

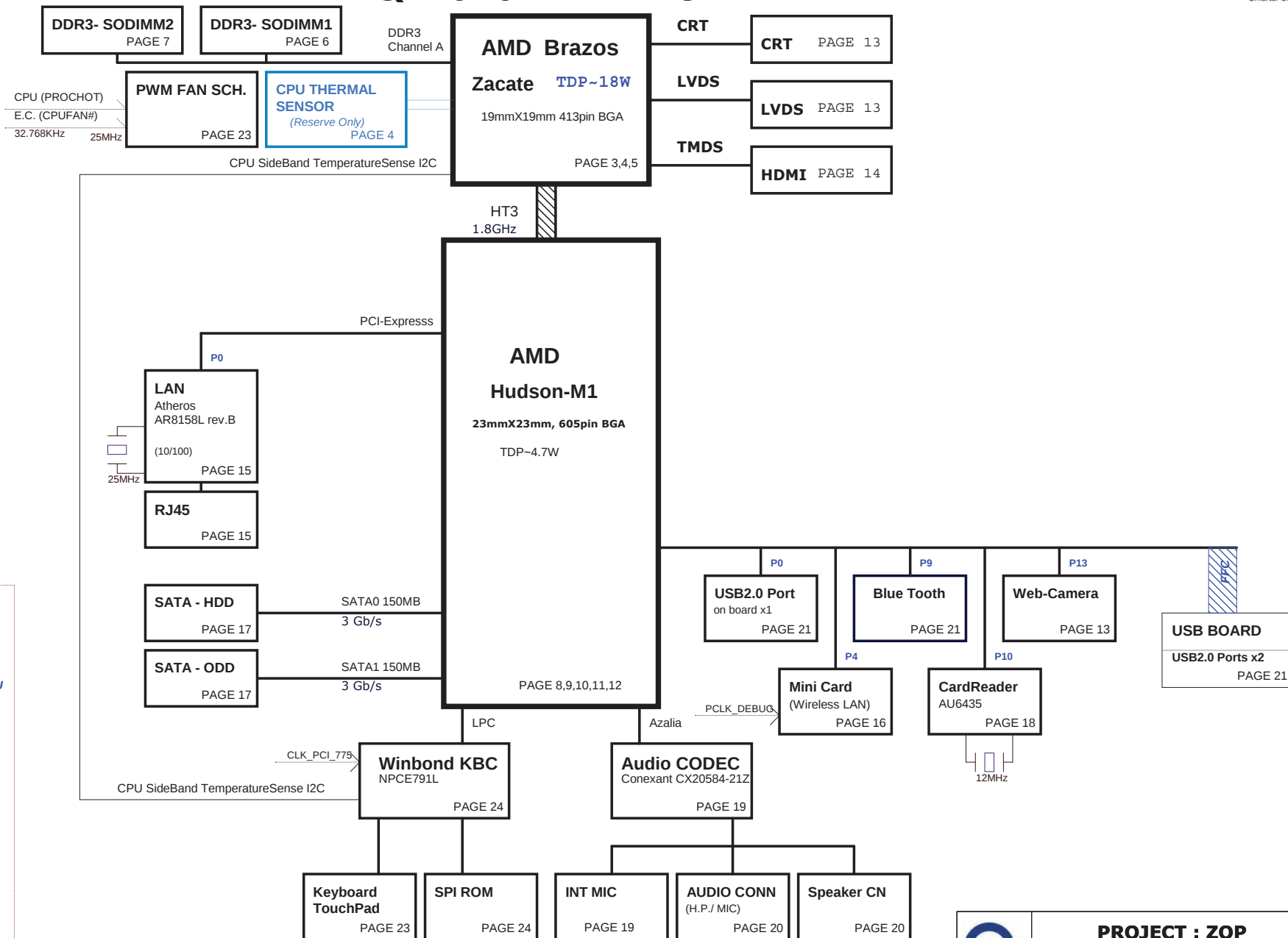
ZQP SYSTEM DIAGRAM

PCB STACK UP

LAYER 1 : TOP
LAYER 2 : GND
LAYER 3 : IN1
LAYER 4 : IN2
LAYER 5 : VCC
LAYER 6 : BOT

HDMI@ ----> HDMI option
SP@ ----> Board ID/Strap pin
H@ ----> 家電下鄉

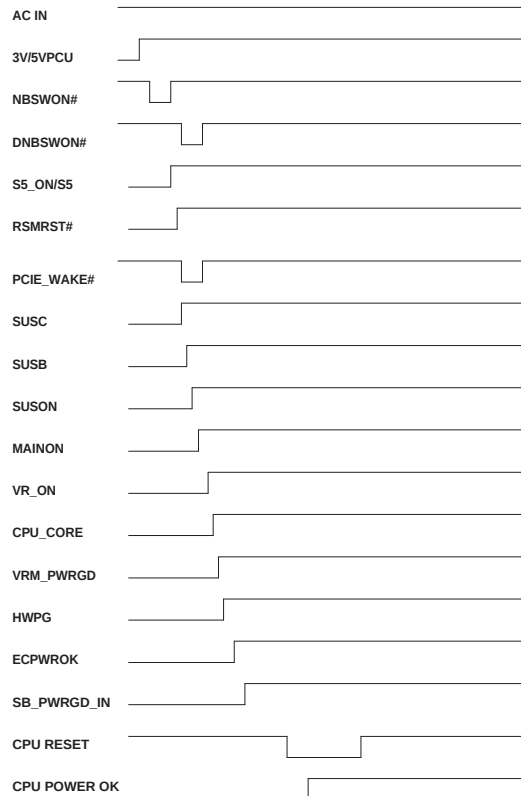
UMA REV:B



			PROJECT : ZQP Quanta Computer Inc.		
Size	Document Number				Rev
Block Diagram					1A
Date:	Tuesday, March 15, 2011				Sheet 1 of 32

PAGE#	DESCRIPTION	NOTE
1	BLOCK DIAGRAM	
2	SYSTEM INFORMATION	
3	ONTARIO MEM & PCIE I/F(1/3)	
4	ONTATIO DISPLAY/CLK/M(2/3)	
5	ONTARIO POWER & DECOUP(3/3)	
6	DDR3 SO-DIMM (STD=8)	
7	DDR3 SO-DIMM (STD=4)	
8	HUDSON PCIE/LPC/CPU IF(1/5)	
9	HUDSON ACPI/GPIO/USB(2/5)	
10	HUDSON SATA/BIDS(3/5)	
11	HUDSON PWR/GND(4/5)	
12	HUDSON STRAPS/PWRGD(5/5)	
13	CRT/LVDS/CCD	
14	HDMI	
15	LAN AR8152	
16	MINI PCI-E	
17	HDD /ODD	
18	CARD READER	
19	AUDIO - CONEXANT 20584	
20	AUDIO JACK CONN	
21	USB / BT /TP	
22	LED / NUT	
23	KB/FAN/TP	
24	WPCE791 /FLASH	
25	CHARGER (ISL88731A)	
26	SYSTEM 5V/3V (RT8223M)	
27	CPU CORE (OZ8380)	
28	VCCP 1.1V (G5602)	
29	+1V(G5602)	
30	DDR 1.5V (RT8207A)	
31	+1.8V/Discharge/Thermal Protection	
32	Change list	

Power Sequence



Hudson M1 SM BUS

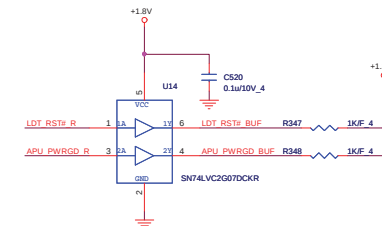
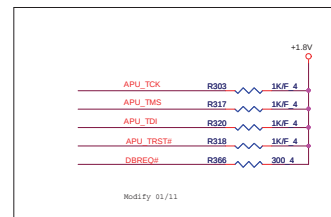
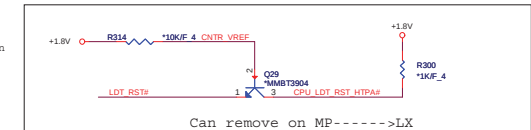
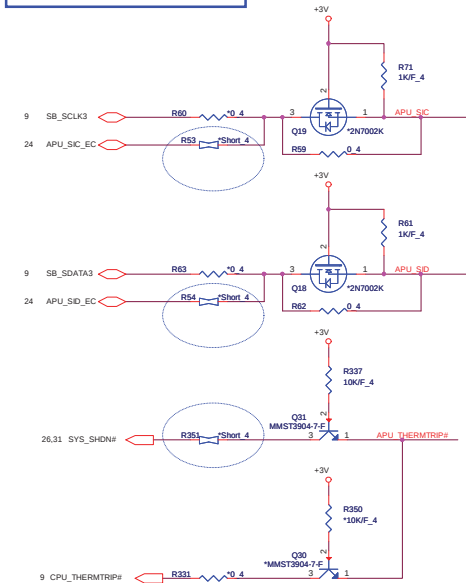
SB820 SMBUS	Pin NO.	SMBUS Function Define
PCLK_SMB PDAT_SMB (+3V)	AD22 AE22	DDR / RFID
SB_SMBCLK1 SB_SMBDATA1 (+3V_S5)	F5 F4	not used
SB_SCLK2 SB_SDATA2 (+3V_S5)	D25 F23	not used
SB_SCLK3 SB_SDATA3 (+3V_S5)	B26 E26	not used
SB_SCLK3 SB_SDATA3 (+3V_S5)	B26 E26	not used

KBC(EC) SM BUS

KBC SMBUS	Pin NO.	SMBUS Function Define
MBCLK MBDATA (+3VPCU)	110 111	Battery
MBCLK_THRM MBDATA_THRM (+3VPCU)	115 116	Thermal

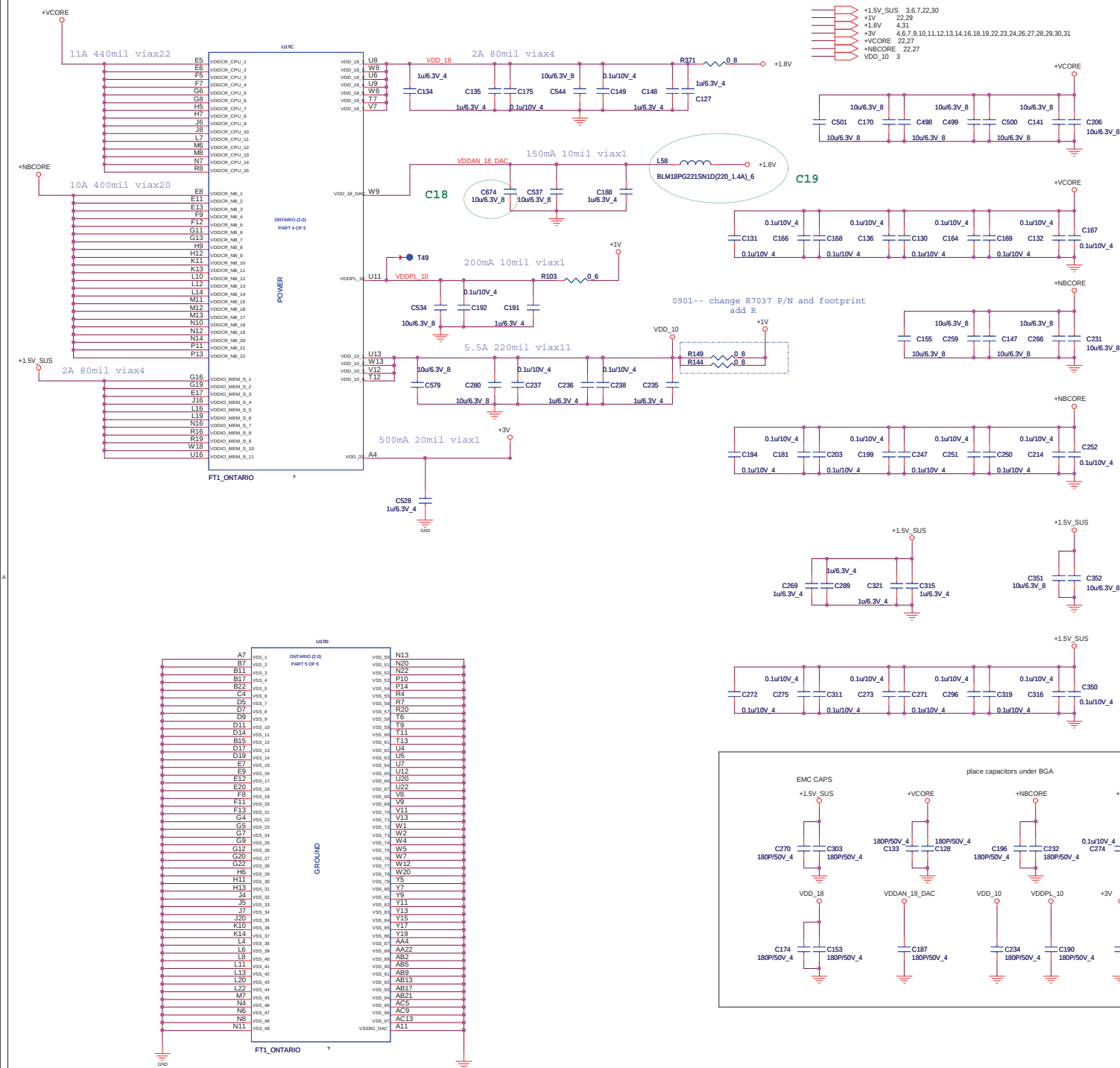


+1.8V
 R70 1K 1/4 APU SVC
 R89 1K 1/4 APU SVD
 R301 300 1/4 LDT RST#
 R326 300 1/4 APU PWRRD#
 +3V
 R345 1K 1/4 ADJ1 THERMTRIP#
 R334 1K 1/4 ADJ1 ALIVE#
 R323 1K 1/4 H PROCHOT#
 INT CRT RED R377 150 1/4
 INT CRT GRN R376 150 1/4
 INT CRT BLU R380 150 1/4
 +3V
 2K 1/6W F- R357 INT EDDCLK
 2K 1/6W F- R365 INT EDDDATA



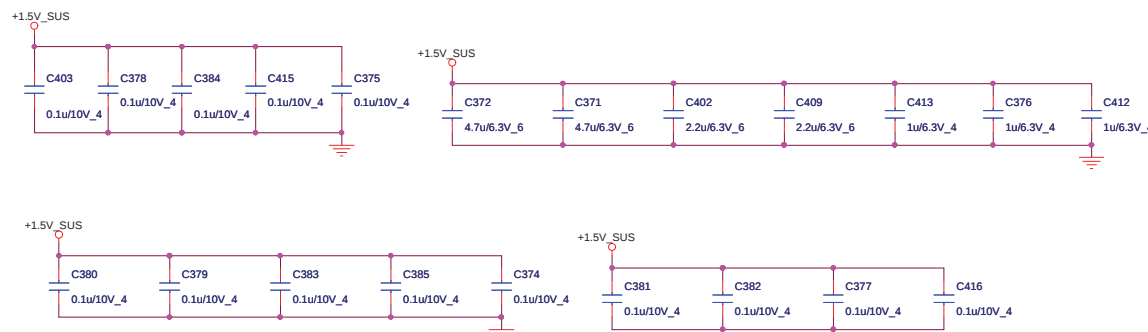
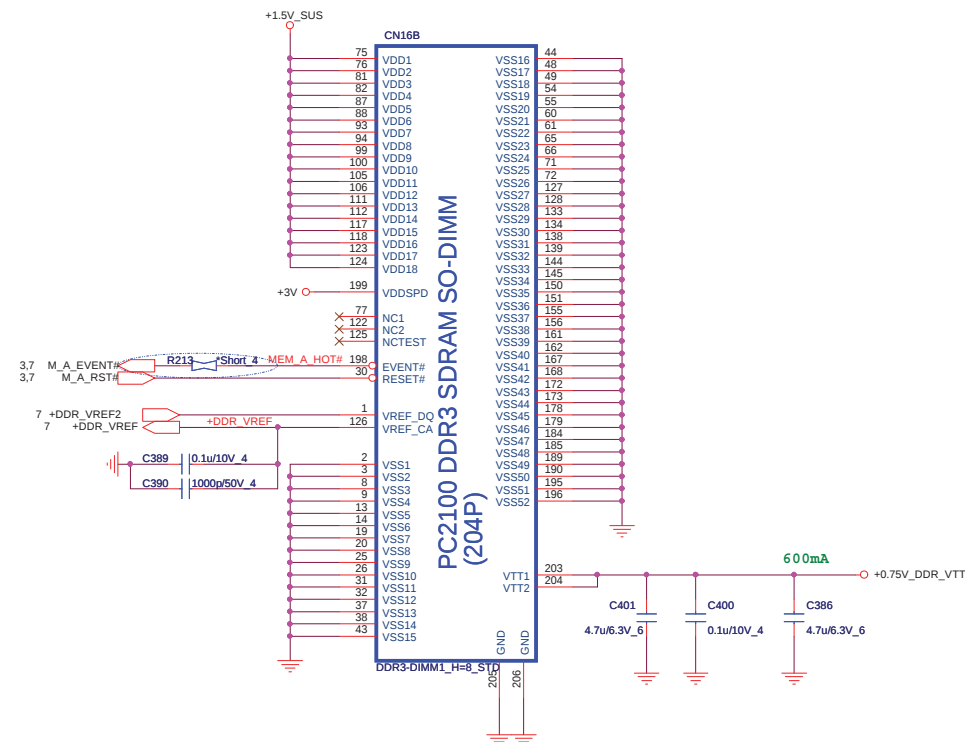
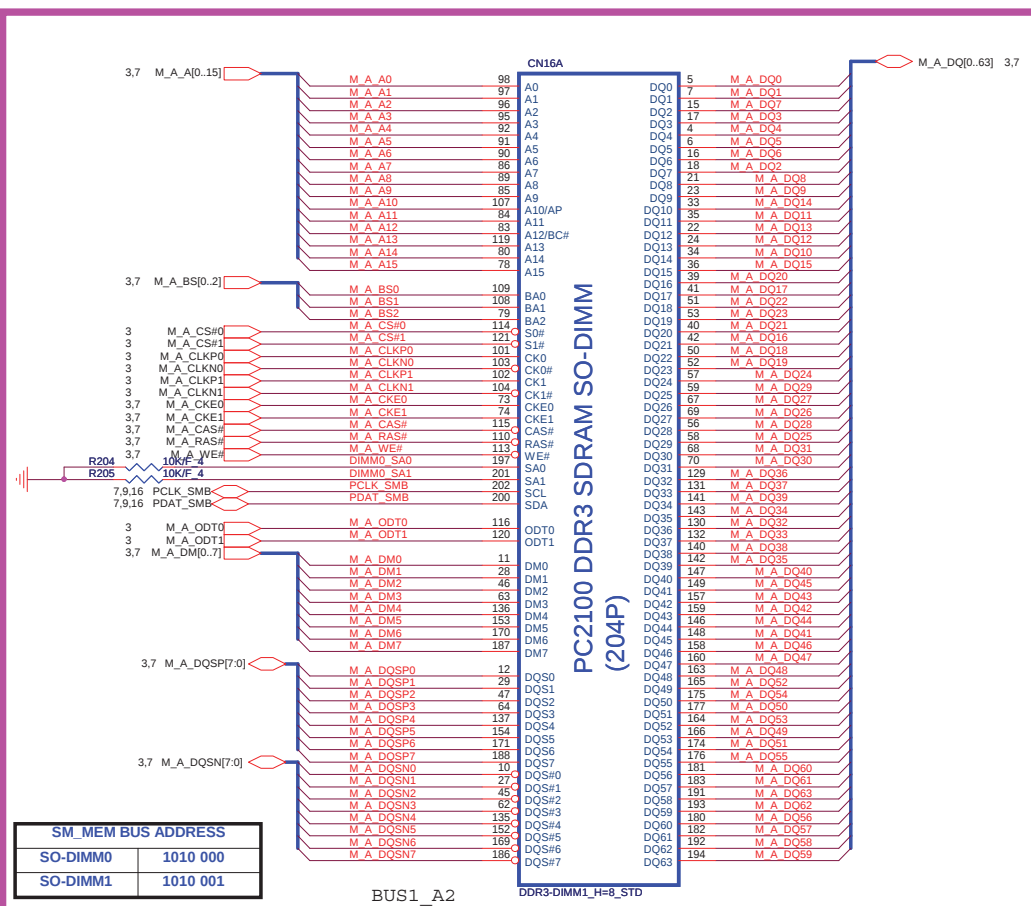
	PROJECT : ZQP Quanta Computer Inc.		
	Size	Document Number ONTATIO DISPLAY/CLK/MI(2/3)	Rev 1A
Date:	Tuesday, March 15, 2011	Sheet 4 of	32

This page is different AMD Nil.



0830--P/N and footprint are follow ZR7B

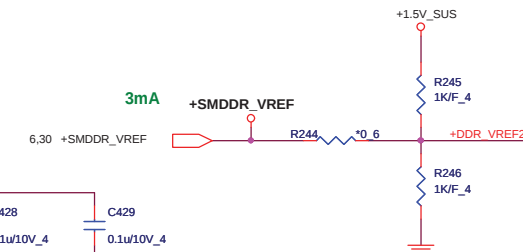
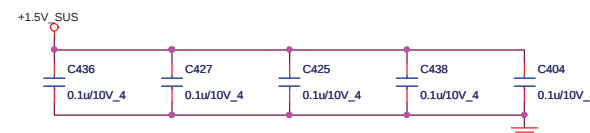
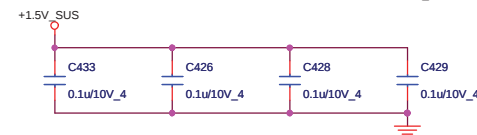
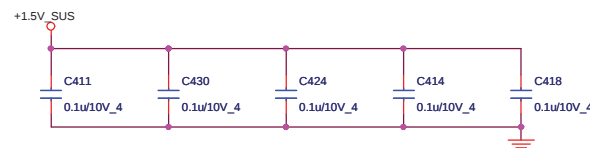
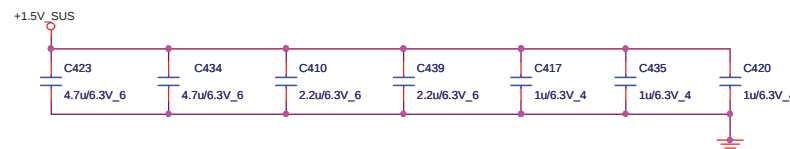
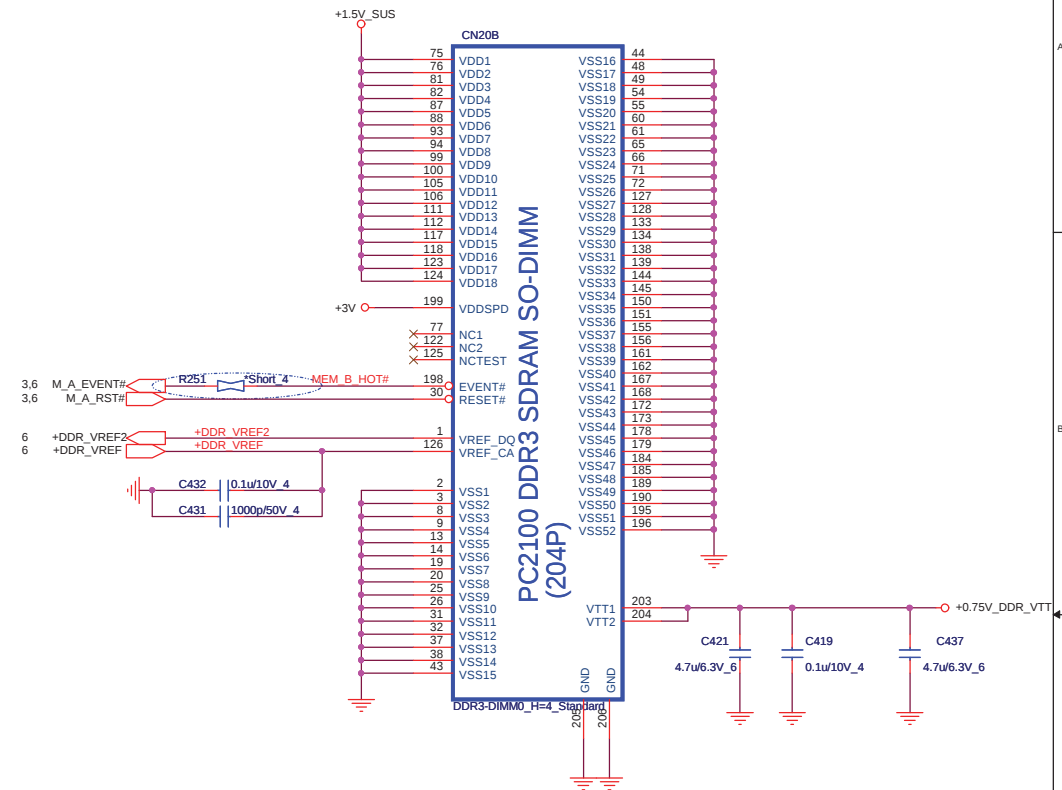
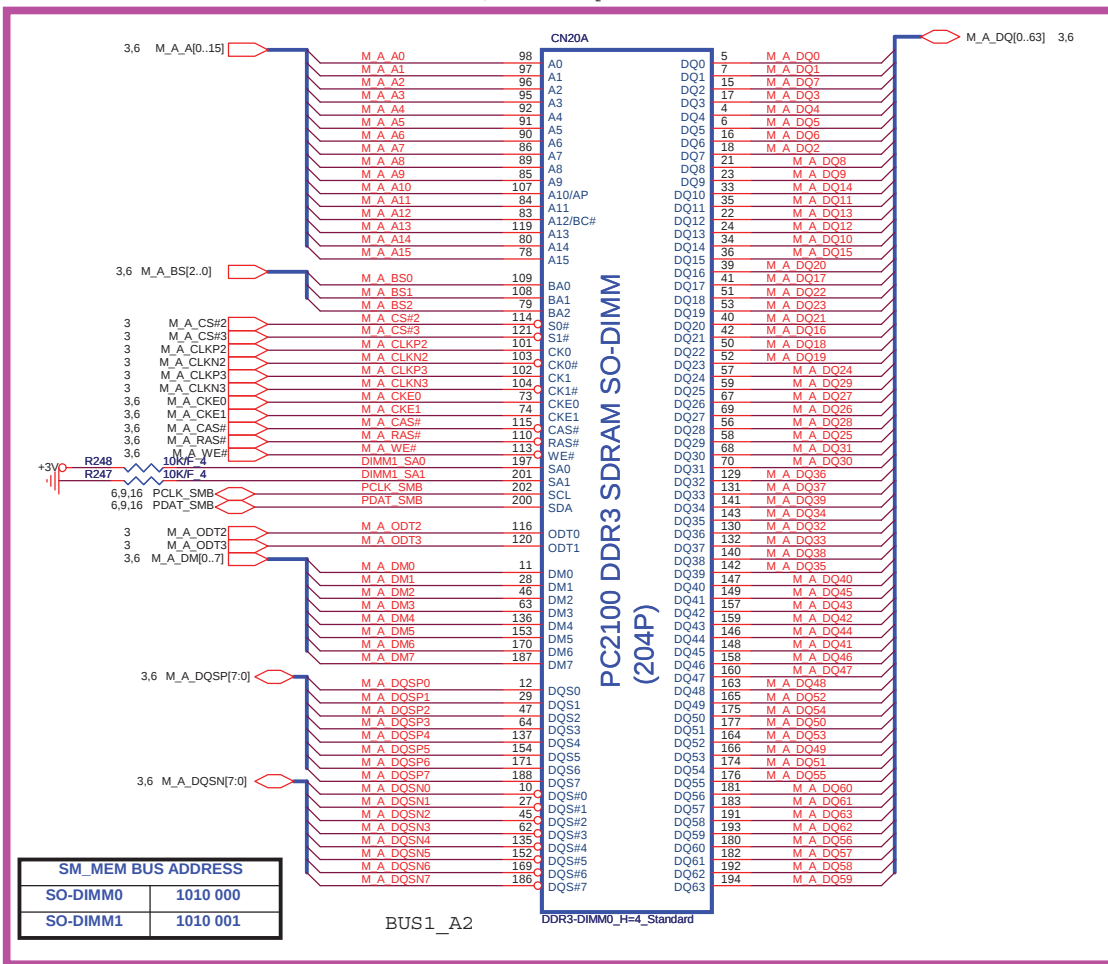
 +1.5V_SUS 3,5,7,22,30
 +0.75V_DDR_VTT 7,30
 +3V 4,5,7,9,10,11,12,13,14,16,18,19,22,23,24,26,27,28,29,30,31

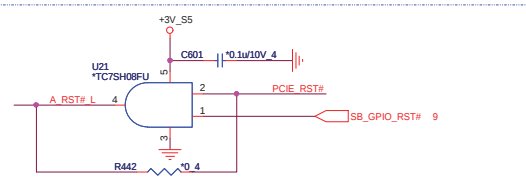
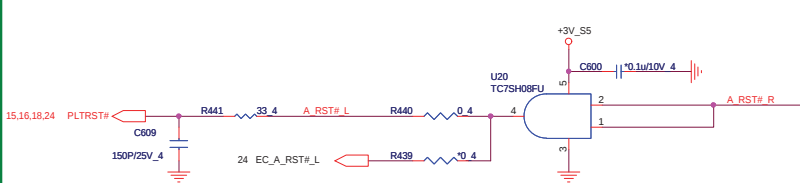


PROJECT : ZQP
Quanta Computer Inc.

Size Document Number
DDR3 SO-DIMM (STD) Rev 1A

Date: Tuesday, March 15, 2011 Sheet 6 of 32

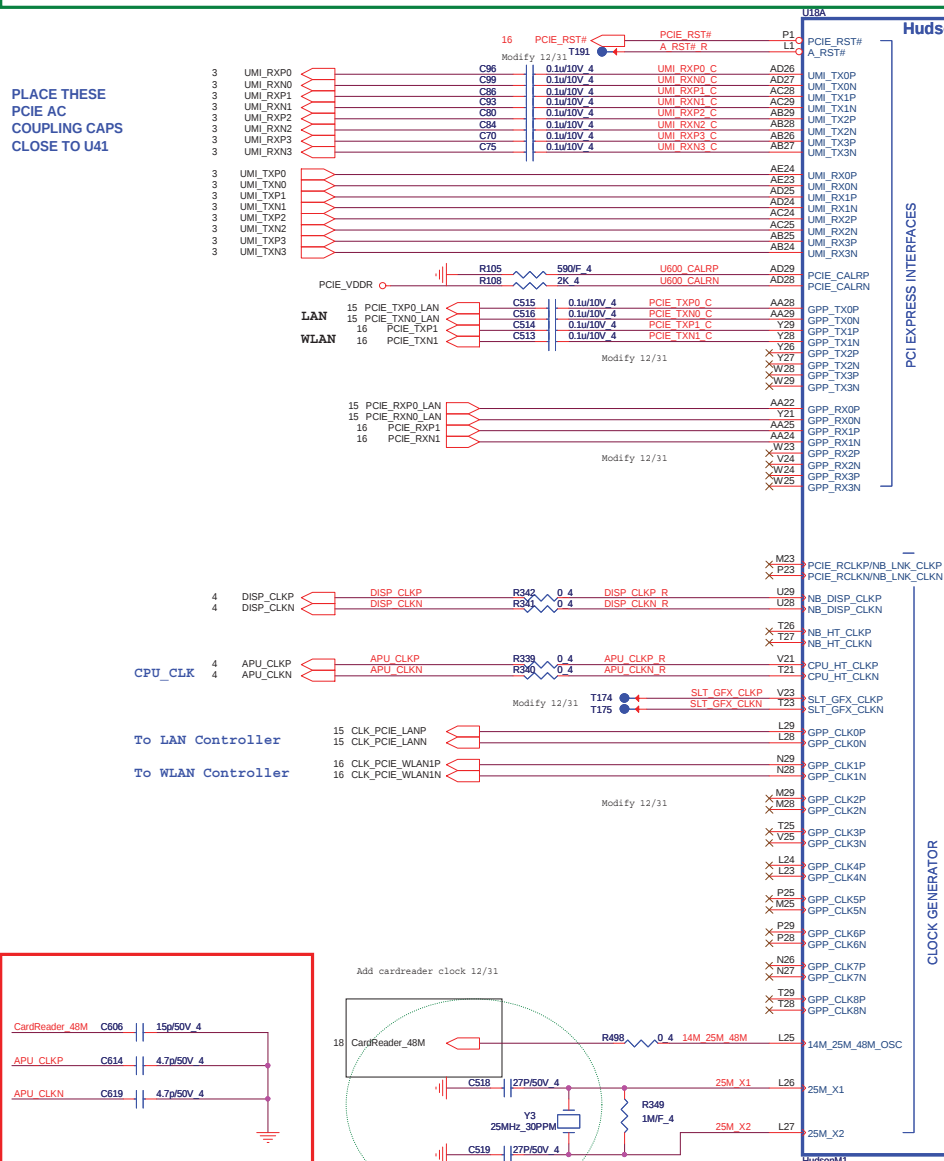




PCIE_VDD# 11
+3V_55 9,10,11,12,15,21,22,26
+3VPCU 13,22,23,24,25,26,31
+5VPCU 26,27,28,31

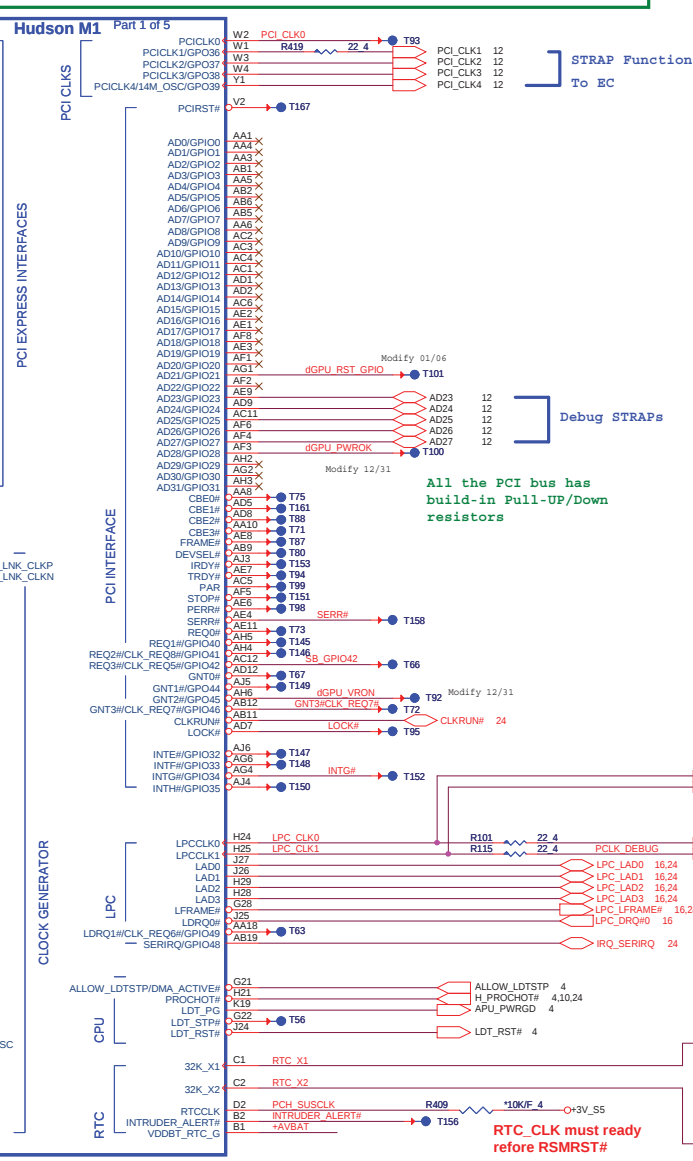
This page is different AMD Nil expect RTC circuit

PLACE THESE
PCIE AC
COUPLING CAPS
CLOSE TO U41

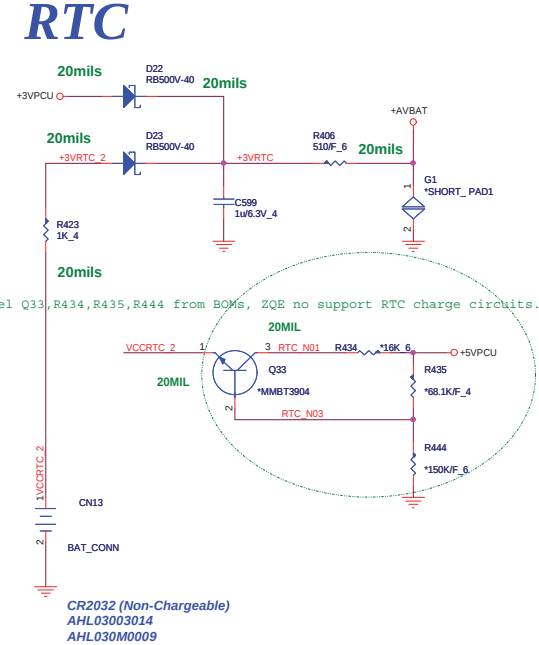


Add C606,C614,C619 for strong clock
02/15 REV:B

BG625000486



INTRUDER_ALERT# Left not connected (Southbridge
has 50-kohm internal pull-up to VBAT).



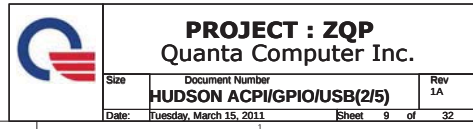
CR2032 (Non-Chargeable)
AHL03003014
AHL030M0009

To STRAPS Page



PROJECT : ZQP
Quanta Computer Inc.

Size Document Number
HUDSON PCIE/LPC/CPU IF(1/5)
Date: Tuesday, March 15, 2011 Sheet 8 of 32



PLACE ALL THE DECOUPLING CAPS ON THIS SHEET CLOSE TO SB AS POSSIBLE.

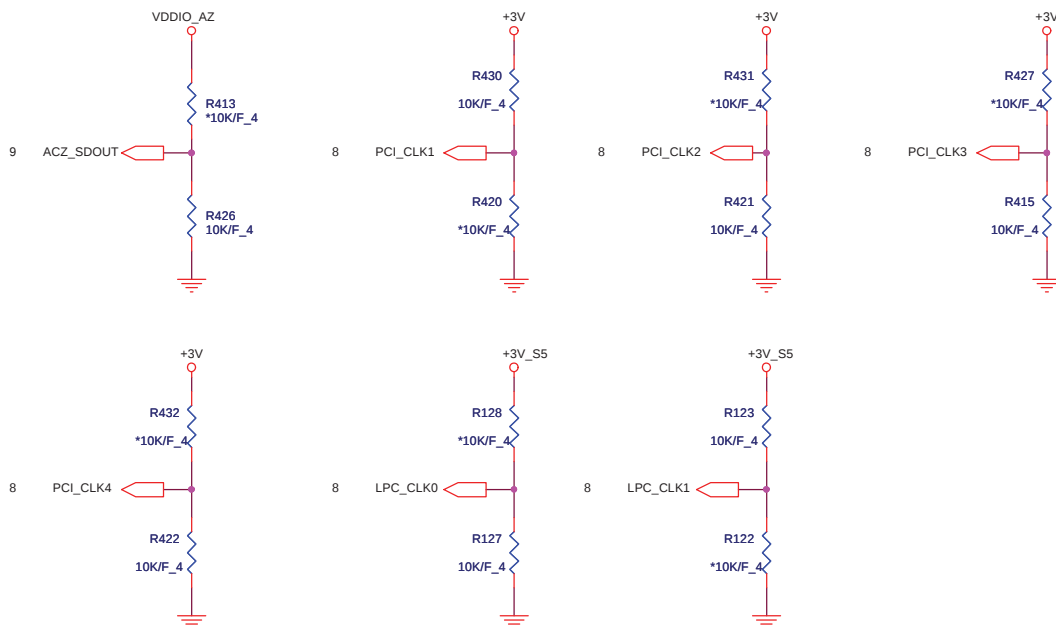




OVERLAP COMMON PADS WHERE
POSSIBLE FOR DUAL-OP RESISTORS.

REQUIRED STRAPS

internal have pull
Hi 10K , confirm AMD
ward this pull Hi
not need



PCI_CLK4 CPU/NB HT Clock Selection
0 V - Reserved.
3.3 V - Required setting for integrated clock mode.
This strap is not used if the strap CLKGEN is
configured for external clock generator mode.

REQUIRED STRAPS

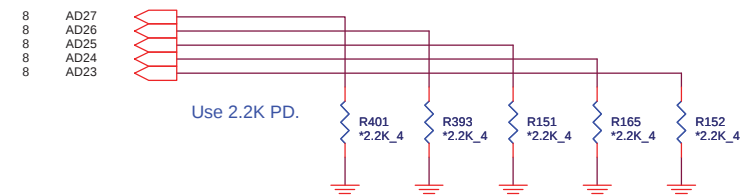
	AZ_SDOUT	PCI_CLK1	PCI_CLK2	PCI_CLK3	PCI_CLK4	LPC_CLK0	LPC_CLK1	GPIO200	GPIO199
PULL HIGH	LOW POWER MODE	ALLOW PCIE Gen2 DEFAULT	Watchdog Timer Enabled	USE DEBUG STRAP	non_Fusion CLOCK MODE	EC ENABLED	CLKGEN ENABLED DEFAULT	H,H = Reserved H,L = SPI ROM (Default)	
PULL LOW	PERFORMANCE MODE DEFAULT	FORCE PCIE Gen1	Watchdog Timer Disabled DEFAULT	IGNORE DEBUG STRAP DEFAULT	FUSION CLOCK MODE DEFAULT	EC DISABLED DEFAULT	CLKGEN DISABLED	L,H = LPC ROM L,L = FWH ROM	

VDDIO_AZ 11
+3V 4,5,6,7,9,10,11,13,14,16,18,19,22,23,24,26,27,28,29,30,31
+3V_S5 8,9,10,11,15,21,22,26

12

DEBUG STRAPS

HUDSON-M1 HAS 15K INTERNAL PU FOR PCI_AD[27:23]



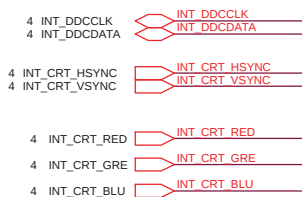
	PCI_AD27	PCI_AD26	PCI_AD25	PCI_AD24	PCI_AD23
PULL HIGH	USE PCI PLL DEFAULT	DISABLE ILA AUTORUN DEFAULT	USE FC PLL DEFAULT	USE DEFAULT PCIE STRAPS DEFAULT	DISABLE PCI MEM BOOT DEFAULT
PULL LOW	BYPASS PCI PLL	ENABLE ILA AUTORUN	BYPASS FC PLL	USE EEPROM PCIE STRAPS	ENABLE PCI MEM BOOT



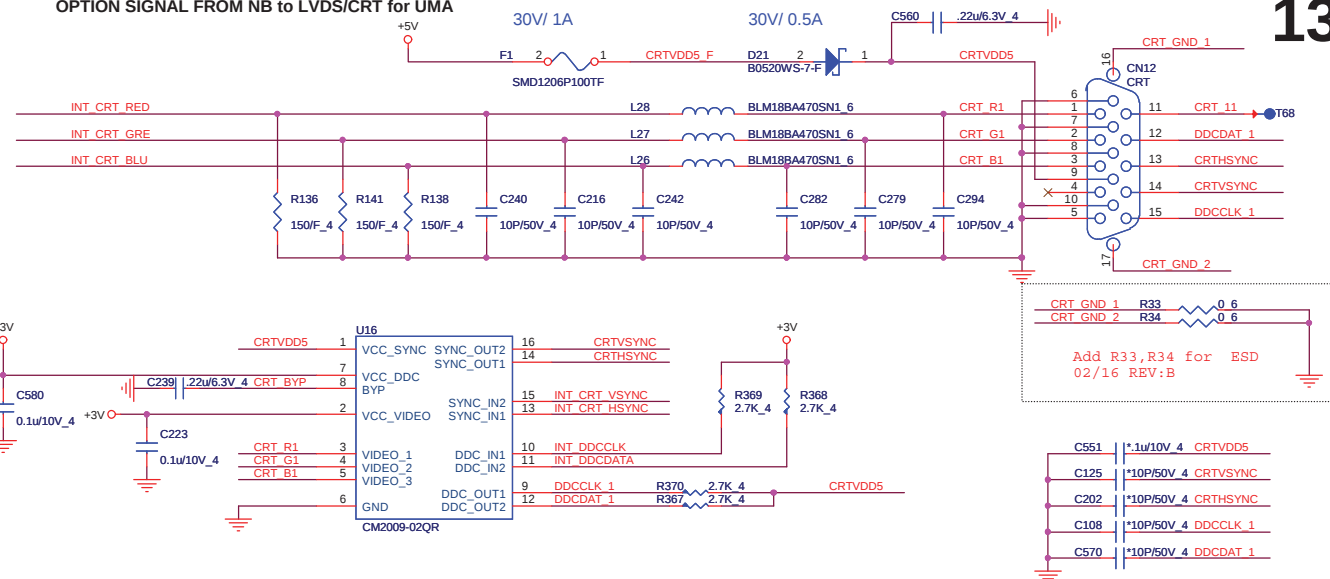
PROJECT : ZQP
Quanta Computer Inc.

Size	Document Number	Rev
	HUDSON STRAPS/PWRGD(5/5)	1A
Date:	Tuesday, March 15, 2011	Sheet 12 of 32

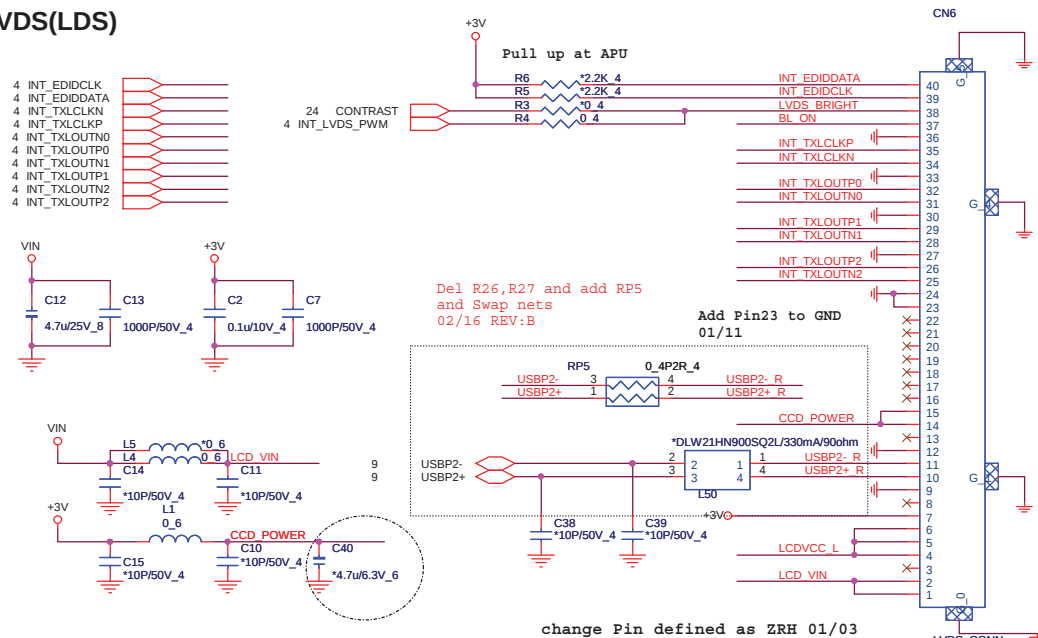
CRT



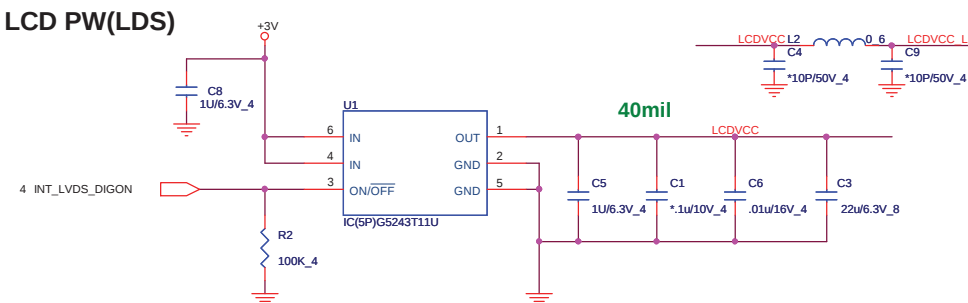
OPTION SIGNAL FROM NB to LVDS/CRT for UMA



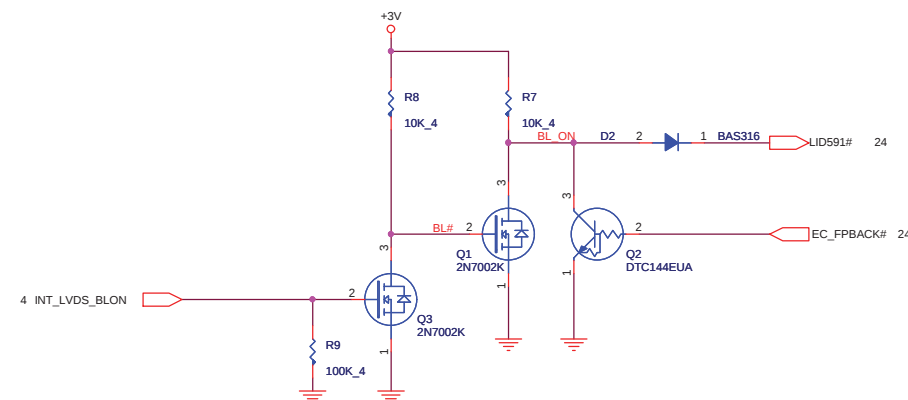
LVDS(LDS)



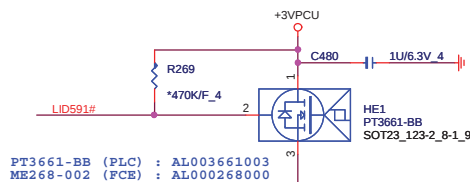
LCD PW(LDS)



Backlight Control(LDS)



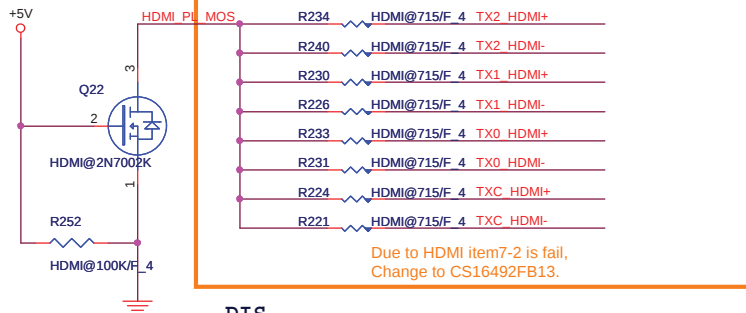
Lid Switch (HSR)



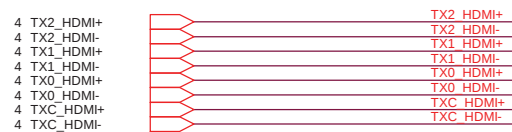
4 HDMI_DDCDATA HDMI_DDCDATA
4 HDMI_DDCCLK HDMI_DDCCLK



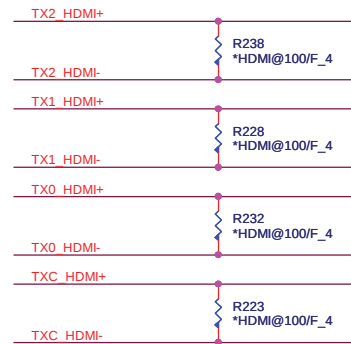
Close to HDMI Connector



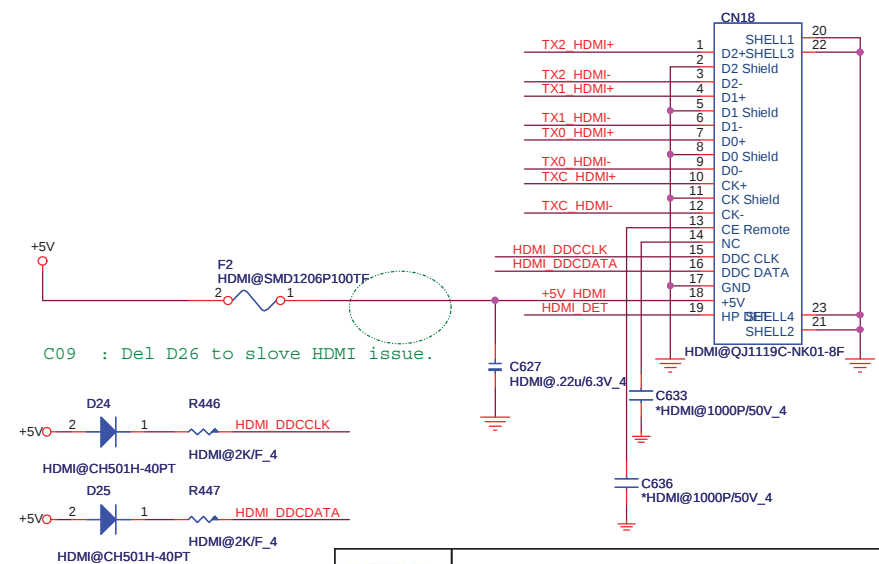
DIS
Stuff 499 ohm CS14992FB24



Close connector



HDMI PORT (HDM)



C09 : Del D26 to solve HDMI issue.



PROJECT : ZQP
Quanta Computer Inc.

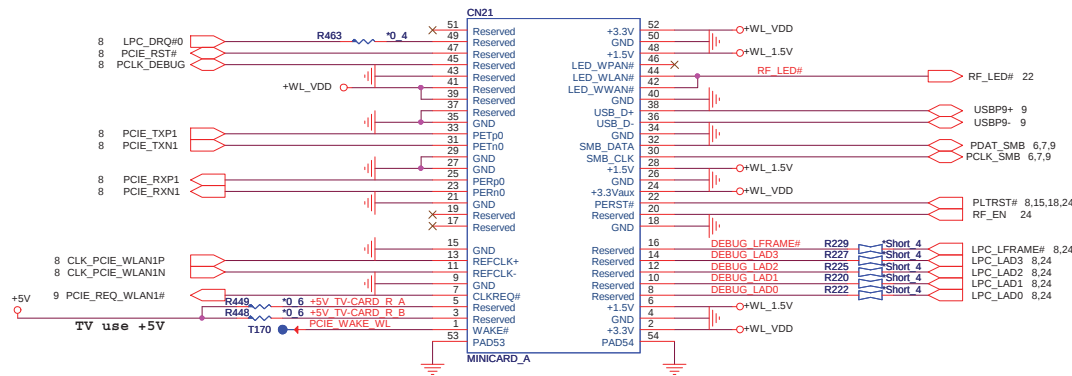
Size	Document Number HDMI	Rev 1A
Date:	Tuesday, March 15, 2011	Sheet 14 of 32

15

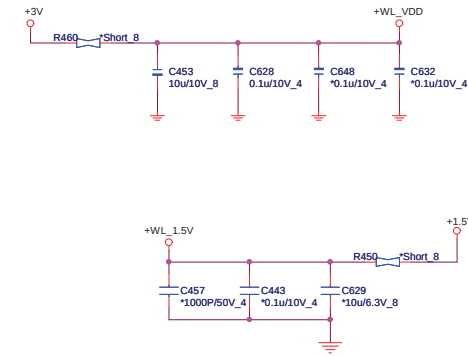
MINI-CARD WLAN(MPC)

+3.3V: 1000mA
+3.3Vaux:330mA
+1.5V:500mA

Check LED signal. (active high or low)



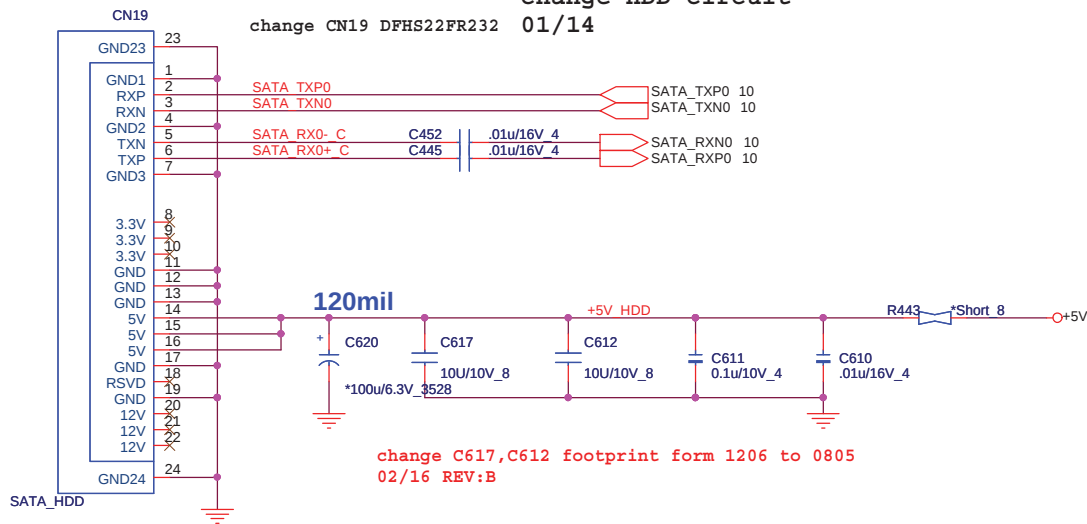
Debug



SATA HDD

change HDD circuit

change CN19 DFHS22FR232 01/14

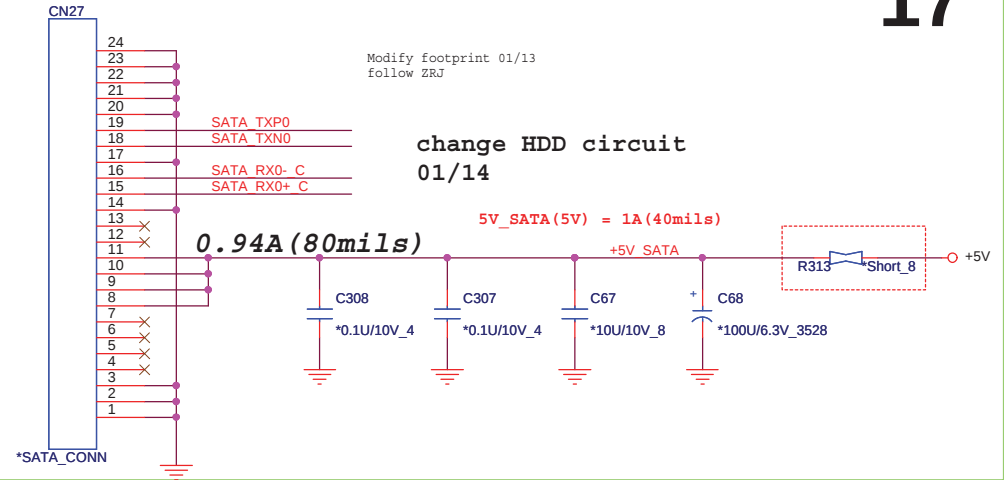


SATA HDD(HDD)

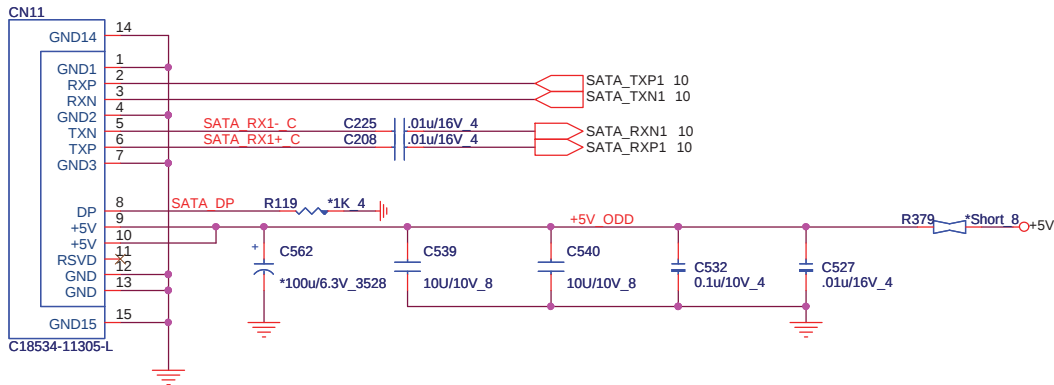
17

Modify footprint 01/13
follow ZRJ

change HDD circuit
01/14



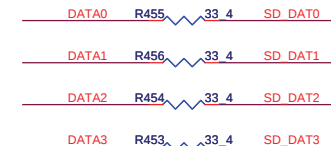
SATA ODD



			PROJECT : ZQP Quanta Computer Inc.	
Size	Document Number		Rev	
	SATA-HDD/ODD/HOLE		1A	
Date:	Tuesday, March 15, 2011	Sheet	17 of	32

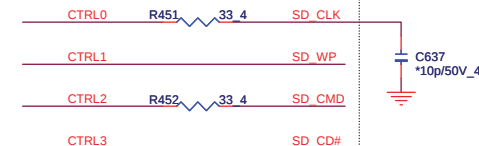
18

The trace length difference for each card interfaces should be smaller than 500 mil



Close to connector

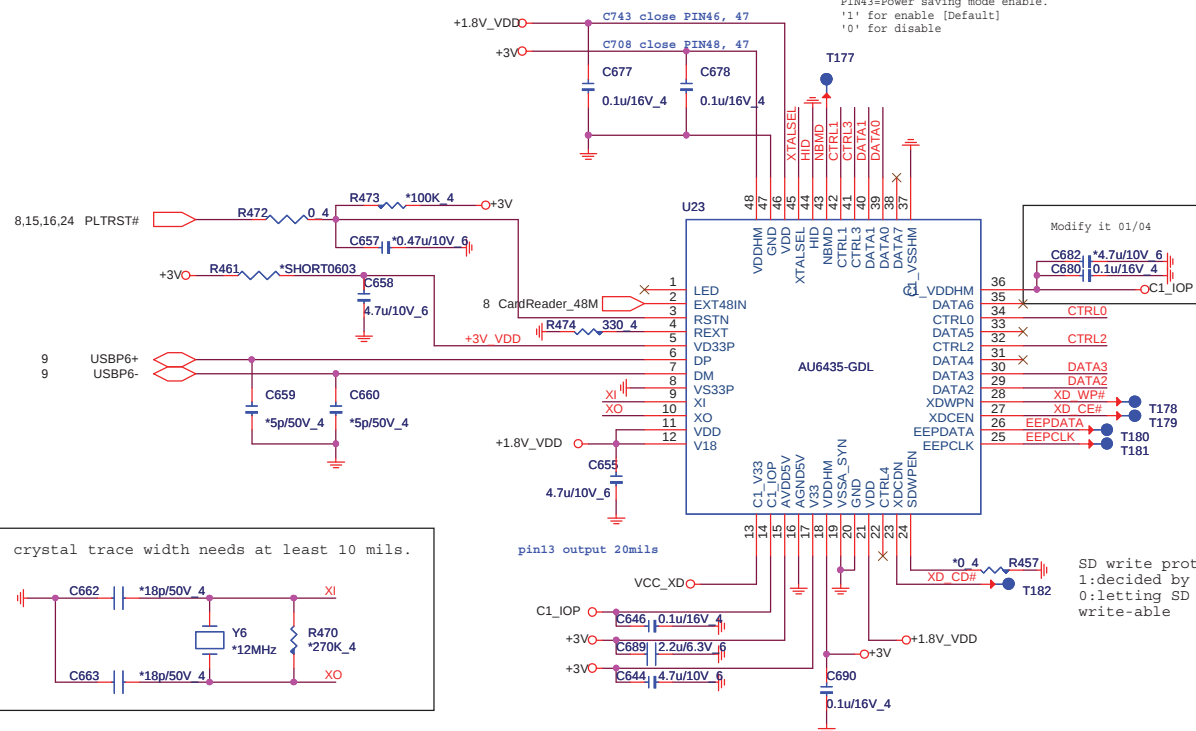
CLK length should be as short as possible. Shorter than 1200 mil is good.



```
PIN45=Clock input selection
'1' for 48MHz input [Default,Internal PU]
'0' for 12MHz input
```

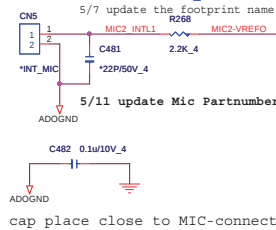
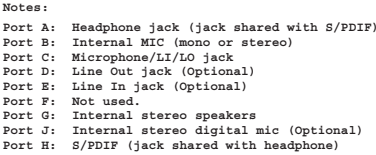
R464 *0.4 XTALSEL

PIN43=Power saving mode enable.
'1' for enable [Default]
'0' for disable



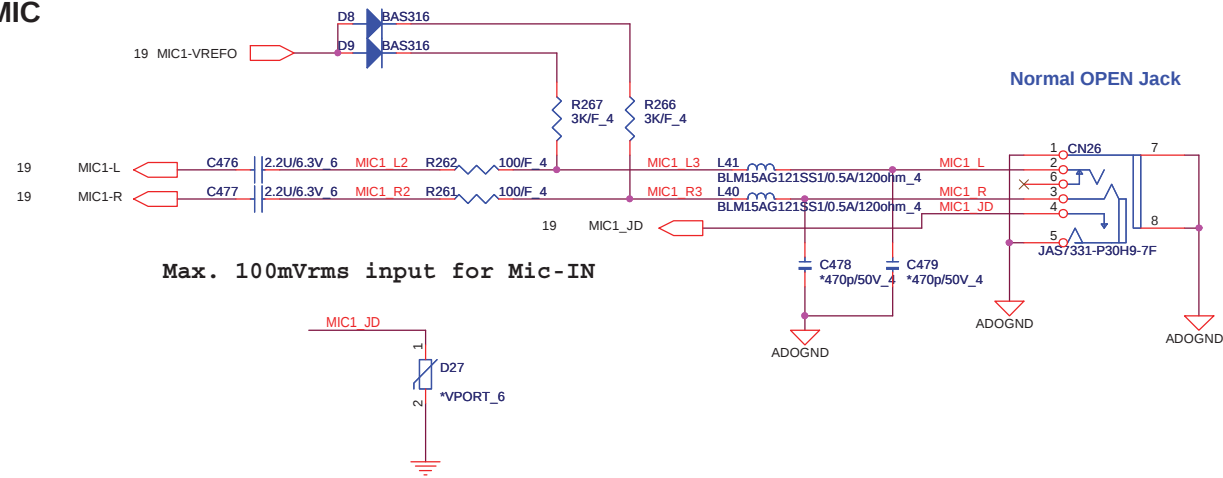
crystal trace width needs at least 10 mils.

```
SD write protect
1:decided by SDWP[Default]
0:letting SD always
write-able
```

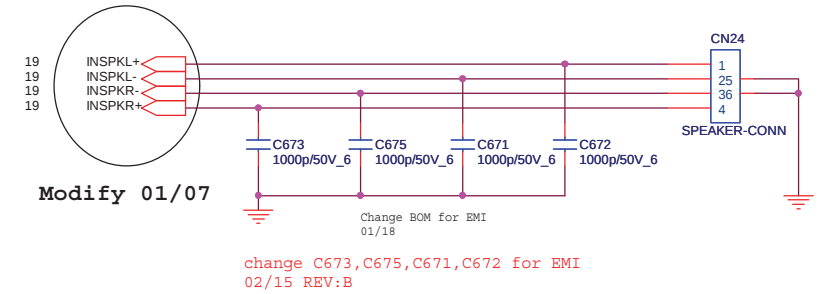


	PROJECT : QZP Quanta Computer Inc.	
	Size Document Number CONEXANT 25084	Rev 1A
Date: Tuesday, March 15, 2011	Sheet 19 of 32	

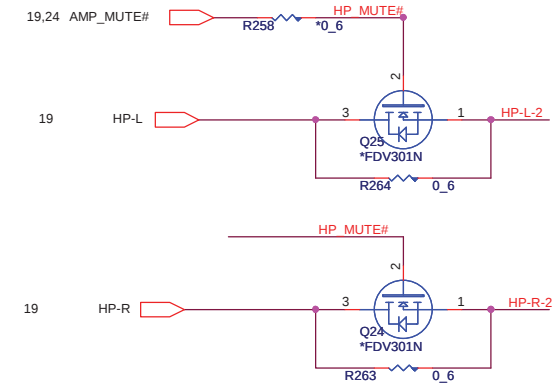
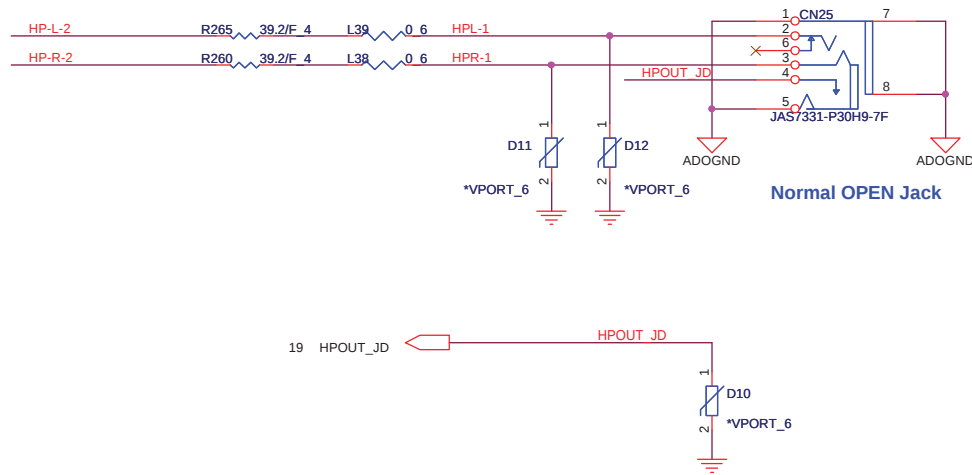
MIC



Internal Speaker



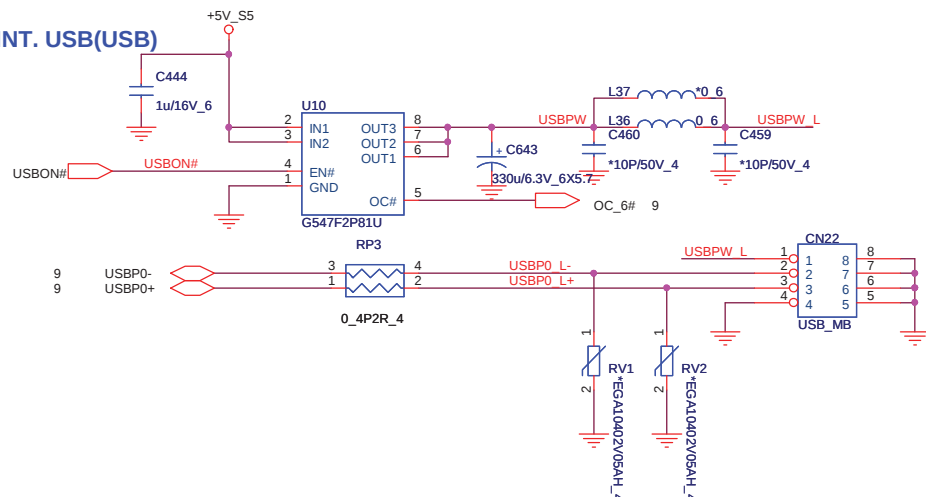
HP



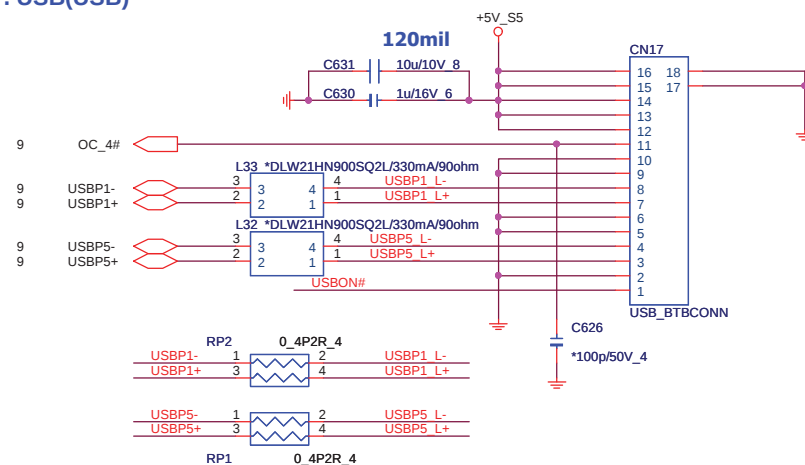
PROJECT : ZQP
Quanta Computer Inc.

Size	Document Number	Rev
	AUDIO JACK CONN	1A
Date:	Tuesday, March 15, 2011	Sheet 20 of 32

INT. USB(USB)

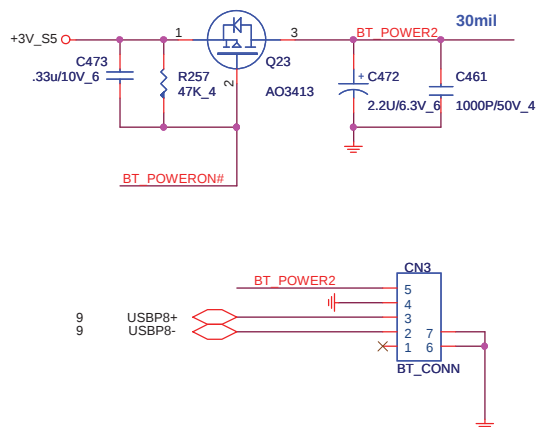


EXT. USB(USB)

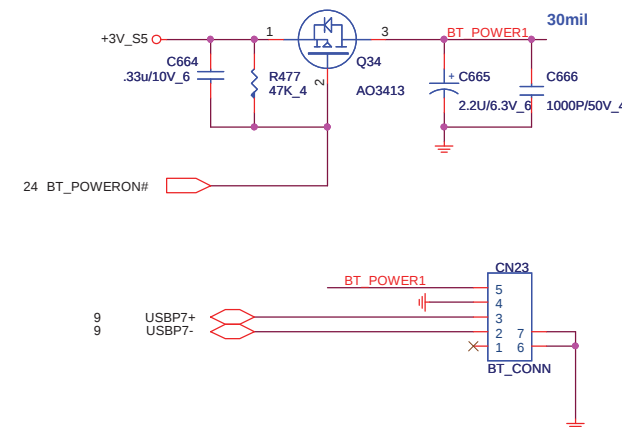


21

BLUETOOTH V2.1 CONN(BTM)



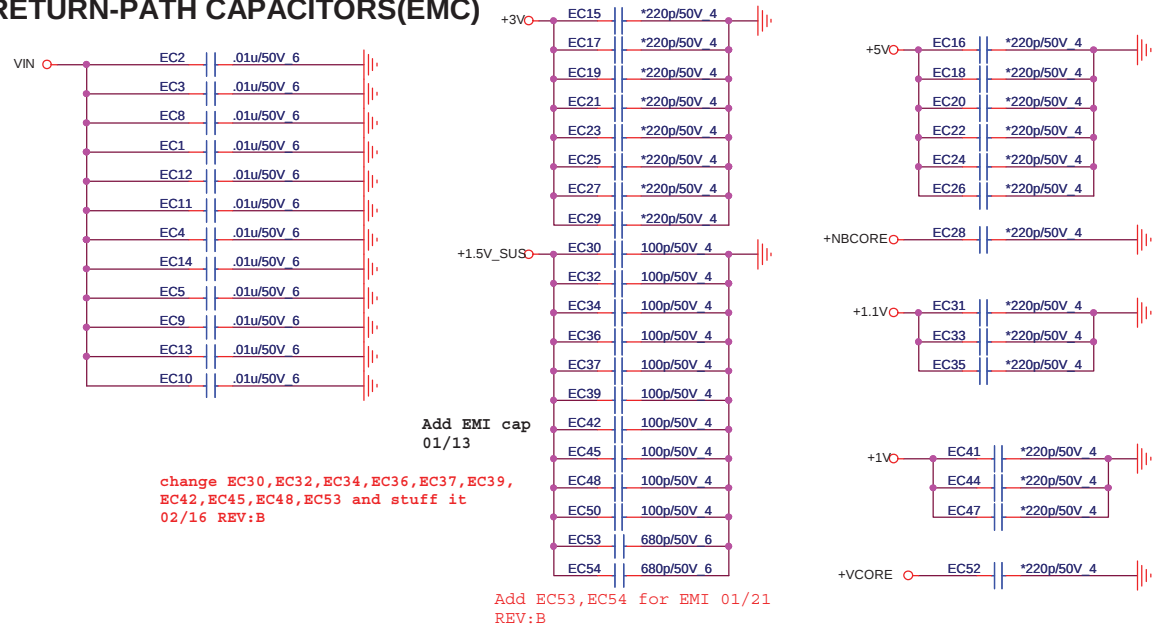
BLUETOOTH V3.0 CONN(BTM)



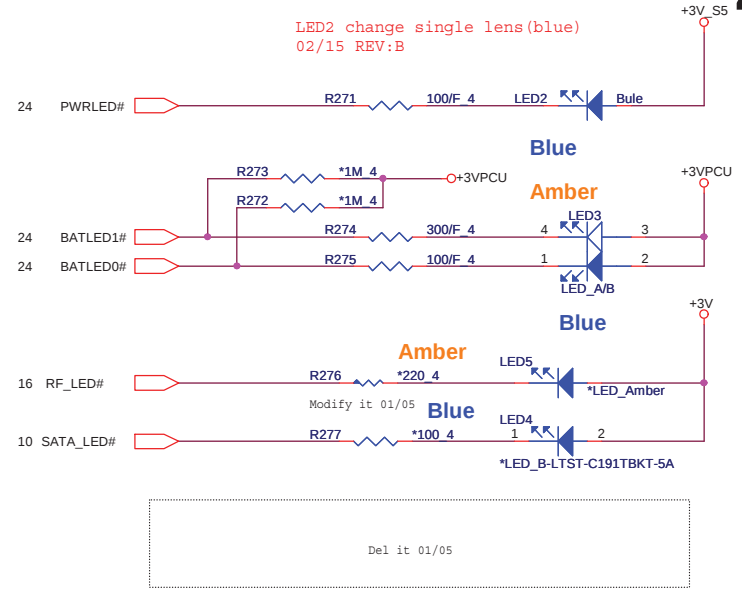
PROJECT : ZQP
Quanta Computer Inc.

Size	Document Number USB/BT	Rev 1A
Date:	Tuesday, March 15, 2011	Sheet 21 of 32

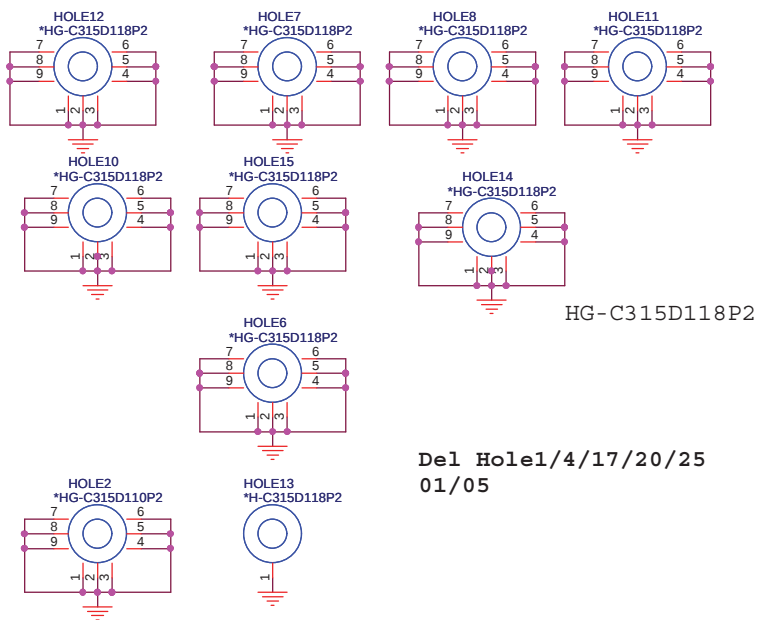
EE RETURN-PATH CAPACITORS(EMC)



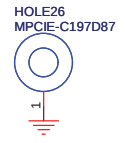
LED(UIF)



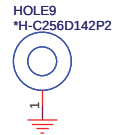
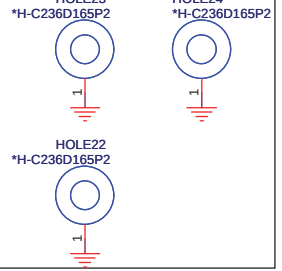
HOLE(OTH)



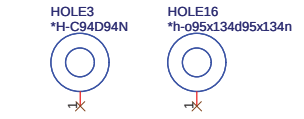
mini PCI



cpu



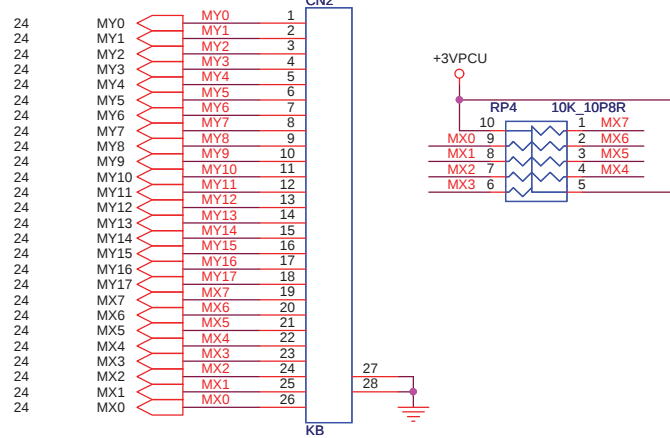
No stuff HOLE9 REV:B 02/17



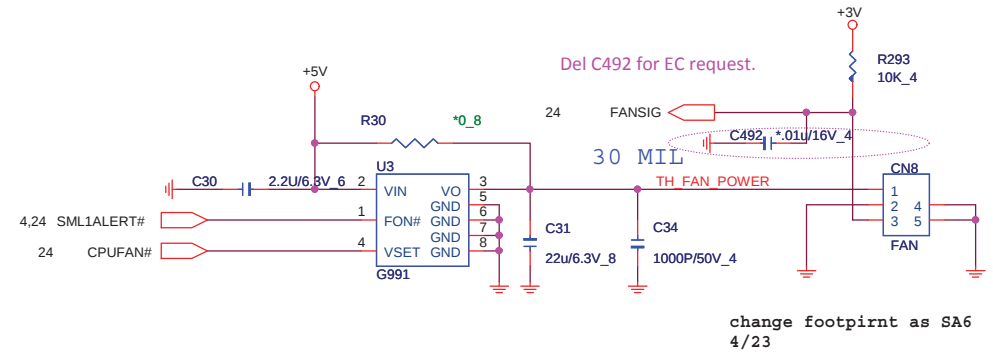
CPU nut PN : FBBU1001010 x 3 @ SHOLE1~3

PROJECT : ZQP		
Quanta Computer Inc.		
Size	Document Number	Rev 1A
LED/ EMI/ Screw Hole& Nut		
Date:	Tuesday, March 15, 2011	Sheet 22 of 32

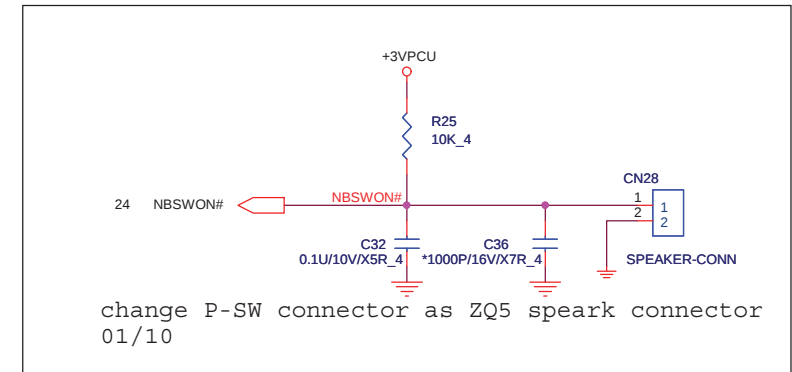
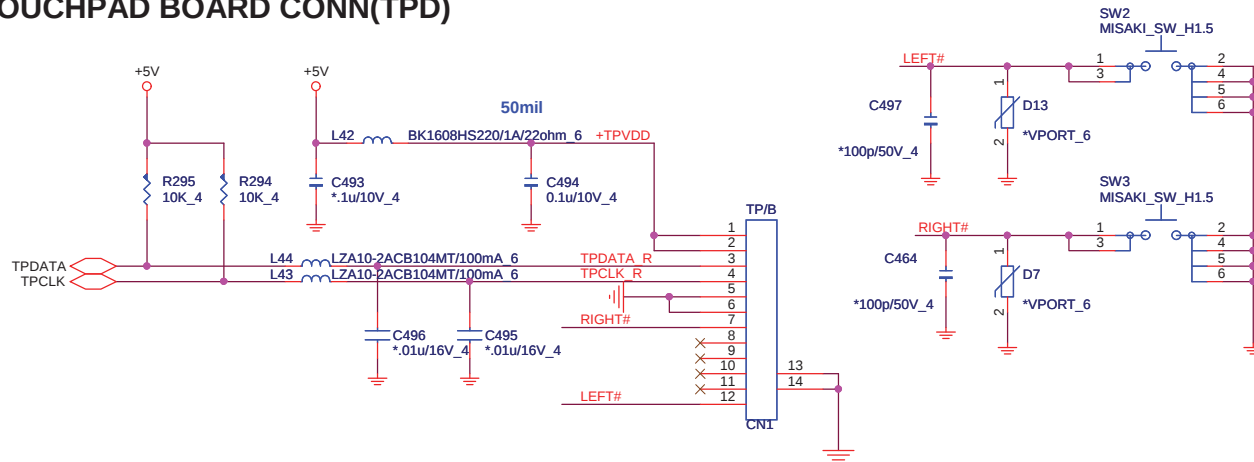
K/B(KBC)



CPU FAN(THM)

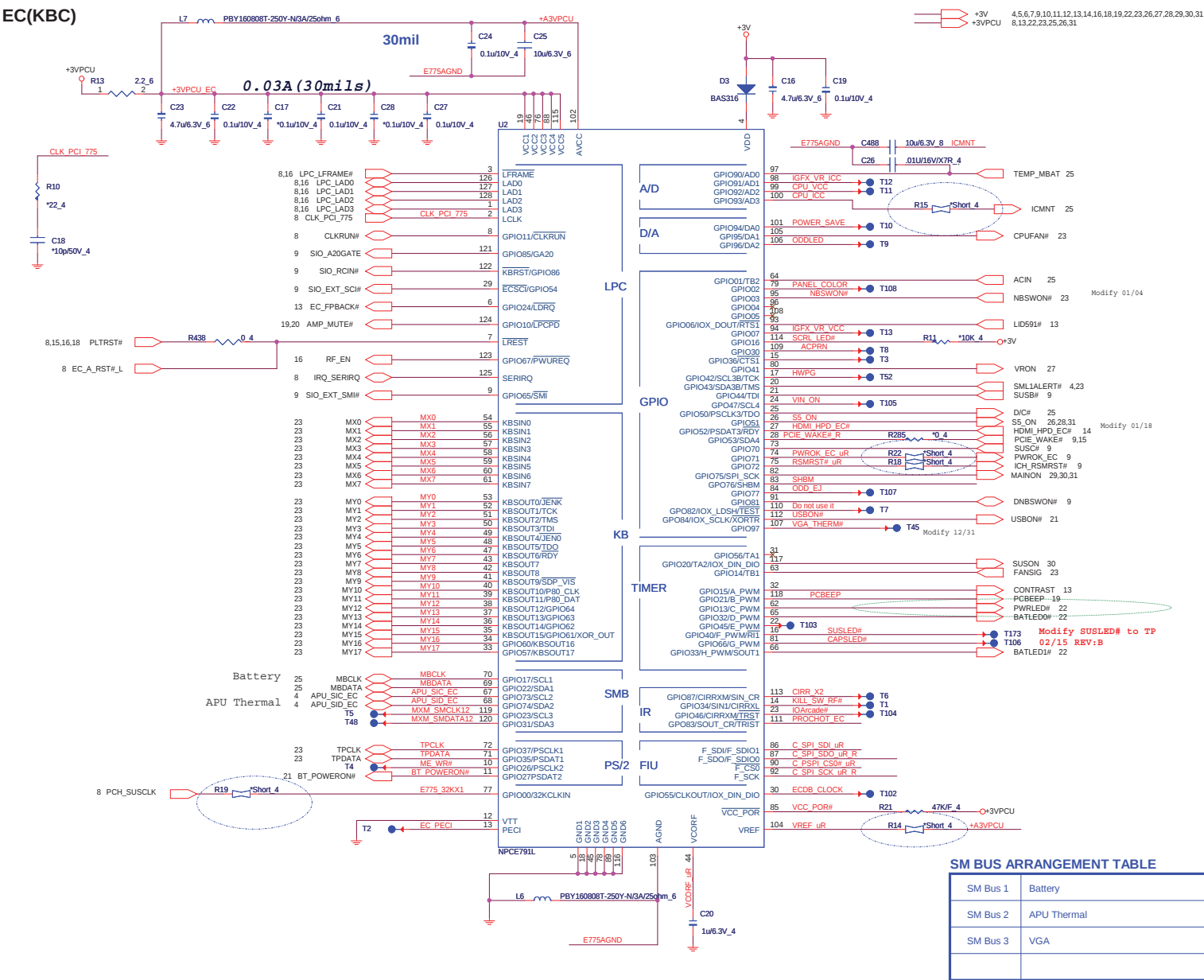


TOUCHPAD BOARD CONN(TPD)



PROJECT : ZQP
Quanta Computer Inc.

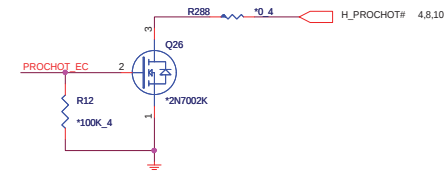
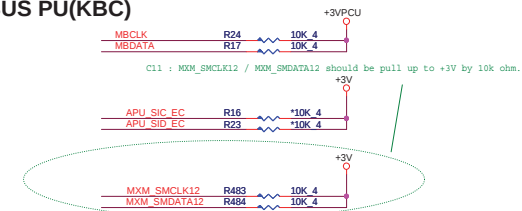
Size	Document Number	Rev
	KB/TP/FAN	1A
Date:	Tuesday, March 15, 2011	Sheet 23 of 32



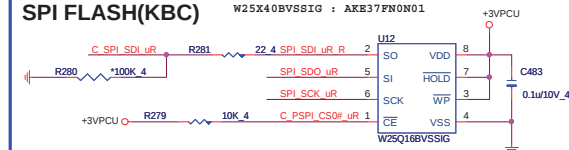
I/O ADDRESS SETTING(KBC)



SM BUS PU(KBC)

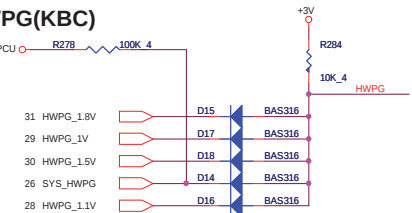


SPI FLASH(KBC)

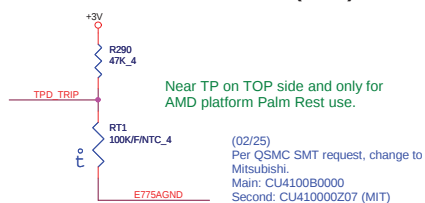


1/13 Confirm by vendor mail :
If the Southbridge enables 'Long Wait Abort' by default, the flash device should be 50MHz (or faster)

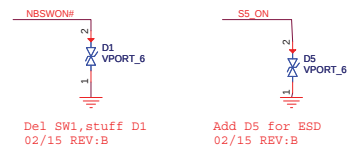
HWPG(KBC)



PALM REST THERMAL SENSOR (THM)

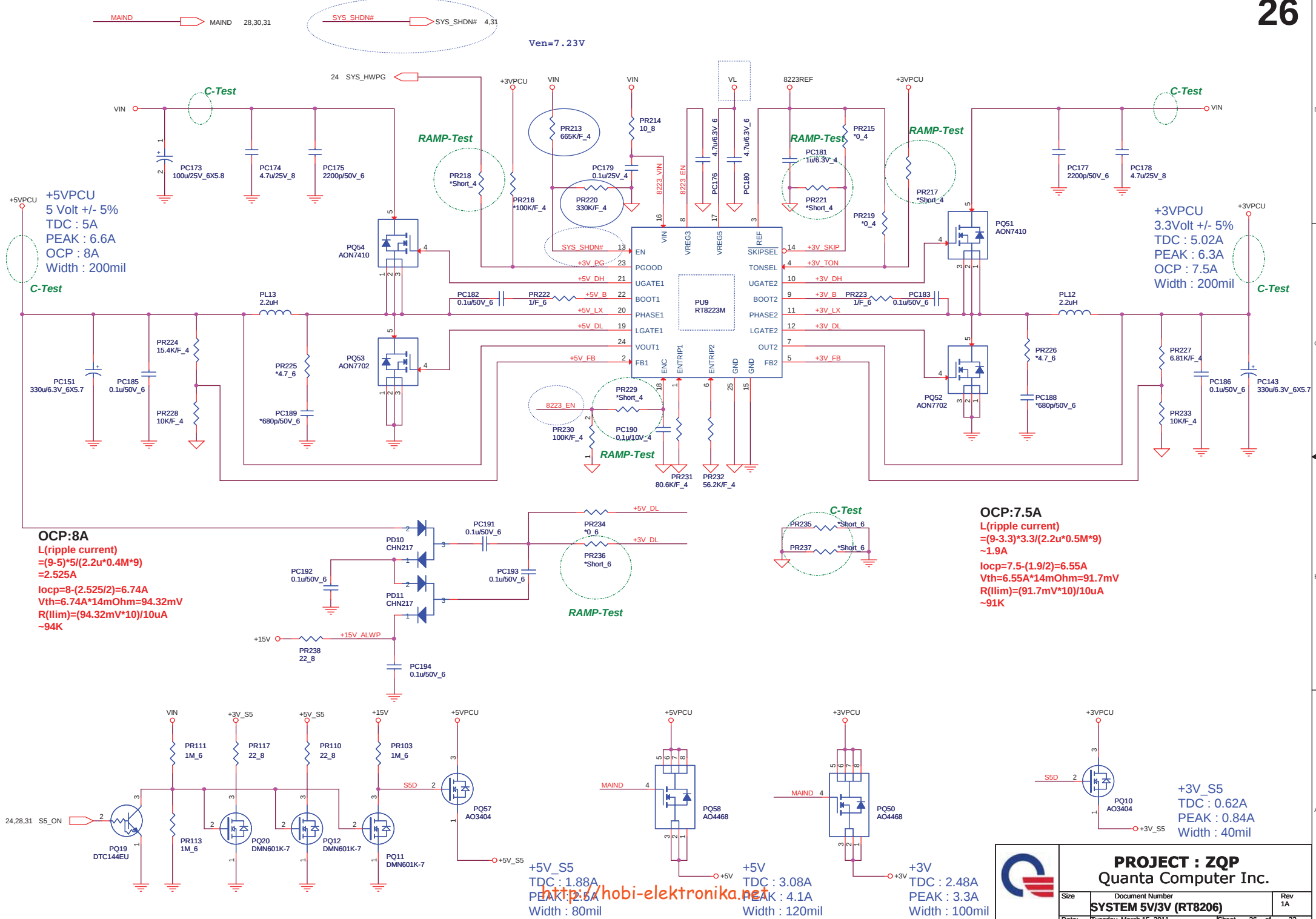


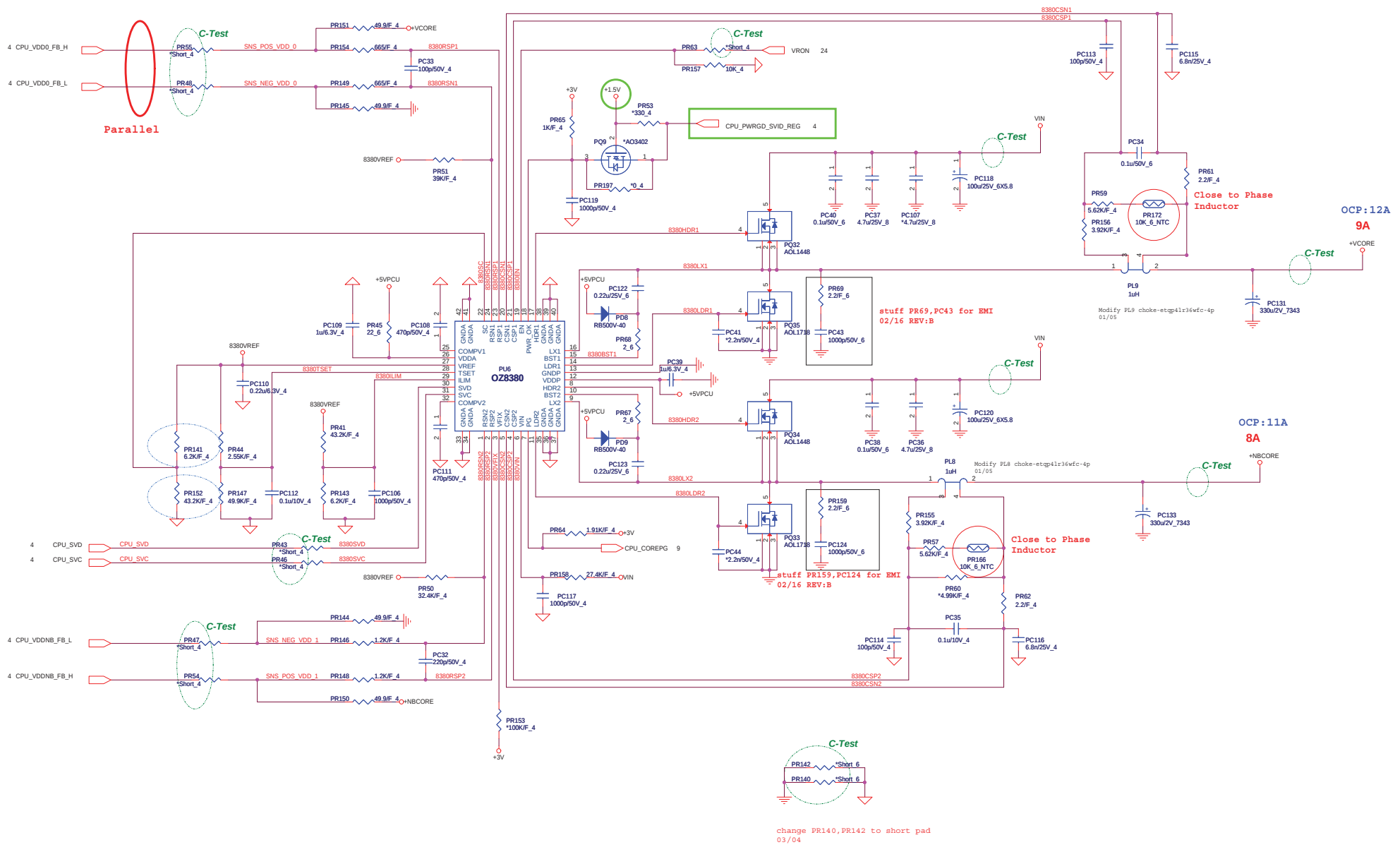
POWER-ON SWITCH (KBC)

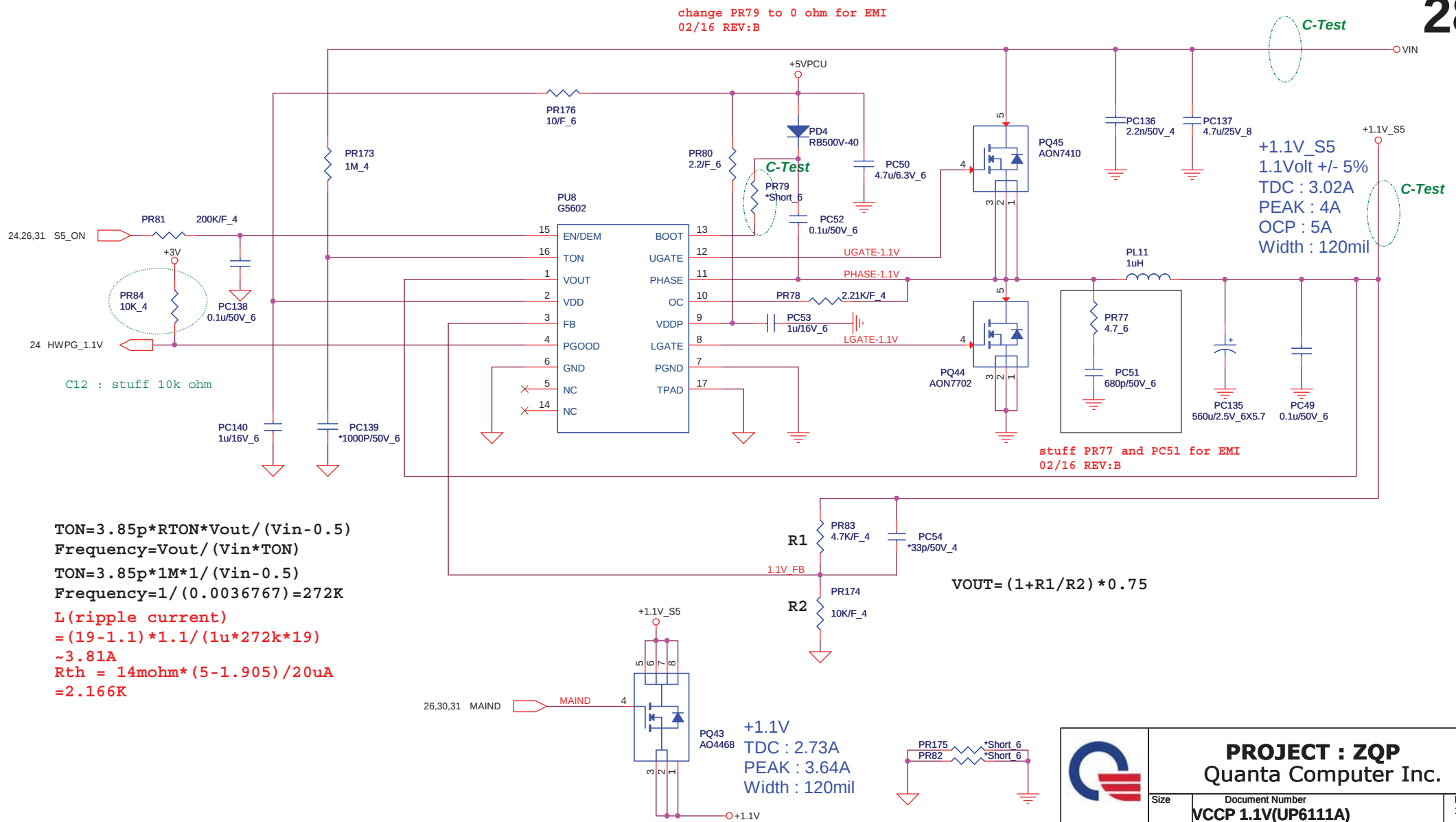


SM BUS ARRANGEMENT TABLE

SM Bus 1	Battery
SM Bus 2	APU Thermal
SM Bus 3	VGA

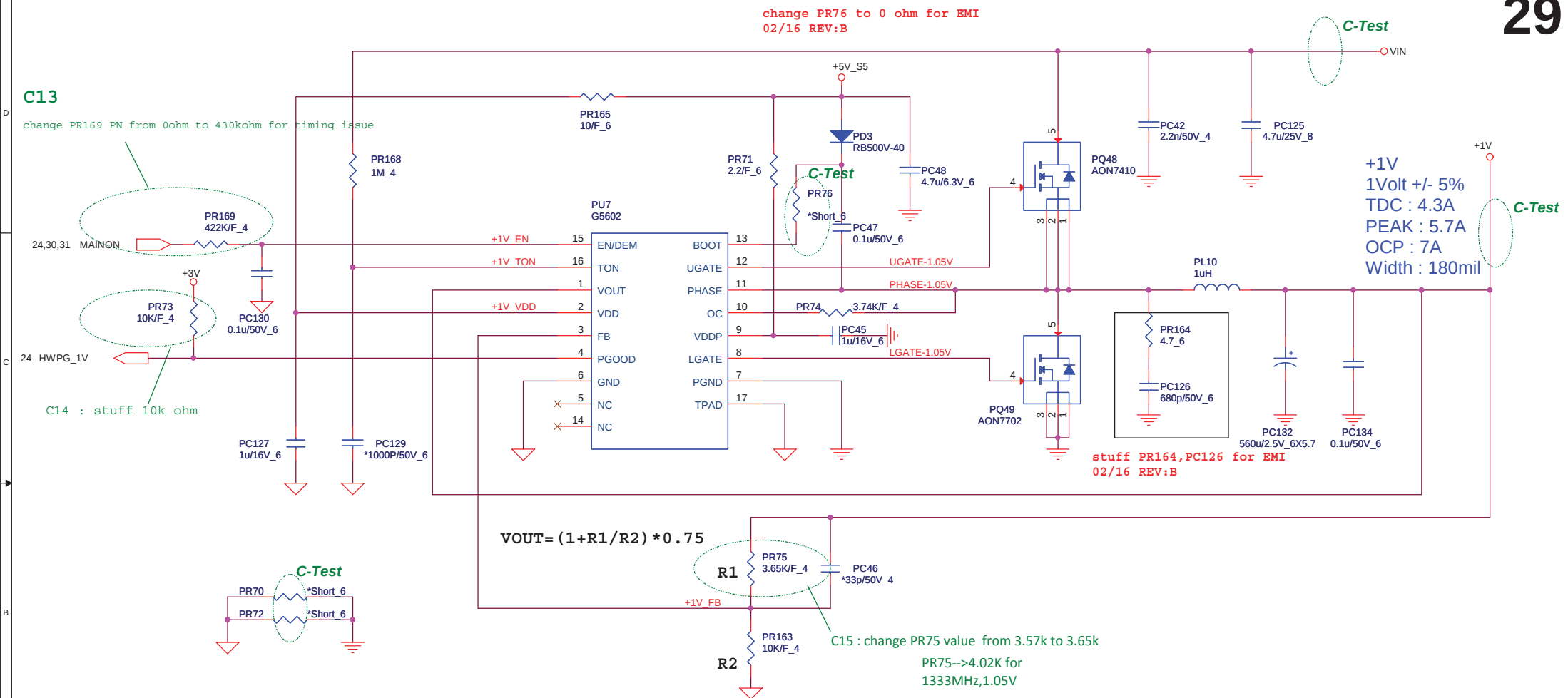






PROJECT : ZQP
Quanta Computer Inc.

Size	Document Number	Rev
	VCCP 1.1V(UP6111A)	1A
Date:	Tuesday, March 15, 2011	Sheet 28 of 32



$$\text{TON} = 3.85 \mu\text{s} \cdot R_{\text{TON}} \cdot V_{\text{out}} / (V_{\text{in}} - 0.5)$$

$$\text{Frequency} = V_{\text{out}} / (V_{\text{in}} \cdot \text{TON})$$

$$\text{TON} = 3.85 \mu\text{s} \cdot 1\text{M} \cdot 1 / (V_{\text{in}} - 0.5)$$

$$\text{Frequency} = 1 / (0.0036767) = 272\text{K}$$

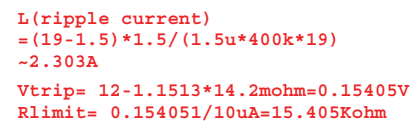
$$L(\text{ripple current}) = (19 - 1) \cdot 1 / (1 \mu\text{s} \cdot 272\text{k} \cdot 19)$$

$$\sim 3.483\text{A}$$

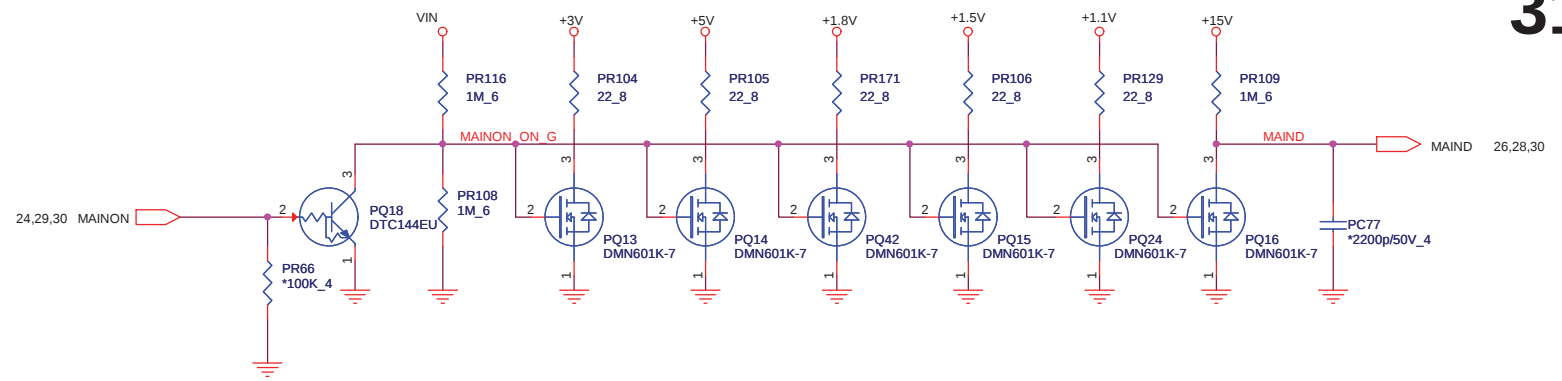
$$R_{\text{th}} = 14\text{mohm} \cdot (10 - 1.741) / 20 \mu\text{A}$$

$$= 3.68\text{Kohm}$$

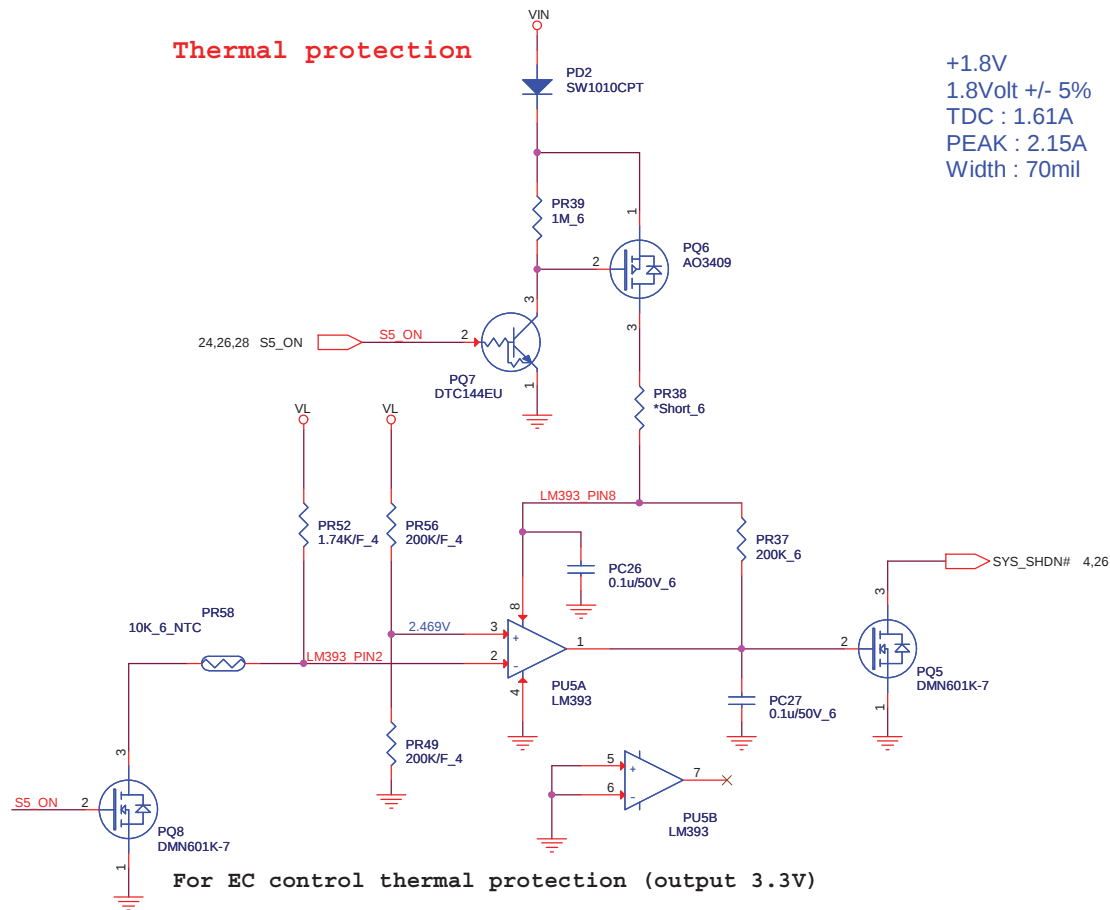
			PROJECT : ZQP Quanta Computer Inc.	
Size	Document Number		Rev	
	+1V(G5602)		1A	
Date:	Tuesday, March 15, 2011	Sheet	29	of 32



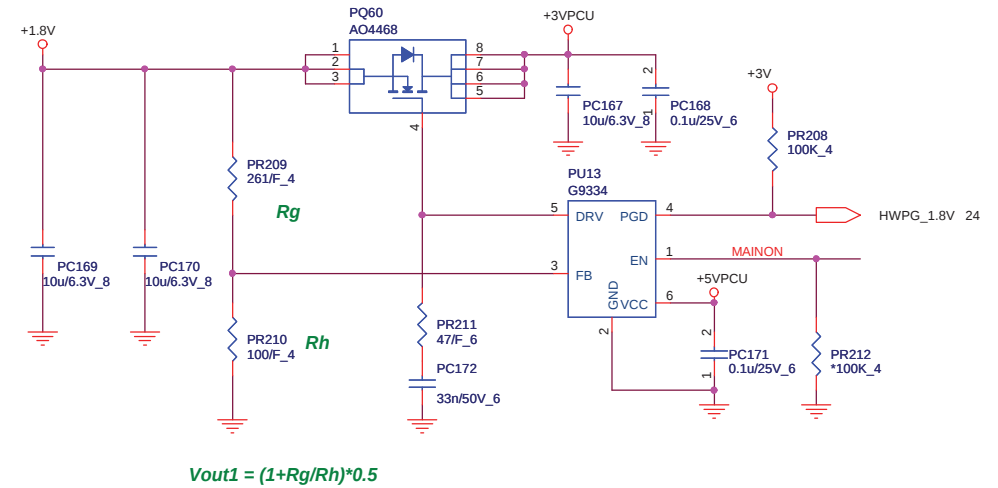
	PROJECT : ZQP Quanta Computer Inc.		
	Size	Document Number	Rev
		DDR 1.5V(TPS51116)	1A
Date:	Tuesday, March 15, 2011	Sheet	30 of 32



Thermal protection



+1.8V
1.8V ± 5%
TDC : 1.61A
PEAK : 2.15A
Width : 70mil



PROJECT : ZQP
Quanta Computer Inc.

Size	Document Number	Rev
	Discharge /Thermal protection	1A
Date:	Tuesday, March 15, 2011	Sheet 31 of 32

MODEL	REV	CHANGE LIST	Model ZQE/G M/B BOARD		
			Page	From	To
ZQP/Q M/B	A	First Release	1	1A	3A
			2	1A	3A
			3	1A	3A
01.P14: Add HDMI function 02.P22: Add EC53,EC54 for EMI 03.P20: Stuff C673/C675/C671/C672 for EMI 04.P15: Stuff ESD protector at R31/R32 for EMI 05.P10: GPIO 58 define to HDMI strap pin 06.P08: Add C606,C614,C619 for strong clock 07.P20:change C673,C675,C671,C672 for EMI 08.P19:change L48,L47,L35,L34 to CX08T601000 for EMI 09.P24:No stuff SW1,stuff D1 10.P24:Add D5 on S5_ON for ESD 11.P22:LED2 change single lens(blue) 12.P08:Del C623 13.P24:Del SW1 14.P13:Del R26,R27 and add RP5 for EMI 15.P15:Add EC38,EC40,EC43,EC46 for EMI 16.P28:change PR79 to 0 ohm and stuff PR77 and PC51 for EMI 17.P29:change PR76 to 0 ohm and stuff PR164,PC126 for EMI 18.P27:stuff PR69,PC43 for EMI 19.P17:change C617,C612,C539,C540 footprint form 1206 to 0805 20.P13:Swap USB nets between L50 and PR5 21.P13:Add R33,R34 for ESD 22.P15:change C354 to CH122GK1I10 for EMI 23.P22:change EC30,EC32,EC34,EC36,EC37,EC39,EC42,EC45,EC48,EC53 and stuff it for EMI 24.P26:Remove JP20,JP21,JP22,JP23 and change to short pad PR235,PR237 25.P27:Remove JP10,JP9,JP6,JP8 and change to short pad PR55,PR48,PR43,PR46,PR47,PR54,PR63,PR142,PR140 26.P28:Remove JP24,JP25 27.P29:Remove JP16,JP17 and change to short pad PR70,PR72 28.P30:Remove JP18,JP19 and change to short pad PR196,PR107 29.P22:No stuff HOLE9	B		4	1A	3A
			5	1A	3A
			6	1A	3A
			7	1A	3A
			8	1A	3A
			9	1A	3A
			10	1A	3A
			11	1A	3A
			12	1A	3A
			13	1A	3A
			14	1A	3A
			15	1A	3A
			16	1A	3A
			17	1A	3A
			18	1A	3A
			19	1A	3A
			20	1A	3A
			21	1A	3A
			22	1A	3A
			23	1A	3A
			24	1A	3A
			25	1A	3A
			26	1A	3A
			27	1A	3A
			28	1A	3A
			29	1A	3A
			30	1A	3A
			31	1A	3A
			32	1A	3A
	33	1A	3A		
01.P15:change RJ45 connector without LED 02.P27:change PR140,PR142 to short pad 03.P30:change PR119,PR123,PR102 to short pad 04.P26:change PR217,PR218,PR221,PR229,PR236 to short pad 05.P29:change PR76 to short pad 06.P28:change PR79 to short pad	C		34	1A	3A
			35	1A	3A
			36	1A	3A
			37	1A	3A
			38	1A	3A
			39	1A	3A
			40	1A	3A
			41	1A	3A
			 PROJECT : ZQP Quanta Computer Inc. Size Document Number CHANGE LIST - 3A Rev 1A Date: Tuesday, March 15, 2011 Sheet 32 of 32		
Quanta Computer Inc. ZQP/Q		PROJECT: ZQP/Q	PCBA NO. http://hobi-elektronika.net	REV: 3A	DOC. NO :
APPROVED BY : Andy Lin		CHECK BY : JC Huang	DRAWING BY : Andy Chen	DATE :10/18/2010	SHEET 1