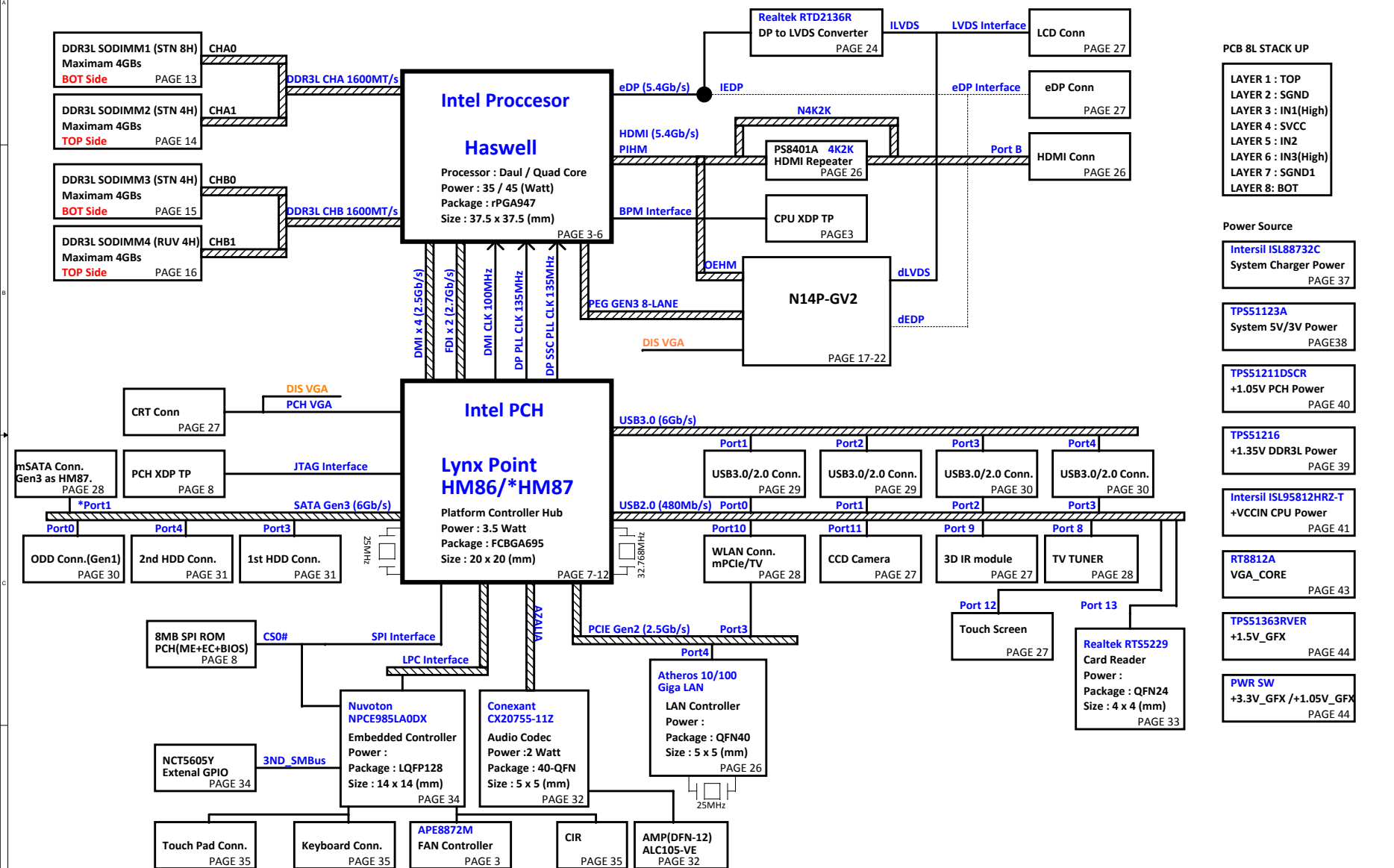
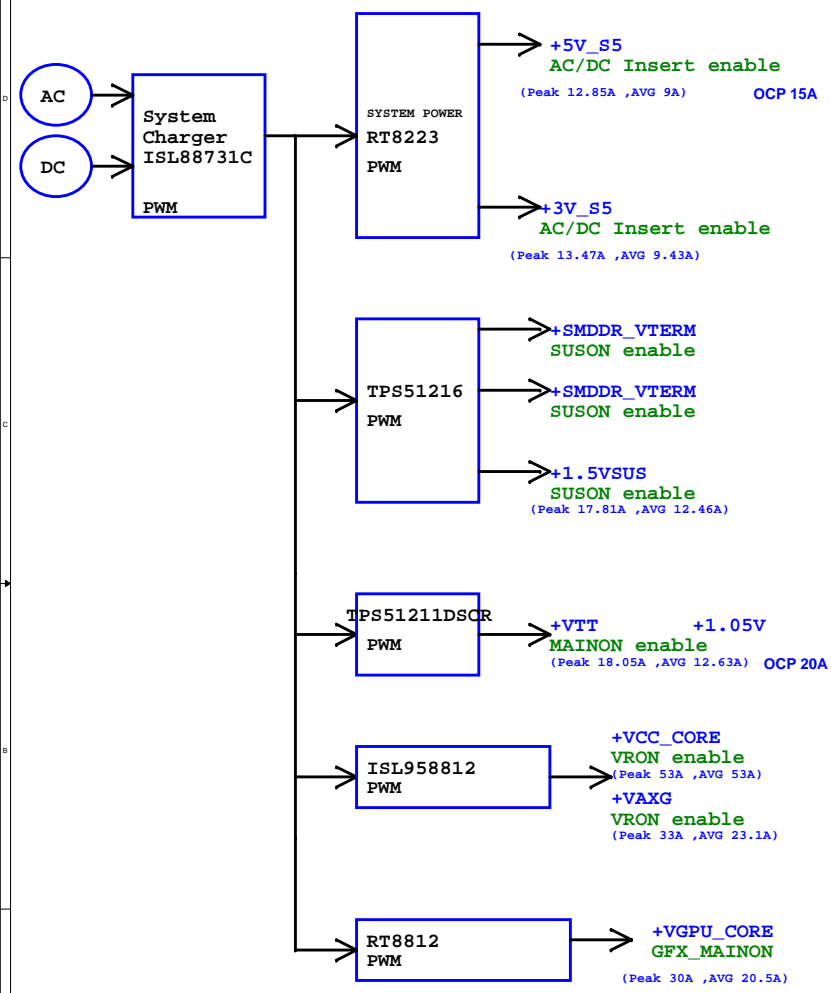


# (17.3") Intel Shark Bay Platform Block Diagram

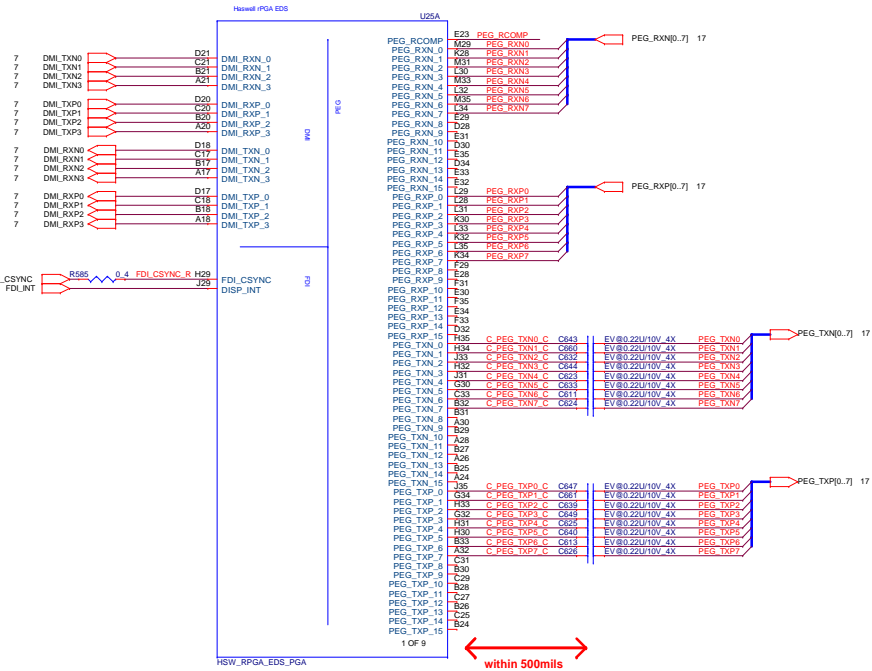
01





POWER PLANE	VOLTAGE	CONTROL SIGNAL	Power States ACTIVE IN
VIN	10V~+19V		S0~S5
+VCCRTC	+3.0V~+3.3V		S0~S5
+3V	+3.3V	MAIN_ON	S0
+3V_S5	+3.3V	S5_ON	S0~S5
+3V_HDP	+3.3V	MAIN_ON	S0
+3VPCU	+3.3V	AC/DC Insert enable	S0
+5V	+5V	MAIN_ON	S0
+5V_S5	+5V	S5_ON	S0~S5
+5VPCU	+5V	AC/DC Insert enable	S0~S5
WIMAX_P	+3.3V	WMAX_P for WLAN	
+1.8V	+1.8V	MAIN_ON	S0
+1.5V	+1.5V	MAIN_ON	S0
+1.5V_SUS	+1.5V	SUSON	S0~S3
+VCC_CORE		VRON	S0
+VTT	+1.05V	MAIN_ON	S0
+1.05V	+1.05V	MAIN_ON	S0
+VAXG		MPWROK	S0

## Haswell Processor (DMI,PEG,FDI)



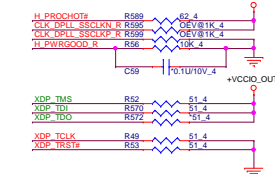
FDI Disabling (Discrete Only)  
<CPU>



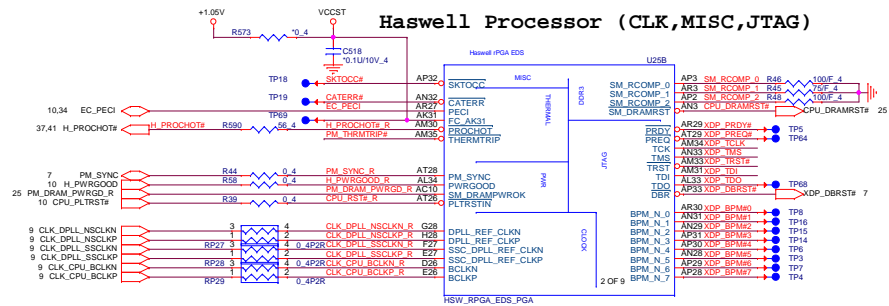
## DP & PEG Compensation



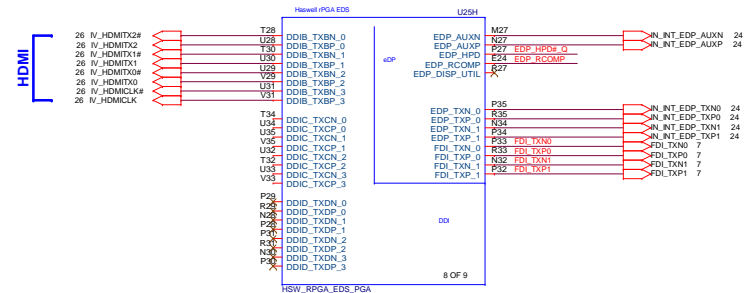
## Compensation



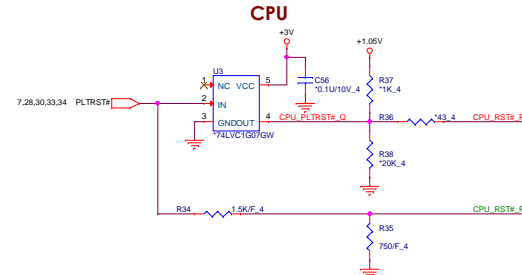
## Haswell Processor (CLK,MISC,JTAG)



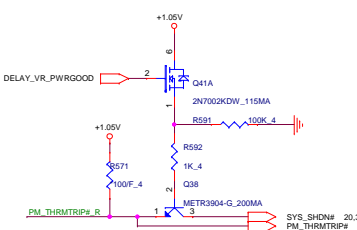
Haswell Processor (DDI,eDP,FDI)



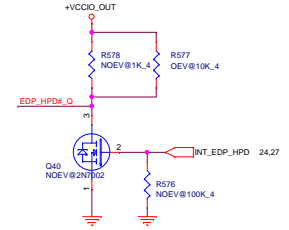
## CPU



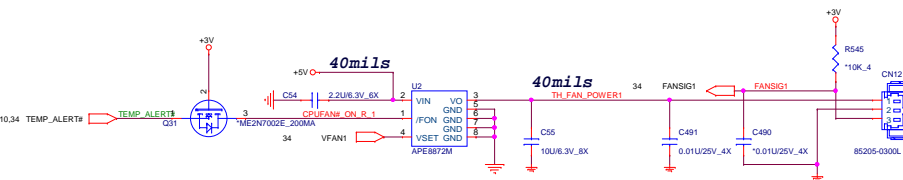
Thermal Trip & Process HOT CPU



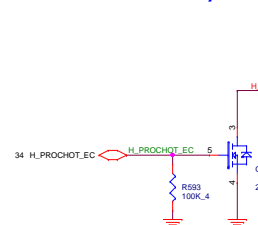
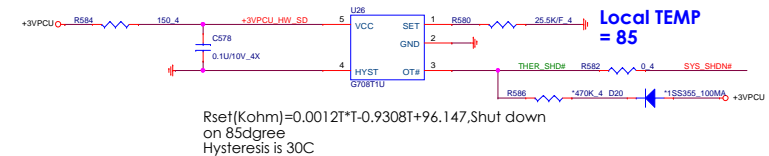
## eDP Hot Plug Detect CPU



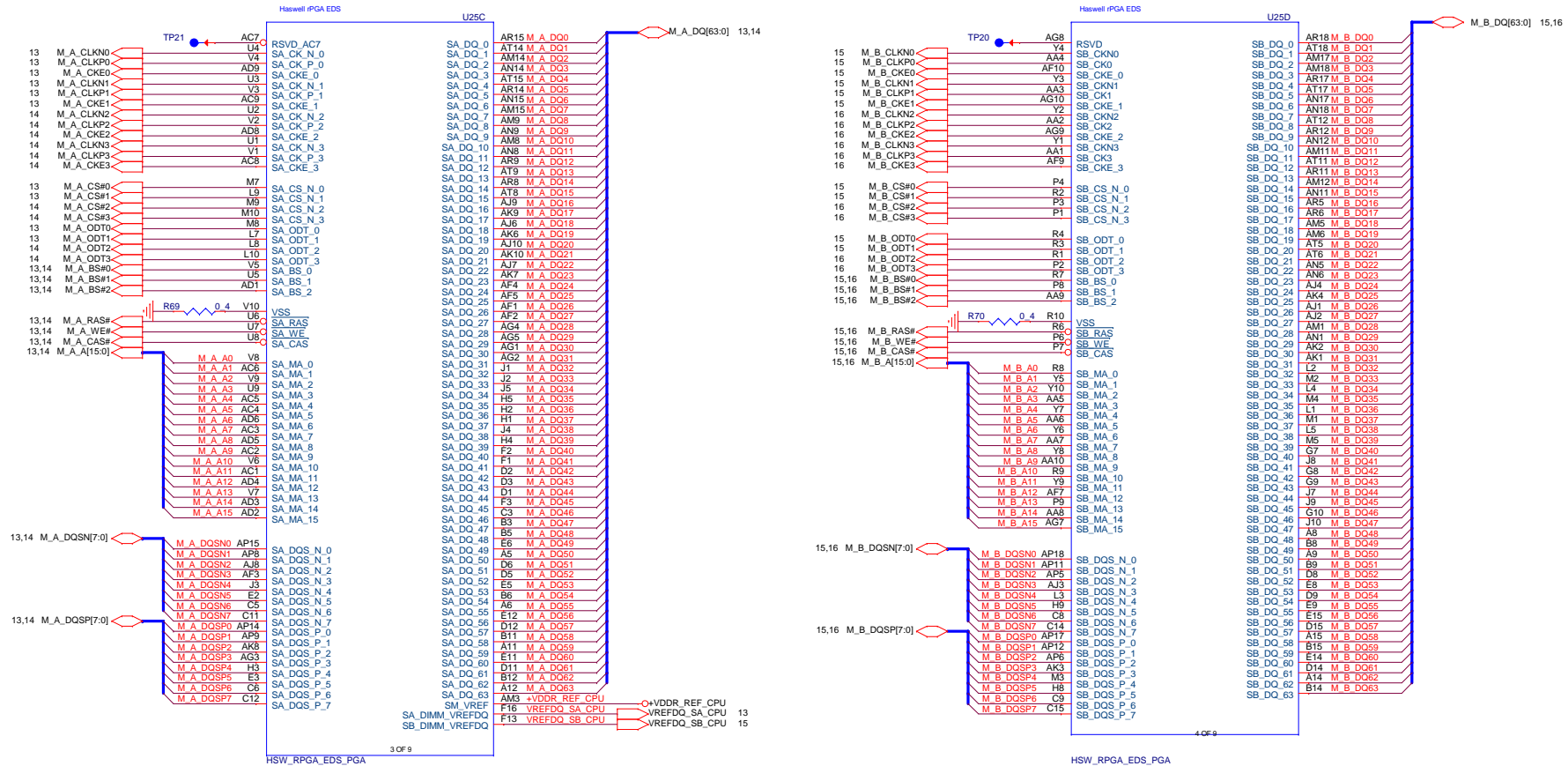
FAN Control-->For one FAN solution <THC>



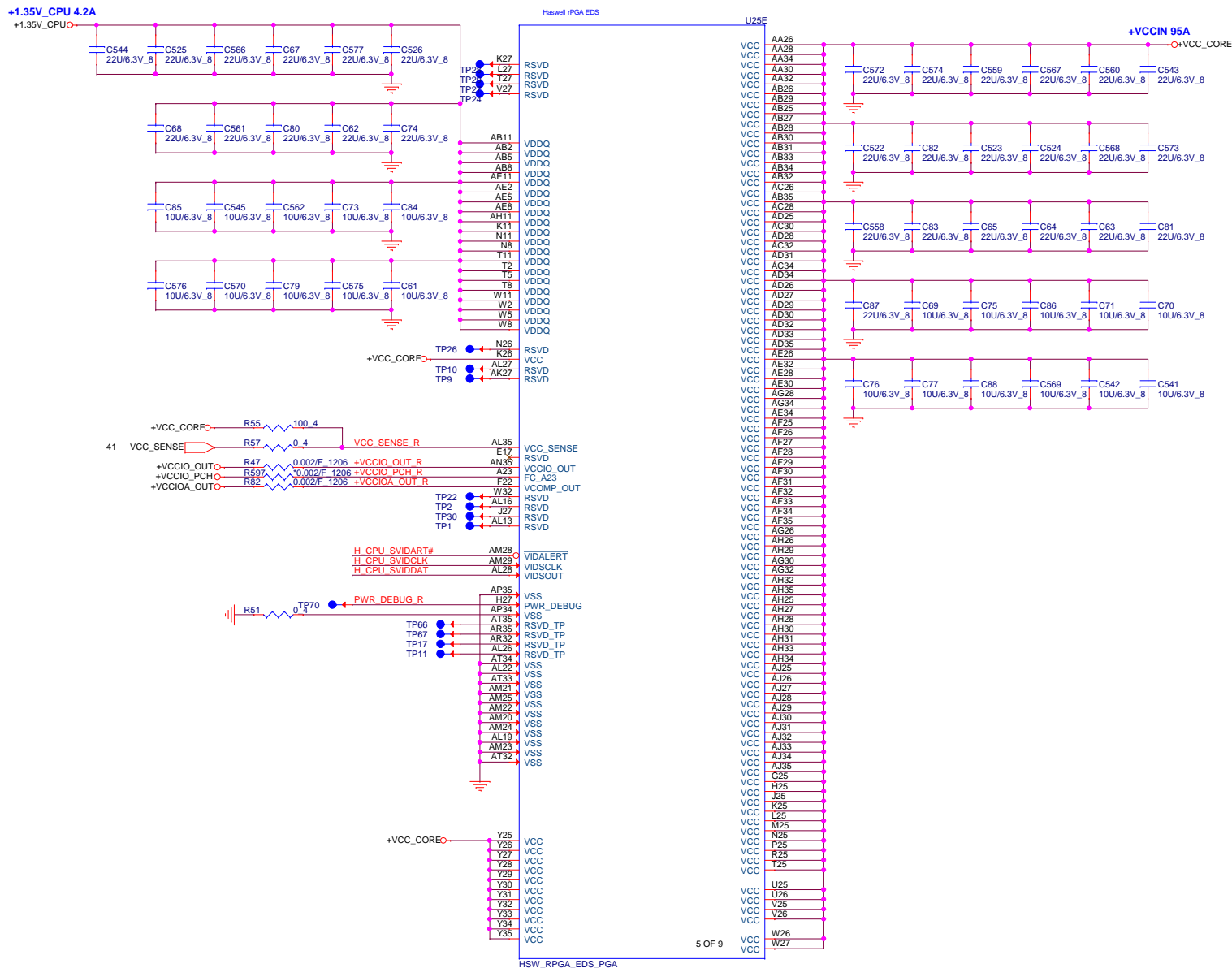
Intel Turbo mode onlyCPU

CPU Thermal sensor / MB  
Local TEMP

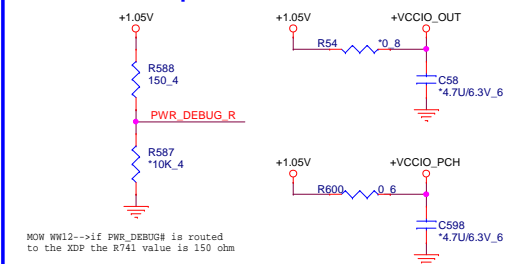
## Haswell Processor (DDR3)



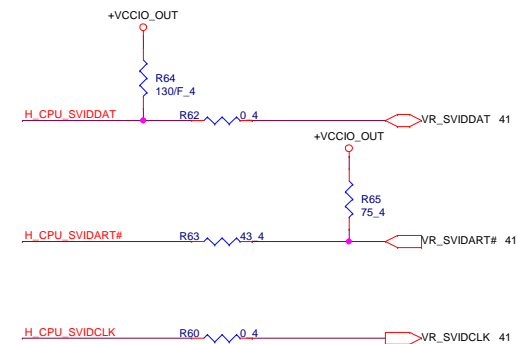
Haswell Processor (POWER)



## Power Test Propose

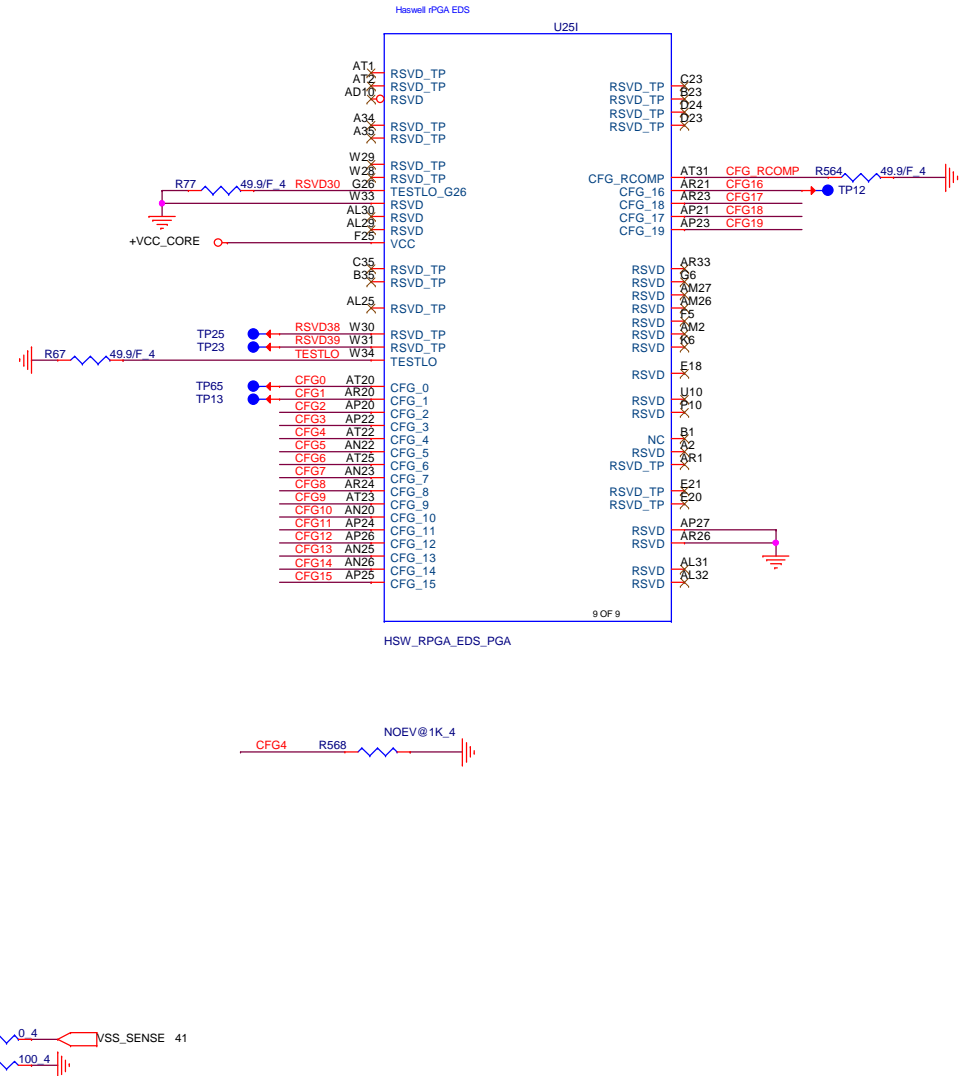


**SVID**

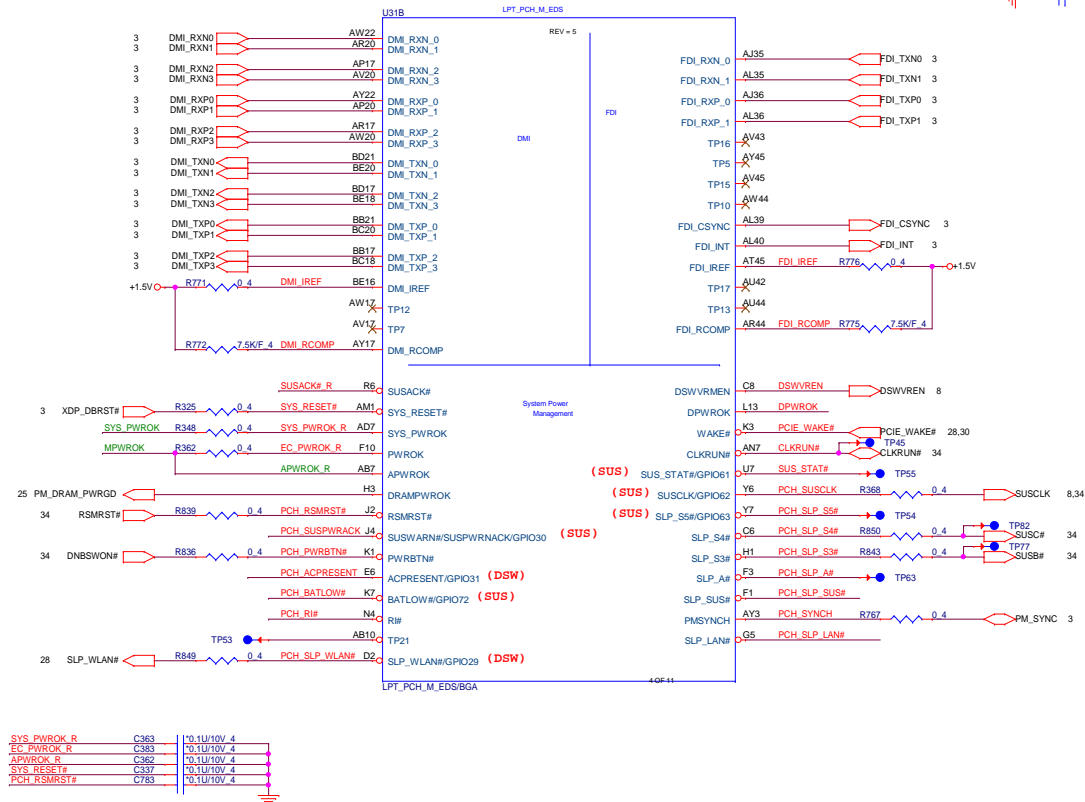
**Quanta Computer Inc.**

**PROJECT : BDBD**

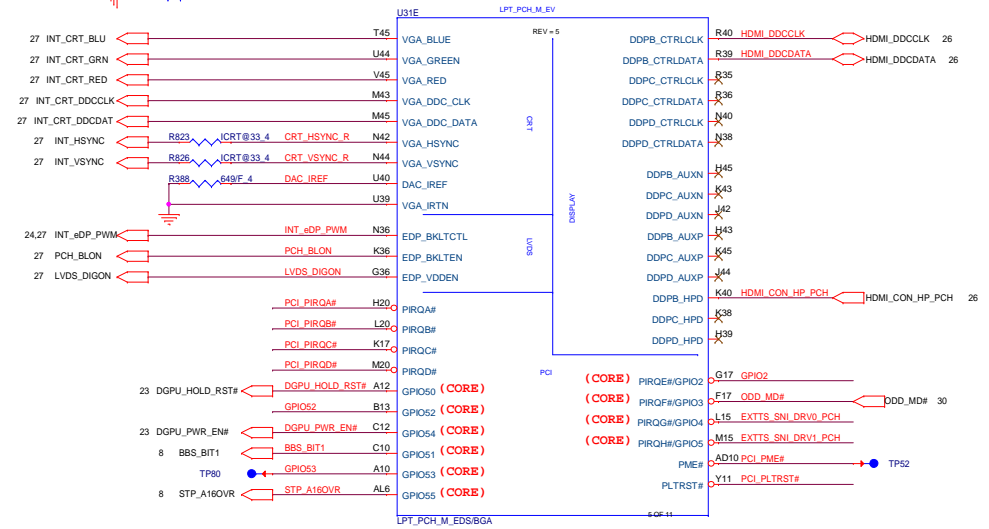
Size	Document Number	Rev
	<b>Haswell 4/5 (POWER)</b>	2A
Date:	Monday, December 17, 2012	Sheet 5 of 45



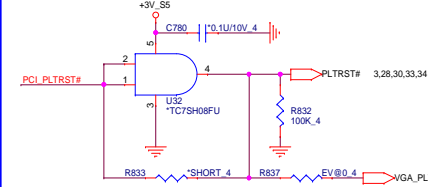
Lynx Point (DMI,FDI,PM)



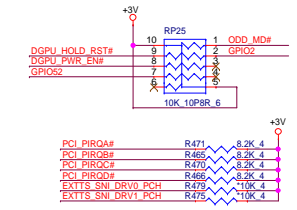
Lynx Point (CRT,PCI,DDI CNTL)



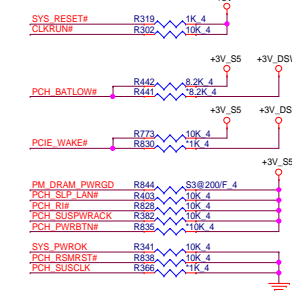
### PLTRST# Buffer



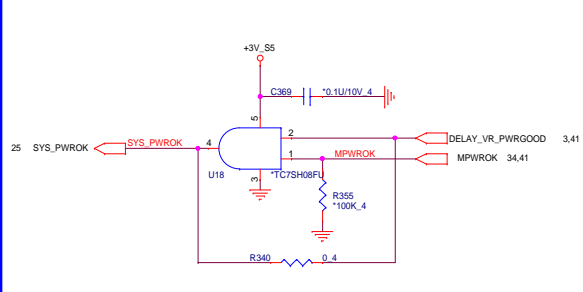
PCI PU



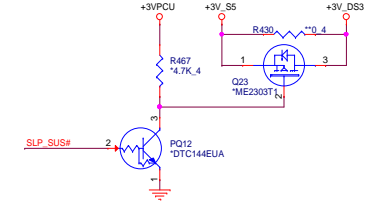
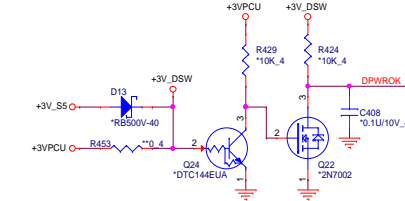
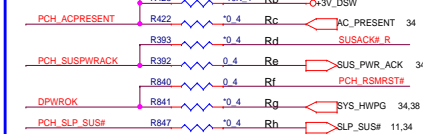
PCH PM PU/PD



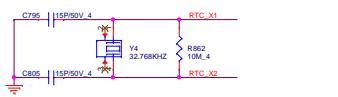
**SYSPWOK**



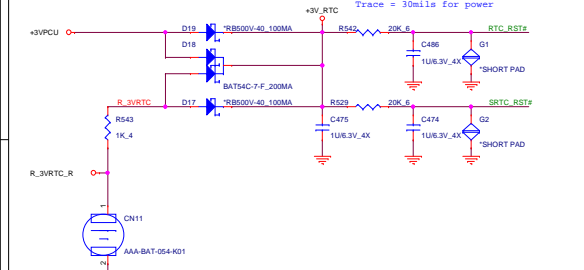
## DSW Circuit



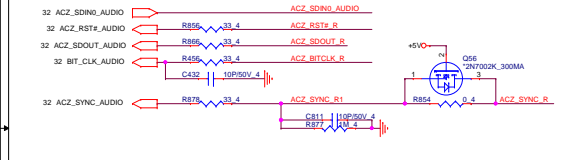
RTC Clock 32.768KHz (RTC)



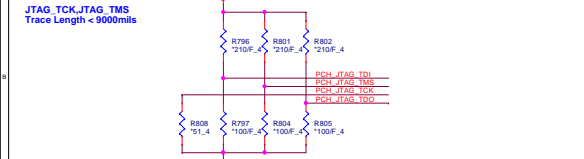
RTC Circuitry (RTC)



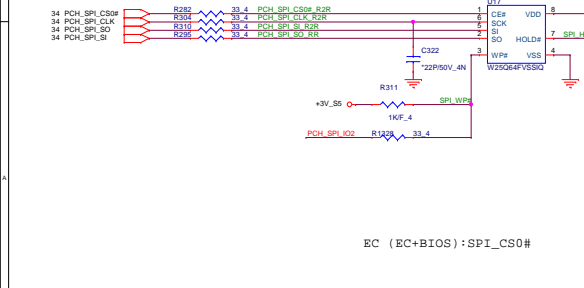
HDA



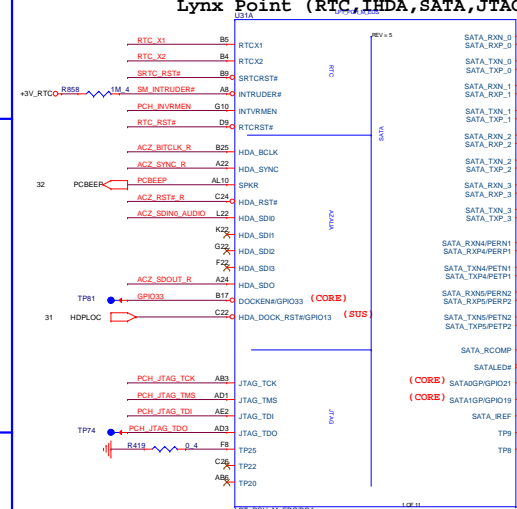
PCH JTAG



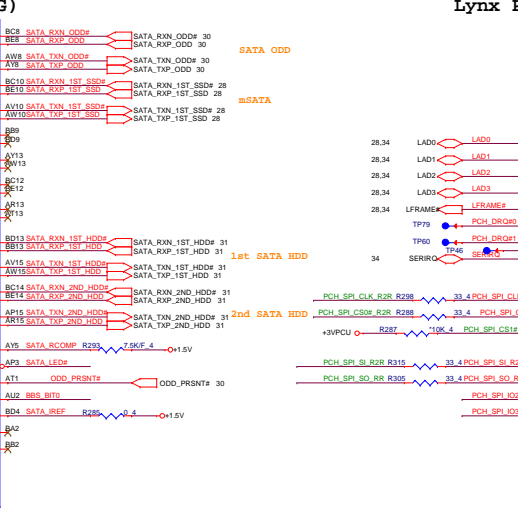
PCH Dual SPI CLG



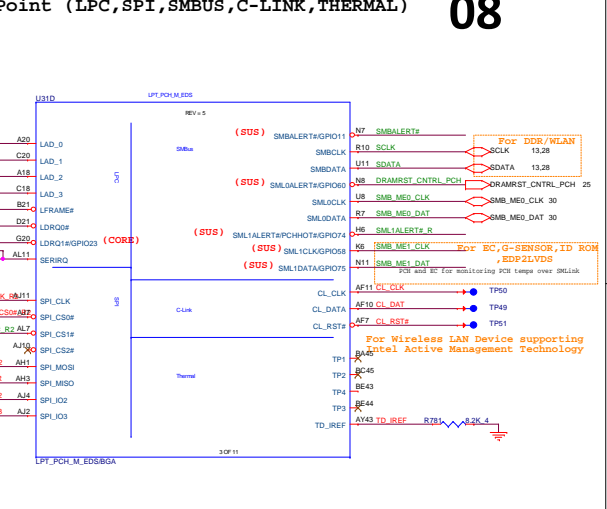
Lynx Point (RTC,IHDA,SATA,JTAG)



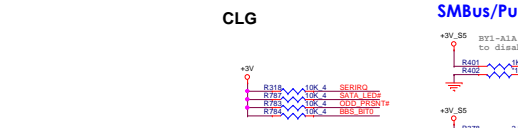
Lynx Point (LPC,SPI,SMBUS,C-LINK,THERMAL)



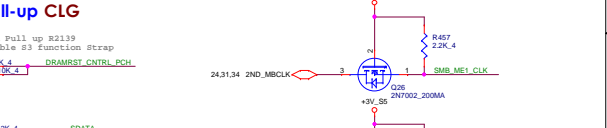
08



CLG



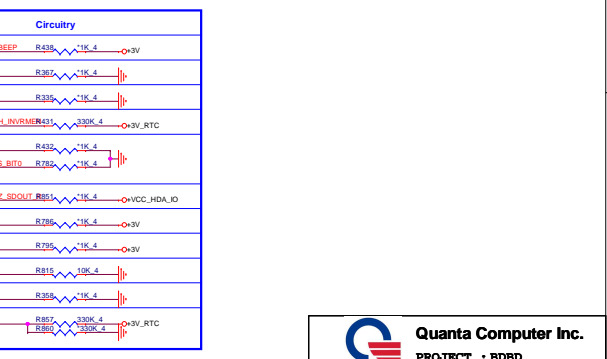
SMBus/Pull-up CLG



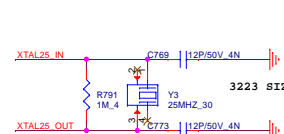
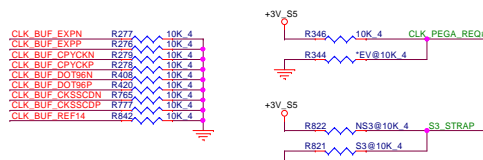
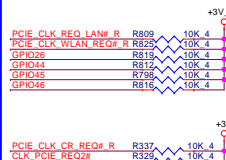
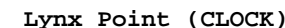
PCH STRAPPING

Pin Name	Usage	Sampled	Configuration	Circuitry
SPKR	No Reboot	PWROK	0 = Disable (Int PD) 1 = Enable	PCBEEP R438 *1K_4 -> 3V
GPIO62 / SUSCLK	PLL On-Die Voltage Regulator Enable	RSMRST#	0 = Disable 1 = Enable (Int PU)	7,34 SUSCLK R387 *1K_4
GPIO55	Top-Block Swap Override	PWROK	0 = Top-Block Swap mode 1 = Default (Int PU)	7 STP_A16OVH R336 *1K_4
INTVRMEN	Integrated VRM Enable	Always	0 = Disable 1 = Enable	PCH_INVRMEN R311 *330K_4 -> 3V_RTC
GPIO51	Boot BIOS Strap bit 1	PWROK	Bit 0 1 0 Reserved 1 1 SPI 0 0 LPC	7 BBS_BIT1 R432 *1K_4
SATA1GP/PIO19	Boot BIOS Strap bit 0	PWROK		7 BBS_BIT0 R795 *1K_4
HDA_SDO	Flash Descriptor Security Override / Intel ME Debug Mode	PWROK	0 = Security Effect (Int PD) 1 = Can be Override	34 ACZ_SDOUT# R855 *1K_4 -> VCC_HDA_IO
GPIO36	RSVD	PWROK	Internal PD	10 GPIO36 R795 *1K_4 -> 3V
SATA3GP/PIO37	TLS Confidentiality	PWROK	0 = TLS no confidentiality (Int PD) 1 = TLS with confidentiality	10 FDI_OVRVLTG R815 *10K_4
GPIO8	RSVD	RSMRST#	Internal PU	10 GPIO8 R815 *10K_4
GPIO28	PLL on die VR enable	RSMRST#	0 = Disable 1 = Enable (Int PU)	0 PLL_OVRVLTG R815 *1K_4
DSWVREN	On Die DSW VR Enable	Always	0 = Disable 1 = Enable Must be PU to VCCRTC	0 DSWVREN R815 *330K_4 -> 3V_RTC

EC (EC+BIOS) : SPI\_CS0#



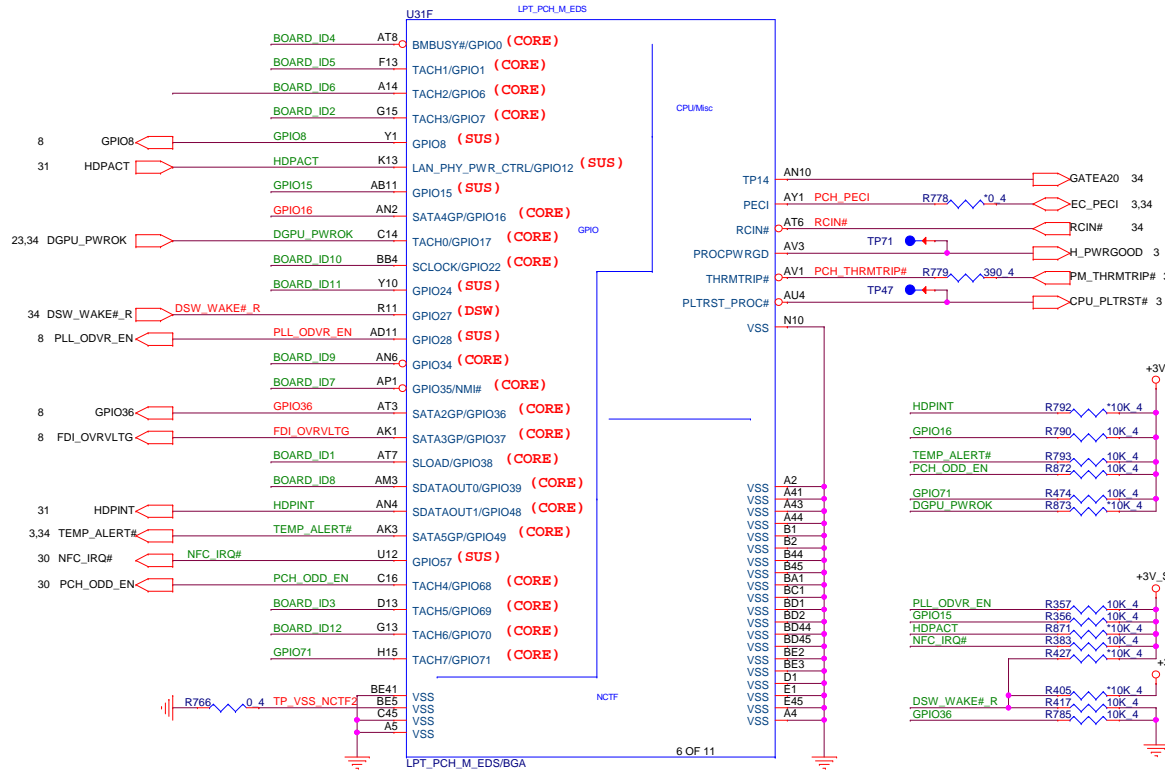




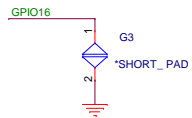
# Lynx Point (GPIO,CPU/MISC,NCTF)

# BOARD ID SETTING CLG/PX/OEV/UGA/CLG-Strap

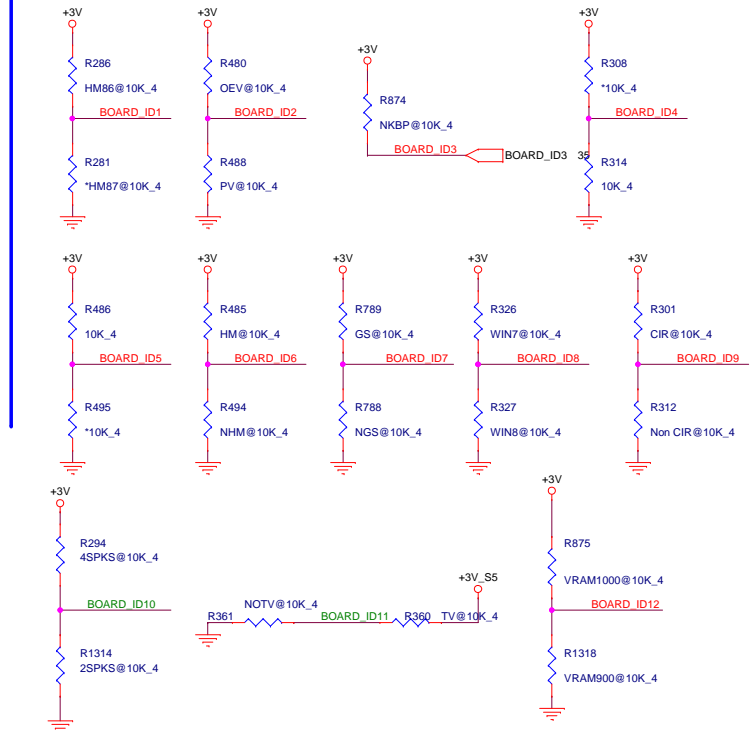
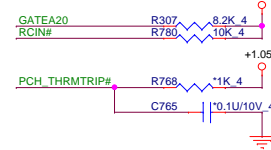
10



## PU & Password Clear



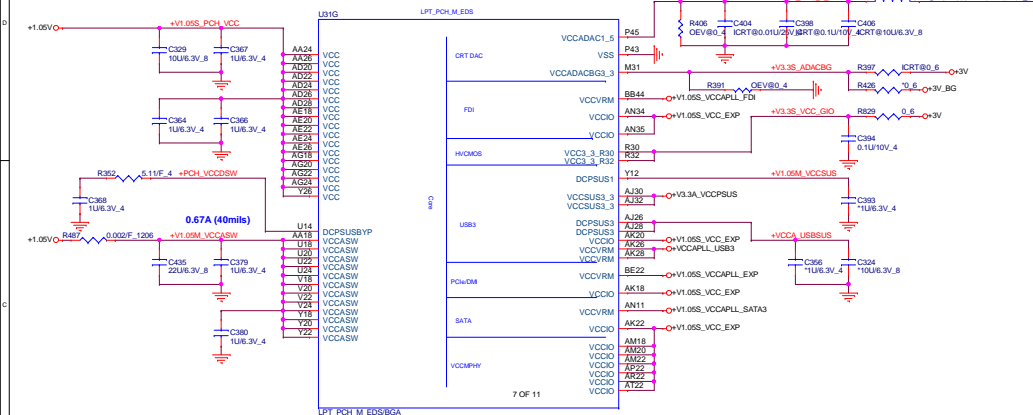
## PCH MISC PU/PD



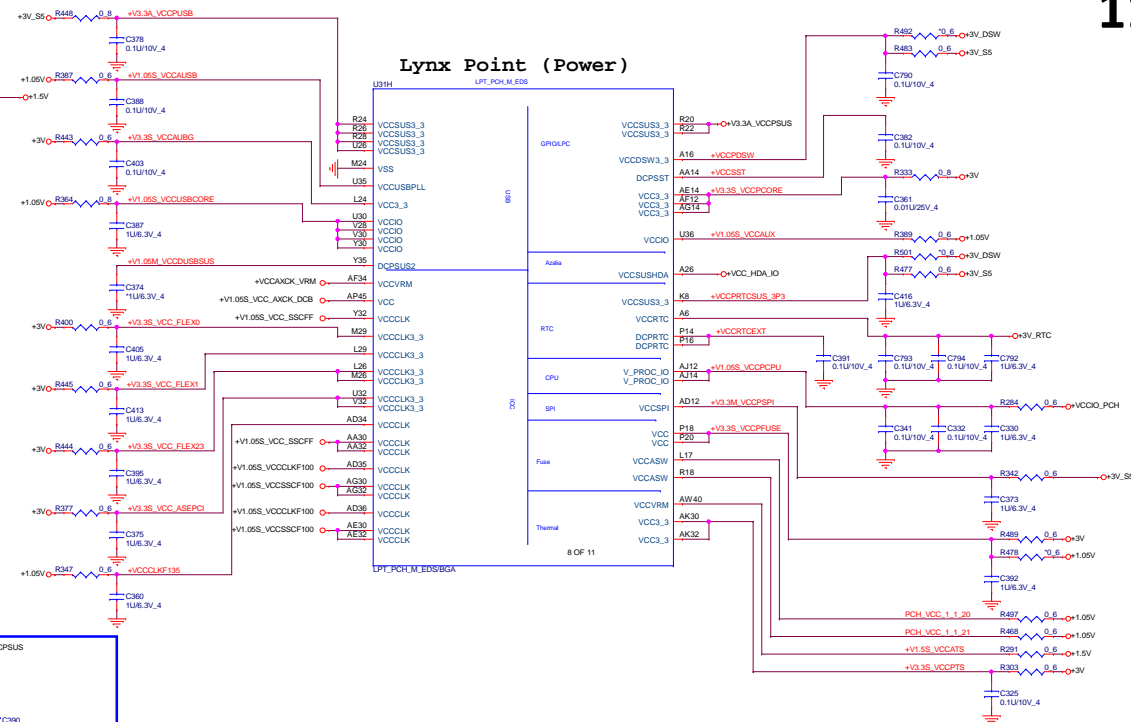
**Quanta Computer Inc.**  
PROJECT : BDBD

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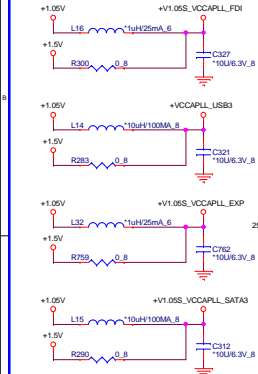
Lynx Point (Power)



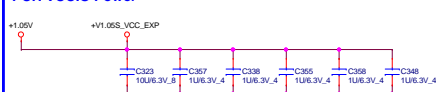
## Lynx Point (Power)



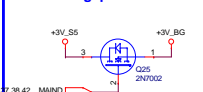
**PCH VRM Power**  
0.179A (20mils)



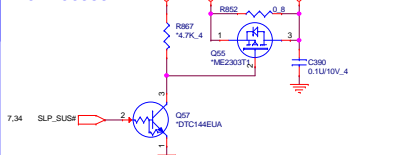
## PCH VCCIO Power



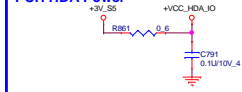
## PCH band gap Power



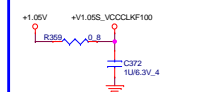
## PCH VCCSUS



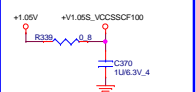
## PCH HDA Power 0



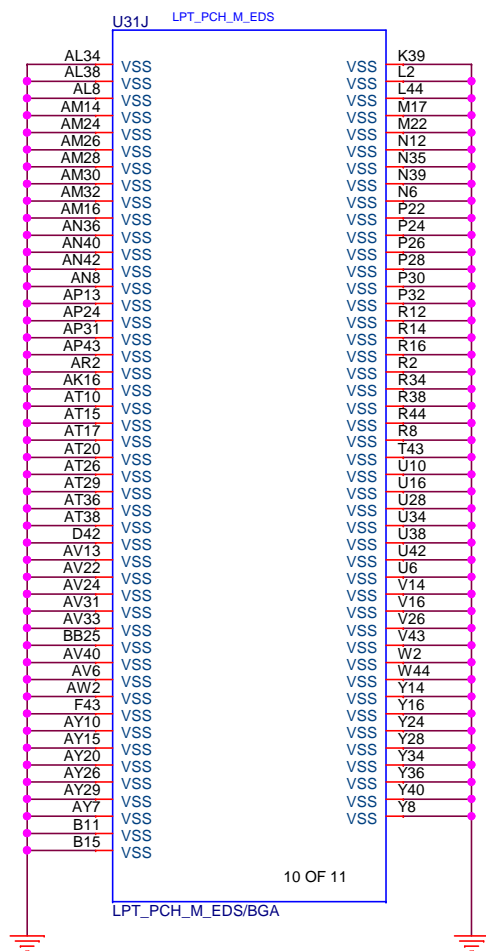
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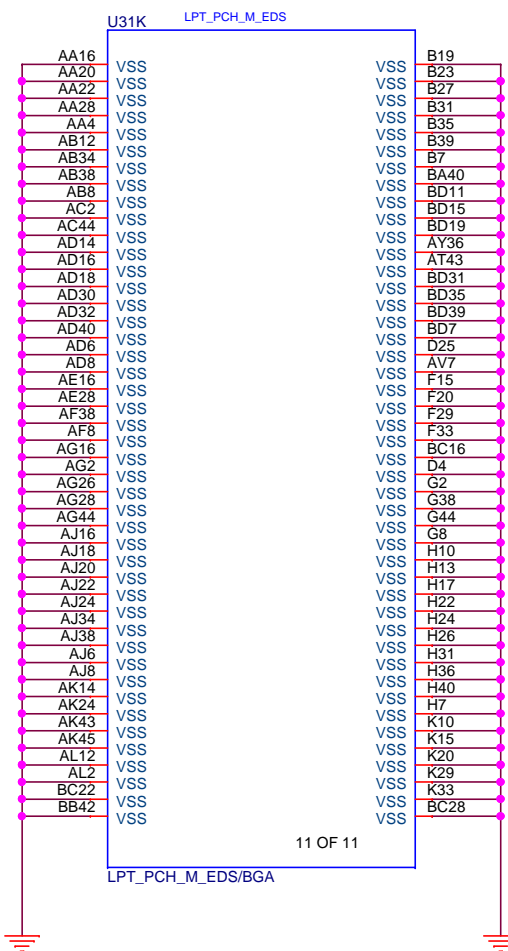
\_\_\_\_\_

[illegible]

## Lynx Point (GND)



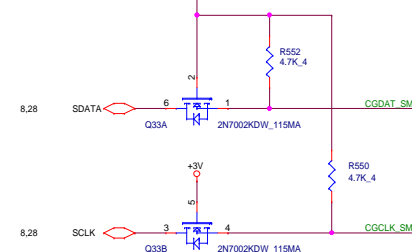
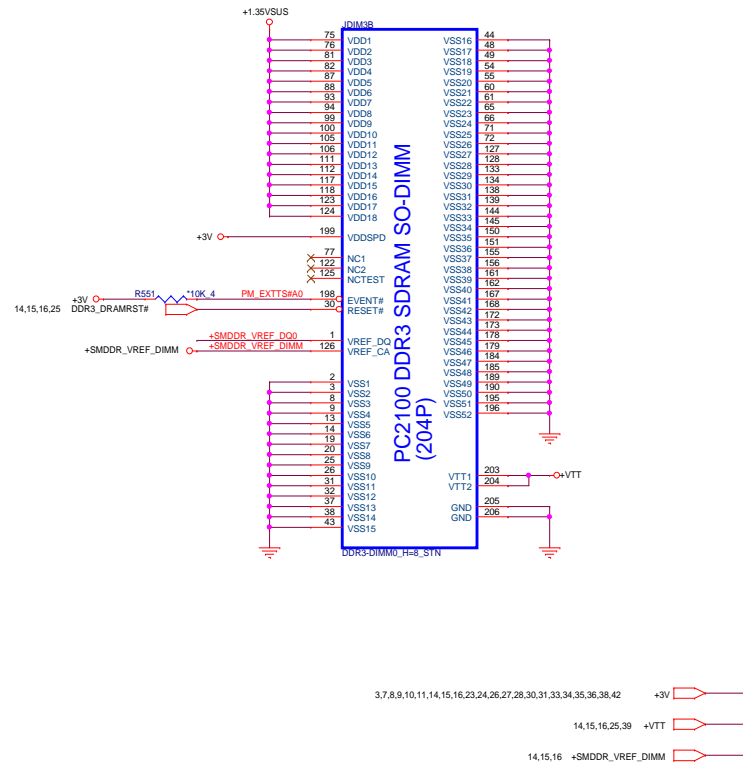
## Lynx Point (GND)

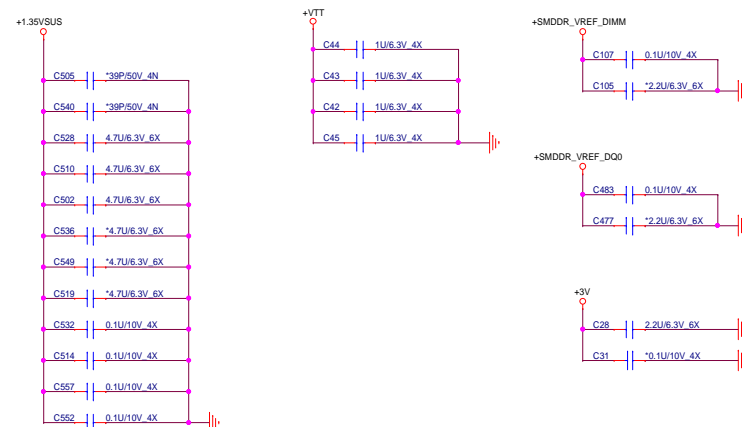


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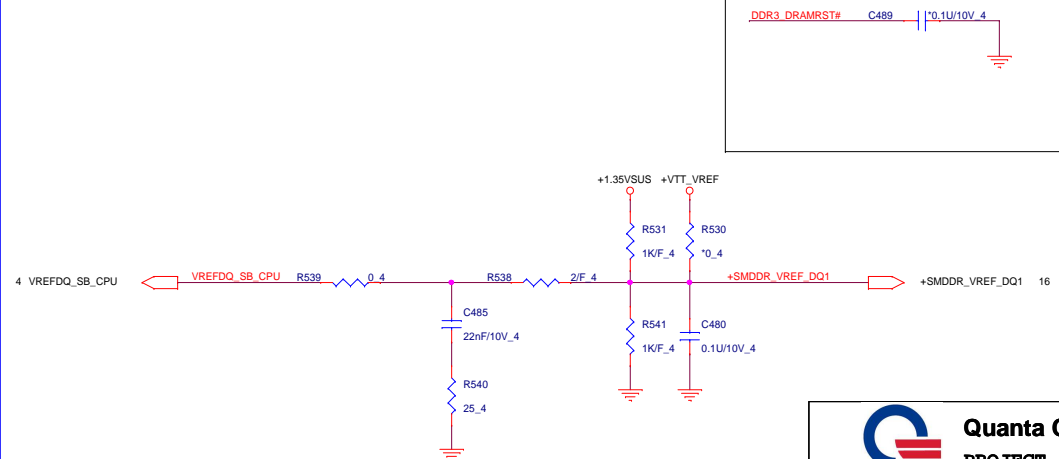
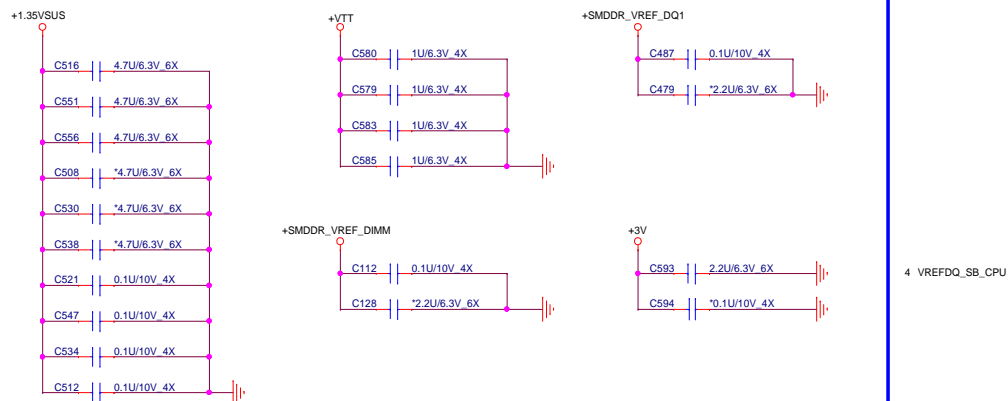
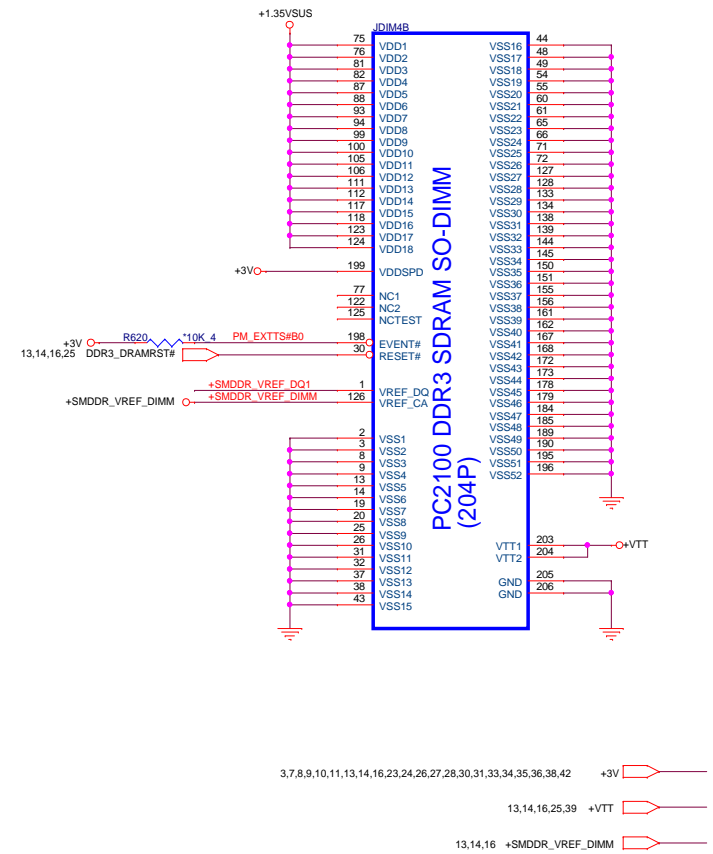
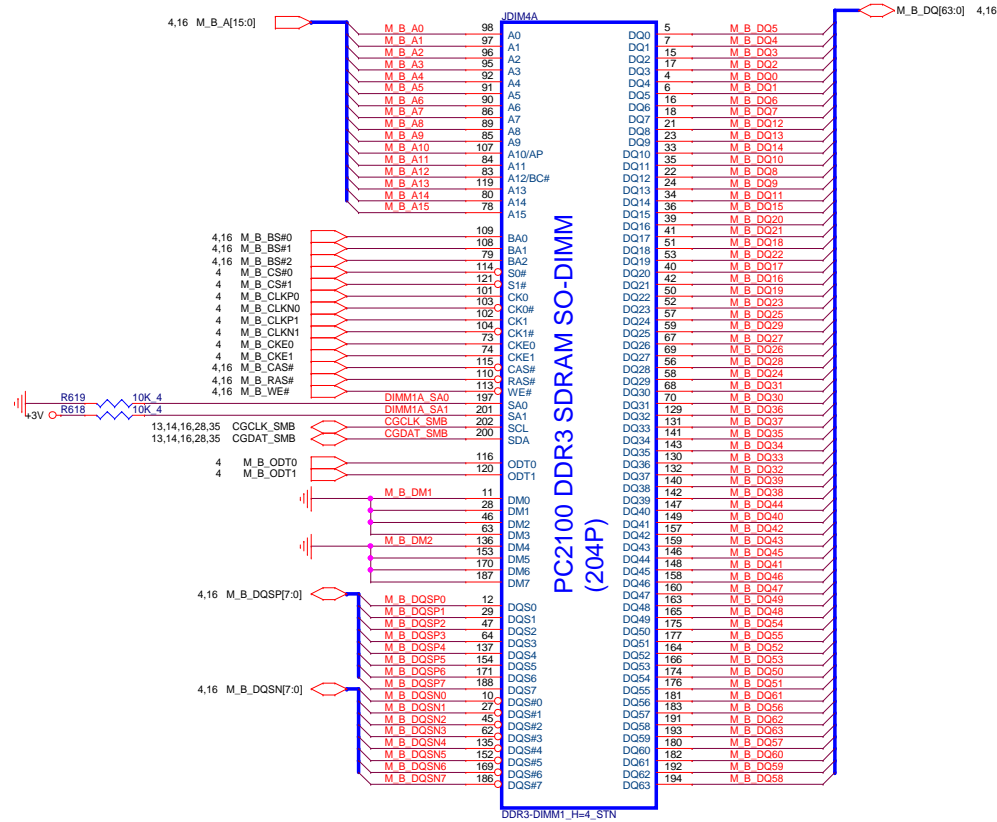
PROJECT : BDBD

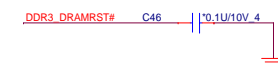
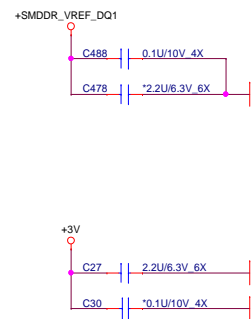
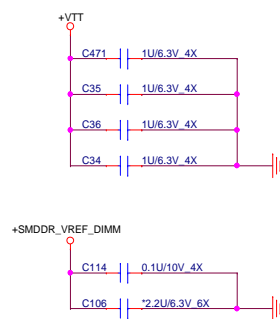
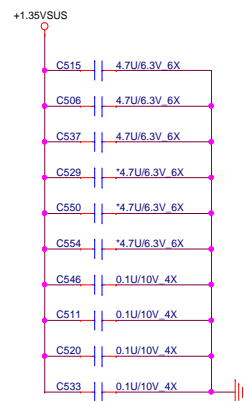
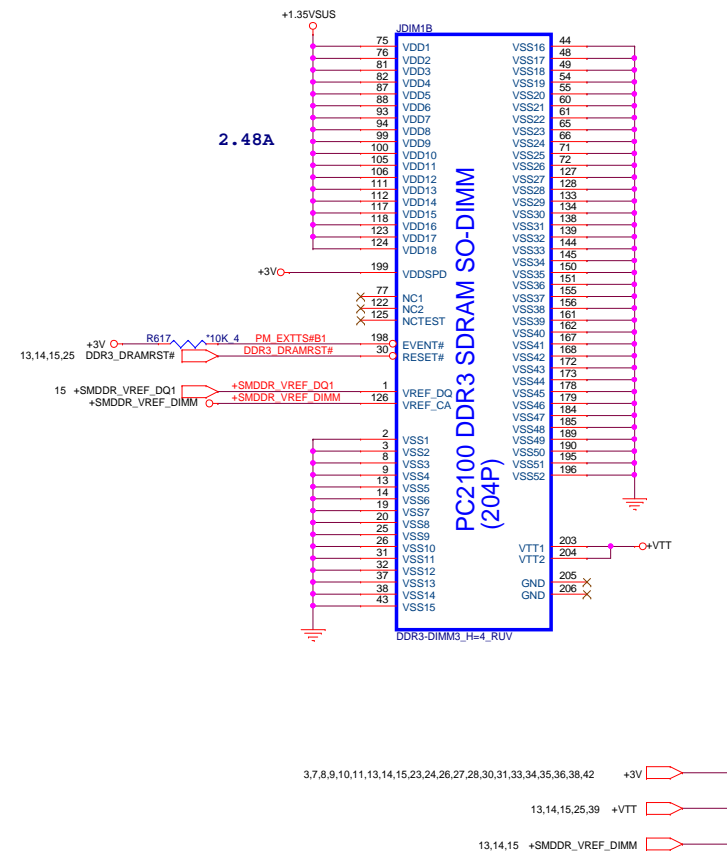
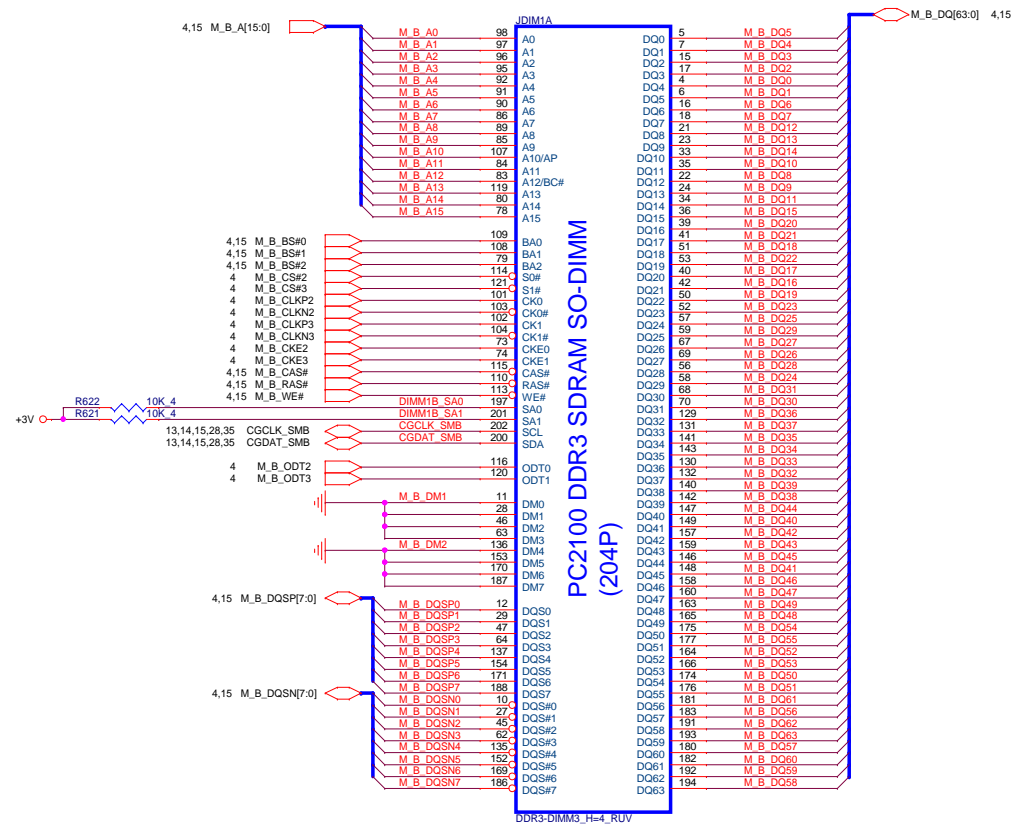
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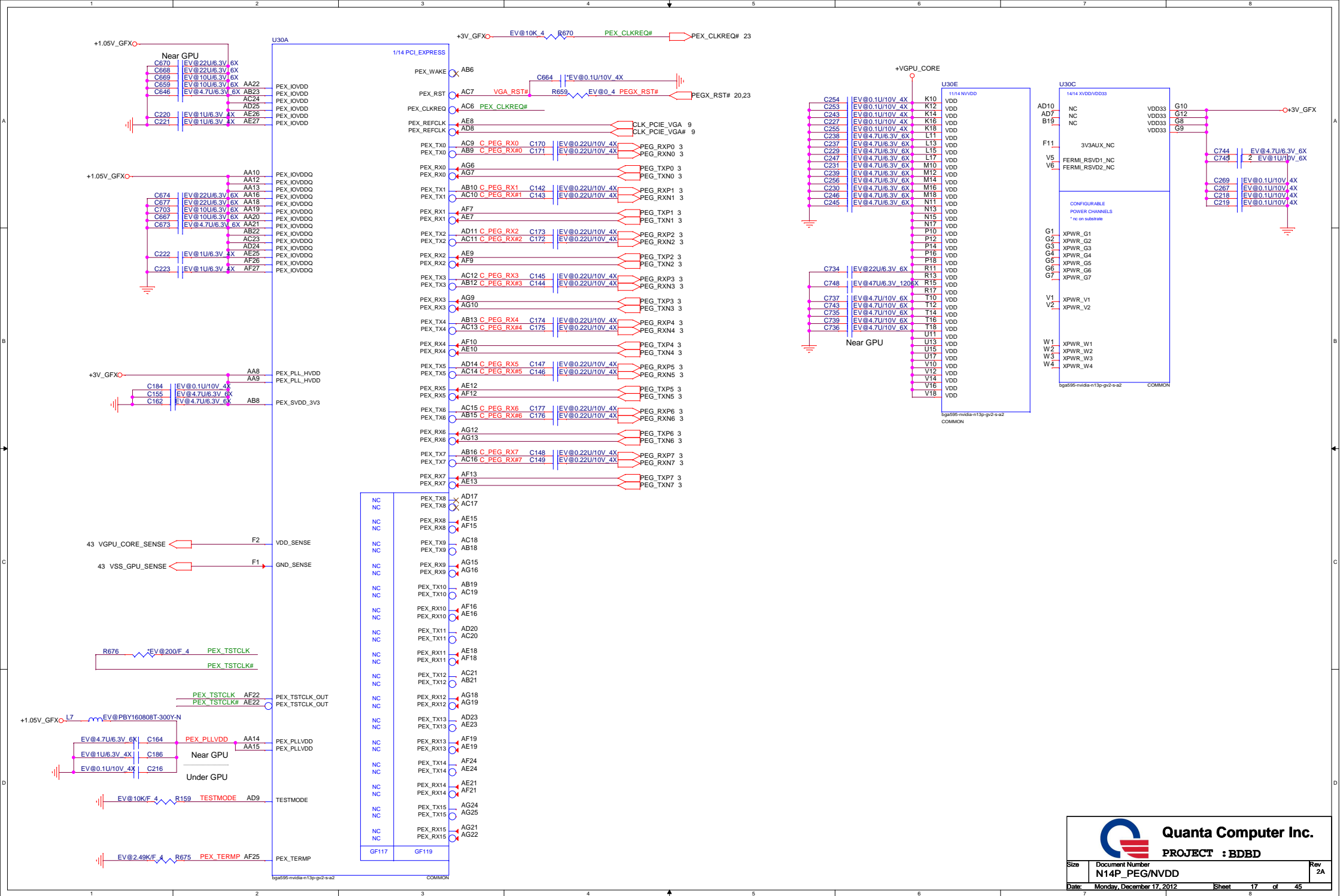


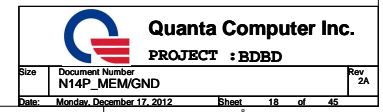
BOT Side Far away CPU

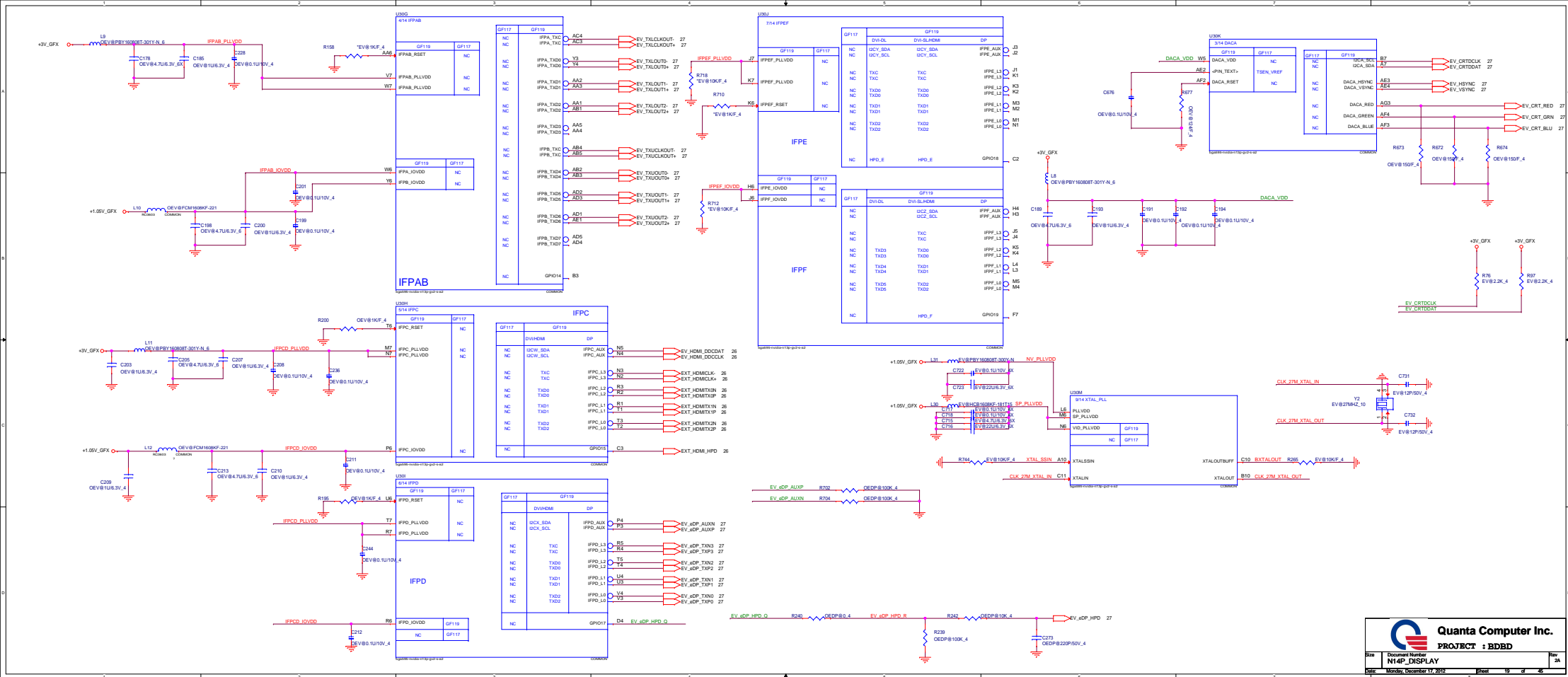


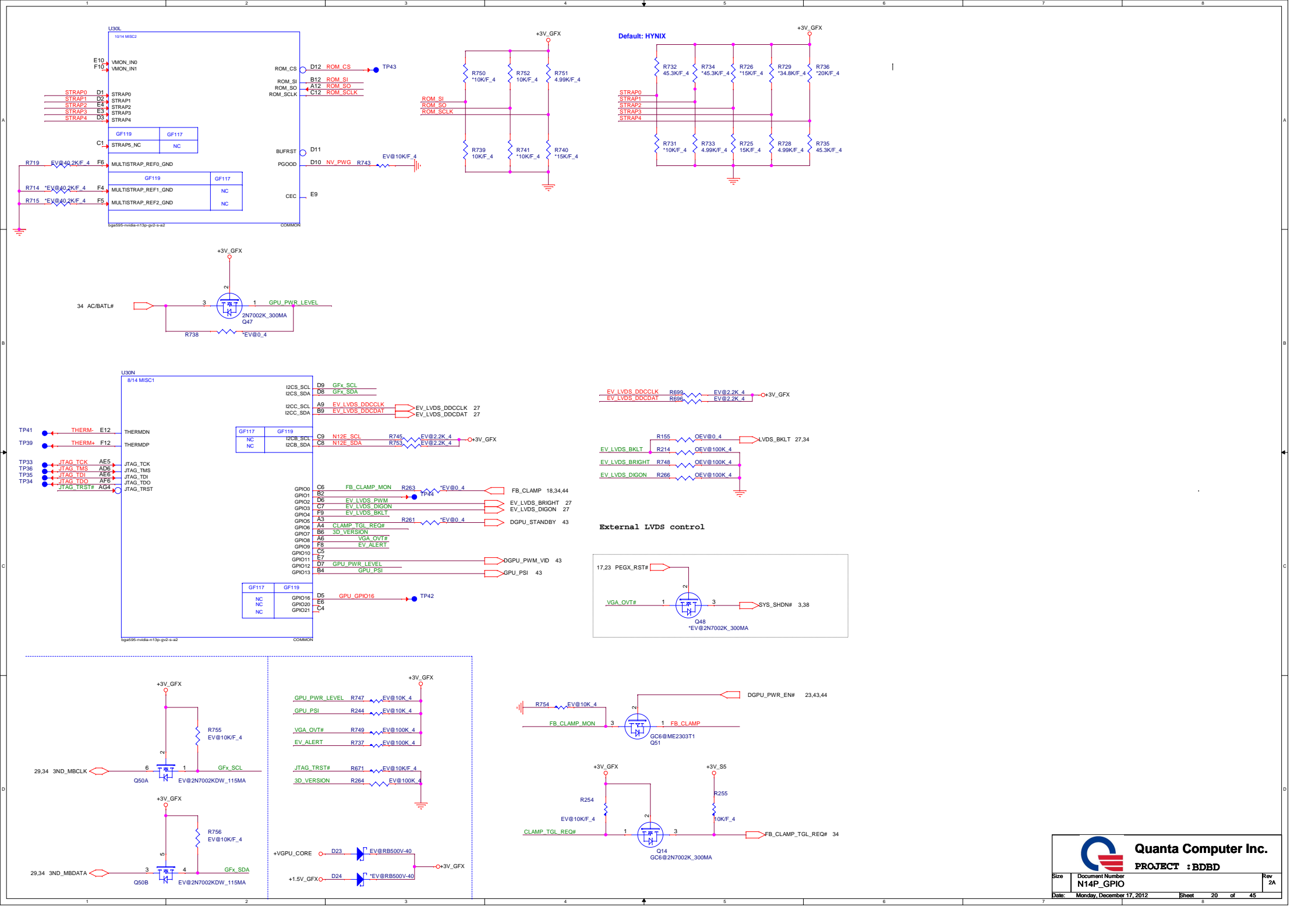








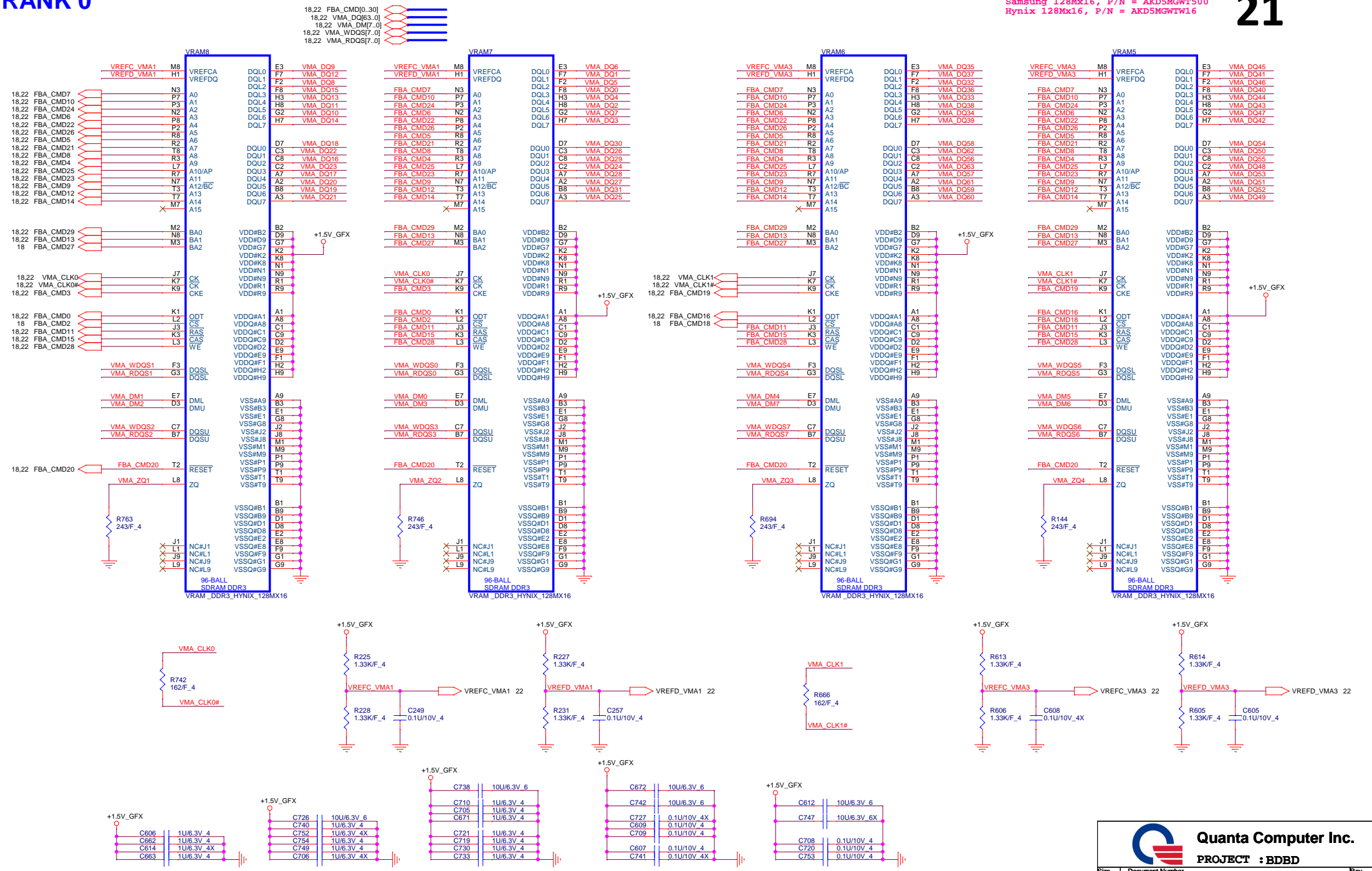


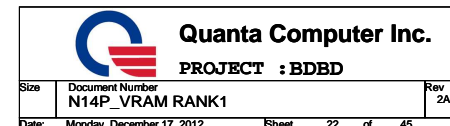
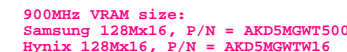


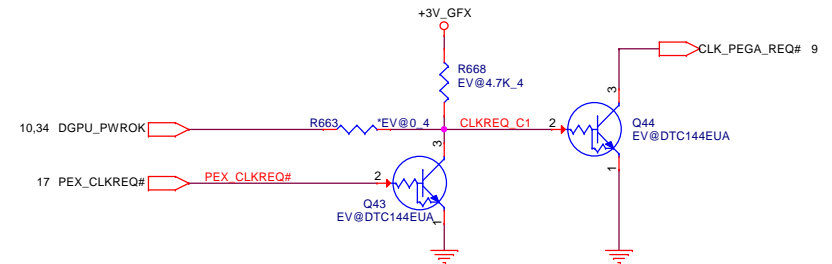
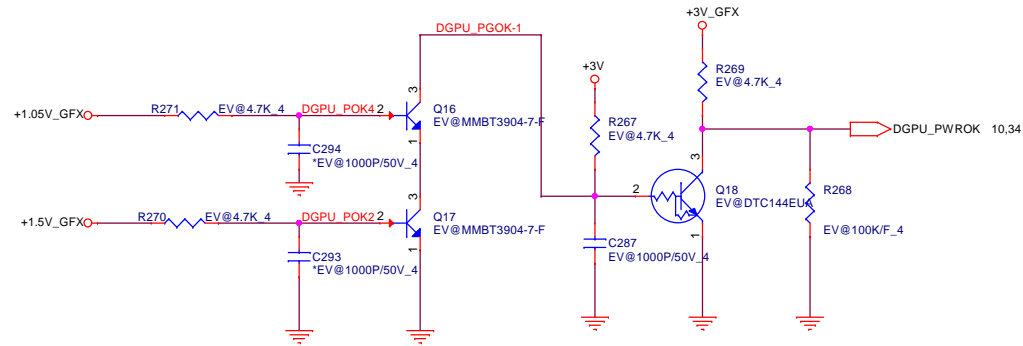
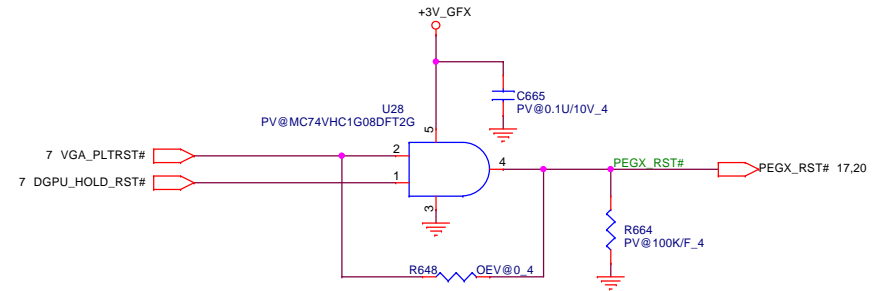
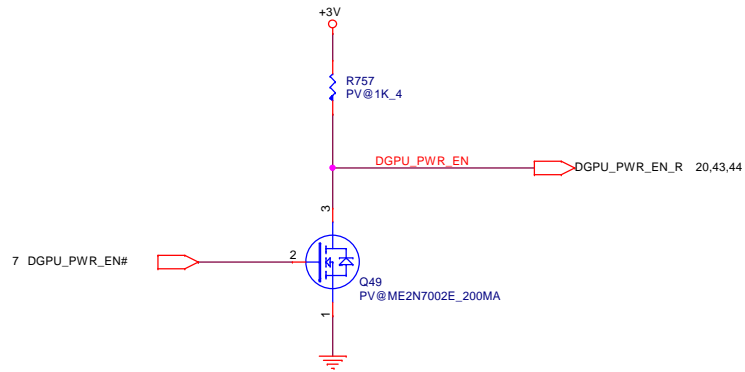
RANK 0

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900MHz VRAM size:  
Samsung 128Mx16, P/N = AKD5MGWT500  
Hynix 128Mx16, P/N = AKD5MGWTW16

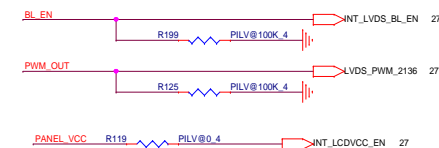
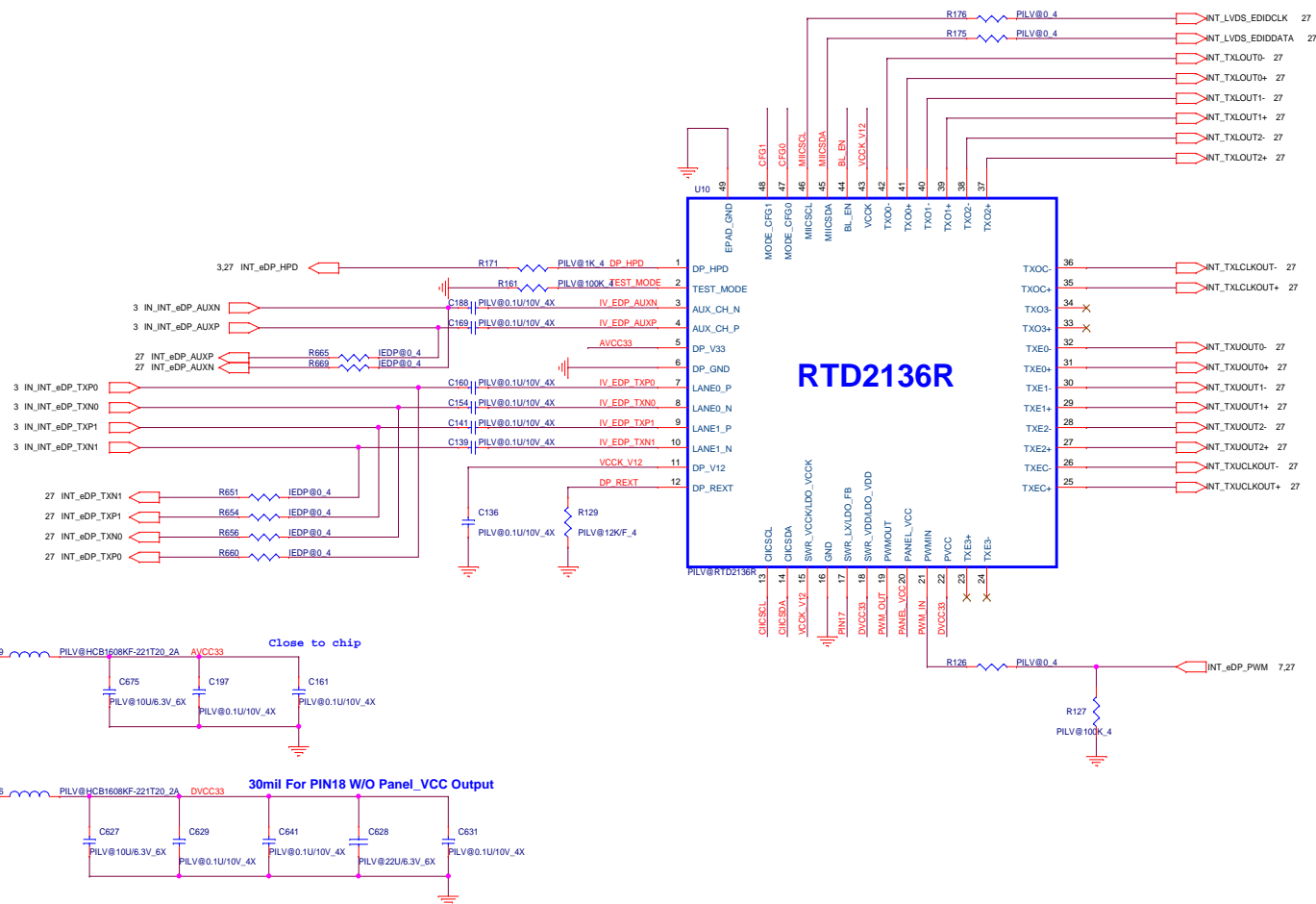






**Quanta Computer Inc.**  
**PROJECT : BDBD**

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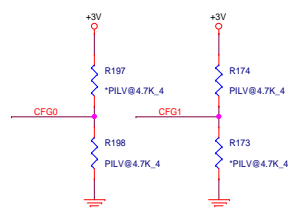
### Mode Configure Table(Power On Latch)

CFG1	CFG0	CFG0	
		0	1
0	0	X	EP MODE
1	0	ROM ONLY MODE	EEPROM MODE

ROM ONLY Mode : CFG0 4.7K pull low, CFG1 4.7K pull high

EP Mode : CFG0 4.7K pull high, CFG1 4.7K pull low

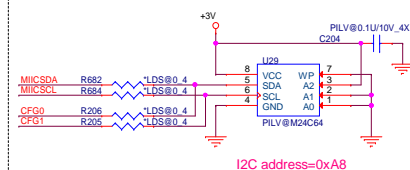
EEPROM Mode : CFG0 4.7K pull high, CFG1 4.7K pull high



### EEPROM Mode

In EEPROM mode, an additional EEPROM is needed. EEPROM should configure with following condition.

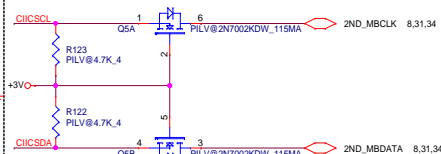
- 1- EEPROM with a size 8K-Byte
- 2- EEPROM device should be 2-byte addressing device
- 3- Slave address should configure as 0xA8



### EP Mode

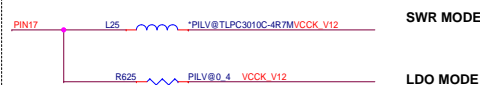
External device connect to DP2LVDS by Pin13/Pin14, I2C protocol is used

Address=0x94&0x6A



### Dual Mode Regulator Configuration

	2.2-uH(L6)	0 Ohm(R31)
SWR	Connect	NC
LDO	NC	Connect



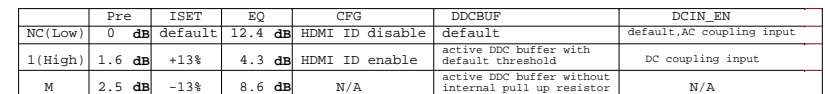
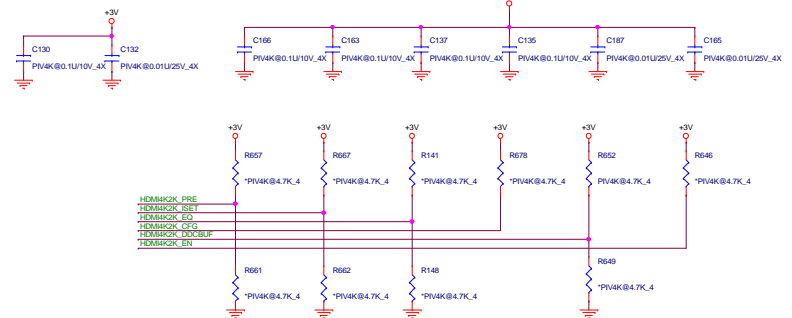
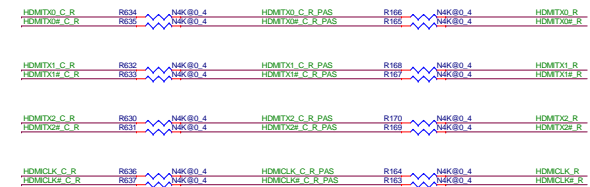
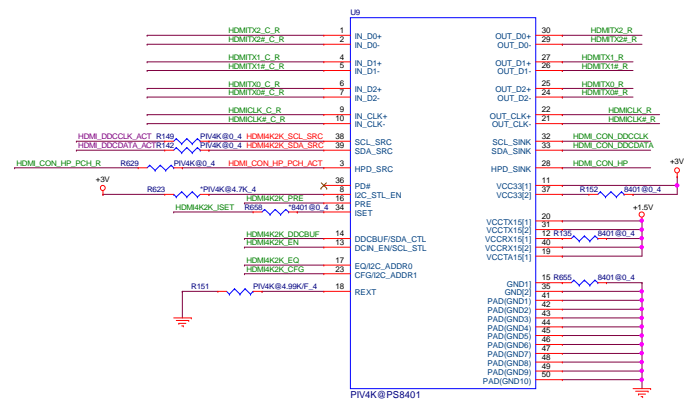


## SM\_DRAMRST# Topology S3P/NS3P/CPU

### S3 power Reduction (SM\_DRAMPWROK) S3P/NS3P/CPU

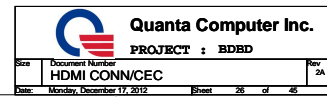
## CPU SM\_VREFS3P/NS3P/CPU

S3 power Reduction (CPU Power) **S3P/NS3P/CPU**

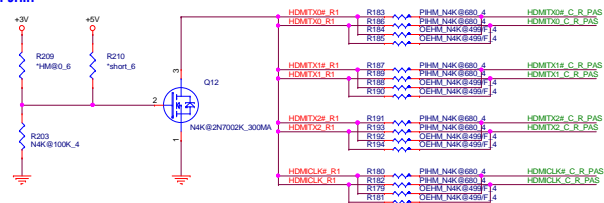


Pre	Output pre-emphasis setting
ISET	TMDS output swing adjustment
EQ	Receiver equalization setting
CFG	Configuration pin
DCBUIF	enable active DDC buffer
DCIN_EN	DC coupling enable

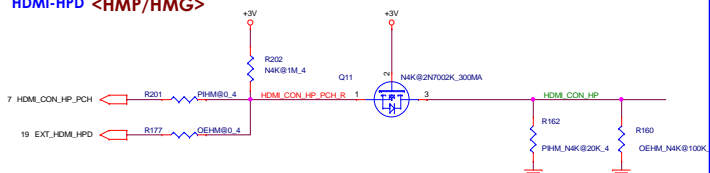
Pin	PS8401A	PS8201A
12	VDDR <sub>X</sub>	NC
15	GND	NC
34	ISET	NC
37	VDD33	NC



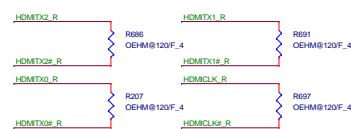
## <HMP/HMG>



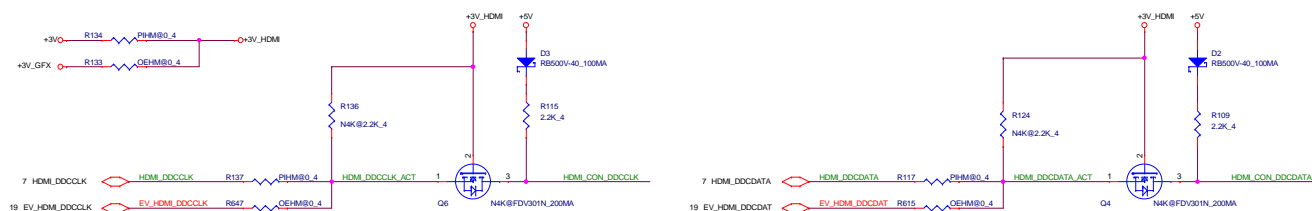
## HDMI-HPD &lt;HMP/HMG&gt;



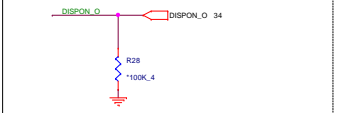
FOR EMI <EMC>



## HDMI-SMBus &lt;HDM&gt;

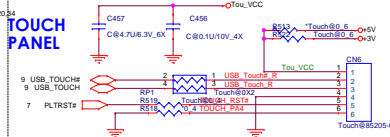


## Panel backlight control LDS



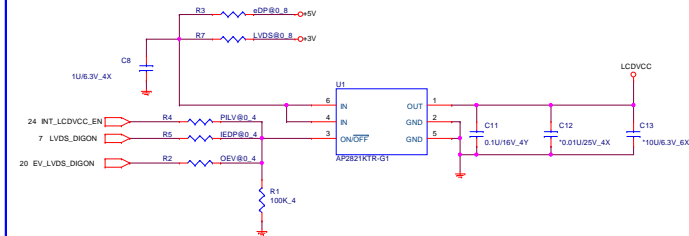
24 INT\_LVDS\_BL\_EN  
7 PCH\_BLON

TOUCH PANEL

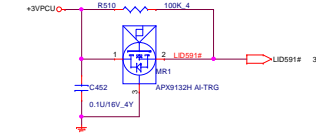


## LCD POWER SWITCH

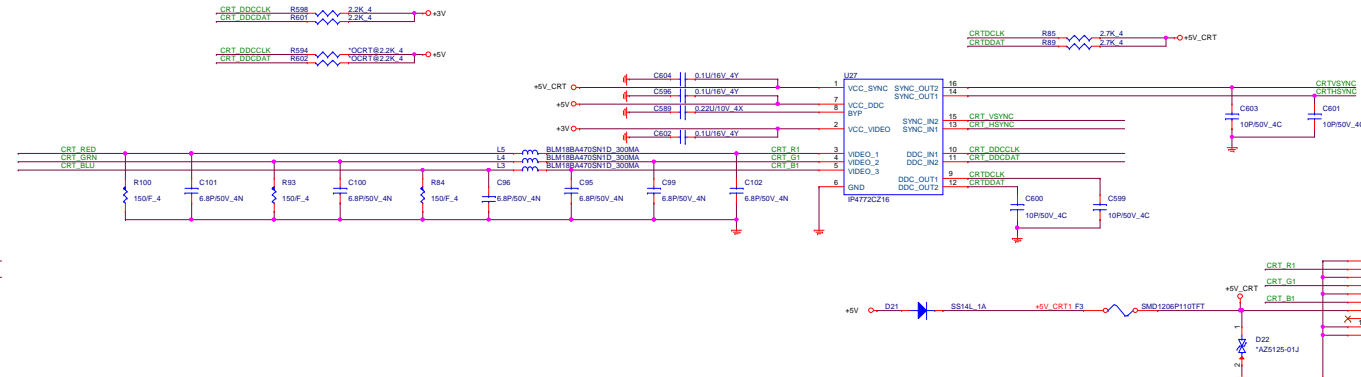
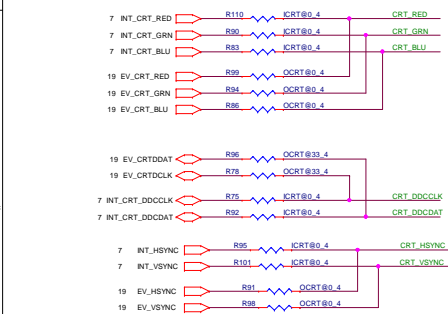
## INT LVDS PWR 80 m11



## Hall Sensor HSR

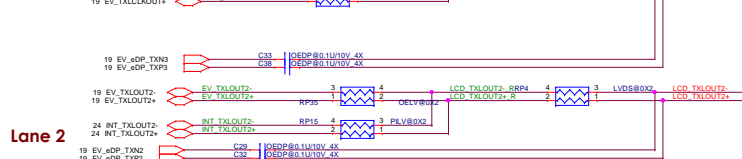


## CRT CRT/CRU/CRV

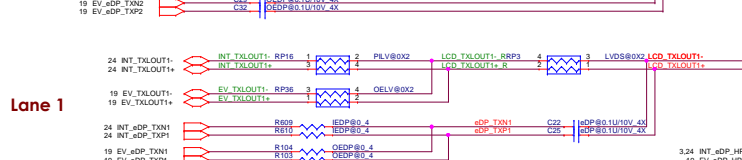


## LCD Panel Module &lt;LDS&gt;

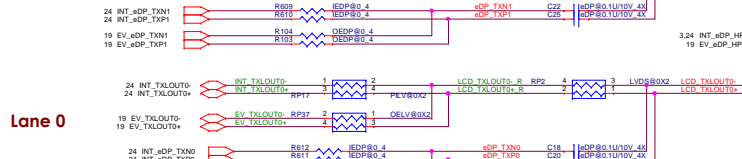
## Lane 3



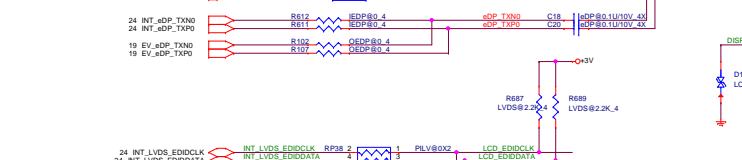
## Lane 2



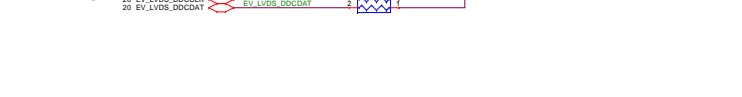
## Lane 1



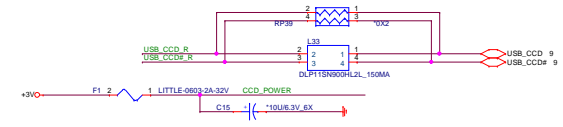
## Lane 0

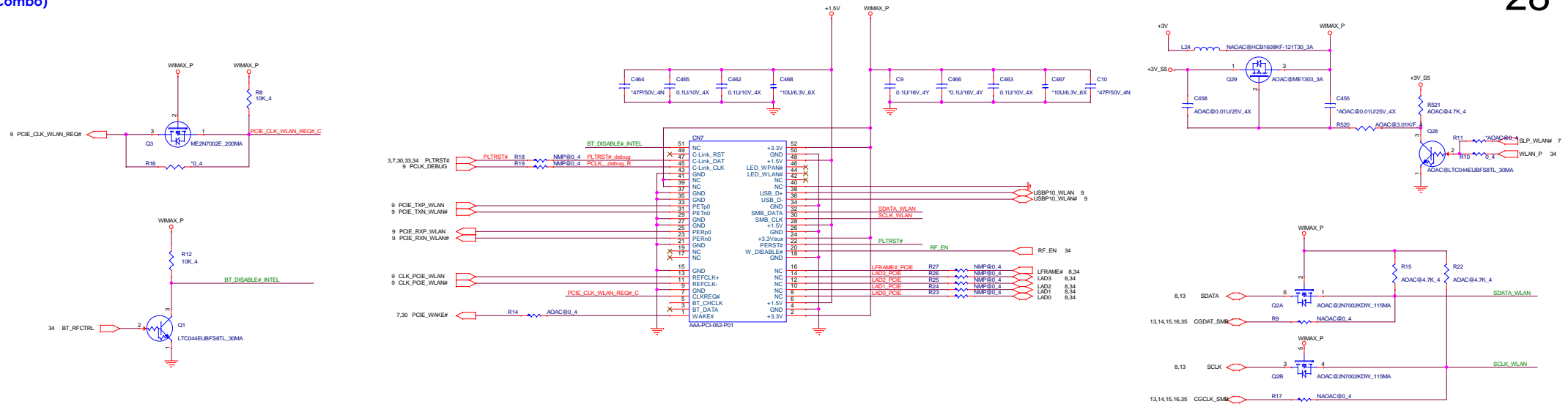


## EDID DDC



## CCD

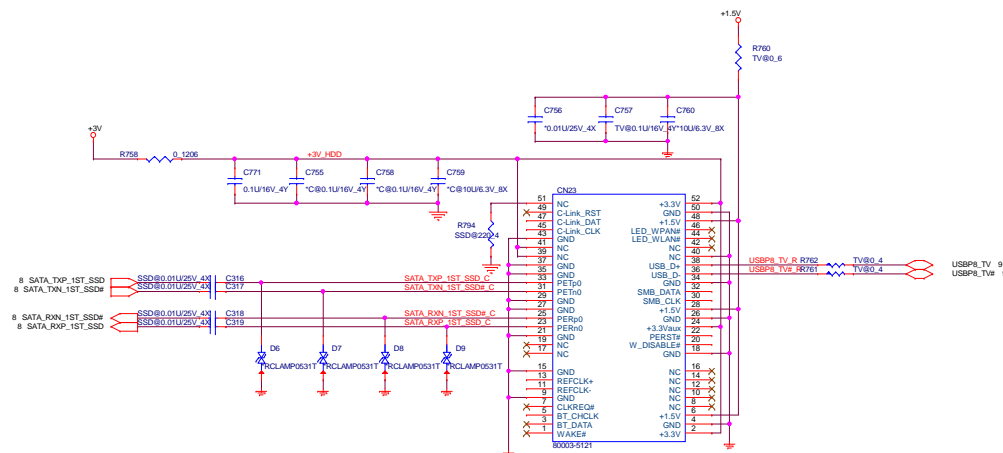




TV Tuner / MSATA

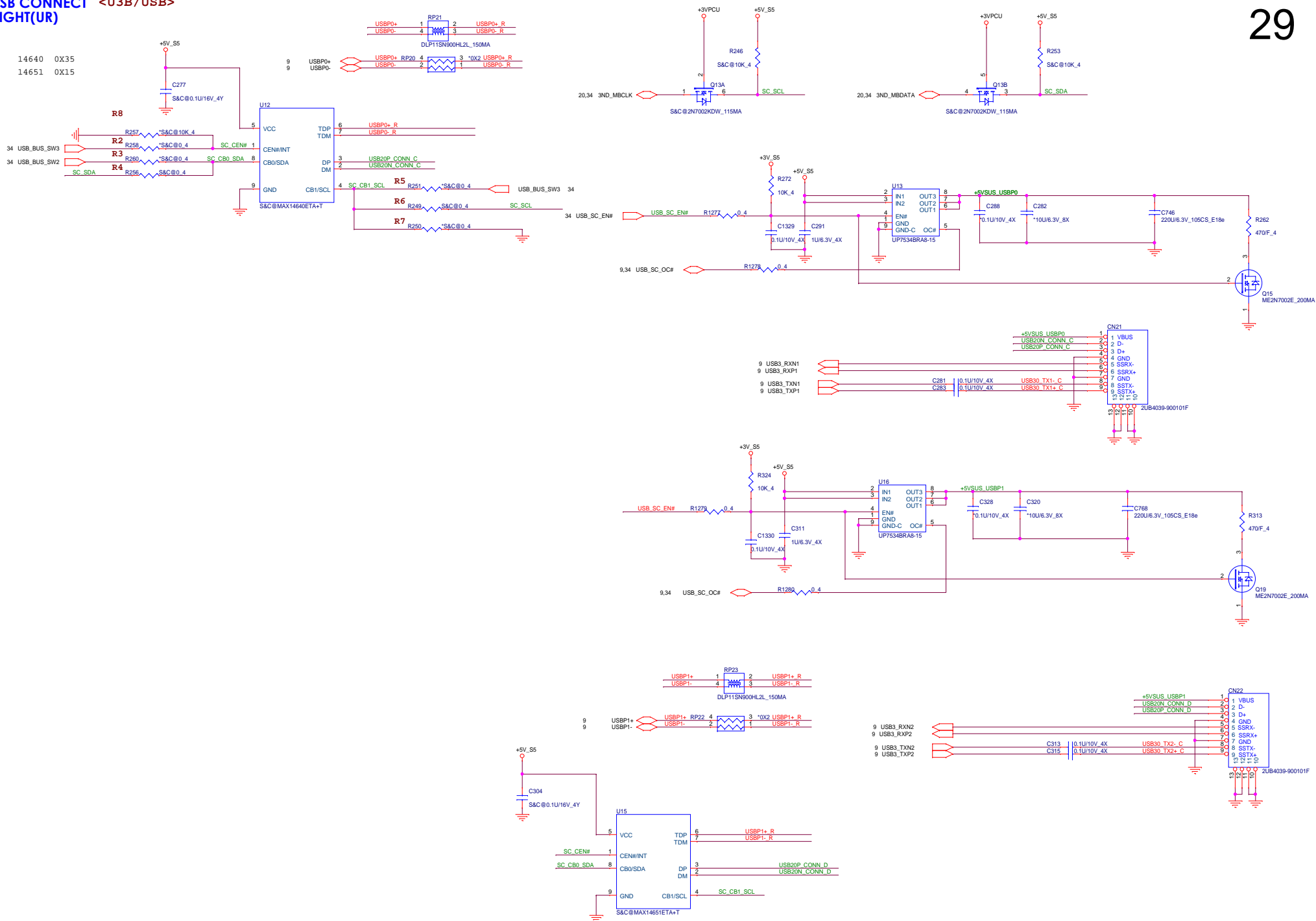
<SSD>

TV Tuner: 1.5V@240mA 3.3V@470mA

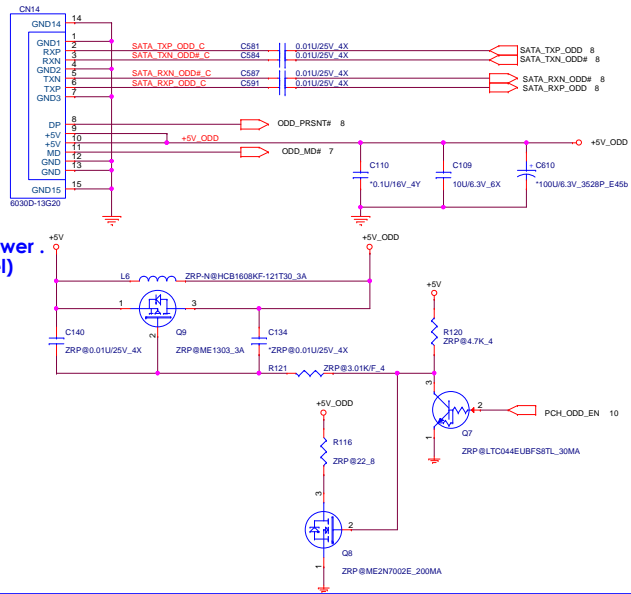


USB CONNECT RIGHT(UR) <U3B/USB>

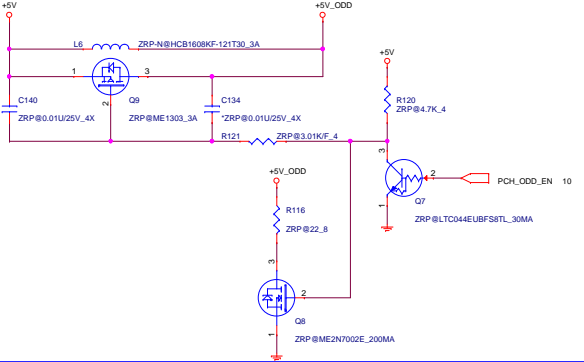
```
14640  0X35
14651  0X15
```



## SATA ODD

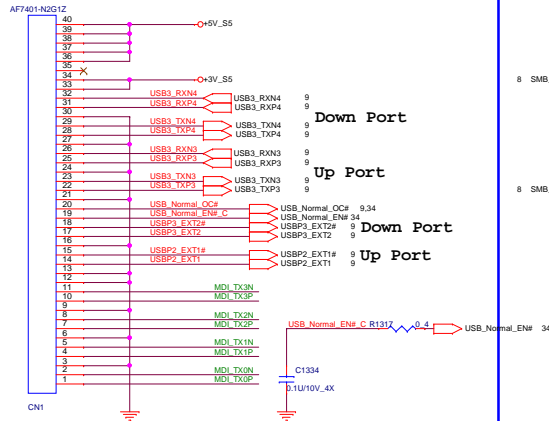


## ODD Zero power . (Only for Intel)

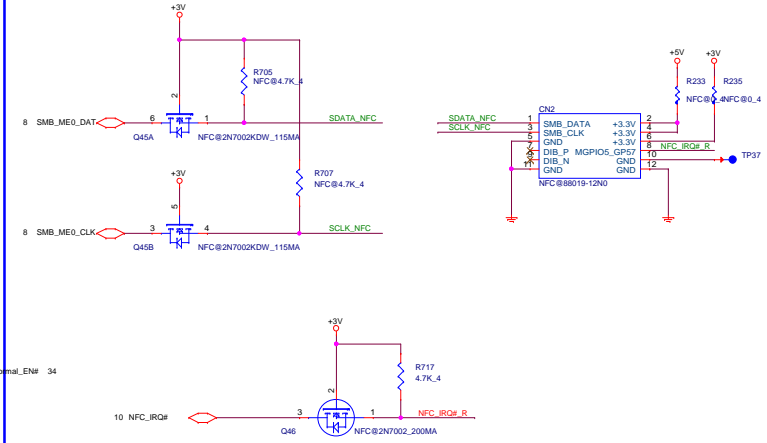


## Atheros Lan/USB3 CONN

### <LAN/LN1.LNG>



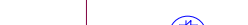
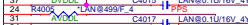
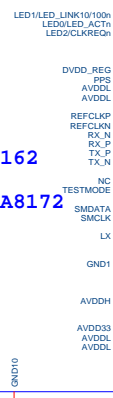
## NFC Connector

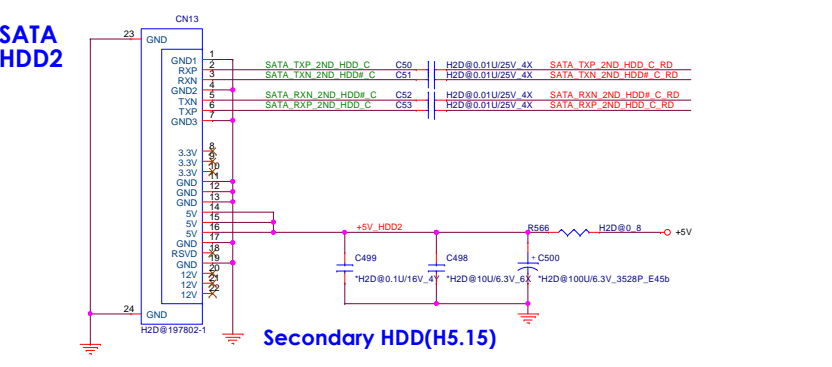
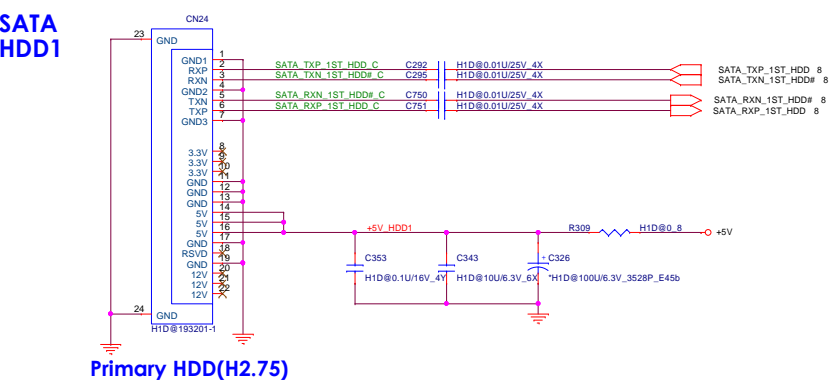


## Atheros

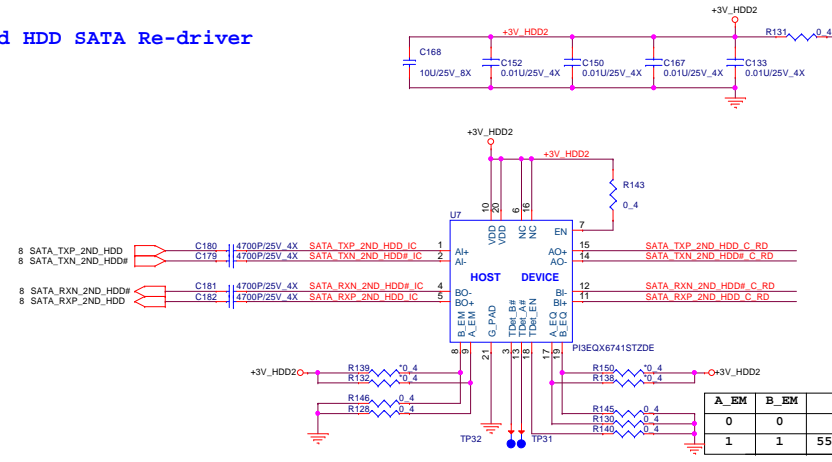
### AR8161/AR8162

### QCA8171/QCA8172





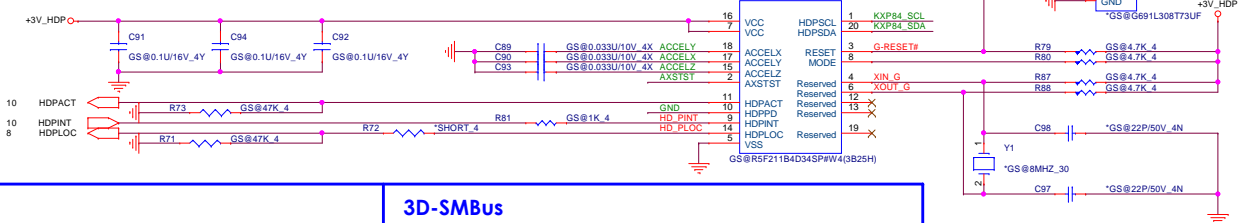
### 2nd HDD SATA Re-driver



A_EQ	B_EQ	1.5 Gb/s	3 Gb/s	6 Gb/s
0	0	1 bB	2.5 bB	3 bB
1	1	4 bB	7.5 bB	9 bB
floating		2.5 bB	5 bB	6 bB

A_EM	B_EM	3 Gb/s	6 Gb/s
0	0	550mV pp	650mV pp
1	1	550mV pp+3dB Pre-emphasis	650mV pp+1.5dB Pre-emphasis

### 3D-u-micro P <GSR>



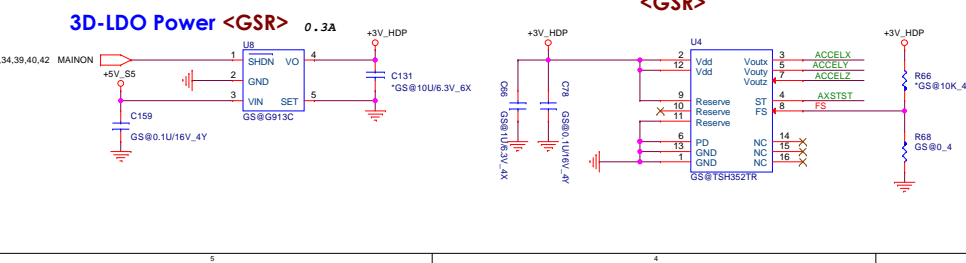
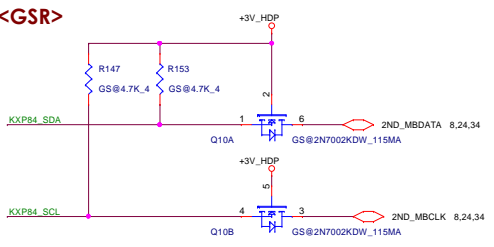
### 3D-Sensor IC <GSR>

FS (Full Scale) selection	
FS	0 1
	2g Full-Scale 6g Full-Scale

PD (Power Down) selection	
PD	0 1
	Normal Mode Power-down mode

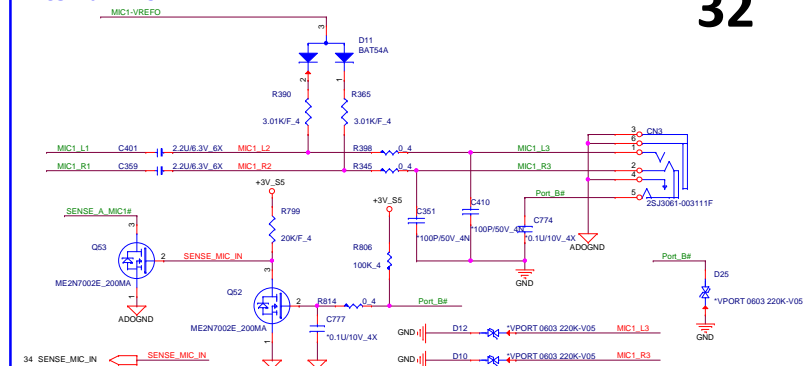
HDPDP selection	
HDPDP	0 1
	Normal Mode Power-down mode

### 3D-SMBus <GSR>

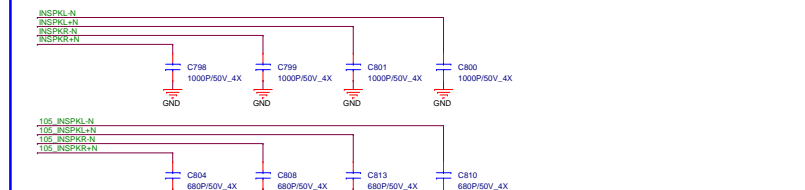
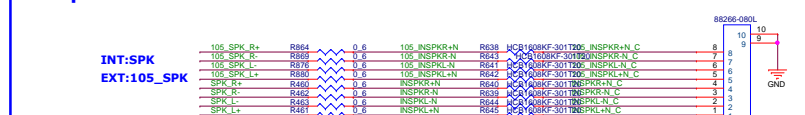


**Quanta Computer Inc.**  
**PROJECT : BDD**  
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**HDD/ODD**  
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## 32

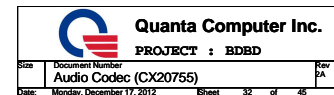


<ADO>

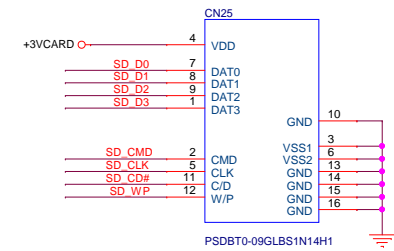
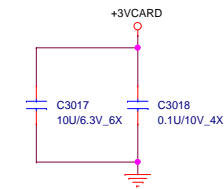
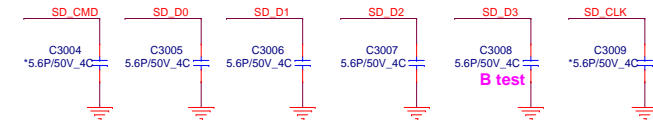
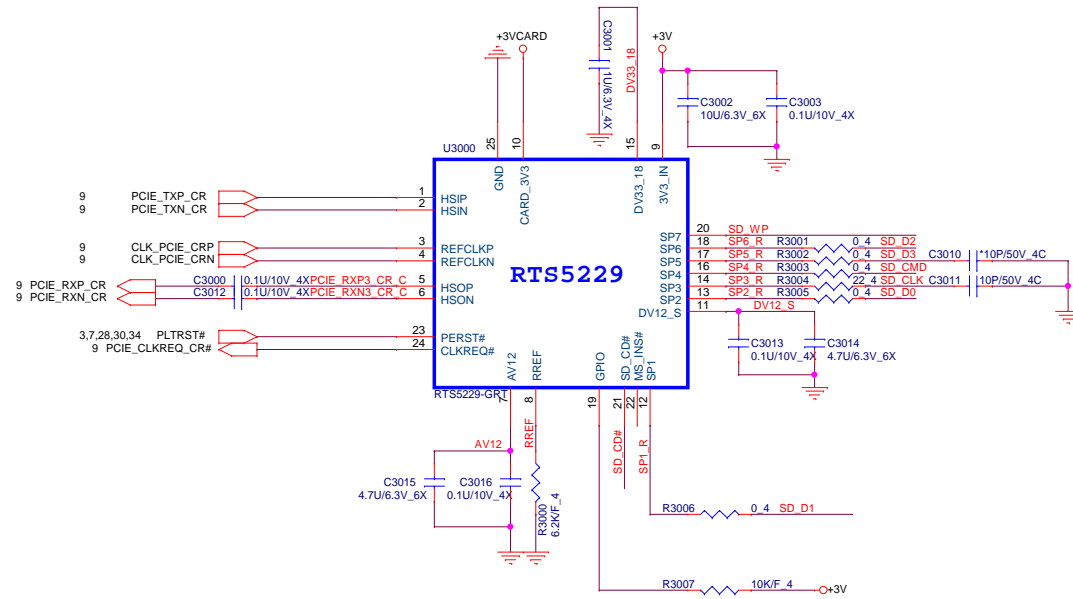


The diagram illustrates the NSPKR+ circuit. A top horizontal line represents the signal path. From this line, several capacitors are connected to ground (GND): C654 (1000P/50V\_4X), C653 (1000P/50V\_4X), C658 (1000P/50V\_4X), C656 (1000P/50V\_4X), C650 (1000P/50V\_4X), C652 (1000P/50V\_4X), C655 (1000P/50V\_4X), and C651 (1000P/50V\_4X). Signal lines branch off from the top line at various points: 105\_NSPKR+N\_C, 105\_NSPKR+N\_G, NSPKR+N\_C, NSPKR+N\_G, NSPKR+N\_C, 105\_NSPKR+L\_C, 105\_NSPKR+L\_G, and NSPKR+N\_G.

G1	G2	Gain
0	0	11dB
0	1	14dB
1	0	19dB
1	1	25dB



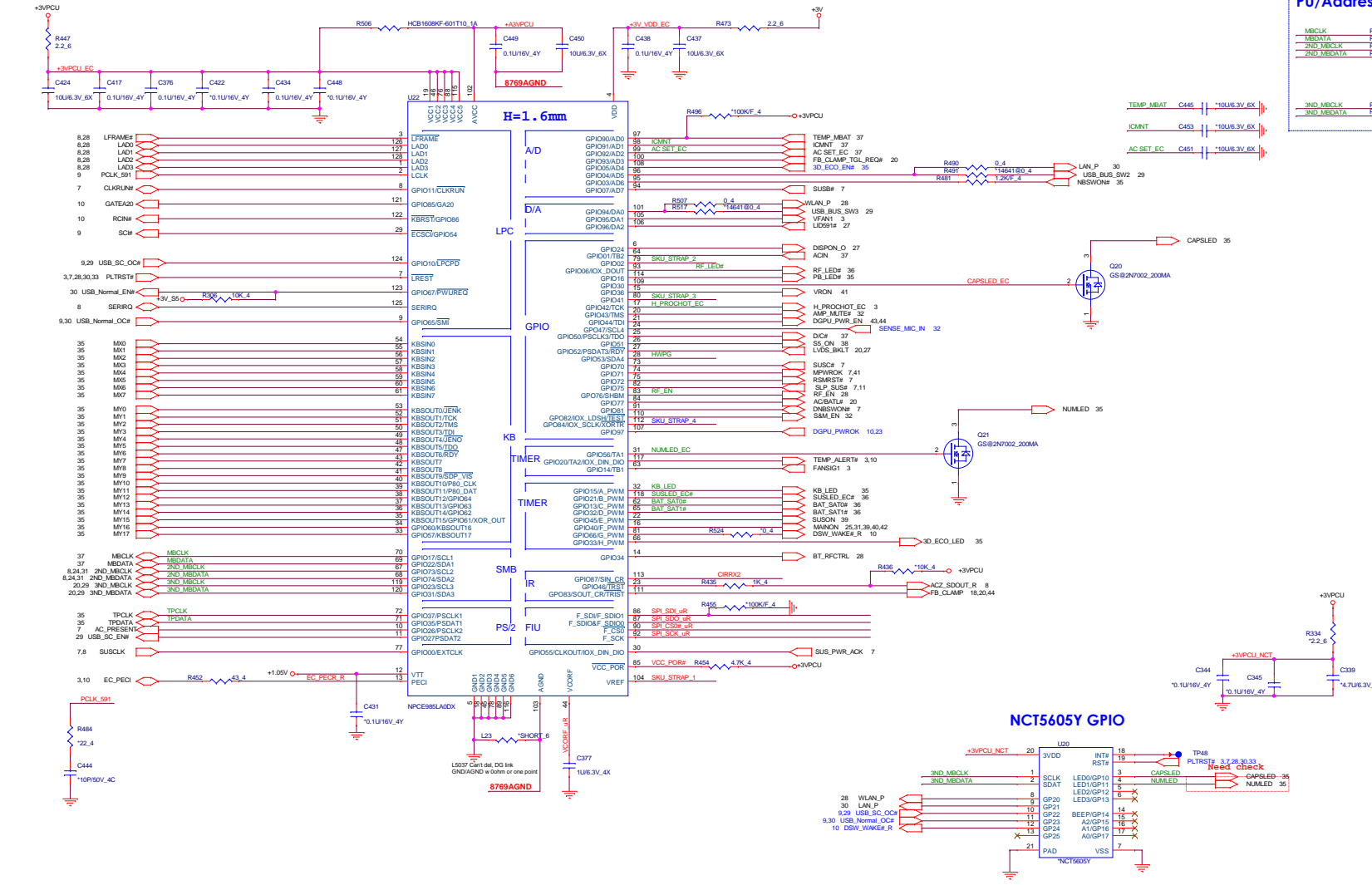




**Quanta Computer Inc.**

**PROJECT : BDBD**

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	Card Reader(AU6437)	2A
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SM BUS PU/Address

<KBC>

SMBUS Devices	Address
1 Battery(A)	
2 PCH(SS)	
3 G-sensor(S0)	
4 IDROM(A)	
5 EDP2LVDS IC	94H or 64H
6 VGA Thermal(A or S0)	98H
7 Extend GPIO	
8 S&C IC 14640 Up Port	35H
9 S&C IC 14640 Down Port	15H

TP <KBC>

LED PU/PD <LED>

INTERNAL KEYBOARD STRIP SET <KBC>

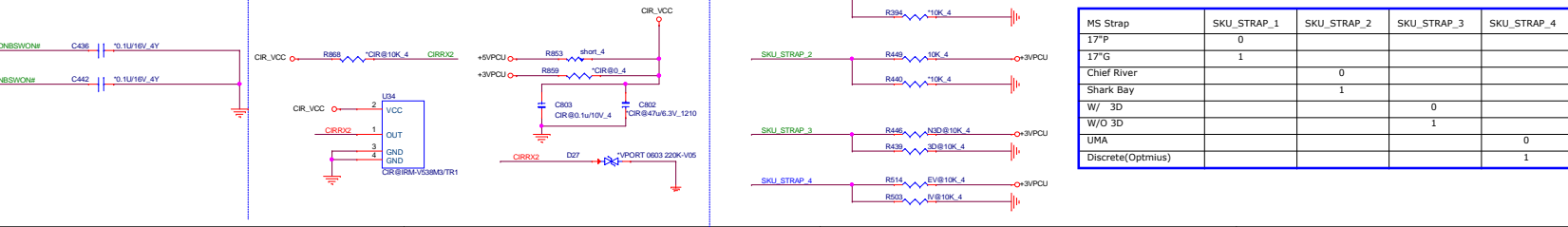
ID EEPROM <KBC>

SPI FLASH <KBC>

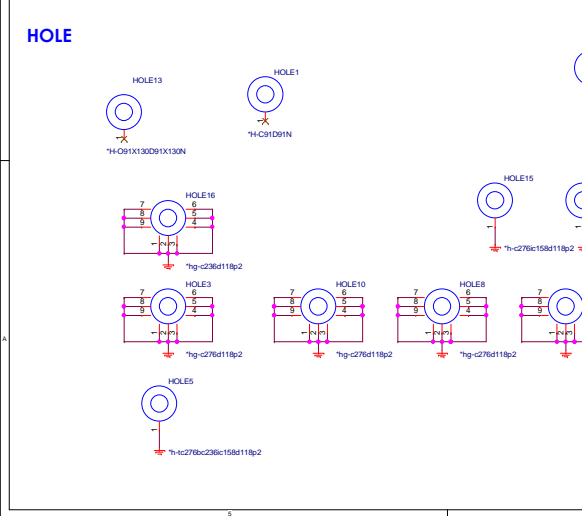
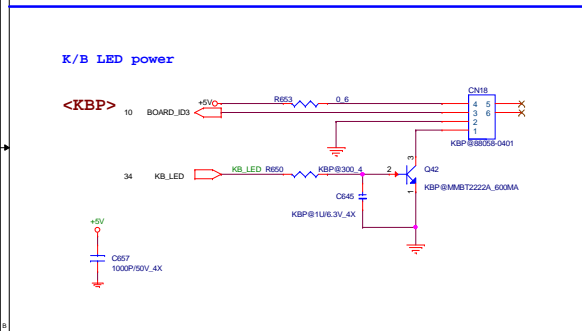
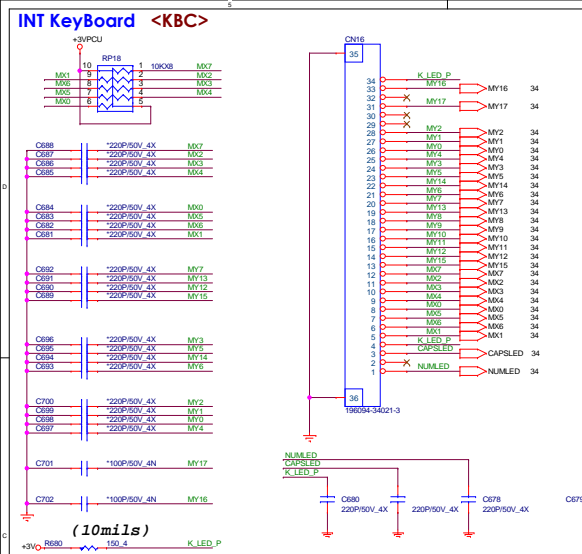
HWPG circuit <KBC>

Power Button <KBC>

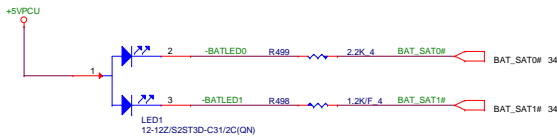
CIR



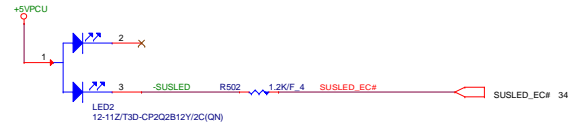
MS Strap	SKU_STRAP_1	SKU_STRAP_2	SKU_STRAP_3	SKU_STRAP_4
17°F	0			
17°G	1			
Chief River		0		
Shark Bay		1		
W/ 3D			0	
W/O 3D			1	
UMA				0
Discrete(Optimus)				1



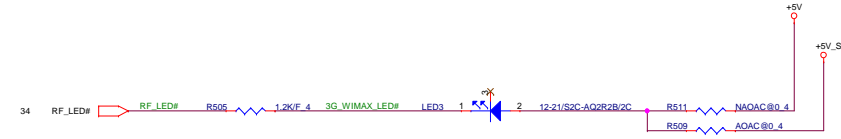
LED  
BATTERY



POWER LED

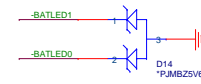


RF LED LED

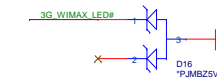


ESD Protect LED

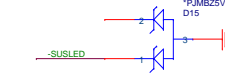
FOR BATTERY LED



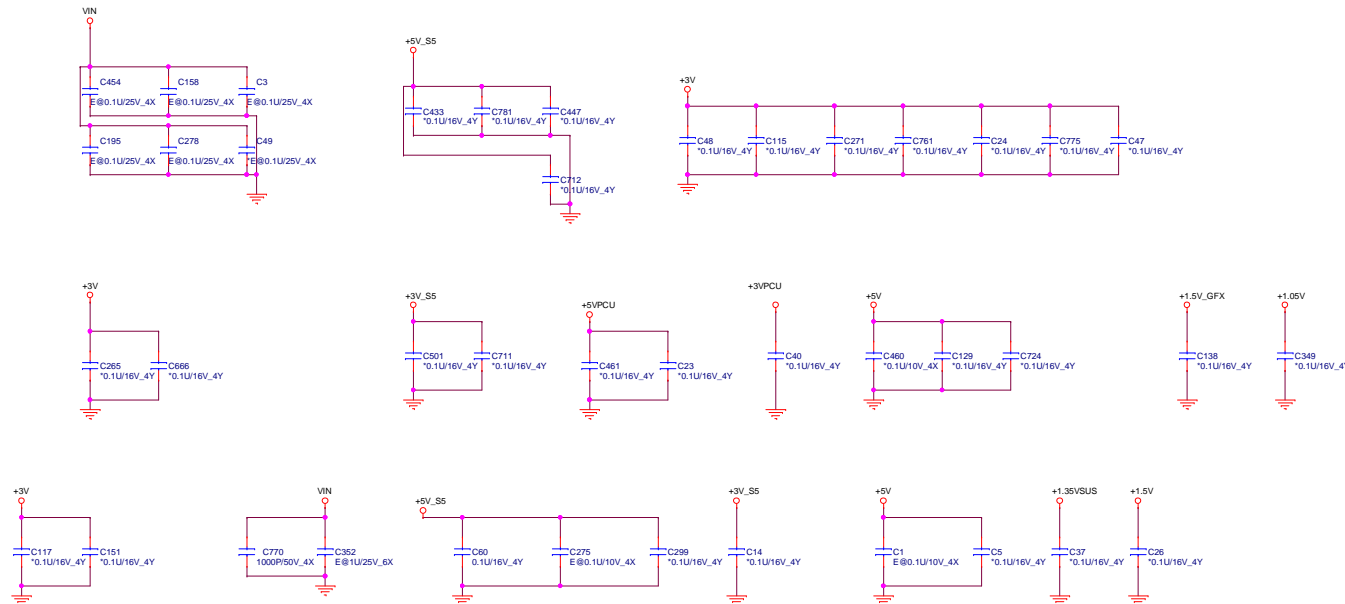
FOR W-LAN LED

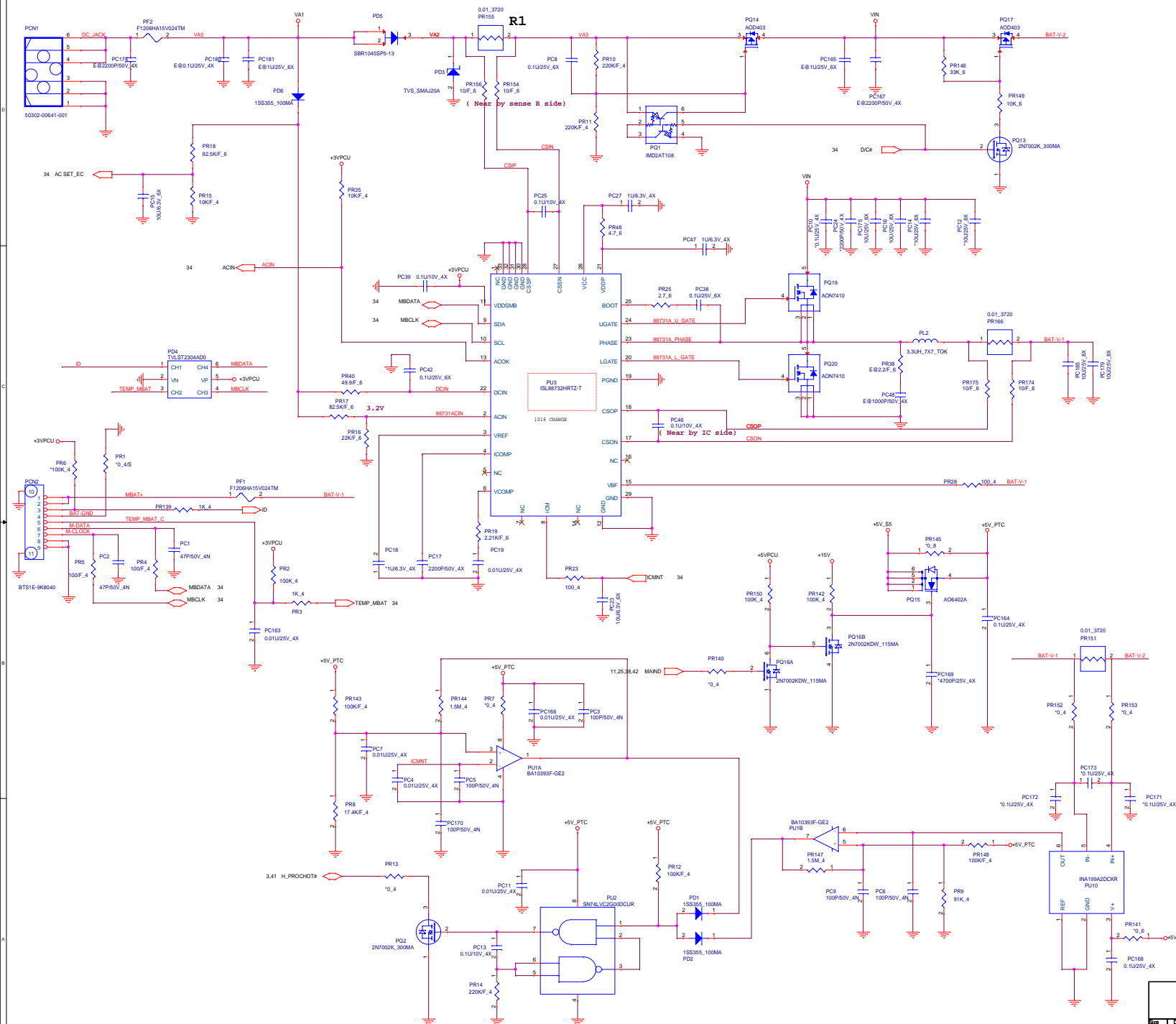


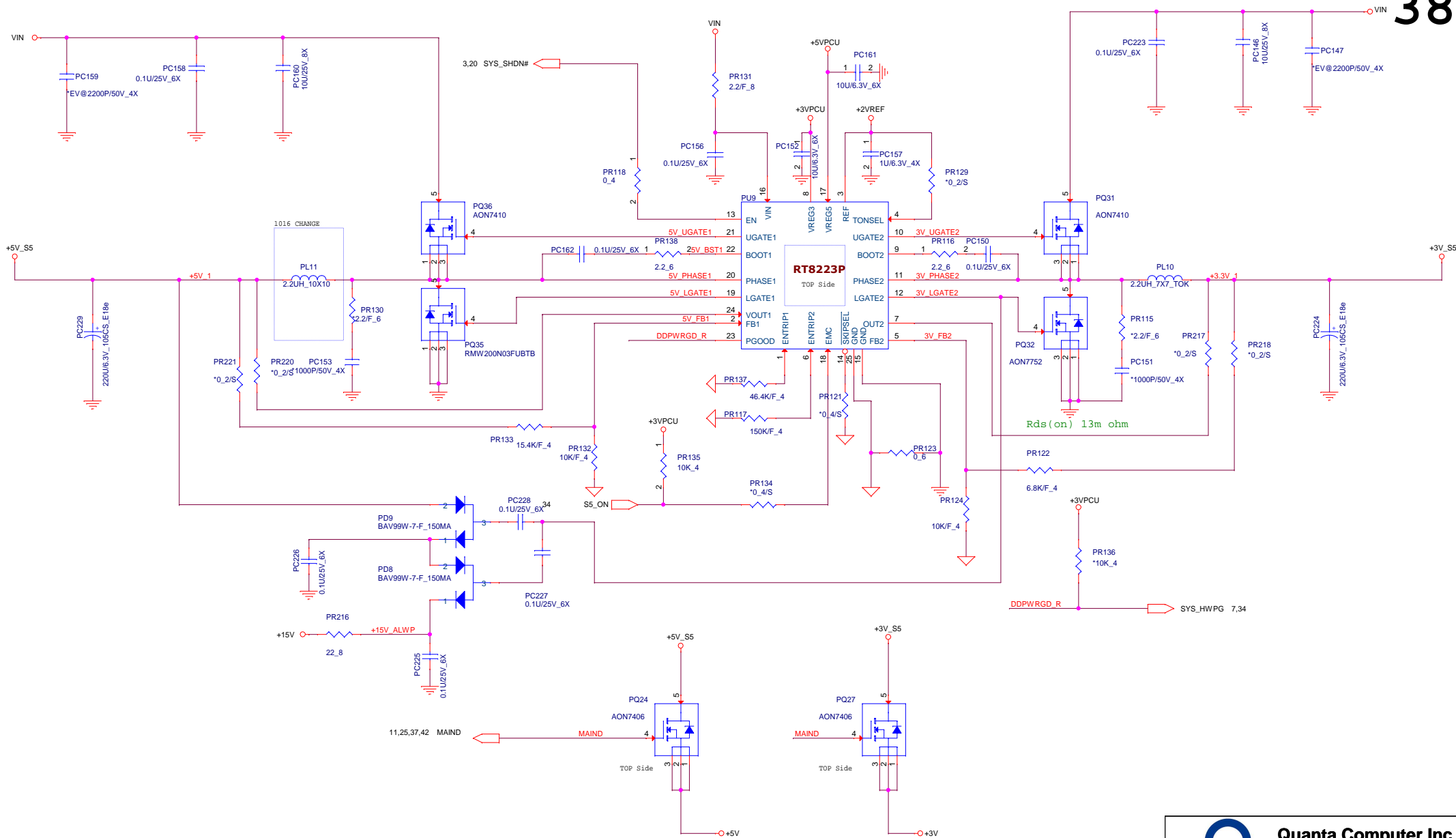
FOR Power LED



EMI



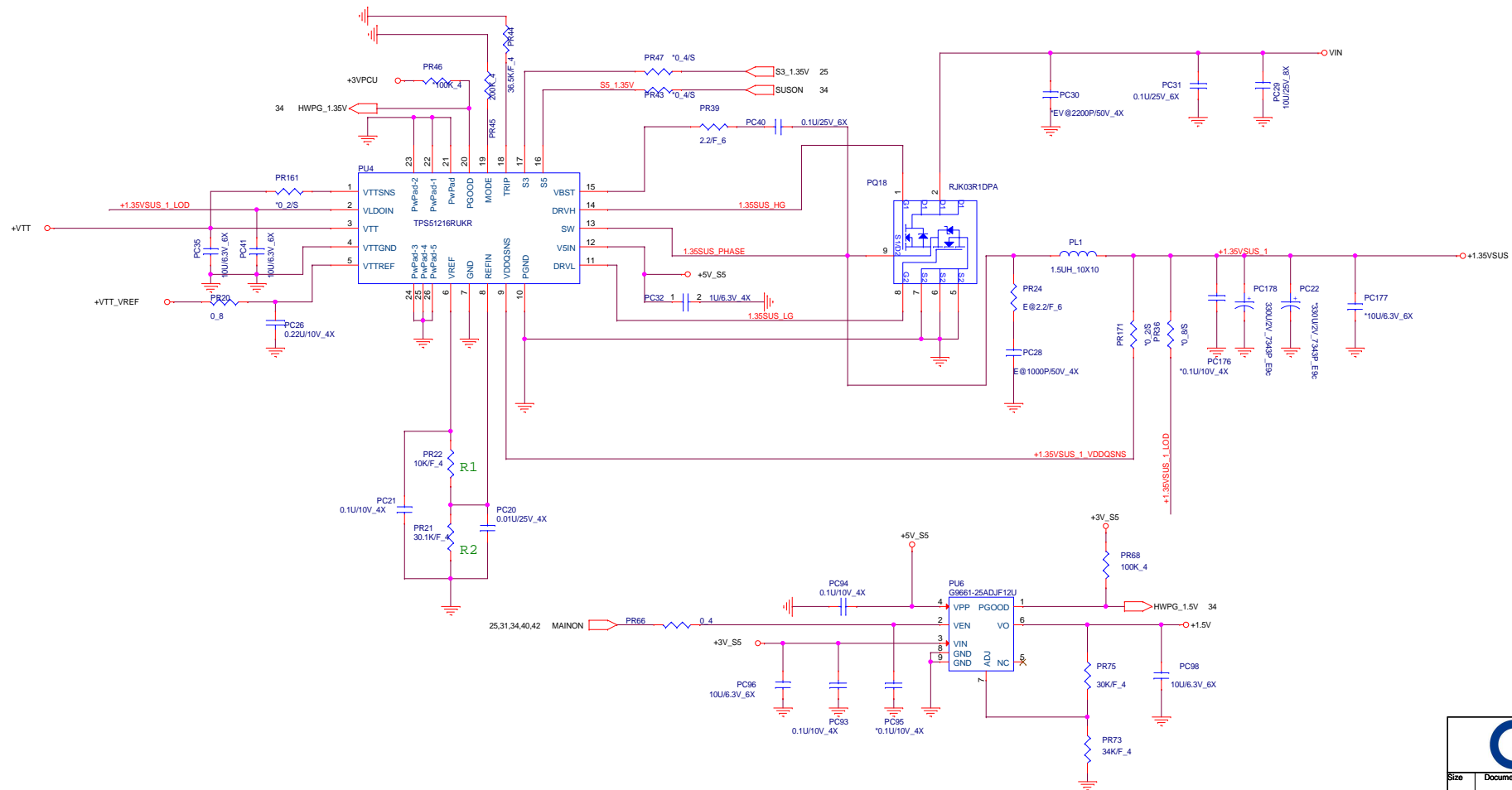




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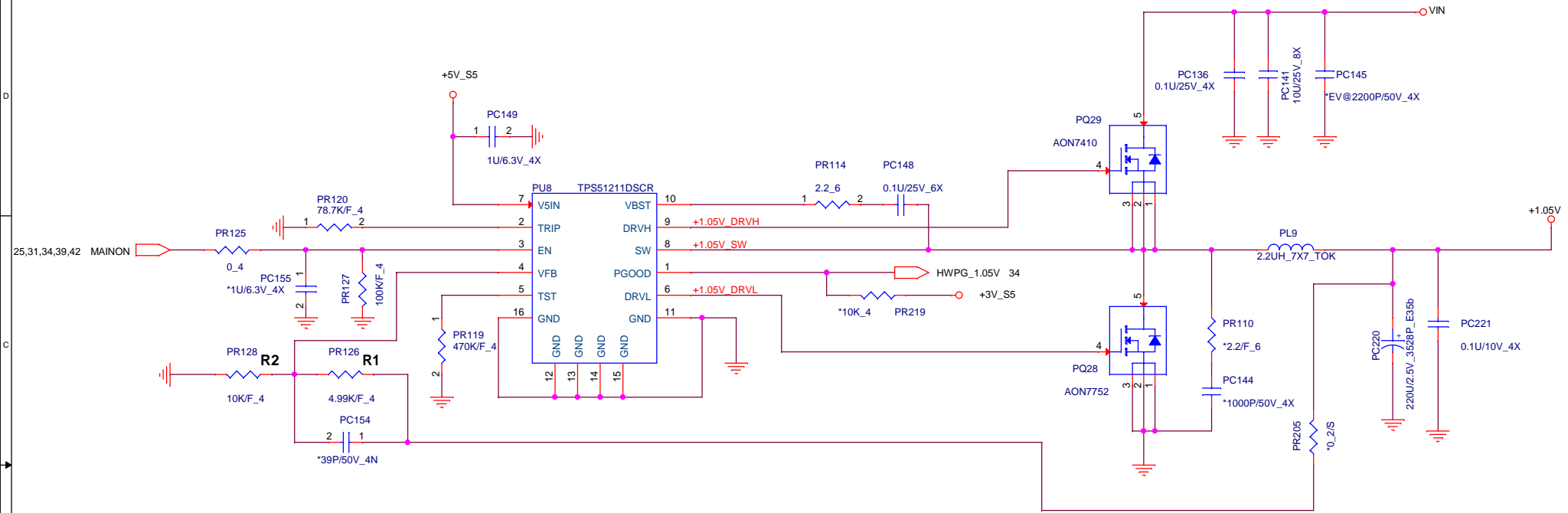
**PROJECT : BDBD**

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	System 3V/5V(TPS51123A)	2A
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**Quanta Computer Inc.**  
PROJECT : BDED

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	DDR1.5V	2A
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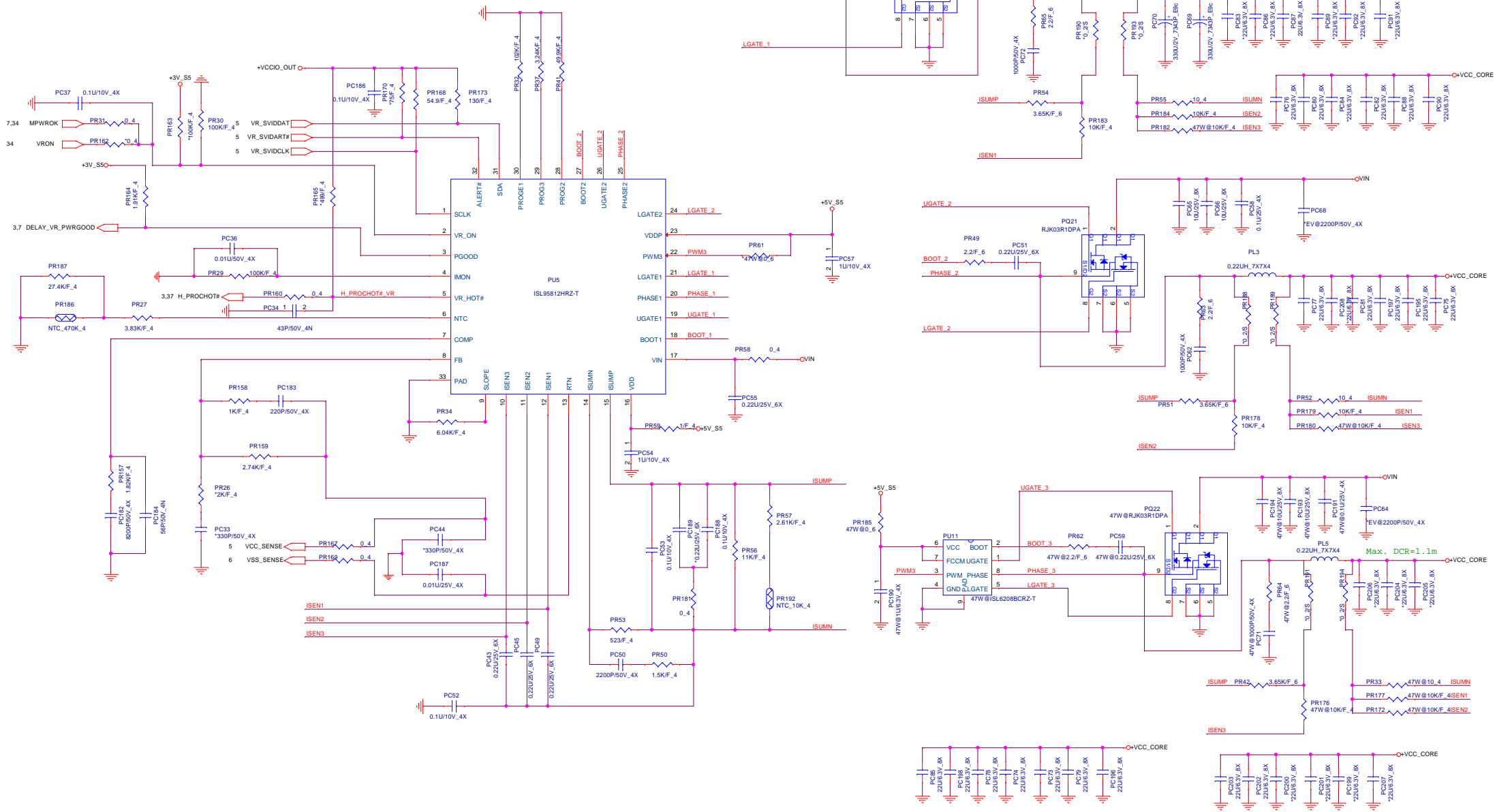


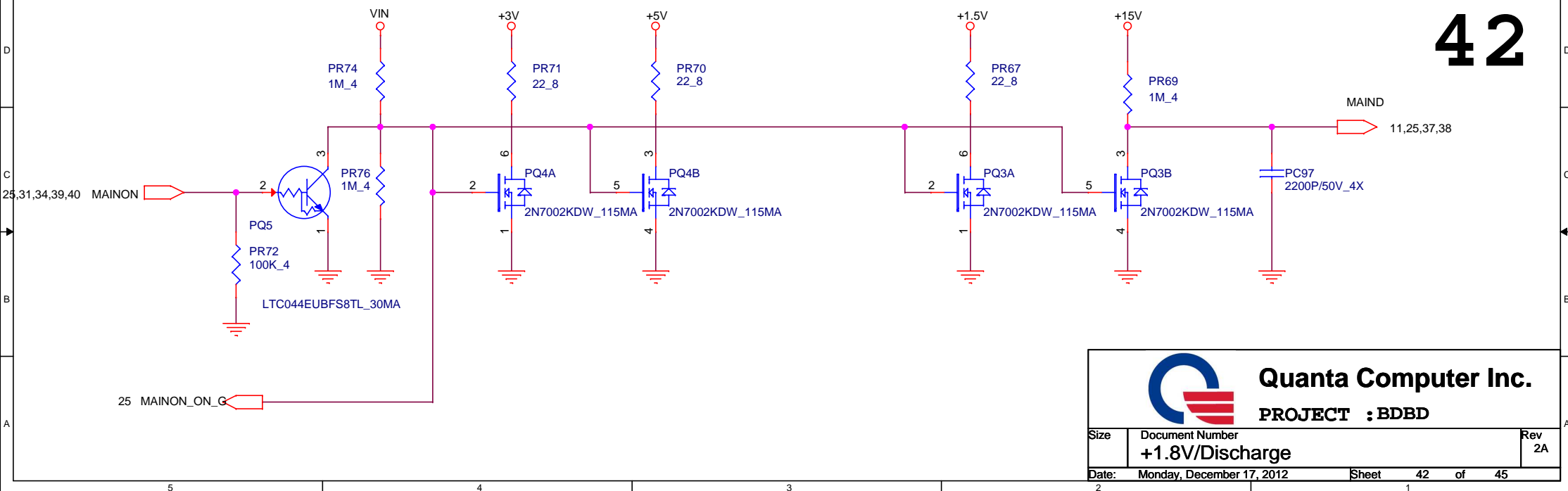
**Quanta Computer Inc.**

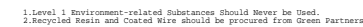
**PROJECT : BDBD**

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	<b>+1.05V_A(TPS51211DSCR)</b>	2A
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Model		REV		CHANGE LIST		MODEL		BY3E							
						PAGE	FROM	To							
BDBD	B2A	PAGE 8: C795,C805 Change to 15pf PAGE 8: CN11 Change socket type PAGE 8:Add R1328 and R1516 for QUAD IO PAGE 9: Change C769,C763 to 12pf PAGE 10: Add board ID for SPK,CIR,TV PAGE 19: Change C731,C732 to 12pf PAGE 30: Add LAN IC PAGE 32: Change R638,R639,R640,R641,R642,R643,R644,R645 to bead PAGE 33: Change Card read to RTS5229 PAGE 34: Add R523 for PB_LED change to high active PAGE 34:Remove R411 for optimu PAGE 35: Change R499,R498,R505,R502 for LED brightness SPEC				1	1A								
						2	1A								
						3	1A								
						4	1A								
						5	1A								
						6	1A								
						7	1A								
						8	1A								
						9	1A								
						10	1A								
						11	1A								
						12	1A								
						13	1A								
						14	1A								
						15	1A								
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