KL9A Intel Huron River Platform with AMD Discrete GFX

DDRIII-SODIMM1
H 4.0 PG 14

DDRIII-SODIMM2
H 8.0 PG 15

Dual Channel DDR3
1067/1333 1.5V

DDR SYSTEM MEMORY

<MCH Process>
SandyBridge 0.61

rPGA 988

PCI-E

Graphics Interfaces

PG 4,5,6,7

FDI DMI

PCI-Express

27MHz

AMD
Robson ST-3
PG 16,17,18,19,20,21

HDMI CON PG 22

CRT PG 23

LCD CONN PG 24

FAN / THERMAL
EMC2103-2
PG 37

REGULATOR (DDR3)
1.5VSUS, 0.75VSMDDR_VTERM,1.5V
1.5V_GPU,1.5V_CPU PG 43

REGULATOR
+1.05V_VTT,+1.8V PG 45

DC/DC
3VPCU, 5VPCU, +15V PG 44

CPU Core PG 49

VGA Core Discrete PG 46

FDIX4 DMIX4

FDI DMI

SATA-SDD PG 30 — SATA0 150MB

SATA - HDD PG 28 — SATA1 150MB

SATA - CD-ROM PG 28 — SATA3 150MB

Speaker PG 26

Audio Jack (External MIC) PG 26

Audio Jack (Headphone) PG 26

AUDIO CODEC
ALC269 PG 26

IHDA

32.768KHz

25MHz

CougarPoint 0.7
PCH

PG 8,9,10,11,12,13

USB2.0

Port1,9 USB2.0 Ports X2 PG 32

Port 5 BlueTooth PG 38

Port 11 Finger Print PG 38

Port 2 Canera PG 36

Port3 Mini PCI-E WLAN PG 29

Port4 Mini PCI-E WWAN PG 29

PCI-E

LAN
Intel
(10/100/1G LAN)
WG82579LM
PAGE 25

25MHz

Card Reader
RTS5139-GR PG 27

5-IN-1 Card Reader CONN PG 27

USB 3.0
VIA VL801 PAGE 31

USB 2.0/3.0 CONN PAGE 31

Option

ME FW PG 9 — SPI

32.768KHz

LPC

EC
IT8518
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SPI Flash PG 40

K/B PG 35

T/P PG 35

Battery PG 44

Charger PG 42

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Custom	BLOCK DIAGRAM	1A

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ADP IN
BAT
Charger Circuit
ISL88731A
VIN
MAX17020ETJ+
1 5VPCU
1 3VPCU
1a HWPG(3/5VPCU)
4 S5_ON
5VPCU
AO6402A
5 5V_S5
3VPCU
AO6402A
5 3V_S5
12 HWPG(All Power GOOD)
15 SYS_PWROK
16 PM_DRAM_PWRGD
17 H_PWRGOOD
18 PLTRST#
Huron River
VTTPWRGOOD
SM_DRAMPWROK
UNCOREPWRGOOD
RSTIN#
Madison
26 GPU_RST#
GPU_RST#
3VPCU
R 470K
2 WRST_8512#
C 0.1U
3 NBSWON#
WRST#
EC
ITE-8518
DELAY 99mS
6 RSMST#
7 SIO_PWRBTN#
8a PM_SLP_S4#
8b PM_SLP_S3#
RSMRST#
PWRBTN#
DRAMPWROK
PLTRST#
GPIO
SYS_PWROK
PWROK
MEPWROK
GPIO
GPIO
PCH
19a DGPU_PWR_EN#
24 GFXPG_R
DGPU_HOLD_RST#
25
5VPCU
VT1316M + VT1317S
VR1_READY
VRON
14 IMVP_PWRGD
15 SYS_PWROK
13 +VCC_CORE
13 +VCC_GFX
R 0ohm
13 ECPWROK
12a VRON
1a HWPG(3/5VPCU)
VIN
TPS51116REGR
9a SUSON
10a +1.5V_SUS
10d 0.75VSMDDR_VTERM
LDO
10c +1.5VCPU_PG
5VPCU
AO6402A
10a 5VSUS
3VPCU
AO6402A
10a 3VSUS
VIN
OZ8115
10a +1.5VSUS
10b +1.05V_VTT
11b HWPG(+1.05V_VTT)
VIN
OZ8115
10b +1.05_PCH
11b HWPG(+1.05V_VTT)
VIN
OZ8115
10b +1.8V
11b HWPG(+1.8V)
VIN
OZ8115
10b +0.85V
11b HWPG(+0.85V)
HWPG(All Power GOOD)
9b MAINON
VIN
19a DGPU_PWR_EN#
19b
19c
MAX8792
20a GFX_CORE
20b GFXPG_1V_EN
1.5VSUS
LDO RT9018B
21a +1V_GFX_PCIE
21b +1V_PCIE_PG
+3V
AO6402A
22a +3.3V_DELAY
1.5VSUS
TPCA8030-H
22a +1.5V_GPU
+1.8V
AO6402A
23a +1.8V_GPU
Delay
12 HWPG
23b DGPU_PWROK
24 GFXPG_R
5VPCU
AON7410
10b +5V
3VPCU
AON7410
10b +3V
1.5VSUS
AO6402A
10b +1.5V
1.5VSUS
AO6402A
10b +1.5VCPU
Delay
10c +1.5VCPU_PG

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<Project Name>
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CLK Gen(CLK)

02/20 DEL for Pre-ES1

CPU_CLK select(CLK)

02/20 DEL for Pre-ES1

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

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Quanta Computer Inc.

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Sandy Bridge Processor (DMI,PEG,FDI)

Sandy Bridge Processor (CLK,MISC,JTAG)

04

U32A

DMI_TXN0 (8) B27 — DMI_RX#[0]
DMI_TXN1 (8) B25 — DMI_RX#[1]
DMI_TXN2 (8) A25 — DMI_RX#[2]
DMI_TXN3 (8) B24 — DMI_RX#[3]
DMI_TXP0 (8) B28 — DMI_RX[0]
DMI_TXP1 (8) B26 — DMI_RX[1]
DMI_TXP2 (8) A24 — DMI_RX[2]
DMI_TXP3 (8) B23 — DMI_RX[3]
DMI_RXN0 (8) G21 — DMI_TX#[0]
DMI_RXN1 (8) E22 — DMI_TX#[1]
DMI_RXN2 (8) F21 — DMI_TX#[2]
DMI_RXN3 (8) D21 — DMI_TX#[3]
DMI_RXP0 (8) G22 — DMI_TX[0]
DMI_RXP1 (8) D22 — DMI_TX[1]
DMI_RXP2 (8) F20 — DMI_TX[2]
DMI_RXP3 (8) C21 — DMI_TX[3]

DMI

FDI_TXN0 (8) A21 — FDI0_TX#[0]
FDI_TXN1 (8) H19 — FDI0_TX#[1]
FDI_TXN2 (8) E19 — FDI0_TX#[2]
FDI_TXN3 (8) F18 — FDI0_TX#[3]
FDI_TXN4 (8) B21 — FDI1_TX#[0]
FDI_TXN5 (8) C20 — FDI1_TX#[1]
FDI_TXN6 (8) D18 — FDI1_TX#[2]
FDI_TXN7 (8) E17 — FDI1_TX#[3]
FDI_TXP0 (8) A22 — FDI0_TX[0]
FDI_TXP1 (8) G19 — FDI0_TX[1]
FDI_TXP2 (8) E20 — FDI0_TX[2]
FDI_TXP3 (8) G18 — FDI0_TX[3]
FDI_TXP4 (8) B20 — FDI1_TX[0]
FDI_TXP5 (8) C19 — FDI1_TX[1]
FDI_TXP6 (8) D19 — FDI1_TX[2]
FDI_TXP7 (8) F17 — FDI1_TX[3]
FDI_FSYNC0 (8) J18 — FDI0_FSYNC
FDI_FSYNC1 (8) J17 — FDI1_FSYNC
FDI_INT (8) H20 — FDI_INT
FDI_LSYNC0 (8) J19 — FDI0_LSYNC
FDI_LSYNC1 (8) H17 — FDI1_LSYNC

Intel(R) FDI

eDP_COMP A18 — eDP_COMPIO
INT_eDP_HPD_Q B16 — eDP_HPD
eDP_COMPIO A17 — eDP_ICOMPO
C15 — eDP_AUX
D15 — eDP_AUX#
C17 — eDP_TX[0]
F16 — eDP_TX[1]
C16 — eDP_TX[2]
G15 — eDP_TX[3]
C18 — eDP_TX#[0]
E16 — eDP_TX#[1]
D16 — eDP_TX#[2]
F15 — eDP_TX#[3]

eDP

CPU-989P-rPGA

eDP_COMP connect to PIN A18 W:4mils/S:15mils/L: 500mils.
eDP_COMP connect to PIN A17 W:12mils/S:15mils/L: 500mils.

PEG_ICOMPI J22 — PEG_COMP
PEG_ICOMPO J21
PEG_RCOMPO H22

PEG_COMP connect to PIN H22&J22 W:4mils/S:15mils/L: 500mils.
PEG_COMP connect to PIN J21 W:12mils/S:15mils/L: 500mils.

PEG_RX#[0] K33 — PEG_RXN0
PEG_RX#[1] M35 — PEG_RXN1
PEG_RX#[2] L34 — PEG_RXN2
PEG_RX#[3] J35 — PEG_RXN3
PEG_RX#[4] J32 — PEG_RXN4
PEG_RX#[5] H34 — PEG_RXN5
PEG_RX#[6] H31 — PEG_RXN6
PEG_RX#[7] G33 — PEG_RXN7
PEG_RX#[8] G30 — PEG_RXN8
PEG_RX#[9] E35 — PEG_RXN9
PEG_RX#[10] E34 — PEG_RXN10
PEG_RX#[11] E32 — PEG_RXN11
PEG_RX#[12] D33 — PEG_RXN12
PEG_RX#[13] D31 — PEG_RXN13
PEG_RX#[14] B33 — PEG_RXN14
PEG_RX#[15] C32 — PEG_RXN15

PEG_RXN[0..15] (16)

PEG_RX[0] J33 — PEG_RXP0
PEG_RX[1] L35 — PEG_RXP1
PEG_RX[2] K34 — PEG_RXP2
PEG_RX[3] H35 — PEG_RXP3
PEG_RX[4] H32 — PEG_RXP4
PEG_RX[5] G34 — PEG_RXP5
PEG_RX[6] G31 — PEG_RXP6
PEG_RX[7] F33 — PEG_RXP7
PEG_RX[8] F30 — PEG_RXP8
PEG_RX[9] E33 — PEG_RXP9
PEG_RX[10] E35 — PEG_RXP10
PEG_RX[11] F32 — PEG_RXP11
PEG_RX[12] D34 — PEG_RXP12
PEG_RX[13] E31 — PEG_RXP13
PEG_RX[14] C33 — PEG_RXP14
PEG_RX[15] B32 — PEG_RXP15

PEG_RXP[0..15] (16)

PEG_TX#[0] M29 — PEG_TXN0_C
PEG_TX#[1] M32 — PEG_TXN1_C
PEG_TX#[2] M31 — PEG_TXN2_C
PEG_TX#[3] L32 — PEG_TXN3_C
PEG_TX#[4] L29 — PEG_TXN4_C
PEG_TX#[5] K31 — PEG_TXN5_C
PEG_TX#[6] K28 — PEG_TXN6_C
PEG_TX#[7] J30 — PEG_TXN7_C
PEG_TX#[8] J28 — PEG_TXN8_C
PEG_TX#[9] H29 — PEG_TXN9_C
PEG_TX#[10] G27 — PEG_TXN10_C
PEG_TX#[11] E29 — PEG_TXN11_C
PEG_TX#[12] F27 — PEG_TXN12_C
PEG_TX#[13] D28 — PEG_TXN13_C
PEG_TX#[14] F26 — PEG_TXN14_C
PEG_TX#[15] E25 — PEG_TXN15_C

PEG_TX[0] M28 — PEG_TXP0_C
PEG_TX[1] M33 — PEG_TXP1_C
PEG_TX[2] M30 — PEG_TXP2_C
PEG_TX[3] L31 — PEG_TXP3_C
PEG_TX[4] L28 — PEG_TXP4_C
PEG_TX[5] K30 — PEG_TXP5_C
PEG_TX[6] K27 — PEG_TXP6_C
PEG_TX[7] J29 — PEG_TXP7_C
PEG_TX[8] J27 — PEG_TXP8_C
PEG_TX[9] H28 — PEG_TXP9_C
PEG_TX[10] G28 — PEG_TXP10_C
PEG_TX[11] E28 — PEG_TXP11_C
PEG_TX[12] F28 — PEG_TXP12_C
PEG_TX[13] D27 — PEG_TXP13_C
PEG_TX[14] E26 — PEG_TXP14_C
PEG_TX[15] D25 — PEG_TXP15_C

PCI EXPRESS* - GRAPHICS

U32B

SNB_IVB# N.A at SNB EDS #27637 0.7v1

(9) H_SNB_IVB# — C26 PROC_SELECT#
TP11 — SKTOCC# — AN34 SKTOCC#
TP12 — TP_CATERR# — AL33 CATERR#
(40) EC_PECI — AN33 PECI
(40,49) H_PROCHOT# — R269 56/J_4 — H_PROCHOT# R — AL32 PROCHOT#
(11) PM_THRMTRIP# — AN32 THERMTRIP#

MISC
THERMAL

EC-C-15
(8) PM_SYNC — R592 *SHORT_4 — PM_SYNC_R — AM34 PM_SYNC
(11) H_PWRGOOD — R608 *SHORT_4 — H_PWRGOOD_R — AP33 UNCOREPWRGOOD
EC-QV-07
C900 *0.1U/10V_4
R607 10K/J_4
PM_DRAM_PWRGD_R — V8 SM_DRAMPWROK
+1.05V_PCH — R606 75/J_4
CPU_PLTRST# — R605 43/J_4 — CPU_PLTRST#_R — AR33 RESET#
RV12 FEGA-0002

PWR MANAGEMENT

CPU-989P-rPGA

CLOCKS

BCLK A28 CLK_CPU_BCLKP_R — R632 0/J_4 — CLK_CPU_BCLKP (10)
BCLK# A27 CLK_CPU_BCLKN_R — R633 0/J_4 — CLK_CPU_BCLKN (10)
EC-B-31
DPLL_REF_CLK A16 CLK_DPLL_SSCLKP_R — R293 Ra 0X2 — CLK_DPLL_SSCLKP (10)
DPLL_REF_CLK# A15 CLK_DPLL_SSCLKN_R — CLK_DPLL_SSCLKN (10)
R297 Rb 1K/F_4
R290 1K/F_4
Rc

	DIS	UMA
Ra	NA	0 ohm
Rb	1K ohm	NA
Rc	1K ohm	NA

DDR3 MISC

SM_DRAMRST# — R8 — CPU_DRAMRST# (5)
SM_RCOMP[0] AK1 — SM_RCOMP_0 R626 140/F_4
SM_RCOMP[1] A5 — SM_RCOMP_1 R315 25.5/F_4
SM_RCOMP[2] A4 — SM_RCOMP_2 R316 200/F_4
EC-C-21
SM_RCOMP[0] W:20mils/S:20mils/L: 500mils,
SM_RCOMP[1] W:20mils/S:20mils/L: 500mils,
SM_RCOMP[2] W:15mils/S:20mils/L: 500mils,

JTAG & BPM

PRDY# AP29 — XDP_PRDY# — TP13
PREQ# AP27 — XDP_PREQ# — TP15
TCK AR26 — XDP_TCLK — TP6
TMS AR27 — XDP_TMS — TP7
TRST# AP30 — XDP_TRST# — TP10
TDI AR28 — XDP_TDI_R — TP8
TDO AP26 — XDP_TDO — TP50
DBR# AL35 — XDP_DBRST# — XDP_DBRST# (8)
EC-B-34
EC-B-31
BPM#[0] AT28
BPM#[1] AR29
BPM#[2] AR30
BPM#[3] AT30
BPM#[4] AP32
BPM#[5] AR31
BPM#[6] AT31
BPM#[7] AR32

CLK_CPU_BCLKN — C705 *22P/50V_4
CLK_CPU_BCLKP — C704 *22P/50V_4
CLK_DPLL_SSCLKN_R — C706 *22P/50V_4
CLK_DPLL_SSCLKP_R — C713 *22P/50V_4
RF reserved

+3V_S5 — C635 0.1U/10V_4 — U31 NC VCC GNDOUT — 74LVC1G07GW
(10,16,25,29,31) PLTRST# — CPU_PLTRST#

EC-C-08
+3V_S5 — C366 *0.1U/10V_4 — U18 *74AHC1G09
(8,43) SYS_PWROK — R314 *0/J_4
(8) PM_DRAM_PWRGD — R313 0/J_4
PM_DRAM_PWRGD_Q — R312 *3K/F_4
PM_DRAM_PWRGD_Q — R324 200/F_4 — R322 130/F_4 — PM_DRAM_PWRGD_R
+1.5VCPU
R325 39/J_4 — Q29 2N7002K — EC-QV-08
MAINON# (41)

FDI Enable

FDI_INT
R282 DIS@0/J_4 — FDI_FSYNC0
R284 DIS@0/J_4 — FDI_FSYNC1
R277 DIS@0/J_4 — FDI_LSYNC0
FDI_LSYNC1
R276 DIS@1K/F_4
R288 *DIS@1K/F_4

FDI_FSYNC can gang all these 4 signals together and tie them with only one 1K resistor to GND (DG V0.5 Ch2.2.9).

PEG x16 (UMA Non-stuff)

PEG_TXP[0..15] (16)

PEG_TXP0_C	C667	0.1U/10V_4	PEG_TXP0	PEG_TXN0_C	C668	0.1U/10V_4	PEG_TXN0
PEG_TXP1_C	C665	0.1U/10V_4	PEG_TXP1	PEG_TXN1_C	C666	0.1U/10V_4	PEG_TXN1
PEG_TXP2_C	C663	0.1U/10V_4	PEG_TXP2	PEG_TXN2_C	C664	0.1U/10V_4	PEG_TXN2
PEG_TXP3_C	C649	0.1U/10V_4	PEG_TXP3	PEG_TXN3_C	C650	0.1U/10V_4	PEG_TXN3
PEG_TXP4_C	C661	0.1U/10V_4	PEG_TXP4	PEG_TXN4_C	C662	0.1U/10V_4	PEG_TXN4
PEG_TXP5_C	C647	0.1U/10V_4	PEG_TXP5	PEG_TXN5_C	C648	0.1U/10V_4	PEG_TXN5
PEG_TXP6_C	C659	0.1U/10V_4	PEG_TXP6	PEG_TXN6_C	C660	0.1U/10V_4	PEG_TXN6
PEG_TXP7_C	C645	0.1U/10V_4	PEG_TXP7	PEG_TXN7_C	C646	0.1U/10V_4	PEG_TXN7
PEG_TXP8_C	C657	0.1U/10V_4	PEG_TXP8	PEG_TXN8_C	C658	0.1U/10V_4	PEG_TXN8
PEG_TXP9_C	C643	0.1U/10V_4	PEG_TXP9	PEG_TXN9_C	C644	0.1U/10V_4	PEG_TXN9
PEG_TXP10_C	C656	0.1U/10V_4	PEG_TXP10	PEG_TXN10_C	C655	0.1U/10V_4	PEG_TXN10
PEG_TXP11_C	C641	0.1U/10V_4	PEG_TXP11	PEG_TXN11_C	C642	0.1U/10V_4	PEG_TXN11
PEG_TXP12_C	C654	0.1U/10V_4	PEG_TXP12	PEG_TXN12_C	C653	0.1U/10V_4	PEG_TXN12
PEG_TXP13_C	C639	0.1U/10V_4	PEG_TXP13	PEG_TXN13_C	C640	0.1U/10V_4	PEG_TXN13
PEG_TXP14_C	C637	0.1U/10V_4	PEG_TXP14	PEG_TXN14_C	C638	0.1U/10V_4	PEG_TXN14
PEG_TXP15_C	C651	0.1U/10V_4	PEG_TXP15	PEG_TXN15_C	C652	0.1U/10V_4	PEG_TXN15

PEG_TXN[0..15] (16)

DP & PEG Compensation

+1.05V_PCH — R613 24.9/F_4 — PEG_COMP

PEG_ICOMPI and RCOMPO signals should be routed within 500 mils typical impedance = 43 mohms PEG_ICOMPO signals should be routed within 500 mils
typical impedance = 14.5 mohms

+1.05V_PCH — R615 10K_4 — INT_eDP_HPD_Q
+1.05V_PCH — R614 24.9/F_4 — eDP_COMP

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

Processor pull-up(CPU)

+1.05V_PCH

H_PROCHOT# R268 62/F_4
XDP_TDO R610 51/J_4
XDP_TMS R243 51/J_4
XDP_TDI_R R251 51/J_4
XDP_PREQ# R271 *51/J_4
XDP_TCLK R240 51/J_4
XDP_TRST# R260 51/J_4

PROJECT : KL2D
Quanta Computer Inc.

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Sandy Bridge Processor (DDR3)

05

U32C

DDR SYSTEM MEMORY A

(15) M_A_DQ[63:0]

M_A_DQ0	C5	SA_DQ[0]
M_A_DQ1	D5	SA_DQ[1]
M_A_DQ2	D3	SA_DQ[2]
M_A_DQ3	D2	SA_DQ[3]
M_A_DQ4	D6	SA_DQ[4]
M_A_DQ5	C6	SA_DQ[5]
M_A_DQ6	C2	SA_DQ[6]
M_A_DQ7	C3	SA_DQ[7]
M_A_DQ8	F10	SA_DQ[8]
M_A_DQ9	F8	SA_DQ[9]
M_A_DQ10	G10	SA_DQ[10]
M_A_DQ11	G9	SA_DQ[11]
M_A_DQ12	F9	SA_DQ[12]
M_A_DQ13	F7	SA_DQ[13]
M_A_DQ14	G8	SA_DQ[14]
M_A_DQ15	G7	SA_DQ[15]
M_A_DQ16	K4	SA_DQ[16]
M_A_DQ17	K5	SA_DQ[17]
M_A_DQ18	K1	SA_DQ[18]
M_A_DQ19	J1	SA_DQ[19]
M_A_DQ20	J5	SA_DQ[20]
M_A_DQ21	J4	SA_DQ[21]
M_A_DQ22	J2	SA_DQ[22]
M_A_DQ23	K2	SA_DQ[23]
M_A_DQ24	M8	SA_DQ[24]
M_A_DQ25	N10	SA_DQ[25]
M_A_DQ26	N8	SA_DQ[26]
M_A_DQ27	N7	SA_DQ[27]
M_A_DQ28	M10	SA_DQ[28]
M_A_DQ29	M9	SA_DQ[29]
M_A_DQ30	N9	SA_DQ[30]
M_A_DQ31	M7	SA_DQ[31]
M_A_DQ32	AG6	SA_DQ[32]
M_A_DQ33	AG5	SA_DQ[33]
M_A_DQ34	AK6	SA_DQ[34]
M_A_DQ35	AK5	SA_DQ[35]
M_A_DQ36	AH5	SA_DQ[36]
M_A_DQ37	AH6	SA_DQ[37]
M_A_DQ38	AJ5	SA_DQ[38]
M_A_DQ39	AJ6	SA_DQ[39]
M_A_DQ40	AJ8	SA_DQ[40]
M_A_DQ41	AK8	SA_DQ[41]
M_A_DQ42	AJ9	SA_DQ[42]
M_A_DQ43	AK9	SA_DQ[43]
M_A_DQ44	AH8	SA_DQ[44]
M_A_DQ45	AH9	SA_DQ[45]
M_A_DQ46	AL9	SA_DQ[46]
M_A_DQ47	AL8	SA_DQ[47]
M_A_DQ48	AP11	SA_DQ[48]
M_A_DQ49	AN11	SA_DQ[49]
M_A_DQ50	AL12	SA_DQ[50]
M_A_DQ51	AM12	SA_DQ[51]
M_A_DQ52	AM11	SA_DQ[52]
M_A_DQ53	AL11	SA_DQ[53]
M_A_DQ54	AP12	SA_DQ[54]
M_A_DQ55	AN12	SA_DQ[55]
M_A_DQ56	AJ14	SA_DQ[56]
M_A_DQ57	AH14	SA_DQ[57]
M_A_DQ58	AL15	SA_DQ[58]
M_A_DQ59	AK15	SA_DQ[59]
M_A_DQ60	AL14	SA_DQ[60]
M_A_DQ61	AK14	SA_DQ[61]
M_A_DQ62	AJ15	SA_DQ[62]
M_A_DQ63	AH15	SA_DQ[63]

SA_CLK[0]	AB6	M_A_CLKP0 (15)
SA_CLK#[0]	AA6	M_A_CLKN0 (15)
SA_CKE[0]	V9	M_A_CKE0 (15)
SA_CLK[1]	AA5	M_A_CLKP1 (15)
SA_CLK#[1]	AB5	M_A_CLKN1 (15)
SA_CKE[1]	V10	M_A_CKE1 (15)
RSVD_TP[1]	AB4	
RSVD_TP[2]	AA4	
RSVD_TP[3]	W9	
RSVD_TP[4]	AB3	
RSVD_TP[5]	AA3	
RSVD_TP[6]	W10	
SA_CS#[0]	AK3	M_A_CS#0 (15)
SA_CS#[1]	AL3	M_A_CS#1 (15)
RSVD_TP[7]	AG1	
RSVD_TP[8]	AH1	
SA_ODT[0]	AH3	M_A_ODT0 (15)
SA_ODT[1]	AG3	M_A_ODT1 (15)
RSVD_TP[9]	AG2	
RSVD_TP[10]	AH2	

SA_DQS#[0]	C4	M_A_DQSN0
SA_DQS#[1]	G6	M_A_DQSN1
SA_DQS#[2]	J3	M_A_DQSN2
SA_DQS#[3]	M6	M_A_DQSN3
SA_DQS#[4]	AL6	M_A_DQSN4
SA_DQS#[5]	AM8	M_A_DQSN5
SA_DQS#[6]	AR12	M_A_DQSN6
SA_DQS#[7]	AM15	M_A_DQSN7

M_A_DQSN[7:0] (15)

SA_DQS[0]	D4	M_A_DQSP0
SA_DQS[1]	F6	M_A_DQSP1
SA_DQS[2]	K3	M_A_DQSP2
SA_DQS[3]	N6	M_A_DQSP3
SA_DQS[4]	AL5	M_A_DQSP4
SA_DQS[5]	AM9	M_A_DQSP5
SA_DQS[6]	AR11	M_A_DQSP6
SA_DQS[7]	AM14	M_A_DQSP7

M_A_DQSP[7:0] (15)

SA_MA[0]	AD10	M_A_A0
SA_MA[1]	W1	M_A_A1
SA_MA[2]	W2	M_A_A2
SA_MA[3]	W7	M_A_A3
SA_MA[4]	V3	M_A_A4
SA_MA[5]	V2	M_A_A5
SA_MA[6]	W3	M_A_A6
SA_MA[7]	W6	M_A_A7
SA_MA[8]	V1	M_A_A8
SA_MA[9]	W5	M_A_A9
SA_MA[10]	AD8	M_A_A10
SA_MA[11]	V4	M_A_A11
SA_MA[12]	W4	M_A_A12
SA_MA[13]	AF8	M_A_A13
SA_MA[14]	V5	M_A_A14
SA_MA[15]	V7	M_A_A15

M_A_A[15:0] (15)

(15) M_A_BS#0
(15) M_A_BS#1
(15) M_A_BS#2

AE10	SA_BS[0]
AF10	SA_BS[1]
V6	SA_BS[2]

(15) M_A_CAS#
(15) M_A_RAS#
(15) M_A_WE#

AE8	SA_CAS#
AD9	SA_RAS#
AF9	SA_WE#

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U32D

DDR SYSTEM MEMORY B

(14) M_B_DQ[63:0]

M_B_DQ0	C9	SB_DQ[0]
M_B_DQ1	A7	SB_DQ[1]
M_B_DQ2	D10	SB_DQ[2]
M_B_DQ3	C8	SB_DQ[3]
M_B_DQ4	A9	SB_DQ[4]
M_B_DQ5	A8	SB_DQ[5]
M_B_DQ6	D9	SB_DQ[6]
M_B_DQ7	D8	SB_DQ[7]
M_B_DQ8	G4	SB_DQ[8]
M_B_DQ9	F4	SB_DQ[9]
M_B_DQ10	F1	SB_DQ[10]
M_B_DQ11	G1	SB_DQ[11]
M_B_DQ12	G5	SB_DQ[12]
M_B_DQ13	F5	SB_DQ[13]
M_B_DQ14	F2	SB_DQ[14]
M_B_DQ15	G2	SB_DQ[15]
M_B_DQ16	J7	SB_DQ[16]
M_B_DQ17	J8	SB_DQ[17]
M_B_DQ18	K10	SB_DQ[18]
M_B_DQ19	K9	SB_DQ[19]
M_B_DQ20	J9	SB_DQ[20]
M_B_DQ21	J10	SB_DQ[21]
M_B_DQ22	K8	SB_DQ[22]
M_B_DQ23	K7	SB_DQ[23]
M_B_DQ24	M5	SB_DQ[24]
M_B_DQ25	N4	SB_DQ[25]
M_B_DQ26	N2	SB_DQ[26]
M_B_DQ27	N1	SB_DQ[27]
M_B_DQ28	M4	SB_DQ[28]
M_B_DQ29	N5	SB_DQ[29]
M_B_DQ30	M2	SB_DQ[30]
M_B_DQ31	M1	SB_DQ[31]
M_B_DQ32	AM5	SB_DQ[32]
M_B_DQ33	AM6	SB_DQ[33]
M_B_DQ34	AR3	SB_DQ[34]
M_B_DQ35	AP3	SB_DQ[35]
M_B_DQ36	AN3	SB_DQ[36]
M_B_DQ37	AN2	SB_DQ[37]
M_B_DQ38	AN1	SB_DQ[38]
M_B_DQ39	AP2	SB_DQ[39]
M_B_DQ40	AP5	SB_DQ[40]
M_B_DQ41	AN9	SB_DQ[41]
M_B_DQ42	AT5	SB_DQ[42]
M_B_DQ43	AT6	SB_DQ[43]
M_B_DQ44	AP6	SB_DQ[44]
M_B_DQ45	AN8	SB_DQ[45]
M_B_DQ46	AR6	SB_DQ[46]
M_B_DQ47	AR5	SB_DQ[47]
M_B_DQ48	AR9	SB_DQ[48]
M_B_DQ49	AJ11	SB_DQ[49]
M_B_DQ50	AT8	SB_DQ[50]
M_B_DQ51	AT9	SB_DQ[51]
M_B_DQ52	AH11	SB_DQ[52]
M_B_DQ53	AR8	SB_DQ[53]
M_B_DQ54	AJ12	SB_DQ[54]
M_B_DQ55	AH12	SB_DQ[55]
M_B_DQ56	AT11	SB_DQ[56]
M_B_DQ57	AN14	SB_DQ[57]
M_B_DQ58	AR14	SB_DQ[58]
M_B_DQ59	AT14	SB_DQ[59]
M_B_DQ60	AT12	SB_DQ[60]
M_B_DQ61	AN15	SB_DQ[61]
M_B_DQ62	AR15	SB_DQ[62]
M_B_DQ63	AT15	SB_DQ[63]

SB_CLK[0]	AE2	M_B_CLKP0 (14)
SB_CLK#[0]	AD2	M_B_CLKN0 (14)
SB_CKE[0]	R9	M_B_CKE0 (14)
SB_CLK[1]	AE1	M_B_CLKP1 (14)
SB_CLK#[1]	AD1	M_B_CLKN1 (14)
SB_CKE[1]	R10	M_B_CKE1 (14)
RSVD_TP[11]	AB2	
RSVD_TP[12]	AA2	
RSVD_TP[13]	T9	
RSVD_TP[14]	AA1	
RSVD_TP[15]	AB1	
RSVD_TP[16]	T10	
SB_CS#[0]	AD3	M_B_CS#0 (14)
SB_CS#[1]	AE3	M_B_CS#1 (14)
RSVD_TP[17]	AD6	
RSVD_TP[18]	AE6	
SB_ODT[0]	AE4	M_B_ODT0 (14)
SB_ODT[1]	AD4	M_B_ODT1 (14)
RSVD_TP[19]	AD5	
RSVD_TP[20]	AE5	

SB_DQS#[0]	D7	M_B_DQSN0
SB_DQS#[1]	F3	M_B_DQSN1
SB_DQS#[2]	K6	M_B_DQSN2
SB_DQS#[3]	N3	M_B_DQSN3
SB_DQS#[4]	AN5	M_B_DQSN4
SB_DQS#[5]	AP9	M_B_DQSN5
SB_DQS#[6]	AK12	M_B_DQSN6
SB_DQS#[7]	AP15	M_B_DQSN7

M_B_DQSN[7:0] (14)

SB_DQS[0]	C7	M_B_DQSP0
SB_DQS[1]	G3	M_B_DQSP1
SB_DQS[2]	J6	M_B_DQSP2
SB_DQS[3]	M3	M_B_DQSP3
SB_DQS[4]	AN6	M_B_DQSP4
SB_DQS[5]	AP8	M_B_DQSP5
SB_DQS[6]	AK11	M_B_DQSP6
SB_DQS[7]	AP14	M_B_DQSP7

M_B_DQSP[7:0] (14)

SB_MA[0]	AA8	M_B_A0
SB_MA[1]	T7	M_B_A1
SB_MA[2]	R7	M_B_A2
SB_MA[3]	T6	M_B_A3
SB_MA[4]	T2	M_B_A4
SB_MA[5]	T4	M_B_A5
SB_MA[6]	T3	M_B_A6
SB_MA[7]	R2	M_B_A7
SB_MA[8]	T5	M_B_A8
SB_MA[9]	R3	M_B_A9
SB_MA[10]	AB7	M_B_A10
SB_MA[11]	R1	M_B_A11
SB_MA[12]	T1	M_B_A12
SB_MA[13]	AB10	M_B_A13
SB_MA[14]	R5	M_B_A14
SB_MA[15]	R4	M_B_A15

M_B_A[15:0] (14)

(14) M_B_BS#0
(14) M_B_BS#1
(14) M_B_BS#2

AA9	SB_BS[0]
AA7	SB_BS[1]
R6	SB_BS[2]

(14) M_B_CAS#
(14) M_B_RAS#
(14) M_B_WE#

AA10	SB_CAS#
AB8	SB_RAS#
AB9	SB_WE#

CPU-989P-rPGA

+1.5V_SUS

R330 1K/F_4

R311 *0/J_4

R332 1K/F_4

(14,15) DDR3_DRAMRST#

CPU_DRAMRST# R

Q28 2N7002K

CPU_DRAMRST# (4)

(10) DRAMRST_CNTRL_PCH

R326 *SHORT_4

EC-C-15

C362 0.047U/10V_4

R320 4.99K/F_4

PROJECT : KL2D

Quanta Computer Inc.

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Sandy Bridge Processor (POWER)

Sandy Bridge Processor (GRAPHIC POWER)

06

CPU Core Power
SNB 45W:55A
22uF x 32
22uF x 3 (Non-stuff)

CPU VTT
SNB 45W:8.5A
22uF x 10
22uF x 6 (Non-stuff)

CPU VGT
SNB 45W:22A
22uF x 12
22uF x 4 (Reserved)

U32F — POWER — CORE SUPPLY — PEG AND DDR — SVID — SENSE LINES

U32G — POWER — GRAPHICS — 1.8V RAIL — SENSE LINES — VREF — DDR3 -1.5V RAILS — SA RAIL — MISC

CPU-989P-rPGA

CPU MCH
SNB 45W: 5A
330uF/6mohm x 1
10uF x 6

CPU SA
SNB 45W: 6A
330uF/7mohm x 1
10uF x 3

CPU VCCPL
SNB 45W:3A
330uF/7mohm x 1
10uF x 1
1uF x 2

Ra	DIS	SW
	0 ohm	NA

Reserved

Layout note: need routing together and ALERT need between CLK and DATA

SVID CLK — Close to VR — EC-C-15 — R291 54.9/F_4

SVID DATA — Place PU resistor close to CPU — Close to VR — EC-C-22 — R283 130/F_4 — R286 130/F_4

SVID ALERT — Place PU resistor close to CPU — EC-C-15 — R275 75/J_4

EC-B-44 — EC-B-35

PROJECT :	KL2D
Quanta Computer Inc.	
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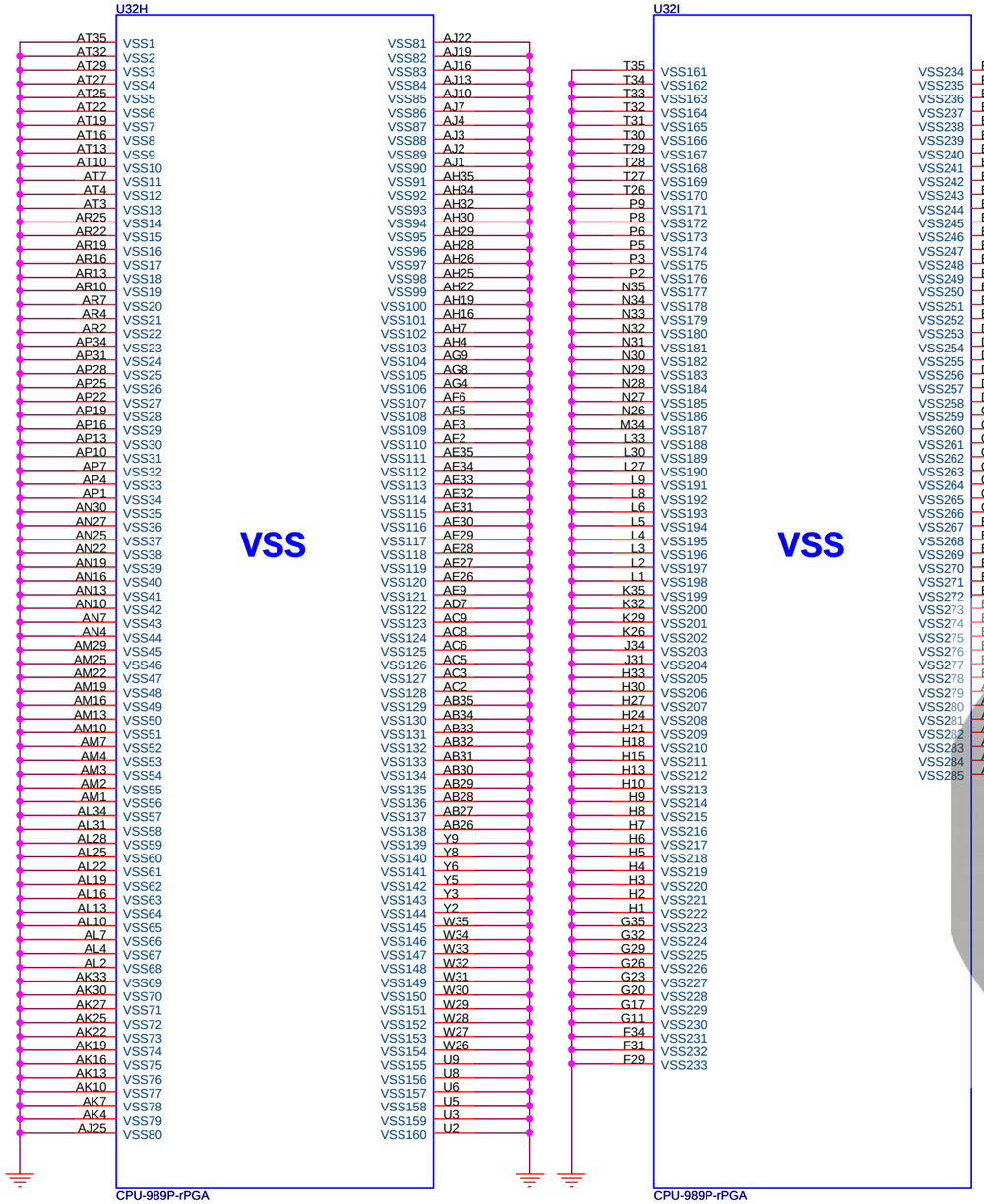
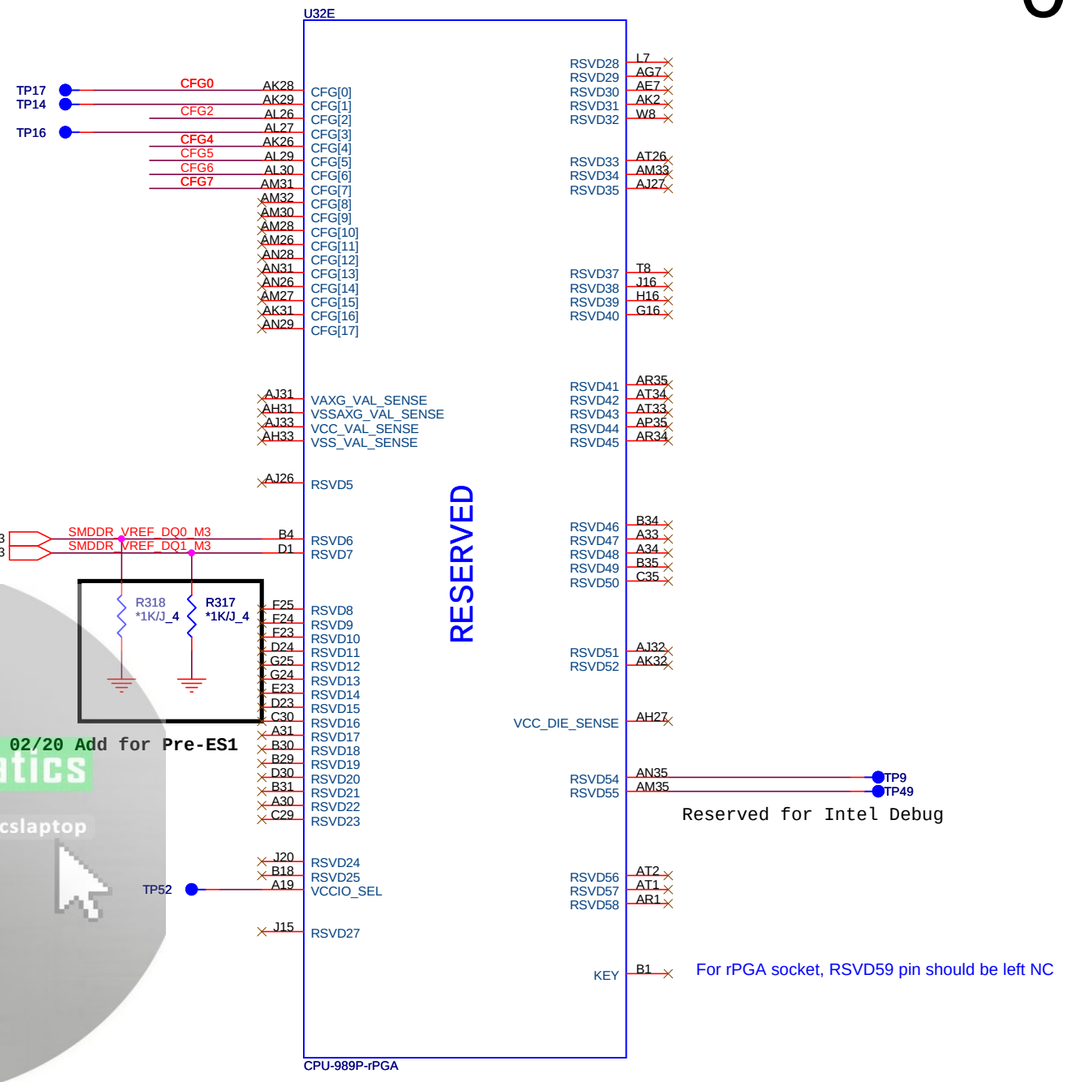
Sandy Bridge Processor (GND)



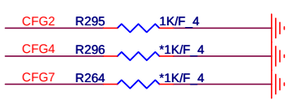
Sandy Bridge Processor (RESERVED, CFG)

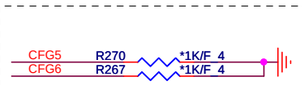


Processor Strapping

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

	1	0
CFG2 (PEG Static Lane Reversal)	Normal Operation	Lane Reversed
CFG4 (DP Presence Strap)	Disable; No physical DP attached to eDP	Enable; An ext DP device is connected to eDP
CFG7 (PEG Defer Training)	PEG train immediately following xxRESETB de assertion	PEG wait for BIOS training





CFG[6:5] (PCIE Port Bifurcation Straps)

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

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Cougar Point (DMI,FDI,PM)

U14C

DMI0RXN DMI1RXN DMI2RXN DMI3RXN
DMI0RXP DMI1RXP DMI2RXP DMI3RXP
DMI0TXN DMI1TXN DMI2TXN DMI3TXN
DMI0TXP DMI1TXP DMI2TXP DMI3TXP
DMI_ZCOMP
DMI_IRCOMP
DMI2RBIAS

DMI_RXN0 DMI_RXN1 DMI_RXN2 DMI_RXN3
DMI_RXP0 DMI_RXP1 DMI_RXP2 DMI_RXP3
DMI_TXN0 DMI_TXN1 DMI_TXN2 DMI_TXN3
DMI_TXP0 DMI_TXP1 DMI_TXP2 DMI_TXP3

R255 49.9/F_4 DMI_COMP
R604 750/F_4 DMI_RBIAS
+1.05V_PCH

DMI FDI

FDI_RXN0 FDI_RXN1 FDI_RXN2 FDI_RXN3 FDI_RXN4 FDI_RXN5 FDI_RXN6 FDI_RXN7
FDI_RXP0 FDI_RXP1 FDI_RXP2 FDI_RXP3 FDI_RXP4 FDI_RXP5 FDI_RXP6 FDI_RXP7
FDI_INT
FDI_FSYNC0
FDI_FSYNC1
FDI_LSYNC0
FDI_LSYNC1

FDI_TXN0 FDI_TXN1 FDI_TXN2 FDI_TXN3 FDI_TXN4 FDI_TXN5 FDI_TXN6 FDI_TXN7
FDI_TXP0 FDI_TXP1 FDI_TXP2 FDI_TXP3 FDI_TXP4 FDI_TXP5 FDI_TXP6 FDI_TXP7
FDI_INT (4)
FDI_FSYNC0 (4)
FDI_FSYNC1 (4)
FDI_LSYNC0 (4)
FDI_LSYNC1 (4)

EC-C-15

SUS_PWR_ACK R512 *0_4 → SUSACK#
XDP_DBRST# → SYS_RESET#
SYS_PWROK R527 *SHORT_4 SYS_PWROK_R R511 *0/J_4 → SYS_PWROK
C901 *1U/10V_4
EC_PWROK R505 *SHORT_4 EC_PWROK_R → PWROK
EC_PWROK_R R521 *SHORT_4 APWROK_R → APWROK
PM_DRAM_PWRGD → DRAMPWROK
RSMRST# → RSMRST#
SUS_PWR_ACK R513 *SHORT_4 SUS_PWR_ACK_R → SUSWARN#/SUSPWRDNACK/GPIO30
SIO_PWRBTN# → PWRBTN#
AC_PRESENT R502 *SHORT_4 PRESENT_R → ACPRESENT / GPIO31
PM_BATLOW# → BATLOW# / GPIO72
PM_RI# → RI#
RV16 *EGA-0402

EC-QV-09
EC-C-15
EC-C-15
EC-C-15
EC-B-40

DSWVRMEN
DPWROK
WAKE#
CLKRUN# / GPIO32
SUS_STAT# / GPIO61
SUSCLK / GPIO62
SLP_S5# / GPIO63
SLP_S4#
SLP_S3#
SLP_A#
SLP_SUS#
PMSYNCH
SLP_LAN# / GPIO29

A18 DSWVREN
R91 *SHORT_4 RSMRST#
E22 R504 *SHORT_4 DPWROK
B9 PCIE_WAKE# → PCIE_WAKE# (19,31)
N3 CLKRUN# → CLKRUN# (40)
G8 LPC_PD# → T33
N14 PCH_SUSCLK → T29
D10 SLP_S5# → T27
H4 → PM_SLP_S4# (40)
F4 → SIO_SLP_S3# (40)
G10 SLP_A# → T28
G16 → T25
AP14 → PM_SYNC (4)
K14 SLP_LAN# → T26 → SLP_LAN# (25)

EC-C-15
EC-B-36

+3V +3V_S5 +3V_S5 +3V_S5 +3V_S5 +3V_S5

System Power Management

DSW

CougarPoint_R1P0

Cougar Point (LVDS,DDI)

U14D

EC-B-31

(24) INT_LVDS_BLON
(24) INT_LVDS_VDDEN
R662 0/J_4
R664 0/J_4
C564 *0.1U/10V_4
C563 *0.1U/10V_4
RF reserved close to PCH

(24) LVDS_BRIGHT_PWM → P45 L_BKLTCTL
INT_EDIDCLK_R → T40 L_DDC_CLK
INT_EDIDDAT_R → K47 L_DDC_DATA
+3V R556 2.2K/J_4 R562 2.2K/J_4 → T45 L_CTRL_CLK, P39 L_CTRL_DATA
R573 2.37K/F_4 LVD_IBG → AF37 LVD_IBG
T30
AE48 LVD_VREFH
AE47 LVD_VREFL

INT_TXLCLKOUTN_R → AK39 LVDSA_CLK#
INT_TXLCLKOUTP_R → AK40 LVDSA_CLK
(24) INT_TXLOUTN0 INT_TXLOUTN0 → AN48 LVDSA_DATA#0
(24) INT_TXLOUTN1 INT_TXLOUTN1 → AM47 LVDSA_DATA#1
(24) INT_TXLOUTN2 INT_TXLOUTN2 → AK47 LVDSA_DATA#2
AJ48 LVDSA_DATA#3
(24) INT_TXLOUTP0 INT_TXLOUTP0 → AN47 LVDSA_DATA0
(24) INT_TXLOUTP1 INT_TXLOUTP1 → AM49 LVDSA_DATA1
(24) INT_TXLOUTP2 INT_TXLOUTP2 → AK49 LVDSA_DATA2
AJ47 LVDSA_DATA3

EC-B-31
(24) INT_EDIDCLK R678 0/J_4 INT_EDIDCLK_R
(24) INT_EDIDDAT R699 0/J_4 INT_EDIDDAT_R
C717 *22P/50V_4
C718 *22P/50V_4
(24) INT_TXLCLKOUTN R700 0/J_4 INT_TXLCLKOUTN_R
(24) INT_TXLCLKOUTP R701 0/J_4 INT_TXLCLKOUTP_R
C715 *22P/50V_4
C714 *22P/50V_4
RF reserved

AF40 LVDSB_CLK#
AF39 LVDSB_CLK
AH45 LVDSB_DATA#0
AH47 LVDSB_DATA#1
AF49 LVDSB_DATA#2
AF45 LVDSB_DATA#3
AH43 LVDSB_DATA0
AH49 LVDSB_DATA1
AF47 LVDSB_DATA2
AF43 LVDSB_DATA3

LVDS

INT_CRT_BLU → N48 CRT_BLUE
INT_CRT_GRE → P49 CRT_GREEN
INT_CRT_RED → T49 CRT_RED
(23) INT_DDCCLK → T39 CRT_DDC_CLK
(23) INT_DDCDAT → M40 CRT_DDC_DATA
(23) INT_CRT_HSYNC R536 33/J_4 INT_CRT_HSYNC_R → M47 CRT_HSYNC
(23) INT_CRT_VSYNC R541 33/J_4 INT_CRT_VSYNC_R → M49 CRT_VSYNC
DAC_IREF → T43 DAC_IREF
T42 CRT_IRTN
R551 1K/F_4

CRT

CougarPoint_R1P0

Digital Display Interface

SDVO_TVCLKINN → AP43
SDVO_TVCLKINP → AP45
SDVO_STALLN → AM42
SDVO_STALLP → AM40
SDVO_INTN → AP39
SDVO_INTP → AP40
SDVO_CTRLCLK → P38
SDVO_CTRLDATA → M39
DDPB_AUXN → AT49
DDPB_AUXP → AT47
DDPB_HPD → AT40 INT_HDMI_HPD_Q
DDPB_0N → AV42
DDPB_0P → AV40
DDPB_1N → AV45
DDPB_1P → AV46
DDPB_2N → AU48
DDPB_2P → AU47
DDPB_3N → AV47
DDPB_3P → AV49
DDPC_CTRLCLK → P46
DDPC_CTRLDATA → P42
DDPC_AUXN → AP47
DDPC_AUXP → AP49
DDPC_HPD → AT38 DDPC_HPD_PU
DDPC_0N → AY47
DDPC_0P → AY49
DDPC_1N → AY43
DDPC_1P → AY45
DDPC_2N → BA47
DDPC_2P → BA48
DDPC_3N → BB47
DDPC_3P → BB49
DDPD_CTRLCLK → M43
DDPD_CTRLDATA → M36
DDPD_AUXN → AT45
DDPD_AUXP → AT43
DDPD_HPD → BH41 DDPD_HPD_PU
DDPD_0N → BB43
DDPD_0P → BB45
DDPD_1N → BF44
DDPD_1P → BE44
DDPD_2N → BF42
DDPD_2P → BE42
DDPD_3N → BJ42
DDPD_3P → BG42

EC-B-31 RF reserved close to PCH
R702 0/J_4
R703 0/J_4
C617 *0.1U/10V_4
C608 *0.1U/10V_4
INT_HDMI_SCL (22)
INT_HDMI_SDA (22)

INT_HDMI_TXDN2 (22)
INT_HDMI_TXDP2 (22)
INT_HDMI_TXDN1 (22)
INT_HDMI_TXDP1 (22)
INT_HDMI_TXDN0 (22)
INT_HDMI_TXDP0 (22)
INT_HDMI_TXCN (22)
INT_HDMI_TXCP (22)

INT. HDMI

+5V
INT_HDMI_HPD_Q → 1 Q21 2N7002K 3 → INT_HDMI_HPD (22)
R599 *100K/J_4
R244 100K/J_4

R place close to PCH
R189 150/F_4 INT_CRT_BLU
R198 150/F_4 INT_CRT_GRE
R203 150/F_4 INT_CRT_RED

20ohm for SW;
33ohm for UMA

Deep sleep option	Support	Not support
SUS_PWR_ACK	To PCH SUSACK# (Pop R597)	EC or NC (Non-pop R597)
DPWROK	DSWPWRGD (Pop Q54, R663, Q55, R677)	RSMRST (Pop R639)
SLP_SUS	EC	NC

PCH Pull-high/low(CLG)

+3V
CLKRUN# R194 8.2K/J_4
XDP_DBRST# R192 10K/J_4
R195 *1K/J_4
RSMRST# R111 10K/J_4
SYS_PWROK R519 10K/J_4

+3V_S5
PM_RI# R136 10K/J_4
PM_BATLOW# R520 8.2K/J_4
PCIE_WAKE# R143 10K/J_4
SLP_LAN# R495 *10K/J_4
SUS_PWR_ACK R508 10K/J_4
AC_PRESENT R489 10K/J_4

EC-QV-10
PM_DRAM_PWRGD R493 *200/F_4

3/16 Change topology; 200ohm PU to +3V_S5

System PWR_OK(CLG)

+3V_S5
C113 *0.1U/10V_4
U9 TC7SH08
(4,43) SYS_PWROK → SYS_PWROK 4
IMVP_PWRGD (49)
EC_PWROK
R478 100K/J_4

+3V_RTC

R93 330K/J_4
DSWVREN
R104 *330K/J_4

On Die DSW VR Enable
High = Enable (Default)
Low = Disable

DPWROK FOR DSW

+3V_S5 D6 *RB500V-40
+3V_DSW
+3VPCU D5 *RB500V-40
+3VPCU
R80 *10K_4
R106 *10K_4
Q11 *PDTC144EU
Q12 *2N7002
DPWROK
C106 *0.1U/10V_4
add cap to timing tune

+3V
DDPC_HPD_PU R589 10K/J_4
DDPD_HPD_PU R253 10K/J_4
INT_EDIDCLK R199 2.2K/J_4
INT_EDIDDAT R191 2.2K/J_4
Follow PDG eDP disable guide

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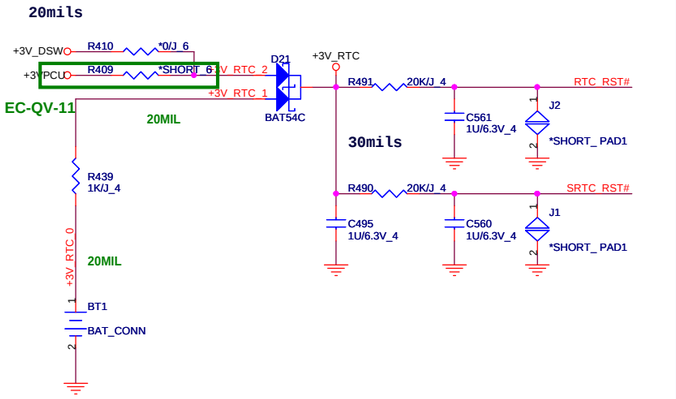
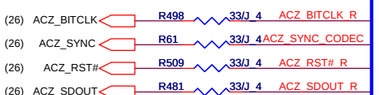
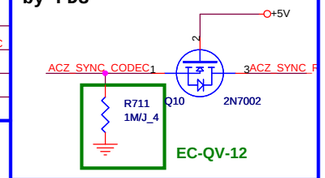
RTC Circuitry(RTC)



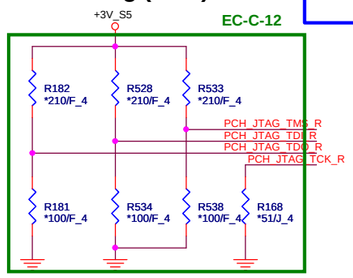
HDA Bus(CLG)



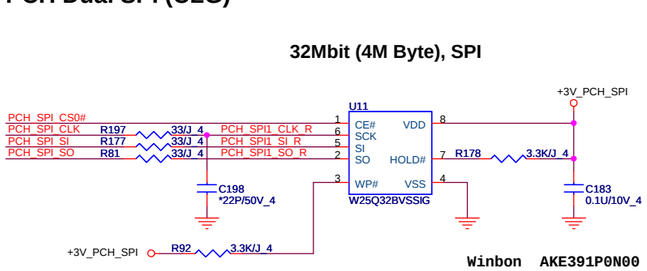
To Separate Codec Sync by PD3



PCH JTAG Debug (CLG)



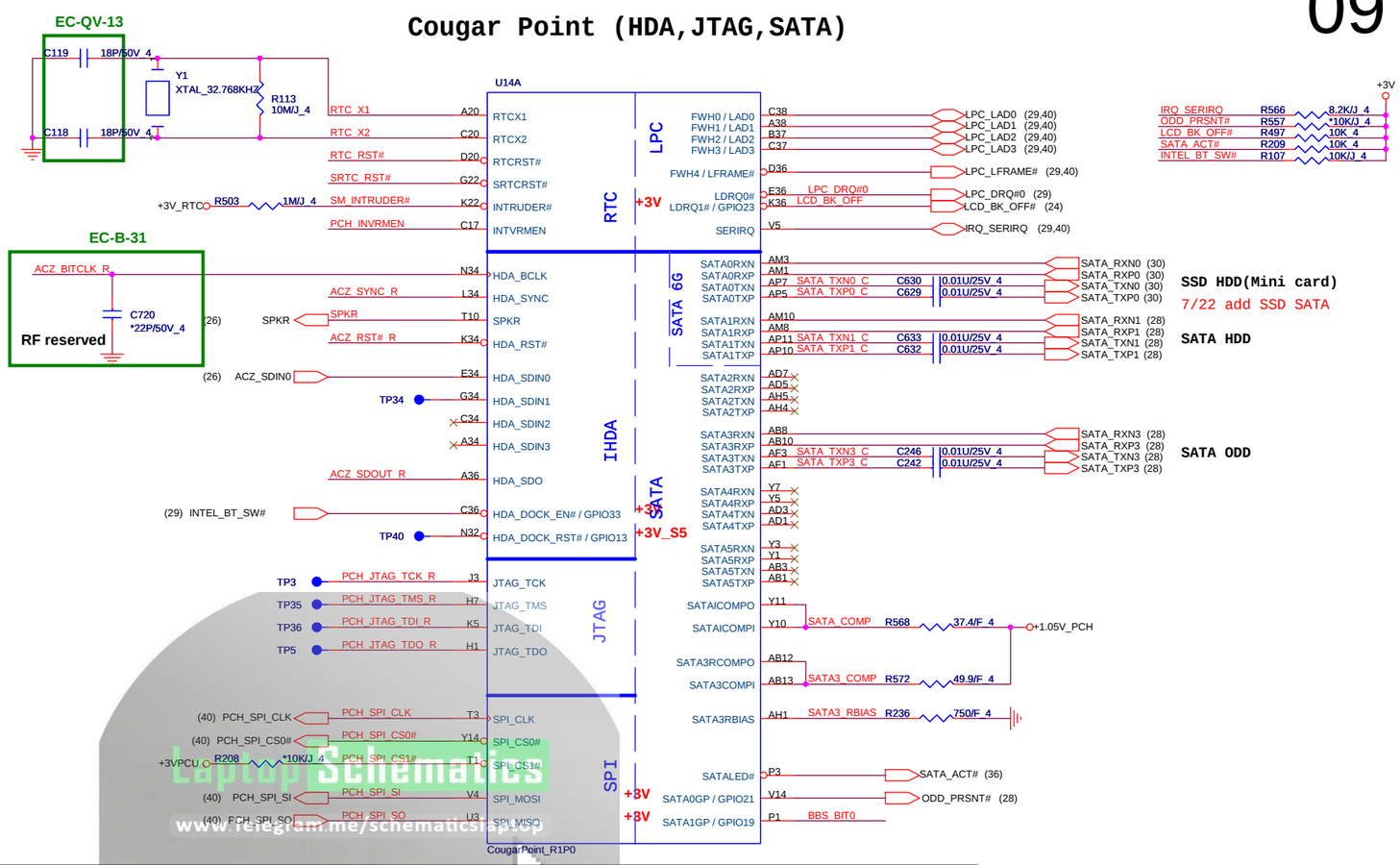
PCH Dual SPI (CLG)



PCH2(CLG)

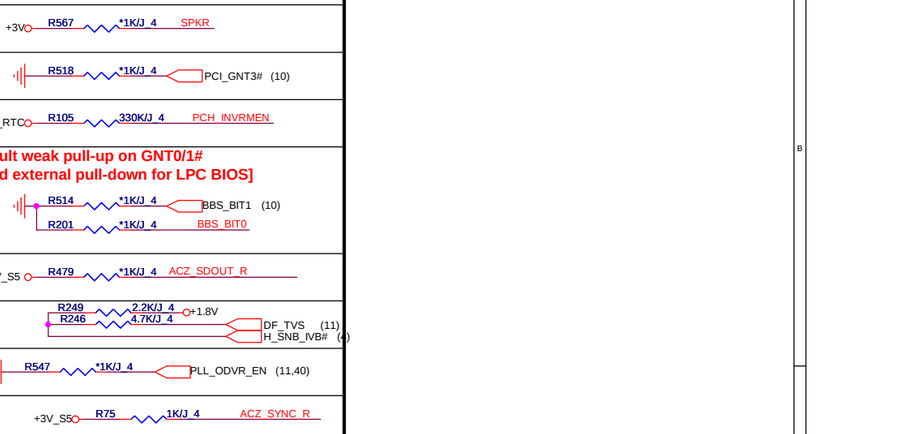
Cougar Point (HDA,JTAG,SATA)

09



PCH Strap Table

Pin Name	Strap description	Sampled	Configuration
SPKR	No reboot mode setting	PWROK	0 = Default (weak pull-down 20K) 1 = Setting to No-Reboot mode
GNT3# / GPIO55	Top-Block Swap Override	PWROK	0 = "top-block swap" mode 1 = Default (weak pull-up 20K)
INTVRMEN	Integrated 1.05V VRM enable	ALWAYS	Should be always pull-up
GNT1# / GPIO51	Boot BIOS Selection 1 [bit-1]	PWROK	GNT1# / GNT0# / Boot Location 1 / 1 / SPI * 0 / 0 / LPC
GPIO19	Boot BIOS Selection 0 [bit-0]	PWROK	
HDA_SDO	Flash Descriptor Security	RSMRST	0 = Override 1 = Default (weak pull-up 20K)
DF_TVS	DMI/FDI Termination voltage	PWROK	0 = Set to Vss 1 = Set to Vcc (weak pull-down 20K)
GPIO28	On-die PLL Voltage Regulator	RSMRST#	0 = Disable 1 = Enable (Default)
HDA_SYNC	On-Die PLL VR Voltage Select	RSMRST	0 = Support by 1.8V (weak pull-down) 1 = Support by 1.5V
GPIO8	Integrated Clock Chip Enable	RSMRST#	Should be pull-down (weak pull-up 20K)
SPI_MOSI	iTPM function Disable	APWROK	0 = Default (weak pull-down 20K) 1 = Enable
NV_ALE	Intel Anti-Theft HDD protection	PWROK	0 = Disable (Internal pull-down 20kohm)



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Cougar Point-M (PCI,USB,NVRAM)

U14E

RSVD

TP1 TP2 TP3 TP4 TP5 TP6 TP7 TP8 TP9 TP10 TP11 TP12 TP13 TP14 TP15 TP16 TP17 TP18 TP19 TP20 TP21 TP22 TP23 TP24 TP25 TP26 TP27 TP28 TP29 TP30 TP31 TP32 TP33 TP34 TP35 TP36 TP37 TP38 TP39 TP40

RSVD1 RSVD2 RSVD3 RSVD4 RSVD5 RSVD6 RSVD7 RSVD8 RSVD9 RSVD10 RSVD11 RSVD12 RSVD13 RSVD14 RSVD15 RSVD16 RSVD17 RSVD18 RSVD19 RSVD20 RSVD21 RSVD22 RSVD23 RSVD24 RSVD25 RSVD26 RSVD27 RSVD28 RSVD29

NV_ALE → TP47

PCI

PIRQA# PIRQB# PIRQC# PIRQD#

REQ1# / GPIO50 (11) BOARD_ID3 +3V
REQ2# / GPIO52 (36) RF_ON +3V
REQ3# / GPIO54 (11) BOARD_ID4 +3V
GNT1# / GPIO51 (9) BBS_BIT1 +3V
GNT2# / GPIO53 (38) BT_DIS +3V
GNT3# / GPIO55 (9) PCI_GNT3# +3V

PIRQE# / GPIO2 +3V
PIRQF# / GPIO3 +3V
PIRQG# / GPIO4 +3V
PIRQH# / GPIO5 +3V

(28,40) ODD_MDDA#

PME#

PLTRST# → PCI_PLTRST# → EC-B-01

CLKOUT_PCI0 CLKOUT_PCI1 CLKOUT_PCI2 CLKOUT_PCI3 CLKOUT_PCI4

CougarPoint_R1P0

USB

USBP0N/P0P USB0- (33) / USB0+ (33) — USB#0/eSATA Combo #1(Phoenix debug)
USBP1N/P1P USBP1- (32) / USBP1+ (32) — USB#1-> (External L side/BIOS debug)
USBP2N/P2P USBP2- (36) / USBP2+ (36) — CCD
USBP3N/P3P USBP3- (29) / USBP3+ (29) — WLAN
USBP4N/P4P USBP4- (29) / USBP4+ (29) — WWAN
USBP5N/P5P USBP5- (38) / USBP5+ (38) — BlueTooth

EHCI1

USBP6N/P6P USBP6- (38) / USBP6+ (38) — USB #2 Reserved
USBP7N/P7P USBP7- (31) / USBP7+ (31) — USB#4 (External R side&BIOS debug)
USBP8N/P8P USBP8- (31) / USBP8+ (31) — Card Reader
USBP9N/P9P USBP9- (32) / USBP9+ (32) — Figer Print
USBP10N/P10P USBP10- (27) / USBP10+ (27) — WiMax
USBP11N/P11P USBP11- (38) / USBP11+ (38) — USIM
USBP12N/P12P USBP12- (30) / USBP12+ (30)
USBP13N/P13P USBP13- (29) / USBP13+ (29)

EHCI2

USBRBIAS# C33 — USB_BIAS — R86 22.6/F_4
USBRBIAS B33

OC0# / GPIO59 A14 USB_OC0# → USB_OC0# (33) — USB_OC0# -->USB Port#0 ESATA OC pin
OC1# / GPIO40 K20 USB_OC1# → USB_OC1# (32) — USB_OC1# -->USB Port#1 OC pin
OC2# / GPIO41 B17 USB_OC2# → USB_OC2# (31) — USB_OC2# -->Reserved
OC3# / GPIO42 C16 USB_OC3# → USB_OC4# (32) — USB_OC4# -->USB Port #3 OC pin
OC4# / GPIO43 L16 USB_OC4#
OC5# / GPIO9 A16 USB_OC5#
OC6# / GPIO10 D14 USB_OC6# → USB30_EXT_SMI# (31) → EC-C-13
OC7# / GPIO14 C14 USB_OC7#

+3V_S5 OC0#..OC7#

EC-B-27

EC11 0.1U/10V_C0G_4 10P/50V/C0G_4
EC12 0.1U/10V_C0G_4 10P/50V/C0G_4

CLK_PCI_FB R510 0_4 CLK_PCI_FB_R
R508 22/J_4 CLK_PCI_LPC_R
R510 22/J_4 CLK_PCI_EC_R
(29) CLK_LPC_DEBUG
(40) CLK_PCI_8512
CLK_LPC_TPM_C
TP4 TP5

EC-B-31

CLK_PCI_FB
C811 *22P/50V_4
RF reserved

Cougar Point-M (PCI-E,SMBUS,CLK)

U14B

PCI-E*

LAN
(25) PCIE_RXN2_LAN C634 0.1U/10V_4 PCIE_TXN2_LAN_C
(25) PCIE_RXP2_LAN C635 0.1U/10V_4 PCIE_TXP2_LAN_C
(25) PCIE_TXN2_LAN
(25) PCIE_TXP2_LAN

WLAN
(29) PCIE_RXN3 C673 0.1U/10V_4 PCIE_TXN3_C
(29) PCIE_RXP3 C672 0.1U/10V_4 PCIE_TXP3_C
(29) PCIE_TXN3
(29) PCIE_TXP3

WWAN only use USB interface.

USB3.0
(31) PCIE_RXN5 C674 0.1U/16V_4 PCIE_TXN5_C
(31) PCIE_RXP5 C675 0.1U/16V_4 PCIE_TXP5_C
(31) PCIE_TXN5
(31) PCIE_TXP5

+3V_S5

SMBUS

SMBALERT# / GPIO11 +3V_S5 — E12 SMBALERT# — SMBALERT#
SMBCLK H14 — SMB_PCH_CLK
SMBDATA C9 — SMB_PCH_DAT
SML0ALERT# / GPIO60 +3V_S5 — A12 DRAMRST_CNTRL_PCH — DRAMRST_CNTRL_PCH (5)
SML0CLK C8 — SMB_CLK_ME0 — SMB_CLK_ME0 (20)
SML0DATA G12 — SMB_DATA_ME0 — SMB_DATA_ME0 (20)
SML1ALERT# / PCHHOT# / GPIO74 +3V_S5 — C13 SML1ALERT#_R
SML1CLK / GPIO58 +3V_S5 — E14 SMB_ME1_CLK
SML1DATA / GPIO75 +3V_S5 — M16 SMB_ME1_DAT

For EC

Controller Link

CL_CLK1 M7 — CL_CLK1 — TP38
CL_DATA1 T11 — CL_DATA1 — TP42
CL_RST1# P10 — CL_RST# — TP41

For LAN

EC-B-31

SMB_PCH_CLK — C727 *22P/50V_4
SMB_CLK_ME0 — C809 *22P/50V_4
SMB_ME1_CLK — C810 *22P/50V_4
RF reserved

CLOCKS

+3V_S5

PEG_A_CLKRQ#/ GPIO47 M10 — PEG_CLKREQ#

CLKOUT_PEG_A_N AB37 / CLKOUT_PEG_A_P AB38
CLKOUT_DMI_N AV22 / CLKOUT_DMI_P AU22 — CLK_CPU_BCLKN (4) / CLK_CPU_BCLKP (4)
CLKOUT_DP_N AM12 / CLKOUT_DP_P AM13 — CLK_DPLL_SSCLKN (4) / CLK_DPLL_SSCLKP (4)
CLKIN_DMI_N BF18 CLK_BUF_PCIE_3GPLLN / CLKIN_DMI_P BE18 CLK_BUF_PCIE_3GPLLP
CLKIN_GND1_N BJ30 CLK_BUF_BCLKN / CLKIN_GND1_P BG30 CLK_BUF_BCLKP
CLKIN_DOT_96N G24 CLK_BUF_DREFCLKN / CLKIN_DOT_96P E24 CLK_BUF_DREFCLKP
CLKIN_SATA_N AK7 CLK_BUF_DREFSSCLKN / CLKIN_SATA_P AK5 CLK_BUF_DREFSSCLKP
REFCLK14IN K45 CLK_PCH_14M
CLKIN_PCILOOPBACK H45 CLK_PCI_FB

XTAL25_IN V47 / XTAL25_OUT V49 — C247 18P/50V_4 — R224 1M/J_4 — Y2 25MHz — C221 18P/50V_4
XCLK_RCOMP Y47 — R211 90.9/F_4 — +1.05V_PCH

27Mz support DIS only

CLKOUTFLEX0 / GPIO64 K43 — TP37 — Reserve to cost down crystal.
CLKOUTFLEX1 / GPIO65 F47 CLK_27M_VGA_1 — R523 *0_4 — CLK_27M_VGA (17)
CLKOUTFLEX2 / GPIO66 H47 CLK_25M — TP84 — EC-B-33
CLKOUTFLEX3 / GPIO67 K49 CLK_48M_CARD — R180 22_4 — CLK_48M_CARD (27) — EC-C-13

CLKOUT_PCIE0N/P Y40/Y39 — PCIECLKRQ0# J2 — EC-B-30
CLKOUT_PCIE1N/P AB49/AB47 — PCIECLKRQ1# / GPIO18 M1 — +3V — LAN
CLKOUT_PCIE2N/P AA48/AA47 — PCIECLKRQ2# / GPIO20 V10 — +3V — WLAN
CLKOUT_PCIE3N/P Y37/Y36 — PCIECLKRQ3# / GPIO25 A8 — +3V_S5
CLKOUT_PCIE4N/P Y43/Y45 — PCIECLKRQ4# / GPIO26 L12 — +3V_S5 — USB3.0
CLKOUT_PCIE5N/P V45/V46 — PCIECLKRQ5# / GPIO44 L14 — +3V_S5 — EC-B-30
CLKOUT_PEG_B_N AB42 / CLKOUT_PEG_B_P AB40 — PEG_B_CLKRQ# / GPIO56 E6 — +3V_S5 — EC-B-30
CLKOUT_PCIE6N/P V40/V42 — PCIECLKRQ6# / GPIO45 T13 — +3V_S5 — EC-B-30
CLKOUT_PCIE7N/P V38/V37 — PCIECLKRQ7# / GPIO46 K12 — +3V_S5 — EC-B-02 EC-B-30
CLKOUT_ITPXDP_N AK13 / CLKOUT_ITPXDP_P AK14 — CLK_PCH_ITPN_R TP43 / CLK_PCH_ITPP_R TP44

WWAN only use USB interface.

CougarPoint_R1P0

SMBus(CLK)

+3V
R281 4.7K/J_4 — SMB_PCH_DAT — Q23 2N7002K — SMB_RUN_DAT — SMB_RUN_DAT (14,15)
R280 4.7K/J_4 — SMB_PCH_CLK — Q22 2N7002K — SMB_RUN_CLK — SMB_RUN_CLK (14,15)

PLTRST#(CLG)

+3V_S5 — C114 0.1U/10V_4 — U10 TC7SH08FU — PCI_PLTRST# — PLTRST# — R67 100K/J_4 — R68 *0_4 — PLTRST# (4,16,25,29,31)

(11) DGPU_PWR_EN#

PCI/USBOC# Pull-up(CLG)

+3V_S5 — R116 10KX8 — USB_OC4# USB_OC1# USB_OC2# USB_OC3# — USB_OC6# USB_OC0# USB_OC7# USB_OC5#

+3V — R99 10KX8 — MPC_PWR_CTRL# ST_DIS DGPU_PWR_EN# ODD_MDDA# — EXTTS_SNI_DRV0_PCH EXTTS_SNI_DRV1_PCH

+3V — PCI_PIRQA# R535 8.2K/J_4 / PCI_PIRQB# R540 8.2K/J_4 / PCI_PIRQC# R485 8.2K/J_4 / PCI_PIRQD# R486 8.2K/J_4

EC-C-18

LAN / WLAN / USB3.0

LAN: (25) CLK_PCIE_LANP / (25) CLK_PCIE_LANN — R234 SW@0X2 — CLKOUT_PCIE0P / CLKOUT_PCIE0N — (25) PCIE_CLKREQ_LAN# — R174 0_4 — PCIECLKRQ0#

WLAN: (29) CLK_PCIE_WLANN / (29) CLK_PCIE_WLANP — R231 SW@0X2 — CLKOUT_PCIE1N / CLKOUT_PCIE1P — (29) PCIE_CLKREQ_WLAN# — R190 0_4 — PCIECLKRQ1#

USB3.0: (31) CLK_PCIE_USB30N / (31) CLK_PCIE_USB30P — R570 SW@0X2 — CLKOUT_PCIE3N / CLKOUT_PCIE3P — PCIE_CLKREQ_USB30# — R150 0_4 — PCIECLKRQ3#

(16) CLK_PCIE_VGAN / (16) CLK_PCIE_VGAP — R569 SW@0X2 — CLKOUT_PEG_A_N / CLKOUT_PEG_A_P

DIS:Stuff
UMA:Non-stuff

MPC Switch Control	
MPC_PWR_CTRL#	Low = MPC ON High = MPC OFF (Default)

MPC_PWR_CTRL# — R145 *1K/J_4

CLK_REQ/Strap Pin(CLG)

+3V_S5

R631 10K/J_4 PCIECLKRQ9# / R379 10K/J_4 PCIECLKRQ5# / R620 10K/J_4 PCIECLKRQ6# / R621 10K/J_4 PCIECLKRQ7# / R622 10K/J_4 PCIECLKRQ8# / R149 10K/J_4 PCIE_CLKREQ_USB30# — EC-B-30

UMA:Ra
DIS:Rb

R529 — Ra — *10K/J_4 — PEG_CLKREQ# / PEG_CLKREQ# — R539 — Rb — 10K/J_4

CLK_BUF_BCLKN R256 10K/J_4 / CLK_BUF_BCLKP R257 10K/J_4
CLK_BUF_PCIE_3GPLLN R601 10K/J_4 / CLK_BUF_PCIE_3GPLLP R602 10K/J_4 / CLK_BUF_DREFCLKN R516 10K/J_4 / CLK_BUF_DREFCLKP R517 10K/J_4 / CLK_BUF_DREFSSCLKN R585 10K/J_4 / CLK_BUF_DREFSSCLKP R580 10K/J_4 / CLK_PCH_14M R543 10K/J_4

CLOCK TERMINATION for FCIM

+3V — R544 10K/J_4 PCIE_CLKREQ_WLAN# / R173 10K/J_4 PCIE_CLKREQ_LAN#

SMBus/Pull-up(CLG)

+3V_S5 — R69 2.2K/J_4 — (17,37,40) MB_CLK1 — Q8 2N7002K — SMB_ME1_CLK
+3V_S5 — R64 2.2K/J_4 — (17,37,40) MB_DATA1 — Q9 2N7002K — SMB_ME1_DAT

+3V_S5 — R494 1K/J_4 DRAMRST_CNTRL_PCH / R492 10K/J_4 SMBALERT# / R265 2.2K/J_4 SMB_PCH_CLK / R266 2.2K/J_4 SMB_PCH_DAT / R496 10K/J_4 SML1ALERT#_R

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Cougar Point (GPIO,VSS_NCTF,RSVD)

U14F

S_GPIO R553 100_4 T7 BMBUSY# / GPIO0 +3V
(40) EC_EXT_SMI# EC_EXT_SMI# A42 TACH1 / GPIO1 +3V
BOARD_ID0 EC-B-03 H36 TACH2 / GPIO6 +3V
(40) EC_EXT_SCI# EC_EXT_SCI# E38 TACH3 / GPIO7 +3V
SYSTEM_ID C10 GPIO8 +3V_S5
(25) LAN_DISABLE# LAN_DISABLE# C4 LAN_PHY_PWR_CTRL / GPIO12 +3V_S5
HOST_ALERT#1_R G2 GPIO15 +3V_S5
EC-B-04 (29) WLAN_OFF# U2 SATA4GP / GPIO16 +3V
DGPU_PWROK DGPU_PWROK D40 TACH0 / GPIO17 +3V
+3V Follow DMRB4, need check BIOS_REC T5 SCLOCK / GPIO22 +3V
R542 *10K (30) SDD_DA_DSS SDD_DA_DSS E8 GPIO24 / MEM_LED +3V_S5
GPIO27 E16 GPIO27 DSW
(9,40) PLL_ODVR_EN R546 *0/J_4 PLL_ODVR_EN_R P8 GPIO28 +3V_S5
STP_PCI# K1 STP_PCI# / GPIO34 +3V
(38) BT_ON# BT_ON# K4 GPIO35 +3V
(10) DGPU_PWR_EN# V8 SATA2GP / GPIO36 +3V
Need check EC-B-04 (29) WWAN_OFF# M5 SATA3GP / GPIO37 +3V
EC-C-19 MFG_MODE N2 SLOAD / GPIO38 +3V
FDI_OVRVLTG M3 SDATAOUT0 / GPIO39 +3V
TEST_SET_UP V13 SDATAOUT1 / GPIO48 +3V
(37,40) TEMP_ALERT# V3 SATA5GP / GPIO49 +3V
SV_DET D6 GPIO57 +3V_S5

GPIO

TACH4 / GPIO68 C40 BOARD_ID1 — EC-B-03
TACH5 / GPIO69 B41 T24
TACH6 / GPIO70 C41 SSD_DETECT# (30)
TACH7 / GPIO71 A40 BOARD_ID2

CPU/MISC

A20GATE P4 EC_A20GATE (40)
PECI AU16 TP46
RCIN# P5 EC_RCIN# EC_RCIN# (40)
PROCPWRGD AY11 H_PWRGOOD (4)
THRMTRIP# AY10 PCH_THRMTRIP# R595 390/J_4 PM_THRMTRIP# (4)
INIT3_3V# T14
DF_TVS AY1 DF_TVS (9)

TS_VSS1 AH8
TS_VSS2 AK11
TS_VSS3 AH10
TS_VSS4 AK10
NC_1 P37

3/16 Connected to GND
DG rev0.9

NCTF

VSS_NCTF_15 BG2
VSS_NCTF_16 BG48
VSS_NCTF_17 BH3
VSS_NCTF_18 BH47
VSS_NCTF_19 BJ4
VSS_NCTF_20 BJ44
VSS_NCTF_21 BJ45
VSS_NCTF_22 BJ46
VSS_NCTF_23 BJ5
VSS_NCTF_24 BJ6
VSS_NCTF_25 C2
VSS_NCTF_26 C48
VSS_NCTF_27 D1
VSS_NCTF_28 D49
VSS_NCTF_29 E1
VSS_NCTF_30 E49
VSS_NCTF_31 F1
VSS_NCTF_32 F49

A4 VSS_NCTF_1
A44 VSS_NCTF_2
A45 VSS_NCTF_3
A46 VSS_NCTF_4
A5 VSS_NCTF_5
A6 VSS_NCTF_6
B3 VSS_NCTF_7
B47 VSS_NCTF_8
BD1 VSS_NCTF_9
BD49 VSS_NCTF_10
BE1 VSS_NCTF_11
BE49 VSS_NCTF_12
BF1 VSS_NCTF_13
BF49 VSS_NCTF_14

CougarPoint_R1P0

SGPIO

S_GPIO R560 10K/J_4 R561 *0/J_4 +3V

GPIO Pull-up/Pull-down(CLG)

+3V_S5
LAN_DISABLE# R157 10K/J_4

+3V
EC_EXT_SMI# R89 10K/J_4
EC_EXT_SCI# R487 10K/J_4
SSD_DETECT# R110 10K/J_4
STP_PCI# R193 10K/J_4
EC_A20GATE R550 10K/J_4
EC_RCIN# R549 10K/J_4
TEMP_ALERT# R217 10K/J_4
BT_ON# R537 10K/J_4
DGPU_PWROK R500 10K/J_4
EC-B-04 WLAN_OFF# R530 10K/J_4

GPIO27 R515 10K/J_4

	GPIO71	GPIO68	GPIO6
	BOARD_ID2	BOARD_ID1	BOARD_ID0
KL7	0	0	0
KL8	0	1	0
KL9	1	0	0
KL8A	0	1	1
KL9A	1	0	1

EC-B-05

+3V
R108 *10K/J_4 BOARD_ID0 R87 10K/J_4
R488 10K/J_4 BOARD_ID1 R480 *10K/J_4
R109 *10K/J_4 BOARD_ID2 R88 10K/J_4
R507 10K/J_4 BOARD_ID3 R501 *10K/J_4
R483 10K/J_4 BOARD_ID4 R484 *10K/J_4
R142 10K/J_4 SYSTEM_ID R144 *10K/J_4

(10) BOARD_ID3 BOARD_ID3
(10) BOARD_ID4 BOARD_ID4

SV_SET_UP
High = Strong (Default)

+3V
TEST_SET_UP R559 10K/J_4 R565 *0/J_4

EC-QV-03

+3V_S5
R526 *10K/J_4 SV_DET R524 100K/J_4

+3V_S5
HOST_ALERT#1_R R525 1K/J_4

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

MFG-TEST

+3V
MFG_MODE R202 10K/J_4 R200 *0/J_4

+3V
R548 100K/J_4 FDI_OVRVLTG R545 *1K/F_4

FDI TERMINATION VOLTAGE OVERRIDE	LOW - Tx, Rx terminated to same voltage

+3V
SDD_DA_DSS R681 *200K/F_4

DMI TERMINATION VOLTAGE OVERRIDE	Low = Tx, Rx terminated to same voltage (DC Coupling Mode) (DEFAULT)

+3V
BIOS_REC R564 10K/J_4 R558 *0/J_4

BIOS RECOVERY	High = Disable (Default) Low = Enable

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COUGAR POINT (POWER)

Cougar Point-M (POWER)

U14G — POWER — CougarPoint_R1P0

VCC CORE: VCCCORE[1..17]
CRT: VCCADAC, VSSADAC
LVDS: VCCALVDS, VSSALVDS, VCCTX_LVDS[1..4]
HVCMOS: VCC3_3[6], VCC3_3[7]
DMI: VCCVRM[3], VCCDMI[1], VCCCLKDMI
DFT / SPI: VCCDFTERM[1..4]
FDI: VCCSPI
VCCIO: VCCIO[28], VCCAPLLEXP, VCCIO[15..16], VCCIO[17..24], VCCIO[25..26], VCC3_3[3]

U14J — POWER — CougarPoint_R1P0

USB: VCCUSBCORE, VCCIO[29..33], VCCUSB3_3[7..10], VCCIO[34], VCCUSB3_3[6], V5REF_SUS, DCPSUS[4], VCCUSB3_3[1]
PCI/GPIO/LPC: V5REF, VCCUSB3_3[2..5], VCC3_3[1], VCC3_3[8], VCC3_3[4], VCC3_3[2]
SATA: VCCIO[5], VCCIO[12..13], VCCIO[6], VCCAPLLSATA, VCCVRM[1], VCCIO[2..4]
MISC: VCCASW[22..23], VCCASW[21], VCCSUSHDA
CPU: VCCACLK, VCCDSW3_3, DCPSUSBYP, VCC3_3[5], VCCAPLLDMI2, VCCIO[14], DCPSUS[3], VCCASW[1..20], DCPRTC, VCCVRM[4], VCCADPLLA, VCCADPLLB, VCCIO[7], VCCDIFFCLKN[1..3], VCCSSC, DCPSST, DCPSUS[1..2], V_PROC_IO
RTC: VCCRTC
HDA: VCCSUSHDA

Power rails and measurements

- VccCORE =1.3 A(60mils) — +1.05V_PCH_VCC — R247 0_1206 — C616 1U/6.3V_4, C602 1U/6.3V_4, C595 1U/6.3V_4, C260 10U/6.3V_6
- +1.05V_PCH_VCCDPLL_EXP — EC-C-15 — R239 *SHORT_6
- +1.05V_VCCAPLL_EXP — L25 *1uH/25mA_6 — C278 *10U/6.3V_6
- VccIO =2.925 A(140mils) — +1.05V_VCCIO — R261 0_1206 — C622 1U/6.3V_4, C620 1U/6.3V_4, C623 1U/6.3V_4, C628 1U/6.3V_6, C286 10U/6.3V_6
- +3V_VCC_EXP — EC-C-15 — R603 *SHORT_8 — C671 0.1U/10V_4
- +VCCAFDI_VRM — R259 *0/J_8 — +1.05V_VCCAPLL_FDI — R242 *SHORT_8 — +1.05V_VCCDPLL_FDI — EC-C-15
- VccADAC =1mA(8mils) — +VCCA_DAC_1_2 — L38 180ohm/5A — R552 *0/J_6 — C579 0.01U/25V_4, C578 0.1U/10V_4, C565 10U/6.3V_6
- VccALVDS=1mA(8mils) — +VCCALVDS — R593 *0/J_4 — R594 Ra 0/J_4
- VccTX_LVDS=60mA(10mils) — +VCC_TX_LVDS — L28 *0.1uH_8 — R584 Rb 0/J_4 — C625 0.01U/25V_4, C626 0.01U/25V_4, C287 22U/6.3V_8

	DIS	UMA
Ra	R594	R593
Rb	R584	L28

- +3V_VCC_GIO — EC-C-15 — R563 *SHORT_6 — C582 0.1U/10V_4
- VCCDMI = 42mA(10mils) — +1.1V_VCC_DMI — R587 *SHORT_4 — +1.05V_PCH — C624 1U/6.3V_4
- +VCCAFDI_VRM — +VCCAFDI_VRM
- VCCCLKDMI = 20mA(8mils)
- +1.1V_VCC_DMI_CCI — L22 *10uH_8 — +VCC_DMI_CCI — R241 *1/F_4 — R245 *SHORT_4 — +1.05V_PCH — C593 1U/6.3V_4, C259 *10U/6.3V_6
- VCCPNAND = 190 mA(15mils) — +VCCP_NAND — R250 *SHORT_8 — C614 0.1U/10V_4
- VCCSPI = 20mA(8mils) — +3V_VCCME_SPI — R212 *SHORT_6 — R220 *0/J_6 — C219 1U/6.3V_4
- VCCVRM: 1.8V (Destop) 02/20 del for Pre-ES1 / 1.5V (Mobile) — +VCCAFDI_VRM — EC-C-20 — R222 BLM18PG181SN1D(180,1.5A)_6 — R216 *0/J_6 — C825 *1U/10V_4 — EC-C-03
- VCCME(+1.05V) = ??A(??mils) — +1.05V_VCCEPW — R254 0_1206 — C586 1U/6.3V_4, C592 1U/6.3V_4, C581 1U/6.3V_4, C268 22U/6.3V_8, C265 22U/6.3V_8
- VCCDIFFCLKN= 55mA(10mils) — VCCSSC= 95mA(10mils) — +V1.05V_SSCVCC — C574 0.1U/10V_4 — +VCCSST
- 1mA(8mils) — +1.05V_PCH — EC-C-15 — R258 *SHORT_4 — +V1.05M_VCCSUS — +VTT_VCCPCPU — C283 4.7U/6.3V_6, C270 0.1U/10V_4, C280 0.1U/10V_4
- VCCRTC<1mA(8mils) — +3V_RTC — C107 1U/6.3V_4, C86 0.1U/10V_4, C130 0.1U/10V_4
- VCCDSW3_3= 3mA — +VCCDSW — R531 0/J_4 — R532 *0/J_4 — +3V_S5 — +3V_DSW — C573 0.1U/10V_4 — PCH_VCCDSW — C584 0.1U/10V_4 — +3V_SUS_CLKF33
- +1.05V_PCH — L24 *10uH/100mA_8 — +VCCAPLL_CPY_PCH — C273 *10U/6.3V_6 — +VCCAPLL_CPY — R600 *SHORT_6 — EC-C-15
- +VCCACLK — +VCCDSW — +VCCPLL_CPY — +VCCSUS1 — C601 *1U/6.3V_4
- VccASW =1.01 A(60mils) — C596 1U/6.3V_4, C606 1U/6.3V_4, C607 1U/6.3V_4, C572 *1U/6.3V_4
- 65mA(10mils) — +1.05V_VCCA_A_DPL — C566 0.1U/10V_4 — +VCCRTCEXT
- 8mA(8mils) — +1.05V_VCCA_B_DPL
- +VCCDIFFCLK — +VCCDIFFCLKN
- +VCCIO1 — R232 *SHORT_6 — EC-C-15 — C594 1U/6.3V_4
- VCCVRM= 114mA(15mils) — +V1.1LAN_VCCAPLL — L21 *10uH/100mA_8 — C257 *10U/6.3V_6
- ??mA(??mils)
- VCCME = 1.01A(60mils) — +1.05V_VCCEPW
- VCCSUSHDA= 10mA(8mils) — +V3.3A_1.5A_HDA_IO — R482 *0/J_4 — R499 0/J_4 — C562 *1U/6.3V_4, C570 0.1U/10V_4
- VCCSUS3_3 = 119mA(15mils) — +3V_VCCPUSB — R101 *SHORT_6 — R94 *SHORT_6 — C585 0.1U/10V_4, C568 0.1U/10V_4
- VCC5REFSUS=1mA — +5V_PCH_VCC5REFSUS — R62 10/F_4 — D3 RB500V-40 — C567 0.1U/10V_4
- V5REF= 1mA — +5V_PCH_VCC5REF — R76 10/F_4 — D4 RB500V-40 — C571 1U/6.3V_4
- VCCSUS3_3 = 119mA(15mils) — +3V_VCCPSUS — R71 *SHORT_6 — C569 1U/10V_4
- VCCPCORE = 28mA(10mils) — +3V_VCCPCORE — R221 *SHORT_6 — C583 0.1U/10V_4
- +3V_VCCAUBG — EC-C-15 — R66 *SHORT_6 — C576 1U/6.3V_4
- +VCCAUPLL — C575 0.1U/10V_4
- +V1.05S_SATA3 — R248 *SHORT_8 — C609 0.1U/10V_4, C597 1U/10V_4
- +VCCA_USBSUS — +3V_VCCPSUS — C613 *1U/6.3V_4

Laptop Schematics boilerplate

Laptop Schematics
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IBEX PEAK-M (GND)

U14H

H5	VSS[0]		
AA17	VSS[1]	VSS[80]	AK38
AA2	VSS[2]	VSS[81]	AK4
AA3	VSS[3]	VSS[82]	AK42
AA33	VSS[4]	VSS[83]	AK46
AA34	VSS[5]	VSS[84]	AK8
AB11	VSS[6]	VSS[85]	AL16
AB14	VSS[7]	VSS[86]	AL17
AB39	VSS[8]	VSS[87]	AL19
AB4	VSS[9]	VSS[88]	AL2
AB43	VSS[10]	VSS[89]	AL21
AB5	VSS[11]	VSS[90]	AL23
AB7	VSS[12]	VSS[91]	AL26
AC19	VSS[13]	VSS[92]	AL27
AC2	VSS[14]	VSS[93]	AL31
AC21	VSS[15]	VSS[94]	AL33
AC24	VSS[16]	VSS[95]	AL34
AC33	VSS[17]	VSS[96]	AL48
AC34	VSS[18]	VSS[97]	AM11
AC48	VSS[19]	VSS[98]	AM14
AD10	VSS[20]	VSS[99]	AM36
AD11	VSS[21]	VSS[100]	AM39
AD12	VSS[22]	VSS[101]	AM43
AD13	VSS[23]	VSS[102]	AM45
AD19	VSS[24]	VSS[103]	AM46
AD24	VSS[25]	VSS[104]	AM7
AD26	VSS[26]	VSS[105]	AN2
AD27	VSS[27]	VSS[106]	AN29
AD33	VSS[28]	VSS[107]	AN3
AD34	VSS[29]	VSS[108]	AN31
AD36	VSS[30]	VSS[109]	AP12
AD37	VSS[31]	VSS[110]	AP19
AD38	VSS[32]	VSS[111]	AP28
AD39	VSS[33]	VSS[112]	AP30
AD4	VSS[34]	VSS[113]	AP32
AD40	VSS[35]	VSS[114]	AP38
AD42	VSS[36]	VSS[115]	AP4
AD43	VSS[37]	VSS[116]	AP42
AD45	VSS[38]	VSS[117]	AP46
AD46	VSS[39]	VSS[118]	AP8
AD8	VSS[40]	VSS[119]	AR2
AE2	VSS[41]	VSS[120]	AR48
AE3	VSS[42]	VSS[121]	AT11
AE10	VSS[43]	VSS[122]	AT13
AE12	VSS[44]	VSS[123]	AT18
AD14	VSS[45]	VSS[124]	AT22
AD16	VSS[46]	VSS[125]	AT26
AE16	VSS[47]	VSS[126]	AT28
AE19	VSS[48]	VSS[127]	AT30
AE24	VSS[49]	VSS[128]	AT32
AE26	VSS[50]	VSS[129]	AT34
AE27	VSS[51]	VSS[130]	AT39
AE29	VSS[52]	VSS[131]	AT42
AE31	VSS[53]	VSS[132]	AT46
AE38	VSS[54]	VSS[133]	AT7
AF4	VSS[55]	VSS[134]	AU24
AF42	VSS[56]	VSS[135]	AU30
AF46	VSS[57]	VSS[136]	AV16
AF5	VSS[58]	VSS[137]	AV20
AF7	VSS[59]	VSS[138]	AV24
AF8	VSS[60]	VSS[139]	AV30
AG19	VSS[61]	VSS[140]	AV38
AG2	VSS[62]	VSS[141]	AV4
AG31	VSS[63]	VSS[142]	AV43
AG48	VSS[64]	VSS[143]	AV8
AH11	VSS[65]	VSS[144]	AW14
AH3	VSS[66]	VSS[145]	AW18
AH36	VSS[67]	VSS[146]	AW2
AH39	VSS[68]	VSS[147]	AW22
AH40	VSS[69]	VSS[148]	AW26
AH42	VSS[70]	VSS[149]	AW28
AH46	VSS[71]	VSS[150]	AW32
AH7	VSS[72]	VSS[151]	AW34
AJ19	VSS[73]	VSS[152]	AW36
AJ21	VSS[74]	VSS[153]	AW40
AJ24	VSS[75]	VSS[154]	AW48
AJ33	VSS[76]	VSS[155]	AV11
AJ34	VSS[77]	VSS[156]	AY12
AK12	VSS[78]	VSS[157]	AY22
AK3	VSS[79]	VSS[158]	AY28

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U14I

AY4	VSS[159]	VSS[259]	H46
AY42	VSS[160]	VSS[260]	K18
AY46	VSS[161]	VSS[261]	K26
AY8	VSS[162]	VSS[262]	K39
B11	VSS[163]	VSS[263]	K46
B15	VSS[164]	VSS[264]	K7
B19	VSS[165]	VSS[265]	L18
B23	VSS[166]	VSS[266]	L2
B27	VSS[167]	VSS[267]	L20
B31	VSS[168]	VSS[268]	L26
B35	VSS[169]	VSS[269]	L28
B39	VSS[170]	VSS[270]	L36
B7	VSS[171]	VSS[271]	L48
F45	VSS[172]	VSS[272]	M12
BB12	VSS[173]	VSS[273]	P16
BB16	VSS[174]	VSS[274]	M18
BB20	VSS[175]	VSS[275]	M22
BB22	VSS[176]	VSS[276]	M24
BB24	VSS[177]	VSS[277]	M30
BB28	VSS[178]	VSS[278]	M32
BB30	VSS[179]	VSS[279]	M34
BB38	VSS[180]	VSS[280]	M38
BB4	VSS[181]	VSS[281]	M4
BB46	VSS[182]	VSS[282]	M42
BC14	VSS[183]	VSS[283]	M46
BC18	VSS[184]	VSS[284]	M8
BC2	VSS[185]	VSS[285]	N18
BC22	VSS[186]	VSS[286]	P30
BC26	VSS[187]	VSS[287]	N47
BC32	VSS[188]	VSS[288]	P11
BC34	VSS[189]	VSS[289]	P18
BC36	VSS[190]	VSS[290]	T33
BC40	VSS[191]	VSS[291]	P40
BC42	VSS[192]	VSS[292]	P43
BC48	VSS[193]	VSS[293]	P47
BD46	VSS[194]	VSS[294]	P7
BD5	VSS[195]	VSS[295]	R2
BF22	VSS[196]	VSS[296]	R48
BF26	VSS[197]	VSS[297]	T12
BF40	VSS[198]	VSS[298]	T31
BF10	VSS[199]	VSS[299]	T37
BF12	VSS[200]	VSS[300]	T4
BF16	VSS[201]	VSS[301]	W34
BF20	VSS[202]	VSS[302]	T46
BF22	VSS[203]	VSS[303]	T47
BF24	VSS[204]	VSS[304]	T8
BF26	VSS[205]	VSS[305]	V11
BF28	VSS[206]	VSS[306]	V17
BD3	VSS[207]	VSS[307]	V26
BF30	VSS[208]	VSS[308]	V27
BF38	VSS[209]	VSS[309]	V29
BF40	VSS[210]	VSS[310]	V31
BF8	VSS[211]	VSS[311]	V36
BG17	VSS[212]	VSS[312]	V39
BG21	VSS[213]	VSS[313]	V43
BG33	VSS[214]	VSS[314]	V7
BG44	VSS[215]	VSS[315]	W17
BG8	VSS[216]	VSS[316]	W19
BH11	VSS[217]	VSS[317]	W2
BH15	VSS[218]	VSS[318]	W27
BH17	VSS[219]	VSS[319]	W48
BH19	VSS[220]	VSS[320]	Y12
H10	VSS[221]	VSS[321]	Y38
BH27	VSS[222]	VSS[322]	Y4
BH31	VSS[223]	VSS[323]	Y42
BH33	VSS[224]	VSS[324]	Y46
BH35	VSS[225]	VSS[325]	Y8
BH39	VSS[226]	VSS[328]	BG29
BH43	VSS[227]	VSS[329]	N24
BH7	VSS[228]	VSS[330]	AJ3
D3	VSS[229]	VSS[331]	AD47
D12	VSS[230]	VSS[333]	B43
D16	VSS[231]	VSS[334]	BE10
D18	VSS[232]	VSS[335]	BG41
D22	VSS[233]	VSS[337]	G14
D24	VSS[234]	VSS[338]	H16
D26	VSS[235]	VSS[340]	T36
D30	VSS[236]	VSS[342]	BG22
D32	VSS[237]	VSS[343]	BG24
D34	VSS[238]	VSS[344]	C22
D38	VSS[239]	VSS[345]	AP13
D42	VSS[240]	VSS[346]	M14
D8	VSS[241]	VSS[347]	AP3
E18	VSS[242]	VSS[348]	AP1
E26	VSS[243]	VSS[349]	BE16
G18	VSS[244]	VSS[350]	BC16
G20	VSS[245]	VSS[351]	BG28
G26	VSS[246]	VSS[352]	BJ28
G28	VSS[247]		
G36	VSS[248]		
G48	VSS[249]		
H12	VSS[250]		
H18	VSS[251]		
H22	VSS[252]		
H24	VSS[253]		
H26	VSS[254]		
H30	VSS[255]		
H32	VSS[256]		
H34	VSS[257]		
F3	VSS[258]		

CougarPoint_R1P0

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Quanta Computer Inc.

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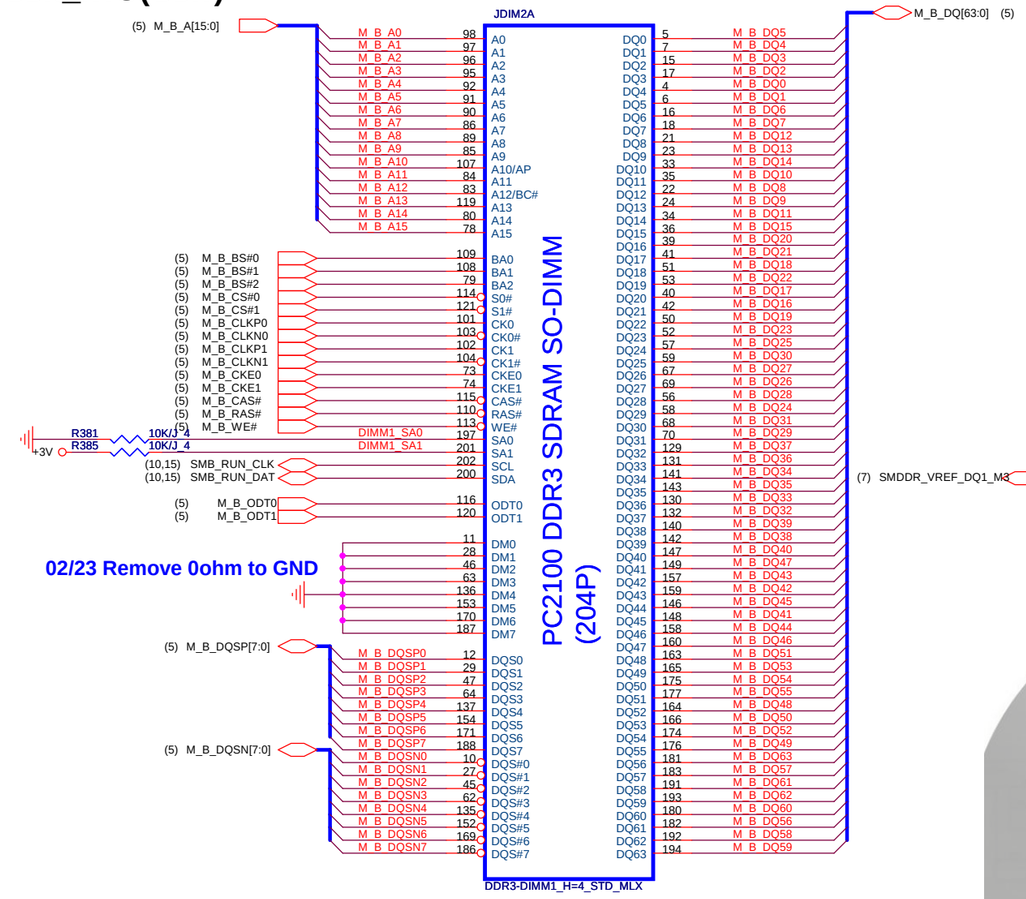
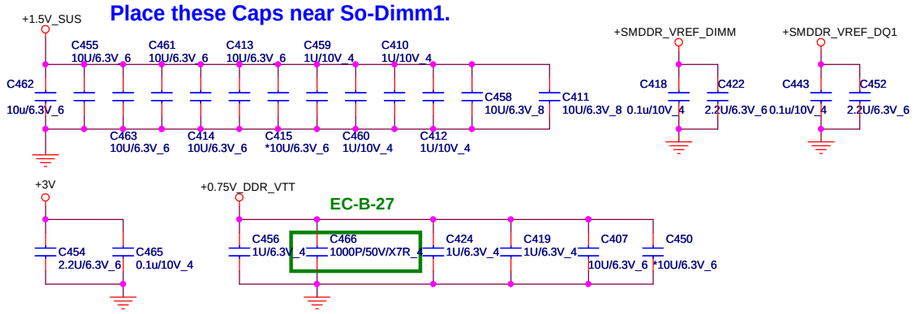
DDR_RVS(DDR)



Place these Caps near So-Dimm1.

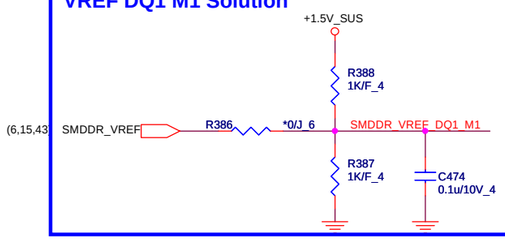


VREF DQ1 M2 Solution

6/22 Remove M2 Solution by MOW26

A16

VREF DQ1 M1 Solution



	STD 4H	STD 8H
FOX		
LTK	DGMK4000004	DGMK4000097
SUY		
MLX	DGMK4000011	DGMK4000080
Standard 8H type:DDR-C-2013310-204p-1		

PROJECT KL5A
Quanta Computer Inc.

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Custom	DDRIII SO-DIMM-0	1A

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DDR_RVS(DDR)

(5) M_A_A[15:0]

JDIM1A

M_A_A0 98 A0
M_A_A1 97 A1
M_A_A2 96 A2
M_A_A3 95 A3
M_A_A4 92 A4
M_A_A5 91 A5
M_A_A6 90 A6
M_A_A7 86 A7
M_A_A8 89 A8
M_A_A9 85 A9
M_A_A10 107 A10/AP
M_A_A11 84 A11
M_A_A12 83 A12/BC#
M_A_A13 119 A13
M_A_A14 80 A14
M_A_A15 78 A15

(5) M_A_BS#0 109 BA0
(5) M_A_BS#1 108 BA1
(5) M_A_BS#2 79 BA2
(5) M_A_CS#0 114 S0#
(5) M_A_CS#1 121 S1#
(5) M_A_CLKP0 101 CK0
(5) M_A_CLKN0 103 CK0#
(5) M_A_CLKP1 102 CK1
(5) M_A_CLKN1 104 CK1#
(5) M_A_CKE0 73 CKE0
(5) M_A_CKE1 74 CKE1
(5) M_A_CAS# 115 CAS#
(5) M_A_RAS# 110 RAS#
(5) M_A_WE# 113 WE#

R356 10K/J_4
R355 10K/J_4
DIMM0_SA0 197 SA0
DIMM0_SA1 201 SA1

(10,14) SMB_RUN_CLK 202 SCL
(10,14) SMB_RUN_DAT 200 SDA

(5) M_A_ODT0 116 ODT0
(5) M_A_ODT1 120 ODT1

02/23 Remove 0ohm to GND

11 DM0
28 DM1
46 DM2
63 DM3
136 DM4
153 DM5
170 DM6
187 DM7

(5) M_A_DQSP[7:0]

M_A_DQSP0 12 DQS0
M_A_DQSP1 29 DQS1
M_A_DQSP2 47 DQS2
M_A_DQSP3 64 DQS3
M_A_DQSP4 137 DQS4
M_A_DQSP5 154 DQS5
M_A_DQSP6 171 DQS6
M_A_DQSP7 188 DQS7

(5) M_A_DQSN[7:0]

M_A_DQSN0 10 DQS#0
M_A_DQSN1 27 DQS#1
M_A_DQSN2 45 DQS#2
M_A_DQSN3 62 DQS#3
M_A_DQSN4 135 DQS#4
M_A_DQSN5 152 DQS#5
M_A_DQSN6 169 DQS#6
M_A_DQSN7 186 DQS#7

PC2100 DDR3 SDRAM SO-DIMM (204P)

DDR3-DIMM0_H=8_STD_LTS

M_A_DQ[63:0] (5)

DQ0 5 M_A_DQ4
DQ1 7 M_A_DQ5
DQ2 15 M_A_DQ6
DQ3 17 M_A_DQ7
DQ4 4 M_A_DQ0
DQ5 6 M_A_DQ1
DQ6 16 M_A_DQ3
DQ7 18 M_A_DQ2
DQ8 21 M_A_DQ13
DQ9 23 M_A_DQ9
DQ10 33 M_A_DQ15
DQ11 35 M_A_DQ14
DQ12 22 M_A_DQ12
DQ13 24 M_A_DQ8
DQ14 34 M_A_DQ10
DQ15 36 M_A_DQ11
DQ16 39 M_A_DQ22
DQ17 41 M_A_DQ19
DQ18 51 M_A_DQ16
DQ19 53 M_A_DQ21
DQ20 40 M_A_DQ18
DQ21 42 M_A_DQ23
DQ22 50 M_A_DQ17
DQ23 52 M_A_DQ20
DQ24 57 M_A_DQ31
DQ25 59 M_A_DQ27
DQ26 67 M_A_DQ30
DQ27 69 M_A_DQ29
DQ28 56 M_A_DQ24
DQ29 58 M_A_DQ26
DQ30 68 M_A_DQ25
DQ31 70 M_A_DQ28
DQ32 129 M_A_DQ37
DQ33 131 M_A_DQ33
DQ34 141 M_A_DQ38
DQ35 143 M_A_DQ34
DQ36 130 M_A_DQ32
DQ37 132 M_A_DQ36
DQ38 140 M_A_DQ35
DQ39 142 M_A_DQ39
DQ40 147 M_A_DQ44
DQ41 149 M_A_DQ47
DQ42 157 M_A_DQ46
DQ43 159 M_A_DQ45
DQ44 146 M_A_DQ41
DQ45 148 M_A_DQ40
DQ46 158 M_A_DQ42
DQ47 160 M_A_DQ43
DQ48 163 M_A_DQ54
DQ49 165 M_A_DQ55
DQ50 175 M_A_DQ51
DQ51 177 M_A_DQ50
DQ52 164 M_A_DQ48
DQ53 166 M_A_DQ49
DQ54 174 M_A_DQ53
DQ55 176 M_A_DQ52
DQ56 181 M_A_DQ61
DQ57 183 M_A_DQ58
DQ58 191 M_A_DQ57
DQ59 193 M_A_DQ63
DQ60 180 M_A_DQ56
DQ61 182 M_A_DQ60
DQ62 192 M_A_DQ59
DQ63 194 M_A_DQ62

	STD 4H	STD 8H
FOX		
LTK	DGMK4000004	DGMK4000097
SUY		
MLX	DGMK4000011	DGMK4000080

Standard 4H type:DDR-C-2013289-204p

+1.5V_SUS

2.48A

JDIM1B

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

+3V 199 VDDSPD

77 NC1
122 NC2
125 NCTEST

+3V R354 10K/J_4

(14) PM_EXTTS#0 PM_EXTTS#0 198 EVENT#
(5,14) DDR3_DRAMRST# 30 RESET#

SMDDR_VREF_DQ0_M1 R359 0/J_6
(7) SMDDR_VREF_DQ0_M3 SMDDR_VREF_DQ0_M3 R360 *0/J_6

+SMDDR_VREF_DQ0 1 VREF_DQ
+SMDDR_VREF_DIMM 126 VREF_CA

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

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

VTT1 203
VTT2 204

+0.75V_DDR_VTT

GND 205
GND 206

PC2100 DDR3 SDRAM SO-DIMM (204P)

DDR3-DIMM0_H=8_STD_LTS

Place these Caps near So-Dimm0.

+1.5V_SUS

C381 10U/6.3V_6
C389 10U/6.3V_6
C391 10U/6.3V_6
C402 10U/6.3V_6
C404 10U/6.3V_6
C390 10U/6.3V_6
C400 *10U/6.3V_6
C376 1U/10V_4
C388 1U/10V_4
C405 1U/10V_4
C406 1U/10V_4
C371 330U/2V_7343
C386 10U/6.3V_8
C401 10U/6.3V_8

+SMDDR_VREF_DIMM
C378 0.1u/10V_4
C387 2.2U/6.3V_6

+3V
C395 2.2U/6.3V_6
C399 0.1u/10V_4

+0.75V_DDR_VTT
C377 1U/6.3V_4
C385 1U/6.3V_4
C403 1u/6.3V_4
C398 1U/6.3V_4
C393 10U/6.3V_6
C394 *10U/6.3V_6

+SMDDR_VREF_DQ0
C396 0.1u/10V_4
C397 2.2U/6.3V_6

VREF DQ0 M1 Solution

+1.5V_SUS
R363 1K/F_4
SMDDR_VREF R358 *0/J_6 SMDDR_VREF_DQ0_M1
R362 1K/F_4
C416 0.1u/10V_4

+1.5V_SUS
R367 10K/J_4
(6,14,43) SMDDR_VREF R357 *0/J_6 +SMDDR_VREF_DIMM
R361 10K/J_4
C420 470P/50V_4

PROJECT KL5A
Quanta Computer Inc.

Size	Document Number	Rev
B	DDRIII SO-DIMM-1	1A
Date: Tuesday, January 04, 2011	Sheet 15 of 53	

POWER
+PCIE_VDDR=1.2V
+VDD_MEM1.8V=1.8V
+VGA_CORE=0.9~1.2V

2.5GT/s bit rate

U30A

PCI EXPRESS INTERFACE

(4) PEG_TXP15	PEG_TXP15	AE30	PCIE_RX0P	PCIE_TX0P	AH30	C_PEG_RXP15	C218	0.1U/10V_4	PEG_RXP15 (4)
(4) PEG_TXN15	PEG_TXN15	AE31	PCIE_RX0N	PCIE_TX0N	AG31	C_PEG_RXN15	C208	0.1U/10V_4	PEG_RXN15 (4)
(4) PEG_TXP14	PEG_TXP14	AE29	PCIE_RX1P	PCIE_TX1P	AG29	C_PEG_RXP14	C205	0.1U/10V_4	PEG_RXP14 (4)
(4) PEG_TXN14	PEG_TXN14	AD28	PCIE_RX1N	PCIE_TX1N	AF28	C_PEG_RXN14	C203	0.1U/10V_4	PEG_RXN14 (4)
(4) PEG_TXP13	PEG_TXP13	AD30	PCIE_RX2P	PCIE_TX2P	AF27	C_PEG_RXP13	C230	0.1U/10V_4	PEG_RXP13 (4)
(4) PEG_TXN13	PEG_TXN13	AC31	PCIE_RX2N	PCIE_TX2N	AF26	C_PEG_RXN13	C229	0.1U/10V_4	PEG_RXN13 (4)
(4) PEG_TXP12	PEG_TXP12	AC29	PCIE_RX3P	PCIE_TX3P	AD27	C_PEG_RXP12	C195	0.1U/10V_4	PEG_RXP12 (4)
(4) PEG_TXN12	PEG_TXN12	AB28	PCIE_RX3N	PCIE_TX3N	AD26	C_PEG_RXN12	C201	0.1U/10V_4	PEG_RXN12 (4)
(4) PEG_TXP11	PEG_TXP11	AB30	PCIE_RX4P	PCIE_TX4P	AC25	C_PEG_RXP11	C194	0.1U/10V_4	PEG_RXP11 (4)
(4) PEG_TXN11	PEG_TXN11	AA31	PCIE_RX4N	PCIE_TX4N	AB25	C_PEG_RXN11	C188	0.1U/10V_4	PEG_RXN11 (4)
(4) PEG_TXP10	PEG_TXP10	AA29	PCIE_RX5P	PCIE_TX5P	Y23	C_PEG_RXP10	C169	0.1U/10V_4	PEG_RXP10 (4)
(4) PEG_TXN10	PEG_TXN10	Y28	PCIE_RX5N	PCIE_TX5N	Y24	C_PEG_RXN10	C181	0.1U/10V_4	PEG_RXN10 (4)
(4) PEG_TXP9	PEG_TXP9	Y30	PCIE_RX6P	PCIE_TX6P	AB27	C_PEG_RXP9	C184	0.1U/10V_4	PEG_RXP9 (4)
(4) PEG_TXN9	PEG_TXN9	W31	PCIE_RX6N	PCIE_TX6N	AB26	C_PEG_RXN9	C186	0.1U/10V_4	PEG_RXN9 (4)
(4) PEG_TXP8	PEG_TXP8	W29	PCIE_RX7P	PCIE_TX7P	V24	C_PEG_RXP8	C163	0.1U/10V_4	PEG_RXP8 (4)
(4) PEG_TXN8	PEG_TXN8	V28	PCIE_RX7N	PCIE_TX7N	V25	C_PEG_RXN8	C168	0.1U/10V_4	PEG_RXN8 (4)
(4) PEG_TXP7	PEG_TXP7	V30	PCIE_RX8P	PCIE_TX8P	W24	C_PEG_RXP7	C162	0.1U/10V_4	PEG_RXP7 (4)
(4) PEG_TXN7	PEG_TXN7	U31	PCIE_RX8N	PCIE_TX8N	W25	C_PEG_RXN7	C153	0.1U/10V_4	PEG_RXN7 (4)
(4) PEG_TXP6	PEG_TXP6	U29	PCIE_RX9P	PCIE_TX9P	V27	C_PEG_RXP6	C148	0.1U/10V_4	PEG_RXP6 (4)
(4) PEG_TXN6	PEG_TXN6	T28	PCIE_RX9N	PCIE_TX9N	U26	C_PEG_RXN6	C151	0.1U/10V_4	PEG_RXN6 (4)
(4) PEG_TXP5	PEG_TXP5	T30	PCIE_RX10P	PCIE_TX10P	U24	C_PEG_RXP5	C145	0.1U/10V_4	PEG_RXP5 (4)
(4) PEG_TXN5	PEG_TXN5	R31	PCIE_RX10N	PCIE_TX10N	U25	C_PEG_RXN5	C138	0.1U/10V_4	PEG_RXN5 (4)
(4) PEG_TXP4	PEG_TXP4	R29	PCIE_RX11P	PCIE_TX11P	T26	C_PEG_RXP4	C137	0.1U/10V_4	PEG_RXP4 (4)
(4) PEG_TXN4	PEG_TXN4	P28	PCIE_RX11N	PCIE_TX11N	T27	C_PEG_RXN4	C127	0.1U/10V_4	PEG_RXN4 (4)
(4) PEG_TXP3	PEG_TXP3	P30	PCIE_RX12P	PCIE_TX12P	T24	C_PEG_RXP3	C115	0.1U/10V_4	PEG_RXP3 (4)
(4) PEG_TXN3	PEG_TXN3	N31	PCIE_RX12N	PCIE_TX12N	T25	C_PEG_RXN3	C125	0.1U/10V_4	PEG_RXN3 (4)
(4) PEG_TXP2	PEG_TXP2	N29	PCIE_RX13P	PCIE_TX13P	P27	C_PEG_RXP2	C111	0.1U/10V_4	PEG_RXP2 (4)
(4) PEG_TXN2	PEG_TXN2	M28	PCIE_RX13N	PCIE_TX13N	P26	C_PEG_RXN2	C105	0.1U/10V_4	PEG_RXN2 (4)
(4) PEG_TXP1	PEG_TXP1	M30	PCIE_RX14P	PCIE_TX14P	P24	C_PEG_RXP1	C101	0.1U/10V_4	PEG_RXP1 (4)
(4) PEG_TXN1	PEG_TXN1	L31	PCIE_RX14N	PCIE_TX14N	P23	C_PEG_RXN1	C95	0.1U/10V_4	PEG_RXN1 (4)
(4) PEG_TXP0	PEG_TXP0	L29	PCIE_RX15P	PCIE_TX15P	M27	C_PEG_RXP0	C88	0.1U/10V_4	PEG_RXP0 (4)
(4) PEG_TXN0	PEG_TXN0	K30	PCIE_RX15N	PCIE_TX15N	N26	C_PEG_RXN0	C83	0.1U/10V_4	PEG_RXN0 (4)

CLOCK

(10) CLK_PCIE_VGAP — AK30 PCIE_REFCLKP
(10) CLK_PCIE_VGAN — AK32 PCIE_REFCLKN

M93-S3--NC
PARK-S3--install
10K/F_4 — R119 — N10 NC_PWRGOOD

(4,10,25,29,31) PLTRST# — AL27 PERSTB

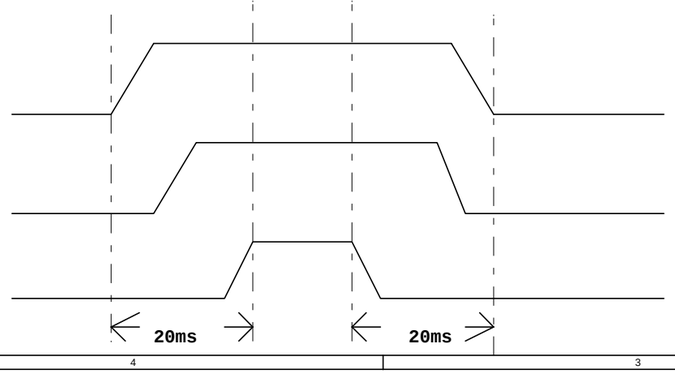
PARK

CALIBRATION

PCIE_CALRP — Y22 — M72_PCIE_CALRP — R134 — 1.27K/F_4
PCIE_CALRN — AA22 — M72_PCIE_CALRN — R218 — 2K/F_4 — +1.1V_GPU

100MHz (+/-300ppm) input frequency
0-0.7V single-ended swing

VGA Core	BPP
VGA Core	VDDC
+1.8V	PCIE_VDDR
+1.8V	PCIE_PVDD
+1.8V	VDDR1
+3V_VGA	VDDR3



U30G

DP E/F POWER
+1.8V_DPE_VDD18 — AG15 DPE_VDD18#1 — AG16 DPE_VDD18#2
+1.1V_DPE_VDD10 — AG20 DPE_VDD10#1 — AG21 DPE_VDD10#2
AG14 DPE_VSSR#1 — AH14 DPE_VSSR#2 — AM14 DPE_VSSR#3 — AM16 DPE_VSSR#4 — AM18 DPE_VSSR#5
+1.8V_DPE_VDD18 — AE16 DPF_VDD18#1 — AG17 DPF_VDD18#2
+1.1V_DPE_VDD10 — AF22 DPF_VDD10#1 — AG22 DPF_VDD10#2
AF23 DPF_VSSR#1 — AG23 DPF_VSSR#2 — AM20 DPF_VSSR#3 — AM22 DPF_VSSR#4 — AM24 DPF_VSSR#5
R186 150/F_4 DPEF_CALR — AF17 DPEF_CALR
+1.8V_DPE_PVDD — +1.8V_DPE_PVDD — AG18 DPE_PVDD — AF19 DPE_PVSS
+1.8V_DPF_PVDD — R185 0_4 — AG19 NC_DPF_PVDD — AF20 NC_DPF_PVSS
M93-S3--NC
PARK-S3--install

DP A/B POWER
NC_DPA_VDD18#1 — AE11 — AE11 NC_DPA_VDD18#2 — +1.8V_DPA_VDD18
DPA_VDD10#1 — AF6 — AF7 DPA_VDD10#2 — +1.1V_DPB_VDD10
DPA_VSSR#1 — AE1 — DPA_VSSR#2 — AE3 — DPA_VSSR#3 — AG1 — DPA_VSSR#4 — AG6 — DPA_VSSR#5 — AH5
NC_DPB_VDD18#1 — AE13 — AE13 NC_DPB_VDD18#2 — +1.8V_DPA_VDD18
DPB_VDD10#1 — AF8 — AF9 DPB_VDD10#2 — +1.1V_DPB_VDD10
DPB_VSSR#1 — AE10 — DPB_VSSR#2 — AG9 — DPB_VSSR#3 — AH8 — DPB_VSSR#4 — AM6 — DPB_VSSR#5 — AM8
DPAB_CALR — AE10 DPAB_CALR R575 150/F_4

DP PLL POWER
DPA_PVDD — AG8 — AG7 DPA_PVSS — +1.8V_DPA_PVDD
DPB_PVDD — AG10 — AG11 DPB_PVSS — +1.8V_DPA_PVDD

PARK

BLM18PG181SN1D(180,1.5A)_6
+1.1V_DPB_VDD10 — L14 — +1.1V_GPU
1.1V(S100,D200mA)
C204 0.1U/10V_4 — C216 10U/6.3V_6S — C206 1U/10V_4

(Park-S3:110mA@1.0V)
(M9X-S2/S3:200mA@1.1V)
+1.1V_DPE_VDD10 — L45 BLM18PG181SN1D(180,1.5A)_6 — +1.1V_GPU
C239 0.1U/10V_4 — C214 1U/10V_4 — C251 10U/6.3V_6S

+1.8V_DPA_VDD18 — L15 BLM18PG181SN1D(180,1.5A)_6 — 1.8V(130mA) — +1.8V_GPU
C199 0.1U/10V_4 — C223 1U/10V_4 — C232 10U/6.3V_6S
M93-S3--NC
PARK-S3--install

1.8V -(440mA)
+1.8V_DPE_VDD18 — L42 BLM18PG181SN1D(180,1.5A)_6 — +1.8V_GPU
C202 0.1U/10V_4 — C604 1U/10V_4 — C618 10U/6.3V_6S

+1.8V_DPA_PVDD — L13 BLM18PG181SN1D(180,1.5A)_6 — 1.8V(20mA) — +1.8V_GPU
C217 0.1U/10V_4 — C215 1U/10V_4 — C222 10U/6.3V_6S

+1.8V_DPF_PVDD — L18 BLM18PG181SN1D(180,1.5A)_6 — 1.8V(20mA) — +1.8V_GPU
C212 0.1U/10V_4 — C237 1U/10V_4 — C252 10U/6.3V_6S
M93-S3--NC
PARK-S3--install

+1.8V_DPE_PVDD — L19 BLM18PG181SN1D(180,1.5A)_6 — 1.8V(20mA) — +1.8V_GPU
C213 0.1U/10V_4 — C231 1U/10V_4 — C253 10U/6.3V_6S

Quanta Computer Inc.
PROJECT : DM4/RB4

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	Robson_PCIE_Interface	1A
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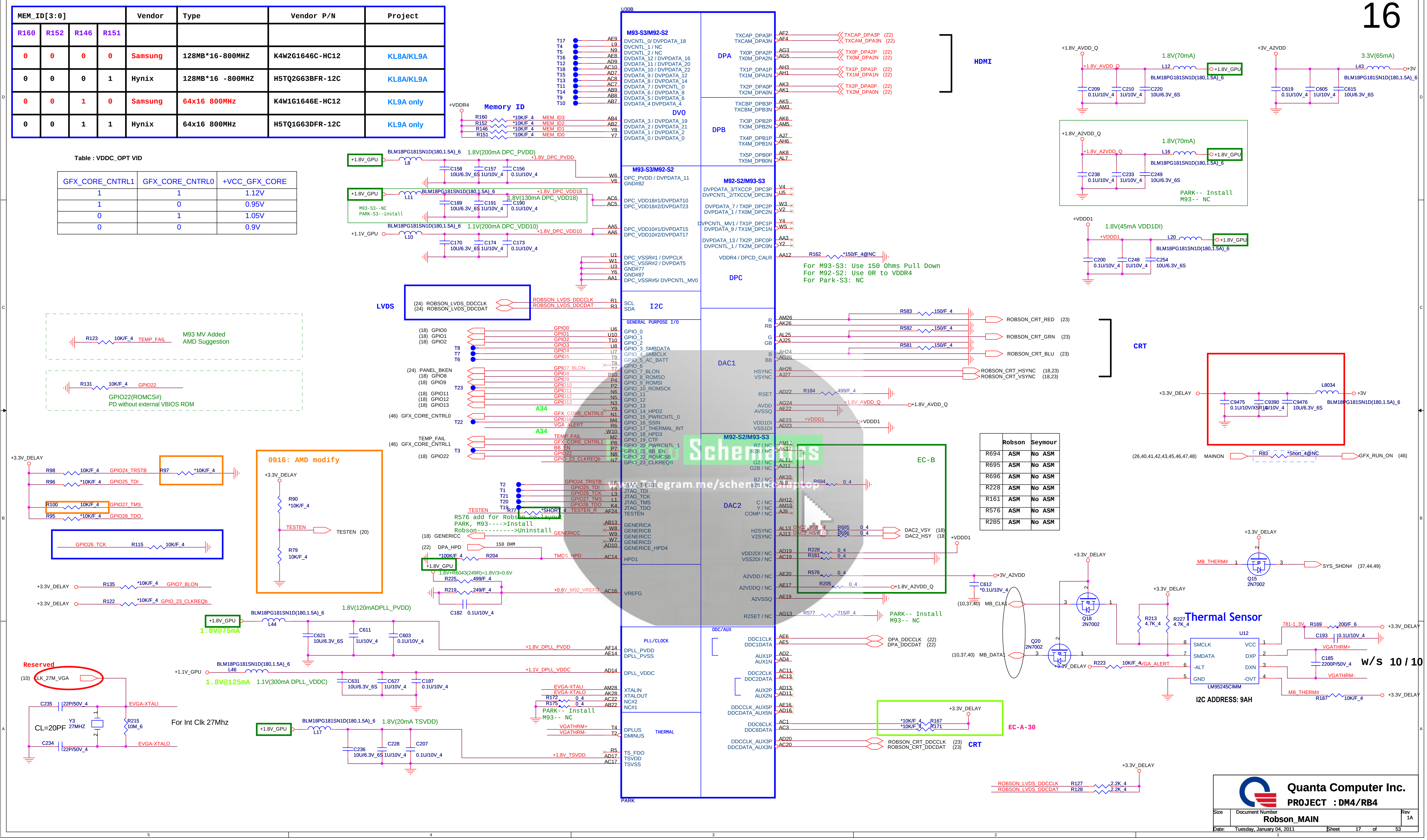
MEM_ID[3:0]				Vendor	Type	Vendor P/N	Project
R160	R152	R146	R151				
0	0	0	0	Samsung	128MB*16-800MHZ	K4W2G1646C-HC12	KL8A/KL9A
0	0	0	1	Hynix	128MB*16 -800MHZ	H5TQ2G63BFR-12C	KL8A/KL9A
0	0	1	0	Samsung	64x16 800MHz	K4W1G1646E-HC12	KL9A only
0	0	1	1	Hynix	64x16 800MHz	H5TQ1G63DFR-12C	KL9A only

Table : VDDC_OPT VID

GFX_CORE_CNTRL1	GFX_CORE_CNTRL0	+VCC_GFX_CORE
1	1	1.12V
1	0	0.95V
0	1	1.05V
0	0	0.9V

	Robson	Seymour
R694	ASM	No ASM
R695	ASM	No ASM
R696	ASM	No ASM
R228	ASM	No ASM
R161	ASM	No ASM
R576	ASM	No ASM
R205	ASM	No ASM



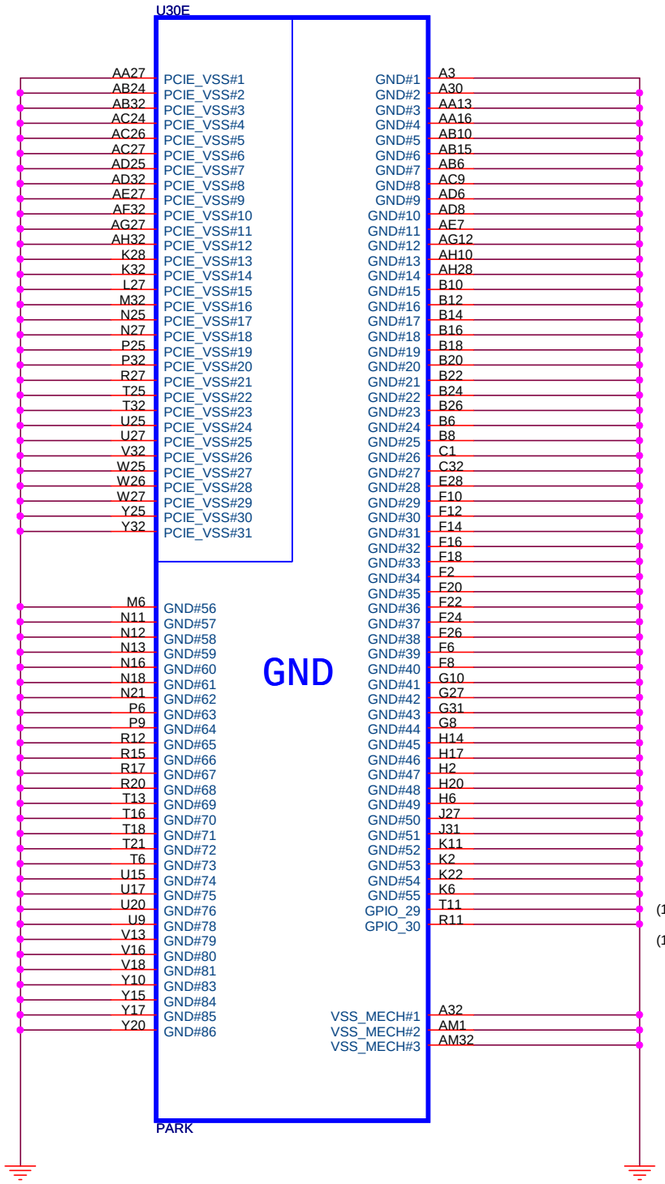
Quanta Computer Inc.

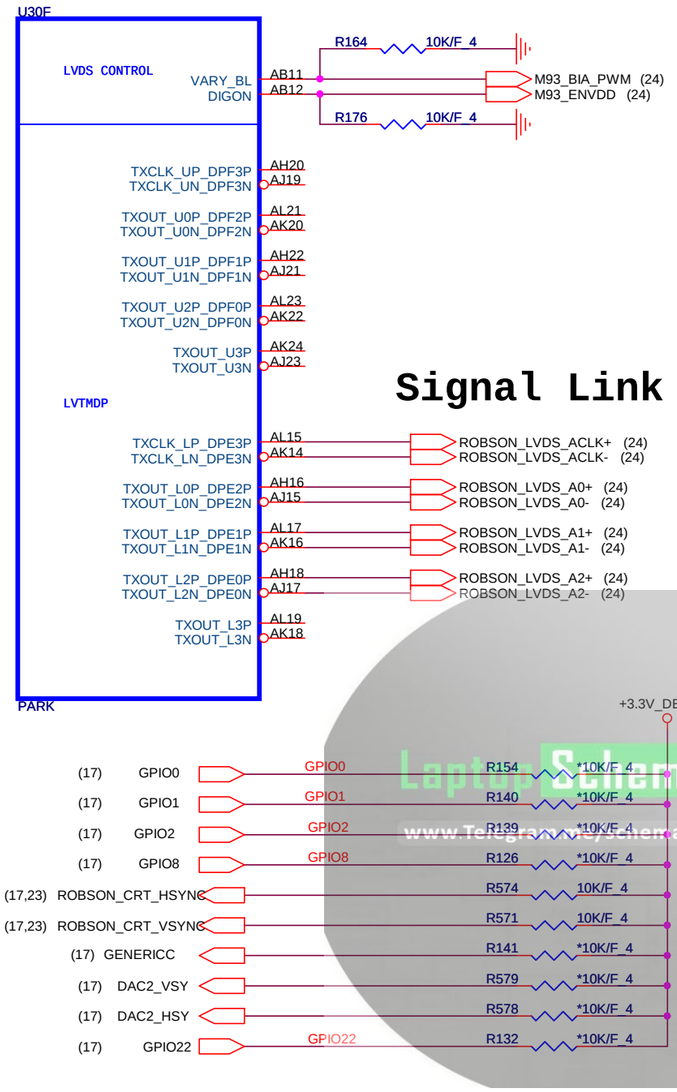
PROJECT : DM4/RB4

Document Number: Robson_MAIN

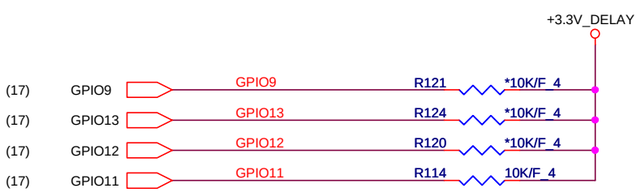
Rev 1A

Date: Tuesday, January 04, 2011 Sheet 17 of 53





Signal Link



CONFIGURATION STRAPS

ALLOW FOR PULLUP PADS FOR THESE STRAPS AND IF THESE GPIOS ARE USED, THEY MUST NOT CONFLICT DURING RESET

RECOMMENDED SETTINGS
0= DO NOT INSTALL RESISTOR
1 = INSTALL 10K RESISTOR
X = DESIGN DEPENDANT
NA = NOT APPLICABLE

STRAPS	PIN	DESCRIPTION OF DEFAULT SETTINGS	
TX_PWRS_ENB	GPIO0	**Transmitter Power Savings Enable** 0: 50% Tx output swing for mobile mode 1: full Tx output swing (Default setting for Desktop)	1
TX_DEEMPH_EN	GPIO1	**PCI Express Transmitter De-emphasis Enable** 0: Tx de-emphasis disabled for mobile mode 1: Tx de-emphasis enabled (Default setting for Desktop)	1
BIF_GEN2_EN_A	GPIO2	Enable CLKREQ# Power Management 0 - CLKREQ# power management capability is disabled 1 - CLKREQ# power management capability is enabled	0
RSVD BIF_VGA_DIS RSVD	GPIO8 GPIO9 GPIO21	VGA ENABLED	0 0 0
BIOS_ROM_EN	GPIO_22_ROMCSB	ENABLE EXTERNAL BIOS ROM	0
ROMIDCFG(2:0)	GPIO[13:11]	SERIAL ROM TYPE OR MEMORY APERTURE SIZE SELECT	0 0 1
VIP_DEVICE_STRAP_ENA	V2SYNC	IGNORE VIP DEVICE STRAPS	0
RSVD AUD[1] AUD[0]	GENERICC HSYNC VSYNC	AUD[1] AUD[0] 0 0 No audio function 0 1 Audio for DisplayPort and HDMI if dongle is detected 1 0 Audio for DisplayPort only 1 1 Audio for both DisplayPort and HDMI	0 0 11

AMD RESERVED CONFIGURATION STRAPS

ALLOW FOR PULLUP PADS FOR THESE STRAPS AND IF THESE GPIOS ARE USED, THEY MUST NOT CONFLICT DURING RESET

H2SYNC	GENERICC

PULLUP PADS ARE NOT REQUIRED FOR THESE STRAPS BUT IF THESE GPIOS ARE USED, THEY MUST NOT CONFLICT DURING RESET

GPIO21_BB_EN

Memory Aperture size

GPIO9 BIOSROM		GPIO13 ROMIDCFG2	GPIO12 ROMIDCFG1	GPIO11 ROMIDCFG0
0	128M	0	0	0
0	256M	0	0	1
0	64M	0	1	0
0	32M	0	1	1
0	512M	1	0	0
0	1G	1	0	1
0	2G	1	1	0
0	4G	1	1	1

It is a shared pin strap with CONFIG[2:0] if BIOS_ROM_EN is set to 0.

Quanta Computer Inc.
PROJECT : DM4/RB4

Size	Document Number	Rev
	Robson_GND / LVDS /Straps	1A
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VDD_CT -- Level translation between core and I/O, excluding memory receivers.1.8 V ± 5%

PCIE_VDDR--PCI-E I/O power. 1.8 V ± 5%

U30D

+1.5V_GPU

1.5V (DDR3, MVDDQ = 1.5V@2.0A3)

C10 1U/10V_4, C550 1U/10V_4, C12 1U/10V_4, C76 1U/10V_4, C90 1U/10V_4, C91 1U/10V_4, C45 1U/10V_4, C543 1U/10V_4, C52 1U/10V_4, C21 1U/10V_4, C108 1U/10V_4, C85 1U/10V_4, C97 1U/10V_4, C87 1U/10V_4

C536 10U/6.3V_6S, C6 10U/6.3V_6S, C71 10U/6.3V_6S, C4 10U/6.3V_6S, C535 10U/6.3V_6S, C110 0.1U/10V_4, C92 0.1U/10V_4, C103 0.1U/10V_4, C89 0.1U/10V_4, C50 0.1U/10V_4, C120 1U/10V_4

MEM I/O

VDDR1#1 H13
VDDR1#2 H16
VDDR1#3 H19
VDDR1#4 J10
VDDR1#5 J23
VDDR1#6 J24
VDDR1#7 J9
VDDR1#8 K10
VDDR1#9 K23
VDDR1#10 K24
VDDR1#11 K9
VDDR1#12 L11
VDDR1#13 L12
VDDR1#14 L13
VDDR1#15 L20
VDDR1#16 L21
VDDR1#17 L22

1.8V(136mA VDD_CT)

+1.8V_GPU — L3 BLM18PG181SN1D(180,1.5A)_6 — +1.8V_VDD_CT

C78 10U/6.3V_6S, C178 1U/10V_4, C94 1U/10V_4, C164 1U/10V_4, C84 0.1U/10V_4

LEVEL TRANSLATION

VDD_CT#1 AA20
VDD_CT#2 AA21
VDD_CT#3 AB20
VDD_CT#4 AB21

+3.3V_DELAY

C243 1U/10V_4, C250 1U/10V_4, C179 1U/10V_4, C255 10U/6.3V_6S

M93-S3/M92-S2 I/O

VDDR3#1 AA17
VDDR3#2 AA18
VDDR3#3 AB17
VDDR3#4 AB18

+VDDR4

+1.8V_GPU — L9 BLM18PG181SN1D(180,1.5A)_6

1.8V(170mA VDDR4)

C171 10U/6.3V_6S, C175 1U/10V_4, C152 0.1U/10V_4

R156 0_4

VDDR4#1 / VDDR5 V12
VDDR4#2 Y12
VDDR4#3 / VDDR5 U12

NC#1 / VDDR4 DVCLK / VDDR4 AA11 Y11
NC#3 / VDDR5 V11
NC#4 / VDDR5 U11

MEM CLK

TP1 L17 VDDRHA
TP2 L16 VSSRHA

PLL

+1.8V_GPU — L40 BLM18PG181SN1D(180,1.5A)_6 — +PCIE_PVDD AM30

1.8V(40mA PCIE_PVDD)

C600 10U/6.3V_6S, C599 1U/10V_4, C598 0.1U/10V_4

PCIE_PVDD

MPV18 L8 NC_MPV18

SPV18 H7 NC_SPV18

0.95V~1.1V(100mA SPV10)

+1.1V_GPU — L5 BLM18PG181SN1D(180,1.5A)_6 — +VGA_CORE_SPV10 H8

C102 10U/6.3V_6S, C100 0.1U/10V_4, C99 1U/10V_4

SPV10
SPVSS J7

BACK BIAS

MV +VGPU_CORE

1.5/1.8V 120mA

C142 1U/10V_4, C126 0.1U/10V_4

BBP#1 M11
BBP#2 M12

PARK

ISOLATED CORE I/O

POWER

PCIE

PCIE_VDDR#1 AB23
PCIE_VDDR#2 AC23
PCIE_VDDR#3 AD24
PCIE_VDDR#4 AE24
PCIE_VDDR#5 AE25
PCIE_VDDR#6 AE26
PCIE_VDDR#7 AE25
PCIE_VDDR#8 AG26

+1.8V_PCIE_VDDR

+1.8V_PCIE_VDDR — 1.8V(500mA) — BLM18PG181SN1D(180,1.5A)_6 — L39 — +1.8V_GPU

C180 0.1U/10V_4, C192 0.1U/10V_4, C590 1U/10V_4, C591 1U/10V_4, C587 1U/10V_4, C176 1U/10V_4, C588 1U/10V_4, C577 10U/6.3V_6S

+1.1V_PCIE_VDDC

PCIE_VDDC#1 L23
PCIE_VDDC#2 L24
PCIE_VDDC#3 L25
PCIE_VDDC#4 L26
PCIE_VDDC#5 M22
PCIE_VDDC#6 N22
PCIE_VDDC#7 N23
PCIE_VDDC#8 N24
PCIE_VDDC#9 R22
PCIE_VDDC#10 T22
PCIE_VDDC#11 U22
PCIE_VDDC#12 V22

+1.1V_PCIE_VDDC — 1.1V(2.0A) — BLM21PG221SN1D(220,100M,2A)_8

+1.1V_PCIE_VDDC — L23 L24 L25 L26 M22 N22 N23 N24 R22 T22 U22 V22 — L2 — +1.1V_GPU

C79 1U/10V_4, C149 1U/10V_4, C135 1U/10V_4, C121 1U/10V_4, C72 1U/10V_4, C143 1U/10V_4, C112 1U/10V_4, C69 10U/6.3V_6S

CORE

VDDC#1 AA15
VDDC#2 N15
VDDC#3 N17
VDDC#4 R13
VDDC#5 R16
VDDC#6 R18
VDDC#7 R21
VDDC#8 T12
VDDC#9 T15
VDDC#10 T17
VDDC#11 T20
VDDC#12 U13
VDDC#13 U16
VDDC#14 U18
VDDC#15 U21
VDDC#16 V15
VDDC#17 V17
VDDC#18 V20
VDDC#19 V21
VDDC#20 Y13
VDDC#21 Y16
VDDC#22 Y18
VDDC#23 Y21

VDDC+VDDCI
0.95~1.1V(15A peak)(Ripple < 87.2mV)

+VGPU_CORE

C141 1U/10V_4, C167 1U/10V_4, C161 1U/10V_4, C166 1U/10V_4, C165 1U/10V_4, C159 1U/10V_4, C147 1U/10V_4, C140 1U/10V_4, C73 10U/6.3V_6S

C131 1U/10V_4, C154 1U/10V_4, C144 1U/10V_4, C139 1U/10V_4, C155 1U/10V_4, C124 1U/10V_4, C136 22U/6.3V_6, C74 22U/6.3V_6

M93 MV,for meet AC transient SPEC add C844, C845 and del C277

C160 1U/10V_4, C146 1U/10V_4, C77 1U/10V_4, C134 1U/10V_4, C68 10U/6.3V_6S, C150 10U/6.3V_6S, C66 10U/6.3V_6S, C67 10U/6.3V_6S

C123 1U/10V_4, C172 1U/10V_4

VDDCI#1 M13
VDDCI#2 M15
VDDCI#3 M16
VDDCI#4 M17
VDDCI#5 M18
VDDCI#6 M20
VDDCI#7 M21
VDDCI#8 N20

0.95V~1.1V(2A VDDCI)

+VDDCI — L4 — BLM18SG121TN1D(120,100M,3A)_8 — +VGPU_CORE

C109 1U/10V_4, C122 1U/10V_4, C117 1U/10V_4, C81 10U/6.3V_6S, C82 10U/6.3V_6S, C80 10U/6.3V_6S

VDDCI--Isolated (clean) core power for the I/O logic. Voltage level should match that of VDDC. POWER Same as VDDC

VDDC--Dedicated core power, provides power to the internal logic. 0.9 V - 1.2 V (± 5%)

PCIE_VDDC--PCI-E Digital Power Supply (Either 1.0 V or 1.1 V) 1.0 V -5% to 1.1 V +5%

+1.1V_PCIE_VDDC — C116 1U/10V_4

+1.8V_PCIE_VDDR — C177 0.1U/10V_4, C589 1U/10V_4

Reserve for PARK

1.8V(75mA MPV18)

+1.8V_GPU — L7 BLM18PG181SN1D(180,1.5A)_6 — MPV18

C128 1U/10V_4, C129 0.1U/10V_4

1.8V(90mA SPV18)

+1.8V_GPU — L6 BLM18PG181SN1D(180,1.5A)_6 — SPV18

C98 1U/10V_4, C93 0.1U/10V_4

+VGPU_CORE (38,41,46)

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(21) VMA_ODT0 — VMA_ODT0
(21) VMA_ODT1 — VMA_ODT1

(21) VMA_RAS0# — VMA_RAS0#
(21) VMA_RAS1# — VMA_RAS1#

(21) VMA_CAS0# — VMA_CAS0#
(21) VMA_CAS1# — VMA_CAS1#

(21) VMA_WE0# — VMA_WE0#
(21) VMA_WE1# — VMA_WE1#

(21) VMA_CS0# — VMA_CS0#

(21) VMA_CS1# — VMA_CS1#

(21) VMA_CKE0 — VMA_CKE0
(21) VMA_CKE1 — VMA_CKE1

(21) VMA_CLK0 — VMA_CLK0
(21) VMA_CLK0# — VMA_CLK0#

(21) VMA_CLK1 — VMA_CLK1
(21) VMA_CLK1# — VMA_CLK1#

(21) VMA_WDQS[7..0] — VMA_WDQS[7..0]

(21) VMA_RDQS[7..0] — VMA_RDQS[7..0]

(21) VMA_DM[7..0] — VMA_DM[7..0]

(21) VMA_DQ[63..0] — VMA_DQ[63..0]

(21) VMA_MA[13..0] — VMA_MA[13..0]

(21) VMA_BA0 — VMA_BA0
(21) VMA_BA1 — VMA_BA1
(21) VMA_BA2 — VMA_BA2

support 1Gbit VRAM (64M X 16)

DIVIDER RESISTORS	ROBSON
MVREF TO 1.8V (Rd)	40.2R
MVREF TO GND (Re)	100R

U30C

MEMORY INTERFACE

VMA_DQ0	K27	DQA_0	
VMA_DQ1	J29	DQA_1	
VMA_DQ2	H30	DQA_2	
VMA_DQ3	H32	DQA_3	
VMA_DQ4	G29	DQA_4	
VMA_DQ5	F28	DQA_5	
VMA_DQ6	F32	DQA_6	
VMA_DQ7	F30	DQA_7	
VMA_DQ8	C30	DQA_8	
VMA_DQ9	F27	DQA_9	
VMA_DQ10	A28	DQA_10	
VMA_DQ11	C28	DQA_11	
VMA_DQ12	E27	DQA_12	
VMA_DQ13	G26	DQA_13	
VMA_DQ14	D26	DQA_14	
VMA_DQ15	F25	DQA_15	
VMA_DQ16	A25	DQA_16	
VMA_DQ17	C25	DQA_17	
VMA_DQ18	E25	DQA_18	
VMA_DQ19	D24	DQA_19	
VMA_DQ20	E23	DQA_20	
VMA_DQ21	F23	DQA_21	
VMA_DQ22	D22	DQA_22	
VMA_DQ23	F21	DQA_23	
VMA_DQ24	E21	DQA_24	
VMA_DQ25	D20	DQA_25	
VMA_DQ26	F19	DQA_26	
VMA_DQ27	A19	DQA_27	
VMA_DQ28	D18	DQA_28	
VMA_DQ29	F17	DQA_29	
VMA_DQ30	A17	DQA_30	
VMA_DQ31	C17	DQA_31	
VMA_DQ32	E17	DQA_32	
VMA_DQ33	D16	DQA_33	
VMA_DQ34	F15	DQA_34	
VMA_DQ35	A15	DQA_35	
VMA_DQ36	D14	DQA_36	
VMA_DQ37	F13	DQA_37	
VMA_DQ38	A13	DQA_38	
VMA_DQ39	C13	DQA_39	
VMA_DQ40	E11	DQA_40	
VMA_DQ41	A11	DQA_41	
VMA_DQ42	C11	DQA_42	
VMA_DQ43	F11	DQA_43	
VMA_DQ44	A9	DQA_44	
VMA_DQ45	C9	DQA_45	
VMA_DQ46	F9	DQA_46	
VMA_DQ47	D8	DQA_47	
VMA_DQ48	E7	DQA_48	
VMA_DQ49	A7	DQA_49	
VMA_DQ50	C7	DQA_50	
VMA_DQ51	F7	DQA_51	
VMA_DQ52	A5	DQA_52	
VMA_DQ53	E5	DQA_53	
VMA_DQ54	C3	DQA_54	
VMA_DQ55	E1	DQA_55	
VMA_DQ56	G7	DQA_56	
VMA_DQ57	G6	DQA_57	
VMA_DQ58	G1	DQA_58	
VMA_DQ59	G3	DQA_59	
VMA_DQ60	J6	DQA_60	
VMA_DQ61	J1	DQA_61	
VMA_DQ62	J3	DQA_62	
VMA_DQ63	J5	DQA_63	

MAA_0	K17	VMA_MA0	
MAA_1	J20	VMA_MA1	
MAA_2	H23	VMA_MA2	
MAA_3	G23	VMA_MA3	
MAA_4	G24	VMA_MA4	
MAA_5	H24	VMA_MA5	
MAA_6	J19	VMA_MA6	
MAA_7	K19	VMA_MA7	
MAA_8	J14	VMA_MA8	
MAA_9	K14	VMA_MA9	
MAA_10	J11	VMA_MA10	
MAA_11	J13	VMA_MA11	
MAA_12	H11	VMA_MA12	
MAA_13/BA2	G11	VMA_BA2	
MAA_14/BA0	J16	VMA_BA0	
MAA_15/BA1	L15	VMA_BA1	
DQMA_0	E32	VMA_DM0	
DQMA_1	E30	VMA_DM1	
DQMA_2	A21	VMA_DM2	
DQMA_3	C21	VMA_DM3	
DQMA_4	E13	VMA_DM4	
DQMA_5	D12	VMA_DM5	
DQMA_6	E3	VMA_DM6	
DQMA_7	F4	VMA_DM7	
RDQSA_0	H28	VMA_RDQS0	
RDQSA_1	C27	VMA_RDQS1	
RDQSA_2	A23	VMA_RDQS2	
RDQSA_3	E19	VMA_RDQS3	
RDQSA_4	E15	VMA_RDQS4	
RDQSA_5	D10	VMA_RDQS5	
RDQSA_6	D6	VMA_RDQS6	
RDQSA_7	G5	VMA_RDQS7	
WDQSA_0	H27	VMA_WDQS0	
WDQSA_1	A27	VMA_WDQS1	
WDQSA_2	C23	VMA_WDQS2	
WDQSA_3	C19	VMA_WDQS3	
WDQSA_4	C15	VMA_WDQS4	
WDQSA_5	E9	VMA_WDQS5	
WDQSA_6	C5	VMA_WDQS6	
WDQSA_7	H4	VMA_WDQS7	
ODTA0	L18	VMA_ODT0	
ODTA1	K16	VMA_ODT1	
CLKA0	H26	VMA_CLK0	
CLKA0B	H25	VMA_CLK0#	
CLKA1	G9	VMA_CLK1	
CLKA1B	H9	VMA_CLK1#	
RASA0B	G22	VMA_RAS0#	
RASA1B	G17	VMA_RAS1#	
CASA0B	G19	VMA_CAS0#	
CASA1B	G16	VMA_CAS1#	
CSA0B_0	H22	VMA_CS0#	
CSA0B_1	J22		
CSA1B_0	G13	VMA_CS1#	
CSA1B_1	K13		
CKEA0	K20	VMA_CKE0	
CKEA1	J17	VMA_CKE1	
WEA0B	G25	VMA_WE0#	
WEA1B	H10	VMA_WE1#	
PX_EN	AB16		
RSVD#2	G14		
RSVD#3	G20	VMA_MA13	

MVREFDA	K26	MVREFD	
MVREFSA	J26	MVREFS	
MEM_CALRN0	J25		
NC/TESTEN#2	K7	TESTEN	
MEM_CALRP1/DPC_CALR	J8		
NC_MEM_CALRP0	K25		
DRAM_RST	L10	DRAM_RST	
CLKTESTA	K8	CLKTESTA	
CLKTESTB	L7	CLKTESTB	

PARK

PLACE MVREFD DIVIDERS AND CAPS CLOSE TO ASIC

+1.5V_GPU
Rd R58 40.2/F_4
MVREFD
Re R63 100/F_4
C64 0.1U/10V_4

+1.5V_GPU
Rd R73 40.2/F_4
MVREFS
Re R74 100/F_4
C96 0.1U/10V_4

+1.5V_GPU
Note 1 R70 240_4
(17) TESTEN
Note 3 R85 5.11K
R72 150/F_4 Note 2
R84 240_4 Note 1

C133 0.1U/10V_4
C132 0.1U/10V_4
R125 51.1/F_4
R112 51.1/F_4

route 50ohms
single-ended/100ohms diff
and keep short
For PARK-S3 only

For PARK-S3 only
For M9X-S2/S3 with
DDR3: this pin is
not in use.

+1.5V_GPU
Rc R28 2.2K_4
Rb
DRAM_RST R29 0_4 MEM_RST (21)
R30 *10K/F_4
Ra
C19 2200P/50V_4
Ca

Ra Rb Rc Rd

Place all these components very close to GPU (Within 25mm) and keep all component close to each Other (within 5mm) except Rser2

This basic topology should be used for DRAM_RST for DDR3/GDDR5.These Capacitors and Resistor values are an example only. The Series R and || Cap values will depend on the DRAM load and will have to be calculated for different Memory ,DRAM Load and board to pass Reset Signal Spec.

Note 1 :Do not Install for M9X-S2/S3, Install 240 Ohms 0.5% Resistor for PARK-S3.
Note 2 :For M9X-S2/S3,J8 Pin Connect to VSS through 240 Ohms(0.5%) resistor.
For Park-S3,J8 Pin Connect to VSS through 150 Ohms(1%) resistor for DPC_CALR
Note 3 :For M9X-92/93, K7 Pin (NC_MEM_CALRP1) is Not connected.
For PARK-S3, K7 Pin (TESTEN#2) connect to TEST_EN Signal At AF24
R575 for Robson only

Quanta Computer Inc.
PROJECT : DM4/RB4

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1GB DDR3 2Gb DDR3(128MB x16bit) x 4 pcs

(20) VMA_MA[13..0]
(20) VMA_DM[7..0]
VMA_MA[13..0]
(20) VMA_DQ[63..0]
(20) VMA_WDQS[7..0]
(20) VMA_RDQS[7..0]

EC-C-07

U29 / U4 / U5 / U28

VREFC_VMA1 M8 VREFCA
VREFD_VMA1 H1 VREFDQ
VMA_MA0 N3 A0
VMA_MA1 P7 A1
VMA_MA2 P3 A2
VMA_MA3 N2 A3
VMA_MA4 P8 A4
VMA_MA5 P2 A5
VMA_MA6 R8 A6
VMA_MA7 R2 A7
VMA_MA8 T8 A8
VMA_MA9 R3 A9
VMA_MA10 L7 A10/AP
VMA_MA11 R7 A11
VMA_MA12 N7 A12/BC
VMA_MA13 T3 A13
T7 A14
M7 A15

(20) VMA_BA0 M2 BA0
(20) VMA_BA1 N8 BA1
(20) VMA_BA2 M3 BA2

(20) VMA_CLK0 J7 CK
(20) VMA_CLK0# K7 CK
(20) VMA_CKE0 K9 CKE

(20) VMA_ODT0 K1 ODT
(20) VMA_CS0# L2 CS
(20) VMA_RAS0# J3 RAS
(20) VMA_CAS0# K3 CAS
(20) VMA_WE0# L3 WE

VMA_RDQS3 F3 DQSL
VMA_RDQS0 C7 DQSU

VMA_DM3 E7 DML
VMA_DM0 D3 DMU

VMA_WDQS3 G3 DQSL
VMA_WDQS0 B7 DQSU

(20) MEM_RST T2 RESET

VMA_ZQ1 L8 ZQ
R48 240

NC#J1 J1
NC#L1 L1
NC#J9 J9
NC#L9 L9

100-BALL SDRAM DDR3 VRAM _DDR3

DQL0 E3 VMA_DQ27
DQL1 F7 VMA_DQ28
DQL2 F2 VMA_DQ25
DQL3 F8 VMA_DQ30
DQL4 H3 VMA_DQ26
DQL5 H8 VMA_DQ29
DQL6 G2 VMA_DQ24
DQL7 H7 VMA_DQ31

DQU0 D7 VMA_DQ0
DQU1 C3 VMA_DQ2
DQU2 C8 VMA_DQ1
DQU3 C2 VMA_DQ6
DQU4 A7 VMA_DQ5
DQU5 A2 VMA_DQ7
DQU6 B8 VMA_DQ4
DQU7 A3 VMA_DQ3

+1.5V_GPU

VDD#B2 B2
VDD#D9 D9
VDD#G7 G7
VDD#K2 K2
VDD#K8 K8
VDD#N1 N1
VDD#N9 N9
VDD#R1 R1
VDD#R9 R9

VDDQ#A1 A1
VDDQ#A8 A8
VDDQ#C1 C1
VDDQ#C9 C9
VDDQ#D2 D2
VDDQ#E9 E9
VDDQ#F1 F1
VDDQ#H2 H2
VDDQ#H9 H9

VSS#A9 A9
VSS#B3 B3
VSS#E1 E1
VSS#G8 G8
VSS#J2 J2
VSS#J8 J8
VSS#M1 M1
VSS#M9 M9
VSS#P1 P1
VSS#P9 P9
VSS#T1 T1
VSS#T9 T9

VSSQ#B1 B1
VSSQ#B9 B9
VSSQ#D1 D1
VSSQ#D8 D8
VSSQ#E2 E2
VSSQ#E8 E8
VSSQ#F9 F9
VSSQ#G1 G1
VSSQ#G9 G9

VMA_CLK1 J7 CK
VMA_CLK1# K7 CK
VMA_CKE1 K9 CKE

VMA_ODT1 K1 ODT
VMA_CS1# L2 CS
VMA_RAS1# J3 RAS
VMA_CAS1# K3 CAS
VMA_WE1# L3 WE

VMA_RDQS7 F3 DQSL
VMA_RDQS6 C7 DQSU

VMA_DM7 E7 DML
VMA_DM6 D3 DMU

VMA_WDQS7 G3 DQSL
VMA_WDQS6 B7 DQSU

R59 240

VMA_ZQ3 L8 ZQ

VMA_RDQS4 F3 DQSL
VMA_RDQS5 C7 DQSU

VMA_DM4 E7 DML
VMA_DM5 D3 DMU

VMA_WDQS4 G3 DQSL
VMA_WDQS5 B7 DQSU

R467 240

VMA_ZQ4 L8 ZQ

R476 4.99K/F_4
R477 4.99K/F_4
VREFC_VMA1
C559 .1U/10V_4

R472 4.99K/F_4
R473 4.99K/F_4
VREFD_VMA1
C549 .1U/10V_4

R27 4.99K/F_4
R26 4.99K/F_4
VREFC_VMA2
C18 .1U/10V_4

R52 4.99K/F_4
R54 4.99K/F_4
VREFD_VMA2
C60 .1U/10V_4

R56 4.99K/F_4
R55 4.99K/F_4
VREFC_VMA3
C53 .1U/10V_4

R31 4.99K/F_4
R32 4.99K/F_4
VREFD_VMA3
C24 .1U/10V_4

R471 4.99K/F_4
R470 4.99K/F_4
VREFC_VMA4
C541 .1U/10V_4

R53 4.99K/F_4
R57 4.99K/F_4
VREFD_VMA4
C58 .1U/10V_4

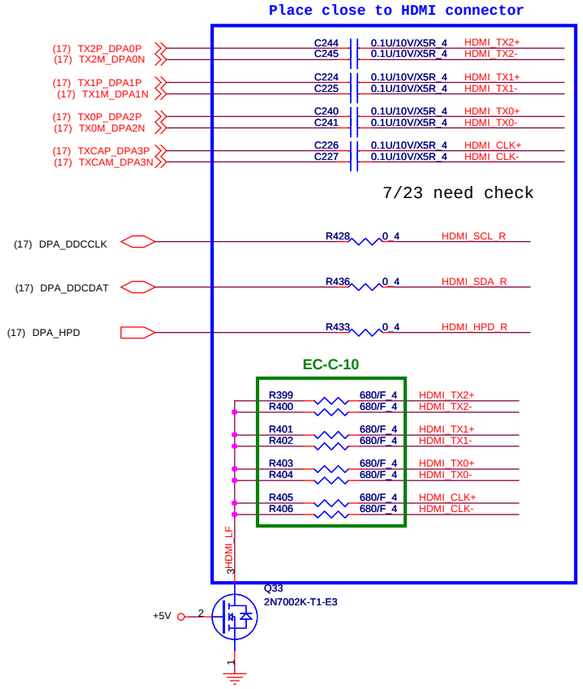
VMA_CLK0
R475 56.2/F_4
VMA_CLK0_COMM
C532 .01U/16V_4
R474 56.2/F_4
VMA_CLK0#
VMA_CLK1
R468 56.2/F_4
VMA_CLK1_COMM
C531 .01U/16V_4
R469 56.2/F_4
VMA_CLK1#

+1.5V_GPU

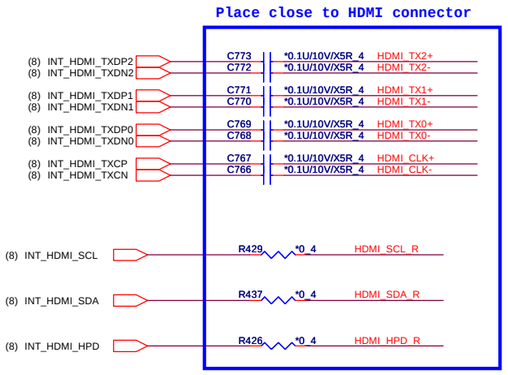
C552 C26 C17 C539 C16 C540 C556 C544 1U/6.3V_4
C542 C25 C20 C46 C38 C51 C42 C56 1U/6.3V_4
C557 C546 C548 C547 C545 C22 C23 C555 1U/6.3V_4
C15 C13 C14 C11 C41 C551 C48 C57 1U/6.3V_4
C54 C538 C537 C9 C5 10U/6.3V_6S
C7 C8 C558 C34 C554 C533 C534 10U/6.3V_6S

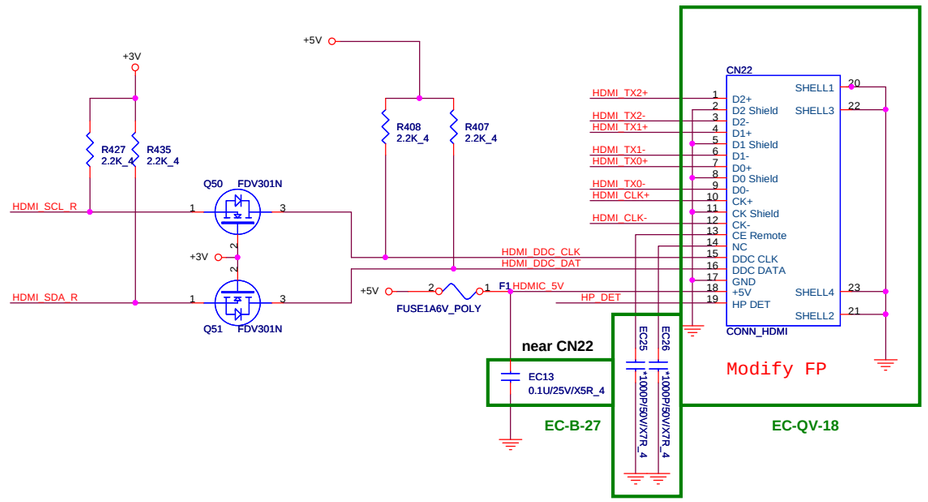
Quanta Computer Inc.		
PROJECT : DM4/RB4		
Size	Document Number: Robson/VRAM_A0,A1	Rev 1A
Date: Friday, November 19, 2010	Sheet 21 of 53	

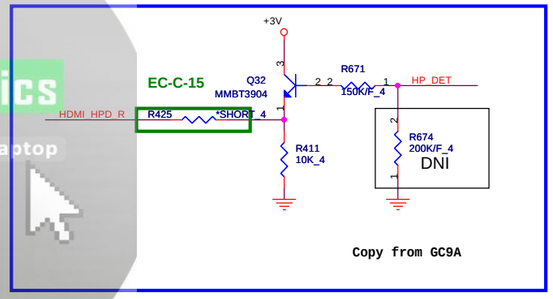
DIS HDMI

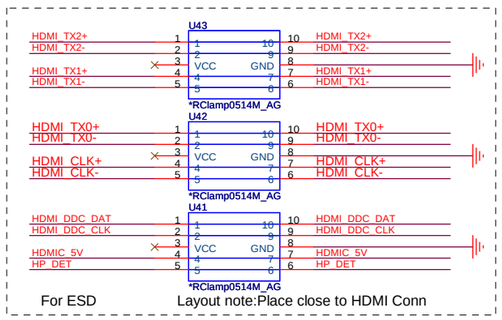


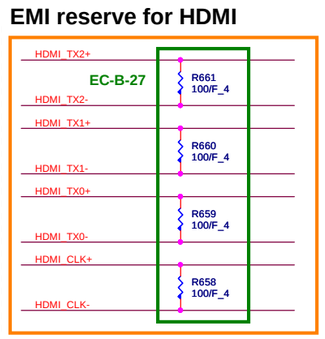
UMA Only











(8,9,12,23,26,28,35,36,37,38,40,41,42,49) +5V
(8,9,10,11,12,14,15,17,23,24,26,27,28,29,30,31,36,37,38,40,41,42,46,47,48,49) +3V

PROJECT : KL2D
Quanta Computer Inc.

Size	Document Number	Rev
Custom	Madison_LVDS/HDMI/CRT switchable	1A
Date: Tuesday, January 04, 2011	Sheet 22 of 53	

(8,9,12,22,26,28,35,36,37,38,40,41,42,49) +5V
(8,9,10,11,12,14,15,17,22,24,26,27,28,29,30,31,36,37,38,40,41,42,46,47,48,49) +3V

EC-B-06

ESD PROTECTION

U47
CRT_R1 — IO1 IO4 — CRT_G1
DDCDAT — GND REF
IO2 IO3 — CRT_B1
TVLST2304AD0

U48
CRT_VCC_R — IO1 IO4 — DDCCLK
CRTHSYNC — GND REF
IO2 IO3 — CRTVSYNC
TVLST2304AD0

Layout Note:
Setting R,G,B trace impedance to 50 ohm.

CRT_VCC
D24 RB500V-40
+5V — F2 FUSE1A6V_POLY — CRT_VCC_R
C687 *VARISTOR_4
C683 0.1U/10V/X5R_4

ROBSON_CRT_RED_R — L33 BK1608LL680 — CRT_R1
ROBSON_CRT_GRN_R — L32 BK1608LL680 — CRT_G1
ROBSON_CRT_BLU_R — L31 BK1608LL680 — CRT_B1
R298 150/F_4
R289 150/F_4
R278 150/F_4
C334 5.6P/50V/COG_4
C321 5.6P/50V/COG_4
C312 5.6P/50V/COG_4
C311 5.6P/50V/COG_4
C320 5.6P/50V/COG_4
C333 5.6P/50V/COG_4
TP51

CN17 CRT_CONN
16 17
6 1 7 2 8 3 9 4 10 5
11 12 13 14 15

+5V
ROBSON_CRT_VSYNC_R — U15 AHCT1G125DCH — VGAVSYNC_R — R262 10_4 — CRTVSYNC1
C285 0.1U/10V/X5R_4
ROBSON_CRT_HSYNC_R — U16 AHCT1G125DCH — VGAHSYNC_R — R263 10_4 — CRTHSYNC1

Place near
U37,U38 < 200 mil

C291 *10P/50V/COG_4
C290 *10P/50V/COG_4

L29 HB-1T1608-121JT — CRTVSYNC
L30 HB-1T1608-121JT — CRTHSYNC
C301 10P/50V/COG_4
C300 10P/50V/COG_4

Place near CN5002 connector
< 200 mil

DIS

(8) INT_CRT_VSYNC
(17,18) ROBSON_CRT_VSYNC
R103 *0_4
R102 0_4
ROBSON_CRT_VSYNC_R

(8) INT_CRT_HSYNC
(17,18) ROBSON_CRT_HSYNC
R118 *0_4
R117 0_4
ROBSON_CRT_HSYNC_R

(8) INT_DDCCLK
(17) ROBSON_CRT_DDCCLK
R166 *0_4
R165 0_4
ROBSON_CRT_DDCCLK_R

(8) INT_DDCDAT
(17) ROBSON_CRT_DDCDAT
R159 *0_4
R158 0_4
ROBSON_CRT_DDCDAT_R

(8) INT_CRT_RED
(17) ROBSON_CRT_RED
R148 *0_4
R147 0_4
ROBSON_CRT_RED_R

(8) INT_CRT_GRE
(17) ROBSON_CRT_GRN
R138 *0_4
R137 0_4
ROBSON_CRT_GRN_R

(8) INT_CRT_BLU
(17) ROBSON_CRT_BLU
R130 *0_4
R129 0_4
ROBSON_CRT_BLU_R

+3V
R619 2.2K_4
R609 2.2K_4
CRT_VCC
R616 4.7K_4
R611 4.7K_4

ROBSON_CRT_DDCCLK_R — Q41 2N7002K-T1-E3 — DDCCLK
+3V
ROBSON_CRT_DDCDAT_R — Q43 2N7002K-T1-E3 — DDCDAT

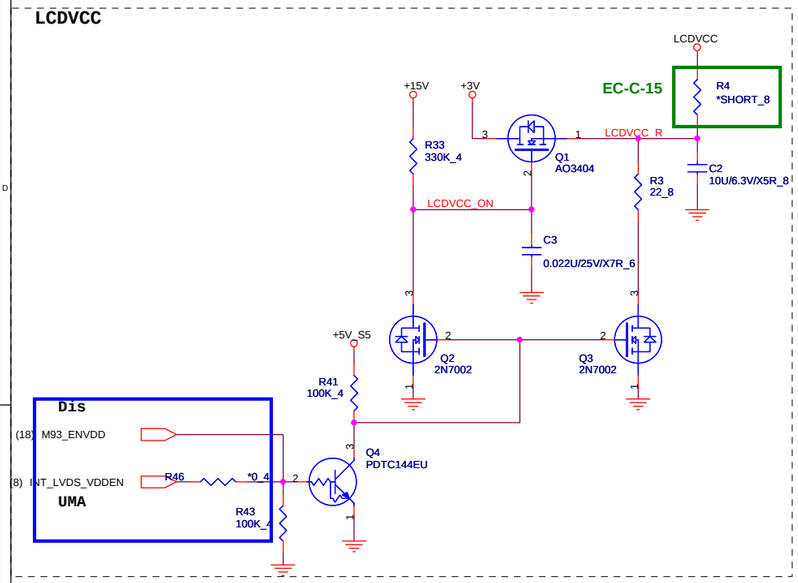
C694 *10P/50V/COG_4
C679 *10P/50V/COG_4

PROJECT : KL2D
Quanta Computer Inc.

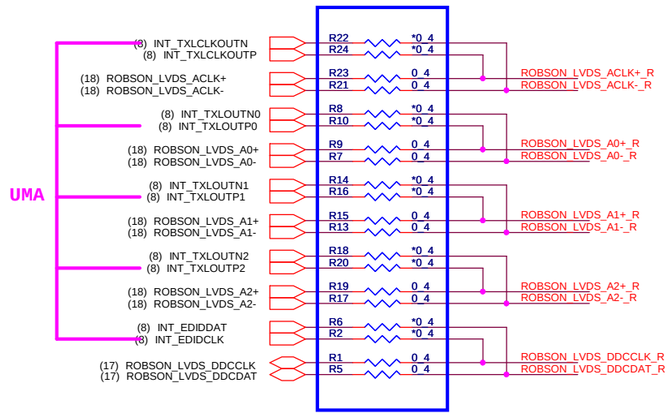
Size	Document Number	Rev
C	CRT CONN	1A

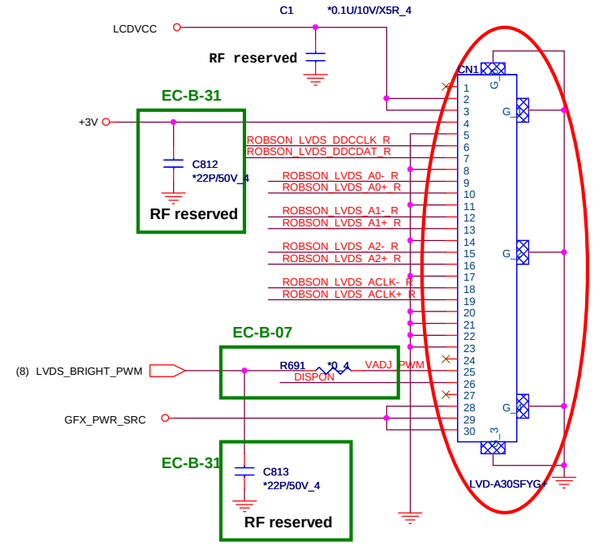
Date: Tuesday, January 04, 2011 Sheet 23 of 53

LCDVCC

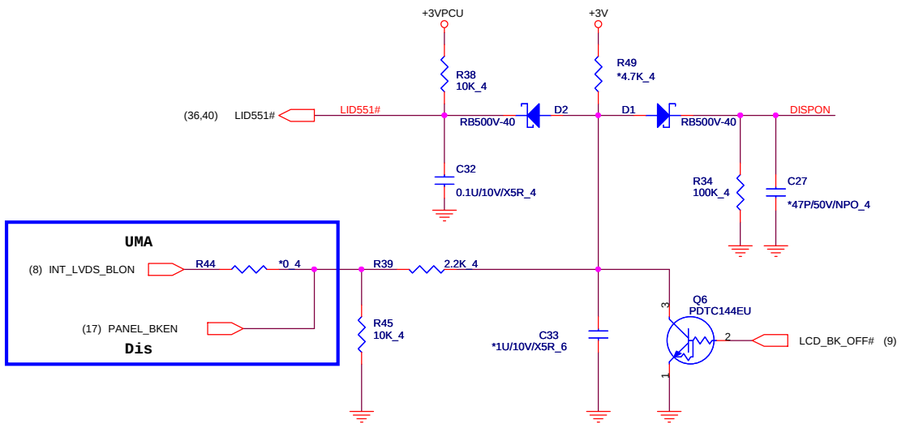


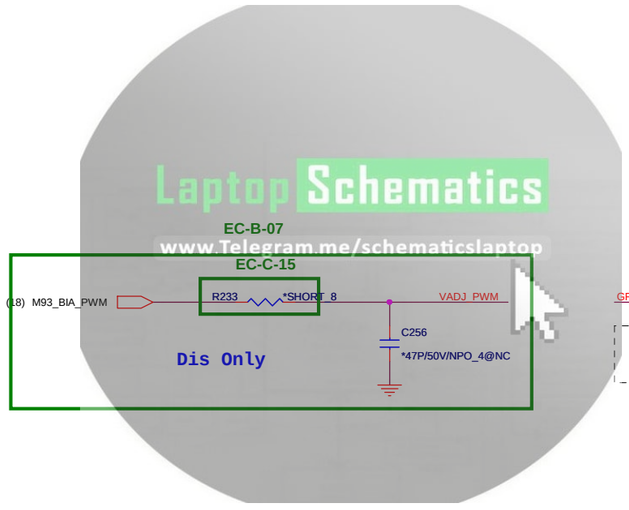
Layout note: Those resister place colse LVDS connector





Back light





PROJECT : KL2D
Quanta Computer Inc.

Size	Document Number	Rev
C	LCD CONN	1A

Date: Tuesday, January 04, 2011 Sheet 24 of 53

(4,8,9,10,11,12,29,31,36,40,41) +3V_S5
(4,6,8,9,10,12,31,38,41,48) +1.05V_PCH
(8,9,24,28,35,36,38,40,41,42,44,45,46) +3VPCU

LANVCC

+3VPCU
Q48 AO6402A
(8) SLP_LAN# — R666 *0_4 — EC-C-15 — +3.3V_LAN
(41) LAN_ON — R663 *0_4_short — +3.3V_LAN_R — R652 *SHORT_8 — C738 0.1U/10V/X5R_4

Core Power Decoupling

+1.0V_LOM
C721 4.7U/6.3V/X5R_6
C746 C731 C726 C725 C740 C743 C744 0.1U/10V/X5R_4
C745 0.1U/10V/X5R_4

VDDIO Power Decoupling

+3.3V_LAN
C737 4.7U/6.3V/X5R_6
C732 C733 C735 0.1U/10V/X5R_4
C747 10U/10V/X5R_8

U38 — 82579LM/LC

(10) PCIE_CLKREQ_LAN# — CLK_REQ_N
(4,10,16,29,31) PLTRST# — PE_RST_N
(10) CLK_PCIE_LANP — PE_CLKP
(10) CLK_PCIE_LANN — PE_CLKN
(10) PCIE_RXP2_LAN — C741 0.1U/10V/X5R_4 LAN_PCIETXDP — PETp
(10) PCIE_RXN2_LAN — C742 0.1U/10V/X5R_4 LAN_PCIETXDN — PETn
(10) PCIE_TXP2_LAN — PERp
(10) PCIE_TXN2_LAN — PERn
PCIE

MDI_PLUS0 / MDI_MINUS0 — TRD0+ / TRD0-
MDI_PLUS1 / MDI_MINUS1 — TRD1+ / TRD1-
MDI_PLUS2 / MDI_MINUS2 — TRD2+ / TRD2-
MDI_PLUS3 / MDI_MINUS3 — TRD3+ / TRD3-
MDI

+3.3V_LAN — R647 *10K_4
EC-C-15
(11) LAN_DISABLE# — R648 *SHORT_4 — LAN_DISABLE_N
R645 *10K_4
SMB_CLK_ME0_R — SMB_CLK
SMB_DAT_ME0_R — SMB_DATA
SMBUS

ACTLED# — LED0
LINKLED — LED1
LED2
LED

+3.3V_LAN — R644 10K_4 / R646 10K_4
JTAG_TDI
JTAG_TDO
JTAG_TMS
JTAG_TCK
JTAG

LAN_XTALO — XTAL_OUT
LAN_XTALI — XTAL_IN
TEST_EN
RBIAS
R640 1K_4
R635 3.01K/F_4

VCT — 6
RSVD_VCC3P3_1 / RSVD_VCC3P3_2 — R653 4.7K_4 / R650 4.7K_4 — +3.3V_LAN
VDD3P3_IN — 5
VDD3P3_OUT — 4 — +V3.3M_LAN_OUT
VDD3P3_15 / VDD3P3_19 / VDD3P3_29 — C730 0.1U/10V/X5R_4
VDD1P0_47 / VDD1P0_46 / VDD1P0_37 — +1.0V_LOM
VDD1P0_43
VDD1P0_11
VDD1P0_40 / VDD1P0_22 / VDD1P0_16 / VDD1P0_8 — C724 0.01U/16V/X7R_4
C722 10U/10V/X5R_8 — C723 *10U/10V/X5R_8
Added CAP,Total = 20uF - 07/23
Rev1.2 - Intel 431786
CTRL_1P0 — L37 4.7uH/510mA_2 — EC-QV-04
Close to CTRL_1P0 (PIN7)
VSS_EPAD — 49

+1.0V_LOM — R634 *0_6 — +1.05V_PCH

U36 CM1293A-04SO
TRD0+ / TRD0- / TRD1- / TRD1+

U35 CM1293A-04SO
TRD2+ / TRD2- / TRD3- / TRD3+

LAN_XTALO_R — R639 0_4 — LAN_XTALO
Y7 25MHZ
C729 33P/50V/NPO_4
C728 33P/50V/NPO_4

EC-B-33

SMBUS address 0XC8

+3.3V_LAN — R643 2.2K_4 / R638 2.2K_4
+3V_S5 — Q47 2N7002 — (10) SMB_DATA_ME0 — SMB_DAT_ME0_R
+3V_S5 — Q46 2N7002 — (10) SMB_CLK_ME0 — SMB_CLK_ME0_R

LAN_DISABLE# is active low.

Tramsformer

U33 — NS892405
TRD0- / TRD0+ — C379 0.1U/10V/X5R_4 — TD4- / TD4+ — MX4- / MX4+ — LAN_MX0- / LAN_MX0+
TRD1- / TRD1+ — C380 0.1U/10V/X5R_4 — TCT4 / TD3- / TD3+ — MCT4 / MX3- / MX3+ — LAN_MCT0 / LAN_MX1- / LAN_MX1+ — R307 75/F_4 — LANCT3
TRD2- / TRD2+ — C384 0.1U/10V/X5R_4 — TCT3 / TD2- / TD2+ — MCT3 / MX2- / MX2+ — LAN_MCT1 / LAN_MX2- / LAN_MX2+ — R308 75/F_4
TRD3- / TRD3+ — C382 0.1U/10V/X5R_4 — TCT2 / TD1- / TD1+ — MCT2 / MX1- / MX1+ — LAN_MCT2 / LAN_MX3- / LAN_MX3+ — R309 75/F_4
TCT1 — MCT1 — LAN_MCT3 — R310 75/F_4
C383 1U/10V/X5R_6
Place near to Transformer
EC-B-27
R306 1M_6 — C711 10P/3KV/NPO_18

RJ45 Connector

EMI:close RJ45
C719 *0.1U/10V/X5R_4@NC
CN19 — 100073FR012S176ZL
+3.3V_LAN — R630 150/F_4 — LAN_YLED
ACTLED#
LAN_MX0+ / LAN_MX0- / LAN_MX1+ / LAN_MX2+ / LAN_MX2- / LAN_MX1- / LAN_MX3+ / LAN_MX3-
EC-B-40
C816 *0.1U/10V/X5R_4
+3.3V_LAN — R628 150/F_4 — LAN_GLED / LINKLED
C815 *0.1U/10V/X5R_4
C709 *0.1U/10V/X5R_4@NC
EMI:close RJ45

PROJECT : LL3A
Quanta Computer Inc.

Size	Document Number	Rev
Custom	LAN(82577LM)	1E

Date: Tuesday, January 04, 2011 Sheet 25 of 53

CODEC(ADO)

Close to CODEC

ALC269Q-VB6-GR (LQFP-48)

ANALOG

DIGITAL

Modify FP&PN

EC-C-11

Codec Power(ADO)

EC-C-15 60mil

C706,C723,C724,C712 close to IC

U45 *G916-475T1UF

Vset=1.242V

MAINON (17,40,41,42,43,45,46,47,48)

Earphone(AMP)

EC-B-16

Connector-Audio Jack

Normal Open Jack

EC-B-08

NORMAL OPEN : mount R37

Normal Close : mount R413,Q34

HDA Power(ADO)

*Intel HDA Either +1.5V_S5 or +3V_S5

EC-C-15

System MIC(AMP)

EC-B-08

NORMAL OPEN : mount R47

Normal Close : mount R443,Q36

EC-B-16

Connector-Audio Jack

Normal Open Jack

Speaker(AMP)

EC-QV-15

EC-C-17

INTERNAL MIC

EC-B-40 EC-C-04

PC BEEP

U40 NC7SZ86

PROJECT KL5A
Quanta Computer Inc.

Size	Document Number	Rev
Custom	AL269/MIC/Line out	1A

Date: Tuesday, January 04, 2011 Sheet 26 of 53

Clock Mode strap	R9287	R9307
48MHz	×	×
24MHz	×	○
12MHz	○	×
12MHz (Crystal)	○	○

Note:

EC-B-09

SD/MMC	MS	XD
SP1 SD_D7		XD_RDY
SP2 SD_D6		XD_RE#
SP3 SD_D5		XD_CE#
SP4 SD_D4		XD_WE#
SP5	MS_BS	XD_CLE
SP6		XD_ALE
SP7	MS_D1	XD_WP#
SP8		XD_D0
SP9	MS_D0	XD_D1
SP10	MS_D2	XD_D2
SP11		XD_D3
SP12	MS_D3	XD_D4
SP13		XD_D5
SP14	MS_CLK	XD_D6
SP15 SD_WP		XD_D7

For RTS5139

SD,MS 4bit only

EC-C-15

(10) CLK_48M_CARD — R451 *SHORT_4 — XI — Y6 *12MHZ 30ppm — XO — R447 *270K_4 — C528 *5.6P/50V_4 — C523 *5.6P/50V_4

A11

C519 *1U/6.3V/X5R_4 — C513 1U/6.3V/X5R_4 — R441 6.19K/F_4 RREF — R457 *10K_4 +3V

U26 — RTS5139-GR

1	DM	USBP10-	(10) USBP10-
2	DP	USBP10+	(10) USBP10+
3	NC		
4	NC		
5	NC		
6	NC		
7	NC		
8	GND		
9	NC		
10	NC		
11	3V3_IN		
12	Card_3V3		
13	XD_CD#		
14	DV33_18		
15	GND		
16	SP1		
17	SP2		
18	SP3		
19	SP4		
20	SD_D1		
21	SD_D0		
22	SD_CLK		
23	SD_CMD		
24	SD_D3		
25	SD_D2		
26	CLK_MODE[1]		
27	GND		
28	SP5		
29	SP6		
30	SP7		
31	SP8		
32	SP9		
33	SP10		
34	SP11		
35	SP12		
36	SP13		
37	SP14		
38	SP15		
39	SD_CD#		
40	MS_INS#		
41	GPIO		
42	CLK_MODE[0]		
43	XTLI/CLK_IN		
44	XTLO		
45	RST#		
46	NC		
47	DV18		
48	RREF		

+3V — EC-C-15 R431 *SHORT_8 — C503 10U/6.3V/X5R_6 — C507 0.1U/10V/X5R_4 — VCC_XD — C510 0.1U/10V/X5R_4

C520 *4.7U/6.3V/X5R_6 — C522 0.1U/10V/X5R_4

R450 *0_4_short (SD_D1_R) — R453 *0_4_short (SD_D0_R) — R455 *0_4_short (SD_CLK_R) — R456 *0_4_short (SD_CMD_R) — R458 *0_4_short (SD_D3_R)

R464 *10K_4 DV33_18 — SD_D2_R R463 *0_4_short SD_D2

7 IN1 CARD CONN XD,MMC/SD,MS/MSP

CN12 — 144-1300302600-42p

EC-B-09

1	SD-CD	SD_CD#	
2	SD-WP	SD_WP	
3	SD-8-DAT1	SD_D1	
4	SD-7-DAT0	SD_D0	
5	MMC-DAT7	SD_D7	EC-B-09
6	MS-VSS		
7	SD-VSS		
8	MMC-DAT6	SD_D6	EC-B-09
9	MS-BS	MS_BS	
10	SD-CLK	SD_CLK	
11	MS-DAT1	MS_D1	
12	MS-DAT0	MS_D0	
13	SD-VCC		
14	MS-DAT2	MS_D2	
15	SD-VSS		
16	MS-INS	MS_CD#	
17	MMC-DAT5	SD_D5	EC-B-09
18	MS-DAT3	MS_D3	
19	SD-CMD	SD_CMD	
20	MS-CLK	MS_CLK	EC-B-09
21	MMC-DAT4	SD_D4	EC-B-09
22	MS-VSS		
23	SD-DAT3	SD_D3	
24	MS-VSS		
25	SD-DAT2	SD_D2	
26	ME-VSS-1		
27	ME-VSS-2		
28	XD-CD	XD_CD#	
29	XD-R/B	XD_RDY	
30	XD-RE	XD_RE#	
31	XD-CE	XD_CE#	
32	XD-CLE	XD_CLE	
33	XD-ALE	XD_ALE	
34	XD-WE	XD_WE#	
35	XD-WP	XD_WP#	
36	XD-VSS		
37	XD-DAT0	XD_D0	
38	XD-DAT1	XD_D1	
39	XD-DAT2	XD_D2	
40	XD-DAT3	XD_D3	
41	XD-DAT4	XD_D4	
42	XD-DAT5	XD_D5	
43	XD-DAT6	XD_D6	
44	XD-DAT7	XD_D7	
45	XD-VCC	VCC_XD	
46	XD-VSS		
47	ME-3		
48	ME-4		

EC-C-09 C425 *10P/50V/C0G_4

VCC_XD — C428 0.1U/10V/X5R_4 — C429 10U/6.3V/X5R_6

VCC_XD — C421 0.1U/10V/X5R_4

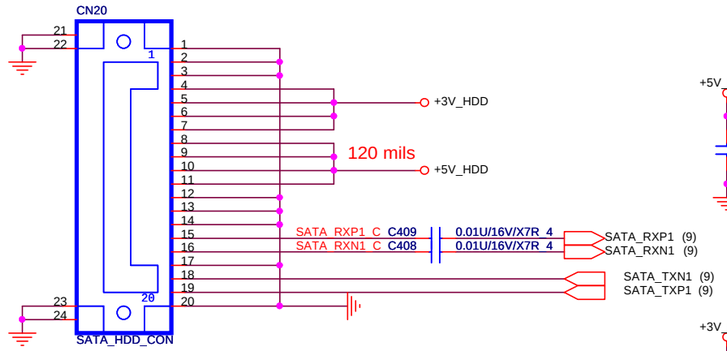
VCC_XD — C427 0.1U/10V/X5R_4

PROJECT KL5A

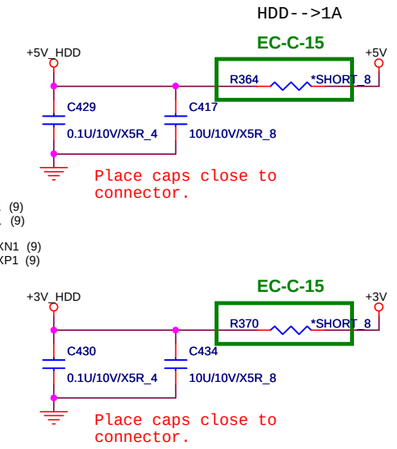
Quanta Computer Inc.

Size	Document Number	Rev
Custom	Card Reader (RTS5159)	1A
Date: Friday, November 19, 2010	Sheet 27 of 53	

SATA HDD Connector.



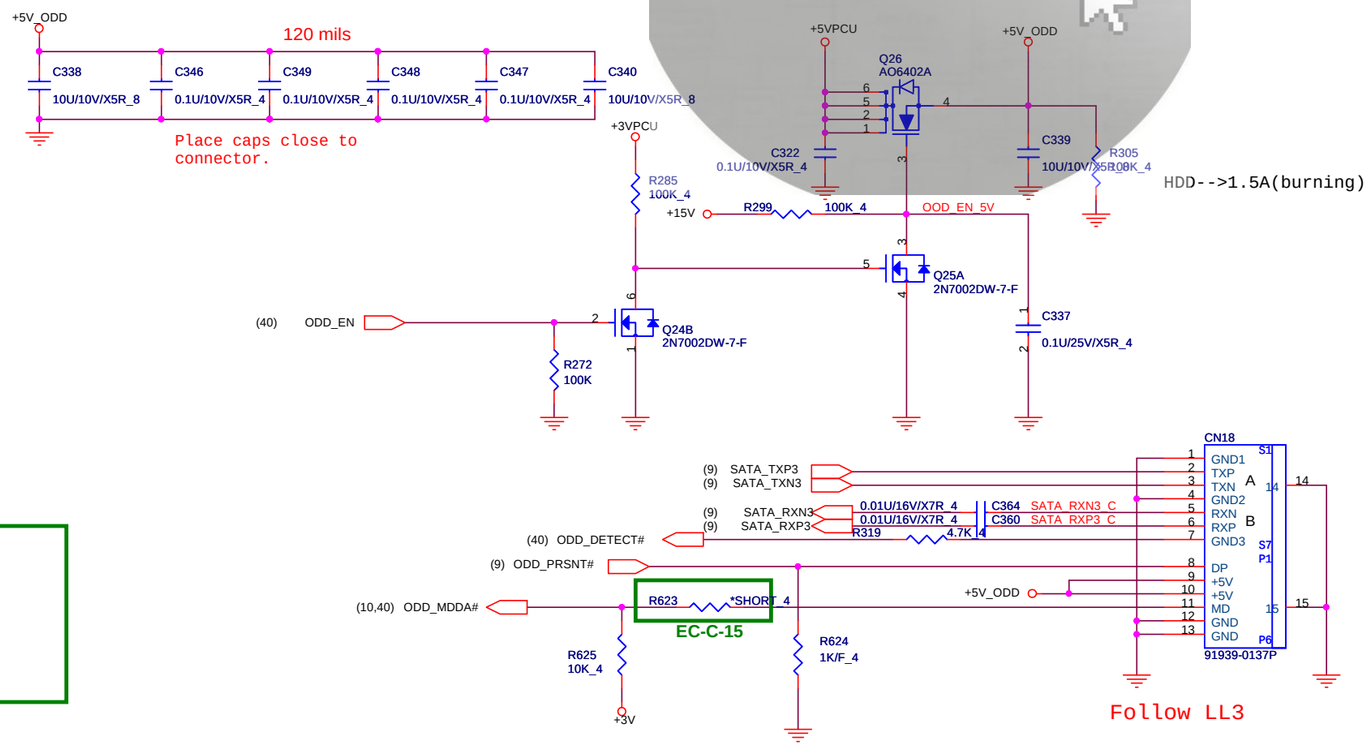
Modify PN&FP(LL7 OK)



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

SATA ODD Connector.

EC-B-10

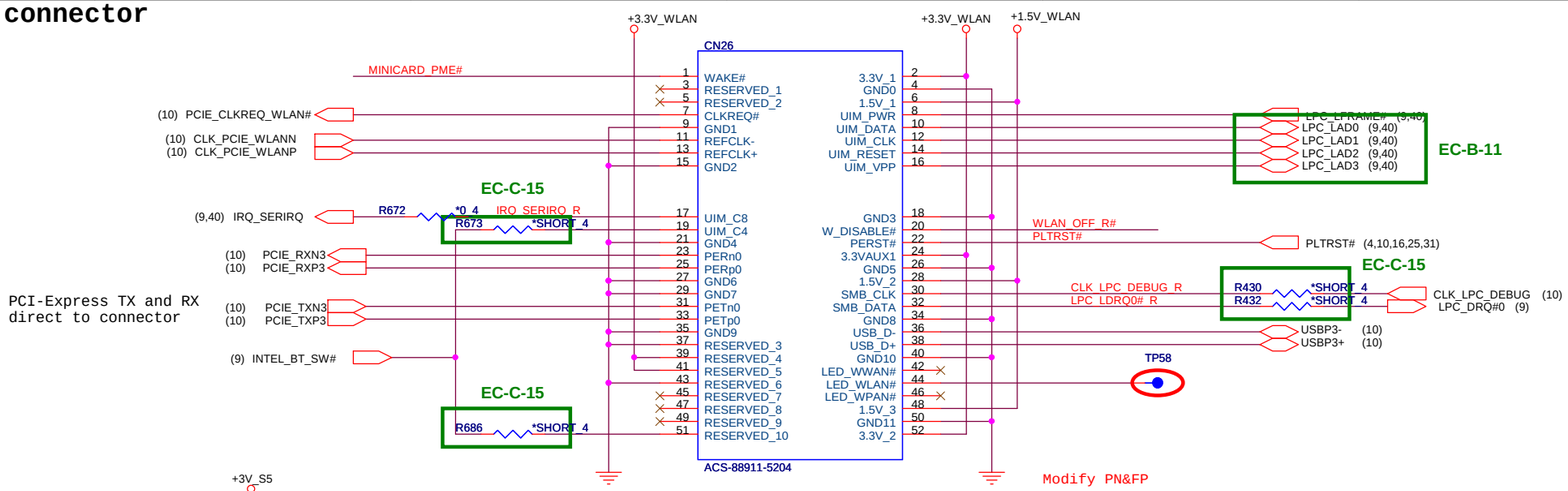


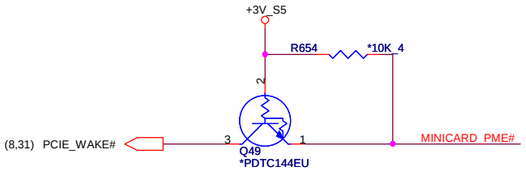
PROJECT KL5A
Quanta Computer Inc.

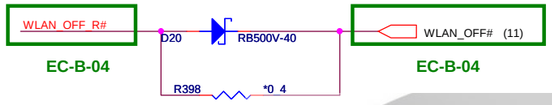
Size	Document Number	Rev
Custom	SATA HDD/ESATA/CD-ROM	1A

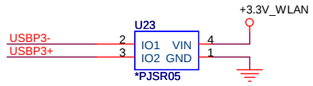
Date: Tuesday, January 04, 2011 Sheet 28 of 53

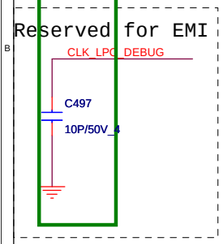
MiniCard WLAN connector

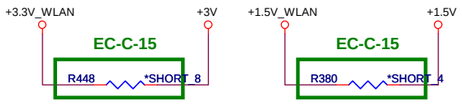


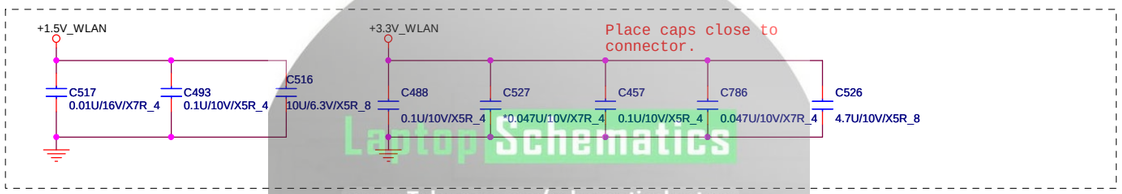




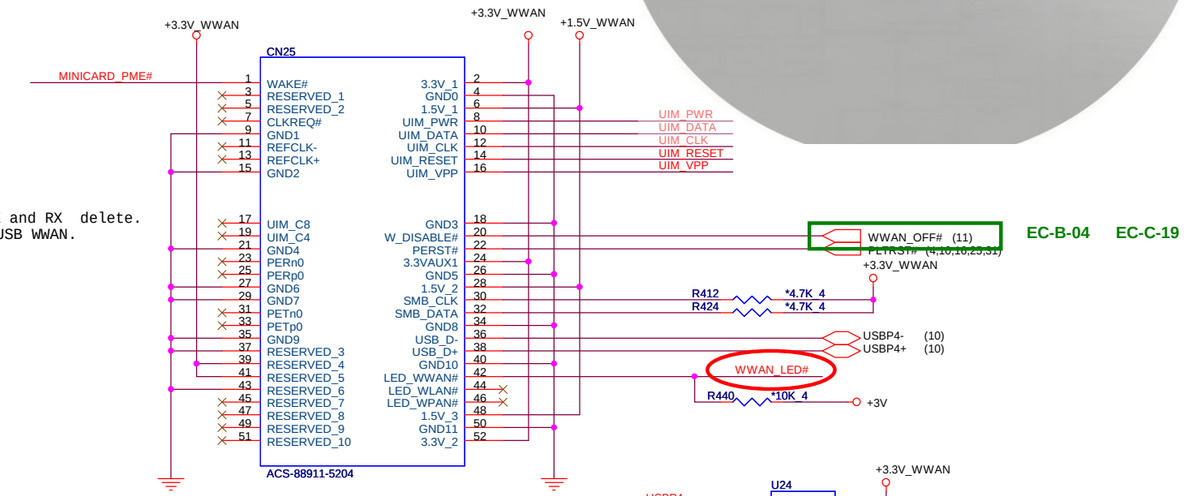


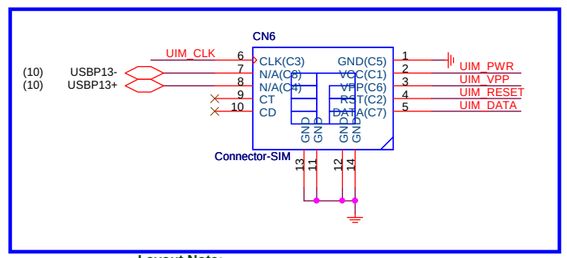


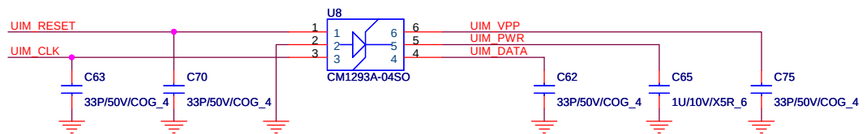


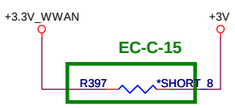


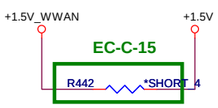
MiniCard WWAN (Reserved for KL9)

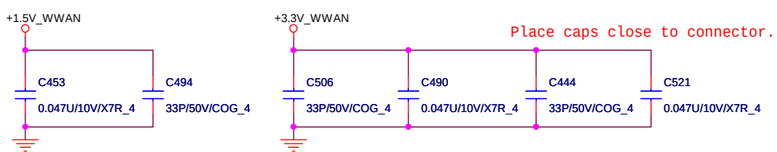












PROJECT : KL2D
Quanta Computer Inc.

Size	Document Number	Rev
Custom	MINI-Card (WLAN/WWAN)	1A
Date: Wednesday, January 05, 2011	Sheet 29 of 53	

Mini PCI-E Card 3 SSD

(12,29,38,41,43) +1.5V
(8,9,10,11,12,14,15,17,22,23,24,26,27,28,29,31,36,37,38,40,41,42,46,47,48,49) +3V

32

EC-B-13

+3.3V_SSD +3.3V_SSD +1.5V_WIMAX

CN24

1	WAKE#	3.3V_1	2
3	RESERVED_1	GND0	4
5	RESERVED_2	1.5V_1	6
7	CLKREQ#	UIM_PWR	8
9	GND1	UIM_DATA	10
11	REFCLK-	UIM_CLK	12
13	REFCLK+	UIM_RESET	14
15	GND2	UIM_VPP	16
17	UIM_C8	GND3	18
19	UIM_C4	W_DISABLE#	20
21	GND4	PERST#	22
23	PERn0	3.3VAUX1	24
25	PERp0	GND5	26
27	GND6	1.5V_2	28
29	GND7	SMB_CLK	30
31	PETn0	SMB_DATA	32
33	PETp0	GND8	34
35	GND9	USB_D-	36
37	RESERVED_3	USB_D+	38
39	RESERVED_4	GND10	40
41	RESERVED_5	LED_WWAN#	42
43	RESERVED_6	LED_WLAN#	44
45	RESERVED_7	LED_WPAN#	46
47	RESERVED_8	1.5V_3	48
49	RESERVED_9	GND11	50
51	RESERVED_10	3.3V_2	52

ACS-88911-5204

(9) SATA_RXP0
(9) SATA_RXN0
0.01U/16V/X7R_4 C756 SATA_RXP0_C
0.01U/16V/X7R_4 C754 SATA_RXN0_C

(9) SATA_TXN0
(9) SATA_TXP0

(11) SDD_DA_DSS
(11) SSD_DETECT#

USBP12-
USBP12+
USBP12- (10)
USBP12+ (10)

EC-B-12

+1.5V_WIMAX

Place caps close to connector.

C736 *0.01U/16V/X7R_4
C784 *0.1U/10V/X5R_4
C783 *10U/6.3V/X5R_8

EC-B-12

+3.3V_SSD

Place caps close to connector.

C739 0.1U/10V/X5R_4
C778 0.047U/10V/X7R_4
C779 0.1U/10V/X5R_4
C777 0.047U/10V/X7R_4
C774 4.7U/10V/X5R_8

+3.3V_SSD +3V

EC-C-15

R384 *SHORT_8

+1.5V_WIMAX +1.5V

EC-C-15

R366 *SHORT_4

PROJECT : LL3A
Quanta Computer Inc.

Size	Document Number	Rev
Custom	MINI Card (SSD)	1E
Date: Tuesday, January 04, 2011	Sheet 30 of 53	

USB30_SMI#
R712 *0/J_4
D28 RB500V-40
(10) USB30_EXT_SMI#
EC-QV-17

+3.3VAUX
EC-C-13
R420 10K/F_4
R419 10K/F_4
R418 10K/F_4
R637 10K/F_4
R657 10K/F_4
R704 10K/F_4
R705 *10K/F_4
PCIE_WAKE#
USB30_SMI#
JTAGCK
GPIO3
LOPWREN#
RMTWKEN#
EC-C-13

+3.3VAUX
R423 10K/F_4
R422 10K/F_4
TP30
TP29
SMDAT
SMCLK
For debug only.
Don't connect to
system SMBus

+3.3VAUX
OVCUR1#
OVCUR3#
OVCUR4#
OVCUR2#
R417 10K_4
R416 10K_4
EC-QV-17

SPI Flash ROM
P3V3_USB30
R396 10K/F_4
U22
SPICS# SPISCLK SPISI SPISO
CE# SCK SI SO WP# HOLD# VDD VSS
MX25L512MC-12G
8/13 P/N: AKE34ZN0501

ESD
U20
USB30_RX1-
USB30_RX1+
USB30_TX1-
USB30_TX1+
Z1 Z2 GND Z3 Z4 NC VCC
*RClamp0544.TBT
msop10-4_9-5
USB2PWR

Co-layout USB
PORT for 2.0&3.0
USB 3.0 function reserved

EC-C-13
USB3.0 : Install
USB2.0 : Remove
USB20_DM1
USB20_DP1
R371 0R_4
R365 0R_4
USB0_FB-
USB0_FB+

USB30_RX1-
USB30_RX1+
USB30_TX1-
USB30_TX1+
TP20
TP21
TP22
TP23
EC-C-14

	USB3.0	USB2.0
R651	No-ASM	No-ASM
R649	No-ASM	No-ASM
CML4	No-ASM	ASM

EC-B-27
R651 *0_4
CML4
*DLW21SN121SQ2L
R649 *0_4
(10) USBP8-
(10) USBP8+
USB0_FB-
USB0_FB+
D27 D26
BC5V0U1BZ01
BC5V0U1BZ01

EC-C-13
USB2PWR
CN23
VBUS D- D+ GND RX- RX+ GND TX- TX+
USB0_FB-
USB0_FB+
USB30_RX1-
USB30_RX1+
USB30_TX1-
USB30_TX1+
USB2.0/3.0 CONN

USB_TESTEN
SSREXT
PEREXT
R434 4.7K_4
R373 6.04K/F_4
R383 3.01K/F_4
(8,29) PCIE_WAKE#
EC-C-13
TP32 TP33 TP31 TP57
+3.3VAUX
+1.0VL
USB_TESTEN
SSREXT
PEREXT
PCIE_WAKE#
SMCLK
PLTRST_PCIE_N_USB
SMI#
JTAGTMS
JTAGTDO
JTAGTDI
JTAGCK
COREPWRDN
USBHOC1#
USBHOC2#
USBHOC3#
USBHOC4#
USBHPE1#

U21
VL800 / VL801 QFN88
VL800 4PORT
VL801 2PORT
VDD SSTX1+ SSTX1- VCCA10SSRX1 SSRX1+ SSRX1- VCCA33SS1 USBHP1+ USBHP1- VCCA33SS1 SSTX2+ SSTX2- VCCA10SSRX2 SSRX2+ SSRX2- VCCA33SS2 USBHP2+ USBHP2- VCCA33SS2 VCCA10SSM SSXI SSXO
VSUSUSB SSREXT VCCA10SSM SSTX3+ SSTX3- VCCA10SRX3 SSRX3+ SSRX3- VCCA33SS3 USBHP3+ USBHP3- VCCA33SS3 GND SSTX4+ SSTX4- VCCA10SRX4 SSRX4+ SSRX4- VCCA33SS4 USBHP4+ USBHP4- VCCA33SS4 GND_PAD
VSUSUSB VSUSUSB USBHPE2# USBHPE3# USBHPE4# SPISO SPISI SPISCLK SPICS# VDD VCCA33PEXTX PEXTX0- PEXTX0+ VCCA33PEXM PEXRX0- PEXRX0+ VCCA33PEXRX PEXCLK- PEXCLK+ VCCA33REG12 PEXREXT VCCA33REG25 VDD

Near PCIEx Slot
PWREN2 PWREN3 PWREN4 SPISO SPISI SPISCLK SPICS#
PCIE_RXN5_C PCIE_RXP5_C
PCIE_RXN5 (10) PCIE_RXP5 (10)
PCIE_TXN5 (10) PCIE_TXP5 (10)
CLK_PCIE_USB30N (10) CLK_PCIE_USB30P (10)
PEXREXT
TP28 TP27 TP26
C479 0.1U/16V_4
C477 0.1U/16V_4
EC-B-14

C486 0.1U/16V_4
C484 0.1U/16V_4
USB30_TX1+
USB30_TX1-
U3TXDP1
U3TXDN1
R395 0R_4
R389 0R_4
USB30_RX1+
USB30_RX1-
U3RXDP1
U3RXDN1
USB20_DP1
USB20_DM1
SSXI
SSXO

PLTRST_PCIE_N_USB
10K_4 R421
PLTRST# (4,10,16,25,29)
C828 *0.1U/10V/X5R_4
EC-C-13
EC-QV-17

C830 *0.1U/10V/X5R_4
SSREXT
EC-C-13

+5V_S5
(32,40) USB_ON
USB_ON
C734 1U/10V/X5R_6
U39
VIN1 VIN2 EN GND OUT3 OUT2 OUT1 OC
G547G1P81U(MSOP-8)
80 mils (Iout=2A)
USB2PWR
R642 0_4
USB3.0 : Install
USB2.0 : Remove
OVCUR2#
To USB3.0 IC
R641 *0_4
USB3.0 : Remove
USB2.0 : Install
USB_OC2# (10)
To PCH
C750 470P/50V/X7R_4
C749 0.1U/10V/X5R_4
C748 150U/6.3V_3528

Mount R9969 with VL801
Mount R9970 without VL801

EC-QV-17
+3.3VAUX
PLTRST_PCIE_N_USB
R713 0_4
R707 100K/F_4
C952 *0.1U/10V/X5R_4
Q58 ME2303T1
C829 1U/6.3V_4
R714 *100K/F_4
Q61 *ME2303T1
R719 100K/F_4
COREPWRDN
C953 *0.1U/10V_4

Remove LDO and connector
+1.05V_PCH to P1V05_SUS
+1.05V_PCH
P1V05_SUS
R374 0_8
0.6A

X'tal 25MHz
EC-B-33
EC-C-13
27P/50V_4 C433
R372 0R_6
SSXI
Y5
25MHz/20pF/30ppm
27P/50V_4 C432
SSXO
BG625000486
XTL-5_3X3_2-3_8-1_2H
Crystal foot print must be reserved
in case 25MHz clock from clock
generator is not stable enough.

EC-C-13
From M/B
+3V_SUS
+3.3VAUX
FB5
BLM18PG300SN1D
C509 4.7U/6.3V_6
C512 0.1U/16V_4
C511 4.7U/6.3V_6
C508 0.1U/16V_4

EC-QV-17
From M/B
+3V
+3.3VAUX
FB4
BLM18PG300SN1D
*ME2303T1
P3V3_USB30
C467 4.7U/6.3V_6
C471 0.1U/16V_4
COREPWRDN
R716 *0_4
Q62
C950 *1U/6.3V_4
C468 4.7U/6.3V_6
C469 0.1U/16V_4

P1V05_SUS
From M/B
FB3
BLM18PG300SN1D
*ME2303T1
Q63
P/N:CX11P300000
COREPWRDN
R717 *0_4
C951 *1U/6.3V_4
C447 4.7U/6.3V_6
C440 0.1U/16V_4
1.0V
FB1
BLM18PG300SN1D
FB2
BLM18PG300SN1D
1.0VE
1.0VL
C435 0.1U/16V_4
C431 4.7U/6.3V_6
C441 0.1U/16V_4
C448 4.7U/6.3V_6
EC-QV-17

Power sequence for Host.
+3.3VSUS
+3.3V
Reset
+1.0VSUS
+1.0V

+3.3VAUX
C492 C502 C500 C501 C491 C489 C470 C445 C436 C439
1.0VL
C449 C498 C487 C499 C504 C505
P3V3_USB30
C451 C472 C475 C485 C476
+3.3VAUX
C446 C437 C473
1.0VE
C442 C438 C464 C478 C496
0.1U/16V_4

EC-C-13
+15V
+3V_S5
R706 1M_4
Q53 AO6402A
+3V_SUS
C826 *0.1U/50V/X7R_6
C827 0.1U/10V/X7R_4
(41) SUSON#
Q54 2N7002K

PROJECT : KL2D
Quanta Computer Inc.
Size: Custom
Document Number: SATA HDD/ESATA/CD-ROM
Rev: 1A
Date: Tuesday, January 04, 2011
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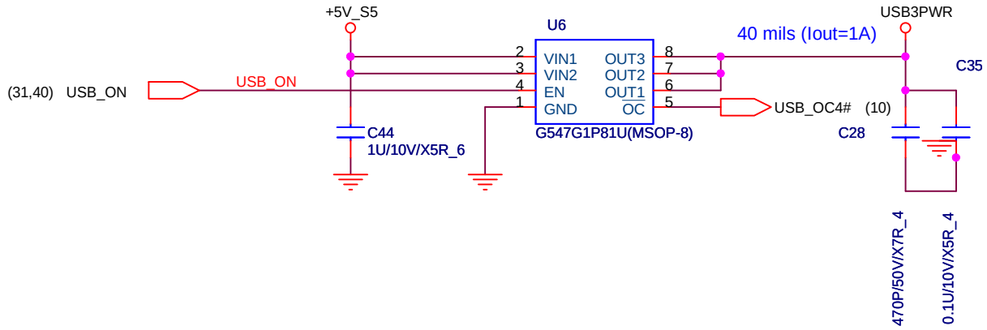
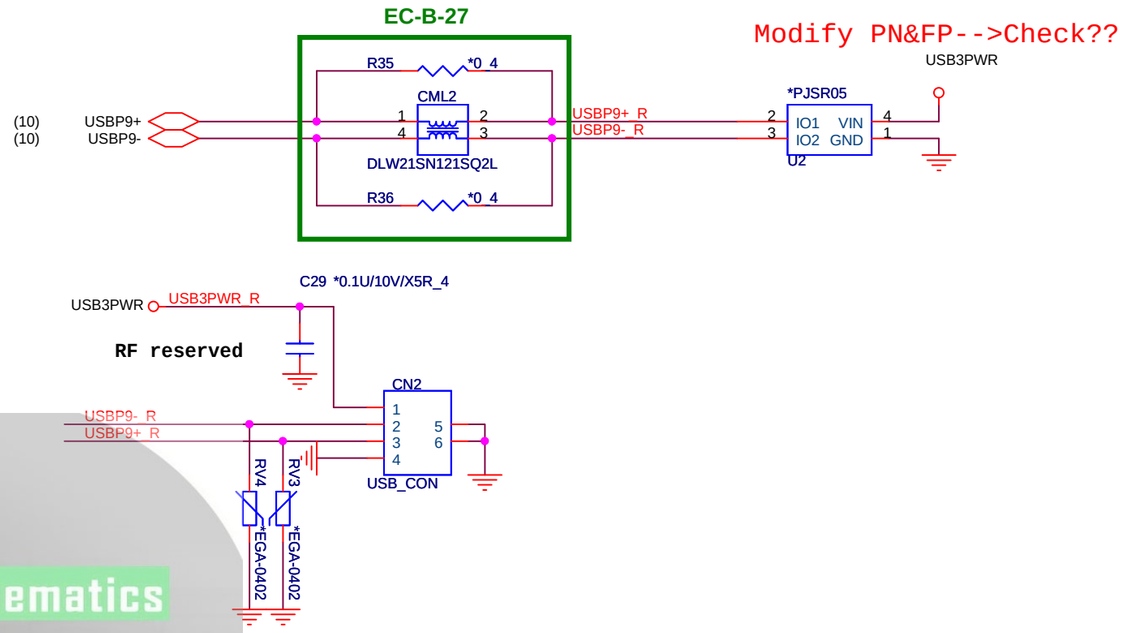
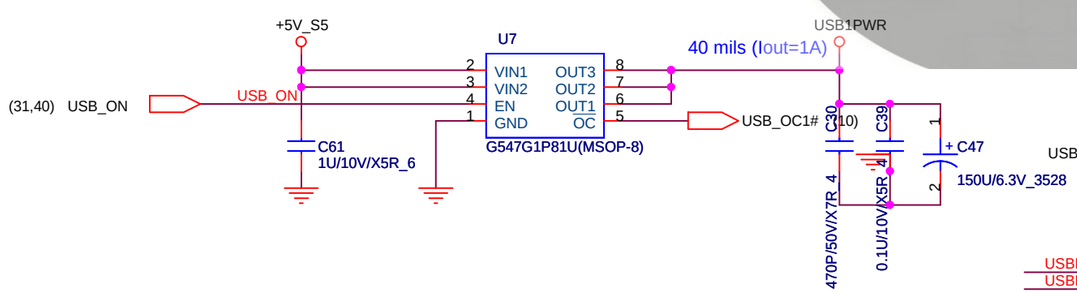
USB2.0*2

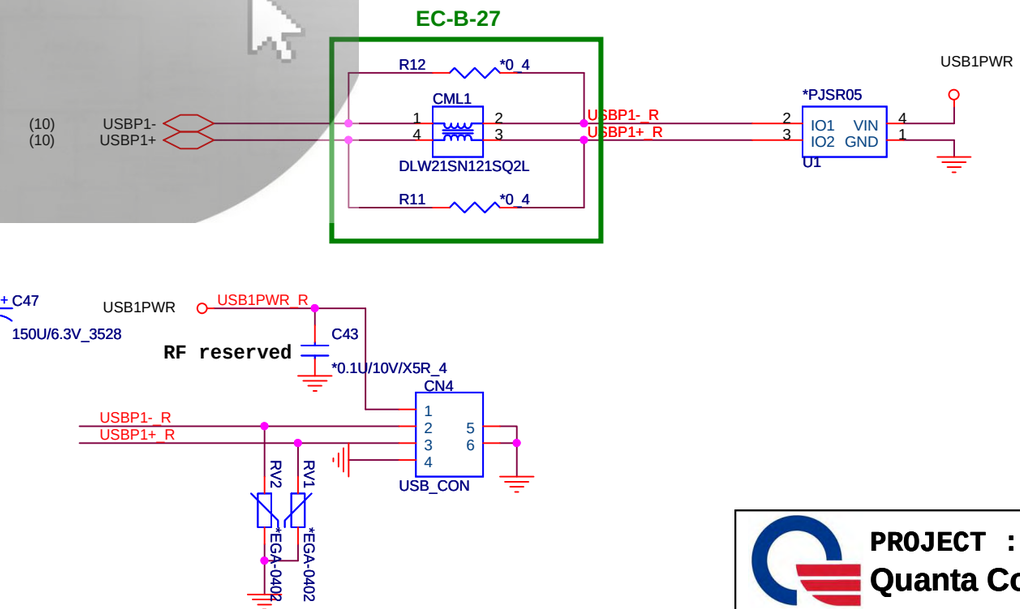
External (R side) USB*1





External (L side) USB*1





PROJECT : KL2D Quanta Computer Inc.			
Size B	Document Number MINI-Card (WLAN/WWAN)		Rev 1A
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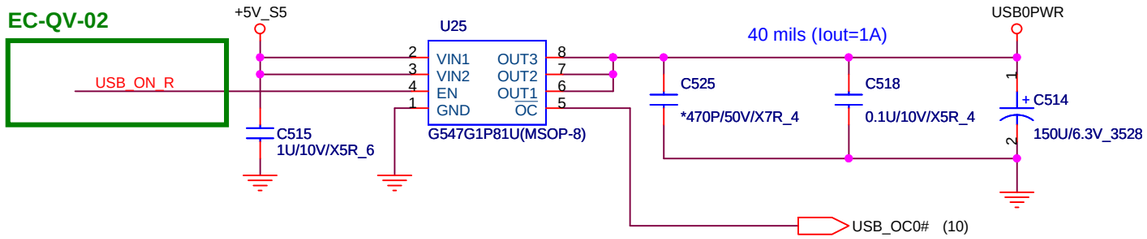
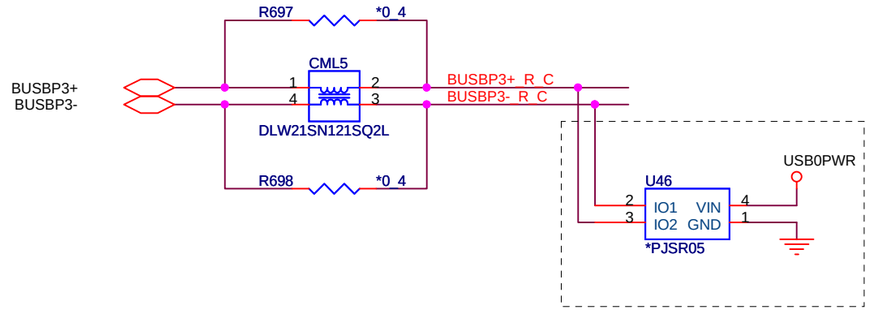
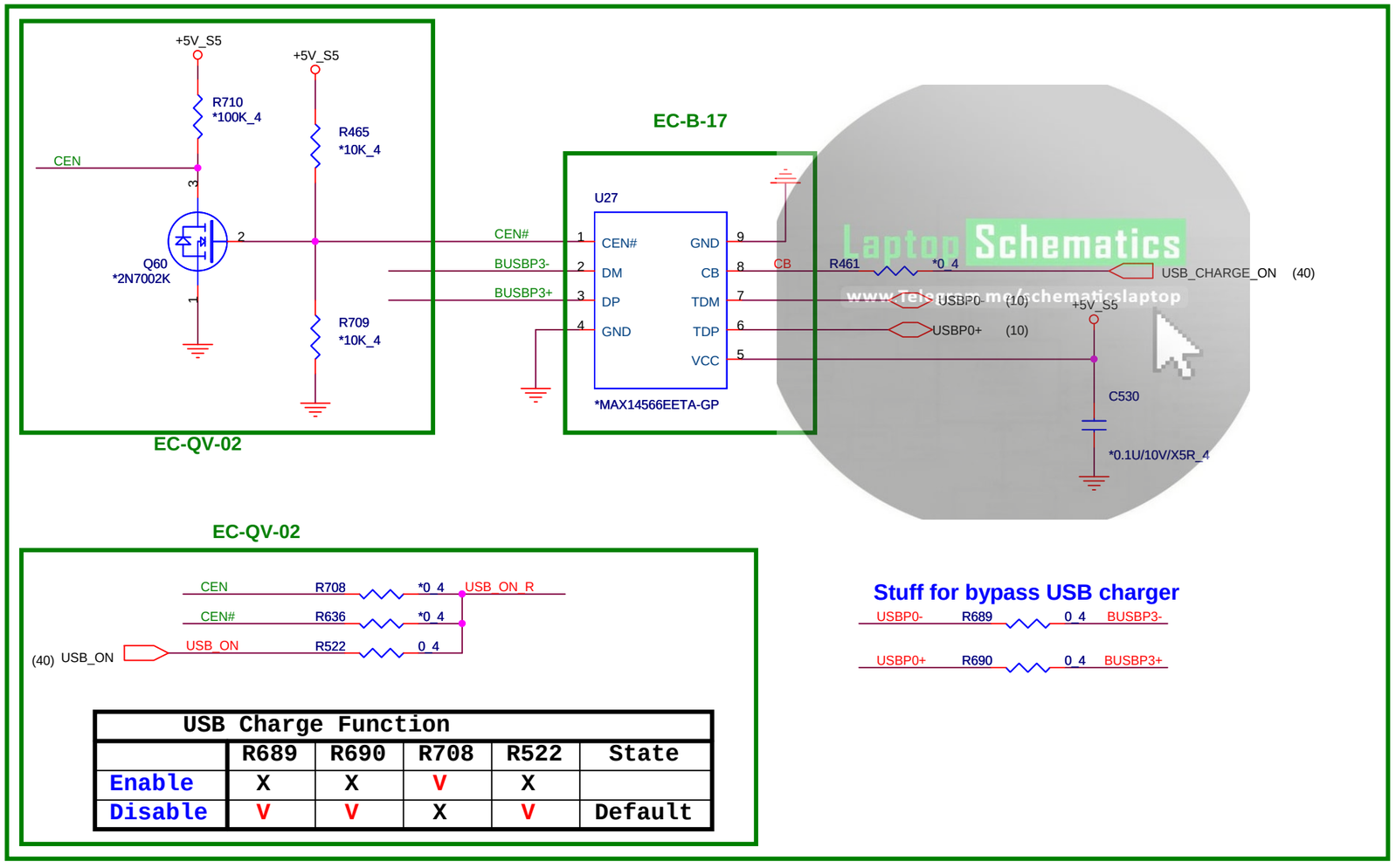
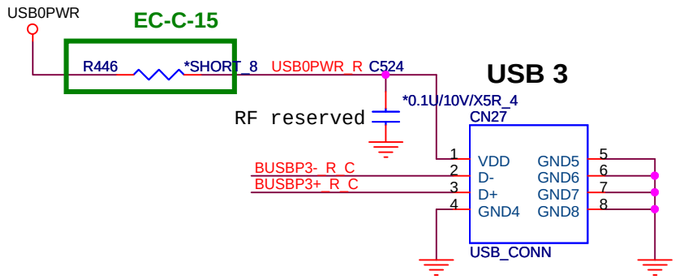
USB





USB charger





EC-QV-02

Stuff for bypass USB charger

USB Charge Function					
	R689	R690	R708	R522	State
Enable	X	X	V	X	
Disable	V	V	X	V	Default

PROJECT KL5A
Quanta Computer Inc.

Size	Document Number	Rev
B	USB Discharge	1A

Date: Tuesday, January 04, 2011 Sheet 33 of 53

G-SENSOR (3-Axial)

(8,9,10,11,12,14,15,17,22,23,24,26,27,28,29,30,31,36,37,38,40,41,42,46,47,48,49) +3V
(24,28,31,38,41,43,44,45) +15V

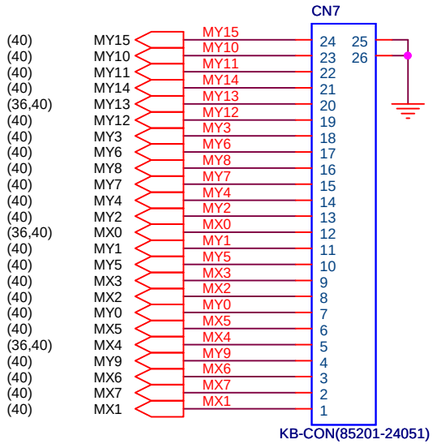
36

EC-B-18

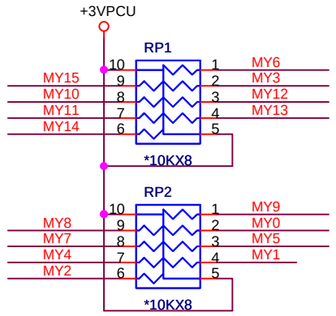
PROJECT : LL3A
Quanta Computer Inc.

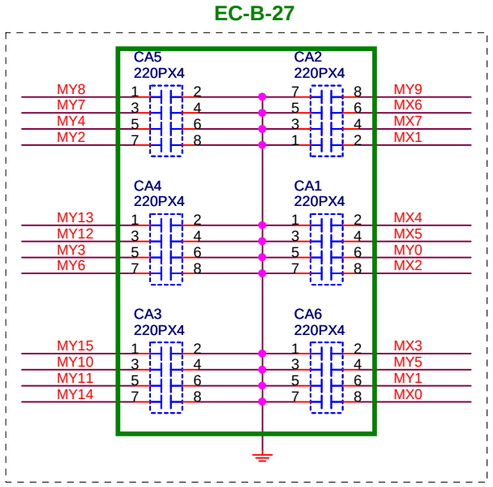
Size	Document Number	Rev
Custom	G-SENSOR	1E
Date: Tuesday, January 04, 2011	Sheet 34 of 53	

KEYBOARD



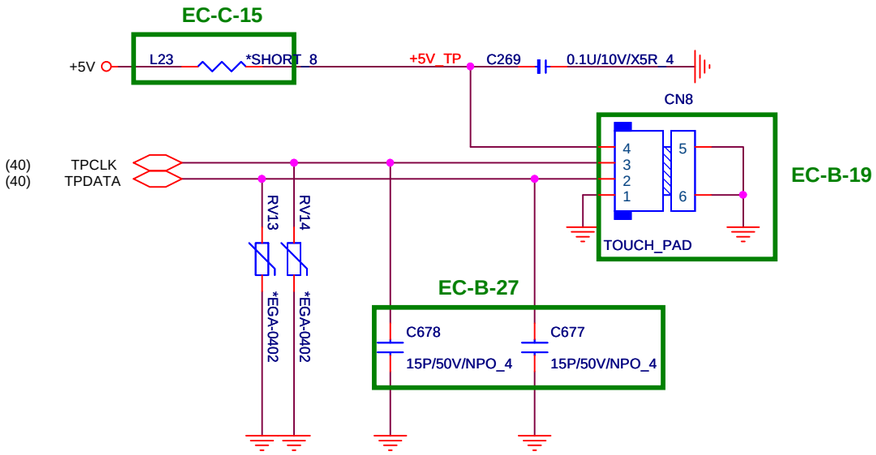
Follow LL3 KB





For EMI request

Touch pad



PROJECT KL5A
Quanta Computer Inc.

Size	Document Number	Rev
Custom	K/B, T/P	1A

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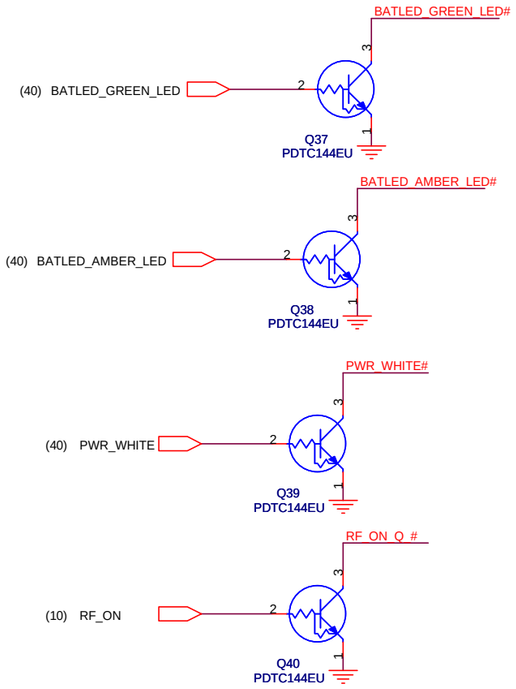
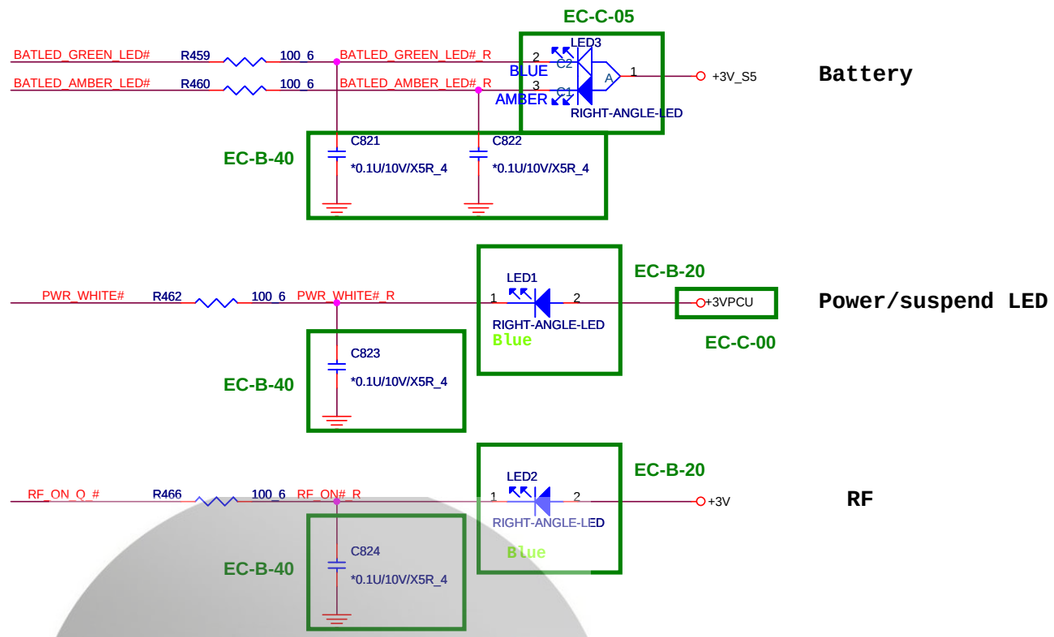
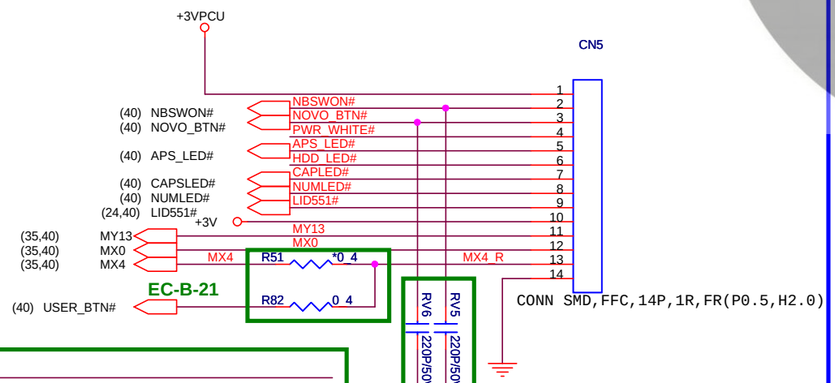
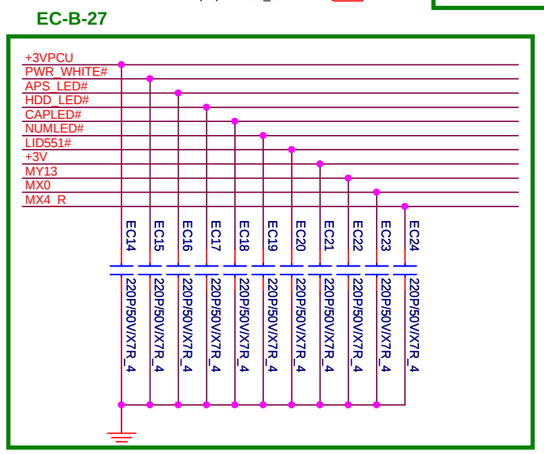
POWER / Battery /RF LED

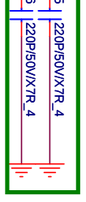




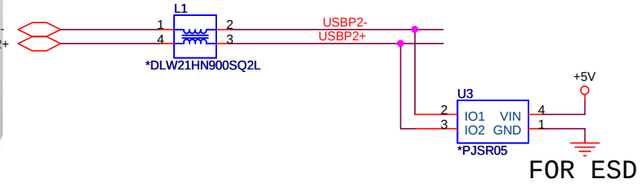
B to B connector

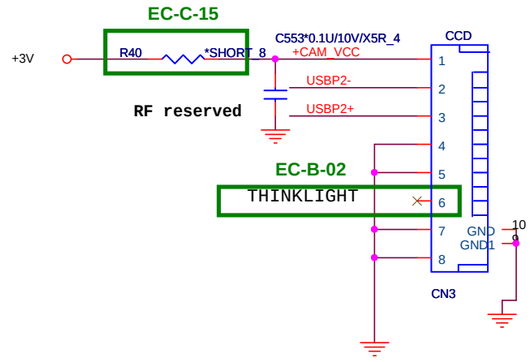






CAMERA & Keyboard light





PROJECT : KL2D
Quanta Computer Inc.

Size	Document Number	Rev
Custom	B TO B CON/LED/CCD	1A

Date: Tuesday, January 04, 2011 Sheet 36 of 53

FAN CONTROL

NOTE:
Place C625 near Q37

NOTE:
Place C623 near Q38

NOTE:
Place C624 near U48

NOTE:
Place C627 near Q39

NOTE:
Place C626 near U48

Q45
SST3904
C716
*100P/50V/X7R_4
DDR3

Q52
SST3904
C789
*100P/50V/X7R_4
C211
2200P/50V/X7R_4
WLAN-ONFI

R214 2.05K_4

+5V
EC-C-15
R60 *SHORT_8
+5V_FAN
C59 1U/10V/X5R_6
C55 0.1U/10V/X5R_4

R133 *0_4
R155 *0_4
R226 6.8K/F_4

+3V
R196 10K_4
R210 10K_4
R206 10K_4
R207 10K_4
R230 10K_4
R229 10K_4

+5V
R237 10K_4

EC-B-29
CN16
FAN_PWM
FANSIG
+5V_FAN
FAN_CON

D8
RB500V-40

C686
*100P/50V/X7R_4
SST3904
Q42
CPU

C197
2200P/50V/X7R_4

U13
EMC2103-2
GND
DP2/DN3
DN2/DP3
TRIP_SET
SHDN_SEL
DN
DP
VDD
GPIO1
GPIO2
ALERT#
SYS_SHDN#
SMDATA
GND
PWM
TACH
SMCLK

+3V
R179 22_4
+3V_FAN
C196 0.1U/10V/X5R_4

Q16
2N7002
MB_CLK1 (10,17,40)

Q17
2N7002
MB_DATA1 (10,17,40)

SYS_SHDN-1#
Q19
2N7002
SYS_SHDN# (17,44,49)

D7
*RB500V-40
VGA_OVT# (40)

MB_ALRET#
R183 *0_4
TEMP_ALERT# (11,40)

RV7
*EGA-0402

PROJECT KL5A
Quanta Computer Inc.

Size	Document Number	Rev
B	FAN /THERMAL	1A

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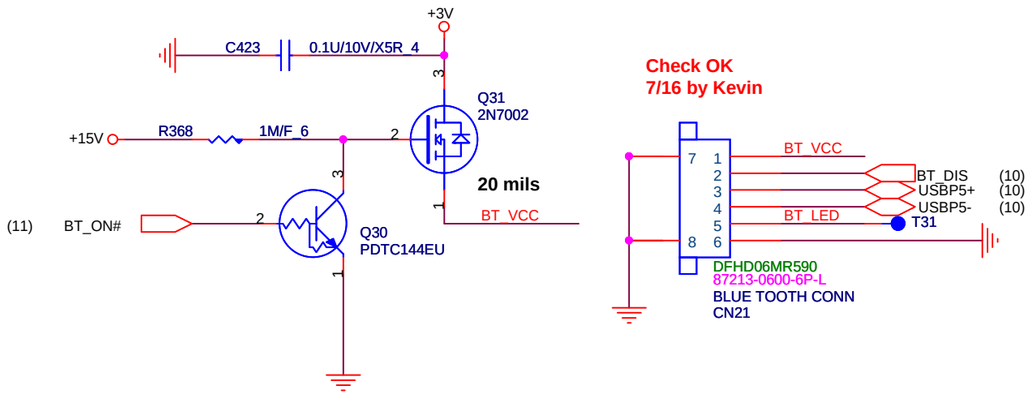
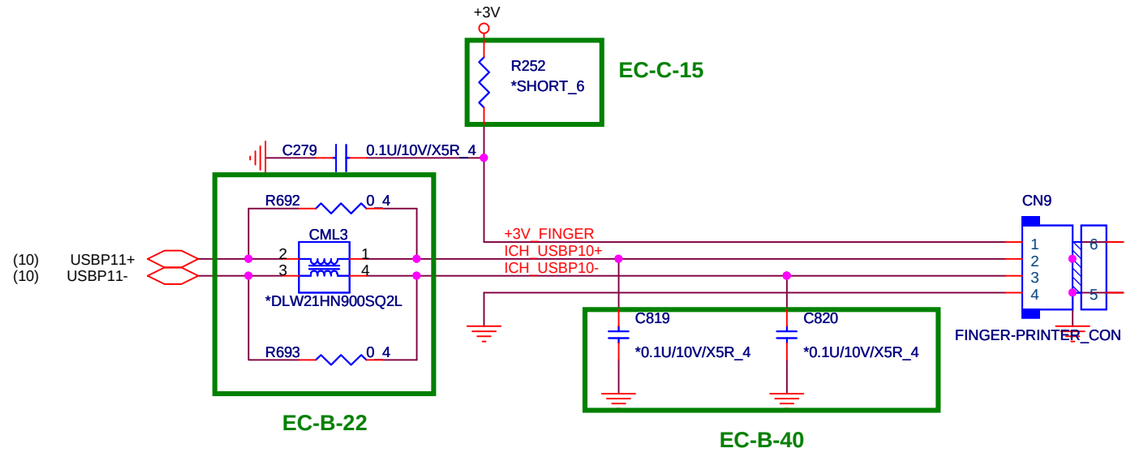
BLUETOOTH



FINGER PRINTER

34

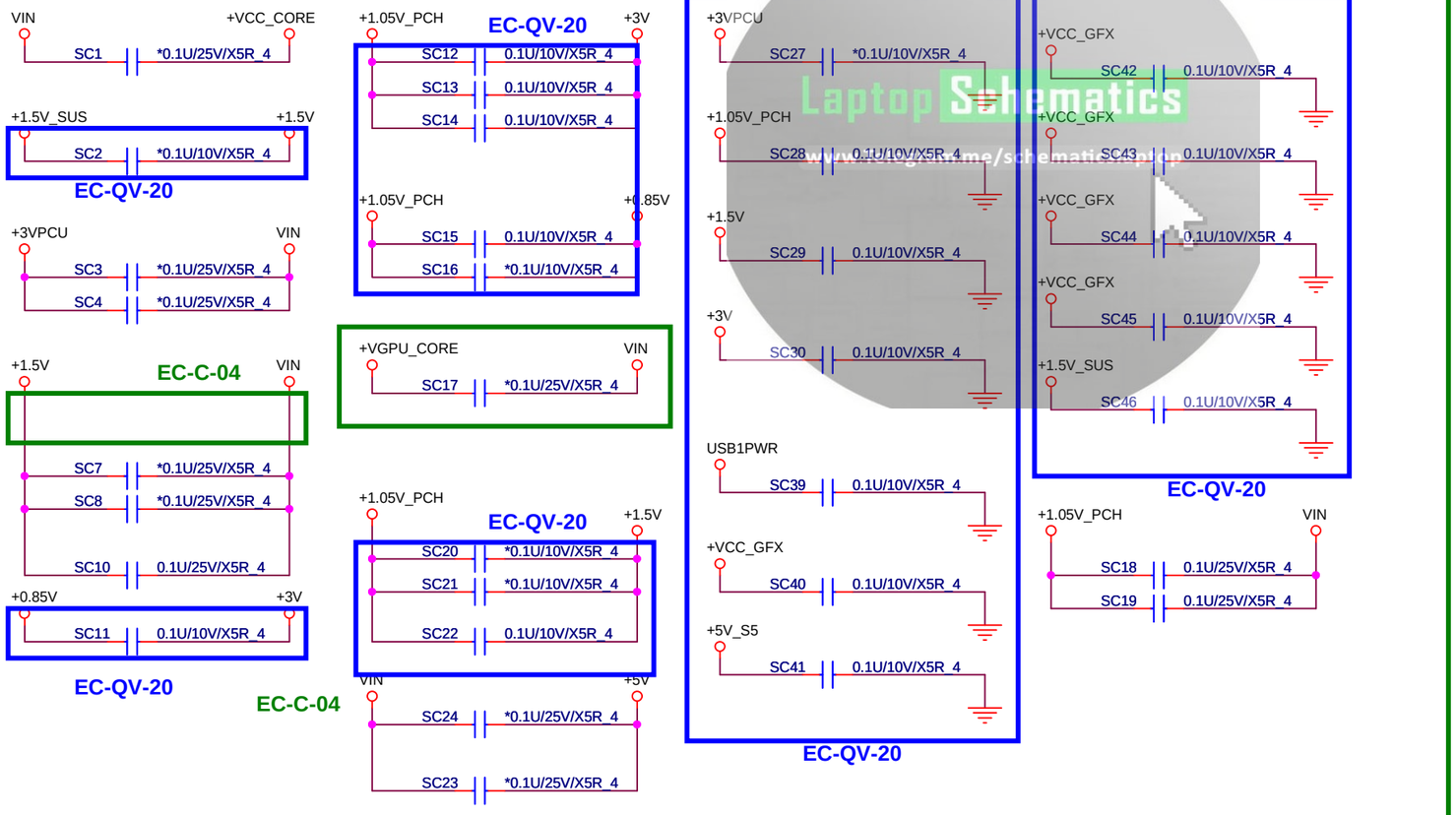


TPM

EC-B-23

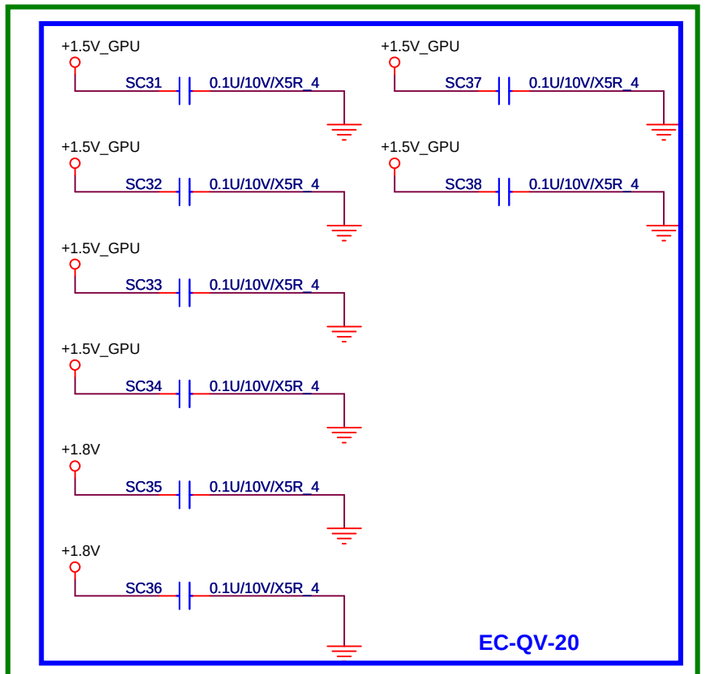
ESD suggestions

EC-B-28



EMI suggestions

EC-C-01



PROJECT : LL3A
Quanta Computer Inc.

Size	Document Number	Rev
B	BT/FP/TPM	1E

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WLAN/WWAN/Mini-SSD Nuts

EC-B-37

HOLE3
*h-tc315bc118d118p2

HOLE5
*H-TC315BC110D110P2

EC-C-02

HOLE9

*hg-e315x268d110p2

PAD1
*spad-spe236x766np

HOLE22
H-TC217BC142D102P2

HOLE23
H-TC217BC142D102P2

HOLE24
H-TC217BC142D102P2

HOLE26
H-TC217BC75I75D35P2

HOLE27
H-TC217BC75I75D35P2

HOLE25
H-TC217BC75I75D35P2

EC-QV-16

HOLE8
*h-o315x334d315x334n

HOLE7
*h-o276x866d276x866n

EC-B-40

CPU BKT

BKT1

(PTH)

cpu-bracket

EC-B-37

VGA Nuts

HOLE21
h-tc142bc217d102p2

HOLE15
*h-c118d118n

HOLE18
*h-c118d118n

FAN Hole

HOLE4
*h-c1260d1260na1300

EC-C-02

HOLE1
*hg-c315d110p2

HOLE2
*hg-c315d110p2

HOLE6
*hg-c315d110p2

HOLE14
*hg-c315d110p2

HOLE16
*hg-c315d110p2

HOLE17
*hg-c315d110p2

HOLE20
*hg-c315d110p2

EC-B-40 EC-C-02

HOLE19
*hg-c315d110p2

AGND

PROJECT : KL2D

Quanta Computer Inc.

Size	Document Number	Rev
A	HOLD & SKEW	1A
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IT8518
IT8519

RF ON/OFF SWITCH

POWER SWITCH/ NOVO BUTTON

4Mbit (512K Byte), SPI

Winbond AKE37FN0N01
MAX AKE37FP0Z00
EON AKE37ZN0Q01

Borad ID

P/N: AJ085180F02

KL9/9A mount R376
KL7 mount R377

RF reserved

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

PROJECT : KL2D
Quanta Computer Inc.

Size	Document Number	Rev
Custom	KBC IT8512E	1A

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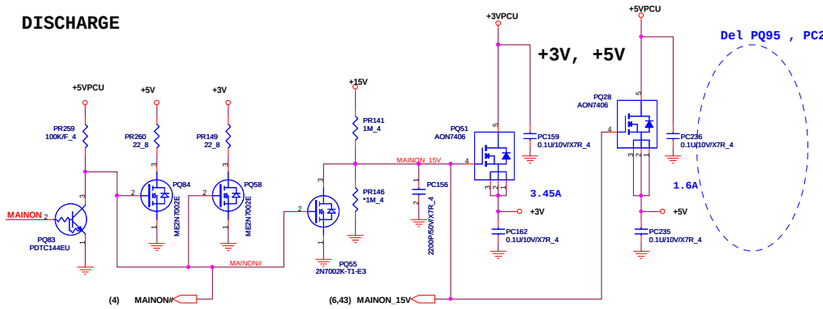
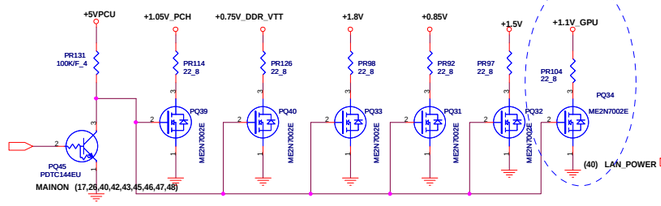
DISCHARGE

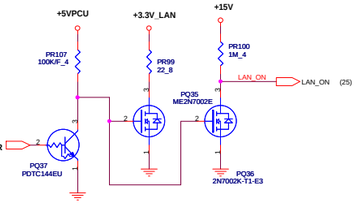


Del PQ95 , PC289 and +1.5V power

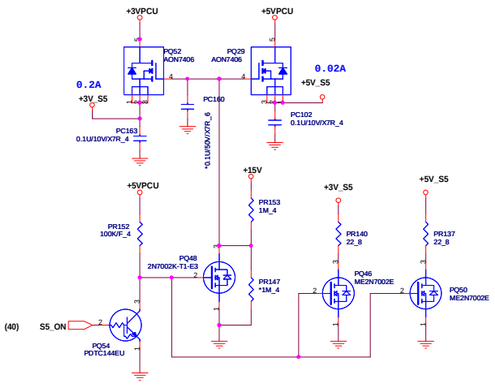
Add +1.1V_GPU DISCHARGE



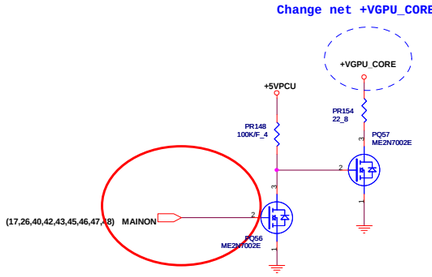
LANVCC

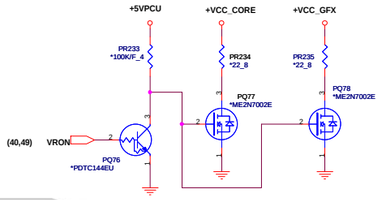


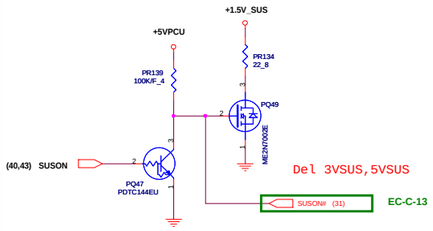
3V_S5, 5V_S5



Change net +VGPU_CORE







Del 3VSUS,5VSUS

EC-C-13

PROJECT KL5A
Quanta Computer Inc.

Size	Document Number	Rev
D	Discharge	1A
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Modify FP&PN as LL7

DC-IN

PJ1 SSB-BH

EC-C-28

ADPIN+ SC26 *0.1U/25V/X5R_4

ESD suggestions

EL1 UPB201212T-800Y-N

EL2 UPB201212T-800Y-N

PF1 TR/3216FF10

PC181 0.1U/50V/X7R_6

PC182 0.1U/50V/X7R_6

PQ63 SIA825DDY-T1

PR155 220K/F_4

PR170 1K/J_6

PR159 1M_4

PR166 220K/F_4

PR171 1M/J_4

PD17 P4SMAJ20A

PQ61 UMT1NTN

PR162 *1K_4

PQ59 *MMBT3904LT1G

PC170 1U/25V/X7R_8

PQ62 PDTA124EU

PQ66 AOD425

PR9252 1.5K_6

PR164 10K_6

PC175 0.1U/50V/X7R_6

PD5 *1SS355

PQ5 *IMD2

PD4 *1SS355

PD3 1SS355

PR196 10K/F_4

PQ72 PDTA124EU

PR10 47K_4

PR197 15K/F_4

PQ73 2N7002K-T1-E3

PR8 10/F_6

PC8 1U/25V/X7R_8

PC18 0.1U/50V/X7R_6

PC17 0.1U/50V/X7R_6

PQ74 2N7002K-T1-E3

PD19 1SS355

PR198 1M_4

PC197 1U/25V/X7R_8

PR20 49.9K/F_4

PR22 221K/F_4

PC21 0.01U/25V/X7R_4

PR14 2.2/F_6

PC9 1U/10V/X5R_4

PR13 4.7/F_6

PC16 1U/10V/X5R_4

PC13 0.1U/50V/X7R_6

PD6 *1SS355

PC7 10U/25V/X6S_12

PC192 10U/25V/X6S_12

PC191 0.1U/50V/X7R_6

PC6 2200P/50V/X7R_4

Place these CAPs close to FETs

C-test

VIN

PR178 200K/F_4

AOL1413 PQ70

EC-C-41

PD22 SSM34PT

PR180 100K/F_4

PR194 0.01_1W_3720

PR19 10/F_6

PR18 10/F_6

PC20 0.1U/50V/X7R_6

PR193 0.02_1W_3720

PL10 CHOKE_6.8UH/4.5A(7*7*3)

PC188

PC190

PC5

PC4 0.1U/50V/X7R_6

ER1 2.2_8

EC1 1500P/50V/X7R_4

PQ67 MDV1660URH

PQ71 MDV1660URH

PR11 100K/F_4

PQ6 2N7002K-T1-E3

PC12 0.1U/10V/X7R_4

PR16 0_4

PR12 0_4

PR15 0_4

PR17 *8.45K/F_4

PC19 0.01U/25V/X7R_4

PR21 4.75K_4

PC25 0.01U/25V/X7R_4

PC24 *0.01U/25V/X7R_4

PC23 0.01U/25V/X7R_4

PC22 *1U/10V/X5R_6

PC26 *0.1U/10V/X7R_4

PR9 100/F_4

PC10 0.01U/25V/X7R_4

PR195 *SHORT-1A

PU1 ISL88731A

PR6 10/F_6

PR7 10/F_6

PC11 0.1U/50V/X7R_6

PR164 10K_6

PR24 10K/F_4

PR25 10K/F_4

PR26 *0_4

PD7 1SS355

PQ7 2N7002K-T1-E3

PD8 1SS355

PR27 332K/F_4

PR28 475K/F_4

PC28 1000P/50V/X7R_4

PR23 100_4

PU2 G1331T11U

PC29 *1000P/50V/X7R_4

PQ8 2N7002K-T1-E3

Battery Low 7.5V

BL/C# (40)

D/C#

PL8 UPB201212T-800Y-N

PL9 UPB201212T-800Y-N

PF2 FUSE_10A_125V(FAST)

VBATT

PC3 0.1U/25V/X5R_4

PJP13 1827654-1

PR5 200/F_4

PR4 200/F_4

PR67 10K/F_4

PD1 MMBZ5232BPT(5.6V+5%)

PD2 MMBZ5232BPT(5.6V+5%)

PC15 100P/50V/NPO_4

PC14 100P/50V/NPO_4

PC68 0.1U/10V/X7R_4

TEMP_MBAT (40)

(40) MBDATA

(40) MBCLK

Modify FP&PN as LL7

PR29 100K/F_4

PR30 16.9K/F_4

PC27 0.1U/50V/X7R_6

PC30 0.1U/50V/X7R_6

PR31 47K_4

PR32 499_6

PC38 *0.1U/10V/X7R_4

PU4 LM431SACMF

PU3 G1331

ADIN# (40)

PC9212

PR9253 475K/F_4

PR9254 100_4

PR9255 10K/F_4

PR9256 300K/F_4

PC9213 *1000P/50V/X7R_4

PU13 G1331T11U

PQ9070 2N7002K

GND_CHG

PROJECT KL9A

Quanta Computer Inc.

Size: Custom | Document Number: <Doc> | Charger (ISL88731) | Rev: 0A

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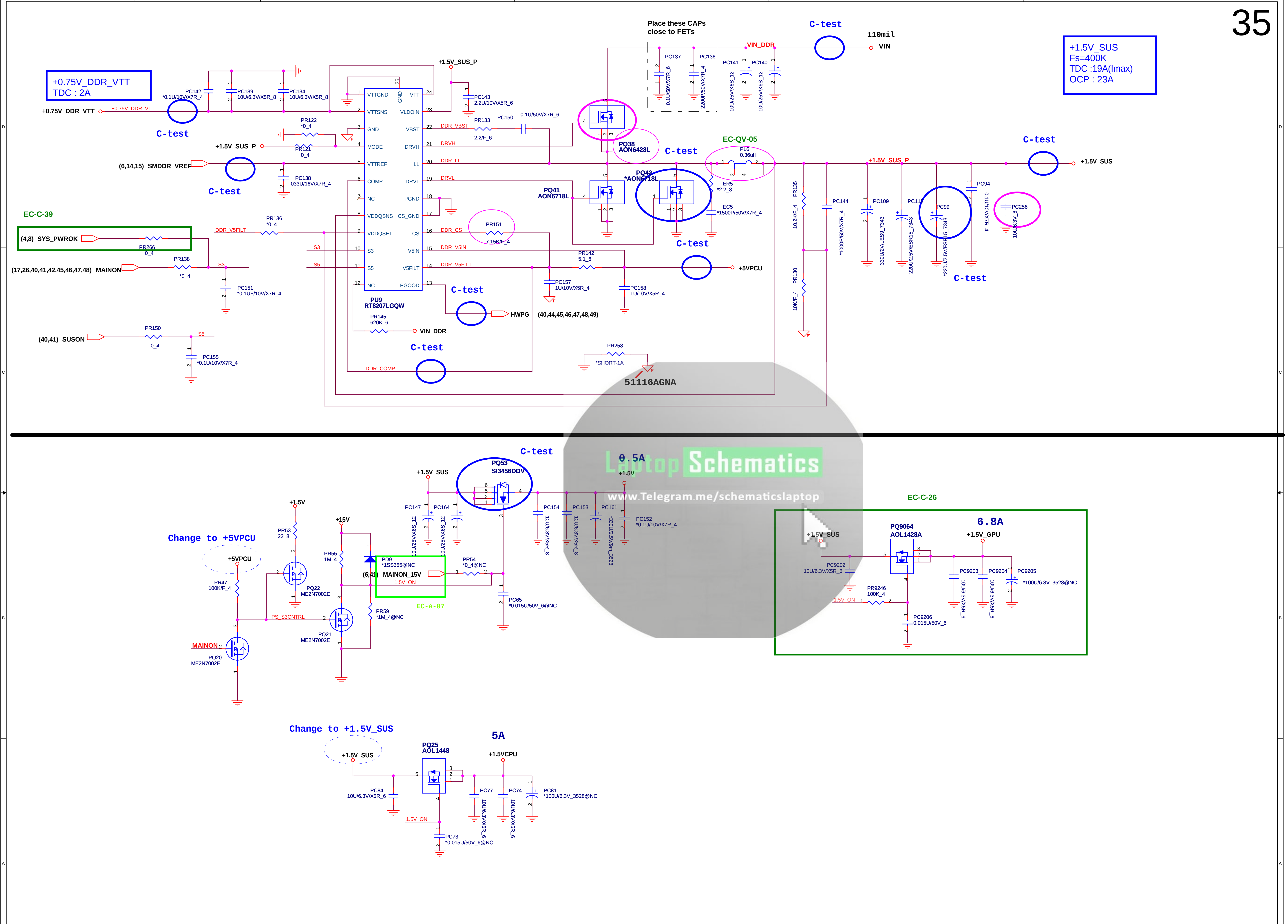
+0.75V_DDR_VTT
TDC : 2A
+1.5V_SUS
Fs=400K
TDC :19A(Imax)
OCP : 23A
Place these CAPs close to FETs
C-test
110mil
VIN
VIN_DDR
+0.75V_DDR_VTT
+1.5V_SUS_P
(6,14,15) SMDDR_VREF
EC-C-39
(4,8) SYS_PWROK
(17,26,40,41,42,45,46,47,48) MAINON
(40,41) SUSON
PU9
RT8207LGQW
VTTGND
VTTSNS
GND
MODE
VTTREF
COMP
NC
VDDQSNS
VDDQSET
S3
S5
VTT
VLDOIN
VBST
DRVH
LL
DRVL
PGND
CS_GND
CS
V5IN
V5FILT
PGOOD
PQ38
AON6428L
PQ41
AON6718L
PQ42
*AON6718L
EC-QV-05
PL6
0.36uH
+1.5V_SUS_P
+5VPCU
HWPG
(40,44,45,46,47,48,49)
VIN_DDR
51116AGNA
0.5A
PQ53
SI3456DDV
+1.5V_SUS
+1.5V
Change to +5VPCU
+5VPCU
+15V
PQ22
ME2N7002E
PQ21
ME2N7002E
PQ20
ME2N7002E
MAINON
PS_S3CNTRL
PD9
*1SS355@NC
(6,41) MAINON_15V
1.5V_ON
EC-A-07
EC-C-26
6.8A
+1.5V_GPU
PQ9064
AOL1428A
Change to +1.5V_SUS
5A
PQ25
AOL1448
+1.5VCPU

PROJECT KL5A
Quanta Computer Inc.

Size	Document Number	Rev
Custom	DDR3/0.75V(RT8207AGQW)	1A

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+5VPCU
Fs=400K
TDC : 7.5A(Imax)
OCP : 11A

+3VPCU
Fs=500K
TDC :6A(Imax)
OCP : 9A

(8,9,24,25,28,35,36,38,40,41,42,45,46) +3VPCU
(28,41,42,43,45,46,47,48) +5VPCU
(24,28,31,38,41,43,45) +15V
(24,38,42,43,46,47,48,49) VIN

5V_AL
PR239 39K/F_4
(17,37,49) SYS_SHDN#
3V5V_EN
PR251 0_4
VIN
C-test
+DC1_PWR_SRC
PC116 10U/25V/X6S_12
PC241 10U/25V/X6S_12
Place these CAPs close to FETs
PC117 0.1U/50V/X7R_6
PC239 2200P/50V/X7R_4
PQ80 AON7406
4 DH5
EC-QV-05
PL15 2.2UH-PCMC063T-2R2MN
OUT1
LX5
PC237 0.1U/10V/X7R_4
PC119 4.7U/10V/X5R_8
PC238 220U/6.3V/ESR25_7343
PR237 *0_4
PR238 0_4
ER4 *2.2_8
EC4 *1500P/50V/X7R_4
PQ79 AON7702
DL5
PR241 196K/F_4
DDPWRGD_R
3V5V_EN
PC240 0.1U/50V_6
PR242 2.2/F_6
PU12 RT8206MGQW
PC247 0.1U/50V_6
PR250 2.2/F_6
DL3
5V_AL
PC254 0.1u/25V/X5R_4
PR261 0_6
PR109 *SHORT-1A
PD20 BAT54SPT
PC252 0.1u/25V/X5R_4
PC244 1U/10V/X5R_4
PC255 0.1u/25V/X5R_4
PD21 BAT54SPT
PR264 22_8
+15V
+15V_ALWP
PR263 *200K/F_4
PR262 *0_6
5V_AL
PC253 0.1u/25V/X5R_4
PR247 *39K/F_4
AGND_DC/DC

+DC2_PWR_SRC
VIN
C-test
PC251 10U/25V/X6S_12
PC148 *10U/25V/X6S_12
PR244 4.7/F_6
PR246 390K_4
PC243 0.1U/50V/X7R_6
PR248 150K/F_4
PC242 4.7U/10V/X5R_8
PR105 *10/F_6
PC245 1U/25V/X5S_6
PR245 *0_4
REFIN2
PR249 0_4
PC246 1U/10V/X5R_4
PR256 0_4
PC248 0.1U/10V/X7R_4
REF
PR257 *0_4
PR255 174K/F_4
PR241 196K/F_4
Place these CAPs close to FETs
PC146 0.1U/50V/X7R_6
PC249 2200P/50V/X7R_4
PQ81 AON7406
DH3_4
LX3
PQ82 AON7702
PL16 2.2UH-PCMC063T-2R2MN
OUT2
ER6 *2.2_8
EC6 *1500P/50V/X7R_4
PR253 0_4
PR254 *0_4
PC250 220U/6.3V/ESR25_7343
PC149 4.7U/10V/X5R_8
PC145 0.1U/10V/X7R_4
+3VPCU
SKIP
PR252 0_4
DDPWRGD_R
PR240 0_4
HWPG (40,43,45,46,47,48,49)

PROJECT KL5A
Quanta Computer Inc.

Size	Document Number	Rev
C	3V/5V (RT8206MGQW)	1A

Date: Tuesday, January 04, 2011 Sheet 44 of 53

+1.8V +/- 5%
Countinue current:0.7A
Peak current:1A
OCP minimum 4A

+3VPCU
C-test
+5VPCU_1.8V
PC92 10U/6.3V_8
PC89 0.1U/10V_4

PU6 HPA00835RTER
VIN VIN VIN EN PWRGD COMP RT/CLK SS
PH PH PH BOOT VSNS GND GND AGND
PAD PAD PAD PAD PAD PAD

(40,43,44,46,47,48,49) HWPG
(26,40,41,42,43,46,47,48) MAINON

PC86 *0.01U/50V_4
PC85 *100P/50V_4
PR70 15K/F_4
PC88 1200p/50V_4
PR68 182K/F_4
PC82 0.01U/50V_4
PR69 2_6
PC83 0.1U/25V_4
PL3 1UH/11A-PCMD063T-1R0MN
HPA00835-1.8_VFB

R1 PR73 12.7K/F_4
R2 PR72 10K/F_4
V0=0.8*(R1+R2)/R2

+1.8V_L
PC69 0.1U/10V_4
PC71 10U/6.3V_8
+1.8V
C-test
PC70 10U/6.3V_8

EC-C-26

PQ9065 SI3456DDV
+1.8V
+1.8V_GPU
PC9207 10U/6.3V/X5R_6
PC9208 10U/6.3V/X5R_6
PC9209 *10U/6.3V/X5R_6@NC
PC9210 *0.015U/50V_6@NC

+15V
+5VPCU
PR9247 1M/F_6
PR9248 100K/F_4
PR9249 10K_4
+1.5V_GPU
PC9211 *0.1U/10V_4@NC
PQ9067 MMBT3904WT1G
PQ9066 ME2N7002E
PR9251 22_8
PQ9069 ME2N7002E

PROJECT KL5A
Quanta Computer Inc.

Size	Document Number	Rev
Custom	+1.8V (HPA00835RTER)	1A
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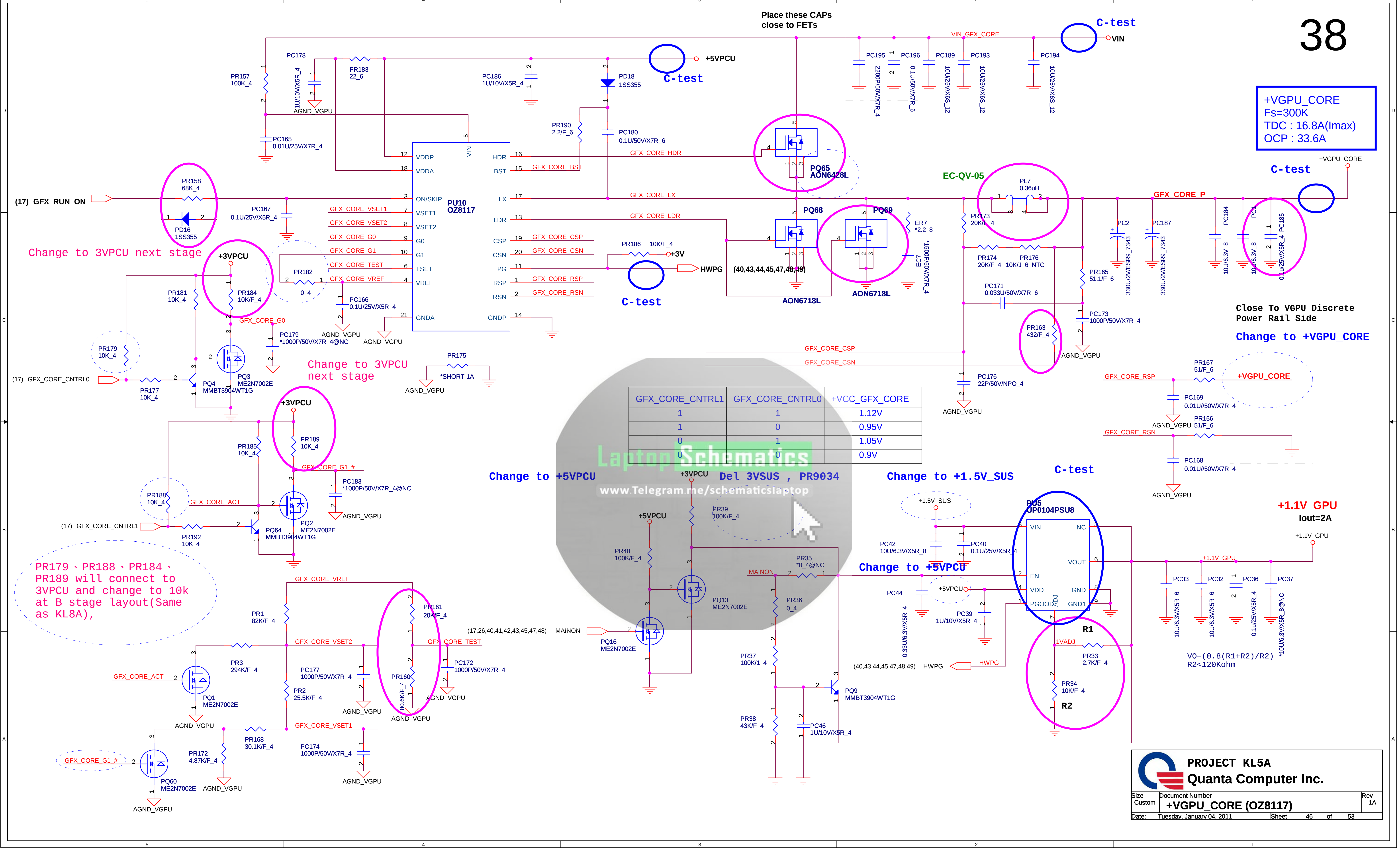
Place these CAPs close to FETs
+VGPU_CORE
Fs=300K
TDC : 16.8A(Imax)
OCP : 33.6A
C-test
VIN
+5VPCU
VIN_GFX_CORE
PU10
OZ8117
VDDP
VDDA
ON/SKIP
VSET1
VSET2
G0
G1
TSET
VREF
GNDA
HDR
BST
LX
LDR
CSP
CSN
PG
RSP
RSN
GNDP
GFX_CORE_HDR
GFX_CORE_BST
GFX_CORE_LX
GFX_CORE_LDR
GFX_CORE_CSP
GFX_CORE_CSN
GFX_CORE_RSP
GFX_CORE_RSN
GFX_CORE_P
(17) GFX_RUN_ON
(17) GFX_CORE_CNTRL0
(17) GFX_CORE_CNTRL1
PQ65
AON6428L
PQ68
PQ69
AON6718L
AON6718L
EC-QV-05
PL7
0.36uH
HWPG
(40,43,44,45,47,48,49)
Change to 3VPCU next stage
+3VPCU
Change to 3VPCU next stage
Close To VGPU Discrete Power Rail Side
Change to +VGPU_CORE
Change to +5VPCU
Del 3VSUS , PR9034
Change to +1.5V_SUS
PU5
UP0104PSU8
+1.1V_GPU
Iout=2A
VO=(0.8(R1+R2)/R2)
R2<120Kohm
R1
R2
PR179、PR188、PR184、PR189 will connect to 3VPCU and change to 10k at B stage layout(Same as KL8A),
AGND_VGPU

GFX_CORE_CNTRL1	GFX_CORE_CNTRL0	+VCC_GFX_CORE
1	1	1.12V
1	0	0.95V
0	1	1.05V
0	0	0.9V

PROJECT KL5A
Quanta Computer Inc.

Size: Custom
Document Number: +VGPU_CORE (OZ8117)
Rev: 1A
Date: Tuesday, January 04, 2011

C-test

C-test

C-test

C-test

C-test

C-test

VIN_+0.85V

VIN

+5VPCU

+0.85V
Fsw=506KHz
Iout=6A
O.C.P.=8A

(17,26,40,41,42,43,45,46,48) MAINON

PC124 1U/10V/X5R_4
PR102 22_6
PR117 100K_4
AGND_0.85V
PC129 0.01U/25V/X7R_4
PC120 1U/10V/X5R_4
PD14 1SS355
PR96 0/F_6
PC121 0.22U/25V/X5R_6
PQ30 AO4496(30V/10A)
PC104 2200P/50V/X7R_4
PC107 0.1U/50V/X7R_6
PC106 10U/25V/X6S_12
PC105 *10U/25V/X6S_12
PD15 *1SS355
PC132 0.1U/25V/X5R_4
PC122 *1000P/50V/X7R_4@NC
PC133 0.1U/25V/X5R_4
PR101 0_4
PU8 OZ8117
VDDP
VDDA
ON/SKIP
VSET1
VSET2
G0
G1
TSET
VREF
GNDA
HDR
BST
LX
LDR
CSP
CSN
PG
RSP
RSN
GNDP
+0.85V_HDR
+0.85V_BST
+0.85V_LX
+0.85V_LDR
+0.85V_CSP
+0.85V_CSN
+0.85V_RSP
+0.85V_RSN
+0.85V_VSET1
+0.85V_VSET2
+0.85V_G0
+0.85V_G1
+0.85V_TEST
+0.85V_VREF
PQ27 AO4712(30V,11.2A)
ER3 *2.2_8
EC3 *1500P/50V/X7R_4
PL5 1UH/11A-PCMD063T-1R0MN
PR106 100K_4
PR111 60.4K/F_4
PR116 51.1/F_6
PC127 8200P/50V/X7R_4
PR265 604/F_4
PC135 1000P/50V/X7R_4
PC126 22P/50V/NPO_4
PC90 330U/2V/LESG_7343
PC93 10U/6.3V/X5R_6
PC95 0.1U/25V/X5R_4
PR94 *10K/F_4
+3V
HWPG (40,43,44,45,46,48,49)
+5VPCU
PR129 10K_4
PR128 10K_4
PR127 *0_4@NC
PQ44 ME2N7002E
(6) VCCSA_SEL
PR132 10K_4
PQ43 MMBT3904WT1G
PR243 *short@NC
PR125 10_4
PR118 51/F_6
PC130 0.01U/50V/X7R_4
PR123 51/F_6
PC131 0.01U/50V/X7R_4
VCCUSA_SENSE (6)
PR113 91K/F_4
PR115 20K/F_4
PR108 15K/F_4
PC125 1000P/50V/X7R_4
PR110 80.6K/F_4
PC128 1000P/50V/X7R_4
PR103 28.7K/F_4
PC123 1000P/50V/X7R_4

	VCCSA_SEL	VCCUA(+0.85V)
0	0	0.9V
0	1	0.8V

GND Close To Sandy Bridge Processor (POWER) Side

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Quanta Computer Inc.

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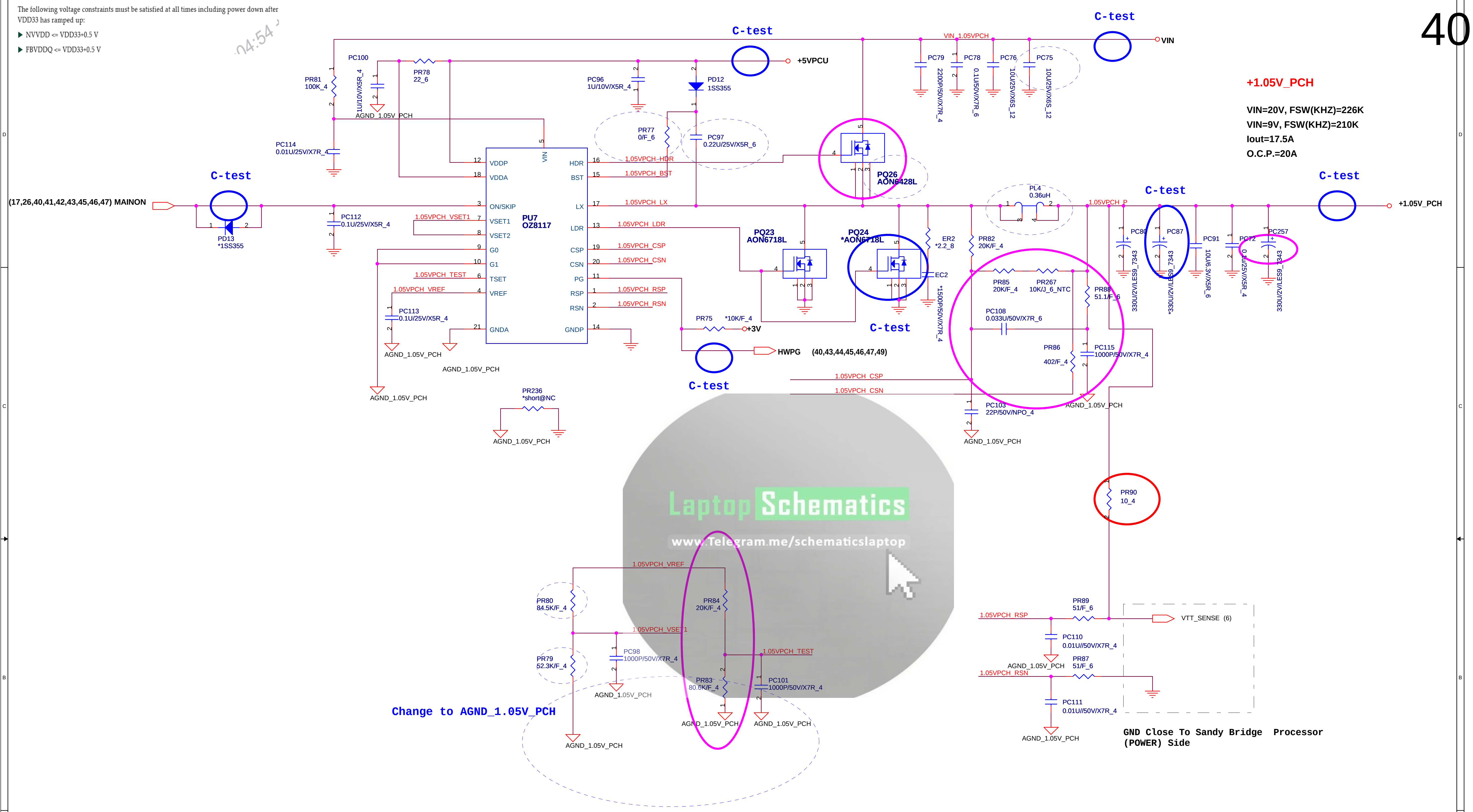
The following voltage constraints must be satisfied at all times including power down after VDD33 has ramped up:

- NVVDD <= VDD33+0.5 V
- FBVDDQ <= VDD33+0.5 V



+1.05V_PCH
VIN=20V, FSW(KHZ)=226K
VIN=9V, FSW(KHZ)=210K
Iout=17.5A
O.C.P.=20A
C-test
VIN
+5VPCU
(17,26,40,41,42,43,45,46,47) MAINON
PU7
OZ8117
VDDP
VDDA
ON/SKIP
VSET1
VSET2
G0
G1
TSET
VREF
GNDA
HDR
BST
LX
LDR
CSP
CSN
PG
RSP
RSN
GNDP
VIN
PQ26
AON6428L
PQ23
AON6718L
PQ24
*AON6718L
PL4
0.36uH
+1.05V_PCH
HWPG (40,43,44,45,46,47,49)
+3V
AGND_1.05V_PCH
VTT_SENSE (6)
GND Close To Sandy Bridge Processor
(POWER) Side
Change to AGND_1.05V_PCH

Del +1.5V SW

PROJECT KL5A		
Quanta Computer Inc.		
Size C	Document Number +1.05_PCH (OZ8117)	Rev 1A
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3+1 Phases design (45W CPU)
Vcore : 1 x HS-FET, 2 x LS-FET
VGT : 1 x HS-FET, 2 x LS-FET

	DIS	UMA
PR269	0 ohm	NA

45W CPU
Vcore Icc_MAX = 94A — PR7038 = OPEN
VGT Icc_MAX = 33A — PR7008 = OPEN

35W CPU
Vcore Icc_MAX = 53A — PR7038 = 7.87K
VGT Icc_MAX = 24A — PR7008 = 16.5K

PROJECT : KL6A
Quanta Computer Inc.
PDS

Size	Document Number	Rev
	IMVP7 2+1 (ISL95831HRTZ-T)	1A
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KL9A Schematic EC Tracking Record B (for A2 --> B)Sep. 27, 2010

EC #	Page	Description	Part Affected
EC-B-00	**4**	Change U18 output type from coms to open-drain.	**U18**
EC-B-01	**10**	Remove TPM funtion. (LPC interface)	**U14**
EC-B-02	**10,38**	Remove keyboard light funtion.	**U14,CN3**
EC-B-03	**11**	Switch pins between BOARD_ID0 and BOARD_ID1.	**U14**
EC-B-04	**11,31**	Change net name from WIMAX_OFF# TO WLAN_OFF#, also add pull high 10K with GPIO16	**U14,R530**
EC-B-05	**11**	Add board id table.	
EC-B-06	**25**	Change ESD protection components.	**U47,U48**
EC-B-07	**26**	Modify the DIS backlight pin connecting to LVDS connector.	**CN1**
EC-B-08	**28**	Add R37 and R47 for normal-open audio jack.	**R37,R47**
EC-B-09	**29**	Add SD_4~SD_7 to support SD 3.0	**CN12**
EC-B-10	**30**	Remove 2nd battery switch.It is only for KL8/8A.	
EC-B-11	**31**	Correct the LPC connection for debug card.	**CN26**
EC-C-12	**32**	change capacitors connection from +3V to +3.3V_SSD,+1.5V to +1.5V_WIMAX	
EC-B-13	**32**	Remove unused nets in SSD connector.	**CN24**
EC-B-14	**33**	Switch the PCIE_TXN5 , PCIE_TXP5 for the right connection.	**U21**
EC-B-15	**35**	Change control signal of U25 enable pin from USB_ON to USB_CHARGE_ON for usb charge function.	**U25**
EC-B-16	**28**	Modify left & right sound reverse issue	
EC-B-17	**35**	Correct USB charge IC footprint.	**U27**
EC-B-18	**36,42**	Remove G-sensor circuits.	**U17**
EC-B-19	**37**	Correct the pin connection of CN8.	**CN8**
EC-B-20	**38**	Correct LED footprint.	**LED1,LED2**
EC-B-21	**38**	Add R51,R82 for user button defined as a power button function.	**R51,R82,R378**
EC-B-22	**40**	Add R692,R693 and disable EMI solution "CML3".	**R692,R693,CML3**
EC-B-23	**40**	Remove TPM circuits.	
EC-B-24	**42**	Correct connection and net name of NOVO_BTN#	
EC-B-25	**42**	Add KB_MATRIX signal for different keyboard matrix selection between KL7 and KL9.	**R376,R377**
EC-B-26	**46,48**	Add a +1.5V_GPU and +1.8V_GPU circuits for GPU power sequence tuning.	**PQ9064,PC9202,PC9203,P9204,PC9205,PC9206,PR9246**
EC-B-27	**10,24,27 33,34,14 37,38**	Add EMI solution	**EC11,EC12,R658,R659,R660,R661,EC13,C711,CML1,R11,R12,CML2,R35,R36,CML4,R649,R651,C677,C678 CA1,CA2,CA3,CA4,CA5,CA6,EC14~EC26,C466**
EC-B-28	**40**	Add ESD solution	**SC1~SC30**
EC-B-29	**39**	Follow PDC standard parts pin definition	**CN16**

PROJECT : KL2D
Quanta Computer Inc.

Size	Document Number	Rev
Custom	EC RECORD B	1A
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KL9A Schematic EC Tracking Record B (for A2 --> B)Sep. 27, 2010

EC #	Page	Description	Part Affected
EC-B-30	**4,8**	Add net PCIECLKRQ5~9#	**U14**
EC-B-31	**4,8,9 10,26 42**	Add RF solutions	**R632,R633,C704,C705,C706,C713,R662,R664,R678,R699,R700,R701,R702,R703,C714,C715 C717,C718,C720,C727,C809,C810,C811,C812,C813,C814**
EC-B-32	**42**	Change EC GPIO	**U17**
EC-B-33	**10,33**	Change PCH GPIO66 net name to PCH_CLK_25M and connect to USB3.0 XTAL	**R636,R637**
EC-B-34	**4**	Delete XDP_DBRST# pull high RES	**U32,R598**
EC-B-35	**4**	Add VCCSA_SEL pulll down RES	**R598**
EC-B-36	**4**	Disconnect SLP_A# from PCH to EC	
EC-B-37	**41**	Modify hole footprint	**Hole21,Hole3**
EC-B-38	**35**	Un-stuff USB charger schematic	**R461,R465,C530,U27,R689,R690**
EC-B-39	**46**	Modify power sequence to fix S3 issue	**PR266**
EC-B-40	**8,27 28,53 40,38**	Reserve ESD solution	**RV16,C815,C816,C817,C818,C819,C820,C821,C822,C823,C824**
EC-B-41	**45**	Power add discharge current solution	**PD22**
EC-B-42	**9**	Follow vendor XTAL CAP suggestion	**C118,C119**
EC-B-43	**42**	Change EC PN & un-stuff XTAL	**Y4,C369,C375,R336,U17**
EC-B-44	**6 53**	Del +VCC_GFX power	**C684,C685,C690,C682,C302,C310,C313,C319,C314,C693,C323,C315,R597,R591 PL13,PC221,PC218,PC58,PC215,PQ75,PC232,PC62,PL14,PR56,PR58,ER10,EC10,PQ1,PQ19,PR209,PC210 PC64,PR52,PR212,PR51,PC57,PC56,PR229,PC220,PC217,PC219,PR221,PR220,PC223,PR112, PC258,PC233,PR225,PC234,PC227,PR227**

PROJECT : KL2D
Quanta Computer Inc.

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Custom	EC RECORD B	1A

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KL9A Schematic EC Tracking Record C (for B --> C)Nov. 4, 2010

EC #	Page	Description	Part Affected
EC-C-00	**36**	Change power LED pull high power plane to +3VPCU to fix system enter S3 can't flicker issue	**LED1**
EC-C-01	**38**	Add EMI solution	**SC31,SC32,SC33,SC34,SC35,SC36,SC37,SC38**
EC-C-02	**39**	Modify Hole footprint	**Hole1,Hole2,Hole6,Hole14,Hole16,Hole17,Hole20,Hole19,Hole9,Hole8**
EC-C-03	**12**	Reserve CAP for +VCCAFDI_VRM	**C825**
EC-C-04	**38**	Delete ESD solution SC9 due to +1.5V power plane was deleted & change SC17 power plane bridge, add some component	**SC9,SC17,SC25,SC39,SC40,SC41,SC42,SC43,SC44,SC45,SC14,SC18,SC19,SC28,SC29,SC30,SC10,SC11 SC12,SC13,SC15,SC22,SC46**
EC-C-05	**36**	Modify LED footprint to fix SMT issue	**LED3**
EC-C-06	**25**	Modify bead footprint to fix SMT issue	**L37**
EC-C-07	**21**	Modify VRAM footprint to fix SMT issue	**U4,U5,U28,U29**
EC-C-08	**4**	Un-stuff AND gate component	**U18,C366,R314,R313**
EC-C-09	**27**	Change SD_CLK CAP from 33p to 10p	**C425**
EC-C-10	**22**	Change RES value to fix HDMI test fail item	**R399,R400,R401,R402,R403,R404,R405,R406**
EC-C-11	**26**	Reserve diode for EAPD pin	**D23**
EC-C-12	**9**	Un-stuff JTAG RES	**R181,R182,R528,R534,R533,R538,R168**
EC-C-13	**31**	Add USB3.0 schematic	**CN23,R369,R371,CML4,R637,R657,R704,R705,Q53,Q54,C706,C826,C827,C828,R636,R155,R707,C829,Q56,C830**
EC-C-14	**31**	Modify TP footprint to 3050	**TP20,TP21,TP22,TP23**
EC-C-15		Modify 0 ohm RES to short pad	**R592,R608,R326,R274,R287,R292,R502,R504,R505,R512,R513,R521,R527,R91,R245,R258,R587,R301 R648,R451,R380,R442,R366,R425,R623,R673,R686,R77,R430,R432,R101,R212,R221,R232,R235,R239 R563,R586,R588,R600,R66,R71,R94,R391,R392,R393,R394,R252,R242,R248,R250,R603,R65,R233 R4,R50,R652,L49,L53,R431,R364,R370,R397,R448,R384,R446,L23,R40,R60,R349**
EC-C-16	**12**	Change 0.002 ohm RES to 0 ohm	**R247,R261,R254**
EC-C-17	**26**	Stuff ESD solution	**C480,C481,C482,C483**
EC-C-18	**10**	Remove RF_ON pull down RES	**R522**
EC-C-19	**29**	Add net WWAN_OFF# to disable WWAN function	
EC-C-20	**12**	Change 0 ohm RES to bead	**R222**
EC-C-21	**4**	For INTEL design guide definition and material shortage, will change to 25.5ohm	**R315**
EC-C-22	**6**	Stuff SVID DATA pull high RES	**R286**

PROJECT : KL2D
Quanta Computer Inc.

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Custom	EC RECORD B	1A
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KL9A Schematic EC Tracking Record QV (for C --> QV)DEC. 20, 2010

EC #	Page	Description	Part Affected
EC-QV-00	42	Add power circuit for charge issue.	PR9252,PR9253,PR9254,PR9255,PR9256,PC9212,PC9213,PD23,PU13,PQ9070
EC-QV-01	37	Add 0 Ohm for thermal sensor of DDR & WWAN	R133,R155
EC-QV-02	33	Modify the USB charge circuit(Add option and reverse circuit, change the USB switch EN to USB_ON_R)	R522,R636,R708,R709,R710,Q60
EC-QV-03	11	Change the SV_DET pull high to +3V_S5 from +3V	
EC-QV-04	25	Change footprint of L37 for SMT request	L37
EC-QV-05	43	Change footprint of PL4, PL6, PL7, PL15, PL16	PL4, PL6, PL7, PL15, PL16
EC-QV-06	49	Add capacitor in +VCC_GFX	PC260
EC-QV-07	4	Add un-stuff capacitor on H_PWRGOOD_R	C900
EC-QV-08	4	Change to component stuff	R325,Q29
EC-QV-09	8	Add un-stuff capacitor on SYS_PWROK	C901
EC-QV-10	8	Change R493 to un-stuff	R493
EC-QV-11	9	Change footprint to shortpad	R409,R153
EC-QV-12	9	Add 1M ohm on ACZ_SYNC_CODEC	R711
EC-QV-13	9	Change C119,C118 to 18p from 6p for RTC issue	C118,C119
EC-QV-14	30	Change component to un-stuff.	C783,C784,C736
EC-QV-15	26	Change the footprint for EMI solution stuff BEAD	R391,R392,R393,R394
EC-QV-16	39	Change HOLE8 to NTPH	
EC-QV-17	31	Modify USB3.0 circuit for power saving.	Q35,R414,R415,D28,R712,Q62,R716,C950,Q63,R717,C951,C952,R713,R714,Q61,C953,R715,R421
EC-QV-18	22	Change the footprint to 4 GND PIN for HDMI	CN22
EC-QV-19	49	Change PC47 to stuff	PC47
EC-QV-20	38	Change the P/N for cost saving	SC2,SC11,SC12,SC13,SC14,SC15,SC16,SC20,SC21,SC22,SC27,SC28,SC29,SC30,SC39,SC40,SC41,SC42,SC43,SC44,SC45,SC46,SC31,SC32,SC33,SC34,SC35,SC36,SC37,SC38
EC-QV-21	29	Change C497 to stuff	C497

PROJECT : KL2D
Quanta Computer Inc.

Size	Document Number	Rev
Custom	EC RECORD QV	1A

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