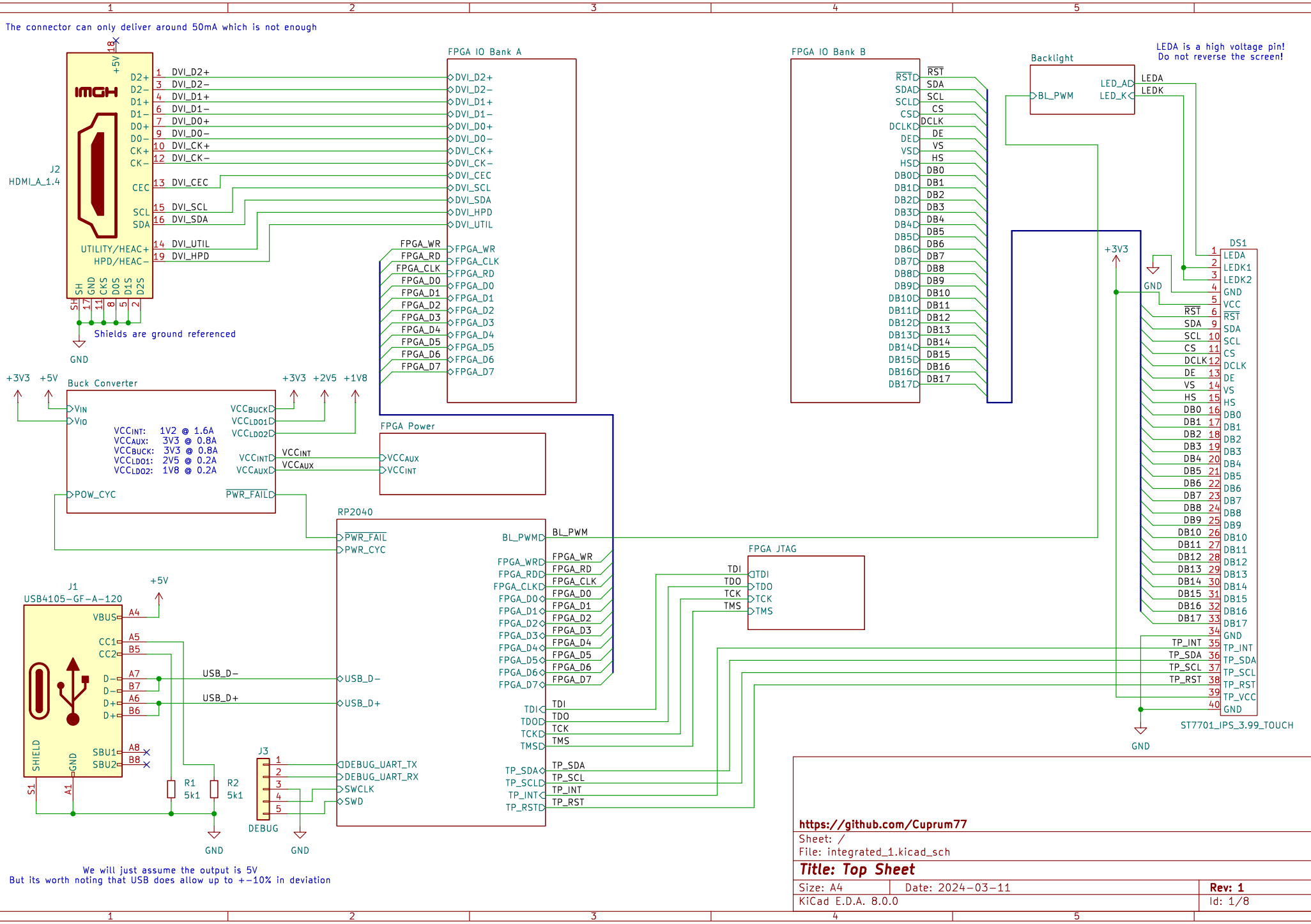
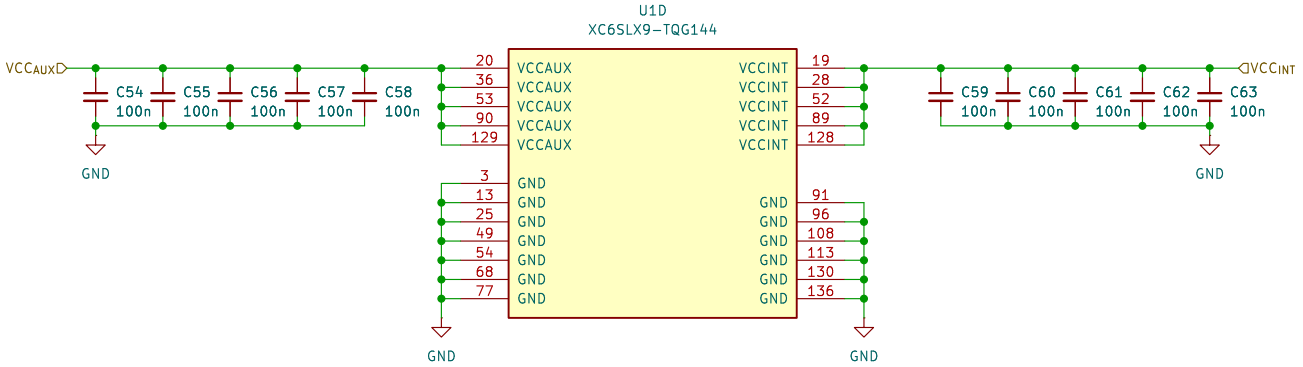

The connector can only deliver around 50mA which is not enough
J2
HDMI_A_1.4
+5V
D2+ 1 DVI_D2+
D2− 3 DVI_D2−
D1+ 4 DVI_D1+
D1− 6 DVI_D1−
D0+ 7 DVI_D0+
D0− 9 DVI_D0−
CK+ 10 DVI_CK+
CK− 12 DVI_CK−
CEC 13 DVI_CEC
SCL 15 DVI_SCL
SDA 16 DVI_SDA
UTILITY/HEAC+ 14 DVI_UTIL
HPD/HEAC− 19 DVI_HPD
SH 17 GND 11 CKS 8 D0S 5 D1S 2 D2S
Shields are ground referenced
GND
FPGA IO Bank A
DVI_D2+
DVI_D2−
DVI_D1+
DVI_D1−
DVI_D0+
DVI_D0−
DVI_CK+
DVI_CK−
DVI_CEC
DVI_SCL
DVI_SDA
DVI_HPD
DVI_UTIL
FPGA_WR
FPGA_RD
FPGA_CLK
FPGA_D0
FPGA_D1
FPGA_D2
FPGA_D3
FPGA_D4
FPGA_D5
FPGA_D6
FPGA_D7
FPGA IO Bank B
RST
SDA
SCL
CS
DCLK
DE
VS
HS
DB0
DB1
DB2
DB3
DB4
DB5
DB6
DB7
DB8
DB9
DB10
DB11
DB12
DB13
DB14
DB15
DB16
DB17
Backlight
BL_PWM
LED_A
LED_K
LEDA
LEDK
LEDA is a high voltage pin!
Do not reverse the screen!
DS1
LEDA 1
LEDK1 2
LEDK2 3
GND 4
VCC 5
RST 6
SDA 9
SCL 10
CS 11
DCLK 12
DE 13
VS 14
HS 15
DB0 16
DB1 17
DB2 18
DB3 19
DB4 20
DB5 21
DB6 22
DB7 23
DB8 24
DB9 25
DB10 26
DB11 27
DB12 28
DB13 29
DB14 30
DB15 31
DB16 32
DB17 33
34 GND
TP_INT 35
TP_SDA 36
TP_SCL 37
TP_RST 38
39
TP_VCC 40
GND
ST7701_IPS_3.99_TOUCH
+3V3
GND
Buck Converter
+3V3 +5V
VIN
VIO
VCCBUCK
VCCLDO1
VCCLDO2
VCCINT: 1V2 @ 1.6A
VCCAUX: 3V3 @ 0.8A
VCCBUCK: 3V3 @ 0.8A
VCCLDO1: 2V5 @ 0.2A
VCCLDO2: 1V8 @ 0.2A
VCCINT
VCCAUX
POW_CYC
PWR_FAIL
+3V3 +2V5 +1V8
FPGA Power
VCCAUX
VCCINT
RP2040
PWR_FAIL
PWR_CYC
BL_PWM
FPGA_WR
FPGA_RD
FPGA_CLK
FPGA_D0
FPGA_D1
FPGA_D2
FPGA_D3
FPGA_D4
FPGA_D5
FPGA_D6
FPGA_D7
TDI
TDO
TCK
TMS
TP_SDA
TP_SCL
TP_INT
TP_RST
USB_D−
USB_D+
DEBUG_UART_TX
DEBUG_UART_RX
SWCLK
SWD
FPGA JTAG
TDI
TDO
TCK
TMS
J1
USB4105−GF−A−120
+5V
VBUS A4
CC1 A5
CC2 B5
D− A7
D− B7
D+ A6
D+ B6
SBU1 A8
SBU2 B8
SHIELD
GND
S1
A1
R1 5k1
R2 5k1
J3
DEBUG
GND
We will just assume the output is 5V
But its worth noting that USB does allow up to +−10% in deviation
https://github.com/Cuprum77
Sheet: /
File: integrated_1.kicad_sch
Title: Top Sheet
Size: A4
Date: 2024−03−11
Rev: 1
KiCad E.D.A. 8.0.0
Id: 1/8

Datasheet mentions that VCCAUX should be 2V5 on -1 devices
Luckily we have a -2 device and those support 3V3

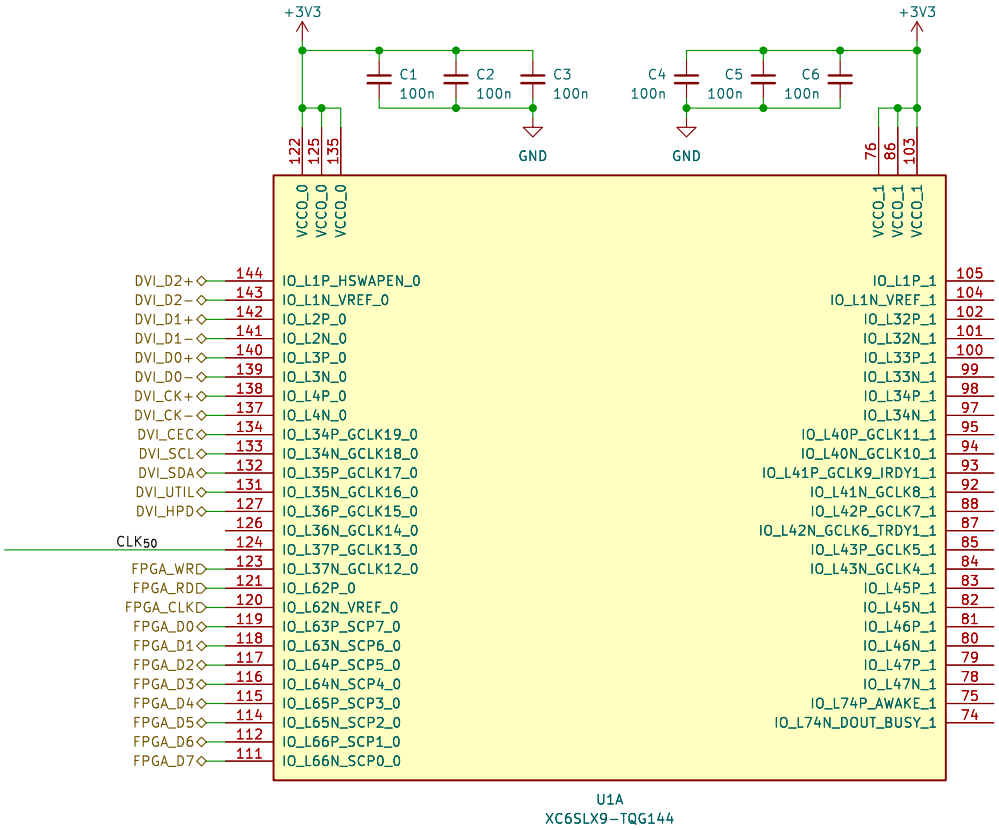


https://github.com/Cuprum77

Sheet: /FPGA Power/
File: fpga_power.kicad_sch

Title: FPGA Power

Size: A4	Date: 2024-03-11	**Rev: 1**
KiCad E.D.A. 8.0.0		Id: 2/8

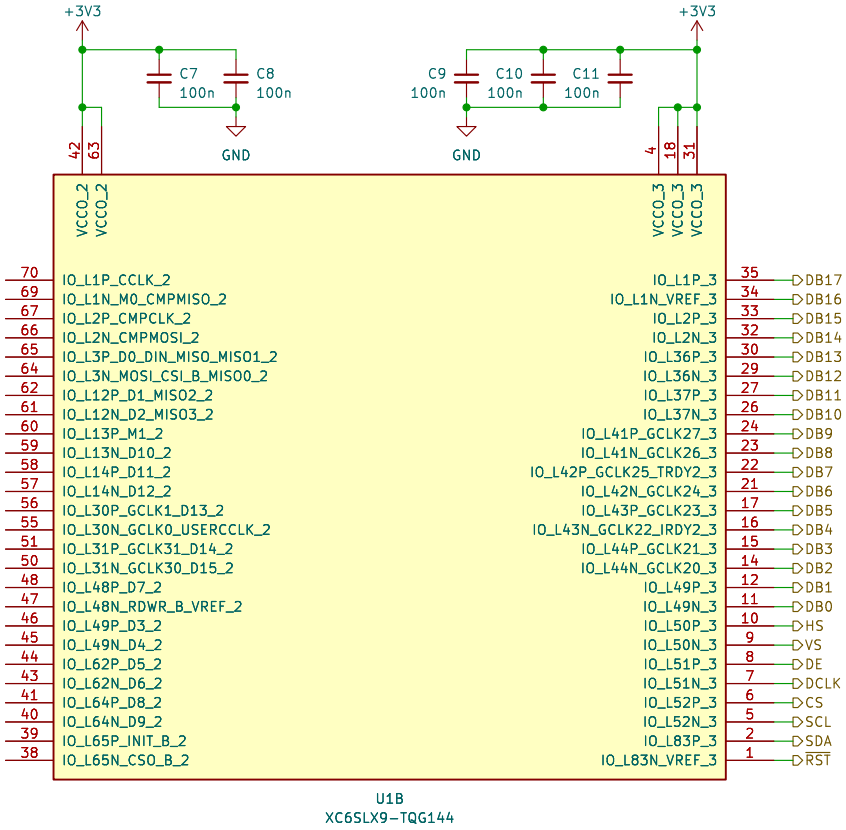


https://github.com/Cuprum77

Sheet: /FPGA IO Bank A/
File: fpga_io_bank_a.kicad_sch

Title: FPGA IO Bank A

Size: A4	Date: 2024-03-11	**Rev: 1**
KiCad E.D.A. 8.0.0		Id: 3/8

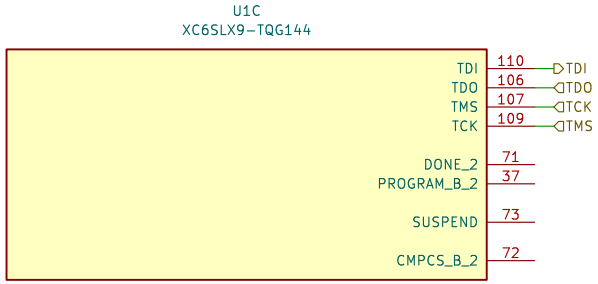


https://github.com/Cuprum77

Sheet: /FPGA IO Bank B/
File: fpga_io_bank_b.kicad_sch

Title: FPGA IO Bank B

Size: A4	Date: 2024-03-11	**Rev: 1**
KiCad E.D.A. 8.0.0		Id: 4/8

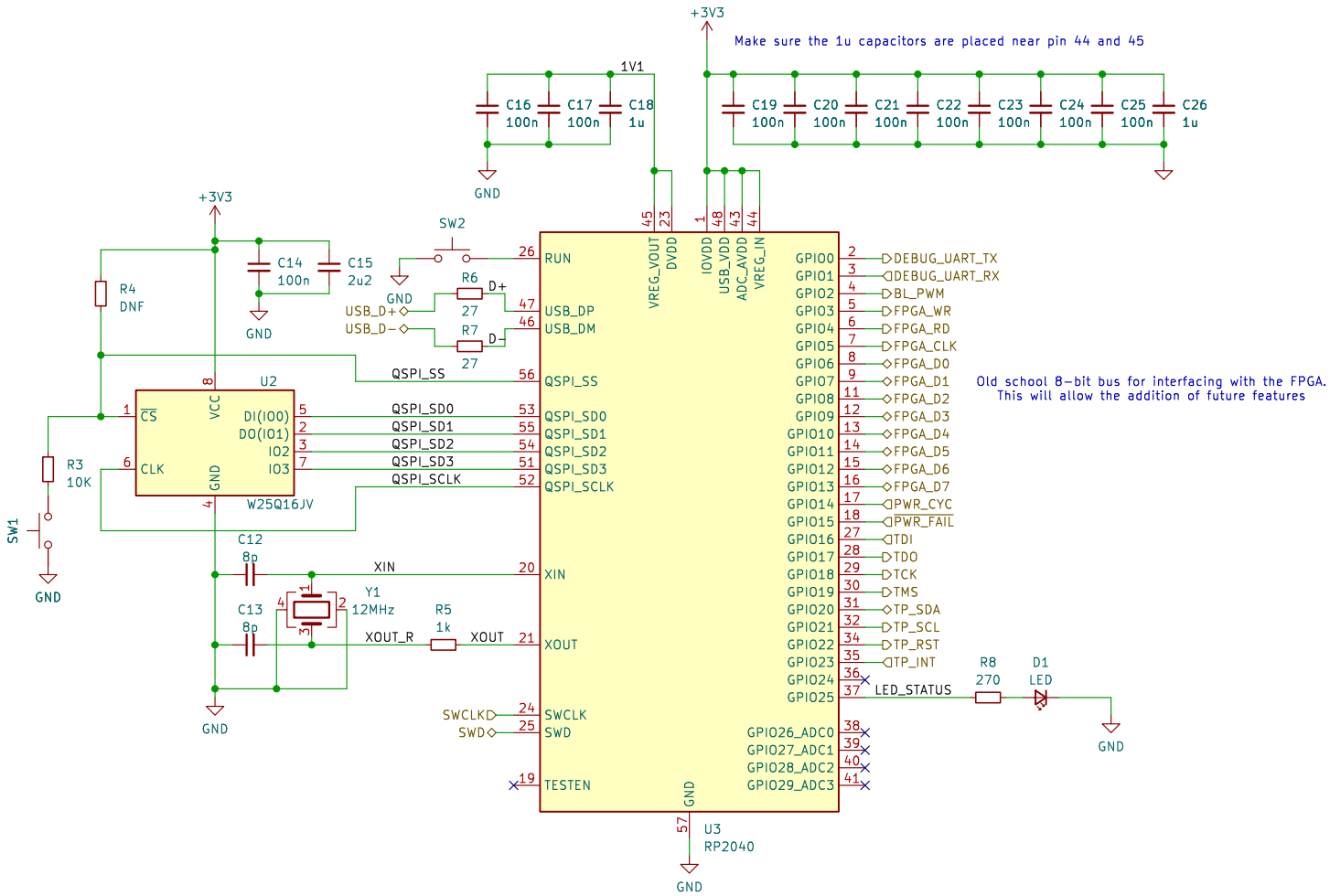


https://github.com/Cuprum77

Sheet: /FPGA JTAG/
File: fpga_jtag.kicad_sch

Title: FPGA JTAG Interface

Size: A4	Date: 2024-03-11	**Rev: 1**
KiCad E.D.A. 8.0.0		Id: 5/8



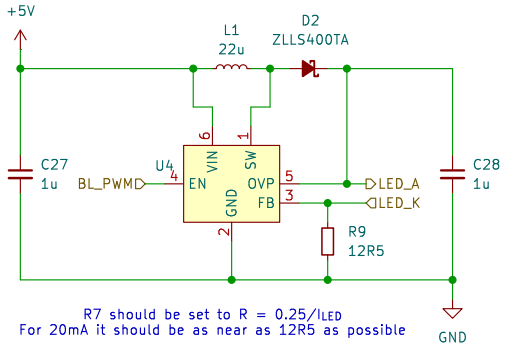
https://github.com/Cuprum77

Sheet: /RP2040/

File: rp2040.kicad_sch

Title: RP2040 Microcontroller

Size: A4	Date: 2024-03-11	Rev: 1
KiCad E.D.A. 8.0.0		Id: 6/8

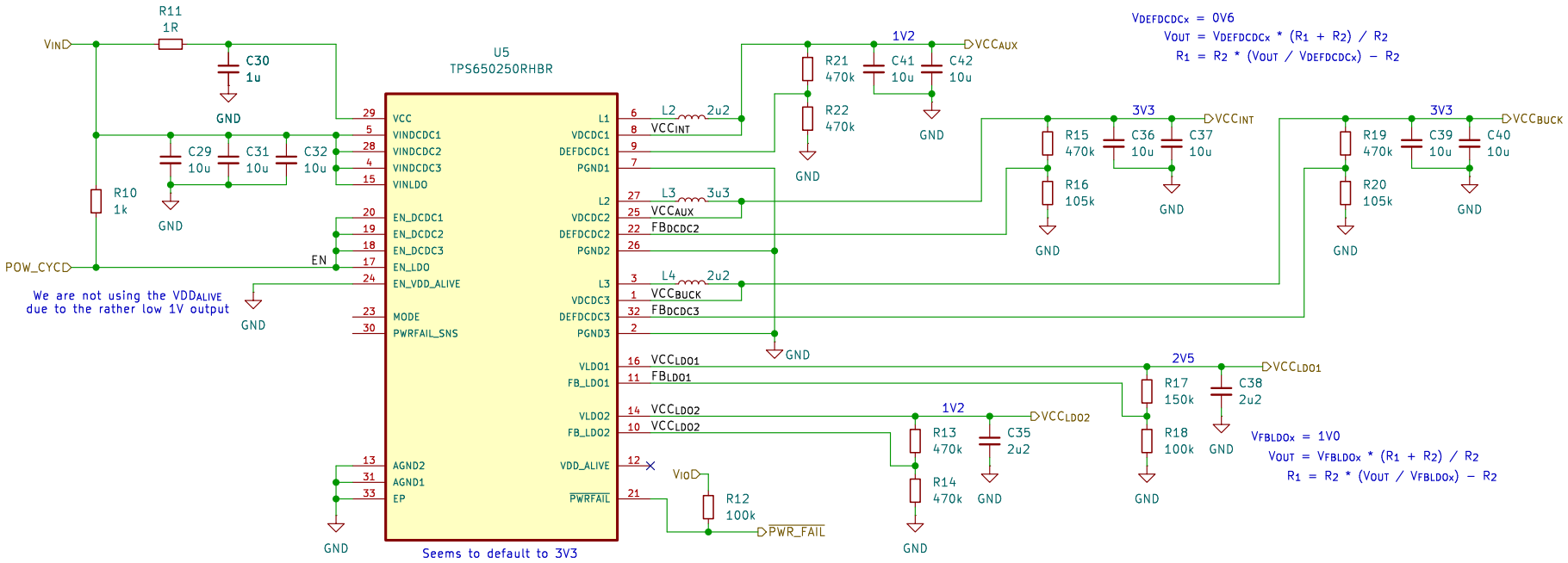


https://github.com/Cuprum77

Sheet: /Backlight/
File: backlight.kicad_sch

Title: Backlight Driver

Size: A4	Date: 2024-03-11	**Rev: 1**
KiCad E.D.A. 8.0.0		Id: 7/8



This is completely overkill for this circuit.
We could have gotten away with a significantly cheaper
3V3 and 1V2 supply with a few bucks, but this is honestly
cheaper as we can just reference TI's existing reference design

https://github.com/Cuprum77

Sheet: /Buck Converter/
File: buck_power.kicad_sch

Title: Power Controller

Size: A4	Date: 2024-03-11	**Rev: 1**
KiCad E.D.A. 8.0.0		Id: 8/8