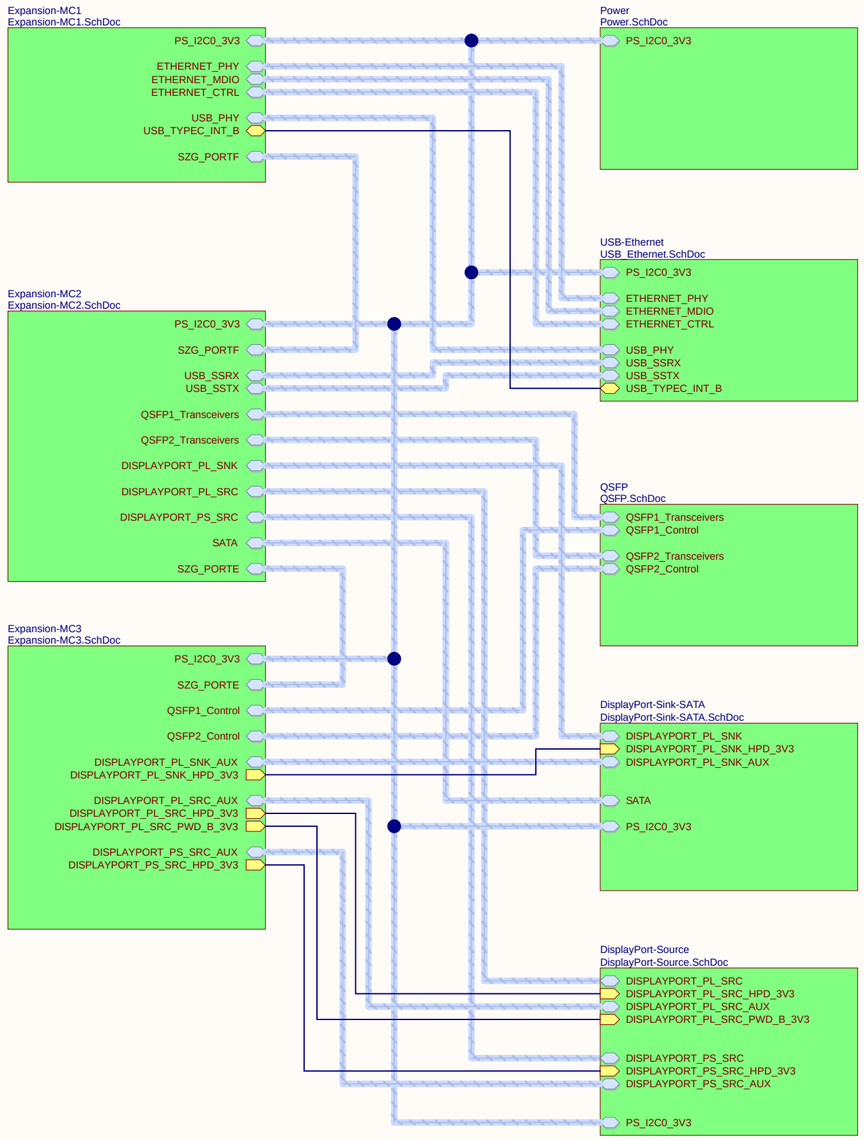


PCB
BRK1900-PCB-AXX

Opal Kelly Logo

ASSEMBLY
BRK1900-EMS-AXX

BARCODE LABEL
LABEL-USB-SN

Jack Standoffs

JSO1 JSO2 JSO3 JSO4

Fiducials

FID1 FID2 FID3 FID4
FID5 FID6 FID7 FID8

Test Points

TP1 +1.8V
TP2 DGND
TP3 +3.3V
TP4 VREF_67
TP5 DGND
TP6 VCCO_28
TP7 VCCO_68
TP8 DGND
TP9 VREF_28
TP10 VREF_68
TP11 DGND
TP12 VCCO_67
TP13 VCCO_87_88

BRK1900B Mounting Holes

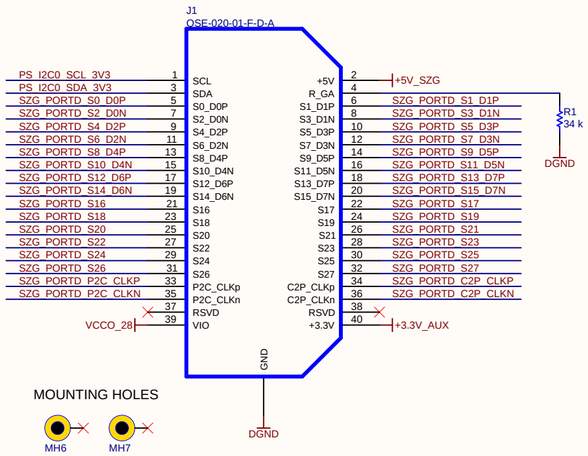
MH1 MH2 MH3 MH4 MH5

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Size: C	Number: xxx	Revision: 1	
Date: 11/6/2023	Time: 7:04:21 AM	Sheet 1 of 9	
File: O:\work\PastRevisions\BRK1900-A02\Top.SchDoc			

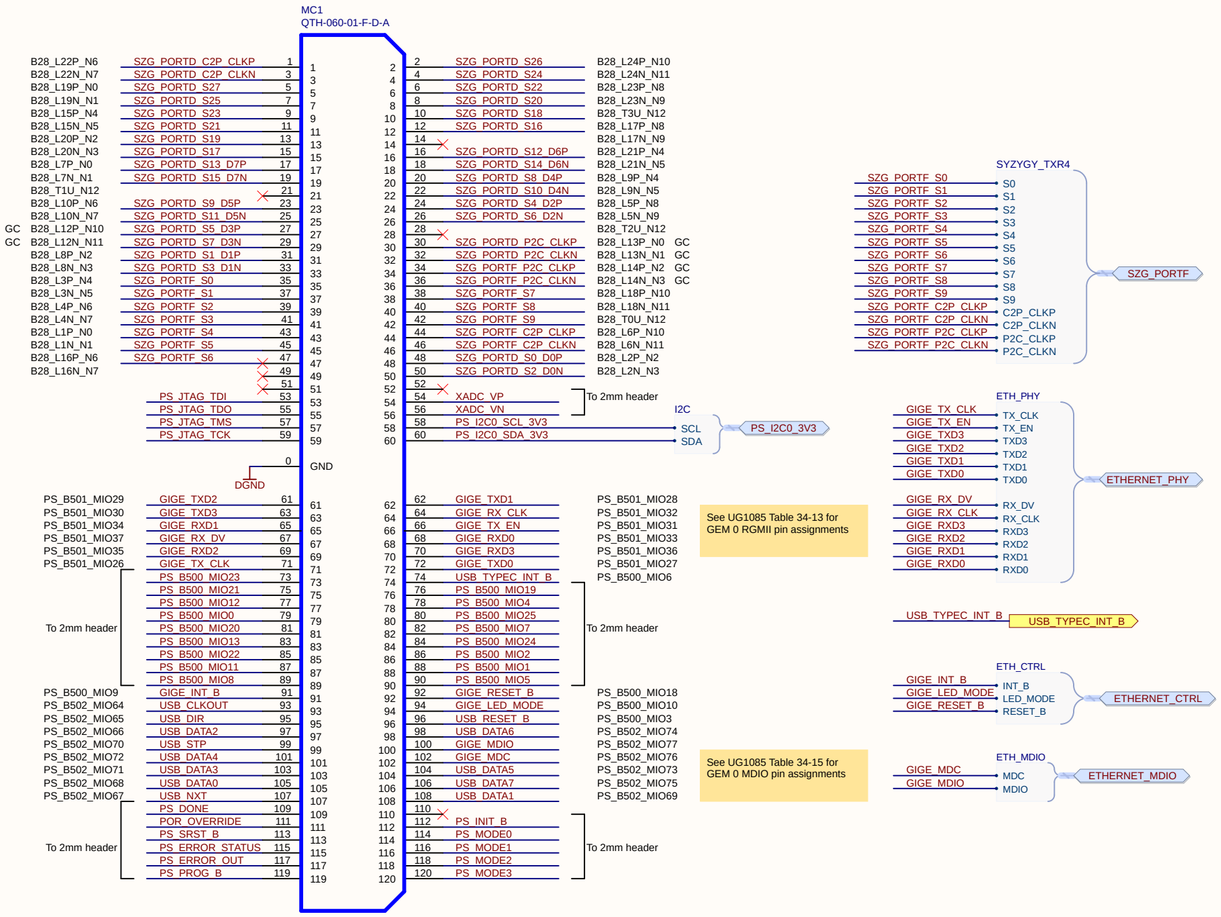
Opal Kelly
13500 SW 72nd Ave STE 100
Portland, OR 97223
http://www.opalkelly.com

Opal Kelly

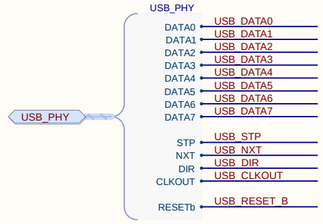
SYZYGY PORT D (VCCO_28)



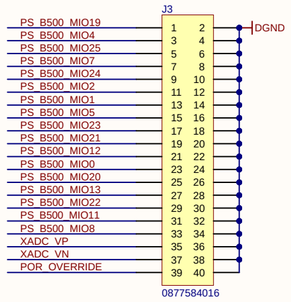
Mezzanine Connector MC1

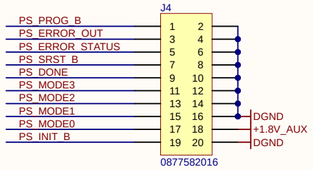


JTAG Connector

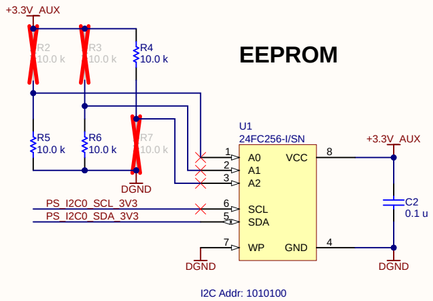


2mm Headers





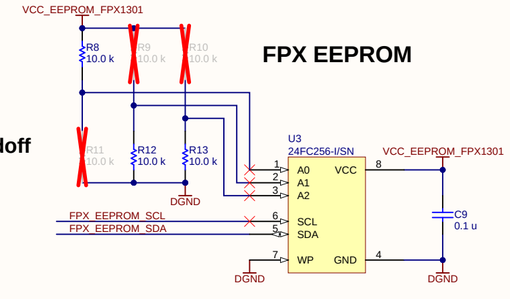
EEPROM



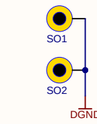
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Title: BRK1900 - Expansion MC1			Opal Kelly 13500 SW 72nd Ave STE 100 Portland, OR 97223 http://www.opalkelly.com
Size: C	Number: xxx	Revision: 1	
Date: 11/6/2023	Time: 7:04:21 AM	Sheet 2 of 9	
File: O:\work\PastRevisions\BRK1900-A02\Expansion-MC1.SchDoc			

FPX EEPROM

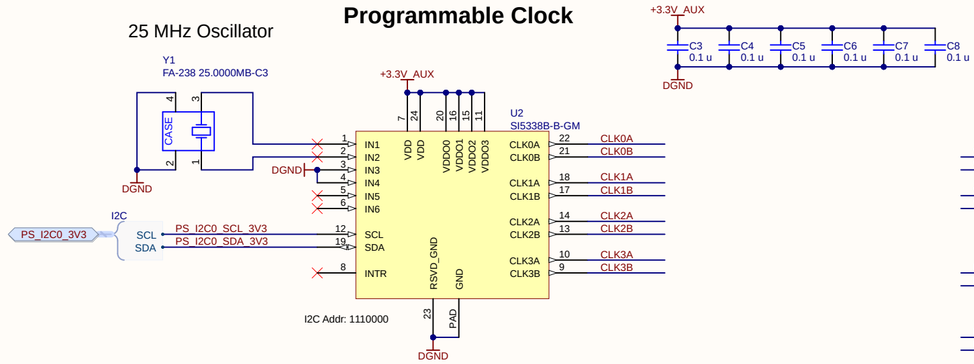


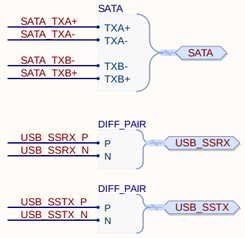
FPX Standoff



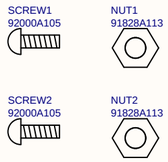
Programmable Clock

25 MHz Oscillator



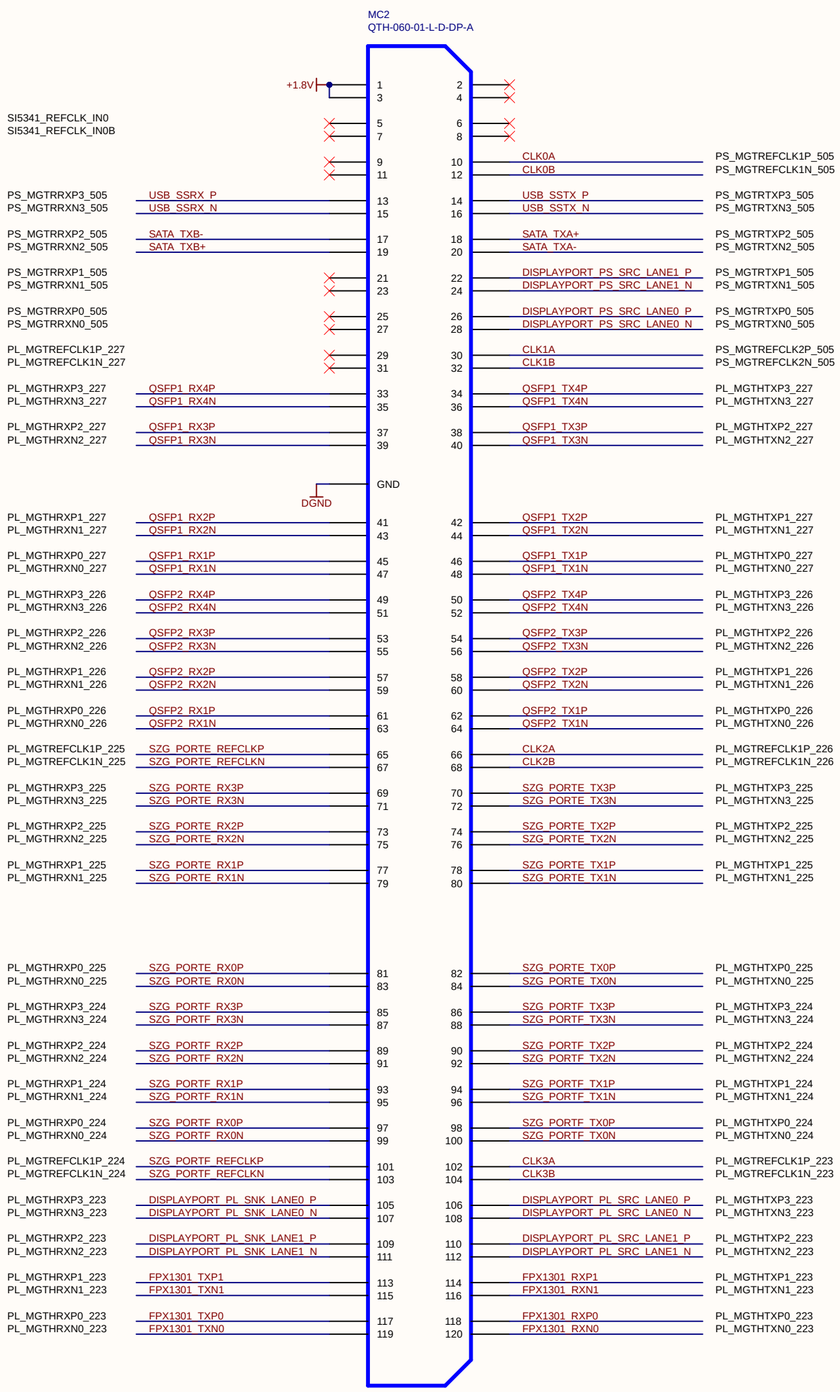


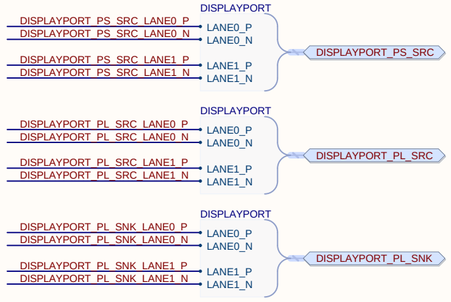
FPX Mounting Hardware

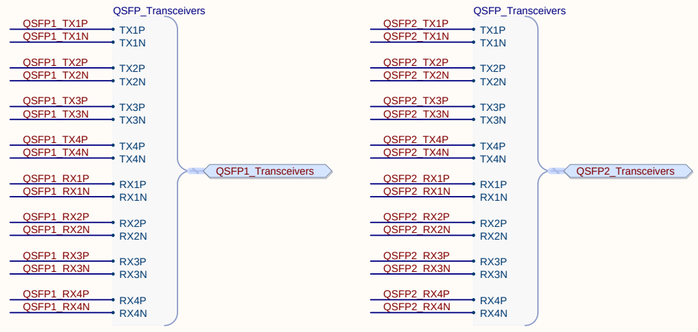


FPX Connector

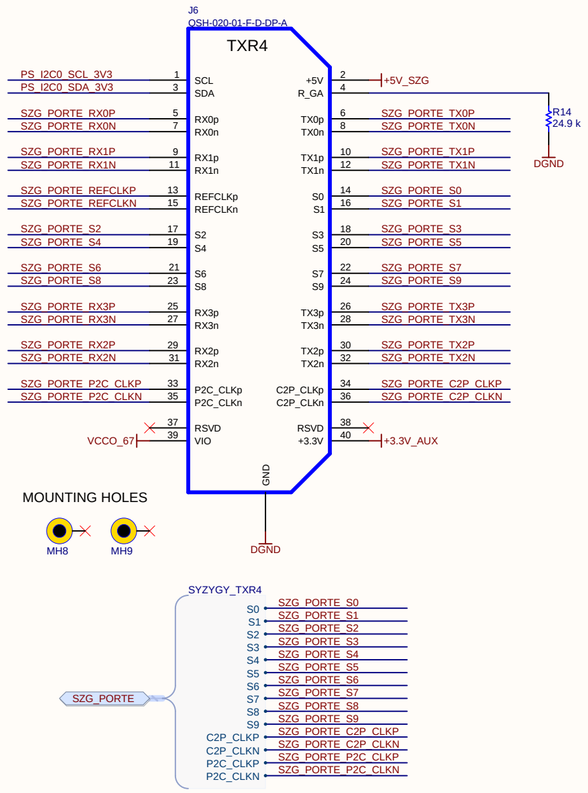
Mezzanine Connector MC2



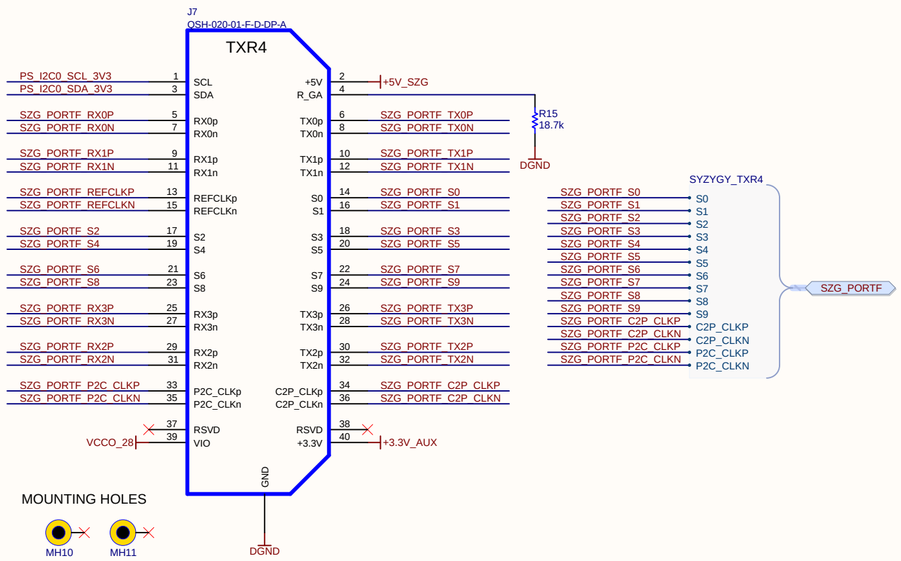




SYZYGY PORT E (VCCO_67)



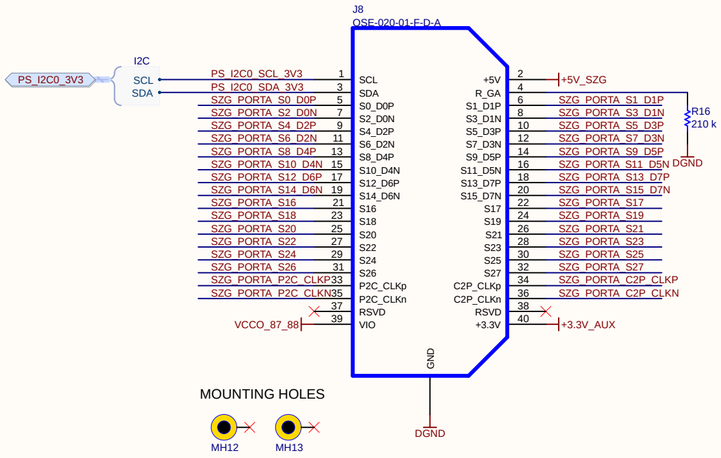
SYZYGY PORT F (VCCO_28)



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Size: C	Number: xxx	Revision: 1	
Date: 11/6/2023	Time: 7:04:21 AM	Sheet 3 of 9	
File: O:\work\PastRevisions\BRK1900-A02\Expansion-MC2.SchDoc			

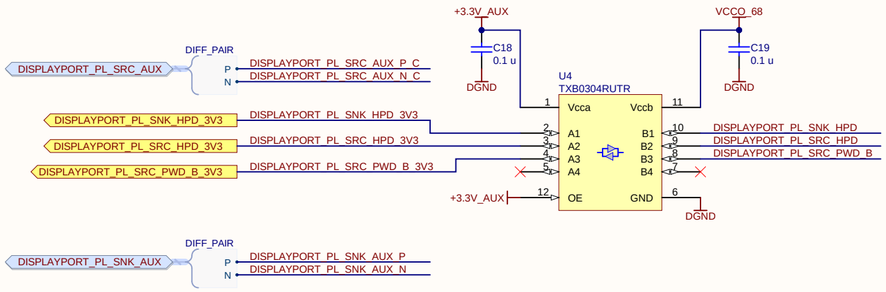
Mezzanine Connector MC3

SYZYGY PORT A (VCCO_87_88)

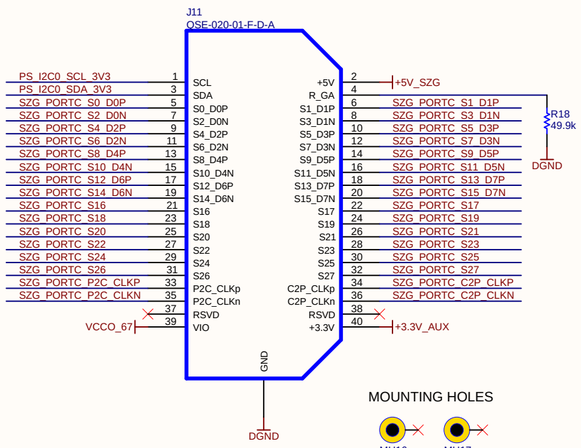


MOUNTING HOLES

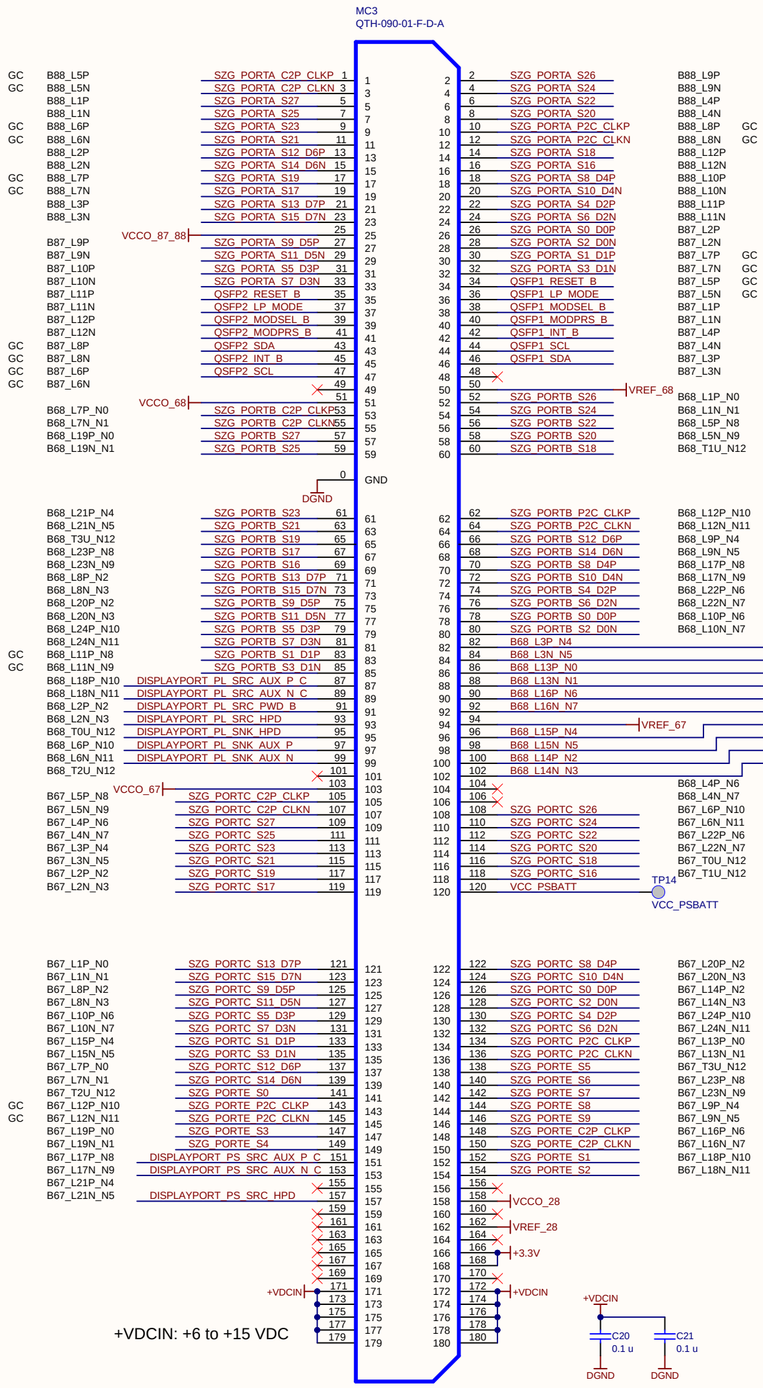
Level Translator



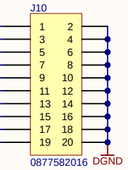
SYZYGY PORT C (VCCO_67)

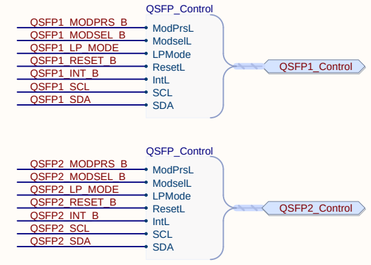


MOUNTING HOLES

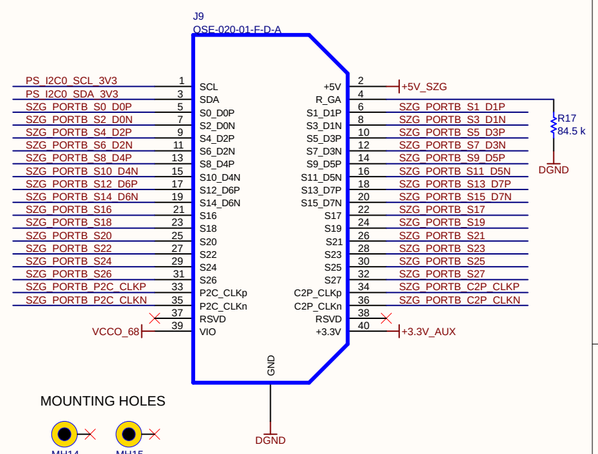


2mm Header

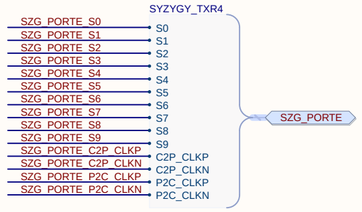




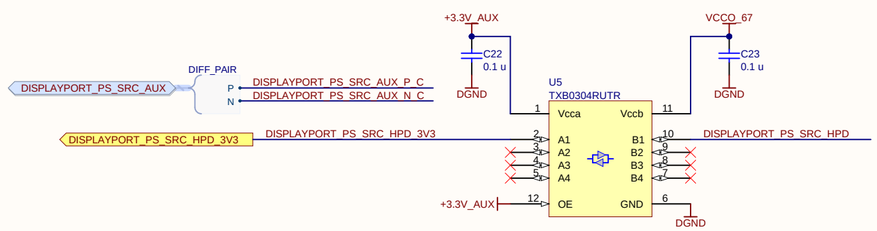
SYZYGY PORT B (VCCO_68)



MOUNTING HOLES

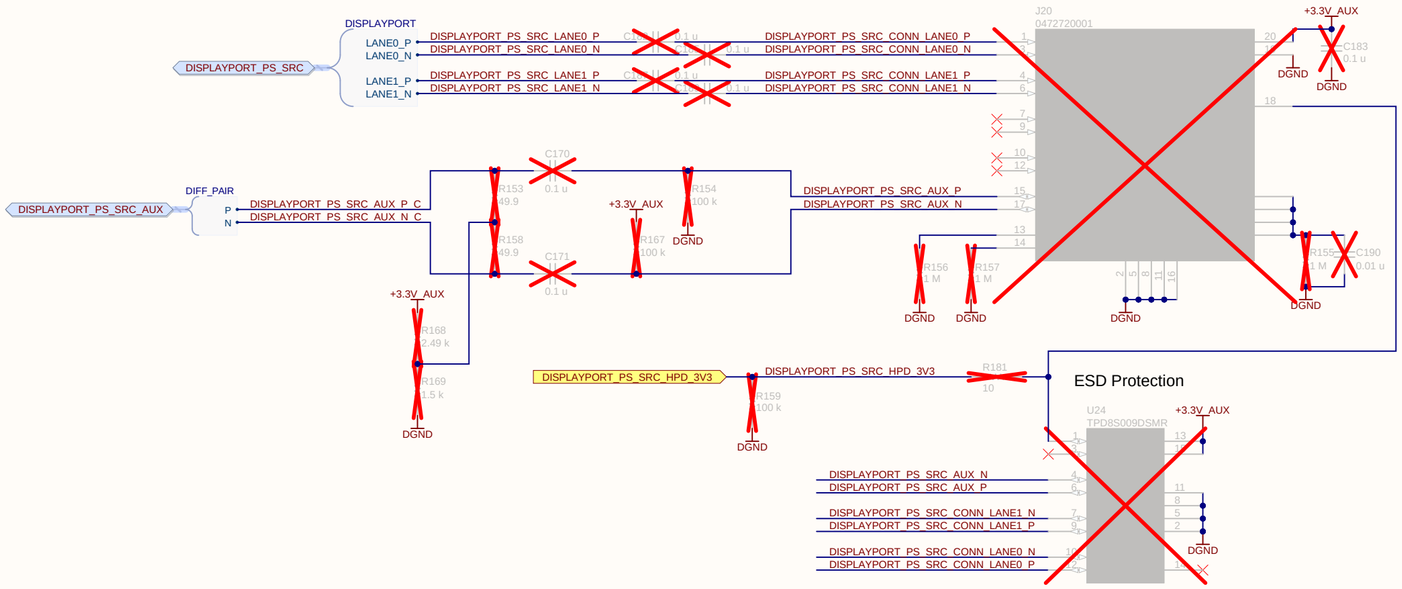


Level Translator

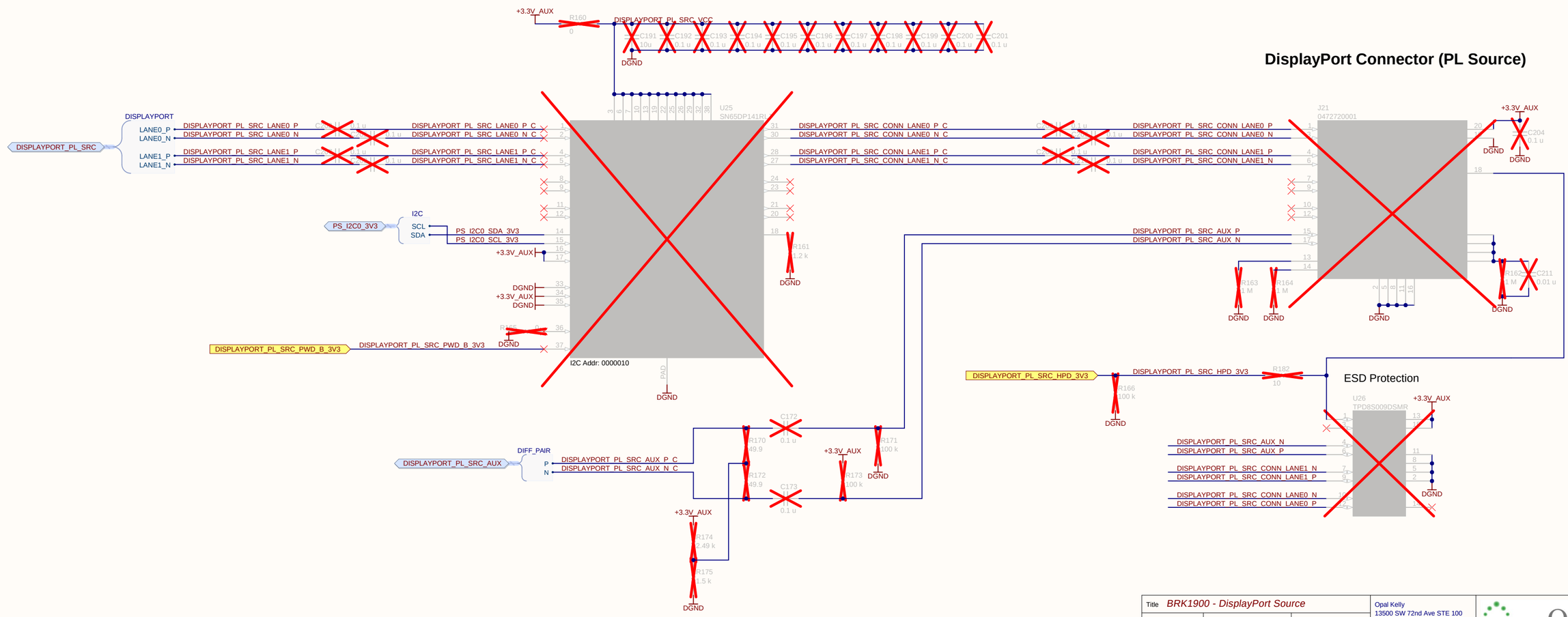


Title: *BRK1900 - Expansion MC3*			Opal Kelly 13500 SW 72nd Ave STE 100 Portland, OR 97223 http://www.opalkelly.com
Size: C	Number: xxx	Revision: 1	
Date: 11/6/2023	Time: 7:04:21 AM	Sheet 4 of 9	
File: O:\work\PastRevisions\BRK1900-A02\Expansion-MC3.SchDoc			

DisplayPort Connector (PS Source)



DisplayPort Redriver (PL Source)

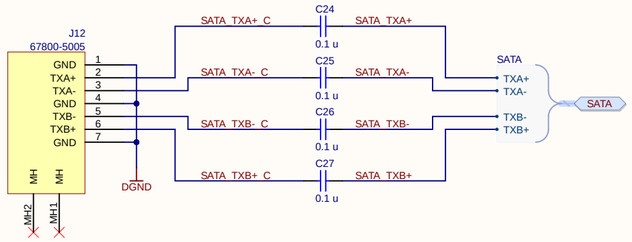


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Date: 11/6/2023	Time: 7:04:21 AM	Sheet 5 of 9	
File: O:\work\PastRevisions\BRK1900-A02\DisplayPort-Source.SchDoc			

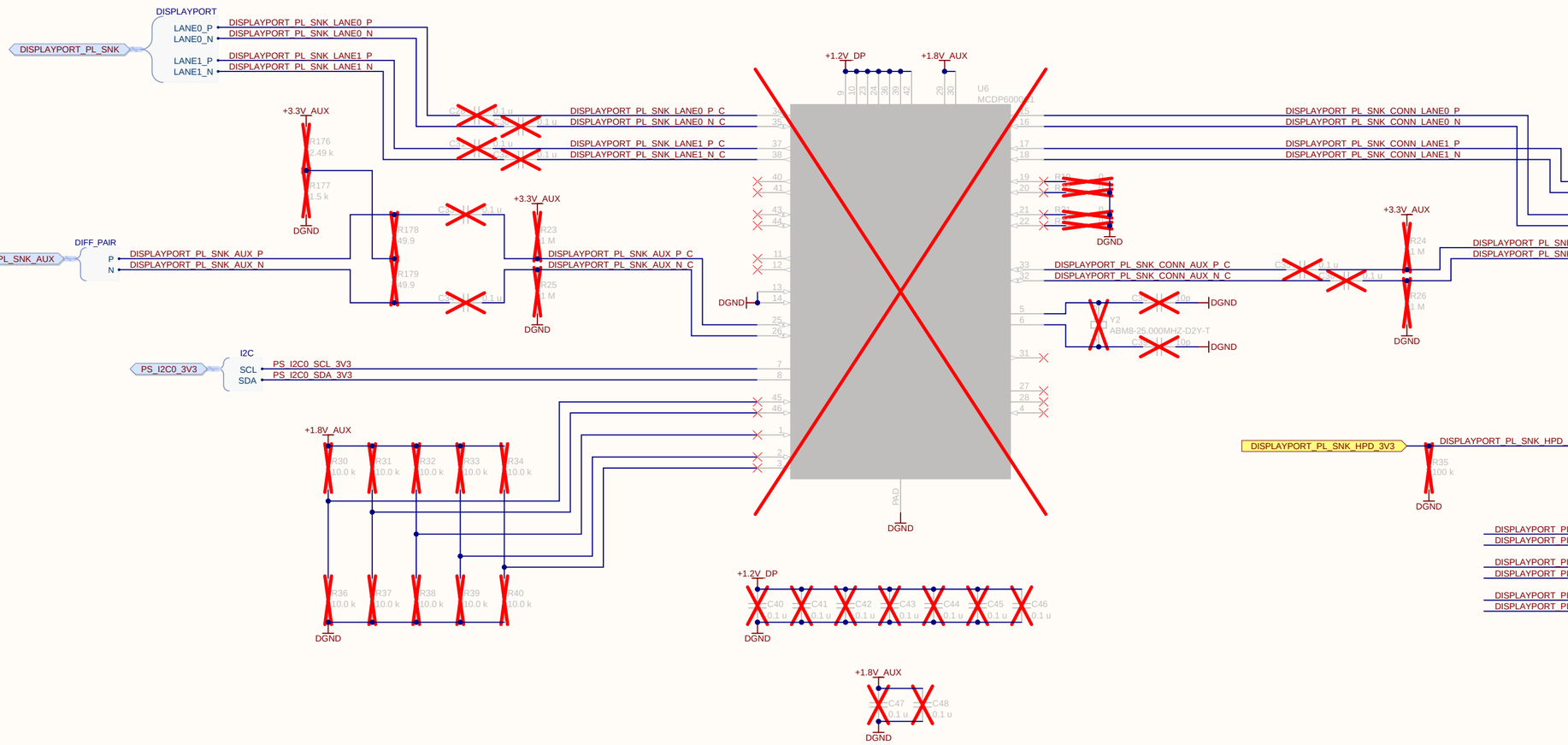
Opal Kelly
13500 SW 72nd Ave STE 100
Portland, OR 97223
http://www.opalkelly.com

Opal Kelly

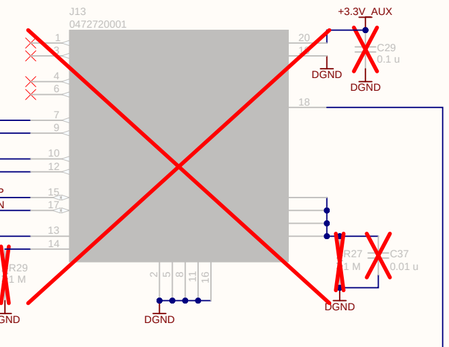
SATA



DisplayPort Retimer (PL Sink)



DisplayPort Connector (PL Sink)



Title	*BRK1900 - DisplayPort Sink, SATA*		
Size: C	Number: xxx	Revision: 1	
Date: 11/6/2023	Time: 7:04:21 AM	Sheet 6 of 9	
File: O:\work\PastRevisions\BRK1900-A02\DisplayPort-Sink-SATA.SchDoc			

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http://www.opalkelly.com

Opal Kelly

QSFP 1

Level Translators

QSFP_Control
ModPrsL
ModselL
LPMode
ResetL
IntL
SCL
SDA

QSFP2_Control
QSFP1_Control

VCCO_87_88
+3.3V_QSFP
C55 0.1 u
C56 0.1 u
DGND

U8
TXB0108DQSR
Vcca Vccb
A1 A2 A3 A4 A5 A6 A7 A8
B1 B2 B3 B4 B5 B6 B7 B8
OE GND

QSFP2_MODPRS_B
QSFP2_MODSEL_B
QSFP2_LP_MODE
QSFP2_RESET_B
QSFP1_MODPRS_B
QSFP1_MODSEL_B
QSFP1_LP_MODE
QSFP1_RESET_B

QSFP1_MODPRS_B_3V3
QSFP1_MODSEL_B_3V3
QSFP1_LP_MODE_3V3
QSFP1_RESET_B_3V3
QSFP1_INT_B_3V3
QSFP1_SCL_3V3
QSFP1_SDA_3V3

+3.3V_QSFP
+3.3V_QSFP_VCCTX1
R41 0
C49 0.1 u
C50 22 u
DGND

+3.3V_QSFP
+3.3V_QSFP_VCCRX1
+3.3V_QSFP_VCC1
R42 0
R43 0
C51 0.1 u
C52 22 u
C53 0.1 u
C54 22 u

R44 4.7 k
R45 4.7 k
R46 0
R47 0
R48 4.7 k
R49 4.7 k

J14
FS1-Z38-20Z6-60
VccRx VccTx Vcc1
ModPrsL IntL LPMode ModselL ResetL SCL SDA
TX1p TX1n TX2p TX2n TX3p TX3n TX4p TX4n
RX1p RX1n RX2p RX2n RX3p RX3n RX4p RX4n
GND

QSFP_Transceivers
QSFP1_TX1P
QSFP1_TX1N
QSFP1_TX2P
QSFP1_TX2N
QSFP1_TX3P
QSFP1_TX3N
QSFP1_TX4P
QSFP1_TX4N
QSFP1_RX1P
QSFP1_RX1N
QSFP1_RX2P
QSFP1_RX2N
QSFP1_RX3P
QSFP1_RX3N
QSFP1_RX4P
QSFP1_RX4N
QSFP1_Transceivers

QSFP Cage

QSFP1

VCCO_87_88
+3.3V_QSFP
C57 0.1 u
C58 0.1 u
DGND

U9
FXMAR2102L8X
VCCA VCCB
OE
A0 A1
B0 B1
GND

R50 3.01 k
R51 3.01 k

QSFP2_INT_B
QSFP1_INT_B

VCCO_87_88
+3.3V_QSFP
C59 0.1 u
C60 0.1 u
DGND

U10
FXMAR2102L8X
VCCA VCCB
OE
A0 A1
B0 B1
GND

R55 3.01 k
R56 3.01 k

QSFP1_SCL
QSFP1_SDA

VCCO_87_88
+3.3V_QSFP
C67 0.1 u
C68 0.1 u
DGND

U11
FXMAR2102L8X
VCCA VCCB
OE
A0 A1
B0 B1
GND

R61 3.01 k
R62 3.01 k

QSFP2_SCL
QSFP2_SDA

QSFP 2

QSFP_Control
ModPrsL
ModselL
LPMode
ResetL
IntL
SCL
SDA

QSFP2_Control
QSFP1_Control

VCCO_87_88
+3.3V_QSFP
C55 0.1 u
C56 0.1 u
DGND

U8
TXB0108DQSR
Vcca Vccb
A1 A2 A3 A4 A5 A6 A7 A8
B1 B2 B3 B4 B5 B6 B7 B8
OE GND

QSFP2_MODPRS_B
QSFP2_MODSEL_B
QSFP2_LP_MODE
QSFP2_RESET_B
QSFP1_MODPRS_B
QSFP1_MODSEL_B
QSFP1_LP_MODE
QSFP1_RESET_B

QSFP2_MODPRS_B_3V3
QSFP2_INT_B_3V3
QSFP2_LP_MODE_3V3
QSFP2_MODSEL_B_3V3
QSFP2_RESET_B_3V3
QSFP2_SCL_3V3
QSFP2_SDA_3V3

+3.3V_QSFP
+3.3V_QSFP_VCCTX2
R52 0
C61 0.1 u
C62 22 u
DGND

+3.3V_QSFP
+3.3V_QSFP_VCCRX2
+3.3V_QSFP_VCC2
R53 0
R54 0
C63 0.1 u
C64 22 u
C65 0.1 u
C66 22 u

R57 4.7 k
R58 4.7 k
R59 0
R60 0
R63 4.7 k
R64 4.7 k

J15
FS1-Z38-20Z6-60
VccRx VccTx Vcc1
ModPrsL IntL LPMode ModselL ResetL SCL SDA
TX1p TX1n TX2p TX2n TX3p TX3n TX4p TX4n
RX1p RX1n RX2p RX2n RX3p RX3n RX4p RX4n
GND

QSFP_Transceivers
QSFP2_TX1P
QSFP2_TX1N
QSFP2_TX2P
QSFP2_TX2N
QSFP2_TX3P
QSFP2_TX3N
QSFP2_TX4P
QSFP2_TX4N
QSFP2_RX1P
QSFP2_RX1N
QSFP2_RX2P
QSFP2_RX2N
QSFP2_RX3P
QSFP2_RX3N
QSFP2_RX4P
QSFP2_RX4N
QSFP2_Transceivers

QSFP Cage

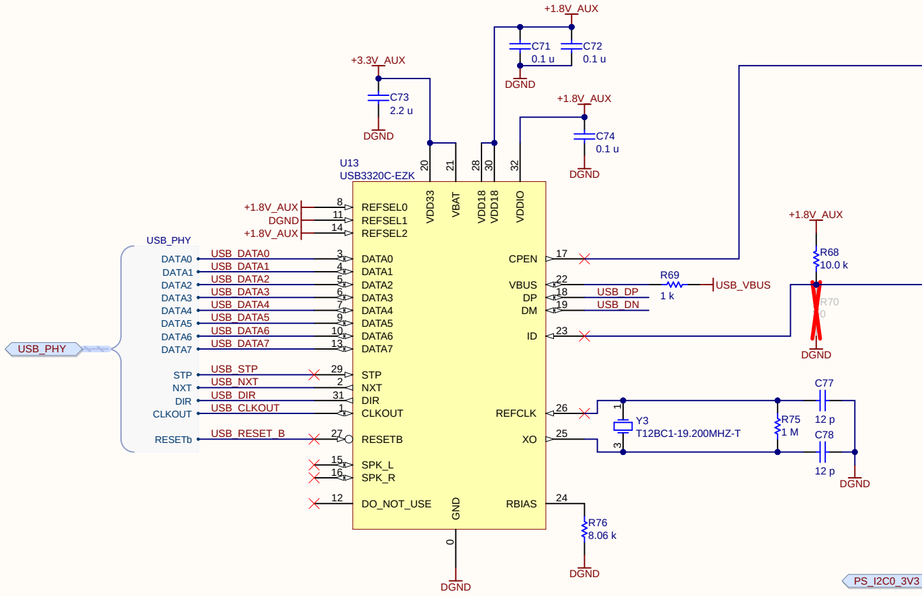
QSFP2

Title	BRK1900 - QSFP		
Size: C	Number: xxx	Revision: 1	
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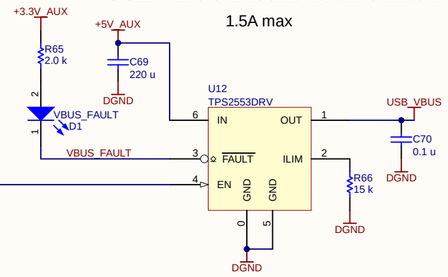
Opal Kelly

USB 2.0 Transceiver

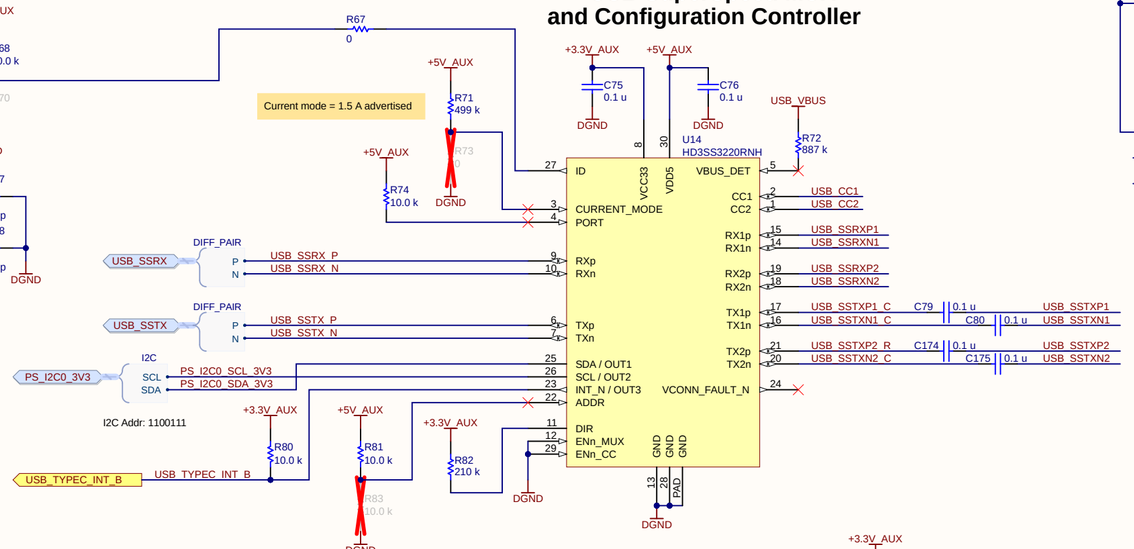


USB VBUS Distribution Switch

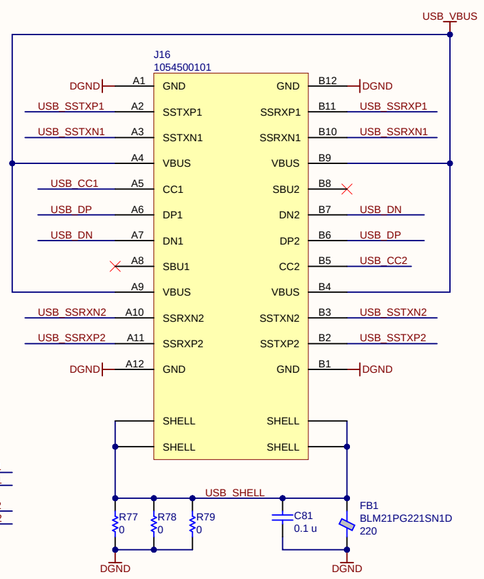
1.5A max



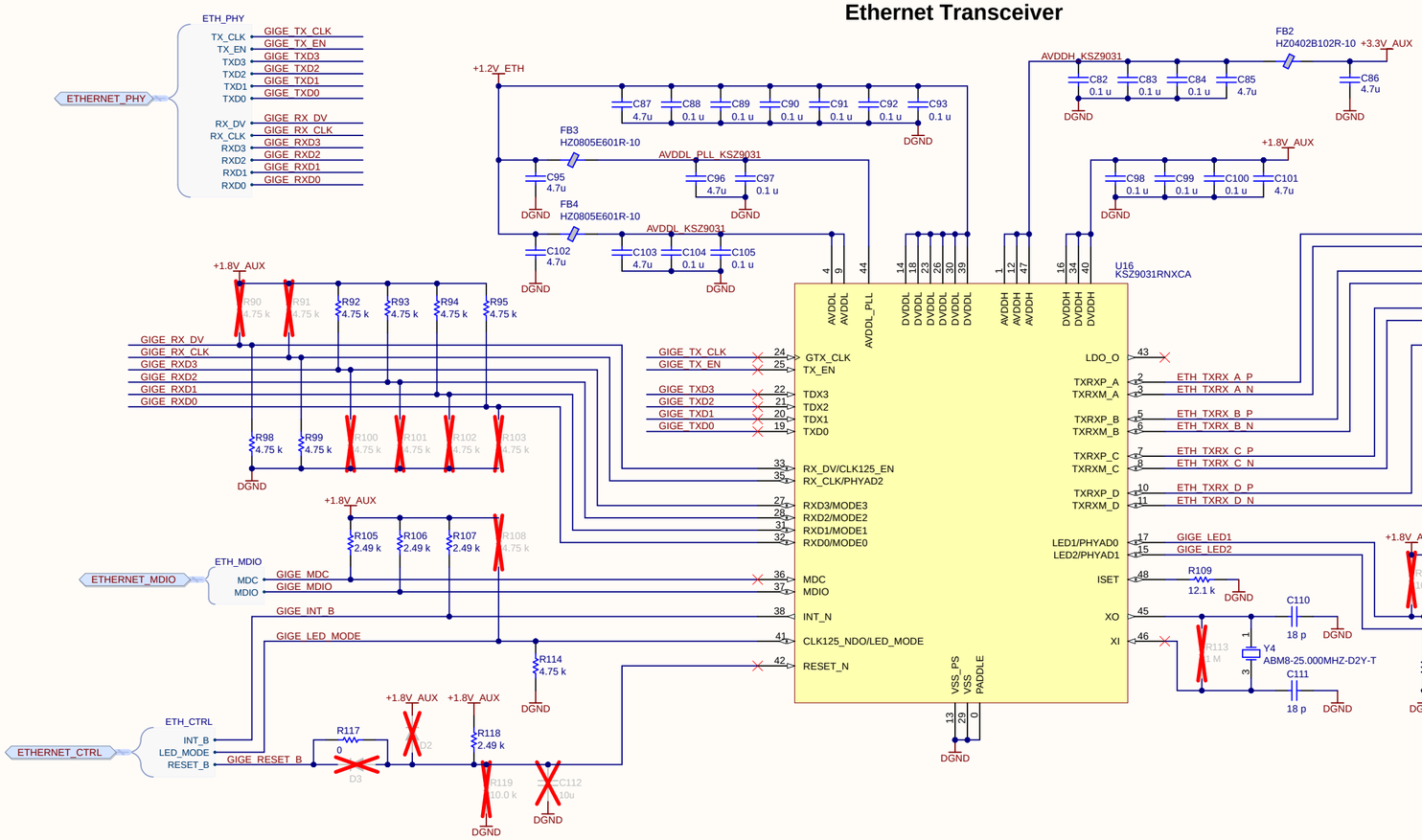
USB SuperSpeed MUX and Configuration Controller



USB Type C Connector

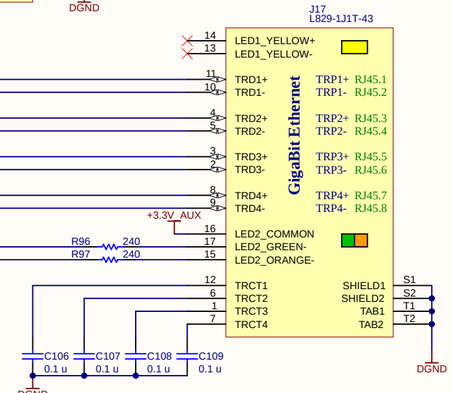


Ethernet Transceiver

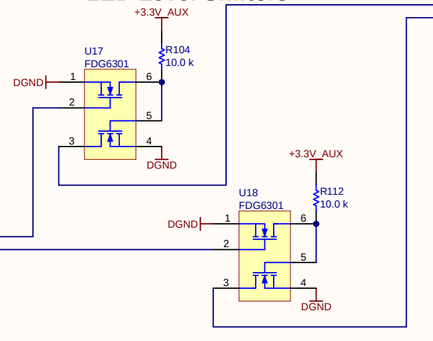


Ethernet MAC ID PROM

Ethernet RJ45



LED Level Shifters



Title: BRK1900 - USB, Ethernet			
Size: C	Number: xxx	Revision: 1	
Date: 11/6/2023	Time: 7:04:21 AM	Sheet 8 of 9	
File: O:\work\PastRevisions\BRK1900-A02\USB_Ethernet.SchDoc			

Opal Kelly
13500 SW 72nd Ave STE 100
Portland, OR 97223
http://www.opalkelly.com

Opal Kelly

4-Channel Step-Down Supply

Barrel Jack

5A max
2.5 / 5.1 mm

J18
PJ-102AH

Input Power

+6 to +15 VDC

6-pin Mini-Fit

8A max

J19
0455580003

U19
TPS65400RGZ

I2C Addr: 1101001

+1.8V LDO (500 mA)

Ethernet PHY, USB PHY, FPX1301, DP Retimer

U20
TPS7A9001DSK

+1.2V LDO (500 mA)

Ethernet PHY

U21
TPS7A9001DSK

+1.2V Step-Down (1.5 A)

DisplayPort Retimer

U22
EP53F8QI

Power LED

Title	BRK1900 - Power		
Size: C	Number: xxx	Revision: 1	
Date: 11/6/2023	Time: 7:04:22 AM	Sheet 9 of 9	
File: O:\work\PastRevisions\BRK1900-A02\Power.SchDoc			

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