

# U33C DIS/UMA (14"/15.6") Ultra/Slim Intel Chief River Platform Block Diagram

## PCB 6L STACK UP

LAYER 1 : TOP  
LAYER 2 : SGND  
LAYER 3 : IN1(High)  
LAYER 4 : IN2(Low)  
LAYER 5 : SVCC  
LAYER 6 : BOT

## Power Source

**BQ24738**  
System Charge Power (+BATCHG)

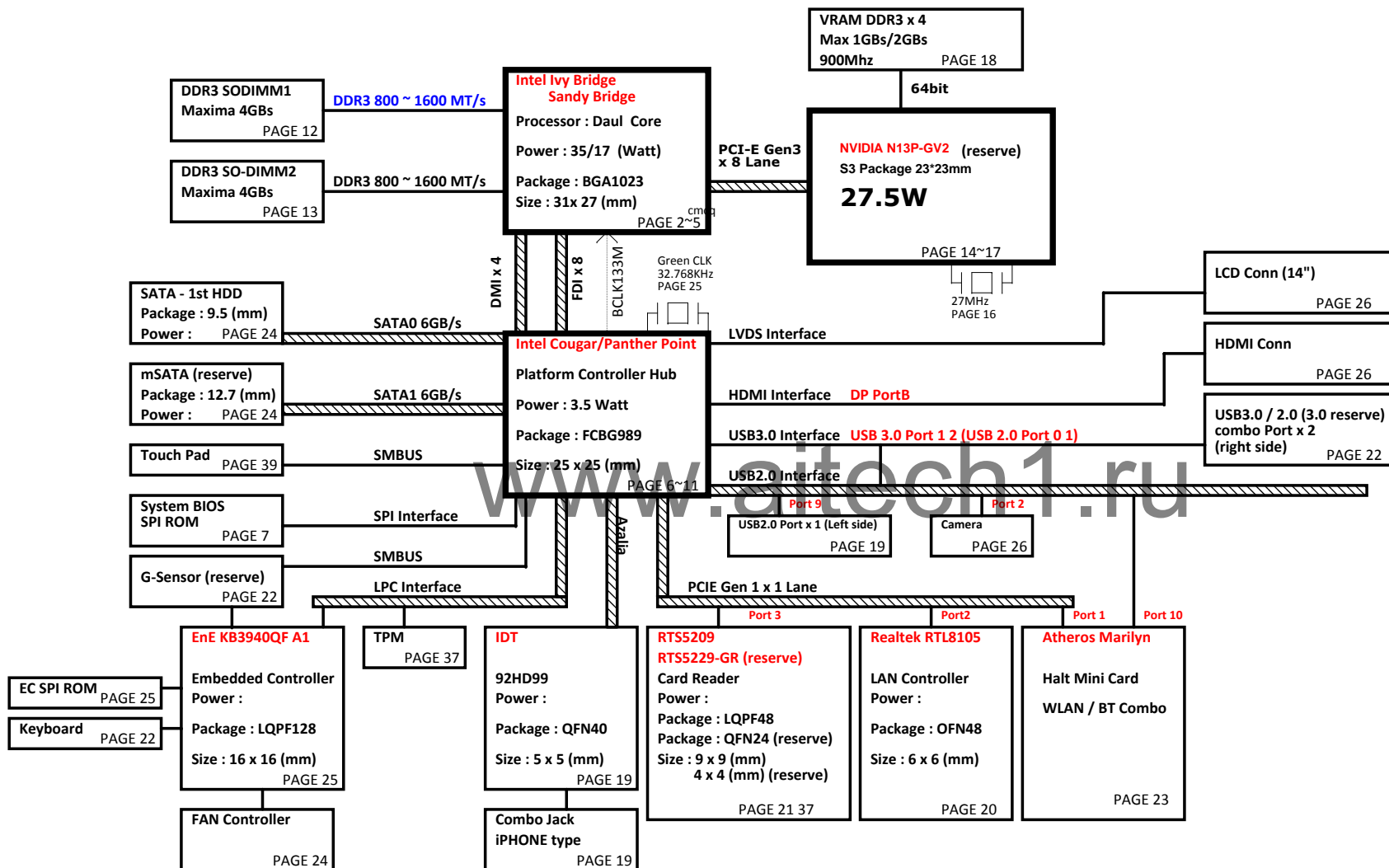
**Richtek RT8223P**  
System Power (+3VPCU/+5VPCU/  
+3VS5/+5VS5)

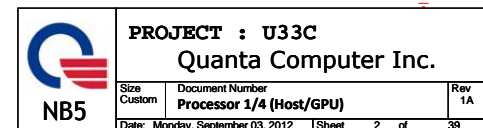
**NCP6132/NCP5911/RT8240/  
TPS51462RGER**  
Processor Power (+VCC\_CORE/  
+VCC\_GFX/+1.05\_VTT/  
+VCCSA)

**SLG55448V**  
System Discharge Power  
(+1.5V/+3V/+5V)

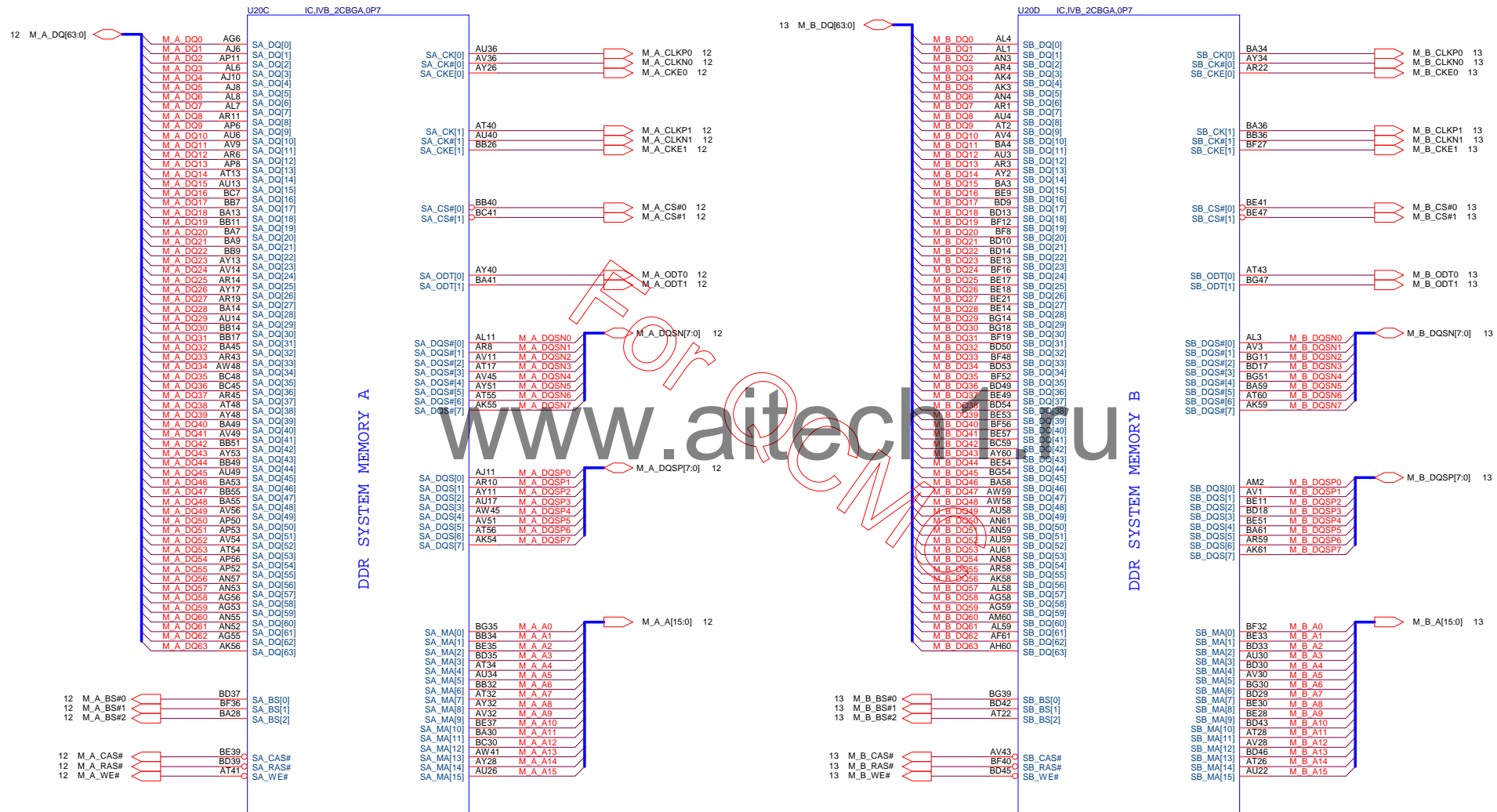
**Richtek RT8207**  
System Memory Power (+1.5VSUS/  
+0.75V\_DDR\_VTT)

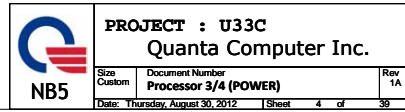
**NCP3218G**  
GPU core power(+VGACORE)



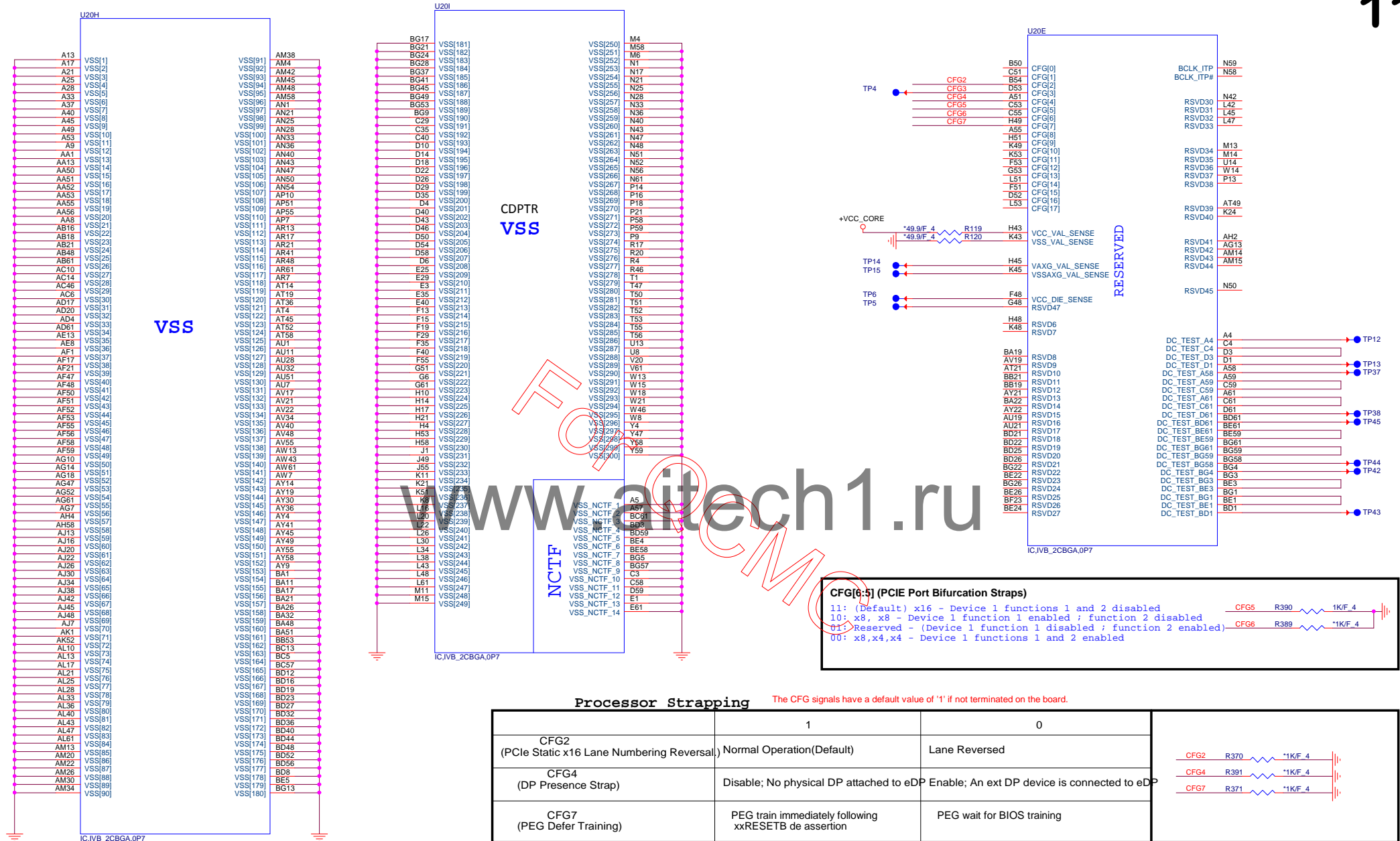


## Ivy Bridge Processor (DDR3)







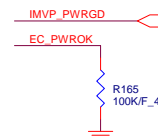




## LVDS

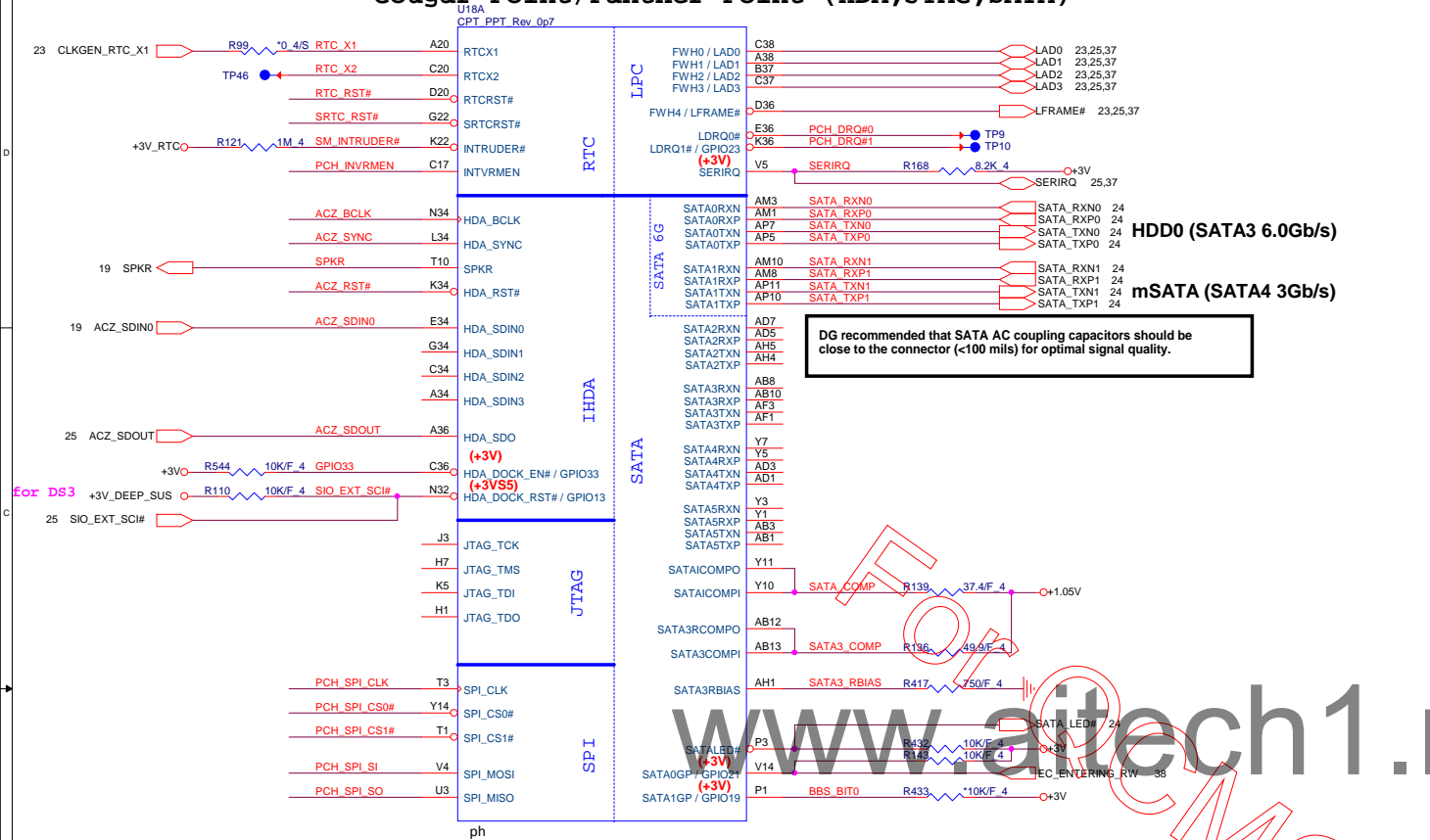
TA CRT

### System PWR\_OK(CLG)



# Cougar Point/Panther Point (HDA,JTAG,SATA)

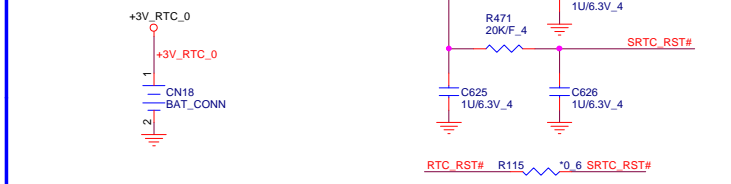
07



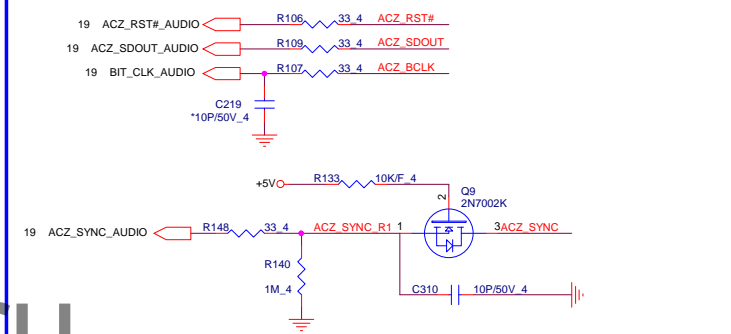
DG recommended that SATA AC coupling capacitors should be close to the connector (<100 mils) for optimal signal quality.

## RTC Circuitry(RTC)

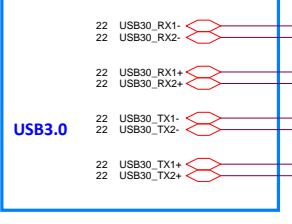
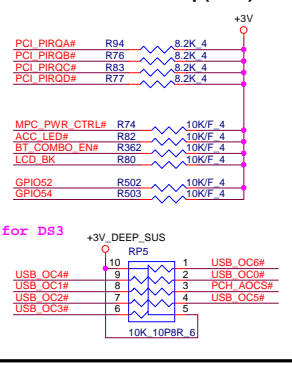
RTC Power trace width 20mils.



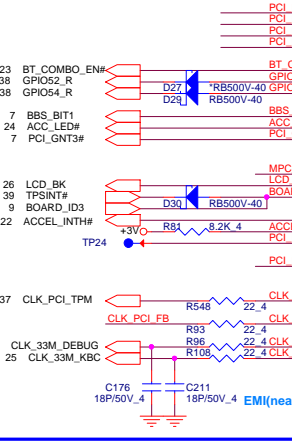
## HDA Bus(CLG)



PCI/USBOC# Pull-up(CLG)



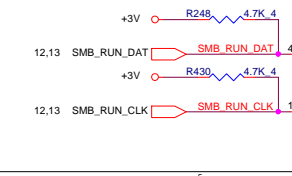
20111130 Modify USB3.0 for HM70



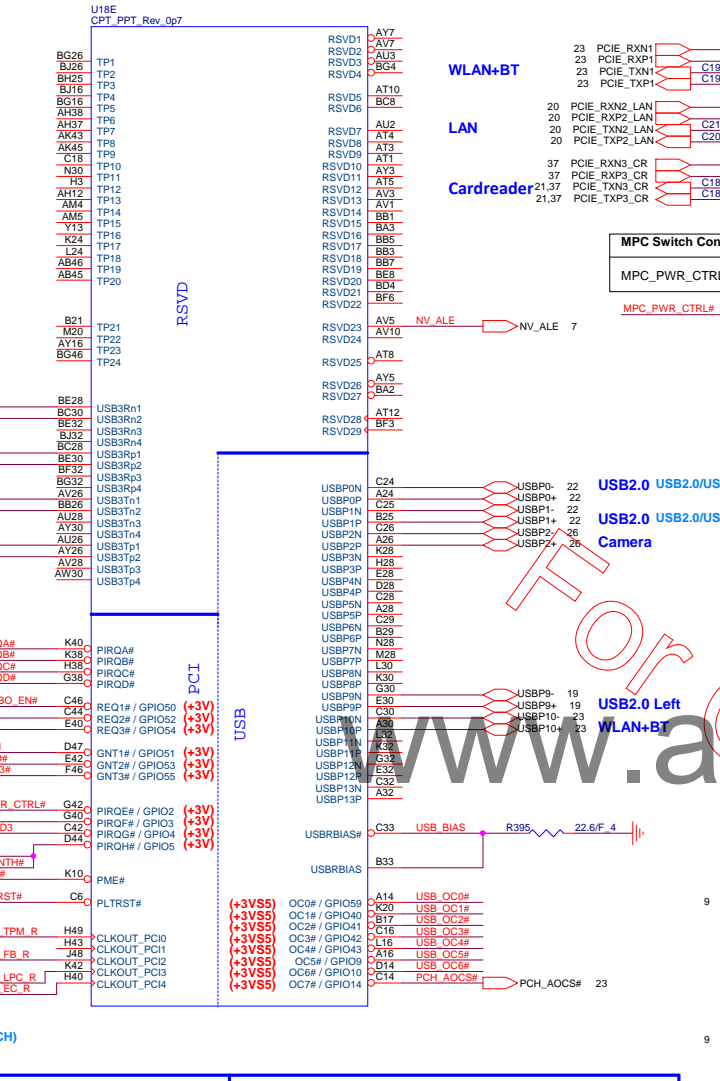
PLTRST#(CLG)



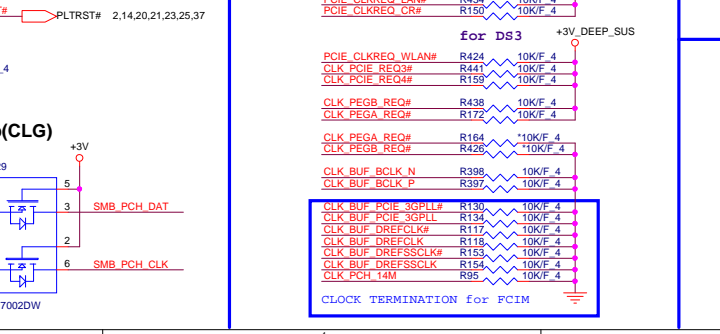
SMBus/Pull-up(CLG)



Cougar Point-M/Panther Point (PCI,USB,NVRAM)



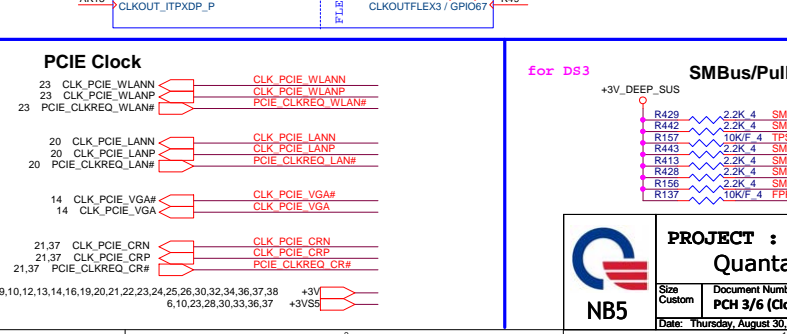
CLK\_REQ/Strap Pin(CLG)



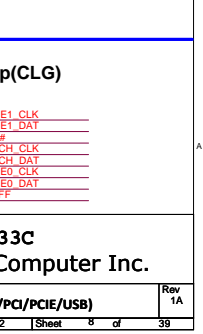
Cougar Point-M/Panther Point (PCI-E,SMBUS,CLK)



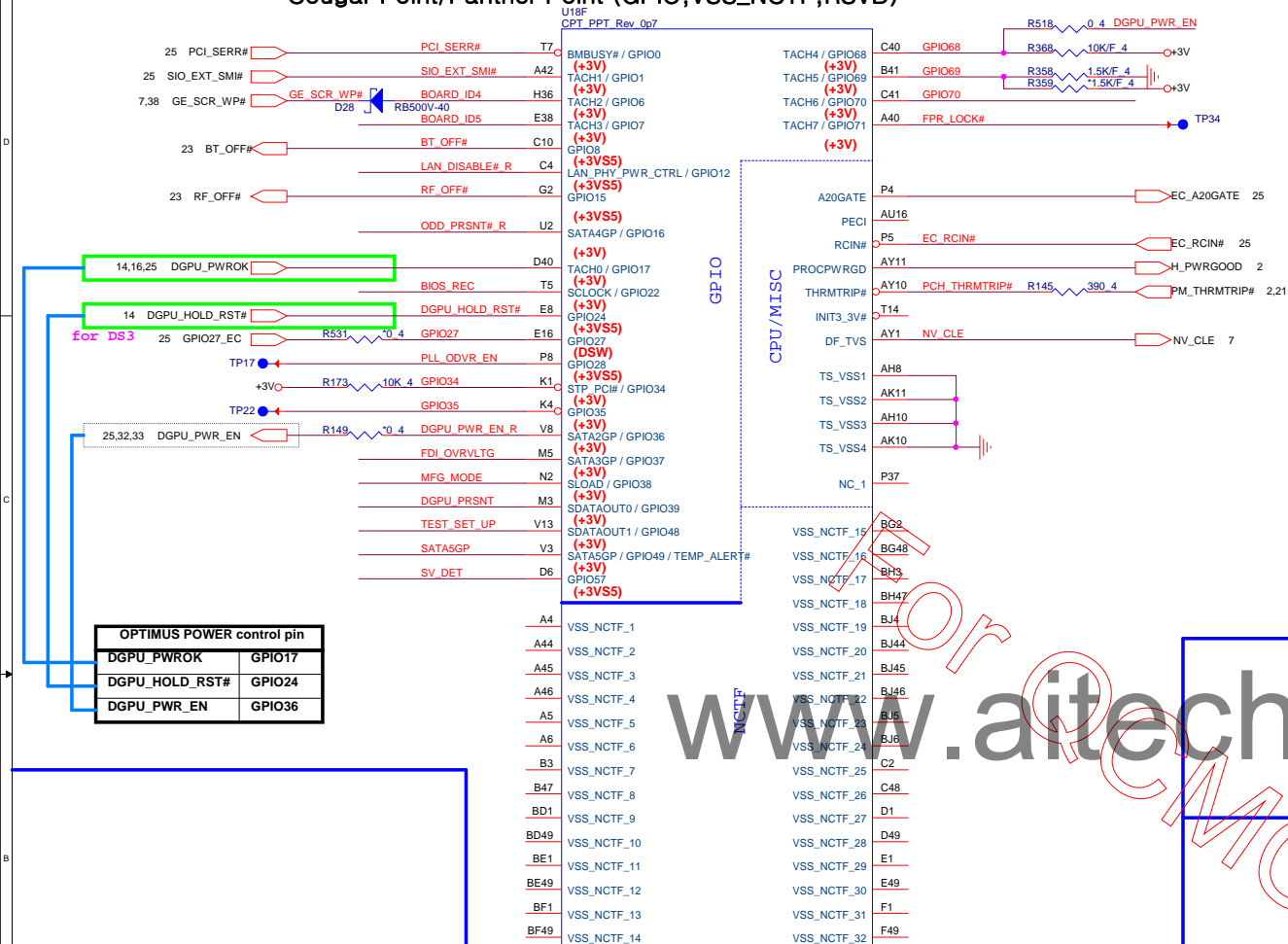
PCI Clock



SMBus/Pull-up(CLG)

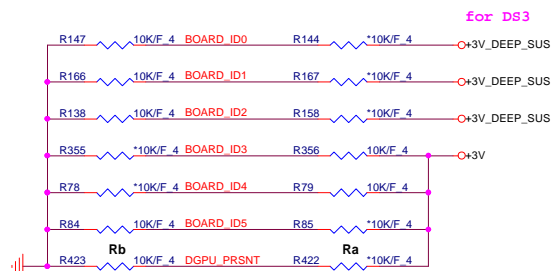


## Cougar Point/Panther Point (GPIO,VSS\_NCTF,RSVD)



## Chief River BOARD ID SETTING

Model	BOARD_ID5	BOARD_ID4		BOARD_ID2	BOARD_ID1 UMA: 0 DIS: 1	BOARD_ID0 UMA: 0 DIS: 1
U33C UMA NM70				0	0	0
				0	0	1
				0	1	1
				1	1	1
				X	X	X
				X	X	X



	SG	UMA
Stuff	Ra	Rb
NC	Rb	Ra

8 BOARD_ID0	BOARD_ID0
8 BOARD_ID1	BOARD_ID1
8 BOARD_ID2	BOARD_ID2
8 BOARD_ID3	BOARD_ID3

6,7,8,10,12,13,14,16,19,20,21,22,23,24,25,26,30,32,34,36,37,38  
6,10,23,28,30,33,36,37

**PROJECT : U33C**  
**Quanta Computer Inc.**

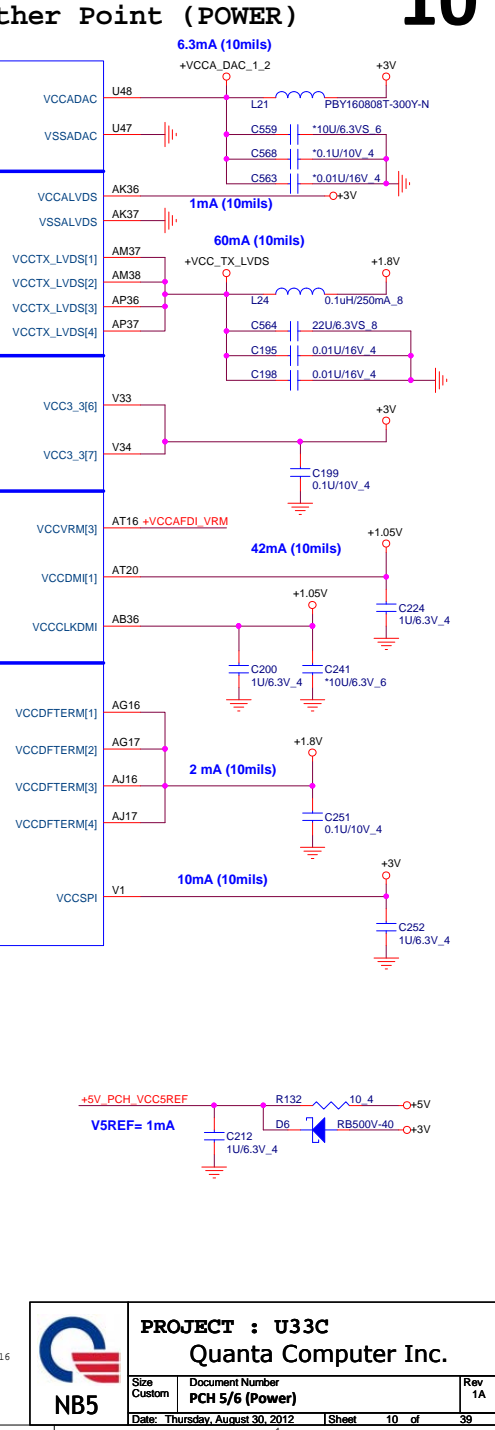
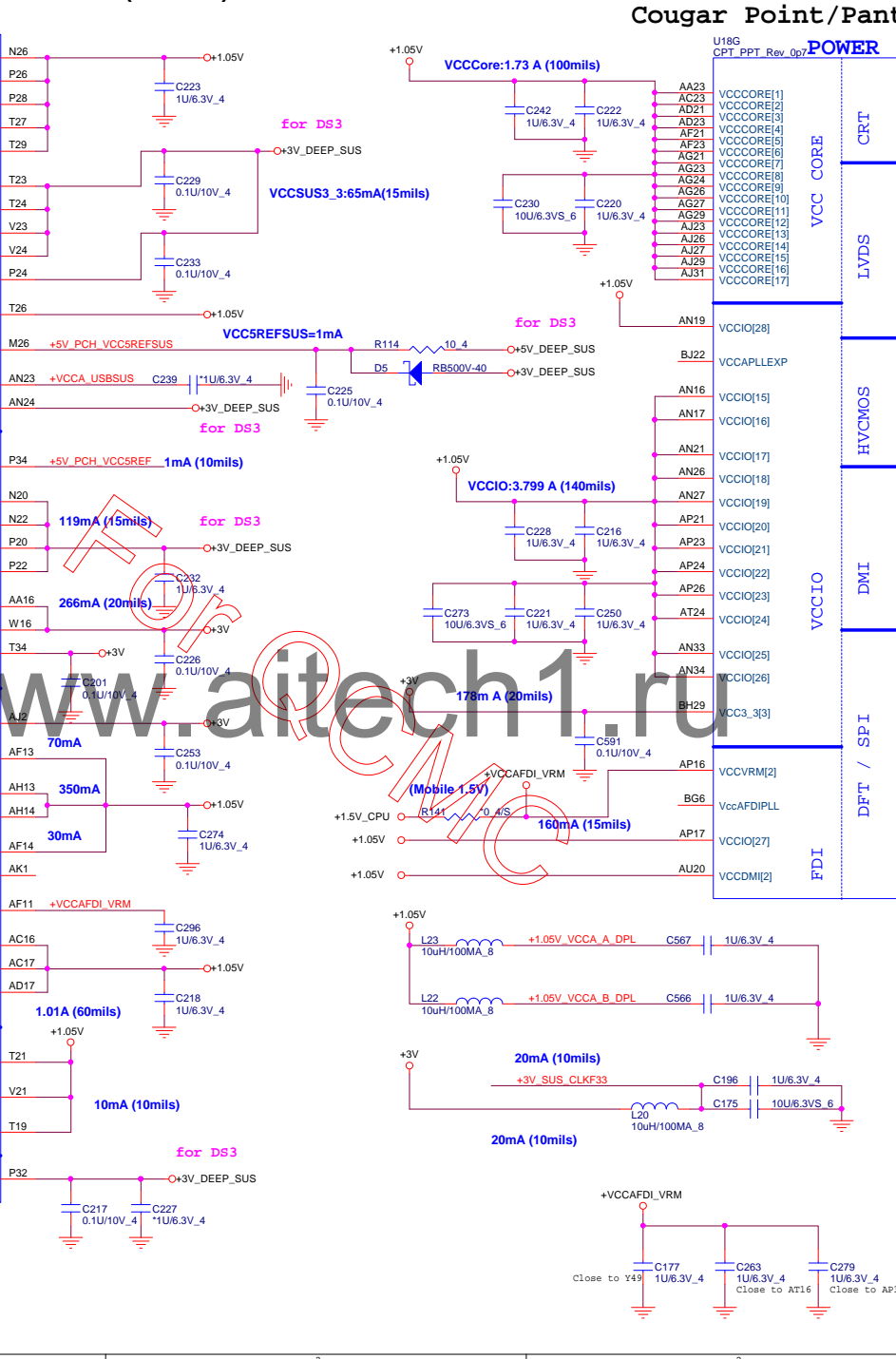
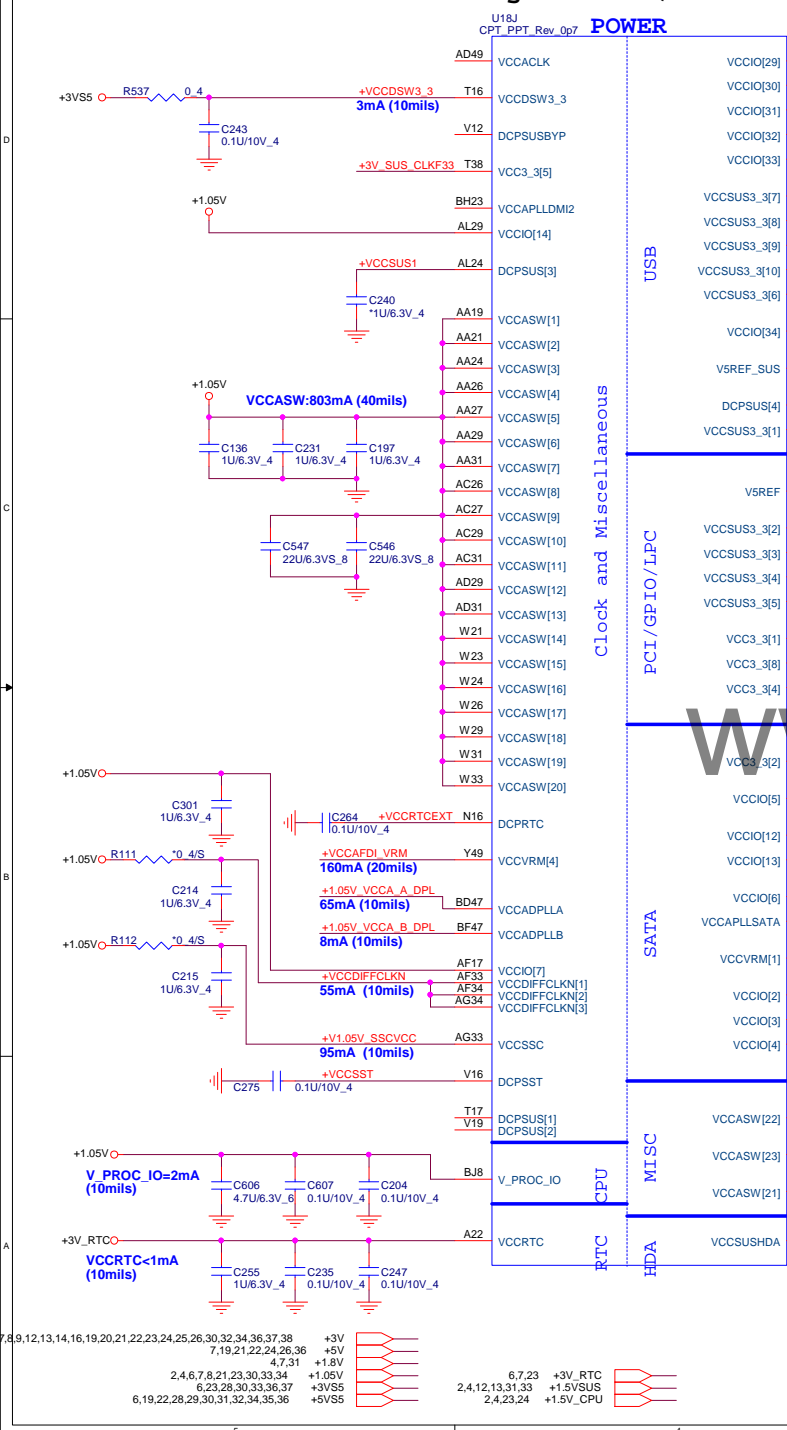
**NB5**

Size Custom Document Number PCH 4/6 (GPIO) Rev 1A

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Cougar Point/Panther Point (POWER)



## Cougar Point/Panther Point (GND)

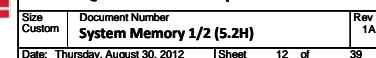
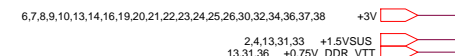
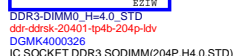
## Cougar Point/Panther Point (GND)

U18I  
CPT PPT Rev Op7

AY4	VSS[159]	H46
AY42	VSS[160]	K18
AY46	VSS[161]	K26
AY8	VSS[162]	K39
B11	VSS[163]	K46
B15	VSS[164]	L18
B19	VSS[165]	L2
B23	VSS[166]	L20
B27	VSS[167]	L26
B31	VSS[168]	L28
B35	VSS[169]	L36
B39	VSS[170]	L48
B7	VSS[171]	M12
F45	VSS[172]	P16
BB12	VSS[173]	M18
BB16	VSS[174]	M22
BB20	VSS[175]	M24
BB22	VSS[176]	M30
BB24	VSS[177]	M32
BB28	VSS[178]	M34
BB30	VSS[179]	M38
BB38	VSS[180]	M4
BB4	VSS[181]	M42
BB46	VSS[182]	M46
BC14	VSS[183]	M8
BC18	VSS[184]	N18
BC2	VSS[185]	P30
BC22	VSS[186]	N47
BC26	VSS[187]	P11
BC32	VSS[188]	P18
BC34	VSS[189]	T33
BC36	VSS[190]	P40
BC40	VSS[191]	P43
BC42	VSS[192]	P47
BD46	VSS[193]	P7
BD5	VSS[194]	R2
BE22	VSS[195]	R48
BE26	VSS[196]	T12
BE40	VSS[197]	T31
BF10	VSS[198]	T37
BF12	VSS[199]	T4
BF16	VSS[200]	W34
BF20	VSS[201]	T46
BF22	VSS[202]	VSS[202]
BF24	VSS[203]	VSS[303]
BF26	VSS[204]	VSS[304]
BF28	VSS[205]	VSS[305]
BD3	VSS[206]	VSS[306]
BF30	VSS[207]	VSS[307]
BF38	VSS[208]	VSS[308]
BF40	VSS[209]	VSS[309]
BF8	VSS[210]	VSS[310]
BG17	VSS[211]	VSS[311]
BG21	VSS[212]	VSS[312]
BG33	VSS[213]	VSS[313]
BG44	VSS[214]	VSS[314]
BG8	VSS[215]	VSS[315]
BH11	VSS[216]	VSS[316]
BH15	VSS[217]	VSS[317]
BH17	VSS[218]	VSS[318]
BH19	VSS[219]	VSS[319]
H10	VSS[220]	VSS[320]
BH27	VSS[221]	VSS[321]
BH31	VSS[222]	VSS[322]
BH33	VSS[223]	VSS[323]
BH35	VSS[224]	VSS[324]
BH39	VSS[225]	VSS[325]
BH43	VSS[226]	VSS[326]
BH7	VSS[227]	VSS[327]
D3	VSS[228]	VSS[328]
D12	VSS[229]	VSS[329]
D16	VSS[230]	VSS[330]
D18	VSS[231]	VSS[331]
D22	VSS[232]	VSS[332]
D24	VSS[233]	VSS[333]
D26	VSS[234]	VSS[334]
D30	VSS[235]	VSS[335]
D32	VSS[236]	VSS[336]
D34	VSS[237]	VSS[337]
D38	VSS[238]	VSS[338]
D42	VSS[239]	VSS[339]
D8	VSS[240]	VSS[340]
E18	VSS[241]	VSS[341]
E26	VSS[242]	VSS[342]
G18	VSS[243]	VSS[343]
G20	VSS[244]	VSS[344]
G26	VSS[245]	VSS[345]
G28	VSS[246]	VSS[346]
G36	VSS[247]	VSS[347]
G48	VSS[248]	VSS[348]
H12	VSS[249]	VSS[349]
H18	VSS[250]	VSS[350]
H22	VSS[251]	VSS[351]
H24	VSS[252]	VSS[352]
H26	VSS[253]	
H30	VSS[254]	
H32	VSS[255]	
H34	VSS[256]	
F3	VSS[257]	
	VSS[258]	

U18H  
CPT PPT Rev Op7

HS	VSS[0]	AK38
AA17	VSS[1]	AK4
AA2	VSS[2]	VSS[80]
AA3	VSS[3]	VSS[81]
AA33	VSS[4]	VSS[82]
AA34	VSS[5]	VSS[83]
AB11	VSS[6]	VSS[84]
AB14	VSS[7]	VSS[85]
AB39	VSS[8]	VSS[86]
AB4	VSS[9]	VSS[87]
AB43	VSS[10]	VSS[88]
AB5	VSS[11]	VSS[89]
AB7	VSS[12]	VSS[90]
AC19	VSS[13]	VSS[91]
AC2	VSS[14]	VSS[92]
AC21	VSS[15]	VSS[93]
AC24	VSS[16]	VSS[94]
AC33	VSS[17]	VSS[95]
AC34	VSS[18]	VSS[96]
AC46	VSS[19]	VSS[97]
AD10	VSS[20]	VSS[98]
AD11	VSS[21]	VSS[99]
AD12	VSS[22]	VSS[100]
AD13	VSS[23]	VSS[101]
AD19	VSS[24]	VSS[102]
AD24	VSS[25]	VSS[103]
AD26	VSS[26]	VSS[104]
AD27	VSS[27]	VSS[105]
AD33	VSS[28]	VSS[106]
AD34	VSS[29]	VSS[107]
AD36	VSS[30]	VSS[108]
AD37	VSS[31]	VSS[109]
AD38	VSS[32]	VSS[110]
AD39	VSS[33]	VSS[111]
AD4	VSS[34]	VSS[112]
AD40	VSS[35]	VSS[113]
AD42	VSS[36]	VSS[114]
AD43	VSS[37]	VSS[115]
AD45	VSS[38]	VSS[116]
AD46	VSS[39]	VSS[117]
AD8	VSS[40]	VSS[118]
AE2	VSS[41]	VSS[119]
AE3	VSS[42]	VSS[120]
AF10	VSS[43]	VSS[121]
AF12	VSS[44]	VSS[122]
AF14	VSS[45]	VSS[123]
AF16	VSS[46]	VSS[124]
AF19	VSS[47]	VSS[125]
AF24	VSS[48]	VSS[126]
AF28	VSS[49]	VSS[127]
AF3	VSS[50]	VSS[128]
AF33	VSS[51]	VSS[129]
AF34	VSS[52]	VSS[130]
AF38	VSS[53]	VSS[131]
AF4	VSS[54]	VSS[132]
AF42	VSS[55]	VSS[133]
AF46	VSS[56]	VSS[134]
AF5	VSS[57]	VSS[135]
AF7	VSS[58]	VSS[136]
AF8	VSS[59]	VSS[137]
AG19	VSS[60]	VSS[138]
AG2	VSS[61]	VSS[139]
AG31	VSS[62]	VSS[140]
AG46	VSS[63]	VSS[141]
AH11	VSS[64]	VSS[142]
AH3	VSS[65]	VSS[143]
AH36	VSS[66]	VSS[144]
AH39	VSS[67]	VSS[145]
AH40	VSS[68]	VSS[146]
AH42	VSS[69]	VSS[147]
AH46	VSS[70]	VSS[148]
AH7	VSS[71]	VSS[149]
AJ19	VSS[72]	VSS[150]
AJ21	VSS[73]	VSS[151]
AJ24	VSS[74]	VSS[152]
AJ33	VSS[75]	VSS[153]
AJ34	VSS[76]	VSS[154]
AK12	VSS[77]	VSS[155]
AK3	VSS[78]	VSS[156]
	VSS[79]	VSS[157]
		VSS[158]

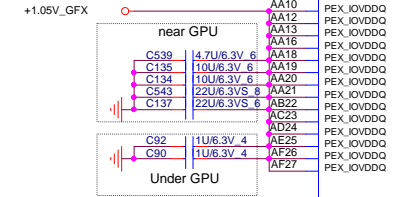




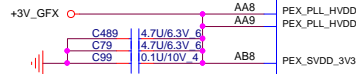
NB5

N13P-GV2-S-A2 ( GB2-64 )  
Max point NVCLK = 937.5 , MCLK = 900  
TDP point NVCLK = 800 , MCLK = 900

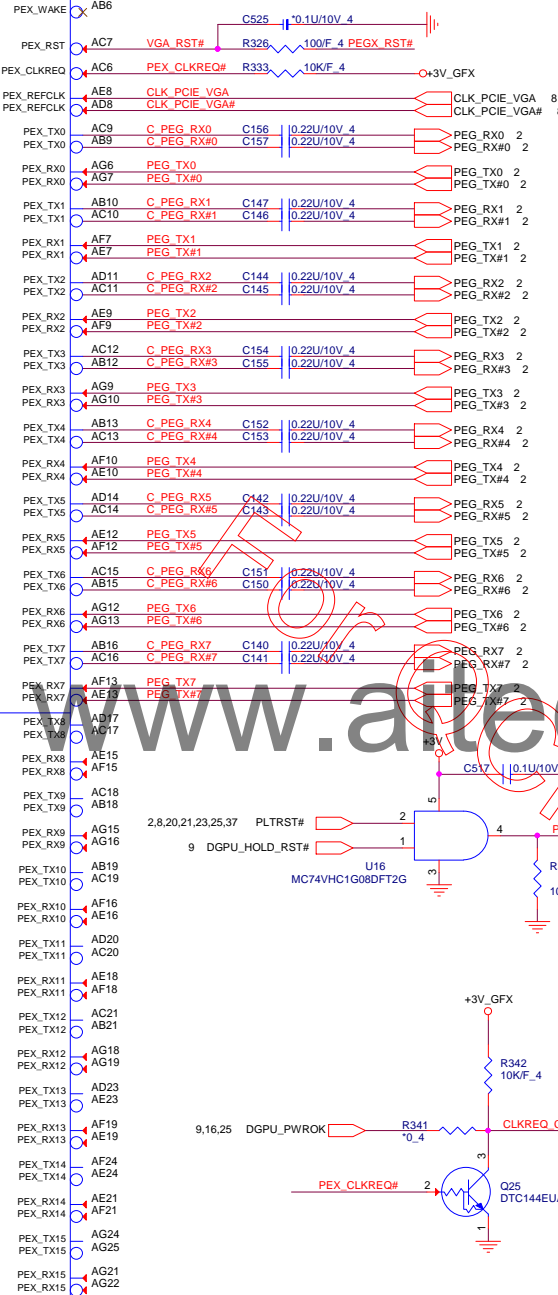
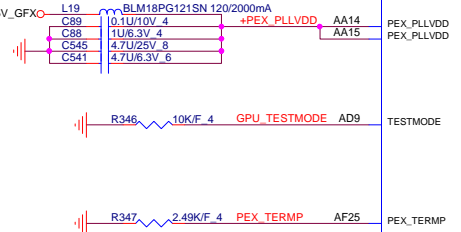
PEX\_IOVDD + PEX\_IOVDDQ = 1.042A



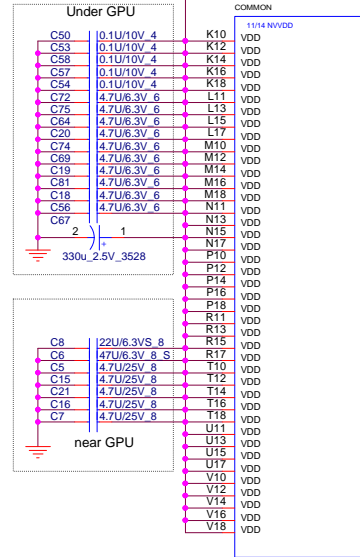
PEX\_PLL\_HVDD + PEX\_SVDD\_3V3 = 143mA



PEX\_PLLVDD = 130mA

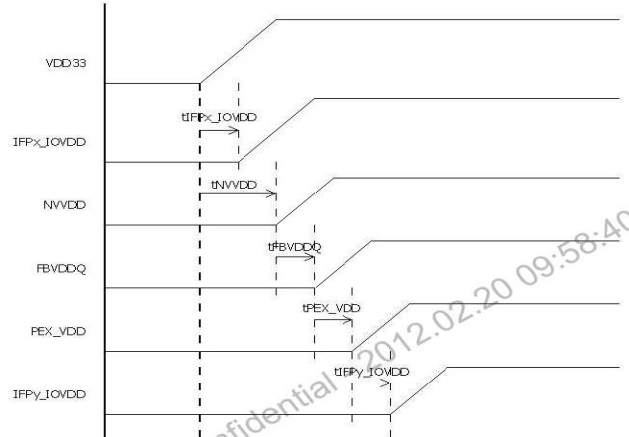


NVDD = 32.22 ~ 26.66 A



power up sequence

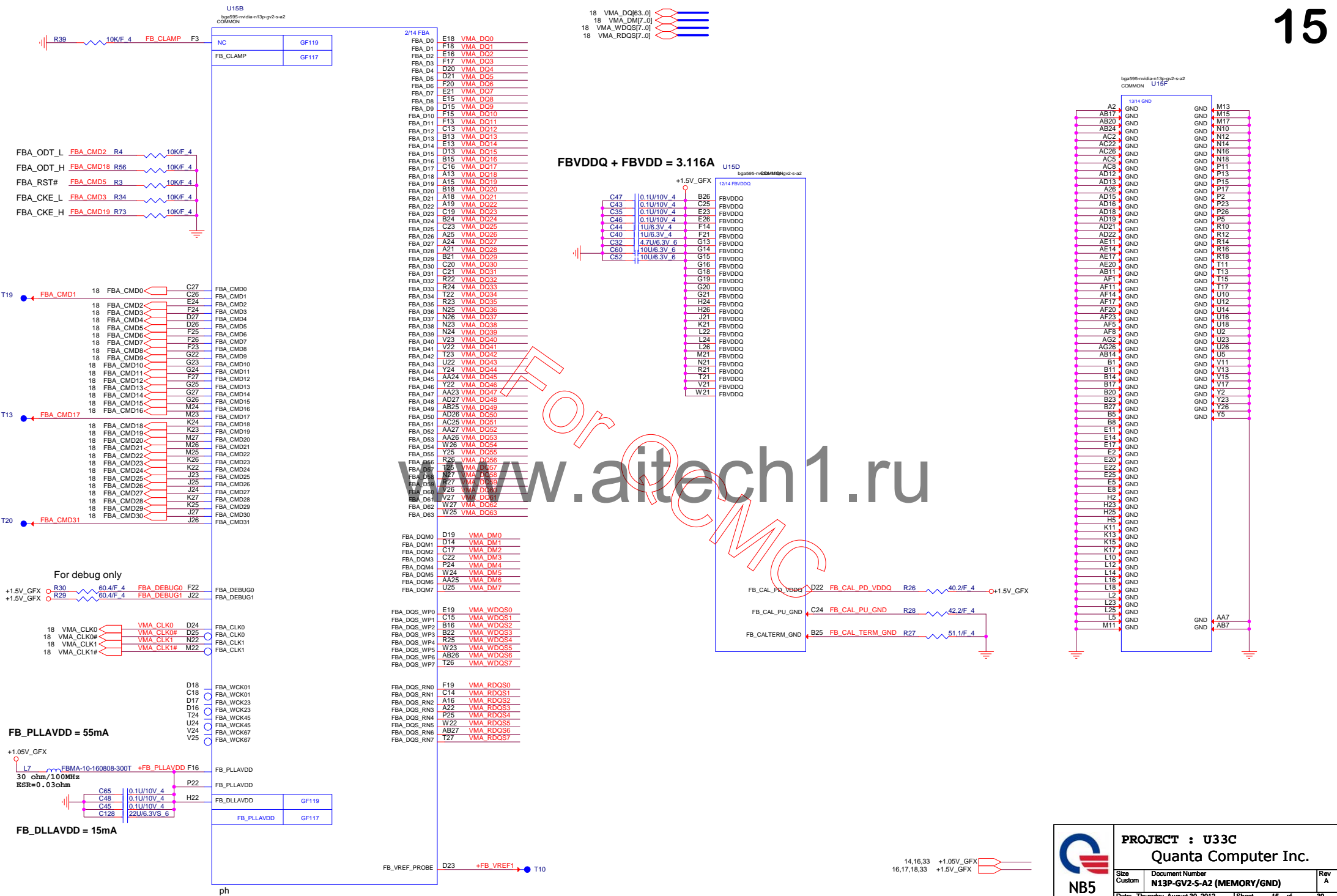
power down sequence



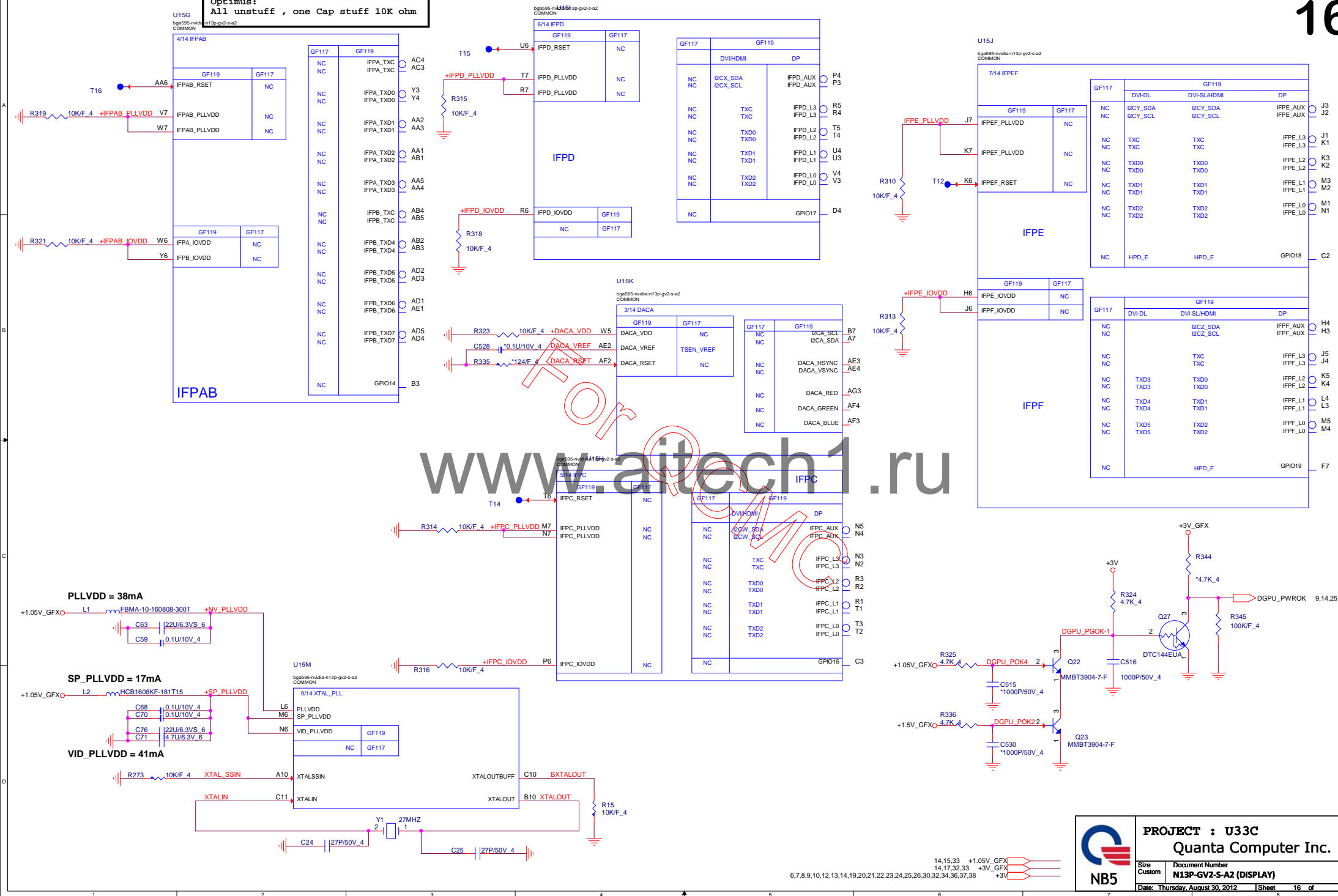
PROJECT : U33C		Quanta Computer Inc.	
Size	Document Number	N13P-GV2-S-A2 (PCIE/F)	
Custom	Rev	1A	
Date: Thursday, August 30, 2012	Sheet	14	of 39

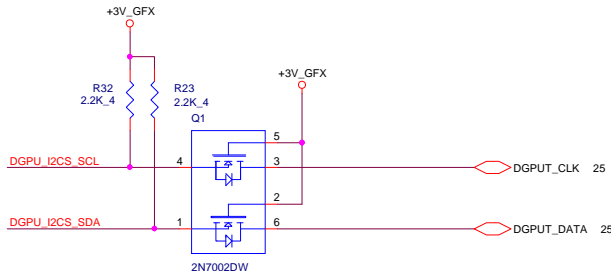






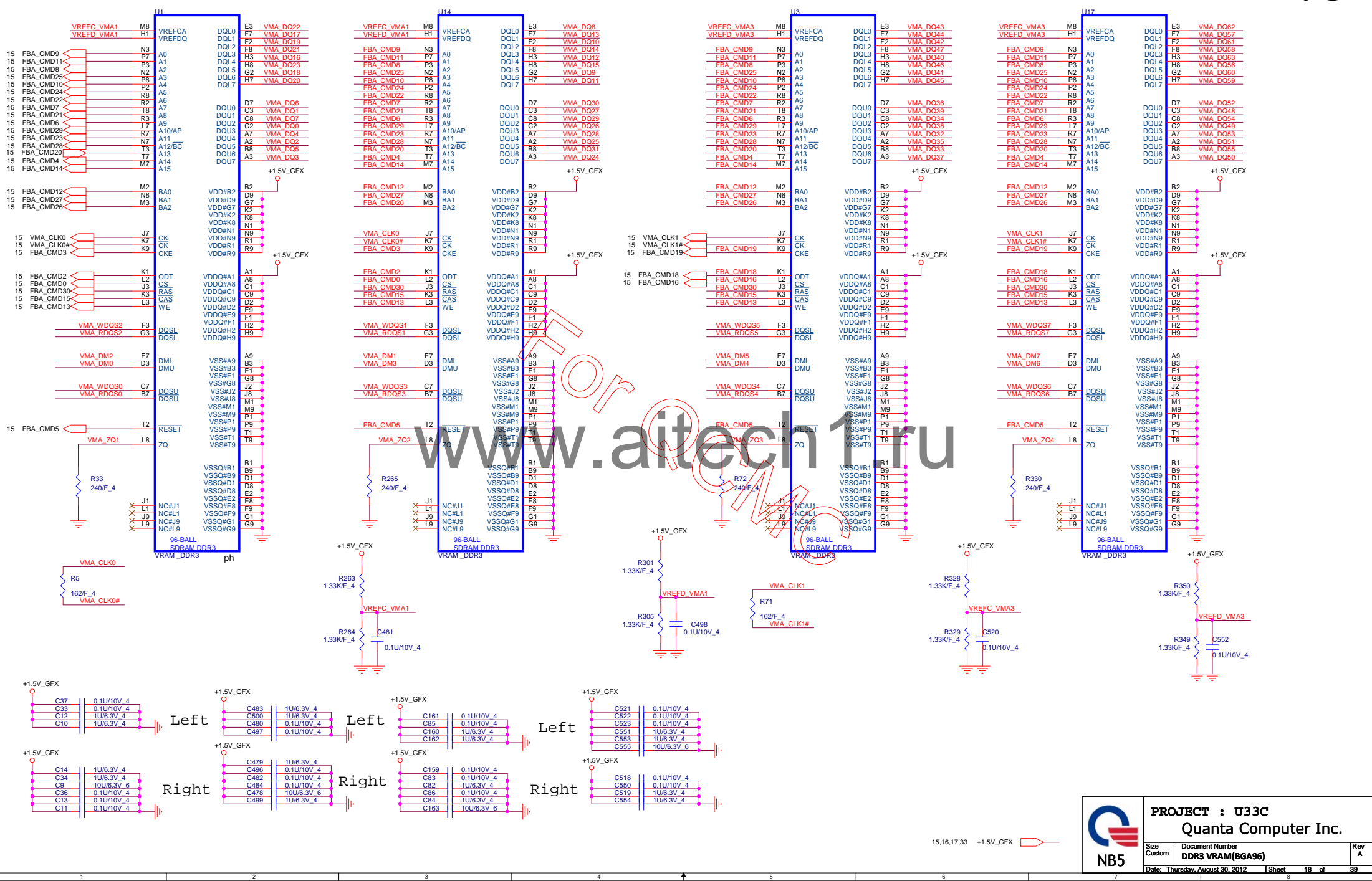
Optimus:  
All unstuff , one Cap stuff 10K ohm





# CHANNEL A: 256MB/512MB DDR3

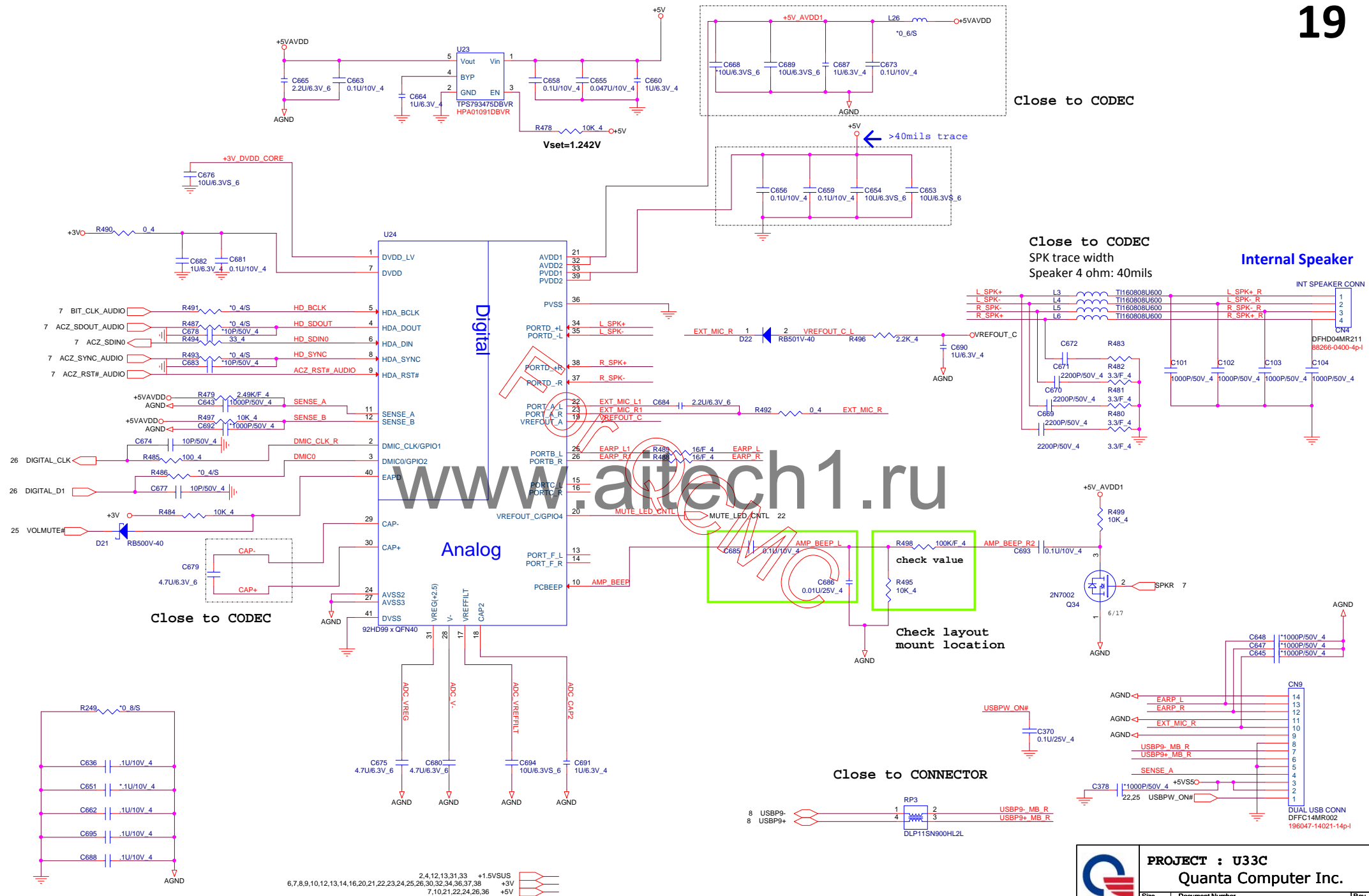
18



**PROJECT : U33C**

**Quanta Computer Inc.**

Size	Document Number	Rev
Custom	DDR3 VRAM(BGA96)	A
Date: Thursday, August 30, 2012		Sheet 18 of 39

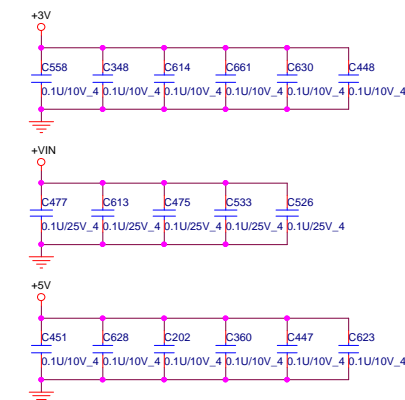
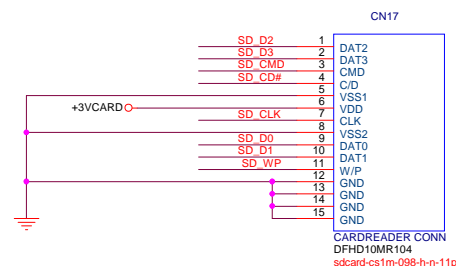
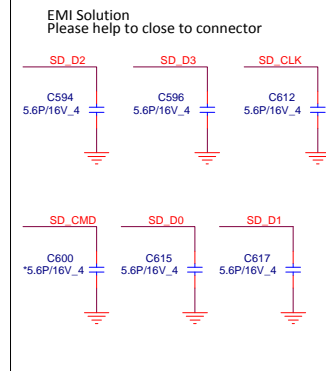
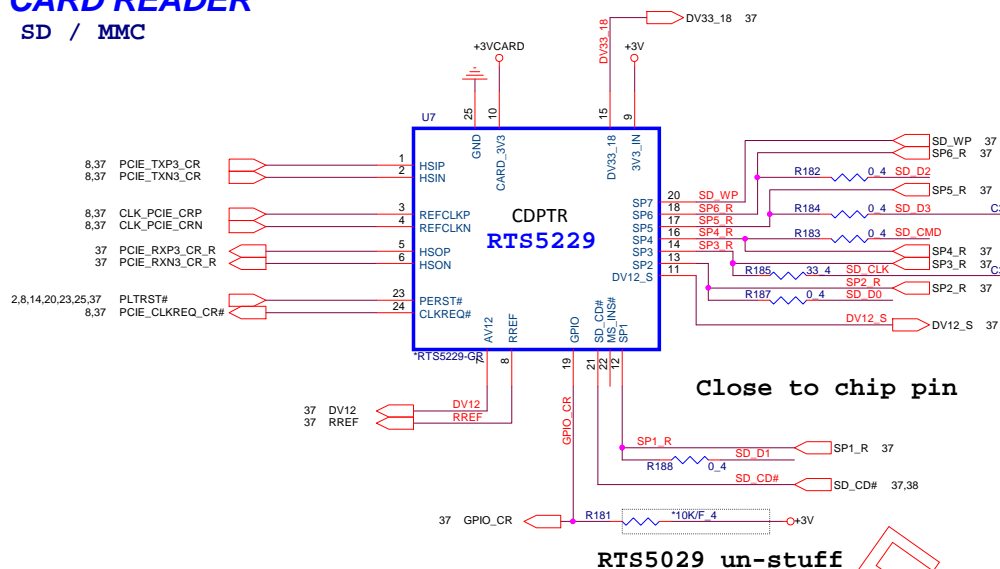






## CARD READER

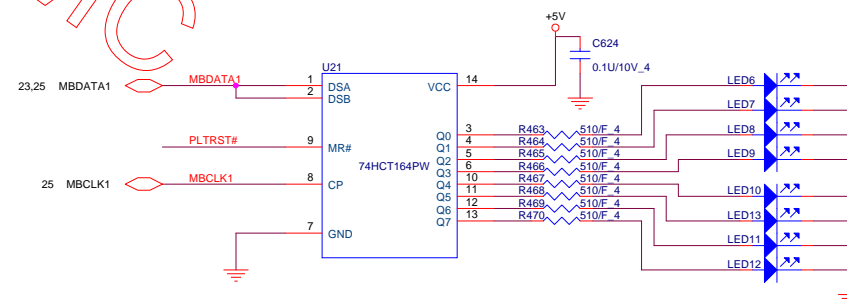
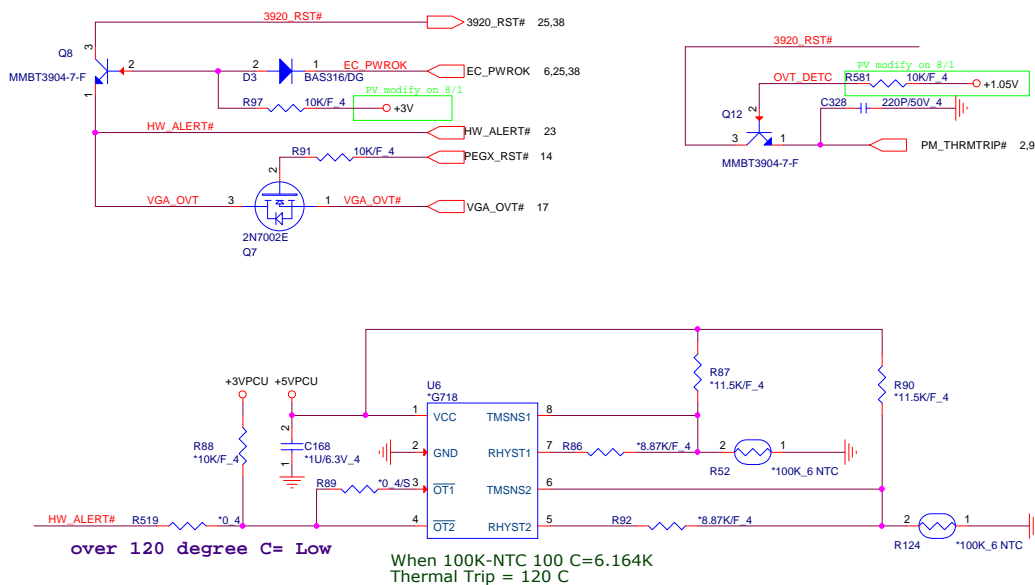
SD / MMC



## Thermal HW protect

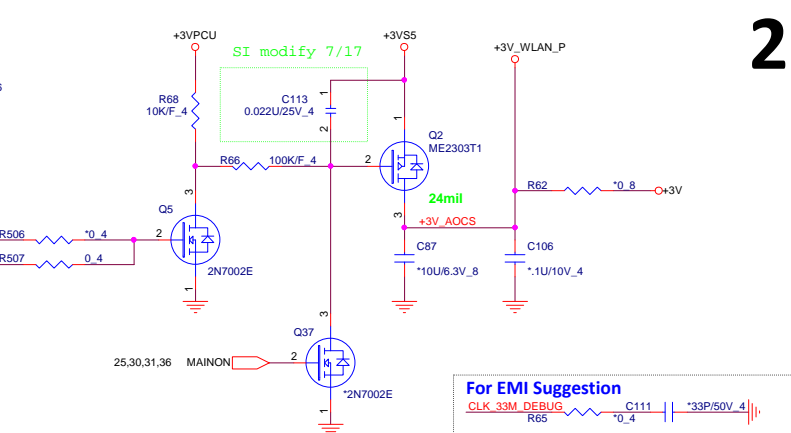
www.aitech1.ru

80 port

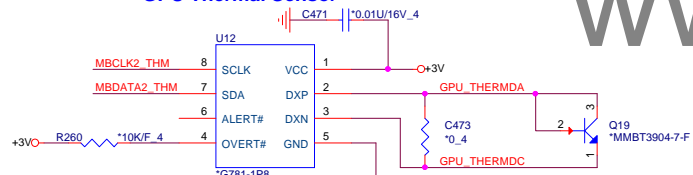


		PROJECT : U33C	
		Quanta Computer Inc.	
Size	Document Number	Card Reader / 80 port / HW protect	Rev A
Custom			
Date: Thursday, August 30, 2012		Sheet 21 of	39

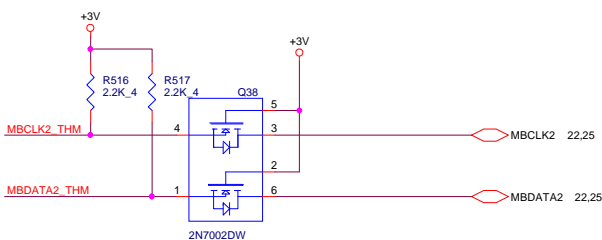
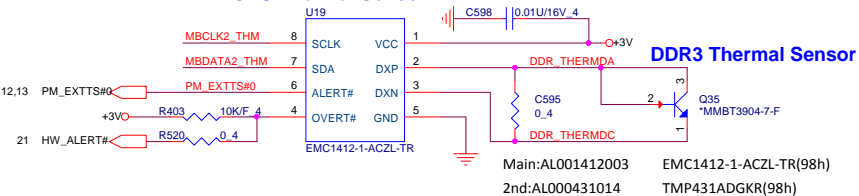




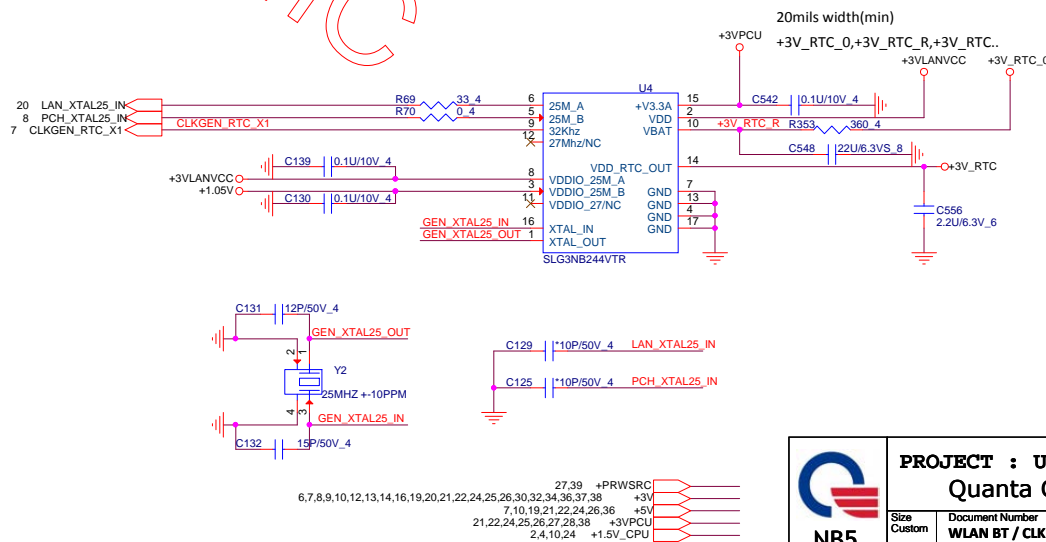
## GPU Thermal Sensor



## CPU Thermal Sensor

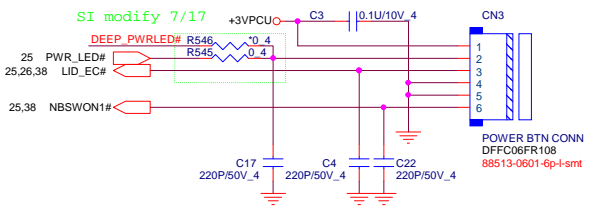


## Green CLK Circuitry

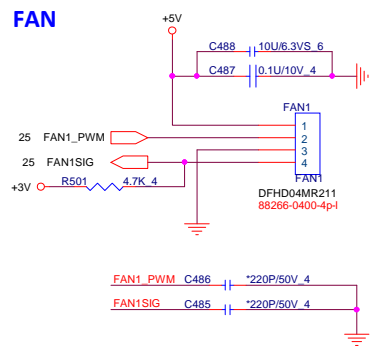


# Power Button Connector

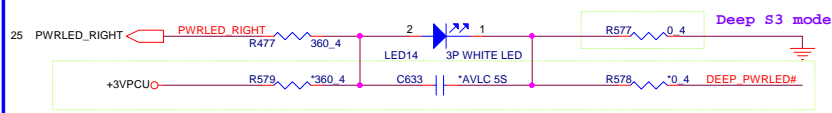
Pin1 : +3VPCU(LIDSWITCH PWR)  
Pin2 : POWER LED  
Pin3 : LIDSWITCH  
Pin4 : GND  
Pin5 : GND  
Pin6 : POWERON#



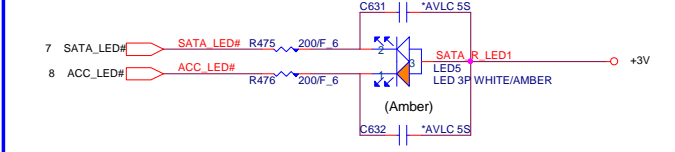
# FAN



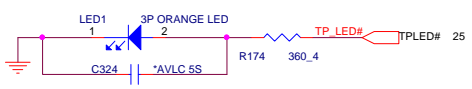
# PWR LED



# SATA LED

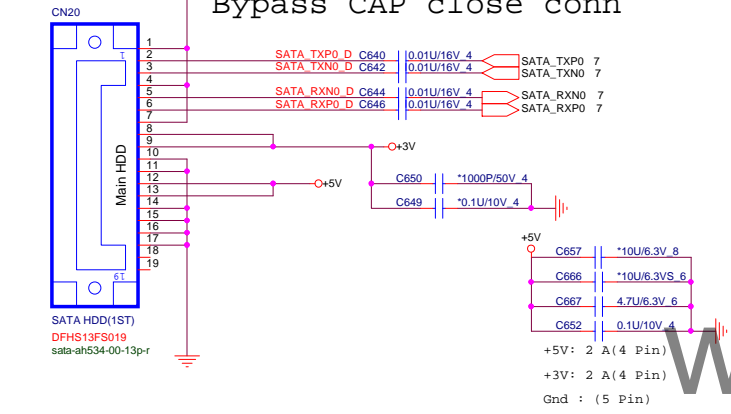


# 14" TP LED



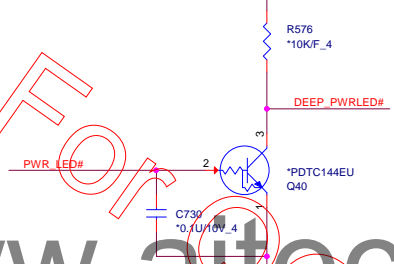
# SATA HDD Connector(Cable type)

Bypass CAP close conn



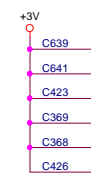
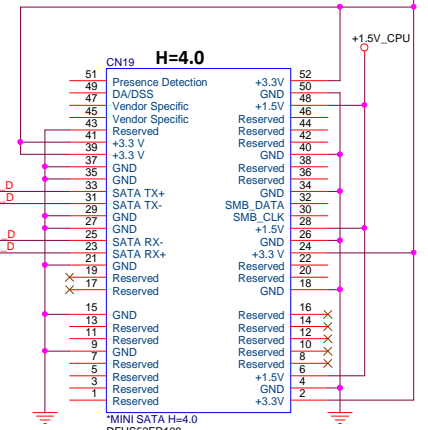
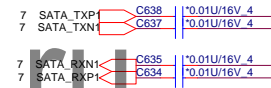
SI modify 7/17

For EC into Deep Sleep in S3 mode

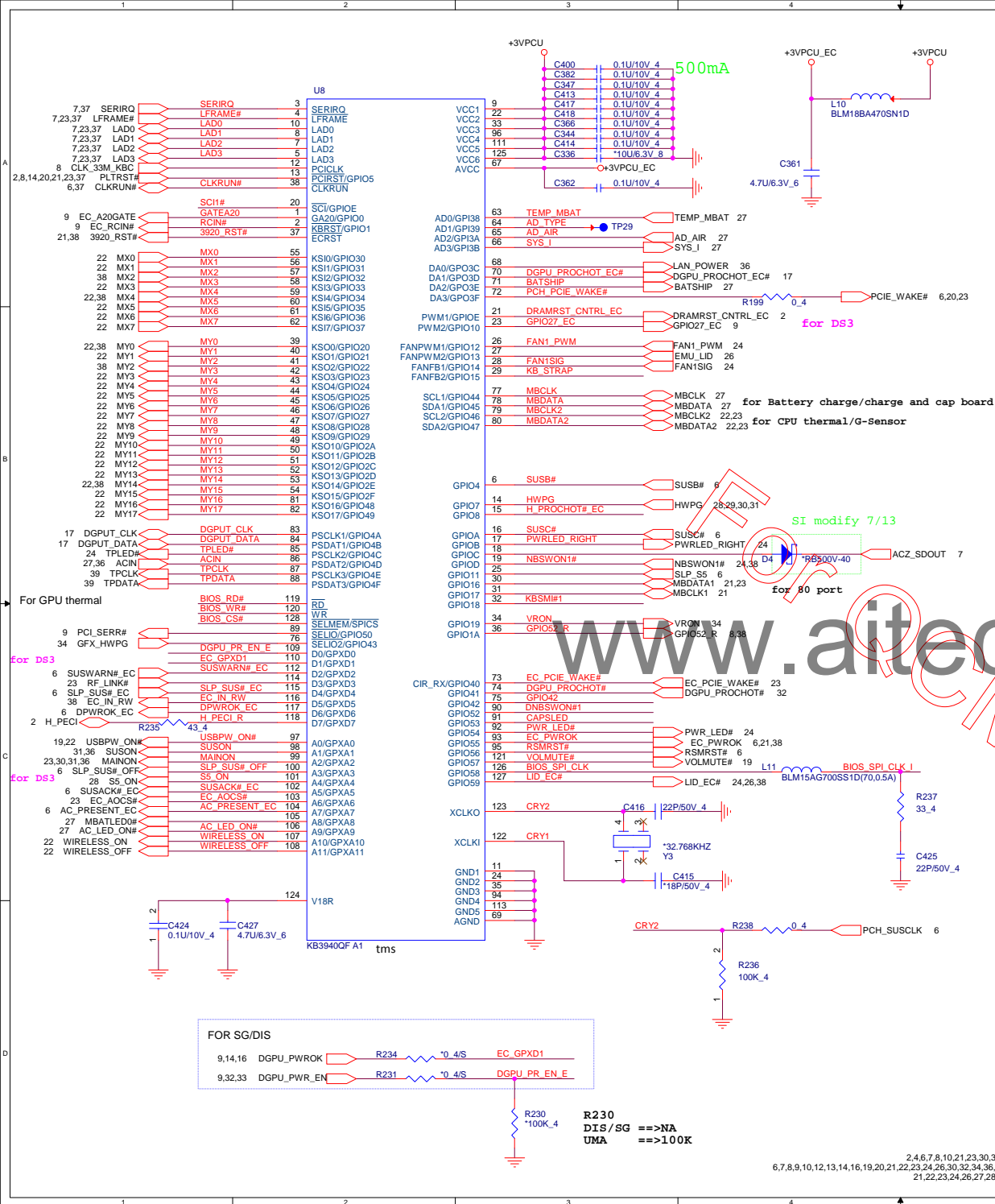


# Mini PCI-E Card 2- Full size mSATA

Place Cap close to conn within 100mils







**D\_MIC**

19 DIGITAL\_D1  
19 DIGITAL\_CLK

L14

FCM1608KF-301T02  
FCM1608KF-301T02

DIGITAL\_D1\_R  
DIGITAL\_CLK\_R

C466 \*33P/50V 4 DIGITAL\_D1  
C467 \*33P/50V 4 DIGITAL\_CLK  
C456 100P/50V 4 DIGITAL\_D1\_R  
C457 100P/50V 4 DIGITAL\_CLK\_R

**USB CAMERA**

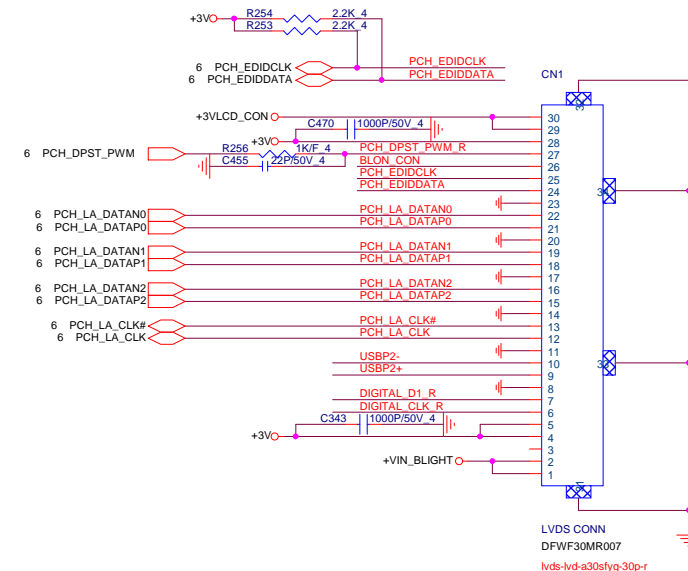
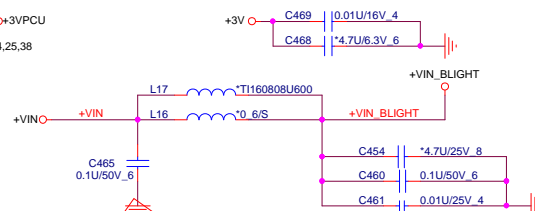
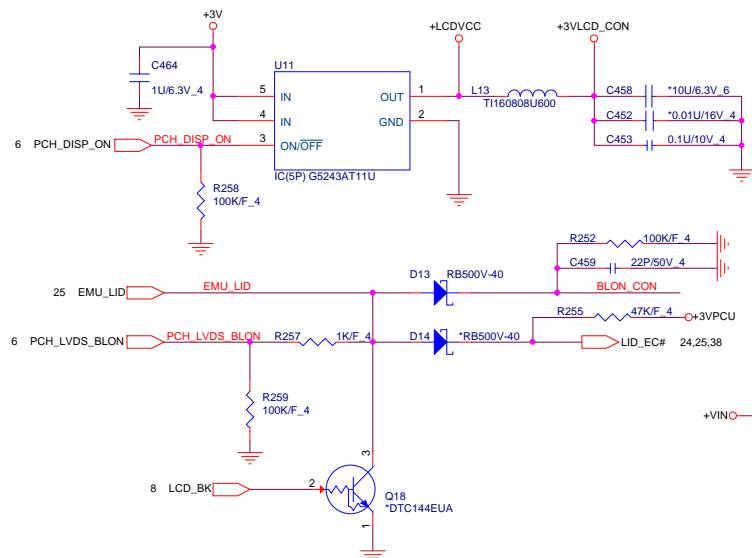
8 USBP2-  
8 USBP2+

1  
2  
3  
4

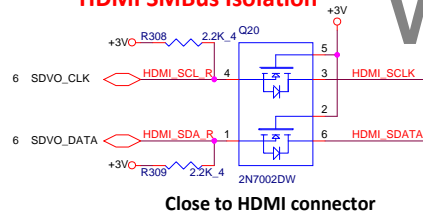
USBP2-  
USBP2+

L12  
WCM2012-90

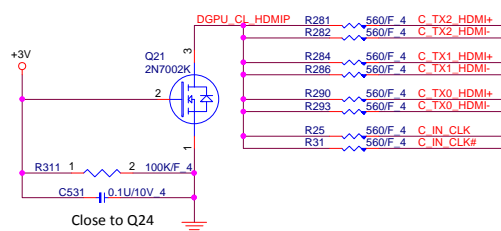
C462 \*10P/50V 4 USBP2-  
C463 \*10P/50V 4 USBP2+



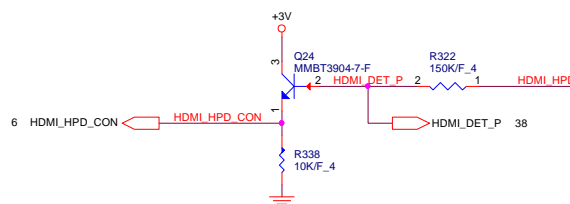
## HDMI SMBus Isolation



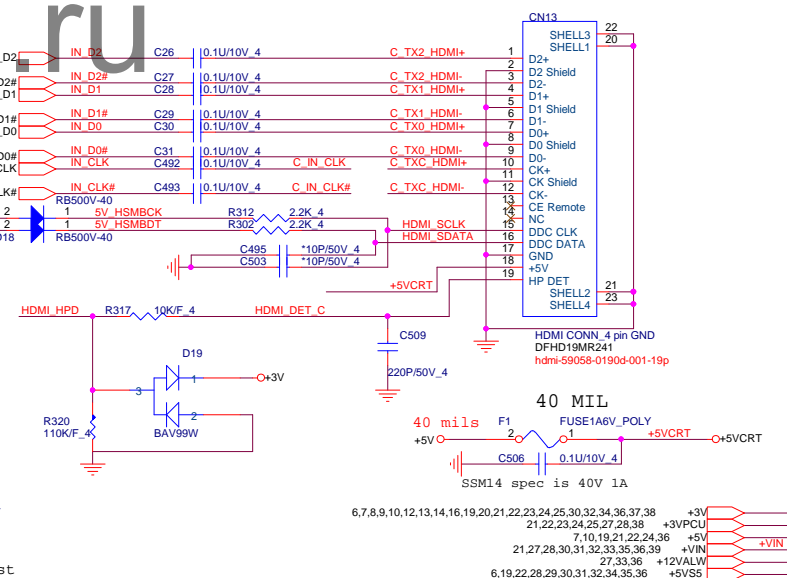
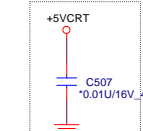
**Close to HDMI connector**



Close to Q24



for EMI request



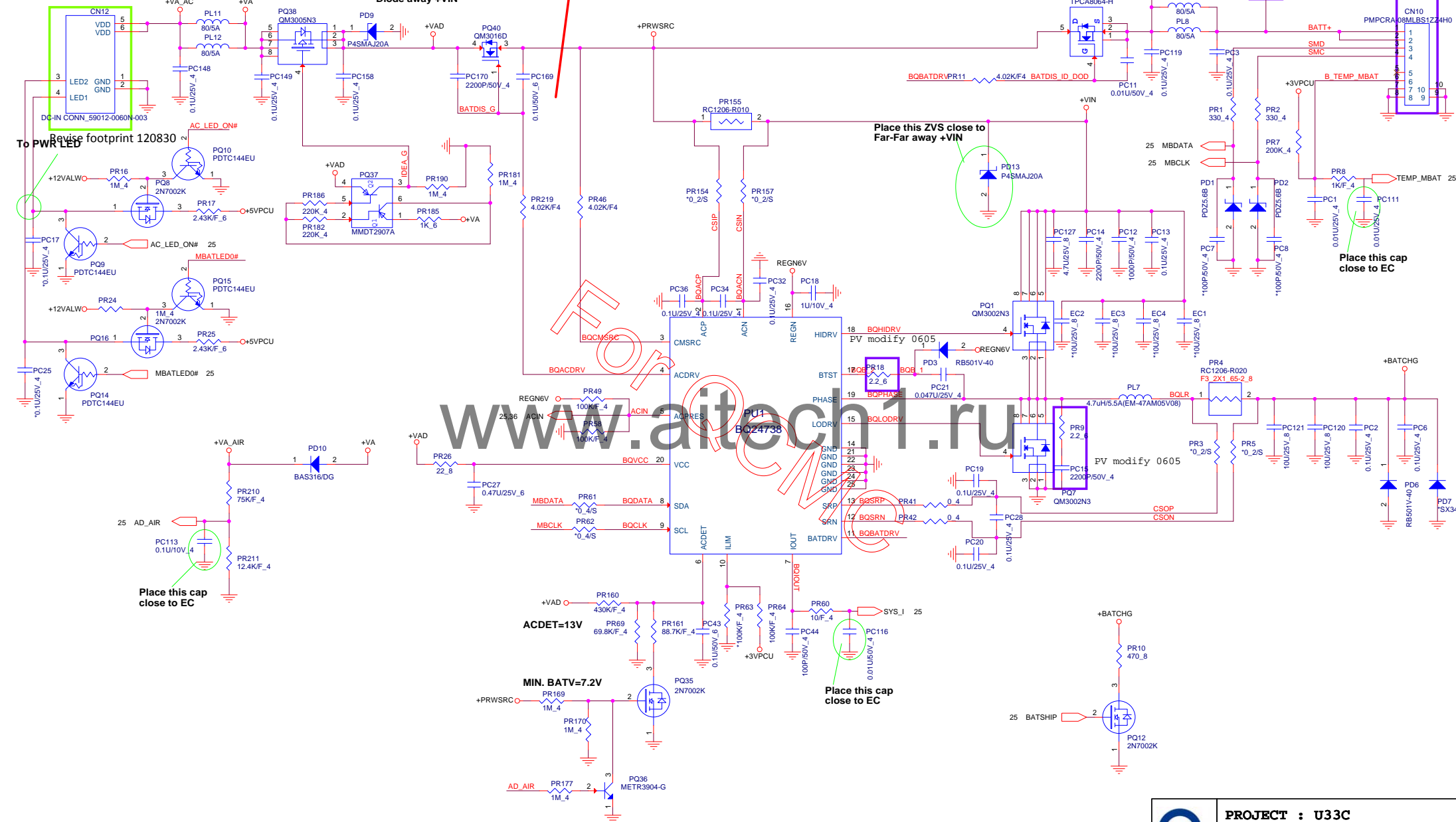


**Do Not add test pad on BATDIS\_G signal**

Place this ZVS close to Diode away +VIN

PV modify 0605

PV modify 0607



Place this cap  
close to EC

Place this cap  
close to EC

ACDET=13

MIN. BATV=7.2V

1M

AD\_AIR PR177 2 PQ36  
METR3904-G

+BATCH

25 BATSHIP  2 

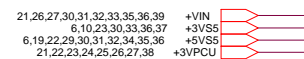
**PROJECT : U33C**  
**Quanta Computer Inc.**



NB5

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+VH28 36  
+3VPCU 21,22,23,24,25,26,28,38

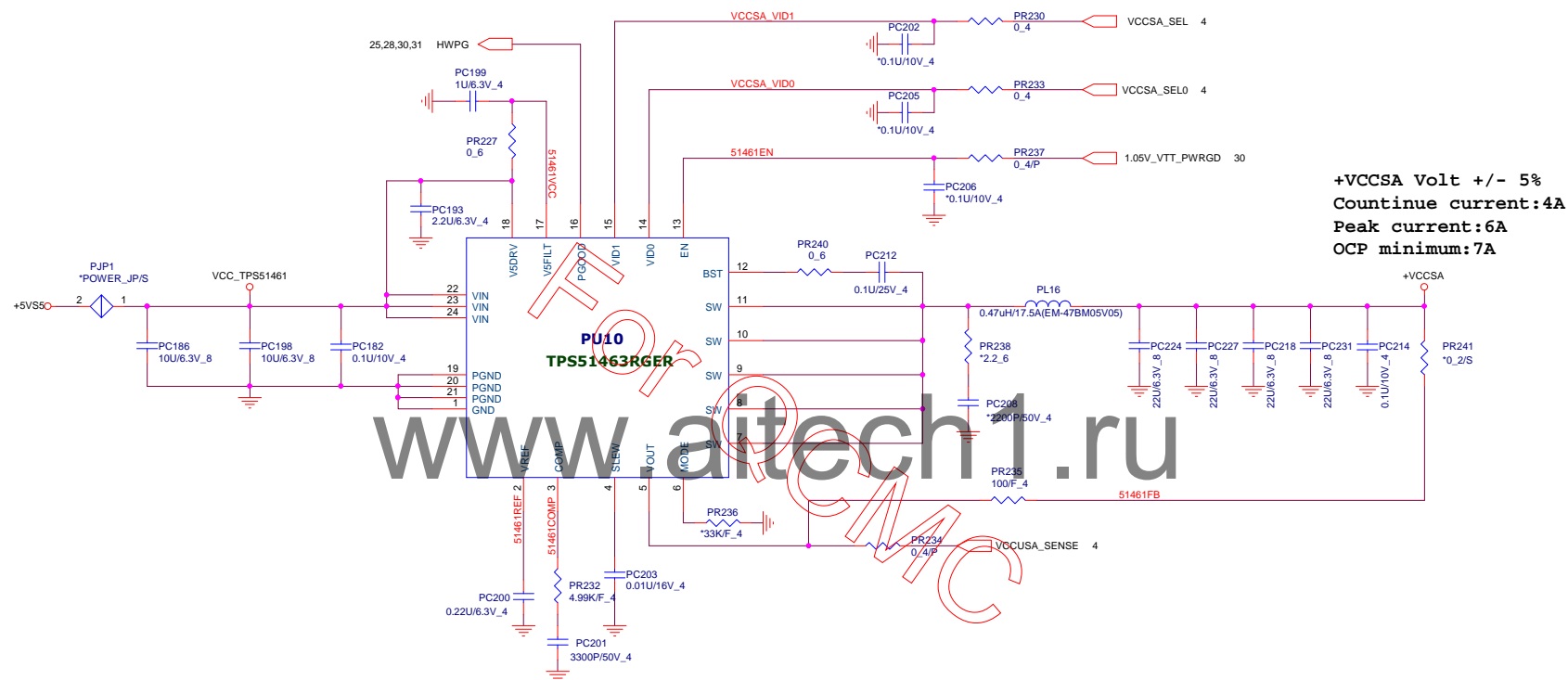


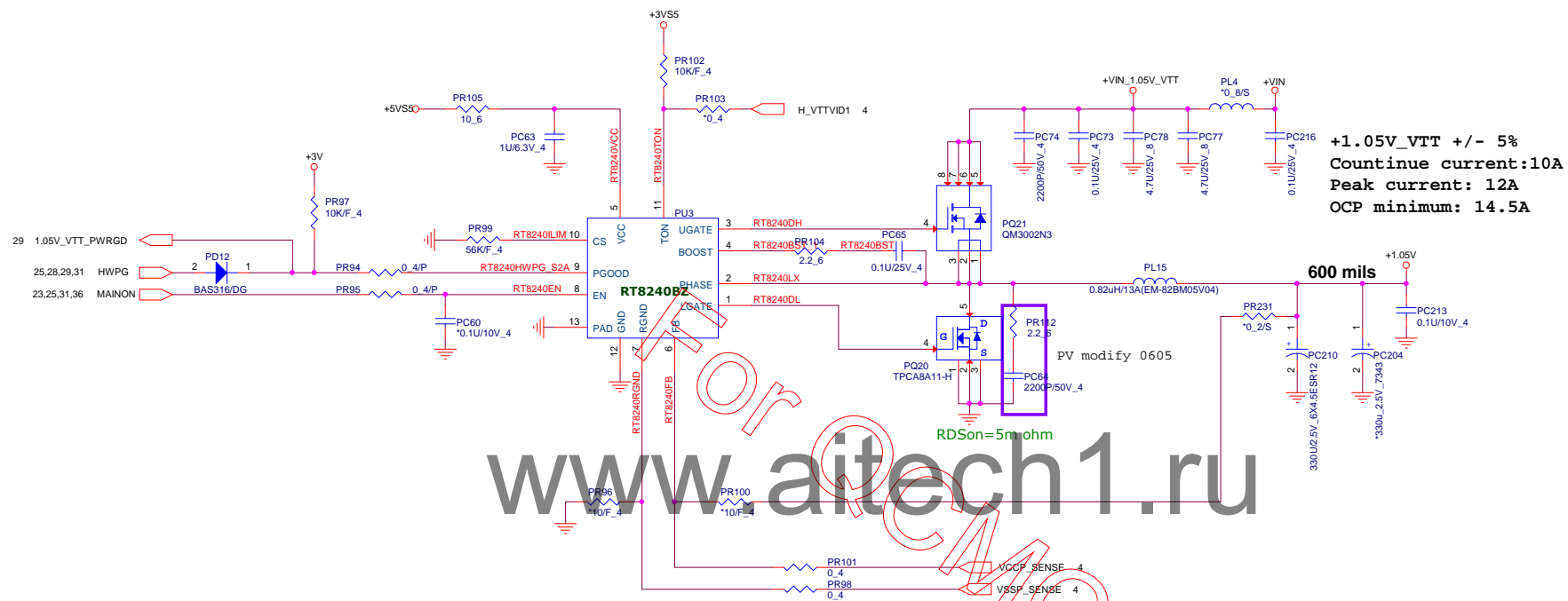
**TPS51462RGER/AL051462000**For CPU SV system agent  
voltage slew rate of 0.5 -10 mV/ $\mu$ s

SEL0	SEL1	+VCCSA
0	0	0.9V
0	1	0.8V
1	0	0.725V
1	1	0.675V

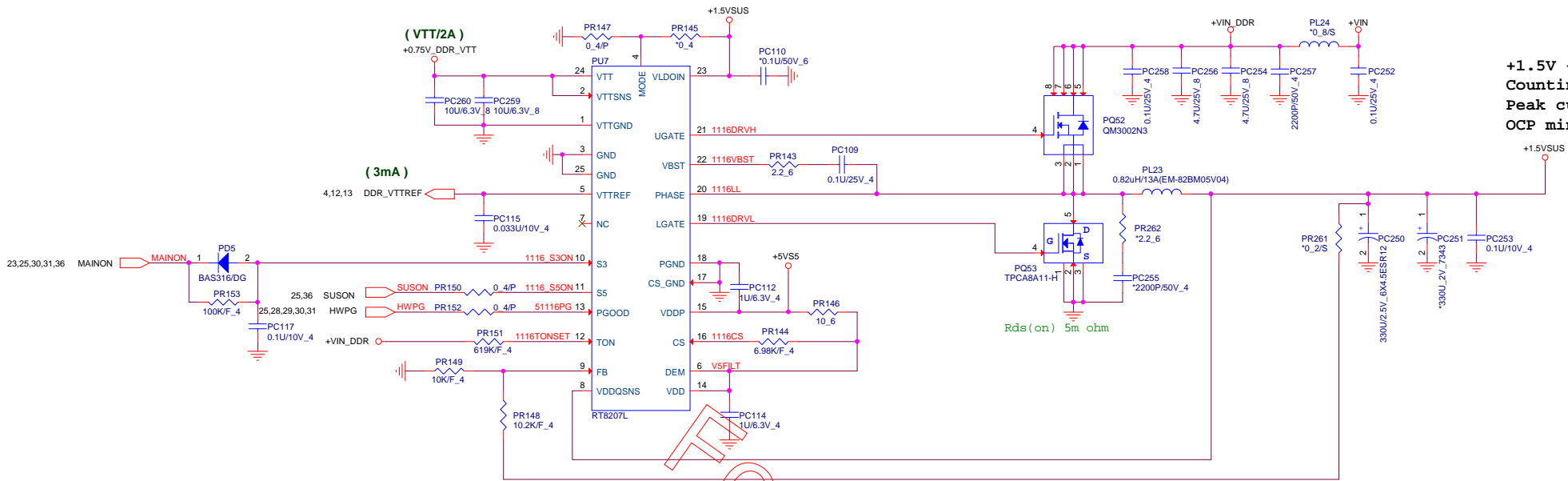
**TPS51463RGER/AL051463000**For CPU ULV system agent  
voltage slew rate of 0.5 -10 mV/ $\mu$ s

SEL0	SEL1	+VCCSA
0	0	0.9V
0	1	0.85V
1	0	0.775V
1	1	0.75V

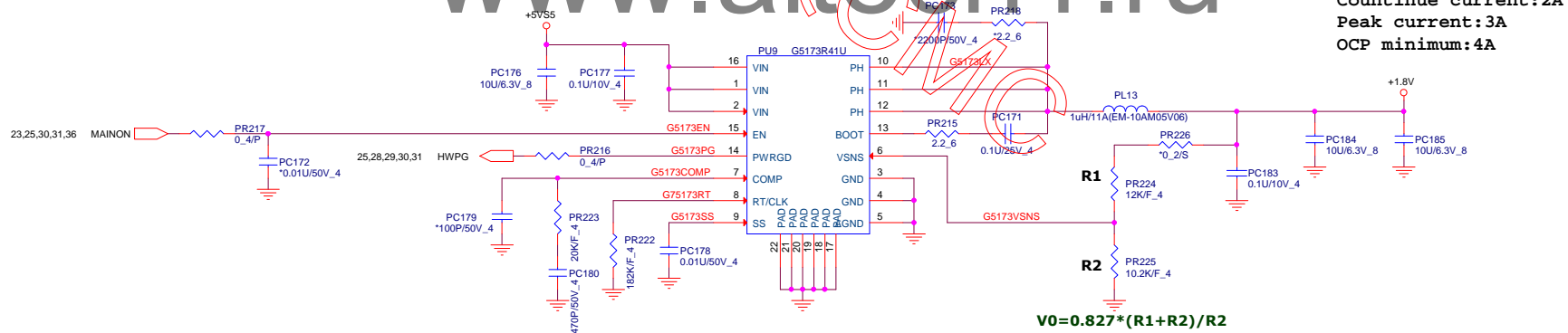


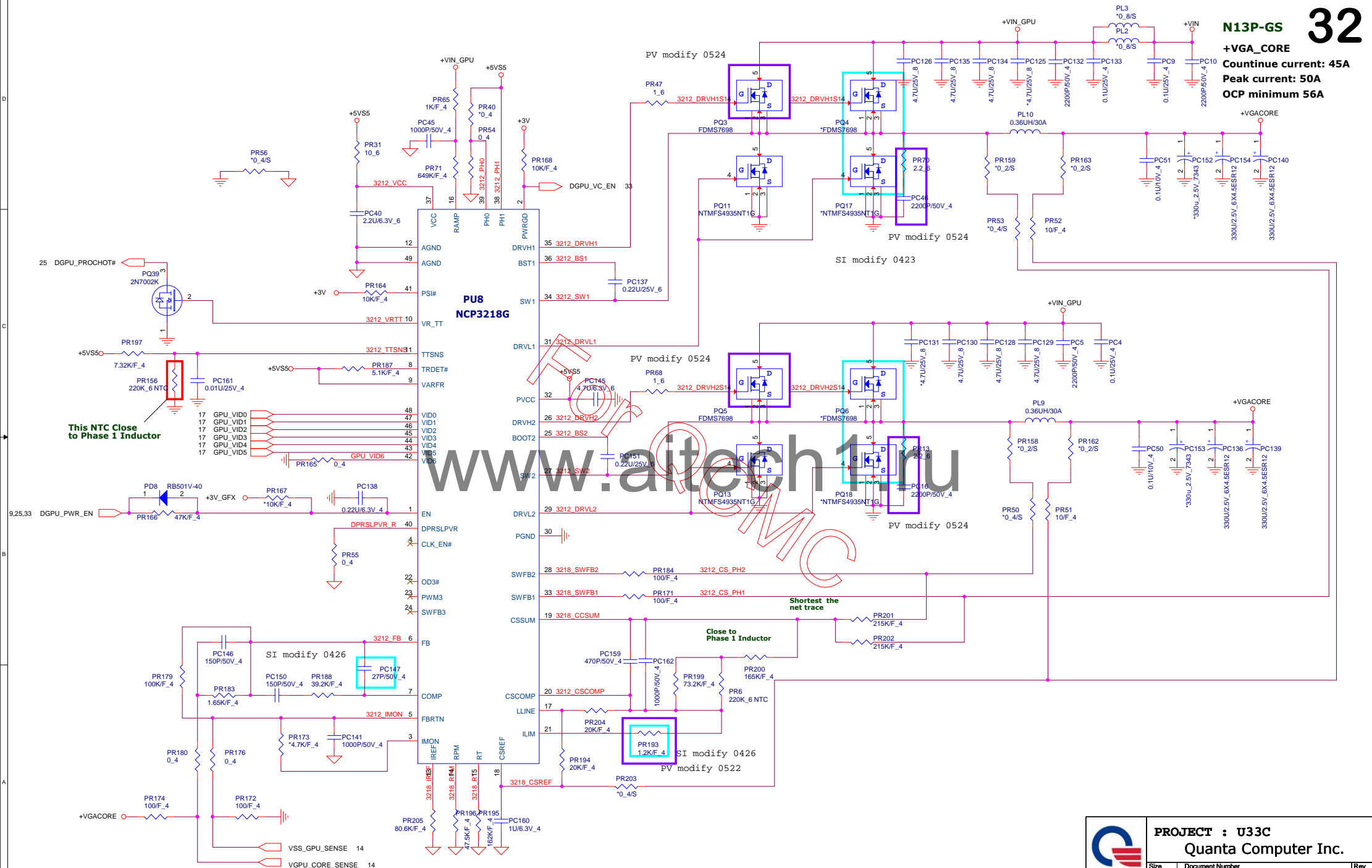






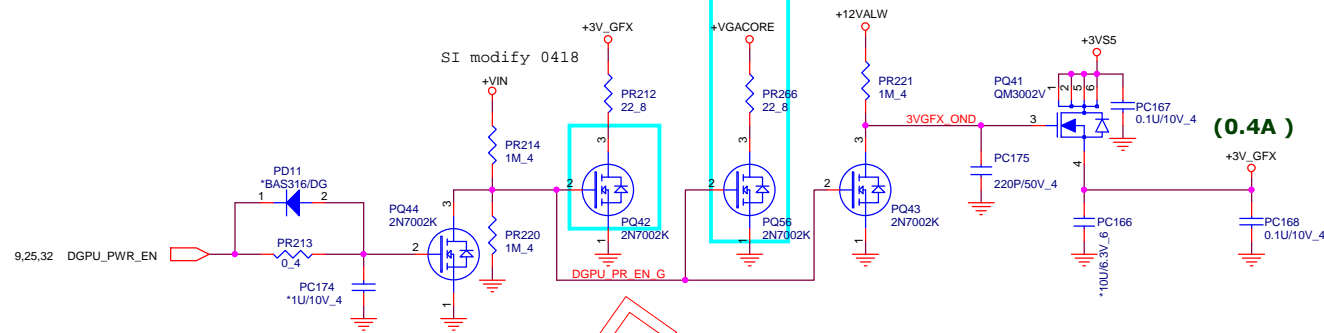
www.aitech1.ru



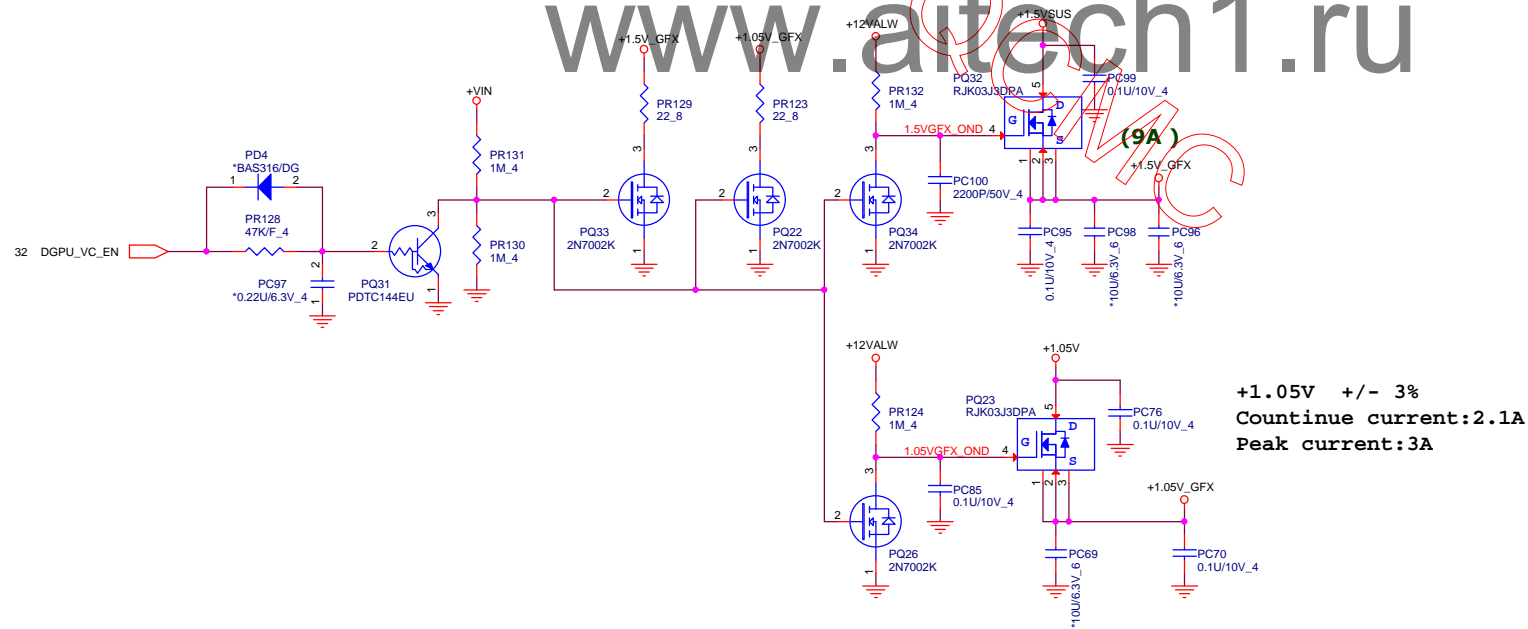


2,4,12,13,31 +1.5VSUS  
 6,10,23,28,30,36,37 +3VS5  
 14,16,17,32 +3V\_GFX  
 15,16,17,18 +1.5V\_GFX  
 14,15,16 +1.05V\_GFX  
 27,36 +12VALW  
 2,4,6,7,8,10,21,23,30,34 +1.05V

SI modify 0418

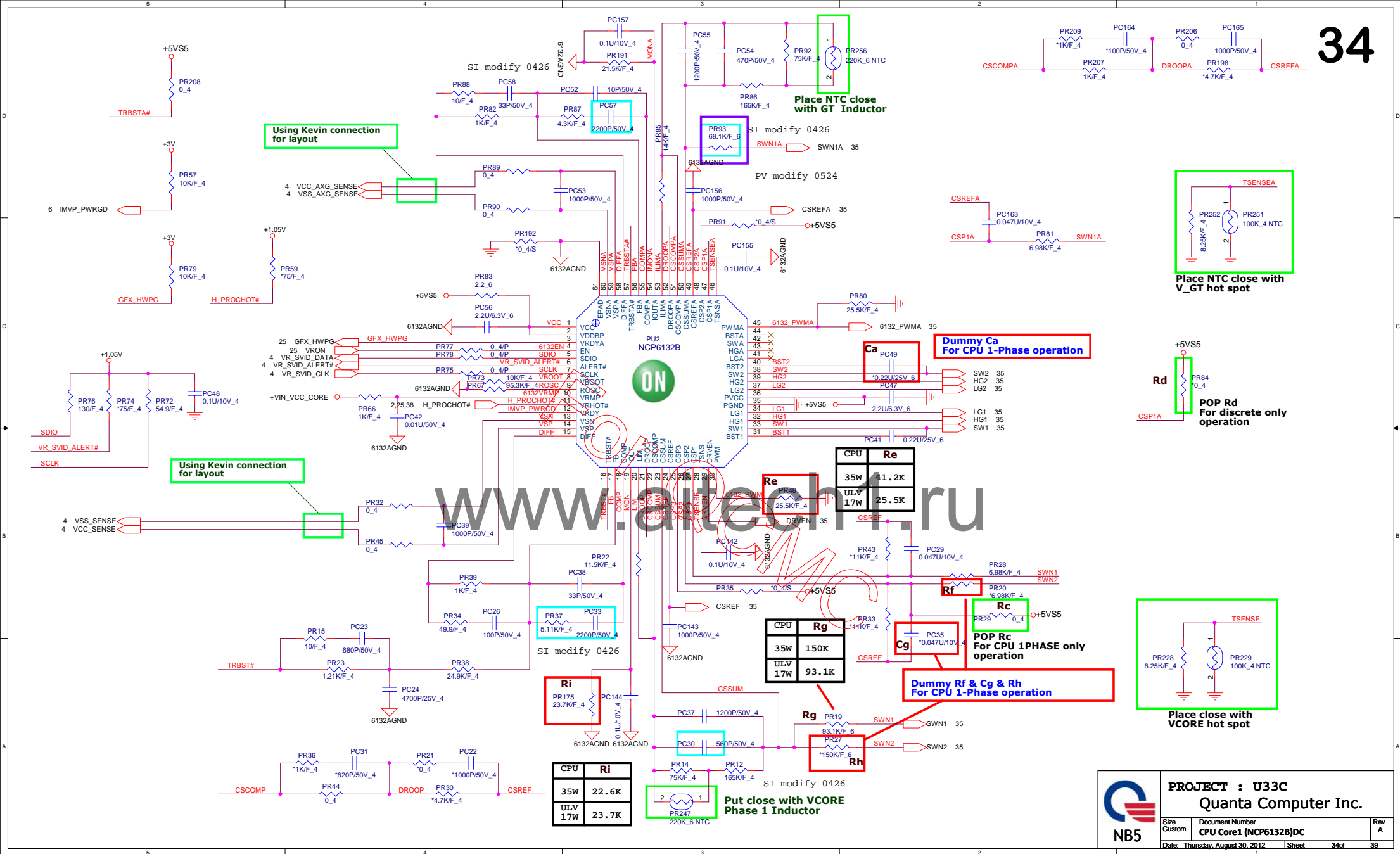


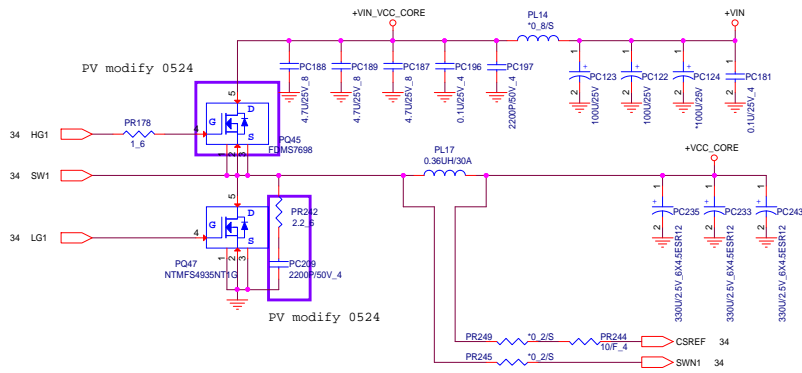
www.aitech1.ru



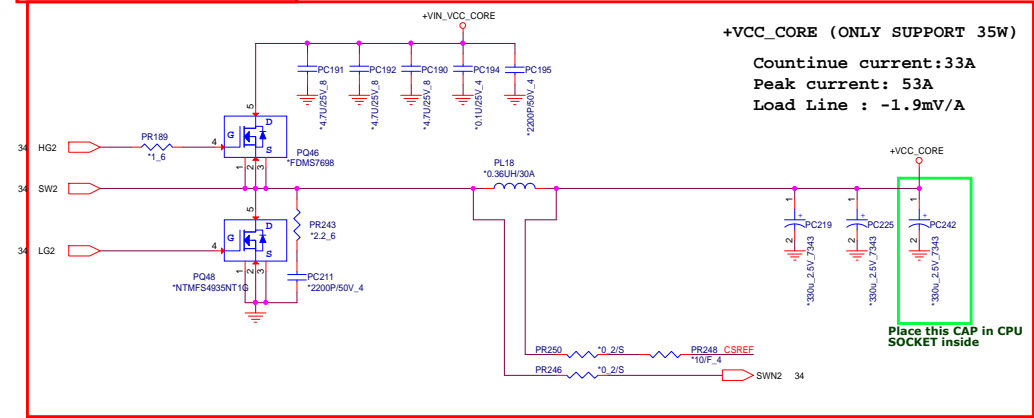
PROJECT : U33C  
 Quanta Computer Inc.

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Dummy This Schematic  
For CPU 1-Phase operation



+VCC\_CORE (ONLY SUPPORT 35W)

Countinue current:33A  
Peak current: 53A  
Load Line : -1.9mV/A

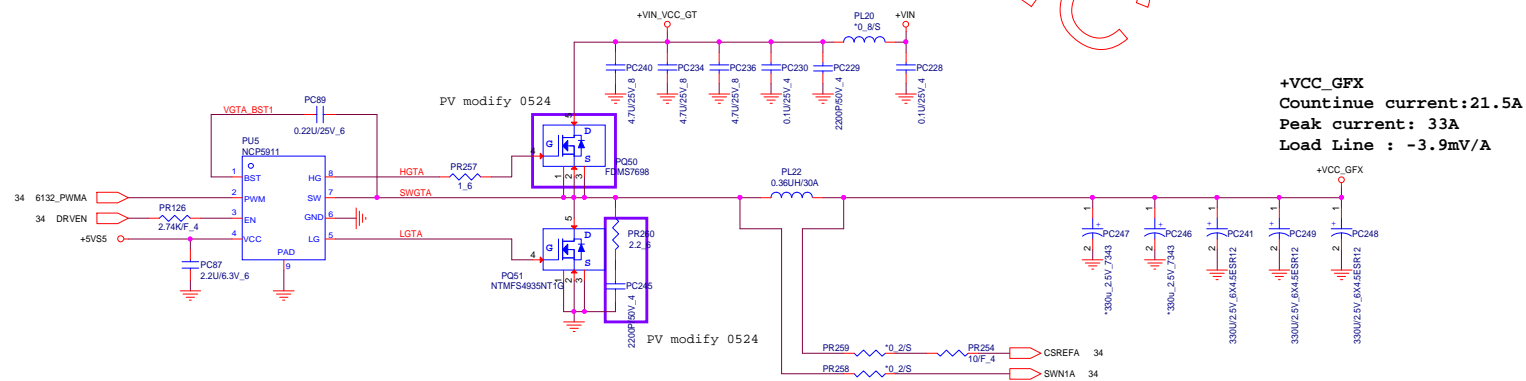
Place this CAP in CPU  
SOCKET inside

+VCC\_CORE (ONLY SUPPORT 35W)

Countinue current:32A  
Peak current: 53A  
Load Line : -1.9mV/A

+VCC\_CORE (ULV 17W)

Countinue current:16A  
Peak current: 33A  
Load Line : -2.9mV/A

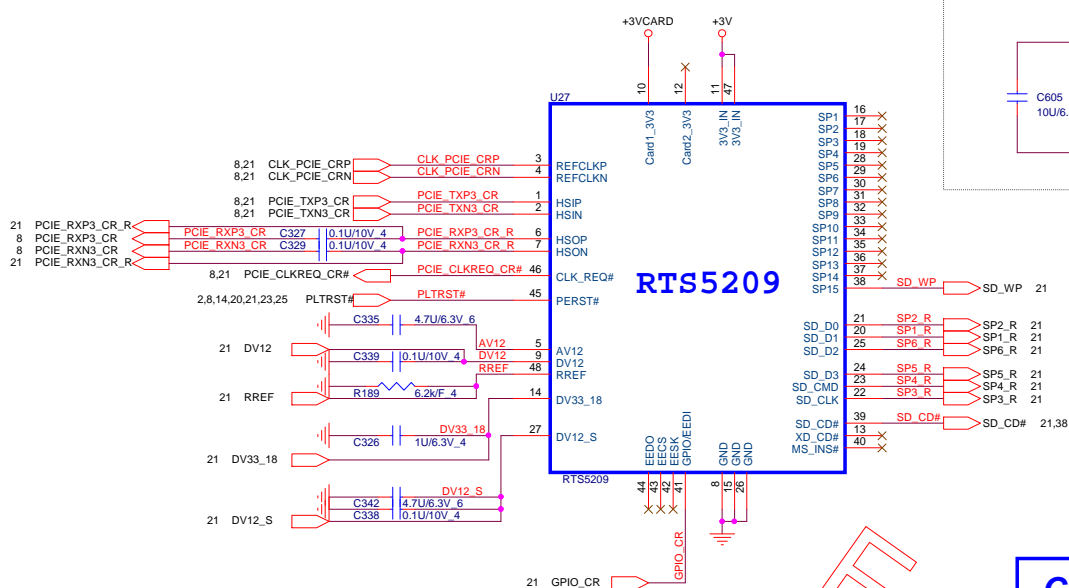


+VCC\_GFX

Countinue current:21.5A  
Peak current: 33A  
Load Line : -3.9mV/A

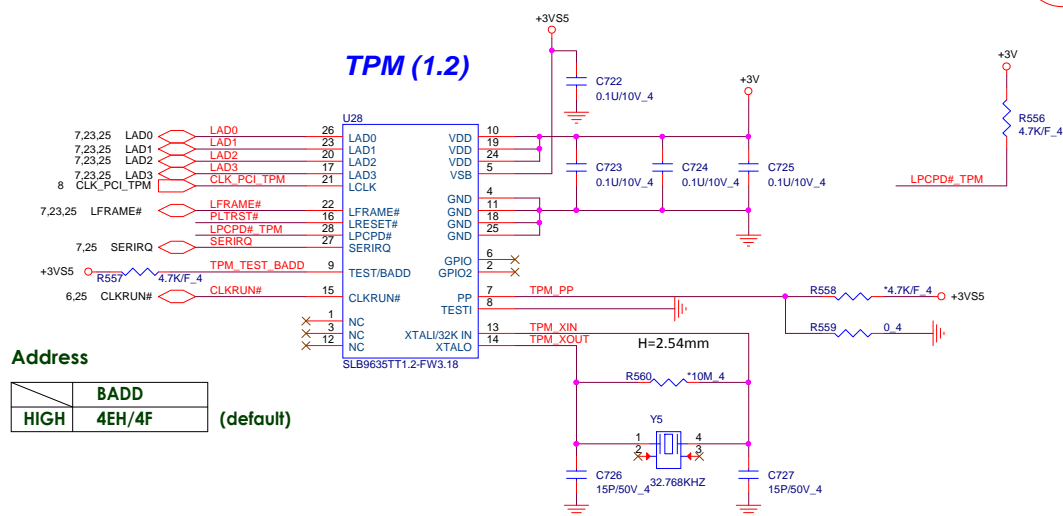




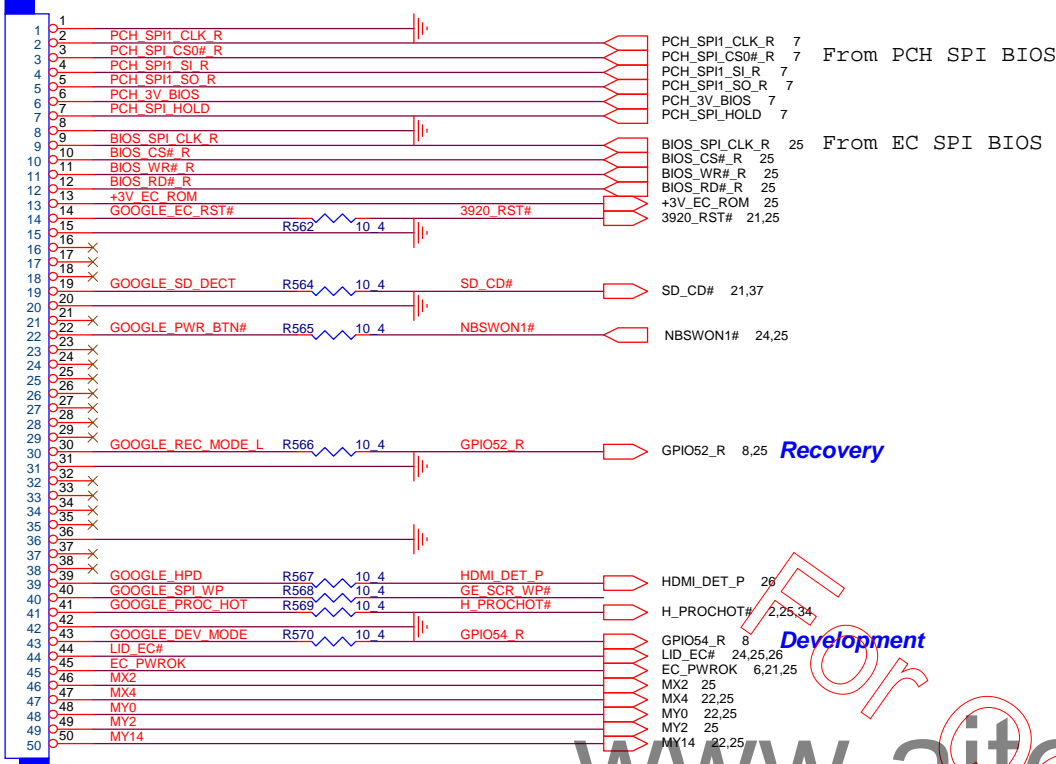


## Chrome OS

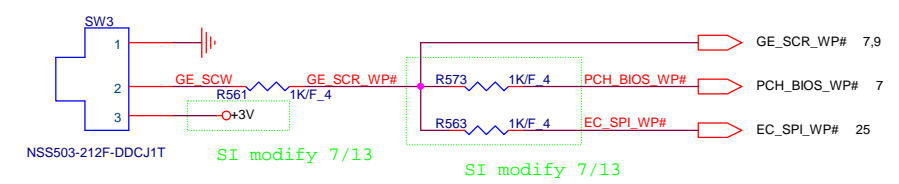
Chrome OS



	BADD	(default)
HIGH	4EH/4F	

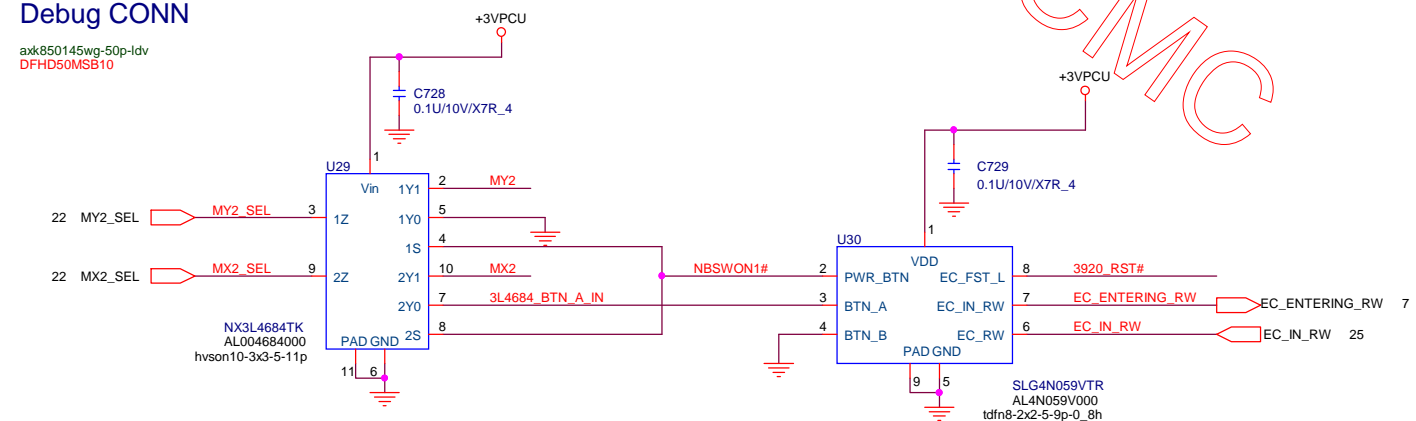


## Write-Protect Screw



## Debug CONN

axk850145wg-50p-ldv  
DFHD50MSB10



www.aitech1.ru

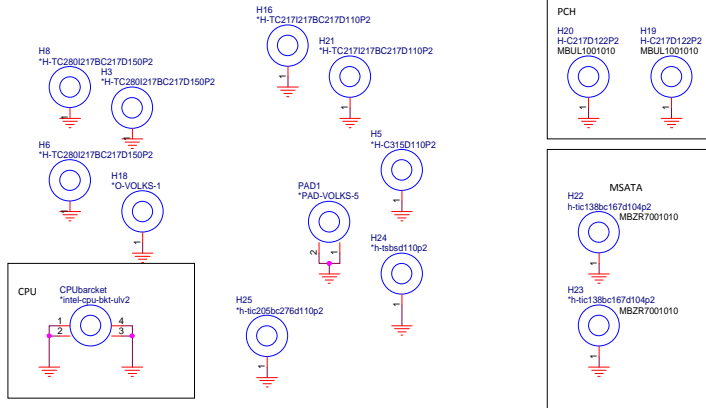
## HOLELESS RESET CIRCUIT

Chrome OS

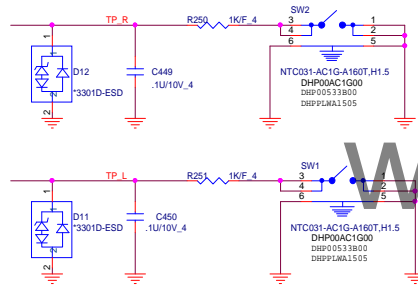
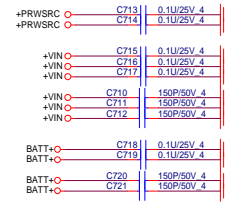


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Quanta Computer Inc.		
Size B	Document Number	Rev A
Debug con / WP		
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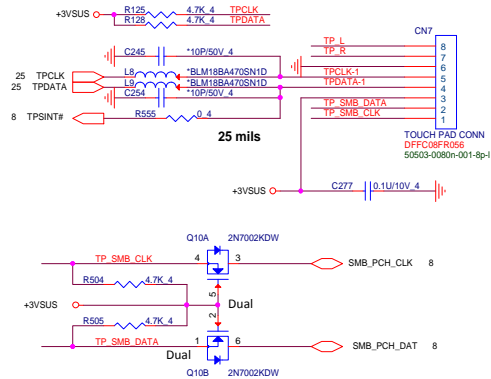
## 14" Hole



## EMI CAP for 14"



## Touch Pad Connector



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Quanta Computer Inc.

Size	Document Number	Rev
C	Hole / TP	A
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