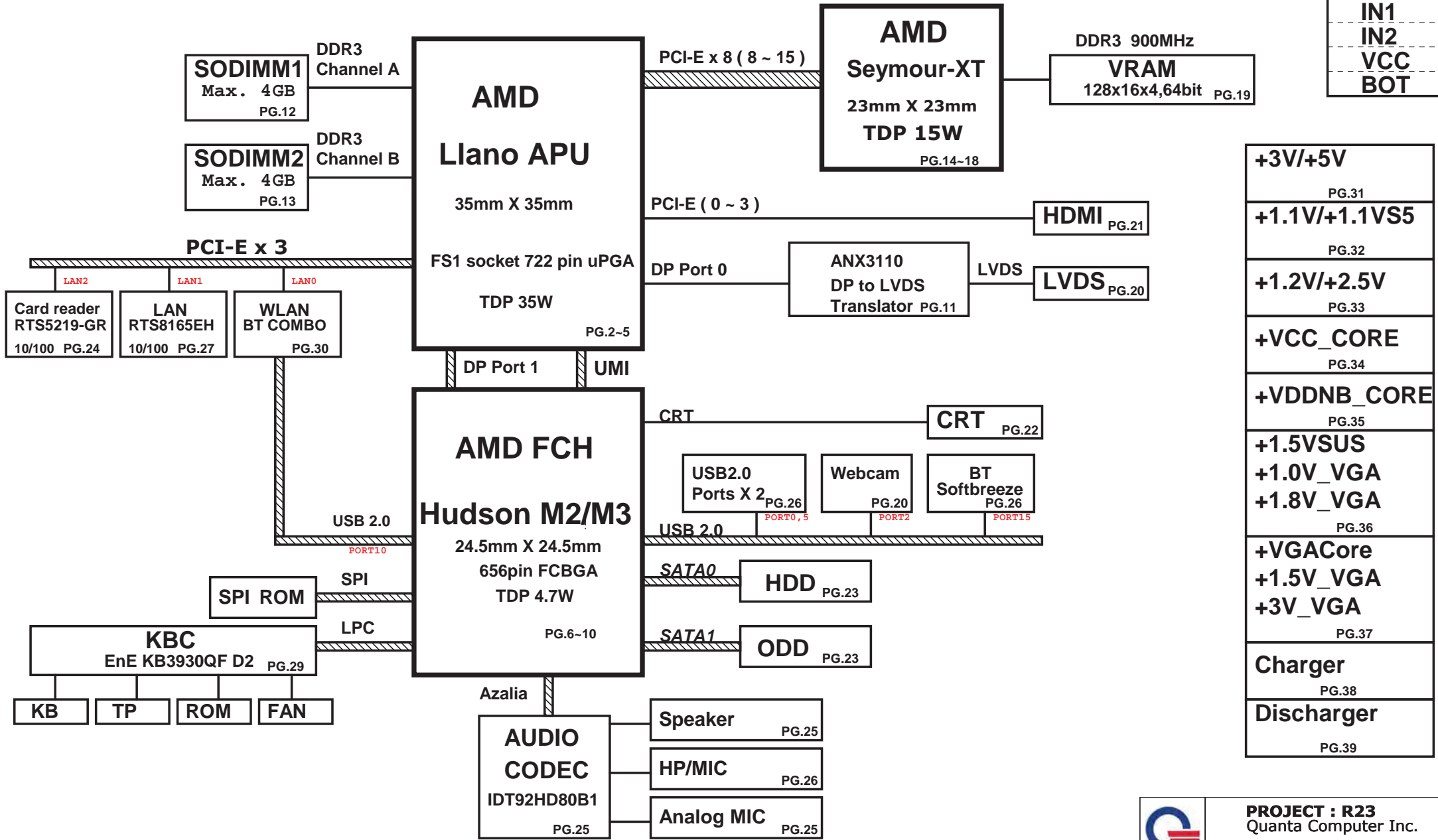


R23 AMD Sabin UMA/Muxless SYSTEM DIAGRAM

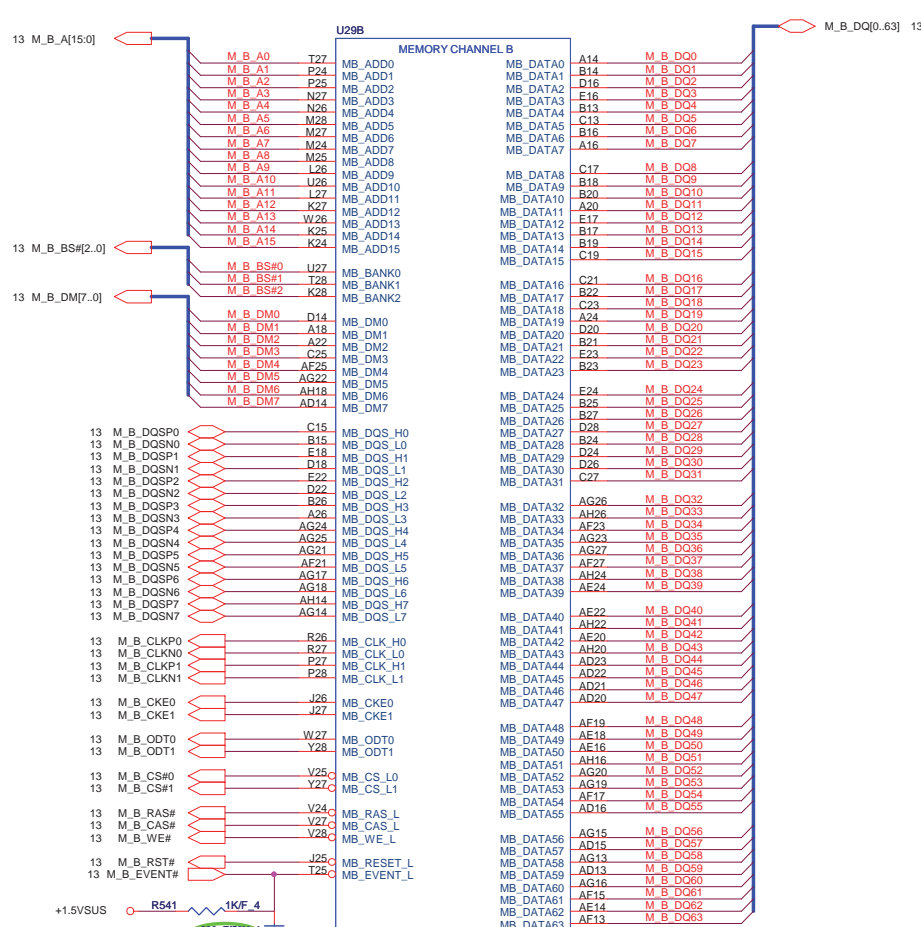
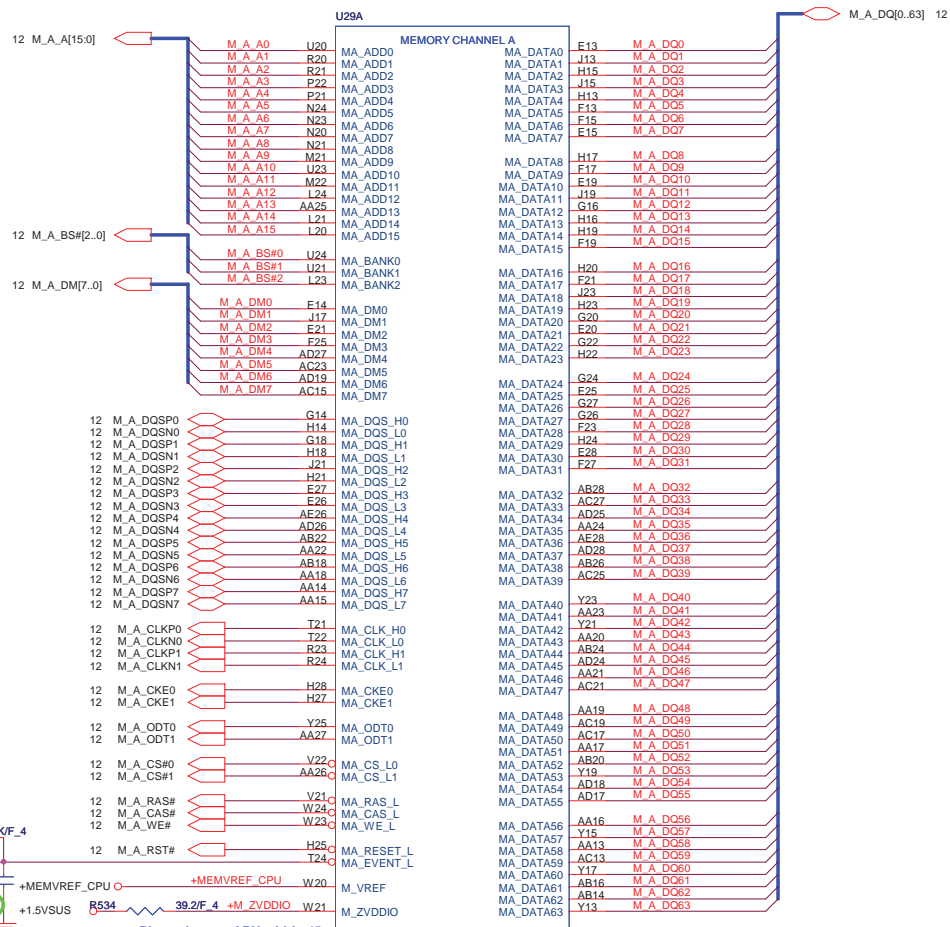
Stackup

TOP
GND
IN1
IN2
VCC
BOT



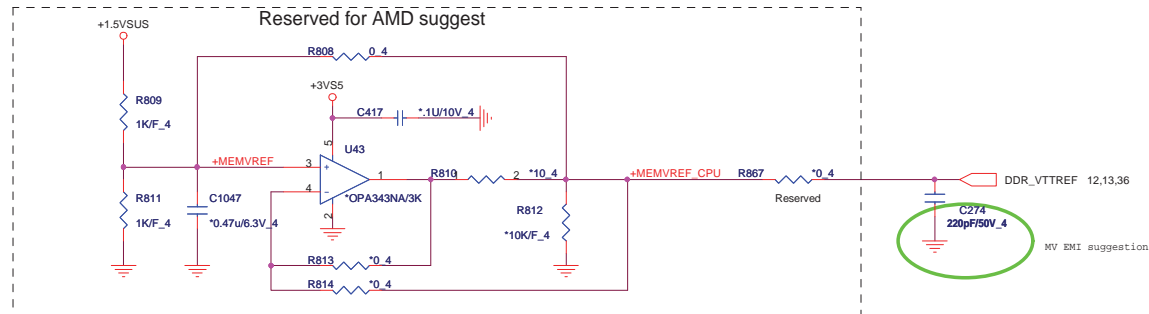
+3V/+5V	PG.31
+1.1V/+1.1VS5	PG.32
+1.2V/+2.5V	PG.33
+VCC_CORE	PG.34
+VDDNB_CORE	PG.35
+1.5VSUS	
+1.0V_VGA	
+1.8V_VGA	PG.36
+VGACore	
+1.5V_VGA	
+3V_VGA	PG.37
Charger	PG.38
Discharger	PG.39

	PROJECT : R23		Rev 1A
	Quanta Computer Inc.		
	Size Custom	Document Number BLOCK DIAGRAM	
Date: Tuesday, May 03, 2011		Sheet 1 of 40	



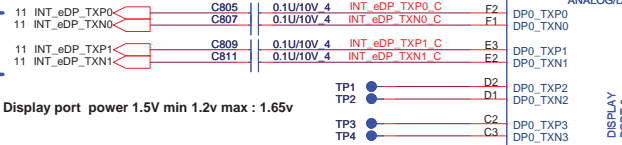
Llano APU

Llano APU

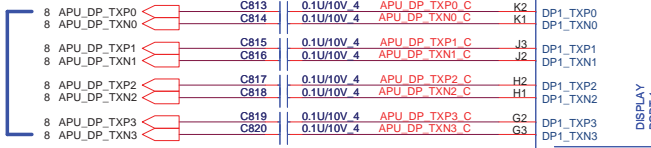


Place caps with APU < 1 inch route PCIe as 85ohm +/- 10%

DP0 output to eDP to LVDS converter



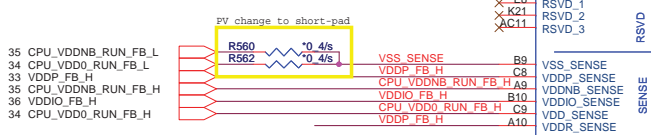
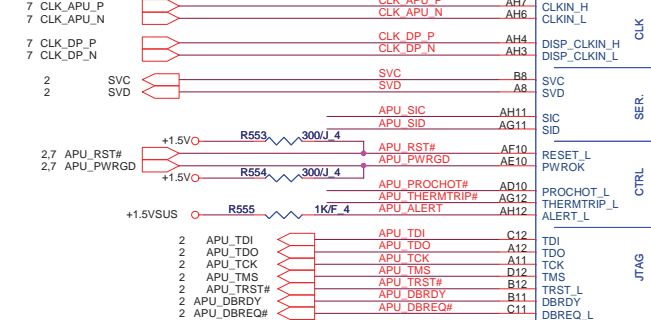
Display port power 1.5V min 1.2V max : 1.65v



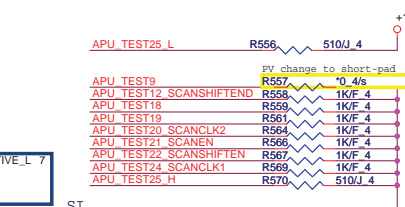
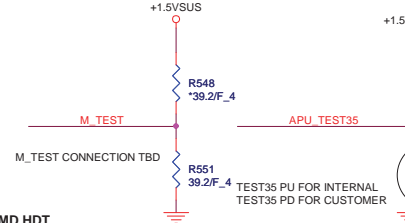
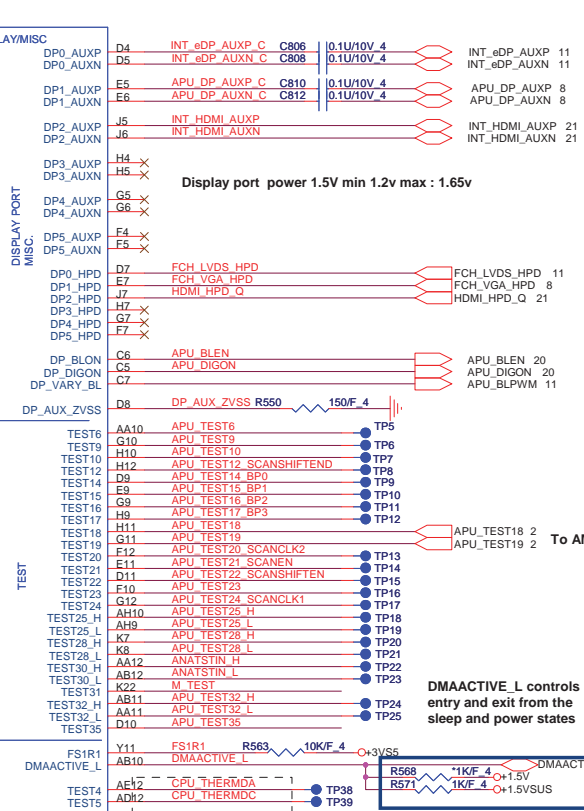
DP1 output to Hudson-M2 for VGA translator interface

Note: CLK_APU_HCLKP/N is 100MHZ SSC

Note: CLK_DP_NSSCP/N is 100MHZ non-SSC

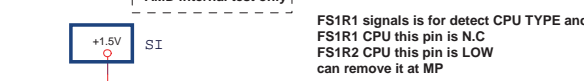


VSS SENSE, VDDP_FB_H, CPU_VDDNB_RUN_FB_H, VDDIO_FB_H, CPU_VDDO_RUN_FB_H, VDDP_FB_H



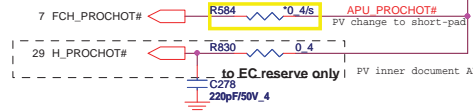
DMAACTIVE_L controls entry and exit from the sleep and power states

Llano APU

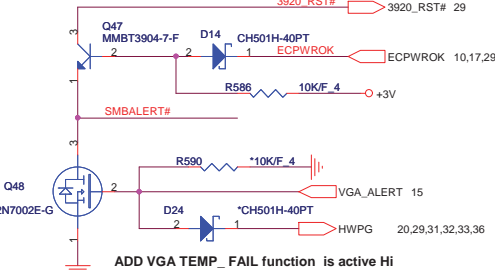


FS1R1 signals is for detect CPU TYPE and protect it. FS1R1 CPU this pin is N.C FS1R2 CPU this pin is LOW can remove it at MP

APU_PROCHOT# 可以當 input or output 當Low時CPU會降 P- STATE



Thermal

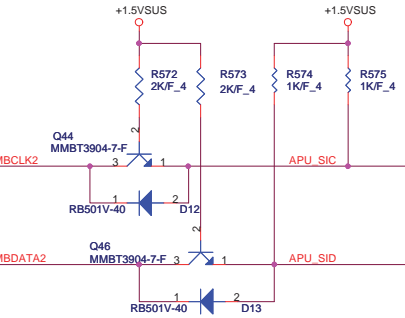


ADD VGA_TEMP_FAIL function is active Hi

over 120 degree C = Low

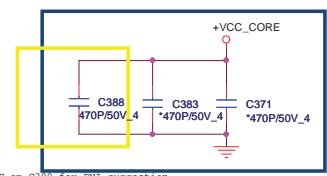
When 100K-NTC 100 C=6.164K Thermal Trip = 120 C

DEL Thermal IC circuit on MV

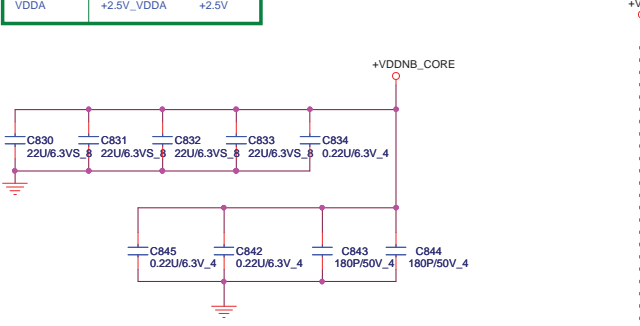


Quanta Computer Inc. PROJECT : R23. Table with columns: Size, Document Number, Llano Display/Misc, Rev. 1A. Date: Wednesday, May 04, 2011. Sheet 4 of 40.

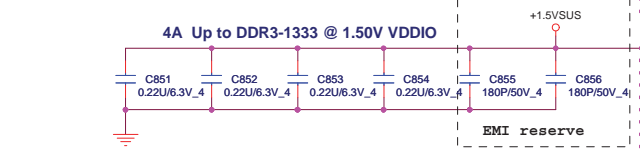
PIN NAME	NET NAME	VOL TAGE
VDD	+VCC_CORE	+1.1V
VDDNB	+VDDNB_CORE	??
VDDIO	+1.5VSUS	+1.5V
VDDP	+1.2V_VDDP	+1.2V
VDDR	+1.2V_VDDR	+1.2V
VDDA	+2.5V_VDDA	+2.5V



SI EMI

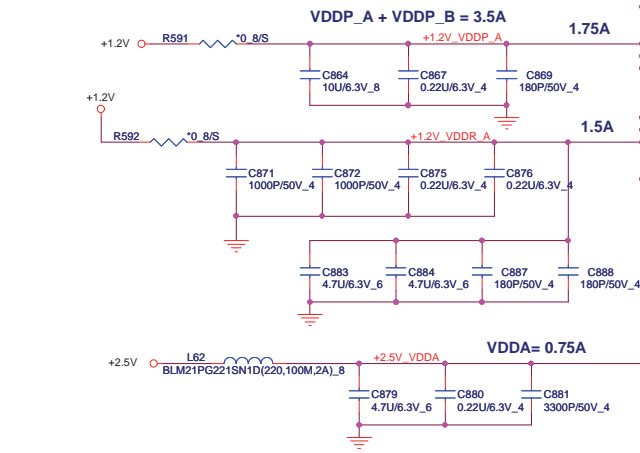


18A Maximum IDDNBspike 22.5A

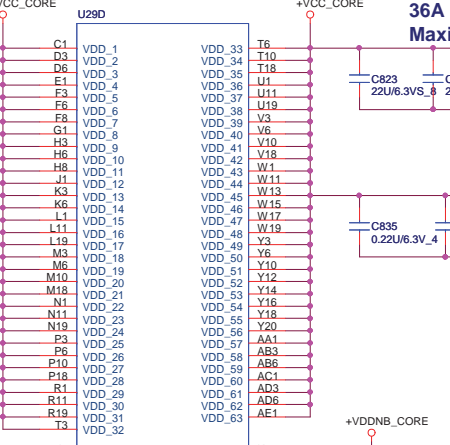


4A Up to DDR3-1333 @ 1.50V VDDIO

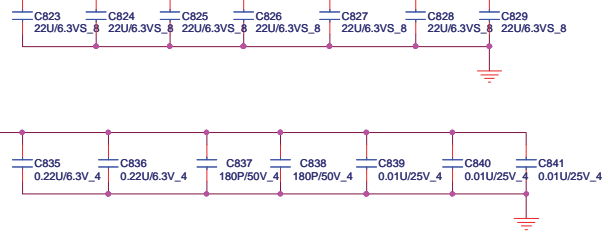
EMI reserve



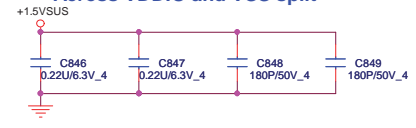
Llano APU



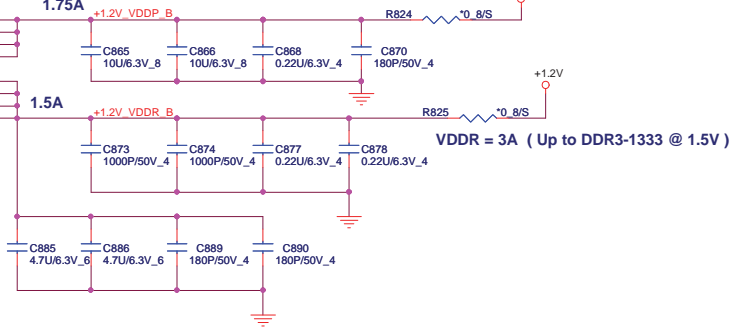
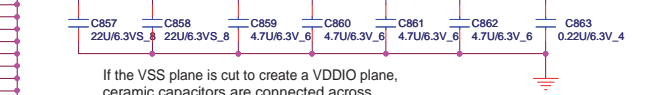
36A Maximum IDDspike 50A



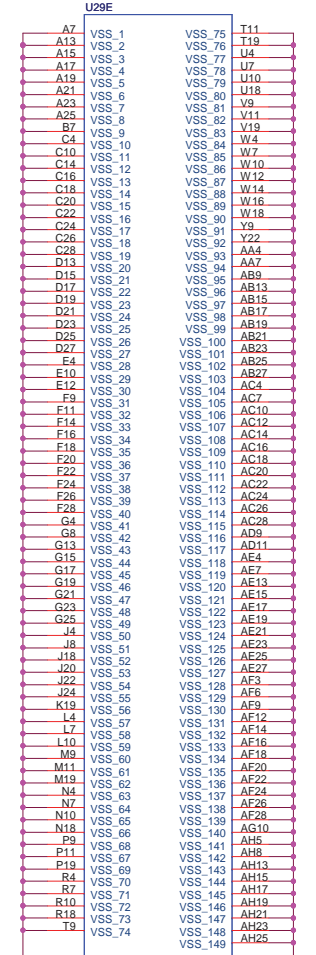
DECOUPLING between PROCESSOR and DIMMs
Across VDDIO and VSS split



If the VSS plane is cut to create a VDDIO plane,
ceramic capacitors are connected across
the VDDIO and VSS plane split as follows



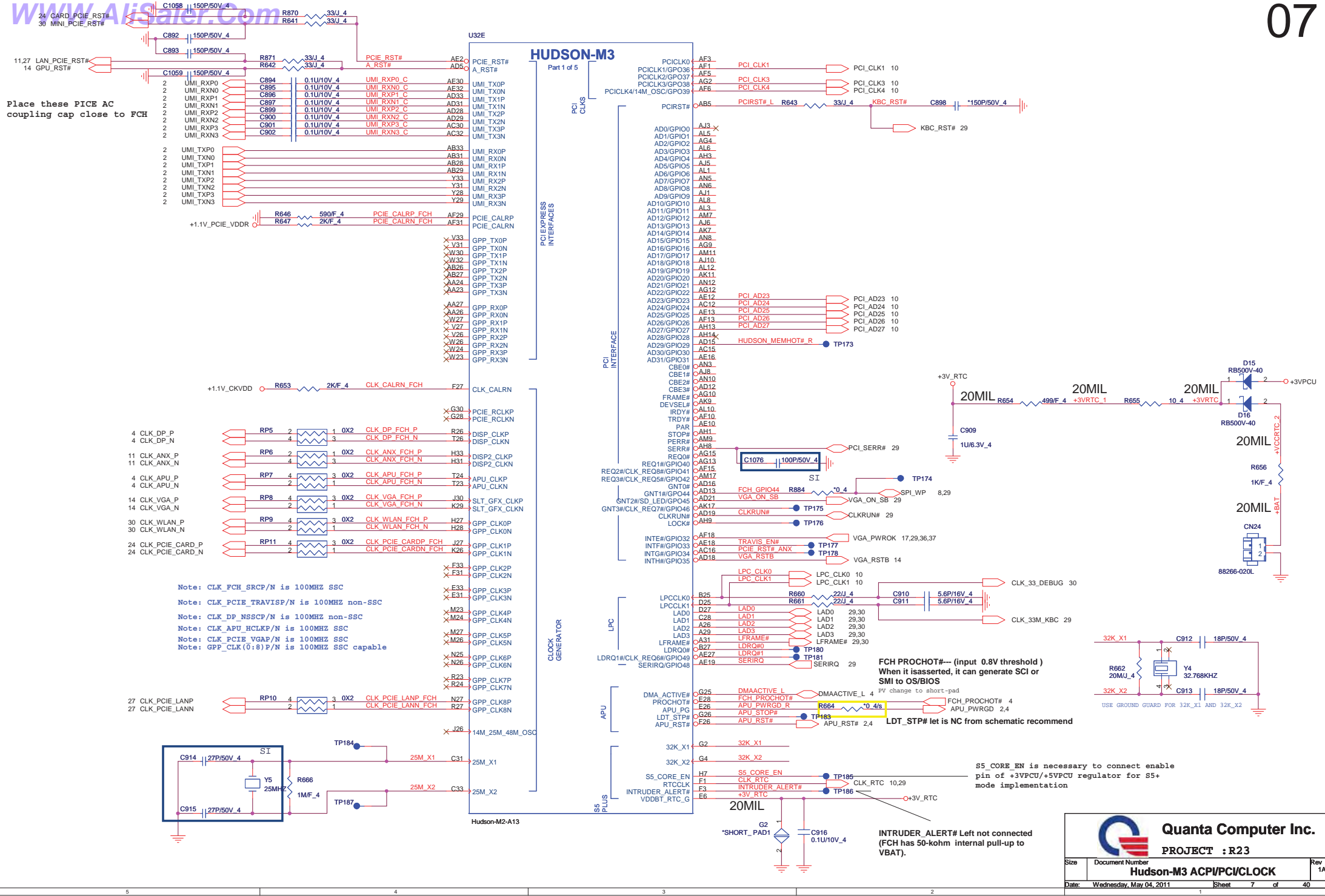
VDDR = 3A (Up to DDR3-1333 @ 1.5V)

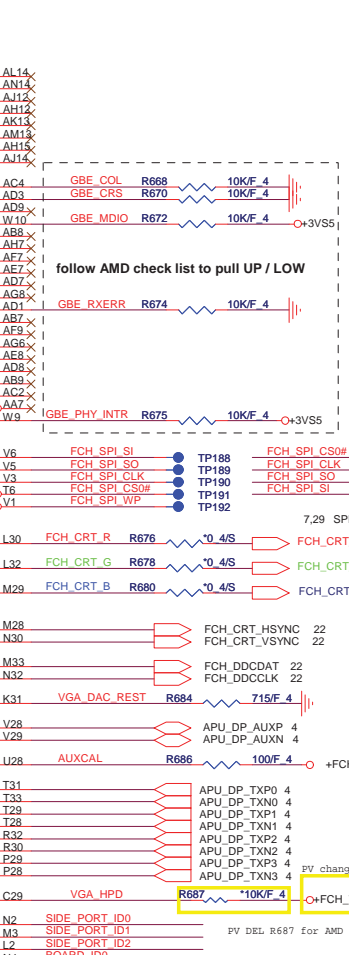
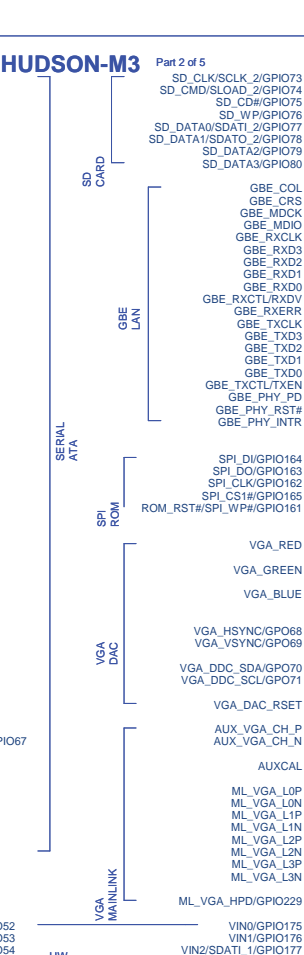
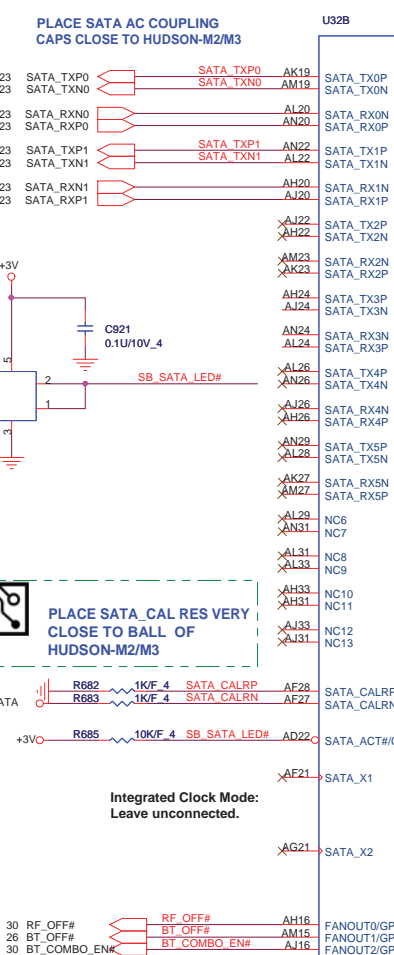
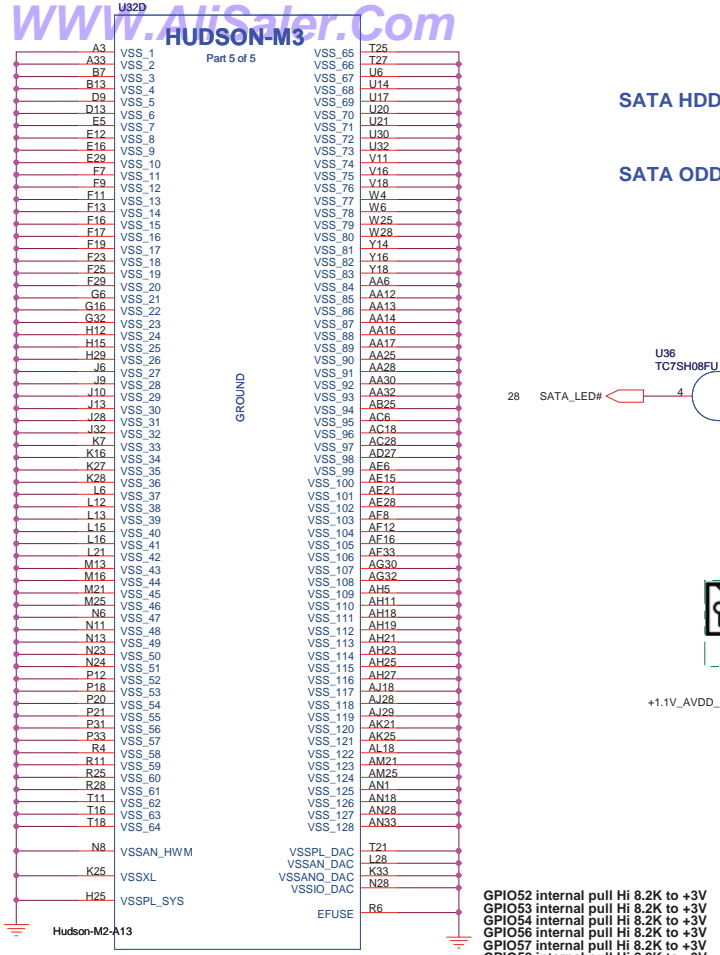


Llano APU

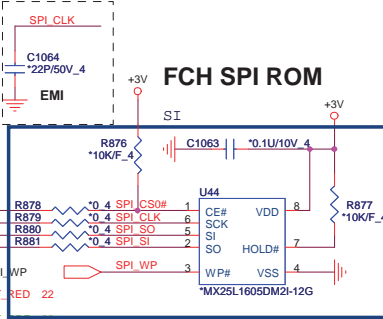
Quanta Computer Inc.
PROJECT : R23

Size	Document Number	Rev
	Llano POWER/GND	1A
Date:	Wednesday, May 04, 2011	Sheet 5 of 40





Vender	Size	P/N
AMIC	2M	AKE38ZN0801
WINBOND	2M	AKE38FP0N01
Socket		DFHS08FS023



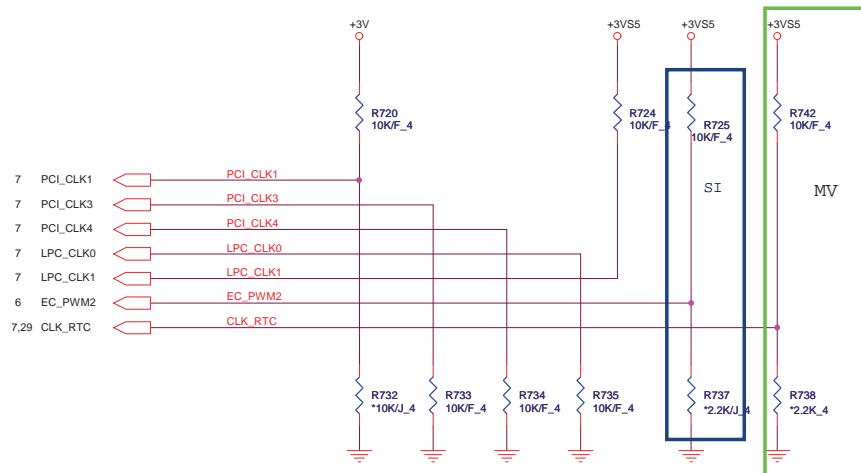
DEBUG STRAPS

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

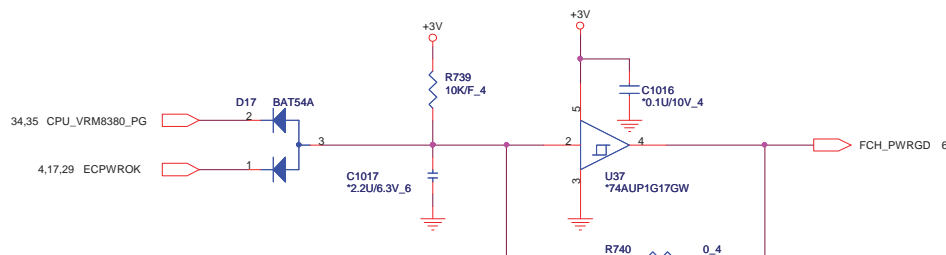
OVERLAP COMMON PADS WHERE POSSIBLE FOR DUAL-OP RESISTORS.



REQUIRED STRAPS

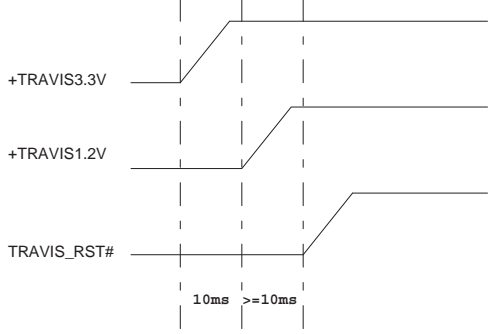
	-----	PCI_CLK1	-----	PCI_CLK3	PCI_CLK4	LPC_CLK0	LPC_CLK1	EC_PWM2	CLK_RTC
PULL HIGH	-----	ALLOW PCIE Gen2 DEFAULT	-----	USE DEBUG STRAP	non_Fusion CLOCK MODE	AMD internal EC ENABLED	CLKGEN ENABLED DEFAULT	LPC ROM DEFAULT	S5 PLUS MODE DISABLED DEFAULT
PULL LOW	-----	FORCE PCIE Gen1	-----	IGNORE DEBUG STRAP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

FCH PWRGD

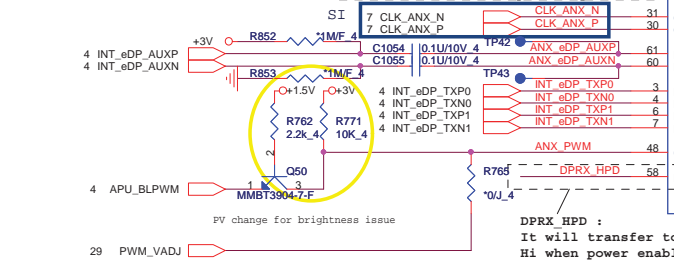


Quanta Computer Inc.
PROJECT : R23

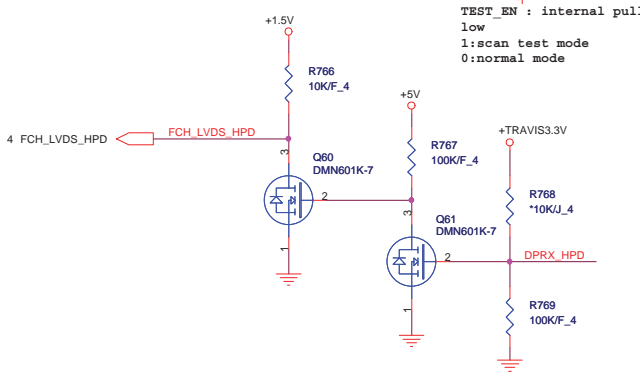
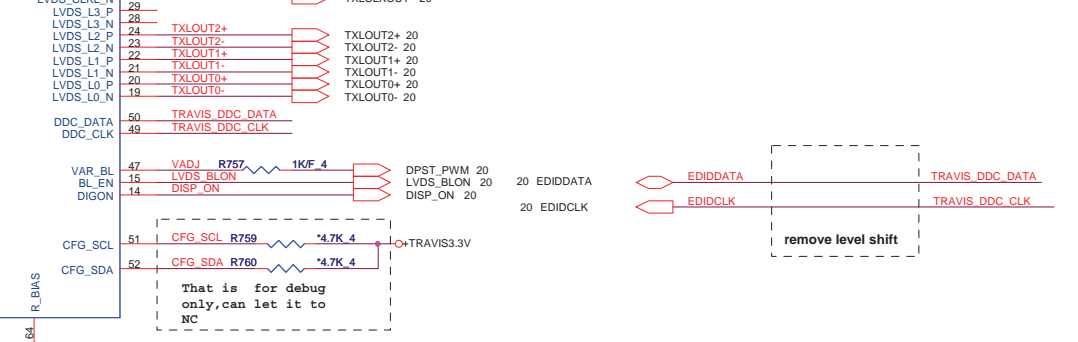
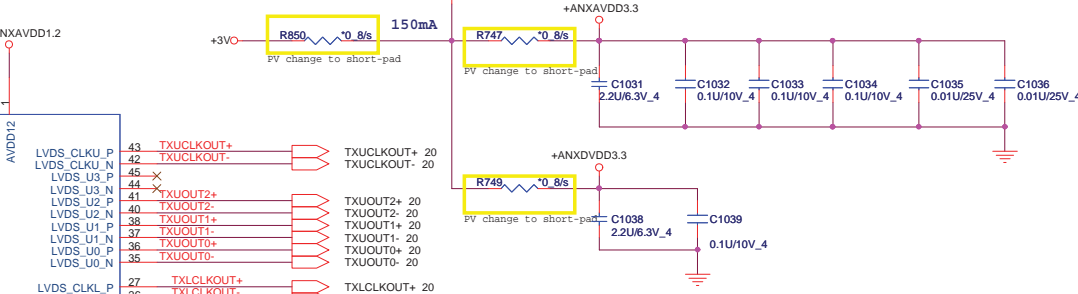
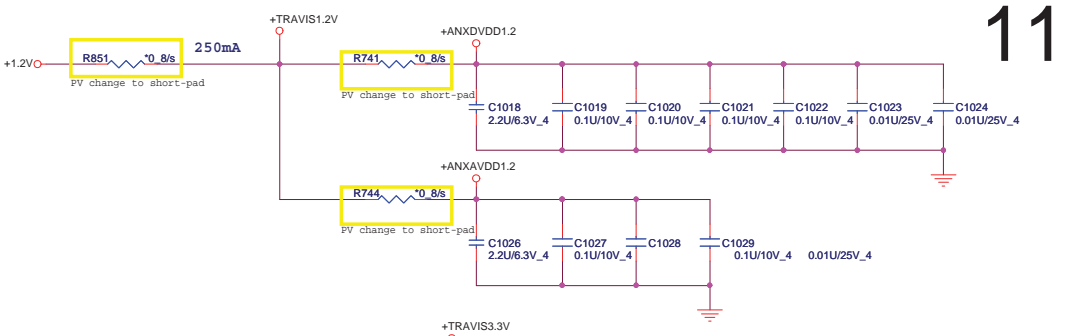
Size	Document Number	Rev
	Hudson-M3 STRAP/PWRGD	1A
Date:	Wednesday, May 04, 2011	Sheet 10 of 40



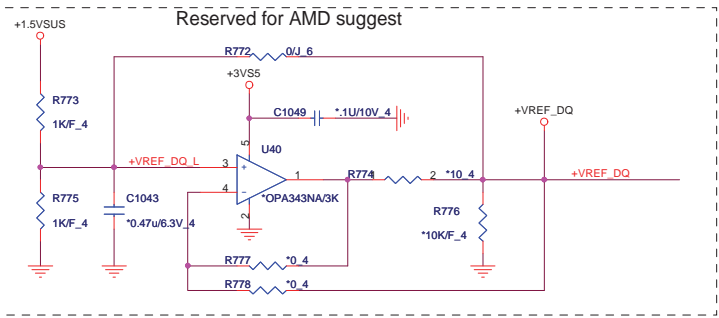
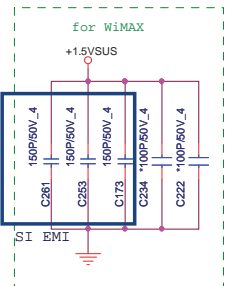
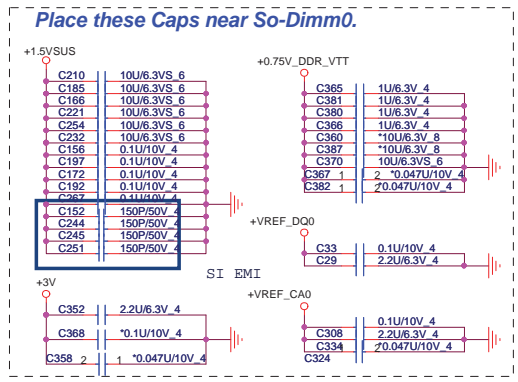
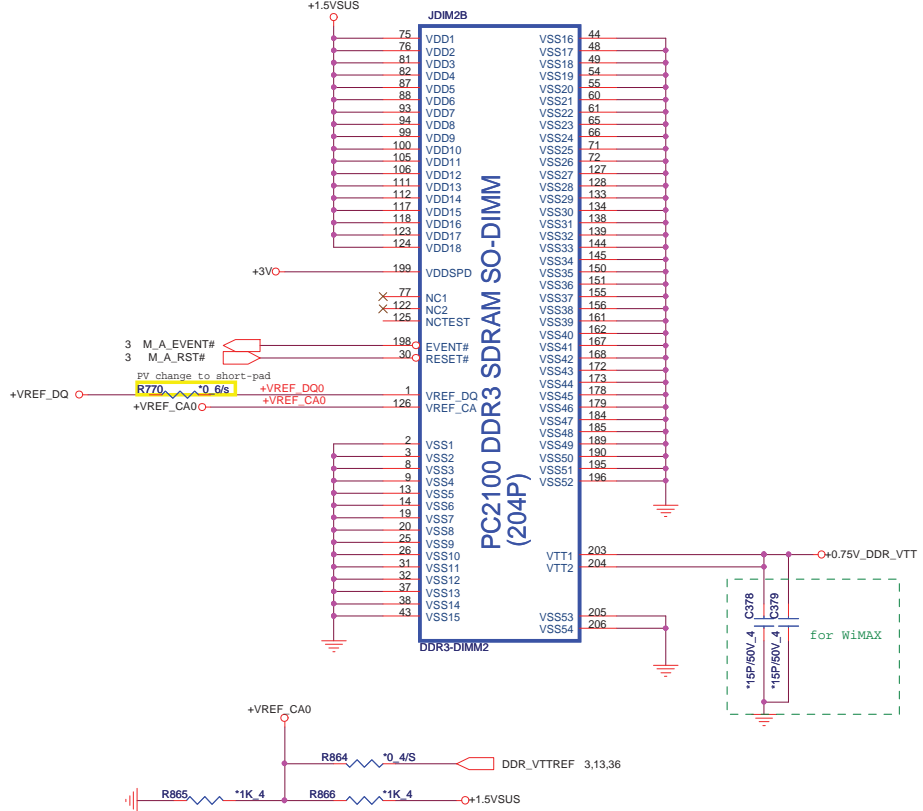
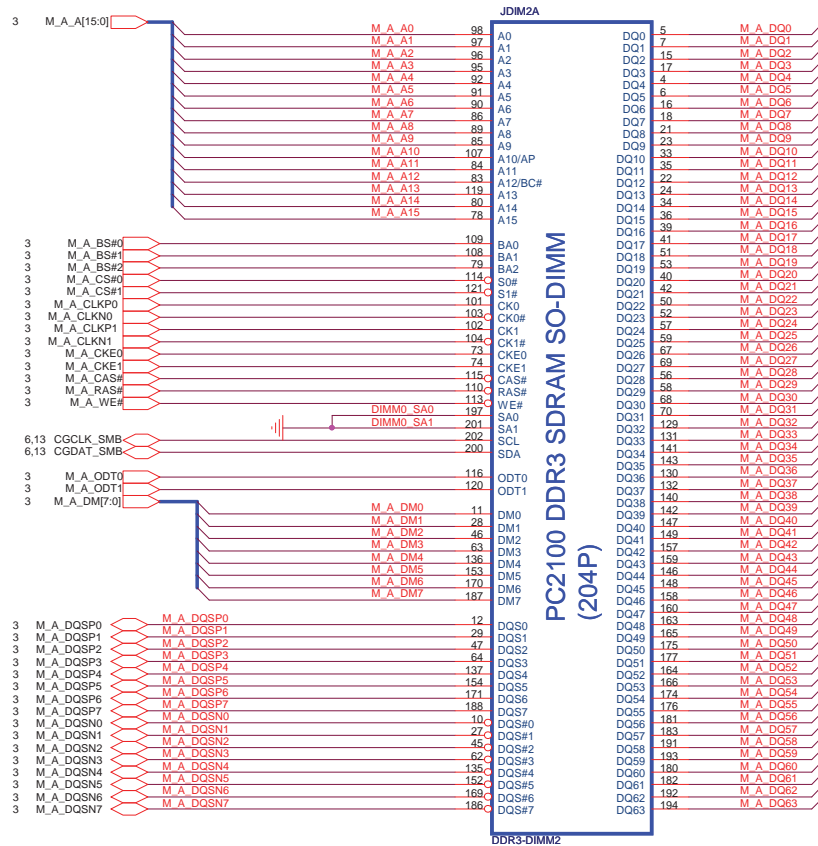
GPIO 0 : Define VAR_BL & BL_EN & DIGON H/W or S/W control power up timing
 Pull Hi for H/W mode
 ---chip have defined power up timing
 Pull Low for S/W mode -- APU through DPRX port to program it



ANALOGIX ANX3110



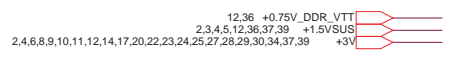
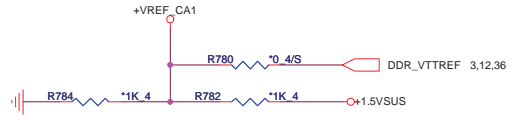
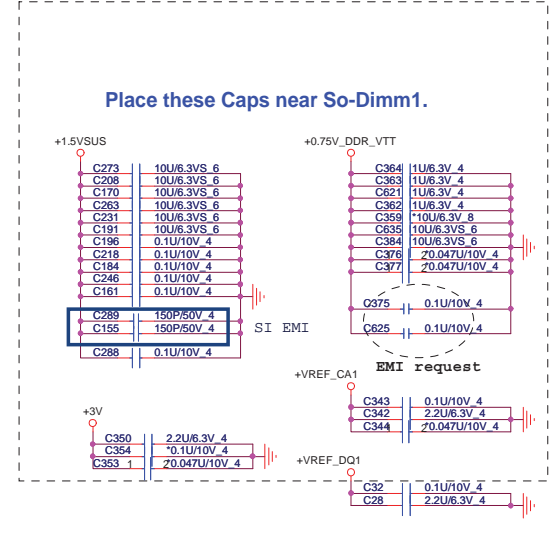
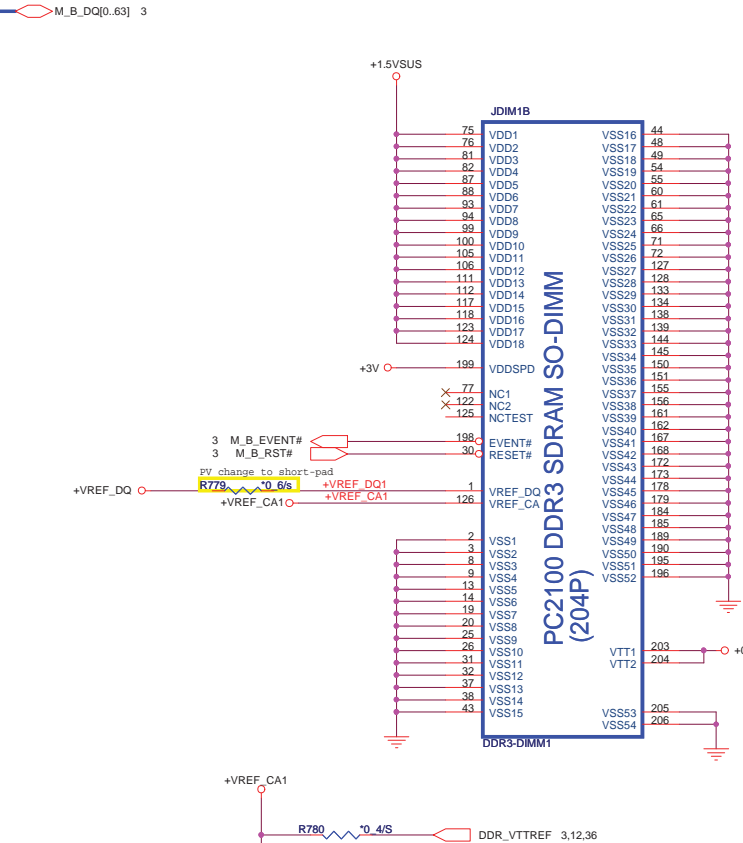
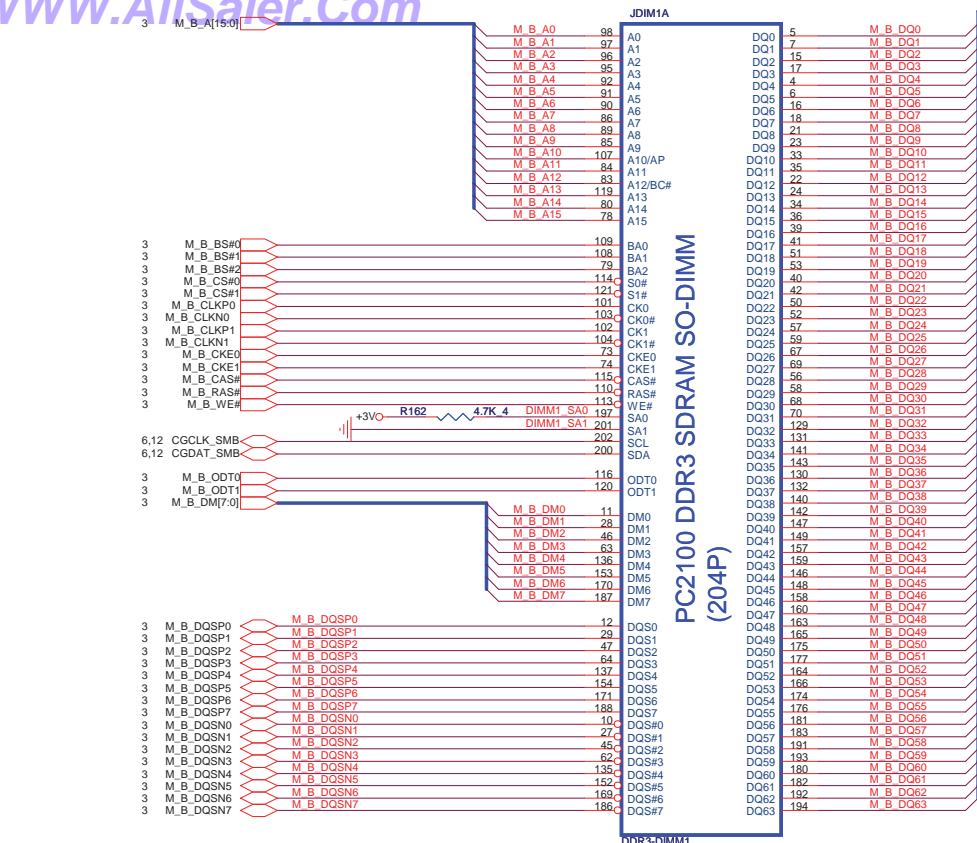
PROJECT : R23 Quanta Computer Inc.		
Size Custom	Document Number ANX3110	Rev 1A
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13.36 +0.75V_DDR_VTT
 2.3,4,5,13,36,37,39 +1.5VSUS
 2,4,6,8,9,10,11,13,14,17,20,22,23,24,25,27,28,29,30,34,37,39 +3V

PROJECT : R23
Quanta Computer Inc.

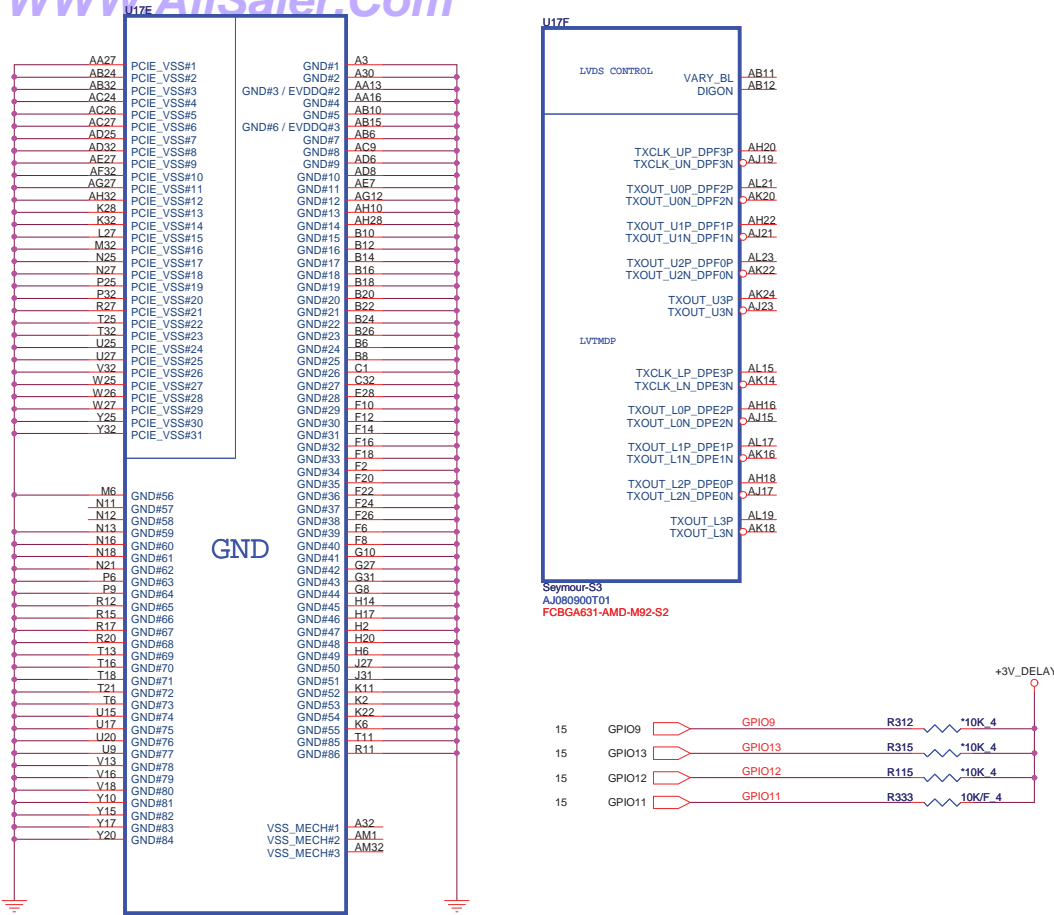
Size Custom Document Number **DDR3 DIMM-0** Rev 1A
 Date: Tuesday, May 03, 2011 Sheet 12 of 40



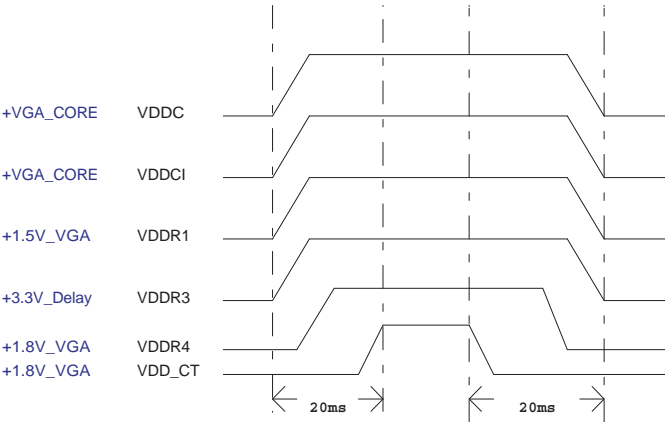
PROJECT : R23
Quanta Computer Inc.

Size Custom Document Number **DDR3 DIMM-1** Rev 1A

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Power Up/Down Sequence



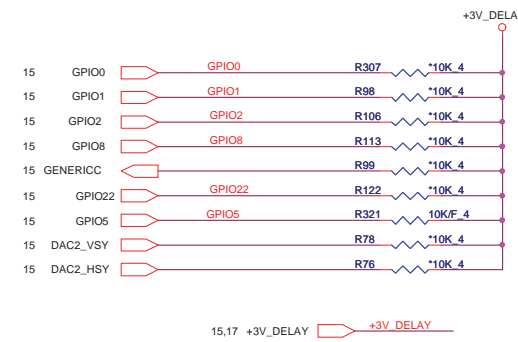
Memory Aperture size

GPIO9 BIOSROM		GPIO13 ROMIDCFG2	GPIO12 ROMIDCFG1	GPIO11 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.

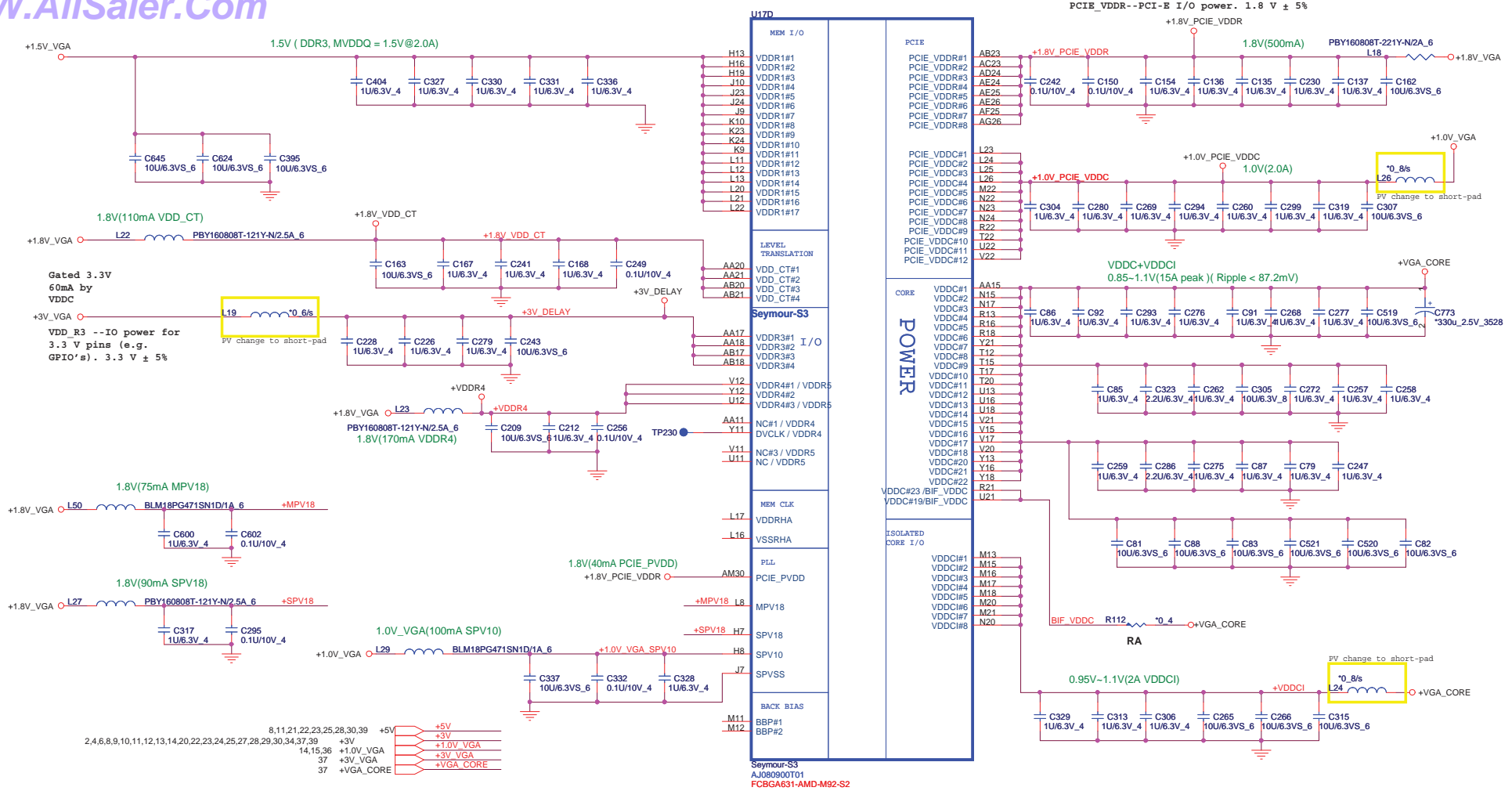
CONFIGURATION STRAPS			RECOMMENDED SETTINGS 0= DO NOT INSTALL RESISTOR 1= INSTALL 10K RESISTOR X = DESIGN DEPENDANT NA = NOT APPLICABLE
STRAPS	PIN	DESCRIPTION OF DEFAULT SETTINGS	
ALLOW FOR PULLUP PADS FOR THESE STRAPS AND IF THESE GPIOs ARE USED, THEY MUST NOT CONFLICT DURING RESET			
TX_PWRs_ENB	GPIO0	Transmitter Power Savings Enable 0: 50% Tx output swing for mobile mode 1: full Tx output swing (Default setting for Desktop)	1
TX_DEEMPH_EN	GPIO1	PCI Express Transmitter De-emphasis Enable 0: Tx de-emphasis disabled for mobile mode 1: Tx de-emphasis enabled (Default setting for Desktop)	1
BIF_GEN2_EN_A	GPIO2	Enable CLKREQ# Power Management 0 - CLKREQ# power management capability is disabled 1 - CLKREQ# power management capability is enabled	0
RSVD BIF_VGA_DIS RSVD	GPIO8 GPIO9 GPIO21	VGA ENABLED	0 0 0
BIOS_ROM_EN	GPIO_22_ROMCSB	ENABLE EXTERNAL BIOS ROM	0
ROMIDCFG(2:0)	GPIO[13:11]	SERIAL ROM TYPE OR MEMORY APERTURE SIZE SELECT	0 0 1
VIP_DEVICE_STRAP_ENA	V2SYNC	IGNORE VIP DEVICE STRAPS	0
RSVD AUD[1] AUD[0]	GENERICC HSYNC VSYNC	AUD[1] AUD[0] 0 0 No audio function 0 1 Audio for DisplayPort and HDMI if dongle is detected 1 0 Audio for DisplayPort only 1 1 Audio for both DisplayPort and HDMI	0 0 11

AMD RESERVED CONFIGURATION STRAPS		
ALLOW FOR PULLUP PADS FOR THESE STRAPS AND IF THESE GPIOs ARE USED, THEY MUST NOT CONFLICT DURING RESET		
H2SYNC	GENERICC	
PULLUP PADS ARE NOT REQUIRED FOR THESE STRAPS BUT IF THESE GPIOs ARE USED, THEY MUST NOT CONFLICT DURING RESET		
GPIO21_BB_EN		

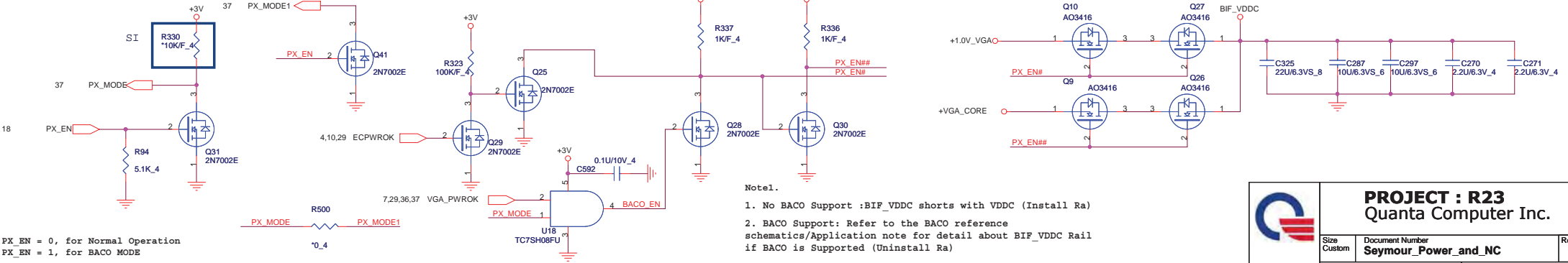


PROJECT : R23
Quanta Computer Inc.

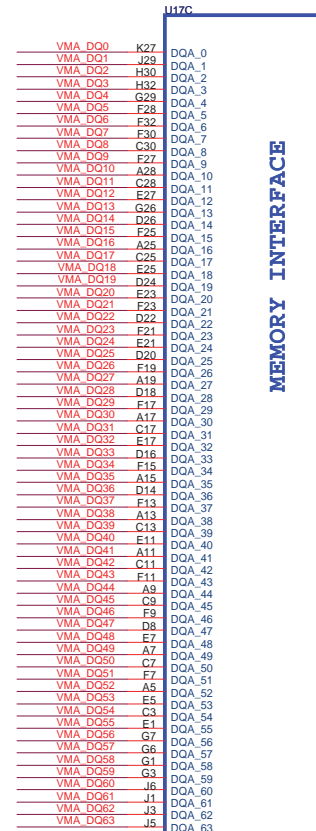
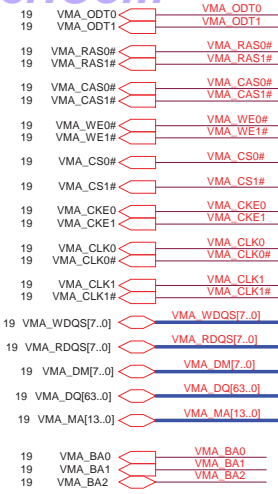
Size Custom Document Number Seymour GND / LVDS/ Straps Rev 1A
Date: Tuesday, May 03, 2011 Sheet 16 of 40



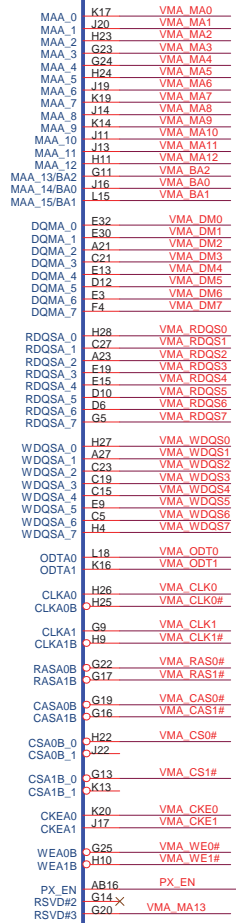
Support BACO Mode



		PROJECT : R23		Rev 1A
		Quanta Computer Inc.		
Size Custom	Document Number	Seymour_Power_and_NC		Date: Tuesday, May 03, 2011
Date: Tuesday, May 03, 2011		Sheet 17	of 40	

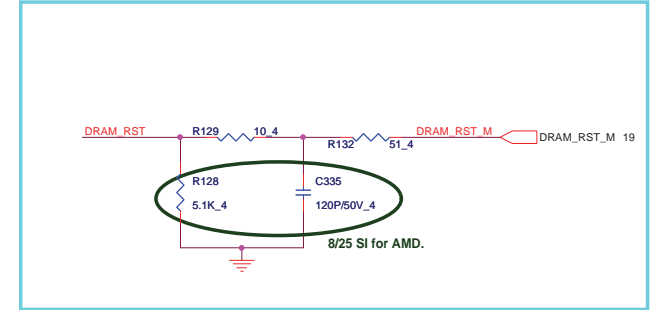
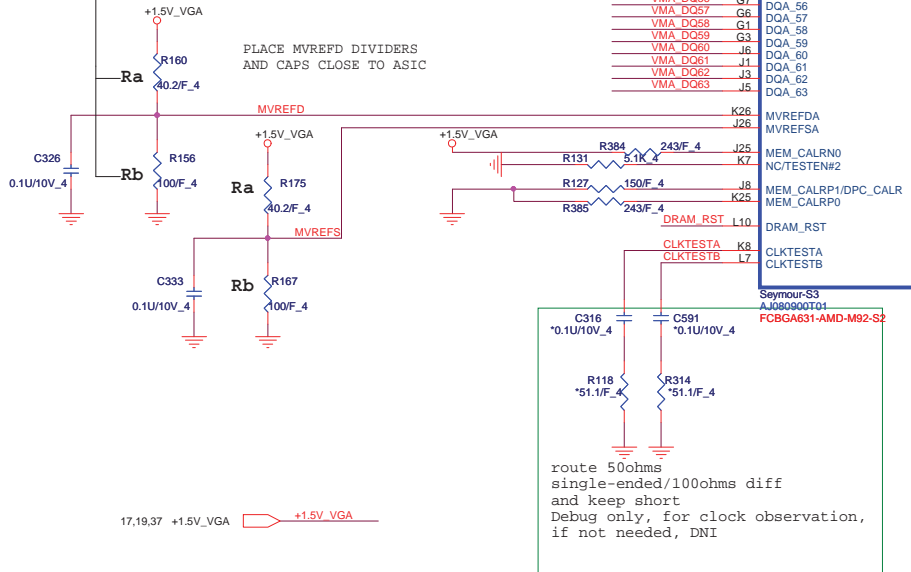


MEMORY INTERFACE



support 1Gbit
VRAM (64M X 16)

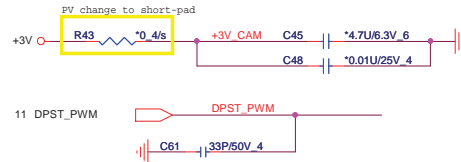
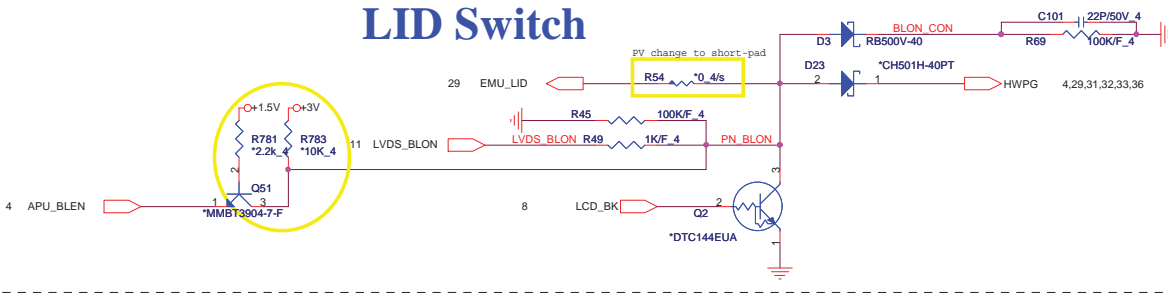
DIVIDER RESISTORS	GDDR5	DDR3
MVREF TO 1.8V (Ra)	40.2R	40.2R
MVREF TO GND (Rb)	100R	100R



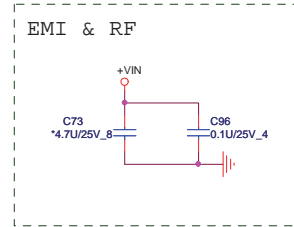
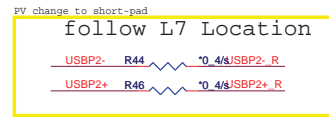
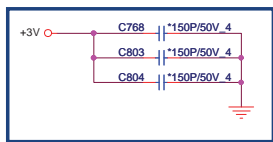
PROJECT : R23
Quanta Computer Inc.

Size Custom	Document Number Seymour/MEM_Interface	Rev 1A
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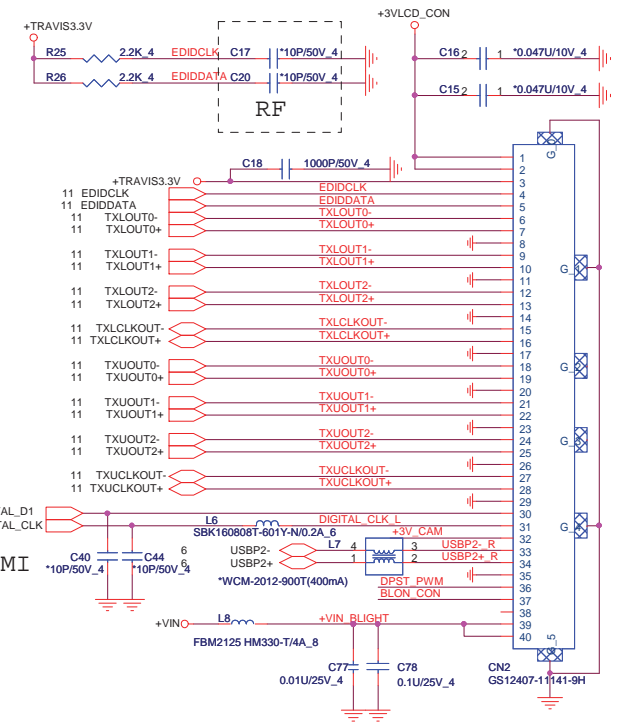
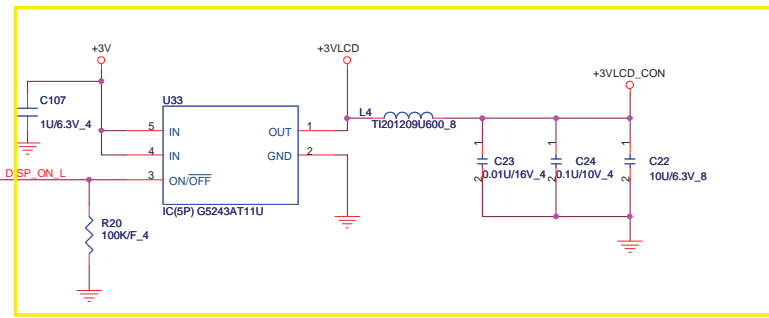
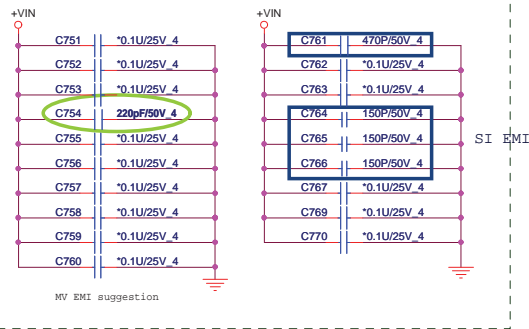
LID Switch



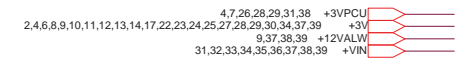
SI EMI



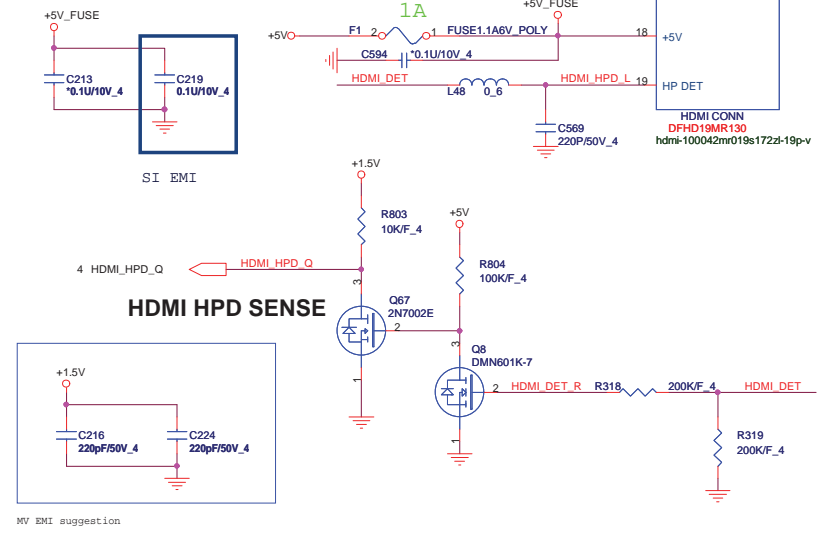
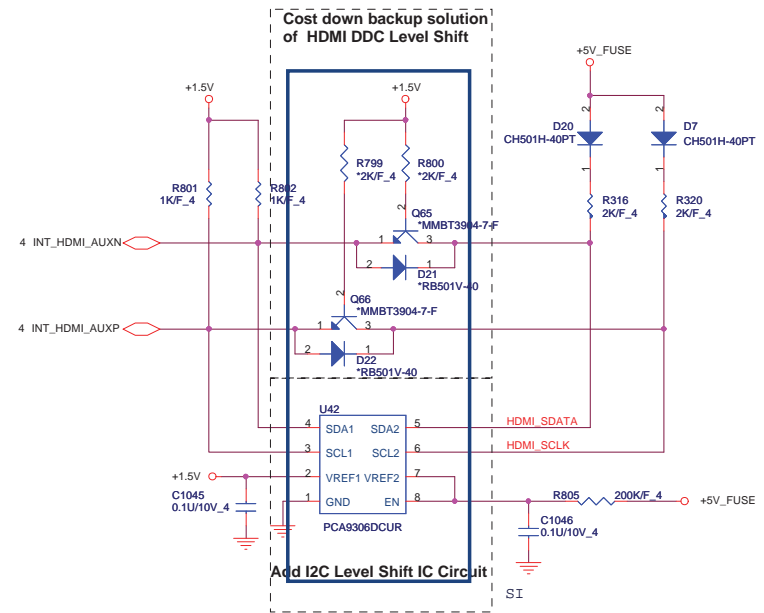
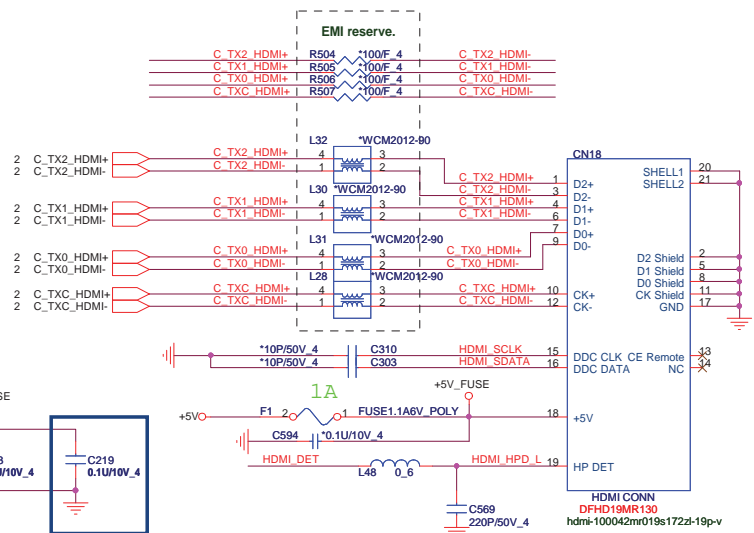
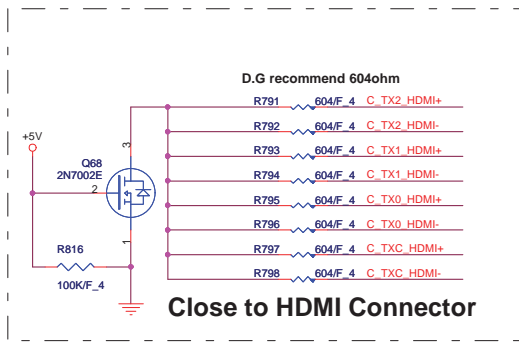
Coupling CAP.



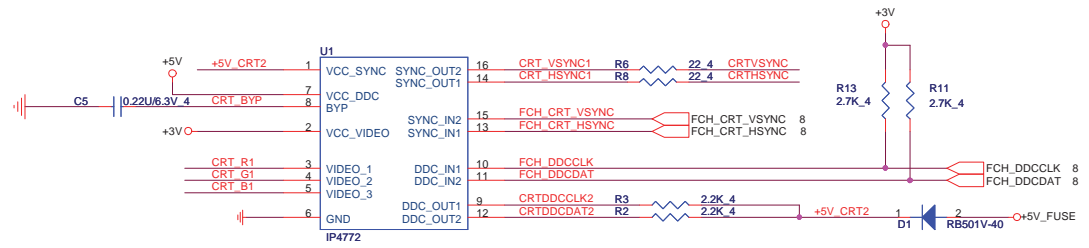
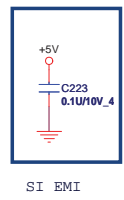
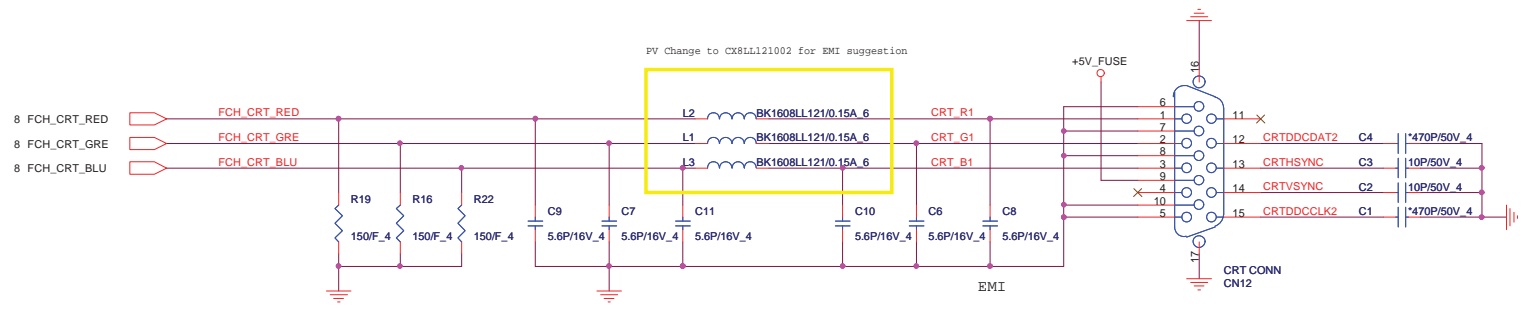
PV change for reduce circuit!



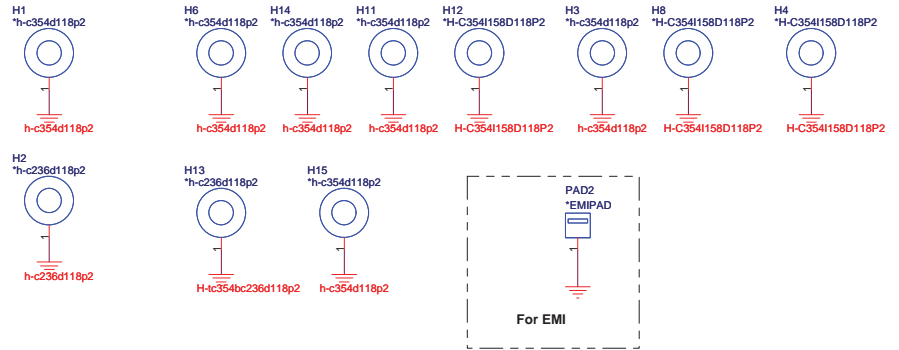
		PROJECT : R23	
		Quanta Computer Inc.	
Size Custom	Document Number	LCD CONN/LID/CAM	Rev 1A
Date: Tuesday, May 03, 2011		Sheet 20	of 40



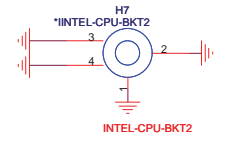
			PROJECT : R23	
			Quanta Computer Inc.	
Size Custom	Document Number	HDMI CONN		Rev 1A
Date: Tuesday, May 03, 2011		Sheet	21	of 40



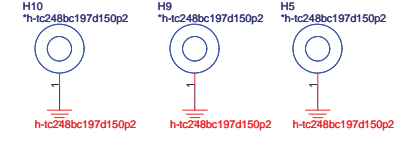
HOLE



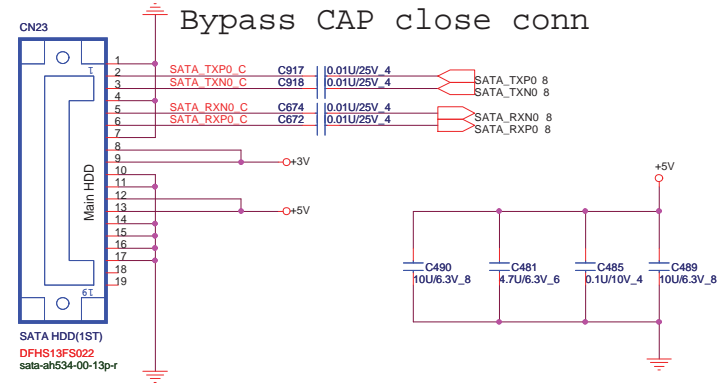
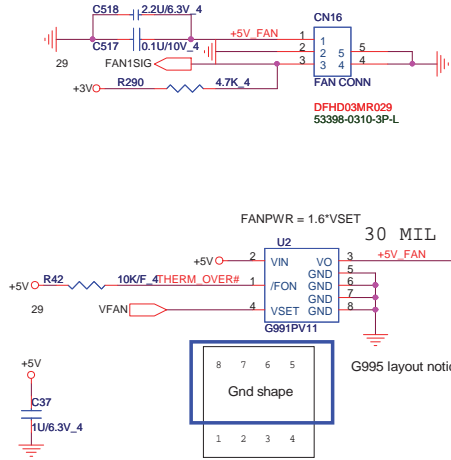
CPU



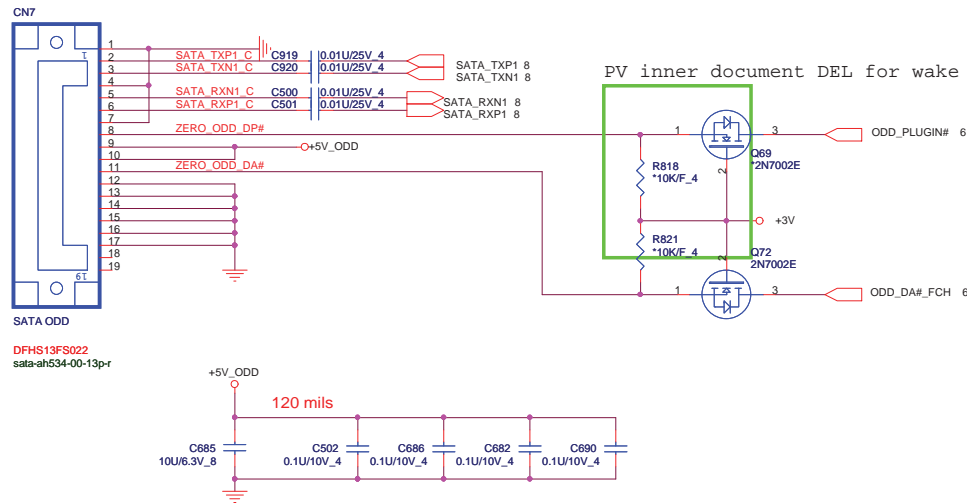
VGA



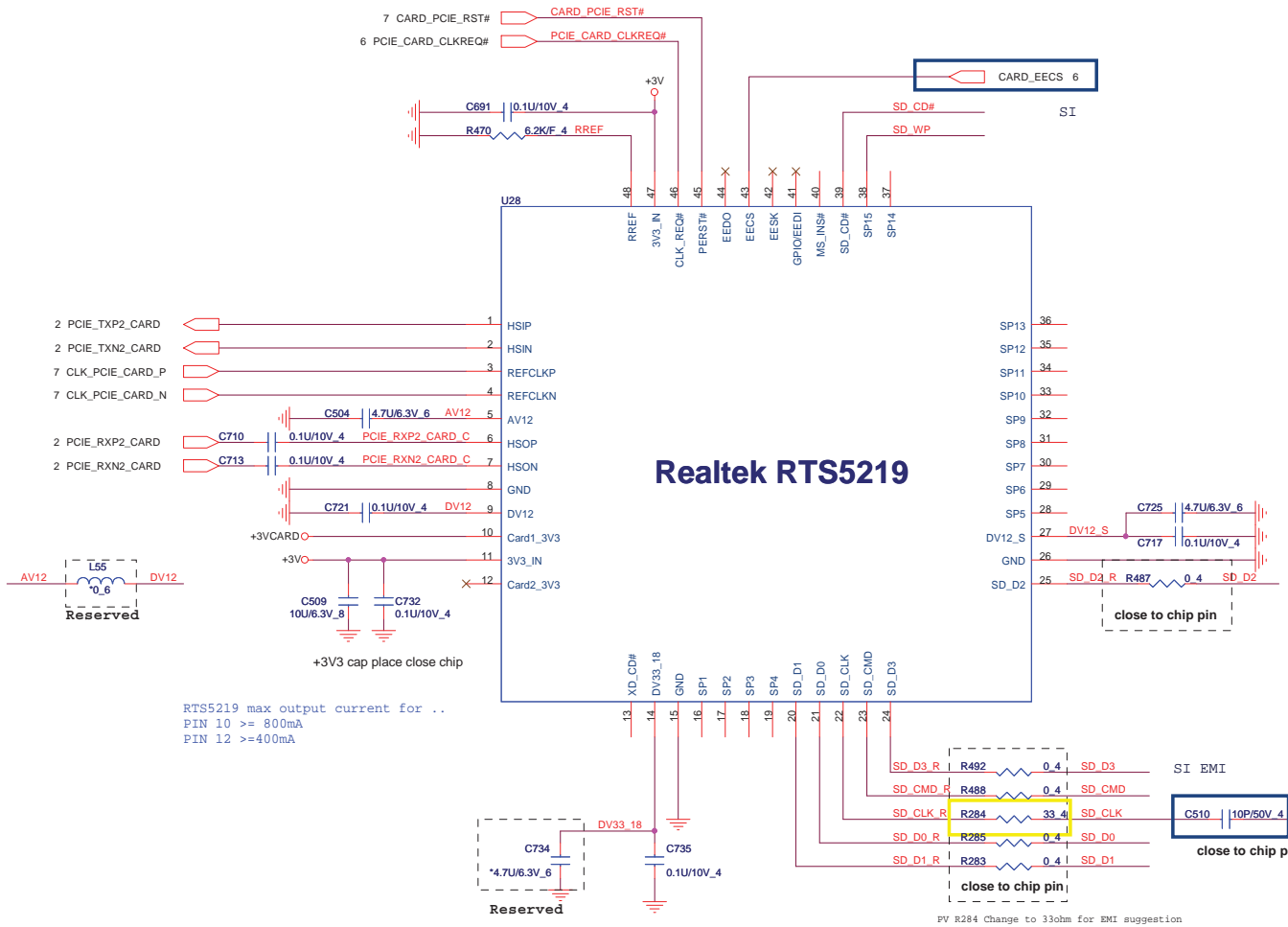
PROJECT : R23 Quanta Computer Inc.		
Size Custom	Document Number CRT,Hole	Rev 1A
Date: Tuesday, May 03, 2011	Sheet 22	of 40



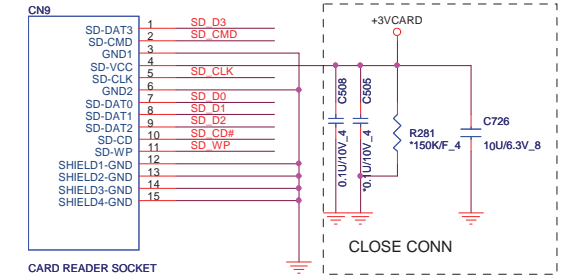
SATA ODD CONNECTOR SATA ODD




<p>PROJECT : R23 Quanta Computer Inc.</p>		
Size Custom	Document Number HDD/ODD/FAN	Rev 1A
Date: Wednesday, May 04, 2011 Sheet 23 of 40		



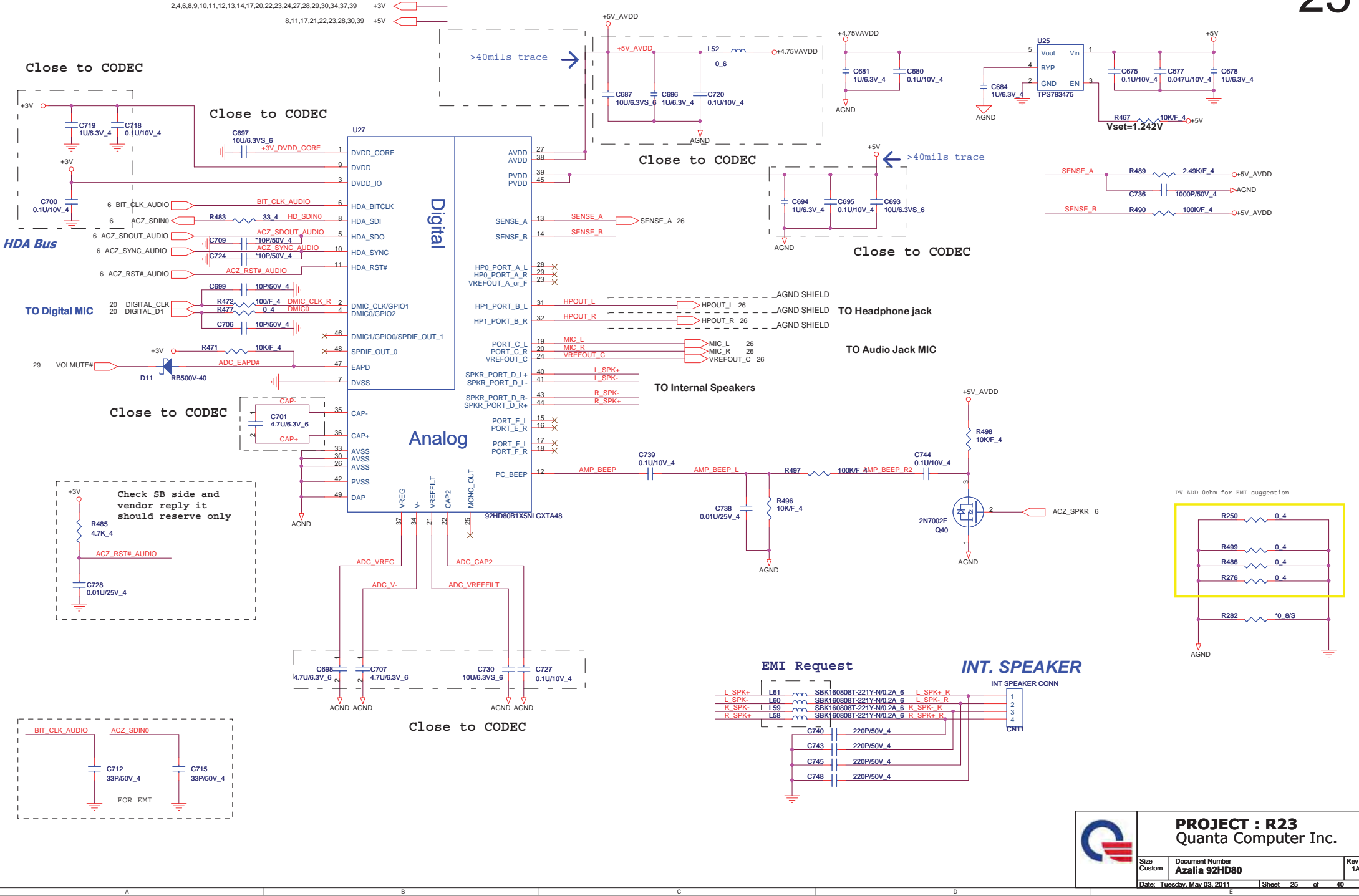
Footprint lqfp48-9x9-5-1_6h



PV R284 Change to 33ohm for EMI suggestion

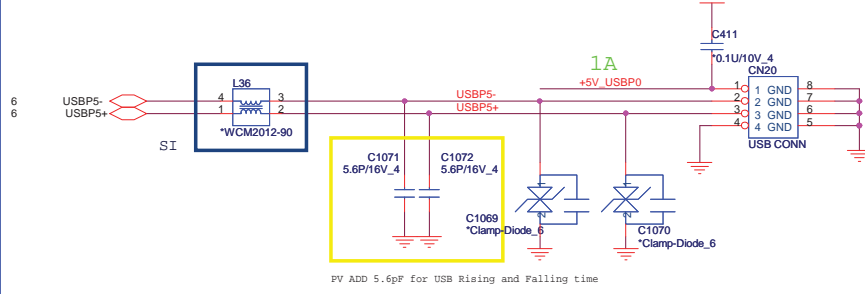
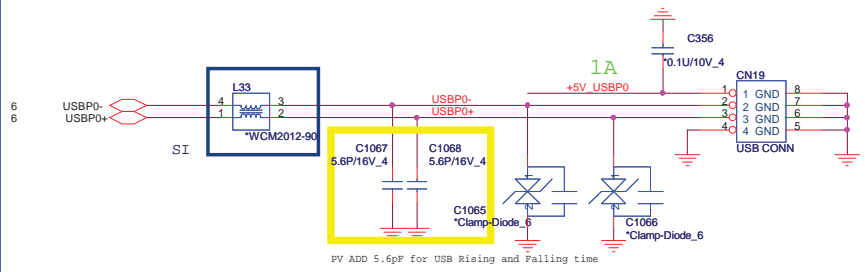
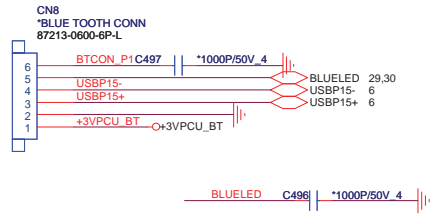
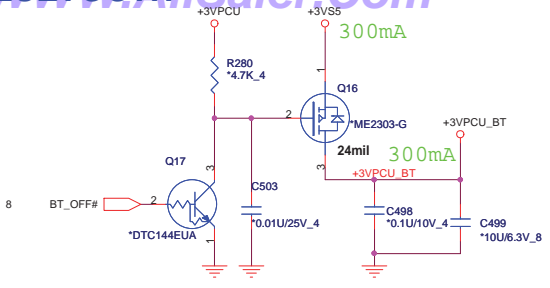
			PROJECT : R23	
			Quanta Computer Inc.	
Size Custom	Document Number RTS5219 & CR SOCKET & HOLE	Rev 1A		
Date: Tuesday, May 03, 2011	Sheet 24	of 40		

2,4,6,8,9,10,11,12,13,14,17,20,22,23,24,27,28,29,30,34,37,39 +3V
8,11,17,21,22,23,28,30,39 +5V

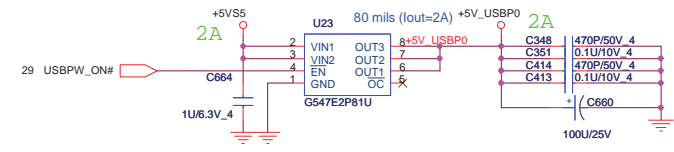


PROJECT : R23
Quanta Computer Inc.

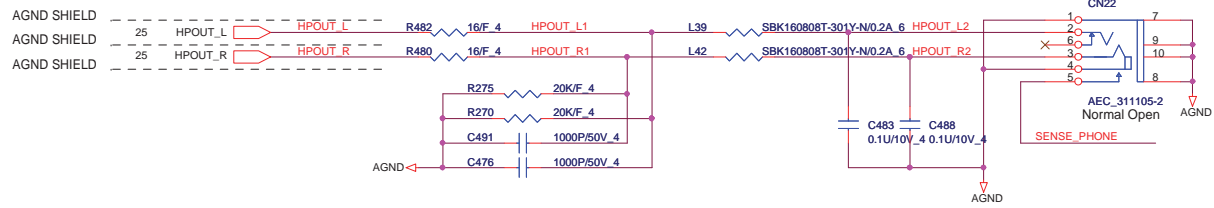
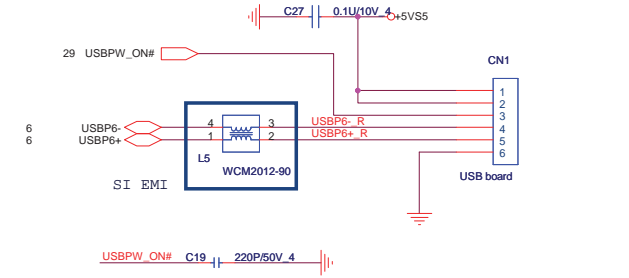
Size Custom	Document Number Azalia 92HD80	Rev 1A
Date: Tuesday, May 03, 2011	Sheet 25 of 40	



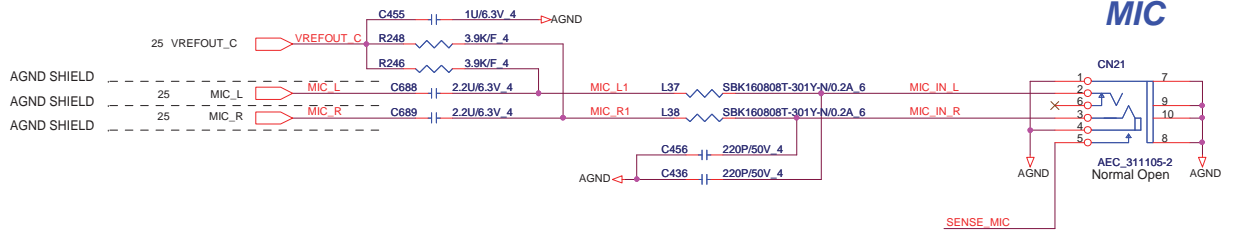
LEFT SIDE USB2



Right SIDE USB1

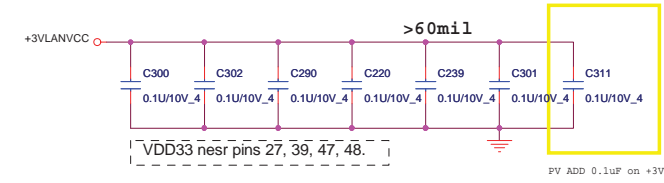
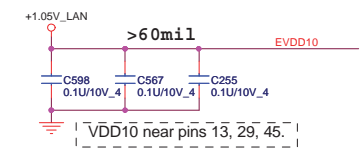
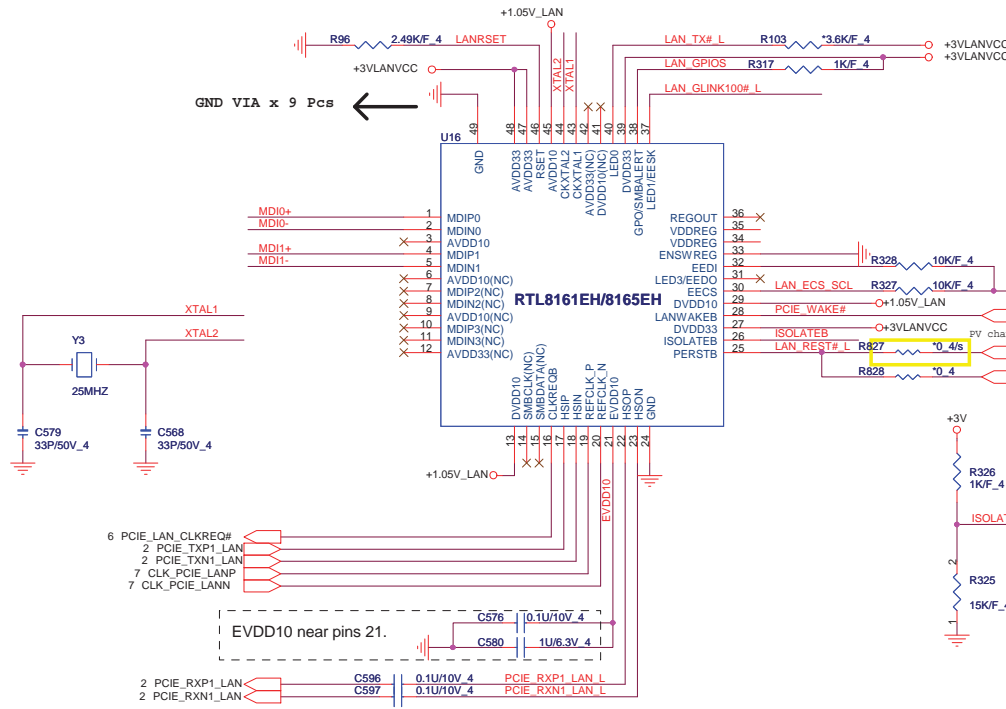


Line out

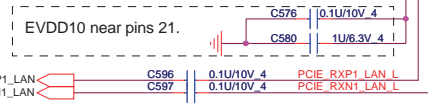
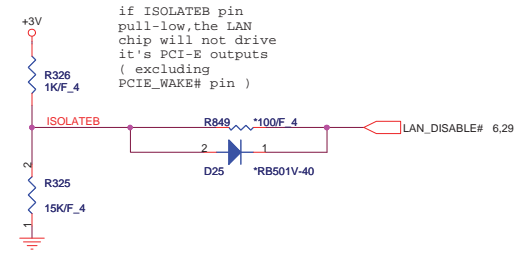


MIC

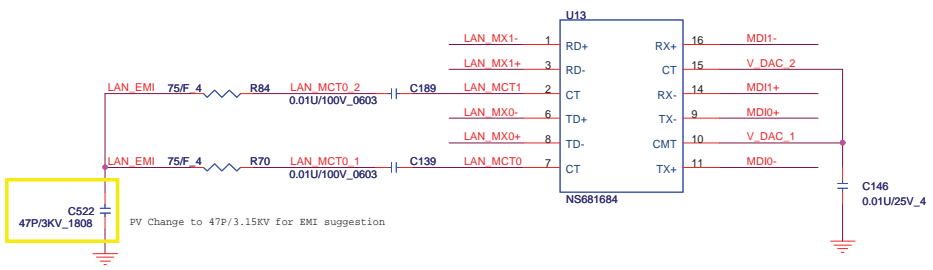
PROJECT : R23 Quanta Computer Inc.		
Size Custom	Document Number USB/BT/Audio Jack	Rev 1A
Date: Tuesday, May 03, 2011	Sheet 26	of 40



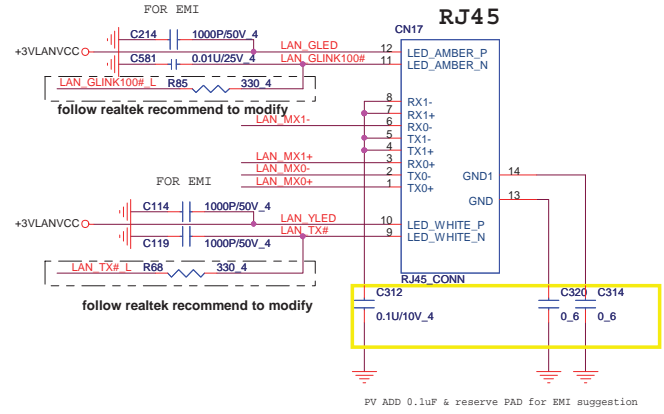
if ISOLATEB pin pull-low, the LAN chip will not drive its PCI-E outputs (excluding PCIE_WAKE# pin)



Transformer for 10/100



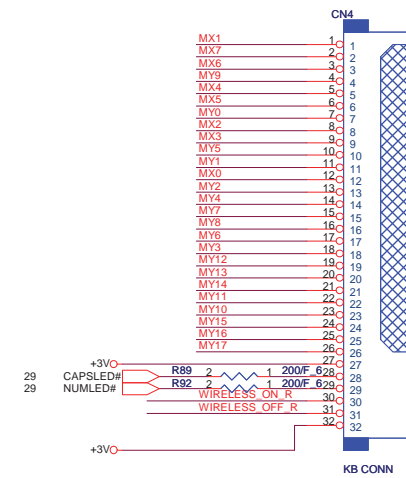
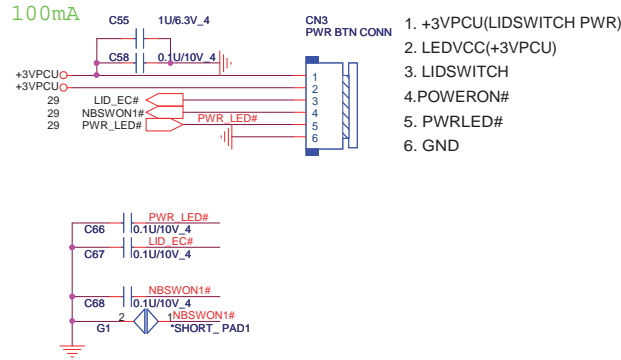
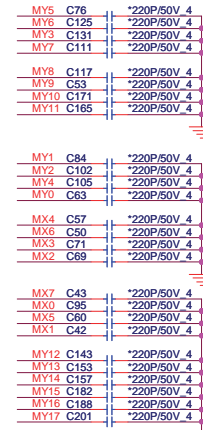
Lan Con.



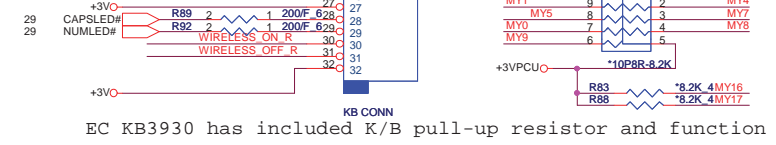
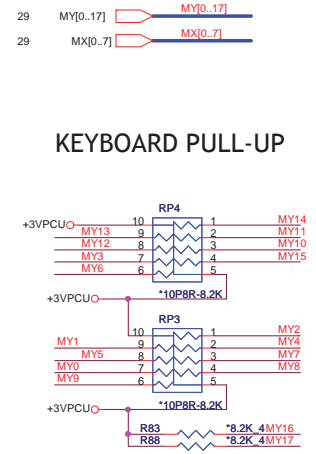
			PROJECT : R23 Quanta Computer Inc.	
Date: Tuesday, May 03, 2011			Sheet 27	of 40

2,4,6,8,9,10,11,12,13,14,17,20,22,23,24,25,28,29,30,34,37,39

KEYBOARD Con.



KEYBOARD PULL-UP

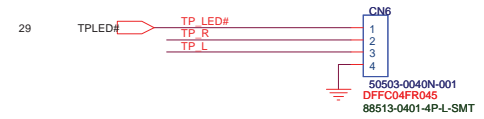
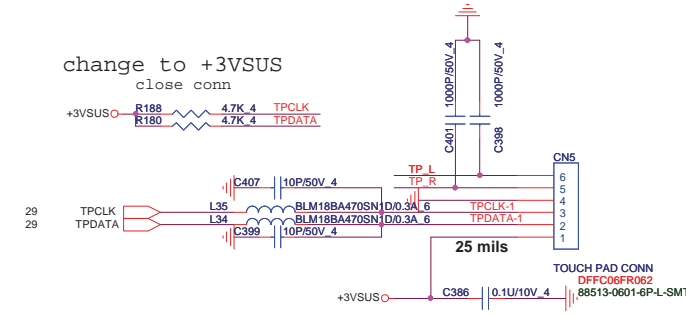
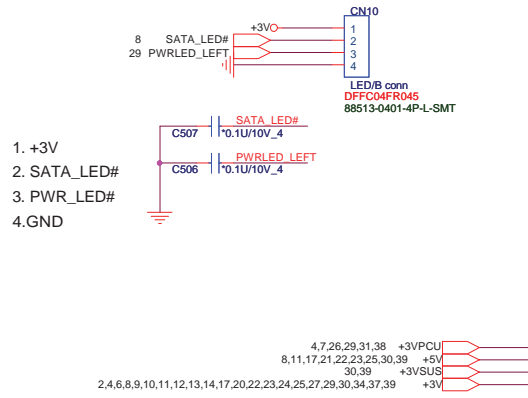


EC KB3930 has included K/B pull-up resistor and function

LED Con.

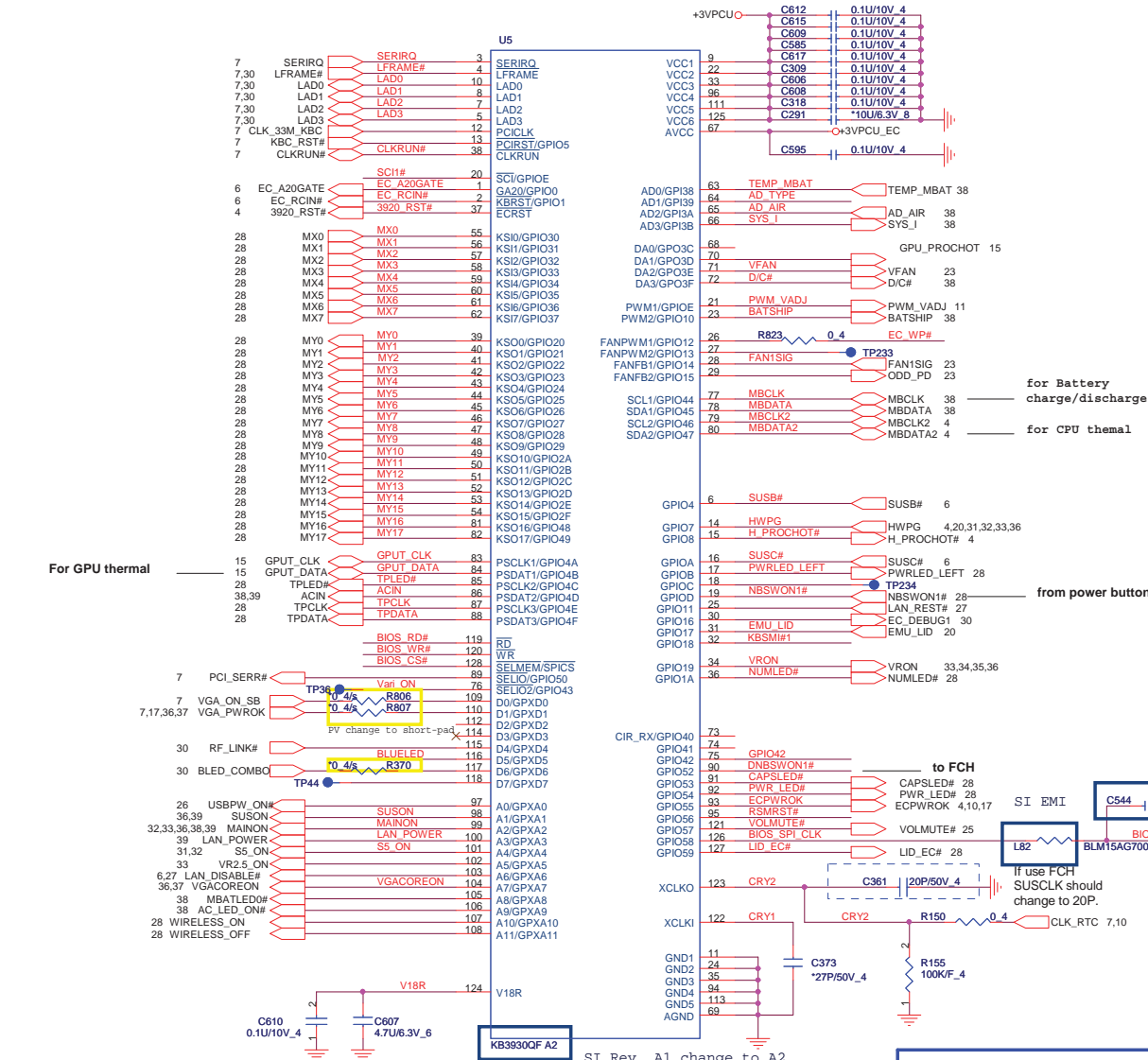
TOUCH PAD Con.

To TOUCH PAD SW board

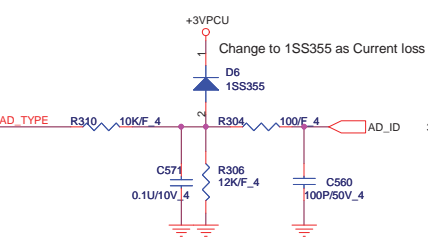


PROJECT : R23
Quanta Computer Inc.

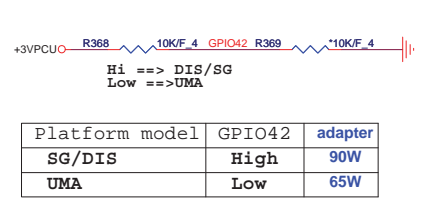
Size Custom	Document Number LED/KB/SW/TP	Rev 1A
Date: Tuesday, May 03, 2011 Sheet 28 of 40		



Smart adapter Type check



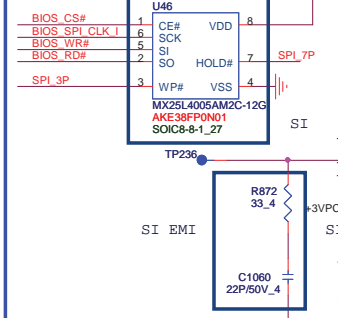
Adapter select



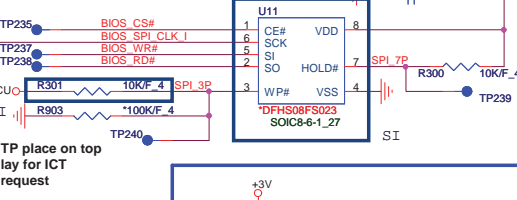
Platform model	GPIO42	adapter
SG/DIS	High	90W
UMA	Low	65W

Vender	Size	P/N
AMIC	128K	AKE35ZN0801
EON	128K	AKE35FN0Q00
Socket		DFHS08FS023

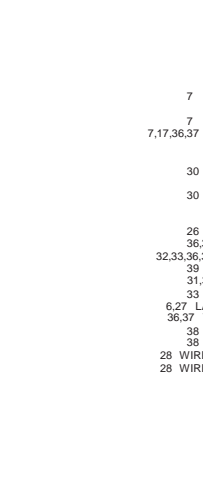
2M SPI EC ROM



128K byte SPI EC ROM



For GPU thermal



CPU Thermal SMBUS select	Vari_ON	project
SCL1/SDA1	Low	R22
SCL2/SDA2	High	R23,R24

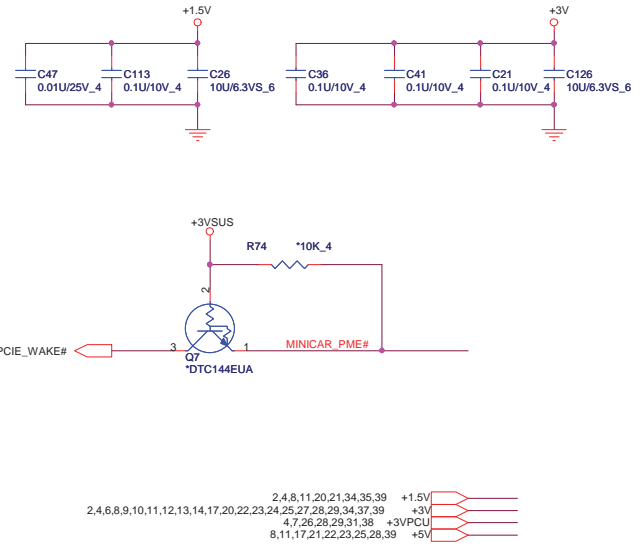
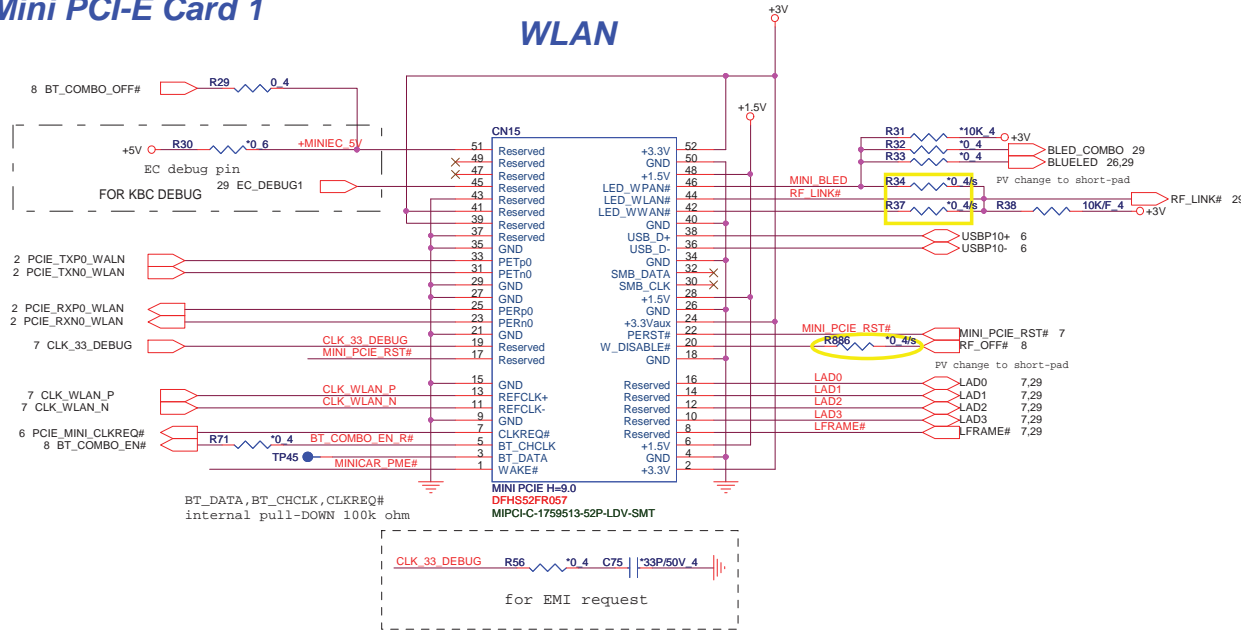
INPUTS				OUTPUTS	
PRE	CLR	CLK	D	Q	Q̄
L	H	X	X	H	L
H	L	X	X	L	H
L	L	X	X	H	H
H	H	↑	H	H	L
H	H	↑	L	L	H
H	H	L	X	Q	Q̄

PROJECT : R23
 Quanta Computer Inc.

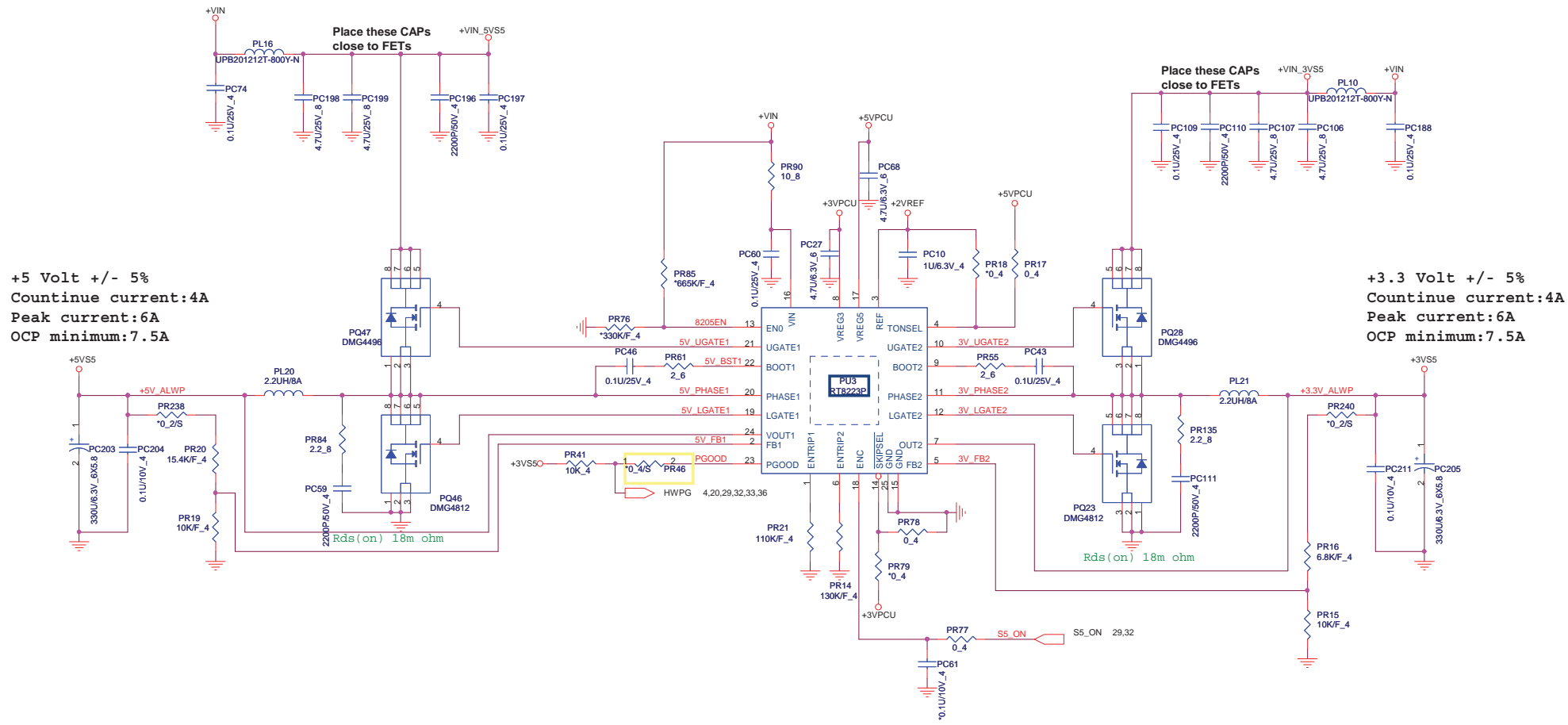
Size Custom Document Number EC (KB3926)/ROM Rev 1A
 Date: Tuesday, May 03, 2011 Sheet 29 of 40


Mini PCI-E Card 1

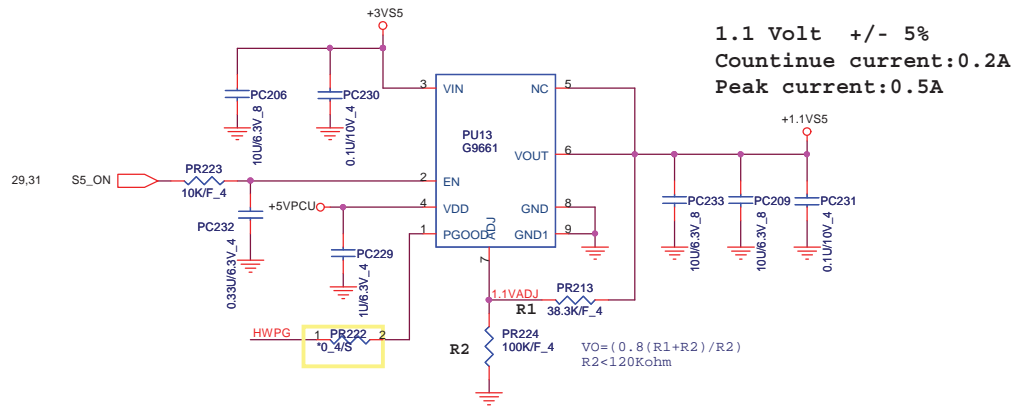
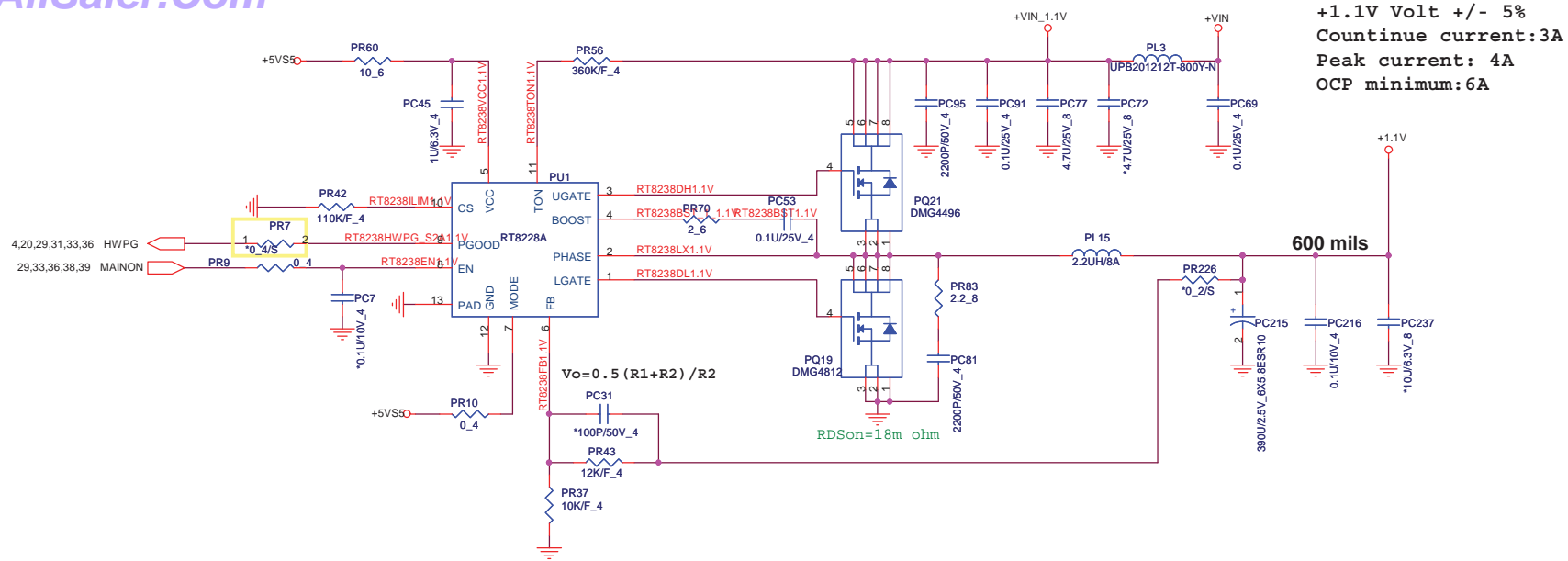
WLAN




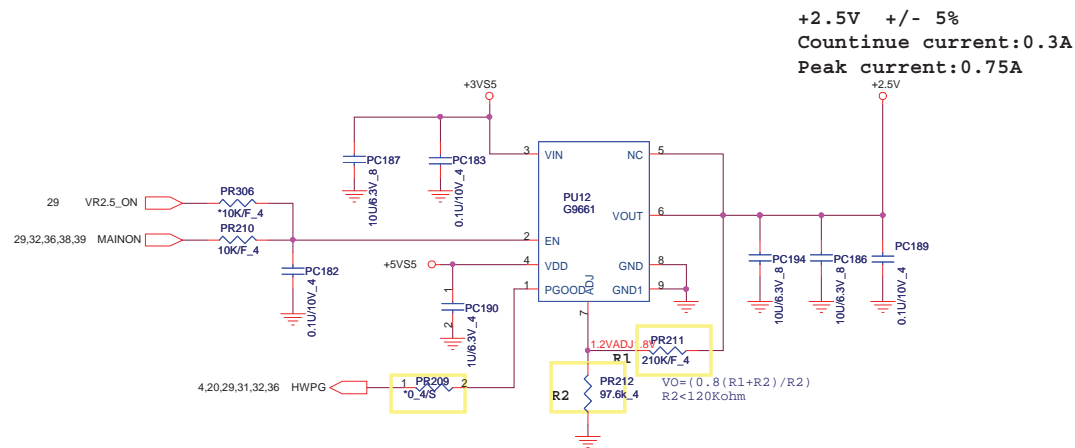
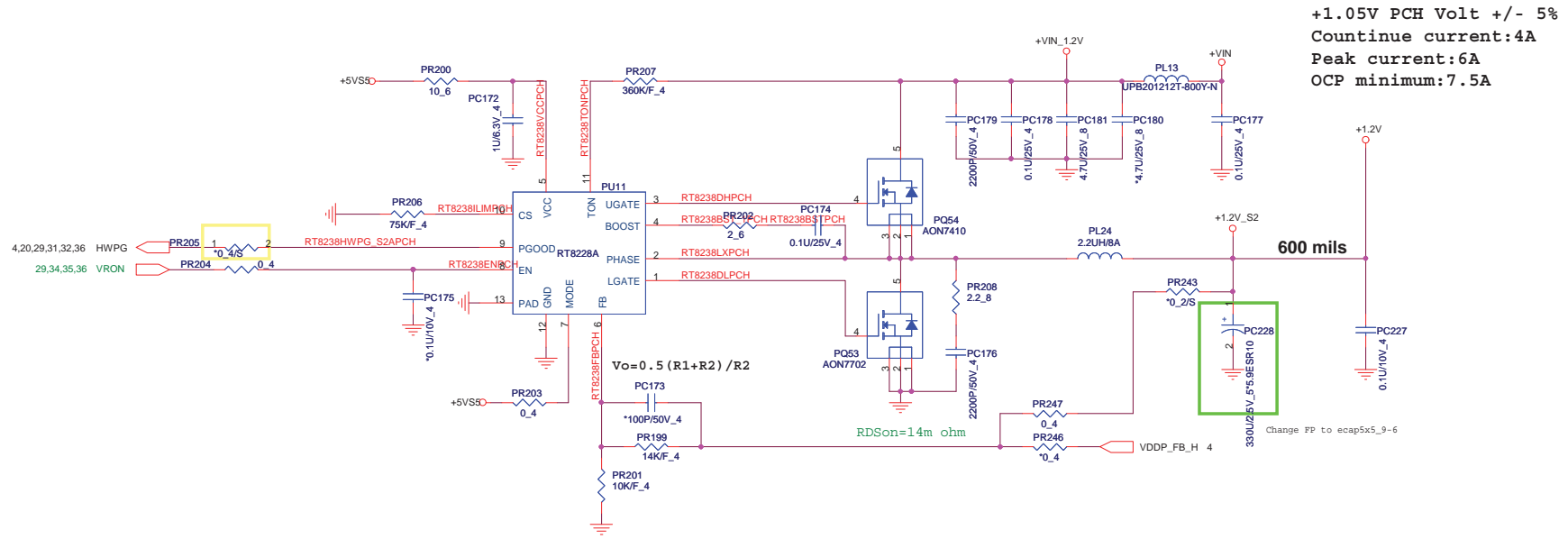
	PROJECT : R23		Rev 1A
	Quanta Computer Inc.		
	Size Custom	Document Number MINI PCI-E CONN X1	
	Date: Tuesday, May 03, 2011	Sheet 30 of 40	




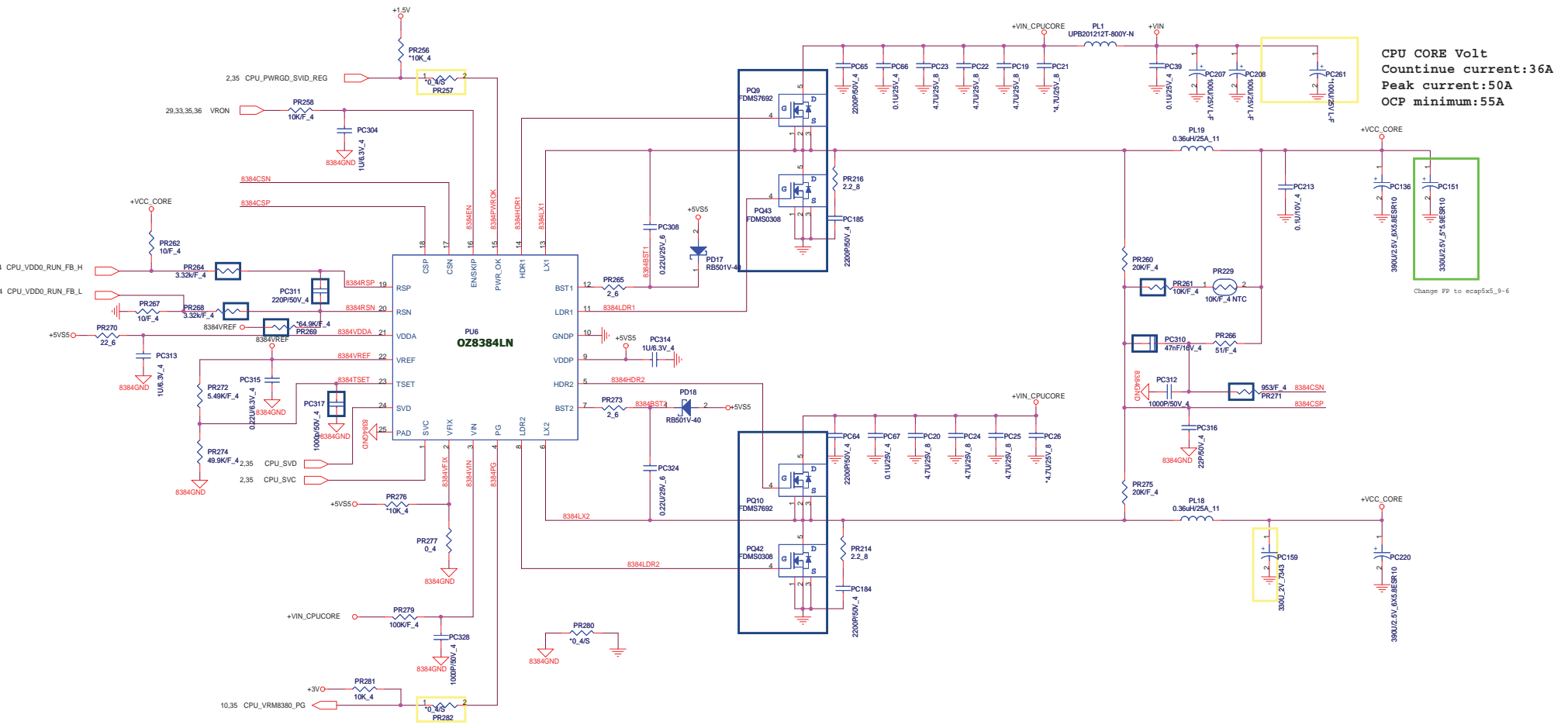
 PROJECT : R23 Quanta Computer Inc.			
			Size Custom
Date: Tuesday, May 03, 2011			Sheet 31 of 40



 NB5/RD2	PROJECT : R23 Quanta Computer Inc.	
	Size Custom Date: Tuesday, May 03, 2011	Document Number VGA Core/+1.8VGF/+1.0VGF Sheet 32 of 40




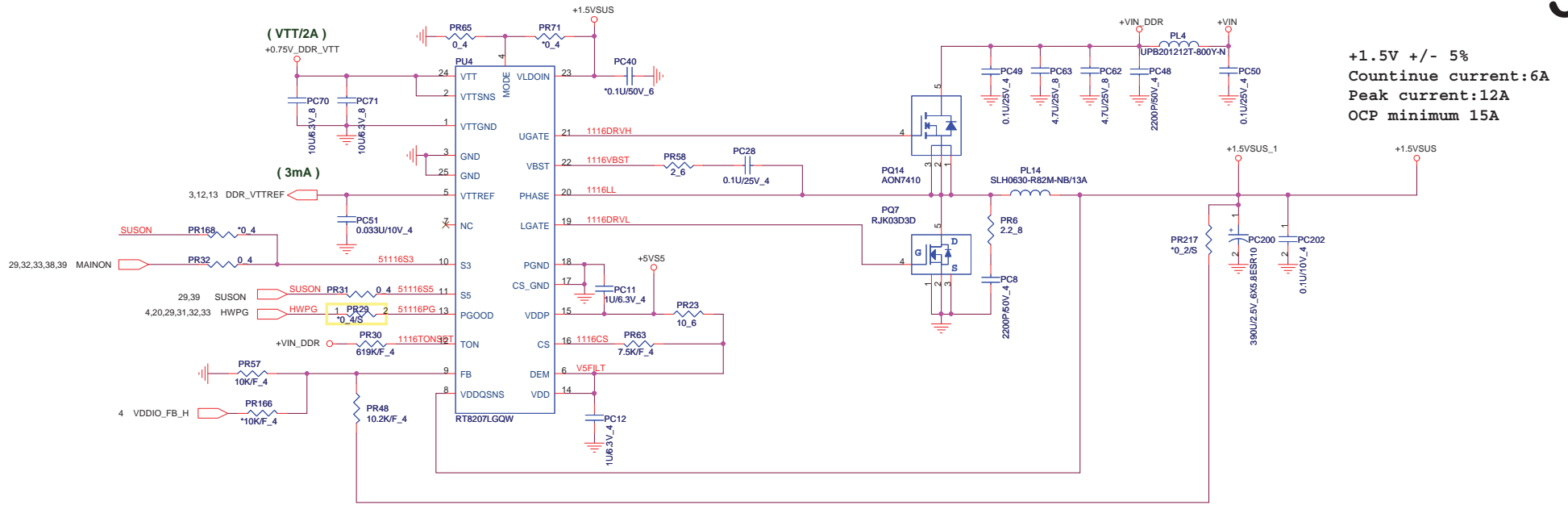
 PROJECT : R23 Quanta Computer Inc.		



CPU CORE Volt
 Countinue current:36A
 Peak current:50A
 OCP minimum:55A

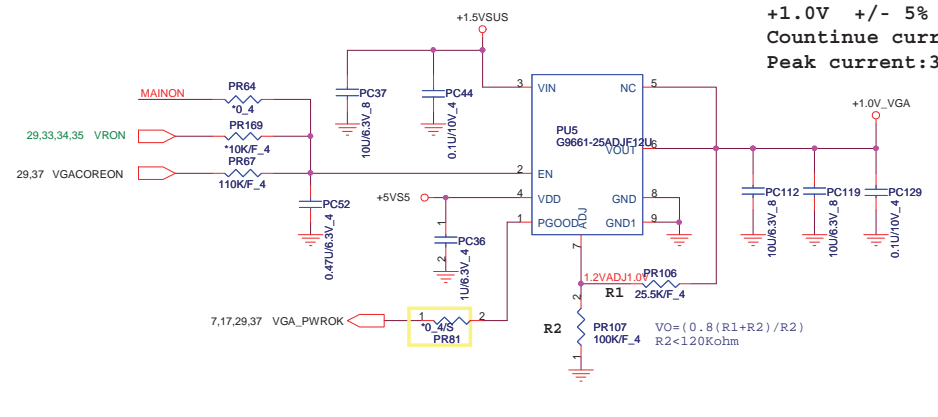
Change FP to ecap5x5_9-6

	PROJECT : R23		Rev 1A
	Quanta Computer Inc.		
	Size C	Document Number +1.1V VTT / PCH	
N85/RD2	Date: Tuesday, Mar 03, 2011	Sheet 34 of 40	

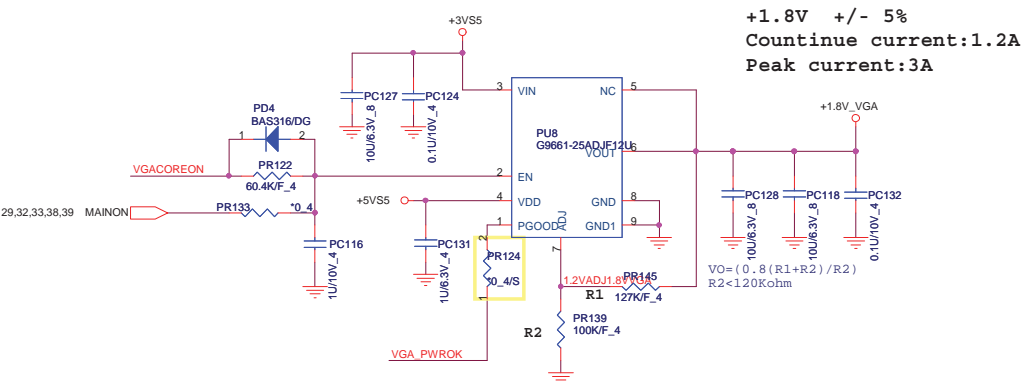



SG & Discrete Only

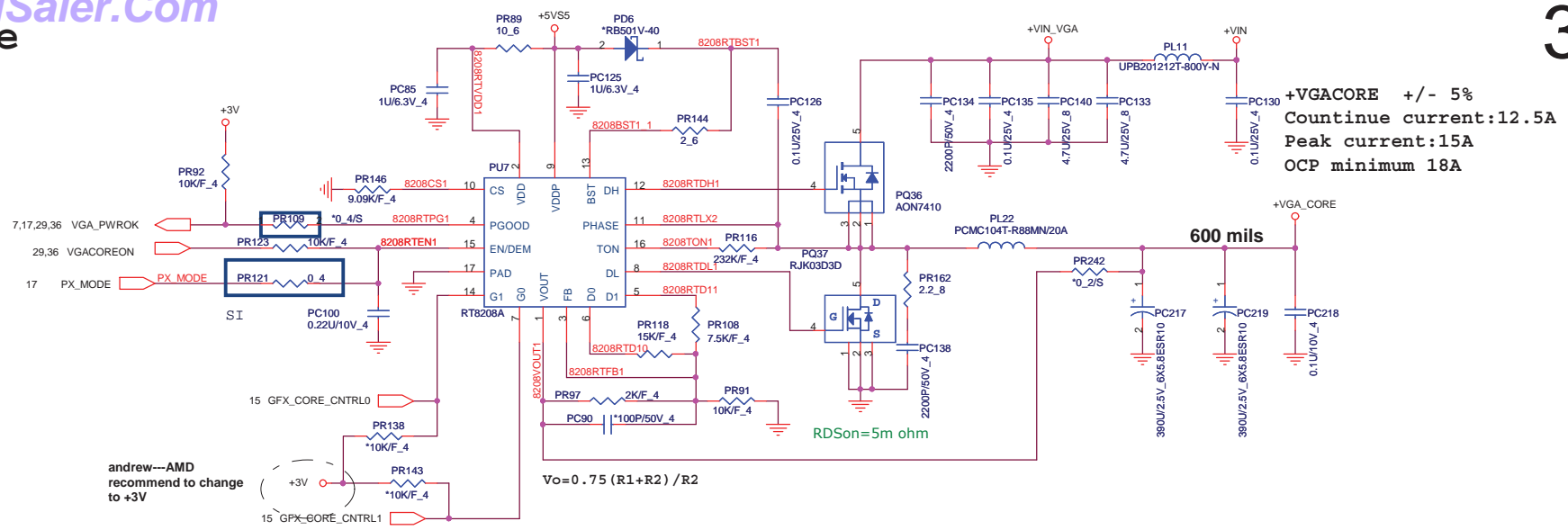
+1.0V +/- 5%
 Countinue current:1.7A
 Peak current:3A



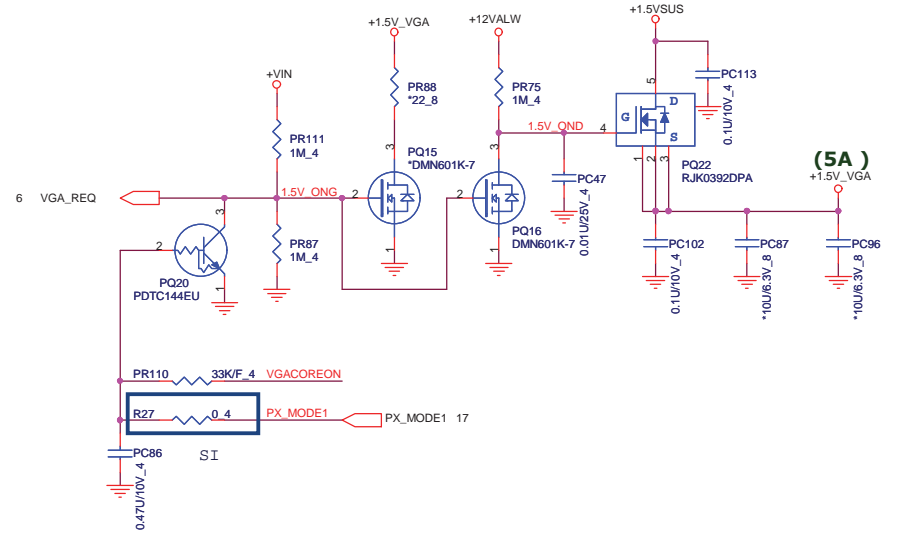
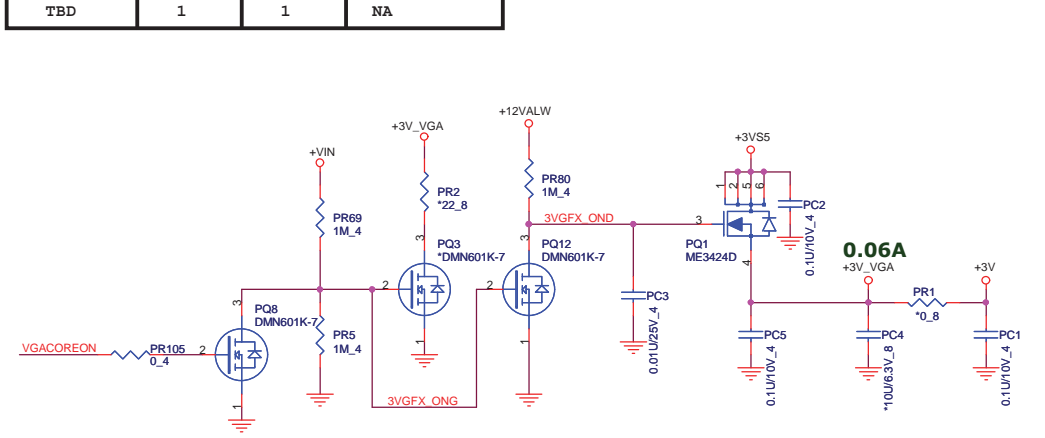
+1.8V +/- 5%
 Countinue current:1.2A
 Peak current:3A



			PROJECT : R23 Quanta Computer Inc.	



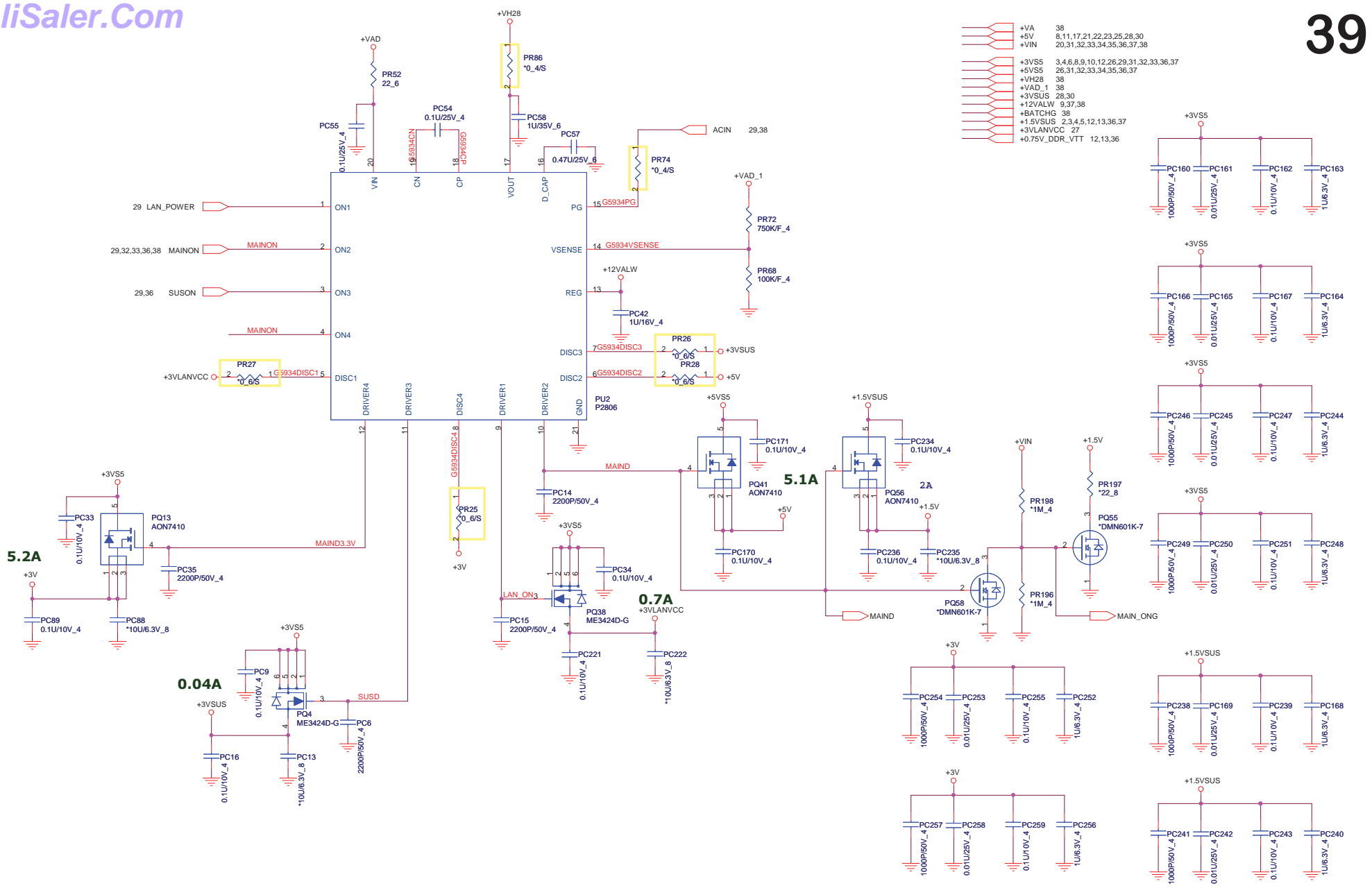
Seymour-XT	PWRCNTL0	PWRCNTL1	V-CORE
L	0	0	0.9V
M	0	1	1V
H	1	0	1.1V (Default)
TBD	1	1	NA



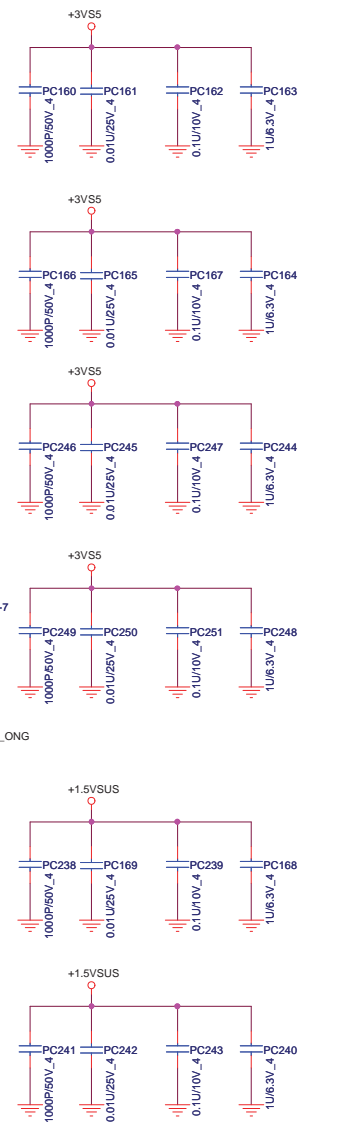
PROJECT : R23
Quanta Computer Inc.


Size Custom | Document Number +VGACORE (RT8208/1.8V) | Rev 1A

Date: Tuesday, May 03, 2011 | Sheet 37 of 40



+VA	38
+5V	8,11,17,21,22,23,25,28,30
+VIN	20,31,32,33,34,35,36,37,38
+3VS5	3,4,6,8,9,10,12,26,29,31,32,33,36,37
+5VS5	26,31,32,33,34,35,36,37
+VH28	38
+VAD_1	38
+3VSUS	28,30
+12VALW	9,37,38
+BATCHG	38
+1.5VSUS	2,3,4,5,12,13,36,37
+3VLAVCC	27
+0.75V_DDR_VTT	12,13,36



 PROJECT : R23 Quanta Computer Inc.		
Size Custom	Document Number Dis-charge IC (G5934)	Rev 1A
Date: Tuesday, May 03, 2011	Sheet 39	of 40