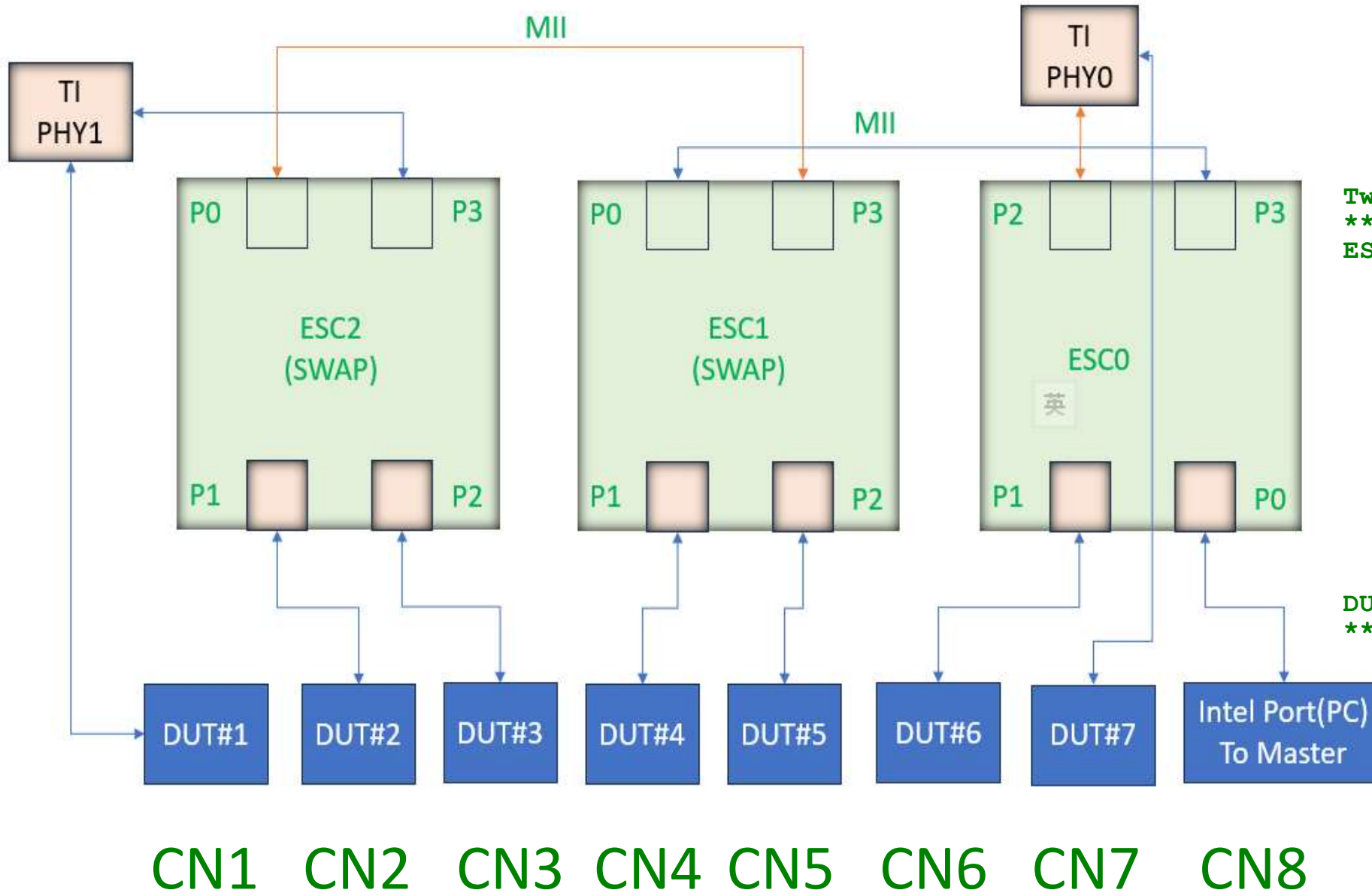
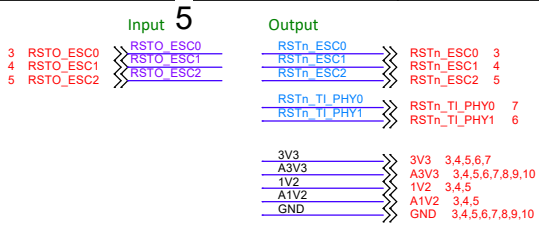


# AX58101LT 8Ports Junction Schematic

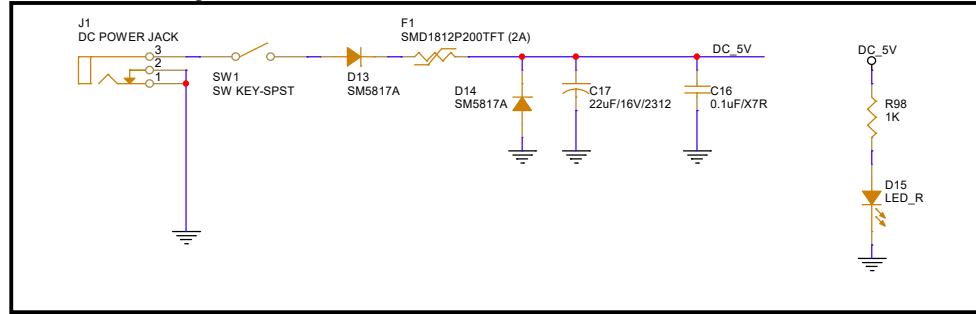


TwinCAT:  
 \*\*\*\*\*  
 ESC0  
 ~~~~~  
 ESC1 (SWAP)  
 -----  
 ESC2 (SWAP)  
 DUT#1  
 DUT#2  
 DUT#3  
 -----  
 DUT#4  
 DUT#5  
 ~~~~~  
 DUT#6  
 DUT#7  
 \*\*\*\*\*

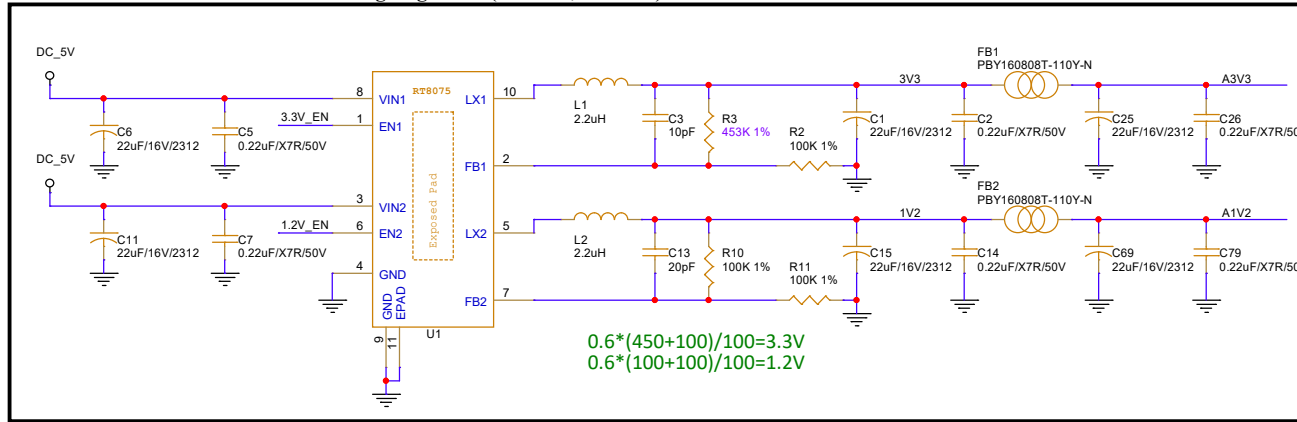
- Note:
1. Please deliver us your AX58101 schematic and PCB layout file for further review.
  2. Please do full functionalities testing on your own AX58101 board before running into production stage.



### DC 5V/1A Power Input



### 5V to 3.3V/1.2V Dual-Channel Switching Regulator (3.3V 1A, 1.2V 1A)



AX58101LT:  
 1) (A3V3+D3V3)max= 7.53+79.3= 86.83mA.  
 2) (A1V2+D1V2)max= 64.4+38.7= 103.1mA.  
 3) 2Copper(P3V3A)max=86mA.

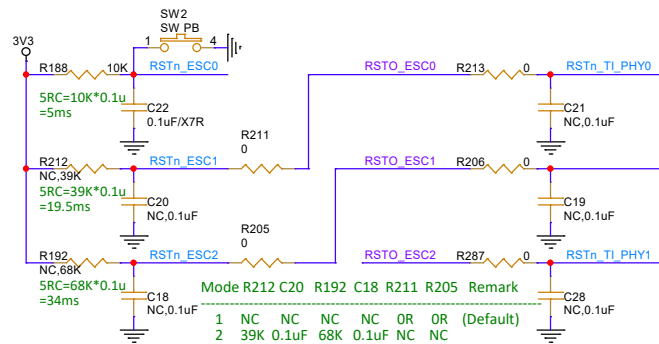
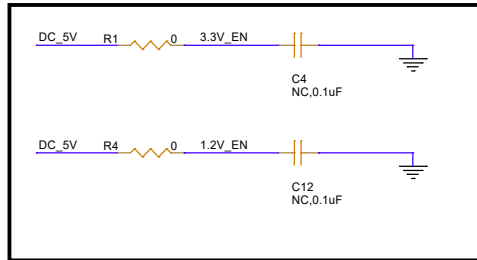
TI PHY(DP83822)(DataSheet)  
 1) (Magnetic supply)max= 22mA.  
 2) (AVD supply)max= 52mA.  
 3) (VDDIO supply)max= 22mA.

3.3V: 1A(Max.)  
 1) AX58101LT 3pcs: 86.83\*3= 260.49mA.  
 2) 6Copper(P3V3A): 86\*6/2= 258mA.  
 3) TI PHY 2pcs: (22+52+22)\*2= 192mA.  
 4) Total=(260.49+258+192)= 710.49mA.

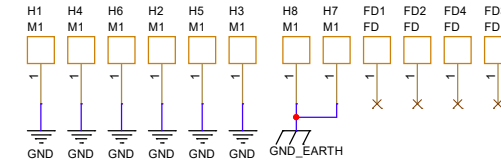
1.2V: 1A(Max.)  
 1) AX58101LT 3pcs: 103.1\*3= 309.3mA.

### Optional for fining tune power up sequence timing

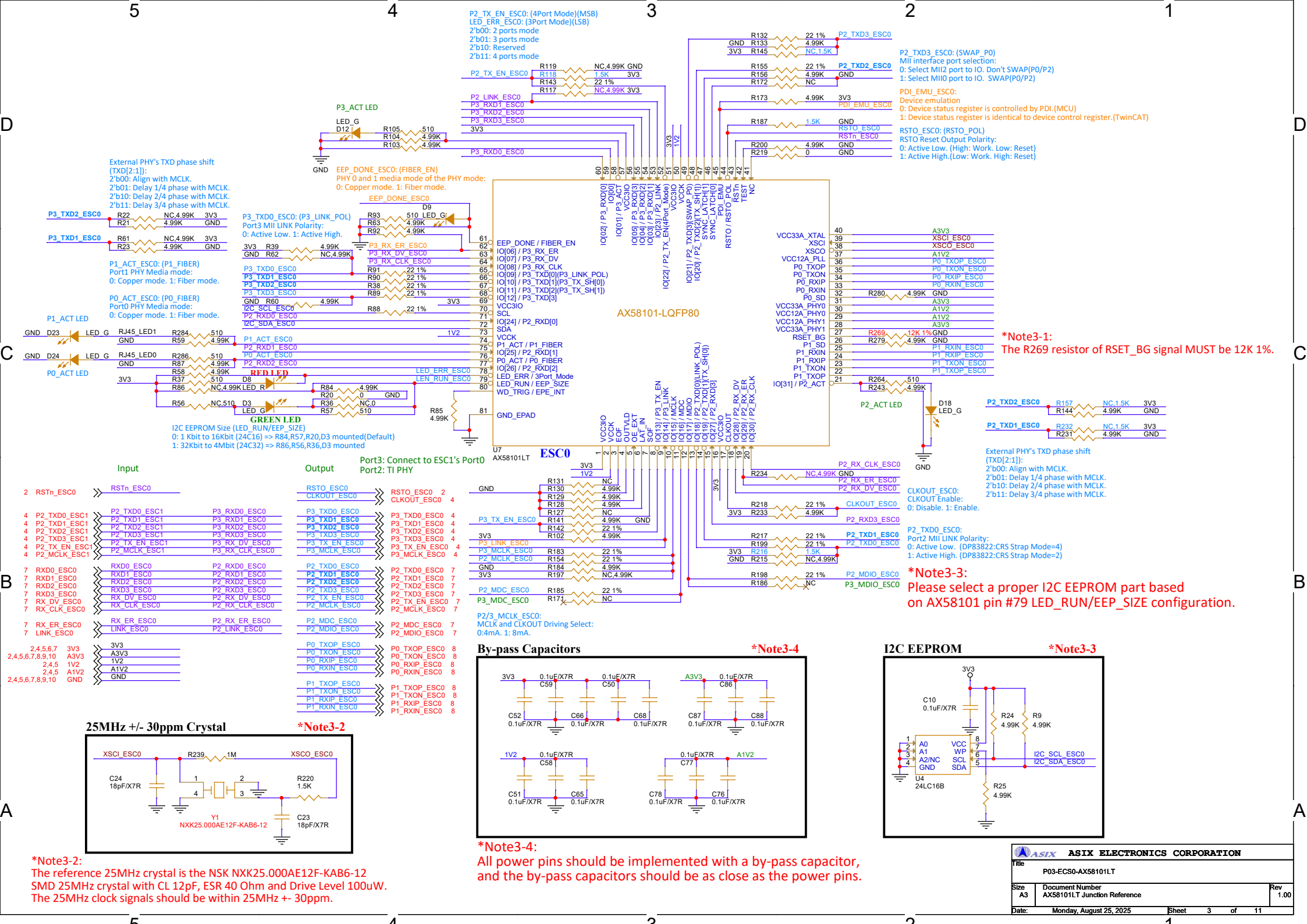
**\*Note2-1**

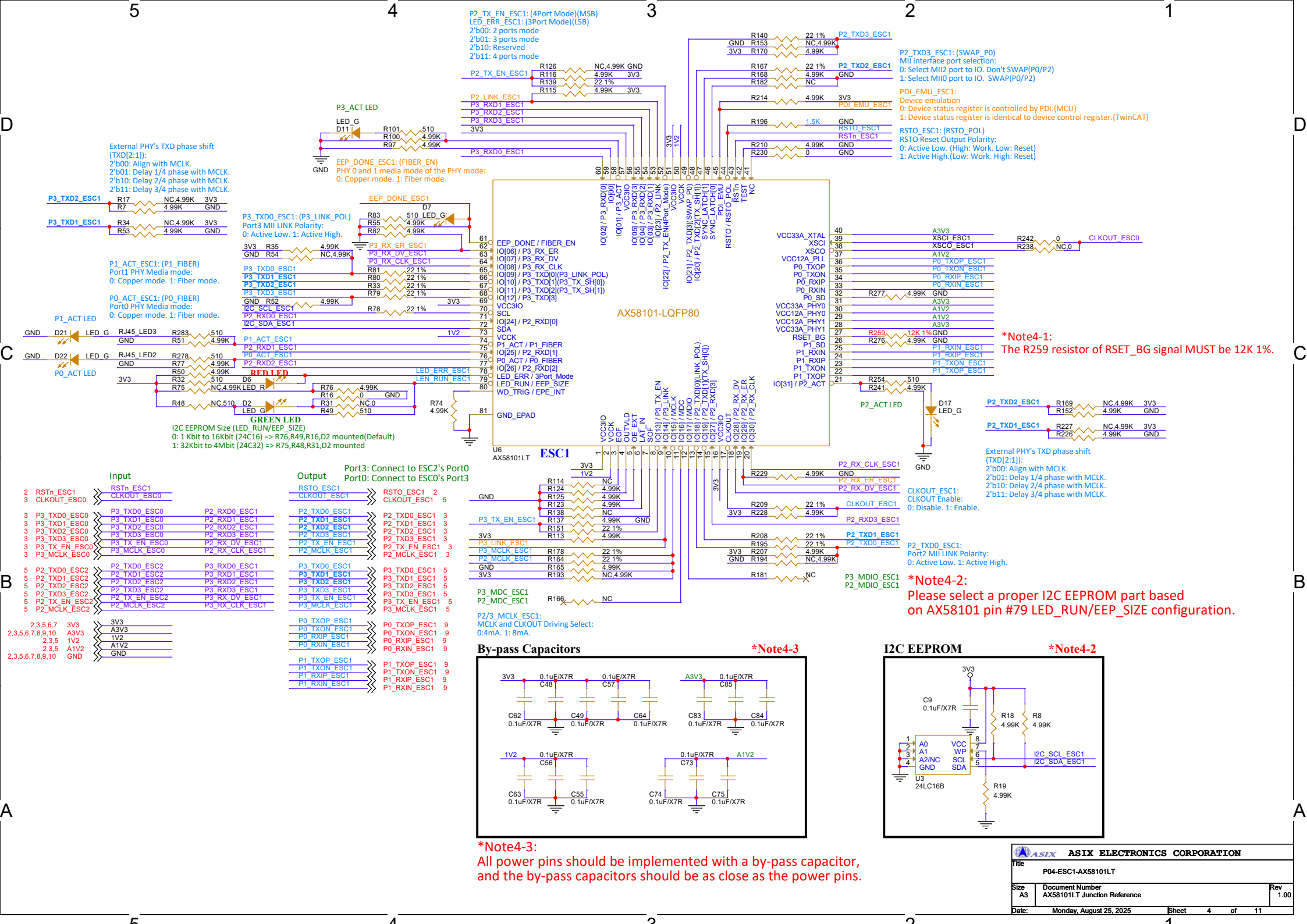


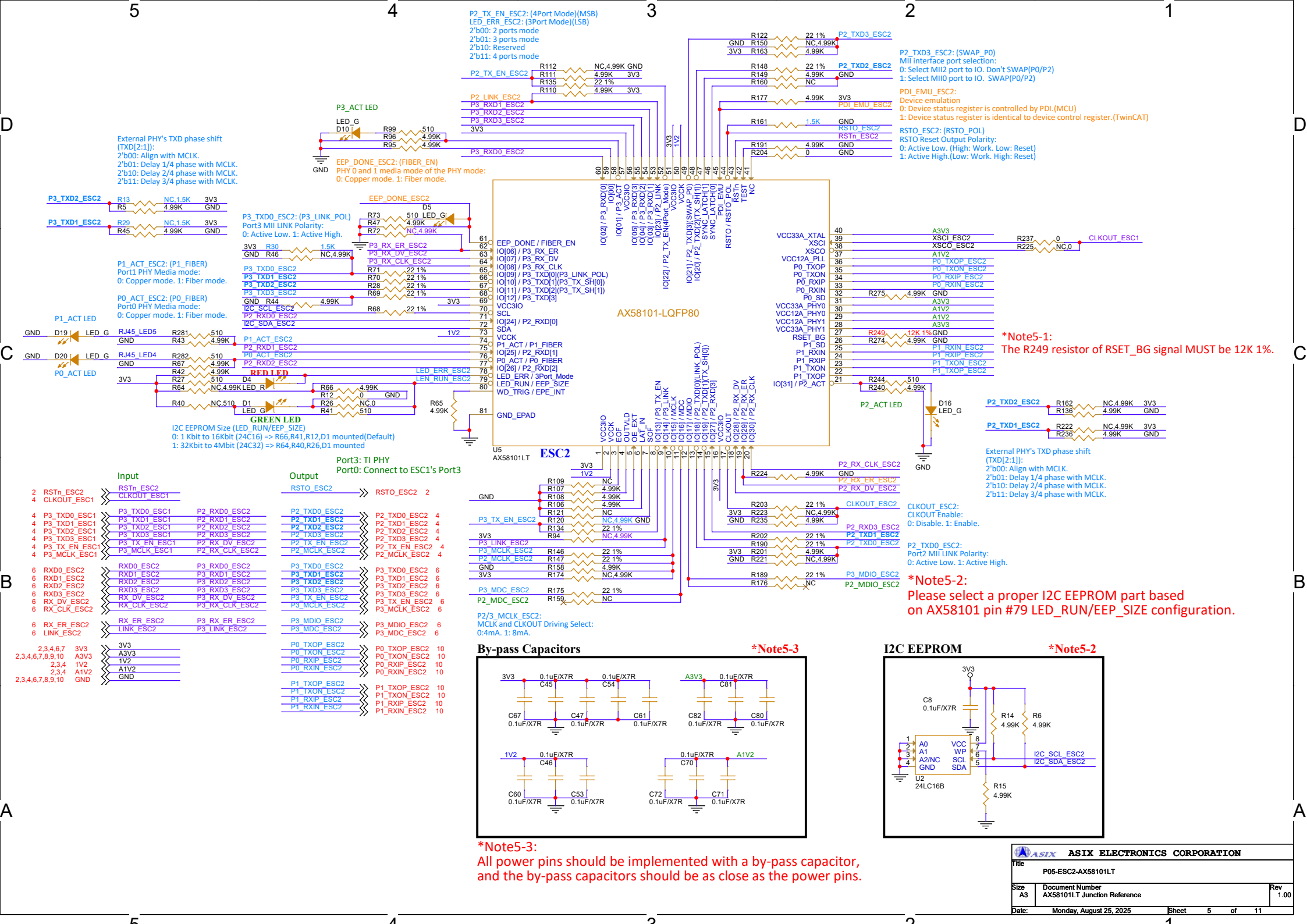
Mode1:  
 RSTn\_ESC0 超前RSTn\_ESC1 10ms.  
 RSTn\_ESC1 超前RSTn\_ESC2 9ms.



**\*Note2-1:**  
 The R1,C4,R4,C12 resistor and capacitors are optional for fining tune the 3V3 and 1V2 power up sequence timing. (Refer to below "3V3 & 1V2 Output Power Timing Setting" table for details.)







External PHY's TXD phase shift (TXD[2:1]):  
 2'b00: Align with MCLK.  
 2'b01: Delay 1/4 phase with MCLK.  
 2'b10: Delay 2/4 phase with MCLK.  
 2'b11: Delay 3/4 phase with MCLK.

P3\_TXD0\_ESC2: (P3\_LINK\_POL)  
 Port3 MII LINK Polarity:  
 0: Active Low. 1: Active High.

P1\_ACT\_ESC2: (P1\_FIBER)  
 Port1 PHY Media mode:  
 0: Copper mode. 1: Fiber mode.

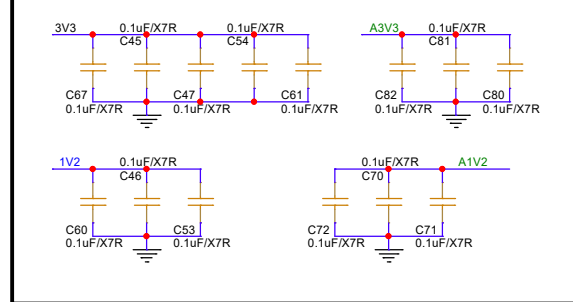
P0\_ACT\_ESC2: (P0\_FIBER)  
 Port0 PHY Media mode:  
 0: Copper mode. 1: Fiber mode.

I2C EEPROM Size (LED\_RUN/EEP\_SIZE)  
 0: 1 Kbit to 16Kbit (24C16) => R66,R41,R12,D1 mounted(Default)  
 1: 32Kbit to 4Mbit (24C32) => R64,R40,R26,D1 mounted

Port3: TI PHY  
 Port0: Connect to ESC1's Port3

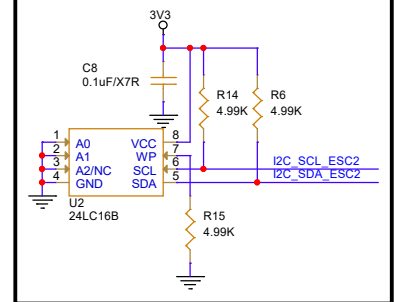
Input	Output
2 RSTn_ESC2	RSTn_ESC2
4 CLKOUT_ESC1	CLKOUT_ESC1
4 P3_TXD0_ESC1	P3_TXD0_ESC1
4 P3_TXD1_ESC1	P3_TXD1_ESC1
4 P3_TXD2_ESC1	P3_TXD2_ESC1
4 P3_TXD3_ESC1	P3_TXD3_ESC1
4 P3_TX_EN_ESC1	P3_TX_EN_ESC1
4 P3_MCLK_ESC1	P3_MCLK_ESC1
6 RXD0_ESC2	RXD0_ESC2
6 RXD1_ESC2	RXD1_ESC2
6 RXD2_ESC2	RXD2_ESC2
6 RXD3_ESC2	RXD3_ESC2
6 RX_DV_ESC2	RX_DV_ESC2
6 RX_CLK_ESC2	RX_CLK_ESC2
6 RX_ER_ESC2	RX_ER_ESC2
6 LINK_ESC2	LINK_ESC2
3V3	A3V3
2,3,4,6,7,8,9,10	A3V3
2,3,4	1V2
2,3,4	A1V2
2,3,4,6,7,8,9,10	GND
P3_TXD0_ESC2	P2_RXD0_ESC2
P3_TXD1_ESC2	P2_RXD1_ESC2
P3_TXD2_ESC2	P2_RXD2_ESC2
P3_TXD3_ESC2	P2_RXD3_ESC2
P3_TX_EN_ESC2	P2_RX_DV_ESC2
P3_MCLK_ESC2	P2_RX_CLK_ESC2
P3_RXD0_ESC2	P3_TXD0_ESC2
P3_RXD1_ESC2	P3_TXD1_ESC2
P3_RXD2_ESC2	P3_TXD2_ESC2
P3_RXD3_ESC2	P3_TXD3_ESC2
P3_RX_DV_ESC2	P3_TX_EN_ESC2
P3_RX_CLK_ESC2	P3_MCLK_ESC2
P3_RX_ER_ESC2	P3_MDI0_ESC2
P3_LINK_ESC2	P3_MDC_ESC2
P0_TXOP_ESC2	P0_TXOP_ESC2
P0_TXON_ESC2	P0_TXON_ESC2
P0_RXIP_ESC2	P0_RXIP_ESC2
P0_RXIN_ESC2	P0_RXIN_ESC2
P1_TXOP_ESC2	P1_TXOP_ESC2
P1_TXON_ESC2	P1_TXON_ESC2
P1_RXIP_ESC2	P1_RXIP_ESC2
P1_RXIN_ESC2	P1_RXIN_ESC2

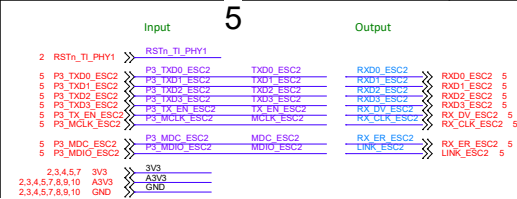
### By-pass Capacitors



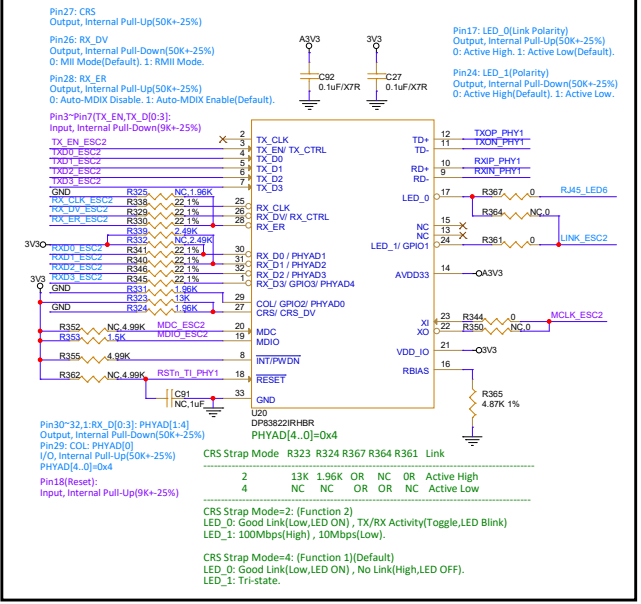
**\*Note5-3:**  
 All power pins should be implemented with a by-pass capacitor, and the by-pass capacitors should be as close as the power pins.

### I2C EEPROM

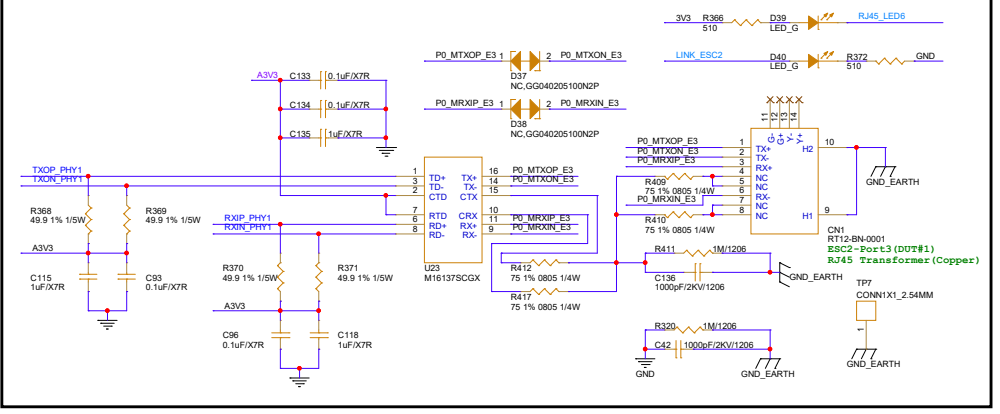




TI PHY (ESC2 Port3) (DUT#1)



RJ45 Connector (TI PHY) (ESC2 Port3) (DUT#1)

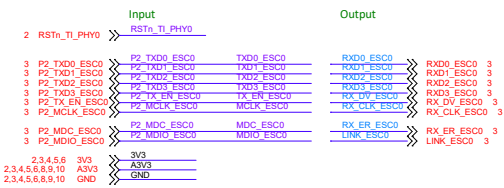


8-11 Modes of Operation				
FX_EN	AN_EN	AN_1	AN_0	Description
Force Modes				
0	0	0	0	10BASE-Te, Half-Duplex
0	0	0	1	10BASE-Te, Full-Duplex
0	0	1	0	100BASE-TX, Half-Duplex
0	0	1	1	100BASE-TX, Full-Duplex
Advertised Modes				
0	1	0	0	10BASE-Te, Half-Duplex
0	1	0	1	10BASE-Te, Half/Full-Duplex
0	1	1	0	10BASE-Te, Half-Duplex 100BASE-TX, Half-Duplex
0	1	1	1	10BASE-Te, Half/Full-Duplex 100BASE-TX, Half/Full-Duplex
Fiber Modes				
1	X	X	0	100BASE-FX, Half Duplex
1	X	X	1	100BASE-FX, Full Duplex

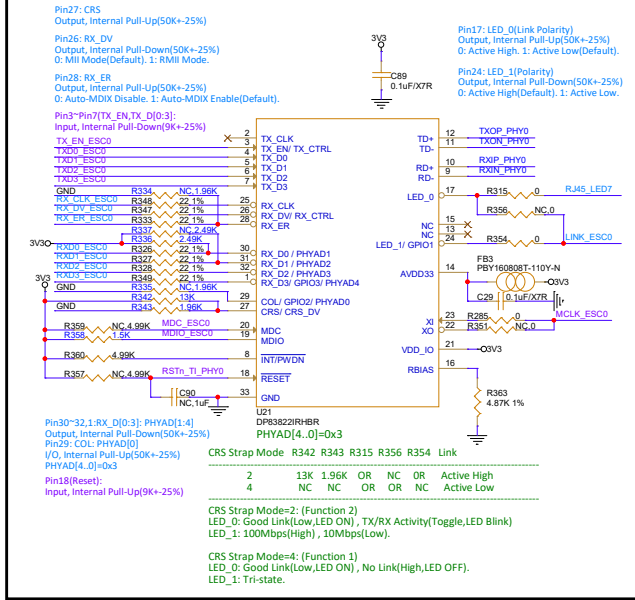
8-12 LED Configuration				
CRS Strap Mode	LED_SPEED	LED_CFG[0]	LED_0	LED_1
1	0	0	ON for Good Link BLINK for TX/RX Activity	LED_1 in Tri-State
2	1	0	ON for Good Link BLINK for TX/RX Activity	ON for 100 Mbps SPEED OFF for 10 Mbps SPEED
3	1	1	ON for Good Link OFF for No Link	ON for 100 Mbps SPEED OFF for 10 Mbps SPEED
4	0	1	ON for Good Link OFF for No Link	LED_1 in Tri-State

8-13 MAC Interface Configuration			
RGMI1_EN	RMII1_EN	XI_50	Description
0	0	0	MII, 25-MHz Reference Clock
0	0	1	Reserved
0	1	0	RMII, 25-MHz Reference Clock
0	1	1	RMII, 50-MHz Reference Clock
1	X	0	RGMI1, 25-MHz Reference Clock
1	X	1	Reserved

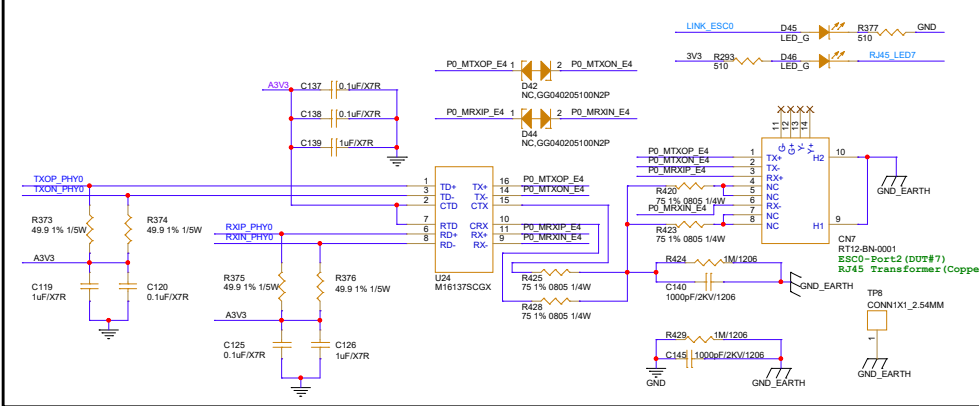
PIN NAME	PIN #	DEFAULT	STRAP FUNCTION			PU Resistor (kΩ)	PD Resistor (kΩ)	TI PHY0 Address 0x3	TI PHY1 Address 0x4	Internal Pull
			MODE	FX_EN	PHY AD0					
COL	29	[01]	MODE	FX_EN	PHY AD0	OPEN	1.96			Up 50K
			1	0	0	OPEN	1.96		v	
			2	1	0	13	1.96			
			3	1	1	6.2	1.96			
4(Default)			0	1	OPEN	OPEN	v			
CRS	27	[01]	MODE	LED_SPEED	LED_CFG	OPEN	1.96			Up 50K
			1	0	0	OPEN	1.96		v	
			2	1	0	13	1.96		v	
			3	1	1	6.2	1.96		v	
4(Default)			0	1	OPEN	OPEN				
RX_ER	28	[01]	MODE	RGMI1_EN	AMDIX_EN (SD_EN)	OPEN	1.96			Up 50K
			1	0	0	OPEN	1.96			
			2	1	0	13	1.96			
			3	1	1	6.2	1.96			
4(Default)			0	1	OPEN	OPEN	v	v		
LED_0	17	[X1]	MODE	RESERVED	AN_0	OPEN	1.96			Up 50K
			1	X	0	OPEN	1.96			
			2	X	Do Not Use(1)	13	1.96			
			3	X	Do Not Use(1)	6.2	1.96			
4(Default)			X	1	OPEN	OPEN	v	v		
RX_D0	30	[10]	MODE	AN_1	PHY AD1	OPEN	OPEN			Down 50K
			1(Default)	1	0	OPEN	OPEN		v	
			2	0	0	10	2.49			
			3	0	1	5.76	2.49			
4			1	1	2.49	OPEN		v		
RX_D1	31	[00]	MODE	EEE_EN	PHY AD2	OPEN	OPEN			Down 50K
			1(Default)	0	0	OPEN	OPEN		v	
			2	1	0	10	2.49			
			3	1	1	5.76	2.49			
4			0	1	2.49	OPEN		v		
RX_D2	32	[00]	MODE	FLD_EN	PHY AD3	OPEN	OPEN			Down 50K
			1(Default)	0	0	OPEN	OPEN		v	
			2	1	0	10	2.49			
			3	1	1	5.76	2.49			
4			0	1	2.49	OPEN		v		
RX_D3	1	[10]	MODE	AN_EN	PHY AD4	OPEN	OPEN			Down 50K
			1(Default)	1	0	OPEN	OPEN		v	
			2	0	0	10	2.49			
			3	0	1	5.76	2.49			
4			1	1	2.49	OPEN		v		
RX_DV	26	[00]	MODE	XI_50	RMII1_EN	OPEN	OPEN			Down 50K
			1(Default)	0	0	OPEN	OPEN		v	
			2	1	0	10	2.49			
			3	0	1	5.76	2.49			
4			1	1	2.49	OPEN		v		
LED_1	24	[1X]	MODE	RESERVED		OPEN	OPEN			Down 50K
			1(Default)	0		OPEN	OPEN		v	
			2		Do Not Use(1)	10	2.49			
			3		Do Not Use(1)	5.76	2.49			
4				1	2.49	OPEN		v		



### TI PHY (ESC0 Port2) (DUT#7)



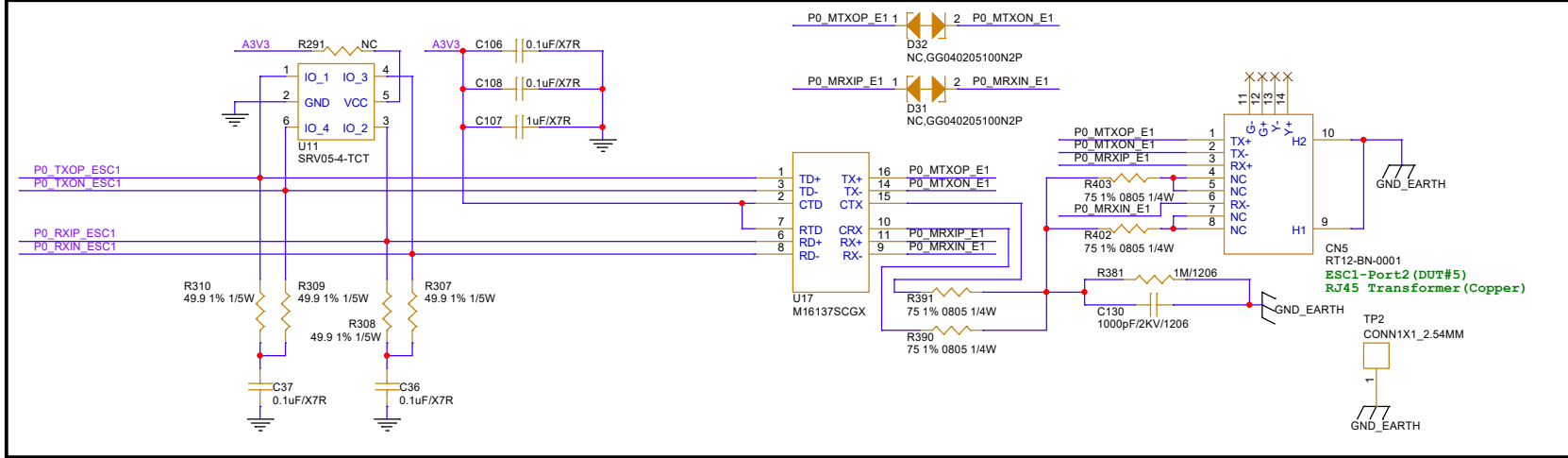
### RJ45 Connector (TI PHY) (ESC0 Port2) (DUT#7)



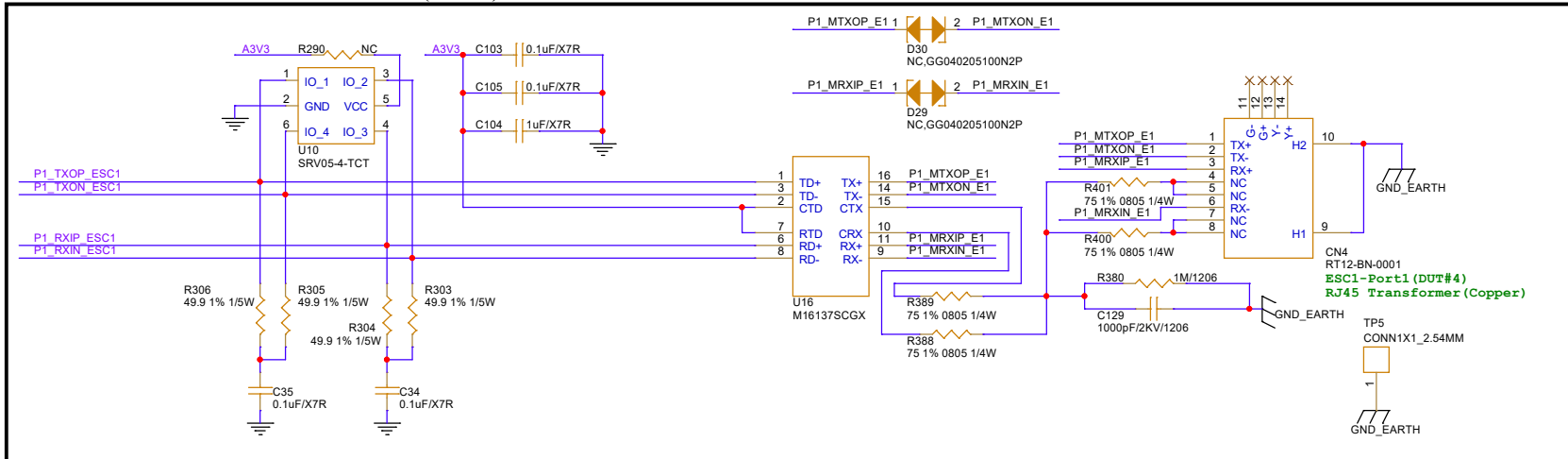


- 4 P0\_TXOP\_ESC1 >> P0\_TXOP\_ESC1
- 4 P0\_TXON\_ESC1 >> P0\_TXON\_ESC1
- 4 P0\_RXIP\_ESC1 >> P0\_RXIP\_ESC1
- 4 P0\_RXIN\_ESC1 >> P0\_RXIN\_ESC1
  
- 4 P1\_TXOP\_ESC1 >> P1\_TXOP\_ESC1
- 4 P1\_TXON\_ESC1 >> P1\_TXON\_ESC1
- 4 P1\_RXIP\_ESC1 >> P1\_RXIP\_ESC1
- 4 P1\_RXIN\_ESC1 >> P1\_RXIN\_ESC1
  
- 2,3,4,5,6,7,8,10 A3V3 >> A3V3
- 2,3,4,5,6,7,8,10 GND >> GND

### ESC1 Internal PHY RJ45 Connector - Port2 (DUT#5)



### ESC1 Internal PHY RJ45 Connector - Port1 (DUT#4)





Revision History		
Revision	Date	Comment
V1.00	2025/06/23~ 2025/09/09	Initial release.