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Revisions			Approvals	
ECO #	Revision	Description	Date	Approved
ECO-019286	00	Tarantula Switch Board EBOM	18/9/14	Tomers
ECO-020634	00	Tarantula Early BOM	7/1/15	Tomers
ECO-021824	00	Tarantula Switch Board Early BOM	4/5/15	Tomers
ECO-022258	00	Tarantula Switch Tape Out	20/5/15	Tomers

TARANTULA SWITCH
Switch Board Schematics

Mellanox Technologies Ltd. Confidential

SFG001303_A1_TARANTULA_SWITCH_BOARD

Mellanox Technologies LTD

Title: Tarantula_Switch_Board Cover

Size: C | DWG NO: PCB000952 | Rev: 00

Date: 28/05/2015:08:55 | SHEET 1 OF 36

Design guidelines

CHIP Power Consumption Table (Max)		
Name	Voltage	Max Current
Vcore- Leakage	VCORE	20 A
Vcore	VCORE	20.5 A
VDDHS	1.2V	11.2 A
VDDHSPX	1.2V	0.37 A
VDDO	1.8V	3.4 A
VDDOPX	1.8V	0.1 A
VDDIO	3.3V	0.03 A
VDDA	3.3V	0.4 A
VDDPLL VDDPLLX	3.3V	0.48 A

Total Consumption per Level (Max) For Trace Width Calc	
VCORE	45.4 A
1.2V	11.1 A
1.8V	3.7 A
3.3V_SX	28.6 A
12V	14.5 A
3.3V_AUX	1 A

Via Structure Requirements
PCIE
CLK

Maximal Skew Requirements	
Type	Max Skew
PCIE, ETH, USB, CLK	5 mil

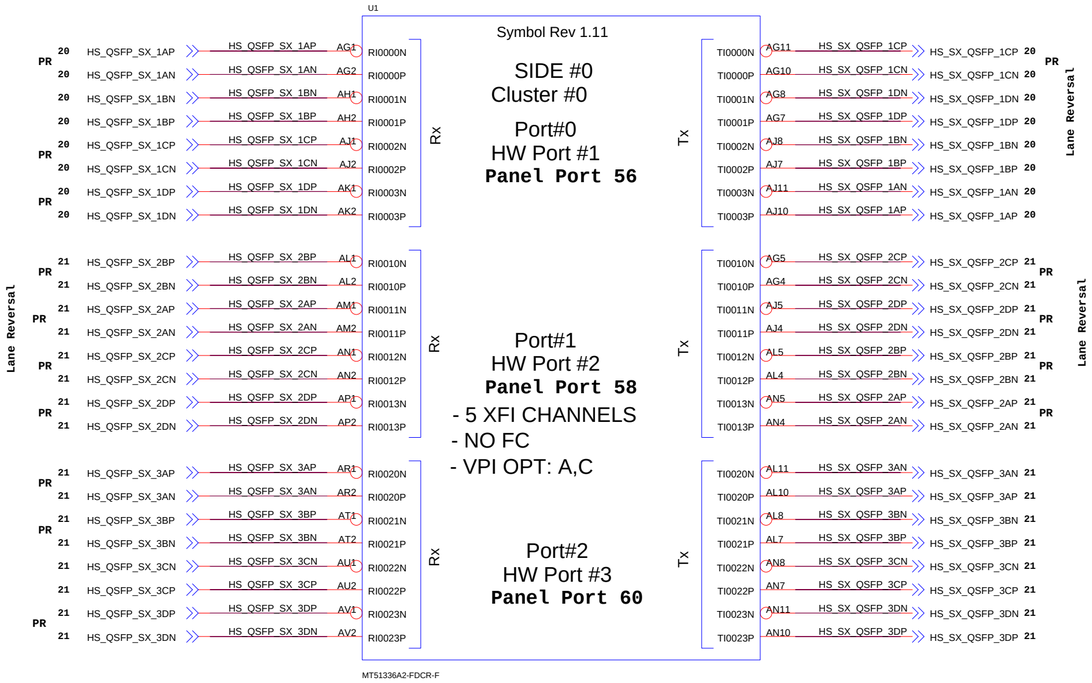
SFG001303_A1_TARANTULA_SWITCH_BOARD

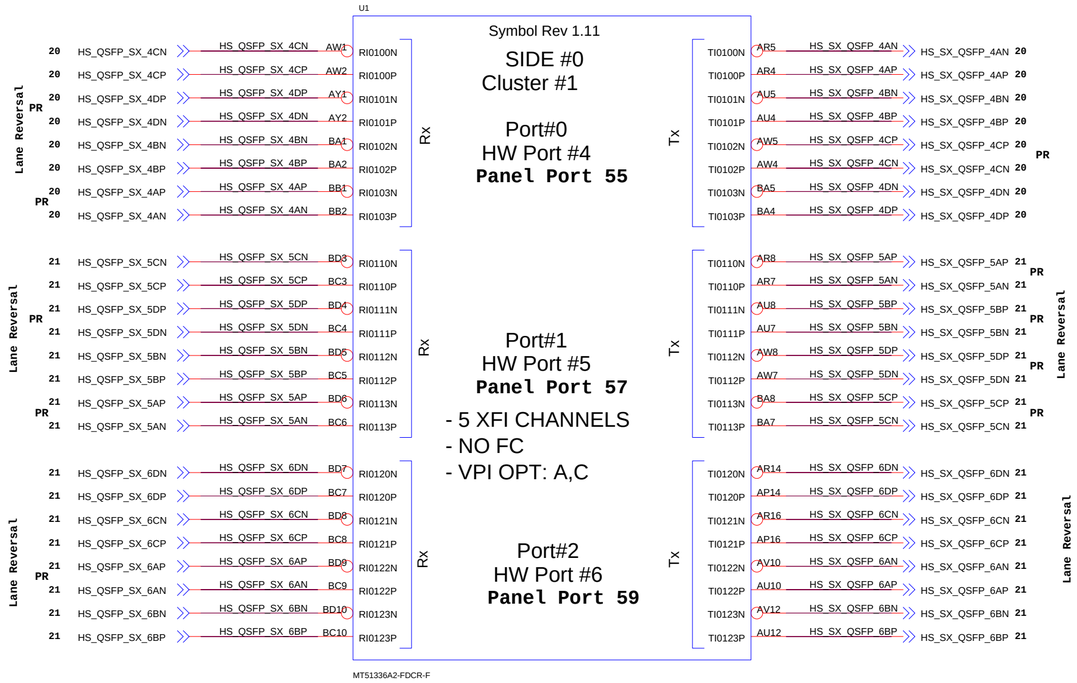
Mellanox Technologies LTD

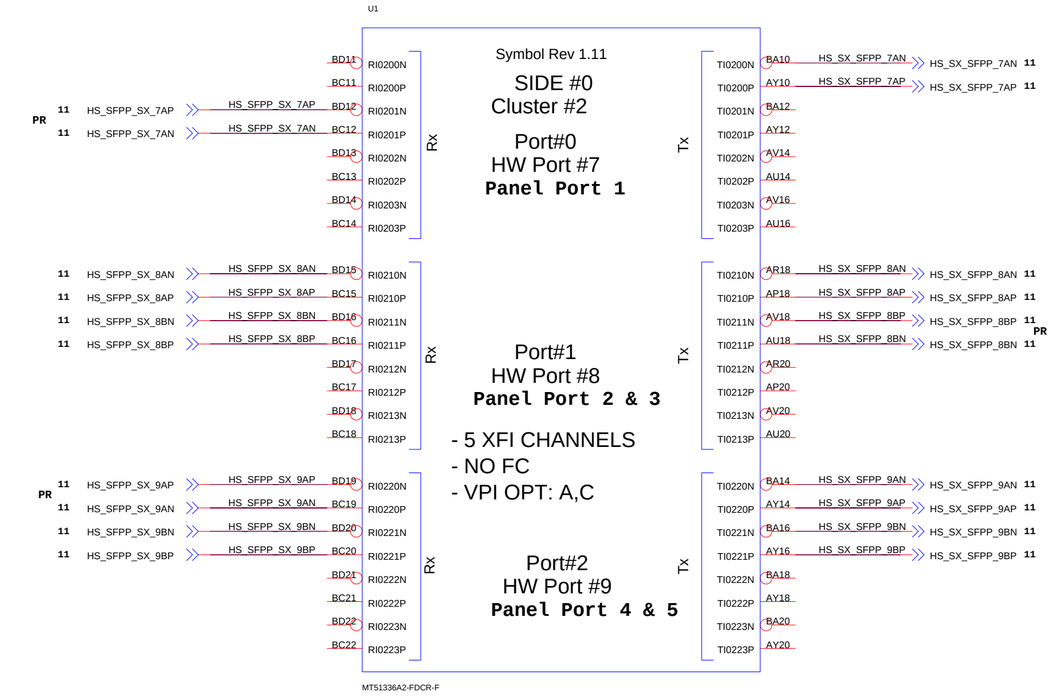
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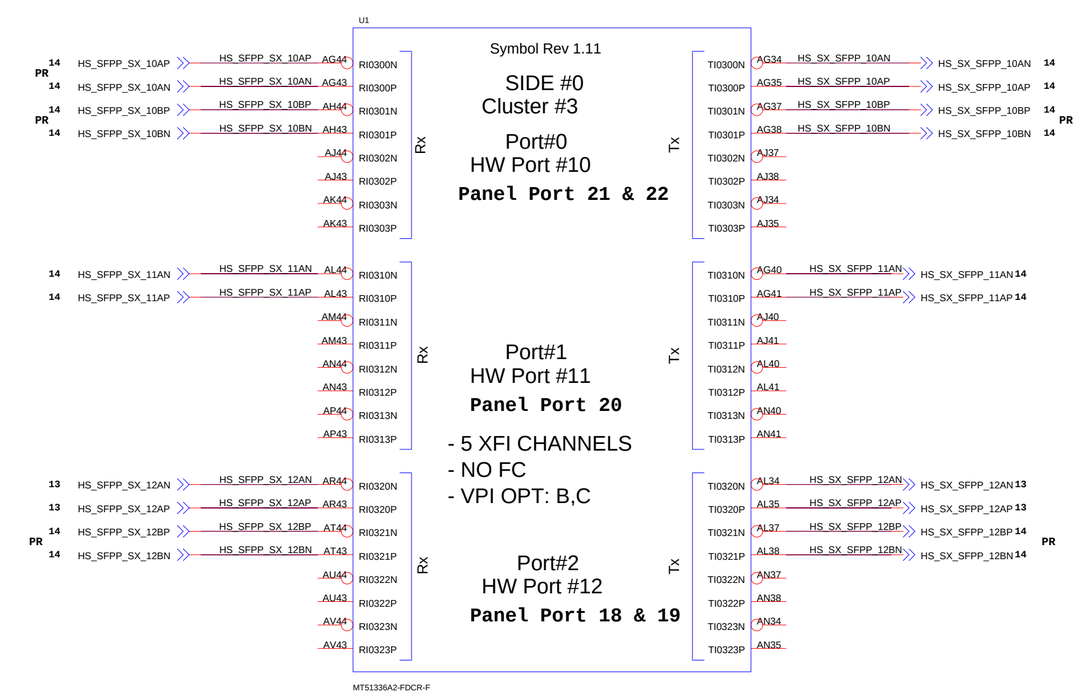
Size: C | DWG NO: PCB000952 | Rev: 00

Date: 10/05/2015:14:36 | SHEET 2 OF 36



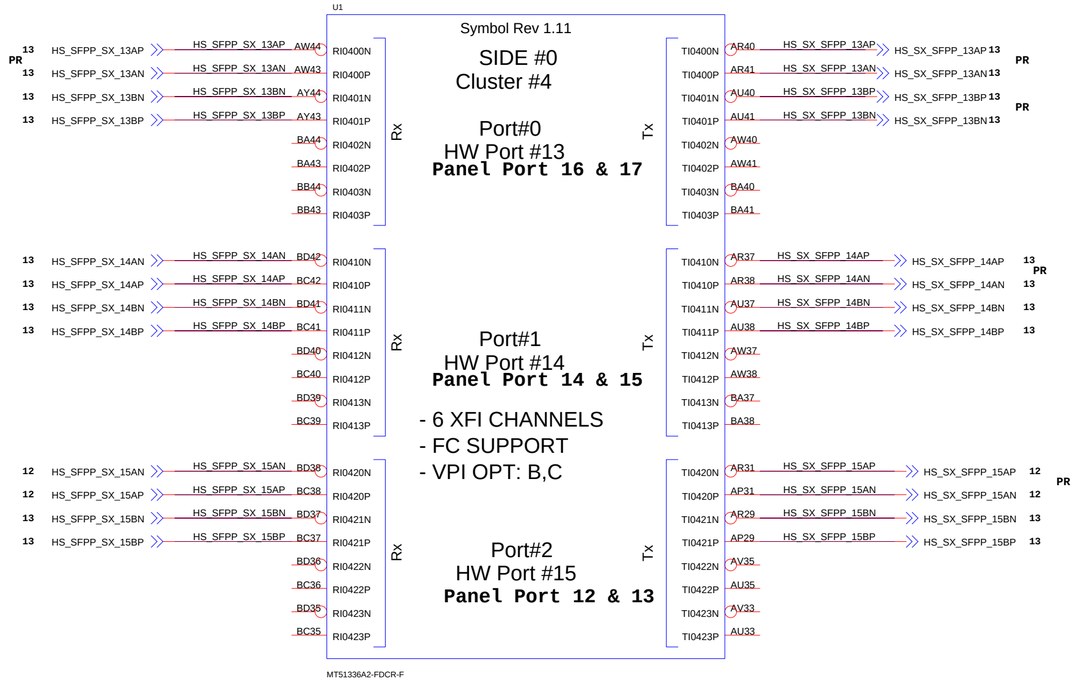


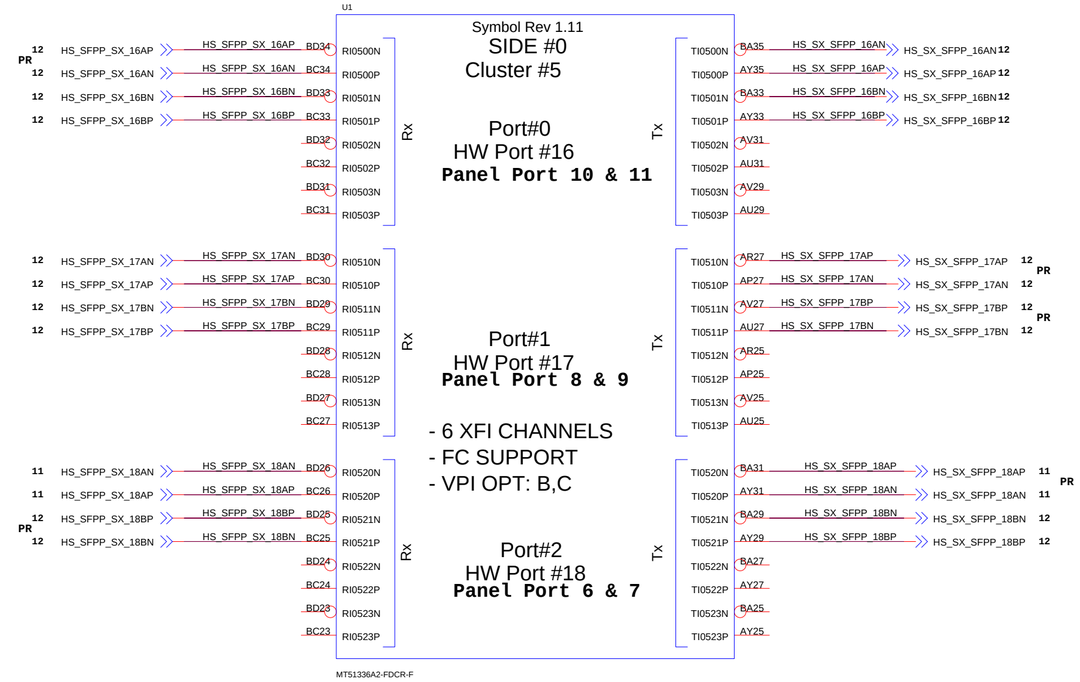




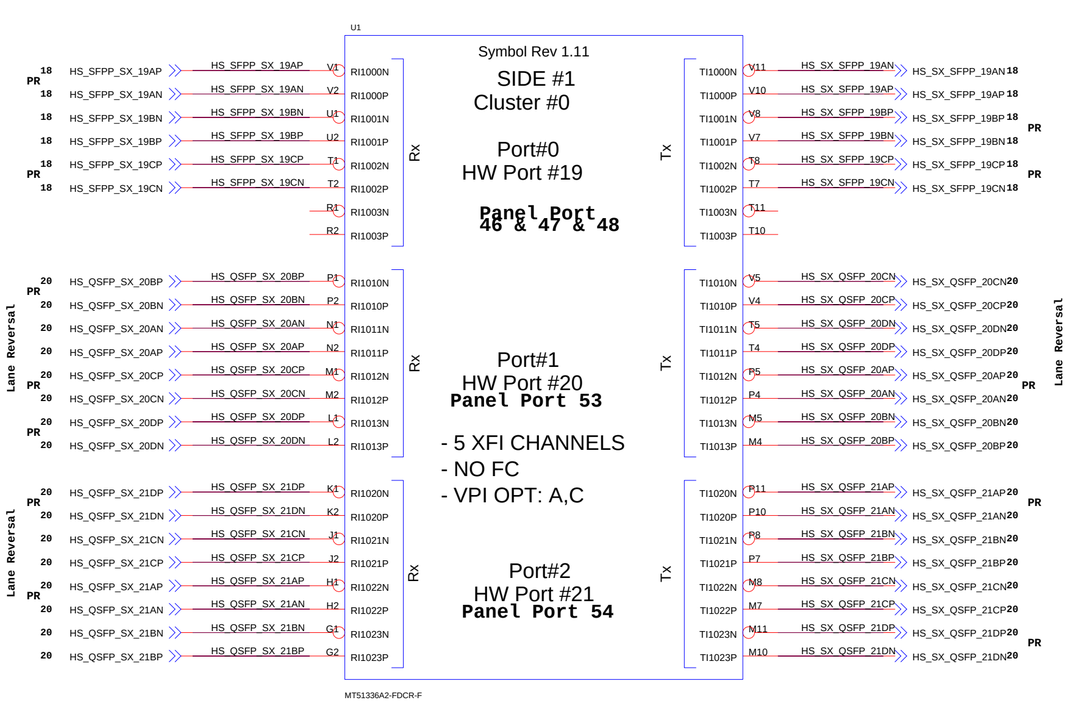
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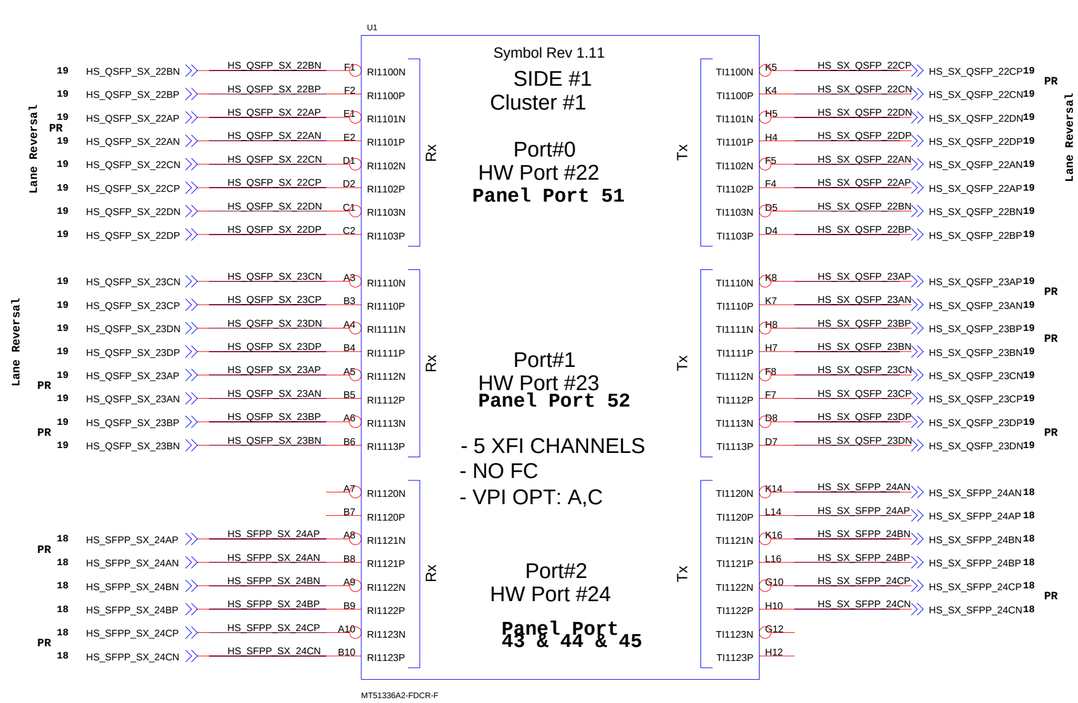
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Size: C	DWG NO: PCB000952	Rev: 00
Date: 10/05/2015:14:36	SHEET 3 OF 36	





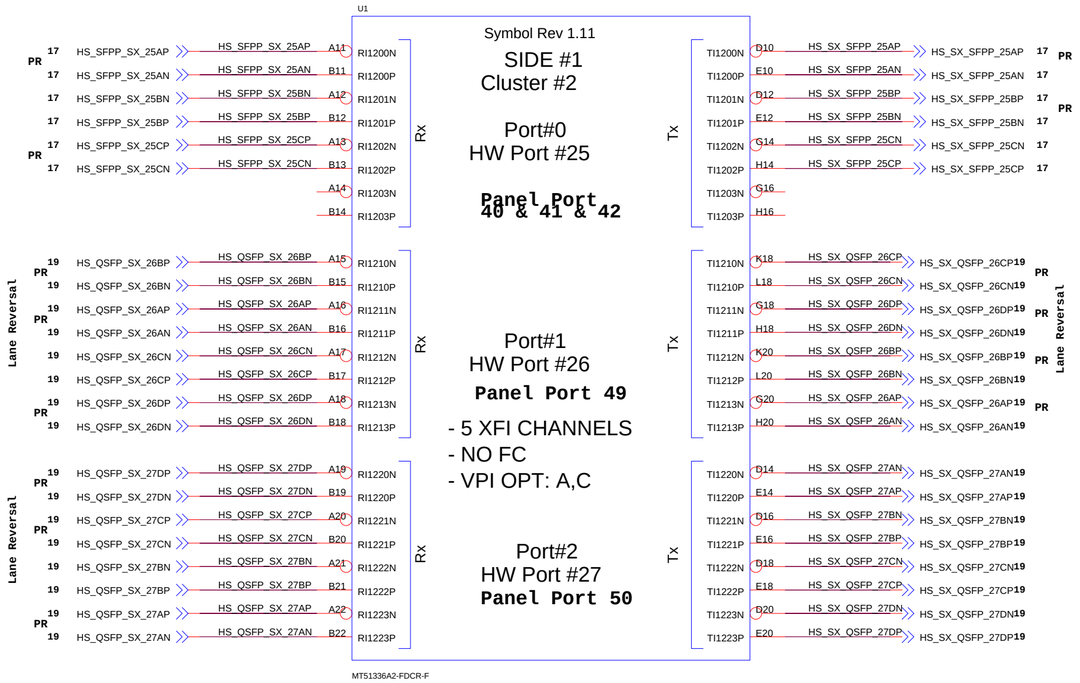
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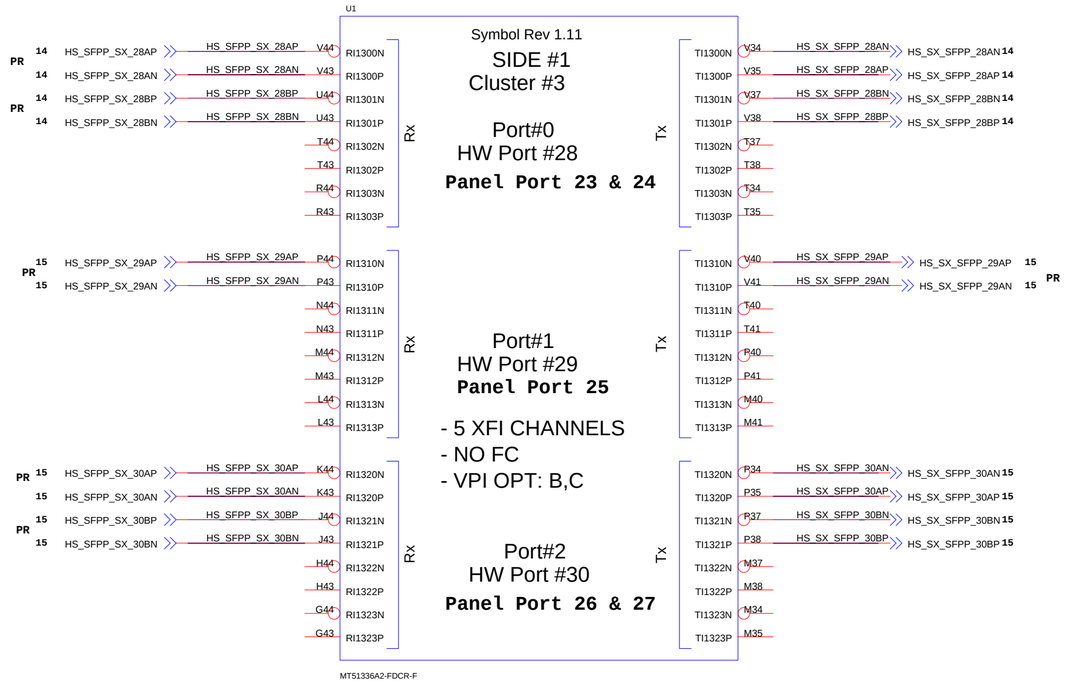


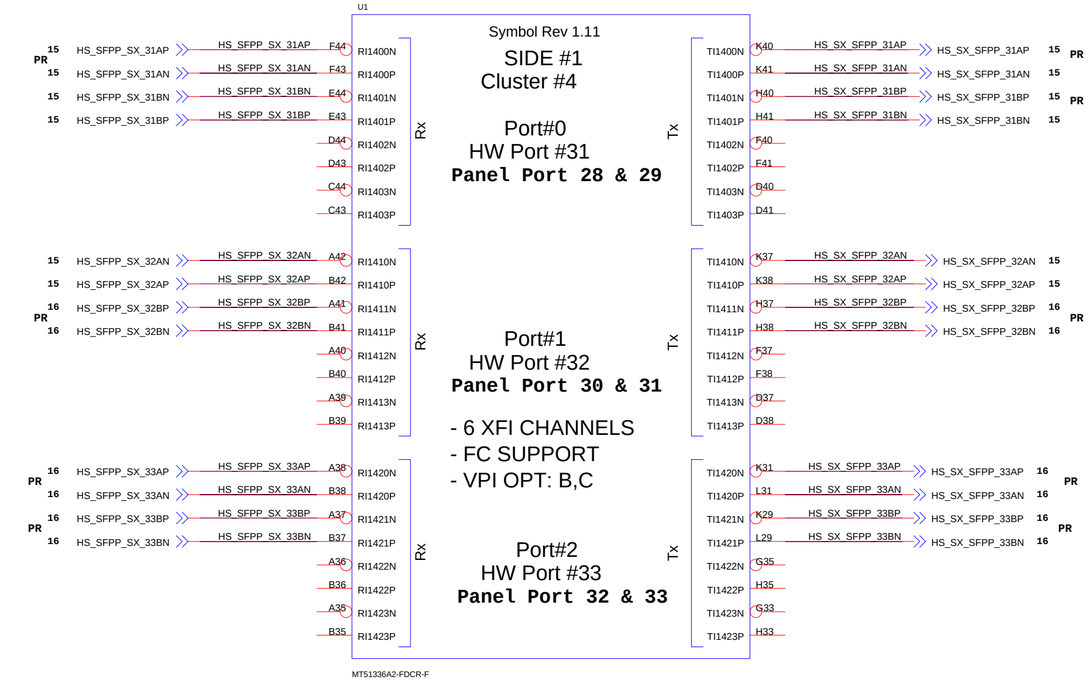


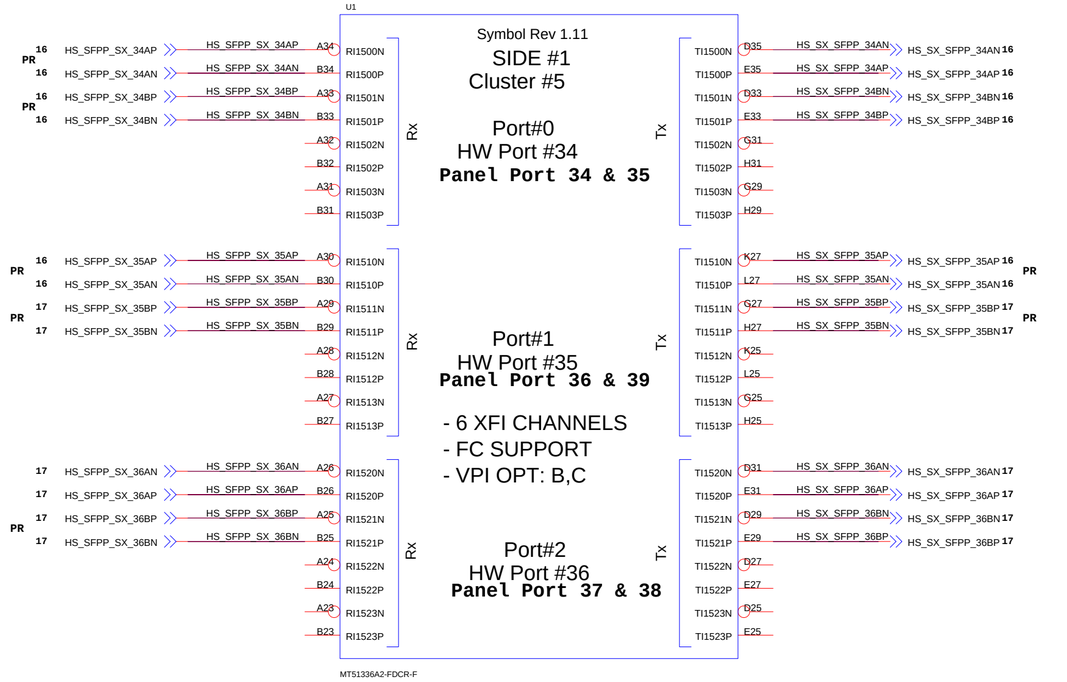
SFG001303_A1_TARANTULA_SWITCH_BOARD

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Title: Tarantula Switch Board SX_Ports_13_24			
Size: C	DWG NO: PCB000952		Rev: 00
Date: 10/05/2015:14:36	SHEET 4 OF 36		



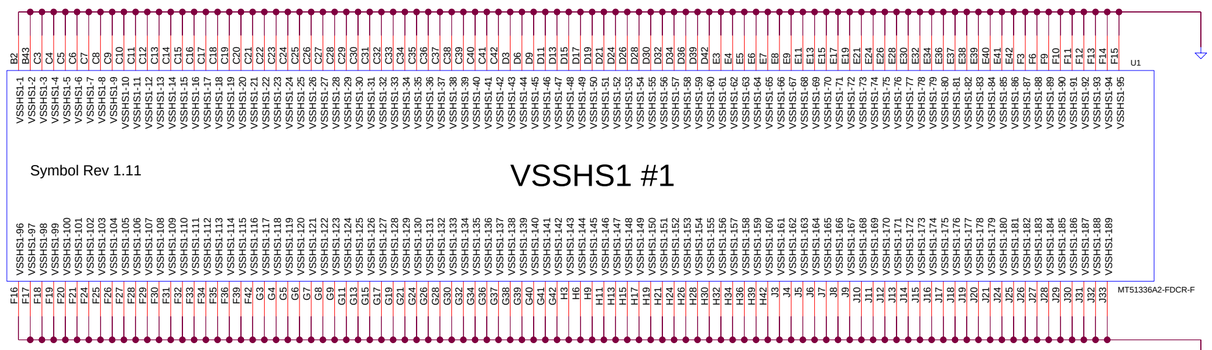


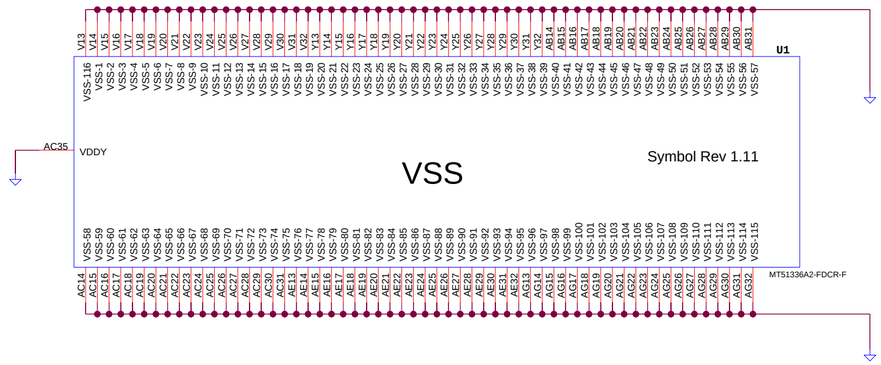


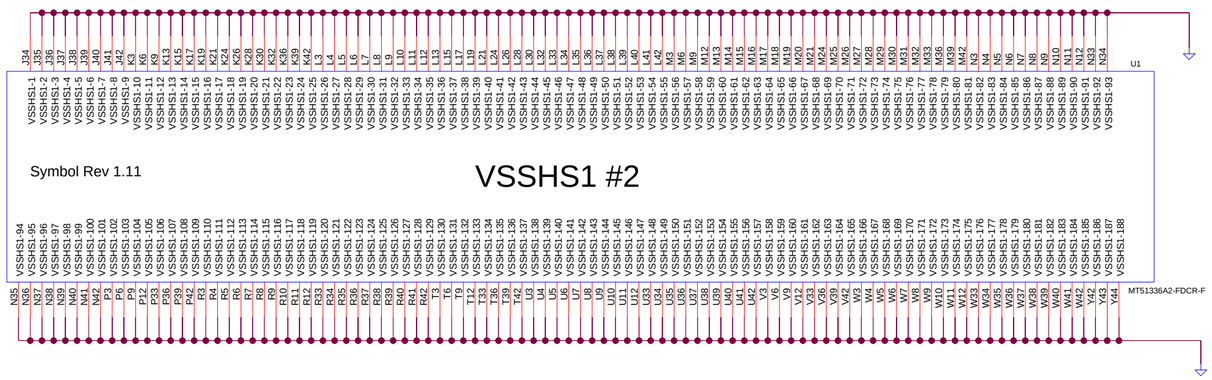


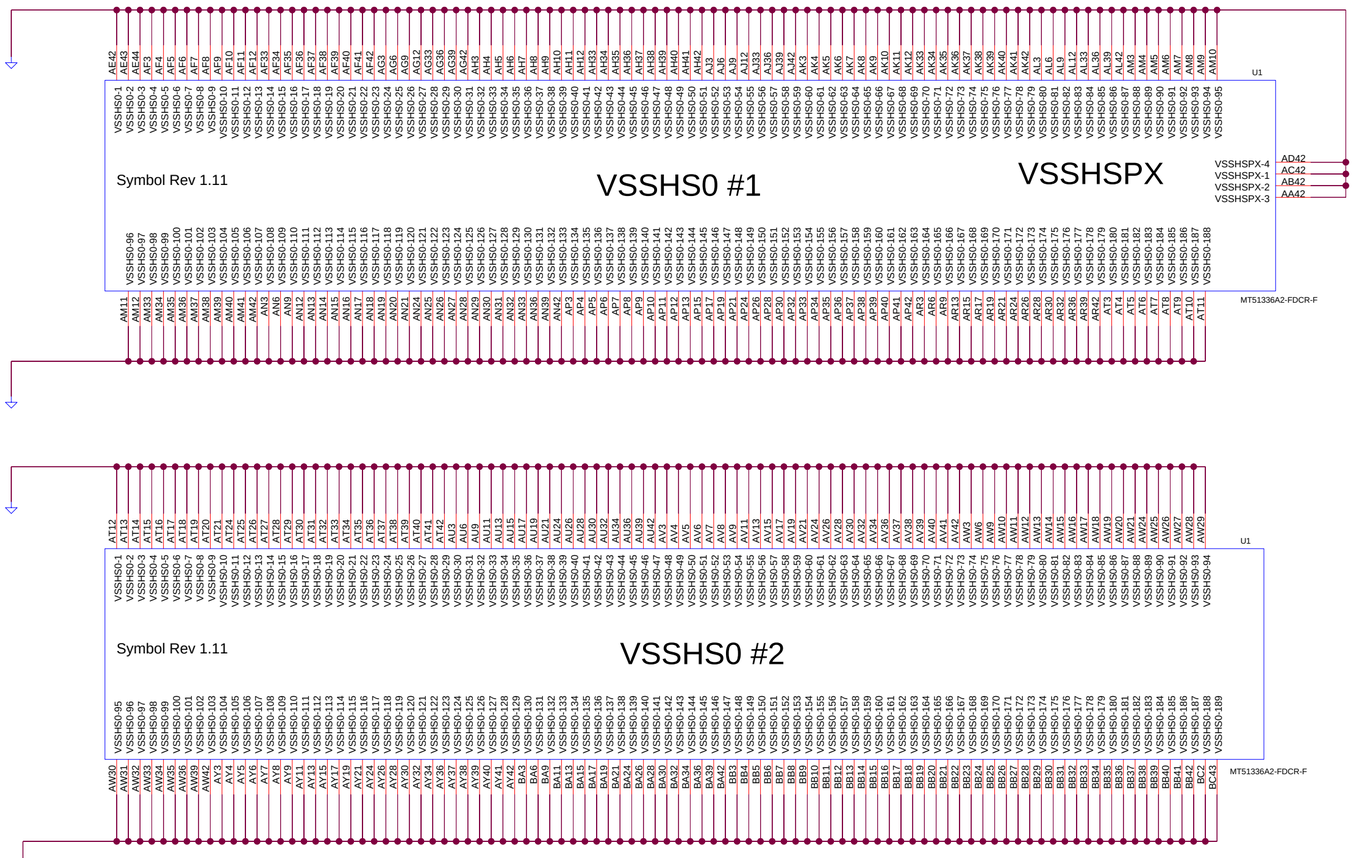
Master Design

Mellanox Technologies LTD		
Title: Neptune Switch Board	SX_Ports_25_36	
Size: C	DWG NO: PCB000952	Rev: 00
Date: 18/05/2015:15:45	SHEET 5 OF 36	









SFG001303_A1_TARANTULA_SWITCH_BOARD

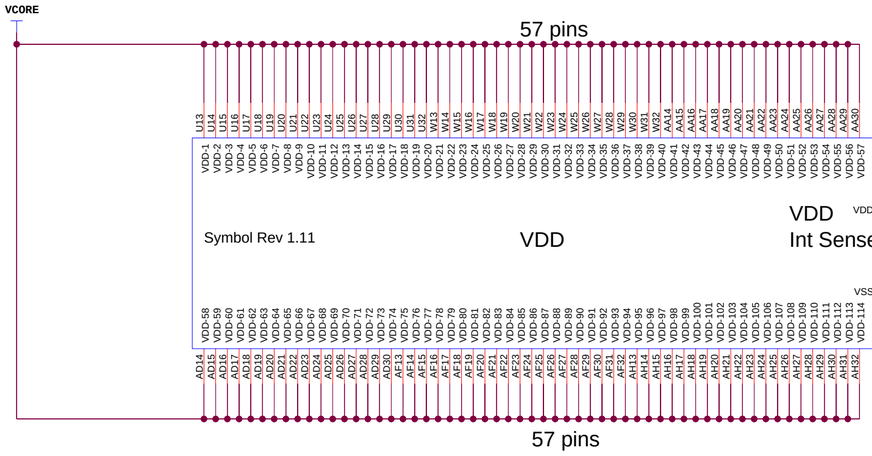
Mellanox Technologies LTD

Title: Tarantula Switch Board — SX_VSSHS_and_GND

Size: C | DWG NO: PCB000952 | Rev: 00

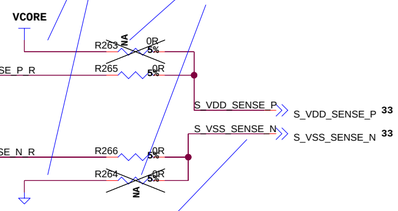
Date: 10/05/2015:14:36 | SHEET 6 OF 36

SX VCORE

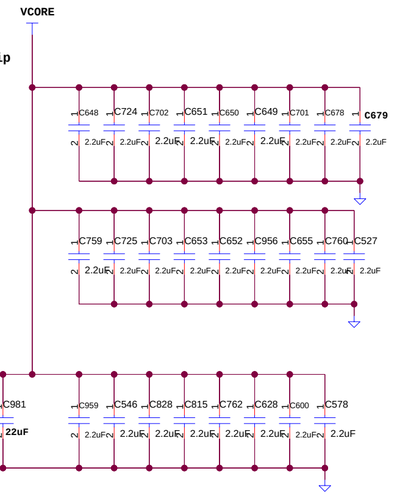


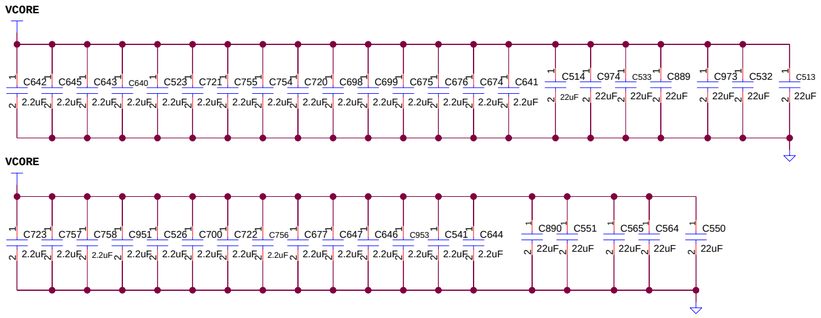
Wire as differential trace starting from one of the capacitors under BGA

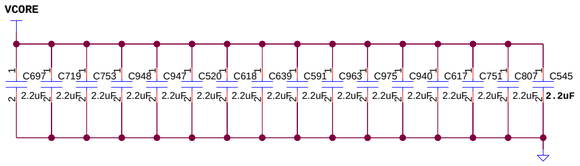
Resistors Should be Close to the Chip



Route differentially
10MIL trace width

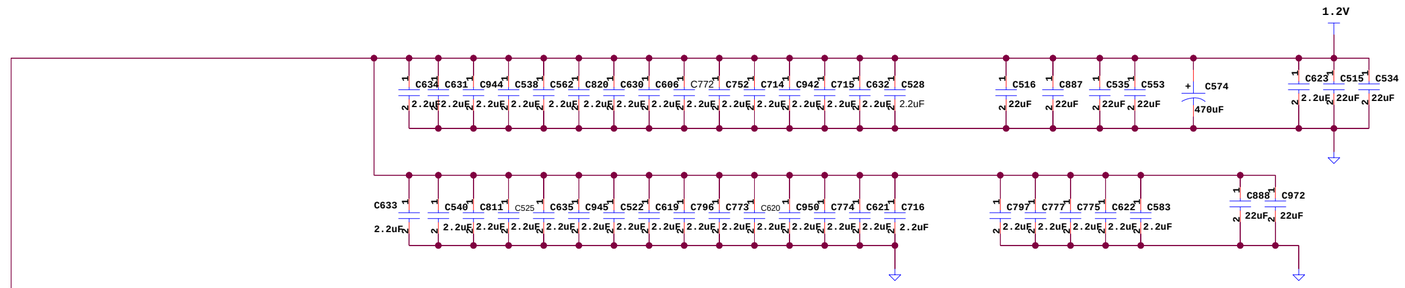


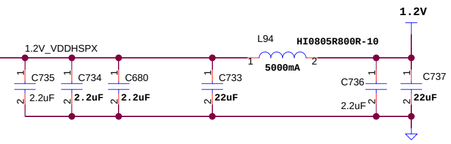


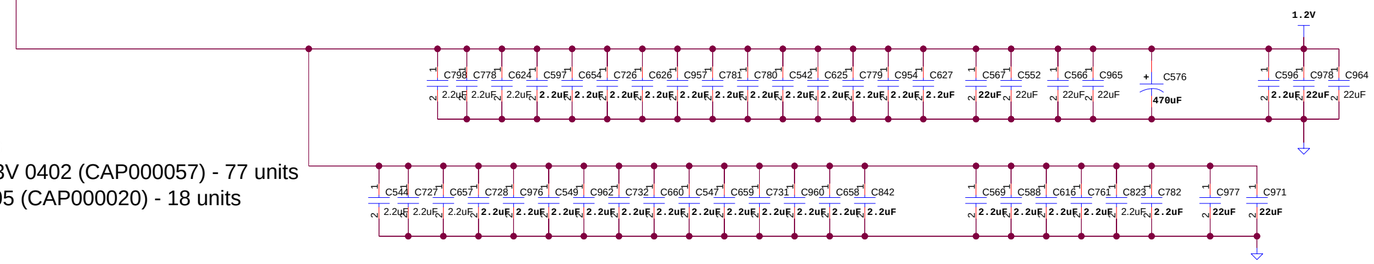


2*57=114 pins
2.2UF X5R 20% 6.3V 0402 (CAP000057): 71 units
22uF 6.3V 0805 X5R (CAP000020): 16 units

SX 1.2V





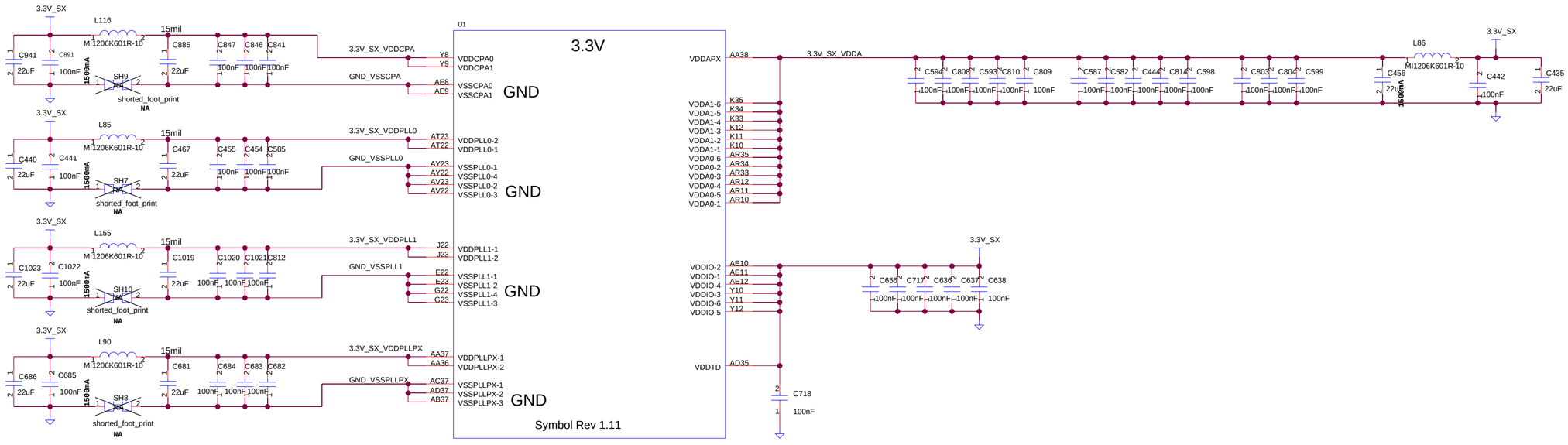


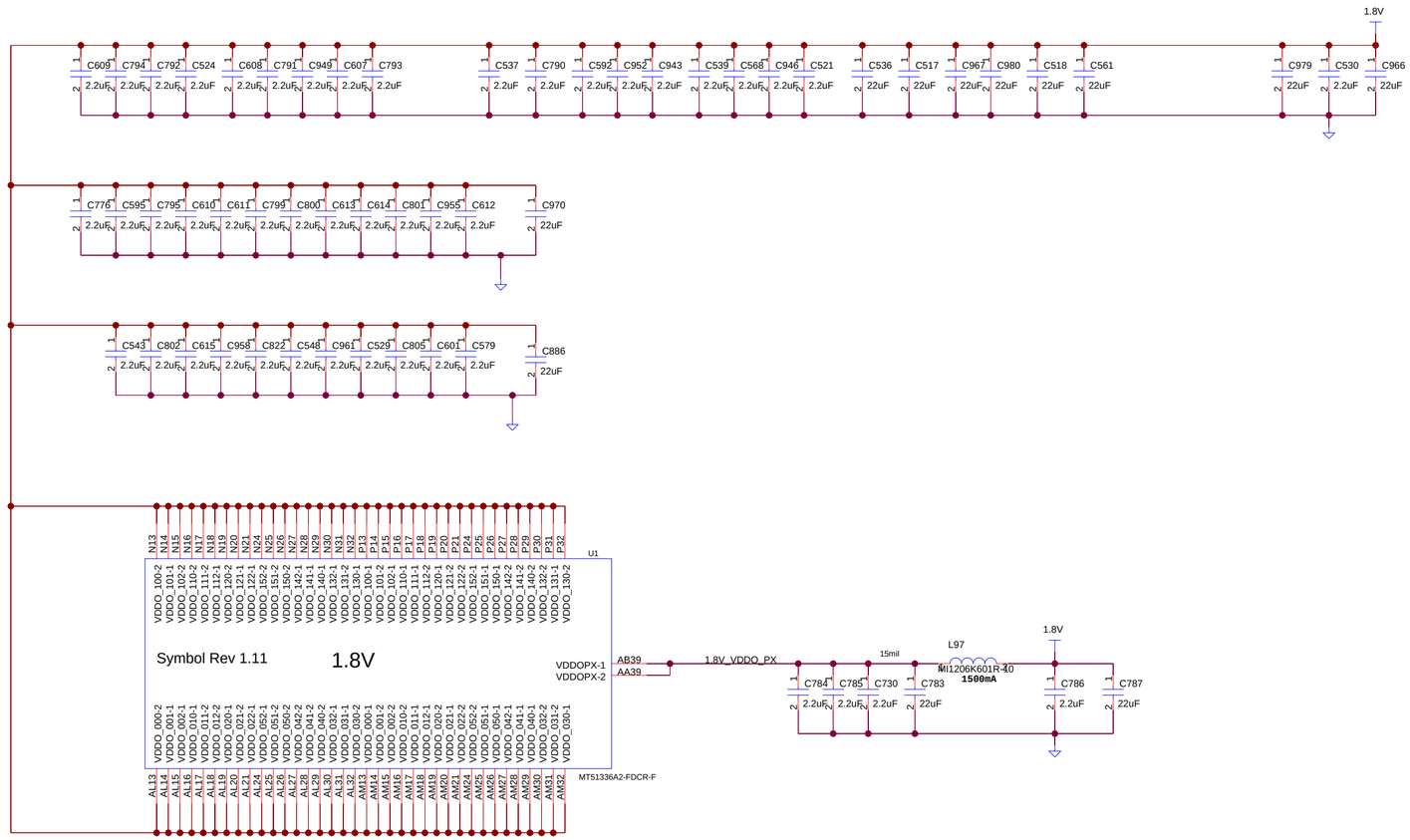
66*2 + 2 = 124 pins
2.2UF X5R 20% 6.3V 0402 (CAP000057) - 77 units
22uF X5R 6.3V 0805 (CAP000020) - 18 units
680uF - 2 units

SFG001303_A1_TARANTULA_SWITCH_BOARD

Mellanox Technologies LTD

Title: Tarantula Switch Board	SX_Vcore_1_2V_Pwr	
Size: C	DWG NO: PCB000952	Rev: 00
Date: 10/05/2015:14:36	SHEET 7 OF 36	





74 +2 = 76 pins
2.2UF X5R 20% 6.3V 0402 (CAP000057) - 48 units
22uF 6.5V 0805 (CAP000020) - 12 units
0R08 DCR 600 OHM 1500MA 1206 (IND000004) - 1 unit
48 OHM 10A 25% 0.75MOHM 2012 (IND000012) - 1 unit

SFG001303_A1_TARANTULA_SWITCH_BOARD

Mellanox Technologies LTD		
Title: Tarantula Switch Board	SX_3_3V_and_1_8V_Pwr	
Size: C	DWG NO: PCB000952	Rev: 00
Date: 10/05/2015:14:36	SHEET 8 OF 36	

HEALTH_BIT1	HEALTH_BIT0	STATUS
0	0	FAIL
0	1	N/A
1	0	OK
1	1	Power-On / Boot

Dasiey Chain and short as possible

Place as close as possible to AND Gate

95 OHm

Termination

used shared pads for two Capacitors

Use Shared PAD For PCIe Clock Capacitors

Device reset#

HW Reset alert

Core Clock 156.25MHz

Side #0, CK#0, 156.25MHz

Side #0, CK#1, 106.25MHz

Side #1, CK#0, 156.25MHz

Side #1, CK#1, 106.25MHz

GIGE Clock, 156.25MHz, No SSC

PCIE Clock, 100MHz with SSC support

JTAG

User IO

Debug Interface

Symbol Rev 1.11

MT51336A2-FDCR-F

PCIE & CPLDs 100MHz CLK

Place near OSC100

SFG001303_A1_TARANTULA_SWITCH_BOARD

Mellanox Technologies LTD

Title: Tarantula Switch Board — SX_CLK_and_DEBUG

Size: C — DWG NO: PCB000952 — Rev: 00

Date: 18/05/2015:17:53 — SHEET 9 OF 36

@NAME=Tarantula_Switch_Board

STRAPPING

Use Daisy Chain for Strapping
PU Resistors should be close to CPLD

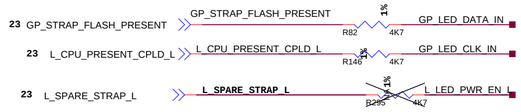


FLASH_PRESENT_STRAP

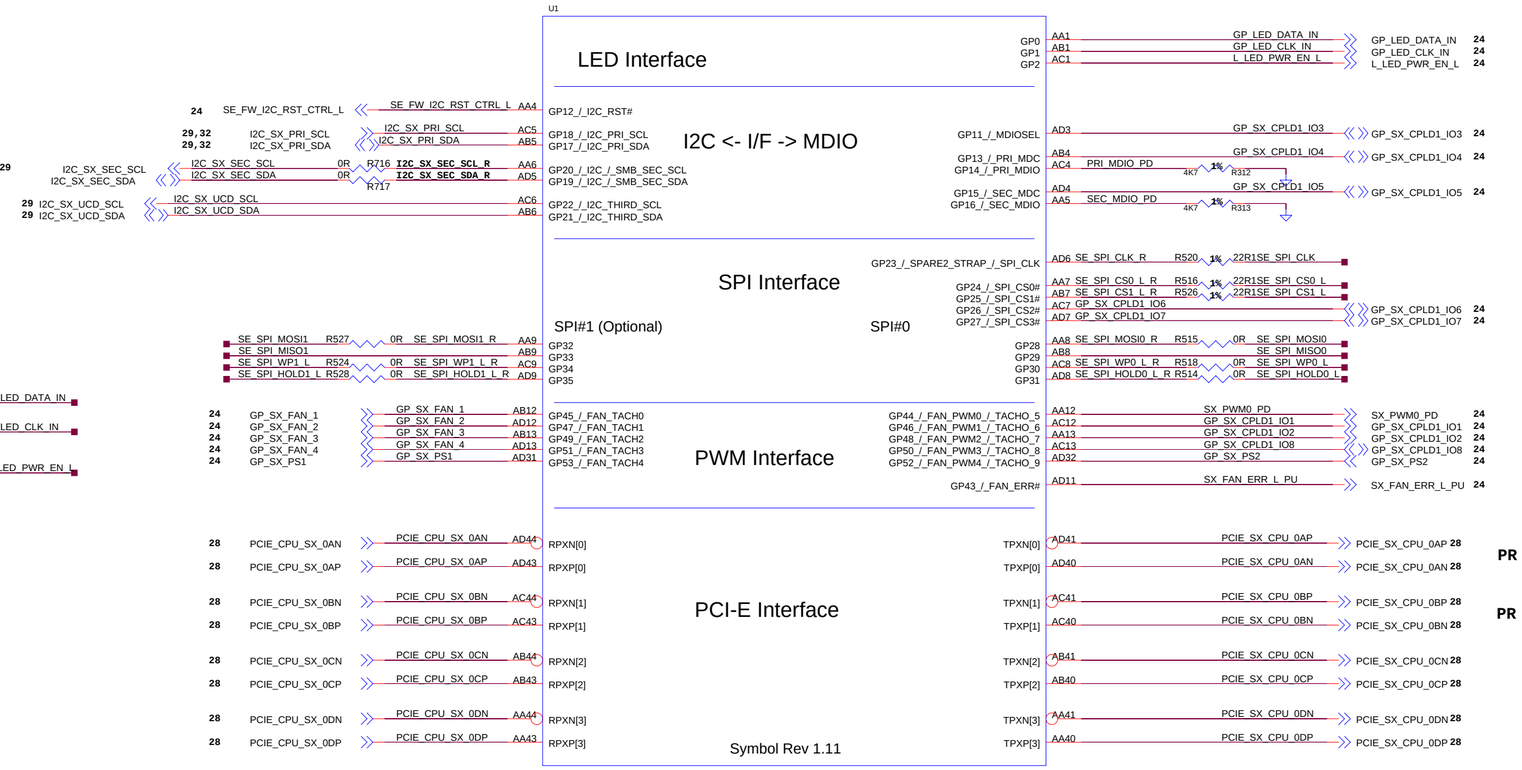
LED_DATA_IN state at reset:
LOW (J? Shorted) - no boot from FLASH
HIGH (J? Open) - Boot from Flash

PCIE_PRSNT_STRAP

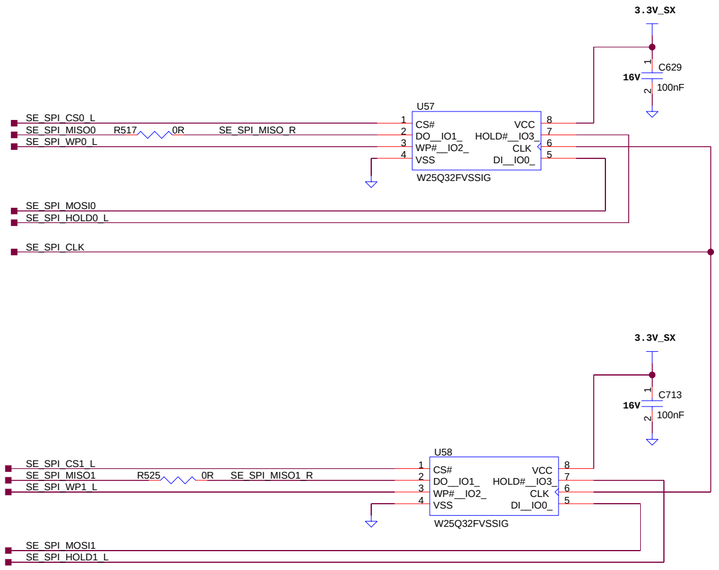
LED_CLK_IN state at reset:
LOW - PCIE present
HIGH - PCIE NOT present



SPARE1_STRAP

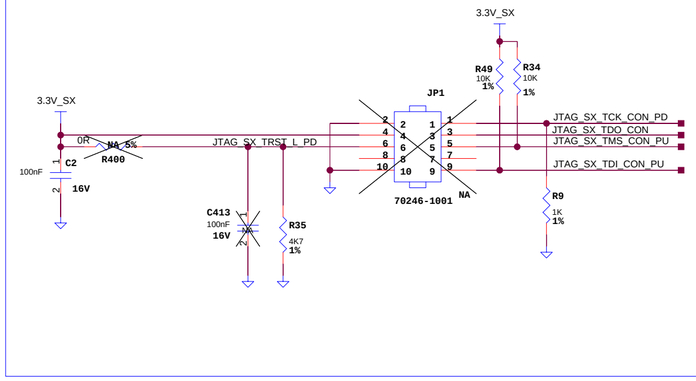


SX SPI interface

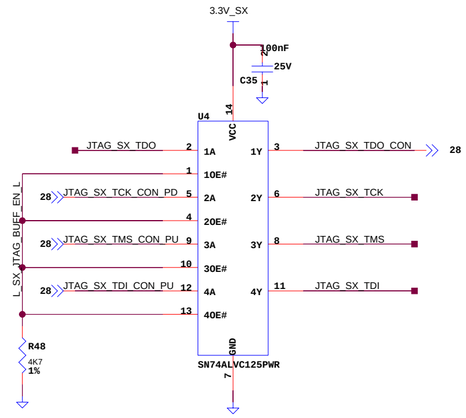


SX JTAG

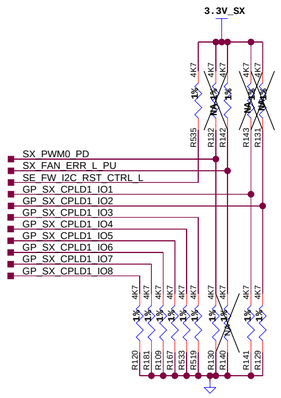
SX JTAG HEADER



SX JTAG BUFFER



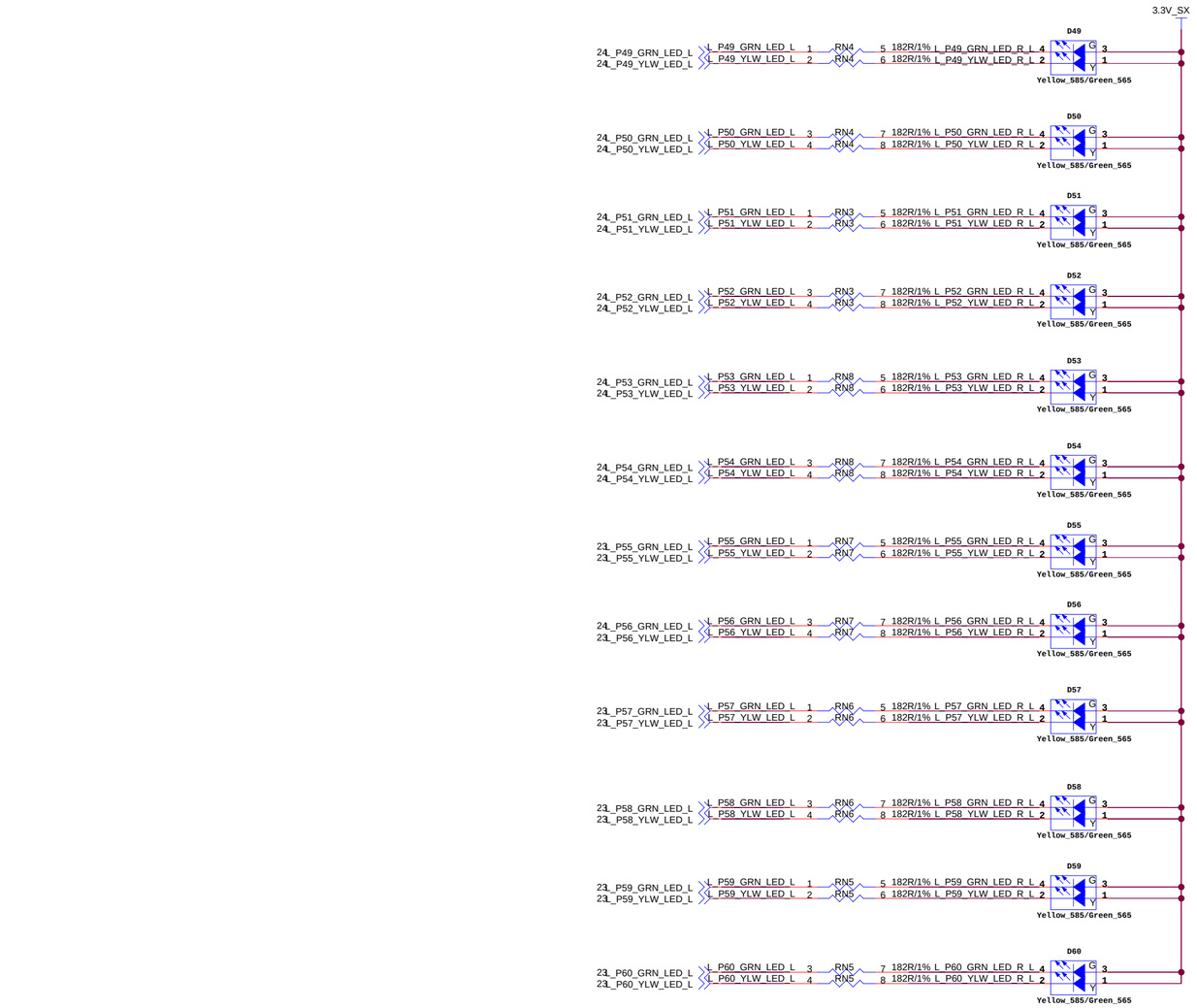
Layout: Use Share Pads

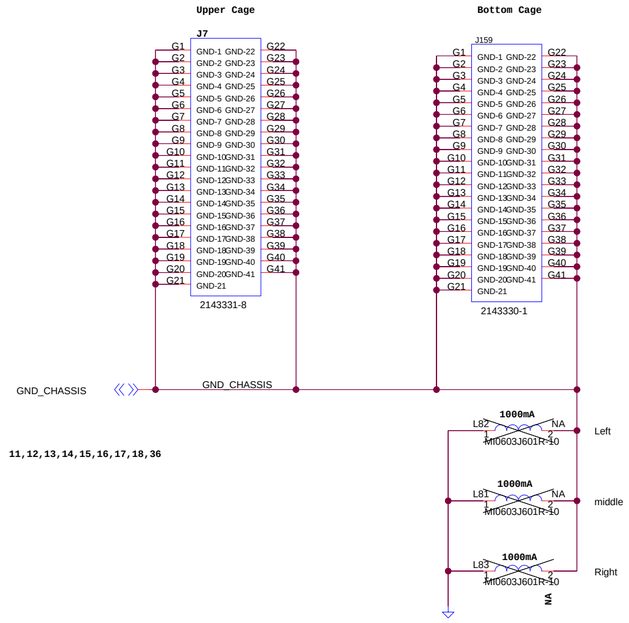


Traces length shall not exceed 2"

SFG001303_A1_TARANTULA_SWITCH_BOARD

Mellanox Technologies LTD		
Title: Tarantula Switch Board SX_Interfaces		
Size: C	DWG NO: PCB000952	Rev: 00
Date: 10/05/2015:14:36	SHEET 10 OF 36	





LEDs Indications

IB:

Off - No Power To The Port

Solid Green - Logicl Link Up

Flashing Green - Data Activity

Solid Orange(Yellow) - Phy Link Up

Flashing Orange(Yellow) - Phy Link Error

ETH:

Off - Link Down

Solid Green - Link Up, No Traffic

Blinking Green - Traffic

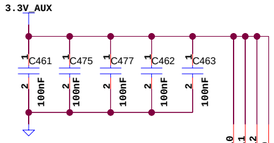
Blinking Orange(Yellow) - Phy Errors

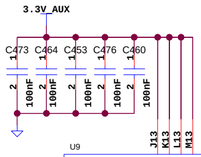
SFG001303_A1_TARANTULA_SWITCH_BOARD

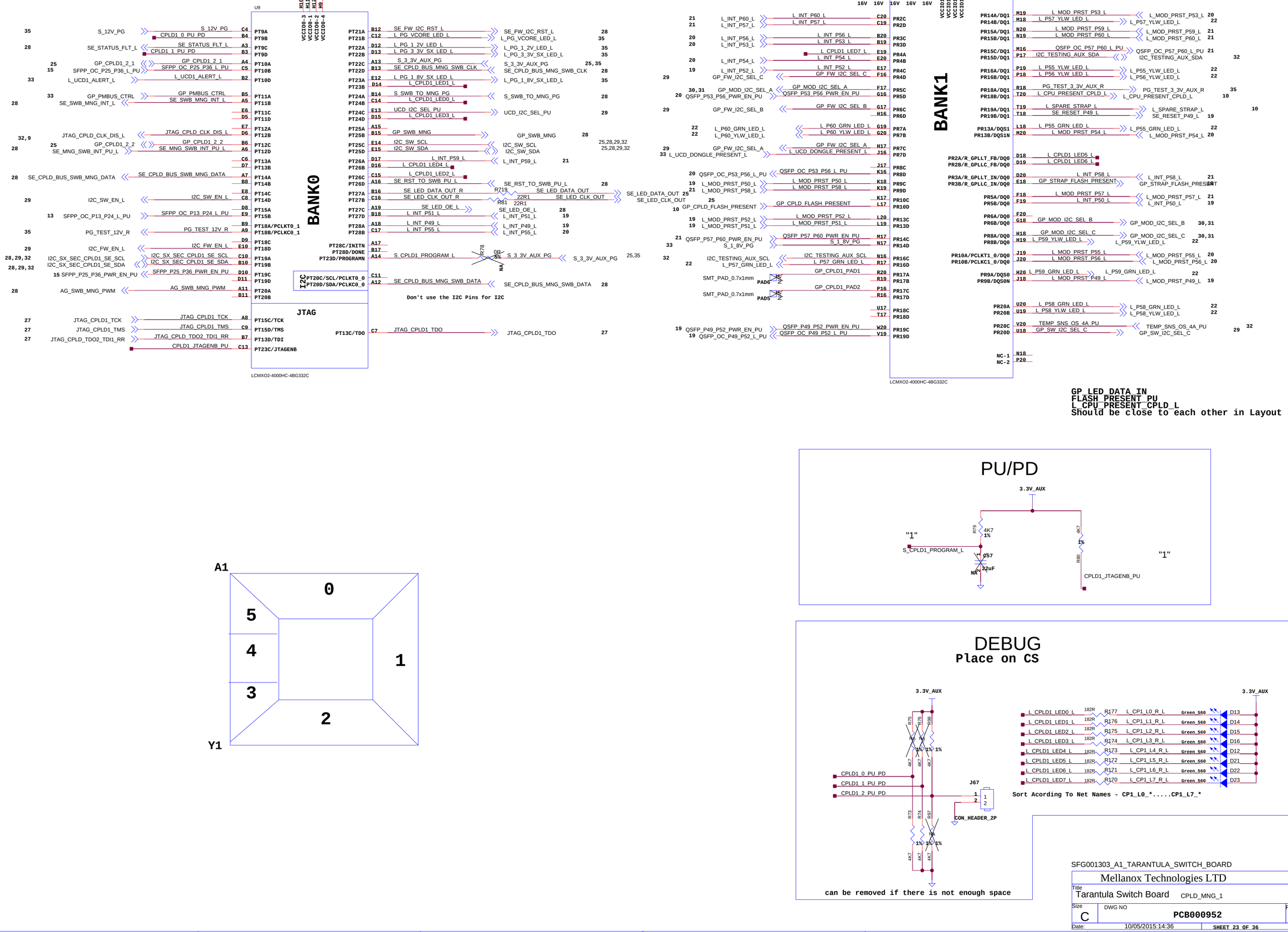
Mellanox Technologies LTD		
Title: Tarantula Switch Board QSFP_LEDS_CAGES		
Size: C	DWG NO: PCB000952	Rev: 00
Date: 10/05/2015:14:36	SHEET 22 OF 36	

MAIN CPLD

I2C SW (FT) - 0x62; I2C SEC (FW) - 0x63







GP_LED_DATA_IN
FLASH_PRESENT_PU
L_CPU_PRESENT_CPLD_L
Should be close to each other in Layout

PU/PD

DEBUG

Place on CS

can be removed if there is not enough space

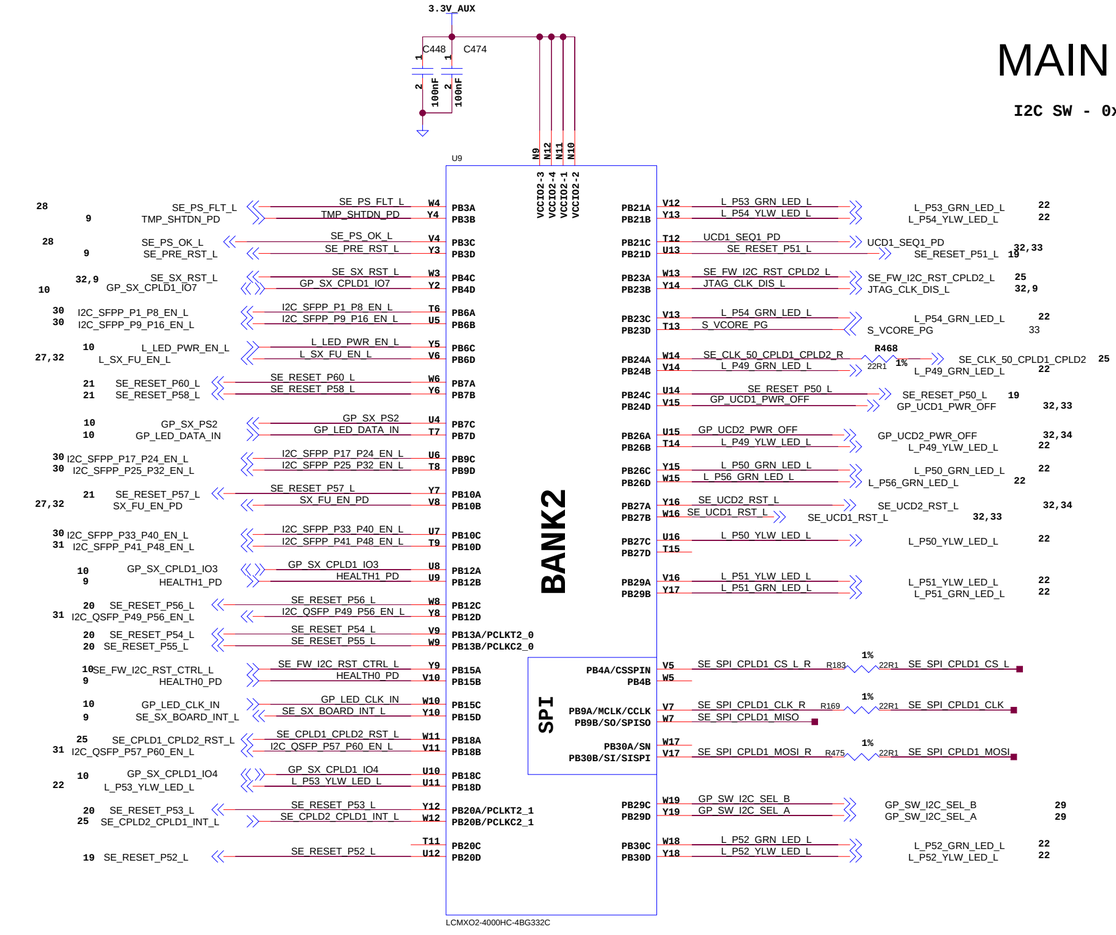
Sort Acording To Net Names - CP1_L0_*.....CP1_L7_*

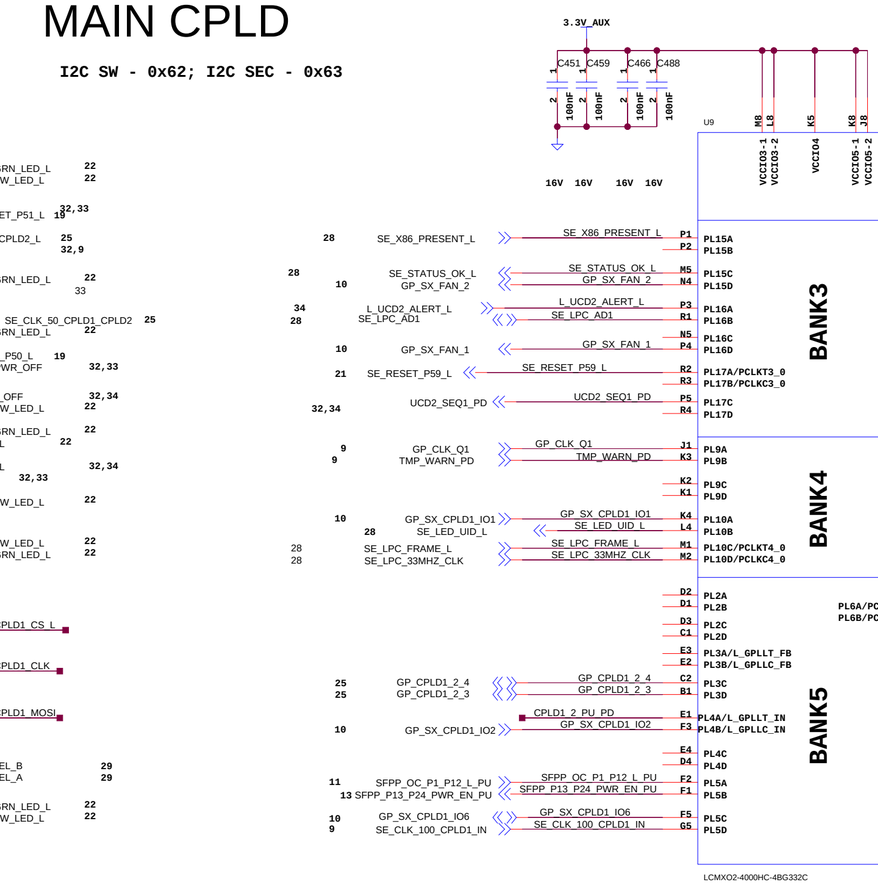
SFG001303_A1_TARANTULA_SWITCH_BOARD

Mellanox Technologies LTD		
Title: Tarantula Switch Board CPLD_MNG_1		
Size: C	DWG NO: PCB000952	Rev: 00
Date: 10/05/2015:14:36	SHEET 23 OF 36	

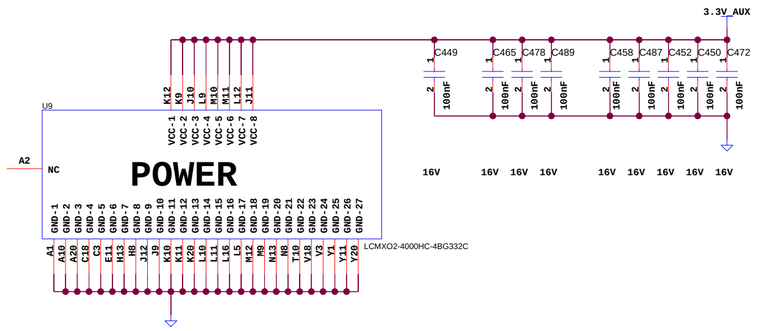
MAIN CPLD

I2C SW - 0x62; I2C SEC - 0x63

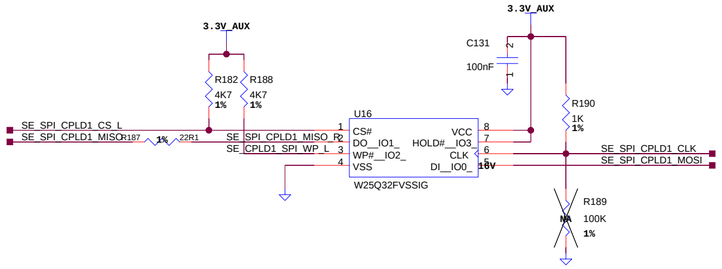




MAIN CPLD POWER



MAIN CPLD SPI FLASH

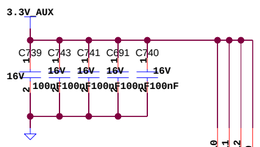


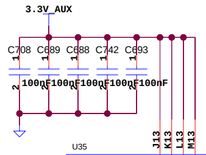
SFG001303_A1_TARANTULA_SWITCH_BOARD

Mellanox Technologies LTD		
Title: Tarantula Switch Board	CPLD_MNG_2	
Size: C	DWG NO: PCB000952	Rev: 00
Date: 10/05/2015:14:36	SHEET 24 OF 36	

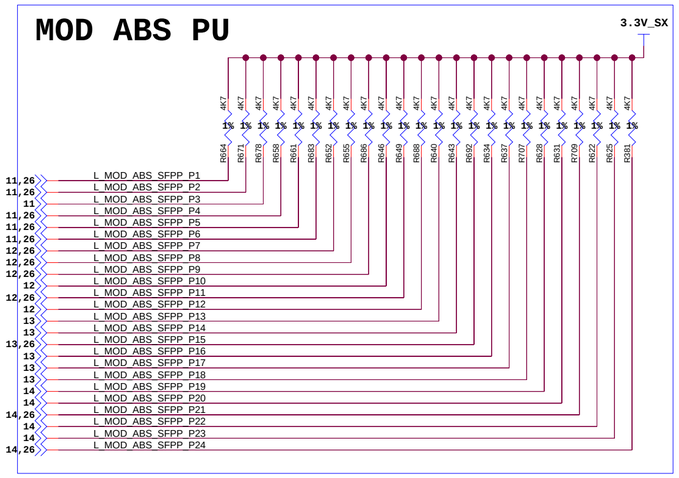
SFP+ CPLD

I2C SEC (FW) - 0x64

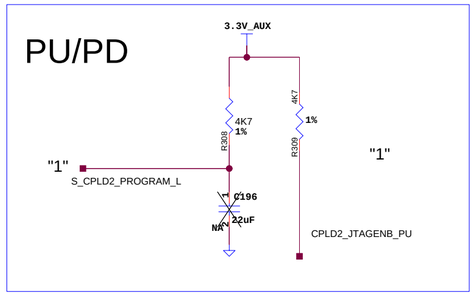




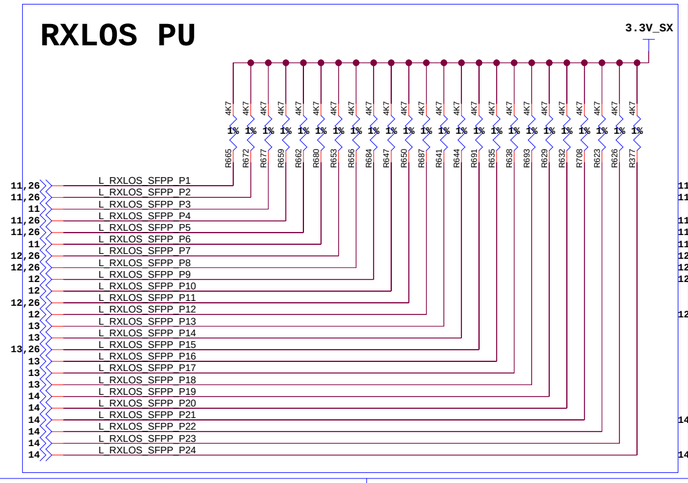
MOD ABS PU



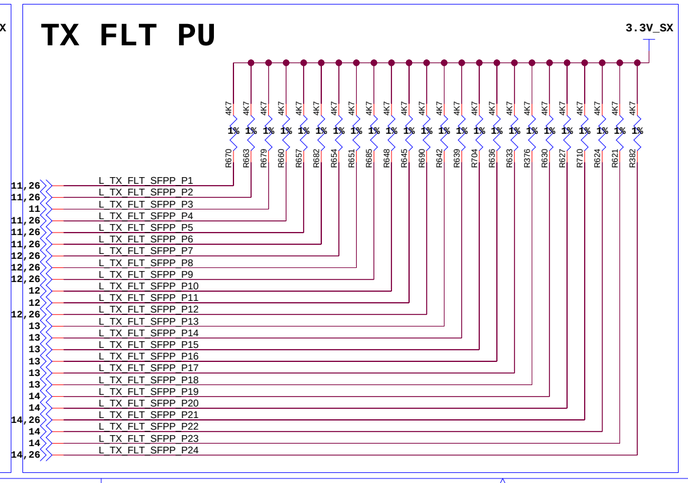
PU/PD

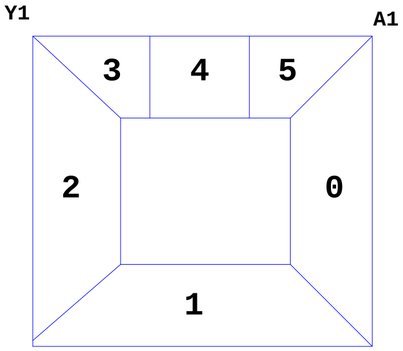


RXLOS PU



TX FLT PU





SFG001303_A1_TARANTULA_SWITCH_BOARD

Mellanox Technologies LTD		
Title: Tarantula Switch Board	CPLD_SFPP_1	
Size: C	DWG NO: PCB000952	Rev: 00
Date: 10/05/2015:14:36	SHEET 25 OF 36	

SFP+ CPLD

I2C SEC (FW) - 0x64

BANK2

LCMXO2-4000HC-4BG332C

11,25	18	L_RS_SFPP_P43	L_TX_FLT_SFPP_P1	W4	PB3A		
				Y4	PB3B		
17		L_TX_DIS_SFPP_P41	L_MOD_ABS_SFPP_P2	V4	PB3C		
11,25				Y3	PB3D		
11,25	18	L_TX_DIS_SFPP_P44	L_RXLOS_SFPP_P2	W3	PB4C		
				Y2	PB4D		
17	13	L_TX_DIS_SFPP_P15	L_TX_FLT_SFPP_P40	T6	PB6A		
				U5	PB6B		
11,25		L_RXLOS_SFPP_P1	L_TX_DIS_SFPP_P12	Y5	PB6C		
	12			V6	PB6D		
11,25	12,25	L_TX_FLT_SFPP_P12	L_MOD_ABS_SFPP_P1	W6	PB7A		
				Y6	PB7B		
17		L_RS_SFPP_P41	L_RS_SFPP_P15	U4	PB7C		
	13			T7	PB7D		
17		L_TX_DIS_SFPP_P39	L_RS_SFPP_P9	U6	PB9C		
	12			T8	PB9D		
11,25		L_TX_FLT_SFPP_P2	L_TX_FLT_SFPP_P9	Y7	PB10A		
12,25				V8	PB10B		
	12	L_RS_SFPP_P12	L_TX_FLT_SFPP_P37	U7	PB10C		
17				T9	PB10D		
	12	L_TX_DIS_SFPP_P9	L_MOD_ABS_SFPP_P38	U8	PB12A		
17				U9	PB12B		
17		L_RS_SFPP_P37	L_RXLOS_SFPP_P5	W8	PB12C		
	11,25			Y8	PB12D		
17		L_RS_SFPP_P39	L_MOD_ABS_SFPP_P37	V9	PB13A/PCLKT2_0		
17				W9	PB13B/PCLKC2_0		
11,25		L_MOD_ABS_SFPP_P5	L_MOD_ABS_SFPP_P4	Y9	PB15A		
11,25				V10	PB15B		
11,25		L_RXLOS_SFPP_P4	L_TX_FLT_SFPP_P4	W10	PB15C		
11,25				Y10	PB15D		
16		L_MOD_ABS_SFPP_P34	L_TX_FLT_SFPP_P38	W11	PB18A		
17				V11	PB18B		
11,25		L_TX_FLT_SFPP_P5	L_RXLOS_SFPP_P38	U10	PB18C		
17				U11	PB18D		
12,25		L_RXLOS_SFPP_P8	L_TX_FLT_SFPP_P6	Y12	PB20A/PCLKT2_1		
11,25				W12	PB20B/PCLKC2_1		
17		L_RXLOS_SFPP_P37	L_RXLOS_SFPP_P35	T11	PB20C		
16				U12	PB20D		
				V12	PB21A	L_TX_FLT_SFPP_P34	16
				Y13	PB21B	L_MOD_ABS_SFPP_P8	12,25
				T12	PB21C	L_RXLOS_SFPP_P34	16
				U13	PB21D	L_RS_SFPP_P3	11
				W13	PB23A	L_TX_DIS_SFPP_P38	17
				Y14	PB23B	L_TX_FLT_SFPP_P7	12,25
				V13	PB23C	L_MOD_ABS_SFPP_P9	12,25
				T13	PB23D	L_RS_SFPP_P34	16
				V15	PB24A	L_TX_FLT_SFPP_P32	16
				V14	PB24B	L_MOD_ABS_SFPP_P32	16
				U14	PB24C	L_RS_SFPP_P38	17
				W14	PB24D	L_MOD_ABS_SFPP_P35	16
				U15	PB26A	L_RXLOS_SFPP_P31	16
				T14	PB26B	SE_LED_CLK_OUT_TO_LED_BOARD_2_R 22R1 R718 SE_LED_CLK_OUT_TO_LED_BOARD_2	SE_LED_CLK_OUT_TO_LED_BOARD_2
				Y15	PB26C	L_RXLOS_SFPP_P7	12,25
				W15	PB26D	L_TX_FLT_SFPP_P35	16
				Y16	PB27A	L_MOD_ABS_SFPP_P7	12,25
				W16	PB27B	L_TX_DIS_SFPP_P37	17
				U16	PB27C	L_TX_FLT_SFPP_P31	16
				T15	PB27D	L_MOD_ABS_SFPP_P31	16
				V16	PB29A	L_TX_DIS_SFPP_P35	16
				Y17	PB29B	L_TX_FLT_SFPP_P8	12,25
				W17	PB29C	L_TX_DIS_SFPP_P29	15
				Y19	PB29D	L_MOD_ABS_SFPP_P11	12,25
				W18	PB30C	L_RS_SFPP_P26	15
				Y18	PB30D	L_RXLOS_SFPP_P11	12,25

SPI

PB4A/CSSPIN	V5	SE_SPI_CPLD2_CS_L_R R277 1% 22R1	SE_SPI_CPLD2_CS_L
PB4B	W5		
PB9A/MCLK/CCLK	V7	SE_SPI_CPLD2_CLK_R R286 1% 22R1	SE_SPI_CPLD2_CLK
PB9B/SO/SPISO	W7	SE_SPI_CPLD2_MISO	
PB30A/SN	W17		
PB30B/SI/SISPI	V17	SE_SPI_CPLD2_MOSI_R R307 1% 22R1	SE_SPI_CPLD2_MOSI

BANK3

LCMXO2-4000HC-4BG332C

15	L_RS_SFPP_P30	L_TX_DIS_SFPP_P30	P1	PL15A
15	L_TX_DIS_SFPP_P30		P2	PL15B
15	L_TX_DIS_SFPP_P27	L_TX_DIS_SFPP_P27	M5	PL15C
13,25	L_MOD_ABS_SFPP_P15	L_MOD_ABS_SFPP_P15	N4	PL15D
17	L_TX_FLT_SFPP_P41	L_TX_FLT_SFPP_P41	P3	PL16A
14	L_TX_DIS_SFPP_P24	L_TX_DIS_SFPP_P24	R1	PL16B
14	L_RS_SFPP_P21	L_RS_SFPP_P21	N5	PL16C
15	L_RXLOS_SFPP_P30	L_RXLOS_SFPP_P30	P4	PL16D
17	L_MOD_ABS_SFPP_P40	L_MOD_ABS_SFPP_P40	R2	PL17A/PCLKT3_0
17	L_TX_DIS_SFPP_P42	L_TX_DIS_SFPP_P42	R3	PL17B/PCLKC3_0
15	L_TX_DIS_SFPP_P21	L_TX_DIS_SFPP_P21	P5	PL17C
14	L_RS_SFPP_P27	L_RS_SFPP_P27	R4	PL17D
18	L_RXLOS_SFPP_P45	L_RXLOS_SFPP_P45	J1	PL9A
18	L_TX_FLT_SFPP_P48	L_TX_FLT_SFPP_P48	K3	PL9B
28				
16	L_MOD_ABS_SFPP_P33	L_MOD_ABS_SFPP_P33	K2	PL9C
		L_CPLD2_LED1_L	K1	PL9D
18	L_MOD_ABS_SFPP_P48	L_MOD_ABS_SFPP_P48	K4	PL10A
18	L_TX_FLT_SFPP_P45	L_TX_FLT_SFPP_P45	L4	PL10B
15	L_TX_DIS_SFPP_P45	L_TX_DIS_SFPP_P45	M1	PL10C/PCLKT4_0
18	L_MOD_ABS_SFPP_P27	L_MOD_ABS_SFPP_P27	M2	PL10D/PCLKC4_0
14,25	L_TX_FLT_SFPP_P24	L_TX_FLT_SFPP_P24	D2	PL2A
18	L_RXLOS_SFPP_P47	L_RXLOS_SFPP_P47	D1	PL2B
18	L_TX_FLT_SFPP_P47	L_TX_FLT_SFPP_P47	D3	PL2C
18	L_TX_DIS_SFPP_P48	L_TX_DIS_SFPP_P48	C1	PL2D
18	L_MOD_ABS_SFPP_P47	L_MOD_ABS_SFPP_P47	E3	PL3A/L_GPLLT_FB
14,25	L_MOD_ABS_SFPP_P21	L_MOD_ABS_SFPP_P21	E2	PL3B/L_GPLLC_FB
14,25	L_TX_FLT_SFPP_P21	L_TX_FLT_SFPP_P21	C2	PL3C
18	L_RXLOS_SFPP_P46	L_RXLOS_SFPP_P46	B1	PL3D
16	L_TX_DIS_SFPP_P33	L_TX_DIS_SFPP_P33	E1	PL4A/L_GPLLT_IN
18	L_TX_FLT_SFPP_P46	L_TX_FLT_SFPP_P46	F3	PL4B/L_GPLLC_IN
15	L_TX_FLT_SFPP_P30	L_TX_FLT_SFPP_P30	E4	PL4C
18	L_RXLOS_SFPP_P48	L_RXLOS_SFPP_P48	D4	PL4D
18	L_RS_SFPP_P45	L_RS_SFPP_P45	F2	PL5A
		L_CPLD2_LED0_L	F1	PL5B
16	L_RXLOS_SFPP_P33	L_RXLOS_SFPP_P33	F5	PL5C
11,25	L_MOD_ABS_SFPP_P6	L_MOD_ABS_SFPP_P6	G5	PL5D
				NC-1
				NC-2

BANK4

T1	L_RXLOS_SFPP_P41	L_RXLOS_SFPP_P41	17	PL18A
T2	L_MOD_ABS_SFPP_P41	L_MOD_ABS_SFPP_P41	17	PL18B
R5	L_TX_DIS_SFPP_P46	L_TX_DIS_SFPP_P46		PL18C
T4	L_RS_SFPP_P24	L_RS_SFPP_P24	18 14	PL18D
T3	L_RS_SFPP_P42	L_RS_SFPP_P42	17	PL19A
U1	L_CPLD2_LED3_L			PL19B
W2	L_RS_SFPP_P46	L_RS_SFPP_P46		PL19C
W1	L_TX_DIS_SFPP_P47	L_TX_DIS_SFPP_P47	18	PL19D
U2	L_TX_DIS_SFPP_P43	L_TX_DIS_SFPP_P43		PL20A
U3	L_TX_DIS_SFPP_P40	L_TX_DIS_SFPP_P40	18 17	PL20B
V2	L_RS_SFPP_P44	L_RS_SFPP_P44	18	PL20C
V1	L_RS_SFPP_P47	L_RS_SFPP_P47	18	PL20D
M3	L_TX_DIS_SFPP_P18	L_TX_DIS_SFPP_P18		PL13A
N1	L_CPLD2_LED2_L		13	PL13B
L2	L_TX_FLT_SFPP_P44	L_TX_FLT_SFPP_P44	18	PL13C
L3	L_RXLOS_SFPP_P43	L_RXLOS_SFPP_P43	18	PL13D
N2	L_TX_FLT_SFPP_P33	L_TX_FLT_SFPP_P33	16	PL14A
N3	L_RXLOS_SFPP_P15	L_RXLOS_SFPP_P15	13,25	PL14B
L1	L_MOD_ABS_SFPP_P43	L_MOD_ABS_SFPP_P43	18	PL14C
M4	L_TX_DIS_SFPP_P36	L_TX_DIS_SFPP_P36	16	PL14D

BANK5

				PL6A/PCLKT5_0
G3	L_RS_SFPP_P33	L_RS_SFPP_P33		PL6B/PCLKC5_0
G2	L_RS_SFPP_P36	L_RS_SFPP_P36	16 16	
F4	L_TX_FLT_SFPP_P27	L_TX_FLT_SFPP_P27	15	PL6C
H5	L_RXLOS_SFPP_P44	L_RXLOS_SFPP_P44	18	PL6D
H2	L_MOD_ABS_SFPP_P30	L_MOD_ABS_SFPP_P30	15	PL7A
H1	L_MOD_ABS_SFPP_P45	L_MOD_ABS_SFPP_P45	18	PL7B
G4	L_MOD_ABS_SFPP_P24	L_MOD_ABS_SFPP_P24	14,25	PL7C
J5	L_MOD_ABS_SFPP_P44	L_MOD_ABS_SFPP_P44	18	PL7D
J3	L_RXLOS_SFPP_P27	L_RXLOS_SFPP_P27	15	PL8A
J2	L_RS_SFPP_P18	L_RS_SFPP_P18	13	PL8B
H4	L_TX_FLT_SFPP_P43	L_TX_FLT_SFPP_P43	18	PL8C
J4	L_RXLOS_SFPP_P40	L_RXLOS_SFPP_P40	17	PL8D
H3				NC-1
G1				NC-2

MOD ABS PU

3.3V_SX

15,25	L_MOD_ABS_SFPP_P25
15,25	L_MOD_ABS_SFPP_P26
15	L_MOD_ABS_SFPP_P27
15,25	L_MOD_ABS_SFPP_P28
15,25	L_MOD_ABS_SFPP_P29
15	L_MOD_ABS_SFPP_P30
16	L_MOD_ABS_SFPP_P31
16	L_MOD_ABS_SFPP_P32
16	L_MOD_ABS_SFPP_P33
16	L_MOD_ABS_SFPP_P34
16	L_MOD_ABS_SFPP_P35
16,25	L_MOD_ABS_SFPP_P36
17	L_MOD_ABS_SFPP_P37
17	L_MOD_ABS_SFPP_P38
17,25	L_MOD_ABS_SFPP_P39
17	L_MOD_ABS_SFPP_P40
17	L_MOD_ABS_SFPP_P41
17,25	L_MOD_ABS_SFPP_P42
18	L_MOD_ABS_SFPP_P43
18	L_MOD_ABS_SFPP_P44
18	L_MOD_ABS_SFPP_P45
18,25	L_MOD_ABS_SFPP_P46
18	L_MOD_ABS_SFPP_P47
18	L_MOD_ABS_SFPP_P48

RXLOS PU

3.3V_SX

15,25	L_RXLOS_SFPP_P25
15,25	L_RXLOS_SFPP_P26
15	L_RXLOS_SFPP_P27
15,25	L_RXLOS_SFPP_P28
15,25	L_RXLOS_SFPP_P29
15	L_RXLOS_SFPP_P30
16	L_RXLOS_SFPP_P31
16,25	L_RXLOS_SFPP_P32
16	L_RXLOS_SFPP_P33
16	L_RXLOS_SFPP_P34
16	L_RXLOS_SFPP_P35
16,25	L_RXLOS_SFPP_P36
17	L_RXLOS_SFPP_P37
17	L_RXLOS_SFPP_P38
17,25	L_RXLOS_SFPP_P39
17	L_RXLOS_SFPP_P40
17	**L_RXLOS_SFPP_P41**
17,25	L_RXLOS_SFPP_P42
18	L_RXLOS_SFPP_P43
18	L_RXLOS_SFPP_P44
18	L_RXLOS_SFPP_P45
18	L_RXLOS_SFPP_P46
18	L_RXLOS_SFPP_P47
18	L_RXLOS_SFPP_P48

TX FLT PU

3.3V_SX

15,25	L_TX_FLT_SFPP_P25
15,25	L_TX_FLT_SFPP_P26
15	L_TX_FLT_SFPP_P27
15,25	L_TX_FLT_SFPP_P28
15,25	L_TX_FLT_SFPP_P29
15	L_TX_FLT_SFPP_P30
16	L_TX_FLT_SFPP_P31
16	L_TX_FLT_SFPP_P32
16	L_TX_FLT_SFPP_P33
16	L_TX_FLT_SFPP_P34
16	L_TX_FLT_SFPP_P35
16,25	L_TX_FLT_SFPP_P36
17	L_TX_FLT_SFPP_P37
17	L_TX_FLT_SFPP_P38
17,25	L_TX_FLT_SFPP_P39
17	L_TX_FLT_SFPP_P40
17	L_TX_FLT_SFPP_P41
17,25	L_TX_FLT_SFPP_P42
18	L_TX_FLT_SFPP_P43
18	L_TX_FLT_SFPP_P44
18	L_TX_FLT_SFPP_P45
18	L_TX_FLT_SFPP_P46
18	L_TX_FLT_SFPP_P47
18	L_TX_FLT_SFPP_P48

POWER

LCMXO2-4000HC-4BG332C

DEBUG

Place on CS

3.3V_AUX

L_CPLD2_LED0_L	182R R258	L_CP2_L0_R_L	Green_560 D71
L_CPLD2_LED1_L	182R R257	L_CP2_L1_R_L	Green_560 D72
L_CPLD2_LED2_L	182R R256	L_CP2_L2_R_L	Green_560 D73
L_CPLD2_LED3_L	182R R255	L_CP2_L3_R_L	Green_560 D70

Sort Acording To Net Names - CP1_L0_*.....CP1_L3_*

SFP+ CPLD SPI FLASH

3.3V_AUX

SE_SPI_CPLD2_CS_L
SE_SPI_CPLD2_MISO — R268 1% 22R1 — SE_SPI_CPLD2_MISO_R
SE_SPI_CPLD2_SPI_WP_L

R269 4K7 1%
R267 4K7 1%

U34 — W25Q32FVSSIG

CS#	1	VCC	8
DO__IO1_	2	HOLD#__IO3	7
WP#__IO2_	3	CLK	6
VSS	4	DI__IO0_	5

3.3V_AUX

C195 100nF

R306 1K 1%

SE_SPI_CPLD2_CLK
SE_SPI_CPLD2_MOSI

R305 NA 100K 1%

SFG001303_A1_TARANTULA_SWITCH_BOARD

Mellanox Technologies LTD		
Title: Tarantula Switch Board CPLD_SFPP_2		
Size: C	DWG NO: PCB000952	Rev: 00
Date: 10/05/2015:14:36	SHEET 26 OF 36	

CPLD JTAG HEADER

JP3
70246-1001
Place Near SE Conn.

SE CONN

Signals Direction Acording To FU Flow

Place Near SE Conn.

U11
SN74LVC1G125DCK

SX

Place Near SE Conn.

U12

SFP+ CPLD

MAIN CPLD

MNG Board CPLD

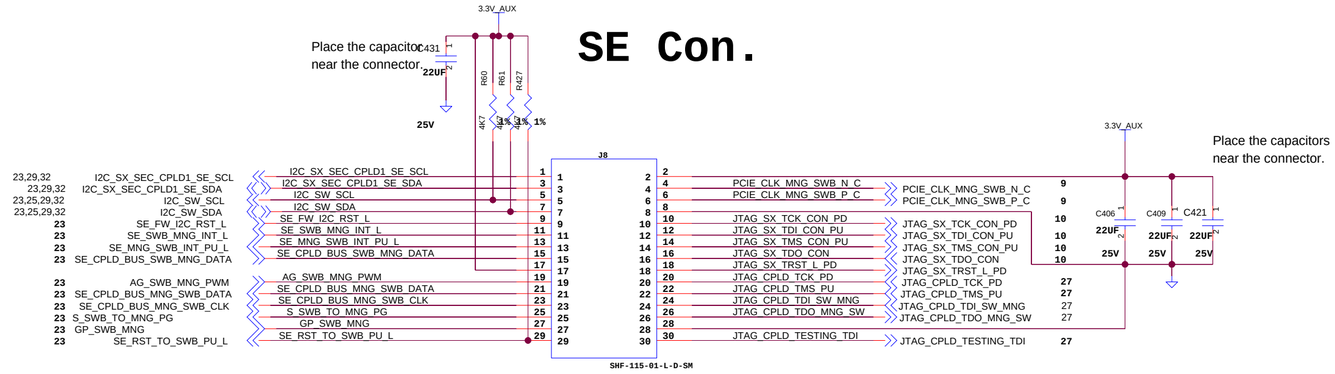
J2
Jumper for SWB stand alone JTAG Chain
CON_HEADER_2P

SFG001303_A1_TARANTULA_SWITCH_BOARD

Mellanox Technologies LTD		
Title: Tarantula Switch Board	CPLD_JTAG_FU	
Size: C	DWG NO: PCB000952	Rev: 00
Date: 10/05/2015:14:36	SHEET 27 OF 36	

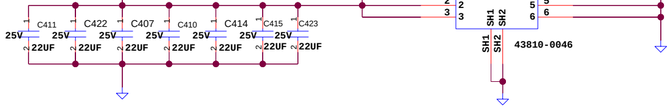
Connectors To MNG Board

SE Con.

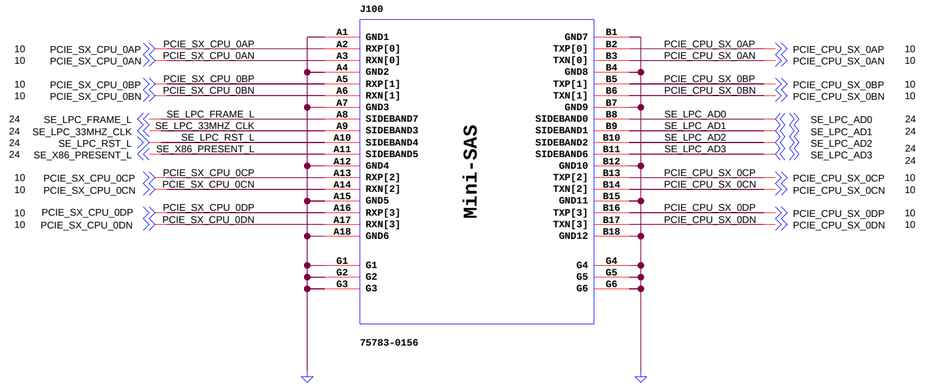


Power Con.

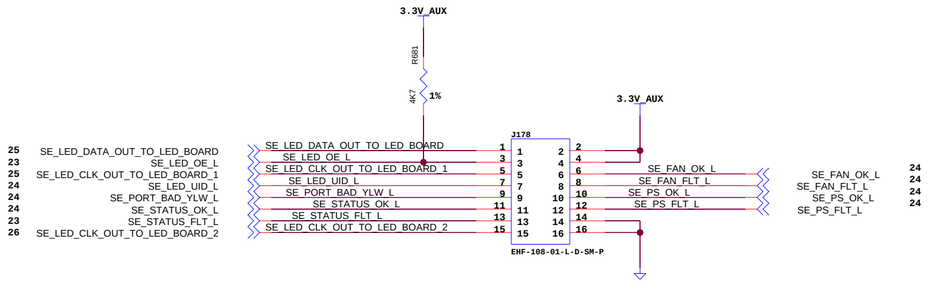
19.1A

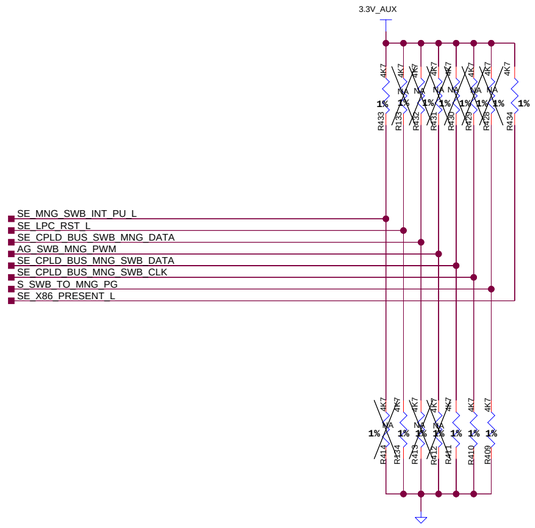


HS Con.



Conn To LED Board





SFG001303_A1_TARANTULA_SWITCH_BOARD

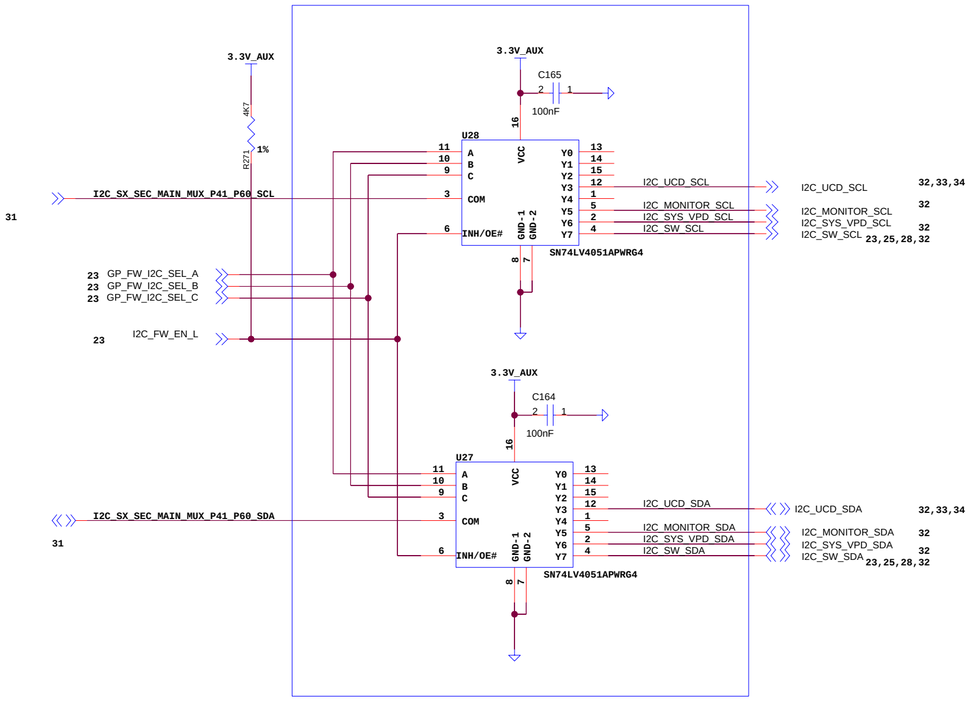
Mellanox Technologies LTD

Title: Tarantula Switch Board MNG_LED_CONN

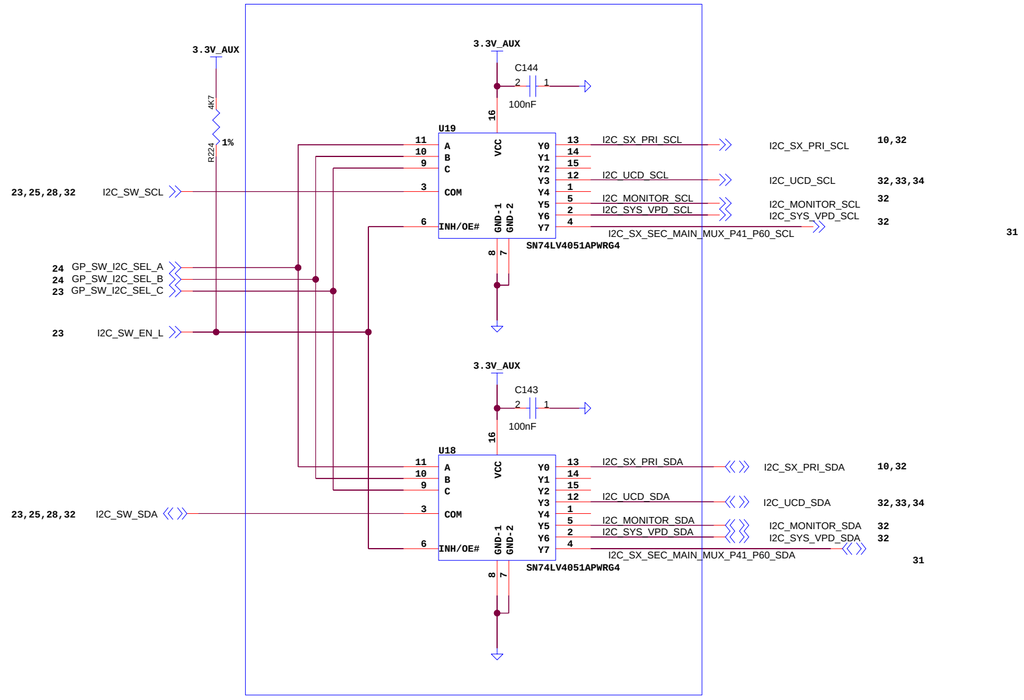
Size: C | DWG NO: PCB000952 | Rev: 00

Date: 10/05/2015:14:36 | SHEET 28 OF 36

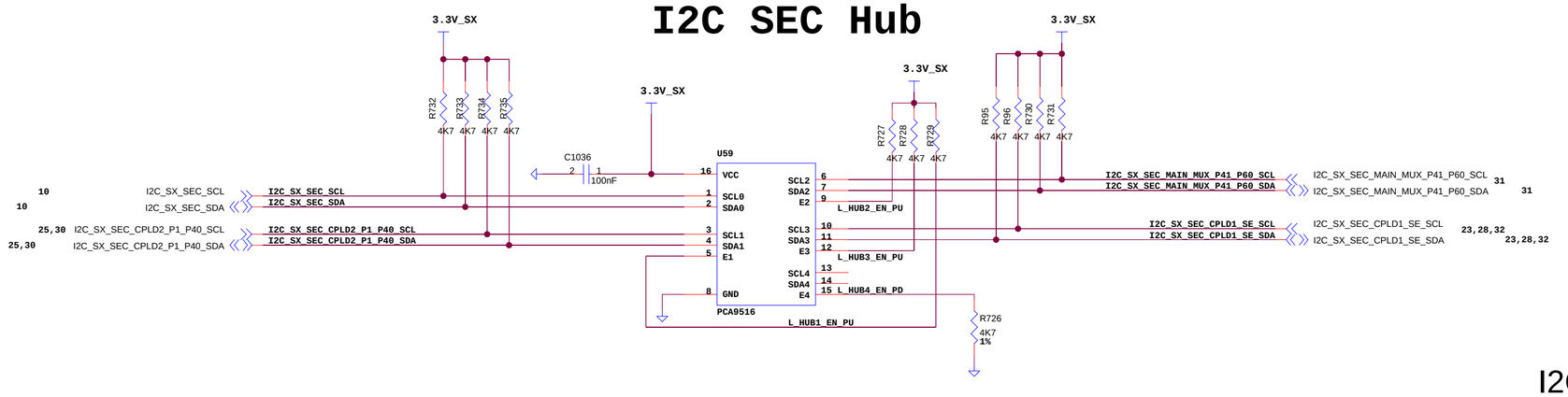
FW I2C MUXs



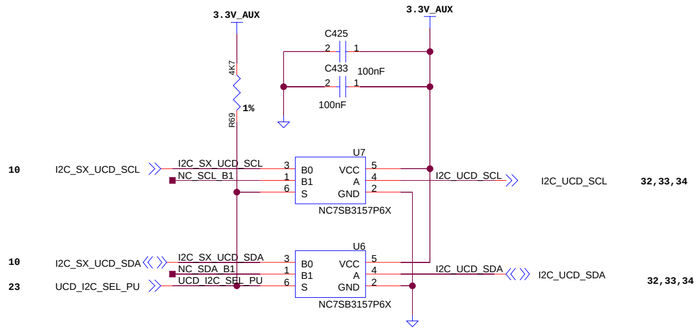
SW I2C MUXs



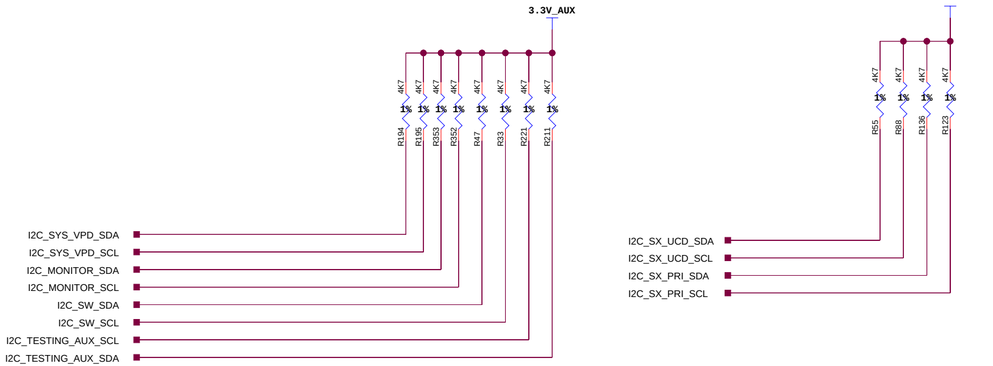
I2C SEC Hub



UCD Switch



I2C PUs

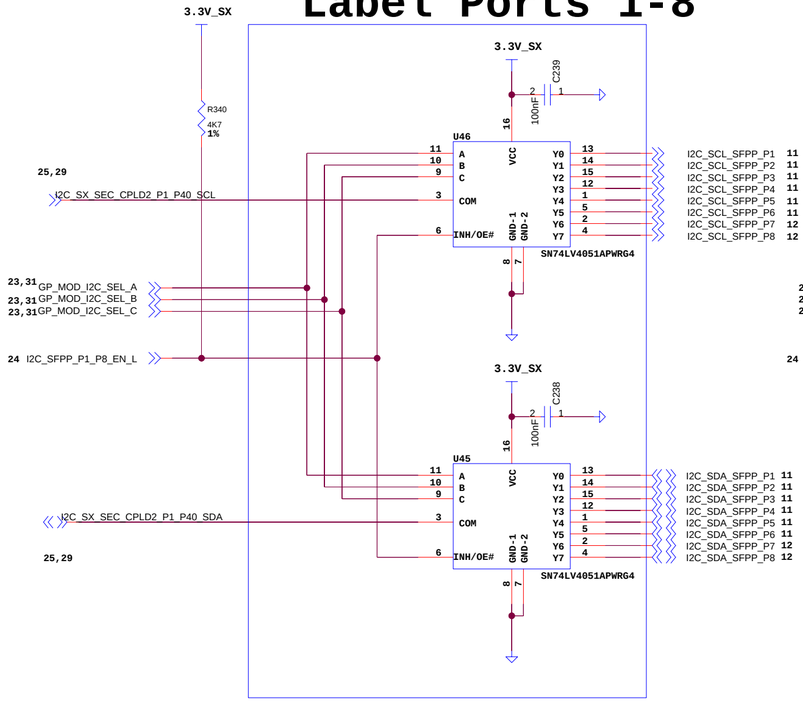


SFG001303_A1_TARANTULA_SWITCH_BOARD

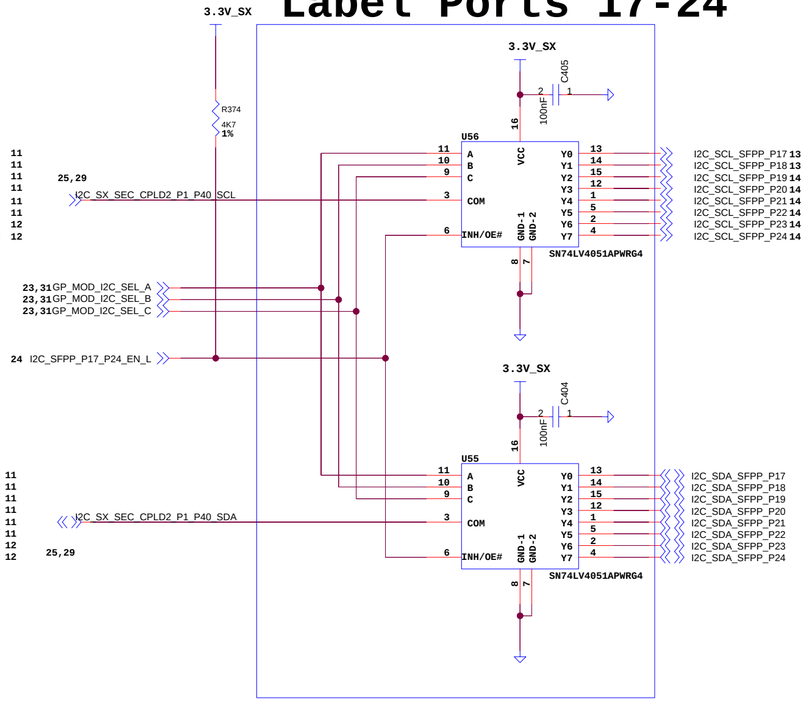
Mellanox Technologies LTD		
Title: Tarantula Switch Board	MAIN_I2C_MUXS	
Size: C	DWG NO: PCB000952	Rev: 00
Date: 11/05/2015:18:25	SHEET 29 OF 36	

PORTS I2C MUXs

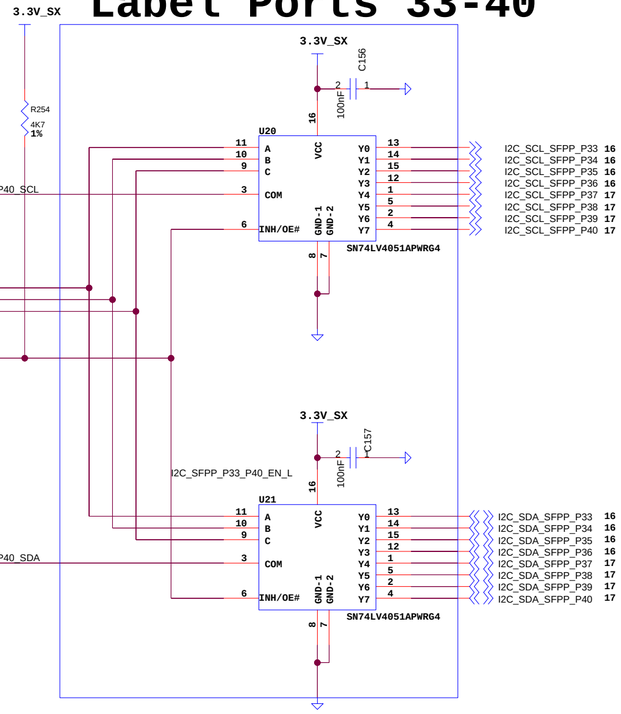
Label Ports 1-8



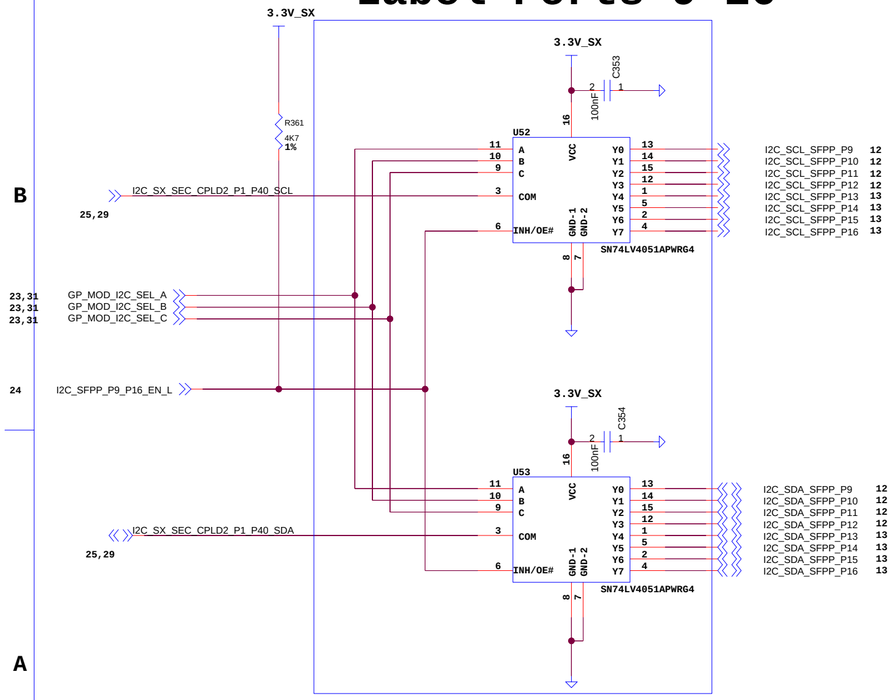
Label Ports 17-24



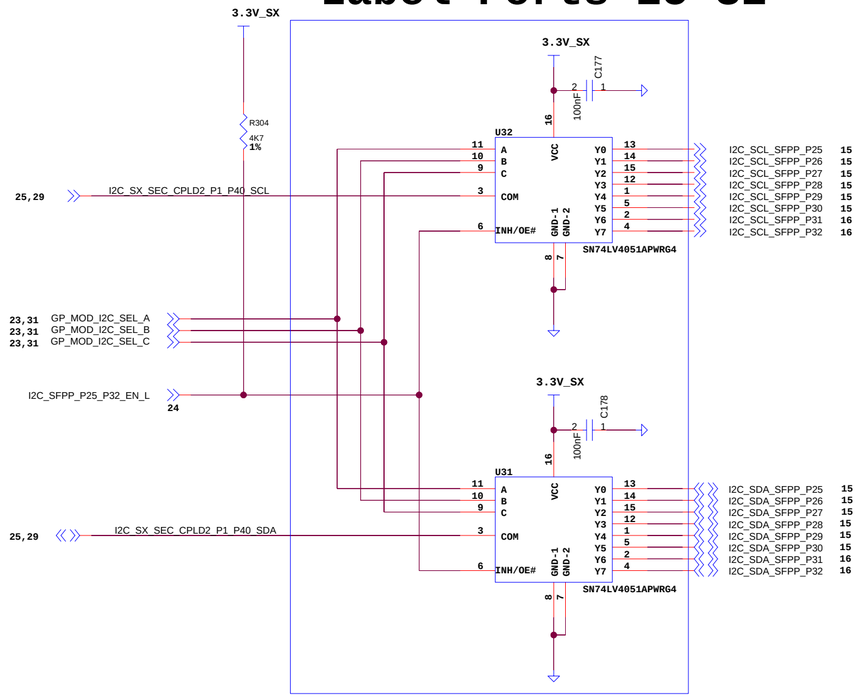
Label Ports 33-40



Label Ports 9-16



Label Ports 25-32

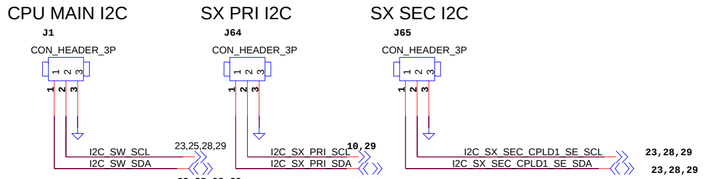


SFG001303_A1_TARANTULA_SWITCH_BOARD

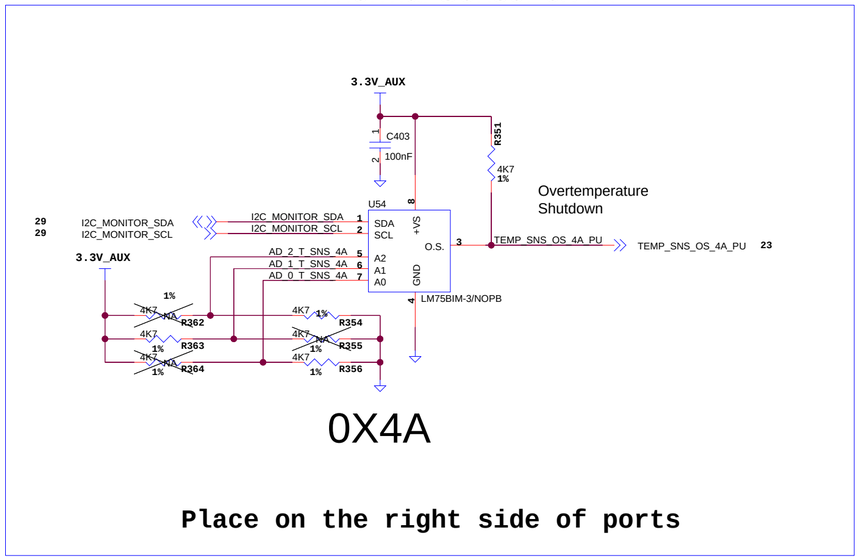
Mellanox Technologies LTD

Title: Tarantula Switch Board	Ports_I2C_MUXS 1-40	
Size: C	DWG NO: PCB000952	Rev: 00
Date: 10/05/2015:14:36	SHEET 30 OF 36	

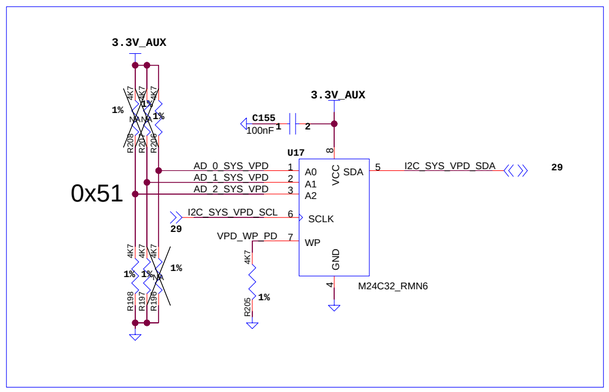
I2C HEADERS



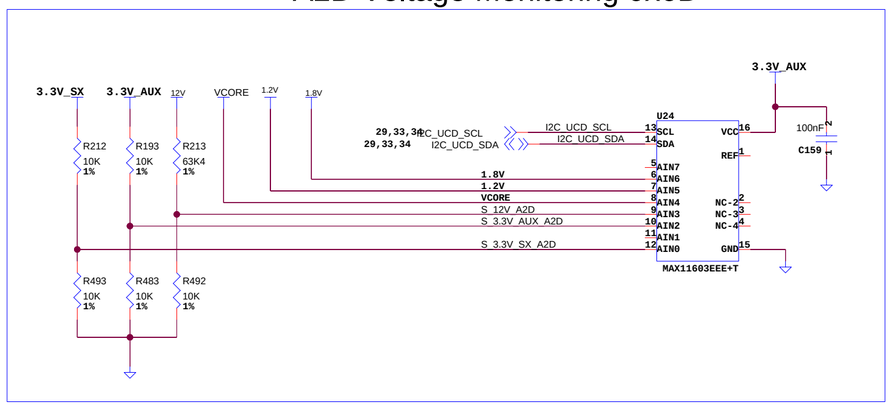
Thermal Sensor 0x4A



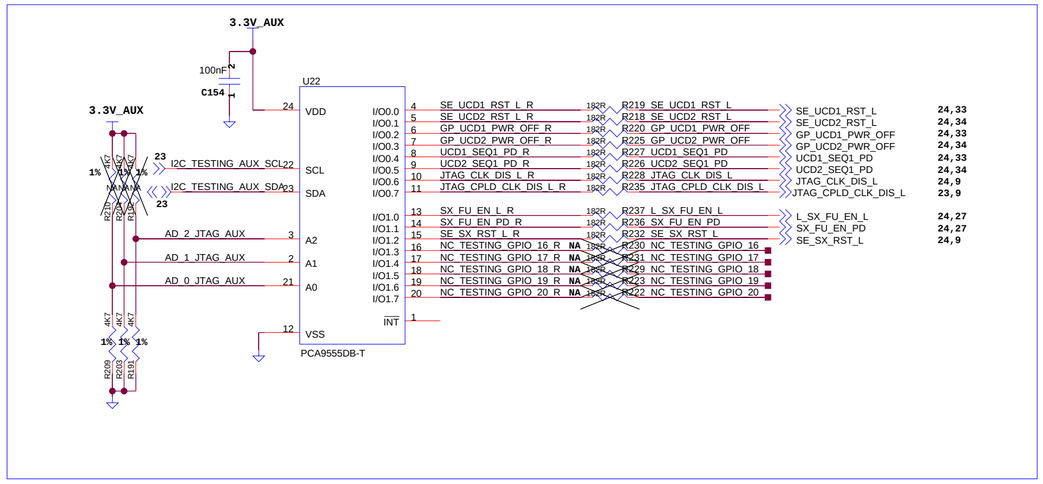
FRU EEPROM 0x51



A2D Voltage Monitoring 0x6D



Testing I2C GPIO 0x20



SFG001303_A1_TARANTULA_SWITCH_BOARD

Mellanox Technologies LTD

Title: Tarantula Switch Board I2C_AUX

Size: C | DWG NO: PCB000952 | Rev: 00

Date: 10/05/2015:14:36 | SHEET 32 OF 36

Controller 0x41 - Vcore/45.4A & 1.8V/3.7A

0x41
65d

VCORE & 1.8V

U5 — UCD9224E

Current Limitation = (45.4A / 2 Phases) x 170% = 38.6 A
Vilim = 0.5V +47x38.6mA = 2.31V

Vilim is calculate from 0.9*3.3V_AUX
to support -+ 10% of Rail

U3 — UCD74120RVF

Route pin1 directly to thermal pad using a short trace

SH1
shorted_foot_print

U13 — UCD74120RVF

Current Limitation = (45.4A / 2 Phases) x 170% = 38.6 A
Vilim = 0.5V +47x38.6mA = 2.31V

Vilim is calculate from 0.9*3.3V_AUX
to support -+ 10% of Rail

Route pin1 directly to thermal pad using a short trace

SH3
shorted_foot_print

PMBUS CON

JP4 — 70246-1001

JTAG

Route differentially
10MIL trace width

Current Limitation = (3.7A / 1 Phase) x 170% = 6.3 A
Vilim = 0.5V +47x6.3mA = 0.8V

Vilim is calculate from 0.9*3.3V_AUX
to support -+ 10% of Rail

U15 — UCD74120RVF

Route pin1 directly to thermal pad using a short trace

SH4
shorted_foot_print

Route differentially
10MIL trace width

SFG001303_A1_TARANTULA_SWITCH_BOARD

Mellanox Technologies LTD

Title: Tarantula Switch Board	PWR_SX_Vcore	
Size: C	DWG NO: PCB000952	Rev: 00
Date: 11/05/2015:11:07	SHEET 33 OF 36	

Controller 0x27 - 3.3V_SX/28.6A & 1.2V/11.1A

0x27
39d

1.2V & 3.3V

Current Limitation = (28.6A / 2 Phases) x 170% = 24.3 A
Vilim = 0.5V +47x24.3mA = 1.64V

Vilim is calculate from 0.9*3.3V_AUX
to support -+ 10% of Rail

Route pin1 directly to thermal pad using a short trace

Current Limitation = (28.6A / 2 Phases) x 170% = 24.3 A
Vilim = 0.5V +47x24.3mA = 1.64V

Vilim is calculate from 0.9*3.3V_AUX
to support -+ 10% of Rail

Route pin1 directly to thermal pad using a short trace

Route differentially
10MIL trace width

Route differentially
10MIL trace width

Current Limitation = (11.1A / 1 Phase) x 170% = 18.9 A
Vilim = 0.5V +47x18.9mA = 1.39V

Vilim is calculate from 0.9*3.3V_AUX
to support -+ 10% of Rail

Route pin1 directly to thermal pad using a short trace

JTAG

0R - ASSY; 10K -NA - UCD#1 / #2 chained
0R - NA; 10K -ASSY - UCD#1 / #2 ind chain

SFG001303_A1_TARANTULA_SWITCH_BOARD

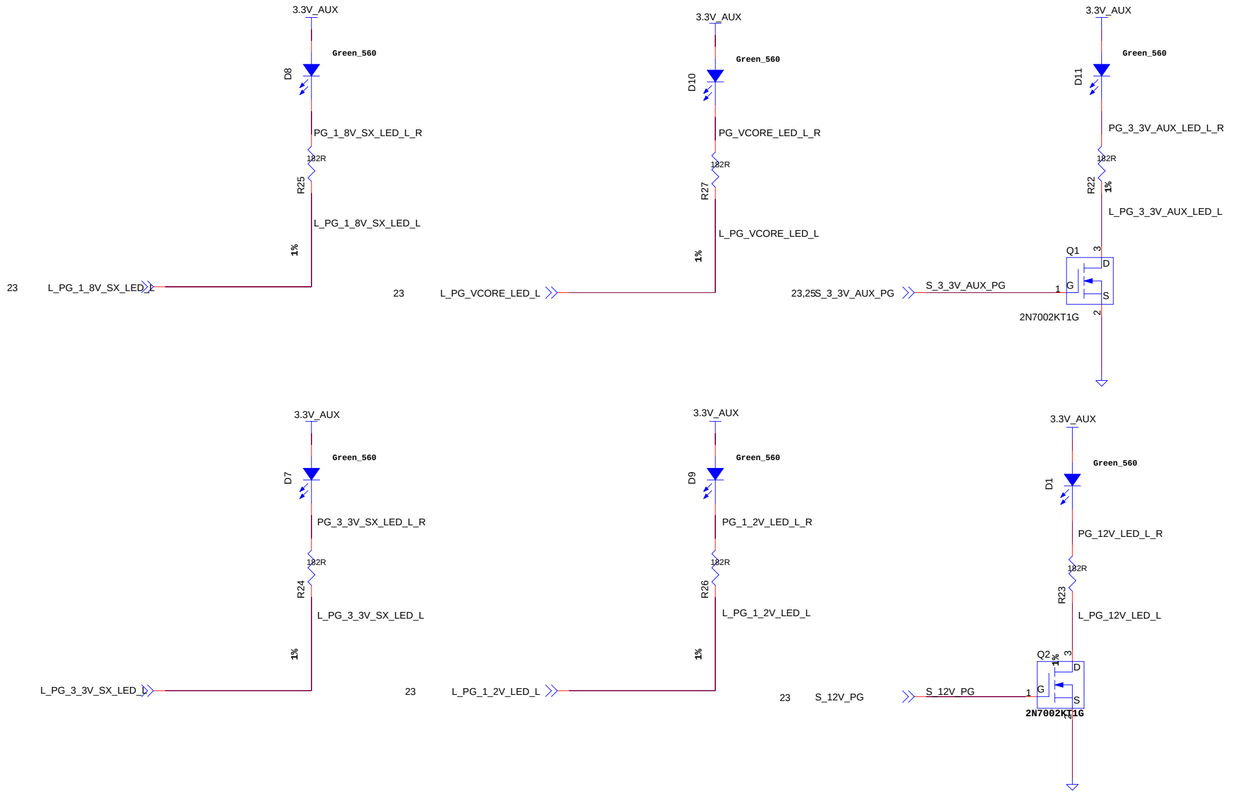
Mellanox Technologies LTD

Title: Tarantula Switch Board PWR_SX_3_3V

Size: C | DWG NO: PCB000952 | Rev: 00

Date: 11/05/2015:11:51 | SHEET 34 OF 36

PG LEDS

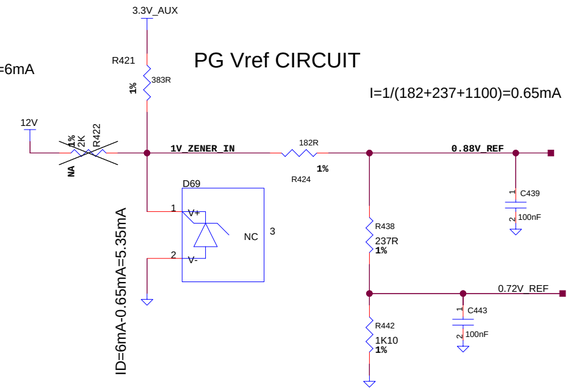


PG Vref CIRCUIT

IR=(3.3-1)/383=6mA

I=1/(182+237+1100)=0.65mA

ID=6mA-0.65mA=5.35mA



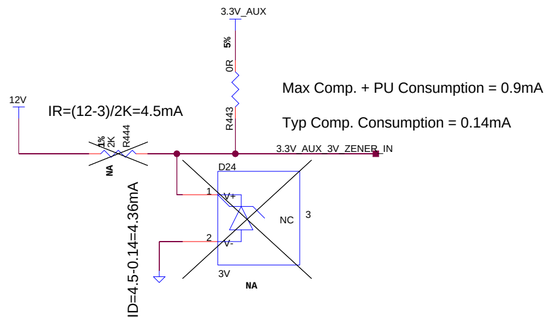
PG Comperators Supply Circuit

IR=(12-3)/2K=4.5mA

Max Comp. + PU Consumption = 0.9mA

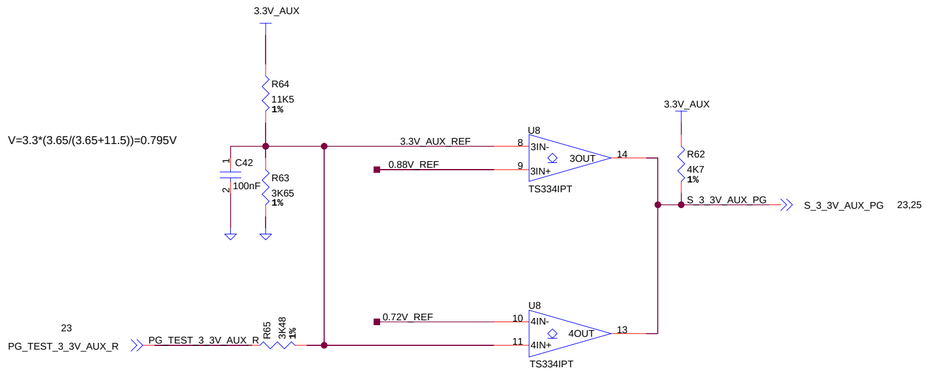
Typ Comp. Consumption = 0.14mA

ID=4.5-0.14=4.36mA



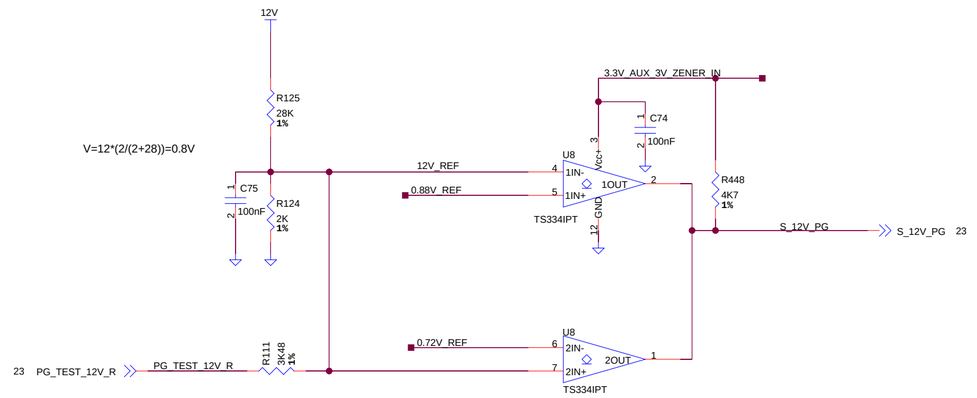
3.3V_Aux From MNG BRD PG

V=3.3*(3.65/(3.65+11.5))=0.795V



12V FROM MNG BRD PG

V=12*(2/(2+28))=0.8V



SFG001303_A1_TARANTULA_SWITCH_BOARD

Mellanox Technologies LTD

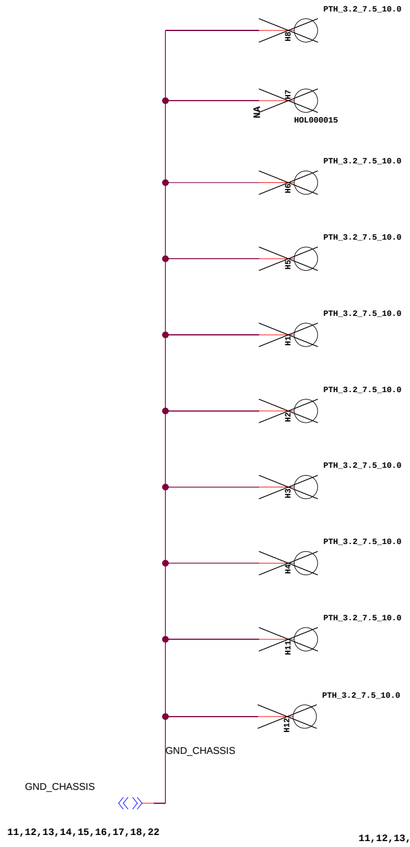
Title: Tarantula Switch Board PG_CIRCUIT

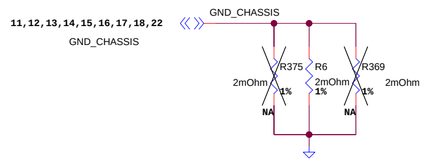
Size: C | DWG NO: PCB000952 | Rev: 00

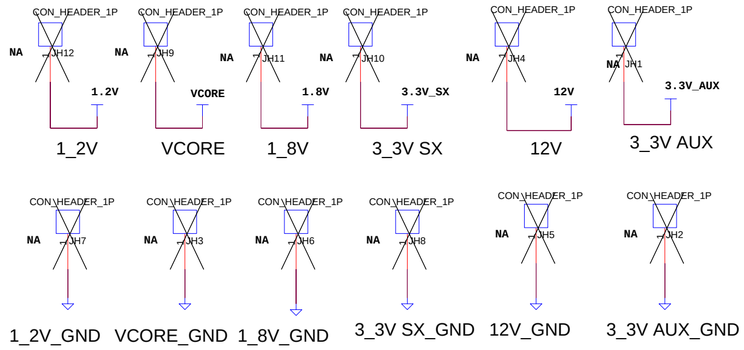
Date: 12/05/2015:08:40 | SHEET 35 OF 36

DRILL
HOLES

HOL000045



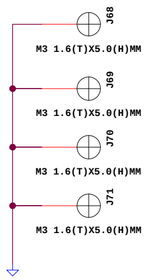




Place Near Main Power Load

Keep GND PAD and power PAD close

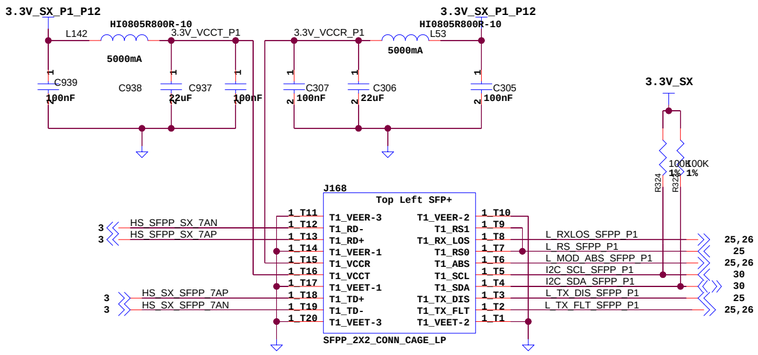
ELE000037 - HS Spacers



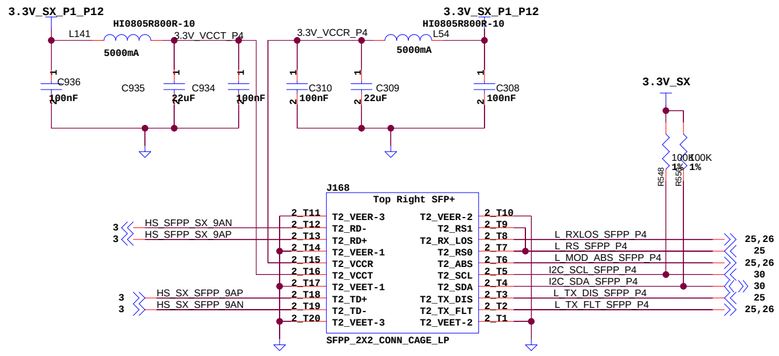
SFG001303_A1_TARANTULA_SWITCH_BOARD

Mellanox Technologies LTD		
Title: Tarantula Switch Board Mech_Holes		
Size: C	DWG NO: PCB000952	Rev: 00
Date: 17/05/2015:15:31	SHEET 36 OF 36	

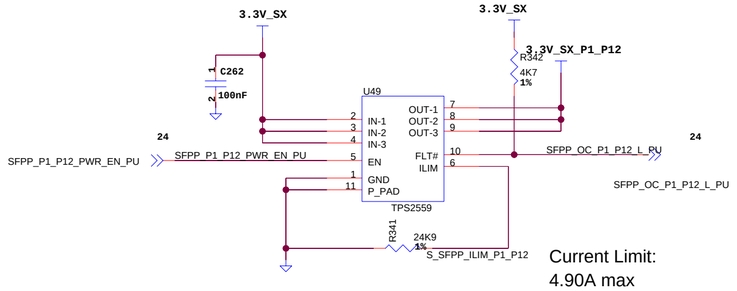
HW Port 7 / Panel Port 1



HW Port 9 / Panel Port 4

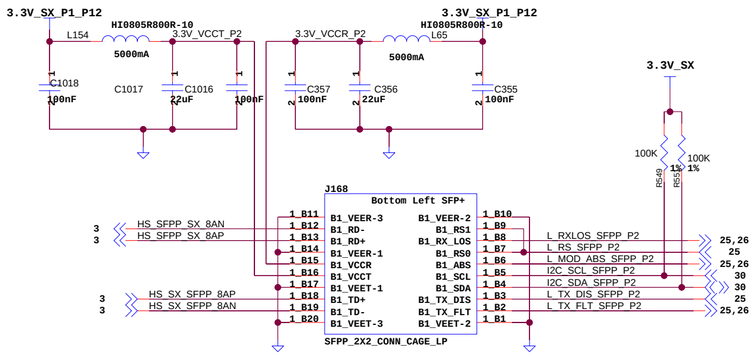


(1 [w] / 3.3 [v])*12[SFPP] = 3.63A max

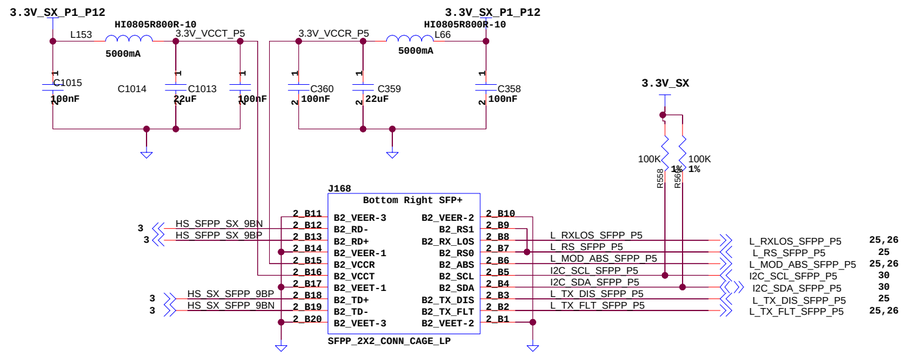


Current Limit:
4.90A max
4.73A nom
4.49A min

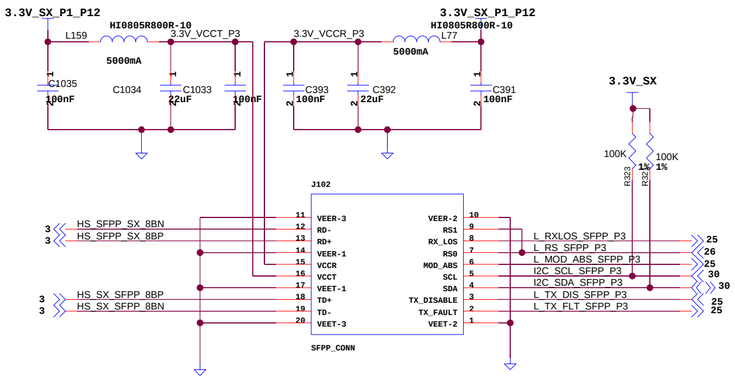
HW Port 8 / Panel Port 2



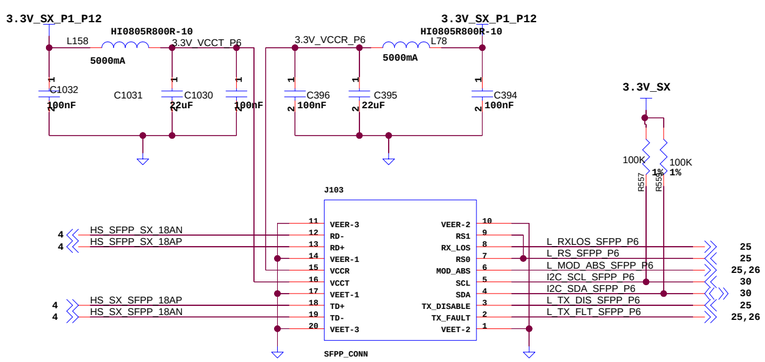
HW Port 9 / Panel Port 5

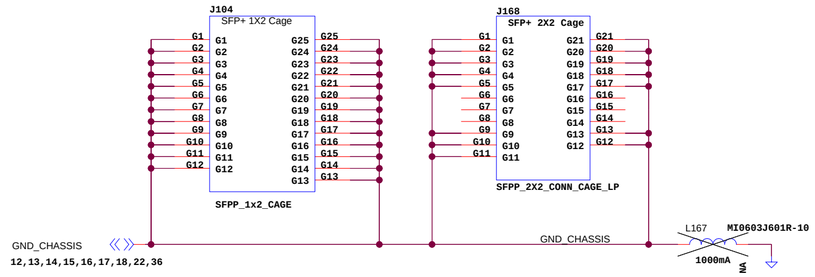


HW Port 8 / Panel Port 3



HW Port 18 / Panel Port 6





SFP+ Ports

1	4	7	10	13	16	19	22	25	28	31	34	37	40	43	46
2	5	8	11	14	17	20	23	26	29	32	35	38	41	44	47
3	6	9	12	15	18	21	24	27	30	33	36	39	42	45	48

QSFP Ports

49	51	53	55	57	59
50	52	54	56	58	60

SFG001303_A1_TARANTULA_SWITCH_BOARD

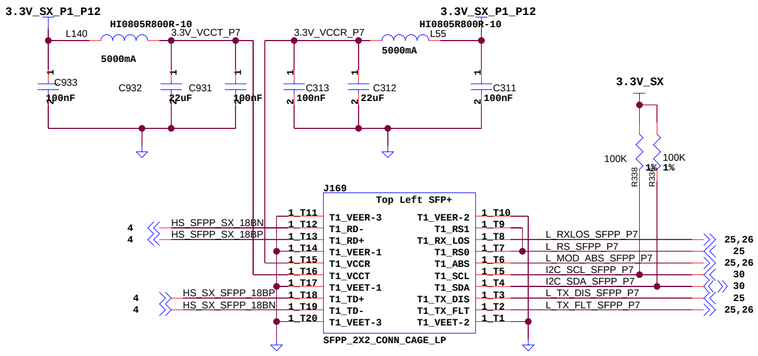
Mellanox Technologies LTD

Title: Tarantula Switch Board SFPP 1-6

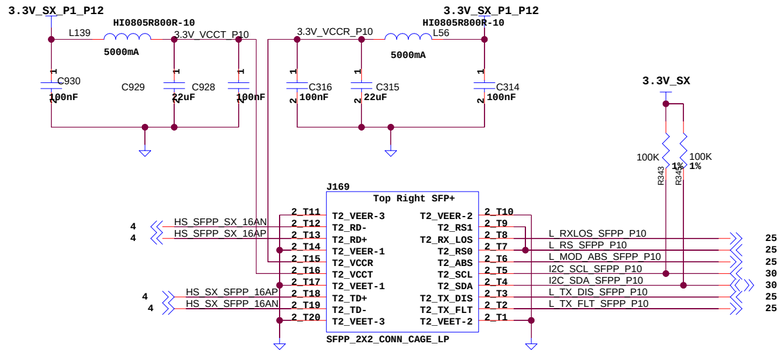
Size: C | DWG NO: PCB000952 | Rev: 00

Date: 10/05/2015:14:36 | SHEET 11 OF 36

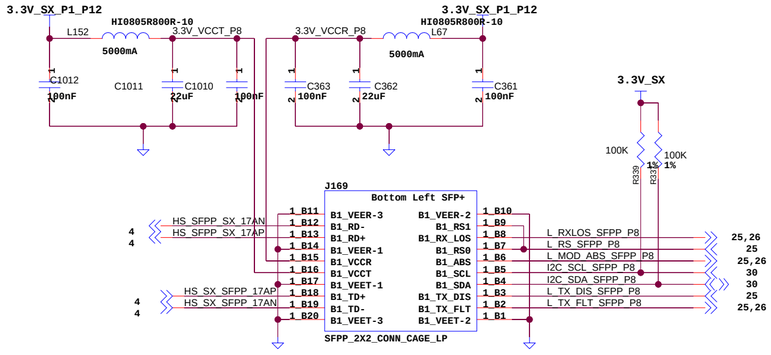
HW Port 18 / Panel Port 7



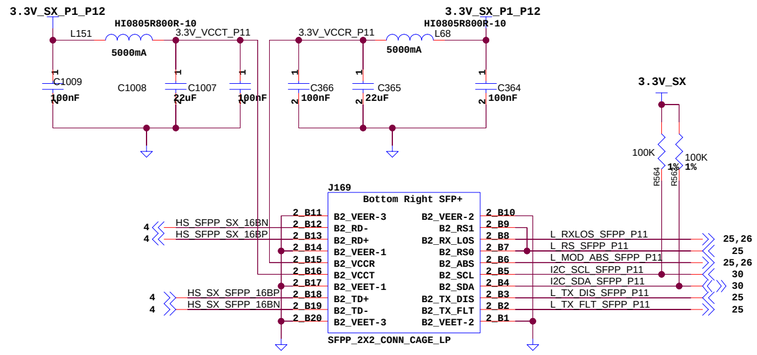
HW Port 16 / Panel Port 10



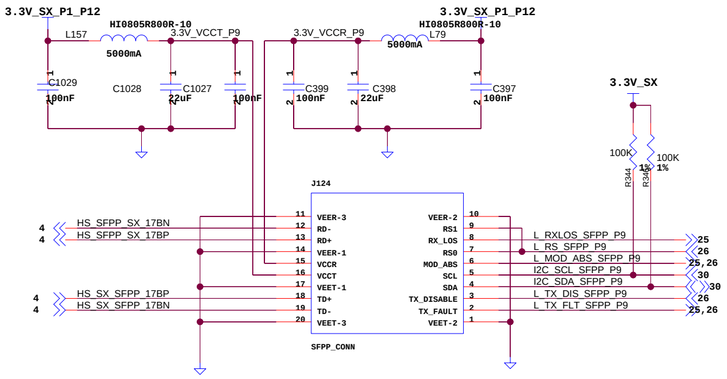
HW Port 17 / Panel Port 8



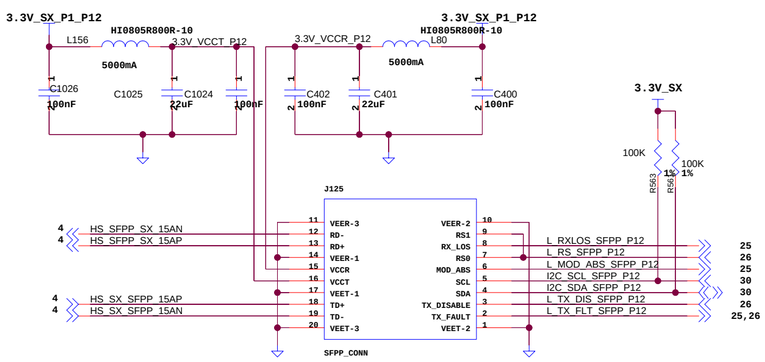
HW Port 16 / Panel Port 11

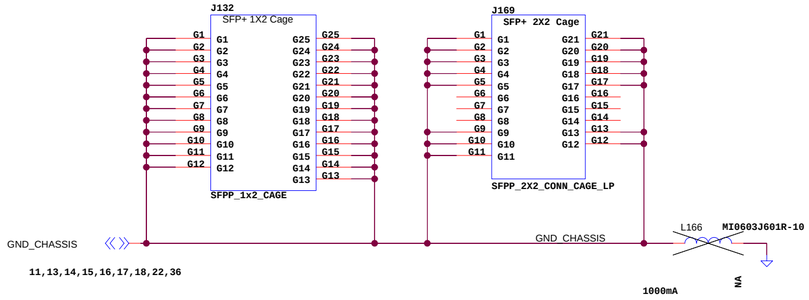


HW Port 17 / Panel Port 9



HW Port 15 / Panel Port 12





SFP+ Ports

1	4	7	10	13	16	19	22	25	28	31	34	37	40	43	46
2	5	8	11	14	17	20	23	26	29	32	35	38	41	44	47
3	6	9	12	15	18	21	24	27	30	33	36	39	42	45	48

QSFP Ports

49	51	53	55	57	59
50	52	54	56	58	60

SFG001303_A1_TARANTULA_SWITCH_BOARD

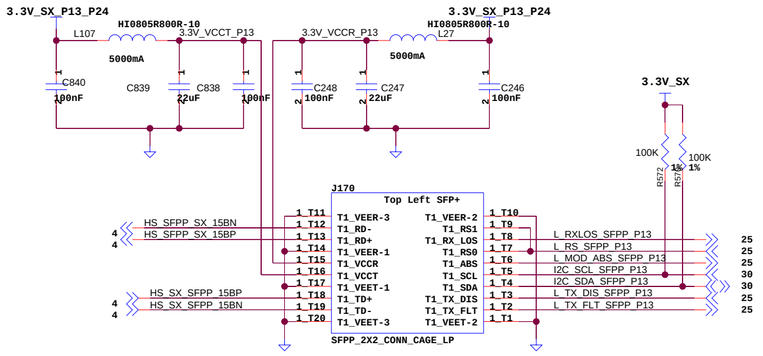
Mellanox Technologies LTD

Title: Tarantula Switch Board — SFPP 7-12

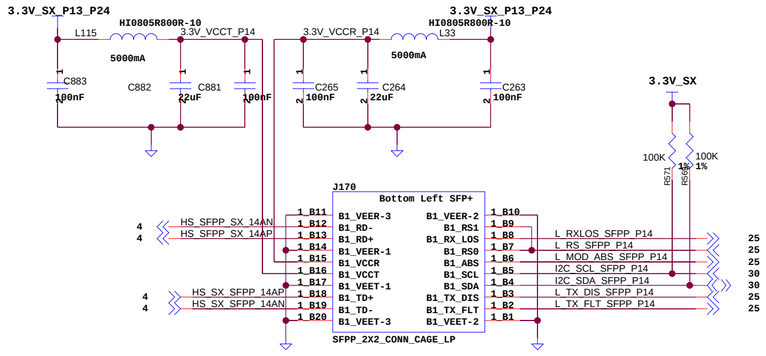
Size: C | DWG NO: PCB000952 | Rev: 00

Date: 10/05/2015:14:36 | SHEET 12 OF 36

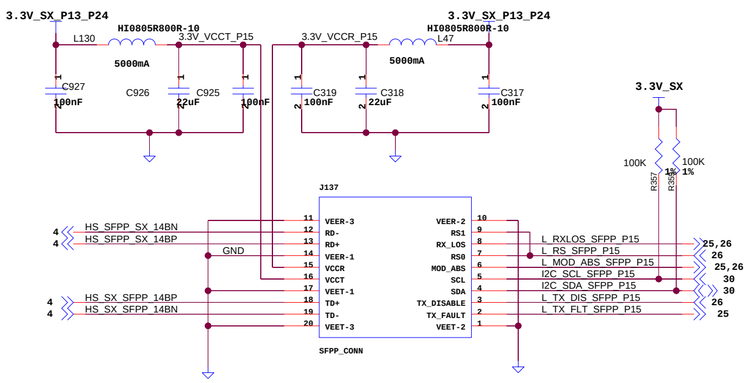
HW Port 15 / Panel Port 13



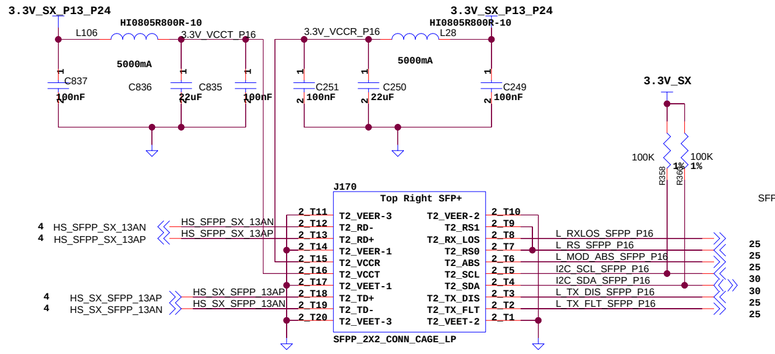
HW Port 14 / Panel Port 14



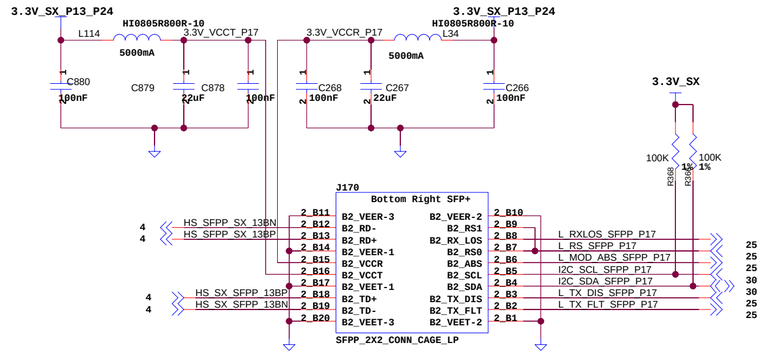
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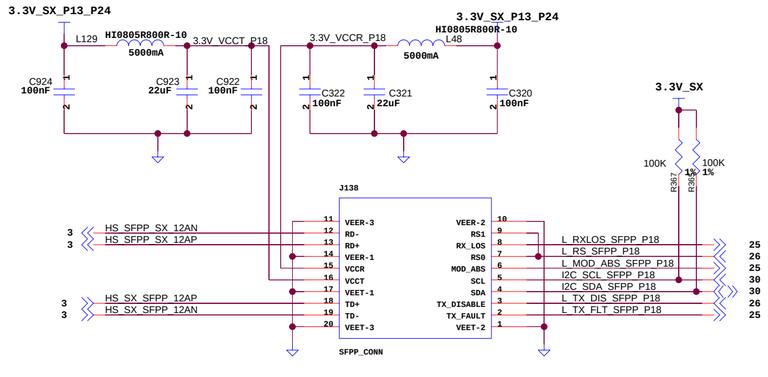
HW Port 13 / Panel Port 16



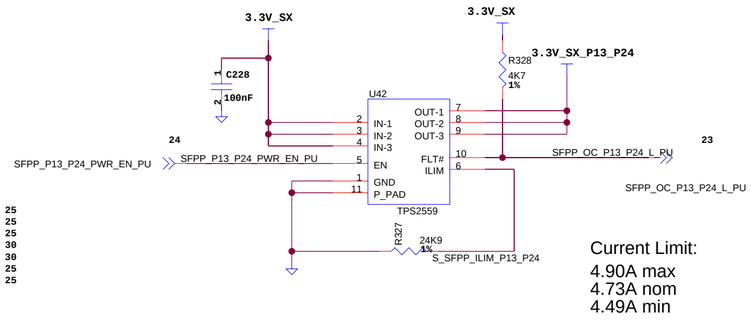
HW Port 13 / Panel Port 17



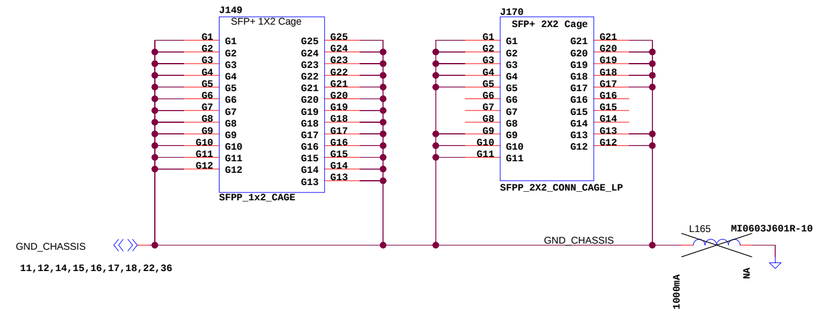
HW Port 12 / Panel Port 18



(1 [w] / 3.3 [v])*12[SFPP] = 3.63A max



Current Limit:
4.90A max
4.73A nom
4.49A min



SFP+ Ports

1	4	7	10	13	16	19	22	25	28	31	34	37	40	43	46
2	5	8	11	14	17	20	23	26	29	32	35	38	41	44	47
3	6	9	12	15	18	21	24	27	30	33	36	39	42	45	48

QSFP Ports

49	51	53	55	57	59
50	52	54	56	58	60

SFG001303_A1_TARANTULA_SWITCH_BOARD

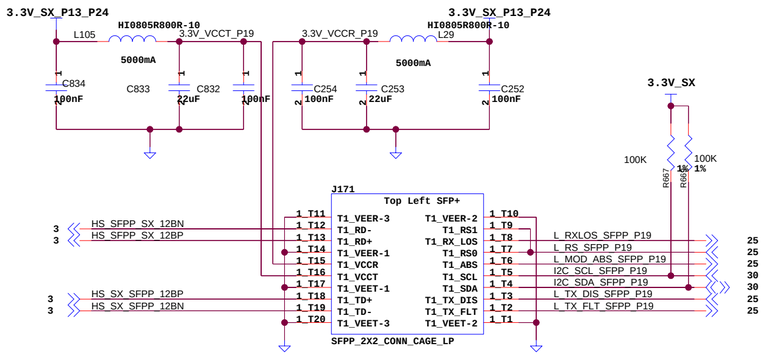
Mellanox Technologies LTD

Title: Tarantula Switch Board SFPP 13-18

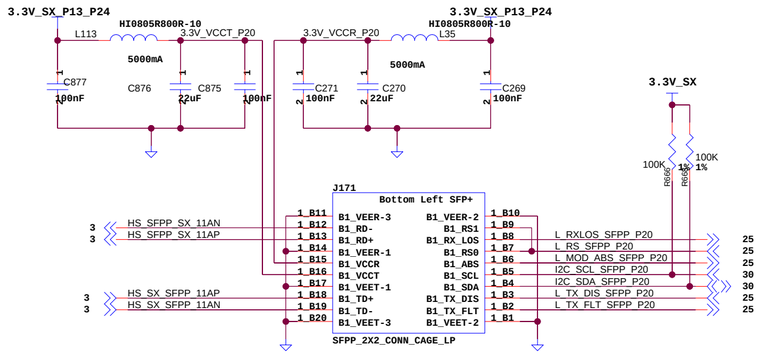
Size: C | DWG NO: PCB000952 | Rev: 00

Date: 10/05/2015:14:36 | SHEET 13 OF 36

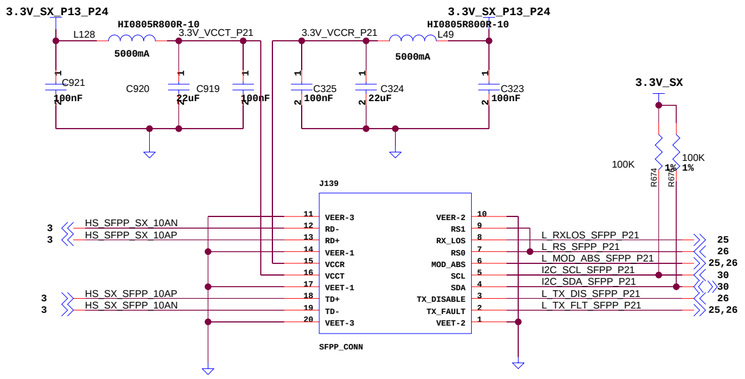
HW Port 12 / Panel Port 19



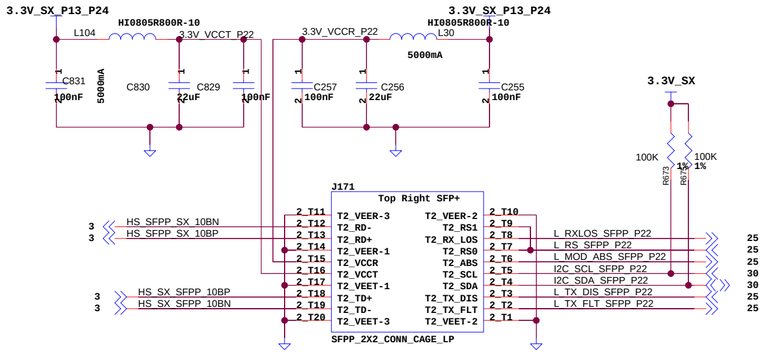
HW Port 11 / Panel Port 20



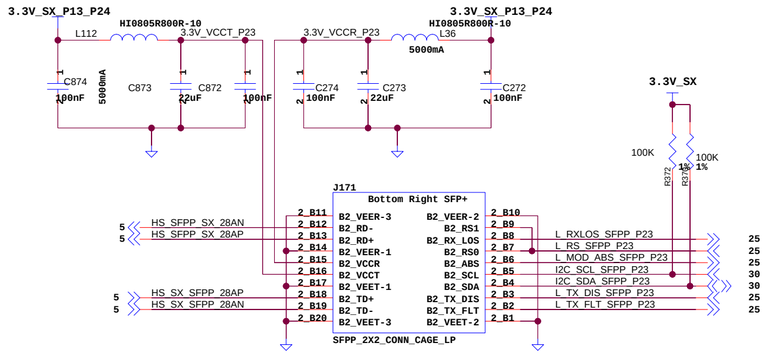
HW Port 10 / Panel Port 21



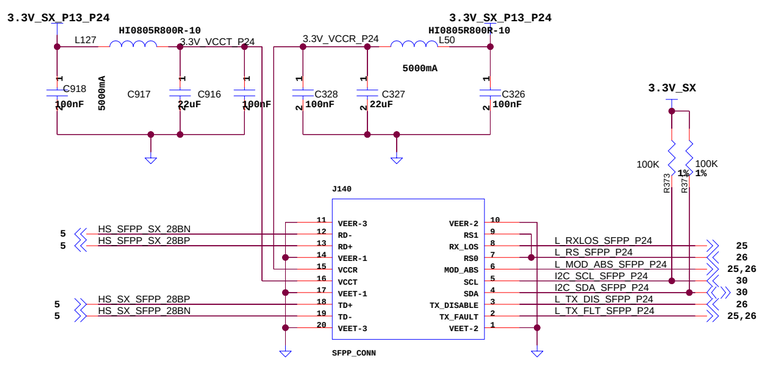
HW Port 10 / Panel Port 22



HW Port 28 / Panel Port 23



HW Port 28 / Panel Port 24

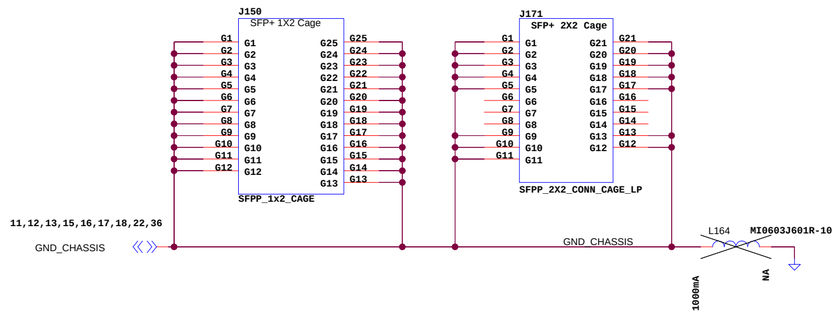


SFP+ Ports

1	4	7	10	13	16	19	22	25	28	31	34	37	40	43	46
2	5	8	11	14	17	20	23	26	29	32	35	38	41	44	47
3	6	9	12	15	18	21	24	27	30	33	36	39	42	45	48

QSFP Ports

49	51	53	55	57	59
50	52	54	56	58	60



SFG001303_A1_TARANTULA_SWITCH_BOARD

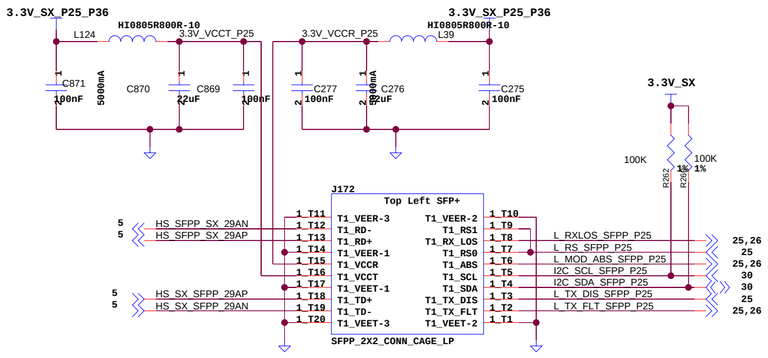
Mellanox Technologies LTD

Title: Tarantula Switch Board SFPP 19-24

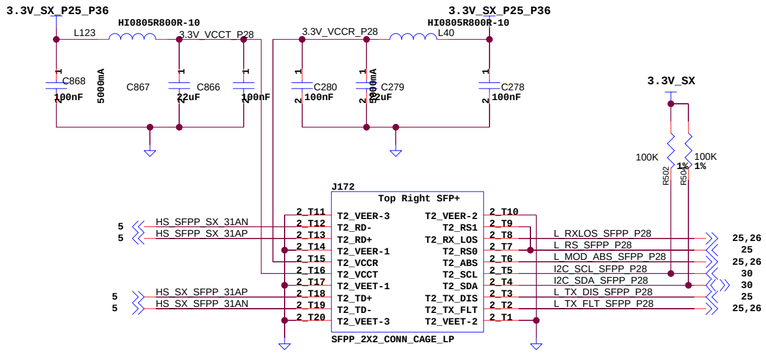
Size: C | DWG NO: PCB000952 | Rev: 00

Date: 10/05/2015:14:36 | SHEET 14 OF 36

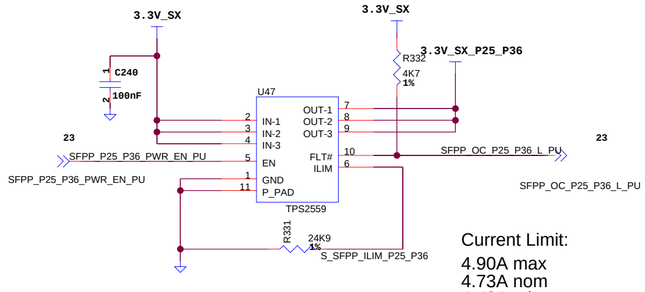
HW Port 29 / Panel Port 25



HW Port 31 / Panel Port 28

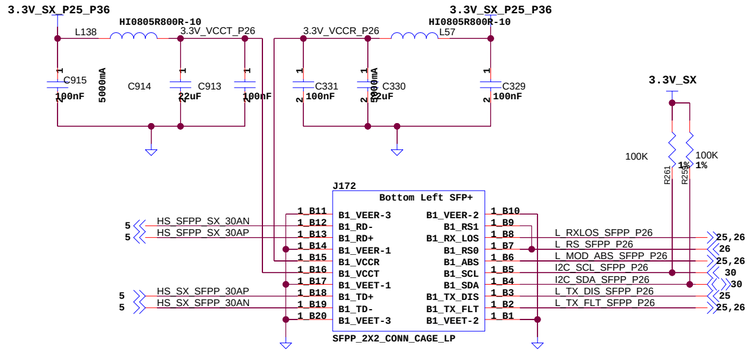


(1 [w] / 3.3 [v])*12[SFPP] = 3.63A max

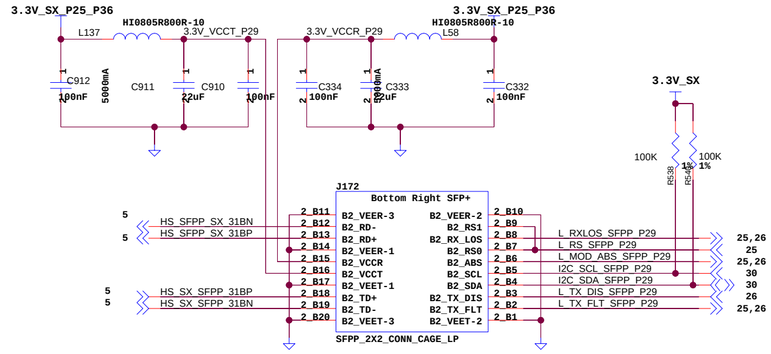


Current Limit:
4.90A max
4.73A nom
4.49A min

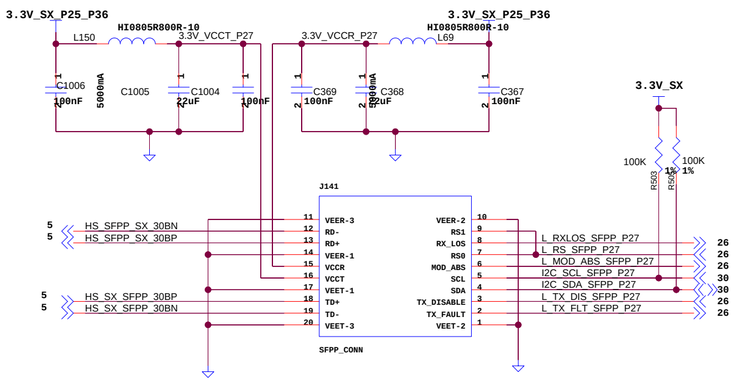
HW Port 30 / Panel Port 26



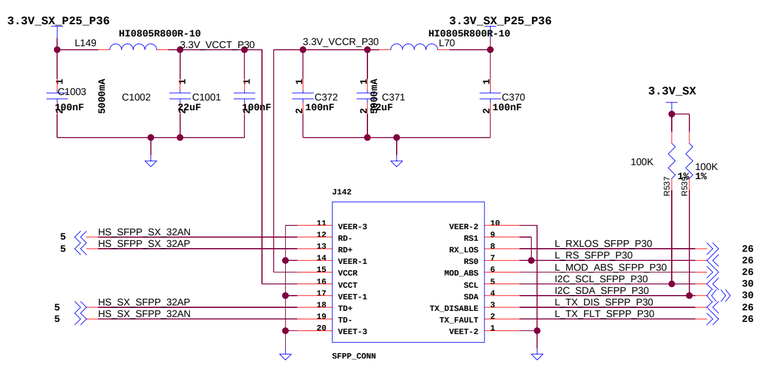
HW Port 31 / Panel Port 29

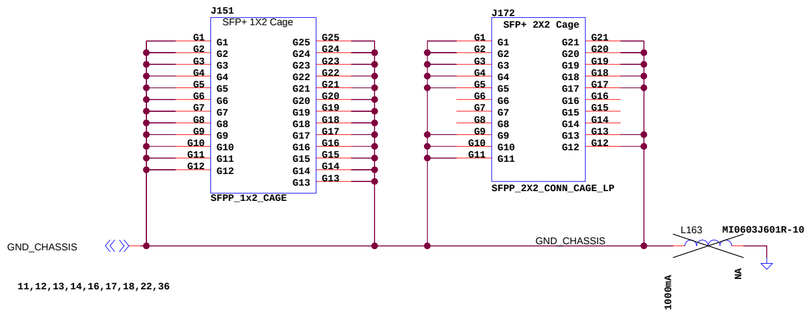


HW Port 30 / Panel Port 27



HW Port 32 / Panel Port 30





SFP+ Ports

1	4	7	10	13	16	19	22	25	28	31	34	37	40	43	46
2	5	8	11	14	17	20	23	26	29	32	35	38	41	44	47
3	6	9	12	15	18	21	24	27	30	33	36	39	42	45	48

QSFP Ports

49	51	53	55	57	59
50	52	54	56	58	60

SFG001303_A1_TARANTULA_SWITCH_BOARD

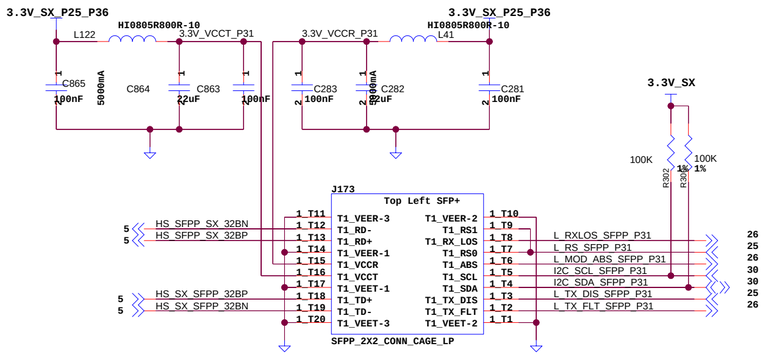
Mellanox Technologies LTD

Title: Tarantula Switch Board — SFPP 25-30

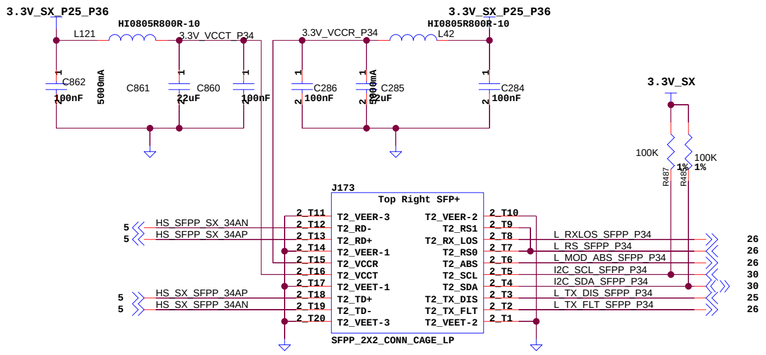
Size: C | DWG NO: PCB000952 | Rev: 00

Date: 10/05/2015:14:36 | SHEET 15 OF 36

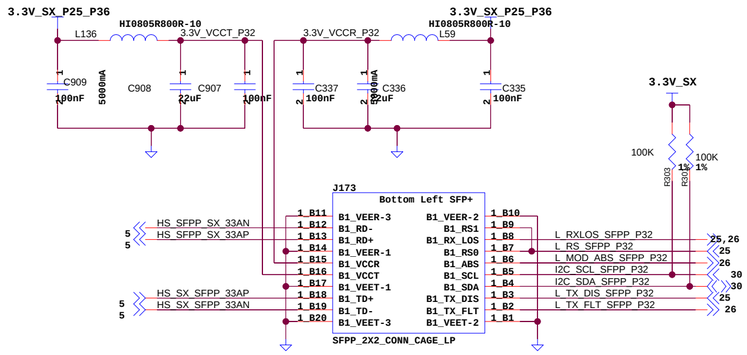
HW Port 32 / Panel Port 31



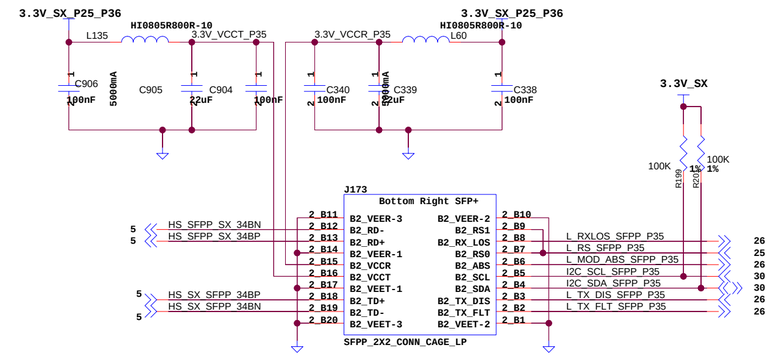
HW Port 34 / Panel Port 34

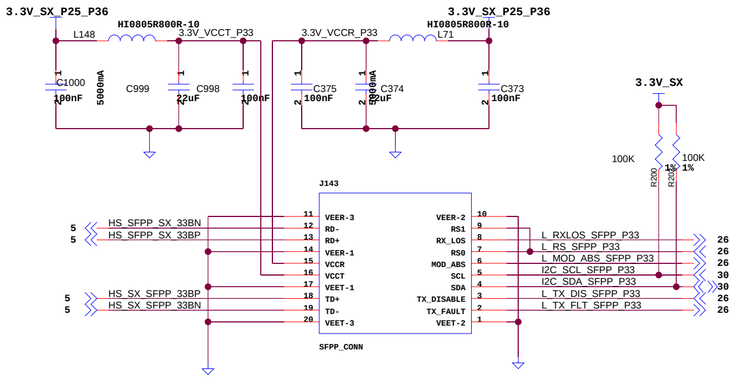


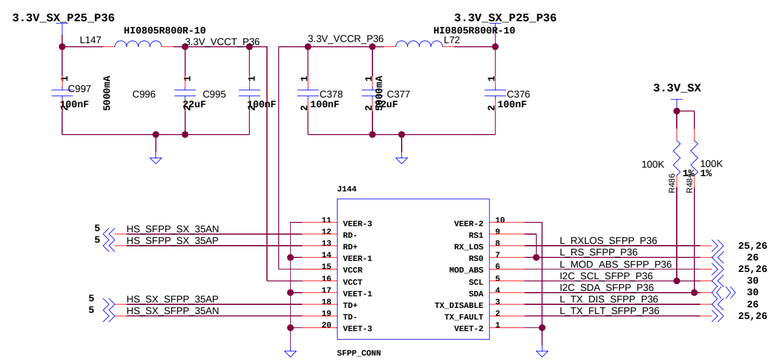
HW Port 33 / Panel Port 32



HW Port 35 / Panel Port 36





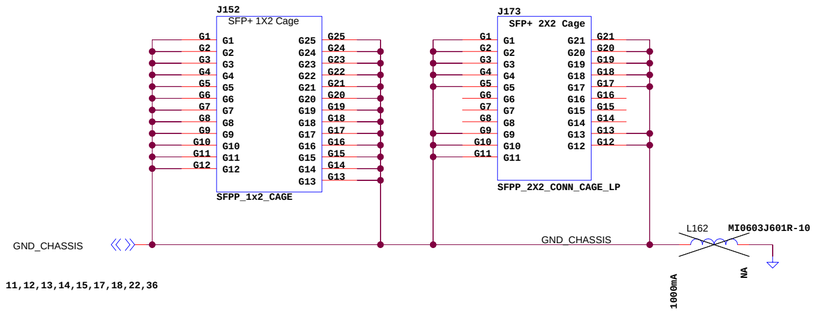


SFP+ Ports

1	4	7	10	13	16	19	22	25	28	31	34	37	40	43	46
2	5	8	11	14	17	20	23	26	29	32	35	38	41	44	47
3	6	9	12	15	18	21	24	27	30	33	36	39	42	45	48

QSFP Ports

49	51	53	55	57	59
50	52	54	56	58	60



SFG001303_A1_TARANTULA_SWITCH_BOARD

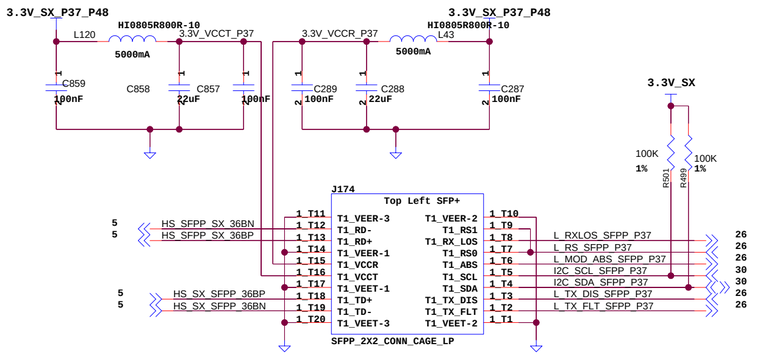
Mellanox Technologies LTD

Title: Tarantula Switch Board SFPP 31-36

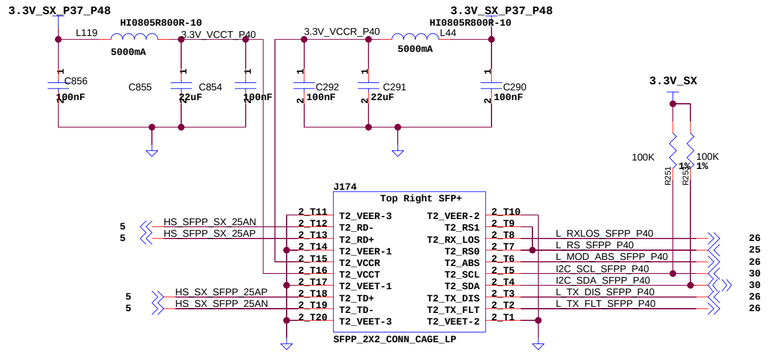
Size: C | DWG NO: PCB000952 | Rev: 00

Date: 10/05/2015:14:36 | SHEET 16 OF 36

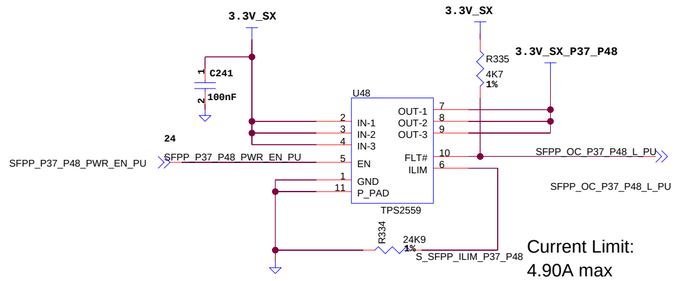
HW Port 35 / Panel Port 37



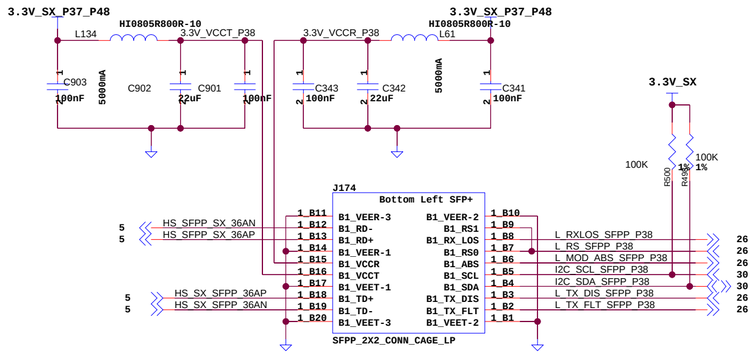
HW Port 25 / Panel Port 40



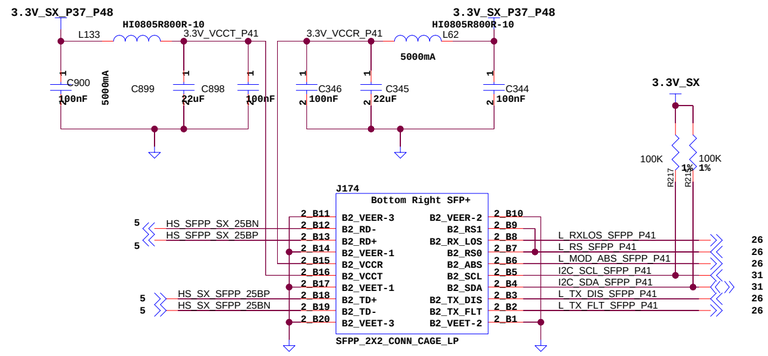
(1 [w] / 3.3 [v])*12[SFPP] = 3.63A max



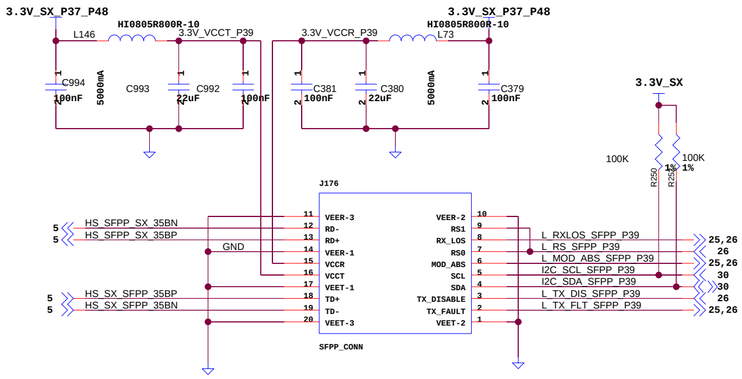
HW Port 36 / Panel Port 38



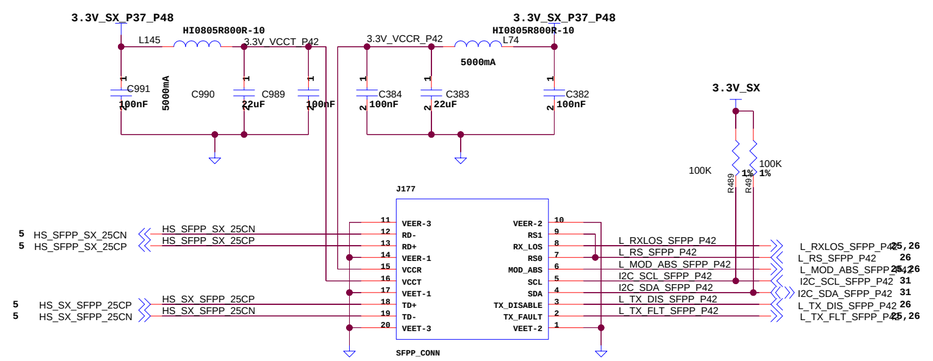
HW Port 25 / Panel Port 41



HW Port 36 / Panel Port 39



HW Port 25 / Panel Port 42

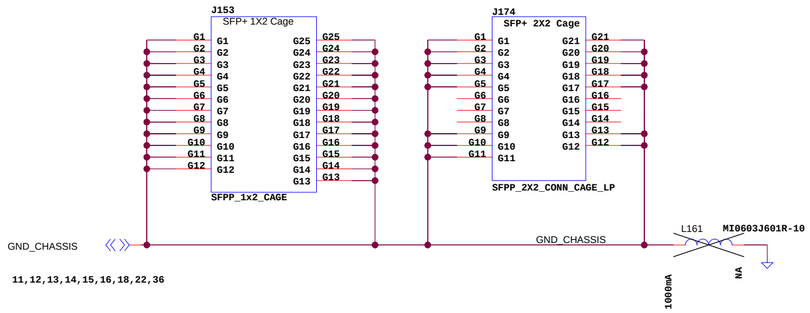


SFP+ Ports

1	4	7	10	13	16	19	22	25	28	31	34	37	40	43	46
2	5	8	11	14	17	20	23	26	29	32	35	38	41	44	47
3	6	9	12	15	18	21	24	27	30	33	36	39	42	45	48

QSFP Ports

49	51	53	55	57	59
50	52	54	56	58	60



SFG0001303_A1_TARANTULA_SWITCH_BOARD

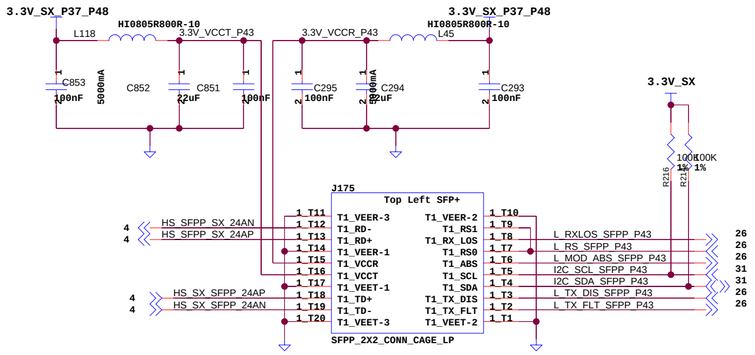
Mellanox Technologies LTD

Title: Tarantula Switch Board SFPP 37-42

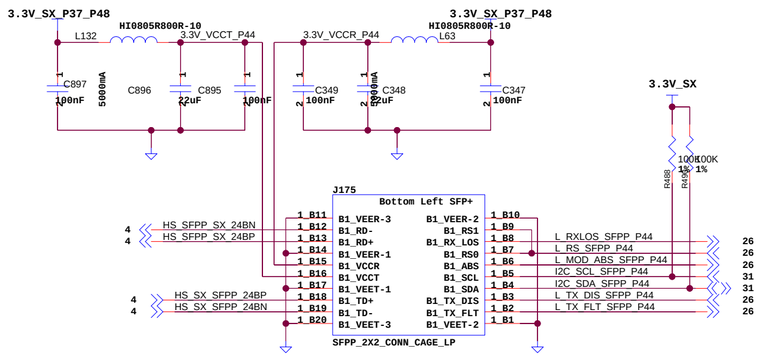
Size: C | DWG NO: PCB000952 | Rev: 00

Date: 18/05/2015:15:46 | SHEET 17 OF 36

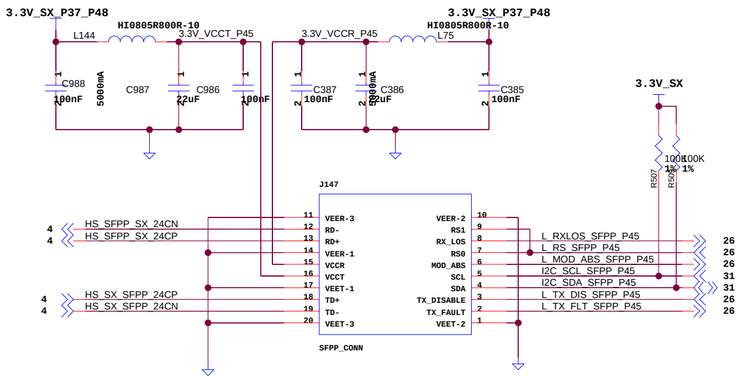
HW Port 24 / Panel Port 43



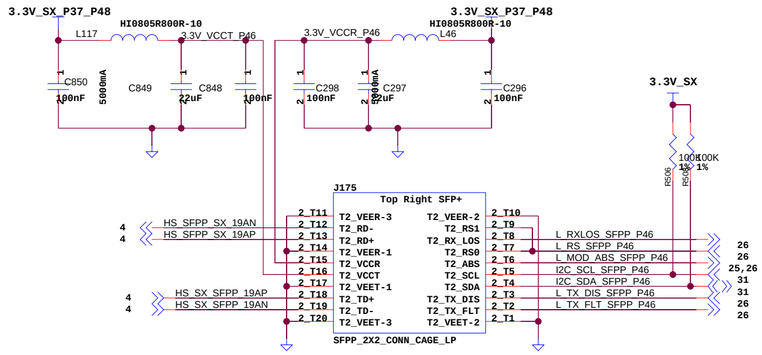
HW Port 24 / Panel Port 44



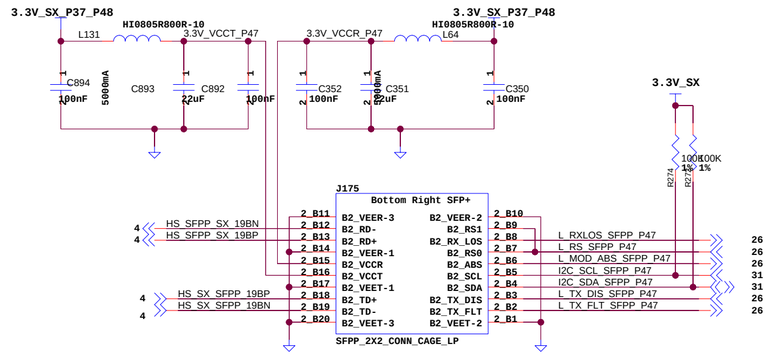
HW Port 24 / Panel Port 45



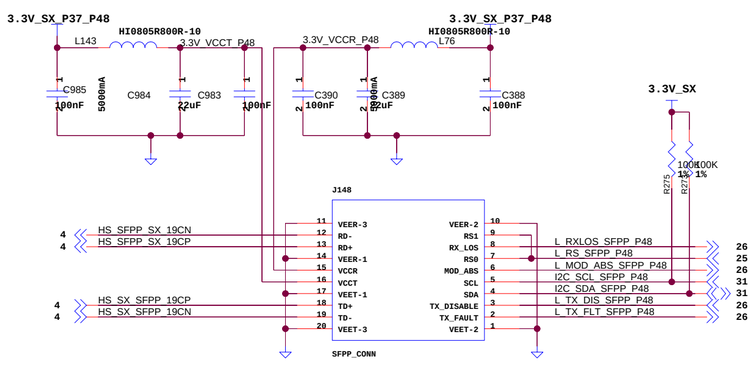
HW Port19 / Panel Port 46

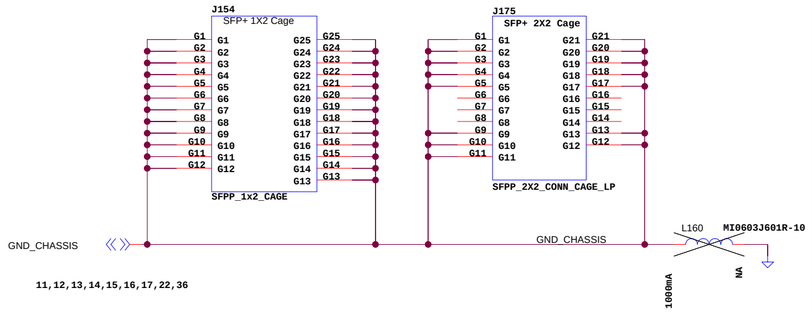


HW Port 19 / Panel Port 47



HW Port 19 / Panel Port 48





SFP+ Ports

1	4	7	10	13	16	19	22	25	28	31	34	37	40	43	46
2	5	8	11	14	17	20	23	26	29	32	35	38	41	44	47
3	6	9	12	15	18	21	24	27	30	33	36	39	42	45	48

QSFP Ports

49	51	53	55	57	59
50	52	54	56	58	60

SFG001303_A1_TARANTULA_SWITCH_BOARD

Mellanox Technologies LTD

Title: Tarantula Switch Board SFPP 43-48

Size: C | DWG NO: PCB000952 | Rev: 00

Date: 10/05/2015:14:36 | SHEET 18 OF 36

HW Port 26 / Panel Port 49

J155 — FS1-R38-20A2-10

Pin	Signal	Pin	Signal
20	GND-9	19	GND-5
21	Rx2n	18	Rx1n
22	Rx2p	17	Rx1p
23	GND-2	16	GND-6
24	Rx4n	15	Rx3n
25	Rx4p	14	Rx3p
26	GND-3	13	GND-8
27	ModPrsL	12	SDA
28	IntL	11	SCL
29	Vcc_Tx	10	Vcc_Rx
30	Vcc1	9	ResetL
31	LPMode	8	ModSelL
32	GND-10	7	GND-7
33	Tx3p	6	Tx4p
34	Tx3n	5	Tx4n
35	GND-4	4	GND-11
36	Tx1p	3	Tx2p
37	Tx1n	2	Tx2n
38	GND-12	1	GND-1

HS_QSFP_SX_26BN / HS_QSFP_SX_26BP — HS_QSFP_SX_26AN / HS_QSFP_SX_26AP
HS_QSFP_SX_26DN / HS_QSFP_SX_26DP — HS_QSFP_SX_26CN / HS_QSFP_SX_26CP
HS_SQFP_SX_26CP / HS_SX_QSFP_26CN — HS_SX_QSFP_26DP / HS_SX_QSFP_26DN
HS_SX_QSFP_26AP / HS_SX_QSFP_26AN — HS_SX_QSFP_26BP / HS_SX_QSFP_26BN

L_MOD_PRST_P49_L, L_INT_P49_L, 3.3V_SX_VCC_TX_P49, 3.3V_SX_VCC1_P49
I2C_SDA_QSFP_P49, I2C_SCL_QSFP_P49, 3.3V_SX_VCC_RX_P49, SE_RESET_P49_L

R470 4K7 1% / R245 4K7 1% — 3.3V_SX
R288 100K 1% / R285 100K 1% — 3.3V_SX
L99 1UH — C166 22uF, C162 100nF, C771 22uF, C750 100nF — 2A
L15 1UH — C184 22uF, C193 100nF — 2A
L13 1UH — C172 100nF, C173 22uF — 2A

HW Port 27 / Panel Port 50

J157 — FS1-R38-20A2-10

Pin	Signal	Pin	Signal
20	GND-9	19	GND-5
21	Rx2n	18	Rx1n
22	Rx2p	17	Rx1p
23	GND-2	16	GND-6
24	Rx4n	15	Rx3n
25	Rx4p	14	Rx3p
26	GND-3	13	GND-8
27	ModPrsL	12	SDA
28	IntL	11	SCL
29	Vcc_Tx	10	Vcc_Rx
30	Vcc1	9	ResetL
31	LPMode	8	ModSelL
32	GND-10	7	GND-7
33	Tx3p	6	Tx4p
34	Tx3n	5	Tx4n
35	GND-4	4	GND-11
36	Tx1p	3	Tx2p
37	Tx1n	2	Tx2n
38	GND-12	1	GND-1

HS_QSFP_SX_27BN / HS_QSFP_SX_27BP — HS_QSFP_SX_27AN / HS_QSFP_SX_27AP
HS_QSFP_SX_27DN / HS_QSFP_SX_27DP — HS_QSFP_SX_27CN / HS_QSFP_SX_27CP
HS_SX_QSFP_27CP / HS_SX_QSFP_27CN — HS_SX_QSFP_27DP / HS_SX_QSFP_27DN
HS_SX_QSFP_27AP / HS_SX_QSFP_27AN — HS_SX_QSFP_27BP / HS_SX_QSFP_27BN

L_MOD_PRST_P50_L, L_INT_P50_L, 3.3V_SX_VCC_TX_P50, 3.3V_SX_VCC1_P50
I2C_SDA_QSFP_P50, I2C_SCL_QSFP_P50, 3.3V_SX_VCC_RX_P50, SE_RESET_P50_L

R476 4K7 1% / R244 4K7 1% — 3.3V_SX
R284 100K 1% / R285 100K 1% — 3.3V_SX
L21 1UH — C167 22uF, C580 100nF, C221 22uF, C220 100nF — 2A
L93 1UH — C673 22uF, C672 100nF — 2A
L89 1UH — C604 100nF, C605 22uF — 2A

HW Port 22 / Panel Port 51

J156 — FS1-R38-20A2-10

Pin	Signal	Pin	Signal
20	GND-9	19	GND-5
21	Rx2n	18	Rx1n
22	Rx2p	17	Rx1p
23	GND-2	16	GND-6
24	Rx4n	15	Rx3n
25	Rx4p	14	Rx3p
26	GND-3	13	GND-8
27	ModPrsL	12	SDA
28	IntL	11	SCL
29	Vcc_Tx	10	Vcc_Rx
30	Vcc1	9	ResetL
31	LPMode	8	ModSelL
32	GND-10	7	GND-7
33	Tx3p	6	Tx4p
34	Tx3n	5	Tx4n
35	GND-4	4	GND-11
36	Tx1p	3	Tx2p
37	Tx1n	2	Tx2n
38	GND-12	1	GND-1

HS_QSFP_SX_22BN / HS_QSFP_SX_22BP — HS_QSFP_SX_22AN / HS_QSFP_SX_22AP
HS_QSFP_SX_22DN / HS_QSFP_SX_22DP — HS_QSFP_SX_22CN / HS_QSFP_SX_22CP
HS_SX_QSFP_22CP / HS_SX_QSFP_22CN — HS_SX_QSFP_22DP / HS_SX_QSFP_22DN
HS_SX_QSFP_22AP / HS_SX_QSFP_22AN — HS_SX_QSFP_22BP / HS_SX_QSFP_22BN

L_MOD_PRST_P51_L, L_INT_P51_L, 3.3V_SX_VCC_TX_P51, 3.3V_SX_VCC1_P51
I2C_SDA_QSFP_P51, I2C_SCL_QSFP_P51, 3.3V_SX_VCC_RX_P51, SE_RESET_P51_L

R471 4K7 1% / R243 4K7 1% — 3.3V_SX
R511 100K 1% / R514 100K 1% — 3.3V_SX
L16 1UH — C589 22uF, C581 100nF, C185 22uF, C194 100nF — 2A
L22 1UH — C222 22uF, C223 100nF — 2A
L14 1UH — C175 100nF, C174 22uF — 2A

HW Port 23 / Panel Port 52

J158 — FS1-R38-20A2-10

Pin	Signal	Pin	Signal
20	GND-9	19	GND-5
21	Rx2n	18	Rx1n
22	Rx2p	17	Rx1p
23	GND-2	16	GND-6
24	Rx4n	15	Rx3n
25	Rx4p	14	Rx3p
26	GND-3	13	GND-8
27	ModPrsL	12	SDA
28	IntL	11	SCL
29	Vcc_Tx	10	Vcc_Rx
30	Vcc1	9	ResetL
31	LPMode	8	ModSelL
32	GND-10	7	GND-7
33	Tx3p	6	Tx4p
34	Tx3n	5	Tx4n
35	GND-4	4	GND-11
36	Tx1p	3	Tx2p
37	Tx1n	2	Tx2n
38	GND-12	1	GND-1

HS_QSFP_SX_23BN / HS_QSFP_SX_23BP — HS_QSFP_SX_23AN / HS_QSFP_SX_23AP
HS_QSFP_SX_23DN / HS_QSFP_SX_23DP — HS_QSFP_SX_23CN / HS_QSFP_SX_23CP
HS_SX_QSFP_23CP / HS_SX_QSFP_23CN — HS_SX_QSFP_23DP / HS_SX_QSFP_23DN
HS_SX_QSFP_23AP / HS_SX_QSFP_23AN — HS_SX_QSFP_23BP / HS_SX_QSFP_23BN

L_MOD_PRST_P52_L, L_INT_P52_L, 3.3V_SX_VCC_TX_P52, 3.3V_SX_VCC1_P52
I2C_SDA_QSFP_P52, I2C_SCL_QSFP_P52, 3.3V_SX_VCC_RX_P52, SE_RESET_P52_L

R477 4K7 1% / R242 4K7 1% — 3.3V_SX
R510 100K 1% / R513 100K 1% — 3.3V_SX
L98 1UH — C590 22uF, C163 100nF, C770 22uF, C749 100nF — 2A
L92 1UH — C670 22uF, C671 100nF — 2A
L88 1UH — C603 100nF, C602 22uF — 2A

(3.5 [w] / 3.3 [v])*4[QSFP] = 4.25A max

3.3V_SX — C158 100nF
U23 TPS2559: IN-1, IN-2, IN-3, EN, GND, P_PAD; OUT-1, OUT-2, OUT-3, FLT#, ILIM
R234 4K7 1% — 3.3V_SX
R233 24K9 1%
23 QSFP_P49_P52_PWR_EN_PU — QSFP_P49_P52_PWR_EN_PU
3.3V_SX_P49_P52 — 23
QSFP_OC_P49_P52_L_PU — QSFP_OC_P49_P52_L_PU
S_QSFP_ILIM_P49_P52

Current Limit:
4.90A max
4.73A nom
4.49A min

SFP+ Ports

1	4	7	10	13	16	19	22	25	28	31	34	37	40	43	46
2	5	8	11	14	17	20	23	26	29	32	35	38	41	44	47
3	6	9	12	15	18	21	24	27	30	33	36	39	42	45	48

QSFP Ports

49	51	53	55	57	59
50	52	54	56	58	60

SFG001303_A1_TARANTULA_SWITCH_BOARD

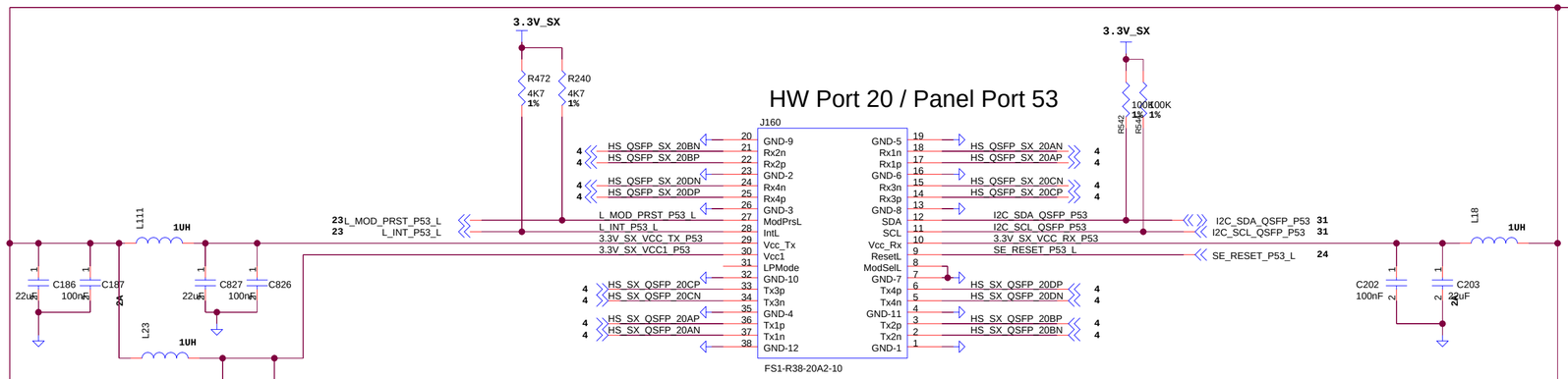
Mellanox Technologies LTD

Title: Tarantula Switch Board — QSFP 49-52

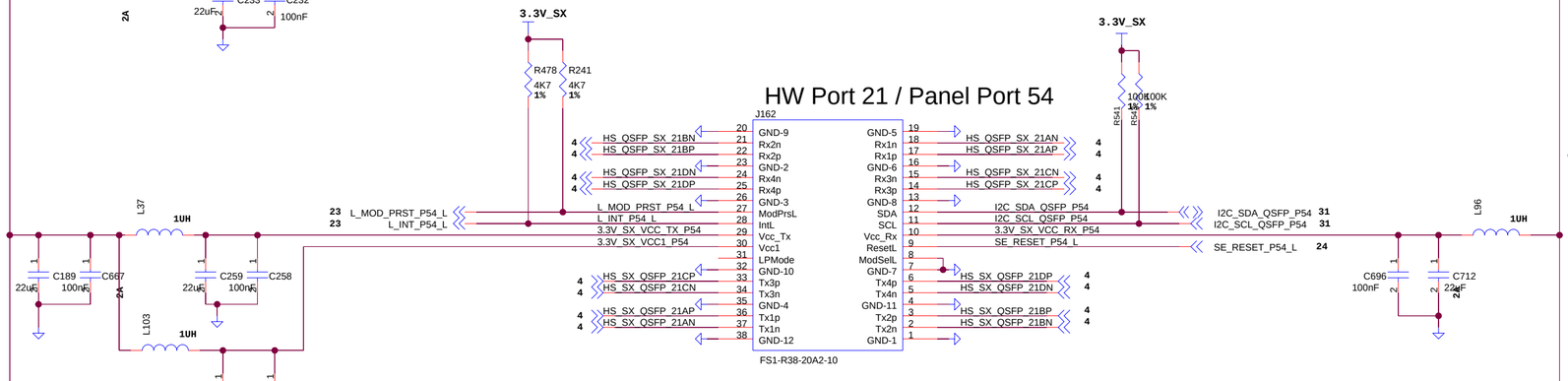
Size: C — DWG NO: PCB000952 — Rev: 00

Date: 10/05/2015:14:36 — SHEET 19 OF 36

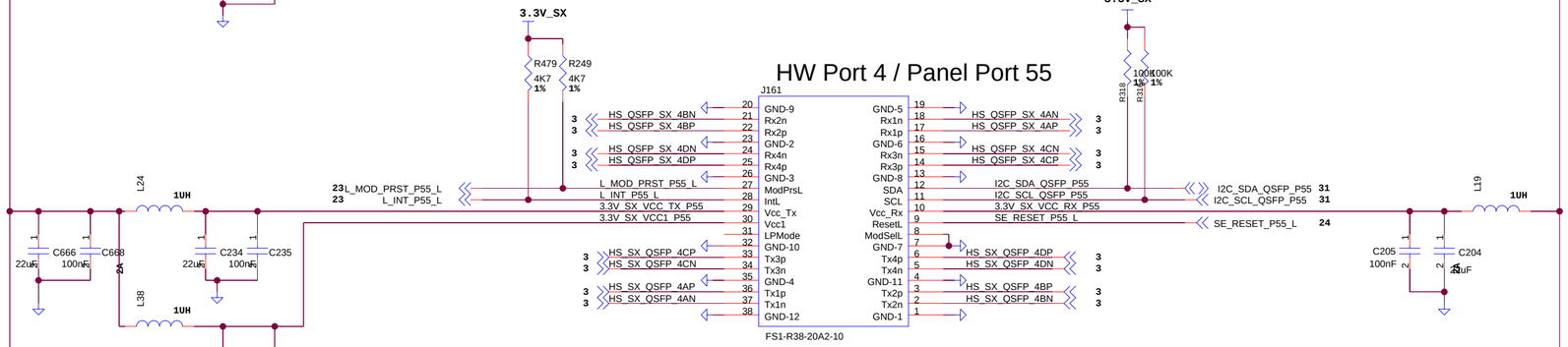
HW Port 20 / Panel Port 53



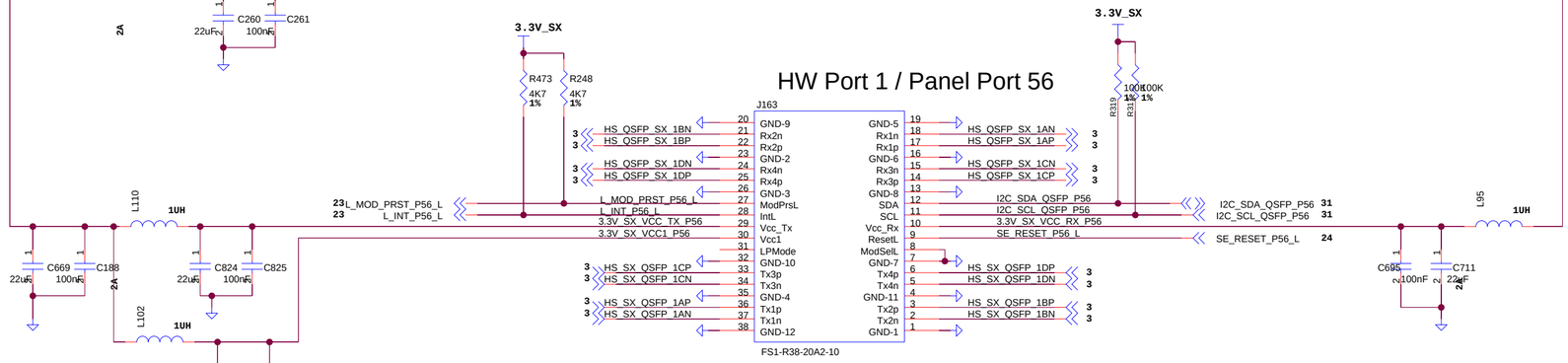
HW Port 21 / Panel Port 54



HW Port 4 / Panel Port 55



HW Port 1 / Panel Port 56



SFP+ Ports

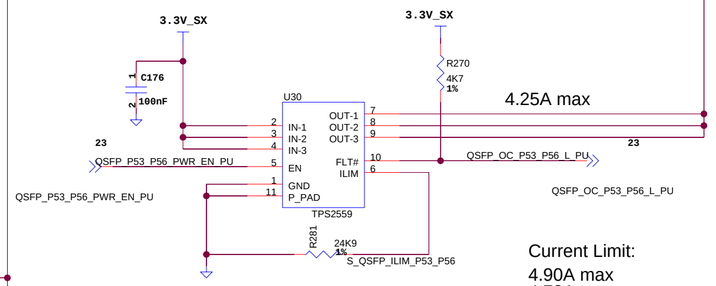
1	4	7	10	13	16	19	22	25	28	31	34	37	40	43	46
2	5	8	11	14	17	20	23	26	29	32	35	38	41	44	47
3	6	9	12	15	18	21	24	27	30	33	36	39	42	45	48

QSFP Ports

49	51	53	55	57	59
50	52	54	56	58	60

3.3V_SX_P53_P56

(3.5 [w] / 3.3 [v])*4[QSFP] = 4.25A max



Current Limit:
4.90A max
4.73A nom
4.49A min

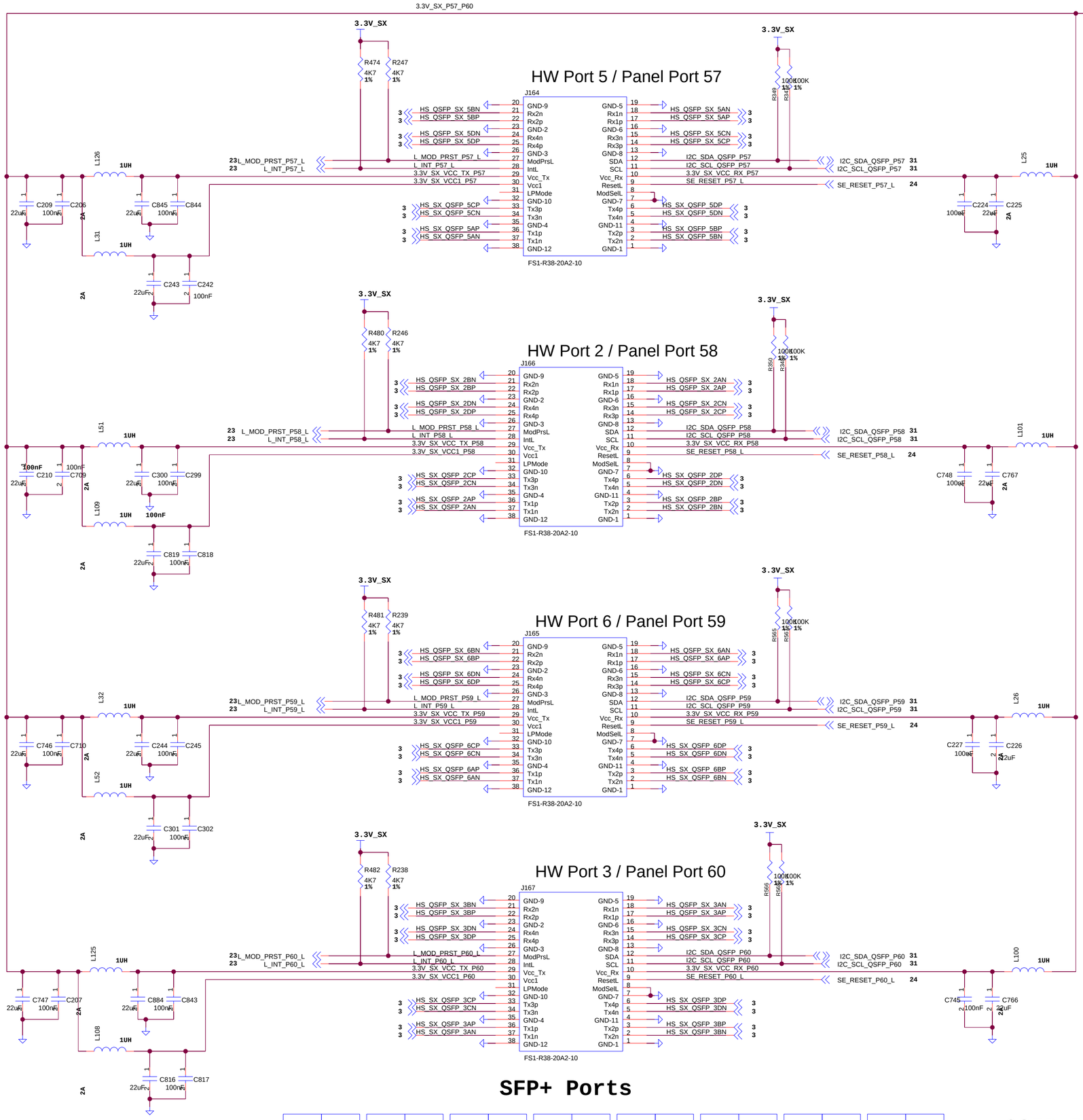
SFG001303_A1_TARANTULA_SWITCH_BOARD

Mellanox Technologies LTD

Title: Tarantula Switch Board QSFP 53-56

Size: C | DWG NO: PCB000952 | Rev: 00

Date: 10/05/2015:14:36 | SHEET 20 OF 36



1	4	7	10	13	16	19	22	25	28	31	34	37	40	43	46	49	51	53	55	57	59
2	5	8	11	14	17	20	23	26	29	32	35	38	41	44	47	50	52	54	56	58	60
3	6	9	12	15	18	21	24	27	30	33	36	39	42	45	48						

SFG001303_A1_TARANTULA_SWITCH_BOARD

Mellanox Technologies LTD

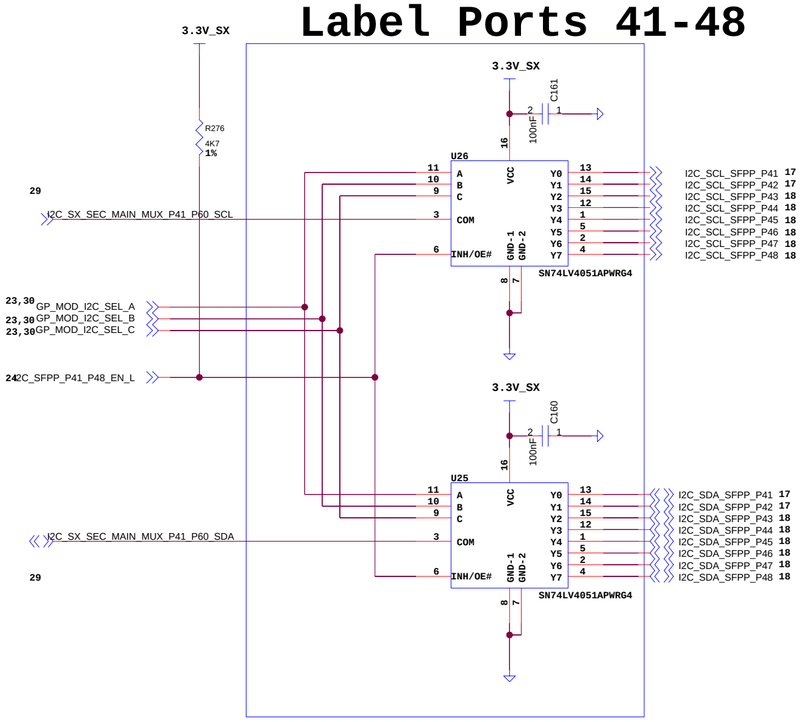
Title: Tarantula Switch Board — QSFP 57-60

Size: C | DWG NO: PCB000952 | Rev: 00

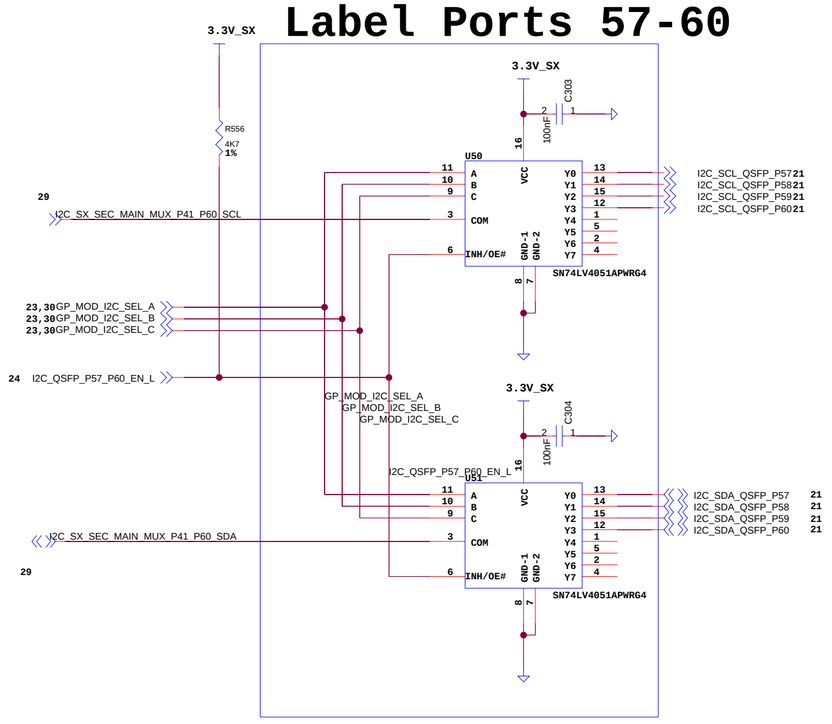
Date: 10/05/2015:14:36 | SHEET 21 OF 36

PORTS I2C MUXs

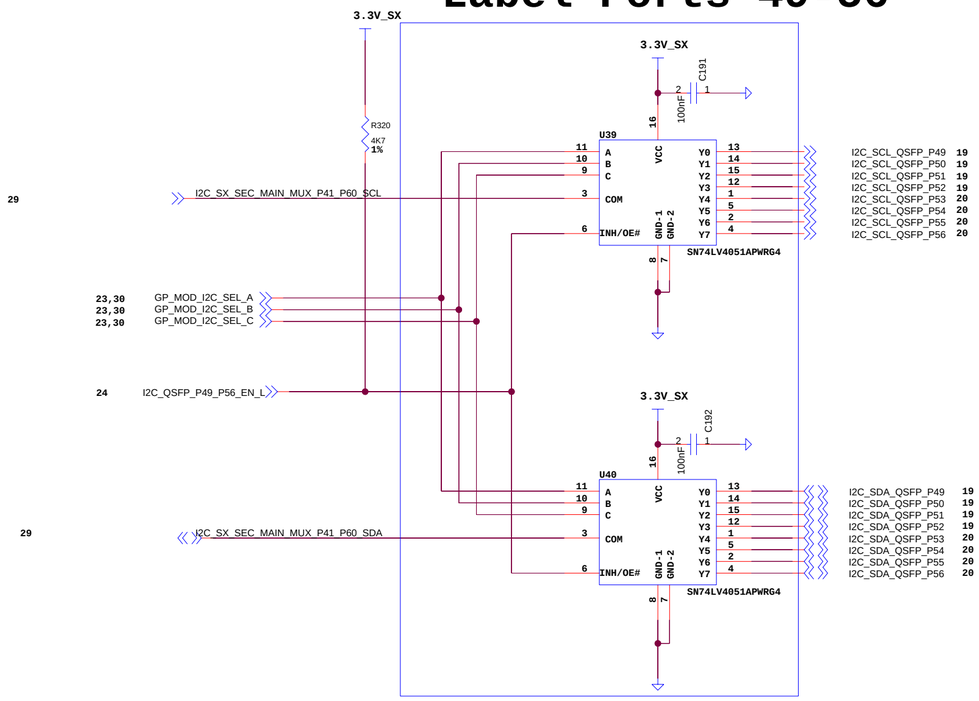
Label Ports 41-48



Label Ports 57-60



Label Ports 49-56



SFG001303_A1_TARANTULA_SWITCH_BOARD

Mellanox Technologies LTD

Title: Tarantula Switch Board	Ports_I2C_MUXS 41-60	
Size: C	DWG NO: PCB000952	Rev: 00
Date: 10/05/2015:14:36	SHEET 31 OF 36	