LL7A Intel Calpella Platform with Discrete GFX

01

POWER

- **BATT CHARGER** PG 42
- **AC/BATT CONNECTOR** PG 42
- **RUN POWER SW** 3VSUS, 5VSUS, 3V_S5, 5V_S5, +3V, +5V PG 44
- **Discharge** PG 40

FAN
FAN G993P11U
PG 37

CLOCK GEN
SLG8SP595V(QFN32)
PG 3
14.318MHz

POWER

- **REGULATOR** +1.05V_VTT,+1.05V_PCH PG 44
- **REGULATOR (DDR3)** 1.5VSUS, SMDDR_VREF,1.5V PG 43
- **REGULATOR** +1.8V PG 44
- **CPU Core** PG 46
- **DC/DC** 3VPCU, 5VPCU, +15V PG 45
- **VGA Core** Discrete PG 47

Auburndale / Arrandale
(rPGA 989)
PG 4,5,6,7

- **DDR3 - SODIMM0** PG 14
- **DDR3 - SODIMM1** PG 15
- Dual Channel DDR3 800/1067 1.5V

PCIEx16

DDR3 x 4 (512M/1G) PG 21

PCI-Express GFX
Nvidia NV11N
PG 16,17,18,19,20

- LVDS → **Panel Connector** PG 22
- HDMI → **HDMI CONN.**
- VGA → **CRT CONN.** PG 23

32.768KHz

DMI X 4

FDI

PCH
Ibex Peak-M
Intel(R) 5 Series Express Chipset
PG 8,9,10,11,12,13

- **SATA-ODD** PG 28 — SATA
- **SATA-HDD** PG 28 — SATA
- **Re-Driver** PG 29 — SATA
- **USB+eSATA** PG 29 — USB2.0 x 1
- **FLASH 4Mbyts** PG 9 — SPI
- USB2.0 x 2 → **USB conn x 2** PG 29
- PCIEx1 → **LAN** Atheros 8151/8152 PG 25 (25MHz) → **RJ45/Magnetics** PG 25
- PCIEx1 / USB2.0 → **MINI-CARD** WLAN/WiMAX PG 31
- PCIEX1 / USB2.0 → **MINI-CARD (F1)** WWAN/SSD PG 30
- USB2.0 → **Bluetooth** PG 34
- IHDA → **AUDIO** AL272 PG 26
  - **Audio SPK conn** PG 26
  - **Audio Jacks** Headphone Microphone PG 26
- DMIC → USB2.0 → **Camera** PG 22
- LPC → **KBC** ITE8502 PG 35 (32.768KHz)
  - SPI → **FLASH 512Kbyts** PG 35
  - PS/2 → **Touchpad** PG 36
  - **Keyboard** PG 36
- USB2.0 → **5-in-1 Card Reader** OZ600FJ PG 27 → **Card Reader CONN.** PG30

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Custom	BLOCK DIAGRAM	1A

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15-19	Discreate VGA (N11M-GE2)
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21	CRT Conn.
22	HDMI Conn.
23	ATHEROS (AR8151/AR8152)
24	CARD READER(OZ600FJ)
25	AL272/AMP/MIC/SPK
26	USB x 2 /USB+ ESATA
27	USB X2/SIM_CARD/LEDs/RF
28	MINI-Card (WLAN)
29	MINI-Card (WWAN/SSD)
33	ONFI
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35	K/B & T/P
36	BLUETOOTH
37	FAN & Thermal
38	G-Sensor
39	B To B Conn.
40	iTPM & RFID EEPROM
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54	BOM Matrix Table

Power States

POWER PLANE	VOLTAGE	PAGE	DESCRIPTION	CONTROL SIGNAL	ACTIVE IN
VIN	10V~+20V	23,32,43,44,45,46,47,48,49,50	MAIN POWER		S0~S5
+3VRTC	+3.0V~+3.3V	9,12,41	RTC		S0~S5
3VPCU	+3.3V	9,23,27,30,32,35,39,41,43,44,47	ITE8052 POWER	3V5V_EN	S0~S5
5VPCU	+5V	14,43,44,45,46,47,49,50	DC/DC POWER IC SOURCE	3V5V_EN	S0~S5
+15V	+15V	23,38,43,45,46,47	LARGE POWER	3V5V_EN	S0~S5
LANVCC	+3.3V	27,43	LAN POWER	LAN_ON	
5V_S5	+5V	12,29,30,43	PCH SUS POWER	S5_ON	S0~S3
3V_S5	+3.3V	8,9,10,11,12,43,52	Sys Management,PCH Resume Well,Intel HD Audio,USB,WLAN WiMAX POWER	S5_ON	S0~S3
5VSUS	+5V	23,39,43,48	SLP_S4# CTRLD POWER	SUSON	S0~S3
3VSUS	+3.3V	14,15,30,34,41,43,49	SLP_S4# CTRLD POWER	SUSON	S0~S3
1.5VSUS	+1.5V	4,6,14,15,43,45,46,49,50	SODIMM POWER	SUSON	S0~S3
0.75VSMDDR_VTERM	+0.75V	14,15,43,45	DDR3 SODIMM REFERENCE POWER	MAIN_ON	S0
+5V	+5V	12,18,23,24,25,26,28,35,37,41,43,44	SLP_S3# CTRLD POWER	MAIN_ON	S0
+3V	+3.3V	3,4,8,9,10,11,12,14,15,17,23,25,26,27,28,29,30,31,32,33,34,36,37,38,39,40,41,43,44,45,46,47,48,50,52	SLP_S3# CTRLD POWER	MAIN_ON	S0
+1.8V	+1.8V	6,12,17,18,21,22,33,43,50	LVDS,NVM POWER	MAIN_ON	S0
+1.5V	+1.5V	12,18,19,20,31,32,34,45,46	Mini PCIe,Express Card POWER	MAIN_ON	S0
+1.05V_VTT	+1.05V	4,6,11,12,43,46,48,52	AuBurndale VTT POWER	MAIN_ON	S0
+1.05V_PCH	+1.05V	3,10,12,43,46,52	PCH CORE POWER	1.05V_RUN_ON	S0
+VCC_GFX_CORE	+0.9V~+1.2V	18,21,43,49	VGA CORE POWER	GFXVR_EN	S0
VCC_CORE		6,43,48	CPU CORE POWER	VRON	S0
LCDVCC	+3.3V	23	LCD Power	ENVDD	S0
+5V_ODD	+5V	28	ODD Power	MAIN_ON	S0
+5V_HDD	+5V	28	HDD Power	MAIN_ON	S0
BAT-V	+10V~+17V	44	MAIN BATTERY	CHG_PBATT	S0~S5

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(4,6,8,9,10,11,12,35,38,40,42) +1.05V_VTT
(27,28,37) +1.5V
(4,8,9,10,11,12,13,14,15,20,21,22,24,25,26,27,28,29,30,31,32,33,35,36,40,41) +3V

25mA
+1.05V_VTT
L16 HCB1608KF-181T15_6
+VDDIO_CLK
C235 0.1U/10V/X5R_4
C229 0.1U/10V/X5R_4
C223 4.7U/6.3V/X5R_6
C231 *10U/6.3V/X5R_8S
Place each 0.1uF cap close to pin

150mA
+3V
L19 HCB1608KF-181T15_6
+VDDSE_CLK
C242 4.7U/6.3V/X5R_6
C240 0.1U/10V/X5R_4
C268 0.1U/10V/X5R_4
Place each 0.1uF cap close to pin

150mA
+3V
L18 *HCB1608KF-181T15_6
+1.5V
L17 HCB1608KF-181T15_6
+VDDCORE_CLK
C224 4.7U/6.3V/X5R_6
C228 0.1U/10V/X5R_4
C269 0.1U/10V/X5R_4
C230 0.1U/10V/X5R_4
Place each 0.1uF cap close to pin

Y3
XTAL_IN
XTAL_OUT
14.318MHZ
C238 33P/50V/NPO_4
C233 33P/50V/NPO_4

U7
9LVS3197
QFN32

+VDDSE_CLK → VDD_LCD, VDD_REF
+VDDCORE_CLK → C270 *0.047U/10V/X7R_4 → VDD_USB, VDD_SRC, VDD_CPU
+VDDIO_CLK → C208 *0.047U/10V/X7R_4 → VDD_CPU_IO, VDD_SRC_IO
(9,13,14) CGDAT_SMB → SDATA
(9,13,14) CGCLK_SMB → SCLK
+3V (9) CLK_ICH_14M → R129 10K_4, R137 33_4, C253 *10P/50V/C0G_4 → CPU_STOP#, REF_0/CPU_SEL (CPU_SEL)
CK_PWRGD_R → CK_PWRGD/PD#_3.3
XTAL_OUT, XTAL_IN → XOUT, XIN
VSS_SATA, VSS_USB, VSS_LCD
CPU-0, CPU-0# → CLK_BUF_BCLK_P, CLK_BUF_BCLK_N → RP3 *4P2R-S-0 → CLK_BUF_BCLK_P (9), CLK_BUF_BCLK_N (9)
CPU-1, CPU-1#
DOT96T_LPR, DOT96C_LPR → CLK_BUF_DREFCLK, CLK_BUF_DREFCLK# → RP6 *4P2R-S-0 → CLK_BUF_DREFCLK (9), CLK_BUF_DREFCLK# (9)
SRC-1, SRC-1# → CLK_BUF_PCIE_3GPLL, CLK_BUF_PCIE_3GPLL# → RP4 *4P2R-S-0 → CLK_BUF_PCIE_3GPLL (9), CLK_BUF_PCIE_3GPLL# (9)
SATA, SATA# → CLK_BUF_DREFSSCLK, CLK_BUF_DREFSSCLK# → RP5 *4P2R-S-0 → CLK_BUF_DREFSSCLK (9), CLK_BUF_DREFSSCLK# (9)
27MHz_nonSS, 27MHz_SS → CLK_VGA_27M_NOSS, CLK_VGA_27M_SS → R146 EV@33_4, R145 EV@33_4 → CLK_27M_NOSS (17), CLK_27M_SS (17)
GND, VSS_REF, VSS_CPU, VSS_SRC
C250 *EV@10P/50V/C0G_4, C252 *EV@10P/50V/C0G_4

Place R8044 within 0.5" of C/G

Discrete only

+3V
R138 *10K/F_4
CPU_SEL
R141 10K/F_4

	0	
CPU_SEL	CPU0/1=133MHz (default)	CPU0/1=100MHz

EMI request
+3V
C227 0.1U/10V/X5R_4
C471 0.1U/10V/X5R_4
C689 0.1U/10V/X5R_4
C685 0.1U/10V/X5R_4
+1.05V_VTT
C672 0.1U/10V/X5R_4
C357 0.1U/10V/X5R_4
C377 0.1U/10V/X5R_4
C287 0.1U/10V/X5R_4
C393 0.1U/10V/X5R_4
C387 0.1U/10V/X5R_4
VIN
C236 0.1U/25V/X5R_4

+3V
R131 1K/F_4
CK_PWRGD_R
Q8 2N7002E
R127 100K/F_4
(40) VR_PWRGD_CLKEN#

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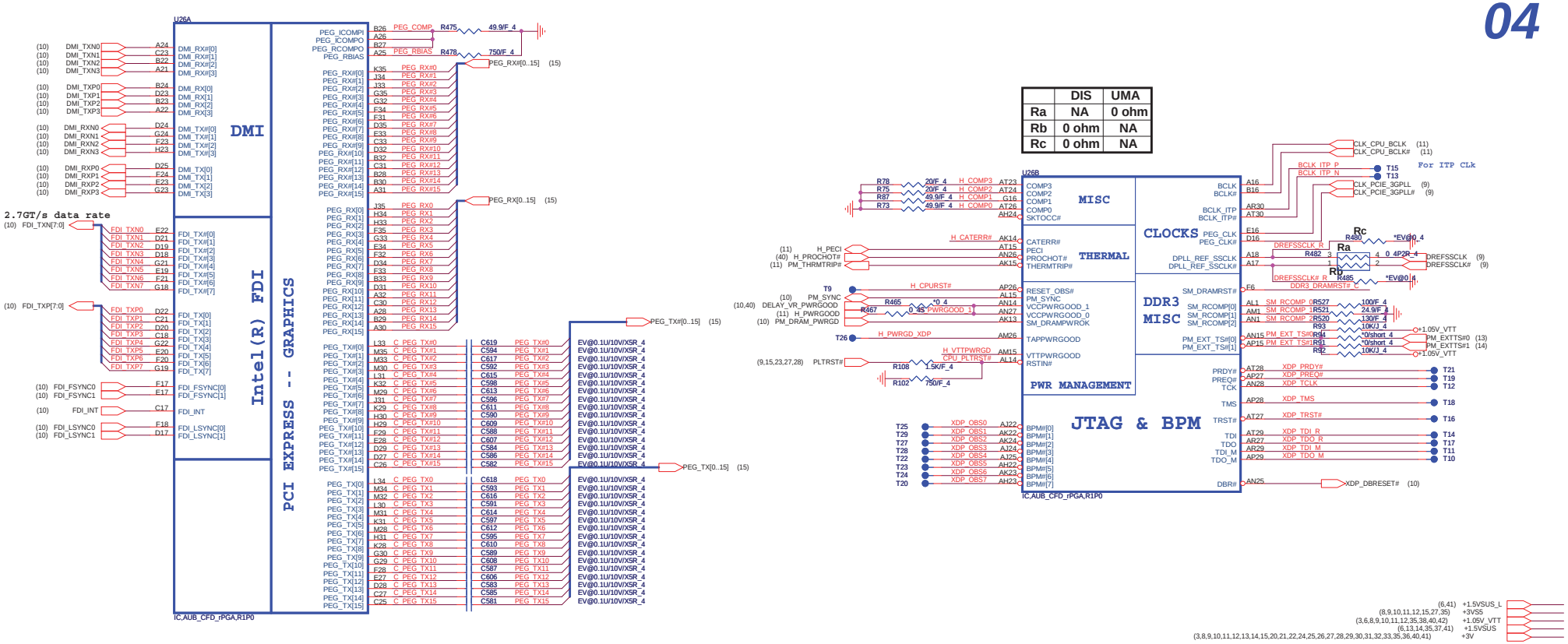
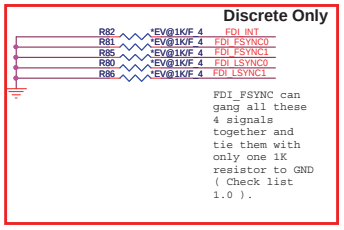
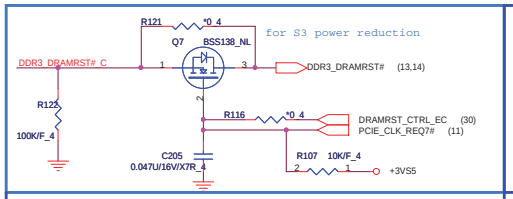
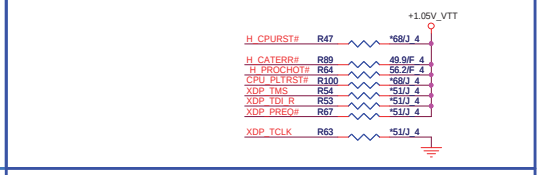
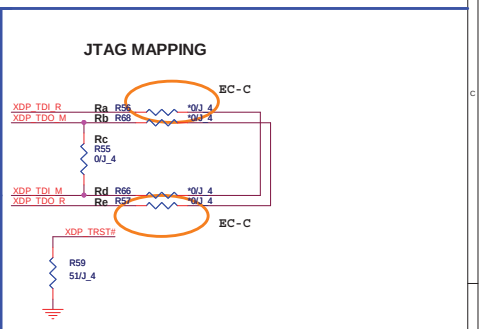


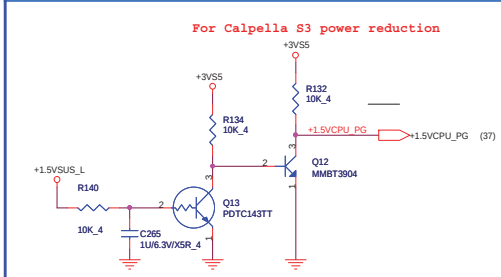
	DIS	UMA
Ra	NA	0 ohm
Rb	0 ohm	NA
Rc	0 ohm	NA

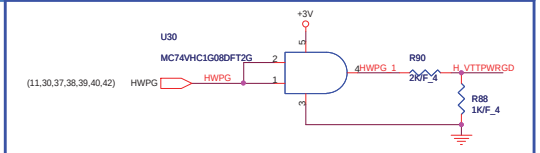


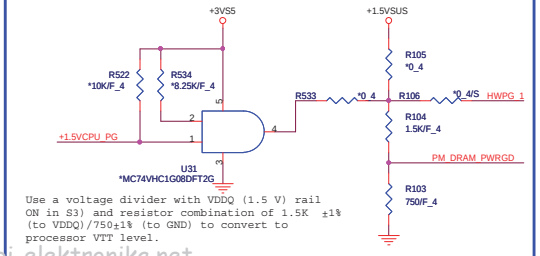












Scan Chain (Default)	STUFF -> Ra, Rc, Re NO STUFF -> Rb, Rd
CPU Only	STUFF -> Ra, Rb NO STUFF -> Rc, Rd, Re
GMCH Only	STUFF -> Rd, Re NO STUFF -> Ra, Rb, Rc

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C	PROCESSER 1/4(HOST&PEG)	1A
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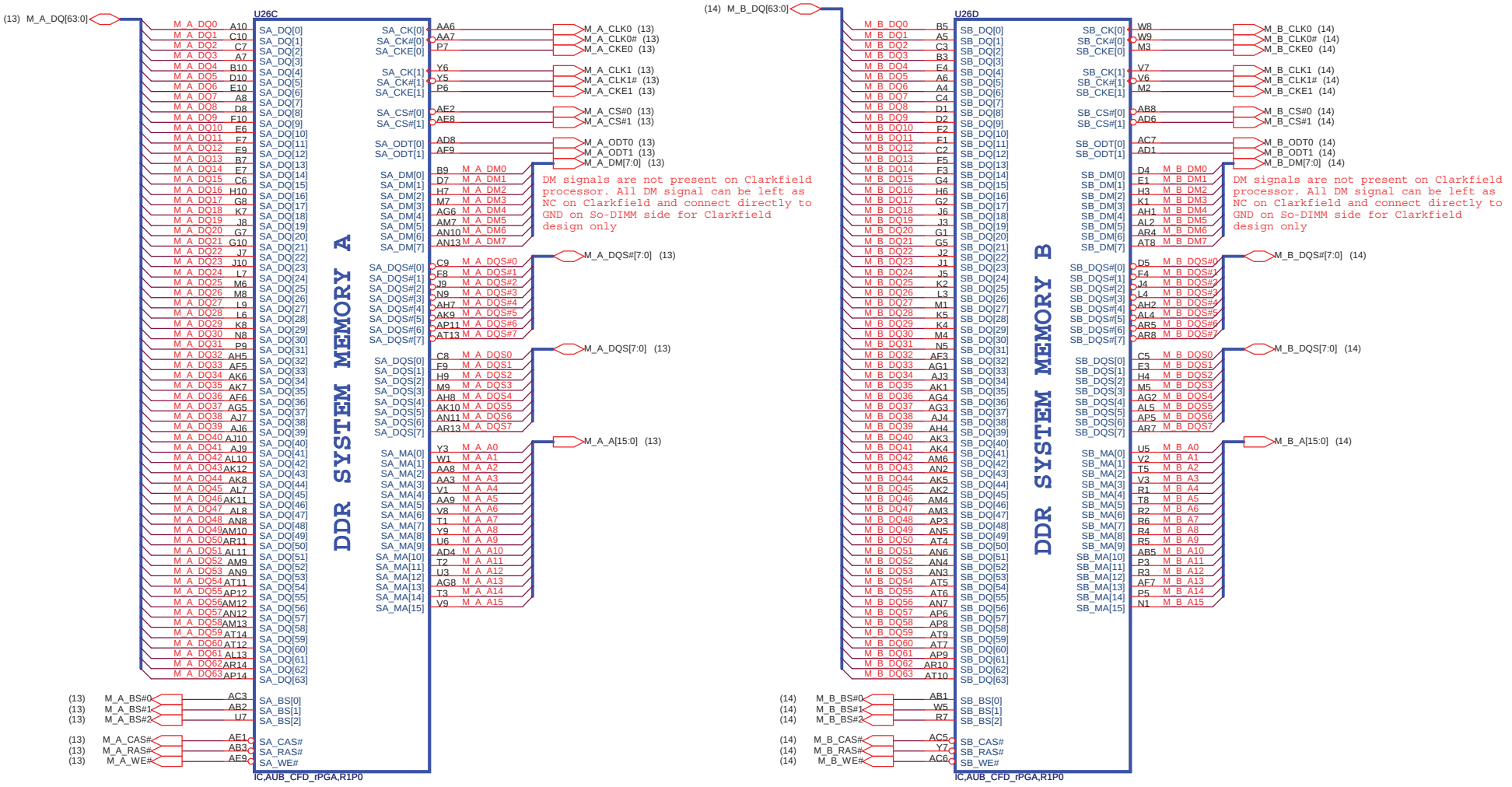
AUBURNDALE/CLARKSFIELD PROCESSOR (DDR3)



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Custom	PROCESSER 2/4(DDR)	1A
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18A

	DIS	UMA
Rc	NA	4.7K
Rd	NA	0 ohm
Re	NA	0 ohm
Rf	NA	NA

U26F

CPU CORE SUPPLY POWER 1.1V RAIL POWER

CPU VIDS

SENSE LINES

IC,AUB_CFD_rPGA,R1P0

UMA only

Please note that +VCC_GFX_CORE should be 1.05V in Auburndale

	DIS	UMA
Ra	0 ohm	NA

VTT Rail Values are
Auburndal VTT=1.05V
Clarksfield VTT=1.1V

H_VTTVID1=Low, 1.1V
H_VTTVID1=High, 1.05V

U26G

GRAPHICS POWER DDR3 - 1.5V RAILS PDI PEG & DMI 1.1V 1.8V

SENSE LINES

GRAPHICS VIDs

2A

for S3 power reduction

Lenovo Request

IC,AUB_CFD_rPGA,R1P0

HFM_VID : Max 1.4V
LFM_VID : Min 0.65V

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PROCESSER 3/4(POWER)

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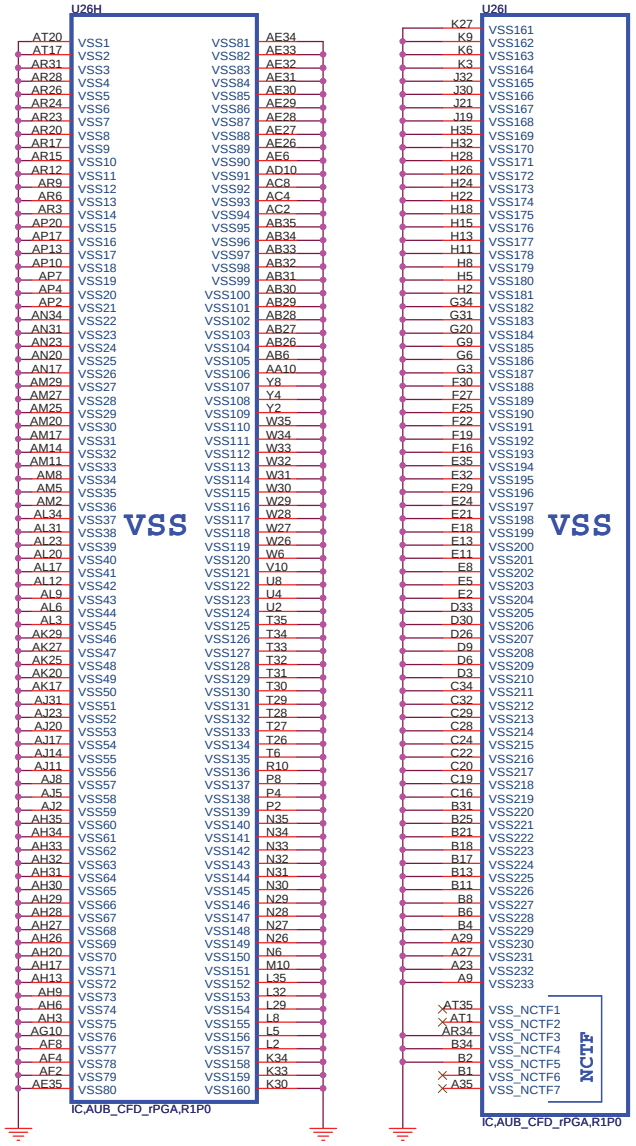
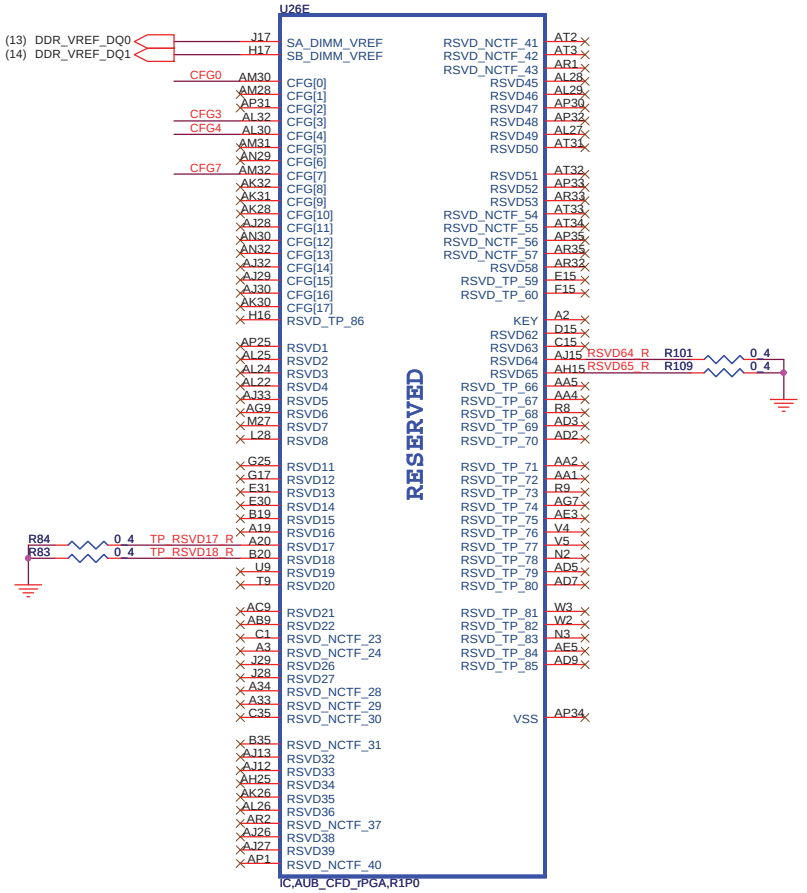
AUBURNDALE/CLARKSFIELD PROCESSOR (GND)



AUBURNDALE/CLARKSFIELD PROCESSOR(RESERVED, CFG)



The Clarkfield processor's PCI Express interface may not meet PCI Express 2.0 jitter specifications. Intel recommends placing a 3.01K +/- 5% pull down resistor to VSS on CFG[7] pin for both rPGA and BGA components. This pull down resistor should be removed when this issue is fixed.

	1	0
CFG4 (Display Port Presence)	Disabled; No Physical Display Port attached to Embedded Diplay Port	Enabled; An external Display port device is connected to the Embedded Display port
CFG0 (PCI-Epress Configuration Select)	Single PEG	Bifurcation enabled
CFG3 (PCI-Epress Static Lane Reversal)	Normal Operation	Lane Numbers Reversed 15 -> 0 , 14 -> 1

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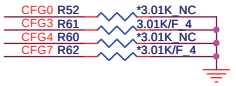
For Discrete only



CFG[1:0] - PCI_Epress Configuration Select
* 11= 1 x 16 PEG
* 10= 2 x 8 PEG

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INTVRMEN - Integrated SUS 1.1V VRM Enable
High - Enable Internal VRs

(20,23,29,30,32,33,35,36,38,39,41,42) +3VPCU
(3,4,6,9,10,11,12,35,38,40,42) +1.05V_VTT
(3,4,9,10,11,12,13,14,15,20,21,22,24,25,26,27,28,29,30,31,32,33,35,36,40,41) +3V
(12,30) +RTC_CELL

+3V R682 10K/J_4 SERIRQ

IBEX PEAK-M (HDA,JTAG,SATA)

U34A

18P/50V/C0G_4 C710
Y8 32.768KHZ
R612 10M/J_4
C707 18P/50V/C0G_4

Ibex-M 1 OF 10

RTC_X1 B13 RTCX1
RTC_X2 D13 RTCX2
RTC_RST# C14 RTCRST#
SRTC_RST# D17 SRTCRST#
SM_INTRUDER# A16 INTRUDER#
+RTC_CELL R619 330K/J_6 PCH_INVRMEN A14 INTVRMEN

RTC

LPC
FWH0 / LAD0 D33 LAD0 (27,30)
FWH1 / LAD1 B33 LAD1 (27,30)
FWH2 / LAD2 C32 LAD2 (27,30)
FWH3 / LAD3 A32 LAD3 (27,30)
FWH4 / LFRAME# C34 LFRAME# (27,30)
LDRQ0# A34 LPC_DRQ#0 TP47
(+3V) LDRQ1# / GPIO23 F34 LCD_BK_OFF# (20)
SERIRQ AB9 SERIRQ (30)
R293 10K/J_4 +3V

ACZ_BCLK A30 HDA_BCLK
ACZ_SYNC D29 HDA_SYNC
(11,25) ACZ_SPKR F1 SPKR
ACZ_RST# C30 HDA_RST#
(25) ACZ_SDIN0 G30 HDA_SDIN0
F30 HDA_SDIN1
E32 HDA_SDIN2
F32 HDA_SDIN3
ACZ_SDOUT B29 HDA_SDO
(11) PCH_GPIO33 H32 HDA_DOCK_EN# / GPIO33 (+3V)
+3VS5 R683 10K/J_4 J30 HDA_DOCK_RST# / GPIO13 (+3V_S5)

IHDA

JTAG
TP38 PCH_JTAG_TCK_BUF M3 JTAG_TCK
TP39 PCH_JTAG_TMS K3 JTAG_TMS
TP42 PCH_JTAG_TDI K1 JTAG_TDI
TP41 PCH_JTAG_TDO J2 JTAG_TDO
TP40 PCH_JTAG_RST# J4 TRST#
must add test point.

(30) SPI_CLK_R SPI_CLK_R BA2 SPI_CLK
(30) SPI_CS0#_R SPI_CS0#_R AY3 SPI_CS0#
TP35 SPI_CS1# AY3 SPI_CS1#
(30) SPI_SI_R SPI_SI_R AY1 SPI_MOSI
(30) SPI_SO SPI_SO AV1 SPI_MISO

SPI

SATA
SATA0RXN AK7 SATA0GP / GPIO21 (+3V)
SATA0RXP AK6 SATA0GP / GPIO21 (+3V_S5)
SATA0TXN AK11 SATA_TXN0_C 0.01U/16V/X7R_4 C336 SATA_RXN0_C (28)
SATA0TXP AK9 SATA_TXP0_C 0.01U/16V/X7R_4 C339 SATA_RXP0_C (28)
SATA_TXN0 (28)
SATA_TXP0 (28)

SSD

SATA1RXN AH6 SATA1GP / GPIO19
SATA1RXP AH5 SATA1GP / GPIO19
SATA1TXN AH9 SATA_TXN1_C 0.01U/16V/X7R_4 C723 SATA_RXN1_C (29)
SATA1TXP AH8 SATA_TXP1_C 0.01U/16V/X7R_4 C724 SATA_RXP1_C (29)
SATA_TXN1 (29)
SATA_TXP1 (29)

HDD

SATA2RXN AE11
SATA2RXP AE9
SATA2TXN AE7
SATA2TXP AF6

SATA3RXN AH3
SATA3RXP AH1
SATA3TXN AF3
SATA3TXP AF1

SATA4RXN AD9
SATA4RXP AD8
SATA4TXN AD6 SATA_TXN4_C 0.01U/16V/X7R_4 C373 SATA_RXN4_C (29)
SATA4TXP AD5 SATA_TXP4_C 0.01U/16V/X7R_4 C352 SATA_RXP4_C (29)
SATA_TXN4 (29)
SATA_TXP4 (29)

ODD

SATA5RXN AD3
SATA5RXP AD1
SATA5TXN AB3 SATA_TXN5_C 0.01U/16V/X7R_4 C520 SATA_RXN5_C (26)
SATA5TXP AB1 SATA_TXP5_C 0.01U/16V/X7R_4 C524 SATA_RXP5_C (26)
SATA_TXN5 (26)
SATA_TXP5 (26)

E-SATA

SATAICOMPO AF16
SATAICOMPI AF15 SATA_COMP R198 37.4/F_4 +1.05V_VTT
SATALED# T3 SATA_LED# SATA_LED# (33)

Y9 V1 SATA_DET1# R29 0_4 MODEL_ID1 (11) SDD_DA_DSS (28)

IbexPeak-M_Rev1_0

+1.05V_VTT
R581 *51_4 PCH_JTAG_TMS
R593 *51_4 PCH_JTAG_RST#
R587 *51_4 PCH_JTAG_TDI
R590 *51_4 PCH_JTAG_TDO
R578 *51_4 PCH_JTAG_TCK_BUF

+3V R573 10K/J_4 SATA_LED#
R569 10K/J_4 SATA_DET1#

UMA CRT,LVDS&HDMI signals

IBEX PEAK-M (LVDS,DDI)

U34D

(20) LVDS_BLON_IGPU T48 L_BKLTEN
(20) DISP_ON_IGPU T47 L_VDD_EN
(20) DPST_PWM_IGPU Y48 L_BKLTCTL
(20) EDIDCLK_IGPU AB48 L_DDC_CLK
(20) EDIDDATA_IGPU Y45 L_DDC_DATA
10K/F_4 R184 L_CTRL_CLK AB46 L_CTRL_CLK
+3V 10K/F_4 R229 L_CTRL_DATA V48 L_CTRL_DATA
2.37K/F_4 R175 LVDS_IBG AP39 LVD_IBG
LVDS_VBG AP41 LVD_VBG
TP6
AT43 LVD_VREFH
AT42 LVD_VREFL

LVDS--A
(20) LA_CLK# AV53 LVDSA_CLK#
(20) LA_CLK AV51 LVDSA_CLK
(20) LA_DATAN0 BB47 LVDSA_DATA#0
(20) LA_DATAN1 BA52 LVDSA_DATA#1
(20) LA_DATAN2 AY48 LVDSA_DATA#2
AV47 LVDSA_DATA#3
(20) LA_DATAP0 BB48 LVDSA_DATA0
(20) LA_DATAP1 BA50 LVDSA_DATA1
(20) LA_DATAP2 AY49 LVDSA_DATA2
AV48 LVDSA_DATA3

LVDS--B
AP48 LVDSB_CLK#
AP47 LVDSB_CLK
AY53 LVDSB_DATA#0
AT49 LVDSB_DATA#1
AU52 LVDSB_DATA#2
AT53 LVDSB_DATA#3
AY51 LVDSB_DATA0
AT48 LVDSB_DATA1
AU50 LVDSB_DATA2
AT51 LVDSB_DATA3

(21) CRT_B_IGPU 150/F_4 R571
(21) CRT_G_IGPU 150/F_4 R567
(21) CRT_R_IGPU 150/F_4 R562
AA52 CRT_BLUE
AB53 CRT_GREEN
AD53 CRT_RED

CRT

(21) DDCCLK_IGPU V51 CRT_DDC_CLK
(21) DDCDATA_IGPU V53 CRT_DDC_DATA
(21) HSYNC_COM_IGPU Y53 CRT_HSYNC
(21) VSYNC_COM_IGPU Y51 CRT_VSYNC
R205 1K/F_4 DAC_IREF AD48 DAC_IREF
AB51 CRT_IRTN

IbexPeak-M_Rev1_0

Ibex-M 4 OF 10

SDVO_TVCLKINN BJ46
SDVO_TVCLKINP BG46
SDVO_STALLN BJ48
SDVO_STALLP BG48
SDVO_INTN BF45
SDVO_INTP BH45

SDVO

SDVO_CTRLCLK T51 DPB_CTRL_CLK
SDVO_CTRLDATA T53 DPB_CTRL_DATA

DISPLAY PORT B
DDPB_AUXN BG44 R645 1K/F_4
DDPB_AUXP BJ44 R646 1K/F_4
DDPB_HPD AU38 DPB_HPD_Q
DDPB_0N BD42 DPB_LANE0_N
DDPB_0P BC42 DPB_LANE0_P
DDPB_1N BJ42 DPB_LANE1_N
DDPB_1P BG42 DPB_LANE1_P
DDPB_2N BB40 DPB_LANE2_N
DDPB_2P BA40 DPB_LANE2_P
DDPB_3N AW38 DPB_LANE3_N
DDPB_3P BA38 DPB_LANE3_P

DISPLAY PORT C
DDPC_CTRLCLK Y49
DDPC_CTRLDATA AB49
DDPC_AUXN BE44
DDPC_AUXP BD44
DDPC_HPD AV40
DDPC_0N BE40
DDPC_0P BD40
DDPC_1N BF41
DDPC_1P BH41
DDPC_2N BD38
DDPC_2P BC38
DDPC_3N BB36
DDPC_3P BA36

DISPLAY PORT D
DDPD_CTRLCLK U50
DDPD_CTRLDATA U52
DDPD_AUXN BC46
DDPD_AUXP BD46
DDPD_HPD AT38
DDPD_0N BJ40
DDPD_0P BG40
DDPD_1N BJ38
DDPD_1P BG38
DDPD_2N BF37
DDPD_2P BH37
DDPD_3N BE36
DDPD_3P BD36

Digital Display Interface

+1.05V_VTT

LA_CLK C334 5.6P/50V/C0G_4
LA_CLK# C335 5.6P/50V/C0G_4

UMA HDMI signals

DPB_CTRL_CLK R588 0_4 SDVO_CLK (22)
DPB_CTRL_DATA R583 0_4 SDVO_DATA (22)
DPB_LANE0_N C328 0.1U/10V/X5R_4 IN_D2# (22)
DPB_LANE0_P C329 0.1U/10V/X5R_4 IN_D2 (22)
DPB_LANE1_N C289 0.1U/10V/X5R_4 IN_D1# (22)
DPB_LANE1_P C284 0.1U/10V/X5R_4 IN_D1 (22)
DPB_LANE2_N C330 0.1U/10V/X5R_4 IN_D0# (22)
DPB_LANE2_P C331 0.1U/10V/X5R_4 IN_D0 (22)
DPB_LANE3_N C299 0.1U/10V/X5R_4 IN_CLK# (22)
DPB_LANE3_P C294 0.1U/10V/X5R_4 IN_CLK (22)

+3V Q14 *IV@2N7002K
DPB_HPD_Q R148 100K_4 R147 0_4 HDMI_HPD_CON (22)

For AUDIO

(25) ACZ_RST#_AUDIO R626 33_4 ACZ_RST#
(25) ACZ_SDOUT_AUDIO R614 33_4 ACZ_SDOUT C718 *10P/50V/C0G_4
(25) ACZ_SYNC_AUDIO R617 33_4 ACZ_SYNC C714 *10P/50V/C0G_4
(25) BIT_CLK_AUDIO R305 33_4 ACZ_BCLK C493 *10P/50V/C0G_4

RTC

1mA

+RTC_CELL
+3VPCU RB500V-40 CR4 C516 1U/6.3V/X5R_4
+3VRTC_2 R629 20K/F_4 RTC_RST#
RB500V-40 CR3 C716 1U/6.3V/X5R_4 J1 SHORT_PAD1
R627 20K/F_4 SRTC_RST#
C715 1U/6.3V/X5R_4 J2 SHORT_PAD1
R628 1M_4 SM_INTRUDER#
R335 1K/F_4 +3VRTC_1 BT3 BAT_CONN

4M byte SPI ROM

+3V R144 10K/F_4 SPI_HOLD#
C261 0.1U/10V/X5R_4
U8 W25X16A VSSIG
VDD CE# SPI_CS0# R162 *0/short_4 SPI_CS0#_R
SCK SPI_CLK R143 *0/short_4 SPI_CLK_R
SI SPI_SI R142 *0/short_4 SPI_SI_R
HOLD# SO SPI_SO_R R160 *0/short_4 SPI_SO
VSS WP# SPI_WP# R159 10K/F_4 +3V

Vendor	PN
Socket	DG008000031
WINBOND	AKE39ZP0N00
MAX	AKE39FP0N00

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Quanta Computer Inc.

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IBEX PEAK-M (GND)

IBEX PEAK-M (PCI-E,SMBUS,CLK)

09

U34I

VSS[159] VSS[160] VSS[161] VSS[162] VSS[163] VSS[164] VSS[165] VSS[166] VSS[167] VSS[168] VSS[169] VSS[170] VSS[171] VSS[172] VSS[173] VSS[174] VSS[175] VSS[176] VSS[177] VSS[178] VSS[179] VSS[180] VSS[181] VSS[182] VSS[183] VSS[184] VSS[185] VSS[186] VSS[187] VSS[188] VSS[189] VSS[190] VSS[191] VSS[192] VSS[193] VSS[194] VSS[195] VSS[196] VSS[197] VSS[198] VSS[199] VSS[200] VSS[201] VSS[202] VSS[203] VSS[204] VSS[205] VSS[206] VSS[207] VSS[208] VSS[209] VSS[210] VSS[211] VSS[212] VSS[213] VSS[214] VSS[215] VSS[216] VSS[217] VSS[218] VSS[219] VSS[220] VSS[221] VSS[222] VSS[223] VSS[224] VSS[225] VSS[226] VSS[227] VSS[228] VSS[229] VSS[230] VSS[231] VSS[232] VSS[233] VSS[234] VSS[235] VSS[236] VSS[237] VSS[238] VSS[239] VSS[240] VSS[241] VSS[242] VSS[243] VSS[244] VSS[245] VSS[246] VSS[247] VSS[248] VSS[249] VSS[250] VSS[251] VSS[252] VSS[253] VSS[254] VSS[255] VSS[256] VSS[257] VSS[258]

VSS[259] VSS[260] VSS[261] VSS[262] VSS[263] VSS[264] VSS[265] VSS[266] VSS[267] VSS[268] VSS[269] VSS[270] VSS[271] VSS[272] VSS[273] VSS[274] VSS[275] VSS[276] VSS[277] VSS[278] VSS[279] VSS[280] VSS[281] VSS[282] VSS[283] VSS[284] VSS[285] VSS[286] VSS[287] VSS[288] VSS[289] VSS[290] VSS[291] VSS[292] VSS[293] VSS[294] VSS[295] VSS[296] VSS[297] VSS[298] VSS[299] VSS[300] VSS[301] VSS[302] VSS[303] VSS[304] VSS[305] VSS[306] VSS[307] VSS[308] VSS[309] VSS[310] VSS[311] VSS[312] VSS[313] VSS[314] VSS[315] VSS[316] VSS[317] VSS[318] VSS[319] VSS[320] VSS[321] VSS[322] VSS[323] VSS[324] VSS[325] VSS[326] VSS[327] VSS[328] VSS[329] VSS[330] VSS[331] VSS[332] VSS[333] VSS[334] VSS[335] VSS[336] VSS[337] VSS[338] VSS[339] VSS[340] VSS[341] VSS[342] VSS[343] VSS[344] VSS[345] VSS[346] VSS[347] VSS[348] VSS[349] VSS[350] VSS[351] VSS[352] VSS[353] VSS[354] VSS[355] VSS[356] VSS[366]

IbexPeak-M_Rev1_0

CLK1_OE# R572 10K/F_4 +3V
CLK2_OE# R235 10K/F_4

+3VS5 20100208
Change Cardreader to USB port
R303 Removed

PCIE_CLK_REQ0# R279 10K/F_4
PCIE_CLK_REQ4# R265 10K/F_4
PCIE_CLK_REQB# R301 10K/F_4
PCIE_CLK_REQ5# R272 10K/F_4
PCIE_CLK_REQ3# R672 10K/F_4
PEG_CLKREQ# R592 *10K/F_4

WLAN

(27) PCIE_RXN2 (27) PCIE_RXP2 (27) PCIE_TXN2 (27) PCIE_TXP2
C274 0.1U/10V/X5R_4 C286 0.1U/10V/X5R_4
PCIE_RXN2 PCIE_RXP2 PCIE_TXN0_C PCIE_TXP0_C
AW30 BA30 BC30 BD30

CARD READER

AN30 AT30 AU32 AV32

20100208
Change Cardreader to USB port

BA32 BB32 BD32 BE32

LAN

(23) PCIE_RX5-/GLAN_RX- (23) PCIE_RX5+/GLAN_RX+ (23) PCIE_TX5-/GLAN_TX- (23) PCIE_TX5+/GLAN_TX+
C293 0.1U/10V/X5R_4 C292 0.1U/10V/X5R_4
PCIE_RX5-/GLAN_RX- PCIE_RX5+/GLAN_RX+ PCIE_TXN5_C PCIE_TXP5_C
BF33 BH33 BG32 BJ32

BA34 AW34 BC34 BD34 AT34 AU34 AU36 AV36 BG34 BJ34 BG36 BJ36 AK48 AK47

Battery SMBUS

Q46 2N7002E
SMB_CLK_ME1 R607 *2.2K/J_4 MBCLK2 (18,30,31)
+3VS5 R621 *2.2K/J_4
SMB_DATA_ME1 Q47 2N7002E MBDATA2 (18,30,31)

PCIE_CLK_REQ0# P9
CLK1_OE# U4
AM43 AM45 AM47 AM48 N4 AH42 AH41 A8 AM51 AM53 M9 AJ50 AJ52 H6 AK53 AK51 P13

WLAN

(27) CLK_PCIE_WLAN# (27) CLK_PCIE_WLAN

CARD READER

(27) CLK2_OE#
PCIE_CLK_REQ3#
PCIE_CLK_REQ4#

20100208
Change Cardreader to USB port
R312 removed

+3V R673 *EV@1K/F_4
PEG_CLKREQ# R674 *EV@10K/F_4
Q53 *EV@2N7002E GFXPG (11,15)

LAN

(23) CLK_PCIE_LOM# (23) CLK_PCIE_LOM (23) CLK_PCIE_LAN_REQ# R598 0/J_4
PCIE_CLK_REQ5#

PCIE_CLK_REQB#_R P13

LAN SMBUS

SMB_DATA_ME0 SMB_DATA_ME0 (23)
SMB_CLK_ME0 SMB_CLK_ME0 (23)

LOGIC SMBUS

PDAT_SMB Q22 2N7002E CGDAT_SMB (3,13,14)
R300 10K/F_4
+3V R298 10K/F_4
PCLK_SMB Q21 2N7002E CGCLK_SMB (3,13,14)

U34B

Ibex-M 2 OF 10

PCI-E*

BG30 BJ30 BF29 BH29 AW30 BA30 BC30 BD30 AN30 AT30 AU32 AV32 BA32 BB32 BD32 BE32 BF33 BH33 BG32 BJ32 BA34 AW34 BC34 BD34 AT34 AU34 AU36 AV36 BG34 BJ34 BG36 BJ36 AK48 AK47 AM43 AM45 AM47 AM48 AH42 AH41 AM51 AM53 AJ50 AJ52 AK53 AK51

PERN1 PERP1 ETN1 PETP1 PERN2 PERP2 PETN2 PETP2 PERN3 PERP3 PETN3 PETP3 PERN4 PERP4 PETN4 PETP4 PERN5 PERP5 PETN5 PETP5 PERN6 PERP6 PETN6 PETP6 PERN7 PERP7 PETN7 PETP7 PERN8 PERP8 PETN8 PETP8 CLKOUT_PCIE0N CLKOUT_PCIE0P CLKOUT_PCIE1N CLKOUT_PCIE1P CLKOUT_PCIE2N CLKOUT_PCIE2P CLKOUT_PCIE3N CLKOUT_PCIE3P CLKOUT_PCIE4N CLKOUT_PCIE4P CLKOUT_PCIE5N CLKOUT_PCIE5P CLKOUT_PEG_B_N CLKOUT_PEG_B_P

PCIECLKRQ0# / GPIO73 (+3V_S5)
PCIECLKRQ1# / GPIO18 (+3V)
PCIECLKRQ2# / GPIO20 (+3V)
PCIECLKRQ3# / GPIO25 (+3V_S5)
PCIECLKRQ4# / GPIO26 (+3V_S5)
PCIECLKRQ5# / GPIO44 (+3V_S5)
PEG_B_CLKRQ# / GPIO56 (+3V_S5)

SMBus

(+3V_S5) SMBALERT# / GPIO11
SMBCLK
SMBDATA
(+3V_S5) SML0ALERT# / GPIO60
SML0CLK
SML0DATA
(+3V_S5) SML1ALERT# / GPIO74
(+3V_S5) SML1CLK / GPIO58
(+3V_S5) SML1DATA / GPIO75

B9 SMBALERT# 10K/F_4 R332
H14 PCLK_SMB 2.2K_4 R291
C8 PDAT_SMB 2.2K_4 R333
J14 SML0ALERT# 10K/F_4 R296
C6 SMB_CLK_ME0 2.2K_4 R290
G8 SMB_DATA_ME0 2.2K_4 R286
M14 SML1ALERT# 10K/F_4 R295
E10 SMB_CLK_ME1 4.7K_4 R277
G12 SMB_DATA_ME1 4.7K_4 R280

+3VS5

Controller Link

CL_CLK1 T13
CL_DATA1 T11
CL_RST1# T9

PEG

(+3V_S5) PEG_A_CLKRQ# / GPIO47
CLKOUT_PEG_A_N
CLKOUT_PEG_A_P
CLKOUT_DMI_N
CLKOUT_DMI_P

H1 PEG_CLKREQ# PEG_CLKREQ# (15)
AD43 CLK_PCIE_VGA# (15)
AD45 CLK_PCIE_VGA (15)
AN4 CLK_PCIE_3GPLL# (4)
AN2 CLK_PCIE_3GPLL (4)

From CLK BUFFER

CLKOUT_DP_N / CLKOUT_BCLK1_N
CLKOUT_DP_P / CLKOUT_BCLK1_P
AT1 DREFSSCLK# (4)
AT3 DREFSSCLK (4)

CLKIN_DMI_N
CLKIN_DMI_P
AW24 CLK_BUF_PCIE_3GPLL# (3)
BA24 CLK_BUF_PCIE_3GPLL (3)

CLKIN_BCLK_N
CLKIN_BCLK_P
AP3 CLK_BUF_BCLK_N (3)
AP1 CLK_BUF_BCLK_P (3)

CLKIN_DOT_96N
CLKIN_DOT_96P
F18 CLK_BUF_DREFCLK# (3)
E18 CLK_BUF_DREFCLK (3)

CLKIN_SATA_N / CKSSCD_N
CLKIN_SATA_P / CKSSCD_P
AH13 CLK_BUF_DREFSSCLK# (3)
AH12 CLK_BUF_DREFSSCLK (3)

REFCLK14IN P41 CLK_ICH_14M (3)
*5.6P/50V/C0G_4 C412
CLKIN_PCILOOPBACK J42 CLK_PCI_FB CLK_PCI_FB (10)

XTAL25_IN AH51 XTAL25_IN R555 *EV@0_4 DIS only
XTAL25_OUT AH53 XTAL25_OUT
XCLK_RCOMP AF38 XCLK_RCOMP R200 90.9/F_4 +1.05V_VTT

Clock Flex

(+3V) CLKOUTFLEX0 / GPIO64
(+3V) CLKOUTFLEX1 / GPIO65
(+3V) CLKOUTFLEX2 / GPIO66
(+3V) CLKOUTFLEX3 / GPIO67

T45 CLK_FLEX0 T33
P43 CLK_FLEX1 T35
T42 CLK_FLEX2 T34
N50 CLK_FLEX3
R262 22_4 CLK_48M_CARD (24)
C460 *5.6P/50V/C0G_4

20100208
Change Cardreader to USB port
Add 48MHz

IbexPeak-M_Rev1_0

UMA only

XTAL25_IN C682 18P/50V/C0G_4
R554 1M/F_4 Y7 25MHZ
XTAL25_OUT C681 18P/50V/C0G_4

U35 *MC74VHC1G08DFT2G

+3VS5 C711 *0.1U/10V/X5R_4
(10) PLT_RST-R# PLT_RST-R#
R601 100K/F_4
R622 0/J_4
R625 *100K/F_4
PLTRST# (4,15,23,27,28)

(4,8,10,11,12,15,27,35) +3VS5
(3,4,6,8,10,11,12,35,38,40,42) +1.05V_VTT
(3,4,8,10,11,12,13,14,15,20,21,22,24,25,26,27,28,29,30,31,32,33,35,36,40,41) +3V

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Quanta Computer Inc.

Size	Document Number	Rev
Custom	PCH 2/5(PCIE, SMBUS,CK)	1A
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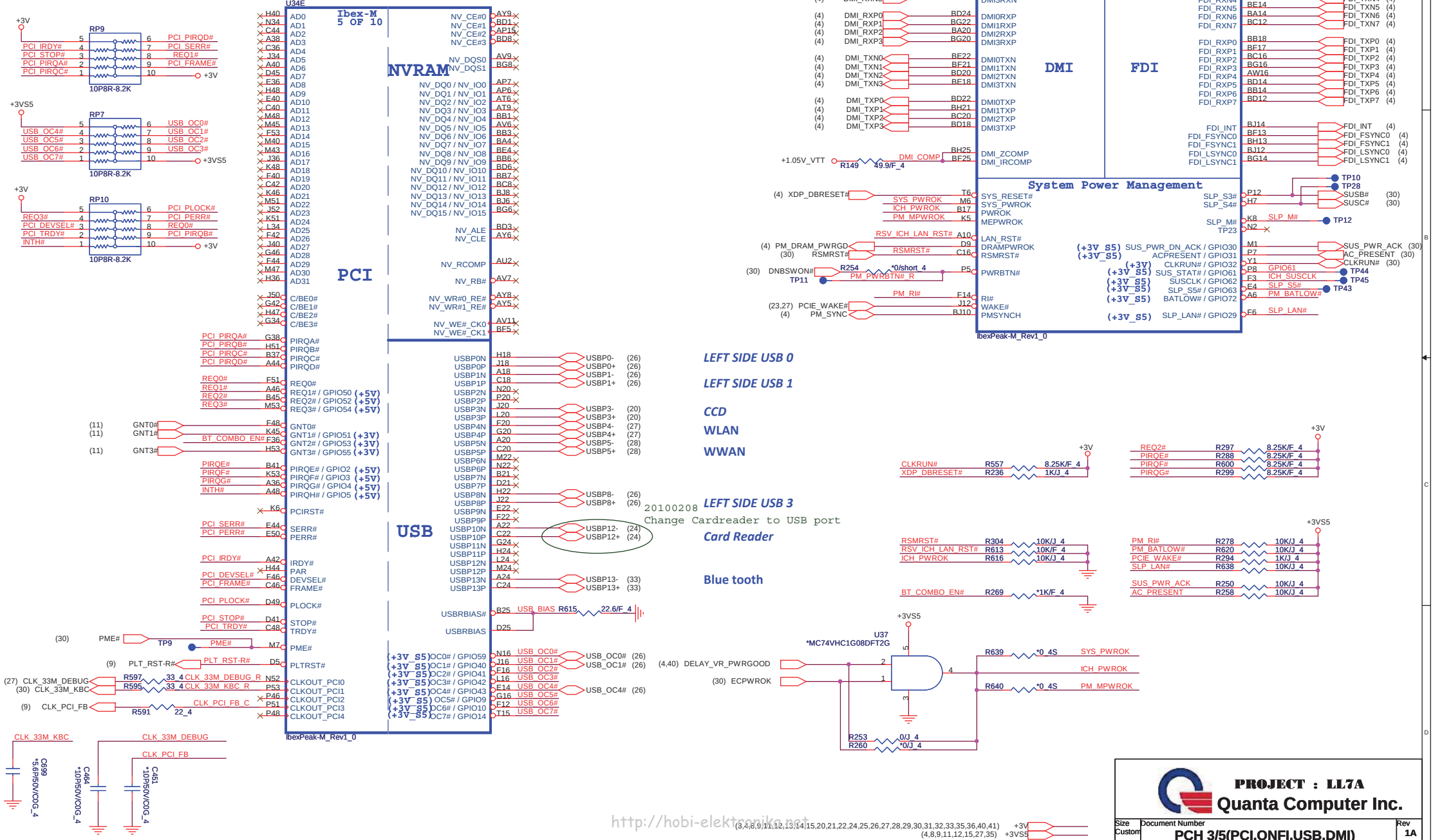
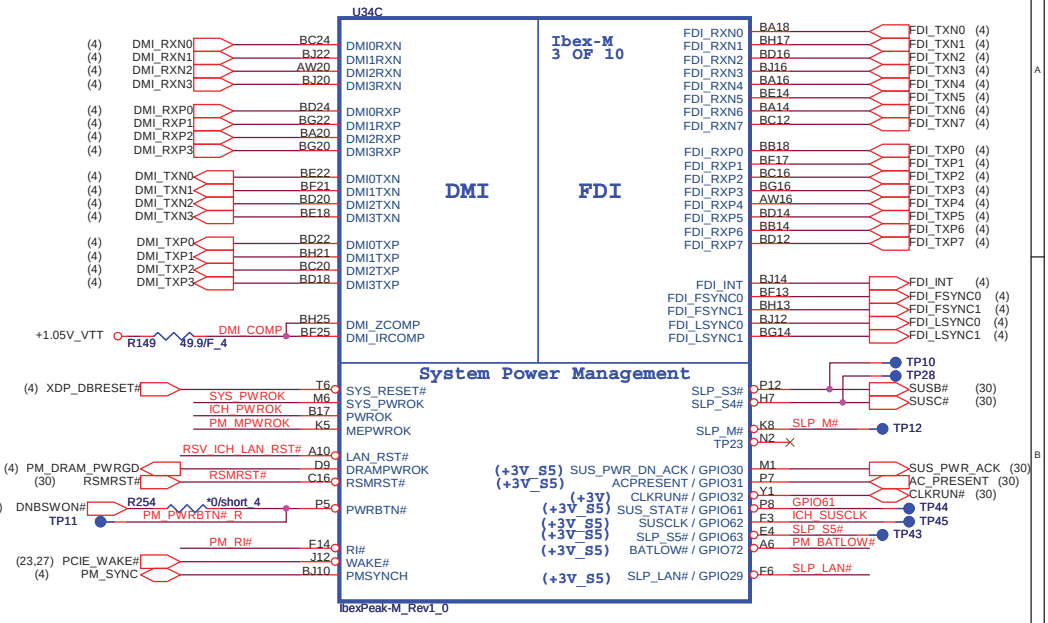
IBEX PEAK-M (DMI,FDI,GPIO)

IBEX PEAK-M (PCI,USB,NVRAM)





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Custom	PCH 3/5(PCI,ONFI,USB,DMI)	1A

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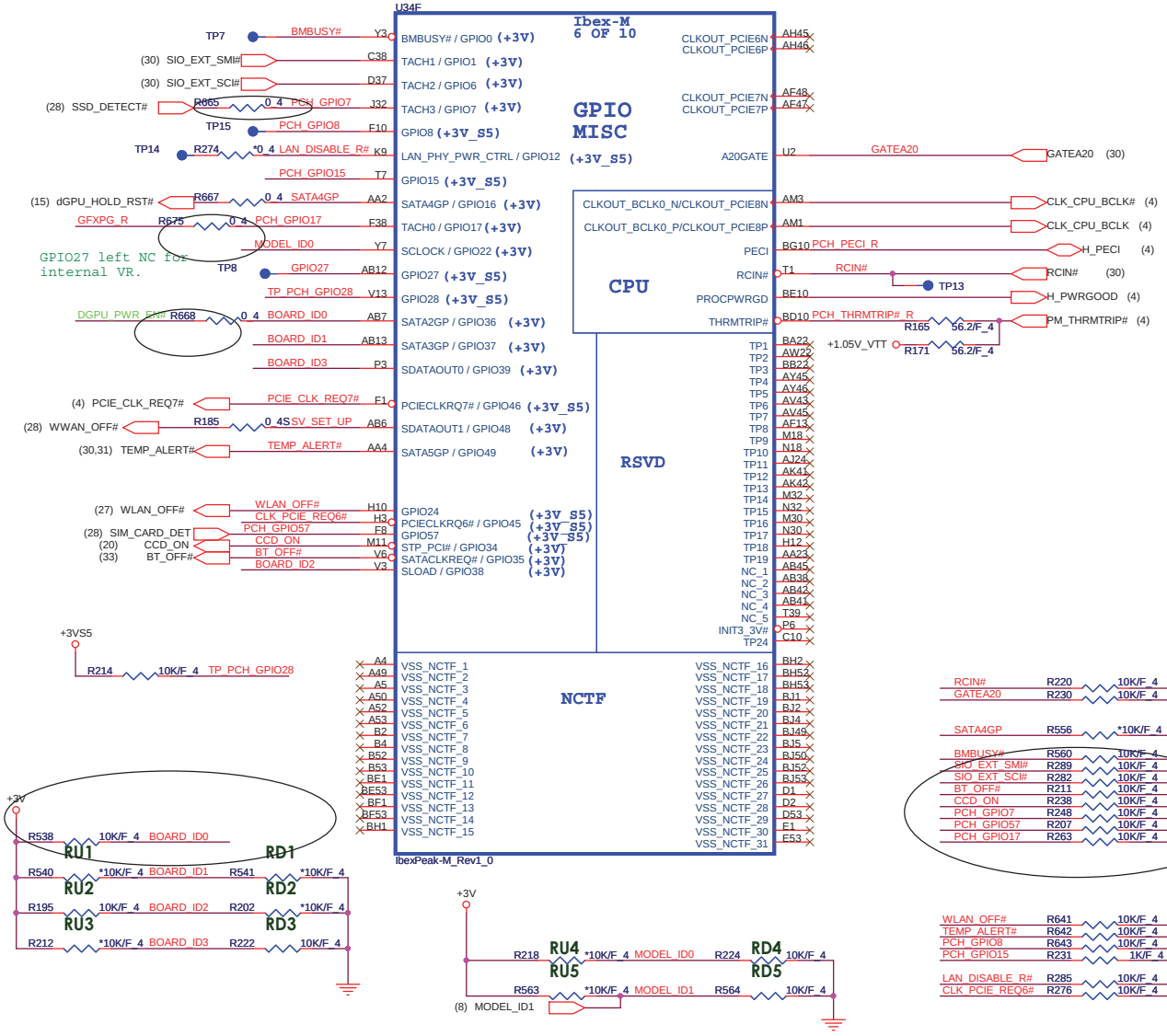
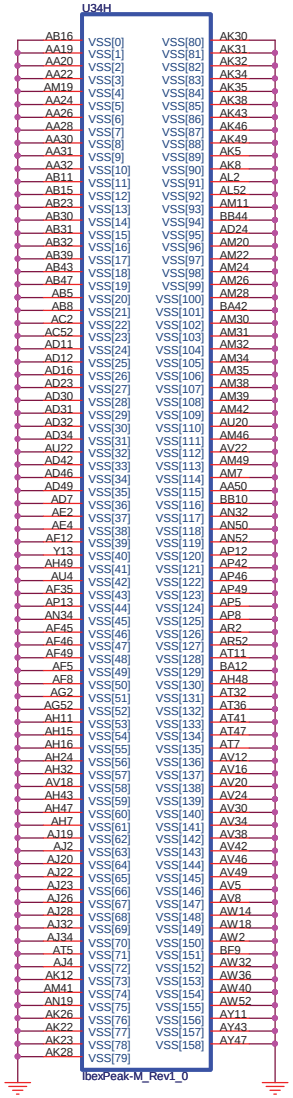
IBEX PEAK-M (GPIO,VSS_NCTF,RSVD)

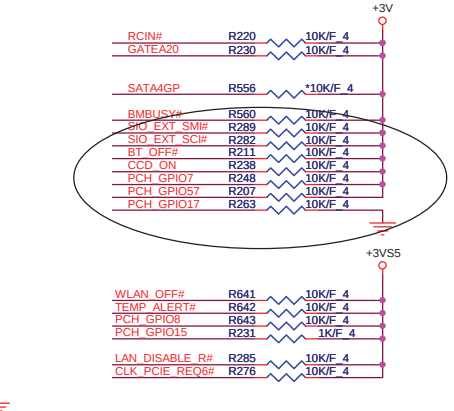


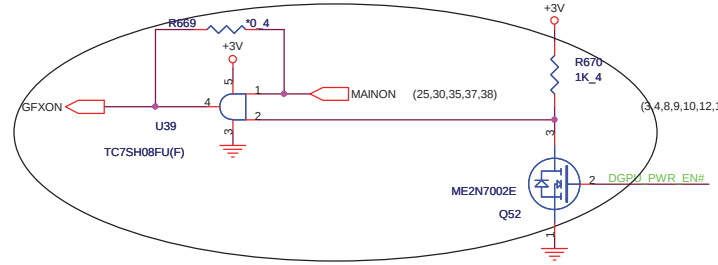
Board ID For Function		ID1 GPIO37	ID2 GPIO38	ID3 GPIO39
SDV		0	0	0
SIV		0	0	0
SIT		0	1	0
SVT		1	0	0
SOVP		0	1	0

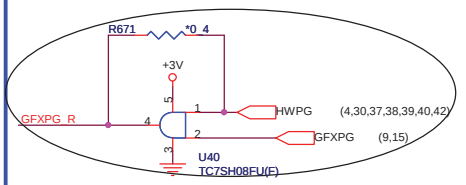
Model ID	MODEL_ID0	MODEL_ID1
Default	0	0
LL7	0	1
LL7A	1	0

IBEX PEAK-M (GND)









(10) GNT3# R609 *10K_NC

A16 swap override Strap/Top-Block Swap Override jumper

GNT3#	Low = A16 swap override/Top-Block Swap Override enabled High = Default

(10) GNT0# GNT0# R256 *1K/F_4
(10) GNT1# GNT1# R606 *1K/F_4

Boot BIOS Strap

PCI_GNT0#	GNT#1	Boot BIOS Location
0	0	LPC
0	1	Reserved (NAND)
1	0	PCI
1	1	SPI

SV_SET_UP R196 10K/F_4 +3V

SV_SET_UP	1-X High = Strong (Default)

Danbury Technology Enabled

NV_ALE	High = Enable Low = Disable

DMI Termination Voltage

NV_CLE	Set to Vcc when LOW Set to Vcc/2 when HIGH

No Reboot Strap

(8,25) ACZ_SPKR *1K/F_4 R580 +3V
(8) PCH_GPIO33 R264 *100K/F_4

(3,4,6,8,9,10,12,35,38,40,42) +1.05V_VTT
(3,4,8,9,10,12,13,14,15,20,21,22,24,25,26,27,28,29,30,31,32,33,35,36,40,41) +3V
(4,8,9,10,12,15,27,35) +3VS5

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Quanta Computer Inc.

Size	Document Number	Rev
Custom	PCH 4/5(GPIO & STRAP)	1A

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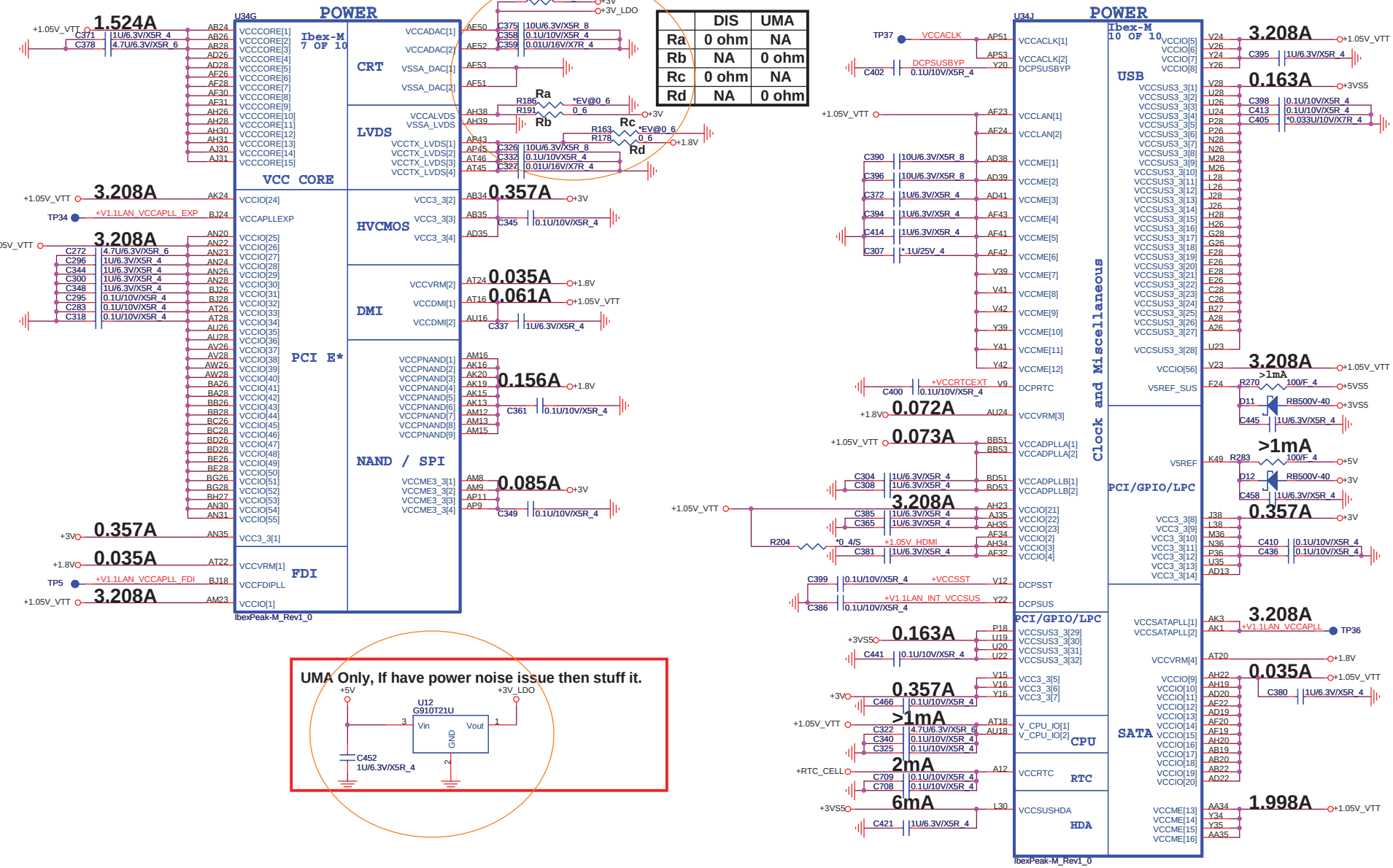

	DIS	UMA
Ra	0 ohm	NA
Rb	NA	0 ohm
Rc	0 ohm	NA
Rd	NA	0 ohm

(3,4,6,8,9,10,11,35,38,40,42) +1.05V_VTT
(6,35,38,41) +1.8V
(3,4,8,9,10,11,13,14,15,20,21,22,24,25,26,27,28,29,30,31,32,33,35,36,40,41) +3V
(4,8,9,10,11,15,27,35) +3VS5
(20,21,22,25,29,30,31,32,33,35,36) +5V
(26,35) +5VS5

PROJECT : LL7A
Quanta Computer Inc.

Size	Document Number	Rev
Custom	PCH 5/5(POWER)	1A

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(4,6,14,35,37,41) +1.5VSUS
(3,4,8,9,10,11,12,14,15,20,21,22,24,25,26,27,28,29,30,31,32,33,35,36,40,41) +3V
(14,35,37) +0.75V_DDR_VTT

SO-DIMMA SPD Address is 0XA0
SO-DIMMA TS Address is 0X30

JDIM4A

(5) M_A_A[15:0]

M_A_A0 M_A_A1 M_A_A2 M_A_A3 M_A_A4 M_A_A5 M_A_A6 M_A_A7 M_A_A8 M_A_A9 M_A_A10 M_A_A11 M_A_A12 M_A_A13 M_A_A14 M_A_A15

(5) M_A_BS#0
(5) M_A_BS#1
(5) M_A_BS#2
(5) M_A_CS#0
(5) M_A_CS#1
(5) M_A_CLK0
(5) M_A_CLK0#
(5) M_A_CLK1
(5) M_A_CLK1#
(5) M_A_CKE0
(5) M_A_CKE1
(5) M_A_CAS#
(5) M_A_RAS#
(5) M_A_WE#

R565 10K/F_4 DIMM0_SA0
R566 10K/F_4 DIMM0_SA1

(3,9,14) CGCLK_SMB
(3,9,14) CGDAT_SMB

(5) M_A_ODT0
(5) M_A_ODT1
(5) M_A_DM[7:0]

M_A_DM0 M_A_DM1 M_A_DM2 M_A_DM3 M_A_DM4 M_A_DM5 M_A_DM6 M_A_DM7

(5) M_A_DQS[7:0]

M_A_DQS0 M_A_DQS1 M_A_DQS2 M_A_DQS3 M_A_DQS4 M_A_DQS5 M_A_DQS6 M_A_DQS7

(5) M_A_DQS#[7:0]

M_A_DQS#0 M_A_DQS#1 M_A_DQS#2 M_A_DQS#3 M_A_DQS#4 M_A_DQS#5 M_A_DQS#6 M_A_DQS#7

PC2100 DDR3 SDRAM SO-DIMM (204P)

DDR3-DIMM0

M_A_DQ[63:0] (5)

M_A_DQ0 M_A_DQ1 M_A_DQ2 M_A_DQ3 M_A_DQ4 M_A_DQ5 M_A_DQ6 M_A_DQ7 M_A_DQ8 M_A_DQ9 M_A_DQ10 M_A_DQ11 M_A_DQ12 M_A_DQ13 M_A_DQ14 M_A_DQ15 M_A_DQ16 M_A_DQ17 M_A_DQ18 M_A_DQ19 M_A_DQ20 M_A_DQ21 M_A_DQ22 M_A_DQ23 M_A_DQ24 M_A_DQ25 M_A_DQ26 M_A_DQ27 M_A_DQ28 M_A_DQ29 M_A_DQ30 M_A_DQ31 M_A_DQ32 M_A_DQ33 M_A_DQ34 M_A_DQ35 M_A_DQ36 M_A_DQ37 M_A_DQ38 M_A_DQ39 M_A_DQ40 M_A_DQ41 M_A_DQ42 M_A_DQ43 M_A_DQ44 M_A_DQ45 M_A_DQ46 M_A_DQ47 M_A_DQ48 M_A_DQ49 M_A_DQ50 M_A_DQ51 M_A_DQ52 M_A_DQ53 M_A_DQ54 M_A_DQ55 M_A_DQ56 M_A_DQ57 M_A_DQ58 M_A_DQ59 M_A_DQ60 M_A_DQ61 M_A_DQ62 M_A_DQ63

JDIM4B

+1.5VSUS

VDD1 VDD2 VDD3 VDD4 VDD5 VDD6 VDD7 VDD8 VDD9 VDD10 VDD11 VDD12 VDD13 VDD14 VDD15 VDD16 VDD17 VDD18

+3V

VDDSPD

for S3 power reduction

NC1 NC2 NCTEST

(4) PM_EXTTS#0
PM_EXTTS#0

EVENT# RESET#

(4,14) DDR3_DRAMRST#
+1.5VSUS
R153 1K/F_4

(7) DDR_VREF_DQ0
R189 *0_4
SMDDR_VREF_DQ0
SMDDR_VREF_DIMM

R197 100K/F_4

VREF_DQ VREF_CA

VSS1 VSS2 VSS3 VSS4 VSS5 VSS6 VSS7 VSS8 VSS9 VSS10 VSS11 VSS12 VSS13 VSS14 VSS15

VTT1 VTT2
+0.75V_DDR_VTT

GND GND

VSS16 VSS17 VSS18 VSS19 VSS20 VSS21 VSS22 VSS23 VSS24 VSS25 VSS26 VSS27 VSS28 VSS29 VSS30 VSS31 VSS32 VSS33 VSS34 VSS35 VSS36 VSS37 VSS38 VSS39 VSS40 VSS41 VSS42 VSS43 VSS44 VSS45 VSS46 VSS47 VSS48 VSS49 VSS50 VSS51 VSS52

PC2100 DDR3 SDRAM SO-DIMM (204P)

DDR3-DIMM0

+0.75V_DDR_VTT
R217 22_4

(6,35) MAINON_G
Q16 2N7002E

for S3 power reduction

+1.5VSUS
R193 1K/F_4
SMDDR_VREF_DQ0
R192 1K/F_4
C354 0.1U/10V/X5R_4
C353 *0.047U/10V/X7R_4

C314 470P/50V/X7R_4
R156 *0_4/S
R155 *10K/F_4
SMDDR_VREF_DIMM (14)
DDR_VTTREF (37)
+1.5VSUS
R157 *10K/F_4

Place these Caps near So-Dimm0.

Some Projects replace 10UF 0805 by 4.7UF 0603
It can cost down 30%

+1.5VSUS

C305 4.7U/6.3V/X5R_6
C312 4.7U/6.3V/X5R_6
C311 4.7U/6.3V/X5R_6
C369 4.7U/6.3V/X5R_6
C306 4.7U/6.3V/X5R_6
C370 4.7U/6.3V/X5R_6
C366 0.1U/10V/X5R_4
C303 0.1U/10V/X5R_4
C367 0.1U/10V/X5R_4
C368 0.1U/10V/X5R_4
C301 0.1U/10V/X5R_4

C313 *0.047U/10V/X7R_4
C364 *0.047U/10V/X7R_4

+0.75V_DDR_VTT

C290 1U/6.3V/X5R_4
C362 1U/6.3V/X5R_4
C350 1U/6.3V/X5R_4
C297 1U/6.3V/X5R_4
C317 *10U/6.3V/X5R_8
C388 *10U/6.3V/X5R_8
C376 4.7U/6.3V/X5R_6
C342 *0.047U/10V/X7R_4
C384 *0.047U/10V/X7R_4

SMDDR_VREF_DQ0

C351 0.1U/10V/X5R_4
C374 2.2U/6.3V/X5R_6

+3V

C360 2.2U/6.3V/X5R_6
C356 *0.1U/10V/X5R_4
C403 *0.047U/10V/X7R_4

SMDDR_VREF_DIMM

C315 0.1U/10V/X5R_4
C316 2.2U/6.3V/X5R_6
C267 *0.047U/10V/X7R_4

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PROJECT : LL7A
Quanta Computer Inc.

Size	Document Number	Rev
Custom	DDR3 DIMM-0	1A
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(4,6,13,35,37,41) +1.5VSUS
(3,4,8,9,10,11,12,13,15,20,21,22,24,25,26,27,28,29,30,31,32,33,35,36,40,41) +3V
(13,35,37) +0.75V_DDR_VTT

JDIM3A

PC2100 DDR3 SDRAM SO-DIMM (204P)

DDR3-DIMM1

(5) M_B_A[15:0]
M_B_A0 98 A0
M_B_A1 97 A1
M_B_A2 96 A2
M_B_A3 95 A3
M_B_A4 92 A4
M_B_A5 91 A5
M_B_A6 90 A6
M_B_A7 86 A7
M_B_A8 89 A8
M_B_A9 85 A9
M_B_A10 107 A10/AP
M_B_A11 84 A11
M_B_A12 83 A12/BC#
M_B_A13 119 A13
M_B_A14 80 A14
M_B_A15 78 A15

(5) M_B_BS#0 109 BA0
(5) M_B_BS#1 108 BA1
(5) M_B_BS#2 79 BA2
(5) M_B_CS#0 114 S0#
(5) M_B_CS#1 121 S1#
(5) M_B_CLK0 101 CK0
(5) M_B_CLK0# 103 CK0#
(5) M_B_CLK1 102 CK1
(5) M_B_CLK1# 104 CK1#
(5) M_B_CKE0 73 CKE0
(5) M_B_CKE1 74 CKE1
(5) M_B_CAS# 115 CAS#
(5) M_B_RAS# 110 RAS#
(5) M_B_WE# 113 WE#
R150 10K/F_4 DIMM1_SA0 197 SA0
R151 10K/F_4 DIMM1_SA1 201 SA1
+3V 202 SCL
(3,9,13) CGCLK_SMB 200 SDA
(3,9,13) CGDAT_SMB

(5) M_B_ODT0 116 ODT0
(5) M_B_ODT1 120 ODT1
(5) M_B_DM[7:0]
M_B_DM0 11 DM0
M_B_DM1 28 DM1
M_B_DM2 46 DM2
M_B_DM3 63 DM3
M_B_DM4 136 DM4
M_B_DM5 153 DM5
M_B_DM6 170 DM6
M_B_DM7 187 DM7

(5) M_B_DQS[7:0]
M_B_DQS0 12 DQS0
M_B_DQS1 29 DQS1
M_B_DQS2 47 DQS2
M_B_DQS3 64 DQS3
M_B_DQS4 137 DQS4
M_B_DQS5 154 DQS5
M_B_DQS6 171 DQS6
M_B_DQS7 188 DQS7

(5) M_B_DQS#[7:0]
M_B_DQS#0 10 DQS#0
M_B_DQS#1 27 DQS#1
M_B_DQS#2 45 DQS#2
M_B_DQS#3 62 DQS#3
M_B_DQS#4 135 DQS#4
M_B_DQS#5 152 DQS#5
M_B_DQS#6 169 DQS#6
M_B_DQS#7 186 DQS#7

M_B_DQ[63:0] (5)
DQ0 5 M_B_DQ0
DQ1 7 M_B_DQ1
DQ2 15 M_B_DQ2
DQ3 17 M_B_DQ3
DQ4 4 M_B_DQ4
DQ5 6 M_B_DQ5
DQ6 16 M_B_DQ6
DQ7 18 M_B_DQ7
DQ8 21 M_B_DQ8
DQ9 23 M_B_DQ9
DQ10 33 M_B_DQ10
DQ11 35 M_B_DQ11
DQ12 22 M_B_DQ12
DQ13 24 M_B_DQ13
DQ14 34 M_B_DQ14
DQ15 36 M_B_DQ15
DQ16 39 M_B_DQ16
DQ17 41 M_B_DQ17
DQ18 51 M_B_DQ18
DQ19 53 M_B_DQ19
DQ20 40 M_B_DQ20
DQ21 42 M_B_DQ21
DQ22 50 M_B_DQ22
DQ23 52 M_B_DQ23
DQ24 57 M_B_DQ24
DQ25 59 M_B_DQ25
DQ26 67 M_B_DQ26
DQ27 69 M_B_DQ27
DQ28 56 M_B_DQ28
DQ29 58 M_B_DQ29
DQ30 68 M_B_DQ30
DQ31 70 M_B_DQ31
DQ32 129 M_B_DQ32
DQ33 131 M_B_DQ33
DQ34 141 M_B_DQ34
DQ35 143 M_B_DQ35
DQ36 130 M_B_DQ36
DQ37 132 M_B_DQ37
DQ38 140 M_B_DQ38
DQ39 142 M_B_DQ39
DQ40 147 M_B_DQ40
DQ41 149 M_B_DQ41
DQ42 157 M_B_DQ42
DQ43 159 M_B_DQ43
DQ44 146 M_B_DQ44
DQ45 148 M_B_DQ45
DQ46 158 M_B_DQ46
DQ47 160 M_B_DQ47
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DQ49 165 M_B_DQ49
DQ50 175 M_B_DQ50
DQ51 177 M_B_DQ51
DQ52 164 M_B_DQ52
DQ53 166 M_B_DQ53
DQ54 174 M_B_DQ54
DQ55 176 M_B_DQ55
DQ56 181 M_B_DQ56
DQ57 183 M_B_DQ57
DQ58 191 M_B_DQ58
DQ59 193 M_B_DQ59
DQ60 180 M_B_DQ60
DQ61 182 M_B_DQ61
DQ62 192 M_B_DQ62
DQ63 194 M_B_DQ63

SO-DIMMB SPD Address is 0XA4
SO-DIMMB TS Address is 0X34

+1.5VSUS

JDIM3B

PC2100 DDR3 SDRAM SO-DIMM (204P)

DDR3-DIMM1

VDD1 75
VDD2 76
VDD3 81
VDD4 82
VDD5 87
VDD6 88
VDD7 93
VDD8 94
VDD9 99
VDD10 100
VDD11 105
VDD12 106
VDD13 111
VDD14 112
VDD15 117
VDD16 118
VDD17 123
VDD18 124

+3V
VDDSPD 199

NC1 77
NC2 122
NCTEST 125

(4) PM_EXTTS#1
(4,13) DDR3_DRAMRST#
PM_EXTTS#1 198 EVENT#
30 RESET#

(7) DDR_VREF_DQ1
R164 *0_4/S SMDDR_VREF_DQ1
(13) SMDDR_VREF_DIMM
VREF_DQ 1
VREF_CA 126

R161 100K/F_4

VSS1 2
VSS2 3
VSS3 8
VSS4 9
VSS5 13
VSS6 14
VSS7 19
VSS8 20
VSS9 25
VSS10 26
VSS11 31
VSS12 32
VSS13 37
VSS14 38
VSS15 43

VSS16 44
VSS17 48
VSS18 49
VSS19 54
VSS20 55
VSS21 60
VSS22 61
VSS23 65
VSS24 66
VSS25 71
VSS26 72
VSS27 127
VSS28 128
VSS29 133
VSS30 134
VSS31 138
VSS32 139
VSS33 144
VSS34 145
VSS35 150
VSS36 151
VSS37 155
VSS38 156
VSS39 161
VSS40 162
VSS41 167
VSS42 168
VSS43 172
VSS44 173
VSS45 178
VSS46 179
VSS47 184
VSS48 185
VSS49 189
VSS50 190
VSS51 195
VSS52 196

VTT1 203
VTT2 204
+0.75V_DDR_VTT

GND 205
GND 206

+1.5VSUS
R158 1K/F_4
SMDDR_VREF_DQ1
R152 1K/F_4
C310 0.1U/10V/X5R_4
C309 *0.047U/10V/X7R_4

Place these Caps near So-Dimm1.

Some Projects replace 10UF 0805 by 4.7UF 0603
It can cost down 30%

+1.5VSUS
C260 4.7U/6.3V/X5R_6
C277 4.7U/6.3V/X5R_6
C257 4.7U/6.3V/X5R_6
C259 4.7U/6.3V/X5R_6
C278 4.7U/6.3V/X5R_6
C258 4.7U/6.3V/X5R_6
C279 0.1U/10V/X5R_4
C280 0.1U/10V/X5R_4
C276 0.1U/10V/X5R_4
C281 0.1U/10V/X5R_4
C262 0.1U/10V/X5R_4
C263 *0.047U/10V/X7R_4
C363 *0.047U/10V/X7R_4
C738 0.1U/10V/X5R_4
C739 0.1U/10V/X5R_4

+0.75V_DDR_VTT
C266 1U/6.3V/X5R_4
C282 1U/6.3V/X5R_4
C254 1U/6.3V/X5R_4
C288 1U/6.3V/X5R_4
C271 *10U/6.3V/X5R_8
C291 4.7U/6.3V/X5R_6
C249 4.7U/6.3V/X5R_6
C255 *0.047U/10V/X7R_4
C264 *0.047U/10V/X7R_4
C383 0.1U/10V/X5R_4
C382 0.1U/10V/X5R_4
EMI request

SMDDR_VREF_DIMM
C251 0.1U/10V/X5R_4
C247 2.2U/6.3V/X5R_6
C256 *0.047U/10V/X7R_4

SMDDR_VREF_DQ1
C298 0.1U/10V/X5R_4
C302 2.2U/6.3V/X5R_6

+3V
C285 2.2U/6.3V/X5R_6
C355 *0.1U/10V/X5R_4
C404 *0.047U/10V/X7R_4

Near U32 position +1.5vsus ending

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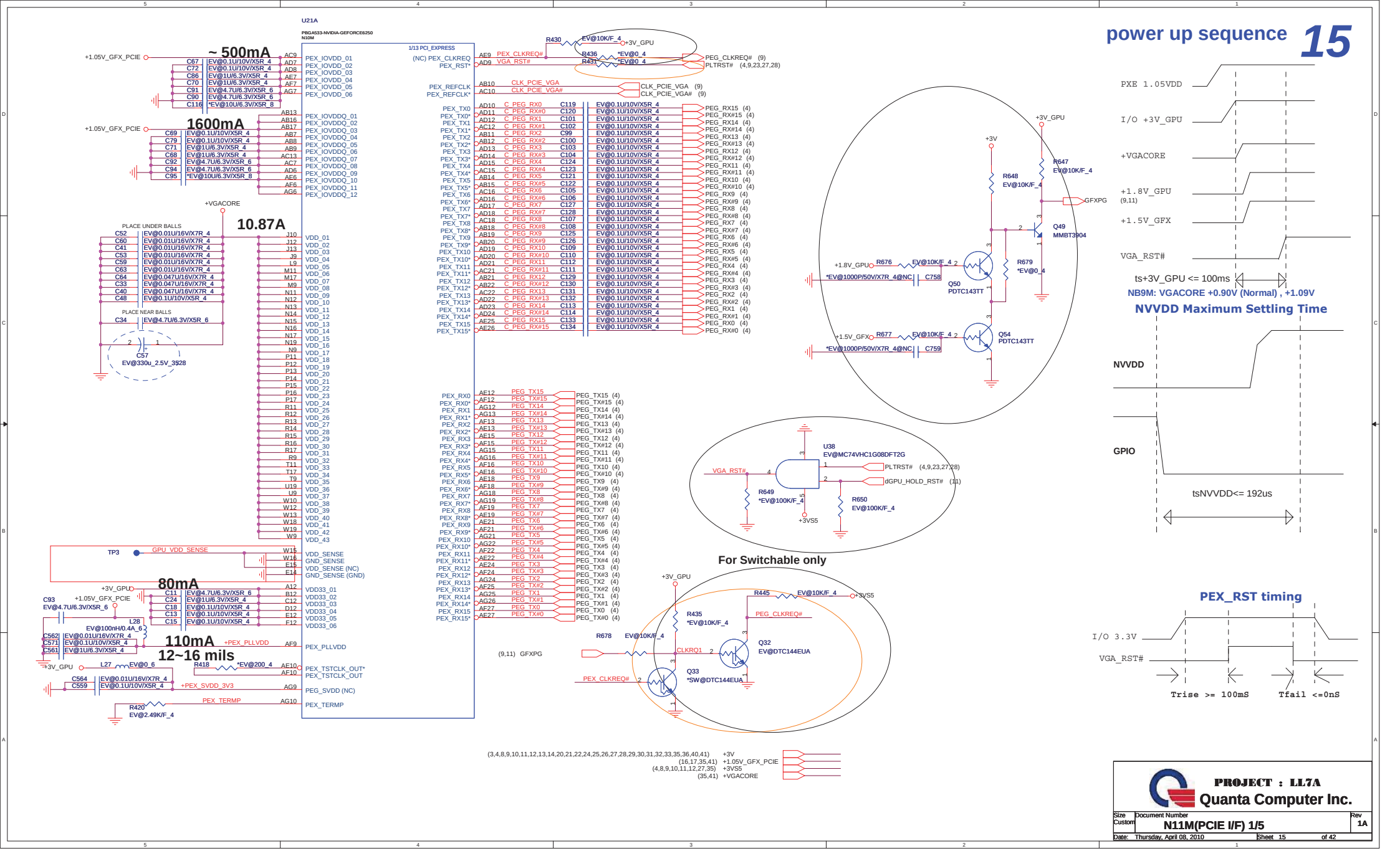

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Quanta Computer Inc.	
Size: Custom	Document Number: N11M(PCIE I/F) 1/5
Rev:	1A
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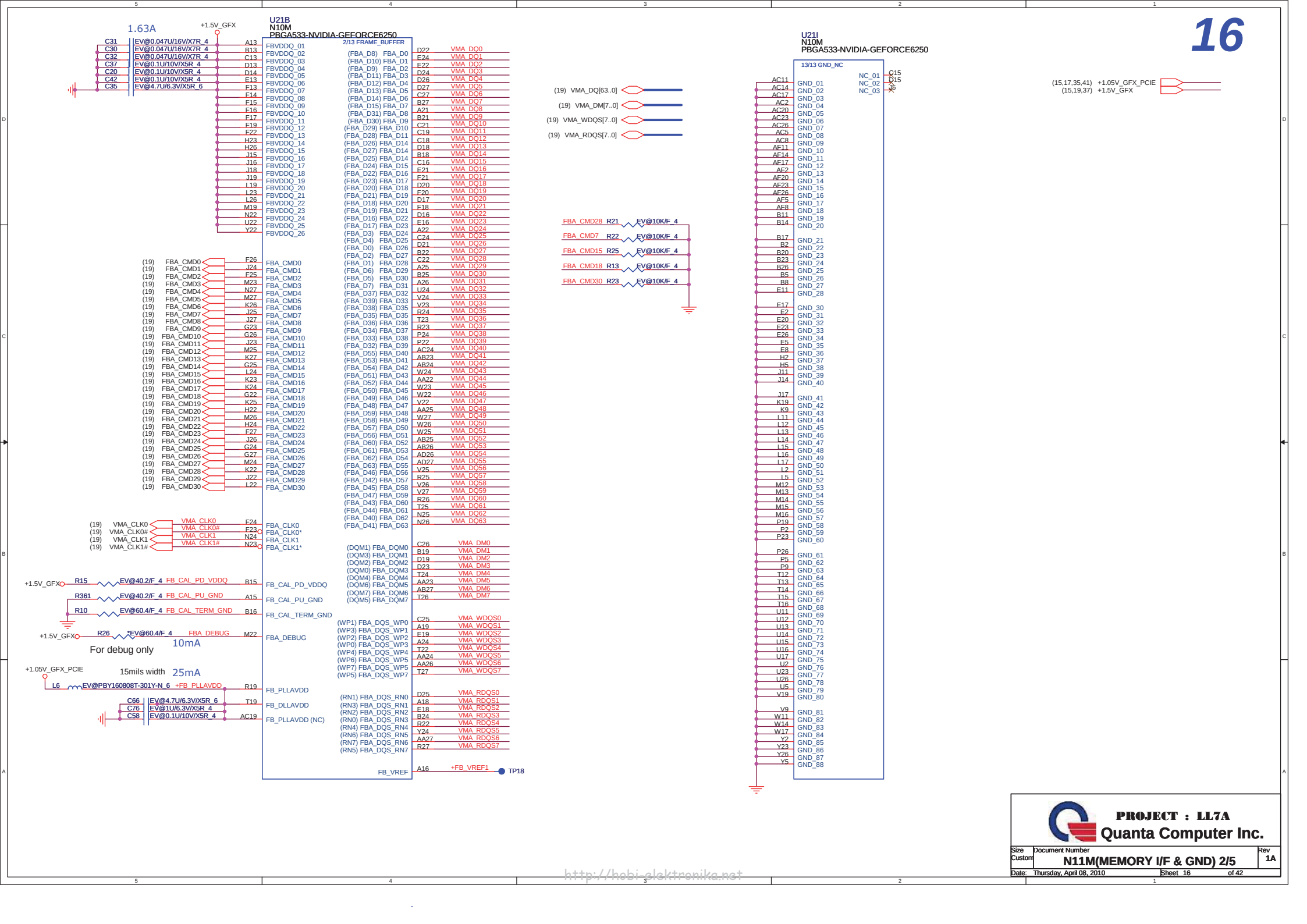

PROJECT : LL7A
Quanta Computer Inc.

Size	Document Number	Rev
Custom	N11M(MEMORY I/F & GND) 2/5	1A
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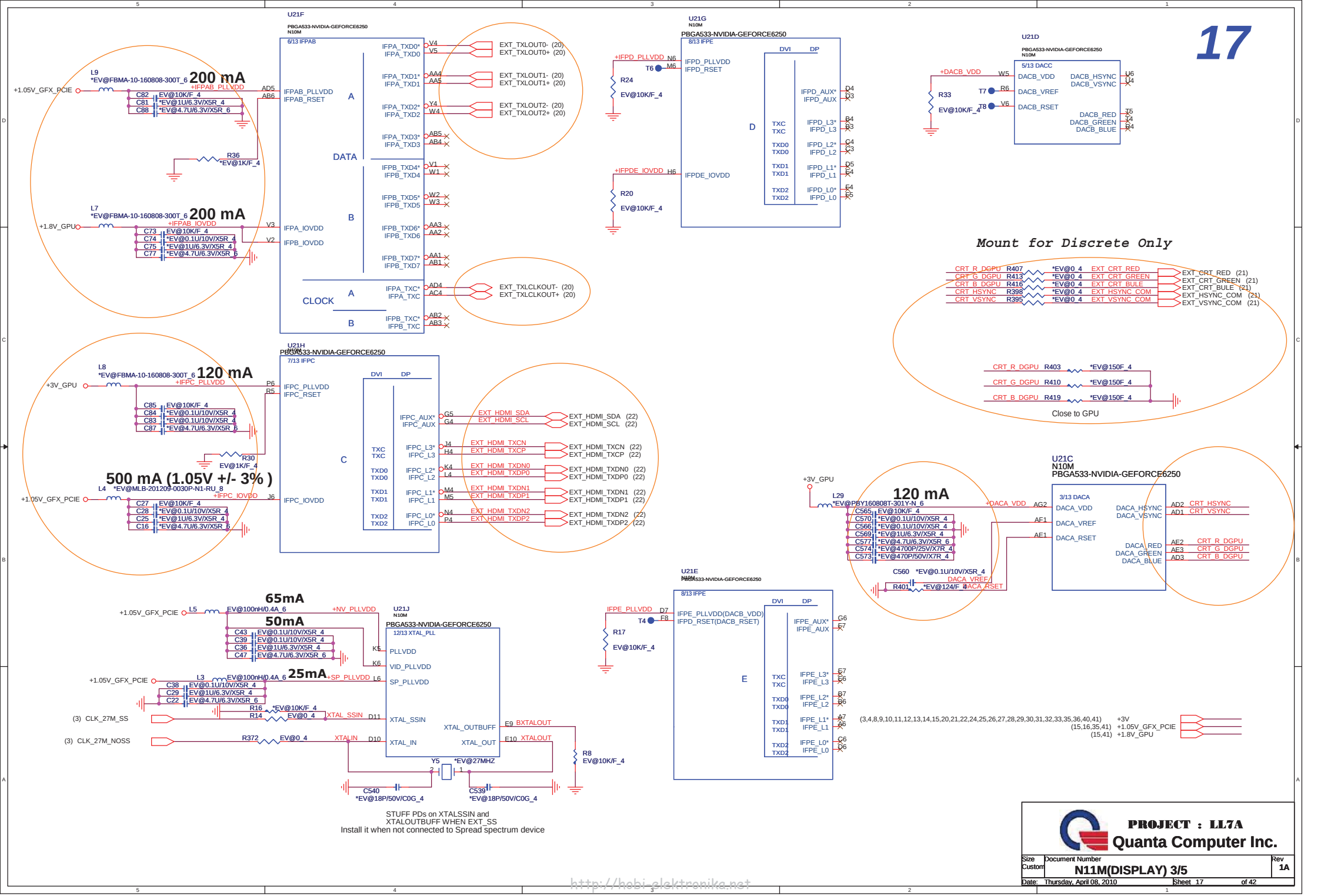

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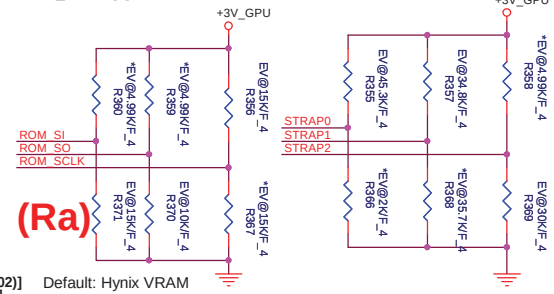
(3,4,8,9,10,11,12,13,14,15,20,21,22,24,25,26,27,28,29,30,31,32,33,35,36,40,41) +3V

SEE Datasheet for details on N10P Straps!

Logical Strap Bit Mapping

	PU-VDD	PD
5K	1000	0000
10K	1001	0001
15K	1010	0010
20K	1011	0011
25K	1100	0100
30K	1101	0101
35K	1110	0110
45K	1111	0111

PCI_DEVID[4]/SUBVENDOR



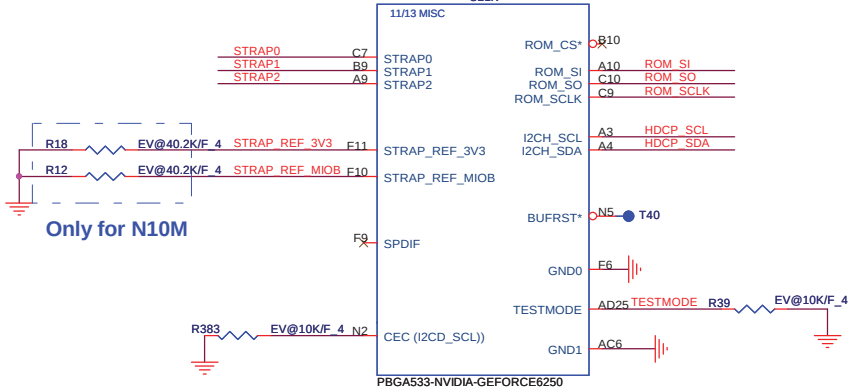
4.99K/F_4: CS24992FB26 [RES CHIP 4.99K 1/16W +1%(0402)] Default: Hynix VRAM
10K/F_4: CS31002FB26 [RES CHIP 10K 1/16W +1% (0402)]
15K/F_4: CS31502FB24 [RES CHIP 15K 1/16W +1% (0402)]
30K/F_4: CS33002FB13 [RES CHIP 30K 1/16W +-1%(0402)]
34.8K/F_4: CS33482FB22 [RES CHIP 34.8K 1/16W +-1%(0402)]
45.3K/F_4: CS34532FB18 [RES CHIP 45.3K 1/16W +-1% (0402)]

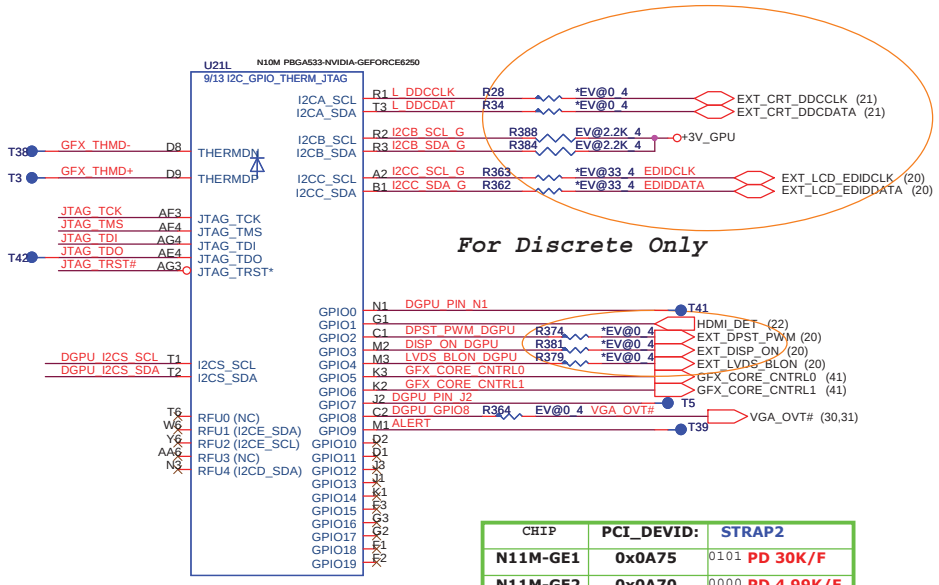
	Logical Strapping Bit3	Logical Strapping Bit2	Logical Strapping Bit1	Logical Strapping Bit0	
ROM_SO NB10X	XCLK_417	FB_0_BAR_SIZE	SMB_ALT_ADDR	VGA_DEVICE	0001
ROM_SCLK	PCI_DEVIDE[4]	SUB_VENDOR	SLOT_CLK_CFG	PEX_PLL_EN_TERM	0010
ROM_SI	RAMCFG[3]	RAMCFG[2]	RAMCFG[1]	RAMCFG[0]	XXXX
STRAP2	PCI_DEVID[3]	PCI_DEVID[2]	PCI_DEVID[1]	PCI_DEVID[0]	1000
STRAP1	3GIO_PADCFG[3]	3GIO_PADCFG[2]	3GIO_PADCFG[1]	3GIO_PADCFG[0]	0001
STRAP0	USER[3]	USER[2]	USER[1]	USER[0]	1111

VRAM Configuration Table

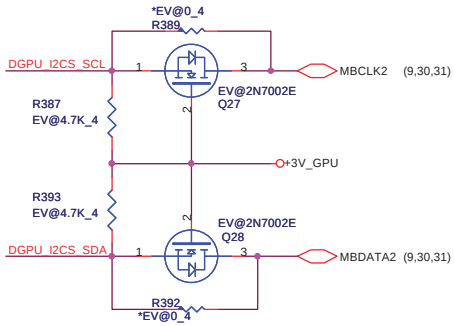
(Ra)

	RAMCFG [3:0]	DESCRIPTION	Vendor	Vendor P/N	ROM_SI
	0000		Reserved		
	0001				
AKD5LZGTW05	0010	DDR3 64Mx16x4, 128bit, 512MB,800MHz	Hynix	H5TQ1G63BFR-12C	PD 15K/F
AKD5LGGT507	0011	DDR3 64Mx16x4, 128bit, 512MB,800MHz	Samsung	K4W1G1646E-HC12	PD 20K/F
	0101		Reserved		
	0110				
AKD5MGGTW00	0110	DDR3 128Mx16x4, 128bit, 1GB,800MHz	Hynix	H5TQ2G63BFR-12C	PD 34.8K/F
AKD5MGGT501	0111	DDR3 128Mx16x4, 128bit, 1GB,800MHz	Samsung	K4W2G1646B-HC12	PD 45.3K/F





For Discrete Only



CHIP	PCI_DEVID:	STRAP2
N11M-GE1	0x0A75	0101 PD 30K/F
N11M-GE2	0x0A70	0000 PD 4.99K/F

VRAM Type	RAMCFG[0..3]	ROM_SI
Hynix AKD5LZGTW05	0x0A75	0010 PD15K/F
Samsung AKD5LGGT507	0x0A70	0011 PD 20K/F
Hynix AKD5MGGTW00	0x0A75	0110 PD 34.8K/F
Samsung AKD5MGGT501	0x0A70	0111 PD 45.3K/F

GPU Type	STRAP0	STRAP1	ROM_SO	ROM_SCLK
N11M-GE1	PU 45.3K/F	PU 34.8K/F	PD10K/F	PU15K/F
N11M-GE2	PU 45.3K/F	PU 34.8K/F	PD10K/F	PU15K/F

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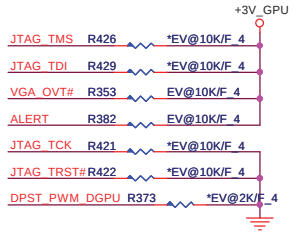
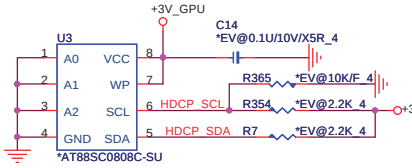


HDCP ROM



DHCP ROM	
HDCP_SCL	Low: Crypto ROM Hi: I2C ROM

GPIO ASSIGNMENTS

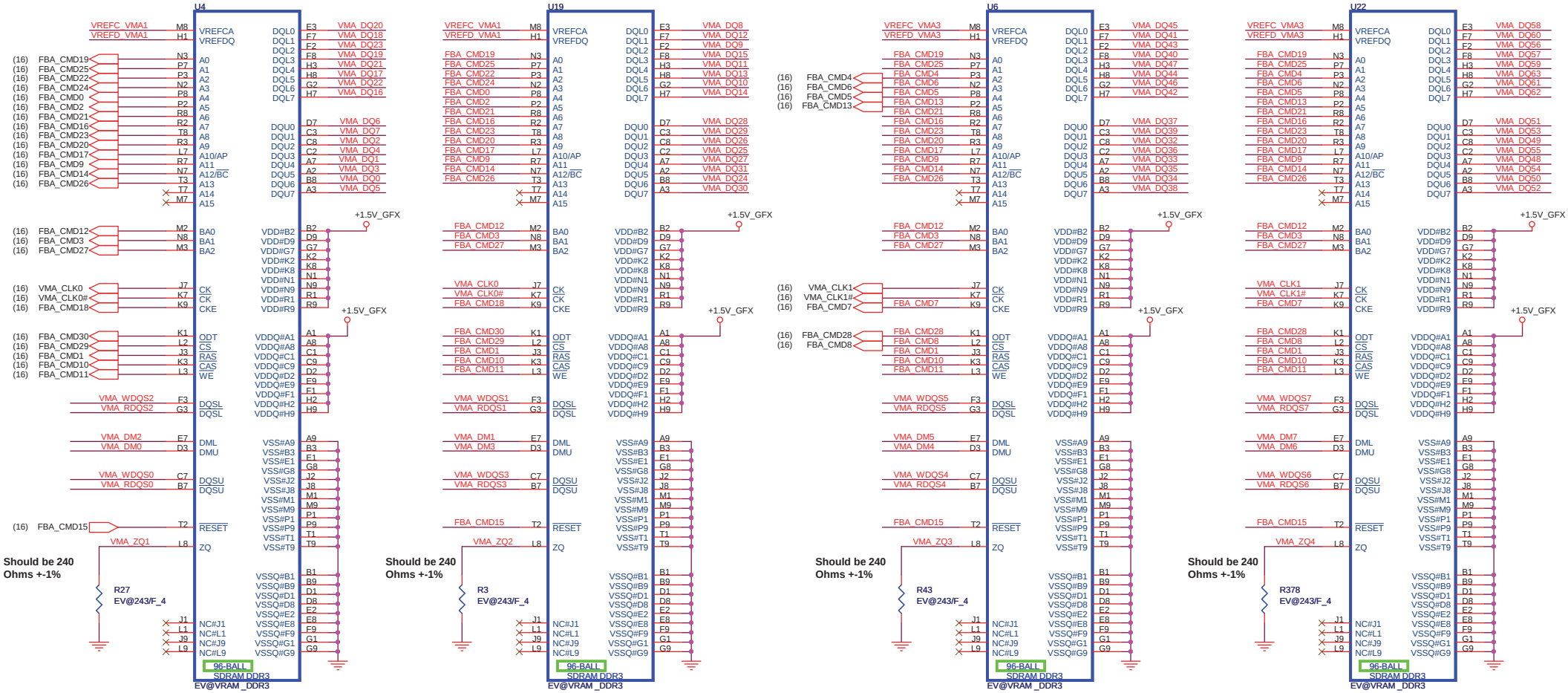
GPIO	I/O	ACTIVE	USAGE
0	N/A	N/A	
1	IN	N/A	Hot plug detect for IFP link C
2	OUT	HIGH	PANEL BACKLIGHT PWM
3	OUT	HIGH	PANEL POWER ENABLE
4	OUT	HIGH	PANEL BACKLIGHT ENABLE
5	OUT	N/A	NVVDD VID0
6	OUT	N/A	NVVDD VID1
7	OUT	N/A	NVVDD VID2
8	I/O	LOW	OVERT
9	I/O	LOW	ALERT
10	OUT	N/A	FBVREF SELECT
11	OUT	N/A	SLI SYNC0
12	IN	N/A	PWR_LEVEL
13	OUT	N/A	MEM_VID or power supply control
14	OUT	N/A	PS CONTROL

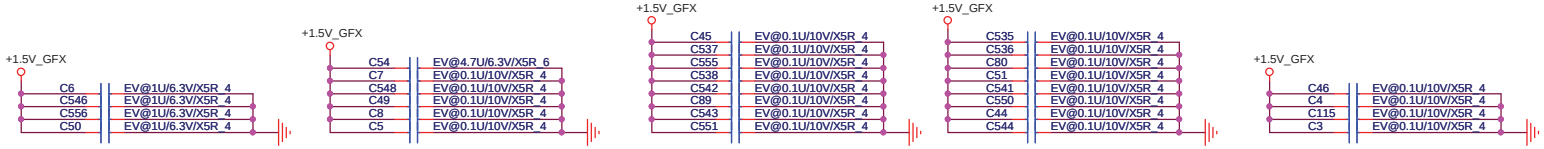
PROJECT : Z360
Quanta Computer Inc.

Size	Document Number	Rev
Custom	N11M(GPIO & STRAPS) 4/5	1A
Date: Thursday, April 08, 2010	Sheet 18	of 42

CHANNEL A: 256MB/512MB DDR3

(16) VMA_DQ[63..0]
(16) VMA_DM[7..0]
(16) VMA_WDQS[7..0]
(16) VMA_RDQS[7..0]





(15,16,37) +1.5V_GFX

PROJECT : LL7A
Quanta Computer Inc.

Size	Document Number	Rev
Custom	N11M (DDR3) 5/5	1A
Date: Thursday, April 08, 2010	Sheet 19	of 42

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(3,4,8,9,10,11,12,13,14,15,21,22,24,25,26,27,28,29,30,31,32,33,35,36,40,41) +3V
(29,35,37,39,41) +15V
(35,40,41) 5VSUS
(8,23,29,30,32,33,35,36,38,39,41,42) +3VPCU
(3,36,37,38,39,40,41,42) VIN
(12,21,22,25,29,30,31,32,33,35,36) +5V

1. If LCD connector near GPU, then place these series Resistors near GPU
2. If LCD connector near PCH, then place these series Resistors near PCH

OPTION SIGNAL FROM PCH FOR UMA VGA

(8) LA_CLK — RN8 — 0_4P2R — TXLCLKOUT+
(8) LA_CLK# — TXLCLKOUT-
(8) LA_DATAP0 — RN14 — 0_4P2R — TXLOUT0+
(8) LA_DATAN0 — TXLOUT0-
(8) LA_DATAP1 — RN12 — 0_4P2R — TXLOUT1+
(8) LA_DATAN1 — TXLOUT1-
(8) LA_DATAP2 — RN10 — 0_4P2R — TXLOUT2+
(8) LA_DATAN2 — TXLOUT2-

(8) EDIDCLK_IGPU — RN17 — 0_4P2R — LCD_EDIDCLK
(8) EDIDDATA_IGPU — LCD_EDIDDATA

(8) LVDS_BLON_IGPU — R32 0_4 — LVDS_BLON
(8) DISP_ON_IGPU — R468 0_4 — LCD_DISP_ON
(8) DPST_PWM_IGPU — R432 0_4 — DPST_PWM

OPTION SIGNAL FROM N11M-GE2 to VGA

(17) EXT_TXLCLKOUT+ — RN9 — *EV@0_4P2R — TXLCLKOUT+
(17) EXT_TXLCLKOUT- — TXLCLKOUT-
(17) EXT_TXLOUT0- — RN15 — *EV@0_4P2R — TXLOUT0-
(17) EXT_TXLOUT0+ — TXLOUT0+
(17) EXT_TXLOUT1+ — RN13 — *EV@0_4P2R — TXLOUT1+
(17) EXT_TXLOUT1- — TXLOUT1-
(17) EXT_TXLOUT2+ — RN11 — *EV@0_4P2R — TXLOUT2+
(17) EXT_TXLOUT2- — TXLOUT2-

(18) EXT_LCD_EDIDCLK — RN18 — *EV@0_4P2R — LCD_EDIDCLK
(18) EXT_LCD_EDIDDATA — LCD_EDIDDATA

(18) EXT_LVDS_BLON — R31 *EV@0_4 — LVDS_BLON
(18) EXT_DISP_ON — R462 *EV@0_4 — LCD_DISP_ON
(18) EXT_DPST_PWM — R433 *EV@0_4 — DPST_PWM

+15V, +3V, LCDVCC
R469 330K_4
Q4 AO3404
LCDVCC_R — R70 0_8
C158 10U/6.3V/X5R_8
LCDVCC_ON
C622 0.022U/25V/X7R_6
R71 22_8
5VSUS
Q36 2N7002
Q37 2N7002
R470 100K_4
Q35 PDTC144EU
LCD_DISP_ON
R466 100K_4
LCDVCC
R50 2.2K_4
R51 2.2K_4
LCD_EDIDCLK
LCD_EDIDDATA

back light

+3VPCU, +3V
R19 10K_4
R424 *4.7K_4
(30,32) LID551#
D3 RB500V-40
D13 RB500V-40
DISPON
C78 0.1U/10V/X5R_4
R428 100K_4
C576 *47P/50V/NPO_4
LVDS_BLON — R35 *0_4_short — R38 2.2K_4
R37 10K_4
C563 *1U/10V/X5R_6
Q3 PDTC144EU
LCD_BK_OFF#

+VIN_BLIGHT
C98 0.1U/25V/X5R_6
C97 0.1U/25V/X5R_6
C137 *10U/25V/X6S_12
R45 0_8 — VIN

DPST_PWM — R427 0_4S — VADJ_PWM
(30) BRIGHT_PWM — R425 *0_4
C567 *47P/50V/NPO_4

CN7 CONN_LCD
C568 *47P/50V/NPO_4
(25) DMIC_DAT
(25) DMIC_CLK
+CAM_VCC
R423 0_4 — DMIC_CLK_L
USBP3-
USBP3+
+VIN_BLIGHT
DISPON
VADJ_PWM
TXLCLKOUT+
TXLCLKOUT-
TXLOUT2+
TXLOUT2-
TXLOUT1+
TXLOUT1-
TXLOUT0+
TXLOUT0-
LCD_EDIDDATA
LCD_EDIDCLK
+3V
LCDVCC
C1501U/10V/X5R_4
C1541U/10V/X5R_4

20100208
REMOVE "*"
(10) USBP3-
(10) USBP3+
L26 DLW21HN900SQ2L
USBP3-
USBP3+

CAMERA VCC Control

+5V, +3V, +CAM_VCC
C620 *1U/6.3V/X5R_4
R449 *0_4
R463 0_8
U24
(11) CCD_ON
R448 *0_4
VIN, VOUT, SHDN, GND, SET
*AT5231H-3.3KER
R447 *215K/F_4
C599 4.7U/6.3V/X5R_6
R446 *100K/F_4

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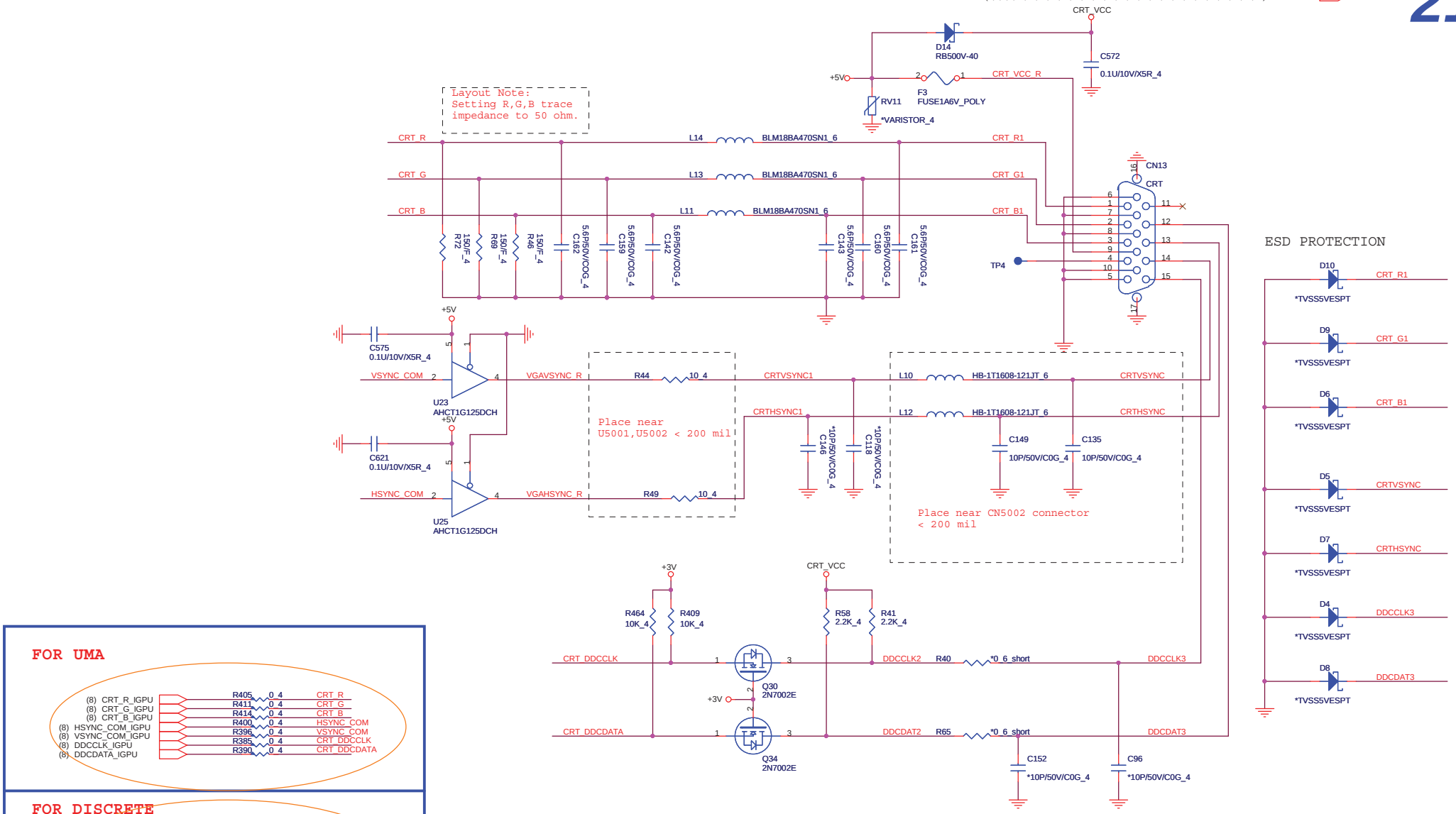
PROJECT : LL7A
Quanta Computer Inc.
Size: Custom | Document Number: LCD CONN | Rev: 1A
Date: Thursday, April 08, 2010 | Sheet 20 of 42

(12,20,22,25,29,30,31,32,33,35,36) +5V
(3,4,8,9,10,11,12,13,14,15,20,22,24,25,26,27,28,29,30,31,32,33,35,36,40,41) +3V



FOR UMA

(8) CRT_R_IGPU	R405	0_4	CRT_R
(8) CRT_G_IGPU	R411	0_4	CRT_G
(8) CRT_B_IGPU	R414	0_4	CRT_B
(8) HSYNC_COM_IGPU	R400	0_4	HSYNC_COM
(8) VSYNC_COM_IGPU	R396	0_4	VSYNC_COM
(8) DDCCLK_IGPU	R385	0_4	CRT_DDCCLK
(8) DDCDATA_IGPU	R390	0_4	CRT_DDCDATA

FOR DISCRETE

(17) EXT_CRT_RED	R406	*EV@0_4	CRT_R
(17) EXT_CRT_GREEN	R412	*EV@0_4	CRT_G
(17) EXT_CRT_BULE	R415	*EV@0_4	CRT_B
(17) EXT_HSYNC_COM	R397	*EV@0_4	HSYNC_COM
(17) EXT_VSYNC_COM	R394	*EV@0_4	VSYNC_COM
(18) EXT_CRT_DDCCLK	R386	*EV@0_4	CRT_DDCCLK
(18) EXT_CRT_DDCDATA	R391	*EV@0_4	CRT_DDCDATA

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PROJECT : LL7A
Quanta Computer Inc.

Size	Document Number	Rev
Custom	CRT CONN	1A
Date: Thursday, April 08, 2010	Sheet 21	of 42

For UMA HDMI function

22

Signals		PDT	CHR	PIM
PC1	Ra	NC	NC	NC
HDMI_CFG0	Rb	NC	NC	NC
HDMI_CFG1	Rc	4.7K	NC	NC
REXT	Rd	499	1.2K	4.7K
PC1	Re	NC	4.7K	4.7K
HDMI_OE#	Rf	NC	4.7K	NC
PC0	Rg	4.7K	4.7K	4.7K

Vendor:PDT P/N:AL008101000
Vendor:CHR P/N:AL007318002
Vendor:PIM P/N:ALP411LS004

Signals		PDT		
EMI0	Rh	NC	NC	NC
EMI1	Ri	NC	NC	NC
ASQ0	Rj	4.7K	NC	NC
ASQ1	Rk	499	1.2K	4.7K

Signals	PS8171	
PIN 3	LEVEL	EQ
PC0/PEQ	HIGH	7db
	MID	2db
	LOW	4db

Signals	PS8171	
PIN 4	LEVEL	EQ
PC1/PIO	HIGH	1.2db
	MID	2db
	LOW	0db

SCLZ/SDAZ Low-level input/output Voltage
CFG1:CFG0=0:0 VIL:<0.4V VOL:0.6V (Default)
CGF1:CGF0=0:1 VIL:<0.36V VOL:0.55V
CGF1:CGF0=1:0 VIL:<0.44V VOL:0.65V
CGF1:CGF0=1:1 VIL:<0.36V VOL:0.6V

PS8171

FOR UMA ONLY
FROM LEVEL SHIFTER

PLACE CLOSE HDMI CONN

FOR DISCRETE

FOR DISCRETE ONLY

DFHD19MR017

DISCRETE HDMI I2C SELECT
Close to HDMI Connector

FOR DISCRETE ONLY

0212 Update footprint.
UMA use +3V for the detect pin
Dis use +3V_VGA for the detect pin

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PROJECT : LL7A
Quanta Computer Inc.

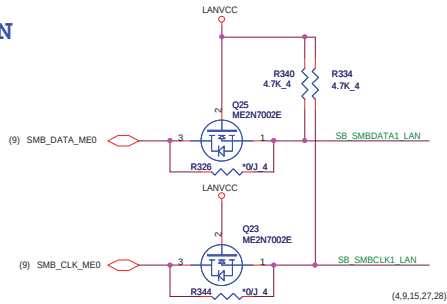
Size	Document Number	Rev
Custom	HDMI CONN	3A

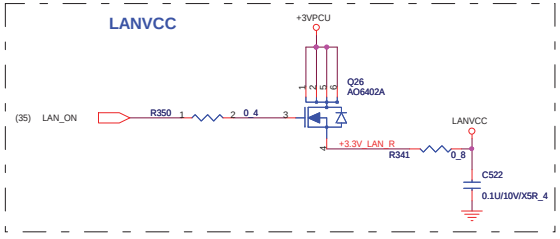
Date: Friday, April 09, 2010 Sheet 22 of 42

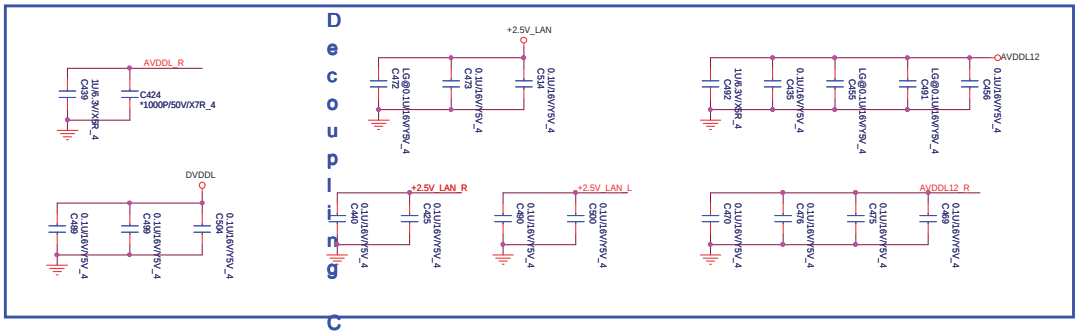
LAN

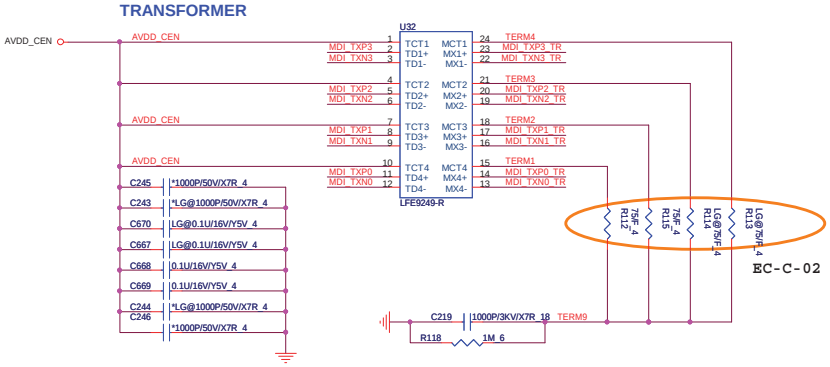
10/100: AR8152 (AL008152004)
GIGA: AR8151 (AL008151001)

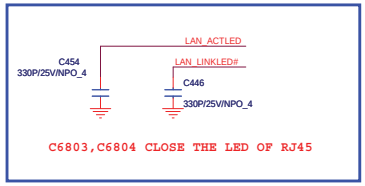
(8,20,29,30,32,33,35,36,38,39,41,42) +3VPCU
(35) LANVCC

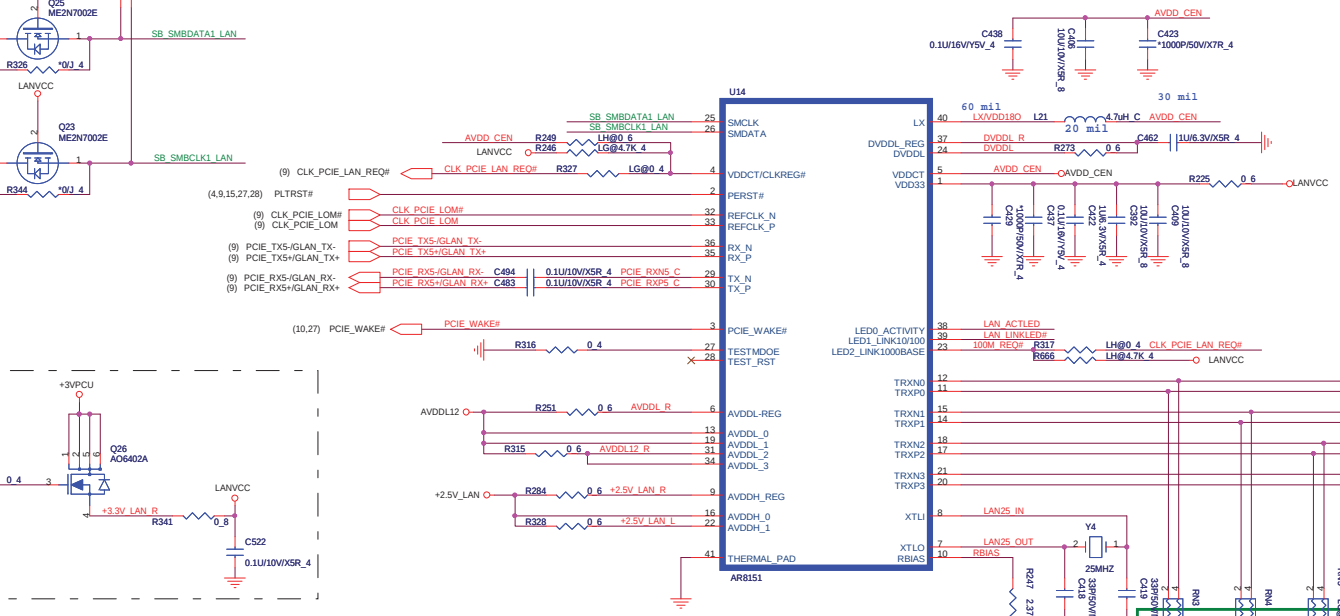


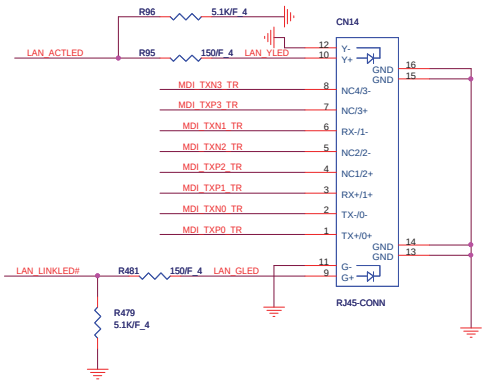












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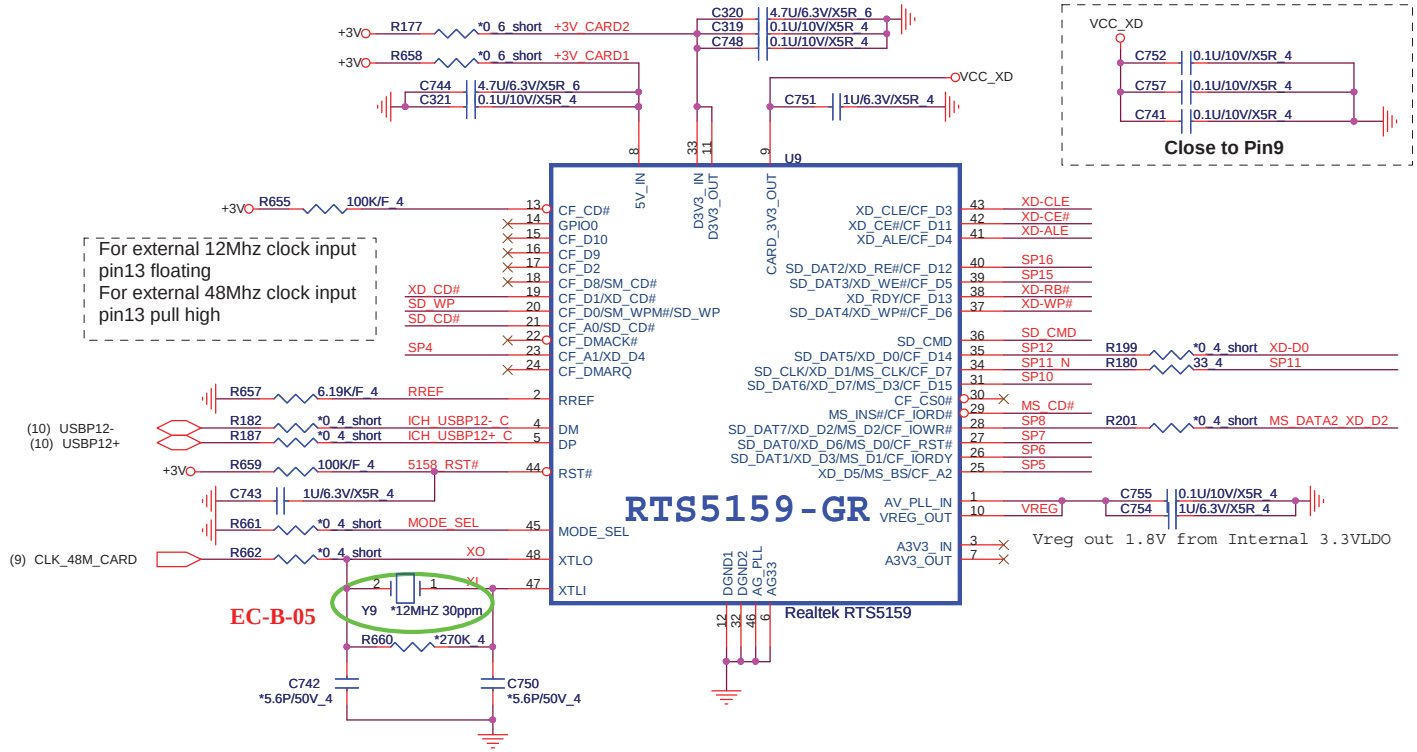
PROJECT : LL7A
Quanta Computer Inc.

Size	Document Number	Rev
C	ATHEROS (AR8151/8152)	3A

Date: Thursday, April 08, 2010 Sheet 23 of 42

(3,4,8,9,10,11,12,13,14,15,20,21,22,25,26,27,28,29,30,31,32,33,35,36,40,41) +3V



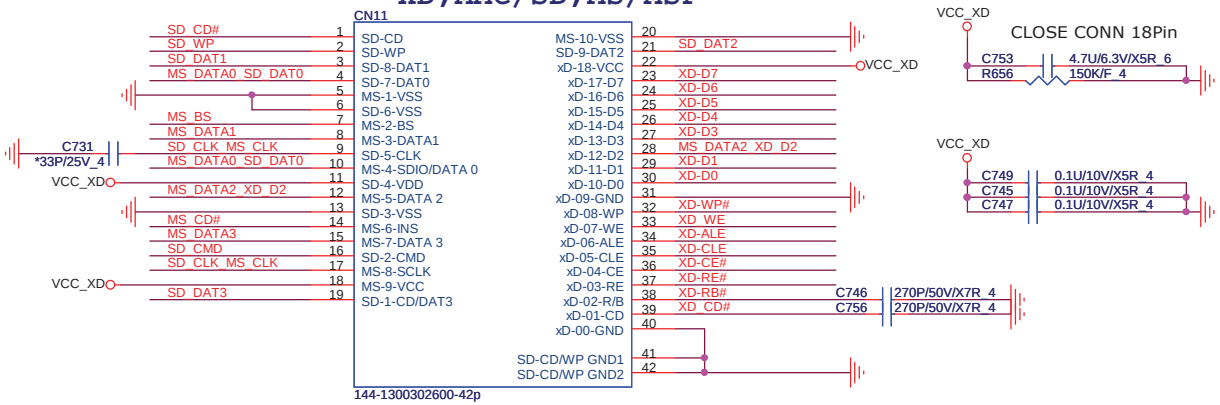
Note:

	SD/MMC	MS	XD
SP0			
SP1			XD_CD#
SP2	SD_WP		
SP3	SD_CD#		
SP4	SD_DAT1		XD_D4
SP5		MS_BS	XD_D5
SP6		MS_D1	XD_D3
SP7	SD_DAT0	MS_D0	XD_D6
SP8	SD_DAT7	MS_D2	XD_D2
SP9		MS_INS#	
SP10	SD_DAT6	MS_D3	XD_D7
SP11	SD_CLK	MS_SCLK	XD_D1
SP12	SD_DAT5		XD_D0
SP13	SD_DAT4		XD_WP#
SP14			XD_R/B#
SP15	SD_DAT3		XD_WE#
SP16	SD_DAT2		XD_RE#
SP17			XD_ALE
SP18			XD_CE#
SP19			XD_CLE

For RTS5159

SP7	R166	*0_4_short	MS_DATA0_SD_DAT0
	R168	*0_4_short	XD-D6
SP6	R170	*0_4_short	MS_DATA1
	R179	*0_4_short	XD-D3
SP16	R203	*0_4_short	SD_DAT2
	R164	*0_4_short	XD-RE#
SP5	R652	*0_4_short	MS_BS
	R654	*0_4_short	XD-D5
SP15	R167	*0_4_short	SD_DAT3
	R169	*0_4_short	XD_WE
SP11	R172	*0_4_short	SD_CLK_MS_CLK
	R181	*0_4_short	XD-D1
SP10	R188	*0_4_short	MS_DATA3
	R190	*0_4_short	XD-D7
SP4	R663	*0_4_short	XD-D4
	R664	*0_4_short	SD_DAT1

5 IN1 CARD READER
XD,MMC/SD,MS/MSP



Project	LL7A
Quanta Computer Inc.	
Size: B	Document Number: CARD READER (Realtek RTS5159)
Rev: 3A	
Date: Thursday, April 08, 2010	Sheet 24 of 42

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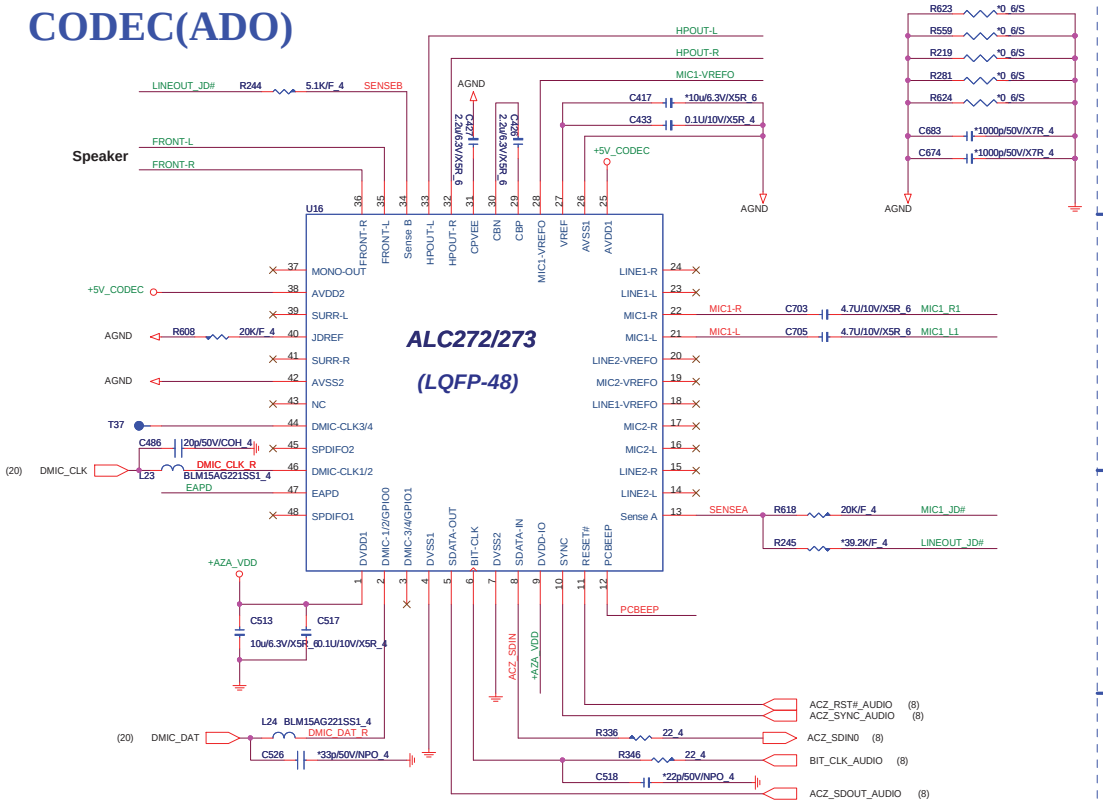
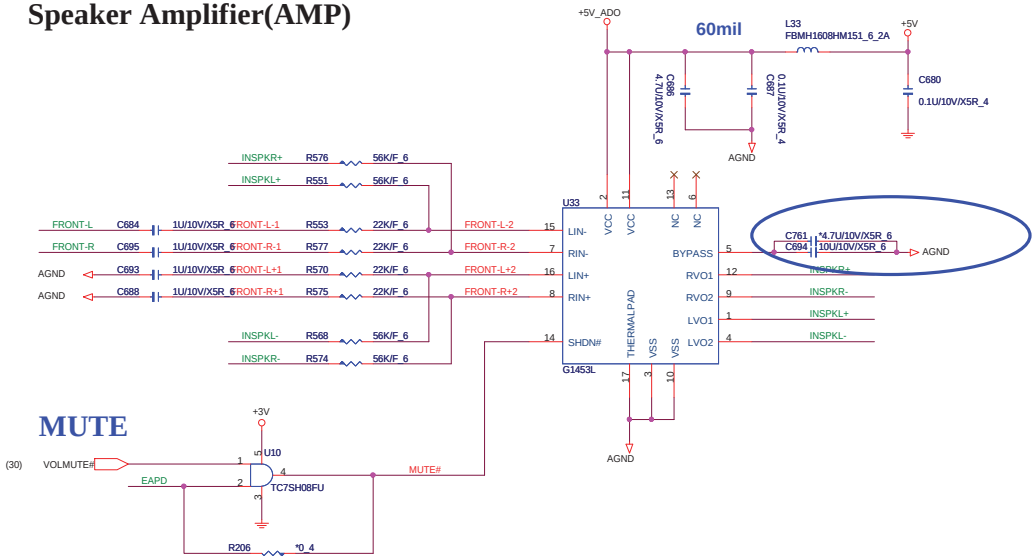
CODEC(ADO)

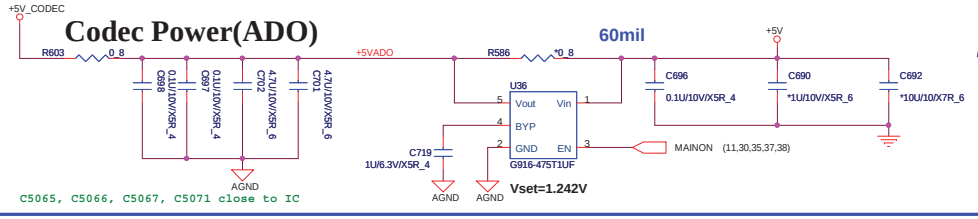


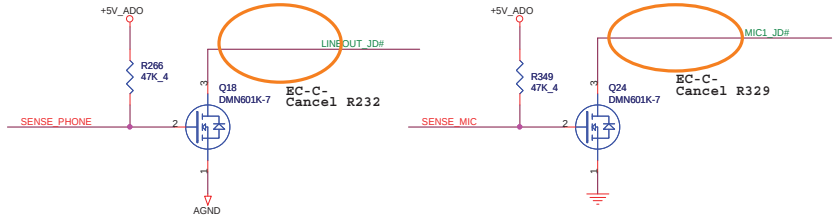
Speaker Amplifier(AMP)



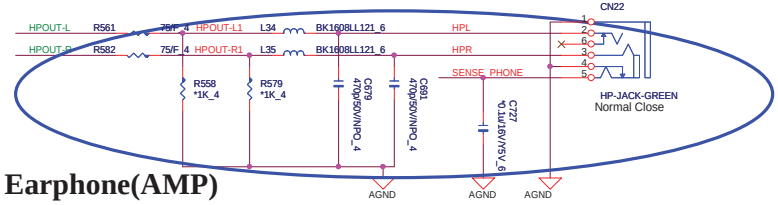
MUTE

Codec Power(ADO)

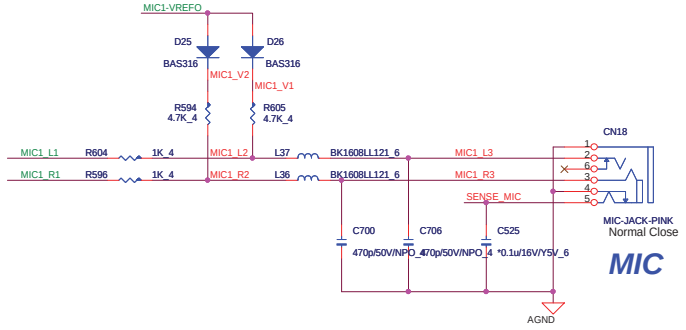




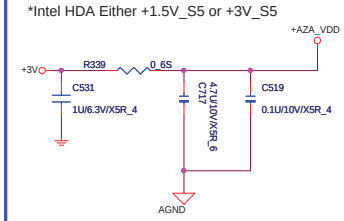
Earphone(AMP)



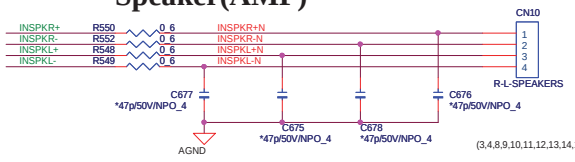
System MIC(AMP)



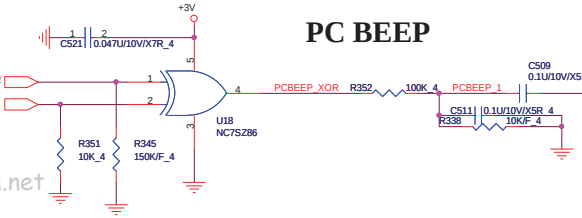
HDA Power(ADO)



Speaker(AMP)



PC BEEP



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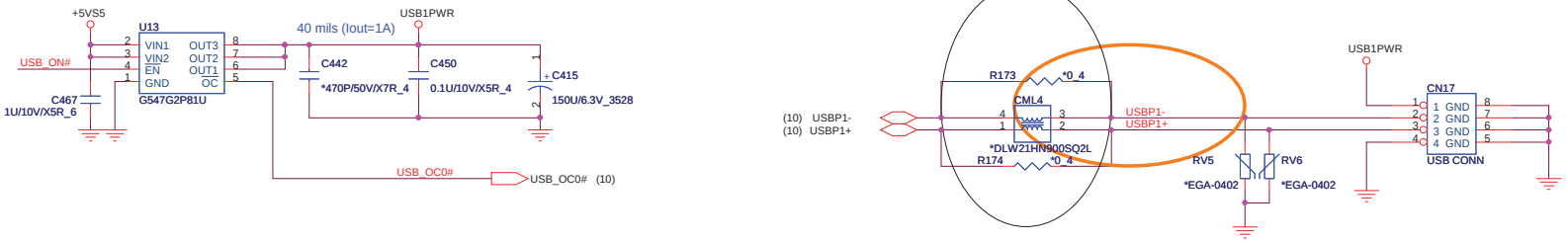
PROJECT : LL7A
Quanta Computer Inc.

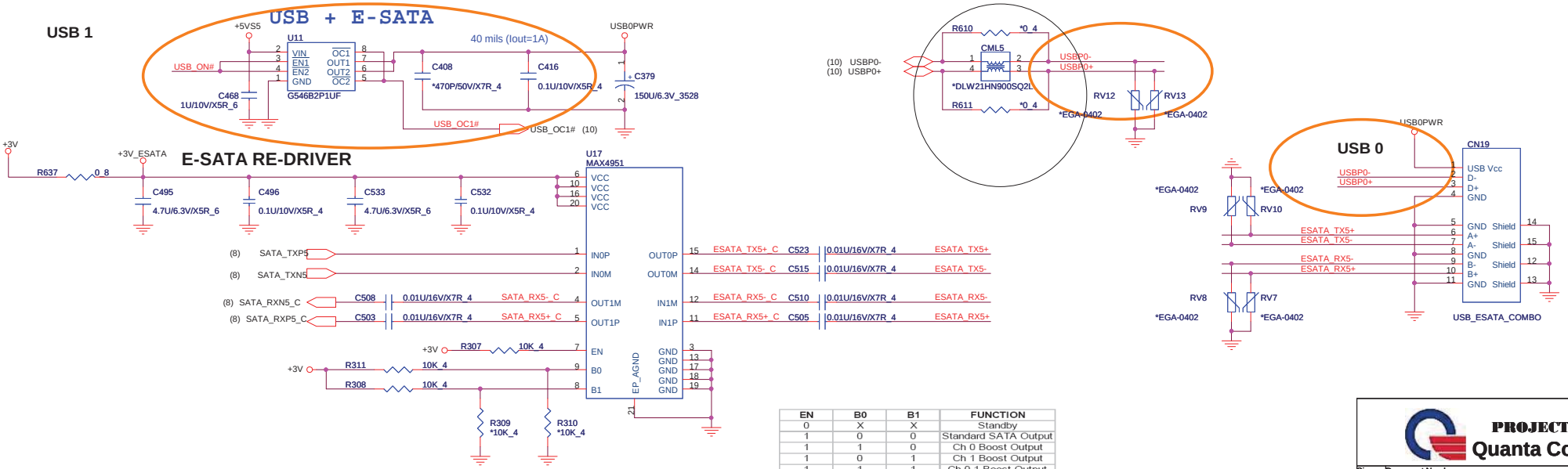
Size	Document Number	Rev
Custom	AL272/AMP/MIC/HP/SPK	3A
Date: Friday, April 09, 2010	Sheet 25	of 42

USB 3

USB 2



USB 1



EN	B0	B1	FUNCTION
0	X	X	Standby
1	0	0	Standard SATA Output
1	1	0	Ch 0 Boost Output
1	0	1	Ch 1 Boost Output
1	1	1	Ch 0,1 Boost Output

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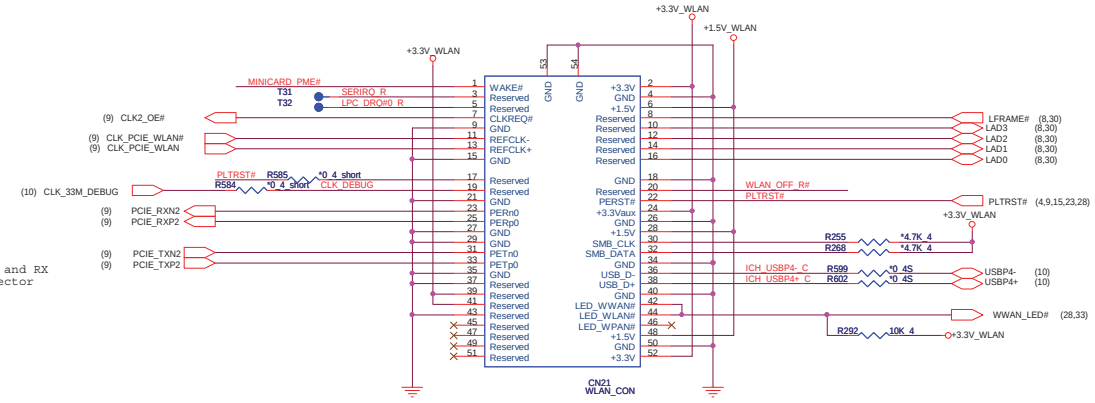
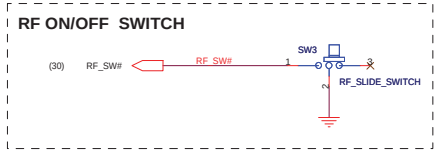
PROJECT : LL7A
Quanta Computer Inc.

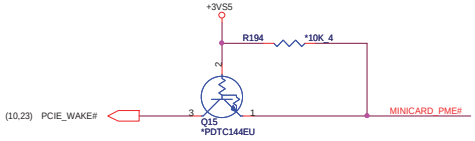
Size	Document Number	Rev
Custom	USBX2/USB+ESATA	3A
Date: Thursday, April 08, 2010	Sheet 26	of 42

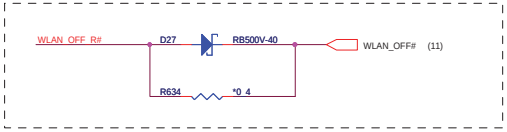
MiniCard WLAN/WiMAX connector

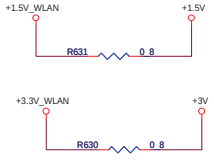
(3,4,8,9,10,11,12,13,14,15,20,21,22,24,25,26,28,29,30,31,32,33,35,36,40,41) +3V
(3,28,37) +1.5V
(4,8,9,10,11,12,15,35) +3VS5

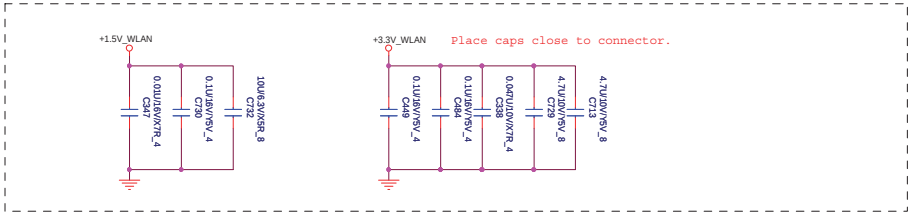












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PROJECT : LL7A
Quanta Computer Inc.

Size	Document Number	Rev
C	MINI-CARD (WLAN)	1A

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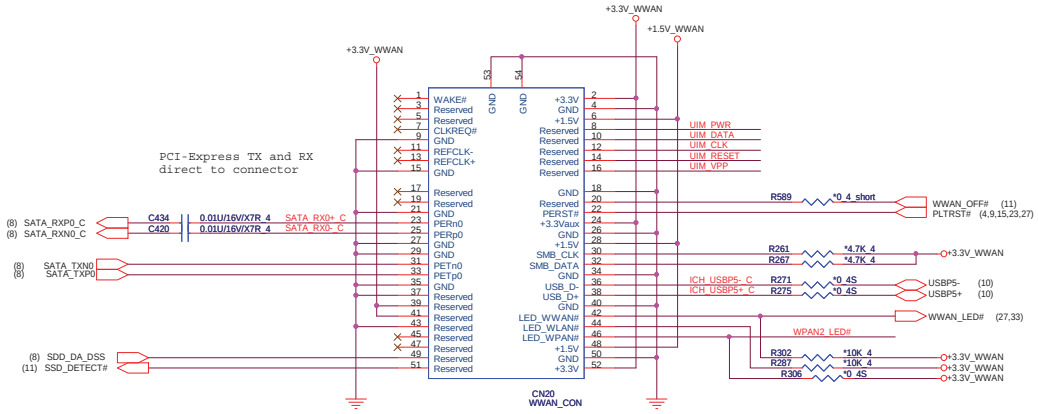
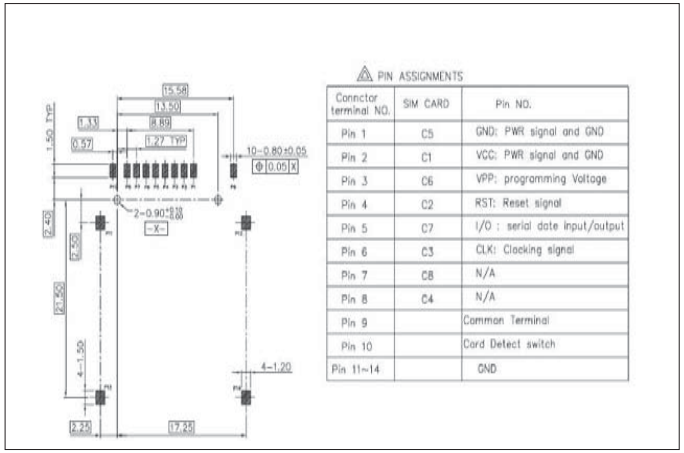
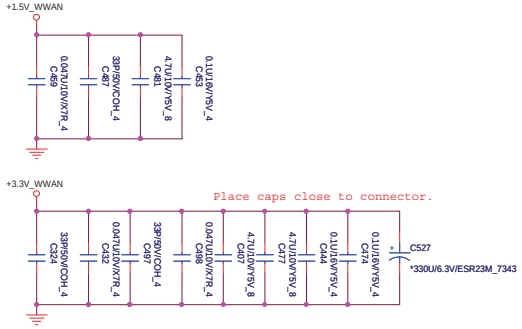
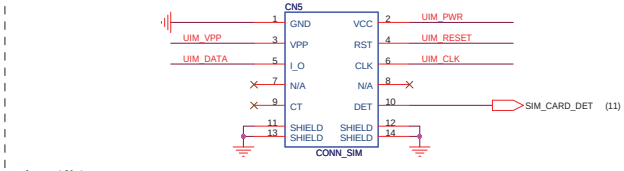
MiniCard WWAN connector



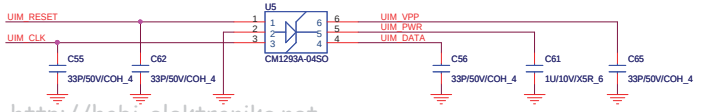




SIM Card CONN



Layout Note:
UIM_RESET,UIM_CLK,UIM_DATA routting as short as possible



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PROJECT : LL7A
Quanta Computer Inc.

Size	Document Number	Rev
C	MINI-CARD (WWAN/SSD)	1A

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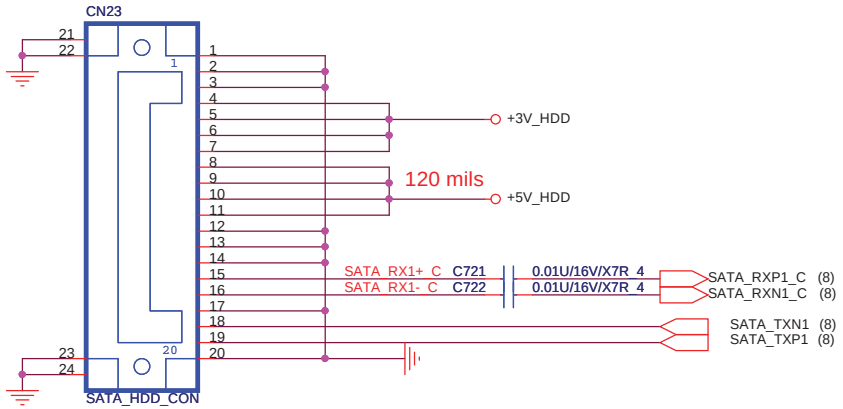
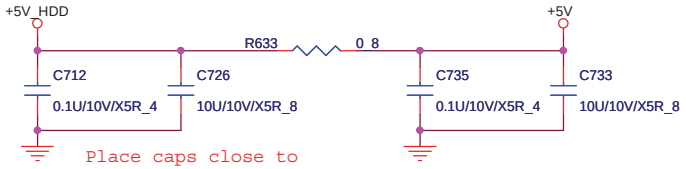
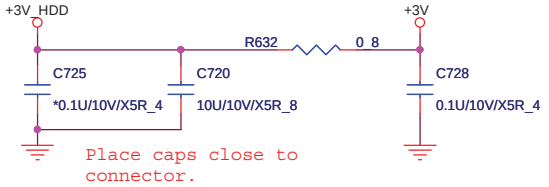
SATA-HDD CONNECTOR

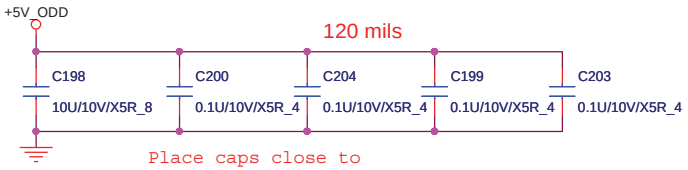


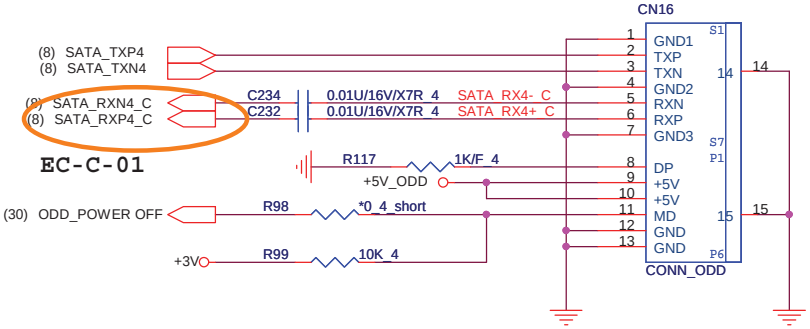
(3,4,8,9,10,11,12,13,14,15,20,21,22,24,25,26,27,28,30,31,32,33,35,36,40,41) +3V
(12,20,21,22,25,30,31,32,33,35,36) +5V
(20,35,37,39,41) +15V
(35,36,37,38,39,41,42) 5VPCU
(8,20,23,30,32,33,35,36,38,39,41,42) +3VPCU



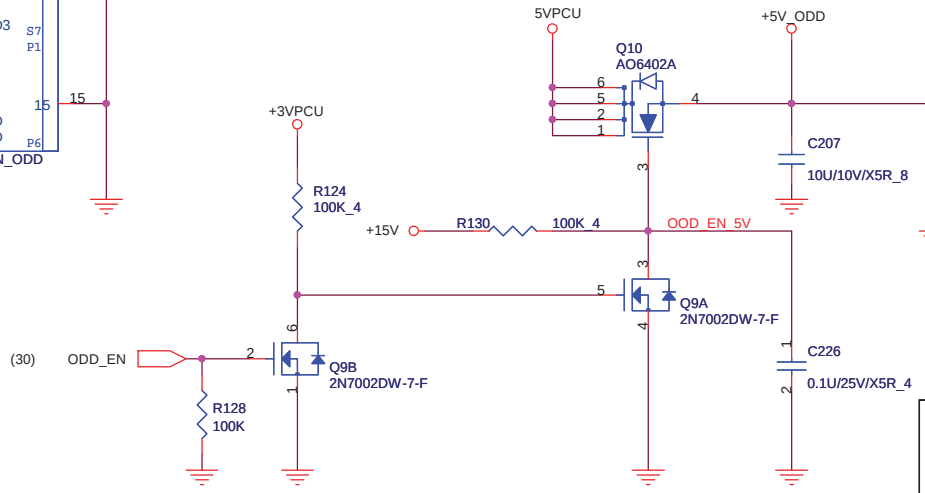


SATA CD-ROM





20100208 Del R110, +5V



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PROJECT : LL7A
Quanta Computer Inc.

Size	Document Number	Rev
Custom	HDD/ODD	3A
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(3,4,8,9,10,11,12,13,14,15,20,21,22,24,25,26,27,28,29,31,32,33,35,36,40,41) +3V
(8,20,23,29,32,33,35,36,38,39,41,42) +3VPCU
(8,12) +RTC_CELL
(12,20,21,22,25,29,31,32,33,35,36) +5V

IT8502E

Note 1 : Since all GPIO belong to VSTBY power domain, and there are some special considerations below:
(1) If it is output to external VCC derived power domain circuit, this signal should be isolated by a diode such as KBRST# and GA20.
(2) If it is input from external VCC derived power domain circuit, this external circuit must consider not to float the GPIO input.

Note 2 :
(1) Each input pin should be driven or pulled.
(2) Each output-drain output pin should be pulled.

(For PLL Power)

Layout Note:
Place all capacitors close to IT8512.

Layout Note:
net "3VPCU" and "RTC_VCC"
minimum trace width 12mils.

EMI suggestion:
Add a 15p bypass CAP on CLK_PCI_8512

DIS =>R164
UMA=>R163

R298	FLASH TYPE SELECT
High	LPC/FWH FLASH ROM
Low	SPI FLASH ROM (Default)

RF ON/OFF SWITCH

POWER SWITCH/ NOVO BUTTON

1Mbit (512K Byte), SPI

Winbond	AKE38ZP0N00
SST	AKE28FP0K07
MX	AKE37FP0Z13

W25X16AVSSIG

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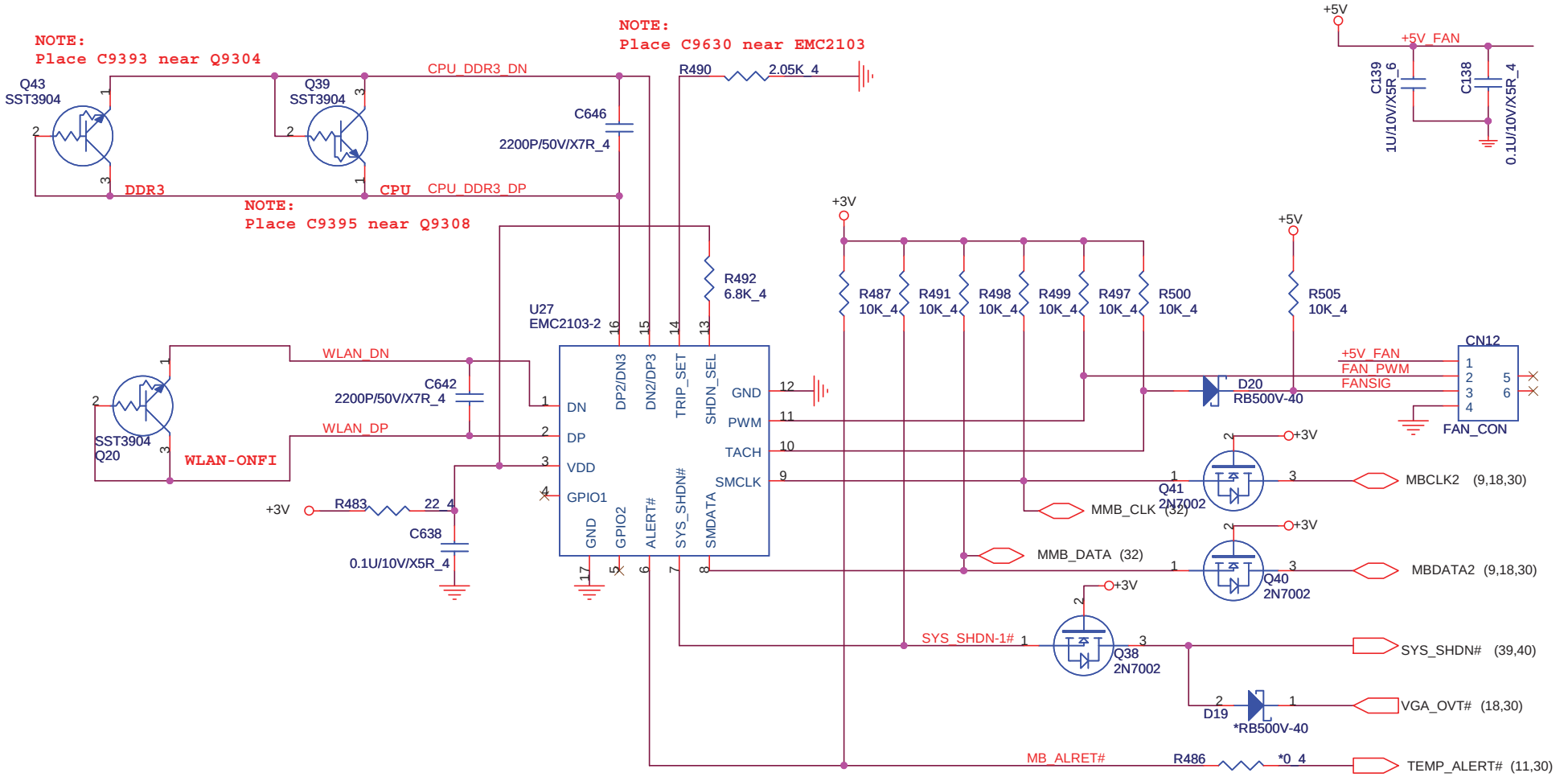
PROJECT : LL7A
Quanta Computer Inc.

Size	Document Number	Rev
Custom	KBC IT8502E	1A
Date: Thursday, April 08, 2010	Sheet 30	of 42

FAN CONTROL

(3,4,8,9,10,11,12,13,14,15,20,21,22,24,25,26,27,28,29,30,32,33,35,36,40,41) +3V
(12,20,21,22,25,29,30,32,33,35,36) +5V



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PROJECT : LL7A
Quanta Computer Inc.

Size	Document Number	Rev
Custom	FAN / THERMAL	1A
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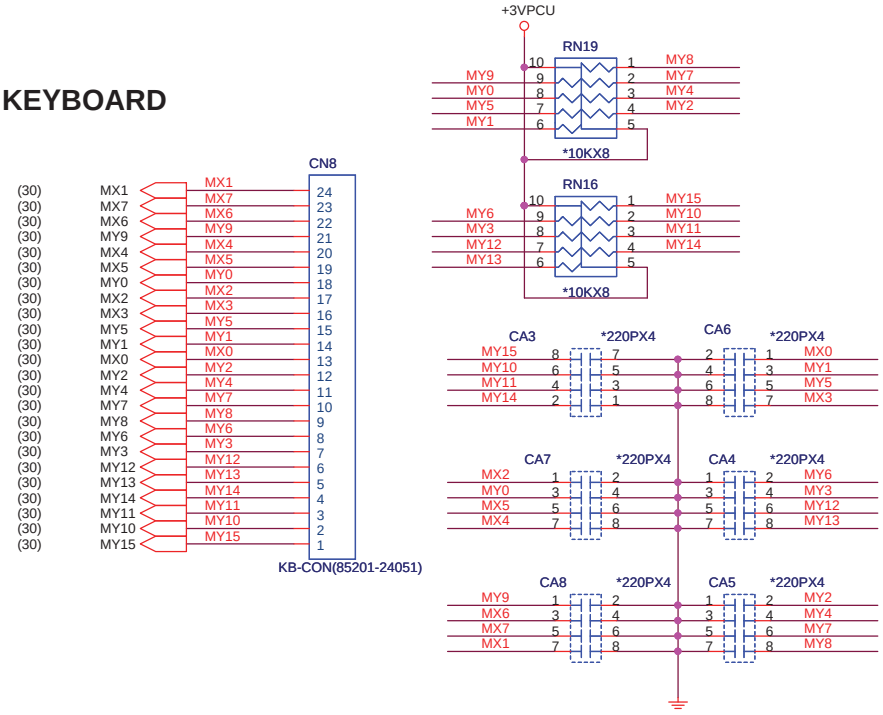
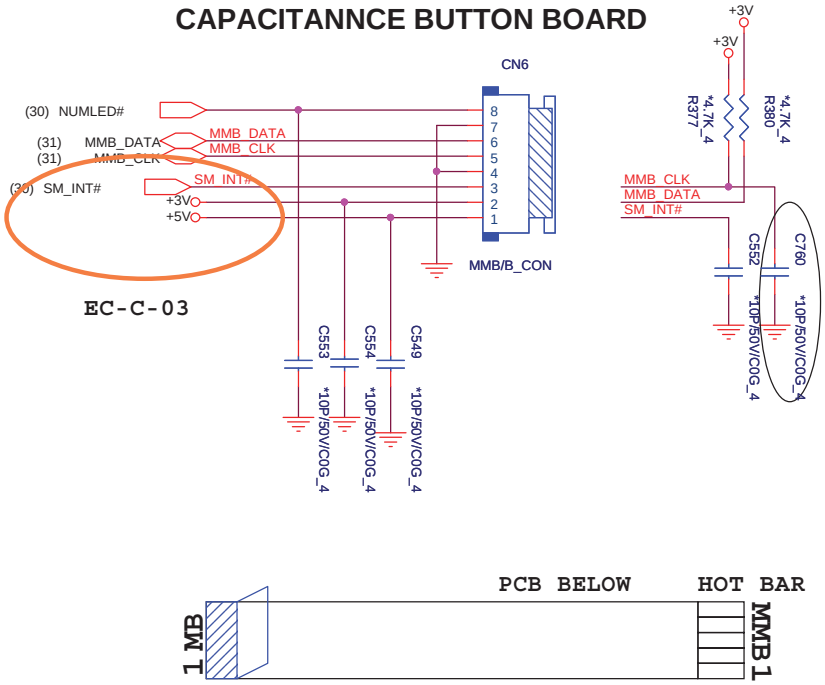
KEYBOARD



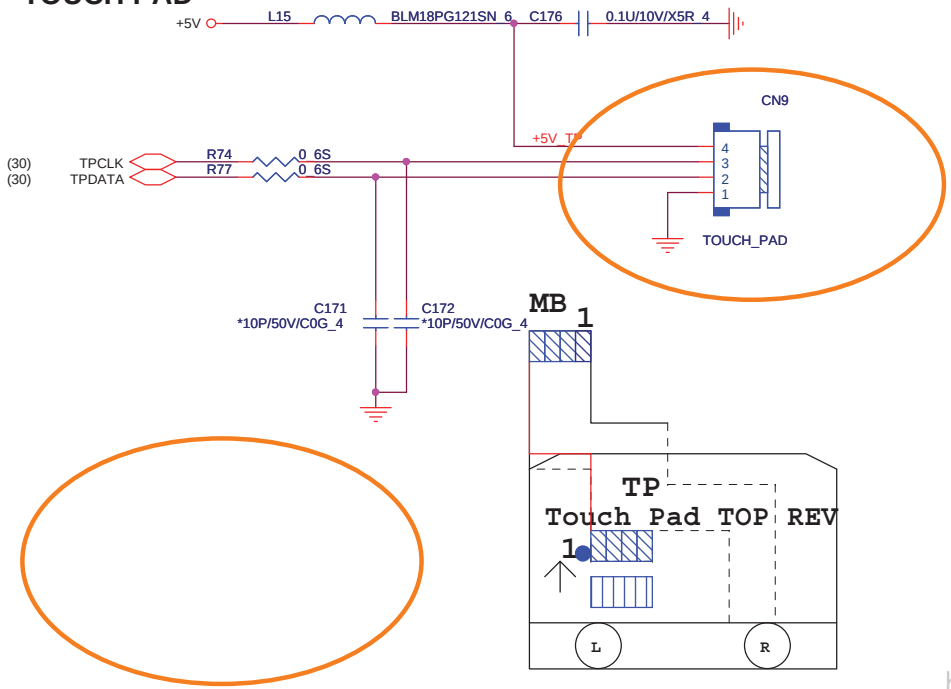
For EMI request

CAPACITANNCE BUTTON BOARD

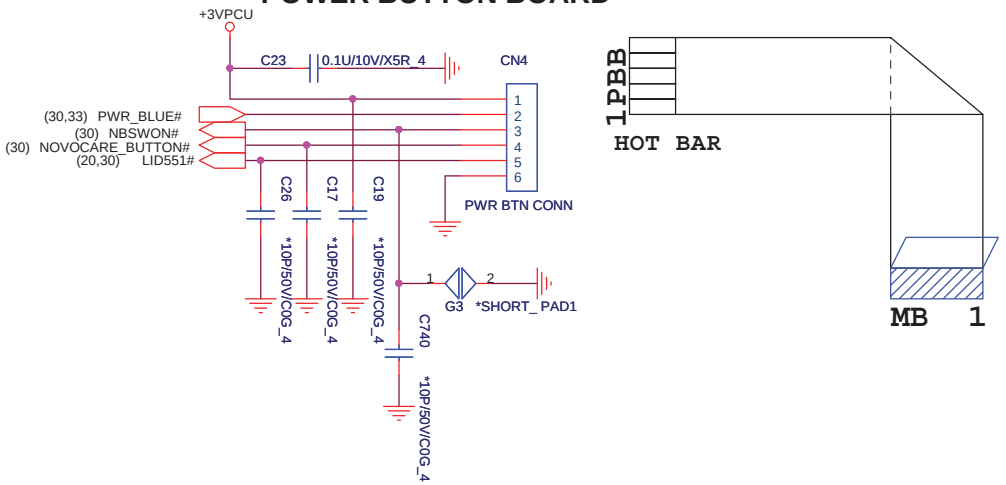
(8,20,23,29,30,33,35,36,38,39,41,42) +3VPCU
(12,20,21,22,25,29,30,31,33,35,36) +5V
(3,4,8,9,10,11,12,13,14,15,20,21,22,24,25,26,27,28,29,30,31,33,35,36,40,41) +3V



TOUCH PAD



POWER BUTTON BOARD



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PROJECT : LL7A
Quanta Computer Inc.

Size	Document Number	Rev
Custom	KB/TP/PW-B/CTS	3A
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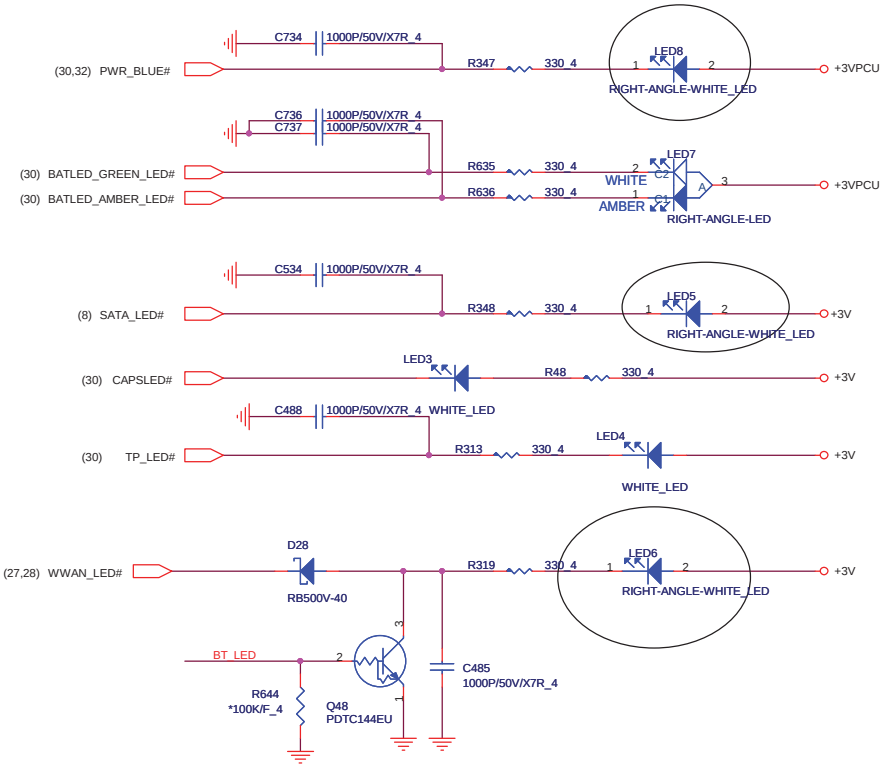
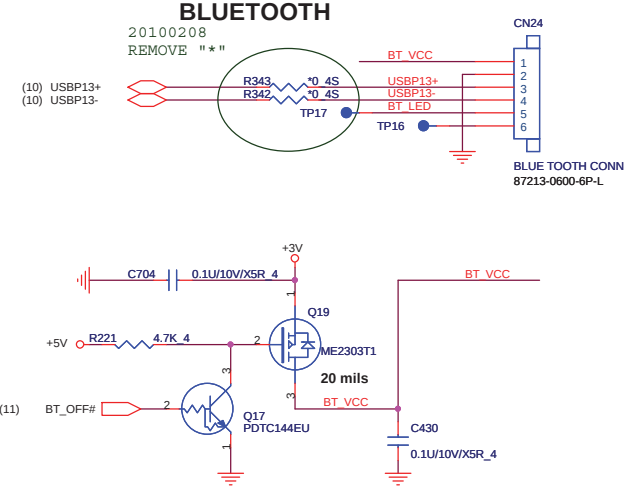
(3,4,8,9,10,11,12,13,14,15,20,21,22,24,25,26,27,28,29,30,31,32,35,36,40,41) +3V
(12,20,21,22,25,29,30,31,32,35,36) +5V
(8,20,23,29,30,32,35,36,38,39,41,42) +3VPCU

LED



BLUETOOTH



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Quanta Computer Inc.

Size	Document Number	Rev
Custom	LED/BT	1A

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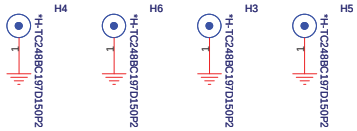
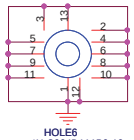
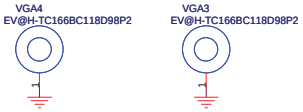
CPU BKT



CRT HOLE

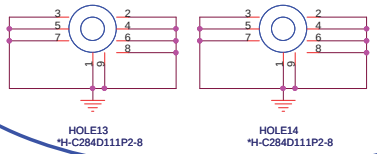


GPU NUT

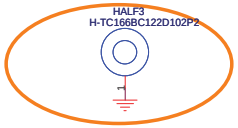


ODD HOLE

KEYBOARD HOLE



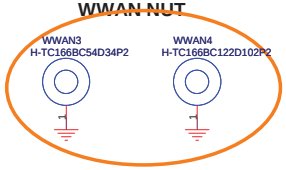
WLAN nut



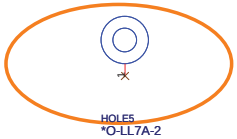
BATTERY HOLE

WLAN CABLE HOLE

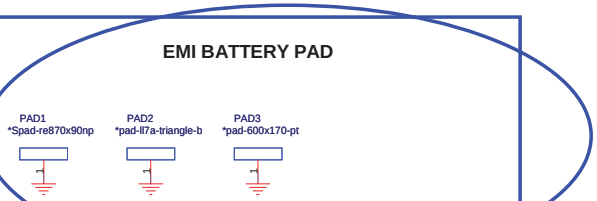
WWAN NUT



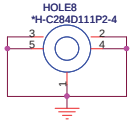
WLAN CABLE HOLE



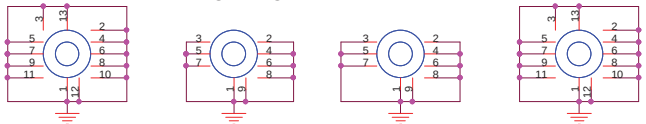
EMI BATTERY PAD



DDR 3 HOLE



FRONT HOLE



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PROJECT : LL7A

Quanta Computer Inc.

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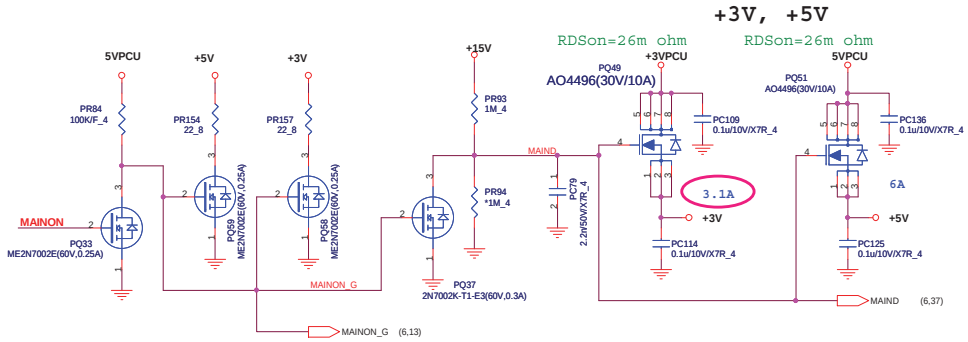
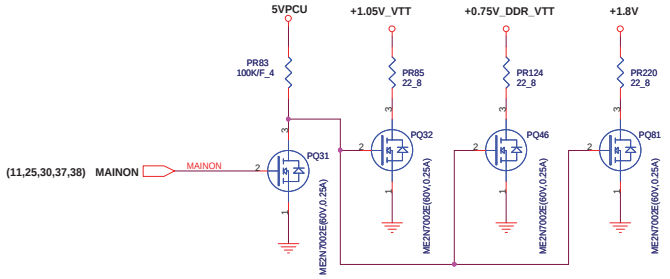
Custom	SCREW/HOLE	3A
Date: Sunday, April 04, 2010	Sheet 34	of 42

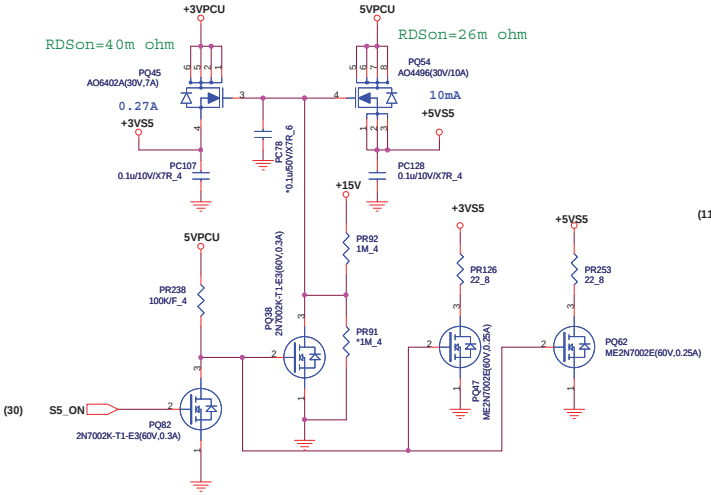
DISCHARGE

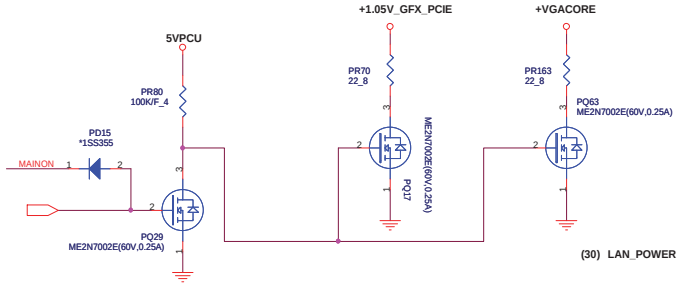
+3V, +5V



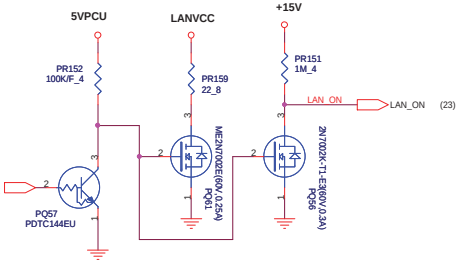


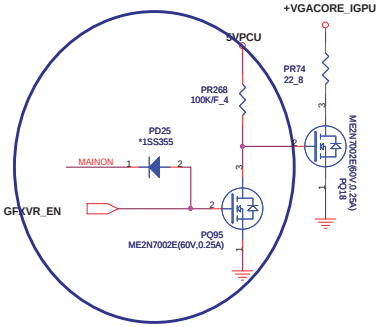
3V_S5, 5V_S5



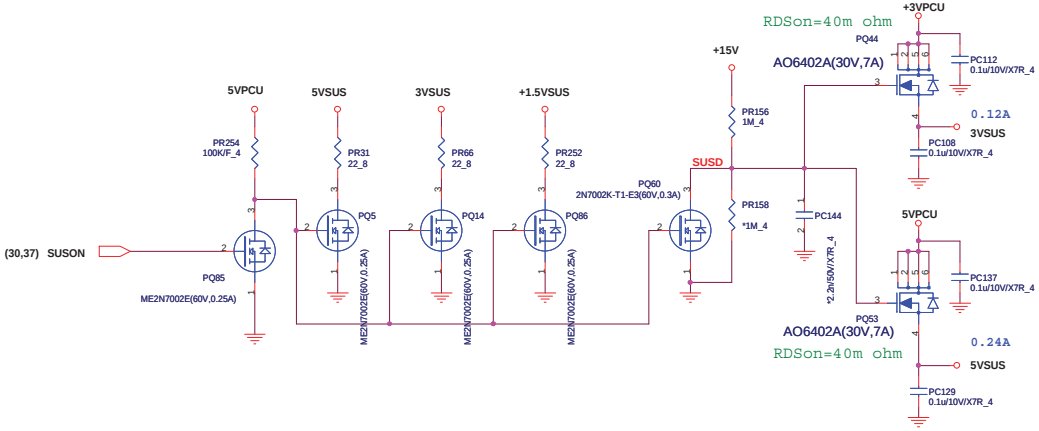


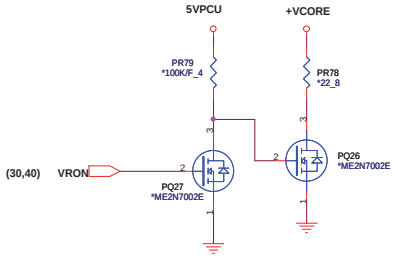
LANVCC





3VSUS, 5VSUS





(20,29,37,39,41)	+15V
(3,4,8,9,10,11,12,13,14,15,20,21,22,24,25,26,27,28,29,30,31,32,33,36,40,41)	+3V
(12,20,21,22,25,29,30,31,32,33,36)	+5V
(6,12,38,41)	+1.8V
(3,4,6,8,9,10,11,12,38,40,42)	+1.05V_VTT
(13,14,37)	+0.75V_DDR_VTT
(29,36,37,38,39,41,42)	5VPCU
(8,20,23,29,30,32,33,36,38,39,41,42)	+3VPCU
(23)	LANVCC
(15,41)	+VGACORE
(15,16,17,41)	+1.05V_GFX_PCIE
(6,42)	+VGACORE_IGPU
(4,8,9,10,11,12,15,27)	+3VS5
(12,26)	+5VS5
(20,40,41)	5VSUS
(30,41)	3VSUS
(4,6,13,14,37,41)	+1.5VSUS
(6,40)	+vCORE

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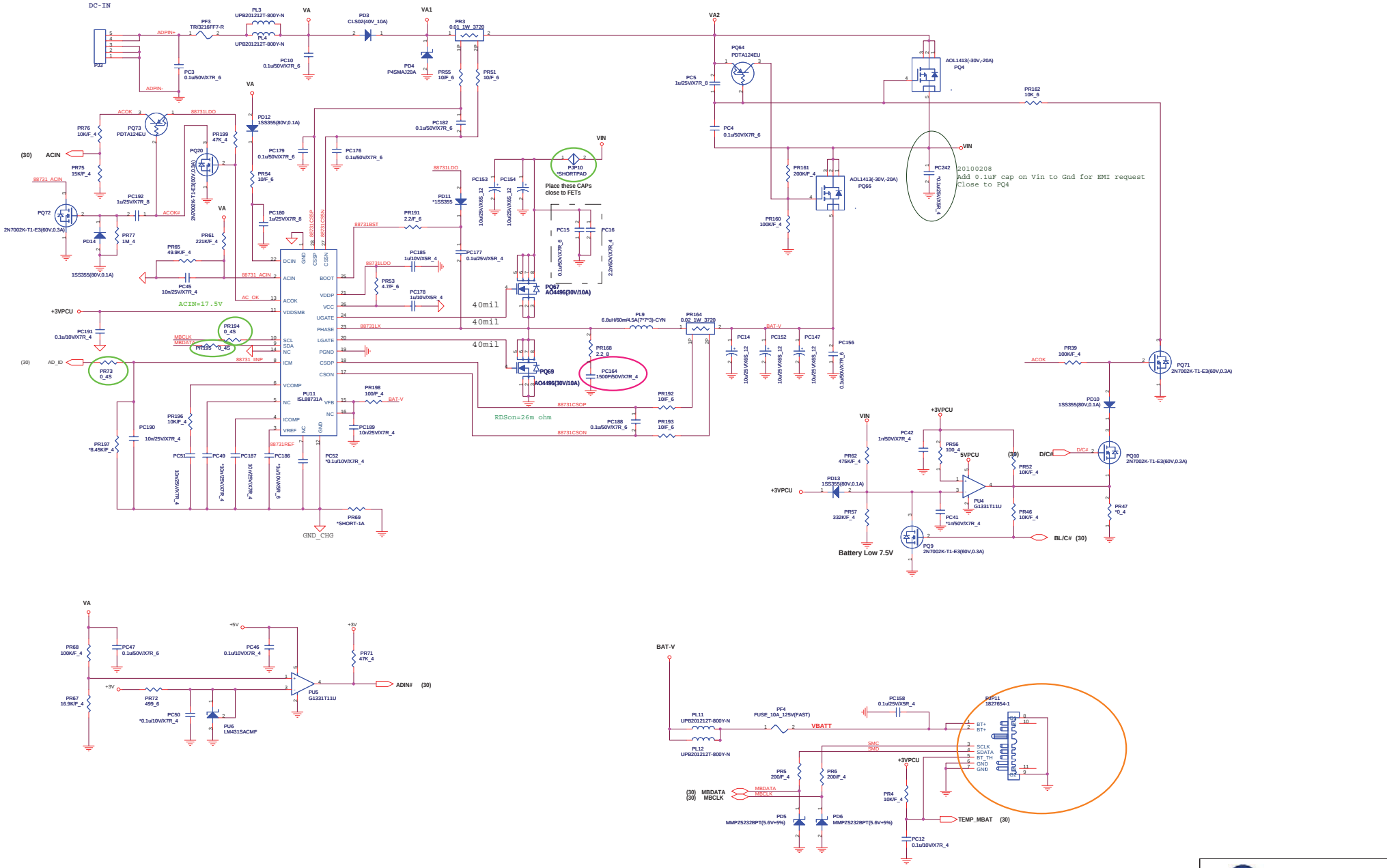
PROJECT : LL7A
Quanta Computer Inc.

Size	Document Number	Rev
C	DISCHARGE	1A
Date: Thursday, April 08, 2010	Sheet 35 of 42	

(3,20,37,38,39,40,41,42) VIN
(8,20,23,29,30,32,33,35,38,39,41,42) +3VPCU
(3,4,8,9,10,11,12,13,14,15,20,21,22,24,25,26,27,28,29,30,31,32,33,35,40,41) +3V
(12,20,21,22,25,29,30,31,32,33,35) +5V



PROJECT :	LL7A
Quanta Computer Inc.	
Size: Custom	Document Number: CHARGE (ISL88731A)
Rev	3A
Date: Thursday, April 08, 2010	Sheet 36 of 42

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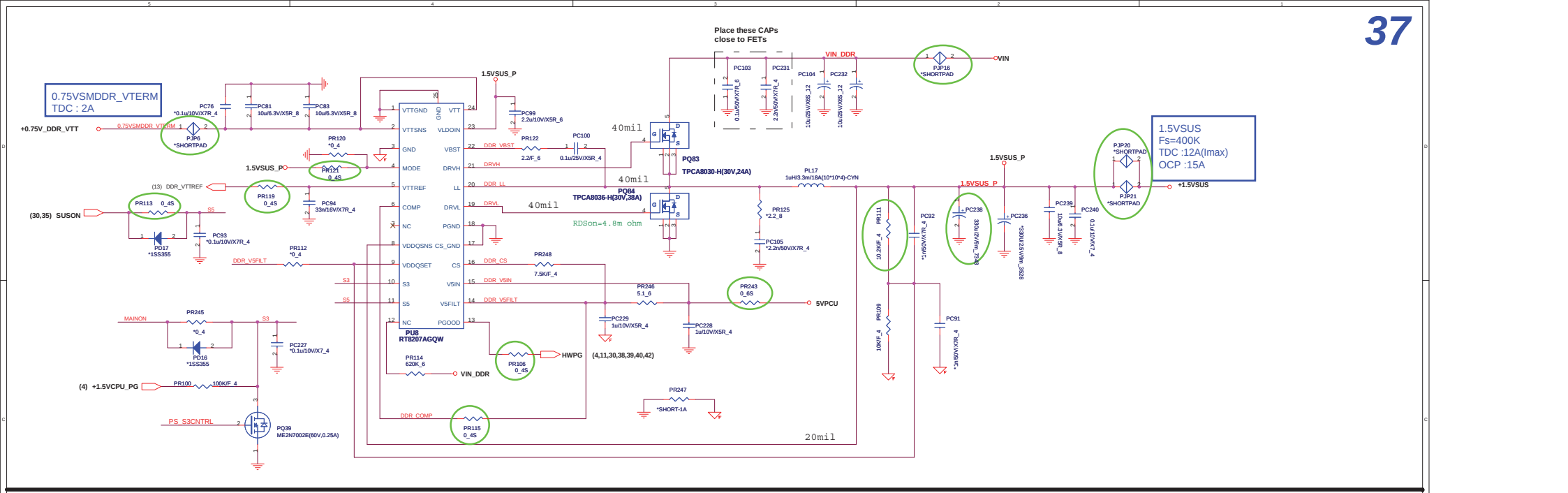

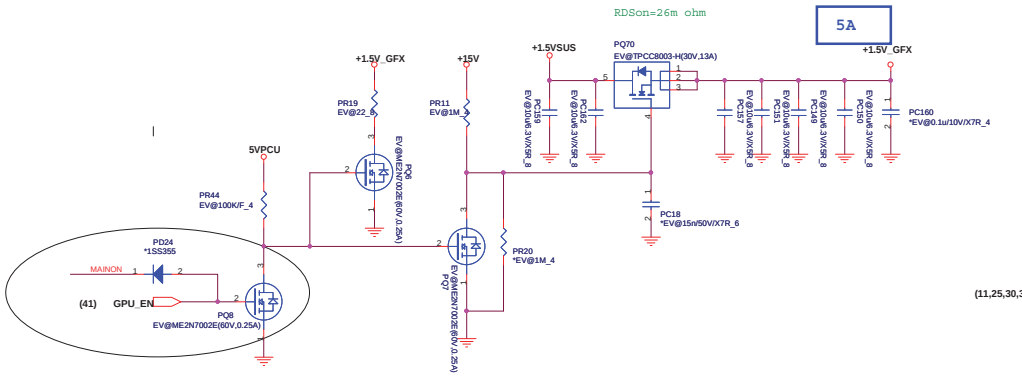

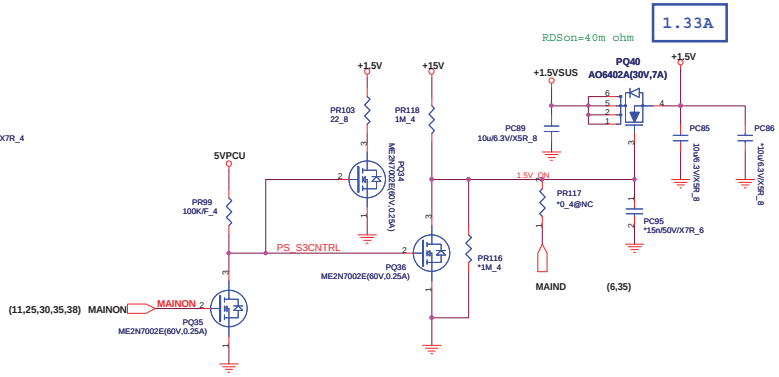

(3,20,36,38,39,40,41,42) VIN
(4,6,13,14,35,41) +1.5VSUS
(29,35,36,38,39,41,42) 5VPCU
(13,14,35) +0.75V_DDR_VTT
(3,27,28) +1.5V
(20,29,35,39,41) +15V
(15,16,19) +1.5V_GFX

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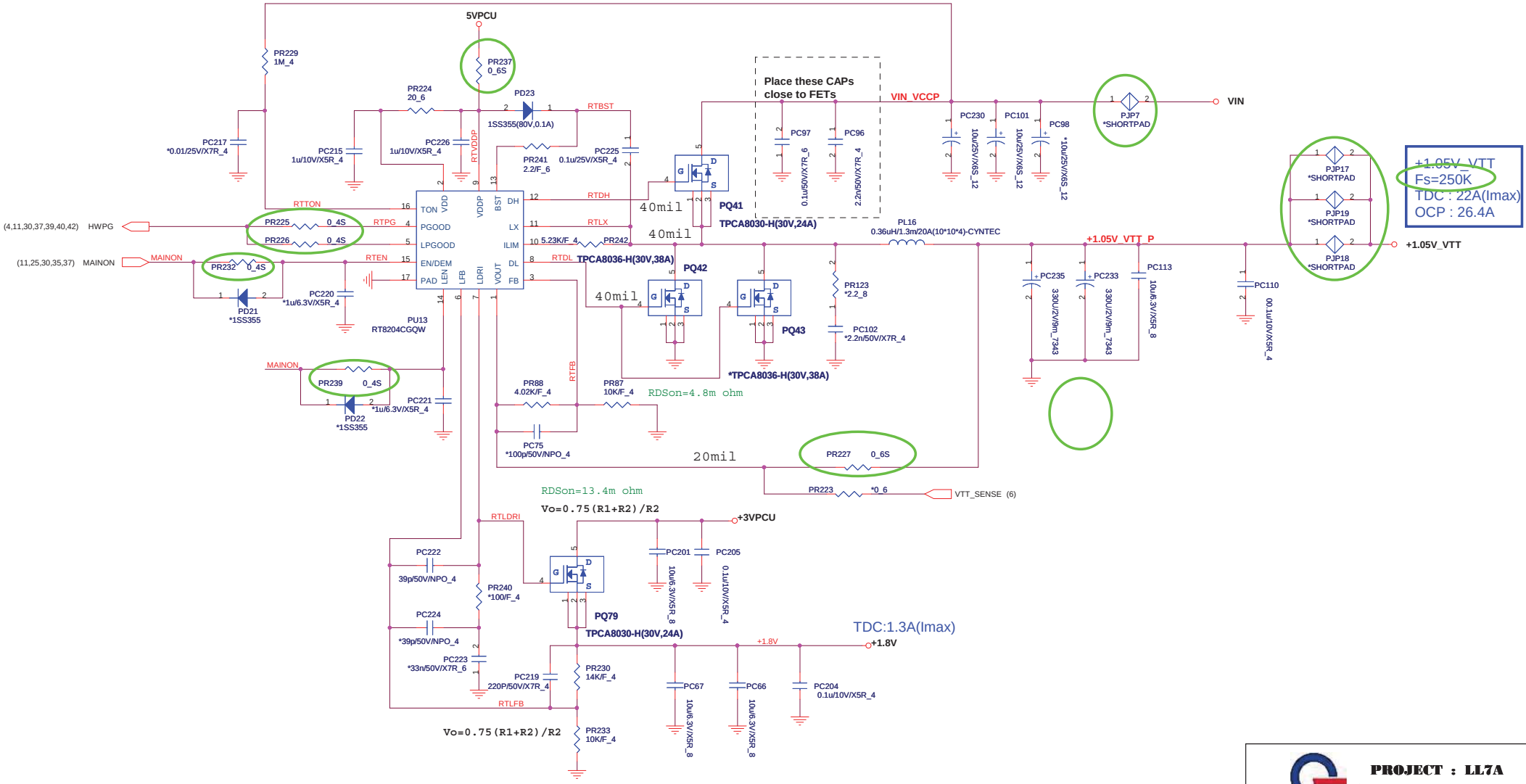
Quanta Computer Inc.		
Size: Custom	Document Number: DDR3/0.75V(RT8207AGQW)	Rev: 1A
Date: Thursday, April 08, 2010	Sheet 37 of 42	

(3,20,36,37,39,40,41,42) VIN
(3,4,6,8,9,10,11,12,35,40,42) +1.05V_VTT
(6,12,35,41) +1.8V
(8,20,23,29,30,32,33,35,36,39,41,42) +3VPCU
(29,35,36,37,39,41,42) 5VPCU



PROJECT : LL7A
Quanta Computer Inc.

Size	Document Number	Rev
Custom	1.05V_VTT (RT8204C)	1A
Date: Thursday, April 08, 2010	Sheet 38	of 42

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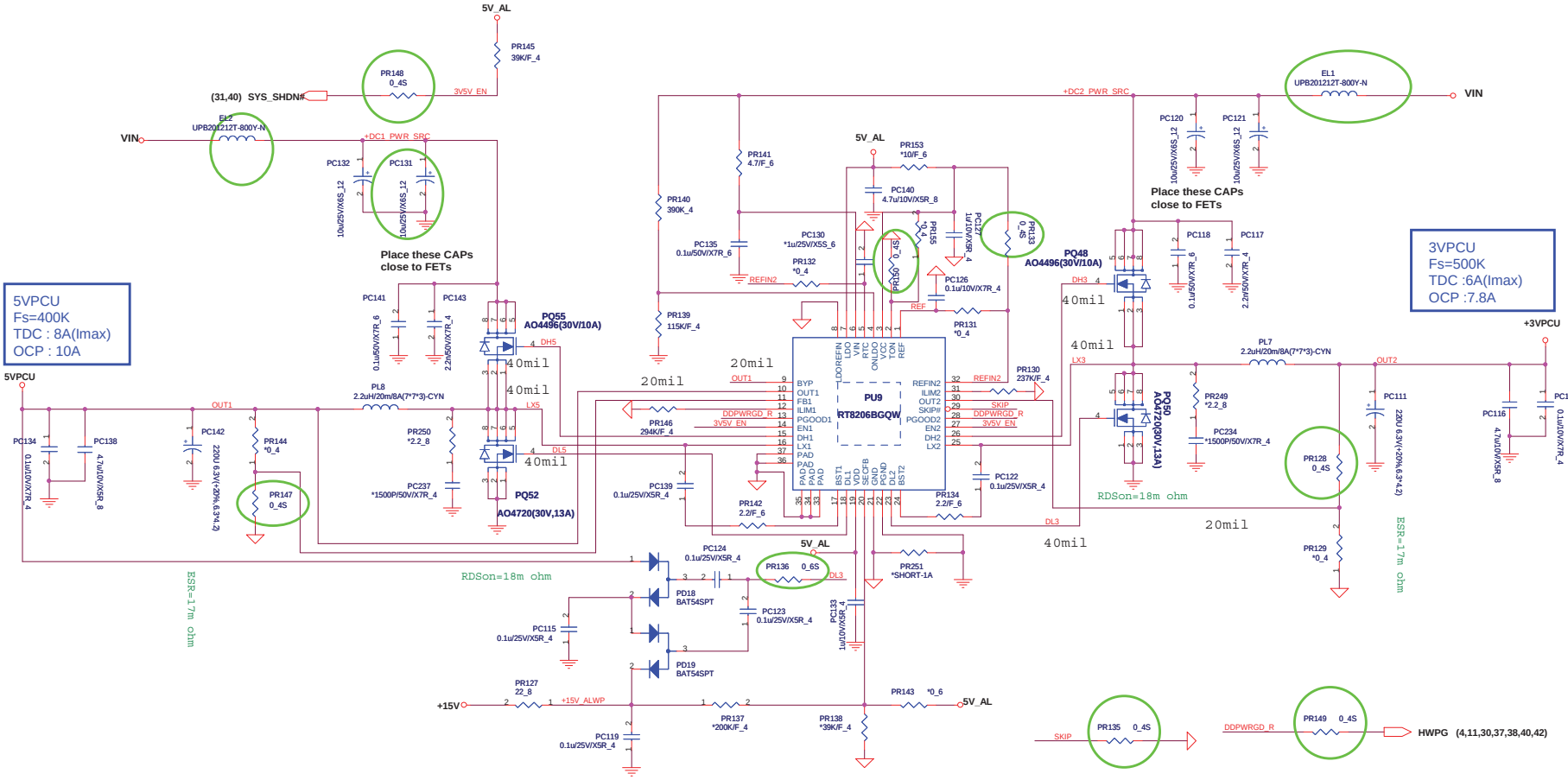
(3,20,36,37,38,40,41,42) VIN
(8,20,23,29,30,32,33,35,36,38,41,42) +3VPCU
(29,35,36,37,38,41,42) 5VPCU
(6,12,35,38,41) +1.8V
(3,4,6,8,9,10,11,12,35,38,40,42) +1.05V_VTT



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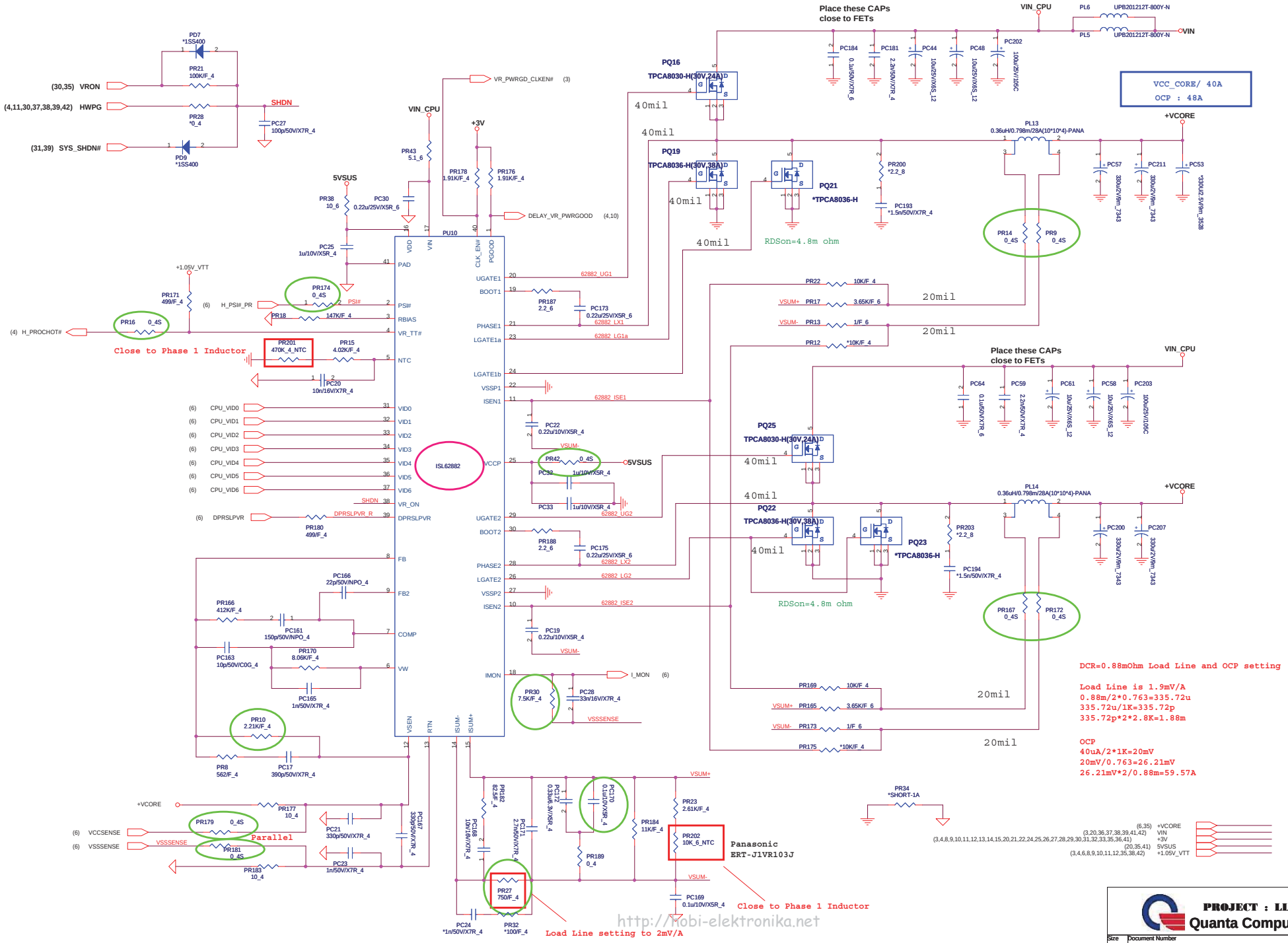
PROJECT : LL7A
Quanta Computer Inc.

Size	Document Number	Rev
C	3V/5V (RT8206BGQW)	1A
Date: Thursday, April 08, 2010	Sheet 39 of 42	


Place these CAPs close to FETs
VIN_CPU
PL6 UPB201212T-800Y-N
PL5 UPB201212T-800Y-N
VIN
VCC_CORE/ 40A
OCP : 48A
+VCORE
PQ16 TPCA8030-H(30V,24A)
PQ19 TPCA8036-H(30V,38A)
PQ21 *TPCA8036-H
PL13 0.36uH/0.798m/28A(10*10*4)-PANA
RDSon=4.8m ohm
40mil
20mil
PR14 0_4S
PR9 0_4S
PC57 330u/2V/9m_7343
PC211 330u/2V/9m_7343
PC53 *330u/2.5V/9m_3528
PC184 0.1u/50V/X7R_6
PC181 2.2n/50V/X7R_4
PC44 10u/25V/X6S_12
PC48 10u/25V/X6S_12
PC202 100U/25V/105C
PD7 *1SS400
PD9 *1SS400
PR21 100K/F_4
PR28 *0_4
PC27 100p/50V/X7R_4
SHDN
(30,35) VRON
(4,11,30,37,38,39,42) HWPG
(31,39) SYS_SHDN#
5VSUS
PR38 10_6
PC30 0.22u/25V/X5R_6
PC25 1u/10V/X5R_4
PR43 5.1_6
PR178 1.91K/F_4
PR176 1.91K/F_4
+3V
VR_PWRGD_CLKEN# (3)
DELAY_VR_PWRGOOD (4,10)
PU10
ISL62882
VDD VIN CLK_EN# PGOOD
PAD PSI# RBIAS VR_TT# NTC VID0 VID1 VID2 VID3 VID4 VID5 VID6 VR_ON DPRSLPVR
UGATE1 BOOT1 PHASE1 LGATE1a LGATE1b VSSP1 ISEN1
UGATE2 BOOT2 PHASE2 LGATE2 VSSP2 ISEN2
VCCP
FB FB2 COMP VW IMON
VSEN RTN ISUM- ISUM+
62882_UG1
62882_LX1
62882_LG1a
62882_ISE1
62882_UG2
62882_LX2
62882_LG2
62882_ISE2
+1.05V_VTT
PR171 499/F_4
(6) H_PSI#_PR
PR174 0_4S
PR18 147K/F_4
PR16 0_4S
(4) H_PROCHOT#
Close to Phase 1 Inductor
PR201 470K_4_NTC
PR15 4.02K/F_4
PC20 10n/16V/X7R_4
(6) CPU_VID0
(6) CPU_VID1
(6) CPU_VID2
(6) CPU_VID3
(6) CPU_VID4
(6) CPU_VID5
(6) CPU_VID6
(6) DPRSLPVR
DPRSLPVR_R
PR180 499/F_4
PC166 22p/50V/NPO_4
PR166 412K/F_4
PC161 150p/50V/NPO_4
PC163 10p/50V/C0G_4
PR170 8.06K/F_4
PC165 1n/50V/X7R_4
PR10 2.21K/F_4
PR8 562/F_4
PC17 390p/50V/X7R_4
PC22 0.22u/10V/X5R_4
PR42 0_4S
PC32 1u/10V/X5R_4
PC33 1u/10V/X5R_4
PR187 2.2_6
PC173 0.22u/25V/X5R_6
PR188 2.2_6
PC175 0.22u/25V/X5R_6
PC19 0.22u/10V/X5R_4
PR30 7.5K/F_4
PC28 33n/16V/X7R_4
I_MON (6)
VSSSENSE
VSUM+
VSUM-
PR22 10K/F_4
PR17 3.65K/F_6
PR13 1/F_6
PR12 *10K/F_4
PR200 *2.2_8
PC193 *1.5n/50V/X7R_4
PR23 2.61K/F_4
PR202 10K_6_NTC
Panasonic ERT-J1VR103J
PR184 11K/F_4
PR189 0_4
PC169 0.1u/10V/X5R_4
PR27 750/F_4
PC24 *1n/50V/X7R_4
PR32 *100/F_4
Close to Phase 1 Inductor
Load Line setting to 2mV/A
PR34 *SHORT-1A
(6,35) +VCORE
(3,20,36,37,38,39,41,42) VIN
(3,4,8,9,10,11,12,13,14,15,20,21,22,24,25,26,27,28,29,30,31,32,33,35,36,41) +3V
(20,35,41) 5VSUS
(3,4,6,8,9,10,11,12,35,38,42) +1.05V_VTT
PQ25 TPCA8030-H(30V,24A)
PQ22 TPCA8036-H(30V,38A)
PQ23 *TPCA8036-H
PL14 0.36uH/0.798m/28A(10*10*4)-PANA
PC64 0.1u/50V/X7R_6
PC59 2.2n/50V/X7R_4
PC61 10u/25V/X6S_12
PC58 10u/25V/X6S_12
PC203 100U/25V/105C
PR169 10K/F_4
PR165 3.65K/F_6
PR173 1/F_6
PR175 *10K/F_4
PR203 *2.2_8
PC194 *1.5n/50V/X7R_4
PC200 330u/2V/9m_7343
PC207 330u/2V/9m_7343
PR167 0_4S
PR172 0_4S
DCR=0.88mOhm Load Line and OCP setting
Load Line is 1.9mV/A
0.88m/2*0.763=335.72u
335.72u/1K=335.72p
335.72p*2*2.8K=1.88m
OCP
40uA/2*1K=20mV
20mV/0.763=26.21mV
26.21mV*2/0.88m=59.57A
+VCORE
PR177 10_4
PR179 0_4S
PR181 0_4S
PR183 10_4
PC21 330p/50V/X7R_4
PC23 1n/50V/X7R_4
PC147 330p/50V/X7R_4
(6) VCCSENSE
(6) VSSSENSE
Parallel
PR182 82.5K_4
PC172 0.33u/6.3V/X5R_4
PC170 0.1u/10V/X5R_4
PC171 2.7n/50V/X7R_4
PC180 100n/16V/X7R_4
PR185 10K/F_4
PR186 10K/F_4
PC24 *1n/50V/X7R_4
PR32 *100/F_4
http://mobi-elektronika.net
PROJECT : LL7A
Quanta Computer Inc.
Size C
Document Number CPU (ISL62882)
Rev 1A
Date: Thursday, April 08, 2010
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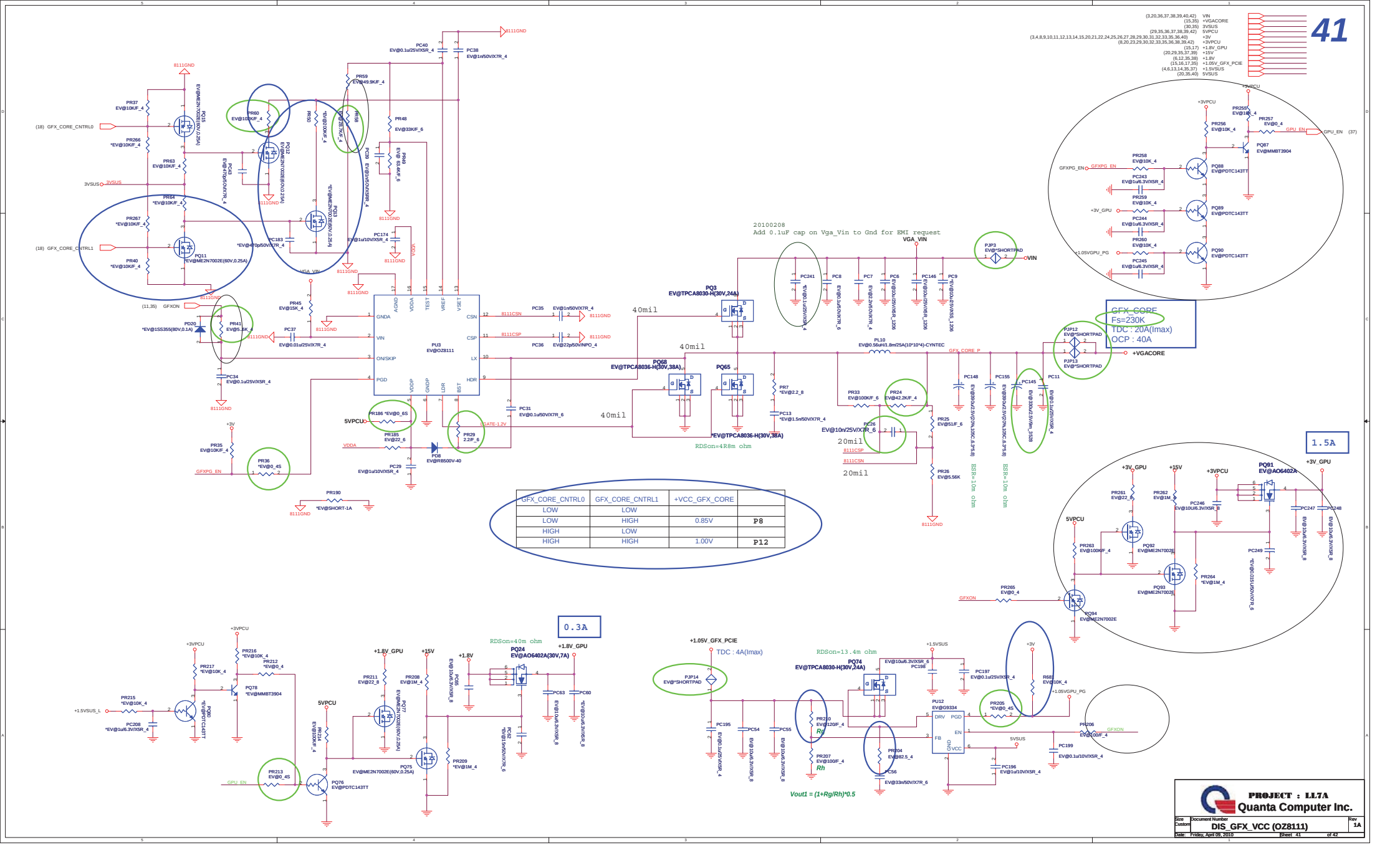

GFX_CORE_CNTRL0	GFX_CORE_CNTRL1	+VCC_GFX_CORE	
LOW	LOW		
LOW	HIGH	0.85V	P8
HIGH	LOW		
HIGH	HIGH	1.00V	P12

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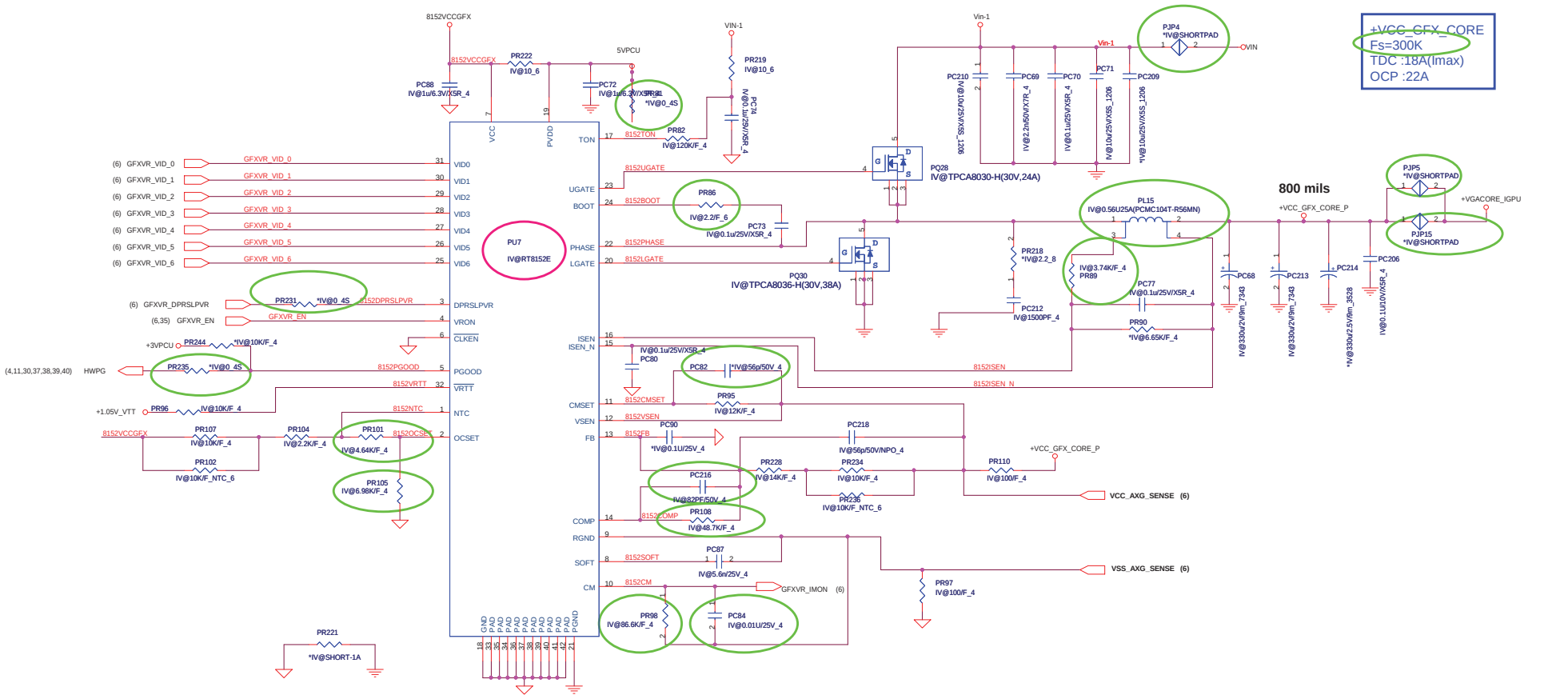

(6,35) +VGACORE_IGPU
(3,20,36,37,38,39,40,41) VIN
(29,35,36,37,38,39,41) 5VPCU
(3,4,6,8,9,10,11,12,35,38,40) +1.05V_VTT
(8,20,23,29,30,32,33,35,36,38,39,41) +3VPCU

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PROJECT : LL7A		
Quanta Computer Inc.		
Size: C	Document Number: GFX_VCC (RT8152C)	Rev: 1A
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