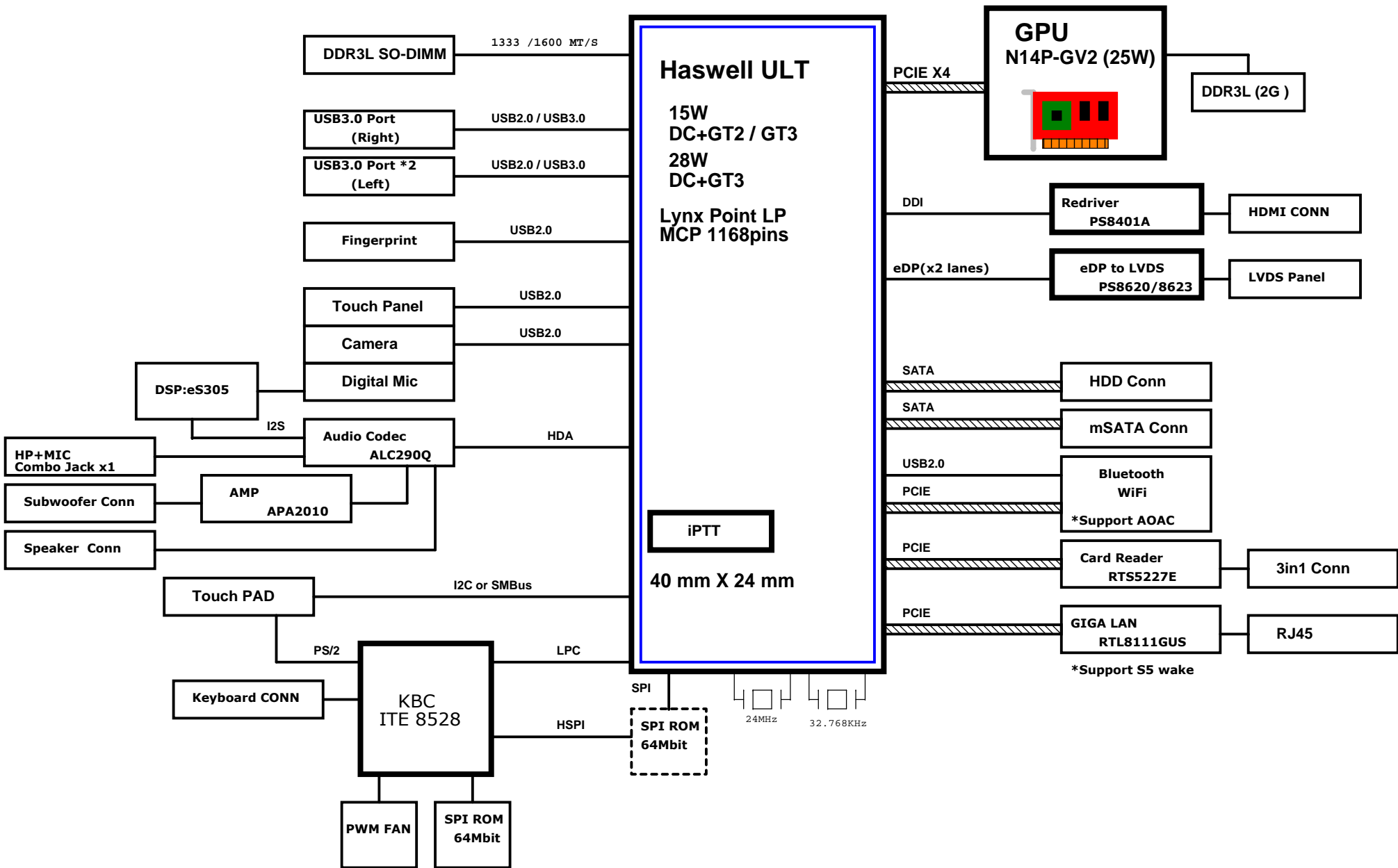


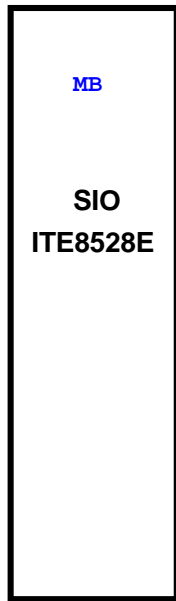
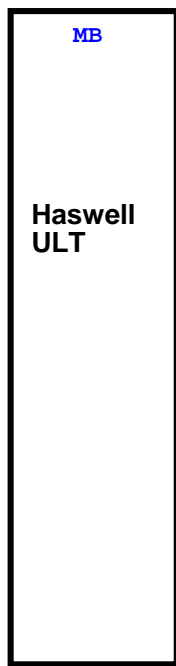
# JW8B/C BLOCK DIAGRAM



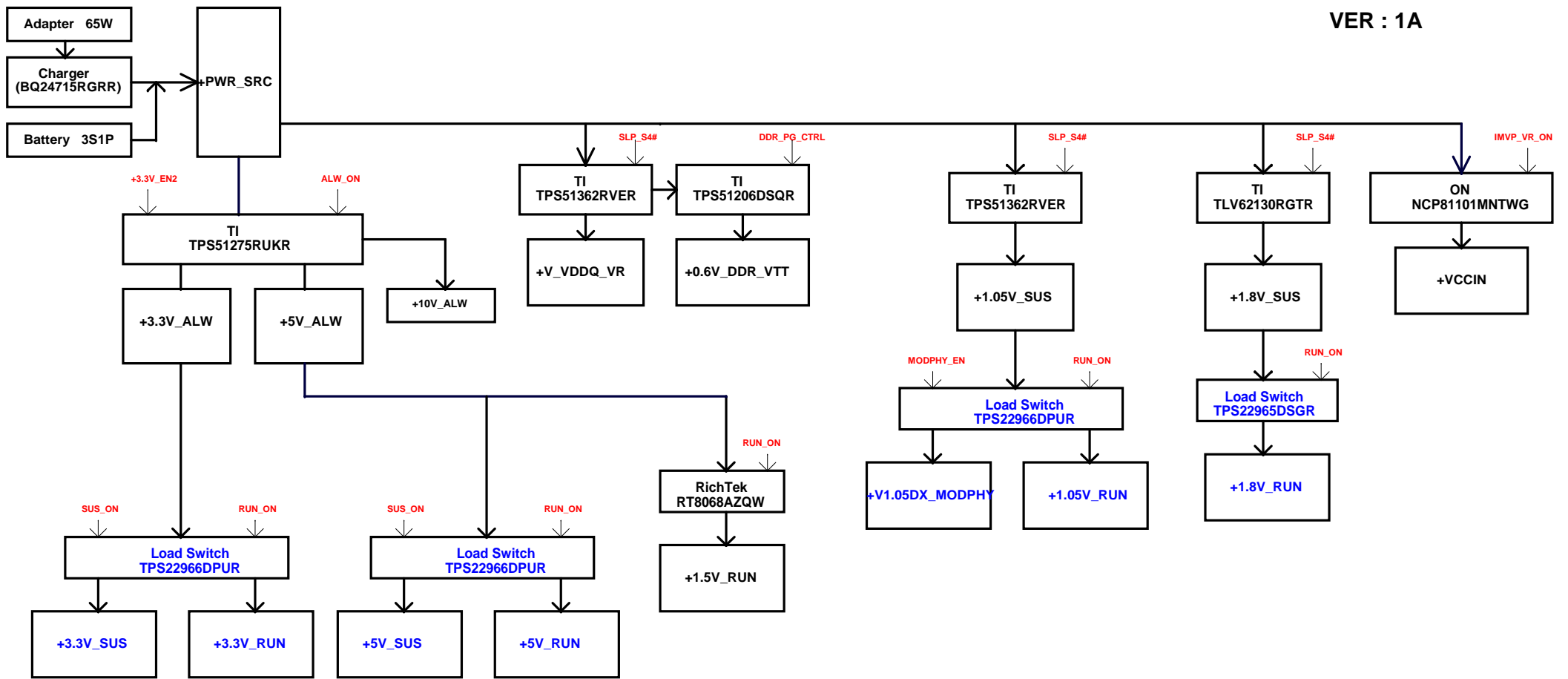
HSIO Port	USB3.0	PCIE	SATA
1	USB3.0_1 CN6		
2	USB3.0_2 CN4		
3	USB3.0_3 CN5	PCIE1 X	
4	USB3.0_4 X	PCIE2 Card Reader	
5		PCIE3 GIGA LAN	
6		PCIE4 WIFI	
7		PCIE5 GPU 4X	
8		PCIE5 GPU 4X	
9		PCIE5 GPU 4X	
10		PCIE5 GPU 4X	
11		PCIE6 X	SATA3 X
12		PCIE6 X	SATA2 mSATA
13		PCIE6 X	SATA1 HDD
14		PCIE6 X	SATA0 X

PCIE CLK
CLK0 X
CLK1 Card Reader
CLK2 GIGA LAN
CLK3 WIFI
CLK4 GPU 4X
CLK5 X

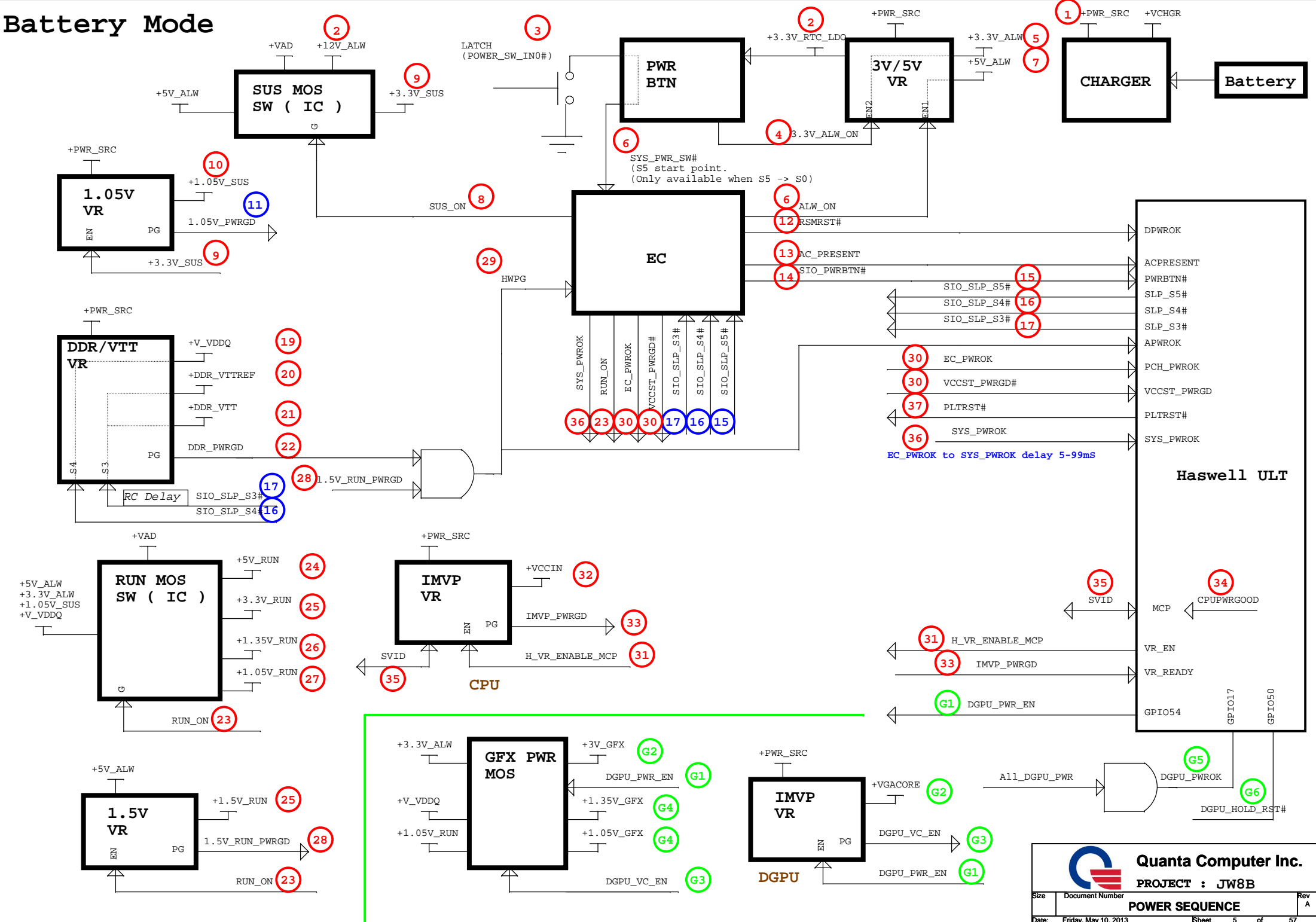
USB2.0
USB2.0_0 CN4
USB2.0_1 CN6
USB2.0_2 CN5
USB2.0_3 Finger Print
USB2.0_4 Camera
USB2.0_5 eTP
USB2.0_6 Blue Tooth
USB2.0_7 Touch Screen



	Function	IC	Address
SMBUS	Thermal IC	NCT7718	1001100xb (98h)
	Thermal IC	G781-1P8	1001101xb (9Ah)
	Charge IC	OZ8618NL	00010010 (0x12h)
	Battery	Battery	00010110 (0x16h)
	GPU	N14P-GV2	10011110 (0x9Eh)

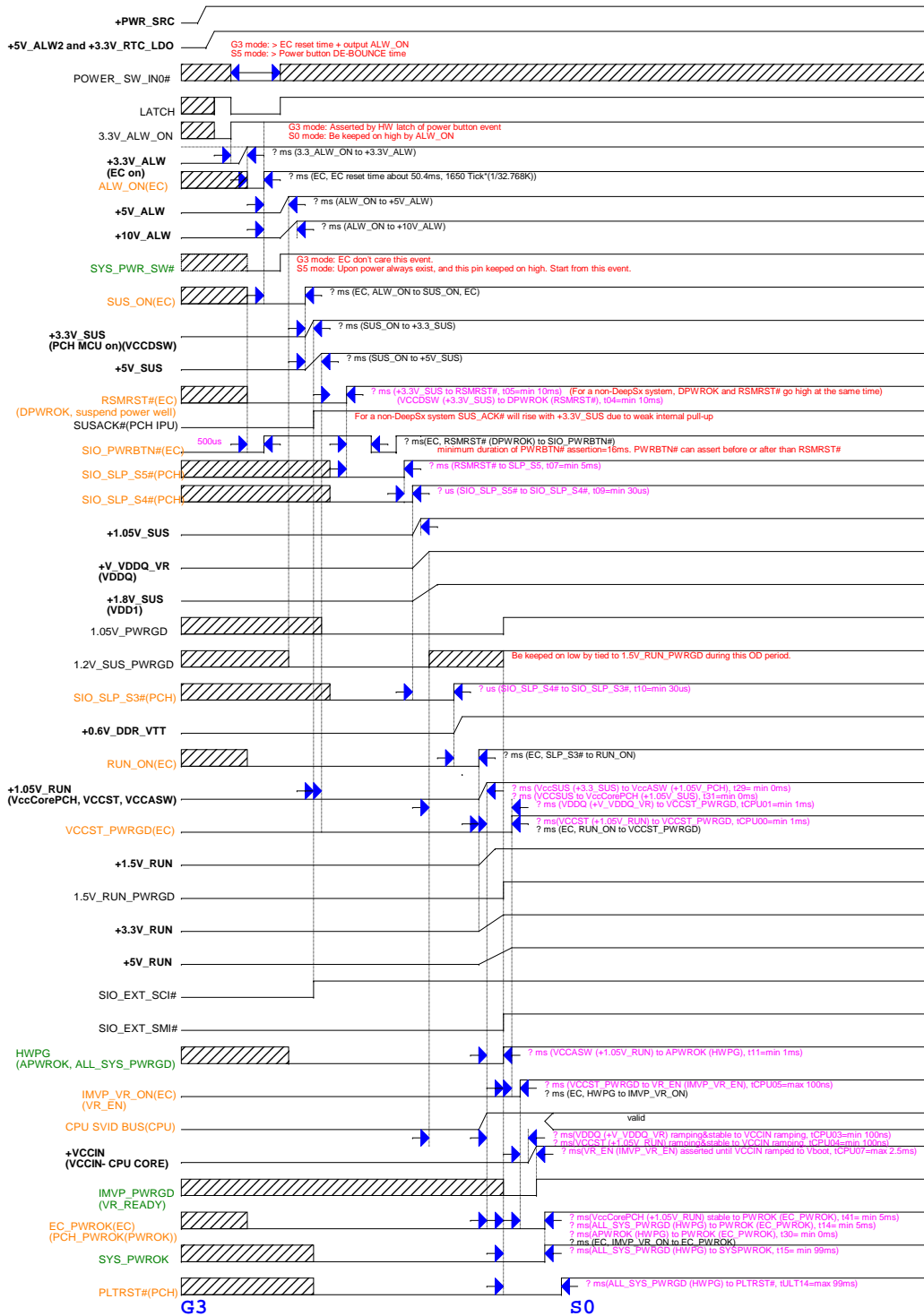


# Battery Mode

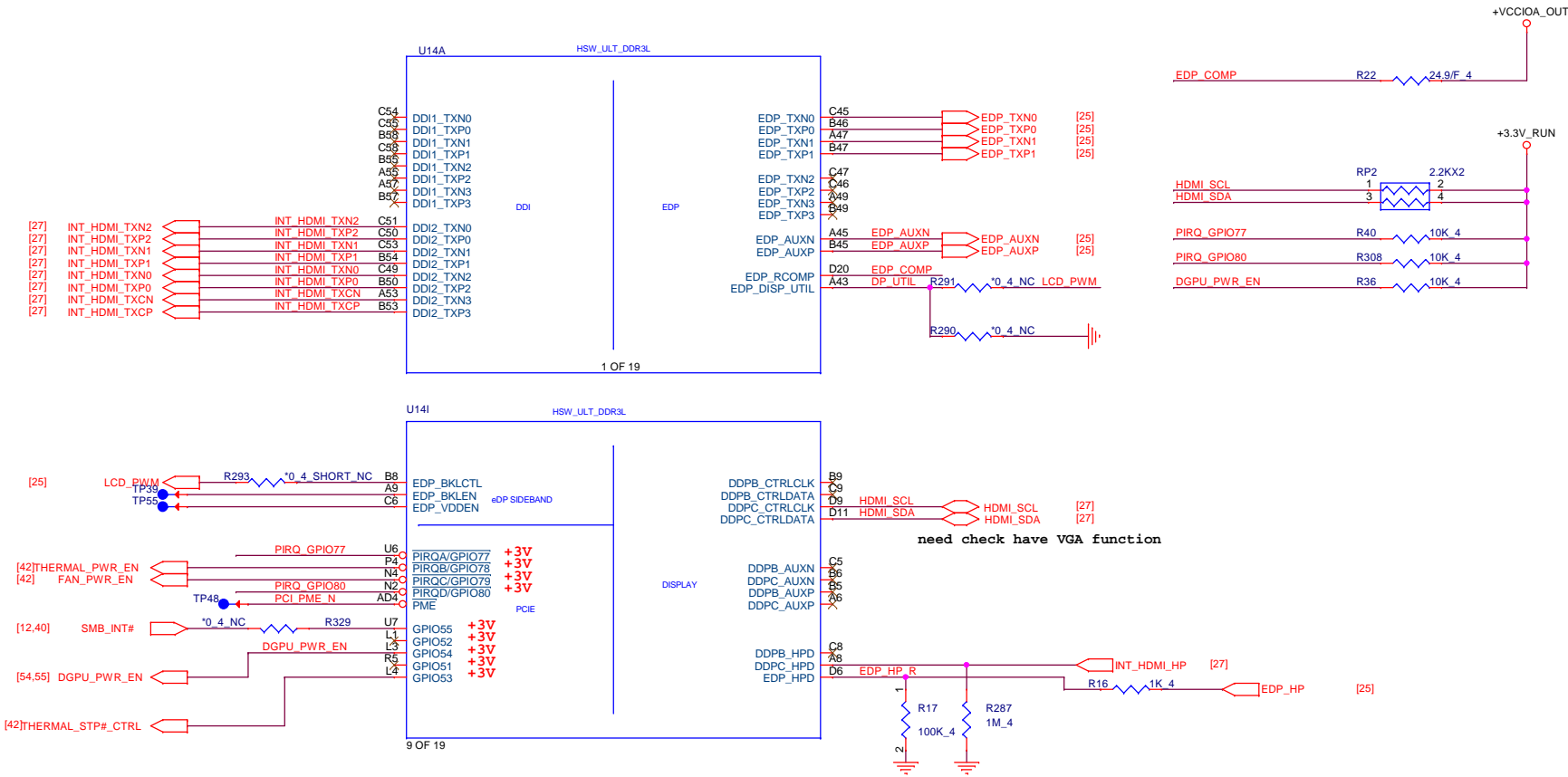


# Power Sequence (G3 to S0)

Shark Bay ULT PSS, 490828, Rev1.1



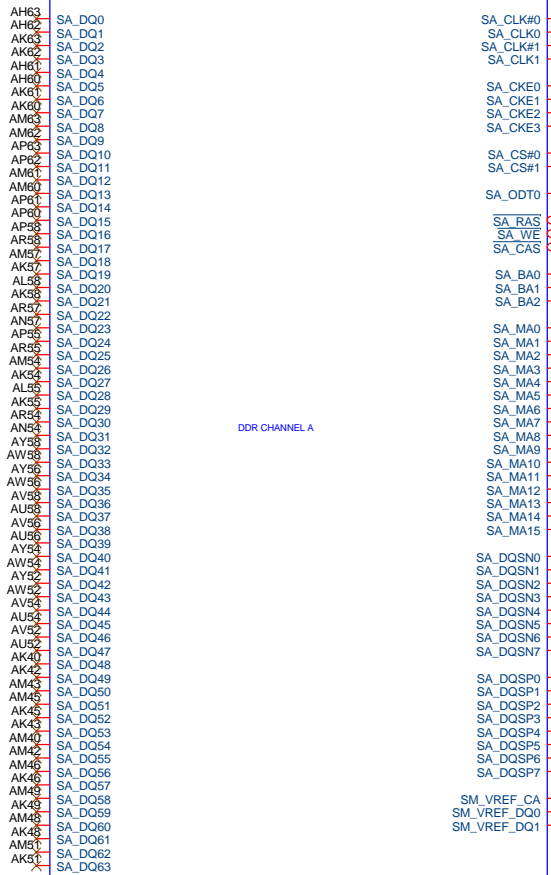
# Haswell ULT (DISPLAY)



# Haswell ULT (DDR3L)

U14C

HSW\_ULT\_DDR3L



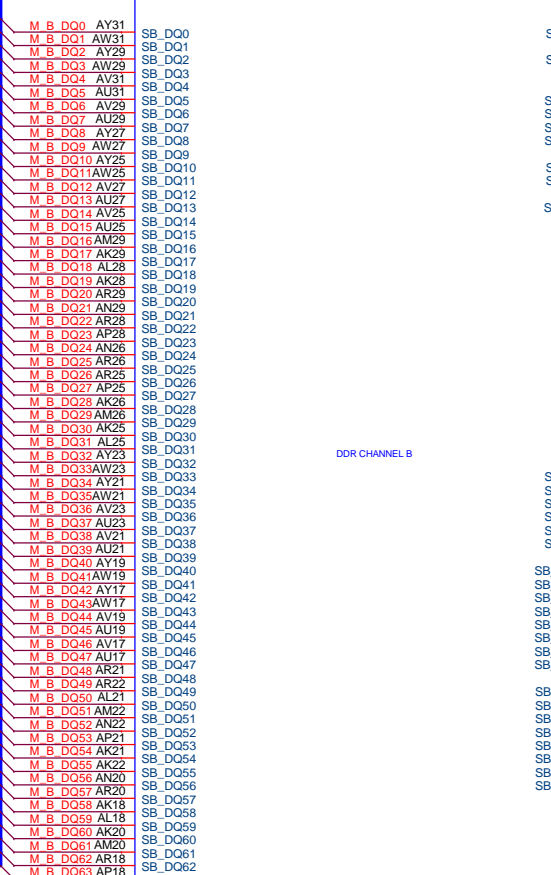
DDR CHANNEL A

3 OF 19

[19] M\_B\_DQ[63..0]

U14D

HSW\_ULT\_DDR3L



DDR CHANNEL B

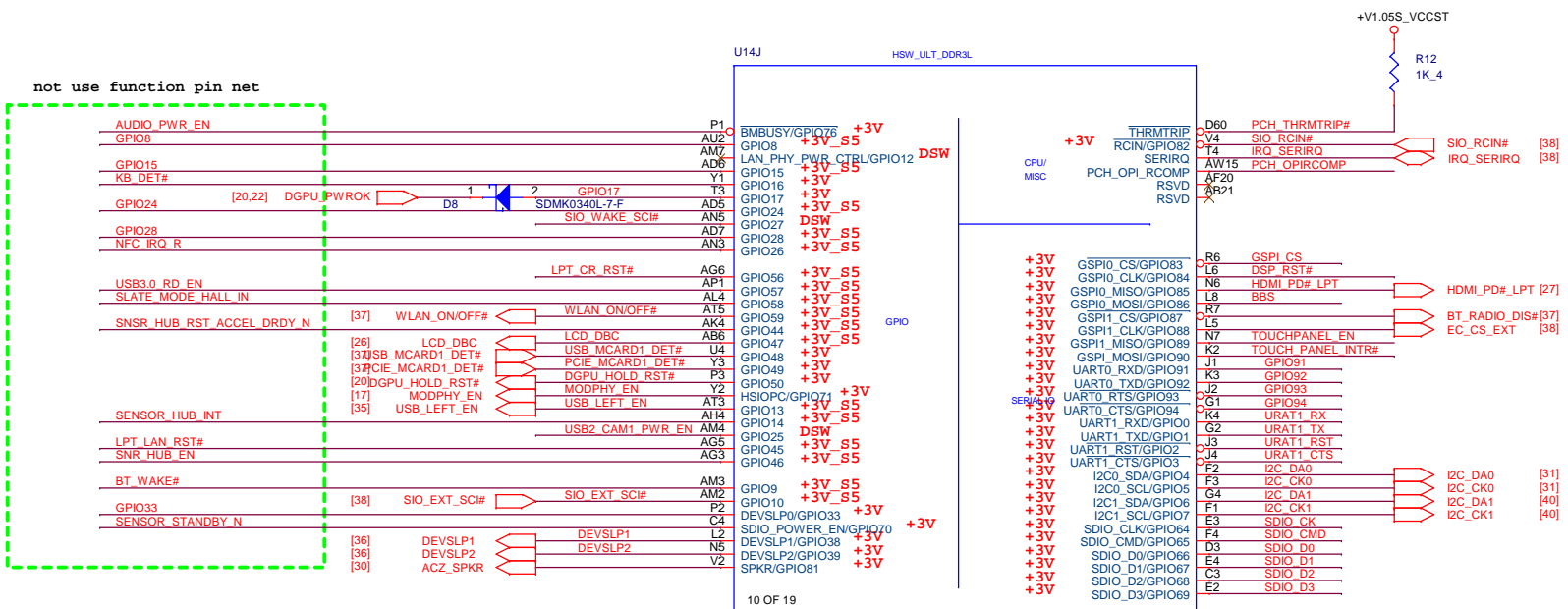
4 OF 19

SM\_VREF\_CA [19]  
 SM\_VREF\_DQ0 [19]  
 SM\_VREF\_DQ1 [19]  
**Check if not used. NC ?**  
 12/25 Del SM\_VREF\_DQ0

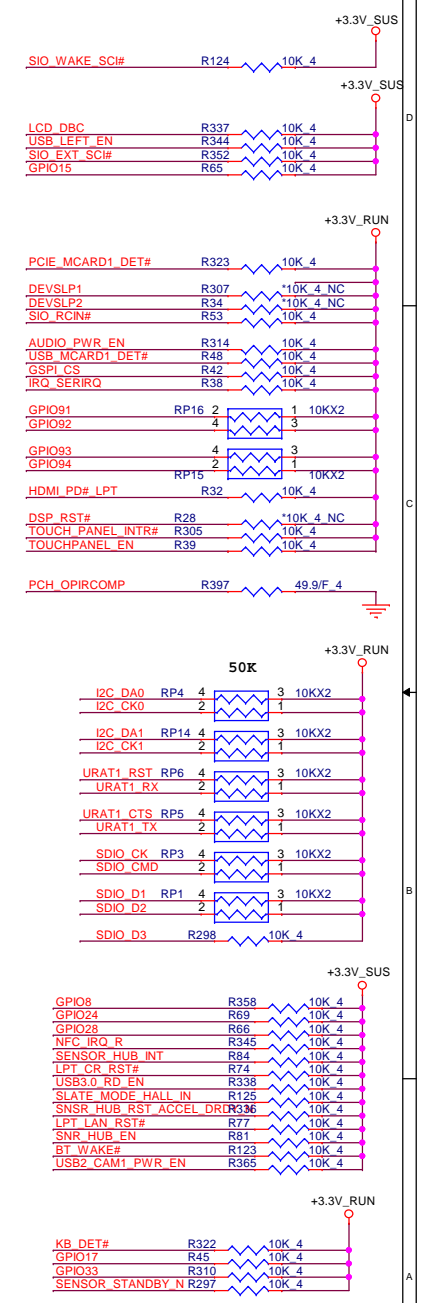
**Quanta Computer Inc.**  
 PROJECT : JW8B  
 Document Number  
**Haswell ULT 2/12**  
 Date: Friday, May 10, 2013 Sheet 8 of 57 Rev A



# Hasswell ULT (GPIO, LPIO, MISC)

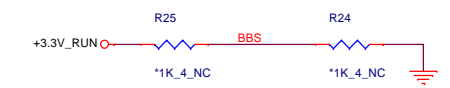


## GPIO Pull-up/Pull-down (CLG)



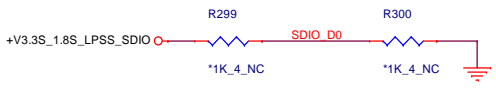
NC	Default
PU	EN


PU	LPC
PD	SPI (Default IPD)



NC	Default
PU	EN

R1547	ENABLE
R1547_NC	DISABLE (Default)

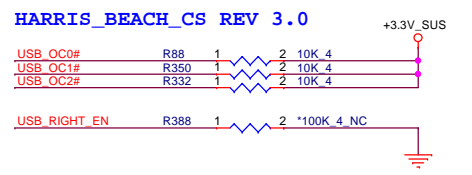
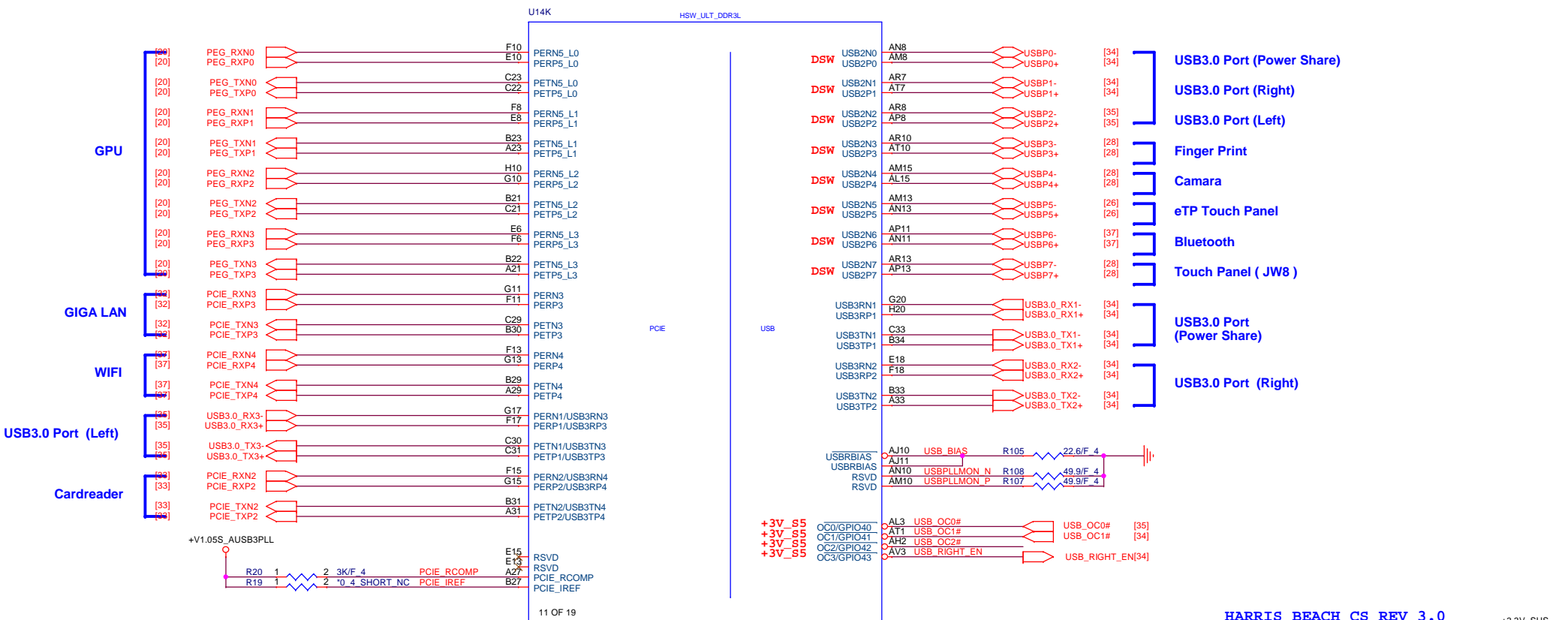




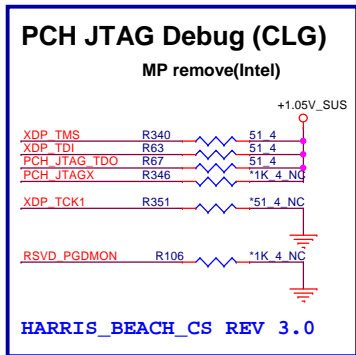
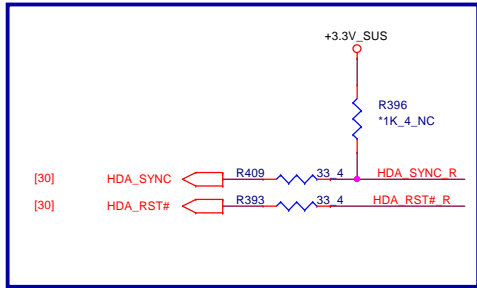
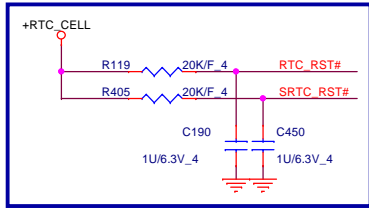
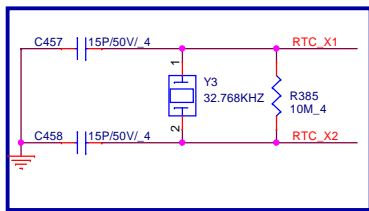
**Quanta Computer Inc.**  
PROJECT : JW8B

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	<b>Hasswell ULT 3/12</b>	A
Date:	Thursday, June 13, 2013	Sheet 9 of 57

# Haswell ULT (PCIE,USB)



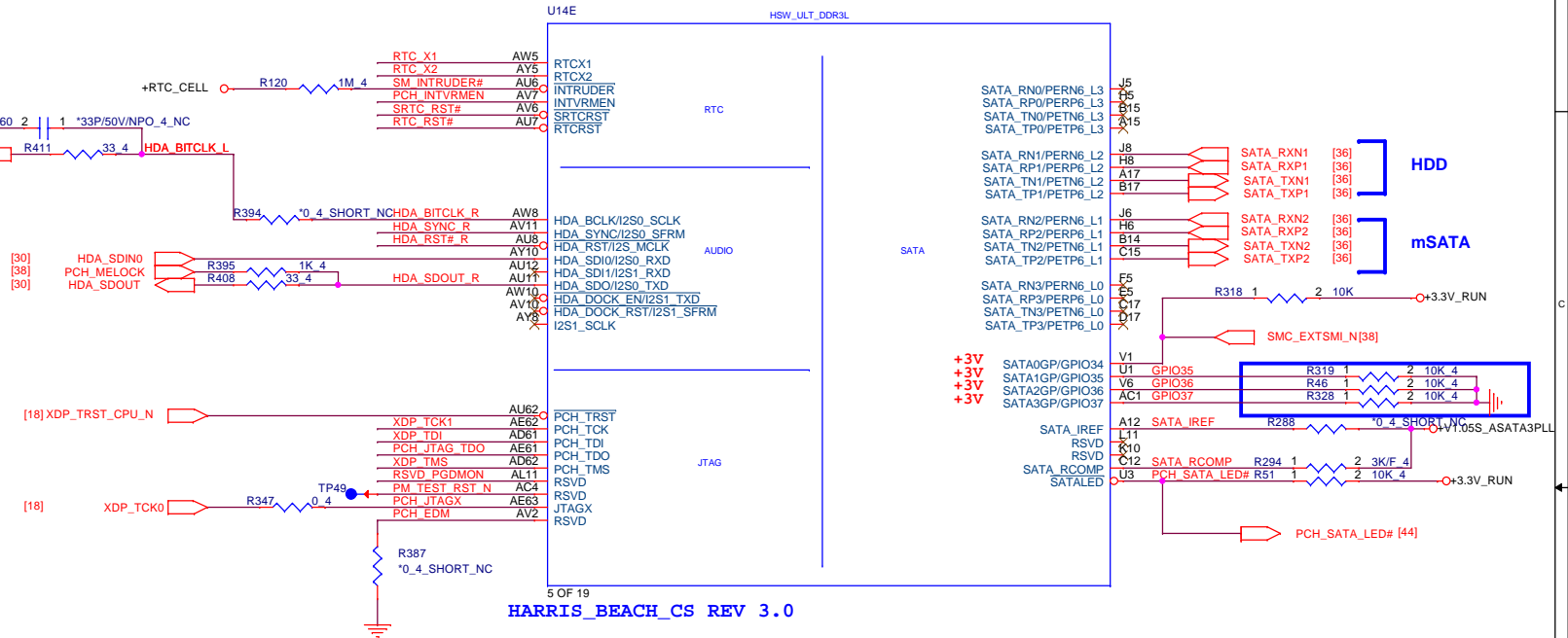
# Haswell ULT (RTC, HDA, JTAG, SATA)



DFXTESTMODE  
HIGH - DFXTESTMODE DISABLED(DEFAULT)  
LOW - DFXTESTMODE ENABLED

## PCH Strap Table

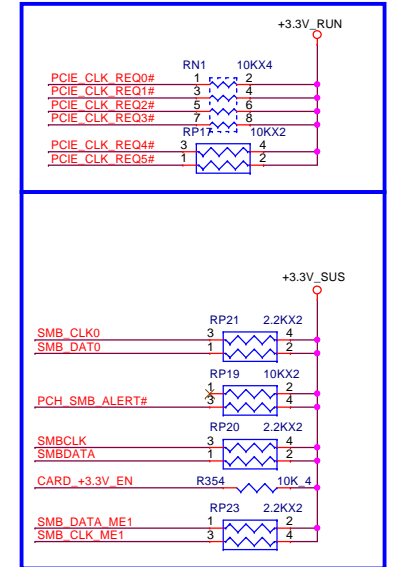
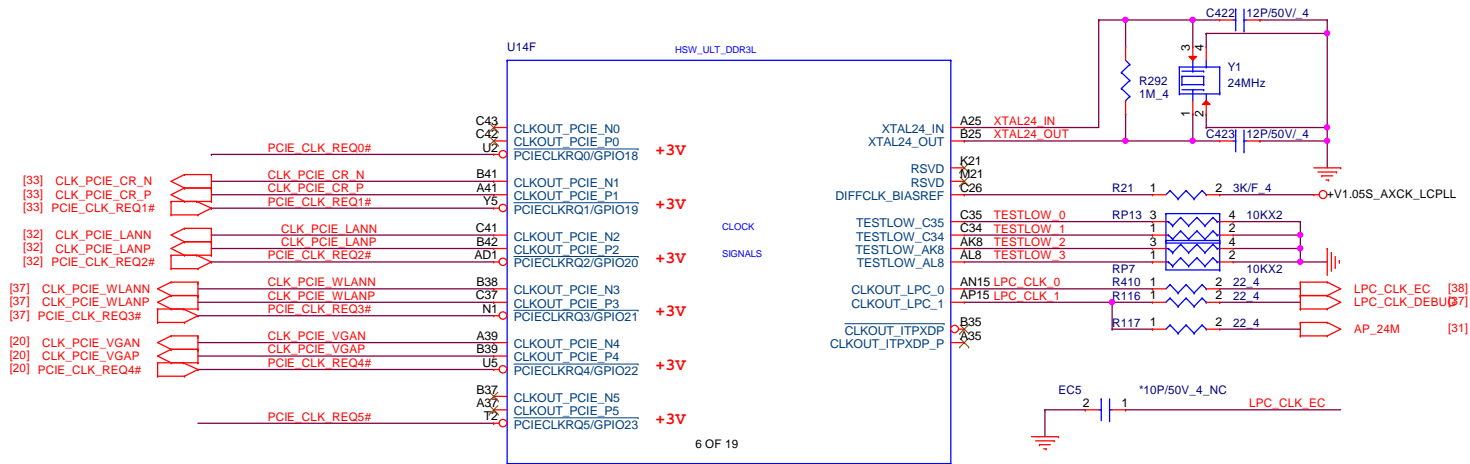
Pin Name	Strap description	Sampled	Configuration	note
SPKR	No reboot mode setting	PWROK	0 = Default (weak pull-down 20K) 1 = Setting to No-Reboot mode	
HDA_SDO	Flash Descriptor Security Override / Intel ME Debug Mode	PWROK	0 = Security Effect (Int PD) 1 = Can be Override	
INTVRMEN	Integrated 1.05V VRM enable	ALWAYS	<b>Should be always pull-up</b>	+RTC_CELL - R407 *330K 4 NC PCH_INTVRMEN R392 *330K 4



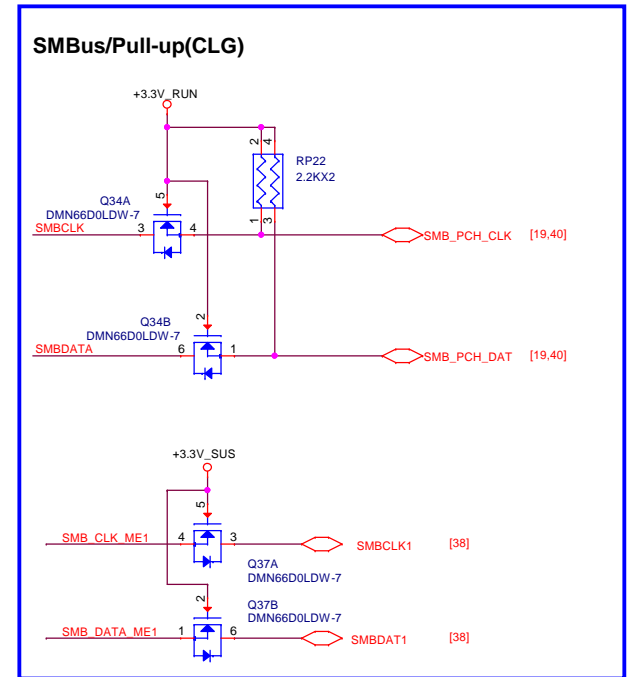
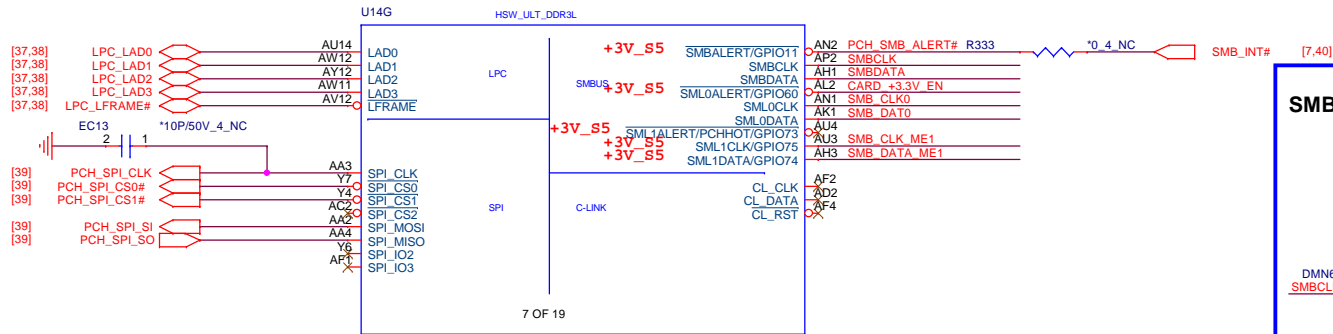
HARRIS\_BEACH\_CS REV 3.0



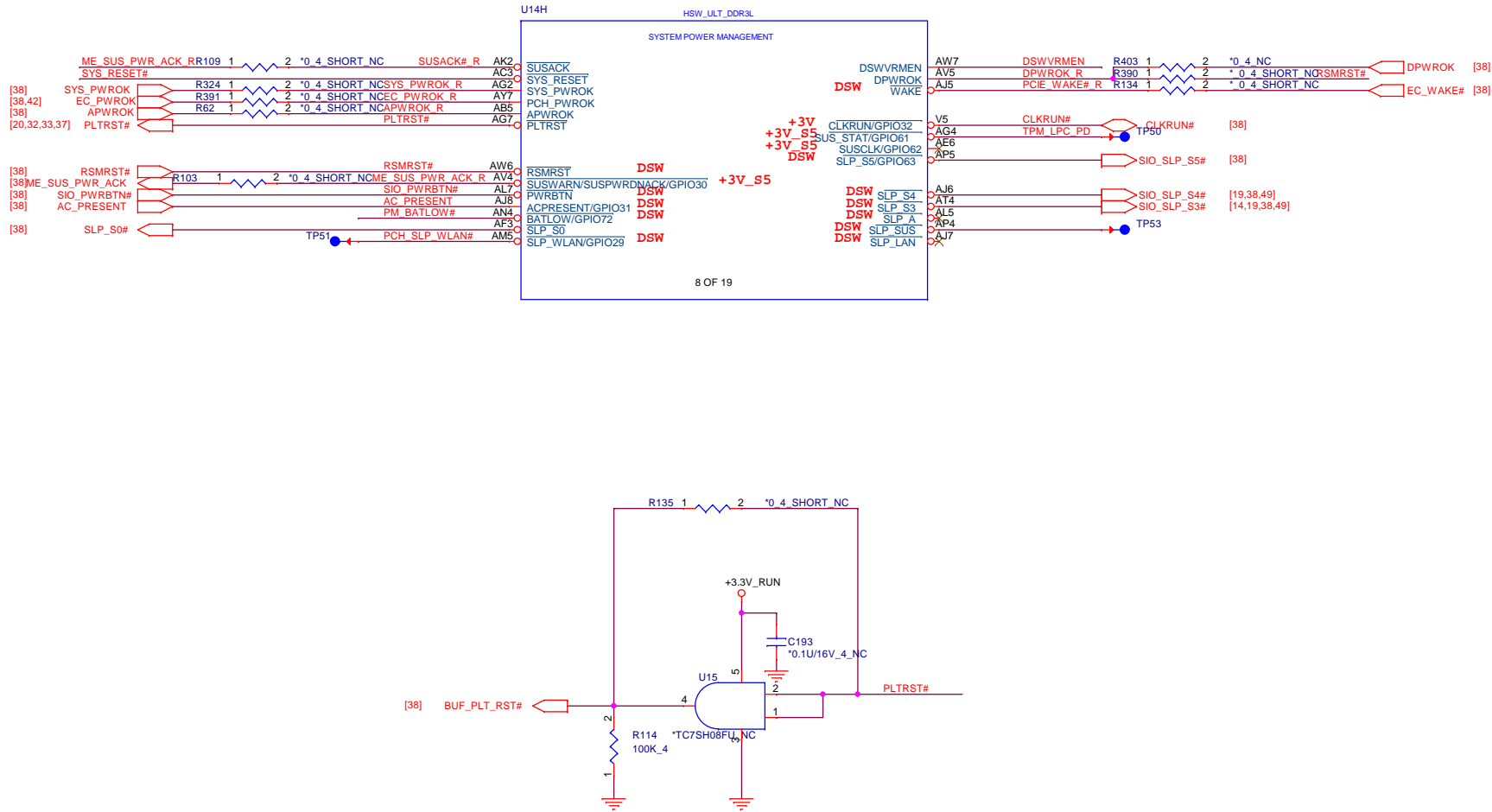
# Haswell ULT (CLK)



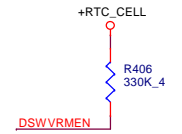
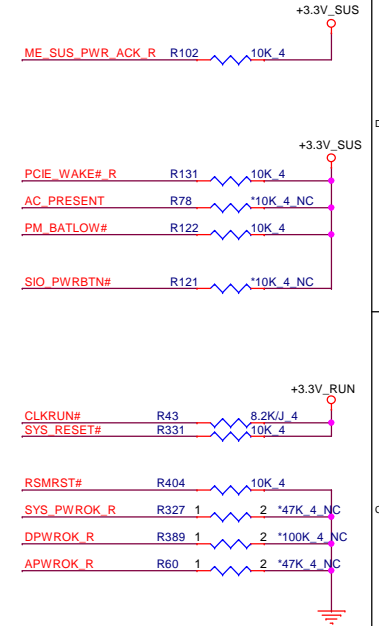
# Haswell ULT (LPC/SPI/SMB/CLINK)



# Haswell ULT (SYSTEM POWER MANAGEMENT)



## PCH Pull-high/low(CLG)

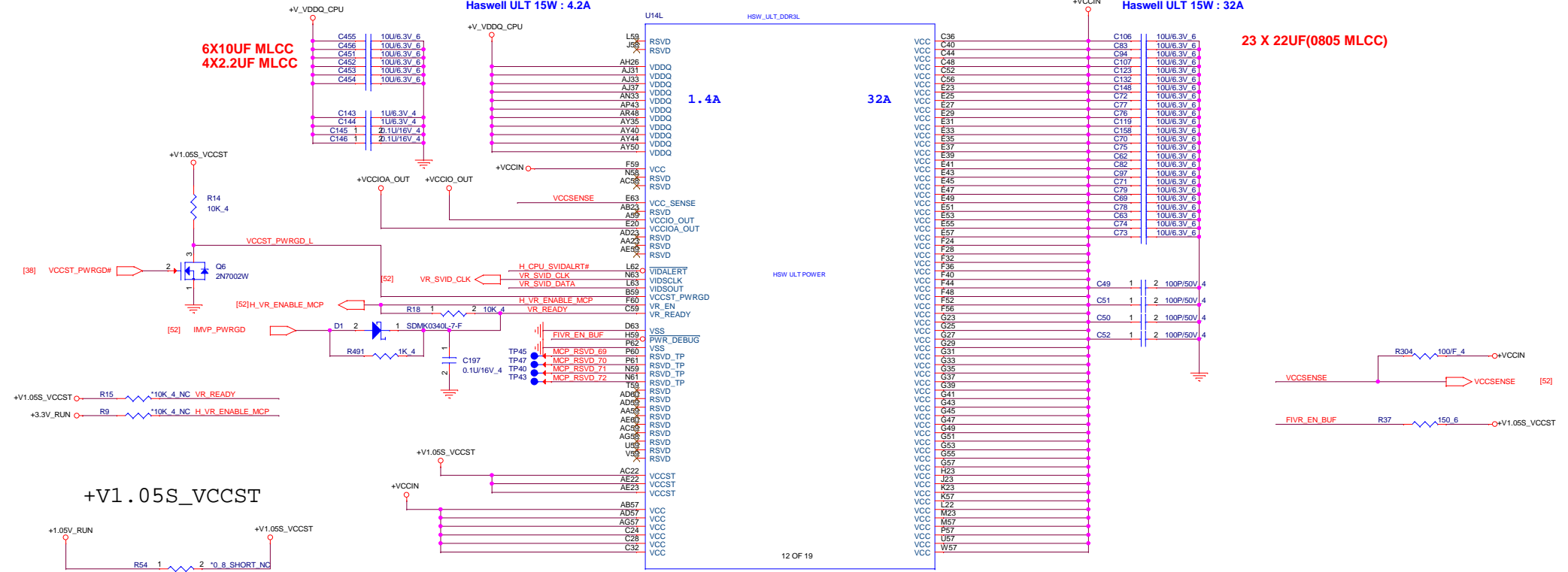


On Die DSW VR Enable
High = Enable (Default)
Low = Disable

# Haswell ULT MCP (POWER)

**CPU VDDQ**  
Haswell ULT 15W : 4.2A

**CPU VCC** 1/21: 220x23 --> 100x23  
Haswell ULT 15W : 32A



23 X 22UF(0805 MLCC)

1.4A

32A

HSW ULT POWER

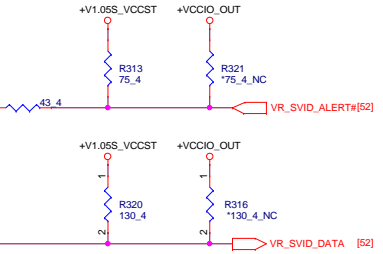
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+V1.05S\_VCCST

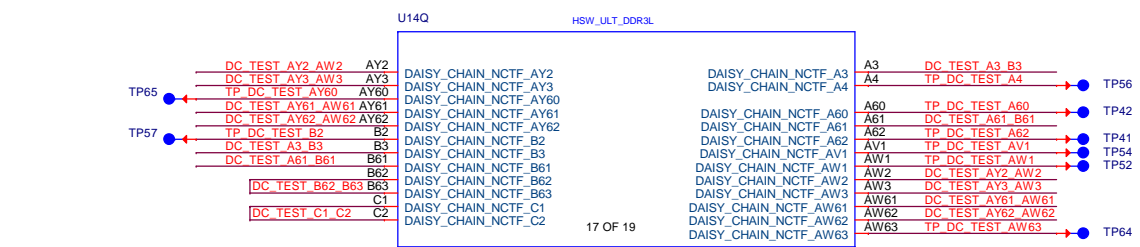
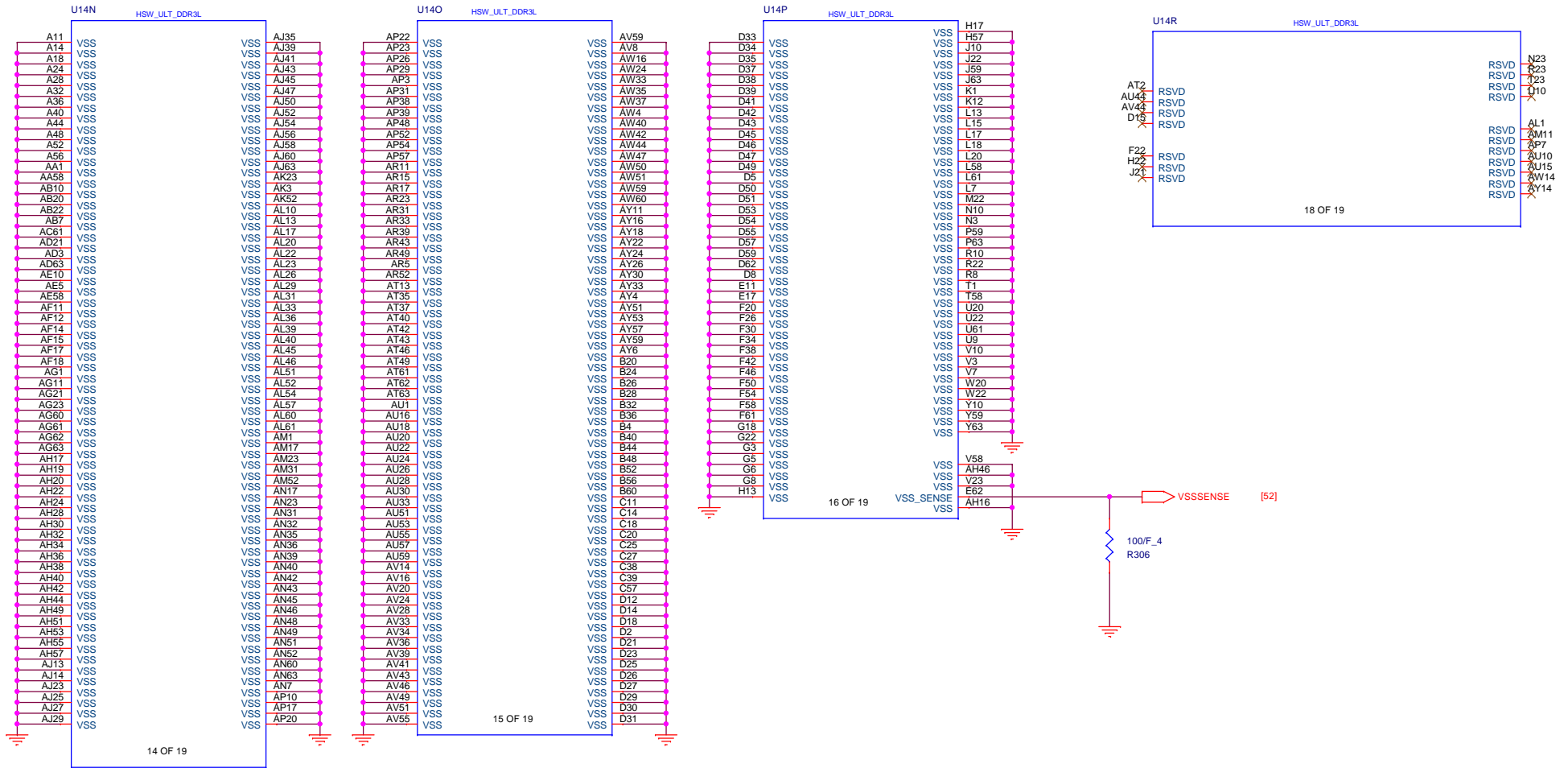
S3 Power reduce

SVID ALERT

SVID DATA

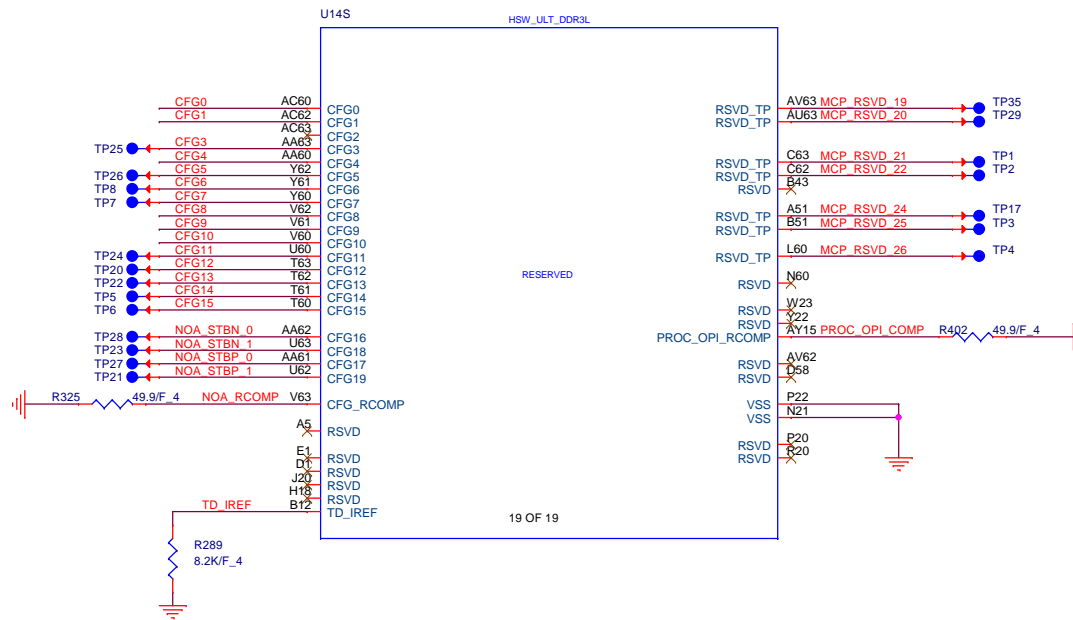


# Haswell ULT (GND)



**Quanta Computer Inc.**  
**PROJECT : JW8B**

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	<b>Haswell ULT 9/12</b>	A
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### Processor Strapping

	1	0	
CFG0 EAR-STALL/NOT STALL RESET SEQUENCE AFTER PCU PLL IS LOCKED	(DEFAULT) NORMAL OPERATION; NO STALL	STALL	
CFG1 PCH/ PCH LESS MODE SELECTION	(DEFAULT) NORMAL OPERATION	PCH-LESS MODE	
CFG3 PHYSICAL_DEBUG_ENABLED (DFX PRIVACY)	DISABLED NO PHYSICAL DISPLAY PORT ATTACHED TO EMBEDDED DISPLAY PORT	ENABLED AN EXTERNAL DISPLAY PORT DEVICE IS CONNECTED TO THE EMBEDDED DISPLAY PORT	
CFG4 DISPLAY PORT PRESENCE STRAP	DISABLED NO PHYSICAL DISPLAY PORT ATTACHED TO EMBEDDED DISPLAY PORT	ENABLED AN EXTERNAL DISPLAY PORT DEVICE IS CONNECTED TO THE EMBEDDED DISPLAY PORT	
CFG 8 ALLOW THE USE OF NOA ON LOCKED UNITS	DISABLED(DEFAULT); IN THIS CASE, NOA WILL BE DISABLED IN LOCKED UNITS AND ENABLED IN UN-LOCKED UNITS	ENABLED; NOA WILL BE AVAILABLE REGARDLESS OF THE LOCKING OF THE UNIT	
CFG9 NO SVID PROTOCOL CAPABLE VR CONNECTED	VRS SUPPORTING SVID PROTOCOL ARE PRESENT	NO VR SUPPORTING SVID IS PRESENT. THE CHIP WILL NOT GENERATE (OR RESPOND TO) SVID ACTIVITY	
CFG10 SAFE MODE BOOT	POWER FEATURES ACTIVATED DURING RESET	POWER FEATURES (ESPECIALLY CLOCK GATINE ARE NOT ACTIVATED	



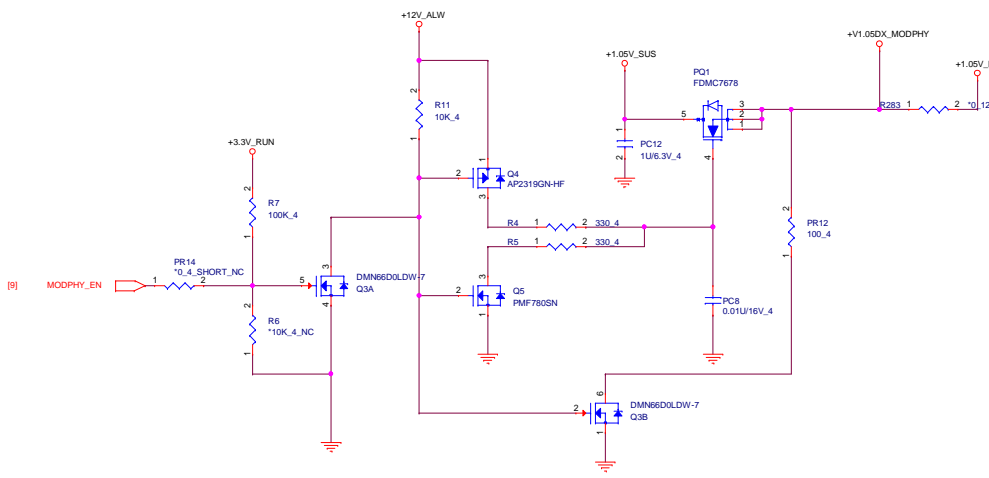
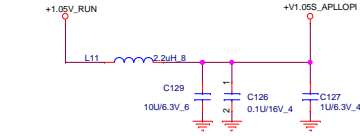
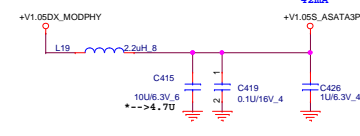
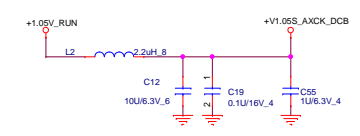
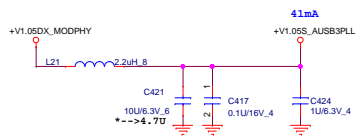
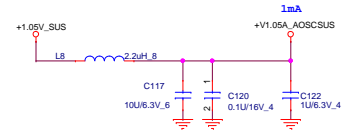
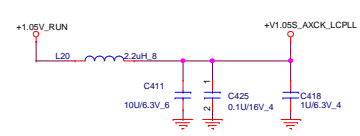
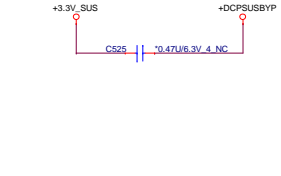
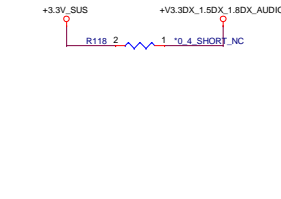
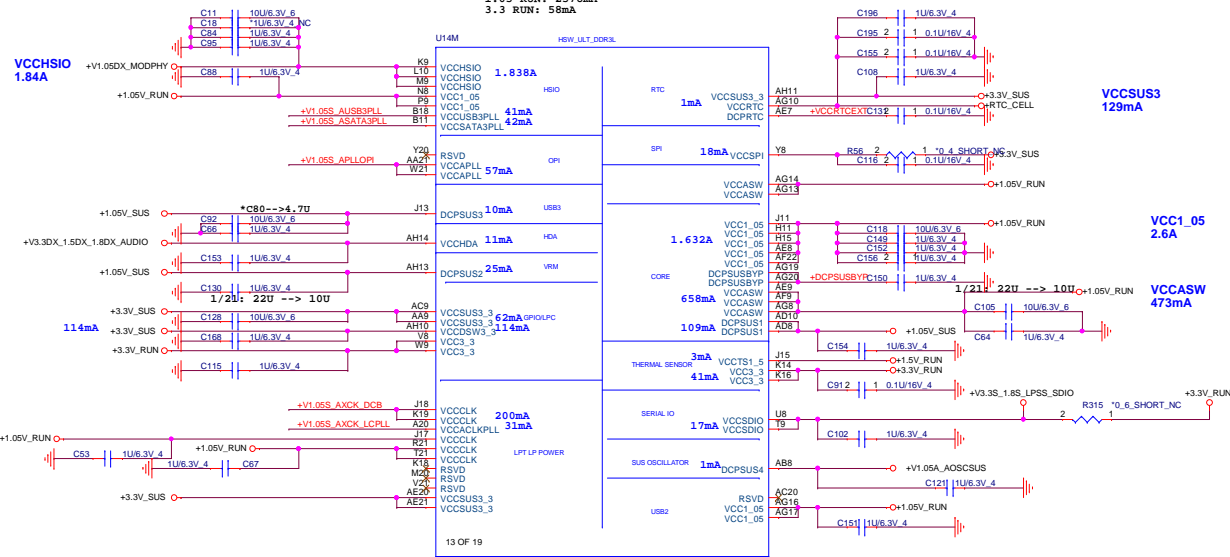
**Quanta Computer Inc.**

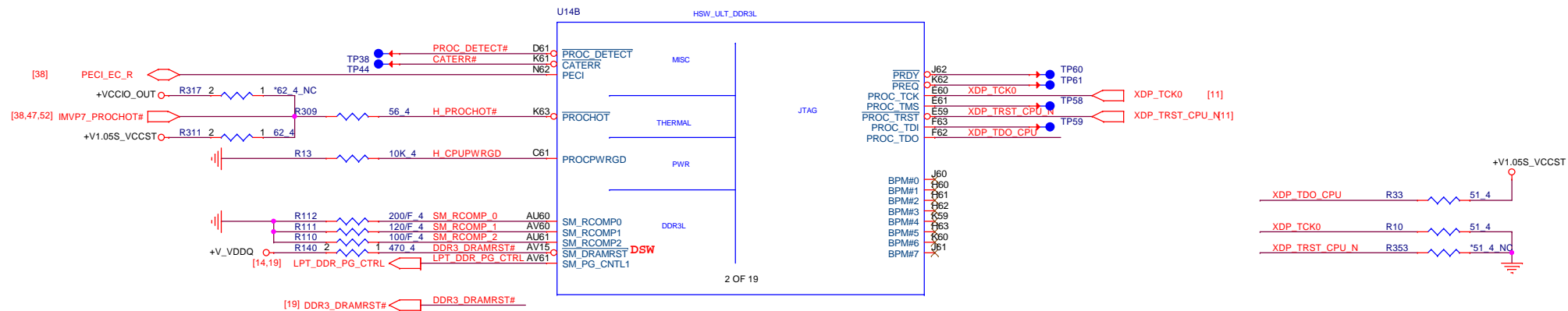
**PROJECT : JW8B**



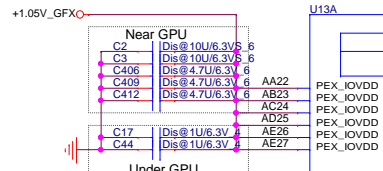
# Haswell ULT PCH(POWER)

3.3 SUS: 205mA  
 1.05 SUS: 206mA  
 1.05 RUN: 257mA  
 3.3 RUN: 58mA

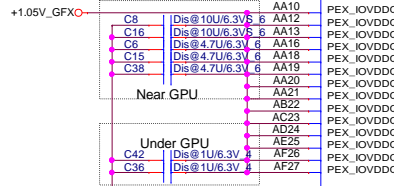




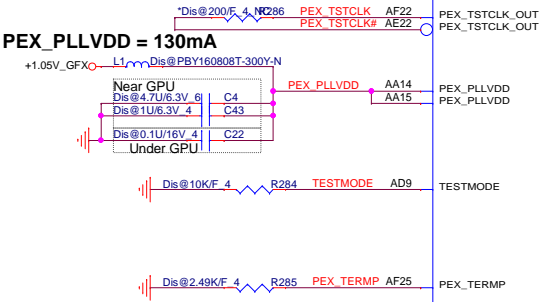
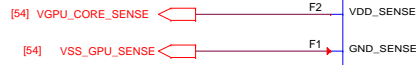
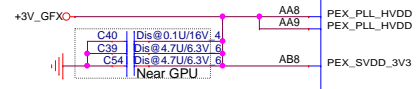




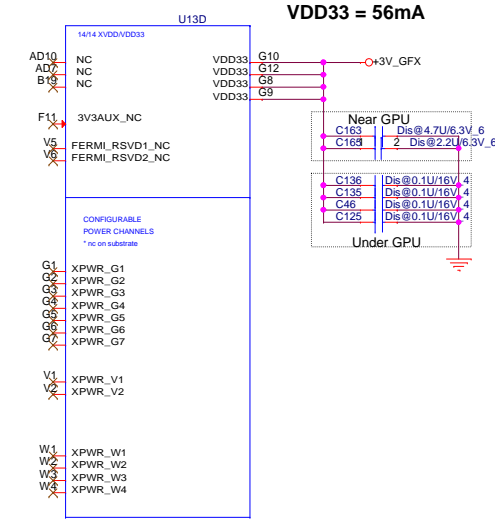
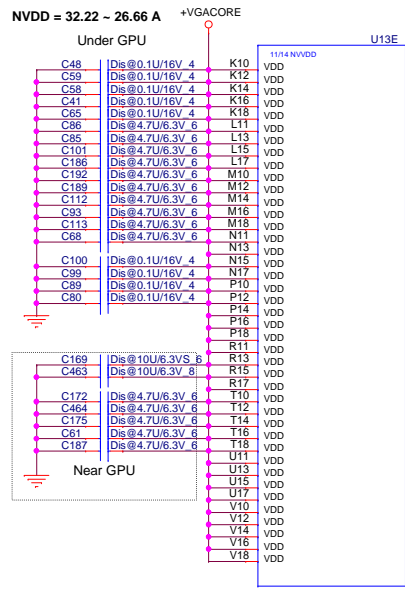
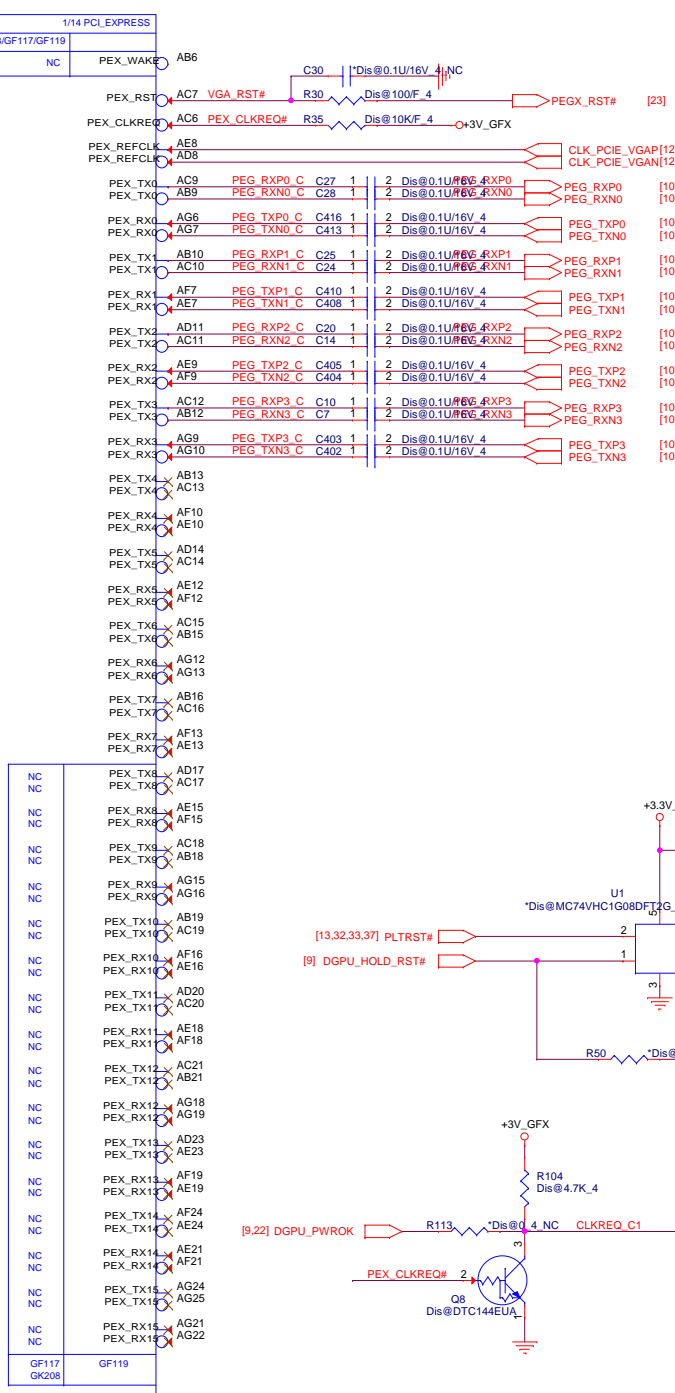
PEX\_IOVDD + PEX\_IOVDDQ = 1.042A



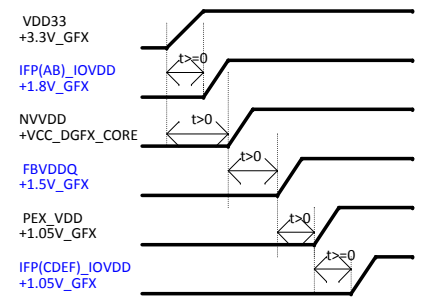
PEX\_PLL\_HVDD + PEX\_SVDD\_3V3 = 143mA



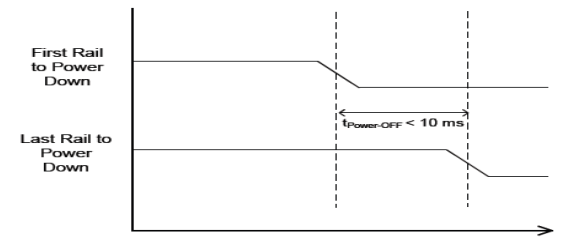
PEX\_PLLVDD = 130mA



Power up sequence



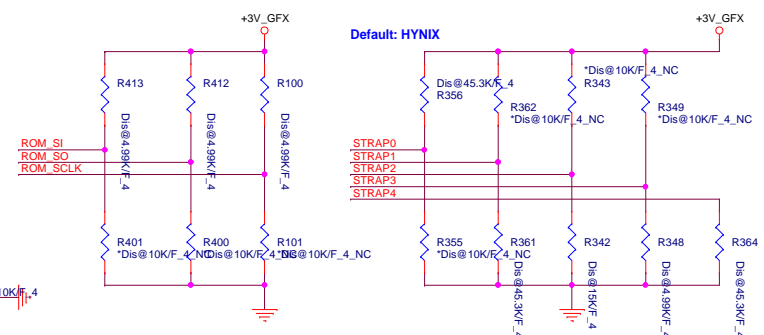
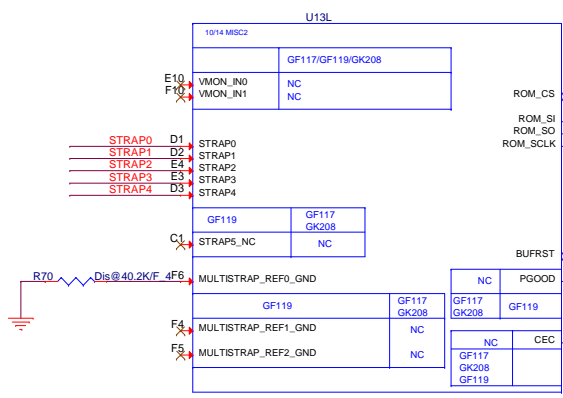
Power down sequence



**Quanta Computer Inc.**  
**PROJECT : JW8B**  
**DGPU 1/5 (PEG)**  
 Date: Monday, July 08, 2013 Sheet 20 of 57 Rev A



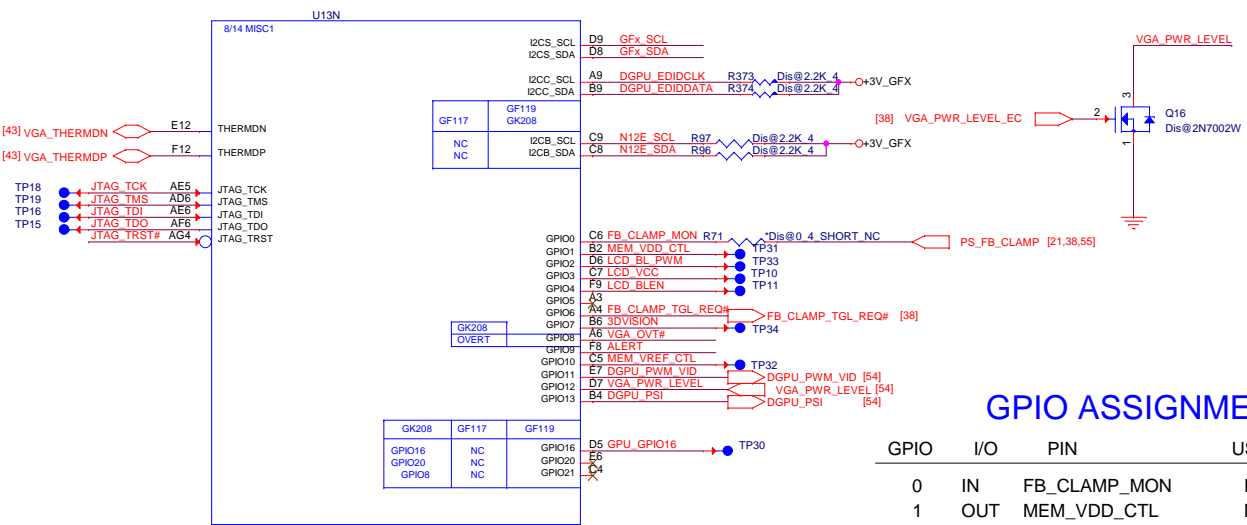




4.99K : CS24992FB00 RES CHIP 4.99K 1/16W +-1% (0402)  
 45K : CS34502FB00 RES CHIP 45K 1/16W +-1% (0402)  
 15K : CS31502FB24 RES CHIP 15K 1/16W +-1% (0402)  
 30.1K : CS33012FB18 RES CHIP 30.1K 1/16W +-1% (0402)  
 34.8K : CS33482FB22 RES CHIP 34.8K 1/16W +-1% (0402)

### Binary Strap Mode Mapping

Strap Pin name	Strap Mapping	Resistance	Note
ROM_SCLK	PCI_DEVID[4] SUB_VEN00R PCI_DEVID[5] PEX_PLL_EN	5Kohm , H	1000 , SUB: no Video BIOS
ROM_SI	RAM_CFG[2] RAM_CFG[1] RAM_CFG[0]	5Kohm , H	4.99K 1000 --> Micron MT41K128M16JT-107G:K (Default) 30.1K 1101 --> Micron MT41K256M16HA-107G:E 34.8K 1110 --> Hynix H5TC4G63AFR-11C
ROM_SO	FB[1] FB[0] SMB_ALT_ADDR VGA_DEVICE	5Kohm , H	1000 , FB: 256 MB (Default) SMB:0x9E
STRAP0	User strap [3:0]	45Kohm , H	1111 , EDID is used
STRAP1	3GIO_CFG[3:0]	45Kohm , D	1111 , USER defined
STRAP2	PCI_DEVID[3:0]	15Kohm , D	010010 , N14P-GV2
STRAP3	SOR[3:0]_EXPOSED	5Kohm , D	0000 , IFPx port not use
STRAP4	RESERVED PCIE_SPEED_GEN3 PCIE_MAX_SPEED DP_PLL_VDD33V	45Kohm , D	0111 , PCIE GEN3 setting

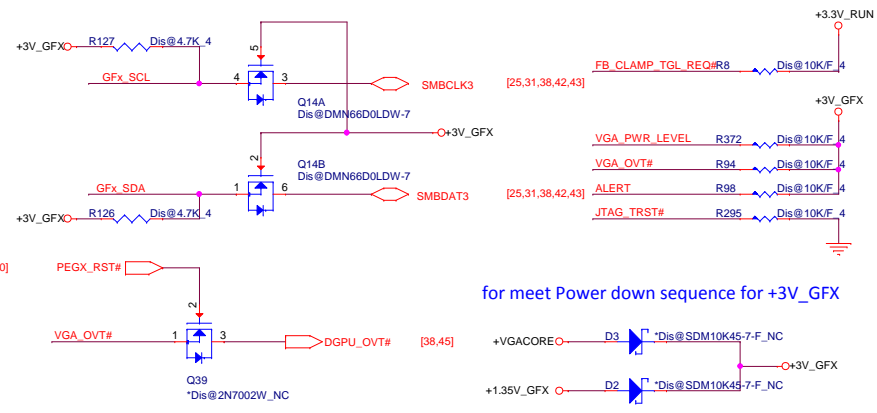


### GPIO ASSIGNMENTS ( GB2-64 )

GPIO	I/O	PIN	USAGE
0	IN	FB_CLAMP_MON	FB Clamp monitor
1	OUT	MEM_VDD_CTL	MEMORY VDD ID
2	OUT	LCD_BL_PWM	LCD BACKLIGHT PWM
3	OUT	LCD_VCC	PANEL POWER ENABLE
4	OUT	LCD_BLEN	PANEL BACKLIGHT ENABLE
5		RESERVE	
6	OUT	FB_CLAMP_TGL_REQ#	# --> FB Clamp toggle request
7	OUT	3D Vision	3D VISION LEFT/RIGHT VISION
8	I/O	OVERT	ACTIVE LOW THERMAL OVER TEMP
9	I/O	ALERT	ACTIVE LOW THERMAL ALERT
10	OUT	MEM_VREF_CTL	MEMORY VREF CONTROL
11	OUT	PWM_VID	GPU Core VDD PWM control
12	IN	PWR_LEVEL	Power Detect ,HIGH=AC, LOW=DC
13	OUT	PSI	Phase Shedding
14	IN	HPD_A	HOT PLUG DETECT FOR IFPAB
15	IN	HPD_C	HOT PLUG DETECT FOR IFPC
16	OUT	FRM_LCK	MEMORY VDD CONTROL
17	IN	HPD_D	HOT PLUG DETECT FOR IFPD
18	IN	HPD_E	HOT PLUG DETECT FOR IFPE
19	IN	HPD_F or HPD_B	HOT PLUG DETECT FOR IFPF
20/21		RESERVE	

### VRAM Configuration Table

RAMCFG [3:0]	DESCRIPTION	Vendor	DELL P/N	QCI P/N
0000				
1000 0x8	MT41K128M16JT-107G:K (FCBGA)(96P)	Micron	NA	AKD5DGSTL00
1101 0xD	MT41K256M16HA-107G:E	Micron	NA	AKD5PGSTL00
1110 0xE	H5TC4G63AFR-11C	Hynix	NA	AKD5PGTWT05



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 PROJECT : JW8B

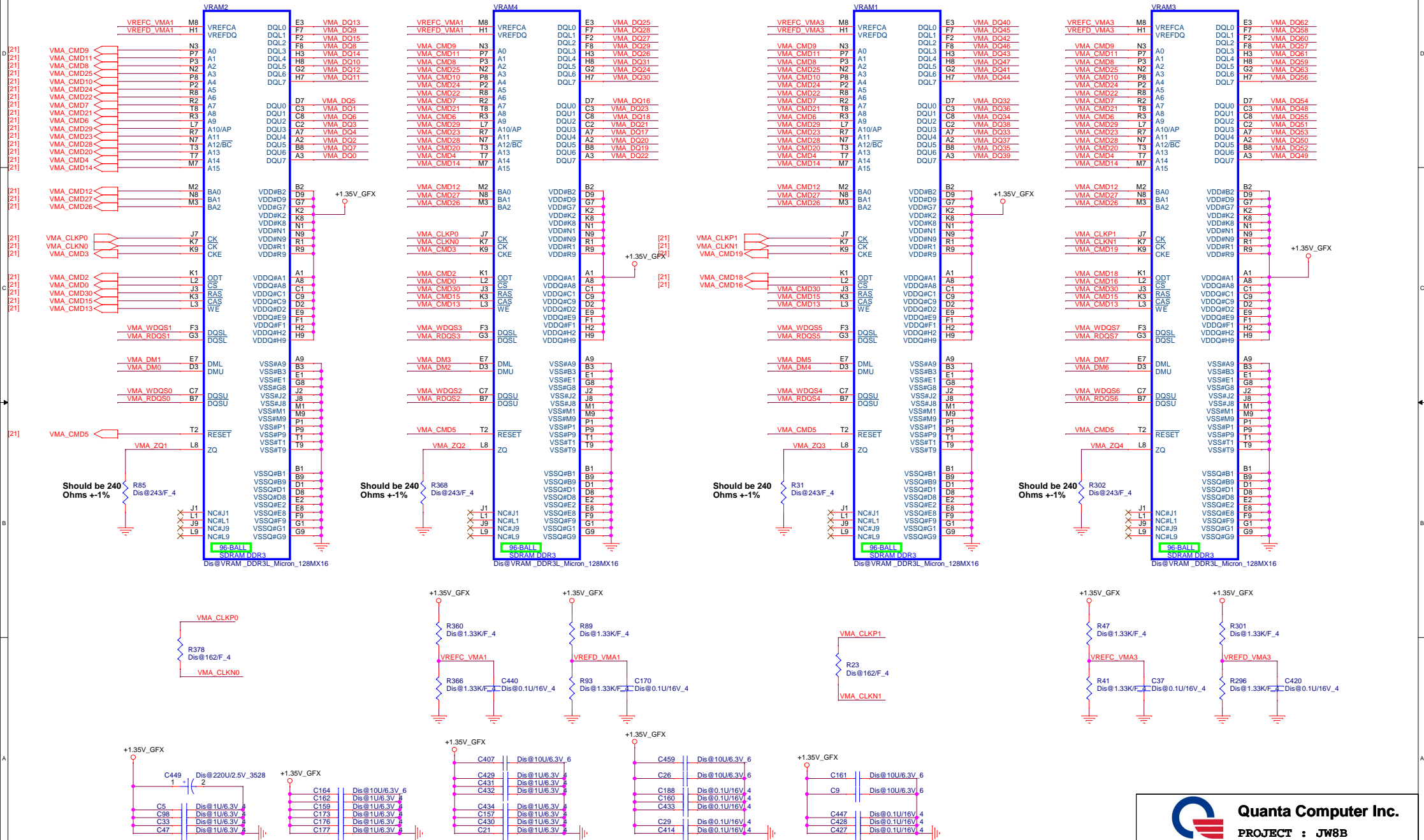
Size Document Number **DGPU 4/5 (MIO/GPIO)** Rev A

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# CHANNEL A: 256MB/512MB DDR3

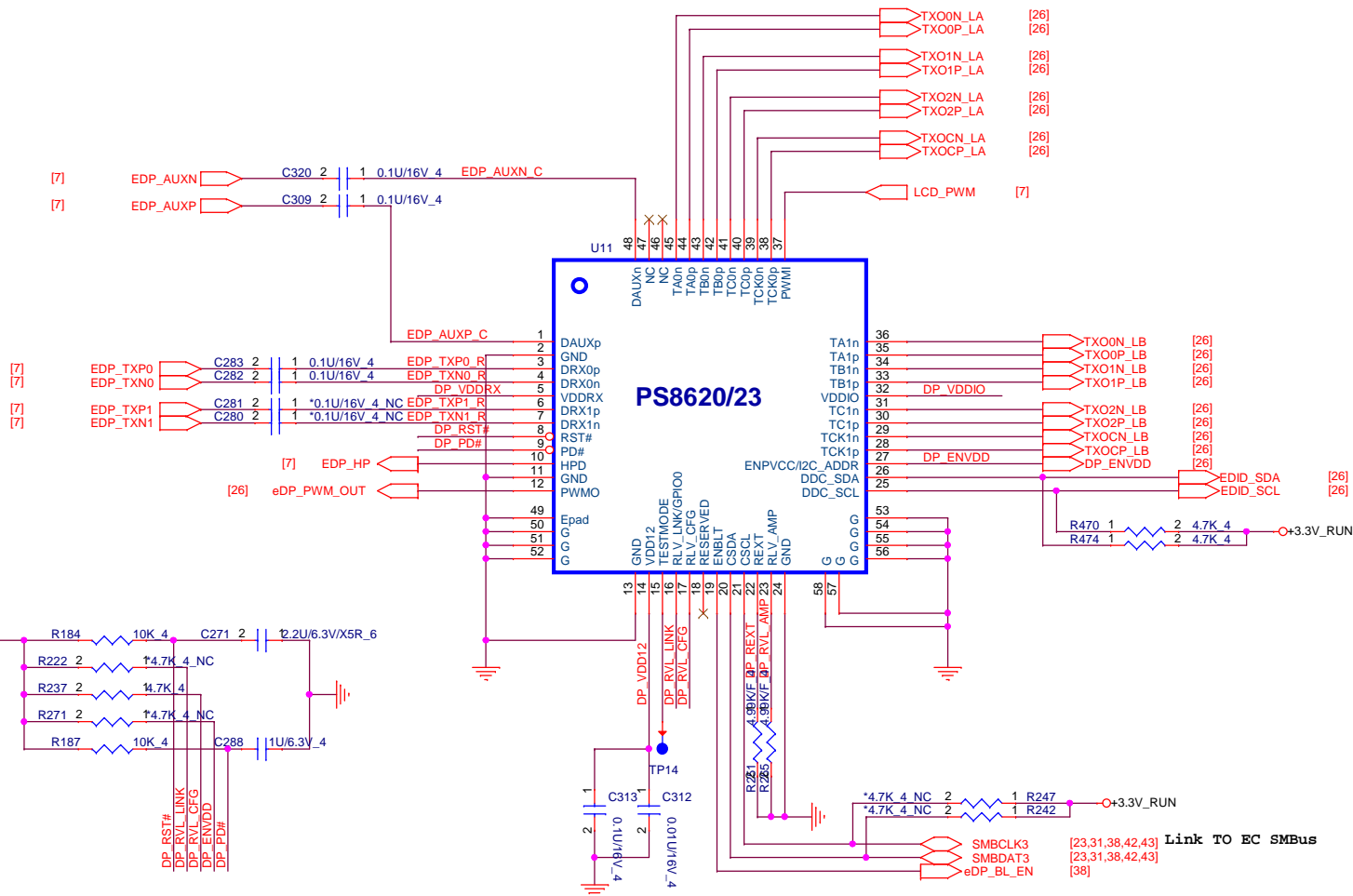
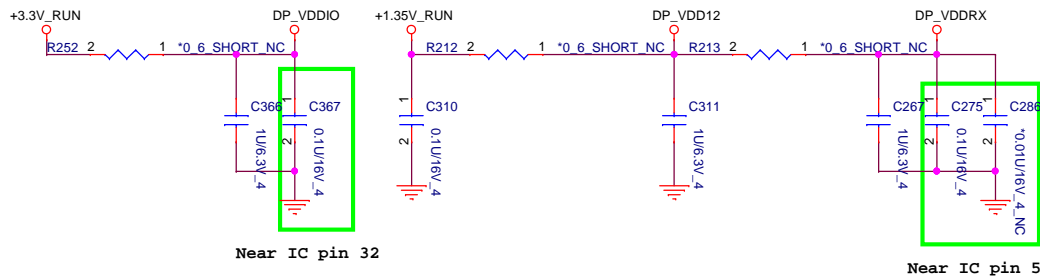
- [21] VMA\_DQ[63..0]
- [21] VMA\_DM[7..0]
- [21] VMA\_WDQS[7..0]
- [21] VMA\_RDQS[7..0]



**Quanta Computer Inc.**  
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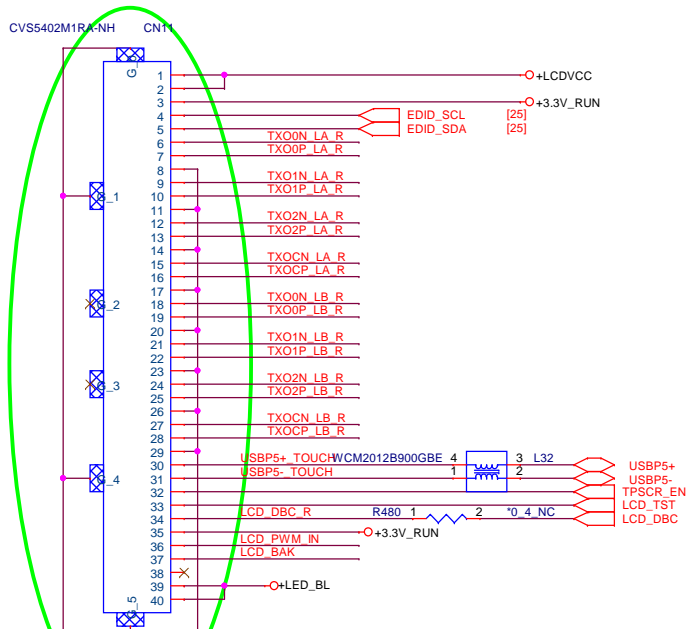




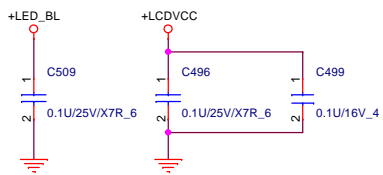
DP\_ENVDD: I2C Slave address selection, internal pull-down ~80K  
 L: 0x10h-0x1Fh  
 H: 0x90h-0x9Fh

DP\_RVL\_LINK: LVDS single link or dual link selection, internal pull-down ~80K  
 L: Single link LVDS  
 H: Dual link LVDS

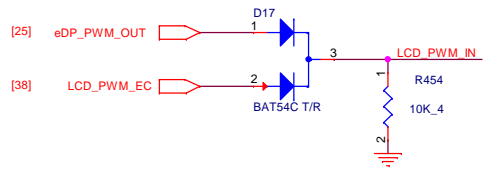
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eDP to LVDS (PS8620/23)		
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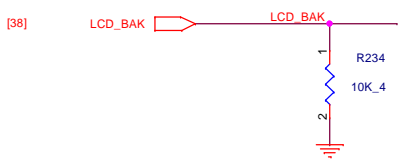
[10] TOUCH SCREEN  
[10]  
[38]  
[38]  
[9]



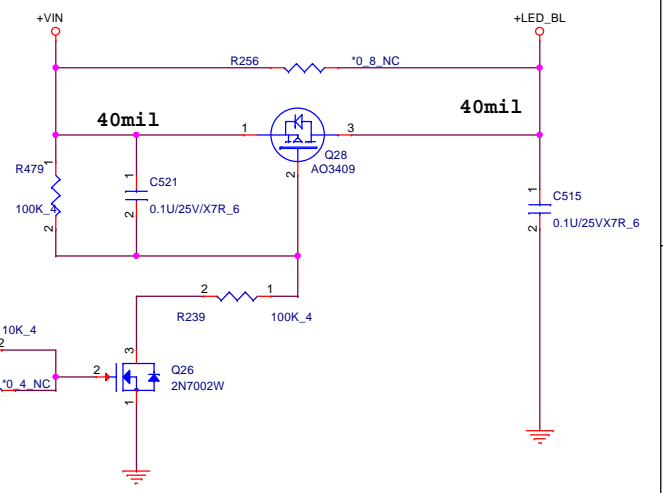
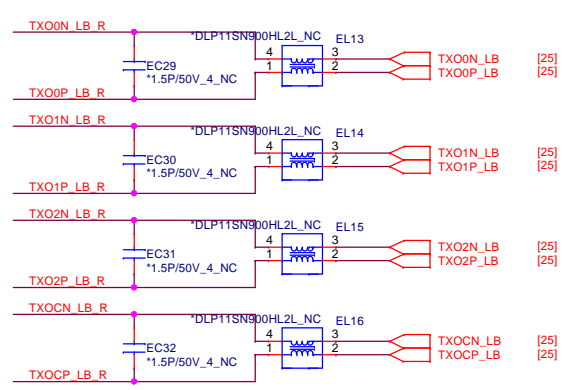
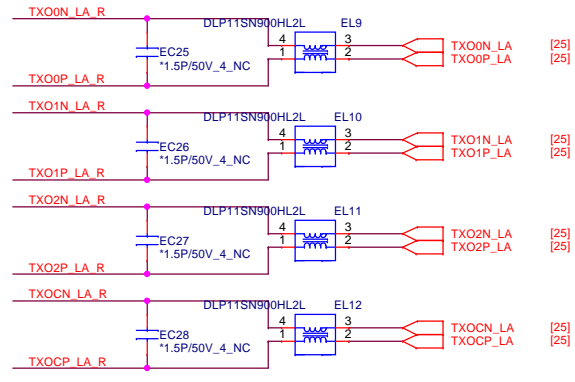
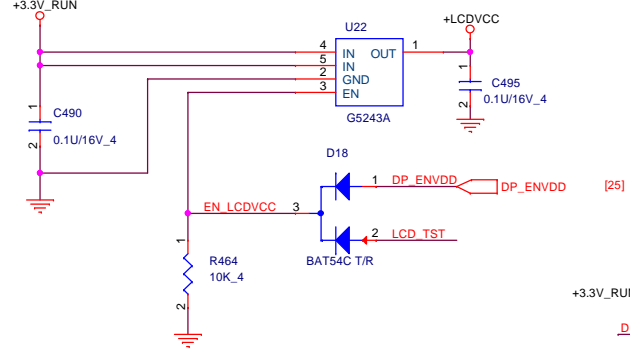
**Brightness Control**

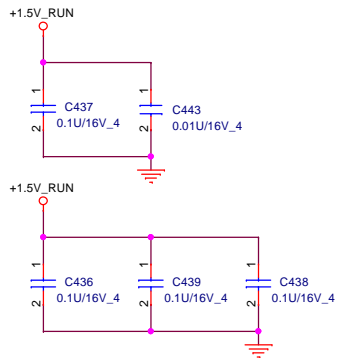


**BAK\_EN**

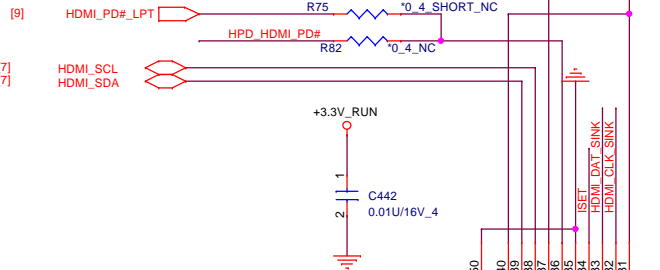


**LCD\_VCC**



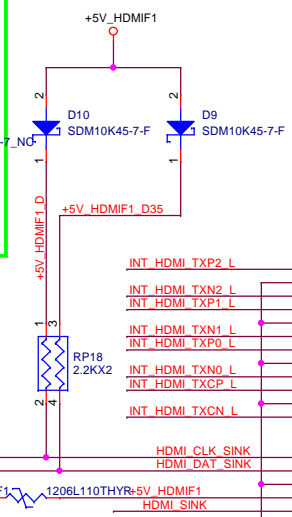
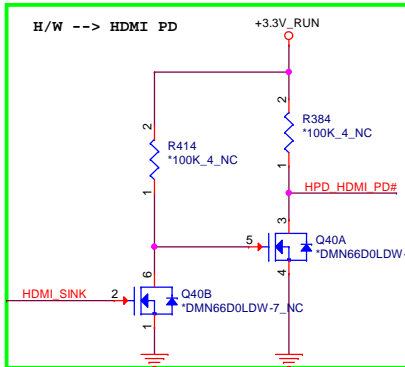
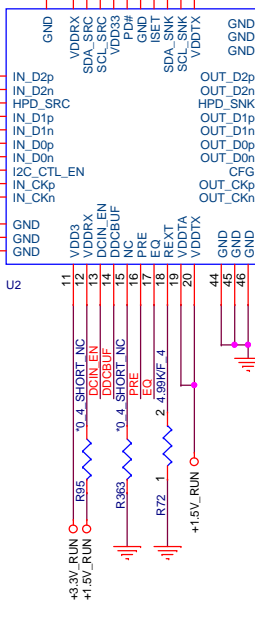
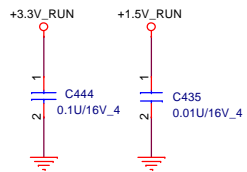


TO LPT



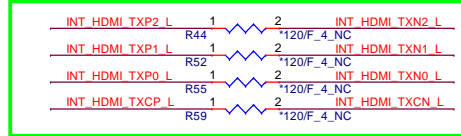
- [7] INT\_HDMI\_TXP2
- [7] INT\_HDMI\_TXN2
- [7] INT\_HDMI\_HP
- [7] INT\_HDMI\_TXP1
- [7] INT\_HDMI\_TXN1
- [7] INT\_HDMI\_TXP0
- [7] INT\_HDMI\_TXN0
- [7] INT\_HDMI\_TXCP
- [7] INT\_HDMI\_TXCN

C178	1	2	0.1U/16V_4	INT_HDMI_TXP2_C	1	IN_D2p
C179	1	2	0.1U/16V_4	INT_HDMI_TXN2_C	2	IN_D2n
C180	1	2	0.1U/16V_4	INT_HDMI_TXP1_C	4	IN_D1p
C181	1	2	0.1U/16V_4	INT_HDMI_TXN1_C	5	IN_D1n
C182	1	2	0.1U/16V_4	INT_HDMI_TXP0_C	6	IN_D0p
C183	1	2	0.1U/16V_4	INT_HDMI_TXN0_C	7	IN_D0n
C184	1	2	0.1U/16V_4	INT_HDMI_TXCP_C	8	IN_Ckcp
C185	1	2	0.1U/16V_4	INT_HDMI_TXCN_C	10	IN_Ckcn

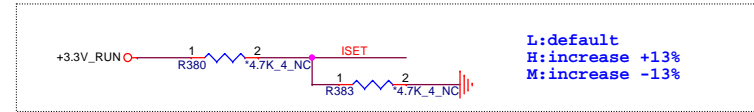
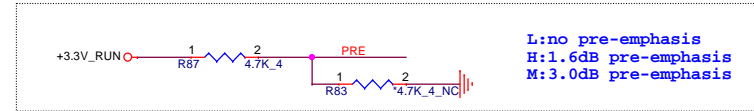
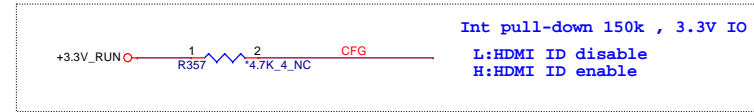
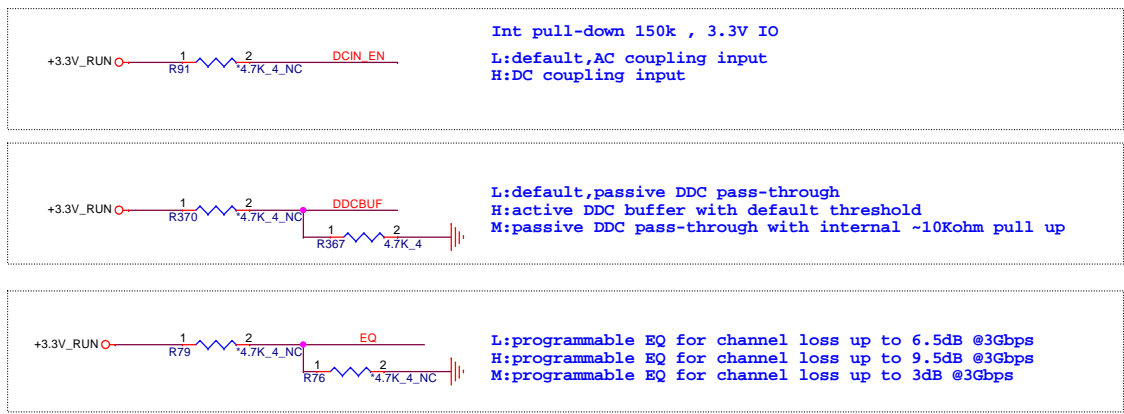


HDMI CN

EMI

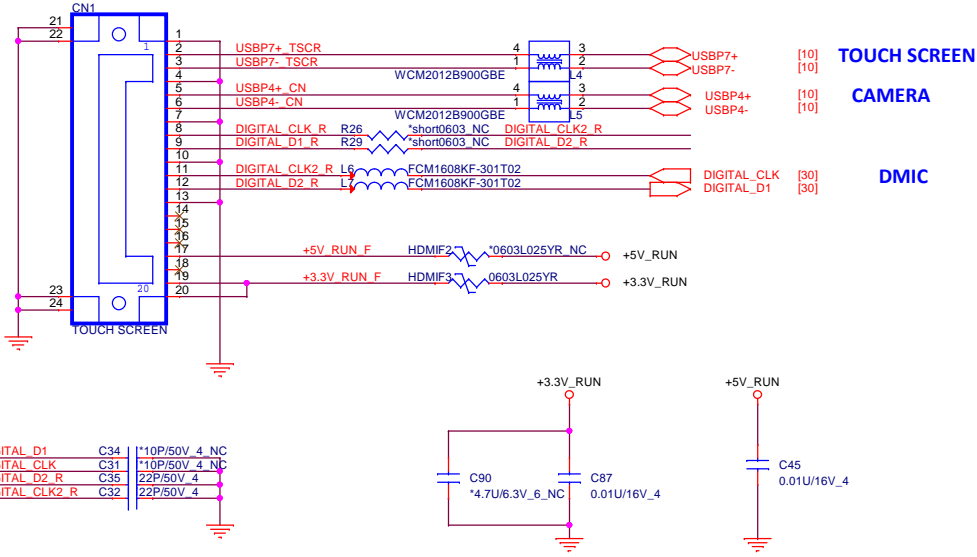


**3 Level Input:**  
 L:LOW,internal pull down  
 H:HIGH, external pull up  
 M:VDD3/2, both external pill-up and pull-down

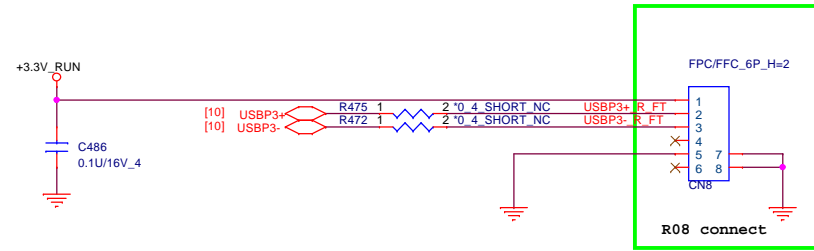


# CAMERA / DMIC

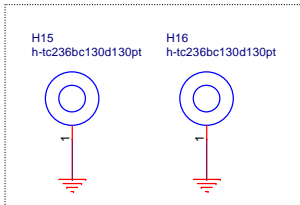
Conn P/N, Footprint OK. Luke 12/18



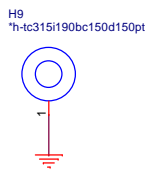
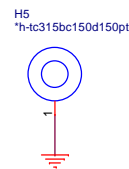
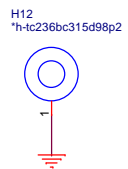
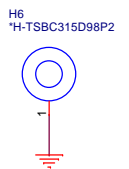
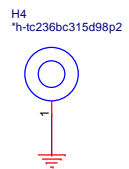
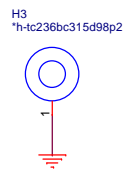
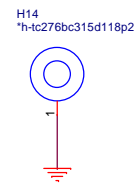
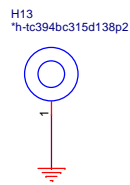
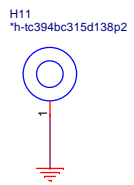
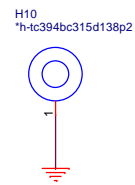
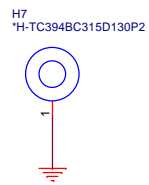
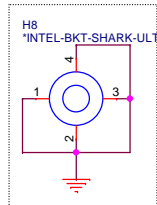
# Fingerprint



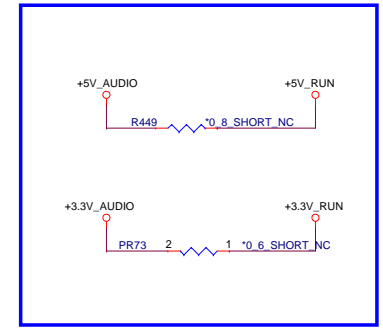
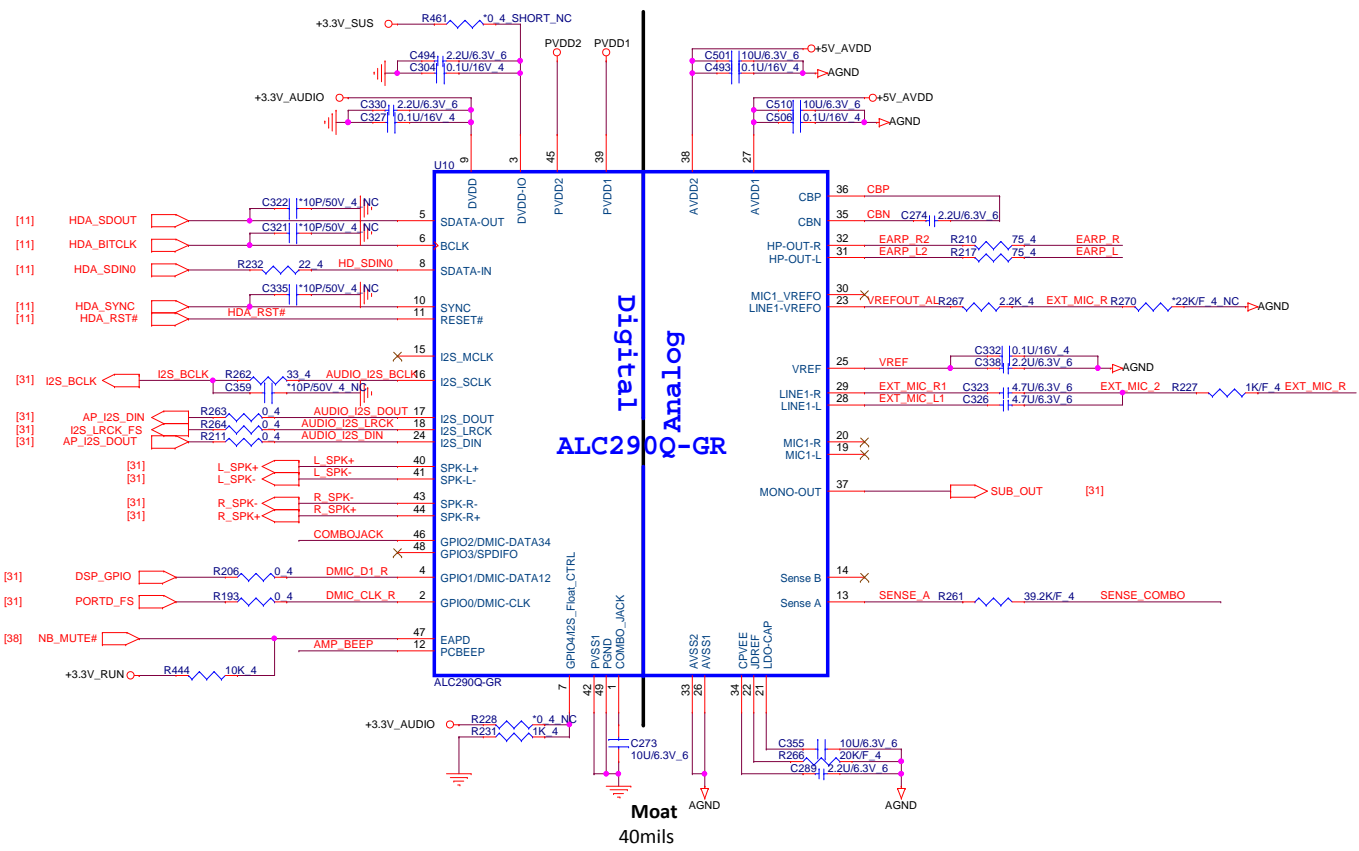
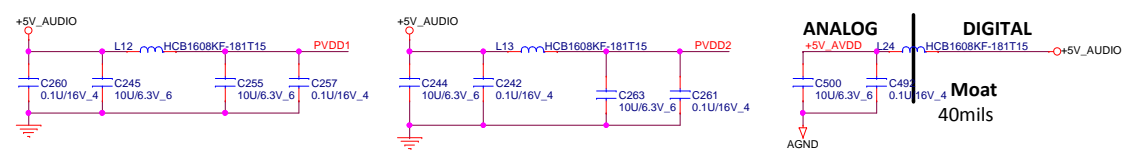
### Mini-PCIE



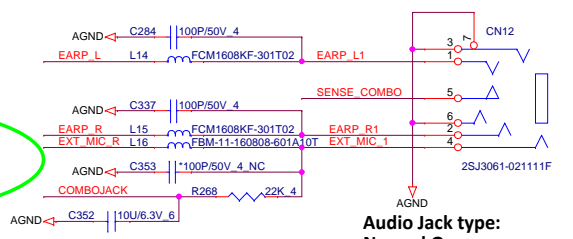
### CPU BKT



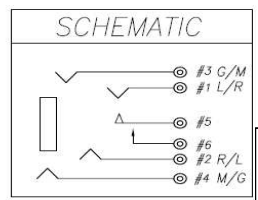
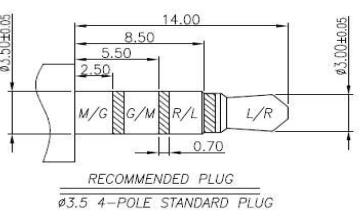
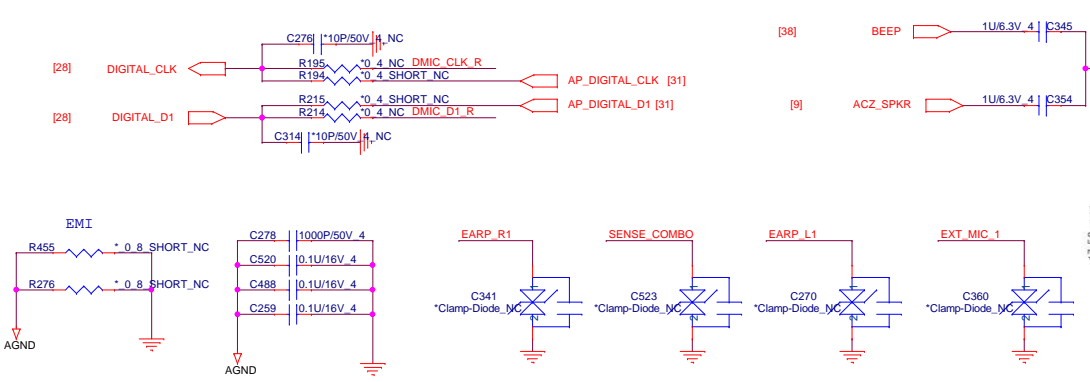
Title		
<Title>		
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### Audio Combo Jack



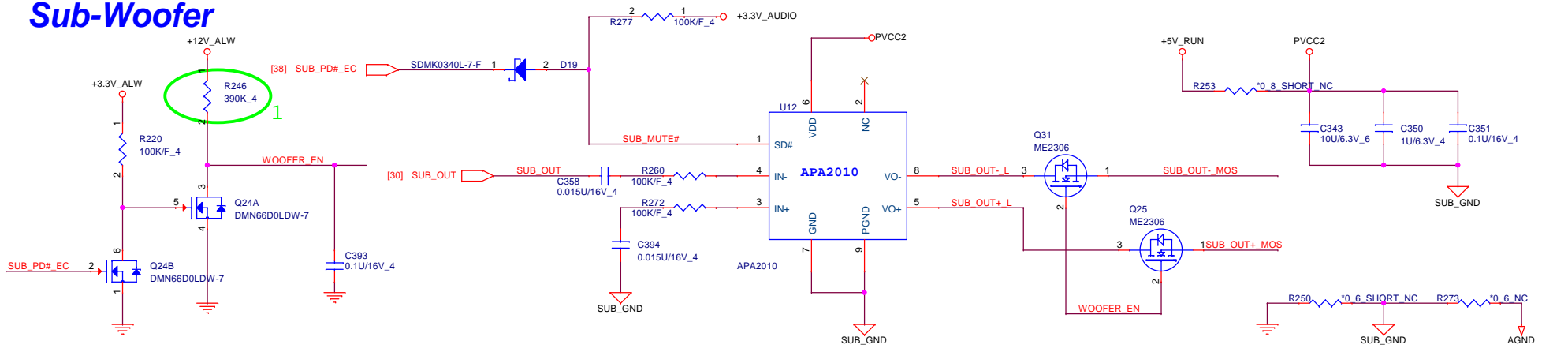
Audio Jack type:  
Normal Open  
Combo Jack(IPHONE)



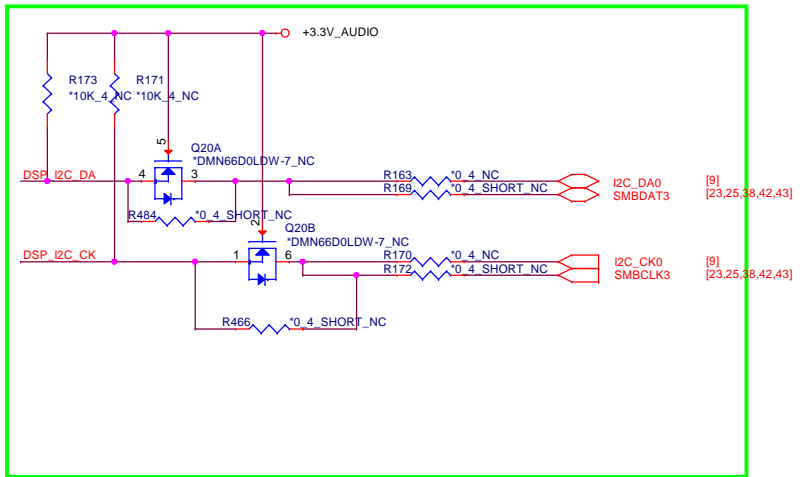
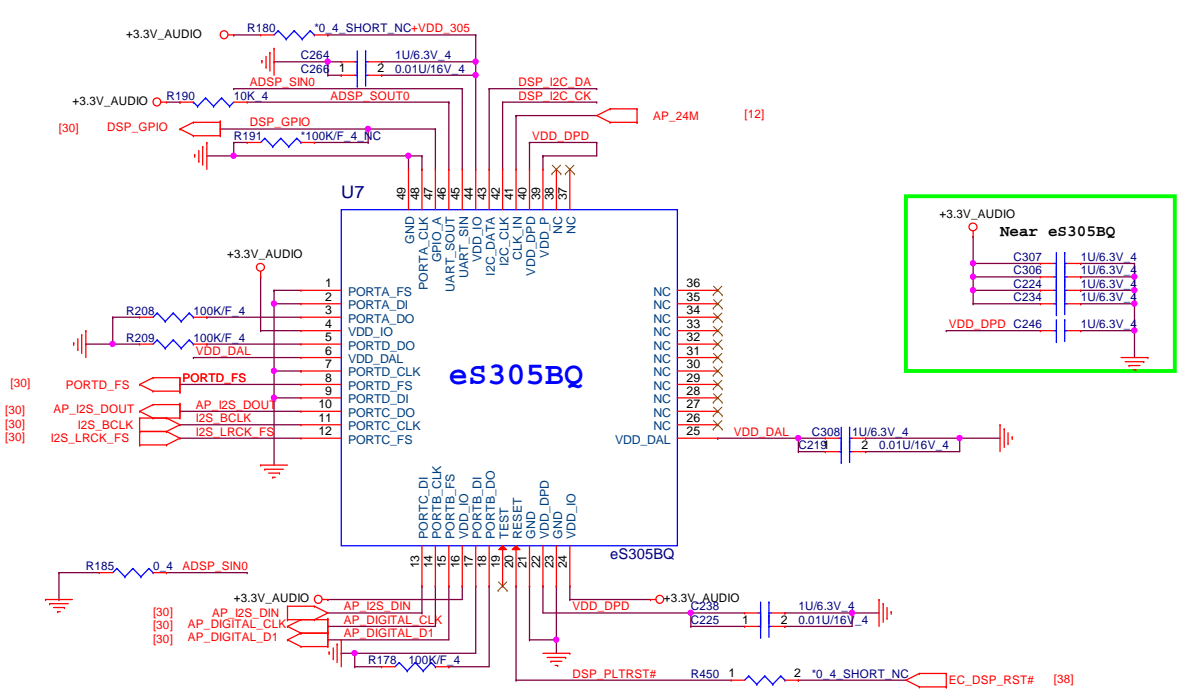
**Quanta Computer Inc.**  
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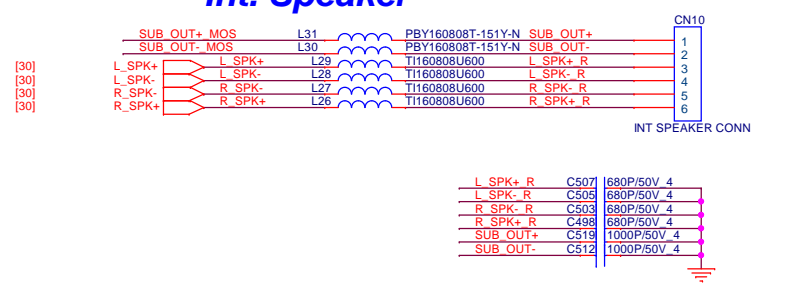
# Sub-Woofers



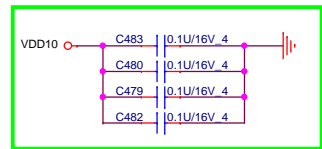
# Audio Processor



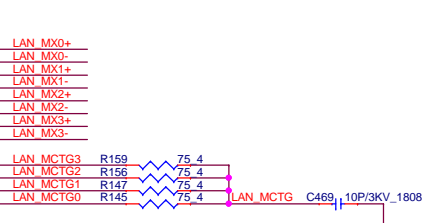
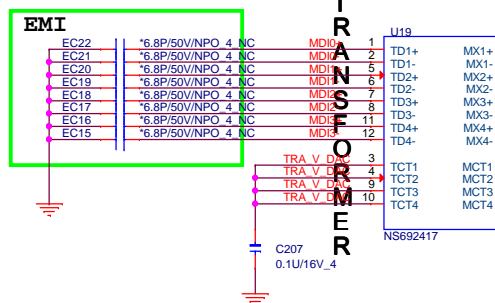
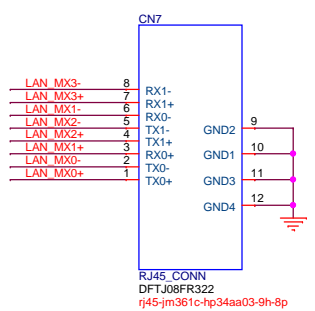
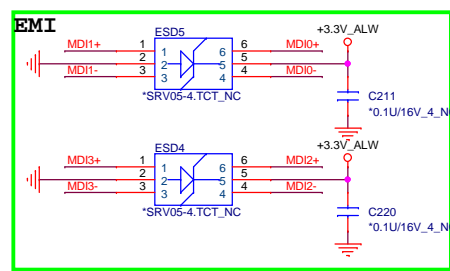
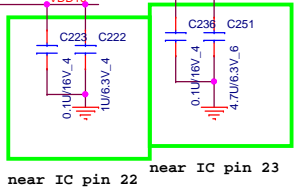
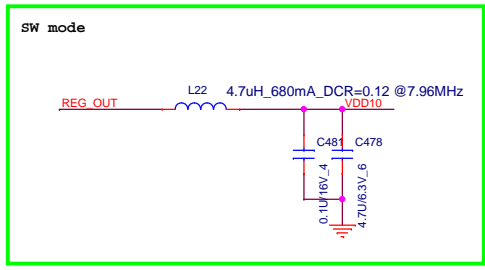
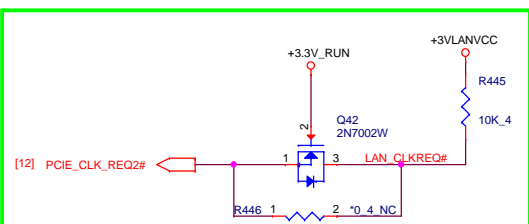
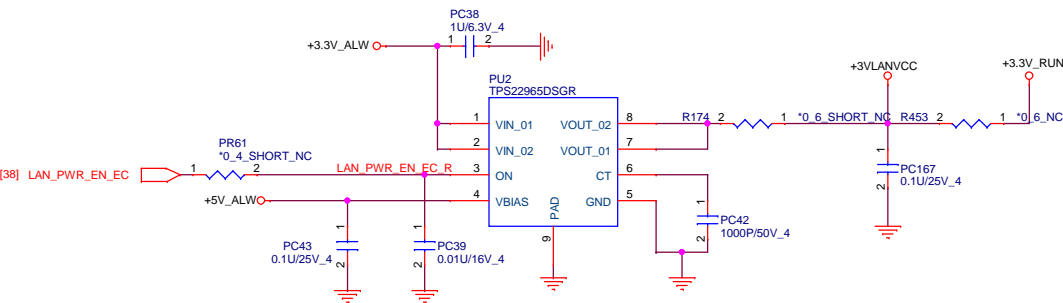
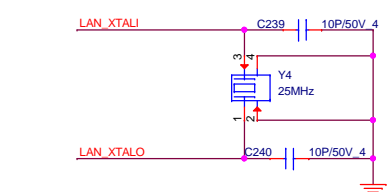
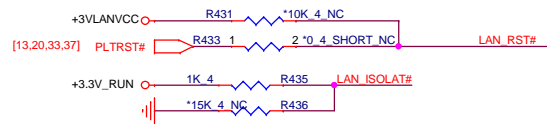
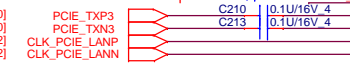
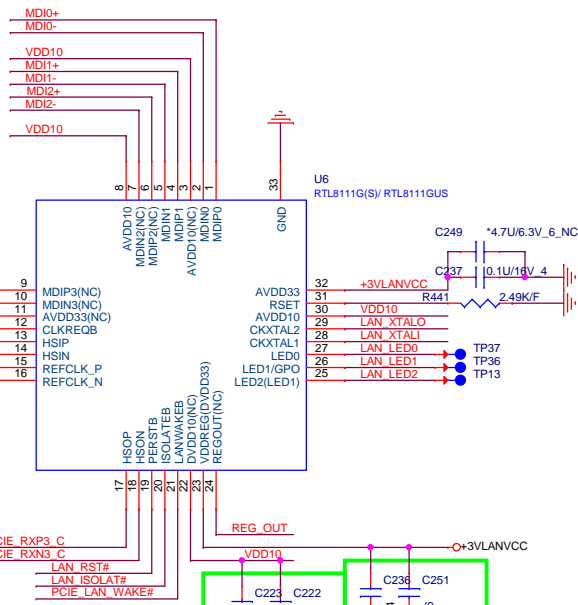
# Int. Speaker



JW8 have support S5 wave up



Each CAP near IC pin 3, 8, 22, 30



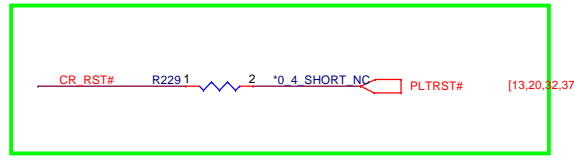
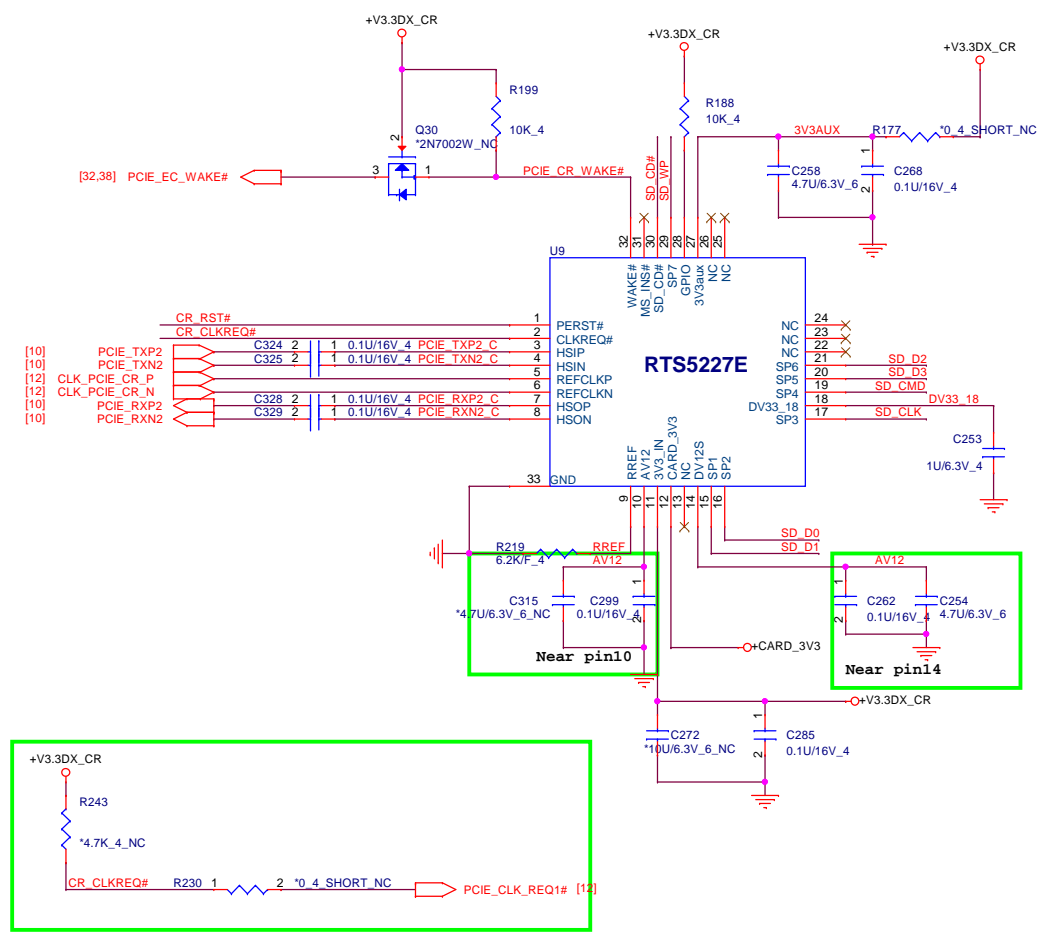
TRANSFORMER

FCE: NS692417, DBOKL3LAN02  
BOT: NAO069R LF, DBOKL3LAN01

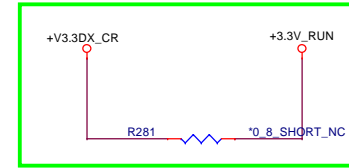
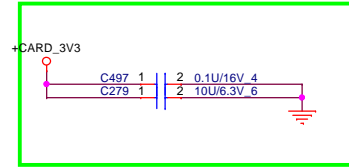
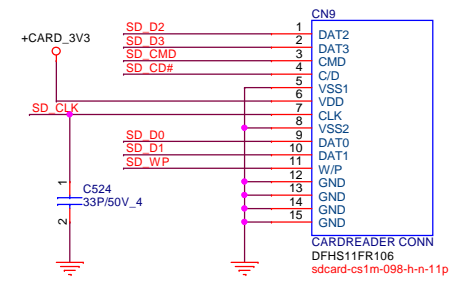
**Quanta Computer Inc.**  
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	<b>LAN(RTL8111GUS)/RJ45</b>	A
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### SD / MMC CARD READER



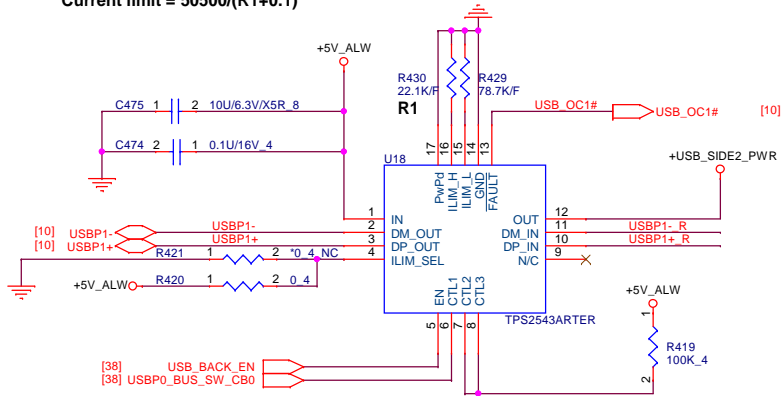
# USB3.0 Power Share

## USB Power share

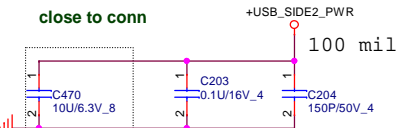
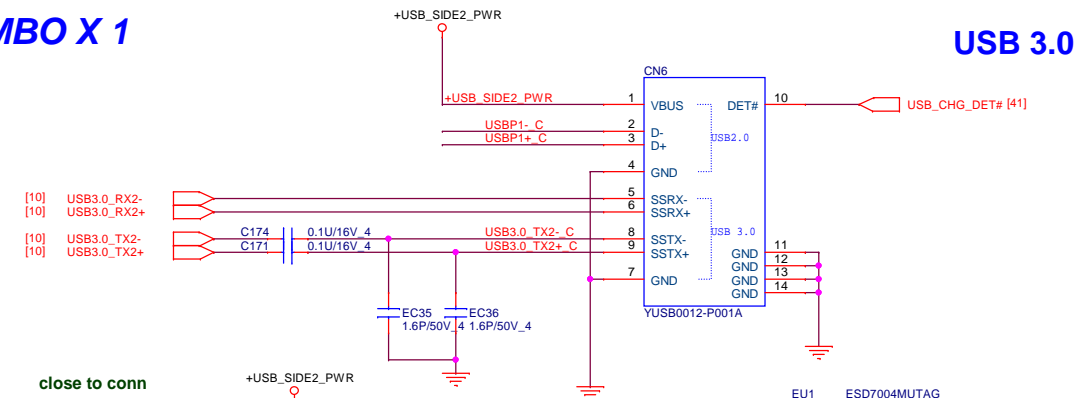
USBP0_BUS_SW_CB0	Mode
Low	DCP, Auto-detect
High	CDP, BC Spec 1.2

	R1	mA
OC limitation	100k ohm	504
	22.1k ohm	2274 <b>Applied Now</b>

Current limit =  $50500 / (R1 + 0.1)$



# USB3.0/2.0 COMBO X 1



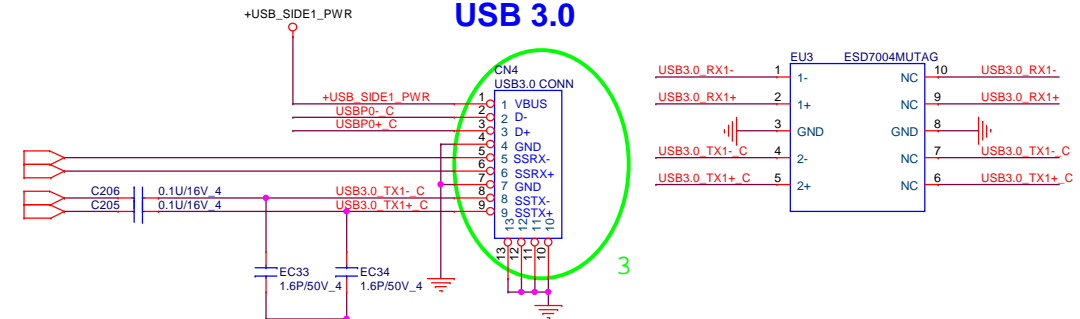
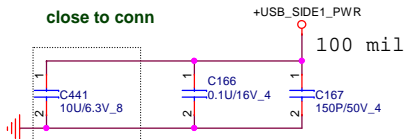
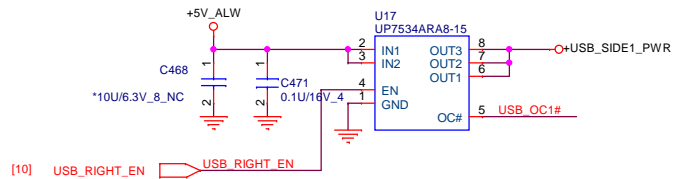
## ESD Function

Place ESD diodes as close as USB connector.



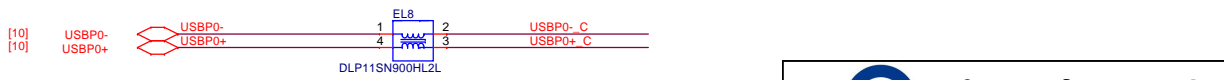
# USB3.0/2.0 COMBO


I continuous 1.5A  
OC 2.0A M13 Request



## ESD Function

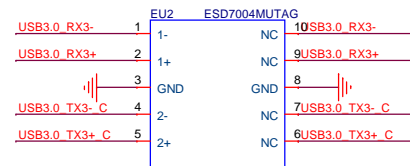
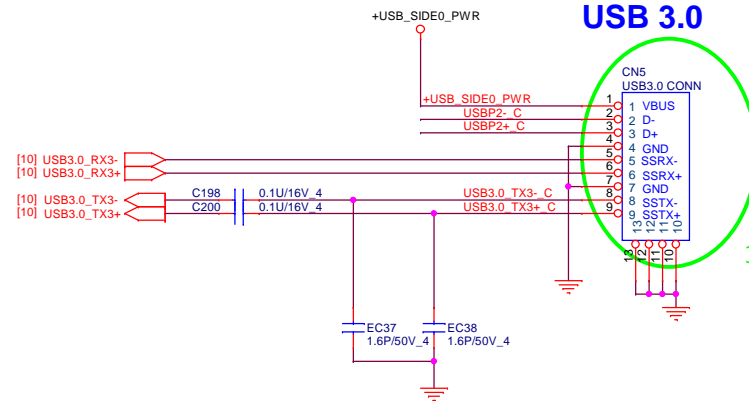
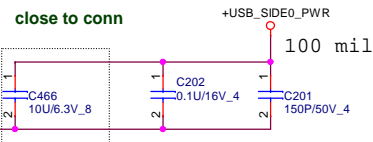
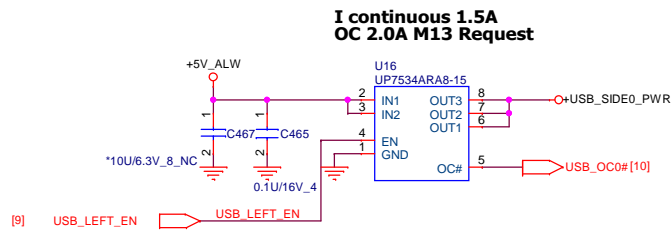
Place ESD diodes as close as USB connector.



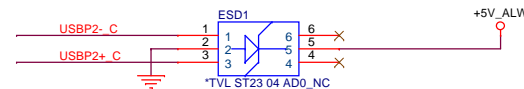


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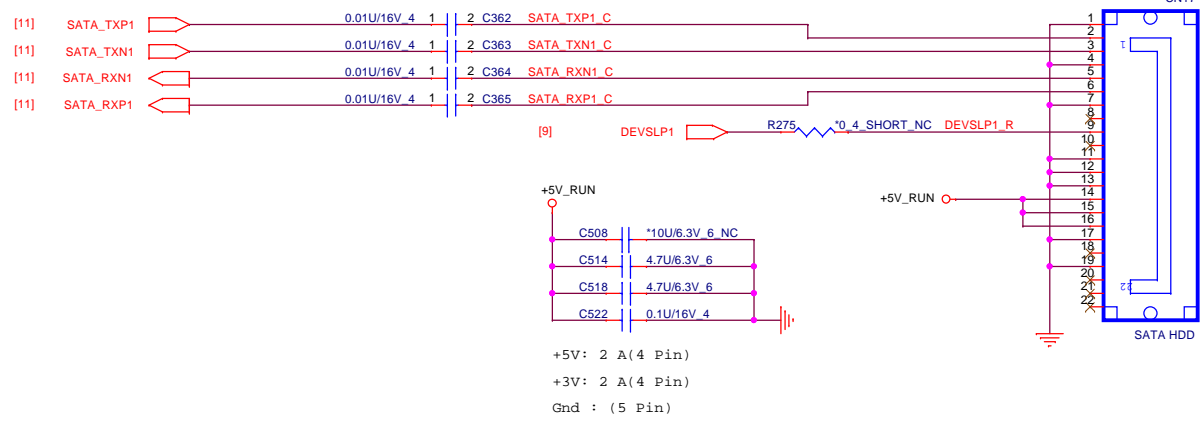
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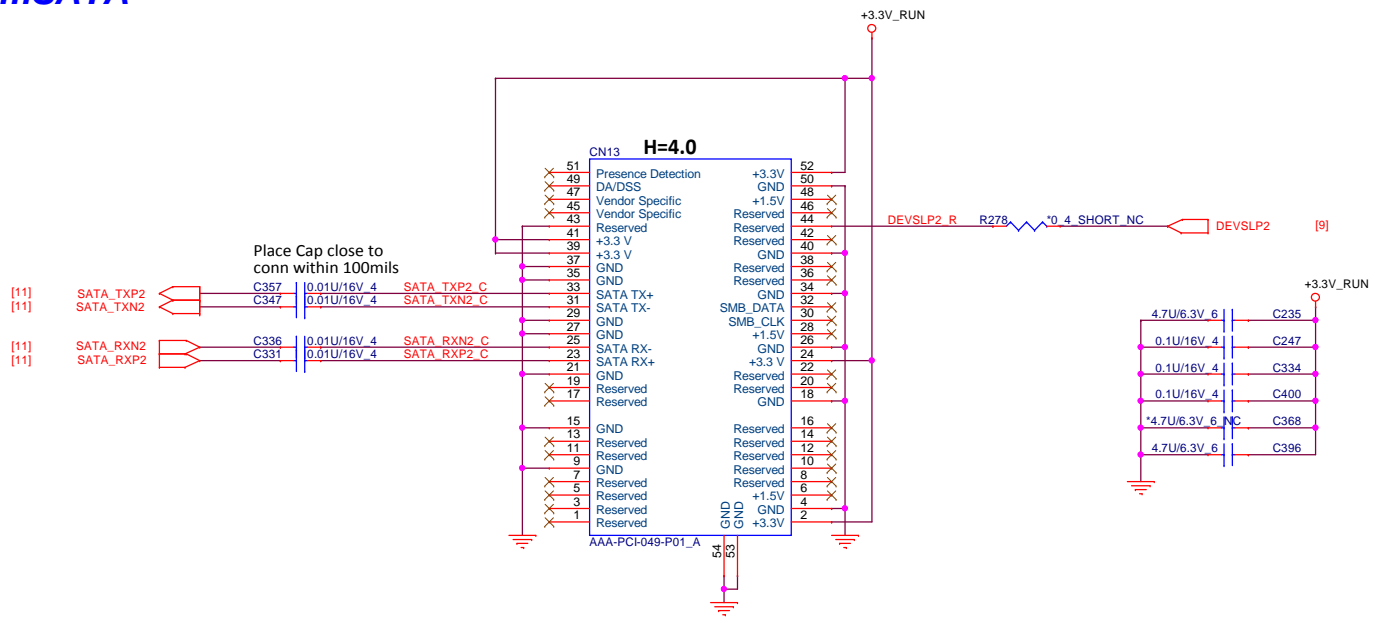
**ESD Function**  
Place ESD diodes as close as USB connector.



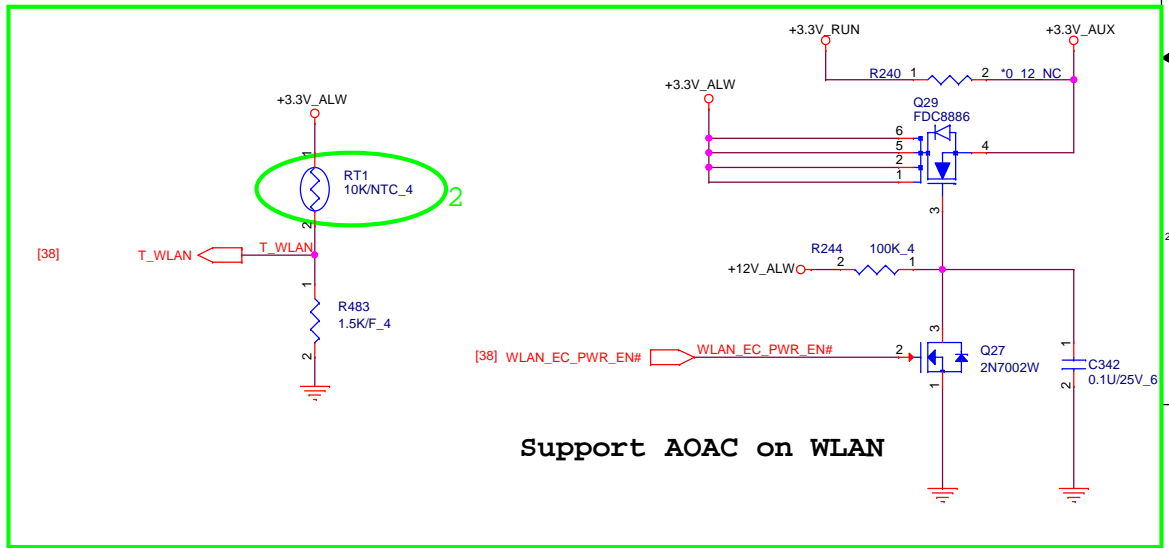
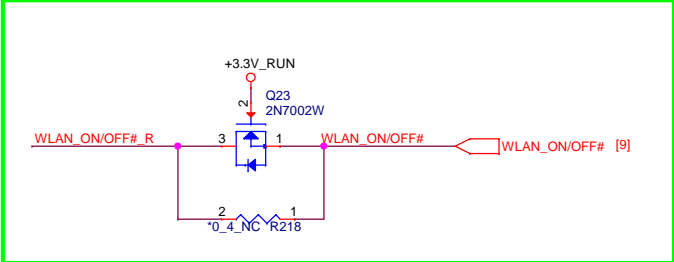
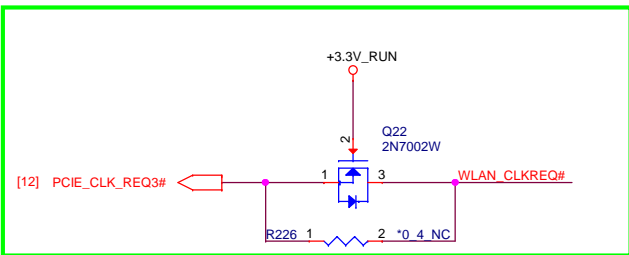
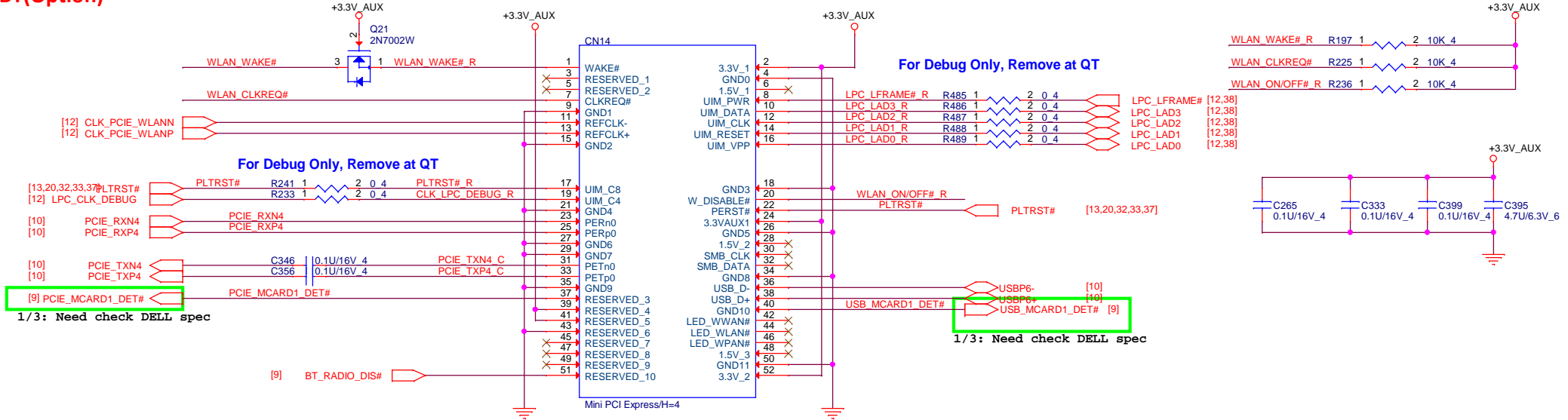
# SATA HDD Connector

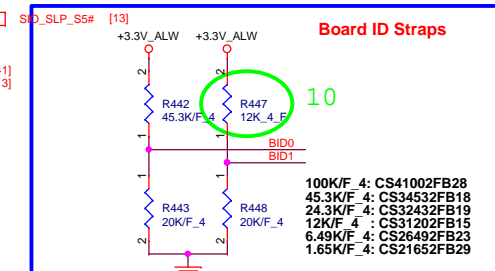
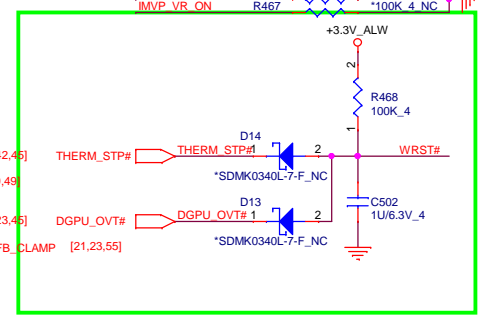
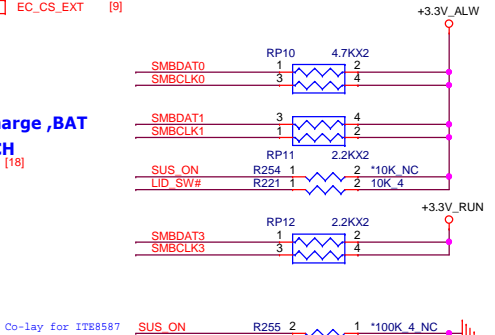
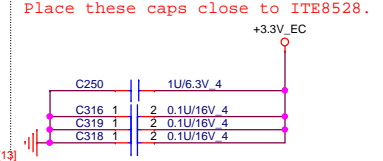
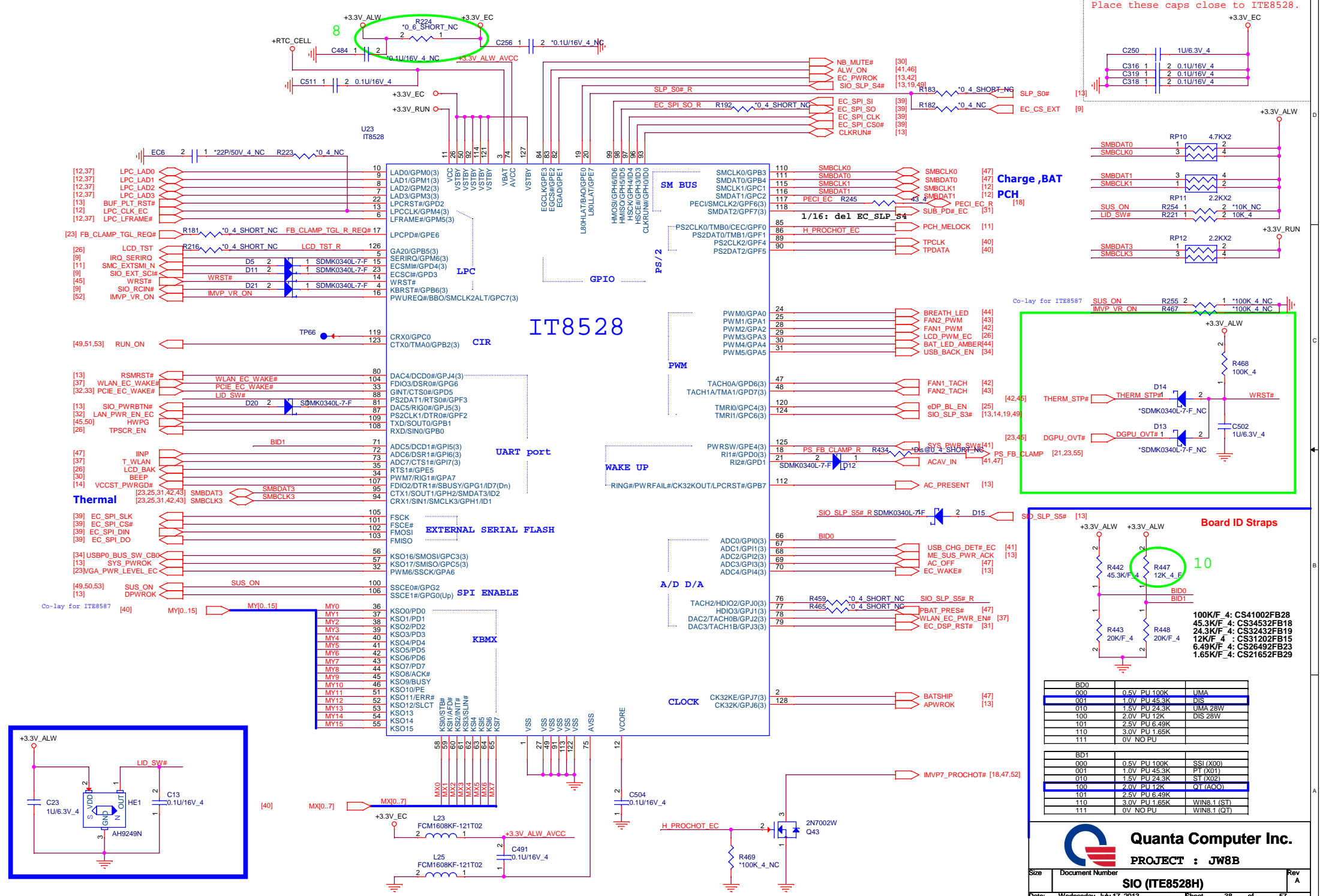


# mSATA



# Mini Card WLAN/BT(Optional)





BD0		
000	0.5V PU 100K	UMA
001	1.0V PU 45.3K	DIS
010	1.5V PU 24.3K	UMA 28W
100	2.0V PU 12K	DIS 28W
101	2.5V PU 6.49K	OT (AOC)
110	3.0V PU 1.65K	
111	0V NO PU	

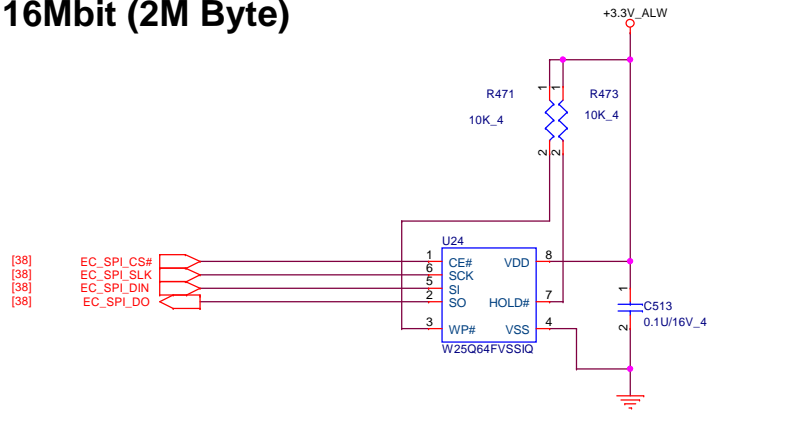
BD1		
000	0.5V PU 100K	SSI (X00)
001	1.0V PU 45.3K	PT (X01)
010	1.5V PU 24.3K	ST (X02)
100	2.0V PU 12K	OT (AOC)
101	2.5V PU 6.49K	WIN8.1 (ST)
110	3.0V PU 1.65K	WIN8.1 (GT)
111	0V NO PU	

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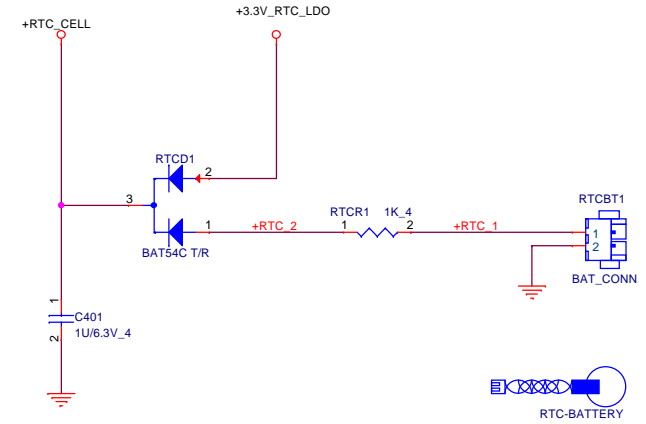
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			A

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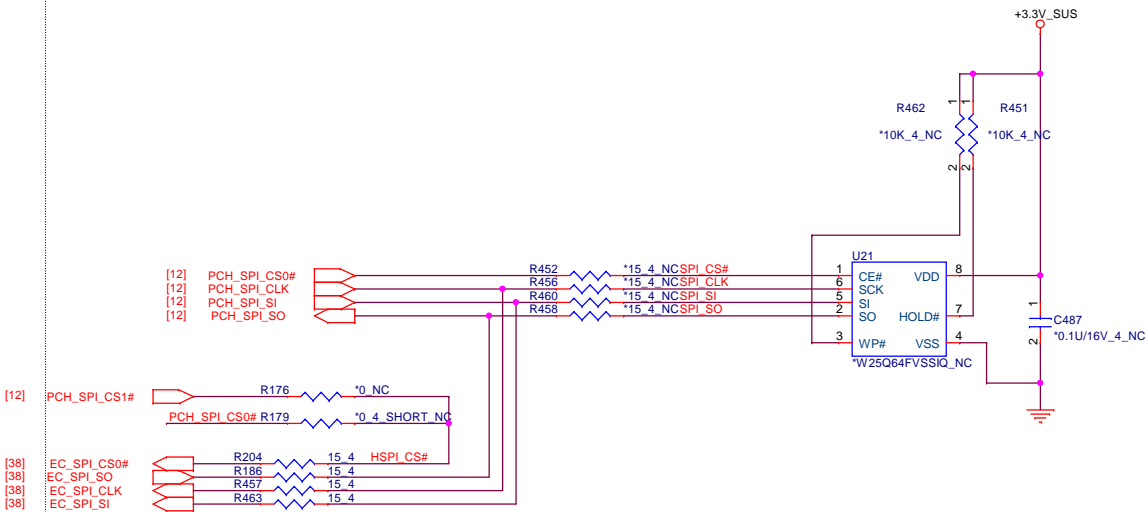
### For EC 16Mbit (2M Byte)



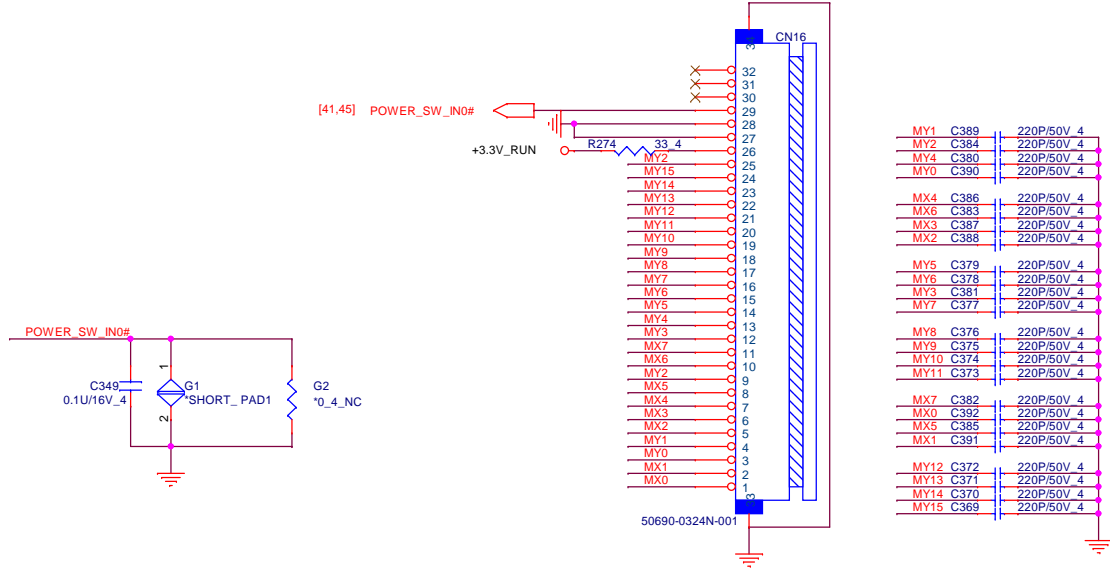
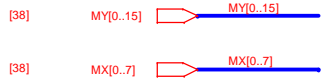
### RTC BATTERY



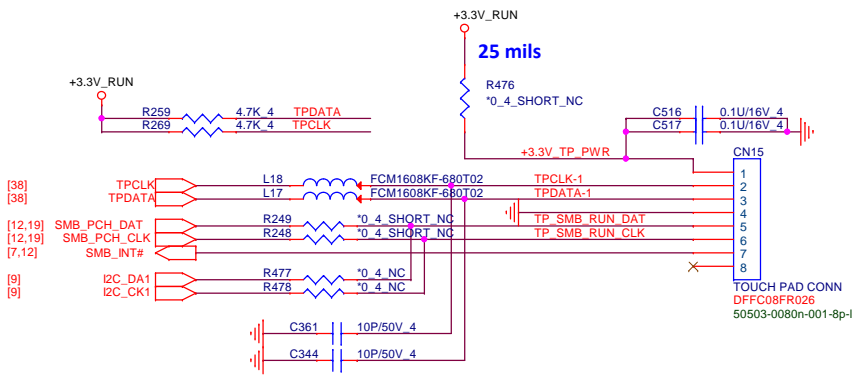
### For PCH 64Mbit (8M Byte)



# Keyboard Connector

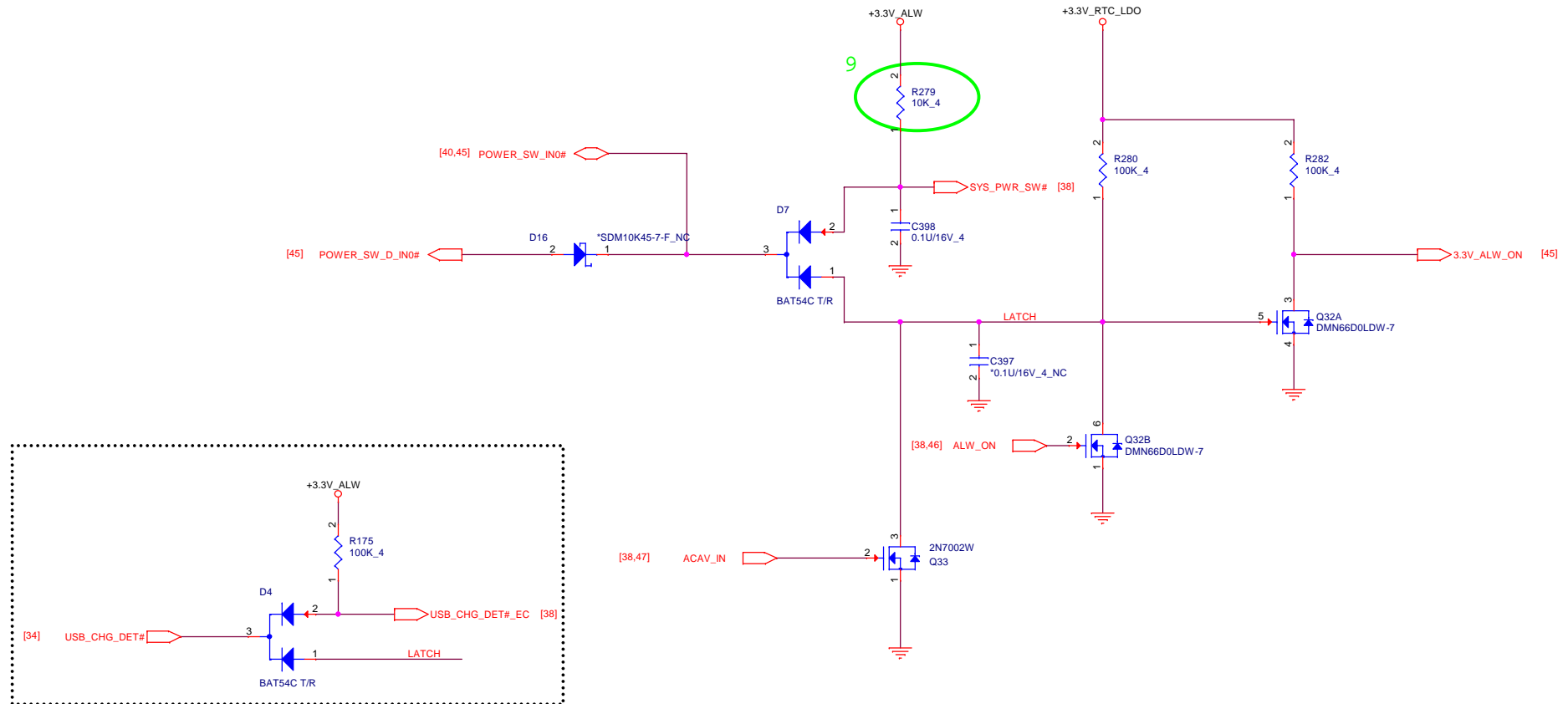


# Touch Pad Connector



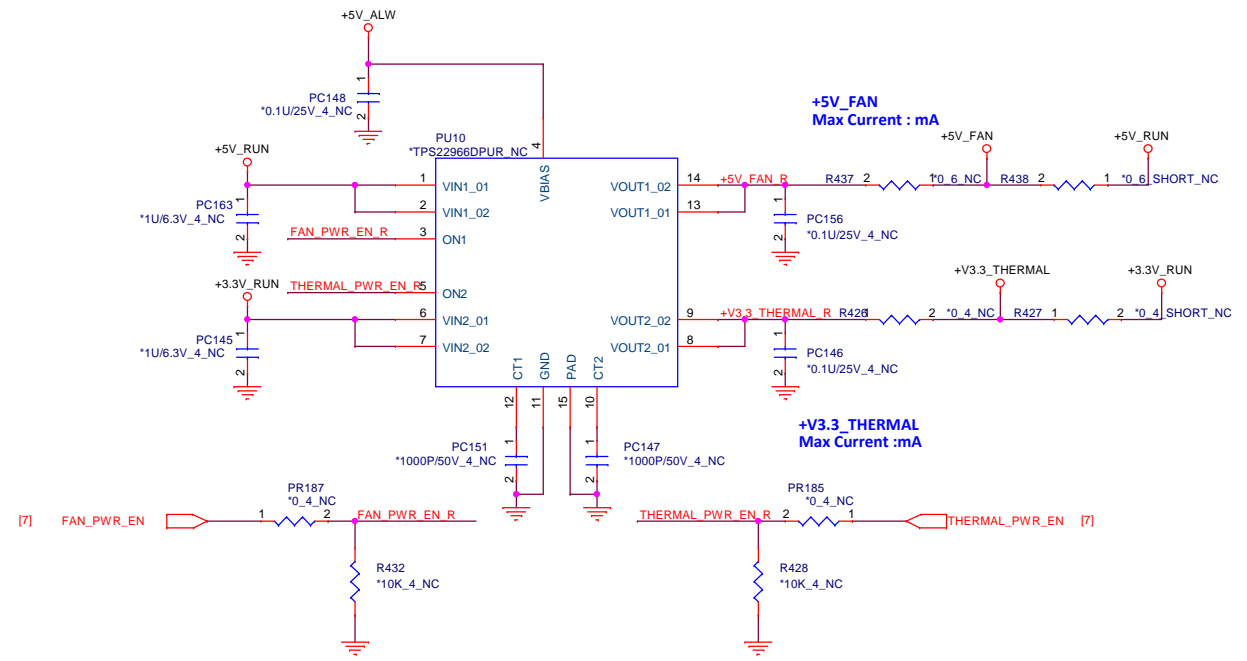
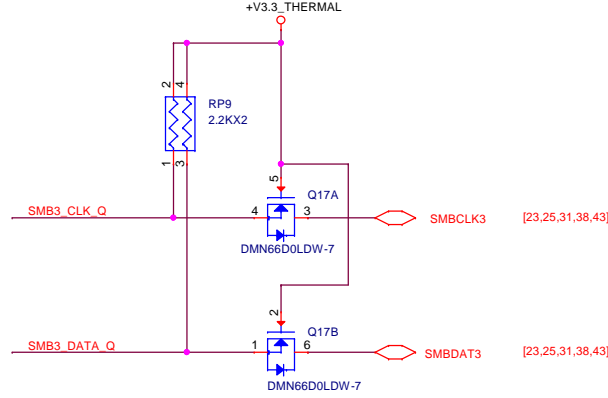
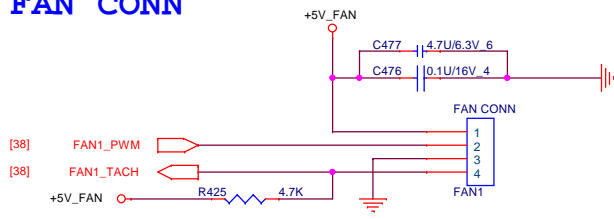


# 3VALW ON POWER LOGIC

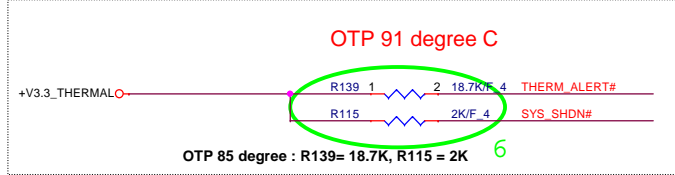
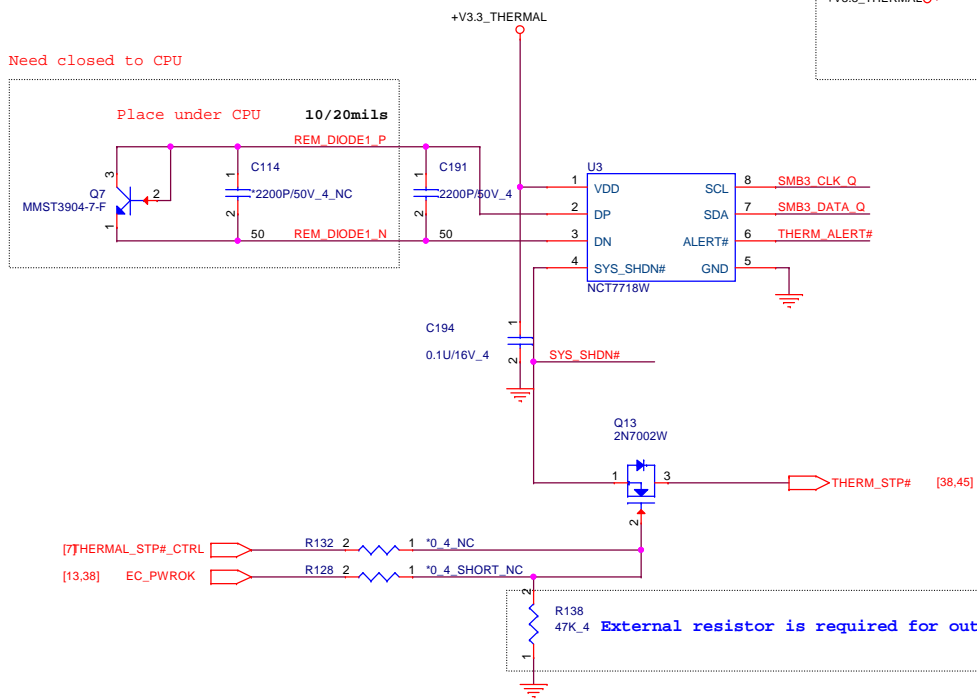


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# FAN CONN



# THERMAL IC



SYS_SHD#	2K	7.5K	10.5K	14K	18.7K
ALERT#	77'C	87'C	97'C	107'C	117'C
7.5K	79'C	89'C	99'C	109'C	119'C
10.5K	81'C	91'C	101'C	111'C	121'C
14K	83'C	93'C	103'C	113'C	123'C
18.7K	85'C	95'C	105'C	115'C	125'C

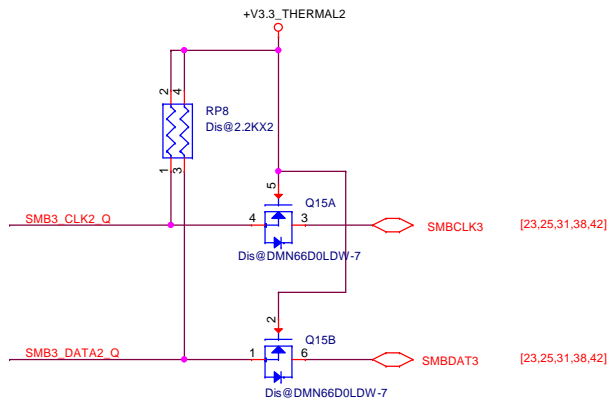
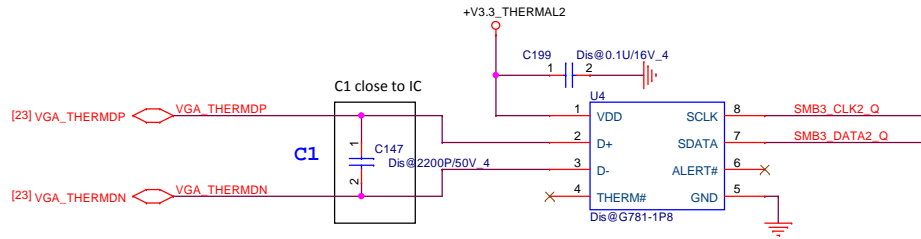


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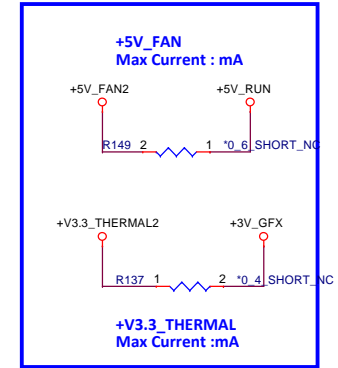
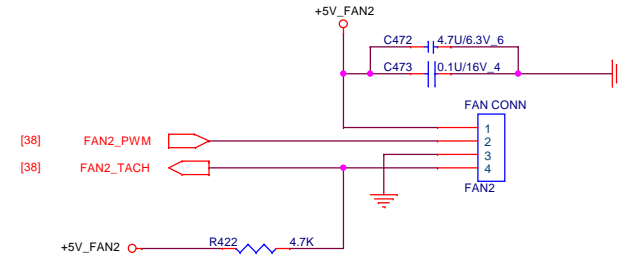
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<b>FAN &amp; THERMAL</b>		A
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# For GPU use

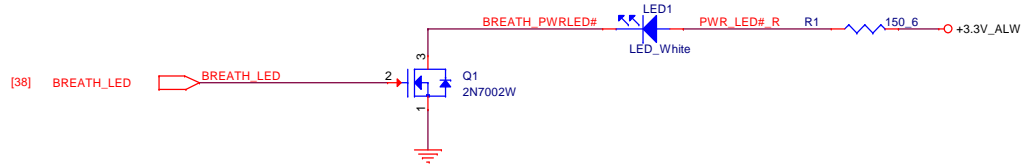
G781-1P8  
 SMBus address is 1001101xb (9Ah) (x is R/W bit).



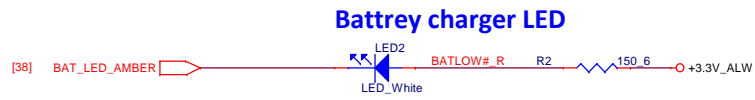
# FAN CONN



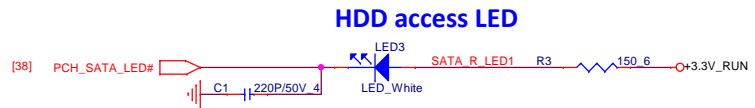
### LED Status



### System status LED



### Battery charger LED



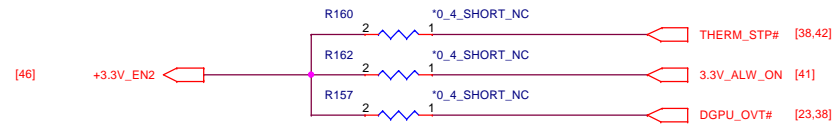
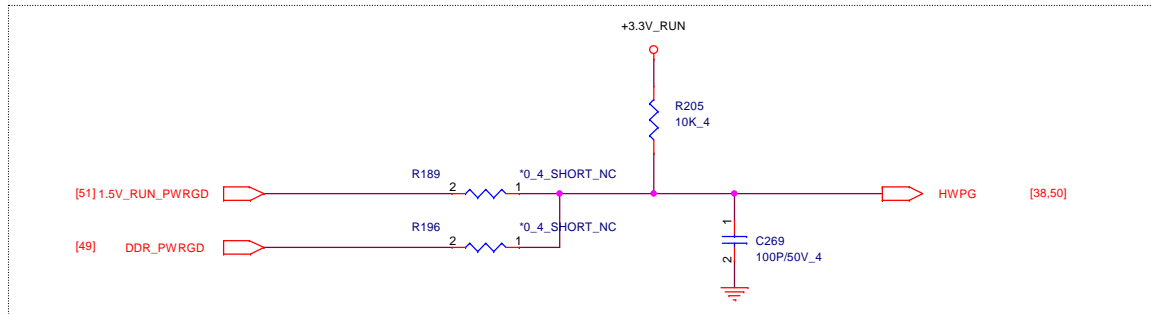
### HDD access LED



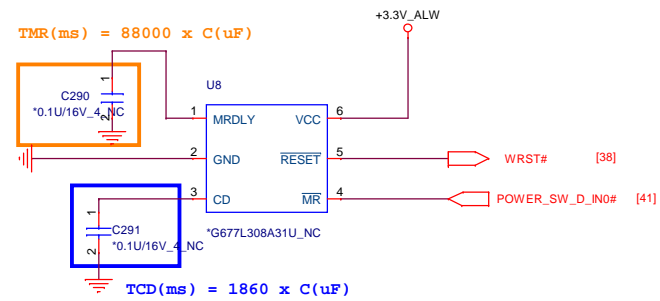
**Quanta Computer Inc.**

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	<b>LED</b>	<b>A</b>
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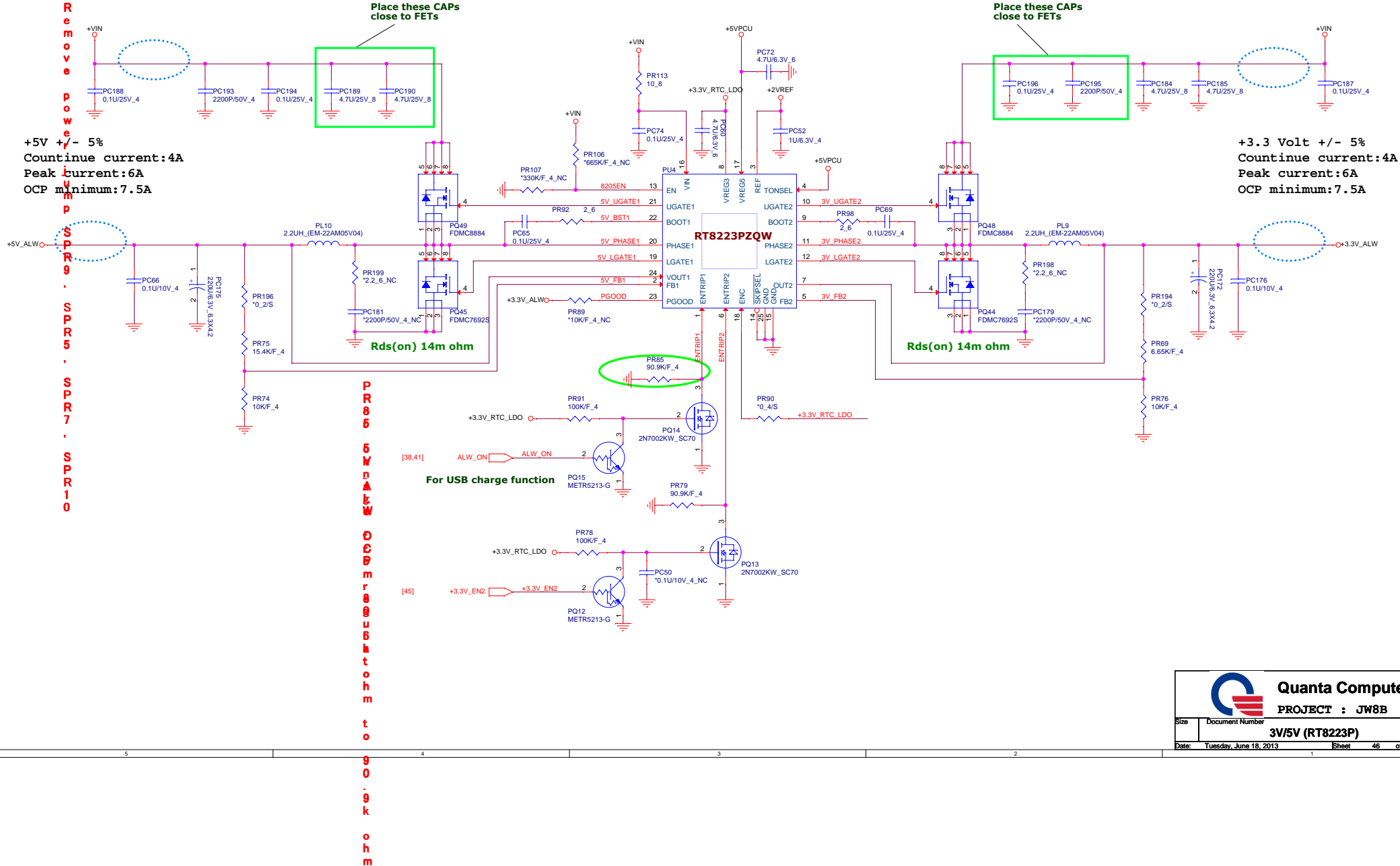
### HW reset IC



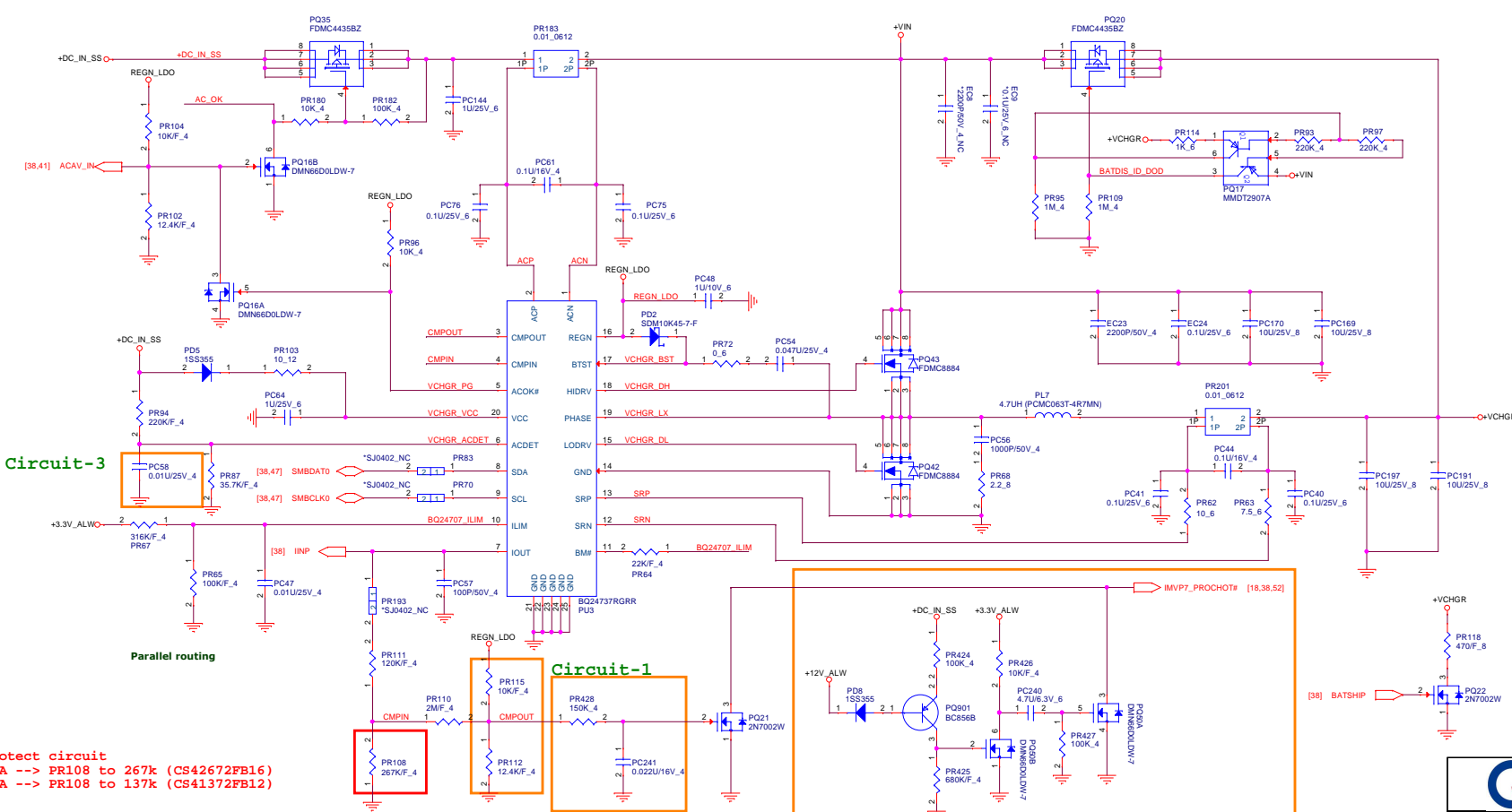
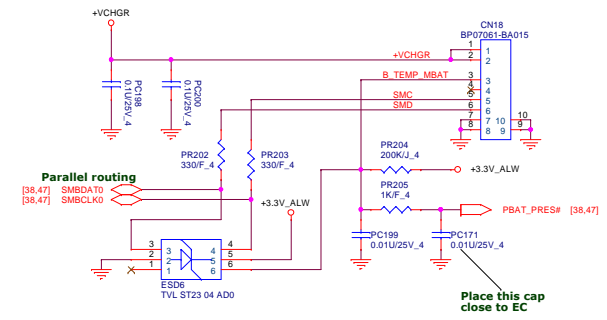
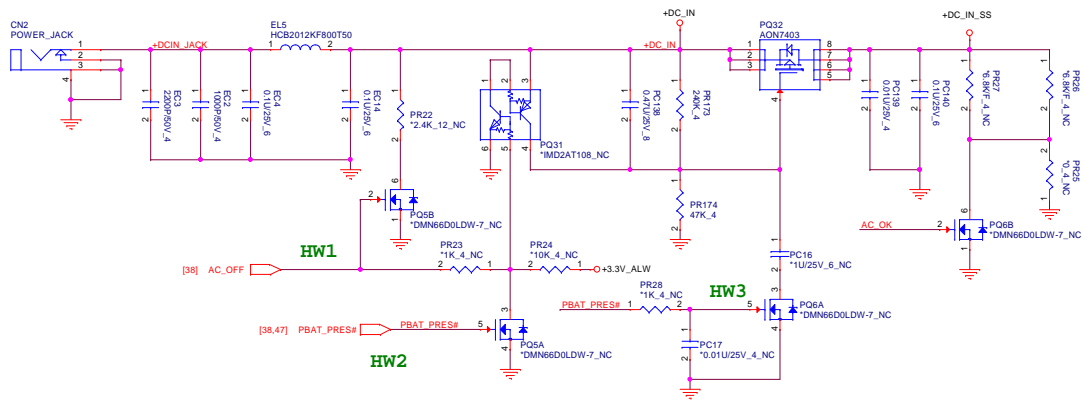
Quanta Computer Inc.

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DC/DC +3V\_ALW/+5V\_ALW/+5V\_ALW2 /+15V\_ALW



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Adaptor protect circuit  
 65W - 4.34A --> PR108 to 267k (CS42672FB16)  
 90W - 5.62A --&; PR108 to 137k (CS41372FB12)

A

B

C

D

E

1

1

2


2

3

3

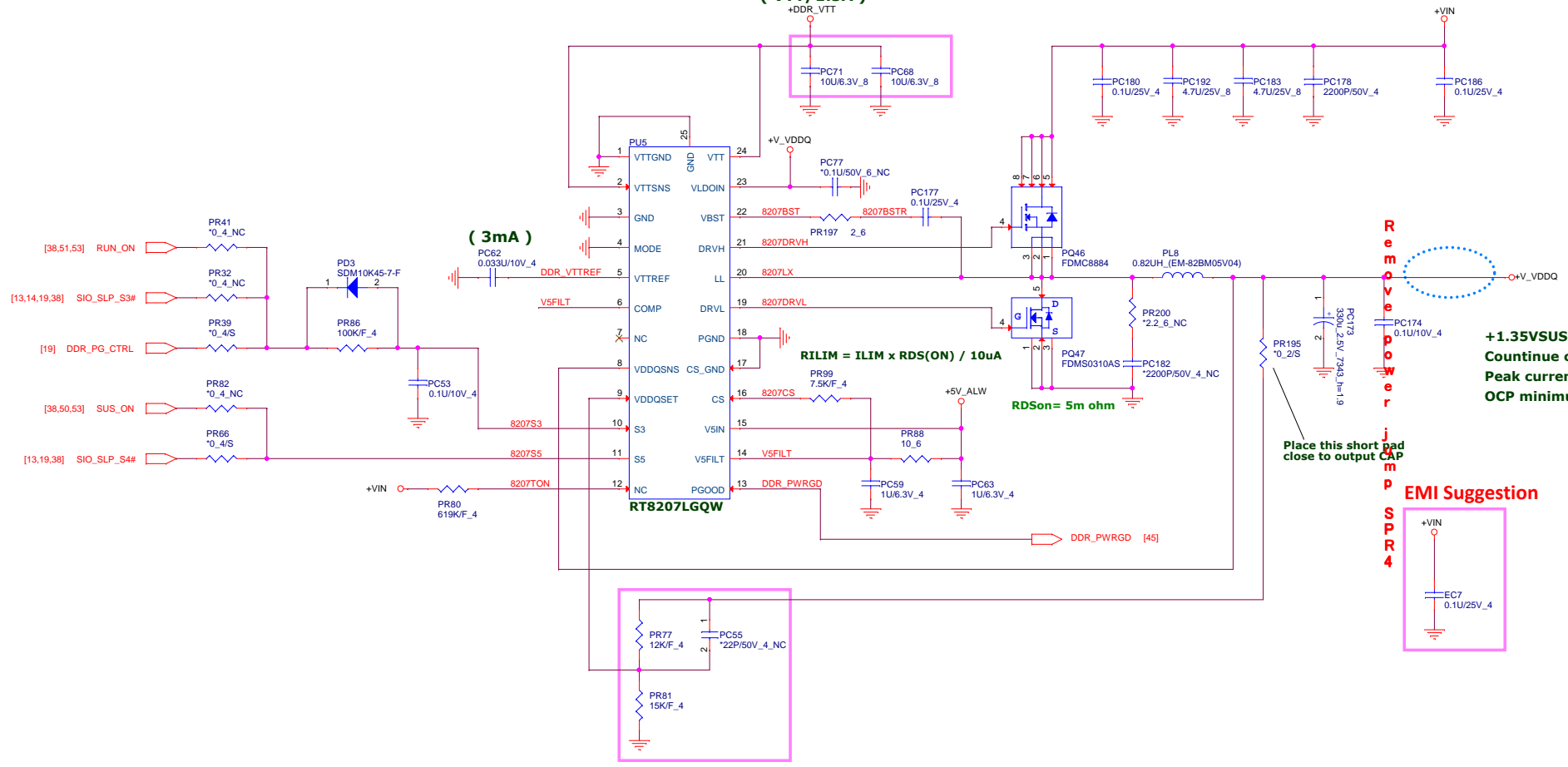
4

4

		<b>Quanta Computer Inc.</b>	
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( VTT/1.5A )



$RILIM = ILIM \times RDS(ON) / 10\mu A$

$RDSon = 5m\ ohm$

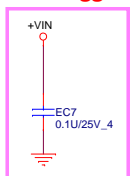
( 3mA )

Place this FB parts close to IC  
 $VDDQ = 0.75 (1 + R1/R2)$

Remove Jumper

Place this short pad close to output CAP

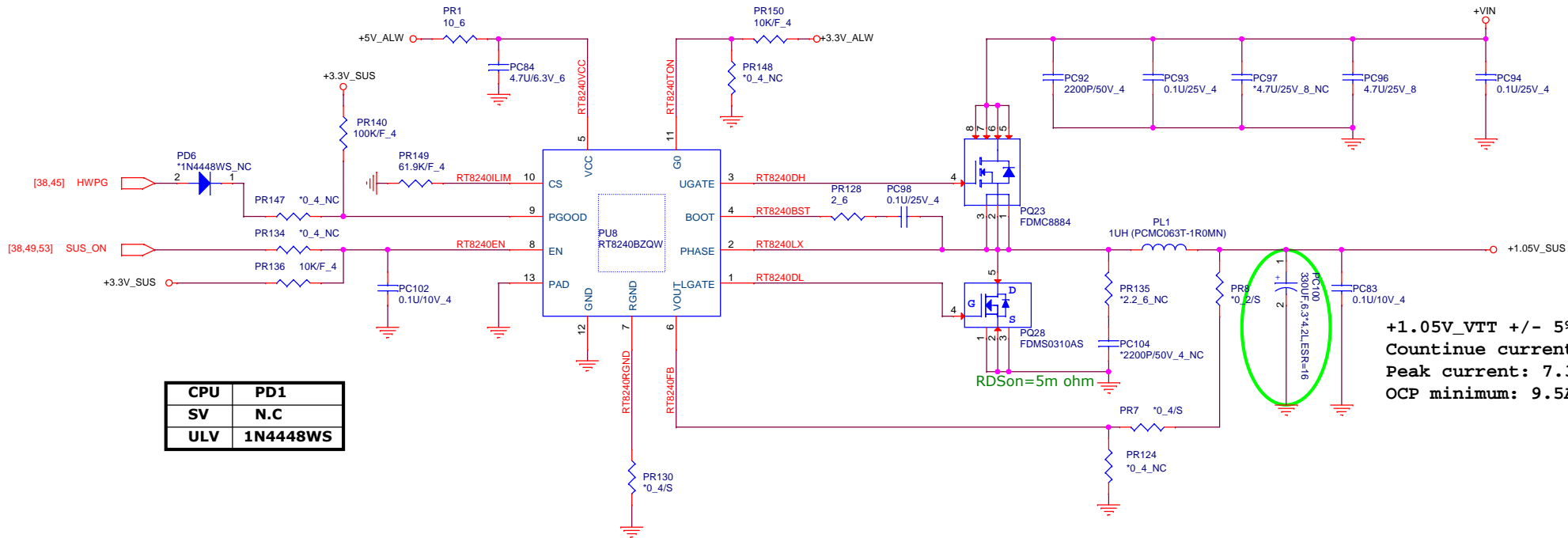
EMI Suggestion



**+1.35VSUS +/- 5%**  
**Countinue current:8.1A**  
**Peak current:11.6A**  
**OCp minimum 15A**

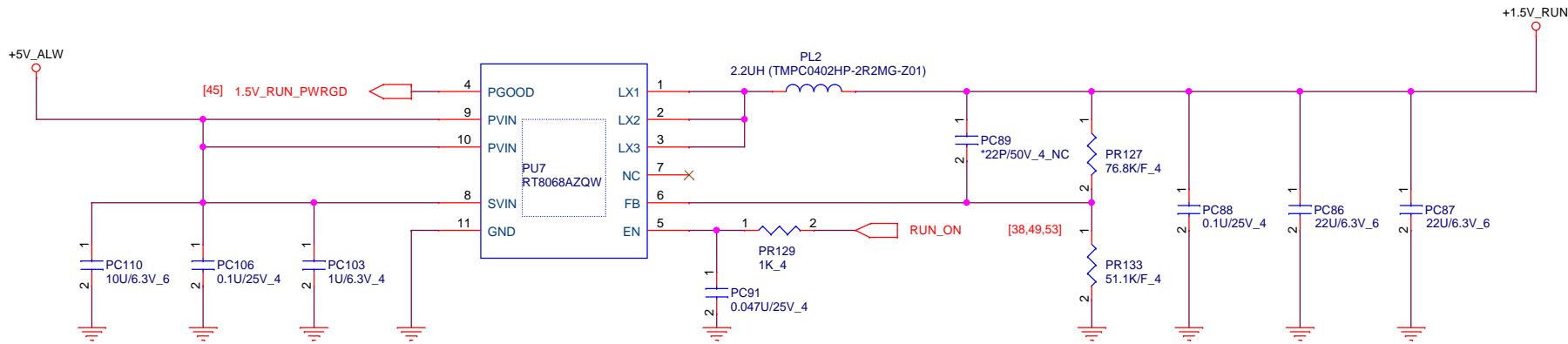
**Quanta Computer Inc.**  
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	DDR3L VDDQ(RT8207LGQW)	1A
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**+1.05V\_VTT +/- 5%**  
**Countinue current: 5A**  
**Peak current: 7.3A**  
**OCp minimum: 9.5A**

CPU	PD1
SV	N.C
ULV	1N4448WS



**+1.5V\_RUN**  
 1.5 Volt +/- 5%  
 Fsw : 1MHz  
 TDC : 1A  
 Max : 1.5A  
 OCP : 3A

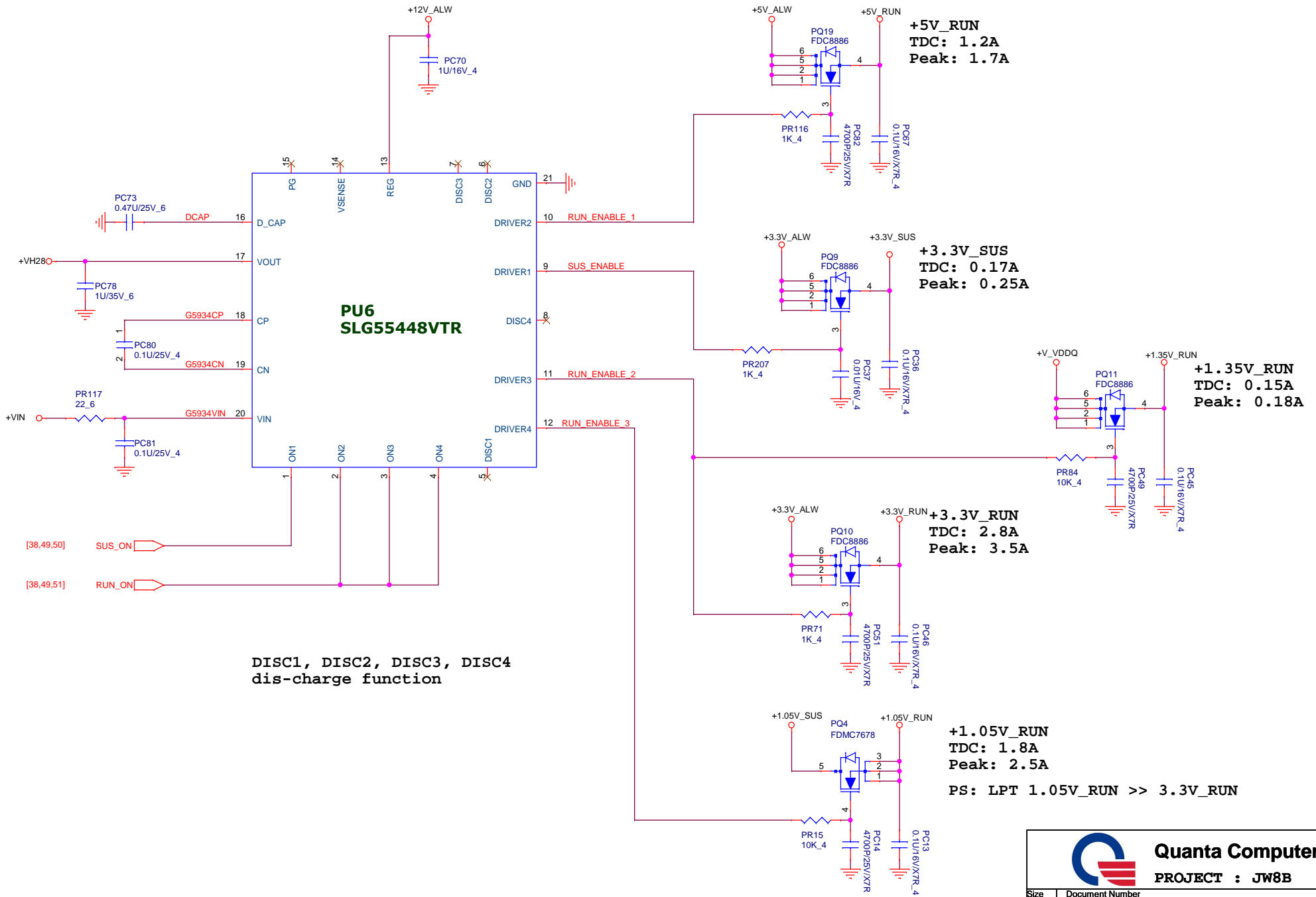



**Quanta Computer Inc.**  
**PROJECT : JW8B**

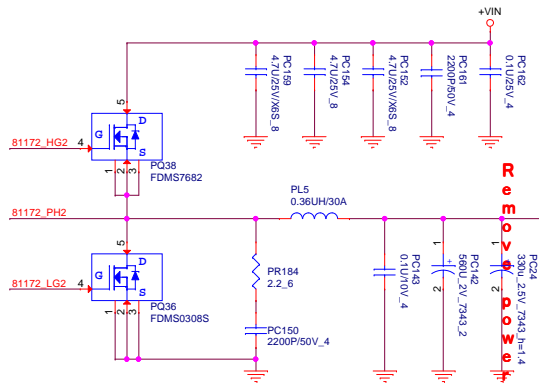
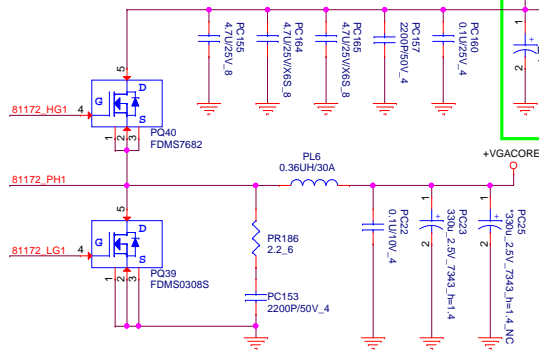
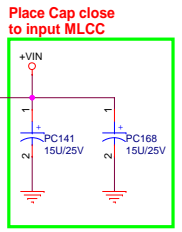
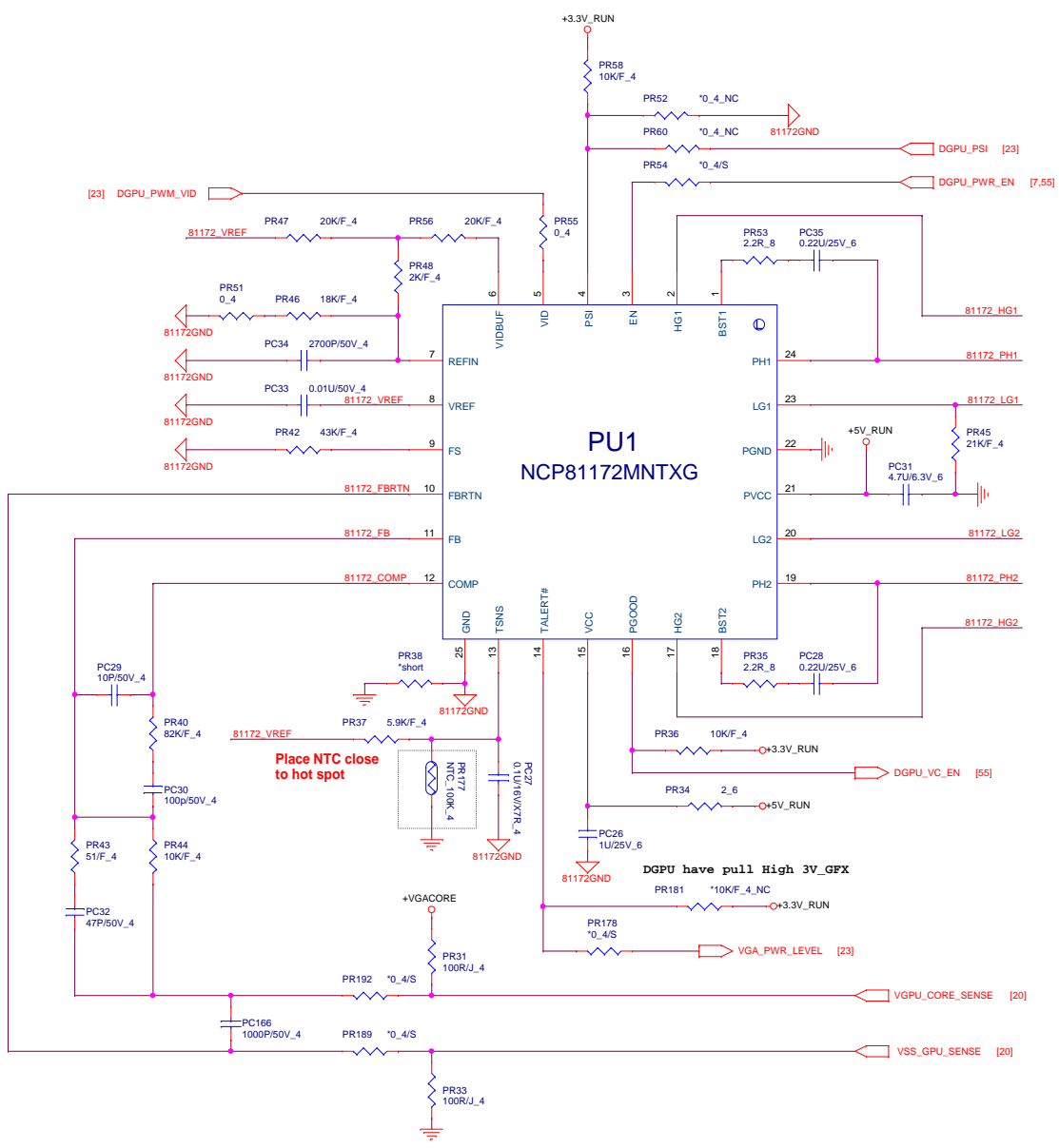
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	<b>+1.5V_RUN (RT8068AZQW)</b>	1A

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		1A
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<b>SUS_RUN Power Switch</b>		
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Remove the jumper

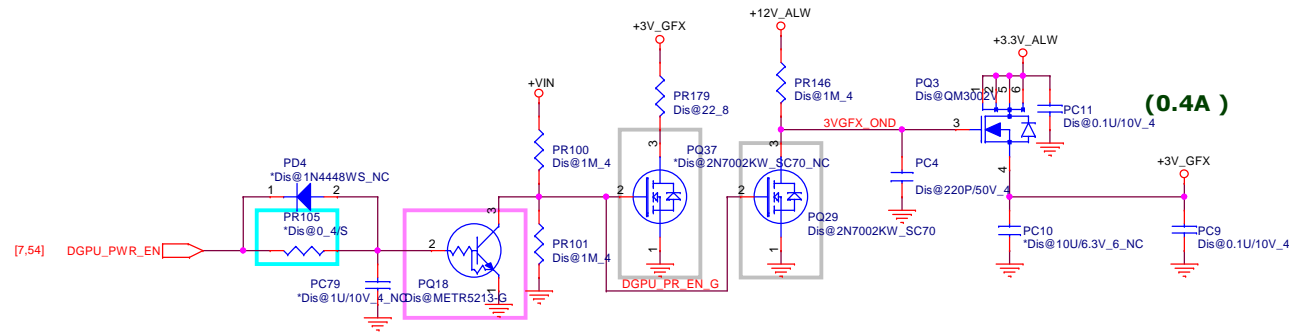
Place NTC close to hot spot

DGPU have pull High 3V\_GFX

**Quanta Computer Inc.**  
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**+VGA CORE ( NCP3218G)**

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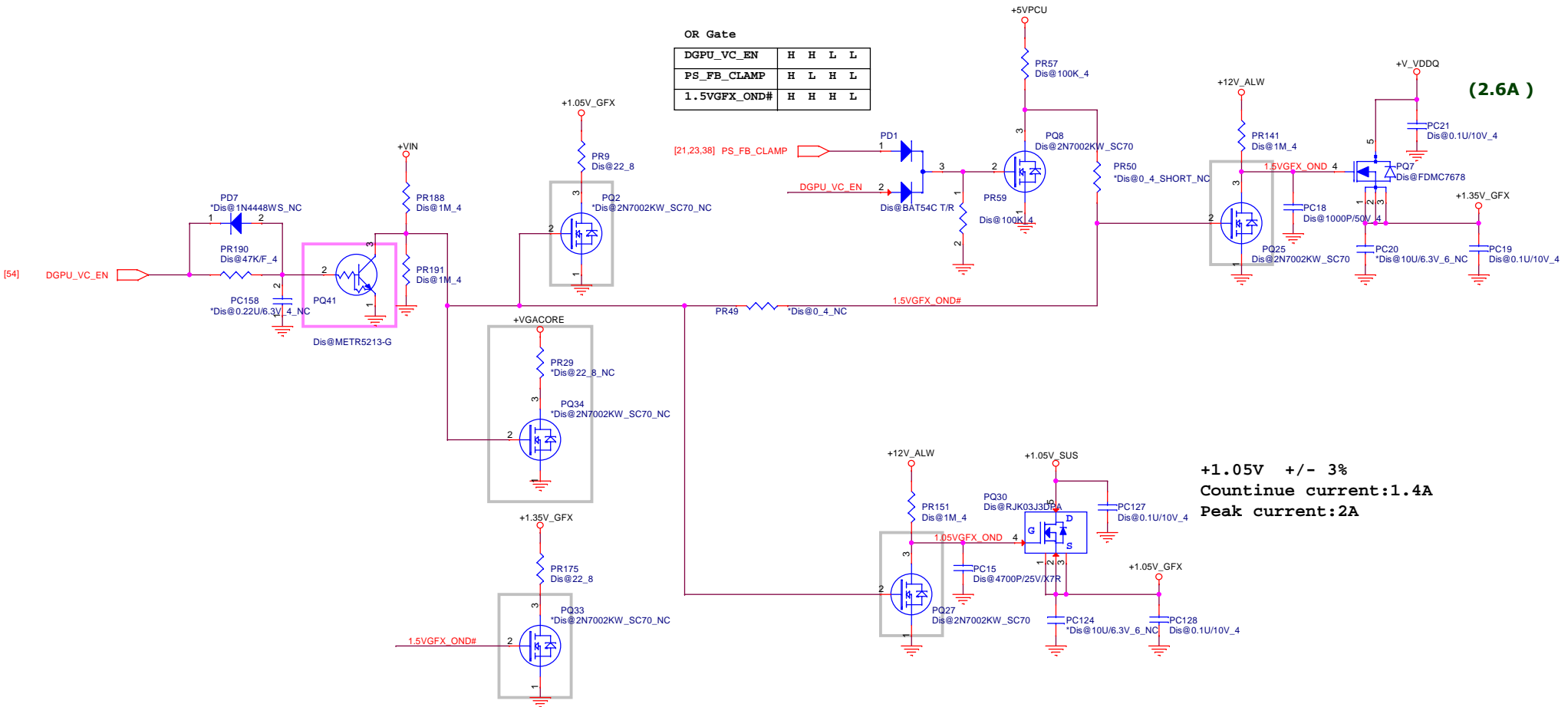
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**(0.4A)**

OR Gate

DGPU_VC_EN	H	H	L	L
PS_FB_CLAMP	H	L	H	L
1.5VGFX_OND#	H	H	H	L



**(2.6A)**

**+1.05V +/- 3%**  
**Countinue current:1.4A**  
**Peak current:2A**

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