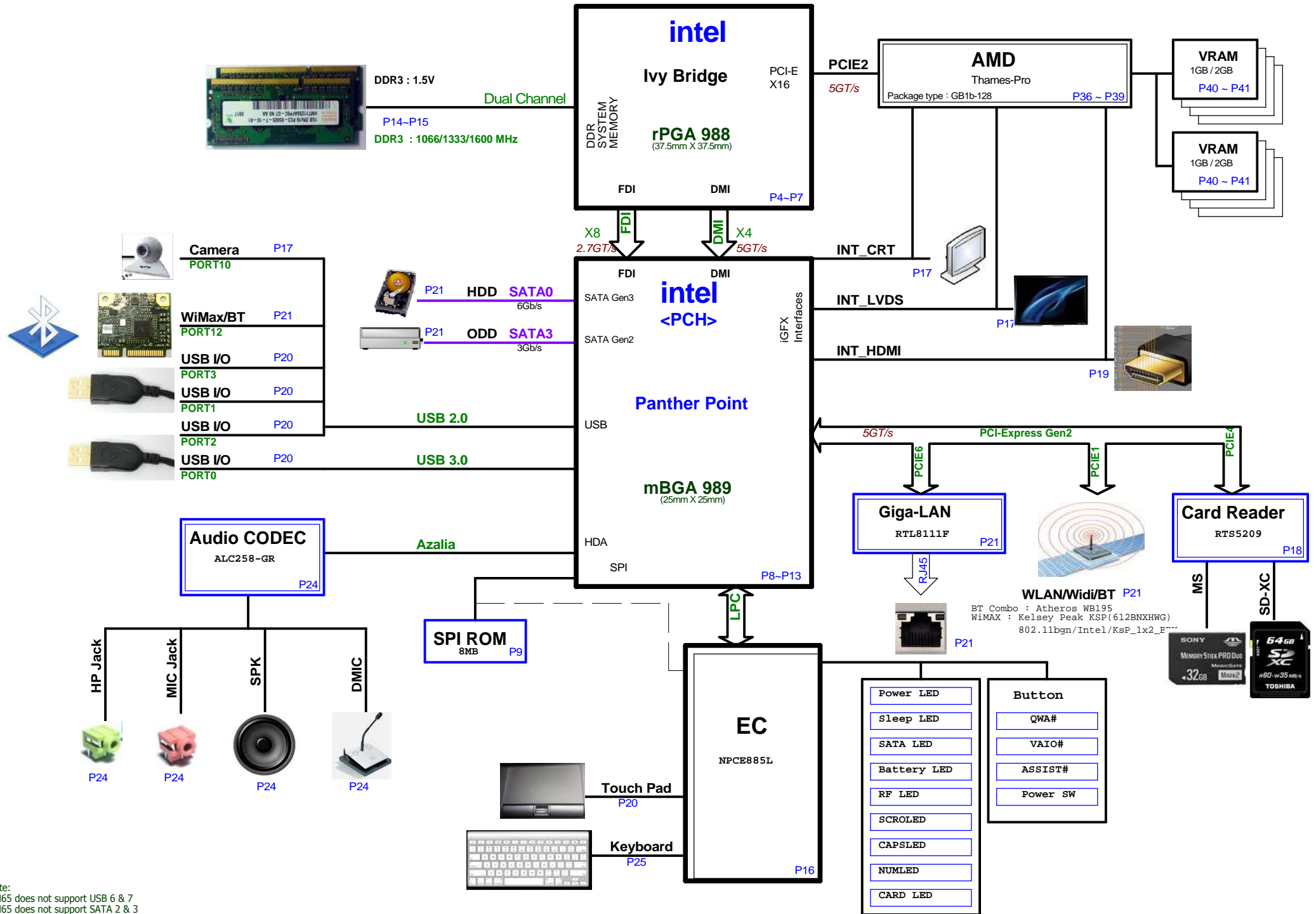


Page	Title of schematic page	Rev.	Date
01	Page List	1A	
02	Block Diagram	1A	
03	Change List	1A	
04	SNB 1/4(HOST&PCIE)	1A	
05	SNB 2/4(DDR3 I/F)	1A	
06	SNB 3/4(POWER)	1A	
07	SNB 4/4(GND/Strap)	1A	
08	PCH 1/6(DMI/FDI/VIDEO)	1A	
09	PCH 2/6(SATA/RTC/HDA/LPC)	1A	
10	PCH 3/6(PCIE/USB/CLK/NV)	1A	
11	PCH 4/6(GPIO/CPU/STRAP)	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/THERMAL	1A	
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	
39	Thames_POWER	1A	

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.

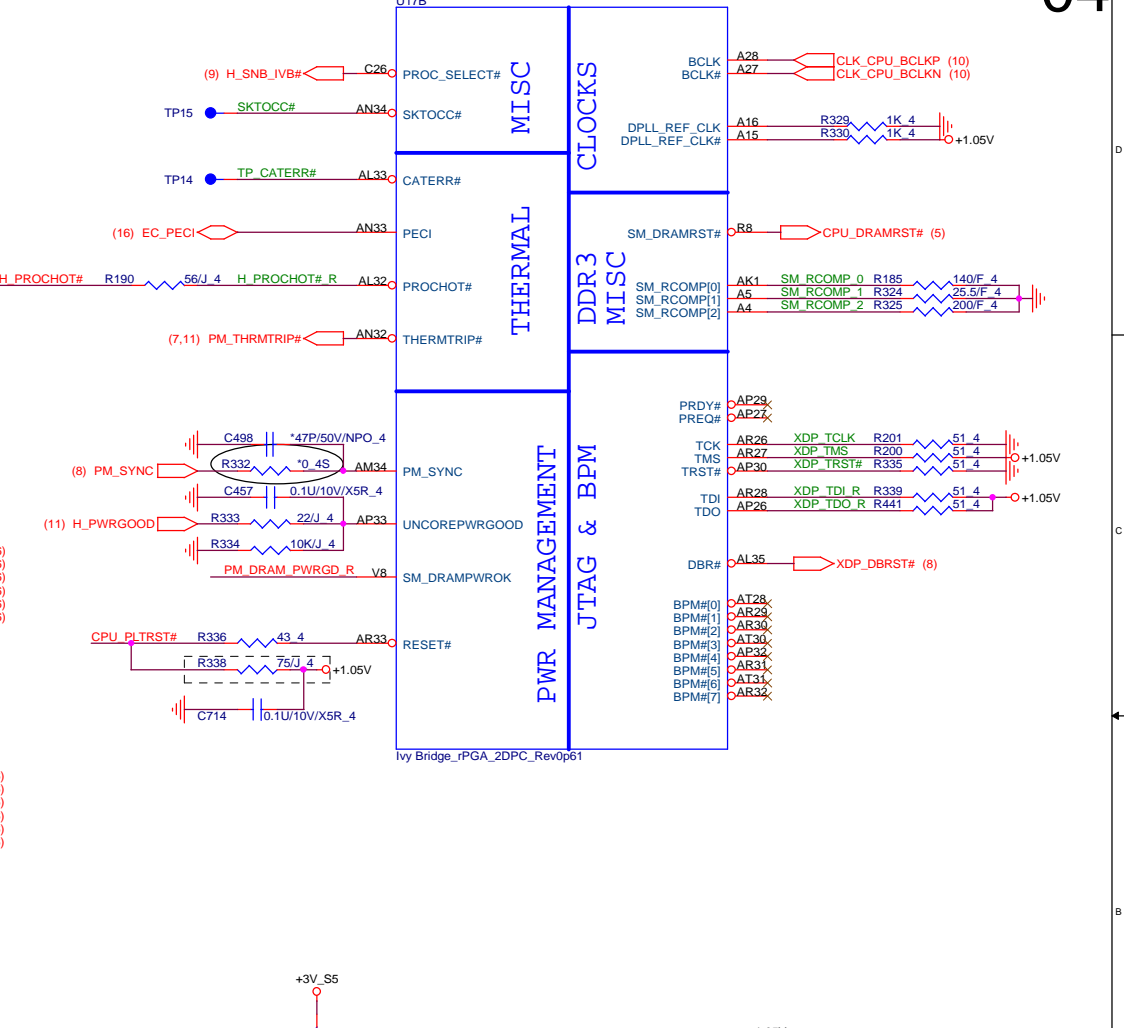
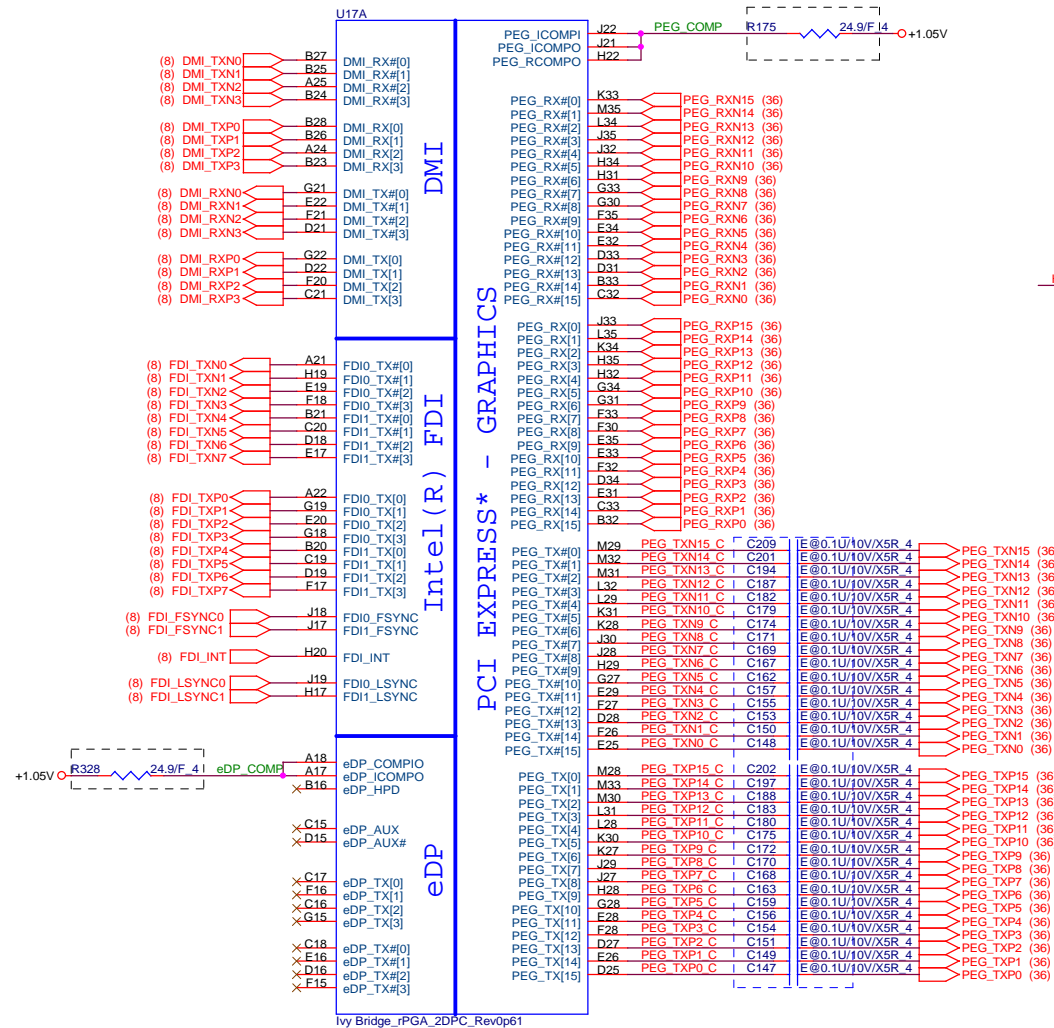
HK5_MB_SCH_PVT_012
P25-- change R224 R226 R349 form 150ohm to 75ohm
Reason : for HDD ,Battery and card reader LED dark issue
Possible Risk: No.

HK5_MB_SCH_PVT_013
P23-- add R461 ,R462 [0ohm]
Reason : customer requirement for TP SMBUS signal
Possible Risk: No.

 Quanta Computer Inc. PROJECT :Chief River		Size	Document Number	Rev
		Change List		1A
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Ivy Bridge Processor (DMI,PEG,FDI)

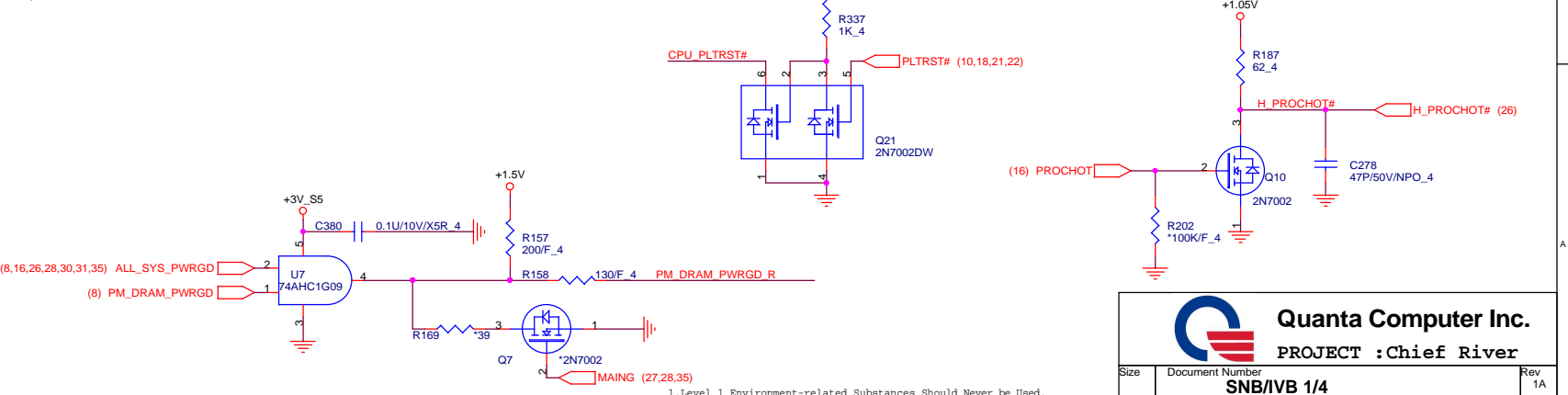
Ivy Bridge Processor (CLK,MISC,JTAG)



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.



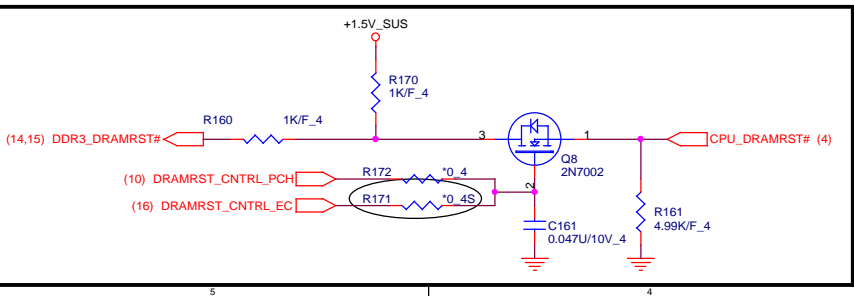
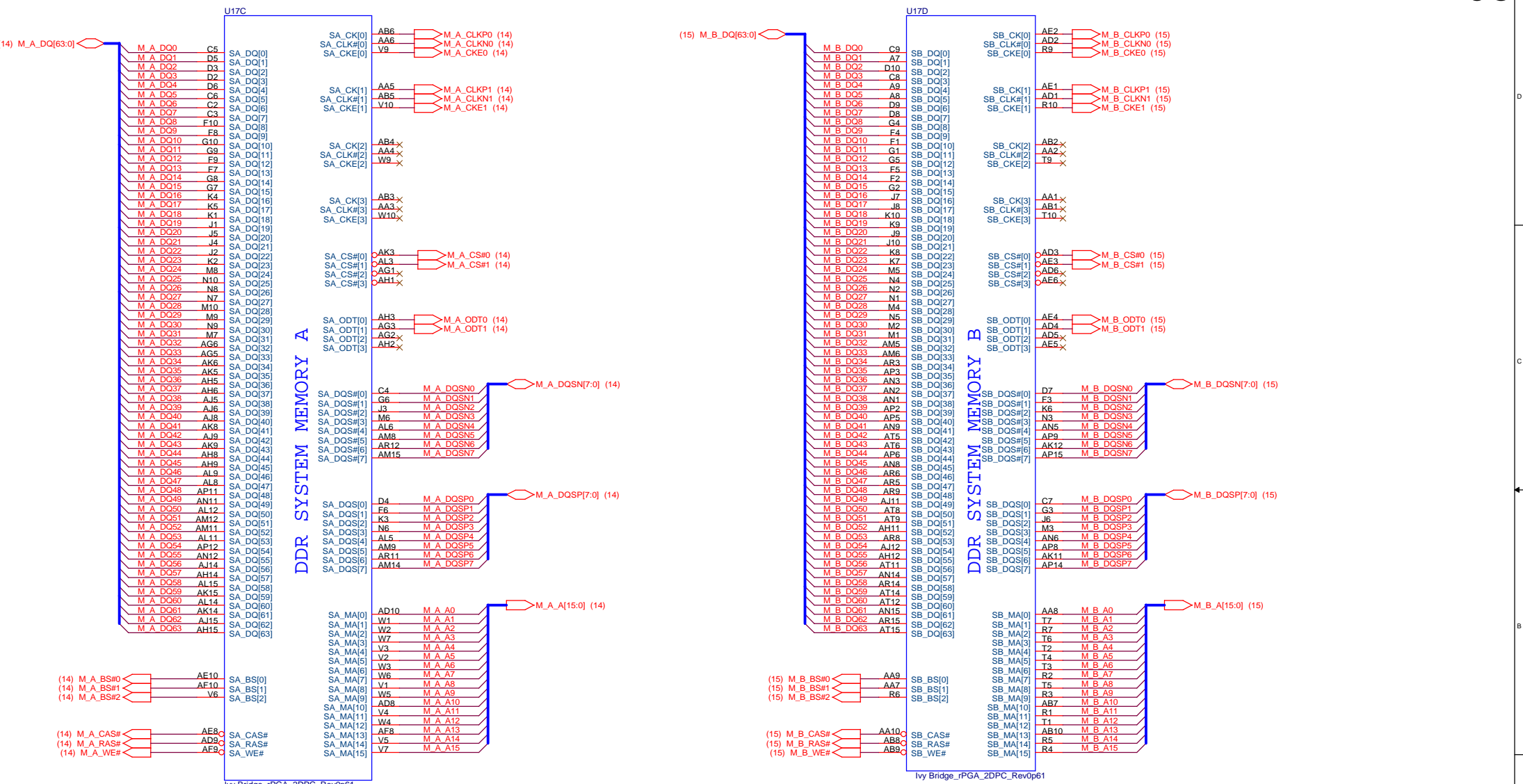
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Size	Document Number	Rev
	SNB/IVB 1/4	1A

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 (DDR3)



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

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

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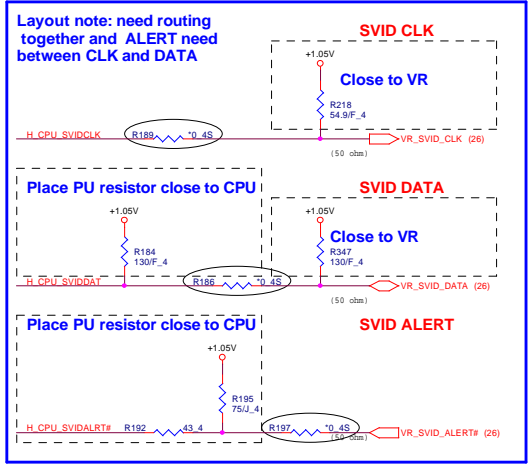
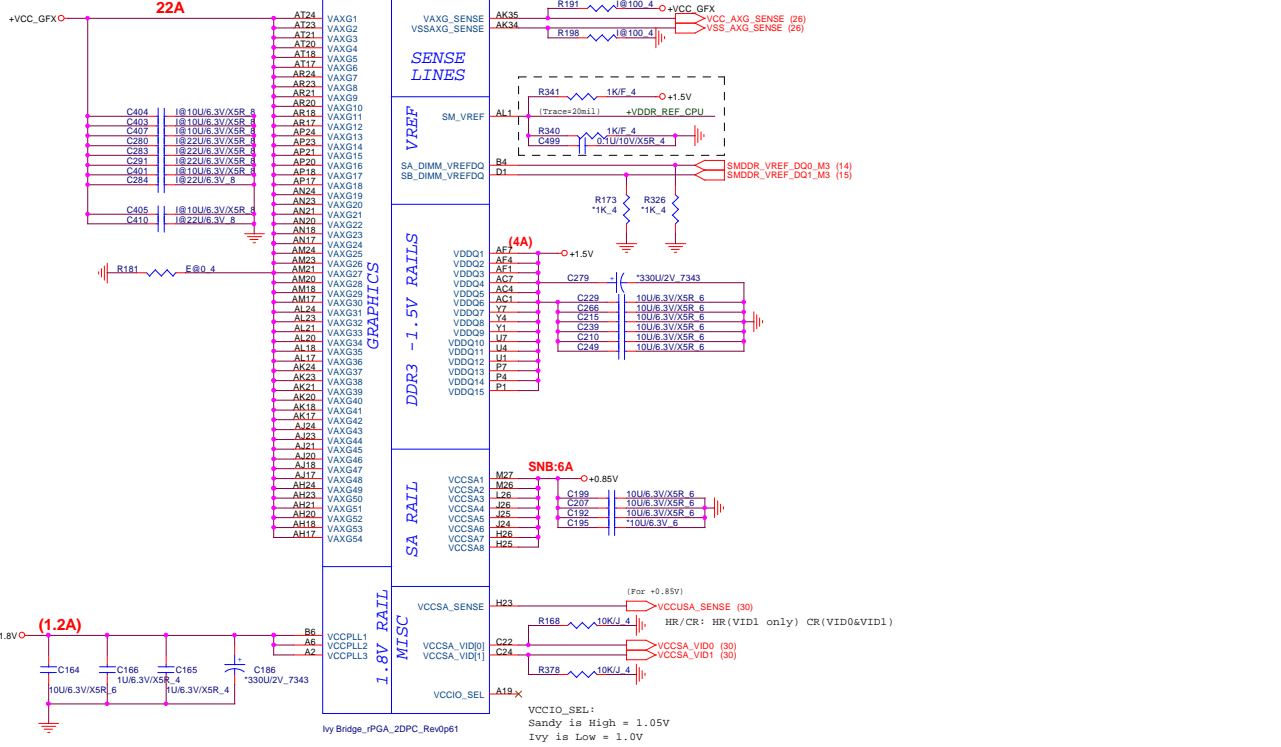
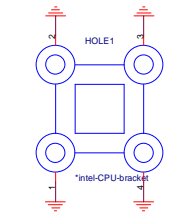
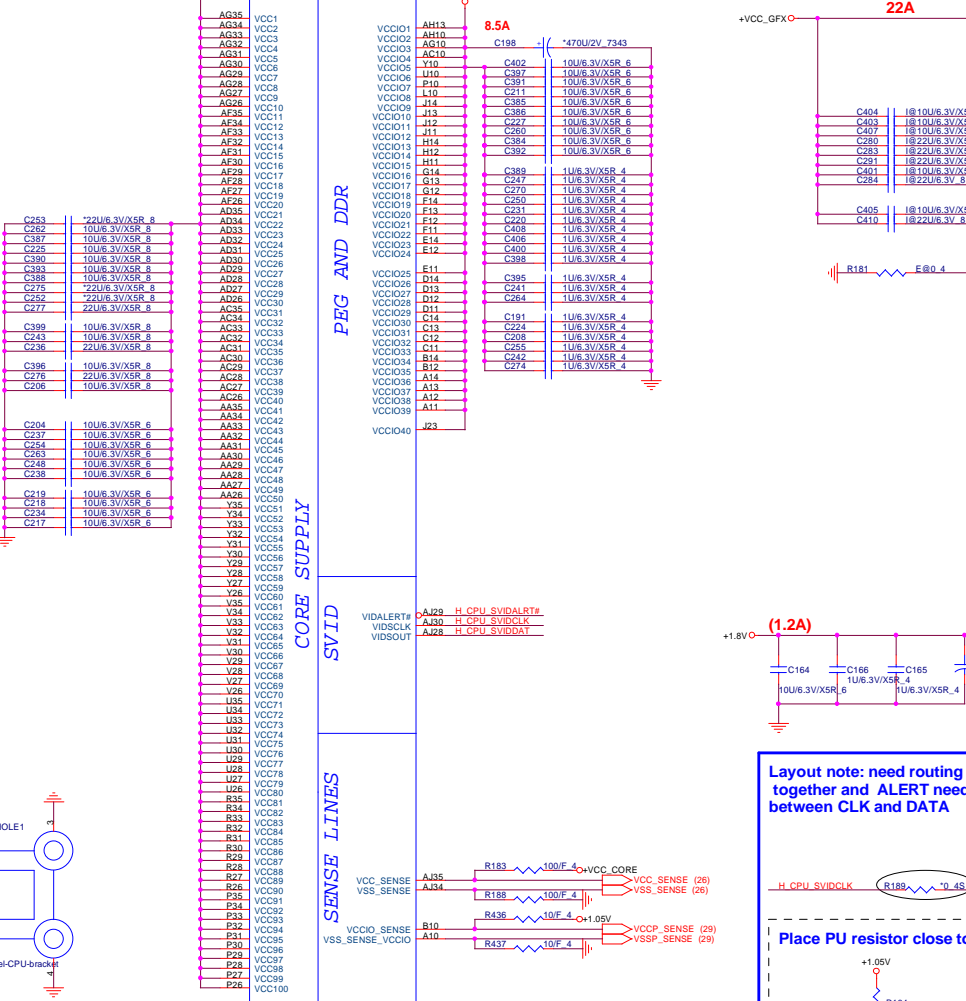
Ivy Bridge Processor (POWER)

CPU Core Power
SNB:55A

POWER

Ivy Bridge Processor (GRAPHIC POWER)

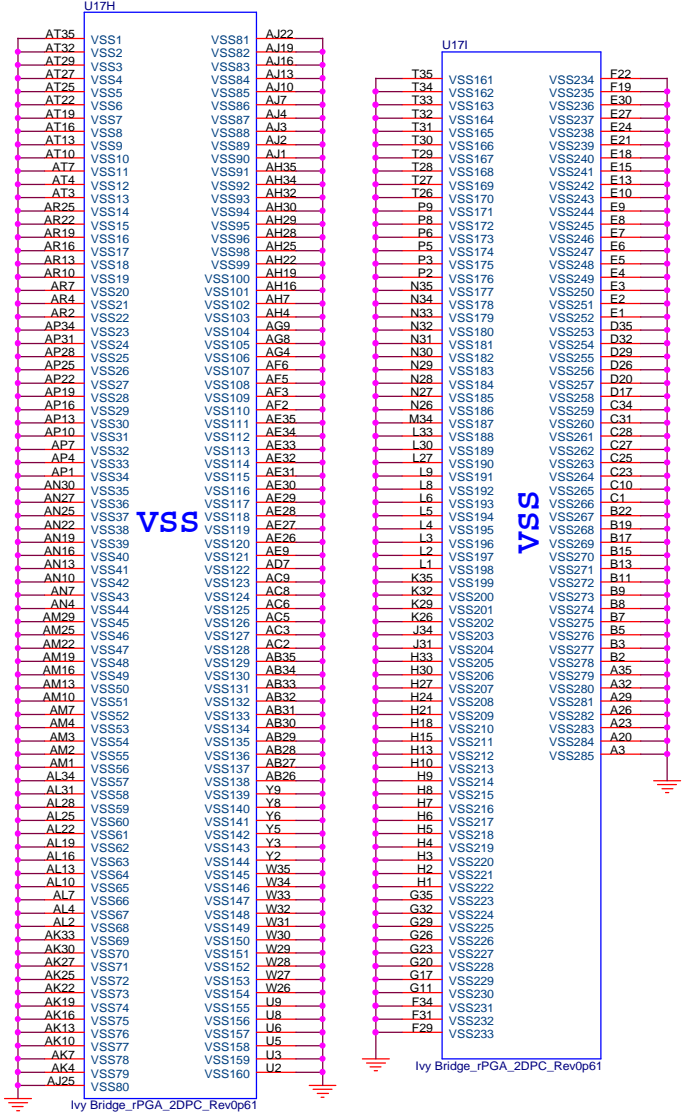
POWER



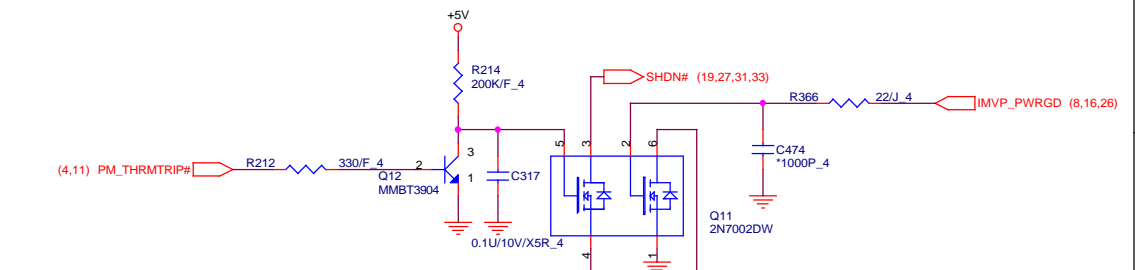
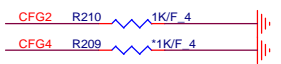
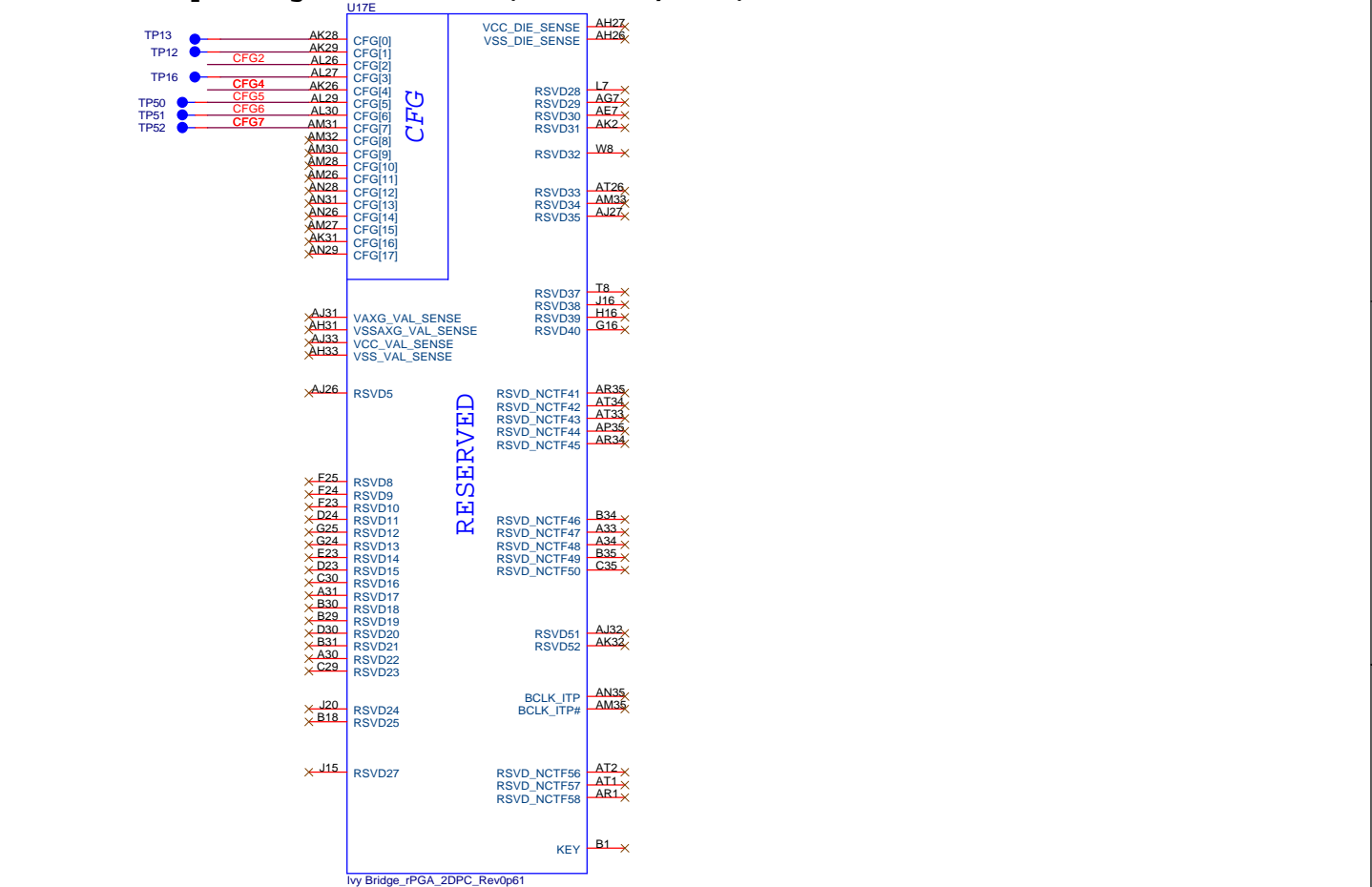
hy Bridge_rPGA_2DPC_Rev0p61
VCCIO_SEL: Sandy is High = 1.05V
Ivy is Low = 1.0V

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

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)

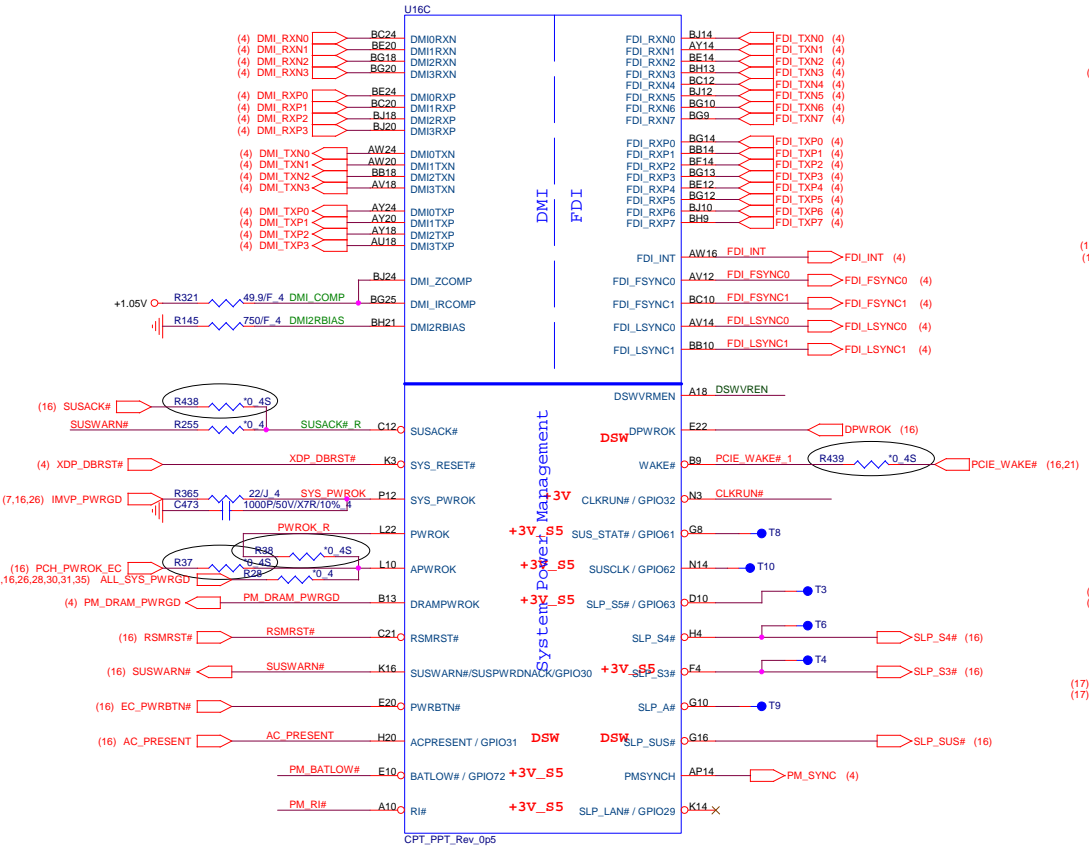
- 11: (Default) x16 - X16 PEG interface
- 10: PEG x8 x8 bifurcation enabled/disabled
- 01: Reserved - (Device 1 function 1 disabled ; function 2 enabled)
- 00: x8,x4,x4 - Device 1 functions 1 and 2 enabled

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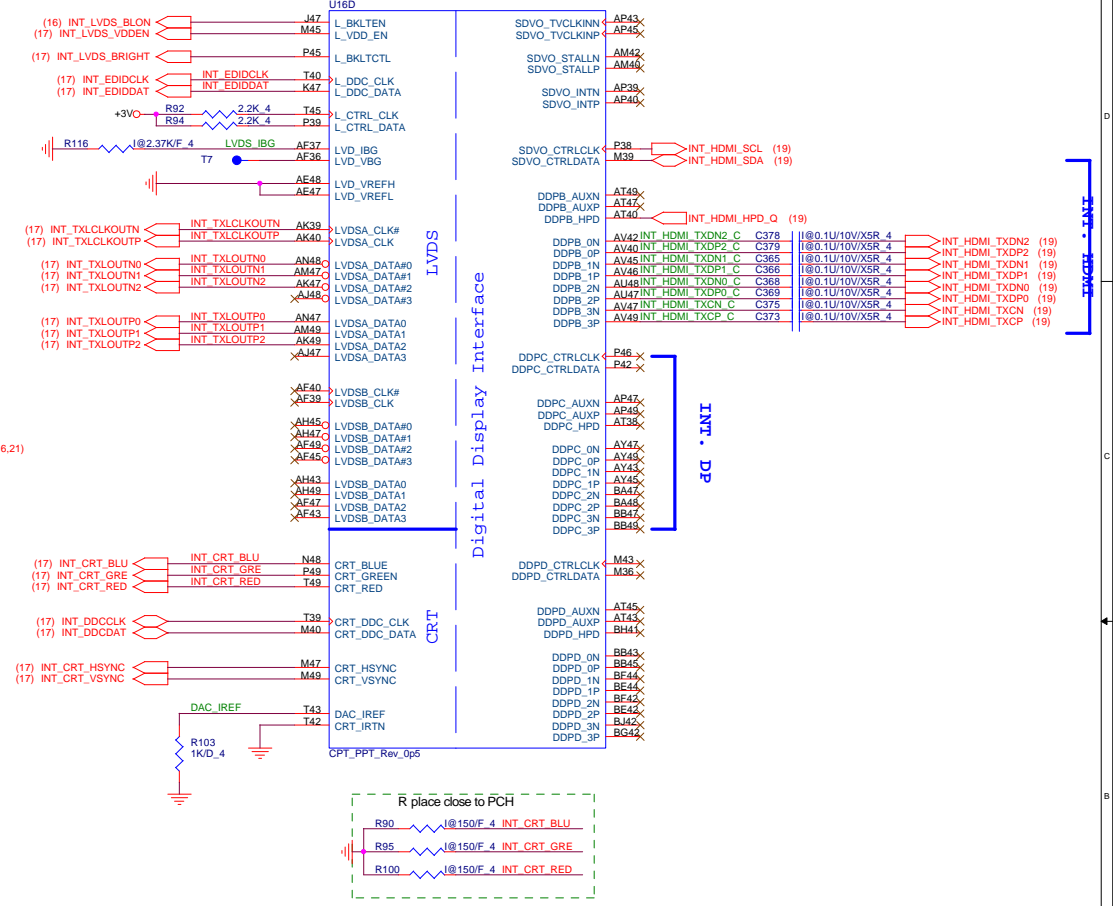
Size: Document Number: **SNB/IVB 4/4** Rev: 1A

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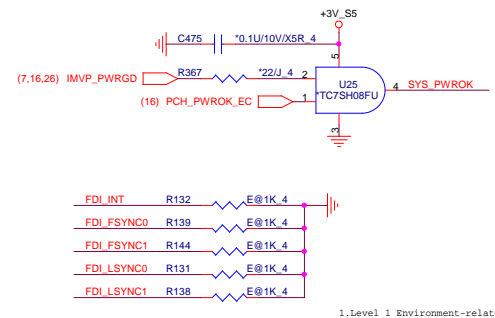
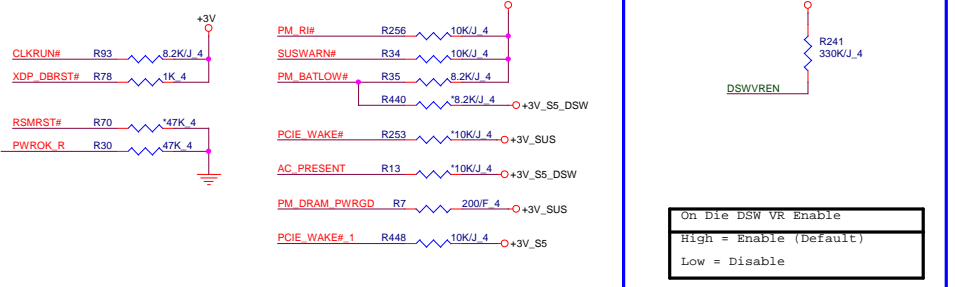
CPT/PPT (DMI,FDI,PM)



CPT/PPT (LVDS,DDI)



PCH Pull-high/low(CLG)



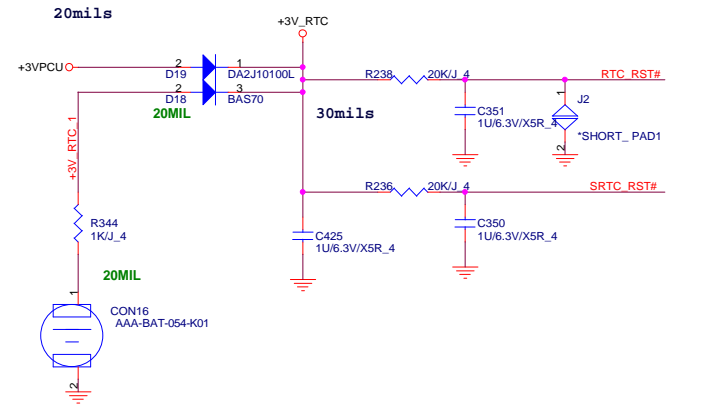
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Size Document Number
CPT/PTT 1/6 Rev 1A

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

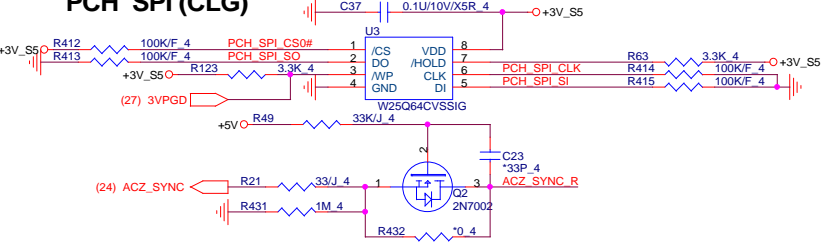
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RTC Circuitry(RTC)



MX25L3205DM2I-12G: AKE39FP0Z00
W25X32VSSIG: AKE39ZPON00

PCH SPI (CLG)



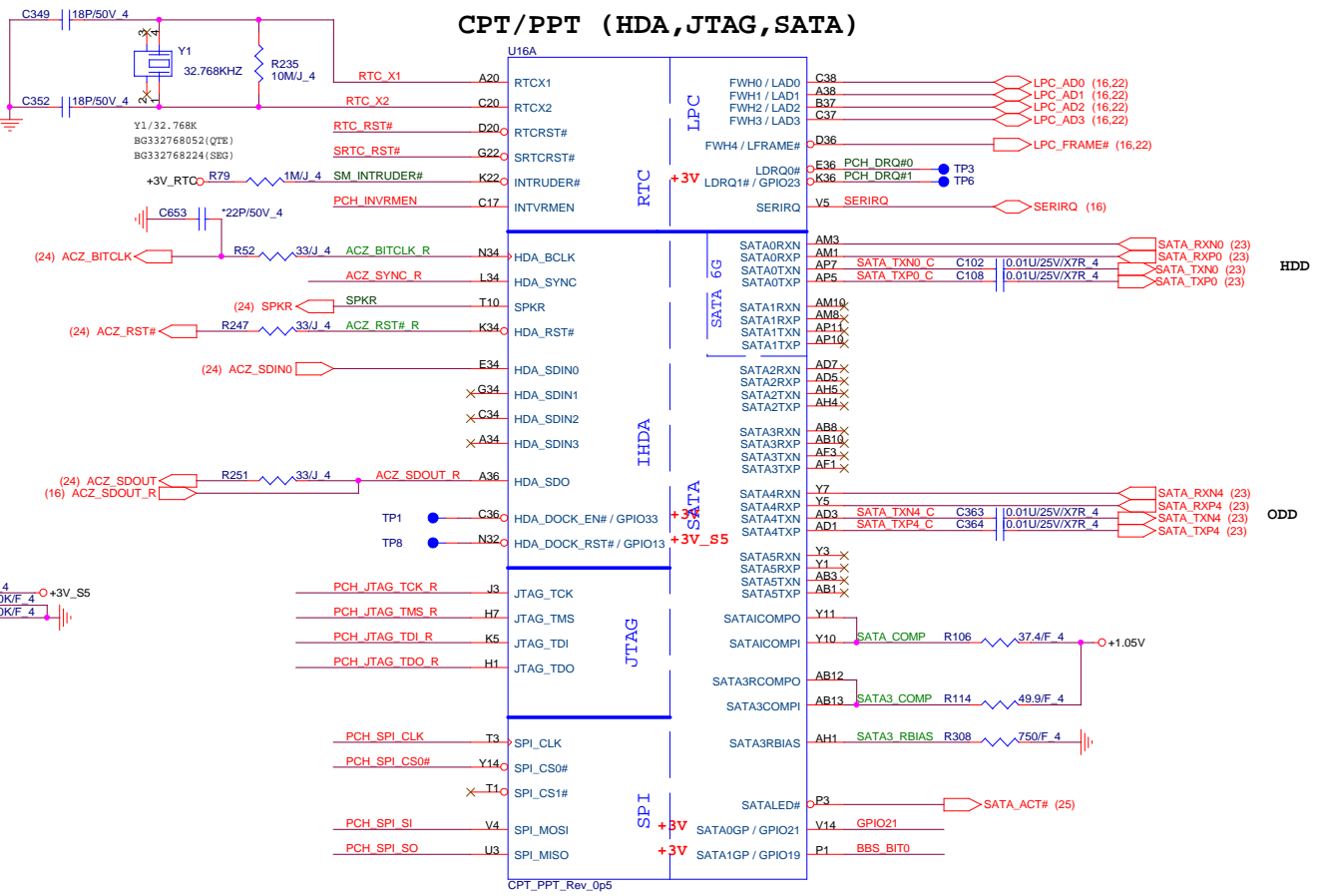
For NPCE85L Using

(16) F_CS0#_PCH	R121	0.1M	PCH_SPI_CS0#
(16) F_SDI_PCH	R67	0.4S	PCH_SPI_SO
(16) SCK_PCH	R65	0.4S	PCH_SPI_CLK
(16) SD0_PCH	R122	0.4S	PCH_SPI_SI

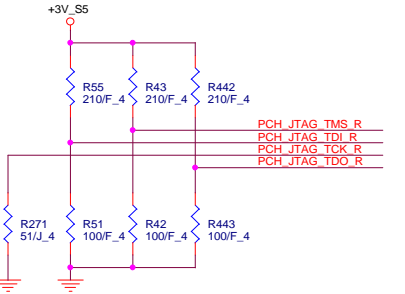
PCH Strap Table

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_RT0 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)	HR/CR: PROCSSEL#									
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	+3V_S5 R29 1K 4 ACZ_SYNC_R									

CPT/PPT (HDA, JTAG, SATA)



PCH JTAG Debug (CLG)

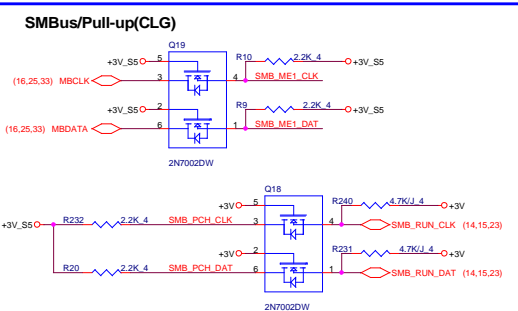
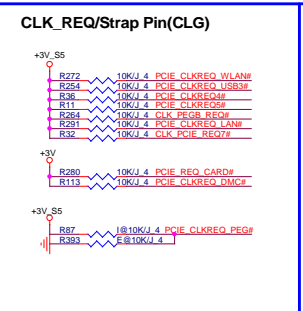
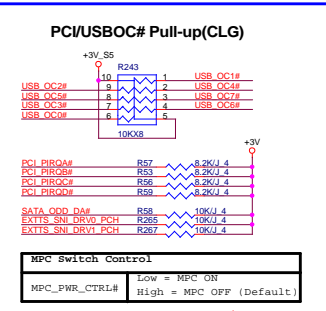
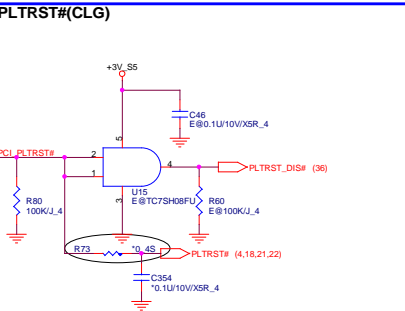
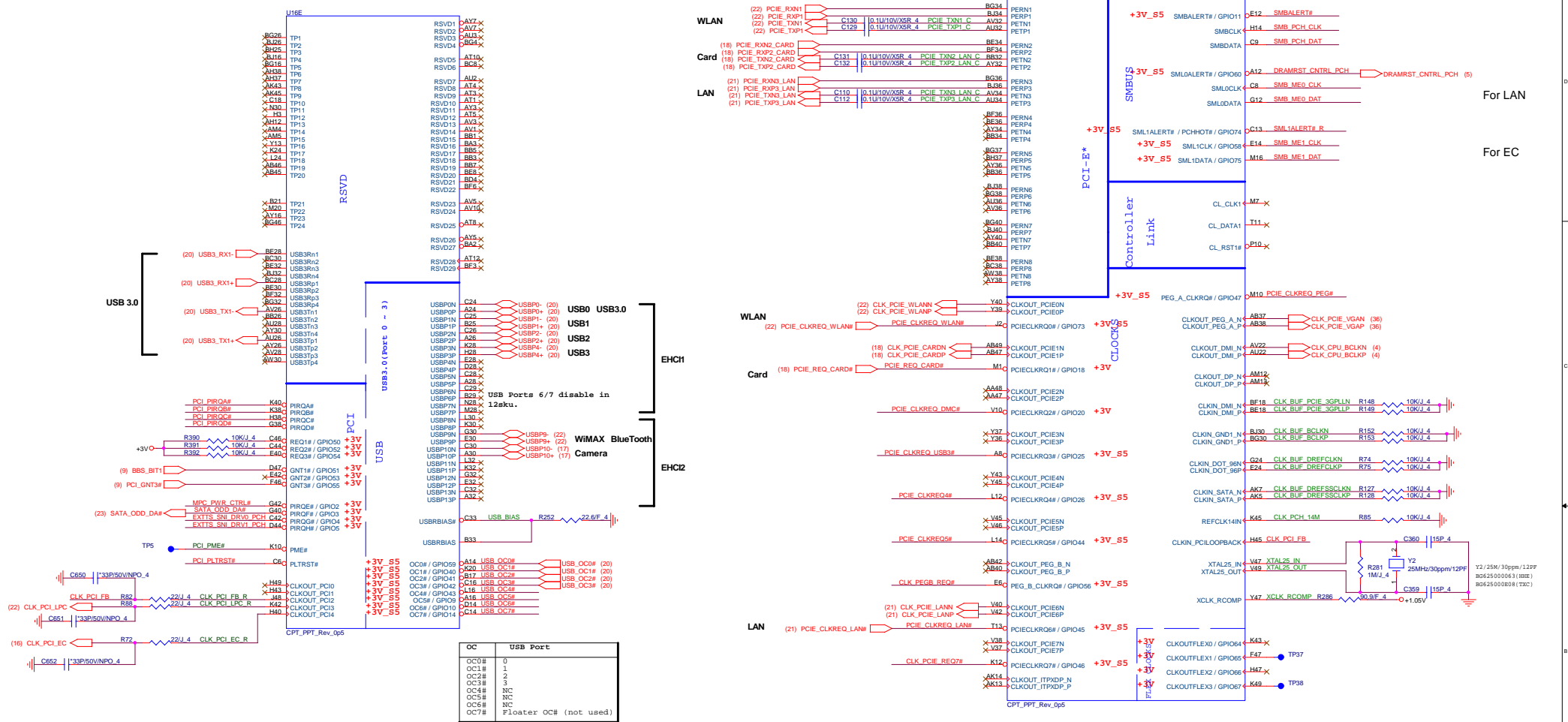


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Size	Document Number	Rev
	CPT/PPT 2/6	1A

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

CPT/PPT (PCI, USB, NVRAM)

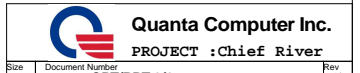


MPC Switch Control

Low = MPC ON
High = MPC OFF (Default)

MPC_PWR_CTRL#

MPC_PWR_CTRL#

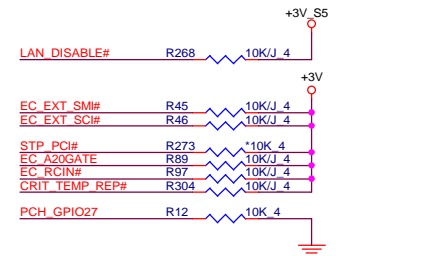


1. Level 3 Environment-related Substances should Never be Used.
2. Recycled Resin and Coated Wire should be procured from Green Partners.

CPT/PPT (GPIO, VSS_NCTF, RSVD)



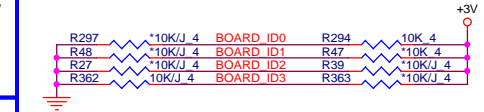
GPIO Pull-up/Pull-down(CLG)



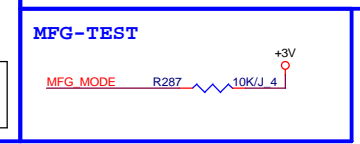
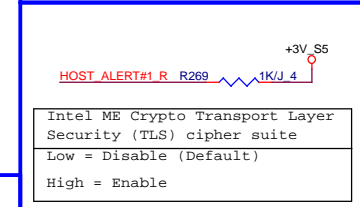
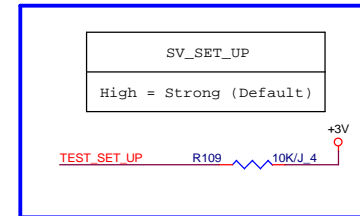
	R363 (High) R362 (Low)	R294 (High) R297 (Low)
Board ID3	0	0
Board ID0	0	0
14" /HK6/HK76	1	0
14" /HK5/HM76	0	1
15" /HK5/HM70	1	1

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



FDI TERMINATION VOLTAGE OVERRIDE	LOW - Tx, Rx terminated to same voltage
R84 → 100K/J 4 → FDI_OVRVLTG → R81 → *1K/F 4 → +3V	

DMI TERMINATION VOLTAGE OVERRIDE	Low = Tx, Rx terminated to same voltage (DC Coupling Mode) (DEFAULT)
GPIO36 → R295 → *200K/F 4 → +3V	

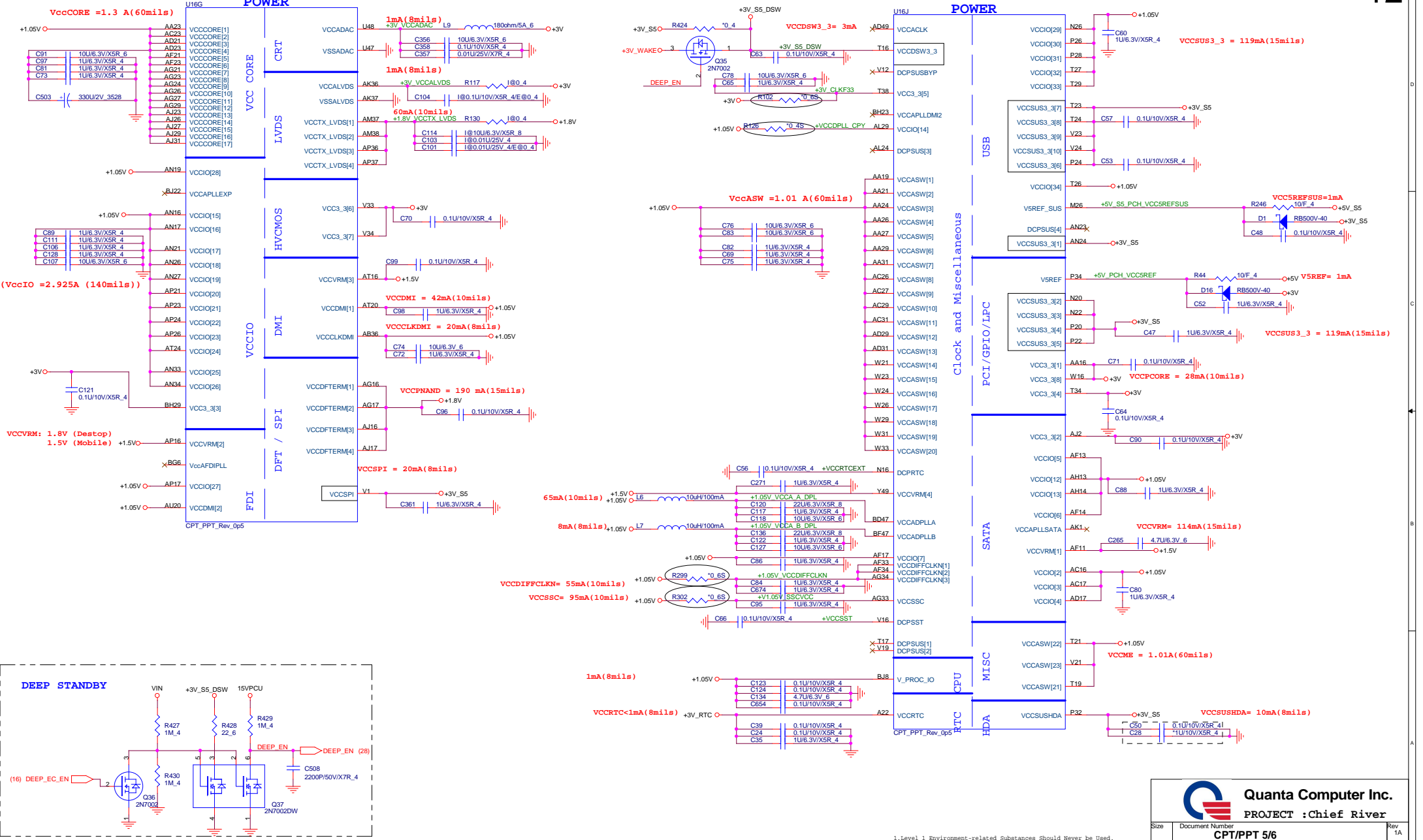
BIOS RECOVERY	High = Disable (Default) Low = Enable
BIOS_REC → R101 → 10K/J 4 → R99 → *10K/J 4 → +3V	

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PCH5 (CLG)

CPT/PPT (POWER)

CPT/PPT (POWER)



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Size	Document Number	Rev
	CPT/PPT 5/6	1A

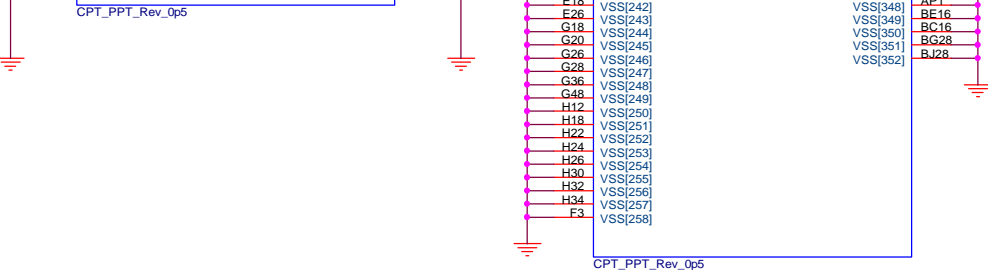
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1. Level 1 Environment-related Substances Should Never be Used.
 2. Recycled Resin and Coated Wire should be procured from Green Partners.

CPT/PPT (GND)

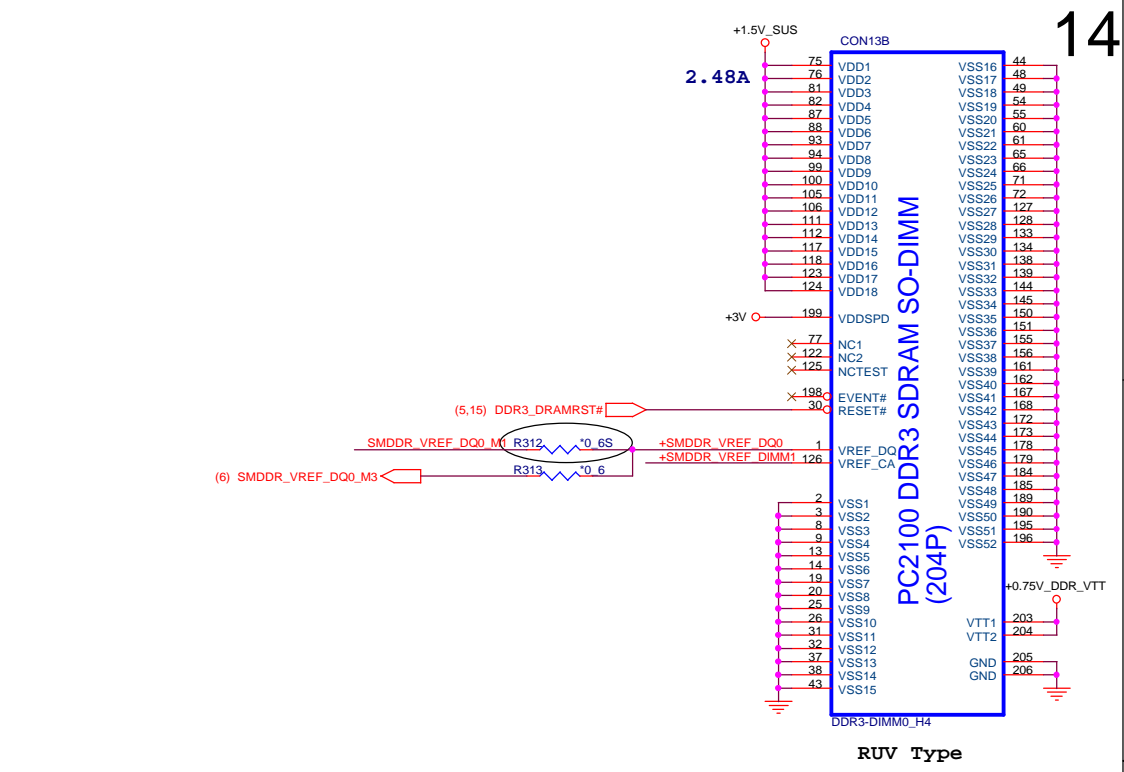
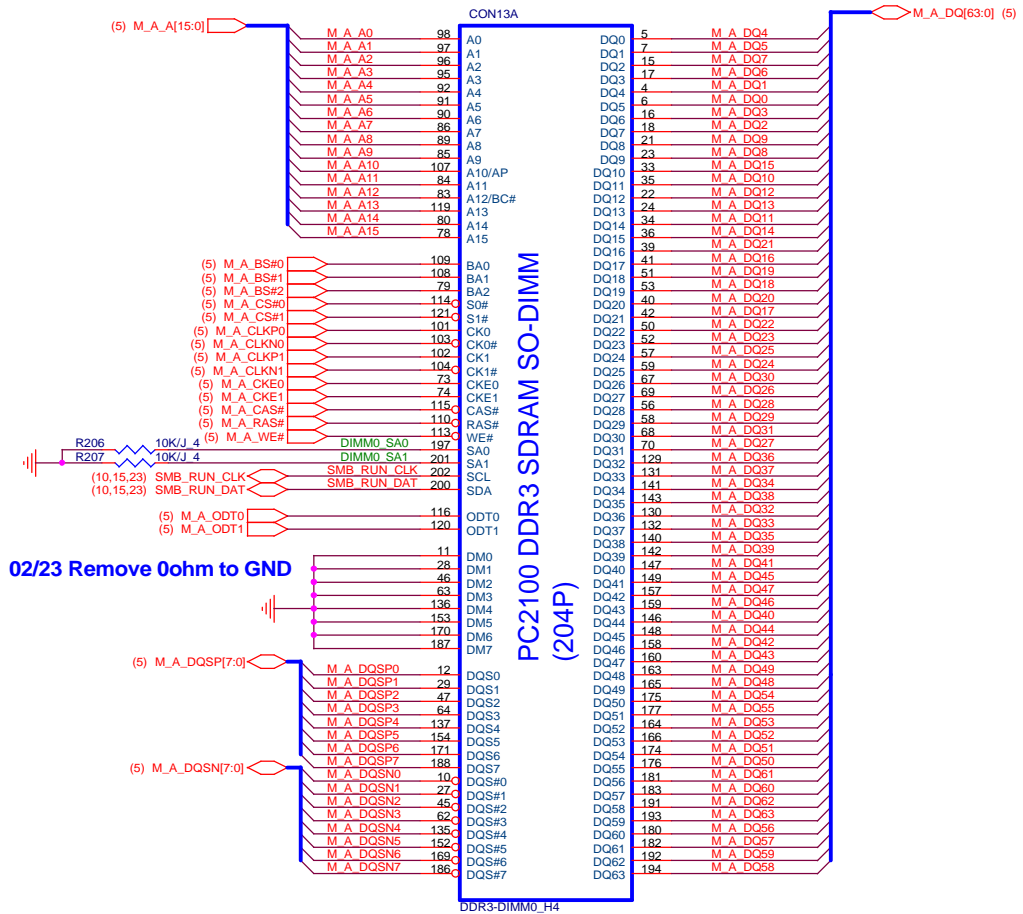
H5	VSS[0]		
AA17	VSS[1]	VSS[80]	AK38
AA2	VSS[2]	VSS[81]	AK4
AA3	VSS[3]	VSS[82]	AK42
AA33	VSS[4]	VSS[83]	AK46
AA34	VSS[5]	VSS[84]	AK6
AB11	VSS[6]	VSS[85]	AL16
AB14	VSS[7]	VSS[86]	AL17
AB38	VSS[8]	VSS[87]	AL19
AB4	VSS[9]	VSS[88]	AL2
AB43	VSS[10]	VSS[89]	AL21
AB5	VSS[11]	VSS[90]	AL23
AB7	VSS[12]	VSS[91]	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
AF10	VSS[43]	VSS[122]	AT13
AF12	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]	AT39
AF27	VSS[51]	VSS[130]	AT42
AF29	VSS[52]	VSS[131]	AT46
AF31	VSS[53]	VSS[132]	AT7
AF38	VSS[54]	VSS[133]	AU24
AF4	VSS[55]	VSS[134]	AU30
AF42	VSS[56]	VSS[135]	BH11
AF46	VSS[57]	VSS[136]	BH15
AF5	VSS[58]	VSS[137]	BH17
AF7	VSS[59]	VSS[138]	BH19
AF8	VSS[60]	VSS[139]	H10
AG19	VSS[61]	VSS[140]	BH27
AG2	VSS[62]	VSS[141]	BH31
AG31	VSS[63]	VSS[142]	AV4
AG48	VSS[64]	VSS[143]	BH33
AH11	VSS[65]	VSS[144]	BH35
AH3	VSS[66]	VSS[145]	BH39
AH36	VSS[67]	VSS[146]	BH43
AH39	VSS[68]	VSS[147]	BH7
AH40	VSS[69]	VSS[148]	D3
AH42	VSS[70]	VSS[149]	D12
AH46	VSS[71]	VSS[150]	D16
AH7	VSS[72]	VSS[151]	D18
AJ19	VSS[73]	VSS[152]	D22
AJ21	VSS[74]	VSS[153]	D24
AJ24	VSS[75]	VSS[154]	D26
AJ33	VSS[76]	VSS[155]	D30
AJ34	VSS[77]	VSS[156]	D32
AK12	VSS[78]	VSS[157]	D34
AK3	VSS[79]	VSS[158]	D38
			D42
			D8
			E18
			E26
			G18
			G20
			G26
			G28
			G36
			G48
			H12
			H18
			H22
			H24
			H26
			H30
			H32
			H34
			F3

AY4	VSS[159]	VSS[269]	H46
AY42	VSS[160]	VSS[280]	K18
AY46	VSS[161]	VSS[281]	K26
AY8	VSS[162]	VSS[282]	K38
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
BB22	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]	N47
AN2	VSS[188]	VSS[308]	P11
BC32	VSS[189]	VSS[309]	P18
BC34	VSS[190]	VSS[310]	T33
BC36	VSS[191]	VSS[311]	P40
BC40	VSS[192]	VSS[312]	P43
BC42	VSS[193]	VSS[313]	P47
BD48	VSS[194]	VSS[314]	P7
BD46	VSS[195]	VSS[315]	R2
BD5	VSS[196]	VSS[316]	R48
BE22	VSS[197]	VSS[317]	VSS[318]
BE26	VSS[198]	VSS[319]	T12
BE40	VSS[199]	VSS[320]	T12
BE10	VSS[200]	VSS[321]	T4
BE12	VSS[201]	VSS[322]	V34
AP8	VSS[202]	VSS[323]	V46
BF20	VSS[203]	VSS[324]	V26
BF22	VSS[204]	VSS[325]	V27
BF24	VSS[205]	VSS[326]	V29
BF28	VSS[206]	VSS[327]	V31
BD3	VSS[207]	VSS[328]	V36
BF30	VSS[208]	VSS[329]	V39
BF38	VSS[209]	VSS[330]	V43
BF40	VSS[210]	VSS[331]	V7
BF8	VSS[211]	VSS[332]	W17
BG17	VSS[212]	VSS[333]	W19
RG21	VSS[213]	VSS[334]	W2
BG33	VSS[214]	VSS[335]	W27
BG44	VSS[215]	VSS[336]	W48
BG8	VSS[216]	VSS[337]	Y12
BH11	VSS[217]	VSS[338]	Y38
BH15	VSS[218]	VSS[339]	Y4
BH17	VSS[219]	VSS[340]	Y42
BH19	VSS[220]	VSS[341]	Y46
H10	VSS[221]	VSS[342]	Y8
BH27	VSS[222]	VSS[343]	BG29
BH31	VSS[223]	VSS[344]	N24
AV4	VSS[224]	VSS[345]	AJ3
BH33	VSS[225]	VSS[346]	AD47
BH35	VSS[226]	VSS[347]	B43
BH39	VSS[227]	VSS[348]	BE10
BH43	VSS[228]	VSS[349]	BG41
BH7	VSS[229]	VSS[350]	G14
D3	VSS[230]	VSS[351]	H16
D12	VSS[231]	VSS[352]	T36
D16	VSS[232]		CG22
D18	VSS[233]		CG24
D22	VSS[234]		C22
D24	VSS[235]		AP13
D26	VSS[236]		M14
D30	VSS[237]		AP3
D32	VSS[238]		AP1
D34	VSS[239]		BE16
D38	VSS[240]		BC16
D42	VSS[241]		BG28
D8	VSS[242]		BJ28
E18	VSS[243]		
E26	VSS[244]		
G18	VSS[245]		
G20	VSS[246]		
G26	VSS[247]		
G28	VSS[248]		
G36	VSS[249]		
G48	VSS[250]		
H12	VSS[251]		
H18	VSS[252]		
H22	VSS[253]		
H24	VSS[254]		
H26	VSS[255]		
H30	VSS[256]		
H32	VSS[257]		
H34	VSS[258]		
F3	VSS[259]		

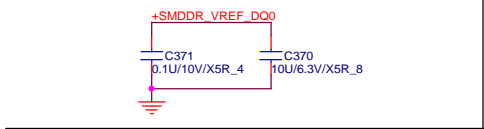
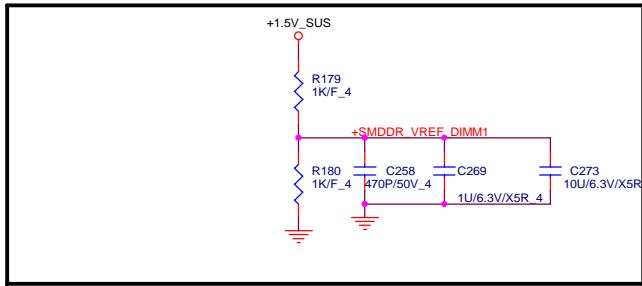
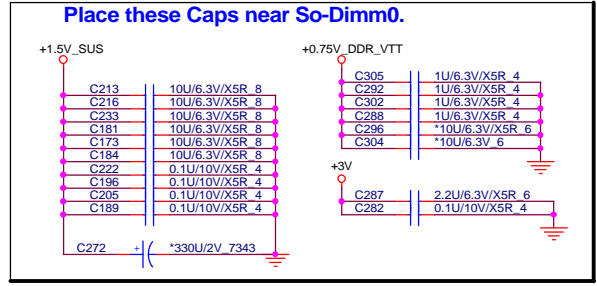


Quanta Computer Inc.
 PROJECT : Chief River
 CPT/PPT 6/6
 Date: Wednesday, February 01, 2012 Sheet 13 of 43

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



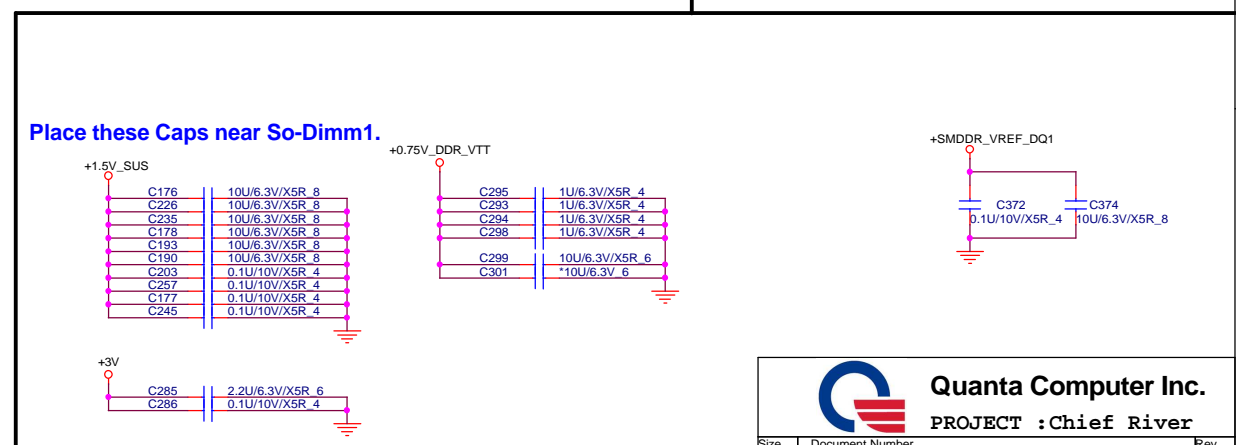
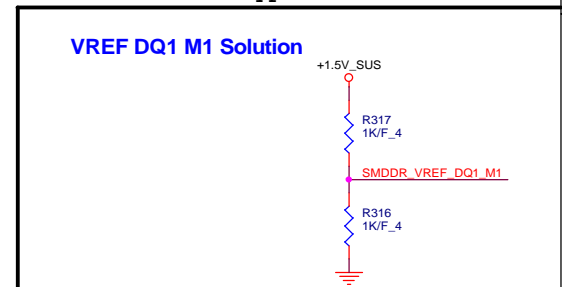
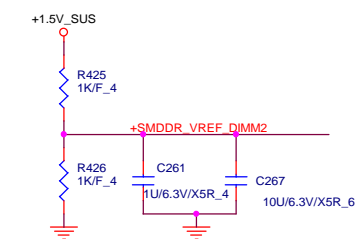
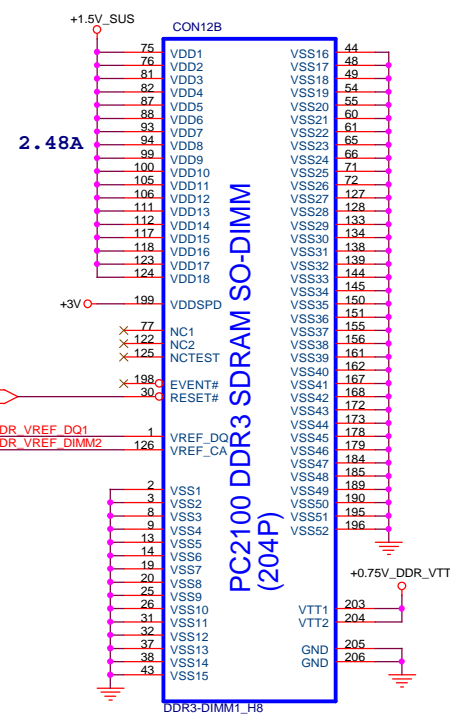
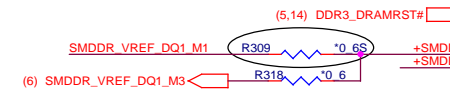
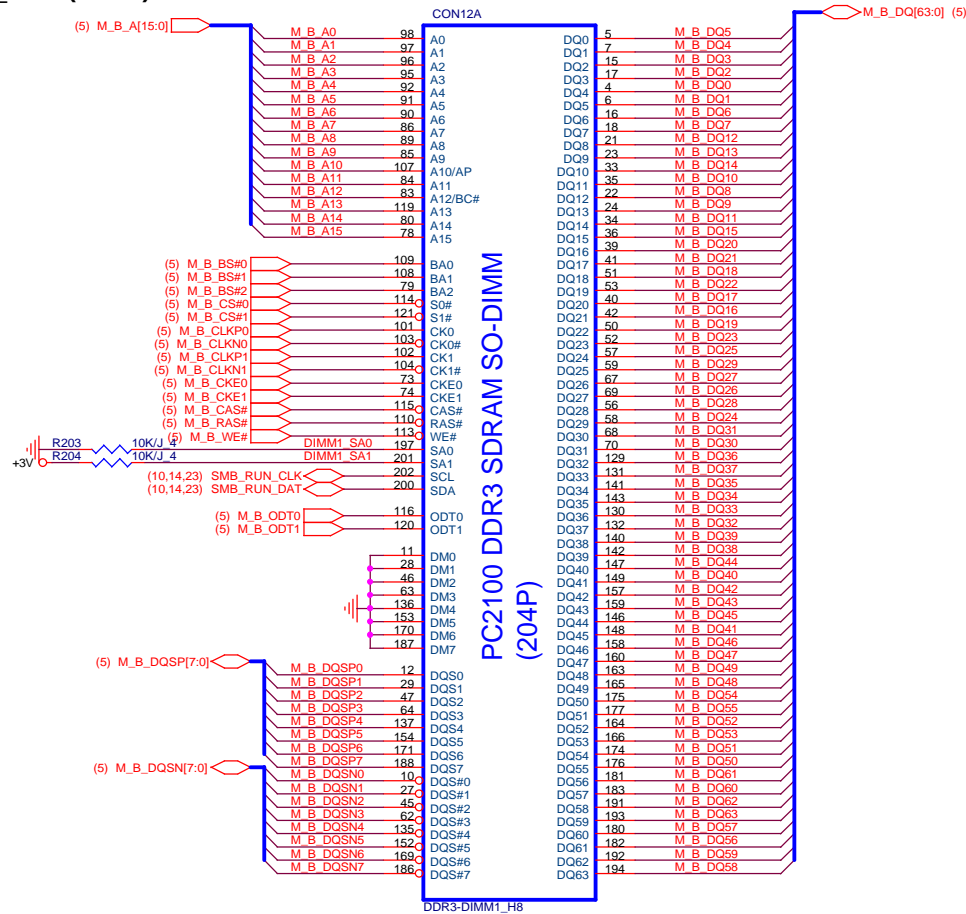
02/23 Remove 0ohm to GND



Quanta Computer Inc.
 PROJECT : Chief River

Size	Document Number	Rev
	DDRIII SO-DIMM-0	1A

DDR_RVS (DDR)



Quanta Computer Inc.
PROJECT : Chief River

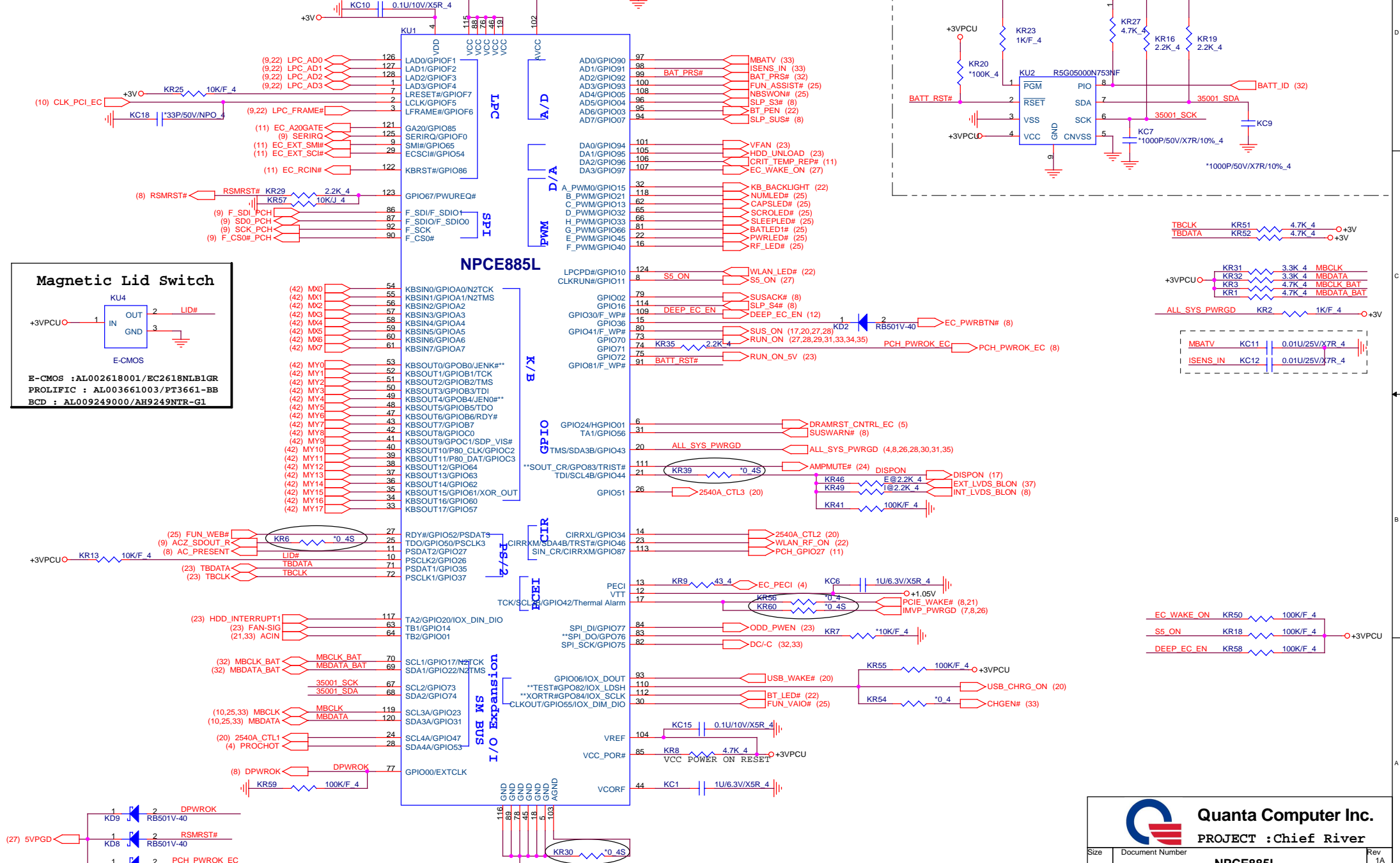
Size	Document Number	Rev
	DDRIII SO-DIMM-1	1A

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

1. Level 1 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.

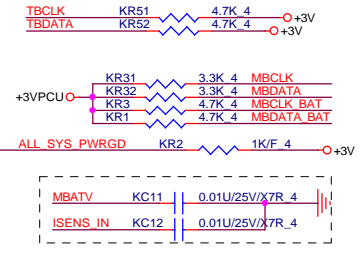
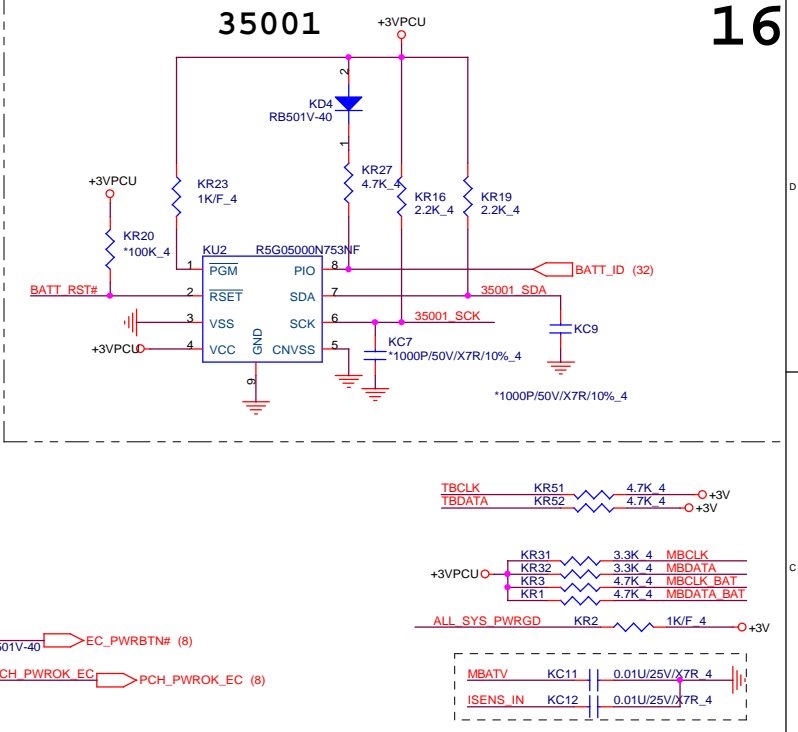
Since ECSCI is OD, no need for a back-drive protection diode on this signal. But note there is internal PU in chipset at default



Magnetic Lid Switch

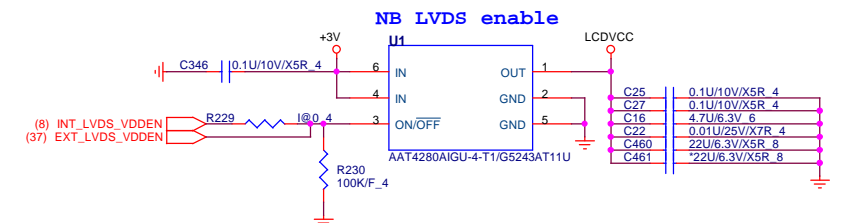
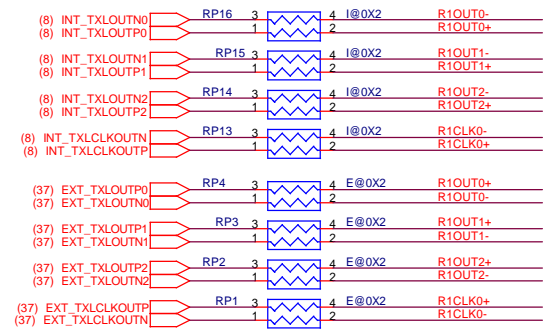
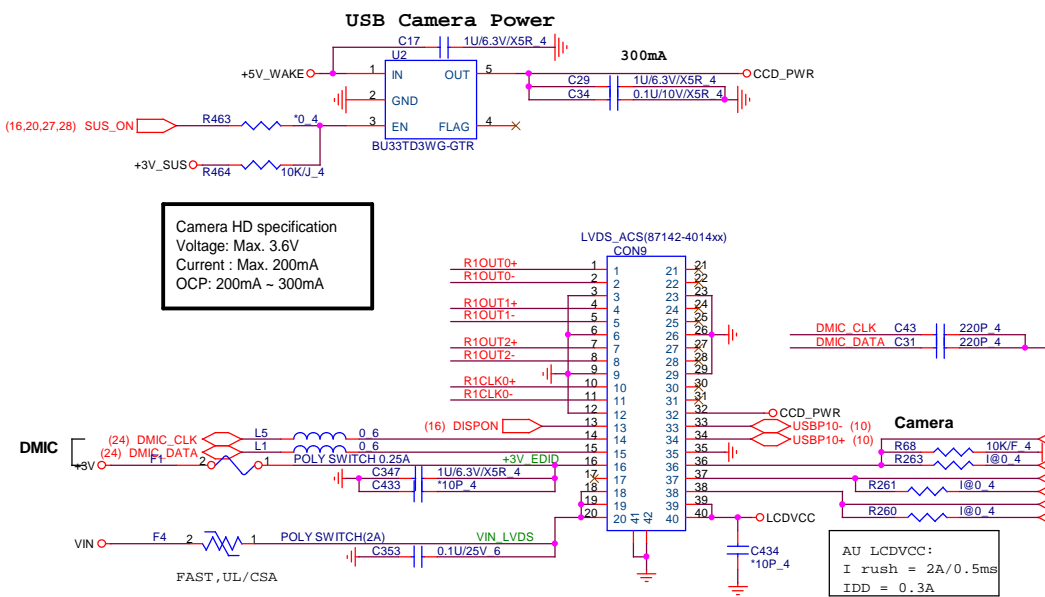
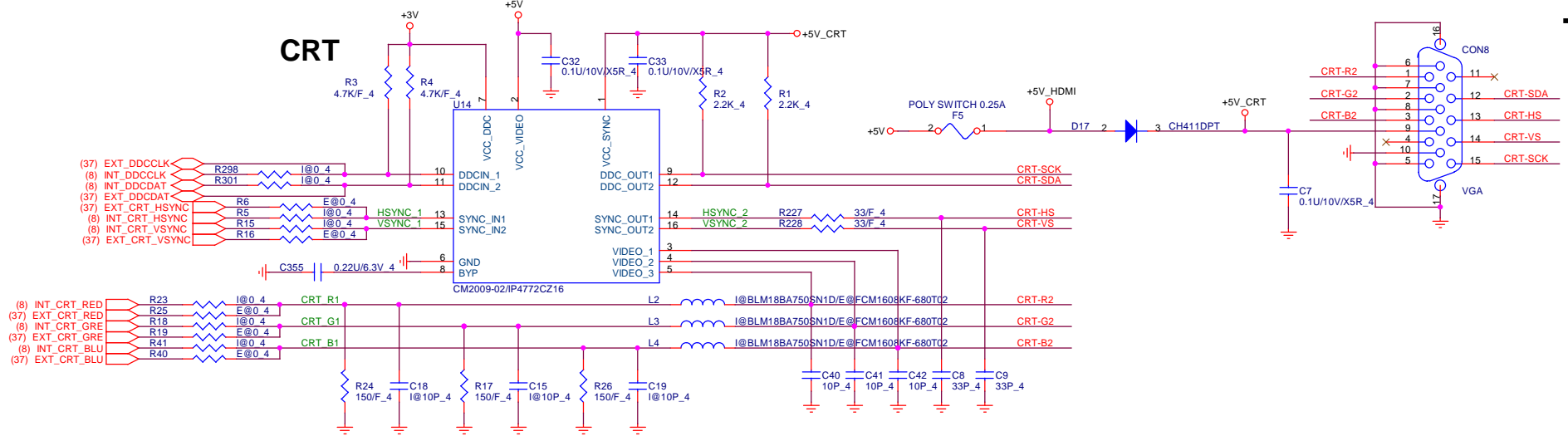
E-CMOS

E-CMOS : AL002618001/EC2618NLB1GR
 PROLIFIC : AL003661003/PT3661-BB
 BCD : AL009249000/AH9249NTR-G1



Quanta Computer Inc.
 PROJECT : Chief River
NPCE885L

Size	Document Number	Rev
		1A

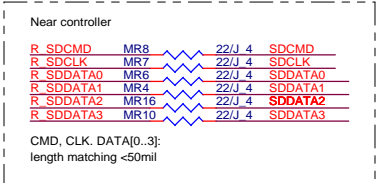
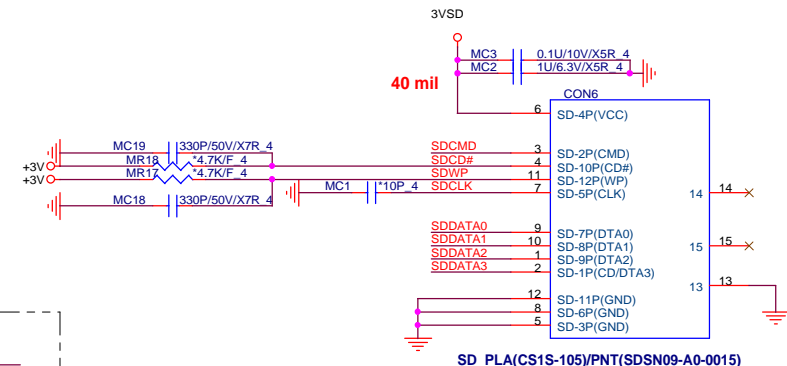
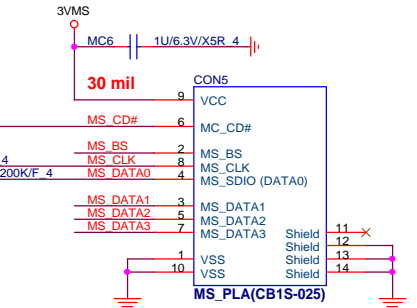
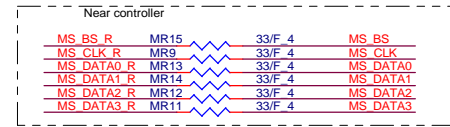
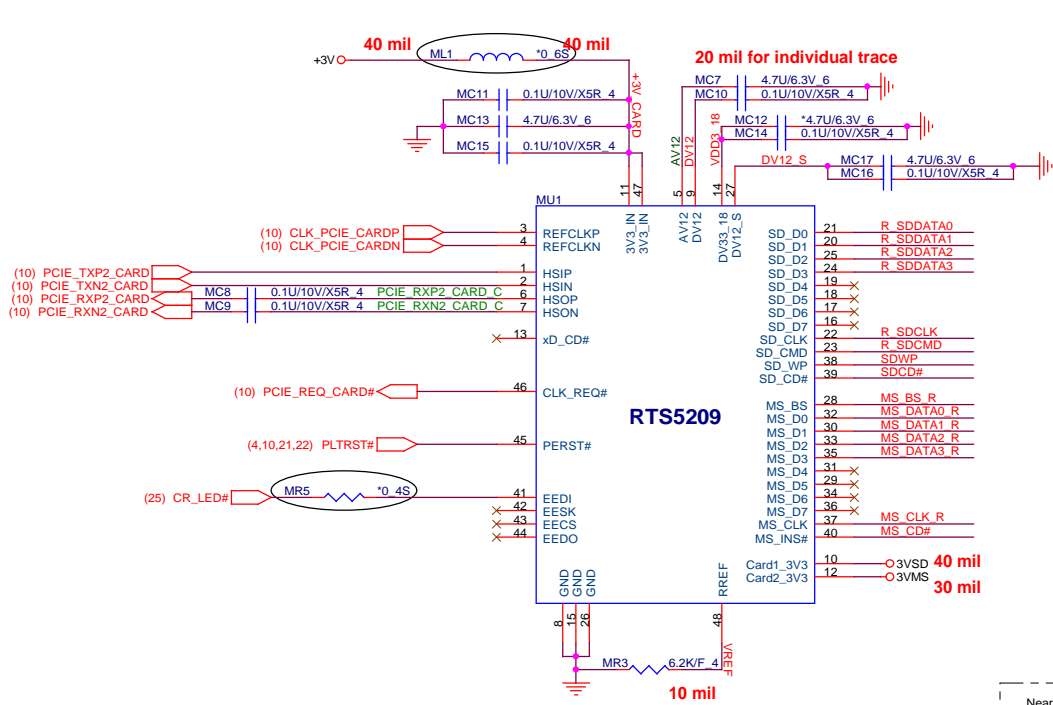


Quanta Computer Inc.
PROJECT :Chief River

Size	Document Number	Rev
	CRT/LVDS	1A

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.

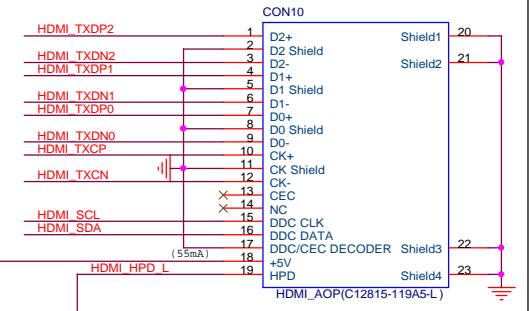
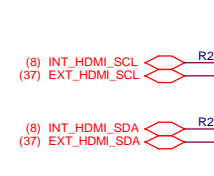
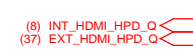
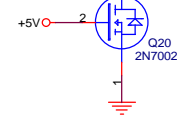
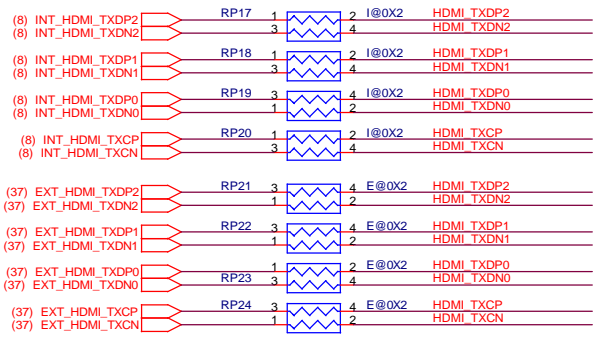
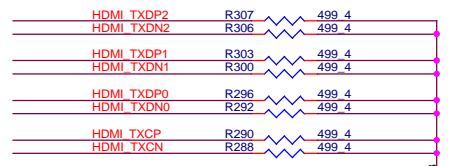
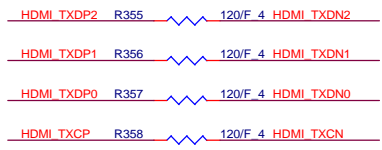


CMD, CLK, DATA[0..3];
length matching <50mil

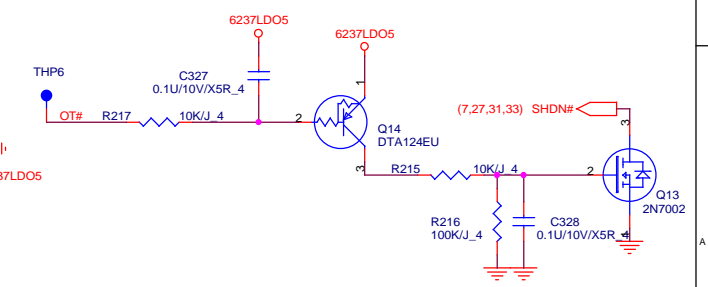
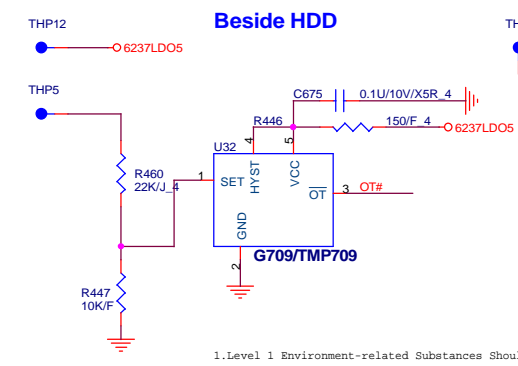
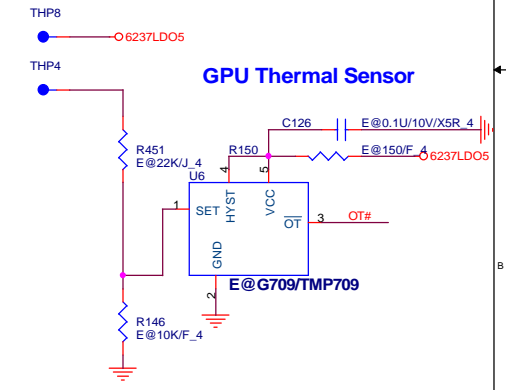
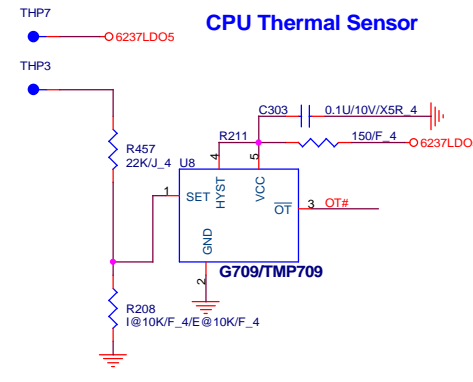
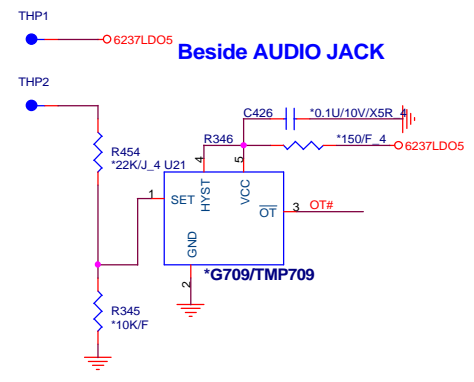
Quanta Computer Inc.
PROJECT : Chief River

Size	Document Number	Date	Sheet	Rev
	CARD	Wednesday, February 01, 2012	18 of 43	1A

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) = 0.0012T2 - 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

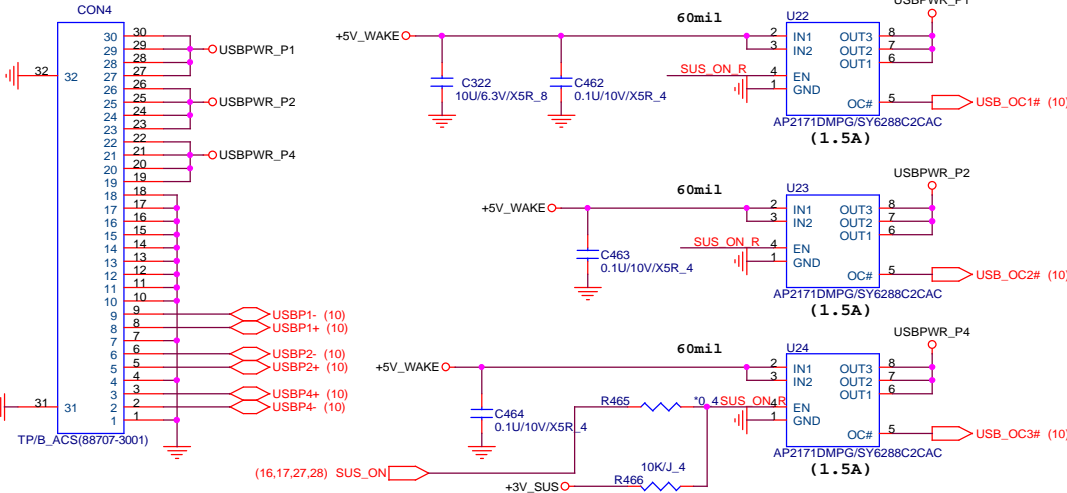
UMA SKU

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

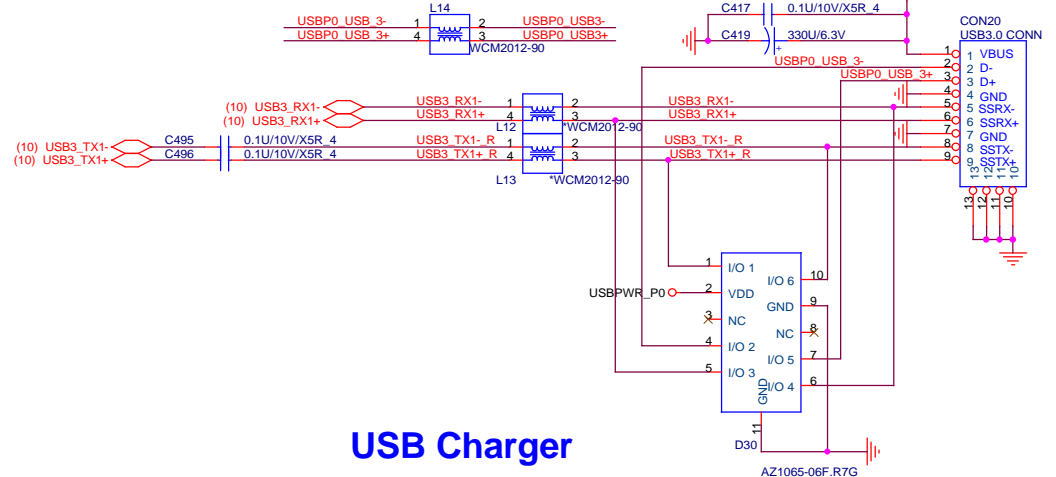
Quanta Computer Inc.
 PROJECT : Chief River
 Size Document Number
HDMI/Thermal IC
 Date: Friday, February 03, 2012 Sheet 19 of 43
 Rev 1A

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

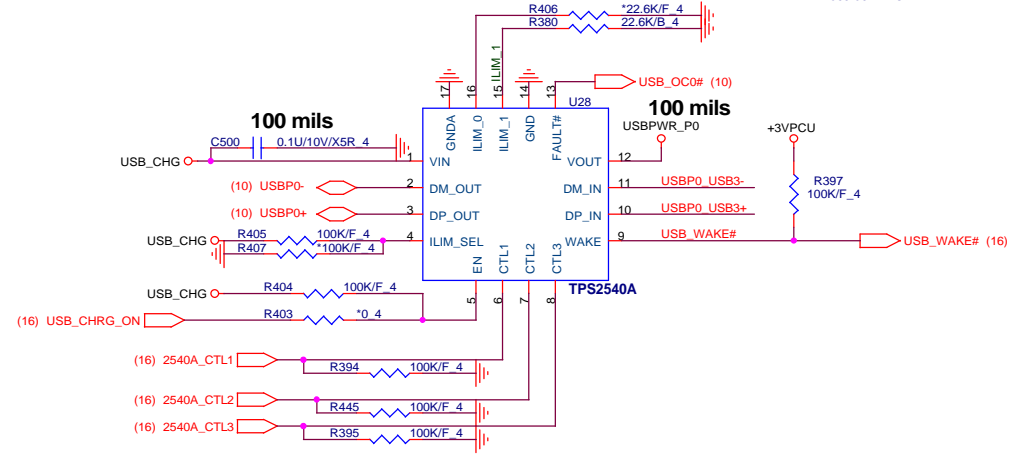
MB to USB board



USB 3.0 PORT0



USB Charger



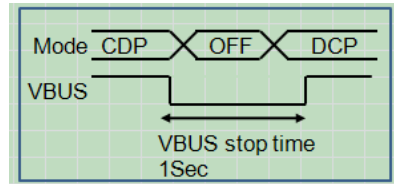
System State	USB Battery Charging Setting	
	Disable	Enable
S0	SDP	CDP
S3	SDP	DCP
Deep Standby	SDP (VBUS OFF)	DCP
S4	SDP (VBUS OFF)	DCP
S5	SDP (VBUS OFF)	DCP

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.



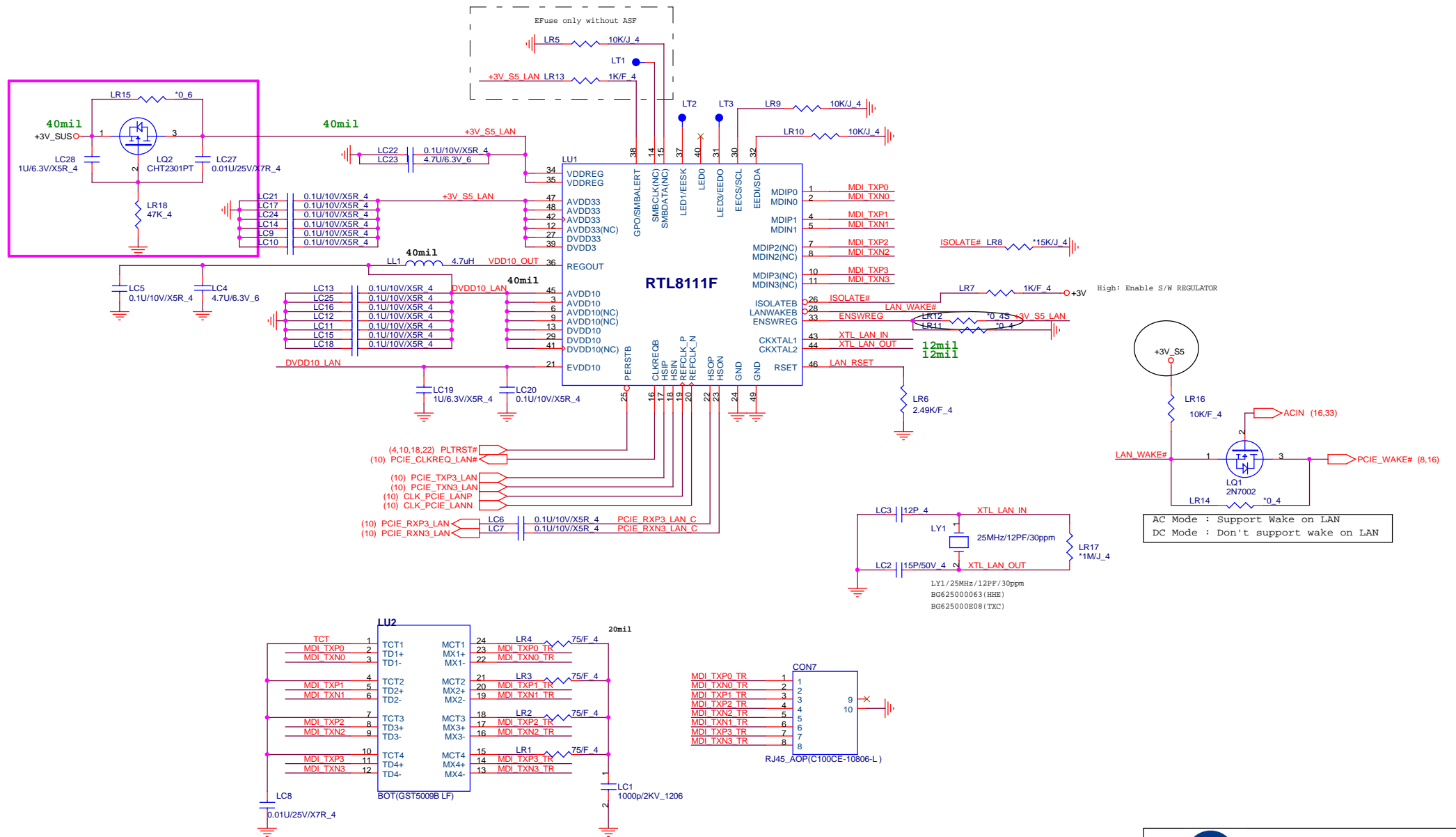
USB WAKE	
1	No device plug(LDO)
0	Device plug(Switch Power)

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

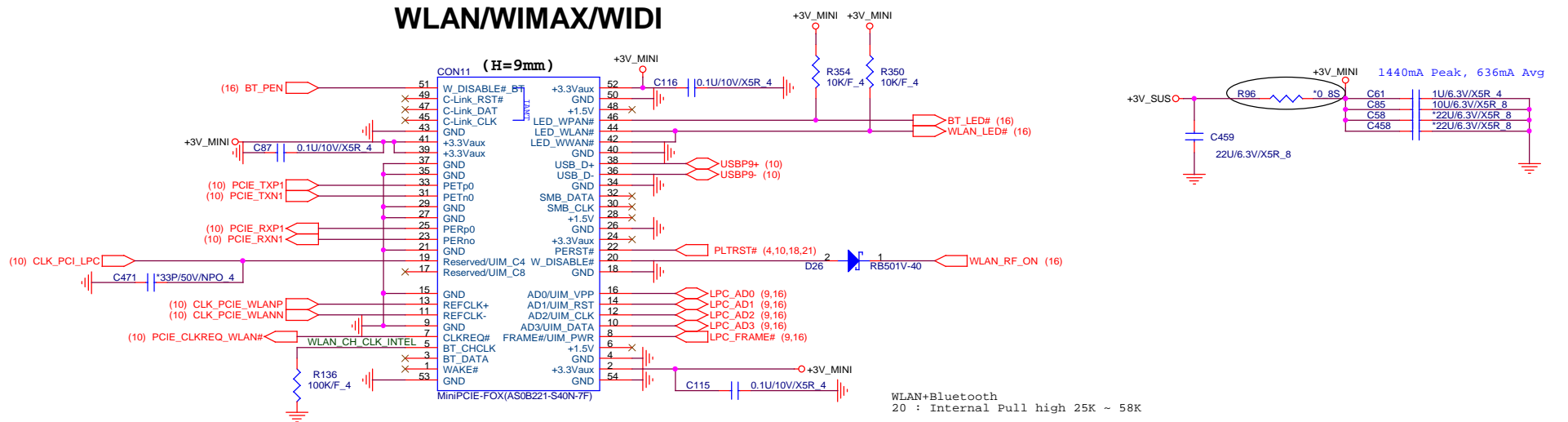
1. Level 1 Environment-related Substances Should Never be Used.
 2. Recycled Resin and Coated Wire should be procured from Green Partners.



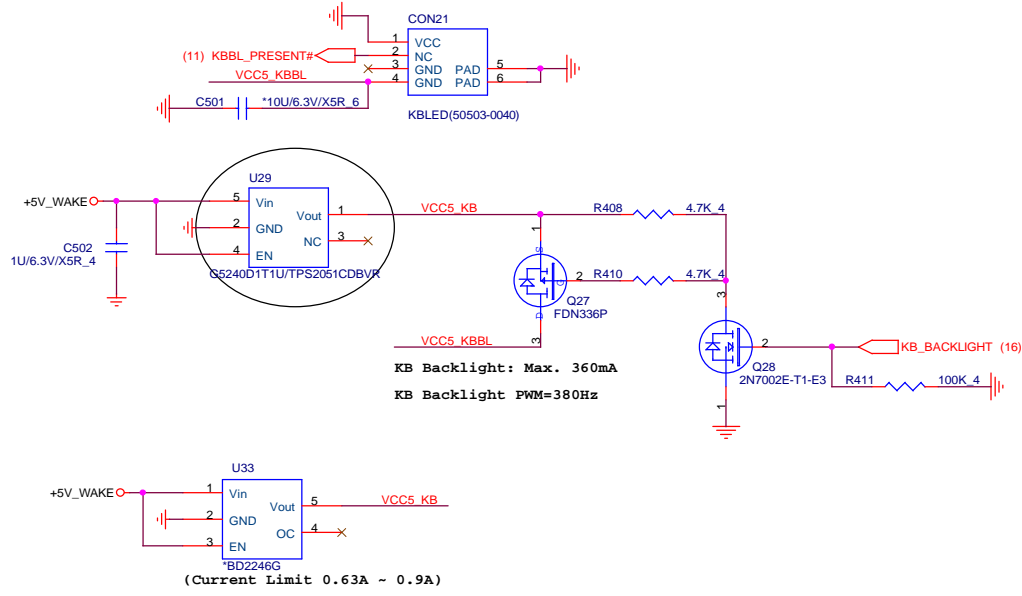
Quanta Computer Inc.
PROJECT : Chief River

Size	Document Number	Rev 1A
LAN RTL8111E		

WLAN/WIMAX/WIDI

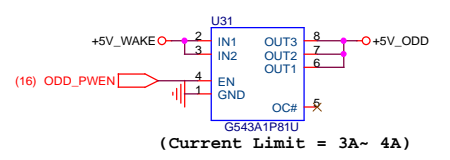
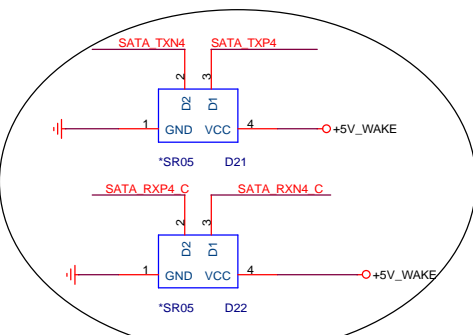
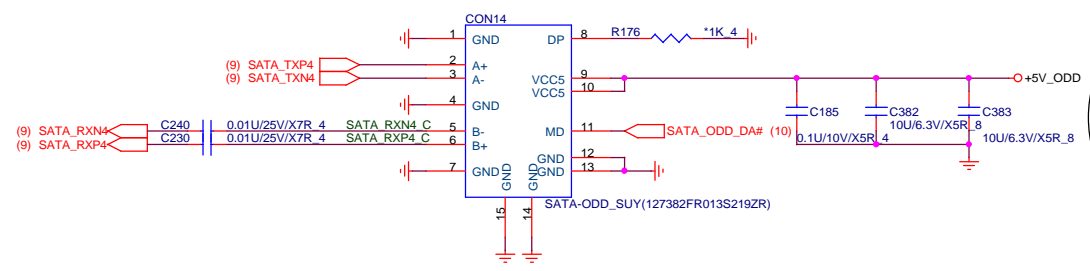


KB BACKLIGHT



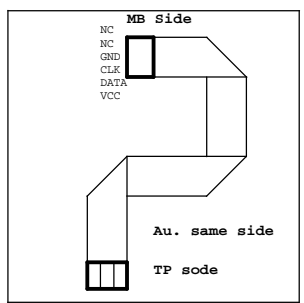
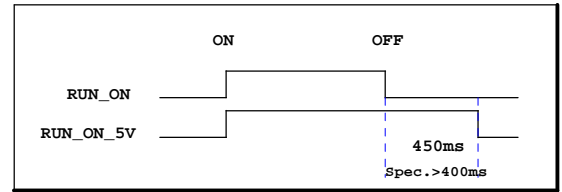
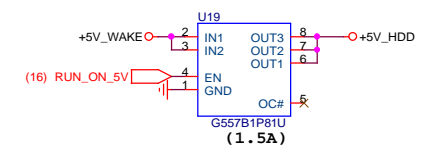
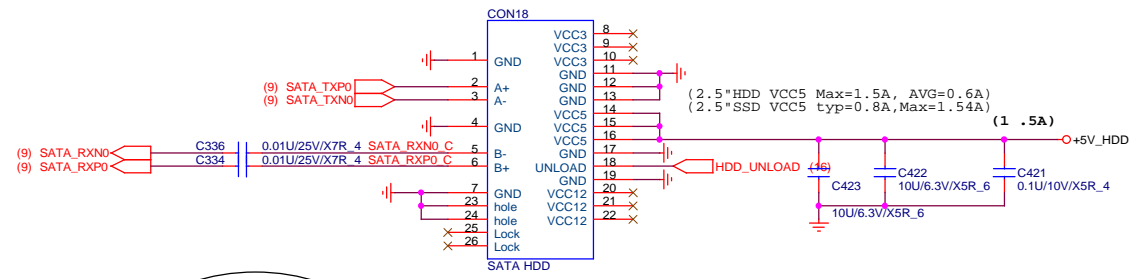
1. Level 1 Environment-related Substances Should Never be Used.
 2. Recycled Resin and Coated Wire should be procured from Green Partners.

ODD CONNECTOR

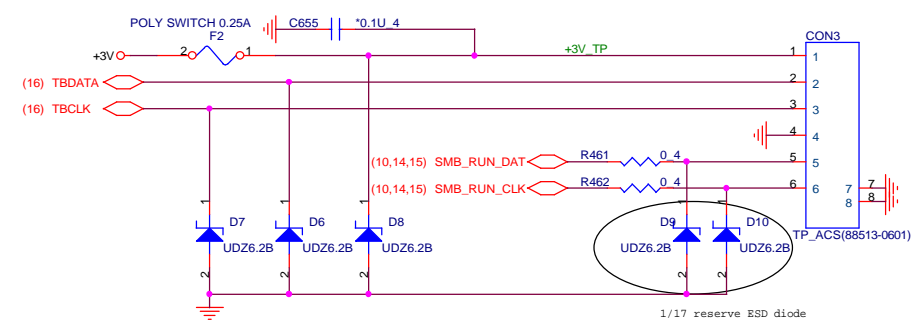


0130-- change ODD ESD diode form Rclamp0502n to SR05

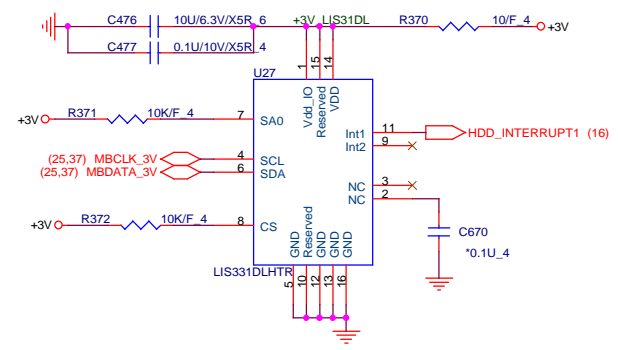
HDD CONNECTOR



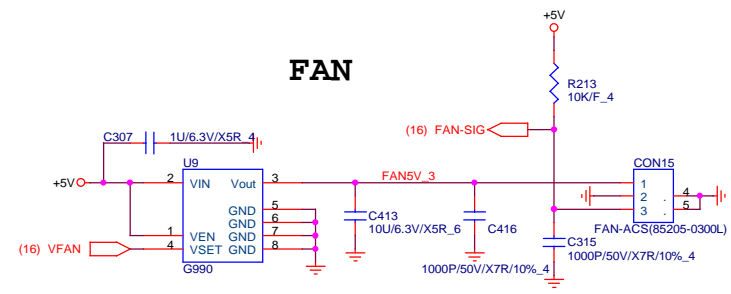
T/P Board to T/P



HDD PROTECT



FAN



Quanta Computer Inc.
PROJECT : Chief River

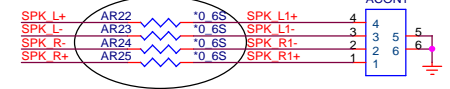
Size	Document Number	Rev
	HDD/ODD/TP/FAN	1A

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

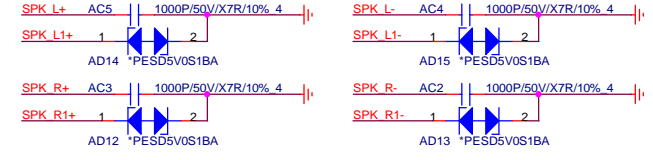
Date: Thursday, February 02, 2012 Sheet 23 of 43

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

SPEAKER CON.

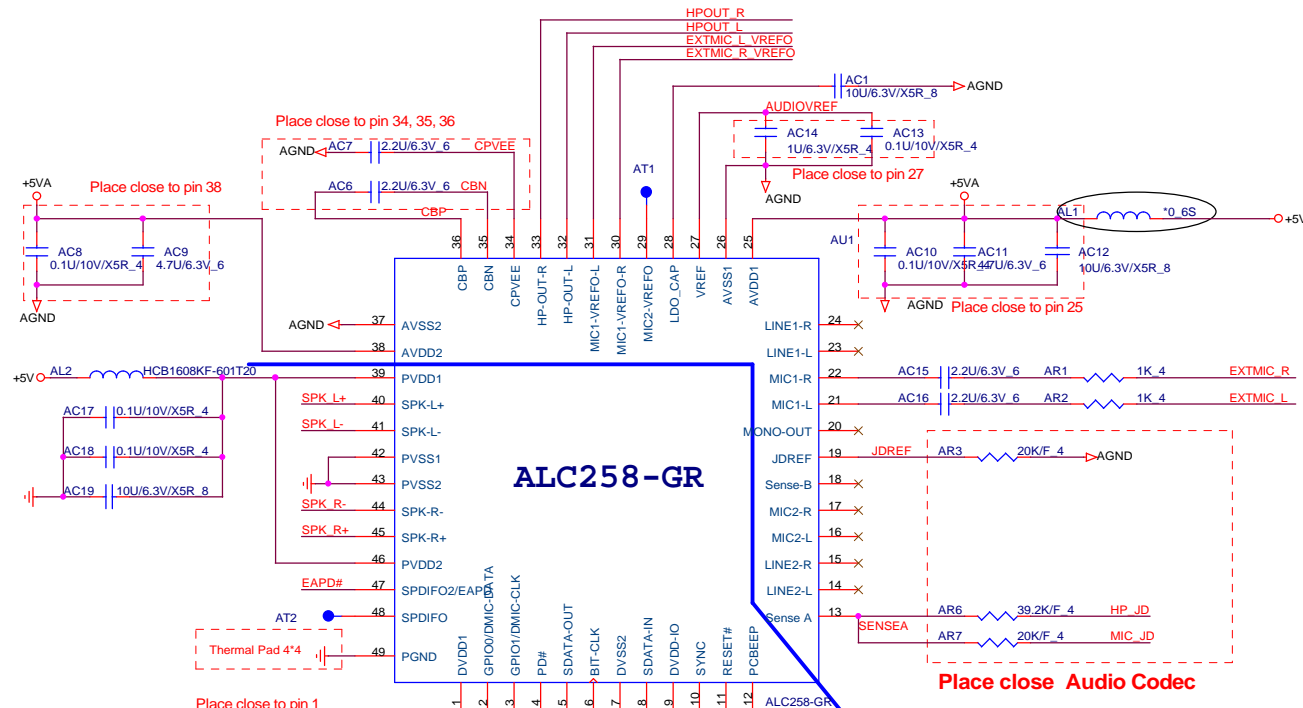
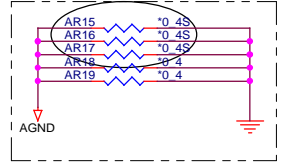


Speaker((85205-0400L))



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

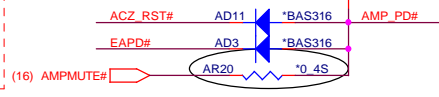
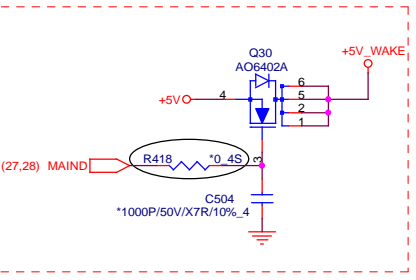
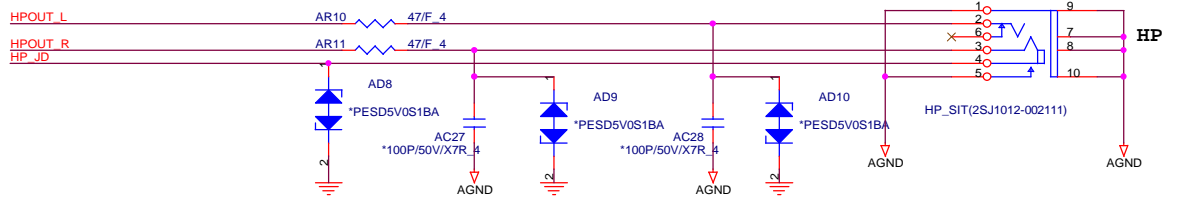
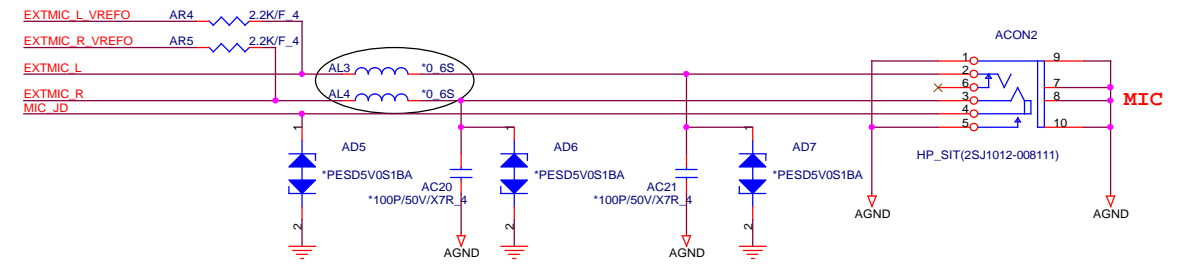
For EMI



Place close Audio Codec

Analog

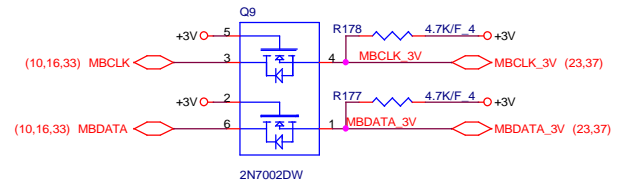
Digital



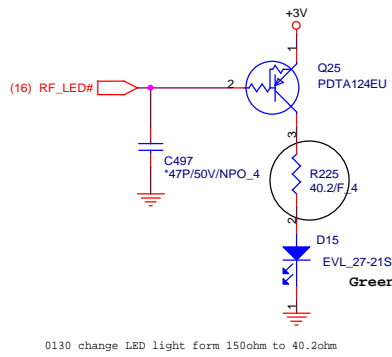
Quanta Computer Inc.
PROJECT : Chief River

Size	Document Number	Rev
	Audio Codec CX20671	1A
Date:	Wednesday, February 01, 2012	Sheet 24 of 43

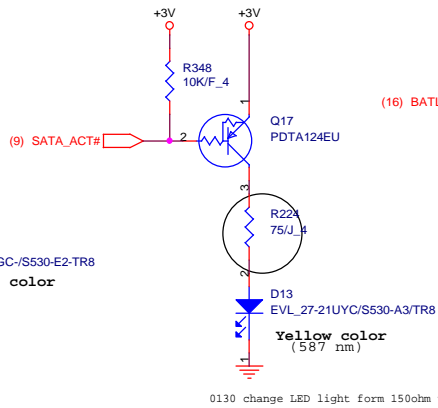
1.Level 1 Environment-related Substances Should Never be Used.
2.Recycled Resin and Coated Wire should be procured from Green Partners.



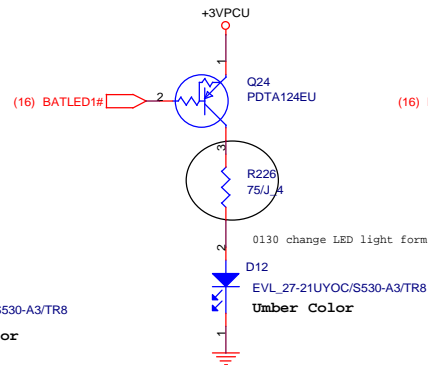
RF LED



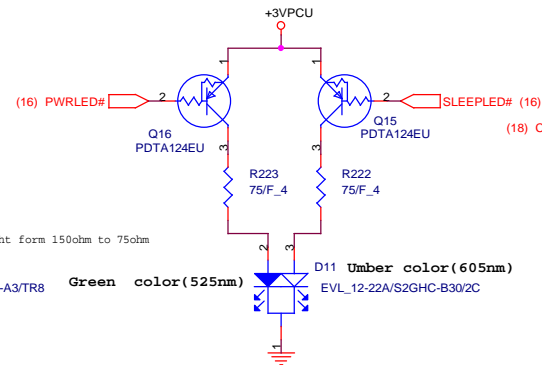
SATA LED



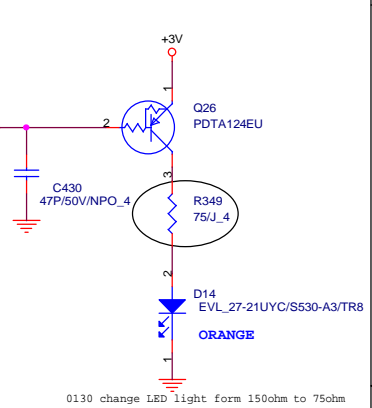
BATTERY LED



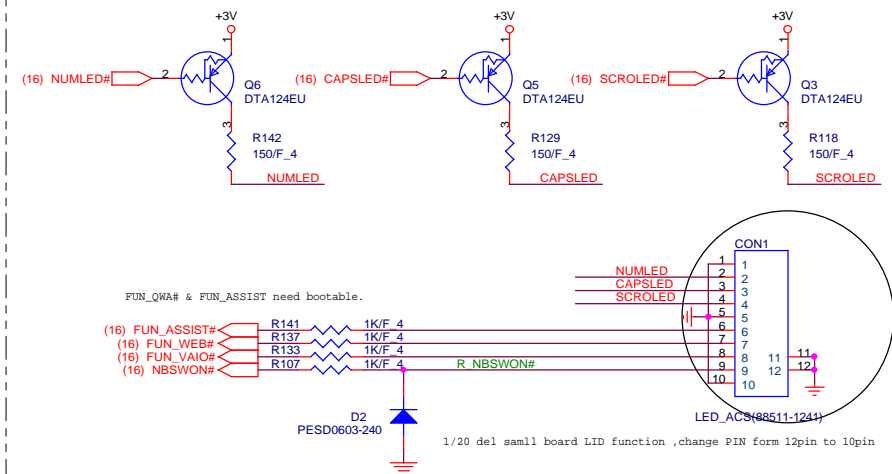
Power/Sleep LED



CARD LED



Power SW Board Connector

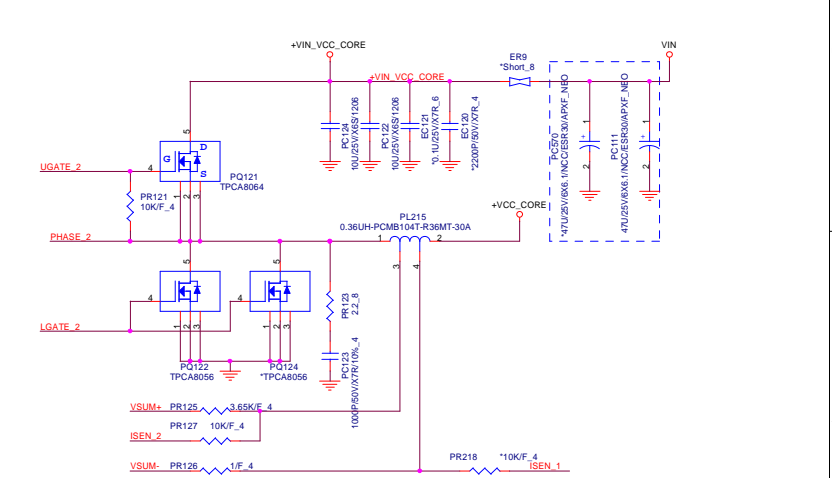
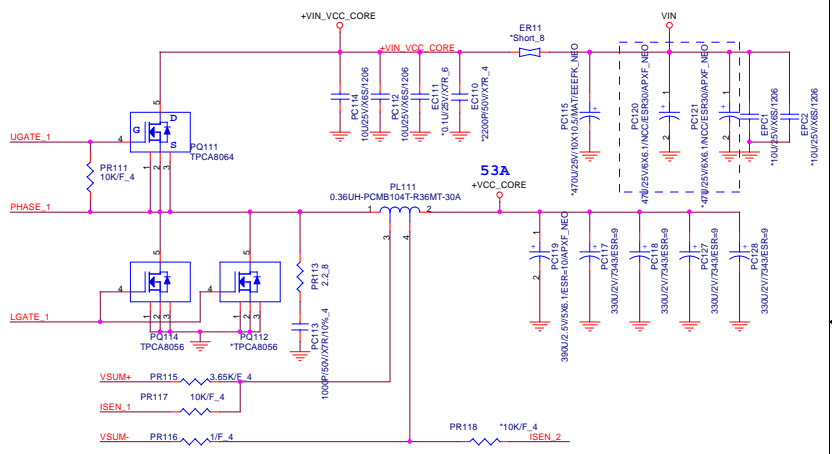
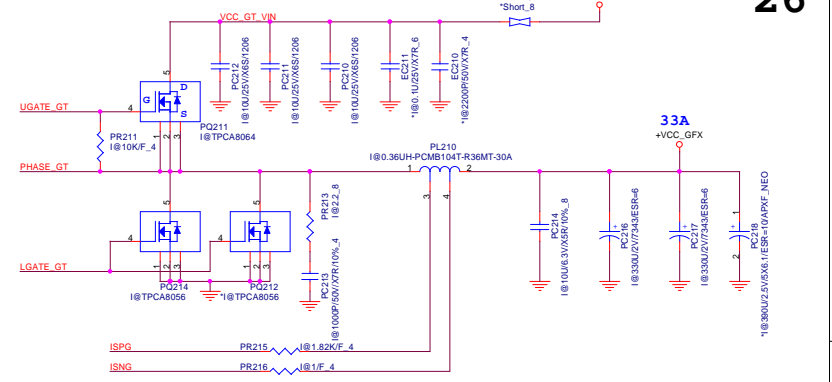
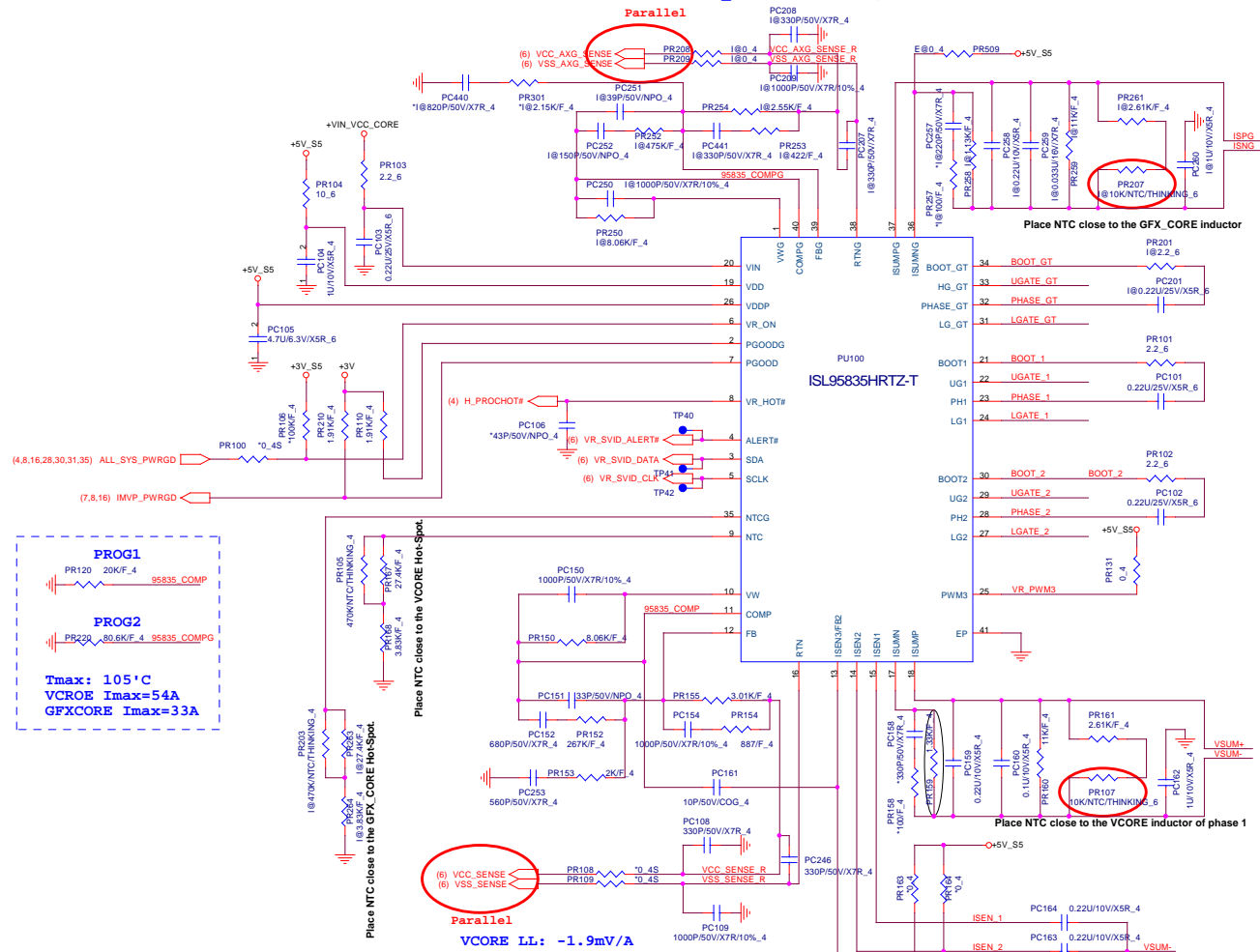


Quanta Computer Inc.
PROJECT : Chief River

Size	Document Number	Rev
	LED/RF/KB/PS	1A
Date:	Wednesday, February 01, 2012	Sheet 25 of 43

1. Level 1 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

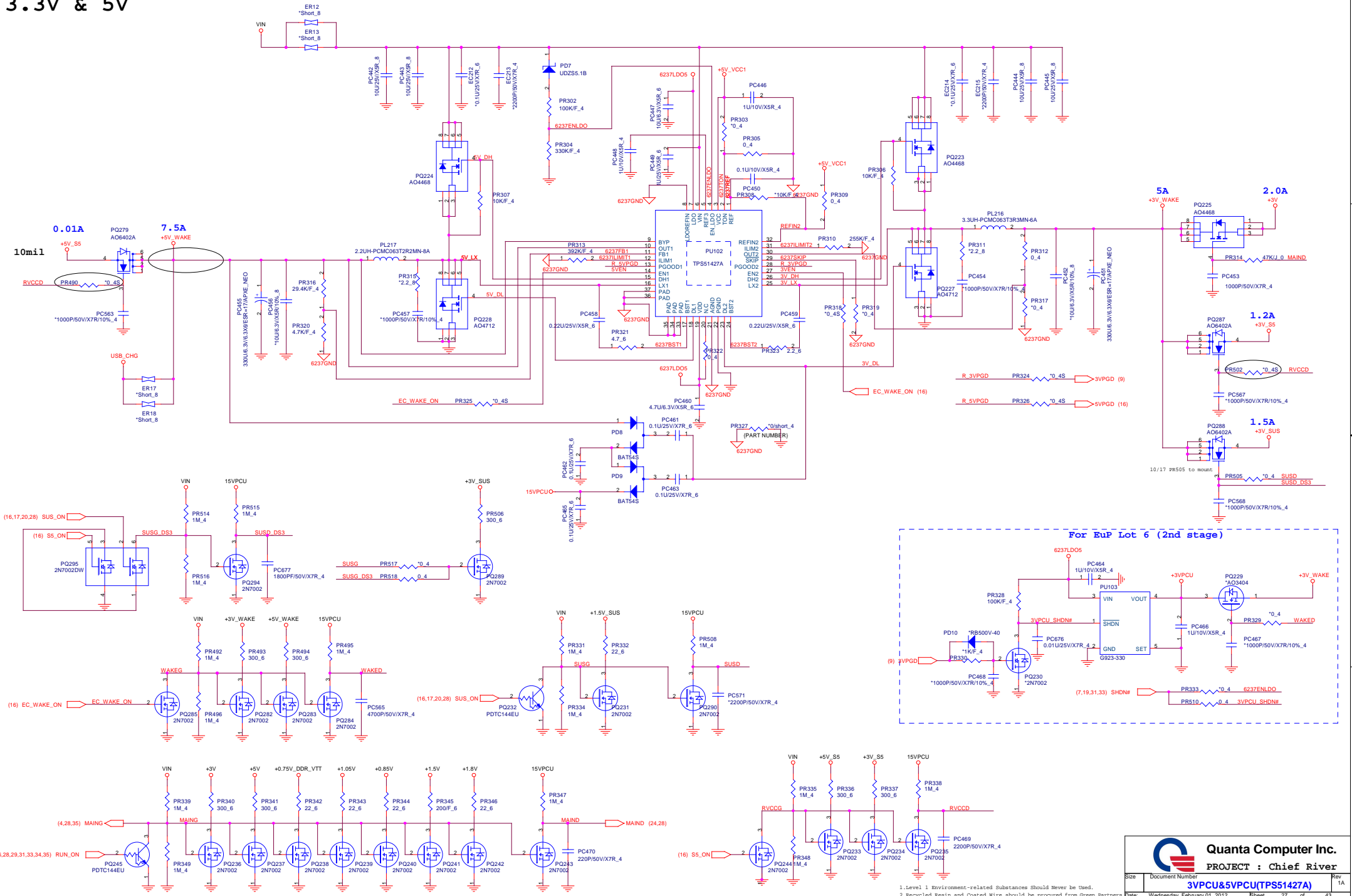


PROG1
PR120 20K/F_4 95835_COMP

PROG2
PR231 80.6K/F_4 95835_COMP

Tmax: 105°C
VCORE Imax=54A
GFXCORE Imax=33A

3.3V & 5V

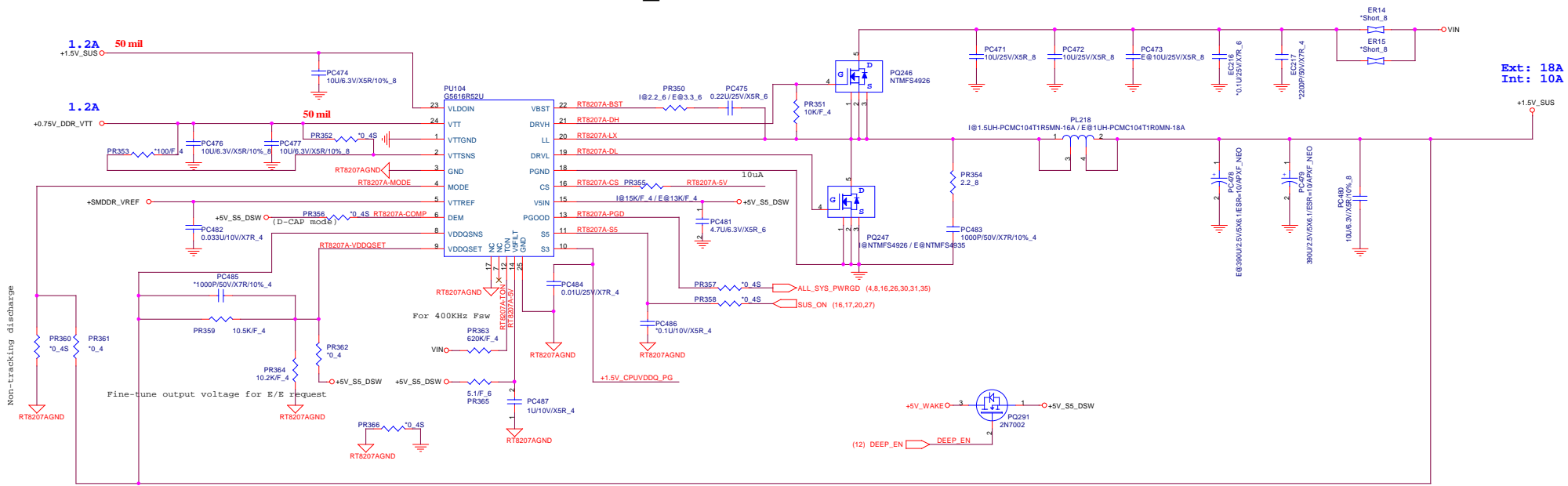


Quanta Computer Inc.
PROJECT : Chief River

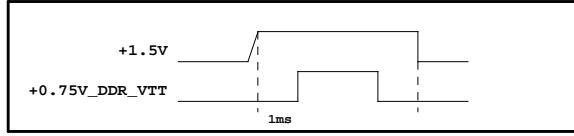
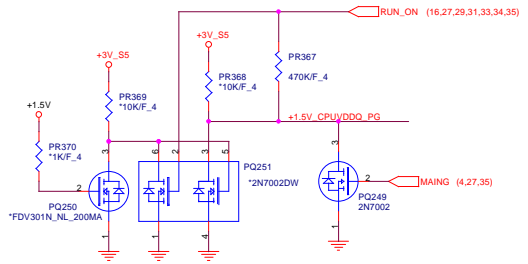
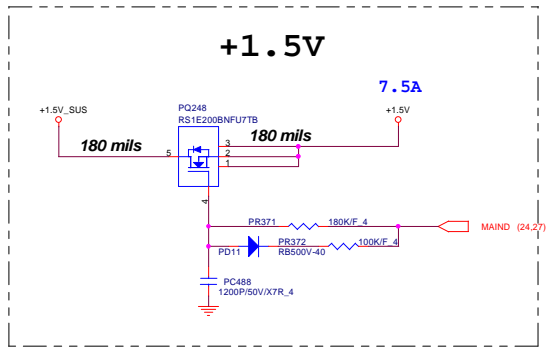
Size	Document Number	3VPCU&5VPCU(TPS51427A)	Rev
			1A

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 27 of 43

1.5VSUS & VTT_MEM



Ext: 18A
Int: 10A




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

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

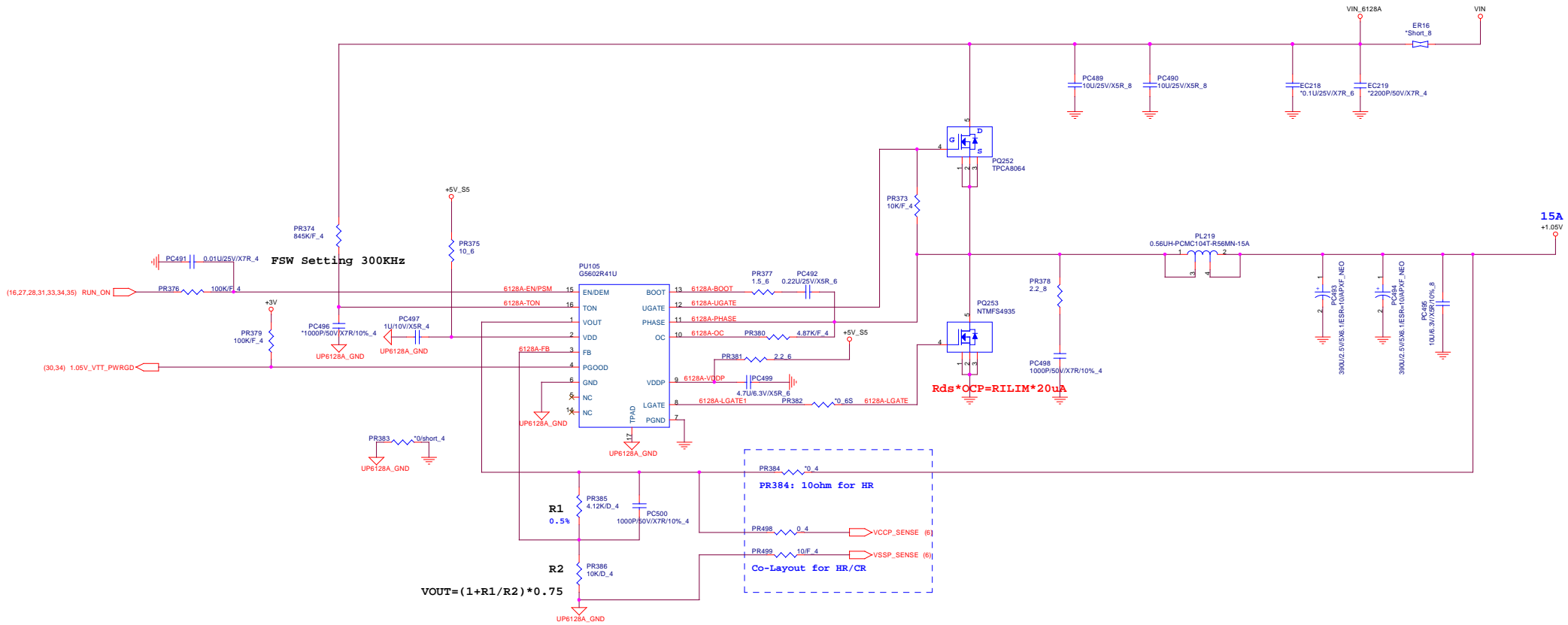
VTT = VTTREF = VDDQSN/2 = 0.75V

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

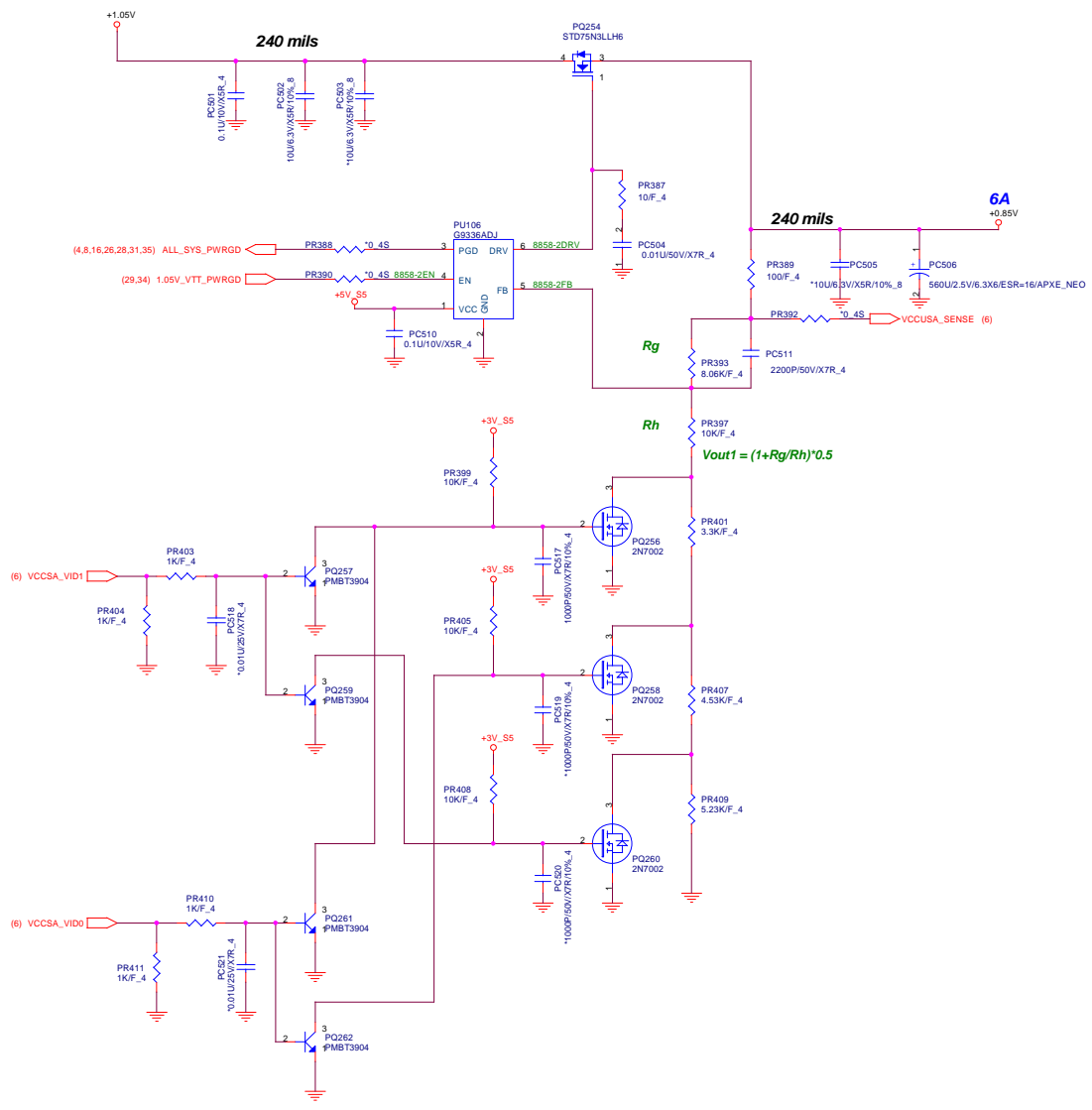
Size Document Number
1.5VSUSVTT_MEM
 Date: Wednesday, February 01, 2012 Sheet 28 of 43 Rev 1A

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




VCCSA

VCCIO



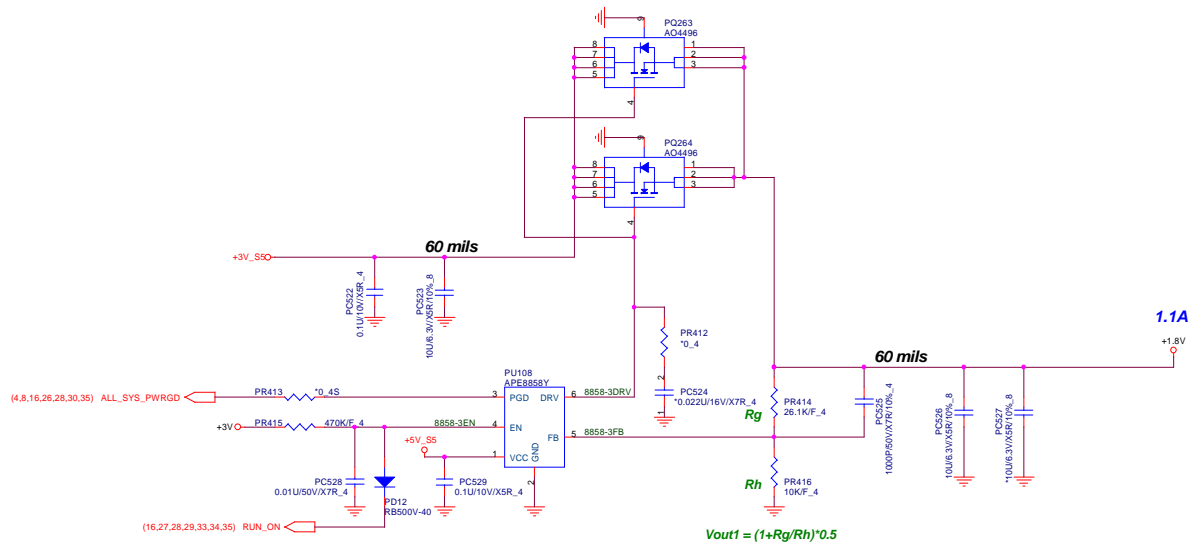
$V_{out1} = (1 + R_g/R_h) * 0.5$

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

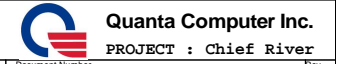
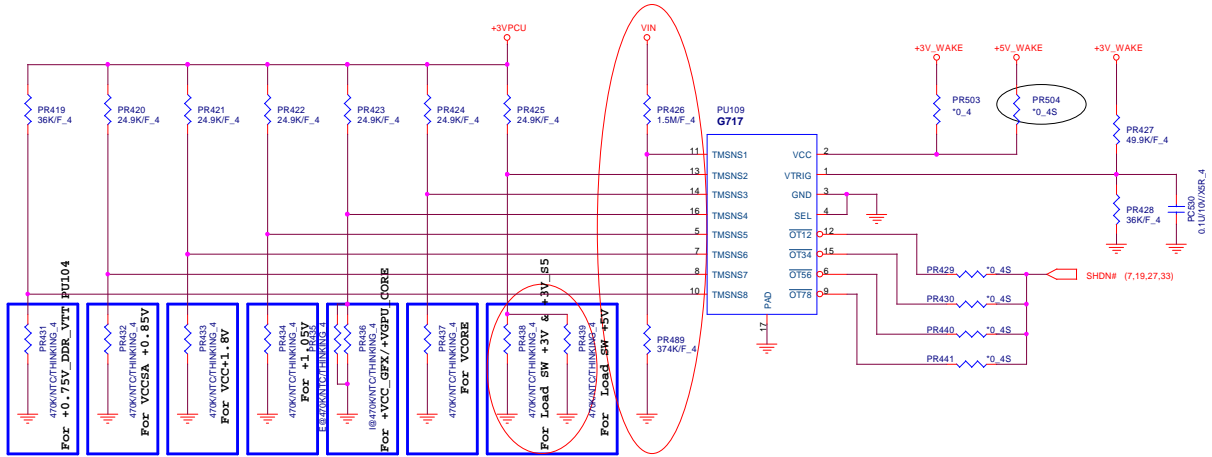
1. Level 1 Environment-related Substances should Never be Used.
 2. Recycled Resin and Coated Wire should be procured from Green Partners.

VCC1.8

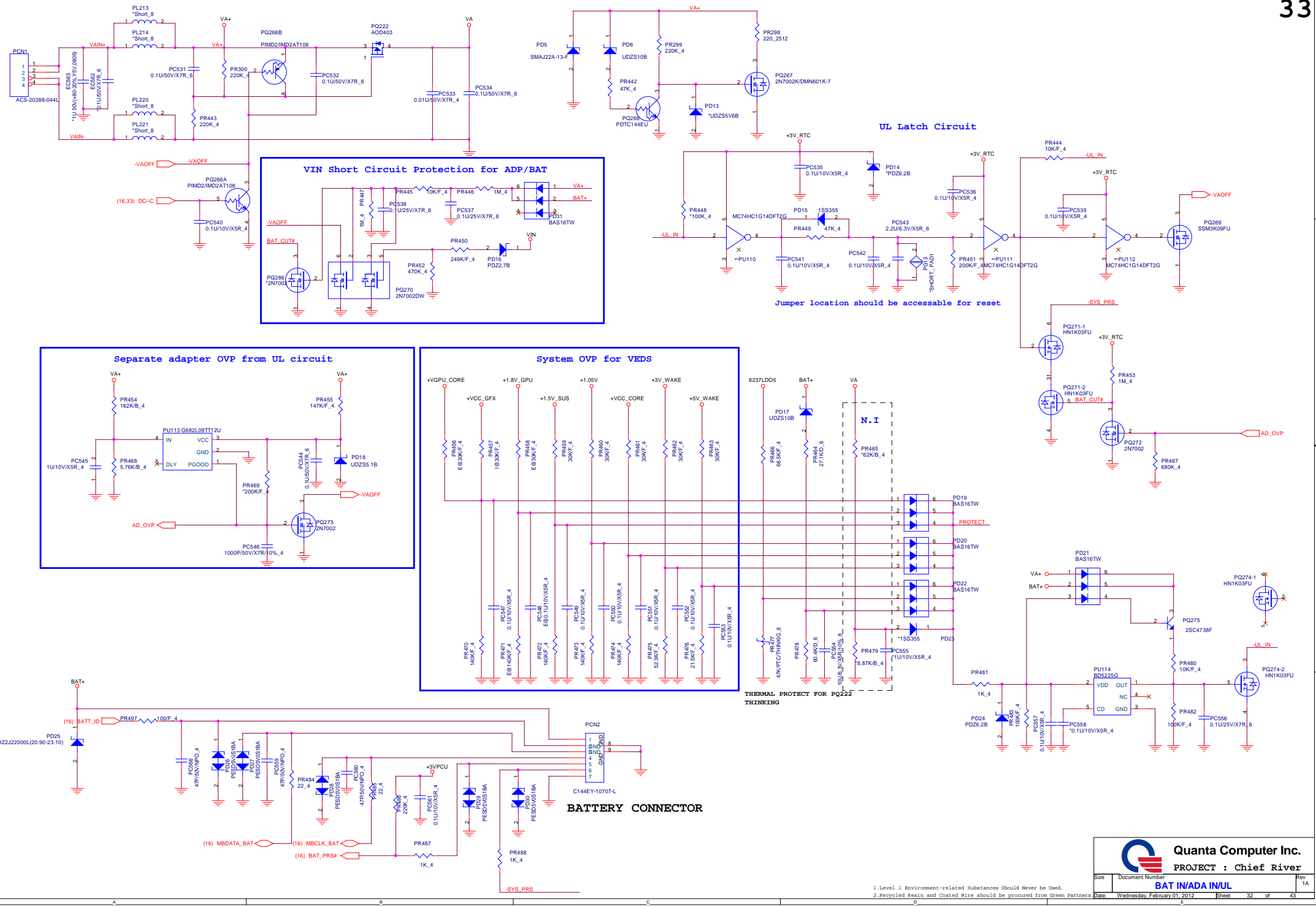


Thermal Protection and Battery UVP for VEDS

For DVT 111115



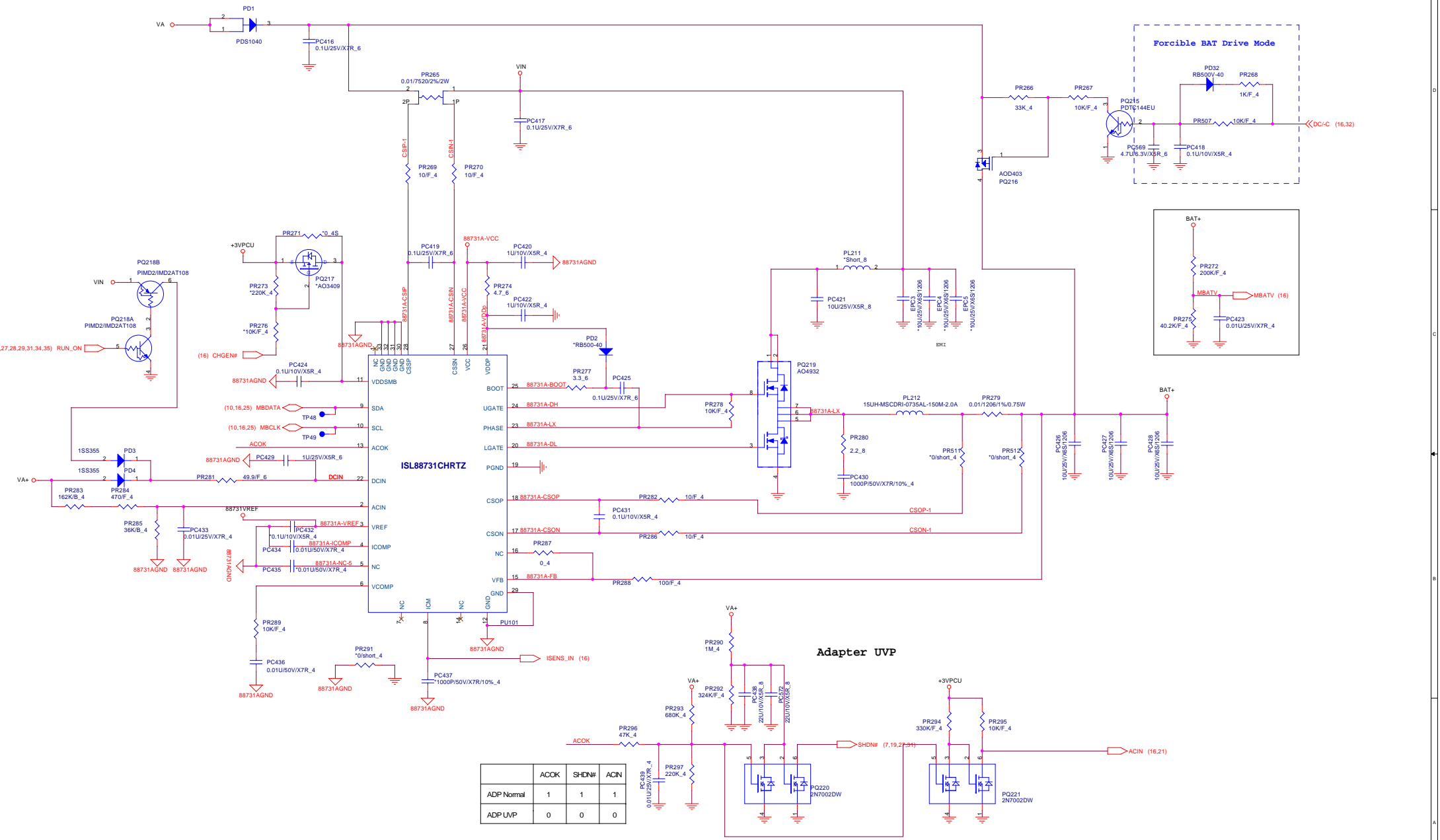
Size	Document Number	Rev
	VCC1.8	1A



Quanta Computer Inc.
PROJECT : Chief River

Size	Document Number	Rev
	BAT INADA INUL	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

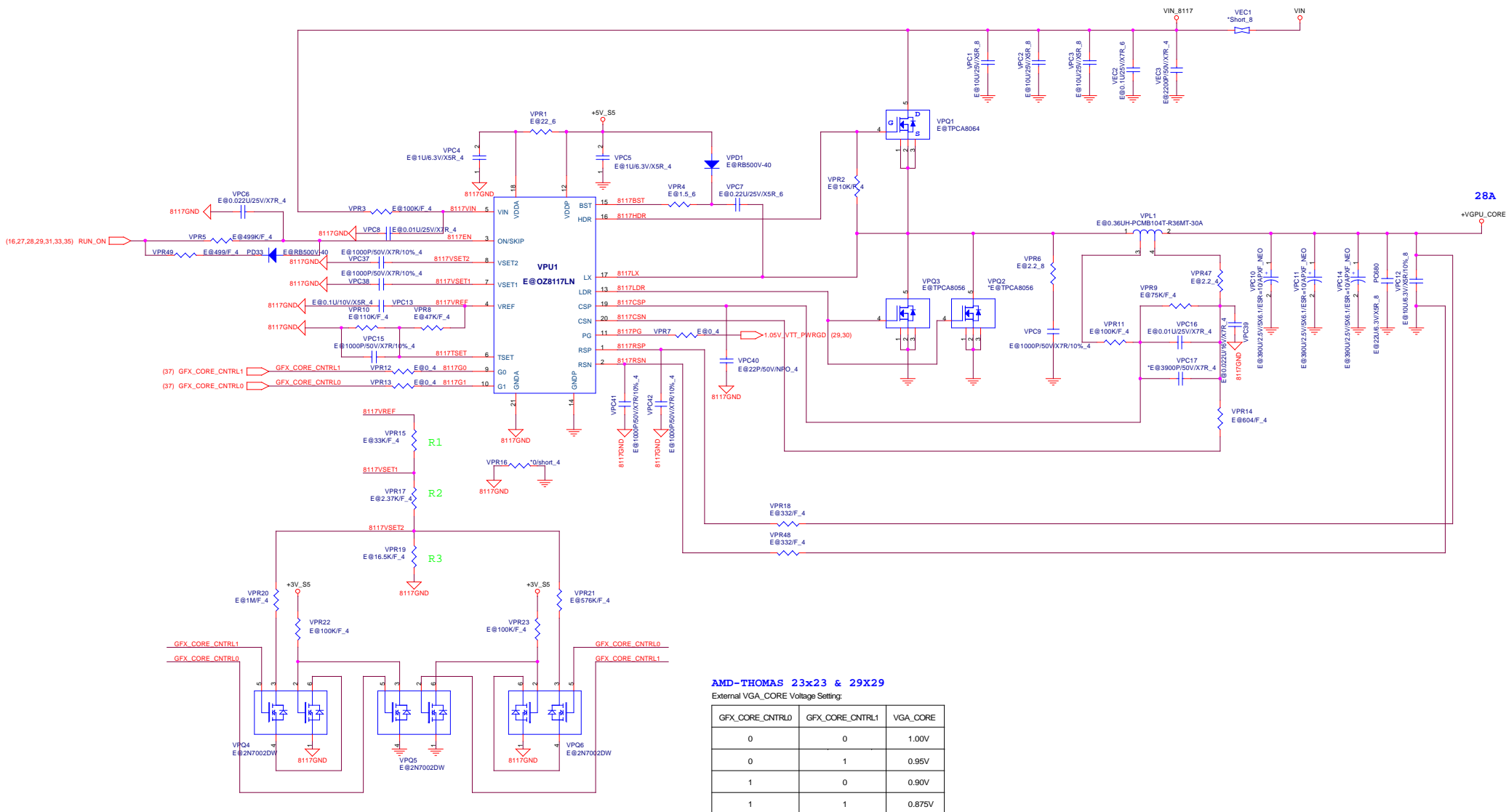


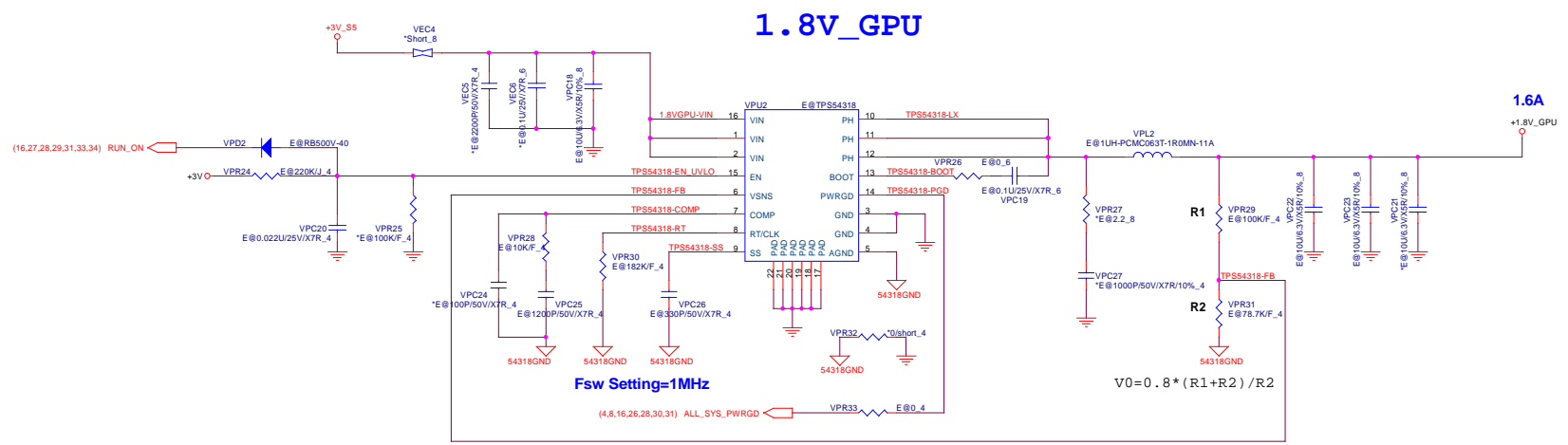
	ACOK	SHDN#	ACIN
ADP Normal	1	1	1
ADP UVP	0	0	0

Quanta Computer Inc.
PROJECT : Chief River
CHARGER(ISL88731C)

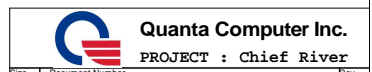
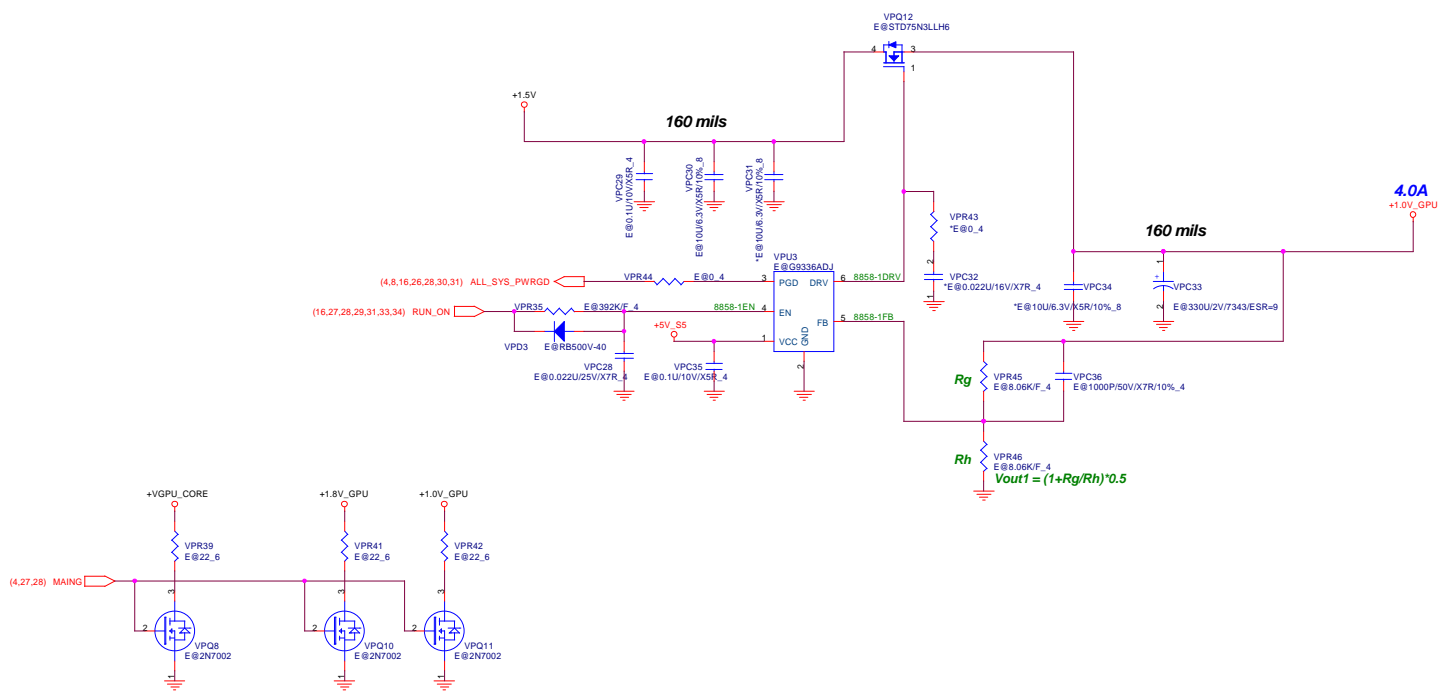
Size	Document Number	Rev
		1A

1. Level 1 Environment-related Substances Should Never be Used.
 2. Recycled Resin and Coated Wire should be procured from Green Partners. Date: Wednesday, February 01, 2012 Sheet 33 of 43

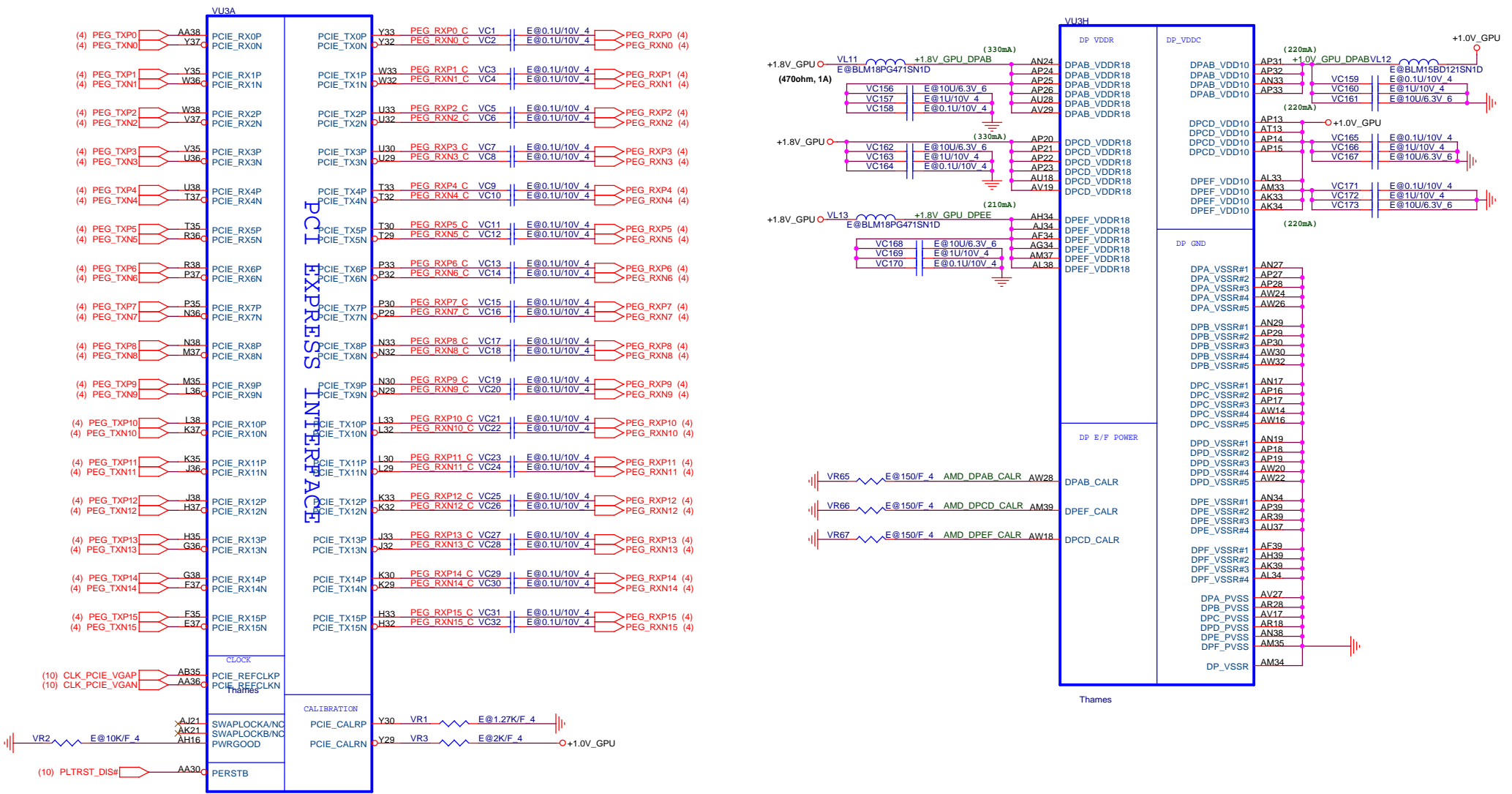




+1.0V_GPU (Support VRAM 900MHz)




Size	Document Number	Rev
	1.8_GPU / 1.0_GPU	1A



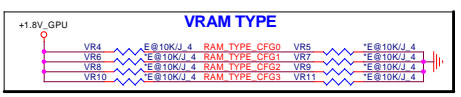
Thames necessary Power-on sequence
All power rails reach nominal within 20ms

1 => +3V_GPU
 2 => +VDDC_CORE
 3 => +1.0V_GPU
 3 => +1.8V_GPU


Quanta Computer Inc.
 PROJECT : HK5

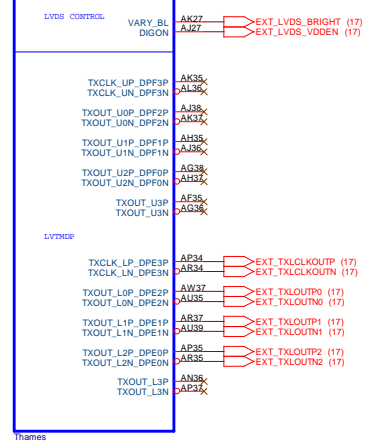
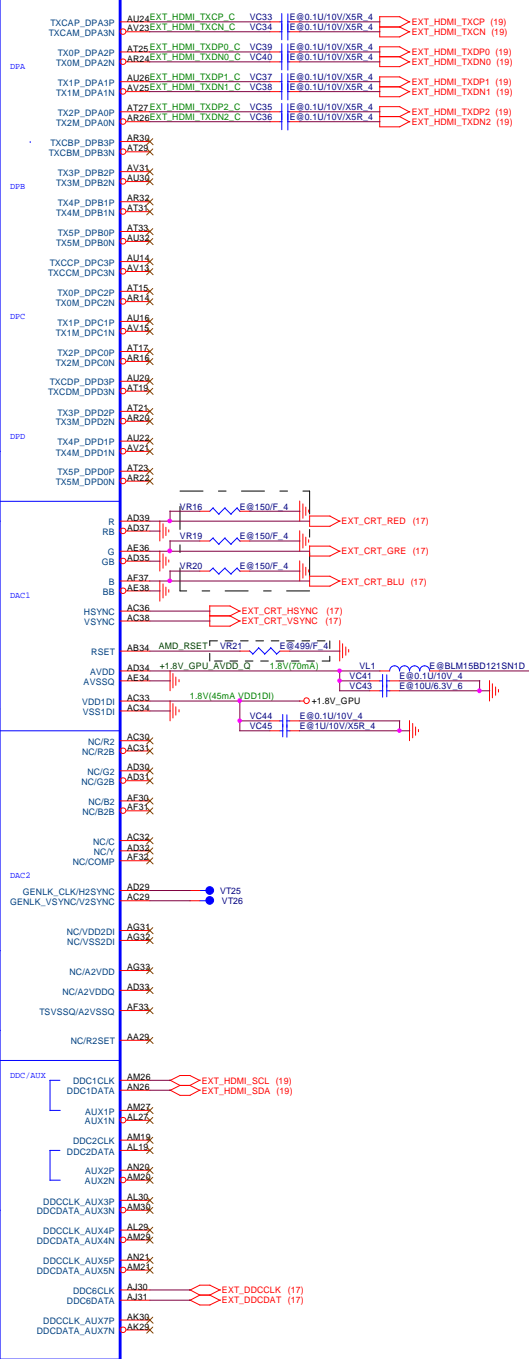
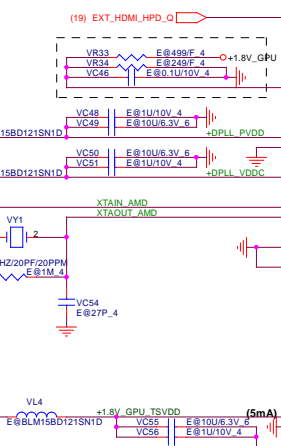
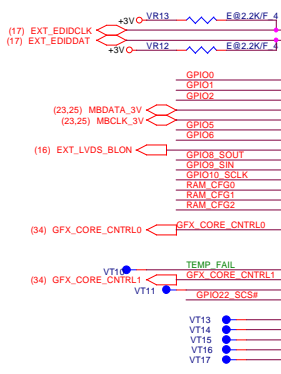
Size	Document Number	Rev
	Thames/PCIE	1A

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 36 of 43

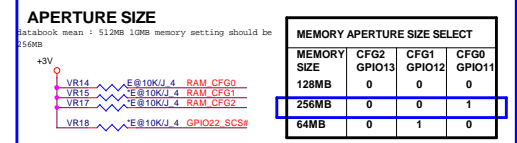


Note : Required Frequency = 900 MHz

Memory Straps	MCLK:900Mhz	RAM TYPE_CFG0	RAM TYPE_CFG1	RAM TYPE_CFG2	RAM TYPE_CFG3
900 MHz 2Gb(128M*16) Hynix_Vega die	H5TQ2G63BFR-11C	0	0	0	0
900 MHz 2Gb(128M*16) Samsung_C die	K4WZG1646C-HC11	0	0	0	1
900 MHz 1Gb(64M*16) Hynix_Vega die	H5TQ1G63DFR-11C	0	0	1	0
900 MHz 1Gb(64M*16) Samsung_G die	K4W1G1646G-BC11	0	0	1	1



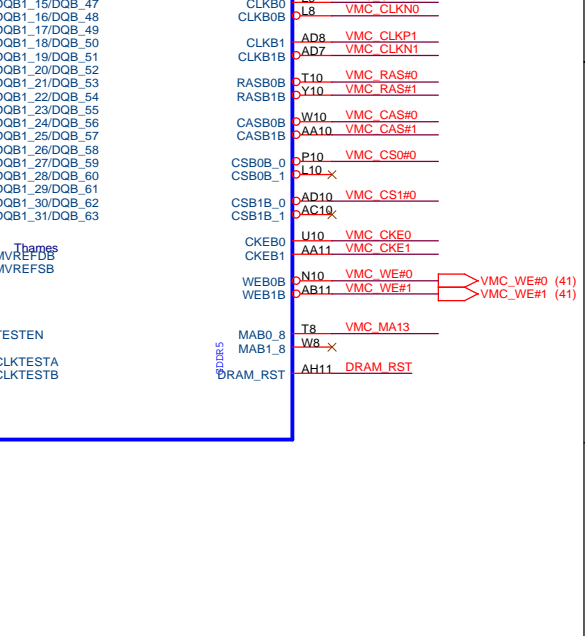
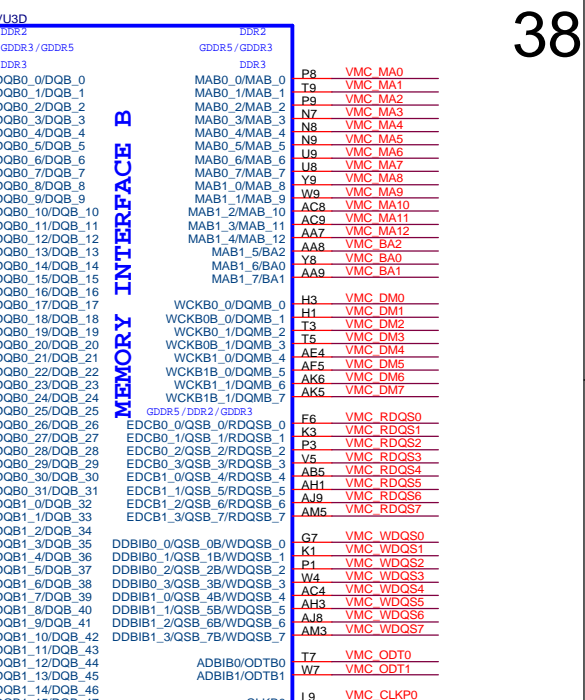
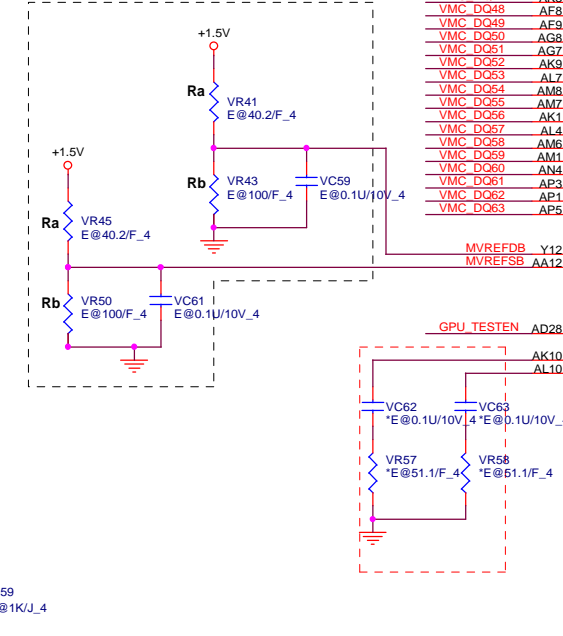
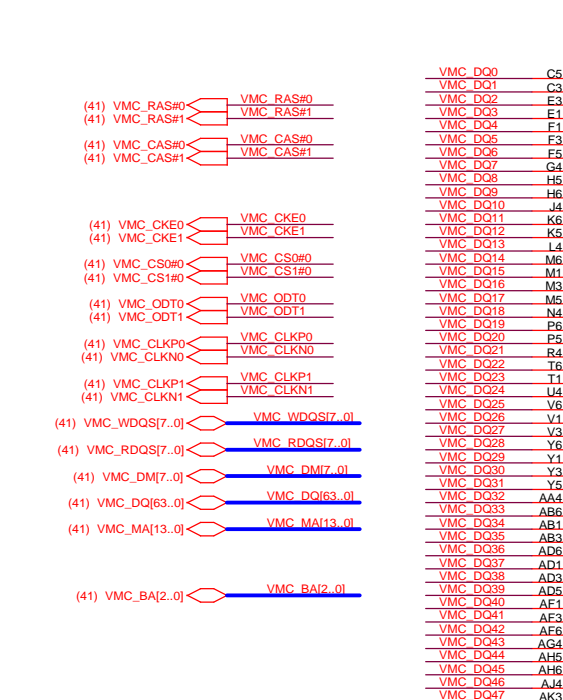
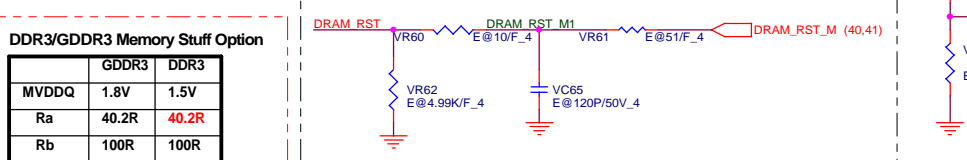
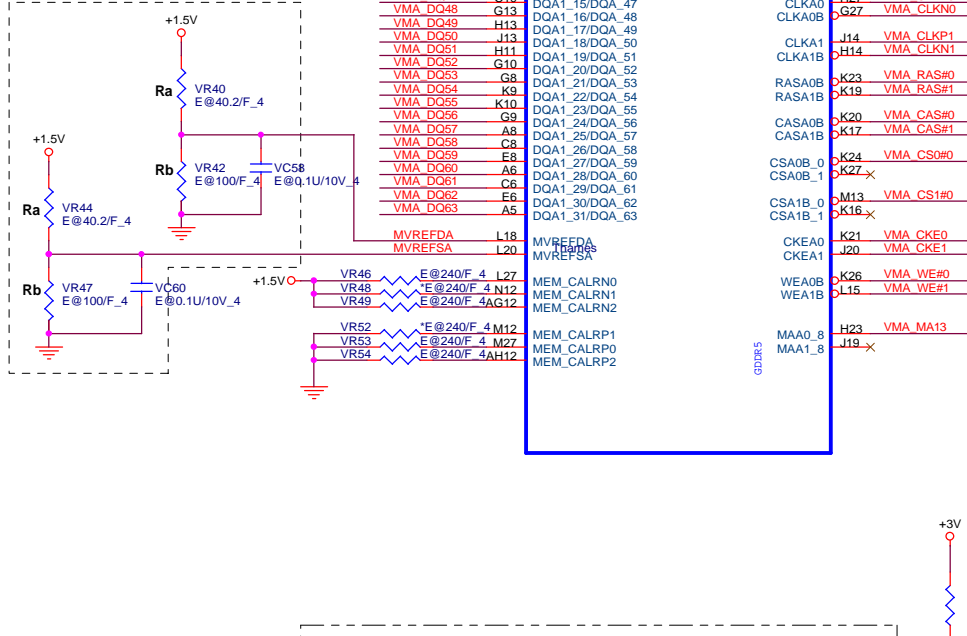
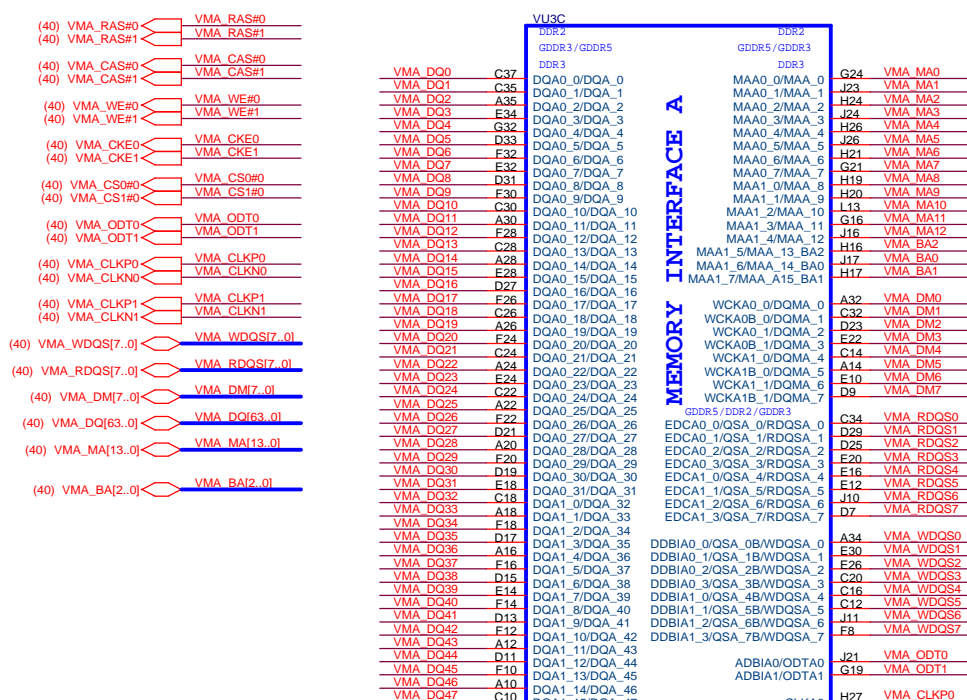
	PWRCNTL0	PWRCNTL1	V-CORE
L	0	0	1.0V
M	0	1	0.95V
H	1	0	0.9V
TBD	1	1	0.875V

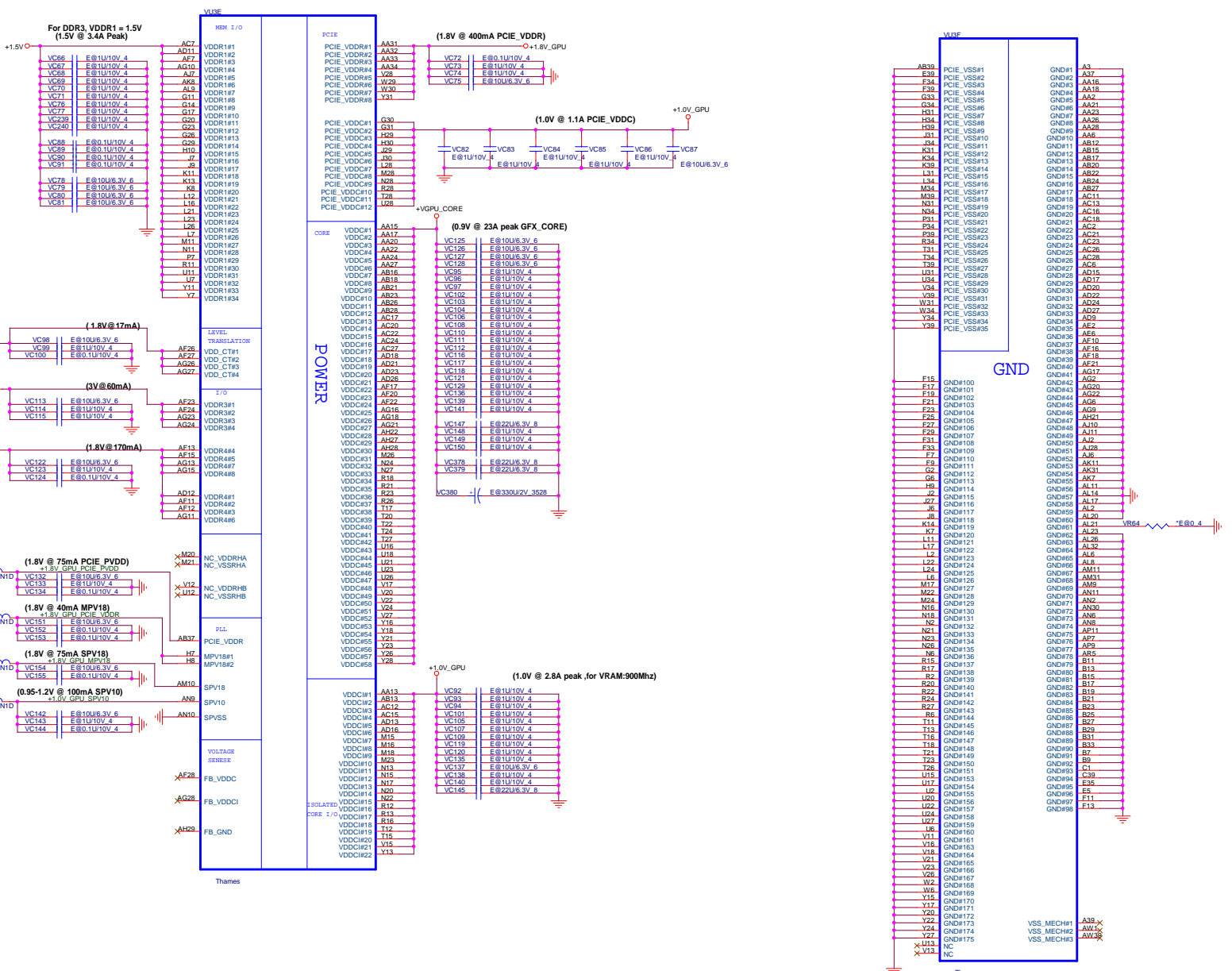


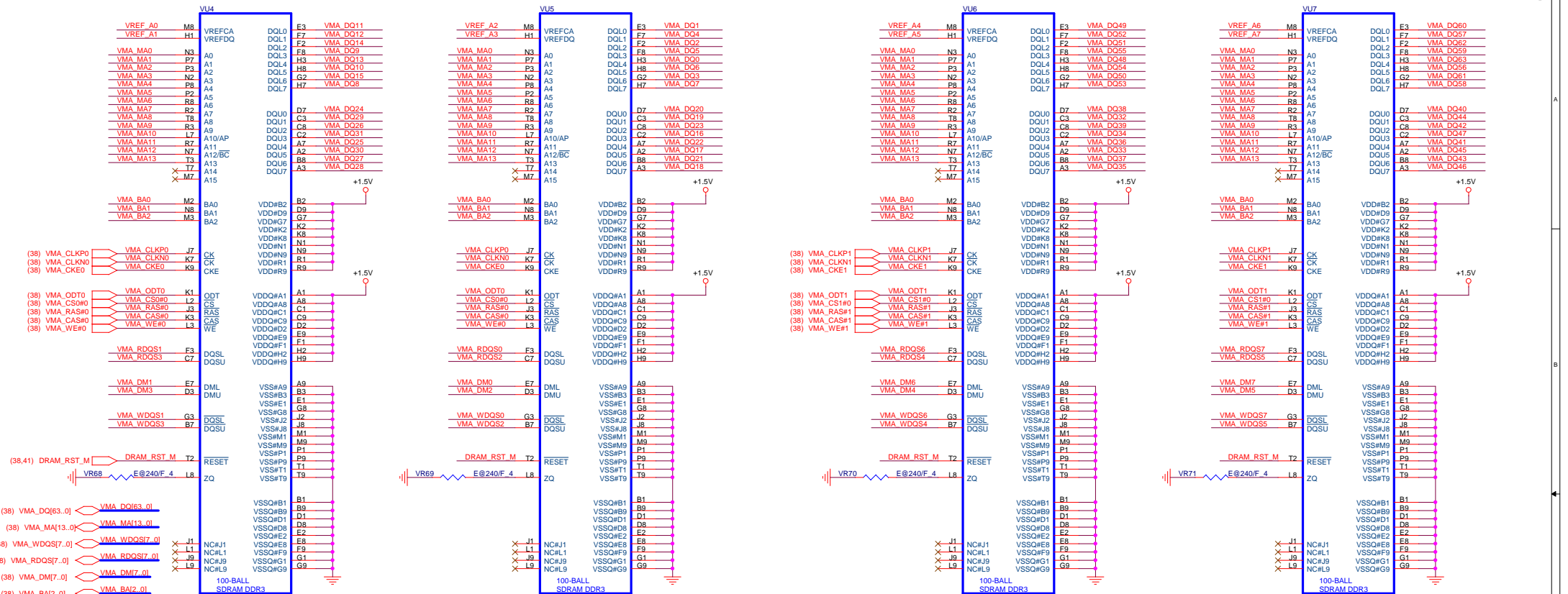
STRAPS	PIN	DESCRIPTION	SET
TX_PWRS_ENB	GPIO0	PCIE FULL TX OUTPUT SWING 0 = 50% Tx output swing 1 = Full Tx output swing	0
TX_DEEMPH_EN	GPIO1	PCIE TRANSMITTER DE-EMPHASIS ENABLED 0 = Disable ; 1 = Enable	0
BIF_GEN2_EN_A	GPIO2	0 = Advertises the PCIe device as 2.5 GT/s capable at power-on. 1 = Advertises the PCIe device as 5.0 GT/s capable at power-on.	1
GPIO_5_AC_BATT (M96-M2)	GPIO5	1 = AC (Performance mode) 0 = Battery saving mode	1
VGA_DIS	GPIO9	0: VGA Controller capacity enabled 1: The device will not be recognized as the system's VGA controller	0
BIOS_ROM_EN	GPIO22	Enable external BIOS ROM device 0 = Disable ; 1 = Enable	0
AUD[1:0]	VGAAHSYNC VGA_VSYNC	AUD[1:0]: 00 - No audio function; 01 - Audio for DisplayPort only; 10 - Audio for DisplayPort and HDMI if dongle is detected; 11 - Audio for both DisplayPort and HDMI.	11
VIP_DEVICE_STRAP_EN	BIOS_ROM_EN	VIP Device Strap Enable 0 = Disable ; 1 = Enable	0

Quanta Computer Inc.
 PROJECT : IK5
 Size Document Number
Thames_IO&STRAP
 Date: Wednesday, February 01, 2012 Sheet 37 of 43

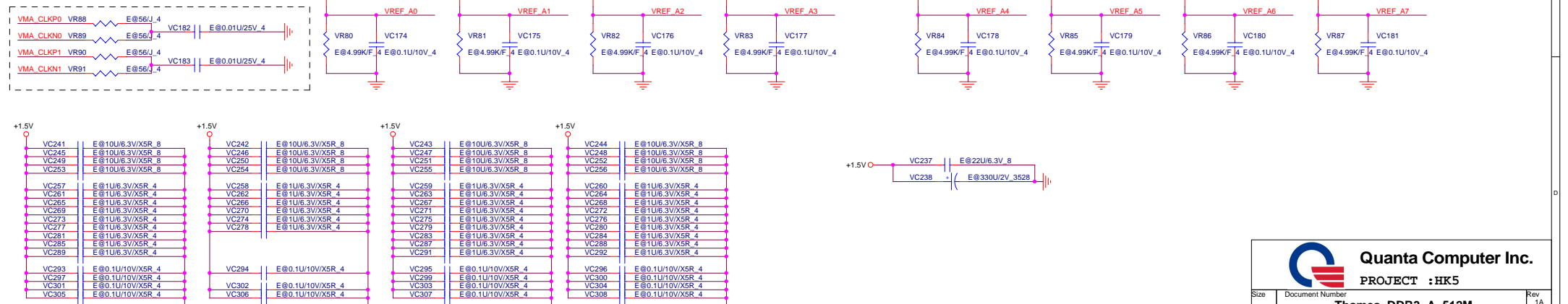
1. Level 1 Environment-related Substances Should Never be Used.
 2. Recycled Resin and Coated Wire should be procured from Green Partners.







Placement has to be close to VRAM

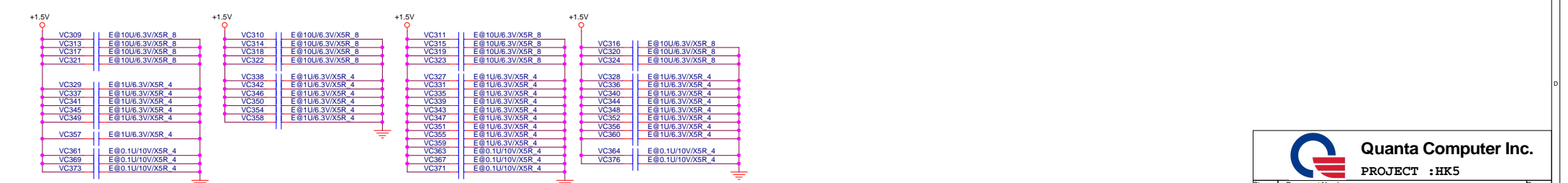
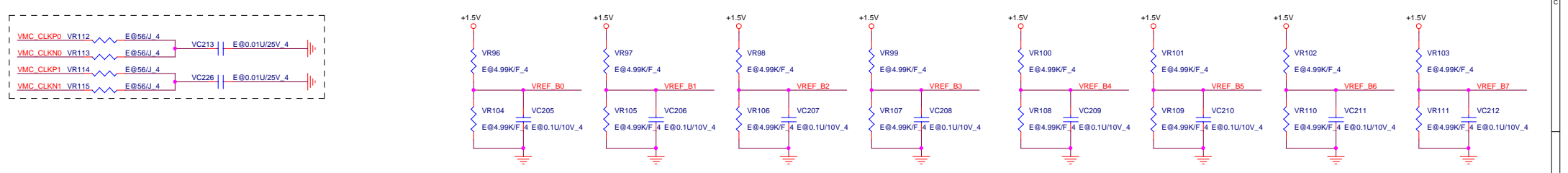
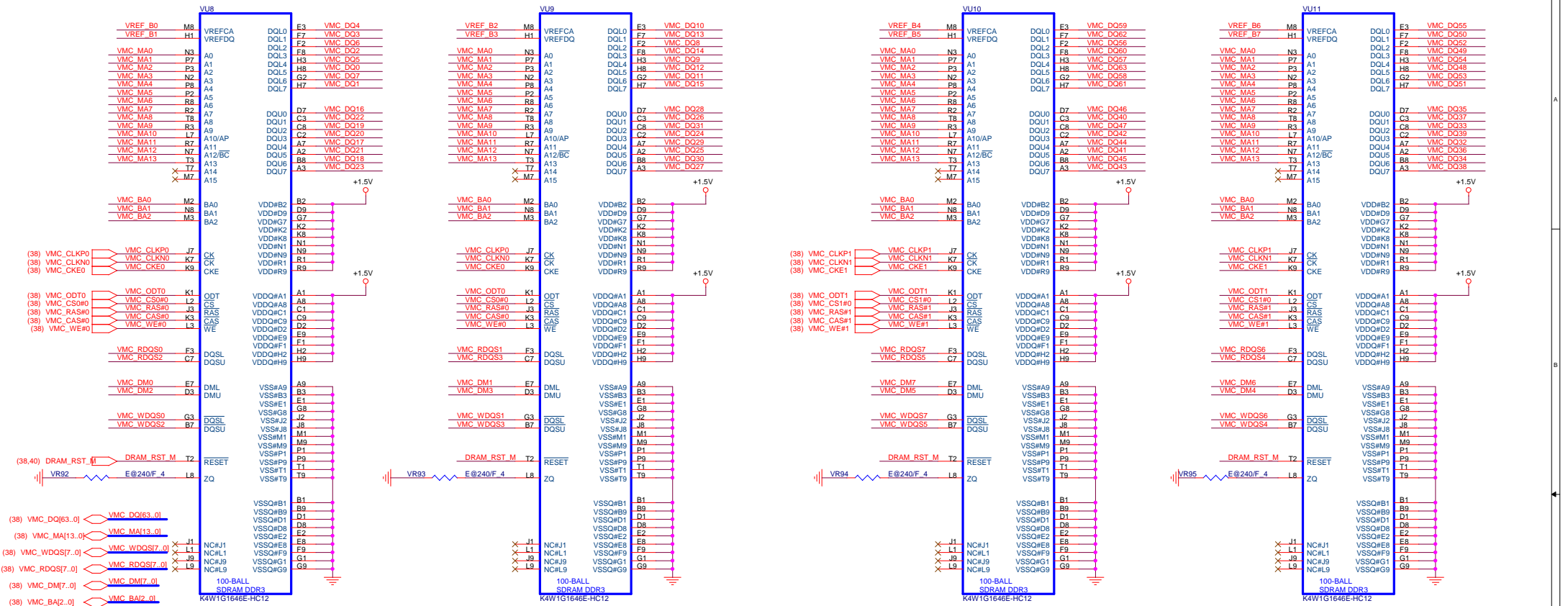


Quanta Computer Inc.
PROJECT :HK5
Thames_DDR3_A_512M

Size	Document Number	Date	Wednesday, February 01, 2012	Sheet	40	of	43
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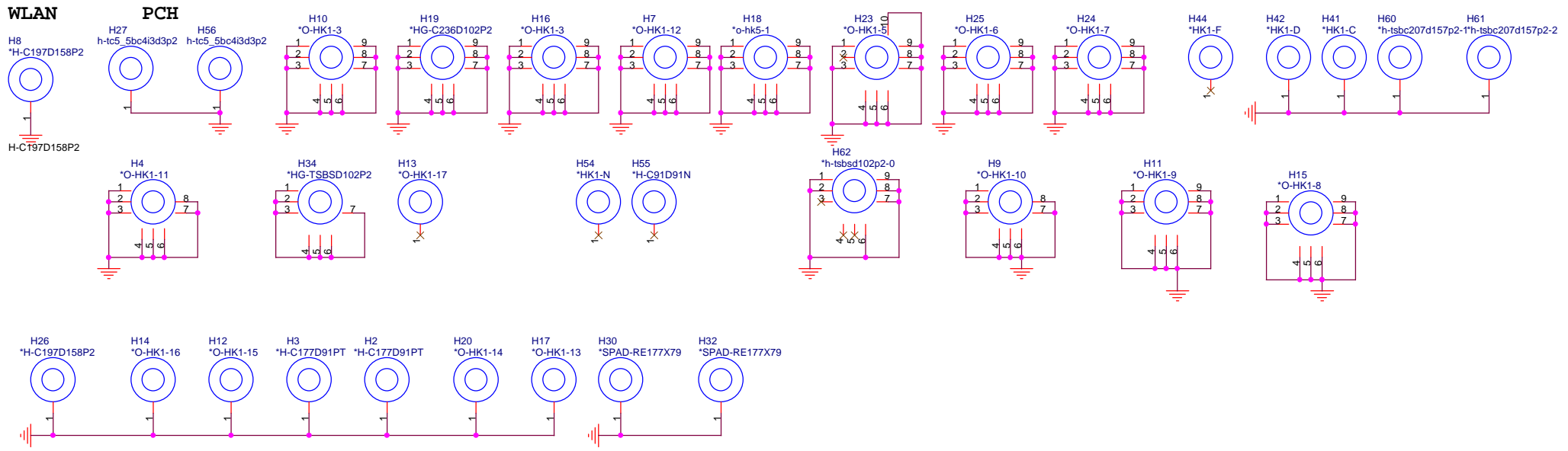
1. Level 1 Environment-related Substances Should Never be Used.
 2. Recycled Resin and Coated Wire should be procured from Green Partners.

DDR3 64MX16, CH B : 512MB

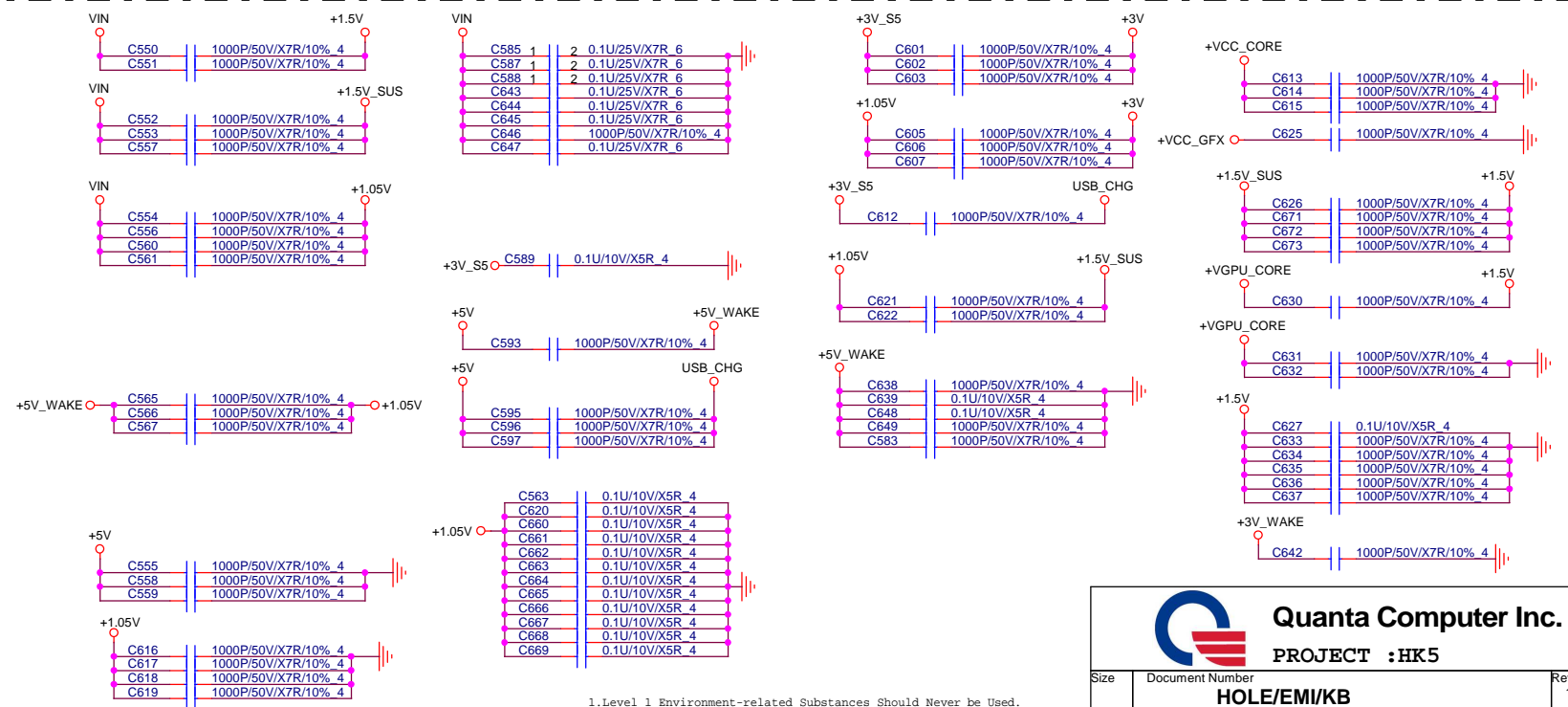
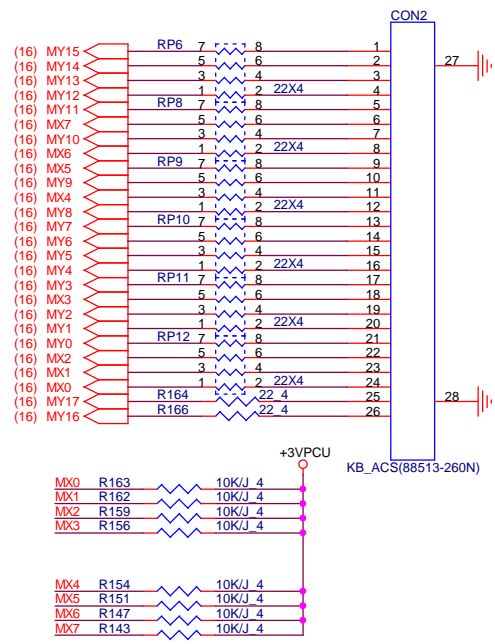


Quanta Computer Inc.
 PROJECT :HK5
 Thames_DDR3_B_512M
 Date: Wednesday, February 01, 2012 Sheet 41 of 43

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



KEY BOARD Connector



Quanta Computer Inc.
PROJECT :HK5

Size	Document Number	Rev
	HOLE/EMI/KB	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

PCIE 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) R294(High)
R362(Low) 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)
RUN_ON	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
SUS_ON	H	H	H	L	L	L
+1.5V_SUS	H	H	H	L	L	L
S5_ON	H	H	L	H	L	L
+5V_S5	H	H	L	H	L	L
+3V_S5	H	H	L	H	L	L
EC_WAKE_ON	H	H	H	H	H	L
+3V_WAKE	H	H	H	H	H	L
+5V_WAKE	H	H	H	H	H	L
DEEP_EC_EN	H	H	H	H	L	L
+3V_S5_DSW	H	H	H	H	L	L
+3V_SUS	H	H	L	L	L	L

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