BL6 Block Diagram

PCB STACK UP

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

DDRIII-SODIMM1
DDRIII-SODIMM2 P12,13

Dual Channel DDR III 800/1066/1333 MHZ

Arrandale (UMA+VGA)
DDR SYSTEM MEMORY
rPGA 989 P3, 4, 5, 6
Graphics Interfaces
PCI-E
FDI
DMI

PCI-E x16

VGA P15,16,17,18,19, 20,21,22

EXT_LVDS
EXT_CRT
EXT_HDMI

PCI-E

HDMI Level Shift P14

INT_LVDS
INT_CRT
INT_HDMI

SWITCH CIRCUIT

USB-0

LCD/CCD Con. P23

CRT Con. P23

HDMI Con. P14

DMI(x4)

SATA - HDD P26

SATA - ODD P26

SATA 0
SATA 1
SATA 5

ESATA Re-driver P25

USB-13 ESATA Con. P25

Ibex Peak-M
PCH P7, 8, 9, 10, 11
FDI
DMI
SATA
PCI-E
USB
RTC
LPC
IHDA
NVRAM

PCI-Express

PCIE-3 USB-10 3G P24

PCIE-5 USB-5 WLAN P24

PCIE-6 Giga/10/100 Lan P28

SIM Card P24 USB-4

Bluetooth Con. P31 USB-2

USB Con. P31 USB-8

USB Con. P31 USB-9

USB 2.0 (Port0~13)

BATTERY P7

Cardreader P29 USB-3

Cardreader Con. 3 IN 1 P29

Azalia

NVRAM Con P33

LPC

Audio Codec P27

EC P30

Port-B
Port-A

MDC Con. P27
MIC JACK P27
HP P27
SPK Con. P27

FAN P3
K/B Con. P31
HALL Sensor P23
SPI Flash P30
Touch Pad /B Con. P31
Power /B Con. P31

CK505 P2

POWER SYSTEM

ISL88731	P.34
ISL82882C	P.39
RT8210B	P.35
UPI6116A	P.37
UP6163	P.36
UPI6111A	P.38
MAX8792A	P.41
RT8152C	P.42

+VCC_CORE

+1.5V
+1.5VSUS

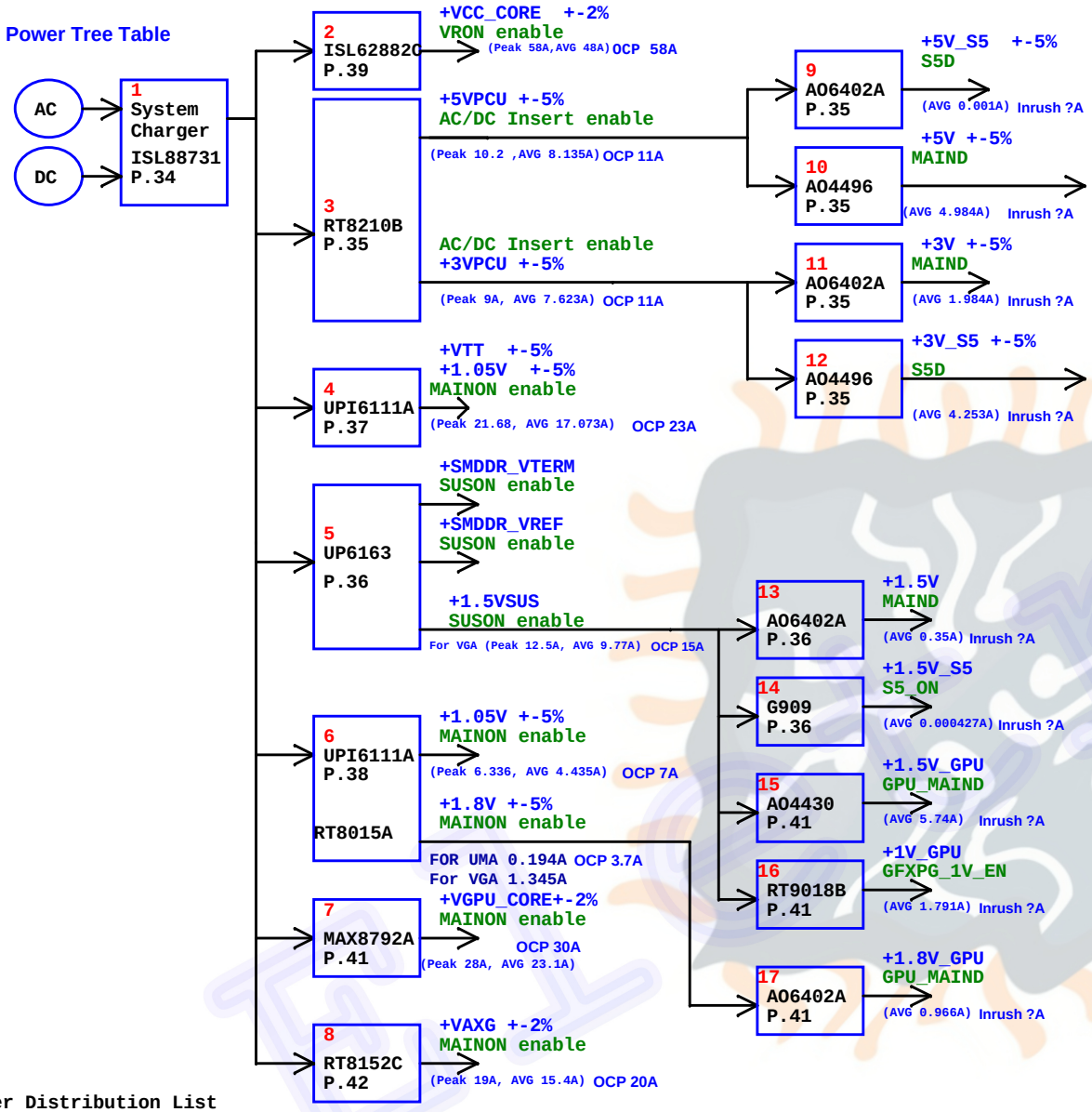
+VTT
+1.05V

+1.8V

+1.5V_S5
+3VPCU
+3V_S5
+3V
+5VPCU
+5V_S5
+5V
+SMDDR_VTERM
+SMDDR_VREF
+VGPU_CORE
+VAXG

Quanta Computer Inc.
PROJECT : BL6
Size | Document Number: Block Diagram | Rev: A1A
Date: Wednesday, April 07, 2010 | Sheet 1 of 45

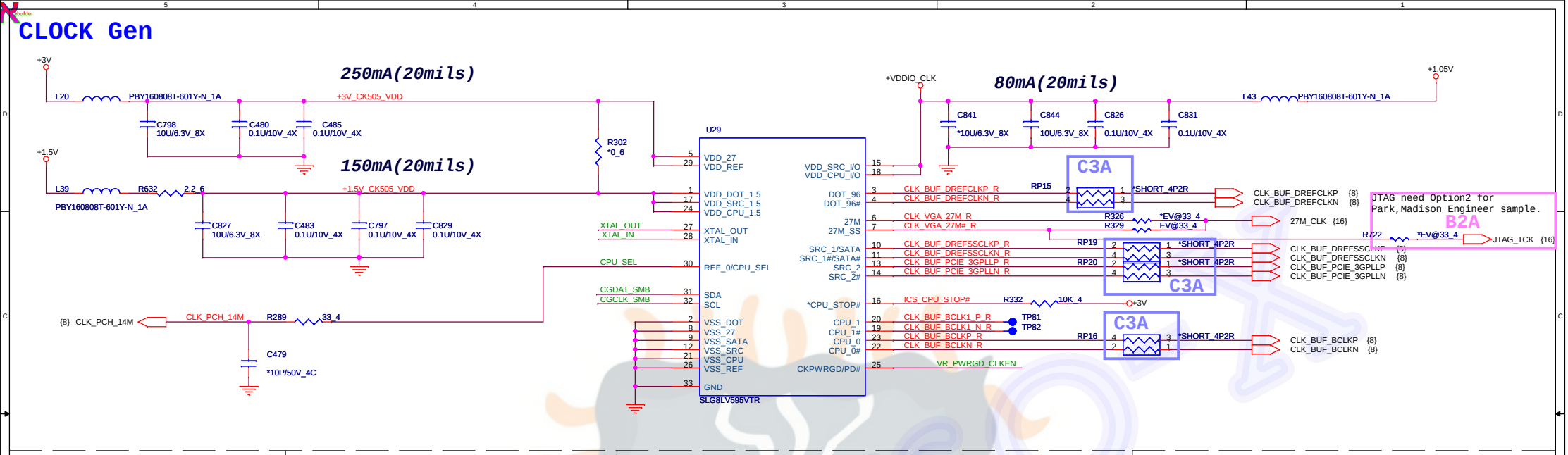
Power Tree Table



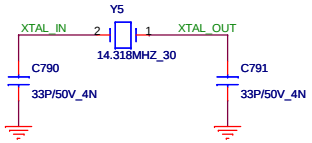
Power Distribution List

Power	Distribution

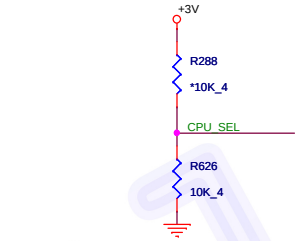
CLOCK Gen



CLK CRYSTAL

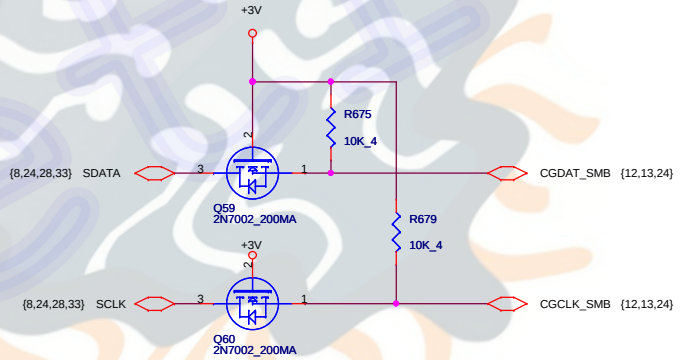


CLK CPU_SEL



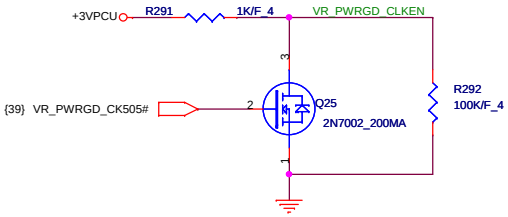
	0	1
CPU_SEL	CPU =133MHz (default)	CPU=100MHz

CLK I2C



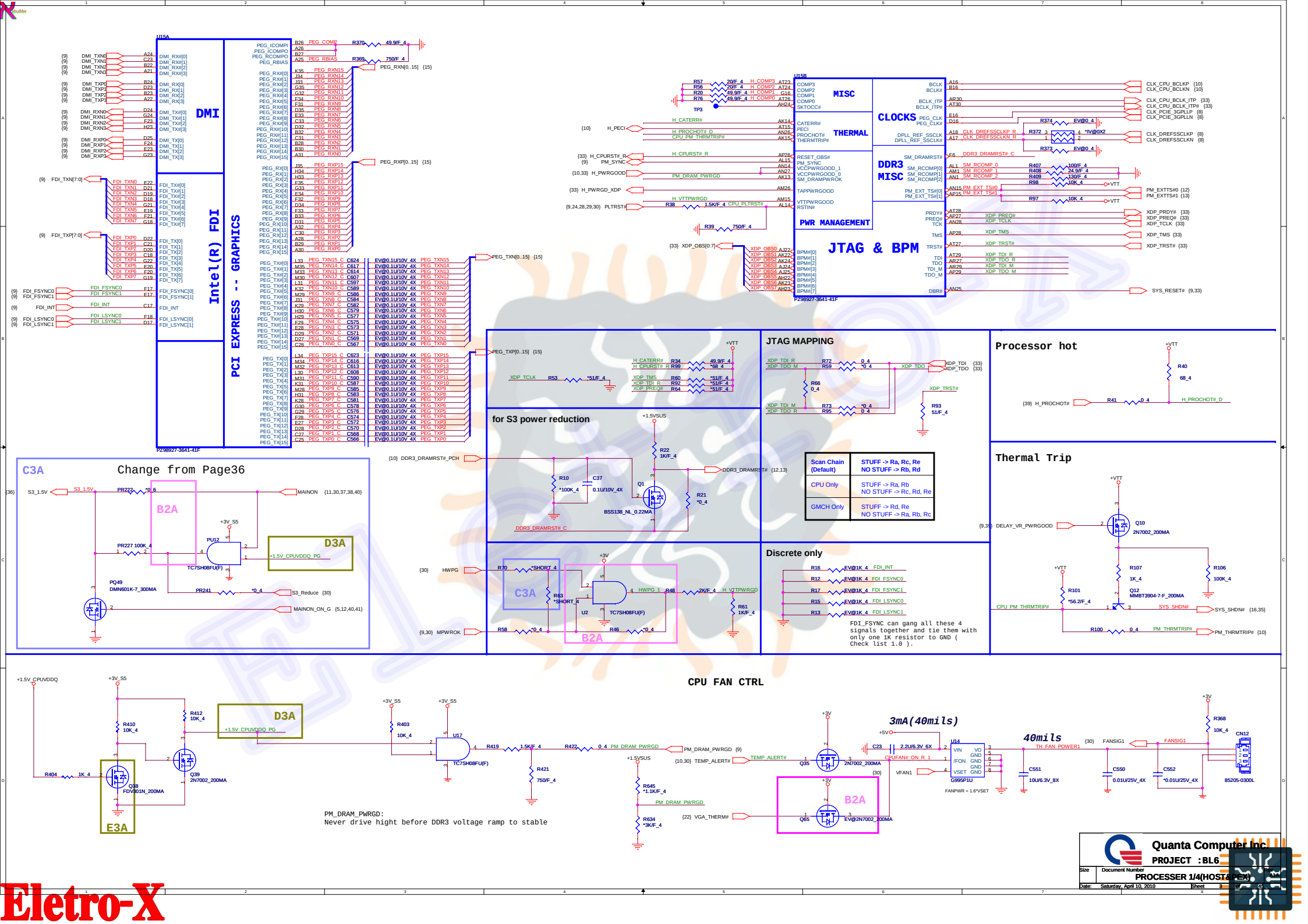
CLK POWERGOOD

Change to +3VPCU
(follow CRB)

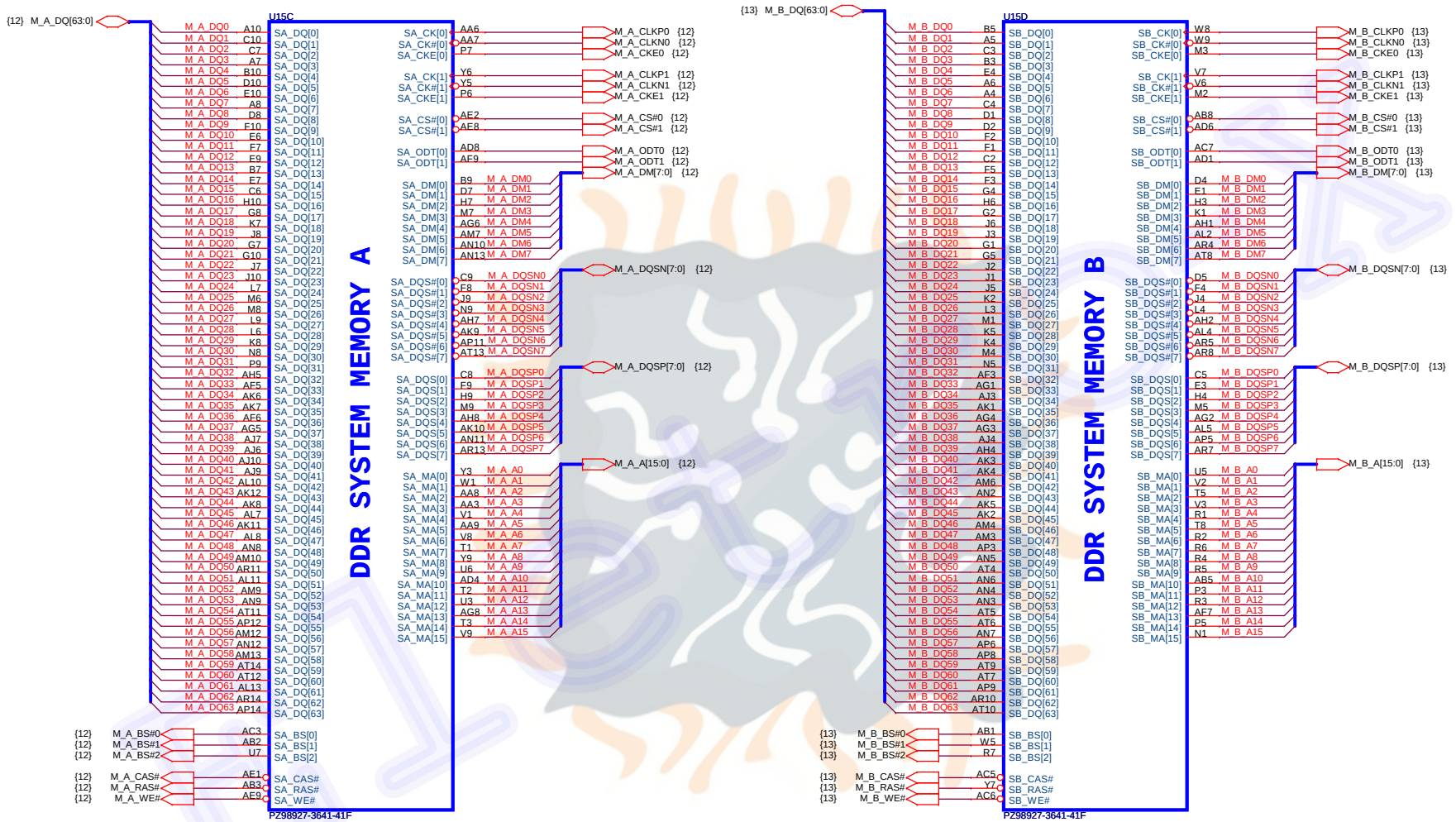


Quanta Computer Inc.
PROJECT : BL6

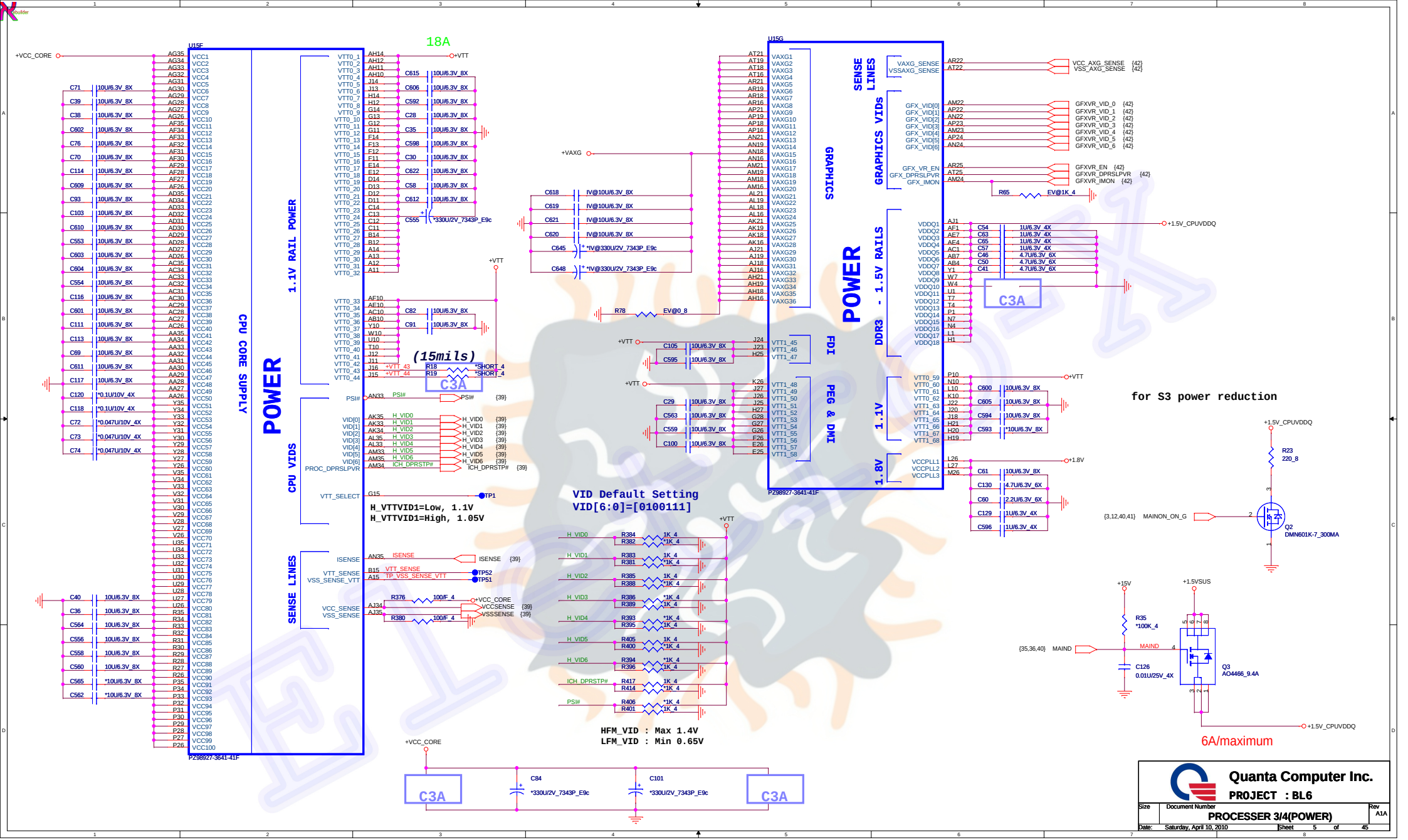
Size	Document Number	Rev
	CLOCK GENERATOR	A1A
Date: Thursday, April 08, 2010	Sheet 2 of 45	


U15A
DMI
Intel(R) FDI
PCI EXPRESS -- GRAPHICS
PZ98927-3641-41F
U15B
MISC
THERMAL
CLOCKS
DDR3 MISC
PWR MANAGEMENT
JTAG & BPM
PZ98927-3641-41F
JTAG MAPPING
Scan Chain (Default)
STUFF -> Ra, Rc, Re
NO STUFF -> Rb, Rd
CPU Only
STUFF -> Ra, Rb
NO STUFF -> Rc, Rd, Re
GMCH Only
STUFF -> Rd, Re
NO STUFF -> Ra, Rb, Rc
Processor hot
Thermal Trip
C3A
Change from Page36
B2A
D3A
for S3 power reduction
Discrete only
FDI_FSYNC can gang all these 4 signals together and tie them with only one 1K resistor to GND (Check list 1.0).
CPU FAN CTRL
3mA(40mils)
40mils
E3A
PM_DRAM_PWRGD:
Never drive hight before DDR3 voltage ramp to stable
Quanta Computer Inc.
PROJECT : BL6
PROCESSER 1/4(HOST&PEX)
Saturday, April 10, 2010

AUBURNDALE/CLARKSFIELD PROCESSOR (DDR3)



Quanta Computer Inc
PROJECT : BL6
Size
Document Number
PROCESSER 2/4(DDR)
Rev
Date: Saturday, April 10, 2010
Sheet 4


18A
U15F
POWER
CPU CORE SUPPLY
1.1V RAIL POWER
CPU VIDS
SENSE LINES
PZ98927-3641-41F
+VCC_CORE
+VTT
+VAXG
(15mils)
C3A
H_VTTVID1=Low, 1.1V
H_VTTVID1=High, 1.05V
VID Default Setting
VID[6:0]=[0100111]
HFM_VID : Max 1.4V
LFM_VID : Min 0.65V
U15G
POWER
GRAPHICS
SENSE LINES
GRAPHICS VIDs
DDR3 - 1.5V RAILS
FDI
PEG & DMI
1.1V
1.8V
for S3 power reduction
6A/maximum
Quanta Computer Inc.
PROJECT : BL6
PROCESSER 3/4(POWER)
Size
Document Number
Rev
A1A
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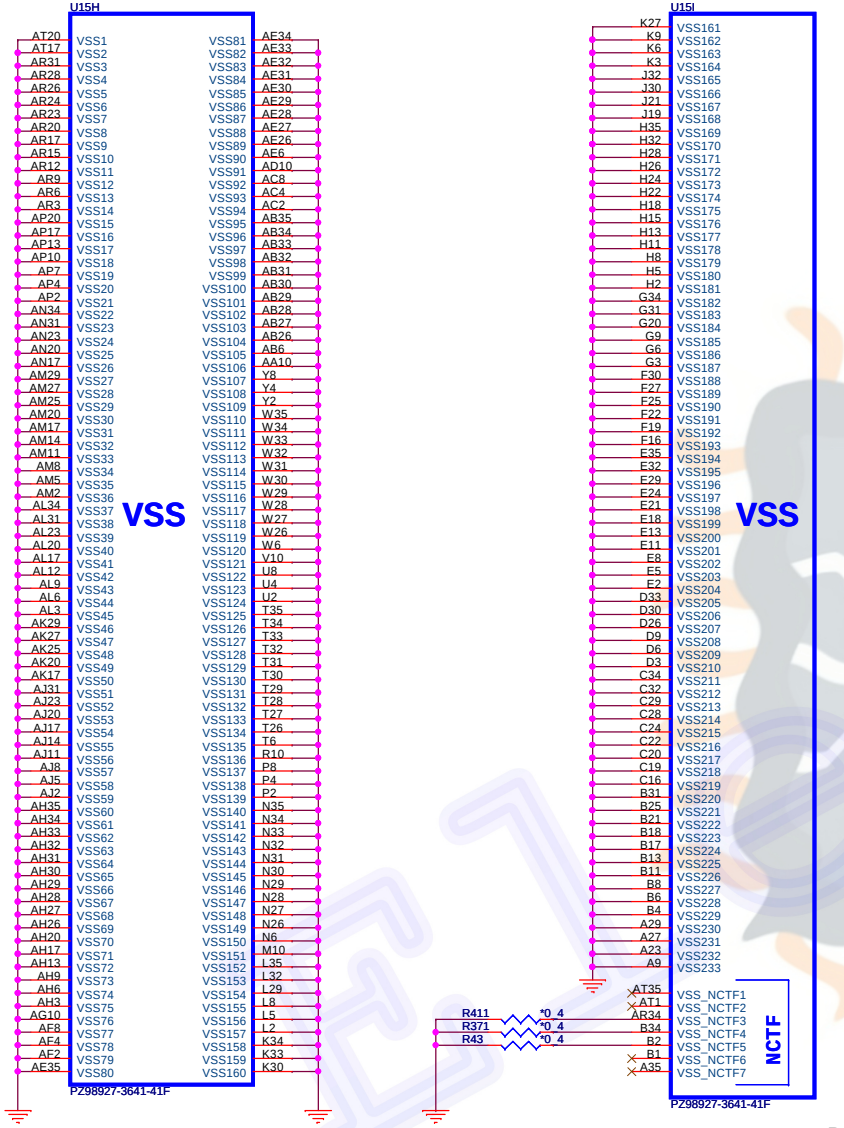
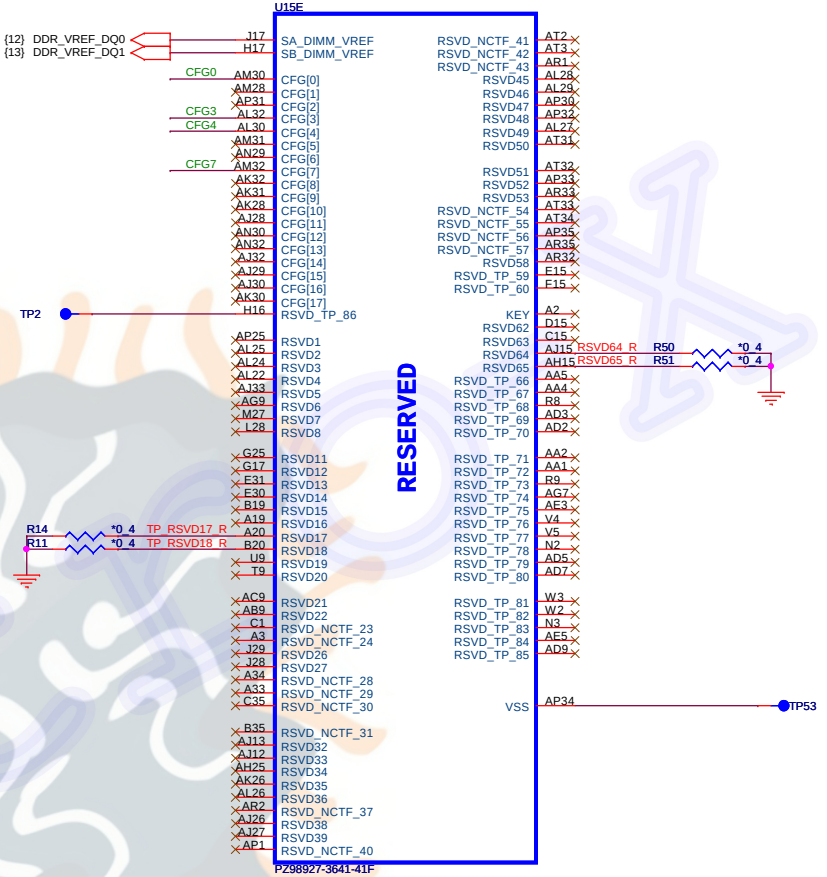
Sheet 5 of 45

Eletro-X

AUBURNDALE/CLARKSFIELD PROCESSOR (GND)



AUBURNDALE/CLARKSFIELD PROCESSOR(RESERVED, CFG)

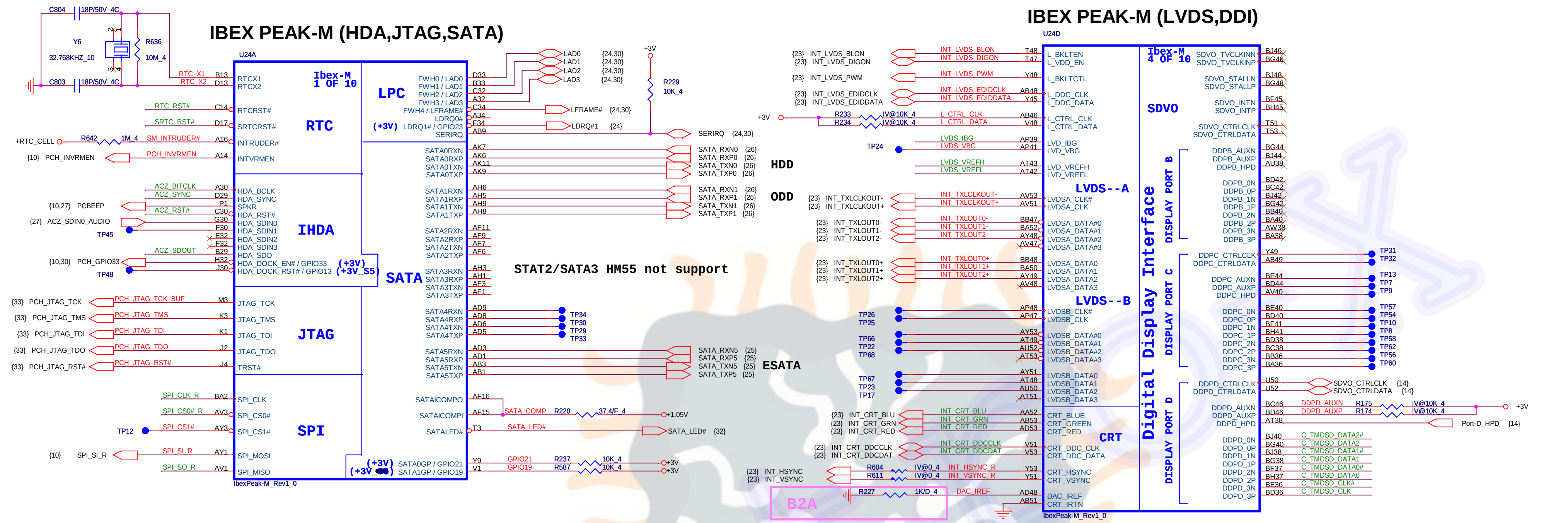


Processor Strapping

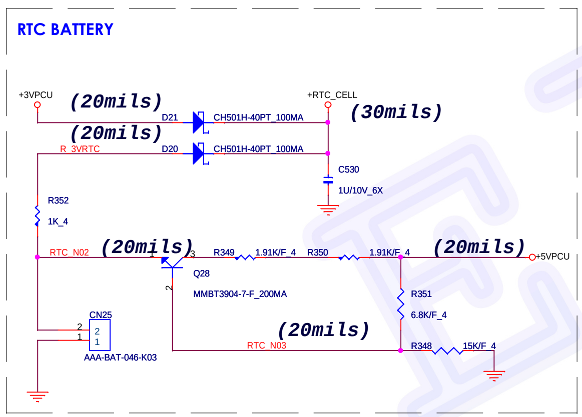
	1	0
CFG4 (Display Port Presence)	Disabled; No Physical Display Port attached to Embedded Diplay Port	Enabled; An external Display port device is connected to the Embedded Display port
CFG0 (PCI-Epress Configuration Select)	Single PEG	Bifurcation enabled
CFG3 (PCI-Epress Static Lane Reversal)	Normal Operation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

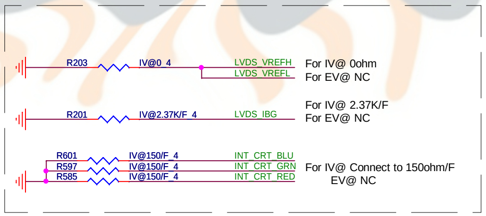
The Clarkfield processor's PCI Express interface may not meet PCI Express 2.0 jitter specifications. Intel recommends placing a 3.01K +/- 5% pull down resistor to VSS on CFG[7] pin for both rPGA and BGA components. This pull down resistor should be removed when this issue is fixed.

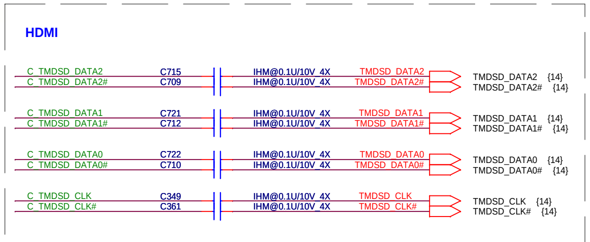
Quanta Computer Inc
PROJECT : BL6
Size | Document Number | Rev
PROCESSER 4/4 (GND) | 0A
Date: Saturday, April 10, 2010 | Sheet 6 of 45

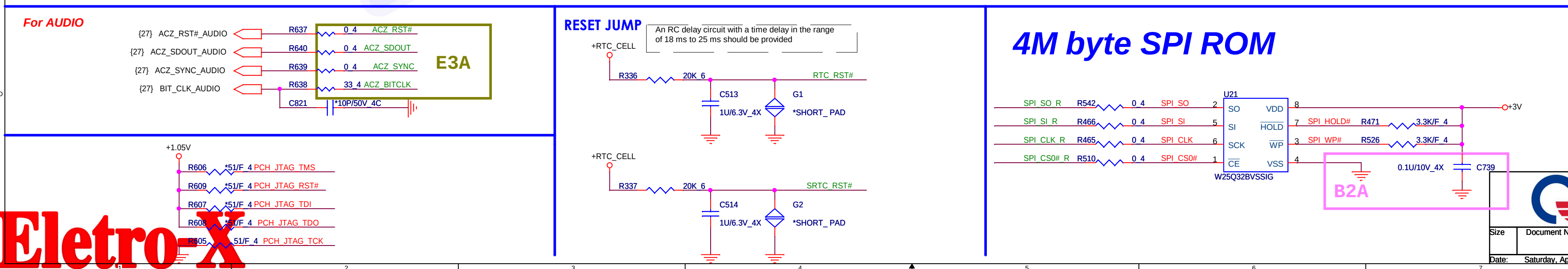


Port	Strap	How to enable Port?	How to disable Port?
LVDS	L_DDC_DATA	PU to 3.3V with 2.2k+/- 5%	NC
Port B	SDVO_CTRLDATA	PU to 3.3V with 2.2k+/- 5%	NC
Port C	DDPC_CTRLDATA	PU to 3.3V with 2.2k+/- 5%	NC
Port D	DDPD_CTRLDATA	PU to 3.3V with 2.2k+/- 5%	NC
eDP	CFG[4]	PD to GND directly	NC









PCH	2MB	4MB	8MB
PM55	●		
HM55		●	
HM57/PM57		●	●
QM57/QS57			●

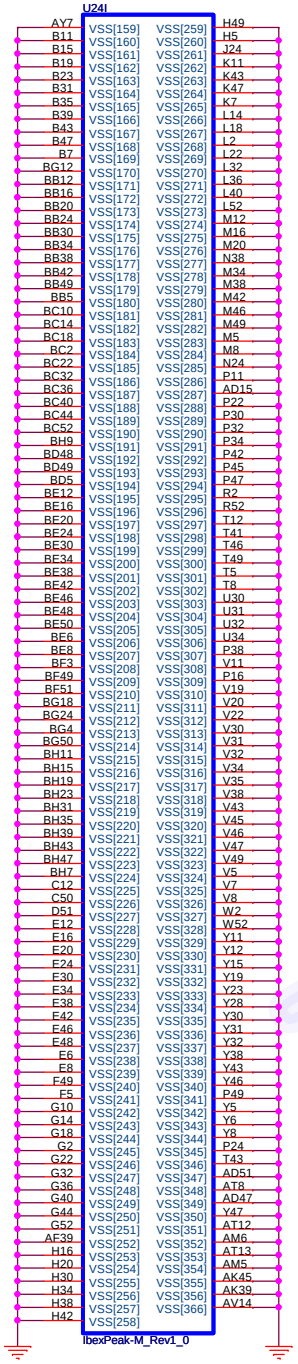
Quanta Computer Inc.

PROJECT : BL6

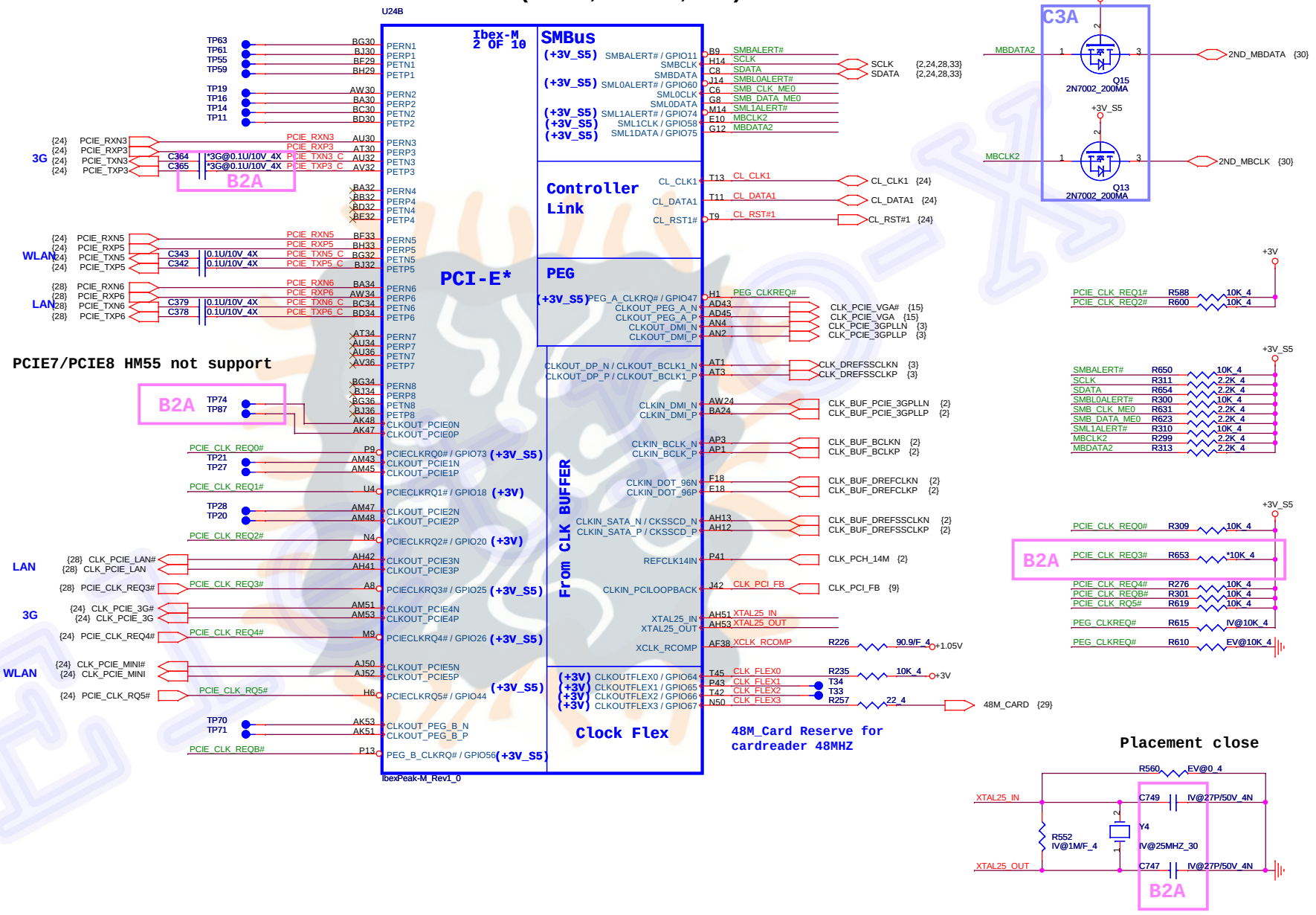
Size | Document Number: PCH 1/5 (SATA,HDA,LPC) | Rev A1A

Date: Saturday, April 10, 2010 | Sheet 7 of 45

IBEX PEAK-M (GND)

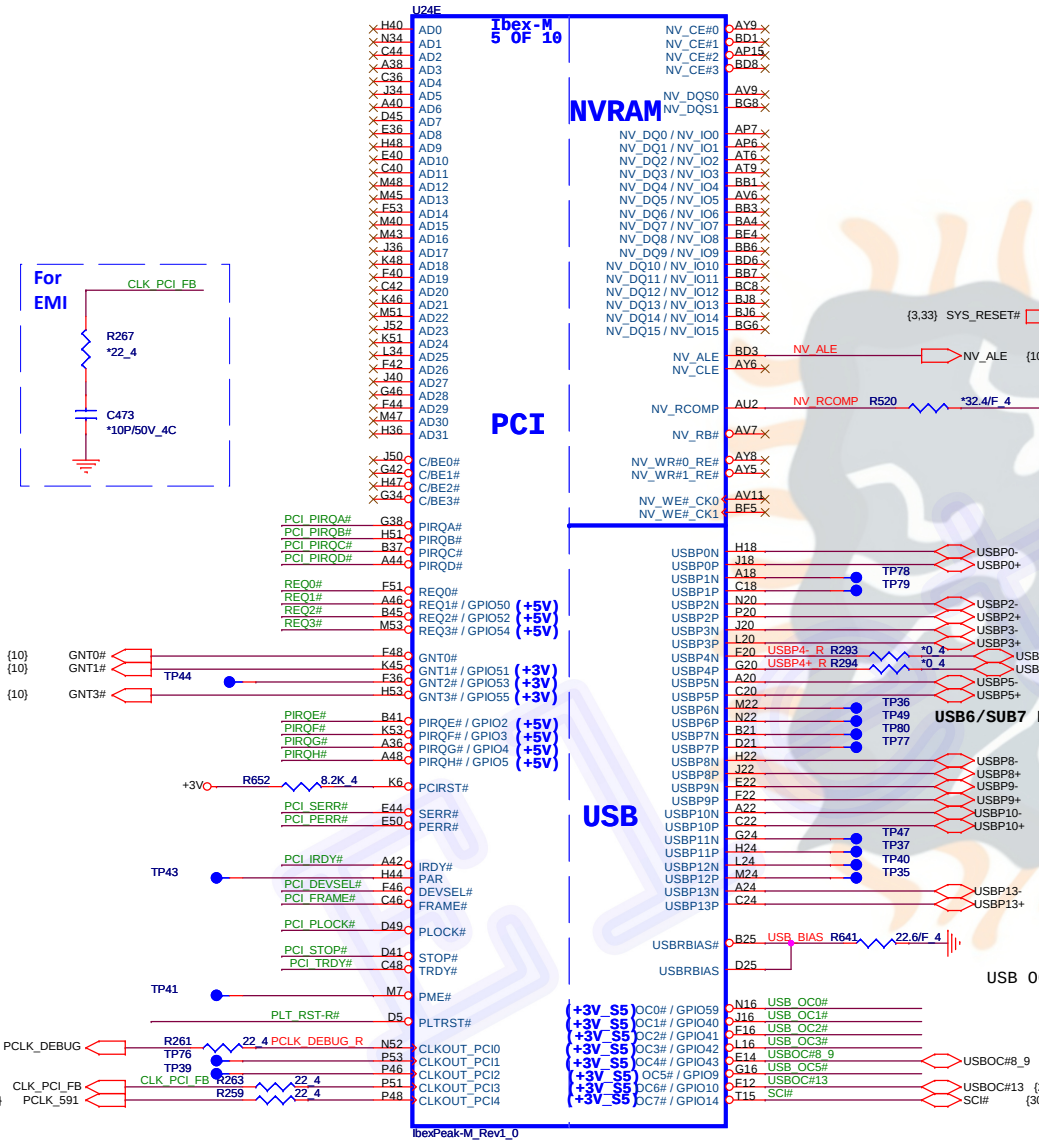


IBEX PEAK-M (PCI-E,SMBUS,CLK)

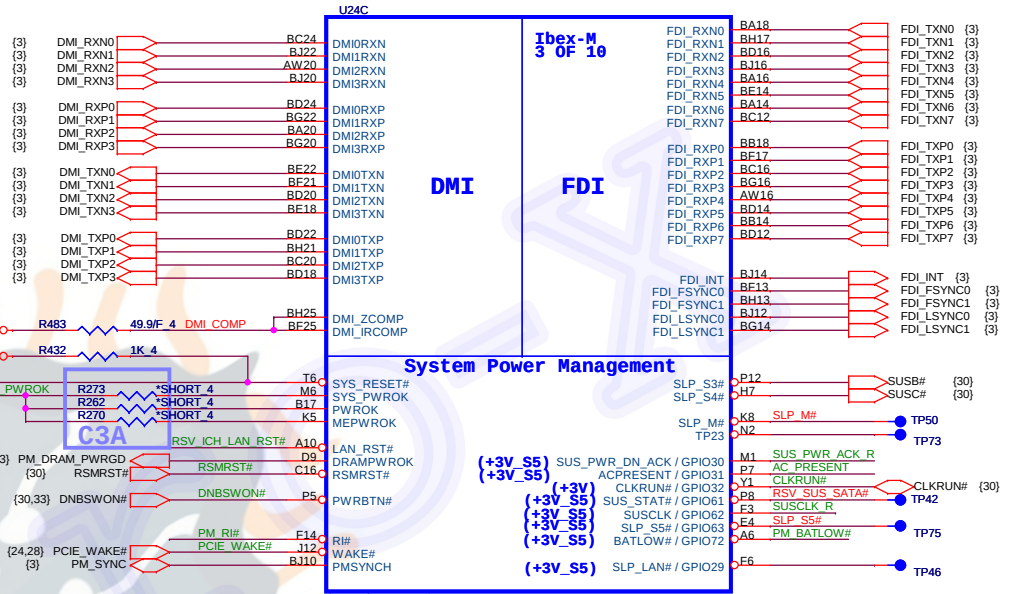


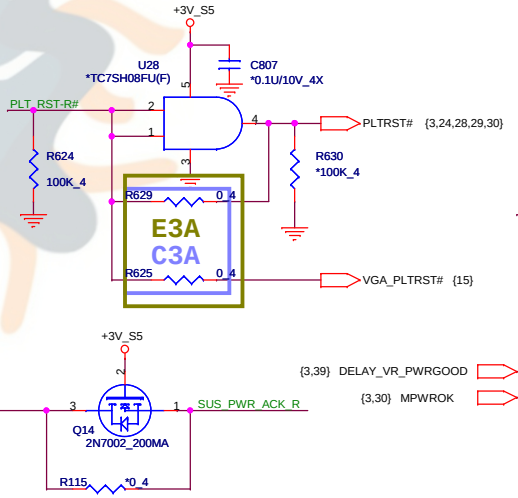
Quanta Computer Inc
PROJECT : BL6
Size | Document Number | Rev
PCH 2/5 (PCIE, SMBUS, CK
Date: Saturday, April 10, 2010 | Sheet 8 | of

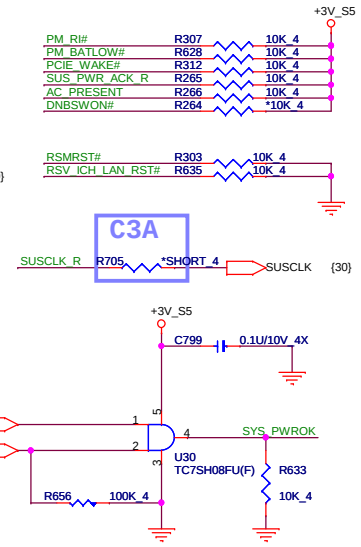
IBEX PEAK-M (PCI,USB,NVRAM)

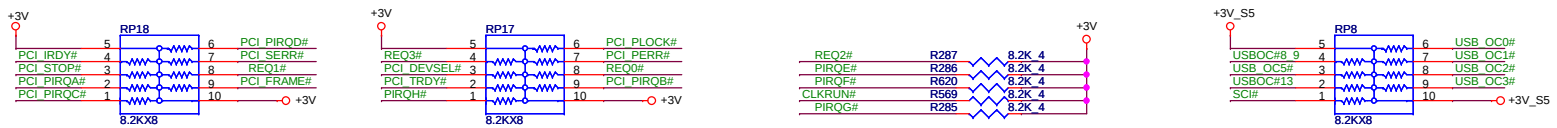


IBEX PEAK-M (DMI,FDI,GPIO)



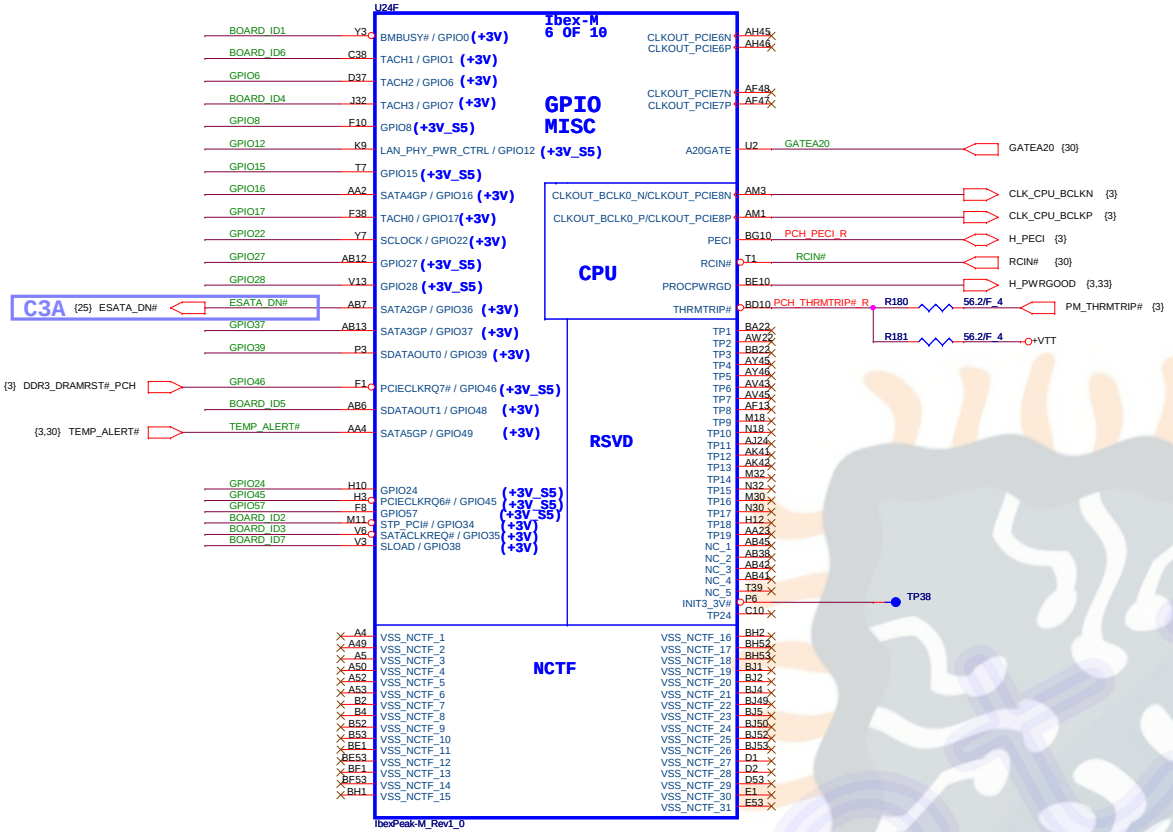




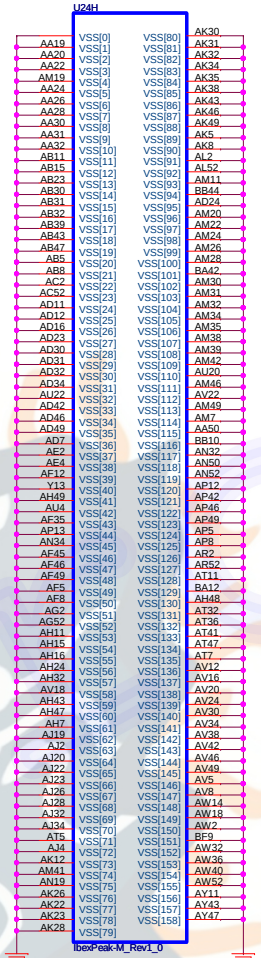


Quanta Computer Inc
PROJECT : BL6
Size | Document Number | Rev
PCH 3/5 (PCI,ONFI,USB,DMI) | 0A
Date: Saturday, April 10, 2010 | Sheet 9 | of 45

IBEX PEAK-M (GPIO,VSS_NCTF,RSVD)



IBEX PEAK-M (GND)



PCH Strap Pin Configuration Table

SPKR

{7,27} PCBEEP — R592 *1K_4 — +3V

Reboot option at power-up

0 = Default Mode (Internal weak Pull-down)
1 = No Reboot Mode with TCO Disabled

GNT3# / GPIO55

{9} GNT3# — R622 *10K_4

Top-Block Swap Override

0 = Top Block Swap Mode
1 = Default Mode (Internal pull-up)

HDA_DOCK_EN #/GPIO33

{7,30} PCH_GPIO33 — R282 1K_4 — E3A — JP1 2 1 *SHORT PAD

Flash Descriptor Security Override

0 = Flash Descriptor Security will be overridden
1 = Security measure defined in the Flash Descriptor will be enabled.

GNT0#, GNT1#

{9} GNT0# — GNT0# R272 *1K_4
{9} GNT1# — GNT1# R621 *1K_4

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

SPI_MOSI

{7} SPI_SI_R — R504 *1K_4 — +3V

TPM Functionality Disable

1 = Enabled
0 = Disable

NV_ALE

{9} NV_ALE — R496 *10K_4 — +1.8V

IntelR Anti-Theft Technology HDD Data Protection (Intel AT-d) Enable

1 = Enabled
0 = Disabled (Default)

GPIO8

GPIO8 — R298 10K_4 — +3V_S5

Reserved

This signal has a weak internal pull up.
NOTE: This signal should not be pulled low

GPIO15

GPIO15 — R248 1K_4 — +3V_S5

Reserved

0 = Intel ME Crypto Transport Layer Security (TLS) cipher suite with no confidentiality
1 = Intel ME Crypto Transport Layer Security (TLS) cipher suite with confidentiality

GPIO27

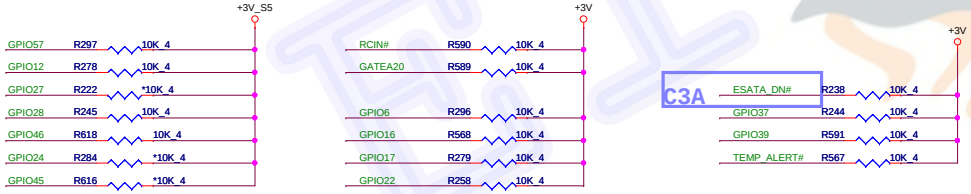
GPIO27 — R232 *10K_4

On-Die PLL Voltage Regulator

0 = Disables the VccVRM. Need to use on-board filter circuits for analog rails.
1 = Enables the internal VccVRM to have a clean supply for analog rails. No need to use on-board filter circuit.
This signal has a weak internal pull-up.

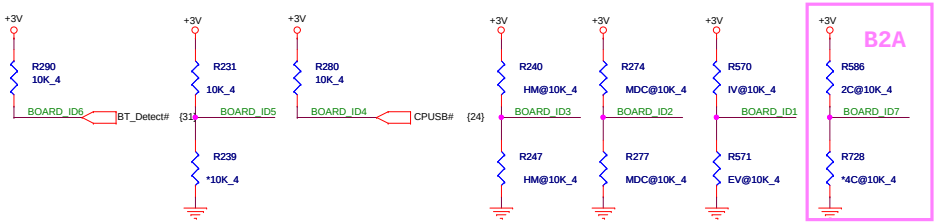
+RTC_CELL — R644 330K_6 — PCH_INVRMEN — {7}

```
INTVRMEN - Integrated SUS 1.1V VRM Enable
High - Enable Internal VRs
```



BOARD ID SETTING

Board ID	ID1	ID2	ID3	ID4	ID5	ID6	ID7
UMA SKU VGA SKU	H L						
W/ MDC W/O MDC		H L					
W/ HDMI W/O HDMI			H L				
W/O 3G W/ 3G				H L			
15" 14"					H L		
W/O BT W/ BT						H L	
2 Core 4 Core							H L



Quanta Computer Inc.
PROJECT : BL6
Size | Document Number | Rev
PCH 4/5 (GPIO & Strap) | A1A
Date: Saturday, April 10, 2010 | Sheet 10 of 45

+VCCA_DAC_1_2=69mA(15mils)

VCCCORE = 1.432A(80mils)

VCCTX_LVDS= 59mA(15mils)

VCCIO = 3.062A(150mils)

POWER

Ibex-M 7 OF 10

VCC CORE

PCI E*

CRT

LVDS

HVCMOS

DMI

NAND / SPI

FDI

VCCALVDS= 59mA(15mils)

VCCLAN = 0.32A(30mils)

VCC3_3 = 0.357A(30mils)

VCCVRM= 196mA(15mils)

VCCME = 1.849A(100mils)

VCCDMI= 61mA(15mils)

VCCPNAND= 156mA(15mils)

VCCME3_3= 85mA(15mils)

VCCIO = 3.062A(150mils)

Isolate the power supply for pins AF32,AF34,AH34
Reduce the jitter on HDMI interface for
1080P 60Hz Deep color mode.

VCCSUS3_3 = 0.163A(20mils)

VCC3_3 = 0.357A(30mils)

V_CPU >1mA(15mils)

VCCRTC= 2mA(15mils)

VCCSUSHDA= 6mA(15mils)

40mA(15mils)

VCCIO = 3.062A(150mils)

37mA(15mils)

68mA(15mils)

Reserve for clear CRT Power

Plcaement close to U52

POWER

Ibex-M 10 OF 10

Clock and Miscellaneous

USB

PCI/GPIO/LPC

CPU

RTC

HDA

SATA

VCCIO = 3.062A(150mils)

VCCSUS3_3 = 0.163A(20mils)

V5REF_SUS< 1mA

V5REF< 1mA

VCC3_3 = 0.357A(30mils)

VCCIO = 3.062A(150mils)

VCCME = 1.849A(100mils)

IbexPeak-M_Rev1_0

Quanta Computer Inc

PROJECT : BL6

Size | Document Number | Rev

PCH 5/5 (POWER)

Date: Saturday, April 10, 2010 | Sheet 11

Eletro-X

H=4

JDIM1A

PC2100 DDR3 SDRAM SO-DIMM (204P)

DDRRK-20401-TP4B

JDIM1B

PC2100 DDR3 SDRAM SO-DIMM (204P)

DDRRK-20401-TP4B

for S3 power reduction

Place these Caps near So-Dimm0.

Quanta Computer Inc.	
PROJECT : BL6	
Size	Document Number: DDR3 DIMM-0 — Rev: A1A
Date: Thursday, April 08, 2010	Sheet 12 of 45

H=8

JDIM2A

PC2100 DDR3 SDRAM SO-DIMM (204P)

DDRRK-20401-TP8D

H=8

JDIM2B

PC2100 DDR3 SDRAM SO-DIMM (204P)

DDRRK-20401-TP8D

Place these Caps near So-Dimm1.

C87	4.7U/6.3V_6X	
C48	4.7U/6.3V_6X	
C56	4.7U/6.3V_6X	
C83	4.7U/6.3V_6X	
C88	4.7U/6.3V_6X	
C64	4.7U/6.3V_6X	
C52	0.1U/10V_4X	
C66	0.1U/10V_4X	
C44	0.1U/10V_4X	
C78	0.1U/10V_4X	
C45	0.1U/10V_4X	
C97	*0.047U/10V_4X	
C75	*0.047U/10V_4X	

C121	0.1U/10V_4X	
C123	2.2U/6.3V_6X	
C122	*0.047U/10V_4X	
C31	0.1U/10V_4X	
C27	2.2U/6.3V_6X	
C163	2.2U/6.3V_6X	
C169	*0.1U/10V_4X	
C164	*0.047U/10V_4X	

C176	1U/6.3V_4X	
C187	1U/6.3V_4X	
C175	1U/6.3V_4X	
C188	1U/6.3V_4X	
C190	*10U/6.3V_8X	
C185	4.7U/6.3V_6X	
C180	4.7U/6.3V_6X	
C177	*0.047U/10V_4X	
C178	*0.047U/10V_4X	

R3 1K/F_4, R2 1K/F_4, C24 0.1U/10V_4X, C33 *0.047U/10V_4X

C580 *330U/2.5V_7343P_E9a

Quanta Computer Inc.

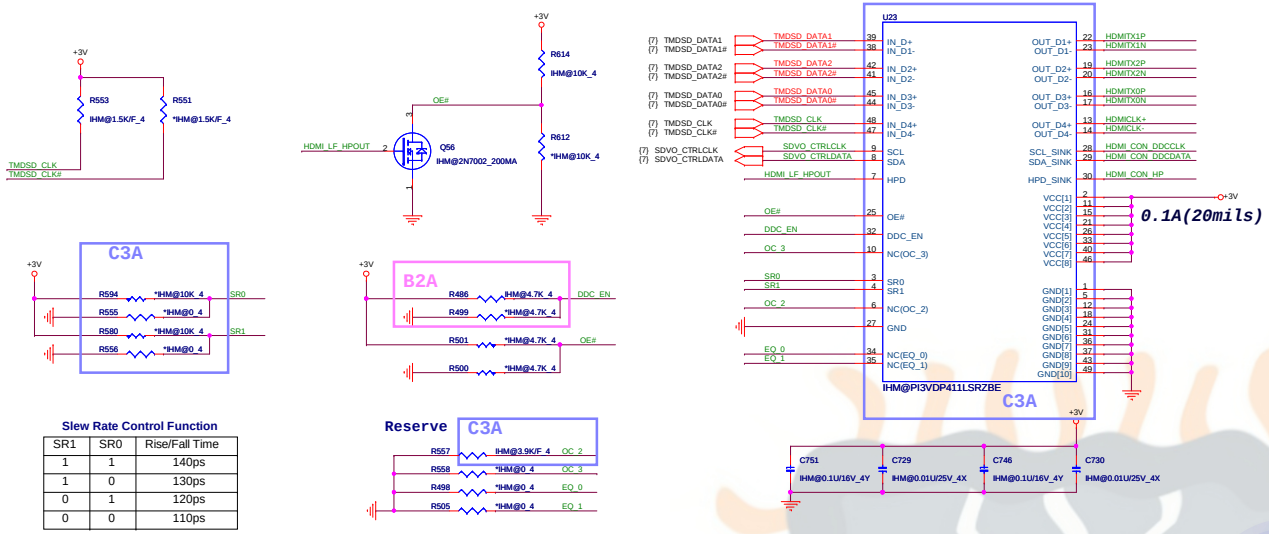
PROJECT : BL6

Size	Document Number	Rev
	DDR3 DIMM-1	A1A

Date: Thursday, April 08, 2010 Sheet 13 of 45

Eletro-X

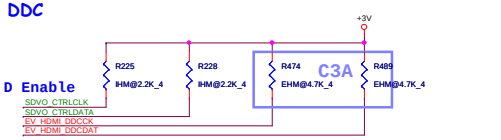
HDMI Level Shift

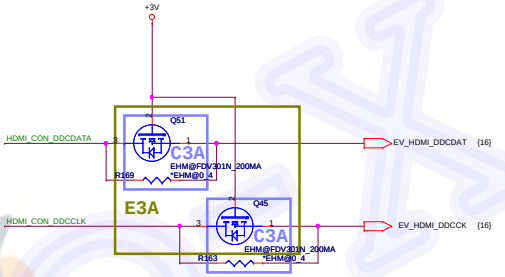


Slew Rate Control Function

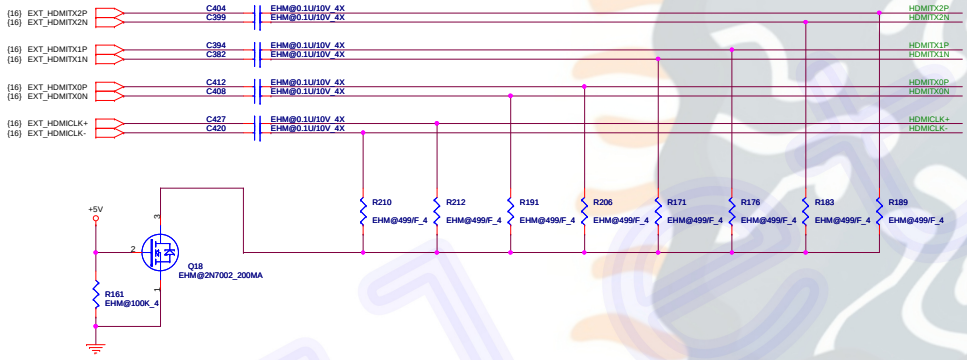
SR1	SR0	Rise/Fall Time
1	1	140ps
1	0	130ps
0	1	120ps
0	0	110ps

HDMI DDC

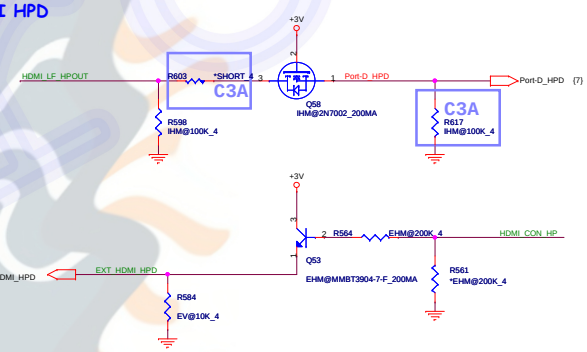


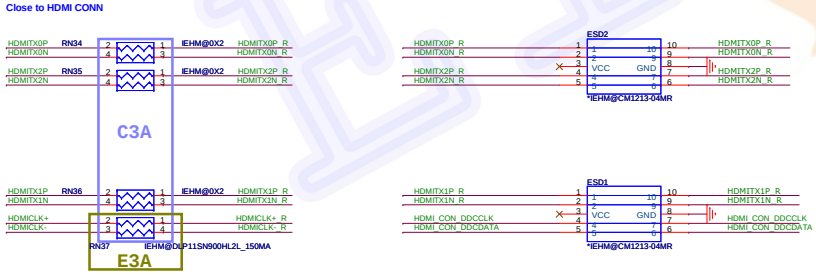


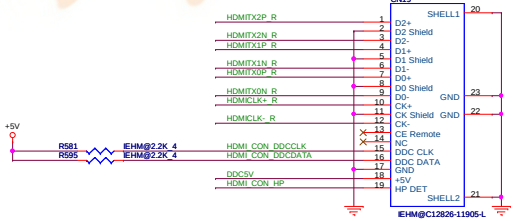
Discrete HDMI

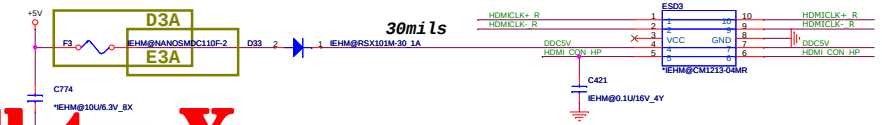


HDMI HPD

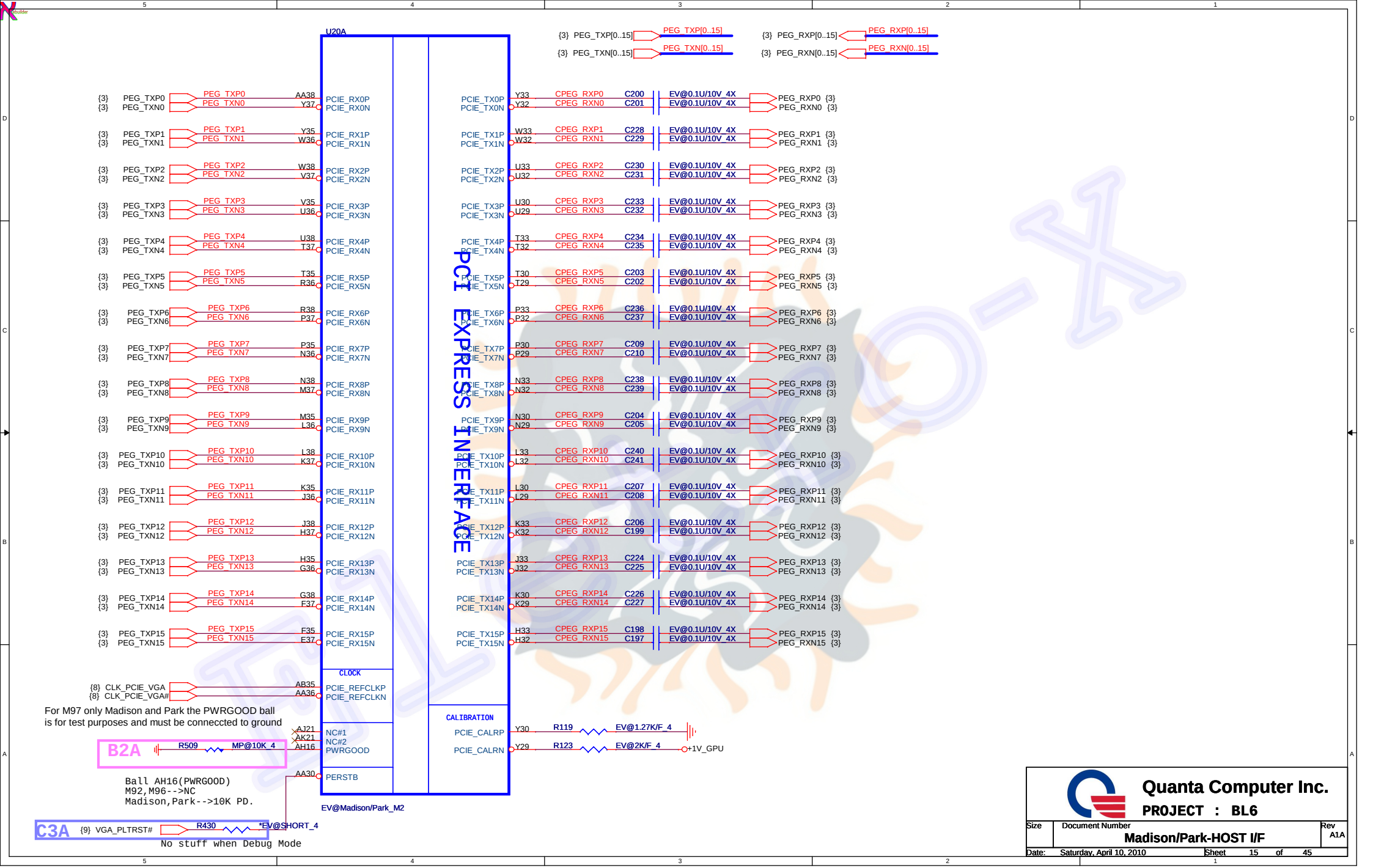








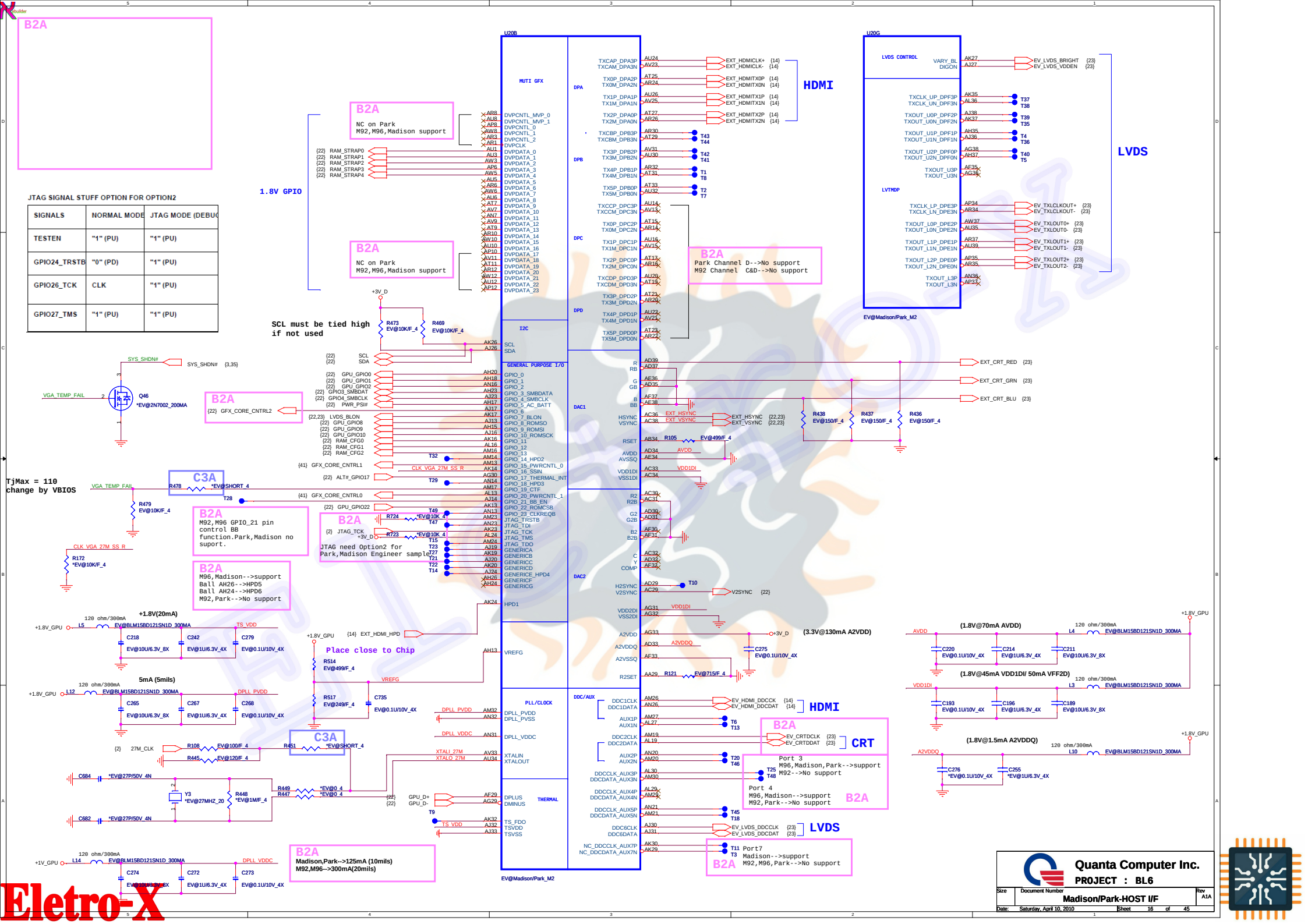
Quanta Computer Inc.			
PROJECT : BL6			
Size	Document Number		Rev
	HDMI CONN		A1A
Date: Saturday, April 10, 2010		Sheet 14 of 45	

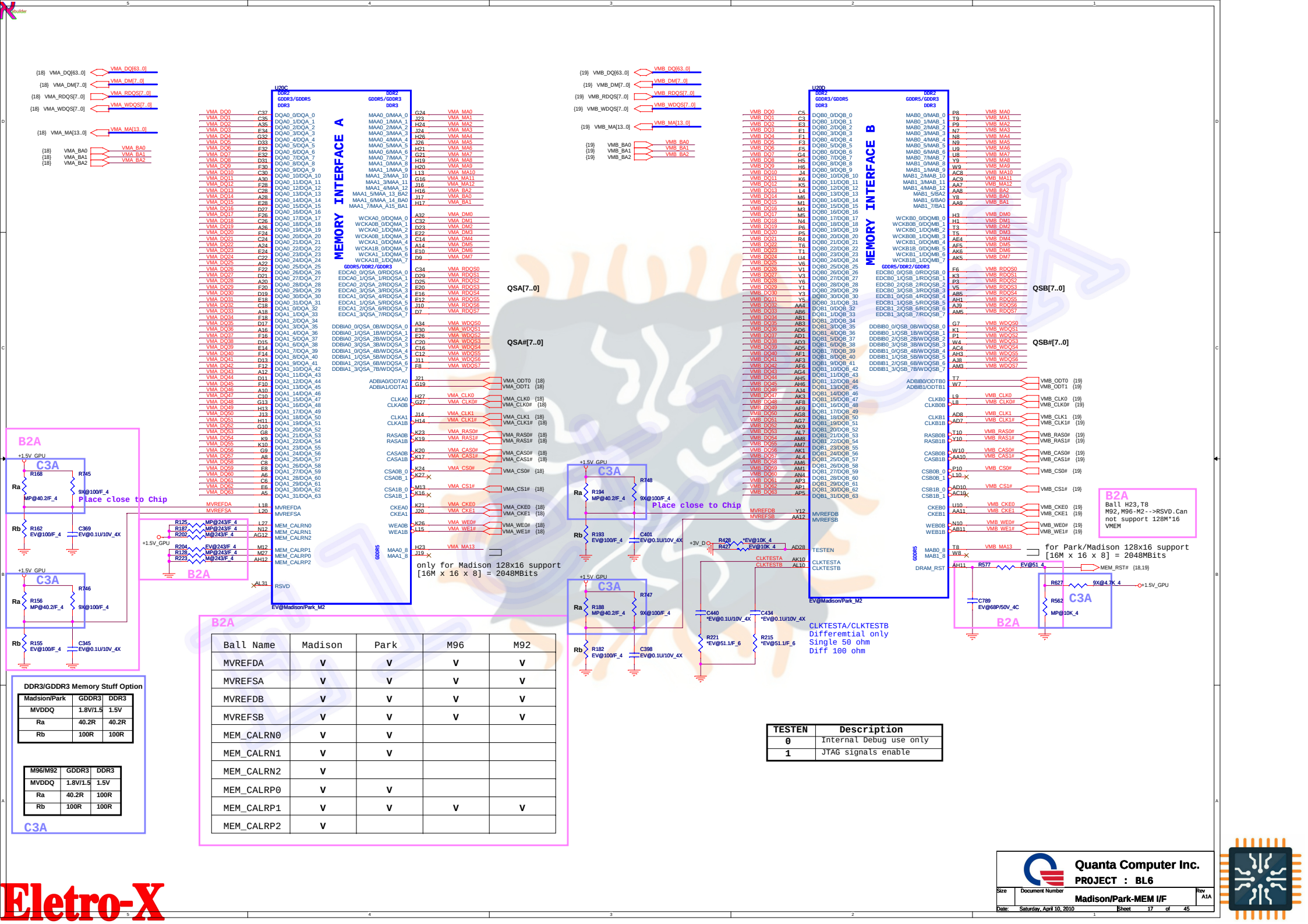


Quanta Computer Inc.

PROJECT : BL6

Size	Document Number	Rev
	Madison/Park-HOST I/F	A1A
Date: Saturday, April 10, 2010	Sheet 15 of 45	


B2A
JTAG SIGNAL STUFF OPTION FOR OPTION2
SIGNALS | NORMAL MODE | JTAG MODE (DEBU
TESTEN | "1" (PU) | "1" (PU)
GPIO24_TRSTB | "0" (PD) | "1" (PU)
GPIO26_TCK | CLK | "1" (PU)
GPIO27_TMS | "1" (PU) | "1" (PU)
1.8V GPIO
NC on Park
M92,M96,Madison support
SCL must be tied high if not used
TjMax = 110
change by VBIOS
JTAG need Option2 for Park,Madison Engineer sample
M96,Madison-->support
Ball AH26-->HPD5
Ball AH24-->HPD6
M92,Park-->No support
M96,M96 GPIO_21 pin control BB function.Park,Madison no suport.
Park Channel D-->No support
M92 Channel C&D-->No support
HDMI
LVDS
CRT
Port 3
M96,Madison,Park-->support
M92-->No support
Port 4
M96,Madison-->support
M92,Park-->No support
Port7
Madison-->support
M92,M96,Park-->No support
Madison,Park-->125mA (10mils)
M92,M96-->300mA(20mils)
Place close to Chip
5mA (5mils)
+1.8V(20mA)
(1.8V@70mA AVDD)
(1.8V@45mA VDD1DI/ 50mA VFF2D)
(1.8V@1.5mA A2VDDQ)
(3.3V@130mA A2VDD)
EV@Madison/Park_M2
Quanta Computer Inc.
PROJECT : BL6
Madison/Park-HOST I/F
Rev A1A
Saturday, April 10, 2010
Sheet 16 of 45



Ball Name	Madison	Park	M96	M92
MVREFDA	V	V	V	V
MVREFSA	V	V	V	V
MVREFDB	V	V	V	V
MVREFSB	V	V	V	V
MEM_CALRN0	V	V		
MEM_CALRN1	V	V		
MEM_CALRN2	V			
MEM_CALRP0	V	V		
MEM_CALRP1	V	V	V	V
MEM_CALRP2	V			

DDR3/GDDR3 Memory Stuff Option

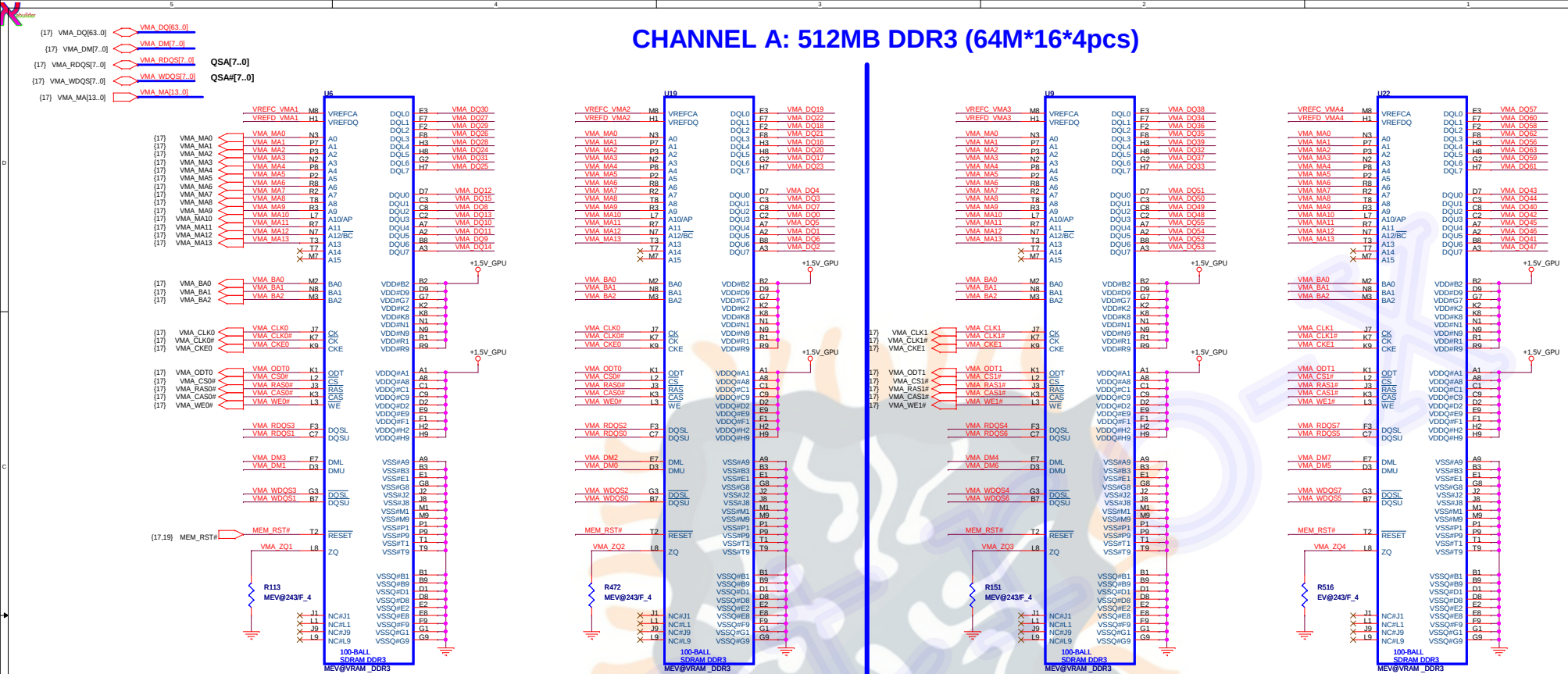
Madsion/Park	GDDR3	DDR3
MVDDQ	1.8V/1.5	1.5V
Ra	40.2R	40.2R
Rb	100R	100R

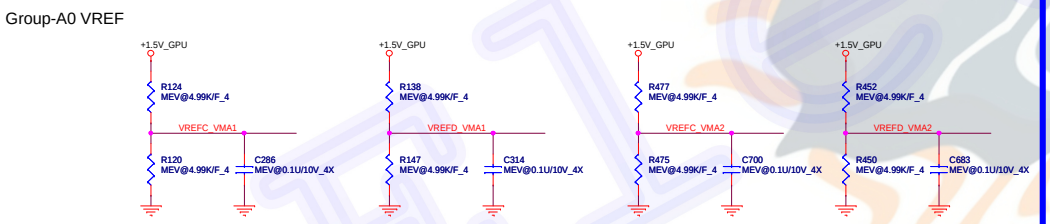
M96/M92	GDDR3	DDR3
MVDDQ	1.8V/1.5	1.5V
Ra	40.2R	100R
Rb	100R	100R

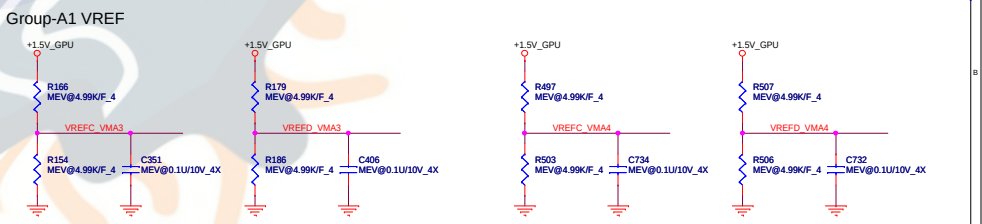
TESTEN	Description
0	Internal Debug use only
1	JTAG signals enable

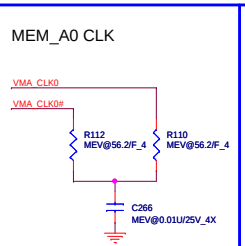
Quanta Computer Inc.
PROJECT : BL6
Size | Document Number: Madison/Park-MEM I/F | Rev A1A
Date: Saturday, April 10, 2010 | Sheet 17 of 45

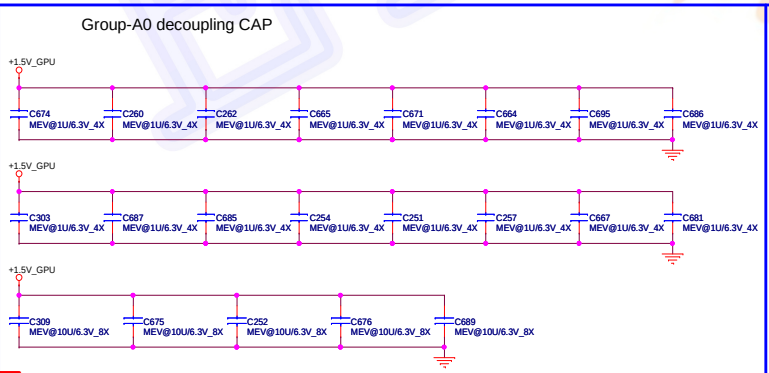
CHANNEL A: 512MB DDR3 (64M*16*4pcs)

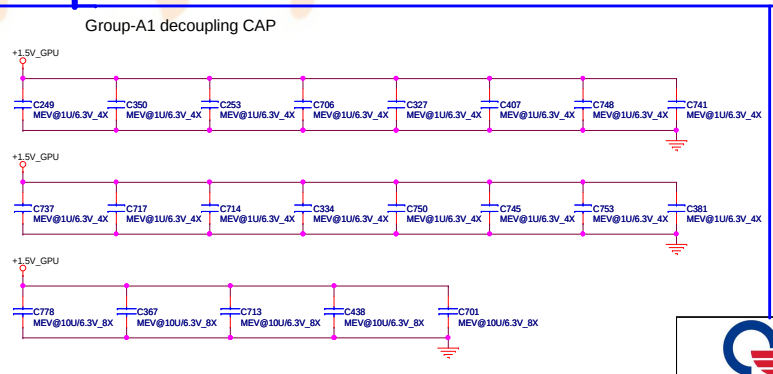


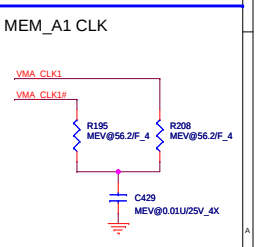












Quanta Computer Inc.		
PROJECT : BL6		
Size	Document Number: VRAM_A: DDR3-64M*16*4PCS	Rev: A1A
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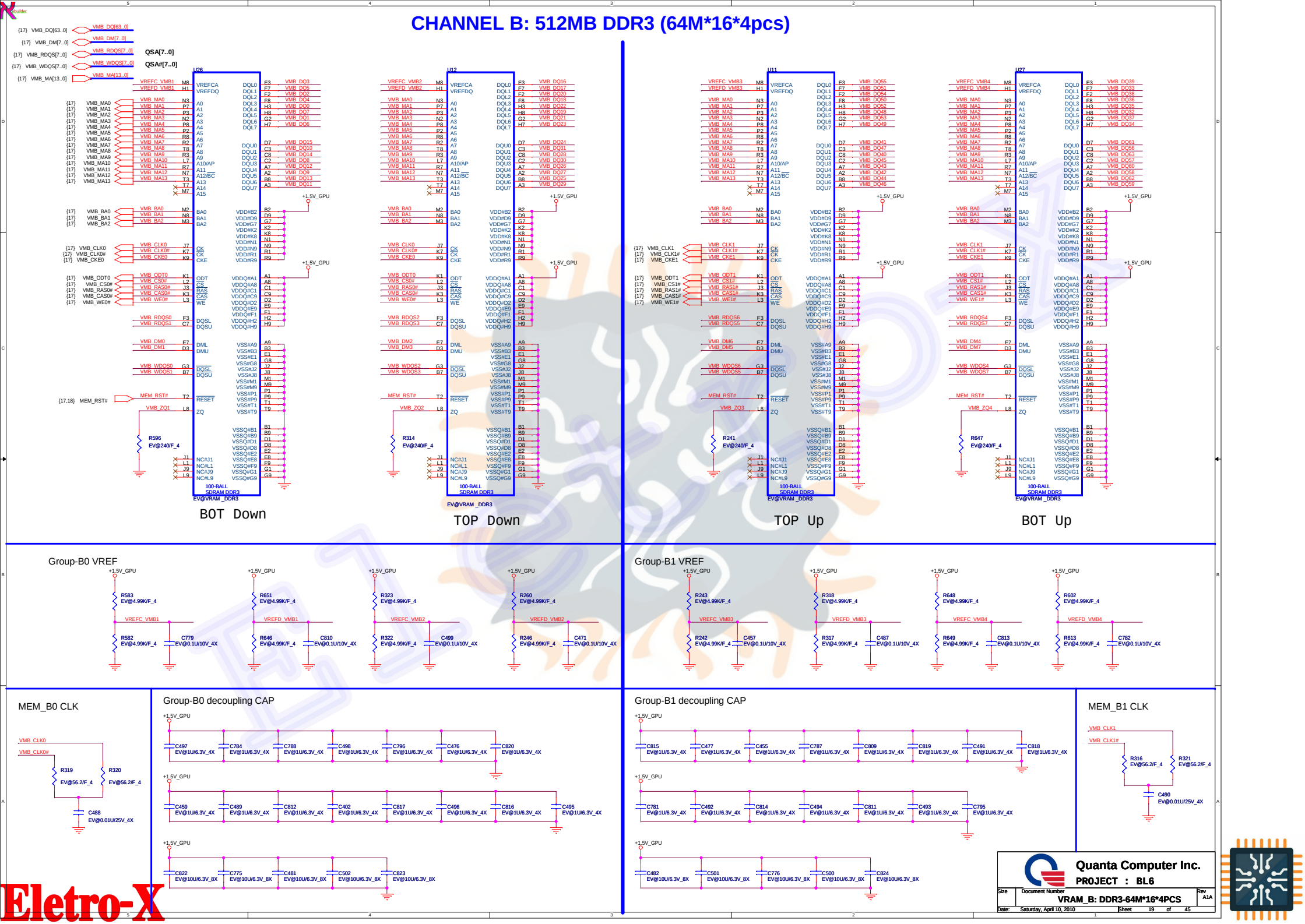
CHANNEL B: 512MB DDR3 (64M*16*4pcs)

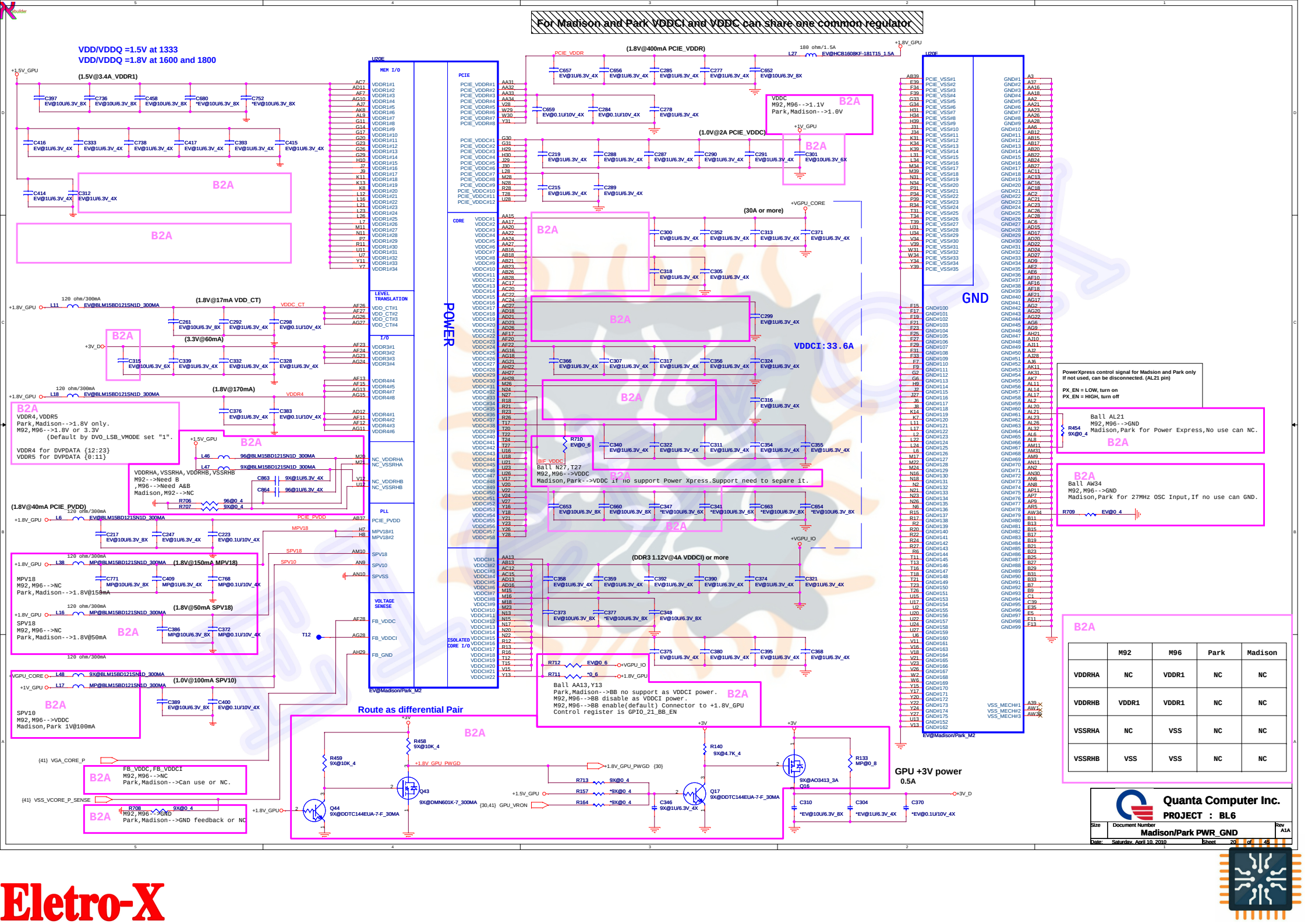


Quanta Computer Inc.

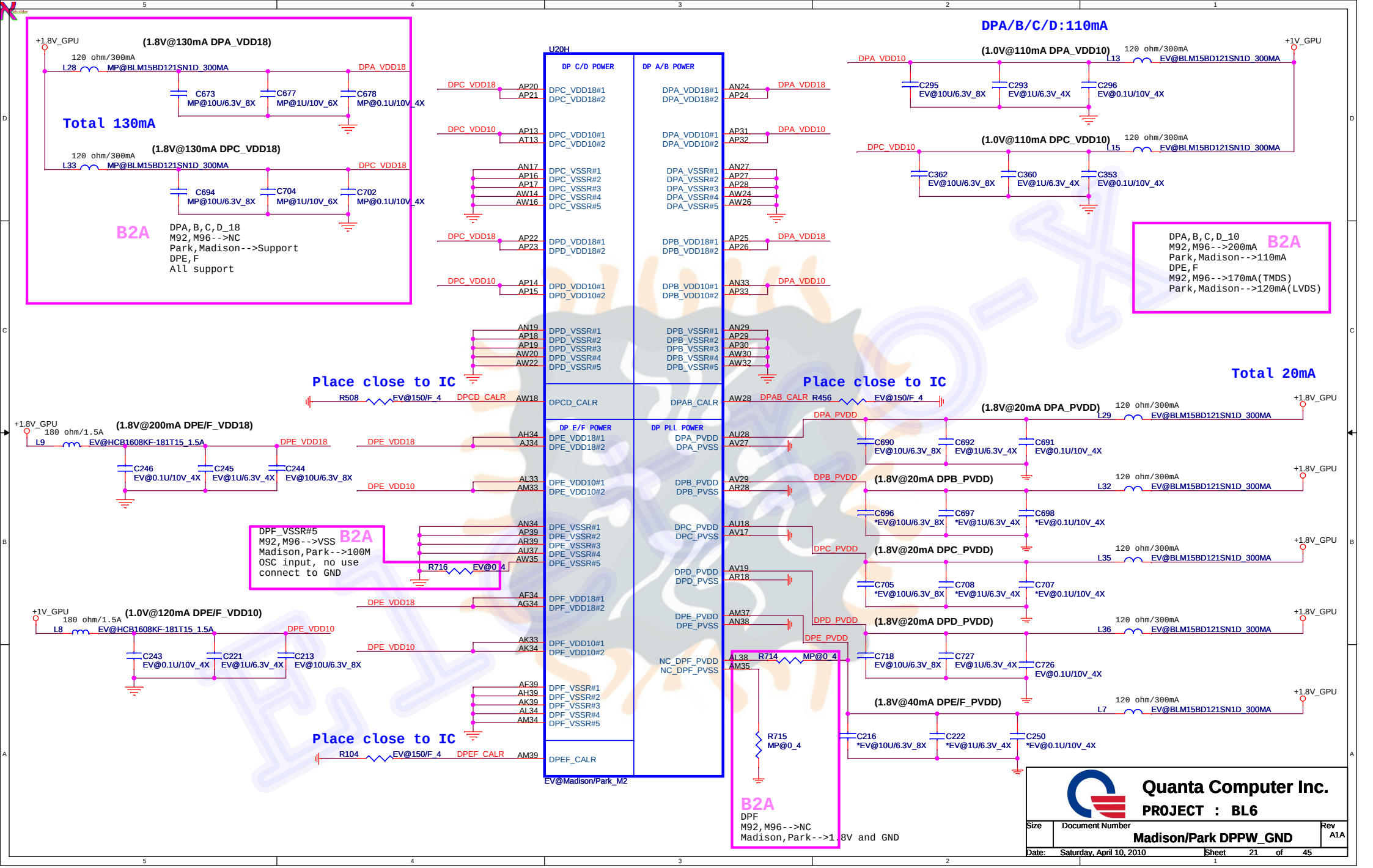
PROJECT : BL6

Size	Document Number	Rev
	VRAM_B: DDR3-64M*16*4PCS	A1A
Date: Saturday, April 10, 2010	Sheet 19 of 45	

Eletro-X



	M92	M96	Park	Madison
VDDRHA	NC	VDDR1	NC	NC
VDDRHB	VDDR1	VDDR1	NC	NC
VSSRHA	NC	VSS	NC	NC
VSSRHB	VSS	VSS	NC	NC


DPA/B/C/D:110mA
(1.8V@130mA DPA_VDD18)
Total 130mA
(1.8V@130mA DPC_VDD18)
B2A
DPA,B,C,D_18
M92,M96-->NC
Park,Madison-->Support
DPE,F
All support
U20H
DP C/D POWER
DP A/B POWER
DP E/F POWER
DP PLL POWER
EV@Madison/Park_M2
(1.0V@110mA DPA_VDD10)
(1.0V@110mA DPC_VDD10)
B2A
DPA,B,C,D_10
M92,M96-->200mA
Park,Madison-->110mA
DPE,F
M92,M96-->170mA(TMDS)
Park,Madison-->120mA(LVDS)
Total 20mA
Place close to IC
Place close to IC
(1.8V@200mA DPE/F_VDD18)
(1.0V@120mA DPE/F_VDD10)
(1.8V@20mA DPA_PVDD)
(1.8V@20mA DPB_PVDD)
(1.8V@20mA DPC_PVDD)
(1.8V@20mA DPD_PVDD)
(1.8V@40mA DPE/F_PVDD)
DPF_VSSR#5
M92,M96-->VSS
Madison,Park-->100M
OSC input, no use
connect to GND
B2A
Place close to IC
B2A
DPF
M92,M96-->NC
Madison,Park-->1.8V and GND
Quanta Computer Inc.
PROJECT : BL6
Madison/Park DPPW_GND
Rev A1A
Date: Saturday, April 10, 2010
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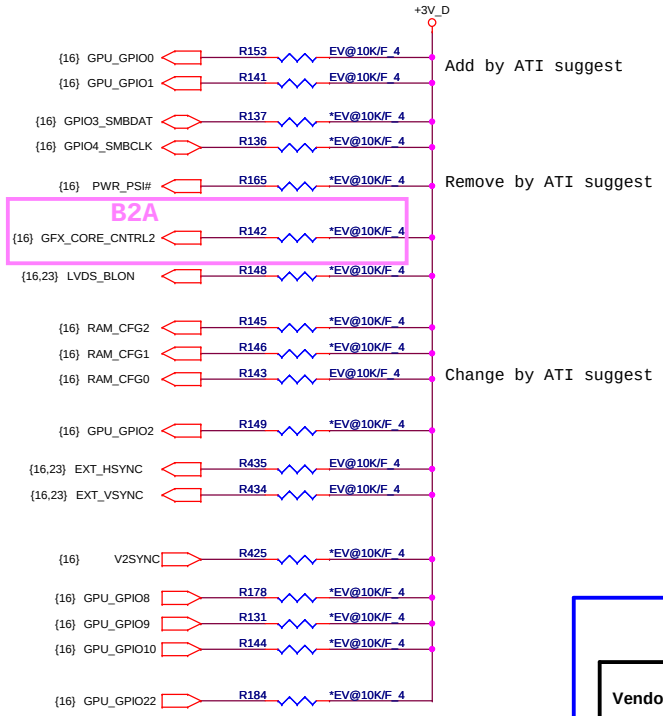
PIN STRAPS



Memory Aperture size	
RAM_CFG[2:0]	Size
000	128MB
001	256MB
010	64MB
011	32MB

ROM Table		
EXT_HSYNC	EXT_VSYNC	Discription
0	0	No Audio
0	1	Any one by dectec
1	0	DP only
1	1	Both DP & HDMI

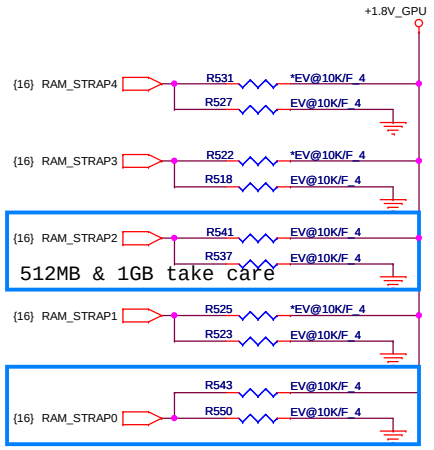
CONFIGURATION STRAPS

ALLOW FOR PULLUP PADS FOR THESE STRAPS AND IF THESE GPIOS ARE USED, THEY MUST NOT CONFLICT DURING RESET

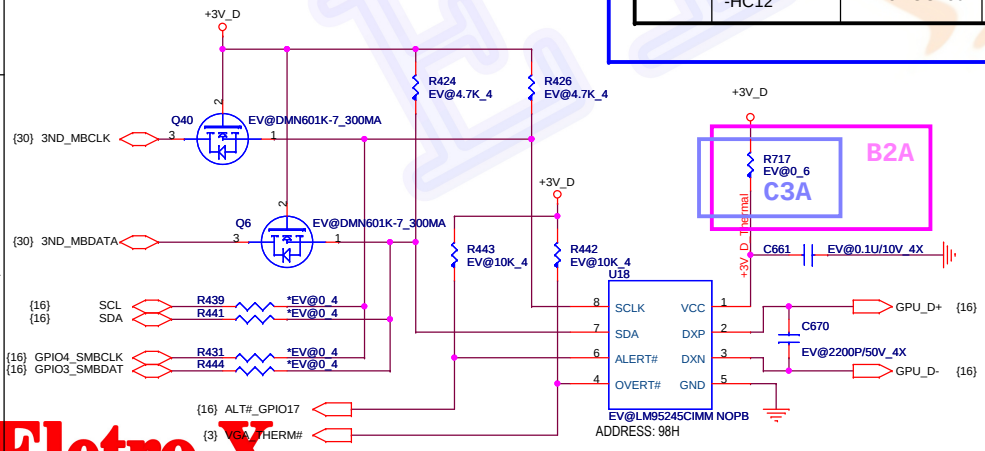
STRAPS	PIN	DESCRIPTION OF DEFAULT SETTINGS	DEFAULT	REMARK
TX_PWRS_ENB	GPIO0	0 = 50% TX OUTPUT SWING 1 = FULL TX OUTPUT SWING	0	
TX_DEEMPH_EN	GPIO1	PCIE TRANSMITTER DE-EMPHASIS ENABLED 0 = TX DE-EMPHASIS DISABLED 1 = TX DE-EMPHASIS ENABLED	0	
BIOS_ROM_EN	GPIO_22_ROMCSB	ENABLE EXTERNAL BIOS ROM (Only for GDDR5) 0 = DISABLE 1 = ENABLE	0	
ROMIDCFG(2:0)	GPIO[13:11]	SERIAL ROM TYPE OR MEMORY APERTURE SIZE SELECT NUMONYX M25P10A : 101	000	See ROM table
BIF_GEN2_EN_A	GPIO2	0 = PCIE DEVICE AS 2.5GT/S CAPABLE 1 = PCIE DEVICE AS 5GT/S CAPABLE	0	
GPIO_8_ROMSO H2SYNC GPIO_21_BB_EN	GPIO8 H2SYNC GPIO21	Reserved Only	0	
AUD[1] AUD[0]	HSYNC VSYNC	AUD[1:0] 00: NO AUDIO FUNCTION. 01: AUDIO FOR DISPLAYPORT AND HDMI IF ADAPTER IS DETECTED. 10: AUDIO FOR DISPLAYPORT ONLY. 11: AUDIO FOR BOTH DISPLAYPORT AND HDMI.	11	See Audio table
GPIO_9_ROMSI	GPIO9	0 = VGA controller capacity enable	0	
VIP_DEVICE_STRAP_ENA VIP: Video Capture Port Interface	V2SYNC	0 = DRIVER would ignore the value sample on VHAD_0 during RESET.	0	

DDR3 Memory TYPE

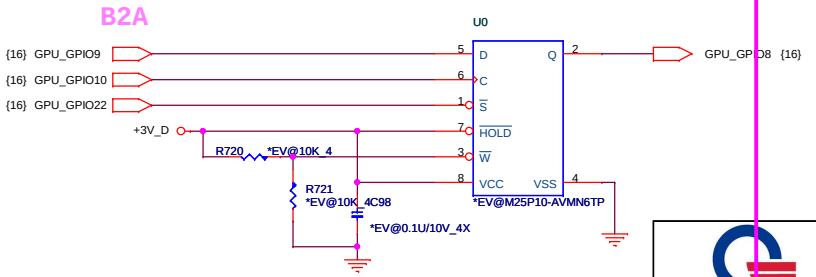
Vendor	Vendor P/N	STN B/S P/N	Size	RAM_STRAP3 DVPDATA_3	RAM_STRAP2 DVPDATA_2	RAM_STRAP1 DVPDATA_1	RAM_STRAP0 DVPDATA_0	RAM_STRAP4 15"	RAM_STRAP4 14"
Hynix	H5TQ1G63BFR -12C	AKD5LZGTW00 (64M*16)	512MB	0	1	0	0	0	1
			1GB	0	0	0	0	0	1
			2GB	0	0	1	0	0	1
Samsung	K4W1G1646E -HC12	AKD5LGGT502 (64M*16)	512MB	0	1	0	1	0	1
			1GB	0	0	0	1	0	1
	K4W2G1646B -HC12	AKD5MGGT501	2GB	0	0	1	1	0	1



Thermal Sensor



EEPROM



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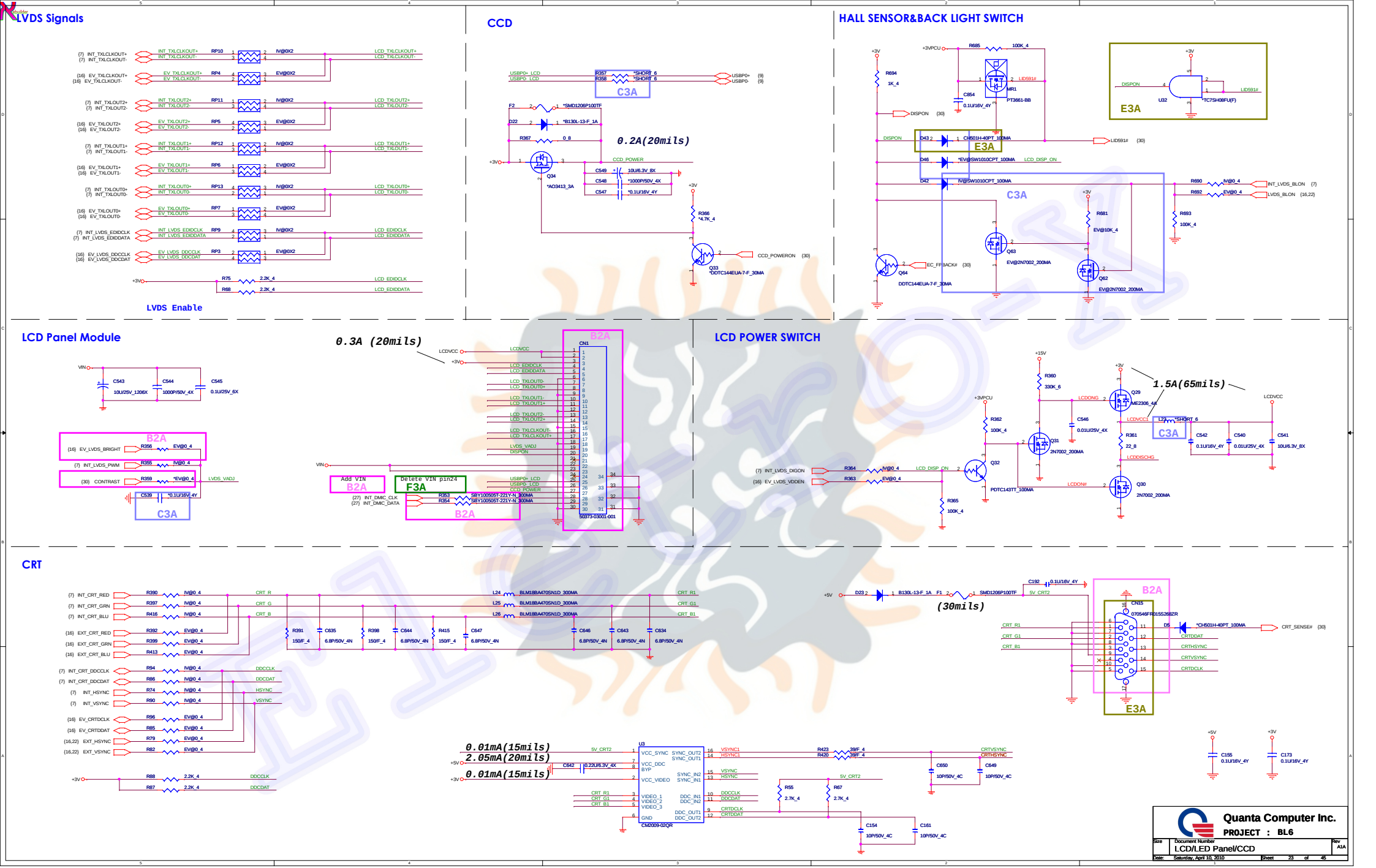
PROJECT : BL6

Size	Document Number	Rev
	Memory strip/Thermal/HDCP	1A
Date: Saturday, April 10, 2010	Sheet 22 of 45	


LVDS Signals
CCD
HALL SENSOR&BACK LIGHT SWITCH
LVDS Enable
0.2A(20mils)
E3A
C3A
LCD Panel Module
0.3A (20mils)
LCD POWER SWITCH
1.5A(65mils)
CRT
(30mils)
0.01mA(15mils)
2.05mA(20mils)
0.01mA(15mils)
Quanta Computer Inc.
PROJECT : BL6
LCD/LED Panel/CCD
Saturday, April 10, 2010
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MINI Card Slot#1 (WiFi)

Before RAMP must to remove debug card component

0.5A(30mils)

2.75A(120mils)

0.33A(30mils)

Intel module use S5 power for +3.3V
Other module keep +3V for +3.3V

MINI Card Slot#2 3G

2.75A(120mils)

0.5A(30mils)

SIM CARD board to board

3G CONN

Close to 3G MINI Card

Quanta Computer Inc.	
PROJECT : BL6	
Size	Document Number: MINI CARD(WLAN/3G/SIM Card) — Rev A1A
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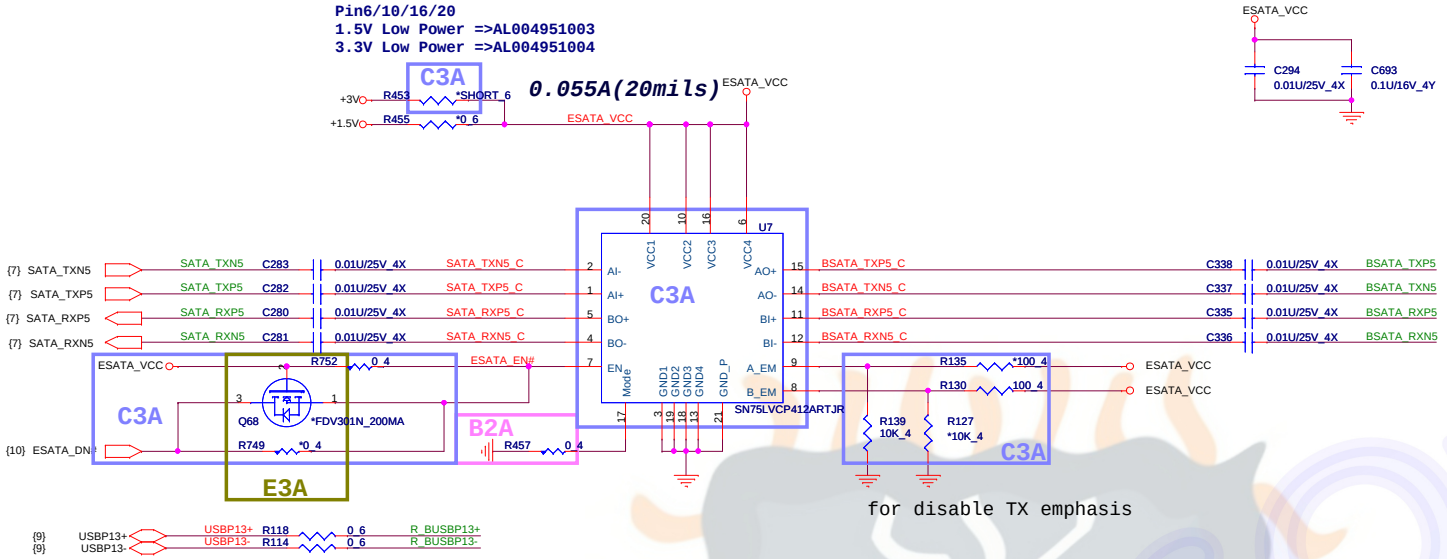
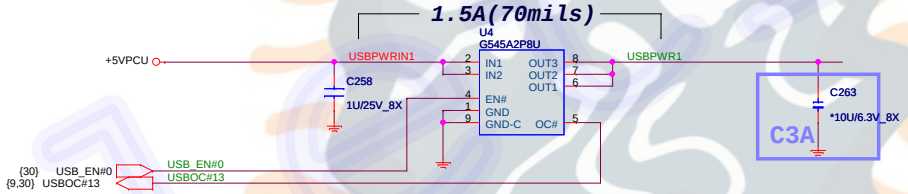
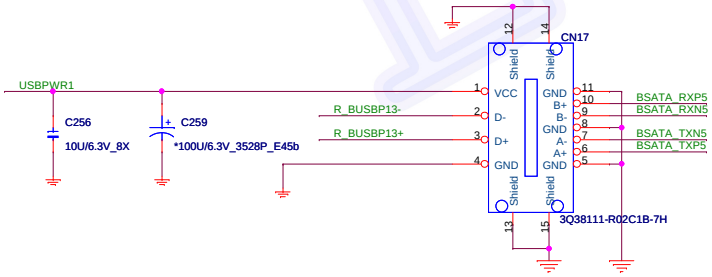
ESATA Re-driver IC

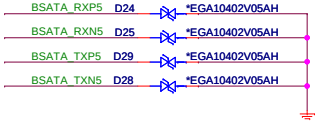
Pin6/10/16/20
1.5V Low Power =>AL004951003
3.3V Low Power =>AL004951004





ESATA CONN

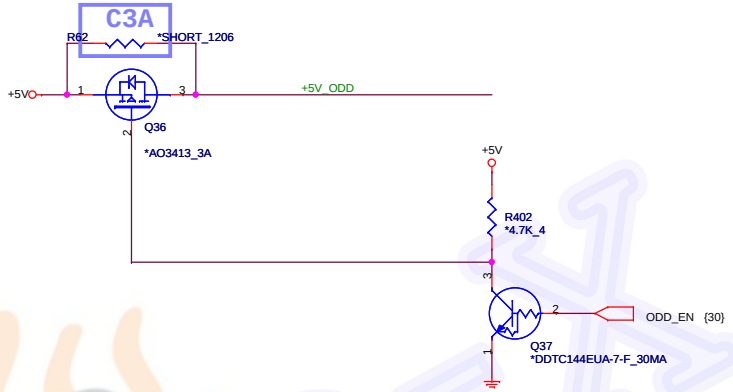




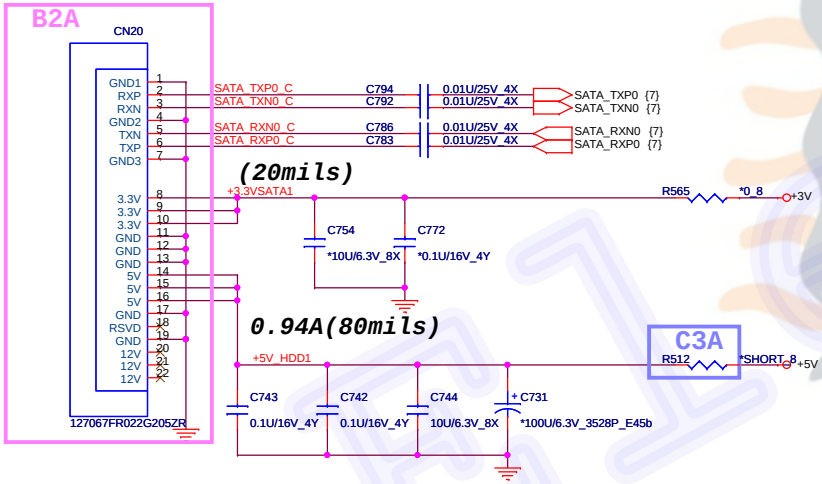
Quanta Computer Inc.
PROJECT : BL6

Size	Document Number	Rev
	TP/SW/ESATA/USB+Audio/LED	A1A
Date: Saturday, April 10, 2010	Sheet 25 of 45	

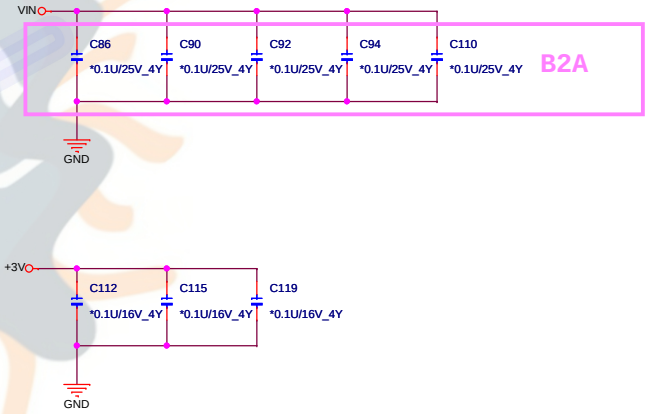
SATA ODD



SATA HDD



EMI



Quanta Computer Inc.
PROJECT : BL6

Size	Document Number	Rev
	HDD/ODD/EMI	3A

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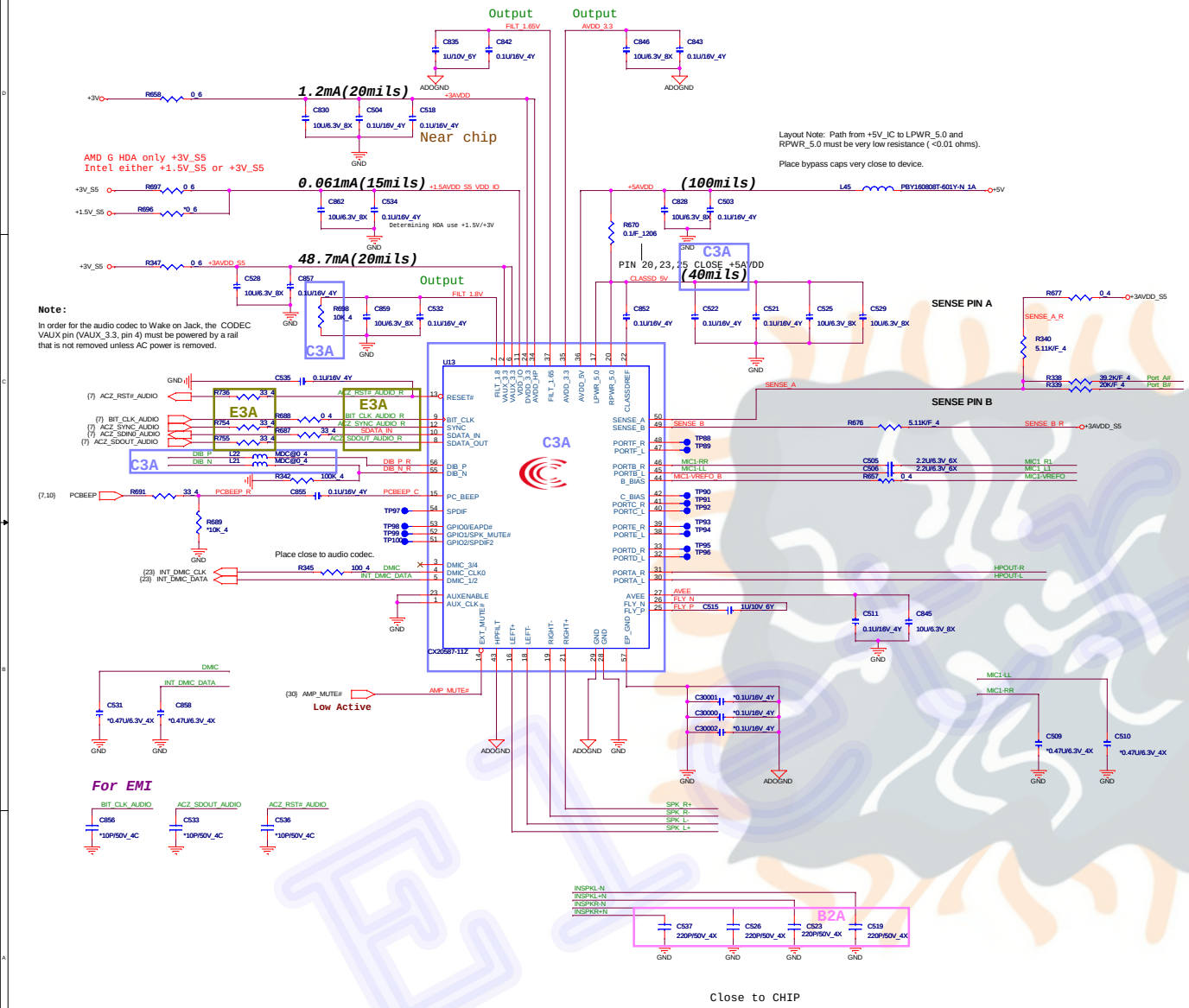
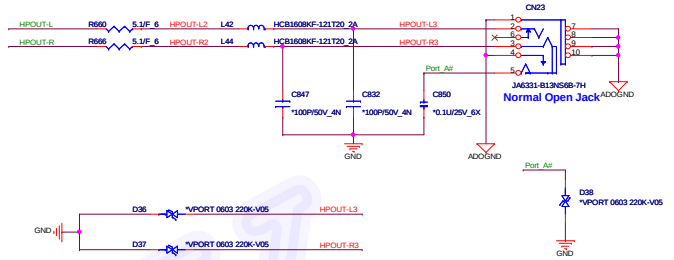
Codec (CX20587)

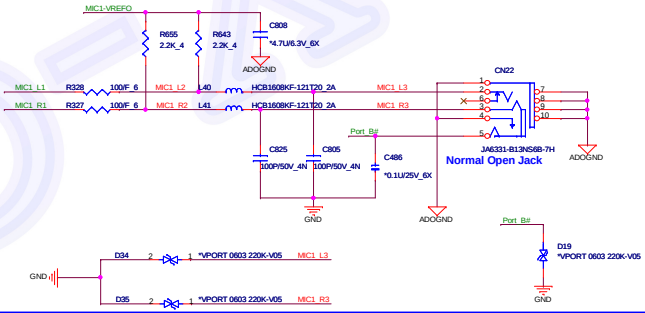


AUDIO JACKS

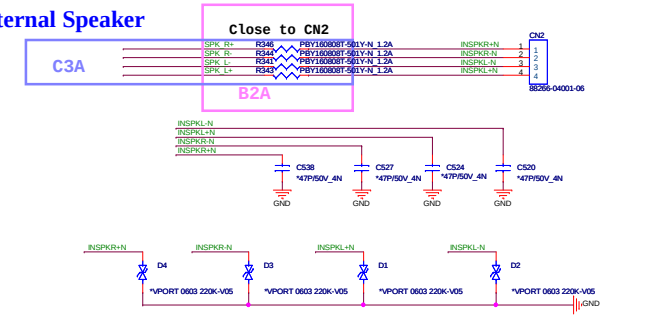
Earphone



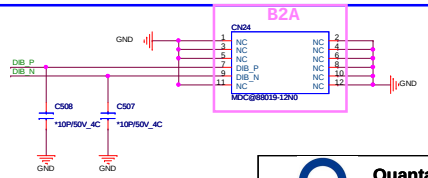
External MIC



Internal Speaker



MDC



Quanta Computer Inc.		
PROJECT : BL6		
Size	Document Number	Rev
	Audio Codec (CX20583)	A1A
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Atheros Lan

0.163A(20mils)

AMD mount Q66, NO mount R727
INTEL mount R727, No mount Q66

Atheros
AR8151/AR8152

PLACE NEAR LAN IC SIDE

TRANSFORMER

GIGA = 75 ohm
10/100 = 0 ohm

Close to LED

LED0 = LAN_ACTLED	1	Over-clocking enable (default = 1)
	0	Over-clocking disable
LED1 = LAN_LINKLED#	1	SWR switch-mode regulator select Giga LAN pull High (default = 1)
	0	LDO linear regulator select 10/100M LAN pull Low
CKREQ# or CKREQ_G#	1	Normal function
	0	ATE test mode

Power on Strapping pin

Quanta Computer Inc.
PROJECT : BL6

Size	Document Number	Rev
	Atheros Lan	A1A

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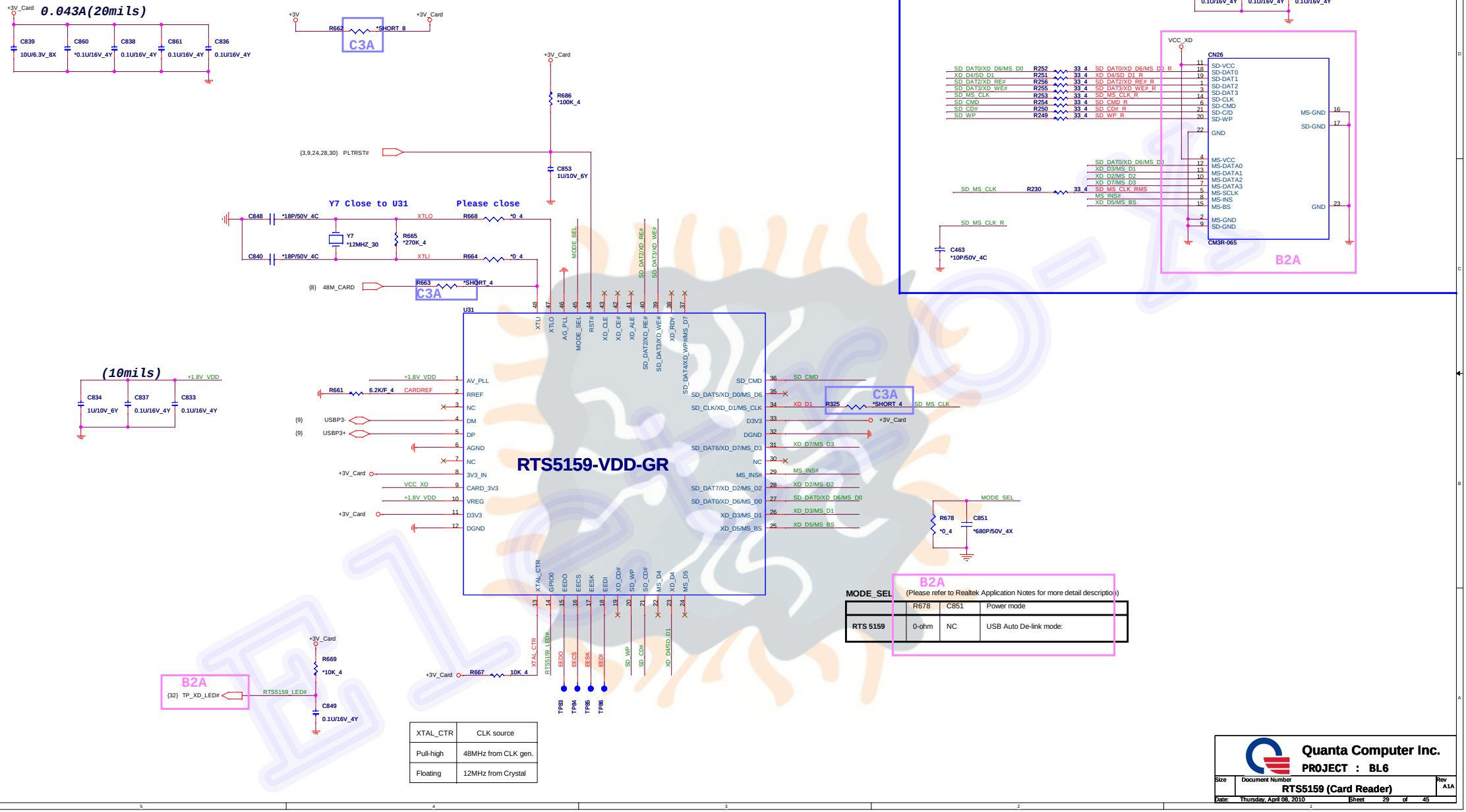
5 IN 1 CARD READER

3 IN 1 CARD READER



MODE_SEL	(Please refer to Realtek Application Notes for more detail description)		
	R678	C851	Power mode
RTS 5159	0-ohm	NC	USB Auto De-link mode:

XTAL_CTR	CLK source
Pull-high	48MHz from CLK gen.
Floating	12MHz from Crystal

Quanta Computer Inc.
PROJECT : BL6

Size	Document Number	Rev
	RTS5159 (Card Reader)	A1A

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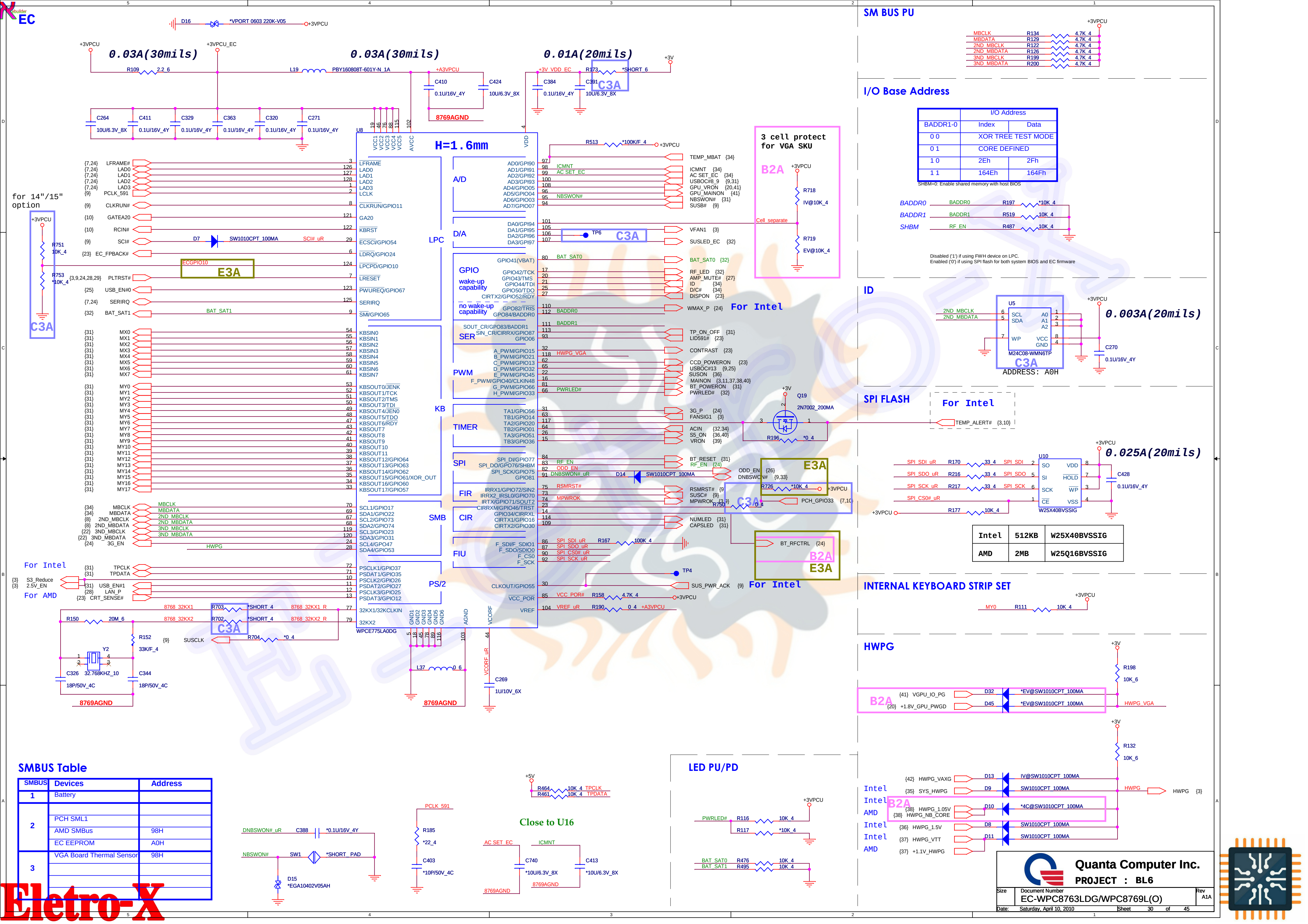
EC
0.03A(30mils)
0.03A(30mils)
0.01A(20mils)
H=1.6mm
8769AGND
for 14"/15" option
3 cell protect for VGA SKU
For Intel
For AMD
SM BUS PU
I/O Base Address
ID
0.003A(20mils)
ADDRESS: A0H
SPI FLASH
0.025A(20mils)
INTERNAL KEYBOARD STRIP SET
HWPG
LED PU/PD
Close to U16
WPCE775LA0DG
M24C08-WMN6TP
W25X40BVSSIG
LPC
KB
SMB
PS/2
A/D
D/A
GPIO
SER
PWM
TIMER
SPI
FIR
CIR
FIU
SHBM=0: Enable shared memory with host BIOS
Disabled ('1') if using FWH device on LPC.
Enabled ('0') if using SPI flash for both system BIOS and EC firmware

SMBUS Table

SMBUS	Devices	Address
1	Battery	
2	PCH SML1	
	AMD SMBus	98H
	EC EEPROM	A0H
3	VGA Board Thermal Sensor	98H

I/O Address		
BADDR1-0	Index	Data
0 0	XOR TREE TEST MODE	
0 1	CORE DEFINED	
1 0	2Eh	2Fh
1 1	164Eh	164Fh

Intel	512KB	W25X40BVSSIG
AMD	2MB	W25Q16BVSSIG

Quanta Computer Inc.

PROJECT : BL6

Size	Document Number	Rev
	EC-WPC8763LDG/WPC8769L(O)	A1A

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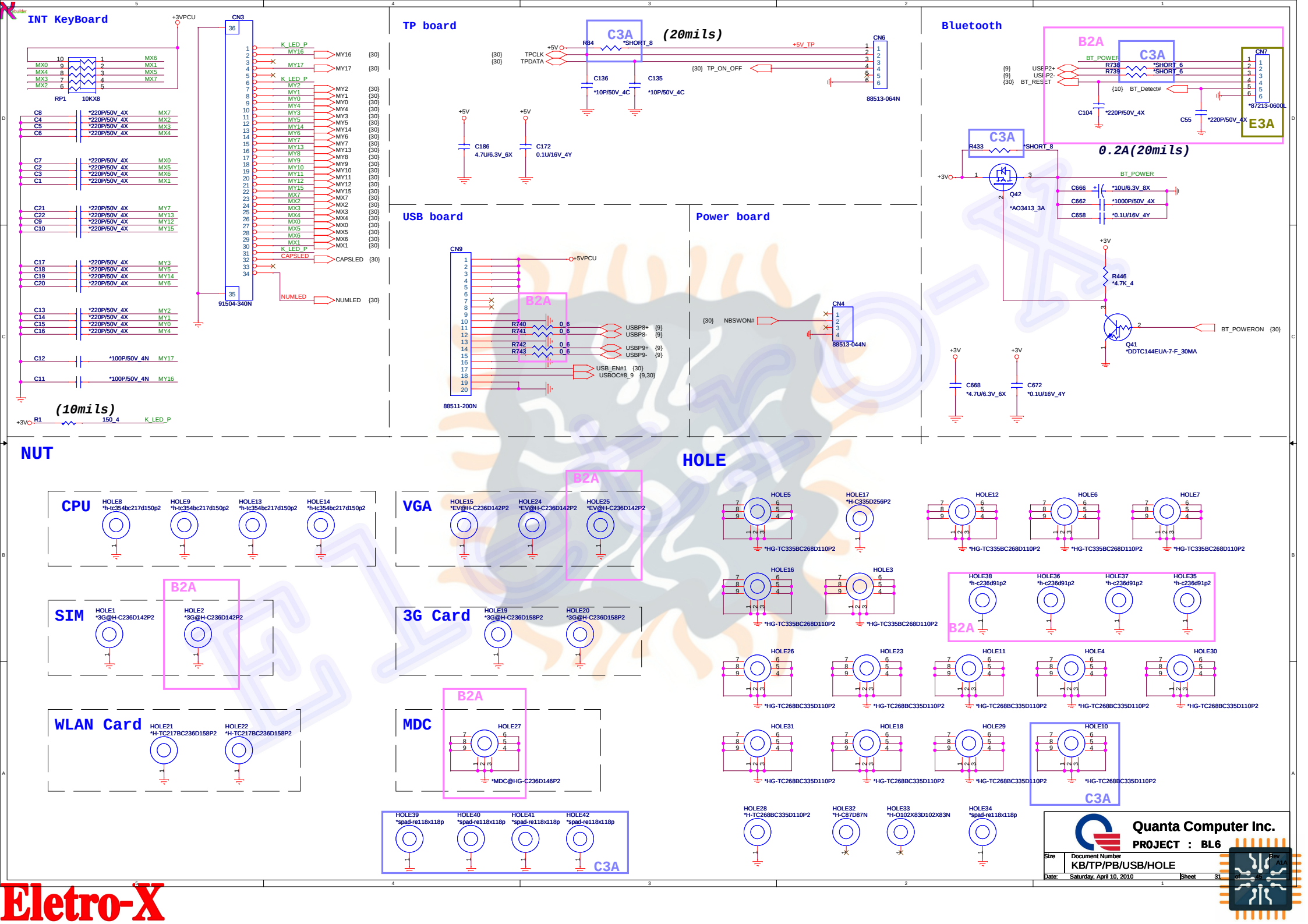
INT KeyBoard
+3VPCU
CN3
RP1
10KX8
(10mils)
TP board
C3A
(20mils)
CN6
88513-064N
C136
C135
*10P/50V_4C
C186
4.7U/6.3V_6X
C172
0.1U/16V_4Y
Bluetooth
B2A
C3A
E3A
CN7
*87213-0600L
C104
*220P/50V_4X
C55
0.2A(20mils)
R433
*SHORT_8
Q42
*AO3413_3A
C666
*10U/6.3V_8X
C662
*1000P/50V_4X
C658
*0.1U/16V_4Y
R446
*4.7K_4
Q41
*DDTC144EUA-7-F_30MA
C668
*4.7U/6.3V_6X
C672
*0.1U/16V_4Y
USB board
CN9
88511-200N
R740
R741
R742
R743
USB_EN#1
USBOC#8_9
Power board
CN4
88513-044N
NBSWON#
NUT
CPU
HOLE8
HOLE9
HOLE13
HOLE14
VGA
HOLE15
HOLE24
HOLE25
SIM
HOLE1
HOLE2
3G Card
HOLE19
HOLE20
WLAN Card
HOLE21
HOLE22
MDC
HOLE27
HOLE39
HOLE40
HOLE41
HOLE42
HOLE
HOLE5
HOLE17
HOLE12
HOLE6
HOLE7
HOLE16
HOLE3
HOLE38
HOLE36
HOLE37
HOLE35
HOLE26
HOLE23
HOLE11
HOLE4
HOLE30
HOLE31
HOLE18
HOLE29
HOLE10
HOLE28
HOLE32
HOLE33
HOLE34
Quanta Computer Inc.
PROJECT : BL6
Document Number
KB/TP/PB/USB/HOLE
Rev
A1A
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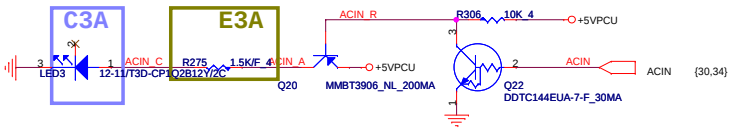
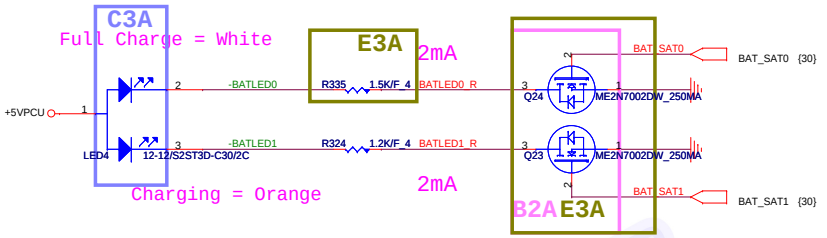
LED

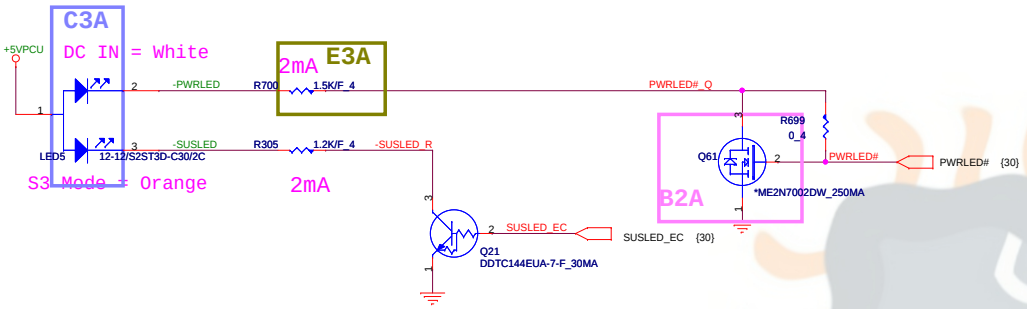
AC-IN



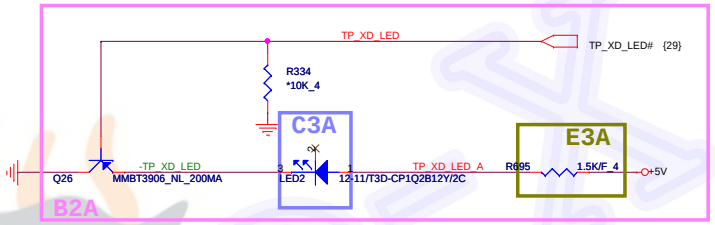
BATERRY



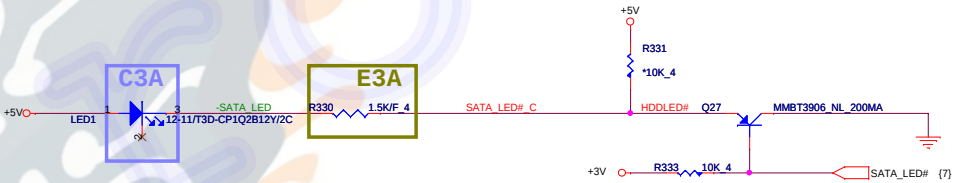
POWER



CARDREADER

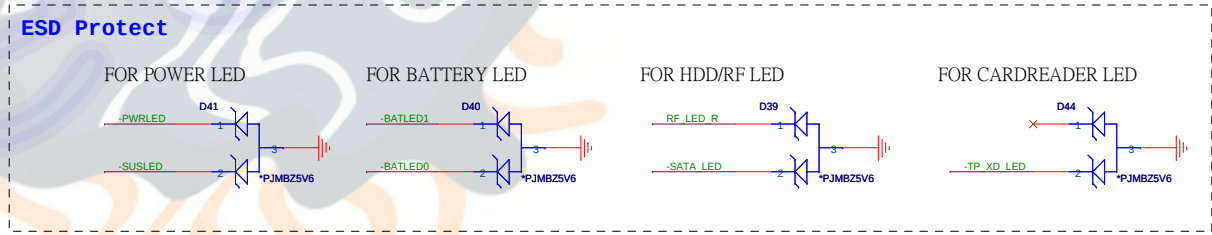


HDD/ODD



RF LED

ESD Protect



Quanta Computer Inc.		
PROJECT : BL6		
Size	Document Number: LED	Rev: A04
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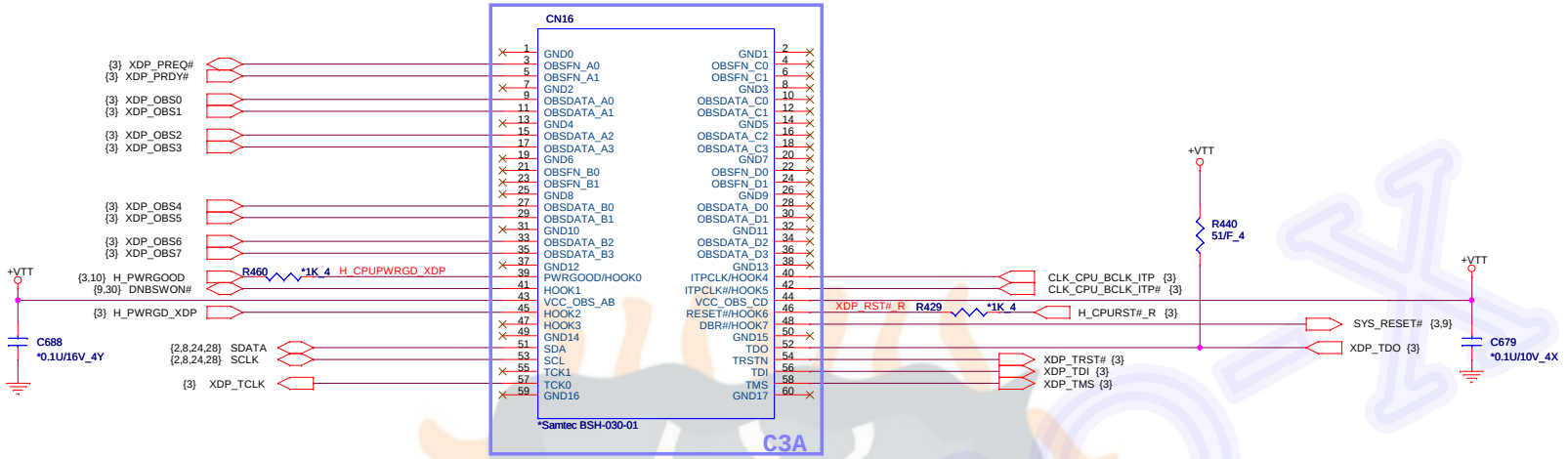
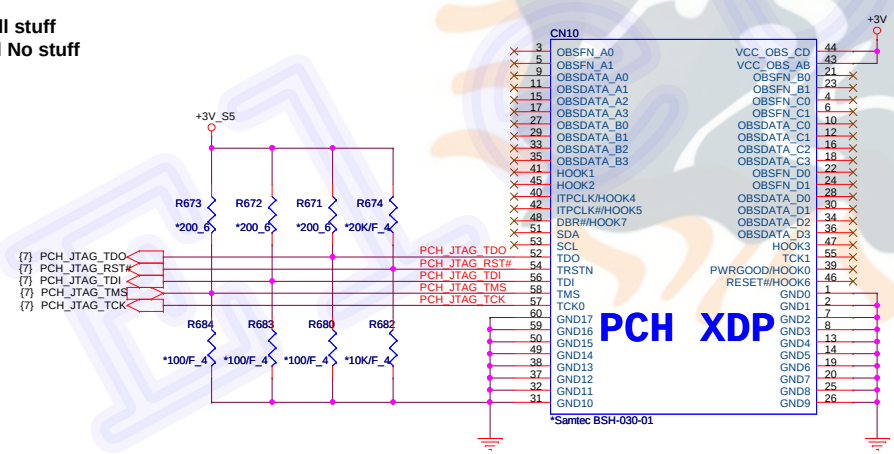
CPU XDP



Feature Set	SKU Name (S)				
	Q57	H57	H55	P55	P57
BraidWood	Y	Y	N	N	Y

PCH XDP

Note: For ES1/ES2 version all stuff
Production version all No stuff



Quanta Computer Inc.
PROJECT : BL6

Size	Document Number	Rev
	NVRAM Connector	A01

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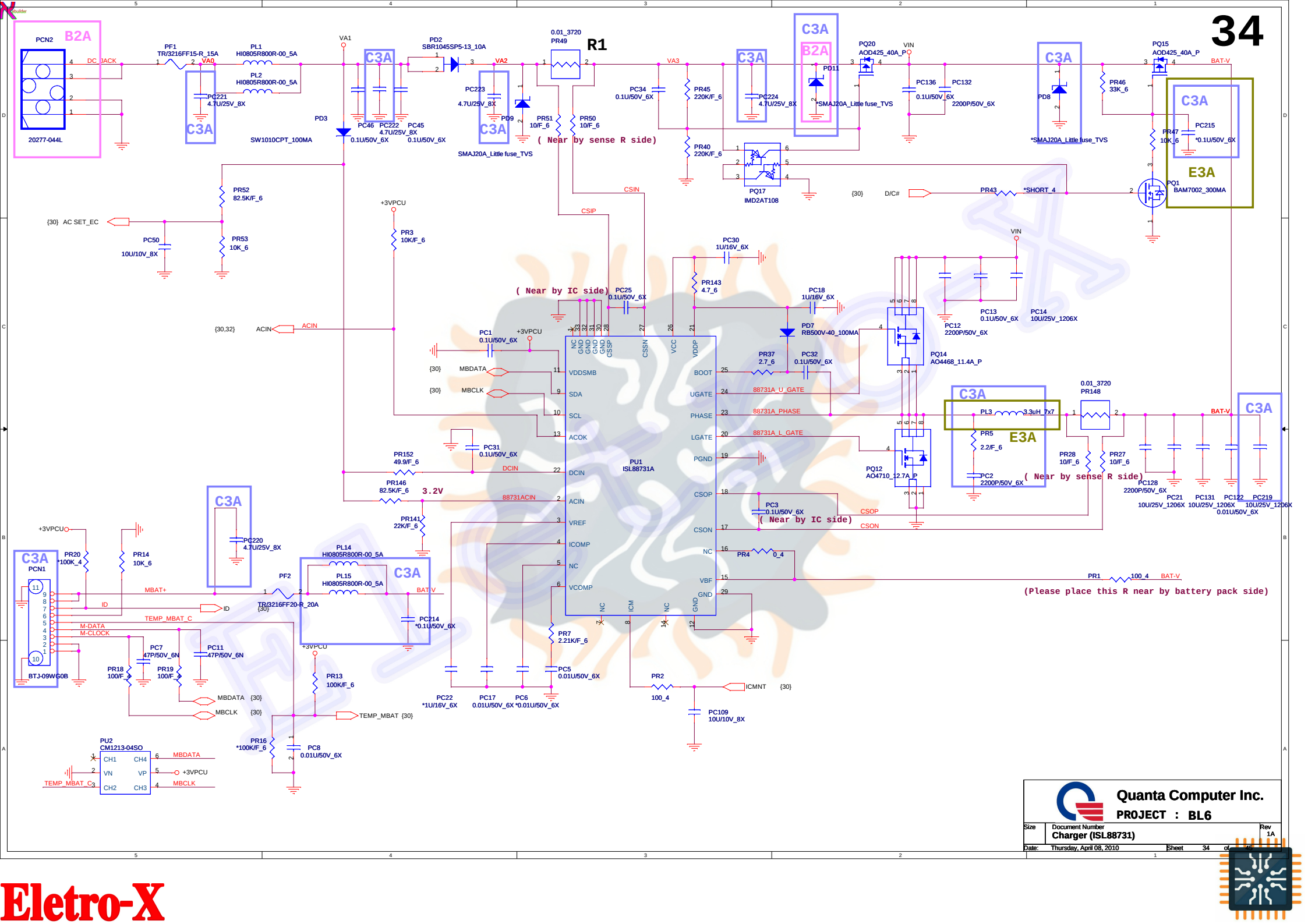
34
PCN2
B2A
20277-044L
DC_JACK
PF1
TR/3216FF15-R_15A
PL1
HI0805R800R-00_5A
PL2
HI0805R800R-00_5A
PC221
4.7U/25V_8X
C3A
SW1010CPT_100MA
PD3
VA0
VA1
VA2
VA3
PC46
PC222
4.7U/25V_8X
PC45
0.1U/50V_6X
PD2
SBR1045SP5-13_10A
PC223
4.7U/25V_8X
PD9
SMAJ20A_Little fuse_TVS
0.01_3720
PR49
R1
PR51
10/F_6
PR50
10/F_6
(Near by sense R side)
PC34
0.1U/50V_6X
PR45
220K/F_6
PR40
220K/F_6
PC224
4.7U/25V_8X
PD11
*SMAJ20A_Little fuse_TVS
PQ17
IMD2AT108
PQ20
AOD425_40A_P
VIN
PC136
0.1U/50V_6X
PC132
2200P/50V_6X
PD8
*SMAJ20A_Little fuse_TVS
PR46
33K_6
PQ15
AOD425_40A_P
BAT-V
PR47
10K_6
PC215
*0.1U/50V_6X
E3A
PQ1
BAM7002_300MA
{30} D/C#
PR43
*SHORT_4
CSIN
CSIP
PR52
82.5K/F_6
{30} AC SET_EC
PC50
10U/10V_8X
PR53
10K_6
+3VPCU
PR3
10K/F_6
{30,32} ACIN
(Near by IC side)
PC25
0.1U/50V_6X
PC30
1U/16V_6X
PR143
4.7_6
PC18
1U/16V_6X
PD7
RB500V-40_100MA
PC1
0.1U/50V_6X
{30} MBDATA
{30} MBCLK
PC31
0.1U/50V_6X
PR152
49.9/F_6
DCIN
PR146
82.5K/F_6
3.2V
PR141
22K/F_6
88731ACIN
PU1
ISL88731A
NC
GND
CSSP
CSSN
VCC
VDDP
VDDSMB
SDA
SCL
ACOK
DCIN
ACIN
VREF
ICOMP
NC
VCOMP
BOOT
UGATE
PHASE
LGATE
PGND
CSOP
CSON
NC
VBF
GND
PR37
2.7_6
PC32
0.1U/50V_6X
88731A_U_GATE
88731A_PHASE
88731A_L_GATE
PC13
0.1U/50V_6X
PC14
10U/25V_1206X
PC12
2200P/50V_6X
PQ14
AO4468_11.4A_P
PQ12
AO4710_12.7A_P
PL3
3.3uH_7x7
PR5
2.2/F_6
PC2
2200P/50V_6X
(Near by sense R side)
0.01_3720
PR148
PR28
10/F_6
PR27
10/F_6
PC128
2200P/50V_6X
PC21
10/25V_1206X
PC131
10/25V_1206X
PC122
10/25V_1206X
PC219
0.01U/50V_6X
PC3
0.1U/50V_6X
(Near by IC side)
PR4
0_4
PR1
100_4
BAT-V
(Please place this R near by battery pack side)
PR7
2.21K/F_6
PC5
0.01U/50V_6X
PC22
*1U/16V_6X
PC17
0.01U/50V_6X
PC6
*0.01U/50V_6X
PR2
100_4
ICMNT
{30}
PC109
10U/10V_8X
PCN1
BTJ-09WG0B
PR20
*100K_4
PR14
10K_6
MBAT+
ID
TEMP_MBAT_C
M-DATA
M-CLOCK
PR18
100/F_6
PC7
47P/50V_6N
PR19
100/F_6
PC11
47P/50V_6N
PC220
4.7U/25V_8X
PL14
HI0805R800R-00_5A
PF2
TR/3216FF20-R_20A
PL15
HI0805R800R-00_5A
PC214
*0.1U/50V_6X
PR13
100K/F_6
PR16
*100K/F_6
PC8
0.01U/50V_6X
PU2
CM1213-04SO
CH1
CH4
VN
VP
CH2
CH3
MBDATA
+3VPCU
MBCLK
TEMP_MBAT {30}
Quanta Computer Inc.
PROJECT : BL6
Size
Document Number
Charger (ISL88731)
Rev
1A
Date: Thursday, April 08, 2010
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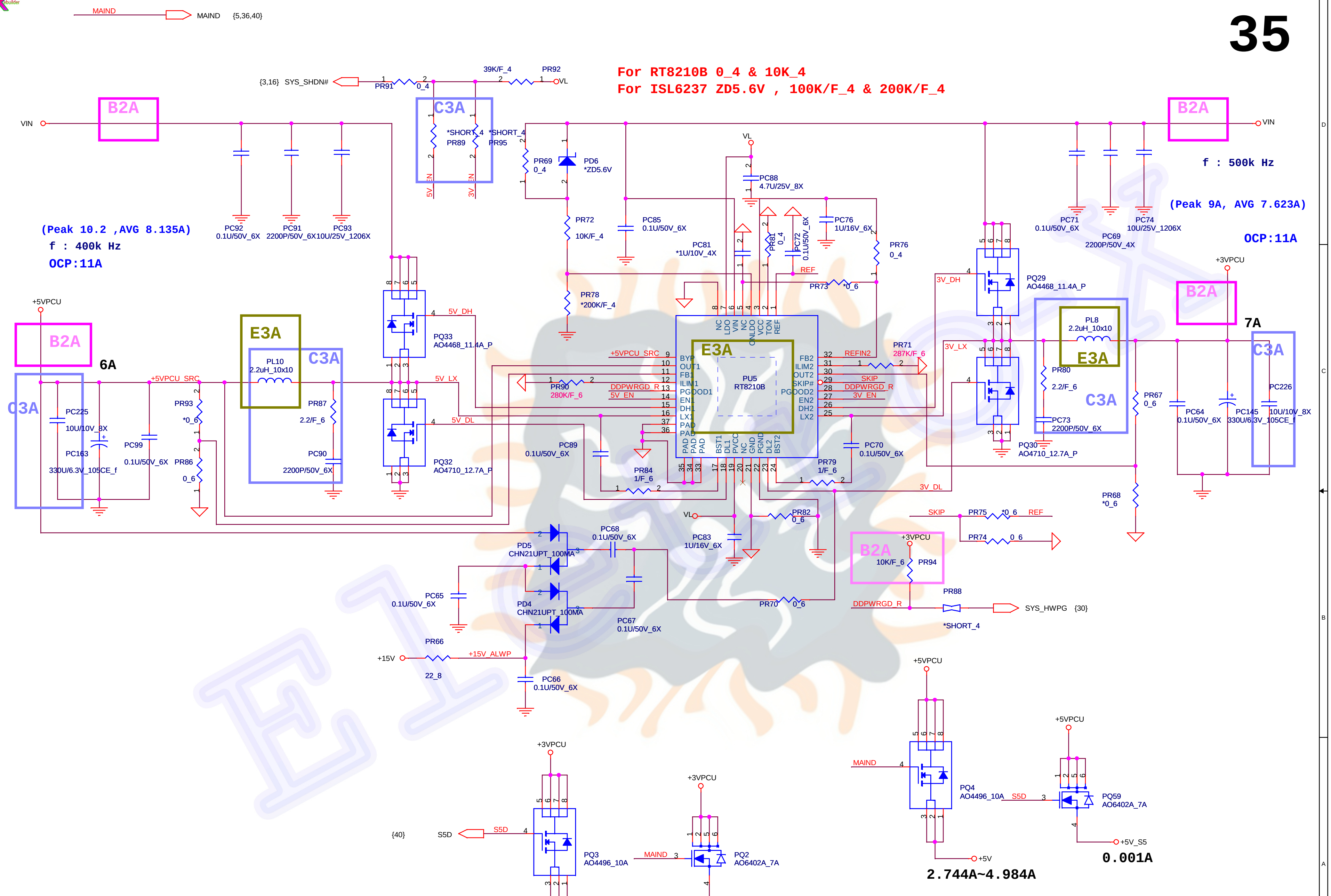

MAIND
MAIND {5,36,40}
For RT8210B 0_4 & 10K_4
For ISL6237 ZD5.6V , 100K/F_4 & 200K/F_4
{3,16} SYS_SHDN#
PR91 0_4
39K/F_4 PR92
VL
VIN
B2A
C3A
*SHORT_4 PR89
*SHORT_4 PR95
5V_EN
3V_EN
PR69 0_4
PD6 *ZD5.6V
PR72 10K/F_4
PR78 *200K/F_4
PC92 0.1U/50V_6X
PC91 2200P/50V_6X
PC93 10U/25V_1206X
PC85 0.1U/50V_6X
PC88 4.7U/25V_8X
PC81 *1U/10V_4X
PR81 0_4
PC72 0.1U/50V_6X
PC76 1U/16V_6X
PR76 0_4
REF
PR73 *0_6
(Peak 10.2 ,AVG 8.135A)
f : 400k Hz
OCP:11A
f : 500k Hz
(Peak 9A, AVG 7.623A)
OCP:11A
PC71 0.1U/50V_6X
PC69 2200P/50V_4X
PC74 10U/25V_1206X
+5VPCU
+3VPCU
6A
7A
E3A
PL10 2.2uH_10x10
PL8 2.2uH_10x10
PQ33 AO4468_11.4A_P
PQ32 AO4710_12.7A_P
PQ29 AO4468_11.4A_P
PQ30 AO4710_12.7A_P
5V_DH
5V_LX
5V_DL
3V_DH
3V_LX
3V_DL
+5VPCU_SRC
PC225 10U/10V_8X
PC163 330U/6.3V_105CE_f
PC99 0.1U/50V_6X
PR93 *0_6
PR86 0_6
PR87 2.2/F_6
PC90 2200P/50V_6X
PR90 280K/F_6
DDPWRGD_R
PU5 RT8210B
NC LDO VIN NC ONLDO VCC TON REF
BYP OUT1 FB1 ILIM1 PGOOD1 EN1 DH1 LX1 PAD PAD
FB2 ILIM2 OUT2 SKIP# PGOOD2 EN2 DH2 LX2
PAD PAD PAD BST1 DL1 PVCC NC GND PGND DL2 BST2
REFIN2
SKIP
3V_EN
PR71 287K/F_6
PR80 2.2/F_6
PC73 2200P/50V_6X
PR67 0_6
PC64 0.1U/50V_6X
PC145 330U/6.3V_105CE_f
PC226 10U/10V_8X
PR68 *0_6
PC89 0.1U/50V_6X
PR84 1/F_6
PC70 0.1U/50V_6X
PR79 1/F_6
PC83 1U/16V_6X
PR82 0_6
PR75 *0_6
PR74 0_6
PD5 CHN21UPT_100MA
PD4 CHN21UPT_100MA
PC68 0.1U/50V_6X
PC67 0.1U/50V_6X
PC65 0.1U/50V_6X
PR70 0_6
10K/F_6 PR94
PR88
*SHORT_4
SYS_HWPG {30}
PR66 22_8
+15V
+15V_ALWP
PC66 0.1U/50V_6X
+3VPCU
{40} S5D
S5D
PQ3 AO4496_10A
+3V_S5
4.253A
MAIND
PQ2 AO6402A_7A
+3V
1.984A
+5VPCU
PQ4 AO4496_10A
S5D
+5V
2.744A~4.984A
PQ59 AO6402A_7A
+5V_S5
0.001A

Quanta Computer Inc.

PROJECT : BL6

Size	Document Number	Rev
	System 5V/3V (ISL6237)	1A

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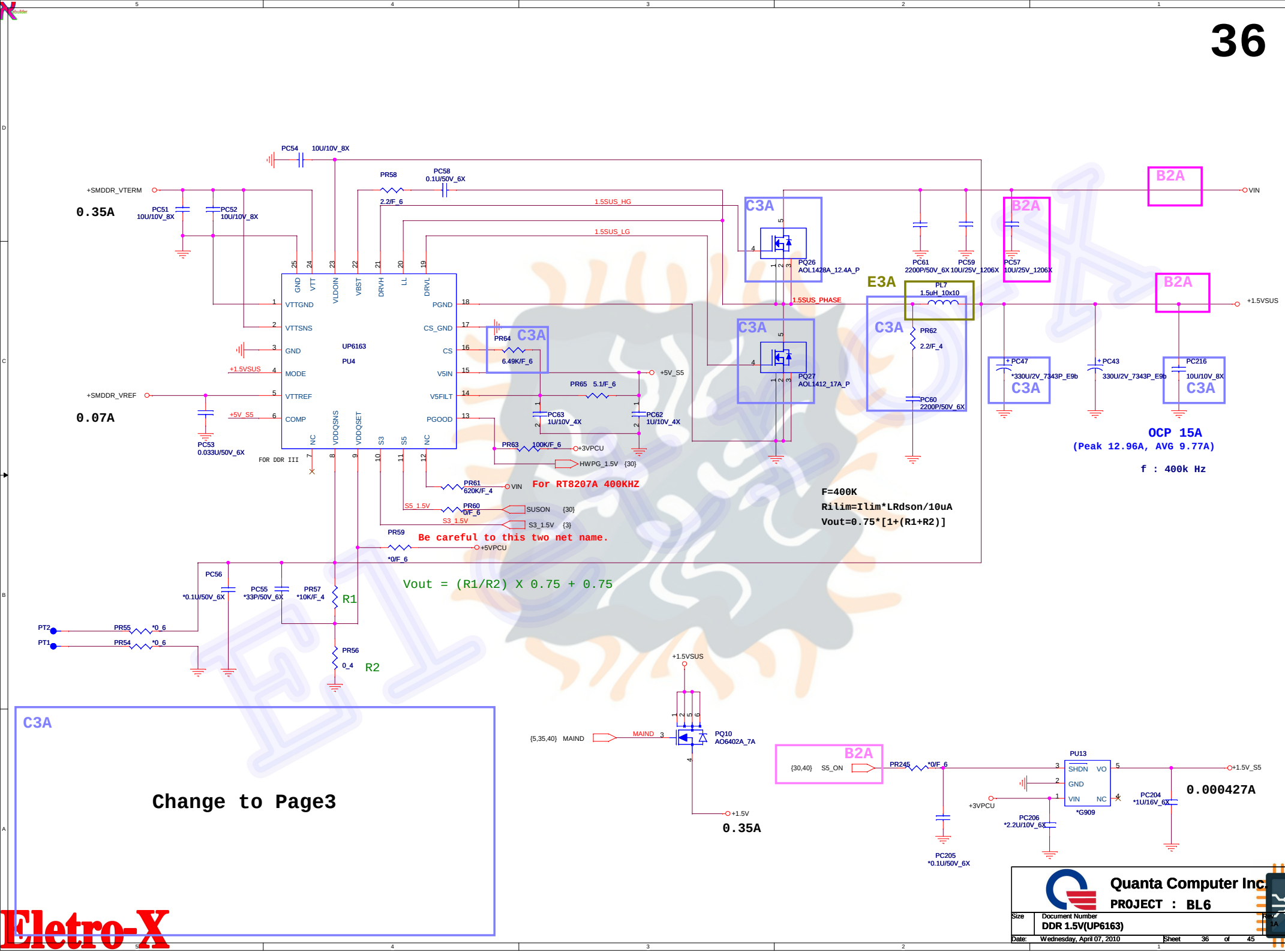
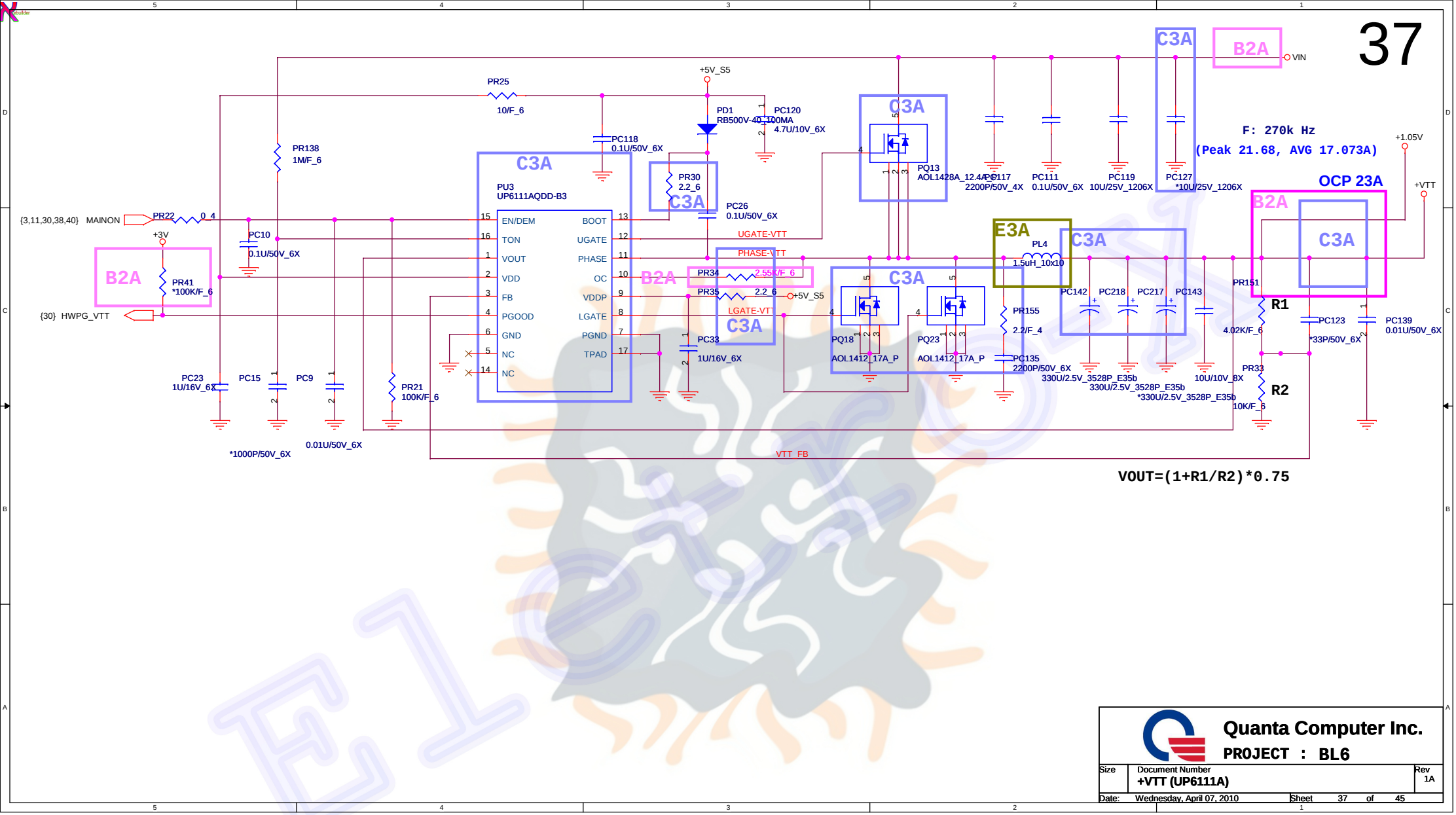
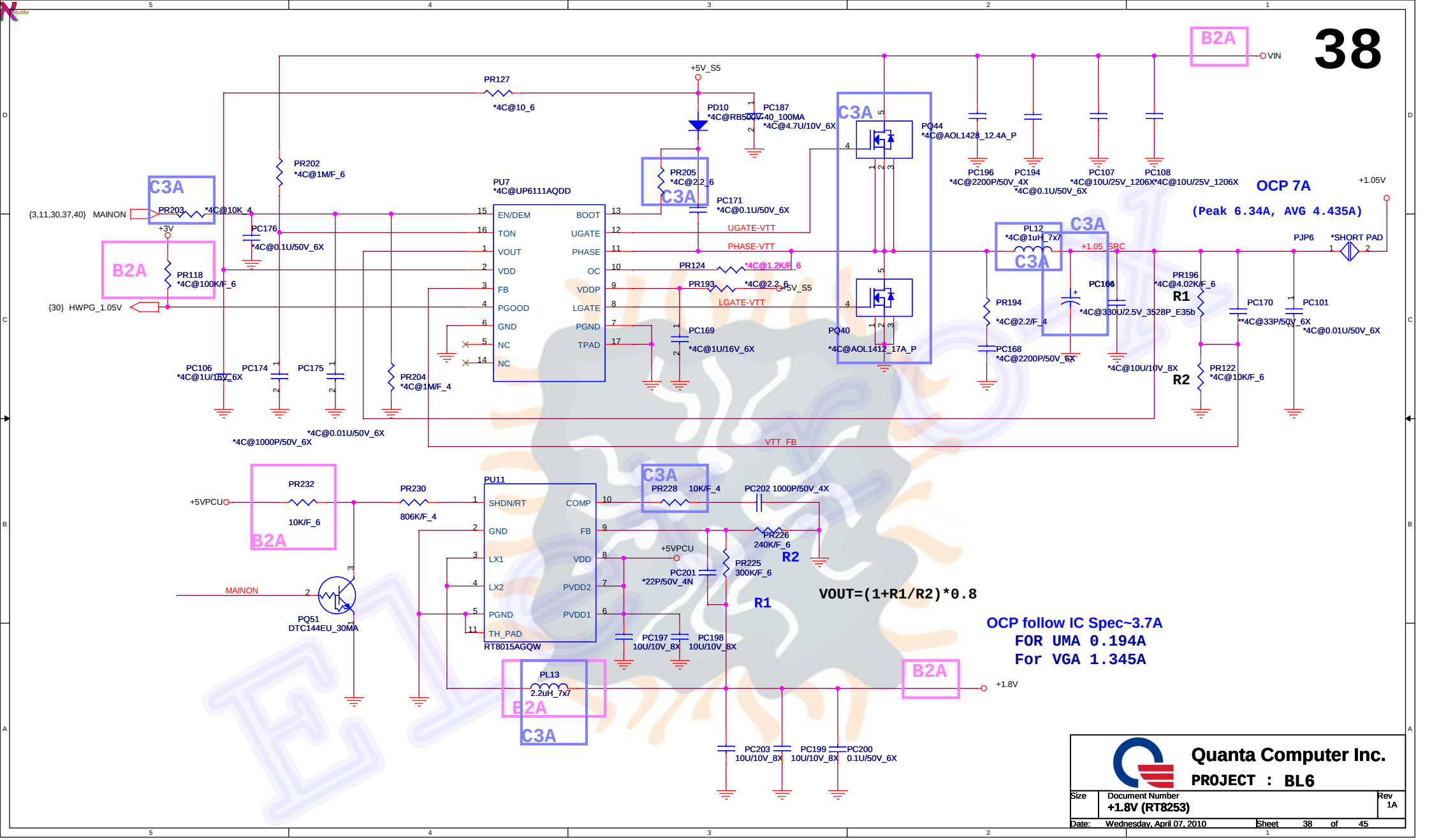
Eletro-X



Quanta Computer Inc.	PROJECT : BL6	
Size	Document Number: DDR 1.5V(UP6163)	Rev: 1A
Date: Wednesday, April 07, 2010	Sheet 36 of 45	



Quanta Computer Inc.		
PROJECT : BL6		
Size	Document Number: +VTT (UP6111A)	Rev: 1A
Date: Wednesday, April 07, 2010	Sheet 37 of 45	


38
B2A
VIN
+5V_S5
PR127
*4C@10_6
PD10
*4C@RB500V-40_100MA
PC187
*4C@4.7U/10V_6X
C3A
PQ44
*4C@AOL1428_12.4A_P
PC196
*4C@2200P/50V_4X
PC194
*4C@0.1U/50V_6X
PC107
*4C@10U/25V_1206X
PC108
*4C@10U/25V_1206X
OCP 7A
(Peak 6.34A, AVG 4.435A)
+1.05V
PR202
*4C@1M/F_6
PU7
*4C@UP6111AQDD
PR205
*4C@2.2_6
PC171
*4C@0.1U/50V_6X
{3,11,30,37,40} MAINON
PR203
*4C@10K_4
+3V
PC176
*4C@0.1U/50V_6X
B2A
PR118
*4C@100K/F_6
{30} HWPG_1.05V
EN/DEM
TON
VOUT
VDD
FB
PGOOD
GND
NC
NC
BOOT
UGATE
PHASE
OC
VDDP
LGATE
PGND
TPAD
UGATE-VTT
PHASE-VTT
PR124
*4C@1.2K/F_6
PR193
*4C@2.2_6
+5V_S5
LGATE-VTT
PC169
*4C@1U/16V_6X
PQ40
*4C@AOL1412_17A_P
PL12
*4C@1uH_7x7
+1.05_SRC
PJP6
*SHORT PAD
PR194
*4C@2.2/F_4
PC168
*4C@2200P/50V_6X
PC166
*4C@330U/2.5V_3528P_E35b
PR196
*4C@4.02K/F_6
R1
PC170
*4C@33P/50V_6X
PC101
*4C@0.01U/50V_6X
PR122
*4C@10K/F_6
R2
PC106
*4C@1U/16V_6X
PC174
PC175
PR204
*4C@1M/F_4
*4C@0.01U/50V_6X
*4C@1000P/50V_6X
VTT_FB
PR232
+5VPCU
10K/F_6
B2A
PR230
806K/F_4
PU11
SHDN/RT
GND
LX1
LX2
PGND
TH_PAD
COMP
FB
VDD
PVDD2
PVDD1
RT8015AGQW
PR228
10K/F_4
PC202 1000P/50V_4X
PR226
240K/F_6
R2
+5VPCU
PC201
*22P/50V_4N
PR225
300K/F_6
R1
VOUT=(1+R1/R2)*0.8
MAINON
PQ51
DTC144EU_30MA
PC197
10U/10V_8X
PC198
10U/10V_8X
OCP follow IC Spec~3.7A
FOR UMA 0.194A
For VGA 1.345A
PL13
2.2uH_7x7
B2A
C3A
+1.8V
PC203
10U/10V_8X
PC199
10U/10V_8X
PC200
0.1U/50V_6X
Quanta Computer Inc.
PROJECT : BL6
Size
Document Number
+1.8V (RT8253)
Rev
1A
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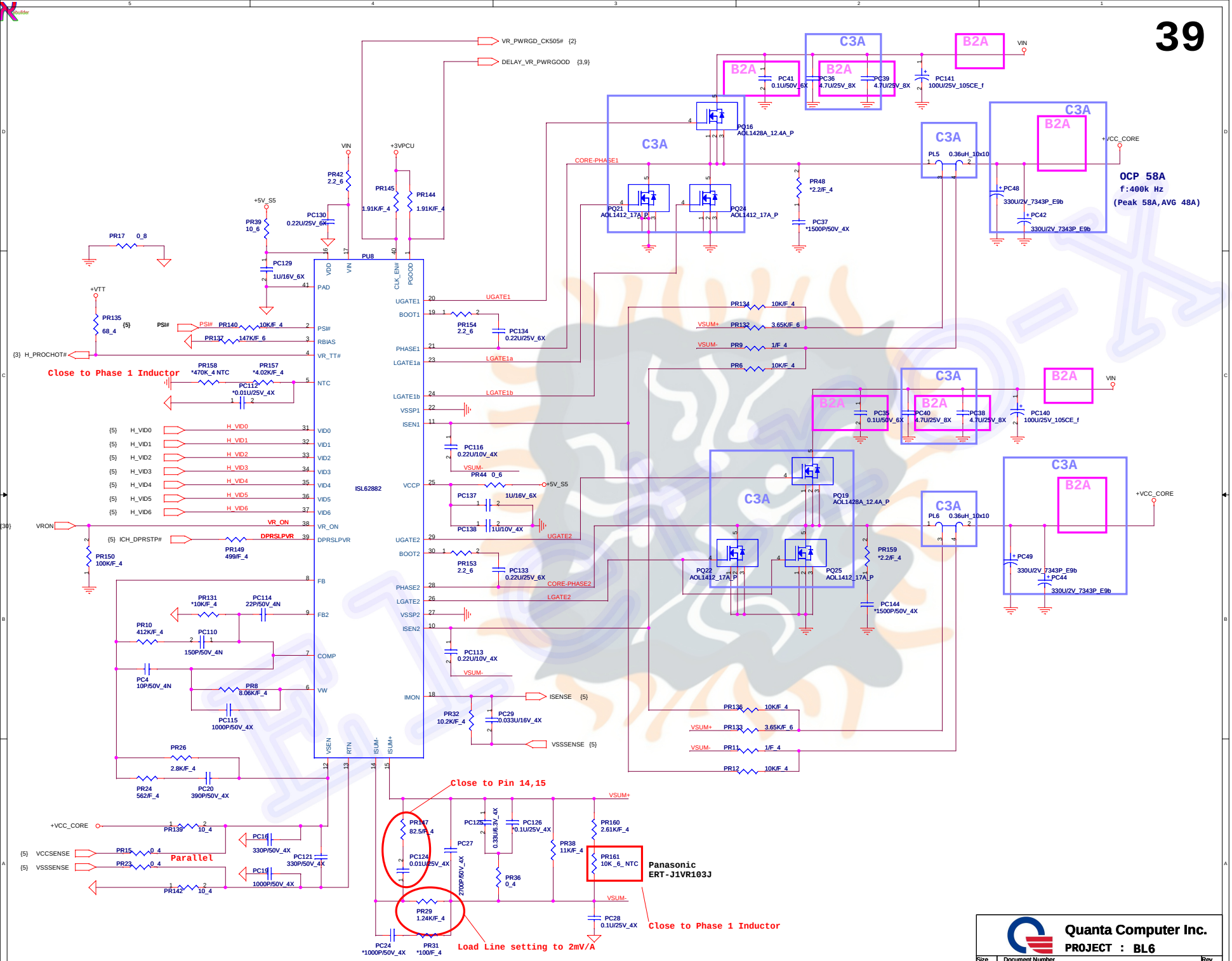
VR_PWRGD_CK505# {2}
DELAY_VR_PWRGOOD {3,9}
VIN
+3VPCU
+5V_S5
PU8
ISL62882
PAD
VDD
VIN
CLK_EN#
PGOOD
UGATE1
BOOT1
PHASE1
LGATE1a
LGATE1b
VSSP1
ISEN1
VCCP
UGATE2
BOOT2
PHASE2
LGATE2
VSSP2
ISEN2
IMON
PSI#
RBIAS
VR_TT#
NTC
VID0
VID1
VID2
VID3
VID4
VID5
VID6
VR_ON
DPRSLPVR
FB
FB2
COMP
VW
VSEN
RTN
ISUM-
ISUM+
Close to Phase 1 Inductor
Close to Pin 14,15
Parallel
Panasonic
ERT-J1VR103J
Load Line setting to 2mV/A
Close to Phase 1 Inductor
OCP 58A
f:400k Hz
(Peak 58A,AVG 48A)
Quanta Computer Inc.
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CPU Core (ISL62882)
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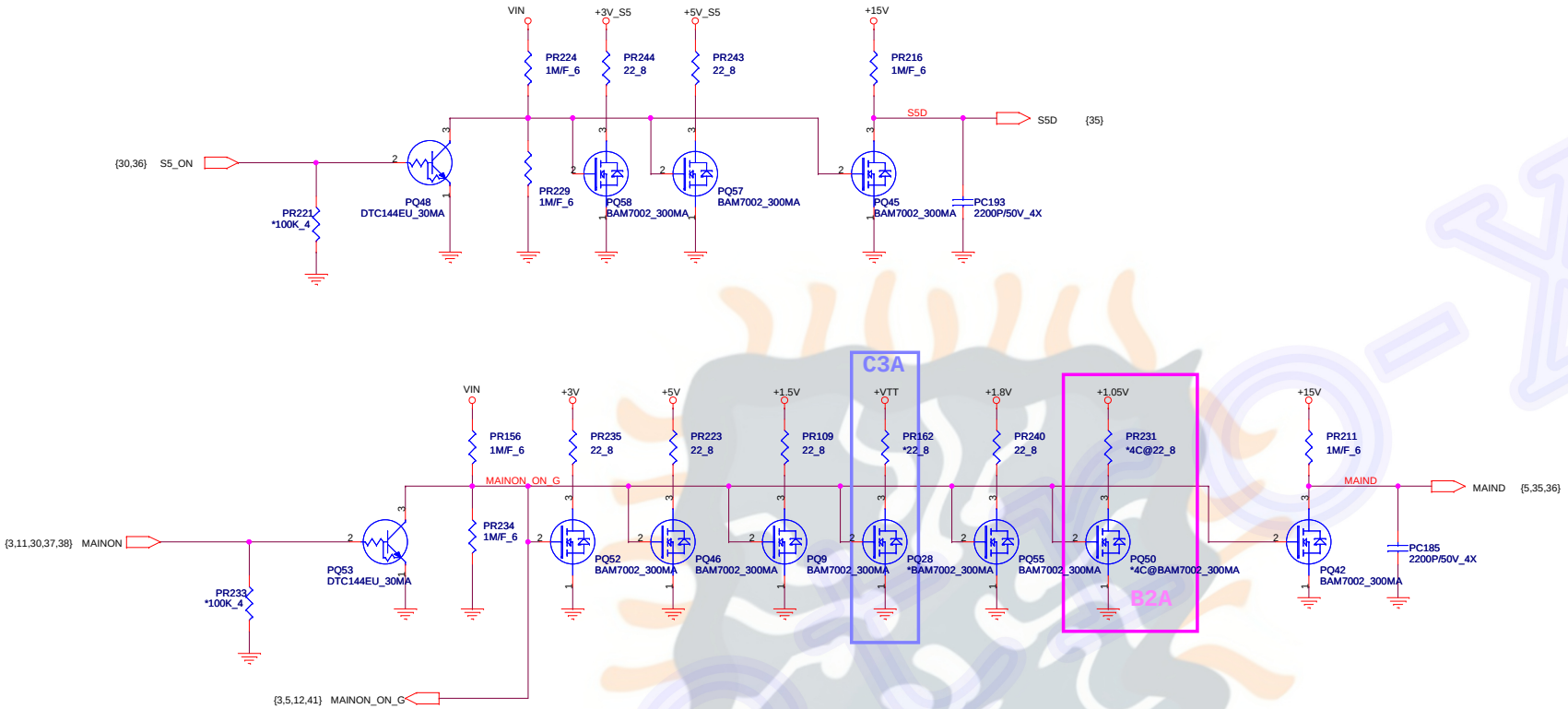

Quanta Computer Inc.		
PROJECT : BL6		
Size	Document Number	Rev
	Discharge (1.5V_S5/1.8V)	1A
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OCP:30A
(Peak 28A, AVG 23.1A)
F: 297k Hz

GFX_CORE_CNTRL1	GFX_CORE_CNTRL0	Madison/Park	Madison/Park Resistor	M92	M92 Resistor	M96	M96 Resistor
LOW	LOW	0.9V	R1=39.2K CS33922FB15	0.9V	R1=39.2K CS33922FB15	0.9V	R1=39.2K CS33922FB15
LOW	HIGH	0.95V	R2=60.4K CS36042FB10	0.95V	R2=60.4K CS36042FB10	0.95V	R2=49.9K CS34992FB10
HIGH	LOW	1.12V	R3=309K CS43092FB16	1.1V	R3=270K CS42702FB10	1V	R3=249K CS42492FB18
HIGH	HIGH	NA	R4=88.7K CS38872FB18	1.2V	R4=93.1K CS39312FB15	1.1V	R4=140K CS41402FB14

0.996A

1.791A

5.74A

VO=(0.8(R1+R2)/R2)
R2<120Kohm

PCIE_VDDC
M92,M96-->1.1V
Madison,Park-->1.0V

	Madison,Park	M92,M96
PR163 = R1	25.5K/F_4 CS32552FB11	38.3K/F_4 CS33832FB08
PR166 = R2	100K/F_4 CS41002FB28	100K/F_4 CS41002FB28

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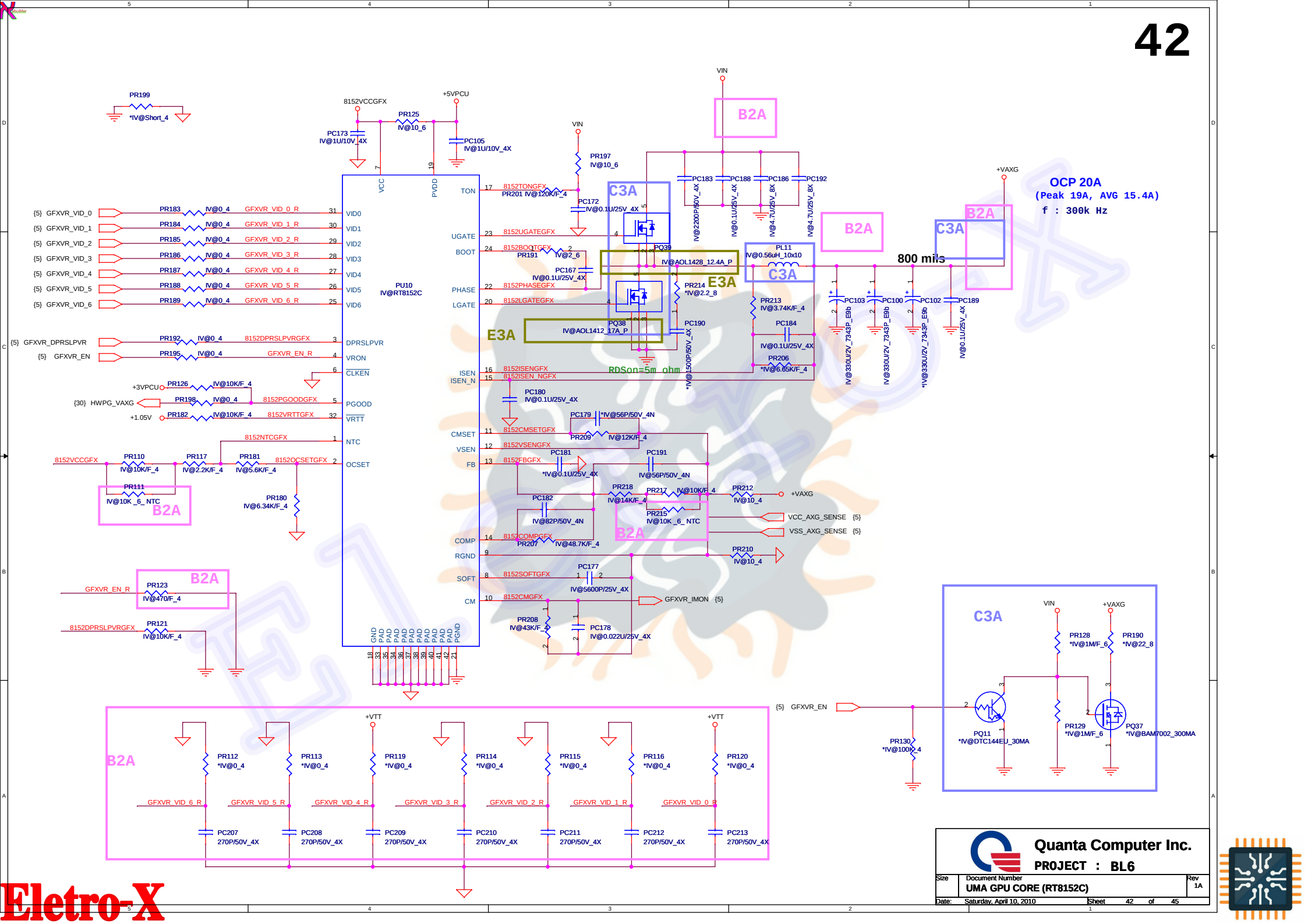

Quanta Computer Inc.
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Size	Document Number	Rev
	UMA GPU CORE (RT8152C)	1A
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