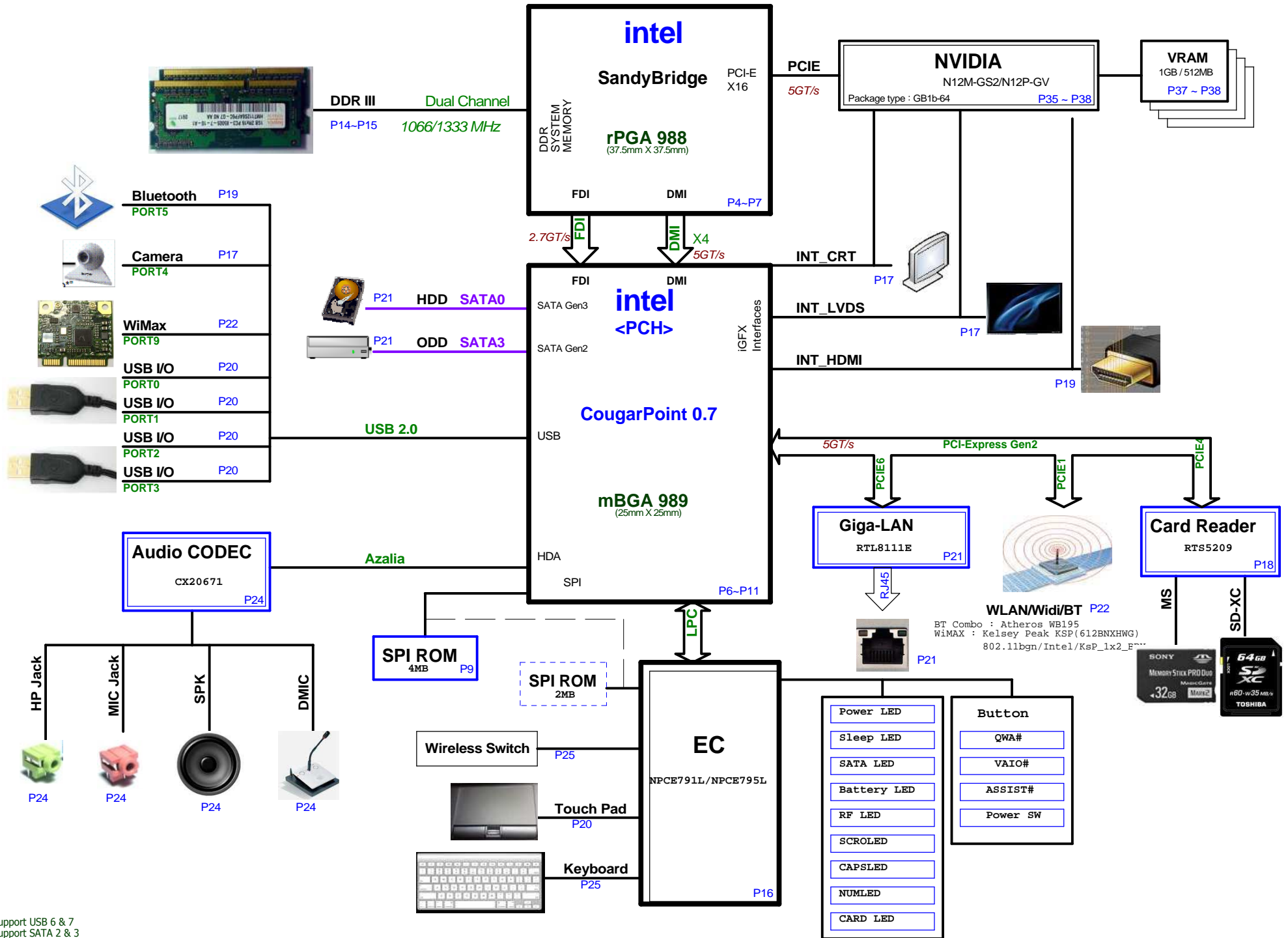


\* : No mount  
E@ : For DIS GFX only  
I@ : For INT GFX only

Page	Title of schematic page	Rev.	Date
01	Page List	1A	
02	Block Diagram	1A	
03	Change List	1A	
04	SNB 1/4(HOST&PCIE)	1A	
05	SNB 2/4(DDR3 I/F)	1A	
06	SNB 3/4(POWER)	1A	
07	SNB 4/4(GND/Strap)	1A	
08	PCH 1/6(DMI/FDI/VIDEO)	1A	
09	PCH 2/6(SATA/RTC/HDA/LPC)	1A	
10	PCH 3/6(PCIE/USB/CLK/NV)	1A	
11	PCH 4/6(GPIO/CPU/STRAP)	1A	
12	PCH 5/6(POWER)	1A	
13	PCH 6/6 (GND)	1A	
14	DDR3 DIMM-0-STD	1A	
15	DDR3 DIMM-1-STD	1A	
16	WPCE791L & FLASH	1A	
17	CRT/LVDS/CAMERA	1A	
18	CARD READER(RTS5209)	1A	
19	HDMI Conn/BT/THERMAL	1A	
20	USE/TP/FAN	1A	
21	LAN (RTL8111E)	1A	
22	WLAN/HOLE	1A	
23	HDD/ODD/EMI	1A	
24	Audio CX20671	1A	
25	LED/RF/KB/PS	1A	
26	POWER +VCC_CORE (ISL95831)	1A	
27	POWER 3VPCU&5VPCU(PM6686)	1A	
28	POWER 1.5VSUS/VTT_MEM	1A	
29	POWER +1.05V(UP6128A)-15A	1A	
30	POWER +0.85V(APE8858)-6A	1A	
31	POWER VGA_CORE(OZ8111)--15A	1A	
32	POWER VCC1.8/Thermal	1A	
33	POWER(ADAPTER IN / CONN)	1A	
34	POWER CHARGER (ISL88731C)	1A	
35	NVIDIA GS2-64 PCIE&PW 1/4	1A	
36	NVIDIA GS2-64 TMDs&DAC 2/4	1A	
37	NVIDIA GS2-64 VRAM 3/4	1A	
38	NVIDIA GS2-64 VRAM 4/4	1A	
39	IO PORT LIST	1A	

# HK1 BLOCK DIAGRAM



Note:  
 HM65 does not support USB 6 & 7  
 HM65 does not support SATA 2 & 3

Change List from PVT to MP


HK1\_MB\_SCH\_PVT\_001

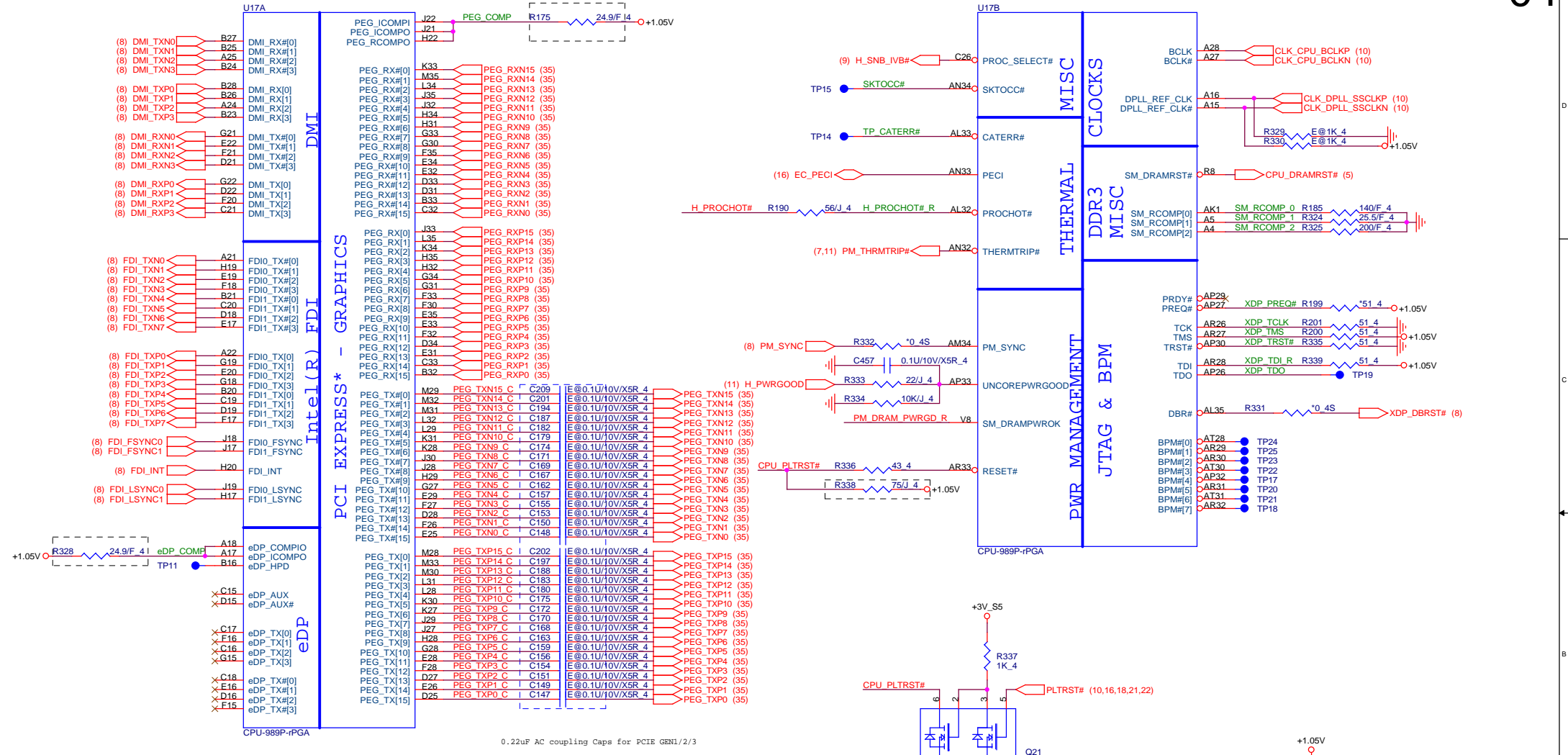
P19-- R345 change to 48.7K.  
Reason : Change thermal sensor temperature to 55 degree.  
Possible Risk: No.

P19-- R208 change to 27.4K for UMA.  
Reason : Change thermal sensor temperature to 82 degree.  
Possible Risk: No.

HK1\_MB\_SCH\_PVT\_002

P16-- KR27 change value from 10K to 4.7K.  
P33-- PD7 change value from uClamp3301D to CDSOD323-T03C.  
Reason : for Battery ESD protect.  
Possible Risk: No.

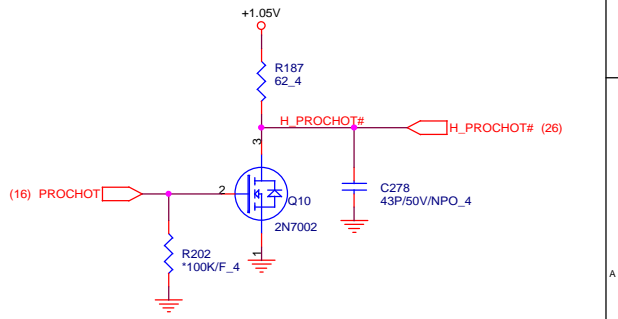
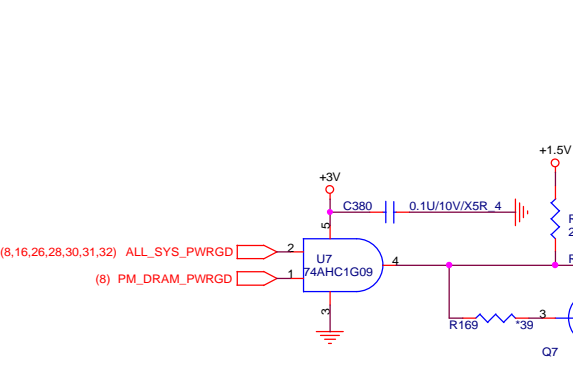
		<b>Quanta Computer Inc.</b>	
		<b>PROJECT :Huron River</b>	
Size	Document Number	Rev	
	<b>Change List</b>	2A	
Date:	Wednesday, April 06, 2011	Sheet	3 of 39



FDI Disabling (Discrete Only)

FDI\_FSYNC (J18/J17/J19/H17) can gang all these 4 signals together and tie them with only one 1K resistor to GND (DG V0.5 Ch2.2.9).

FDI\_INT connect to GND with 1K ohm.



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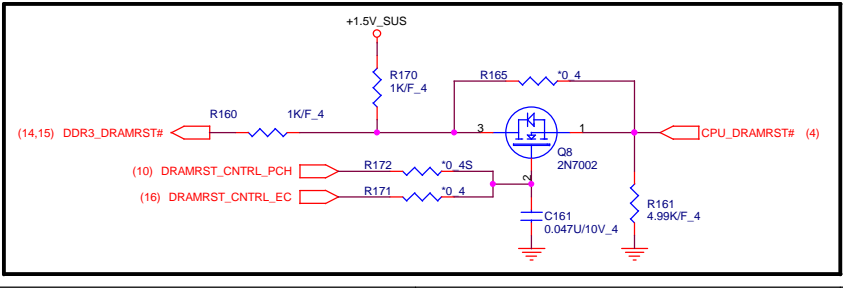
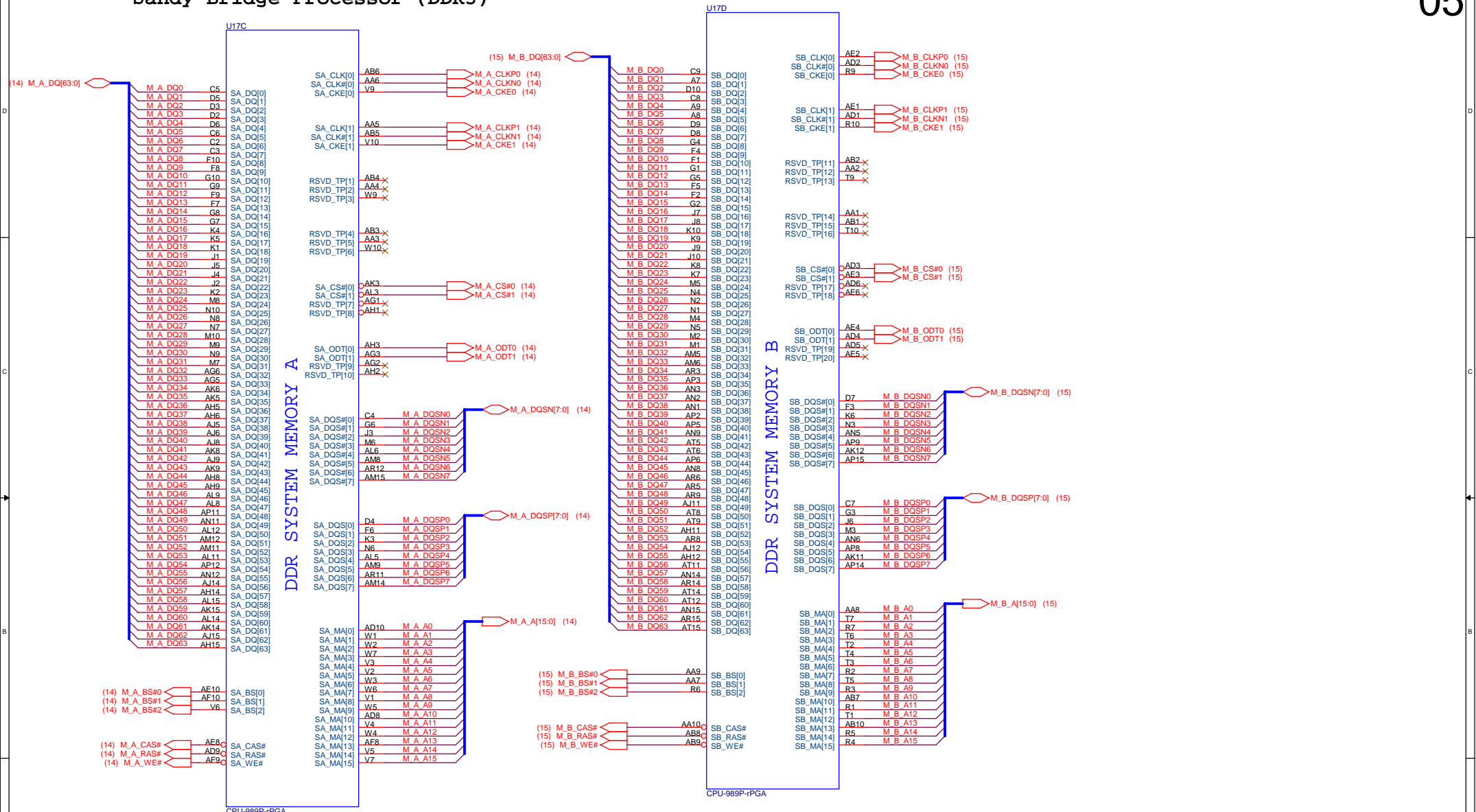
Size Document Number  
**Sandy Bridge 1/4** Rev 1A

1.Level 1 Environment-related Substances Should Never be Used.  
2.Recycled Resin and Coated Wire should be procured from Green Partners.

Date: Sunday, April 03, 2011 Sheet 4 of 39

# Sandy Bridge Processor (DDR3)

05



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**PROJECT :Huron River**

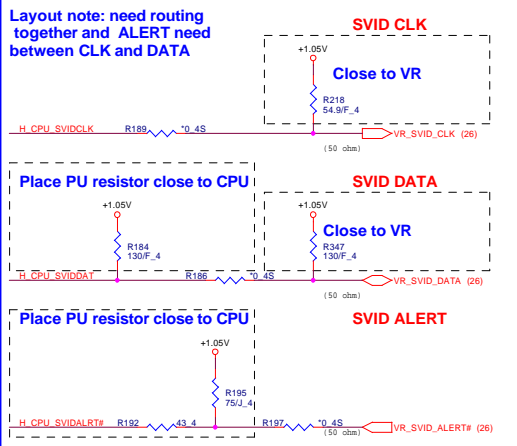
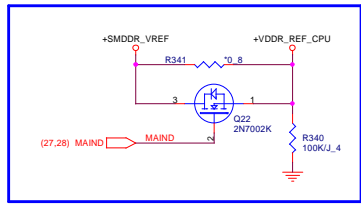
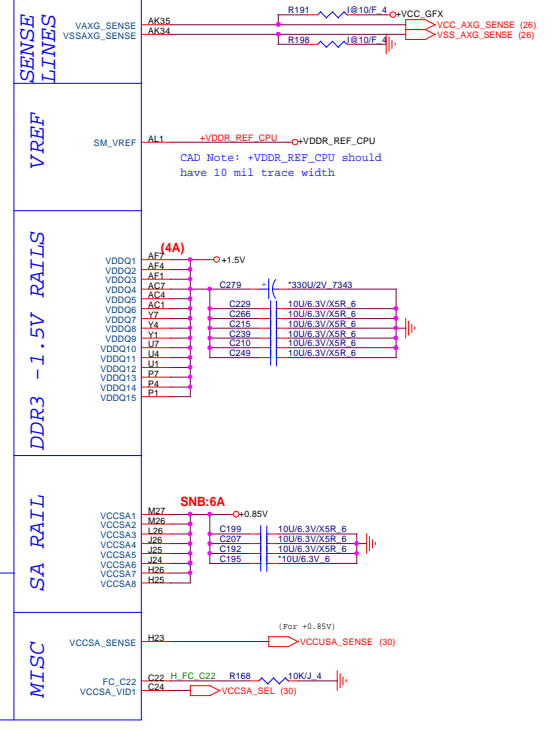
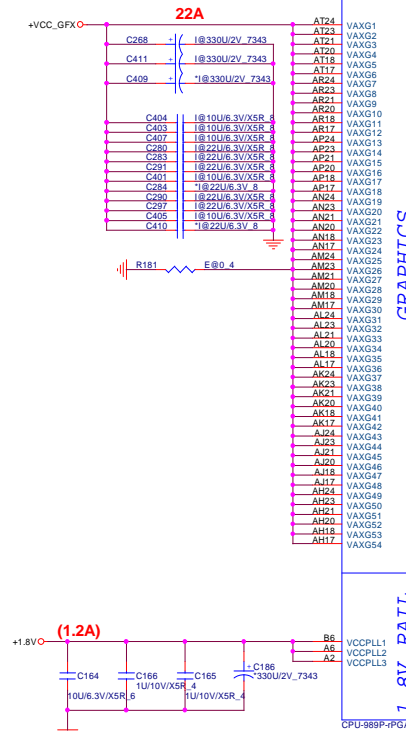
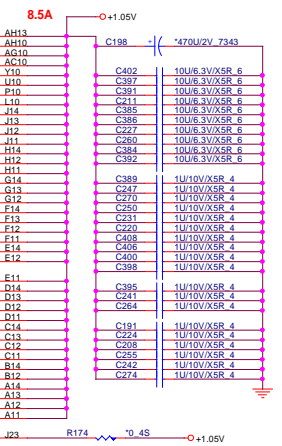
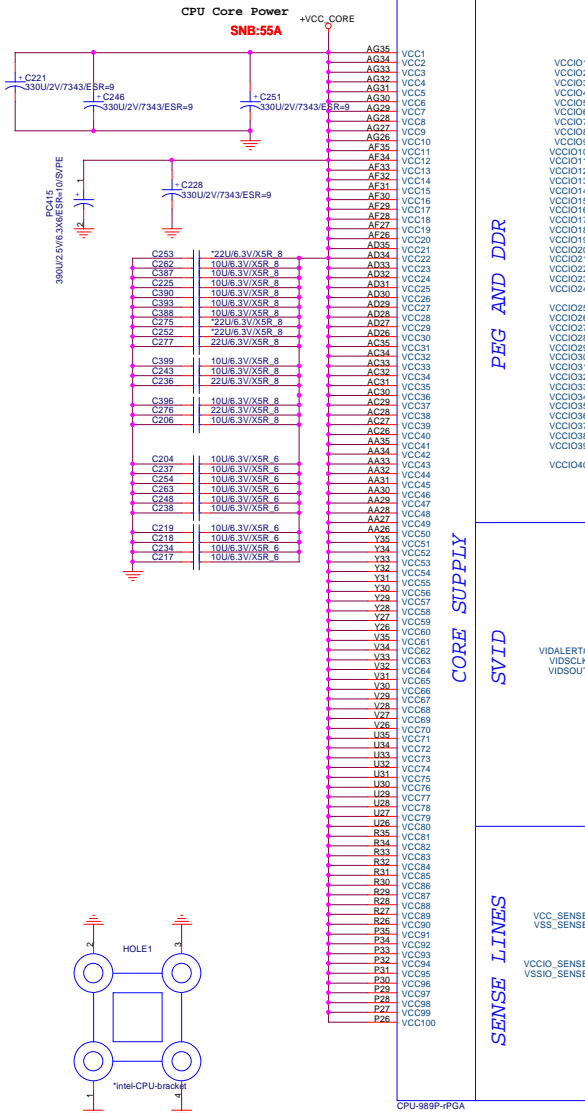
Size	Document Number	Rev
	Sandy Bridge 2/4	1A

Date: Sunday, April 03, 2011 Sheet 5 of 39

1. Level 1 Environment-related Substances Should Never be Used.  
 2. Recycled Resin and Coated Wire should be procured from Green Partners.

POWER

POWER



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**Sandy Bridge 3/4**

Size:      Document Number:      Rev: 1A

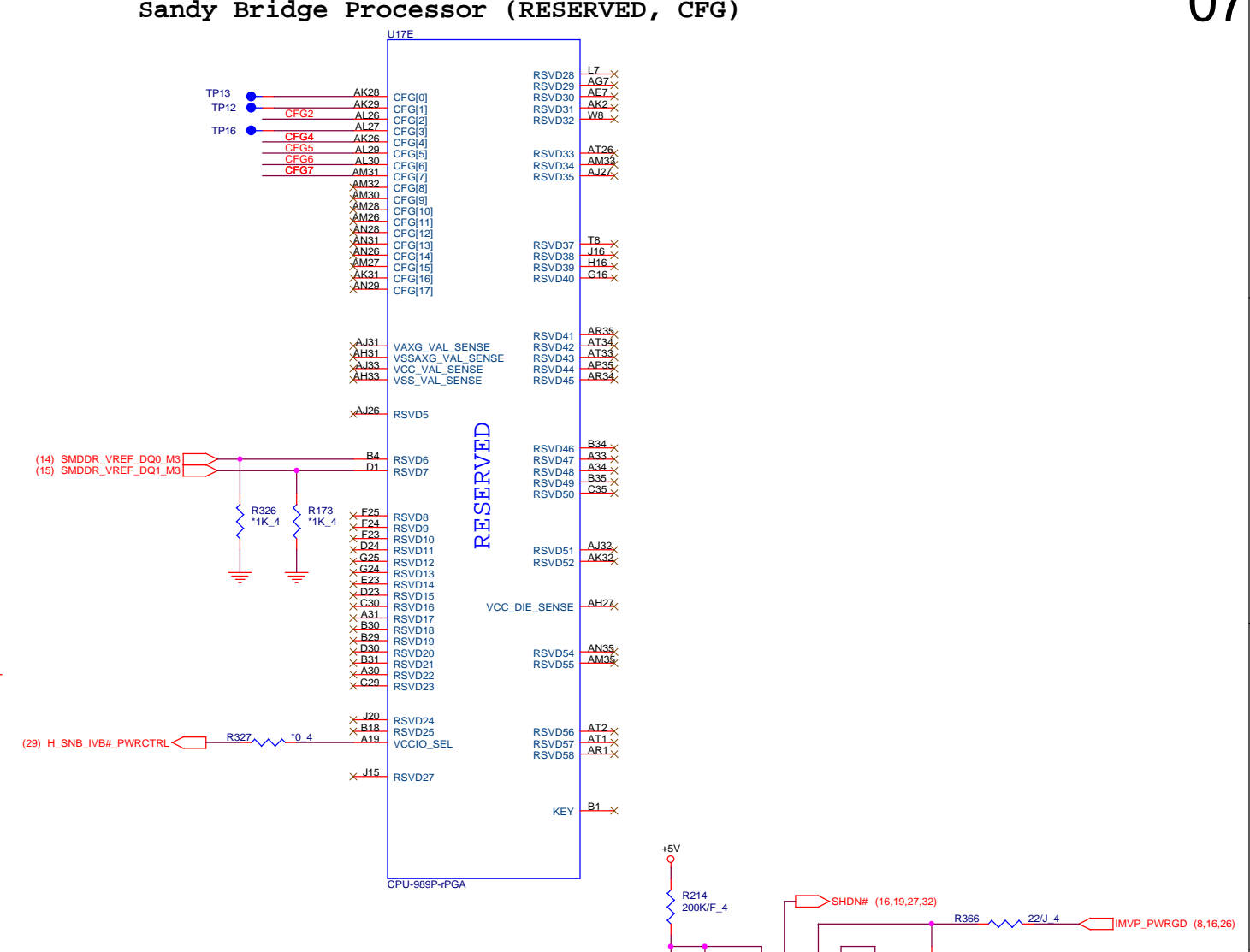
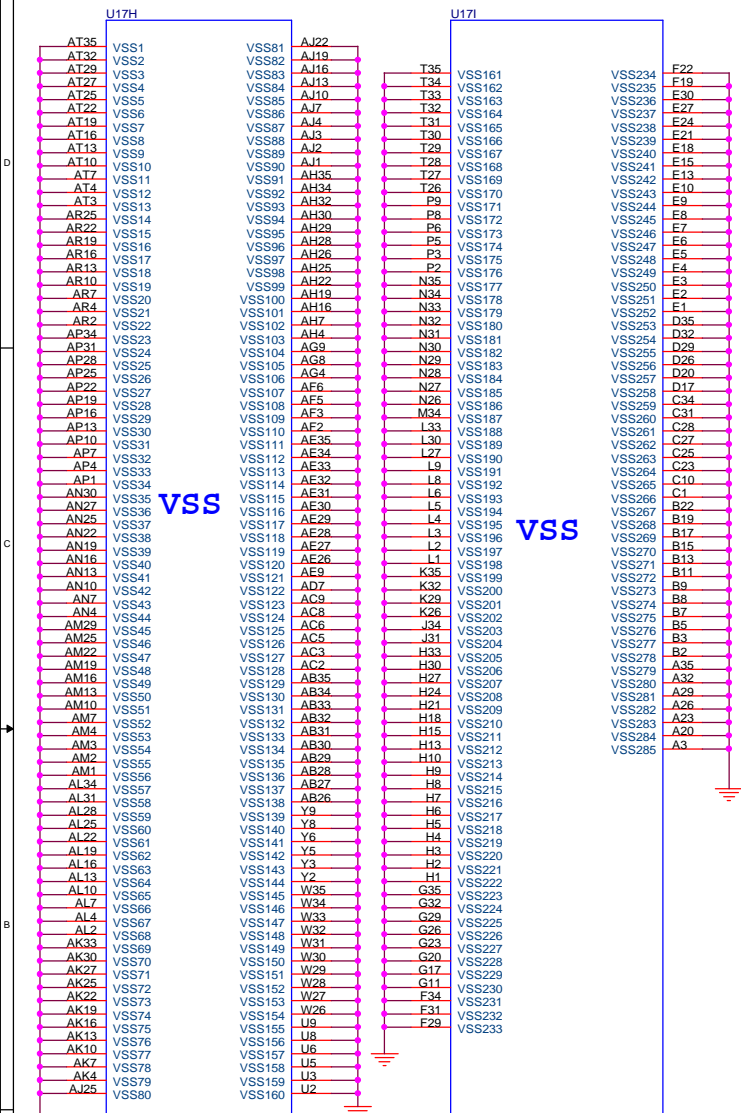
Date: Monday, February 21, 2011      Sheet: 6 of 39

1. Level 1 Environment-related Substances should Never be Used.  
 2. Recycled Resin and Coated Wire should be procured from Green Partners.



# Sandy Bridge Processor (GND)

# Sandy Bridge Processor (RESERVED, CFG)



## Processor Strapping

The CFG signals have a default value of '1' if not terminated on the board.

	1	0
CFG2 (PEG Static Lane Reversal)	Normal Operation	Lane Reversed
CFG4 (DP Presence Strap)	Disable; No physical DP attached to eDP	Enable; An ext DP device is connected to eDP
CFG7 (PEG Defer Training)	PEG train immediately following xRESETB de assertion	PEG wait for BIOS training

CFG5 R194 \*1K/F 4, CFG6 R193 \*1K/F 4

CFG[6:5] (PCIe Port Bifurcation Straps)

11: (Default) x16 - X16 PEG interface  
 10: PEG x8 x8 bifurcation enabled/disabled  
 01: Reserved - (Device 1 function 1 disabled ; function 2 enabled)  
 00: x8,x4,x4 - Device 1 functions 1 and 2 enabled

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 PROJECT :Huron River

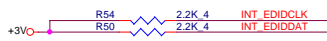
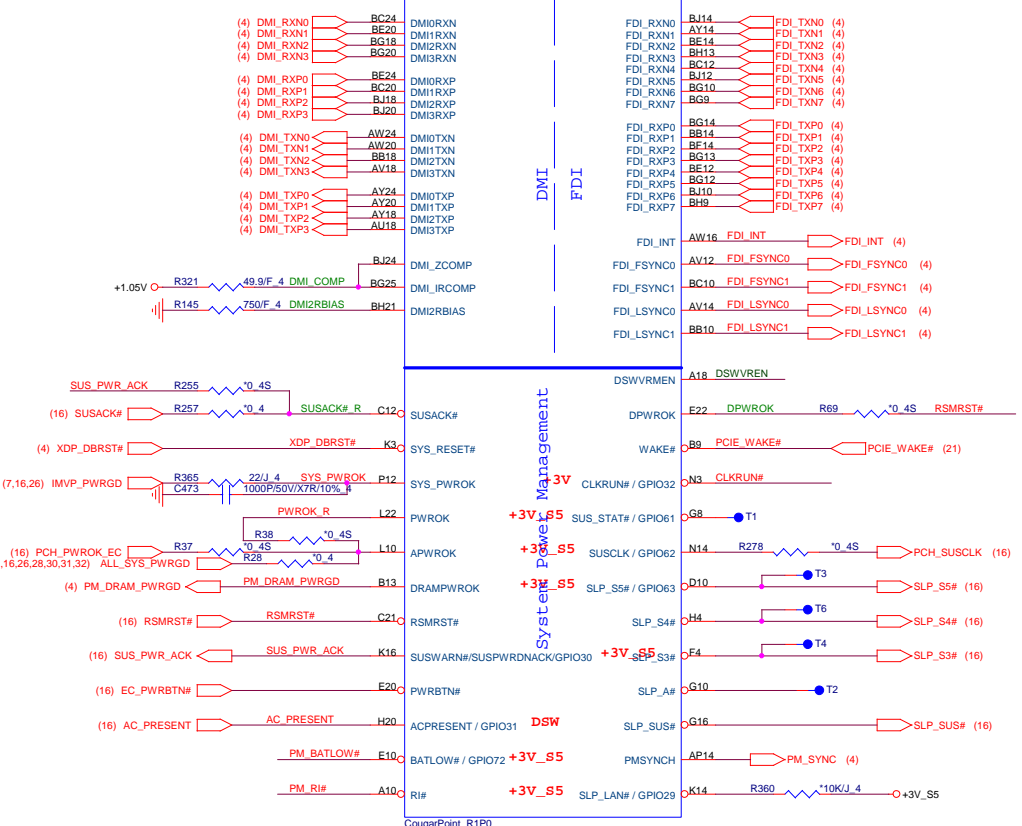
Size Document Number  
**Sandy Bridge 4/4** Rev 1A

1. Level 1 Environment-related Substances Should Never be Used.  
 2. Recycled Resin and Coated Wire should be procured from Green Partners.

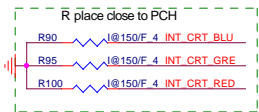
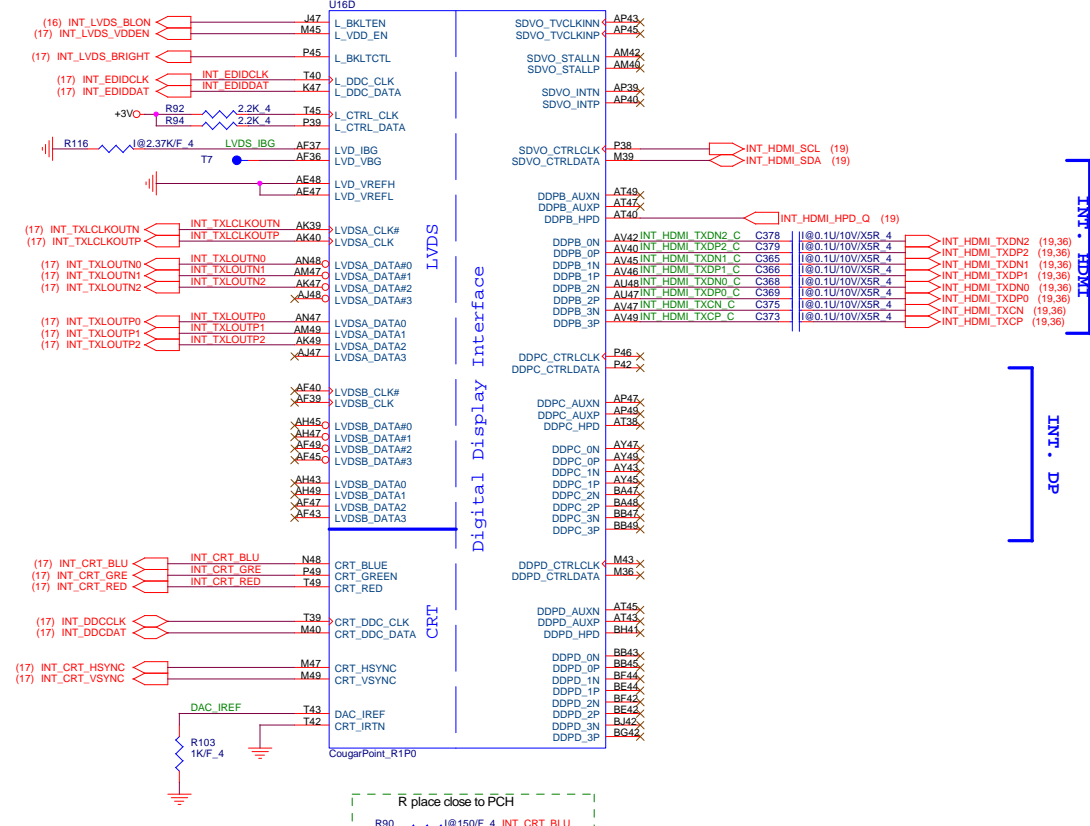
Date: Monday, February 21, 2011 Sheet 7 of 39

# Cougar Point (DMI, FDI, PM)

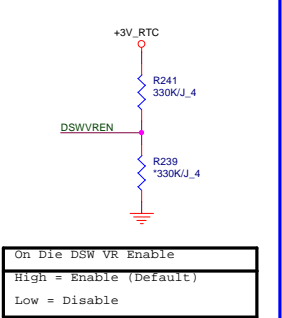
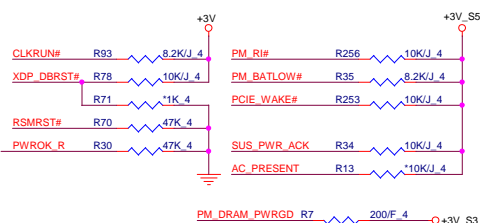
U16C



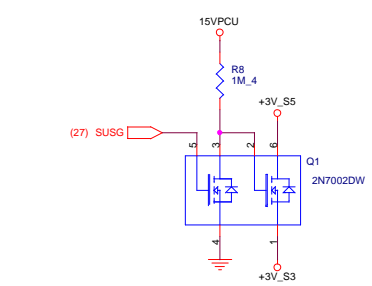
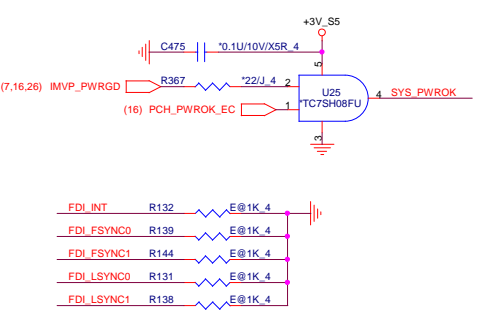
# Cougar Point (LVDS, DDI)



## PCH Pull-high/low (CLG)



On Die DSW VR Enable  
 High = Enable (Default)  
 Low = Disable

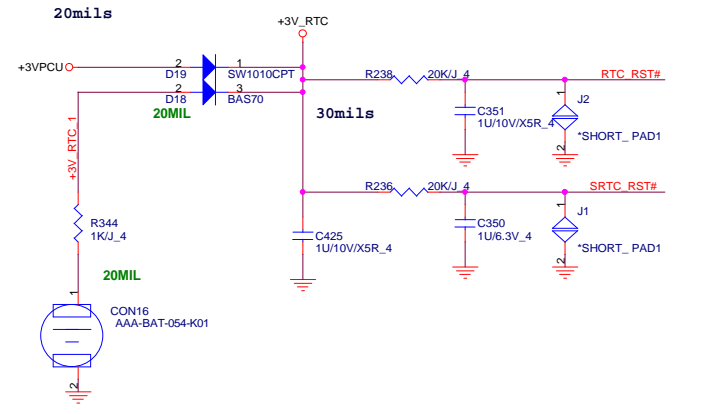


**Quanta Computer Inc.**  
 PROJECT :Huron River

Size	Document Number	Rev
	Cougar Point 1/6	1A

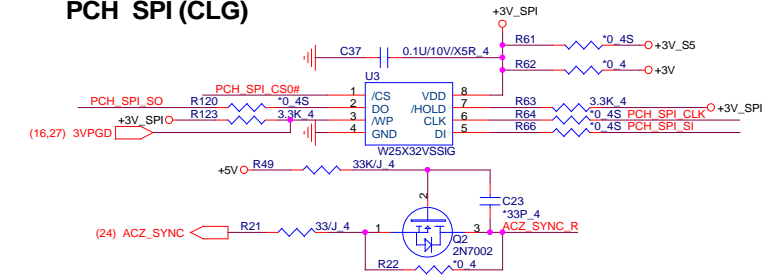


### RTC Circuitry(RTC)



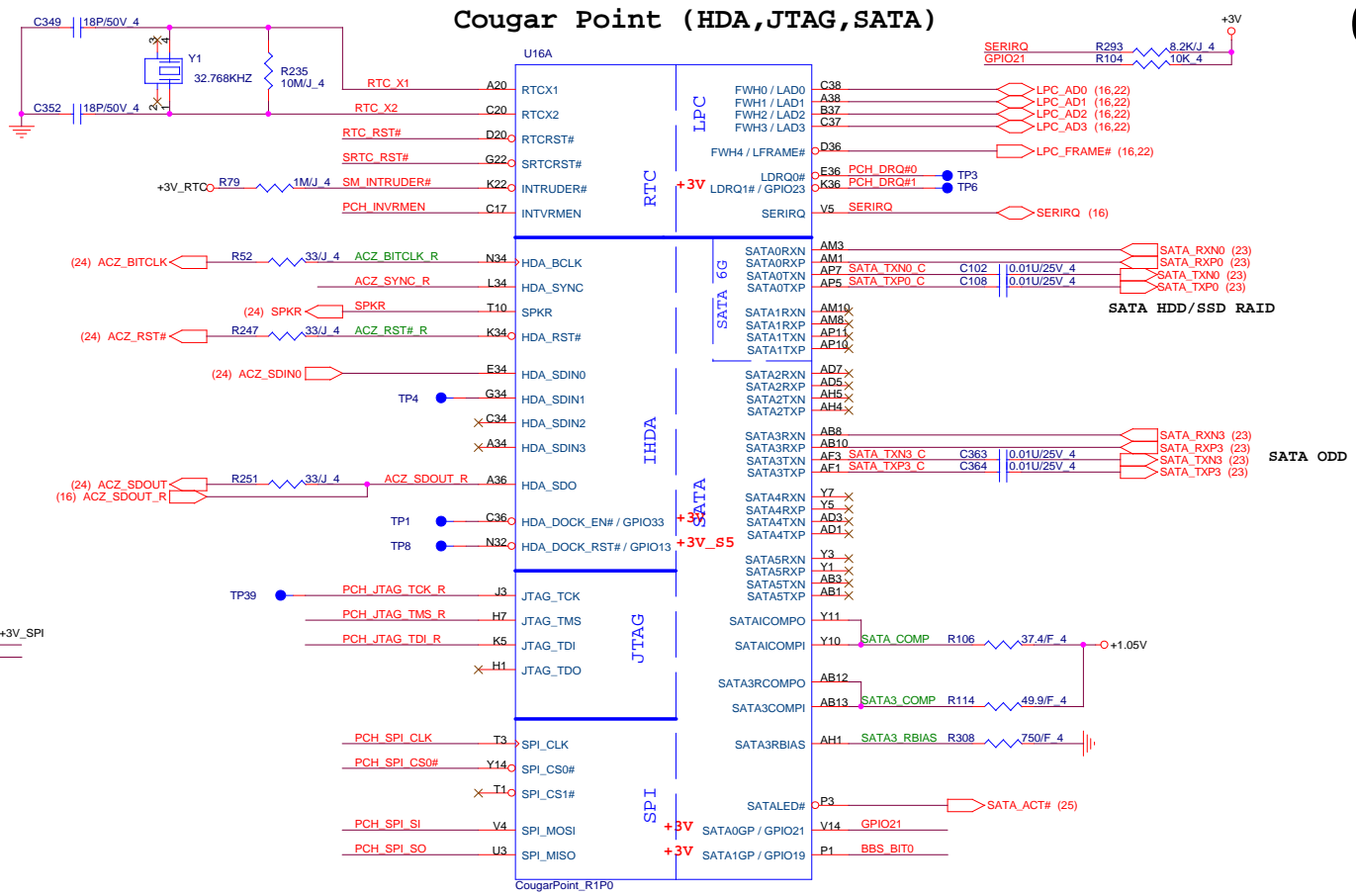
MX25L3205DM2I-12G: AKE39FP0Z00  
W25X32VSSIG: AKE39ZP0N00

### PCH SPI (CLG)

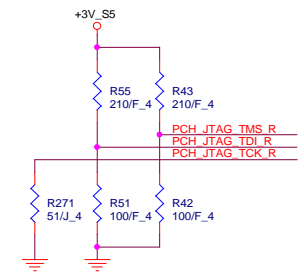


Pin Name	Strap description	Sampled	Configuration	HK1/HK2 note									
SPKR	No reboot mode setting	PWR0K	0 = Default (weak pull-down 20K) 1 = Setting to No-Reboot mode	+3V_0 R105 *1K 4 SPKR									
GNT3# / GPIO55	Top-Block Swap Override	PWR0K	0 = "top-block swap" mode 1 = Default (weak pull-up 20K)	R270 *1K 4 PCL_GNT3# (10)									
INTVRMEN	Integrated 1.05V VRM enable	ALWAYS	<b>Should be always pull-up</b>	+3V_RTC_0 R242 *330K/J 4 PCH_INVRMEN									
GNT1# / GPIO51	Boot BIOS Selection 1 [bit-1]	PWR0K	<table border="1"> <thead> <tr> <th>GNT1#</th> <th>GNT0#</th> <th>Boot Location</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>1</td> <td>SPI *</td> </tr> <tr> <td>0</td> <td>0</td> <td>LPC</td> </tr> </tbody> </table>	GNT1#	GNT0#	Boot Location	1	1	SPI *	0	0	LPC	Default weak pull-up on GNT0/1# [Need external pull-down for LPC BIOS]
GNT1#	GNT0#	Boot Location											
1	1	SPI *											
0	0	LPC											
GPIO19	Boot BIOS Selection 0 [bit-0]	PWR0K	R266 *1K 4 BBS_BIT1 (10) R289 *1K 4 BBS_BIT0										
HDA_SDO	Flash Descriptor Security	PWR0K	0 = Default (weak pull-down 20K) 1 = Enabled	+3V_0 R250 *1K 4 ACZ_SDOOUT_R									
DF_TVS	DMI/FDI Termination voltage	PWR0K	0 = Set to Vss 1 = Set to Vcc (weak pull-down 20K)	R140 *2.2K 4 +1.8V R320 *1K 4 NV_CLE (11) H_SNB_IVB# (4)									
GPIO28	On-die PLL Voltage Regulator	RSMRST#	0 = Disable 1 = Enable (Default)	R91 *1K 4 PLL_ODVR_EN (11)									
HDA_SYNC	On-Die PLL VR Voltage Select	RSMRST	0 = Support by 1.8V (weak pull-down) 1 = Support by 1.5V	+3V_S5_0 R29 *1K 4 ACZ_SYNC_R									

### Cougar Point (HDA, JTAG, SATA)




### PCH JTAG Debug (CLG)



### PCH Strap Table

Pin Name	Strap description	Sampled	Configuration	HK1/HK2 note									
SPKR	No reboot mode setting	PWR0K	0 = Default (weak pull-down 20K) 1 = Setting to No-Reboot mode	+3V_0 R105 *1K 4 SPKR									
GNT3# / GPIO55	Top-Block Swap Override	PWR0K	0 = "top-block swap" mode 1 = Default (weak pull-up 20K)	R270 *1K 4 PCL_GNT3# (10)									
INTVRMEN	Integrated 1.05V VRM enable	ALWAYS	<b>Should be always pull-up</b>	+3V_RTC_0 R242 *330K/J 4 PCH_INVRMEN									
GNT1# / GPIO51	Boot BIOS Selection 1 [bit-1]	PWR0K	<table border="1"> <thead> <tr> <th>GNT1#</th> <th>GNT0#</th> <th>Boot Location</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>1</td> <td>SPI *</td> </tr> <tr> <td>0</td> <td>0</td> <td>LPC</td> </tr> </tbody> </table>	GNT1#	GNT0#	Boot Location	1	1	SPI *	0	0	LPC	Default weak pull-up on GNT0/1# [Need external pull-down for LPC BIOS]
GNT1#	GNT0#	Boot Location											
1	1	SPI *											
0	0	LPC											
GPIO19	Boot BIOS Selection 0 [bit-0]	PWR0K	R266 *1K 4 BBS_BIT1 (10) R289 *1K 4 BBS_BIT0										
HDA_SDO	Flash Descriptor Security	PWR0K	0 = Default (weak pull-down 20K) 1 = Enabled	+3V_0 R250 *1K 4 ACZ_SDOOUT_R									
DF_TVS	DMI/FDI Termination voltage	PWR0K	0 = Set to Vss 1 = Set to Vcc (weak pull-down 20K)	R140 *2.2K 4 +1.8V R320 *1K 4 NV_CLE (11) H_SNB_IVB# (4)									
GPIO28	On-die PLL Voltage Regulator	RSMRST#	0 = Disable 1 = Enable (Default)	R91 *1K 4 PLL_ODVR_EN (11)									
HDA_SYNC	On-Die PLL VR Voltage Select	RSMRST	0 = Support by 1.8V (weak pull-down) 1 = Support by 1.5V	+3V_S5_0 R29 *1K 4 ACZ_SYNC_R									



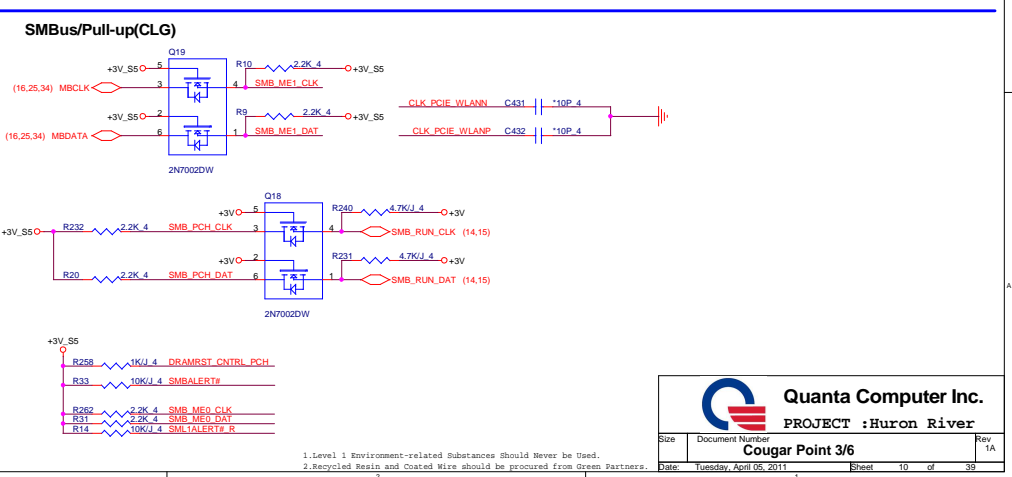
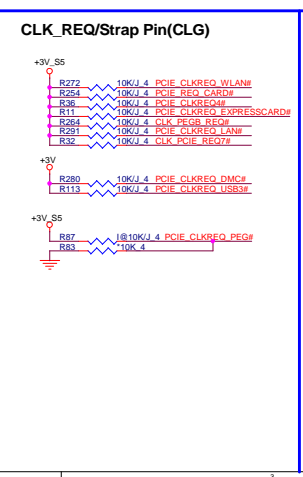
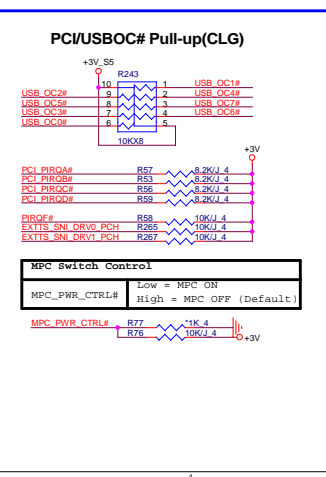
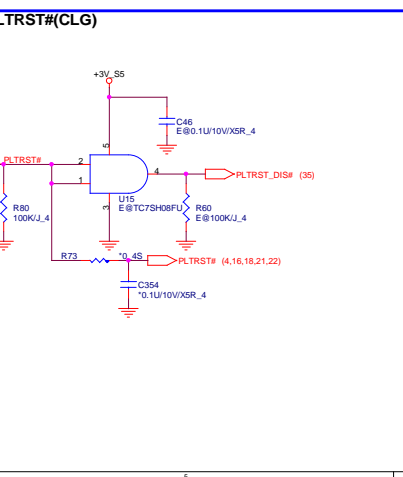
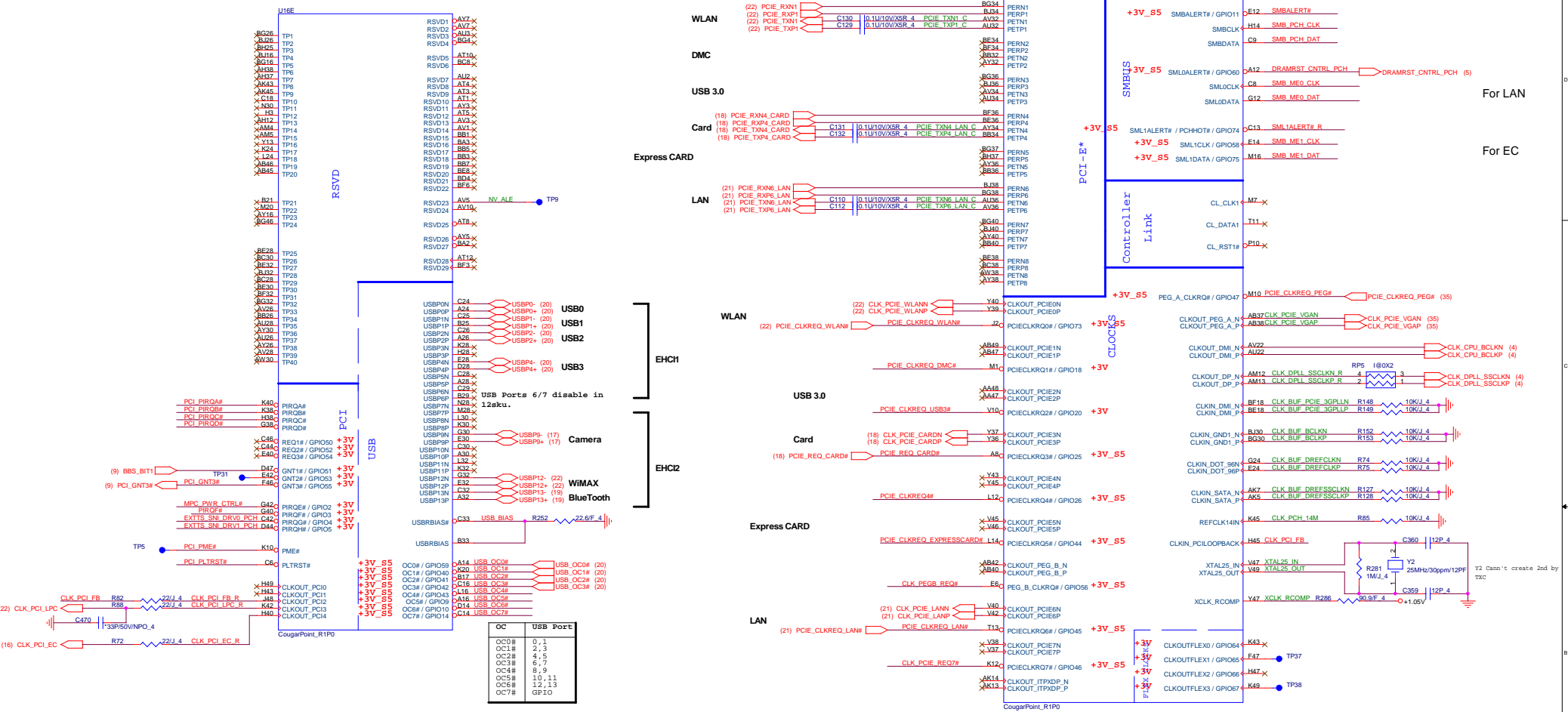
**Quanta Computer Inc.**  
PROJECT :Huron River

Size	Document Number	Rev
	<b>Cougar Point 2/6</b>	1A

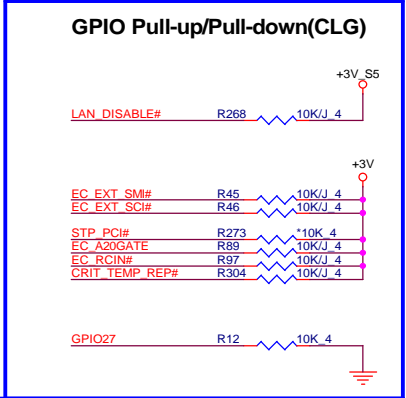
Date: Sunday, April 03, 2011 Sheet 9 of 39

Cougar Point-M (PCI,USB,NVRAM)

Cougar Point-M (PCI-E,SMBUS,CLK)



# Cougar Point (GPIO,VSS\_NCTF,RSVD)



### Board ID0 (N12M/N12P)

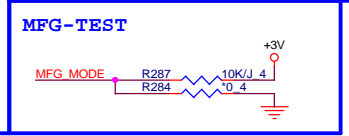
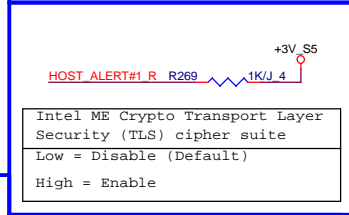
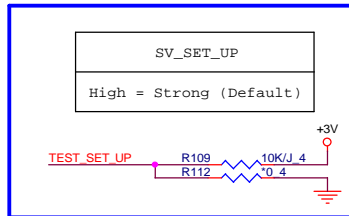
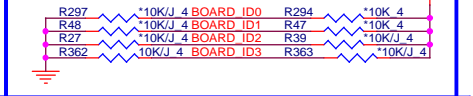
	N12M	N12P
R294	Stuff	No Stuff
R297	No Stuff	Stuff

### Board ID1 (VRAM Vendor)

	Samaung	Hynix
R47	Stuff	No Stuff
R48	No Stuff	Stuff

### Board ID2 (VRAM 1G/512M)

	1G	512M
R39	Stuff	No Stuff
R27	No Stuff	Stuff



### PCBA SKU

PCBA SKU	Discrete	UMA
R277	Stuff	No Stuff
R275	No Stuff	Stuff

**FDI TERMINATION VOLTAGE OVERRIDE**

Low - Tx, Rx terminated to same voltage

**DMI TERMINATION VOLTAGE OVERRIDE**

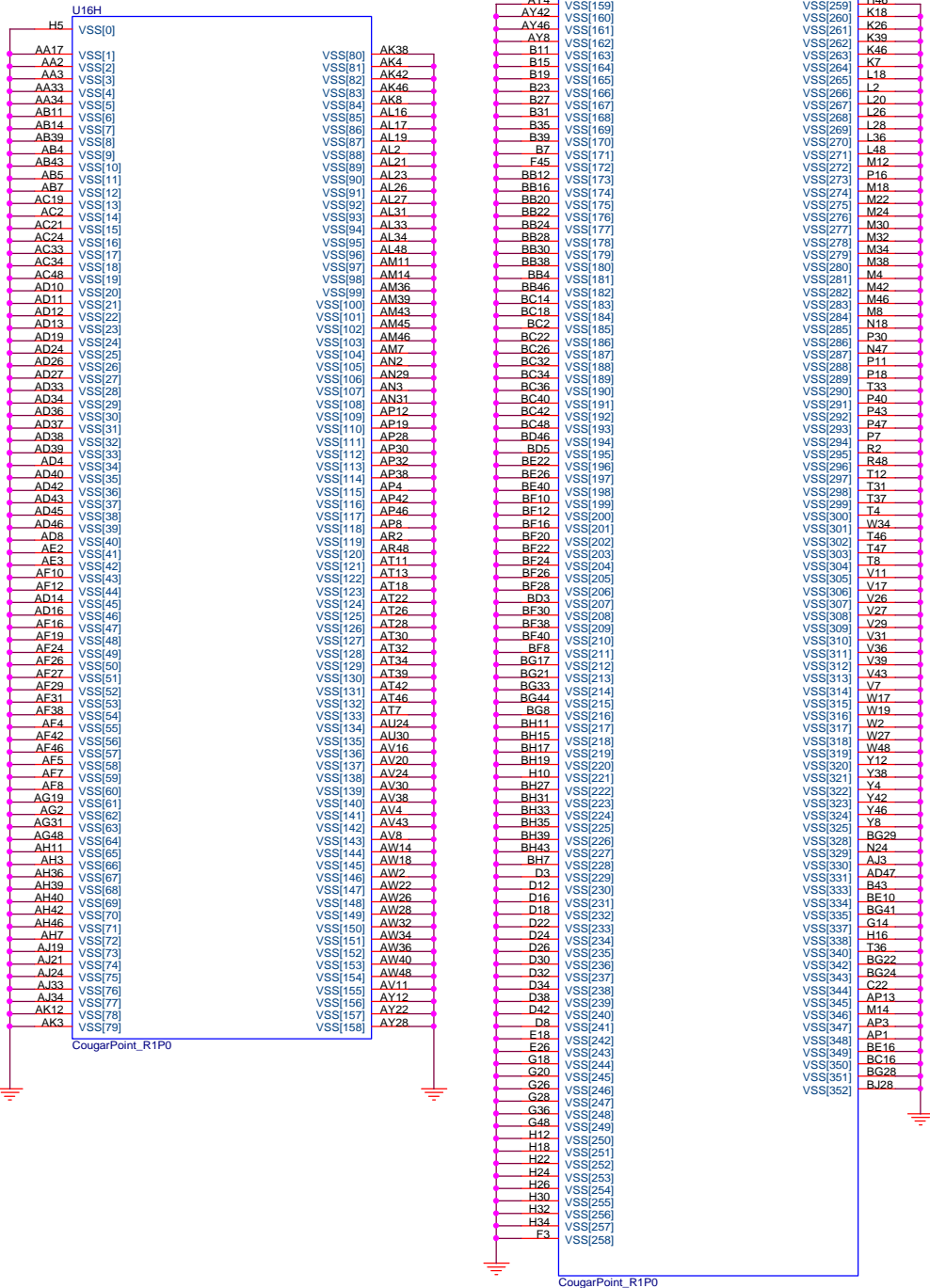
Low = Tx, Rx terminated to same voltage (DC Coupling Mode) (DEFAULT)

**BIOS RECOVERY**

High = Disable (Default)  
Low = Enable

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PROJECT :Huron River



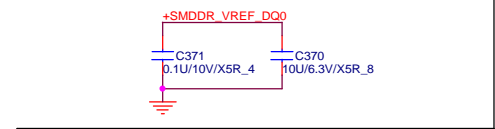
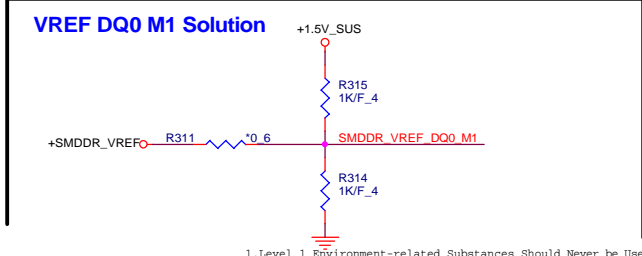
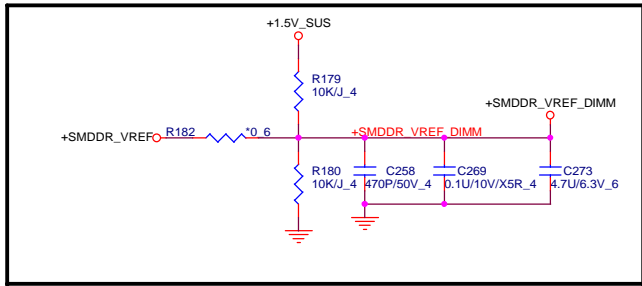
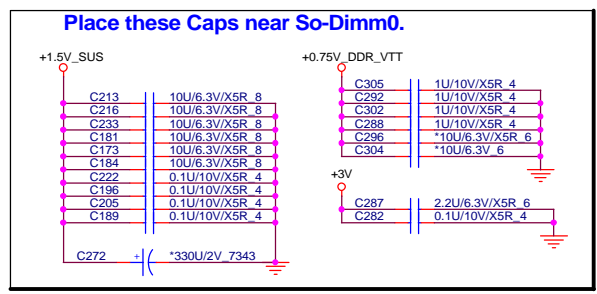
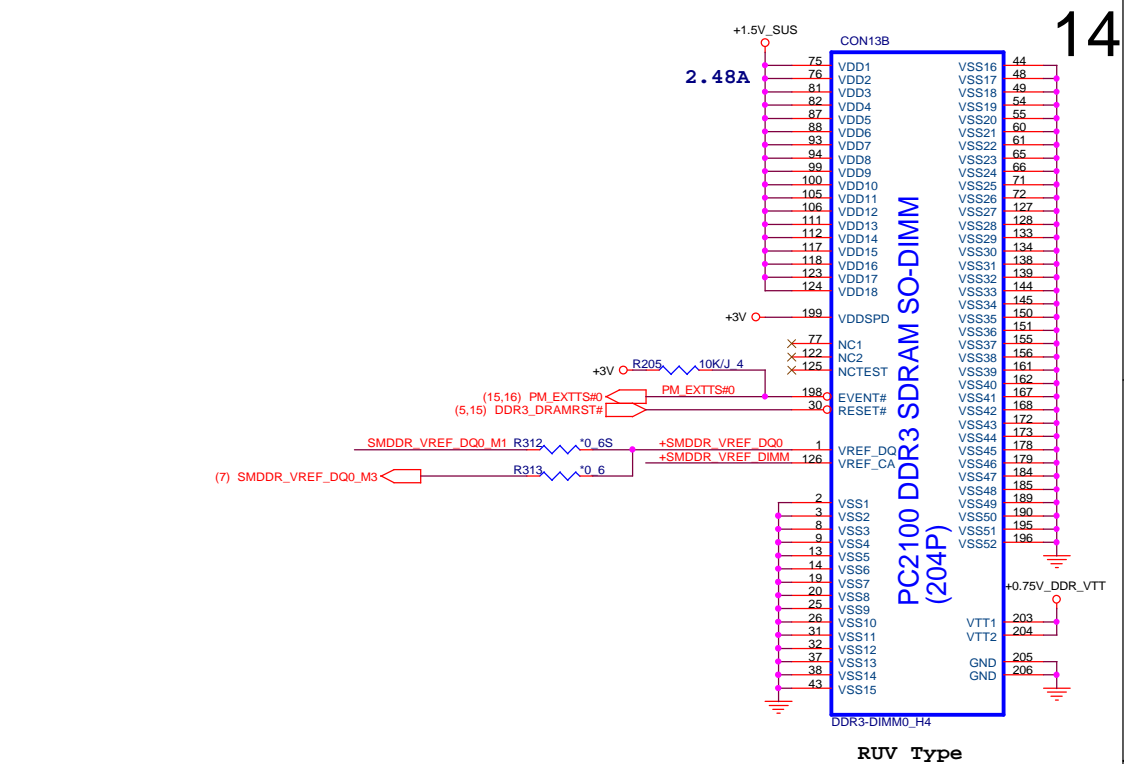
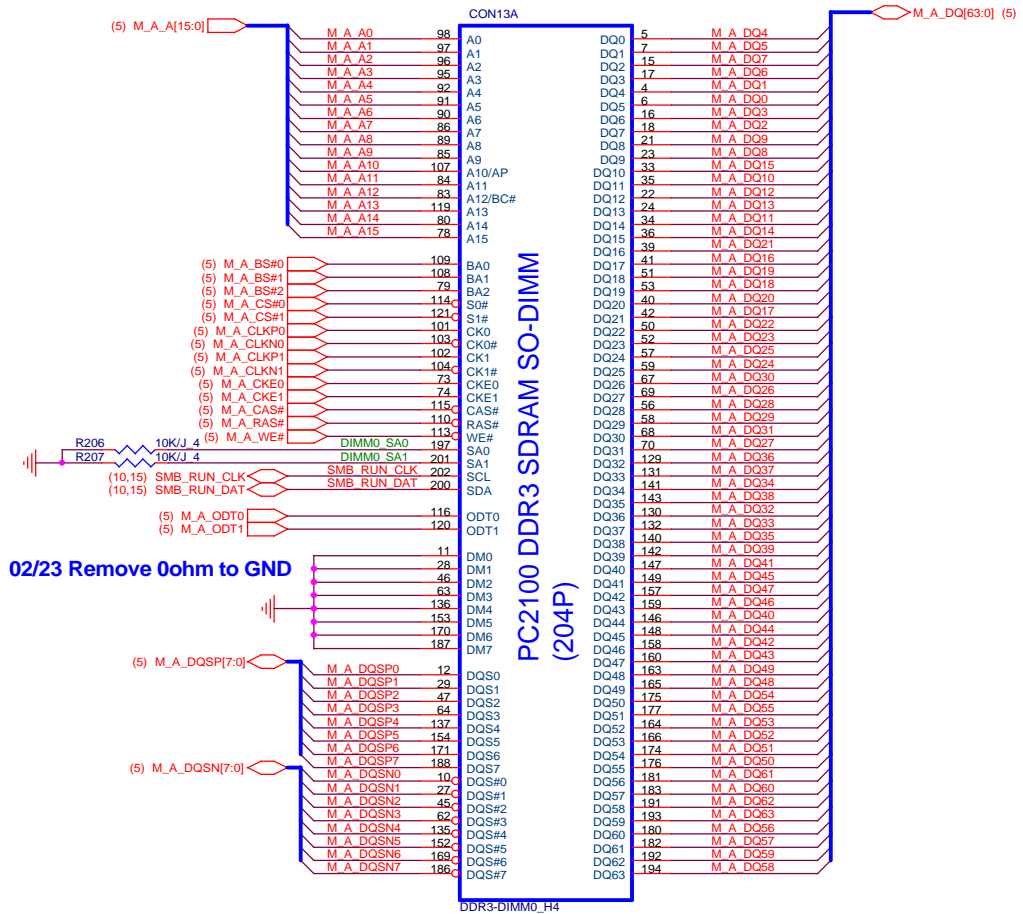


**Quanta Computer Inc.**  
 PROJECT :Huron River  
 Cougar Point 6/6

Size	Document Number	Rev
		1A

1.Level 1 Environment-related Substances Should Never be Used.  
 2.Recycled Resin and Coated Wire should be procured from Green Partners.

Date: Monday, February 21, 2011 Sheet 13 of 39



**Quanta Computer Inc.**

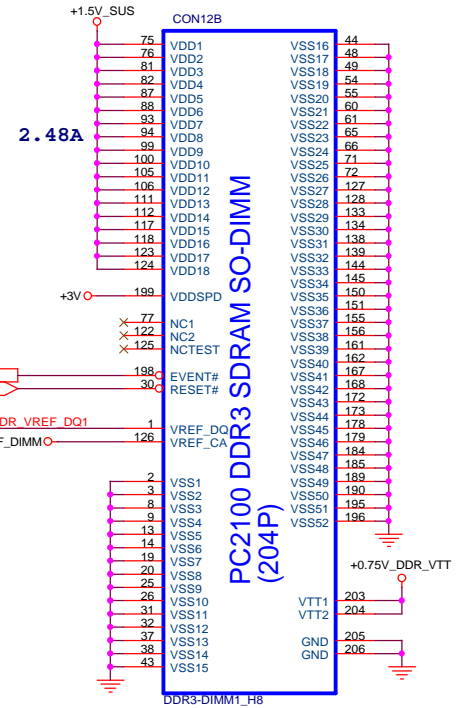
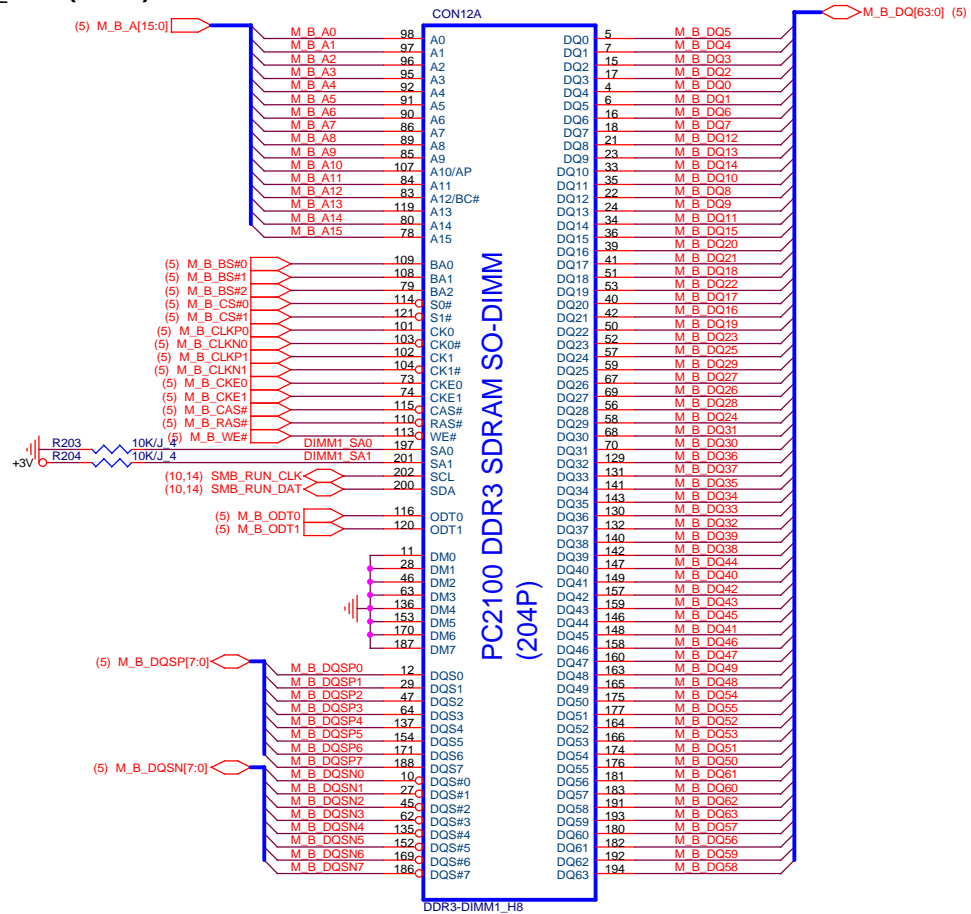
**PROJECT :Huron River**

Size	Document Number	Rev
	<b>DDR3 SO-DIMM-0</b>	1A

Date: Tuesday, April 05, 2011 Sheet 14 of 39

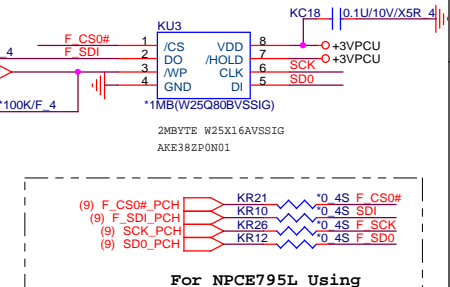
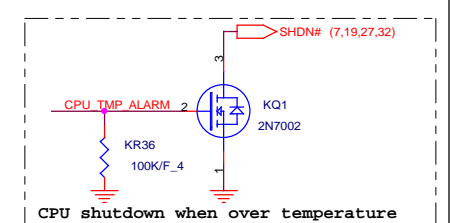
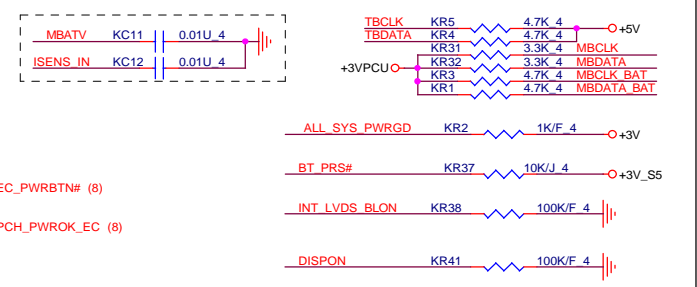
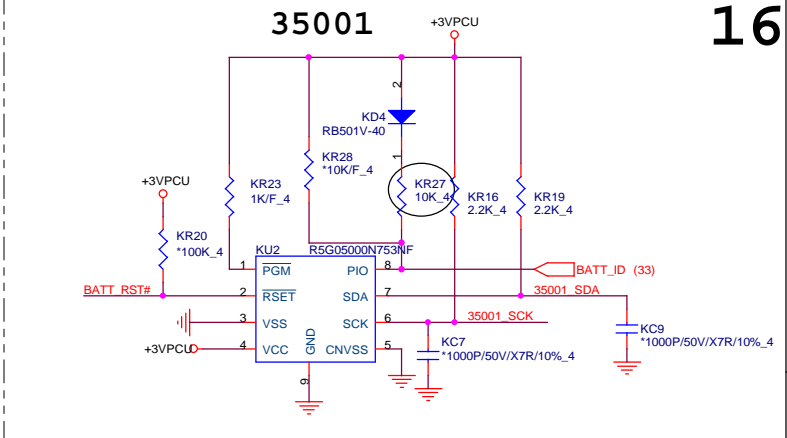
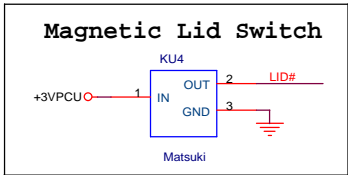
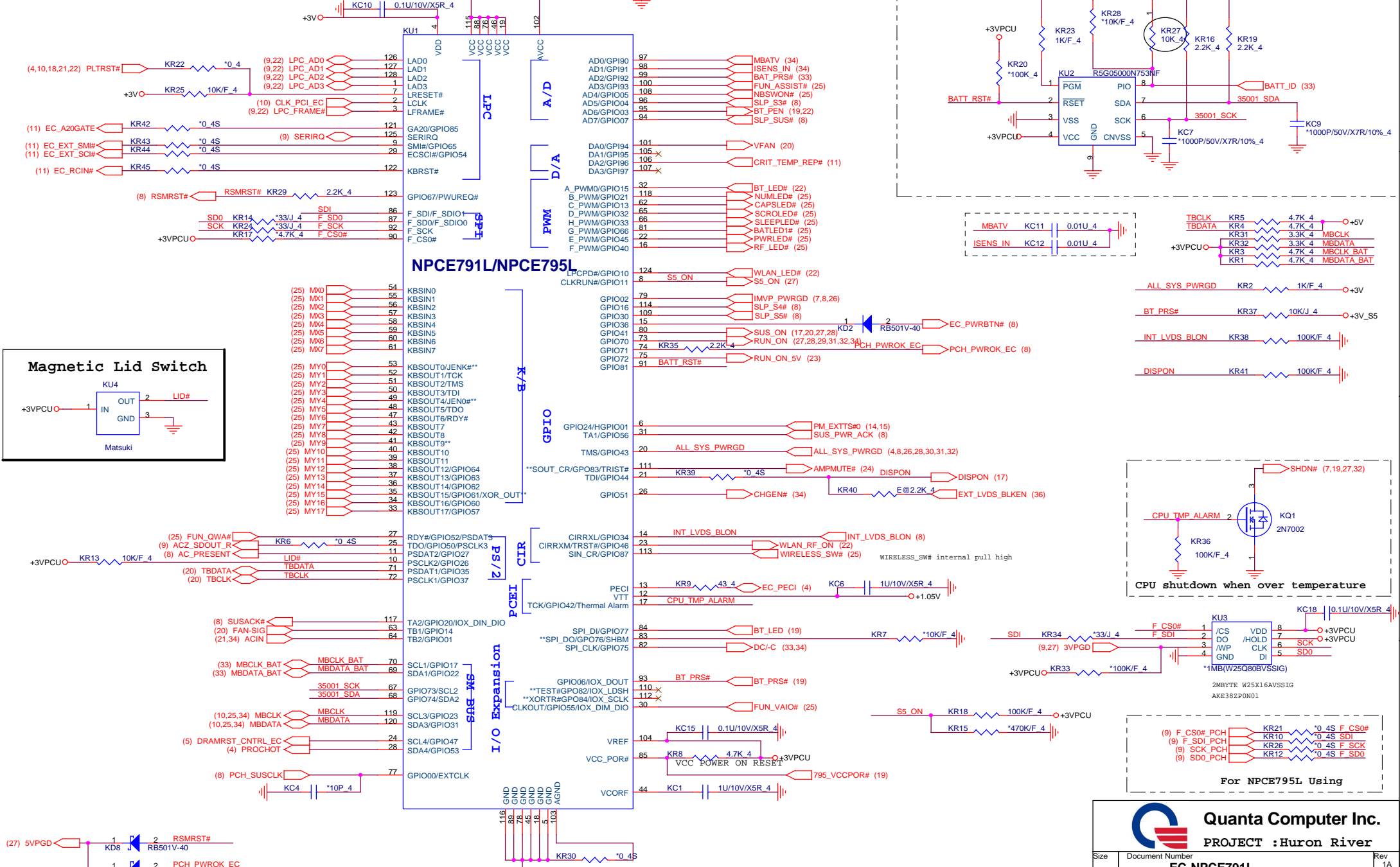


DDR\_RVS (DDR)



\*\* Strapping Pin, Can not pull low.  
Note the input leakage current to the strap pins must be less than 10uA.

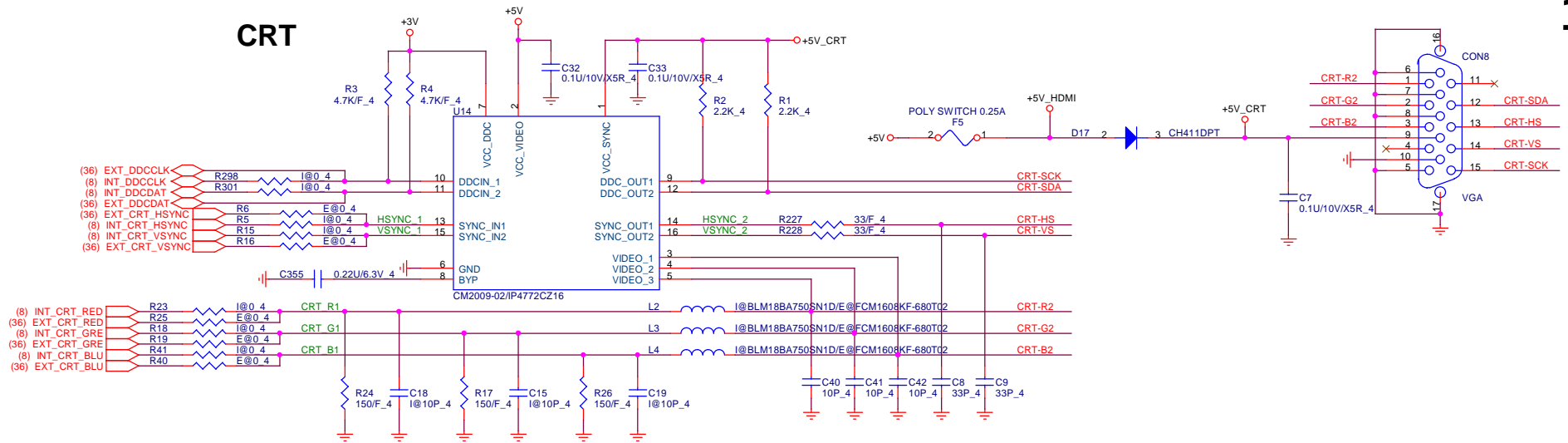
Since ECSCI is OD, no need for a back-drive protection diode on this signal. But note there is internal PU in chipset at default



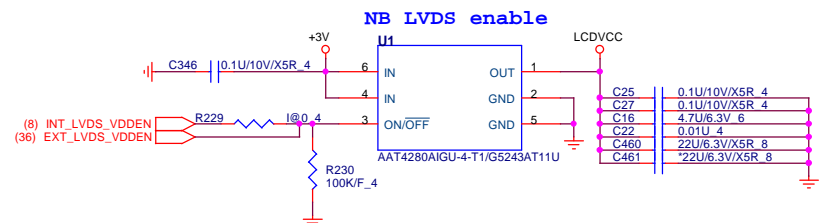
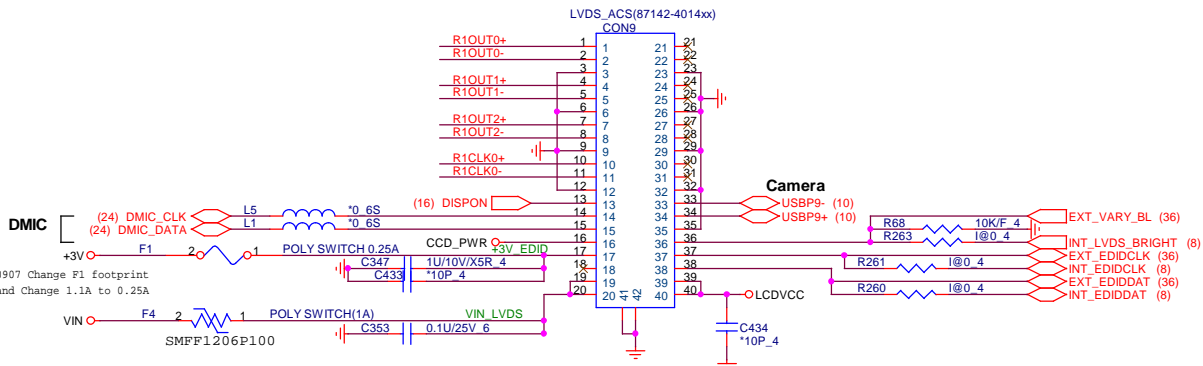
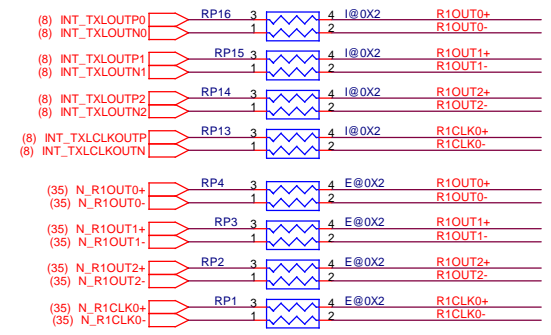
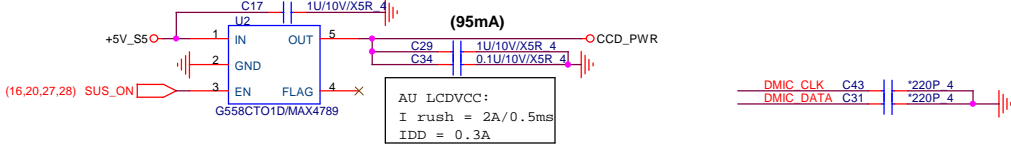
**Quanta Computer Inc.**  
**PROJECT :Huron River**  
**EC-NPCE791L**

Size	Document Number	Rev
		1A


# CRT



## USB Camera Power



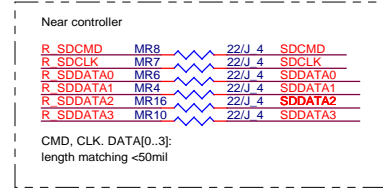
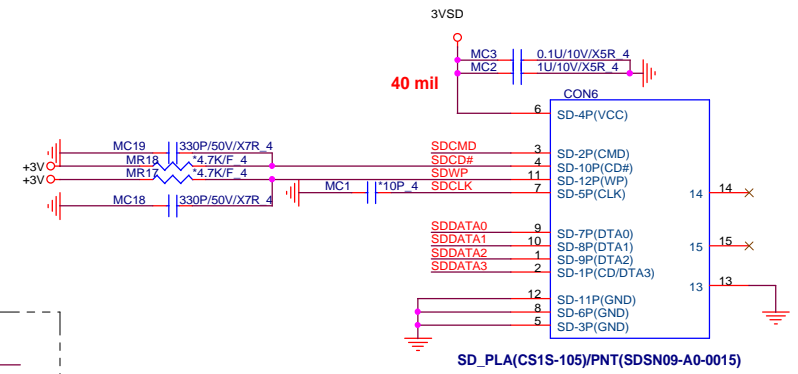
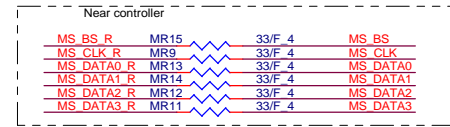
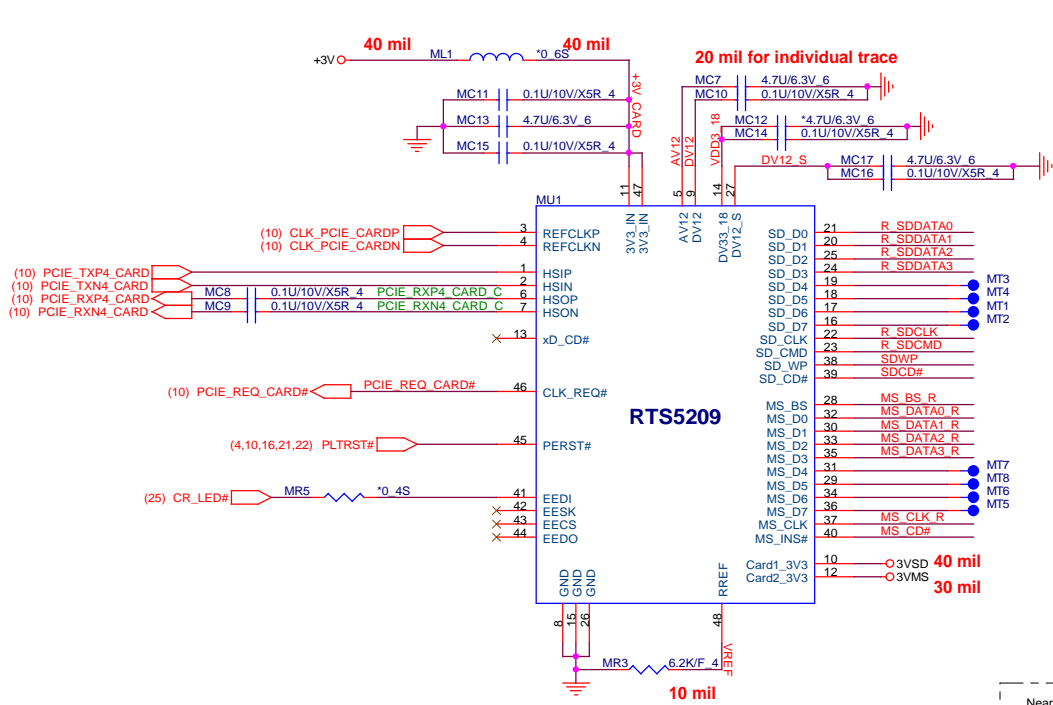
0907 Change F1 footprint and Change 1.1A to 0.25A



**Quanta Computer Inc.**  
PROJECT :Huron River

Size	Document Number	Rev
	<b>CRT/LVDS</b>	1A
Date: Tuesday, April 05, 2011		Sheet 17 of 39

1. Level 1 Environment-related Substances Should Never be Used.  
2. Recycled Resin and Coated Wire should be procured from Green Partners.

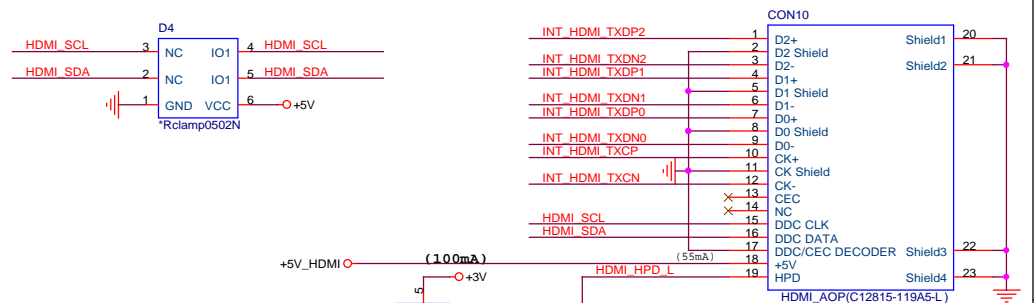
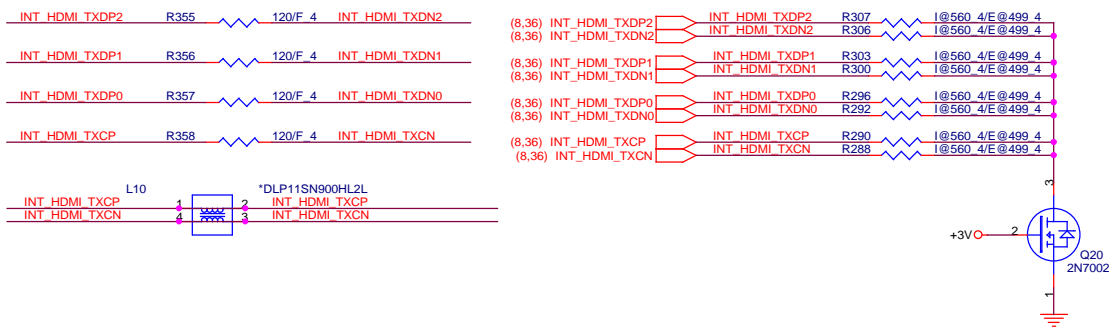


**Quanta Computer Inc.**  
PROJECT :Huron River  
**CARD**

Size	Document Number	Rev
		1A

Date: Monday, February 21, 2011 Sheet 18 of 39

1.Level 1 Environment-related Substances Should Never be Used.  
2.Recycled Resin and Coated Wire should be procured from Green Partners.



**DIS SKU**

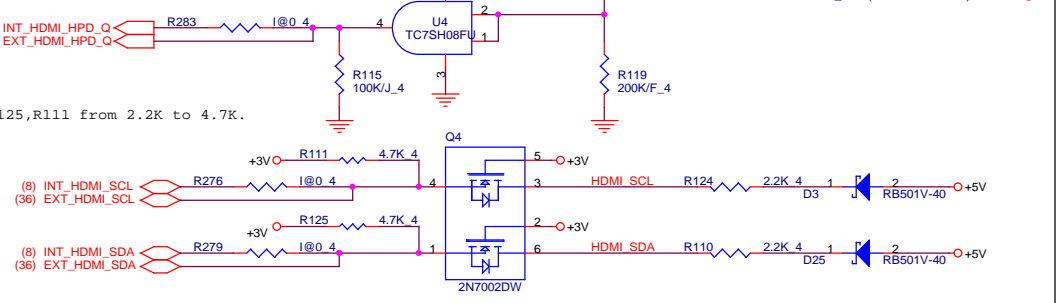
Location of IC	Temp	R-Set	Parts in BOM	Max	Min
Near CPU sensor temp	73	R208=34.59K	34.8K	73.2	72.2
Near GFX sensor temp	73	R146=34.59K	34.8K	73.2	72.2
Near AUDIO sensor temp	55	R345=48.58K	48.7K	55.5	54.2

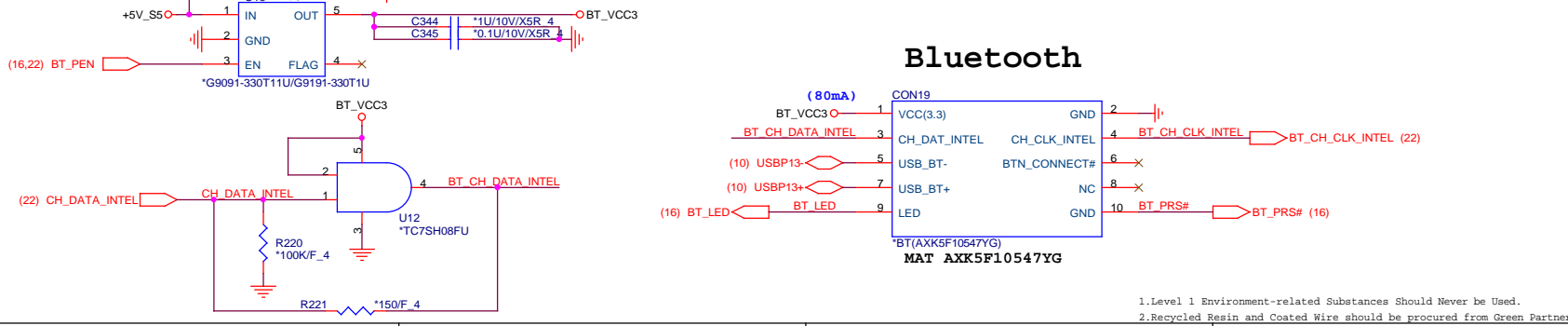
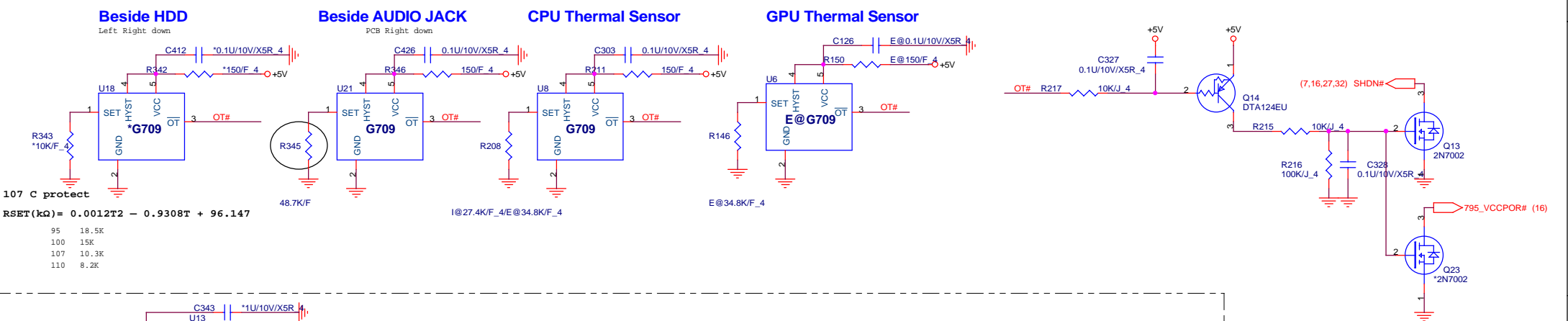
**UMA SKU**

Location of IC	Temp	R-Set	Parts in BOM	Max	Min
Near CPU sensor temp	82	R208=27.89K	27.4K	83.1	82.2
Near AUDIO sensor temp	55	R345=48.58K	48.7K	55.5	54.2

1/18 Change R125,R111 from 2.2K to 4.7K.



**H/W Thermal Protect**



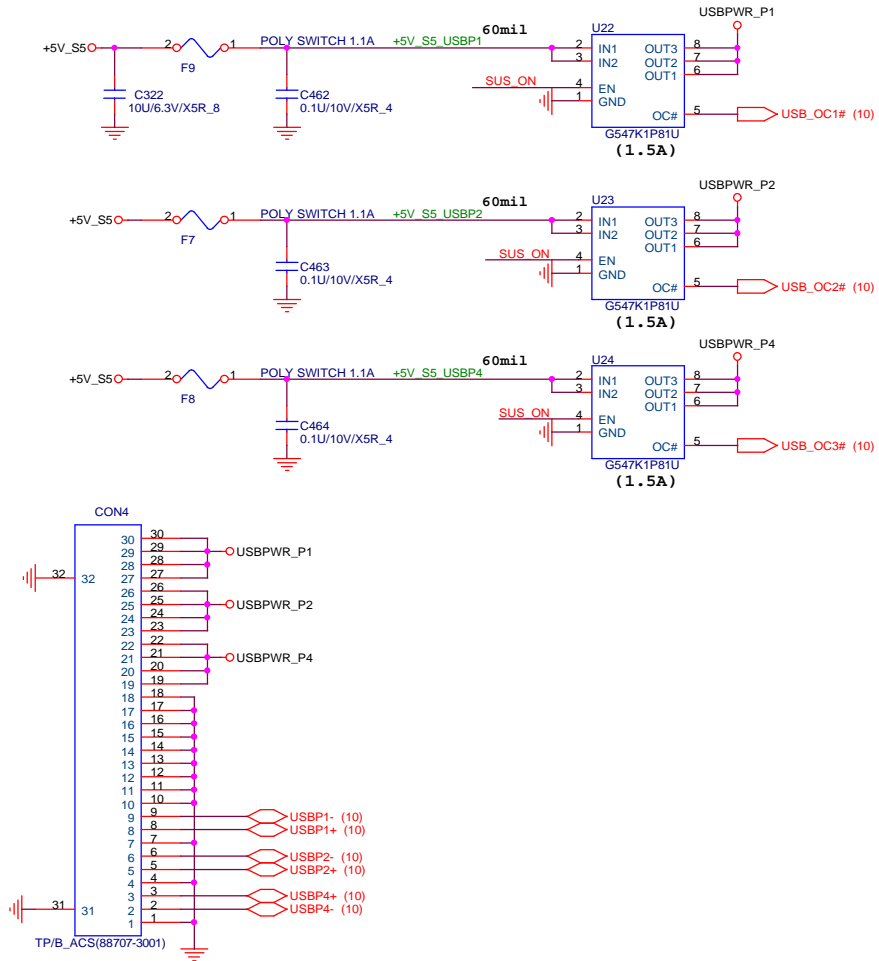
**Quanta Computer Inc.**  
PROJECT :Huron River

Size	Document Number	Rev
	<b>HDMI/Bluetooth/Thermal IC</b>	3A

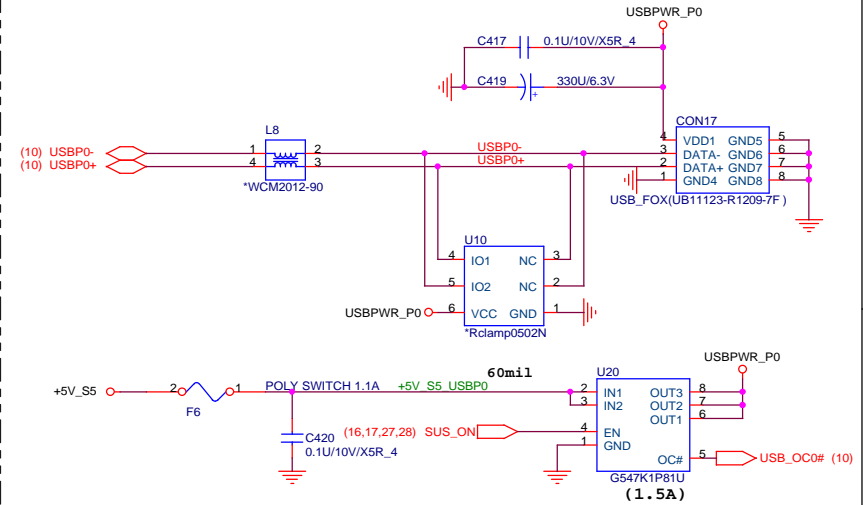
1.Level 1 Environment-related Substances Should Never be Used.  
2.Recycled Resin and Coated Wire should be procured from Green Partners.

Date: Wednesday, April 06, 2011 Sheet 19 of 39

# MB to USB board

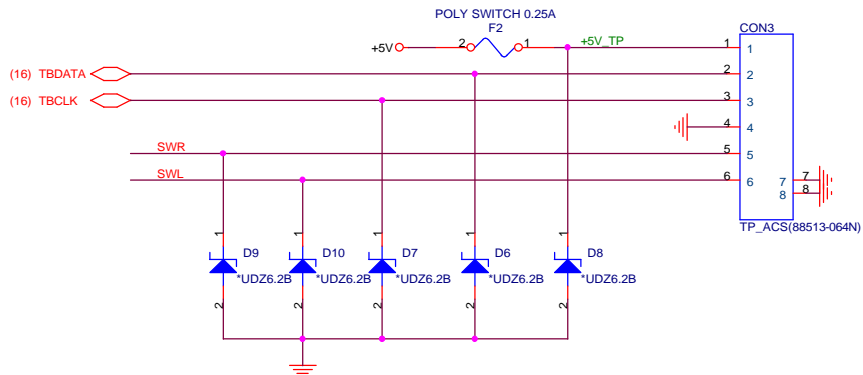


# USB PORT 0

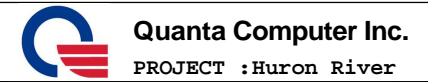
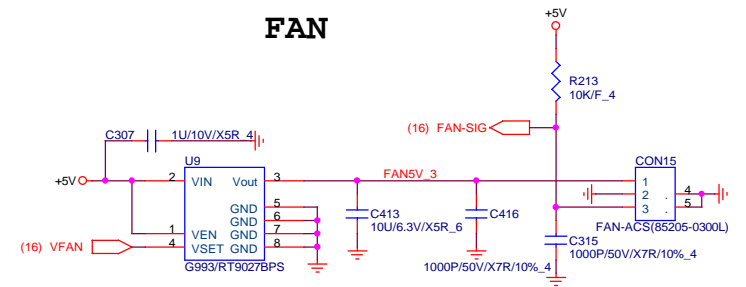


# T/P Board to T/P

9/13 change F2 P/N from 0.12A to 0.25A



# FAN

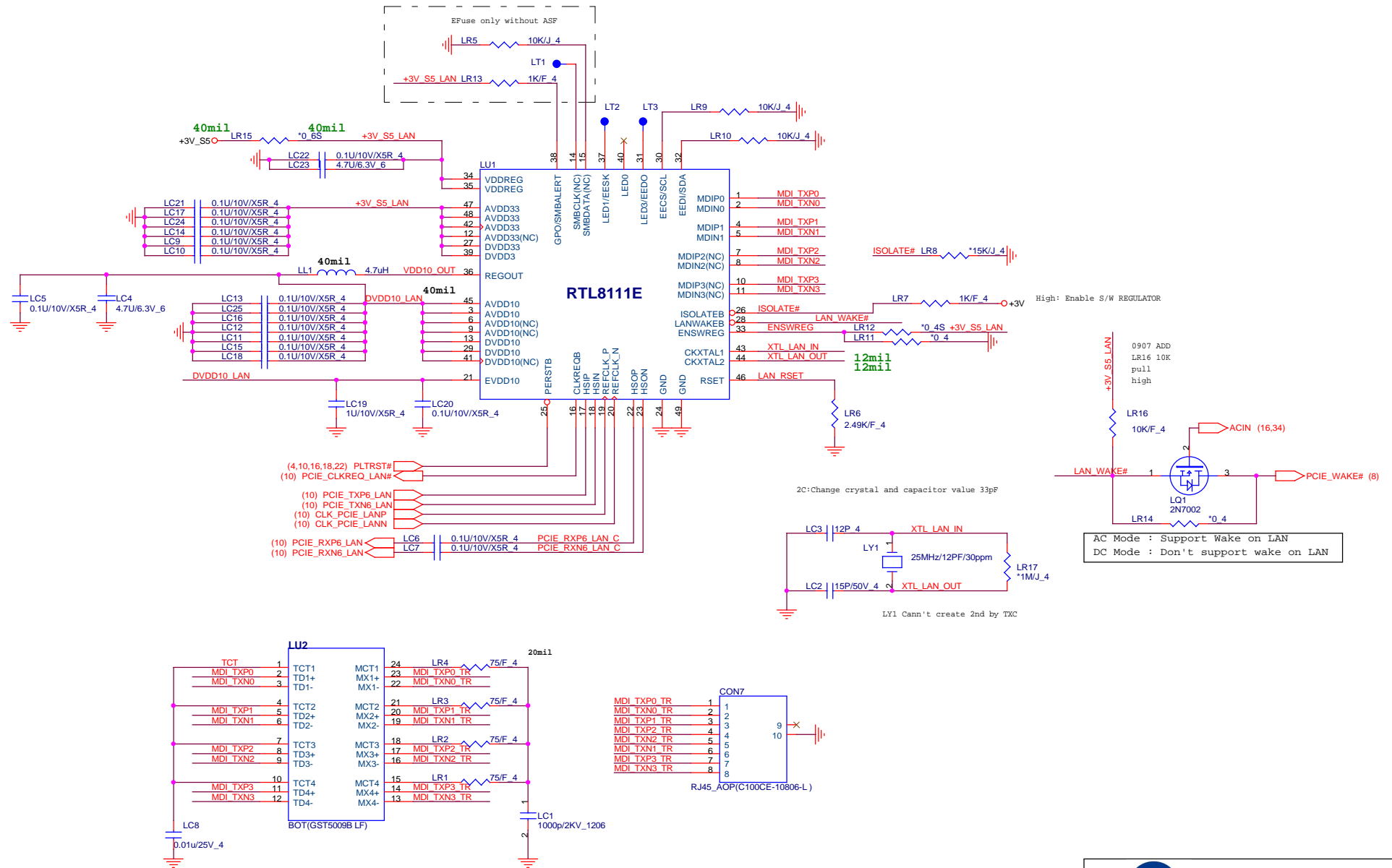


Size	Document Number	Rev
		1A
USB/TP/FAN		
Date:	Monday, February 21, 2011	Sheet 20 of 39

1.Level 1 Environment-related Substances Should Never be Used.

2.Recycled Resin and Coated Wire should be procured from Green Partners.





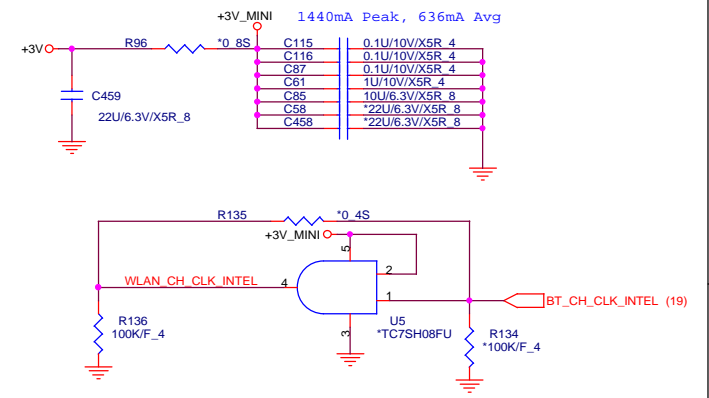
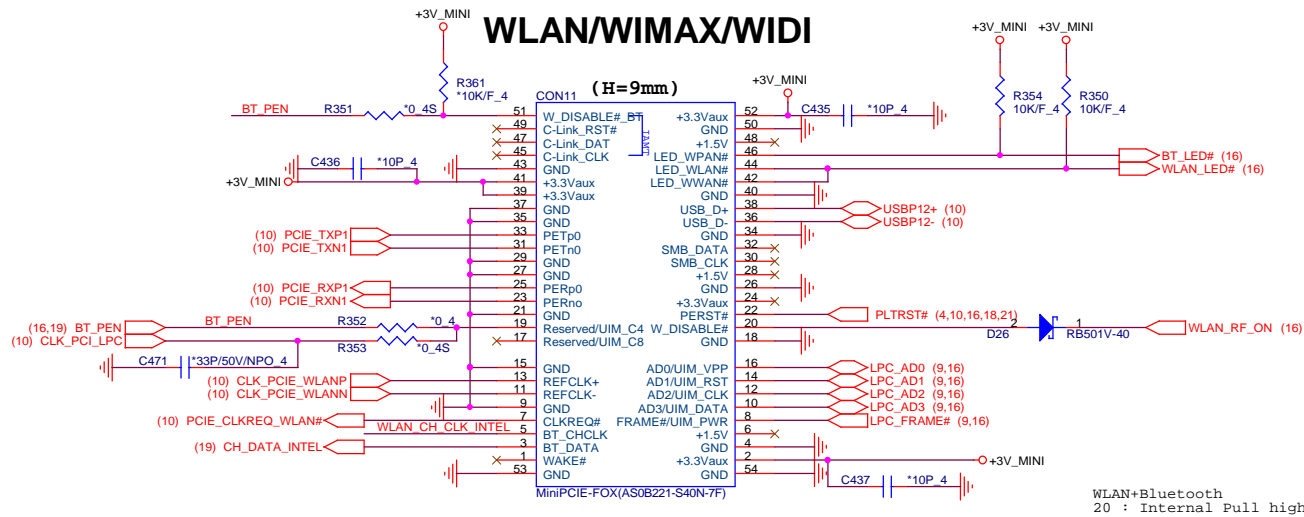
**Quanta Computer Inc.**  
PROJECT : Huron River

Size	Document Number	Rev
	<b>LAN RTL8111E</b>	1A

Date: Tuesday, April 05, 2011 Sheet 21 of 39

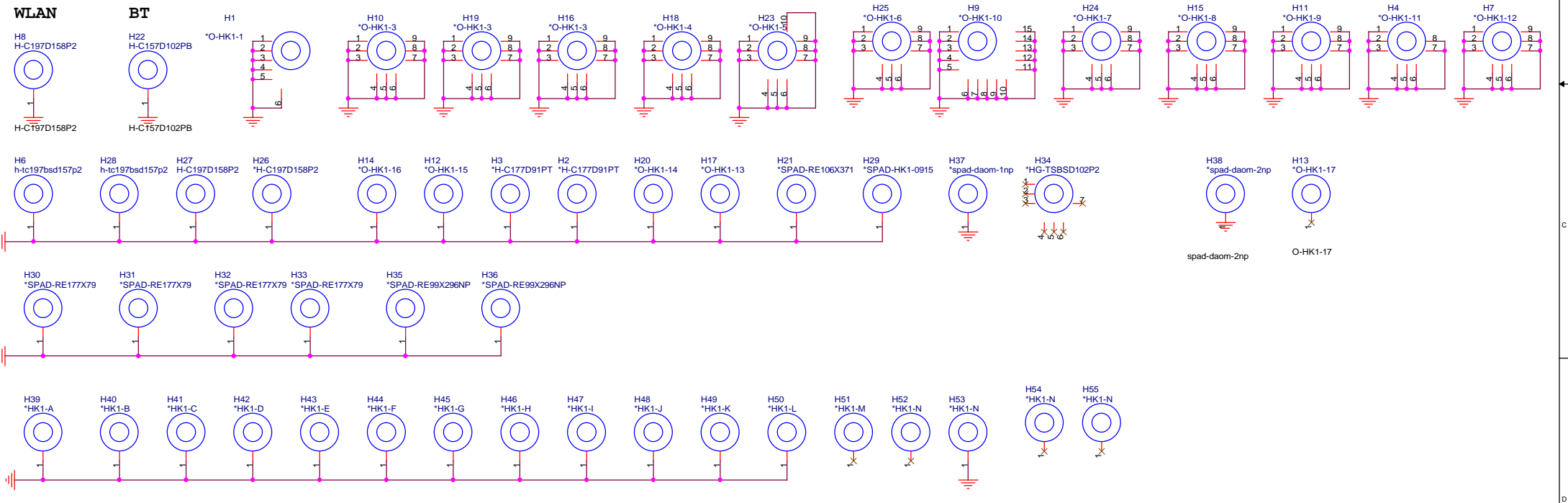
1. Level 1 Environment-related Substances Should Never be Used.  
2. Recycled Resin and Coated Wire should be procured from Green Partners.

# WLAN/WIMAX/WIDI



WLAN+Bluetooth  
20 : Internal Pull high 25K ~ 58K

## HOLE



**Quanta Computer Inc.**  
 PROJECT :Huron River

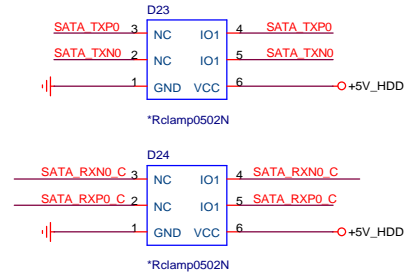
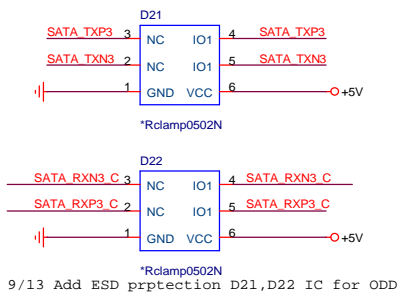
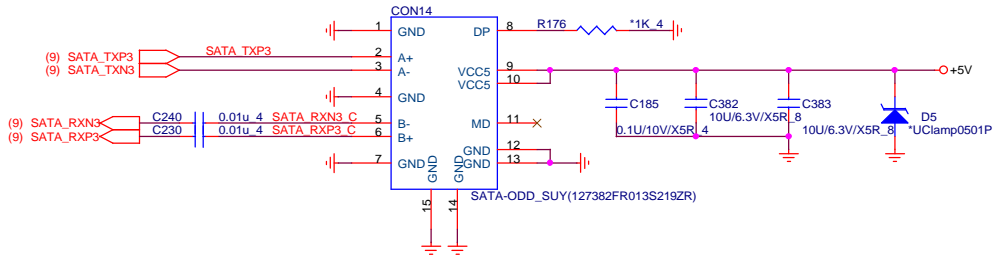
Size	Document Number	Rev
	<b>WLAN/WIMAX/WIDI</b>	1A

Date: Tuesday, April 05, 2011  
 Sheet 22 of 39

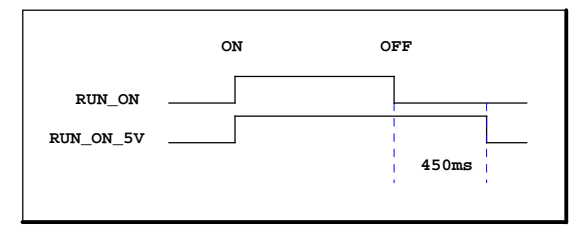
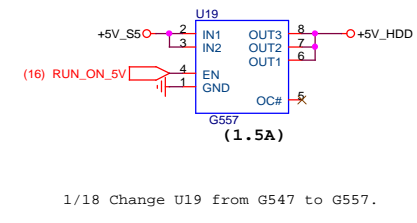
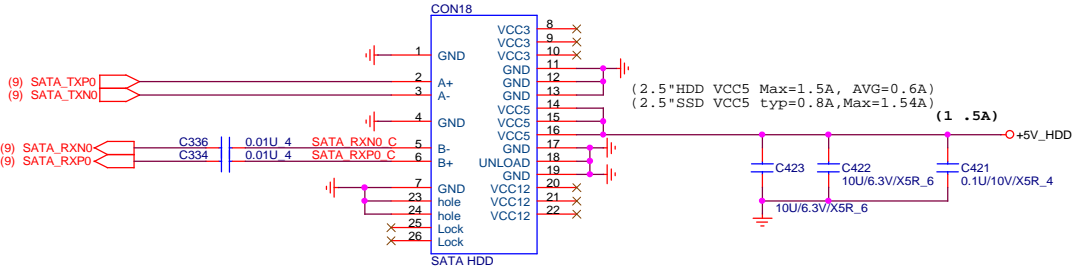
1.Level 1 Environment-related Substances Should Never be Used.  
 2.Recycled Resin and Coated Wire should be procured from Green Partners.

ODD CONNECTOR

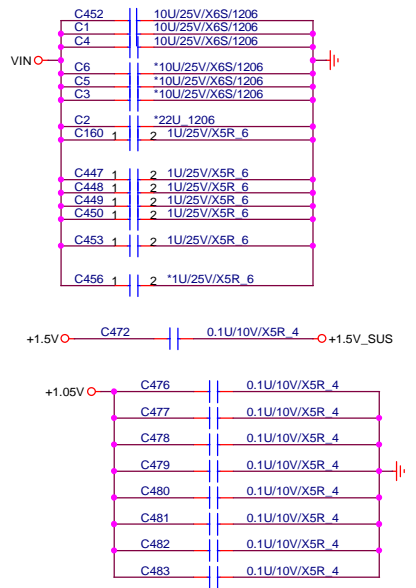
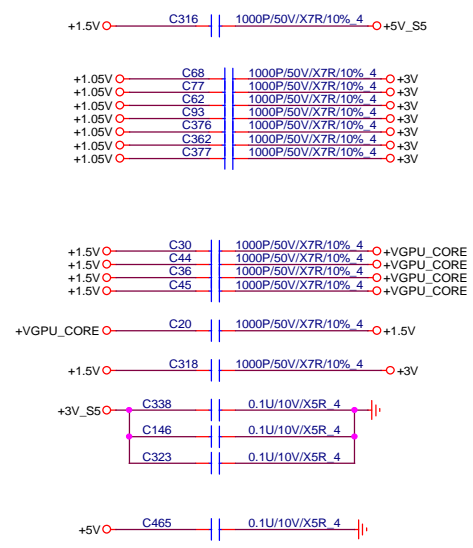
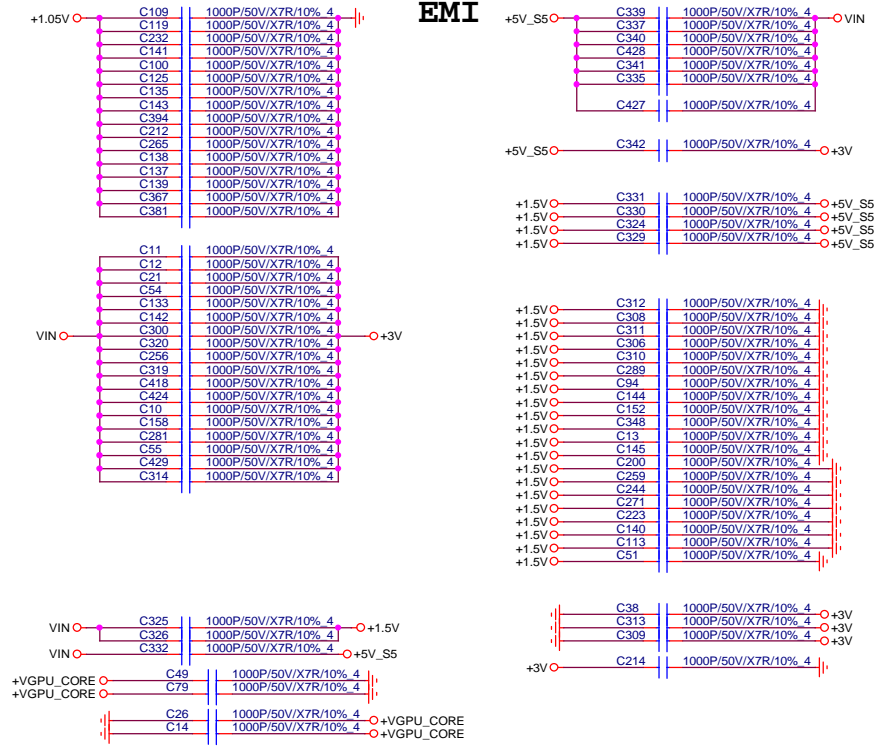
8/18 Change HDD 2nd source connector patt number



HDD CONNECTOR



EMI



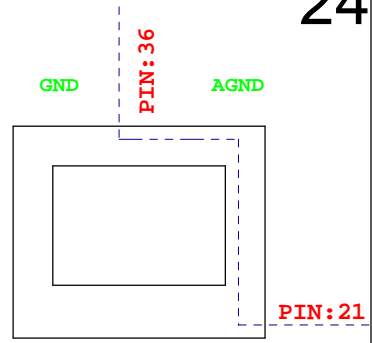
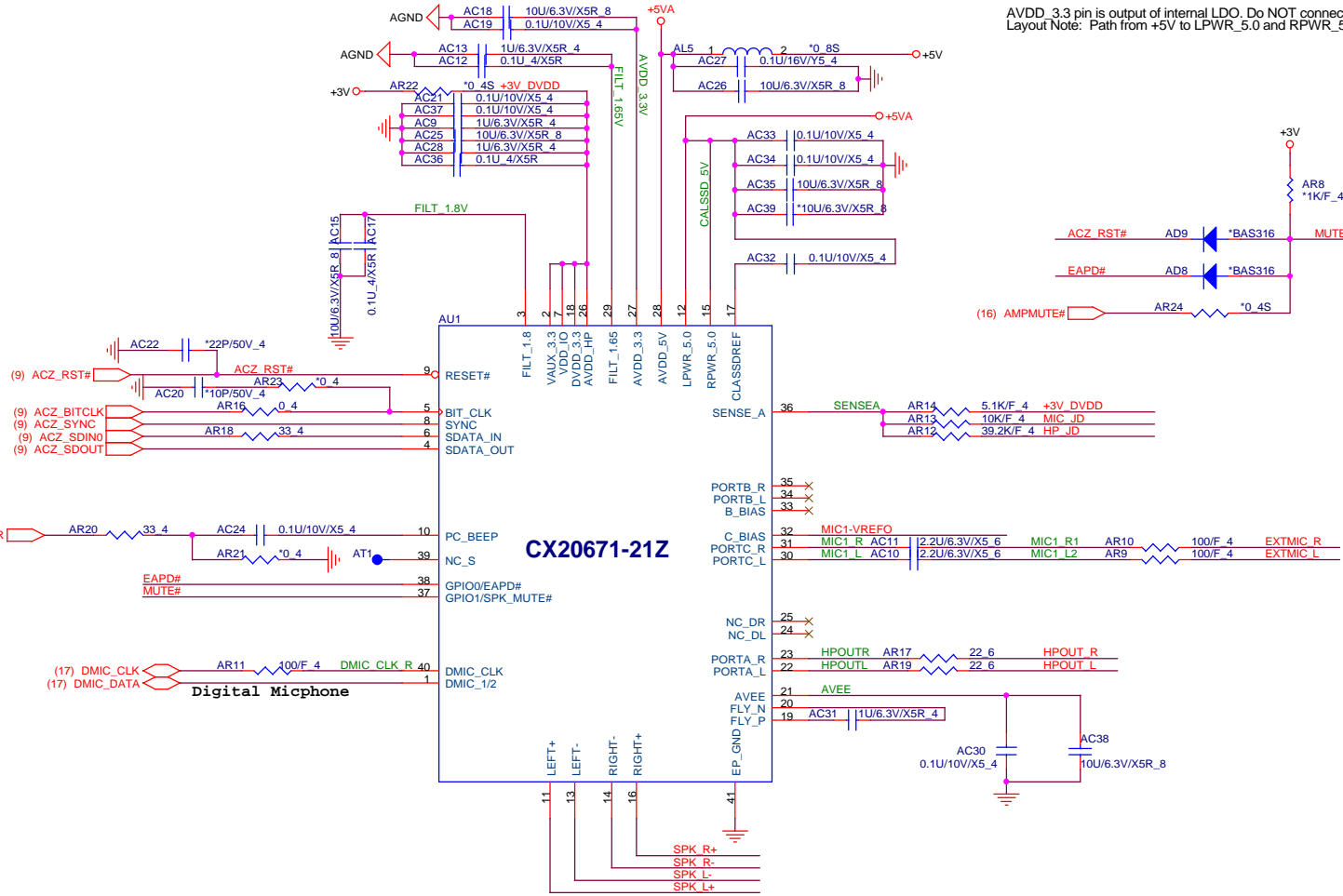
**Quanta Computer Inc.**  
PROJECT :Huron River

Size: \_\_\_\_\_ Document Number: **HDD/ODD** Rev: 1A

1.Level 1 Environment-related Substances Should Never be Used.  
2.Recycled Resin and Coated Wire should be procured from Green Partners.

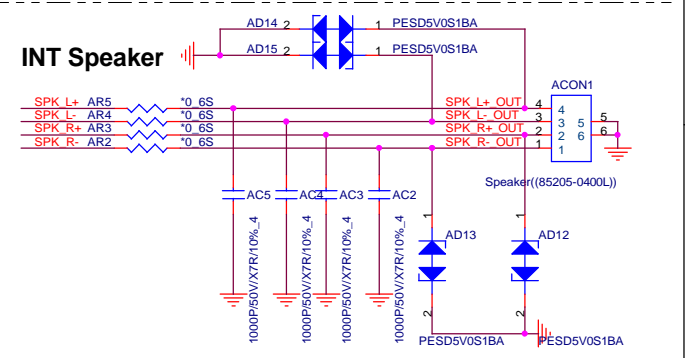
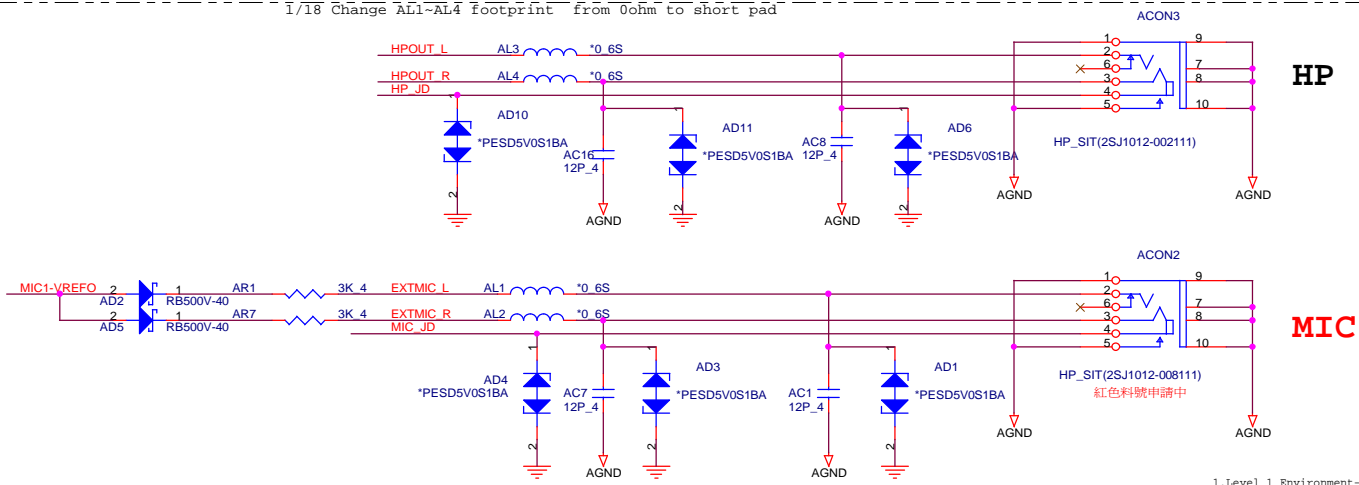
Date: Monday, February 21, 2011 Sheet 23 of 39

AVDD\_3.3 pin is output of internal LDO. Do NOT connect to external supply.  
Layout Note: Path from +5V to LPWR\_5.0 and RPWR\_5.0 must be very low resistance (<0.01 ohms).



1/18 Change AL1,AL2,AL3,AL4 from 0ohm to short pad.

1/18 Change AL1-AL4 footprint from 0ohm to short pad

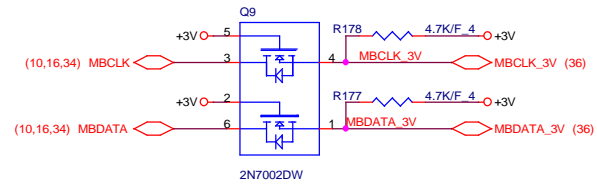
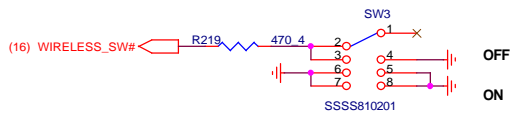


**Quanta Computer Inc.**  
PROJECT : Huron River

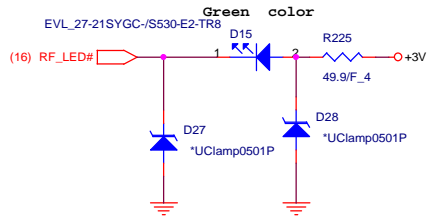
Size	Document Number	Date	Sheet	Rev
	<b>Audio Codec CX20671</b>	Tuesday, April 05, 2011	24 of 39	1A

1. Level 1 Environment-related Substances Should Never be Used.  
2. Recycled Resin and Coated Wire should be procured from Green Partners.

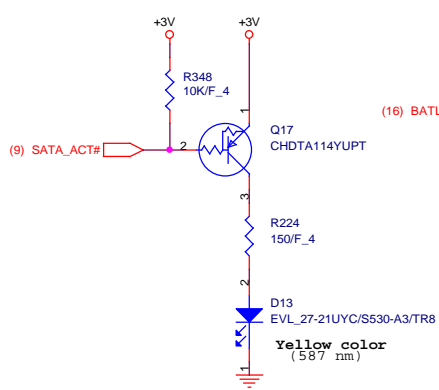
# WIRELESS/Bluetooth SWITCH



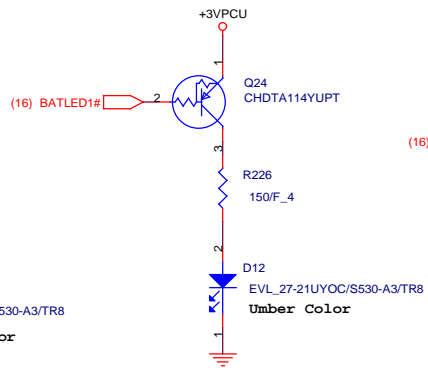
## RF LED



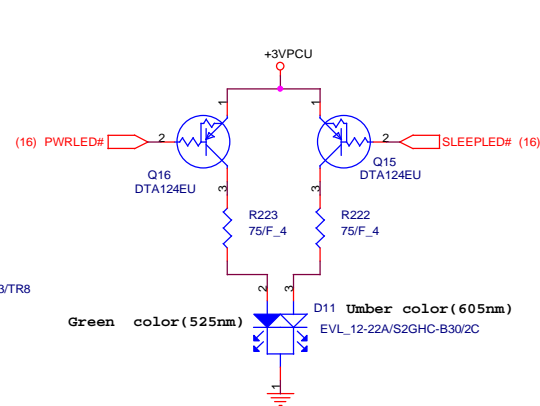
## SATA LED



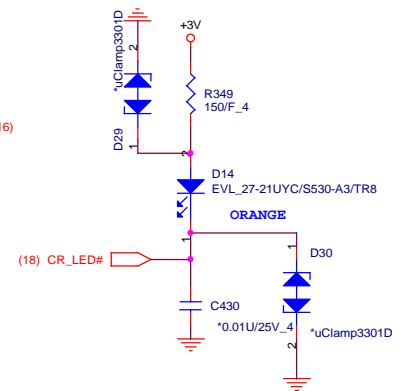
## BATTERY LED



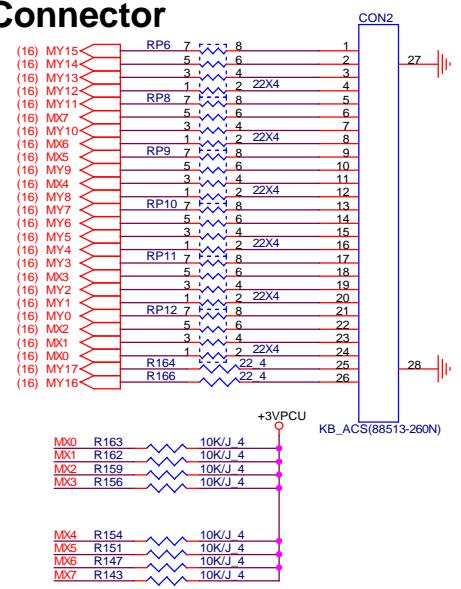
## Power/Sleep LED



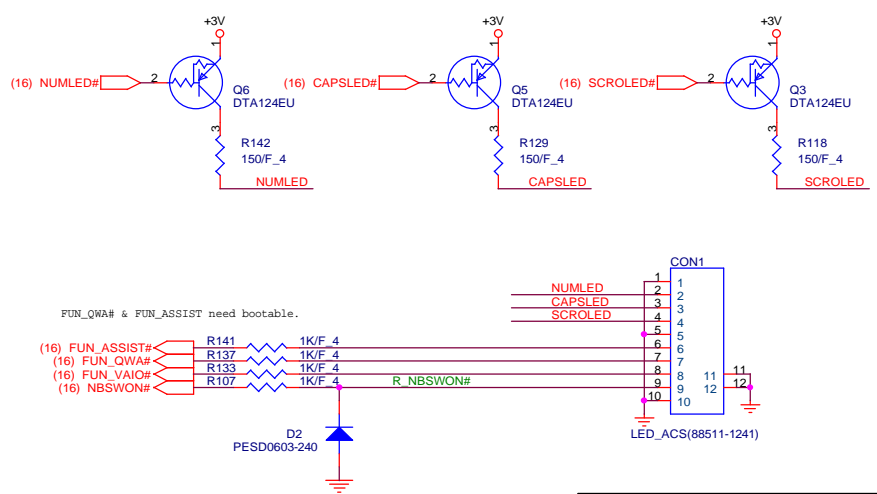
## CARD LED



## KEY BOARD Connector



## Power SW Board Connector



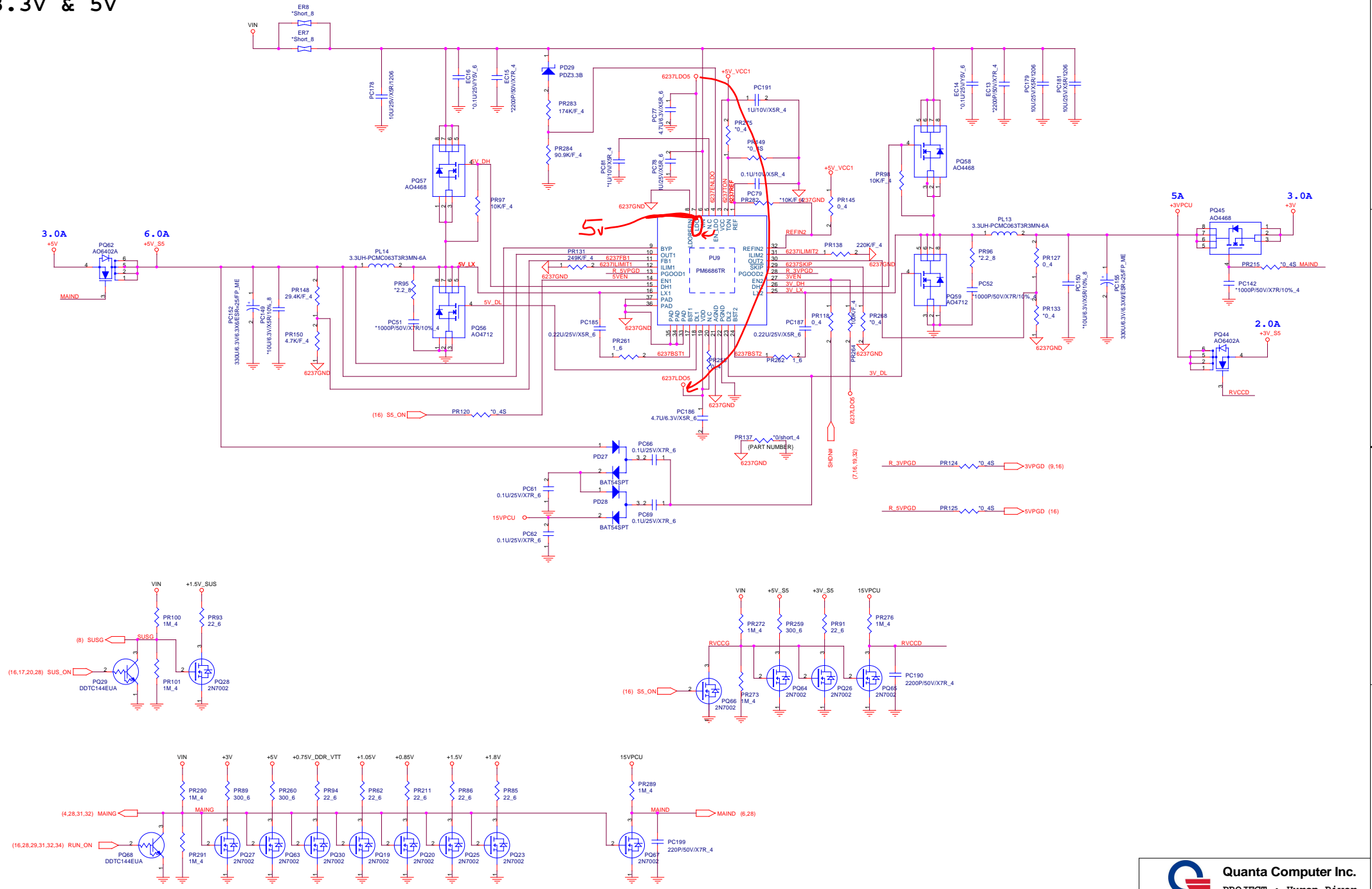
**Quanta Computer Inc.**  
PROJECT :Huron River

Size	Document Number	Rev
	<b>LED/RF/KB/PS</b>	1A

1.Level 1 Environment-related Substances should Never be Used.  
2.Recycled Resin and Coated Wire should be procured from Green Partners.





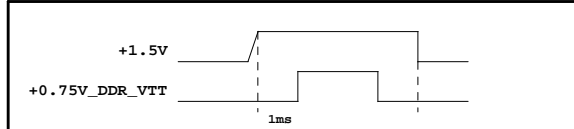
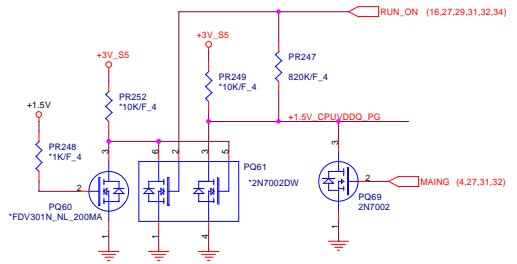
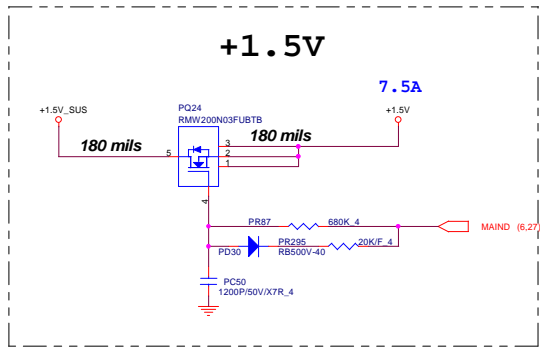
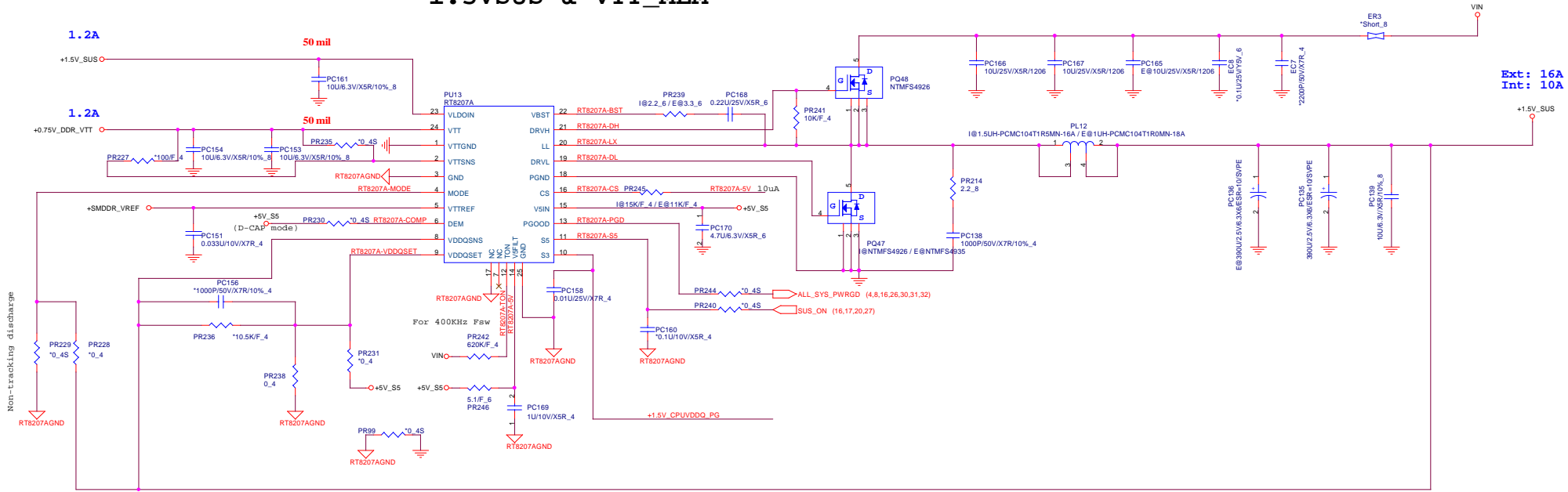


**Quanta Computer Inc.**  
**PROJECT : Huron River**

Size Document Number  
**3VPCU&5VPCU(PM6688)** Rev 1A

1.Level 1 Environment-related Substances Should Never be Used.  
 2.Recycled Resin and Coated Wire should be procured from Green Partners.  
 Date: Tuesday, April 05, 2011 Sheet 27 of 39

# 1.5VSUS & VTT\_MEM



MODE	DISCHARGE MODE
+5V	No discharge
+1.5V	Tracking discharge
GND	Non-tracking discharge

VDDQSET	VDDQ(V)	VTTREF & VTT	NOTE
GND	1.5 fixed	VDDQSNS/2	DDR3
5V	1.8 fixed	VDDQSNS/2	DDR2
FB-Resistor	Adjustable	VDDQSNS/2	1.5V-VDDQ<3V

VTT = VTTREF = VDDQSNS/2 = 0.75V

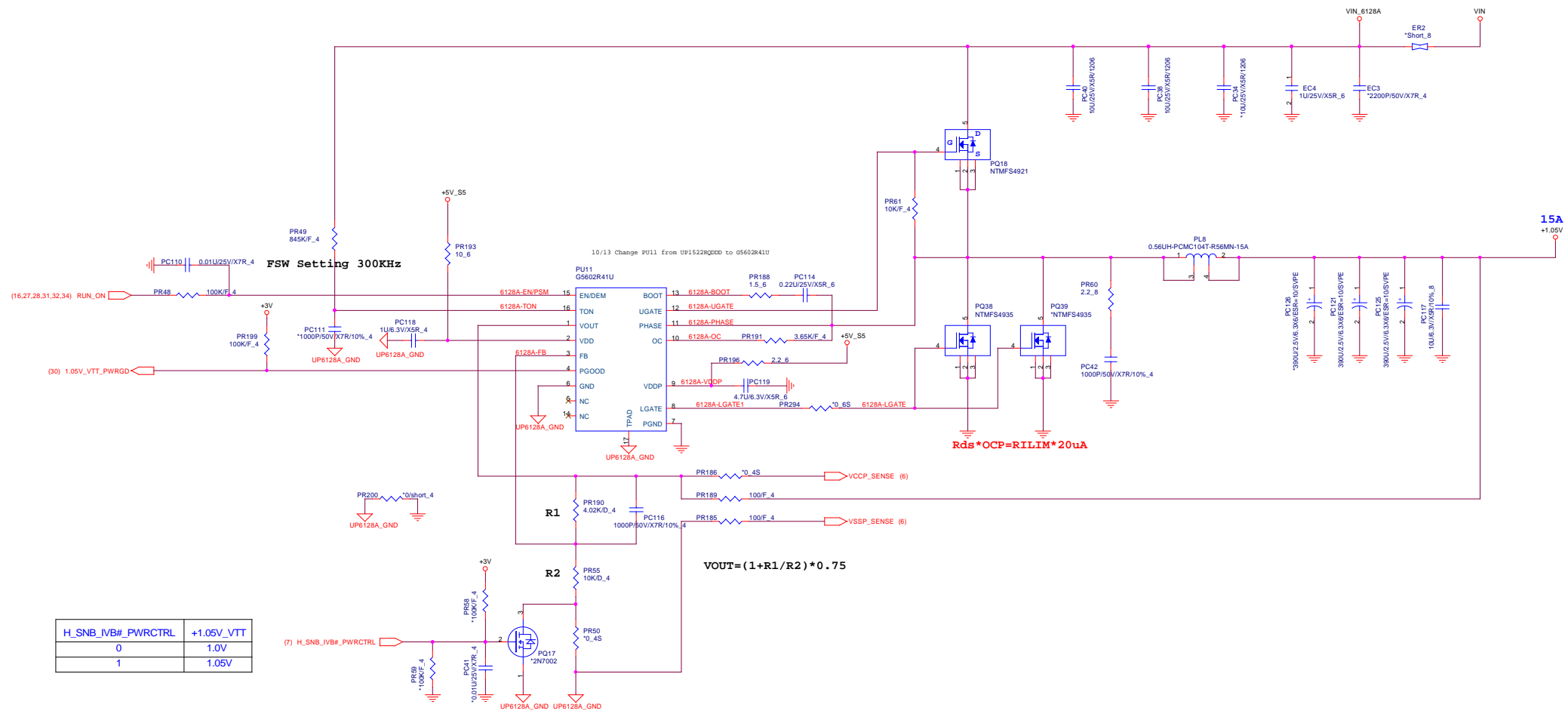
STATE	S3	S5	1.5VSUS	VTTREF	VTT
S0	1	1	on	on	on
S3	0	1	on	on	off
S4/S5	0	0	off	off	off

**Quanta Computer Inc.**  
**PROJECT : Huron River**

Size: Document Number: 1.5VSUSVTT\_MEM  
 Date: Tuesday, April 05, 2011 Sheet: 28 of 39

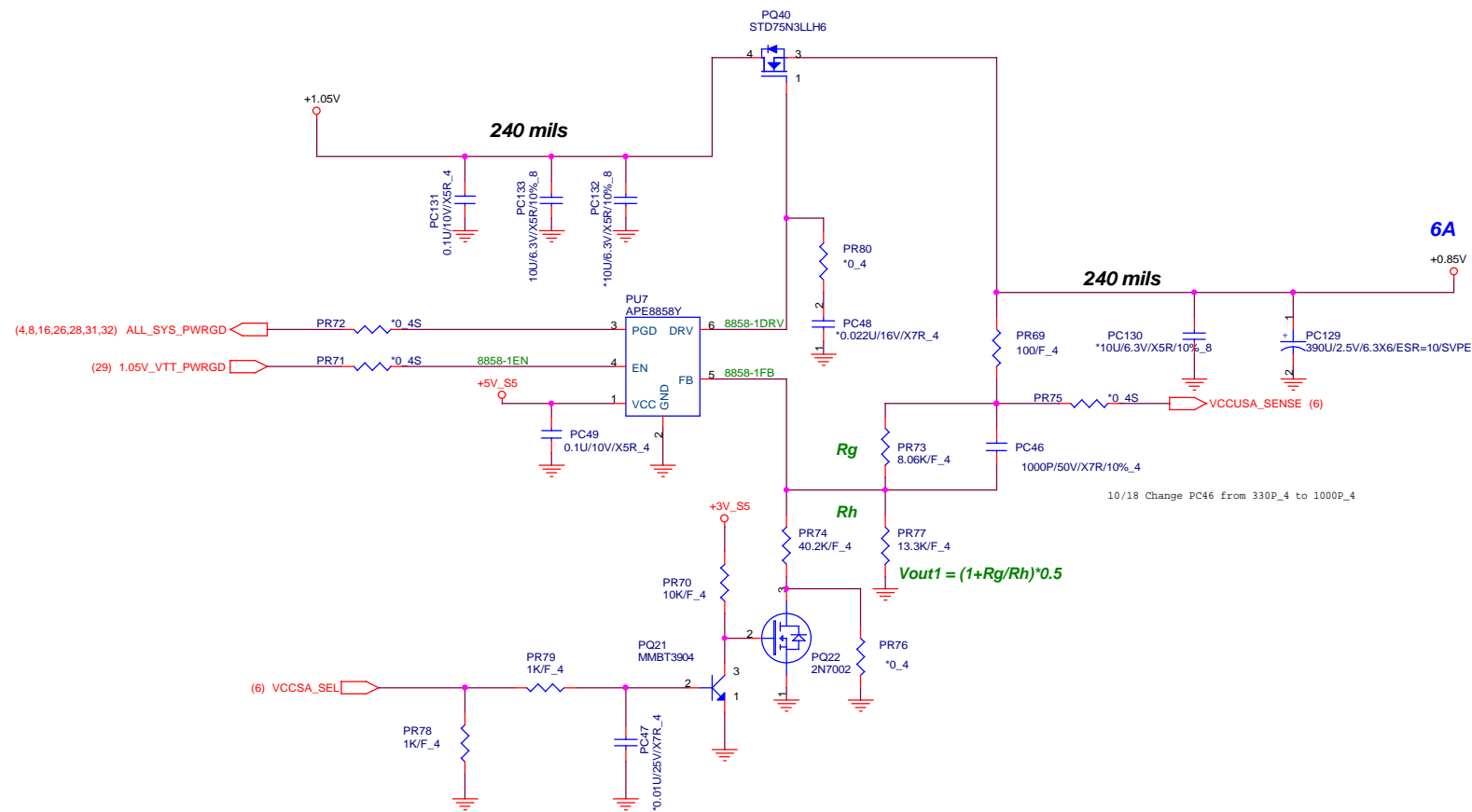
1. Level 1 Environment-related Substances should Never be Used.  
 2. Recycled Resin and Coated Wire should be procured from Green Partners.

+1.05V / 15.0A




1. Level 1 Environment-related Substances Should Never be Used.  
 2. Recycled Resin and Coated Wire should be procured from Green Partners.

+0.85V



$V_{out1} = (1 + R_g/R_h) * 0.5$

VID 0	VCCSA_SEL	+0.85V
0	0	0.9V
0	1	0.8V
1	0	0.75V
1	1	0.65V

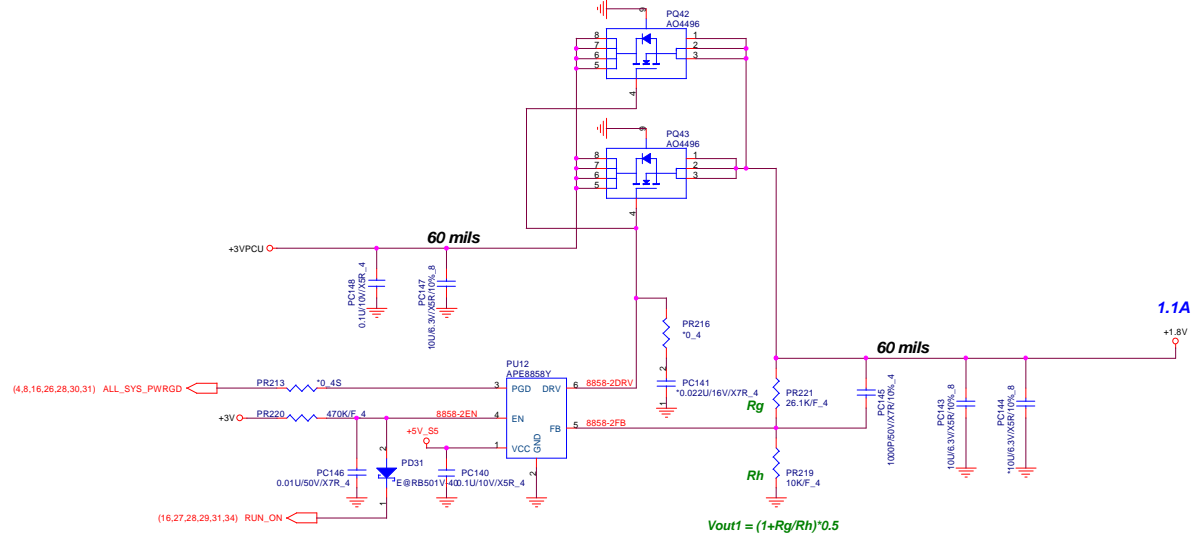

**Quanta Computer Inc.**  
 PROJECT : Huron River  
 +0.85V(OZ8116LN)

Size	Document Number	Rev
		1A

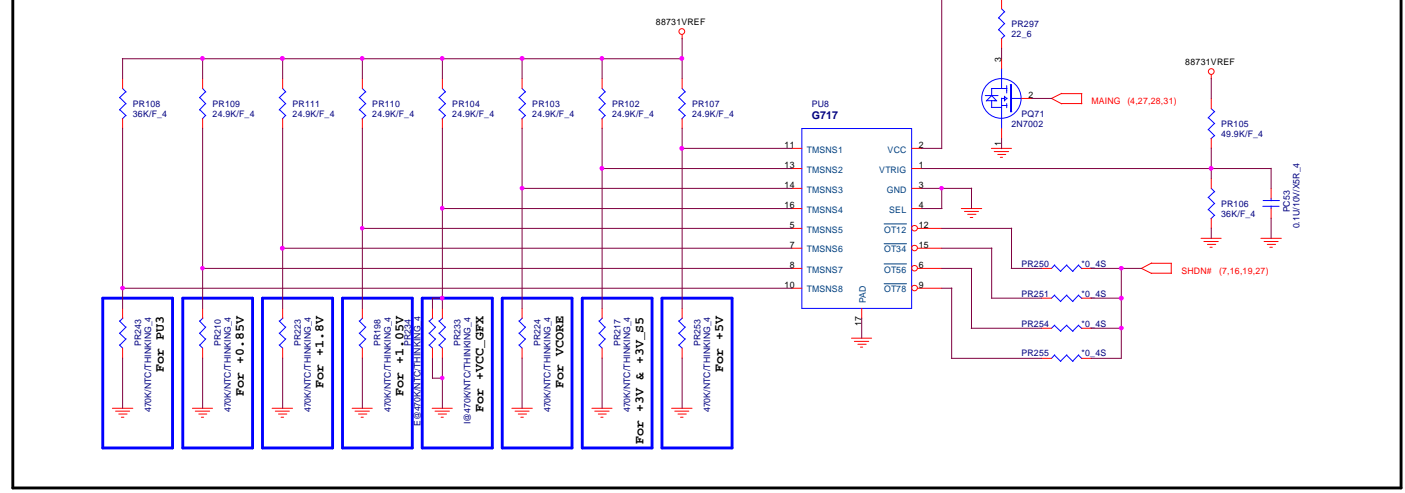
1. Level 1 Environment-related Substances Should Never be Used.  
 2. Recycled Resin and Coated Wire should be procured from Green Partners. Date: Tuesday, April 05, 2011 Sheet 30 of 39



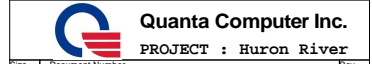
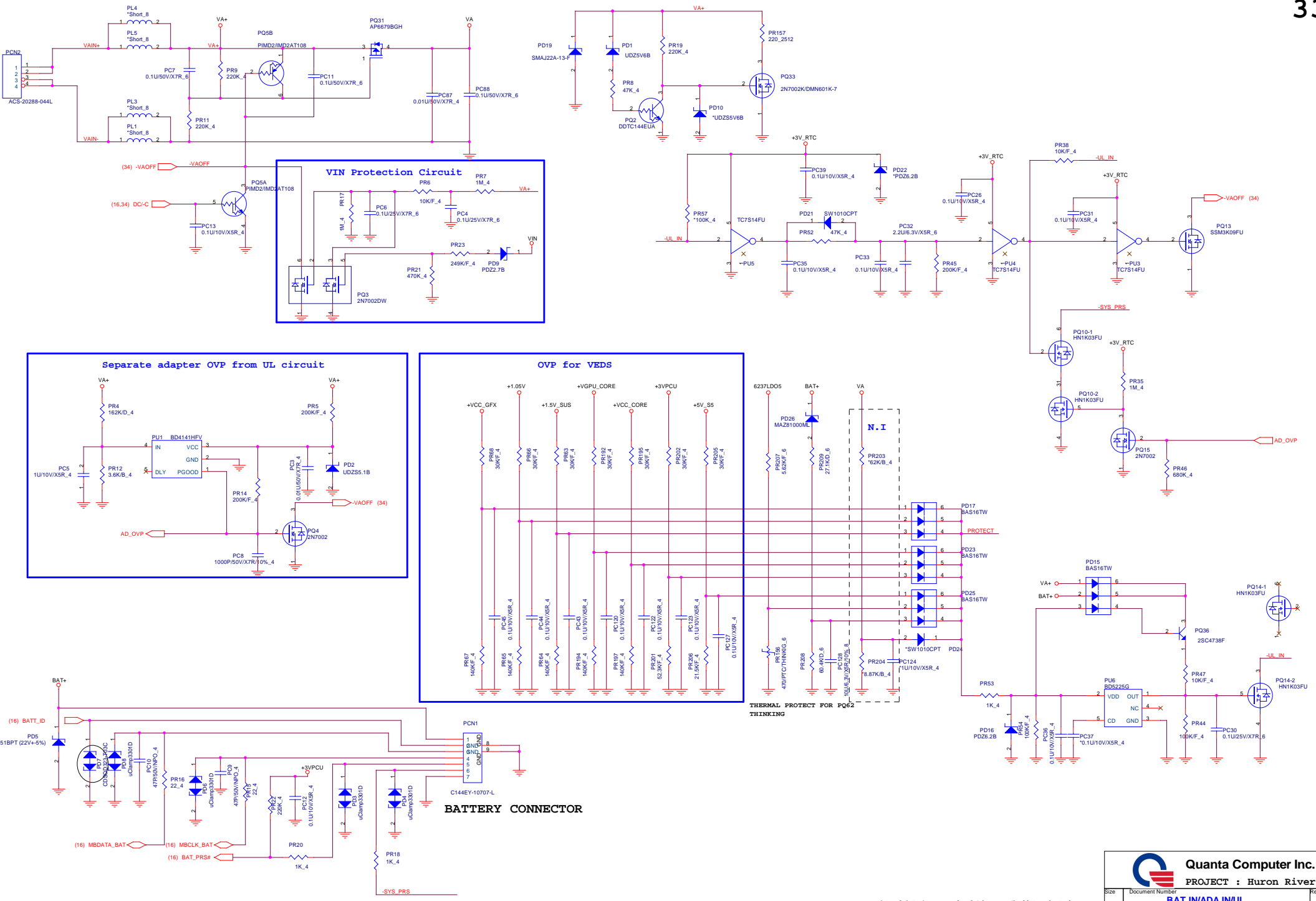
### VCC1.8



### Thermal Protection for VEDS



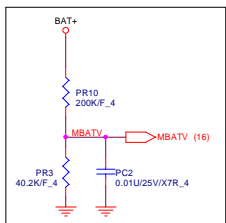
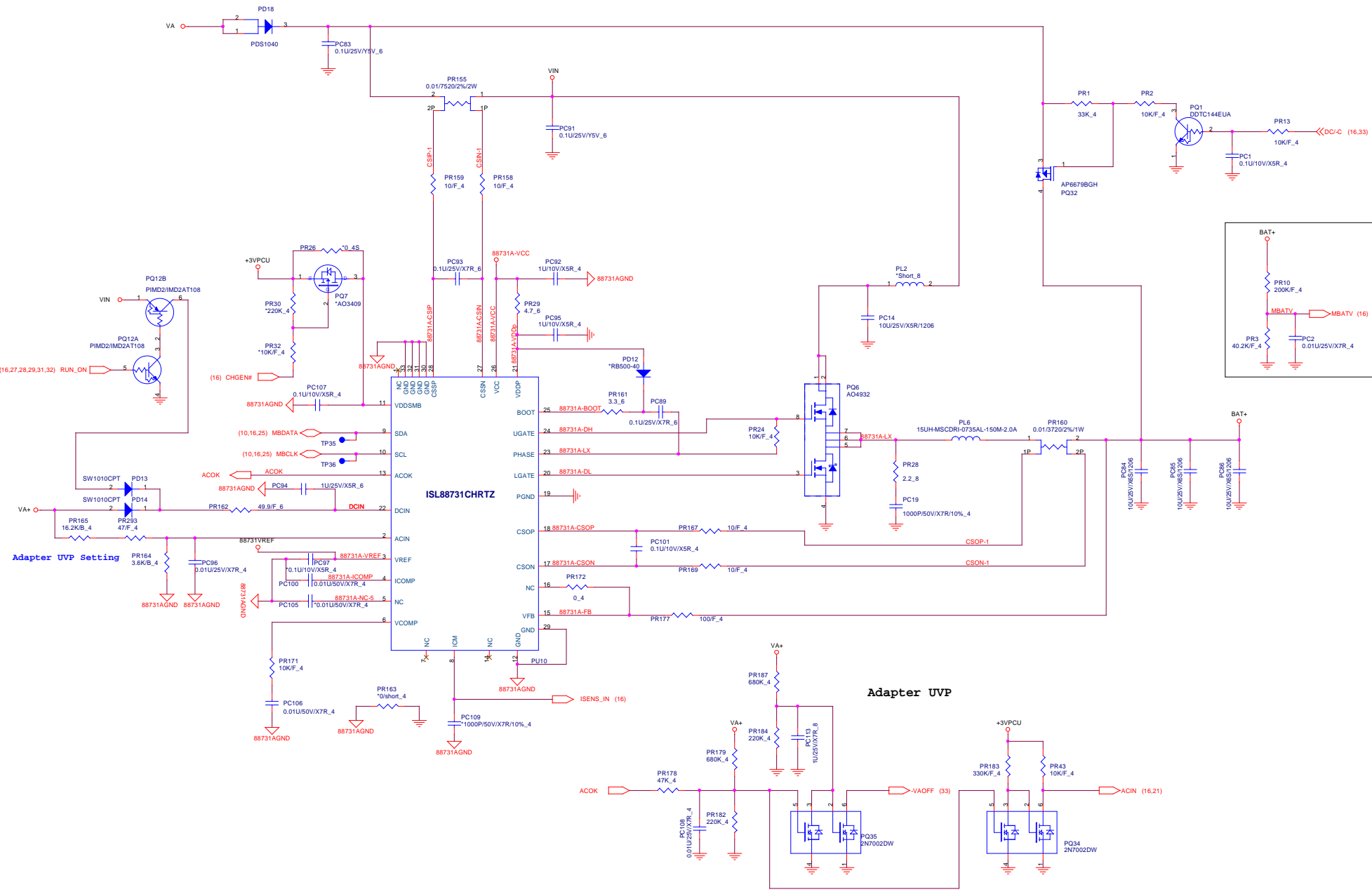




**Quanta Computer Inc.**  
**PROJECT : Huron River**

Size	Document Number	Rev
	<b>BAT IN/ADA IN/UL</b>	1A

1. Level 1 Environment-related Substances Should Never be Used.  
 2. Recycled Resin and Coated Wire should be procured from Green Partners. Date: Sunday, April 03, 2011 Sheet 33 of 39



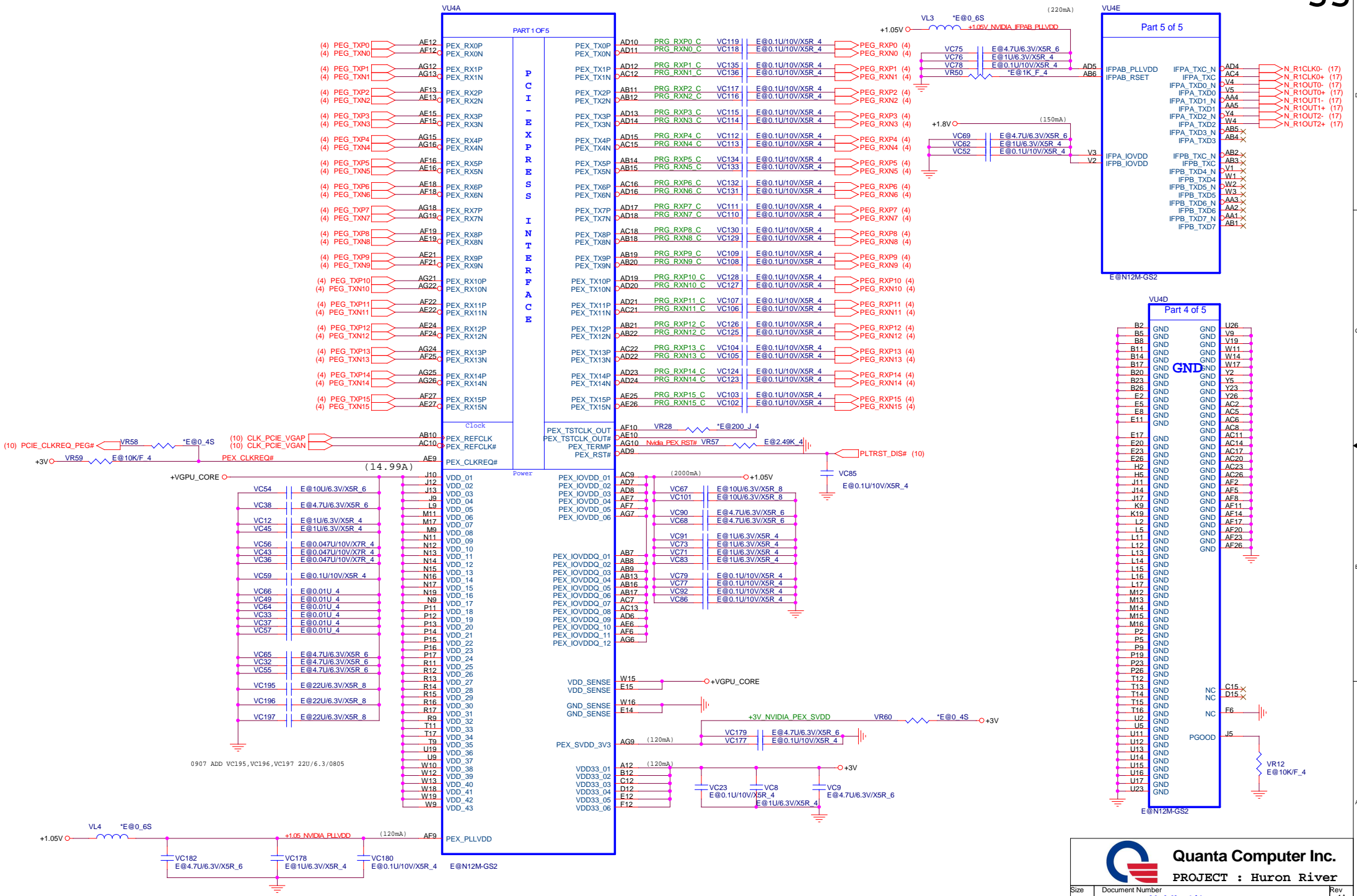
Adapter UVP Setting

Adapter UVP

**Quanta Computer Inc.**  
**PROJECT : Huron River**

Size	Document Number	Rev
	<b>CHARGER(ISL88731A)</b>	1A

1.Level 1 Environment-related Substances Should Never be Used.  
2.Recycled Resin and Coated Wire should be procured from Green Partners.  
Date: Tuesday, April 05, 2011 Sheet 34 of 39



**Quanta Computer Inc.**  
**PROJECT : Huron River**  
**Nvidia 1/4**

Size	Document Number	Rev
		1A

1. Level 1 Environment-related Substances Should Never be Used.  
2. Recycled Resin and Coated Wire should be procured from Green Partners.

Date: Tuesday, April 05, 2011 Sheet 35 of 39

**N12P-GV**

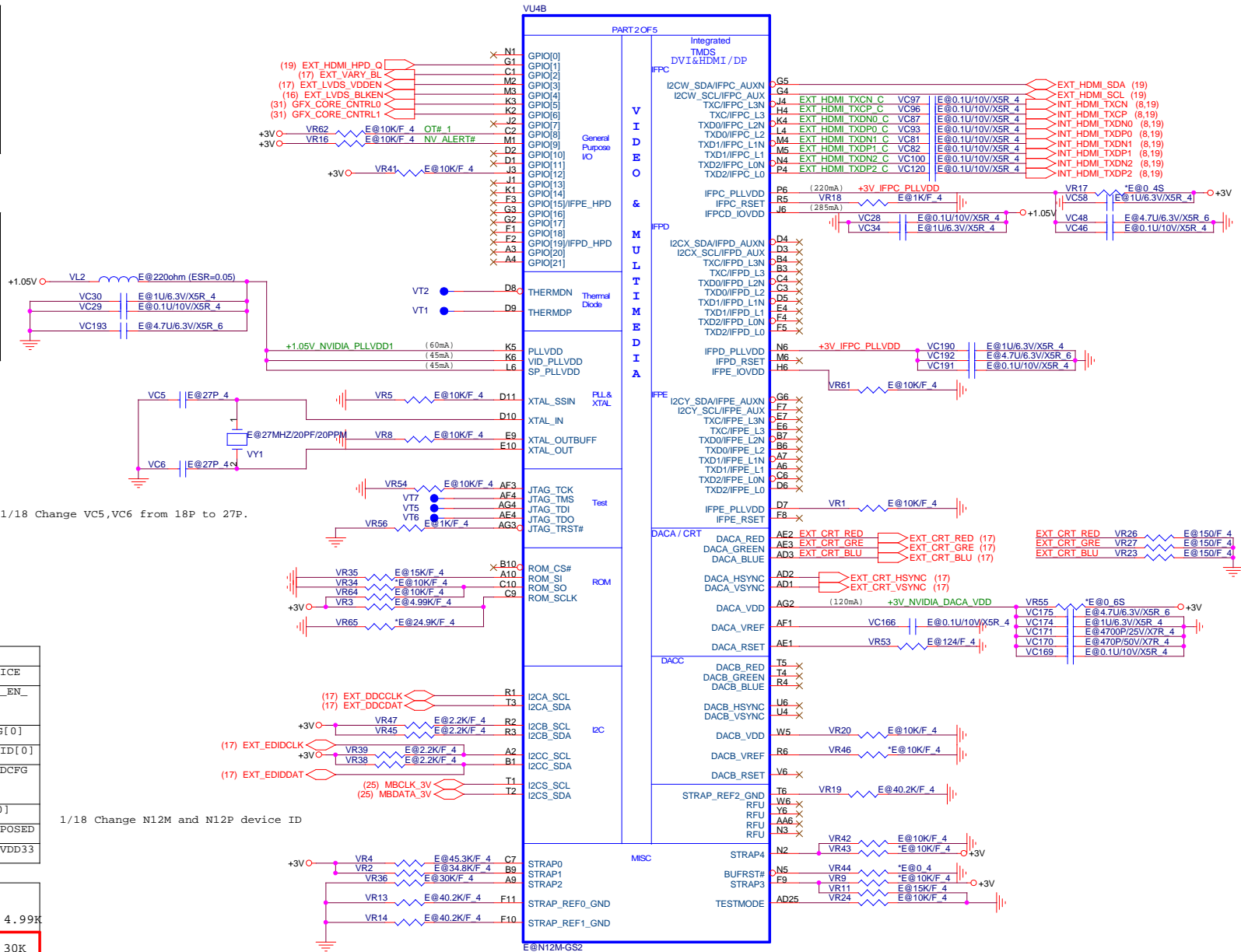
External VGA\_CORE Voltage Setting:

GFX_CORE_CNTRL1	GFX_CORE_CNTRL0	VGA_CORE	
0	0	1.025V	PR176=64.9K/F_4
0	1	1.00V	PR181=0_4
1	0	0.85V	PR180=16.9K/F_4
1	1	0.85V	PR39=3.24K/F_4

**N12M-GS2**

External VGA\_CORE Voltage Setting:

GFX_CORE_CNTRL1	GFX_CORE_CNTRL0	VGA_CORE	
0	0	1.025V	PR176=66.5K/F_4
0	1	1.00V	PR180=15.4K/F_4
1	0	0.875V	PR39=3.09K/F_4
1	1	0.875V	



**Logical Strap Bit Mapping**

Resistor Value	Pull to VDD	Pull to GND
5K	1000	0000
10K	1001	0001
15K	1010	0010
20K	1011	0011
25K	1100	0100
30K	1101	0101
35K	1110	0110
45K	1111	0111

**N12M Strap Bit Define**

Straps	Bit 3	Bit 2	Bit 1	Bit 0
ROM_SO	FB[1]	FB[1]	SMB_ALT_ADDR	VGA_DEVICE
ROM_SCLK	PCI_DEVID[4]	SUB_VENDOR	PCI_DEVID[5]	PEX_PLL_EN_TERM
ROM_SI	RAMCFG[3]	RAMCFG[2]	RAMCFG[1]	RAMCFG[0]
STRAP2	PCI_DEVID[3]	PCI_DEVID[2]	PCI_DEVID[1]	PCI_DEVID[0]
STRAP1	3GIO_PADCFG [3]	3GIO_PADCFG [2]	3GIO_PADCFG [1]	3GIO_PADCFG [0]
STRAP0	USER[3]	USER[2]	USER[1]	USER[0]
STRAP3	SOR3_EXPOSED	SOR2_EXPOSED	SOR1_EXPOSED	SOR0_EXPOSED
STRAP4	RESERVED	RESERVED	PCIE_MAX_SPEED	DP_PLL_VDD33

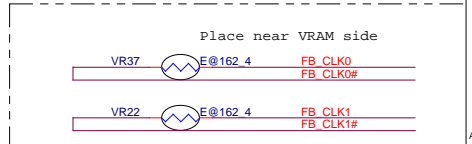
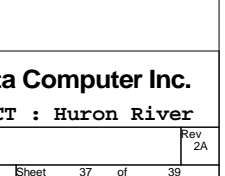
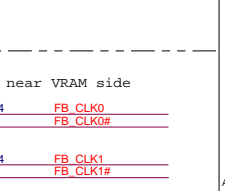
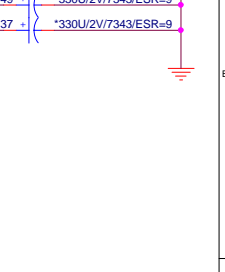
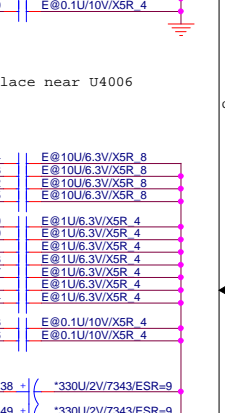
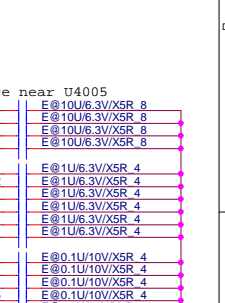
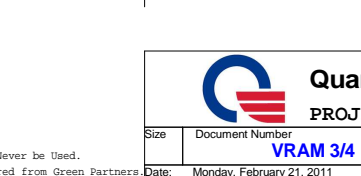
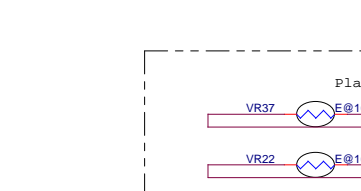
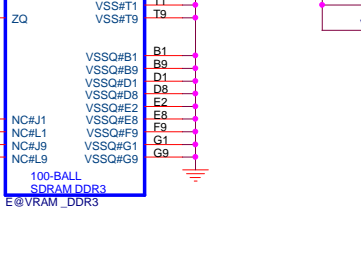
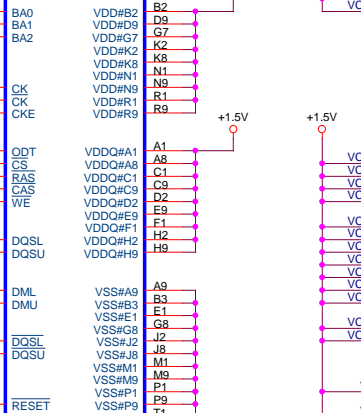
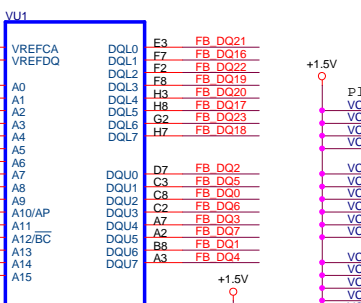
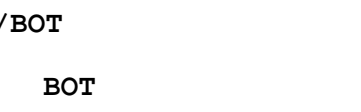
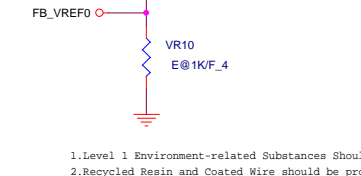
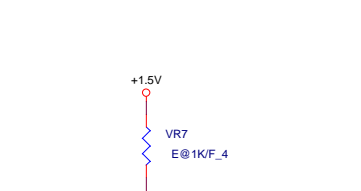
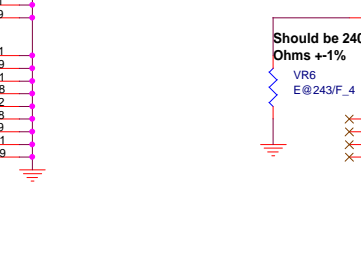
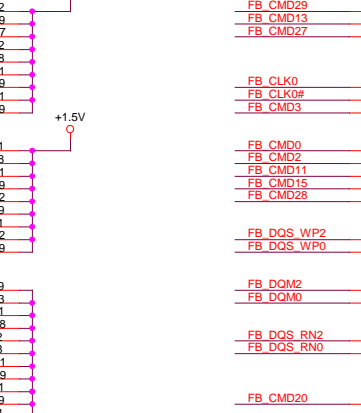
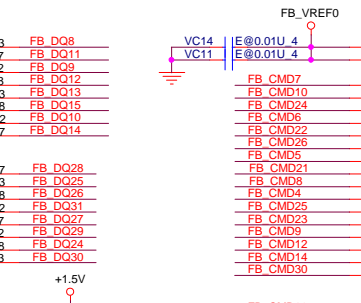
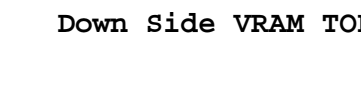
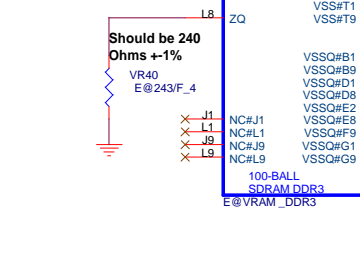
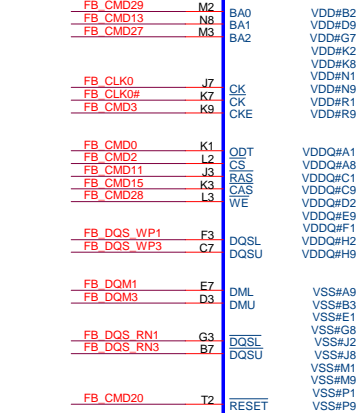
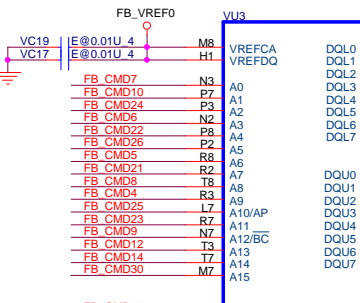
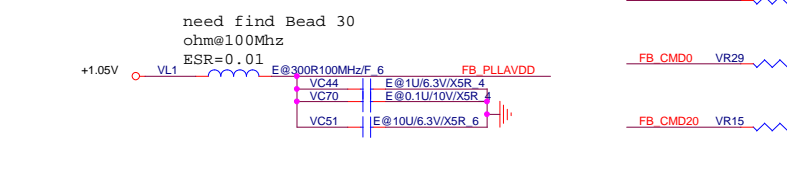
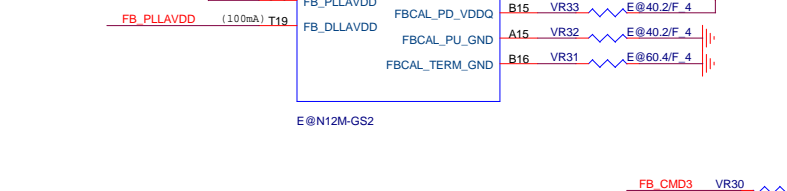
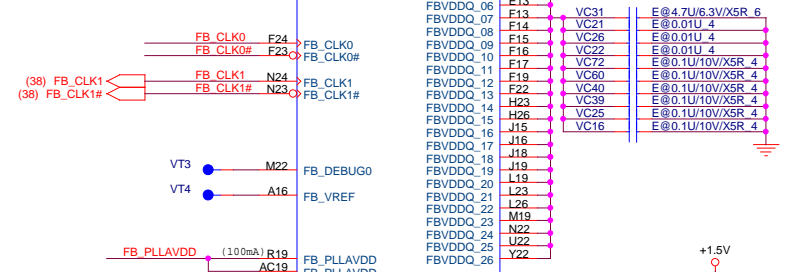
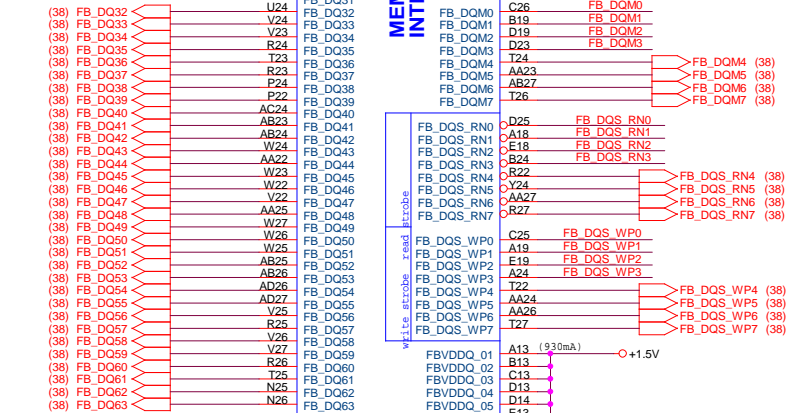
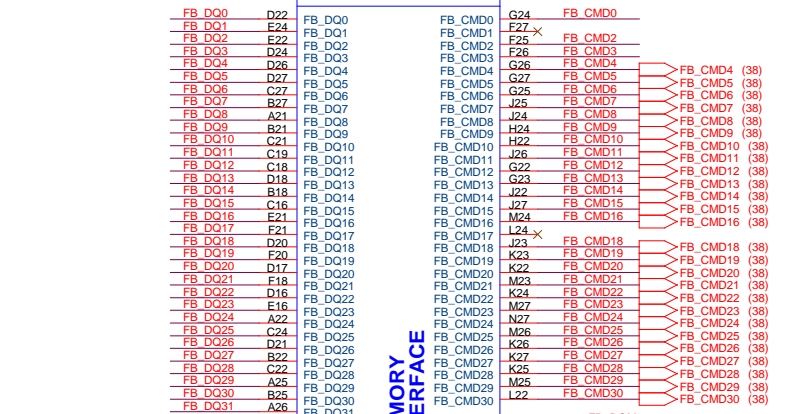
**for device ID**  
 For N12P VR3 pull high 4.99K VR65 NC VR36 Pull down 4.99K  
 For N12M VR3 pull high 4.99K VR65 NC VR36 Pull down 30K

	VRAM Capacity	VRAM Vender	ID	VR35	P/N	P/N
<b>N12M</b>	64Mx16 DDR3	Hynix	0010	PD15K	H5TQ1G63DFR-12C	
		Samsung	0011	PD20K	K4W1G1646G-BCL2	
	128Mx16 DDR3	Hynix	0110	PD35K	H5TQ2G63BFR-12C	
		Samsung	0111	PD45K	K4W2G1646C-HCL2	

**Quanta Computer Inc.**  
**PROJECT : Huron River**  
 Size Document Number **Nvidia 2/4** Rev 2A

Down Side VRAM TOP/BOT

VU4C Part 3 of 5



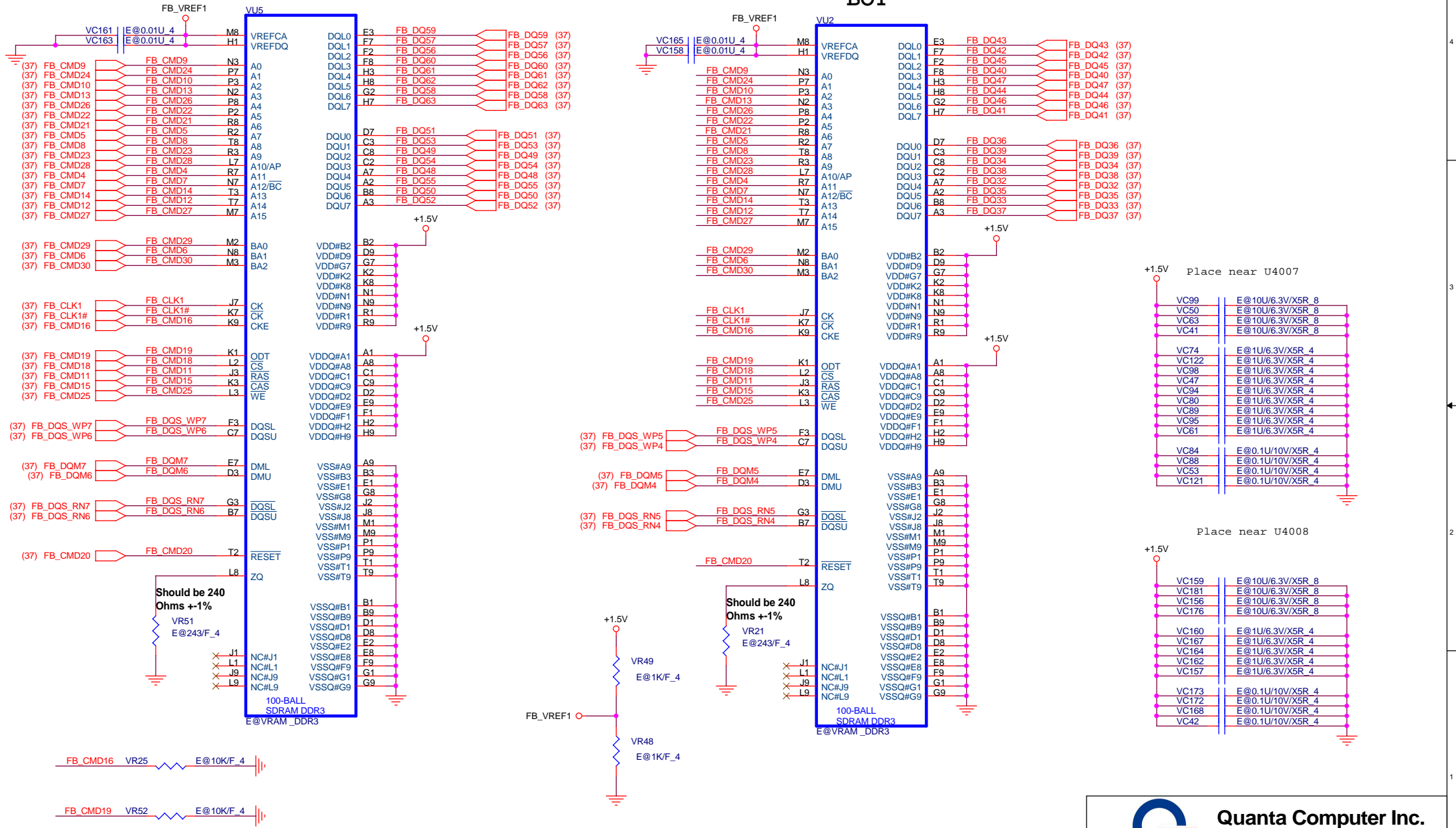
**Quanta Computer Inc.**  
 PROJECT : Huron River  
 VRAM 3/4



Up Side VRAM TOP/BOT

TOP

BOT



**Quanta Computer Inc.**  
**PROJECT : Huron River**

Size	Document Number	Rev
	<b>VRAM 4/4</b>	1A
Date:	Monday, February 21, 2011	Sheet 38 of 39

1. Level 1 Environment-related Substances Should Never be Used.  
 2. Recycled Resin and Coated Wire should be procured from Green Partners.

USB PORT Architecture for EVT	
PORT 0	IO Port
PORT 1	IO Port
PORT 2	IO Port
PORT 3	N/A
PORT 4	IO Port
PORT 5	N/A
PORT 6	N/A
PORT 7	N/A
PORT 8	N/A
PORT 9	Camera
PORT 10	N/A
PORT 11	N/A
PORT 12	WiMax
PORT 13	BlueTooth

PCIE BUS	
PORT 1	WLAN Port
PORT 2	N/A
PORT 3	N/A
PORT 4	CARD READER
PORT 5	N/A
PORT 6	GLAN(RTL8111E)
PORT 7	N/A
PORT 8	N/A

SM BUS	MBCLK/MBDATA
ISL88731CHRTZ	0001 001X
NVIDIA	1001 111X

SATA BUS	
PORT 0	HDD
PORT 1	N/A
PORT 2	N/A
PORT 3	ODD
PORT 4	N/A

Board ID0 (N12M/N12P)	N12M	N12P
R294	Stuff	No Stuff
R297	No Stuff	Stuff

Board ID1 (VRAM Vendor)	Samaung	Hynix
R47	Stuff	No Stuff
R48	No Stuff	Stuff

Board ID2 (VRAM 1G/512M)	1G	512M
R39	Stuff	No Stuff
R27	No Stuff	Stuff

	DGPU_PRSENT#(GPIO39)	BOARD_ID0 (GPIO16)	BOARD_ID1(GPIO6)	BOARD_ID2(GPIO17)
UMA	0	0	0	0
N12M-GS2_SAM_512MB	1	1	1	0
N12M-GS2-SAM_1GB	1	1	1	1
N12M-GS2-HYN_512MB	1	1	0	0
N12M-GS2-HYN_1GB	1	1	0	1
N12P-GV_SAM_512MB	1	0	1	0
N12P-GV-SAM_1GB	1	0	1	1
N12P-GV-HYN_512MB	1	0	0	0
N12P-GV-HYN1_1GB	1	0	0	1