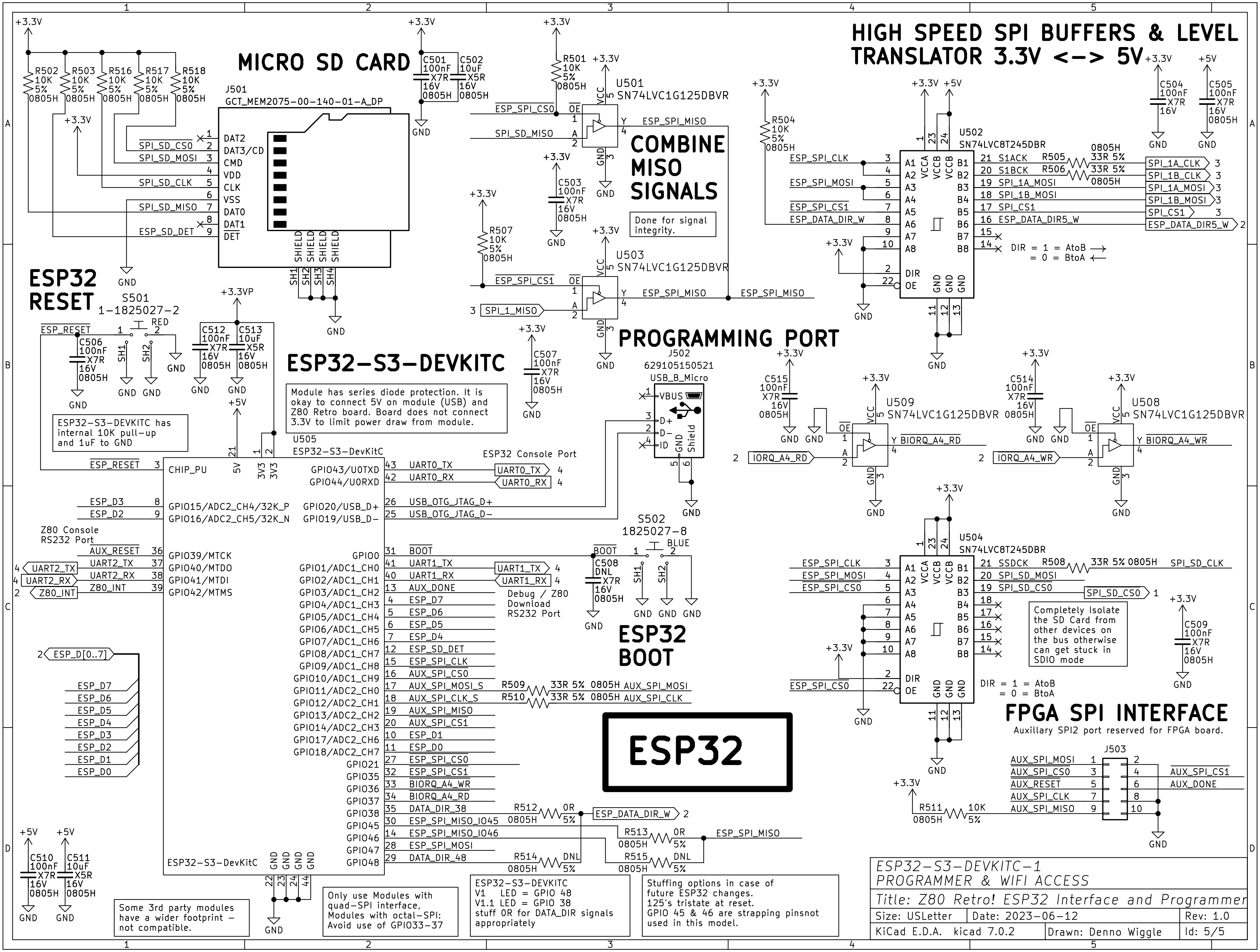

MICRO SD CARD

COMBINE MISO SIGNALS

Done for signal integrity.

ESP32-S3-DEVKITC has internal 10K pull-up and 1uF to GND

Module has series diode protection. It is okay to connect 5V on module (USB) and Z80 Retro board. Board does not connect 3.3V to limit power draw from module.

Completely Isolate the SD Card from other devices on the bus otherwise can get stuck in SDIO mode

Some 3rd party modules have a wider footprint - not compatible.

Only use Modules with quad-SPI interface, Modules with octal-SPI: Avoid use of GPIO33-37

ESP32-S3-DEVKITC
V1 LED = GPIO 48
V1.1 LED = GPIO 38
stuff 0R for DATA_DIR signals appropriately

Stuffing options in case of future ESP32 changes.
125's tristate at reset.
GPIO 45 & 46 are strapping pinsnot used in this model.

ESP32-S3-DEVKITC-1
PROGRAMMER & WIFI ACCESS

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