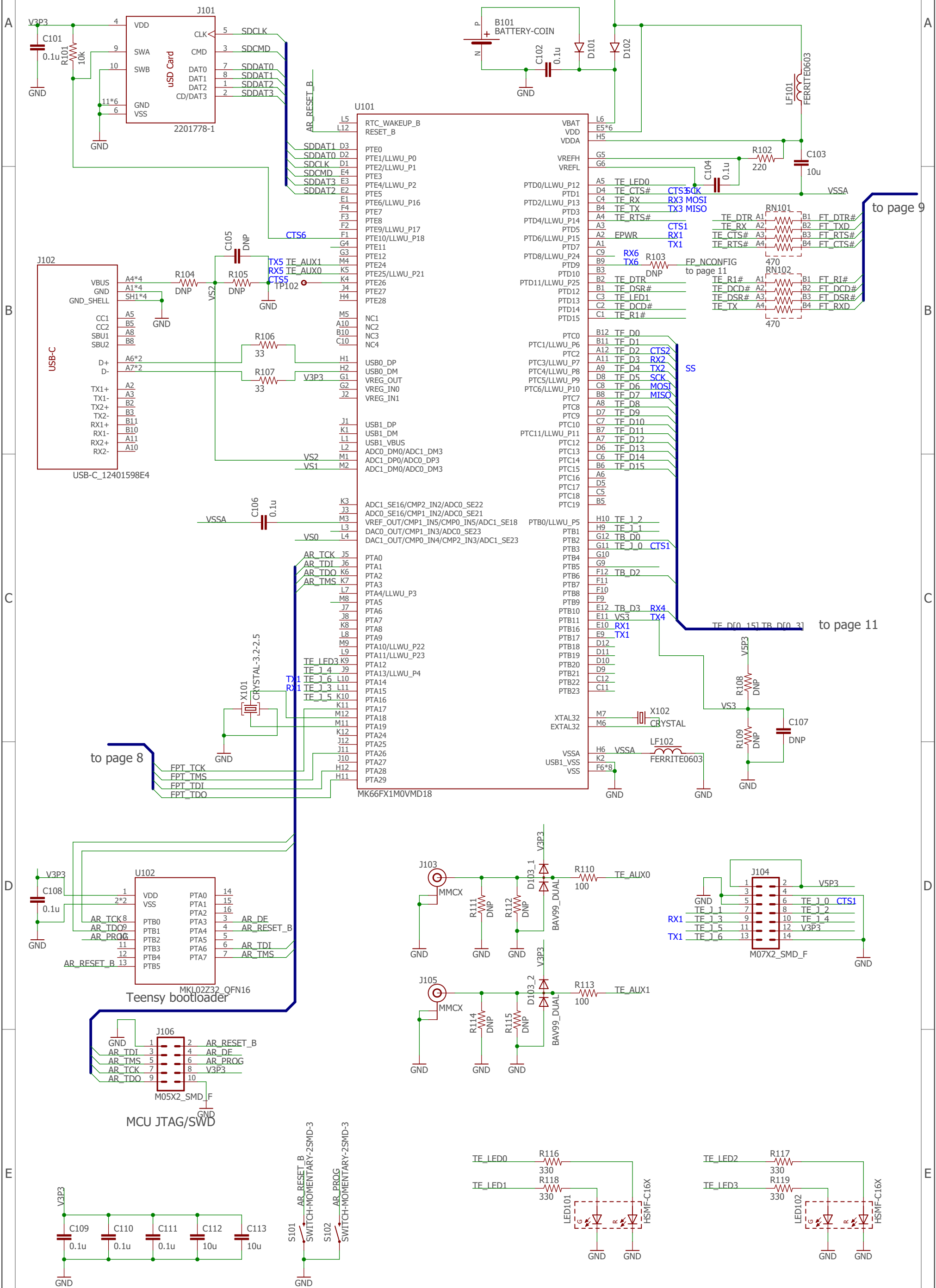


ninjaNIRS Controller

Microcontroller (Teensy 3.6 compatible)



Connectors Left (Opt00 - Opt03)

U201_B6

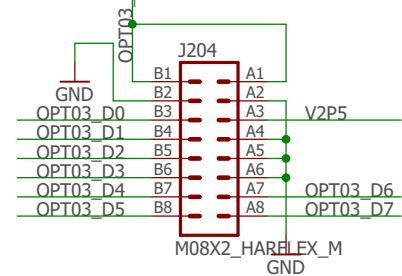
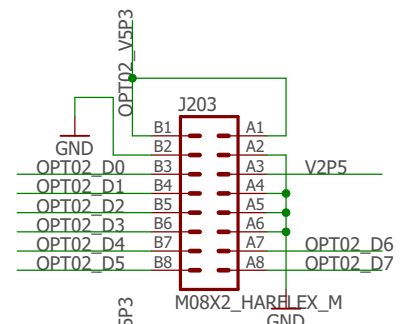
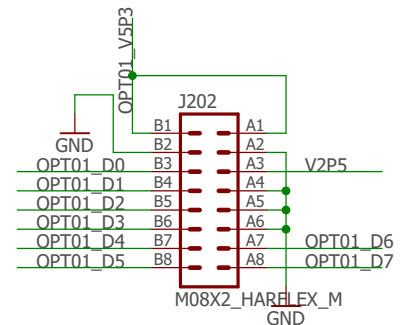
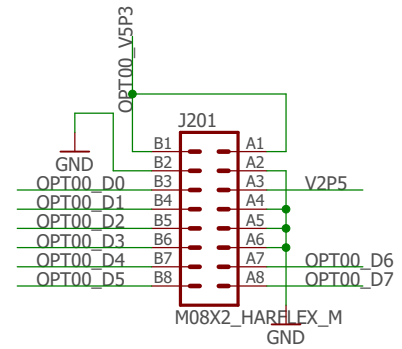
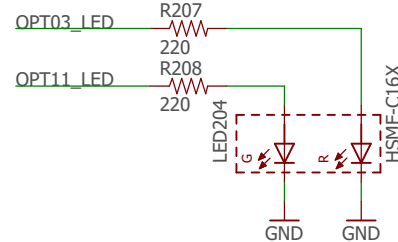
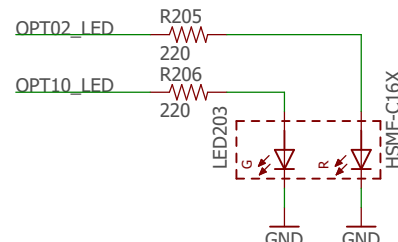
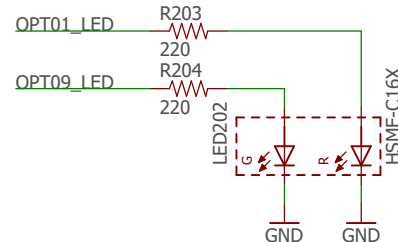
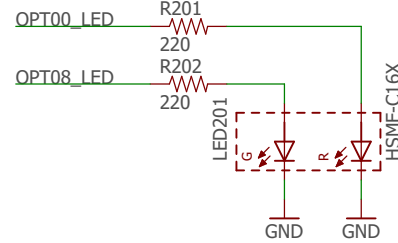
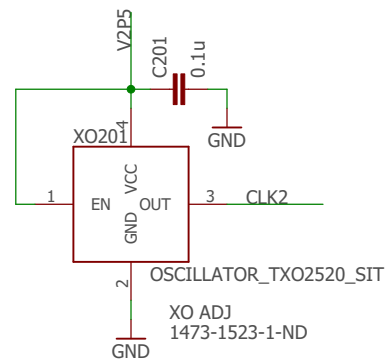
ION14/CLK2P/RXR38P/HS	N14
IOH22/RXR39P/HS	H22 OPT01_D2
ION15/CLK2N/RXR38N/HS	N15 OPT01_D7
IOH21/RXR39N/HS	H21 OPT01_D1
IOK22/CLK3P/RXR40P/HS	K22 CLK2
IOJ22/RXR41P/HS	J22 OPT01_D4
IOK21/CLK3N/RXR40N/HS	K21 OPT01_D5
IOJ21/RXR41N/HS	J21 OPT01_D3
IOG20/RXR42P/HS	G20 OPT08_PWR
IOG22/RXR43P/HS	G22 OPT01_D0
IOG22/RXR43P/HS	G22 OPT01_D0
IOG19/RXR42N/HS	G19 OPT08_D0
IOF22/RXR43N/HS	F22 OPT01_PWR
IOM15/RXR44P/HS	M15 OPT01_D6
IOE22/RXR45P/HS	E22 OPT09_LED
IOM14/RXR44N/HS	M14
IOE21/RXR45N/HS	E21 OPT00_D5
ION18/RXR46P/HS	N18 OPT09_D6
IOM20/RXR47P/HS	M20 OPT10_D5
ION19/RXR46N/HS	N19 OPT10_D3
ION20/RXR47N/HS	N20 OPT10_D4
IOF21/RXR48P/HS	F21 OPT01_LED
IOD22/RXR49P/HS	D22 OPT00_D4
IOF20/RXR48N/HS	F20 OPT08_D1
IOE22/RXR49N/HS	C22 OPT00_D2
IOL14/DPCLK3/RXR50P/HS	L14
IOD21/VREFB6N0	D21 OPT00_D3
IOL15/DPCLK2/RXR50N/HS	L15 OPT00_D7
IOC21	C21 OPT00_D1
IOM18/RXR51P/HS	M18 OPT09_D7
IOI19/RXR52P/HS	L19 OPT09_D0
IOI18/RXR51N/HS	L18 OPT08_D6
IOI20/RXR52N/HS	L20 OPT09_PWR
IOE19/RXR53P/HS	E19 OPT08_D4
IOF19/RXR54P/HS	F19 OPT08_D2
IOF18/RXR53N/HS	F18
IOE20/RXR54N/HS	E20 OPT08_D3
IOK14/RXR55P/HS	K14
IOC20/RXR56P/HS	C20 FP_J2_0
IOK15/RXR55N/HS	K15 OPT00_D6
IOD19/RXR56N/HS	D19 OPT08_D5
IOK18/RXR57P/HS	K18 OPT08_D7
IOK19/RXR58P/HS	K19 OPT09_D2
IOJ18/RXR57N/HS	J18
IOK20/RXR58N/HS	K20 OPT09_D1
IOF17/RXR59P/HS	F17
IOB22/RXR60P/HS	B22 OPT00_D0
IOE17/RXR59N/HS	E17 FP_J2_3
IOB21/RXR60N/HS	B21 OPT00_PWR
IOJ14/RXR61P/HS	J14
IOB20/RXR62P/HS	B20 OPT08_LED
IOJ15/RXR61N/HS	J15
IOA21/RXR62N/HS	A21 OPT00_LED
IOH19/RXR63P/HS	H19 OPT09_D5
IOJ20/RXR64P/HS	J20 OPT09_D3
IOH18/RXR63N/HS	H18
IOH20/RXR64N/HS	H20 OPT09_D4
IOH17/PLLRLCKOUTP/RXR69P/HS	H17
IOD18/RXR70P/HS	D18 FP_J2_2
IOG17/PLLRLCKOUTN/RXR69N/HS	G17
IOE18/RXR70N/HS	E18 FP_J2_1

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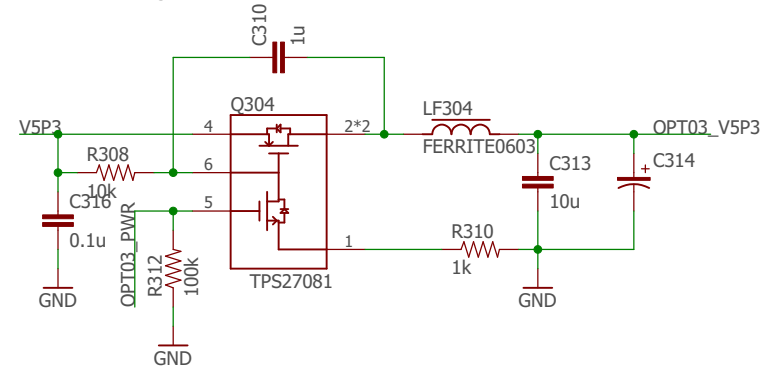
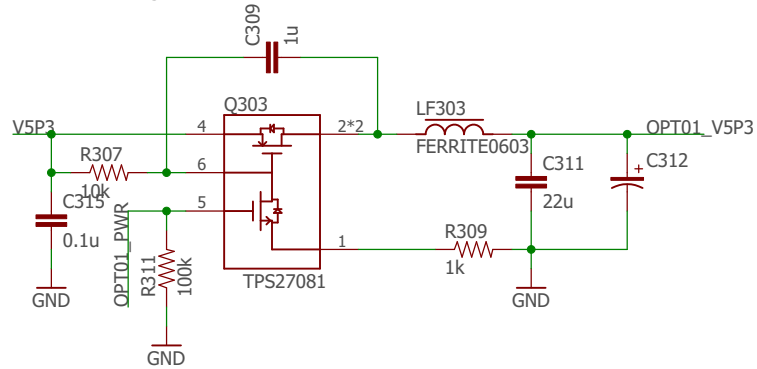
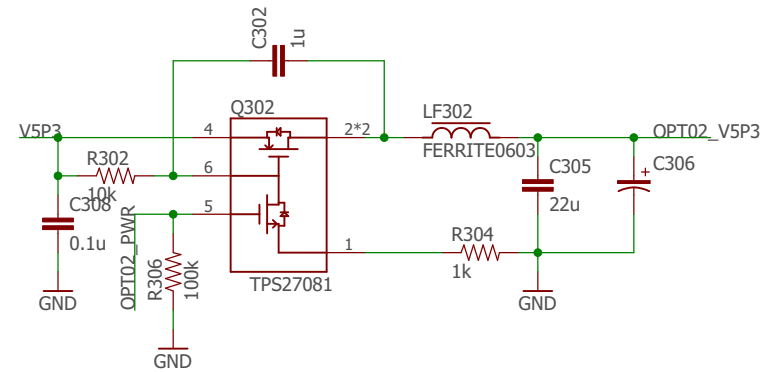
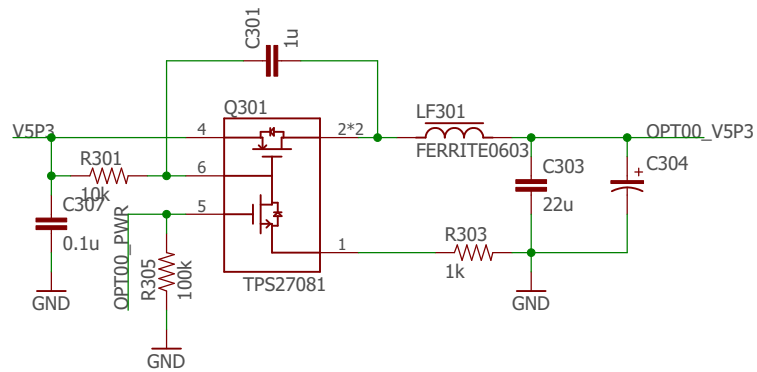
U201_B5

IOU18/RUP/RXR1P/HS	U18 OPT11_D7
IOAA21/RXR2P/HS	AA21 N\$1111
IOU17/RDN/RXR1N/HS	U17 OPT03_D7
IOAA22/RXR2N/HS	AA22 OPT03_D5
IOV18/RXR19P/HS	V18 OPT11_D6
IOY22/RXR20P/HS	Y22 OPT03_D3
IOU19/RXR19N/HS	U19 OPT11_D3
IOW22/RXR20N/HS	W22 OPT03_D2
IOV19/RXR21P/HS	V19 OPT11_D0
IOY20/RXR22P/HS	Y20 OPT11_PWR
IOW20/RXR21N/HS	W20 OPT11_D1
IOY21/RXR22N/HS	Y21 OPT03_D4
IOV20/RXR23P/HS	V20 OPT11_D2
IOV21/RXR24P/HS	V21 OPT03_D1
IOU20/RXR23N/HS	U20 OPT11_D4
IOV22/RXR24N/HS	V22 OPT03_D0
IOU21/RXR25P/HS	U21 OPT03_D7
IOU21/RXR25P/HS	T21 OPT11_LED
IOR22	R14
IOU22/RXR29N/HS	T22 OPT02_D5
IOU22/RXR29N/HS	T19 OPT11_D5
IOU22/RXR29N/HS	T20 OPT10_PWR
IOU22/RXR29N/HS	T18 OPT03_D6
IOU22/RXR29N/HS	R20 OPT10_D0
IOU22/RXR29N/HS	U21 OPT03_PWR
IOU22/RXR29N/HS	R22 OPT02_D4
IOU22/RXR29N/HS	U22 OPT03_LED
IOU22/RXR29N/HS	P22 OPT02_D2
IOU22/RXR29N/HS	P15 OPT02_D6
IOU22/RXR29N/HS	P21 OPT02_D3
IOU22/RXR29N/HS	P14
IOU22/RXR29N/HS	N22 OPT02_D0
IOU22/RXR29N/HS	R18 OPT10_D6
IOU22/RXR29N/HS	P19 OPT10_D1
IOU22/RXR29N/HS	P18 OPT10_D7
IOU22/RXR29N/HS	P20 OPT10_D2
IOU22/RXR29N/HS	M21 OPT02_PWR
IOU22/RXR29N/HS	N21 OPT02_D1
IOU22/RXR29N/HS	L22 OPT10_LED
IOU22/RXR29N/HS	M22 OPT02_LED

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Connectors Left Power Switches



Connectors Right (Opt04 - Opt07)

U201_B3

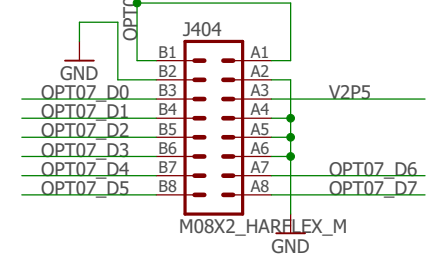
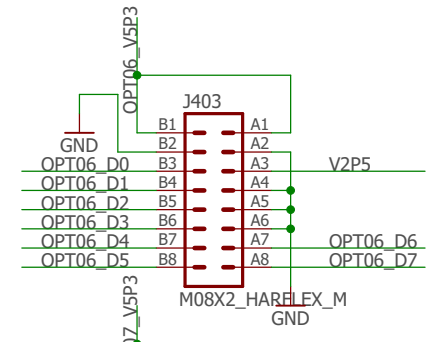
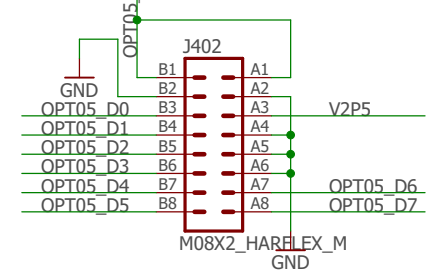
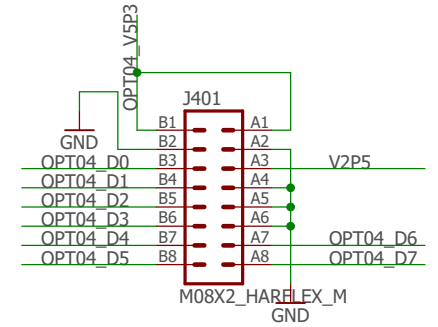
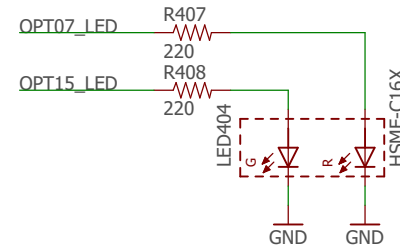
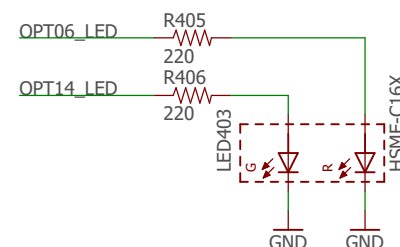
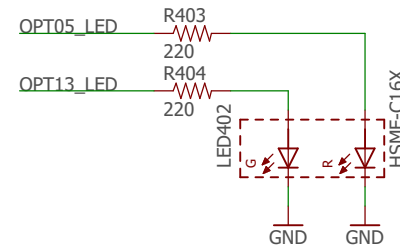
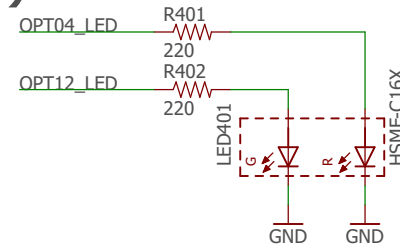
IOV5/TXRXB1N/HS	W5	OPT15_D0
IOV4/RXB2N/HS	V4	
IOV6/TXRXB1P/HS	W6	OPT15_D2
IOV5/RXB2P/HS	V5	
IOU6/TXRXB3N/HS	U6	
IOY1/RXB4N/HS	Y1	FP_10_1
IOU7/TXRXB3P/HS	U7	
IOY2/RXB4P/HS	Y2	FP_10_3
IOV4/TXRXB5N/HS	W4	
IOAA1/RXB6N/HS	AA1	FP_10_2
IOV3/TXRXB5P/HS	W3	
IOAA2/RXB6P/HS	AA2	FP_10_0
IOV7/TXRXB7N/HS	V7	
IOY5/RXB8N/HS	Y5	OPT15_D1
IOV8/TXRXB7P/HS	V8	OPT07_D7
IOY6/TXRXB8P/HS	Y6	OPT15_D3
IOR9/TXRXB9N/HS	R9	OPT06_D7
IOY7/RXB10N/HS	Y7	OPT15_D5
IOV9/TXRXB9P/HS	V9	
IOY8/RXB10P/HS	Y8	OPT14_D0
IOV9/TXRXB11N/HS	W9	OPT14_D1
IOAB2/RXB12N/HS	AB2	OPT07_LED
IOV10/TXRXB11P/HS	W10	OPT14_D2
IOAB3/RXB12P/HS	AB3	OPT07_D5
IOV7/TXRXB13N/HS	W7	OPT15_D4
IOY3/RXB14N/HS	Y3	
IOV8/TXRXB13P/HS	W8	OPT14_PWR
IOY4/RXB14P/HS	Y4	OPT15_PWR
IOR10/TXRXB15N/HS	R10	OPT06_D6
IOAA3/VREFB3N0	AA3	OPT15_LED
IOV10/TXRXB15P/HS	P10	
IOAB4	AB4	OPT07_D4
IOAA6/TXRXB16N/HS	AA6	OPT07_D1
IOAA5/RXB17N/HS	AA5	OPT07_D3
IOAA7/TXRXB16P/HS	AA7	OPT07_PWR
IOAB5/RXB17P/HS	AB5	OPT07_D2
IOV9/CLK6N/TXRXB18N/HS	V9	OPT07_D6
IOAB6/RXB19N/HS	AB6	OPT07_D0
IOV10/CLK6P/TXRXB18P/HS	V10	OPT05_D7
IOAB7/RXB19P/HS	AB7	OPT06_D5
IOR11/CLK7N/TXRXB20N/HS	R11	OPT15_D6
IOAA8/RXB21N/HS	AA8	OPT06_D4
IOV11/CLK7P/TXRXB20P/HS	P11	OPT15_D7
IOAB8/RXB21P/HS	AB8	OPT06_D3
IOY10/TXRXB22N/HS	Y10	OPT14_D3
IOAA9/RXB23N/HS	AA9	OPT06_D2
IOAA10/TXRXB22P/HS	AA10	OPT06_D0
IOAB9/RXB23P/HS	AB9	OPT06_D1

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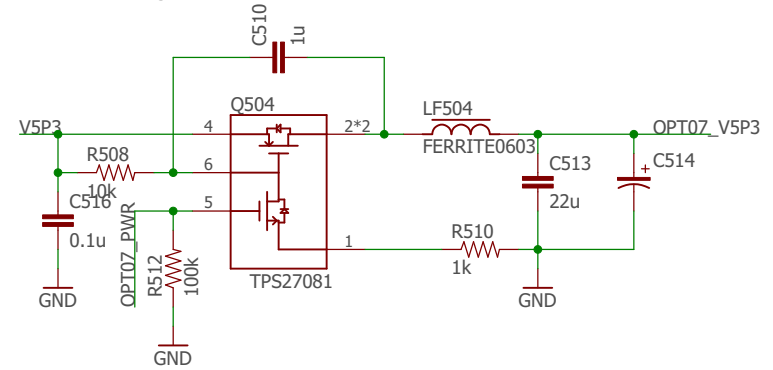
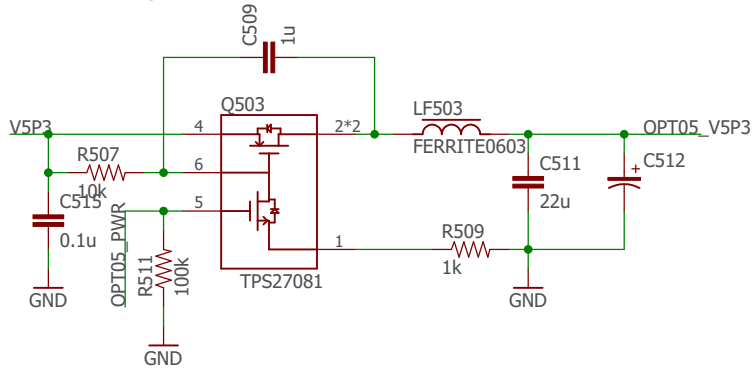
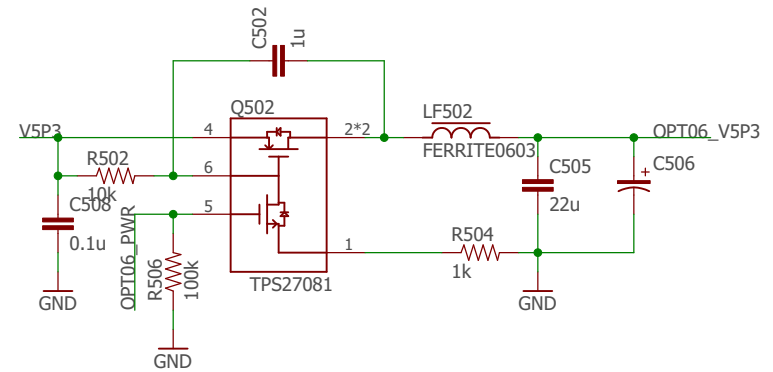
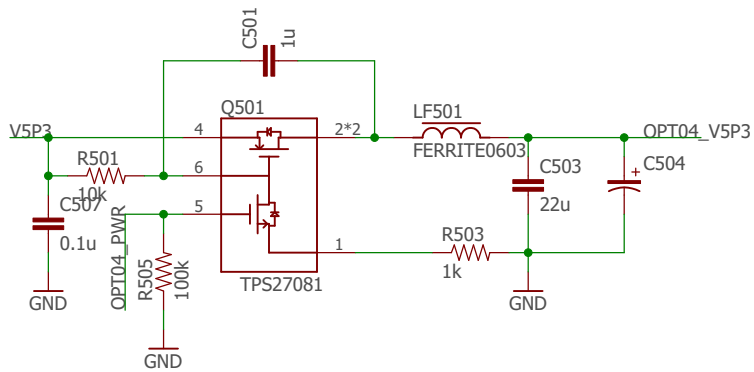
U201_B4

IOV11/TXRXB24N/HS	V11	OPT05_D6
IOV11/RXB25N/HS	W11	OPT14_D4
IOV12/TXRXB24P/HS	V12	OPT13_PWR
IOY11/RXB25P/HS	Y11	OPT14_D5
IOR12/TXRXB26N/HS	R12	OPT13_D6
IOAB10/RXB27N/HS	AB10	OPT06_PWR
IOV12/TXRXB26P/HS	P12	OPT14_D6
IOAB11/RXB27P/HS	AB11	OPT14_LED
IOAA11/TXRXB28N/HS	AA11	OPT06_LED
IOAB12/RXB29N/HS	AB12	OPT05_D5
IOAA12/TXRXB28P/HS	AA12	OPT05_D4
IOAB13/RXB29P/HS	AB13	OPT05_D3
IOV13/TXRXB34N/HS	V13	OPT14_D7
IOV12/RXB35N/HS	W12	OPT13_D0
IOV14/TXRXB34P/HS	W14	OPT13_D4
IOV13/RXB35P/HS	W13	OPT13_D2
IOR13/TXRXB36N/HS	R13	OPT13_D7
IOAA13/VREFB4N0	AA13	OPT05_D2
IOV13/TXRXB36P/HS	P13	
IOAB14	AB14	OPT05_D1
IOY13/TXRXB37N/HS	Y13	OPT13_D1
IOAA14/RXB38N/HS	AA14	OPT05_D0
IOV14/TXRXB37P/HS	Y14	OPT13_D3
IOAB15/RXB38P/HS	AB15	OPT05_PWR
IOV14/TXRXB39N/HS	V14	OPT04_D7
IOAA15/RXB40N/HS	AA15	OPT05_LED
IOV15/TXRXB39P/HS	W15	OPT13_D5
IOY16/RXB40P/HS	Y16	OPT12_PWR
IOU15/TXRXB41N/HS	U15	
IOAB16/RXB42N/HS	AB16	OPT13_LED
IOV16/TXRXB41P/HS	V16	OPT12_D6
IOAA16/RXB42P/HS	AA16	OPT04_D5
IOAA17/TXRXB43N/HS	AA17	OPT04_D3
IOAB19/RXB44N/HS	AB19	OPT04_D1
IOY17/TXRXB43P/HS	Y17	OPT12_D1
IOAB20/RXB44P/HS	AB20	OPT04_PWR
IOV15/TXRXB45N/HS	V15	OPT04_D6
IOAA19/RXB46N/HS	AA19	OPT04_D0
IOV16/TXRXB45P/HS	W16	OPT12_D0
IOY18/RXB46P/HS	Y18	OPT12_D3
IOY19/TXRXB49N/HS	Y19	OPT12_D5
IOAB21/RXB50N/HS	AB21	OPT12_LED
IOV18/TXRXB49P/HS	W18	OPT12_D4
IOAA20/RXB50P/HS	AA20	OPT04_LED
IOY17/TXRXB57N/HS	Y17	OPT12_D2
IOAB17/RXB58N/HS	AB17	OPT04_D4
IOV17/PLLCLKOUTP/TXRXB57P/HS	V17	OPT12_D7
IOAB18/RXB58P/HS	AB18	OPT04_D2

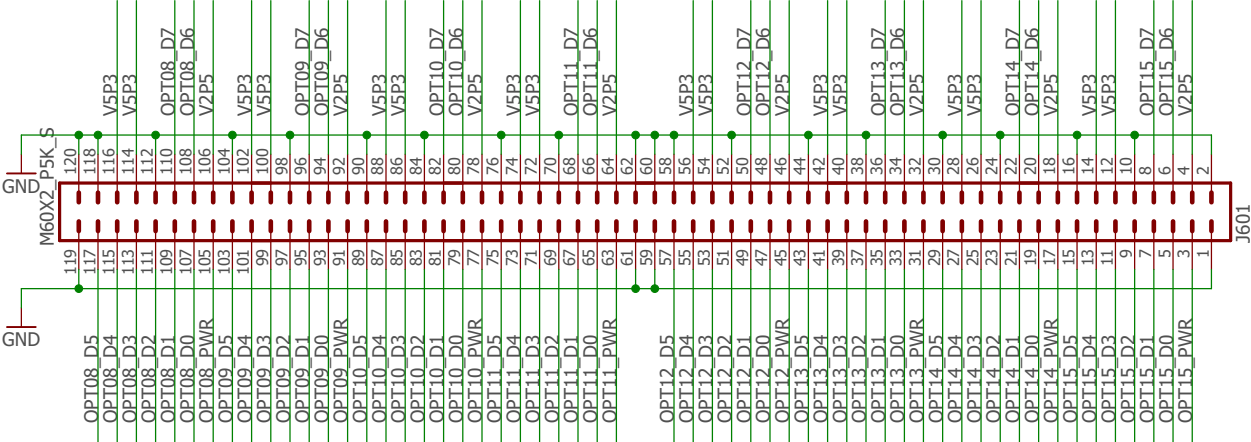
MAX10_F484_10M40DA



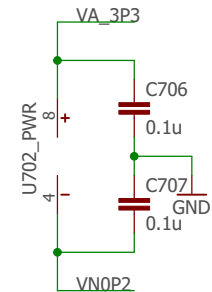
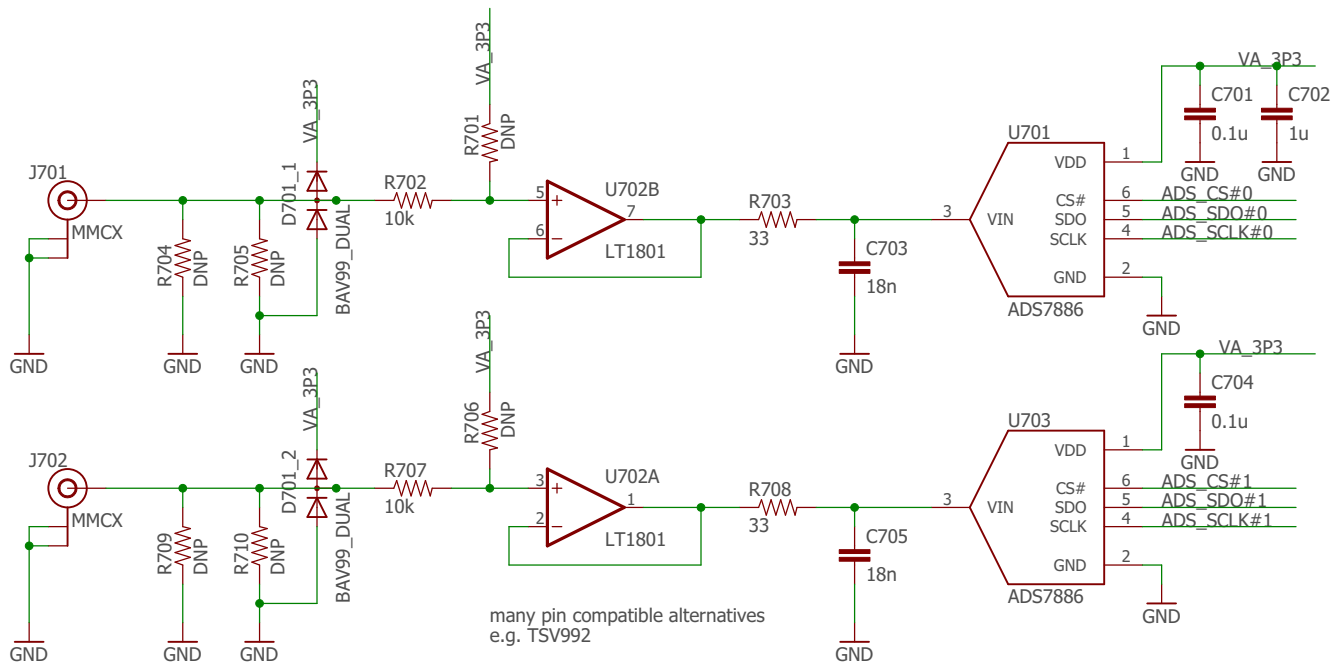
Connectors Right Power Switches



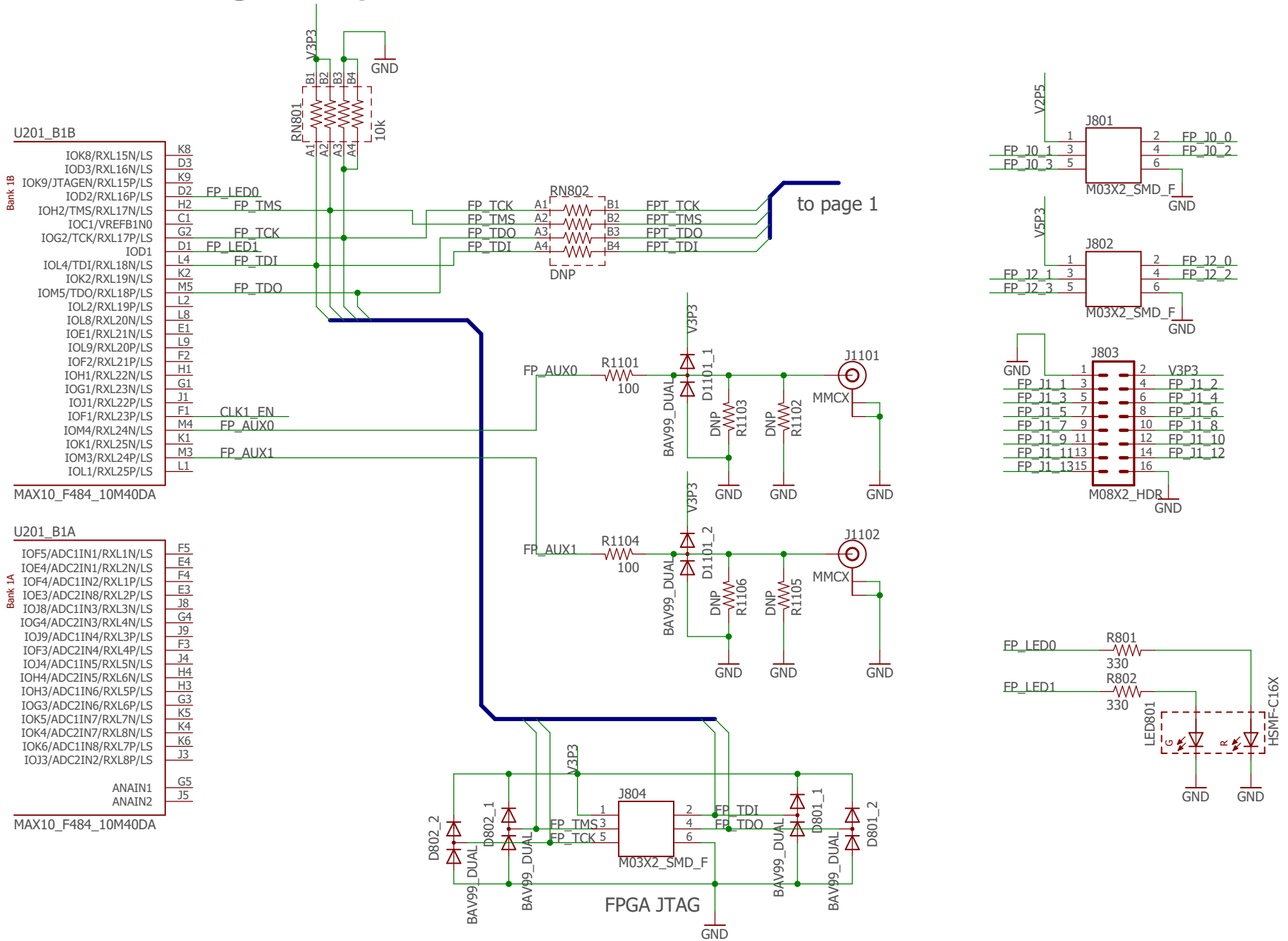
Expansion Connector (Opt08 - Opt15)



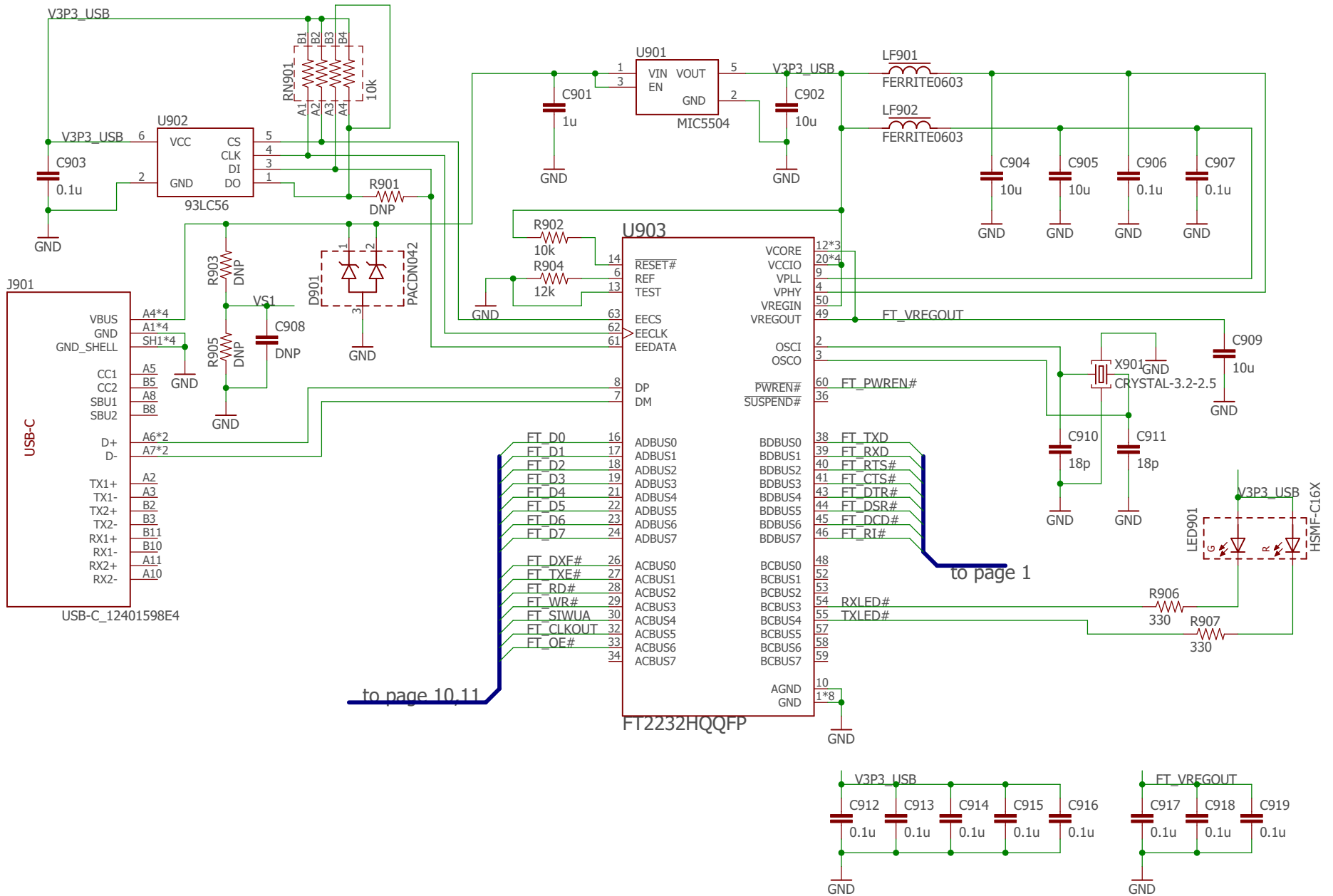
Aux Analog In



FPGA Config / Expansion Connectors



FTDI - Secondary USB Port



SRAM

U201_B7

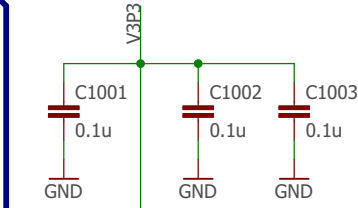
Bank 7

- IOE16/RXT1P/HS
- IOD17/RXT2P/HS
- IOE15/RXT1N/HS
- IOC17/RXT2N/HS
- IOF16/RXT5P/HS
- IOC19/RXT6P/HS
- IOF15/RXT5N/HS
- IOB19/RXT6N/HS
- IOC18/RXT7P/HS
- IOA20/RXT8P/HS
- IOB17/RXT7N/HS
- IOA19/RXT8N/HS
- IOD15/RXT9P/HS
- IOA18/RXT10P/HS
- IOE14/RXT9N/HS
- IOA17/RXT10N/HS
- IOC16/RXT15P/HS
- IOB16/RXT16P/HS
- IOC15/RXT15N/HS
- IOA16/RXT16N/HS
- IOH14/RXT17P/HS
- IOA15
- IOJ13/RXT17N/HS
- IOB15/VREFB7N0
- IOC14/RXT18P/HS
- IOA14/RXT19P/HS
- IOC13/RXT18N/HS
- IOB14/RXT19N/HS
- IOD14/RXT20P/HS
- IOE12/RXT21P/HS
- IOE13/RXT20N/HS
- IOD13/RXT21N/HS
- IOH13/RXT22P/HS
- IOA13/RXT23P/HS
- IOJ12/RXT22N/HS
- IOA12/RXT23N/HS
- IOC12/RXT24P/HS
- IOA11/RXT25P/HS
- IOD12/RXT24N/HS
- IOA10/RXT25N/HS
- IOC11/RXT26P/HS
- IOB12/RXT27P/HS
- IOC10/RXT26N/HS
- IOB11/RXT27N/HS
- IOH12/RXT28P/HS
- IOA7/RXT29P/HS
- IOJ11/RXT28N/HS
- IOA8/RXT29N/HS
- IOB10/RXT30P/HS
- IOA9/RXT31P/HS
- IOC9/RXT30N/HS
- IOB8/RXT31N/HS

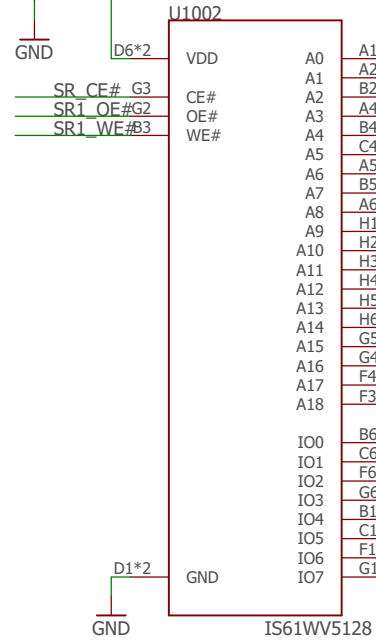
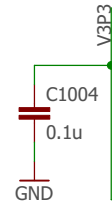
MAX10_F484_10M40DA

- E16 SR_D15
- D17 SR1_WE#
- E15 SR_A17
- C17 SR_D14
- F16 SR_A8
- C19 SR_D12
- B19 SR_A7
- B19 SR_D1
- C18 SR_D13
- A20 SR_D0
- B17 SR_A15
- A19 SR_D2
- D15 SR1_OE#
- A18 SR_D3
- E14 SR_A18
- A17 SR_A13
- C16 SR_A14
- B16 SR_CE#
- C15 SR_A12
- A16 SR_A10
- H14 SR_A6
- A15 SR_A9
- J13 SR_A2
- B15 SR0_OE#
- C14 SR_D11
- A14 SR_D6
- B14 SR_D7
- D14 SR_A11
- E12 SR_A5
- E13 SR_A16
- D13 SR_D10
- H13 SR_A4
- A13 SR0_WE#
- J12 SR_A1
- A12 SR_D4
- C12 SR_A0
- A11 FT_OE#
- D12 SR_D8
- A10 FT_SIWUA
- C11 FT_D5
- B12 SR_D5
- C10 FT_D3
- B11 FT_CLKOUT
- H12 SR_A3
- A7 FT_D7
- J11
- A8 FT_TXE#
- B10 FT_WR#
- A9 FT_RD#
- C9 FT_D1
- B8 FT_DXF#

SR_A[0..18] SR_D[0..15] SR_CE# SR0_OE# SR1_OE# SR0_WE# SR1_WE#



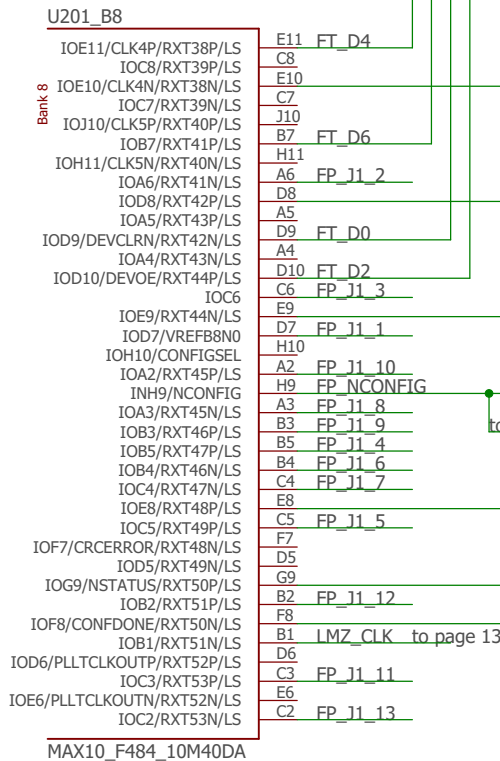
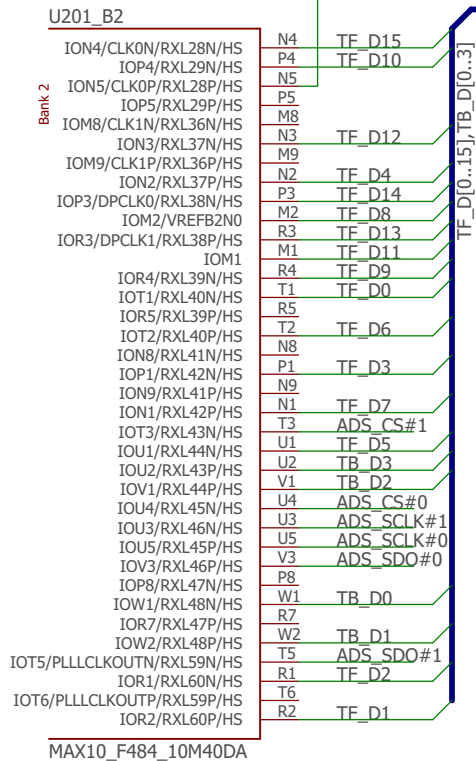
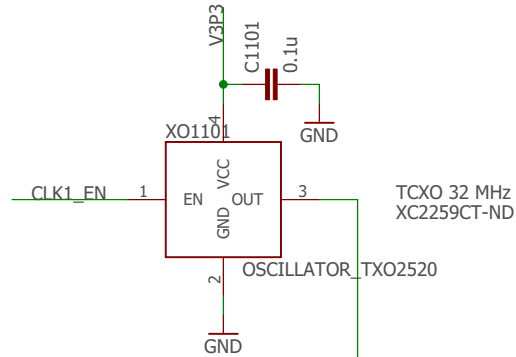
IS61WV5128



IS61WV5128

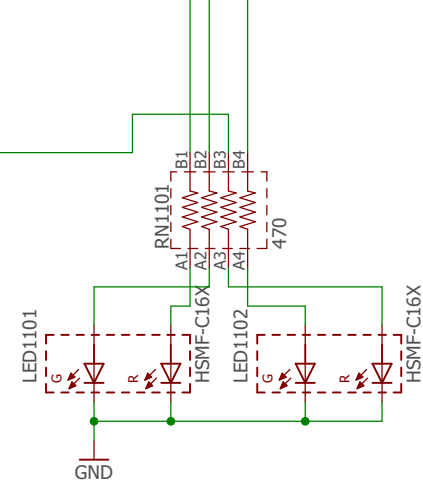
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FPGA - Teensy / FPGA - FTDI Interface

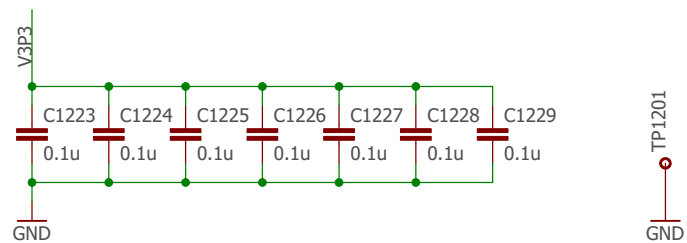
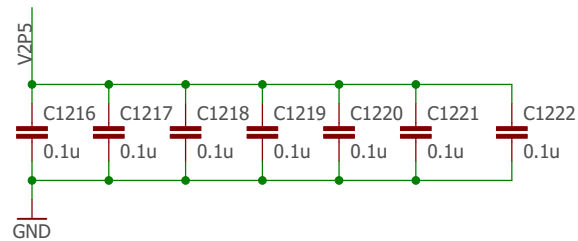
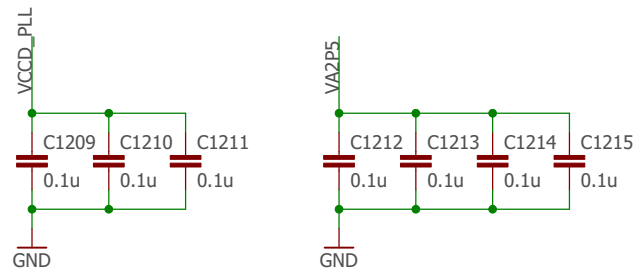
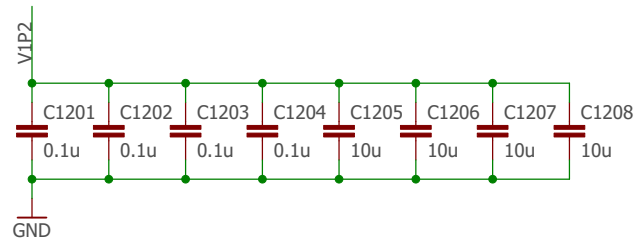
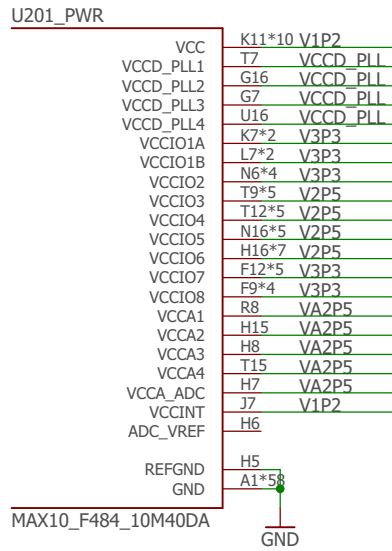


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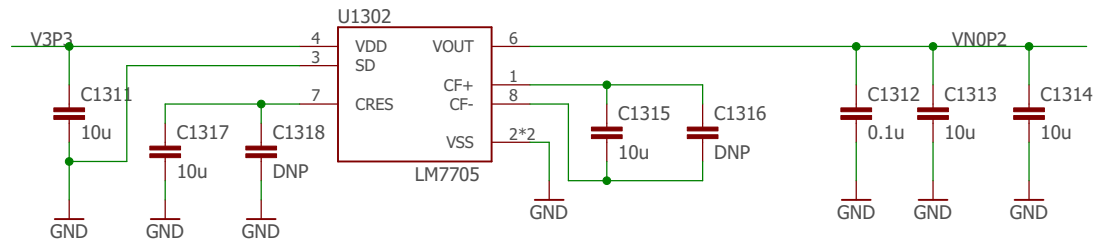
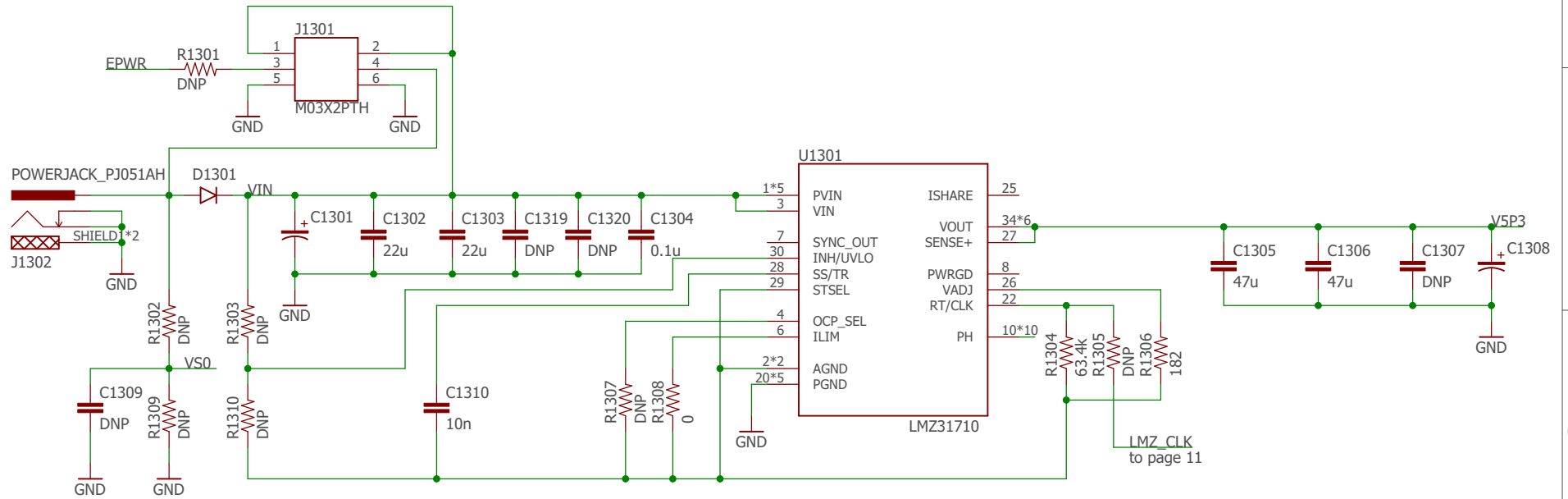
to page 1



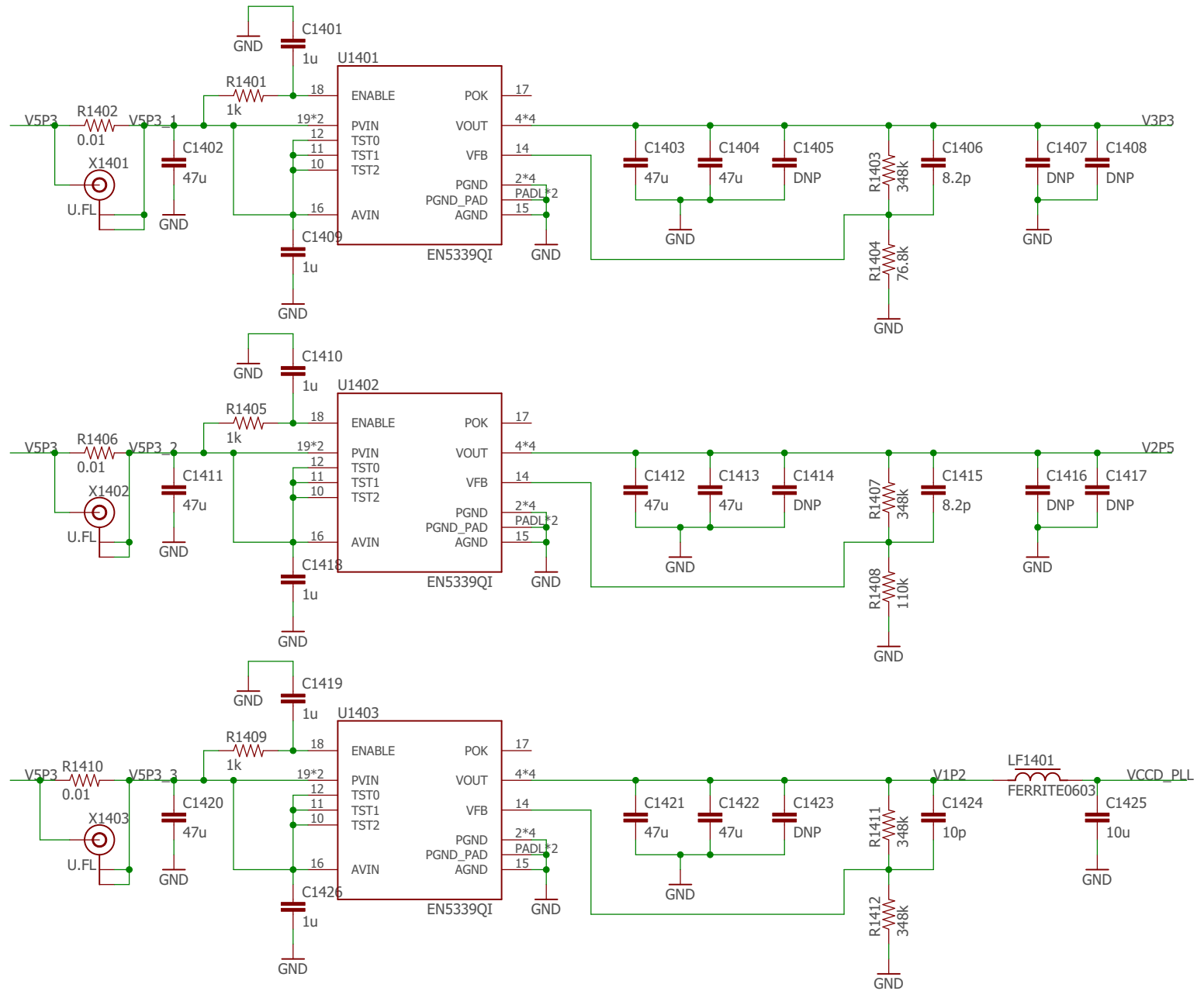
FPGA Power



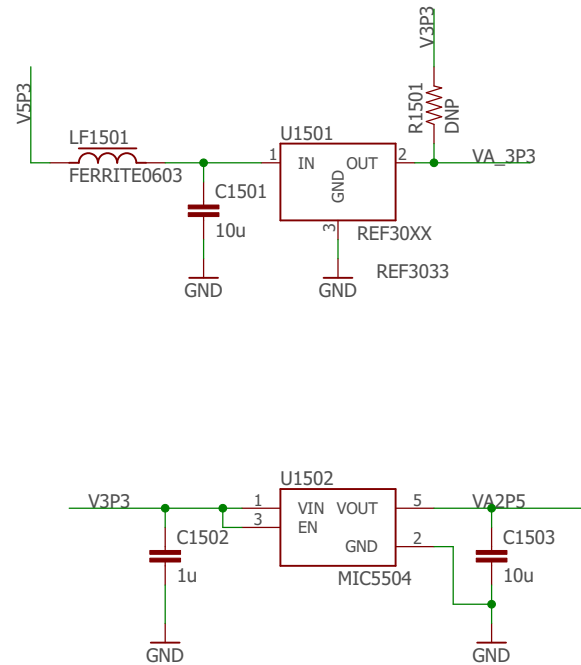
Power (Switching 5.3V, -0.2V)



Power (Switching 3.3V, 2.5V, 1.2V)



Power Linear 3.3V, 2.5V



Fiducials
⊗ ⊗ ⊗ ⊗ ⊗ ⊗
⊗ ⊗ ⊗ ⊗ ⊗