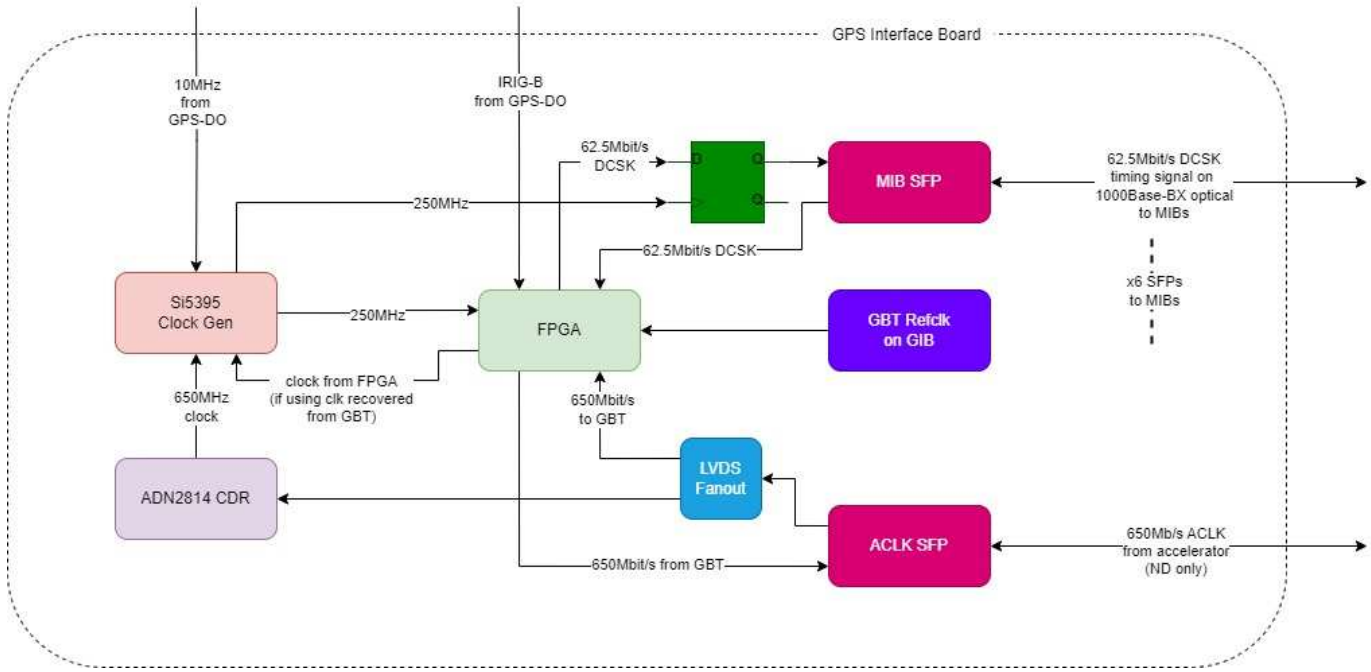

Part	I2C Address
ACLK SFP	0x50
ACLK CDR	0x40
SFP 1	0x50
SFP 2	
SFP 3	
SFP 4	
SFP 5	
SFP 6	

Part	I2C Address
Board ID EEPROM	0x50
SI5395 Clock Gen.	0x68
I2C Extender 1	0x74
I2C Extender 2	0x75
VCC5V Power Monitor	0x67
VCC3V3 Power Monitor	0x6A
VCC2V5 Power Monitor	0x69
I2C Switch	0x70
Temperature Monitor	0x48

Power Estimate			Max Current (mA)				
Part	Description	Occurence	VCC5V	VCC3V3	VCC2V5	VCC1V8	12V Main PWR
LTC6957-2	Sine Wave to LVDS	1		72			
MAX9371	Low Jitter 5V TTL to LVDS	2	16				
SN74avc2t45	5V <--> 3.3V	1	100	100			
SN74avc2t45	3.3V <--> 2.5V	5		100	100		
SI5395	Clock Generator	1		302		300	
LTC2945	Power Monitor	4	1.2				
24AA025E48T	Board ID EEPROM	1		3			
LEDs		13		20			
NB7V52M	Diff. Flip-Flop	6			90		
ADN2814	CDR	6		145			
SFP		6		280			
SN74lvc1g32	OR Gate	12		100			
PCA9539	I2C Extender	2		160			
TCA9548A	I2C Switch	1			100		
LM75A	Temp Monitor	1		20			
NC7SZ08	AND Gate	1		50			
SN65LVDM176	LVDS Transceiver	2		15			
TXB0104(6)	Level Translator	2		100	100		
	Totals	Current (A)	0.14	5.41	1.14	0.30	
		Power (W)	0.68	17.84	3.76	0.54	22.83
	Max Power Supply	Current (A)	2	8			4
		Power (W)	11	28			48

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VCCIO (2.5V or 3.3V) is set on the Enclustra PM3 board using a DIP switch.
The GIB requires 2.5V!

Power

04. Power

FMC[0..110]

FMC[0..110]

GPS Interface

01. GPS Interface

GPS_FMC[0..110]

GPS_Group[0..1]

GPS_GROUP[0..1]

Clock Generation

02. Clock Generation

GPS_Group[0..1]

CLK_TO_SFP[0..11]

CLK_TO_SFP[0..11]

FMC[0..110]

FMC[0..110]

05. FMC Connector

FMC[0..110]

FMC[0..110]

PM3_FMC

SFP Interface

03. SFP Interface

CLK_TO_SFP[0..11]

FMC[0..110]

FMC[0..110]

Utilities

06. Utilities

FMC[0..110]

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Schematic Title:	00. GIB Top
Page Title:	02. Top Level
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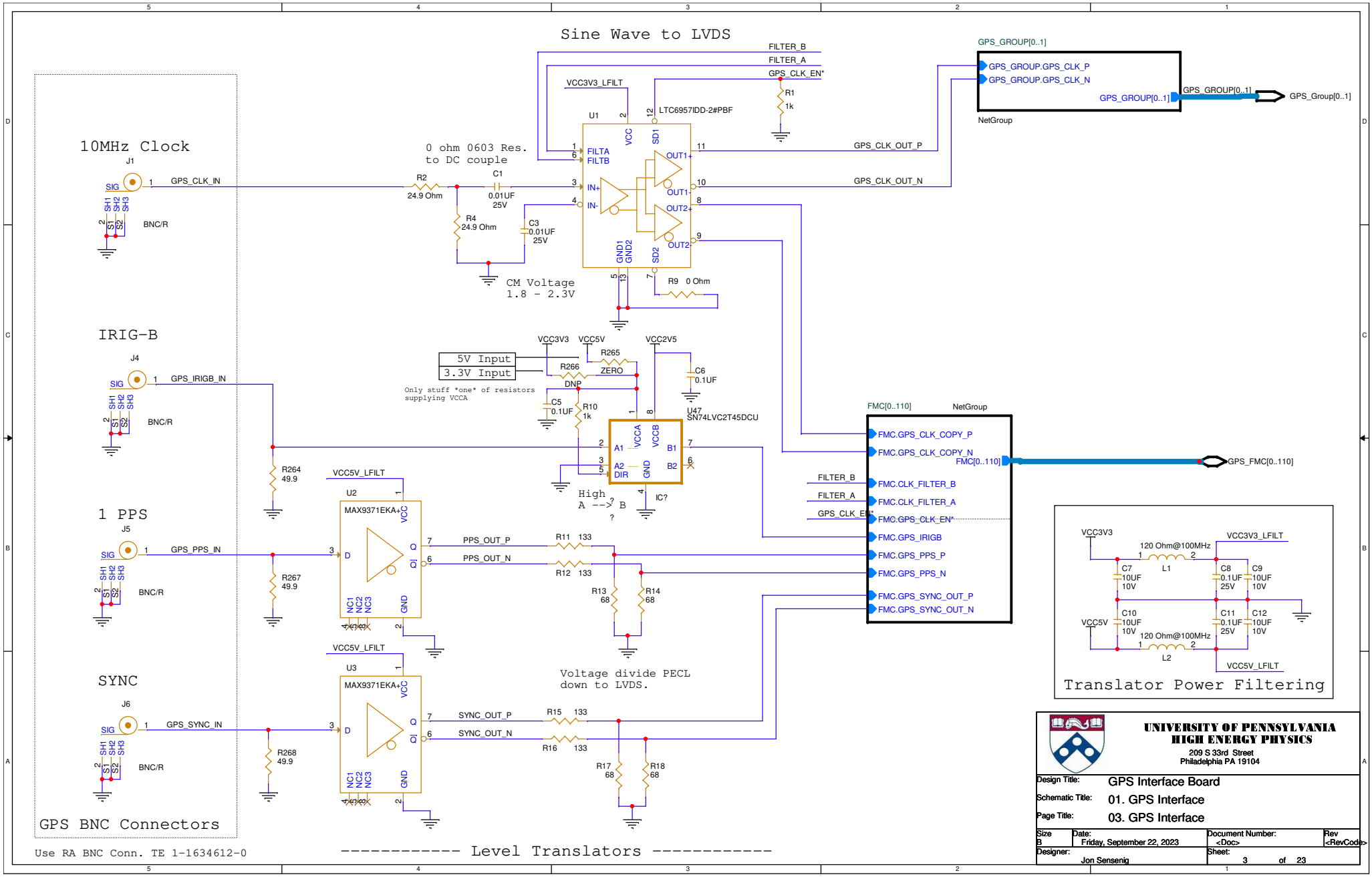
Sine Wave to LVDS
10MHz Clock
J1
SIG
GPS_CLK_IN
BNC/R
0 ohm 0603 Res.
to DC couple
R2
24.9 Ohm
C1
0.01UF
25V
R4
24.9 Ohm
C3
0.01UF
25V
CM Voltage
1.8 - 2.3V
U1
LTC6957IDD-2#PBF
FILTA
FILTB
VCC
SD1
IN+
IN-
OUT1+
OUT1-
OUT2+
OUT2-
GND1
GND2
SD2
FILTER_B
FILTER_A
GPS_CLK_EN*
VCC3V3_LFILT
R1
1k
GPS_CLK_OUT_P
GPS_CLK_OUT_N
R9 0 Ohm
GPS_GROUP[0..1]
GPS_GROUP.GPS_CLK_P
GPS_GROUP.GPS_CLK_N
NetGroup
GPS_Group[0..1]
IRIG-B
J4
GPS_IRIGB_IN
5V Input
3.3V Input
Only stuff *one* of resistors
supplying VCCA
VCC3V3
VCC5V
VCC2V5
R265
ZERO
R266
DNP
C6
0.1UF
C5
0.1UF
R10
1k
U47
SN74LVC2T45DCU
VCCA
VCCB
A1
A2
DIR
GND
B1
B2
IC?
High
A --> B
?
R264
49.9
VCC5V_LFILT
U2
MAX9371EKA+
1 PPS
J5
GPS_PPS_IN
R267
49.9
PPS_OUT_P
PPS_OUT_N
R11 133
R12 133
R13
68
R14
68
SYNC
J6
GPS_SYNC_IN
R268
49.9
U3
SYNC_OUT_P
SYNC_OUT_N
R15 133
R16 133
R17
68
R18
68
Voltage divide PECL
down to LVDS.
FMC[0..110]
NetGroup
FMC.GPS_CLK_COPY_P
FMC.GPS_CLK_COPY_N
FMC[0..110]
GPS_FMC[0..110]
FMC.CLK_FILTER_B
FMC.CLK_FILTER_A
FMC.GPS_CLK_EN*
FMC.GPS_IRIGB
FMC.GPS_PPS_P
FMC.GPS_PPS_N
FMC.GPS_SYNC_OUT_P
FMC.GPS_SYNC_OUT_N
VCC3V3
VCC3V3_LFILT
120 Ohm@100MHz
C7
10UF
10V
L1
C8
0.1UF
25V
C9
10UF
10V
C10
10UF
10V
C11
0.1UF
25V
C12
10UF
10V
L2
VCC5V
VCC5V_LFILT
Translator Power Filtering
GPS BNC Connectors
Use RA BNC Conn. TE 1-1634612-0
---------- Level Translators ----------
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Design Title: GPS Interface Board
Schematic Title: 01. GPS Interface
Page Title: 03. GPS Interface
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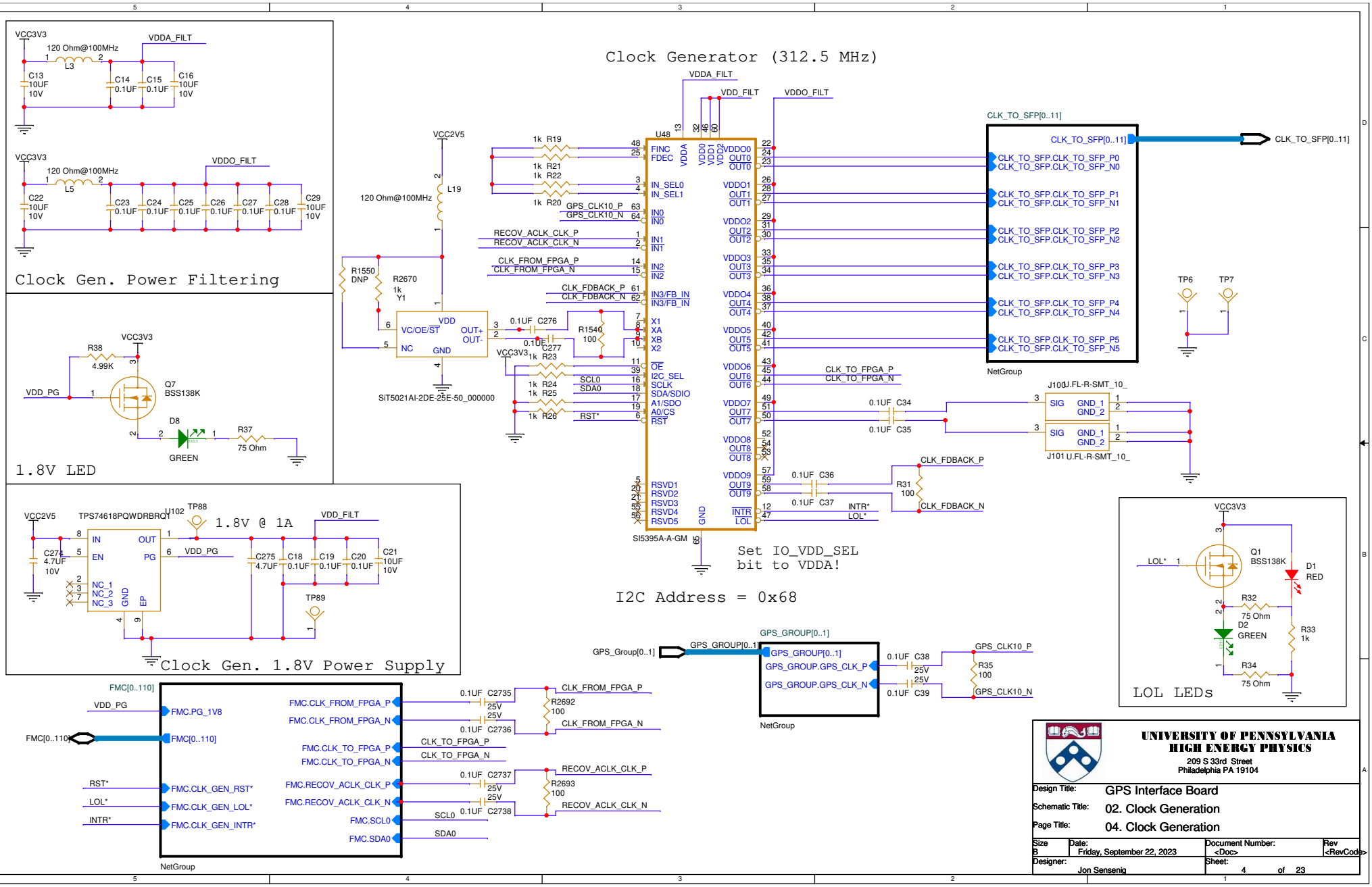
Clock Generator (312.5 MHz)
Clock Gen. Power Filtering
1.8V LED
Clock Gen. 1.8V Power Supply
Set IO_VDD_SEL bit to VDDA!
I2C Address = 0x68
LOL LEDs
NetGroup
SiT5021AI-2DE-25E-50_000000
SI5395A-A-GM
TPS74618PQWDRBRQ1
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Design Title: GPS Interface Board
Schematic Title: 02. Clock Generation
Page Title: 04. Clock Generation
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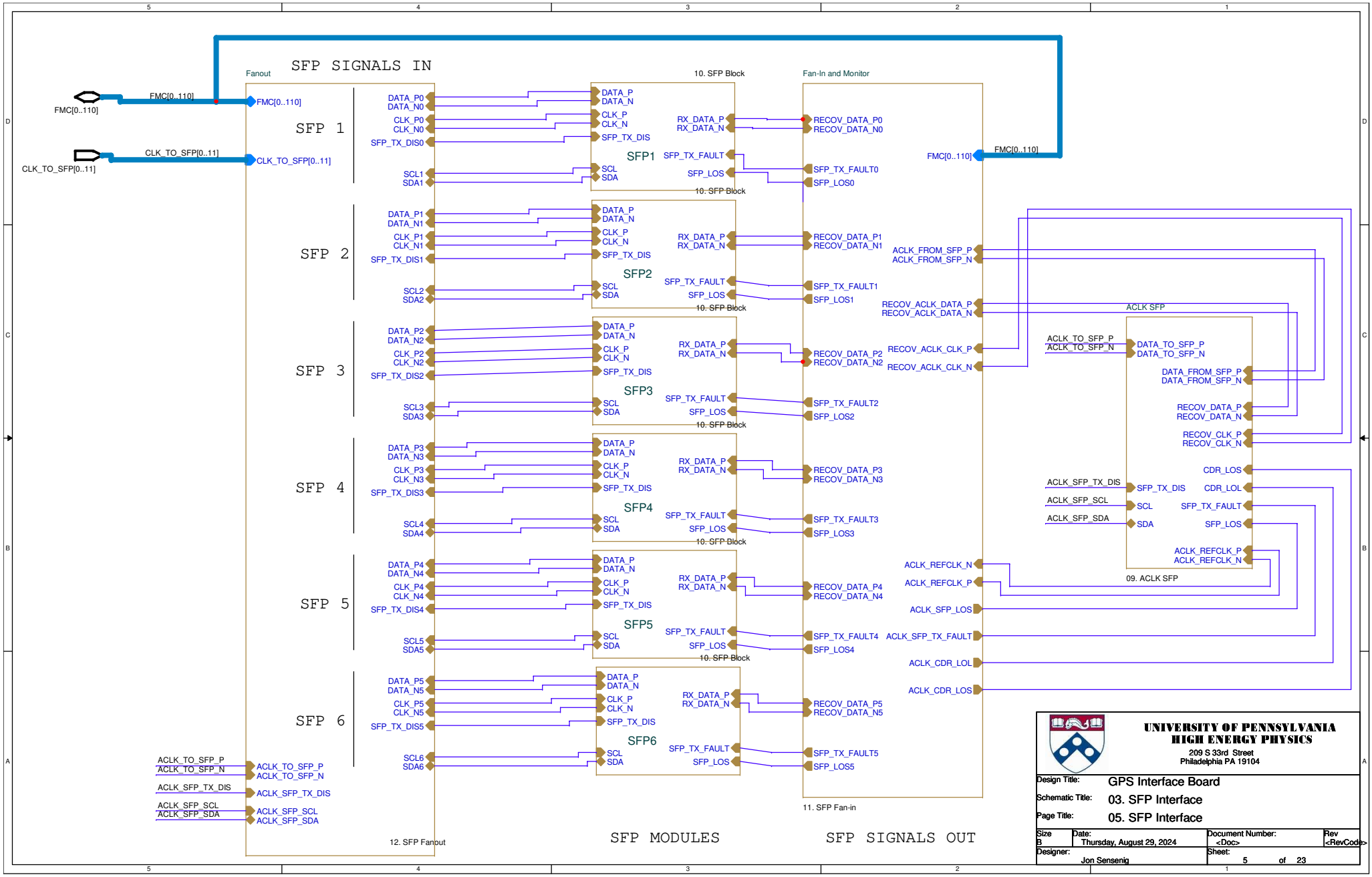
SFP SIGNALS IN
Fanout
10. SFP Block
Fan-In and Monitor
FMC[0..110]
CLK_TO_SFP[0..11]
SFP 1
SFP 2
SFP 3
SFP 4
SFP 5
SFP 6
SFP1
SFP2
SFP3
SFP4
SFP5
SFP6
DATA_P0
DATA_N0
CLK_P0
CLK_N0
SFP_TX_DIS0
SCL1
SDA1
RX_DATA_P
RX_DATA_N
SFP_TX_FAULT
SFP_LOS
RECOV_DATA_P0
RECOV_DATA_N0
SFP_TX_FAULT0
SFP_LOS0
DATA_P1
DATA_N1
CLK_P1
CLK_N1
SFP_TX_DIS1
SCL2
SDA2
RECOV_DATA_P1
RECOV_DATA_N1
SFP_TX_FAULT1
SFP_LOS1
DATA_P2
DATA_N2
CLK_P2
CLK_N2
SFP_TX_DIS2
SCL3
SDA3
RECOV_DATA_P2
RECOV_DATA_N2
SFP_TX_FAULT2
SFP_LOS2
DATA_P3
DATA_N3
CLK_P3
CLK_N3
SFP_TX_DIS3
SCL4
SDA4
RECOV_DATA_P3
RECOV_DATA_N3
SFP_TX_FAULT3
SFP_LOS3
DATA_P4
DATA_N4
CLK_P4
CLK_N4
SFP_TX_DIS4
SCL5
SDA5
RECOV_DATA_P4
RECOV_DATA_N4
SFP_TX_FAULT4
SFP_LOS4
DATA_P5
DATA_N5
CLK_P5
CLK_N5
SFP_TX_DIS5
SCL6
SDA6
RECOV_DATA_P5
RECOV_DATA_N5
SFP_TX_FAULT5
SFP_LOS5
ACLK_TO_SFP_P
ACLK_TO_SFP_N
ACLK_SFP_TX_DIS
ACLK_SFP_SCL
ACLK_SFP_SDA
ACLK_FROM_SFP_P
ACLK_FROM_SFP_N
RECOV_ACLK_DATA_P
RECOV_ACLK_DATA_N
RECOV_ACLK_CLK_P
RECOV_ACLK_CLK_N
ACLK SFP
DATA_TO_SFP_P
DATA_TO_SFP_N
DATA_FROM_SFP_P
DATA_FROM_SFP_N
RECOV_CLK_P
RECOV_CLK_N
CDR_LOS
CDR_LOL
ACLK_REFCLK_P
ACLK_REFCLK_N
ACLK_SFP_LOS
ACLK_SFP_TX_FAULT
ACLK_CDR_LOL
ACLK_CDR_LOS
09. ACLK SFP
11. SFP Fan-in
12. SFP Fanout
SFP MODULES
SFP SIGNALS OUT
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Schematic Title: 03. SFP Interface
Page Title: 05. SFP Interface
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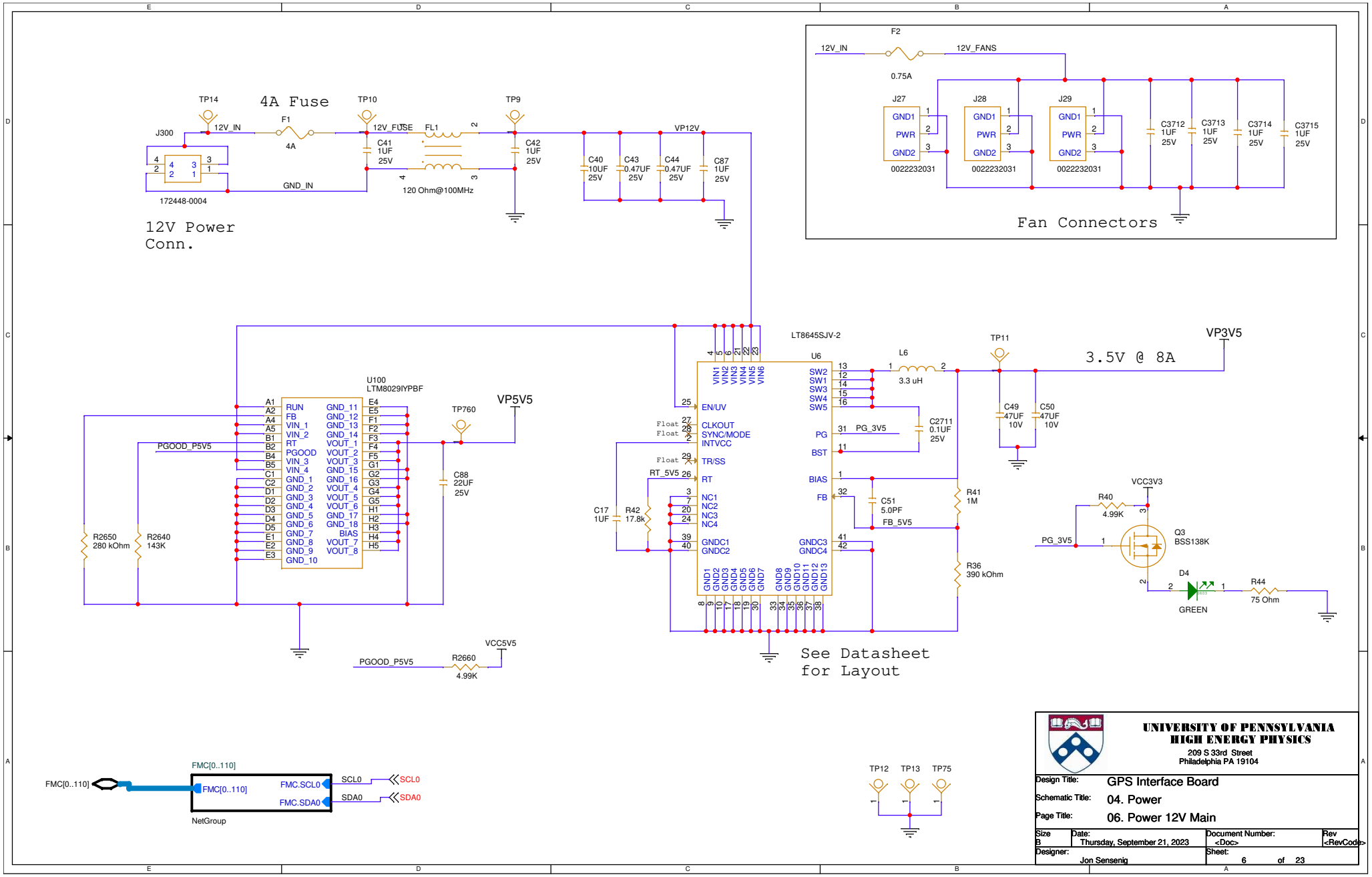
4A Fuse
TP14
12V_IN
F1
4A
TP10
12V_FUSE
FL1
TP9
J300
172448-0004
GND_IN
C41
1UF
25V
120 Ohm@100MHz
C42
1UF
25V
VP12V
C40
10UF
25V
C43
0.47UF
25V
C44
0.47UF
25V
C87
1UF
25V
12V Power
Conn.
F2
12V_IN
0.75A
12V_FANS
J27
J28
J29
GND1
PWR
GND2
0022232031
C3712
1UF
25V
C3713
1UF
25V
C3714
1UF
25V
C3715
1UF
25V
Fan Connectors
U100
LTM8029IYPBF
RUN
FB
VIN_1
VIN_2
RT
PGOOD
VIN_3
VIN_4
GND_1
GND_2
GND_3
GND_4
GND_5
GND_6
GND_7
GND_8
GND_9
GND_10
GND_11
GND_12
GND_13
GND_14
GND_15
GND_16
GND_17
GND_18
BIAS
VOUT_1
VOUT_2
VOUT_3
VOUT_4
VOUT_5
VOUT_6
VOUT_7
VOUT_8
PGOOD_P5V5
R2650
280 kOhm
R2640
143K
TP760
VP5V5
C88
22UF
25V
PGOOD_P5V5
R2660
4.99K
VCC5V5
LT8645SJV-2
U6
VIN1
VIN2
VIN3
VIN4
VIN5
VIN6
EN/UV
CLKOUT
SYNC/MODE
INTVCC
TR/SS
RT
NC1
NC2
NC3
NC4
GNDC1
GNDC2
SW2
SW1
SW3
SW4
SW5
PG
BST
BIAS
FB
GNDC3
GNDC4
L6
3.3 uH
TP11
VP3V5
3.5V @ 8A
C49
47UF
10V
C50
47UF
10V
C2711
0.1UF
25V
PG_3V5
C51
5.0PF
FB_5V5
R41
1M
R36
390 kOhm
C17
1UF
R42
17.8k
RT_5V5
See Datasheet
for Layout
VCC3V3
R40
4.99K
Q3
BSS138K
D4
GREEN
R44
75 Ohm
FMC[0..110]
FMC.SCL0
FMC.SDA0
SCL0
SDA0
NetGroup
TP12
TP13
TP75
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Design Title: GPS Interface Board
Schematic Title: 04. Power
Page Title: 06. Power 12V Main
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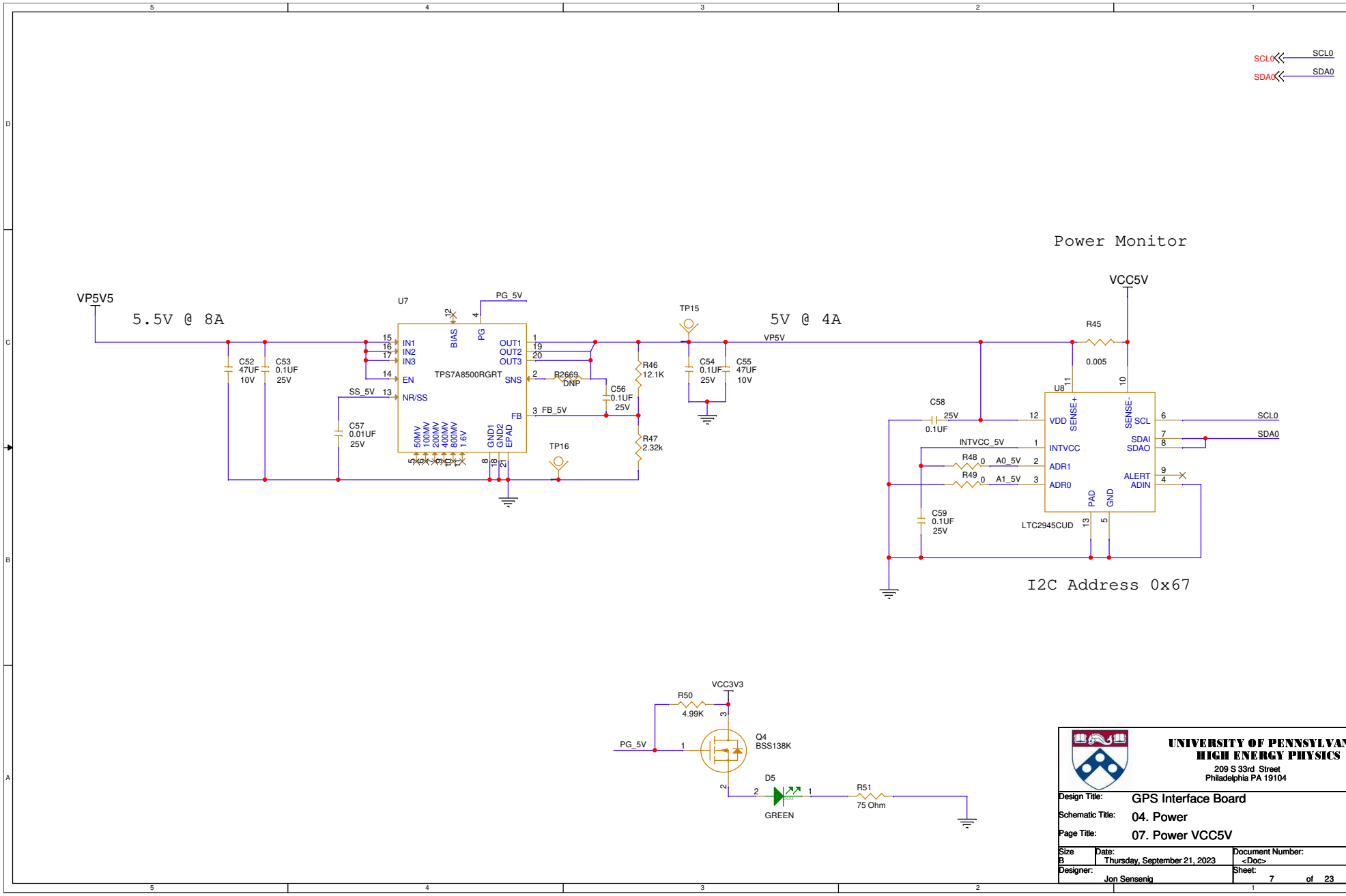
SCL0
SDA0
Power Monitor
VP5V5
5.5V @ 8A
U7
PG_5V
TPS7A8500RGRT
IN1
IN2
IN3
EN
NR/SS
BIAS
PG
OUT1
OUT2
OUT3
SNS
FB
GND1
GND2
EPAD
C52 47UF 10V
C53 0.1UF 25V
C57 0.01UF 25V
SS_5V
R2669 DNP
C56 0.1UF 25V
FB_5V
R46 12.1K
R47 2.32k
TP15
TP16
5V @ 4A
VP5V
C54 0.1UF 25V
C55 47UF 10V
VCC5V
R45
0.005
U8
LTC2945CUD
VDD
SENSE+
SENSE-
INTVCC
ADR1
ADR0
SCL
SDAI
SDAO
ALERT
ADIN
PAD
GND
C58 0.1UF 25V
C59 0.1UF 25V
INTVCC_5V
R48 0 A0_5V
R49 0 A1_5V
I2C Address 0x67
VCC3V3
R50 4.99K
Q4 BSS138K
D5
GREEN
R51 75 Ohm
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Page Title: 07. Power VCC5V
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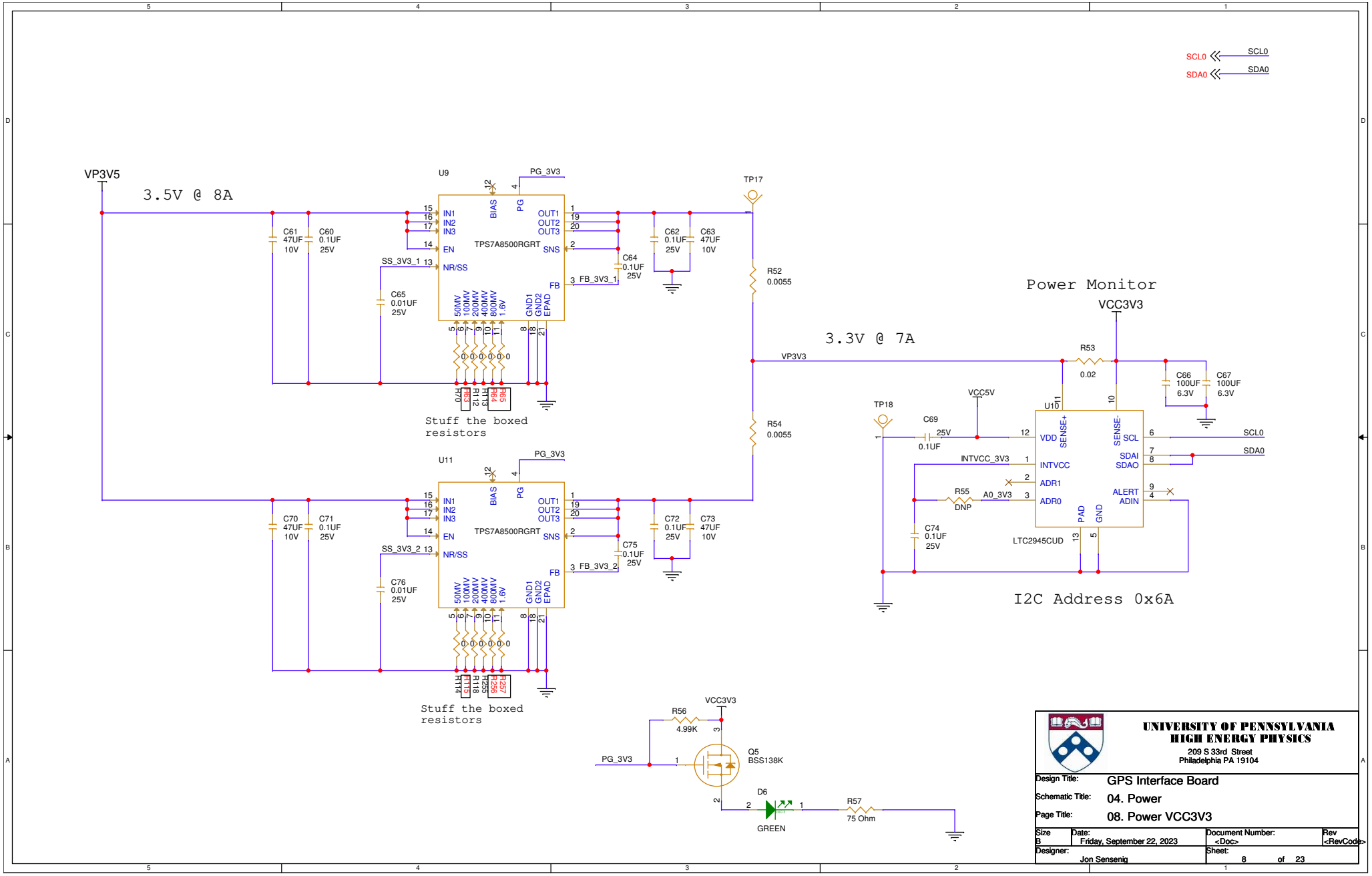
SCL0
SDA0
SCL0
SDA0
VP3V5
3.5V @ 8A
U9
PG_3V3
TPS7A8500RGRT
C61 47UF 10V
C60 0.1UF 25V
C62 0.1UF 25V
C63 47UF 10V
C64 0.1UF 25V
C65 0.01UF 25V
SS_3V3_1
FB_3V3_1
R70
R112
R113
R64
R65
Stuff the boxed resistors
TP17
R52 0.0055
R54 0.0055
3.3V @ 7A
VP3V3
U11
TPS7A8500RGRT
C70 47UF 10V
C71 0.1UF 25V
C72 0.1UF 25V
C73 47UF 10V
C75 0.1UF 25V
C76 0.01UF 25V
SS_3V3_2
FB_3V3_2
R114
R115
R116
R255
R256
R257
Stuff the boxed resistors
Power Monitor
VCC3V3
R53 0.02
C66 100UF 6.3V
C67 100UF 6.3V
TP18
C69 0.1UF 25V
VCC5V
U10
LTC2945CUD
INTVCC_3V3
R55 DNP
A0_3V3
C74 0.1UF 25V
I2C Address 0x6A
R56 4.99K
VCC3V3
PG_3V3
Q5 BSS138K
D6
GREEN
R57 75 Ohm
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Schematic Title: 04. Power
Page Title: 08. Power VCC3V3
Size B
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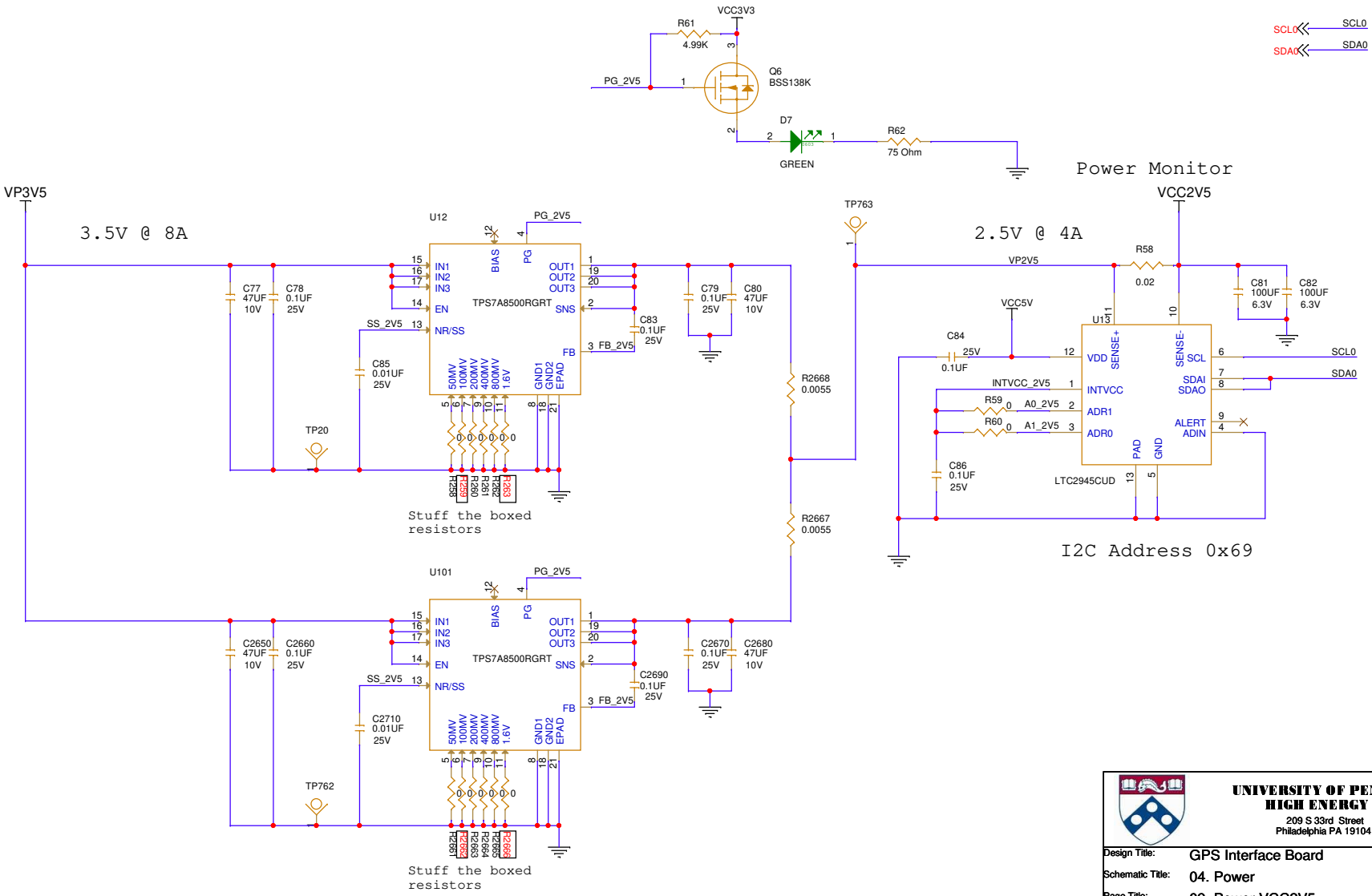
VCC3V3
R61
4.99K
PG_2V5
Q6
BSS138K
D7
GREEN
R62
75 Ohm
SCL0
SDA0
Power Monitor
VP3V5
3.5V @ 8A
U12
TPS7A8500RGRT
TP20
C77
47UF
10V
C78
0.1UF
25V
C85
0.01UF
25V
C79
0.1UF
25V
C80
47UF
10V
C83
0.1UF
25V
SS_2V5
FB_2V5
R2668
0.0055
R2667
0.0055
Stuff the boxed resistors
U101
TPS7A8500RGRT
TP762
C2650
47UF
10V
C2660
0.1UF
25V
C2710
0.01UF
25V
C2670
0.1UF
25V
C2680
47UF
10V
C2690
0.1UF
25V
Stuff the boxed resistors
TP763
VCC2V5
2.5V @ 4A
VP2V5
R58
0.02
C81
100UF
6.3V
C82
100UF
6.3V
VCC5V
C84
0.1UF
25V
U11
LTC2945CUD
INTVCC_2V5
R59
A0_2V5
R60
A1_2V5
C86
0.1UF
25V
I2C Address 0x69
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Schematic Title: 04. Power
Page Title: 09. Power VCC2V5
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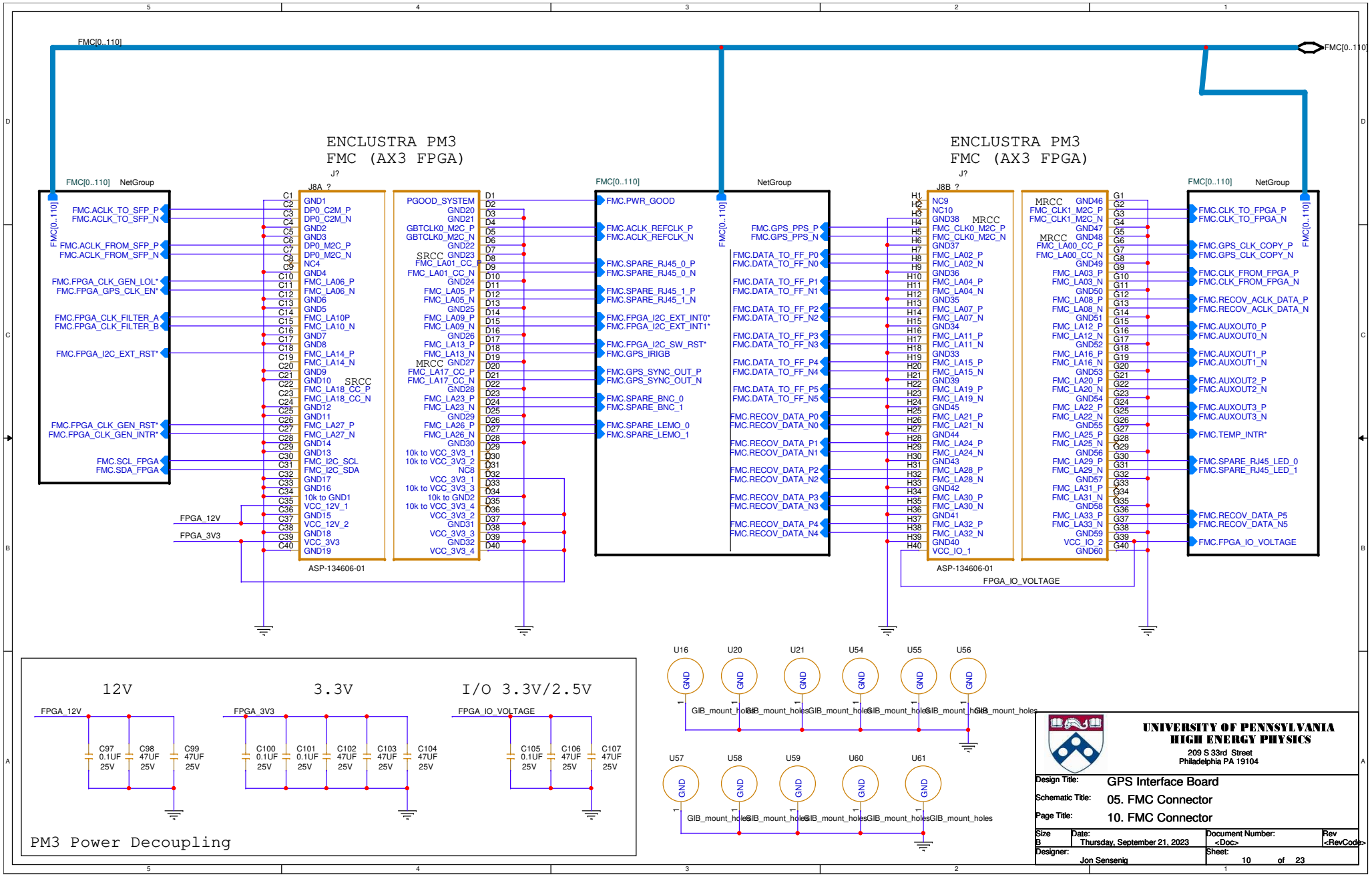
FMC[0..110]
ENCLUSTRA PM3
FMC (AX3 FPGA)
J8A ?
J8B ?
NetGroup
ASP-134606-01
FPGA_12V
FPGA_3V3
FPGA_IO_VOLTAGE
12V
3.3V
I/O 3.3V/2.5V
PM3 Power Decoupling
GIB_mount_holes
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Schematic Title: 05. FMC Connector
Page Title: 10. FMC Connector
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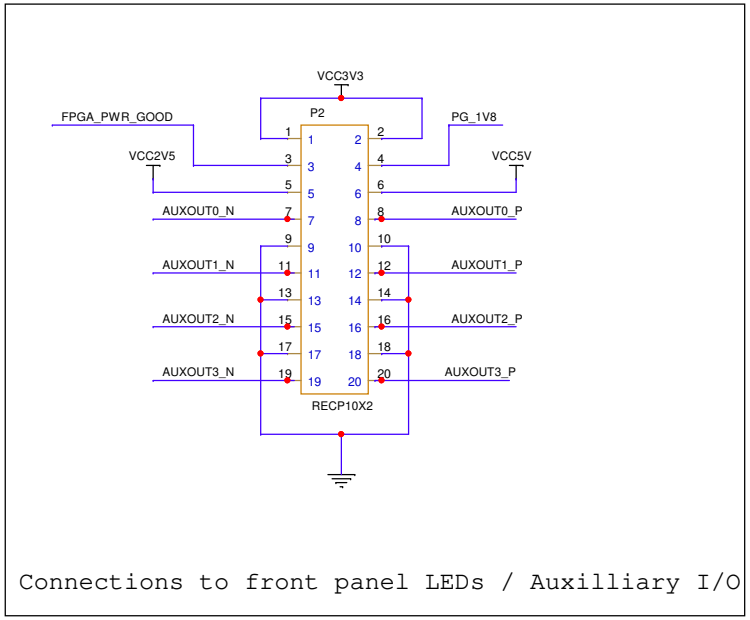

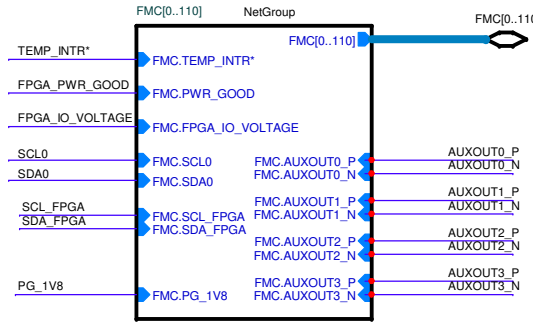

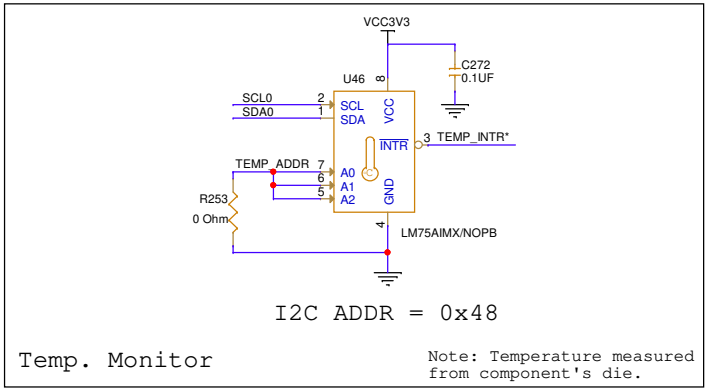

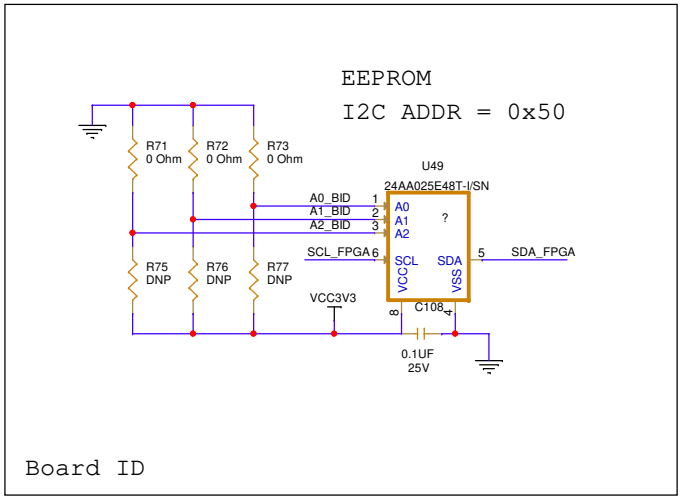

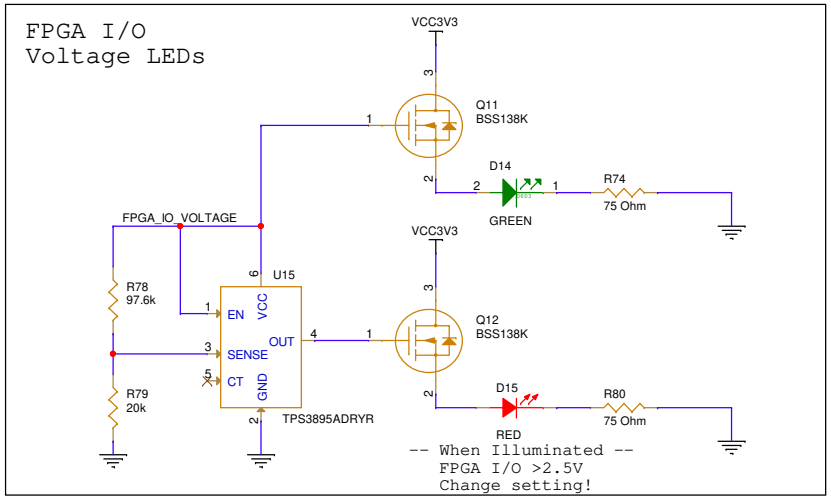

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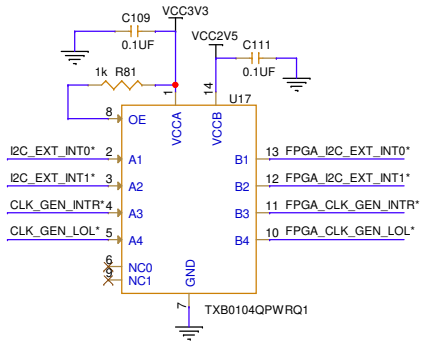
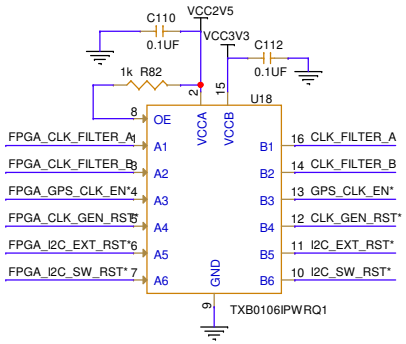
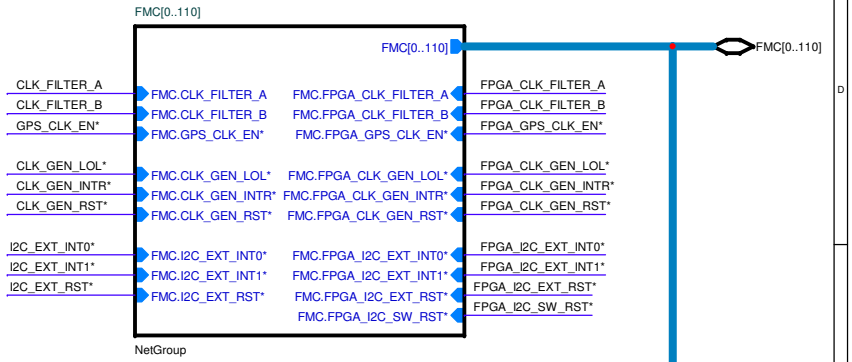
Level Translators



Board --> FPGA



FPGA --> Board



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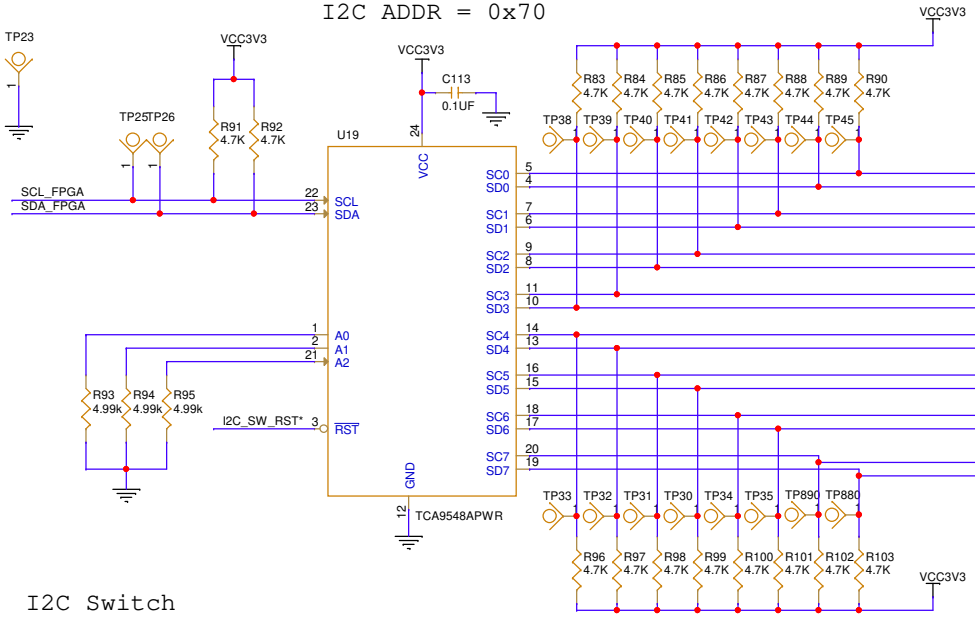

I2C Switch

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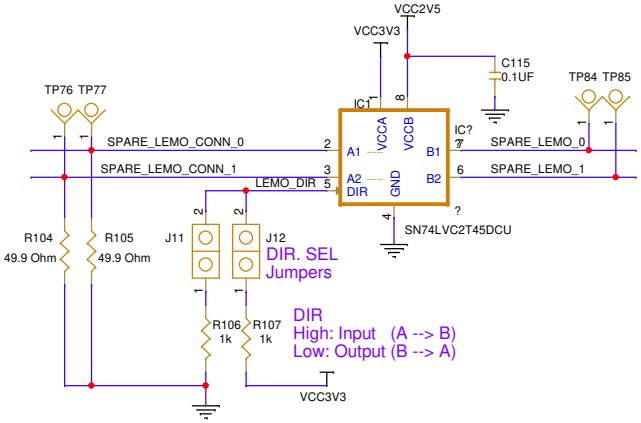
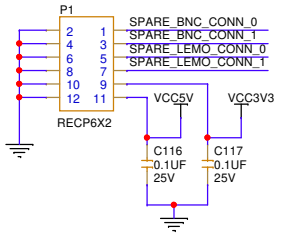
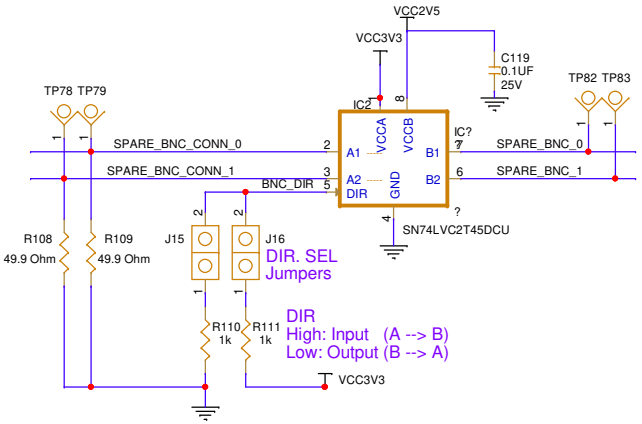
SPARE I/O
LEMO

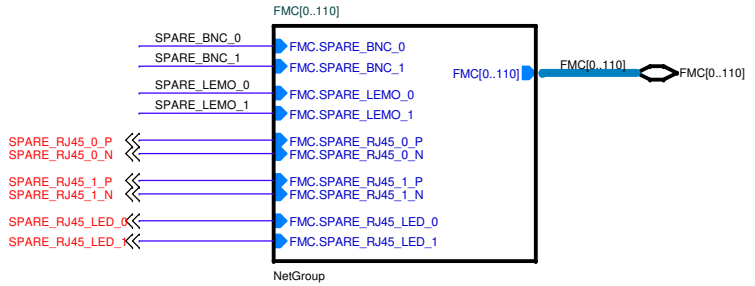


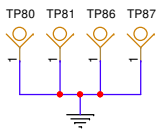


I/O Connector
to BNC & LEMO

SPARE I/O
BNC







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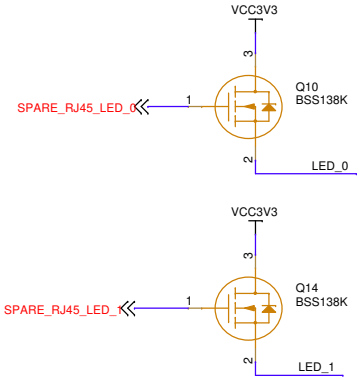

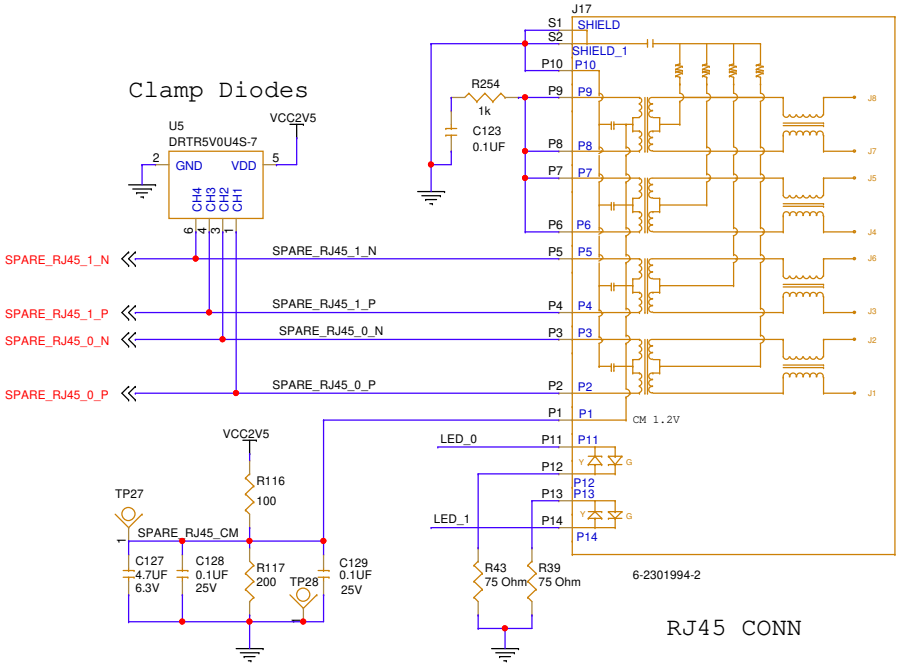

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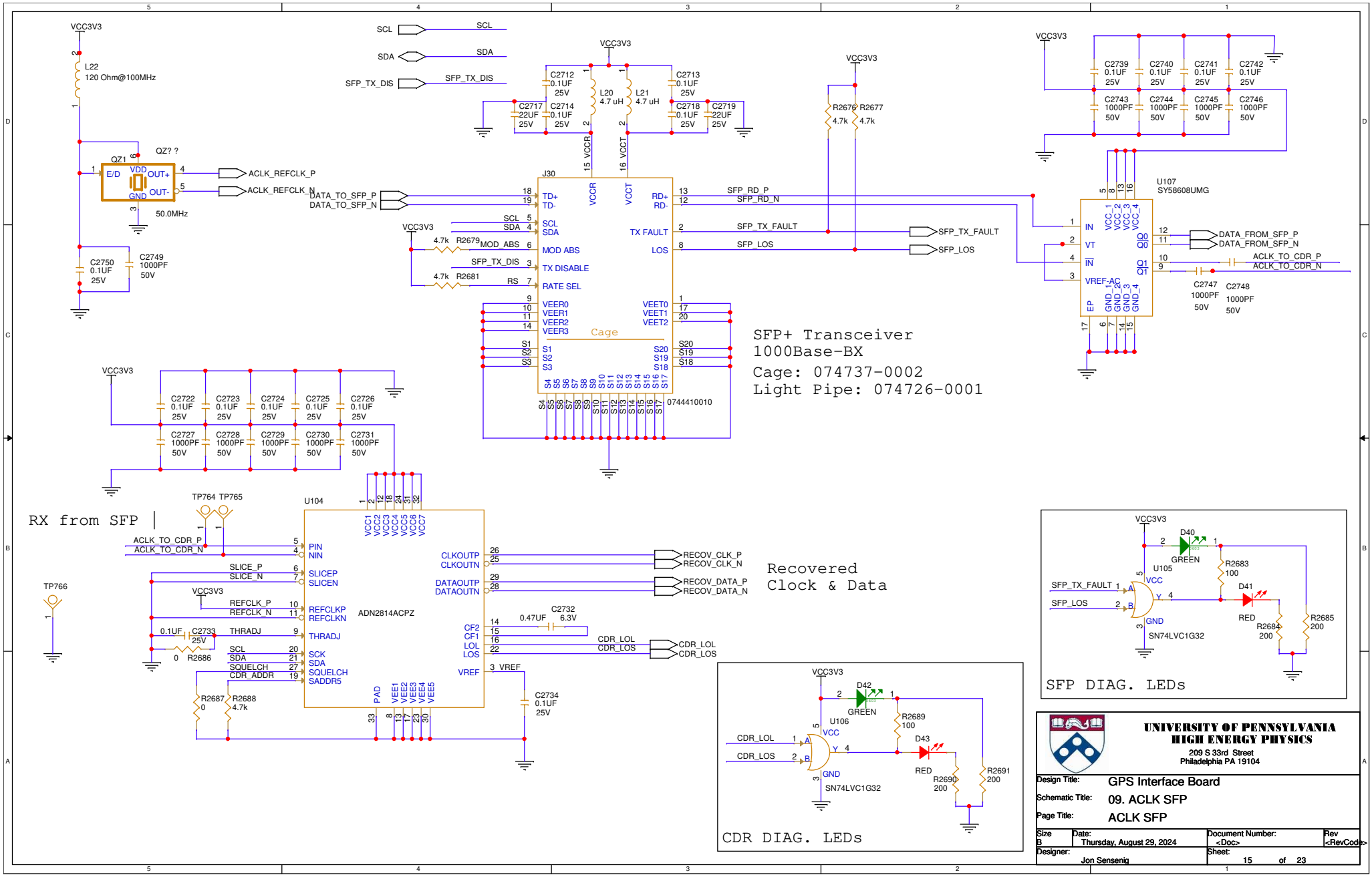
SFP+ Transceiver
1000Base-BX
Cage: 074737-0002
Light Pipe: 074726-0001
RX from SFP
Recovered
Clock & Data
SFP DIAG. LEDs
CDR DIAG. LEDs
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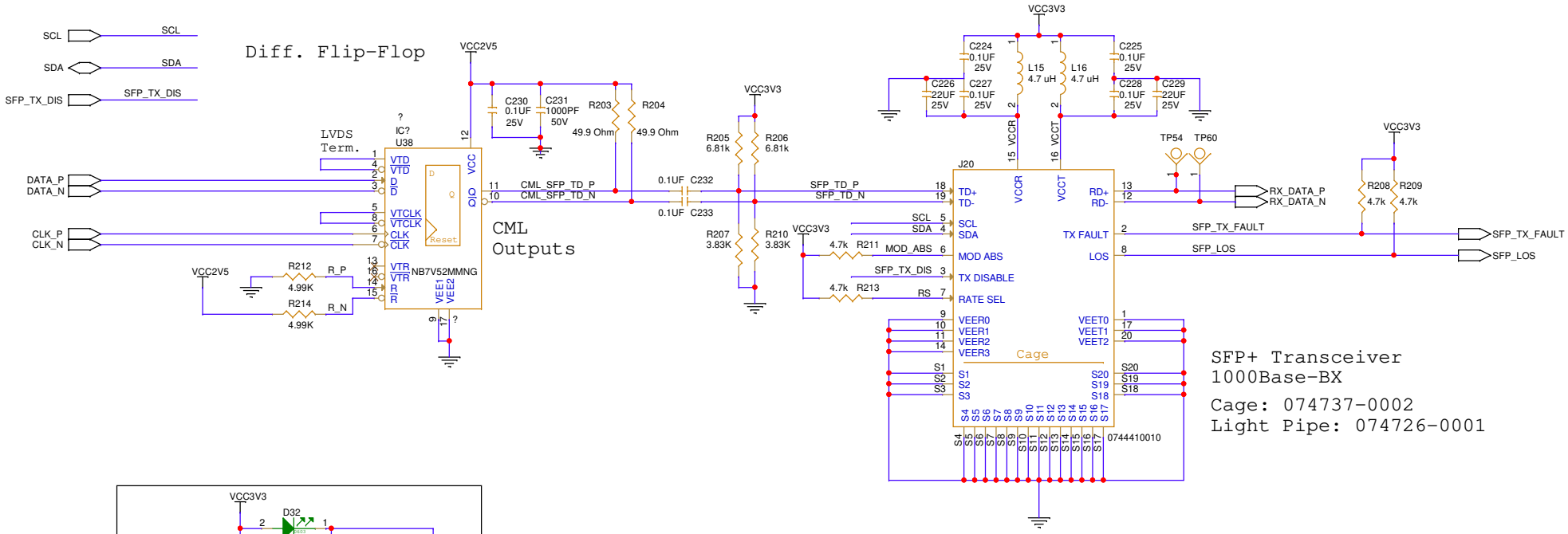

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Schematic Title:	10. SFP Block
Page Title:	SFP
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Designer:	Jon Sensenig
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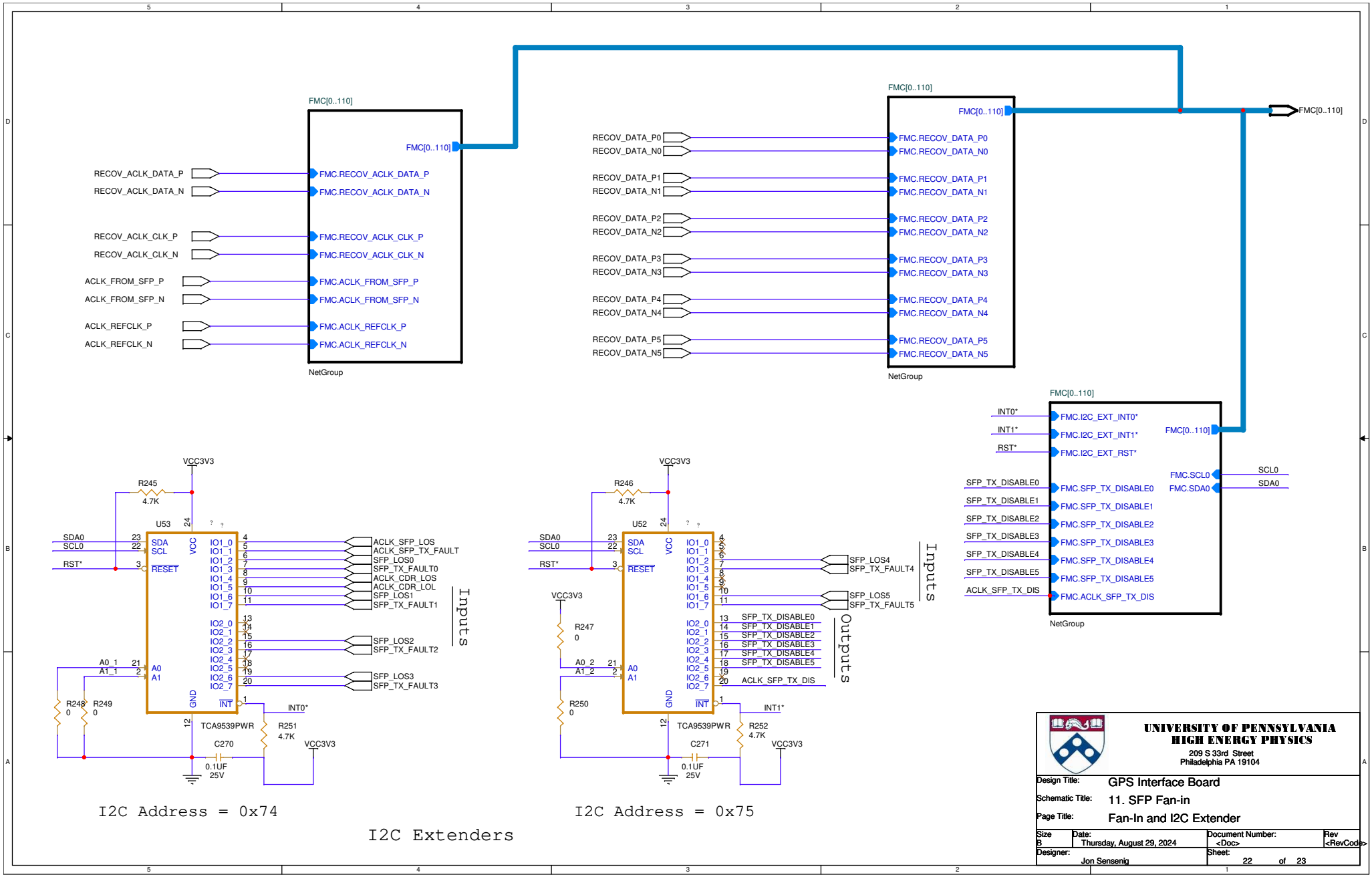

I2C Address = 0x74

I2C Address = 0x75

I2C Extenders

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Schematic Title:	11. SFP Fan-in
Page Title:	Fan-In and I2C Extender

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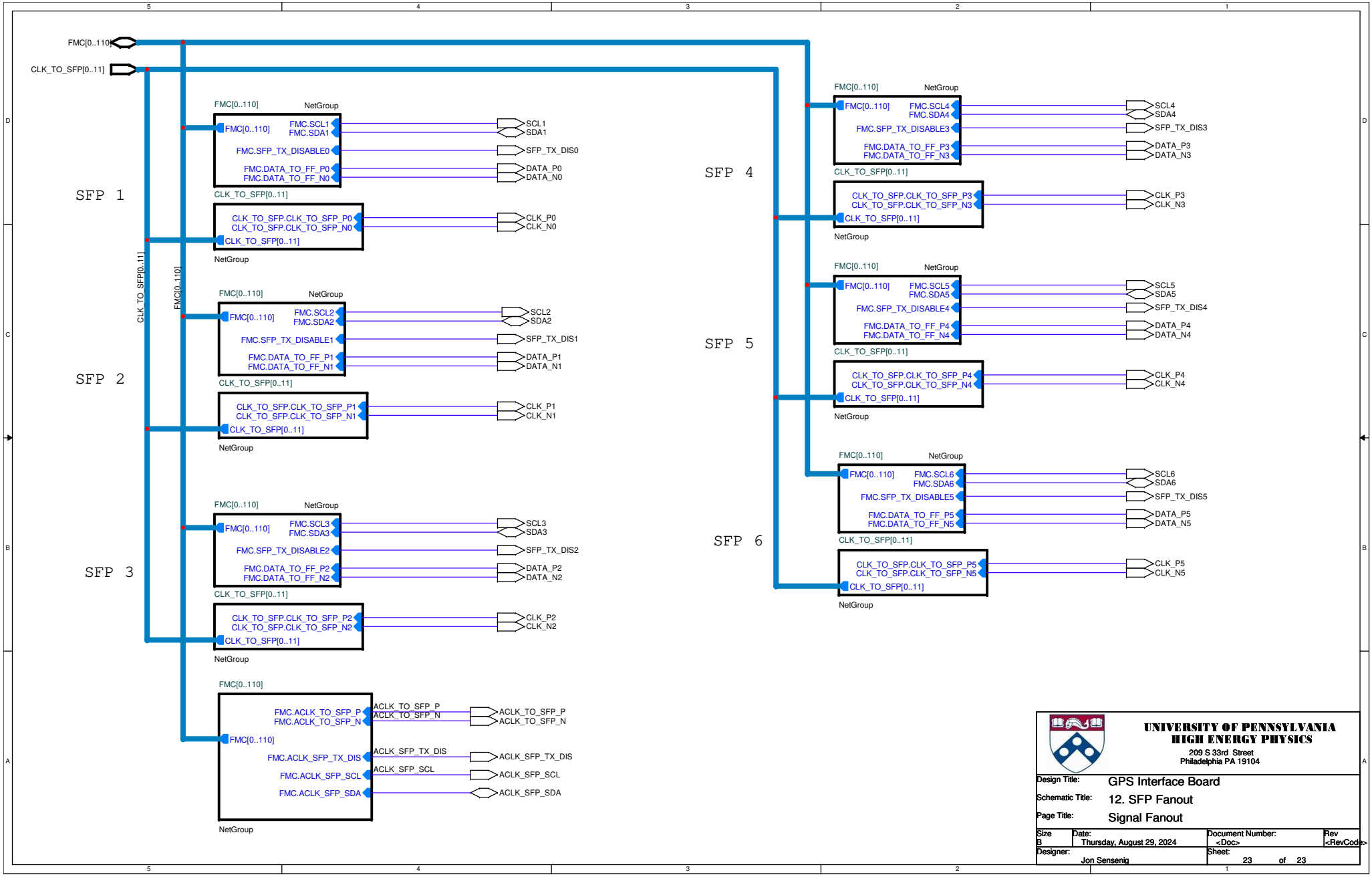

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Design Title:	GPS Interface Board
Schematic Title:	12. SFP Fanout
Page Title:	Signal Fanout

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