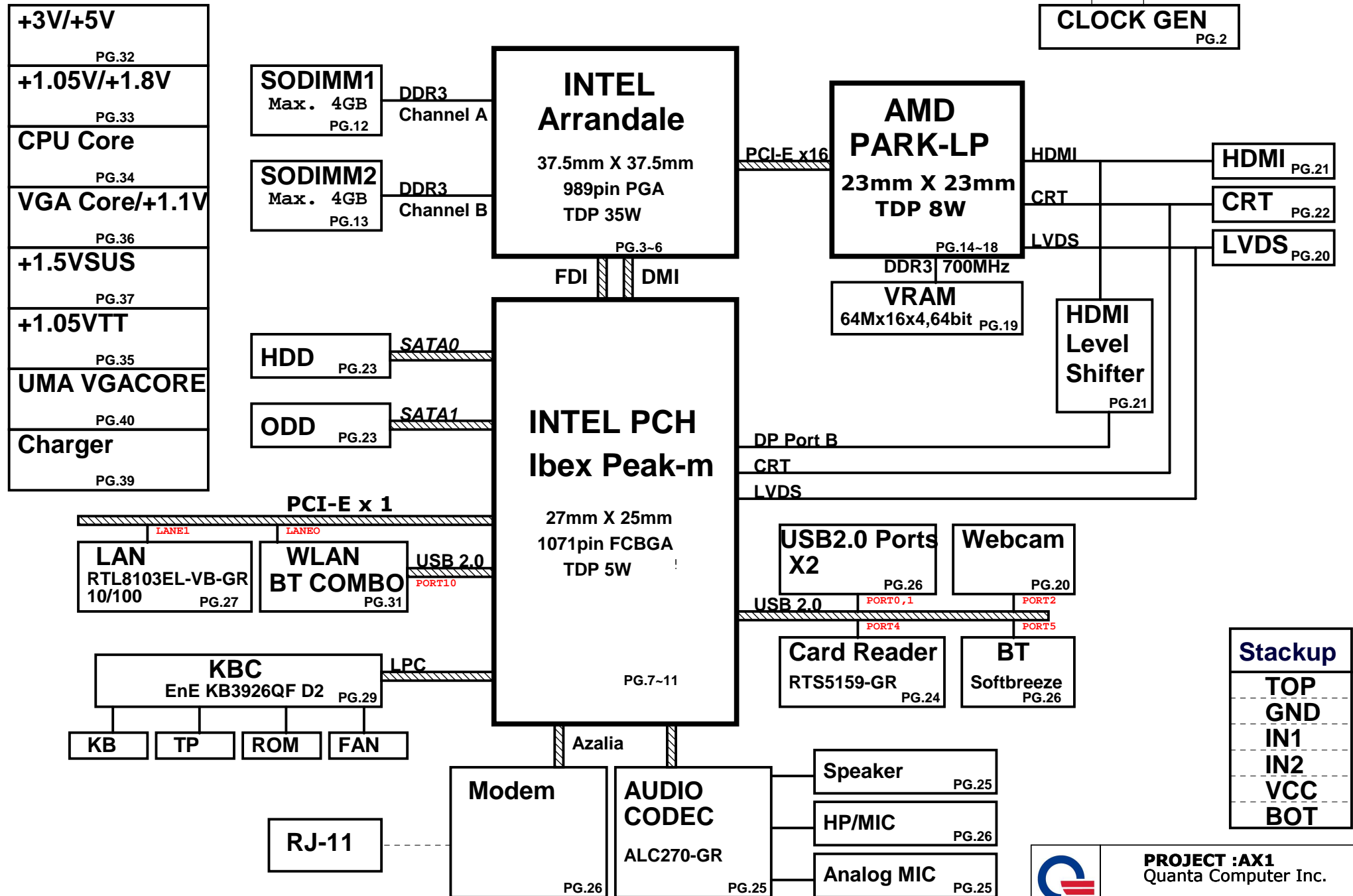


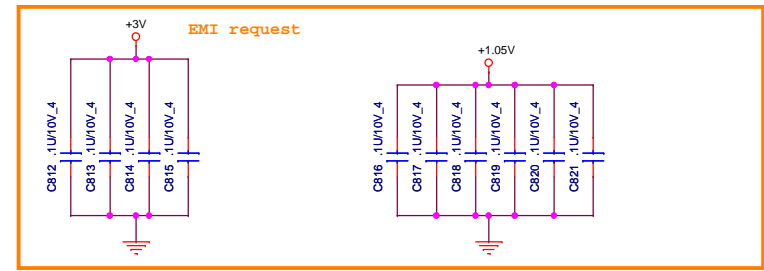
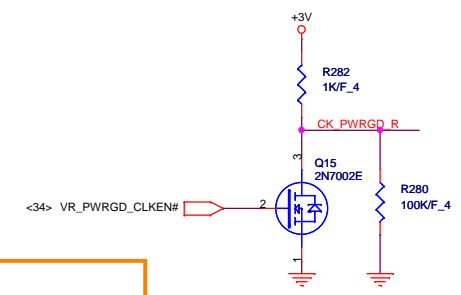
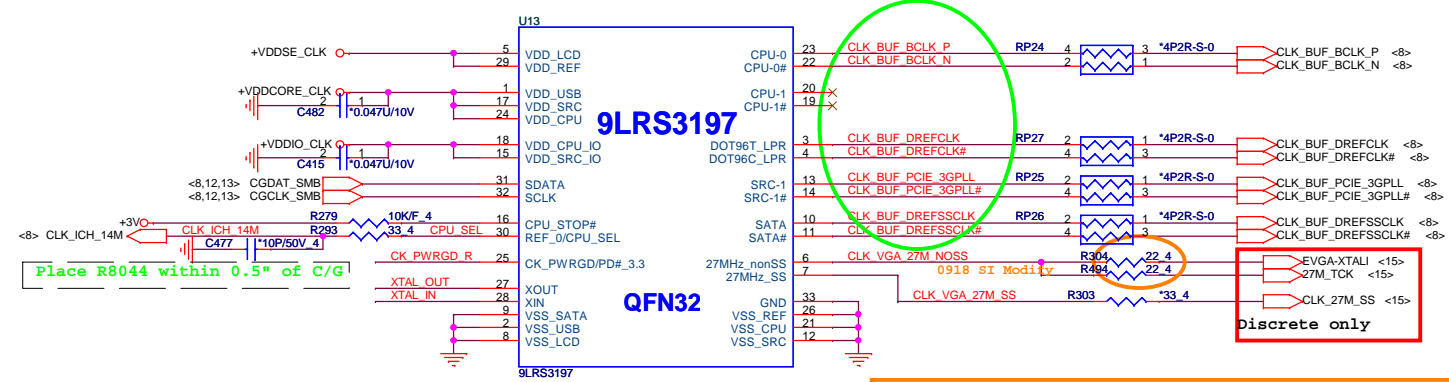
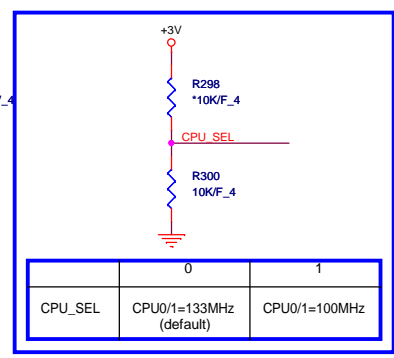
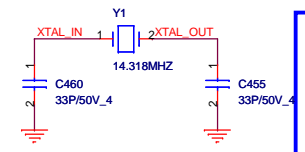
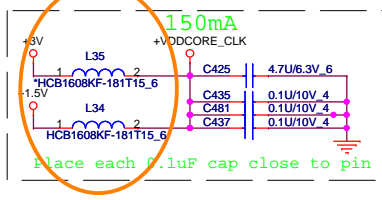
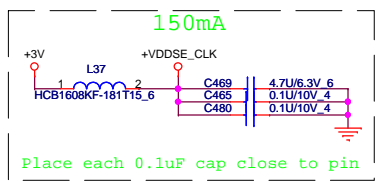
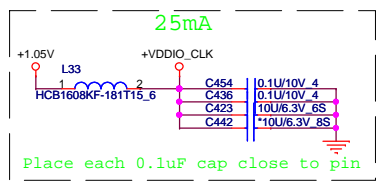
AX1 INTEL UMA/DISCRETE SYSTEM DIAGRAM



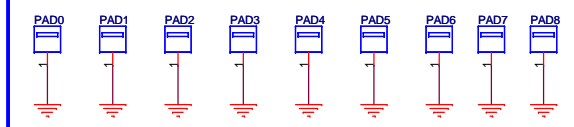
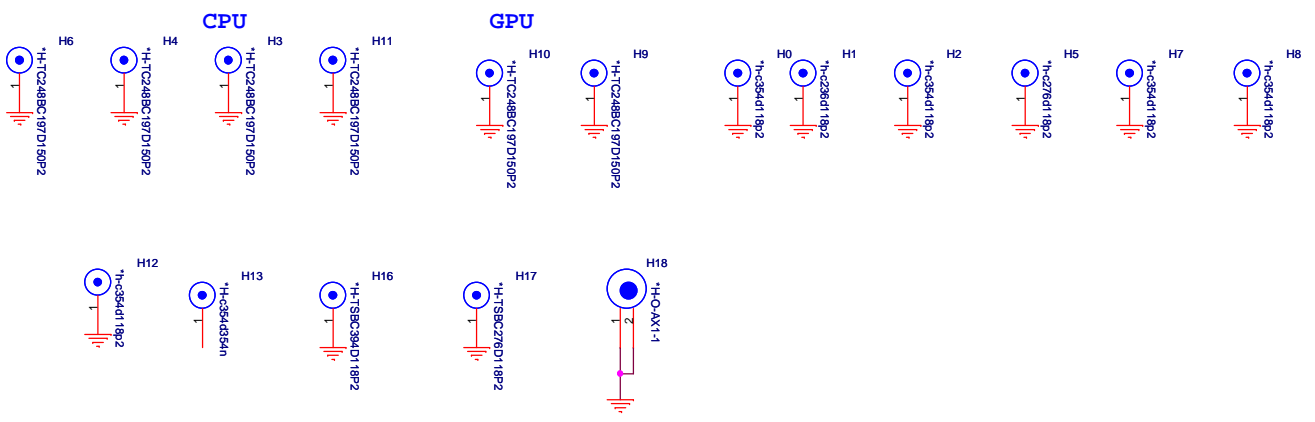
PROJECT :AX1
Quanta Computer Inc.

Size: Custom | Document Number: **BLOCK DIAGRAM** | Rev: 1A

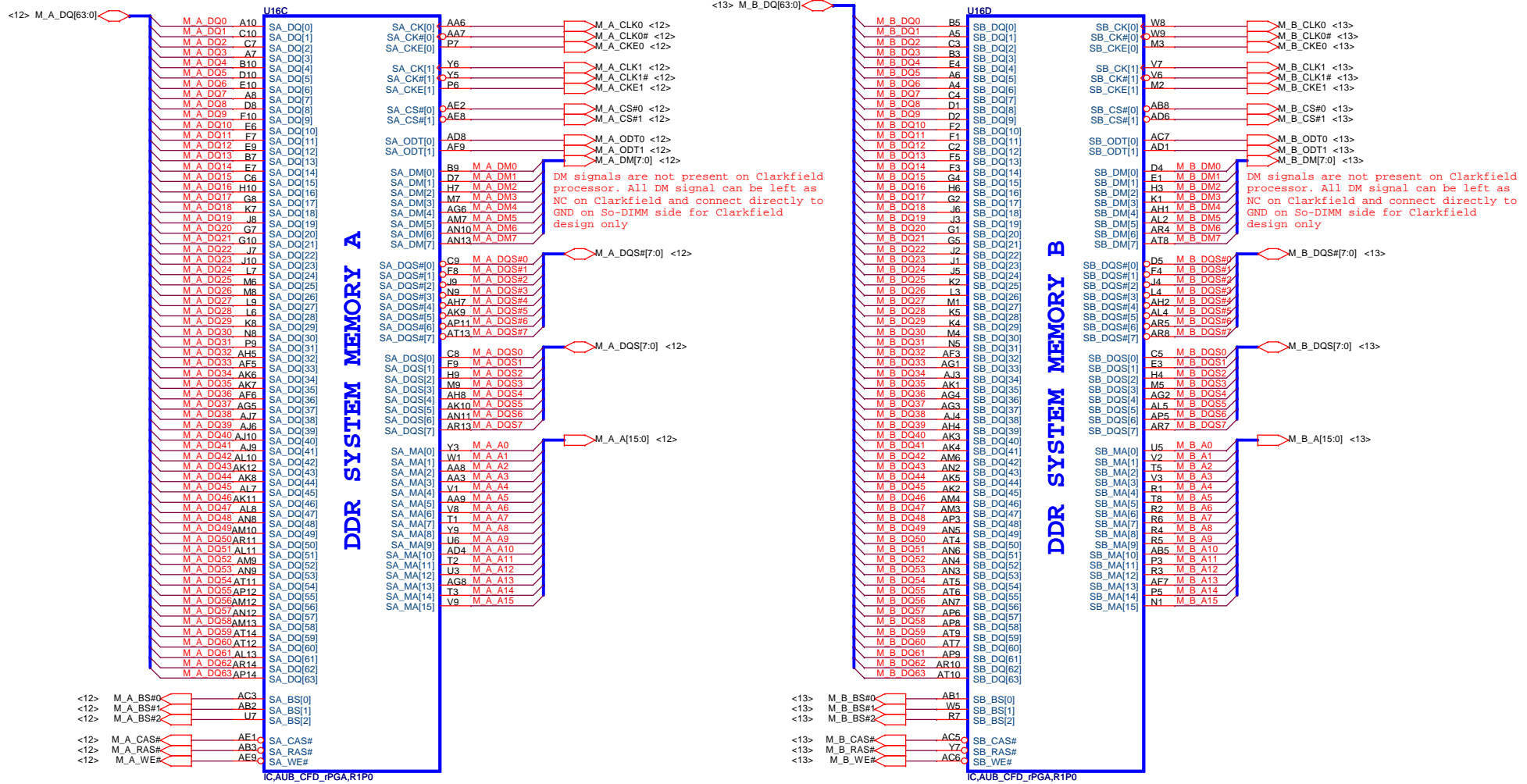
Date: Wednesday, July 08, 2009 | Sheet: 1 of 40

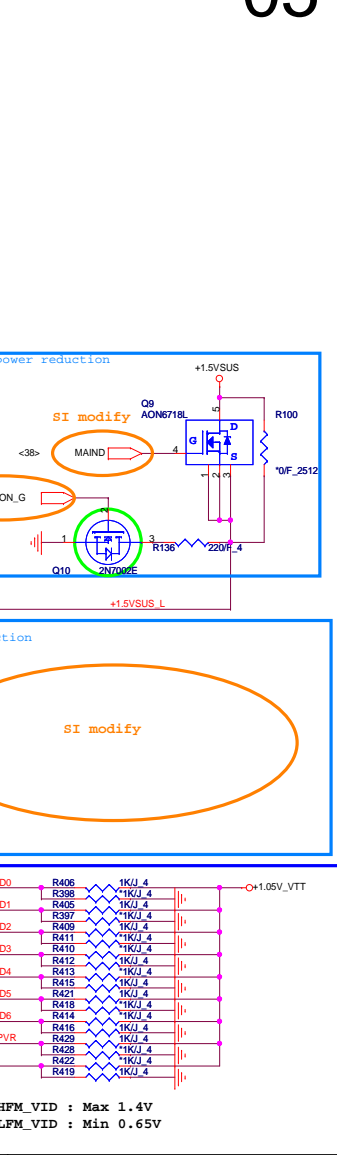
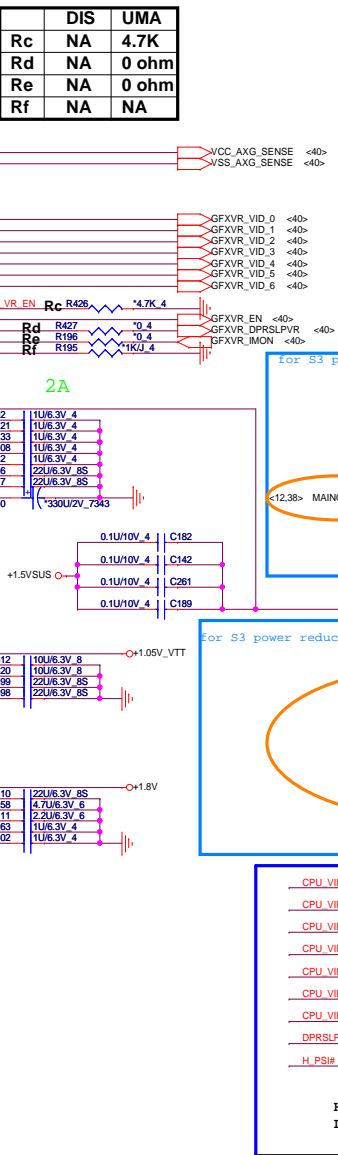
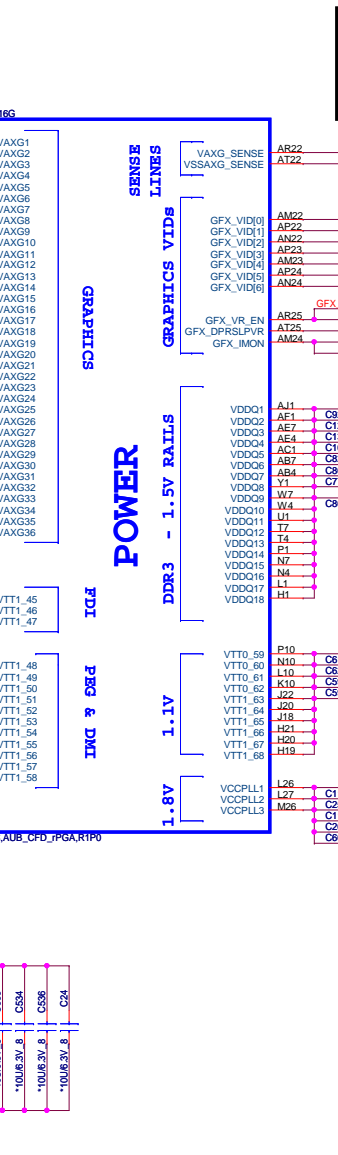
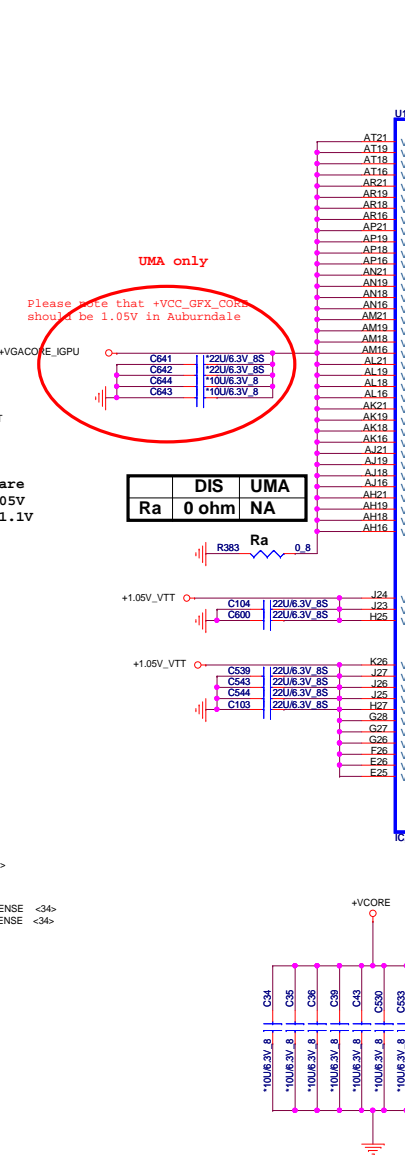
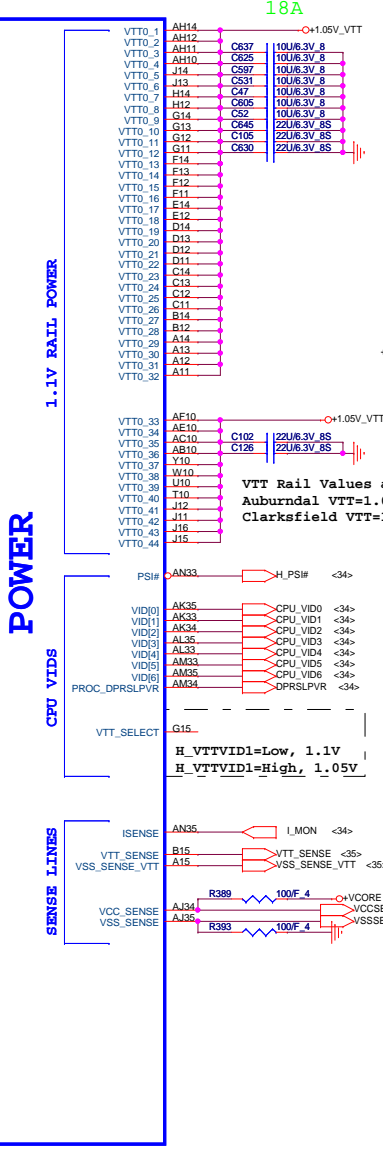
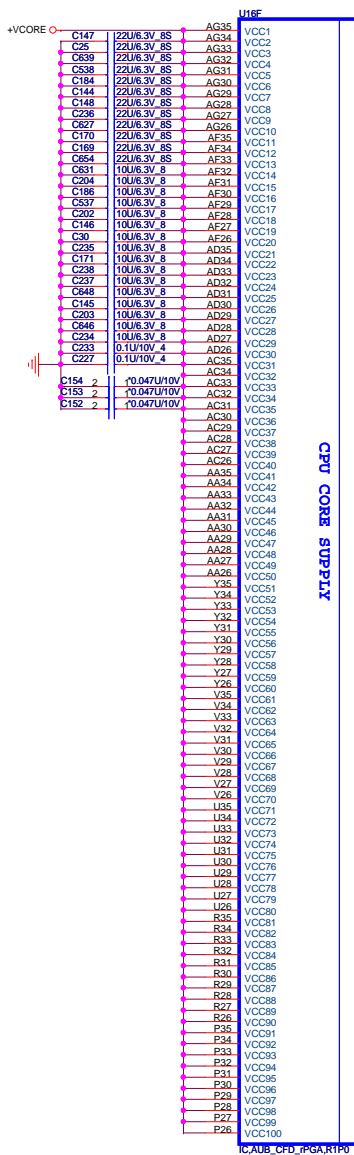


+1.05V <7,8,9,11,13,33,34,40>
 +1.5V <31,38>
 +3V <3,7,8,9,10,11,12,13,15,20,21,22,23,24,25,26,27,28,29,30,31,34,38>



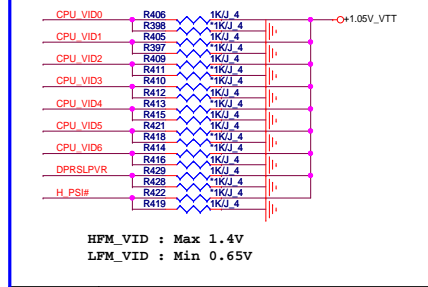
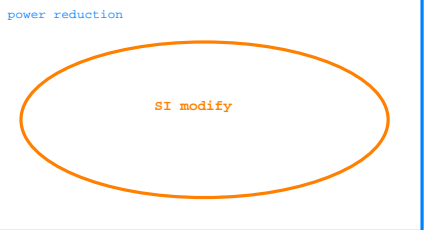
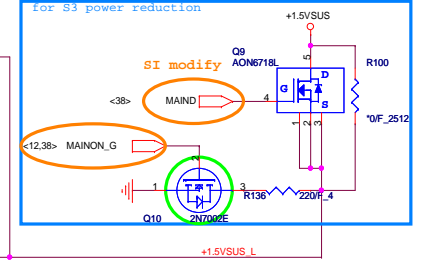
AUBURNDALE/CLARKSFIELD PROCESSOR (DDR3)





	DIS	UMA
Rc	NA	4.7K
Rd	NA	0 ohm
Re	NA	0 ohm
Rf	NA	NA

	DIS	UMA
Ra	0 ohm	NA



HFM_VID : Max 1.4V
LFM_VID : Min 0.65V

<34> +VCORE
<3.10,11,29,30,34,35,40> +1.05V_VT
<3.12,13,37,38> +1.5VSUS
<11,33,36> +1.8V

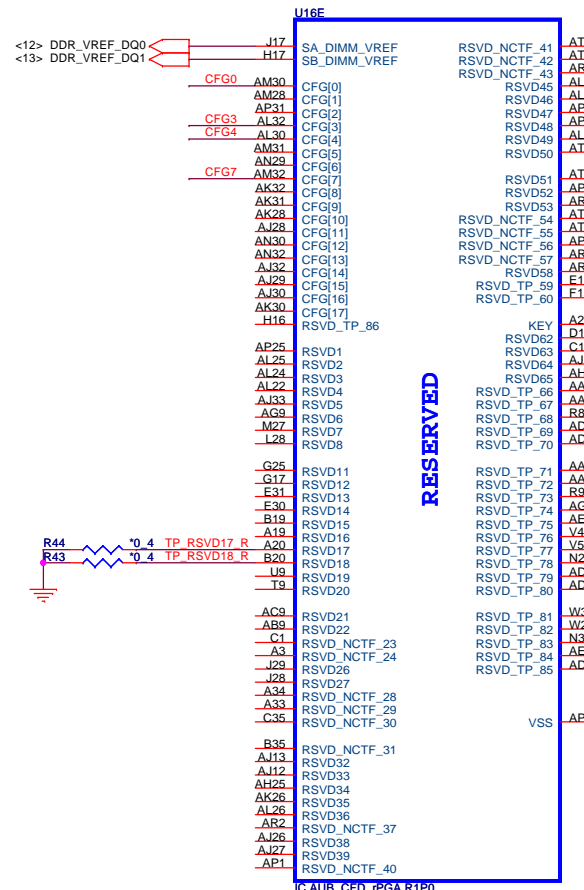
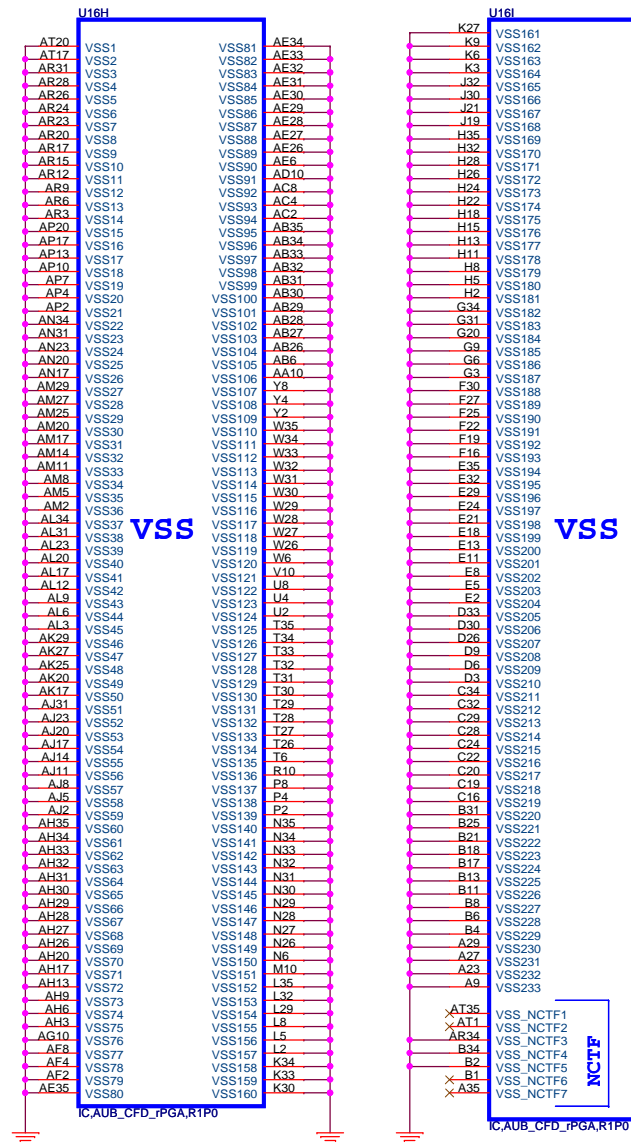
PROJECT : AX1
Quanta Computer Inc.

Size Custom	Document Number	PROCESSOR 3/4(POWER)	Rev 1A
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Date: Thursday, December 03, 2009 | Sheet 5 of 40

AUBURNDALE/CLARKSFIELD PROCESSOR (GND)

AUBURNDALE/CLARKSFIELD PROCESSOR(RESERVED, CFG)



The Clarkfield processor's PCI Express interface may not meet PCI Express 2.0 jitter specifications. Intel recommends placing a 3.01K +/- 5% pull down resistor to VSS on CFG[7] pin for both rPGA and BGA components. This pull down resistor should be removed when this issue is fixed.

	1	0
CFG4 (Display Port Presence)	Disabled; No Physical Display Port attached to Embedded Display Port	Enabled; An external Display port device is connected to the Embedded Display port
CFG0 (PCI-Epress Configuration Select)	Single PEG	Bifurcation enabled
CFG3 (PCI-Epress Static Lane Reversal)	Normal Operation	Lane Numbers Reversed 15 -> 0, 14 -> 1

For Discrete only

CFG[1:0] - PCI_Epress Configuration Select

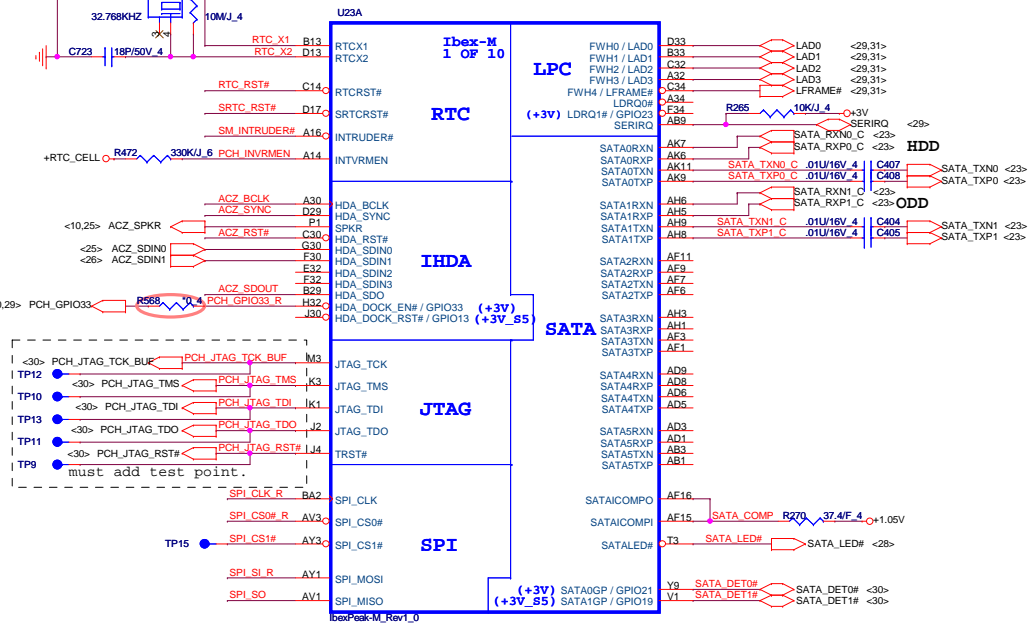
* 11= 1 x 16 PEG

* 10= 2 x 8 PEG

PROJECT :AX1
Quanta Computer Inc.

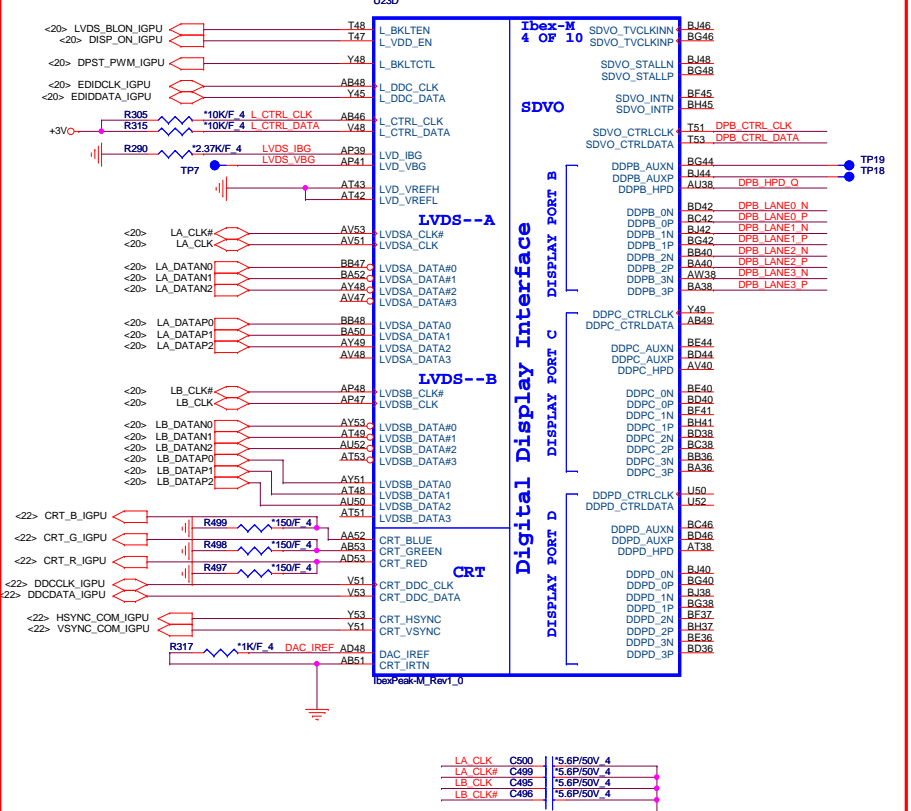
Size Custom	Document Number PROCESSOR 4/4 (GND)	Rev 1A
Date: Thursday, November 12, 2009 Sheet 6 of 40		

IBEX PEAK-M (HDA,JTAG,SATA)



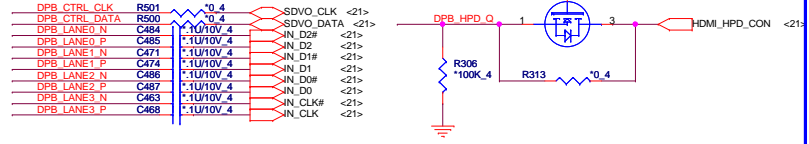
UMA CRT,LVDS&HDMI signals

IBEX PEAK-M (LVDS,DDI)



1205 The SATALED# signal is open-collector and requires a weak external pull-up (8.2 k to 10 k) to +V3.3.

UMA HDMI signals



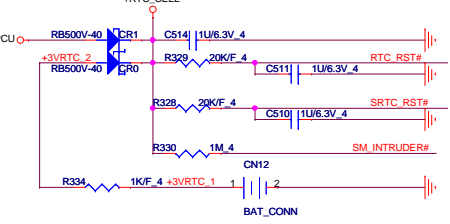
For AUDIO



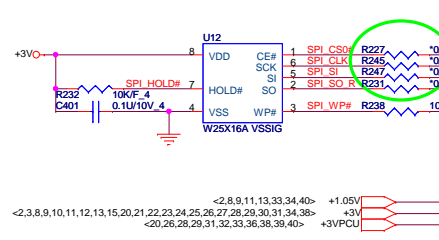
For MDC



RTC 1mA



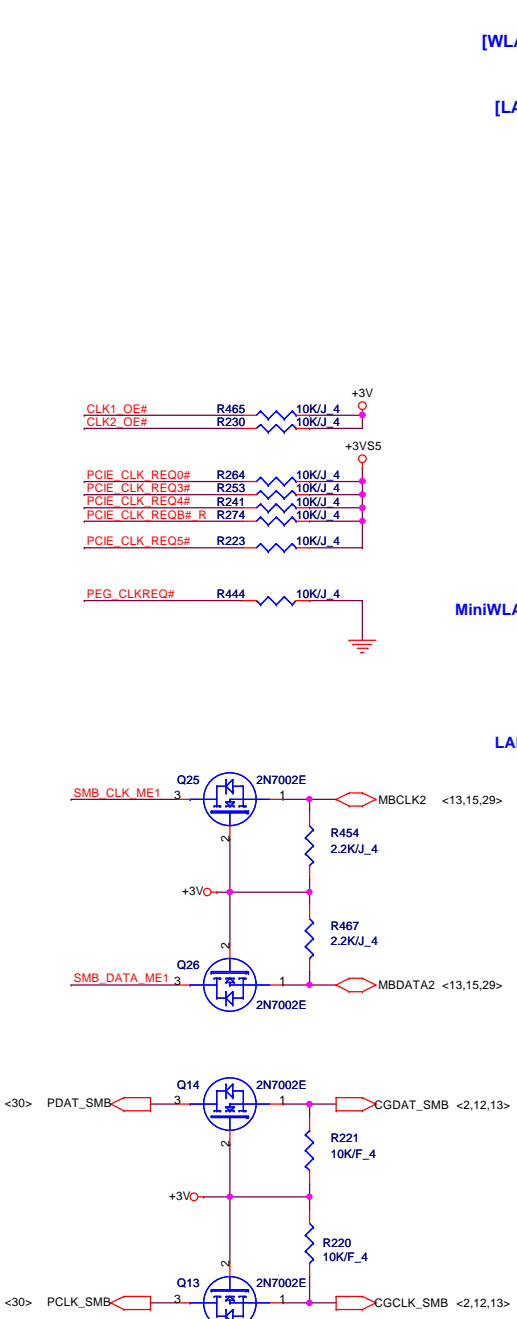
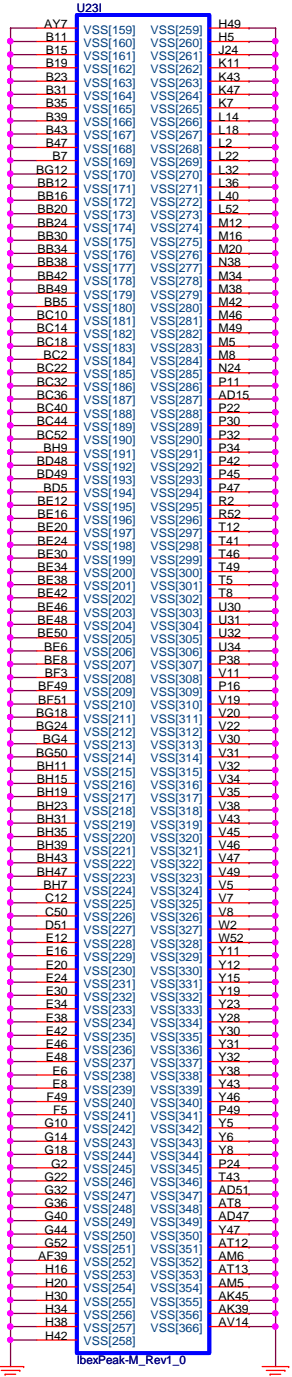
4M byte SPI ROM



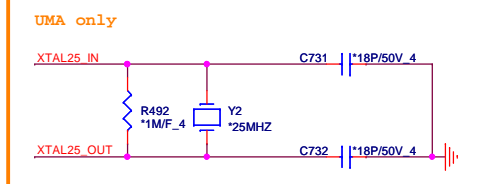
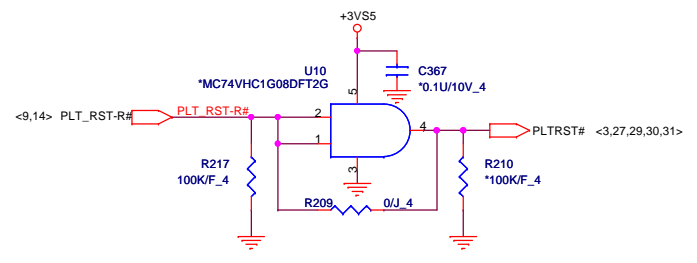
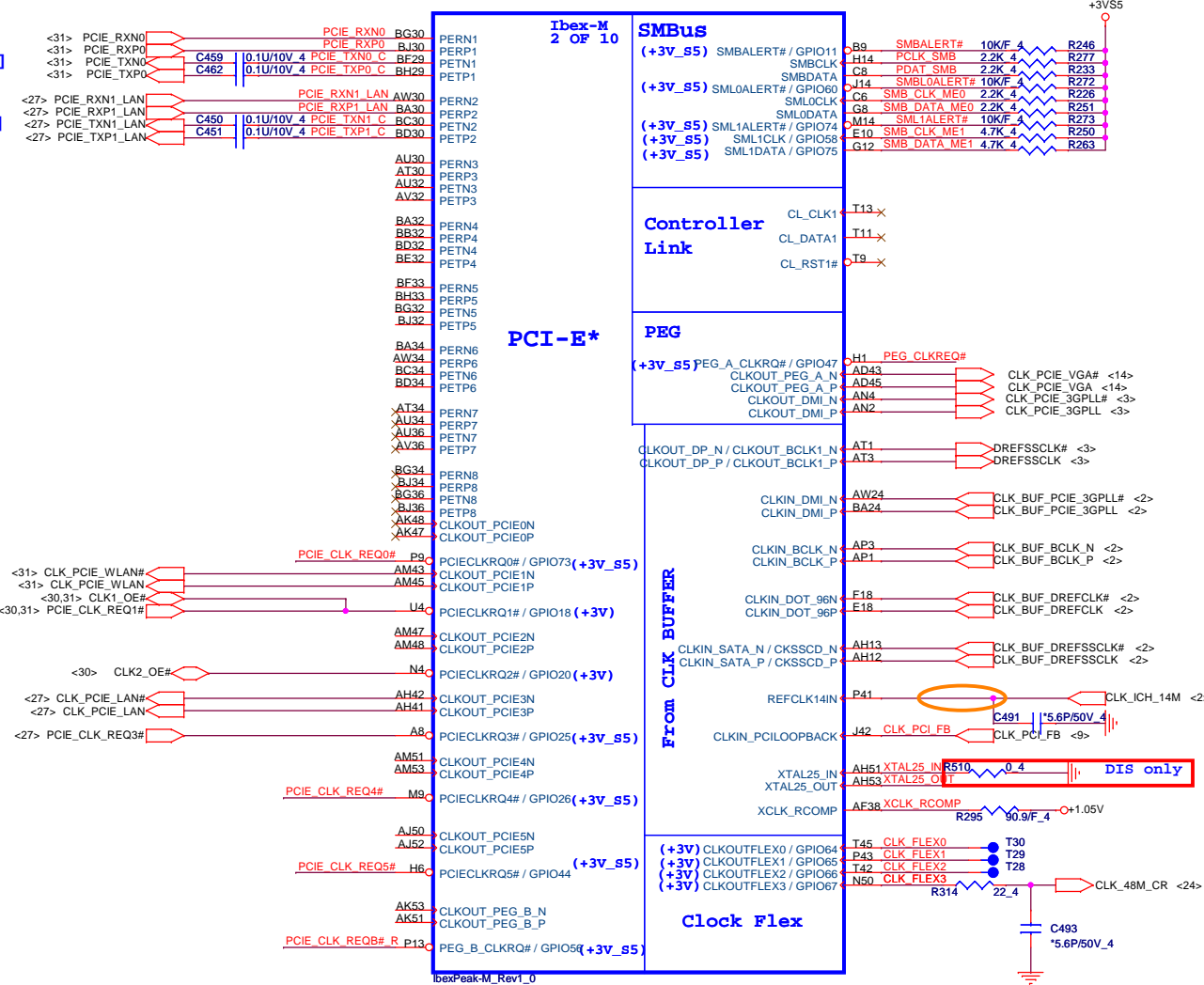
Vendor	PN
Socket	DG00800031
WINBOND	AKE39ZP0N00
MAX	AKE39FP0N00

PROJECT :AX1
Quanta Computer Inc.

Size Custom Document Number **PCH 1/5 (SATA,HDA,LPC)** Rev 1A
Date: **Monday, November 30, 2009** Sheet 7 of 40



IBEX PEAK-M (PCI-E,SMBUS,CLK)

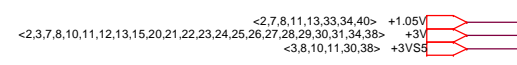
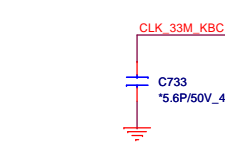
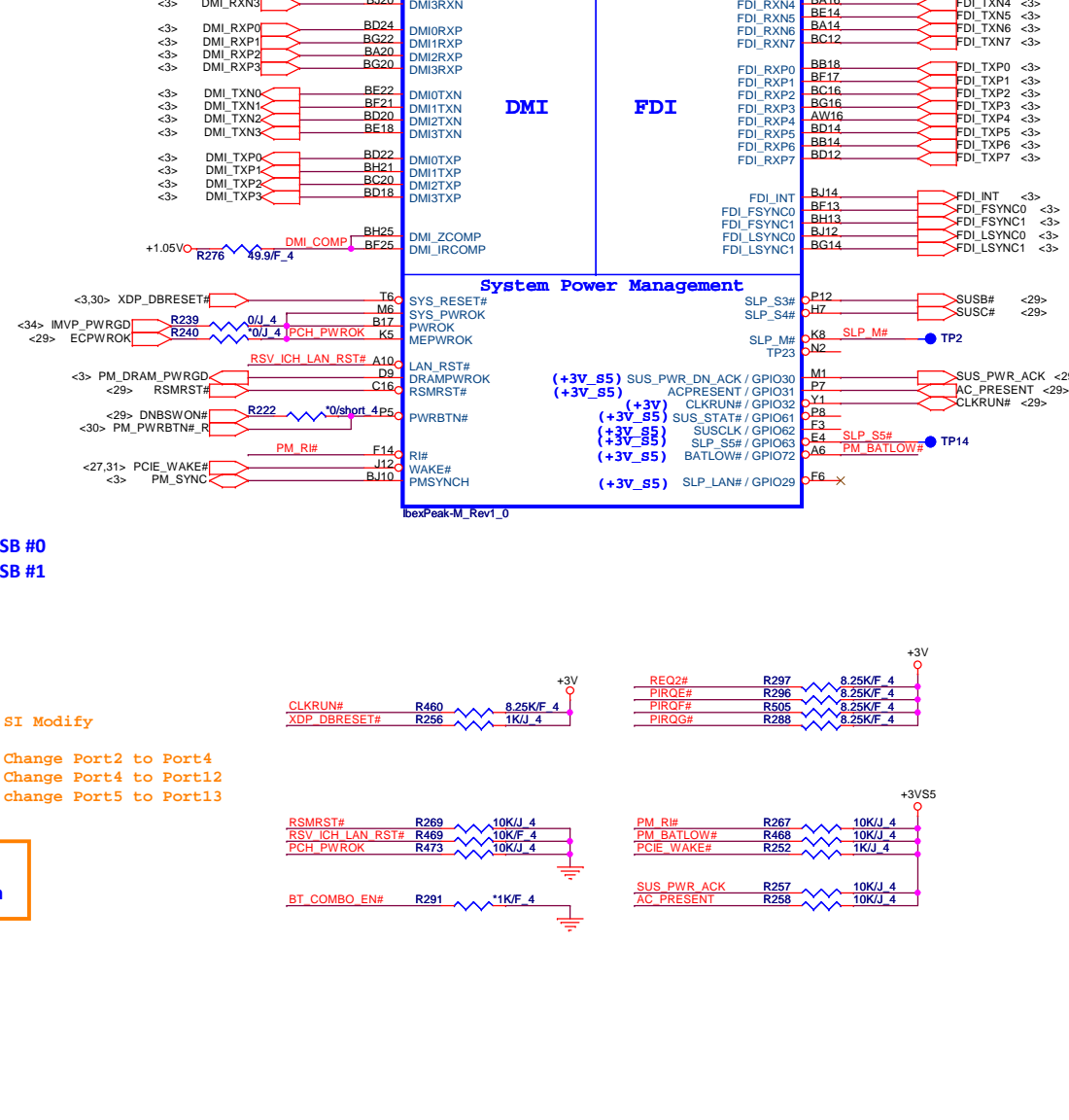
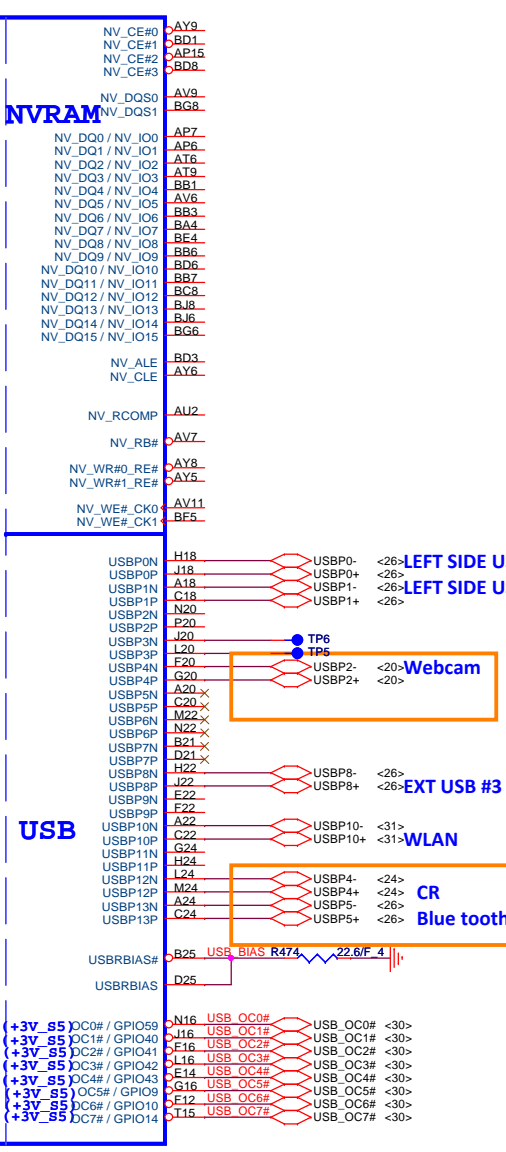
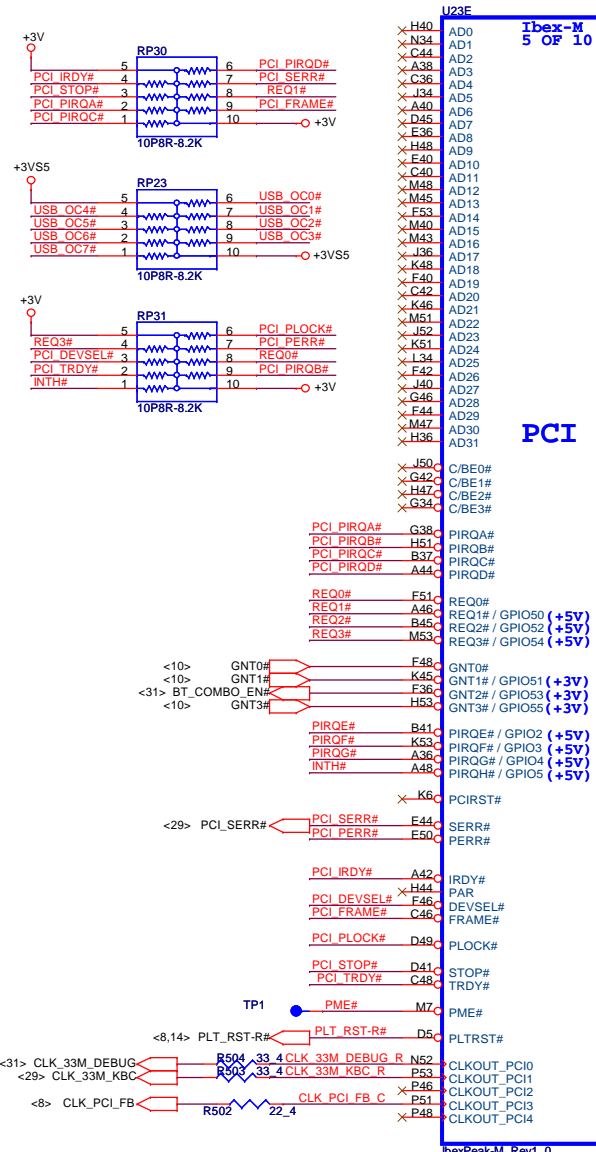


PROJECT :AX1
 Quanta Computer Inc.

Size Custom	Document Number PCH 2/5 (PCI-E, SMBUS, CK)	Rev 1A
Date: Monday, November 30, 2009 Sheet 8 of 40		

IBEX PEAK-M (DMI,FDI,GPIO)

IBEX PEAK-M (PCI,USB,NVRAM)



PROJECT :AX1
Quanta Computer Inc.

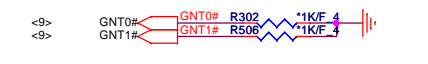
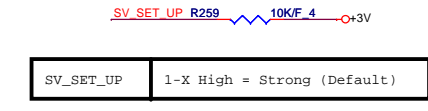
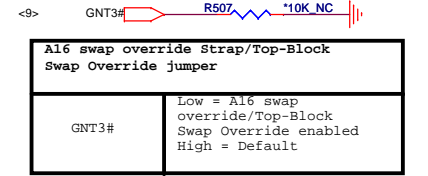
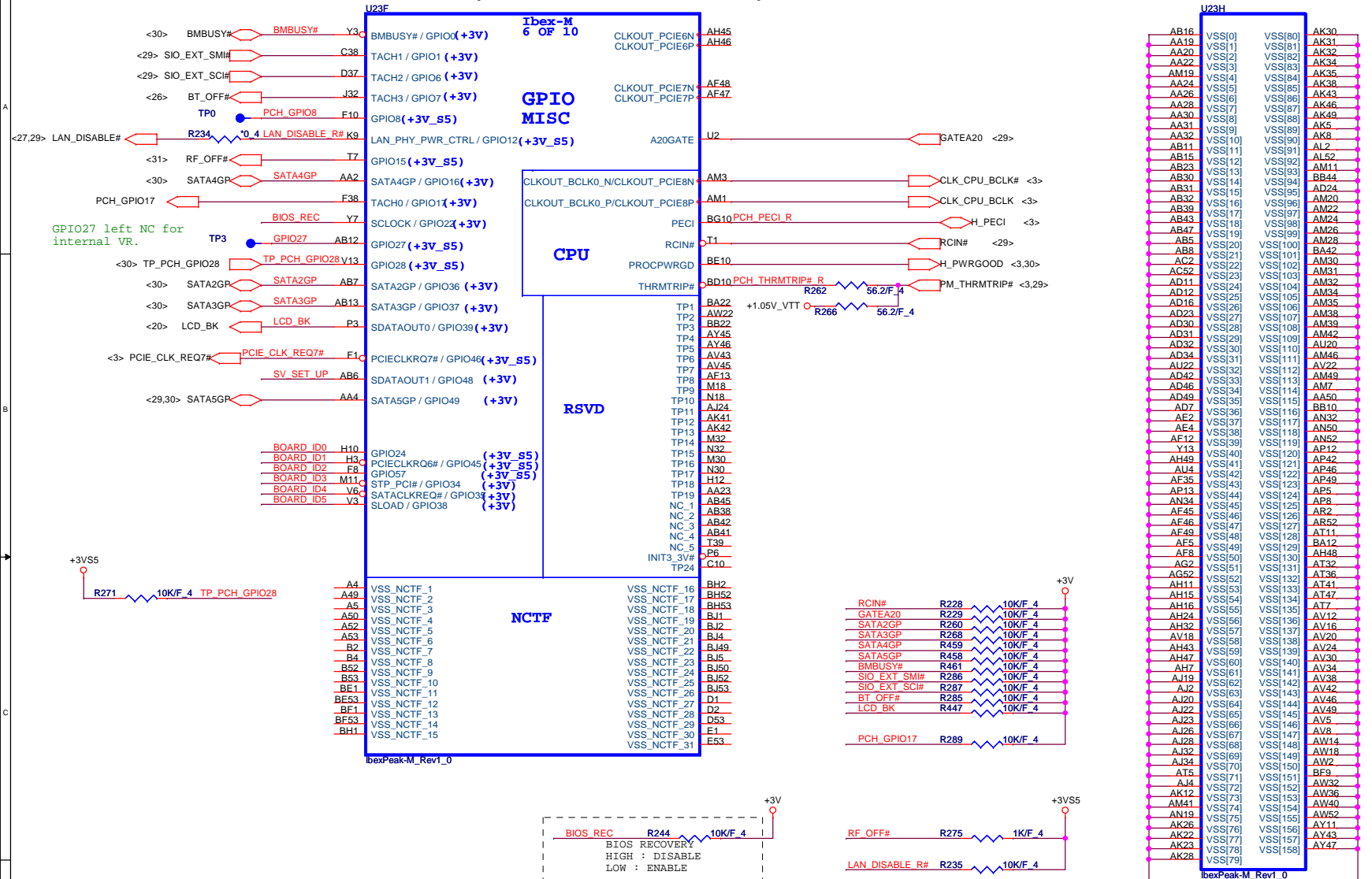
Size: Custom Document Number: **PCH 3/5 (PCI,ONFI,USB,DMI)** Rev: 1A

Date: Monday, November 30, 2009 Sheet: 9 of 40

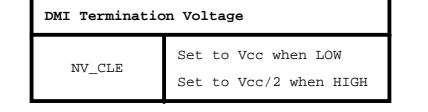
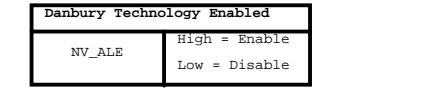
IBEX PEAK-M (GPIO,VSS_NCTF,RSVD)

IBEX PEAK-M (GND)

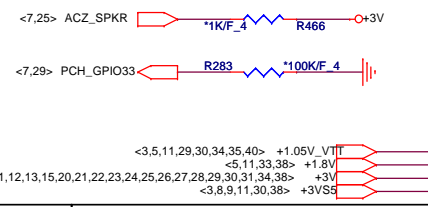
10



Boot BIOS Strap		
PCI_GNT0#	GNT#1	Boot BIOS Location
0	0	LPC
0	1	Reserved (NAND)
1	0	PCI
1	1	SPI



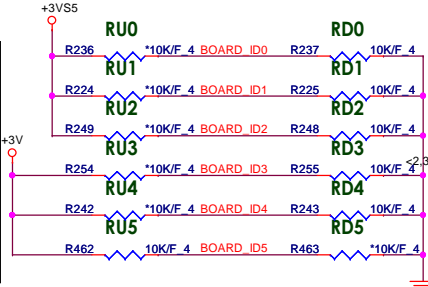
No Reboot Strap



BOARD ID SETTING

Board ID5: For identify UMA and DIS
Board ID4: For identify FF and DF
Board ID3: Reserve
Board ID2: Reserve
Board ID1: Reserve

Board ID	ID0	ID1	ID2	ID3	ID4	ID5
UMA FF	0	0	0	0	0	0
UMA DF	0	0	0	0	1	0
DIS	0	0	0	0	0	1



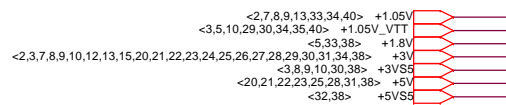
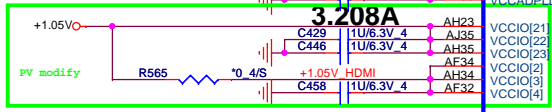
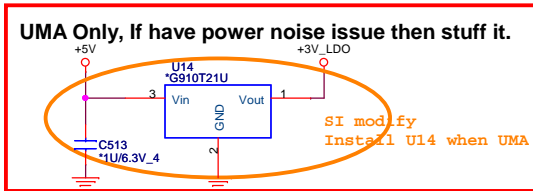
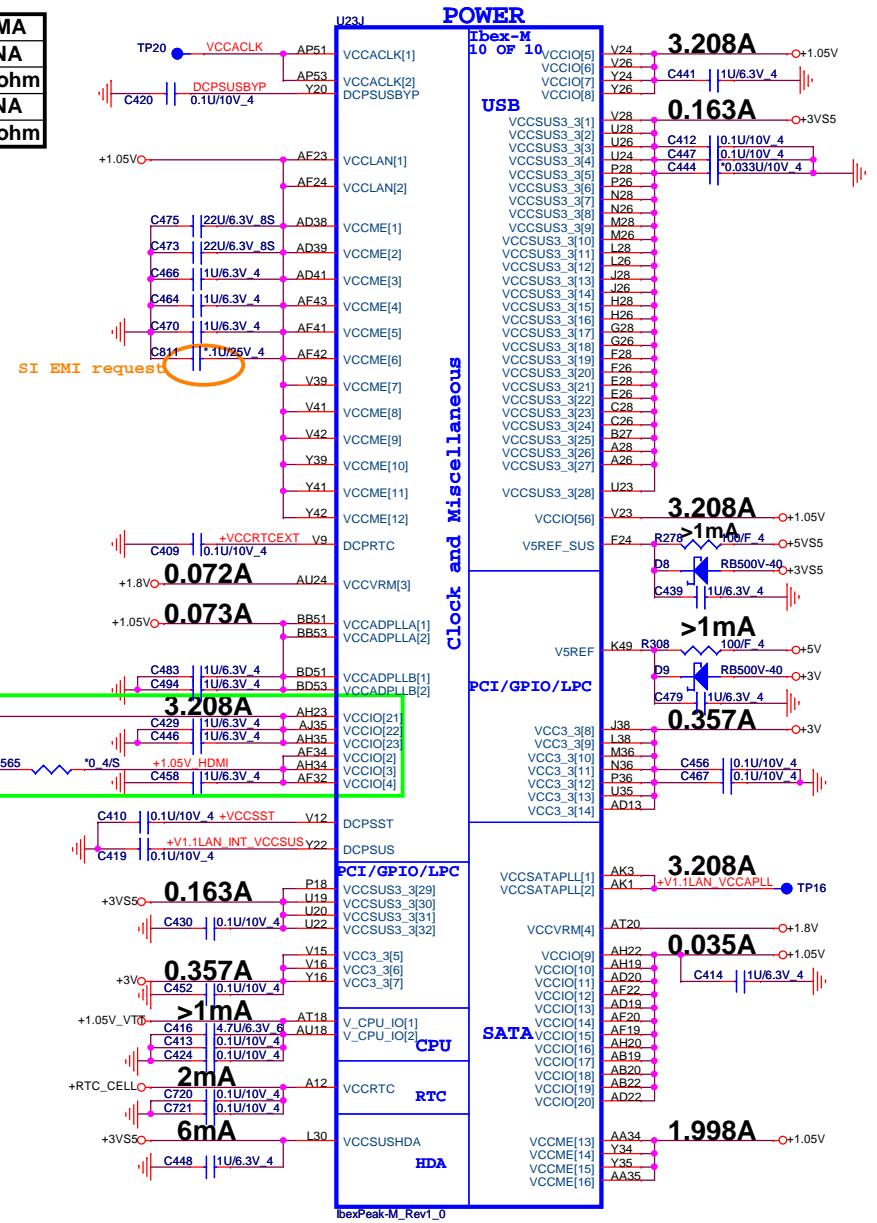
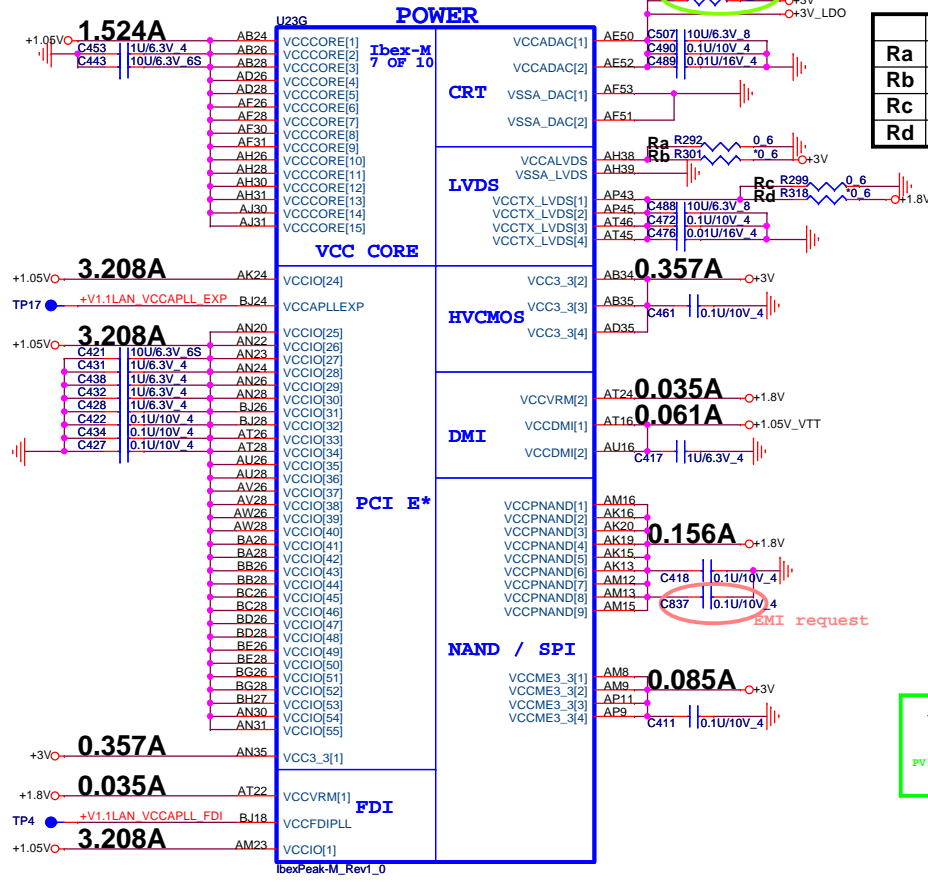
PROJECT :AX1
Quanta Computer Inc.

Size Custom Document Number PCH 4/5 (GPIO & Strap) Rev 1A

Date: Thursday, November 12, 2009 Sheet 10 of 40

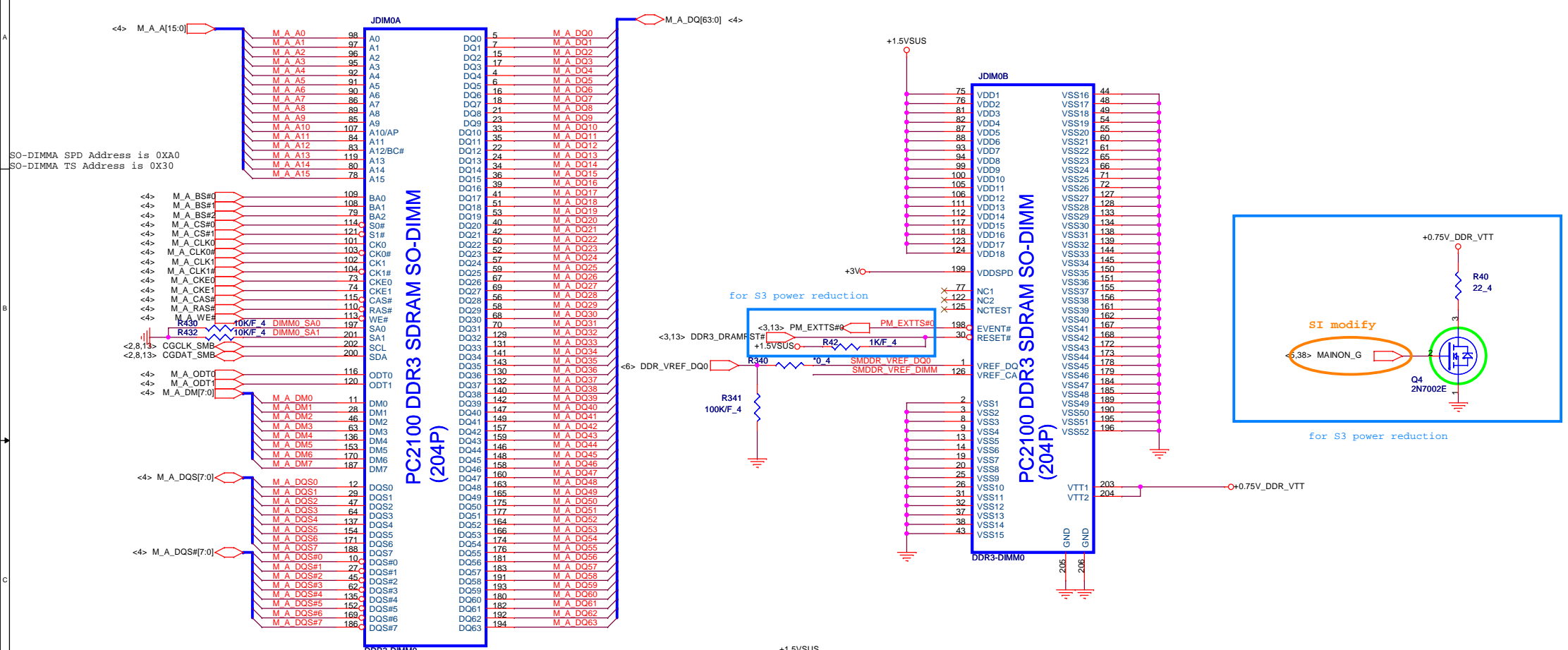
SI modify
Uninstall on UMA
Install on DIS

	DIS	UMA
Ra	0 ohm	NA
Rb	NA	0 ohm
Rc	0 ohm	NA
Rd	NA	0 ohm

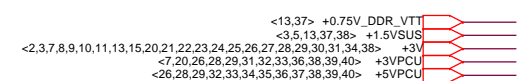
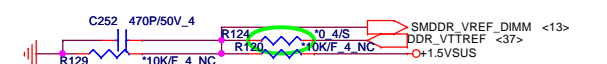
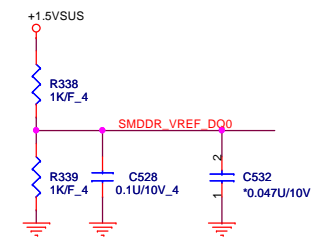
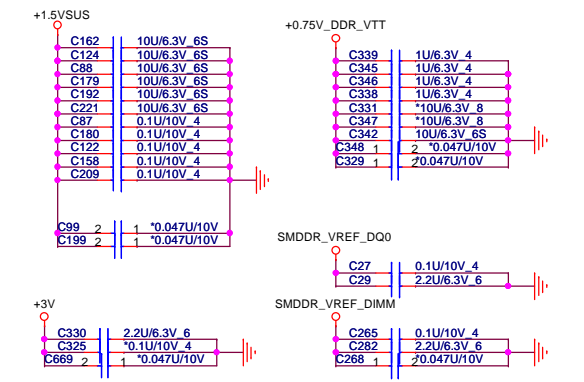


PROJECT :AX1
Quanta Computer Inc.

Size Custom	Document Number PCH 5/5 (POWER)	Rev 1A
Date: Thursday, November 12, 2009 Sheet 11 of 40		

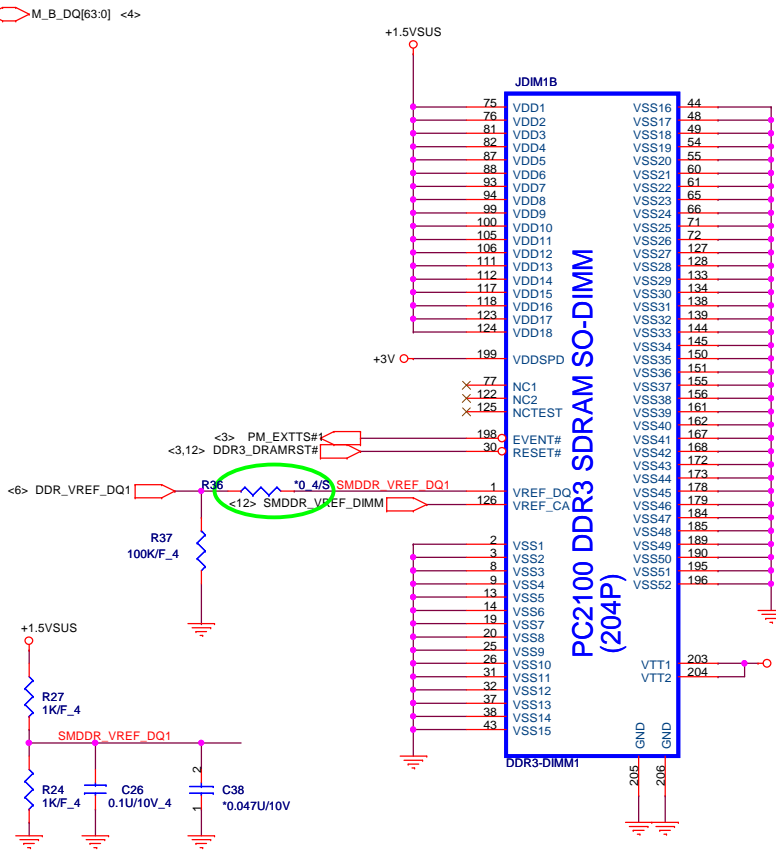
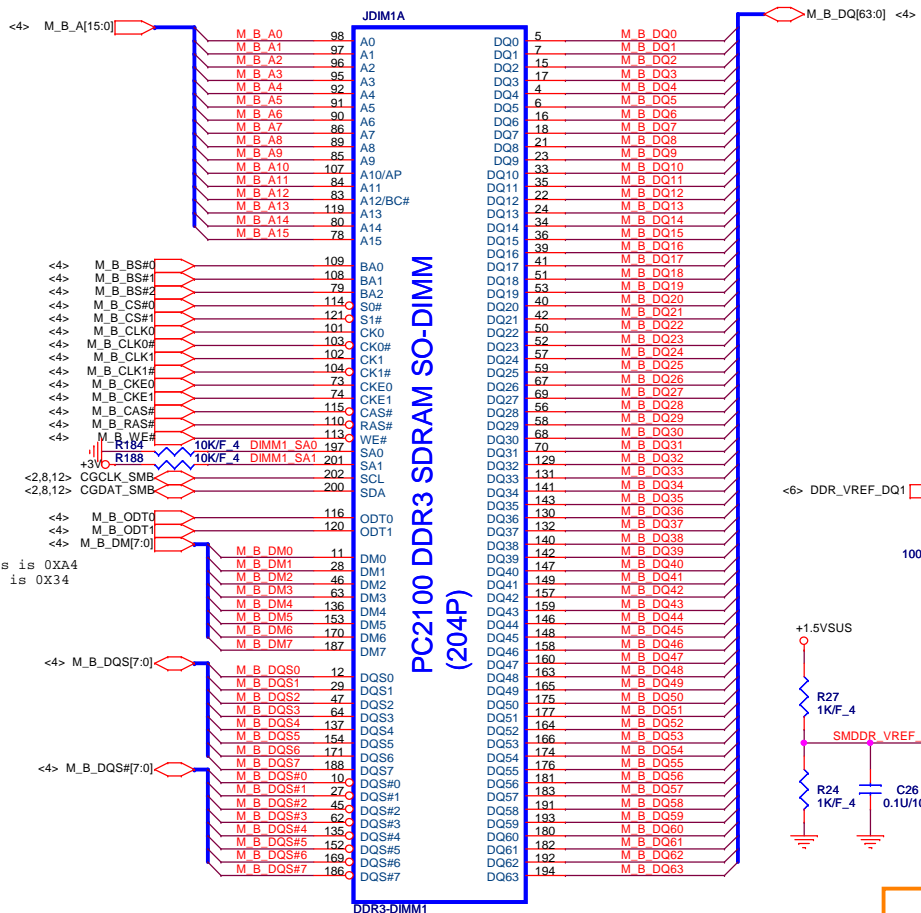


Place these Caps near So-Dimm0.
 Some Projects replace 10UF 0805 by 4.7UF 0603
 It can cost down 30%



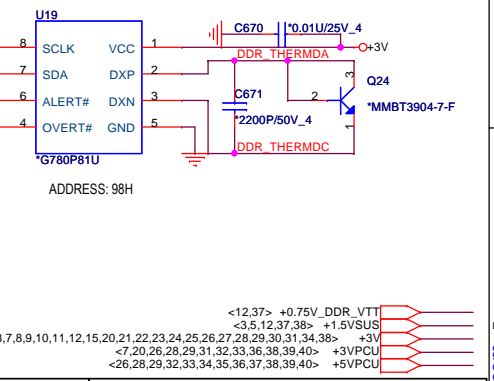
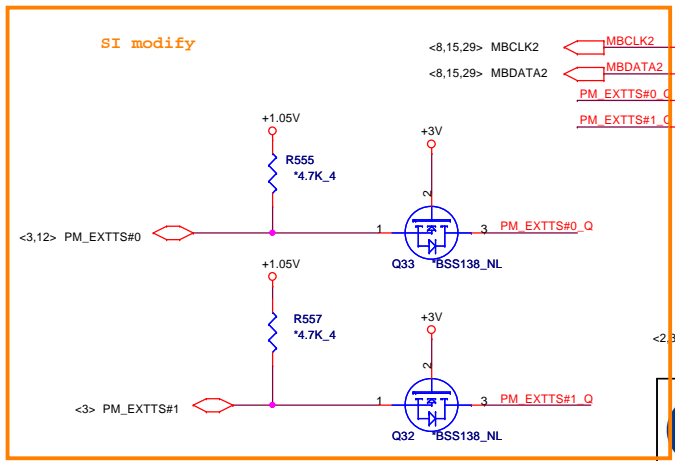
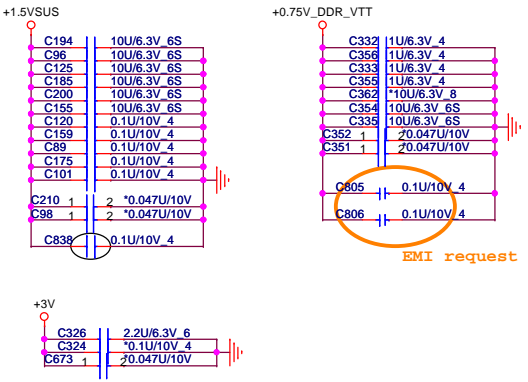
PROJECT :AX1
Quanta Computer Inc.

Size Custom	Document Number DDR3 DIMM-0	Rev 1A
Date: Thursday, November 12, 2009 Sheet 12 of 40		



SO-DIMM SPD Address is 0XA4
SO-DIMM TS Address is 0X34

Place these Caps near So-Dimm1.
Some Projects replace 10UF 0805 by 4.7UF 0603
It can cost down 30%



PROJECT :AX1
Quanta Computer Inc.

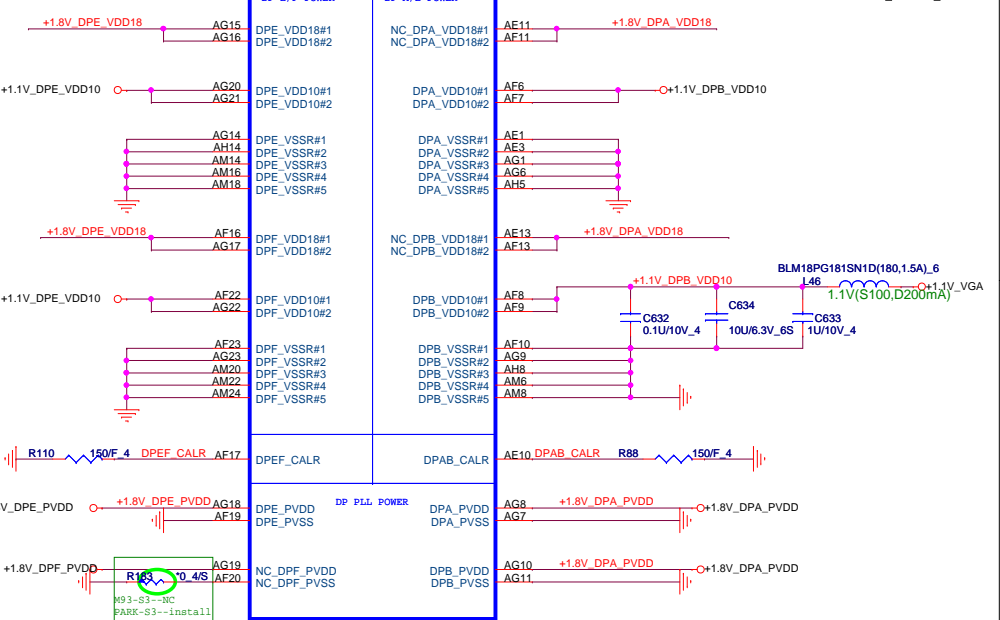
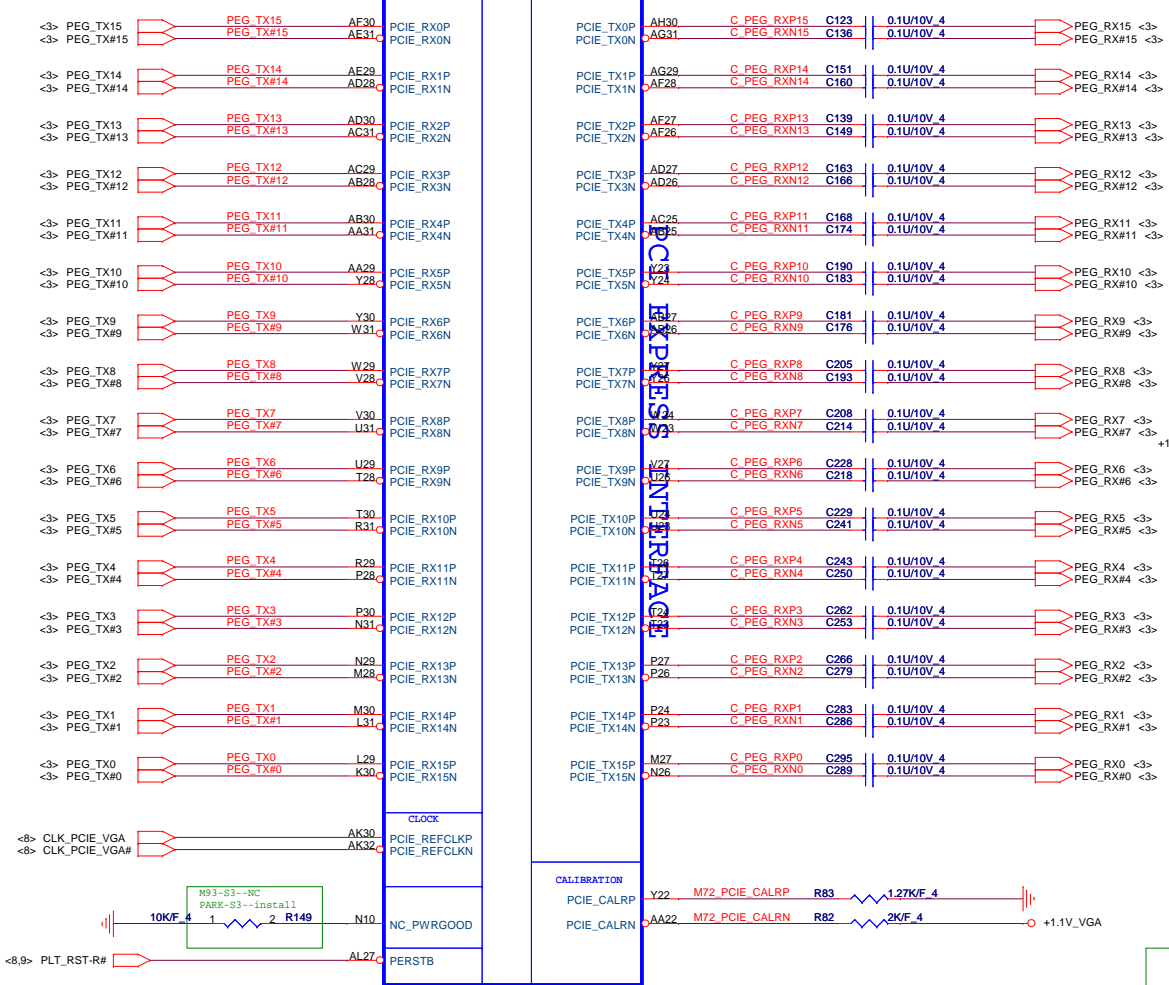
Size Custom	Document Number DDR3 DIMM-1	Rev 1A
Date: Thursday, December 03, 2009 Sheet 13 of 40		

POWER
 +PCIE_VDDR=1.2V
 +VDD_MEM1.8V=1.8V
 +VGA_CORE=0.9-1.2V

2.5GT/s bit rate

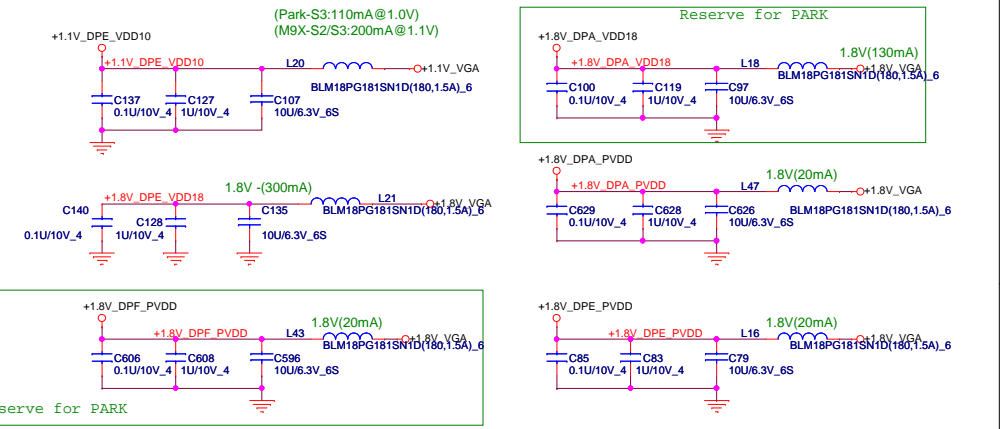
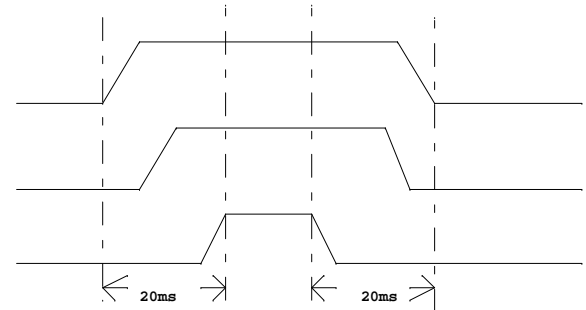
U17A

U17G



100MHz (+/-300ppm) input frequency,
 0-0.7V single-ended swing

- VGA Core BPP
- VGA Core VDDC
- +1.8V PCIE_VDDR
- +1.8V PCIE_PVDD
- +1.8V VDDR1
- +3V_VGA VDDR3

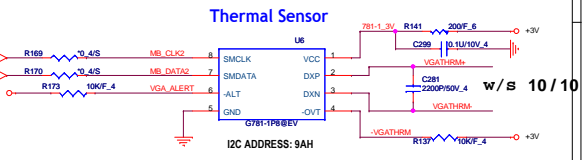
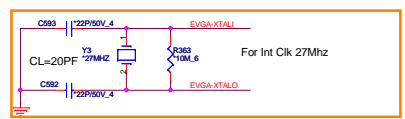
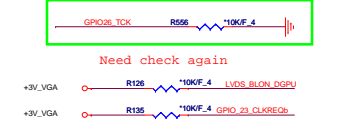
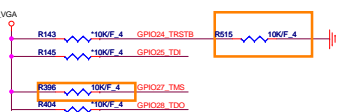
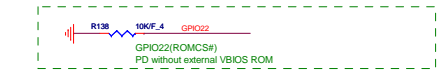
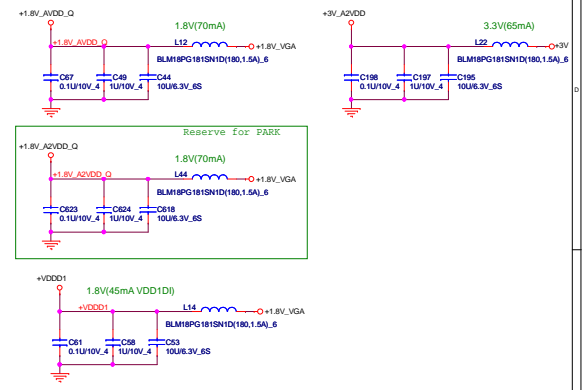
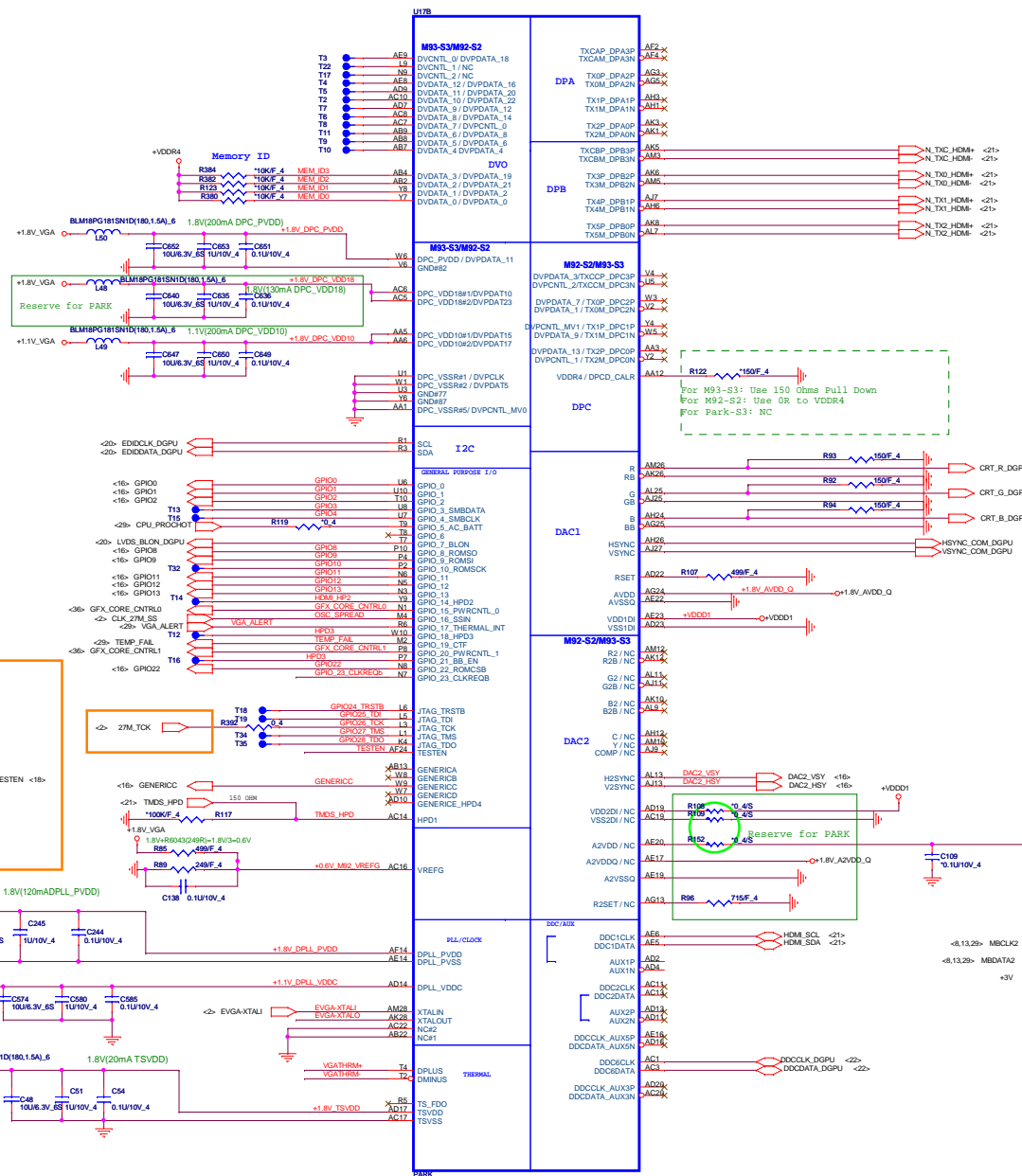


PROJECT :AX1
Quanta Computer Inc.

Size Custom	Document Number M93_PCIE_Interface	Rev 1A
Date: Thursday, November 12, 2009 Sheet 14 of 40		

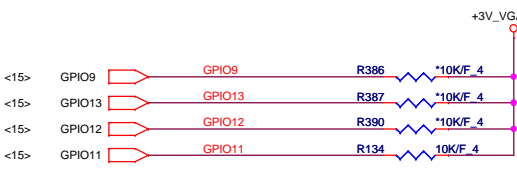
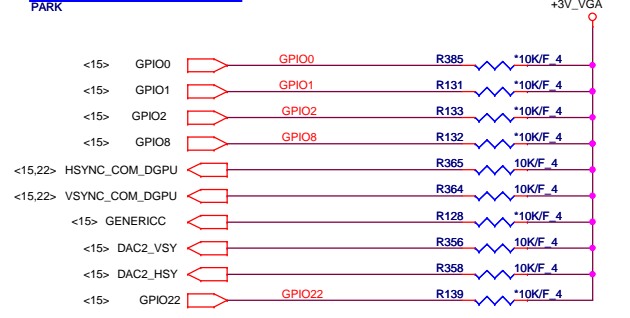
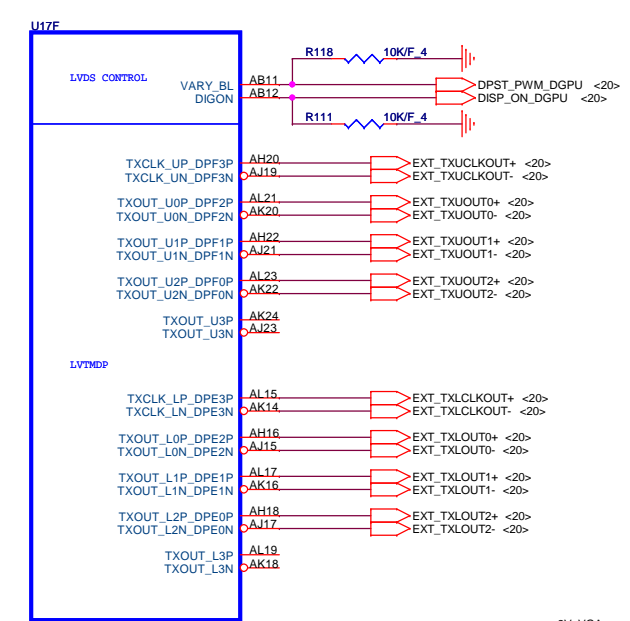
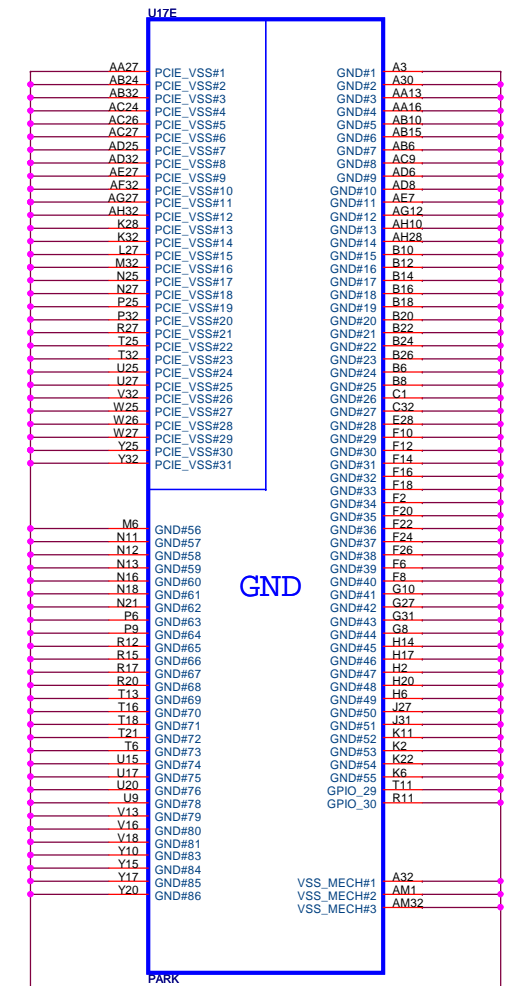
NEM_ID[3:0]	Vendor	Type	Vendor P/N
0000	Samung (E die)	64*16 -800MHZ	K4M1G1646E-HC12
0001	Hynix	64*16 -800MHZ	H5TQ1G63BFR-12C

	PWRCNTL1	PWRCNTL0	V-CORE
L	0	0	0.9V
M	0	1	0.95V
H	1	0	1.05V
TBD	1	1	NA



PROJECT :AX1
Quanta Computer Inc.

Size	Document Number	Rev
Custom	M93_MAIN	1A
Date	Thursday, November 12, 2009	Sheet 15 of 40



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	
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	

Memory Aperture size

GPIO9 BIOSROM	GPIO13 ROMIDCFG2	GPIO12 ROMIDCFG1	GPIO11 ROMIDCFG0
0	128M	0	0
0	256M	0	1
0	64M	0	1
0	32M	0	1
0	512M	1	0
0	1G	1	0
0	2G	1	1
0	4G	1	1

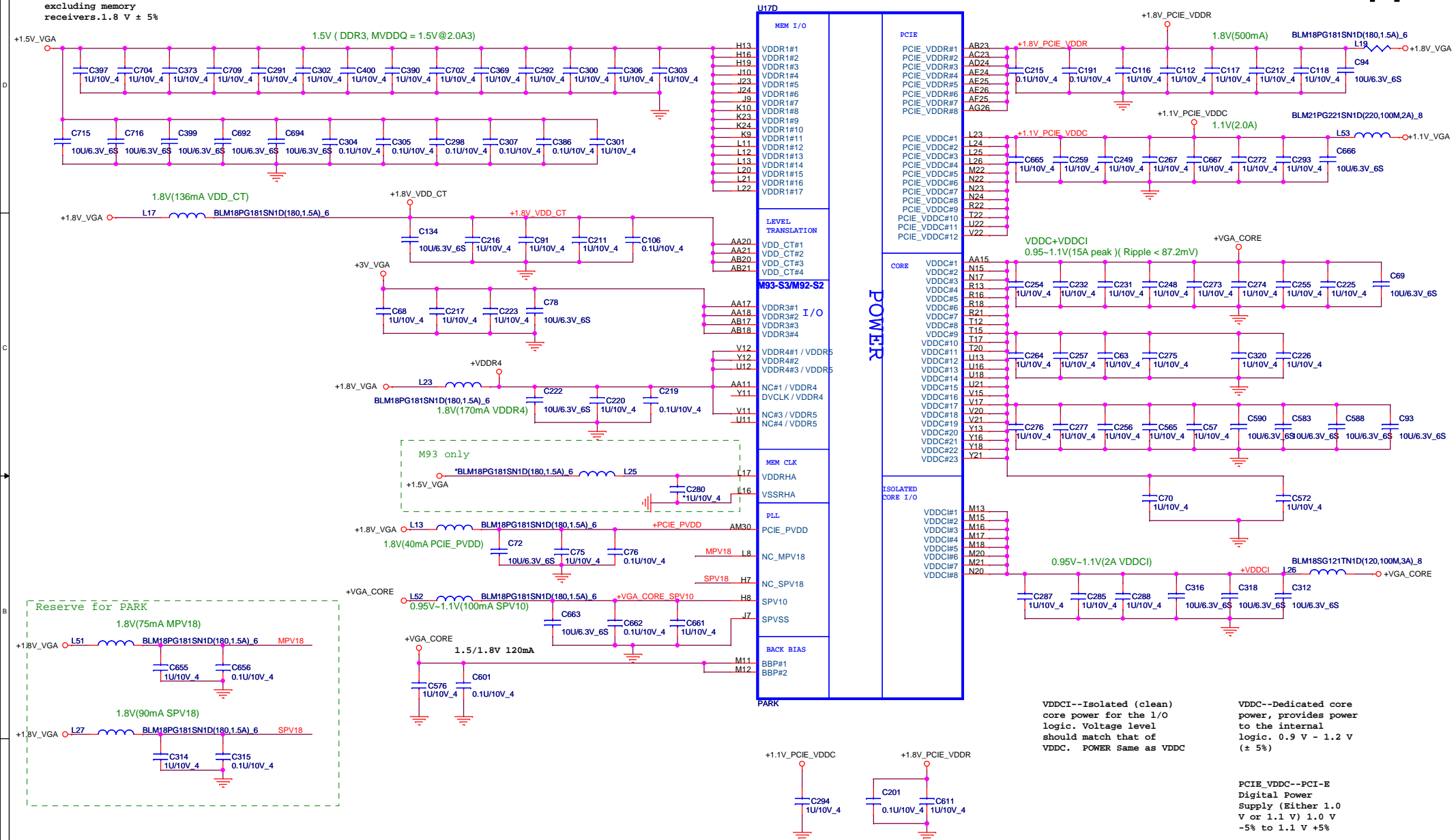
It is a shared pin strap with CONFIG[2:0] if BIOS_ROM_EN is set to 0.

PROJECT :AX1
Quanta Computer Inc.

Size Custom	Document Number M93_GND / LVDS / Straps	Rev 1A
Date: Thursday, November 12, 2009	Sheet 16 of 40	

VDD_CT -- Level translation between core and I/O, excluding memory receivers. 1.8 V ± 5%

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



VDDCI--Isolated (clean) core power for the I/O logic. Voltage level should match that of VDDC. POWER Same as VDDC

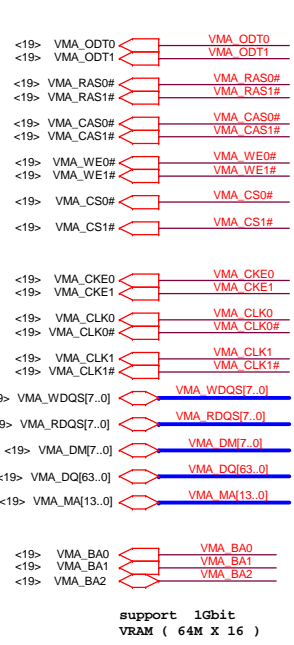
VDDC--Dedicated core power, provides power to the internal logic. 0.9 V - 1.2 V (± 5%)

PCIE_VDDC--PCI-E Digital Power Supply (Either 1.0 V or 1.1 V) 1.0 V -5% to 1.1 V +5%

PROJECT :AX1
Quanta Computer Inc.

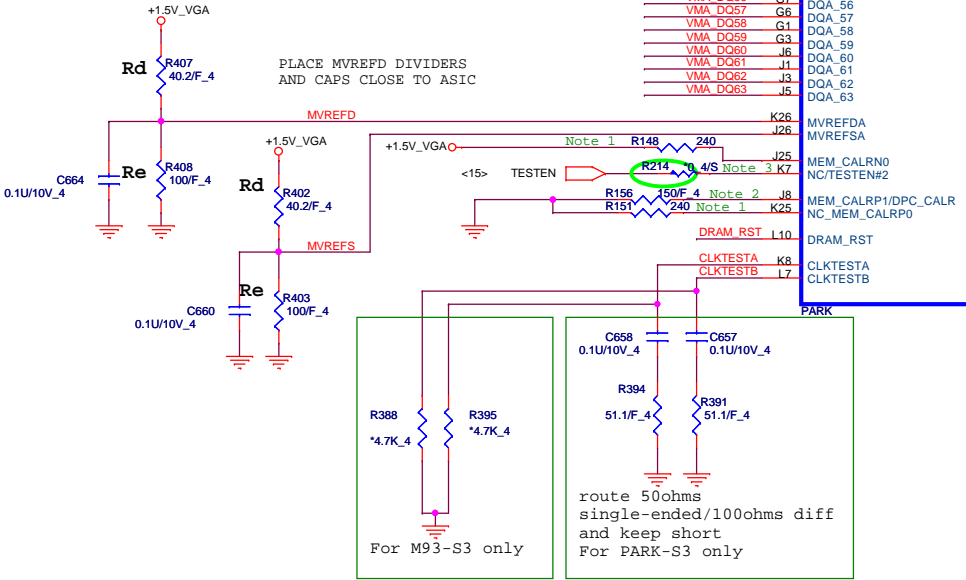
Size Custom	Document Number M93_Power_and_NC	Rev 1A
Date: Tuesday, November 10, 2009 Sheet 17 of 40		

exaint@hotmail.com

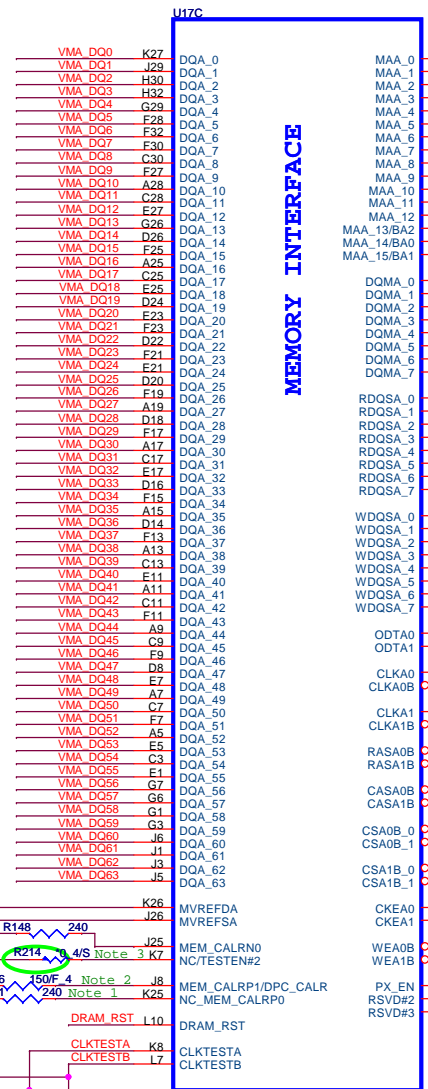


support 1gbit
VRAM (64M X 16)

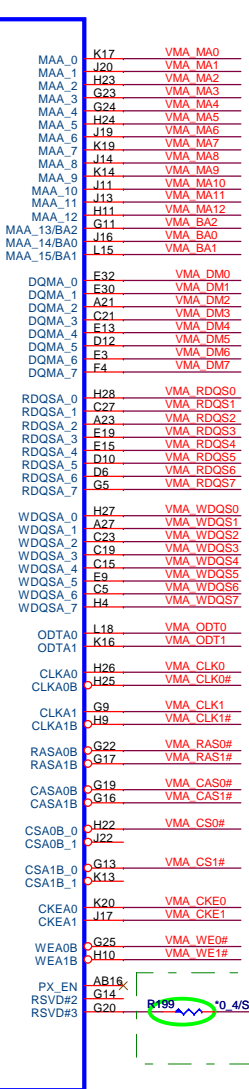
DIVIDER RESISTORS	DDR2/DDR3	GDDR3
MVREF TO 1.8V (Rd)	40.2R	40.2R
MVREF TO GND (Re)	100R	100R



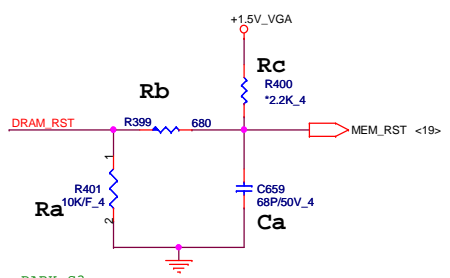
Note 1 :Do not Install for M9X-S2/S3, Install 240 Ohms 0.5% Resistor for PARK-S3.
 Note 2 :For M9X-S2/S3,J8 Pin Connect to VSS through 240 Ohms(0.5%) resistor.
 For Park-S3,J8 Pin Connect to VSS through 150 Ohms(1%) resistor for DPC_CALR
 Note 3 :For M9X-92/93, K7 Pin (NC_MEM_CALRP1) is Not connected.
 For PARK-S3, K7 Pin (TESTEN#2) connect to TEST_EN Signal At AF24



MEMORY INTERFACE



For PARK-S3 only
For M9X-S2/S3 with DDR3: this pin is not in use.



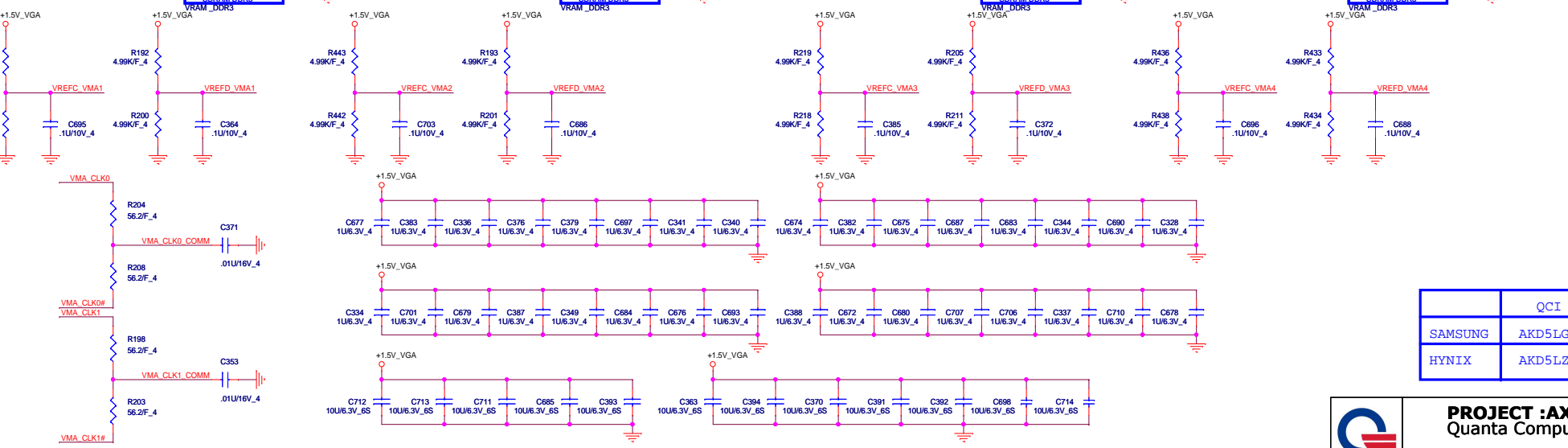
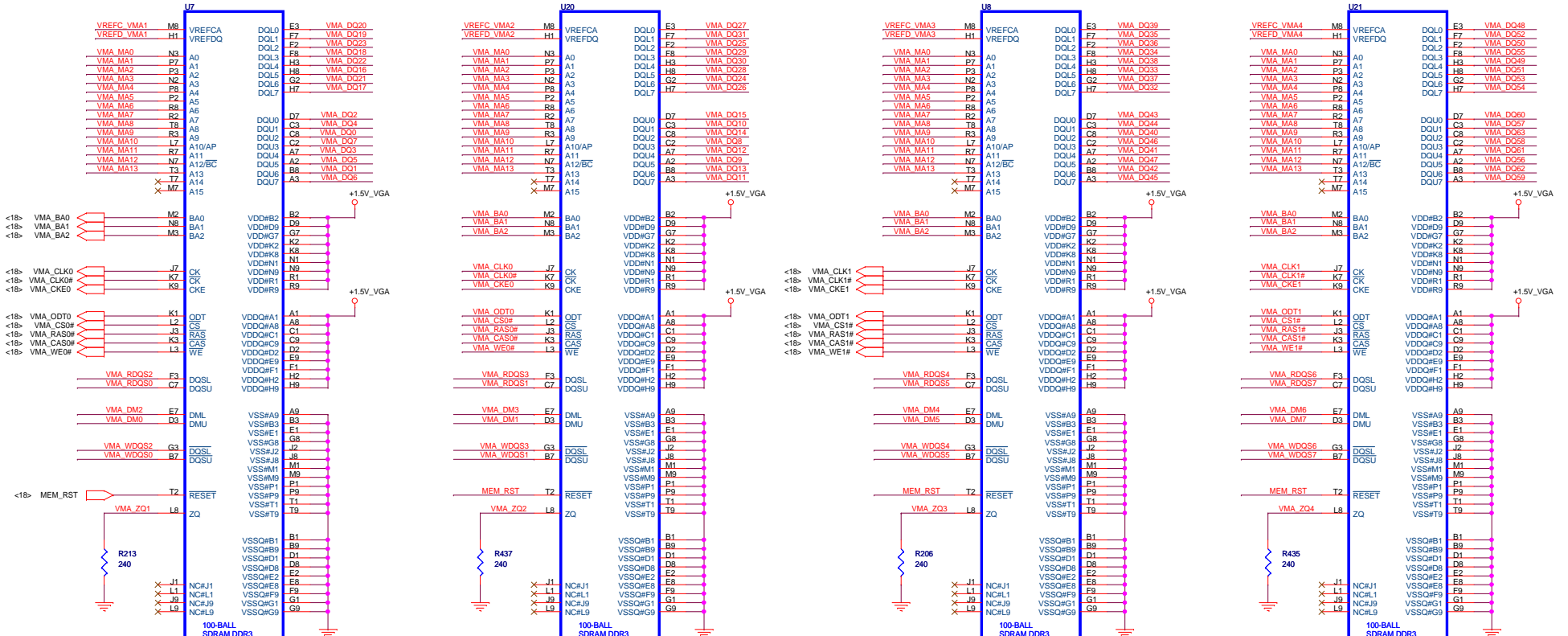
Designator	M9X-S2 and M93-S3	Park-S3
Ra	NC	10K
Rb	0R/Short	680R
Rc	2.2K	NC
Ca	2.2nF	68pF

PROJECT :AX1
Quanta Computer Inc.

Size Custom	Document Number M93_MEM_Interface	Rev 1A
Date: Thursday, November 12, 2009 Sheet 18 of 40		

512MB DDR3

<18> VMA_MA[13..0] VMA_MA[13..0] <18> VMA_DQ[63..0] <18> VMA_DQ[63..0]
 <18> VMA_DM[7..0] <18> VMA_DM[7..0] <18> VMA_RDQS[7..0] <18> VMA_RDQS[7..0]

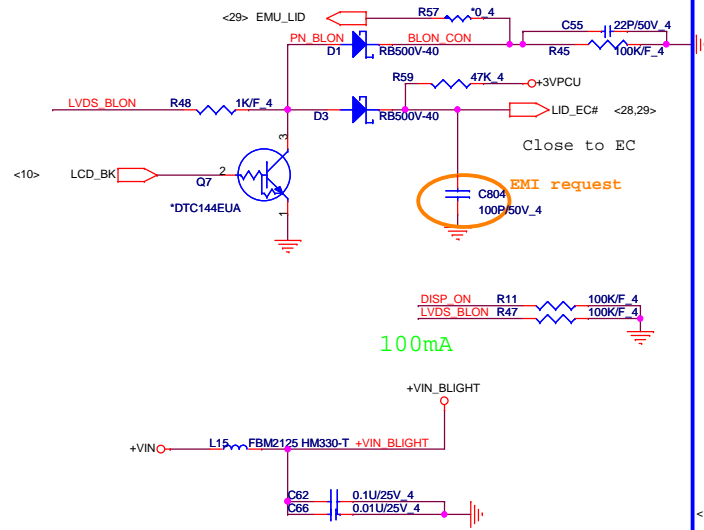


	QCI PN
SAMSUNG	AKD5LGGT502
HYNIX	AKD5LZGTW00

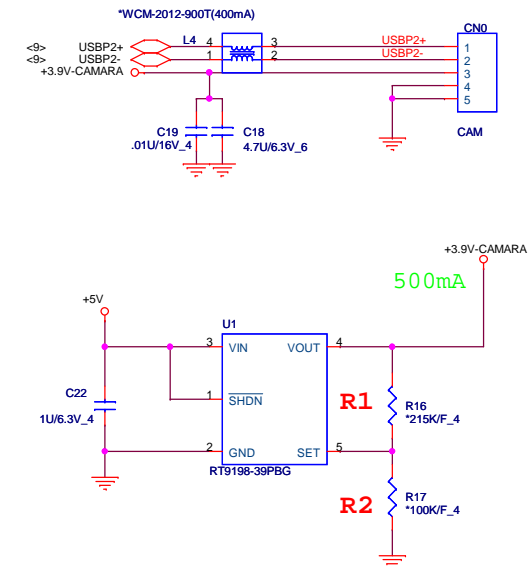
PROJECT :AX1
Quanta Computer Inc.

Size Custom	Document Number M93/VRAM_A0,A1	Rev 1A
Date: Thursday, November 12, 2009 Sheet 19 of 40		

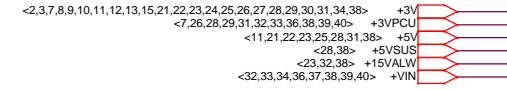
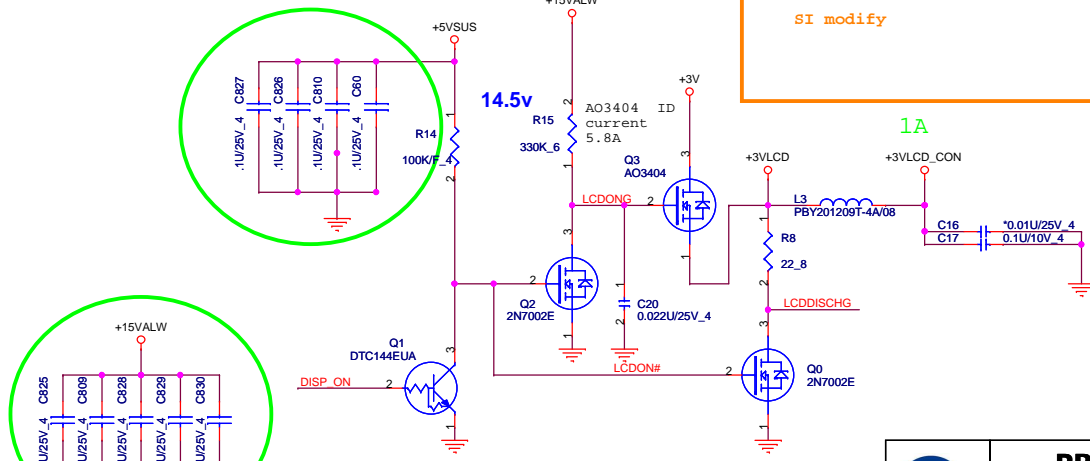
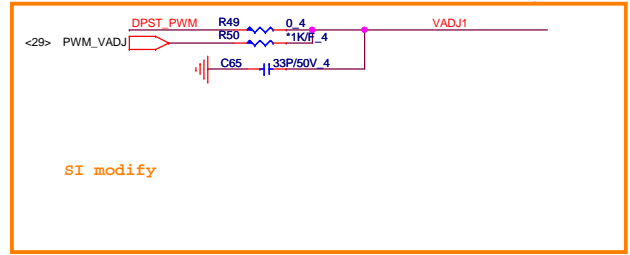
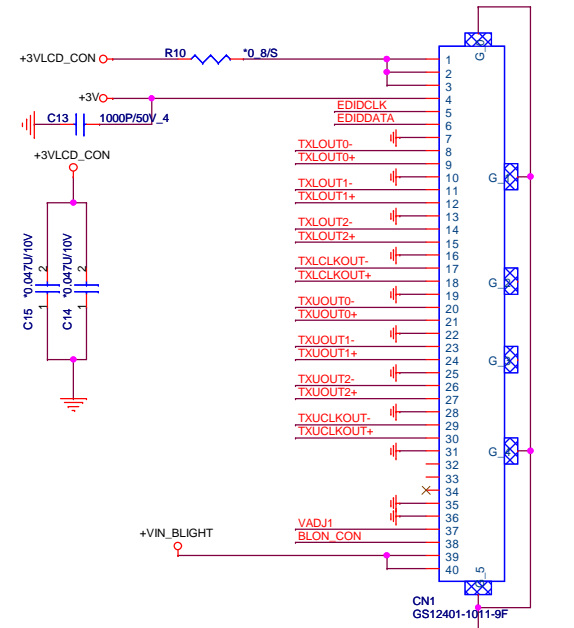
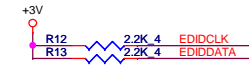
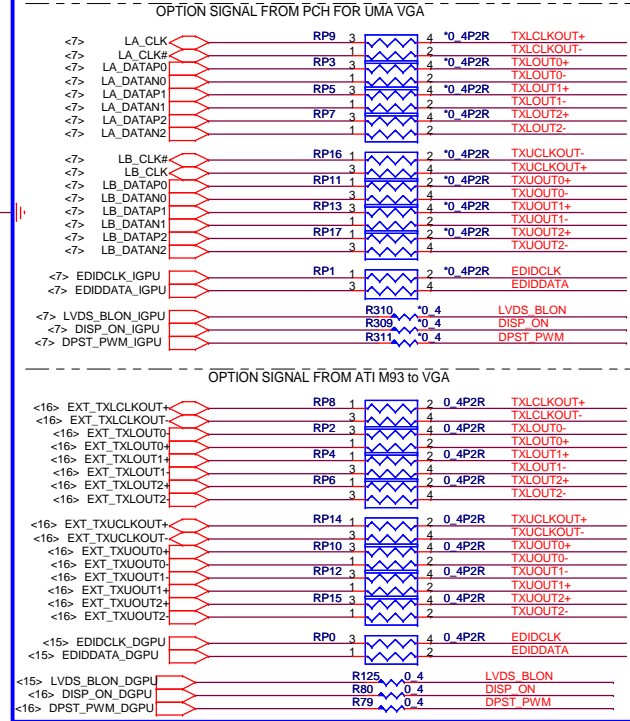
LID Switch



CAMERA



1. If LCD connector near GPU, then place these series Resistors near GPU
2. If LCD connector near PCH, then place these series Resistors near PCH

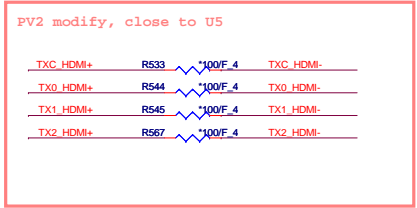
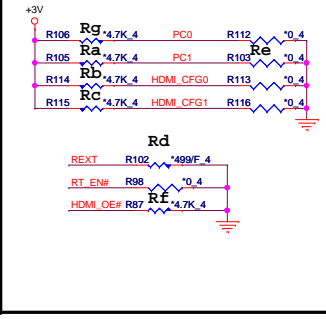


PROJECT :AX1
Quanta Computer Inc.

Signals		PDT	CHR	PIM
PC1	Ra	NC	NC	NC
HDMI_CFG0	Rb	NC	NC	NC
HDMI_CFG1	Rc	4.7K	NC	NC
REXT	Rd	499	1.2K	4.7K
PC1	Re	NC	4.7K	4.7K
HDMI_OE#	Rf	NC	4.7K	NC
PC0	Rg	4.7K	4.7K	4.7K

9/16 : PIM: need use ALP411LS000 or ALP411LS004 for capella
 CHR : need Na R1182, add R1027 for capella

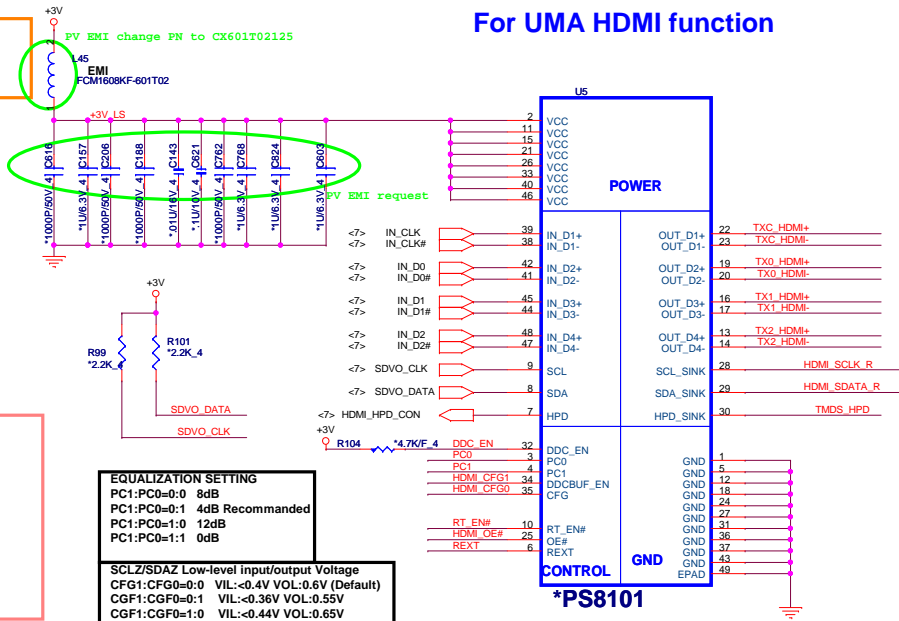
Vendor:PDT P/N:AL008101000
 Vendor:CHR P/N:AL007318002
 Vendor:PIM P/N:ALP411LS004



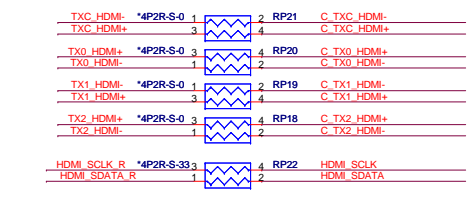
EQUALIZATION SETTING
 PC1:PC0=0:0 8dB
 PC1:PC0=0:1 4dB Recommended
 PC1:PC0=1:0 12dB
 PC1:PC0=1:1 0dB

SCLZ/SDAZ Low-level input/output Voltage
 CFG1:CFG0=0:0 VIL:<0.4V VOL:0.6V (Default)
 CFG1:CFG0=0:1 VIL:<0.36V VOL:0.55V
 CFG1:CFG0=1:0 VIL:<0.44V VOL:0.65V
 CFG1:CFG0=1:1 VIL:<0.36V VOL:0.6V

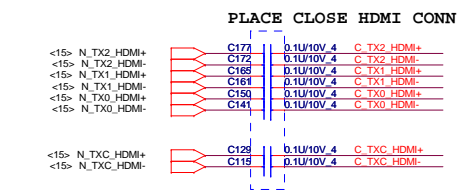
For UMA HDMI function



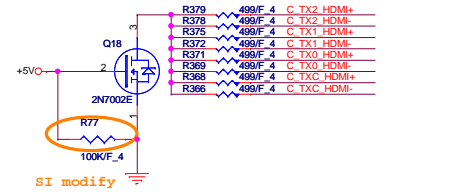
FOR UMA ONLY FROM LEVEL SHIFTER



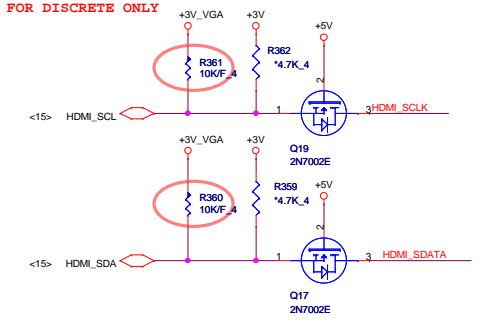
FOR DISCRETE ONLY FROM M93/PARK



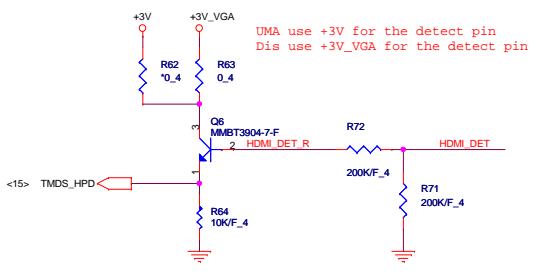
FOR DISCRETE ONLY



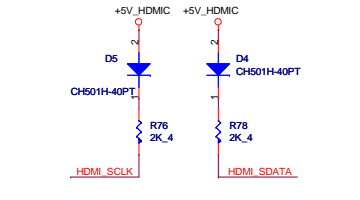
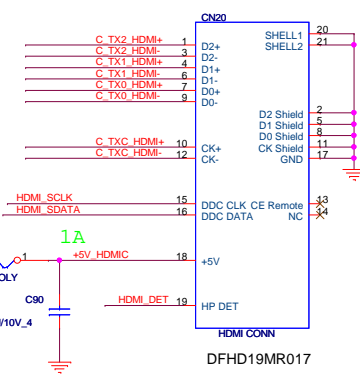
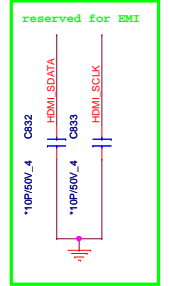
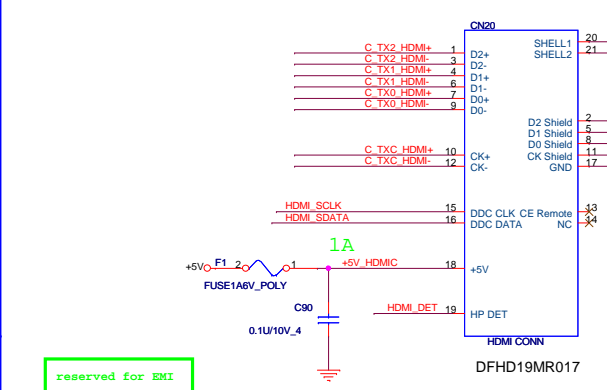
DISCRETE HDMI I2C SELECT
 Close to HDMI Connector



UMA & DISCRETE HDMI HPD SENSE



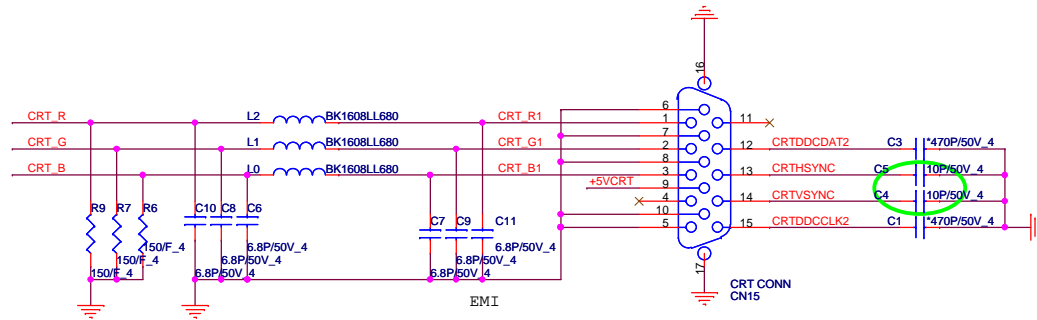
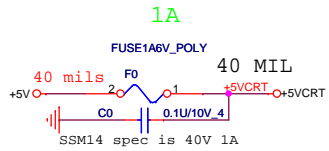
FV EMI request



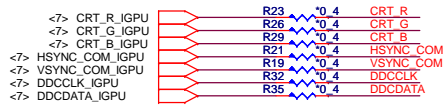
PROJECT :AX1
 Quanta Computer Inc.

Size Custom	Document Number HDMI CONN	Rev 1A
Date: Monday, November 16, 2009	Sheet 21 of 40	

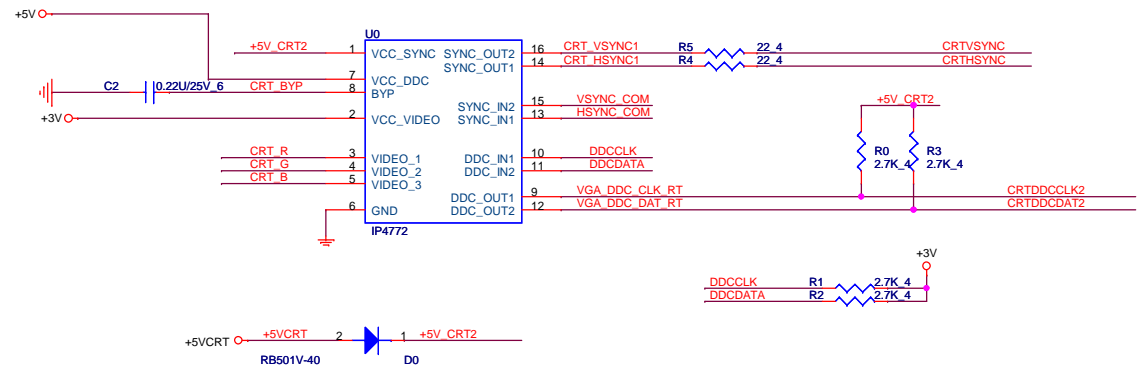
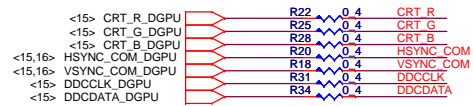
CRT PORT



FOR UMA

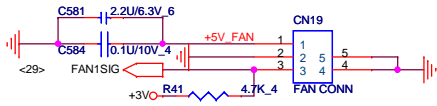


FOR DISCRETE

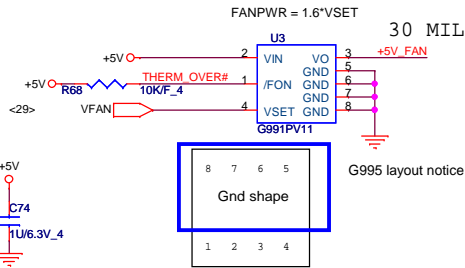


PROJECT :AX1
Quanta Computer Inc.

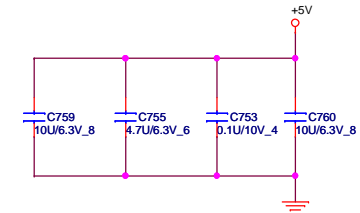
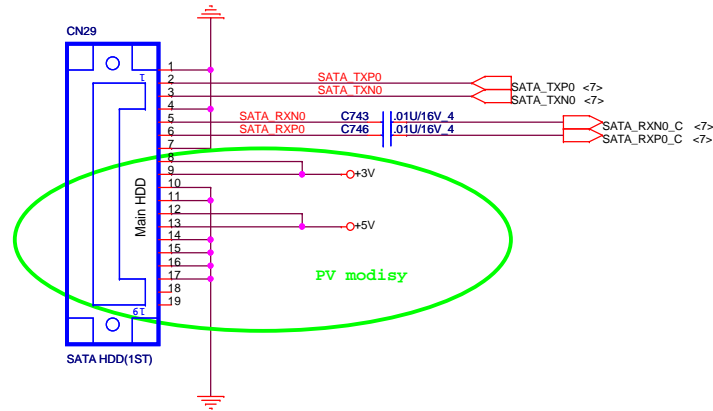
CPU FAN



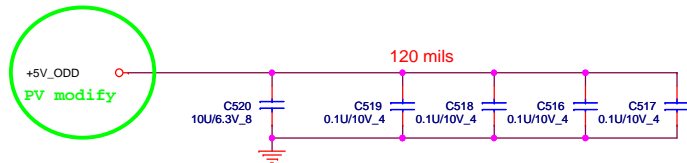
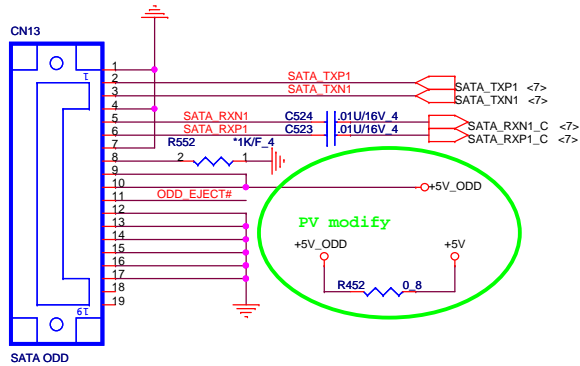
DFHD03MR008



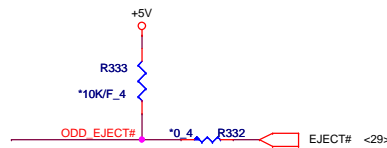
SATA HDD CONNECTOR



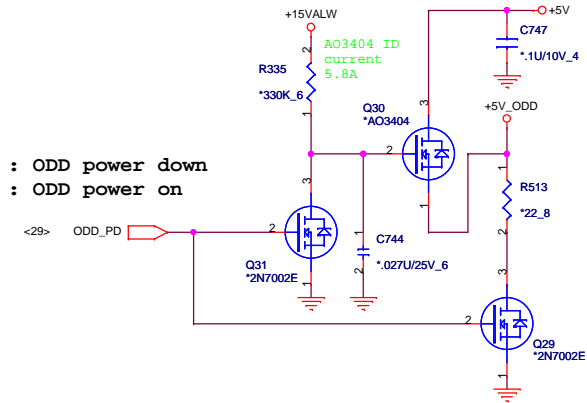
SATA ODD CONNECTOR



SI Add

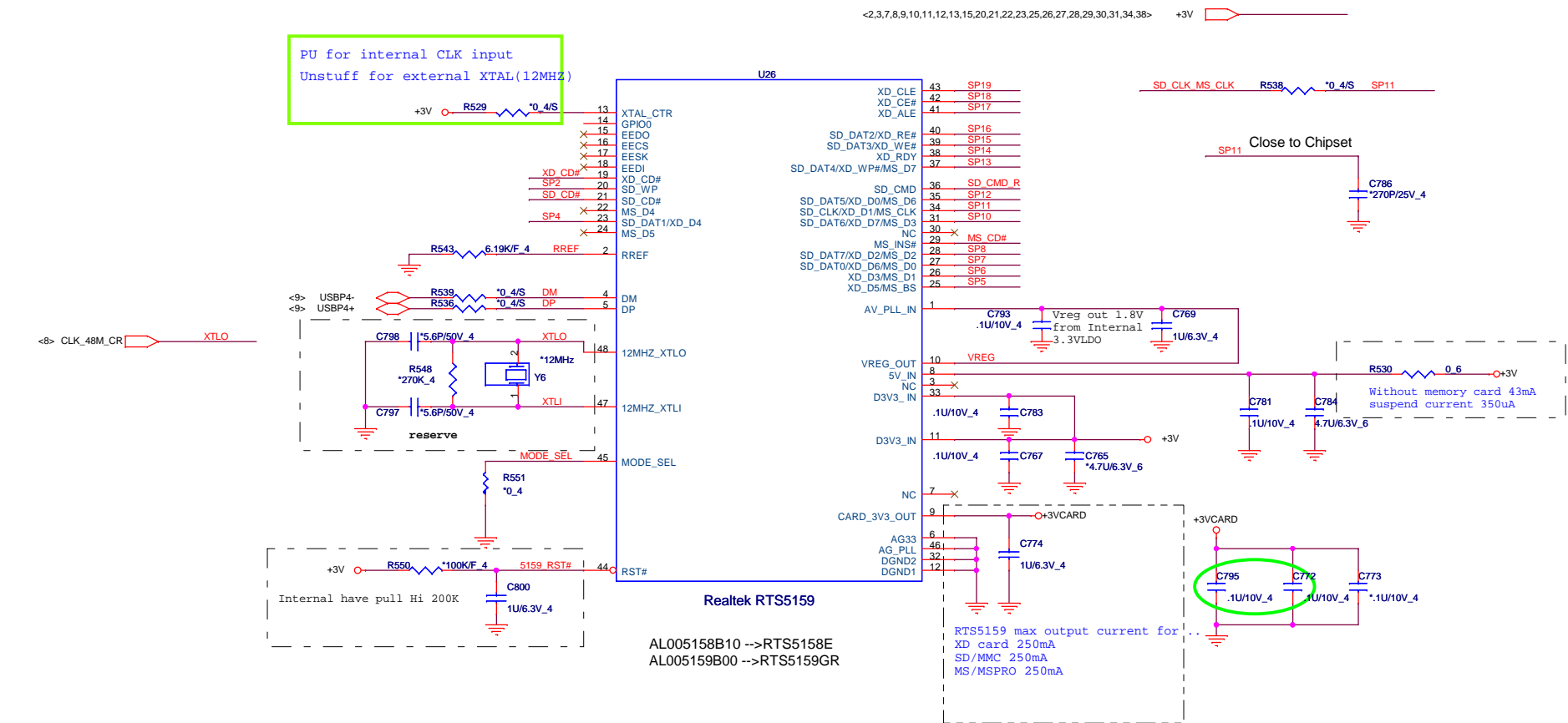


High : ODD power down
Low : ODD power on



PROJECT :AX1
Quanta Computer Inc.

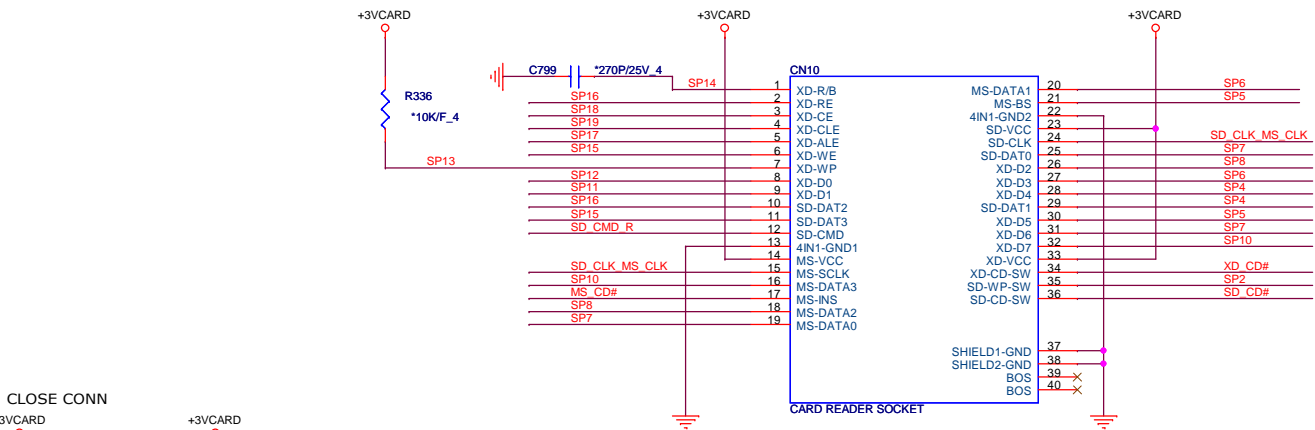
PU for internal CLK input
Unstuff for external XTAL(12MHZ)



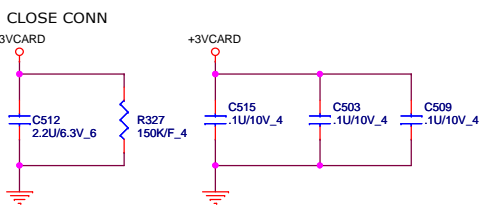
Realtek RTS5159
AL005158B10 -->RTS5158E
AL005159B00 -->RTS5159GR

Note:

SP0	MS	XD
SP1		XD_CD#
SP2	SD_WP	
SP3	SD_CD#	
SP4	SD_DAT1	XD D4
SP5		MS BS XD D5
SP6	MS INS#	MS D1 XD D3
SP7	SD_DAT0	MS D0 XD D6
SP8	SD_DAT7	MS D2 XD D2
SP9		MS INS#
SP10	SD_DAT6	MS D3 XD D7
SP11	SD_CLK	MS_SCLK XD D1
SP12	SD_DAT5	XD D0
SP13	SD_DAT4	XD_WP#
SP14		XD R/B#
SP15	SD_DAT3	XD WE#
SP16	SD_DAT2	XD RE#
SP17		XD ALE
SP18		XD CE#
SP19		XD CLE

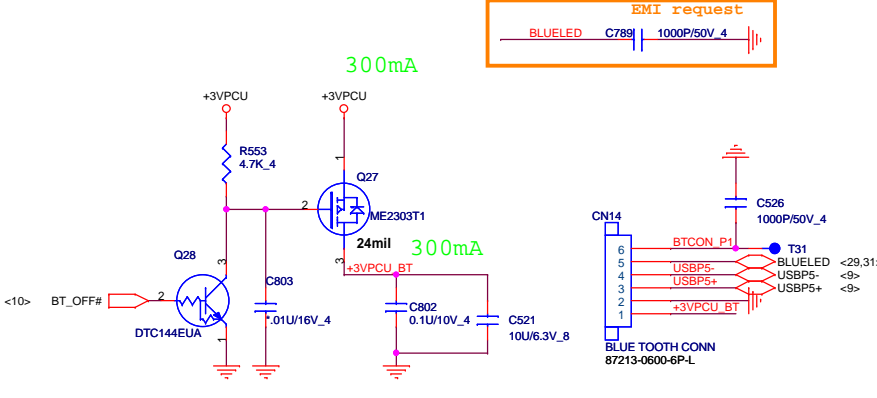


5 IN1 CARD-READER (PUSH-PUSH)
Support SD/SD PRO/MMC/MS/MS PRO/XD Cards

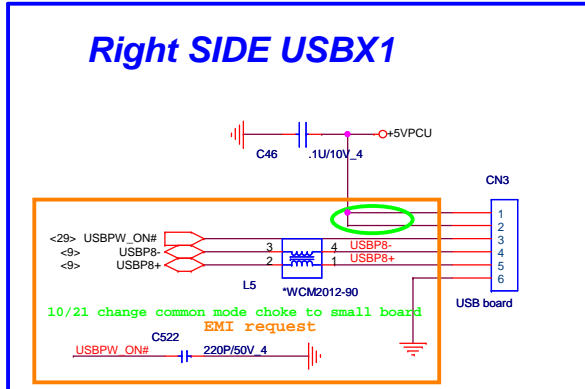
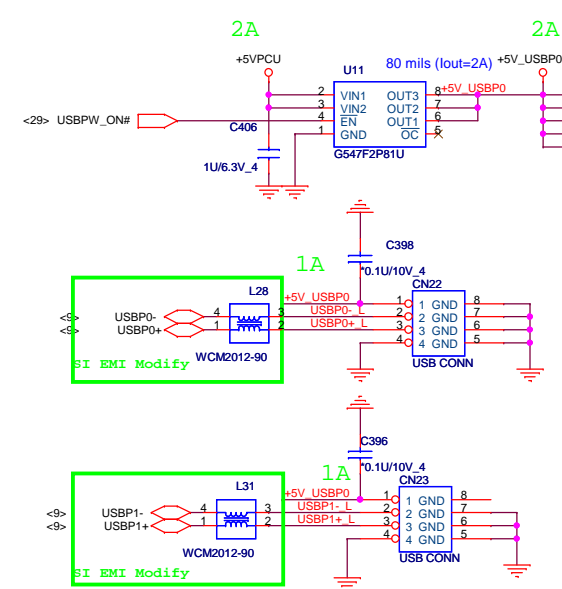


PROJECT :AX1
Quanta Computer Inc.

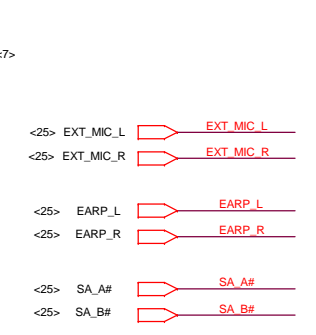
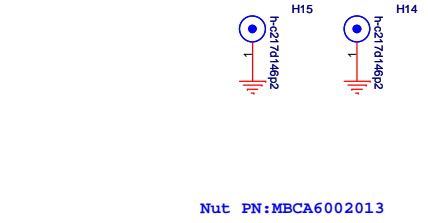
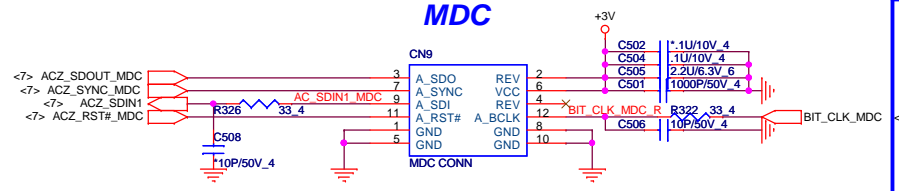
BLUETOOTH



LEFT SIDE USBX1

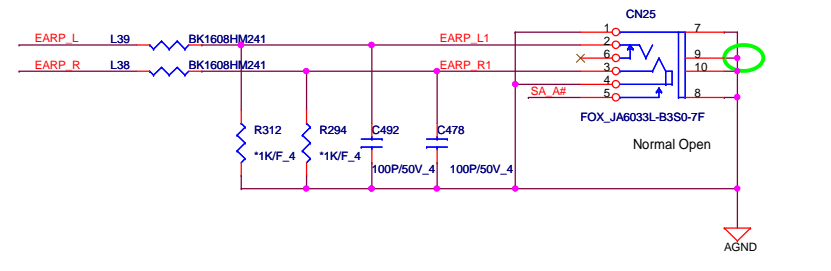


Modem CONN

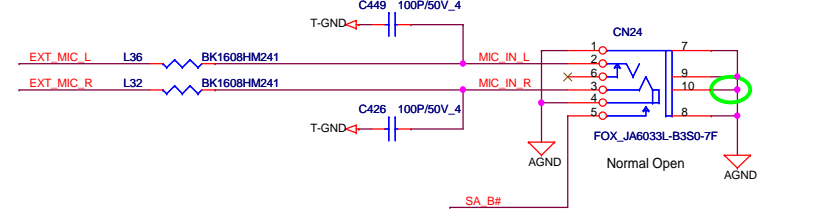


SA_A# --> EXT Ear Phone
SA_B# --> EXT MIC

Line out

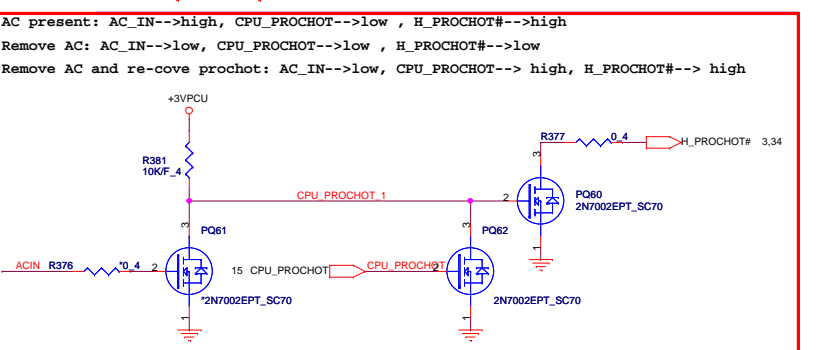
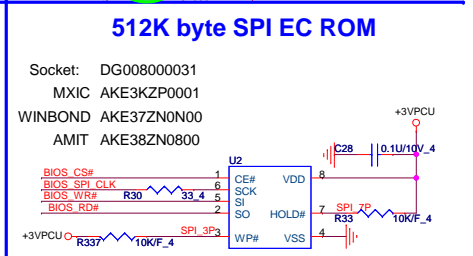
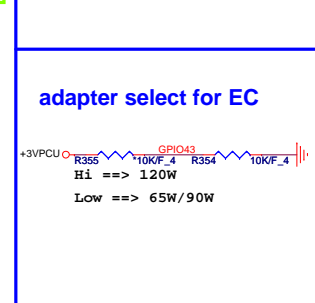
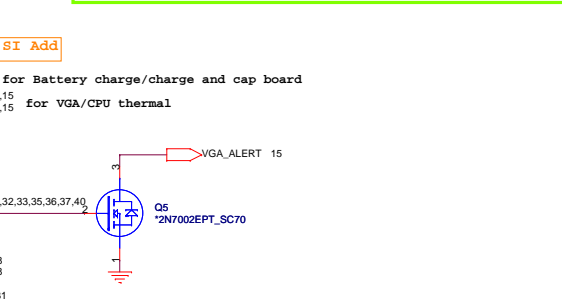
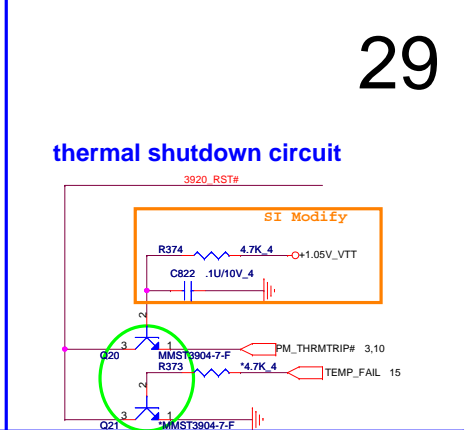
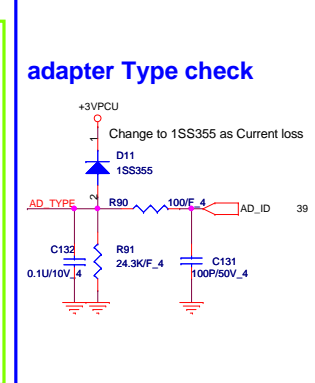
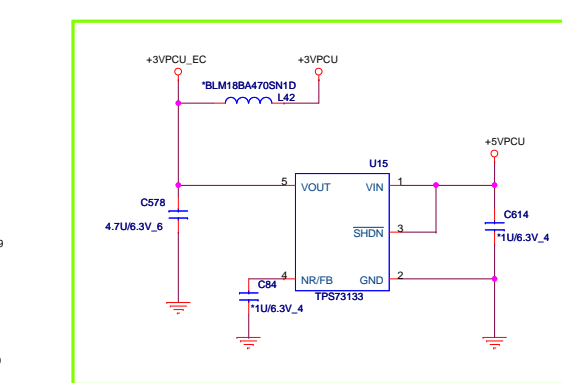
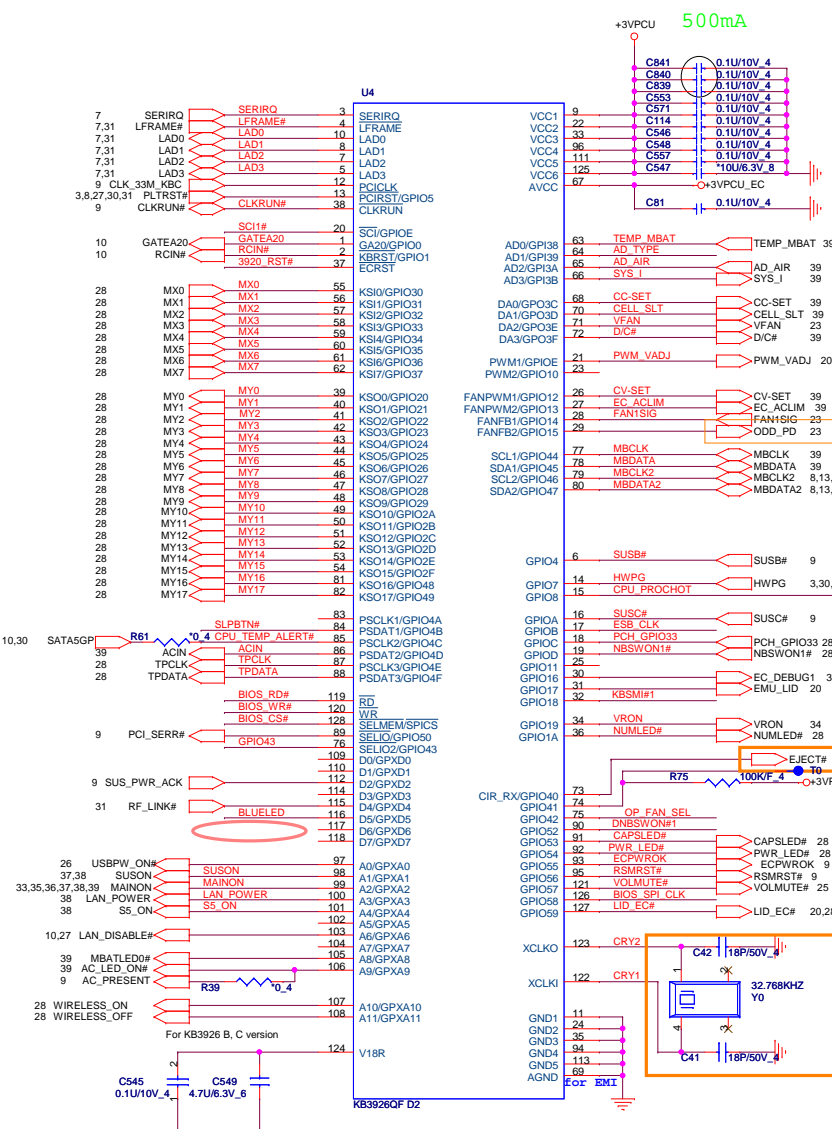


MIC



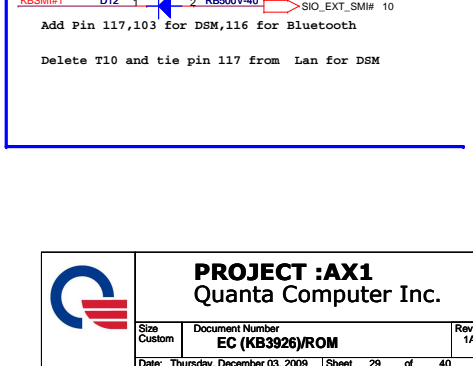
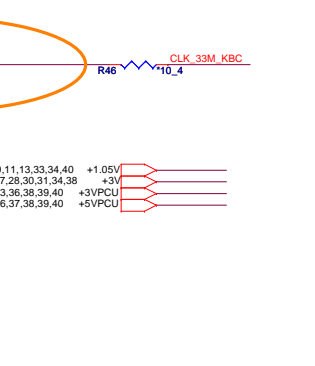
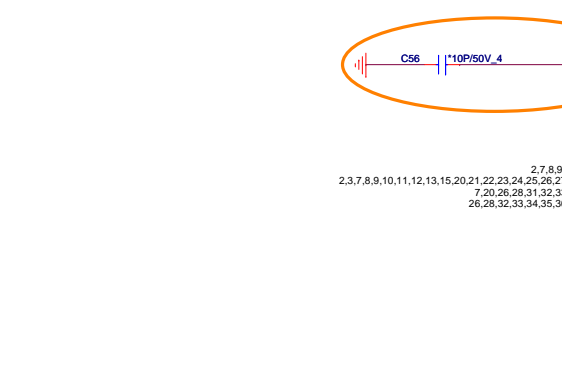
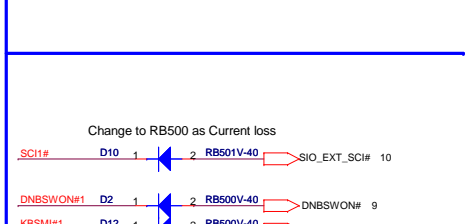
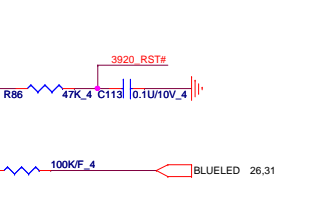
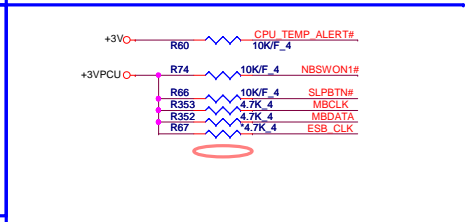
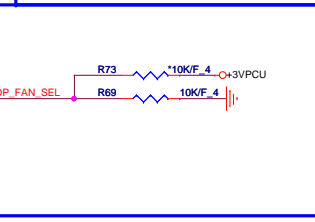
PROJECT :AX1
Quanta Computer Inc.

Size Custom	Document Number USB/BT/Modem/Audio Jack	Rev 1A
Date: Monday, November 30, 2009 Sheet 26 of 40		

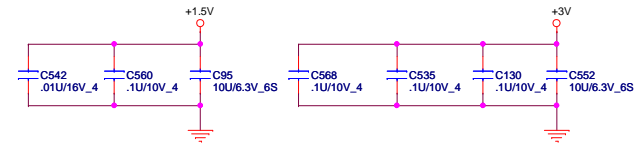
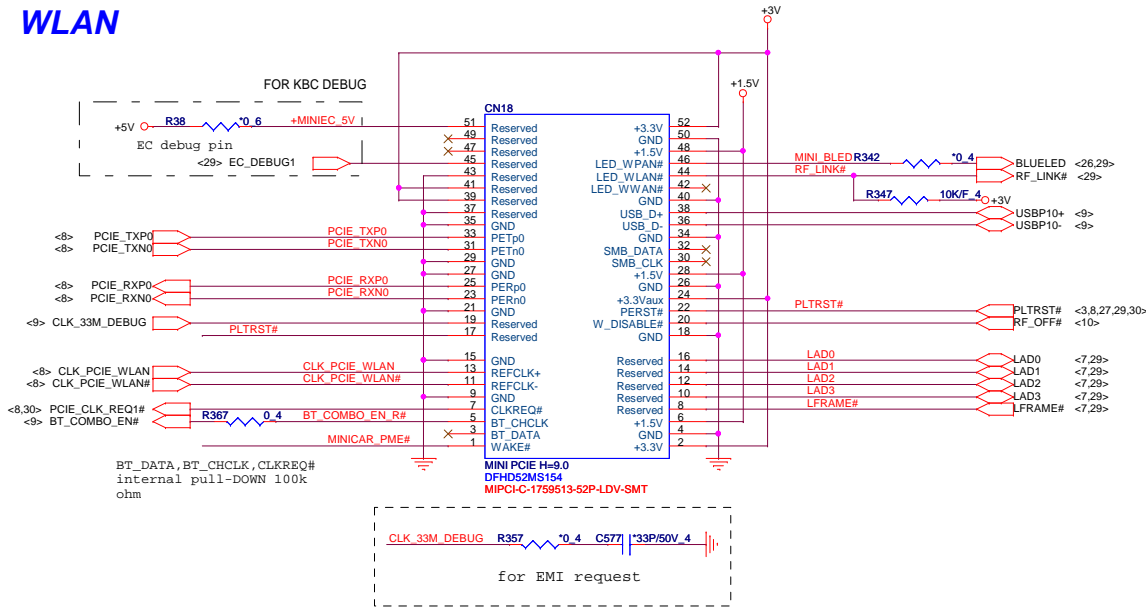


GPIO42 control fan table

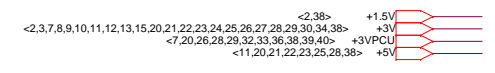
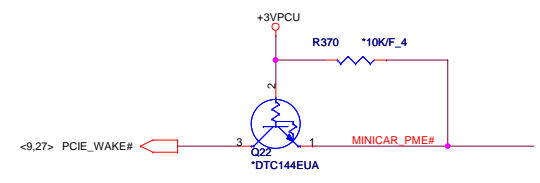
Project Model	GPIO42
AX 14"	High
AX 15.6"	Low
AX 17.3"	Middle (1.5V)



Mini PCI-E Card 1 WLAN



INTEL WLAN
CARD PIN 20
W_DISABLE#
have
internal
pull-up 110k
ohm



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	Quanta Computer Inc.		
	Size Custom	Document Number MINI PCIE CONN X1	
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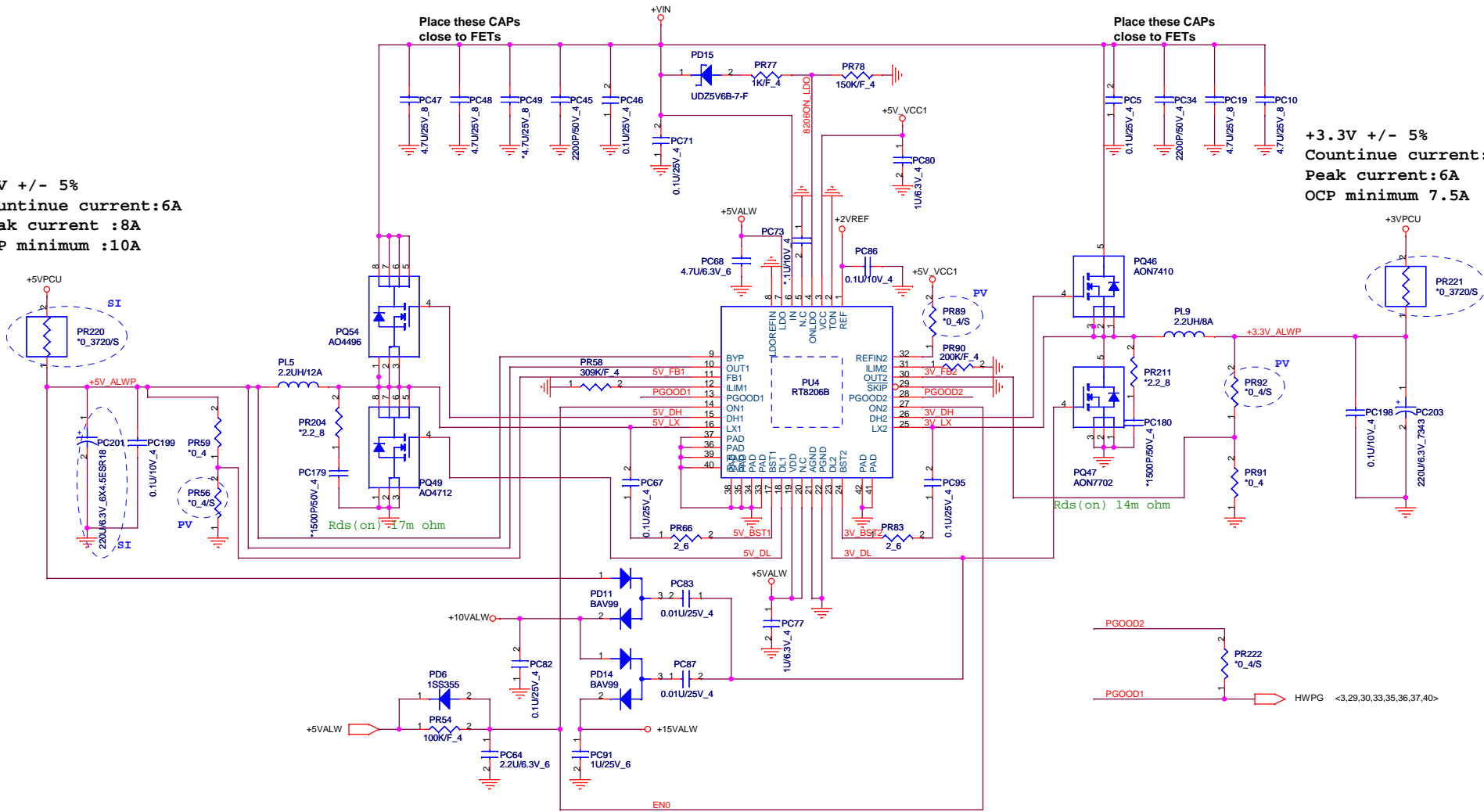
DC/DC +3V_ALW/+5V_ALW/+5V_ALW2 /+15V_ALW

+5V +/- 5%
 Countinue current:6A
 Peak current :8A
 OCP minimum :10A

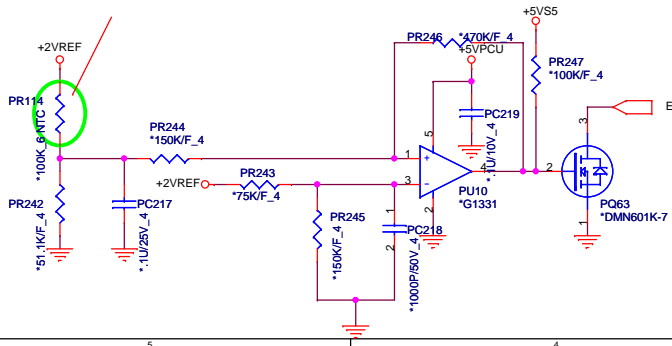
+3.3V +/- 5%
 Countinue current:5A
 Peak current:6A
 OCP minimum 7.5A

Place these CAPS
close to FETs

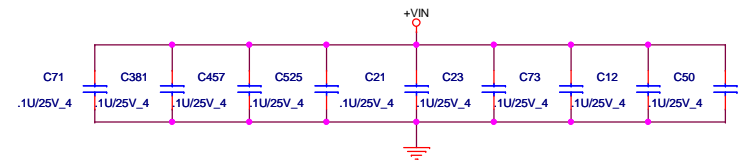
Place these CAPS
close to FETs




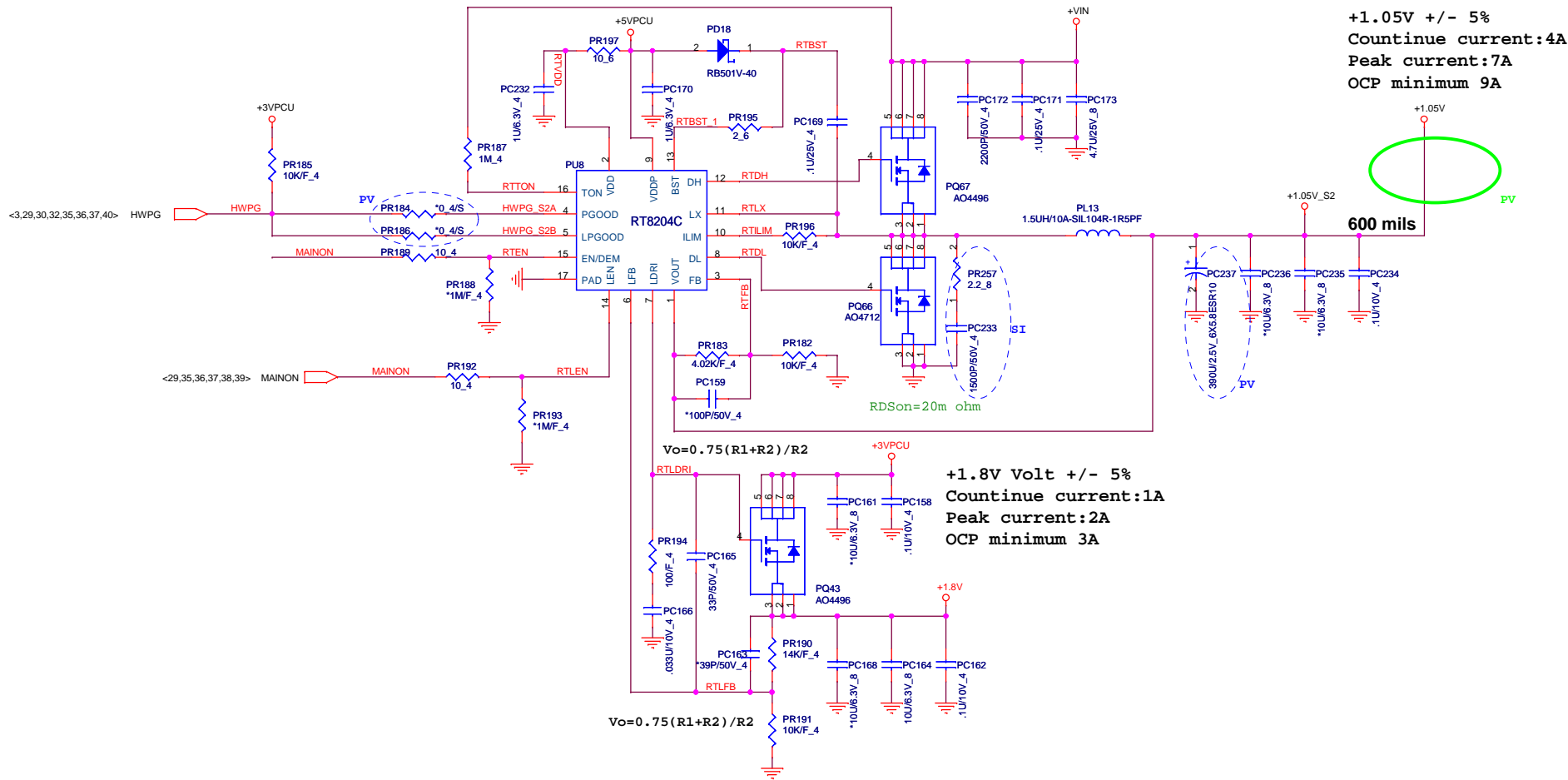
NTC need place under CPU Socket
 CPU Thermal protection at 90 +/-3 degrec




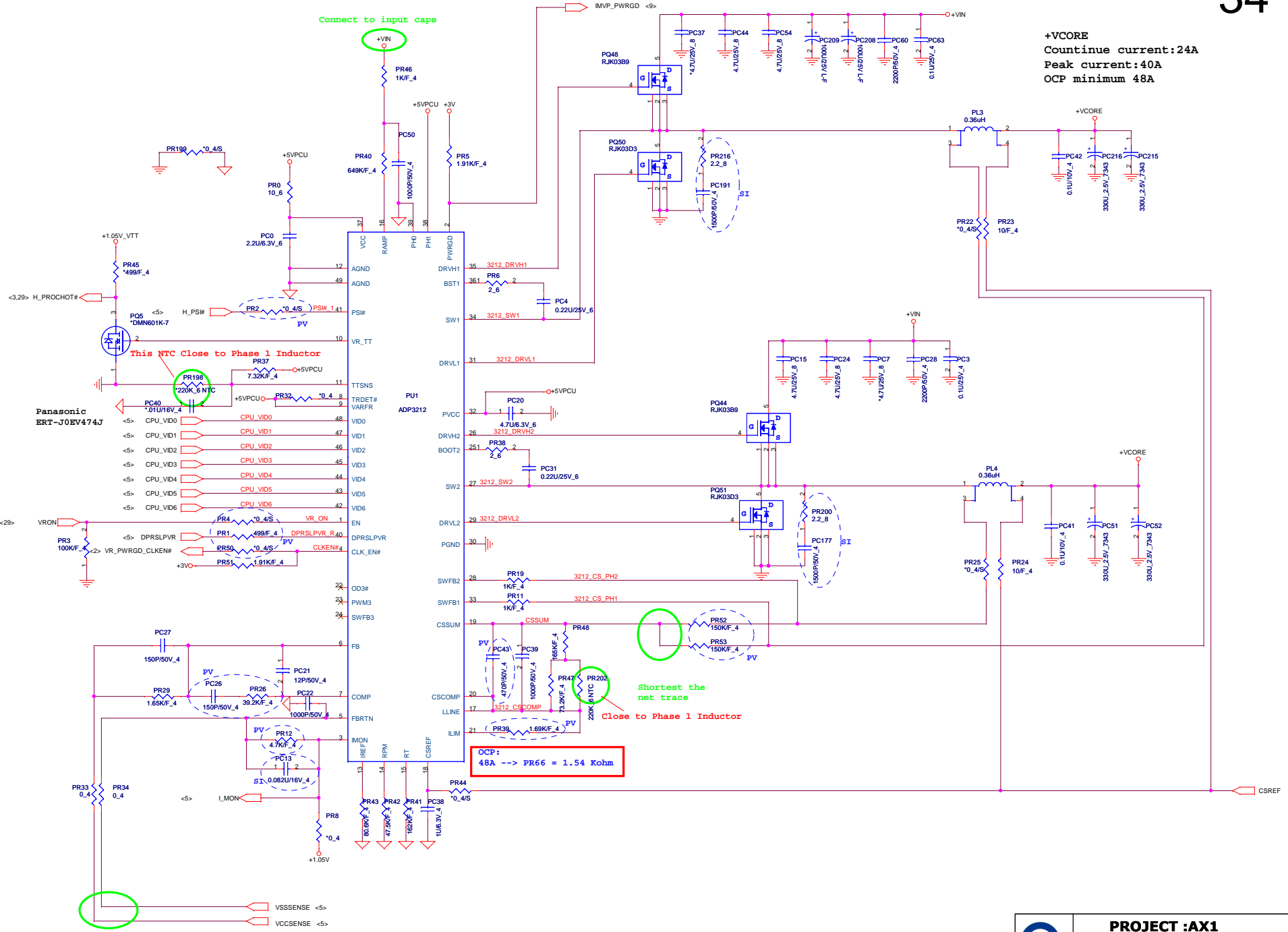
EMI request

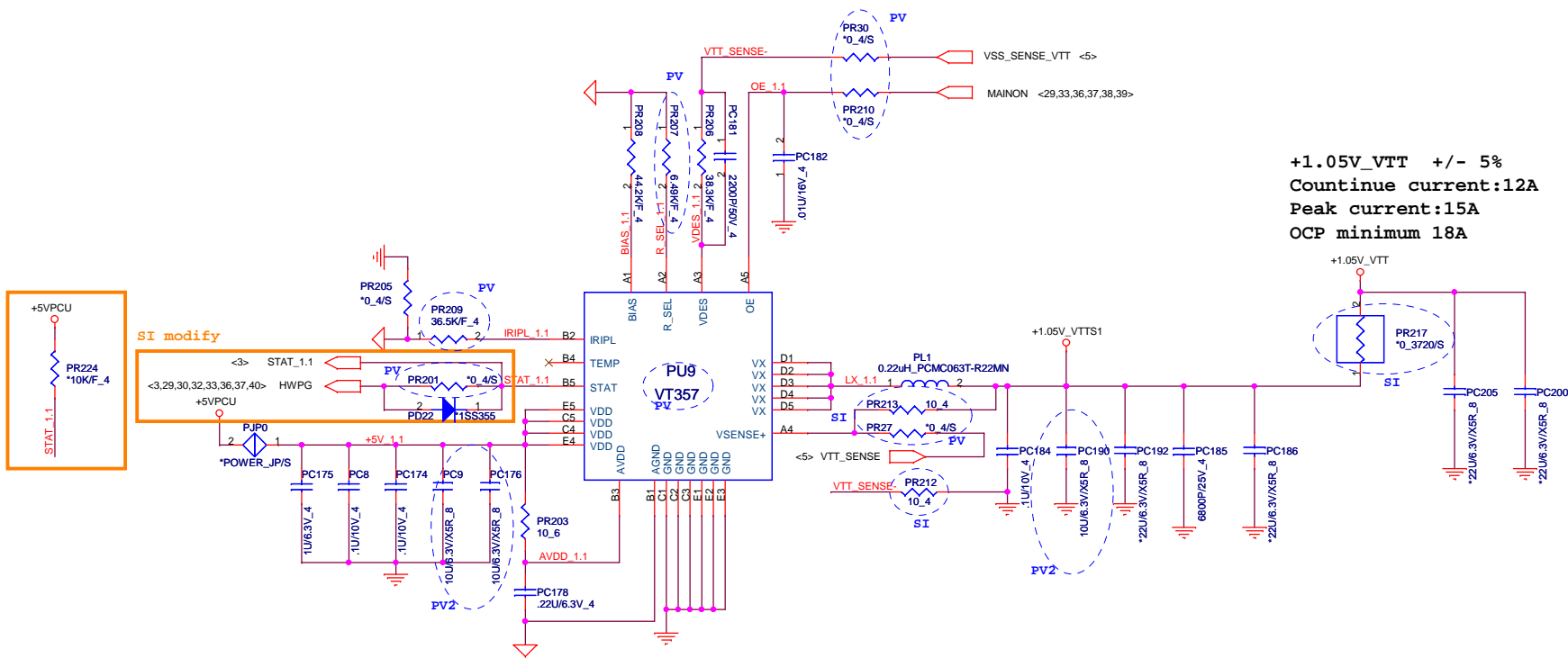


	PROJECT :AX1	
	Quanta Computer Inc.	
Size Custom	Document Number +5V/+3V (RT8206B)	Rev 1A
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	PROJECT :AX1 Quanta Computer Inc.	
	Size Custom Document Number +1.05V/+1.8V (RT8204C)	Rev 1A
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+1.05V_VTT +/- 5%
 Countinue current:12A
 Peak current:15A
 OCP minimum 18A



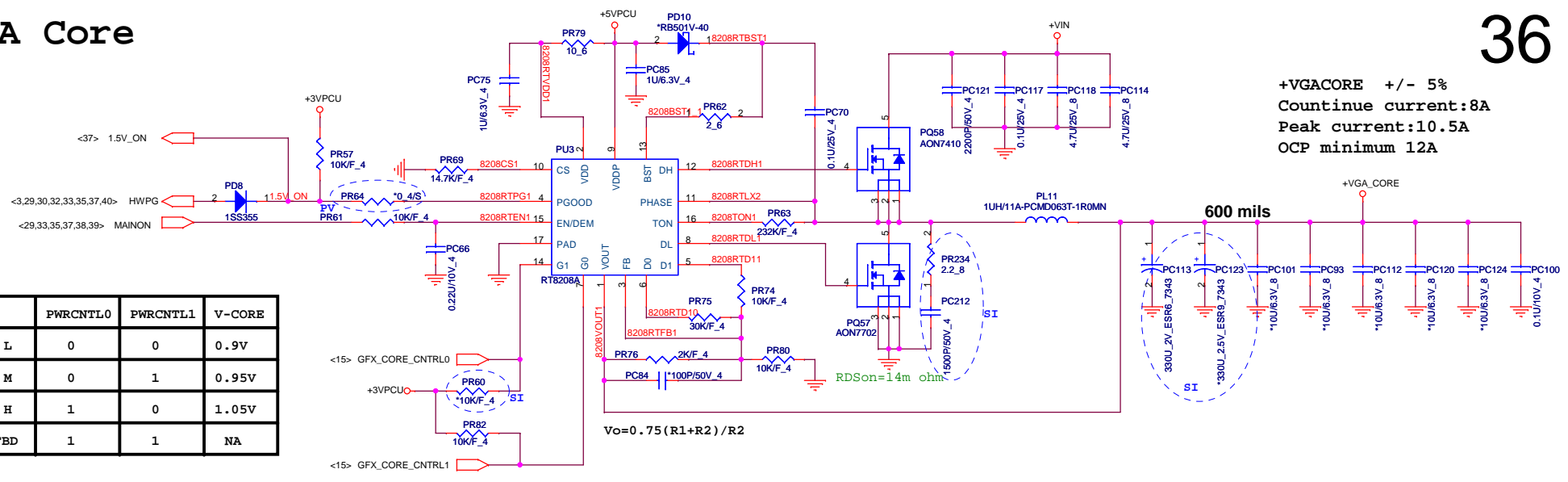
PROJECT :AX1
 Quanta Computer Inc.

Size Custom	Document Number +1.05V_VTT (VT358)	Rev 1A
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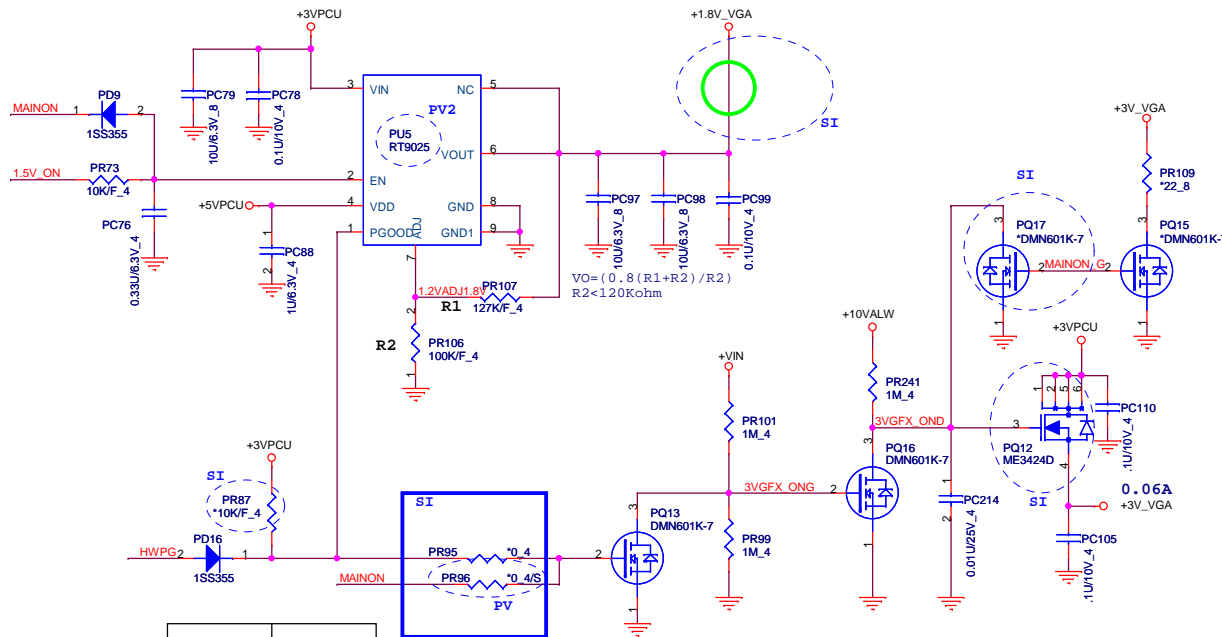
VGA Core

+VGA_CORE +/- 5%
Countinue current:8A
Peak current:10.5A
OCP minimum 12A

	PWRCNTL0	PWRCNTL1	V-CORE
L	0	0	0.9V
M	0	1	0.95V
H	1	0	1.05V
TBD	1	1	NA



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

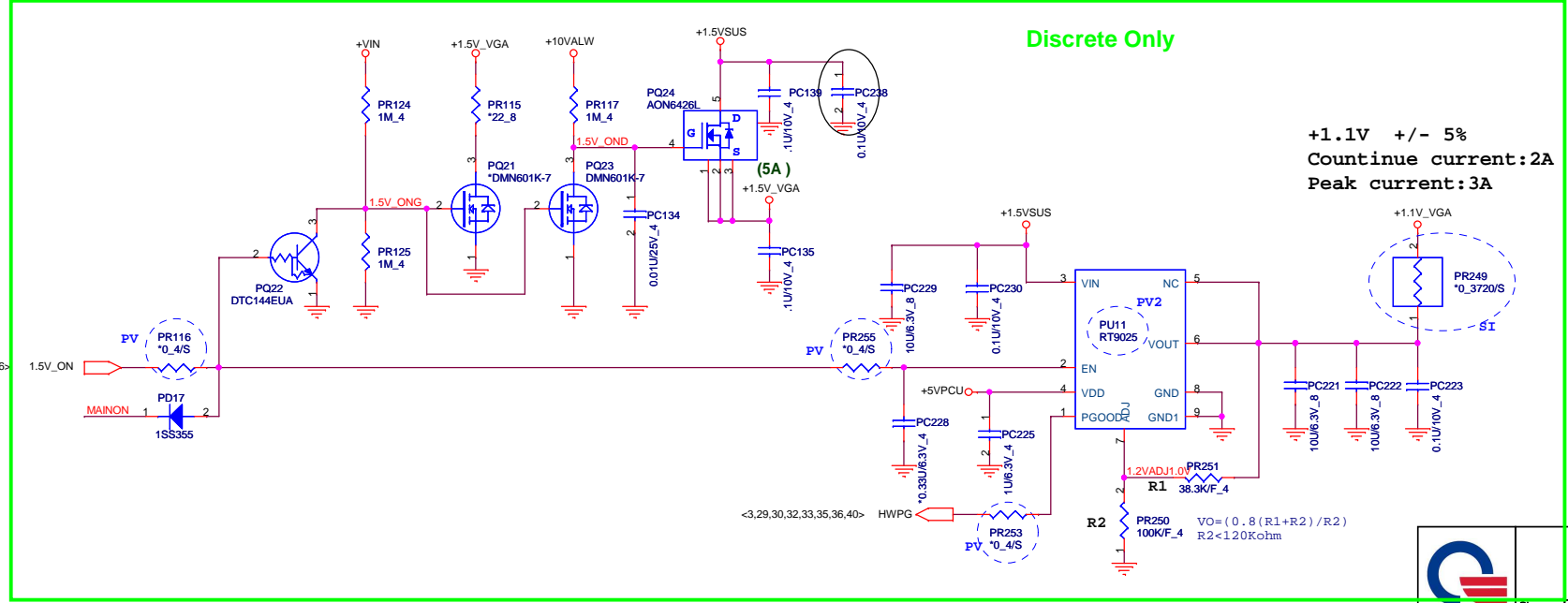
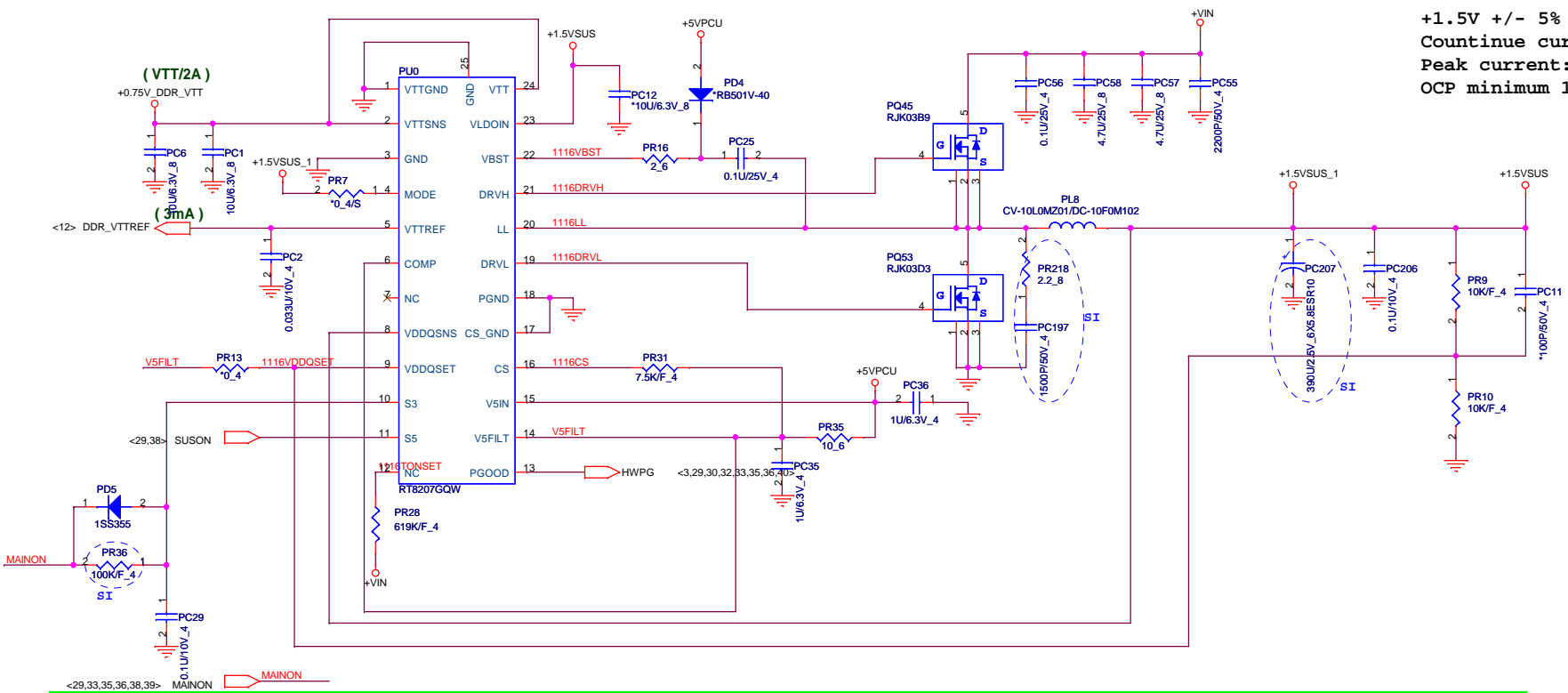


PR95	For M93
PR96	For PARK

PROJECT :AX1
Quanta Computer Inc.

Size Custom	Document Number +VGA_CORE (RT8208/1.8V)	Rev 1A
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+1.5V +/- 5%
Countinue current:6A
Peak current:12A
OCP minimum 15A



+1.1V +/- 5%
Countinue current:2A
Peak current:3A



PROJECT :AX1
Quanta Computer Inc.

Size Custom	Document Number DDR3 (RT8207)	Rev 1A
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