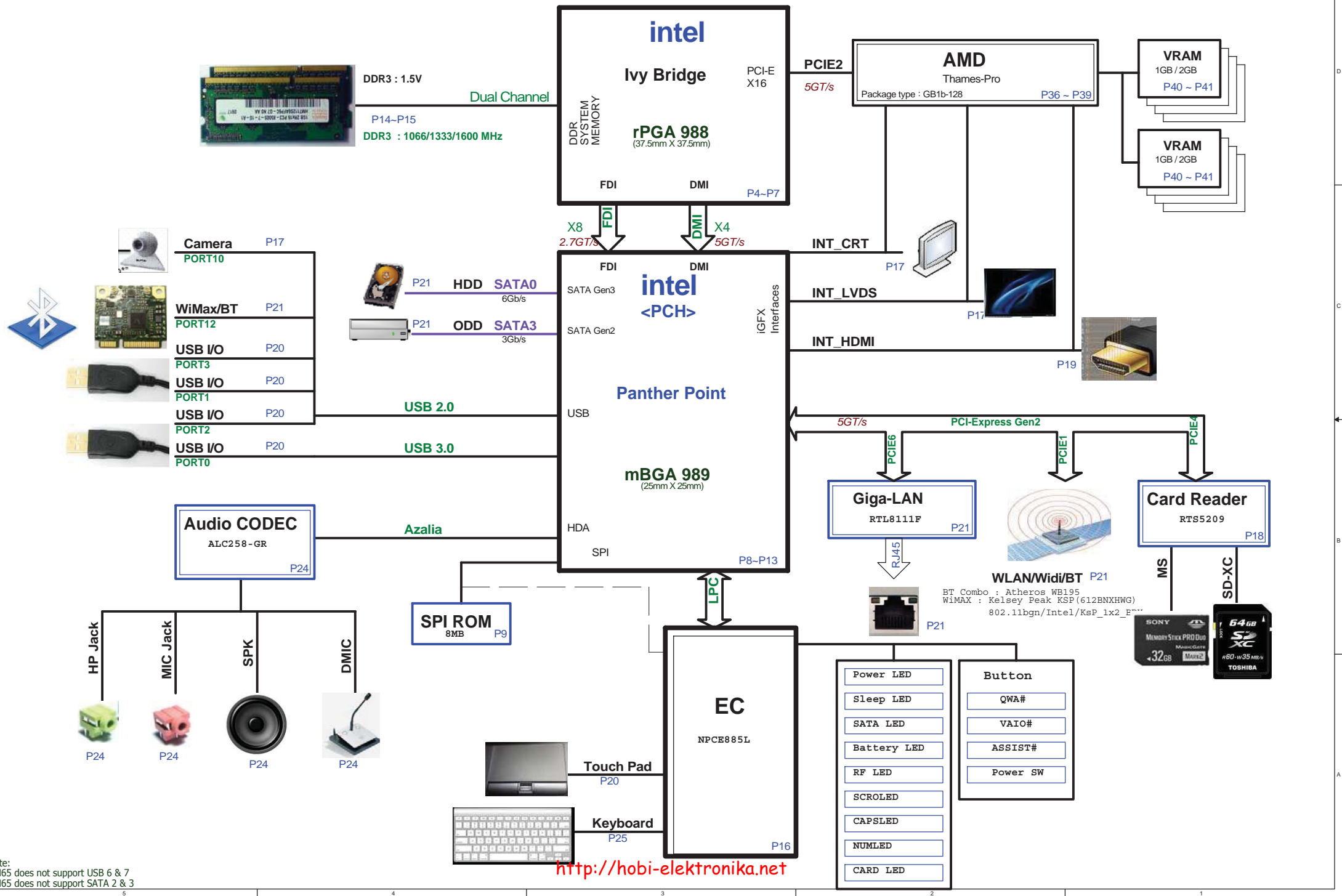


Page	Title of schematic page	Rev.	Date
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05	SNB 2/4 (DDR3 I/F)	1A	
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10	PCH 3/6 (PCIE/USB/CLK/NV)	1A	
11	PCH 4/6 (GPIO/CPU/STRAP)	1A	
12	PCH 5/6 (POWER)	1A	
13	PCH 6/6 (GND)	1A	
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16	WPCE791L & FLASH	1A	
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18	CARD READER (RTS5209)	1A	
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20	USB	1A	
21	LAN (RTL8111F)	1A	
22	WLAN/KB-BL	1A	
23	HDD/ODD/G-SENSOR/TP/FAN	1A	
24	Audio ALC258-GR	1A	
25	LED/RF/PS	1A	
26	POWER +VCC_CORE (ISL95835)	1A	
27	POWER 3VPCU&RVCC5 (PM6686)	1A	
28	POWER 1.5VSUS/VTT_MEM	1A	
29	POWER +1.05V (G5602R41U) -15A	1A	
30	POWER VCCSA/VCCIO	1A	
31	POWER VCC1.8/Thermal	1A	
32	POWER (BAT IN / ADA IN/ UL)	1A	
33	POWER CHARGER (ISL88731C)	1A	
34	POWER VGA_CORE ( OZ8117)	1A	
35	POWER VGA_VCC1.8/VCC1.0	1A	
36	Thames_PCIE I/F/DP Power	1A	
37	Thames_IO & STRAP	1A	
38	Thames_MEMORY/THERM	1A	
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Page	Title of schematic page	Rev.	Date
40	Thames_DDR3_A_512M	1A	
41	Thames_DDR3_B_512M	1A	
42	HOLE/EMI/KB	1A	
43	IO PORT LIST	1A	

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



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

Change List

HK5\_MB\_SCH\_PVT\_001

P21--Add LQ2 [CHT2301PT] ,LR18 [47K] ,LC27 [0.01UF] ,LC26 [1U] .  
P21--No mount LR15 [0 ohm] .  
P21--LR16 pin1 connect to "+3V\_S5" .

Reason : Modify circuit for LAN power Rise time.  
Possible Risk: No.

HK5\_MB\_SCH\_PVT\_002

P22--Delete R409 [3.01K] .  
P22--U29 value change to "G5240/TPS2051" .

Reason : Modify circuit for K/B Backlight protect.  
Possible Risk: No.

HK5\_MB\_SCH\_PVT\_003

P4--Delete R332 [0 ohm] .  
P5--Delete R171 [0 ohm] .  
P6--Delete R189 ,R186 ,R197 [0 ohm] .  
P8--Delete R438 ,R38 ,R37 ,R439 [0 ohm] .  
P9--Delete R121 ,R67 ,R65 ,R122 [0 ohm] .  
P10--Delete R73 [0 ohm] .  
P12--Delete R102 ,R126 ,R299 ,R302 [0 ohm] .  
P14--Delete R312 [0 ohm] .  
P15--Delete R309 [0 ohm] .  
P16--Delete KR39 ,KR60 ,KR6 ,KR30 [0 ohm] .  
P18--Delete ML1 ,MR5 [0 ohm] .  
P21--Delete LR12 [0 ohm] .  
P22--Delete R96 [0 ohm] .  
P23--Delete R461 ,R462  
P24--Delete AL1 ,AR21 ,AR8 ,AR23 ,AR24 ,AR25 ,AR22 ,AR15 ,AR16 ,AR17 ,AL3 ,AL4 ,R418 ,AR20 [0 ohm] .  
P27--Delete PR490 ,PR502 [0 ohm] .  
P31--Delete PR504 [0 ohm] .

Reason : Cancel 0 ohm.  
Possible Risk: No.

HK5\_MB\_SCH\_PVT\_004

P27--Delete PR513 .  
Reason : Cancel 0 ohm.  
Possible Risk: No.

HK5\_MB\_SCH\_PVT\_005

P26--PR100 ,PR108 ,PR109 change to short PAD .  
P27--PR325 ,PR318 ,PR324 ,PR326 change to short PAD .  
P28--PR352 ,PR356 ,PR360 ,PR357 ,PR358 change to short PAD .  
P30--PR388 ,PR390 ,PR392 change to short PAD .  
P31--PR413 ,PR429 ,PR430 ,PR440 ,PR441 change to short PAD .  
P33--PR271 change to short PAD .

Reason : Cancel 0 ohm.  
Possible Risk: No.

HK5\_MB\_SCH\_PVT\_006

P23--reserve D9 and D10  
Reason : reserve ESD diode  
Possible Risk: No.

HK5\_MB\_SCH\_PVT\_007

P25--change CON1 form 12Pin to 10pin  
Reason : delete samll board LID fuction  
Possible Risk: No.

HK5\_MB\_SCH\_PVT\_008

P42-- Del J5 ,J6 ,J7 ,J8 ,J9 ,J10 for EMI request  
Reason : For EMI  
Possible Risk:  
No.

HK5\_MB\_SCH\_PVT\_009

P23-- Delete reserve ESD diode D23 ,D24  
Reason : ESD test PASS , we don't need to reserve  
Possible Risk: No.

HK5\_MB\_SCH\_PVT\_010

P23-- change ODD ESD diode form Rclamp0502n to SR05  
Reason : for SMT issue , Rclamp0502n easy to short , we change to SR05 and still reserve it  
Possible Risk: No.

HK5\_MB\_SCH\_PVT\_011

P25-- change R225 form 150ohm to 40.2ohm  
Reason : for W/L LED dark issue  
Possible Risk: No.

HK5\_MB\_SCH\_PVT\_012

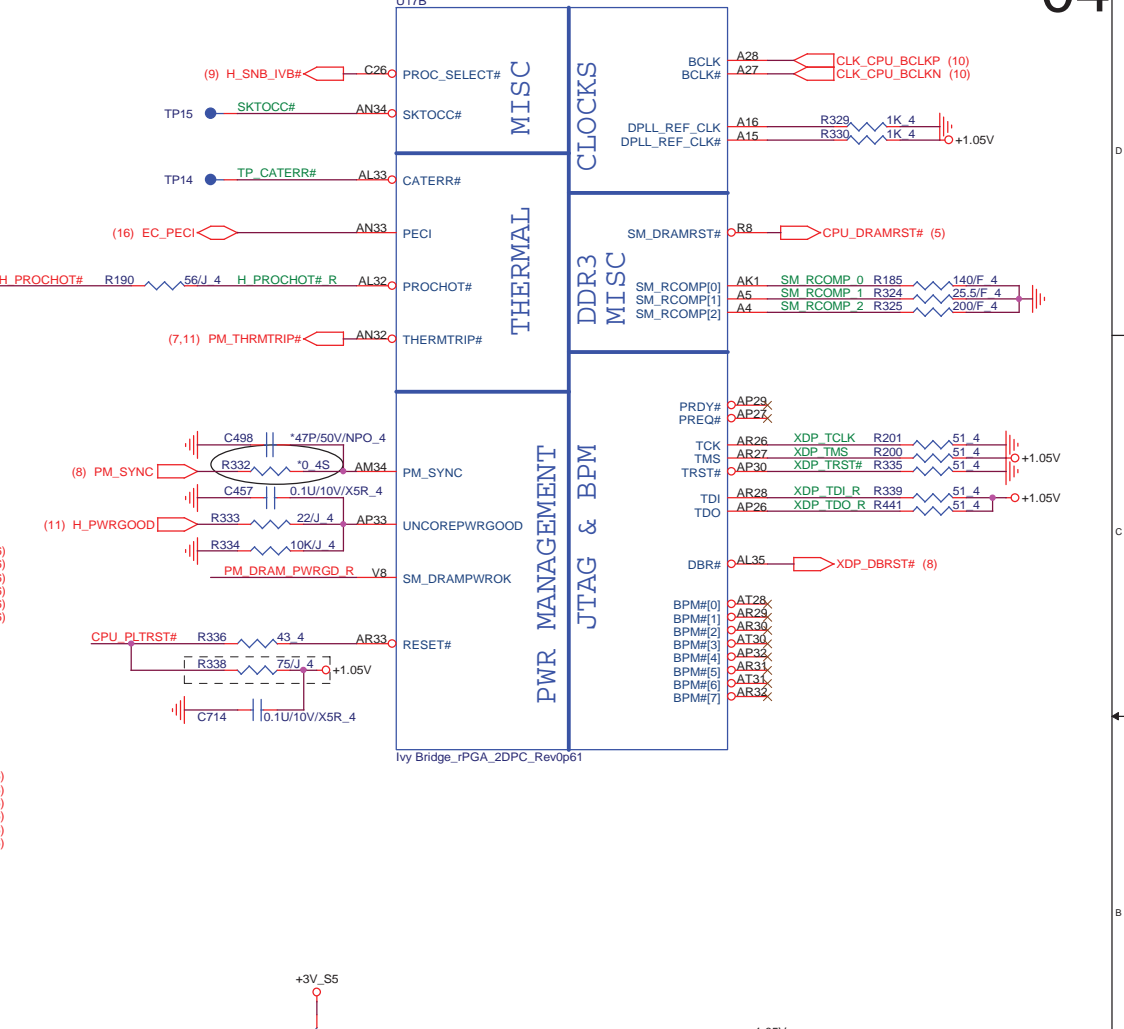
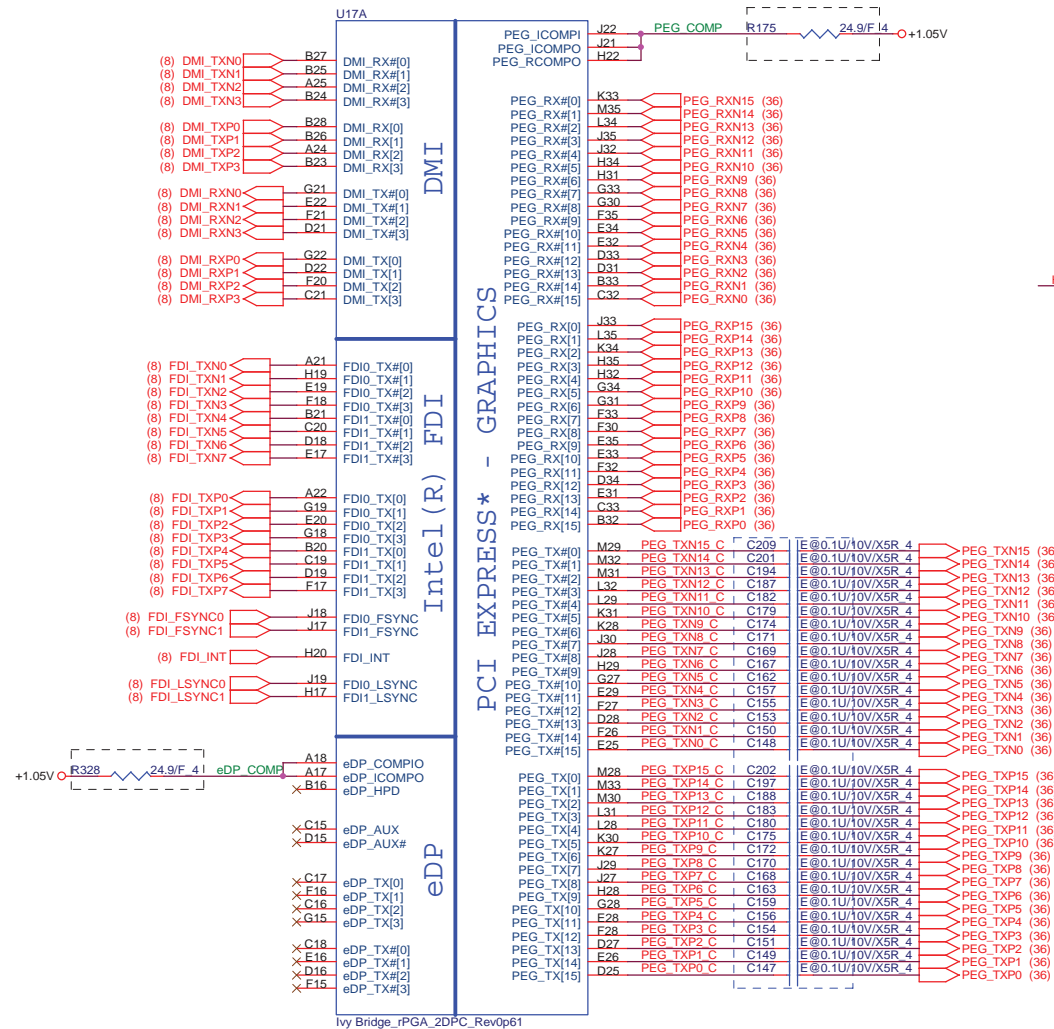
P25-- change R224 R226 R349 form 150ohm to 75ohm  
Reason : for HDD ,Battery and card reader LED dark issue  
Possible Risk: No.

HK5\_MB\_SCH\_PVT\_013

P23-- add R461 ,R462 [0ohm]  
Reason : customer requirement for TP SMBUS signal  
Possible Risk: No.

# Ivy Bridge Processor (DMI, PEG, FDI)

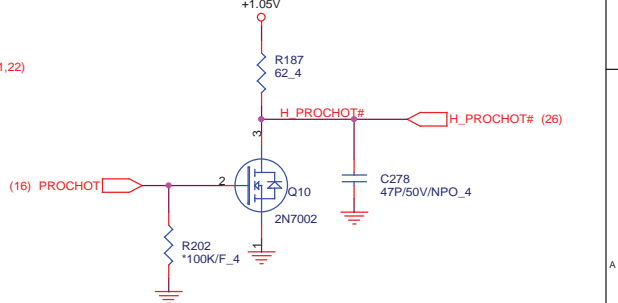
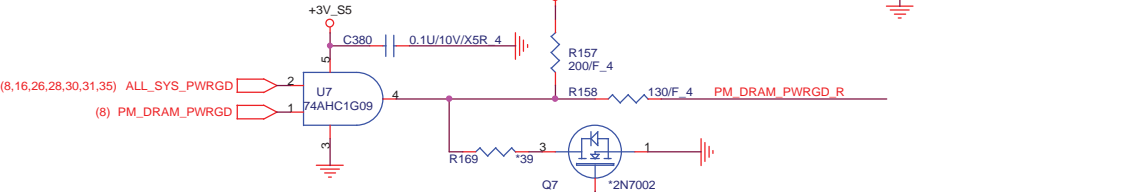
# Ivy Bridge Processor (CLK, MISC, JTAG)



SNB\_IVB#:  
 - It is NC when using Sandy Bridge. (1.05V)  
 - For next generation processor it will be grounded in package. (1.0V)

**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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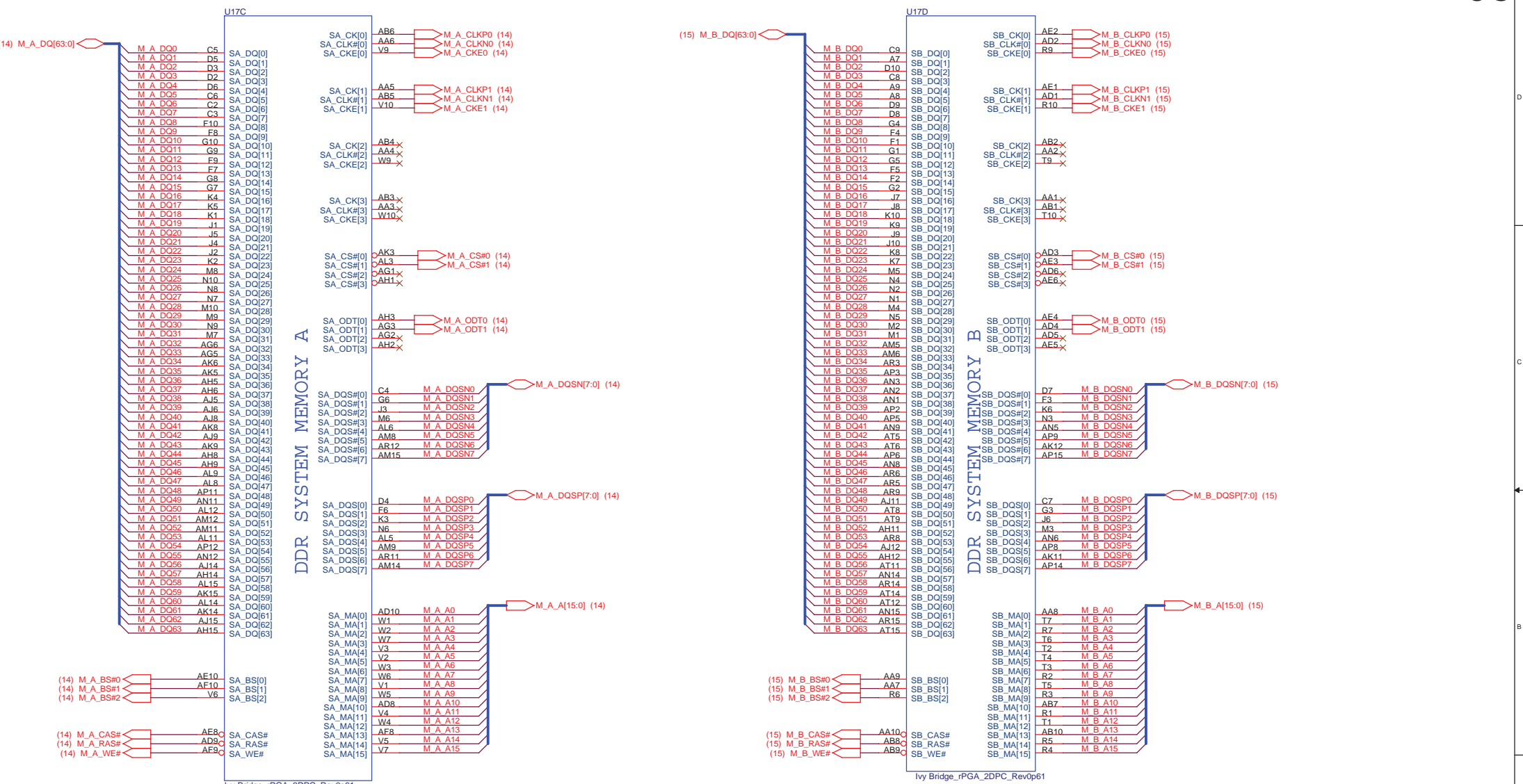
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Size: \_\_\_\_\_ Document Number: **SNB/IVB 1/4** Rev: 1A

Date: Wednesday, February 01, 2012 Sheet 4 of 43

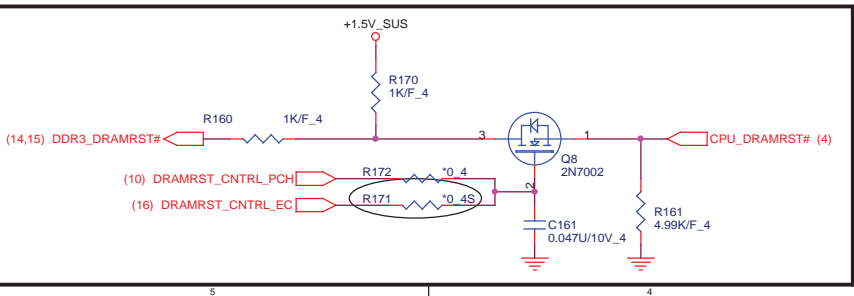
1. Hazardous Environment-related Substances Should Never be Used.  
 2. Recycled Resin and Coated Wire should be procured from Green Partners.

# Ivy Bridge Processor (DDR3)



Ivy Bridge\_rPGA\_2DPC\_Rev0p61

Ivy Bridge\_rPGA\_2DPC\_Rev0p61



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Size: \_\_\_\_\_ Document Number: **SNB/IVB 2/4** Rev: 1A

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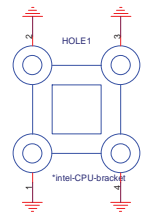
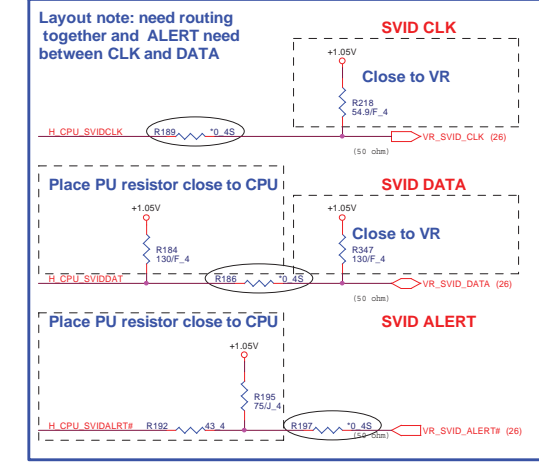
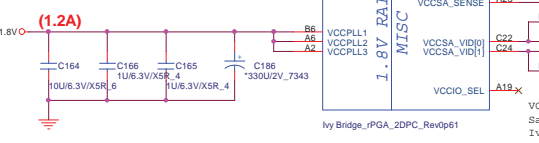
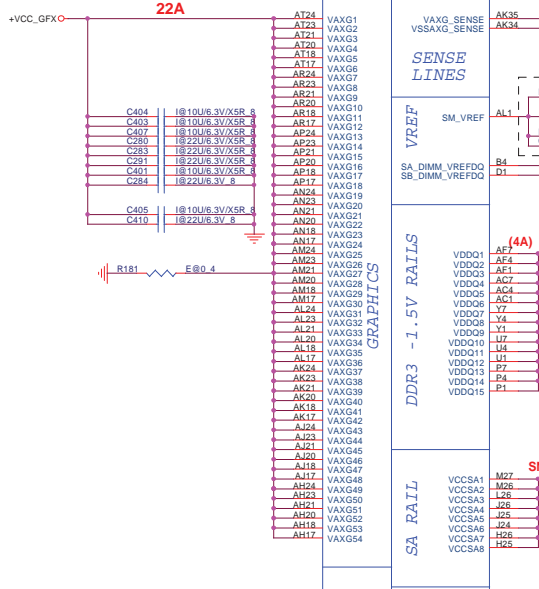
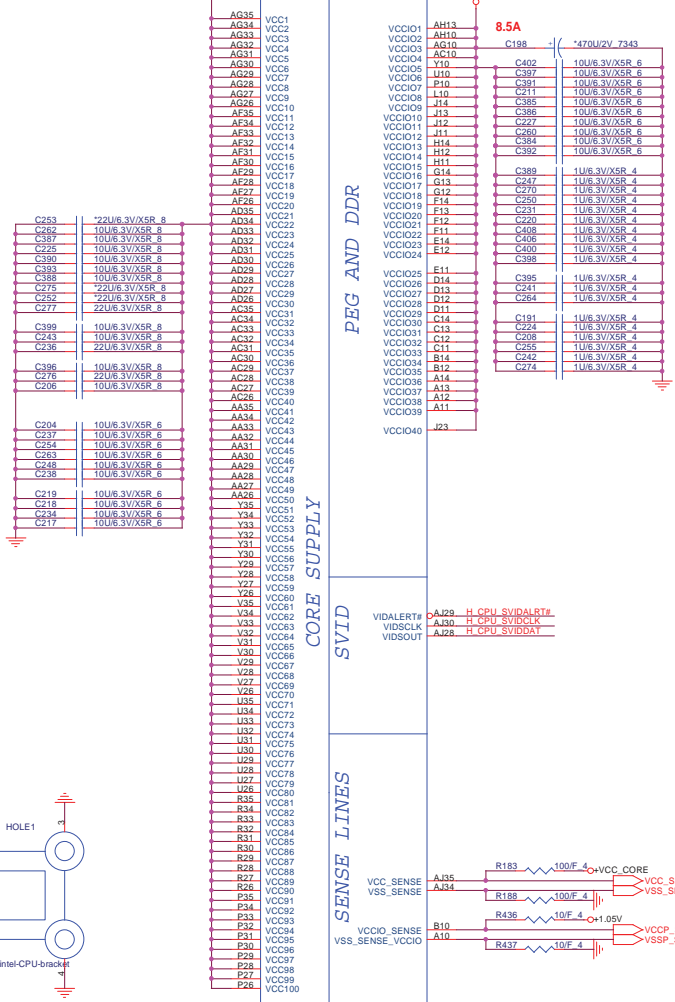
1. Never Use Environment-related Substances Should Never be Used.  
2. Recycled Resin and Coated Wire should be procured from Green Partners.

### Ivy Bridge Processor (POWER)

### Ivy Bridge Processor (GRAPHIC POWER)

CPU Core Power  
SNB:55A

POWER



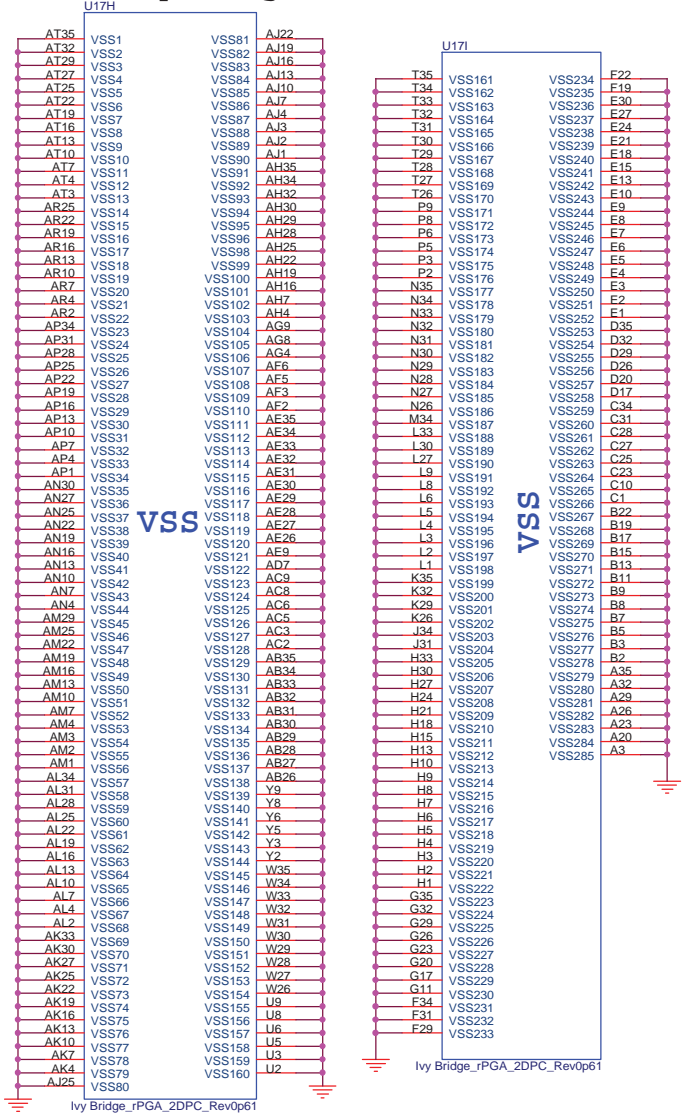
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Size	Document Number	Rev
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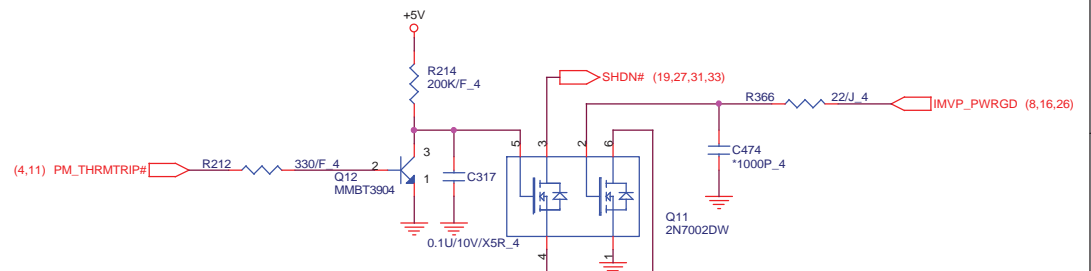
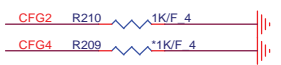
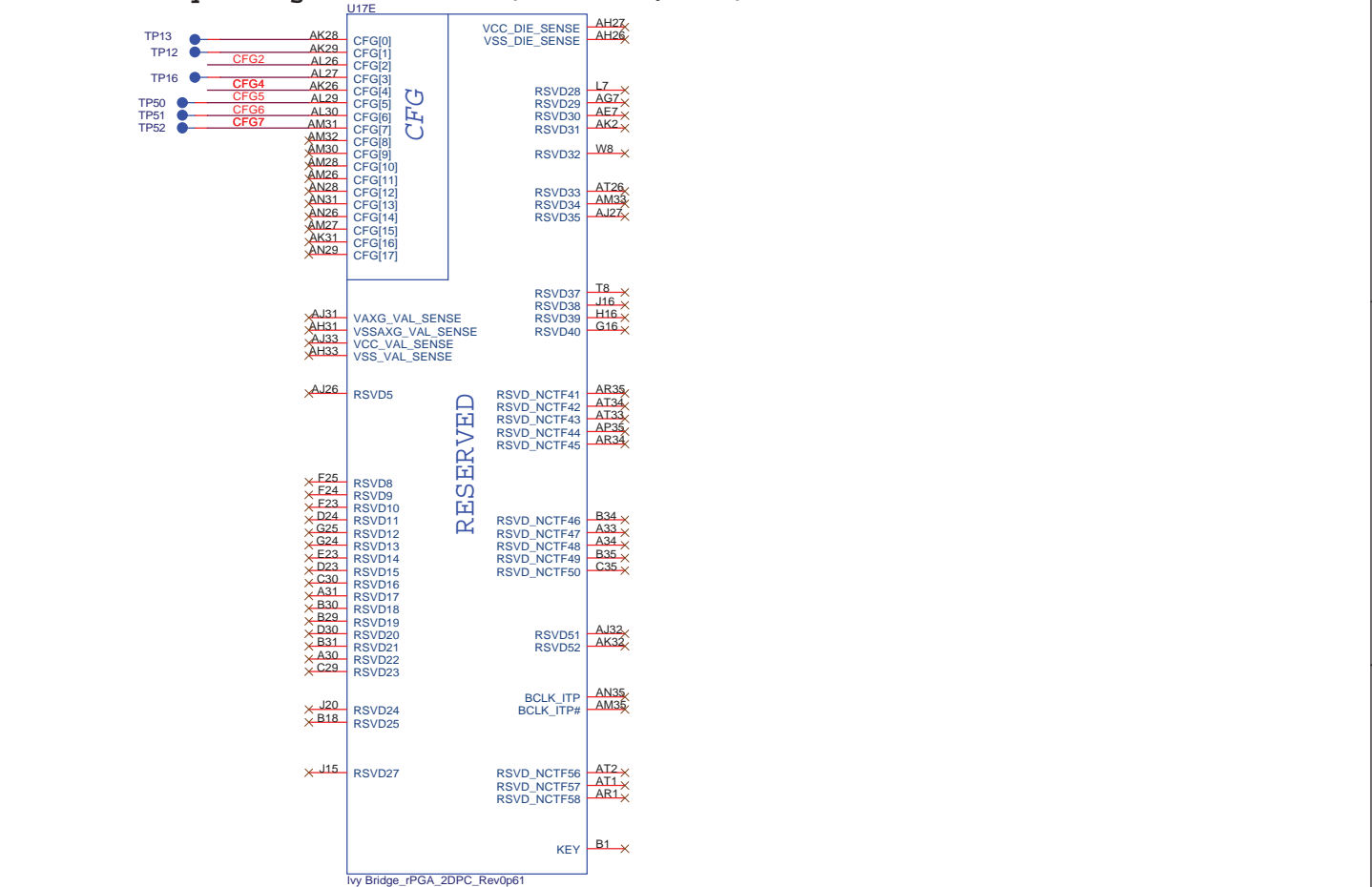
1. Level 1 Environment-related Substances Should Never be Used.  
2. Recycled Resin and Coated Wire should be procured from Green Partners.

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Ivy Bridge Processor (GND)



Ivy 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 xxRESETB de assertion	PEG wait for BIOS training

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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Size: Document Number: **SNB/IVB 4/4** Rev: 1A

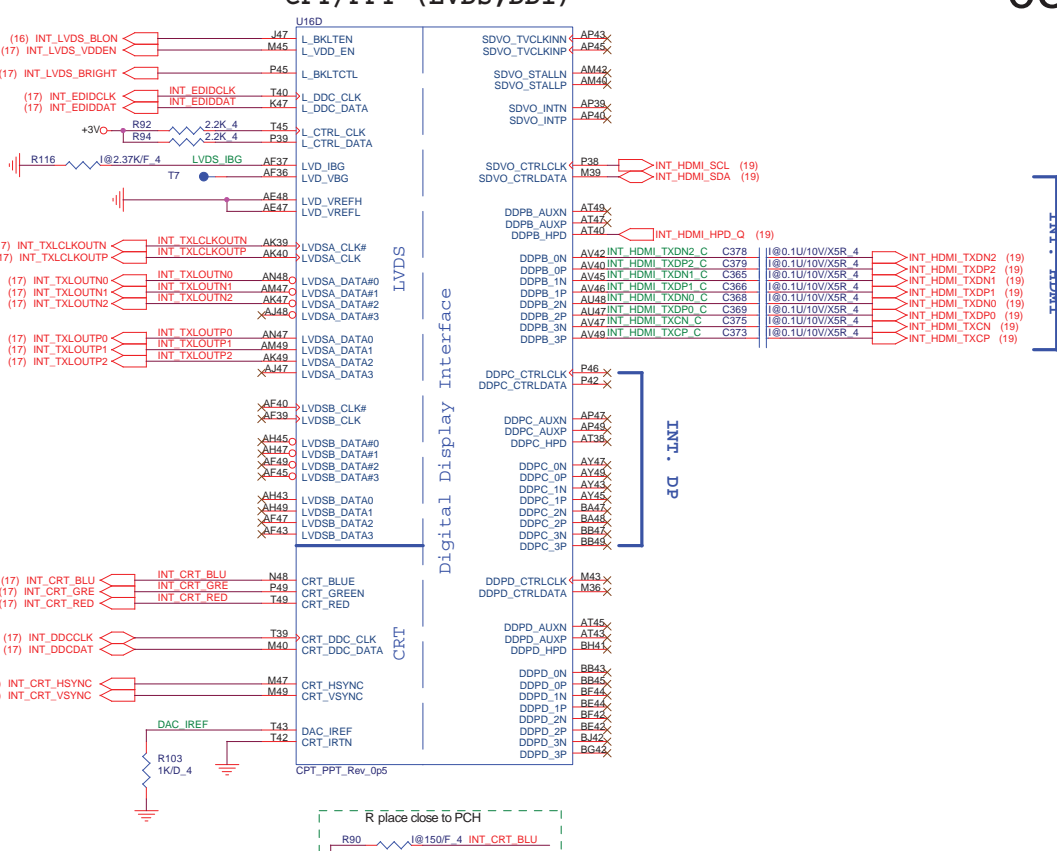
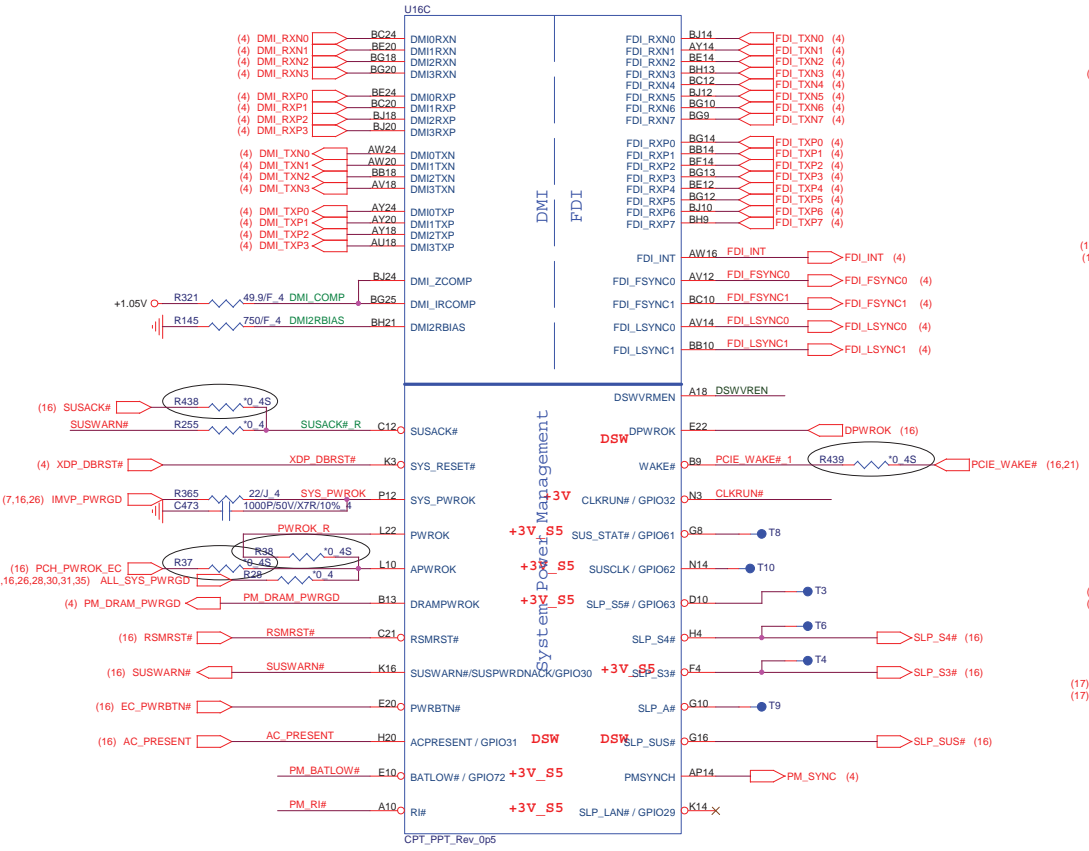
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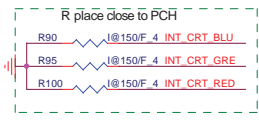
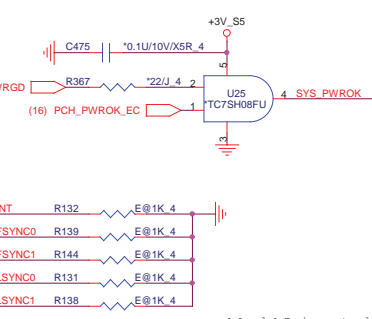
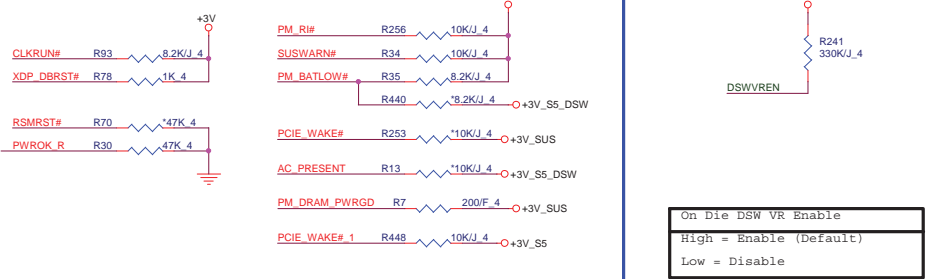
1. Never - Environment-related Substances Should Never be Used.  
 2. Recycled Resin and Coated Wire should be procured from Green Partners.

CPT/PPT (DMI, FDI, PM)

CPT/PPT (LVDS, DDI)



PCH Pull-high/low(CLG)



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

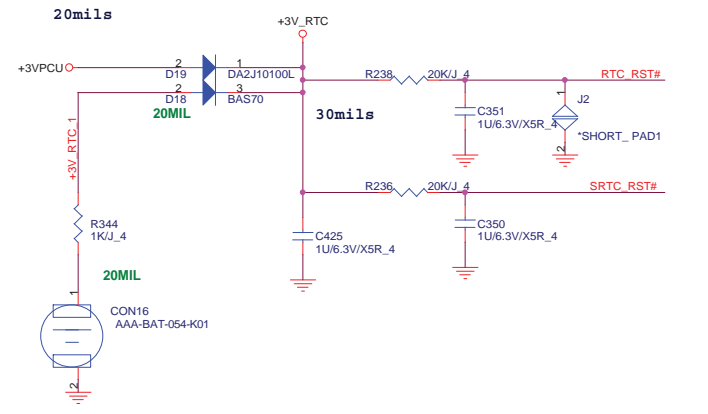
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Size	Document Number	Rev
	CPT/PTT 1/6	1A

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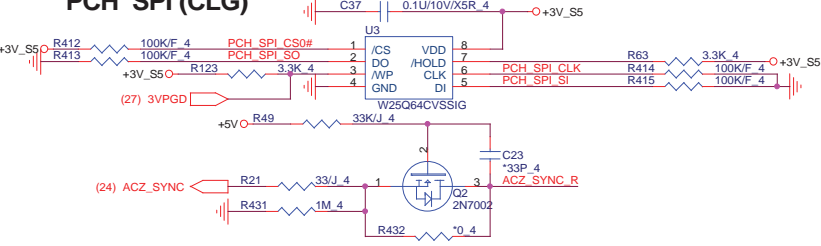


### RTC Circuitry(RTC)



MX25L3205DM2I-12G: AKE39FP0Z00  
 W25X32VSSIG: AKE39ZP0N00

### PCH SPI (CLG)



(16) F\_CS0#\_PCH

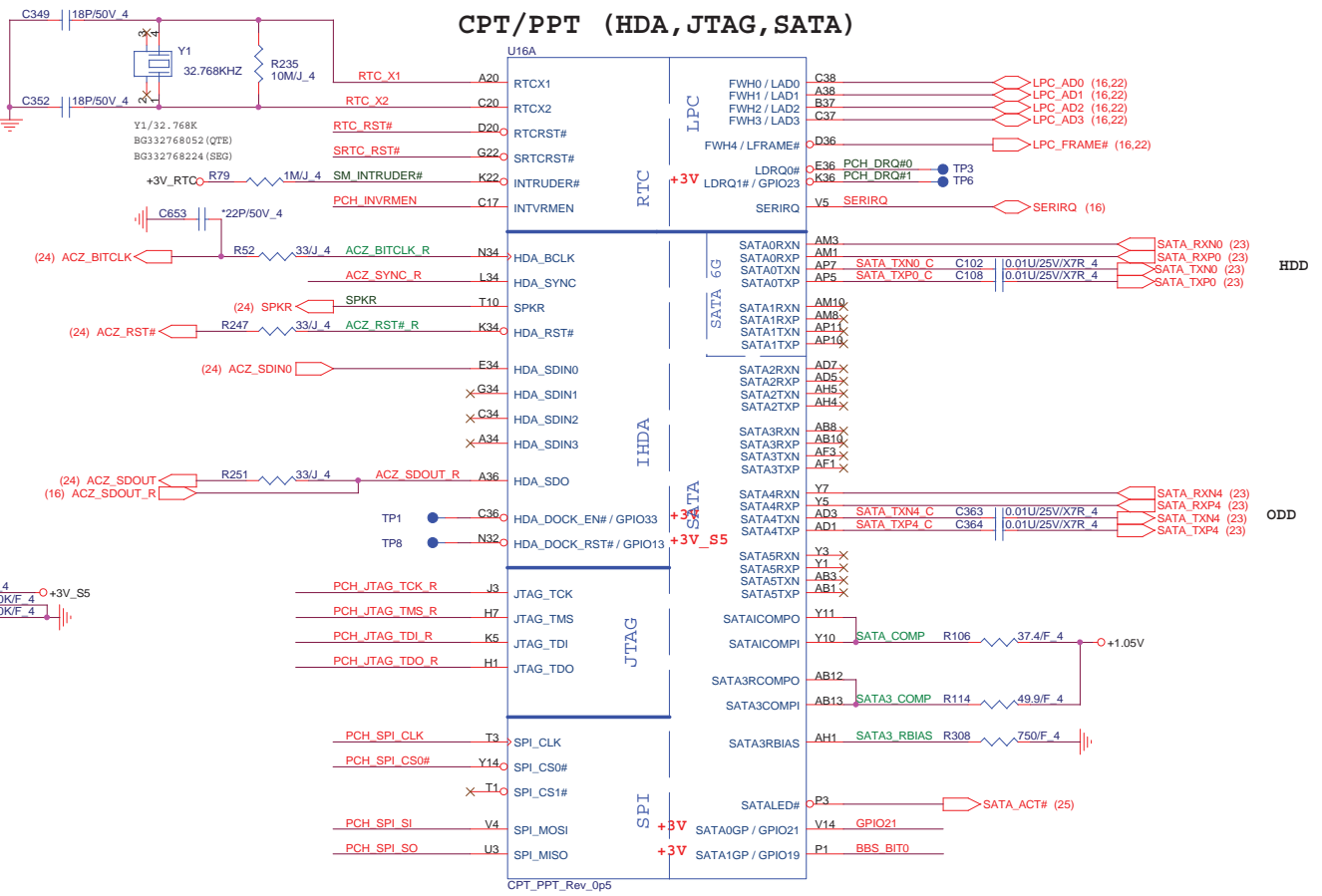
R721	0.4S	PCH_SPI_CS0#
R67	0.4S	PCH_SPI_SO
R65	0.4S	PCH_SPI_CLK
R122	0.4S	PCH_SPI_SI

For NPCE85L Using

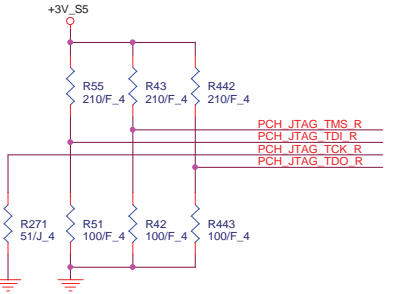
### PCH Strap Table

Pin Name	Strap description	Sampled	Configuration	HK1/HK2 note									
SPKR	No reboot mode setting	PWROK	0 = Default (weak pull-down 20K) 1 = Setting to No-Reboot mode	SPKR									
PCI_GNT3# / GPIO55	Top-Block Swap Override	PWROK	0 = "top-block swap" mode 1 = Default (weak pull-up 20K)	R270 1K 4 PCI_GNT3# (10)									
INTVRMEN	Integrated 1.05V VRM enable	ALWAYS	Should be always pull-up	+3V_RTC R242 330K/J_4 PCH_INVRMEN									
GNT1# / GPIO51	Boot BIOS Selection 1 [bit-1]	PWROK	<table border="1"> <tr><th>GNT1#</th><th>GNT0#</th><th>Boot Location</th></tr> <tr><td>1</td><td>1</td><td>SPI *</td></tr> <tr><td>0</td><td>0</td><td>LPC</td></tr> </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]	PWROK	TP47 BBS_BIT1 (10) TP43 BBS_BIT0										
HDA_SDO	Flash Descriptor Security	PWROK	0 = Default (weak pull-down 20K) 1 = Enabled	ACZ_SDOOUT_R R140 2.2K 4 +1.8V R320 1K 4 NV_CLE (11) H_SNB_IVB# (4)									
DF_TVS	DMI/FDI Termination voltage	PWROK	0 = Set to Vss for Ivy Bridge 1 = Set to Vcc for Sandy Bridge (weak pull-down 20K)										
GPIO28	On-die PLL Voltage Regulator	RSMRST#	0 = Disable 1 = Enable (Default)	TP44 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	R99 1K 4 ACZ_SYNC_R									

### CPT/PPT (HDA, JTAG, SATA)



### PCH JTAG Debug (CLG)



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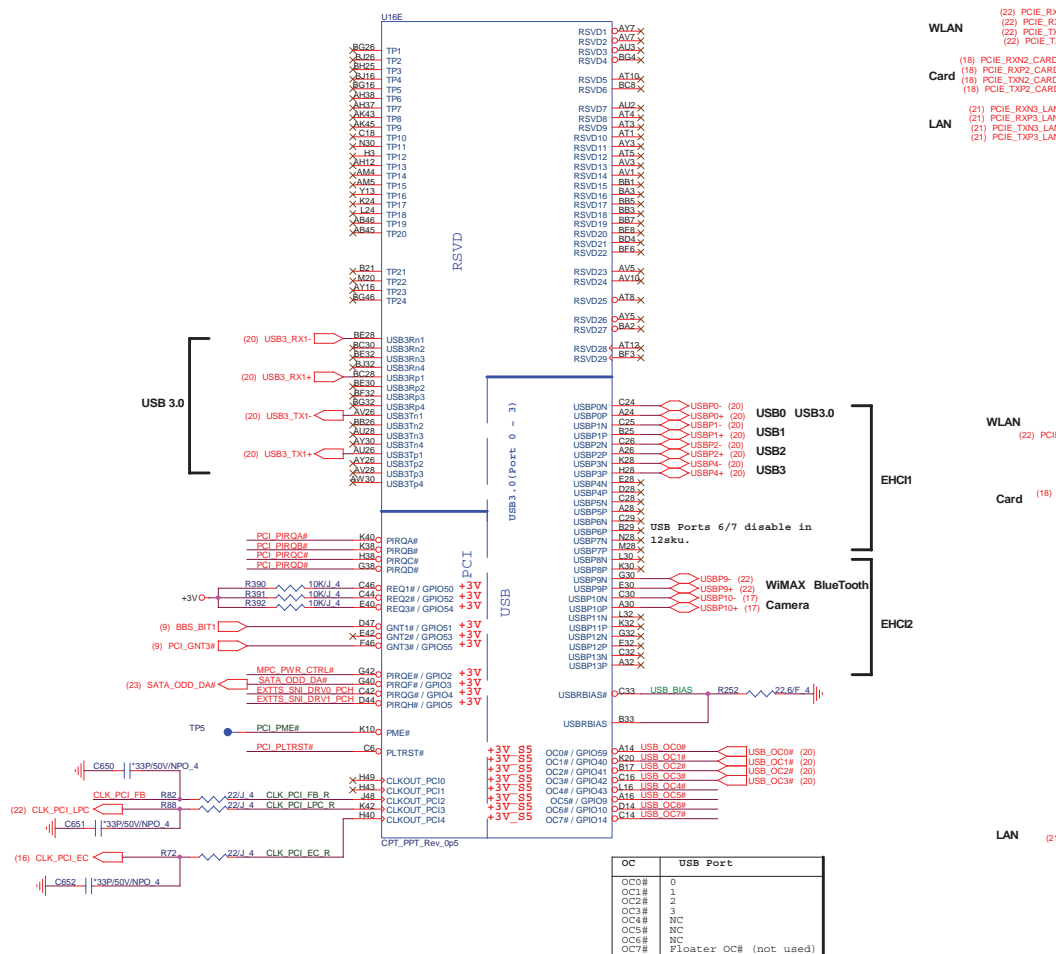
Size	Document Number	Rev
	CPT/PPT 2/6	1A

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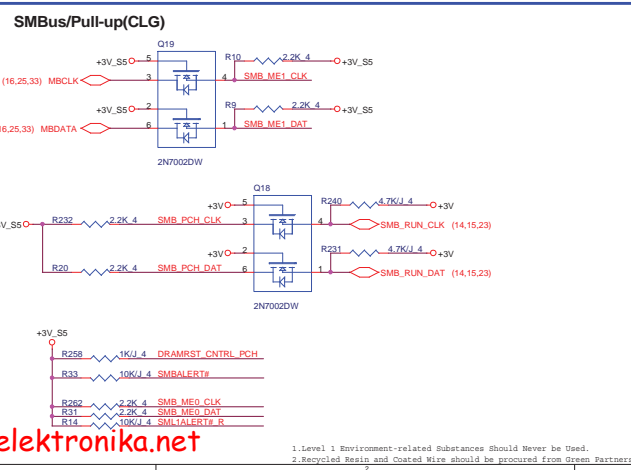
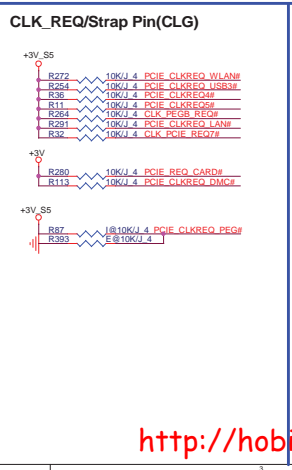
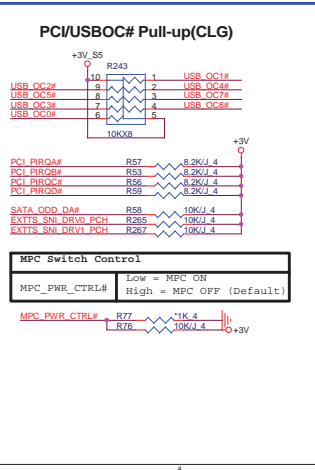
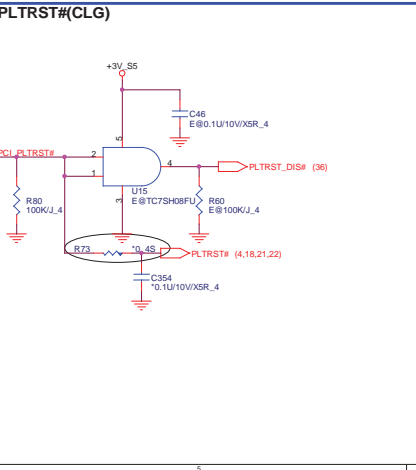
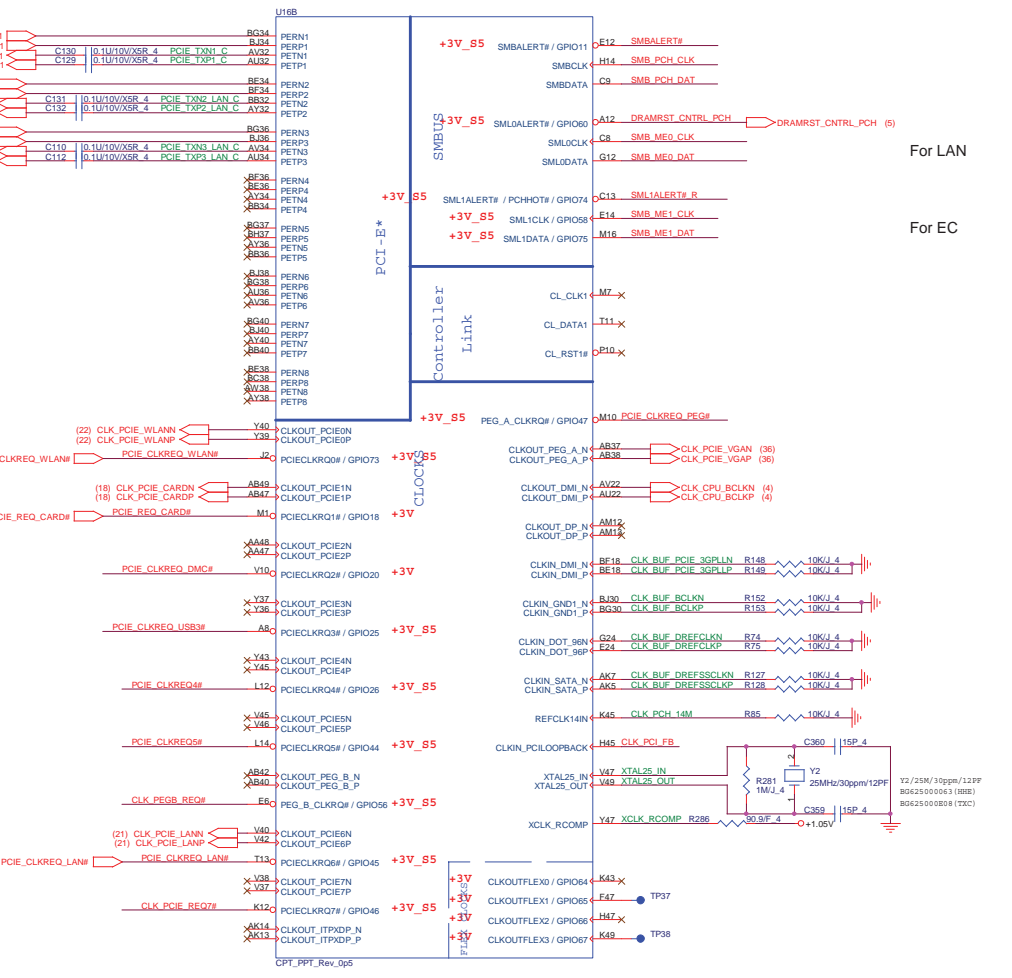
1. Level 1 Environment-related Substances Should Never be Used.  
 2. Recycled Resin and Coated Wire should be procured from Green Partners.

CPT/PPT (PCI, USB, NVRAM)



OC	USB Port
OC0#	0
OC1#	1
OC2#	2
OC3#	3
OC4#	NC
OC5#	NC
OC6#	NC
OC7#	Flouter OC# (not used)

CPT/PPT (PCI-E, SMBUS, CLK)



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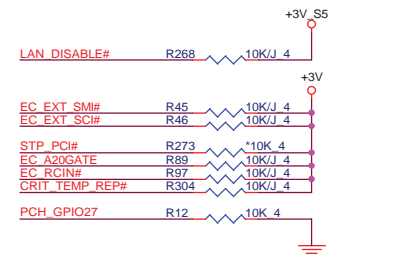
Size: Document Number: CPT/PPT 3/6  
Date: Wednesday, February 01, 2012 Sheet: 10 of 43

# CPT/PPT (GPIO, VSS\_NCTF, RSVD)



## GPIO Pull-up/Pull-down (CLG)

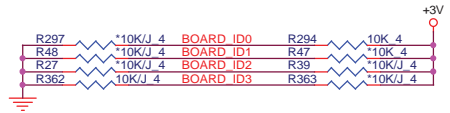
11



	R363 (High) R362 (Low)	R294 (High) R297 (Low)
14" /HK6/HK7 6	0	0
14" /HK6/HK7 0	1	0
15" /HK5/HM7 6	0	1
15" /HK5/HM7 0	1	1

Board ID1 (VRAM Vendor)	Samaung (1)	Hynix (0)
R47 (High)	Stuff	No Stuff
R48 (Low)	No Stuff	Stuff

Board ID2		
14" 4PCS	1G	512M
15" 8PCS	1G	2G
R39 (High)	Stuff	No Stuff
R27 (Low)	No Stuff	Stuff



PCBA SKU	Discrete	UMA
R277 (Pull High)	Stuff	No Stuff
R275 (Pull Low)	No Stuff	Stuff



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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

SV\_SET\_UP

High = Strong (Default)

HOST ALERT#1 R

Intel ME Crypto Transport Layer Security (TLS) cipher suite  
Low = Disable (Default)  
High = Enable

MFG-TEST

MFG\_MODE

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



CPT/PPT (GND)

U16I


H5	VSS[0]		
AA17	VSS[1]	VSS[80]	AK38
AA2	VSS[2]	VSS[81]	AK4
AA3	VSS[3]	VSS[82]	AK42
AA33	VSS[4]	VSS[83]	AK46
AA34	VSS[5]	VSS[84]	AK6
AB11	VSS[6]	VSS[85]	AL16
AB14	VSS[7]	VSS[86]	AL17
AB38	VSS[8]	VSS[87]	AL19
AB4	VSS[9]	VSS[88]	AL2
AB43	VSS[10]	VSS[89]	AL21
AB5	VSS[11]	VSS[90]	AL23
AB7	VSS[12]	VSS[91]	AL26
AC19	VSS[13]	VSS[92]	AL27
AC2	VSS[14]	VSS[93]	AL31
AC21	VSS[15]	VSS[94]	AL33
AC24	VSS[16]	VSS[95]	AL34
AC33	VSS[17]	VSS[96]	AL48
AC34	VSS[18]	VSS[97]	AM11
AC48	VSS[19]	VSS[98]	AM14
AD10	VSS[20]	VSS[99]	AM36
AD11	VSS[21]	VSS[100]	AM39
AD12	VSS[22]	VSS[101]	AM43
AD13	VSS[23]	VSS[102]	AM45
AD19	VSS[24]	VSS[103]	AM46
AD24	VSS[25]	VSS[104]	AM7
AD26	VSS[26]	VSS[105]	AN2
AD27	VSS[27]	VSS[106]	AN29
AD33	VSS[28]	VSS[107]	AN3
AD34	VSS[29]	VSS[108]	AN31
AD36	VSS[30]	VSS[109]	AP12
AD37	VSS[31]	VSS[110]	AP19
AD38	VSS[32]	VSS[111]	AP28
AD39	VSS[33]	VSS[112]	AP30
AD4	VSS[34]	VSS[113]	AP32
AD40	VSS[35]	VSS[114]	AP38
AD42	VSS[36]	VSS[115]	AP4
AD43	VSS[37]	VSS[116]	AP42
AD45	VSS[38]	VSS[117]	AP46
AD46	VSS[39]	VSS[118]	AP8
AD8	VSS[40]	VSS[119]	AR2
AE2	VSS[41]	VSS[120]	AR48
AE3	VSS[42]	VSS[121]	AT11
AE10	VSS[43]	VSS[122]	AT13
AE12	VSS[44]	VSS[123]	AT18
AD14	VSS[45]	VSS[124]	AT22
AD16	VSS[46]	VSS[125]	AT26
AF16	VSS[47]	VSS[126]	AT28
AF19	VSS[48]	VSS[127]	AT30
AF24	VSS[49]	VSS[128]	AT32
VSS[50]		VSS[129]	AT34
AF27	VSS[51]	VSS[130]	AT39
AF29	VSS[52]	VSS[131]	AT42
AF31	VSS[53]	VSS[132]	AT46
AF38	VSS[54]	VSS[133]	AT7
AF4	VSS[55]	VSS[134]	AU24
AF42	VSS[56]	VSS[135]	AU30
AF46	VSS[57]	VSS[136]	AV16
AF5	VSS[58]	VSS[137]	AV20
AF7	VSS[59]	VSS[138]	AV24
AF8	VSS[60]	VSS[139]	AV30
AG19	VSS[61]	VSS[140]	AV38
AG2	VSS[62]	VSS[141]	AV4
AG31	VSS[63]	VSS[142]	AV43
AG48	VSS[64]	VSS[143]	AV8
AH11	VSS[65]	VSS[144]	AW14
AH3	VSS[66]	VSS[145]	AW18
AH36	VSS[67]	VSS[146]	AW2
AH39	VSS[68]	VSS[147]	AW22
AH40	VSS[69]	VSS[148]	AW26
AH42	VSS[70]	VSS[149]	AW28
AH46	VSS[71]	VSS[150]	AW32
AH7	VSS[72]	VSS[151]	AW34
AJ19	VSS[73]	VSS[152]	AW36
AJ21	VSS[74]	VSS[153]	AW48
AJ24	VSS[75]	VSS[154]	AV11
AJ33	VSS[76]	VSS[155]	AY12
AJ34	VSS[77]	VSS[156]	AY22
AK12	VSS[78]	VSS[157]	AY28
AK3	VSS[79]	VSS[158]	AY28

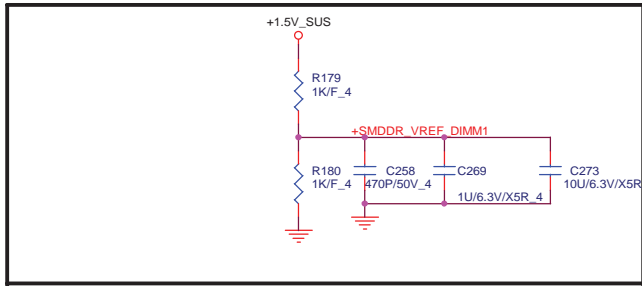
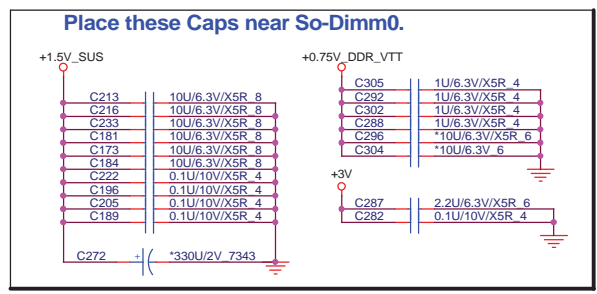
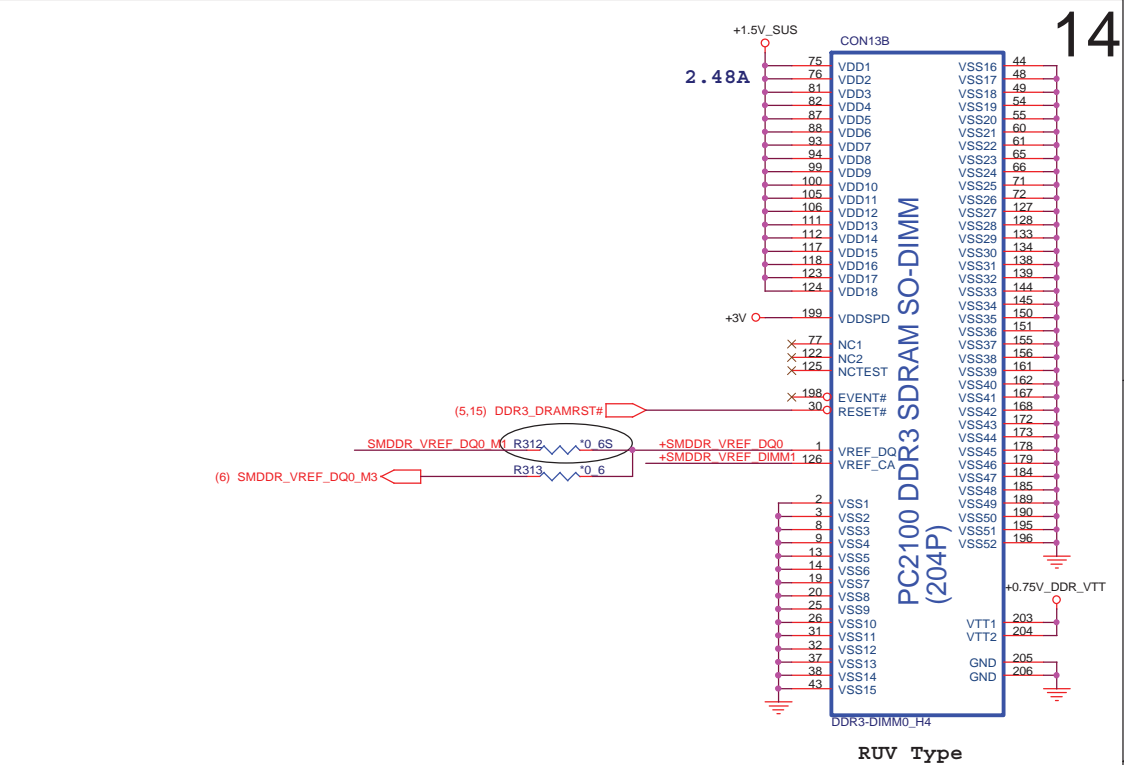
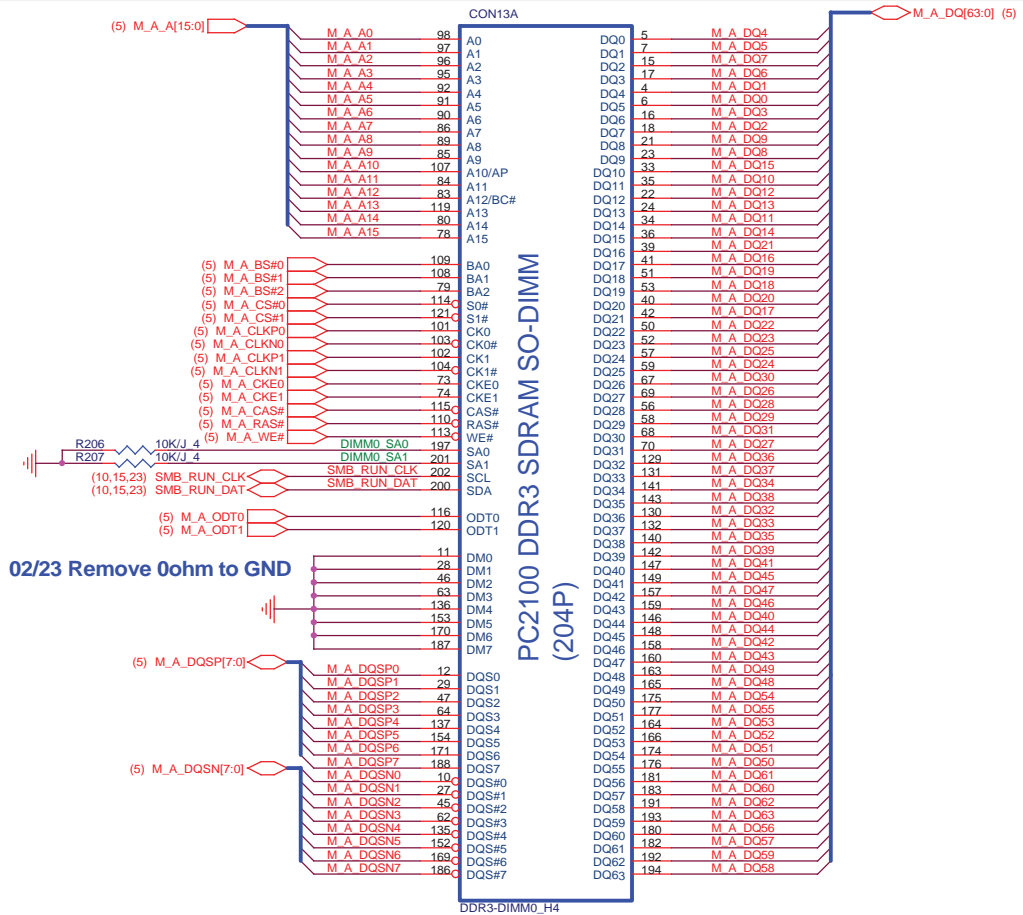
AY4	VSS[159]	VSS[269]	H46
AY42	VSS[160]	VSS[280]	K18
AY46	VSS[161]	VSS[281]	K26
AY8	VSS[162]	VSS[282]	K39
B11	VSS[163]	VSS[283]	K46
B15	VSS[164]	VSS[284]	K7
B19	VSS[165]	VSS[285]	L18
B23	VSS[166]	VSS[286]	L2
B27	VSS[167]	VSS[287]	L20
B31	VSS[168]	VSS[288]	L26
B35	VSS[169]	VSS[289]	L28
B39	VSS[170]	VSS[290]	L36
B7	VSS[171]	VSS[291]	L48
F45	VSS[172]	VSS[292]	M12
BB12	VSS[173]	VSS[293]	P16
BB16	VSS[174]	VSS[294]	M18
BB20	VSS[175]	VSS[295]	M22
AL31	VSS[176]	VSS[296]	M24
BB24	VSS[177]	VSS[297]	M30
BB28	VSS[178]	VSS[298]	M32
BB30	VSS[179]	VSS[299]	M34
BB38	VSS[180]	VSS[300]	M38
BB4	VSS[181]	VSS[301]	M4
BB46	VSS[182]	VSS[302]	M42
BC14	VSS[183]	VSS[303]	M46
BC18	VSS[184]	VSS[304]	M8
BC2	VSS[185]	VSS[305]	N18
BC22	VSS[186]	VSS[306]	P30
BC26	VSS[187]	VSS[307]	P47
AN2	VSS[188]	VSS[308]	P11
BC32	VSS[189]	VSS[309]	P18
BC34	VSS[190]	VSS[310]	T33
BC36	VSS[191]	VSS[311]	VSS[390]
BC40	VSS[192]	VSS[312]	P40
BC42	VSS[193]	VSS[313]	P43
BC48	VSS[194]	VSS[314]	P47
BD46	VSS[195]	VSS[315]	P7
BD5	VSS[196]	VSS[316]	R2
BE22	VSS[197]	VSS[317]	R48
BE26	VSS[198]	VSS[318]	T12
BE40	VSS[199]	VSS[319]	T31
BE10	VSS[200]	VSS[320]	T37
BF12	VSS[201]	VSS[321]	T4
BF16	VSS[202]	VSS[322]	V34
BF20	VSS[203]	VSS[323]	T46
BF22	VSS[204]	VSS[324]	T47
BF24	VSS[205]	VSS[325]	T8
BF28	VSS[206]	VSS[326]	V11
BD3	VSS[207]	VSS[327]	V17
BF30	VSS[208]	VSS[328]	V26
BF38	VSS[209]	VSS[329]	V27
BF40	VSS[210]	VSS[330]	V29
BF8	VSS[211]	VSS[331]	V31
BG17	VSS[212]	VSS[332]	V36
RG21	VSS[213]	VSS[333]	V39
RG33	VSS[214]	VSS[334]	V43
RG44	VSS[215]	VSS[335]	V7
BG8	VSS[216]	VSS[336]	W17
BH11	VSS[217]	VSS[337]	W19
BH15	VSS[218]	VSS[338]	W2
BH17	VSS[219]	VSS[339]	W27
BH19	VSS[220]	VSS[340]	W48
H10	VSS[221]	VSS[341]	Y12
BH27	VSS[222]	VSS[342]	Y38
BH31	VSS[223]	VSS[343]	Y4
AV4	VSS[224]	VSS[344]	Y46
BH33	VSS[225]	VSS[345]	Y8
BH35	VSS[226]	VSS[346]	BG29
BH39	VSS[227]	VSS[347]	N24
BH43	VSS[228]	VSS[348]	AJ3
BH7	VSS[229]	VSS[349]	AD47
D3	VSS[230]	VSS[350]	B43
D12	VSS[231]	VSS[351]	BE10
D16	VSS[232]	VSS[352]	BG41
D18	VSS[233]	VSS[353]	G14
D22	VSS[234]	VSS[354]	H16
D24	VSS[235]	VSS[355]	T36
D26	VSS[236]	VSS[356]	BG22
D30	VSS[237]	VSS[357]	BG24
D32	VSS[238]	VSS[358]	C22
D34	VSS[239]	VSS[359]	AP13
D38	VSS[240]	VSS[360]	M14
D42	VSS[241]	VSS[361]	M14
D48	VSS[242]	VSS[362]	AP3
E18	VSS[243]	VSS[363]	AP1
E26	VSS[244]	VSS[364]	BE16
G18	VSS[245]	VSS[365]	BC16
G20	VSS[246]	VSS[366]	BG28
G26	VSS[247]	VSS[367]	BJ28
G28	VSS[248]	VSS[368]	
G36	VSS[249]	VSS[369]	
G48	VSS[250]	VSS[370]	
H12	VSS[251]	VSS[371]	
H18	VSS[252]	VSS[372]	
H22	VSS[253]	VSS[373]	
H24	VSS[254]	VSS[374]	
H26	VSS[255]	VSS[375]	
H30	VSS[256]	VSS[376]	
H32	VSS[257]	VSS[377]	
H34	VSS[258]	VSS[378]	
F3	VSS[259]	VSS[379]	

CPT\_PPT\_Rev\_0p5

CPT\_PPT\_Rev\_0p5

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 **Quanta Computer Inc.**  
**PROJECT : Chief River**  
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 Date: Wednesday, February 01, 2012 Sheet 13 of 43



**Quanta Computer Inc.**

PROJECT : Chief River

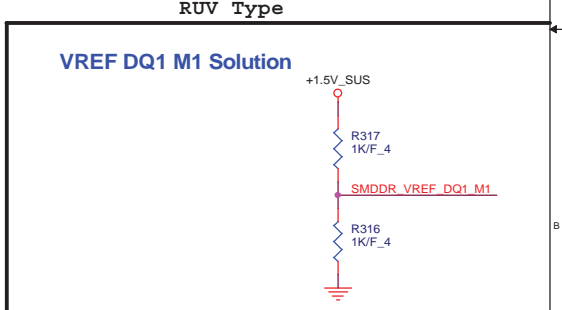
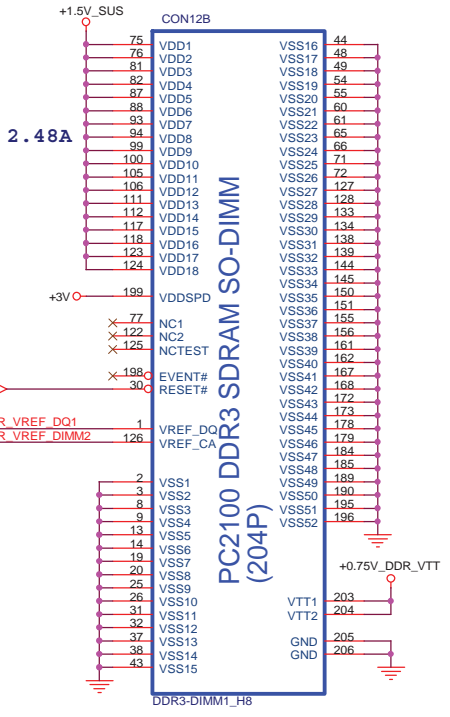
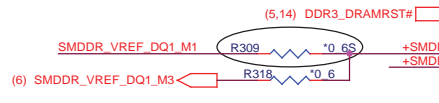
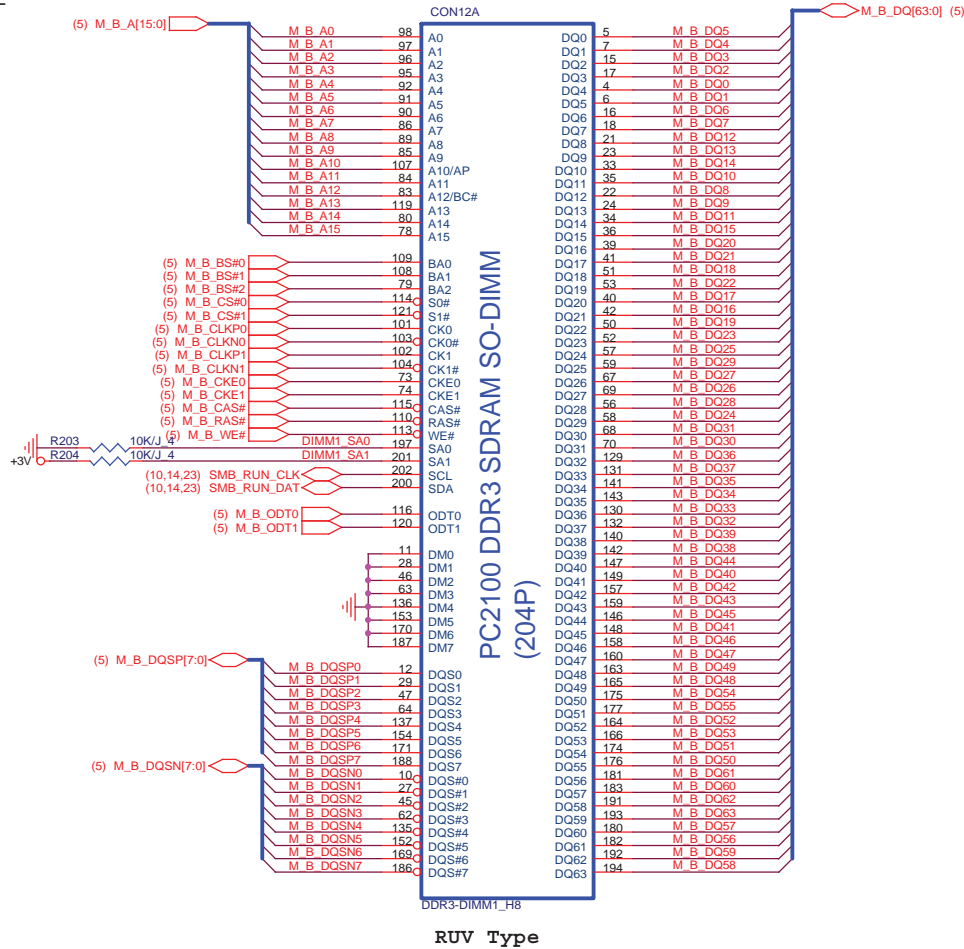
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Date: Wednesday, February 01, 2012 Sheet 14 of 43

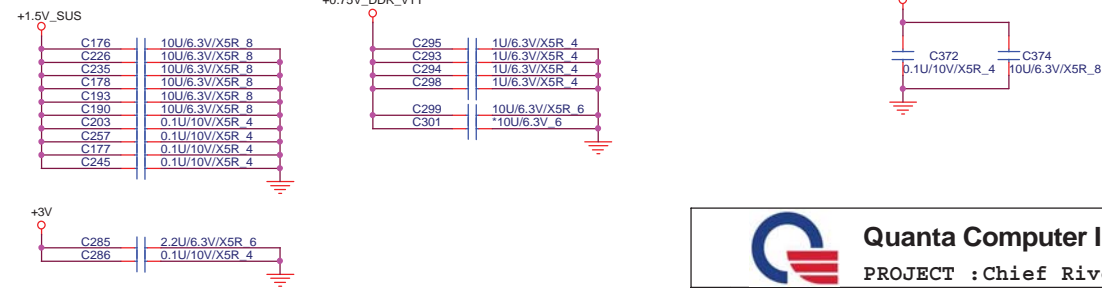
<http://hobi-elektronika.net>

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

DDR\_RVS (DDR)



Place these Caps near So-Dimm1.



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

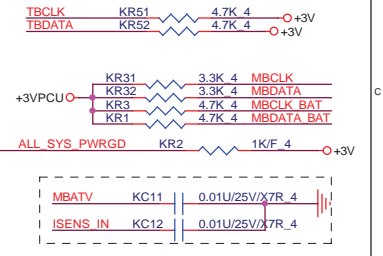
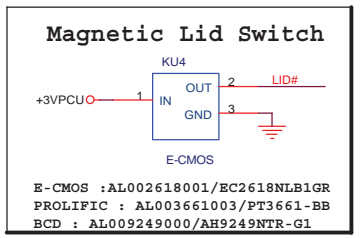
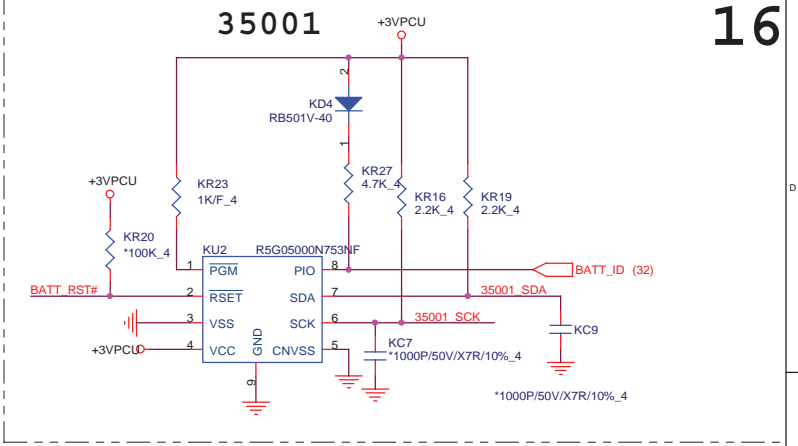
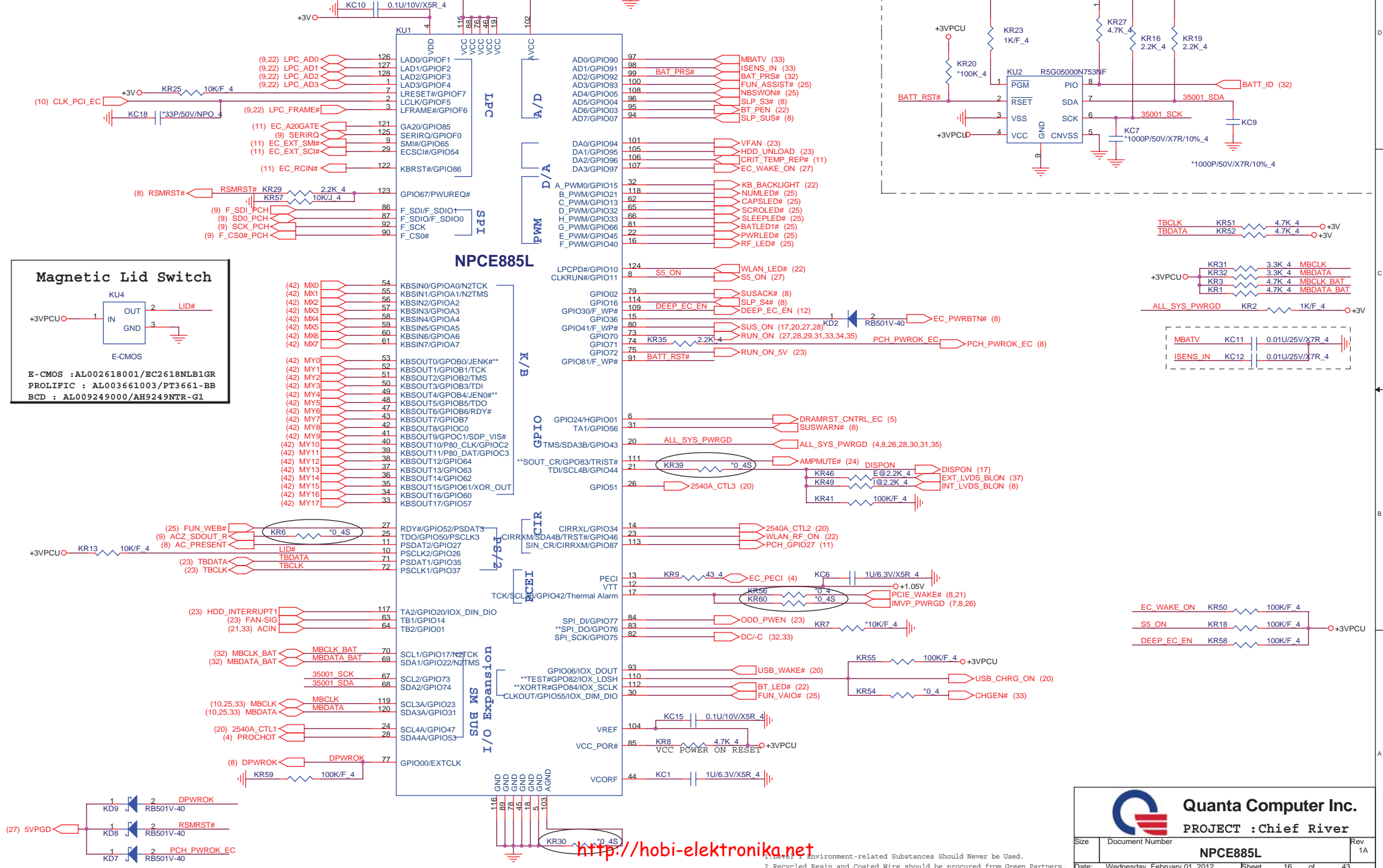
Size: Document Number: **DDRIII SO-DIMM-1** Rev: 1A

Date: Wednesday, February 01, 2012 Sheet 15 of 43

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

\*\* 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



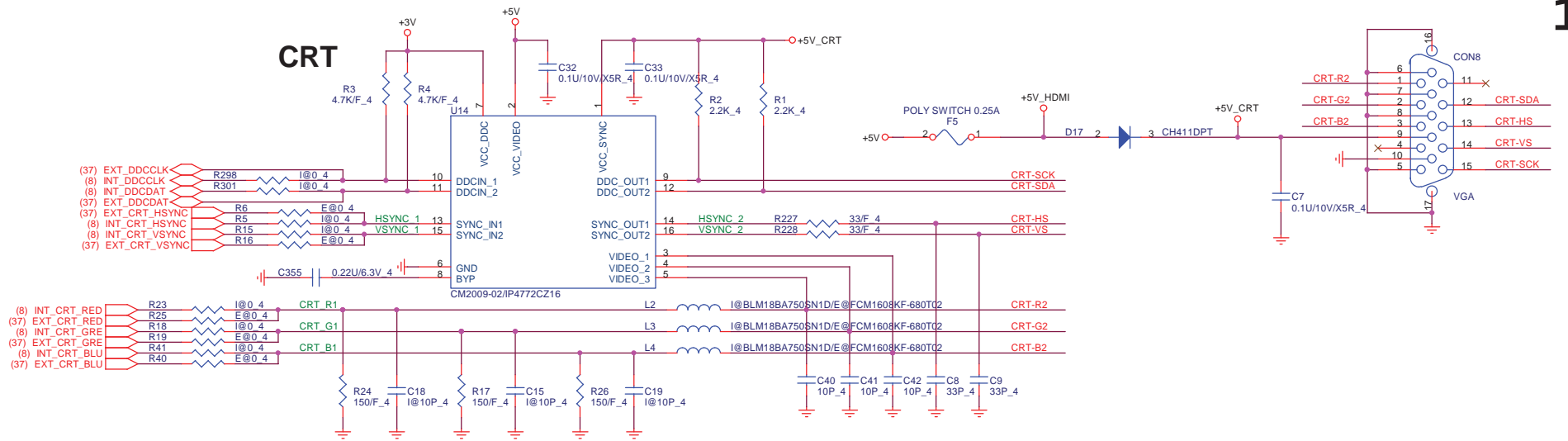
http://hobi-elektronika.net

**Quanta Computer Inc.**  
 PROJECT : Chief River  
 NPCE885L  
 Date: Wednesday, February 01, 2012 Sheet 16 of 43

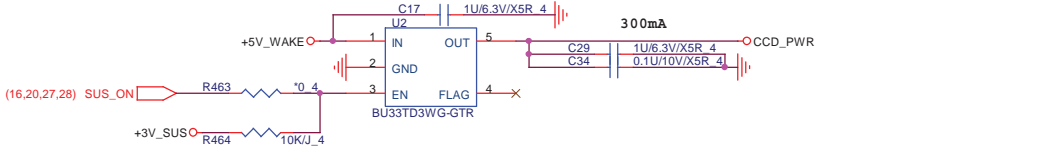
1. Hazardous Environment-related Substances Should Never be Used.  
 2. Recycled Resin and Coated Wire should be procured from Green Partners.



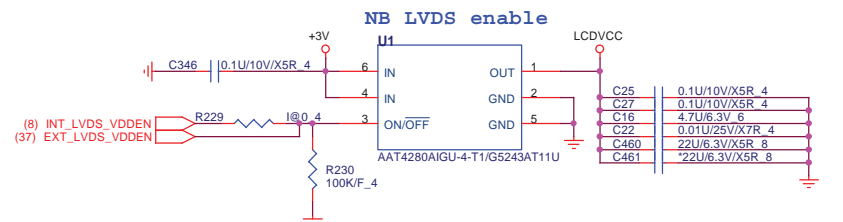
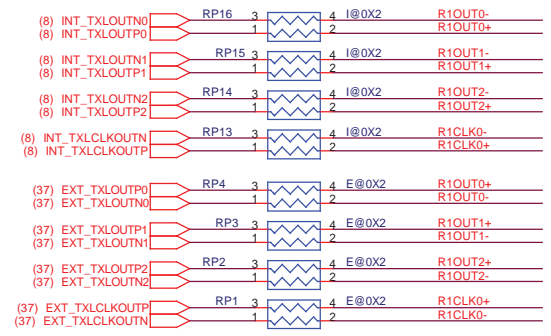
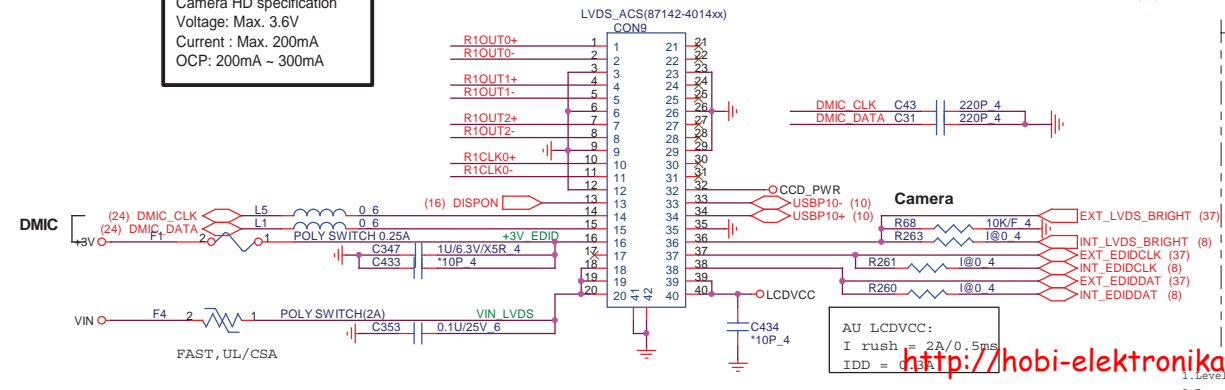
# CRT



## USB Camera Power



Camera HD specification  
 Voltage: Max. 3.6V  
 Current : Max. 200mA  
 OCP: 200mA ~ 300mA



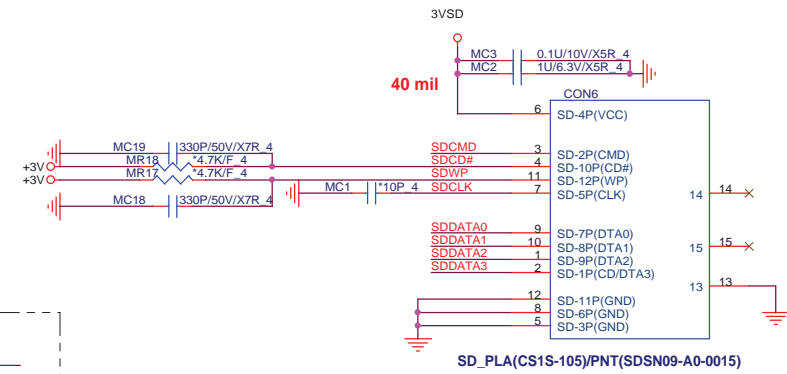
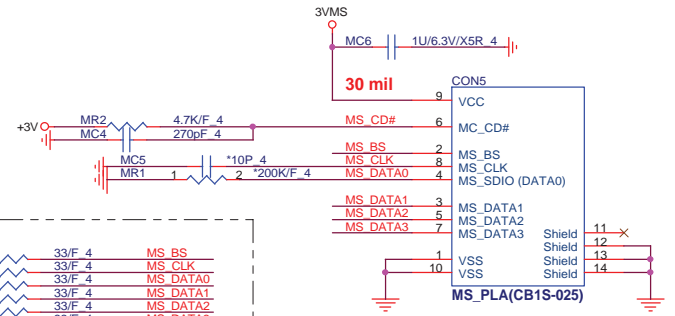
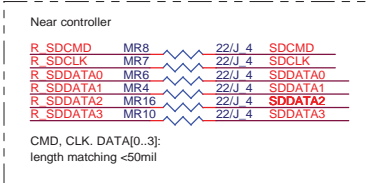
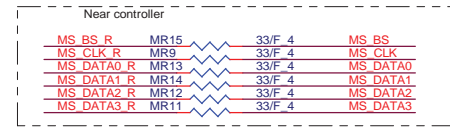
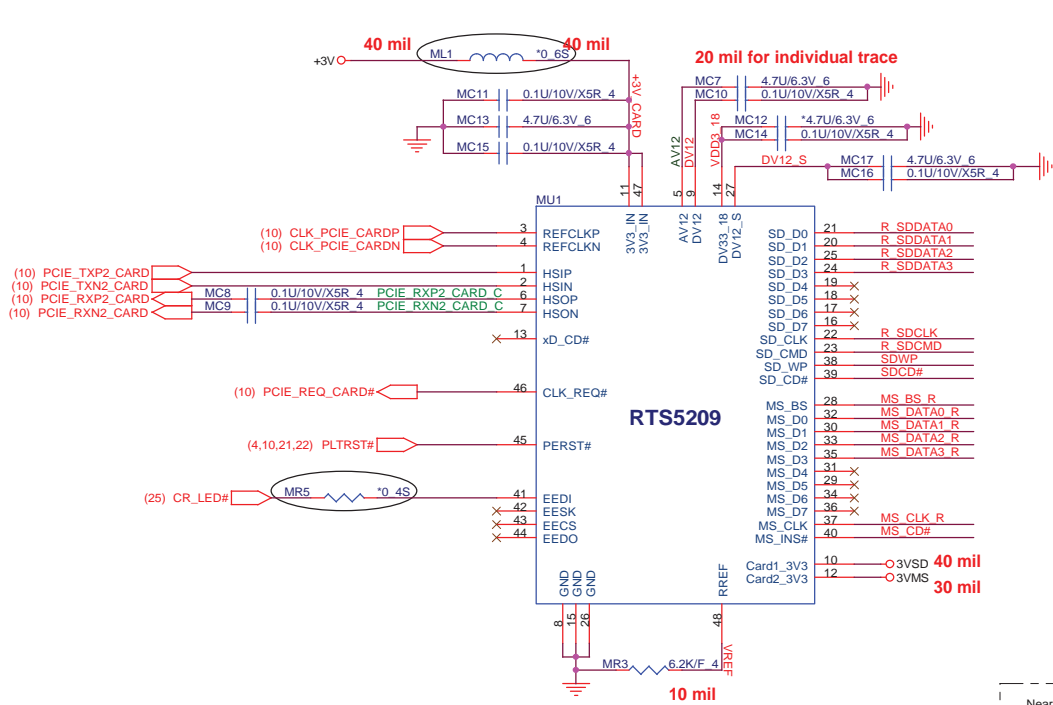
**Quanta Computer Inc.**  
 PROJECT :Chief River

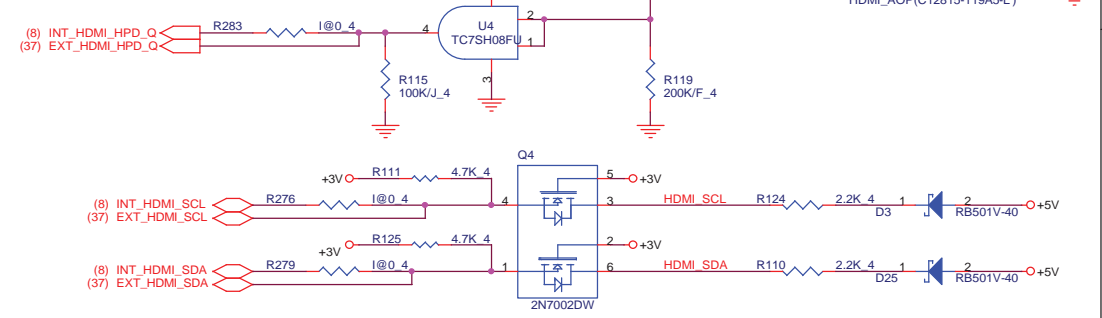
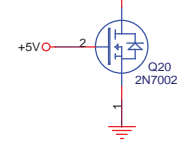
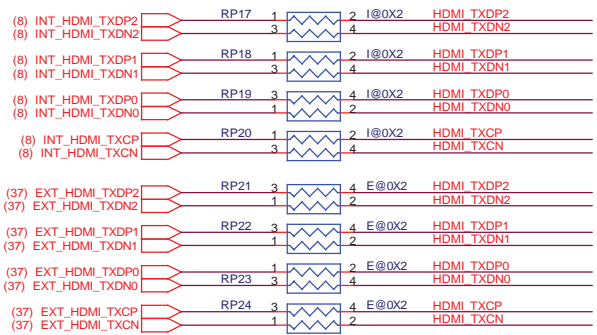
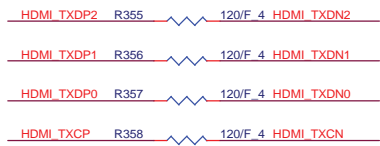
Size	Document Number	Rev
		1A

**CRT/LVDS**

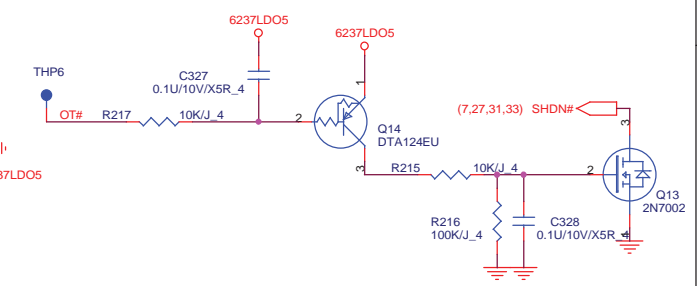
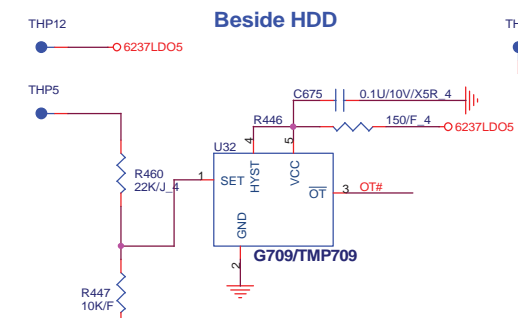
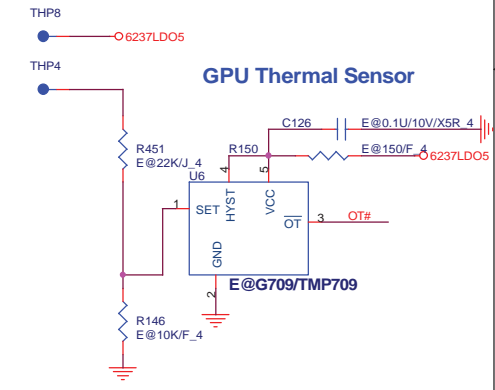
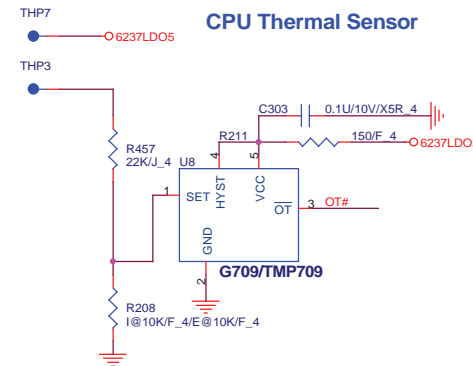
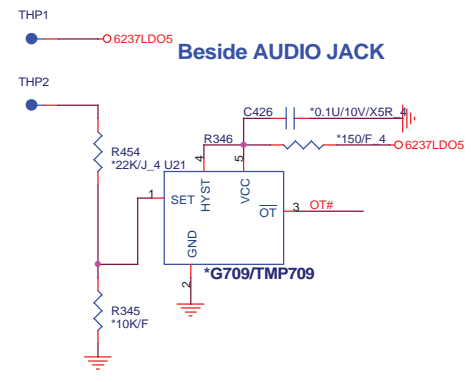
Date: Wednesday, February 01, 2012 Sheet 17 of 43

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





H/W Thermal Protect



RSET (kΩ) = 0.0012T<sup>2</sup> - 0.9308T + 96.147

95	18.5K
100	15K
107	10.3K
110	8.2K

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

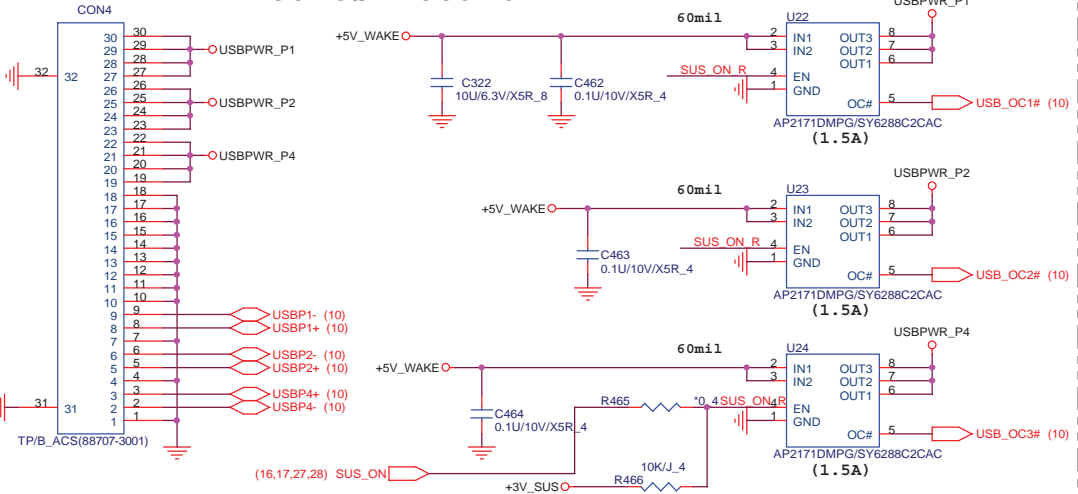
Location of IC	Temp	R-Set	Parts in BOM	Max	Min
Near CPU sensor temp	82	R208=27.89K	27.4K	83.1	82.2
Near AUDIO sensor temp	55	R345=48.58K	48.7K	55.5	54.2

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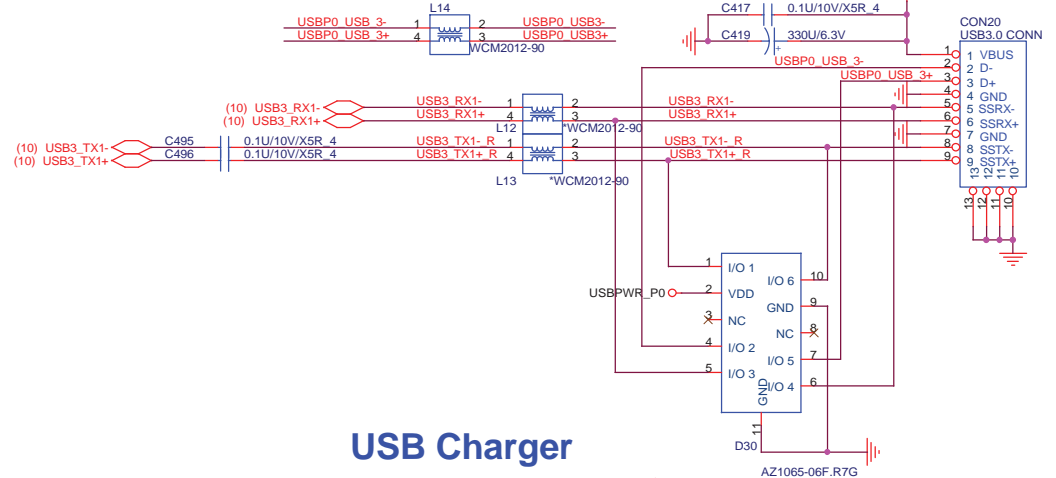
**Quanta Computer Inc.**  
 PROJECT : Chief River  
 Size Document Number  
**HDMI/Thermal IC**  
 Date: Friday, February 03, 2012 Sheet 19 of 43

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

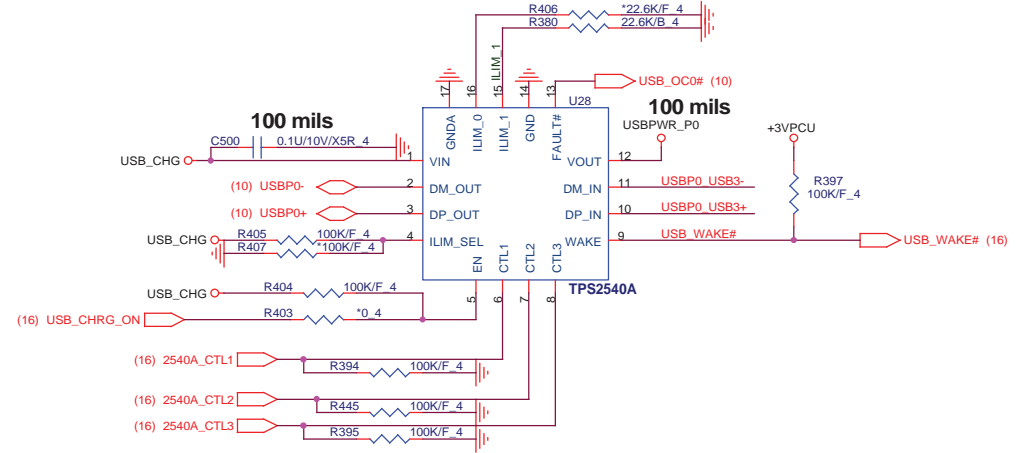
### MB to USB board



### USB 3.0 PORT0



### USB Charger



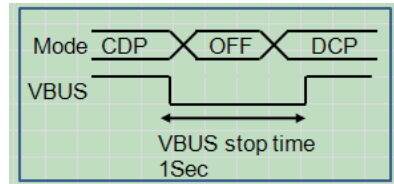
System State	USB Battery Charging Setting	
	Disable	Enable
S0	SDP	CDP
S3	SDP	DCP
Deep Standby	SDP (VBUS OFF)	DCP
S4	SDP (VBUS OFF)	DCP
S5	SDP (VBUS OFF)	DCP

SDP : Standard Downstream Port  
 CDP : Charging downstream port  
 DCP : Dedicated Charging Port  
 Enable/Disable : setting by BIOS

CTL_1	CTL_2	CTL_3	TPS 2540A/2543 Truth Table
0	0	0	OUT discharge, power switch OFF
0	X	1	DCP, Auto-detect(S3/S4/S5, 1.5A)
X	1	0	SDP, USB2.0 mode(S0, 0.5A)
1	0	0	DCP, BC SPEC1.2 only(S3/Deep standby/S4/S5, 1.5A)
1	0	1	DCP, Divider mode only(S3/S4/S5, 1.5A)
1	1	1	CDP (S0, 1.5A)

TPS-2540A	TPS-2543	MODE	AC/DC Mode			
			C1	C2	C3	ILIM_SEL
S0	S0	SDP	X(1)	1	0	X
S0	S0	CDP	1	1	1	1
S3 (Wake Enable)	X	SDP	1	1	0	1
S3 (Charger Mode)	S3	DCP	1	X(0)	0	1
S4	S4	DCP	1	X(0)	0	1
S5	S5	DCP	1	X(0)	0	1
Discharge	Discharge	DIS	0	0	0	X

DCP: BC 1.2 only.



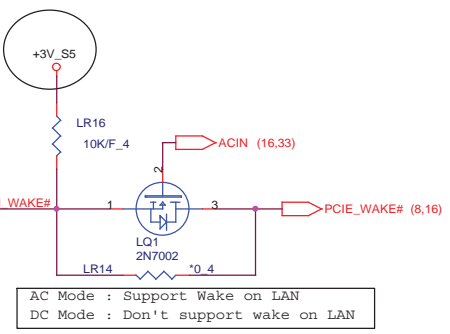
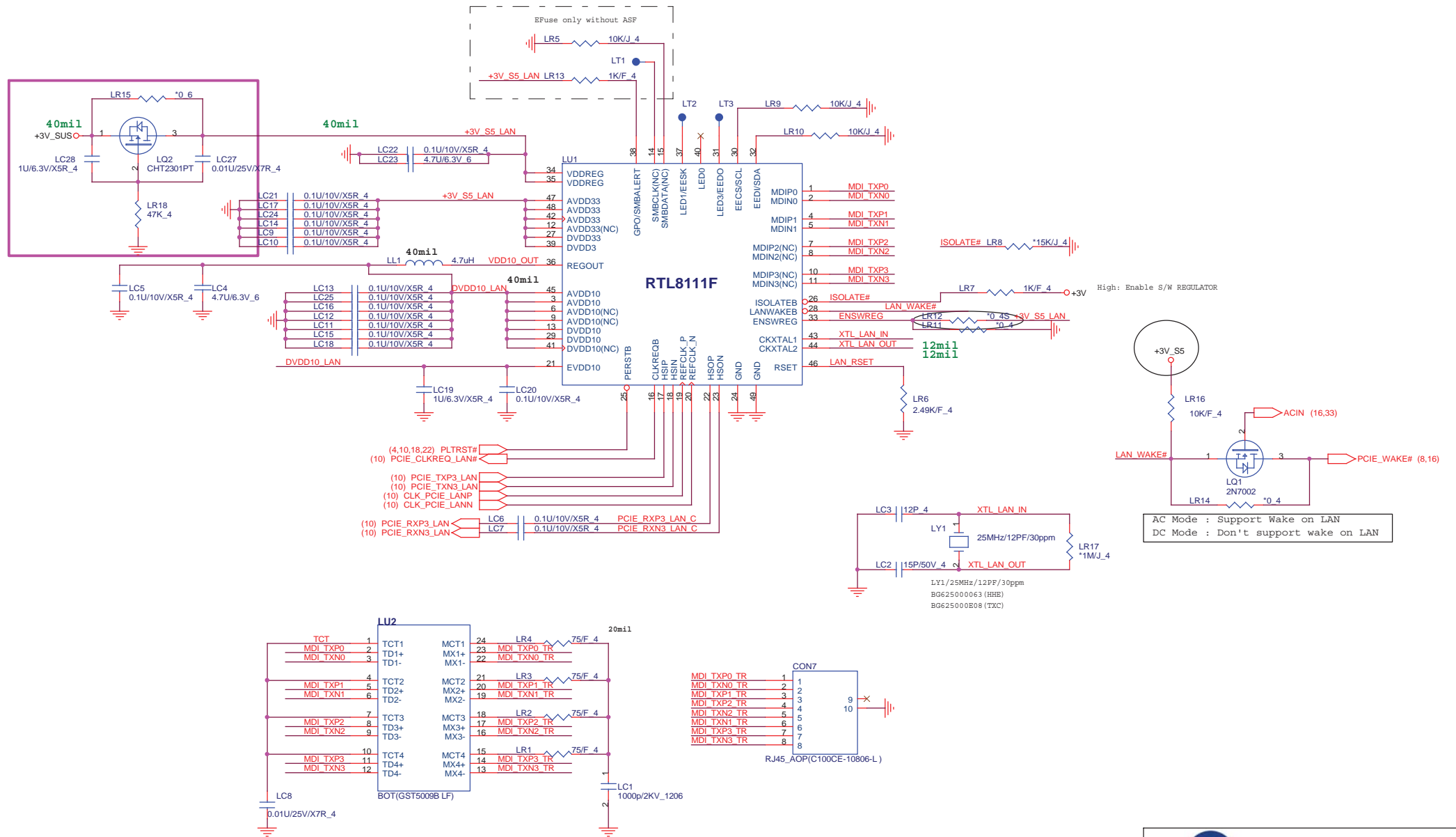
USB WAKE	
1	No device plug(LDO)
0	Device plug(Switch Power)

ILIM_SEL (I LIMIT(A)= 48000/R)		
HI	I_LIM_1	
LO	I_LIM_0	48000/22.6K=2.123A

**Quanta Computer Inc.**  
 PROJECT : Chief River  
**USB/USB Charger**

Size: Document Number  
 Date: Thursday, February 02, 2012 Sheet 20 of 43

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



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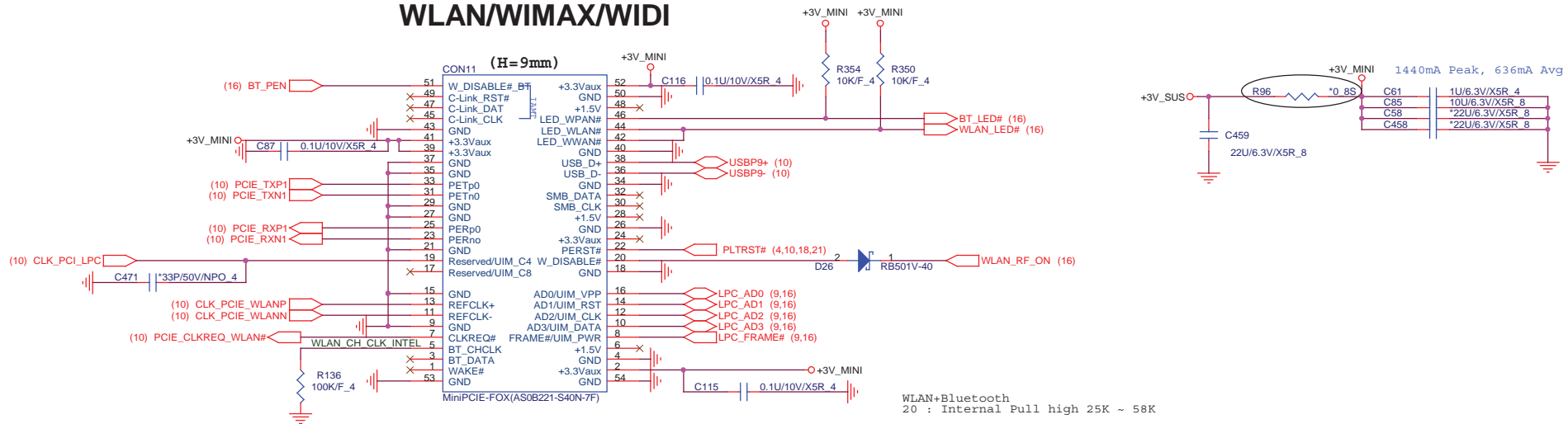
**Quanta Computer Inc.**  
PROJECT : Chief River

Size	Document Number	Rev
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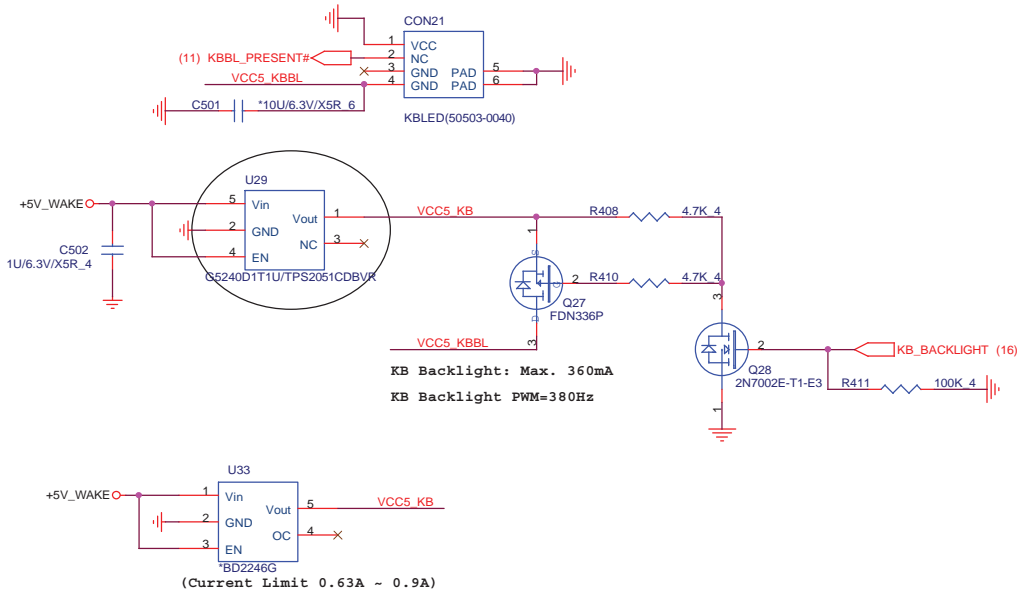
Date: Wednesday, February 01, 2012 Sheet 21 of 43

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

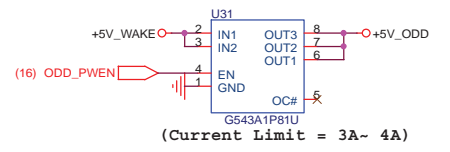
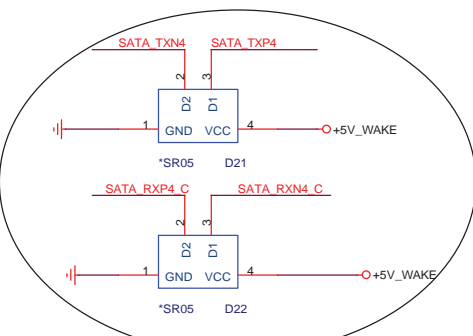
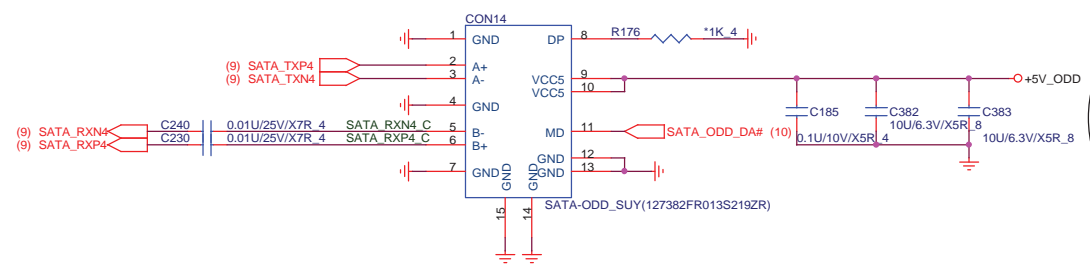
# WLAN/WIMAX/WIDI



# KB BACKLIGHT

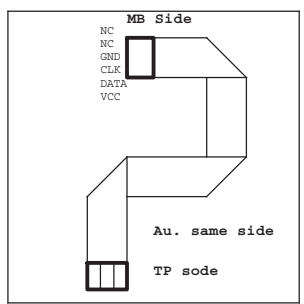
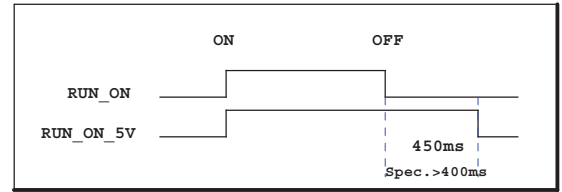
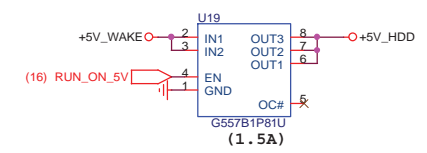
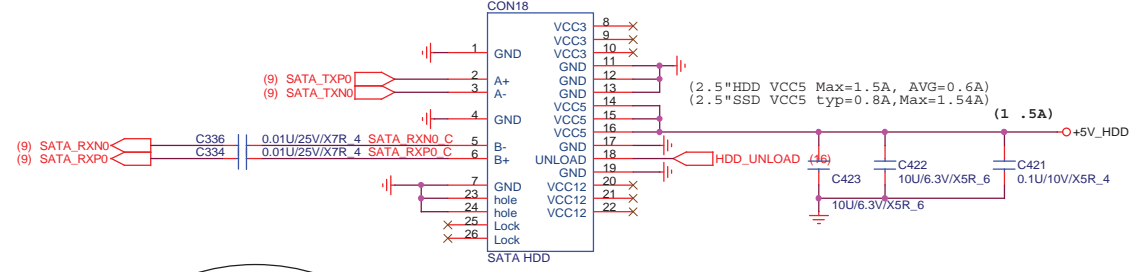


### ODD CONNECTOR

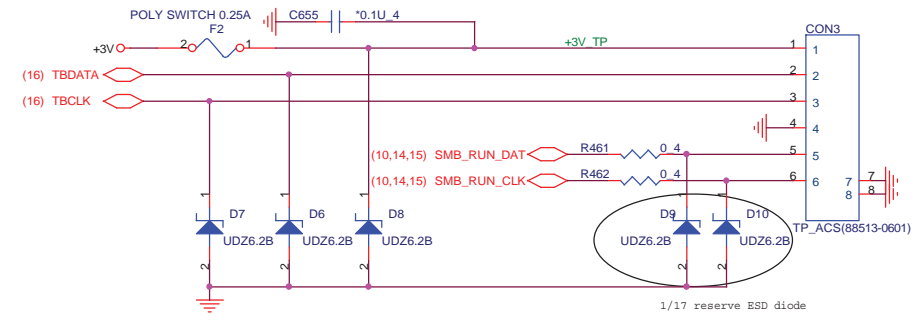


0130-- change ODD ESD diode form Rclamp0502n to SR05

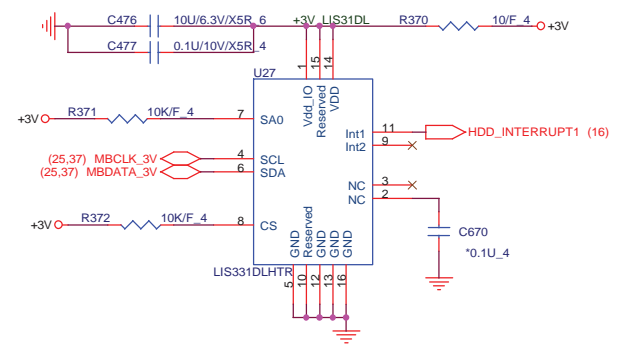
### HDD CONNECTOR



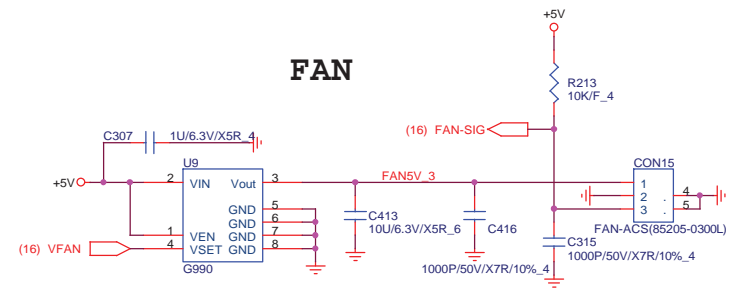
### T/P Board to T/P



### HDD PROTECT



### FAN



<http://hobi-elektronika.net>

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

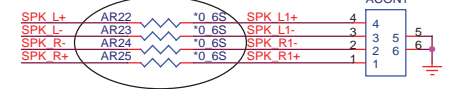
Size	Document Number	HDD/ODD/TP/FAN	Rev 1A
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Date: Thursday, February 02, 2012 Sheet 23 of 43

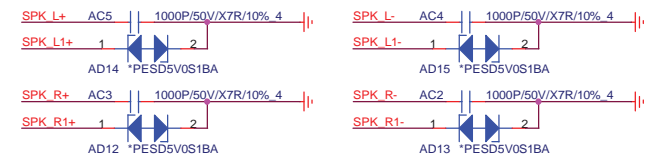
1. Never Environment-related Substances Should Never be Used.  
2. Recycled Resin and Coated Wire should be procured from Green Partners.

SPK L+ L- R+ R- trace width  
Speaker 4 ohm => 40 mils

SPEAKER CON.

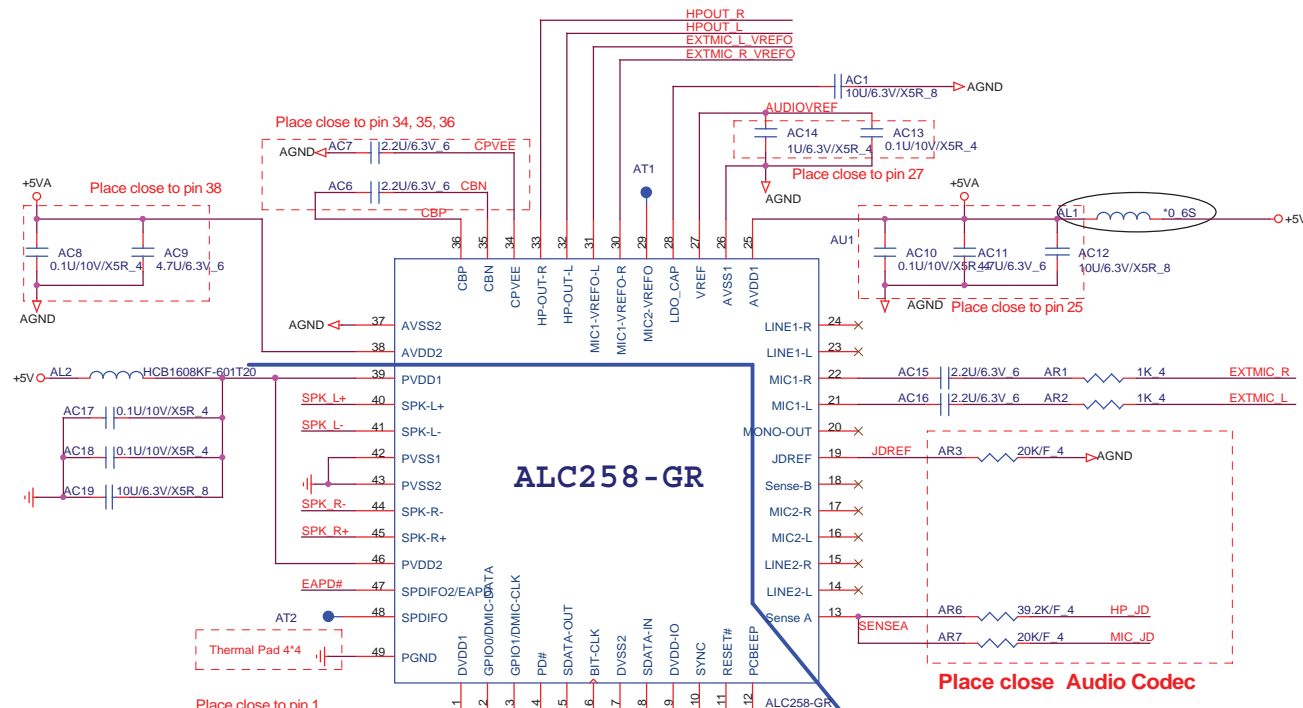
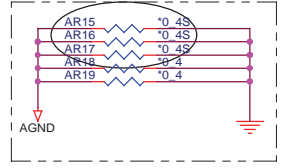


Speaker((85205-0400L))



<<Attention>>  
Place these EMI components next to codec; For EMI issue,  
please also refer our ALC269 Layout guide document

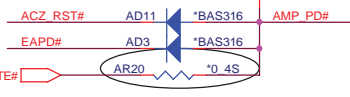
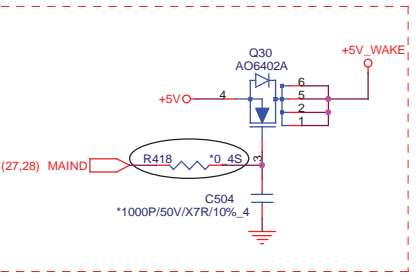
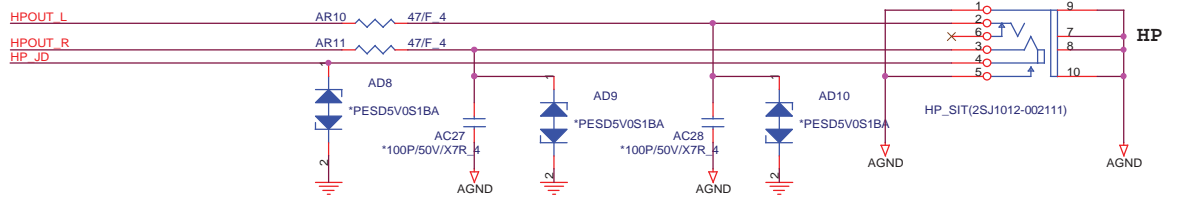
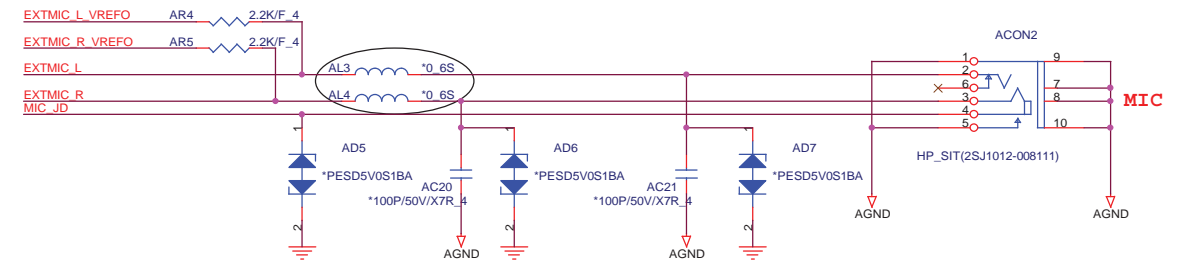
For EMI



Place close Audio Codec

Analog

Digital



<http://hobi-elektronika.net>

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

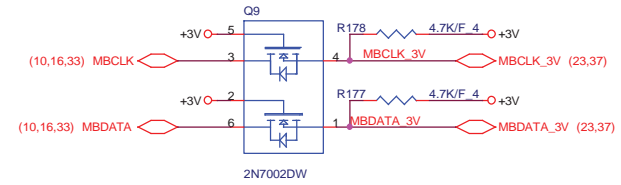
Audio Codec CX20671

Size: \_\_\_\_\_ Document Number: \_\_\_\_\_ Rev: 1A

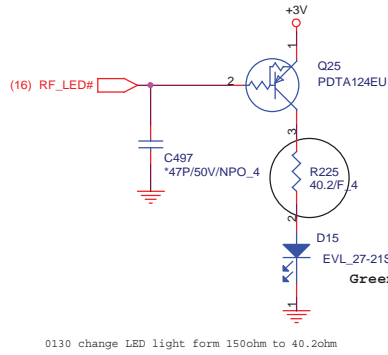
Date: Wednesday, February 01, 2012 Sheet 24 of 43

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

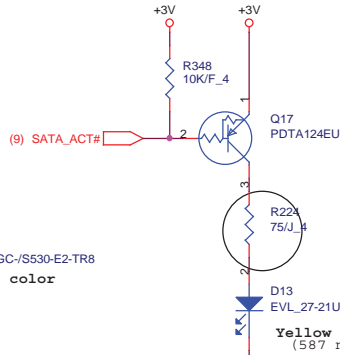




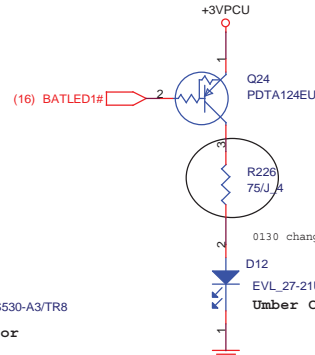
**RF LED**



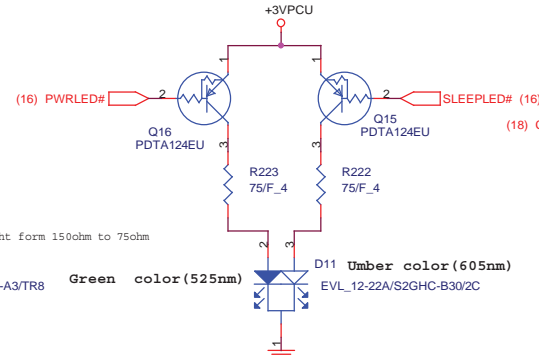
**SATA LED**



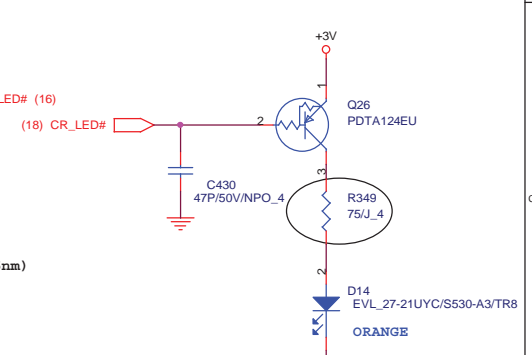
**BATTERY LED**



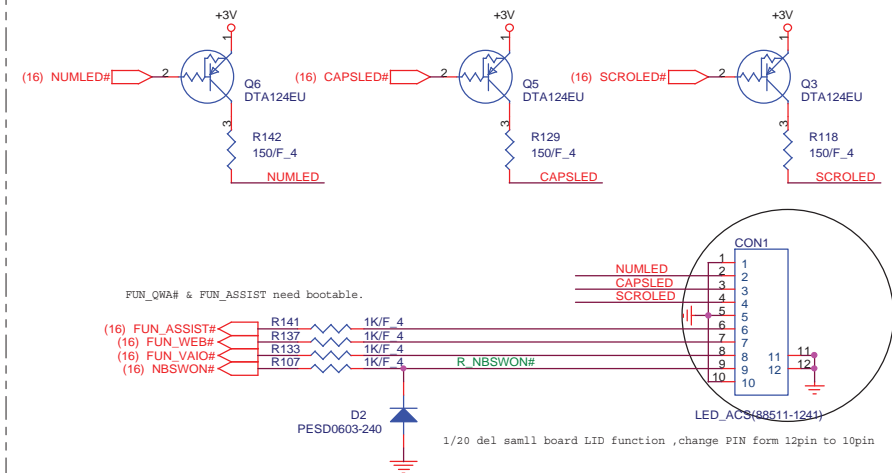
**Power/Sleep LED**



**CARD LED**

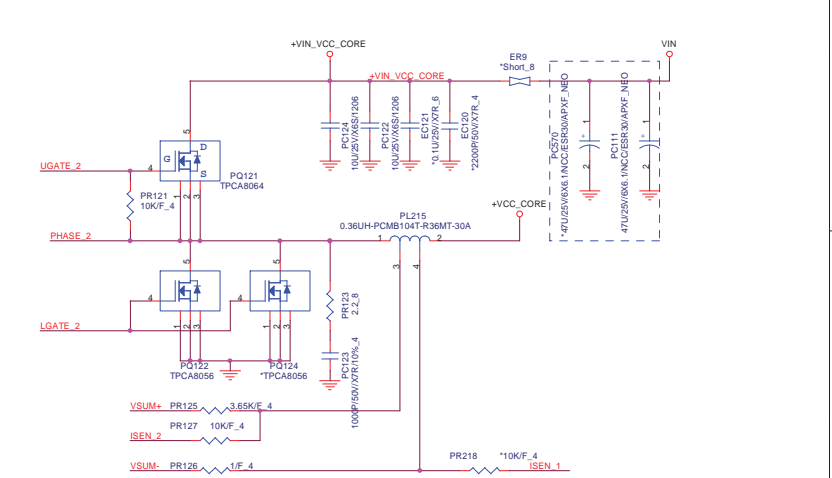
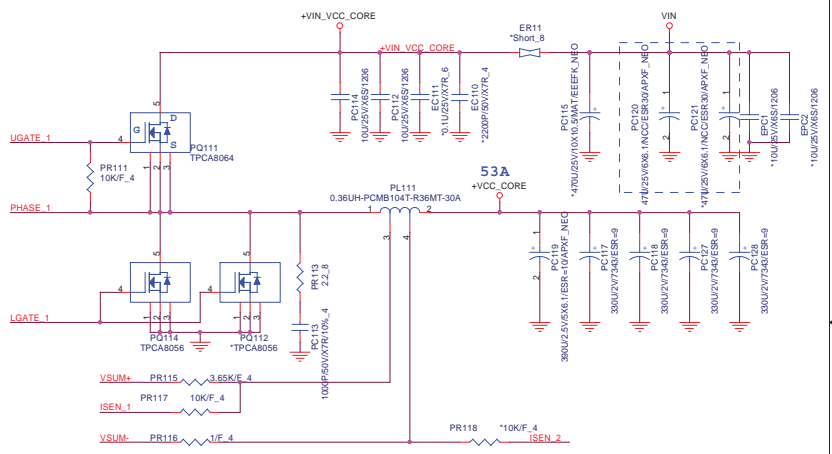
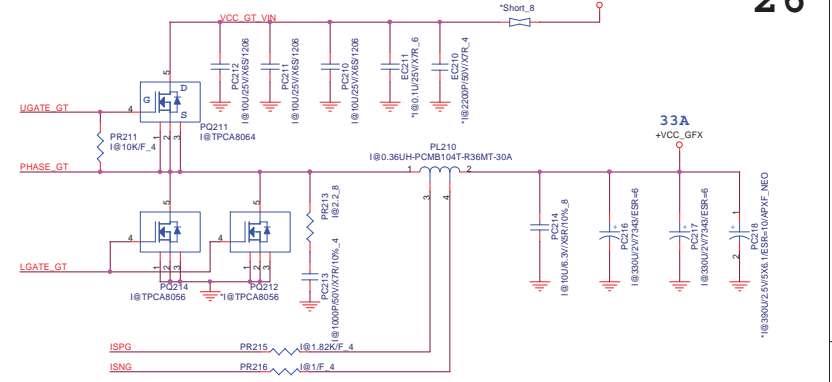
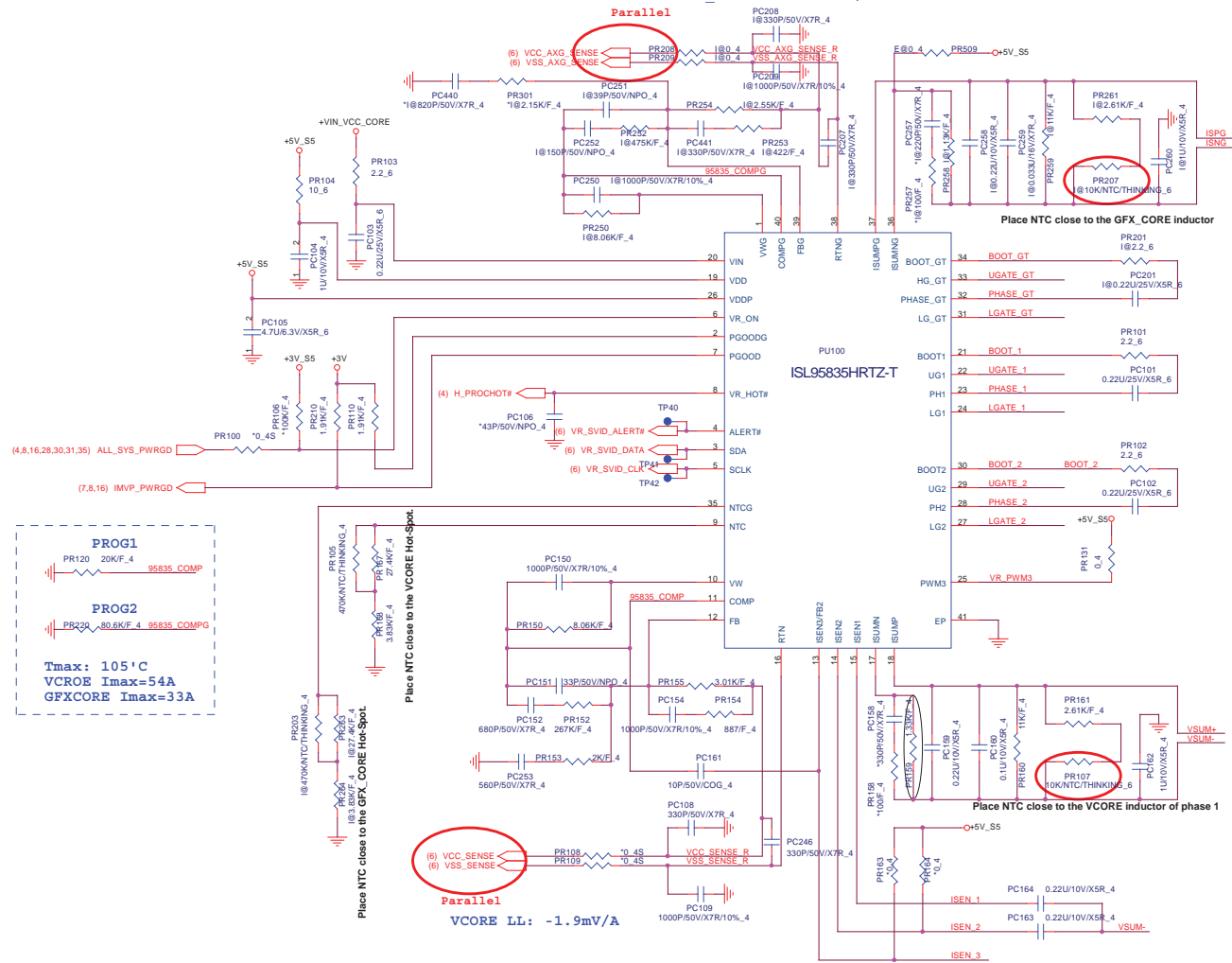


**Power SW Board Connector**



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

GFX\_CORE LL: -3.9mV/A for GT2

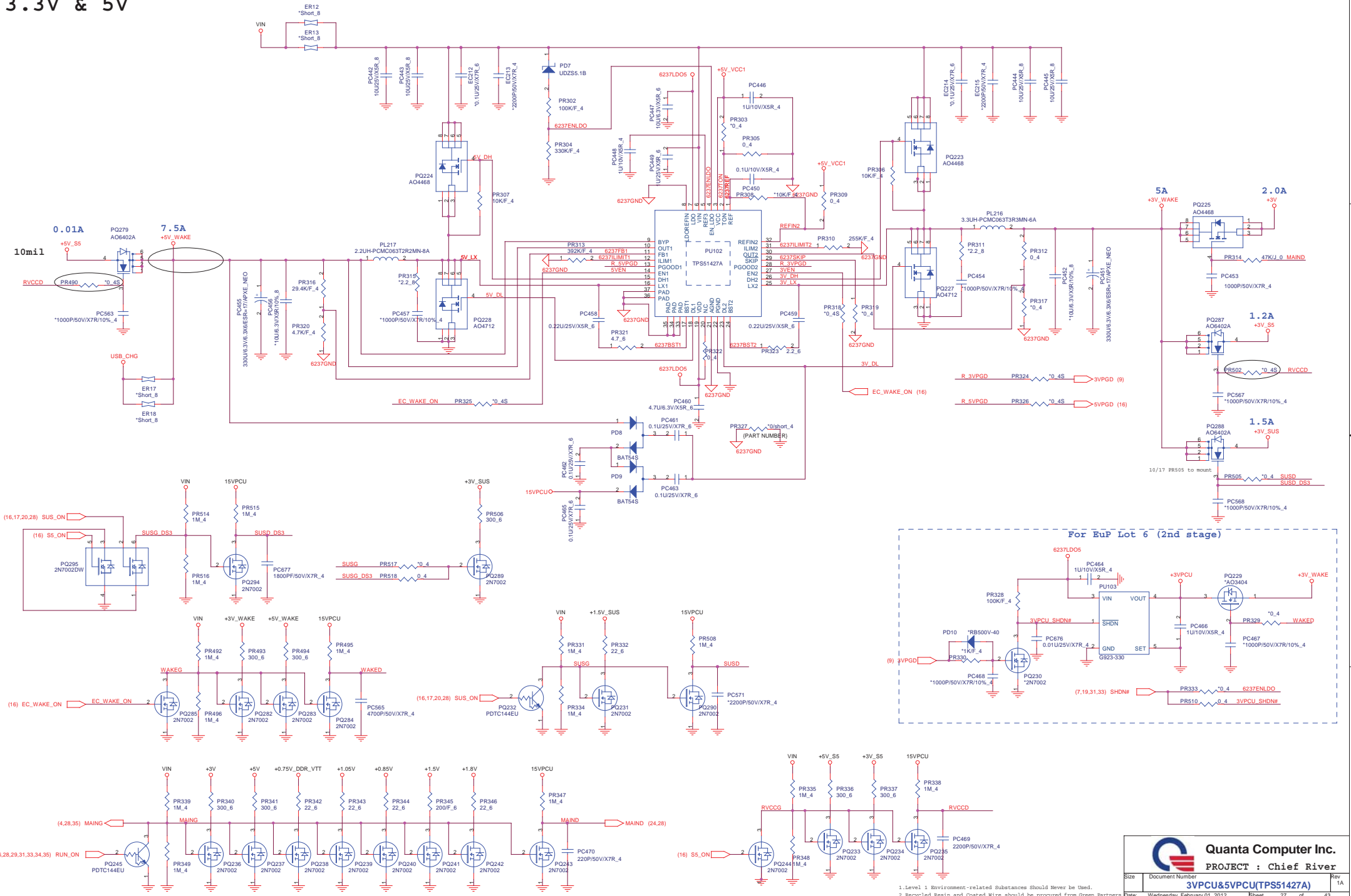


**Quanta Computer Inc.**  
**PROJECT :Chief River**

Size	Document Number	Rev
	<b>+VCC_CORE (ISL95835)</b>	ES1

1. Level 1 Environment-related Substances Should Never be Used.  
 2. Recycled Resin and Coated Wire should be procured from Green Partners.  
 Date: Wednesday, February 01, 2012 Sheet 26 of 43

# 3.3V & 5V

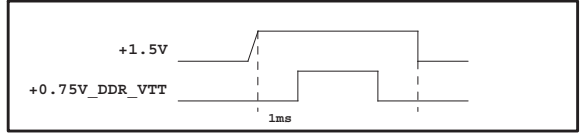
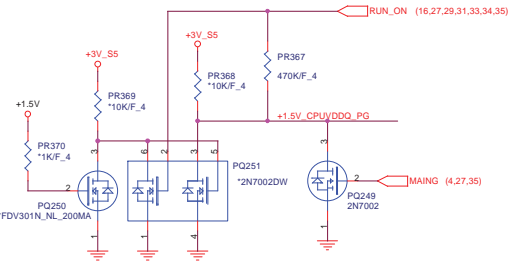
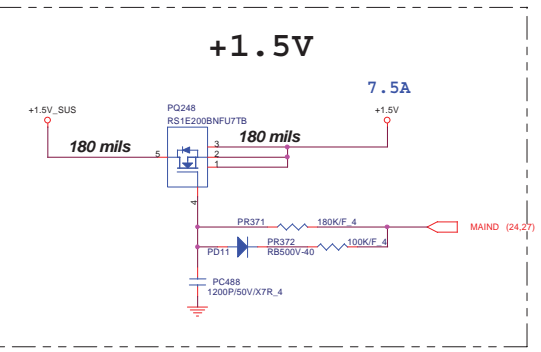
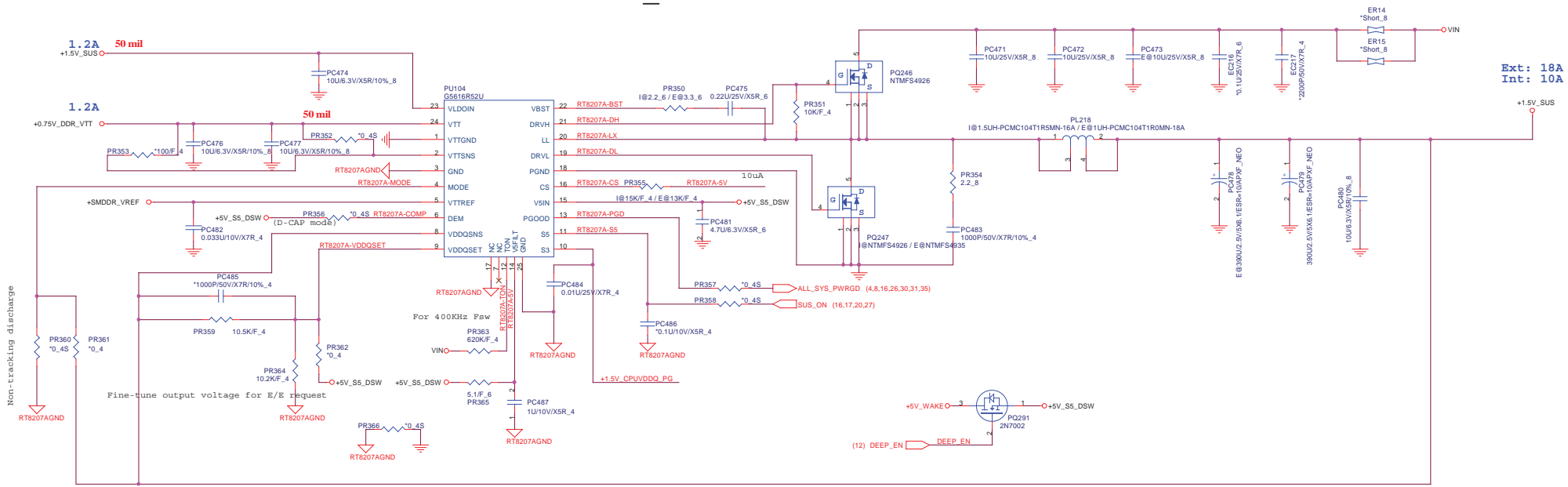


**Quanta Computer Inc.**  
PROJECT : Chief River

Size	Document Number	Rev
	<b>3VPCU&amp;5VPCU(TPS51427A)</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: Wednesday, February 01, 2012 Sheet 27 of 43

# 1.5VSUS & VTT\_MEM



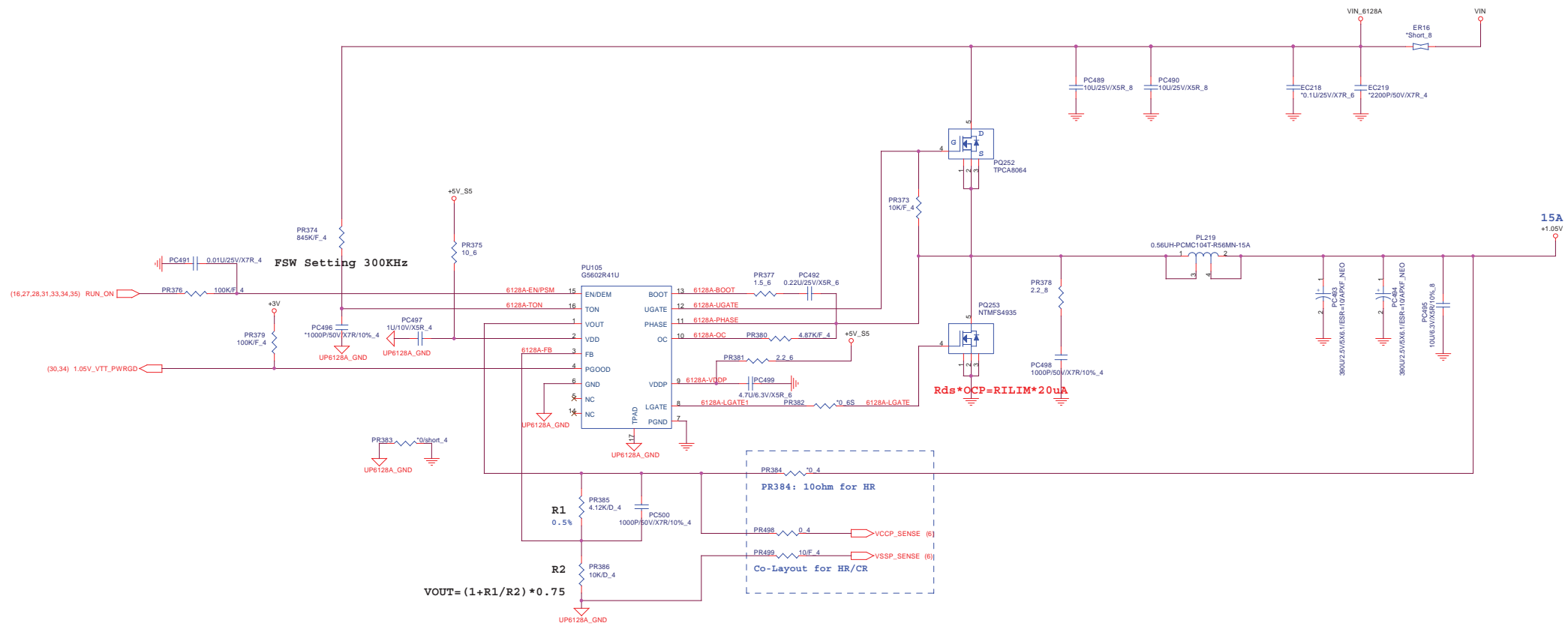
MODE	DISCHARGE MODE
+5V	No discharge
+1.5V	Tracking discharge
GND	Non-tracking discharge


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 : Chief River**



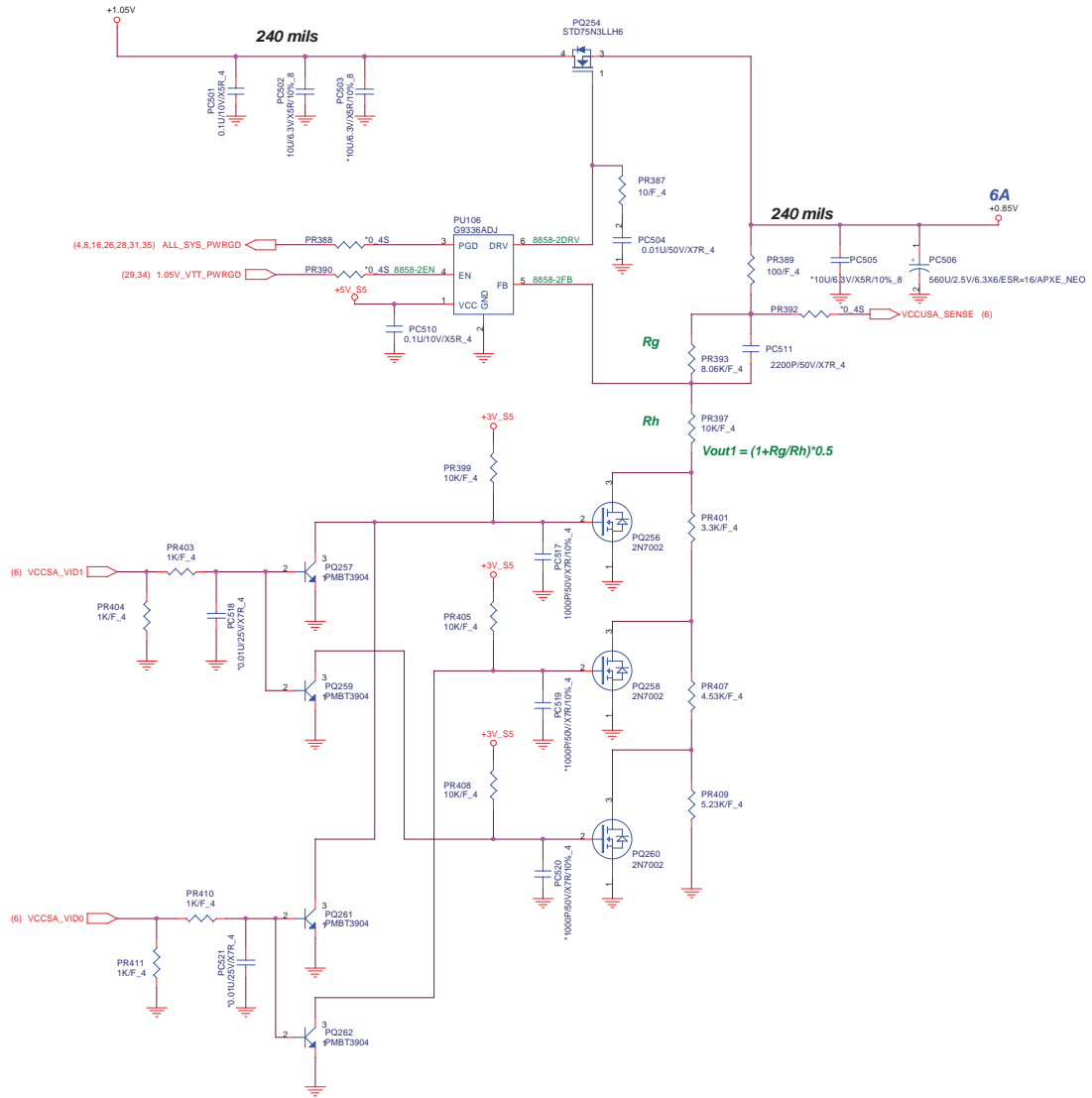

**Quanta Computer Inc.**  
 PROJECT : Chief River

Size	Document Number	Rev
	+1.05V (UP152RQDD)-15A	1A

1. Level 1 Environment-related Substances Should Never be Used.  
 2. Recycled Resin and Coated Wire should be procured from Green Partners. Date: Thursday, February 02, 2012 Sheet 29 of 43


VCCSA

VCCIO



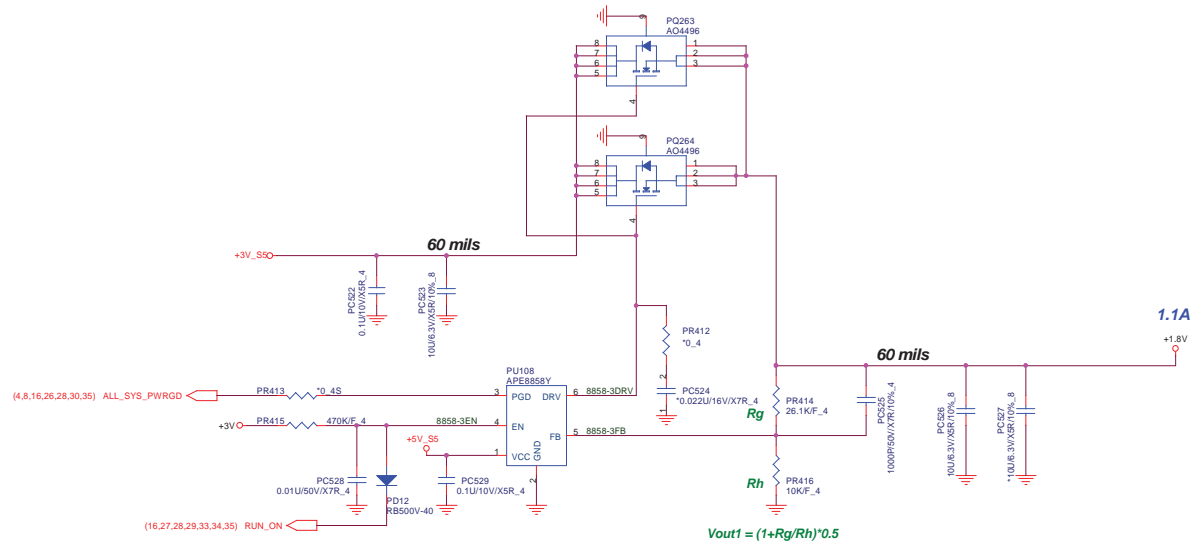
$$Vout1 = (1 + Rg/Rh) * 0.5$$

VID 0	VID 1	+0.85V
0	0	0.9V
0	1	0.8V
1	0	0.725V
1	1	0.675V


**Quanta Computer Inc.**  
 PROJECT : Chief River  
 VCCSA / VCCIO  
 Date: Wednesday, February 01, 2012 Sheet 30 of 43

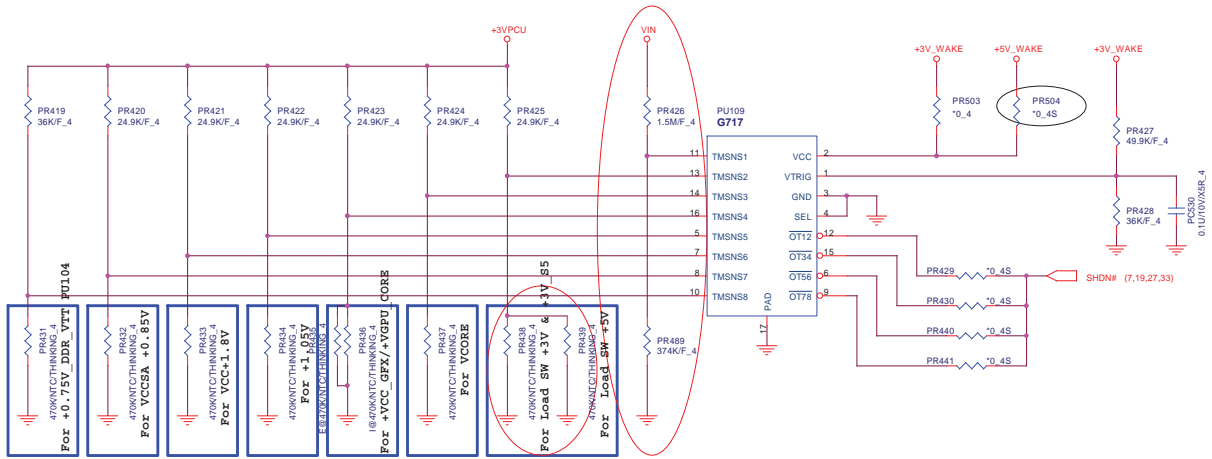
1. Level 1 Environment-related Substances should Never be Used.  
 2. Recycled Resin and Coated Wire should be procured from Green Partners.

### VCC1.8



### Thermal Protection and Battery UVP for VEDS

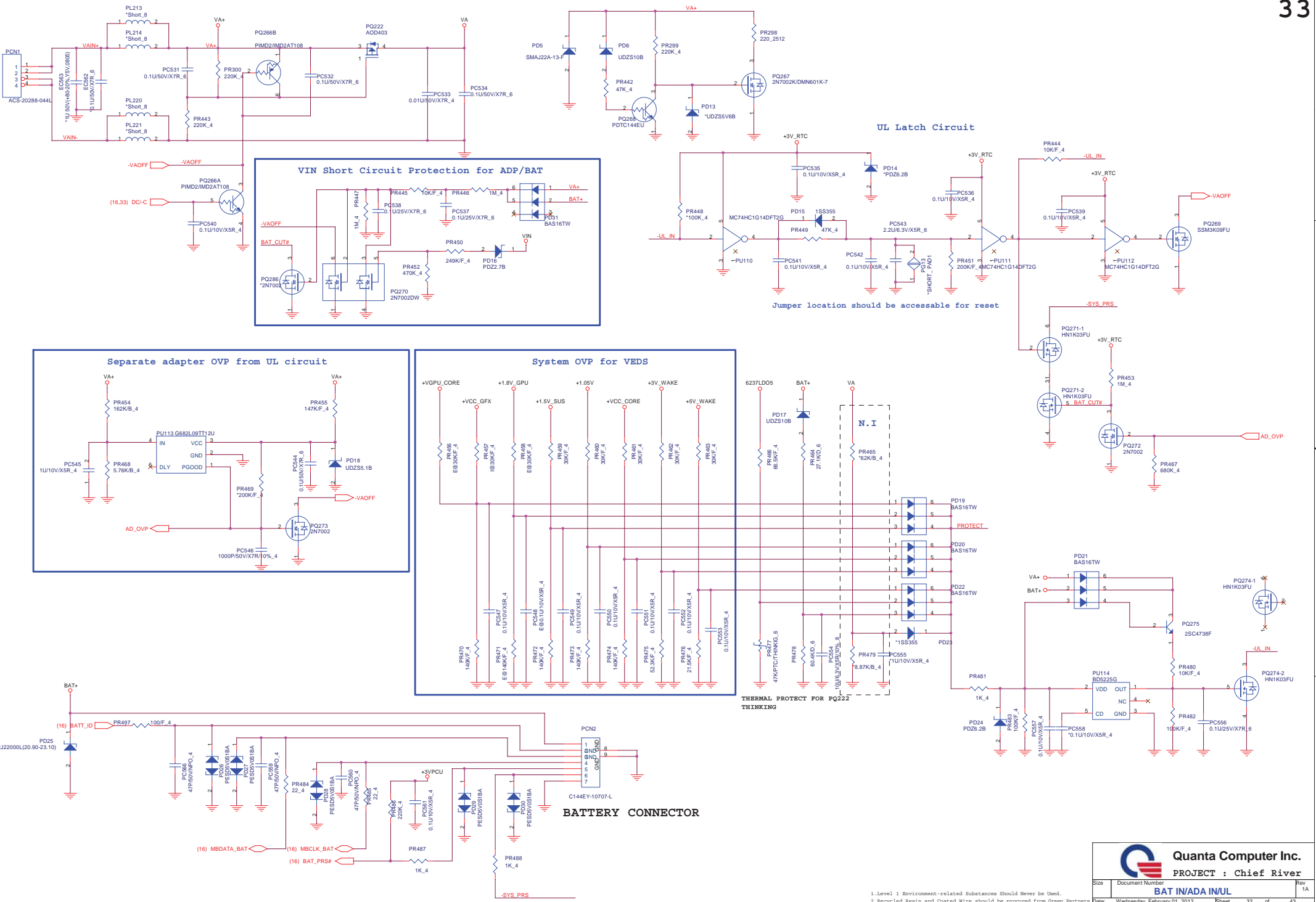
For DVT 111115



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

Size	Document Number	Rev
	VCC1.8	1A

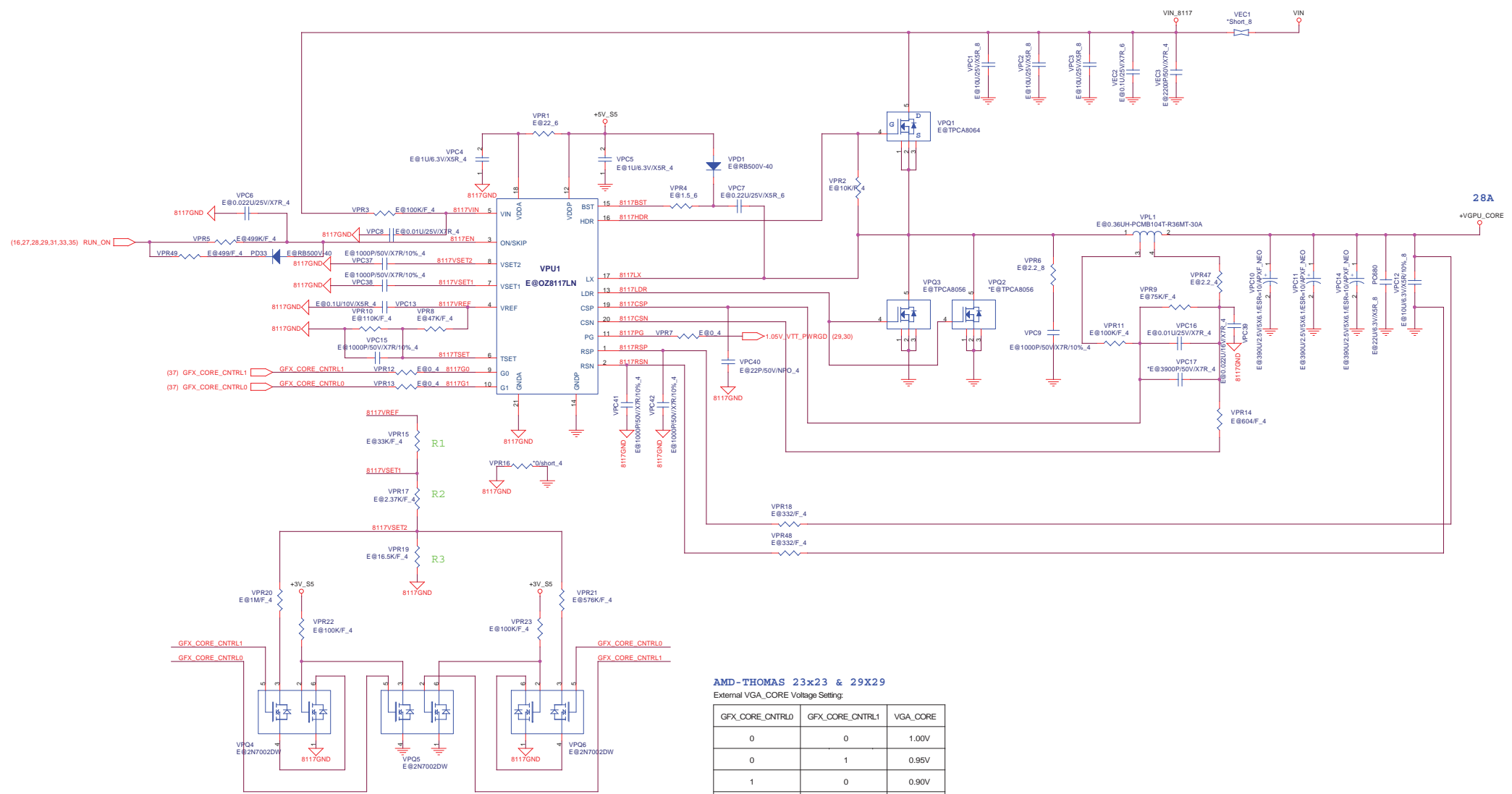
1. Level 1 Environment-related Substances Should Never be Used.  
2. Recycled Resin and Coated Wire should be procured from Green Partners.  
Date: Wednesday, February 01, 2012 Sheet 31 of 43



**Quanta Computer Inc.**  
**PROJECT : Chief River**  
 Size Document Number **BAT INADA INUL** 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: Wednesday, February 01, 2012 Sheet 32 of 43






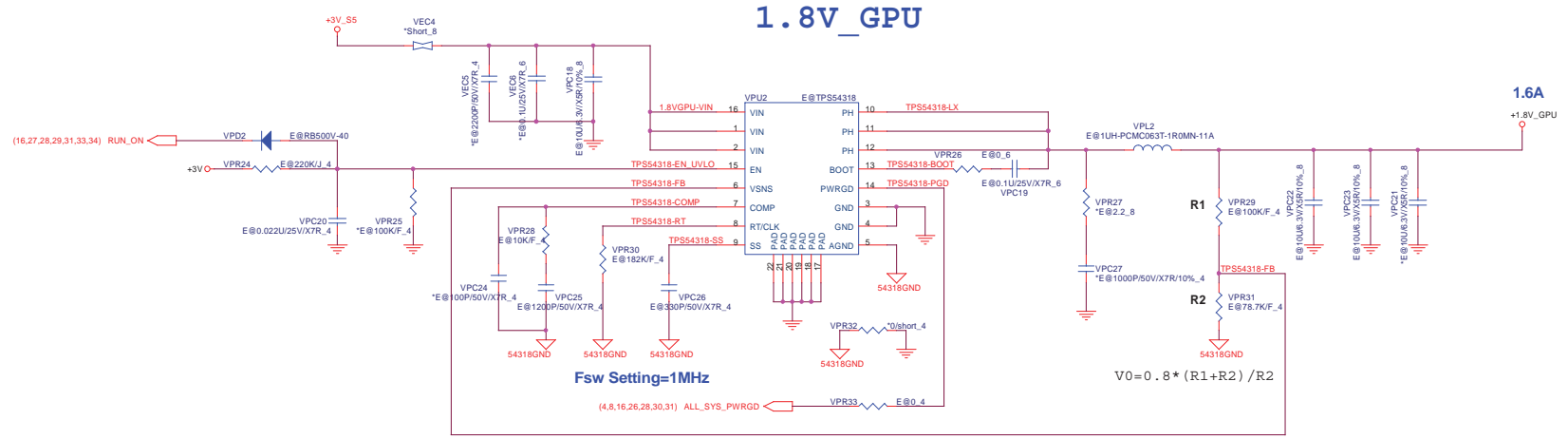


AMD-THOMAS 23x23 & 29X29  
External VGA\_CORE Voltage Setting:

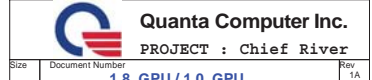
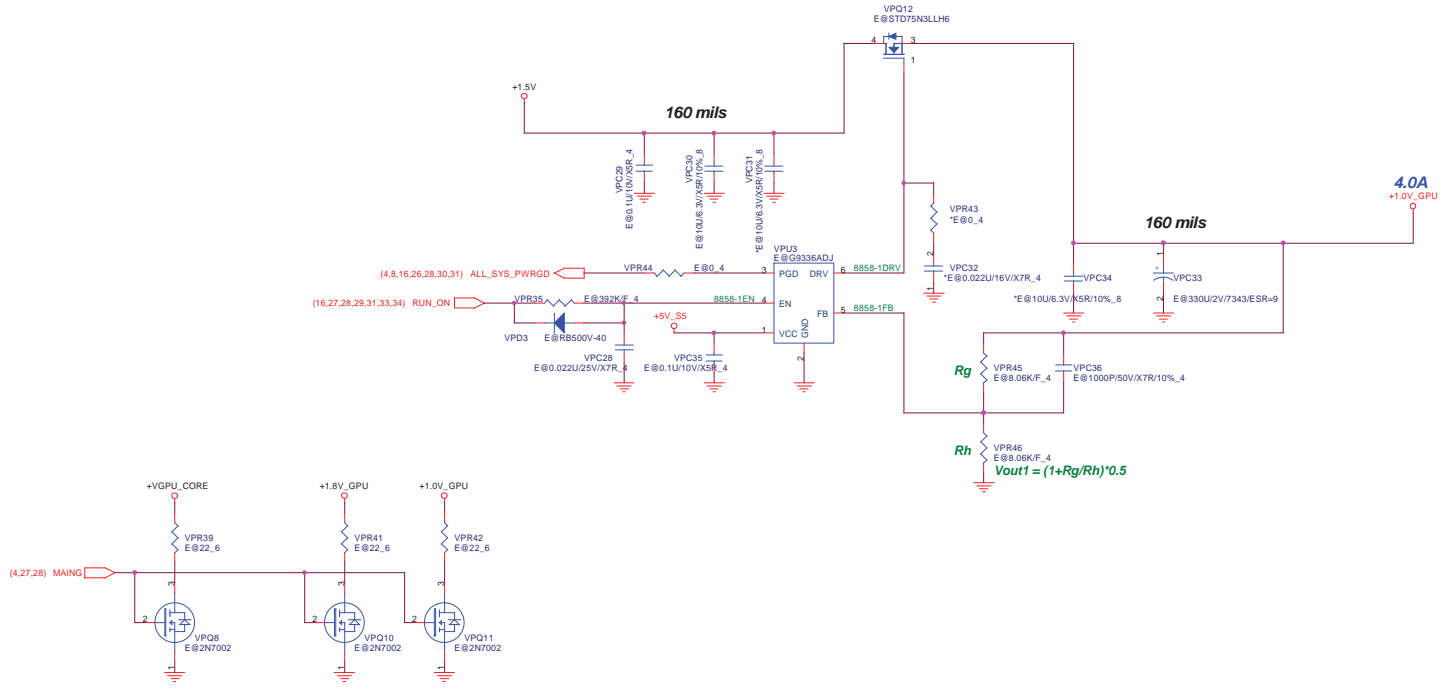
GFX_OORE_CNTRL0	GFX_CORE_CNTRL1	VGA_OORE
0	0	1.00V
0	1	0.95V
1	0	0.90V
1	1	0.875V

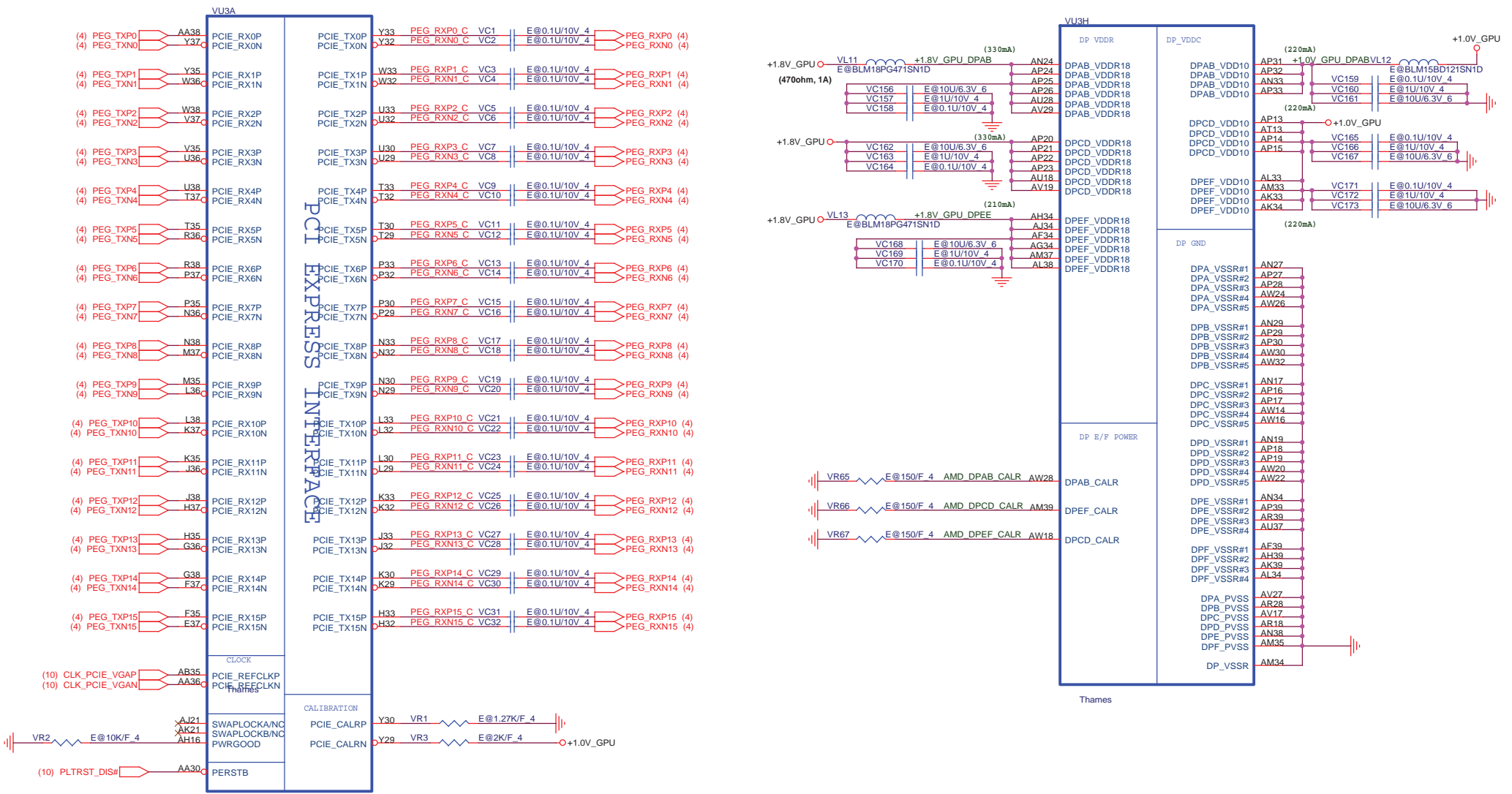

**Quanta Computer Inc.**  
 PROJECT : Chief River  
 Size Document Number  
**VGA\_CORE (OZ8117)** Rev 1A

1.Level 1 Environment-related Substances Should Never be Used.  
 2.Recycled Resin and Coated Wire should be procured from Green Partners. Date: Wednesday, February 01, 2012 Sheet 34 of 43



### +1.0V\_GPU (Support VRAM 900MHz)






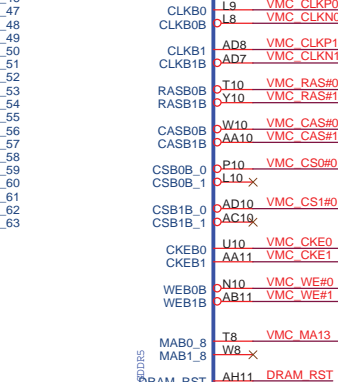
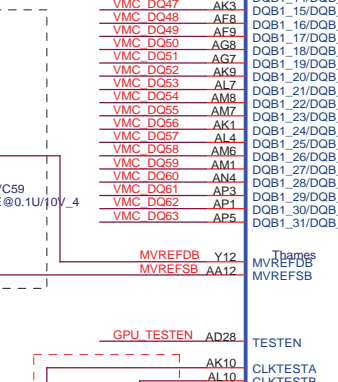
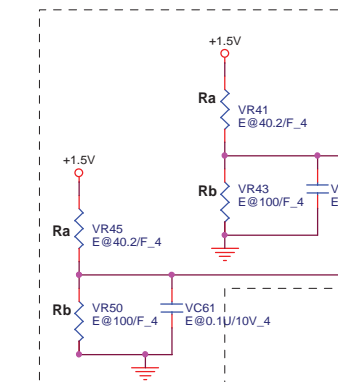
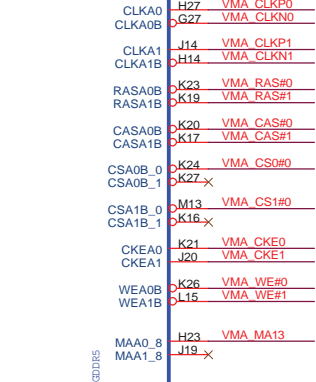
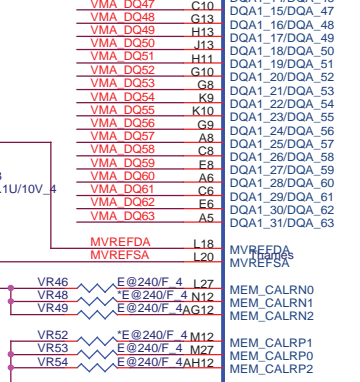
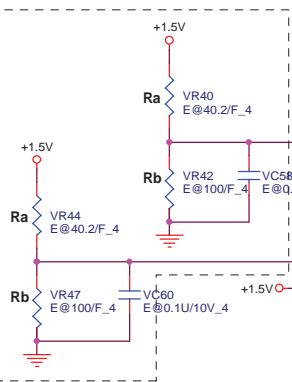
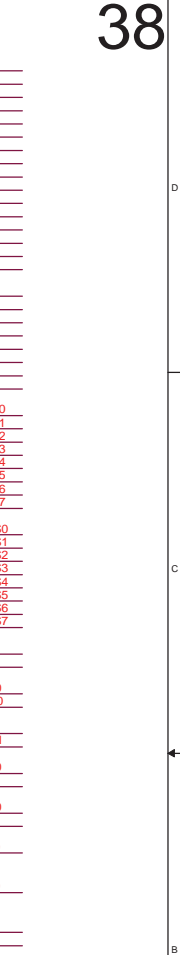
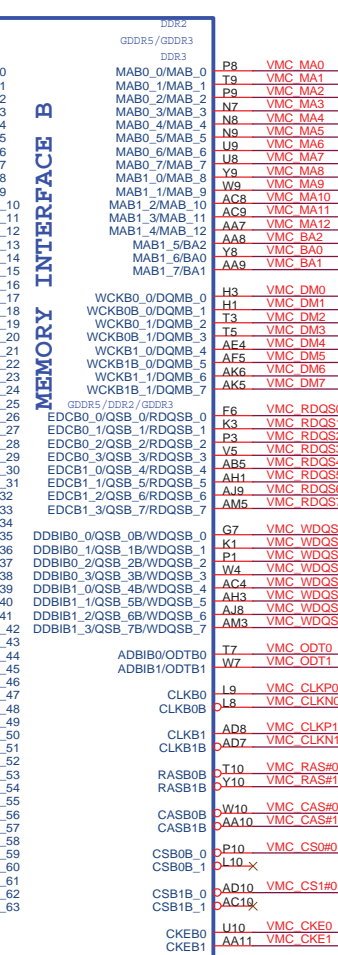
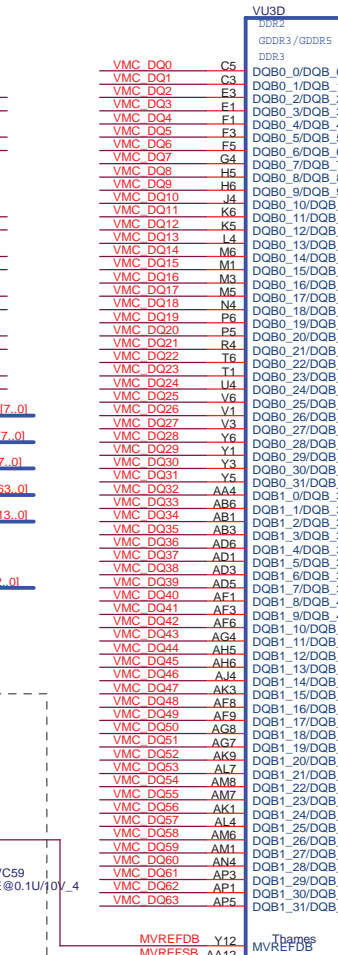
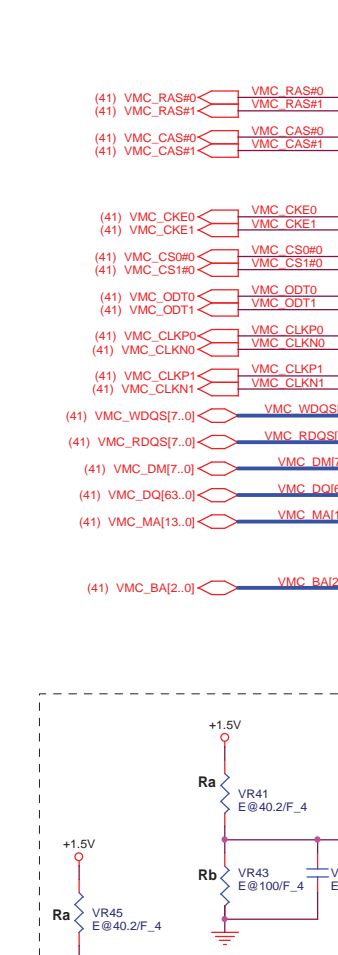
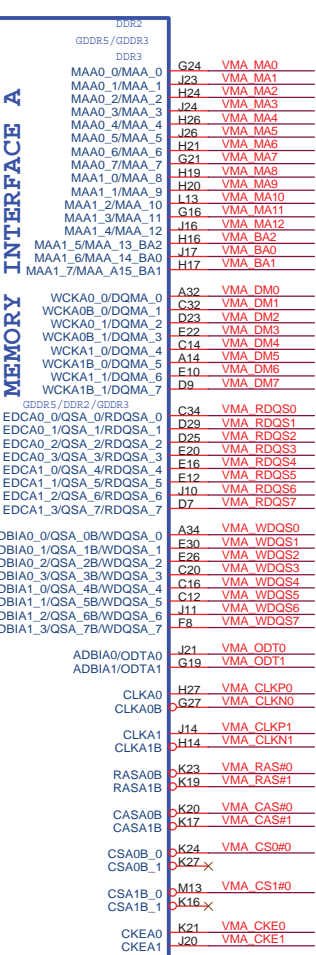
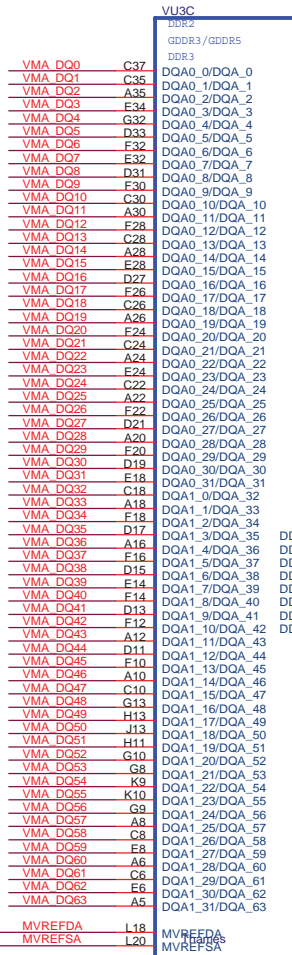
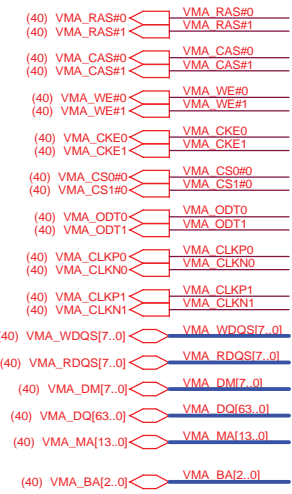
**Thames necessary Power-on sequence**  
**All power rails reach nominal within 20ms**

1 => +3V\_GPU  
 2 => +VDDC\_CORE  
 3 => +1.0V\_GPU  
 3 => +1.8V\_GPU

<http://hobi-elektronika.net>

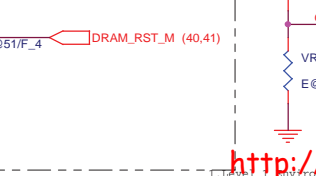
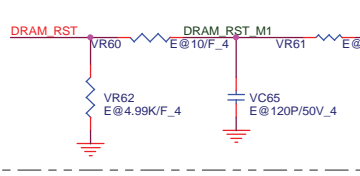

**Quanta Computer Inc.**  
 PROJECT : HK5  
 Size Document Number  
**Thames/PCIE**  
 Date: Wednesday, February 01, 2012 Sheet 36 of 43 Rev 1A





DDR3/GDDR3 Memory Stuff Option

	GDDR3	DDR3
MVDDQ	1.8V	1.5V
Ra	40.2R	40.2R
Rb	100R	100R



Thames MEMORY/THERM

PROJECT : HK5

Size Document Number

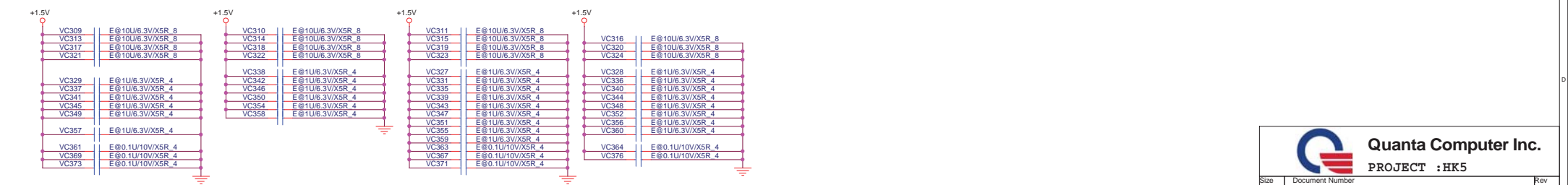
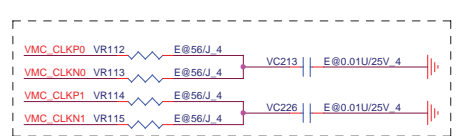
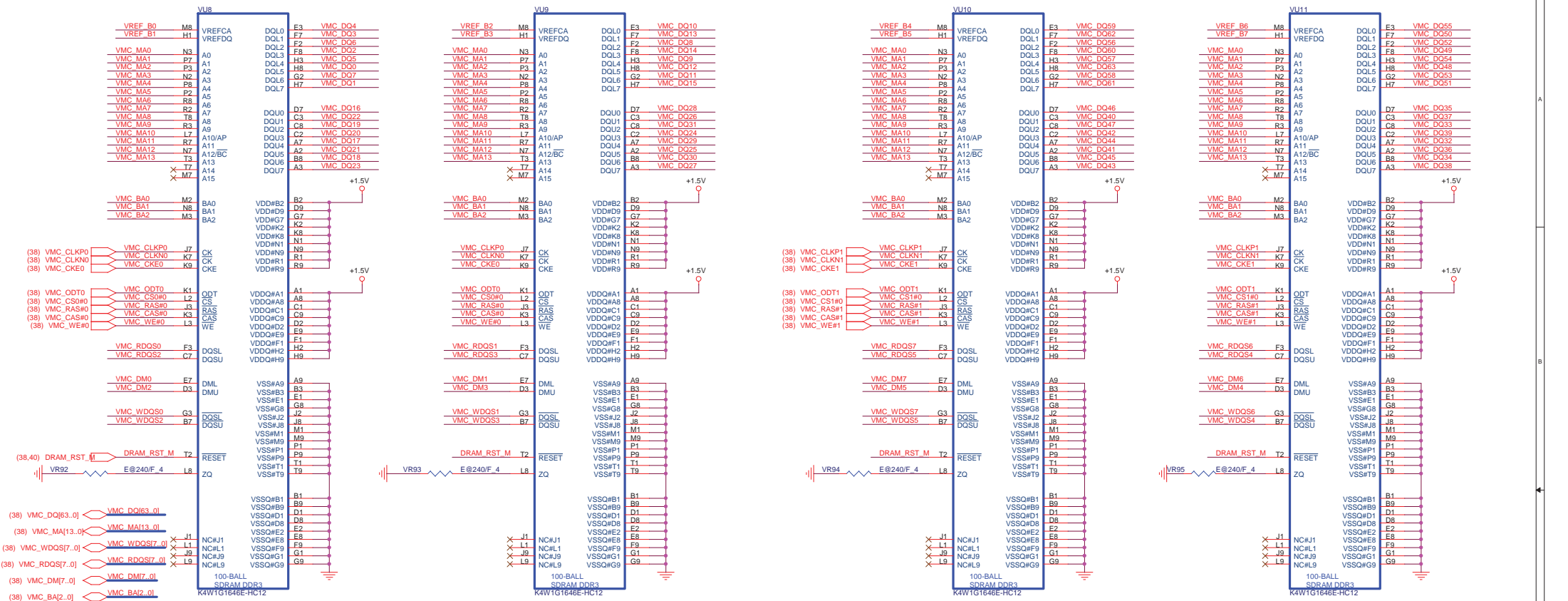
Rev 1A





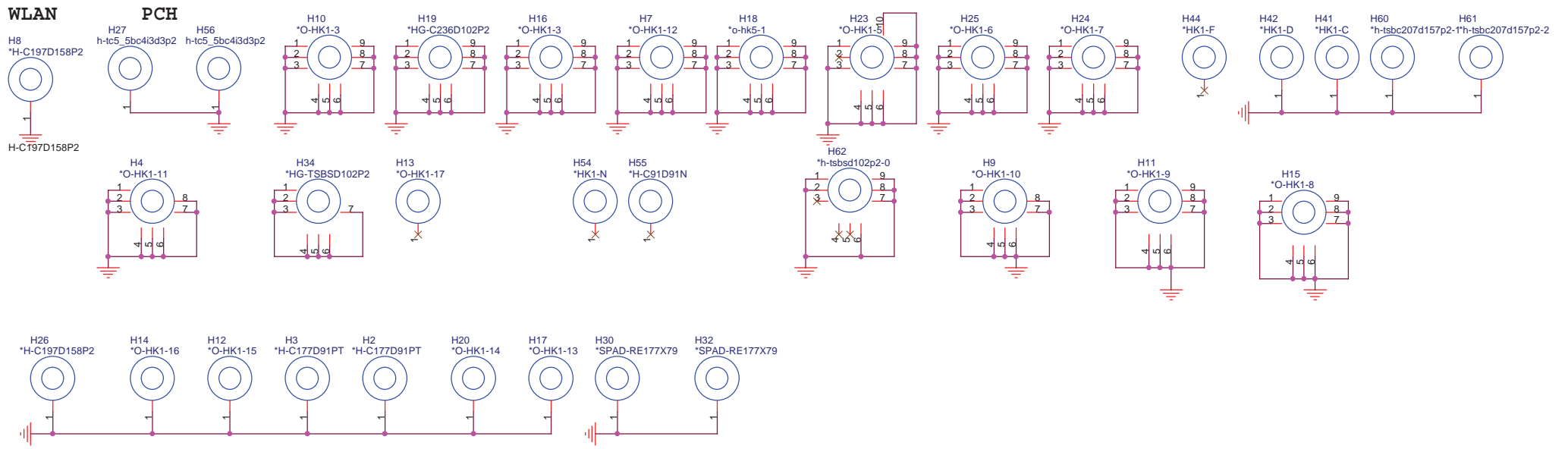


DDR3 64MX16, CH B : 512MB

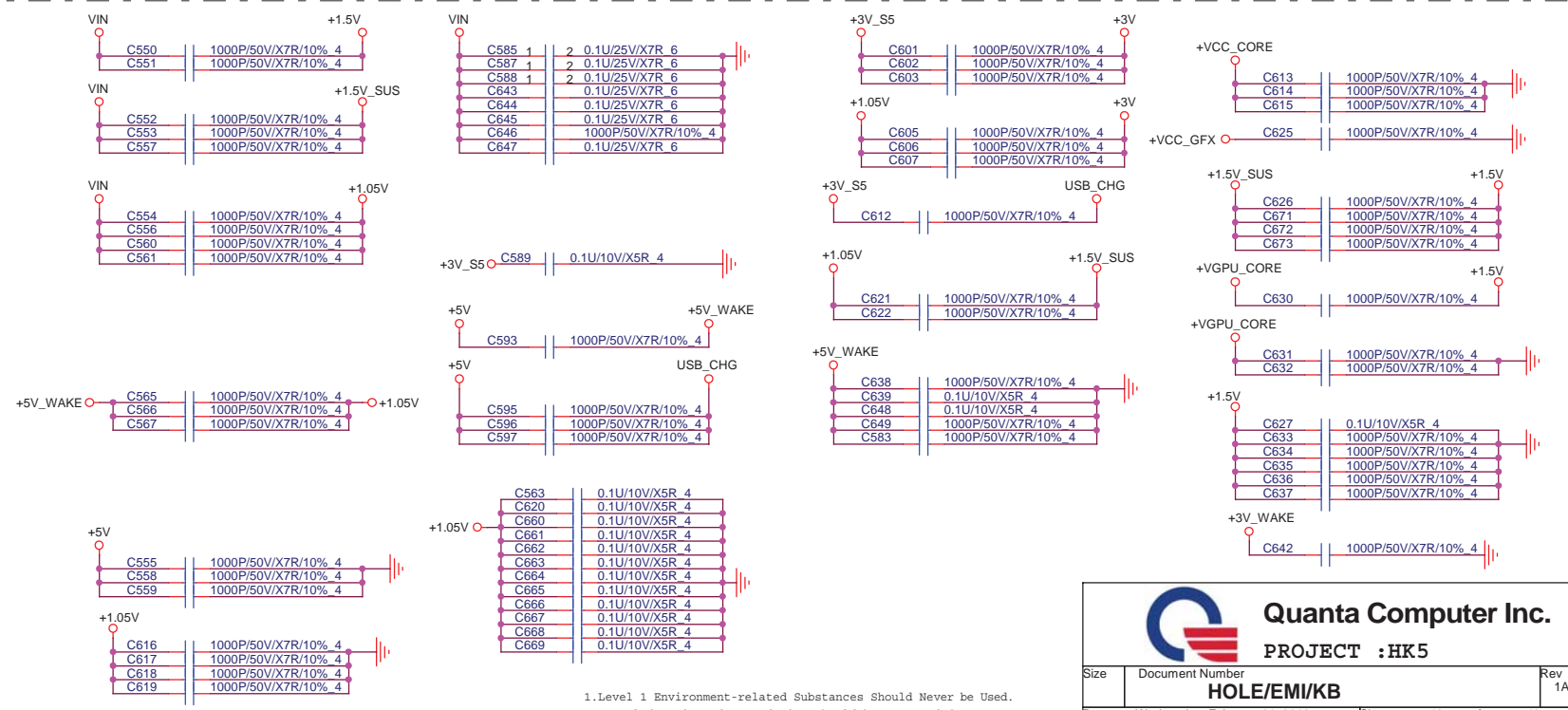
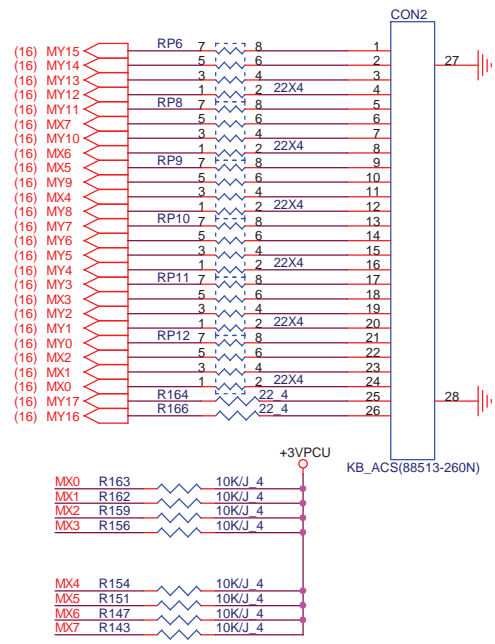


**Quanta Computer Inc.**  
PROJECT :HK5  
Thames\_DDR3\_B\_512M  
Size Document Number  
Date: Wednesday, February 01, 2012 Sheet 41 of 43

1. Level 1 Environment-related Substances should Never be Used.  
 2. Recycled Resin and Coated Wire should be procured from Green Partners. Date: Wednesday, February 01, 2012 Sheet 41 of 43



### KEY BOARD Connector



**Quanta Computer Inc.**  
**PROJECT :HK5**

Size	Document Number	Rev
	<b>HOLE/EMI/KB</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: Wednesday, February 01, 2012 Sheet 42 of 43

USB PORT Architecture	
PORT 0	USB3.0
PORT 1	USN2.0
PORT 2	USN2.0
PORT 3	USB2.0
PORT 4	N/A
PORT 5	N/A
PORT 6	N/A
PORT 7	N/A
PORT 8	N/A
PORT 9	WiMax/BT
PORT 10	Camera
PORT 11	N/A
PORT 12	N/A
PORT 13	N/A

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

SATA BUS	
PORT 0	HDD
PORT 1	N/A
PORT 2	N/A
PORT 3	N/A
PORT 4	ODD
PORT 5	N/A

SM BUS	MBCLK/MBDATA	WRITE	READ	Function
ISL88731CHRTZ	0001 001X	0001 0010	0001 0011	Charger
AMD Thames	0100 0001	-	0100 0001	Graphice
LIS331DL	0011 101X	0011 1010	0011 1011	G Sensor

SM BUS	MBCLK_BAT/MBDATA_BAT	WRITE	READ	Function
VGP-BPS26	0001 011X	0001 0110	0001 0111	Battery

SM BUS	SMB_PCH_CLK/SMB_PCH_DAT	WRITE	READ	Function
DIMM Module0	1010 000X	1010 0000	1010 0001	DDRIII
DIMM Module 1	1010 010X	1010 0100	1010 0101	DDRIII
Synaptics	0010 110X	0010 1100	0010 1101	Click PAD

	R363 (High) R362 (Low)	R294 (High) R297 (low)
	Board ID3	Board ID0
14"/HK6	0	0
15"/HK5	0	1
17"/HK7	1	0

Board ID1 (VRAM Vendor)	Samaung (1)	Hynix (0)
R47 (High)	Stuff	No Stuff
R48 (Low)	No Stuff	Stuff

Board ID2		
14" 4PCS	1G	512M
15" 8PCS	1G	2G
R39 (High)	Stuff	No Stuff
R27 (Low)	No Stuff	Stuff

PCBA SKU	Discrete	UMA
R277 (Pull High)	Stuff	No Stuff
R275 (Pull Low)	No Stuff	Stuff

	S0	S3	DS3	S4	S5 (Charger Enable)	S5 (Charger Disable)
<b>RUN_ON</b>	H	L	L	L	L	L
+3V	H	L	L	L	L	L
+5V	H	L	L	L	L	L
+0.75V_DDR_VTT	H	L	L	L	L	L
+1.05V	H	L	L	L	L	L
+0.85V	H	L	L	L	L	L
+1.5V	H	L	L	L	L	L
+1.8V	H	L	L	L	L	L
+1.8V_GPU	H	L	L	L	L	L
+1.0V_GPU	H	L	L	L	L	L
+VGPU_CORE	H	L	L	L	L	L
+VCC_GFX	H	L	L	L	L	L
+VCC_CORE	H	L	L	L	L	L
<b>SUS_ON</b>	H	H	H	L	L	L
+1.5V_SUS	H	H	H	L	L	L
<b>S5_ON</b>	H	H	L	H	L	L
+5V_S5	H	H	L	H	L	L
+3V_S5	H	H	L	H	L	L
<b>EC_WAKE_ON</b>	H	H	H	H	H	L
+3V_WAKE	H	H	H	H	H	L
+5V_WAKE	H	H	H	H	H	L
<b>DEEP_EC_EN</b>	H	H	H	H	L	L
+3V_S5_DSW	H	H	H	H	L	L
+3V_SUS	H	H	L	L	L	L