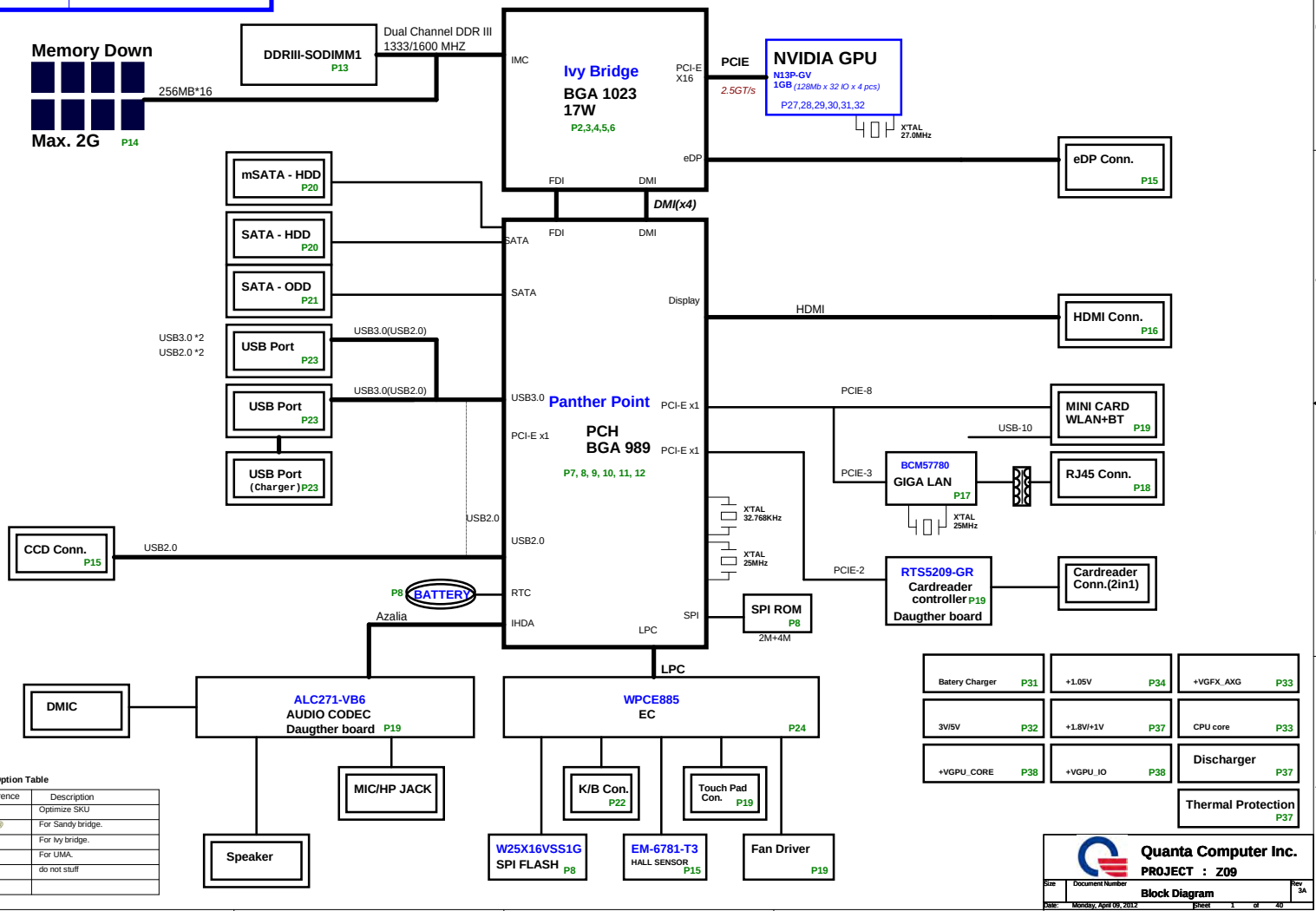


BOM P/N	Description
---------	-------------

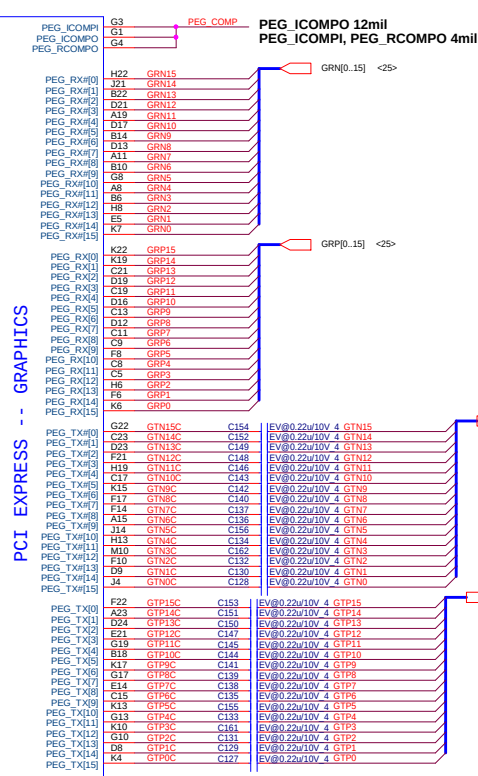
Z09 SYSTEM BLOCK DIAGRAM



Ivy Bridge Processor (DMI, PEG, FDI)

PEG_ICOMPI and RCOMPO signals should be shorted and routed with
 - max length = 500 mils
 - typical impedance = 43 mohms
 PEG_ICOMPO signals should be routed with
 - max length = 500 mils
 - typical impedance = 14.5 mohms

PCI EXPRESS -- GRAPHICS



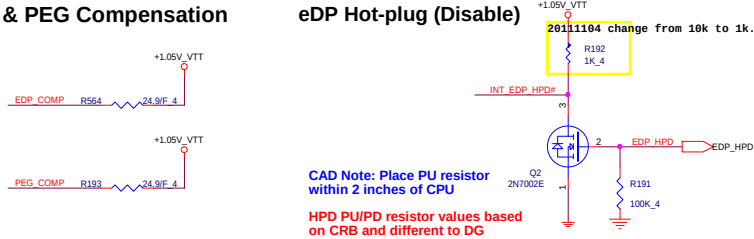
0.22uF AC coupling Caps for PCIe GEN1/2/3

DG 1.8": The recommended AC cap value is changed to 220nF for compatibility with PCIe Gen3 on future platforms. For Gen2 only designs, it is acceptable to continue to use the 100nF capacitor.

DP_COMPIO and ICOMPO signals should be shorted near balls and routed with
 - typical impedance < 25 mohms

DP & PEG Compensation

eDP Hot-plug (Disable)

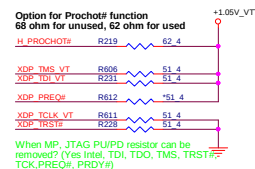
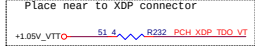


CAD Note: Place PU resistor within 2 inches of CPU
 HPD PUI/PD resistor values based on CRB and different to DG

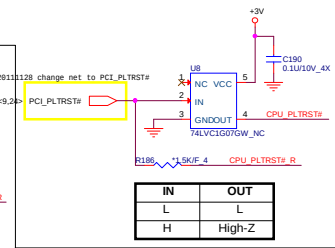
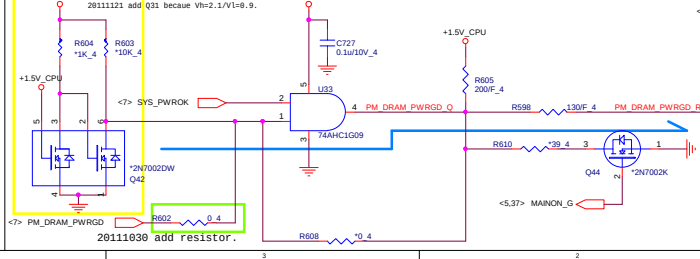
Quanta Computer Inc.
PROJECT : Z09

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	Ivy Bridge 1/5	3A
Date:	Monday, April 09, 2012	Sheet 2 of 40

6. If motherboard only supports external graphics or if it supports Processor Graphics but without eDP:
 Connect **DRL_REF_SCLKL** on Processor to **GND** through **1K +/- 5% resistor**
 Connect **DPL_REF_SCLKL** on Processor to **VCCP** through **1K +/- 5% resistor**



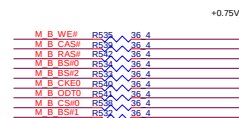
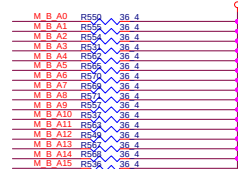
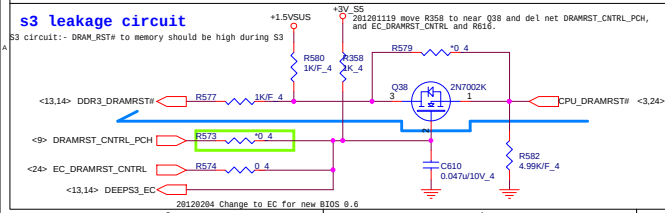
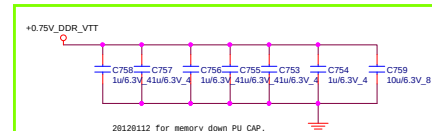
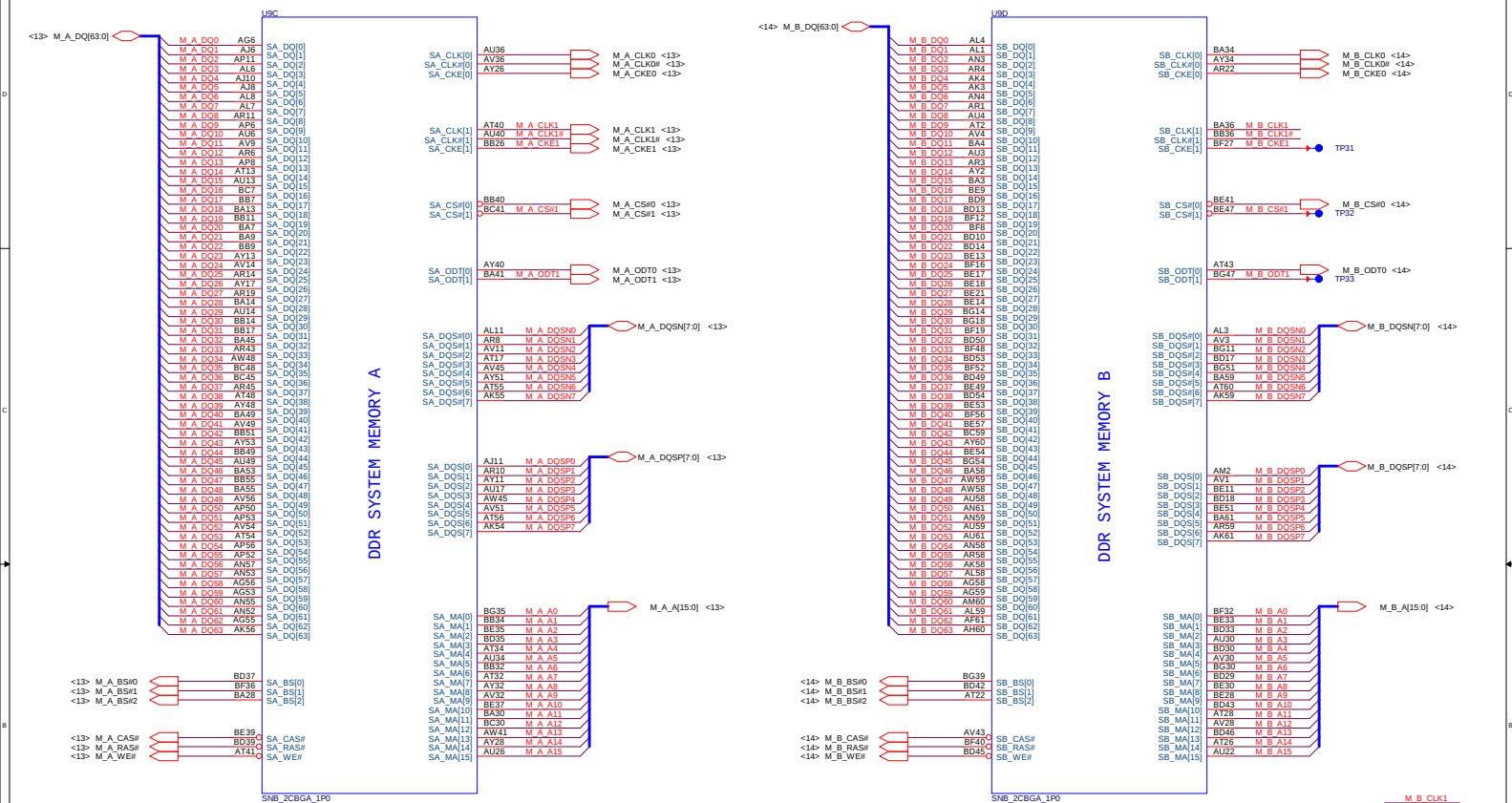
If PM_DRAM_PWEGD connector, the R5180 must stuff.



IN	OUT
L	L
H	High-Z

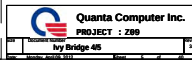
 Quanta Computer Inc. PROJECT : Z09	
Size	Document Number
	Ivy Bridge 2/5
Date	Monday, April 09, 2012
Sheet	3 of 40

Sandy Bridge Processor (DDR3)

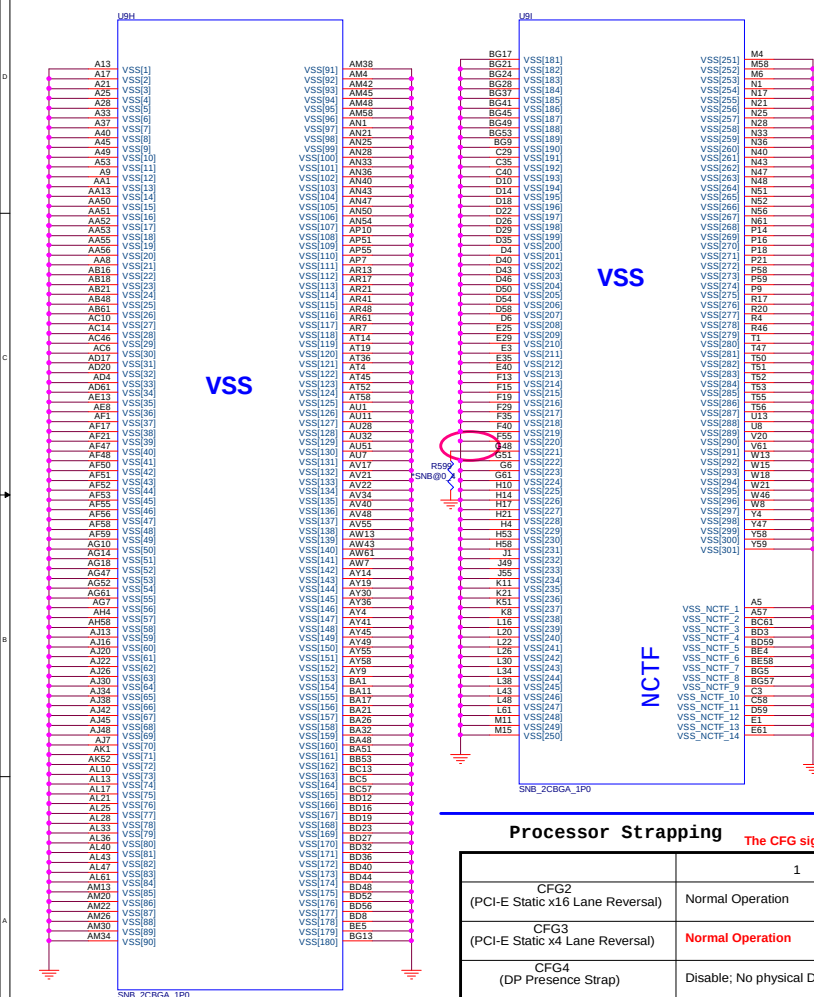


Sandy Bridge Processor (GRAPHIC POWER)

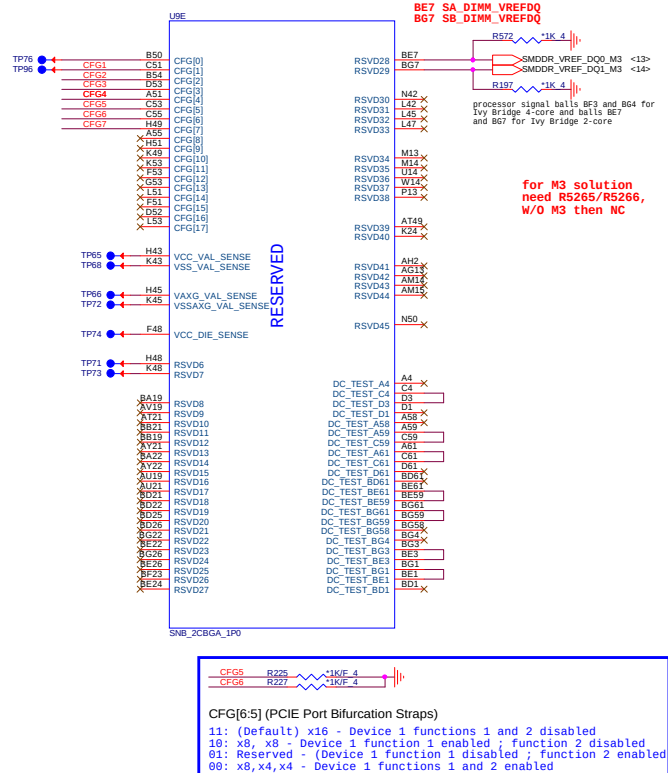
CPU VDDQ
IVY 45W: 5A
Spec
330uF/6mohm x 1
10uF x 8
1uF x 10



Sandy Bridge Processor (GND)



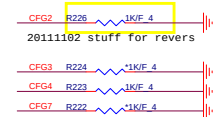
Sandy Bridge Processor (RESERVED, CFG)



Processor Strapping

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

	1	0
CFG2 (PCI-E Static x16 Lane Reversal)	Normal Operation	Lane Reversed
CFG3 (PCI-E Static x4 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 Defeat Training)	PEG train immediately following xRESETb de assertion	PEG wait for BIOS training

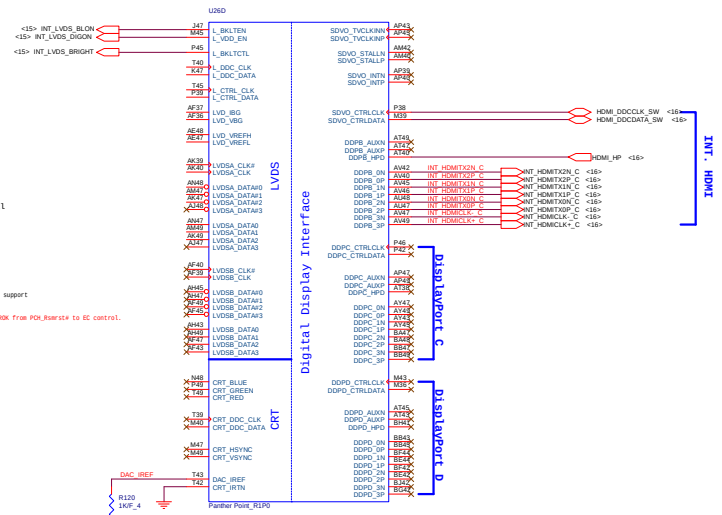
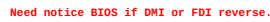


Quanta Computer Inc.

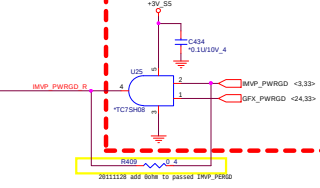
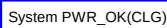
PROJECT : Z09

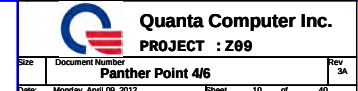
Size	Document Number	Rev
	Ivy Bridge 5/5	3/
Date	Monday, April 09, 2012	Sheet 6 of 40

U25C



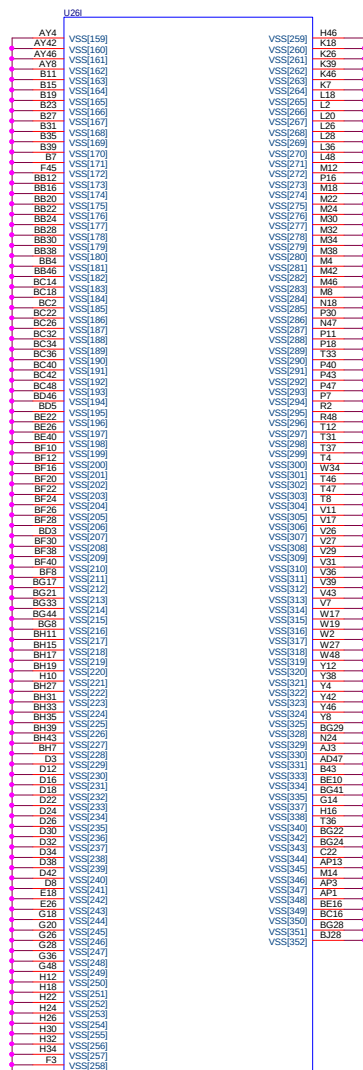
CRB 1.0 change R5196 to 1K

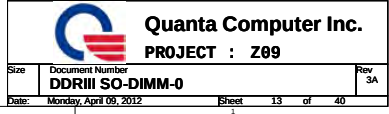


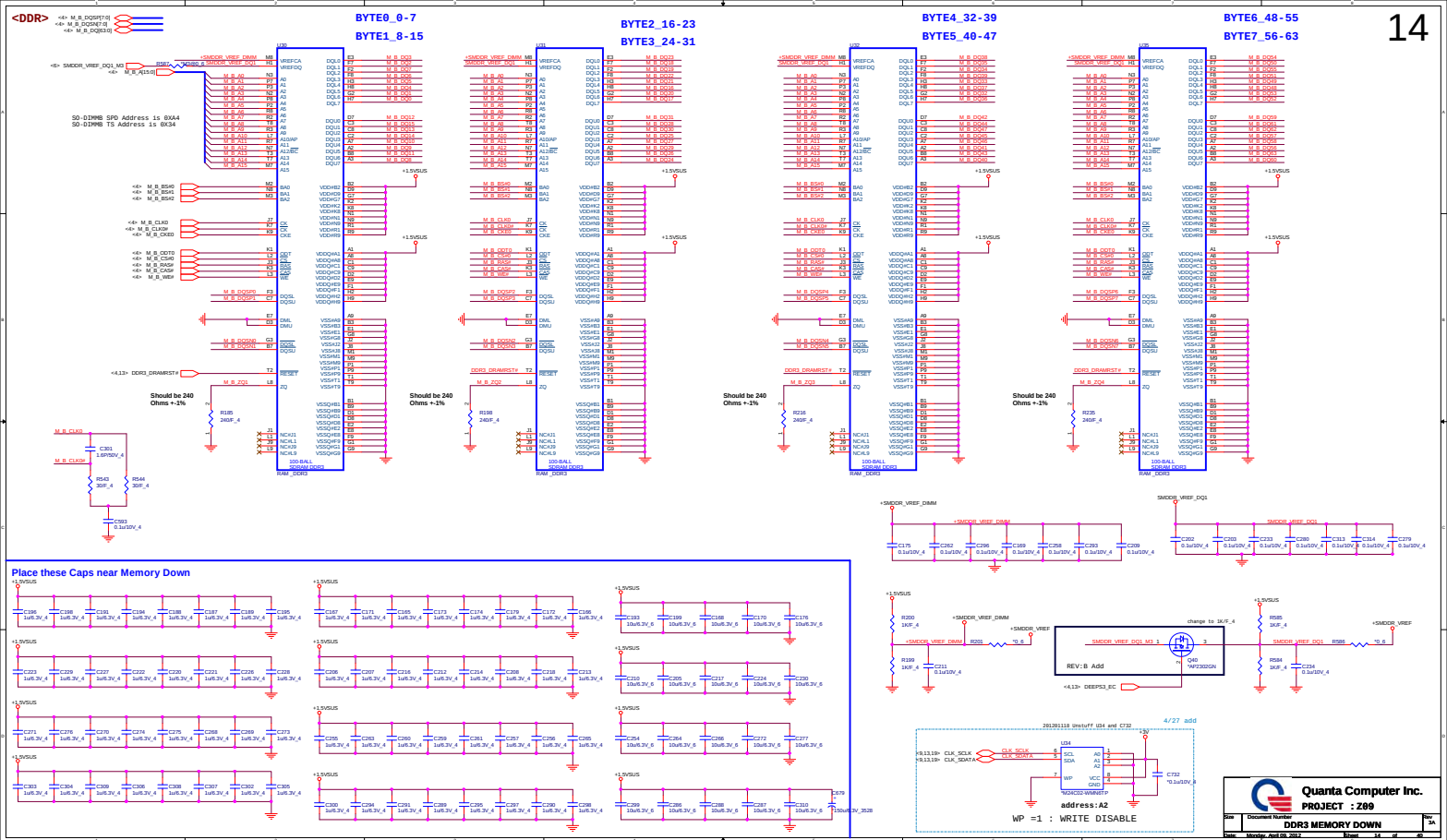




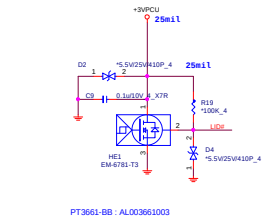
H5	VSS90	
A7	VSS91	AK38
A2	VSS91	AK4
A3	VSS91	AK42
A3	VSS93	VSS982
A3	VSS93	AK46
A3	VSS93	VSS983
A3	VSS93	AK8
A3	VSS93	AL16
A4	VSS96	VSS985
A4	VSS97	AL17
A9	VSS97	VSS986
A9	VSS97	AL2
A9	VSS97	AK2
A9	VSS98	AL21
A9	VSS98	VSS989
A9	VSS98	AL23
A9	VSS98	AL26
A9	VSS98	VSS990
A9	VSS98	VSS991
A9	VSS98	AL27
A9	VSS98	AL33
A9	VSS98	VSS993
A9	VSS98	AL34
A9	VSS98	VSS994
A9	VSS98	AL46
A9	VSS98	AL48
A9	VSS98	AM1
A9	VSS98	VSS996
A9	VSS98	VSS997
A9	VSS98	AM14
A9	VSS98	AM36
A9	VSS98	VSS999
A9	VSS98	AM9
A9	VSS98	VSS100
A9	VSS98	AM43
A9	VSS98	AM45
A9	VSS98	VSS102
A9	VSS98	AM46
A9	VSS98	VSS103
A9	VSS98	AM7
A9	VSS98	AM2
A9	VSS98	VSS105
A9	VSS98	AM29
A9	VSS98	AM3
A9	VSS98	AM11
A9	VSS98	VSS107
A9	VSS98	AM12
A9	VSS98	AP12
A9	VSS98	AP19
A9	VSS98	AP26
A9	VSS98	VSS110
A9	VSS98	VSS111
A9	VSS98	AP30
A9	VSS98	VSS112
A9	VSS98	AP32
A9	VSS98	AP38
A9	VSS98	VSS114
A9	VSS98	AP4
A9	VSS98	AP42
A9	VSS98	AP46
A9	VSS98	VSS116
A9	VSS98	VSS117
A9	VSS98	AP8
A9	VSS98	AK2
A9	VSS98	VSS118
A9	VSS98	AP48
A9	VSS98	VSS120
A9	VSS98	AT11
A9	VSS98	AT13
A9	VSS98	VSS122
A9	VSS98	AT18
A9	VSS98	VSS123
A9	VSS98	T122
A9	VSS98	AT26
A9	VSS98	VSS125
A9	VSS98	AT28
A9	VSS98	VSS126
A9	VSS98	AT30
A9	VSS98	VSS127
A9	VSS98	AT32
A9	VSS98	VSS128
A9	VSS98	AT34
A9	VSS98	VSS129
A9	VSS98	AT39
A9	VSS98	VSS130
A9	VSS98	AT42
A9	VSS98	VSS131
A9	VSS98	AT46
A9	VSS98	AT7
A9	VSS98	AT12
A9	VSS98	VSS133
A9	VSS98	AT24
A9	VSS98	VSS134
A9	VSS98	AT30
A9	VSS98	VSS135
A9	VSS98	AT36
A9	VSS98	VSS136
A9	VSS98	AT38
A9	VSS98	VSS137
A9	VSS98	AT40
A9	VSS98	VSS138
A9	VSS98	AT42
A9	VSS98	VSS139
A9	VSS98	AT48
A9	VSS98	VSS140
A9	VSS98	VSS141
A9	VSS98	VSS142
A9	VSS98	AV4
A9	VSS98	VSS143
A9	VSS98	AW14
A9	VSS98	AW18
A9	VSS98	VSS145
A9	VSS98	AW2
A9	VSS98	VSS146
A9	VSS98	AW22
A9	VSS98	VSS147
A9	VSS98	AW26
A9	VSS98	VSS148
A9	VSS98	AW28
A9	VSS98	VSS149
A9	VSS98	AW30
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A9	VSS98	AW32
A9	VSS98	VSS151
A9	VSS98	AW34
A9	VSS98	VSS152
A9	VSS98	AW36
A9	VSS98	VSS153
A9	VSS98	AW40
A9	VSS98	VSS154
A9	VSS98	AW48
A9	VSS98	VSS155
A9	VSS98	AW11
A9	VSS98	VSS156
A9	VSS98	VSS157
A9	VSS98	AW28
A9	VSS98	VSS158
A9	VSS98	AW28





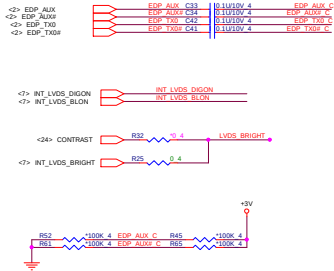


Lid Switch (Hall sensor)

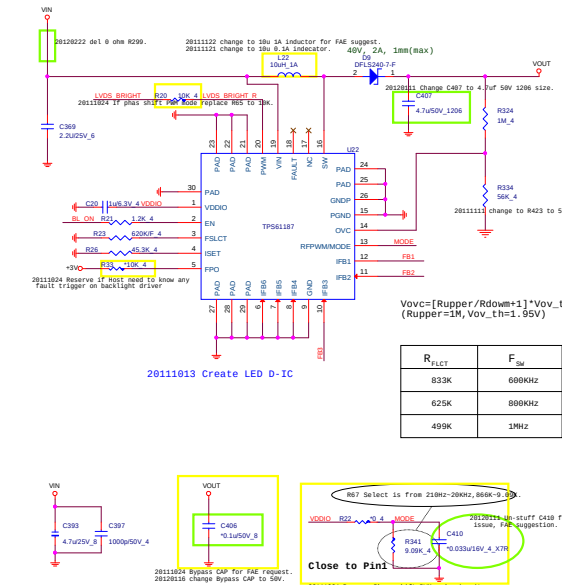


eDP

7/28 modify

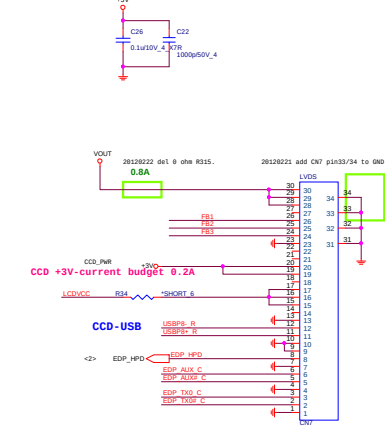


LED Driver-IC

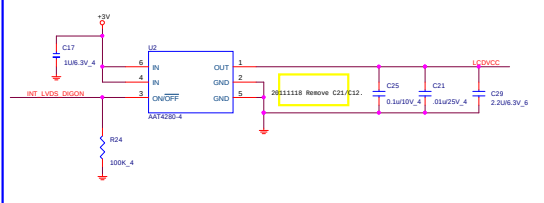


Penal SPEC:
Iout:78-79.5mA
Vout:32-34V

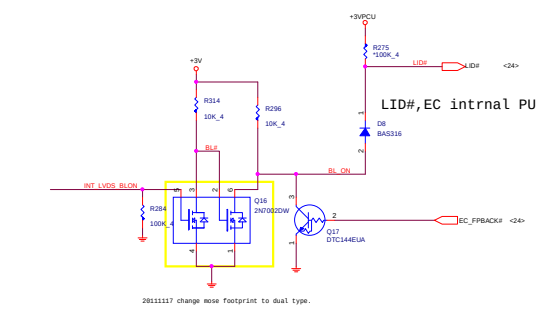
LCD CONNECTOR



LCD Power

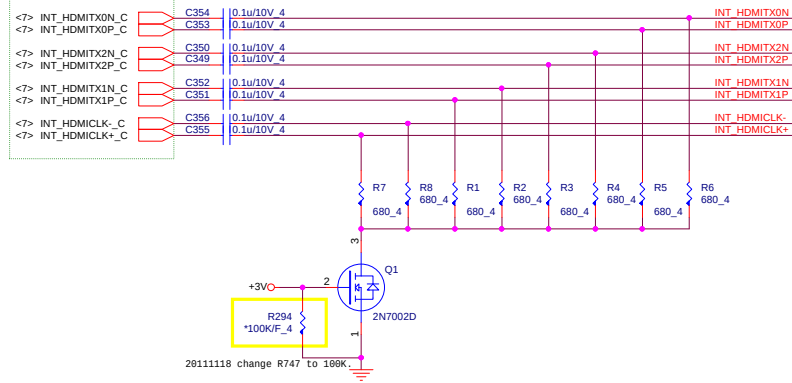


Backlight Control

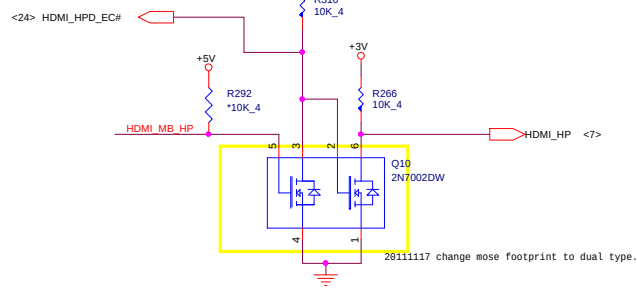


HDMI

from PCH

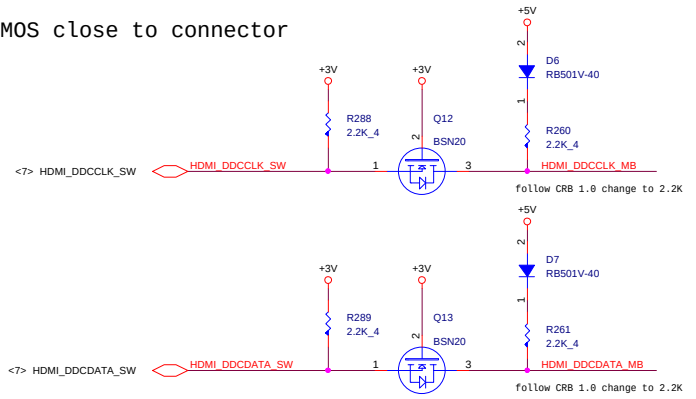


HDMI-detect

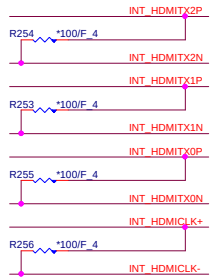


I2C

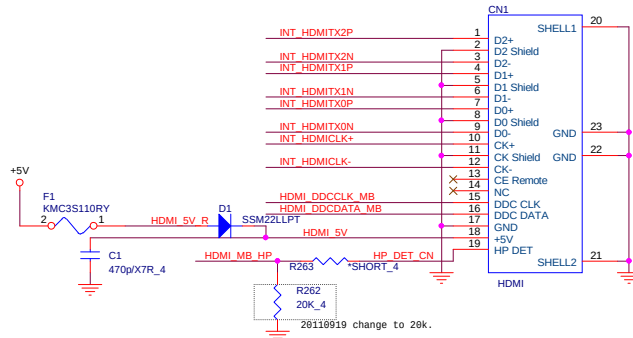
MOS close to connector

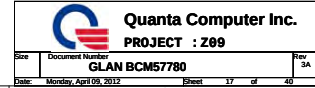


EMI

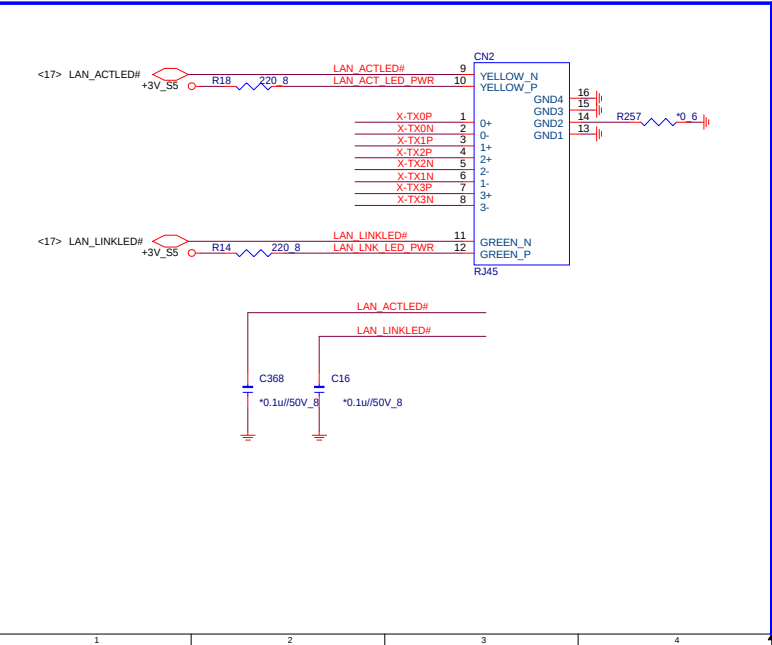
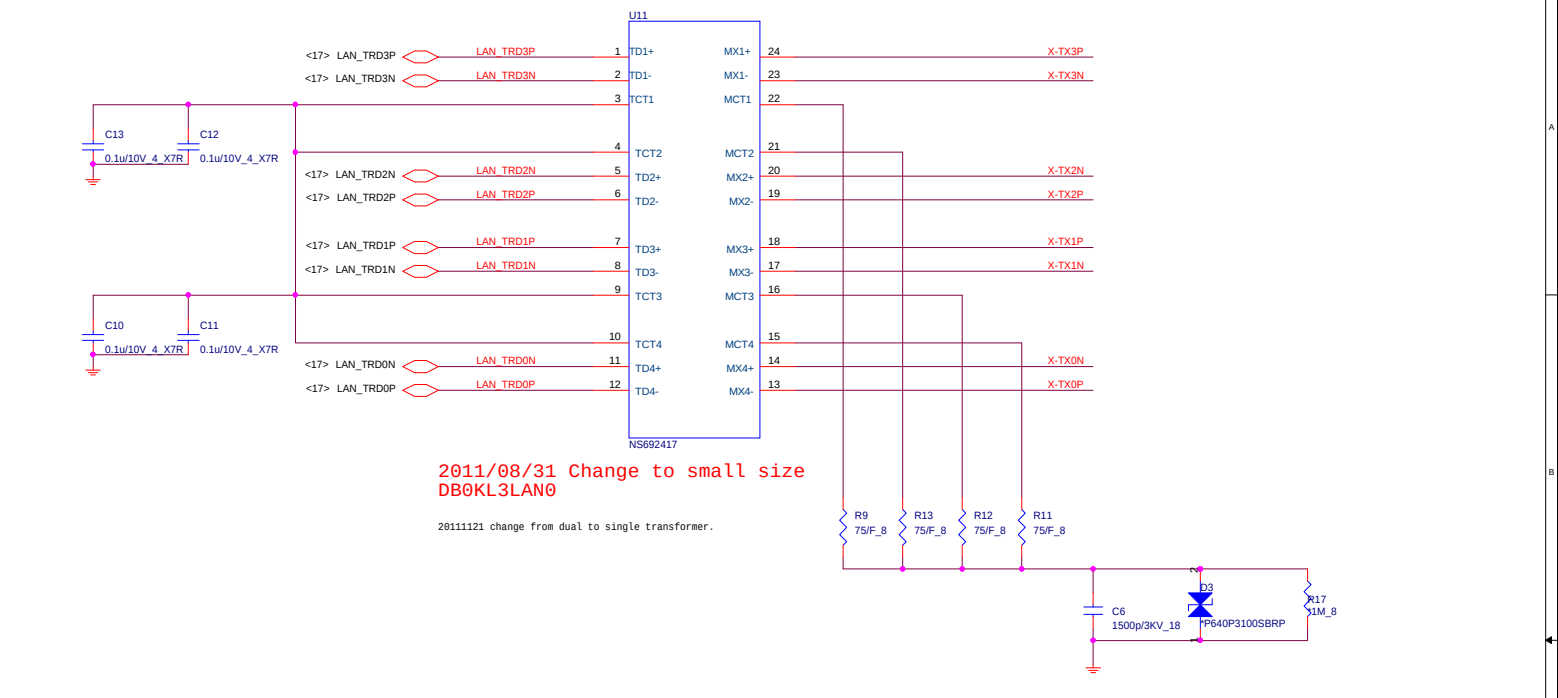


HDMI connector

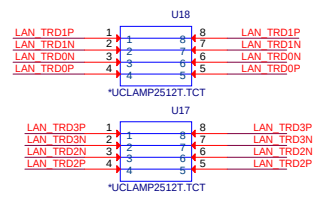




TRANSFORMER



For EMI

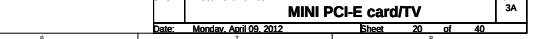
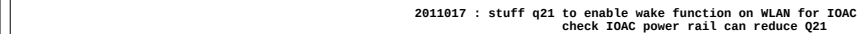




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LAN Transformer and RJ45		
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+3.3V: 1000mA
+3.3Vaux:330mA
+1.5V:500mA



21111207 change Cn12 Pin define following ZHA.



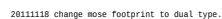
EE RETURN-PATH CAPACITORS



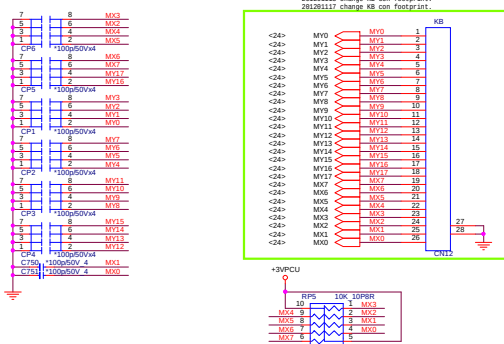
ODD (SATA)



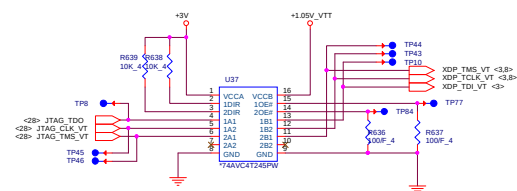
ODD Power (SATA)



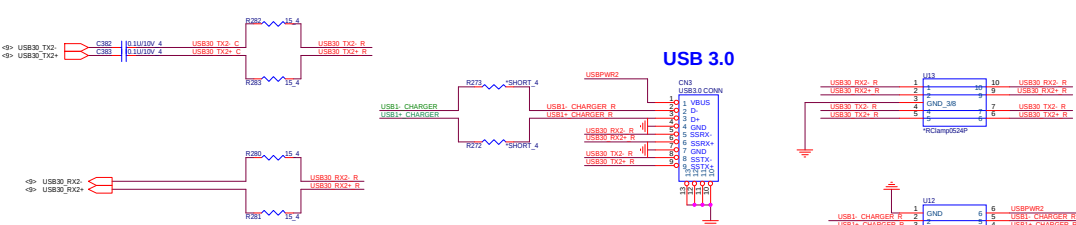
K/B



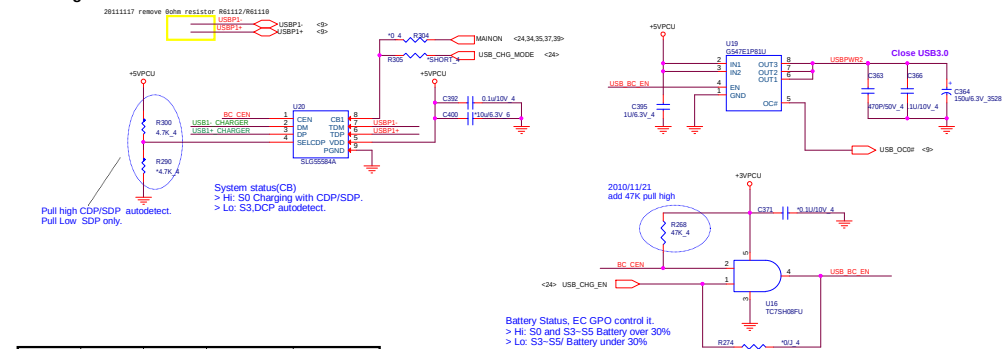
ICT TEST FIXTURE(VOLTAGE TRANSLATOR)



USB3.0 CONN

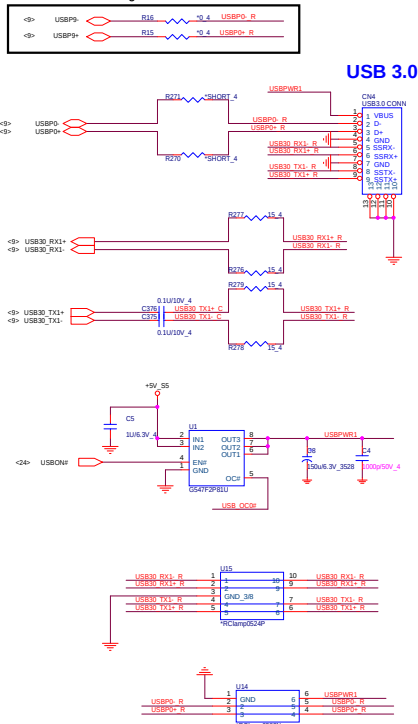


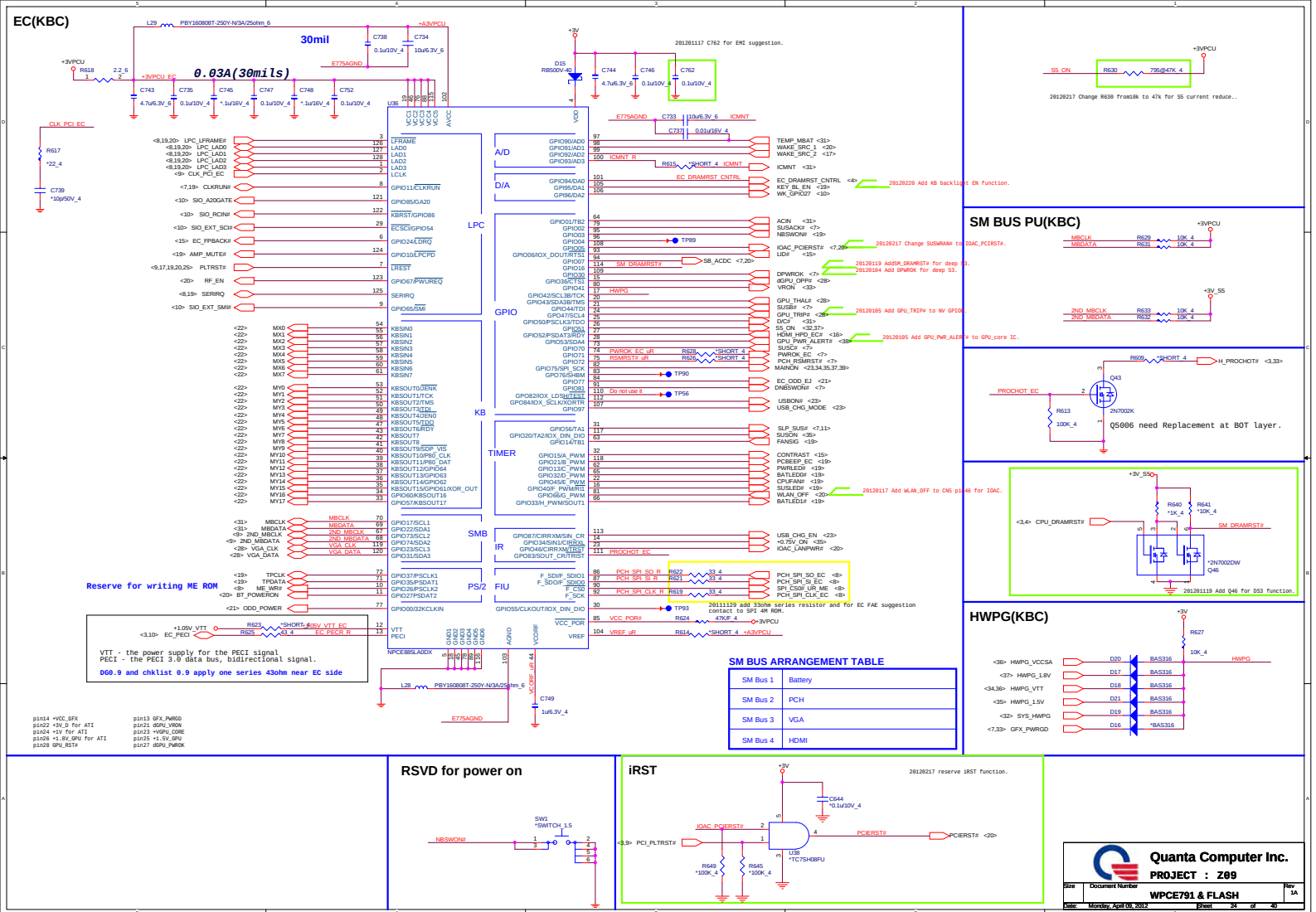
USB charger

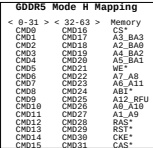


Name	USB data	State	Max Current	Apple Device
SDP	YES	S0-S3	500mA	500mA
CDP	YES	S0-S3	1500mA	500mA
DCP_Auto	NO	S4-S5	1800mA	1800mA

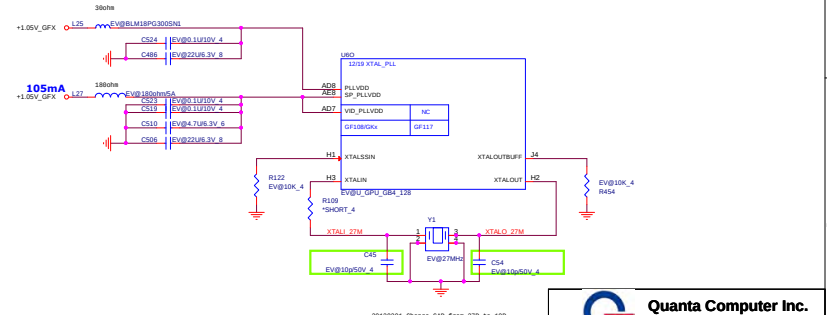
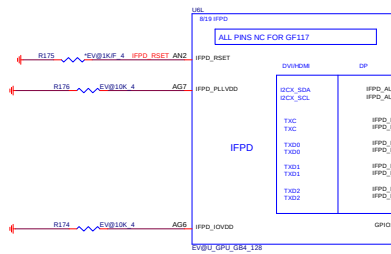
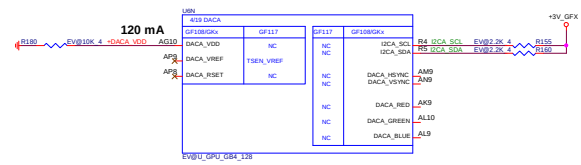
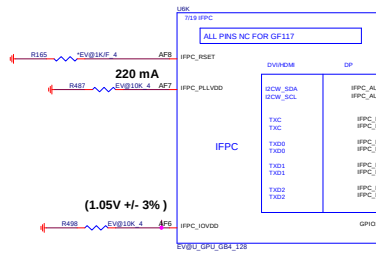
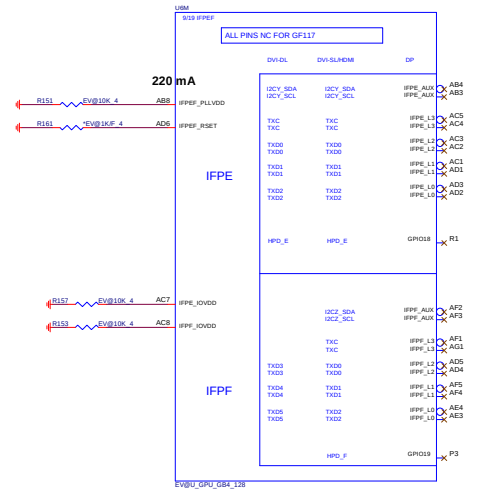
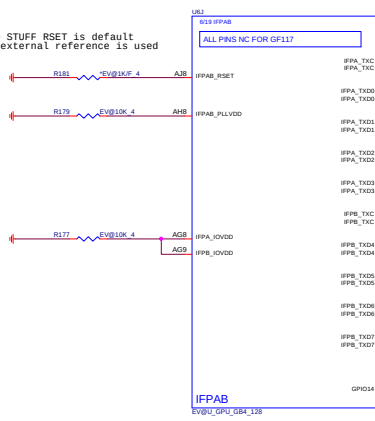
Reserve for Debug

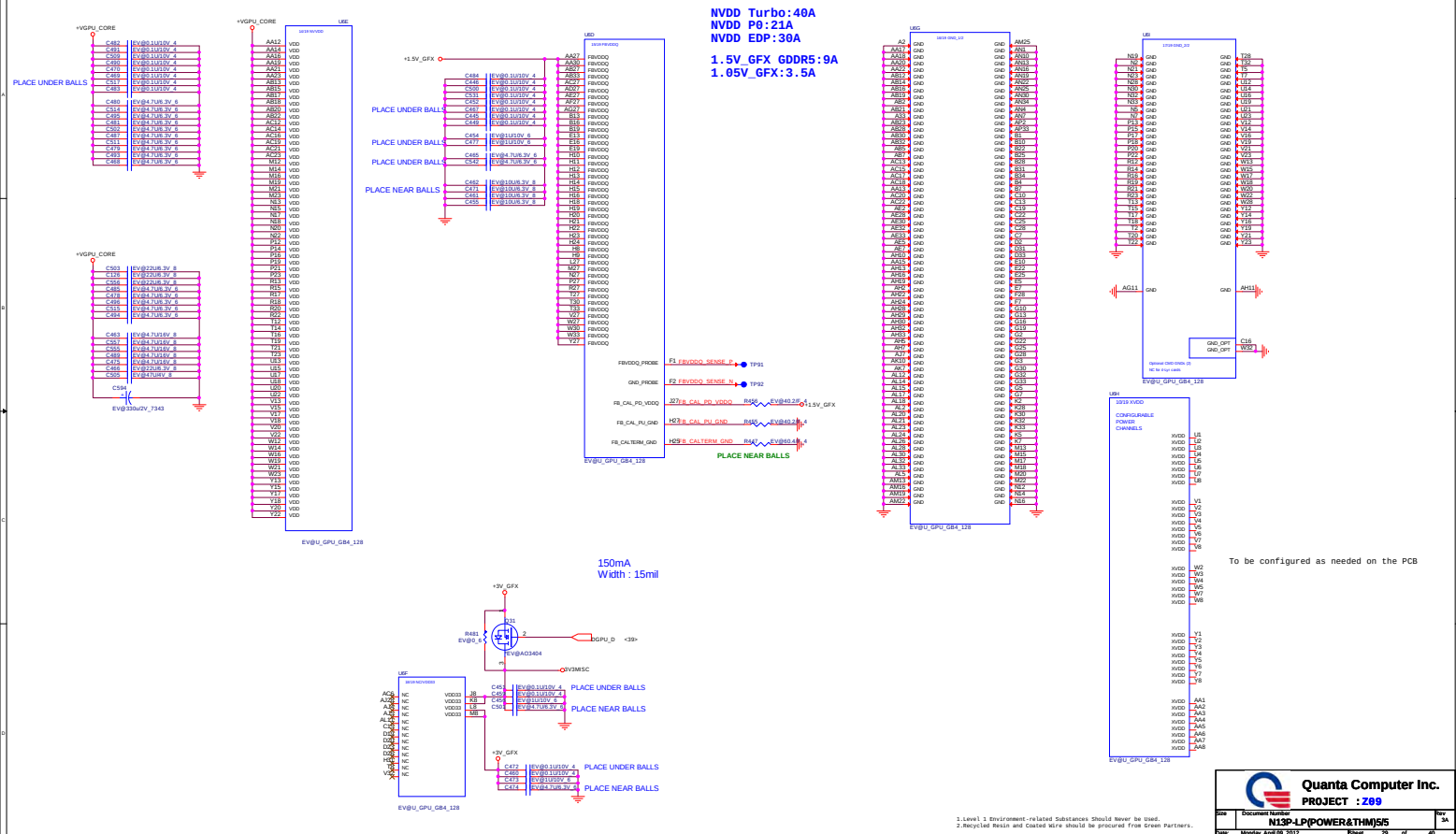


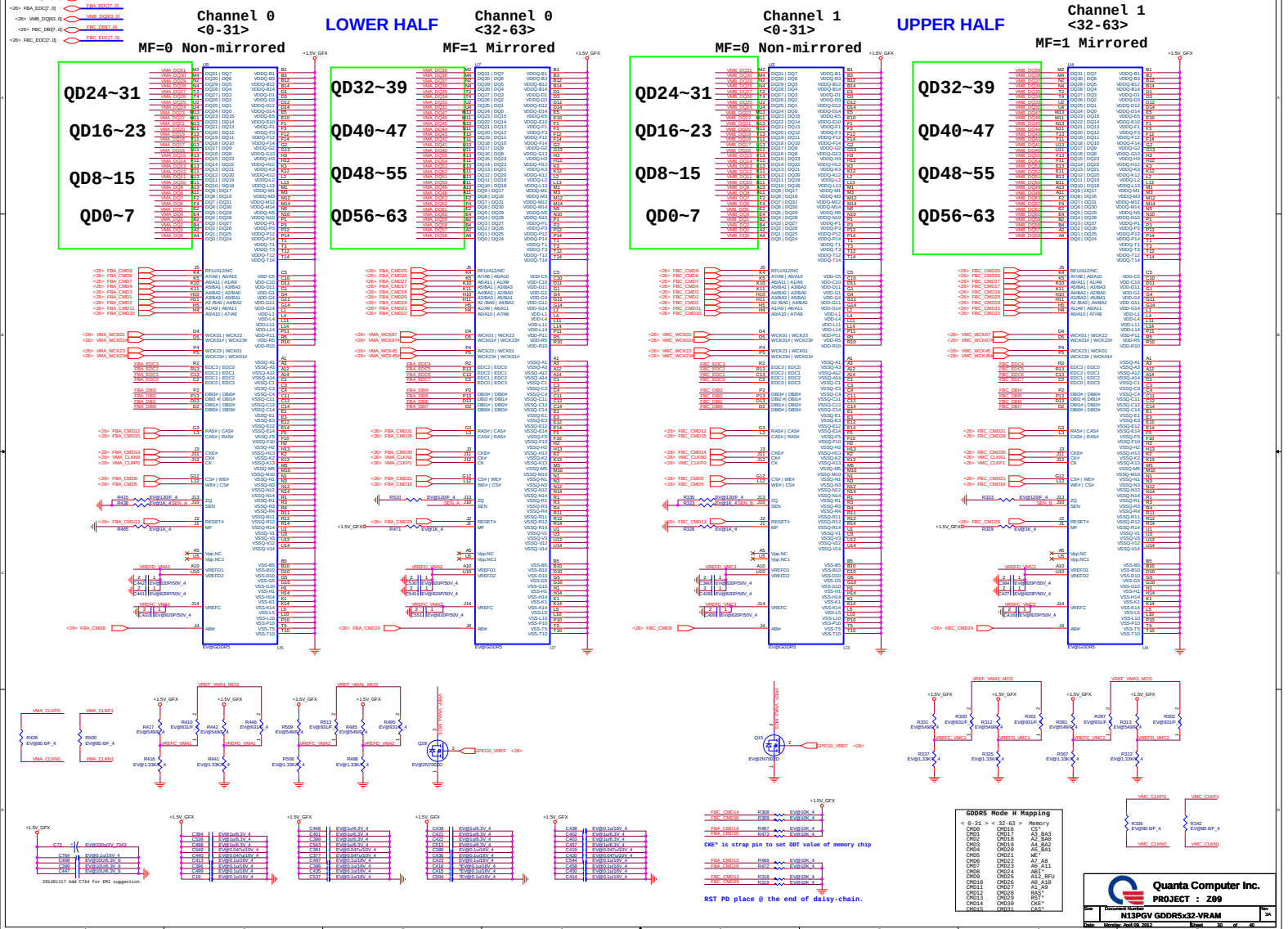


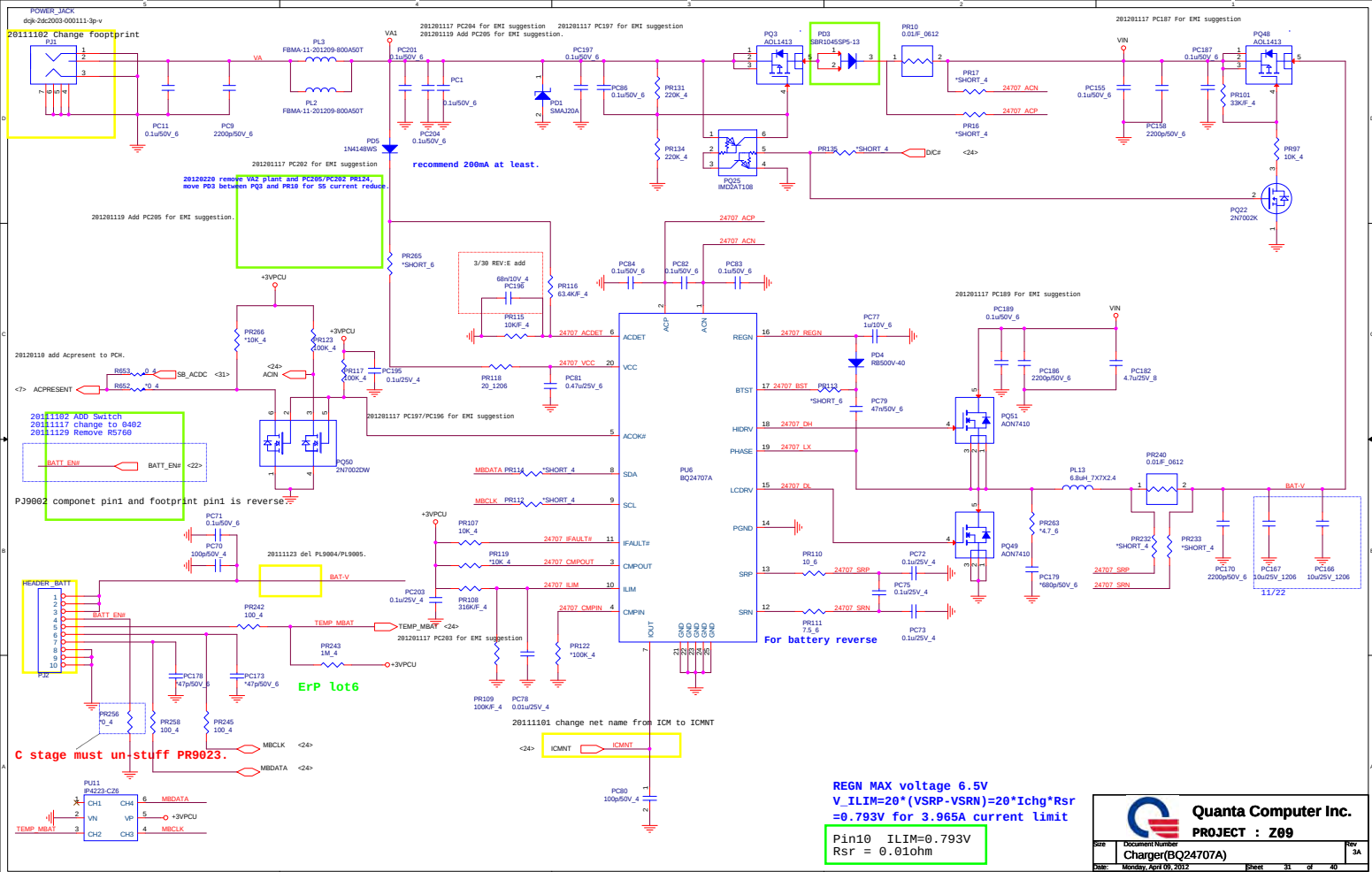


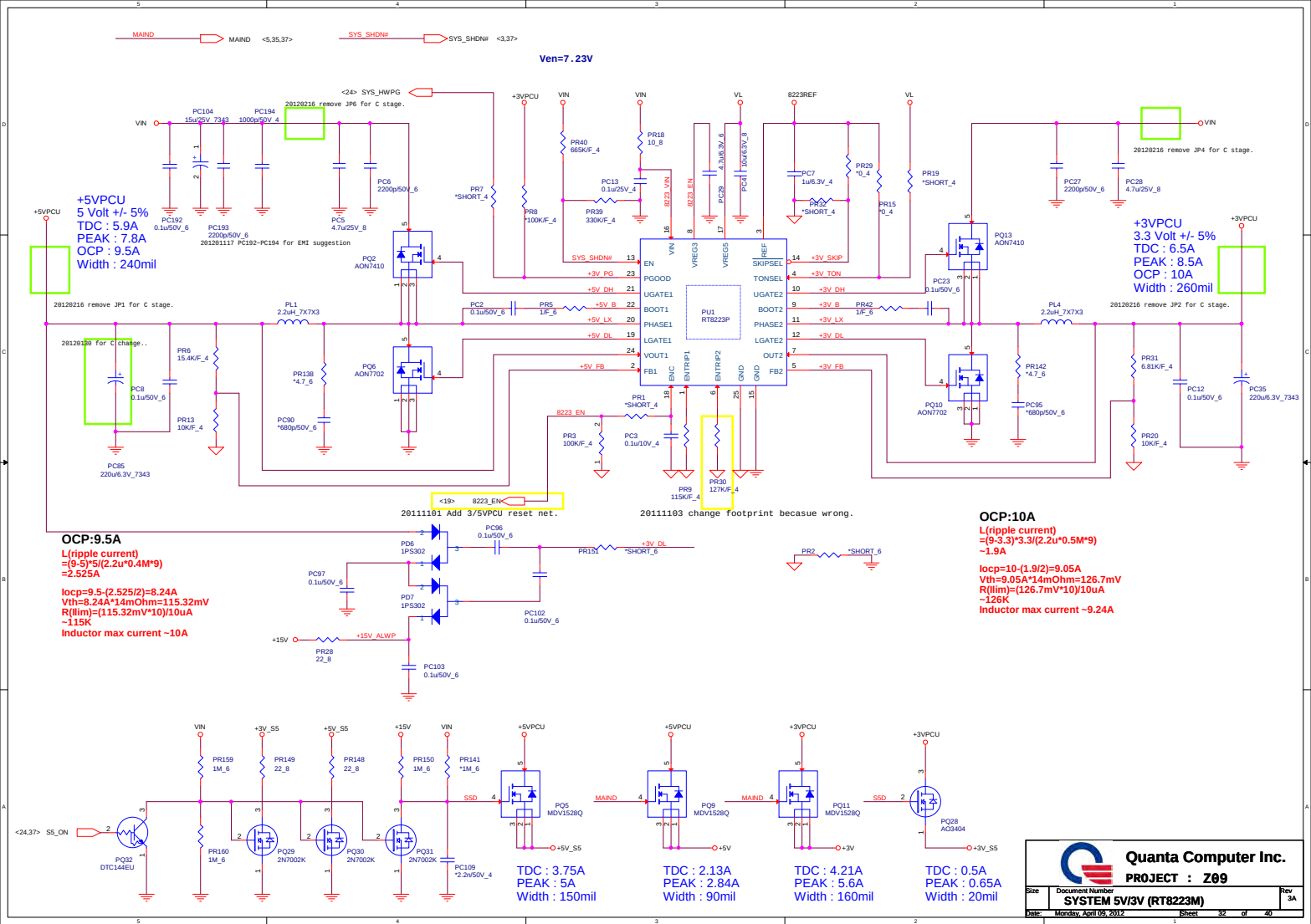
IFPAB ONLY: NO STUFF RSET is default
Required when external reference is used

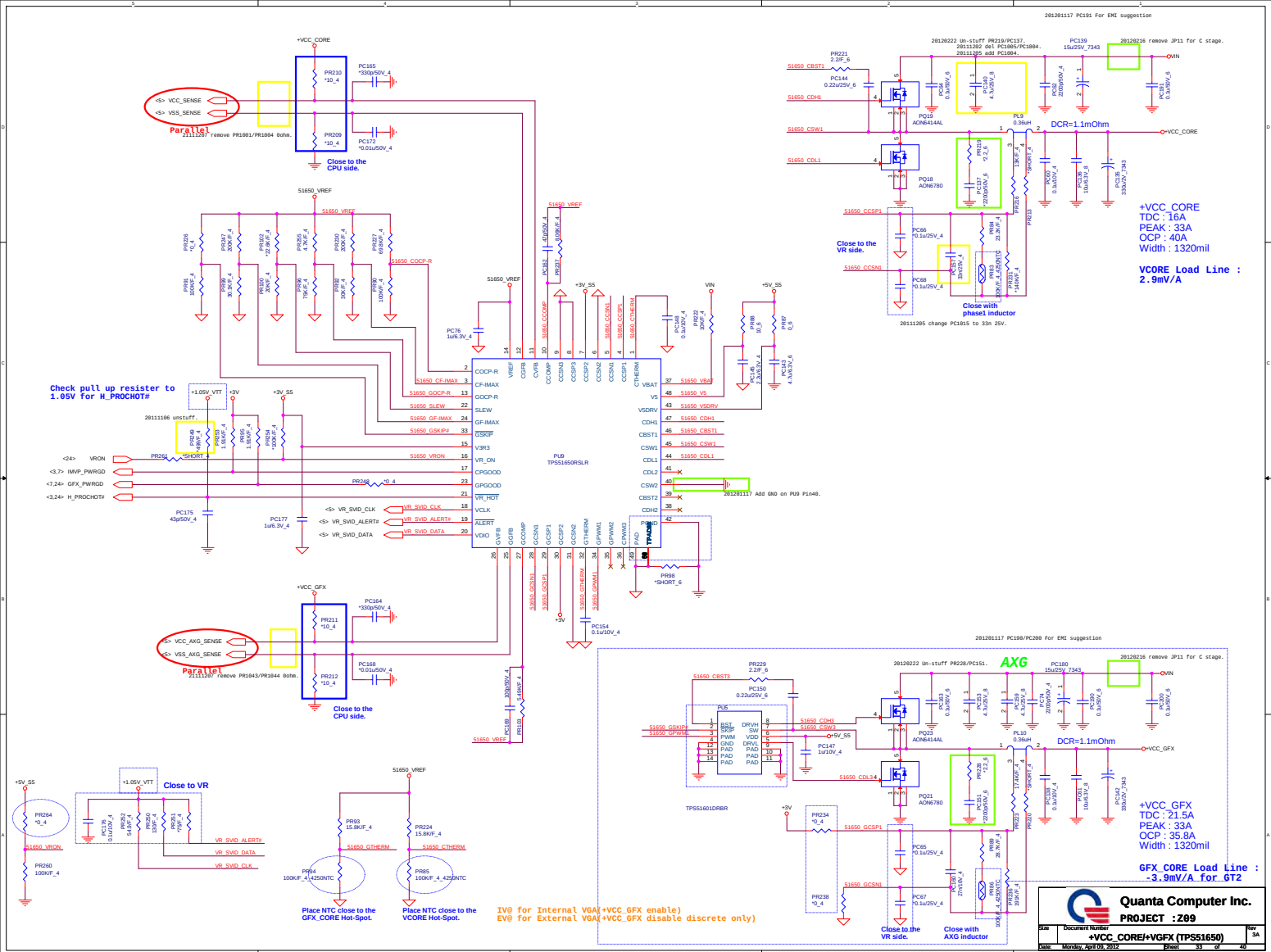


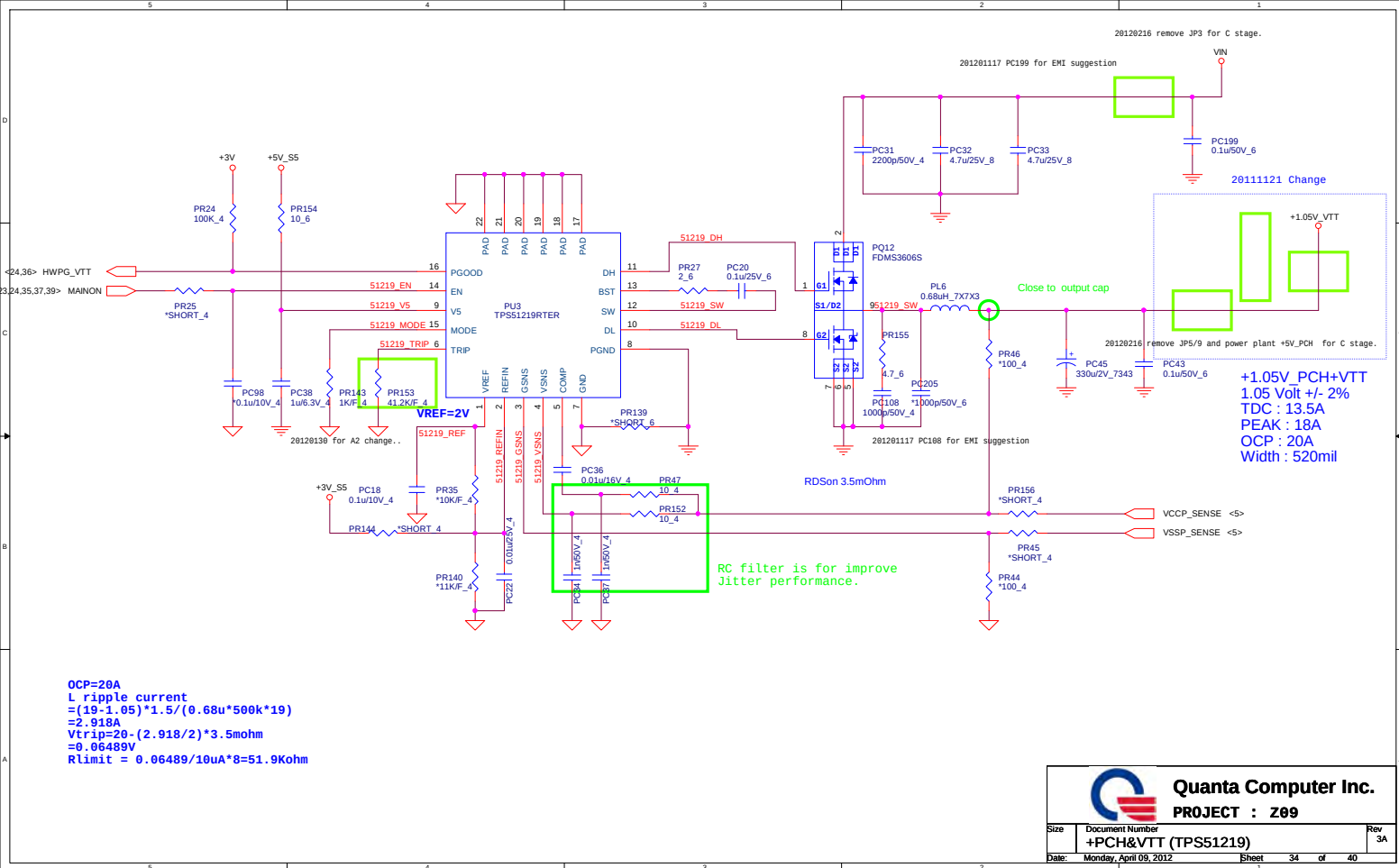


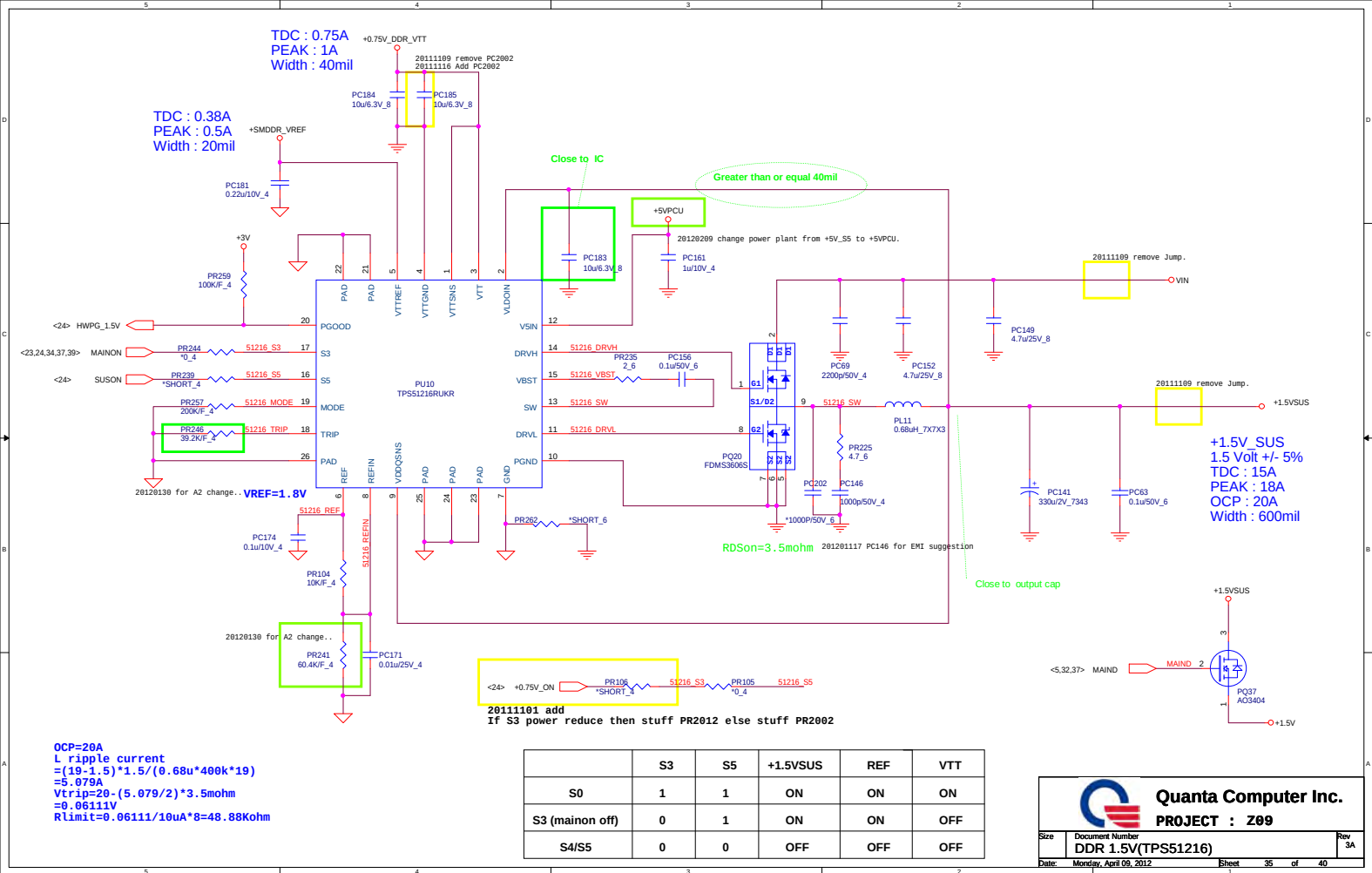


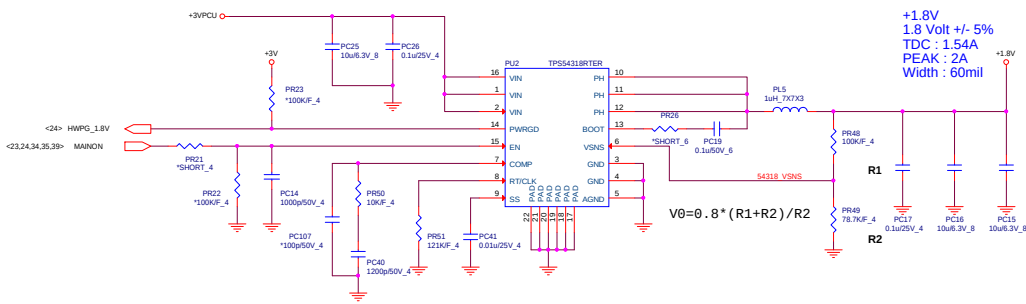








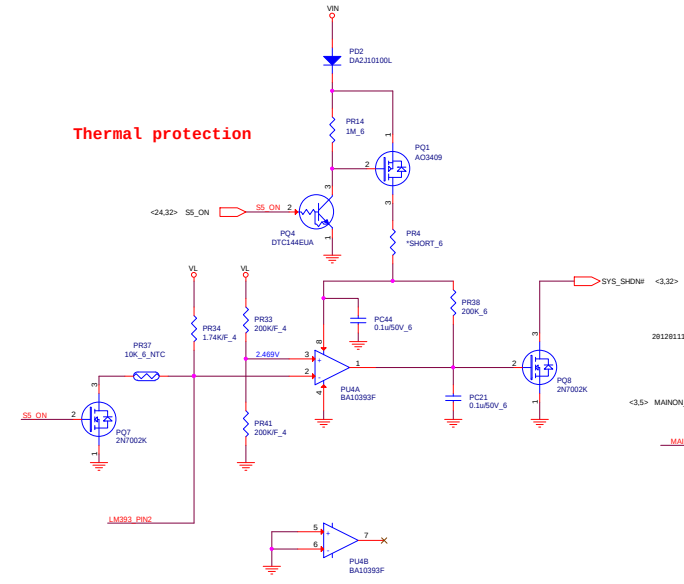




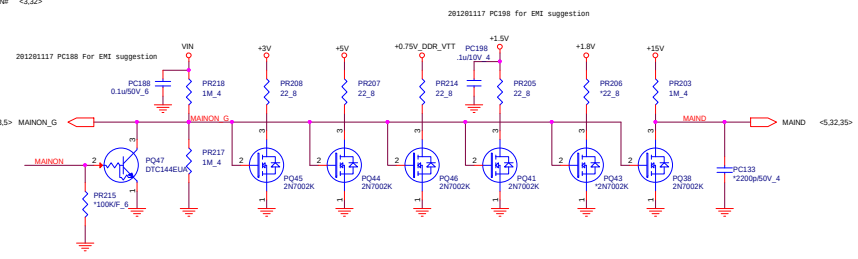
+1.8V
1.8 Volt +/- 5%
TDC : 1.54A
PEAK : 2A
Width : 60mil

$$V0 = 0.8 * (R1 + R2) / R2$$

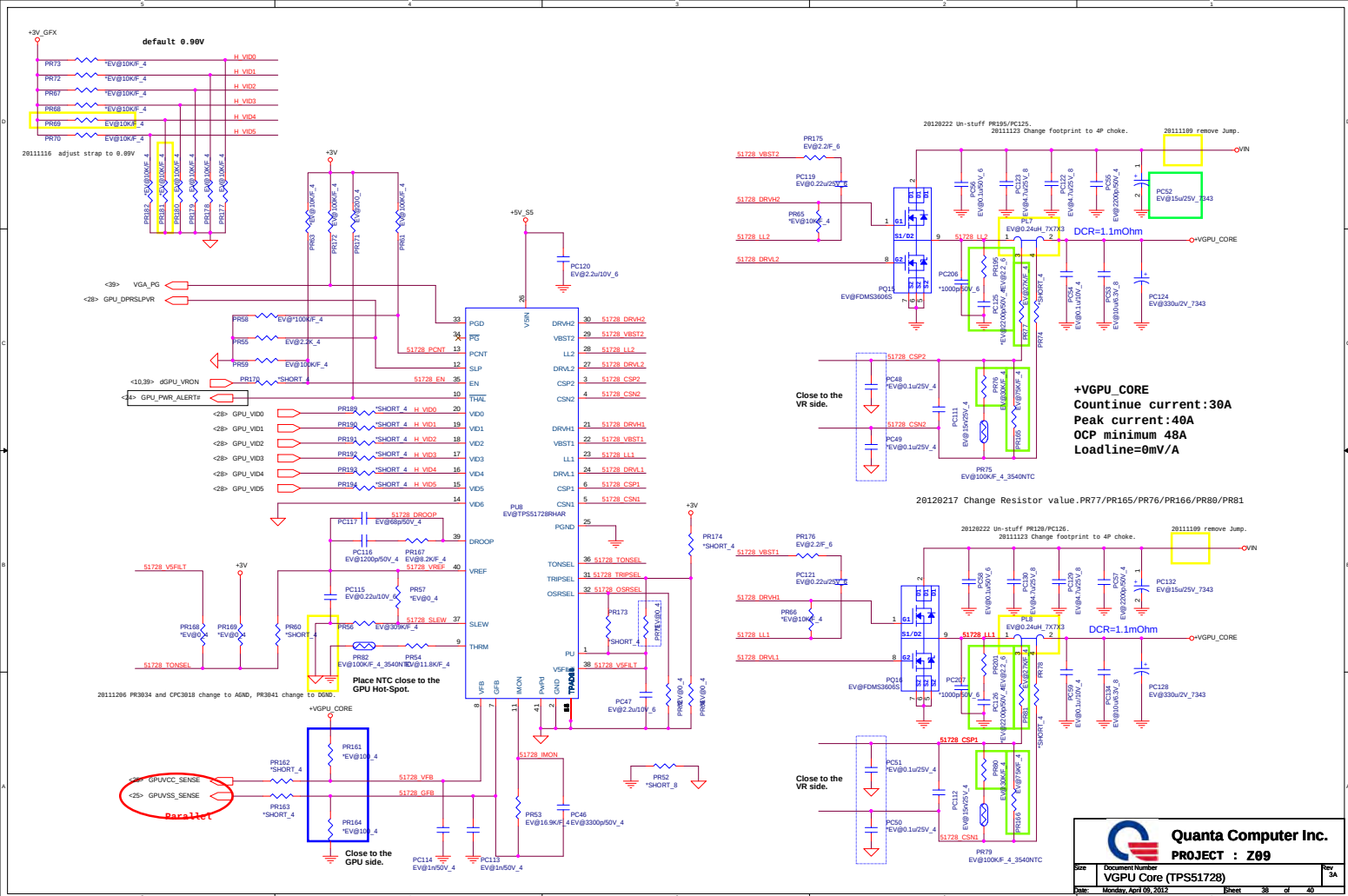
Thermal protection

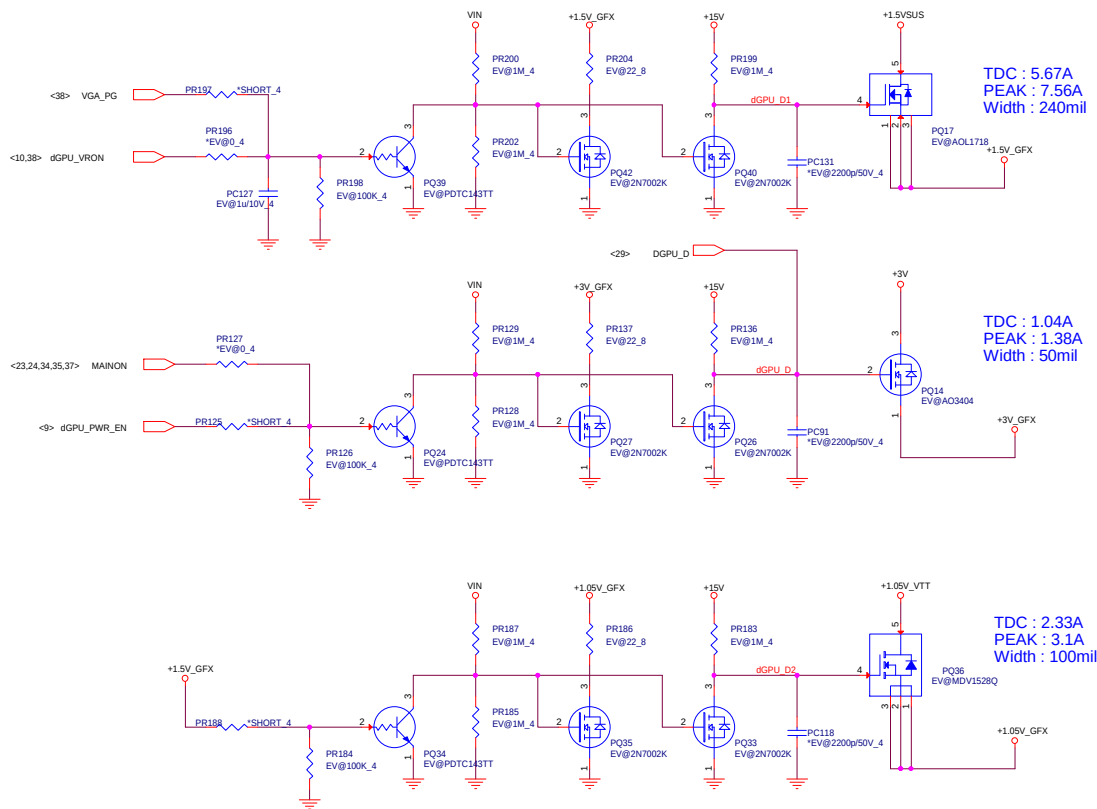


For EC control thermal protection (output 3.3V)



 Quanta Computer Inc. PROJECT : Z89	
Size	Document Number
Date	Monday, April 05, 2012
+1.8V/Discharge/Thermal	
Rev	3A





MODEL	REV	CHANGE LIST		MODEL	Z09		
		FROM	TO				
Z09	10.28	FIRST RELEASE					
		1A					
		1. 20111811 Modify USB VDDIO(Add PWD GPIO). 2. 20111811 Page 10 Add LED/Transceiver (only Power and Battery). 3. 20111811 Page 20/21 Remove GPIO/Analog ROM 14-driver IC. 4. 20111811 Page28 Change USB20 USB power switch power will be change to +5V.5S. 5. 20111811 Page 24 on-stuff USB0+/ resistor because it is reserve only during use. 6. 20111811 Page 11 Add USB20 ROM for CPU circuit. 7. 20111811 Page 47 Remove LED0 Data/IO. 8. 20111811 Page 63 Add Resistor R020/R021. 9. 20111811 Page 17 USB shift mode to SP power. 10. 20111811 Page 32-48 Power update circuit. 11. 20111811 Page17 Change R034 from 10k to 1.2k for Prevent EOS issue. 12. 20111811 del R038. 14. 20111811 page17 FPC and BMT remove. 15. 20111811 page17 BMT7 shift for PWD remove. 16. 20111811 page17 Ball 546 comment text point. 17. 20111811 update connector list without LVDS/MDIO/Analog/USB/RS485/000/100. 18. 20111811 Page 40 Remove R02. 19. 20111811 Page 20 add pull up 10K ROM to P02 C54. 20. 20111811 page 3 remove GPIO_P02_SLEW_RATE change to GPIO_P02_M0 C54. 21. 20111811 page 3 R033 PU from 1K to 10K/50 to +1.5V CPU because leakage issue. 22. 20111811 page 40.45 add memory data. 23. 20111811 page 20-23 change GPIO selection from 13P-30V to 13P-1P. 24. 20111811 page 42 change R040 from 10K to 1K PU P02020. 25. 20111811 page 10 on-stuff P02020 has on CPU D0111111 R033 on-stuff. 26. 20111811 page 47 R033 on-stuff, because ROM/MPU change to +5V CPU. 27. 20111811 page 14 unstuff R030/P020 and stuff Q040 for Deep S3. 28. 20111811 page 14 remove R034 PU 1.5V/002. 29. 20111811 page 20 move deluge port to C53. 30. 20111811 page 17 R040 change from 10K to 4.7K. 31. 20111811 page10 PU 10K to +5V, because no data I/O. 32. 20111811 page15 add Feature board con. 33. 20111811 page15 add TRM con. 34. 20111811 page15 VCC CPU change to: LOCAL: VCC_1.2 CPU: VCC_1.2 CPU1: 1.2V CPU2: 1.2V CPU3: 1.2V CPU4: 1.2V CPU5: 1.2V CPU6: 1.2V CPU7: 1.2V CPU8: 1.2V CPU9: 1.2V CPU10: 1.2V CPU11: 1.2V CPU12: 1.2V CPU13: 1.2V CPU14: 1.2V CPU15: 1.2V CPU16: 1.2V CPU17: 1.2V CPU18: 1.2V CPU19: 1.2V CPU20: 1.2V CPU21: 1.2V CPU22: 1.2V CPU23: 1.2V CPU24: 1.2V CPU25: 1.2V CPU26: 1.2V CPU27: 1.2V CPU28: 1.2V CPU29: 1.2V CPU30: 1.2V CPU31: 1.2V CPU32: 1.2V CPU33: 1.2V CPU34: 1.2V CPU35: 1.2V CPU36: 1.2V CPU37: 1.2V CPU38: 1.2V CPU39: 1.2V CPU40: 1.2V CPU41: 1.2V CPU42: 1.2V CPU43: 1.2V CPU44: 1.2V CPU45: 1.2V CPU46: 1.2V CPU47: 1.2V CPU48: 1.2V CPU49: 1.2V CPU50: 1.2V CPU51: 1.2V CPU52: 1.2V CPU53: 1.2V CPU54: 1.2V CPU55: 1.2V CPU56: 1.2V CPU57: 1.2V CPU58: 1.2V CPU59: 1.2V CPU60: 1.2V CPU61: 1.2V CPU62: 1.2V CPU63: 1.2V CPU64: 1.2V CPU65: 1.2V CPU66: 1.2V CPU67: 1.2V CPU68: 1.2V CPU69: 1.2V CPU70: 1.2V CPU71: 1.2V CPU72: 1.2V CPU73: 1.2V CPU74: 1.2V CPU75: 1.2V CPU76: 1.2V CPU77: 1.2V CPU78: 1.2V CPU79: 1.2V CPU80: 1.2V CPU81: 1.2V CPU82: 1.2V CPU83: 1.2V CPU84: 1.2V CPU85: 1.2V CPU86: 1.2V CPU87: 1.2V CPU88: 1.2V CPU89: 1.2V CPU90: 1.2V CPU91: 1.2V CPU92: 1.2V CPU93: 1.2V CPU94: 1.2V CPU95: 1.2V CPU96: 1.2V CPU97: 1.2V CPU98: 1.2V CPU99: 1.2V CPU100: 1.2V CPU101: 1.2V CPU102: 1.2V CPU103: 1.2V CPU104: 1.2V CPU105: 1.2V CPU106: 1.2V CPU107: 1.2V CPU108: 1.2V CPU109: 1.2V CPU110: 1.2V CPU111: 1.2V CPU112: 1.2V CPU113: 1.2V CPU114: 1.2V CPU115: 1.2V CPU116: 1.2V CPU117: 1.2V CPU118: 1.2V CPU119: 1.2V CPU120: 1.2V CPU121: 1.2V CPU122: 1.2V CPU123: 1.2V CPU124: 1.2V CPU125: 1.2V CPU126: 1.2V CPU127: 1.2V CPU128: 1.2V CPU129: 1.2V CPU130: 1.2V CPU131: 1.2V CPU132: 1.2V CPU133: 1.2V CPU134: 1.2V CPU135: 1.2V CPU136: 1.2V CPU137: 1.2V CPU138: 1.2V CPU139: 1.2V CPU140: 1.2V CPU141: 1.2V CPU142: 1.2V CPU143: 1.2V CPU144: 1.2V CPU145: 1.2V CPU146: 1.2V CPU147: 1.2V CPU148: 1.2V CPU149: 1.2V CPU150: 1.2V CPU151: 1.2V CPU152: 1.2V CPU153: 1.2V CPU154: 1.2V CPU155: 1.2V CPU156: 1.2V CPU157: 1.2V CPU158: 1.2V CPU159: 1.2V CPU160: 1.2V CPU161: 1.2V CPU162: 1.2V CPU163: 1.2V CPU164: 1.2V CPU165: 1.2V CPU166: 1.2V CPU167: 1.2V CPU168: 1.2V CPU169: 1.2					