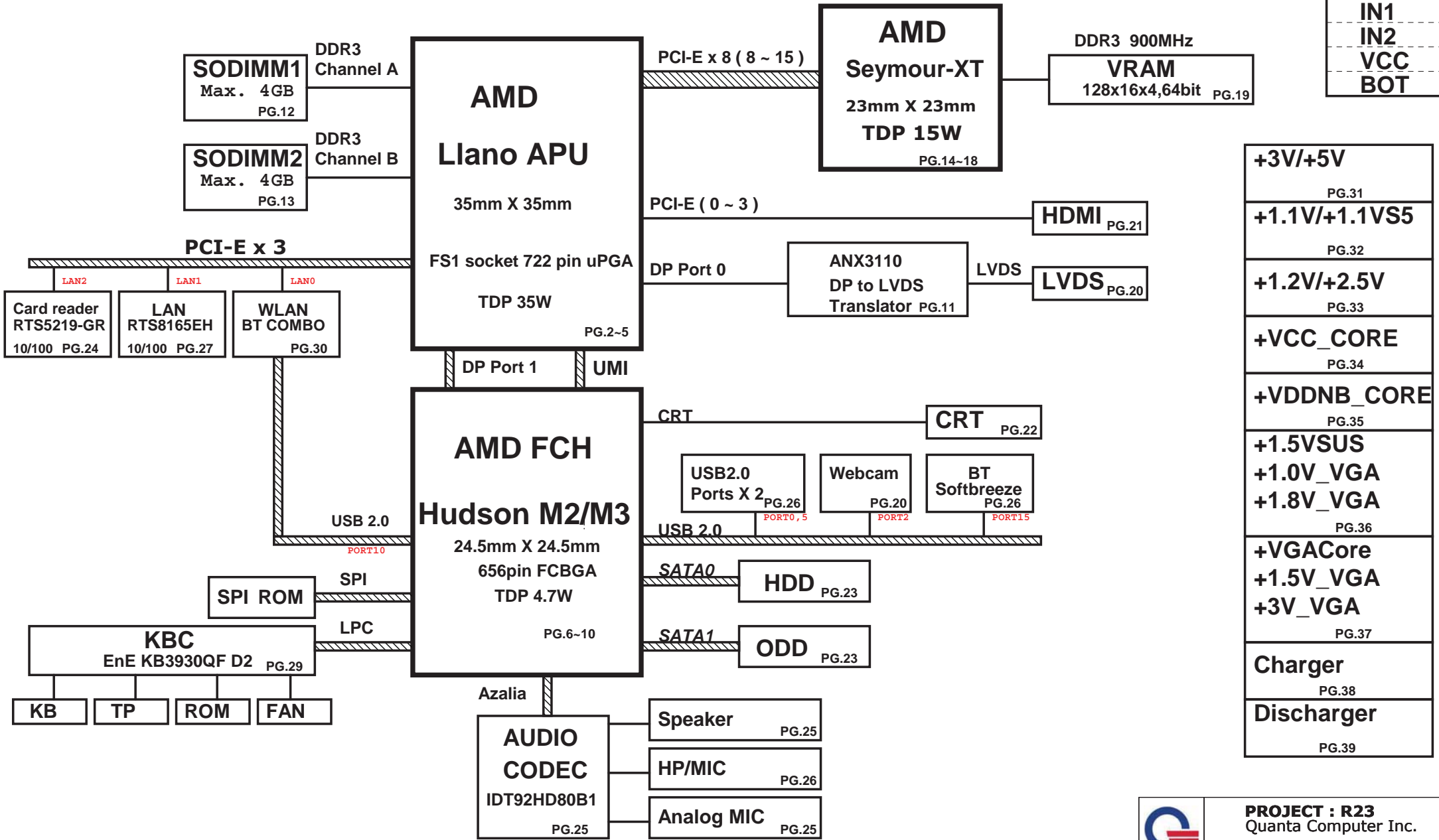
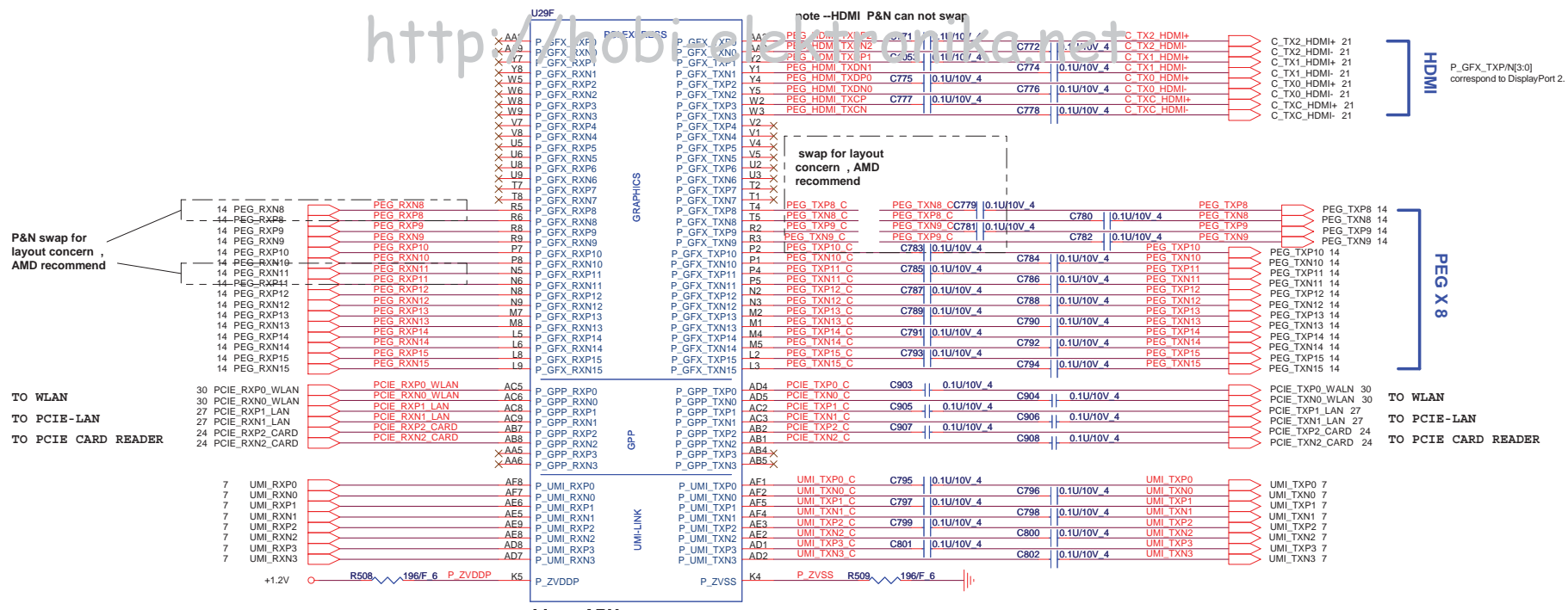


R23 AMD Sabin UMA/Muxless SYSTEM DIAGRAM

Stackup

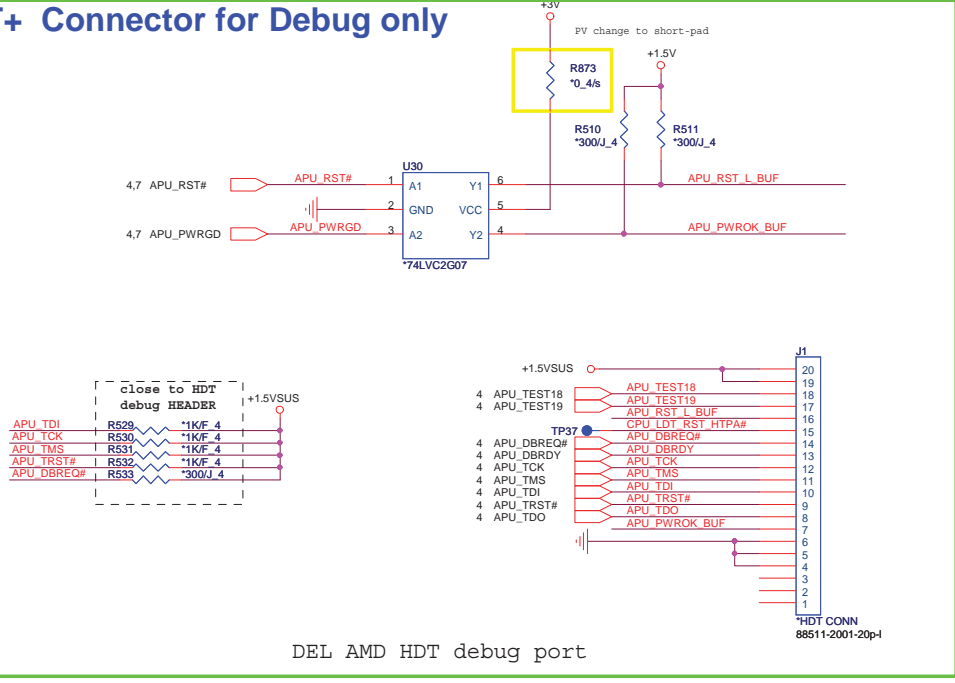
TOP
GND
IN1
IN2
VCC
BOT



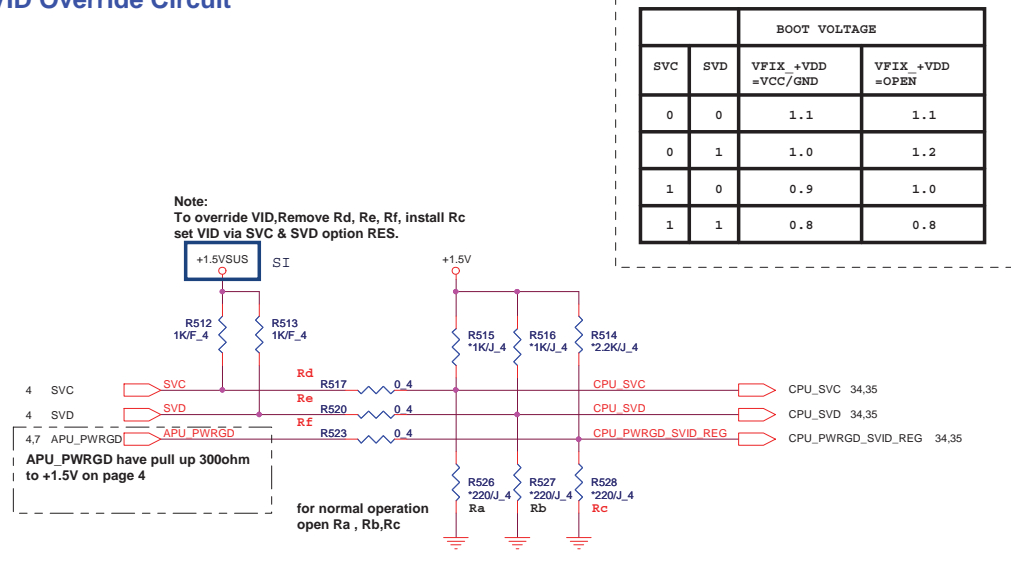


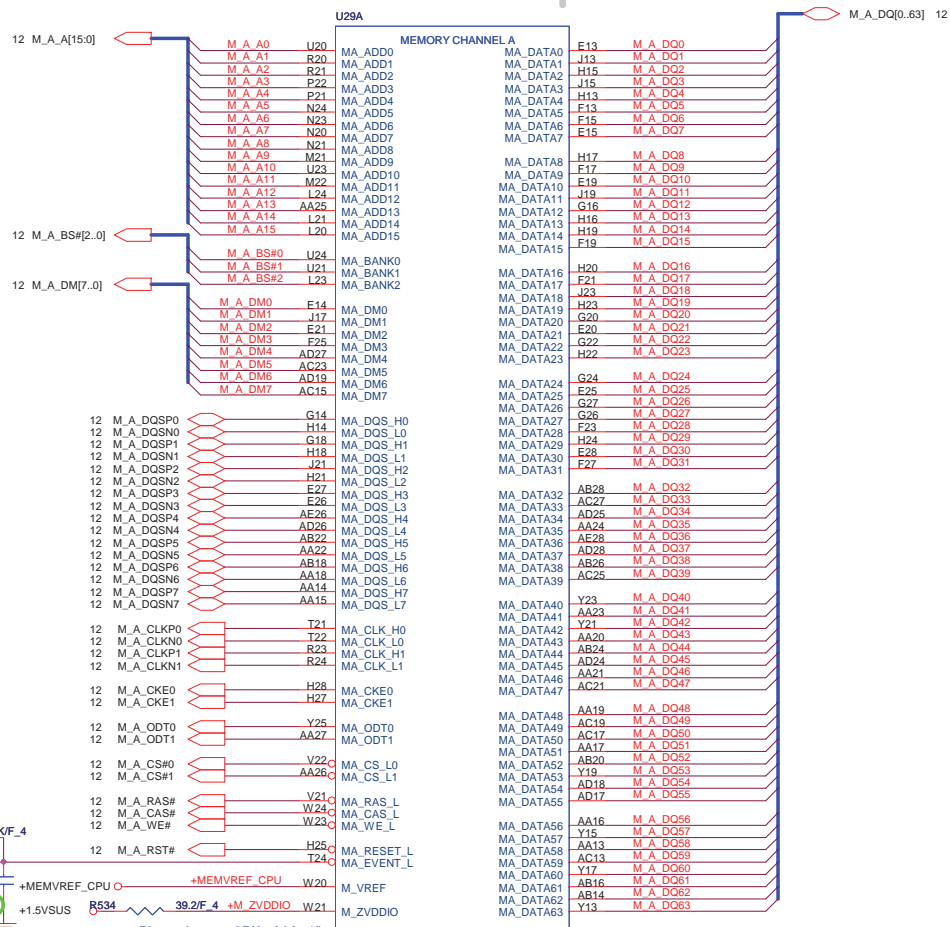
Liano APU

HDT+ Connector for Debug only

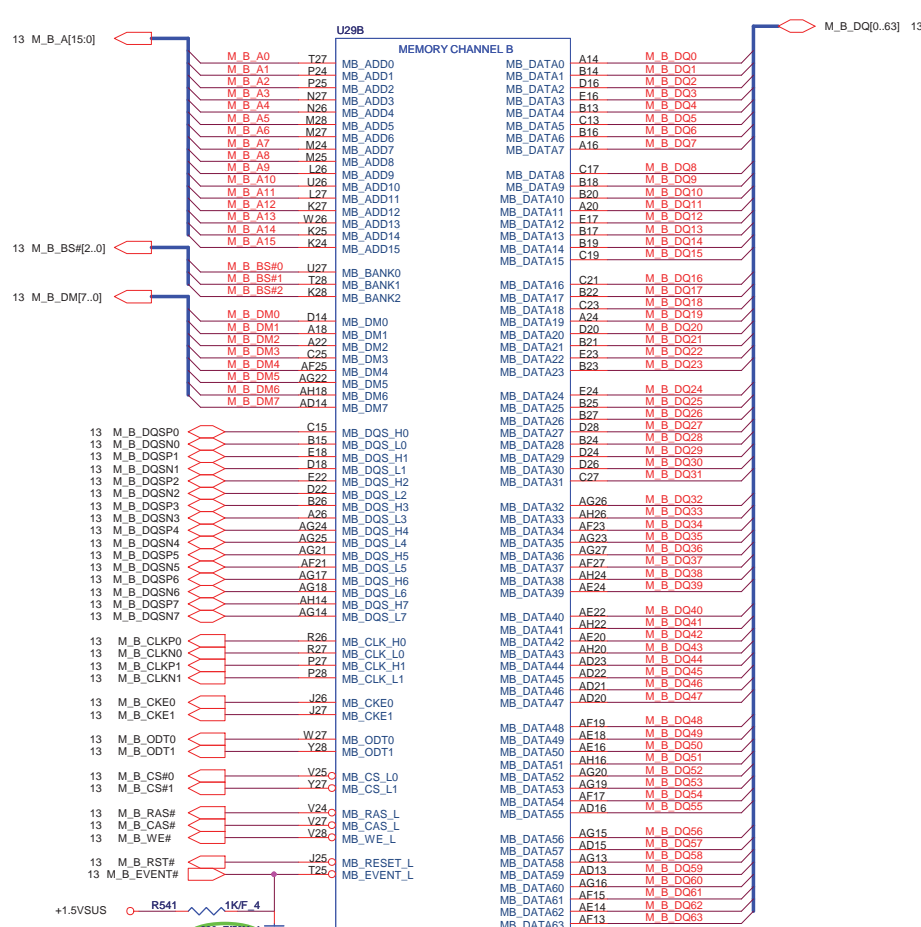


VID Override Circuit

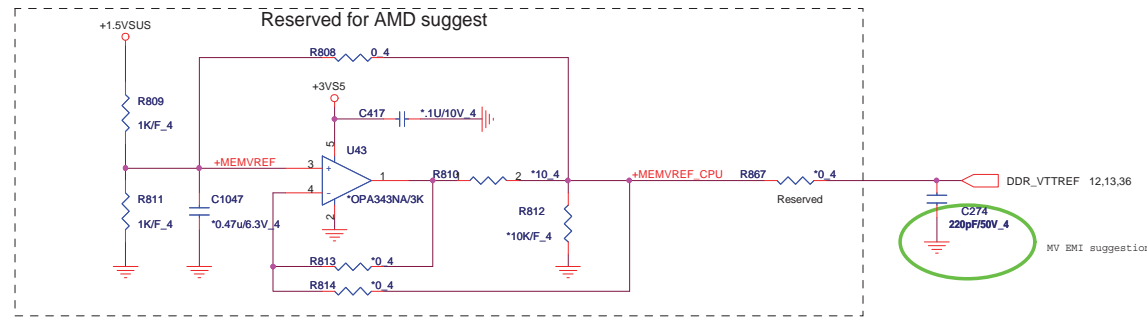




Llano APU



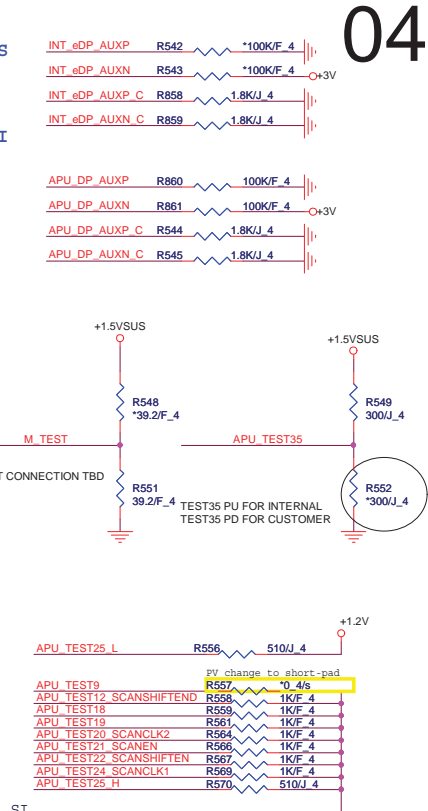
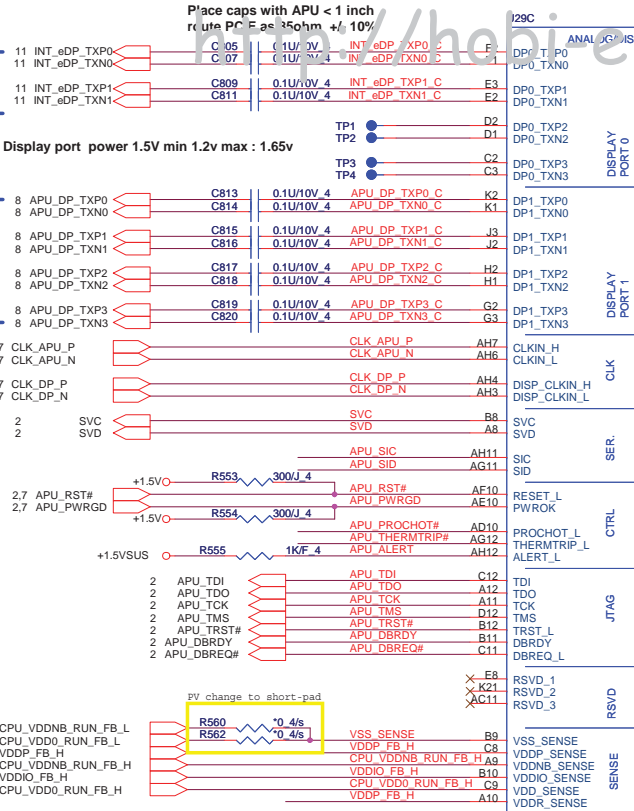
Llano APU



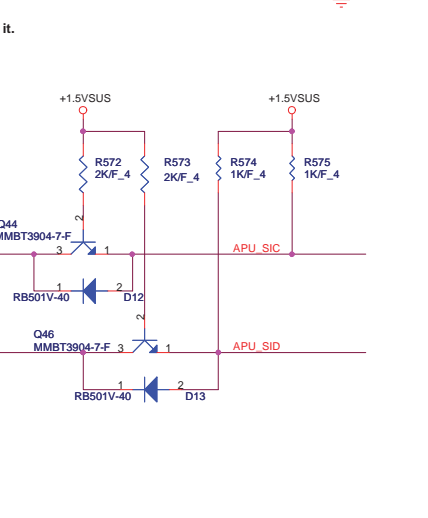
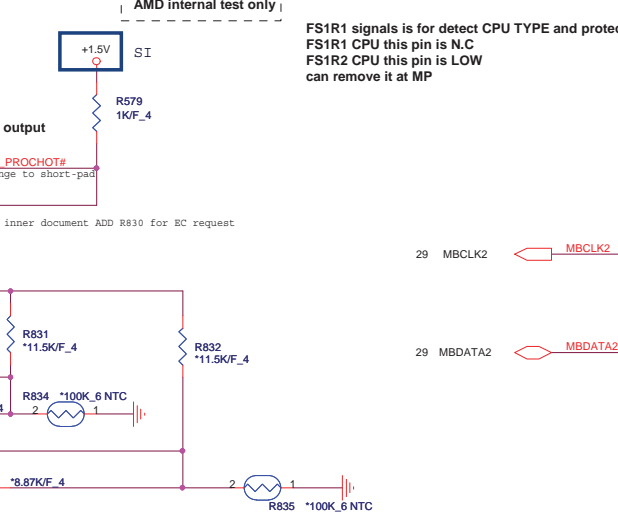
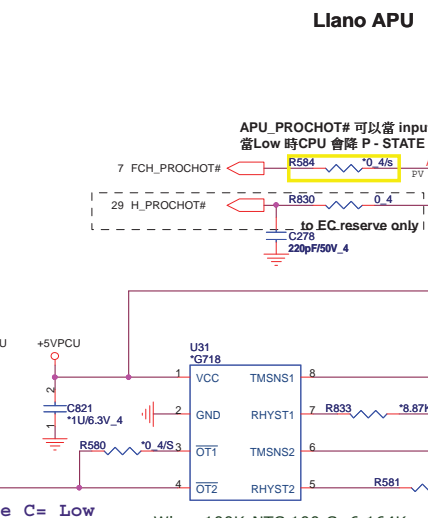
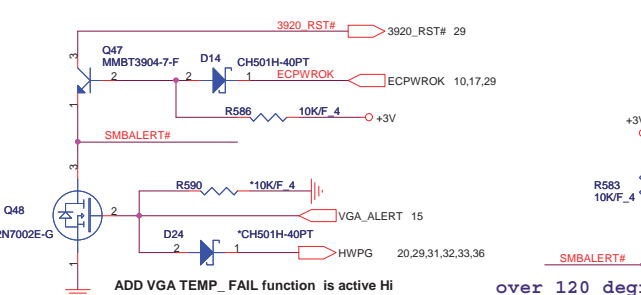
Quanta Computer Inc.
PROJECT : R23

Size	Document Number	Rev
	Llano DDR3 MEM I/F	1A
Date:	Wednesday, May 04, 2011	Sheet 3 of 40

DPO output to eDP to LVDS converter



Thermal



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

to EC.reserve only !

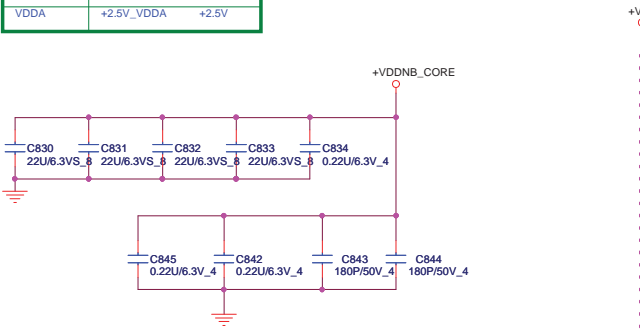
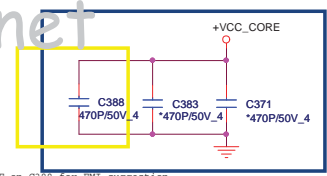
When 100K-NTC 100 C=6.164K
Thermal Trip = 120 C

DEL Thermal IC circuit on MV

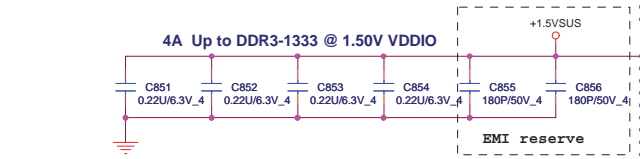
Quanta Computer Inc.
PROJECT : R23

Date: Wednesday, May 04, 2011 Sheet 4 of 40

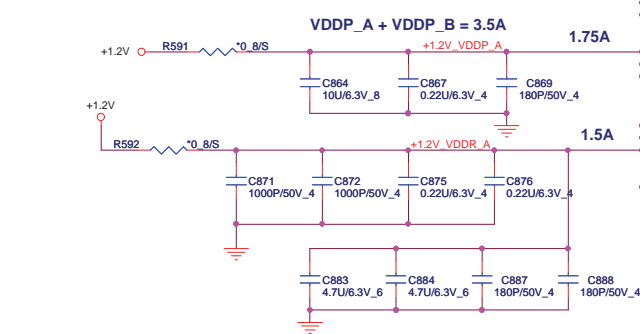
PIN NAME	NET NAME	VOLTAGE
VDD	+VCC_CORE	+1.1V
VDDNB	+VDDNB_CORE	??
VDDIO	+1.5VSUS	+1.5V
VDDP	+1.2V_VDDP	+1.2V
VDDR	+1.2V_VDDR	+1.2V
VDDA	+2.5V_VDDA	+2.5V



18A
Maximum IDDNBspike 22.5A

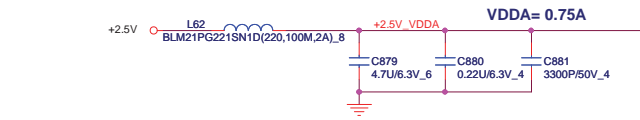


4A Up to DDR3-1333 @ 1.50V VDDIO

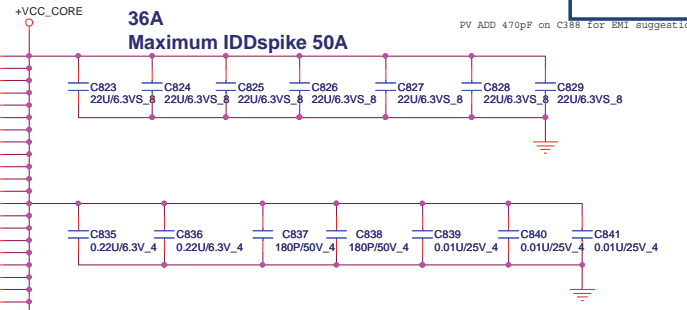
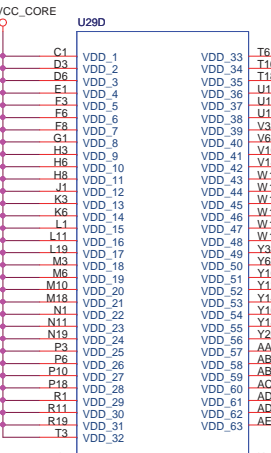


VDDP_A + VDDP_B = 3.5A

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

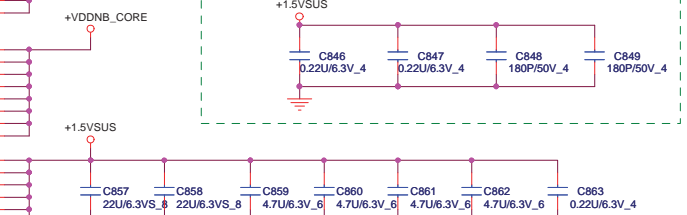


VDDA = 0.75A

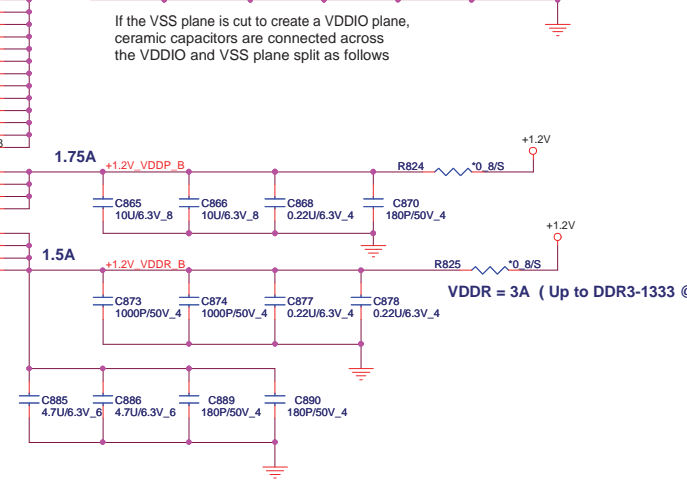


36A
Maximum IDDspike 50A

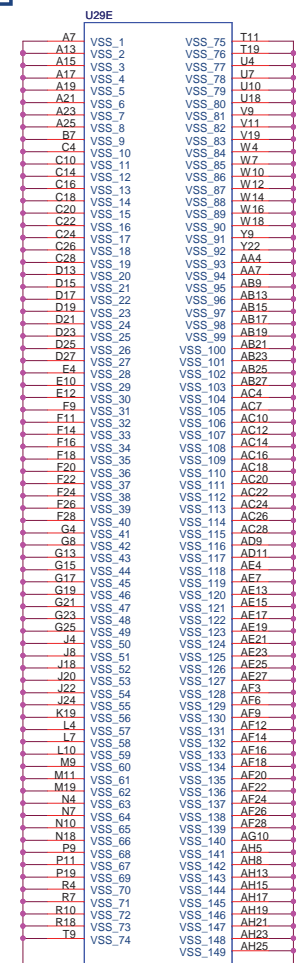
DECOUPLING between PROCESSOR and DIMMs
Across VDDIO and VSS split



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



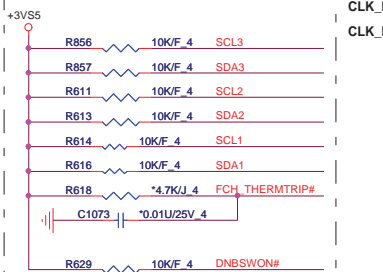
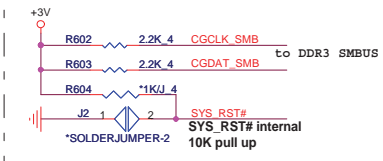
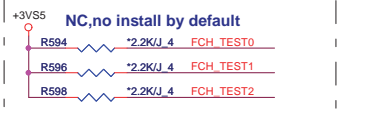
Llano APU



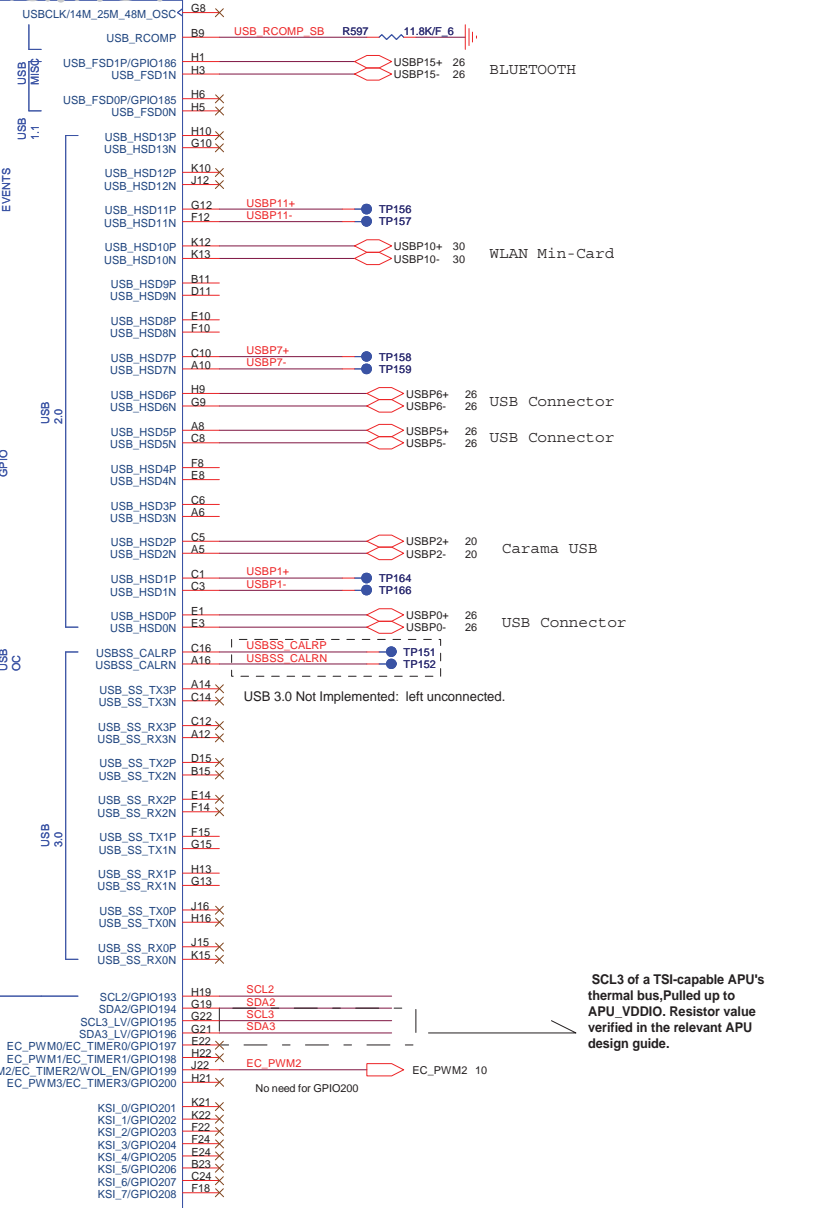
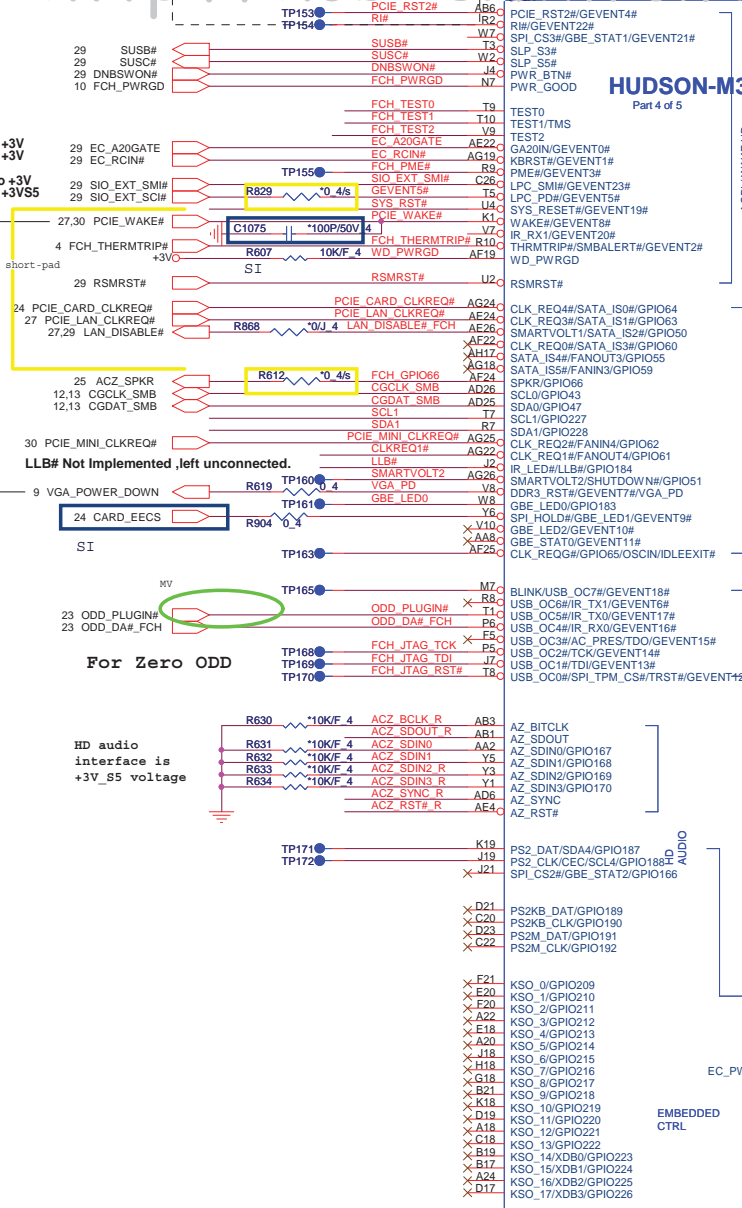
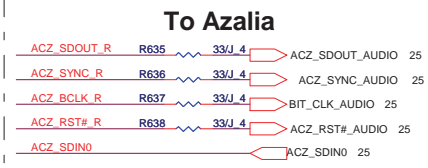
Llano APU

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



This pin is used to power down VGA DAC regulators when CRT no connected



For Zero ODD

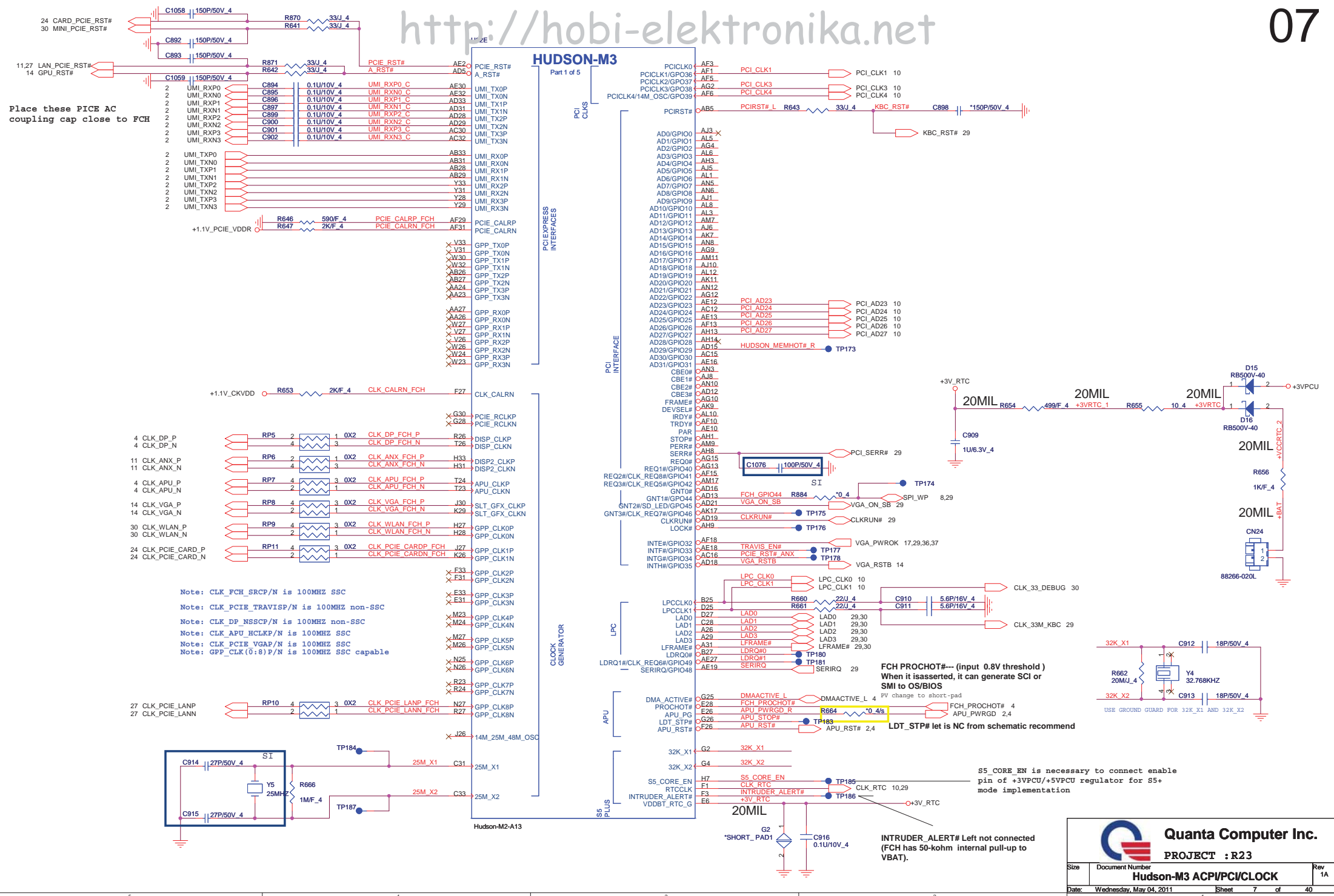
HD audio interface is +3V_S5 voltage

SCL3 of a TSI-capable APU's thermal bus, Pulled up to APU_VDDIO. Resistor value verified in the relevant APU design guide.

Hudson-M2-A13

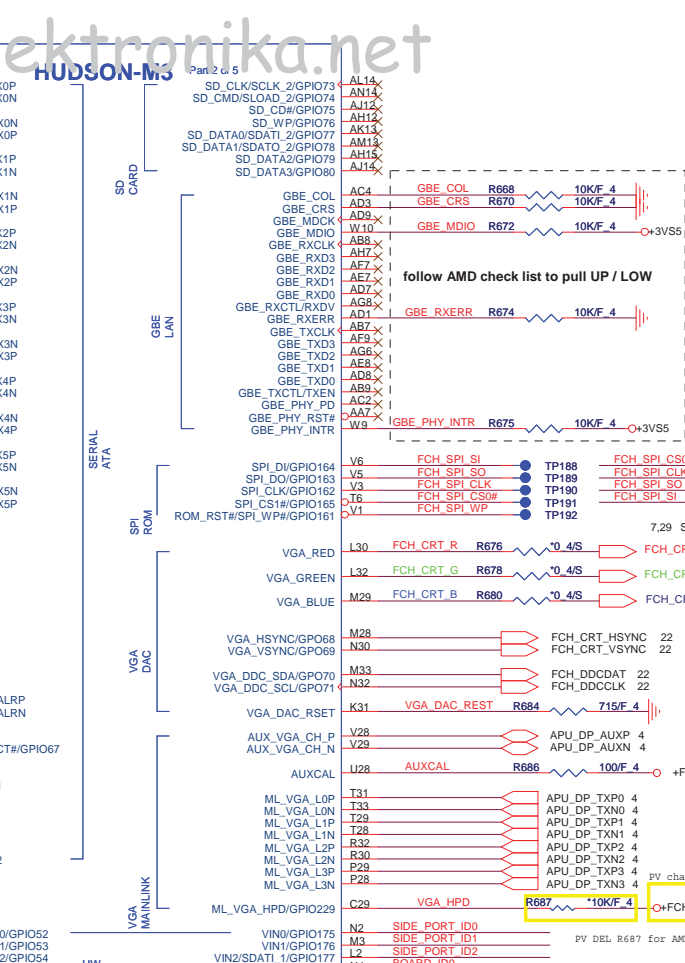
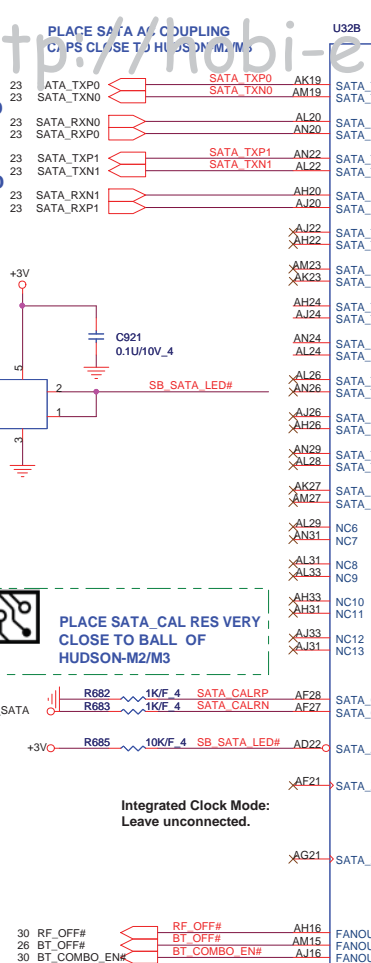
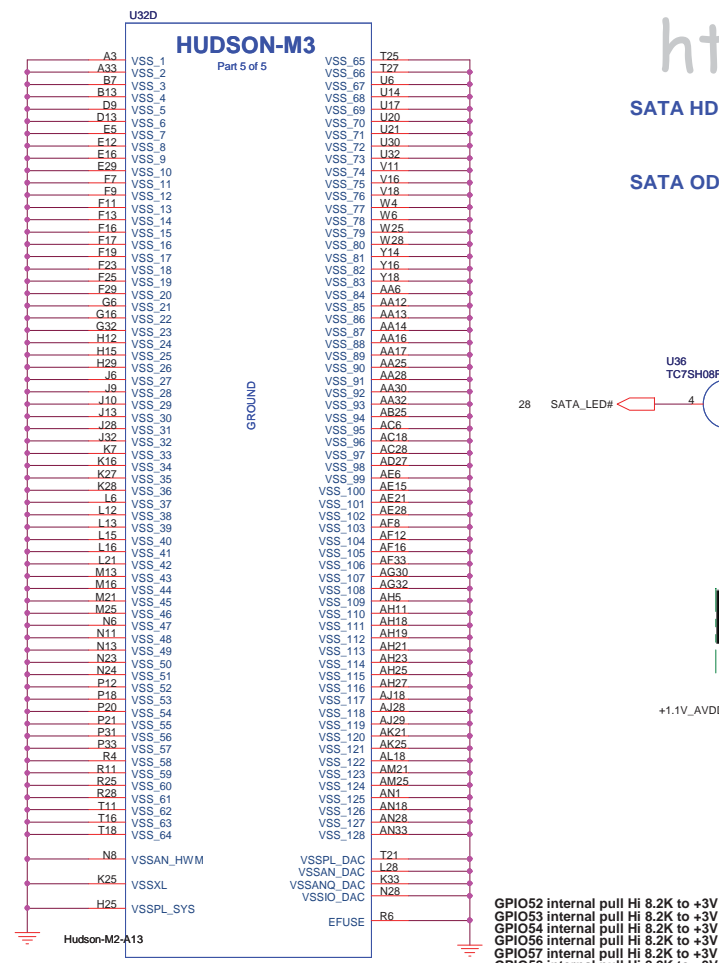
Quanta Computer Inc.
PROJECT : R23

Size	Document Number	Hudson-M3 GPIO/USB/AZ/RGMII	Rev	1A
Date:	Wednesday, May 04, 2011	Sheet	6	of 40

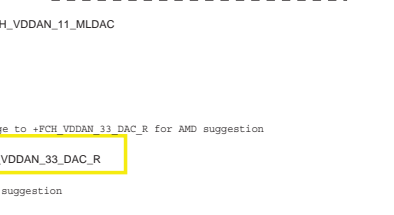
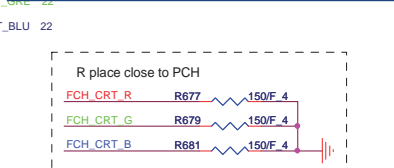
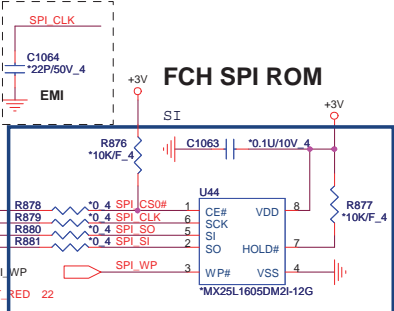


Quanta Computer Inc.
PROJECT : R23

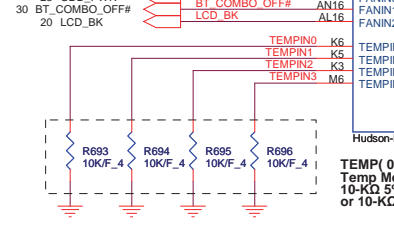
Size	Document Number	Rev
	Hudson-M3 ACP/PCI/CLOCK	1A
Date:	Wednesday, May 04, 2011	Sheet 7 of 40



Vender	Size	P/N
AMIC	2M	AKE382N0801
WINBOND	2M	AKE38FP0N01
Socket		DFHS08FS023



ID4	ID3	ID2	ID1	ID0	CONFIG	31- Level BOM	Item
0	0	0	0	0	UMA		1
0	0	0	1	0			2
0	0	1	0	0			3
0	0	1	1	0			4
0	1	0	1	0			5
0	1	1	1	0			6
1	0	0	1	0			7
1	0	1	1	0			8
0	0	0	0	1	SG / Muxless		9
0	0	1	0	1			10
1	0	0	1	1			11
1	0	1	1	1			12

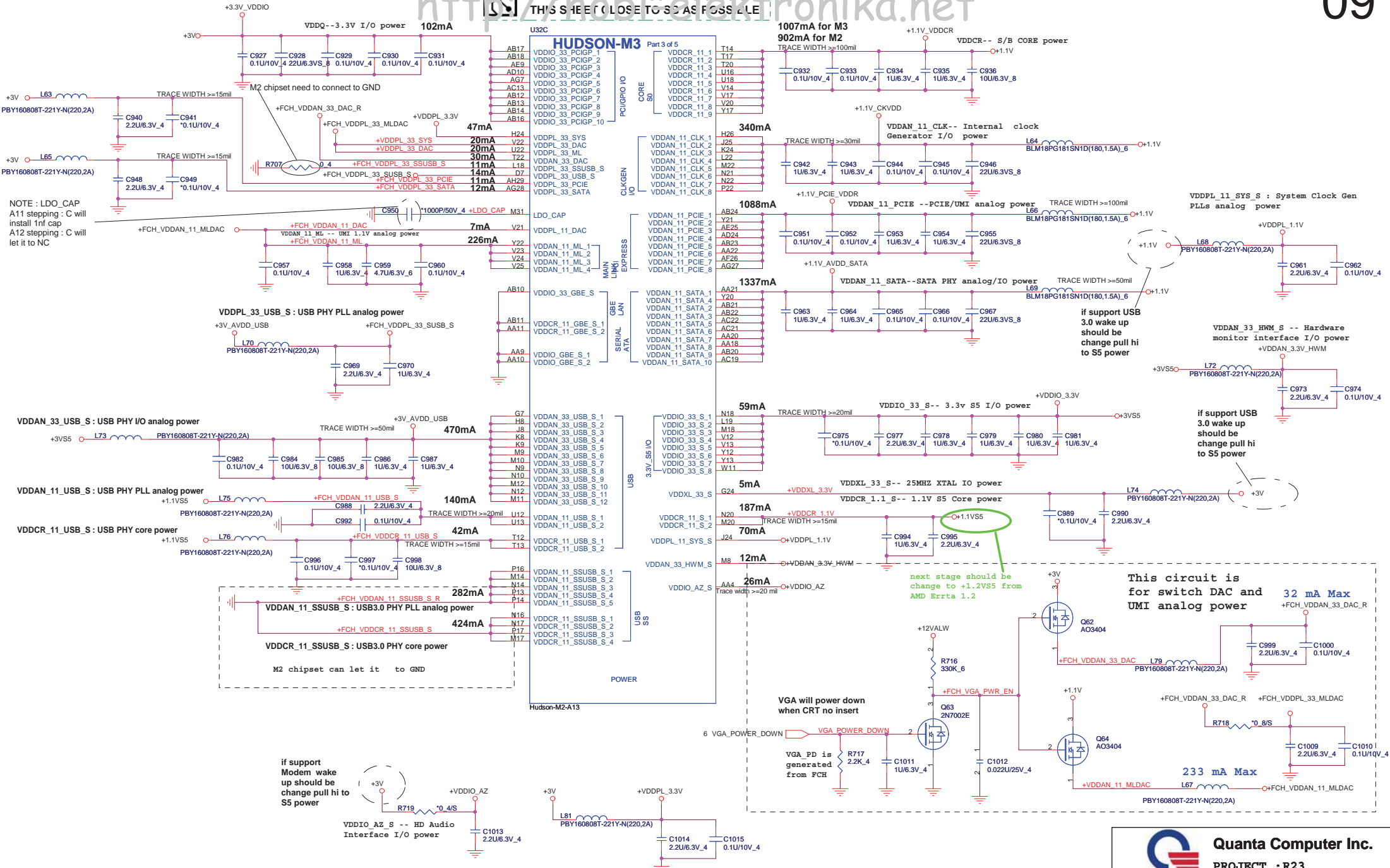


SIDE_PORT_ID2	SIDE_PORT_ID1	SIDE_PORT_ID0	Manufacturer
0	0	0	Samsung
0	0	1	Hynix
0	1	0	NC
0	1	1	no supprot side port

VIN (0-7)
Voltage Monitor Not Implemented
10-KΩ 5% pull-up to +3V55
or 10-KΩ 5% pull-down

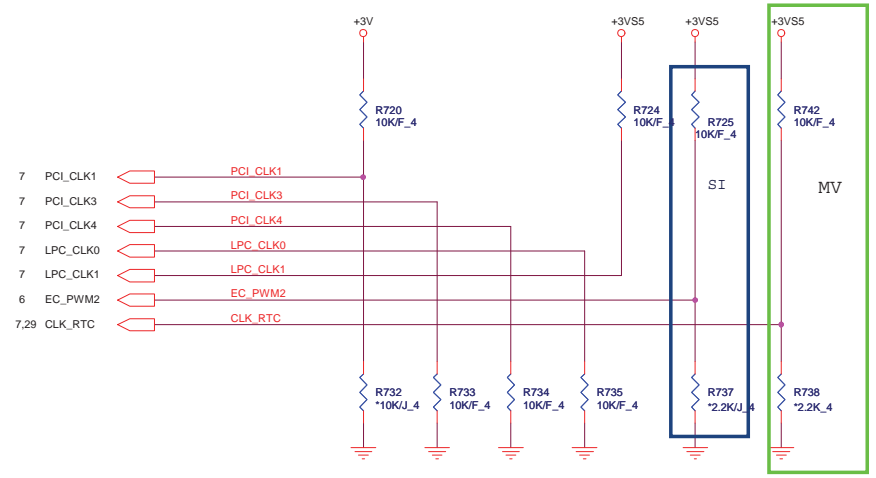
Quanta Computer Inc.
PROJECT : R23

Date: Wednesday, May 04, 2011 Sheet 8 of 40



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	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

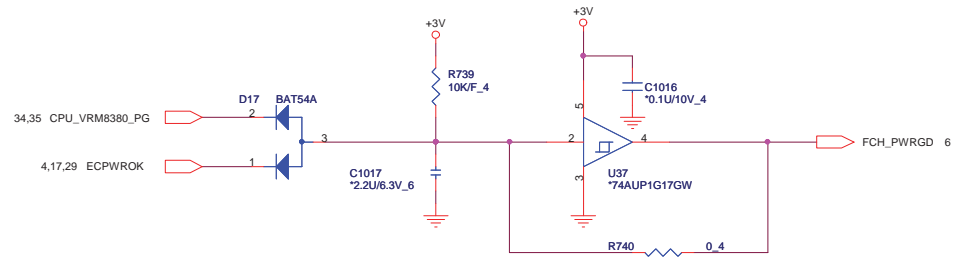
DEBUG STRAPS

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

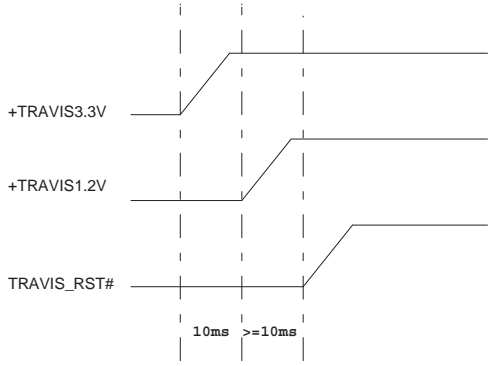
FCH_PWRGD



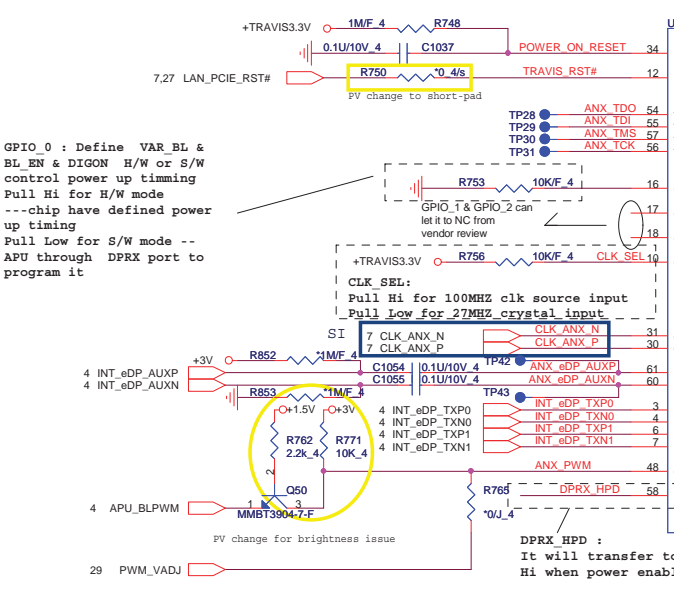
Quanta Computer Inc.
PROJECT : R23

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

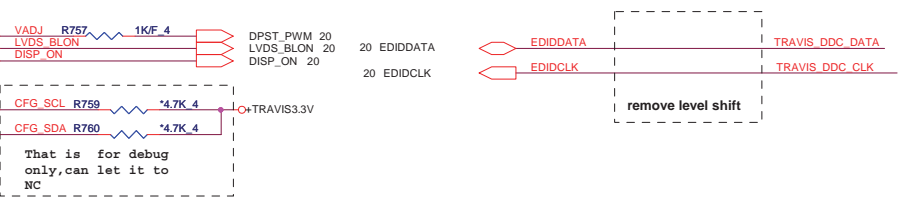
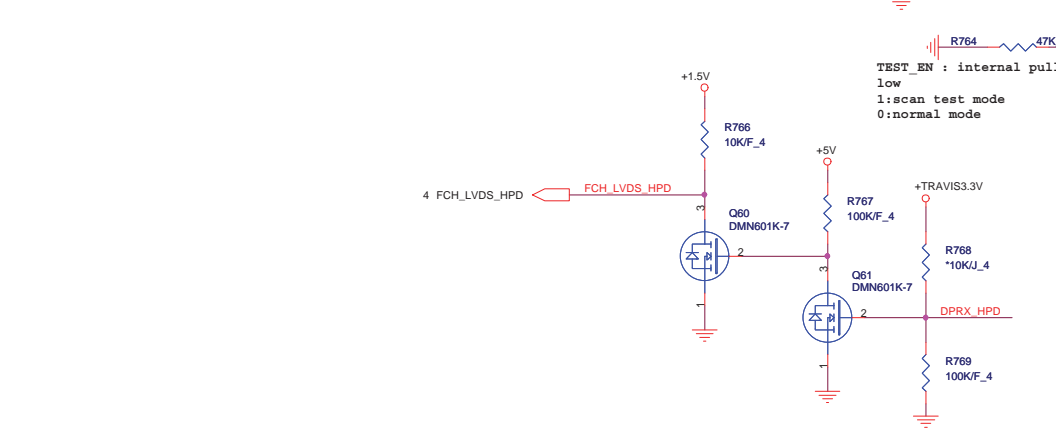
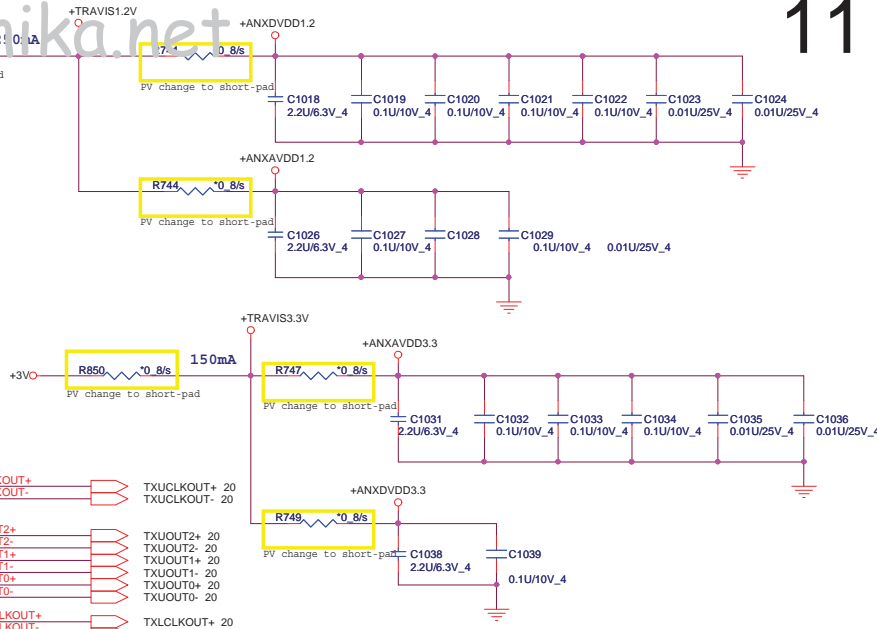
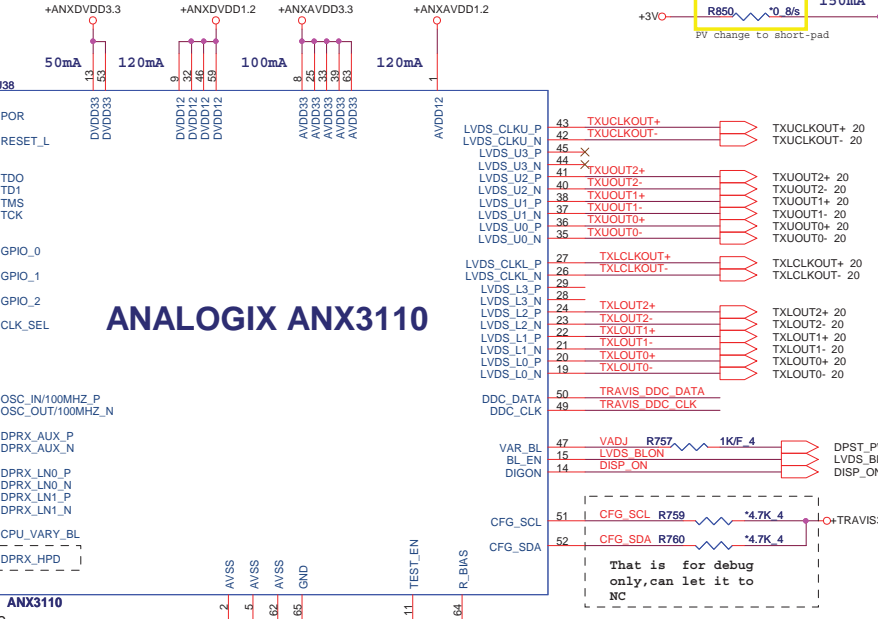
ANX3110 Power Up Sequence



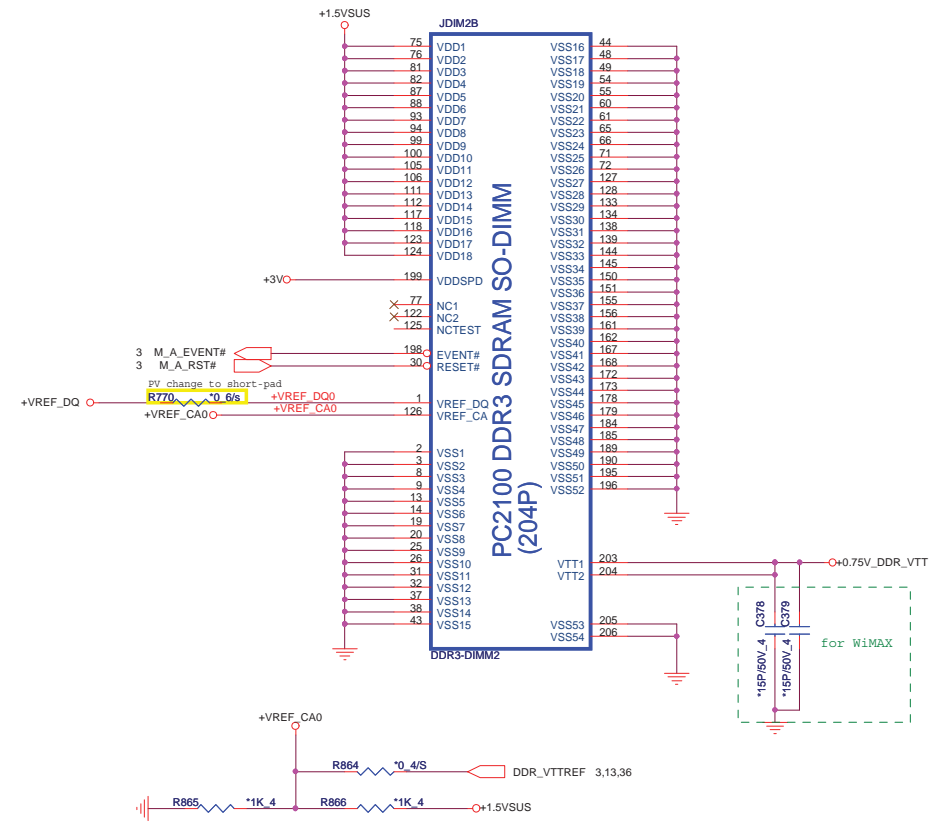
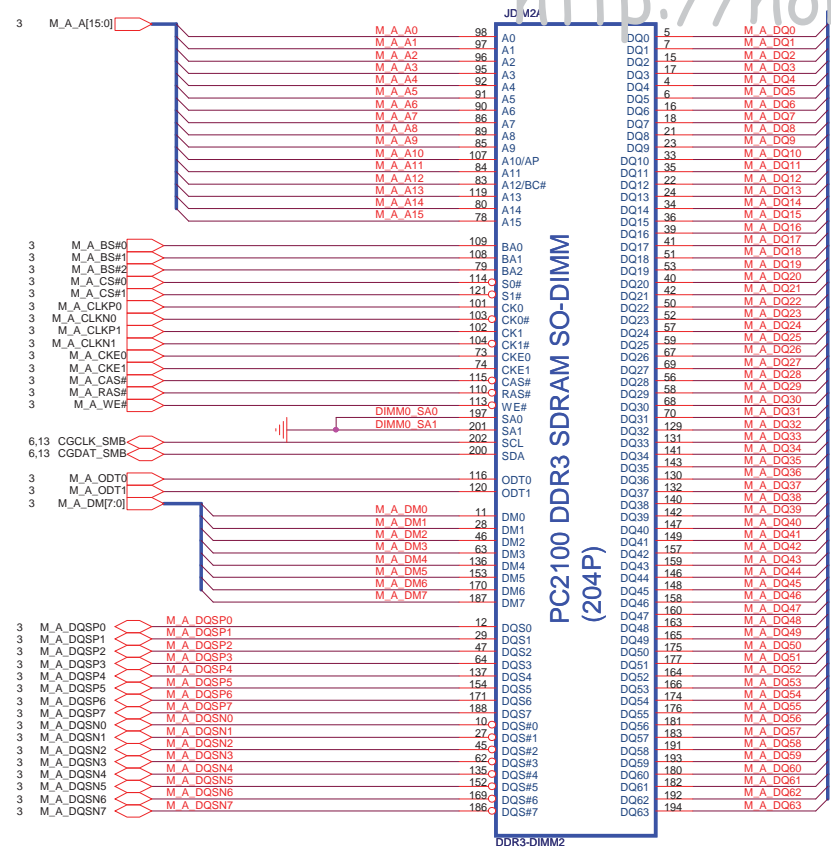
GPIO 0 : Define VAR_BL & BL_EN & DIGON H/W or S/W control power up timing
 Pull Hi for H/W mode
 ---chip have defined power up timing
 Pull Low for S/W mode -- APU through DPRX port to program it



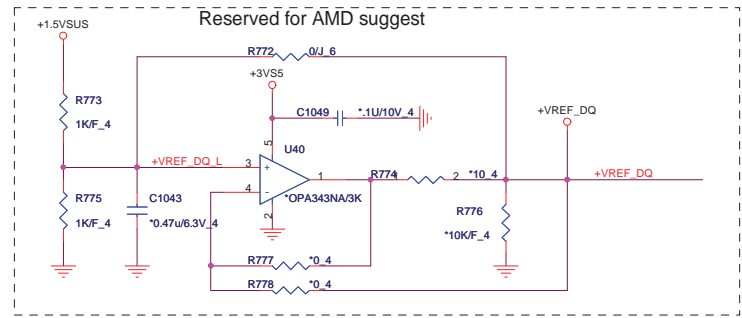
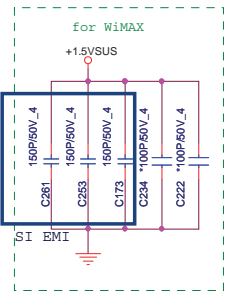
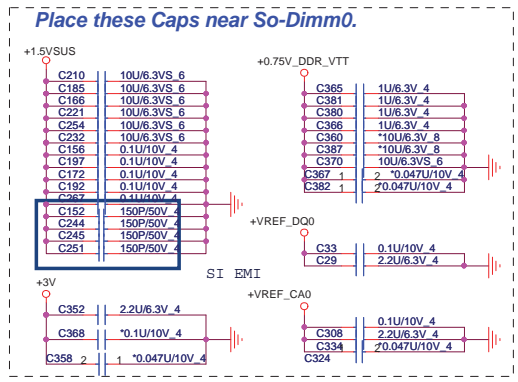
ANALOGIX ANX3110



PROJECT : R23 Quanta Computer Inc.		
Size Custom	Document Number ANX3110	Rev 1A
Date: Tuesday, May 03, 2011	Sheet 11 of 40	



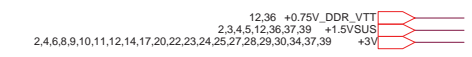
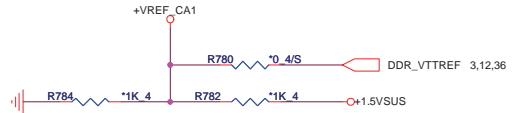
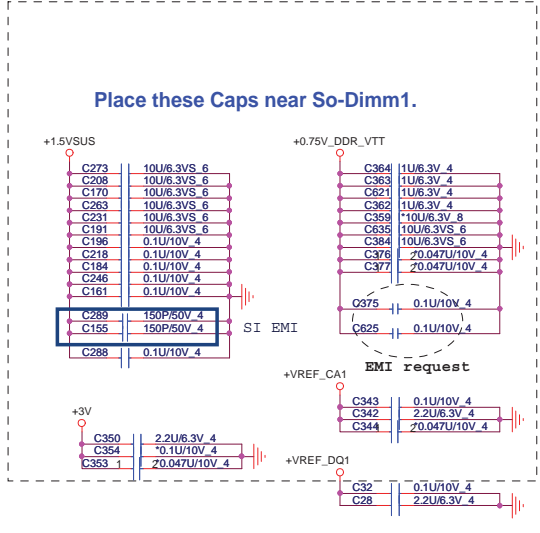
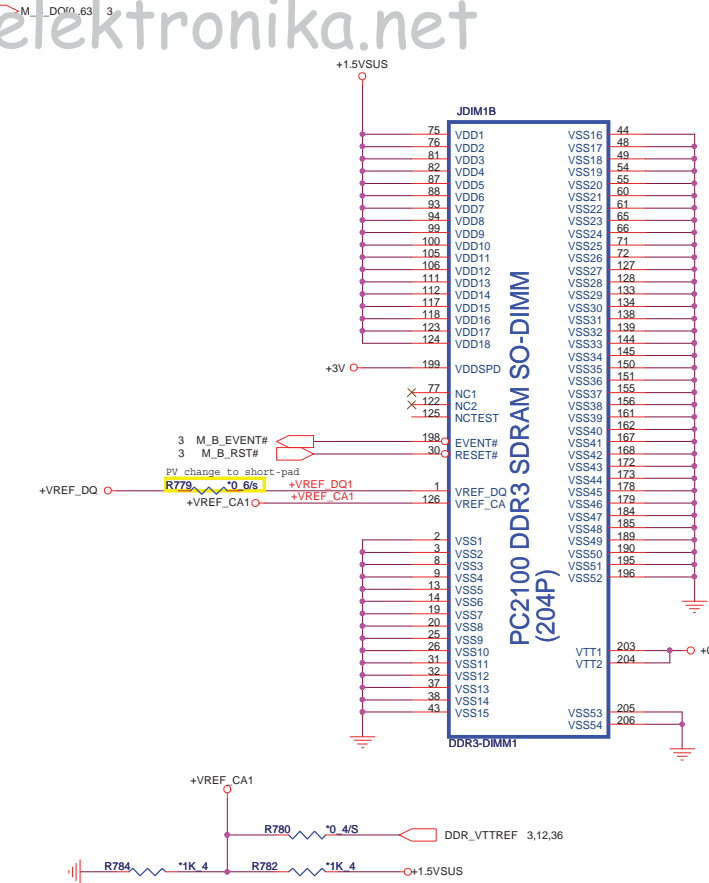
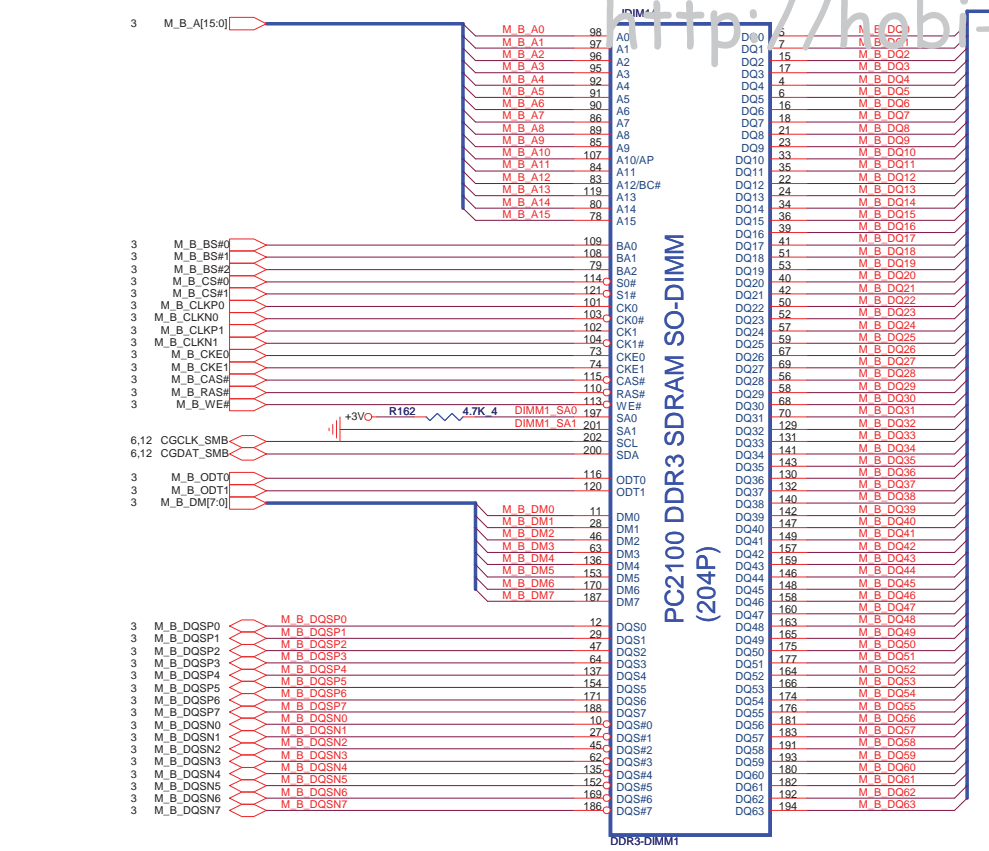
H9.2mm




PROJECT : R23
Quanta Computer Inc.

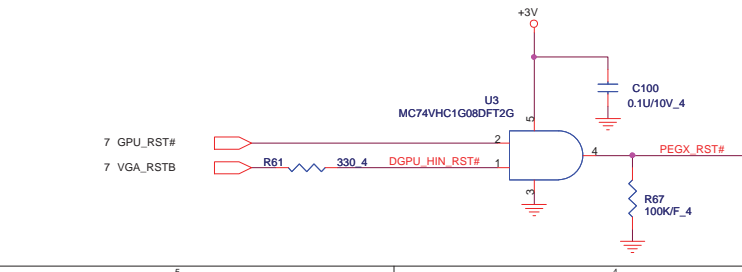
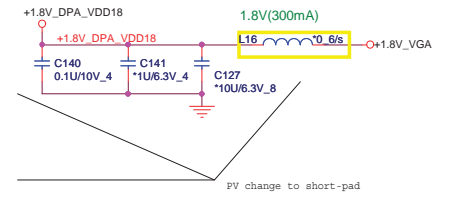
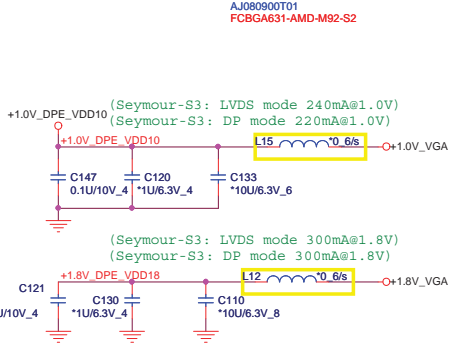
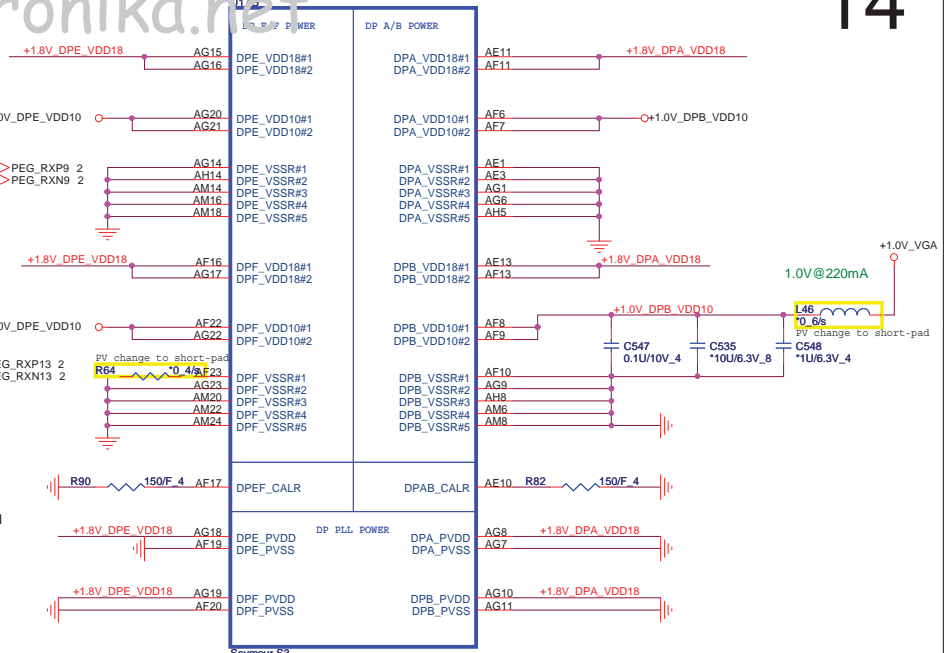
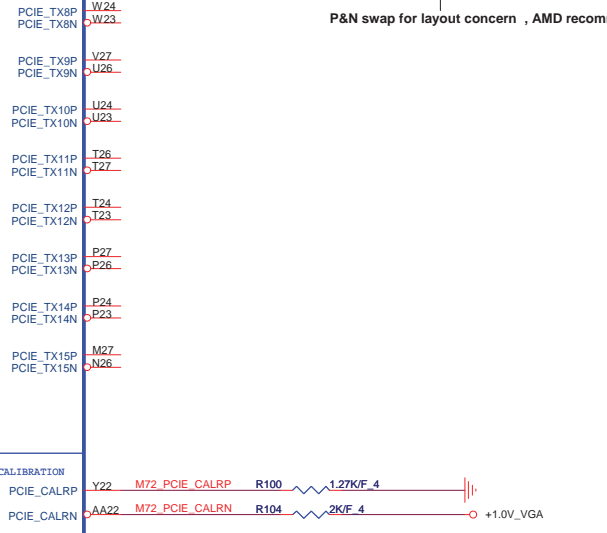
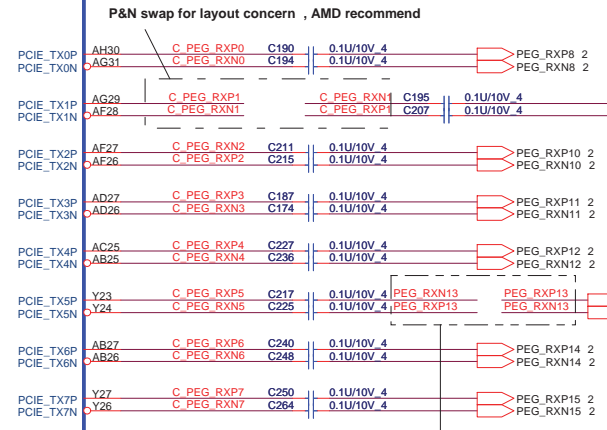
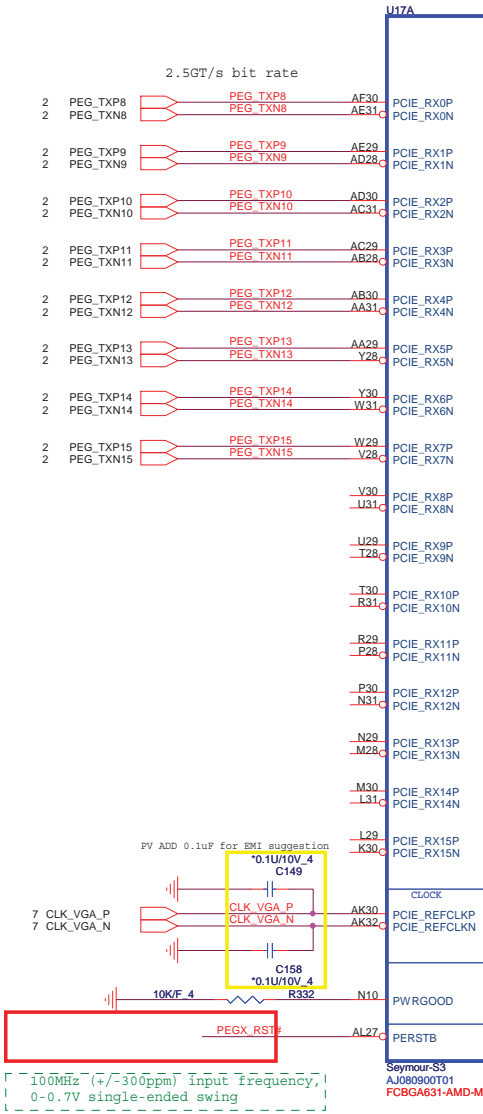
Size Custom	Document Number DDR3 DIMM-0	Rev 1A
Date: Tuesday, May 03, 2011 Sheet 12 of 40		

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-1
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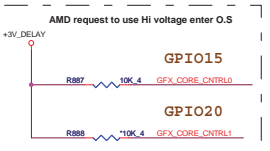
PCI EXPRESS INTERFACE



PROJECT : R23
Quanta Computer Inc.

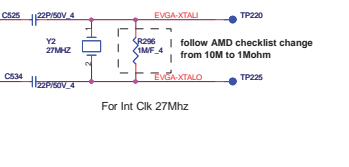
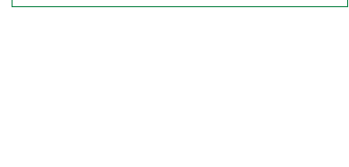
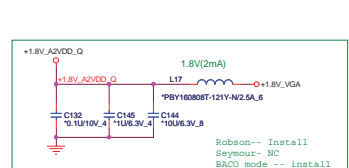
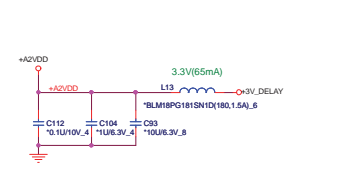
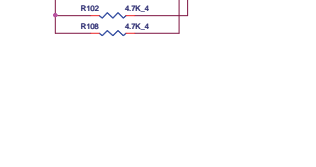
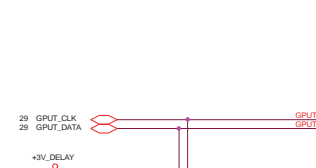
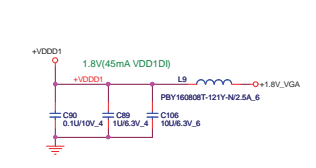
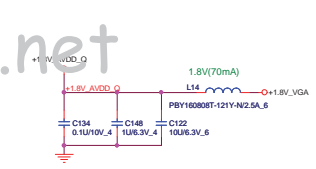
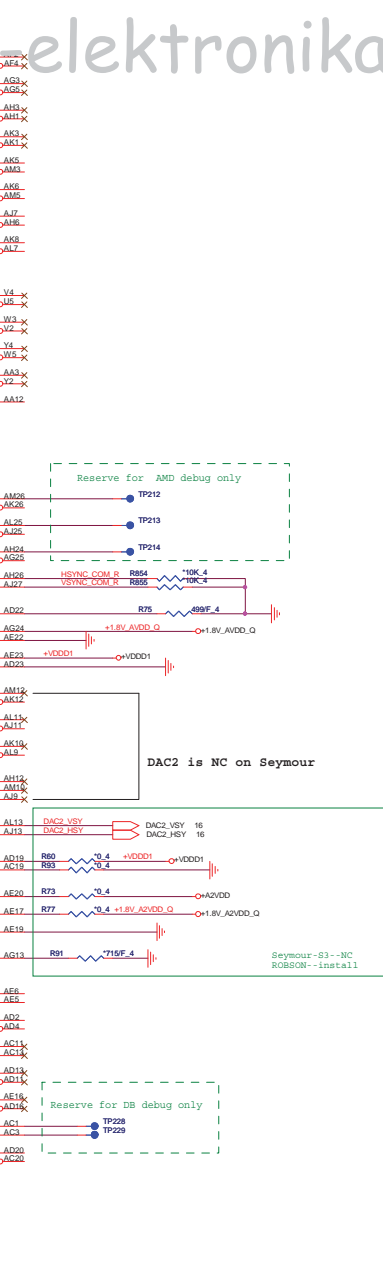
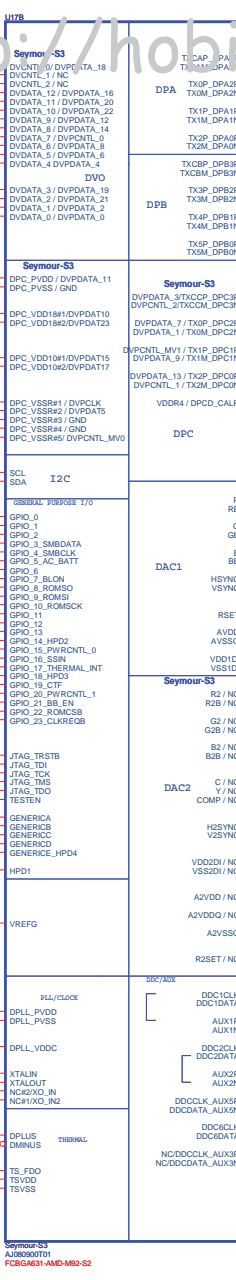
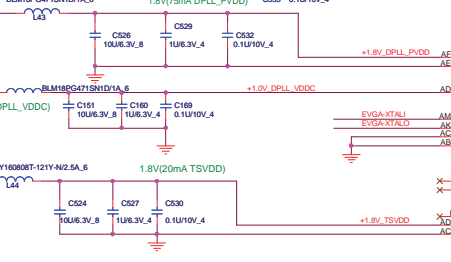
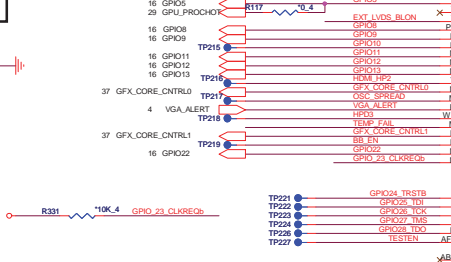
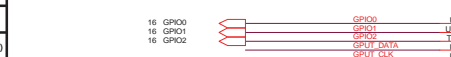
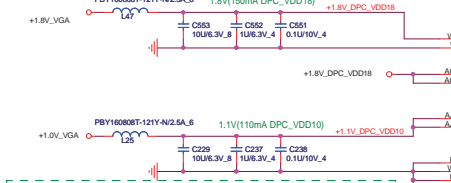
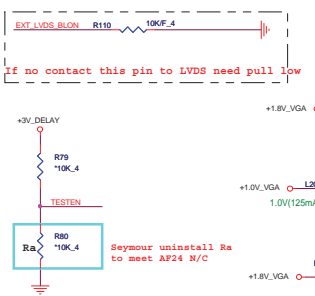
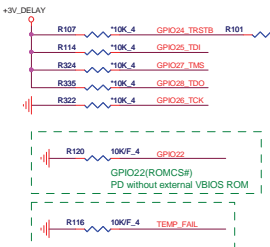
Size Custom	Document Number Seymour PCIe Interface	Rev 1A
Date: Tuesday, May 03, 2011		Sheet 14 of 40

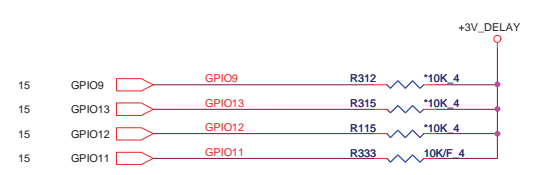
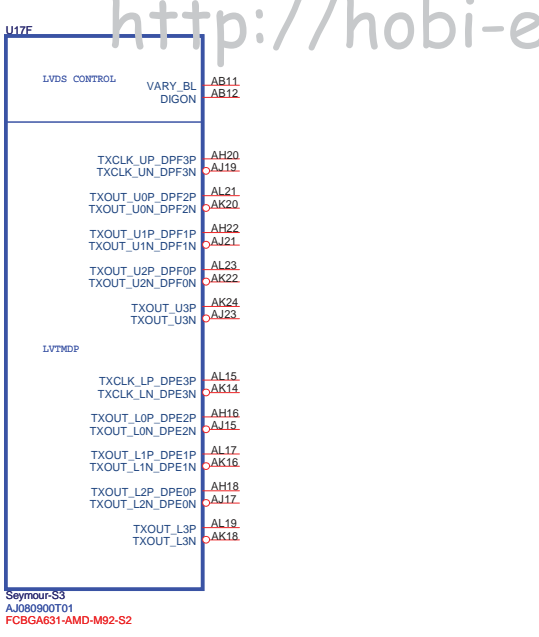
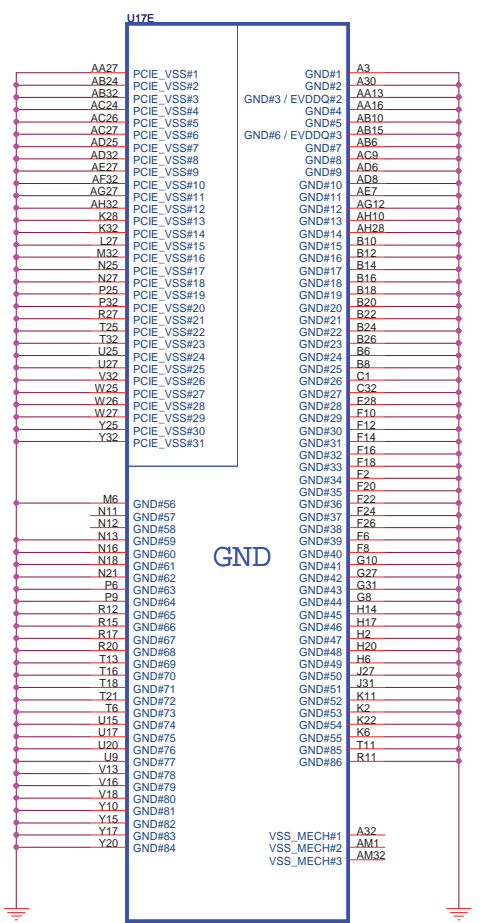
MEM_ID[3:0]	Vendor	Type	Vendor P/N	QUANTA P/N
0000	Samsung	E die	K4W1G16468-HC12	Reserved
0001	Hynix	Vega die	H5TQ16320FR-12C	Reserved
0010	Samsung	Vega die	H5TQ2083BFR-12C	Reserved
0011	Samsung	C die	K4W2G16468-HC12	Reserved
0100	Micron	Reserved	MT41J128M16HA-125:D	Reserved
0101	Reserved	Reserved	Reserved	Reserved
0110	Hynix	Vega die	H5TQ16320FR-11C	Reserved
0111	Samsung	E die	K4W1G16468-HC11	Reserved
1000	Samsung	C die	K4W2G16468-HC11	Reserved
1001	Reserved	Reserved	Reserved	Reserved
1010	Hynix	Vega die	H5TQ2083BFR-11C	Reserved
1011	Samsung	C die	K4W2G16468-HC11	Reserved
1100	Reserved	Reserved	Reserved	Reserved
1101	Reserved	Reserved	Reserved	Reserved
1110	Reserved	Reserved	Reserved	Reserved
1111	Reserved	Reserved	Reserved	Reserved



GPIO15 GPIO20

Seymour-XT	PWRCTRL0	PWRCTRL1	V-CORE
L	0	0	0.9V
M	0	1	1V
H	1	0	1.1V (Default)
TBD	1	1	NA

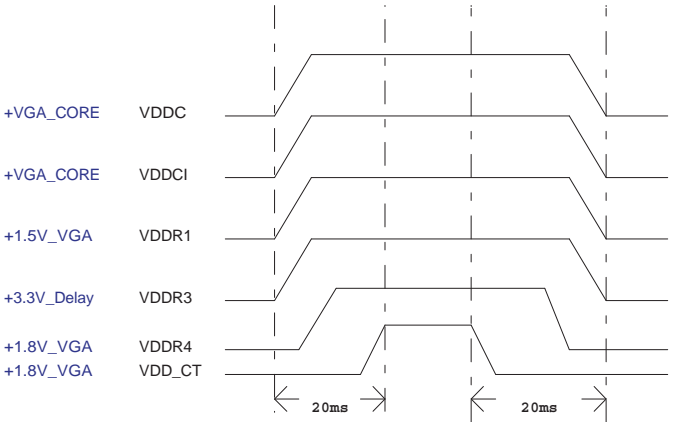




CONFIGURATION STRAPS			
ALLOW FOR PULLUP PADS FOR THESE STRAPS AND IF THESE GPIOs ARE USED, THEY MUST NOT CONFLICT DURING RESET			
STRAPS	PIN	DESCRIPTION OF DEFAULT SETTINGS	
TX_PWRs_ENB	GPIO0	Transmitter Power Savings Enable 0: 50% Tx output swing for mobile mode 1: full Tx output swing (Default setting 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			

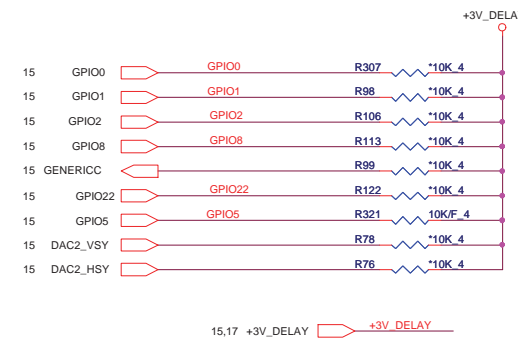
Power Up/Down Sequence



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	1G	1	0	1
0	2G	1	1	0
0	4G	1	1	1

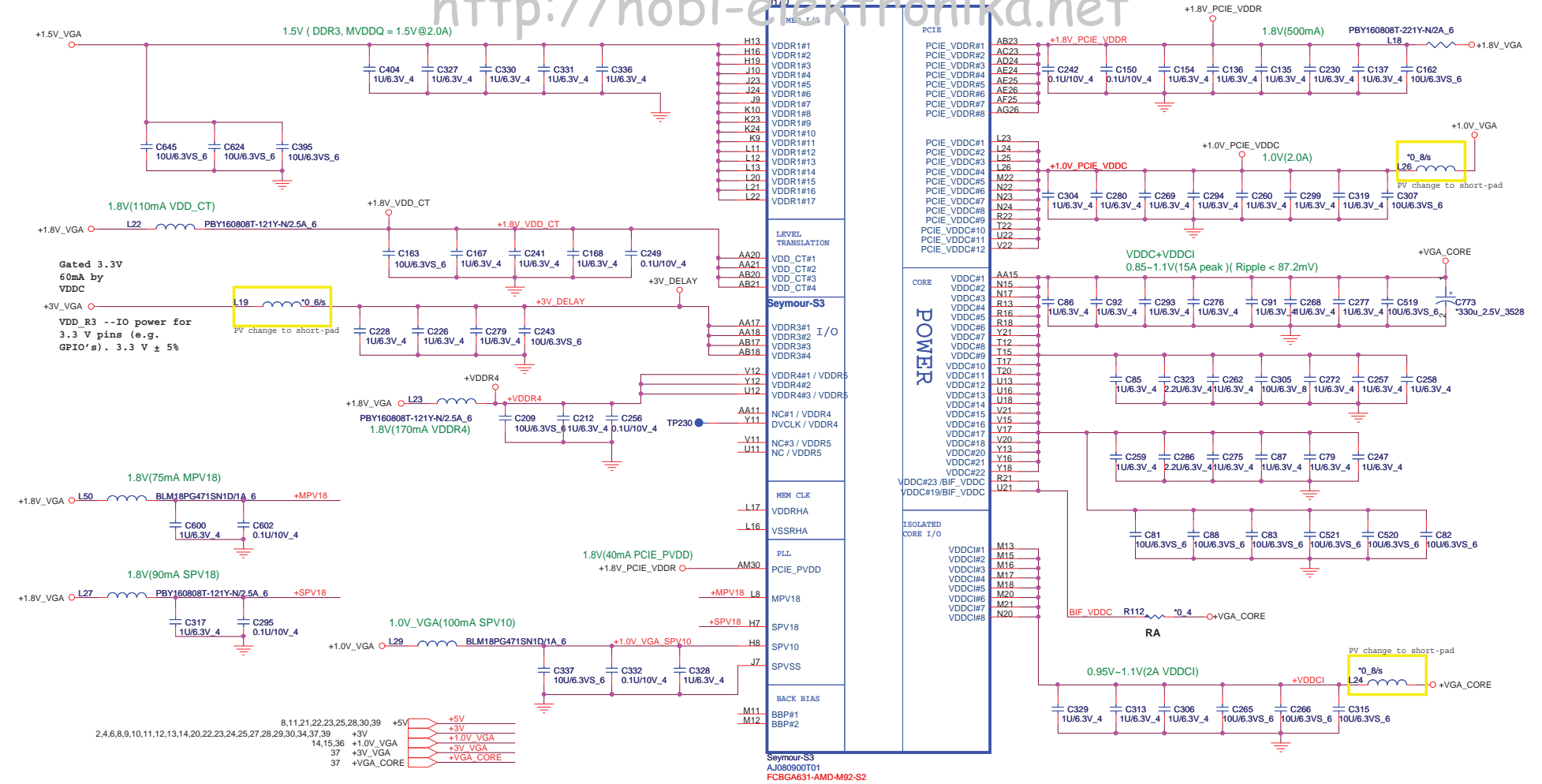
It is a shared pin strap with CONFIG[2:0] if BIOS_ROM_EN is set to 0.



PROJECT : R23
Quanta Computer Inc.

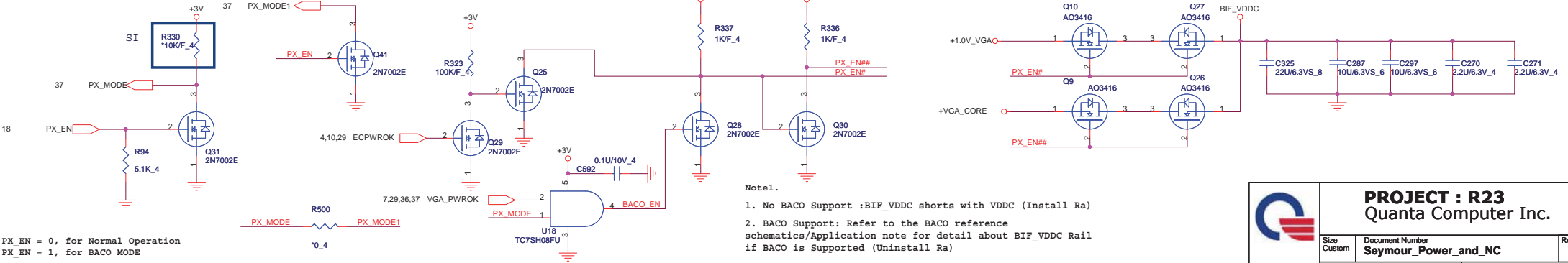
Size Custom	Document Number Seymour GND / LVDS / Straps	Rev 1A
Date: Tuesday, May 03, 2011	Sheet 16 of 40	

PCI-E VDDR--PCI-E I/O power. 1.8 V ± 5%



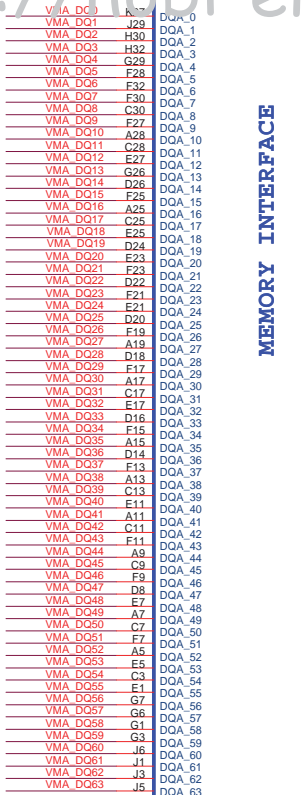
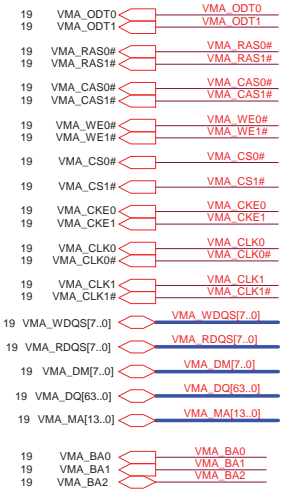
POWER

Support BACO Mode

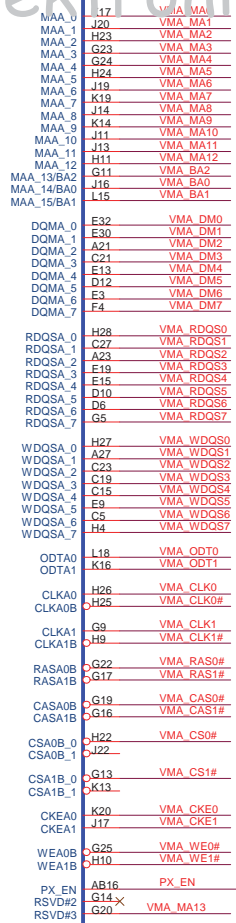


PROJECT : R23
Quanta Computer Inc.

Size	Document Number	Rev
Custom	Seymour_Power_and_NC	1A
Date: Tuesday, May 03, 2011	Sheet 17 of 40	

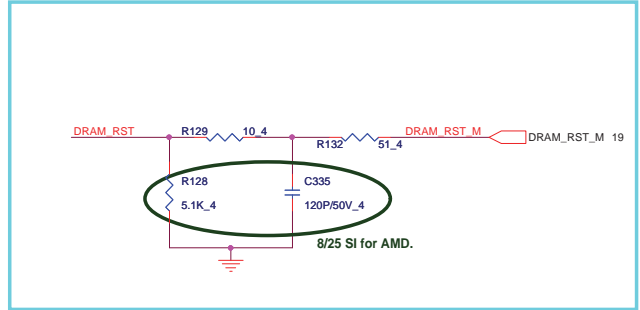
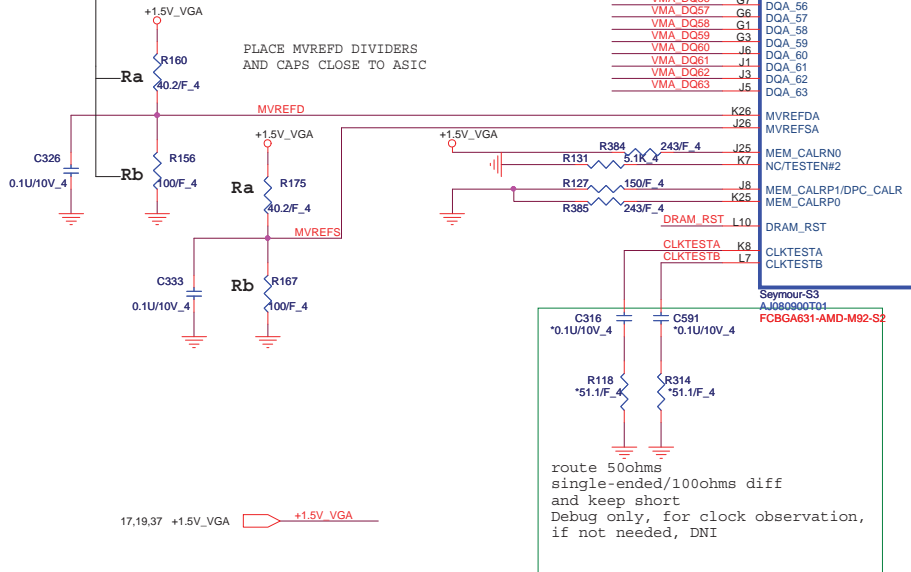


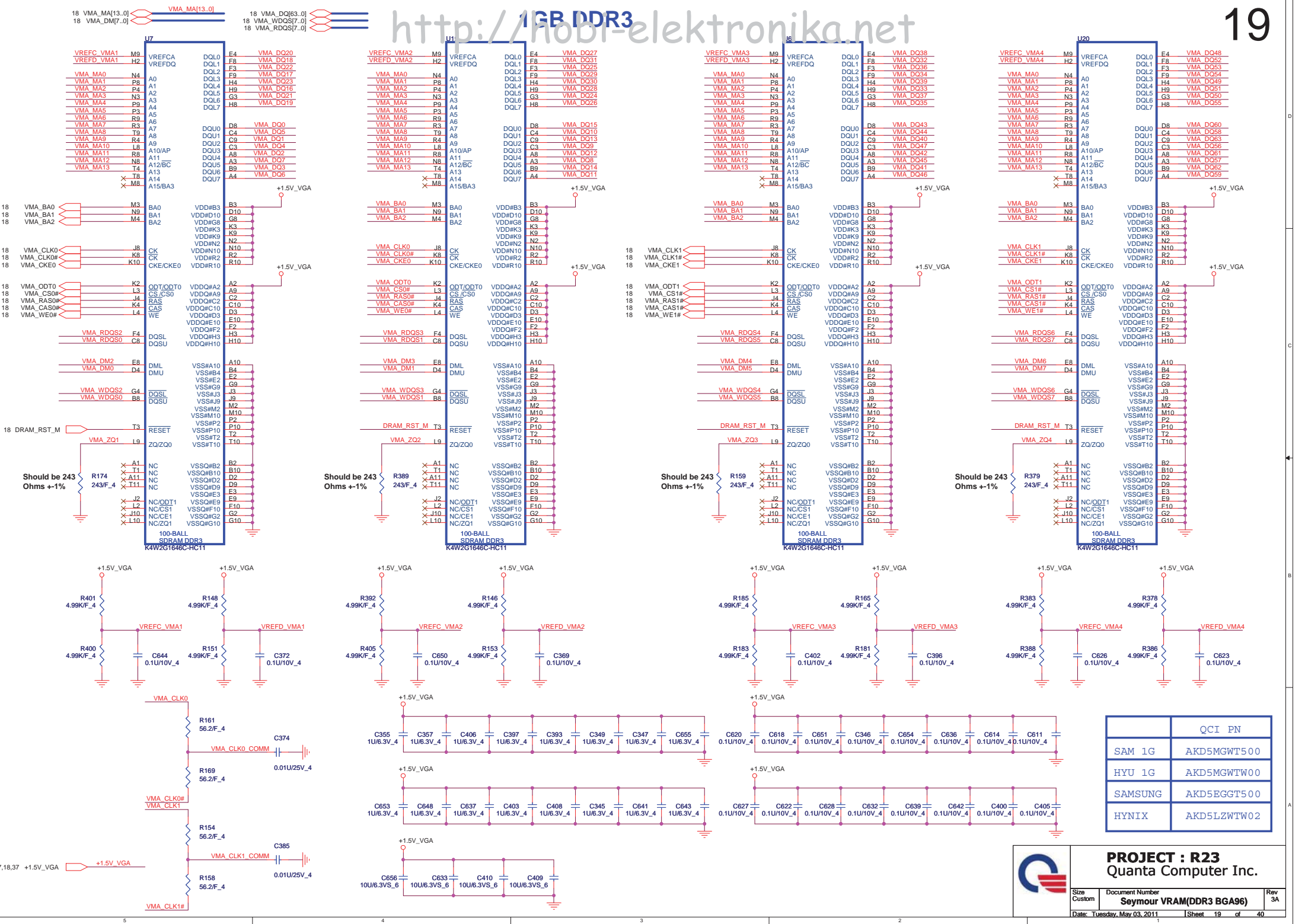
MEMORY INTERFACE



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



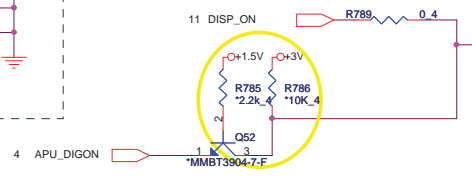
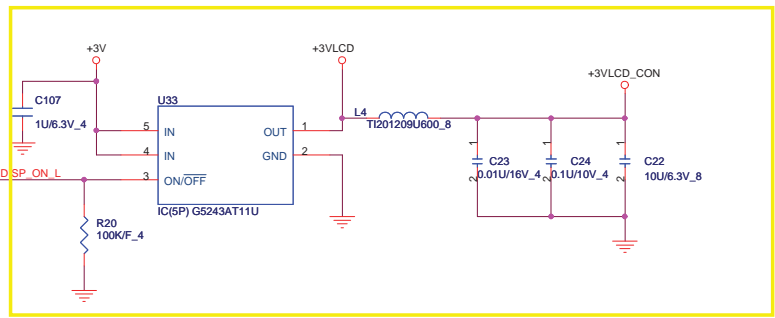
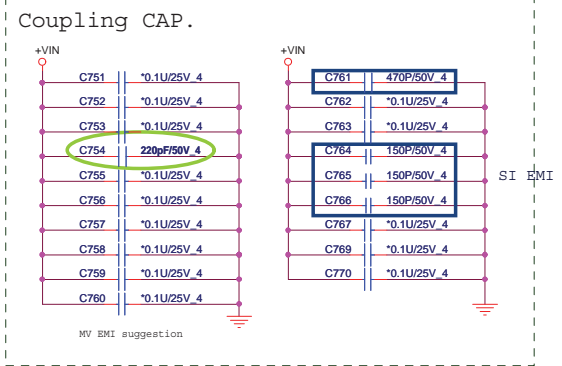
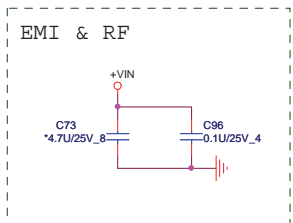
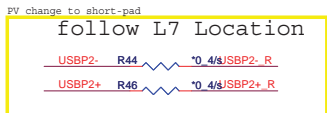
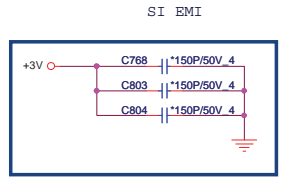
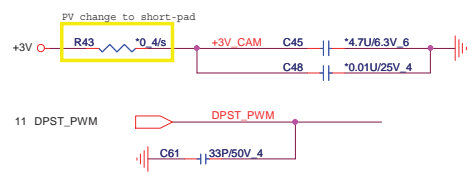
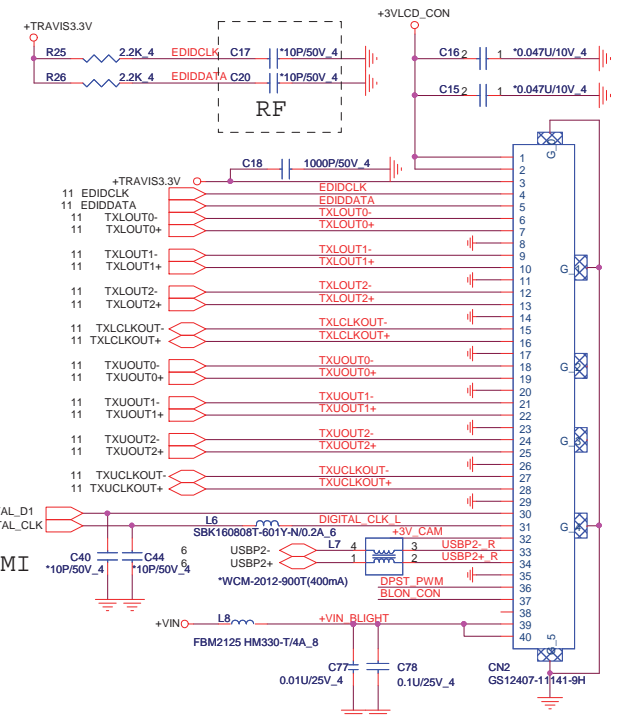
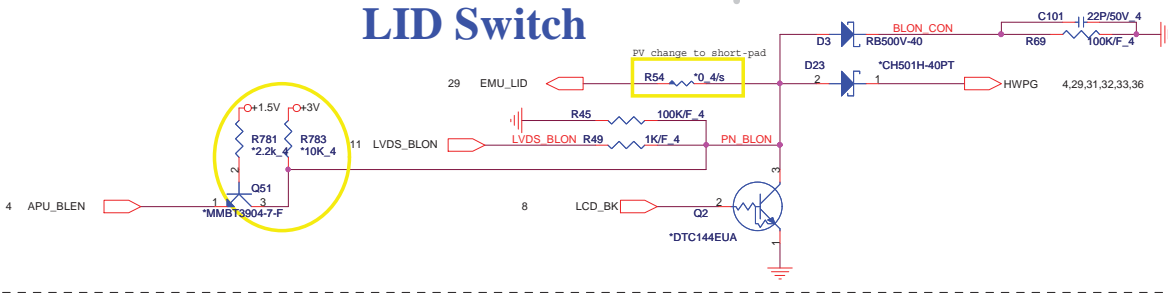


QCI PN	
SAM 1G	AKD5MGWT500
HYU 1G	AKD5MGWTW00
SAMSUNG	AKD5EGGT500
HYNIX	AKD5LZTWT02

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Quanta Computer Inc.

Size Custom	Document Number	Rev 3A
	Seymour VRAM(DDR3 BGA96)	
Date: Tuesday, May 03, 2011	Sheet 19 of 40	

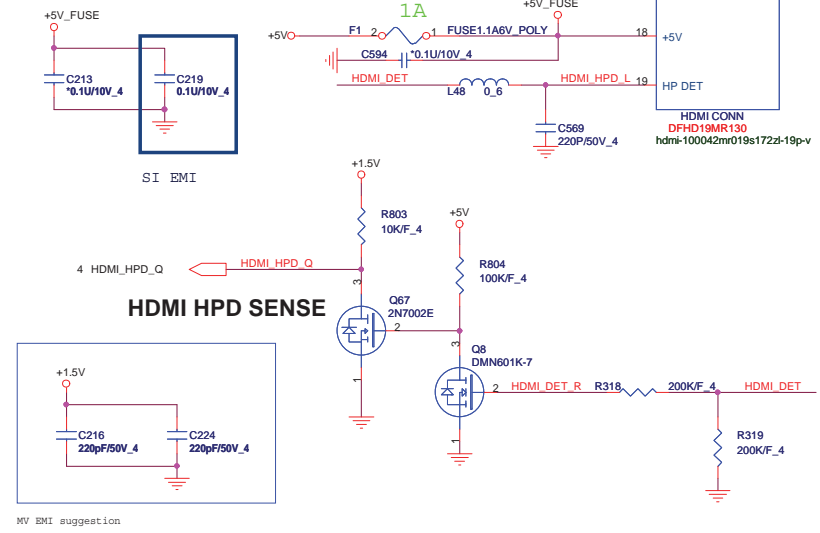
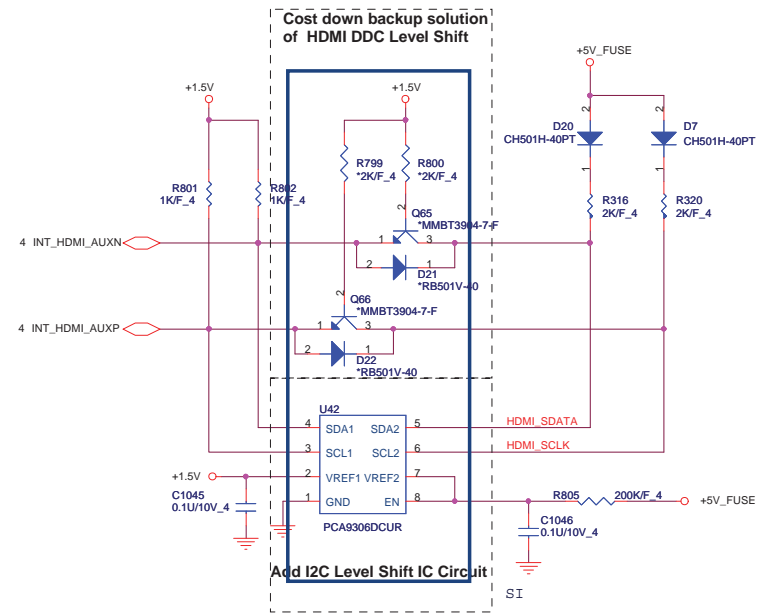
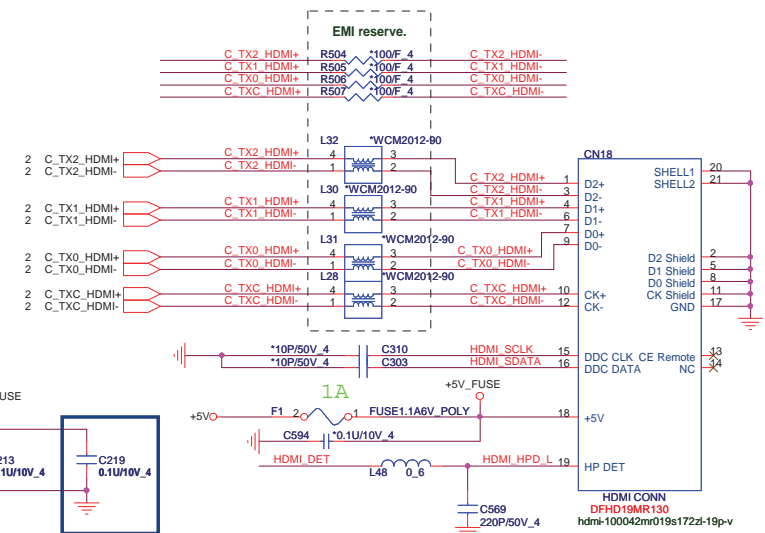
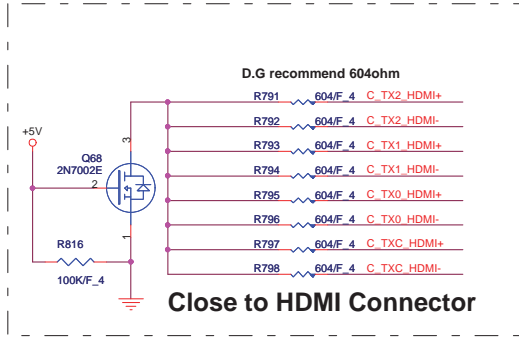
LID Switch

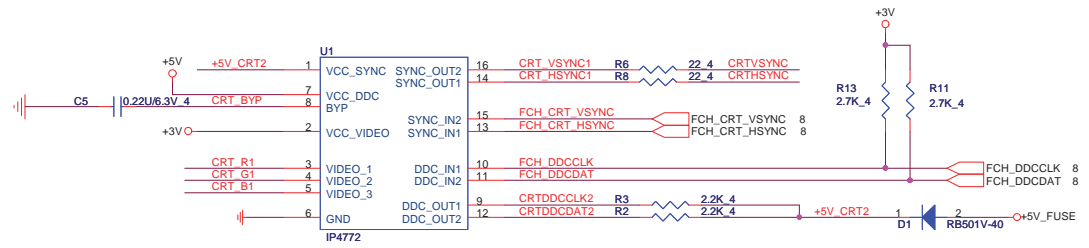
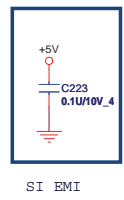
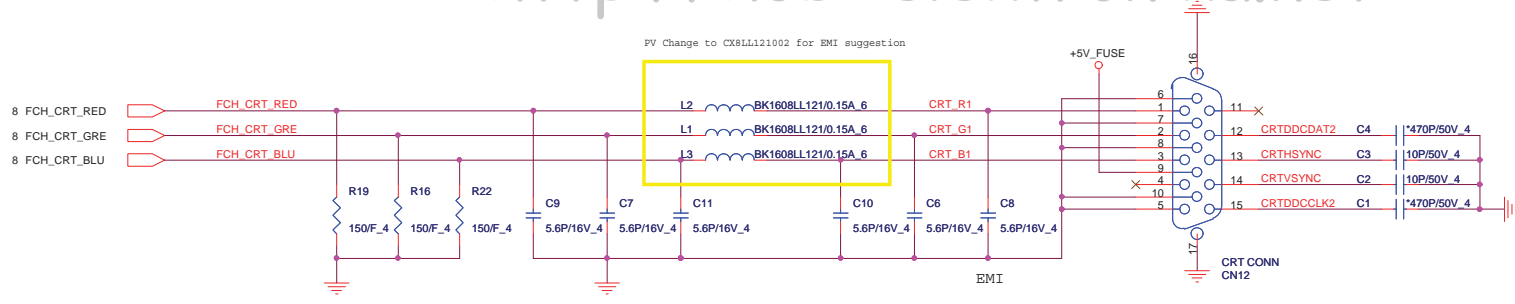


- 4,7,26,28,29,31,38 +3VPCU
- 2,4,6,8,9,10,11,12,13,14,17,22,23,24,25,27,28,29,30,34,37,39 +3V
- 9,37,38,39 +12VALW
- 31,32,33,34,35,36,37,38,39 +VIN

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Size Custom	Document Number LCD CONN/LID/CAM	Rev 1A
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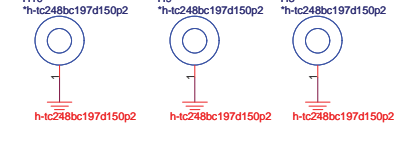
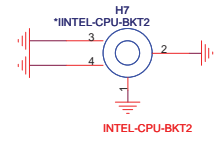
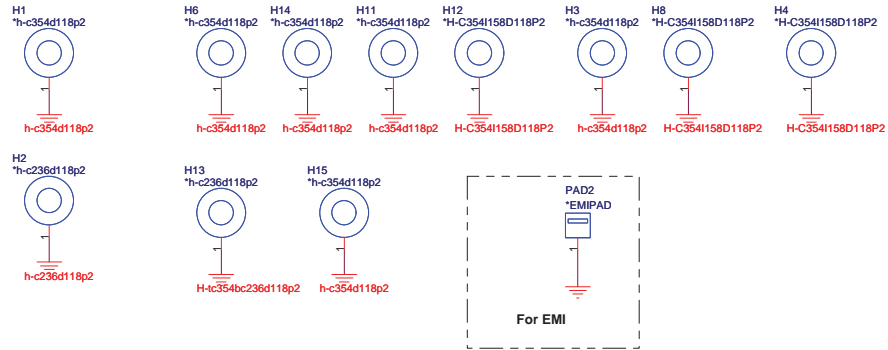




HOLE

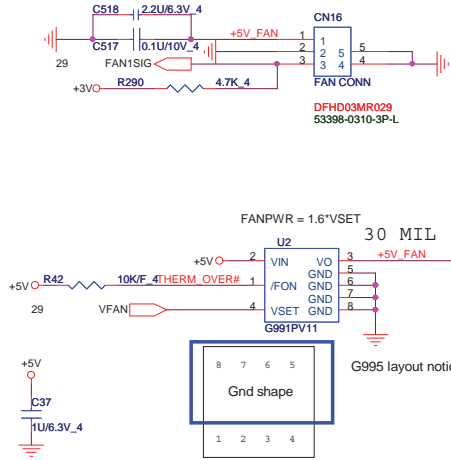
CPU

VGA



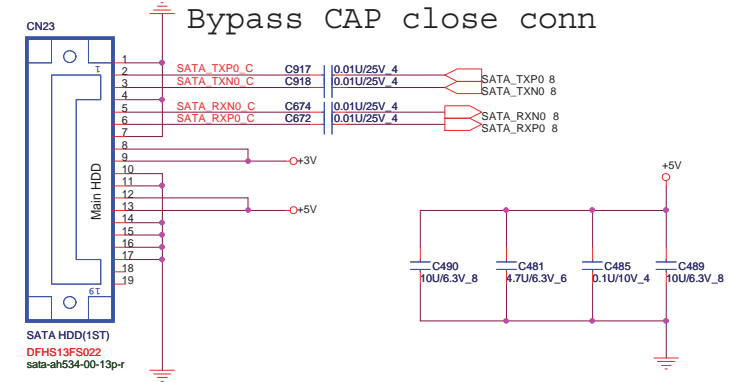
	PROJECT : R23		Rev 1A
	Quanta Computer Inc.		
	Size Custom	Document Number CRT,Hole	
Date: Tuesday, May 03, 2011		Sheet 22 of 40	

CPU FAN

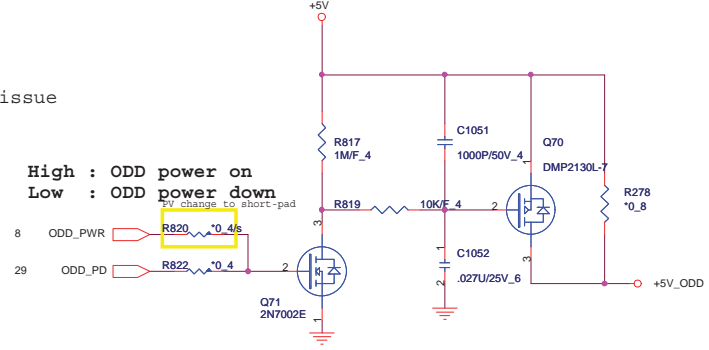
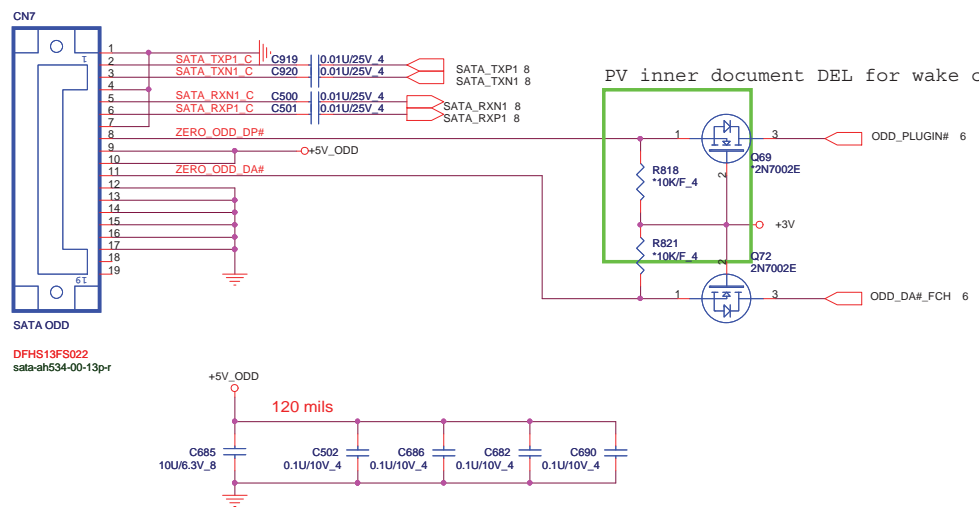


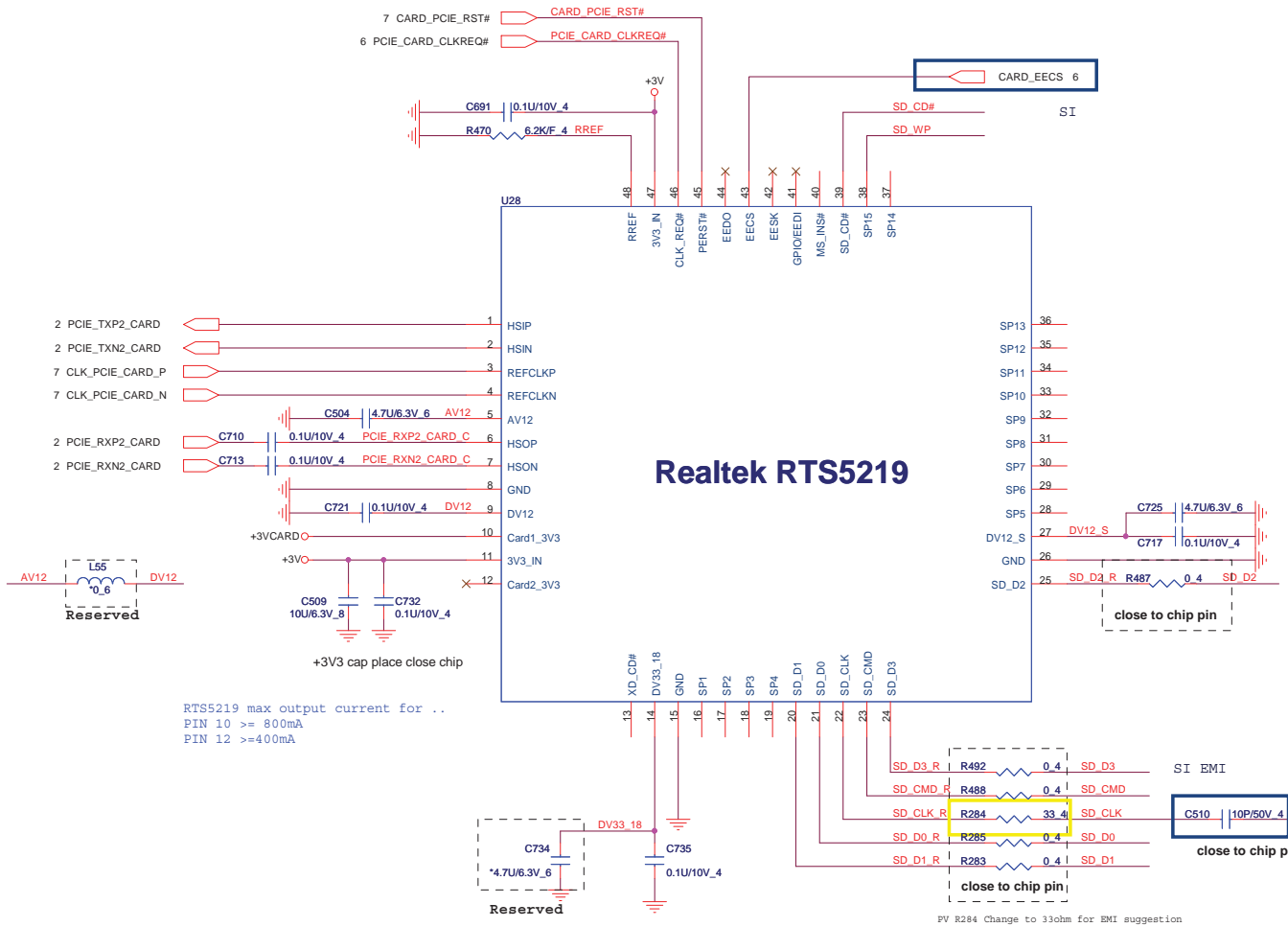
<http://hobi-elektronika.net>

SATA HDD CONNECTOR

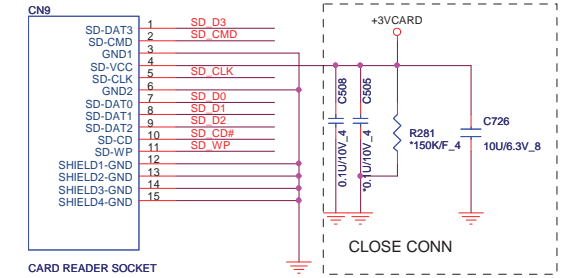


SATA ODD CONNECTOR SATA ODD





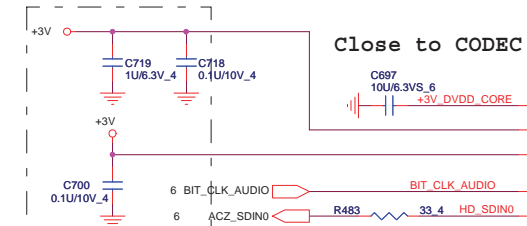
Footprint lqfp48-9x9-5-1_6h



PV R284 Change to 33ohm for EMI suggestion

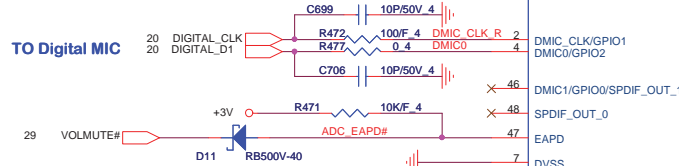
2,4,6,8,9,10,11,12,13,14,17,20,22,23,24,27,28,29,30,34,37,39 +3V
8,11,17,21,22,23,28,30,39 +5V

Close to CODEC

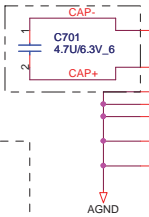


HDA Bus

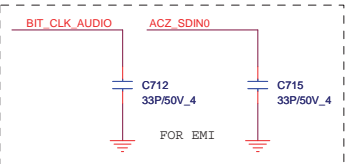
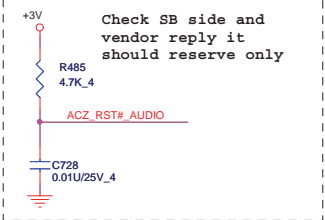
TO Digital MIC



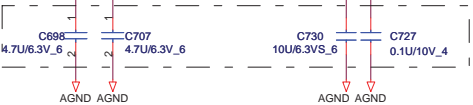
Close to CODEC



Check SB side and vendor reply it should reserve only

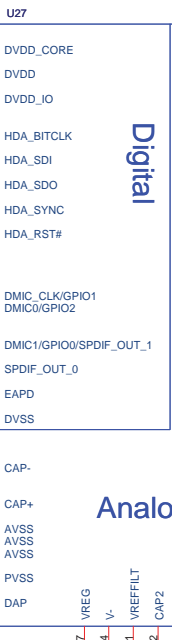


Close to CODEC

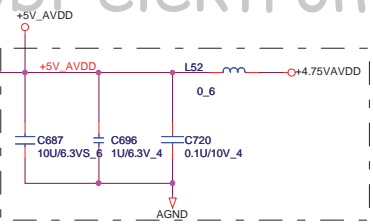


Digital

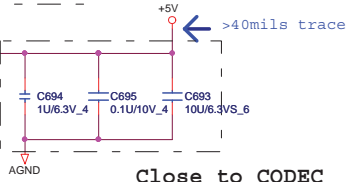
Analog



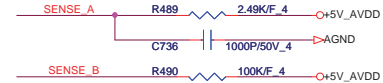
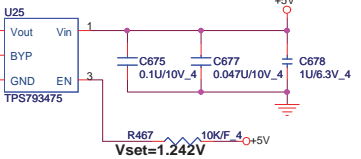
>40mils trace



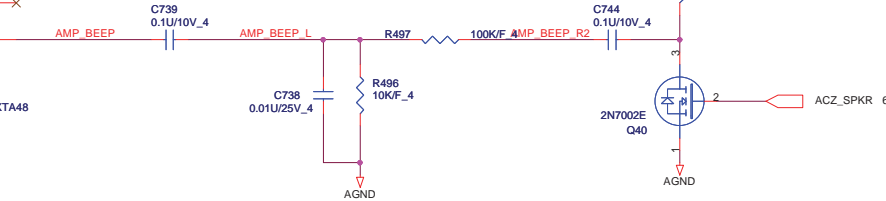
Close to CODEC



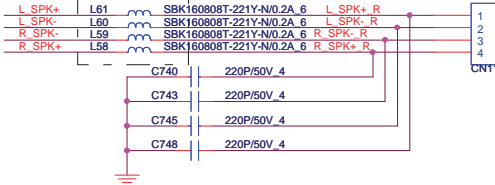
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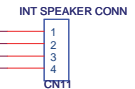
TO Internal Speakers



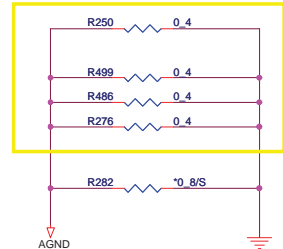
EMI Request



INT. SPEAKER



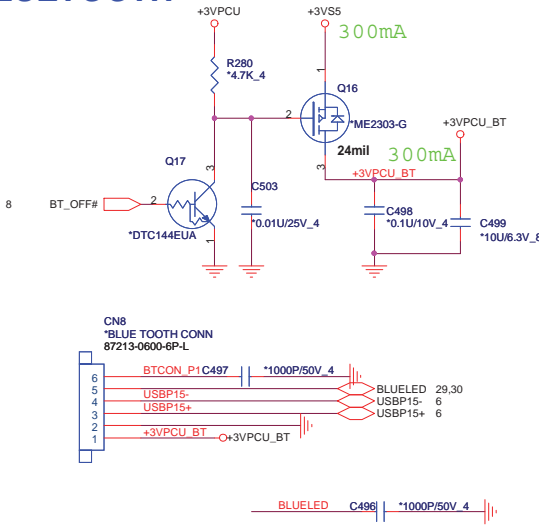
PV ADD 0ohm for EMI suggestion



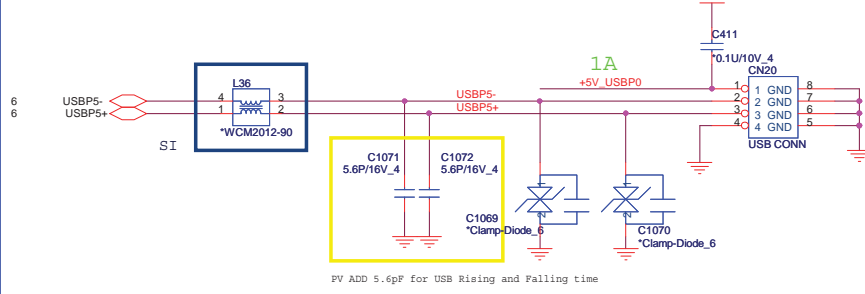
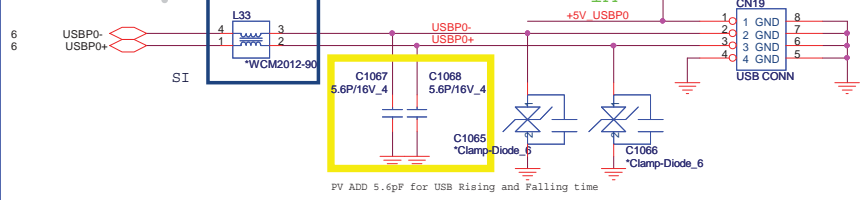
PROJECT : R23 Quanta Computer Inc.

Size Custom	Document Number Azalia 92HD80	Rev 1A
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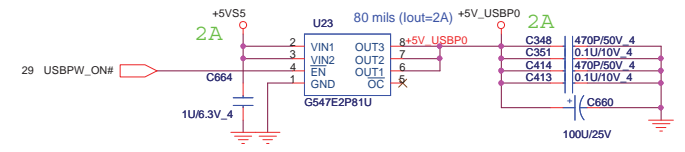
BLUETOOTH



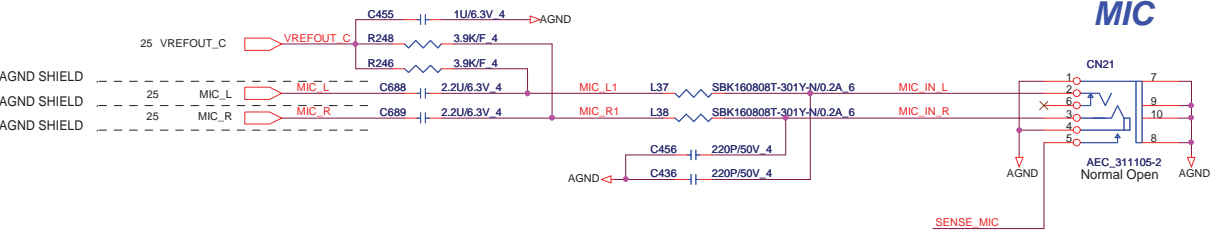
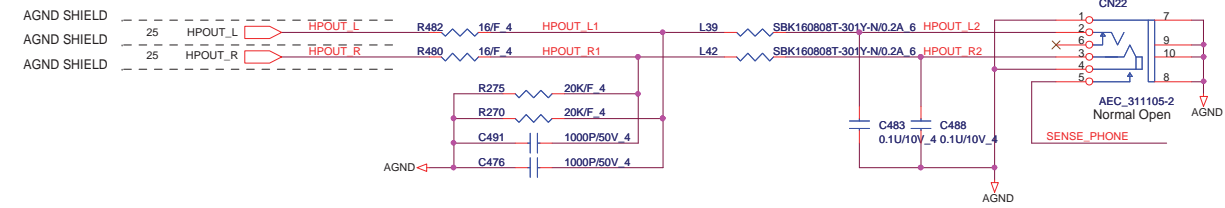
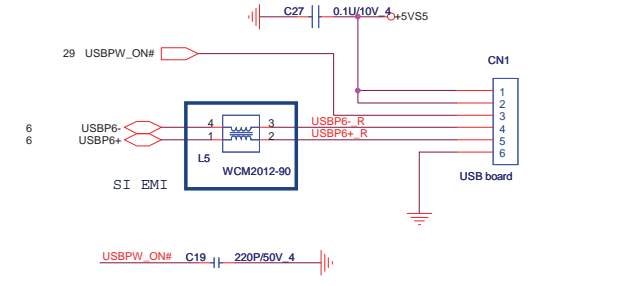
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LEFT SIDE USB2



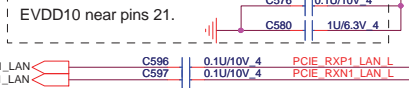
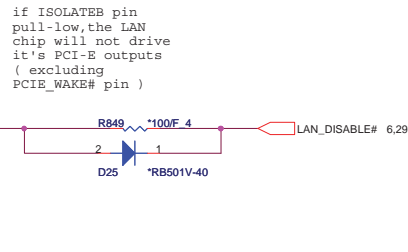
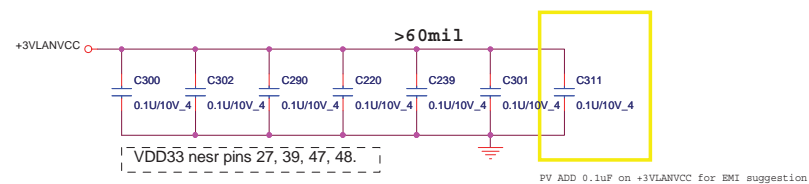
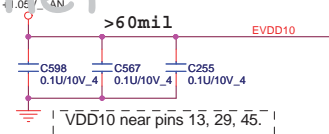
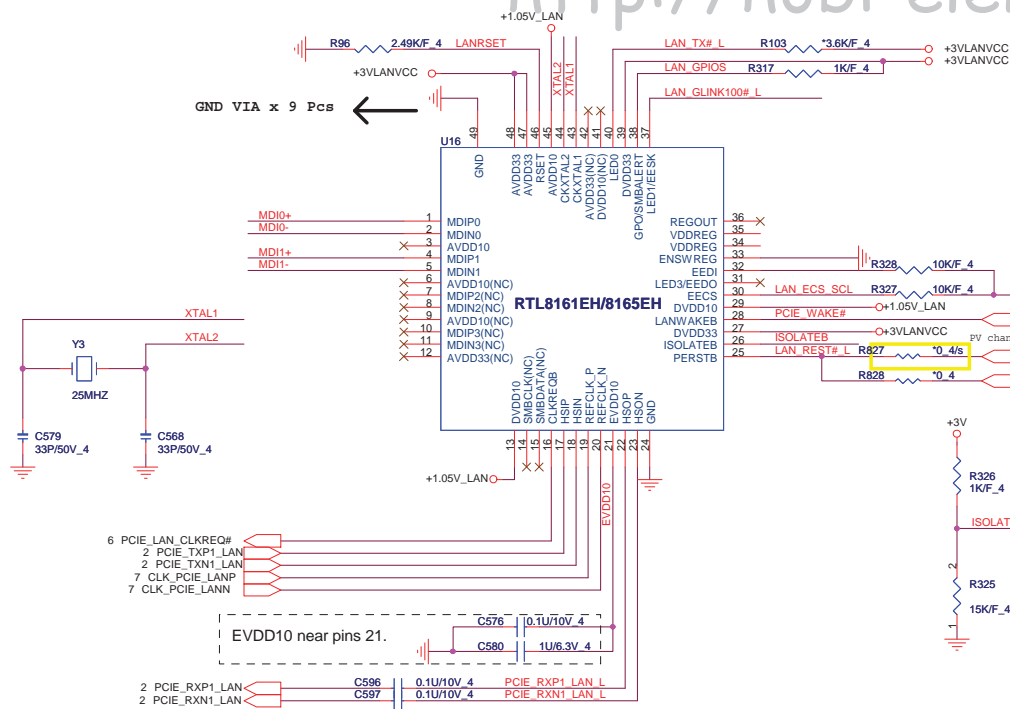
Right SIDE USB1



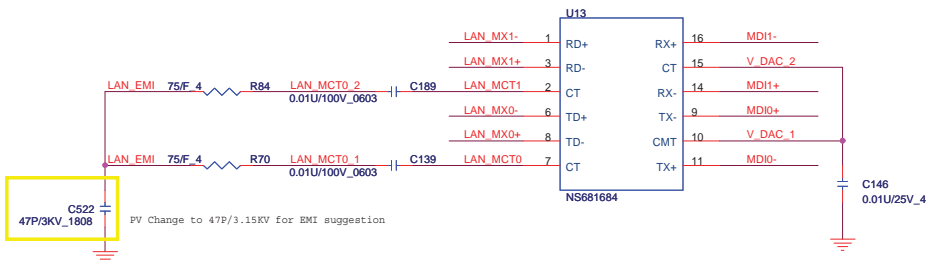
Line out

MIC

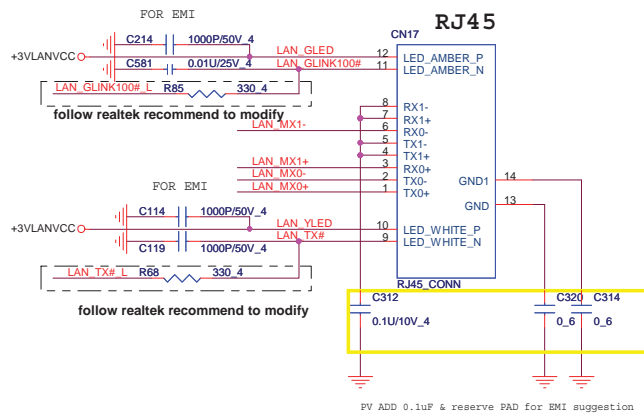
PROJECT : R23 Quanta Computer Inc.		
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Transformer for 10/100



Lan Con.

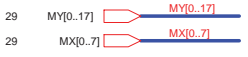
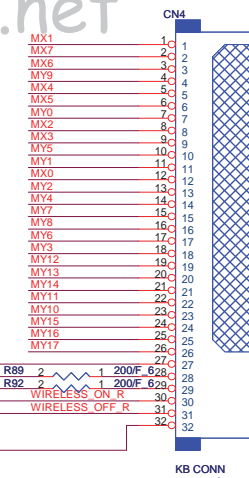
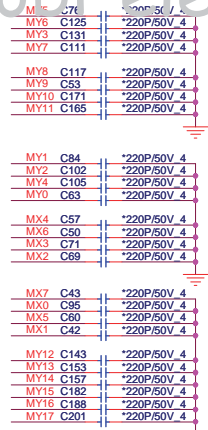
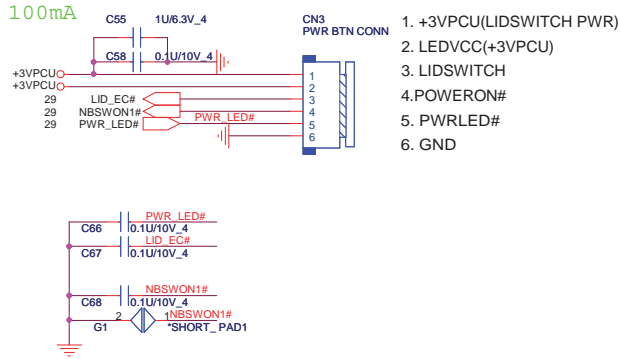


PROJECT : R23
Quanta Computer Inc.

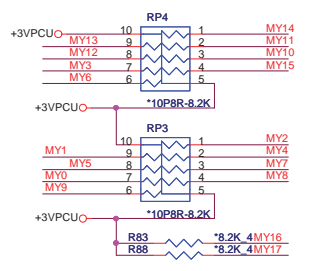
Size	Document Number	Rev
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39 +3VLANVCC
2,4,6,8,9,10,11,12,13,14,17,20,22,23,24,25,28,29,30,34,37,39 +3V

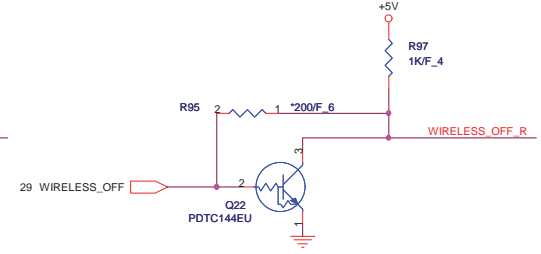
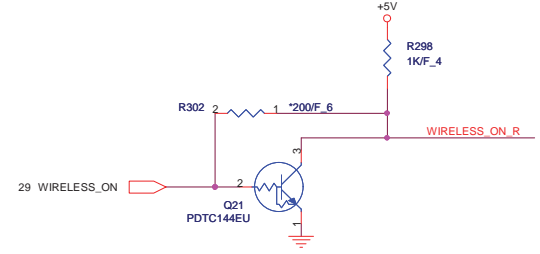
POWER BOTTON CONNECT



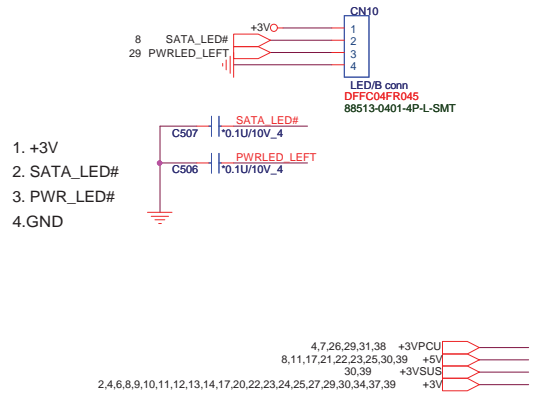
KEYBOARD PULL-UP



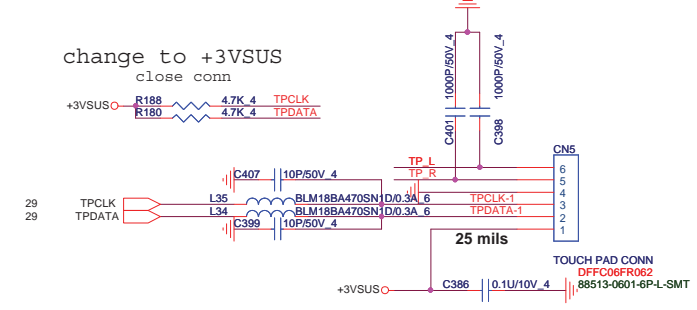
EC KB3930 has included K/B pull-up resistor and function



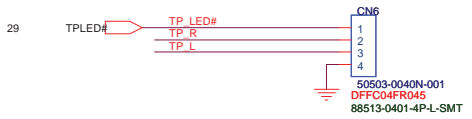
LED Con.



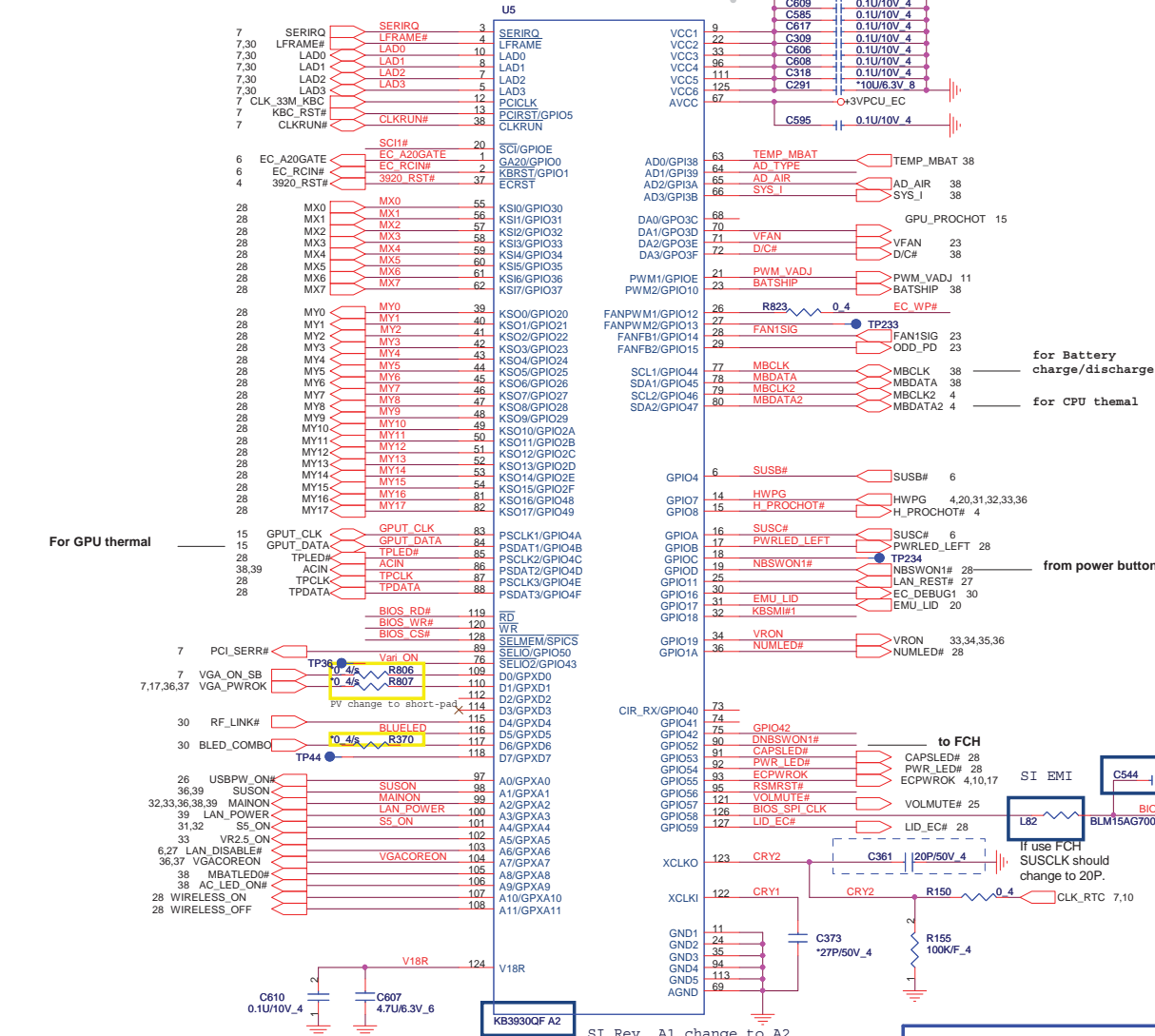
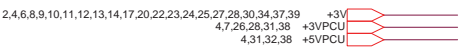
TOUCH PAD Con.



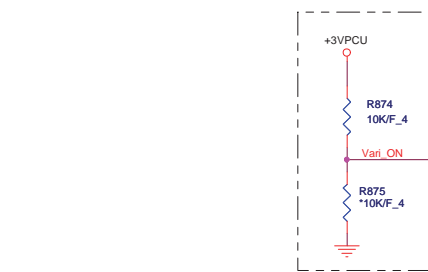
To TOUCH PAD SW board



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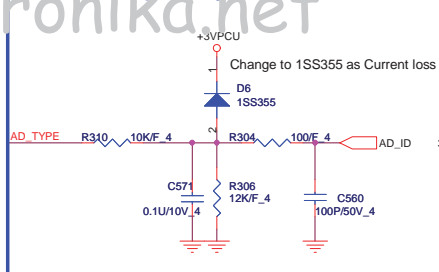


For GPU thermal

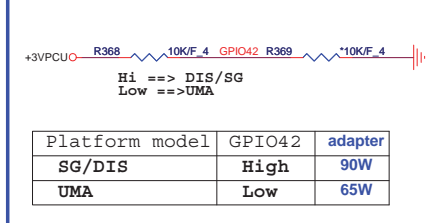


CPU Thermal SMBUS select	Vari_ON	project
SCL1/SDA1	Low	R22
SCL2/SDA2	High	R23,R24

Smart adapter Type check



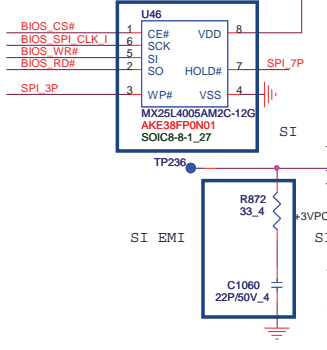
Adapter select



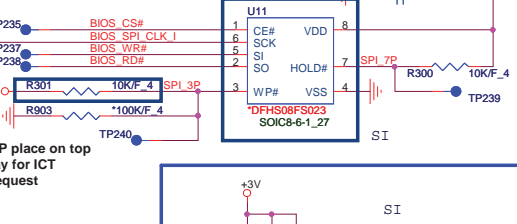
Platform model	GPIO42	adapter
SG/DIS	High	90W
UMA	Low	65W

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

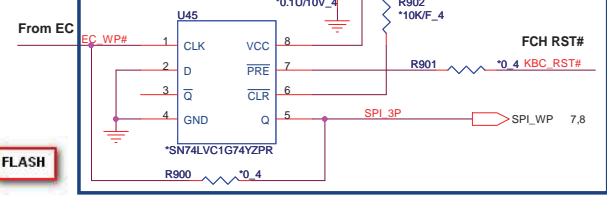
2M SPI EC ROM



128K byte SPI EC ROM



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 (1)	H (1)
H	H	↑	H	H	L
H	H	↑	L	L	H
H	H	L	X	Q ₀	Q̄ ₀



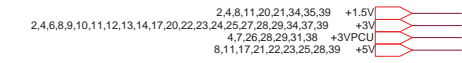
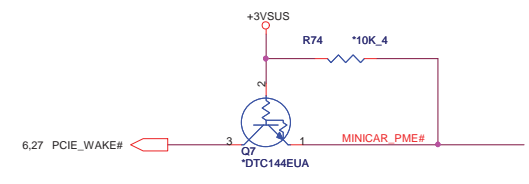
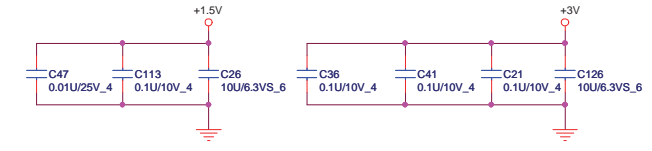
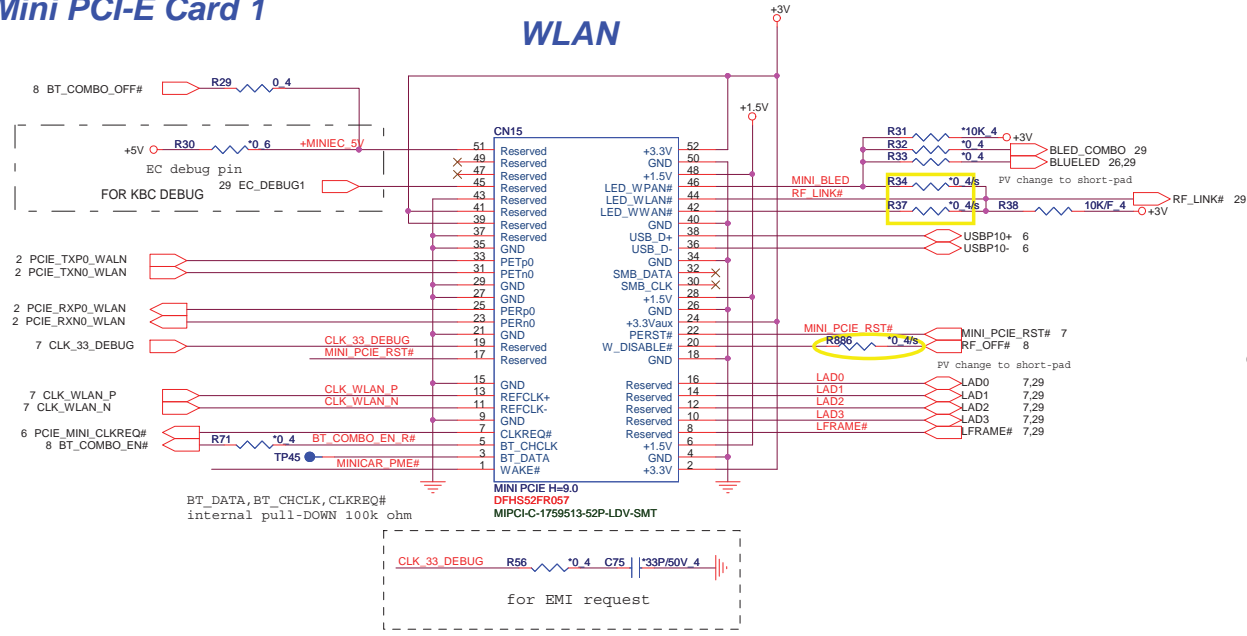
PROJECT : R23
Quanta Computer Inc.

Size Custom Document Number EC (KB3926)/ROM Rev 1A

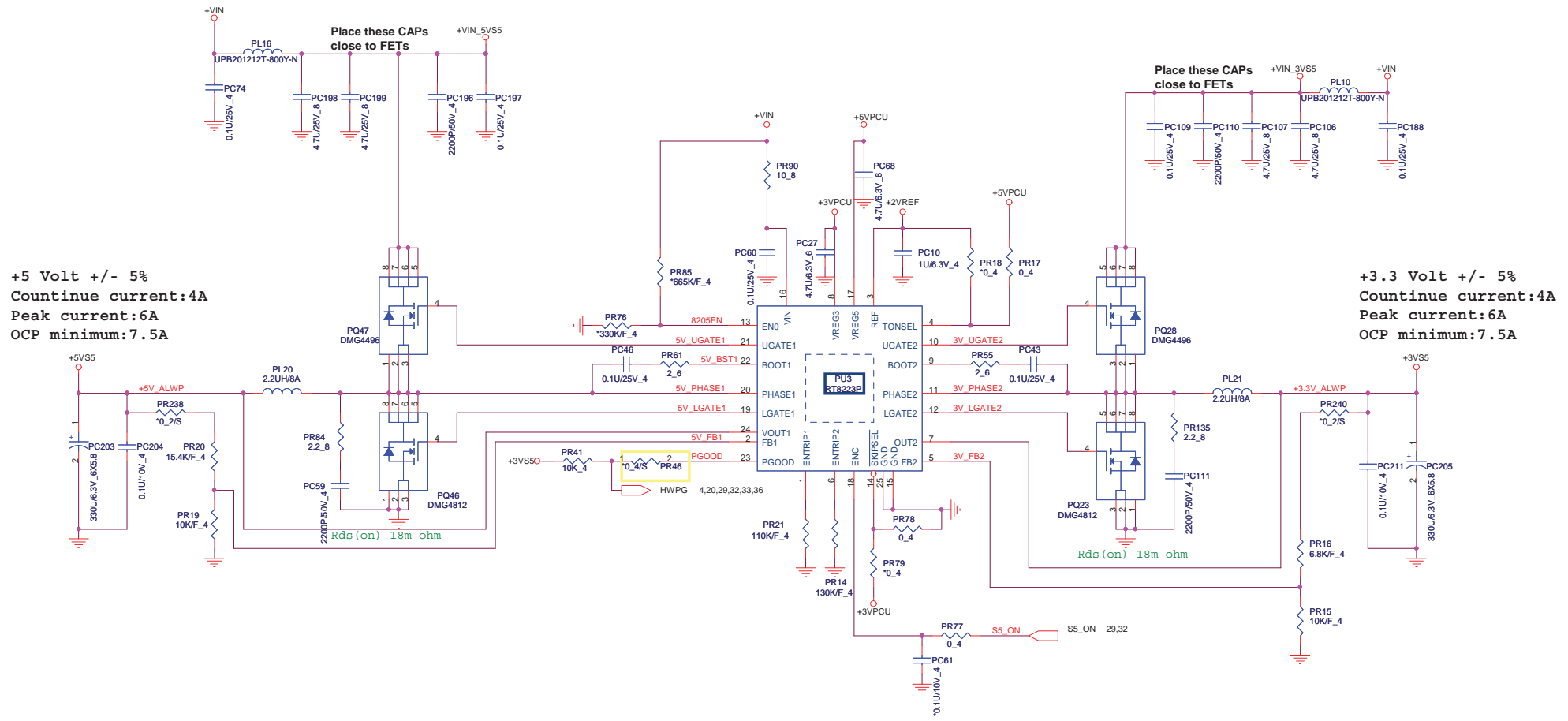
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Mini PCI-E Card 1

WLAN




	PROJECT : R23		Rev 1A
	Quanta Computer Inc.		
	Size Custom	Document Number MINI PCI-E CONN X1	
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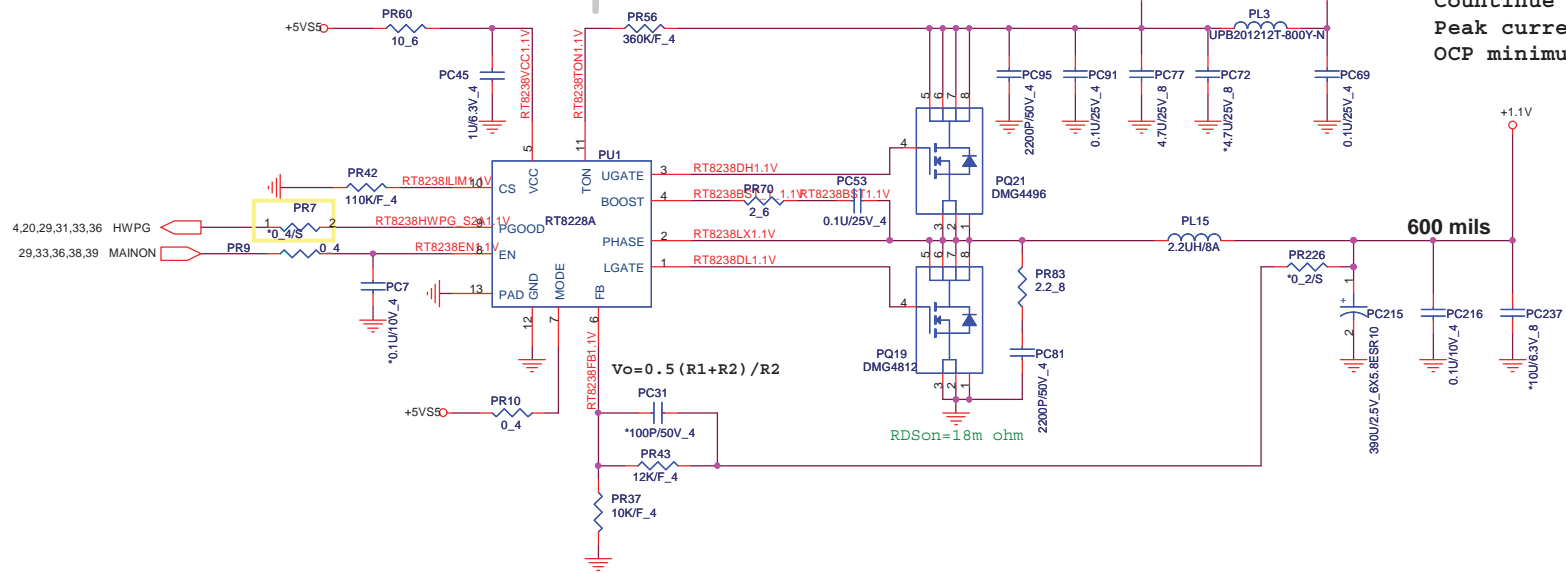


+5 Volt +/- 5%
 Countinue current:4A
 Peak current:6A
 OCP minimum:7.5A

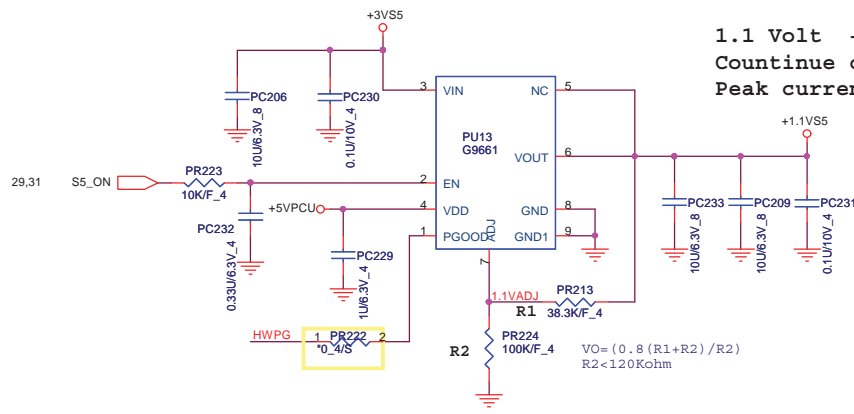
+3.3 Volt +/- 5%
 Countinue current:4A
 Peak current:6A
 OCP minimum:7.5A

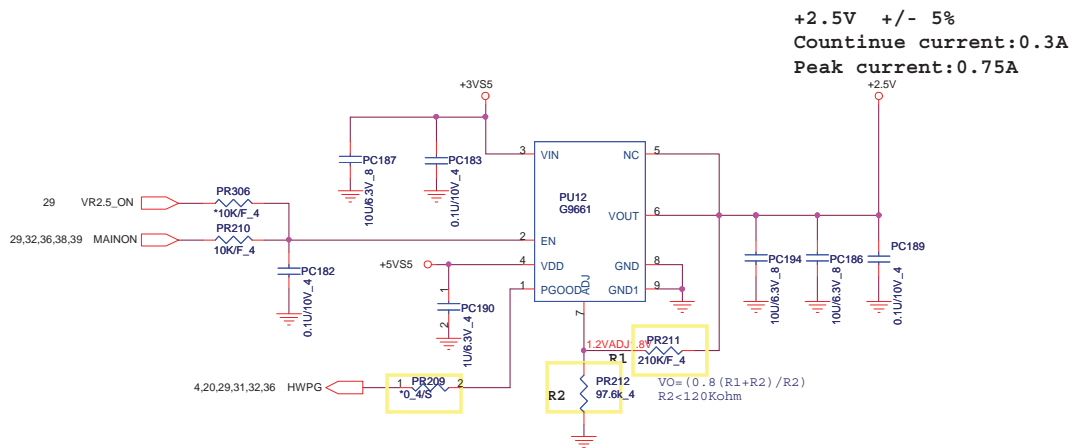
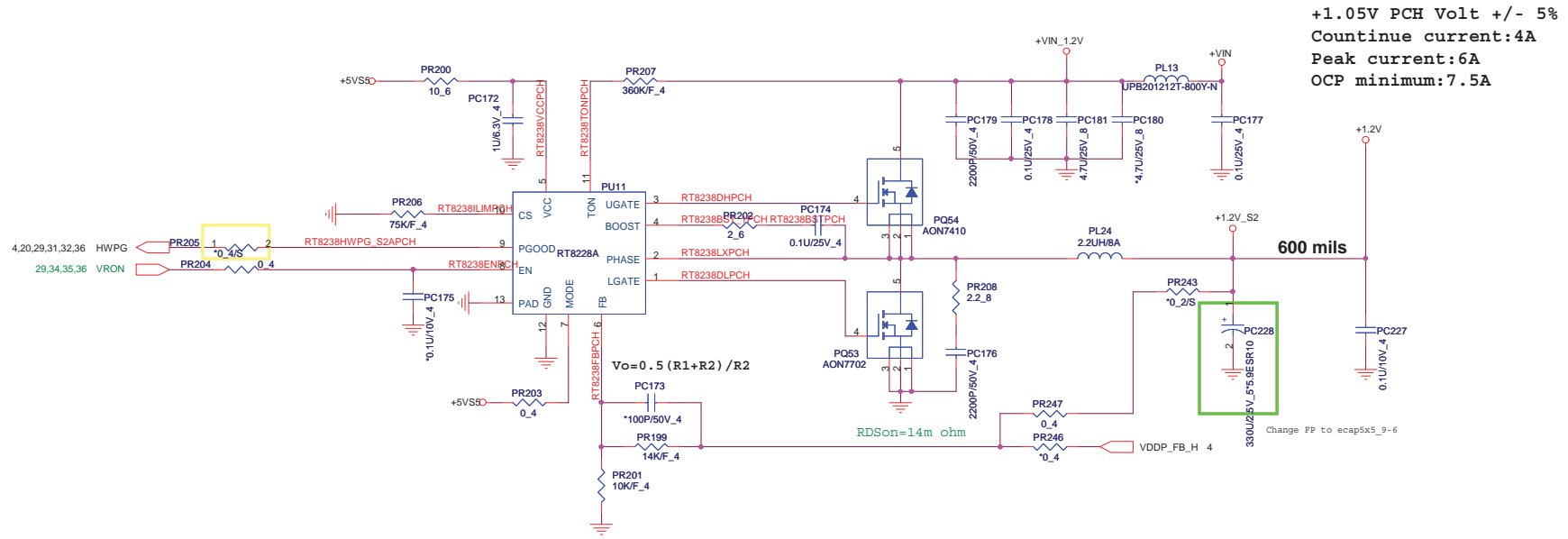
			PROJECT : R23	
			Quanta Computer Inc.	
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+1.1V Volt +/- 5%
 Countinue current:3A
 Peak current: 4A
 OCP minimum:6A

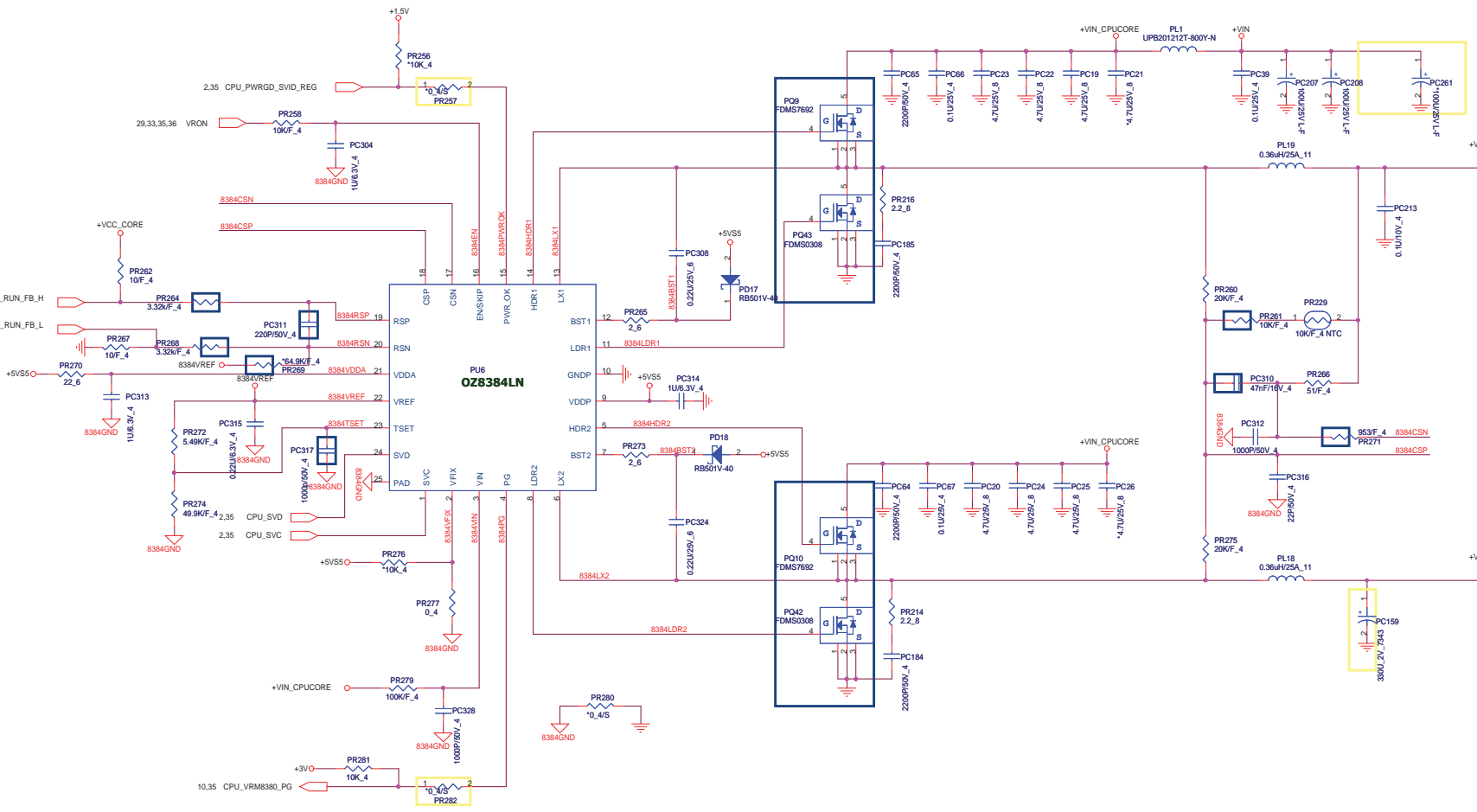


1.1 Volt +/- 5%
 Countinue current:0.2A
 Peak current:0.5A

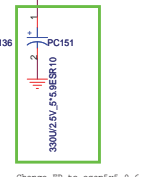




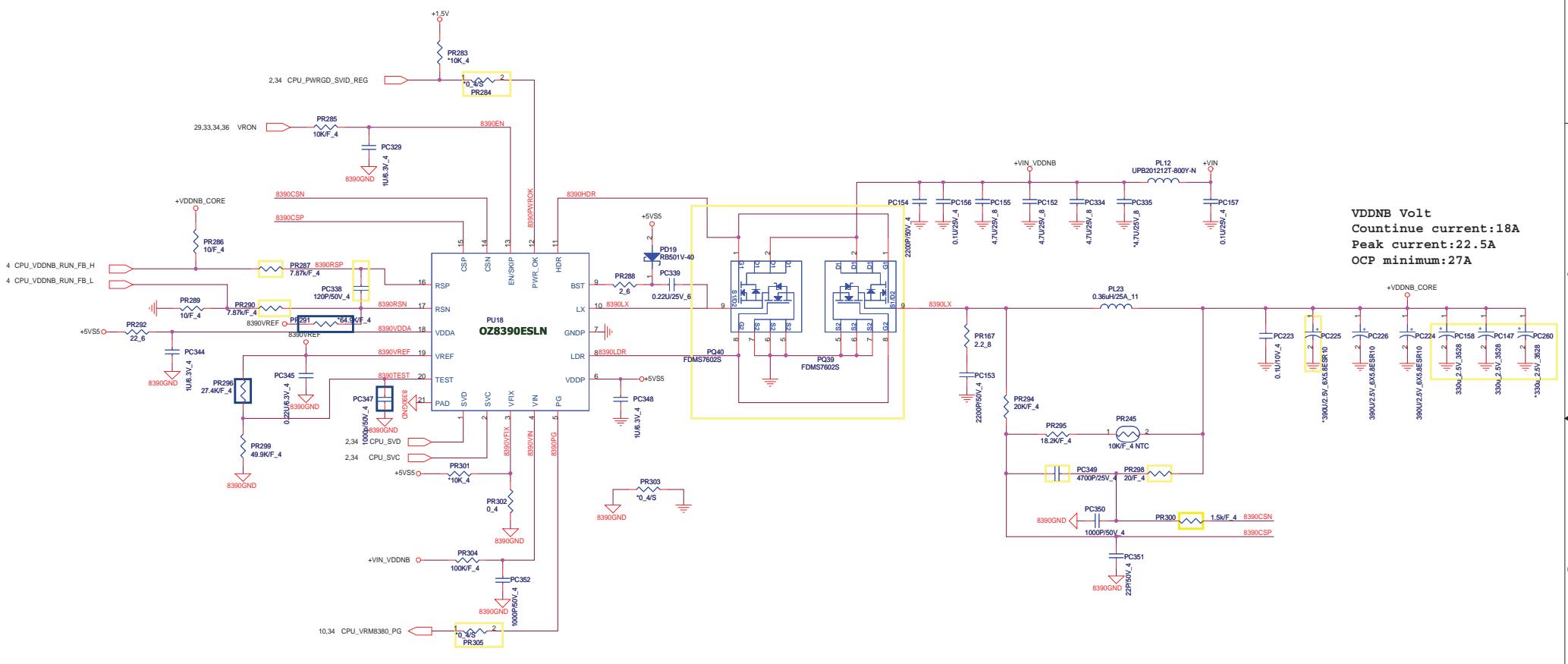
 PROJECT : R23 Quanta Computer Inc.		



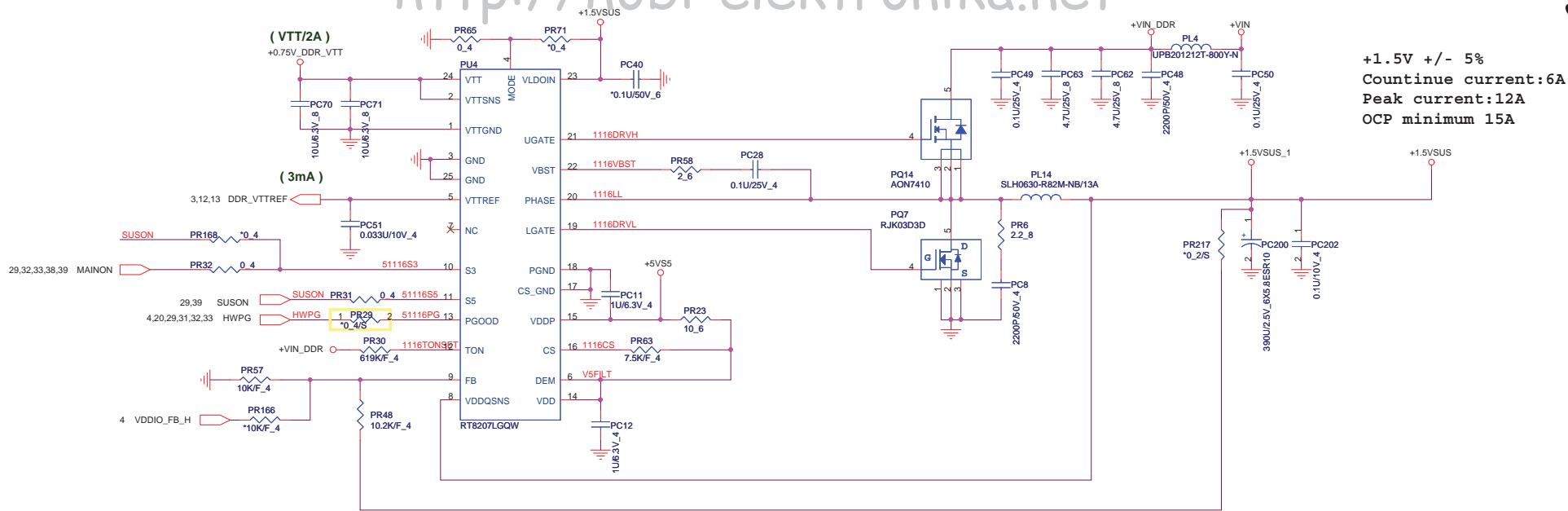
CPU CORE Volt
Countinue current:36A
Peak current:50A
OCP minimum:55A



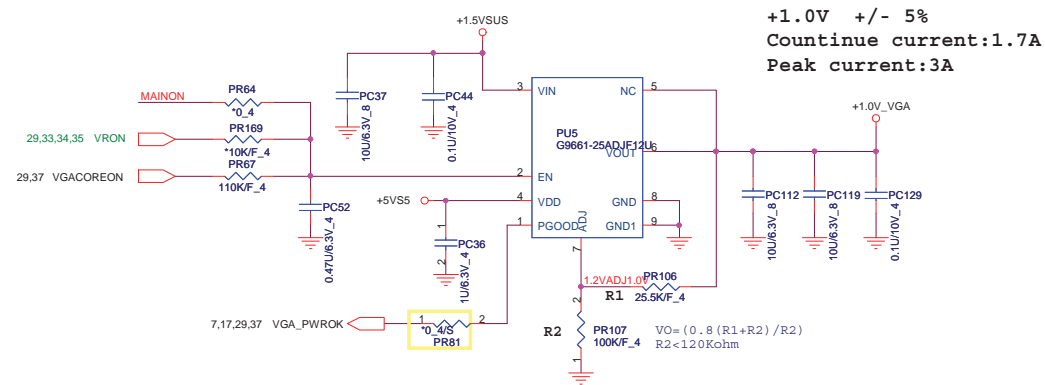
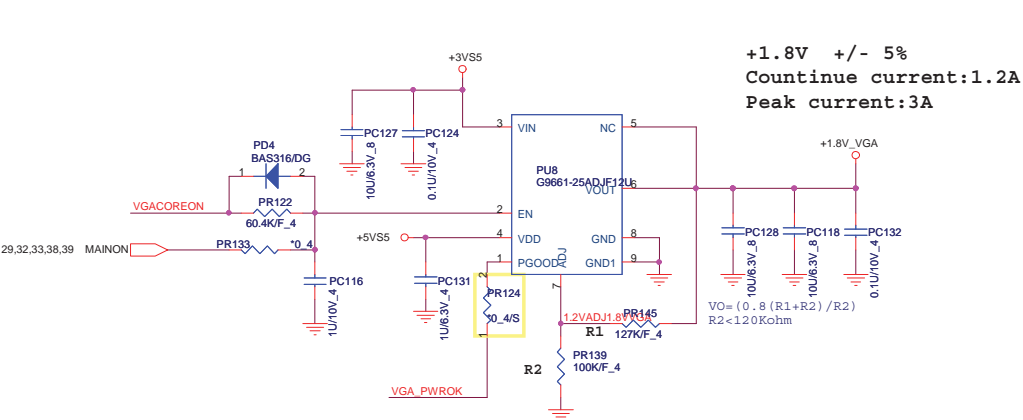
Change FP to ecapp5t_9-6

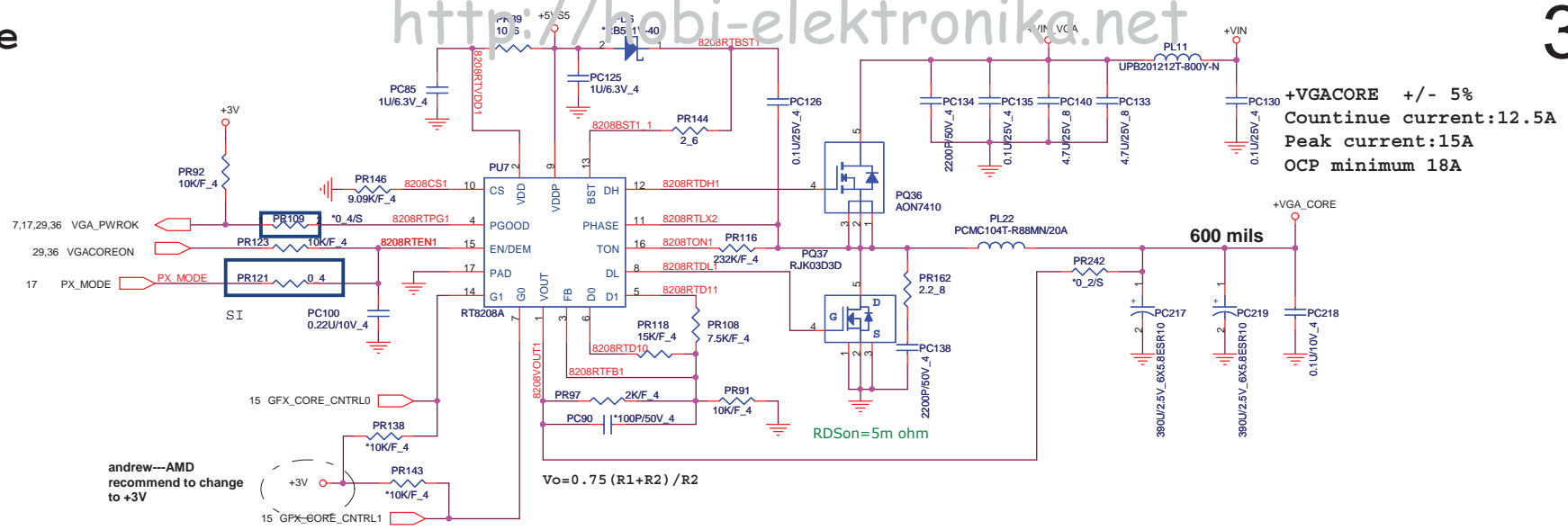


VDDNB Volt
Countinue current:18A
Peak current:22.5A
OCP minimum:27A

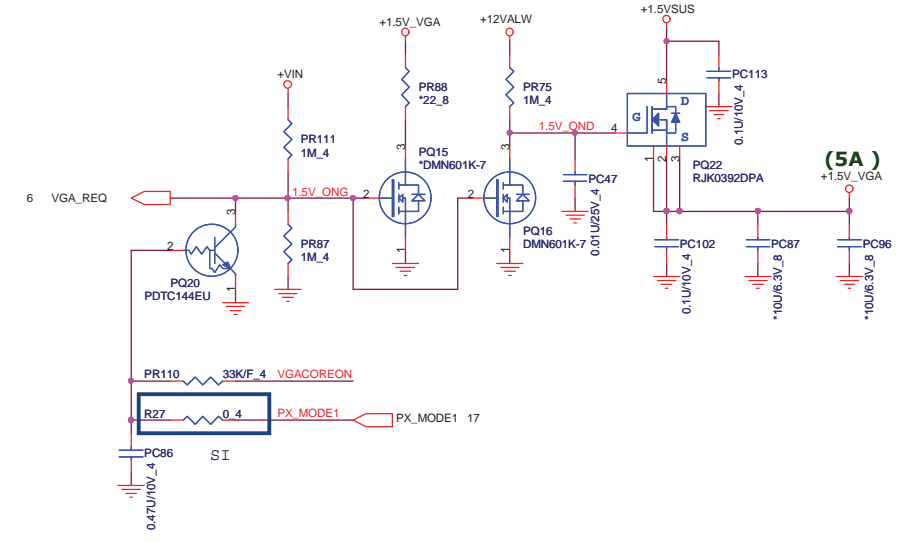
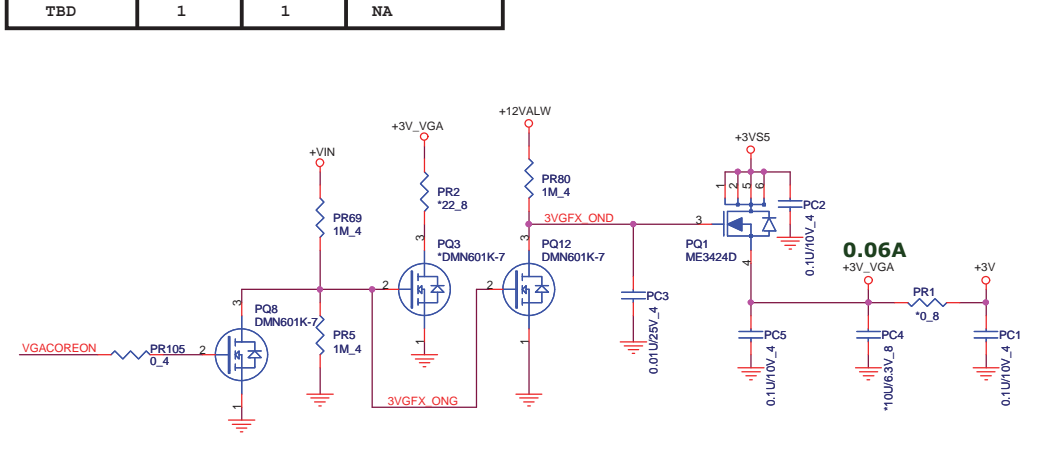


SG & Discrete Only

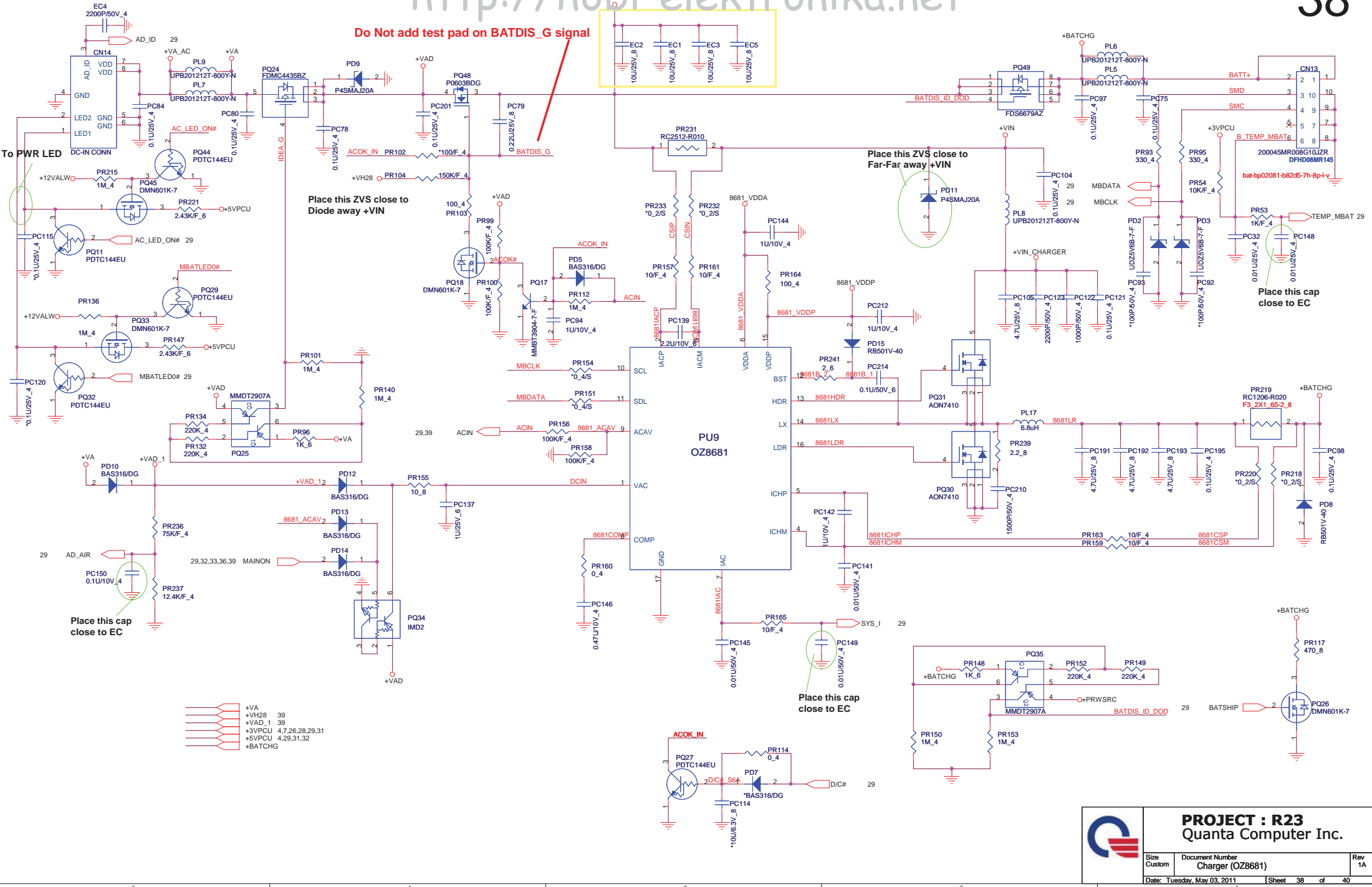





Seymour-XT	PWRCNTL0	PWRCNTL1	V-CORE
L	0	0	0.9V
M	0	1	1V
H	1	0	1.1V (Default)
TBD	1	1	NA

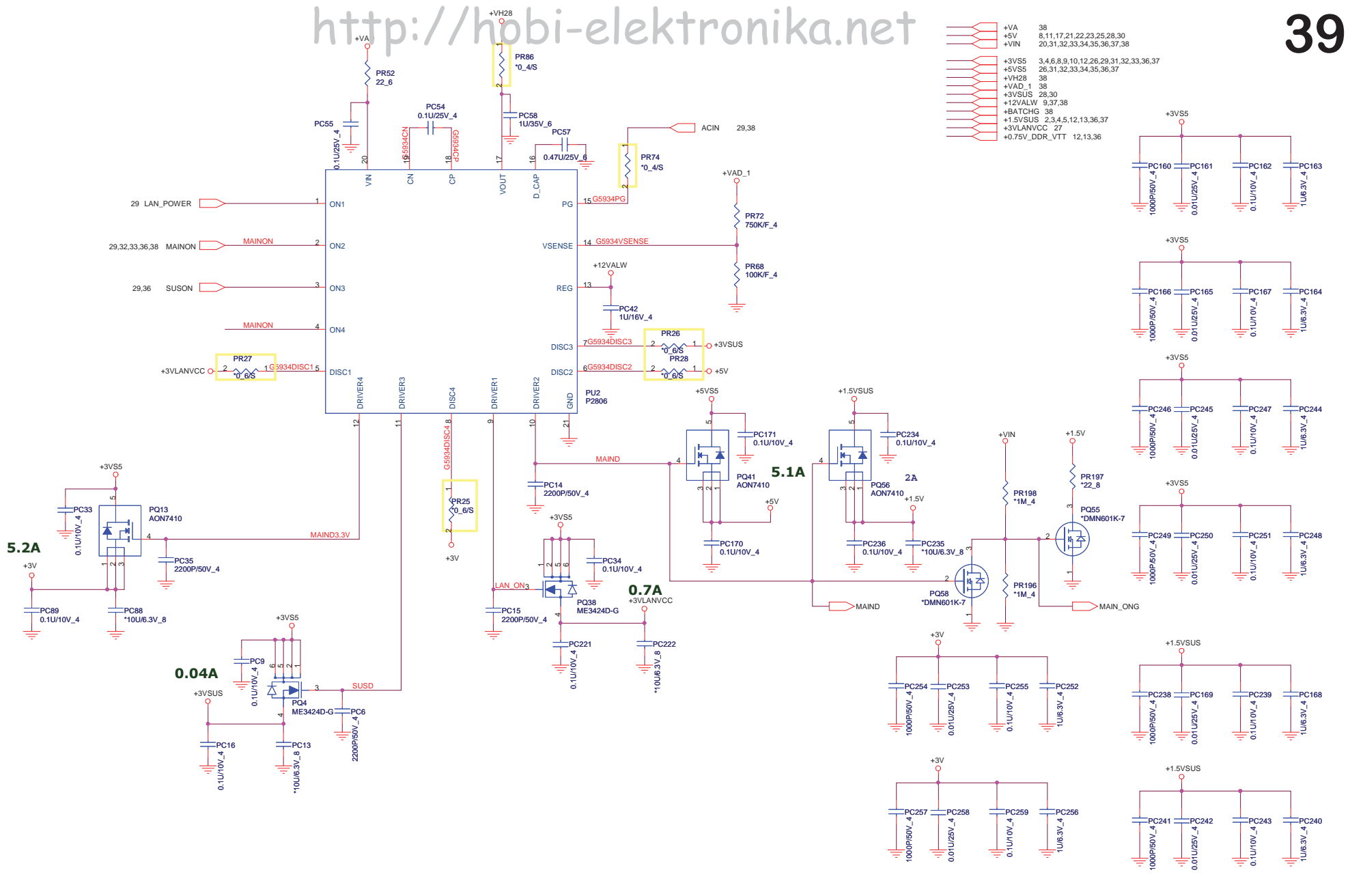


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- +VA
- +VH28 39
- +VAD_1 39
- +3VPCU 4,7,26,28,29,31
- +5VPCU 4,29,31,32
- +BATCHG

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		Quanta Computer Inc.	
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- +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
- +3VLNVCC 27
- +0.75V_DDR_VTT 12,13,36

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