USB Hub

+12V Input
File: POS12_Input.kicad_sch

+5V Power Supply
File: POS5_Power_Supply.kicad_sch

+3.3V Power Supply
File: POS3P3_Power_Supply.kicad_sch

Power ORing
File: power_oring.kicad_sch

PGOOD LEDs
File: PGOOD_LEDs.kicad_sch

Hub LEDs
File: Hub_LEDs.kicad_sch

Mechanical
File: mechanical.kicad_sch

Hub Controller
File: Hub_Controller.kicad_sch

Downstream Port 0
File: Downstream_Port_0.kicad_sch

Downstream Port 1
File: Downstream_Port_1.kicad_sch

Downstream Port 2
File: Downstream_Port_2.kicad_sch

Downstream Port 3
File: Downstream_Port_3.kicad_sch

Upstream Port
File: Upstream_Port.kicad_sch

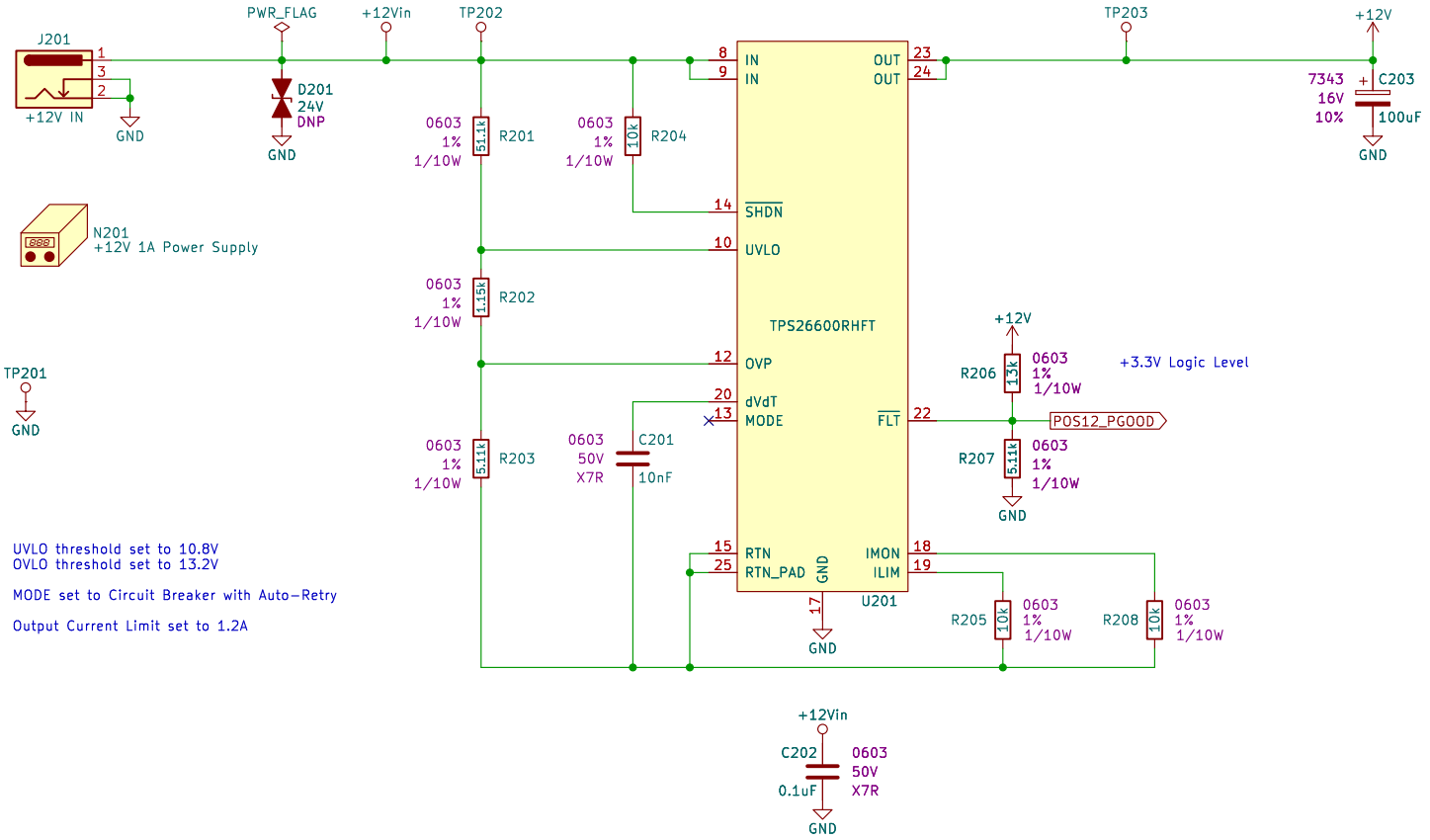
Port Power Control
File: port_power_control.kicad_sch

Drew Maatman

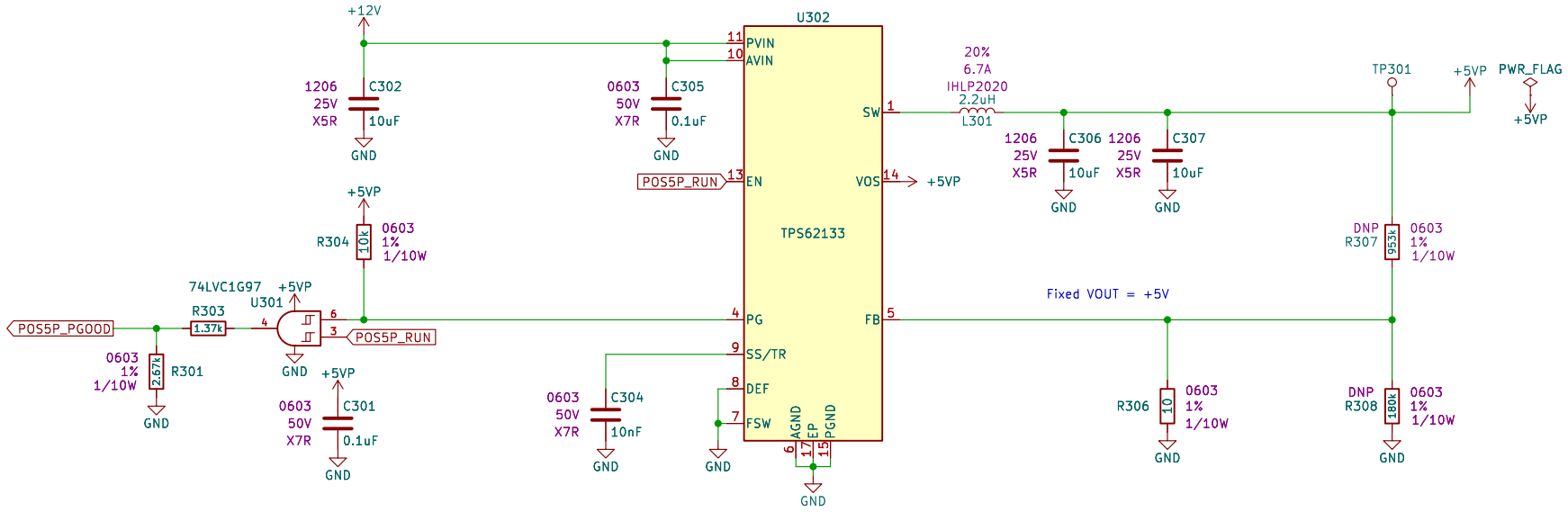
Sheet: /
File: USB_Hub.kicad_sch

Title: USB Hub

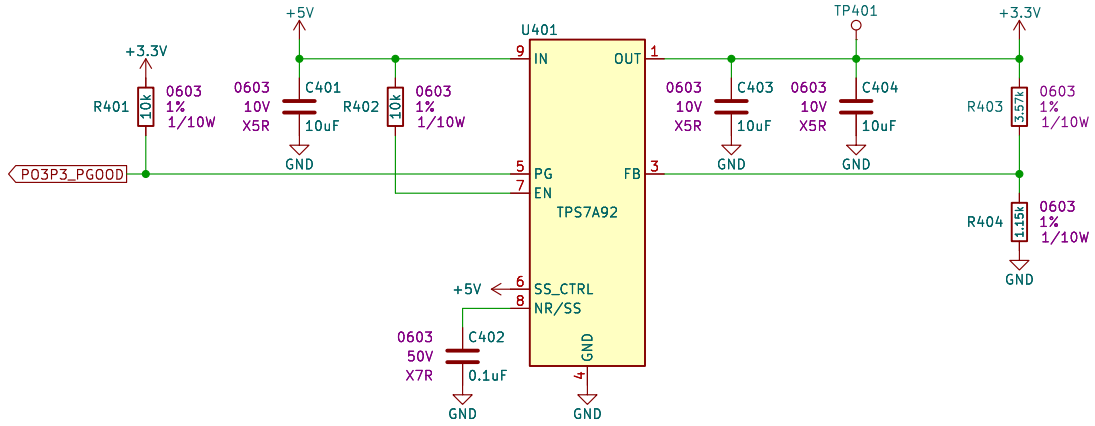
Size: A	Date: 2023-08-20	**Rev: PRELIM**
KiCad E.D.A. kicad 7.0.1		Id: 1/15



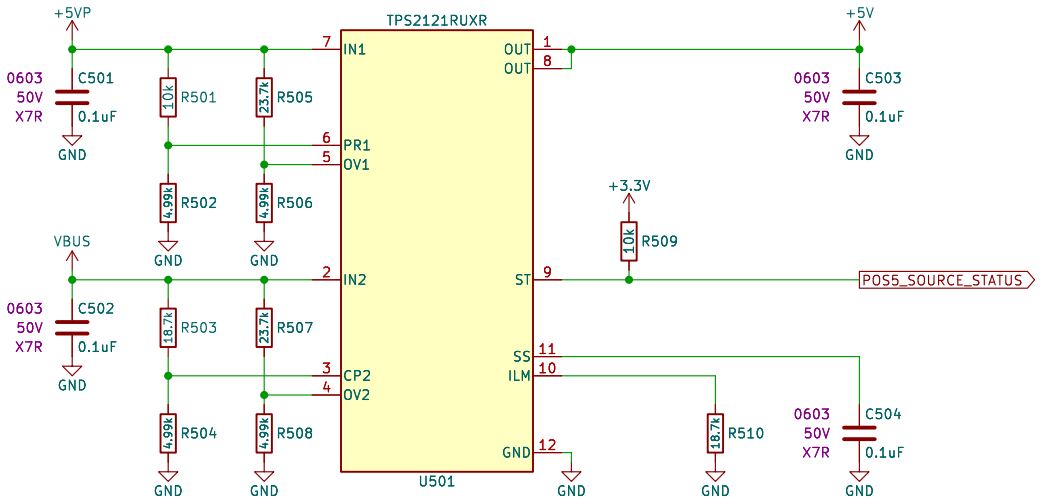
Drew Maatman		
Sheet: /+12V Input/		
File: POS12_Input.kicad_sch		
Title: USB Hub		
Size: A	Date: 2023-08-20	**Rev: PRELIM**
KiCad E.D.A. kicad 7.0.1		Id: 2/15



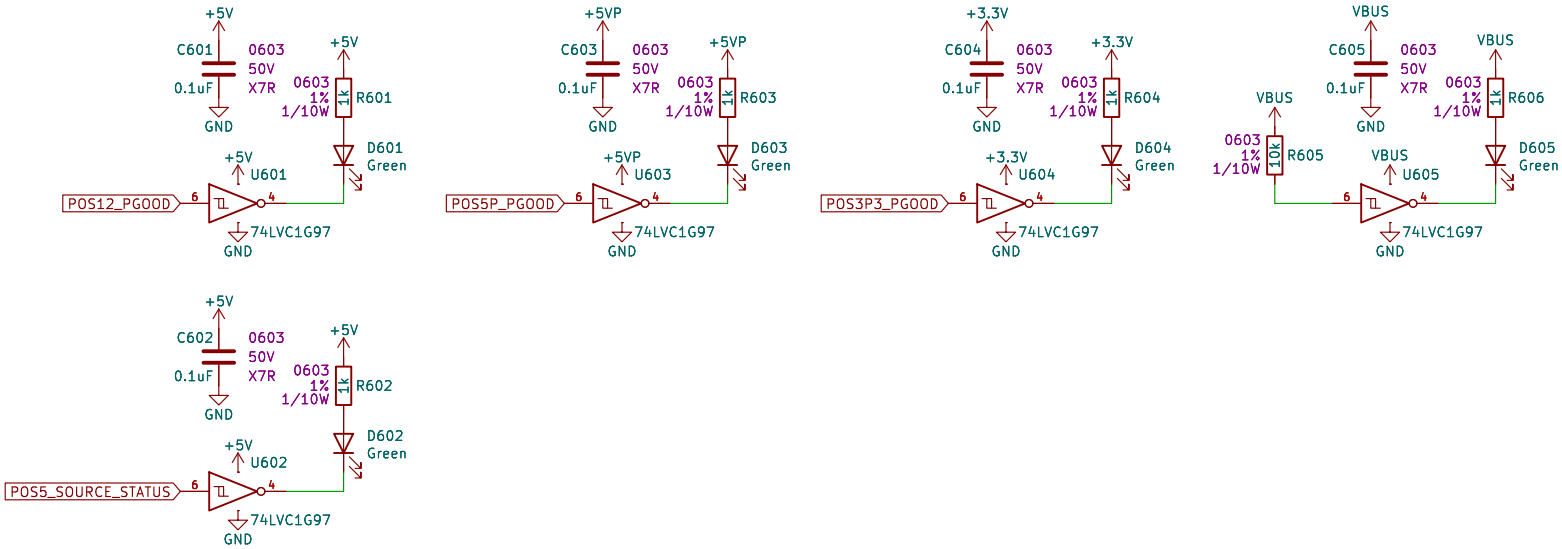
Drew Maatman		
Sheet: /+5V Power Supply/		
File: POS5_Power_Supply.kicad_sch		
Title: USB Hub		
Size: A	Date: 2023-08-20	**Rev: PRELIM**
KiCad E.D.A. kicad 7.0.1		Id: 3/15



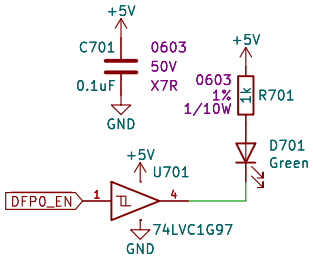
Drew Maatman		
Sheet: /+3.3V Power Supply/		
File: P03P3_Power_Supply.kicad_sch		
Title: USB Hub		
Size: A	Date: 2023-08-20	**Rev: PRELIM**
KiCad E.D.A. kicad 7.0.1		Id: 4/15

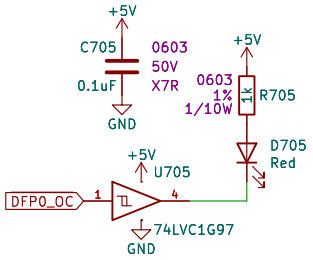


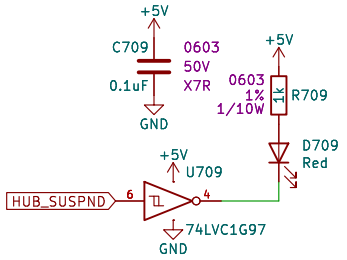
Drew Maatman		
Sheet: /Power ORing/		
File: power_oring.kicad_sch		
Title: USB Hub		
Size: A	Date: 2023-08-20	Rev: PRELIM
KiCad E.D.A. kicad 7.0.1		Id: 5/15

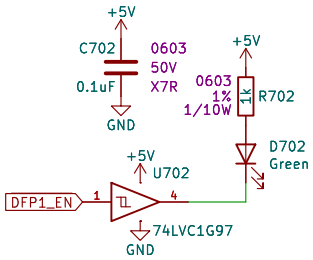


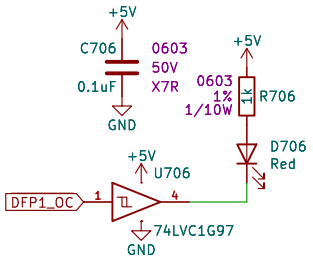
Drew Maatman		
Sheet: /PGOOD LEDs/		
File: PGOOD_LEDs.kicad_sch		
Title: USB Hub		
Size: A	Date: 2023-08-20	**Rev: PRELIM**
KiCad E.D.A. kicad 7.0.1		Id: 6/15

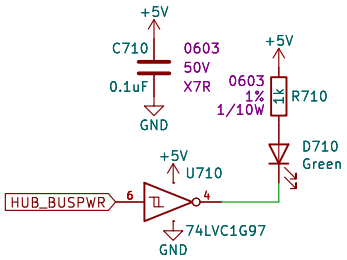




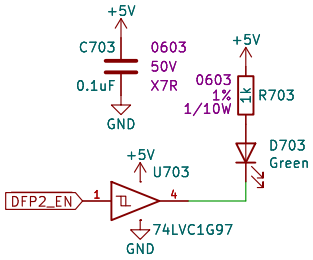


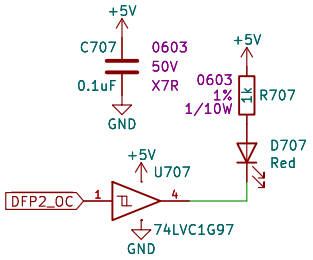


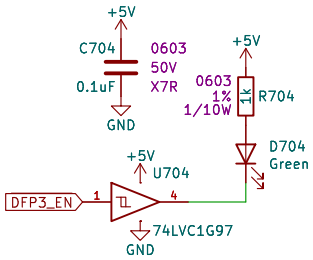


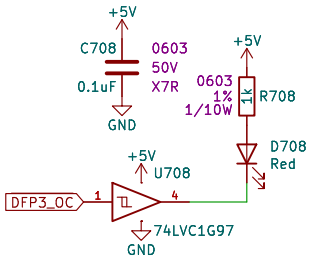


High when wall wart powering output,
low when upstream VBUS powering output.
This should not change during operation









Drew Maatman		
Sheet: /Hub LEDs/		
File: Hub_LEDs.kicad_sch		
Title: USB Hub		
Size: A	Date: 2023-08-20	**Rev: PRELIM**
KiCad E.D.A. kicad 7.0.1		Id: 7/15

H801
3mm Mounting Hole

H803
3mm Mounting Hole

H802
3mm Mounting Hole

H804
3mm Mounting Hole

#4-40 Screw
MK801

#4-40 Screw
MK807

#4-40 Screw
MK802

#4-40 Screw
MK808

#4-40 Standoff
MK803

#4-40 Standoff
MK805

#4-40 Standoff
MK804

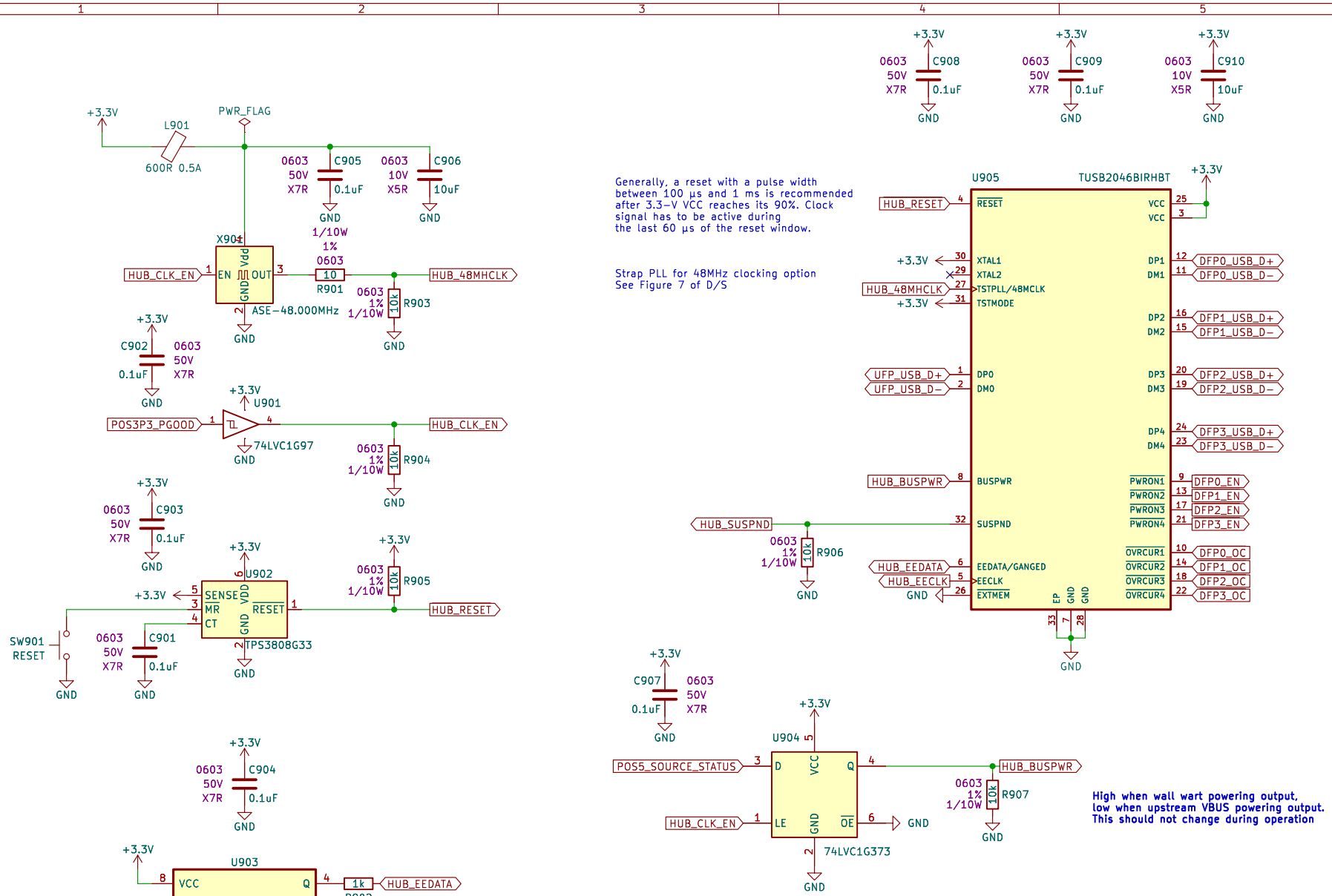
#4-40 Standoff
MK806

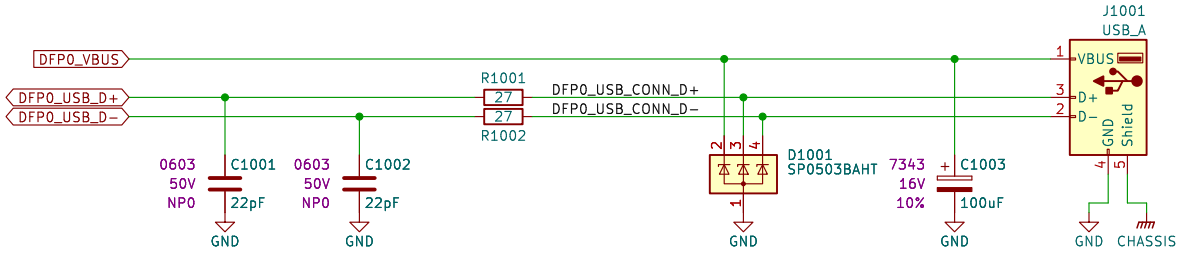
Drew Maatman

Sheet: /Mechanical/
File: mechanical.kicad_sch

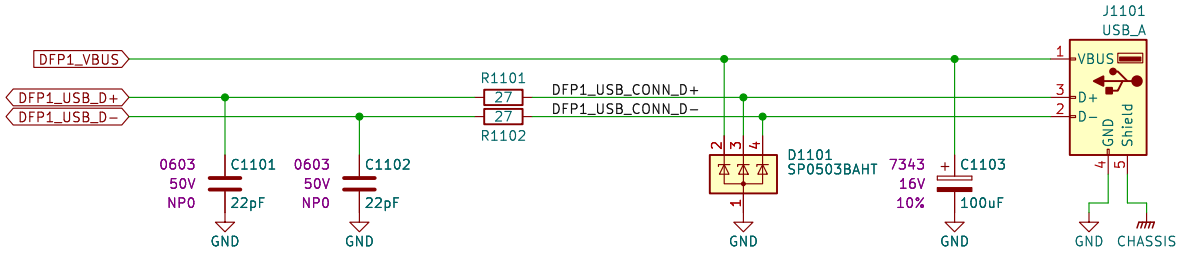
Title: USB Hub

Size: A	Date: 2023-08-20	**Rev: PRELIM**
KiCad E.D.A. kicad 7.0.1		Id: 8/15

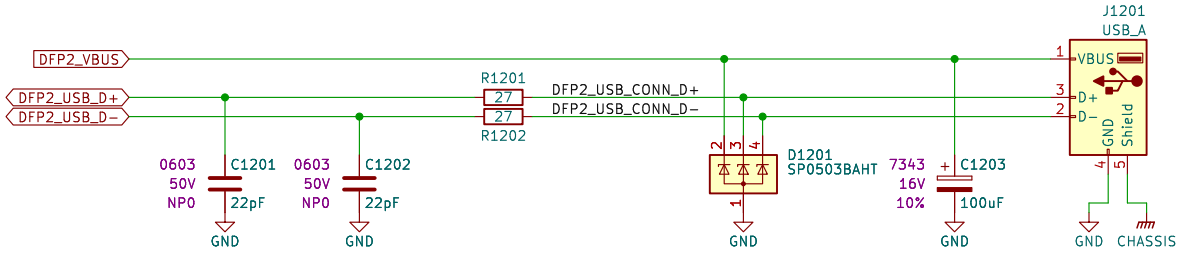

+3.3V
L901
600R 0.5A
PWR_FLAG
0603
50V
X7R
C905
0.1uF
GND
0603
10V
X5R
C906
10uF
GND
X901
HUB_CLK_EN
EN
OUT
Vdd
GND
1/10W
1%
0603
10
R901
HUB_48MHCLK
ASE-48.000MHz
0603
1%
1/10W
10k
R903
GND
C902
0603
50V
X7R
0.1uF
GND
U901
POS3P3_PGOOD
74LVC1G97
HUB_CLK_EN
0603
1%
1/10W
10k
R904
GND
C903
0603
50V
X7R
0.1uF
GND
U902
SENSE
MR
CT
VDD
RESET
TPS3808G33
0603
1%
1/10W
10k
R905
HUB_RESET
SW901
RESET
C901
0603
50V
X7R
0.1uF
GND
C904
0603
50V
X7R
0.1uF
GND
U903
VCC
S
C
D
ORG
DU
VSS
Q
1k
R902
HUB_EEDATA
HUB_RESET
HUB_EECLK
HUB_EEDATA
M93C46-WMN6TP
GND
C908
0603
50V
X7R
0.1uF
GND
C909
0603
50V
X7R
0.1uF
GND
C910
0603
10V
X5R
10uF
GND
Generally, a reset with a pulse width
between 100 µs and 1 ms is recommended
after 3.3-V VCC reaches its 90%. Clock
signal has to be active during
the last 60 µs of the reset window.
Strap PLL for 48MHz clocking option
See Figure 7 of D/S
U905
TUSB2046BIRHBT
HUB_RESET
RESET
VCC
VCC
XTAL1
XTAL2
TSTPLL/48MCLK
TSTMODE
DP1
DM1
DP2
DM2
DP3
DM3
DP4
DM4
DFP0_USB_D+
DFP0_USB_D-
DFP1_USB_D+
DFP1_USB_D-
DFP2_USB_D+
DFP2_USB_D-
DFP3_USB_D+
DFP3_USB_D-
UFP_USB_D+
UFP_USB_D-
DPO
DMO
HUB_BUSPWR
BUSPWR
PWRON1
PWRON2
PWRON3
PWRON4
DFP0_EN
DFP1_EN
DFP2_EN
DFP3_EN
HUB_SUSPND
SUSPND
0603
1%
1/10W
10k
R906
HUB_EEDATA
HUB_EECLK
EEDATA/GANGED
EECLK
EXTMEM
OVRCUR1
OVRCUR2
OVRCUR3
OVRCUR4
DFP0_OC
DFP1_OC
DFP2_OC
DFP3_OC
EP
GND
C907
0603
50V
X7R
0.1uF
GND
U904
POS5_SOURCE_STATUS
D
VCC
Q
HUB_CLK_EN
LE
GND
OE
74LVC1G373
0603
1%
1/10W
10k
R907
HUB_BUSPWR
High when wall wart powering output,
low when upstream VBUS powering output.
This should not change during operation
Drew Maatman
Sheet: /Hub Controller/
File: Hub_Controller.kicad_sch
Title: USB Hub
Size: A
Date: 2023-08-20
Rev: PRELIM
KiCad E.D.A. kicad 7.0.1
Id: 9/15



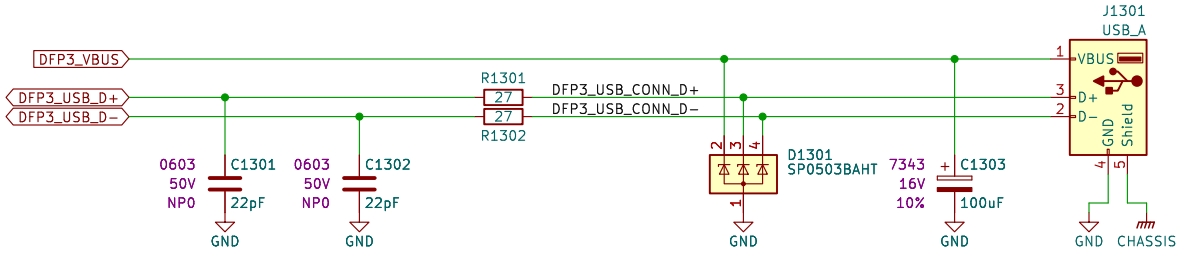
Drew Maatman		
Sheet: /Downstream Port 0/		
File: Downstream_Port_0.kicad_sch		
Title: USB Hub		
Size: A	Date: 2023-08-20	**Rev: PRELIM**
KiCad E.D.A. kicad 7.0.1		Id: 10/15



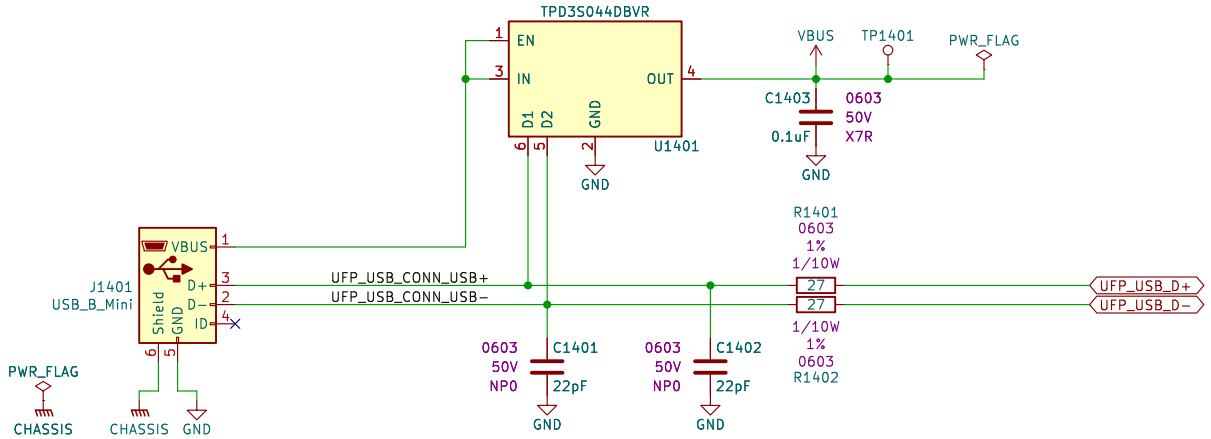
Drew Maatman		
Sheet: /Downstream Port 1/		
File: Downstream_Port_1.kicad_sch		
Title: USB Hub		
Size: A	Date: 2023-08-20	**Rev: PRELIM**
KiCad E.D.A. kicad 7.0.1		Id: 11/15



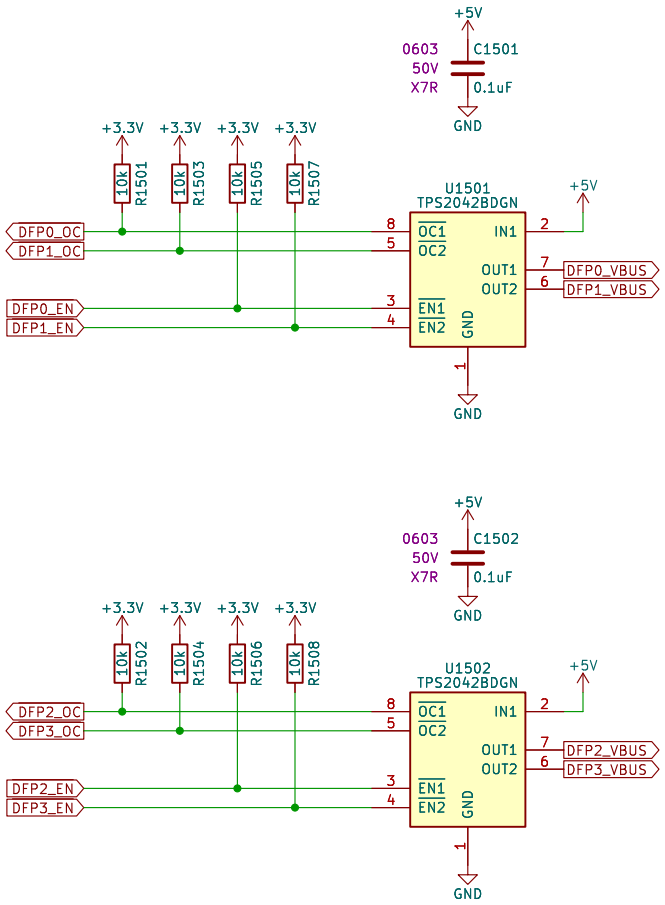
Drew Maatman		
Sheet: /Downstream Port 2/		
File: Downstream_Port_2.kicad_sch		
Title: USB Hub		
Size: A	Date: 2023-08-20	**Rev: PRELIM**
KiCad E.D.A. kicad 7.0.1		Id: 12/15



Drew Maatman		
Sheet: /Downstream Port 3/		
File: Downstream_Port_3.kicad_sch		
Title: USB Hub		
Size: A	Date: 2023-08-20	**Rev: PRELIM**
KiCad E.D.A. kicad 7.0.1		Id: 13/15



Drew Maatman		
Sheet: /Upstream Port/		
File: Upstream_Port.kicad_sch		
Title: USB Hub		
Size: A	Date: 2023-08-20	**Rev: PRELIM**
KiCad E.D.A. kicad 7.0.1		Id: 14/15



Drew Maatman	
Sheet: /Port Power Control/	
File: port_power_control.kicad_sch	
Title: USB Hub	
Size: A	Date: 2023-08-20
KiCad E.D.A. kicad 7.0.1	Id: 15/15
	Rev: PRELIM