UPCB1

IM3/IM3B M/B PCB REV:G

IM3 (Jolie) Discrete 256M & UMA Block Diagram VER : 3A

POWER
- AC/BATT CONNECTOR PG 55
- BATT CHARGER PG 48

HybridSLI POWER
- VGA Core +1.1V_GFX PG 53
- REGULATOR For GDDR3 +1.8V_RUN PG 50
- HybridSLI SW +3.3V_NB9X/+1.8V_FBVDDQ/ +1.1V_GFX_PCIE PG 23

Dual Core CPU
Intel Penryn
(25W)
(478 Micro-FCPGA)
35 x 35 mm
PG 3,4

1066 MHz FSB

SYSTEM POWER
- MCP VR +MCP_CORE PG 50
- CPU VR +VCC_CORE/ +1.05V_VCCP PG 49,54
- REGULATOR For DDR3 +1.5V_DDR/ +0.75V_DDR_VTT PG 51
- REGULATOR +3.3V_ALW/+5V_SRC/ +15V_ALW PG 52
- RUN/SUS POWER SW +5V/+3.3V/+1.5V_RUN +3.3V_SUS PG 56
- LDO +1.1V_SUS PG 53
- LDO +1.1V_RUN PG 51

NVIDIA
MCP79MX
(1437 Pin PBGA)
35 x 35 mm
PG 5~14

- DDR3-SODIMM -A PG 15 — 1066 MHZ DDR-III
- DDR3-SODIMM -B PG 16 — 1066 MHZ DDR-III
- LVDS x 1 Channel → Panel PG 26
- VGA → CRT CONN PG 27
- ML_LANE → MUX/DeMUX Switch Texas SN75DP122 (56 Pin QFN) 8 x 8 mm PG 28
  - HDMI → HDMI Connector PG 29
  - DP → Display Port PG 29
- PCIEx16 → NVIDIA GPU NB9M-GE(GB1-64) (533 BGA) 23 x 23 mm PG 17~23
  - Frame Buffer 32Mx32 Bit x 2 (136 FBGA) 11 x 14 mm
  - GDDR3 256MB PG 24,25
- PCI-E / USB2.0 → WLAN MINI-CARD Half size PG 32
- PCI-E / USB2.0 → WWAN MINI-CARD PG 33
- PCI-E / USB2.0 → UWB/BT MINI-CARD PG 33
- PCI-E / USB2.0 → Express Card PG 34 → Express Switch RICOH R5538D001 (20 QFN) 4 x 4 mm PG 34
- RGMII → PHY Broadcom B5071A2KFBG (100 BGA) 9 x 9 mm PG 45 → Magnetic PG 46 → RJ45 PG 46

IHDA → **AUDIO IDT 92HD73C** (56 LQFP) 9 x 9 mm PG 42
- Audio Jack -HP1 PG 44 → Amplifier Texas TPA4411MRTJR (20 Pin QFN) PG 43
- Audio Jack -MIC PG 44
- Audio Jack -HP2 PG 44 → Amplifier Texas TPA6040A4 (32 Pin QFN) PG 43
- Internal Speaker PG 38

- WebCam+DMIC PG 38 — USB2.0
- Fingerprint PG 38 — USB2.0
- USB CONN -Left PG 30 — USB2.0 x 2
- eSATA/USB COMBO CONN PG 30 — USB2.0
- SATA - ODD PG 31 — SATA2
- SATA - HDD PG 31 — SATA2
- 33MHz PCI

- 1394 CONN PG 41
- CardReader CONN PG 41
- **PC Card/1394 RICOH R5C833T** (128 Pin TQFP) 14 x 14 mm PG 40,41

LPC → **SIO ITE ITE8512E** (128 Pin LQFP) 16 x 16 mm PG 36
- SPI → FLASH Memory SPI, 2MB (8 Pin SO8W) PG 37
- PS/2 → Touchpad PG 38
- CIR PG 37
- K/B, CCD, D/B connector PG 38

- GPU THERMAL ADM1032
- GPU SS Clock PG1819G-08SR PG 19
- CPU Thermal & FAN SMSC1423 (10 TSSOP) 3 x 3 mm PG 35

QUANTA COMPUTER

Title	Schematic Block Diagram	
Size	Document Number IM3 (XPS-Jolie)	Rev 2A
Date: Thursday, October 23, 2008	Sheet 1 of 59	

INDEX

Power States

Power Rail	Control Signal	S0	S3	S4	S5	G3
+PWR_SRC	N/A	V	V	V	V	
+0.75V_DDR_VTT	RUN_ON	V				
+1.05V_VCCP	CPUVDD_EN	V				
+1.1V_GFX	+3.3V_NB9X	V				
+1.1V_GFX_PCIE	MXM_PWR_EN	V				
+1.1V_RMGT	SLP_RMGT#	V	V			
+1.1V_RUN	RUN_ON	V				
+1.1V_SUS	+3.3V_SUS	V	V			
+1.5V_RUN	RUN_ON	V				
+1.5V_DDR	SIO_SLP_S5#	V	V			
+1.8V_FBVDDQ	NB9_CORE_PWRGD	V				
+1.8V_RUN	RUN_ON	V				
+15V_ALW	+5V_ALW	V	V			
+3.3V_ALW	+5V_ALW2	V	V	V	V	
+3.3V_NB9X	MXM_PWR_EN	V				
+3.3V_RMGT	SLP_RMGT#	V	V			
+3.3V_RUN	RUN_ON	V				
+3.3V_SUS	SUS_ON	V	V			
+5V_ALW	5V_ALW_ON	V	V			
+5V_ALW2	+PWR_SRC	V	V	V	V	
+5V_HDD	HDDC_EN	V				
+5V_MOD	MODC_EN	V				
+5V_RUN	RUN_ON	V				
+GFX_PWR_SRC	RUN_ON	V				
+LCDVCC	EN_LCDVCC	V				
+MCP_CORE	RUN_ON	V				
+NB9_CORE	+3.3V_NB9X	V				
+RTC_CELL	N/A	V	V	V	V	V
+VCC_CORE	1.05V_VCCP_PWRGD	V				
+USB_RIGHT_PWR	USB_SIDE_EN#	V	V			
+USB_LEFT_PWR	USB_BACK_EN#	V	V			

QUANTA COMPUTER

Title	Index & Power Status	
Size	Document Number IM3 (XPS-Jolie)	Rev 2A
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U22A

ADDR GROUP_0 / ADDR GROUP_1 / CONTROL / XDP/ITP SIGNALS / THERMAL / H CLK / ICH / RESERVED

Penryn_uFCPGA478
BGA479-SKT-PZ47903-27

1 of 4
SYM_REV = 070904GC

U22B

DATA GRP 0 / DATA GRP 1 / DATA GRP 2 / DATA GRP 3 / MISC

2 of 4
SYM_REV = 070904GC

Penryn_uFCPGA478
BGA479-SKT-PZ47903-27

Layout Note: Keep 12 mils spacing and near CPU.

0701_Michael:NV review, depop R103 for B02

Layout Note: Place R380 close to CPU.

0604_Michael:Depop pull-up R380 on H_RESET#

Layout Note: Place voltage divider within 0.5" of GTLREF pin

1022_Michael:Remove H_THERMTRIP connector to MCP79

Note: H_DPRTSTP need to daisy chain from ICH8 to IMVP6 to CPU.

FSB	BCLK	BSEL2	BSEL1	BSEL0
533	133	0	0	1
667	166	0	1	1
800	200	0	1	0
1066	266	0	0	0

For the purpose of testability, route these signals through a ground referenced Z0 = 55ohm trace that ends in a via that is near a GND via and is accessible through an oscilloscope connection.

CPU THERMTRIP Circuit

1022_Michael:Add R355 for voltage low issue

0823_Michael:Follow RM2 to change CPU THERMTRIP circuit

Place C close to the CPU_TEST4 pin. Make sure CPU_TEST4 routing is reference to GND and away from other noisy signal.

Comp0,2 connect with Zo=27.4ohm,Comp1,3 connect with Zo=55ohm, make those traces length shorter than 0.5".Trace should be at least 25 mils away from any other toggling signal.

Populate ITP700Flex for bringup

Layout Note: Place couple 0.1uF Decoupling caps with in 0.1" ITP connector.

*ITP700Flex_NC

Layout Note: Place R7000,R7411, R7409, R7410, R7387 , R7386 close to CPU

ITP disable guidelines

Signal	Resistor Value	Connect To	Resistor Placement
TDI	150 ohm +/- 5%	VTT	Within 2.0" of the ITP
TMS	39 ohm +/- 5%	VTT	Within 2.0" of the ITP
TRST#	680 ohm +/- 5%	GND	Within 2.0" of the ITP
TCK	27 ohm +/- 5%	GND	Within 2.0" of the ITP
TDO	Open	VTT	Within 2.0" of the ITP
ITP_EN	R268 Depop	+3VRUN	Close to CK410M Pin8

QUANTA COMPUTER

Title	Penryn Processor (HOST BUS)	
Size	Document Number: IM3 (XPS-Jolie)	Rev: 2A
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All use 10U 4V(+-20%,X6S,0805) Pb-Free.

+VCC_CORE

C541 10U/4V 0805
C294 10U/4V 0805
C273 10U/4V 0805
C244 10U/4V 0805
C526 10U/4V 0805

C293 10U/4V 0805
C272 10U/4V 0805
C243 10U/4V 0805
C260 10U/4V 0805
C261 10U/4V 0805

8 inside cavity, north side, secondary layer.

C316 10U/4V 0805
C328 10U/4V 0805
C317 10U/4V 0805
C329 10U/4V 0805
C330 10U/4V 0805

C245 10U/4V 0805
C262 10U/4V 0805
C318 10U/4V 0805
C536 10U/4V 0805
C530 10U/4V 0805

<Voltage>

8 inside cavity, south side, secondary layer.

C520 10U/4V 0805
C515 10U/4V 0805
C525 10U/4V 0805
C524 10U/4V 0805
C537 10U/4V 0805
C542 10U/4V 0805

6 inside cavity, north side, primary layer.

C540 10U/4V 0805
C535 10U/4V 0805
C522 10U/4V 0805
C517 10U/4V 0805
C521 10U/4V 0805
C516 10U/4V 0805

6 inside cavity, south side, primary layer.

+1.05V_VCCP

C275 0.1U/10V
C298 0.1U/10V
C288 0.1U/10V
C276 0.1U/10V
C289 0.1U/10V
C299 0.1U/10V

Layout out:
Place these inside socket cavity on North side secondary.

U22C

+VCC_CORE: A7, A9, A10, A12, A13, A15, A17, A18, A20, B7, B9, B10, B12, B14, B15, B17, B18, B20, C9, C10, C12, C13, C15, C17, C18, D9, D10, D12, D14, D15, D17, D18, E7, E9, E10, E12, E13, E15, E17, E18, E20, F7, F9, F10, F12, F14, F15, F17, F18, F20, AA7, AA9, AA10, AA12, AA13, AA15, AA17, AA18, AA20, AB9, AC10, AB10, AB12, AB14, AB15, AB17, AB18

+VCC_CORE: AB20, AB7, AC7, AC9, AC12, AC13, AC15, AC17, AC18, AD7, AD9, AD10, AD12, AD14, AD15, AD17, AD18, AE9, AE10, AE12, AE13, AE15, AE17, AE18, AE20, AF9, AF10, AF12, AF14, AF15, AF17, AF18, AF20

+1.05V_VCCP: G21, V6, J6, K6, M6, J21, K21, M21, N21, N6, R21, R6, T21, T6, V21, W21

+1.05V_VCCP
C284 220U/4V 7343

+1.5V_RUN: B26

VCCA[01]: C26

VID[0]: AD6
VID[1]: AF5
VID[2]: AE5
VID[3]: AF4
VID[4]: AE3
VID[5]: AF3
VID[6]: AE2

VID0 49
VID1 49
VID2 49
VID3 49
VID4 49
VID5 49
VID6 49

VCCSENSE: AF7 — VCCSENSE 49
VSSSENSE: AE7 — VSSSENSE 49

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SYM_REV = 070904GC
Penryn_uFCPGA478
BGA479-SKT-PZ47903-27

+1.5V_RUN
C508 0.01U/25V
C507 10U/4V 0805

Layout Note:
Place C105 near PIN B26.

+VCC_CORE
R242 100/F
VCCSENSE
VSSSENSE
R243 100/F

Route VCCSENSE and VSSSENSE traces at 27.4ohms and length matched to within 25 mil. Place PU and PD within 2 inch of CPU.

U22D

A4, A8, A11, A14, A16, A19, A23, AF2, B6, B8, B11, B13, B16, B19, B21, B24, C5, C8, C11, C14, C16, C19, C2, C22, C25, D1, D4, D8, D11, D13, D16, D19, D23, D26, E3, E6, E8, E11, E14, E16, E19, E21, E24, F5, F8, F11, F13, F16, F19, E2, F22, F25, G4, G1, G23, G26, H3, H6, H21, H24, J2, J5, J22, J25, K1, K4, K23, K26, L3, L6, L21, L24, M2, M5, M22, M25, N1, N4, N23, N26, P3

VSS[001] VSS[002] VSS[003] VSS[004] VSS[005] VSS[006] VSS[007] VSS[008] VSS[009] VSS[010] VSS[011] VSS[012] VSS[013] VSS[014] VSS[015] VSS[016] VSS[017] VSS[018] VSS[019] VSS[020] VSS[021] VSS[022] VSS[023] VSS[024] VSS[025] VSS[026] VSS[027] VSS[028] VSS[029] VSS[030] VSS[031] VSS[032] VSS[033] VSS[034] VSS[035] VSS[036] VSS[037] VSS[038] VSS[039] VSS[040] VSS[041] VSS[042] VSS[043] VSS[044] VSS[045] VSS[046] VSS[047] VSS[048] VSS[049] VSS[050] VSS[051] VSS[052] VSS[053] VSS[054] VSS[055] VSS[056] VSS[057] VSS[058] VSS[059] VSS[060] VSS[061] VSS[062] VSS[063] VSS[064] VSS[065] VSS[066] VSS[067] VSS[068] VSS[069] VSS[070] VSS[071] VSS[072] VSS[073] VSS[074] VSS[075] VSS[076] VSS[077] VSS[078] VSS[079] VSS[080] VSS[081]

VSS[082] VSS[083] VSS[084] VSS[085] VSS[086] VSS[087] VSS[088] VSS[089] VSS[090] VSS[091] VSS[092] VSS[093] VSS[094] VSS[095] VSS[096] VSS[097] VSS[098] VSS[099] VSS[100] VSS[101] VSS[102] VSS[103] VSS[104] VSS[105] VSS[106] VSS[107] VSS[108] VSS[109] VSS[110] VSS[111] VSS[112] VSS[113] VSS[114] VSS[115] VSS[116] VSS[117] VSS[118] VSS[119] VSS[120] VSS[121] VSS[122] VSS[123] VSS[124] VSS[125] VSS[126] VSS[127] VSS[128] VSS[129] VSS[130] VSS[131] VSS[132] VSS[133] VSS[134] VSS[135] VSS[136] VSS[137] VSS[138] VSS[139] VSS[140] VSS[141] VSS[142] VSS[143] VSS[144] VSS[145] VSS[146] VSS[147] VSS[148] VSS[149] VSS[150] VSS[151] VSS[152] VSS[153] VSS[154] VSS[155] VSS[156] VSS[157] VSS[158] VSS[159] VSS[160] VSS[161] VSS[162] VSS[163]

P6, P21, P24, R2, R5, R22, R25, T1, T4, T23, T26, U3, U6, U21, U24, V2, V5, V22, V25, W1, W4, W23, W26, Y3, Y6, Y21, Y24, AA2, AA5, AA8, AA11, AA14, AA16, AA19, AA22, AA25, AB1, AB4, AB8, AB11, AB13, AB16, AB19, AB23, AB26, AC3, AC6, AC8, AC11, AC14, AC16, AC19, AC21, AC24, AD2, AD5, AD8, AD11, AD13, AD16, AD19, AD22, AD25, AE1, AE4, AE8, AE11, AE14, AE16, AE19, AE23, AE26, A2, AF6, AF8, AF11, AF13, AF16, AF19, AF21, A25, AF25

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SYM_REV = 070904GC
Penryn_uFCPGA478
BGA479-SKT-PZ47903-27

QUANTA COMPUTER

Title	Penryn Processor (POWER)	
Size	Document Number IM3 (XPS-Jolie)	Rev 2A
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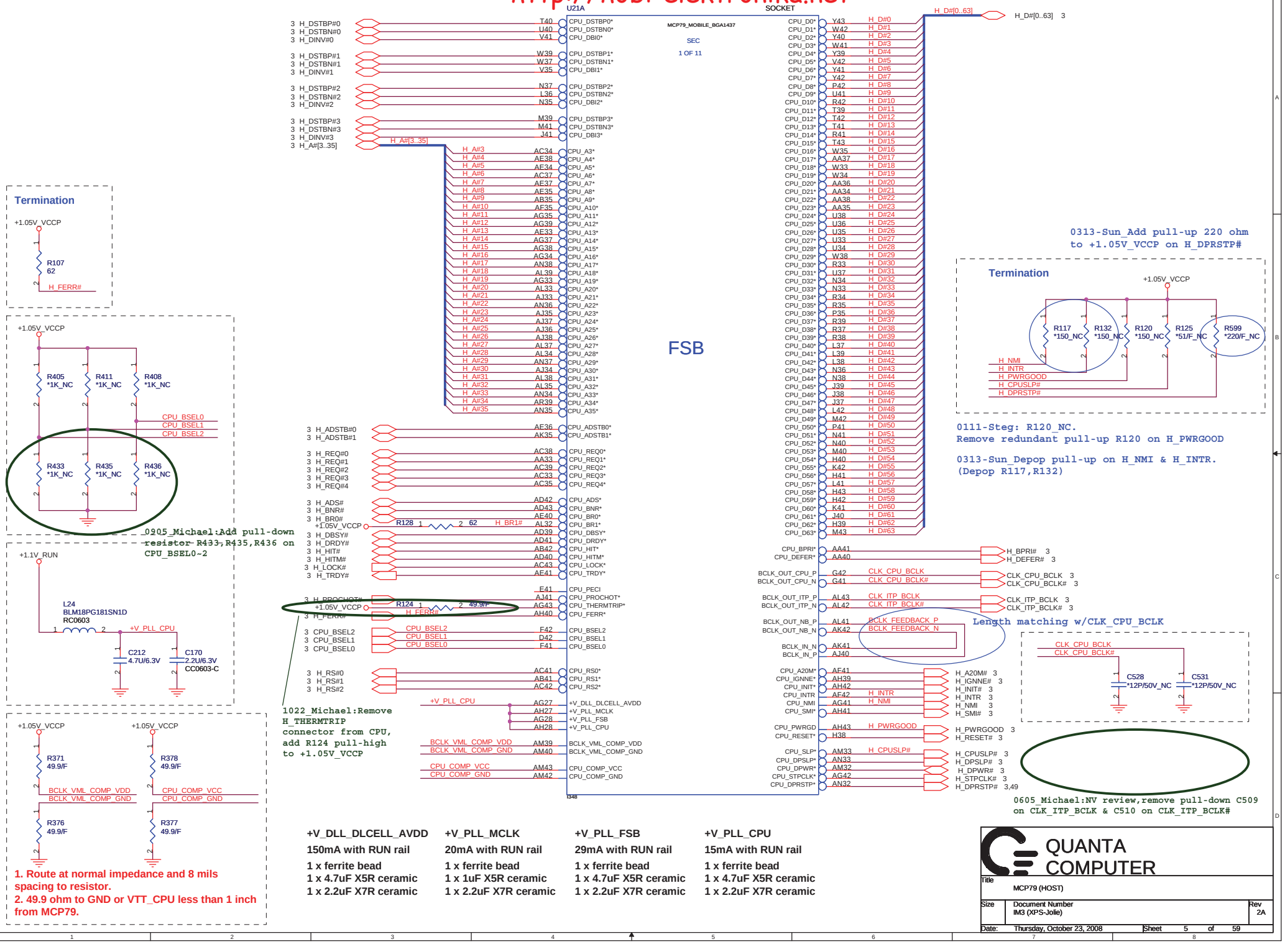

+V_DLL_DLCELL_AVDD
150mA with RUN rail
1 x ferrite bead
1 x 4.7uF X5R ceramic
1 x 2.2uF X7R ceramic

+V_PLL_MCLK
20mA with RUN rail
1 x ferrite bead
1 x 1uF X5R ceramic
1 x 2.2uF X7R ceramic

+V_PLL_FSB
29mA with RUN rail
1 x ferrite bead
1 x 4.7uF X5R ceramic
1 x 2.2uF X7R ceramic

+V_PLL_CPU
15mA with RUN rail
1 x ferrite bead
1 x 4.7uF X5R ceramic
1 x 2.2uF X7R ceramic

QUANTA COMPUTER

Title	MCP79 (HOST)	
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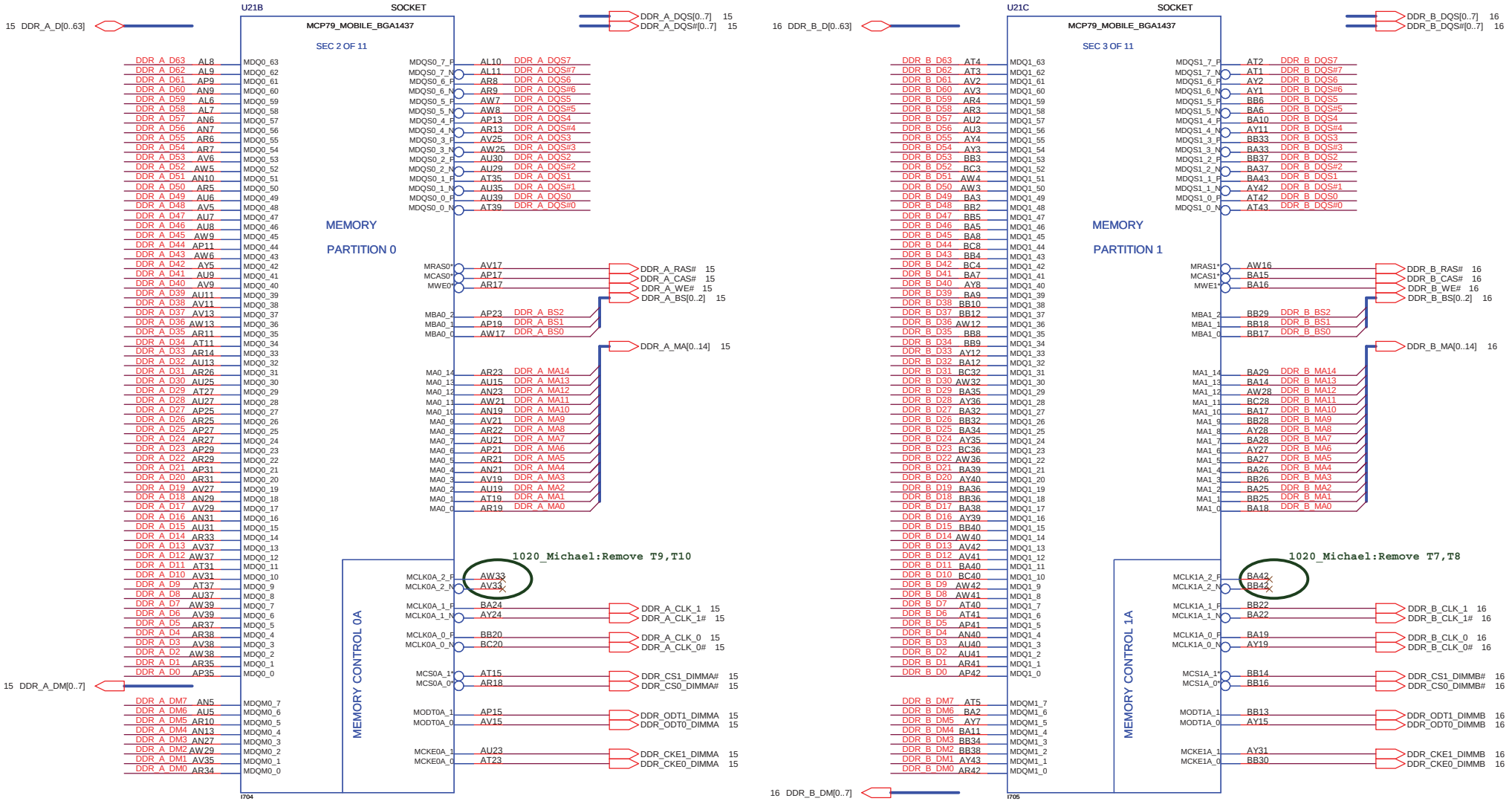

Layout Notice:

Memory Data Signal Group

MCP79 BGA Breakout (<175ps): Route at 50 ohm impedance and 1.5x dielectric height spacing.

After Breakout: Route at 40 ohm impedance and 4x(Microstrip) or 3x(Stripline) dielectric spacing.

DIMM Fan-in (<90ps): Route at 40 ohm impedance and 1.5x dielectric height spacing.

Memory Data Strobes

Route strobes differentially at 66 ohm impedance (42 ohm SE) and 5x dielectric height spacing to other signals.

Memory Clock Signal Group

MCP79 BGA Breakout (<90ps): Route at 50 ohm SE / 100 ohm differential impedance.

After Breakout: Route at 40 ohm SE / 66 ohm differential impedance and 5x dielectric height spacing to other signals.

Memory Address/Command/Control Signal Group

MCP79 BGA Breakout (<90ps): Route at 50 ohm impedance and 1.5x dielectric height spacing.

After Breakout: Route at 40 ohm impedance and 2x dielectric height to other signals and 3x dielectric spacing to other non-associated signals.

DIMM Fan-in (<90ps): Route at 40 ohm impedance and 1.5x dielectric height spacing.

QUANTA COMPUTER

Title	MCP79 (DDR3)	
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U21D SOCKET

MCP79_MOBILE_BGA1437

SEC 4 OF 11

MEMORY CONTROL 0B / MEMORY CONTROL 1B

+V_VPLL
39mA with RUN rail

+V_PLL_XREF_XS
17mA with RUN rail

+V_PLL_CORE
19mA with RUN rail

+V_PLL_DP
12mA with RUN rail

1 x ferrite bead
1 x 4.7uF X5R ceramic
1 x 0.1uF X7R ceramic

+1.1V_RUN
L28
BLM18PG181SN1D
RC0603
C250 4.7U/6.3V
C738 4.7U/6.3V
C254 2.2U/6.3V CC0603
+V_PLL_XREF

0910_Michael:Follow NV check list
add 4.7U C738

MEM_COMP_VDD
MEM_COMP_GND

0102-Sun_Change MEM_COMP_VDD & MEM_COMP_GND setting
MEM_COMP_VDD from +1.5V_RUN to GND &
MEM_COMP_GND from GND to +1.5V_RUN

R372 40.2/F
R373 40.2/F
+1.5V_RUN

Layout Notice:
1. 40.2 +-1% ohm to +1.5V_SUS less than 1 inch from MCP79 for DDR3.
2. Route with 7 mils trace width and 8 mils spacing to termination reisitor.

0605_Michael:Remove 0ohm R93

MRESET0* AY32 → MEM_RESET# 15,16

4.3A with ALW rail for S0
318mA for S0 Idle

1 x 2.2uF ceramic
12 x 0.1uF X7R ceramic

+1.5V_RUN

C103 2.2U/6.3V CC0603-C
C160 C157 C159 C152 C151 0.1U/10V

0918_Michael:Follow NV checklist
change value from 4.7U to 2.2U

C161 C162 C146 C93 C112 C109 0.1U/10V

1217- AC Stitch Cap

+1.5V_RUN
C131 C130 C132 0.1U/10V

QUANTA COMPUTER

Title	MCP79 (MEM POWER)	
Size	Document Number IM3 (XPS-Jolie)	Rev 2A
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PCIE Layout Notice:
MCP79 BGA Breakout (<27ps):
Route at 50 ohm impedance and 1.5x dielectric height spacing.
After Breakout:
Route at 50 Signal end and 90 ohm differential.
Inter-pair spacing 4x (Microstrip) dielectric height spacing 3x (Stripline) dielectric height spacing.

U21E — MCP79_MOBILE_BGA1437 — SOCKET — SEC 5 OF 11

PCIE

17 PCIE_MRX_GTX_P[0..15]
17 PCIE_MRX_GTX_N[0..15]

PCIE_MTX_GRX_P[0..15] 17
PCIE_MTX_GRX_N[0..15] 17

0605_Michael:Remove 0ohm
R185 on MXM_ON#
R433,R435,168 pull-down to GND
R177 on PE_RESET_MXM#
R458 on PCIE_WAKE#

Express Card / WLAN / UWB/BT / WWAN

+3.3V_SUS
R211 100K_UMA
MXM_PRESENT#
R210 1K_DIS

0314_Change MXM_PRESENT# pull down RES (R210) from 100k to 1k ohm base on NV suggestion

0825_Michael:Add KB detect function
0918_Michael:Remove KB detect function
0920_Michael:Add KB detect function

D9 CH751H-40NPT

0605_Michael:Remove Test pad T21,T22,T28,T30

+1.1V_RUN
JP3 SHORT40X18

482mA with RUN rail

0312-Sun_Change footprint to normal short type "short40x18"

1 x 2.2uF X5R ceramic
2 x 1uF X7R ceramic
2 x 0.1uF X7R ceramic

C227 2.2U/6.3V CC0603-C
C740 1U/6.3V
C234 1U/6.3V
C233 0.1U/10V
C253 0.1U/10V

0918_Michael:Follow NV checklist change value from 4.7U to 2.2U and add 1U

+1.1V_RUN
L22 BLM18PG181SN1D RC0603

82mA with RUN rail

1 x ferrite bead
1 x 4.7uF X5R ceramic
1 x 2.2uF X7R ceramic

C256 4.7U/6.3V CC0603
C229 2.2U/6.3V CC0603

PE_CLK_COMP
R434 *2.37K/F_NC

+3.3V_SUS
C579 0.047U/10V
U25 TC7SZ32FU(T5L,F,T)
PE_RESET# C
PE_RESET# 17,32,33,34,36

L6 BLM21PG600SN1D

0624_Michael:Change L6 type from BLM21PG331SN1D to BLM21PG600SN1D

1304mA with RUN rail

1x ferrite bead
1x 10uF
1 x 2.2uF X5R ceramic
2 x 1uF X5R ceramic
2 x 0.1uF X7R ceramic

C105 10U/6.3V CC0603
C228 0.1U/10V
C183 0.1U/10V
C240 1U/6.3V
C266 1U/6.3V
C216 2.2U/6.3V CC0603

0918_Michael:Follow NV checklist change value from 4.7U to 2.2U

T517 pad-s1

1221-Sun_Add dummy part for +AVDD_PEX

QUANTA COMPUTER		
Title: MCP79 (PCIE)		
Size	Document Number: IM3 (XPS-Jolie)	Rev: 2A
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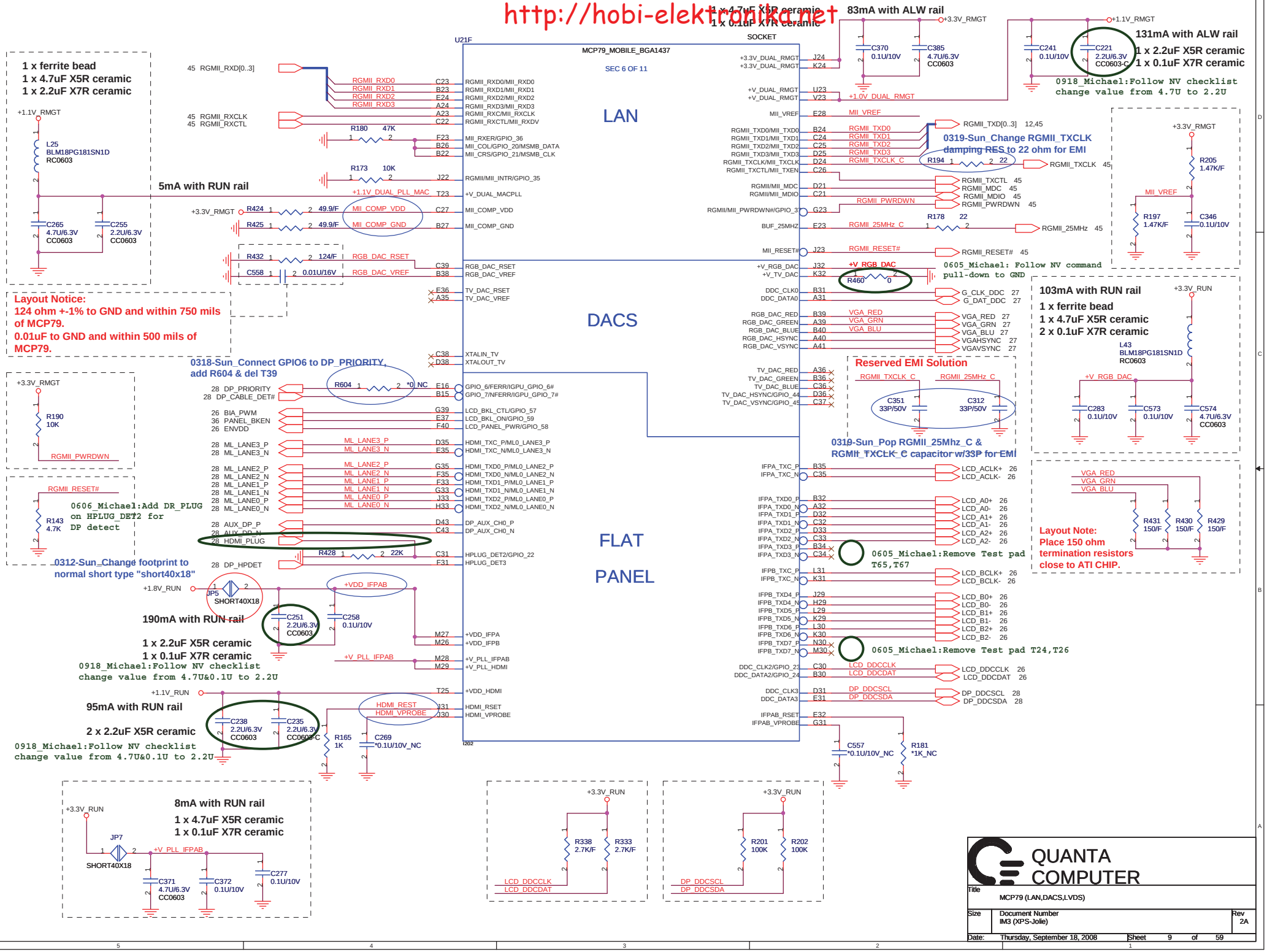

U21G
MCP79_MOBILE_BGA1437
SOCKET
SEC 7 OF 11

PCI

LPC

GND

0630_Michael:Remove Mini PCI CN8 and circuit

Layout Notice:
Cap placed within 500 mil of MCP79.
C242 15P/50V
C252 15P/50V

0319-Sun_Pop PCI_CLK capacitor w/15P for COMM

0605_Michael:NV review,remove pull-up R576 to +3.3V_SUS
0627_Michael:Add pull-up R208 to +3.3V_SUS(Leave Empty)
R208 *10K_NC

0606_Michael:Remove Test pad T77 and pull-down C257 to GND

Layout Notice:
Serise resistor placed within 500 mil of MCP79.
Length matching w/PCI_CLK*

Layout Notice:
33 ohm serise resistor placed within 500 mil of MCP79.

0607_Michael:Remove pull-up R126 to +3.3V_RUN

0823_Michael:Follow NV checklist MXM_PWR_EN pull-down 10K to GND

Termination

RP1 8.2KX8
RP2 8.2KX8
R127 8.2K MXM_ON#
R331 *8.2K_NC CLKRUN#
R281 10K MXM_PWR_EN

MCP79 Strapping

0605_Michael:NV review,remove pull-up R237 & R390 to +3.3V_SUS

R198 10K
R385 10K

Boot BIOS Strapping		
	HDA_SDATA_OUT	LPC_FRAME#
LPC BIOS	0	0
PCI BIOS	0	1
SPI BIOS(CS0)	1	0
SPI BIOS(CS1)	1	1

QUANTA COMPUTER

Title	MCP79 (PCI,LPC)	
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0318-Sun_change left USB port from port1 to port0 for NV remote SW debug.

U21H
MCP79_MOBILE_BGA1437
SEC 8 OF 11
SOCKET

SATA

SATA_TX0+ 31, SATA_TX0- 31 — C126 0.01U/25V, C133 0.01U/25V — SATA_TX0+_C, SATA_TX0-_C — AJ7 SATA_A0_TX_P, AJ6 SATA_A0_TX_N
SATA_RX0- 31, SATA_RX0+ 31 — AJ5 SATA_A0_RX_N, AJ4 SATA_A0_RX_P

SATA_TX1+ 31, SATA_TX1- 31 — C116 0.01U/25V, C115 0.01U/25V — SATA_TX1+_C, SATA_TX1-_C — AJ11 SATA_A1_TX_P, AJ10 SATA_A1_TX_N
SATA_RX1- 31, SATA_RX1+ 31 — AJ9 SATA_A1_RX_N, AK9 SATA_A1_RX_P

SATA_TX2+ 30, SATA_TX2- 30 — C511 0.01U/25V, C512 0.01U/25V — SATA_TX2+_C, SATA_TX2-_C — AK2 SATA_B0_TX_P, AJ3 SATA_B0_TX_N
SATA_RX2- 30, SATA_RX2+ 30 — AJ2 SATA_B0_RX_N, AJ1 SATA_B0_RX_P

AM4 SATA_B1_TX_P, AL3 SATA_B1_TX_N
AL4 SATA_B1_RX_N, AK3 SATA_B1_RX_P

AN1 SATA_C0_TX_P, AM1 SATA_C0_TX_N
AM2 SATA_C0_RX_N, AM3 SATA_C0_RX_P

AP3 SATA_C1_TX_P, AP2 SATA_C1_TX_N
AN3 SATA_C1_RX_N, AN2 SATA_C1_RX_P

E12 SATA_LED#

SATA Layout Notice:
BGA Breakout:
Route differentially at normal impedance and 4 mils within pair and 6 mils to other signals.Maximum brackout distance is 400 mils of MCP79.
BGA Fan-out:
Route differentially at normal impedance and 4 mils within pair and 10 mils to other signals.Maximum BGA brackout plus Fan-out distance is 500 mils.
After Brackout:
Route at 100 ohm differential impedance (50 ohm SE) and 3x dielectric height spacing to other signals.
TX and RX intra-pair skew for a differential pair is 5 mils.

USB

Left Side (froth): USB0_P C29 MCP_USB0+, USB0_N D29 MCP_USB0- → MCP_USB0+ 30, MCP_USB0- 30
Left Side: USB1_P C28, USB1_N D28
Combo (eSATA/USB): USB2_P A28 MCP_USB2+, USB2_N B28 MCP_USB2- → MCP_USB2+ 30, MCP_USB2- 30
USB3_P F29, USB3_N G29 — 1020_Michael:Remove T36,T37
Mini Card (WLAN): USB4_P K27 MCP_USB4+, USB4_N L27 MCP_USB4- → MCP_USB4+ 32, MCP_USB4- 32
Mini Card (WWAN): USB5_P J26 MCP_USB5+, USB5_N J27 MCP_USB5- → MCP_USB5+ 33, MCP_USB5- 33
Mini Card (WPAN): USB6_P F27 MCP_USB6+, USB6_N G27 MCP_USB6- → MCP_USB6+ 33, MCP_USB6- 33
Express Card: USB7_P D27 MCP_USB7+, USB7_N E27 MCP_USB7- → MCP_USB7+ 34, MCP_USB7- 34
USB8_P K25, USB8_N L25 — 1020_Michael:Remove T23,T29,T32,T34
USB9_P H25, USB9_N J25
Biometric: USB10_P F25, USB10_N G25 — 0616_Michael:Cancel fingerprinter and remove MCP_USB10+/-
Camera: USB11_P K23 MCP_USB11+, USB11_N L23 MCP_USB11- → MCP_USB11+ 38, MCP_USB11- 38

0605_Michael: Follow NV command change power rail from +3.3V_RUN to +3.3V_SUS
0704_Michael:Move R7 pull-up to +3.3V_SUS close to MCP79

0625_Michael:Add R403 for debug if have need
R7 2.7K/F +3.3V_SUS
R403 0
MEM_HOT# 15,16

USB_OC0#/GPIO_25 L21 USB_OC0# 30
USB_OC1#/GPIO_26 K21 USB_OC1# 30
USB_OC2#/GPIO_27/MGPIO J21 R423 10K +3.3V_SUS
USB_OC3#/GPIO_28/MGPIO H21

+V_PLL_USB L28 +V_PLL_USB
+V_PLL_USB
18mA with Run rail
1 x ferrite bead
1 x 4.7uF X5R ceramic
1 x 0.1uF X7R ceramic

+1.1V_RUN — L9 BLM18PG181SN1D RC0603 — +V_PLL_SATA
+V_PLL_SATA
163mA with RUN rail
1x ferrite bead
1 x 4.7uF X5R ceramic
1 x 0.1uF X7R ceramic
C72 1U/10V CC0603, C77 4.7U/6.3V CC0603, C176 2.2U/6.3V CC0603-C

+3.3V_RUN — L30 BLM18PG181SN1D RC0603
C287 2.2U/6.3V CC0603, C361 4.7U/6.3V CC0603

39 SATA_ACT#

+V_PLL_SATA AE16 +V_PLL_SATA

+1.1V_RUN — 0312-Sun_Change footprint to normal short type"short40x18" — JP2 SHORT40X18
0918_Michael:Follow NV checklist change value from 4.7U to 2.2U
+DVDD0_SATA
117mA with RUN rail
1 x 2.2uF X5R ceramic
1 x 0.1uF X7R ceramic
C65 2.2U/6.3V CC0603, C63 0.1U/10V
0605_Michael: Remove 0ohm R123

AE19 +DVDD0_SATA, AG16 +DVDD0_SATA, AG17 +DVDD0_SATA, AG19 +DVDD0_SATA
AH17 +DVDD1_SATA, AH19 +DVDD1_SATA

AJ12 +AVDD0_SATA, AN11 +AVDD0_SATA, AK12 +AVDD0_SATA, AK13 +AVDD0_SATA, AL12 +AVDD0_SATA, AM11 +AVDD0_SATA, AM12 +AVDD0_SATA, AN12 +AVDD0_SATA, AL13 +AVDD0_SATA

L8 BLM18PG181SN1D RC0603 — +AVDD0_SATA
+AVDD0_SATA
363mA with RUN rail
1x ferrite bead
1x 10uF
1 x 2.2uF X5R ceramic
3 x 0.1uF X7R ceramic
C94 10U/6.3V CC0805, C96 2.2U/6.3V CC0603-C, C510 0.1U/10V, C166 0.1U/10V, C92 0.1U/10V

AN14 +AVDD1_SATA, AL14 +AVDD1_SATA, AM13 +AVDD1_SATA, AM14 +AVDD1_SATA

0910_Michael:Follow NV check list add 0.1U C510
0918_Michael:Follow NV checklist change value from 4.7U to 2.2U
0605_Michael: Remove 0ohm R109

AE3 SATA_TERMP — SATA_TERMP — R136 2.49K/F

Layout Notice:
2.49K ohm to GND within 500 mils of MCP79.
Routing 8 mils spacing to resistor.

USB_RBIAS_GND A27 USB_RBIAS_GND — R426 806/F
0311-Sun_Changes USB RBIAS resistor to 806ohm. (NV)

GND: AD35, AD37, AD38, AE22, AE24, AE39, AE4, AD6, AE16, AE17, AE18, AE20, AE22, AE26, AE27, AE28, AE33, AE34, AE37, AE40, AG18, AG20, AG22, AG26, AG36, AG40, AH18, AH20, AH22, AH24

Layout Notice:
909 ohm +-1% to GND within 1000 mil of MCP79.
Routing trace at least 8 mil wide to resistor.

USB Layout Notice:
BGA Breakout:
Route differentially at normal impedance and 4 mils within pair and 6 mils to other signals.Maximum brackout distance is 300 mils of MCP79.
BGA Fan-out:
Route differentially at normal impedance and 4 mils within pair and 10 mils to other signals.Maximum BGA brackout plus Fan-out distance is 400 mils.
After Brackout:
Route at 100 ohm differential impedance (50 ohm SE) and 4x dielectric height spacing (Microstrip) or 2x dielectric height spacing (Stripline) to other signals.
Each USB pair must be length metched to within 50 mil.

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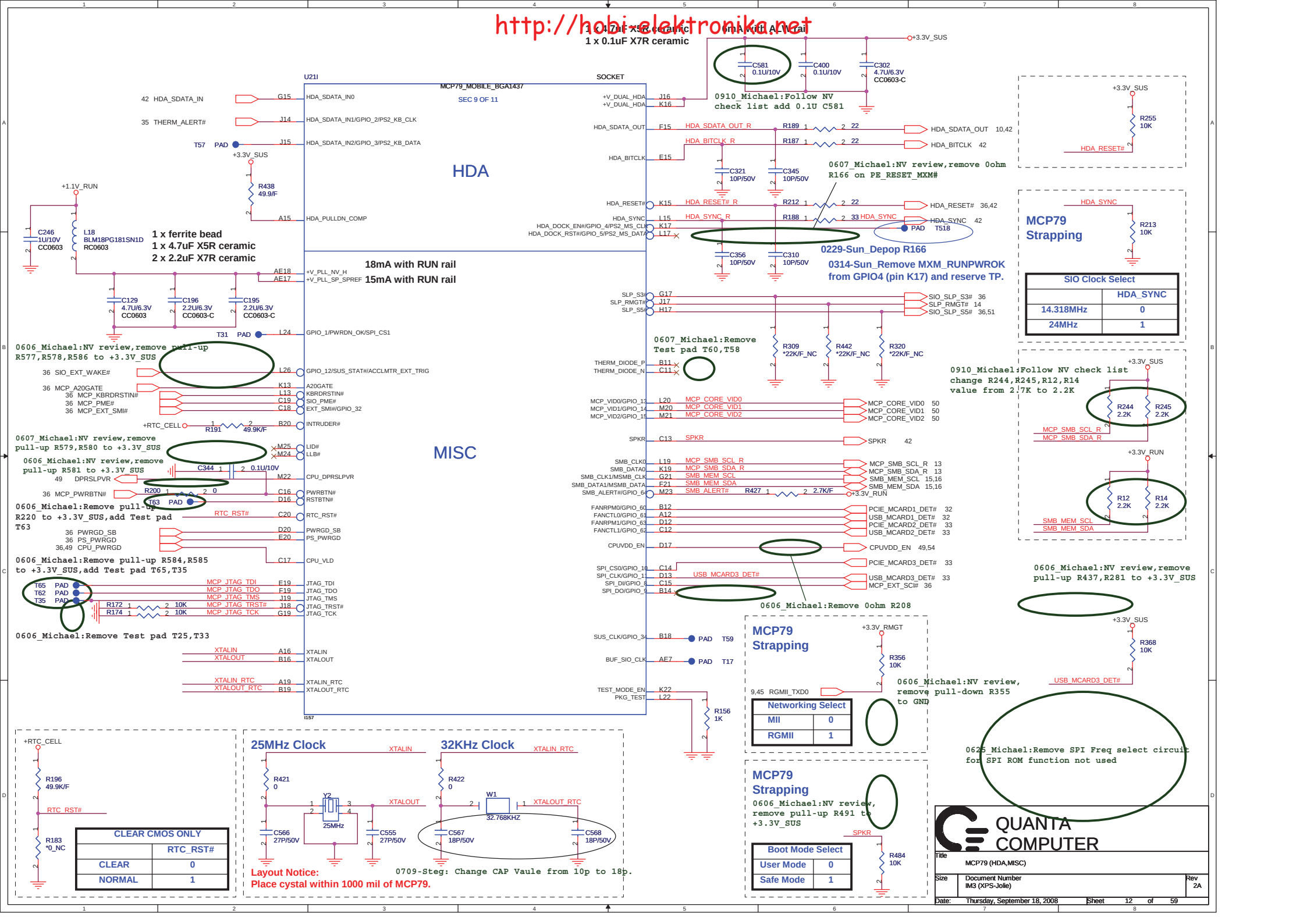

1 x 10uF ceramic
2 x 2.2uF X5R ceramic
3 x 1uF X5R ceramic
3 x 0.22uF X5R ceramic
12 x 0.1uF X7R ceramic

17.756A with RUN rail for S0
2850mA for S0 Idle

+VTT_CPU
1139mA for ALW rail

+VTT_CPUCLK
43mA for ALW rail

1 x 10uF ceramic
1 x 2.2uF X5R ceramic
3 x 0.1uF X7R ceramic

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MCP79_MOBILE_BGA1437
SOCKET
SEC
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POWER

+MCP_CORE
+VDD_CORE
C148 2.2U/6.3V CC0603
C156 2.2U/6.3V CC0603
C184 1U/6.3V
C188 1U/6.3V
C202 1U/6.3V
0918_Michael:Follow NV checklist change value from 10U to 2.2U
C149 10U/6.3V CC0603-C
C169 0.22U/6.3V
C186 0.22U/6.3V
C187 0.22U/6.3V
C217 0.1U/10V
C204 0.1U/10V
C173 0.1U/10V
C189 0.1U/10V
C194 0.1U/10V
C220 0.1U/10V
C168 0.1U/10V
C211 0.1U/10V
C206 0.1U/10V
C218 0.1U/10V
C182 0.1U/10V
C225 0.1U/10V

+VDD_CORE: AA25, AC23, U25, AH12, AG10, AG5, Y21, Y23, AA16, AA26, AA27, AA28, AC16, AC17, AC18, AC19, AC20, AC21, AA17, AC24, AC25, AC26, AC27, AC28, AD21, AD23, W27, V25, AA18, AE19, AE21, AE23, AE25, AE26, AE27, AE28, AF10, AF11, AA19, AF2, AF21, AF23, AF25, AF3, AF4, AF7, AH23, AF9, AA20, AG11, AG12, AG21, AG23, AG25, AG3, AG4, AA21, AG6, AG7, AG8, AG9, AH1, AH10, AH11, W26, AH2, AA23, W28, AH25, AH21, AH3, AH4, AH5, AH6, AH7, AH9, AA24, W21, W23, W25, AF12

+VTT_CPU: R32, AC32, E40, J36, N32, T32, U32, V32, W32, P31, AF32, AE32, AH32, AJ32, AK31, AK32, AD32, AL31, AB32, B41, B42, C40, C41, C42, D39, D40, D41, E38, E39, E37, E38, E39, G36, G37, G38, H35, H37, J34, J35, K33, K34, K35, L32, L33, L34, M31, M32, M33, N31, P32, Y32, AA32

+VTT_CPUCLK: AG32

+1.05V_VCCP
C185 0.1U/10V
C219 2.2U/6.3V CC0603
C353 10U/10V CC0805
0918_Michael:Follow NV checklist change value from 10U to 2.2U
C150 0.1U/10V
C158 0.1U/10V
C314 1U/6.3V
C282 0.1U/10V
C336 0.1U/10V
C332 1U/6.3V
C303 0.1U/10V
C295 0.1U/10V
C341 0.1U/10V

0312-Sun_Change footprint to normal short type "short40x18"

+3.3V_RUN_MCP
450mA with RUN rail

1 x 4.7uF X5R ceramic
4 x 0.1uF X7R ceramic

+3.3V_RUN_MCP
JP4
SHORT40X18
+3.3V_RUN
C231 0.1U/10V
C205 0.1U/10V
C200 0.1U/10V
C209 0.1U/10V
C226 4.7U/6.3V CC0603-C

+3.3V: AD10, AE8, AB10, AD9, Y10, AB11, AA8, Y9

0312-Sun_Change footprint to normal short type "short40x18"

+3.3V_DUAL
JP6
SHORT40X18
+3.3V_SUS
C386 0.1U/10V
C364 4.7U/6.3V CC0603-C

+3.3V_DUAL: G18, H19, J20, K20

+3.3V_DUAL_USB: G26, H27, J28, K28

+3.3V_DUAL
16mA with ALW rail

1 x 4.7uF X5R ceramic
1 x 0.1uF X7R ceramic

+3.3V_DUAL_USB
450mA with ALW rail

1 x 4.7uF X5R ceramic
1 x 0.1uF X7R ceramic

+VDD_AUXC: T21, U21, V21

+VDD_AUXC
105mA with ALW rail

2 x 0.1uF X7R ceramic

+VDD_AUXC
JP8
SHORT40X18
+1.1V_SUS
C249 0.1U/10V
C236 0.1U/10V

These are for backdrive issue.

+3.3V_RUN
R257 2.7K/F
R260 2.7K/F
12 MCP_SMB_SCL_R
MCP_SMB_SCL
MCP_SMB_SCL 32,33,34
Q35 2N7002W-7-F
12 MCP_SMB_SDA_R
MCP_SMB_SDA
MCP_SMB_SDA 32,33,34
Q36 2N7002W-7-F

HDCP
+3.3V_RUN
R23 *10K_NC
R16 *10K_NC
U5
NC_1
NC_2
NC_3
VCC
SDA
SCL
WP
GND
*AT24C16BN-SH-T_NC
MCP_SMB_SDA
MCP_SMB_SCL
R20 *10K_NC
C30 *0.1U/10V_NC

+RTC_CELL
C368 4.7U/6.3V CC0603
C509 4.7U/6.3V CC0603
C713 0.1U/10V
+VBAT
0229-Sun_Add C713 with 0.1U on +VBAT of MCP79
0829_Michael:Follow NV new DG add C509 on +RTC_CELL of MCP79

0.06mA with ALW rail for S0
2 x 4.7uF X5R ceramic

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U21K SOCKET

MCP79_MOBILE_BGA1437

SEC

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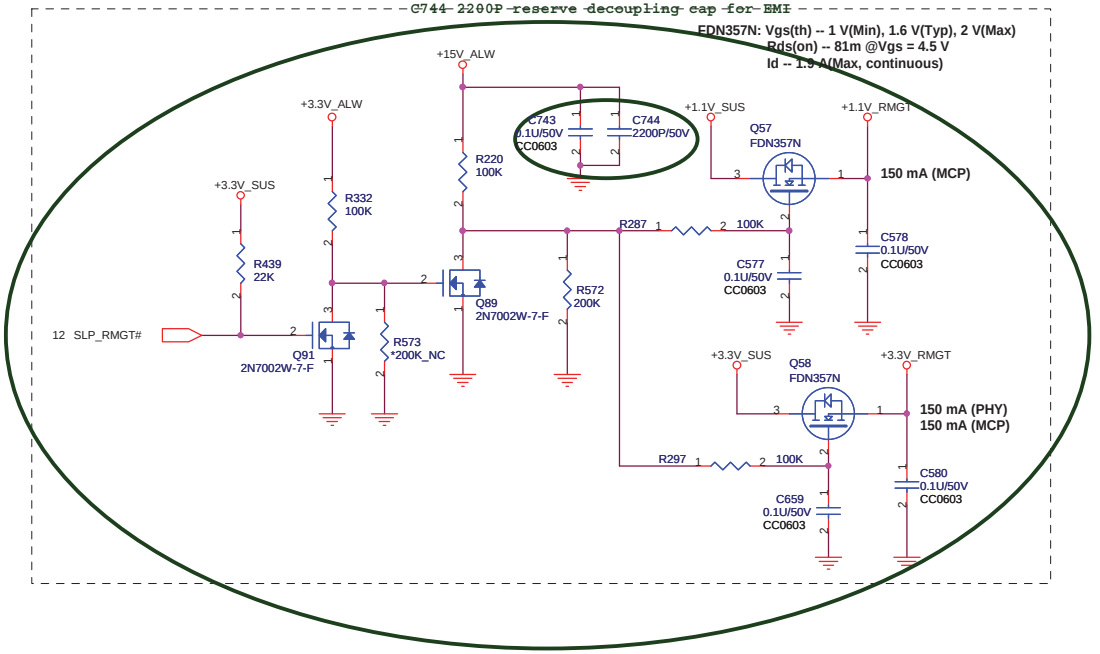
GND

AH26	GND	AV40	AH33	GND	BA1	AH34	GND	BA4
AH37	GND	AW31	AH38	GND	AY6	AJ39	GND	L35
AJ8	GND	BC33	AK10	GND	BC37	AK33	GND	BC41
AK34	GND	AY14	AK37	GND	BC5	AK4	GND	C2
AK40	GND	D10	AL36	GND	D14	AL40	GND	D15
AL5	GND	D18	AM10	GND	D19	AM16	GND	D22
AM18	GND	D23	AM20	GND	D26	AM22	GND	D30
AM24	GND	D37	AM26	GND	D6	AM30	GND	E13
AM34	GND	E17	AM35	GND	E21	AM37	GND	E25
AM38	GND	E29	AM5	GND	E33	AM6	GND	E12
AM7	GND	F16	AM9	GND	F32	AP26	GND	F8
AN28	GND	G10	AN30	GND	G12	AN39	GND	G14
AN4	GND	G16	Y7	GND	BC12	AP10	GND	G22
AU26	GND	G24	AP14	GND	AW20	AU14	GND	G34
AP28	GND	G4	AP32	GND	G43	AP34	GND	G6
AP36	GND	G8	AP37	GND	H11	AP4	GND	H15
AP40	GND	AW35	AP7	GND	H23	AW23	GND	AN8
AR28	GND	G40	AR32	GND	J12	AR40	GND	J8
AT10	GND	K10	AR12	GND	K12	AT13	GND	K18
AT29	GND	K26	AT33	GND	K37	AT6	GND	K4
AT7	GND	K40	AT9	GND	K8	AY21	GND	AU1
AY22	GND	L40	L12	GND	L43	AU12	GND	L5
AU28	GND	M10	AP33	GND	M34	AU32	GND	M35
AR30	GND	M37	AU36	GND	Y28	AU38	GND	Y33
AU4	GND	Y34	G28	GND	Y35	F20	GND	Y37
AV28	GND	Y38	AV32	GND	AB17	AV36	GND	AB16
AV4	GND	AN26	AV7	GND	AD7	AW11	GND	M11
G20	GND	AA4	AR43	GND	AB19	AW43	GND	AY13
AY10	GND	P11	AV12	GND	Y6	AY30	GND	T11
AY33	GND	V11	AY34	GND	Y11	AY37	GND	AH16
AY38	GND	T22	AY41	GND				

0918_Michael:Add C743 0.1U and C744 2200P reserve decoupling cap for EMI

FDN357N: Vgs(th) -- 1 V(Min), 1.6 V(Typ), 2 V(Max)
Rds(on) -- 81m @Vgs = 4.5 V
Id -- 1.9 A(Max, continuous)



0229-Sun_1.1V_RMGT & +3.3V_RMGT MOSFET Vgs aren't enough issue, modify circuit reference NV CRB (Del JP11,JP12

Change Q57 from SI2304BDS-T1-E3 to FDN357N, Q58 from SI2304BDS-T1-E3 to SI2301BDS-T1-E3

Add Q89 with 2N7002,R591 with 10K)

0825_Michael:Change Q58 type from SI2301BDS to FDN357N and add MOS 2N7002W-7-F,R&C for +1.1V_RMGT and +3.3V_RMGT power low issue

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CN19A
DDR-AS0A62X-U2RN-204P
SO_DIMM204_DDR3

CN19B
DDR-AS0A62X-U2RN-204P
SO_DIMM204_DDR3

6 DDR_A_MA[0..14]
DDR_A_MA0 DDR_A_MA1 DDR_A_MA2 DDR_A_MA3 DDR_A_MA4 DDR_A_MA5 DDR_A_MA6 DDR_A_MA7 DDR_A_MA8 DDR_A_MA9 DDR_A_MA10 DDR_A_MA11 DDR_A_MA12 DDR_A_MA13 DDR_A_MA14

0605_Michael:Remove 0ohm R28

6 DDR_A_BS[0..2]
DDR_A_BS0 DDR_A_BS1 DDR_A_BS2

6 DDR_A_RAS#
6 DDR_A_CAS#
6 DDR_A_WE#

6 DDR_CS0_DIMMA#
6 DDR_CS1_DIMMA#

6 DDR_ODT0_DIMMA
6 DDR_ODT1_DIMMA

6 DDR_A_CLK_0
6 DDR_A_CLK_0#
6 DDR_A_CLK_1
6 DDR_A_CLK_1#

6 DDR_CKE0_DIMMA
6 DDR_CKE1_DIMMA

6 DDR_A_DM[0..7]
DDR_A_DM0 DDR_A_DM1 DDR_A_DM2 DDR_A_DM3 DDR_A_DM7 DDR_A_DM4 DDR_A_DM5 DDR_A_DM6

6 DDR_A_DQS[0..7]
6 DDR_A_DQS#[0..7]
DDR_A_DQS0 DDR_A_DQS#0 DDR_A_DQS1 DDR_A_DQS#1 DDR_A_DQS2 DDR_A_DQS#2 DDR_A_DQS3 DDR_A_DQS#3 DDR_A_DQS7 DDR_A_DQS#7 DDR_A_DQS4 DDR_A_DQS#4 DDR_A_DQS5 DDR_A_DQS#5 DDR_A_DQS6 DDR_A_DQS#6

12,16 SMB_MEM_SDA
12,16 SMB_MEM_SCL

SM_MEM BUS ADDRESS	
SO-DIMM0	1010 000
SO-DIMM1	1010 001

DDR_A_D[0..63] 6

DDR_A_D1 DDR_A_D0 DDR_A_D7 DDR_A_D6 DDR_A_D5 DDR_A_D4 DDR_A_D2 DDR_A_D3 DDR_A_D13 DDR_A_D12 DDR_A_D11 DDR_A_D15 DDR_A_D8 DDR_A_D9 DDR_A_D14 DDR_A_D10 DDR_A_D18 DDR_A_D16 DDR_A_D21 DDR_A_D20 DDR_A_D22 DDR_A_D19 DDR_A_D23 DDR_A_D17 DDR_A_D28 DDR_A_D29 DDR_A_D30 DDR_A_D27 DDR_A_D24 DDR_A_D31 DDR_A_D26 DDR_A_D25 DDR_A_D59 DDR_A_D58 DDR_A_D61 DDR_A_D56 DDR_A_D62 DDR_A_D63 DDR_A_D57 DDR_A_D60 DDR_A_D36 DDR_A_D37 DDR_A_D35 DDR_A_D39 DDR_A_D32 DDR_A_D33 DDR_A_D34 DDR_A_D38 DDR_A_D44 DDR_A_D45 DDR_A_D43 DDR_A_D46 DDR_A_D41 DDR_A_D40 DDR_A_D42 DDR_A_D47 DDR_A_D53 DDR_A_D52 DDR_A_D55 DDR_A_D50 DDR_A_D48 DDR_A_D49 DDR_A_D51 DDR_A_D54

EVENT* → MEM_HOT# 11,16
RESET* → MEM_RESET# → MEM_RESET# 7,16
TEST

0605_Michael:Remove 0ohm R21
1020_Michael:Remove T4

+3.3V_RUN
+1.5V_DDR
V_DDR_MCP_REF
+0.75V_DDR_VTT

C39 0.1U/10V
C737 0.1U/10V
C11 10U/10V CC0805
C38 0.1U/10V

0701_Michael:Add decouple
C737 on V_DDR_MCP_REF

0102-Sun_Add pull-up on MEM_RESET#
+5V_ALW
R582 1K
R589 4.7K
R587 15K/F
MMST3904-7-F Q87
Q88 2N7002W-7-F
R588 *15K/F_NC
C712 0.1U/10V
0109-Sun_Add 200uS delay time on MEM_RESET#

C21 4.7U/6.3V CC0603
C13 4.7U/6.3V CC0603
C40 1U/10V CC0603
C34 1U/10V CC0603
C32 1U/10V CC0603
C27 *330U/6.3V_NC CC7343
C14 10U/10V CC0805
C10 0.1U/10V
C16 0.1U/10V
C42 0.1U/10V
C43 0.1U/10V

For EMI Reserved

DDR_A_CLK_1 R19 1 2 *200/F_NC DDR_A_CLK_1#
DDR_A_CLK_0 R30 1 2 *200/F_NC DDR_A_CLK_0#

Place ESD Protection diodes.

SMB_MEM_SDA
SMB_MEM_SCL
ESD2
*SRV05-4.TCT_NC
+3.3V_RUN

QUANTA COMPUTER

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Size	Document Number IM3 (XPS-Jolie)	Rev 2A
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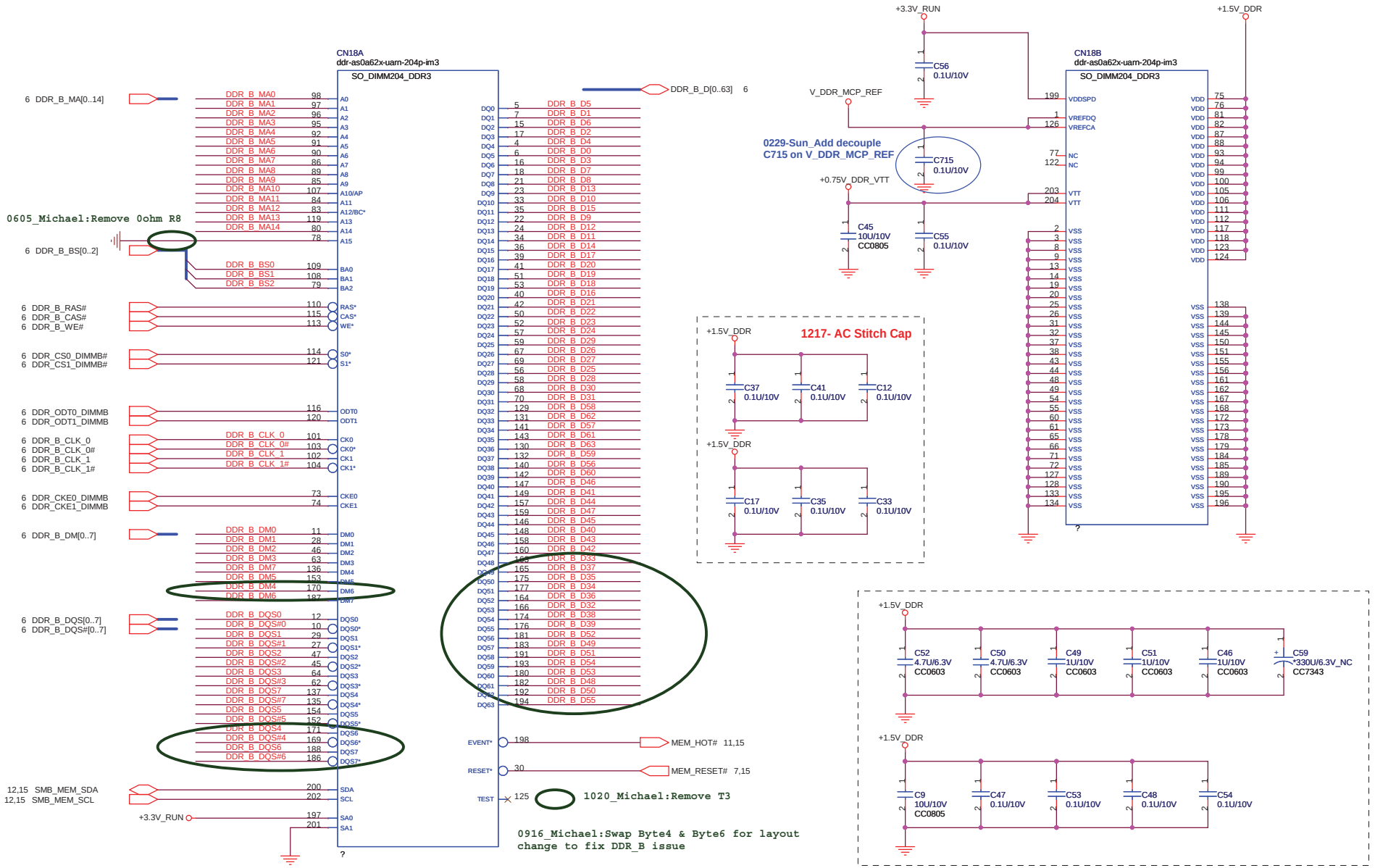


Title	DDR3 SO-DIMM (204P)		
Size	Document Number IM3 (XPS-Jolie)		Rev 2A
Date:	Monday, October 20, 2008	Sheet 16 of 59	

QUANTA COMPUTER

IM3 dedicated.

1113-Sun_Swap PEG for routing smooth.

1115-Sun_Follow NV's command to swap PEG for routing

1115-Sun_Follow NV's command to swap PEG for routing smooth

0904_Michael:Add R398 on GFX_THERM# and change port type from input to output

0604_Michael: Follow NV command to modify VRAM Strap resistor vaule

0825_Michael:Modify THERMTRIP circuit,add MOS and CAP

Place together.

JTAG I/F

GPU THERMTRIP Circuit

1022_Michael:Add R437 for voltage low issue

VRAM Strap:ROM_SI

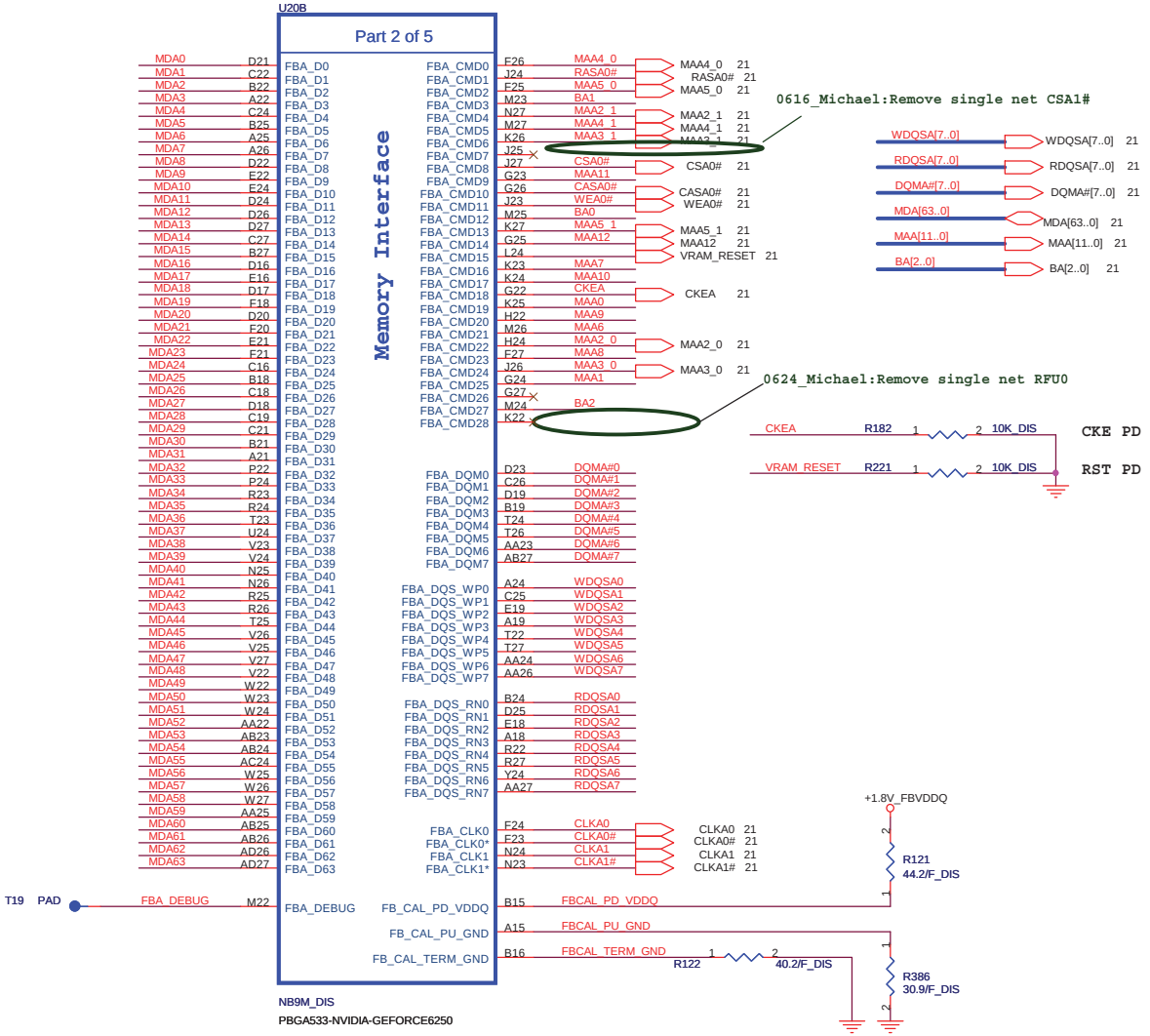
ID	ROM_SI	Memory part
01	Pull down 30K	Qimonda 32M*32
02	Pull down 45K	Samsung 32M*32
	QPN:CS34532FB18	
03		

GPIO USAGE

GPIO	I/O	ACTIVE	USAGE	Used
0	IN	N/A	NVGEM HOTPLUG DETECT	
1	IN	N/A	DVI/HDMI LINKC HOTPLUG DETECT	
2	OUT	HIGH	PANEL BACKLIGHT PWM	
3	OUT	HIGH	PANEL POWER ENABLE	
4	OUT	HIGH	PANEL BACKLIGHT ENABLE	
5	OUT	HIGH	NVVDD ALTV0	
6	OUT	HIGH	NVVDD ALTV1	
7	OUT	HIGH	FBVDD VID0	
8	IN	LOW	OVERTEMP ALERT	
9	OUT	LOW	THERMAL ALERT	
10	OUT	HIGH	DYNAMIC FB VREF GDDR3 (not used for DDR2)	
11	OUT	HIGH	SLI SYNC0 (not used for GB1-64)	
12	IN	N/A	AC DETECT	
13	OUT	LOW	POWER SUPPLY CONTROL0	
14	OUT	HIGH	POWER SUPPLY CONTROL1	
15	IN	N/A	HPD_E	
16	IN	N/A	DVI_E	No
17	IN	N/A	HDMI_E	No
18	IN	N/A	DVI_F (not used)	No
19	IN	N/A	HDMI_F (not used)	No

QUANTA COMPUTER

Title	VGA-NB9X GB1-64 (PCIE,PCIE POWER)	
Size	Document Number: IM3 (XPS-Jolie)	Rev: 2A
Date: Thursday, October 23, 2008	Sheet 17 of 59	



Update as "PUN-03303-001_V01".

GPU Driver Calibration			
Memory/PKG	FBVDDQ	FBCAL_PU_GND	FBCAL_PD_VDDQ
DDR2	1.8V	30.1	30.1
GDDR3	1.8V	30.9	44.2
GDDR3 DVS	1.8V/1.5V	30.9	44.2

Note: Use only 1% resistors for driver calibration

QUANTA COMPUTER

Title	VGA-NB9X GB1-128 (Frame Buffer Channel A)	
Size	Document Number: IM3 (XPS-Jolie)	Rev: 2A
Date: Friday, September 05, 2008	Sheet 18 of 59	

0627_Michael:Change GPU_Thermal control from SMBus2 to SMBus0

0807_Change R361, R44 from 4.7k to 47k for battery issue

+3.3V_NB9X

R361 47K_DIS

R44 47K_DIS

36,48,55 SMBCLK0

36,48,55 SMBDAT0

Q6 2N7002W-7-F_DIS

Q5 2N7002W-7-F_DIS

GFX_SCLK

GFX_SDATA

THERMAL MONITOR

0708_Michael:Depop U18 circuit for nternal thermal monitor

R54 *10K_NC

R45 *0_NC

0309-Sun_Pop R45 for GFX_THERM_ALERT#

17 GFX_THERM_ALERT#

U18

SCLK SDATA ALERT# GND VDD D+ D- THERM#

*ADM1032ARM_NC

C493 *2200P/50V_NC 50

C494 *0.1U/10V_NC

GFX_THERMDP

GFX_THERMDN

GFX_THERM# 17

0605_Michael: Add R56 connect to GFX_THERM#

0904_Michael:Remove R56 and change port type from output to input

0708_Michael:Pop R46 & R47 for nternal thermal monitor

R46 0_DIS

R47 0_DIS

R86 R87 R82 R83 R72 R71 R90 R91 R84 R62 10K_DIS

0701_Michael:Remove SPREAD SPECTRUM circuit

GXTAL_IN

GXTAL_OUT

Y1 27MHZ_DIS XTL-8X4_5-6_5

R96 1M_DIS

C113 22P/50V_DIS 50

C107 22P/50V_DIS 50

0709-Steg: Change CAP Value from 18p to 22p

U20C

PART 3 OF 5

DVI: IFPC_AUX* IFPC_AUX IFPC_L3* IFPC_L3 IFPC_L2* IFPC_L2 IFPC_L1* IFPC_L1 IFPC_L0* IFPC_L0 IFPC_RSET

DP Port: IFPE_L0 IFPE_L0* IFPE_L1 IFPE_L1* IFPE_L2 IFPE_L2* IFPE_L3 IFPE_L3* IFPE_AUX IFPE_AUX* IFPE_RSET

HDA: HDA_BCLK HDA_SYNC HDA_SDI HDA_SDO HDA_RST* SPDIF

THERMAL: THERMDP THERMDN I2CS_SDA I2CS_SCL

SERIAL BUS: I2CE_SDA I2CE_SCL I2CD_SDA I2CD_SCL I2CC_SDA I2CC_SCL I2CB_SDA I2CB_SCL I2CA_SDA I2CA_SCL

Clock: XTAL_SSIN XTAL_OUTBUFF XTAL_IN XTAL_OUT NB9M_DIS

LVDS: IFPA_TXD0 IFPA_TXD0* IFPA_TXD1 IFPA_TXD1* IFPA_TXD2 IFPA_TXD2* IFPA_TXD3 IFPA_TXD3* IFPA_TXC IFPA_TXC* IFPB_TXD4 IFPB_TXD4* IFPB_TXD5 IFPB_TXD5* IFPB_TXD6 IFPB_TXD6* IFPB_TXD7 IFPB_TXD7* IFPB_TXC IFPB_TXC* IFPAB_RSET

DACA: DACA_RED DACA_GREEN DACA_BLUE DACA_HSYNC DACA_VSYNC DACA_VDD DACA_VREF DACA_RSET

R41 10K_DIS

DACB: DACB_RED DACB_GREEN DACB_BLUE DACB_CSYNC DACB_VDD DACB_VREF DACB_RSET

R101 10K_DIS

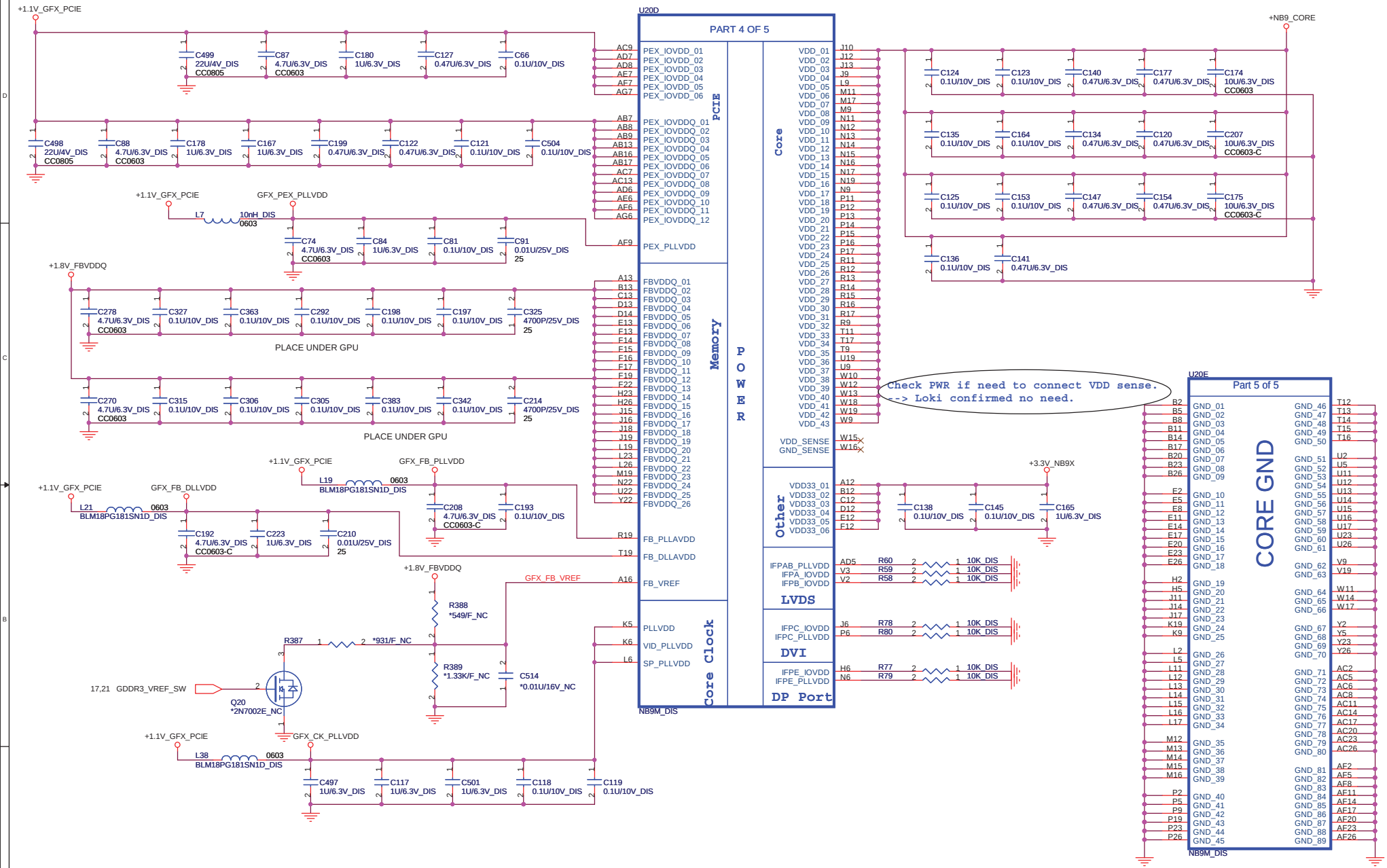
DACC: DACC_RED DACC_GREEN DACC_BLUE DACC_HSYNC DACC_VSYNC DACC_VDD DACC_VREF DACC_RSET

R85 10K_DIS

Reserve CRT for debug on first build.
Remove all of parts except DACA_VDD supply before QT
1020_Michael:Remove T48,T52,T50,T53,T51,R49,C89,R89

QUANTA COMPUTER

Title	VGA-NB9X GB1-64 (OUTPUT)	
Size	Document Number IM3 (XPS-Jolie)	Rev 2A
Date: Monday, October 20, 2008	Sheet 19 of 59	



QUANTA COMPUTER		
Title	VGA-NB9X GB1-64 (POWER,GND)	
Size	Document Number IM3 (XPS-Jolie)	Rev 2A
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GDDR3 _M*32

U23 — GDDRIII_*32

U24 — GDDRIII_*32

GDDR3_*32_DIS
PBGA136-SAMSUNG-K4J52324QC-WK1

1114-Sun_Swap GDDR3
Data for routing smooth.

0604_Michael: Follow NV command
pop 0ohm resistor R164

0112-Stanley: Change P/N to DDS: BSS138-7-F.

Title	VGA-NB9X GB1-64 (HybridSLI SWITCH)
Size	Document Number: IM3 (XPS-Jolie) — Rev: 2A
Date:	Monday, September 22, 2008 — Sheet 21 of 59

QUANTA COMPUTER

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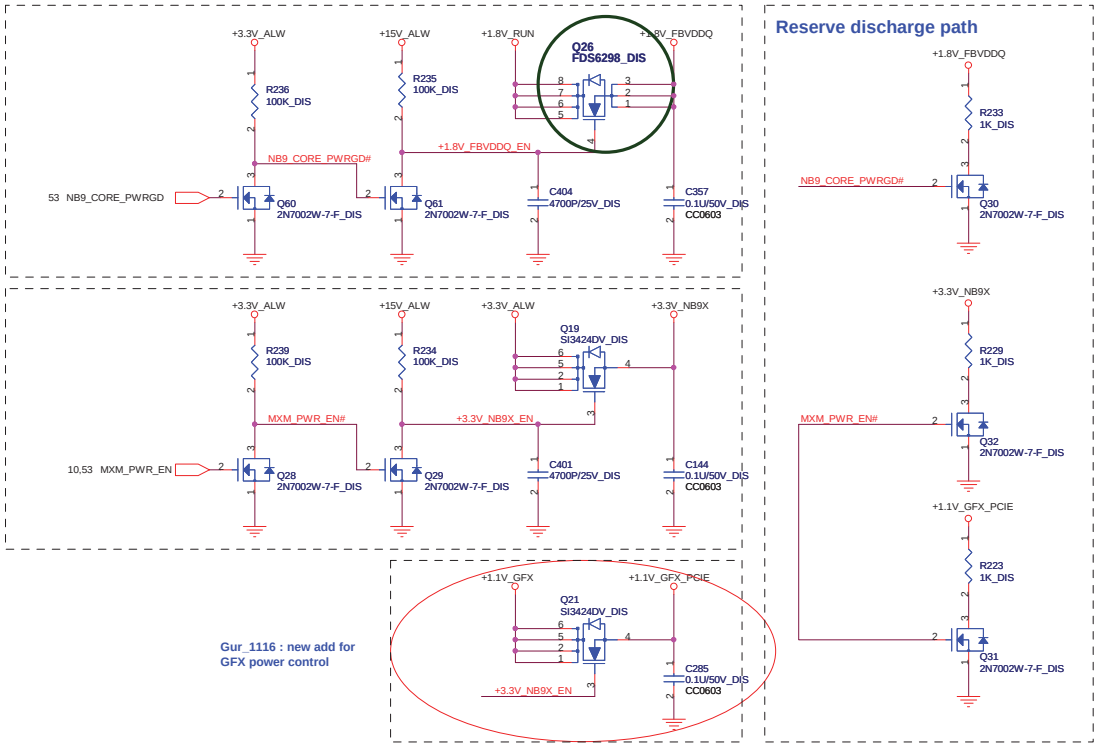
QUANTA COMPUTER

Title		
Size	Document Number IM3 (XPS-Jolie)	Rev 2A
Date: Friday, September 05, 2008	Sheet 22 of 59	

1225-Sun_Chenge Q26 from SI4812BDY to SI4800BDY-T1-E3
1022_Michael:Change Q26 from SI4800BDY-T1-E3 to BAM62980005



QUANTA COMPUTER

Title	VGA-NB9X GB1-128 (PCIE,PCIE POWER)	
Size	Document Number IM3 (XPS-Jolie)	Rev 2A
Date: Thursday, October 23, 2008	Sheet 23 of 59	

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QUANTA COMPUTER

Title		
Size	Document Number IM3 (XPS-Jolie)	Rev 2A
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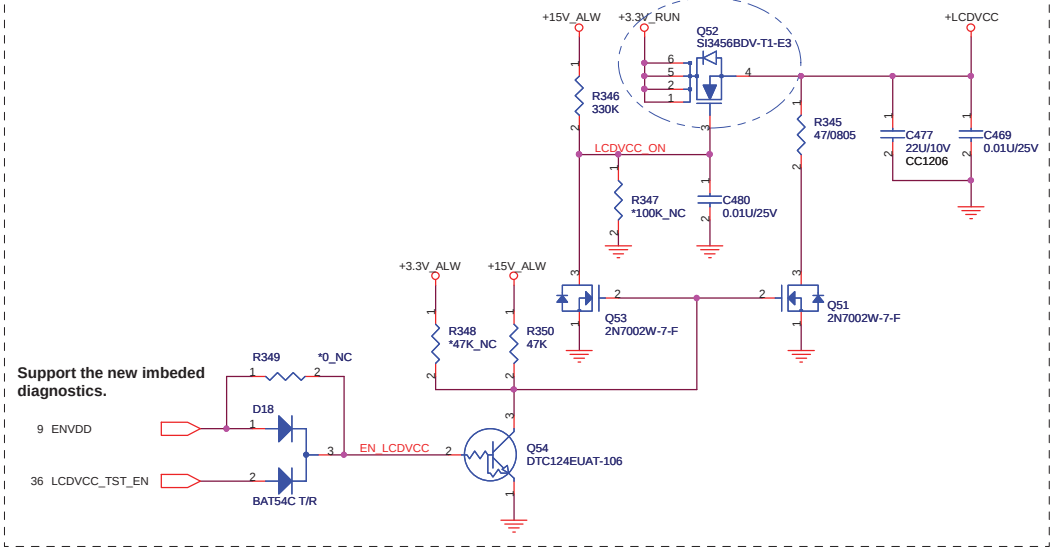
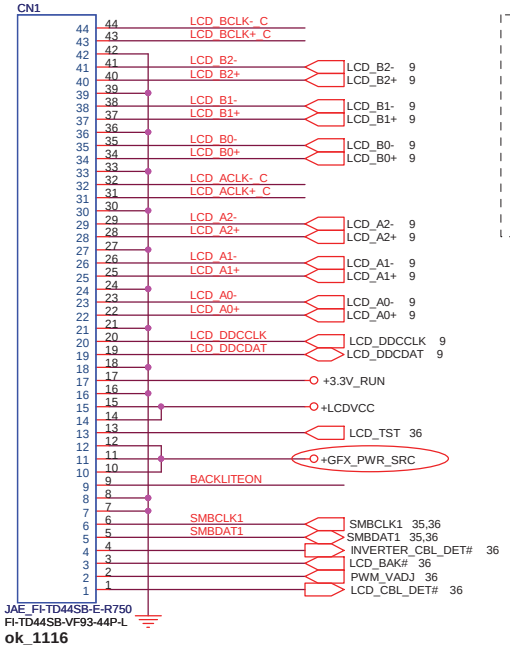
QUANTA COMPUTER

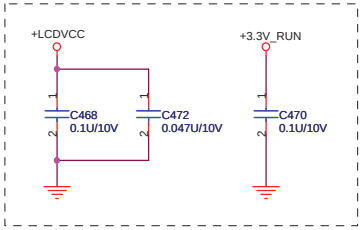
Title		
Size	Document Number IM3 (XPS-Jolie)	Rev 2A
Date: Friday, September 05, 2008	Sheet 25 of 59	

0112-Stanley: Change BOM for EOL issue (SI3456BDV).



GND,VCC要用最粗的電子線

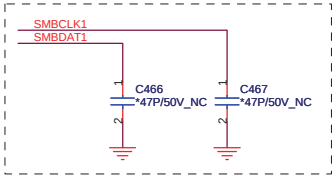




WXGA 1280*800=>70 MHz
WXGA+ 1440*900=>108 MHz
WSXGA+ 1680*1050=>120MHz
WUXGA 1920*1200=>166 MHz

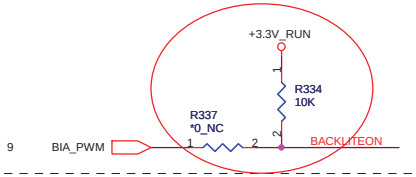
Address : A9H --Contrast
AAH --Backlight

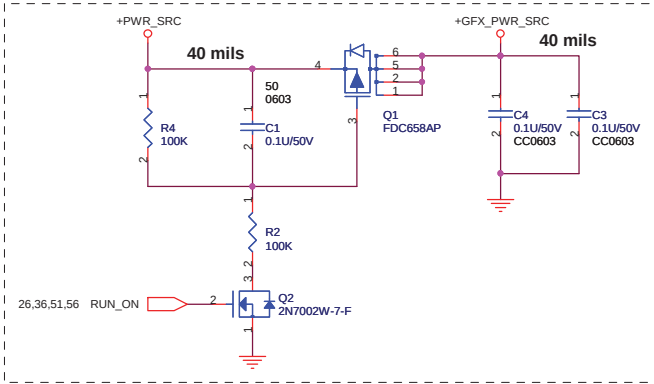
MBRAI specification of antenna gain is 10dBi@474MHz, -7dBi@698MHz, -5dBi@858MHz.



Populate R65 for DPST implementation only.

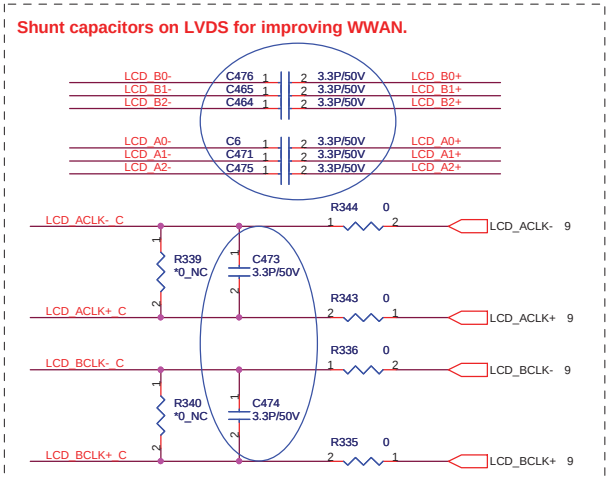
Populate R341 for platform without DPST support. No Stuff for Discrete DSPT support due to back up plan.





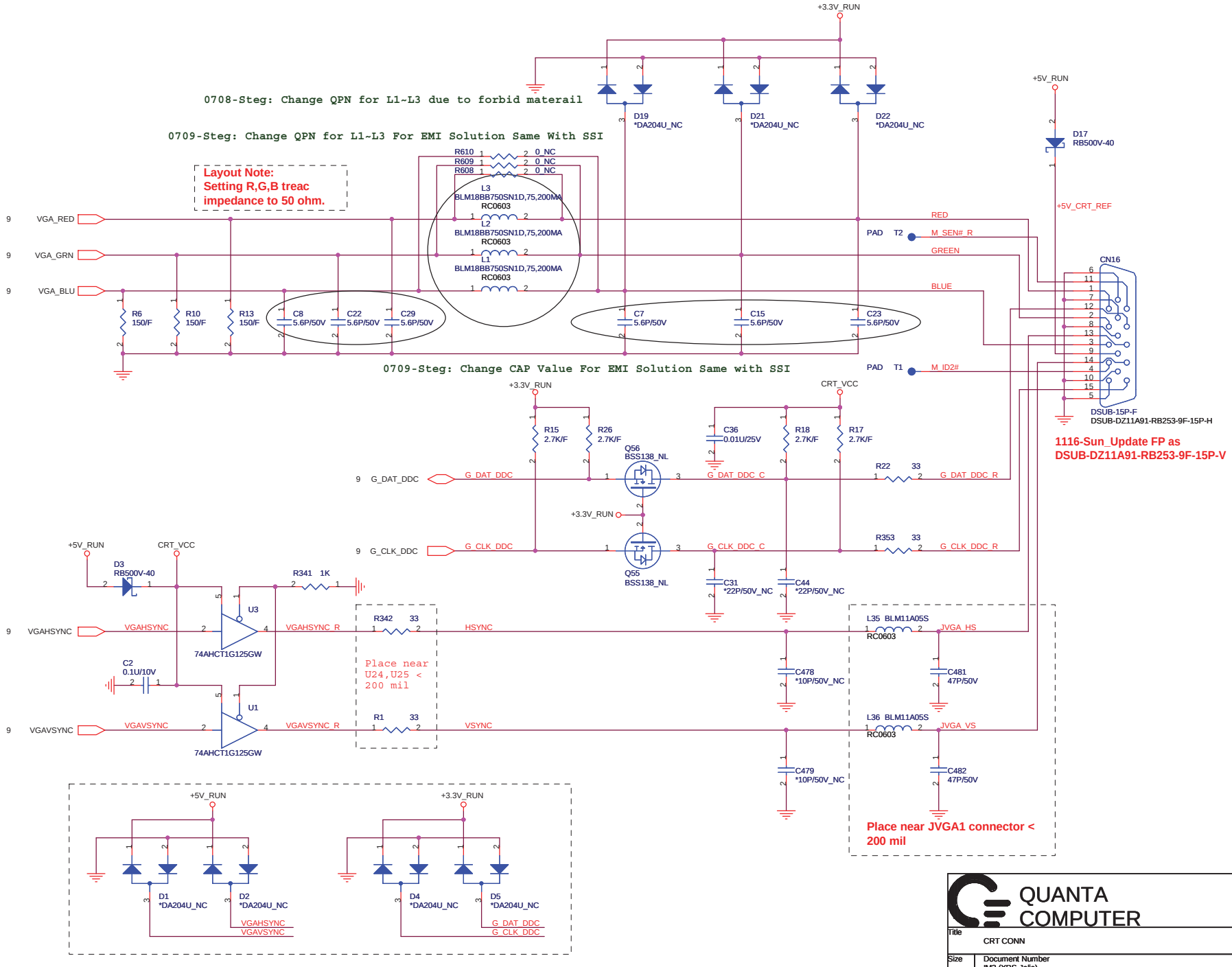
0319-Sun_Pop 3.3P on LVDS bus for COMM team demand

Shunt capacitors on LVDS for improving WWAN.



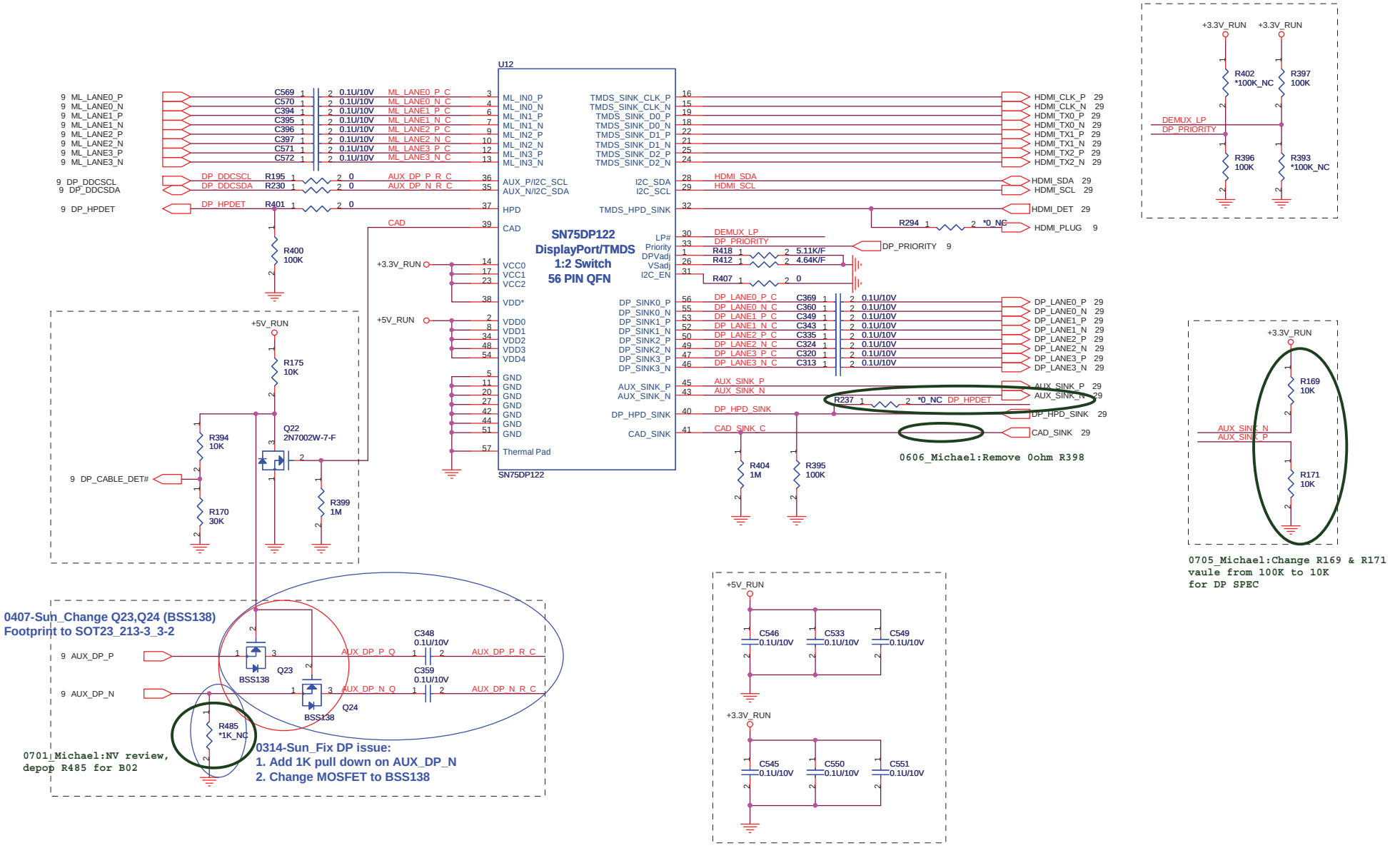
QUANTA COMPUTER

Title	LCD CONN	
Size	Document Number IM3 (XPS-Jolie)	Rev 2A
Date: Friday, September 05, 2008	Sheet 26 of 59	



QUANTA COMPUTER

Title	CRT CONN	
Size	Document Number IM3 (XPS-Jolie)	Rev 2A
Date: Friday, September 05, 2008	Sheet 27 of 59	



Title	DeMUX Switch (SN75DP122)	
Size	Document Number: IM3 (XPS-Jolie)	Rev: 2A
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QUANTA COMPUTER

0319-Sun_Pop EMI baed
w/EXC24CG240 for HDMI port

Reserve For EMI

28 HDMI_CLK_P
28 HDMI_CLK_N
HDMI_CLK_P
HDMI_CLK_N
L42
EXC24CG240
HDMI_CLK_P_C
HDMI_CLK_N_C
R419 *0_NC
R420 *0_NC

28 HDMI_TX0_P
28 HDMI_TX0_N
HDMI_TX0_P
HDMI_TX0_N
L41
EXC24CG240
HDMI_TX0_P_C
HDMI_TX0_N_C
R416 *0_NC
R417 *0_NC

28 HDMI_TX1_P
28 HDMI_TX1_N
HDMI_TX1_P
HDMI_TX1_N
L40
EXC24CG240
HDMI_TX1_P_C
HDMI_TX1_N_C
R414 *0_NC
R415 *0_NC

28 HDMI_TX2_P
28 HDMI_TX2_N
HDMI_TX2_P
HDMI_TX2_N
L39
EXC24CG240
HDMI_TX2_P_C
HDMI_TX2_N_C
R406 *0_NC
R410 *0_NC

HDMI CONNECTOR

+5V_RUN
D8
RB500V-40
R206 2.2K
R215 2.2K
T38
28 HDMI_SCL
28 HDMI_SDA
+5V_RUN
28 HDMI_DET
R192 100K
D7
RB500V-40
1020_Michael:
Remove T64

CN24
SHELL1
D2+
D2 Shield
D2-
D1+
D1 Shield
D1-
D0+
D0 Shield
D0-
CK+
CK Shield
CK-
CE Remote
NC
DDC CLK
DDC DATA
GND
+5V
HP DET
SHELL2
C12806-11904-L
HDMI-2023086-1-19P-L-H

HDMI_TX2_P_C
HDMI_TX2_N_C
HDMI_TX1_P_C
HDMI_TX1_N_C
HDMI_TX0_P_C
HDMI_TX0_N_C
HDMI_CLK_P_C
HDMI_CLK_N_C
HDMI_CEC
HDMI_SCL
HDMI_SDA
HDMI_DET

Reserve For EMI

28 DP_LANE3_N
28 DP_LANE3_P
DP_LANE3_N
DP_LANE3_P
L23
*DLW21SN900SQ2B_NC
DP_LANE3_N_R
DP_LANE3_P_R
R137 0
R138 0

28 DP_LANE2_N
28 DP_LANE2_P
DP_LANE2_N
DP_LANE2_P
L26
*DLW21SN900SQ2B_NC
DP_LANE2_N_R
DP_LANE2_P_R
R141 0
R144 0

28 DP_LANE1_N
28 DP_LANE1_P
DP_LANE1_N
DP_LANE1_P
L27
*DLW21SN900SQ2B_NC
DP_LANE1_N_R
DP_LANE1_P_R
R147 0
R151 0

28 DP_LANE0_N
28 DP_LANE0_P
DP_LANE0_N
DP_LANE0_P
L29
*DLW21SN900SQ2B_NC
DP_LANE0_N_R
DP_LANE0_P_R
R154 0
R155 0

28 AUX_SINK_N
28 AUX_SINK_P
AUX_SINK_N
AUX_SINK_P
L20
*DLW21SN900SQ2B_NC
AUX_SINK_N_R
AUX_SINK_P_R
R130 0
R134 0

DISPLAY PORT CONNECTOR

0306-Sun_Update DP footprint
"dp-2013656-2-20p-l-v-im3" (cut 0.4mm)

+3.3V_RUN
D6
*RB500V-40_NC
FS3
0/1206
RC1206
0229-Sun_Reserve fuse
F53 on DP power

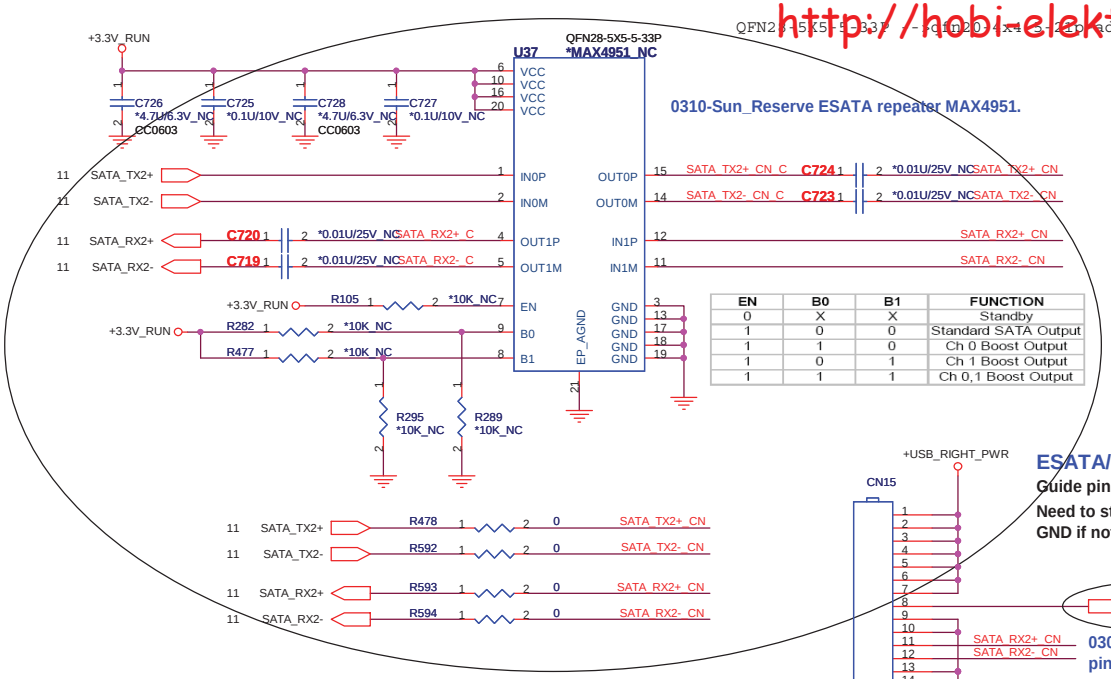
CN23
dp-2013656-2-20p-l-v-im3
SHIELD6
SHIELD5
PWR
PWR_RET
HPD
AUXN
AUXP
GND
GND
MODE
LANE_3N
LANE_3P
GND
LANE_2N
LANE_2P
GND
LANE_1N
LANE_1P
GND
LANE_0N
LANE_0P
GND
SHIELD3
SHIELD2

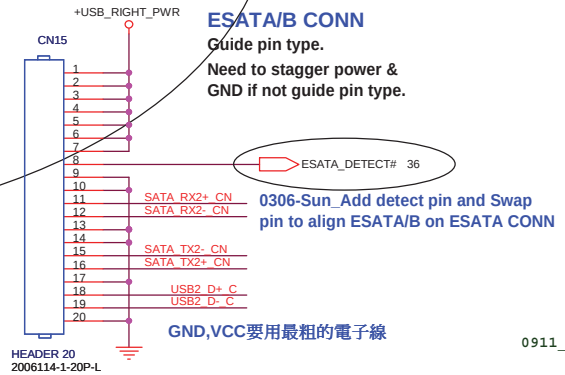
28 DP_HPD_SINK
AUX_SINK_N_R
AUX_SINK_P_R
DP_LANE3_N_R
DP_LANE3_P_R
DP_LANE2_N_R
DP_LANE2_P_R
DP_LANE1_N_R
DP_LANE1_P_R
DP_LANE0_N_R
DP_LANE0_P_R
CAD_SINK 28
R607 0

1120-Sun_Correct FP with DP-2013656-2-20P-L-V

QUANTA COMPUTER

Title	HDMI & DP CONN	
Size	Document Number IM3 (XPS-Jolie)	Rev 2A
Date: Monday, October 20, 2008	Sheet 29 of 59	





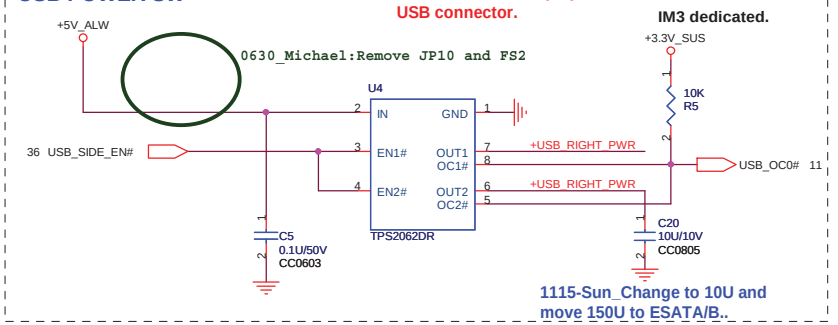
ESATA/B CONN

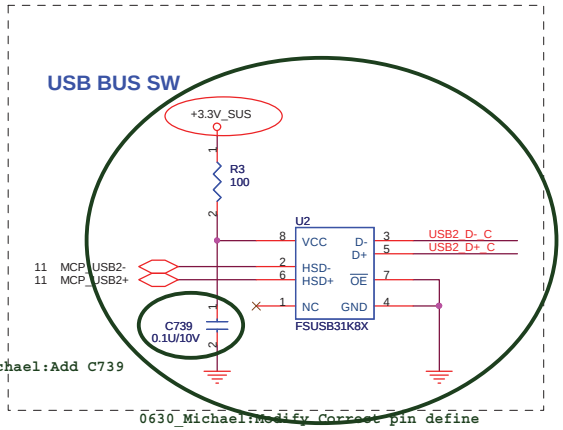
Guide pin type.

Need to stagger power & GND if not guide pin type.

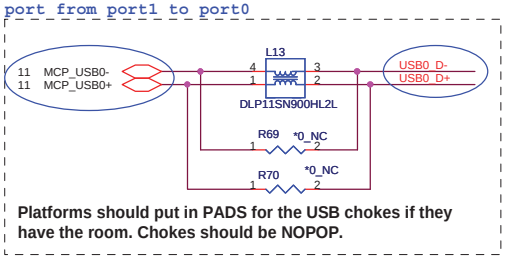
0306-Sun_Add detect pin and Swap pin to align ESATA/B on ESATA CONN

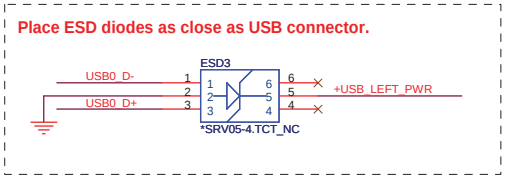
GND,VCC要用最粗的電子線

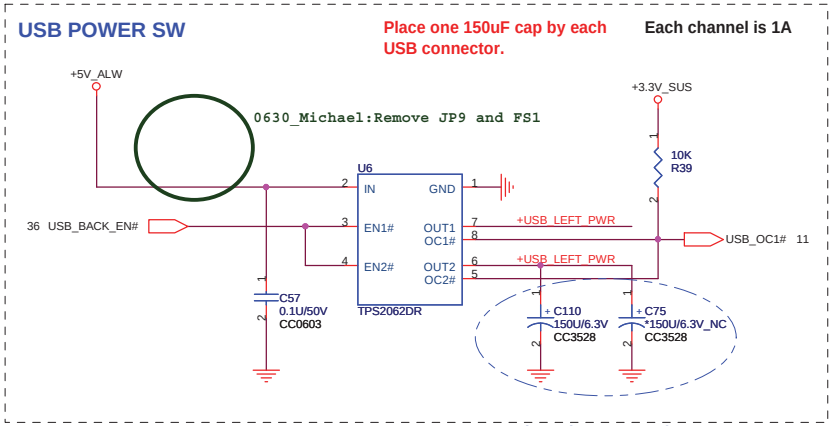


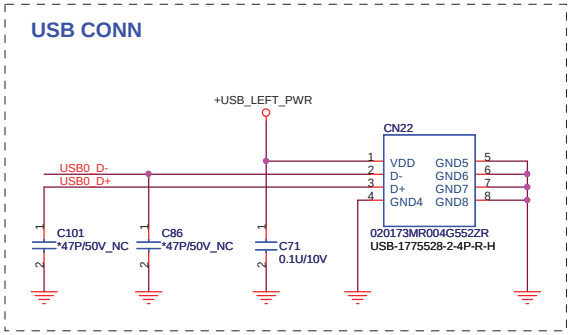


0318-Sun_change left USB port from port1 to port0





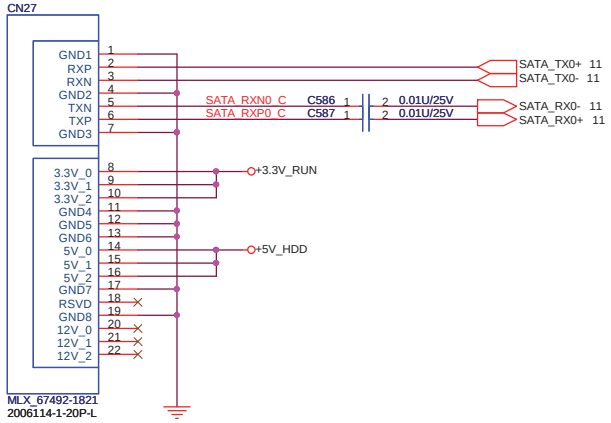


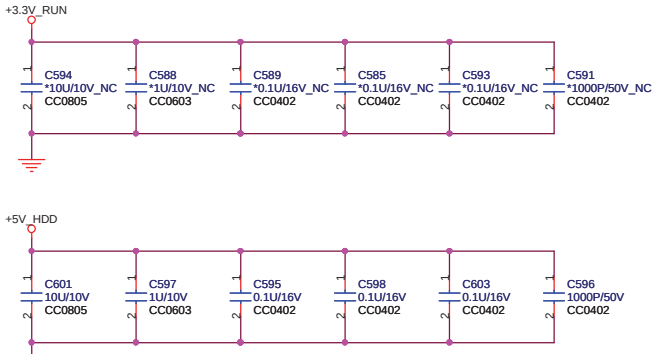


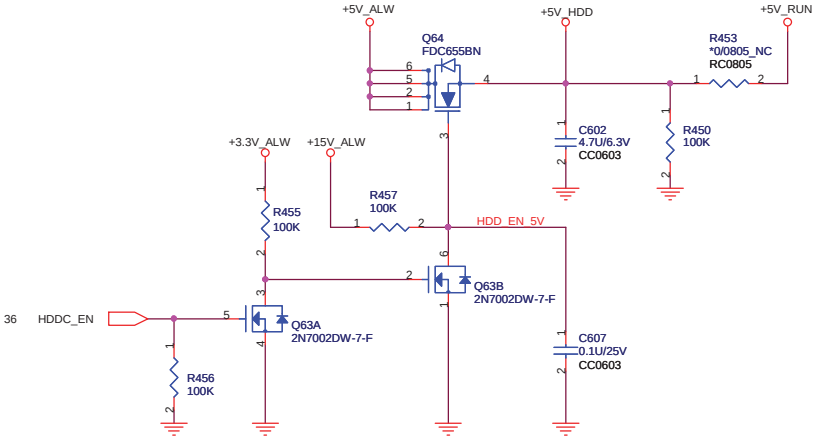
QUANTA COMPUTER

Title	USB, eSATA	
Size	Document Number: IM3 (XPS-Jolie)	Rev: 2A
Date: Thursday, September 11, 2008	Sheet 30 of 59	

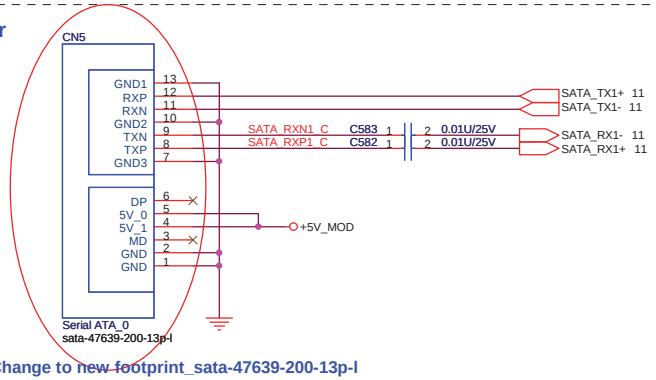
SATA HDD Connector





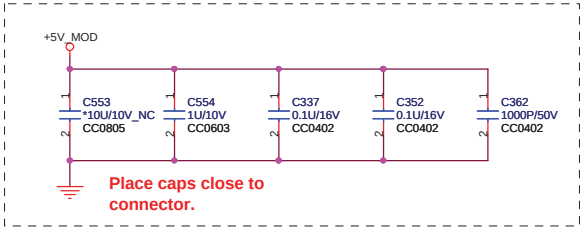


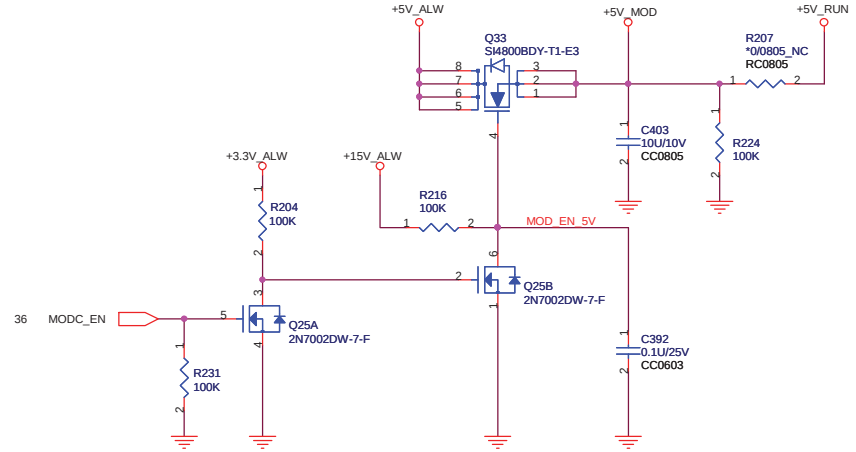
SATA ODD Connector



0306-Sun_Change to new footprint_sata-47639-200-13p-l

0407-Sun_Swap pin assignment due to pin direction is reversed





QUANTA COMPUTER		
Title: SATA (HDD&CD ROM)		
Size	Document Number: IM3 (XPS-Jolie)	Rev: 2A
Date: Friday, September 05, 2008	Sheet 31 of 59	

MiniCard WLAN Connector

0829_Michael:Change Footprint from H-C197PB to H-c197d39pb

0616_Michael:Change footprint

Mini Card Nut (h3.2) H-c197d39pb — H29

Mini Card Nut (h3.2) H-BC197D102PB — H30

0320-Sun_Change Mini Card WLAN Latch to Nut

(Del CN25, add H29,H30)

Reserved PAD for EMI

USB4_D- / USB4_D+ — L33 *DLW21SN900SQ2B_NC — MCP_USB4- 11 / MCP_USB4+ 11

R264 0

R270 0

PCI-Express TX and RX direct to connector

CN32 — TYC_1775838-1 MIPCIEXP-1775838-1-52P

0320-Sun_Change FP to MIPCIEXP-1775838-1-52P

+3.3V_SUS — R583 10K

8,33,34 PCIE_WAKE# — R296 0

33 COEX2_WLAN_ACTIVE — R293 0

33 COEX1_BT_ACTIVE_MINI

8 MINI1CLK_REQ# — MINI1CLK_REQ#

8 CLK_PCIE_MINI1# / 8 CLK_PCIE_MINI1

8 PCIE_RX1_N / 8 PCIE_RX1_P

8 PCIE_TX1_N / 8 PCIE_TX1_P

12 PCIE_MCARD1_DET#

MINI1CLK_REQ# — C428 220P/50V

R299 0 — PE_RESET# 8,17,33,34,36

WLAN_RADIO_OFF# — R298 *0_NC — WLAN_PCIE_RST# 10

WLAN_SMBCLK

WLAN_SMBDATA

USB4_D- / USB4_D+

USB_MCARD1_DET# 12 — PAD T72

LED_WLAN_OUT# 39 — PAD T41

Suport for WoW

D27 SDMK0340L-7-F

WLAN_RADIO_OFF# — WLAN_RADIO_DIS# 10

R459 *0_NC

Prevent backdrive when WoW is enabled.

Power

+PWR_SRC / +3.3V_ALW / +3.3V_WLAN / +3.3V_RUN

Q50 *FDC655BN_NC

R307 0/0805 RC0805

R486 *100K_NC / R514 *100K_NC

Q76B *2N7002DW-7-F_NC / Q76A *2N7002DW-7-F_NC

36 AUX_EN_WOWL

R490 *100K_NC / R493 *200K_NC

R301 *470K_NC

C660 *4700P/50V_NC

Place caps close to connector.

+1.5V_RUN: C435 0.047U/10V, C434 0.047U/10V

+3.3V_WLAN: C664 0.1U/10V, C633 0.047U/10V, C426 0.1U/10V, C424 0.047U/10V, C433 4.7U/10V CC0805, C606 *330U/6.3V_NC CC7343

QUANTA COMPUTER

Title	MINI-CARD (WLAN)	
Size	Document Number IM3 (XPS-Jolie)	Rev 2A
Date: Thursday, October 23, 2008	Sheet 32 of 59	

0829_Michael:Change Footprint from H-C197PB to H-c197d39pb
0605_Michael: Del MiniCard WPAN latch add Nut H31,H32

MiniCard Robson, BT. UWB Connector

Mini Card Nut
H31 Mini Card Nut (h3.2) H-c197d39pb
H32 Mini Card Nut (h3.2) H-BC197D102PB

0606_Michael:Remove 0ohm R297,R294

CN28
TYC_1775838-1
MIPCIEXP-1775838-1-52P

PCIE_WAKE#
COEX2_WLAN_ACTIVE
MINI2CLK_REQ#
CLK_PCIE_MINI2#
CLK_PCIE_MINI2
LPC_RESET#
CLK_LPC_DEBUG
PCIE_RX2_N
PCIE_RX2_P
PCIE_TX2_N
PCIE_TX2_P
PCIE_MCARD3_DET#

PCI-Express TX and RX direct to connector

R451 0
R286 R284 R279 R276 R273 0
LPC_LFRAME# LPC_LAD3 LPC_LAD2 LPC_LAD1 LPC_LAD0
R268 0 PE_RESET#
R262 *0_NC
WPAN_RADIO_DIS_MINI#
WPAN_PCIE_RST#
MCP_SMB_SCL
MCP_SMB_SDA
USB6_D-
USB6_D+
USB_MCARD3_DET#
R248 0
LED_WPAN_OUT#

C436 *33P/50V_NC
R300 *100K_NC
C281 220P/50V

0704_Michael:Remove 0ohm R602 & R603

0829_Michael:Change Footprint from H-C197PB to H-c197d39pb
0318-Sun_Correct Nut footprint as "H-TC157BC236D102PB"
0229-Sun_Change Mini Card WWAN Latch to Nut (Del CN31, add H27,H28)

Mini Card Nut
H28 Mini Card Nut (h3.2) H-c197d39pb
H27 Mini Card Nut (h3.2) H-BC197D102PB

0616_Michael:Change footprint

MiniCard WWAN Connector

CN29
TYC_1775838-1
MIPCIEXP-1775838-1-52P

T70 PAD
T69 PAD
PCIE_WAKE#
MINI3CLK_REQ#
CLK_PCIE_MINI3#
CLK_PCIE_MINI3
PCIE_RX3_N
PCIE_RX3_P
PCIE_TX3_N
PCIE_TX3_P
PCIE_MCARD2_DET#

UIM_PWR
UIM_DATA
UIM_CLK
UIM_RESET
UIM_VPP

(Place close to CN29)
C257 *15P/50V_NC

PE_RESET# 8,17,32,34,36
R452 0 PE_RESET#
R454 *0_NC
WWAN_RADIO_DIS# 10
WWAN_PCIE_RST# 10
MCP_SMB_SCL 13,32,34
MCP_SMB_SDA 13,32,34
USB5_D-
USB5_D+
USB_MCARD2_DET# 12
LED_WWAN_OUT# 39

0704_Michael:Add C437 on UIM_PWR
0606_Michael:Modify pin defind for 2WM610C1C-DD-7F-6P

CN17
2WM610C1C-DD-7F
simcard-2wm610c1c-dd-7f-6p

C437 4.7U/6.3V CC0603
C18 33P/50V
C19 33P/50V
ESD1
1022_Michael:Change ESD1 PN from ~~ALSRV054011-to-AL004220007~~ for EOL
C24 33P/50V
C25 33P/50V
C28 1U/10V CC0603

Place as close as possible to JMINI connector

C355 220P/50V

0704_Michael:Add C257 on UIM_CLK

Place caps close to connector.

C429 0.047U/10V
C425 33P/50V
C592 33P/50V
C630 0.047U/10V
C427 33P/50V
C629 0.047U/10V
C599 330U/6.3V CC7343
C600 *330U/6.3V_NC CC7343

Reserve For EMI

L32 *DLW21SN900SQ2B_NC
USB6_D-
USB6_D+
MCP_USB6- 11
MCP_USB6+ 11
R254 0
R251 0

Layout Note:
R240 and R244 close to choke as possible to minimize stubs.

Place caps close to connector.

C409 0.047U/10V
C413 0.047U/10V
C604 0.1U/10V
C432 0.047U/10V
C414 0.1U/10V
C408 0.047U/10V
C590 4.7U/6.3V CC0603

1020_Michael:Remove C608 (leave empty)

Reserve For EMI

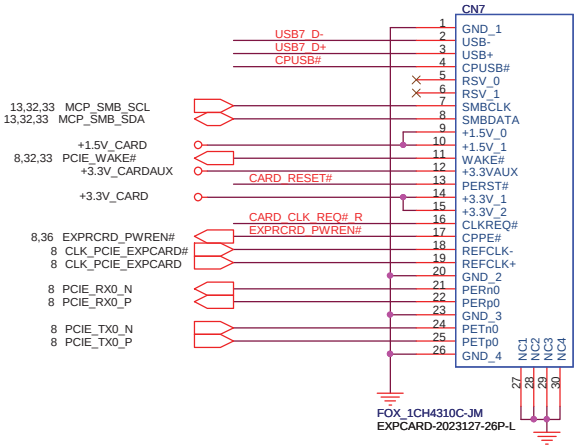
L31 *DLW21SN900SQ2B_NC
USB5_D-
USB5_D+
MCP_USB5- 11
MCP_USB5+ 11
R252 0
R249 0

Layout Note:
R240 and R244 close to choke as possible to minimize stubs.

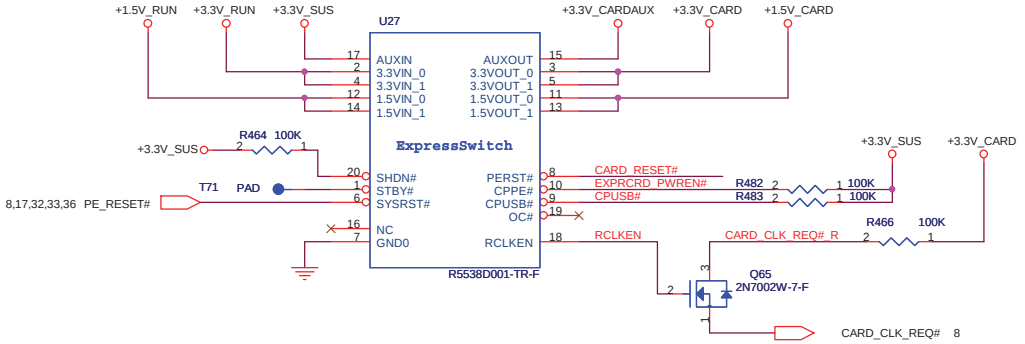
QUANTA COMPUTER

Title	MINI-CARD (WWAN,WPAN)	
Size	Document Number IM3 (XPS-Jolie)	Rev 2A
Date: Thursday, October 23, 2008	Sheet 33 of 59	

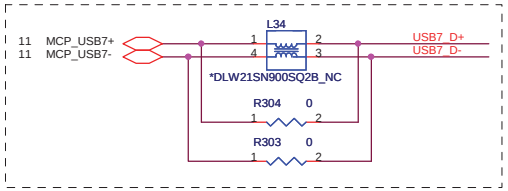
Express Card

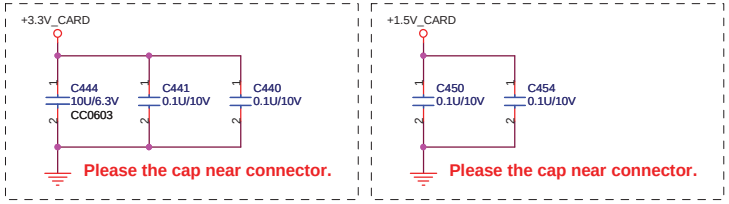


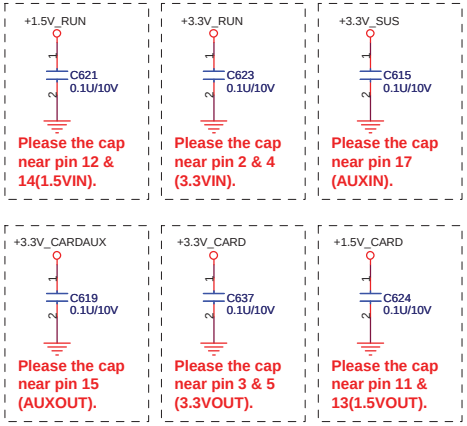
+1.5V_CARD Max. 650mA, Average 500mA.
+3V_CARD Max. 1300mA, Average 1000mA.



PCI-Express TX and RX direct to connector.

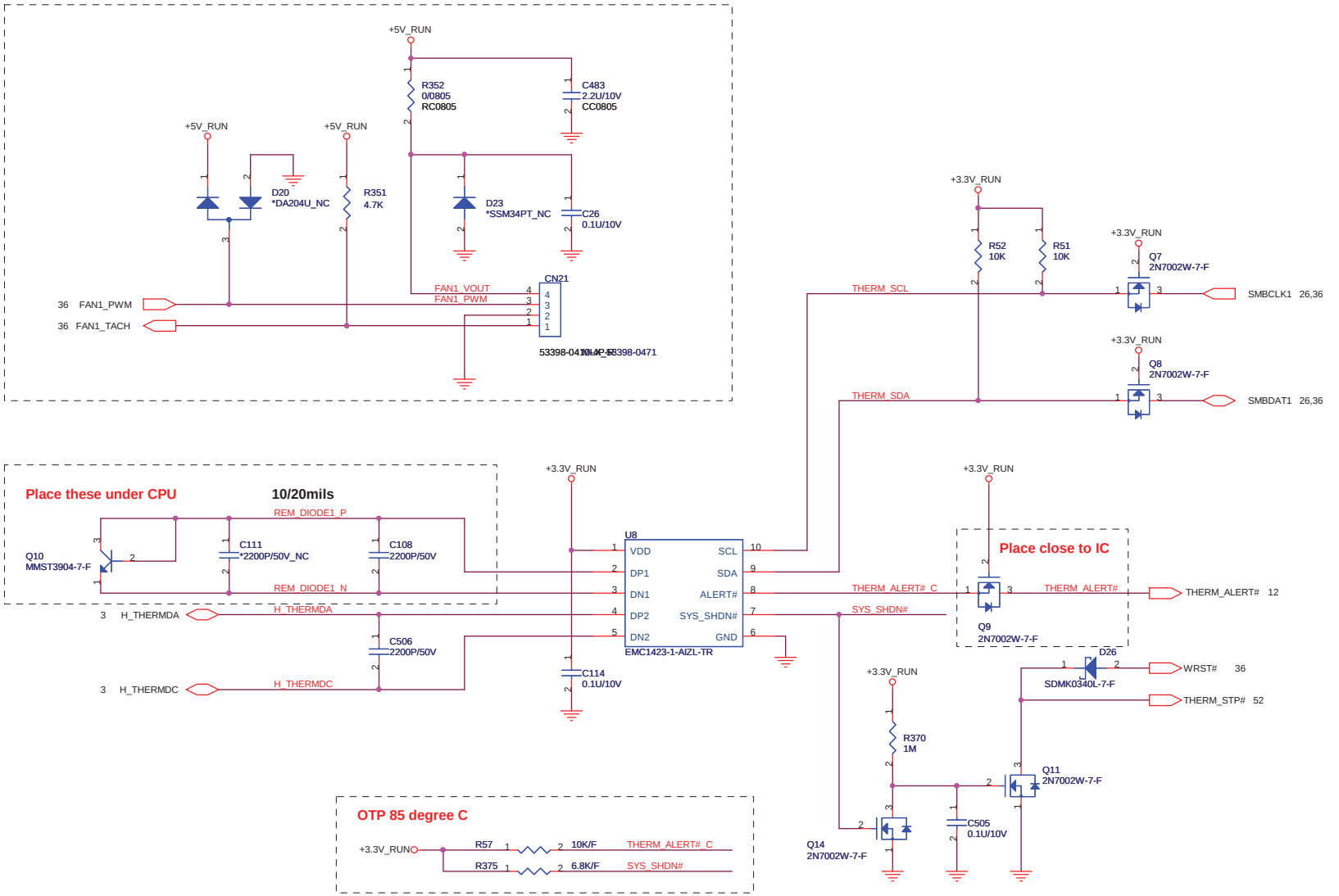






QUANTA COMPUTER

Title	ExpressCard	
Size	Document Number: IM3 (XPS-Jolie)	Rev: 2A
Date: Friday, September 05, 2008	Sheet 34 of 59	



QUANTA COMPUTER

Title	FAN & THERMAL	
Size	Document Number: IM3 (XPS-Jolie)	Rev: 2A
Date: Wednesday, September 17, 2008	Sheet 35 of 59	

ITE8512E
LQFP-128L

U32

38 KSO[0..16]
38 KSI[0..7]

39 LED_MASK#

12 MCP_EXT_SMI# — D31 SDMK0340L-7-F — ECSMI#
12 MCP_EXT_SCI# — D29 SDMK0340L-7-F — ECSCI#
12 MCP_A20GATE — D32 SDMK0340L-7-F — GA20
12 MCP_KBRDRSTIN# — D33 SDMK0340L-7-F — GPB6
C733 *220P/50V_NC

0313-Sun_Reserve 220P on MCP_KBRDRSTIN#

33 CLK_LPC_DEBUG — R263 0 — CLK_LPC

0305-Sun_Change ITE8512 pin22 I/P to HDA_RESET#

12,42 HDA_RESET# — R481 0 — CLK_LPC — R501 0 — 10 CLK_LPC

10,33 LPC_LFRAME#
10,33 LPC_LAD0
10,33 LPC_LAD1
10,33 LPC_LAD2
10,33 LPC_LAD3
10,40,57 CLKRUN#
10,40,57 IRQ_SERIRQ
26 LCD_TST
35 WRST#
26 LCD_BAK#
43 NB_MUTE#
8,17,32,33,34 PE_RESET# — R567 0

0627_Michael:Del D36 & "MCP_PME#" to connect "PE_RESET#" to R567

+3.3V_ALW — R494 100K — WRST# — C641 1U/10V CC0603

GPU_Thermal and Charge and BAT — 19,48,55 SMBCLK0 / 19,48,55 SMBDAT0
LCD and Thermal — 26,35 SMBCLK1 / 26,35 SMBDAT1
Media button — 38 SMBCLK2 / 38 SMBDAT2

0627_Michael:Change GPU_Thermal control from SMBus2 to SMBus0

51 1.5V_DDR_PWRGD
12,49 CPU_PWRGD
T43 PAD
T73 PAD
38 CLK_TP_SIO
38 DAT_TP_SIO

CLK_LPC — R313 *10_NC — C451 *2.2P/50V_NC

ITE8512_XTAL1
ITE8512_XTAL2
SIO_VSS
SIO_AVCC
SIO_AVSS

KEYBOARD
KSO17/GPC5
KSO16/GPC3
KSO15
KSO14
KSO13
KSO12/SLCT
KSO11/ERR
KSO10/PE
KSO9/BUSY
KSO8/ACK
KSO7/PD7
KSO6/PD6
KSO5/PD5
KSO4/PD4
KSO3/PD3
KSO2/PD2
KSO1/PD1
KSO0/PD0
KSI7
KSI6
KSI5
KSI4
KSI3/SLIN
KSI2/INIT
KSI1/AFD
KSI0/STB

LPC
LPCRST/WUI4/GPD2
LPCCLK
LFRAME
LAD0
LAD1
LAD2
LAD3
CLKRUN/GPH0/ID0
SERIRQ
ECSMI/GPD4
ECSCI/GPD3
GA20/GPB5
LPCPD/WUI6/GPE6
KBRST/GPB6
WRST
PWUREQ/GPC7
L80HLAT/GPE0
L80LLAT/WUI7/GPE7

SMBUS
SMCLK0/GPB3
SMDAT0/GPB4
SMCLK1/GPC1
SMDAT1/GPC2
SMCLK2/GPF6
SMDAT2/GPF7

PS/2
PS2CLK0/GPF0
PS2DAT0/GPF1
PS2CLK1/GPF2
PS2DAT1/GPF3
PS2CLK2/GPF4
PS2DAT2/GPF5

ADC/DAC
ADC0/GPI0
ADC1/GPI1
ADC2/GPI2
ADC3/GPI3
ADC4/GPI4
ADC5/GPI5
ADC6/GPI6
ADC7/GPI7
DAC0/GPJ0
DAC1/GPJ1
DAC2/GPJ2
DAC3/GPJ3
DAC4/GPJ4
DAC5/GPJ5

PWM
PWM0/GPA0
PWM1/GPA1
PWM2/GPA2
PWM3/GPA3
PWM4/GPA4
PWM5/GPA5
PWM6/GPA6
PWM7/GPA7
TACH0/GPD6
TACH1/GPD7
TMRI0/WUI2/GPC4
TMRI1/WUI3/GPC6

IR/UART
RXD/GPB0
TXD/GPB1
CRX0/GPC0
CTX0/GPB2
CRX1/GPH1/ID1
CTX1/GPH2/ID2

LPC/FWH FLASH
FLFRAME/GPG2/LF
FLRST/GPG0/TM
FLAD3/GPG6
FLAD2/SO
FLAD1/SI
FLAD0/SCE
FLCLK

EGPC
EGAD/GPE1
EGCS/GPE2
EGCLK/GPE3

GPIO
GPH3/ID3
GPH4/ID4
GPH5/ID5
GPH6/ID6
GPG1/ID7

RI1/WUI0/GPD0
RI2/WUI1/GPD1
WUI5/GPE5
RING/PWRFAIL/LPCRST/GPB7
PWRSW/GPE4
GINT/GPD5

ITE8512E
LQFP128-16X16-4-FX2

VBAT1
VCC
VSTBY1
VSTBY2
VSTBY3
VSTBY4
VSTBY5
VSTBY6
VSS1
VSS2
VSS3
VSS4
VSS5
VSS6
VSS7
AVCC
AVSS
CK32K
CK32KE

R326 0 — +RTC_CELL
+3.3V_RUN
+3.3V_ALW
R323 *0_NC
C460 0.1U/10V

0609_Michael:Change SMBus2 pull-up sistor vaule from 2.2K to 10K for ISSP

0310-Sun_Remove 10K ohm on SIO_SLP_S5# to +3.3V_ALW. (Remove R485)

+3.3V_ALW
SMBDAT0 — RP4 2.2KX2 — SMBCLK0
SMBDAT1 — RP3 2.2KX2 — SMBCLK1
SMBDAT2 — RP23 10KX2 — SMBCLK2
LCD_CBL_DET# — R472 100K
INVERTER_CBL_DET# — R476 100K
KB_DET# — R569 10K
LID_SW# — R601 10K

0314-Sun_Add pull up RES on LID_SW# to +3.3V_ALW

HWPG 47
IMVP6_PROCHOT# 49
MXM_RUNPWROK 8,47
LCD_CBL_DET# 26
INVERTER_CBL_DET# 26
PBAT_PRES# 55
ADAPT_OC_IINP 48
SIO_SLP_S5# 12,51
PS_PWRGD 12
SIO_EXT_WAKE# 12
LAN_DISABLE 45
EXPRCRD_PWREN# 8,34
PWRGD_SB 12
MCP_PWRBTN# 12

+3.3V_SUS
SIO_SLP_S5# — R590 *10K_NC
SIO_SLP_S3# — R600 *10K_NC

0314-Sun_Reserve 10K pull-up on SIO_SLP_S3# & SIO_SLP_S5#.

0229-Sun_Del BAT_LED2#
0904_Michael:Use for power buttom LED control

BREATH_LED# 39
PWR_LED# 39
FAN1_PWM 35
PWM_VADJ 26
BAT1_LED# 39
KB_BACKLITE_EN 38
CAP_LED# 38
BEEP 42
FAN1_TACH 35
PANEL_BKEN 9
LID_SW# 38
MEDIA_INT# 38

SUS_ON — R327 100K
HWPG — R469 100K
PWRGD_SB — R317 100K
C736 0.1U/10V

0625_Michael:Change FAN1_TACH pin type from output to input

+3.3V_RUN
IRQ_SERIRQ — R325 10K
LCD_BAK# — R314 *10K_NC

0314-Sun_Add bypass capacitor on PWRGD_SW to absorb glitch from EC when +3.3V_ALW boot up.

0310-Sun_Remove T75 and connect GPB0 to ESATA_DETECT#.

ESATA_DETECT# 30
AUX_EN_WOWL 32
CIRRX 37
RUN_ON 26,36,51,56
HDDC_EN 31

0612_Michael:Remove net CAMERA_CBL_DET#

EC_FLASH_SPI_CLK — R329 *10_NC
C458 33P/50V_NC

0413-Sun_Reserve MMB power control for MMB ISSP support
0705_Michael:Change net name from MMB_ISSP to MMB_ISSP#

SUS_ON 56
KB_DET# 38
MMB_ISSP# 38
EC_FLASH_SPI_DO 37
EC_FLASH_SPI_DIN 37
EC_FLASH_SPI_CS# 37
EC_FLASH_SPI_CLK 37

PS_ID 55
5V_ALW_ON 52
SIO_PWRGD_SB 47

GPH3
GPH4
GPH5
GPH6
MODC_EN 31

Default is pull-up

SIO_SLP_S3# 12
ACAV_IN 48
USB_SIDE_EN# 30
USB_BACK_EN# 30
MAIN_PWR_SW# 38
LCDVCC_TST_EN 26

Board ID Straps

+3.3V_ALW

Discrete	BID2	BID1	BID0
	R539 10K_DIS	R318 10K	R552 *10K_NC	R319 10K
	R538 10K_UMA	R328 *10K_NC	R553 10K	R330 *10K_NC

1023_Michael:Change Board ID to 101 for QT.

0424-Steg Add R330

UMA

BID2	BID1	BID0	XPS (UMA)	XPS (Dis)
0	0	0	SSI (X00)	SSI (X00)
0	0	1	PT1 (X01)	PT1 (X01)
0	1	0	PT2 (X01)	PT2 (X01)
0	1	1	ST (X02)	ST (X02)
1	0	0	ST2 (X02)	ST2 (X02)
1	0	1	QT (A00)	QT (A00)
			(A01)	(A01)

VGA_IDENTIFY : USB_SIDE_EN#
1 = Discrete Gfx / 0 = UMA.

32KHz Clock
R529 0 — ITE8512_XTAL2 — W2 32.768KHZ — ITE8512_XTAL1
C678 15P/50V
C684 15P/50V

+3.3V_ALW
L46 BLM11A05S RC0603 — SIO_AVCC
L48 BLM11A05S RC0603 — SIO_AVSS
C649 0.1U/10V

ITE8512IX pin12 connect to GND.
ITE8512JX pin12 connect to 0.1uF. (Default on PT1)

SIO_VSS
R510 *0_NC
C656 0.1U/10V
C663 *1U/10V_NC CC0603

+3.3V_ALW
C671 10U/6.3V CC0603
C445 0.1U/10V
C693 0.1U/10V
C617 0.1U/10V
C694 0.1U/10V

Place these caps close to ITE8512.

0709-Steg: Change CAP value from 10p to 15p

QUANTA COMPUTER

Title	SIO(ITE8512)	
Size	Document Number: IM3 (XPS-Jolie)	Rev: 2A
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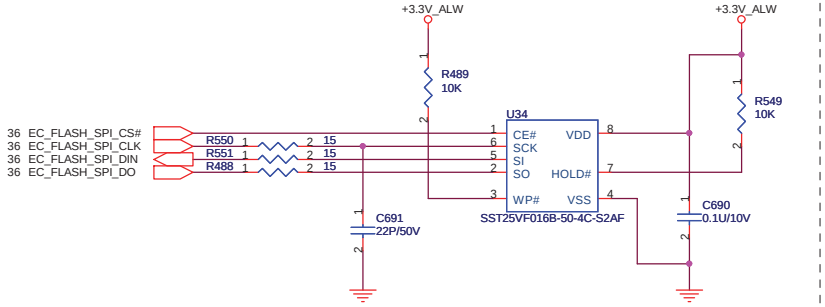
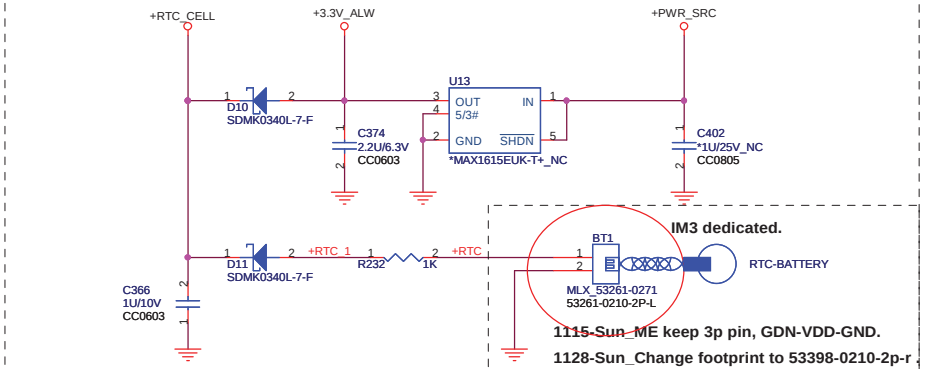
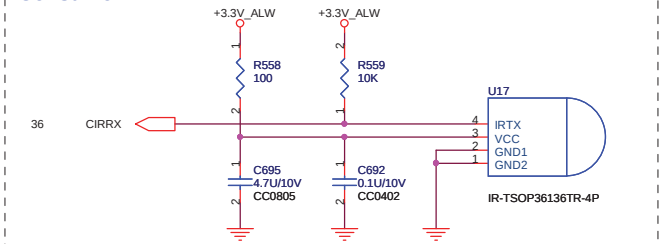
16Mbit (2M Byte), SPI



RTC BATTERY



Consumer IR



QUANTA COMPUTER

Title	FLASH & RTC	
Size	Document Number: IM3 (XPS-Jolie)	Rev: 2A
Date: Friday, September 05, 2008	Sheet 37 of 59	

0605_Michael: Change CN6 from 32pin to 28pin but need to check footprint and PN

BREATH_PWRLED_BOT:
Solid = System On, Normal Activity; "Breathing" = System in Standby; Off = System Off (or in Hibernate)

0920_Michael:Add KB detect function
1023_Michael:Disable KB_LED function depop R722 and change R723 from 200K to 0 ohm

Power Button
Speaker
KB LED
Touch Pad
Media Button

R723 0
R722 *100K_NC
8 KB_LED_DET
39 PWRLED_SW
POWER_SW_IN0#
CN6
FH28D-28S-0.5SH(0.5)

43 AUD_SPK_L1
43 AUD_SPK_L2
43 AUD_SPK_R1
43 AUD_SPK_R2
36 KB_BACKLITE_EN
+5V_RUN
36 DAT_TP_SIO
36 CLK_TP_SIO
+3.3V_ALW
29 LID_SW#
R721 0
36 SMBDAT2
36 +5V_ALW
SMBCLK2
+MMB_PWR
36 MEDIA_INT#

0624_Michael:Change net name from +5V_ALW2 to +MMB_PWR
0704_Michael:Swap SMBCLK2 and +MMB_PWR for Ass'y issue

0825_Michael:Add KB detect function
0911_Michael:Change pin from 16 to 8
0918_Michael:Return to LID_SW#

0909_Michael:Remove LID_SW# and connector to GND

Power Buttom

+3.3V_ALW
+3.3V_ALW
D30
*DA204U_NC
R479 100K
R480 10K
POWER_SW_IN0#
MAIN_PWR_SW# 36
C628 1U/10V CC0603

R605 *0/0603_NC
+5V_ALW2
+MMB_PWR
Q90 SI2303BDS-T1-E3
R606 100K
36 MMB_ISSP#
Q92 2N7002W-7-F

0411-Sun_Reserve circuit for MMB ISSP support
0414-Sun_Change MOSFET control voltage level

0701_Michael: Remove Q91 for ISSP

0609_Michael:Add MOS Q92 on +MMB_PWR for ISSP

KEYBOARD CONNECTOR

36 KSO[0..16]
36 KSI[0..7]
36 KB_DET#
CN9
KSI7 KSI6 KSI4 KSI2 KSI5 KSI1 KSI3 KSI0 KSO5 KSO4 KSO7 KSO6 KSO8 KSO3 KSO1 KSO2 KSO0 KSO12 KSO16 KSO15 KSO13 KSO14 KSO9 KSO11 KSO10 CAP_LED_L
GND1
GND2
FH28-60(30)SB-1SH(05)
FH28-30SB-1SH-30P-R

0701_Michael:Remove Q80 and add Q46 & R491 for leakage issue on S3

0310-Sun_CAP_LED +5V_ALW2 change to +5V_RUN

+3.3V_ALW
+3.3V_ALW
+5V_RUN
R511 100K
36 CAP_LED#
R491 10K
Q46 MMBT3906_NL
Q78 2N7002W-7-F
R533 158
CAP_LED_L

CP2 *100PX4_NC
CP1 *100PX4_NC
CP4 *100PX4_NC
CP3 *100PX4_NC
CP6 *100PX4_NC
CP5 *100PX4_NC
50 NPO 1206
C707 *100P/50V_NC
KSI7

1022_Michael: Change R533 from 2.49K to158ohm for LED brightness

100P CAPS CLOSE TO JKB1

Array Microphone & Camera

+3.3V_RUN
+3.6V_RUN
L12 BLM11A05S RC0603
L11 *BLM11A05S_NC RC0603
R65 0
R66 0
L10 *DLW21SN900SQ2B_NC
11 MCP_USB11+
11 MCP_USB11-
42 DMIC_DATA
42 DMIC_CLK
R68 0/0603 RC0603
R67 0/0603 RC0603
C83 10U/10V CC0805
C82 *33P/50V_NC
C98 *33P/50V_NC

GND,VCC要用最粗的電子線

USB11_D+
USB11_D-
CAM_VCC
DMIC_DATA_R
DMIC_CLK_R
CN3
IPEX coaxial 20374-010e-10p-l

0306-Sun_Change CCD connector to 10pin

0612_Michael:Remove CAMERA DET circuit, R64 pull-up to +3.3V_RUN and connector to U32 pin95

+5V_RUN
+3.6V_RUN
U11
IN OUT EN GND NC/FB
*TPS76301DBVR_NC
C137 *1U/10V_NC CC0603
R94 *100K/F_NC
C106 *27P/50V_NC
R95 *49.9K/F_NC
C102 *4.7U/6.3V_NC CC0603

Hall Switch

+3.3V_ALW
R724 100K
MEDIA_INT#
C869 *0.1U/10V_NC
+3.3V_ALW
U54
VDD GND OUT
*PT3661-BB_NC
R726
LID_SW#

0815_Michael:Add Hall Switch circuit and MEDIA_INT# pull-high at MB side

1023_Michael:Depop LID_Switch function on MB side

QUANTA COMPUTER

Title	USER INTERFACE/CIR	
Size	Document Number IM3 (XPS-Jolie)	Rev 2A
Date: Thursday, October 23, 2008	Sheet 38 of 59	

Battery status

0313-Sun_Change battery LED to Amber (3.3V drive) (Remove Q68, R462, R460)

0229-Sun_Remove BAT_LED controled by LID_SW# [Del Q69 (2N7002), Q67 (DDTA114YUA); change R462 from 220 to 10K]

0606_Michael:Add R462 connect to CN2 on BAT1_LED

0922_Michael:Remove BAT1_AMB_LED function

0229-Sun_Del BAT_LED2 [Del R295,Q48,Q43 (2N7002) and Q46,Q47 (DDTA114YUA)]

HDD Activity LED

Flicker with HDD activity.

1022_Michael:Change R500 from 2.49K to 169ohm for LED brightness

WLAN

Turns On when WiFi radio is on.

1022_Michael:Change R523 from 2.49K to 169ohm for LED brightness

BT / UWB LED

Turns On when Bluetooth radio is on.

1022_Michael:Change R519 from 2.49K to 169ohm for LED brightness

WWAN

Turns On when WWAN radio is on.

1022_Michael:Change R97 from 2.49K to 169ohm for LED brightness

0229-Sun_Change PWRLED_SW control same as PWRLED_LOGO [Del U10 (TC7SZ04F), Q16 (2N7002)]

0904_Michael:Add R576 and connector to PWR_LED# from ITE8510

0618_Michael:Follow DELL command modify circuit to change the LED behavior of Power button

Power LED_LOGO

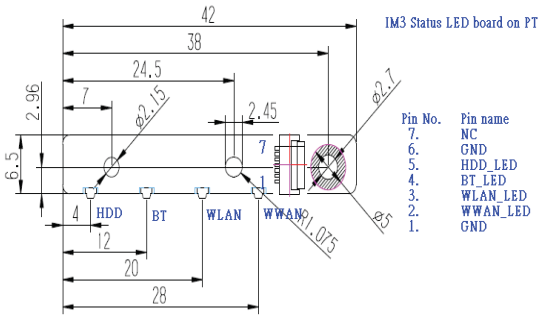
1022_Michael:Change R390 from 1K to 390ohm for LED brightness

1022_Michael:Change R366 from 220ohm to 100ohm for LED brightness

50mA/ 200mW

0229-Sun_Remove LED control by LID_SW# (Del R478,R477,Q75)

0704_Michael:Change CN33 pin number from 7pin to 6pin and also change type from HEADER7 to HS62_1909782-1 for cost down



Pin No.	Pin name
7.	NC
6.	GND
5.	HDD_LED
4.	BT_LED
3.	WLAN_LED
2.	WWAN_LED
1.	GND

Logo LED/B connector

0306-Sun_Change Logo LED as BAT & PWR LED and change connector to 6pin_HS62_1909782-1

0314-Sun_Add short pad on GND of Logo LED/B connector for EMI request.

QUANTA COMPUTER

Title	LED	
Size	Document Number: IM3 (XPS-Jolie)	Rev: 2A
Date: Wednesday, October 22, 2008	Sheet 39 of 59	

Place the power caps close to the relation pins.

+3.3V_R5C833

C666 10U/6.3V CC0603
C639 0.01U/25V
C620 0.01U/25V
C610 0.01U/25V
C614 0.01U/25V
C635 0.01U/25V

C618 10U/6.3V CC0603
C613 0.1U/10V
C688 0.01U/25V
C612 0.01U/25V

Please place capacitors for VCC_ROUTx as close to R5C833 as possible.

C611 0.01U/25V
C674 0.01U/25V
C631 0.47U/10V CC0603
C625 0.47U/10V CC0603

+3.3V_RUN
+3.3V_R5C833
JP11 SHORT40X18

0606_Michael:Change footprint from 0ohm R468 to normal short type JP11 (short40x18)

Place the power caps close to the relation pins.

C661 0.1U/10V
C642 10U/6.3V CC0603

U29B

VCC_PCI1 10
VCC_PCI2 20
VCC_PCI3 27
VCC_PCI4 32
VCC_PCI5 41
VCC_PCI6 128
VCC_RIN 61
VCC_ROUT1 16
VCC_ROUT2 34
VCC_ROUT3 64
VCC_ROUT4 114
VCC_ROUT5 120
VCC_3V 67
VCC_MD 86

GND1 4
GND2 13
GND3 22
GND4 28
GND5 54
GND6 62
GND7 63
GND8 68
GND9 118
GND10 122

AGND1 99
AGND2 102
AGND3 103
AGND4 107
AGND5 111

10 PCI_AD[31..0]

PCI_AD31 125 AD31
PCI_AD30 126 AD30
PCI_AD29 127 AD29
PCI_AD28 1 AD28
PCI_AD27 2 AD27
PCI_AD26 3 AD26
PCI_AD25 5 AD25
PCI_AD24 6 AD24
PCI_AD23 9 AD23
PCI_AD22 11 AD22
PCI_AD21 12 AD21
PCI_AD20 14 AD20
PCI_AD19 15 AD19
PCI_AD18 17 AD18
PCI_AD17 18 AD17
PCI_AD16 19 AD16
PCI_AD15 36 AD15
PCI_AD14 37 AD14
PCI_AD13 38 AD13
PCI_AD12 39 AD12
PCI_AD11 40 AD11
PCI_AD10 42 AD10
PCI_AD9 43 AD9
PCI_AD8 44 AD8
PCI_AD7 46 AD7
PCI_AD6 47 AD6
PCI_AD5 48 AD5
PCI_AD4 49 AD4
PCI_AD3 50 AD3
PCI_AD2 51 AD2
PCI_AD1 52 AD1
PCI_AD0 53 AD0

PCI / OTHER

+3.3V_R5C833

R546 100K
GBRST#
C685 1U/10V CC0603

GBRST# should be asserted only when system power supply is on.

HWSPND# 69
R562 10K

+3.3V_R5C833 R502 10K
+3.3V_R5C833 R505 100K

MSEN 58 — Memory Stick Enable
XDEN 55 — XD Card Enable
UDIO5 57 — Serial ROM disable
UDIO3 65 — SD Card Enable
UDIO4 59 — MMC Card Enable
UDIO2 56
UDIO1 60
UDIO0/SRIRQ# 72 — IRQ_SERIRQ 10,36

10 PCI_PAR 33 PAR
10 PCI_C_BE3# 7 C/BE3#
10 PCI_C_BE2# 21 C/BE2#
10 PCI_C_BE1# 35 C/BE1#
10 PCI_C_BE0# 45 C/BE0#
PCI_AD23 R463 1 2 100 8 IDSEL

10 PCI_REQ0# 124 REQ#
10 PCI_GNT0# 123 GNT#
10 PCI_FRAME# 23 FRAME#
10 PCI_IRDY# 24 IRDY#
10 PCI_TRDY# 25 TRDY#
10 PCI_DEVSEL# 26 DEVSEL#
10 PCI_STOP# 29 STOP#
10 PCI_PERR# 30 PERR#
10 PCI_SERR# 31 SERR#

INTA# 115 — 1394 Interrupt — PCI_INTW# 10
INTB# 116 — Media card Interrupt — PCI_INTX# 10

GBRST# 71 GBRST#
10 PCI_RST# 119 PCIRST#

CLK_PCI_PCCARD
R470 *22_NC
C622 *1P/50V_NC

10 CLK_PCI_PCCARD R473 1 2 0 121 PCICLK
R561 1 2 *0_NC
10 PCI_PME# 70 PME#
10,36 CLKRUN# 117 CLKRUN#

TEST 66 — PAD T74
R563 100K

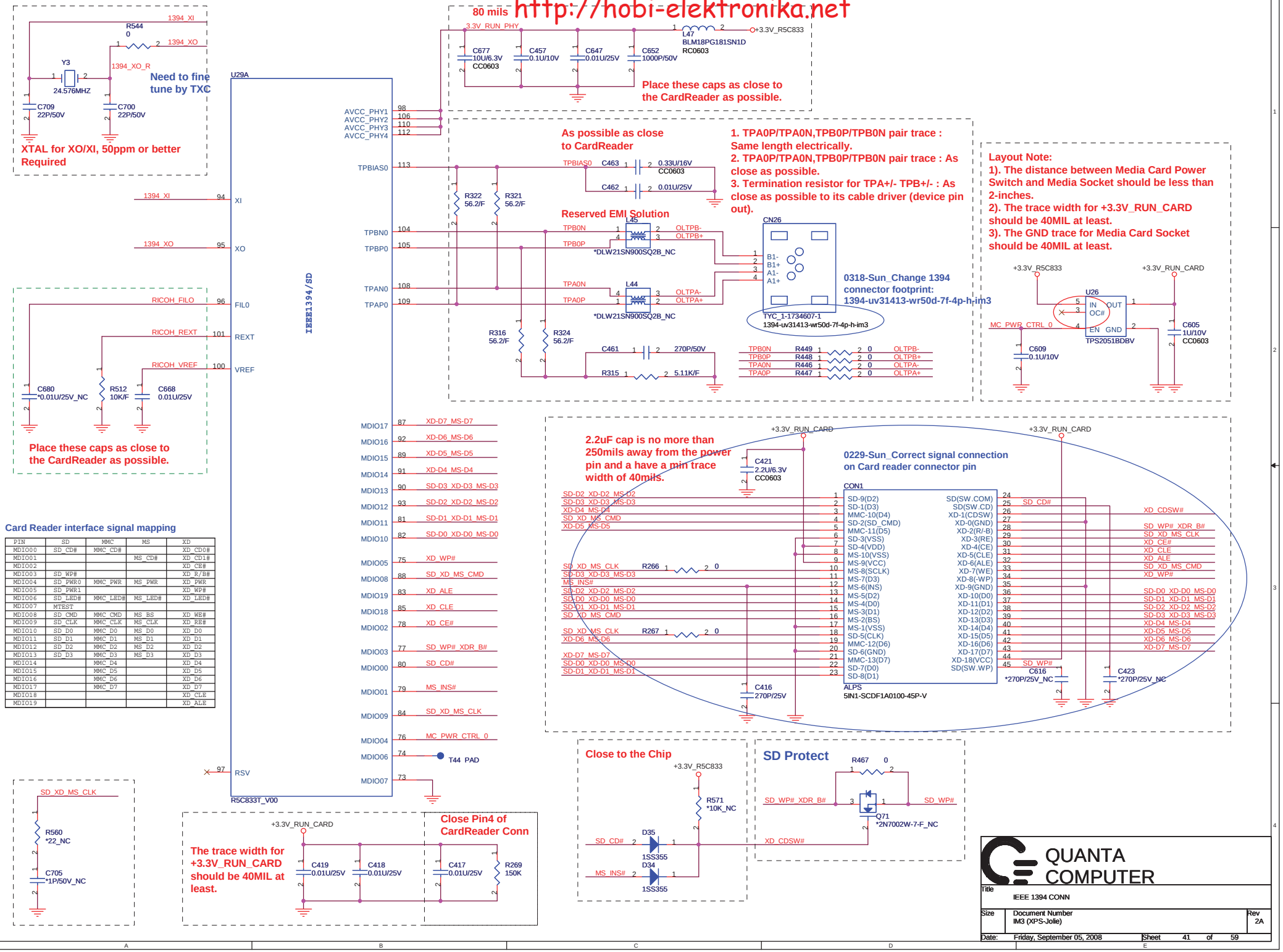
R5C833T_V00

0630_Michael:Remove Mini PCI CN8 and circuit

0707_Michael:Depop R561 for leakage issue

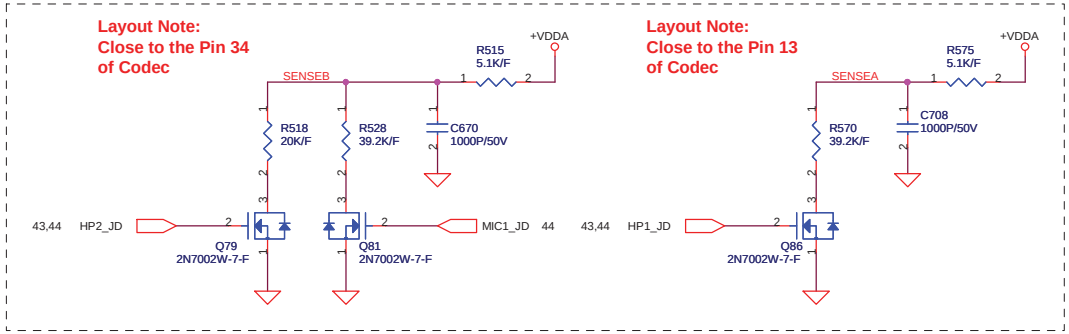
QUANTA COMPUTER

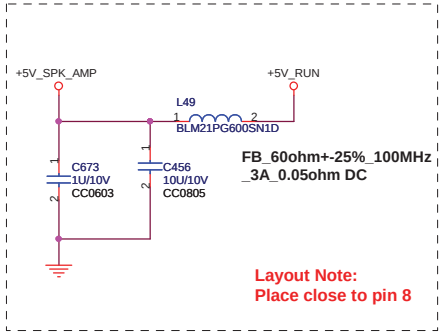
Title	CARDREADER FOR 8 IN 1 CONTROLLER	
Size	Document Number IM3 (XPS-Jolie)	Rev 2A
Date: Friday, September 05, 2008	Sheet 40 of 59	



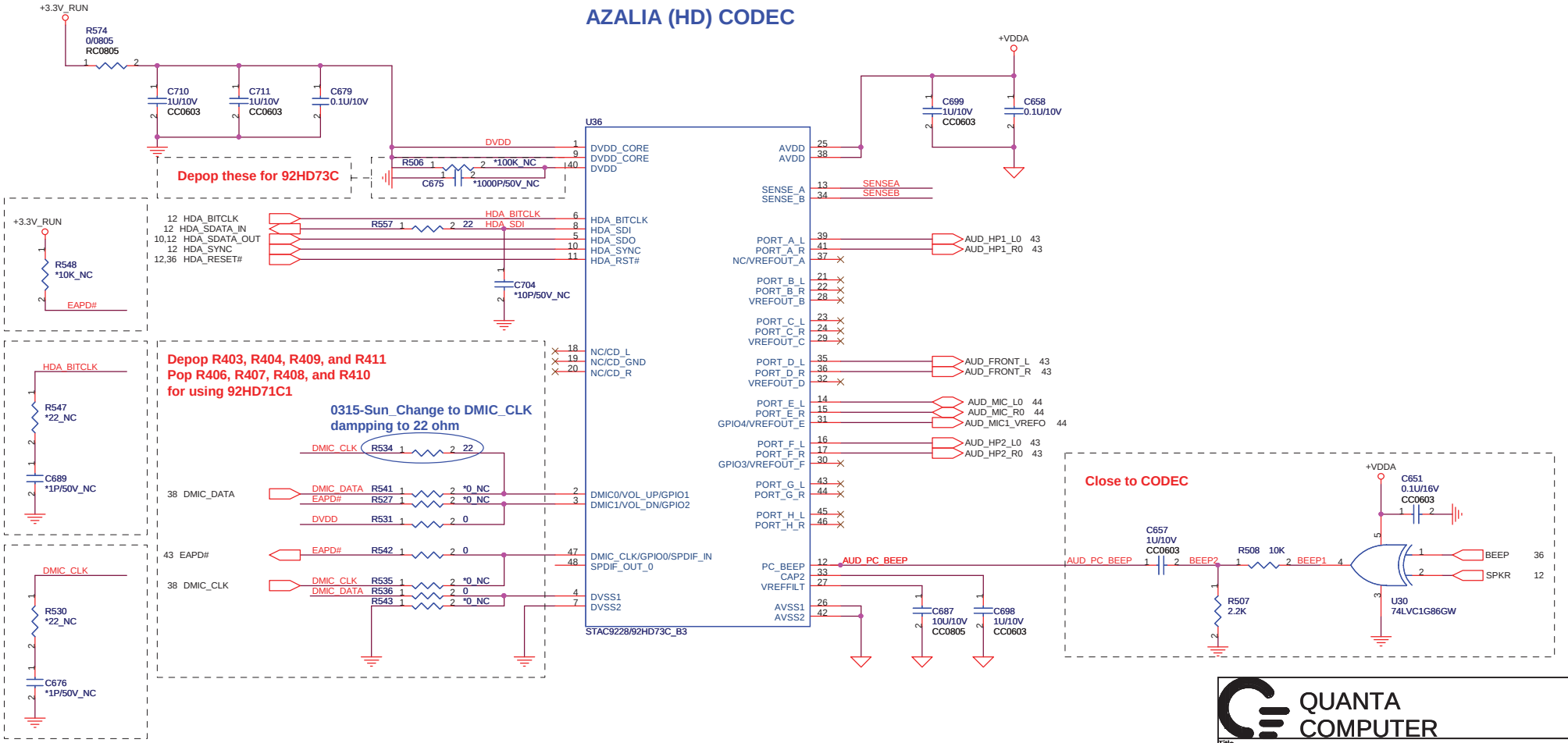
QUANTA COMPUTER

Title	IEEE 1394 CONN	
Size	Document Number IM3 (XPS-Jolie)	Rev 2A
Date: Friday, September 05, 2008	Sheet 41 of 59	



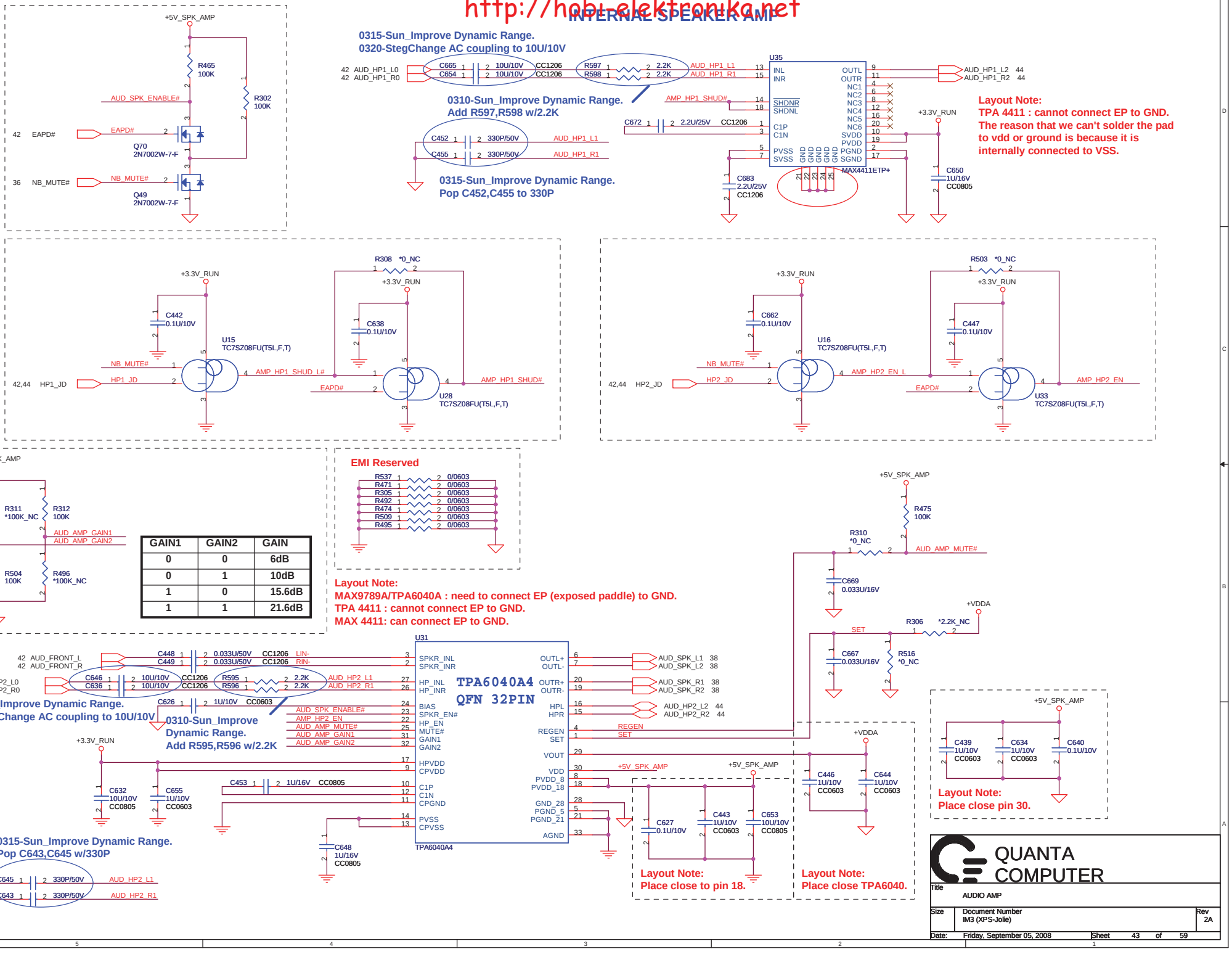


AZALIA (HD) CODEC



QUANTA COMPUTER		
Title: Azelia CODEC		
Size	Document Number: IM3 (XPS-Jolie)	Rev: 2A
Date: Friday, September 05, 2008	Sheet 42 of 59	

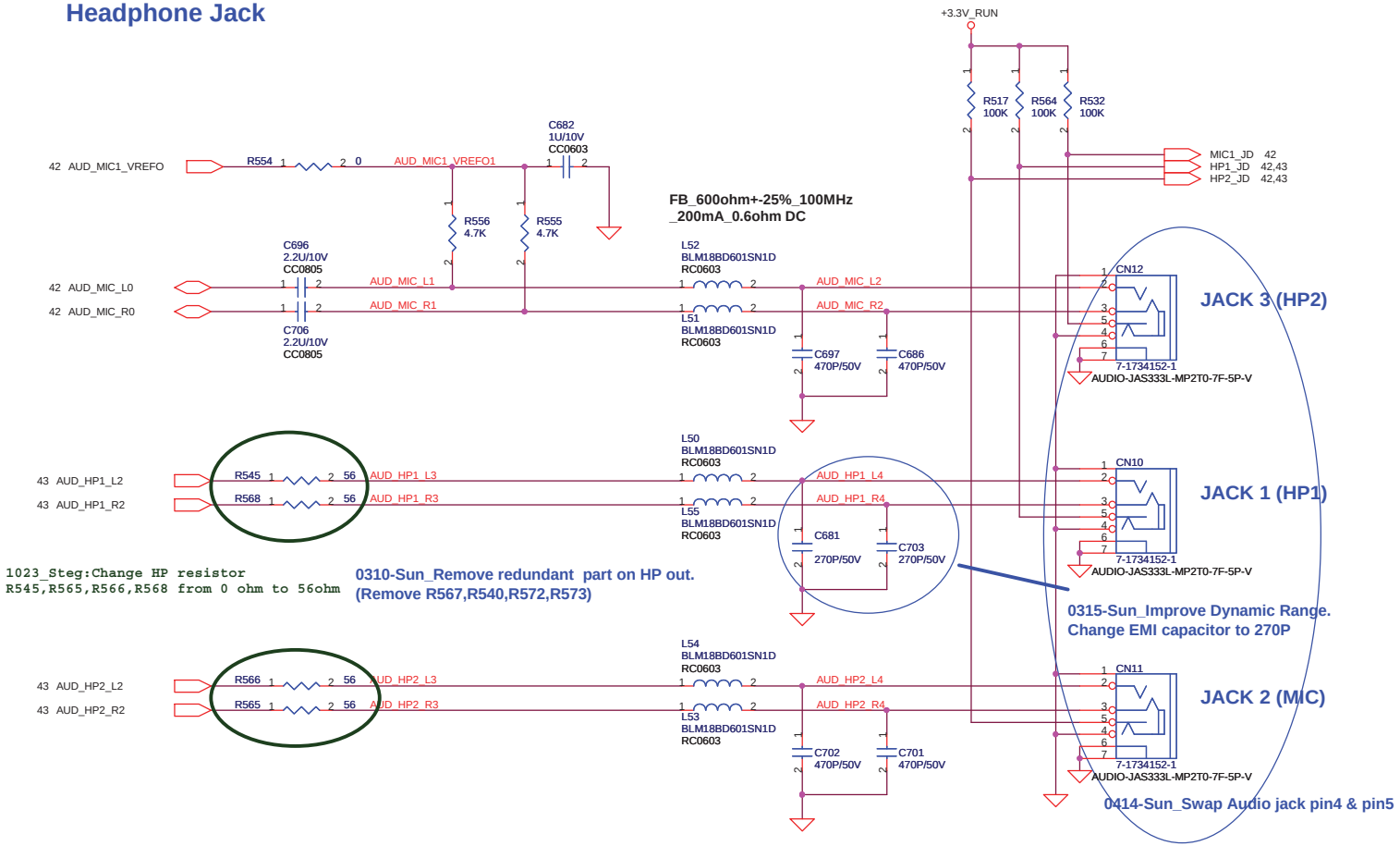
INTERNAL SPEAKER AMP



QUANTA COMPUTER

Title	AUDIO AMP	
Size	Document Number: IM3 (XPS-Jolie)	Rev: 2A
Date: Friday, September 05, 2008	Sheet 43 of 59	

Headphone Jack



QUANTA COMPUTER

Title	AUDIO CONN	
Size	Document Number IM3 (XPS-Jolie)	Rev 2A
Date: Thursday, October 30, 2008	Sheet 44 of 59	

Layout Note:
1.Use 50 ohm impedance for all trace.
2. Trace length matched to a tolerance of 9.8mm in order to keep the skew between signals less than 0.07ns.
3.The receive and transmit signals kept away from each other and other analog and clock signals to reduce crosstalk.

Reserved EMI
0319-Sun_Pop 6.8P on LAN bus

TRD0+ TRD0- TRD1+ TRD1-
C490 6.8P/50V C491 6.8P/50V C486 6.8P/50V C487 6.8P/50V
TRD2+ TRD2- TRD3+ TRD3-
C502 6.8P/50V C503 6.8P/50V C492 6.8P/50V C495 6.8P/50V

U19

B5071A2KFBG
PHY
100 BALL BGA

GTXCLK TX_EN TX_ER TXD[0] TXD[1] TXD[2] TXD[3] TXD[4] TXD[5] TXD[6] TXD[7] TXC
RXC RX_DV RX_ER COL CRS RXD[0] RXD[1] RXD[2] RXD[3] RXD[4] RXD[5] RXD[6] RXD[7] MDC MDIO XTALI XTALO CLK_125 TDI TMS TCK TDO TRST MODE_SEL[1] MODE_SEL[0] LOWPWR TEST0 TEST1 RESET
NC_1 NC_2 NC_3 NC_4 NC_5 NC_6 NC_7 NC_8 NC_9 NC_10 NC_11 NC_12

TRD[0]+ TRD[0]- TRD[1]+ TRD[1]- TRD[2]+ TRD[2]- TRD[3]+ TRD[3]-
LED[1] LED[2] LED[3] LED[4]
REGOUT[1] DVDD_1 DVDD_2 DVDD_3
AVDDL_1 AVDDL_2 VREF
PLLVDD
REGOUT[2] AVDD_2 AVDD_1
BIASVDD XTALVDD RDAC
OVDD1 OVDD2 REGSUPPLY[1] REGSUPPLY[2]
GND_1 GND_2 GND_3
AGND_1 AGND_2 AGND_3 PLLGND
NC_13 NC_14 NC_15 NC_16 NC_17 NC_18 NC_19 NC_20 NC_21 NC_22

B5071A2KFBG

9 RGMII_TXCLK
9 RGMII_TXCTL
9,12 RGMII_TXD0
9 RGMII_TXD1
9 RGMII_TXD2
9 RGMII_TXD3

0319-Sun_Change RGMII_RXCLK damping RES to 22 ohm for EMI

9 RGMII_RXCLK
9 RGMII_RXCTL
RGMII_RXCLK R63 22 RGMII_RXCLK_C
R152 0 RGMII_RXCTL_C

9 RGMII_RXD0
9 RGMII_RXD1
9 RGMII_RXD2
9 RGMII_RXD3

9 RGMII_MDC
9 RGMII_MDIO
RGMII_MDIO
9 RGMII_25MHz

0312-Sun_Remove R76 on RGMII_25MHz

T56 PAD
T55 PAD
T6 PAD
T46 PAD
T5 PAD
T45 PAD

R43 0
R55 10K
+3.3V_PHY
9 RGMII_PWRDWN
36 LAN_DISABLE
R31 0
R33 *0_NC
9 RGMII_RESET#

0312-Sun_Remove R56 on RGMII_RESET#

+3.3V_PHY
R53 1.5K/F
RGMII_MDIO

Reserved EMI
RGMII_RXCLK
C79 33P/50V

0319-Sun_Pop RGMII_RXCLK capacitor w/33P for EMI

RGMII_25MHz
R75 22
C100 10P/50V

0616_Michael:Change net name connector to RGMII_25MHz

0319-Sun_Pop AC termination on PHY_XTALI for EMI

0312-Sun_Remove R74 on PHY_XTALI.

0311-Sun_Add EMI bead on +3.3V_PHY. (Place on JP1)

+3.3V_RMGT
+3.3V_PHY
L56 HCB2012KF-601T20 RC0805
JP1 SHORT40X12
C69 10U/10V CC0805
GB2012091601

0709-Steg: Change QPN for L56 due to forbid material.

+3.3V_PHY
R50 *4.7K_NC
PHY_RESET#
C76 *1P/50V_NC

0320-Steg_Add EMI capacitor on +3.3V_RGMT & +3.3V_PHY. (Place close to JP1/L56)

+3.3V_RMGT
C714 10P/50V C717 47P/50V C718 3300P/50V C721 0.01U/25V C722 1000P/16V
+3.3V_PHY
C730 33P/50V C731 3300P/50V C729 0.01U/25V

+1.2V_PHY
1.2V
Pace 0.1u close DVDD pins
Pace 10u close pin F3 "REGOUT[1]"
C62 0.1U/10V C67 0.1U/10V C73 0.1U/10V C85 10U/10V CC0805

1.2V
Pace close AVDDL pins
PHY_AVDDL
L16 BLM18AG601SN1D
C80 0.1U/10V C78 0.1U/10V C104 10U/10V CC0805

1.2V
PHY_PLLVDD
L15 BLM18AG601SN1D
C97 0.1U/10V C90 10U/10V CC0805

REGOUT[1] +1.2V_PHY
PHY_AVDDL
PHY_PLLVDD
REGOUT[2] +2.5V_PHY
BIASVDD XTALVDD
R369 1.24K/F
3.3V
Pace 0.1u close PHY
C70 0.1U/10V C68 0.1U/10V

Layout Note:
Locate the RDAC resistor as close to the RDAC pin as possible and keep the trace between the pin and resistor and short and wide as possible.

+2.5V_PHY
2.5V
Pace 10u close pin H3 "REGOUT[2]"
C64 0.1U/10V C60 0.1U/10V C485 10U/10V CC0805

2.5V
BIASVDD
L17 BLM18AG601SN1D
C99 0.1U/10V

2.5V
XTALVDD
L14 BLM18AG601SN1D
C95 0.1U/10V

SPD10LED# 46
SPD100LED# 46
PHY_ACTLED 46
TRD0+ TRD0- TRD1+ TRD1- TRD2+ TRD2- TRD3+ TRD3- 46

+3.3V_PHY
R34 *10K_NC

Pull-High: Address 1
NC : Address 0

Auto-Negotiate 10/100/1000BASE-T
0319-Sun_Pop 3300P on SPD10LED# and SPD100LED# for EMI

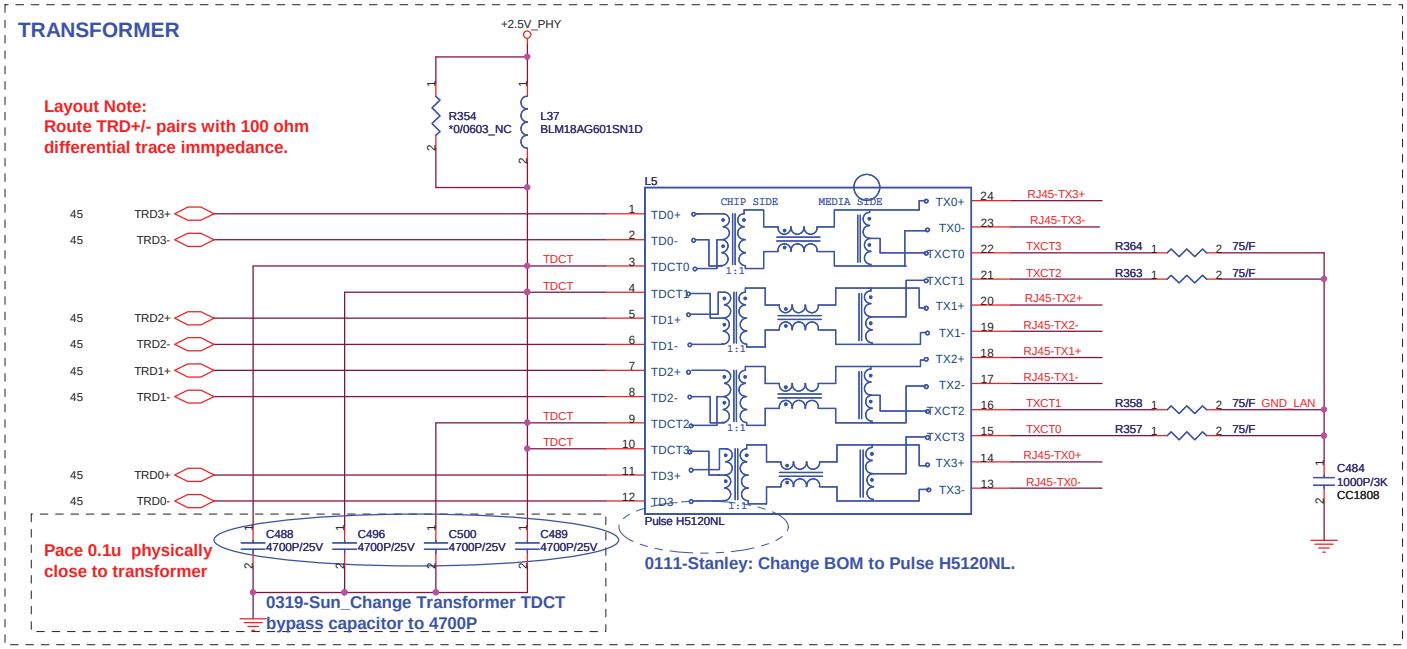
SPD10LED#
PHY_LED[4]
PHY_ACTLED
C732 33P/50V R48 4.7K R35 33P/50V R42 3300P

0311-Sun_Add EMI capacitor on PHY_ACTLED (Place close to CN20)

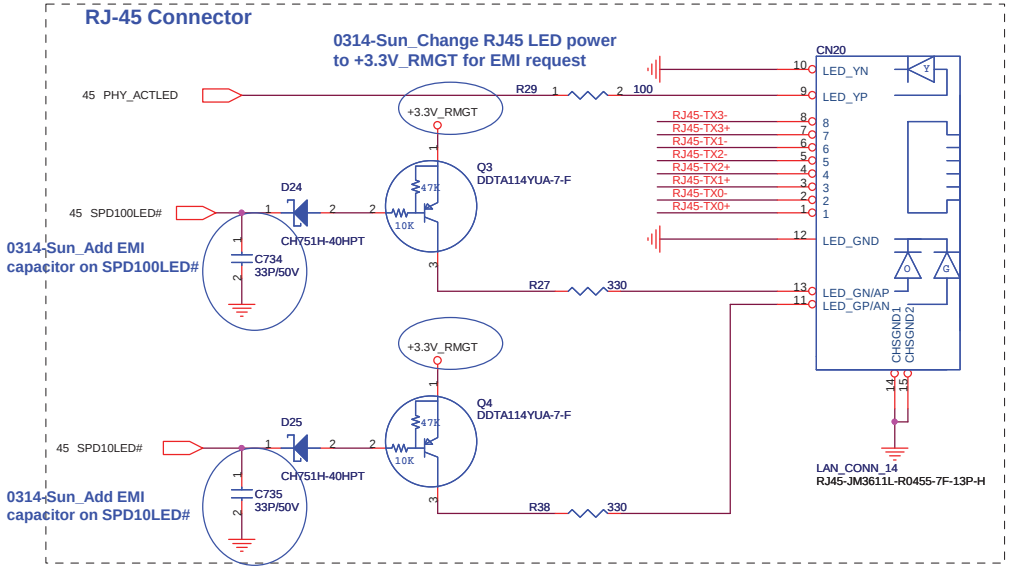
QUANTA COMPUTER

Title	LAN Broadcom PHY B5071	
Size	Document Number IM3 (XPS-Jolie)	Rev 2A
Date: Friday, September 05, 2008	Sheet 45 of 59	

TRANSFORMER

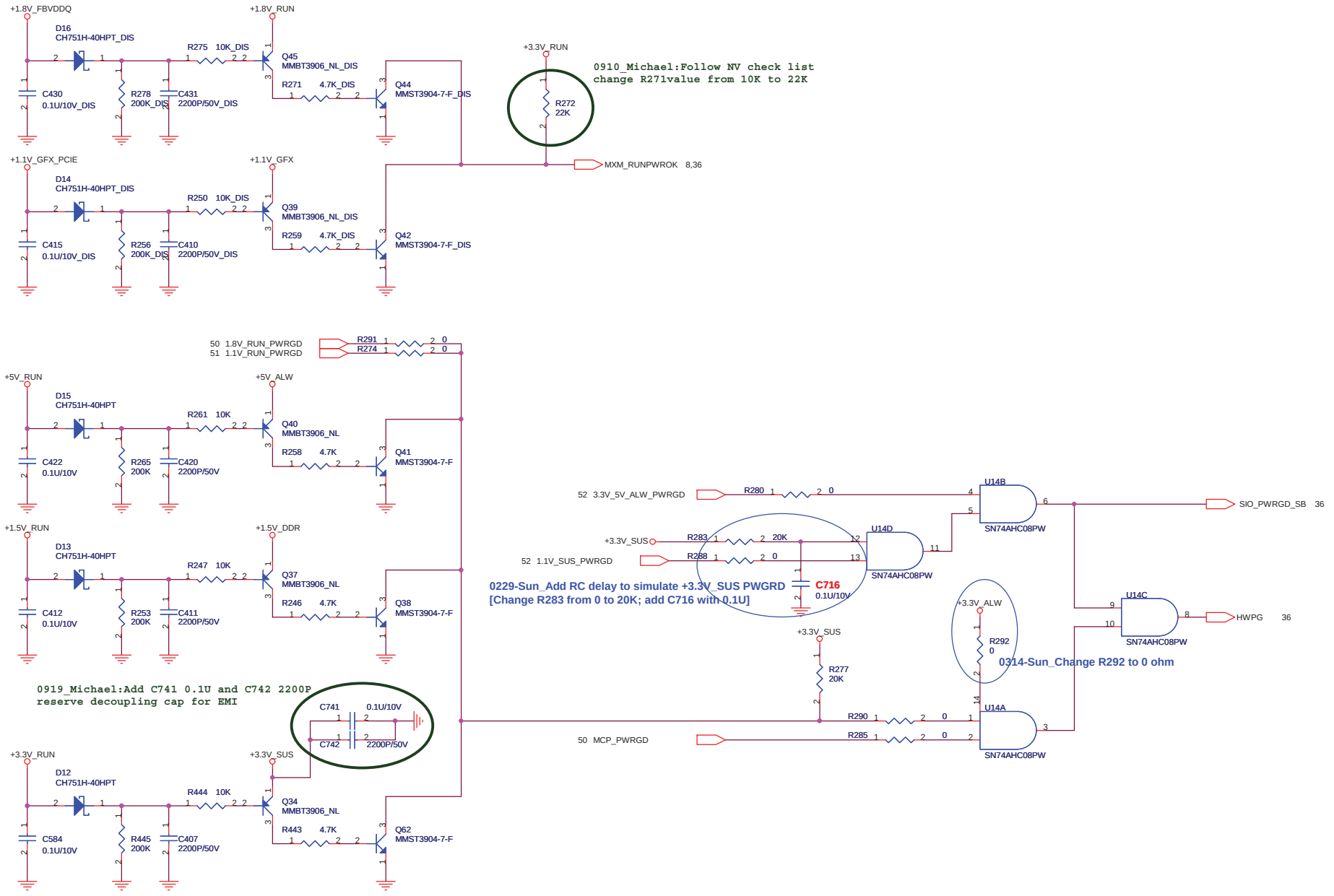


RJ-45 Connector



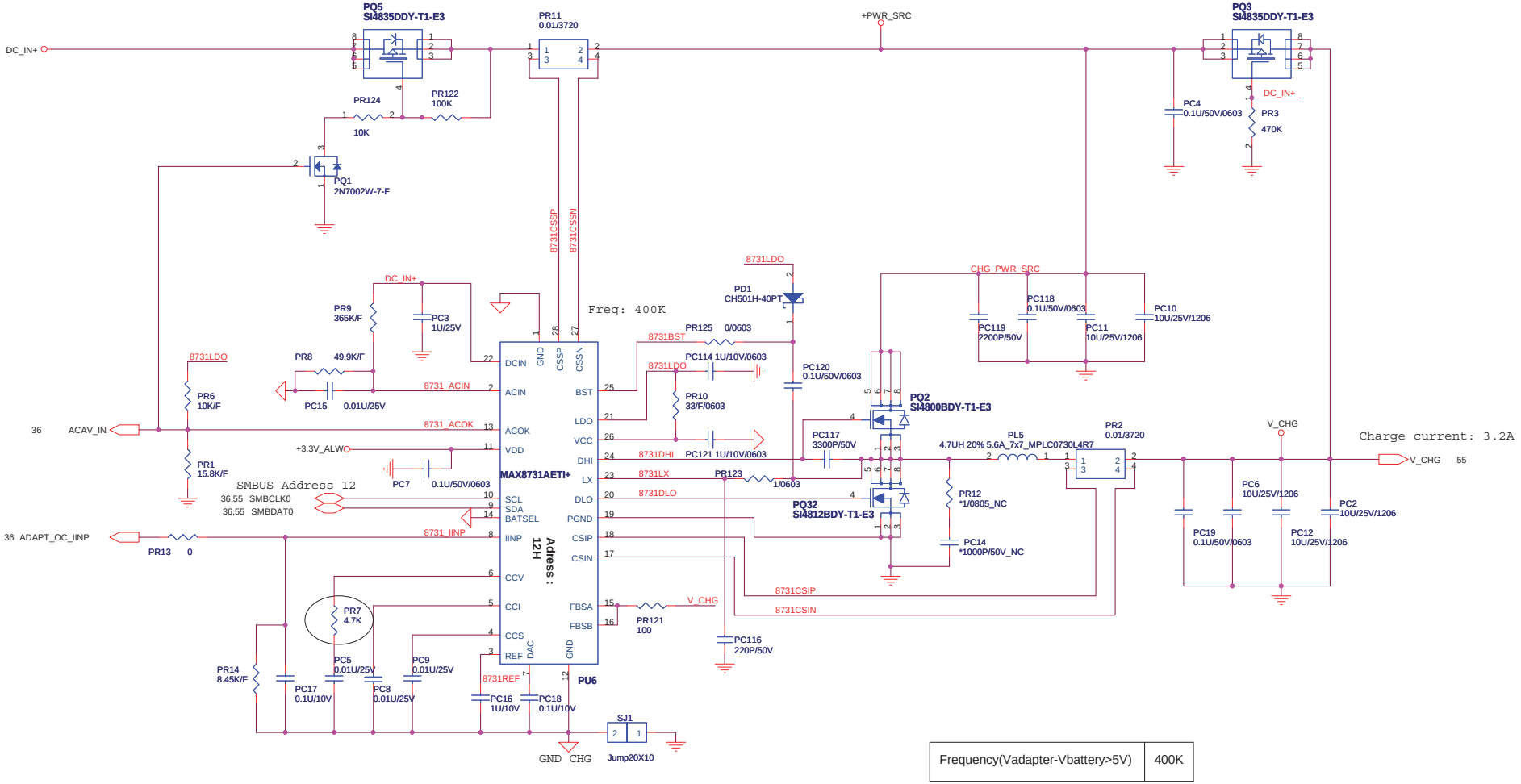
QUANTA COMPUTER

Title	LAN SWITCH	
Size	Document Number: IM3 (XPS-Jolie)	Rev: 2A
Date: Friday, September 05, 2008	Sheet 46 of 59	



QUANTA COMPUTER

Title	System Reset Circuit	
Size	Document Number IM3 (XPS-Jolie)	Rev 2A
Date: Thursday, October 23, 2008	Sheet 47 of 59	

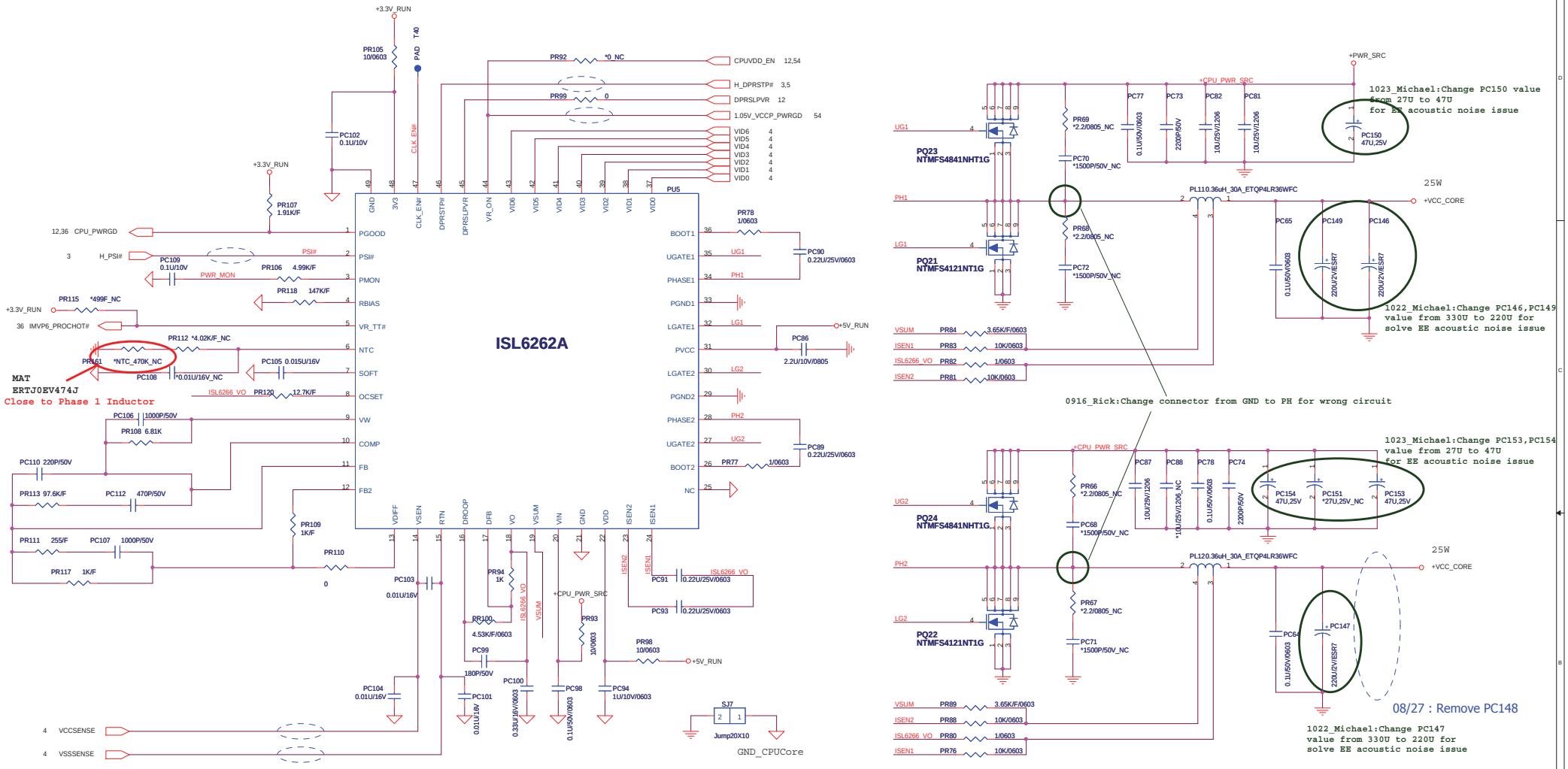


Frequency(Vadapter-Vbattery>5V)	400K

QUANTA COMPUTER

Title	CHARGER	
Size	Document Number IM3 (XPS-Jolie)	Rev 1A
Date: Tuesday, September 09, 2008	Sheet 48 of 59	

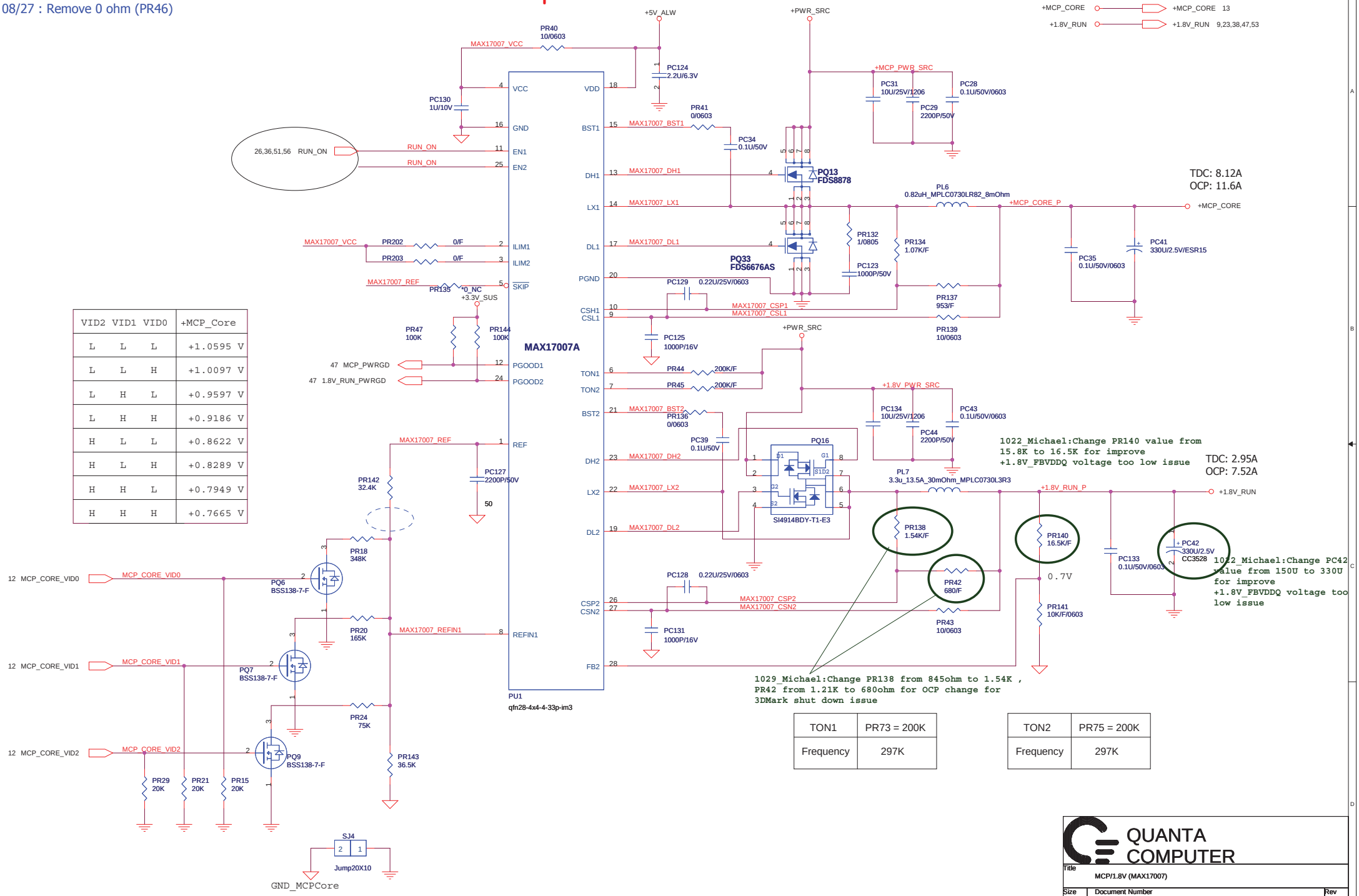
08/27 : Remove 0 ohm (PR102, PR97, PR119, PR104, PR103)



VW	PR37
Frequency	270KHZ@0A / 310KHZ@44A

QUANTA COMPUTER			
Title	CPU_Core_2Phase (ISL6262)		
Size	Document Number IM3 (XPS-Jolie)		Rev 1A
Date: Thursday, October 23, 2008		Sheet 49 of 59	

08/27 : Remove 0 ohm (PR46)



VID2	VID1	VID0	+MCP_Core
L	L	L	+1.0595 V
L	L	H	+1.0097 V
L	H	L	+0.9597 V
L	H	H	+0.9186 V
H	L	L	+0.8622 V
H	L	H	+0.8289 V
H	H	L	+0.7949 V
H	H	H	+0.7665 V

TON1	PR73 = 200K
Frequency	297K

TON2	PR75 = 200K
Frequency	297K

QUANTA COMPUTER

Title	MCP/1.8V (MAX17007)	
Size	Document Number IM3 (XPS-Jolie)	Rev 1B
Date: Thursday, October 30, 2008	Sheet 50 of 59	

+1.5V_DDR +1.5V_DDR 15,16,47,56
+0.75V_DDR_VTT +0.75V_DDR_VTT 15,16,56
+1.1V_RUN +1.1V_RUN 5,7,8,9,11,12
V_DDR_MCP_REF V_DDR_MCP_REF 15,16

08/27 : Remove PJP20, PJP21, PR48(0 ohm)

0709-Steg: Change PR39 Value for EMI Solution

1A

PU7 TPS51116
VLDOIN VTT VTTSNS GND VTTGND MODE VTTREF COMP VDDSNS VDDQSET
DRVH VBST LL DRVL PGND S3 S5 V5IN PGOOD CS

+0.75V_DDR_VTT
PC25 10U/4V
PC24 10U/4V
V_DDR_MCP_REF
PC122 0.033U/25V
DIS_MODE
5VIN
PR27 0
+1.5V_DDR_P
PR28 *0_NC
PC26 *0.1U/50V_NC

PR39 2/0603
PC33 0.1U/50V/0603
+1.5V_DH
+1.5V_LX
+1.5V_DL
PR130 *0_NC
PR38 0
S3_1.5V
RUN_ON
STR_EN# 10,56
PR131 0
S5_1.5V
SIO_SLP_S5# 12,36
+5V_ALW
1.5V_DDR_PWRGD 36
PR34 15K/F
PC30 *1000P/50V_NC
PC32 4.7U/10V/0805
PR133 100K
0923_Rick:Change vaule from 11K to 15K
+3.3V_SUS

PQ15 FDS8878
PQ34 FDS6680AS
PR199 *0/0805_NC
PC193 *2200P/50V_NC
PR145 *0/0805_NC
PC132 *2200P/50V_NC
+1.5V_PWR_SRC
PC40 *0.1U/50V_NC
PC126 10U/25V/1206
PC38 2200P/50V
PC37 0.1U/50V/0603
+PWR_SRC

PL8 1UH 11.0A (MPLC0730L1R0)
+1.5V_DDR_P
PC46 0.1U/50V/0603
PC195 0.1U/50V/0603
PC194 0.1U/50V/0603
PC47 220U/4V/ESR25
+1.5V_DDR

TDC: 11.19A
OCP: 15.98A

Frequency(Fixed)	400K

PR30 76.8K/F
PC27 *18P/50V_NC
0.75V
PR36 75K/F

SJ2
Jump20X10
GND_DDR

(Note 1) Current Limiting Setting :
Rtrip(Kohm)=100*(Iocp-0.5*Iripple)*Rds(on)

PQ47
SI4800BDY-T1-E3
+1.5V_DDR
PC138 10U/4V/0805
PC203 0.1U/10V/0402
+1.1V_RUN
TDC : 1.81A
NDV : 1.072V

PR148 100K/0402
+3.3V_SUS
(45) 1.1V_RUN_PWRGD
26,36,50,56 RUN_ON
RUN_ON
+5V_ALW
PR208 0/0402
PC51 0.1U/10V
PC202 1U/10V/0603

PU11 RT9024PE
PGD DRV EN FB VCC GND

PC201 100P/50V/0402
PR146 6.8K/F/0402
0.8V
PR147 20K/F/0402
PC204 22U/6.3V/0805

QUANTA COMPUTER

Title	1.8VSUS & 0.9VTT (TPS51116)	
Size	Document Number IM3 (XPS-Jolie)	Rev 1A
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+1.1V_SUS +1.1V_SUS 13,14
+5V_ALW +5V_ALW 15,30,31,38,39,47,50,51,53,54,56
+3.3V_ALW +3.3V_ALW 23,26,31,32,36,37,38,39,47,48,55,56

08/27 : Remove PR169, PR173 (0 ohm)
08/27 : Add Zener Diode (PD12), PR173 and change PR184=68K, PR181=200K to fix +3.3V_ALW glitch issue when adapter unplug

0916_Rick:Change PC177 value from 0.1U to 1U

Reserve for MAX17020
Reserve for MAX17020
Reserve for MAX17020

TDC: 4.77A
OCP: 6.81A

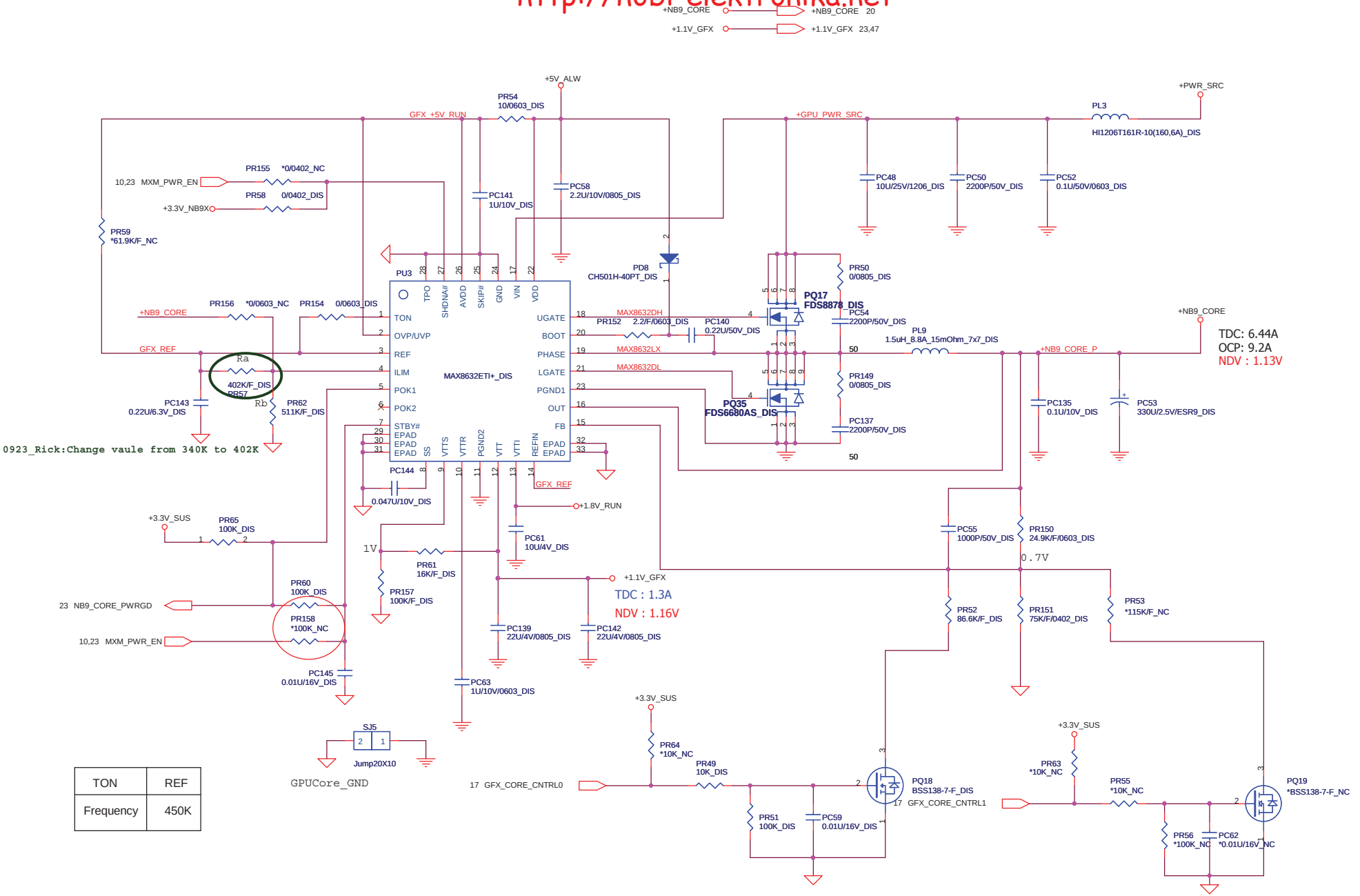
TDC: 6.67A
OCP: 9.53A

TON	GND
Frequency	OUT1@400K , OUT2@500K

TDC: 0.28A
NDV : 1.072V

08/27 : Add PR209, PC196 for RC delay

QUANTA COMPUTER			
Title	SYS 5V/3V(MAX17020)		
Size	Document Number IM3 (XPS-Jolie)		Rev 1A
Date: Thursday, October 30, 2008		Sheet 52 of 59	



TON	REF
Frequency	450K

ILIM	Iovp=(2*(Rb/(Ra+Rb))*0.1*(1/RDSON)+(I_DELTA/2)
SKIP#	AVDD = Low-noise, forced-PWM mode. GND = Pulse-skipping operation.
OVP/UVP	The overvoltage limit is 116% of Vout. The undervoltage limit is 70% of Vout.

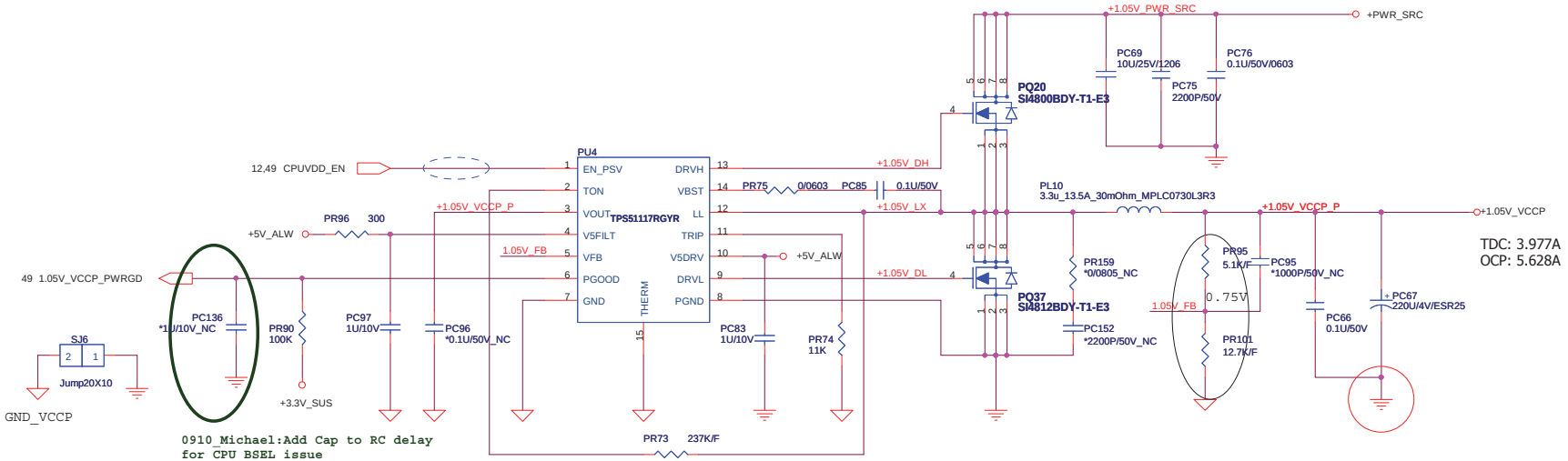
GFX_CORE_CNTRL1	GFX_CORE_CNTRL0	+NB9_CORE
LOW	LOW	0.9
HIGH	LOW	0.9
HIGH	HIGH	1.1V

QUANTA COMPUTER

Title	VGA DC/DC	
Size	Document Number IM3 (XPS-Jolie)	Rev 1A
Date: Tuesday, October 28, 2008	Sheet 53 of 59	

+1.05V_VCCP +1.05V_VCCP 3,4,5,13

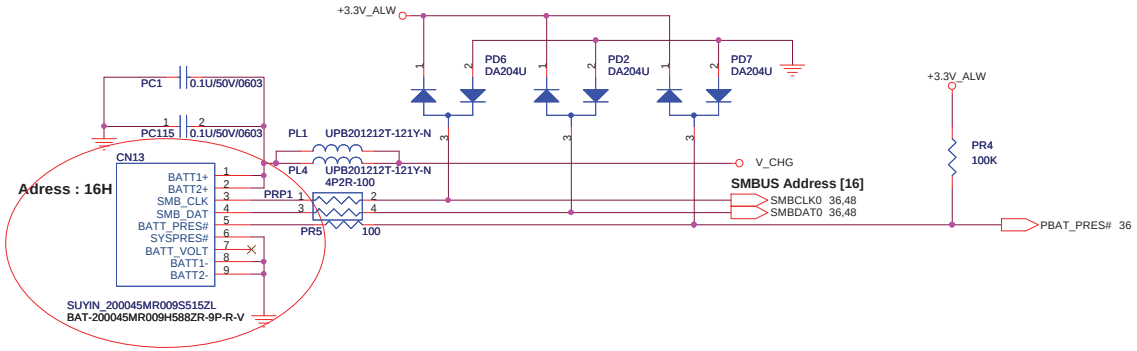
08/27 : Remove 0 ohm (PR79)

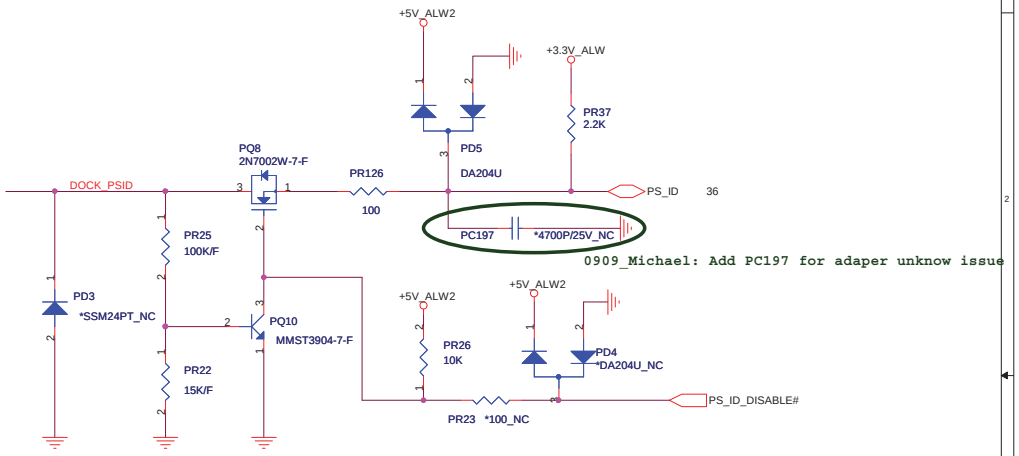


TON	PR185=237K
Frequency	300K

QUANTA COMPUTER

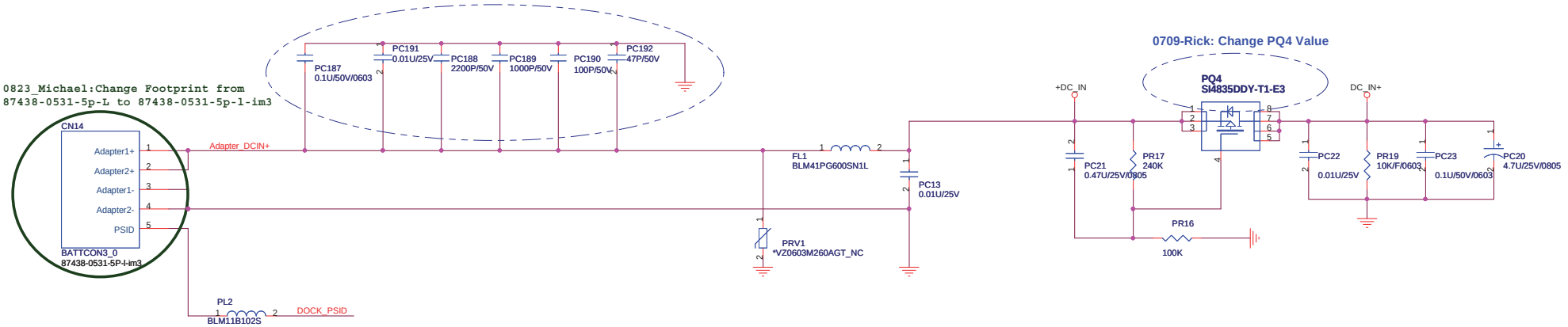
Title	CPUVTT_Core (TPS51117)	
Size	Document Number IM3 (XPS-Jolie)	Rev 1A
Date: Thursday, September 11, 2008	Sheet 54 of 59	





0311-Rick: Add PC187~PC192 for EMC

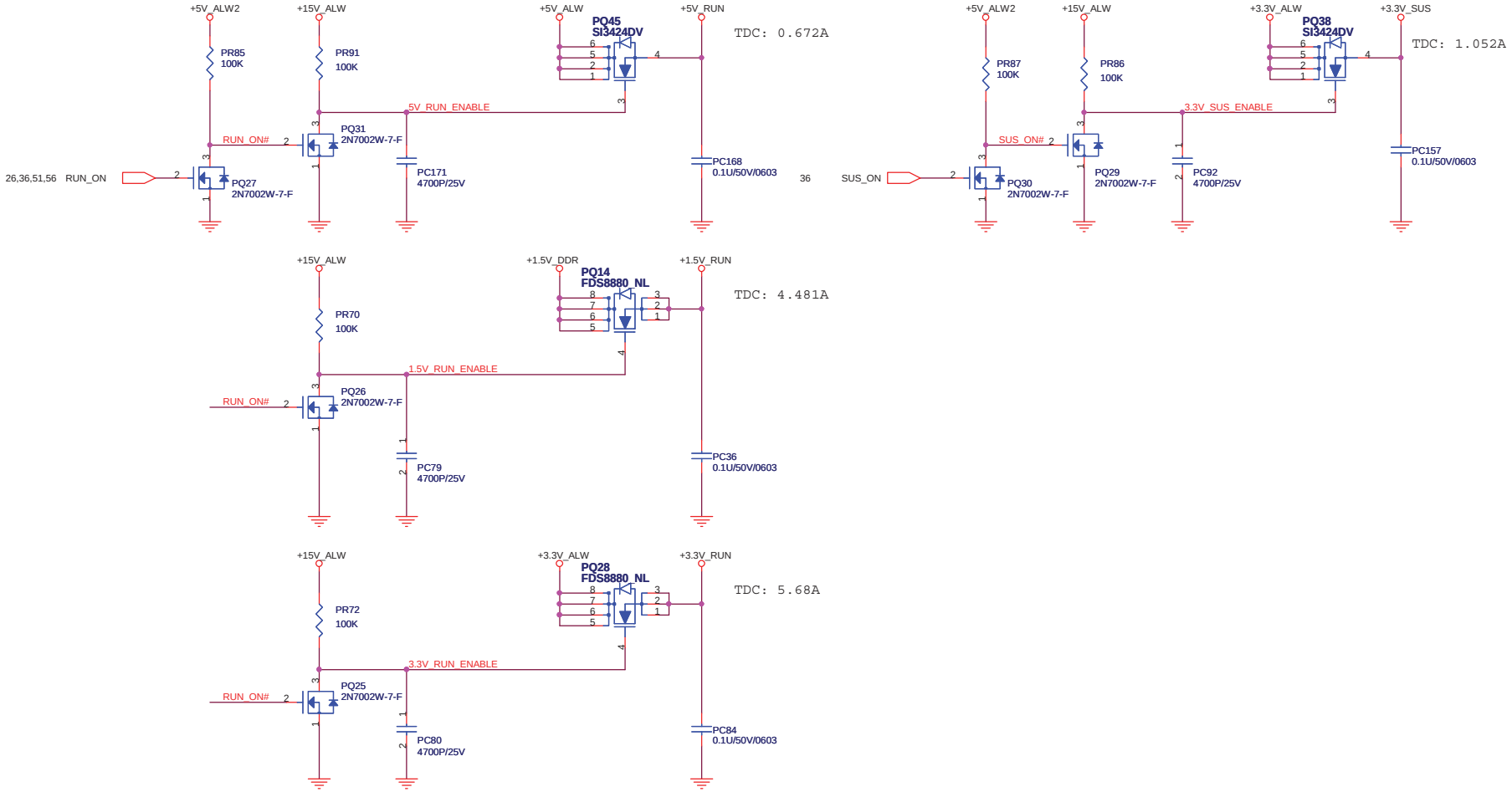
0823_Michael:Change Footprint from 87438-0531-5p-L to 87438-0531-5p-1-im3

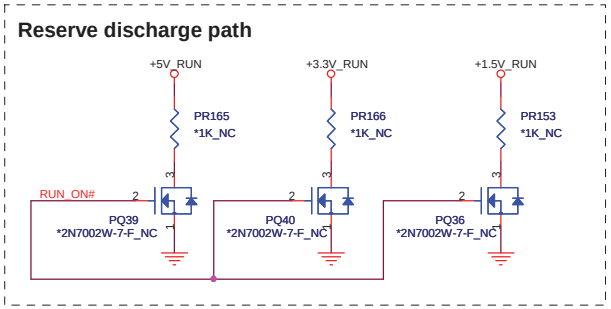


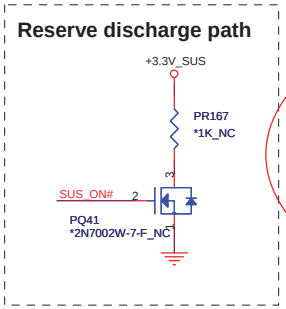
0709-Rick: Change PQ4 Value

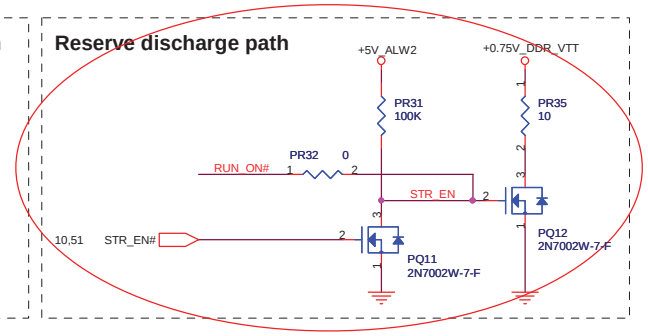
QUANTA COMPUTER

Title	DCIN,Batt	
Size	Document Number IM3 (XPS-Jolie)	Rev 1A
Date: Thursday, October 23, 2008	Sheet 55 of 59	



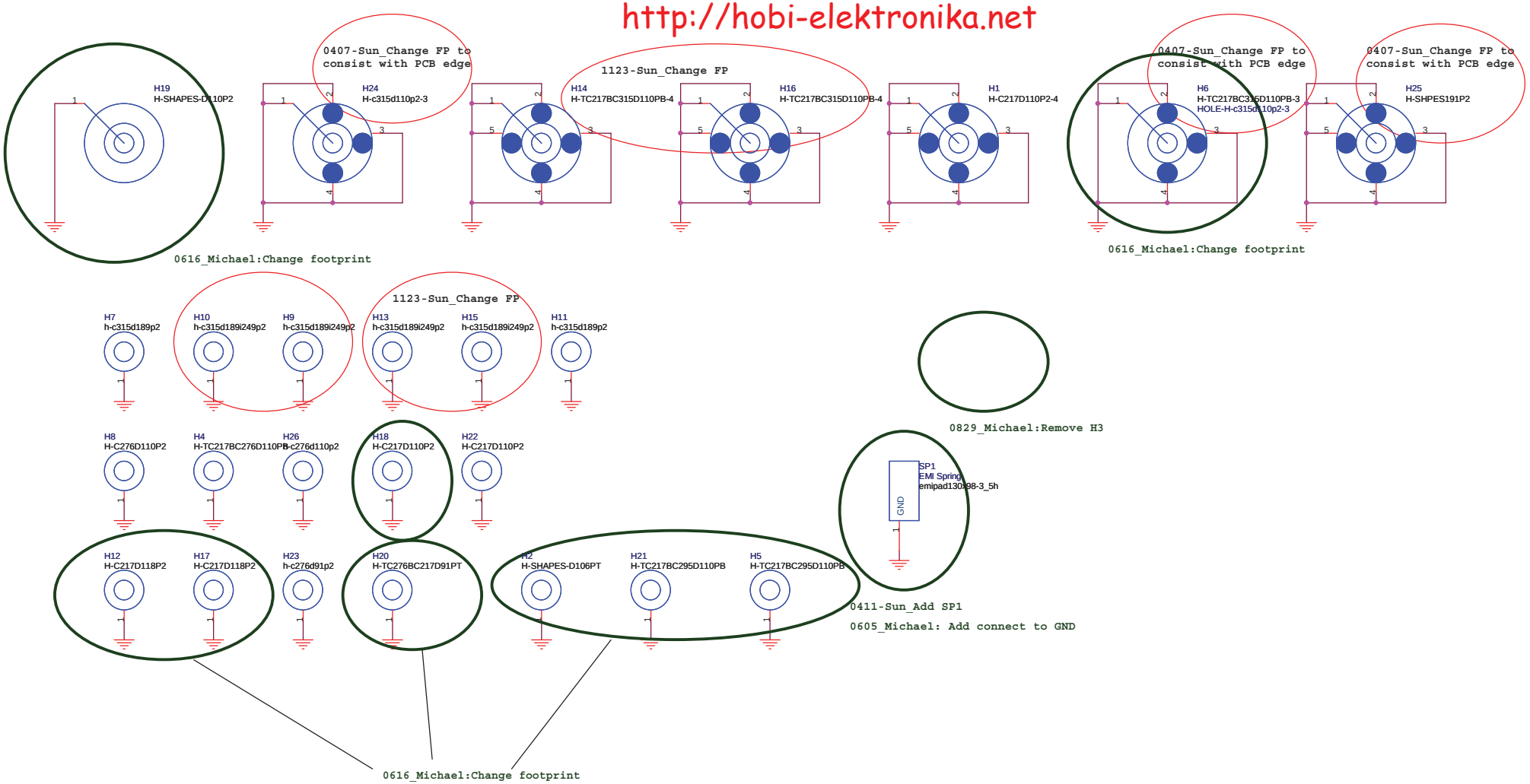






QUANTA COMPUTER

Title	RUN POWER SW	
Size	Document Number: IM3 (XPS-Jolie)	Rev: 1A
Date: Tuesday, September 09, 2008	Sheet 56 of 59	



QUANTA COMPUTER

Title	SCREW PAD	
Size	Document Number: IM3 (XPS-Jolie)	Rev: 2A
Date: Thursday, October 23, 2008	Sheet 58 of 59	