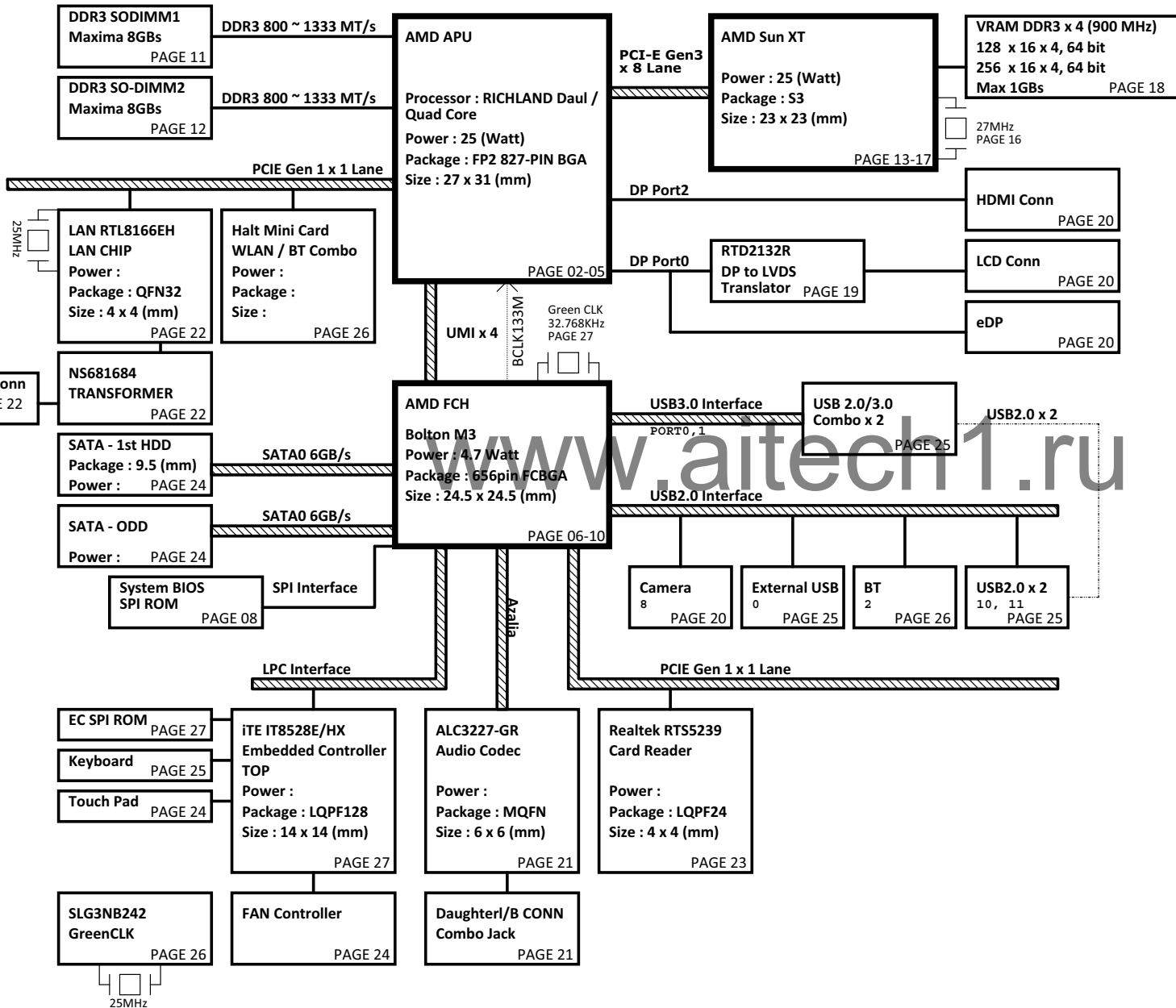


# Perrier\_AMD RICHLAND DIS/UMA (14"/15.6")



## 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

BQ24728  
System Charge Power (+BATCHG)

G5934RZ1U  
System Discharge Power  
(+1.5V/+3V/+5V)  
(+3VSUS/+3VLAVCC/+1.1V)

Ricktek RT8223PZ  
System Power (+3VPCU/+5VPCU/  
+3VS5/+5VS5)

SL6277/RT8228AZ/AP3407A/ISL6208BCRZ  
Processor Power (+VCC\_CORE/  
+1.2V/+2.5V/+VDDNB\_CORE)

TP551216RUKR  
System Memory Power (+1.5VSUS/  
+0.75V\_DDR\_VTT)

AOZ1237QI-02  
PCH Power (+1.1VS5)

ADP3211A  
DGPU Power (+VGA\_CORE/+1.0V\_VGA/+3V\_VGA/  
+1.5V\_VGA/+1.8V\_VGA/+VDDCI)



**PROJECT : U92**  
Quanta Computer Inc.

Size A3	Document Number	Rev 1A
Block Diagram		
Date: Wednesday, March 27, 2013	Sheet	1 of 37

[illegible]

VID Override Circuit

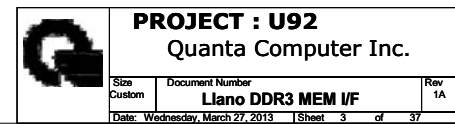
4 SVC SVC

4 SVD SVD

4.7 APU\_PWRGD APU\_PWRGD

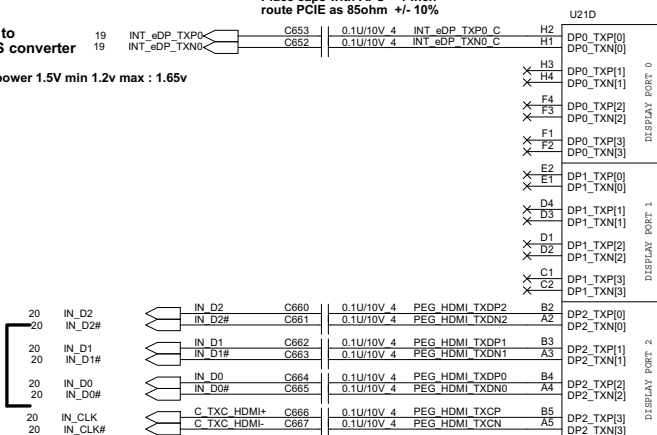
**APU\_PWRGD have pull up 300ohm to +1.5V on page 4**





DP0 output to  
eDP to LVDS converter

Display port power 1.5V min 1.2v max : 1.65v



**4/19 HDMI change to DP2 for Comal.**

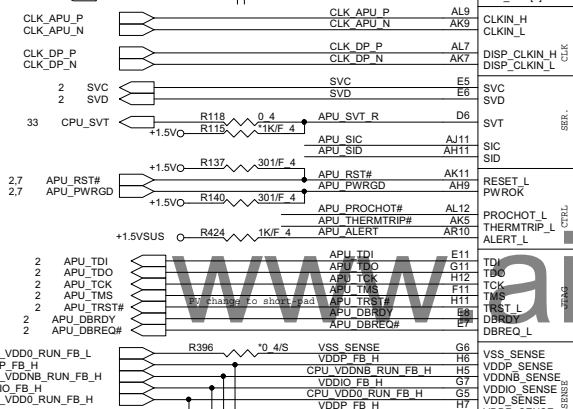
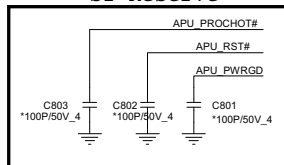
DP2 output to  
HDMI connector

note --HDMI P&N can not swap

Note: CLK APU HCLKP/N is 100MHZ SSC

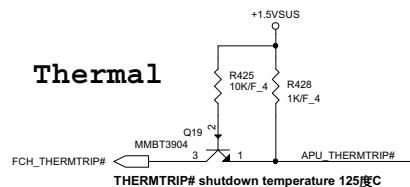
Note: CLK DP NSSCP/N is 100MHZ non-SSC

## SI Reserve



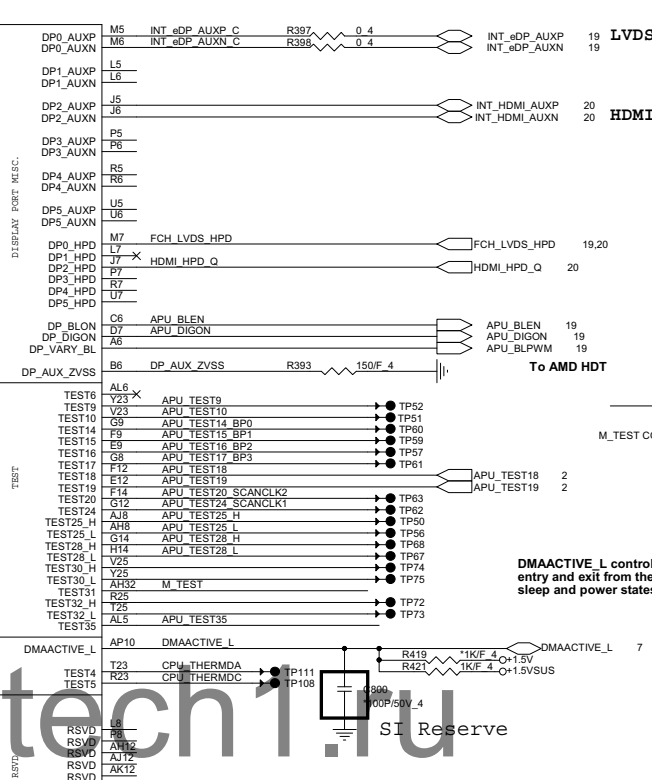
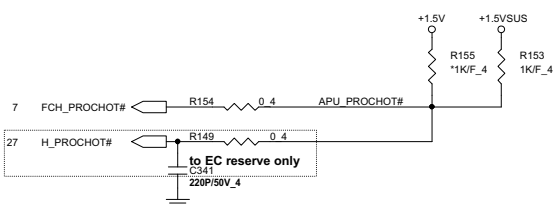
\*TRINITY-A8-SERIES\_BGA813

## Thermal

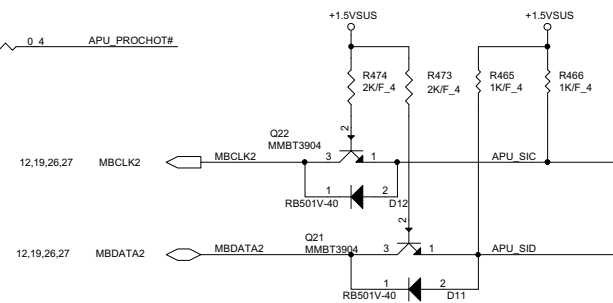
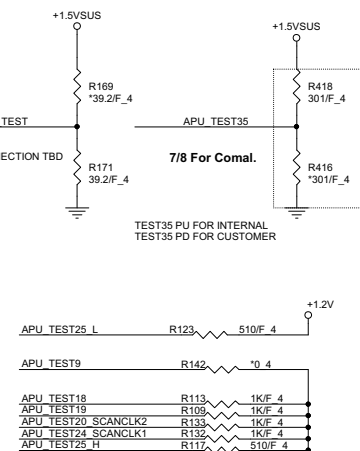


TP95 ● ←  
TP47 ● ←  
TP96 ● ←  
TP45 ● ←

**4/19 For Comal,  
close to APU.**



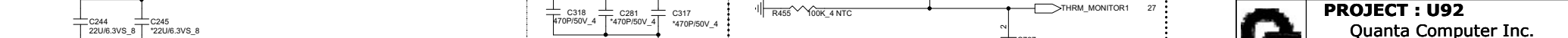
**DMAACTIVE\_L** controls entry and exit from the sleep and power states



Quanta Computer Inc.

Size	Document Number <b>Llano Display/Misc</b>	Rev 1A
Date:	Wednesday, March 27, 2013	Sheet 4 of 37

C244 22U/6.3VS\_8 C245 \*22U/6.3V

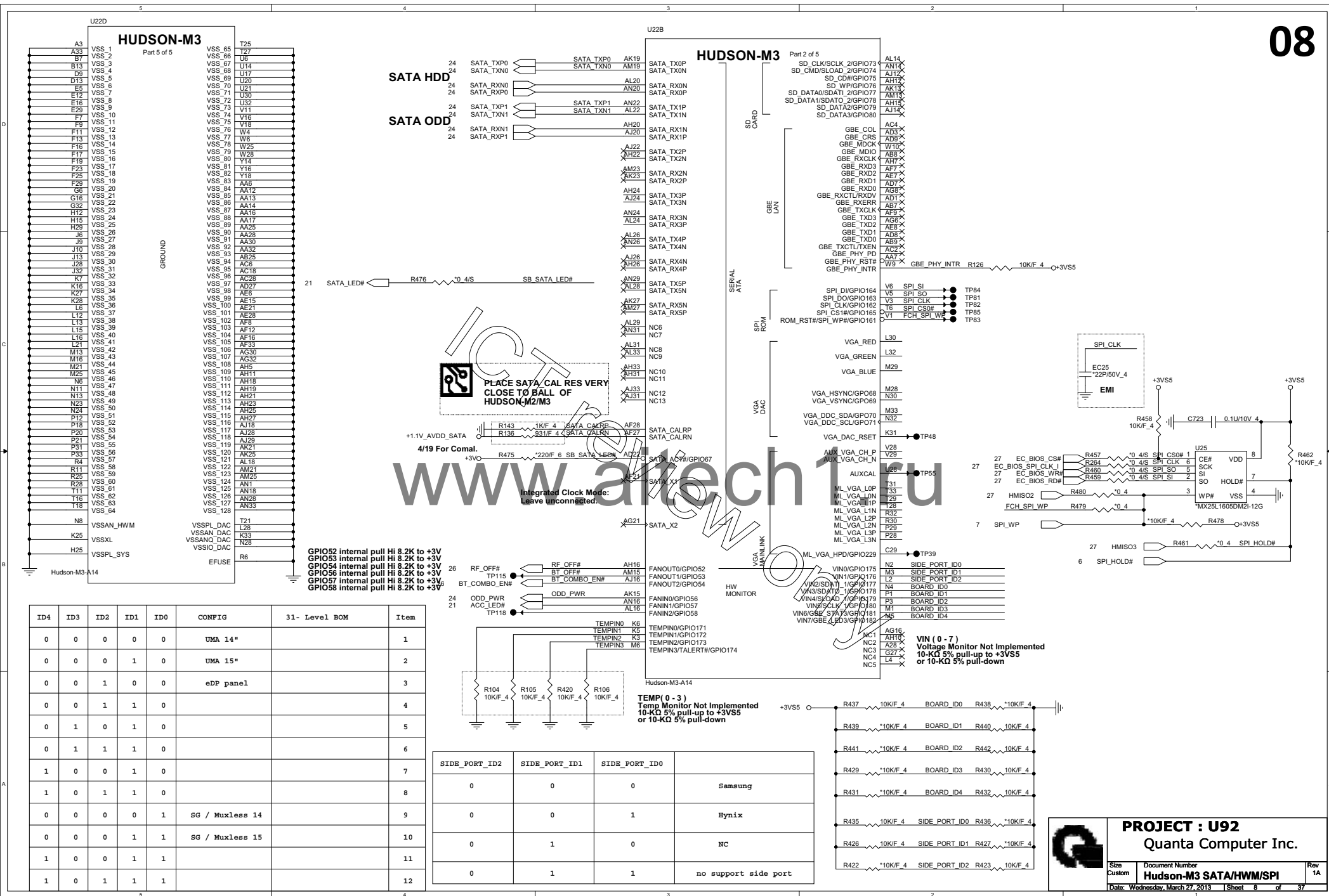


**PROJECT : U92**  
Quanta Com

Size Custom	Document Number <b>Llano POWER/GND</b>
Date: Wednesday, March 27, 2013	Sheet 5 of 3



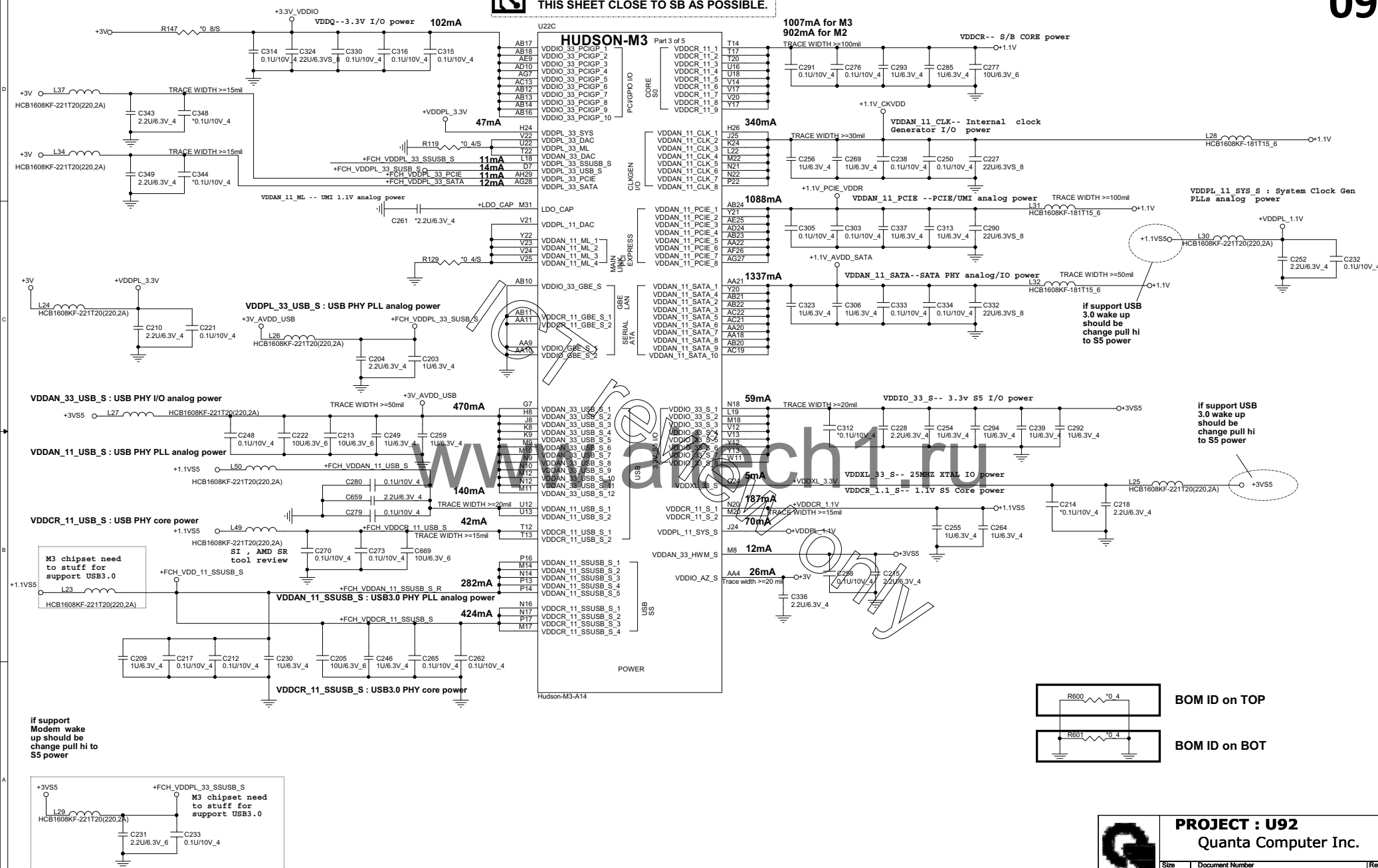








**PLACE ALL THE DECOUPLING CAPS ON THIS SHEET CLOSE TO SB AS POSSIBLE.**



**PROJECT : U92**  
Quanta Computer Inc.

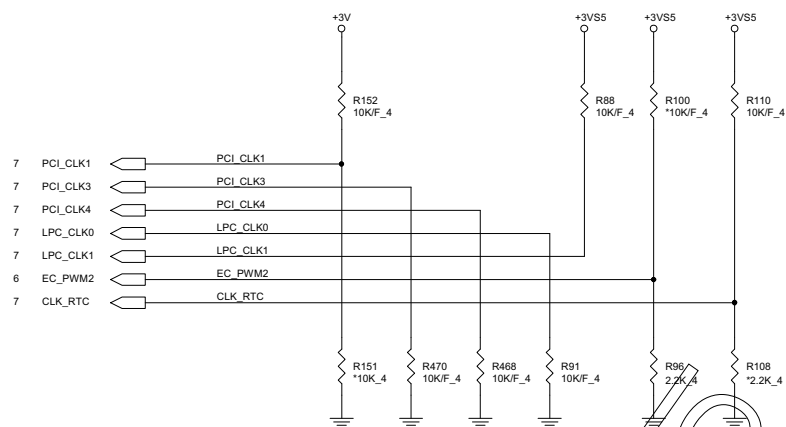


Size Custom	Document Number <b>Hudson-M3 POWER/GND</b>
Date: Wednesday, March 27, 2013	Sheet 9 of 37

## STRAPS PINS



OVERLAP COMMON PADS WHERE  
POSSIBLE FOR DUAL-OP RESISTORS.

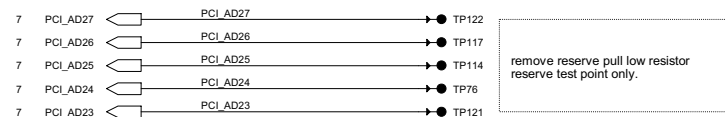


## REQUIRED STRAPS

		PCI_CLK1	PCI_CLK3	PCI_CLK4	LPC_CLK0	LPC_CLK1	EC_PWM2	CLK_RTC
PULL HIGH	*****	ALLOW PCIe Gen2  DEFAULT	*****	USE DEBUG STRAP	non_Fusion CLOCK MODE	AMD internal EC ENABLED	LPC ROM	S5 PLUS MODE ENABLED  DEFAULT
PULL LOW	*****	FORCE PCIe Gen1	*****	IGNORE DEBUG STRAP DEFAULT	FUSION CLOCK MODE DEFAULT	EC DISABLED	SPI ROM DEFAULT	S5 PLUS MODE DISABLED

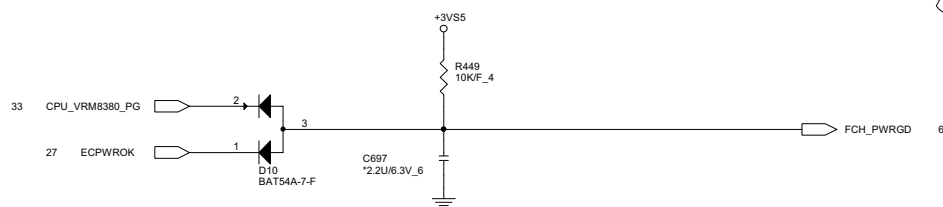
## DEBUG STRAPS

FCH has 15K Internal Pull Up for PCI\_AD[27:23]



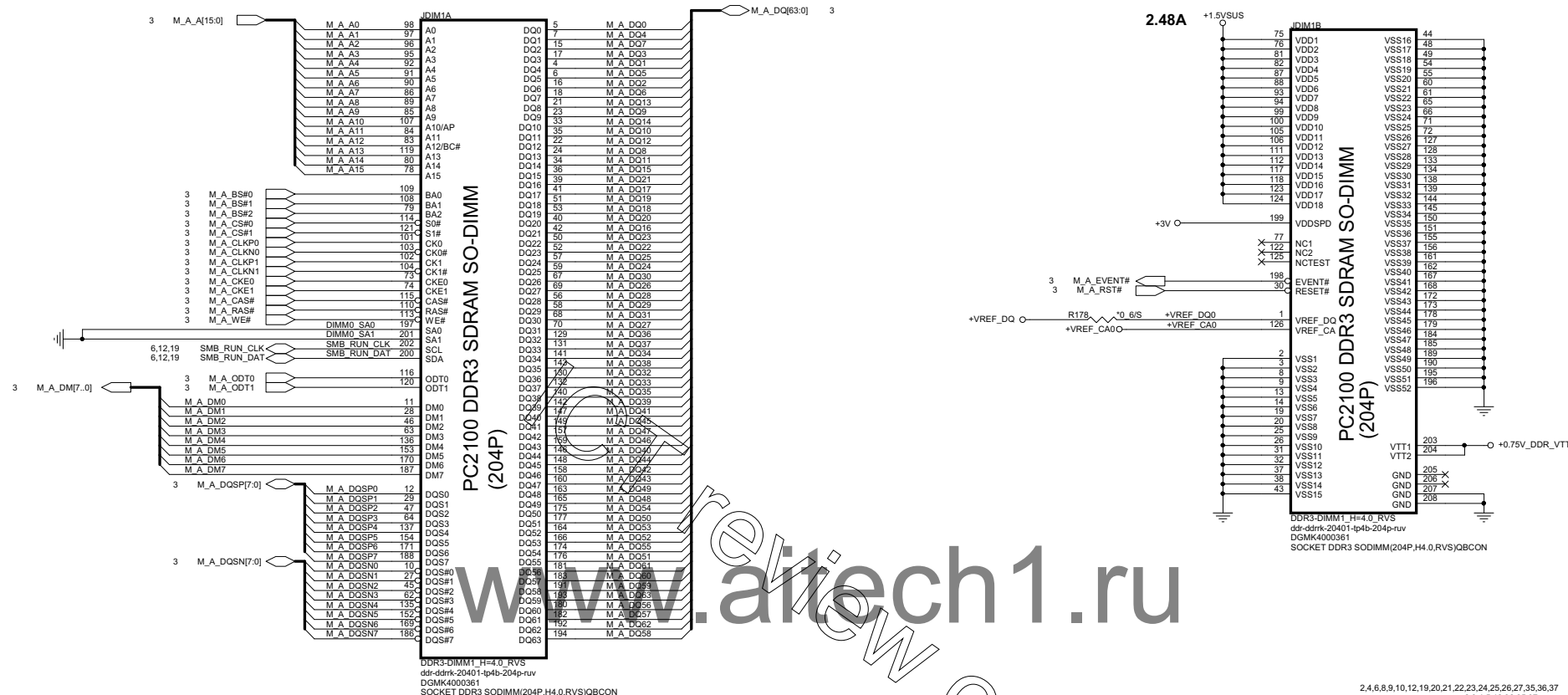
	PCI_AD27	PCI_AD26	PCI_AD25	PCI_AD24	PCI_AD23
PULL HIGH	USE PCI PLL  DEFAULT	DISABLE ILA AUTORUN  DEFAULT	USE FC PLL  DEFAULT	USE DEFAULT PCIe STRAPS  DEFAULT	DISABLE PCI MEM BOOT  DEFAULT
PULL LOW	BYPASS PCI PLL	ENABLE ILA AUTORUN	BYPASS FC PLL	USE EEPROM PCIe STRAPS	ENABLE PCI MEM BOOT

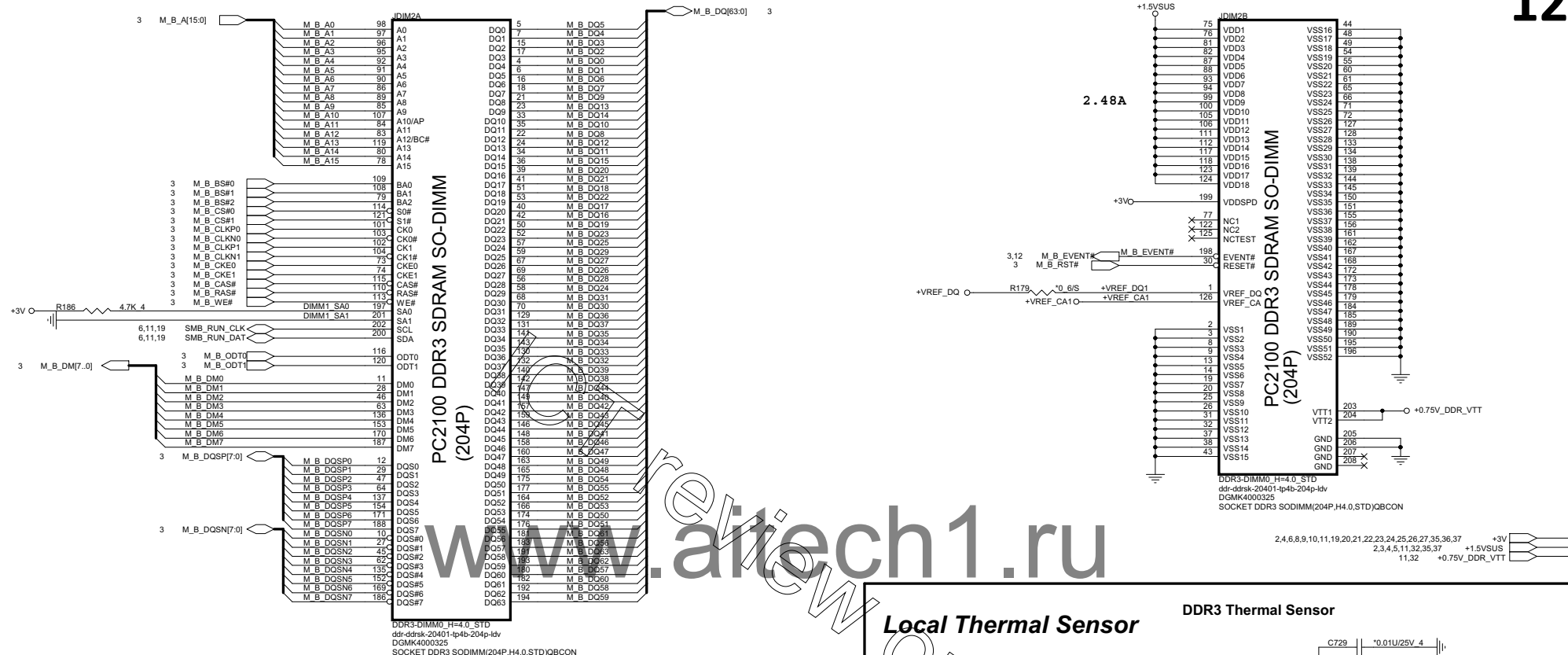
## FCH PWRGD



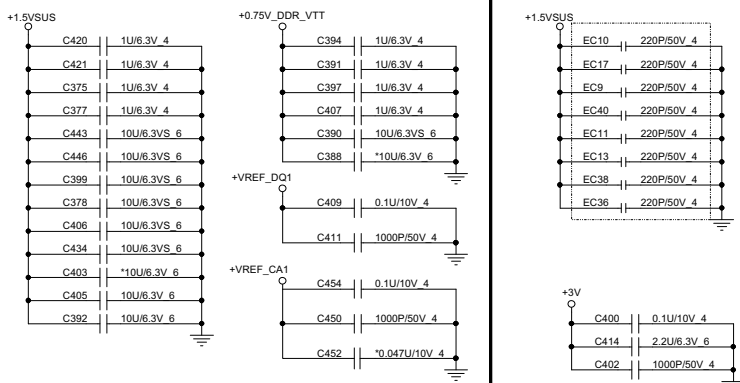
**PROJECT : U92**  
Quanta Computer Inc.

Size Custom Document Number Hudson-M3 STRAP/PWRGD Rev 1A  
Date: Wednesday, March 27, 2013 Sheet 10 of 37



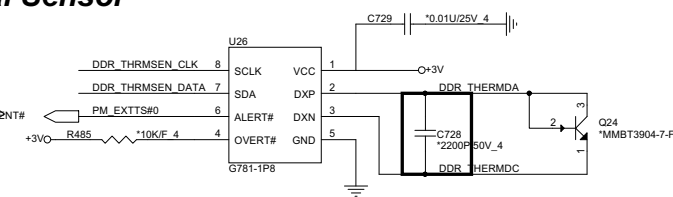


## Place these Caps near So-Dimm1.



## Local Thermal Sensor

## DDR3 Thermal Sensor

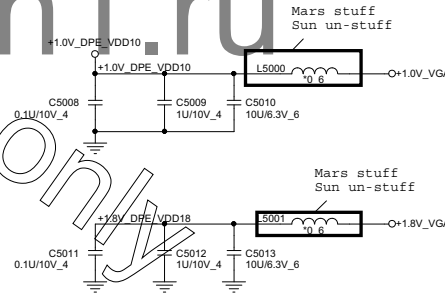
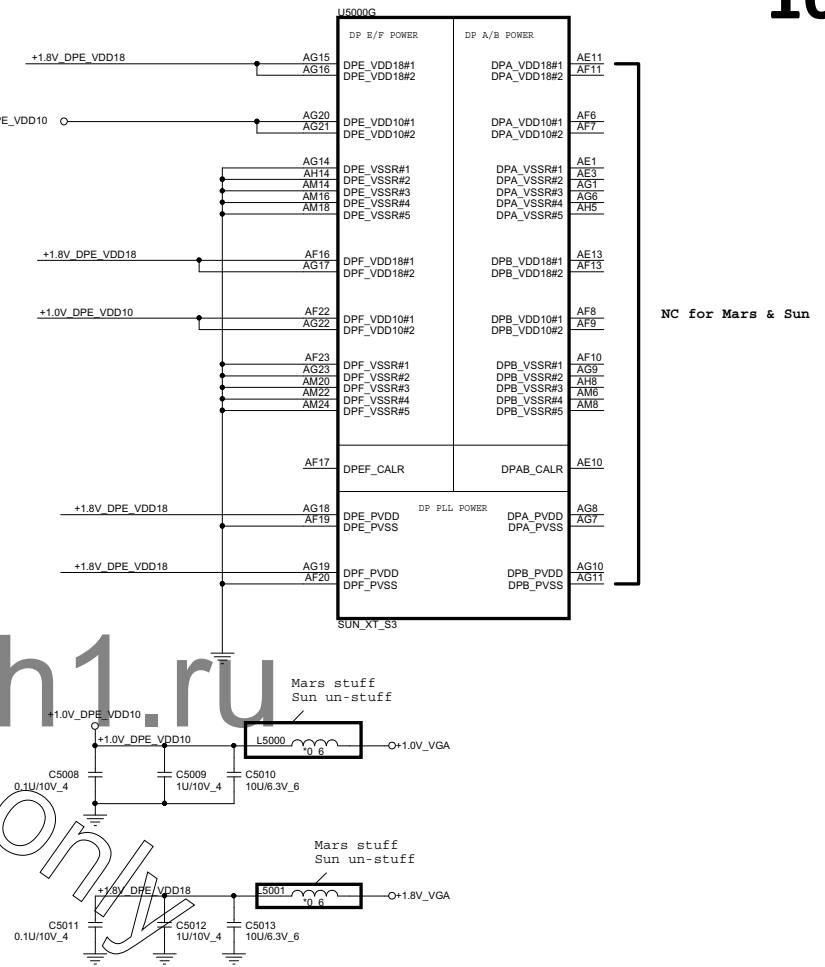


Main:AL000781039 G781-1P8(9Ah)  
2nd:AL001412005 EMC1412-2-ACZL-TR(9Ah)  
Main:AL001412003 EMC1412-1-ACZL-TR(98h)  
2nd:AL000431014 TMP431ADGKR(98h)



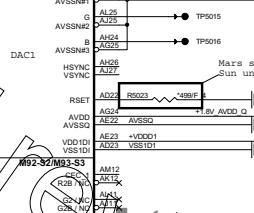
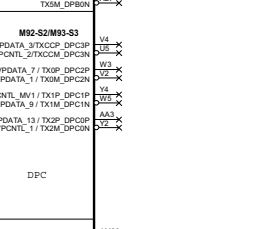
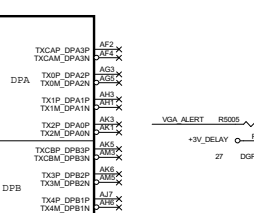
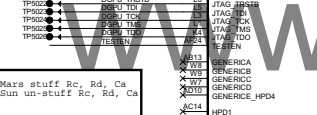
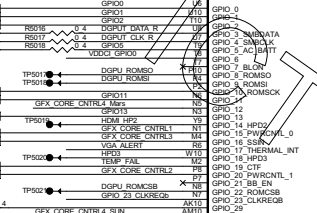
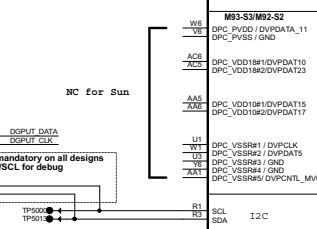
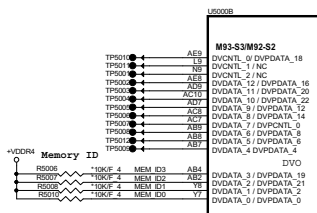
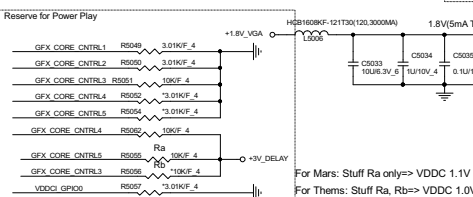
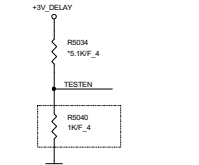
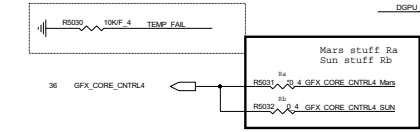
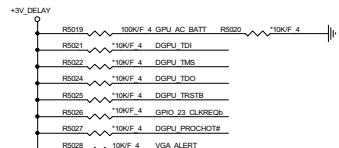
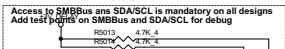
**PROJECT : U92**  
**Quanta Computer Inc.**

Size Custom	Document Number	Rev 1A
System Memory 2/2 (9.2H)		
Date: Wednesday, March 27, 2013	Sheet 12 of 37	

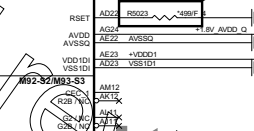
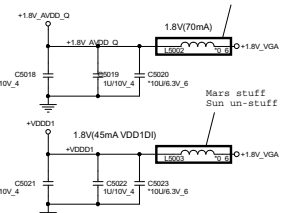
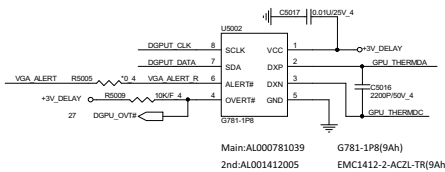


GPIO10	GPIO30	GPIO16	GPIO20	GPIO15	Sun S3
PWRCNTL5	PWRCNTL4	PWRCNTL3	PWRCNTL2	PWRCNTL1	V-CORE
0	1	1	0	1	1.175V
0	1	1	1	0	1.150V
0	1	1	1	1	1.125V
1	0	0	0	0	1.100V
1	0	0	0	1	1.075V
1	0	0	1	0	1.050V
1	0	0	1	1	1.025V
1	0	1	0	0	1.000V
1	0	1	0	1	0.975V
1	0	1	1	0	0.950V
1	0	1	1	1	0.925V
1	1	0	0	0	0.900V
1	1	0	0	1	0.875V
1	1	0	1	0	0.850V
1	1	0	1	1	0.825V
1	1	1	0	0	0.800V
1	1	1	0	1	0.775V

Default



### Thermal Solution(Close to GPU)

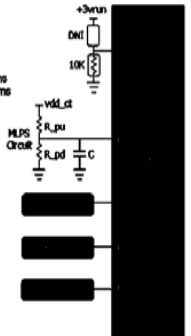


### MLPS Implementation

- Connect GPIO\_28 to 10K pull-down to enable MUPS
- If any of PS\_0/1/2/3 is not used, leave "no connect"
- R\_pull, R\_pd and C must be properly populated per tables below
- Place MUPS circuit components as close to the ASIC as possible
- Total DC resistance of trace between PS pin and C should be less than 2 ohms
- Total DC resistance of trace between C and ground should be less than 2 ohms
- Trace capacitance should be less than 100pF. Resistors should be of +/-1% tolerance

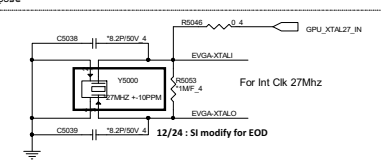
C (nF)	Bits (5,4)
680	00
82	01
10	10
NC	11

R <sub>pu</sub> (Ohm)	R <sub>pd</sub> (Ohm)	Bits(3,2,1)
NC	4750	000
0450	2000	001
4530	2000	010
6900	4990	011
4530	4990	100
3240	5620	101
3400	10000	110
4750	NC	111



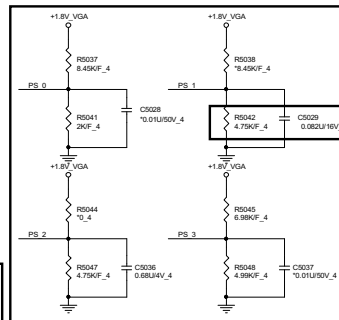
PS_0[3:1]	romidkg[2:0]	Memory aperture size or ROM type select: If bios_rom_en = 0, romidkg[2:0] define memory aperture size If bios_rom_en = 1, romidkg[2:0] define ROM type	xxx	gpio_13 gpio_12 gpio_11
PS_0[4]	n/a	Reserved	1	gpio_vynv
PS_1[1]	bf_gen3_en_a	PCIe Gen3 capability: 1=Gen3 supported, 0=Gen3 not supported	x	gpio_2
PS_1[2]	bf_clk_pm_en	PCIe CLK PM capability: 1 = CLKREQ# supported	x	gpio_8
PS_1[3]	n/a	Reserved		gpio_clk
PS_1[4]	tx_pwm_enb	PCIe Tx power savings: 0=50% swing, 1=full swing	x	gpio_0
PS_1[5]	tx_deemph_en	PCIe Tx de-emphasis: 1=Tx de-emphasis enabled	x	gpio_1
PS_2[1]	n/a	Reserved		n/a
PS_2[2]	n/a	Reserved		n/a
PS_2[3]	bios_rom_en	Enable external BIOS ROM: 1=External ROM connected	x	gpio_22
PS_2[4]	vga_dis	VGA disable: 1=Disable the GPU as the system's VGA controller	0	gpio_9
PS_2[5]	n/a	Reserved		n/a
PS_3[1]	MEM Vendor ID	MEM Vendor ID	0	n/a
PS_3[2]	MEM Vendor ID	MEM Vendor ID	0	n/a
PS_3[3]	MEM Vendor ID	MEM Vendor ID	0	n/a
PS_3[5]	aud_port_gp[2] aud_port_gp[1] aud_port_gp[0]	3-bit field indicating number of audio-capable display outputs	xxx	n/a

PS 3[3:1]	Vendor	TYPE	Vendor P/N	R5045	R5048
000	Bytchip - B2humal	125Mx16 44, 900MHz	H5T4J3250M1EHA-933G:E	8.45X	4.75K
001	Samsung - V83C7C	125Mx16 44, 900MHz	KA94132H1K47-033G-K	8.45X	2K
010	Samsung - E die	125Mx16 44, 900MHz	K4W201645C-B1C4	4.83K	2K
011	Bynix - Huma die	256Mx16 44, 900MHz	H5T4G63FAFE-11C	8.98K	4.99K
020	Samsung - B die	256Mx16 44, 900MHz	K4W46164G-B1C4	4.53K	4.99K
100	Micron - E	256Mx16 44, 900MHz	MT41J3250M1EHA-933G:E	3.24K	5.62K



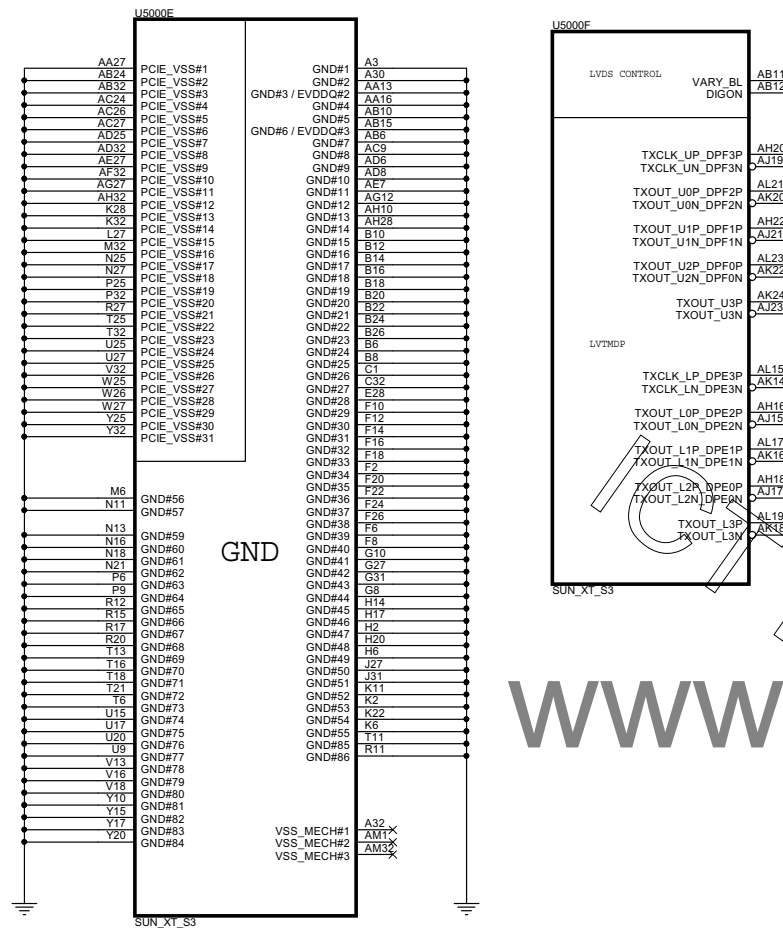
BIT5 => BIT0

PS0	=>	11001
PS1	=>	01000
PS2	=>	00000
PS3	=>	11000



**PROJECT : U92**  
Quanta Computer Inc.

Size Custom	Document Number <b>Sun S3 Main</b>
----------------	---------------------------------------



### CONFIGURATION STRAPS-- SEE EACH DATABOOK FOR STRAP DETAILS ALLOW FOR PULLUP PADS FOR THESE STRAPS AND IF THESE GPIOS ARE USED, THEY MUST NOT CONFLICT DURING RESET

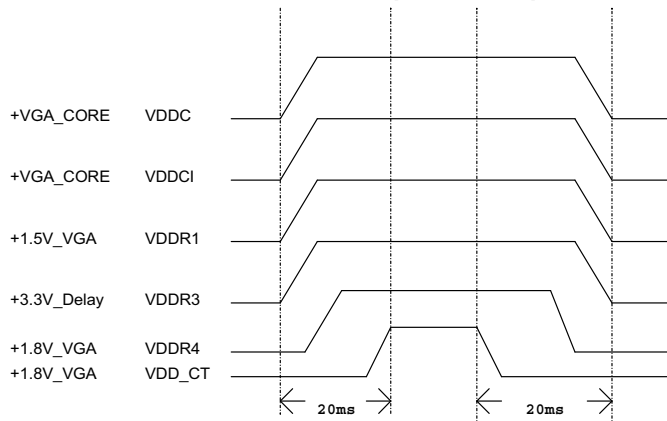
STRAPS	PIN	DESCRIPTION OF DEFAULT SETTINGS	RECOMMENDED SETTINGS 0= DO NOT INSTALL RESISTOR 1= INSTALL 3K RESISTOR X = DESIGN DEPENDANT NA = NOT APPLICABLE
TX_PWRS_ENB	GPI00	PCIE FULL TX OUTPUT SWING	0
TX_DEEMPH_EN	GPI01	PCIE TRANSMITTER DE-EMPHASIS ENABLED	X
RSVD	GPI02	RESERVED	0
RSVD	GPI08	RESERVED	0
BIF_VGA_DIS	GPI09	VGA ENABLED	0
RSVD	GPI021	RESERVED	0
BIOS_ROM_EN	GPI0_22_ROMCSB	ENABLE EXTERNAL BIOS ROM	0
ROMIDCFG(2:0)	GPI0{13:11}	SERIAL ROM TYPE OR MEMORY APERTURE SIZE SELECT	0 0 1
VIP_DEVICE_STRAP_ENA	V2SYNC	IGNORE VIP DEVICE STRAPS (Removed on SeymourWhistler)	0
RSVD	H2SYNC	RESERVED	0
AUD[1]	HSYNC	SEE DATABOOK FOR DETAIL	0
AUD[0]	VSXNC	SEE DATABOOK FOR DETAIL	0
RSVD	GENERICC	RESERVED	0

### NOTE1: AMD RESERVED CONFIGURATION STRAPS

ALLOW FOR PULLUP PADS FOR THESE STRAPS BUT DO NOT INSTALL RESISTOR. IF THESE GPIOS ARE USED, THEY MUST KEEP "LOW" AND NOT CONFLICT DURING RESET.

GPI021 H2SYNC GENERICC GPI08 GPI02

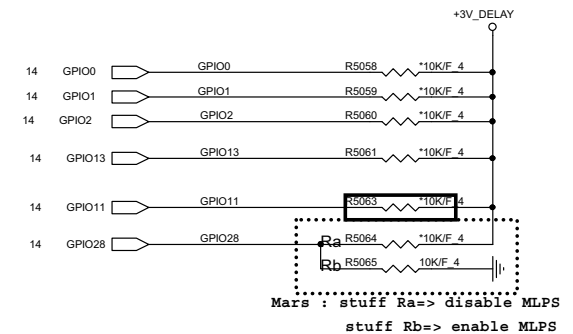
### Power Up/Down Sequence



### Memory Aperture size(Seymour)

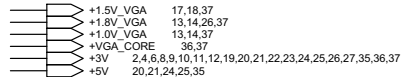
GPI09 BIOSROM		GPI013 ROMIDCFG2	GPI012 ROMIDCFG1	GPI011 ROMIDCFG0
0	128M	0	0	0
0	256M	0	0	1
0	64M	0	1	0
0	32M	0	1	1
0	512M	1	0	0
0	1G	1	0	1
0	2G	1	1	0
0	4G	1	1	1

It is a shared pin strap with CONFIG[2:0] if BIOS\_ROM\_EN is set to 0.



**PROJECT : U92**  
**Quanta Computer Inc.**

Size	Document Number	Rev
Custom	Sun S3 GND / LVDS/ Straps	1A
Date: Wednesday, March 27, 2013	Sheet 15 of 37	

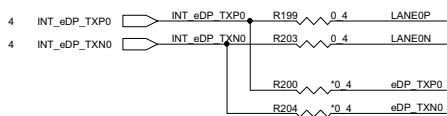


Size Custom	Document Number <b>Sun S3 Power_and_NC</b>	Rev 1A
Date: Wednesday, March 27, 2013		Sheet 16 of 37



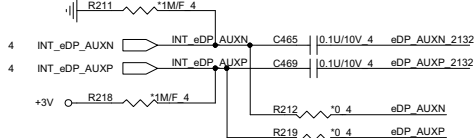






To LVDS Converter

To eDP

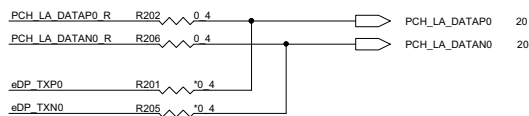


### To LVDS Converter

**To eDP**

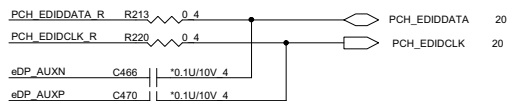
### From LVDS Converter

From APU

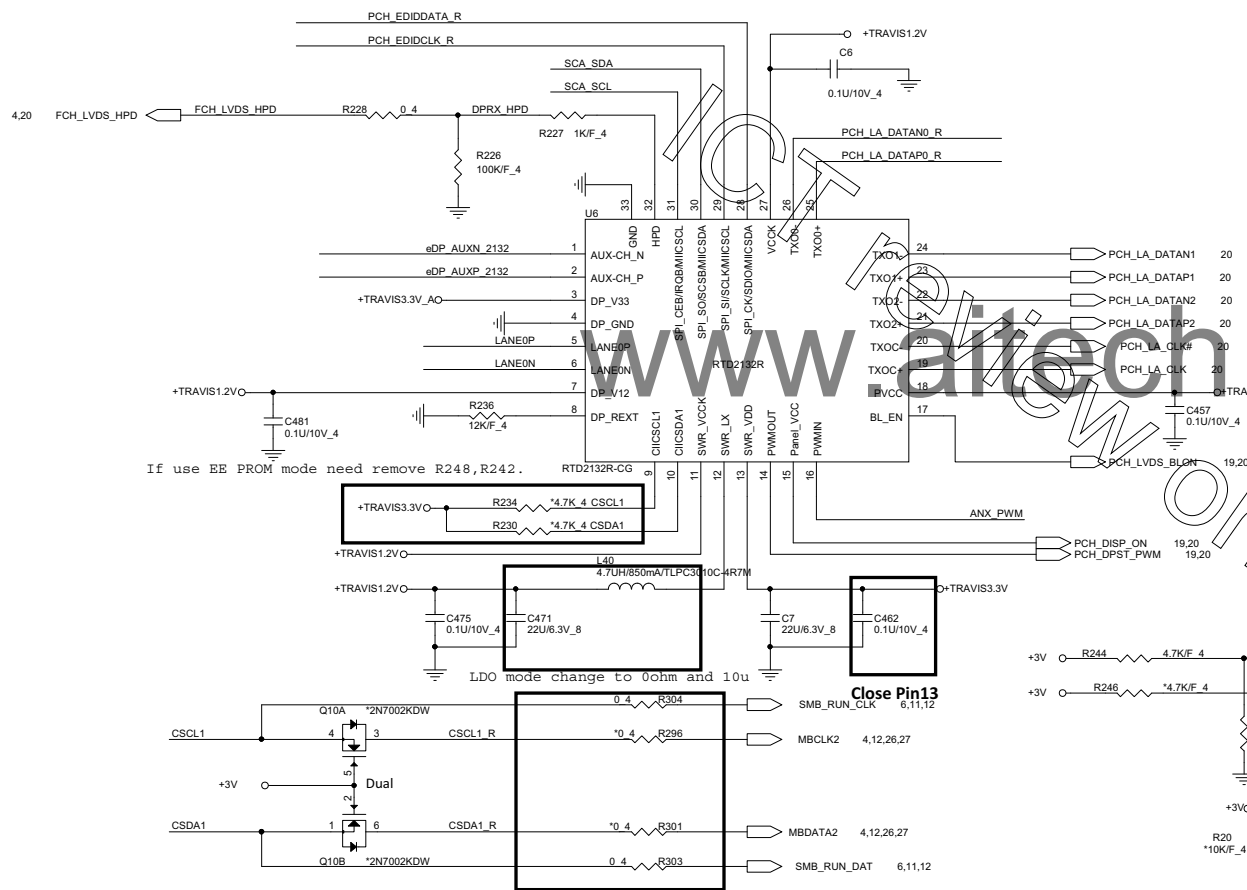
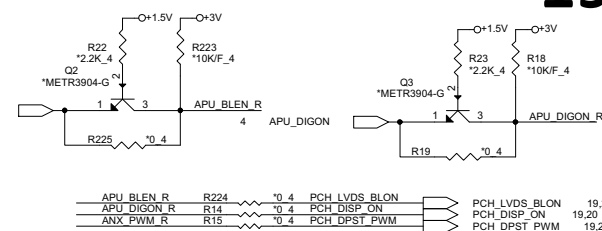


### From LVDS Converter

**From APU**



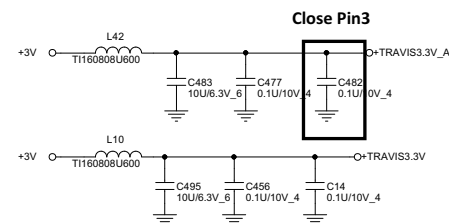
From APU



If use EE PROM mode need remove R248,R242.

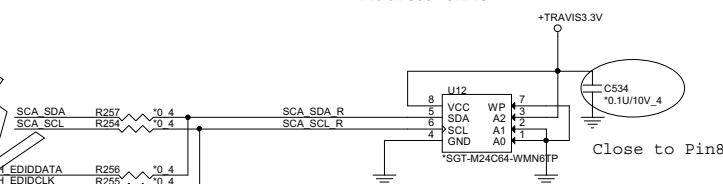
EE PROM	R304,R308
EC OPTION	R307,R305

EC OPTION R307,R305



**Close Pin3**

**Address=0xA8**



Close to Pin8

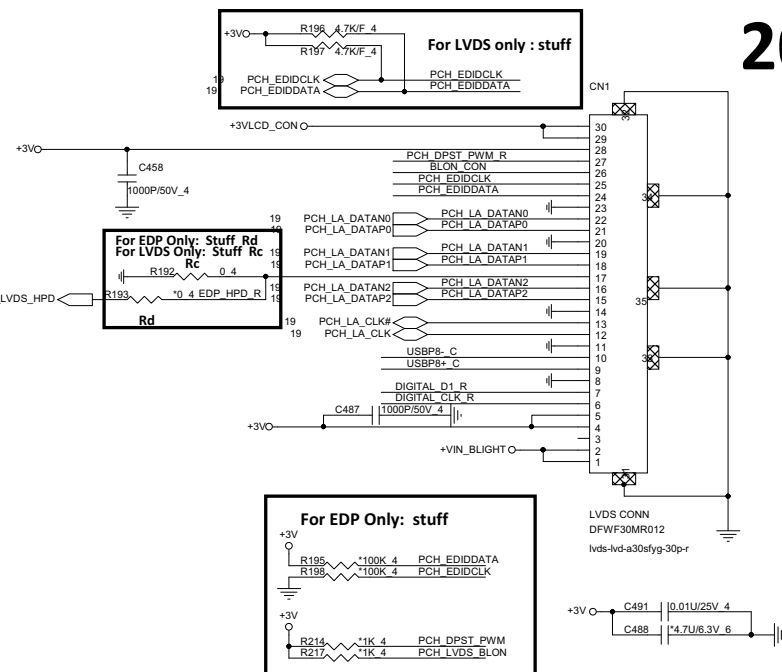
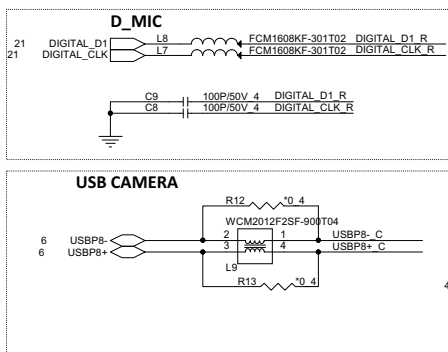
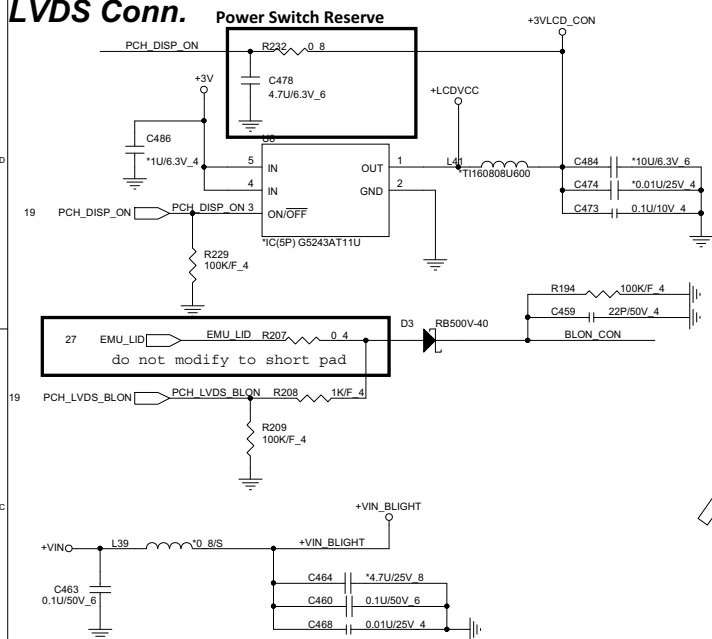
		MODE_CFG0(PIN30)	
		0	1
MODE_CFG1(PIN31)	0	X	EP MODE
	1	ROM ONLY MODE	EEPROM MODE



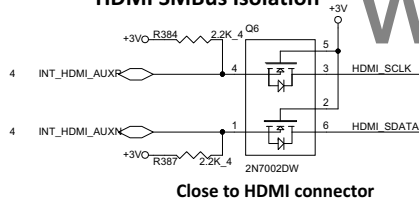
**PROJECT : U92**  
Quanta Computer Inc.

Size Custom	Document Number <b>RTD2132S</b>	Rev 1
Date: Wednesday, March 27, 2013	Sheet 19 of 37	

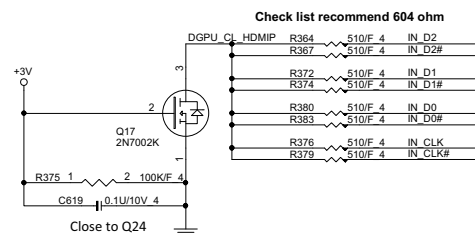
### Power Switch Reserve



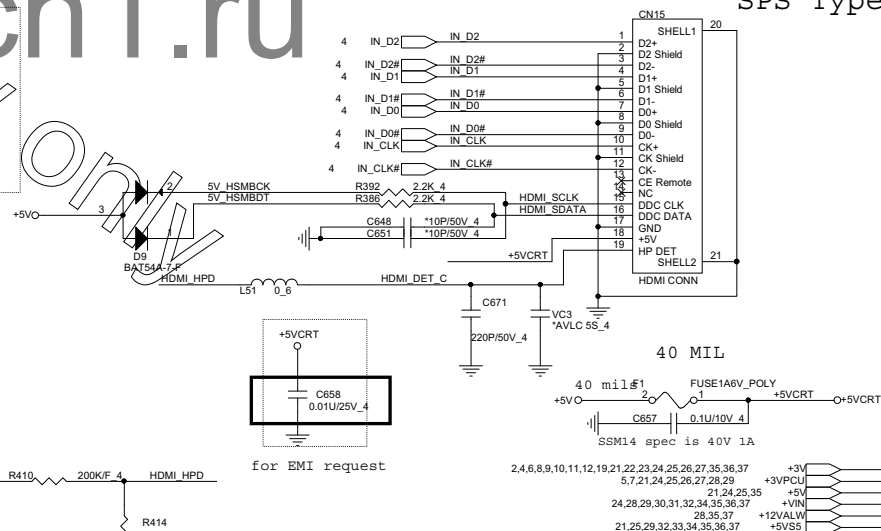
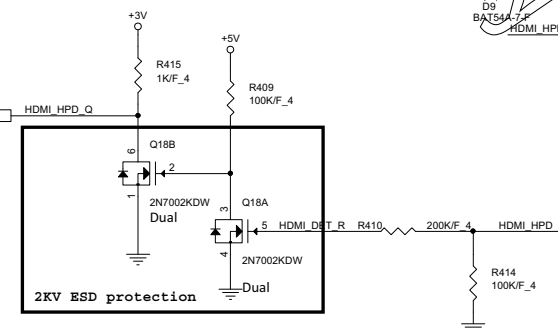
## HDMI SMBus Isolation



**Close to HDMI connector**



Check list recommend 604 ohm

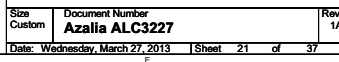
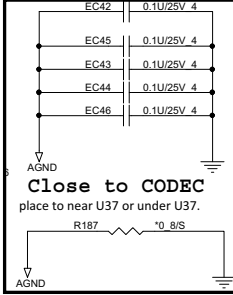
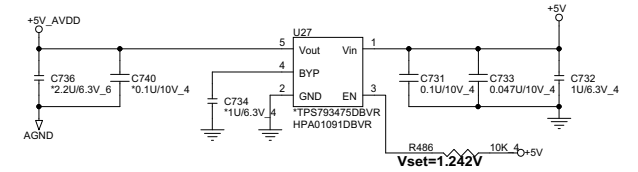


SPS Type



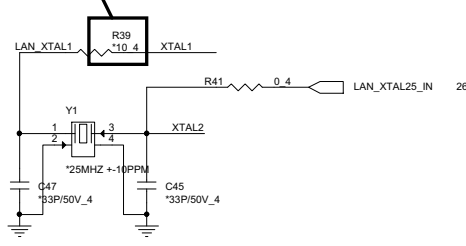
**PROJECT : U92**  
Quanta Computer Inc.

Size Custom	Document Number <b>LCD Connector (LVDS)</b>	Rev 1A
Date: Wednesday, March 27, 2013		Sheet 20 of 37

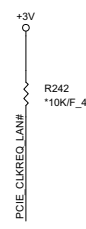
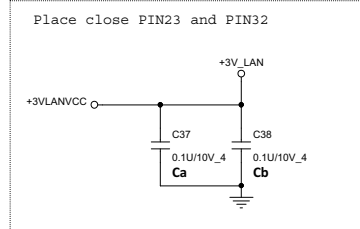
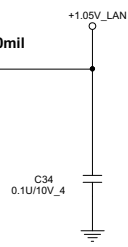


ACZ_SDIO0	EC41	**3P/50V 4	
BIT_CLK_AUDIO	EC14	**3P/50V 4	
ACZ_SDOUT_AUDIO	EC35	**10P/50V 4	
ACZ_SYNC_AUDIO	EC15	**10P/50V 4	

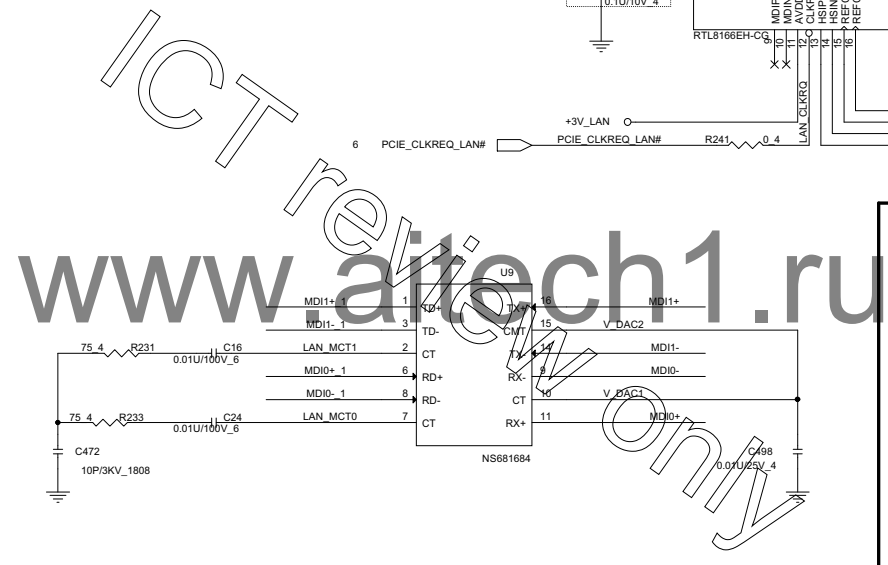
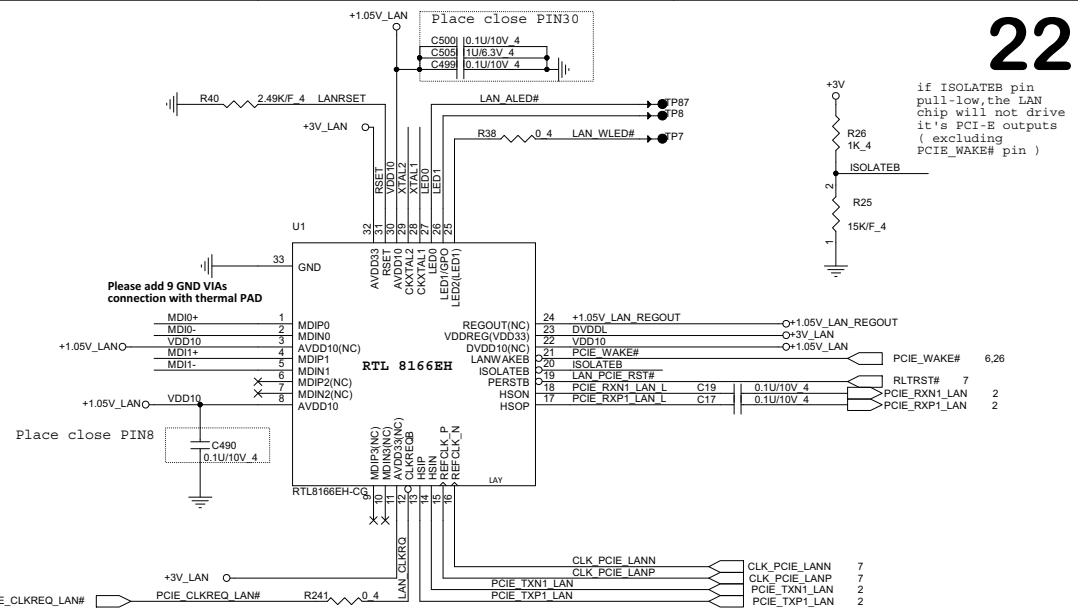
For EMI 0 ~ 22 ohm



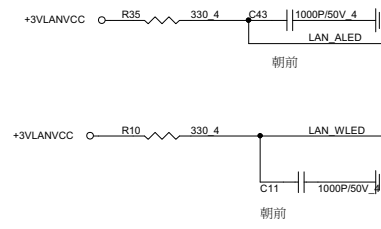
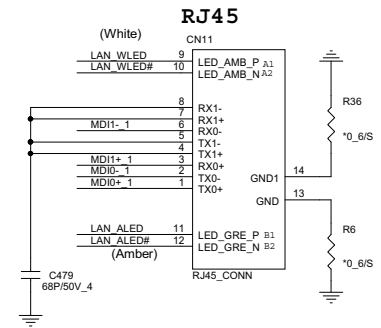
>60mil Power trace Layout 宽度>60mil



2,4,6,8,9,10,11,12,19,20,21,23,24,25,26,27,35,36,37  
+3V  
+3VLANVCC



# LAN conn TWD Type



**PROJECT : U92**  
**Quanta Computer Inc.**

Size	Document Number	Rev
Custom	RTL 8166EH/RJ45	1A
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[illegible]

CLOSE CONN

R3X Type

Reserve for EMI

SD D0	EC30	5.6P/16V 4
SD D1	EC29	5.6P/16V 4
SD D2	EC32	5.6P/16V 4
SD D3	EC31	5.6P/16V 4



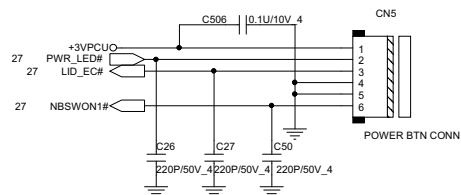
**PROJECT : U92**  
Quanta Computer Inc.

Size Custom	Document Number <b>RTS5239 &amp; CR SOCKET</b>
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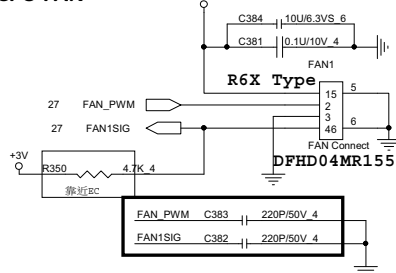
Size Custom	Document Number <b>RTS5239 &amp; CR SOCKET</b>	R
Date: Wednesday, March 27, 2013	Sheet 23 of 37	

## Power Button Connector

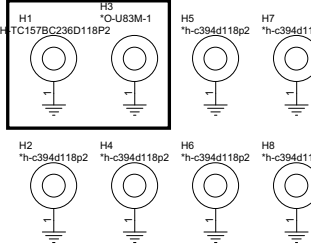
Pin1 : +3VPCU(LIDSWITCH PWR)  
Pin2 : POWER LED  
Pin3 : LIDSWITCH  
Pin4 : GND  
Pin5 : GND  
Pin6 : POWERON#



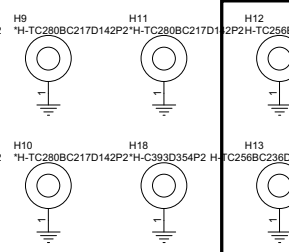
## CPU FAN



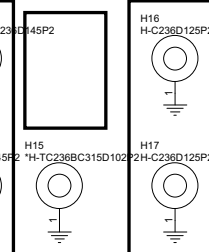
## Hole SI change footprint



## SI change FAN NUT P/N



## SI Del WLAN NUT

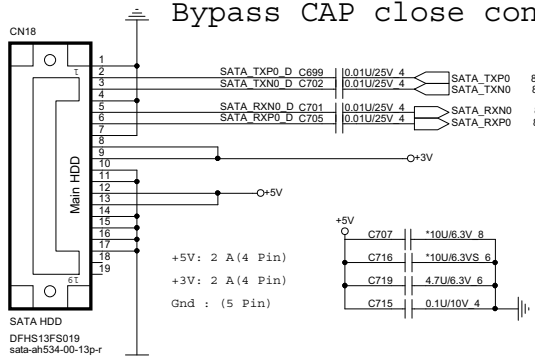


FAN NUT

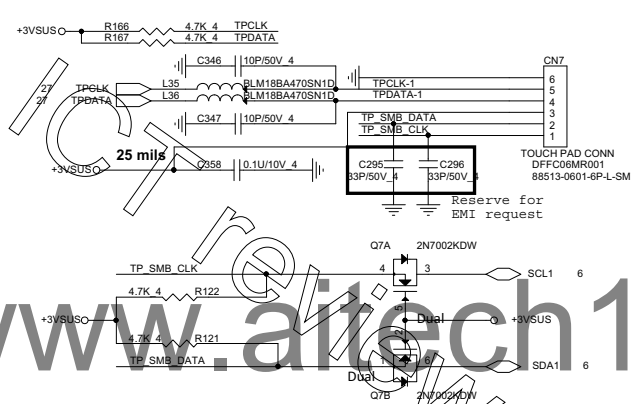
PCH NUT

## SATA HDD Connector(Cable type)

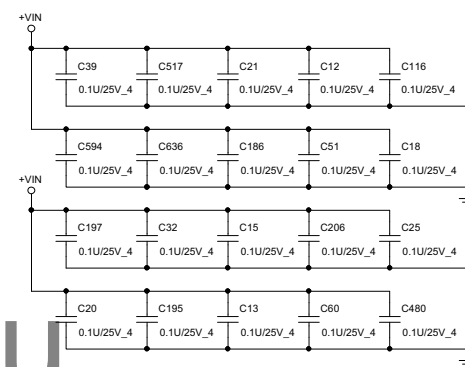
Bypass CAP close conn



## Touch Pad

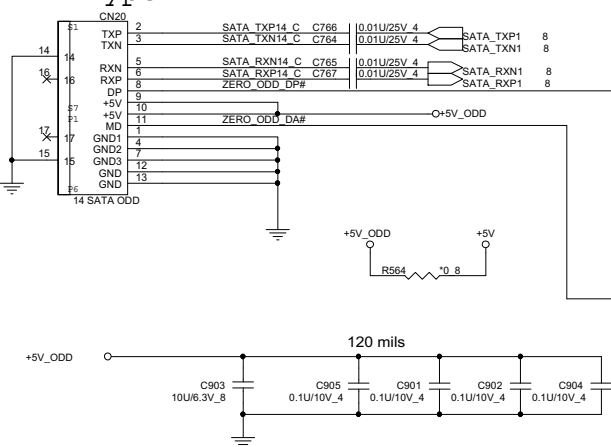


## +VIN Cap

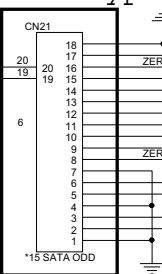


## SATA ODD CONNECTOR

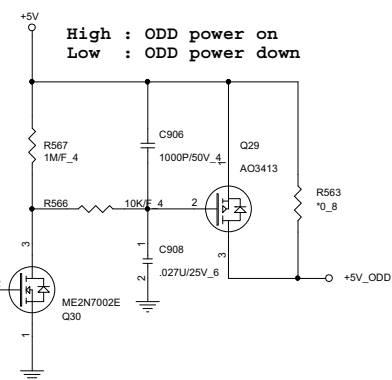
NEW Type Bypass CAP close conn



## New Type



SI Change Footprint

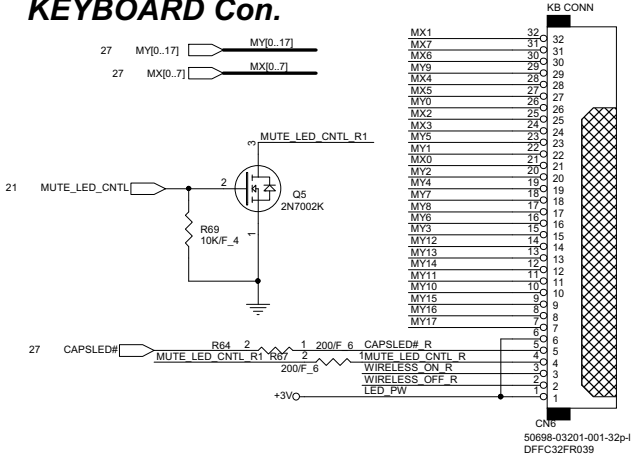


**PROJECT : U92**  
**Quanta Computer Inc.**

Size Custom Document Number SATE HDD/ODD/MSATA CONN Rev 1A  
Date: Wednesday, March 27, 2013 Sheet 24 of 37

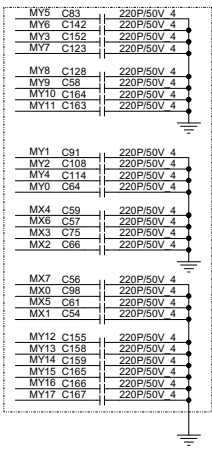
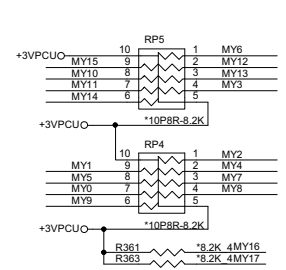


# KEYBOARD Con.

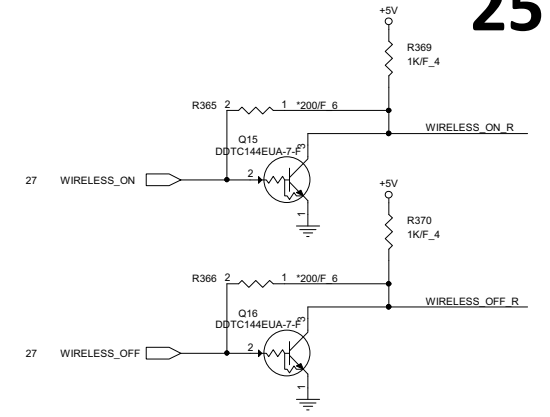


R6X Type

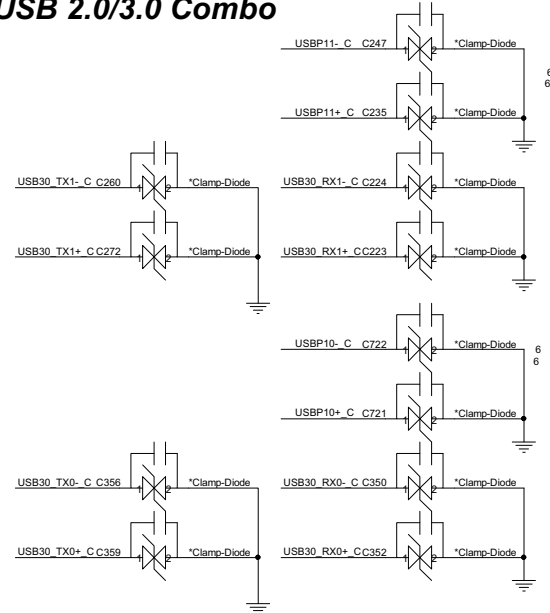
## KEYBOARD PULL-UP



25

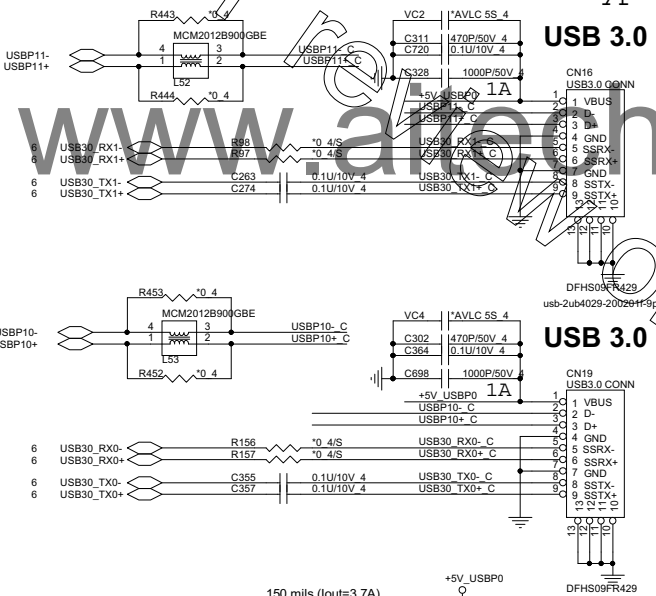


# USB 2.0/3.0 Combo

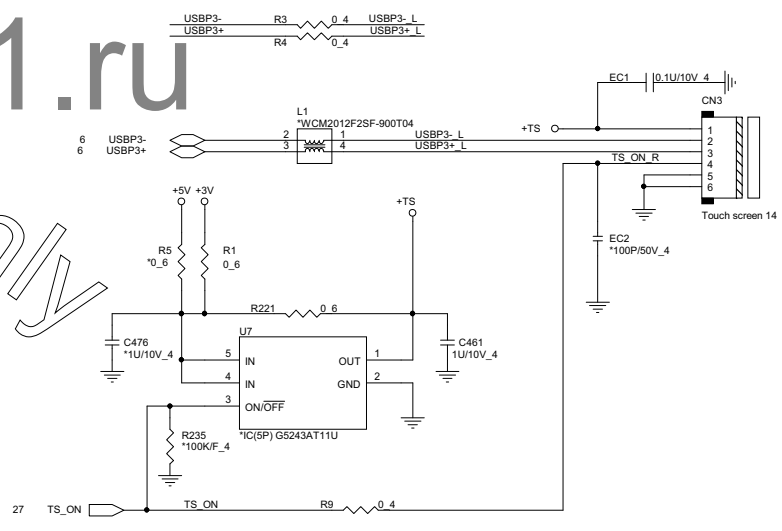


## SPS Type

### USB 3.0



## Touch screen



**PROJECT : U92**  
Quanta Computer Inc.

Size Custom	Document Number	Rev 1A
USB 3.0/KB/Green CLK		
Date: Wednesday, March 27, 2013	Sheet	25 of 37

21,29,32,33,34,35,36,37  
5,7,21,24,26,27,28,29



## TPM (1.2)



**PROJECT : U92**  
Quanta Computer Inc.



**PROJECT : U92**  
Quanta Computer Inc.

Size Custom	Document Number <b>MINI-PCIE/LED</b>
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Size Custom	Document Number <b>MINI-PCIE/LED</b>
Date: Wednesday, March 27, 2013	Sheet 26 of 26

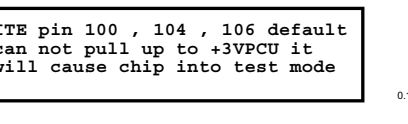
Size Custom	Document Number <b>MINI-PCIE/LED</b>
Date: Wednesday, March 27, 2013	Sheet 26 of 26

2,4,6,8,9,10,11,12,19,20,21,22,23,24,25,26,35,36,37  
5,7,21,24,25,26,28,29

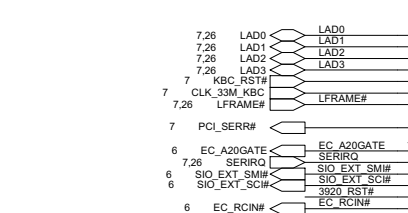
+3V  
+3VPCU

+3V<sub>0</sub> R293 10 4/S KBC P+3V

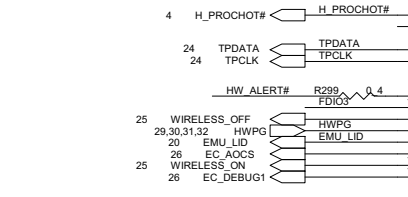
ITE pin 100, 104, 106 default  
can not pull up to +3VPCU it  
will cause chip into test mode

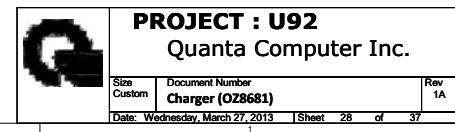


+3VPCU  
+3VPCU\_AC  
+3VPCU\_EC  
+3VPCU\_ACO  
+3VPCU\_CAP close to EC pin



IT8528E/HX

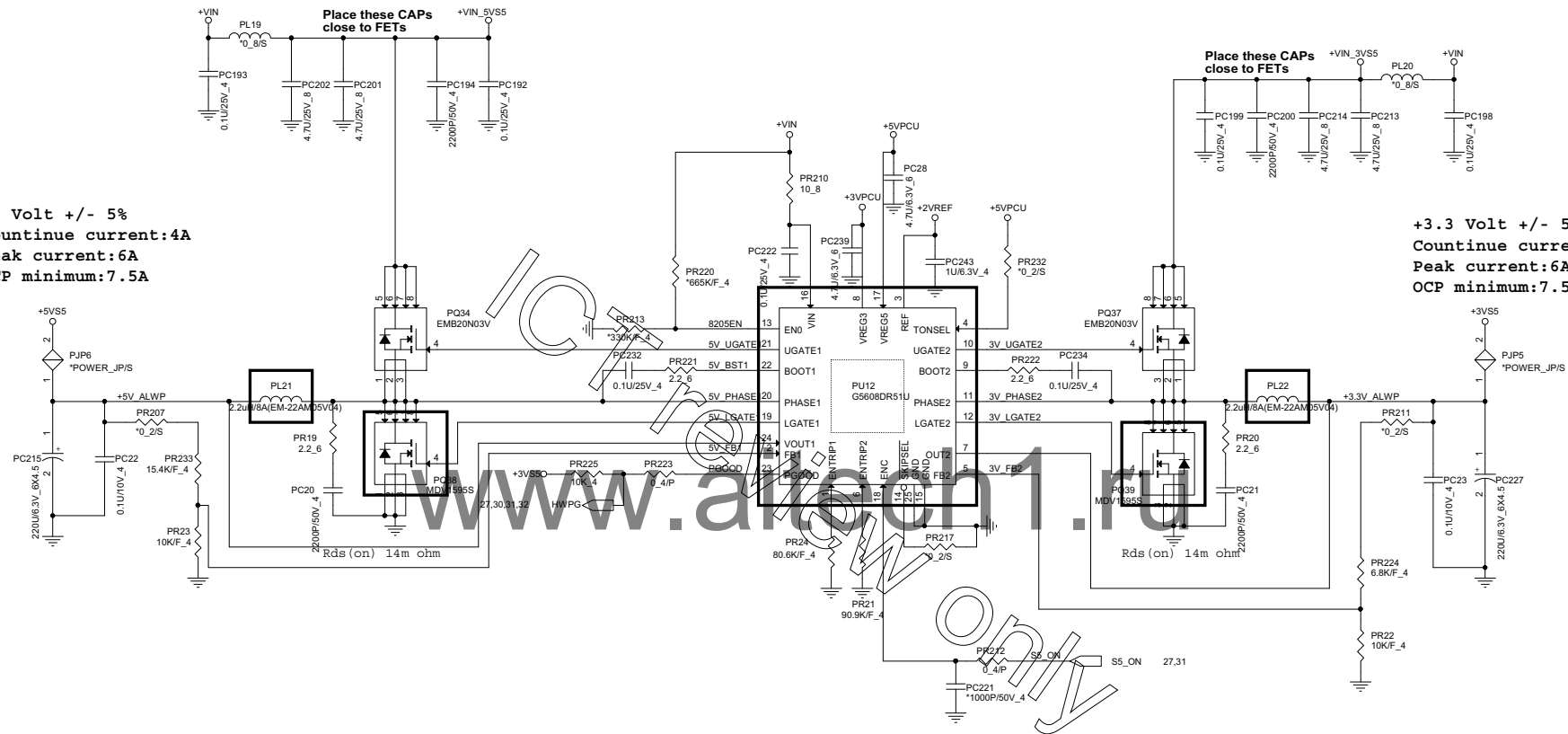




DC/DC +3VS5/+5VS5

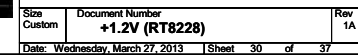
+5 Volt +/- 5%  
 Countinue current:4A  
 Peak current:6A  
 OCP minimum:7.5A

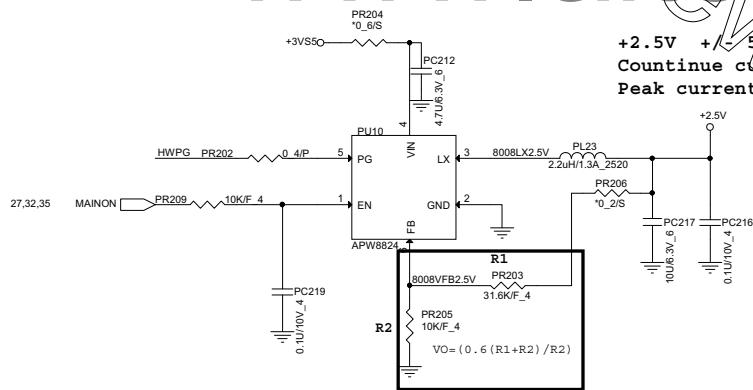
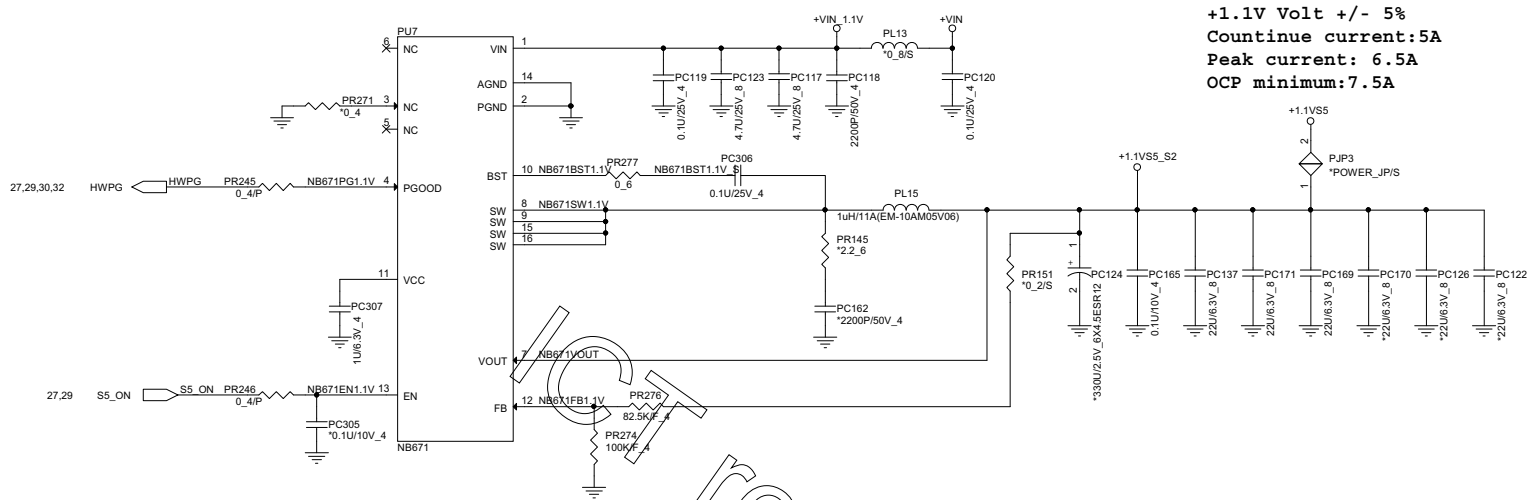
+3.3 Volt +/- 5%  
 Countinue current:4A  
 Peak current:6A  
 OCP minimum:7.5A



**PROJECT : R33**  
**Quanta Computer Inc.**

Size Custom	Document Number <b>3/5VPCU(RT8223P)</b>	Rev 1A
Date: Wednesday, March 27, 2013		Sheet 29 of 37



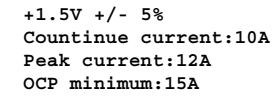


+VIN	20,24,26,29,30,32,34,35,36,37
+2.5V	5
+3VS5	6,8,9,10,26,27,29,33,35,37
+5VS5	21,25,29,32,33,34,35,36,37
+1.1VS5	9,35
+5VPCU	28,29

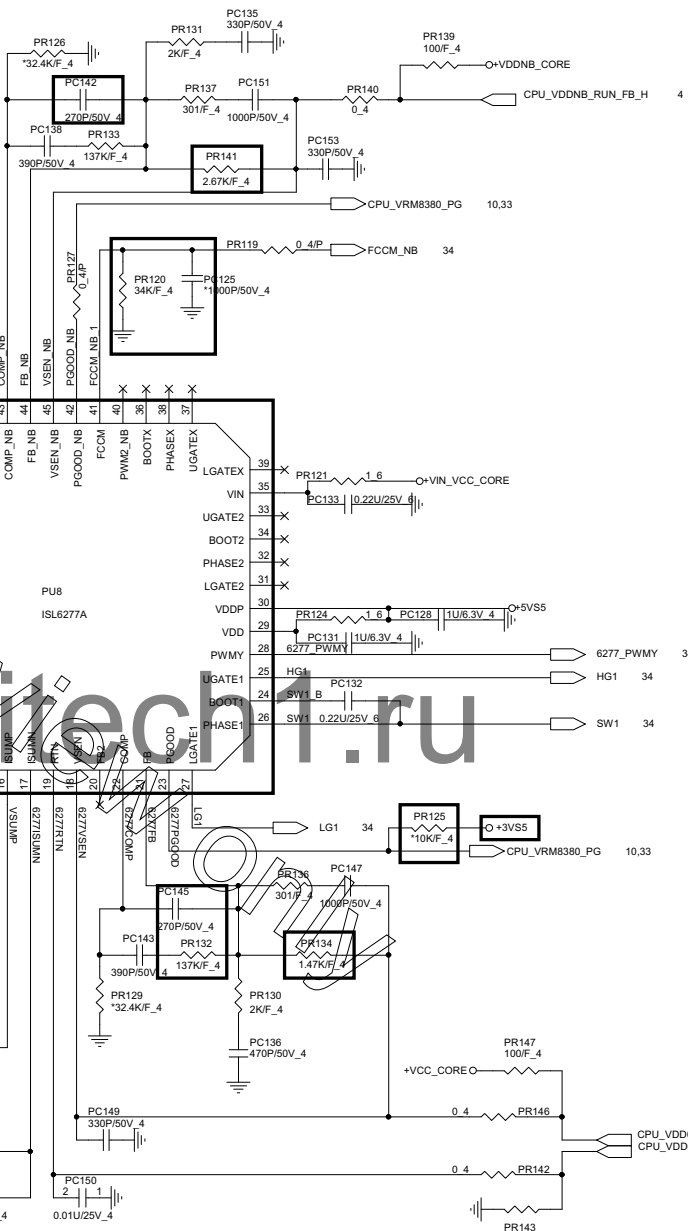
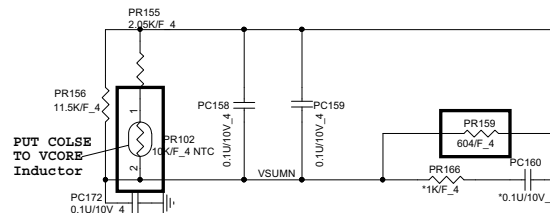
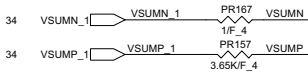
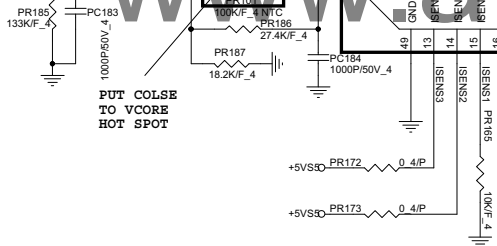
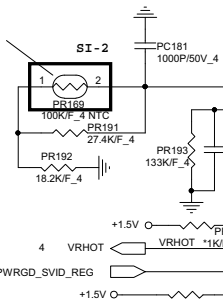
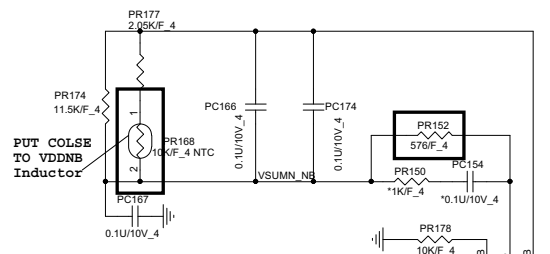


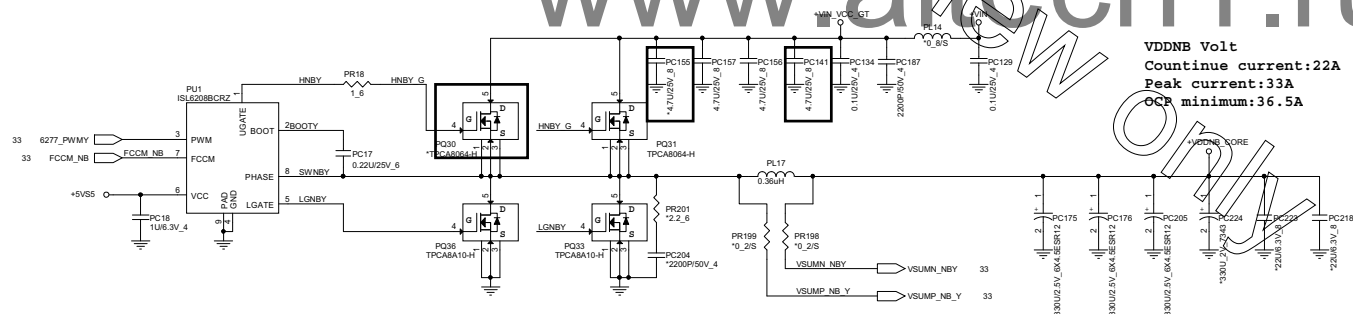
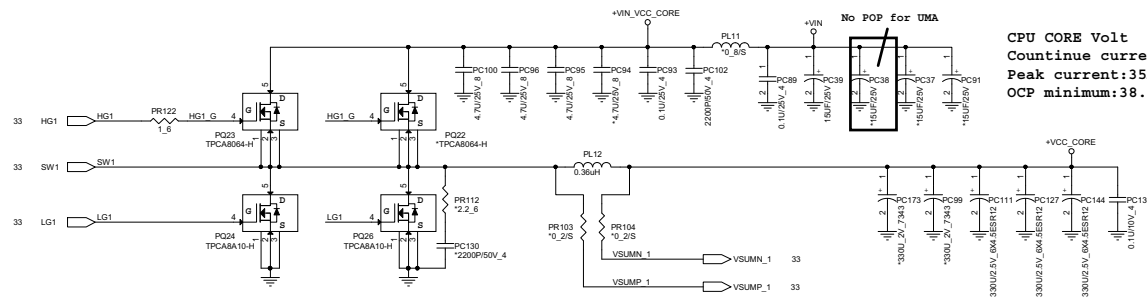
**PROJECT : U92**  
**Quanta Computer Inc.**

Size	Document Number	Rev
Custom	<b>+1.1VS5 (RT8228)/2.5V</b>	1A
Date: Wednesday, March 27, 2013	Sheet 31 of 37	



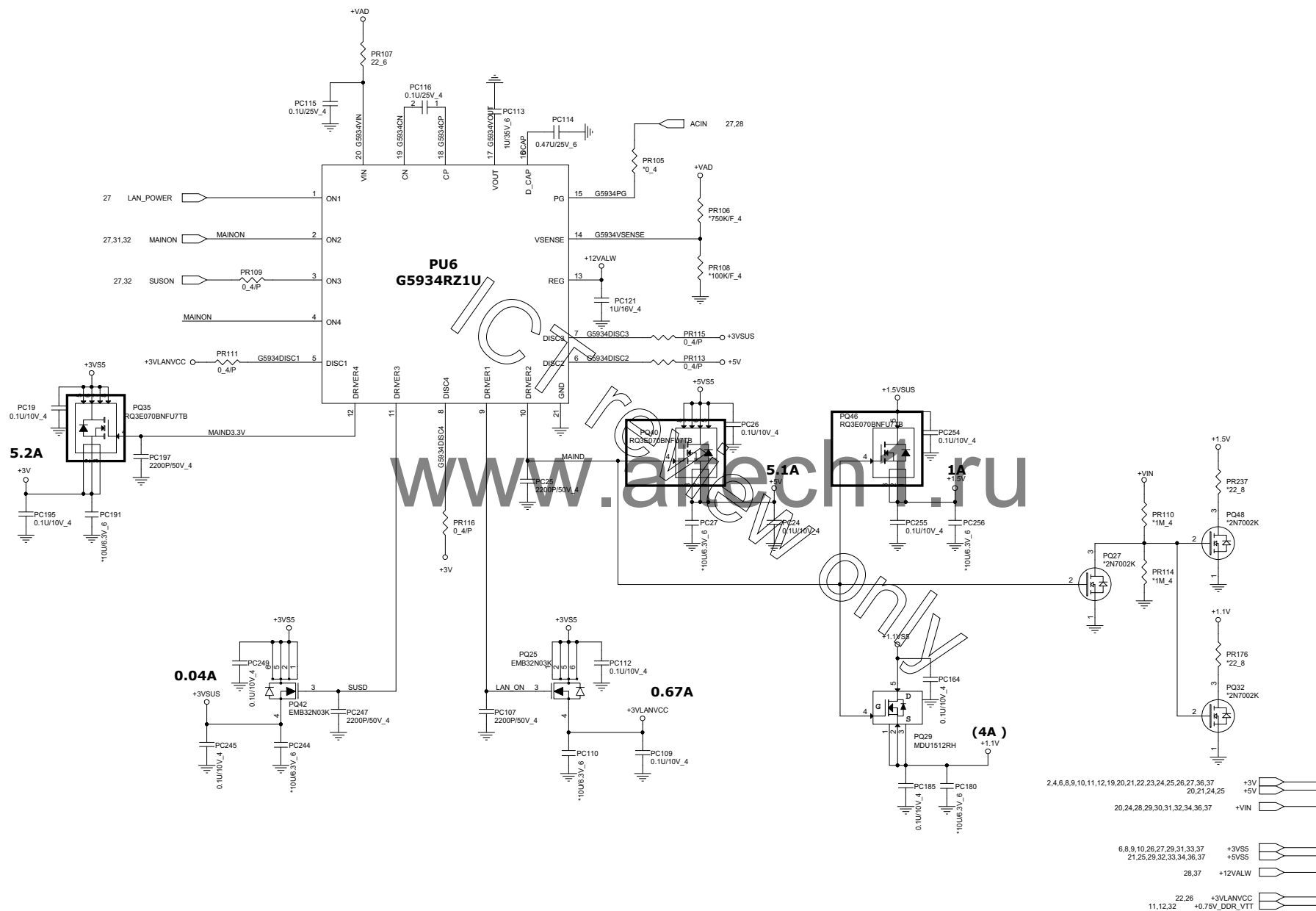




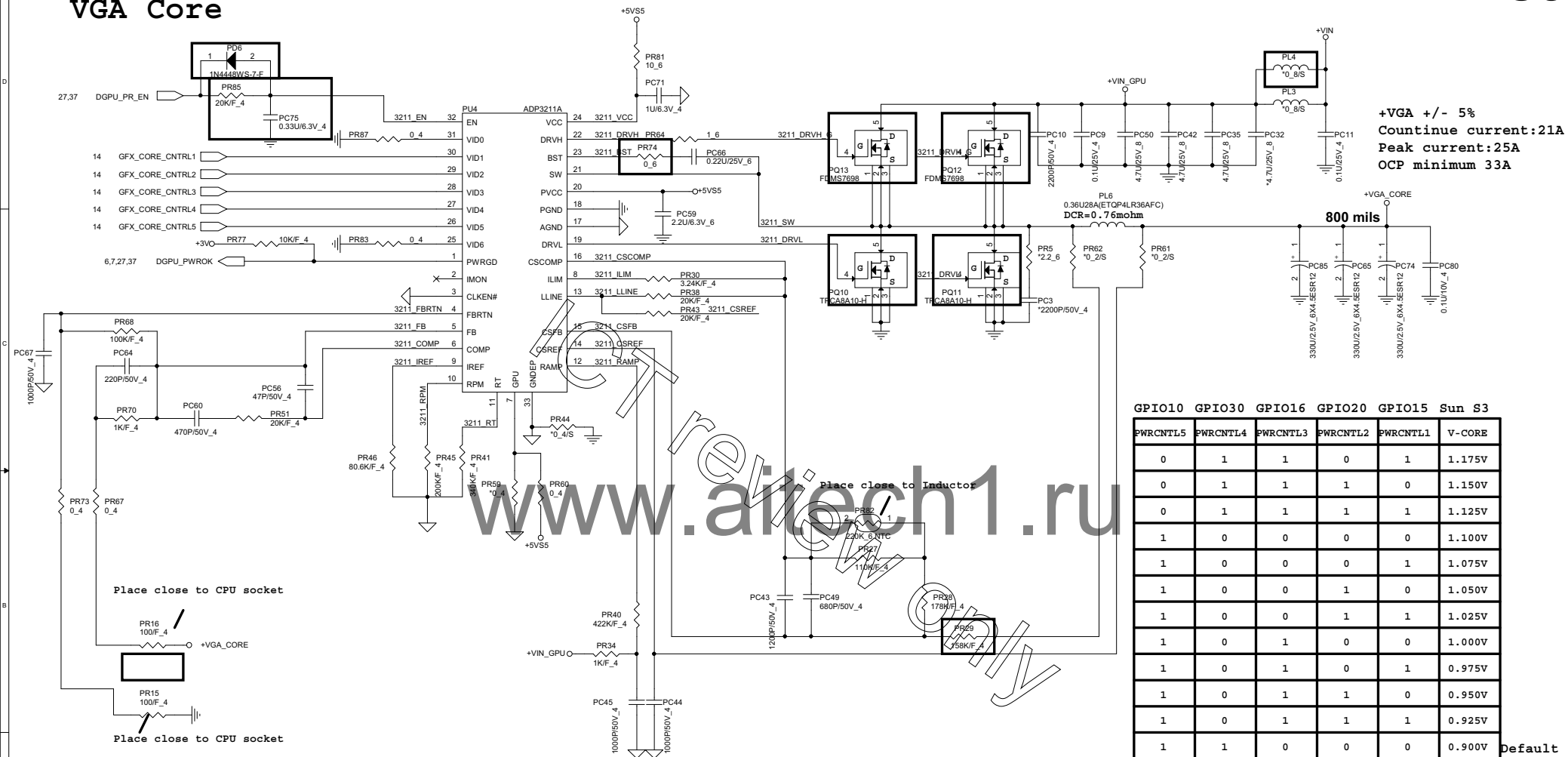


**PROJECT : U92**  
 Quanta Computer Inc.

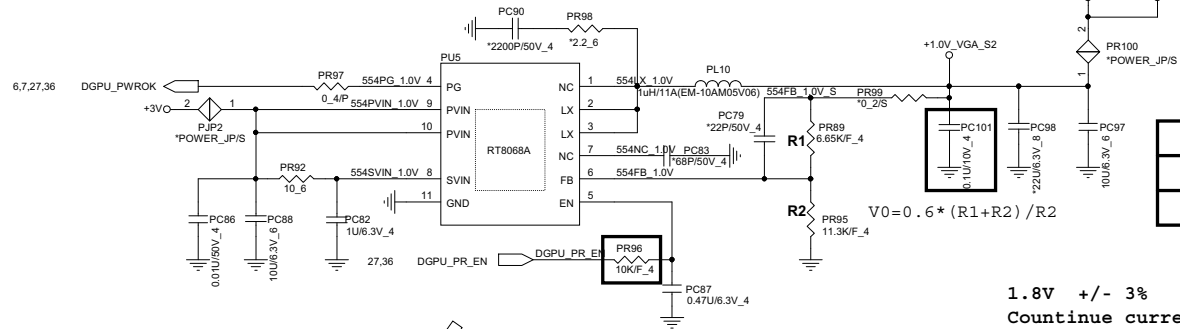
Size Custom	Document Number ISL6288	Rev 1A
Date: Wednesday, March 27, 2013   Sheet 34 of 37		



## VGA Core

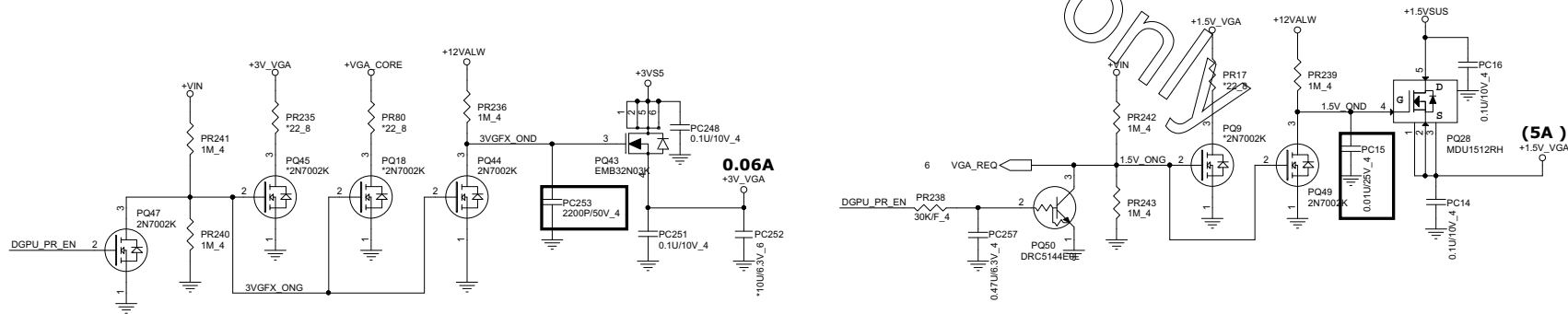
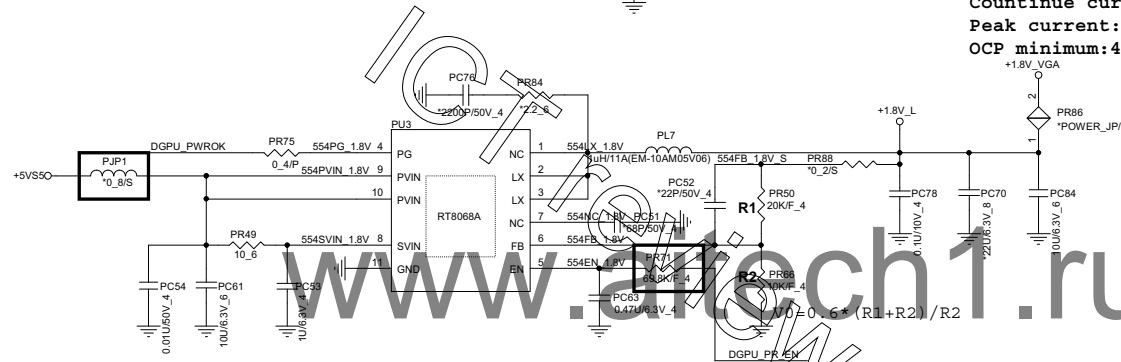

**PROJECT : U92**  
**Quanta Computer Inc.**

Size	Document Number	Rev
Custom	+VGACORE NCP3218G)	1A
Date:	Wednesday, March 27, 2013	Sheet 36 of 37



R2 Value	P/N	1.0V_VGA
10K	CS31002FB26	1.0V
11.3K	CS31132FB07	0.95V

1.8V +/- 3%  
Continue current:2A  
Peak current:3A  
OCP minimum:4A



	+3V_VGA	16
	+1.0V_VGA	13,14,16
	+12VALW	28,35
	+1.8V_VGA	13,14,16,26

