RP2350 CPU

File: PICO6502-RP2350B_v23b.kicad_sch

ESP32

File: PICO6502-ESP32_v23b.kicad_sch

6502 Interface

File: PICO6502-6502_Interface_v23b.kicad_sch

USB Hub

File: PICO6502-USBHUB_v23b.kicad_sch

Power Supply

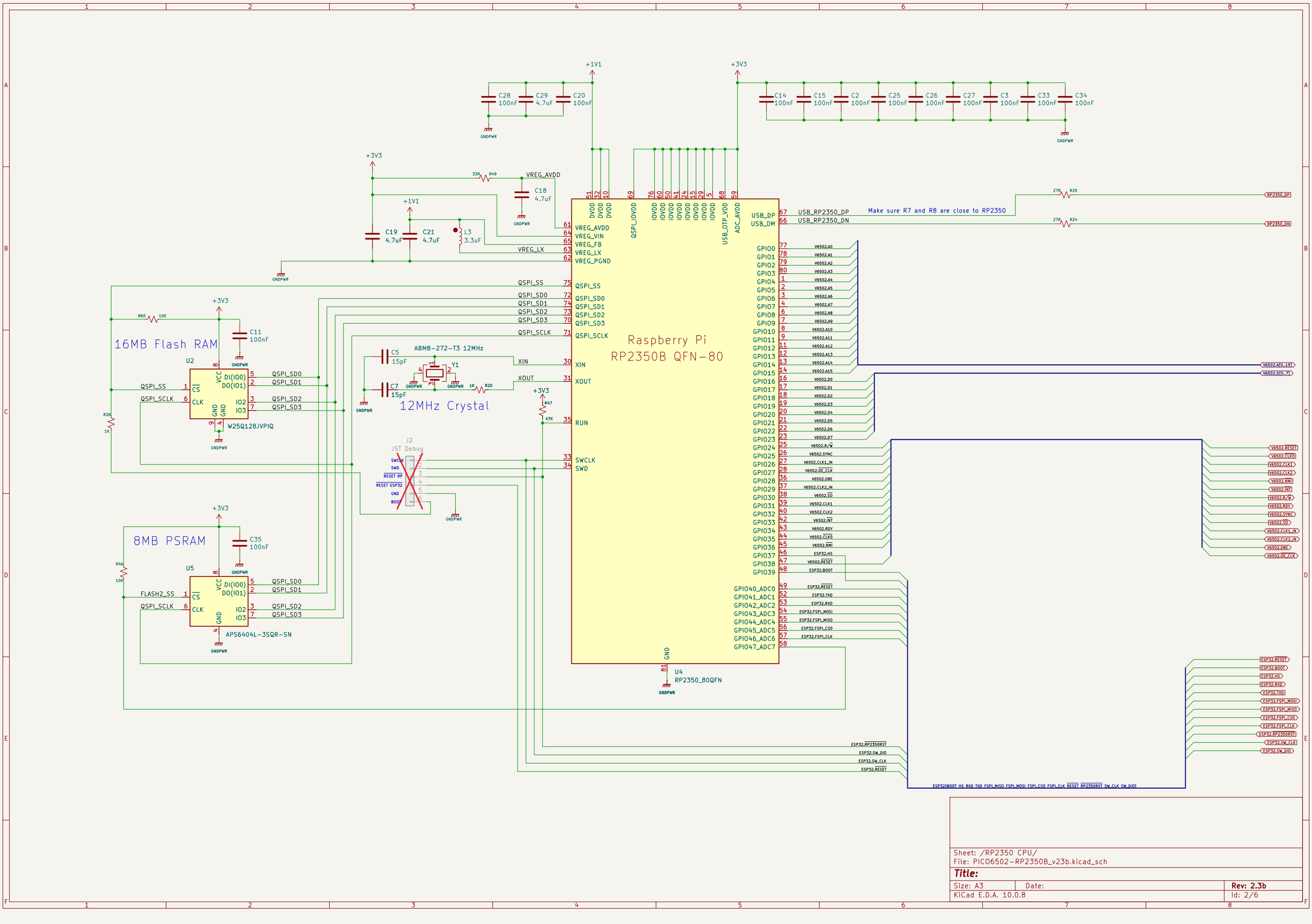
File: PICO6502-PowerSupply_v23b.kicad_sch

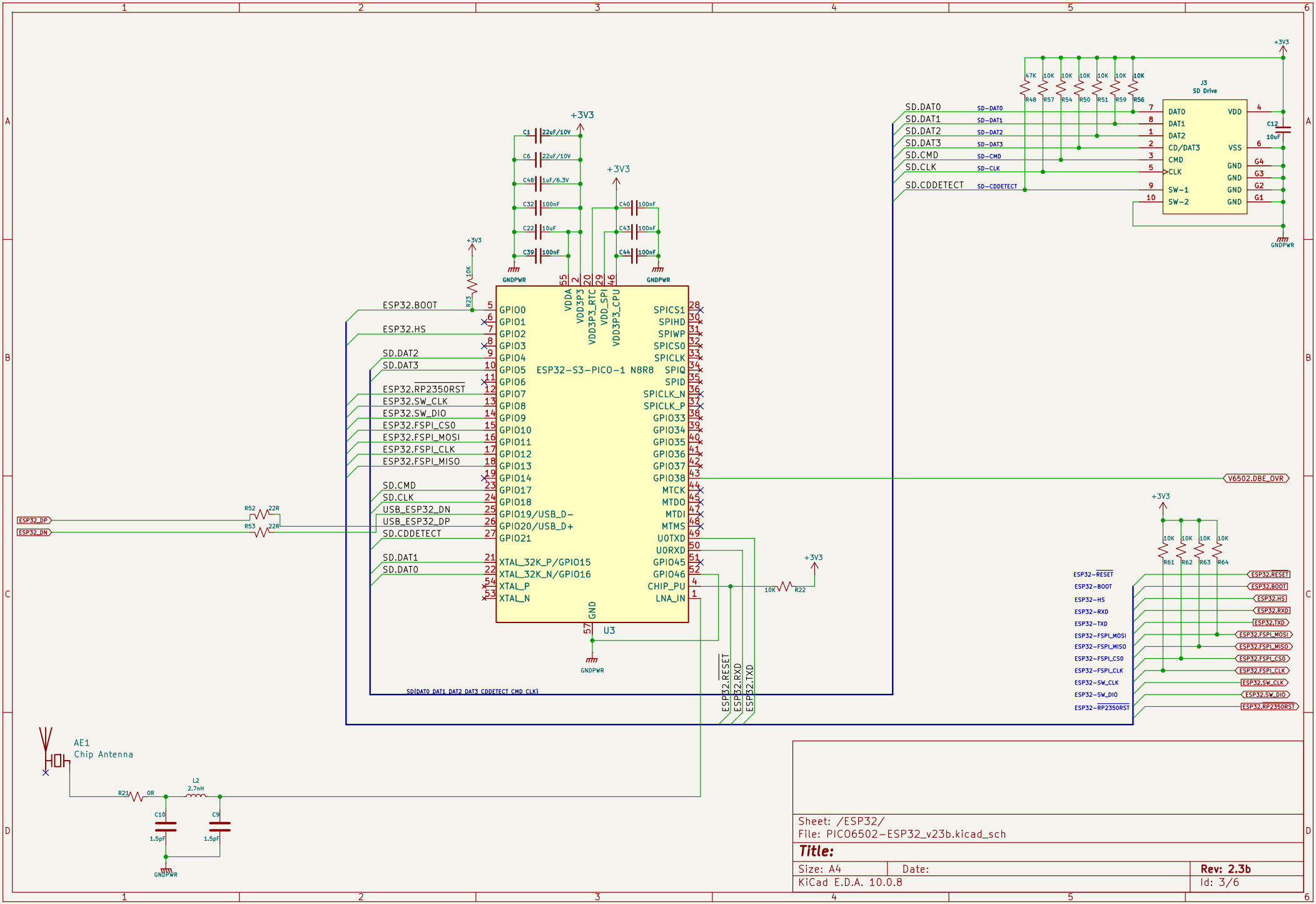
A 6502 replacement using a Raspberry Pi RP2350 MCU.

Sheet: /
File: PICO6502_v23b.kicad_sch

Title: PICO6502

Size: A4	Date: 2023-08-28	**Rev: 2.3b**
KiCad E.D.A. 10.0.8		Id: 1/6


+1V1
+3V3
C28 100nF
C29 4.7uF
C20 100nF
C14 100nF
C15 100nF
C2 100nF
C25 100nF
C26 100nF
C27 100nF
C3 100nF
C33 100nF
C34 100nF
GNDPWR
R49 33Ω
VREG_AVDD
C18 4.7uF
C19 4.7uF
C21 4.7uF
L3 3.3uF
VREG_LX
DVDD
QSPI_IOVDD
IOVDD
USB_OTP_VDD
ADC_AVDD
VREG_AVDD
VREG_VIN
VREG_FB
VREG_LX
VREG_PGND
USB_DP
USB_DM
USB_RP2350_DP
USB_RP2350_DN
Make sure R7 and R8 are close to RP2350
R25 27Ω
R24 27Ω
RP2350_DP
RP2350_DN
QSPI_SS
QSPI_SD0
QSPI_SD1
QSPI_SD2
QSPI_SD3
QSPI_SCLK
16MB Flash RAM
R60 10K
C11 100nF
U2
W25Q128JVPIQ
ABM8-272-T3 12MHz
C5 15pF
C7 15pF
Y1
R20 1K
XIN
XOUT
12MHz Crystal
R47 47K
RUN
SWCLK
SWD
J2
JST Debug
RESET RP
RESET ESP32
GND
BOOT
8MB PSRAM
R46 10K
C35 100nF
U5
APS6404L-3SQR-SN
FLASH2_SS
Raspberry Pi
RP2350B QFN-80
GPIO0
GPIO1
GPIO2
GPIO3
GPIO4
GPIO5
GPIO6
GPIO7
GPIO8
GPIO9
GPIO10
GPIO11
GPIO12
GPIO13
GPIO14
GPIO15
GPIO16
GPIO17
GPIO18
GPIO19
GPIO20
GPIO21
GPIO22
GPIO23
GPIO24
GPIO25
GPIO26
GPIO27
GPIO28
GPIO29
GPIO30
GPIO31
GPIO32
GPIO33
GPIO34
GPIO35
GPIO36
GPIO37
GPIO38
GPIO39
GPIO40_ADC0
GPIO41_ADC1
GPIO42_ADC2
GPIO43_ADC3
GPIO44_ADC4
GPIO45_ADC5
GPIO46_ADC6
GPIO47_ADC7
V6502.A0
V6502.A1
V6502.A2
V6502.A3
V6502.A4
V6502.A5
V6502.A6
V6502.A7
V6502.A8
V6502.A9
V6502.A10
V6502.A11
V6502.A12
V6502.A13
V6502.A14
V6502.A15
V6502.A[0..15]
V6502.D[0..7]
V6502.D0
V6502.D1
V6502.D2
V6502.D3
V6502.D4
V6502.D5
V6502.D6
V6502.D7
V6502.R/W
V6502.SYNC
V6502.CLK1_IN
V6502.OE_CLK
V6502.DBE
V6502.CLK2_IN
V6502.SO
V6502.CLK1
V6502.CLK2
V6502.INT
V6502.RDY
V6502.CLK0
V6502.NMI
ESP32.HS
V6502.RESET
ESP32.BOOT
ESP32.RESET
ESP32.TXD
ESP32.RXD
ESP32.FSPI_MOSI
ESP32.FSPI_MISO
ESP32.FSPI_CS0
ESP32.FSPI_CLK
ESP32.RP2350RST
ESP32.SW_DIO
ESP32.SW_CLK
ESP32(BOOT HS RXD TXD FSPI_MISO FSPI_MOSI FSPI_CS0 FSPI_CLK RESET RP2350RST SW_CLK SW_DIO)
U4
RP2350_80QFN
Sheet: /RP2350 CPU/
File: PICO6502-RP2350B_v23b.kicad_sch
Title:
Size: A3
Date:
Rev: 2.3b
KiCad E.D.A. 10.0.8
Id: 2/6



Sheet: /ESP32/		
File: PICO6502-ESP32_v23b.kicad_sch		
Title:		
Size: A4	Date:	**Rev: 2.3b**
KiCad E.D.A. 10.0.8		Id: 3/6

*** 6502 / 6512 ONLY — DO NOT FIT TO A 6510 SOCKET ***

6510 moves Vcc to pin 6 and Phi0 to pin 1: fitting this board to a

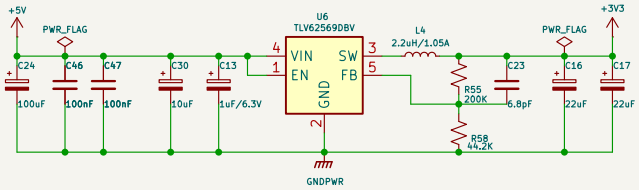
6510 shorts +5V to A1, GND to the host clock, and 5V into an MCU pin.

6502 mode drives PHI1/PHI2; 6512 mode takes them from the host.
Buffered interface: 74AHCT244 address/control, 74AHCT245 data.

Sheet: /6502 Interface/
File: PICO6502-6502_Interface_v23b.kicad_sch

Title: PICO6502 – 6502/6512 Interface

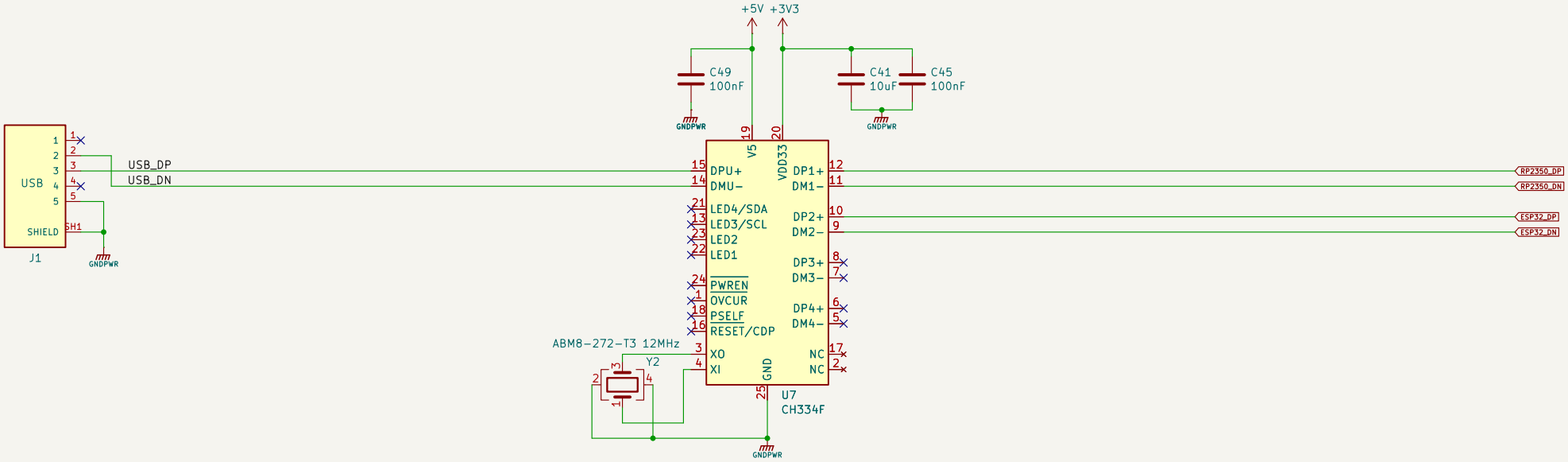
Size: A3	Date:	Rev: 2.3b
KiCad E.D.A. 10.0.8		Id: 4/6



Sheet: /Power Supply/
File: PICO6502-PowerSupply_v23b.kicad_sch

Title:

Size: A4	Date:	**Rev: 2.3b**
KiCad E.D.A. 10.0.8		Id: 5/6



Sheet: /USB Hub/		
File: PICO6502−USBHUB_v23b.kicad_sch		
Title: USB Hub Controller		
Size: A4	Date: 2026−04−01	**Rev: 2.3b**
KiCad E.D.A. 10.0.8		Id: 6/6