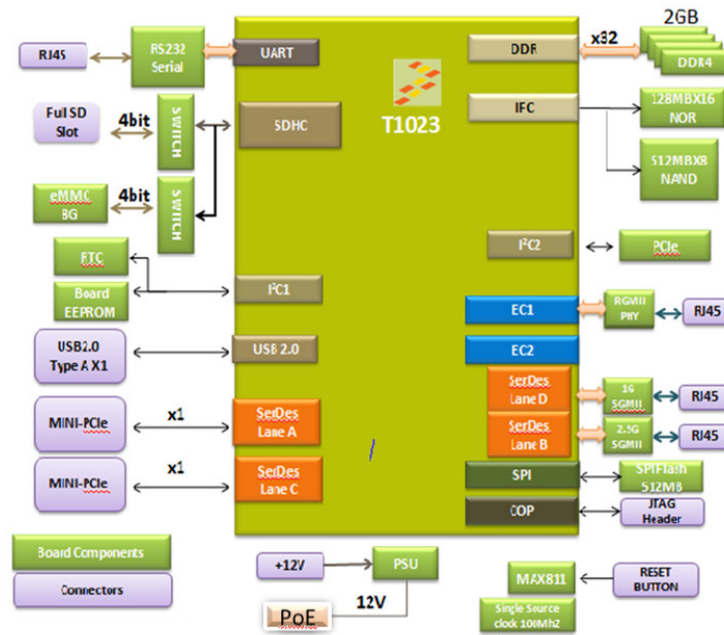
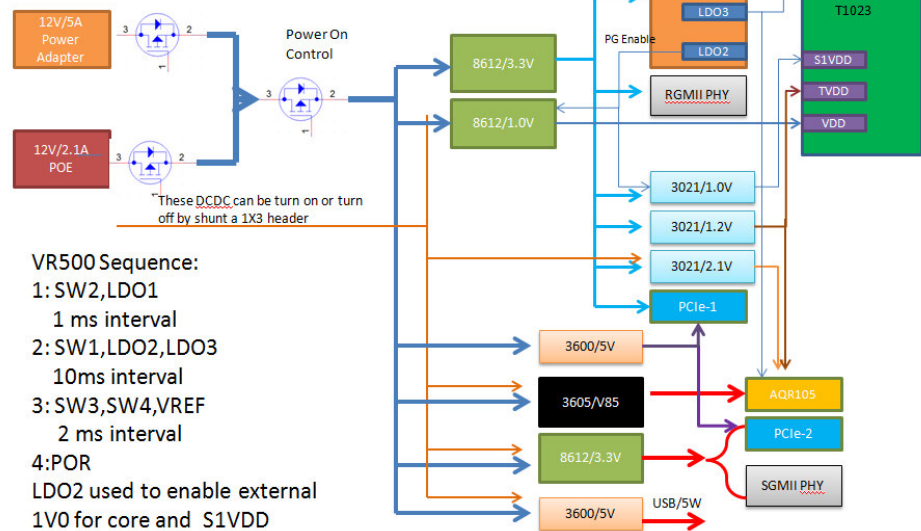
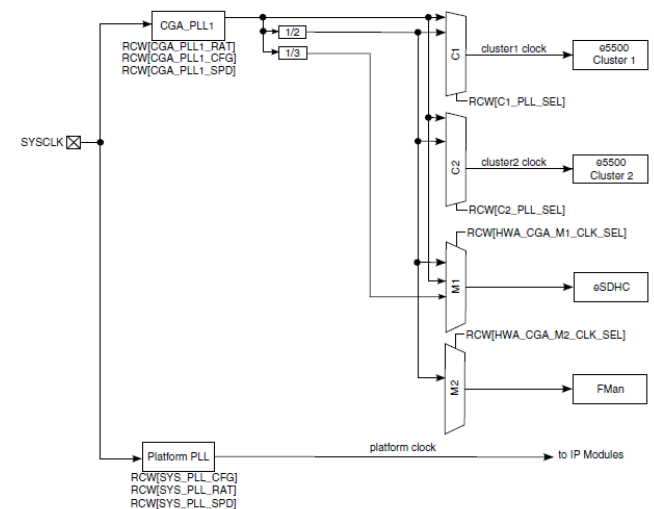
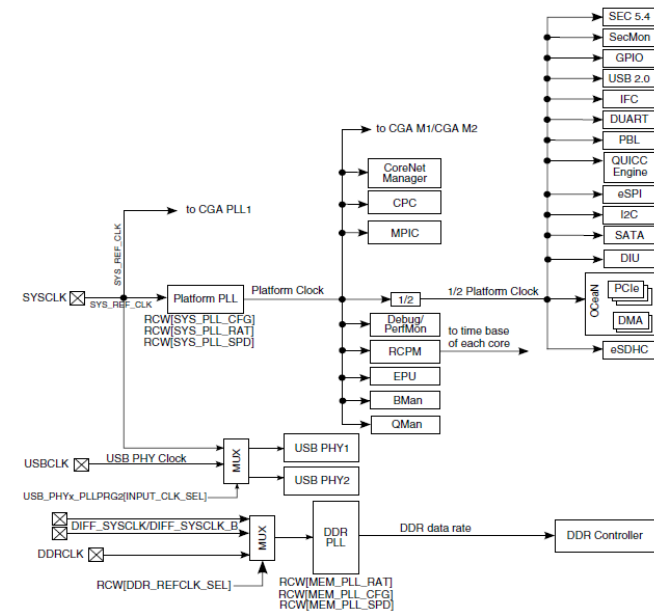
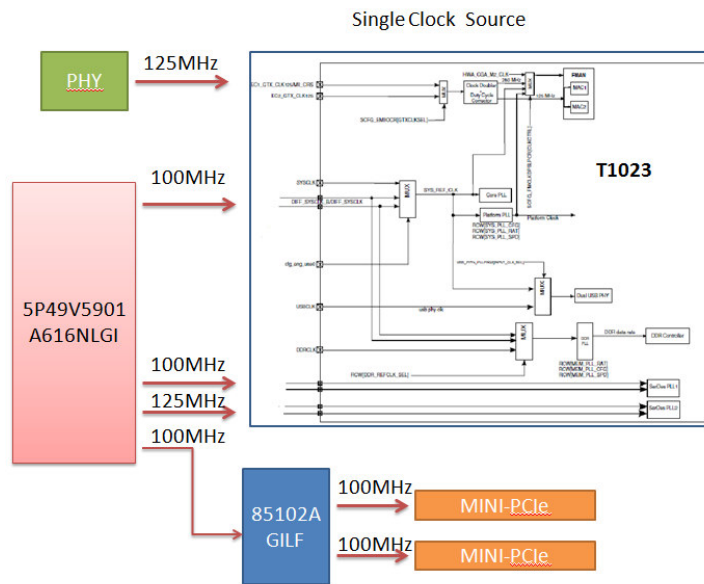


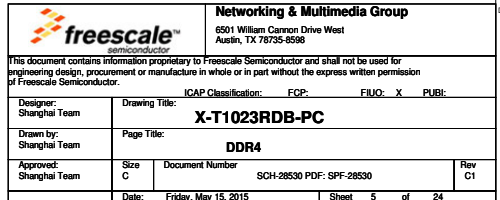
SYSTEM BLOCK DIAGRAM

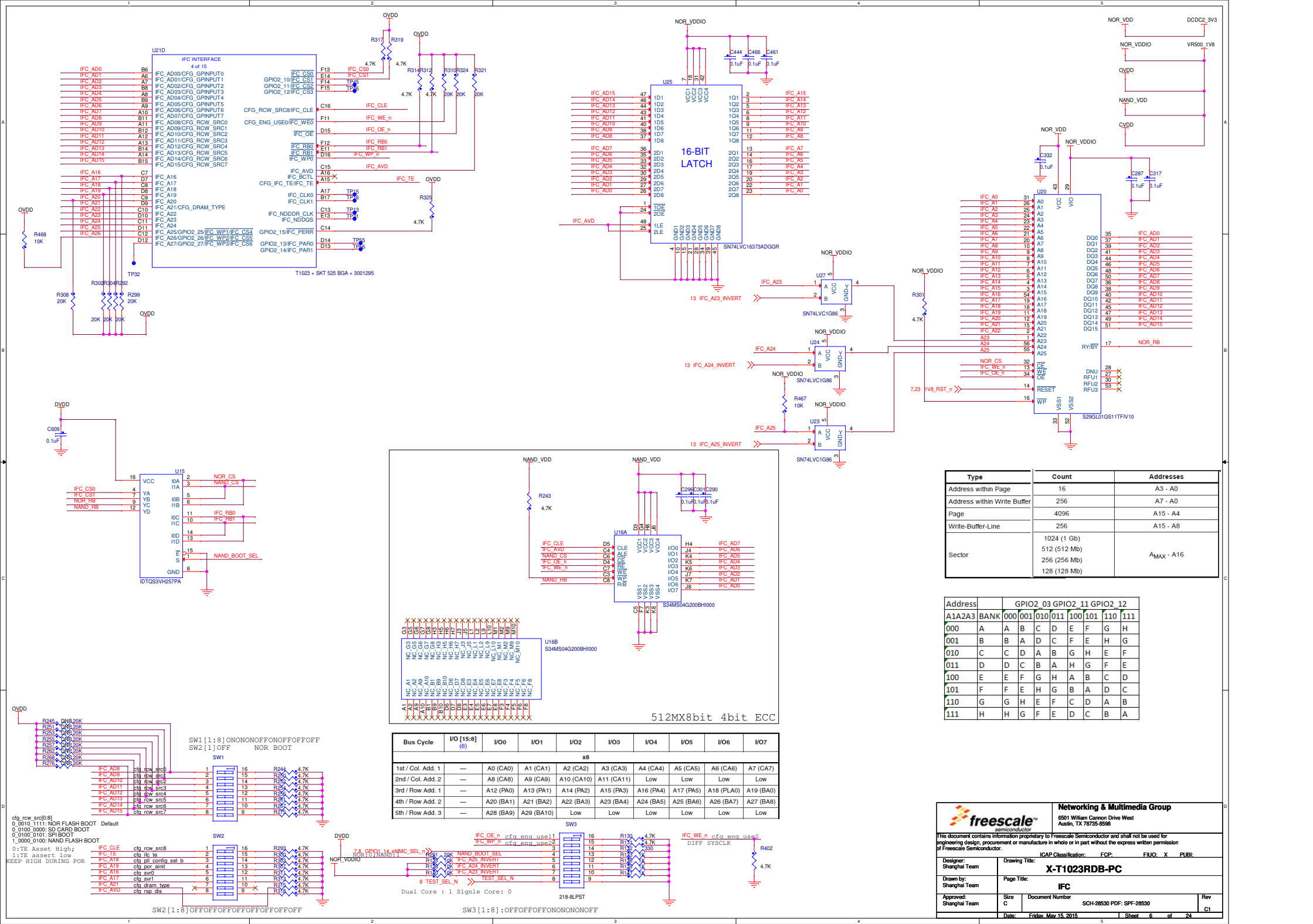


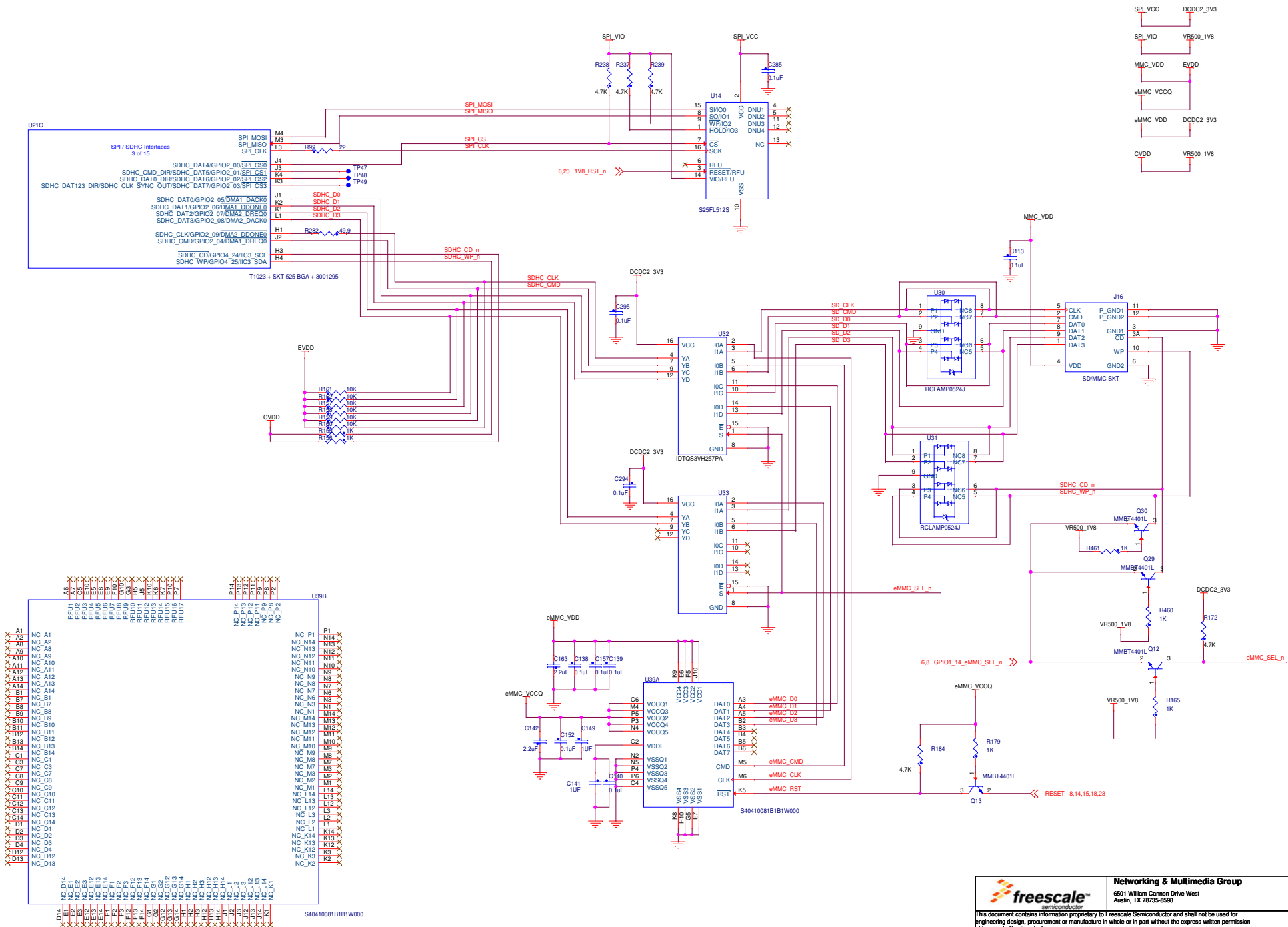
1. If external power adapter presented, switch off POE power path PMOS
2. If external power adapter isn't presented, shut down 3605 power to AQR105, 8612 power to PCIe-2 and 1G SGMII PHY, and shut down 3600 power to the USB

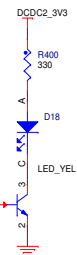


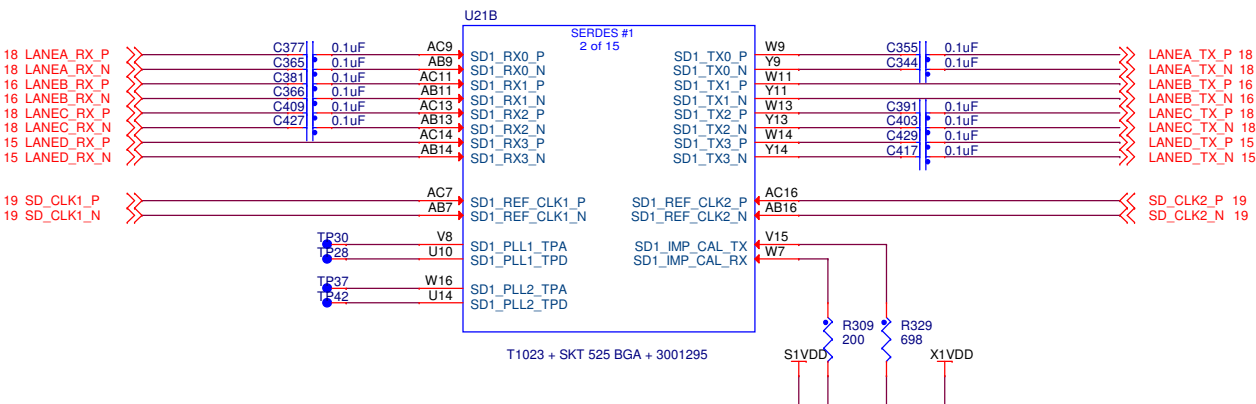
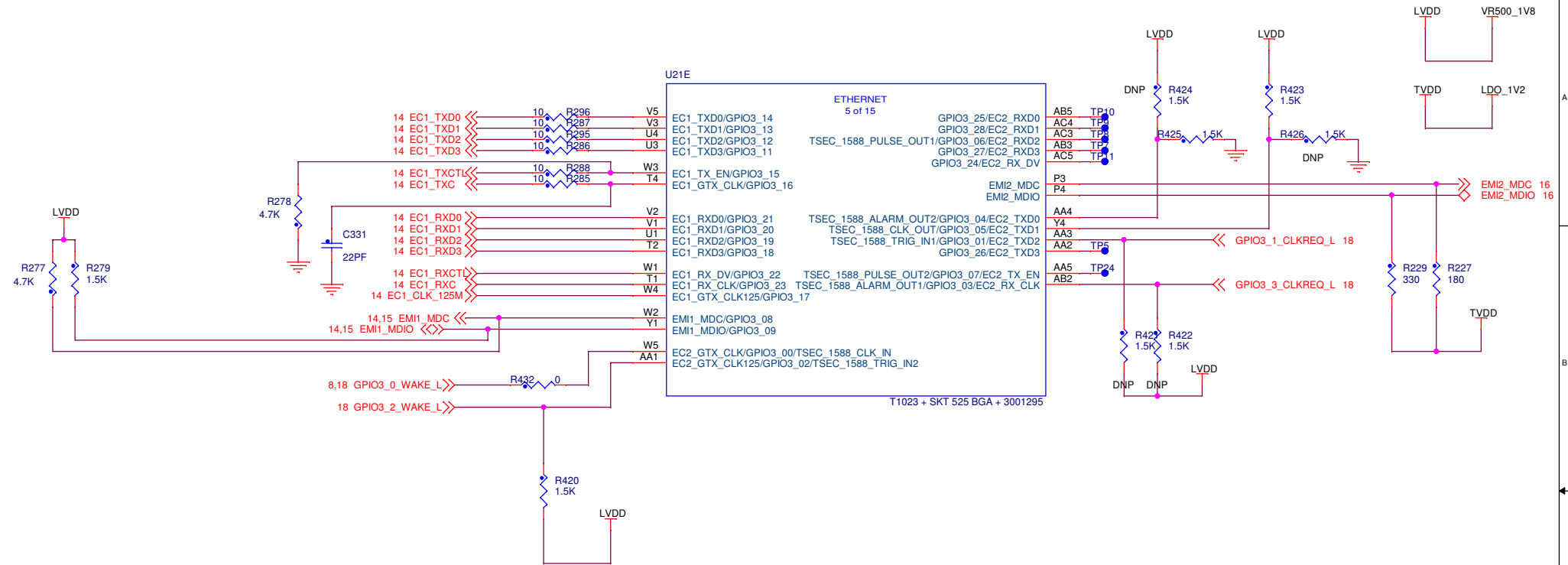







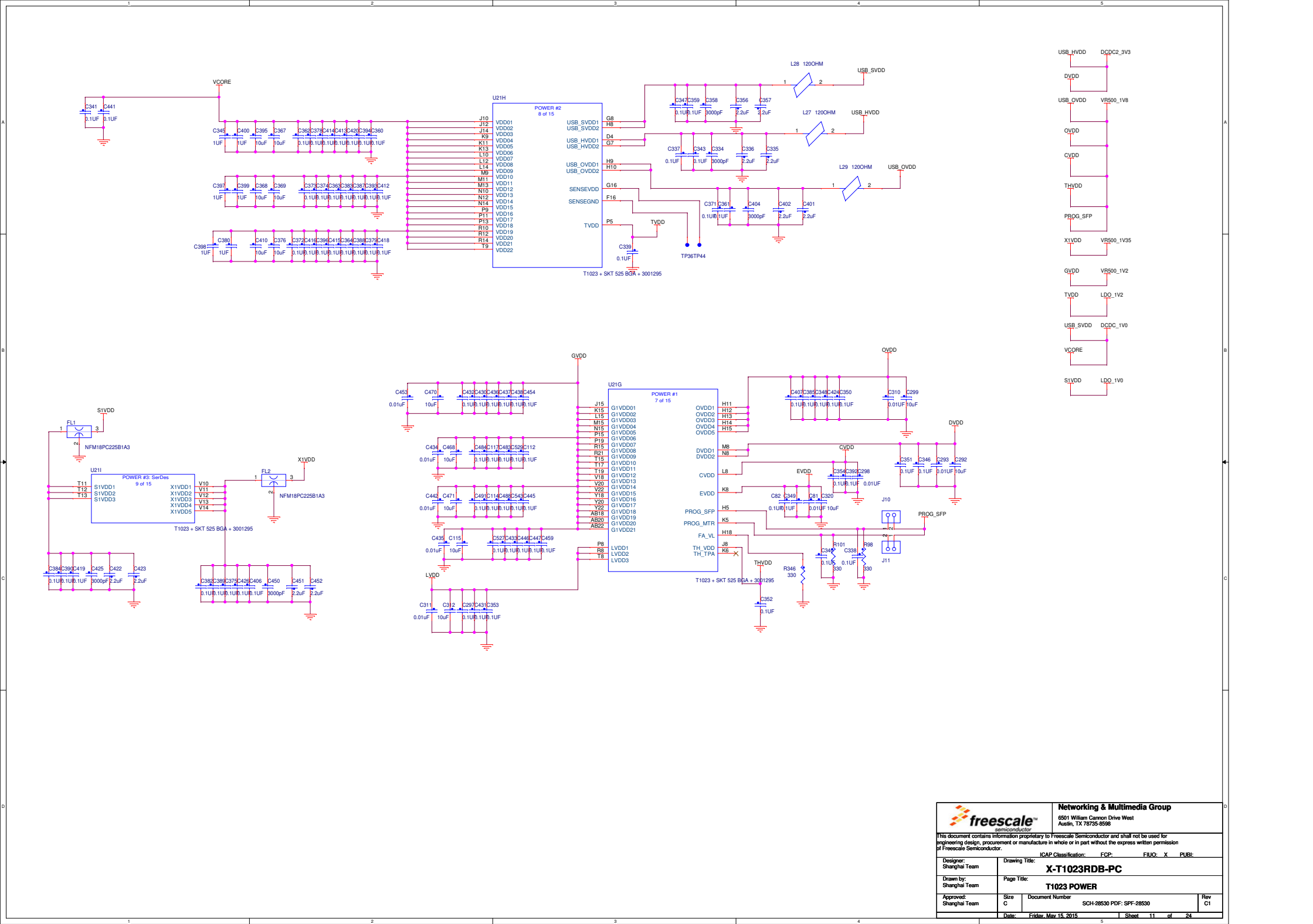


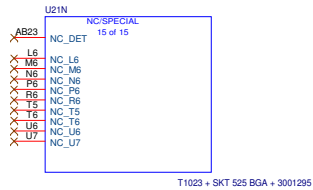




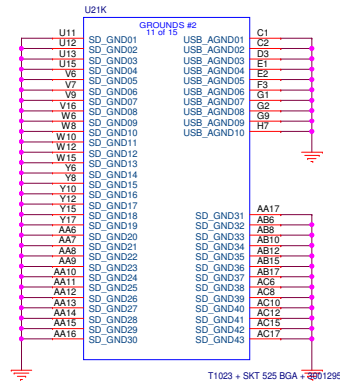
SerDes LANE Assignment
 LANE A MINI-PCIE
 LANE B 2.5G SGMII
 LANE C MINI-PCIE
 LANE D 1G SGMII

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Designer: Shanghai Team		Drawing Title: X-T1023RDB-PC	
Drawn by: Shanghai Team		Page Title: EC&SerDes	
Approved: Shanghai Team		Size B Document Number SCH-28530 PDF: SPF-28530 Rev C1	
Date: Friday, May 15, 2015		Sheet 9 of 24	

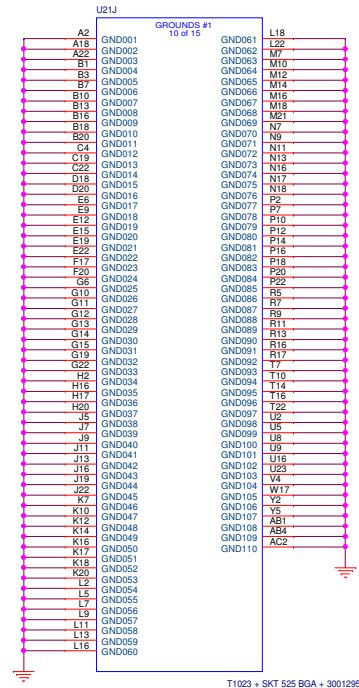




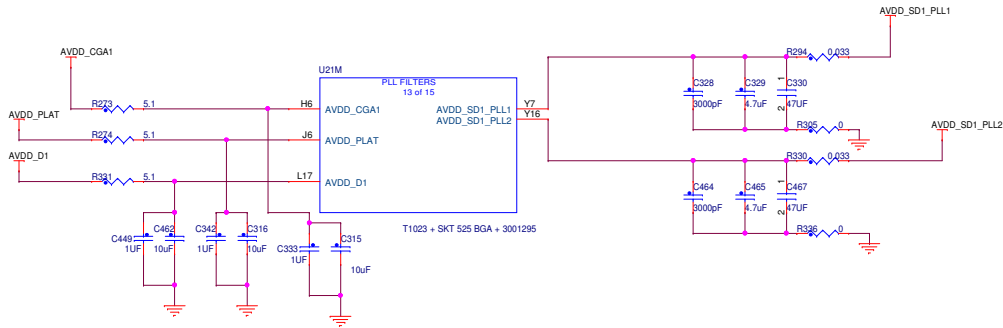
T1023 + SKT 525 BGA + 3001295

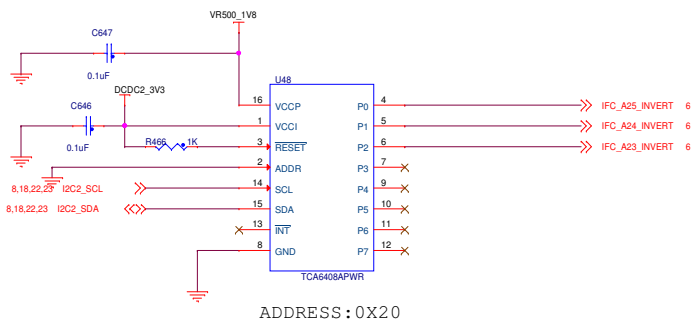
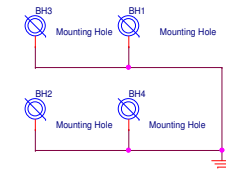
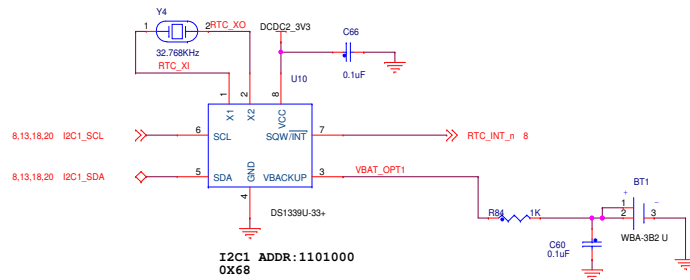
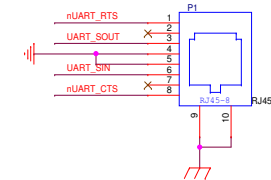
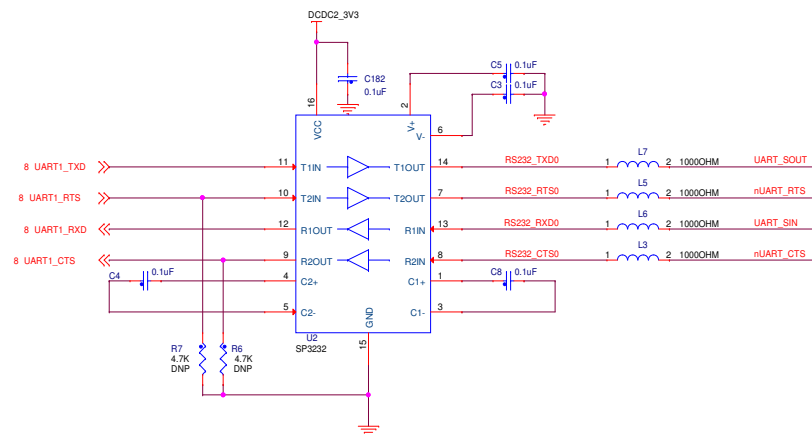
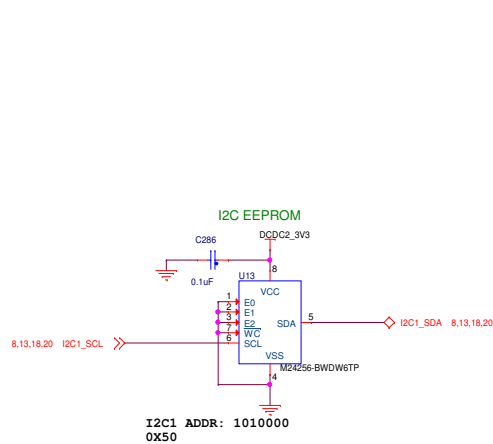



T1023 + SKT 525 BGA + 3001295

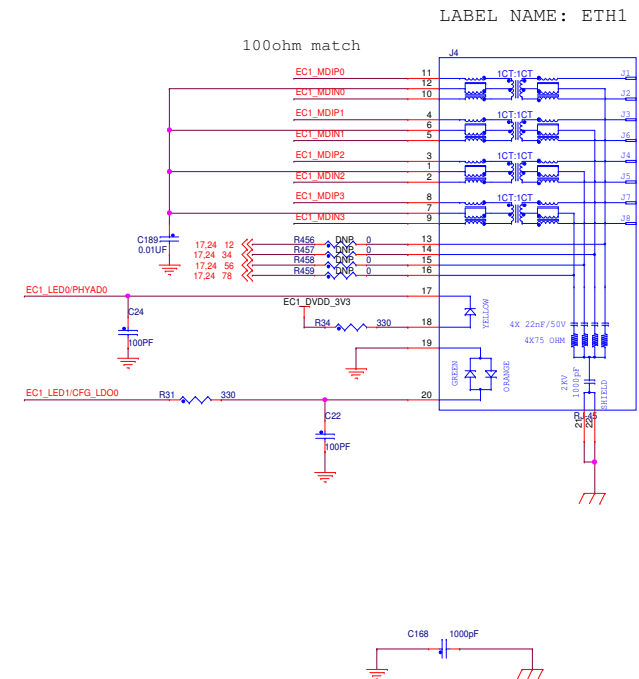
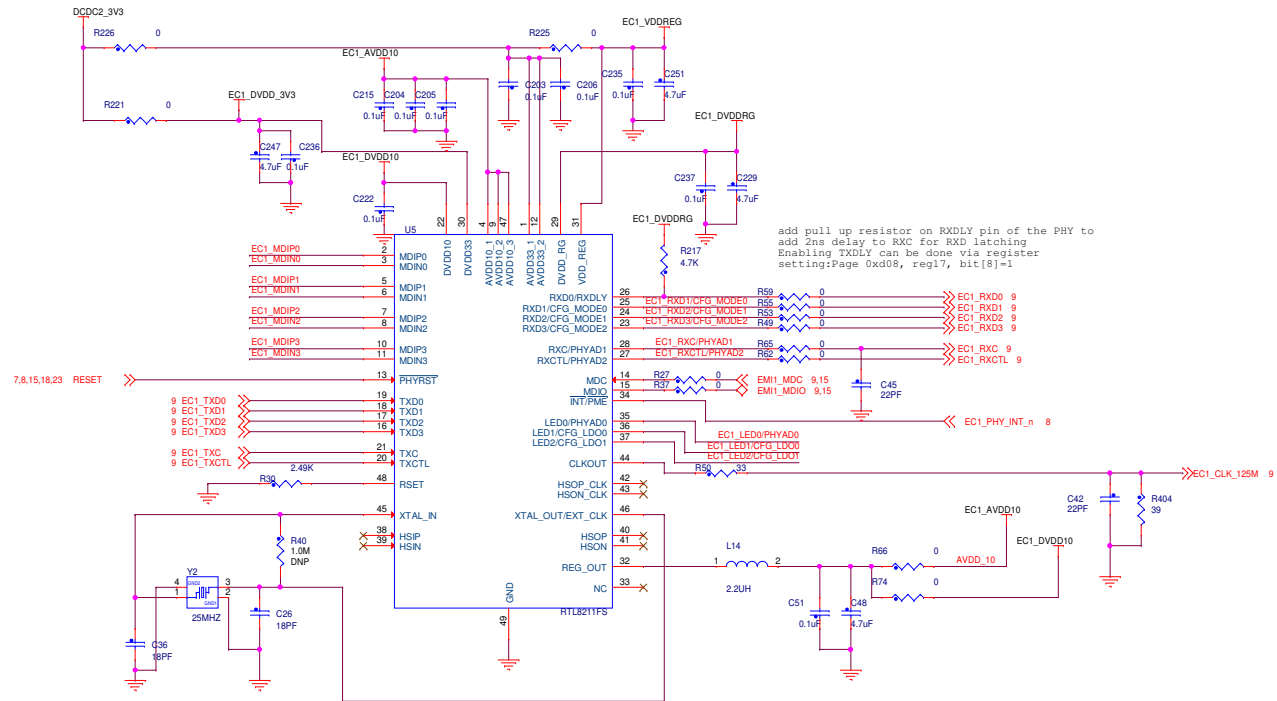


T1023 + SKT 525 BGA + 3001295



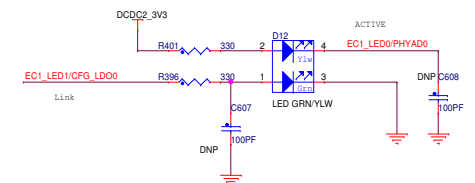
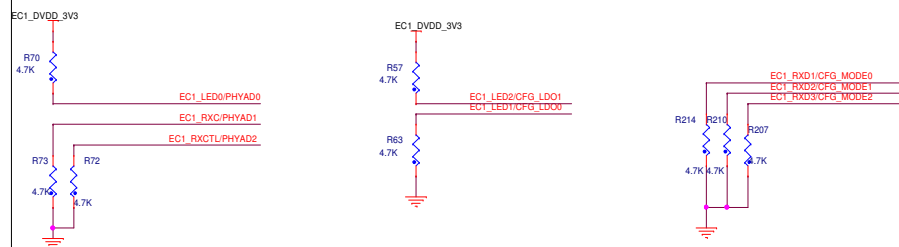


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Designer: Shanghai Team	Drawing Title: X-T1023RDB-PC		
Drawn by: Shanghai Team	Page Title: UART&I2C		
Approved: Shanghai Team	Size C	Document Number SCH-28530 PDF: SPF-28530	Rev C1
Date: Friday, May 15, 2015	Sheet 13 of 24		



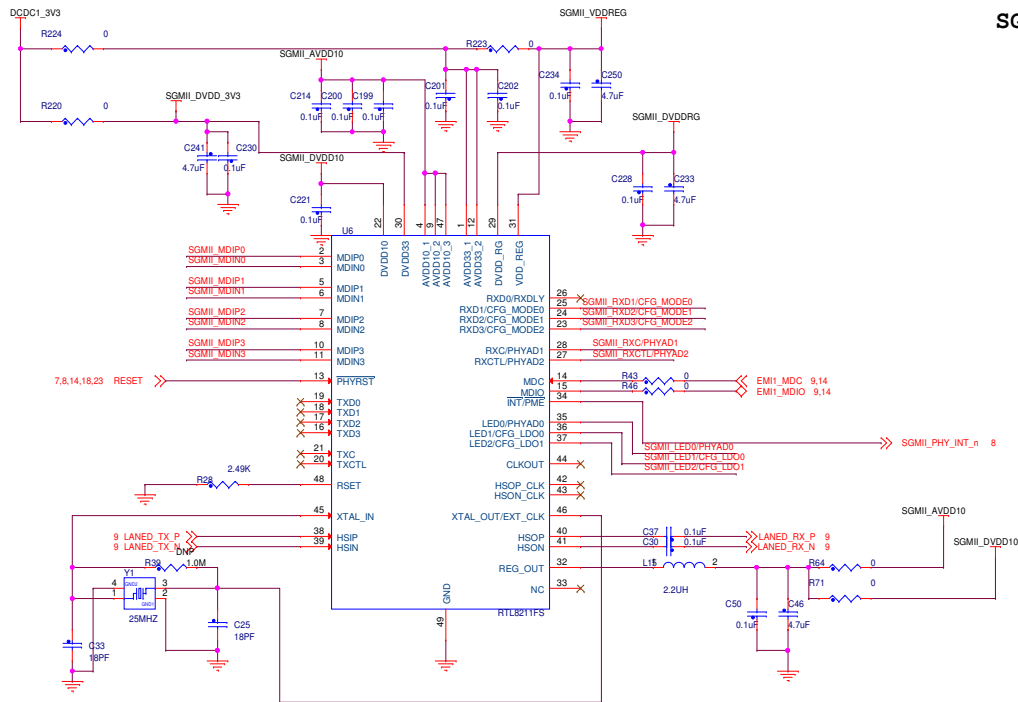
PHY CONFIGURATION:

```
LED1(Green): LINK      RGMII Power Source CFG_LDO[1:0]    UTP<=>RGMII
LED0(Yellow): ACTIVE   External 3.3V 2'b00              CFG_MODE[2:0] 3'b000
                       Internal 2.5V 2'b01
PHY Address PHYAD[2:0] Internal 1.8V 2'b10 (default)
1 3'b001              Internal 1.5V 2'b11
```



PHY 3V3 rise time should between 0.5ms~100ms
PHY internal LDO works after RESET deassert 50ms.

SGMII 1G

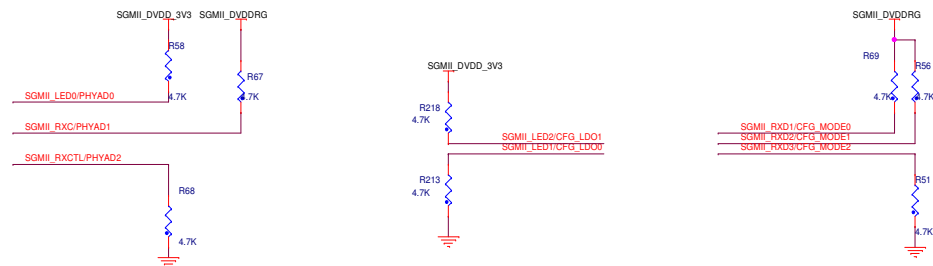


PHY CONFIGURATION:

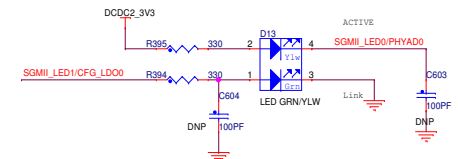
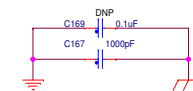
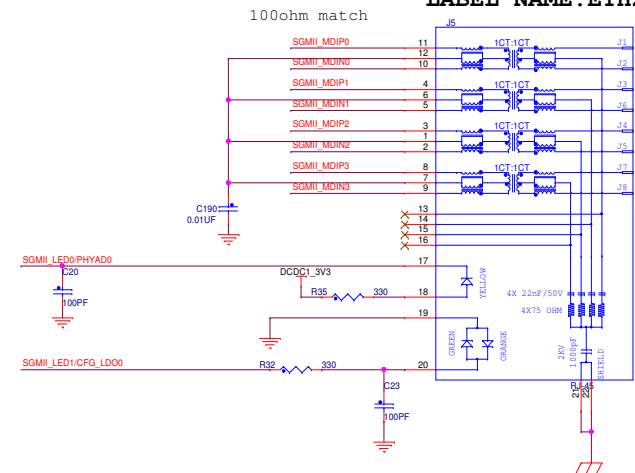
LED1(Green): LINK
LED0(Yellow): ACTIVE
PHY Address PHYAD[2:0]
3 3'b011


RGMII Power Source CFG_LDO[1:0]
External 3.3V 2'b00
Internal 2.5V 2'b01
Internal 1.8V 2'b10 (default)
Internal 1.5V 2'b11

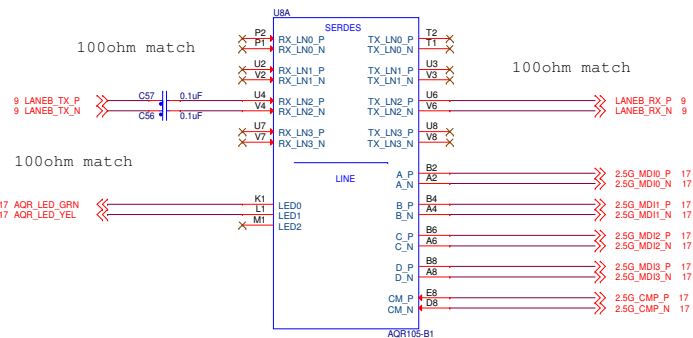
UTP<=>>SGMII
CFG_MODE[2:0] 3'b011



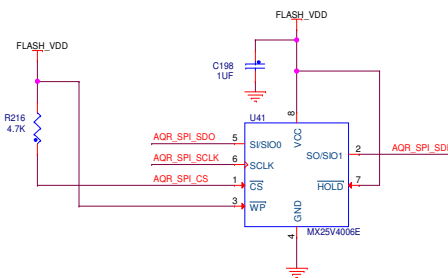
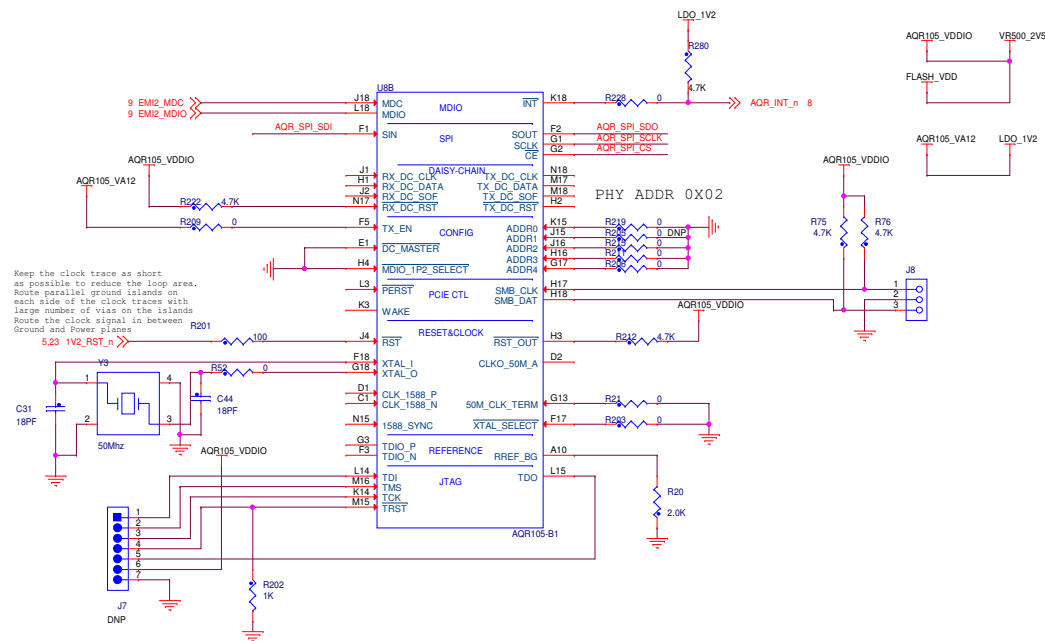
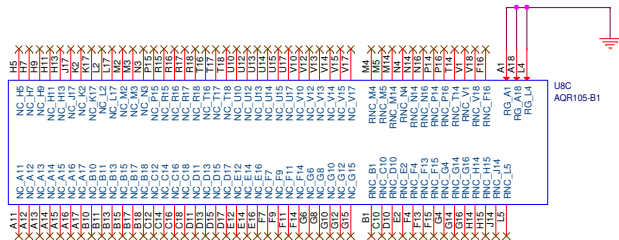
100ohm match LABEL NAME:ETH2



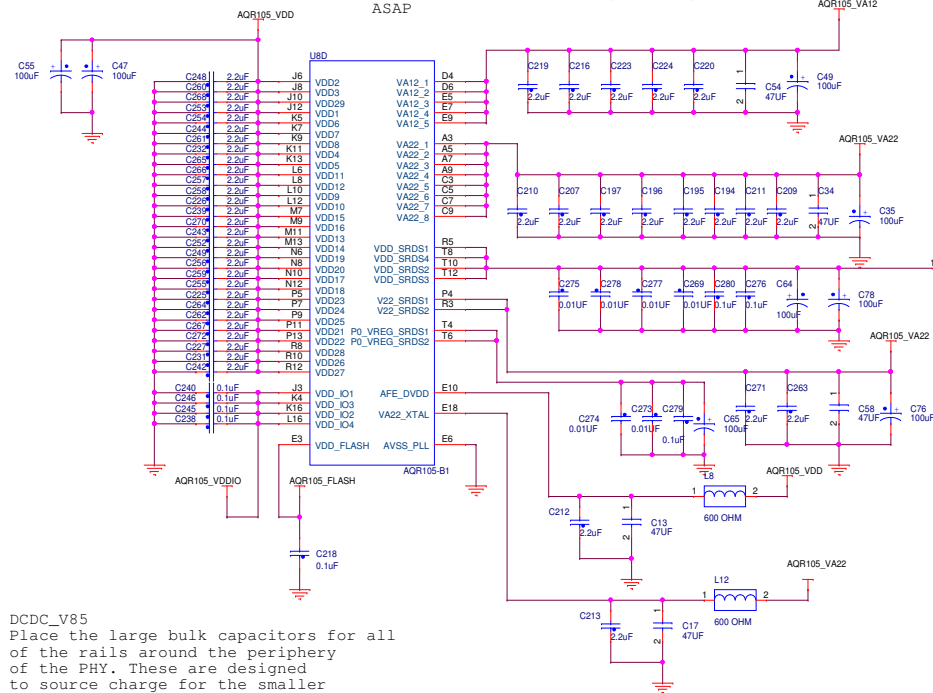
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Designer: Shanghai Team	Drawing Title:	X-T1023RDB-PC	
Drawn by: Shanghai Team	Page Title:	SGMII PHY 1G	
Approved: Shanghai Team	Size C	Document Number SCH-28530 PDF: SPF-28530	Rev C1
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LANE 2 WORKS ON 2.5G SGMII MODE
PHY ADDRESS IS 0X02,EMI2
PHY INTERRUPT TO IRQ3

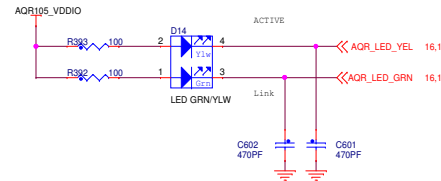
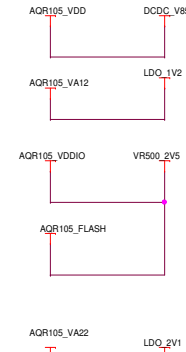
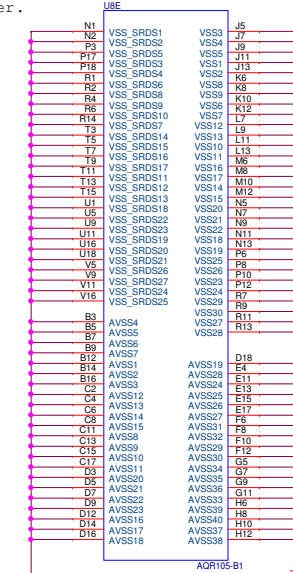


All the Caps should be placed under
silicon and close to respective pin
ASAP

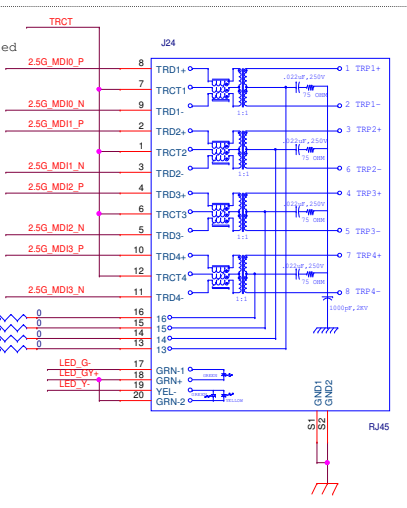
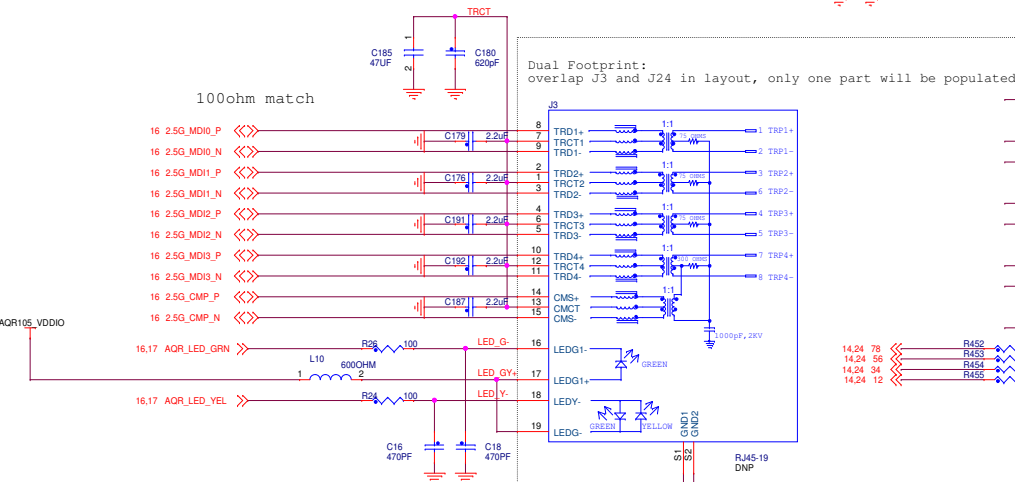
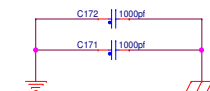



DCDC_V85
Place the large bulk capacitors for all
of the rails around the periphery
of the PHY. These are designed
to source charge for the smaller
decoupling capacitors and to
smooth out ripple from the buck
conversion process in the power regulators.
Run the VDD rail and Ground on internal planes
Use via-in-pad technology to
maximize available area for decoupling
capacitance.
Use epoxy-filled vias to prevent
wicking during the reflow process
Use 15 mils traces and 12 mils vias
for the power supply breakouts.

The 1.2V and 2.1V supplies are primarily analog supplies, and as such, all of the different analog power supply domains must be kept very quiet and separated via ferrite beads. These analog supplies must be kept away from the VDD and digital grounds to prevent capacitive coupling of noise into the analog circuitry. We recommend designing the PCB layer stack-up with ground shield planes above and below the analog supplies layer. The 2.1V rail for the 28nm PHYs requires a clean supply to ensure systems pass FCC

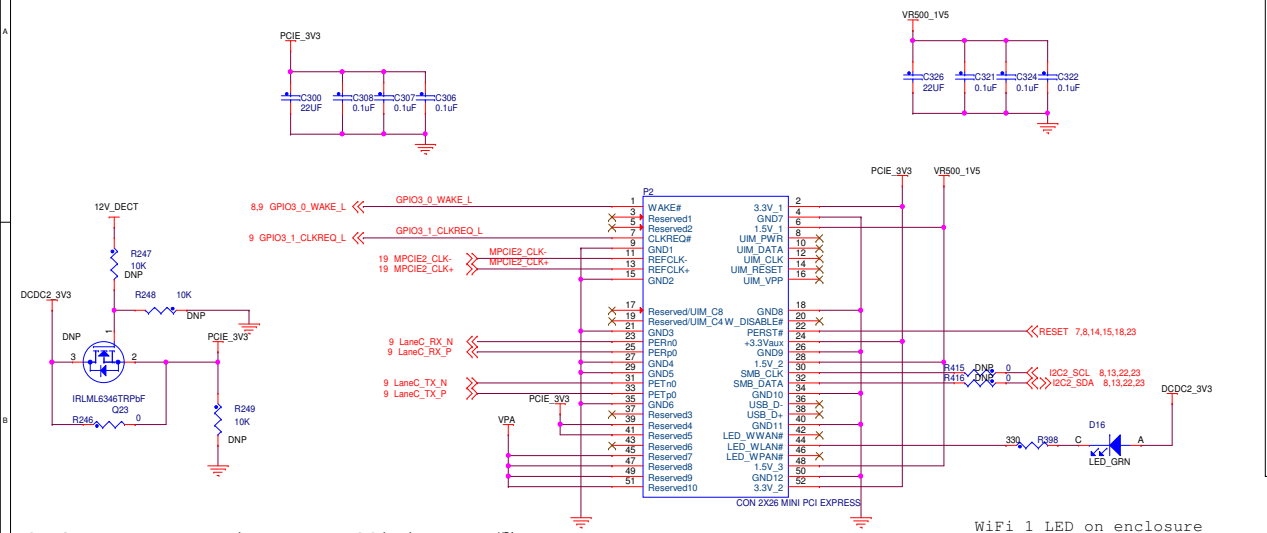


When routing LED signals to the cable connector or front panel, avoid running the traces too close in parallel with the XFI or BASE-T MDI signals on the same or adjacent layer. The separation must be at least 10x of the MDI signal trace width. If the LED signals need to run near the MDI traces, rout them on another layer that is separated by at least one power or ground layer.

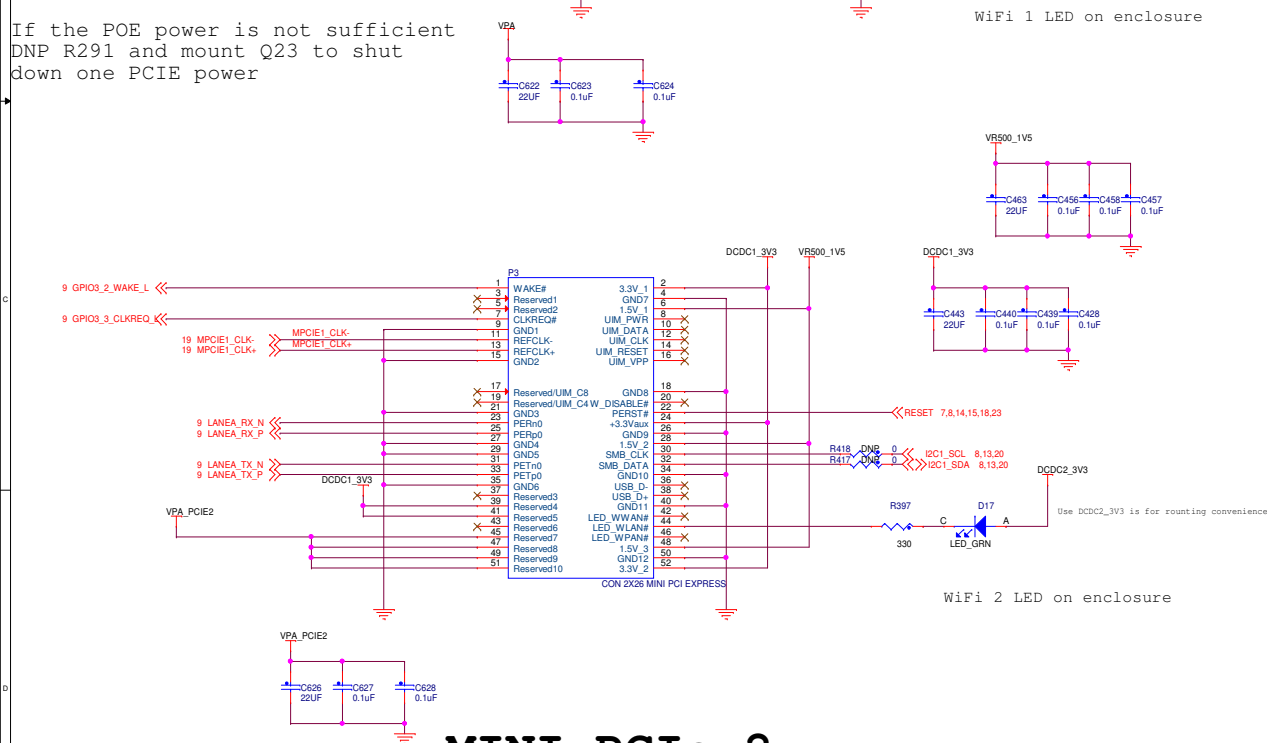


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Designer: Shanghai Team	Drawing Title: X-T1023RDB-PC		
Drawn by: Shanghai Team	Price Title: AQR105 POWER		
Approved: Shanghai Team	Size C	Document Number SCH-28530 PDF: SPF-28530	Rev C1
Date: Friday, May 15, 2015		Sheet 17 of 24	

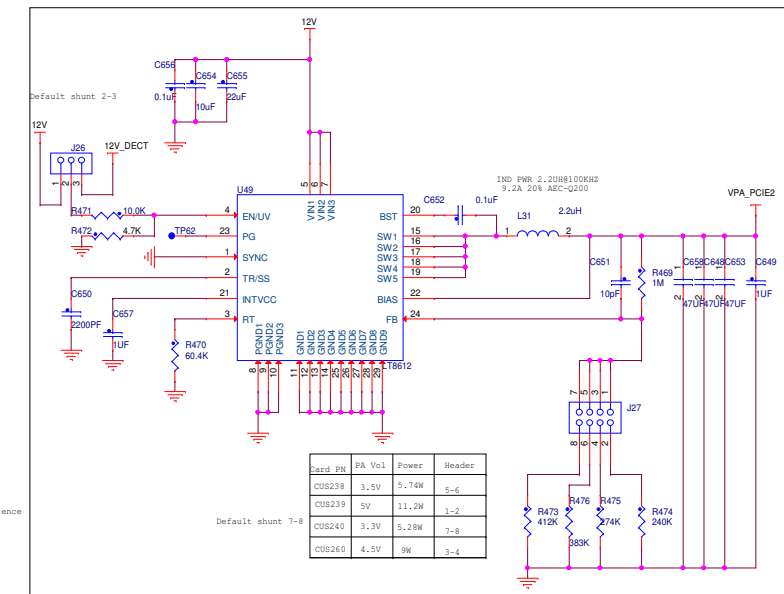
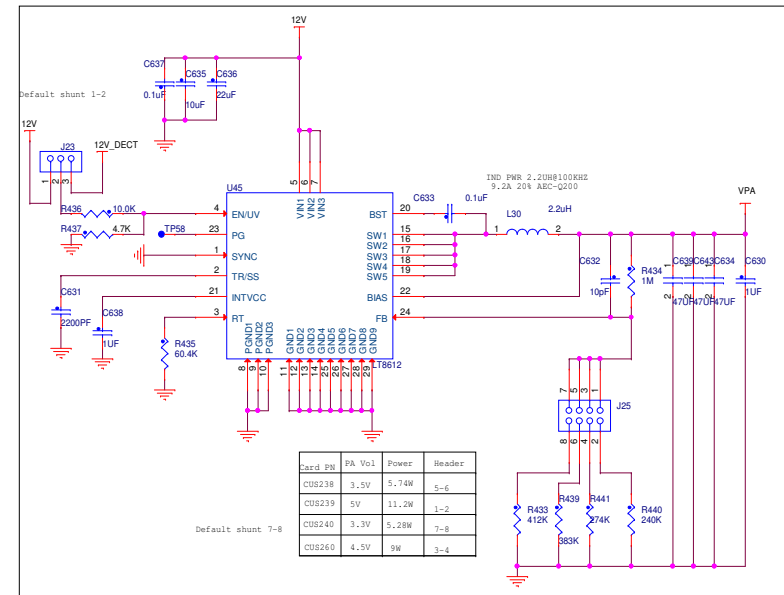
MINI-PCie 1 WiFi 1 LED on Enclosure



If the POE power is not sufficient
DNP R291 and mount Q23 to shut
down one PCIe power



MINI-PCie 2 If only one card, should be inserted on PCIe 2 slot



Parameter	Value	Units
Device PC Address	Primary 0xD4	
XTAL Load Capacitor	8.0	pF
SD/OE Pin Function	Output Enable	
SD/OE Polarity	Positive	

Frequency Overview

Parameter	Configuration 1	Configuration 2	Configuration 3	Configuration 4	Units
Input	25	25			MHz
Output 0	25	25			MHz
Output 1	100	100			MHz
Output 2	100	100			MHz
Output 3	125	125			MHz
Output 4	100	100			MHz

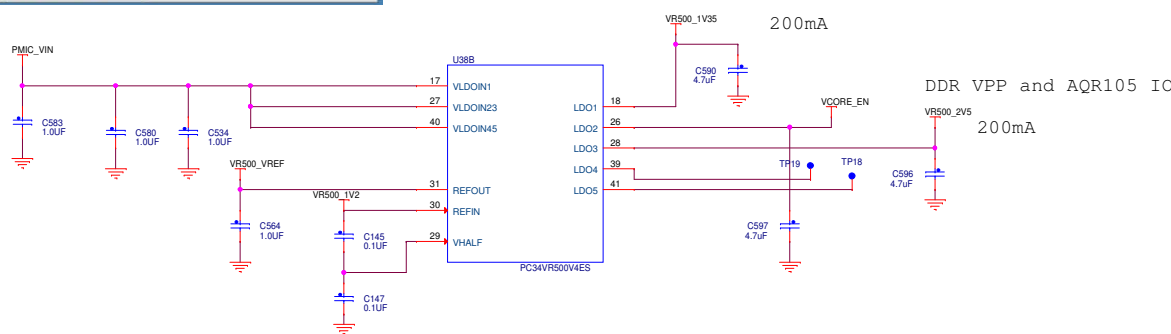
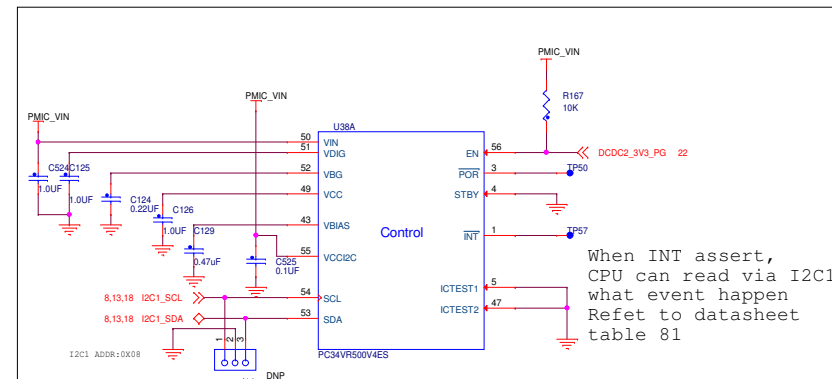
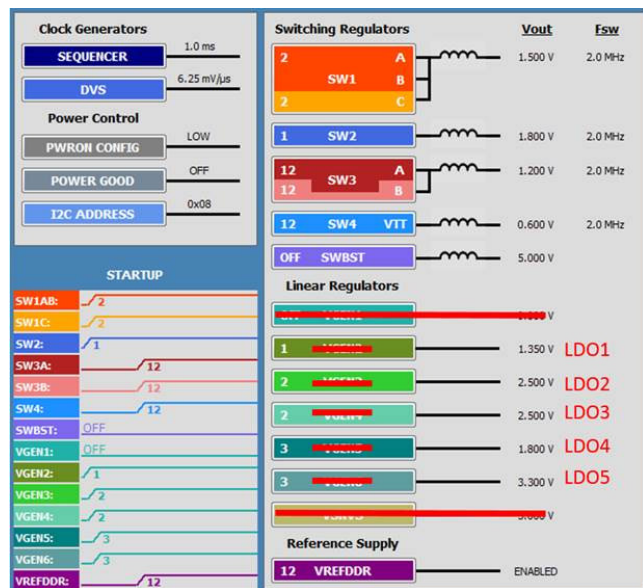
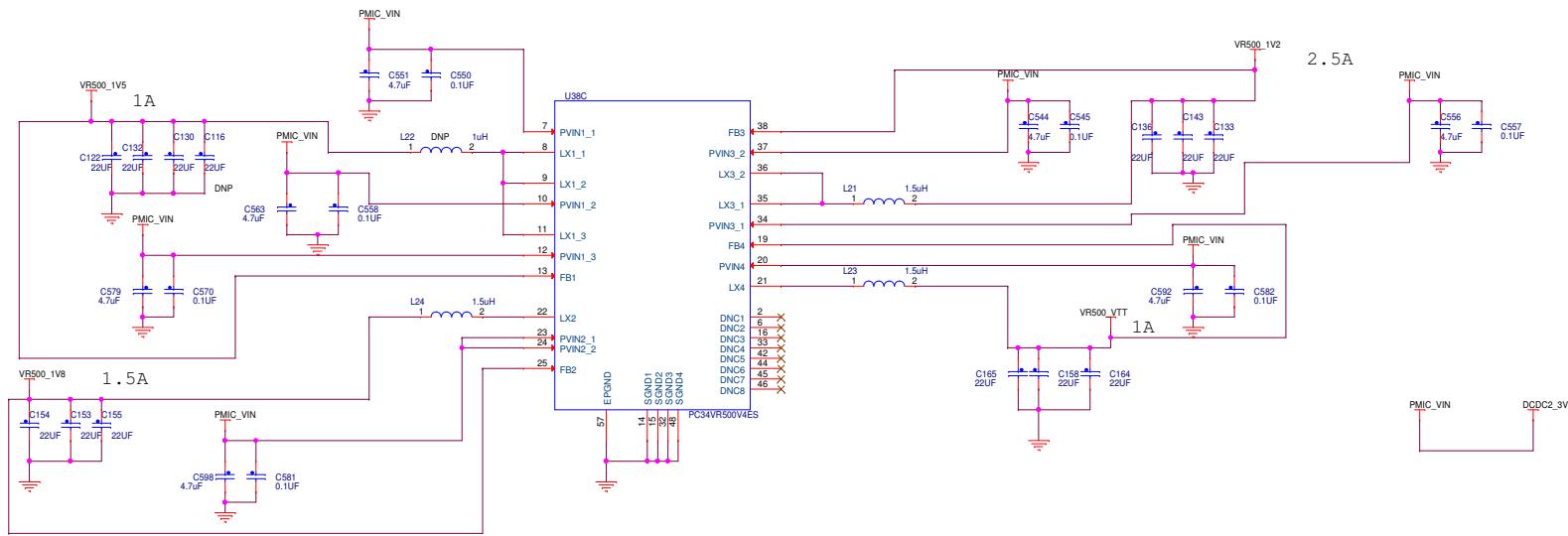
Configuration 1 Parameters: SEL[1:0] = 00

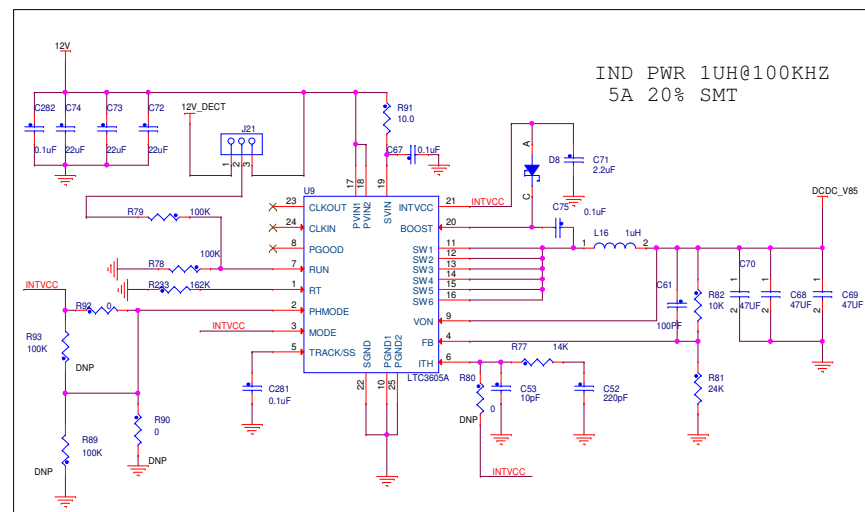
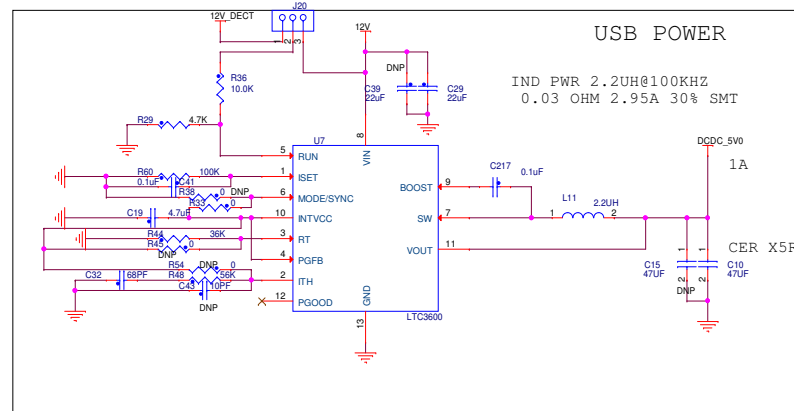
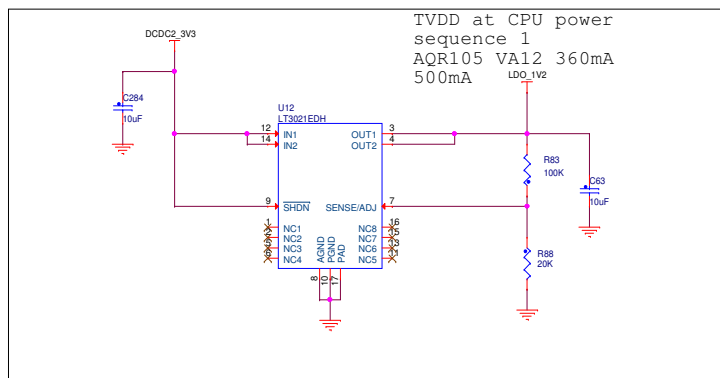
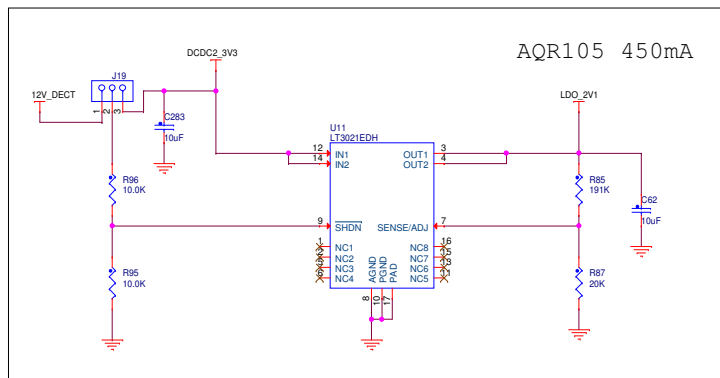
Parameter	Output 0	Output 1	Output 2	Output 3	Output 4	Units
Input Frequency	25	25	25	25	25	MHz
Default Output Status	On	On	On	On	On	
VDDO Voltage	3.3	3.3	3.3	3.3	3.3	V
Output Type	HCSL	HCSL	HCSL	HCSL	HCSL	
Frequency	25	100	100	125	100	MHz
Spread Spectrum	Off	Off	Off	Off	Off	
Spread Spectrum Modulation						%
Slew Rate						
Phase Shift		0	0	0	0	Degrees

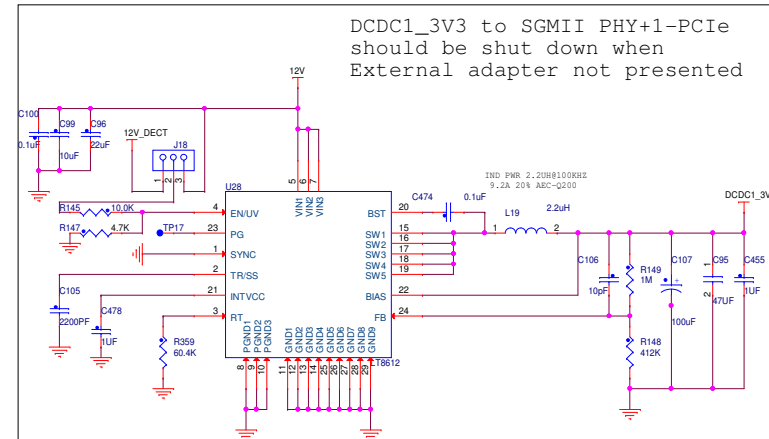
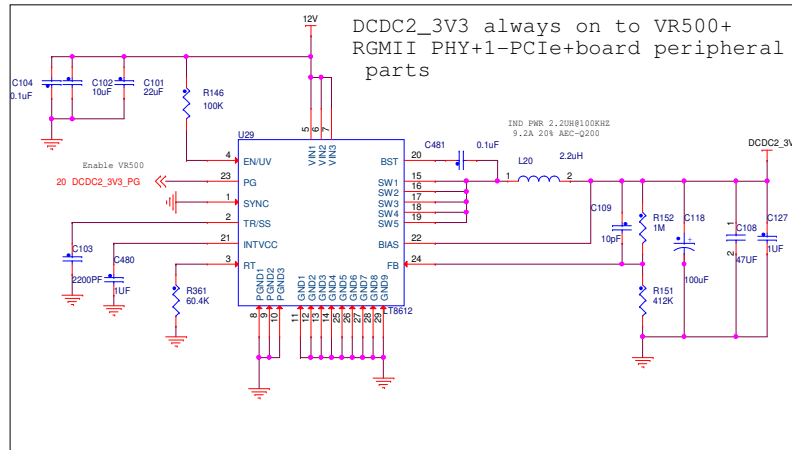
Configuration 2 Parameters: SEL[1:0] = 01

Parameter	Output 0	Output 1	Output 2	Output 3	Output 4	Units
Input Frequency	25	25	25	25	25	MHz
Default Output Status	On	On	On	On	On	
VDDO Voltage	3.3	3.3	3.3	3.3	3.3	V
Output Type	LVDS	HCSL	HCSL	HCSL	HCSL	
Frequency	25	100	100	125	100	MHz
Spread Spectrum		Off	Off	Off	Off	
Spread Spectrum Modulation						%
Slew Rate						
Phase Shift		0	0	0	0	Degrees

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Designer: Shanghai Team	Drawing Title: X-T1023RDB-PC		
Drawn by: Shanghai Team	Page Title: CLOCK		
Approved: Shanghai Team	Size C	Document Number SCH-28530 PDF: SPF-28530	Rev C1
	Date: Friday, May 15, 2015	Sheet 19	of 24



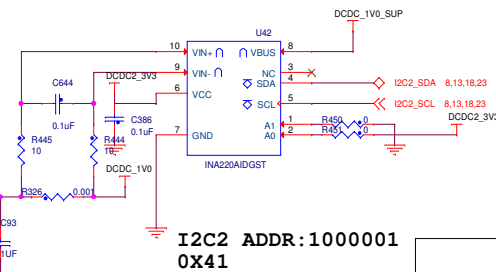
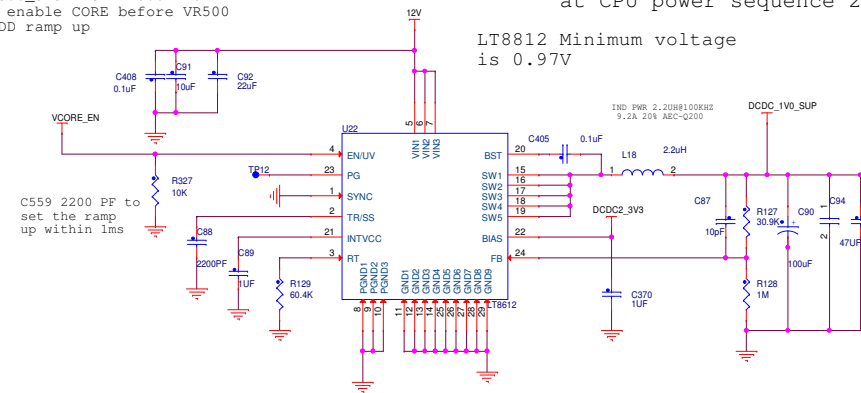




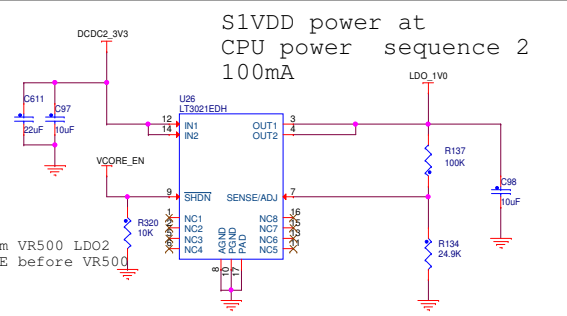
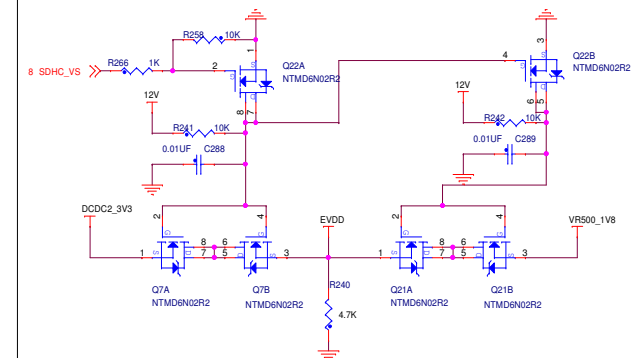
VR500_3V3 from VR500 LDO2 to enable CORE before VR500 GVDD ramp up

Always ON to CPU Core at CPU power sequence 2

LT8812 Minimum voltage is 0.97V

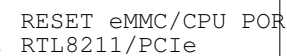
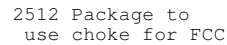
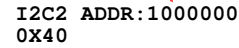



SDHC_VS set 0 to enable 3.3V SD/MMC Set 1 to enable 1.8V SD/MMC



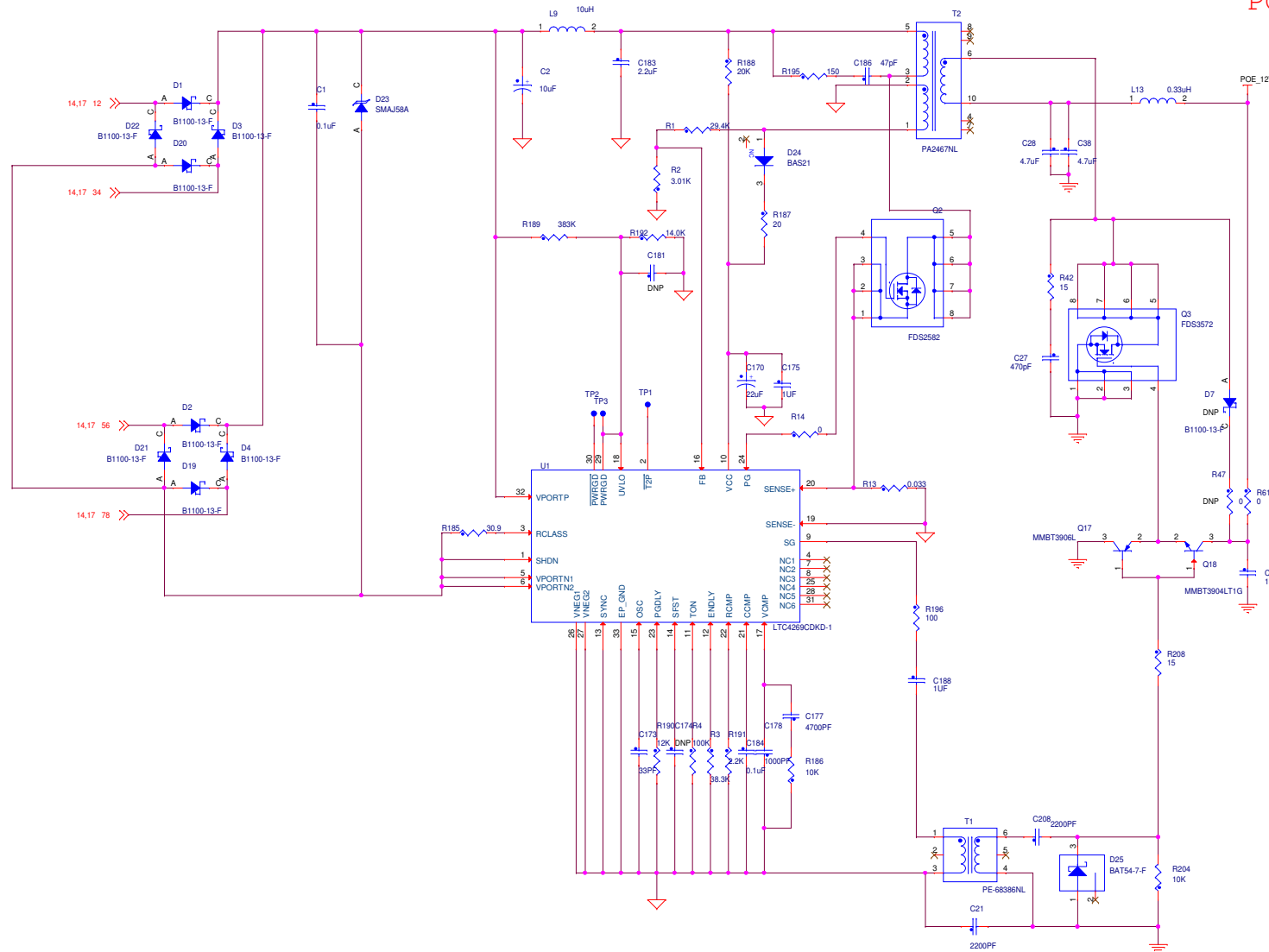
VR500_3V3 from VR500 LDO2 to enable CORE before VR500 GVDD ramp up

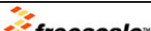
NOTES: External Power adapter set higher priority than POE, so only external power adapter is not presented, then PMOS Q15 is permitted to conduct the POE power



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Drawn by: Shanghai Team		Page Title: 12V POWER&RESET	
Approved: Shanghai Team		Size C	Document Number SCH-28530 PDF: SPF-28530
Date:		Friday, May 15, 2015	Sheet 99 of 94
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POE 12V/2.1A, 802.3.at



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		ICAP Classification: FCP: F100: X PUB: B	
Designer: Shanghai Team	Drawing Title: X-T1023RDB-PC		
Drawn by: Shanghai Team	Page Title: PoE		
Approved: Shanghai Team	Size C	Document Number SCH-28530 PDF: SPF-28530	Rev C1
Date: Friday, May 15, 2015	Sheet 24	of 24	