QL5(15.6W) BLOCK DIAGRA

PCB STACK UP

8L

- LAYER 1 : TOP
- LAYER 2 : SGND
- LAYER 3 : IN1
- LAYER 4 : SGND1
- LAYER 5 : SVCC
- LAYER 6 : IN2
- LAYER 7 : SGND2
- LAYER 8 : BOT

- SYSTEM CHARGER(ISL6251AHAZ-T) PAGE 35
- SYSTEM POWER ISL6237IRZ-T PAGE 36
- VCCP +1.5V AND GMCH 1.05V(RT8204) PAGE 37
- CPU CORE ISL6266A PAGE 38
- VGACORE(1.025V)Oz8118 PAGE 39
- DDR II SMDDR_VTERM 1.8V/1.8VSUS(TPS51116REGR) PAGE 40

CPU Penryn
478P (uPGA)/35W
PAGE 3,4

CPU THERMAL SENSOR
PAGE 5

FSB 667/800/1066

CLK_CPU_BCLK,CLK_CPU_BCLK#
CLK_MCH_BCLK,CLK_MCH_BCLK#
DREFCLK,DREFCLK#
DREFSSCLK,DREFSSCLK#

CLOCK GEN
ALPRS355B MLF64PIN
PAGE 2
14.318MHz

PS8101
PAGE 20

27MHz

NORTH BRIDGE
Cantiga
PAGE 5~9

DDRII-SODIMM1
PAGE 10
DDRII 667/800 MHz

DDRII-SODIMM2
PAGE 10
DDRII 667/800 MHz

PCI-Express 16X

NVIDIA N10M-GE1 64bit or N10P-GE1 128bit
969p
PAGE 12~18

Dual Link

HDMI CON
PAGE 20

CRT
PAGE 20

LCD CONN
PAGE 19

Mini PCI-E(WLAN) 10
Mini PCI-E(WWAN) 11
Express Card x1 7
E-SATA x1 0

DMI LINK

32.768KHz

NBSRCCLK, NBSRCCLK#

SATA - HDD (SATA0)
PAGE 30
SATA0 150MB

SATA - ODD(SATA1)
PAGE 30
SATA1 150MB

E-SATA(SATA5)
PAGE 31
SATA5 150MB

SOUTH BRIDGE
ICH9-M
PAGE 21~24

USB2.0

1,2 USB2.0 Ports X2 PAGE 26

8 BlueTooth PAGE 26

9 Webcam PAGE 19

6 RTS5159 PAGE 25
12MHz

PCI-E

Azalia

X2 Mini PCI-E Card (Wireless LAN/WWAN) PAGE 33

X1 LAN Realtek PCIE-LAN RTL8111/8103E (10/100/GagaLAN) PAGE 28,29
25MHz

X1 Express Card (NEW CARD) PAGE 30

Analog
Azalia ALC272
PAGE 26

SPI
PAGE 22

LPC

32.768KHz

ENE KBC
KB3926 C0
PAGE 32

Keyboard
Touch Pad PAGE 32

MDC CONN
PAGE 27

AUDIO Amplifier TPA6017A2
PAGE 27

RJ45
PAGE 28

Microphone
PAGE 19

Audio Jacks
(Phone/ MIC)
PAGE 26

Jack to Speaker
PAGE 27

G995
FAN
PAGE 34

SPI
PAGE 32

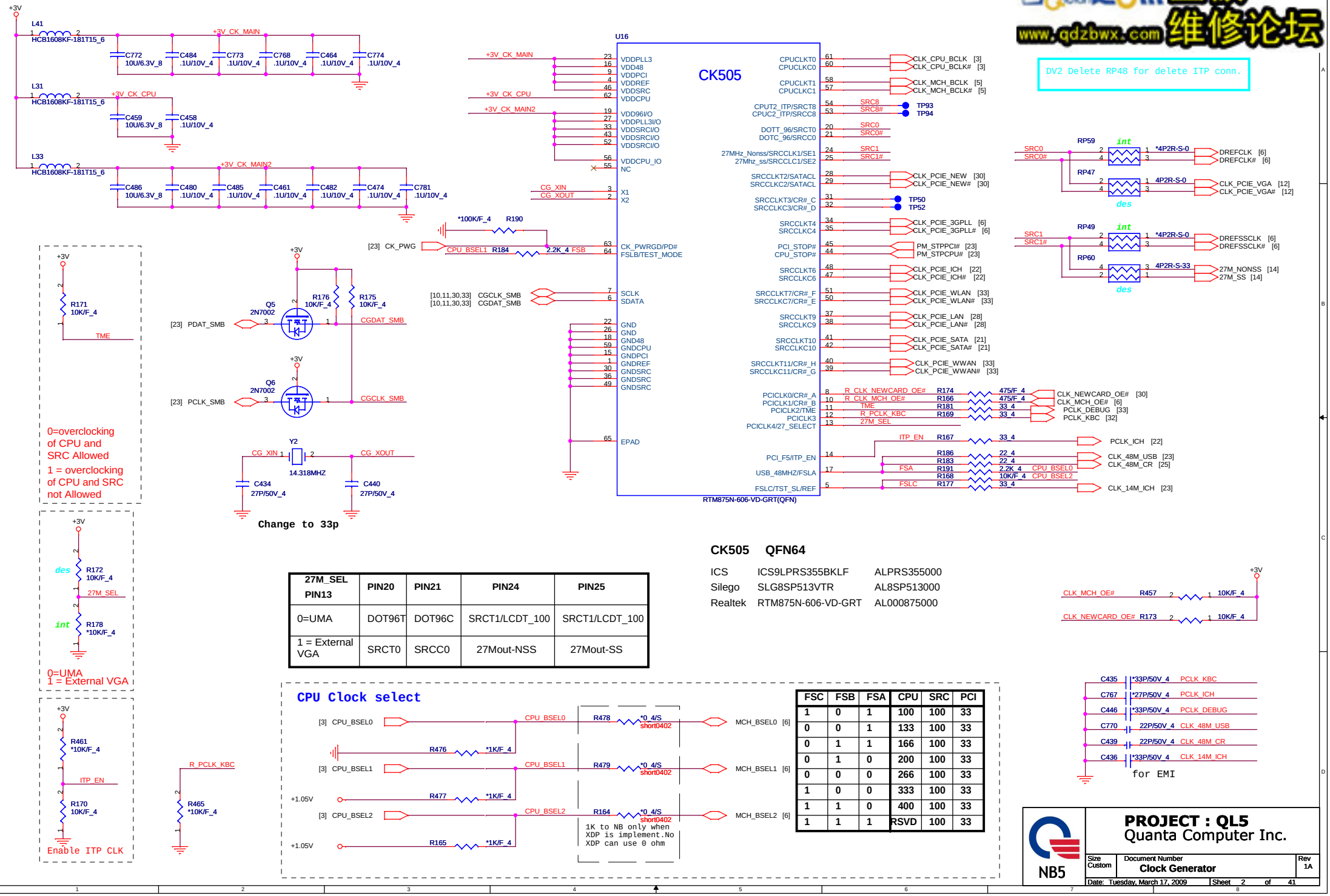
DV2
DV3

NB5

PROJECT : QL5
Quanta Computer Inc.

Size	Document Number	Rev
Custom	Block Diagram	1A

Date: Tuesday, March 17, 2009 | Sheet 1 of 41



27M_SEL PIN13	PIN20	PIN21	PIN24	PIN25
0=UMA	DOT96T	DOT96C	SRCT1/LCDT_100	SRCT1/LCDT_100
1 = External VGA	SRCT0	SRCC0	27Mout-NSS	27Mout-SS

FSC	FSB	FSA	CPU	SRC	PCI
1	0	1	100	100	33
0	0	1	133	100	33
0	1	1	166	100	33
0	1	0	200	100	33
0	0	0	266	100	33
1	0	0	333	100	33
1	1	0	400	100	33
1	1	1	RSVD	100	33

[2,4,5,6,8,9,21,24,31,37,38] +1.05V

U25A

[5] H_A#[35:3]

H_A#3 H_A#4 H_A#5 H_A#6 H_A#7 H_A#8 H_A#9 H_A#10 H_A#11 H_A#12 H_A#13 H_A#14 H_A#15 H_A#16

[5] H_ADSTB#0
[5] H_REQ#[4:0]

H_REQ#0 H_REQ#1 H_REQ#2 H_REQ#3 H_REQ#4

H_A#[35:3]

H_A#17 H_A#18 H_A#19 H_A#20 H_A#21 H_A#22 H_A#23 H_A#24 H_A#25 H_A#26 H_A#27 H_A#28 H_A#29 H_A#30 H_A#31 H_A#32 H_A#33 H_A#34 H_A#35

[5] H_ADSTB#1

[21] H_A20M#
[21] H_FERR#
[21] H_IGNNE#

[21] H_STPCLK#
[21] H_INTR
[21] H_NMI
[21] H_SMI#

ADDR GROUP_0

A[3]# A[4]# A[5]# A[6]# A[7]# A[8]# A[9]# A[10]# A[11]# A[12]# A[13]# A[14]# A[15]# A[16]# ADSTB[0]#

REQ[0]# REQ[1]# REQ[2]# REQ[3]# REQ[4]#

ADDR GROUP_1

A[17]# A[18]# A[19]# A[20]# A[21]# A[22]# A[23]# A[24]# A[25]# A[26]# A[27]# A[28]# A[29]# A[30]# A[31]# A[32]# A[33]# A[34]# A[35]# ADSTB[1]#

A20M# FERR# IGNNE#

STPCLK# LINT0 LINT1 SMI#

CONTROL

ADS# BNR# BPRI#

DEFER# DRDY# DBSY#

BR0#

IERR# INIT#

LOCK#

RESET# RS[0]# RS[1]# RS[2]# TRDY#

HIT# HITM#

H_ADS# [5]
H_BNR# [5]
H_BPRI# [5]

H_DEFER# [5]
H_DRDY# [5]
H_DBSY# [5]

HBREQ#0 [5]

H_IERR# R43 49.9/F_4 +1.05V
H_INIT# [21]

H_LOCK# [5]
H_CPURST# [5]

H_RS#0
H_RS#1
H_RS#2

H_RS#[2:0] [5]
H_TRDY# [5]

H_HIT# [5]
H_HITM# [5]

XDP/ITP SIGNALS

BPM[0]# BPM[1]# BPM[2]# BPM[3]# PRDY# PREQ# TCK TDI TDO TMS TRST# DBR#

ITP_BPM#0 ITP_BPM#1 ITP_BPM#2 ITP_BPM#3 ITP_BPM#4 ITP_BPM#5 ITP_TCK ITP_TDI ITP_TDO ITP_TMS ITP_TRST#

TP95 TP96 TP97 TP98 TP99 TP100

SYS_RST# [23]

THERMAL

PROCHOT# THERMDA THERMDC THERMTRIP#

R49 *0_4 H_PROCHOT# [38]
R46 68_4 +1.05V
H_THERMDA [4]
H_THERMDC [4]
PM_THRMTRIP# [6,21]

H CLK

BCLK[0] BCLK[1]

CLK_CPU_BCLK [2]
CLK_CPU_BCLK# [2]

Quard Core Only

TDI_1/RSV TDO_2/RSV

BMP_1#[0]/RSV BMP_1#[1]/RSV BMP_1#[2]/RSV BMP_1#[3]/VSS DCLKPH_1/VSS ACLKPH_1/VSS GTLREF_2/RSV THRMDA_1/RSV THRMDC_1/RSV HFPLL_1/VSS SPARE_1[4]/VSS BR1#/VCC

RSVD[06]

Penryn Ball-out Rev 1a

PV Del R83

PV R544 Change to ShortPad

R544 *0_4S short0402

DV2 Add R544 for Intel request

TP6 TP4 TP3 TP1

U25B

[5] H_D#[63:0]

H_D#0 H_D#1 H_D#2 H_D#3 H_D#4 H_D#5 H_D#6 H_D#7 H_D#8 H_D#9 H_D#10 H_D#11 H_D#12 H_D#13 H_D#14 H_D#15

DATA GRP 0

D[0]# D[1]# D[2]# D[3]# D[4]# D[5]# D[6]# D[7]# D[8]# D[9]# D[10]# D[11]# D[12]# D[13]# D[14]# D[15]#

DATA GRP 2

D[32]# D[33]# D[34]# D[35]# D[36]# D[37]# D[38]# D[39]# D[40]# D[41]# D[42]# D[43]# D[44]# D[45]# D[46]# D[47]#

H_D#32 H_D#33 H_D#34 H_D#35 H_D#36 H_D#37 H_D#38 H_D#39 H_D#40 H_D#41 H_D#42 H_D#43 H_D#44 H_D#45 H_D#46 H_D#47

[5] H_DSTBN#0
[5] H_DSTBP#0
[5] H_DINV#0

DSTBN[0]# DSTBP[0]# DINV[0]#

DSTBN[2]# DSTBP[2]# DINV[2]#

H_DSTBN#2 [5]
H_DSTBP#2 [5]
H_DINV#2 [5]

H_D#[63:0]

H_D#16 H_D#17 H_D#18 H_D#19 H_D#20 H_D#21 H_D#22 H_D#23 H_D#24 H_D#25 H_D#26 H_D#27 H_D#28 H_D#29 H_D#30 H_D#31

DATA GRP 1

D[16]# D[17]# D[18]# D[19]# D[20]# D[21]# D[22]# D[23]# D[24]# D[25]# D[26]# D[27]# D[28]# D[29]# D[30]# D[31]#

DATA GRP 3

D[48]# D[49]# D[50]# D[51]# D[52]# D[53]# D[54]# D[55]# D[56]# D[57]# D[58]# D[59]# D[60]# D[61]# D[62]# D[63]#

H_D#48 H_D#49 H_D#50 H_D#51 H_D#52 H_D#53 H_D#54 H_D#55 H_D#56 H_D#57 H_D#58 H_D#59 H_D#60 H_D#61 H_D#62 H_D#63

H_D#[63:0]

[5] H_DSTBN#1
[5] H_DSTBP#1
[5] H_DINV#1

DSTBN[1]# DSTBP[1]# DINV[1]#

DSTBN[3]# DSTBP[3]# DINV[3]#

H_DSTBN#3 [5]
H_DSTBP#3 [5]
H_DINV#3 [5]

+1.05V
R346 1K/F_4
R345 2K/F_4

H_GTLREF

TP5 TP2 TP73 TP74 TP8

[2] CPU_BSEL0
[2] CPU_BSEL1
[2] CPU_BSEL2

CPU_TEST1 CPU_TEST2 CPU_TEST3 CPU_TEST4 CPU_TEST5 CPU_TEST6 CPU_TEST7

GTLREF TEST1 TEST2 TEST3 TEST4 TEST5 TEST6 TEST7 BSEL[0] BSEL[1] BSEL[2]

MISC

COMP[0] COMP[1] COMP[2] COMP[3]

R26 COMP0 R349 27.4/F_4
U26 COMP1 R348 54.9/F_4
AA1 COMP2 R16 27.4/F_4
Y1 COMP3 R36 54.9/F_4

DPRSTP# DPSLP# DPWR# PWRGOOD SLP# PSI#

H_DPRSTP# [6,21,38]
H_DPSLP# [21]
H_DPWR# [5]
H_PWRGD [21]
H_CPUSLP# [5]
PM_PSI# [38]

Penryn Ball-out Rev 1a

CPU_TEST2 R52 *1K/F_4
CPU_TEST1 R82 *1K/F_4

Populate ITP700Flex for bringup

R335 54.9/F_4 ITP_TCK
R333 54.9/F_4 ITP_TRST#

DV2 Del JITP1,R337,R336,R85,C609,C610,C154

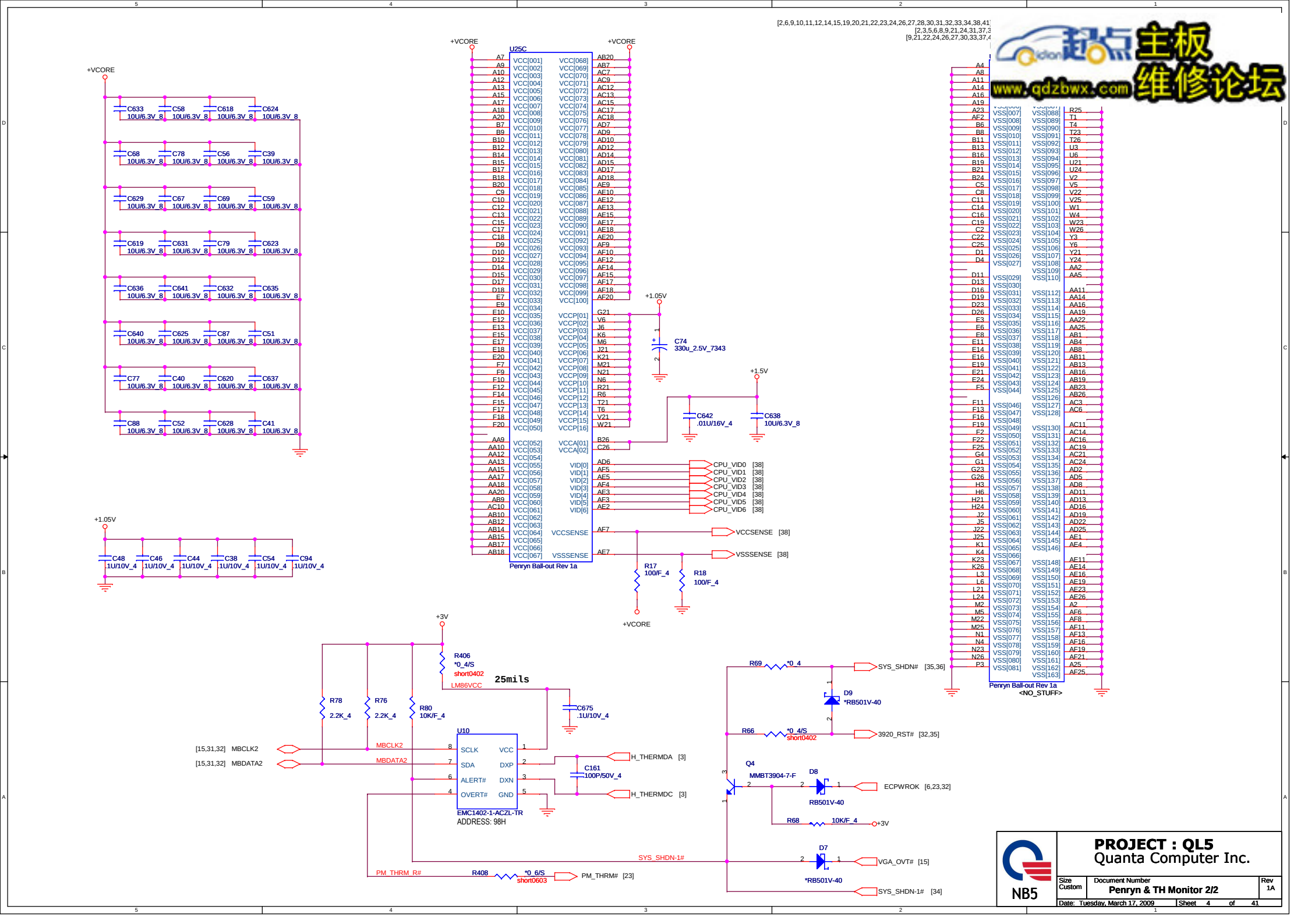
ITP_TDO R334 *54.9/F_4 +1.05V
ITP_TMS R332 54.9/F_4
ITP_TDI R331 54.9/F_4

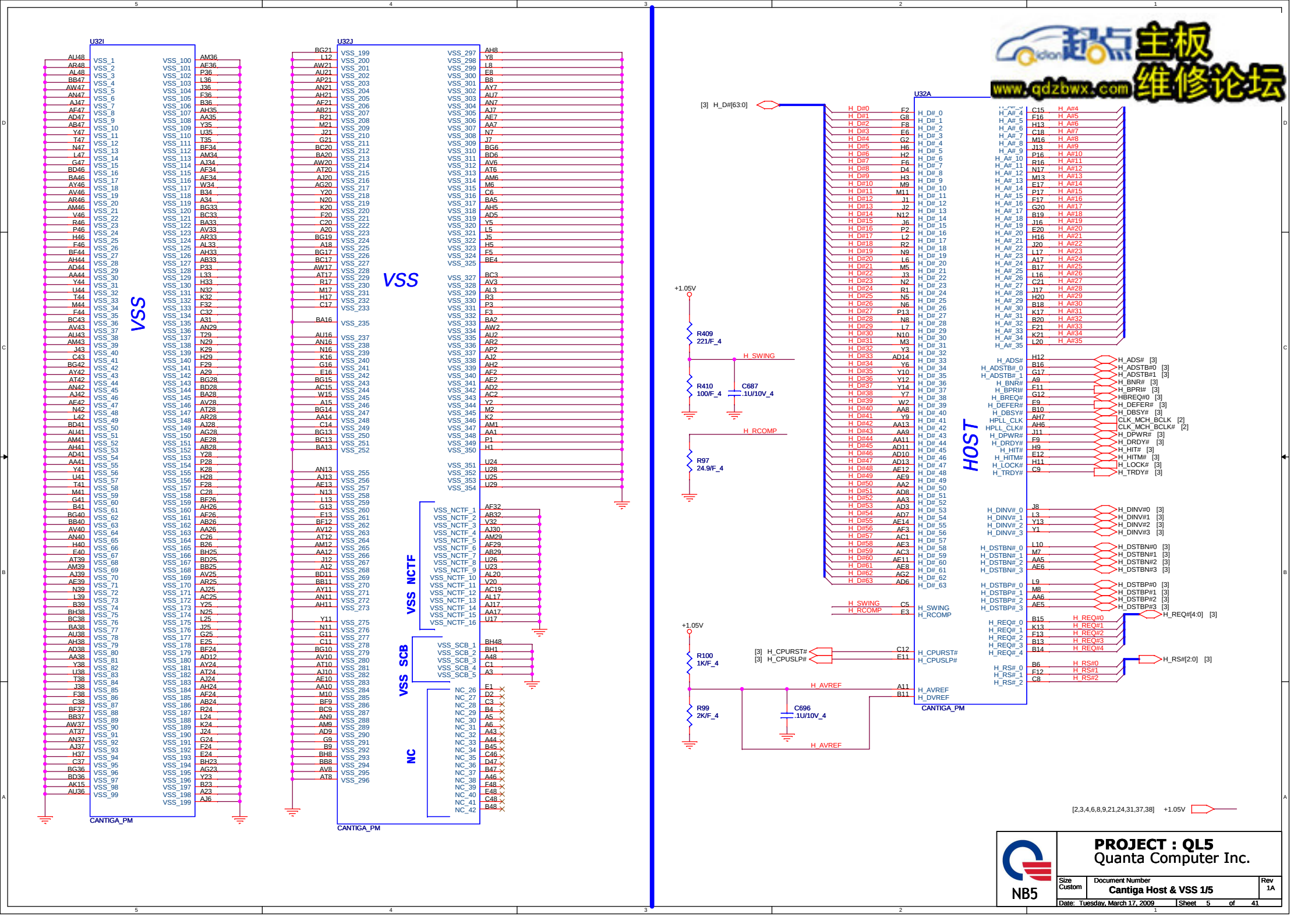
NB5

PROJECT : QL5
Quanta Computer Inc.

Size	Document Number	Rev
Custom	Penryn 1/2	1A

Date: Tuesday, March 17, 2009 Sheet 3 of 41


+VCORE
C633 10U/6.3V_8
C58 10U/6.3V_8
C618 10U/6.3V_8
C624 10U/6.3V_8
C68 10U/6.3V_8
C78 10U/6.3V_8
C56 10U/6.3V_8
C39 10U/6.3V_8
C629 10U/6.3V_8
C67 10U/6.3V_8
C69 10U/6.3V_8
C59 10U/6.3V_8
C619 10U/6.3V_8
C631 10U/6.3V_8
C79 10U/6.3V_8
C623 10U/6.3V_8
C636 10U/6.3V_8
C641 10U/6.3V_8
C632 10U/6.3V_8
C635 10U/6.3V_8
C640 10U/6.3V_8
C625 10U/6.3V_8
C87 10U/6.3V_8
C51 10U/6.3V_8
C77 10U/6.3V_8
C40 10U/6.3V_8
C620 10U/6.3V_8
C637 10U/6.3V_8
C88 10U/6.3V_8
C52 10U/6.3V_8
C628 10U/6.3V_8
C41 10U/6.3V_8
+1.05V
C48 1U/10V_4
C46 1U/10V_4
C44 1U/10V_4
C38 1U/10V_4
C54 1U/10V_4
C94 1U/10V_4
U25C
Penryn Ball-out Rev 1a
C74 330u_2.5V_7343
C642 .01U/16V_4
C638 10U/6.3V_8
+1.5V
CPU_VID0 [38]
CPU_VID1 [38]
CPU_VID2 [38]
CPU_VID3 [38]
CPU_VID4 [38]
CPU_VID5 [38]
CPU_VID6 [38]
VCCSENSE [38]
VSSSENSE [38]
R17 100/F_4
R18 100/F_4
Penryn Ball-out Rev 1a
<NO_STUFF>
+3V
R406 *0_4/S short0402
LM86VCC
25mils
C675 .1U/10V_4
R78 2.2K_4
R76 2.2K_4
R80 10K/F_4
U10
SCLK
SDA
ALERT#
OVERT#
VCC
DXP
DXN
GND
EMC1402-1-ACZL-TR
ADDRESS: 98H
[15,31,32] MBCLK2
[15,31,32] MBDATA2
MBCLK2
MBDATA2
H_THERMDA [3]
H_THERMDC [3]
C161 100P/50V_4
R69 *0_4
SYS_SHDN# [35,36]
D9 *RB501V-40
R66 *0_4/S short0402
3920_RST# [32,35]
Q4 MMBT3904-7-F
D8 RB501V-40
ECPWROK [6,23,32]
R68 10K/F_4
D7 *RB501V-40
VGA_OVT# [15]
SYS_SHDN-1# [34]
SYS_SHDN-1#
PM_THRM_R#
R408 *0_6/S short0603
PM_THRM# [23]
PROJECT : QL5
Quanta Computer Inc.
NB5
Size Custom
Document Number
Penryn & TH Monitor 2/2
Rev 1A
Date: Tuesday, March 17, 2009
Sheet 4 of 41


U32I
VSS
CANTIGA_PM
U32J
VSS
VSS NCTF
VSS SCB
NC
CANTIGA_PM
U32A
HOST
CANTIGA_PM
[3] H_D#[63:0]
+1.05V
R409 221/F_4
R410 100/F_4
C687 .1U/10V_4
H_SWING
H_RCOMP
R97 24.9/F_4
R100 1K/F_4
R99 2K/F_4
C696 .1U/10V_4
H_AVREF
[3] H_CPURST#
[3] H_CPUSLP#
H_ADS# [3]
H_ADSTB#0 [3]
H_ADSTB#1 [3]
H_BNR# [3]
H_BPRI# [3]
HBREQ#0 [3]
H_DEFER# [3]
H_DBSY# [3]
CLK_MCH_BCLK [2]
CLK_MCH_BCLK# [2]
H_DPWR# [3]
H_DRDY# [3]
H_HIT# [3]
H_HITM# [3]
H_LOCK# [3]
H_TRDY# [3]
H_DINV#0 [3]
H_DINV#1 [3]
H_DINV#2 [3]
H_DINV#3 [3]
H_DSTBN#0 [3]
H_DSTBN#1 [3]
H_DSTBN#2 [3]
H_DSTBN#3 [3]
H_DSTBP#0 [3]
H_DSTBP#1 [3]
H_DSTBP#2 [3]
H_DSTBP#3 [3]
H_REQ#[4:0] [3]
H_RS#[2:0] [3]
[2,3,4,6,8,9,21,24,31,37,38] +1.05V
PROJECT : QL5
Quanta Computer Inc.
NB5
Size Custom
Document Number
Cantiga Host & VSS 1/5
Rev 1A
Date: Tuesday, March 17, 2009
Sheet 5 of 41

MCH_CFG_5 DMIx2 selection

Low: DMIx2
High: DMIx4 (Default)

MCH_CFG_16 FSB Dynamic ODT

Low: Dynamic ODT disabled
High: Dynamic ODT enabled (Default)

MCH_CFG_9 PCI Express Graphic Lane

Low: Reverse Lane
High: Normal operation(Default)

MCH_CFG_19 DMI Lane Reversal

Low: Normal (Default)
High: Lane Reserved

MCH_CFG_6 iTPM Host Interface

Low: iTPM Host Interface enabled
High: iTPM Host Interface disabled (Default)

MCH_CFG_7 Intel (R) Management Engine Crypto

Low: Intel (R) Management Engine Crypto
TLS cipher suite with no confidentiality
High: Intel (R) Management Engine Crypto
TLS cipher suite with no confidentiality (Default)

MCH_CFG_10 PCIe Lookback Enable

Low: Enabled
High: Disabled (Default)

MCH_CFG_12/13 XOR/ALLZ/CLOCK Un-gating

MCH_CFG_13	MCH_CFG_12	Configuration
0	0	Reserved
1	0	XOR Mode enabled
0	1	All-Z Mode enabled
1	1	Normal operation (Default)

U32B

RSVD
CLK / DDR CLK / CONTROL/COMPENSATION
ME JTAG
CFG
DMI
GRAPHICS VID
PM
ME
MISC
NC
HDA

U32C

LVDS
TV
VGA
PCI-EXPRESS GRAPHICS

CANTIGA_PM

DV2-FOR ITPM

Change to 75 ohm to GND

Change to 0 ohm to GND

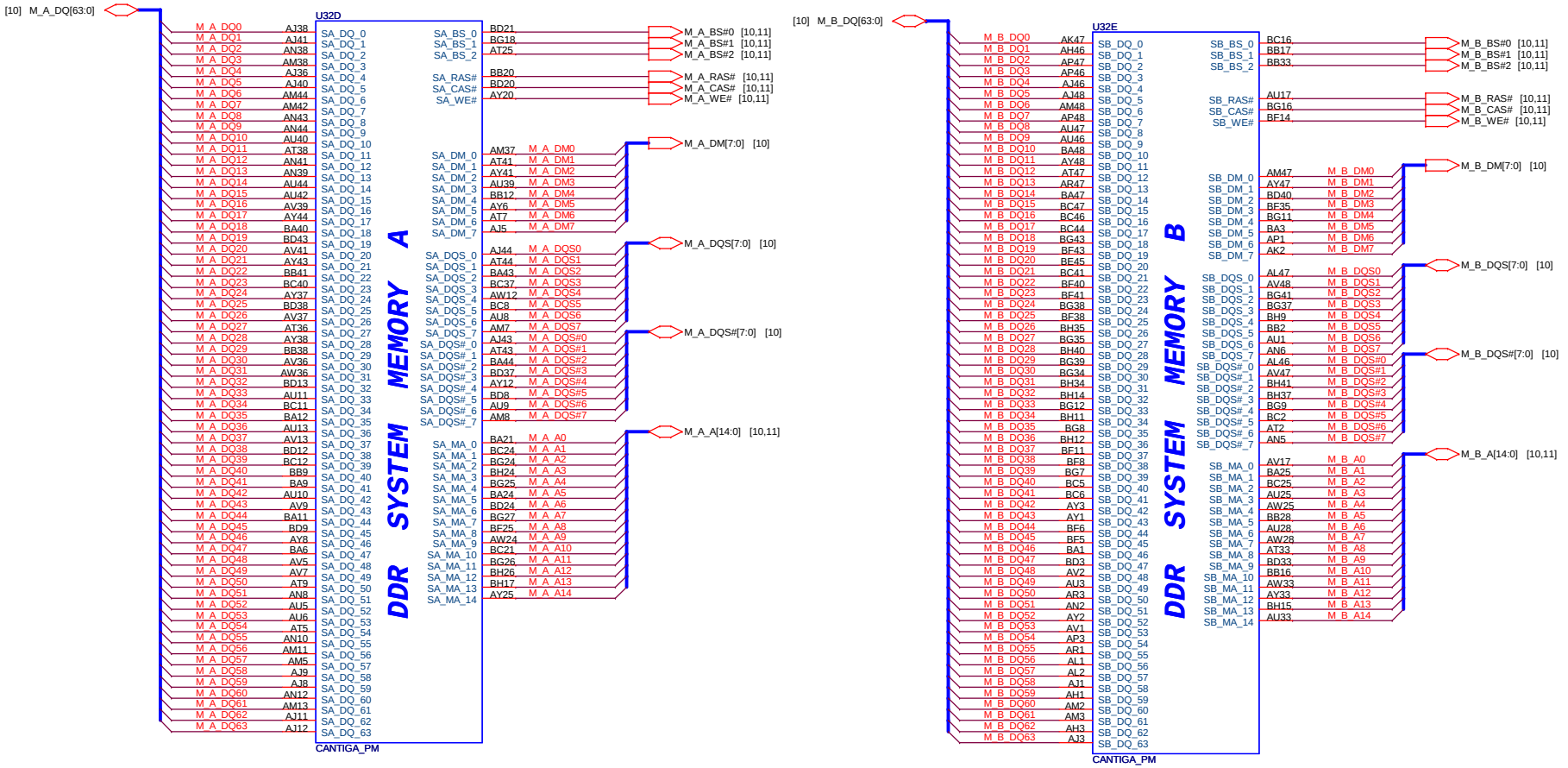
FOR TEST

CLOSE U32 EMI

For UMA HDMI Function

C364,C369,C383,C375
C367,C365,C374,C370
Need to install for GM

HPD# Inverting Level Shifting Circuit

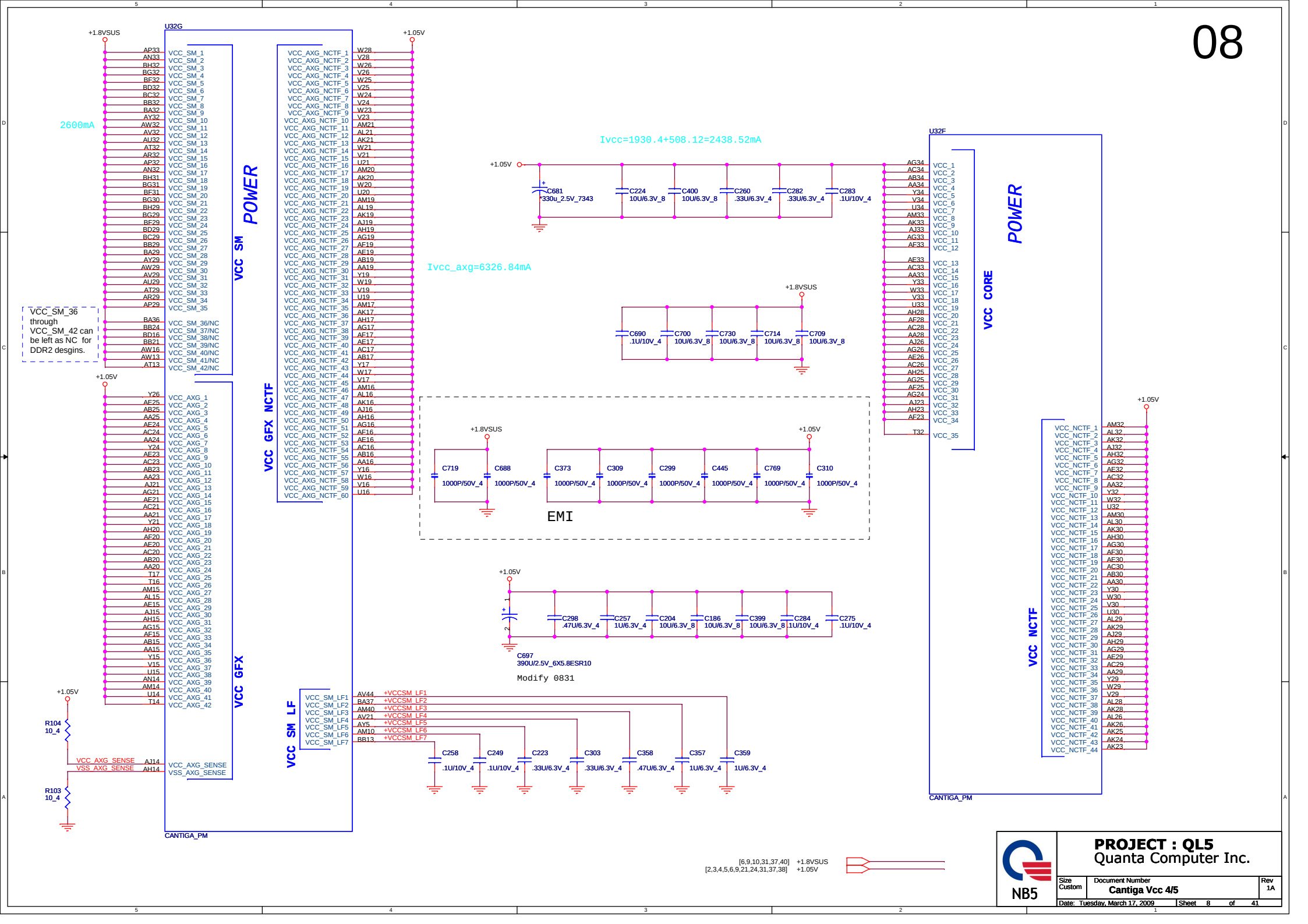


NB5

PROJECT : QL5
Quanta Computer Inc.

Size	Document Number	Rev
Custom	Cantiga DDR2 3/5	1A

Date: Tuesday, March 17, 2009 | Sheet 7 of 41



PROJECT : QL5		
Quanta Computer Inc.		
NB5	Size: Custom	Document Number: Cantiga Vcc 4/5
	Rev: 1A	
	Date: Tuesday, March 17, 2009	Sheet 8 of 41

+1.05V [2,3,4,5,6,8,21,24,31,37,38]
+3V [2,4,6,10,11,12,14,15,19,20,21,22,23,24,26,27,28,30,31,32,33,34,38,41]
+1.5V [4,21,22,24,26,27,30,33,37,41]
+1.8VSUS [6,8,10,31,37,40]
+1.05V_PEG [2,3,4,5,6,8,21,24,31,37,38]

POWER

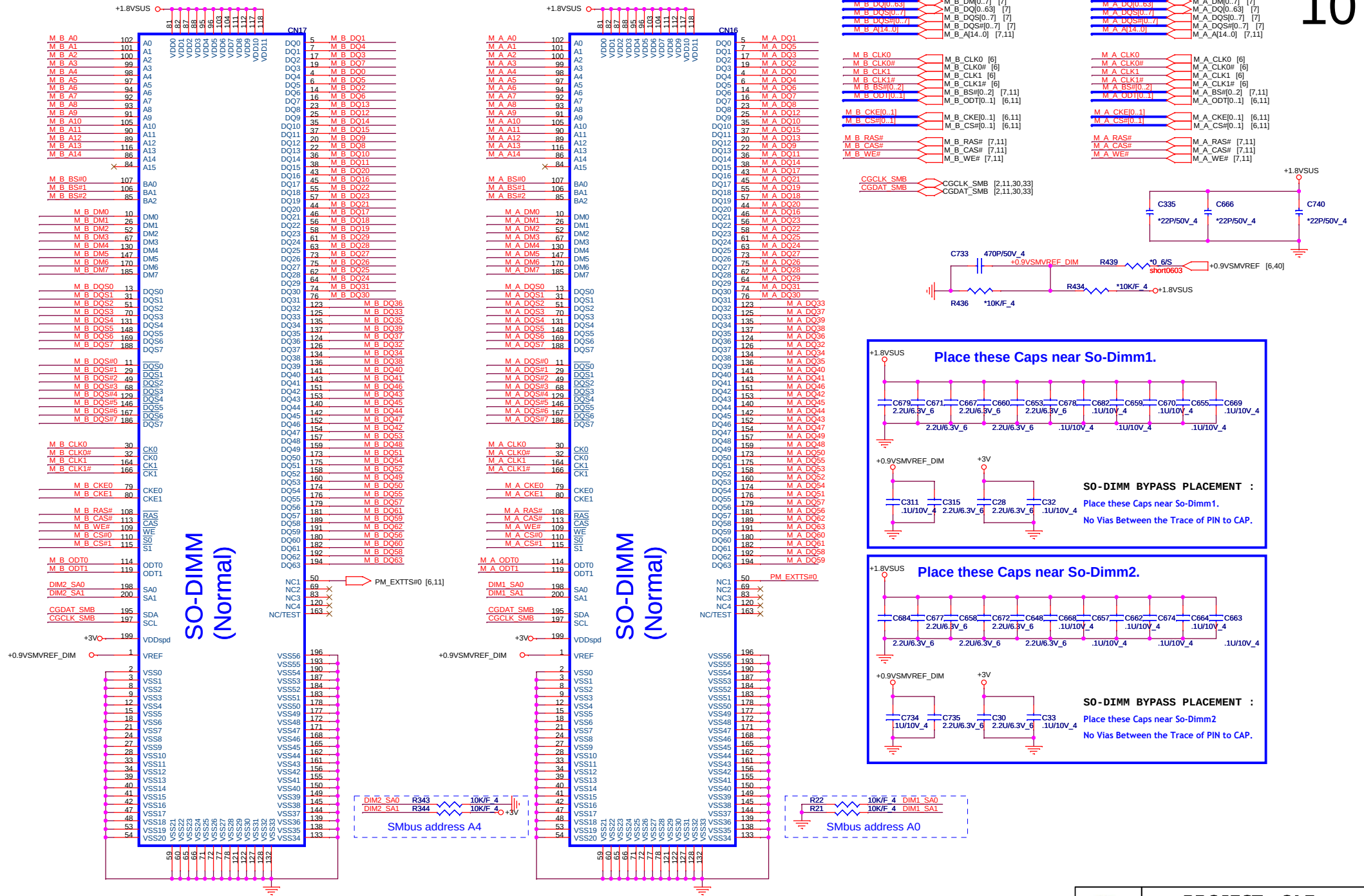
U32H — CANTIGA_PM

CRT: VCCA_CRT_DAC_1 (B27), VCCA_CRT_DAC_2 (A26), VCCA_DAC_BG (A25), VSSA_DAC_BG (B25)
PLL: VCCA_DPLLA (F47), VCCA_DPLLB (L48), VCCA_HPLL (AD1), VCCA_MPLL (AE1)
LVDS: VCCA_LVDS (J48), VSSA_LVDS (J47)
A PEG: VCCA_PEG_BG (AD48), VCCA_PEG_PLL (AA48)
A SM: VCCA_SM_1 (AP20), VCCA_SM_2 (AP20), VCCA_SM_3 (AN20), VCCA_SM_4 (AR17), VCCA_SM_5 (AP17), VCCA_SM_6 (AN17), VCCA_SM_7 (AT16), VCCA_SM_8 (AR16), VCCA_SM_9 (AP16)
A CK: VCCA_SM_CK_1 (AP28), VCCA_SM_CK_2 (AN28), VCCA_SM_CK_3 (AP25), VCCA_SM_CK_4 (AN25), VCCA_SM_CK_5 (AN24), VCCA_SM_CK_NCTF_1 (AM28), VCCA_SM_CK_NCTF_2 (AM26), VCCA_SM_CK_NCTF_3 (AM25), VCCA_SM_CK_NCTF_4 (AL25), VCCA_SM_CK_NCTF_5 (AM24), VCCA_SM_CK_NCTF_6 (AL24), VCCA_SM_CK_NCTF_7 (AM23), VCCA_SM_CK_NCTF_8 (AL23)
TV: VCCA_TV_DAC_1 (B24), VCCA_TV_DAC_2 (A24)
HDA: VCC_HDA (A32)
D TV/CRT: VCCD_TVDAC (M25), VCCD_QDAC (L28), VCCD_HPLL (AE1), VCCD_PEG_PLL (AA47)
LVDS: VCCD_LVDS_1 (M38), VCCD_LVDS_2 (L37)
VTT: VTT_1 (U13) … VTT_25 (U1)
AXF: VCC_AXF_1 (B22), VCC_AXF_2 (B21), VCC_AXF_3 (A21)
SM CK: VCC_SM_CK_1 (BF21), VCC_SM_CK_2 (BH20), VCC_SM_CK_3 (BG20), VCC_SM_CK_4 (BF20)
VCC_TX_LVDS (K47)
HV: VCC_HV_1 (C35), VCC_HV_2 (B35), VCC_HV_3 (A35)
PEG: VCC_PEG_1 (V48), VCC_PEG_2 (U48), VCC_PEG_3 (V47), VCC_PEG_4 (U47), VCC_PEG_5 (U46)
DMI: VCC_DMI_1 (AH48), VCC_DMI_2 (AF48), VCC_DMI_3 (AH47), VCC_DMI_4 (AG47)
VTTLF: VTTLF1 (A8), VTTLF2 (L1), VTTLF3 (AB2)

73mA
5mA
AB total 64.8mA
24mA
139.2mA
13.2mA
414uA
50mA
480mA
24mA
79mA
50mA
35mA
120uA
157.2mA
50mA
60.31mA
852mA
119.85mA
118.8mA
105.3mA
1782mA
456mA

Modify 0829
DV3 Change to short Pad

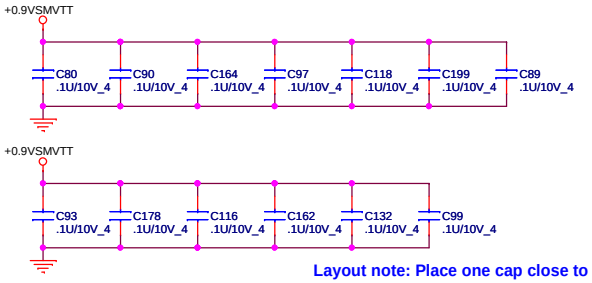
Project	PROJECT : QL5 Quanta Computer Inc.
Size	Custom
Document Number	Cantiga Power 5/5
Rev	1A
Date	Tuesday, March 17, 2009
Sheet	9 of 41

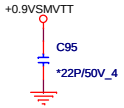


NB5	PROJECT : QL5 Quanta Computer Inc.		
	Size: Custom	Document Number: DDR2 DIMM	Rev: 1A
	Date: Tuesday, March 17, 2009	Sheet 10 of 41	

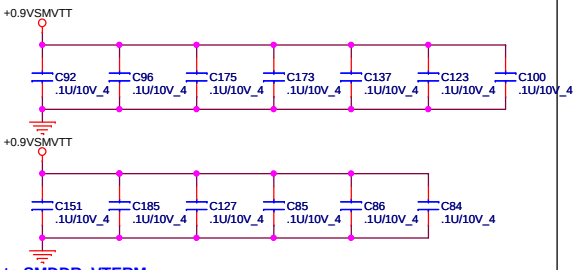
DDRII DUAL CHANNEL A,B.

DDRII A CHANNEL

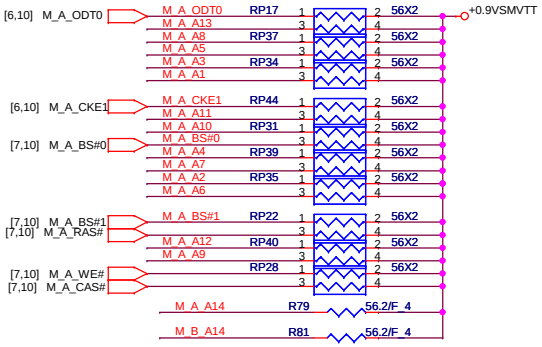


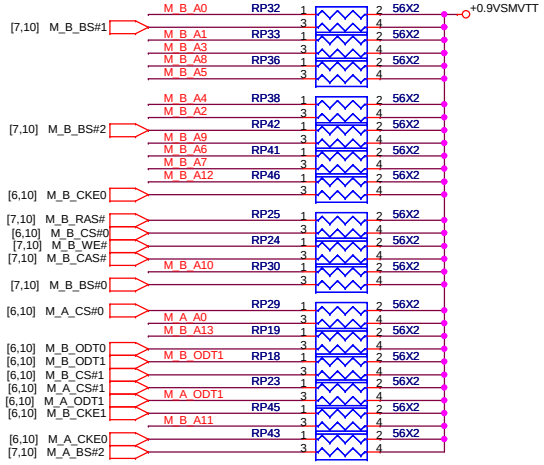


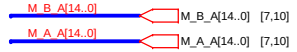
DDRII B CHANNEL

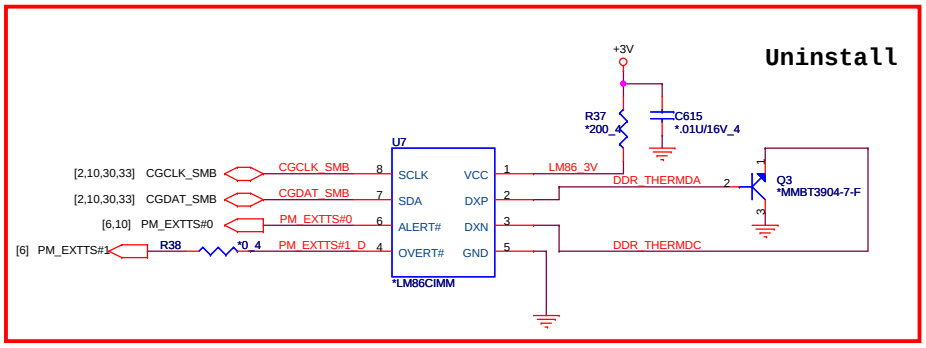


Layout note: Place one cap close to every 2 pullup resistors terminated to SMDDR_VTERM





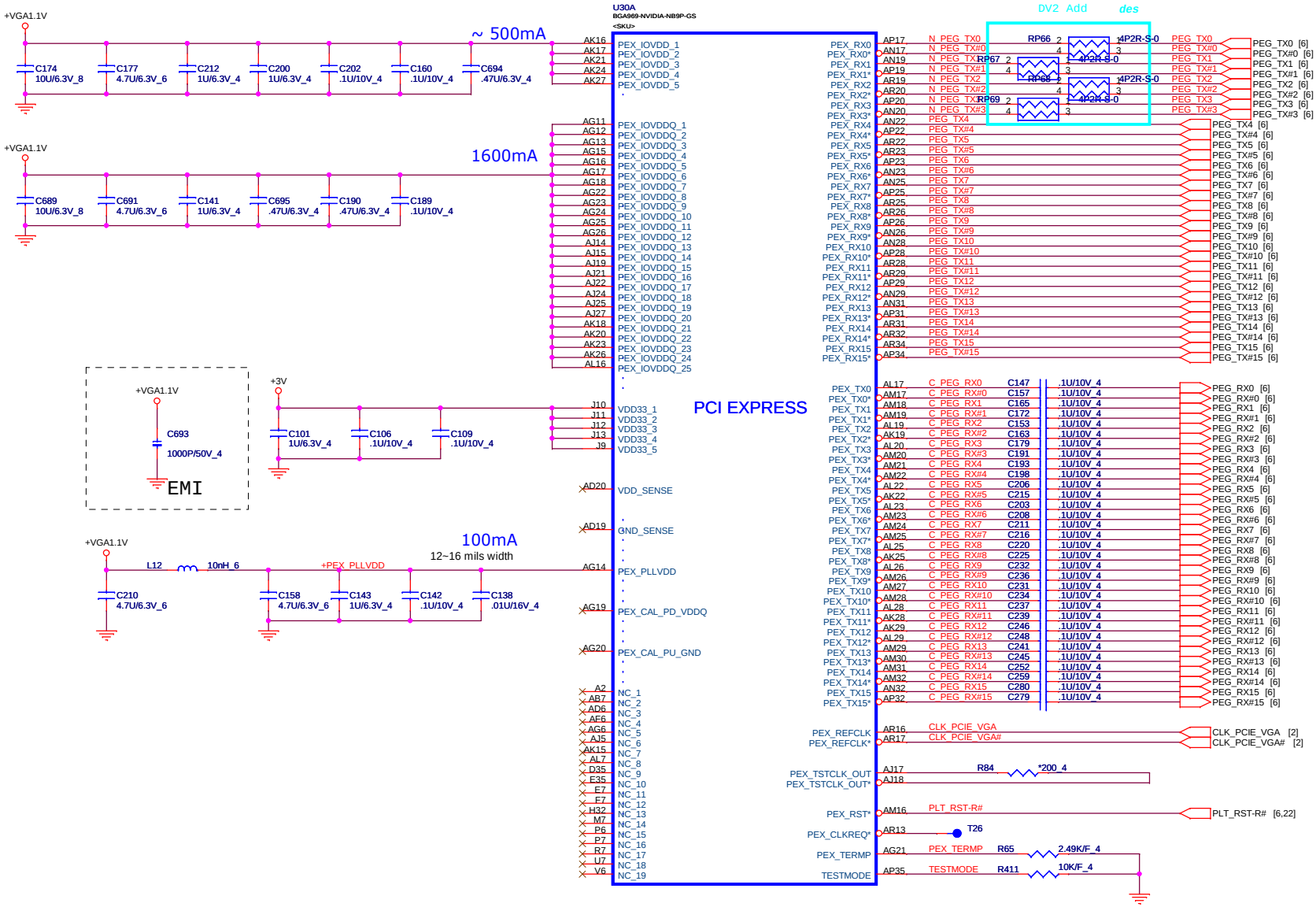




+0.9VSMVTT [40]

+3V [2,4,6,9,10,12,14,15,19,20,21,22,23,24,26,27,28,30,31,32,33,34,38,41]

NB5	PROJECT : QL5 Quanta Computer Inc.	
	Size: Custom Document Number: DDR2 termination	Rev: 1A
	Date: Tuesday, March 17, 2009	Sheet 11 of 41



PROJECT : QL5
Quanta Computer Inc.

NB5

Size	Document Number	Rev
Custom	NV10X (PCIE I/F) 1/5	1A
Date: Tuesday, March 17, 2009	Sheet 12 of 41	

U30B
BGA969-NVIDIA-NB9P-GS
<SKU>

MEMORY I/F A

U30C
BGA969-NVIDIA-NB9P-GS
<SKU>

MEMORY I/F B

Add for 64x16 vram

Add for 64x16 vram

for DDR2 need use CMD11(CKE) and CMD12(ODT)

use internal Vref, ext divider no stuff

15mils width

15mils width

For Debug only

R91 Install for DDR3

R86 no stuff

G96 only

U30D

BGA969-NVIDIA-N89P-GS

<SKU>

IFPAB(LVDS)

100 mA

50 mA

50 mA

+1.8V

L37 HCB1608KF-181T15_6 +IFPAB_PLLVDD

C639 4.7U/6.3V_6 C643 4700P/25V_4 C117 470P/50V_4

R67 *1K/F_4

L10 HCB1608KF-181T15_6 +IFPAB_IOVDD

C57 4.7U/6.3V_6 C53 4.7U/6.3V_6 C66 4700P/25V_4 C131 4700P/25V_4 C61 470P/50V_4 C119 470P/50V_4

IFPAB_PLLVDD AK9

IFPAB_RSET AJ11

IFPA_IOVDD AG9

IFPB_IOVDD AG10

IFPA_TXC+ AM11
IFPA_TXC- AM12
IFPA_TXD0+ AM8
IFPA_TXD0- AL8
IFPA_TXD1+ AM10
IFPA_TXD1- AM9
IFPA_TXD2+ AK10
IFPA_TXD2- AL10
IFPA_TXD3+ AK11
IFPA_TXD3- AL11

EXT_TXLCLKOUT+ [19]
EXT_TXLCLKOUT- [19]
EXT_TXLOUT0+ [19]
EXT_TXLOUT0- [19]
EXT_TXLOUT1+ [19]
EXT_TXLOUT1- [19]
EXT_TXLOUT2+ [19]
EXT_TXLOUT2- [19]

IFPB_TXC+ AP13
IFPB_TXC- AN13
IFPB_TXD0+ AN8
IFPB_TXD0- AP8
IFPB_TXD1+ AP10
IFPB_TXD1- AN10
IFPB_TXD2+ AR11
IFPB_TXD2- AR10
IFPB_TXD3+ AN11
IFPB_TXD3- AP11

EXT_TXUCLKOUT+ [19]
EXT_TXUCLKOUT- [19]
EXT_TXUOUT0+ [19]
EXT_TXUOUT0- [19]
EXT_TXUOUT1+ [19]
EXT_TXUOUT1- [19]
EXT_TXUOUT2+ [19]
EXT_TXUOUT2- [19]

IFPCD

+1.8V

L36 HCB1608KF-181T15_6 +IFPCD_PLLVDD

C184 1U/6.3V_4 C634 4.7U/6.3V_6 C115 4700P/25V_4 C107 470P/50V_4

R370 1K/F_4

+VGA1.1V

L38 HCB1608KF-181T15_6 +IFPCD_IOVDD

C645 4.7U/6.3V_6 C654 1U/6.3V_4 C646 1U/6.3V_6 C656 4700P/25V_4 C108 470P/50V_4 C104 470P/50V_4

IFPCD_PLLVDD AJ9

IFPCD_RSET AK7

IFPC_IOVDD AJ8

IFPD_IOVDD AK8

AUX+ AP2
AUX- AP1
DPL3_TXC+ AR2
DPL3_TXC- AM4
DPL2_TXD0+ AM3
DPL2_TXD0- AM5
DPL1_TXD1+ AL5
DPL0_TXD2+ AM6
DPL0_TXD2- AM7

H_TXC_HDMI- H_TXC_HDMI+ H_TX0_HDMI- H_TX0_HDMI+ H_TX1_HDMI- H_TX1_HDMI+ H_TX2_HDMI- H_TX2_HDMI+

4P2R-S-0 RP62 RP63 RP64 RP65

N_TXC_HDMI- N_TXC_HDMI+ N_TX0_HDMI- N_TX0_HDMI+ N_TX1_HDMI- N_TX1_HDMI+ N_TX2_HDMI- N_TX2_HDMI+

Fix Ball out and Pin Name

N_TXC_HDMI- [20]
N_TXC_HDMI+ [20]
N_TX0_HDMI- [20]
N_TX0_HDMI+ [20]
N_TX1_HDMI- [20]
N_TX1_HDMI+ [20]
N_TX2_HDMI- [20]
N_TX2_HDMI+ [20]

des

DV2 Add for HDMI port

IFPD

AUX+ AP4
AUX- AP3
DPL3_TXC+ AR5
DPL3_TXC- AP5
DPL2_TXD0+ AN5
DPL2_TXD0- AM7
DPL1_TXD1+ AP7
DPL1_TXD1- AR7
DPL0_TXD2+ AR8
DPL0_TXD2- AR8

TMDS channel two

IFPEF

IFPEF_PLLVDD AJ6

T11

R62 10K/F_4

IFPEF_RSET AL1

IFPE_IOVDD AE7

IFPF_IOVDD AD7

R368 10K/F_4

IFPE_AUX+ AE4
IFPE_AUX- AD4
IFPE_L0+ AH6
IFPE_L0- AH5
IFPE_L1+ AH4
IFPE_L1- AG4
IFPE_L2+ AE4
IFPE_L2- AE5
IFPE_L3+ AE6
IFPE_L3- AE5
IFPF_AUX+ AF3
IFPF_AUX- AF2
IFPF_L0+ AL2
IFPF_L0- AL3
IFPF_L1+ AJ3
IFPF_L1- AJ2
IFPF_L2+ AJ1
IFPF_L2- AH1
IFPF_L3+ AH2
IFPF_L3- AH3

Display port output

DACA(CRT)

+3V

L9 HCB1608KF-181T15_6 +DACA_VDD

C60 4.7U/6.3V_6 C129 4700P/25V_4 C65 470P/50V_4 C133 .1U/10V_4

R396 124/F_4

DACA_VDD AJ12

DACA_VREF AK12

DACA_RSET AK13

DACA_RED AM15
DACA_GREEN AM14
DACA_BLUE AL14
DACA_HSYNC AM13
DACA_VSYNC AL13

CRT_R CRT_G CRT_B CRT_HSYNC CRT_VSYNC

R77 33_4
R75 33_4

CRT_R [6,20]
CRT_G [6,20]
CRT_B [6,20]
HSYNC_COM [6,20]
VSYNC_COM [6,20]

I2CA_SCL G1
I2CA_SDA G4

DDCCLK [6,20]
DDCDATA [6,20]

CRT_R R405 150/F_4
CRT_G R401 150/F_4
CRT_B R403 150/F_4

Close to GPU

DACC(CRT2)

+DACB_VDD

R369 10K/F_4

T10 T9

DACC_VDD AG7

DACC_VREF AK6

DACC_RSET AH7

DACC_RED AK4
DACC_GREEN AL4
DACC_BLUE AJ4
DACC_HSYNC AM1
DACC_VSYNC AM2

I2CB_SCL G3
I2CB_SDA G2

I2CB_SCL I2CB_SDA

R374 2.2K_4
R358 2.2K_4

+3V

DACB(TV)

R60 10K/F_4 +DACC_VD

T16 T22

DACB_VDD AC6

DACB_VREF AC5

DACB_RSET AB6

DACB_RED AA4
DACB_GREEN AB4
DACB_BLUE Y4
DACB_CSYNC AB5

T15

SI Build

XTAL_PLL

+VGA1.1V

L11 HCB1608KF-181T15_6 +NV_PLLVDD

C124 1U/6.3V_4 C111 1U/6.3V_4 C112 1U/6.3V_4 C125 .1U/10V_4 C114 .1U/10V_4

65mA
50mA
25mA

PLLVDD AE9

VID_PLLVDD AD9

SP_PLLVDD AF9

XTAL_SSIN D2
XTAL_OUTBUFF D1
XTAL_IN B1
XTAL_OUT B2

XTAL_SSIN
BXTALOUT
XTALIN

27M_SS [2]
27M_NONSS [2]

STUFF PDs on XTALSSIN and XTALOUTBUFF WHEN EXT_SS IS NOT USED

27M_SS
BXTALOUT

R372 *10K/F_4
R371 *10K/F_4

Install it when not connected to Spread spectrum device

SPREAD SPECTRUM

SI Build

+3V

R32 *10K/F_4

R39 *10K/F_4

GFX27M_L

R41 *22_4 XTAL_SSIN

C72 *10P/50V_4

U8

ICSS_PD 8 PD# VDD 2
BXTALOUT 1 CLKIN CLKOUT 4
REFOUT 5 ICSS_RFO
EDIDCLK 7 SCL
EDIDDATA 6 SDA GND 3

*ICS91730AMLF-T

+3V_SSC

R44 *4.7_6 +3V

[6,15,19] EDIDCLK
[6,15,19] EDIDDATA

R40 *10K/F_4

C83 *470P/50V_4 C71 *.1U/10V_4 C76 *4.7U/6.3V_6 C70 *4.7U/6.3V_6

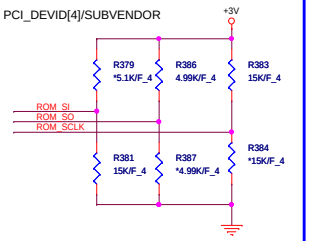
I2C ADDRESS: 0xD4H

NB5	PROJECT : QL5 Quanta Computer Inc.	
Size Custom	Document Number NV10X (DISPLAY) 3/5	Rev 1A
Date: Tuesday, March 17, 2009	Sheet 14 of 41	

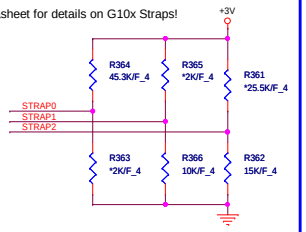
N10P-GE1 (G96) Straps
N10M-GE1 (G98) Straps
GPIO ASSIGNMENTS

GPIO	I/O	ACTIVE	USAGE
0	IN	N/A	PRIMARY DVI HOTPLUG
1	IN	N/A	SECONDARY DVI HOTPLUG
2	OUT	HIGH	PANEL BACKLIGHT PWM
3	OUT	HIGH	PANEL POWER ENABLE
4	OUT	HIGH	PANEL BACKLIGHT ENABLE
5	OUT	N/A	NVVDD VID0
6	OUT	N/A	NVVDD VID1
7	OUT	N/A	FBVDD VID0
8	IN	LOW	THERMAL ALERT
9	OUT	LOW	FAN PWM
10	OUT	N/A	FBVREF SELECT
11	OUT	N/A	SLI SYNC0
12	IN	N/A	AC DETECT
13	OUT	LOW	PS CONTROL OR HDMI_CEC
14	OUT	HIGH	PS CONTROL

PCI_DEVID[4]/SUBVENDOR



SEE Datasheet for details on G10x Straps!



PV	Hynix	Samsung	Qimonda
R381	CS25102FB02 5K	CS31002FB26 10K	CS31502FB24 15K

N10M-GE1	N10P-GE1
R361 25K	R362 15K
R384 15K	R383 15K

Logical Strap Bit Mapping

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

N10M-GE1

RAM_CFG[3:0]	Config	Definitions
	64Mx16 DDR2	Hynix
	64Mx16 DDR2	Samsung
	64Mx16 DDR2	Qimonda

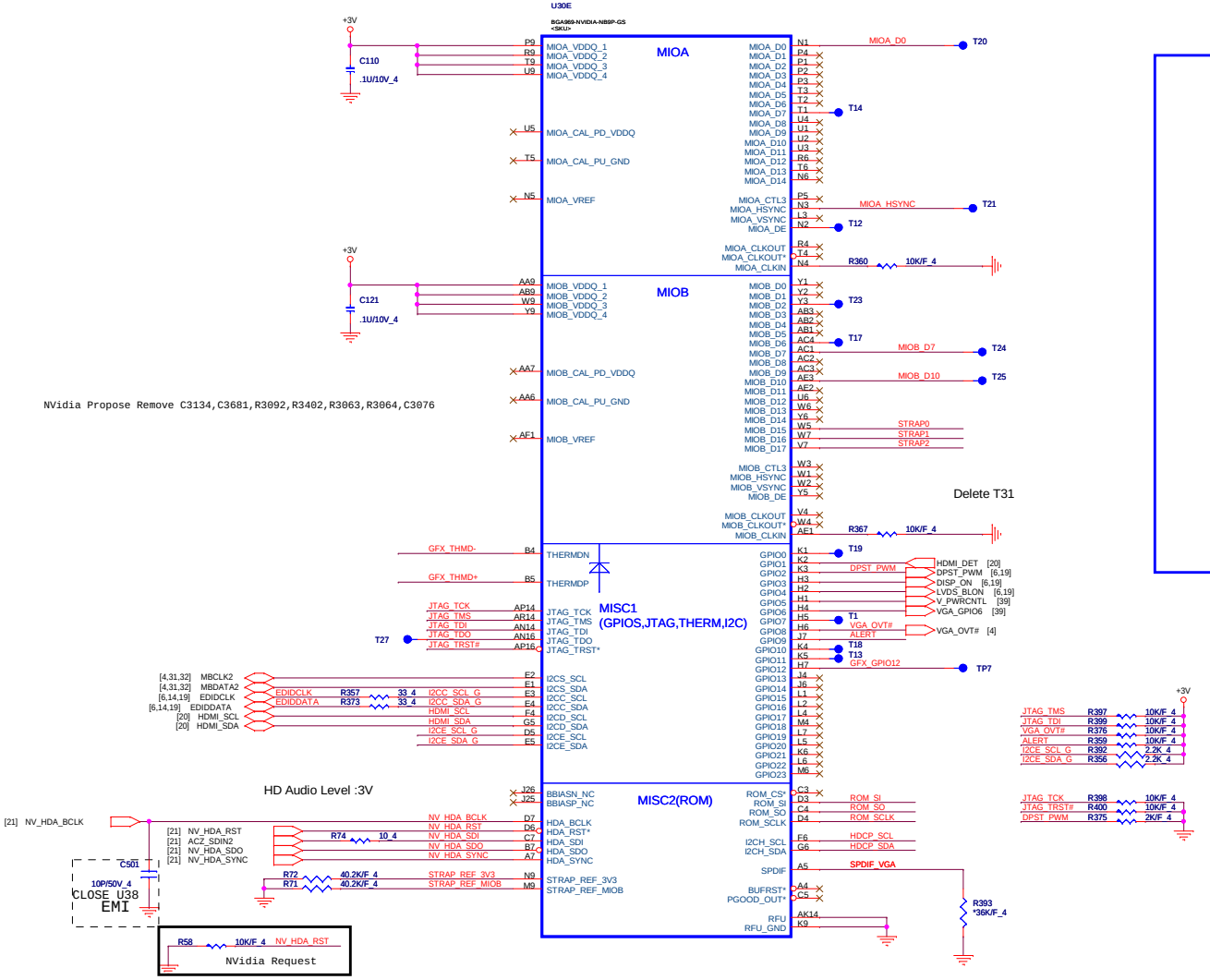
N10P-GE1

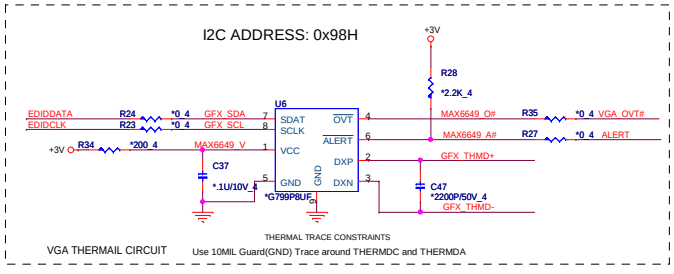
RAM_CFG[3:0]	Config	Definitions
0000	64Mx16 DDR2	Hynix
0001	64Mx16 DDR2	Samsung
0010	64Mx16 DDR2	Qimonda

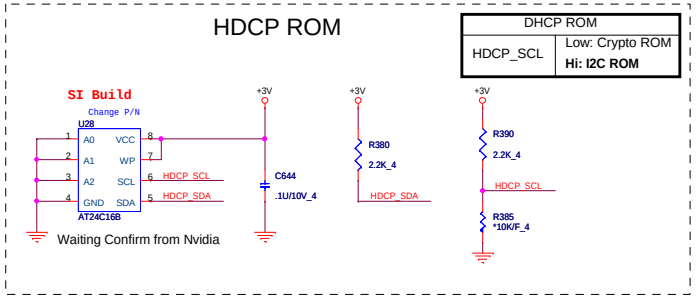
NVidia Propose Remove C3134,C3681,R3092,R3402,R3063,R3064,C3076

Delete T31

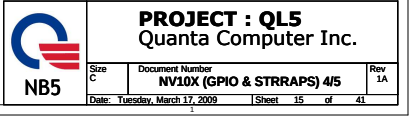
HD Audio Level :3V



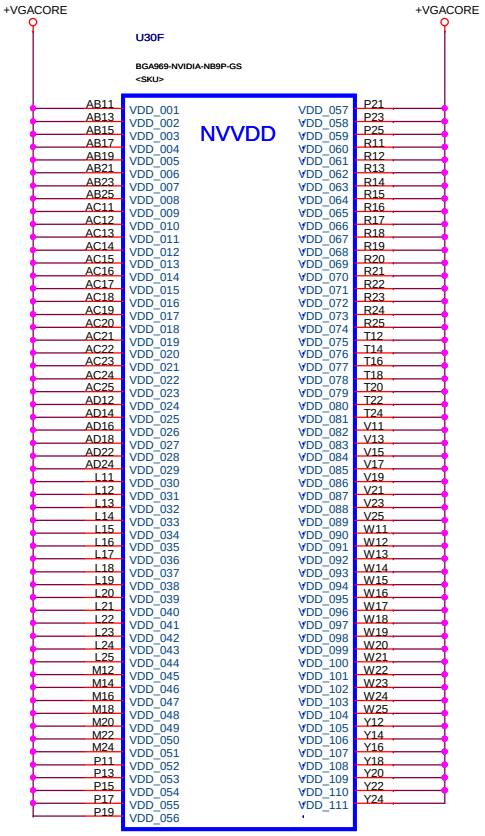


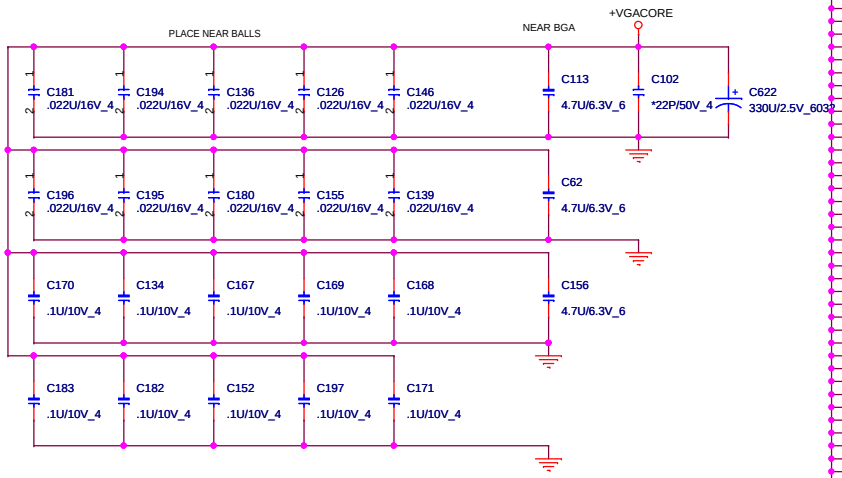


DHCP ROM	
HDCP_SCL	Low: Crypto ROM **Hi: I2C ROM**

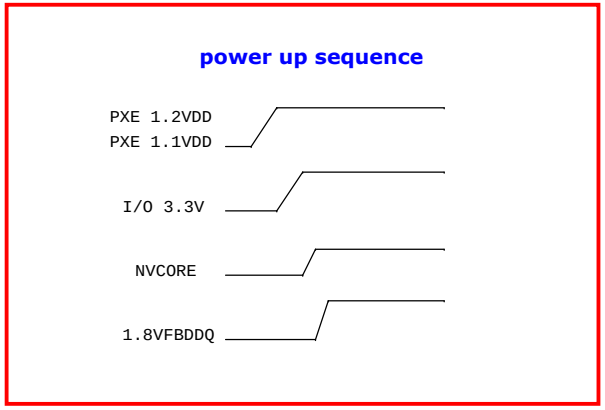


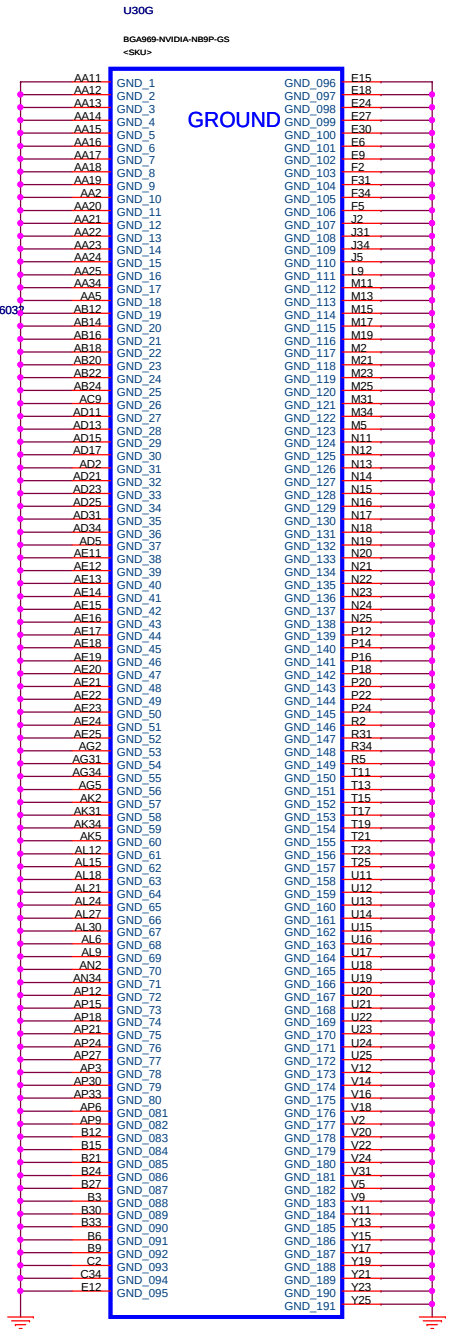
NVVDD Decoupling





Follow Design Guide DG-03276-001 4.7uFx3 and 0.22x10 uF instead of 0.1uF x10



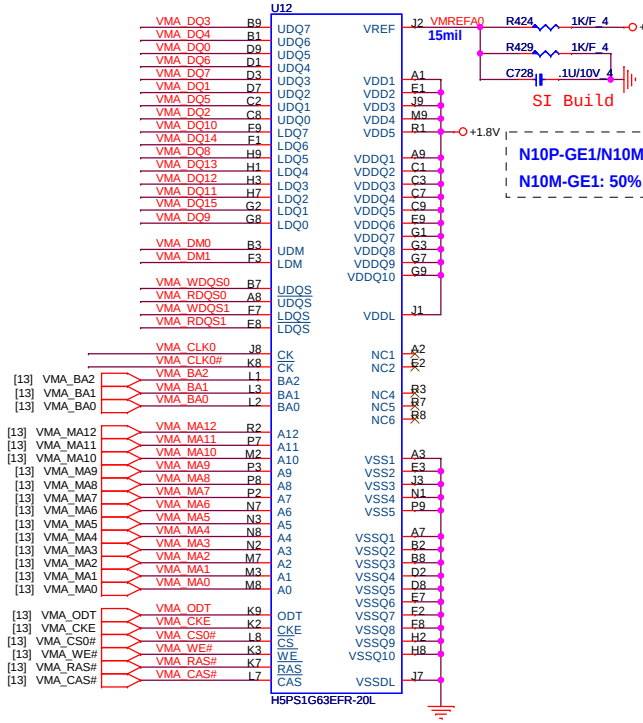


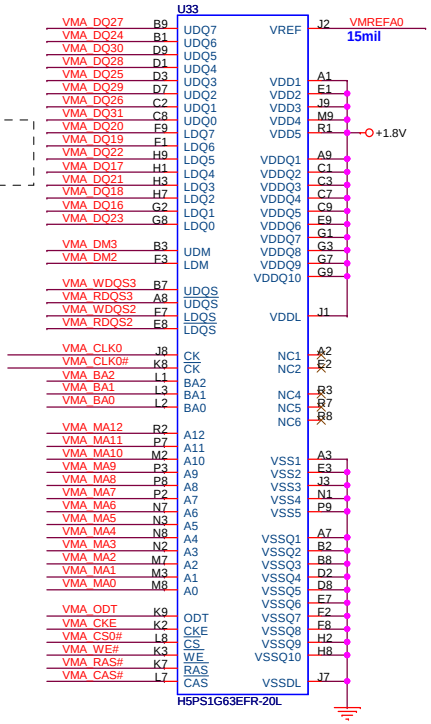
NB5

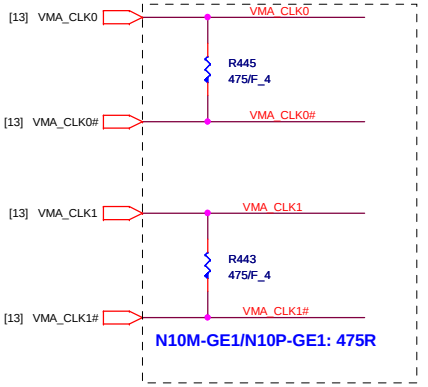
PROJECT : QL5
Quanta Computer Inc.

Size	Document Number	Rev
Custom	NV10X (POWER & GND) 5/5	1A

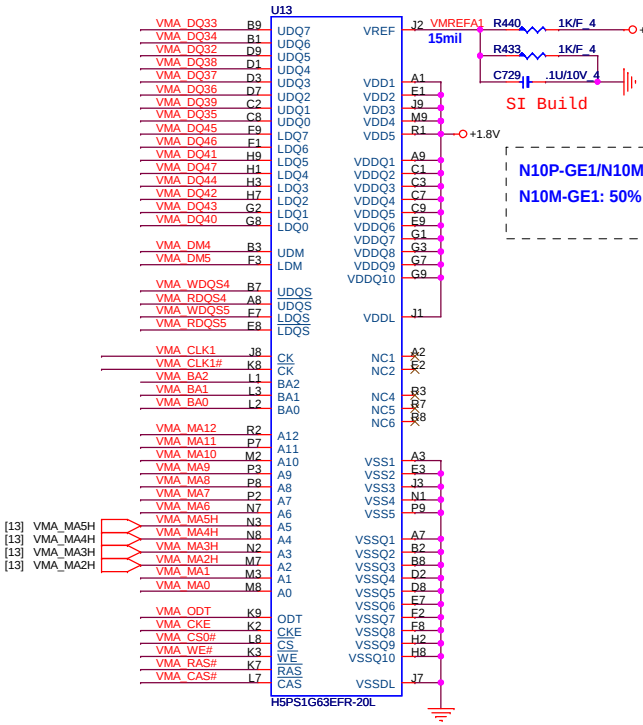
Date: Tuesday, March 17, 2009 Sheet 16 of 41

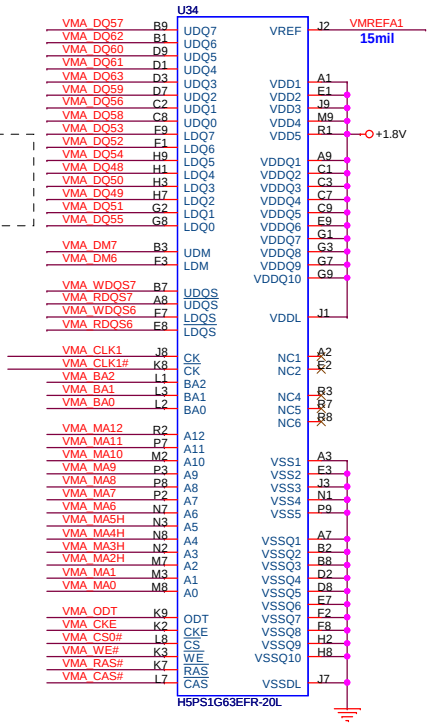




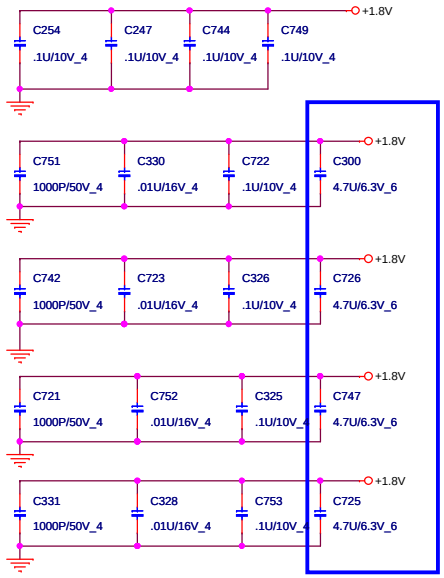


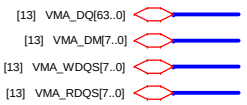
CS14752FB11 RES CHIP 475 1/16W +-1%(0402)





(By pass capacitor)





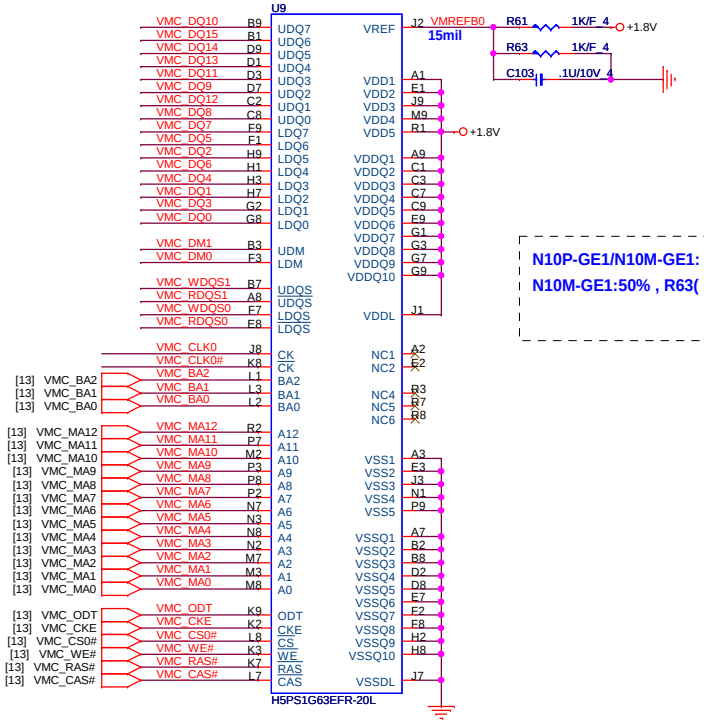
For DB:
N10P/N10M : AKD5LG-T500(Samsung,64M*16)
AKD5LG-T^02(Qimonda 64M*16)
AKD5LG-TW01(Hynix,64M*16)

NB5

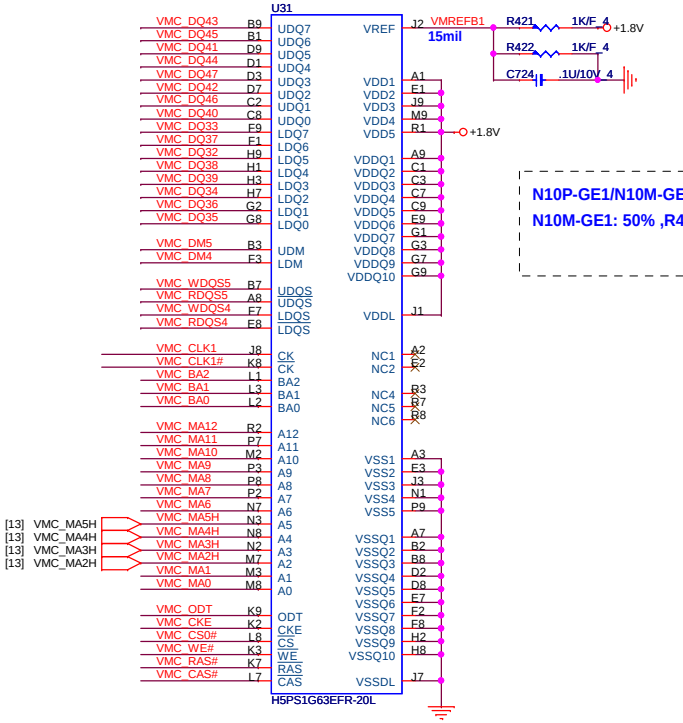
PROJECT : QL5
Quanta Computer Inc.

Size	Document Number	Rev
Custom	NV10X VRAM-1(GDDR2 BGA84)	1A

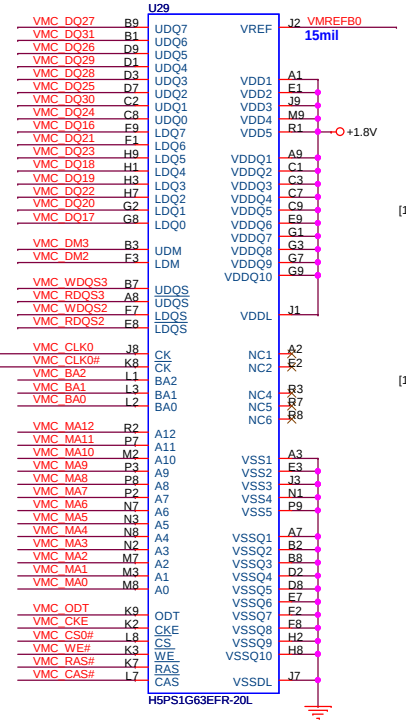
Date: Tuesday, March 17, 2009 Sheet 17 of 41

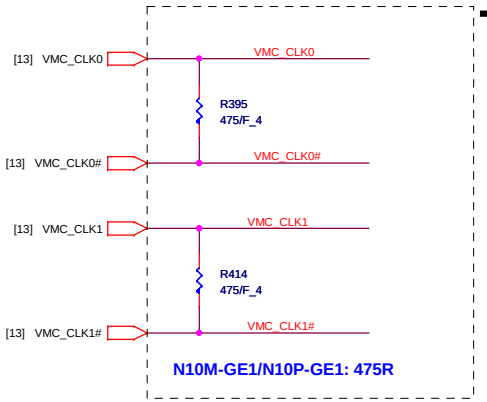


N10P-GE1/N10M-GE1: 50% FBVDD
N10M-GE1:50% , R63(1K)



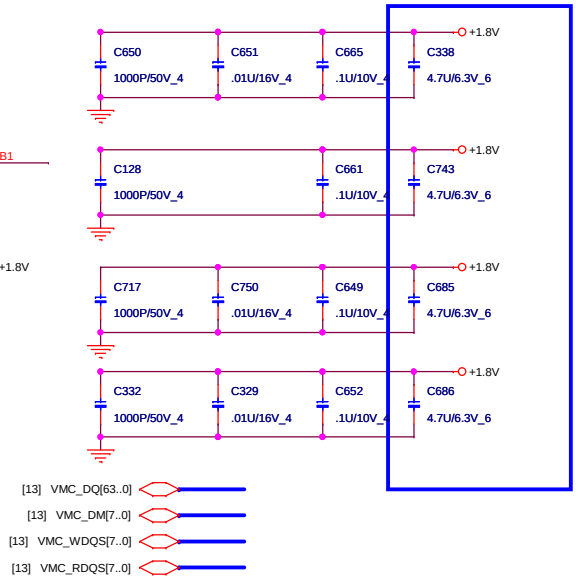
N10P-GE1/N10M-GE1: 50% FBVDD
N10M-GE1: 50% ,R422 (1K)

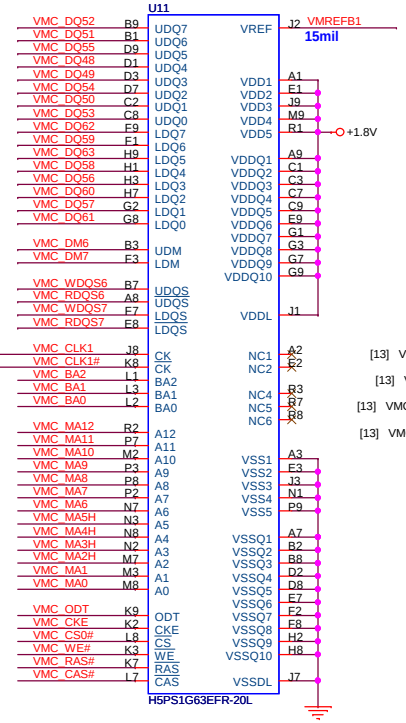




N10M-GE1/N10P-GE1: 475R

CS14752FB11 RES CHIP 475 1/16W +-1%(0402)





For DB:
N10P/N10M : AKD5LG-T500(Samsung,64M*16)
AKD5LG-T^02(Qimonda 64M*16)
AKD5LG-TW01(Hynix,64M*16)

NB5

PROJECT : QL5
Quanta Computer Inc.

Size	Document Number	Rev
Custom	NV10X VRAM-2(GDDR2 BGA84)	1A

Date: Tuesday, March 17, 2009 Sheet 18 of 41

1. If LCD connector near GPU, then place these series Resistors near GPU
2. If LCD connector near N/B, then place these series Resistors near N/B

OPTION SIGNAL FROM NB FOR UMA VGA

[6] LA_CLK	RP10	*4P2R-S-0	TXLCLKOUT+
[6] LA_CLK#			TXLCLKOUT-
[6] LA_DATAP0	RP6	*4P2R-S-0	TXLOUT0+
[6] LA_DATAN0			TXLOUT0-
[6] LA_DATAP1	RP8	*4P2R-S-0	TXLOUT1+
[6] LA_DATAN1			TXLOUT1-
[6] LA_DATAP2	RP12	*4P2R-S-0	TXLOUT2+
[6] LA_DATAN2			TXLOUT2-
[6] LB_CLK#	RP27	*4P2R-S-0	TXUCLKOUT-
[6] LB_CLK			TXUCLKOUT+
[6] LB_DATAP0	RP14	*4P2R-S-0	TXUOUT0+
[6] LB_DATAN0			TXUOUT0-
[6] LB_DATAP1	RP16	*4P2R-S-0	TXUOUT1+
[6] LB_DATAN1			TXUOUT1-
[6] LB_DATAP2	RP21	*4P2R-S-0	TXUOUT2+
[6] LB_DATAN2			TXUOUT2-

OPTION SIGNAL FROM Nvidia to VGA

[14] EXT_TXLCLKOUT+	RP9	4P2R-S-0	TXLCLKOUT+
[14] EXT_TXLCLKOUT-			TXLCLKOUT-
[14] EXT_TXLOUT0-	RP5	4P2R-S-0	TXLOUT0-
[14] EXT_TXLOUT0+			TXLOUT0+
[14] EXT_TXLOUT1+	RP7	4P2R-S-0	TXLOUT1+
[14] EXT_TXLOUT1-			TXLOUT1-
[14] EXT_TXLOUT2+	RP11	4P2R-S-0	TXLOUT2+
[14] EXT_TXLOUT2-			TXLOUT2-
[14] EXT_TXUCLKOUT+	RP26	4P2R-S-0	TXUCLKOUT+
[14] EXT_TXUCLKOUT-			TXUCLKOUT-
[14] EXT_TXUOUT0+	RP13	4P2R-S-0	TXUOUT0+
[14] EXT_TXUOUT0-			TXUOUT0-
[14] EXT_TXUOUT1-	RP15	4P2R-S-0	TXUOUT1-
[14] EXT_TXUOUT1+			TXUOUT1+
[14] EXT_TXUOUT2+	RP20	4P2R-S-0	TXUOUT2+
[14] EXT_TXUOUT2-			TXUOUT2-

[2,4,6,9,10,11,12,14,15,20,21,22,23,24,26,27,28,30,31,32,33,34,38,41] +3V
[20,24,26,27,30,33,34,41] +5V
[35,36,37,38,39,40,41] +VIN
[21,27,31,32,35,36,39,41] +3VPCU
[36,41] +15VALW

+3V R1 2.2K_4 EDIDCLK
R2 2.2K_4 EDIDDATA

+3.6V_CAM C17 *4.7U/6.3V_6 C18 .01U/16V_4
DIGITAL_D1 DIGITAL_CLK C15 33P/50V_4 C14 33P/50V_4 EMI

MIC
[26] DIGITAL_D1
[26] DIGITAL_CLK
L3 SBK160808T-301Y-N
L4 SBK160808T-301Y-N
L5 +3.6V_CAM
[22] USBP9-
[22] USBP9+
*WCM2012-90
CAMERA
CN3
USB CAMERA CONN
87213-0600-6P-L

+3VLCD_CON
+3V
[6,14,15] EDIDCLK
[6,14,15] EDIDDATA
C4 1000P/50V_4

CN2
TXLOUT0-
TXLOUT0+
TXLOUT1-
TXLOUT1+
TXLOUT2-
TXLOUT2+
TXLCLKOUT-
TXLCLKOUT+
TXUOUT0-
TXUOUT0+
TXUOUT1-
TXUOUT1+
TXUOUT2-
TXUOUT2+
TXUCLKOUT-
TXUCLKOUT+
VADJ1
BLON_CON
FOX-GS12401-1011

DV3 change to Short Pad
[6,15] DPST_PWM DPST_PWM R4 *0_4/S short0402
[32] PWM_VADJ PWM_VADJ R3 *0_4 VADJ1
DV2 Modify
C5 *4.7U/6.3V_6 C7 .1U/10V_4

+VIN_BLIGHT
+VIN L2 FBM2125 HM330-T
C6 .1U/50V_6
C9 .01U/50V_4
C10 .1U/50V_6
C8 *10U/25V_12

USB CAMERA POWER
+3V +5V +3.6V_CAM
R9 *0_6 R12 *0_6
+5V U2 VIN VOUT SHDN GND SET
C19 1U/6.3V_4
R1 R10 215K/F/04
R2 R11 100K/F/04
IC(5P) G913C (SOT23-5)EP
C16 4.7U/6.3V_6

Vout=1.25(1+R1/R2)

+3VPCU R6 33K_6
[6,15] LVDS_BLON R7 1K/F_4 D3 RB501V-40 LID_EC# [31,32]
Close to EC
PN_BLON D2 RB501V-40 BLON_CON
[23] LCD_BK Q1 DTC144EUA
R5 100K/F_4
C13 22P/50V_4

+15VALW R328 330K_6
+5VSUS
Q10 AO3404
AO3404 ID current 5.8A
C608 .1U/10V_4
+3V
+3VLCD
+3VLCD_CON
L1 PBY201209T-4A/08
LCDONG
R330 100K/F_4
Q13 2N7002
C607 .022U/16V_4
R327 22_8
LCDDISCHG
C2 .01U/16V_4 C3 .1U/10V_4 C1 10U/6.3V_8
Q12 DTC144EUA
[6,15] DISP_ON
LCDON#
Q11 2N7002

DISP_ON R329 100K/F_4
LVDS_BLON R8 100K/F_4

NB5

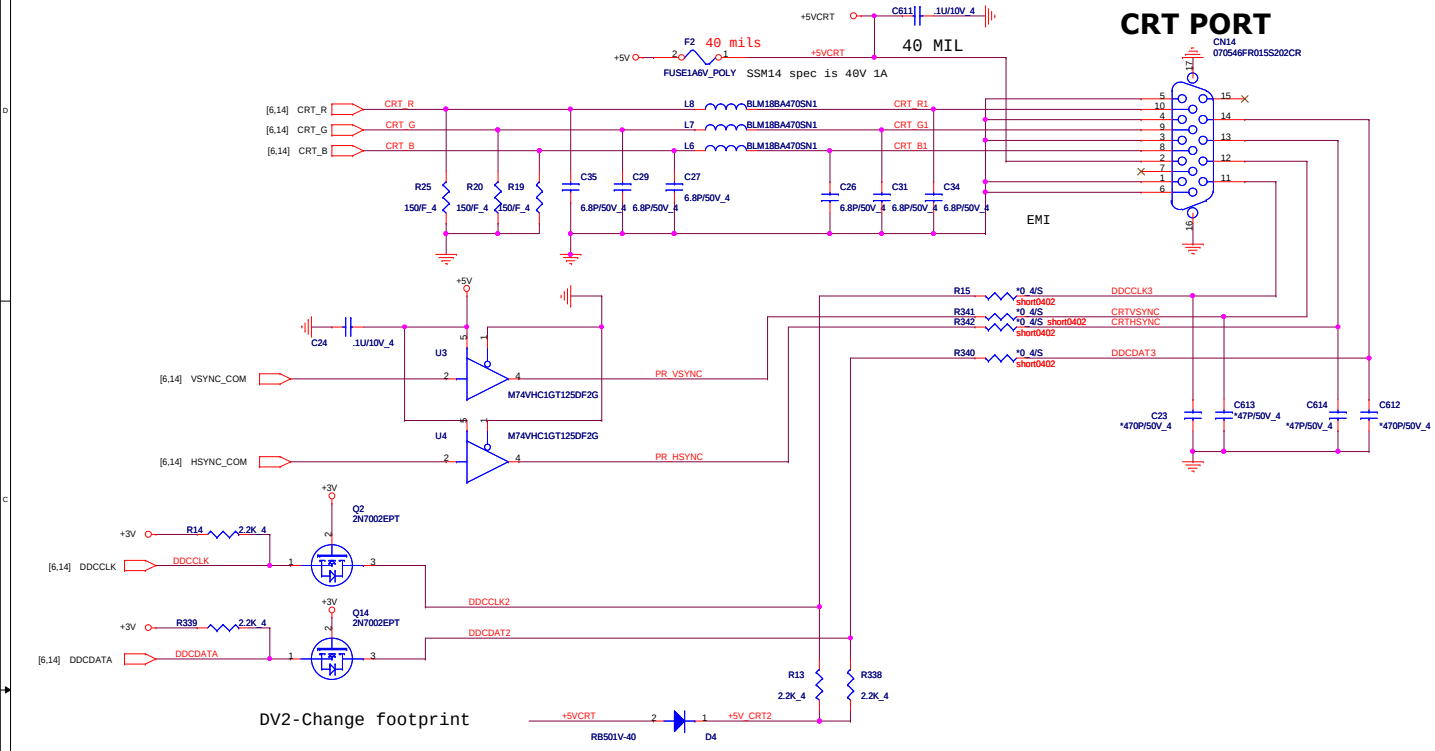
PROJECT : QL5
Quanta Computer Inc.

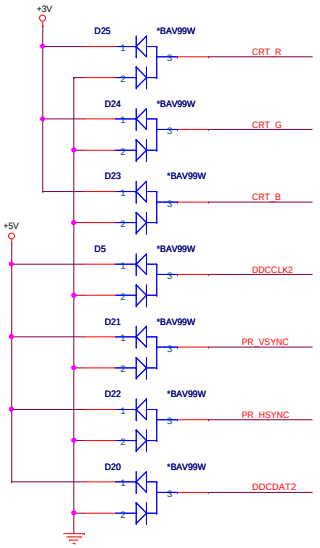
Size	Document Number	Rev
B	LCD CONN/Lid function	1A

Date: Tuesday, March 17, 2009 Sheet 19 of 41

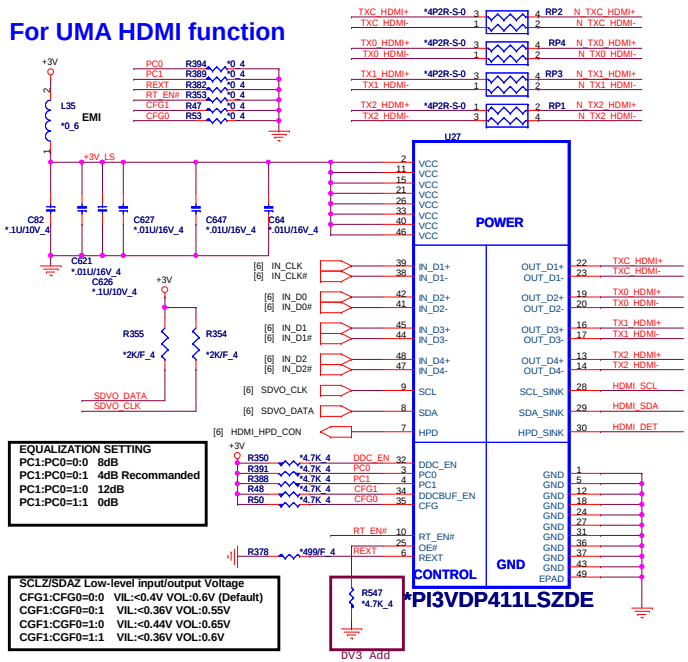
[2,4,6,9,10,11,12,14,15,19,21,22,23,24,26,27,28,30,31,32,33,34,38,41] +3V
[19,24,26,27,30,33,34,41] +5V

CRT PORT



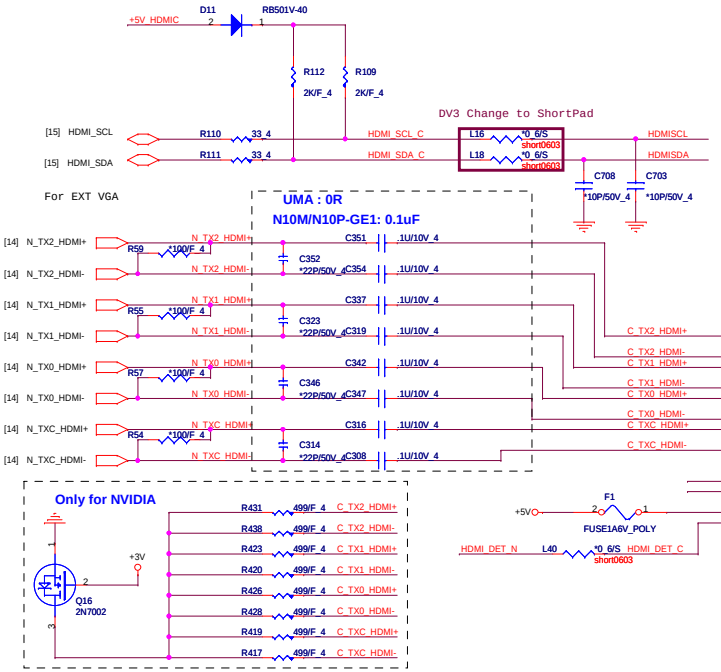


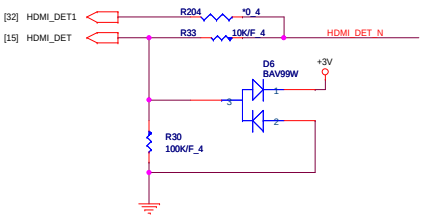
For UMA HDMI function



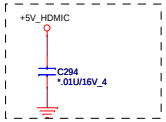
EQUALIZATION SETTING
PC1:PC0=0:0 8dB
PC1:PC0=0:1 4dB Recommanded
PC1:PC0=1:0 12dB
PC1:PC0=1:1 0dB

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





HDMI PORT



NB5	PROJECT : QL5 Quanta Computer Inc.		
	Size C	Document Number CRT/PS8101 HDMI Conn	Rev 1A
	Date: Tuesday, March 17, 2009	Sheet 20 of 41	

[19,27,31,32,35,36,39,41] +3VPCU
[24] +3VRTC
[2,4,6,9,10,11,12,14,15,19,20,22,23,24,26,27,28,30,31,32,33,34,38,41] +3V
[4,9,22,24,26,27,30,33,37,41] +1.5V
[2,3,4,5,6,8,9,24,31,37,38] +1.05V
[22,23,24,30,41] +3VS5

U38A

ICH9M REV 1.0

Notice: GPIO33 is also a strap pin. Don't pull it to high.

20MIL

For CR2032(Large)

DV2 change to DFHS02FS609

SI build

HP Request

SATA HDD1

SATA ODD

E-SATA CONNECT

ALC272

MDC

North Bridge

Nvidia

Close to U45

SB Strap

ICH9-M Internal VR Enable strap (Internal VR for Vccsus1_05,VccSus1_5 and VccCL1_5)

INTVRMEN	Low = Internal VR disable High = Internal VR enable(Default)

ICH9-M LAN100_SLP Strap (Internal VR for VccLAN1_05 and VccCL1.05)

LAN100_SLP	Low = Internal VR disable High = Internal VR enable(Default)

XOR Chain Entrance Strap

ICH_TP3	HDA_SDOUT	Description
0	0	RSVD
0	1	Enter XOR Chain
1	0	Normal opration(Default)
1	1	Set PCIE port config bit 1

ICH9 Boot BIOS select

STRAP	PCI_GNT0#	SPI_CS#1
SPI	0	1
PCI	1	0
LPC	1	1

(default)

No Reboot Strap	
ACZ_SPKR	Low: Default Hi: No reboot

A16 swap override strap	
PCI_GNT#3	Low = A16 swap override enabled Hi = Default

TPM physical presence	
ICH_GPIO57	Low: Default

Size: Custom	Document Number: ICH9-M Host 1/4		Rev: 1A
Date: Tuesday, March 17, 2009	Sheet 21 of 41		

PROJECT : QL5
Quanta Computer Inc.

NB5

[4,9,21,24,26,27,30,33,37,41] +1.5V
[2,4,6,9,10,11,12,14,15,19,20,21,23,24,26,27,28,30,31,32,33,34,38,41] +3V
[23,25,26,33,37,39,41] +3VSUS

MINI CARD PCI-E(WLAN)

EXPRESS CARD (NEW CARD)

MINI CARD PCI-E(WWAN)

PCIE-LAN

U38D

PCI-Express / Direct Media Interface

SPI

USB

ICH9M REV 1.0

E-SATA and USB Connector
USB Connector
USB Connector

Card reader
NEW CARD
BLUETOOTH
Carama USB
WLAN Min-Card
WWAN Min-Card

DV2-FOR ITPM

512K byte SPI ROM
For HDCP only

For GM HDCP

EMI

U38B

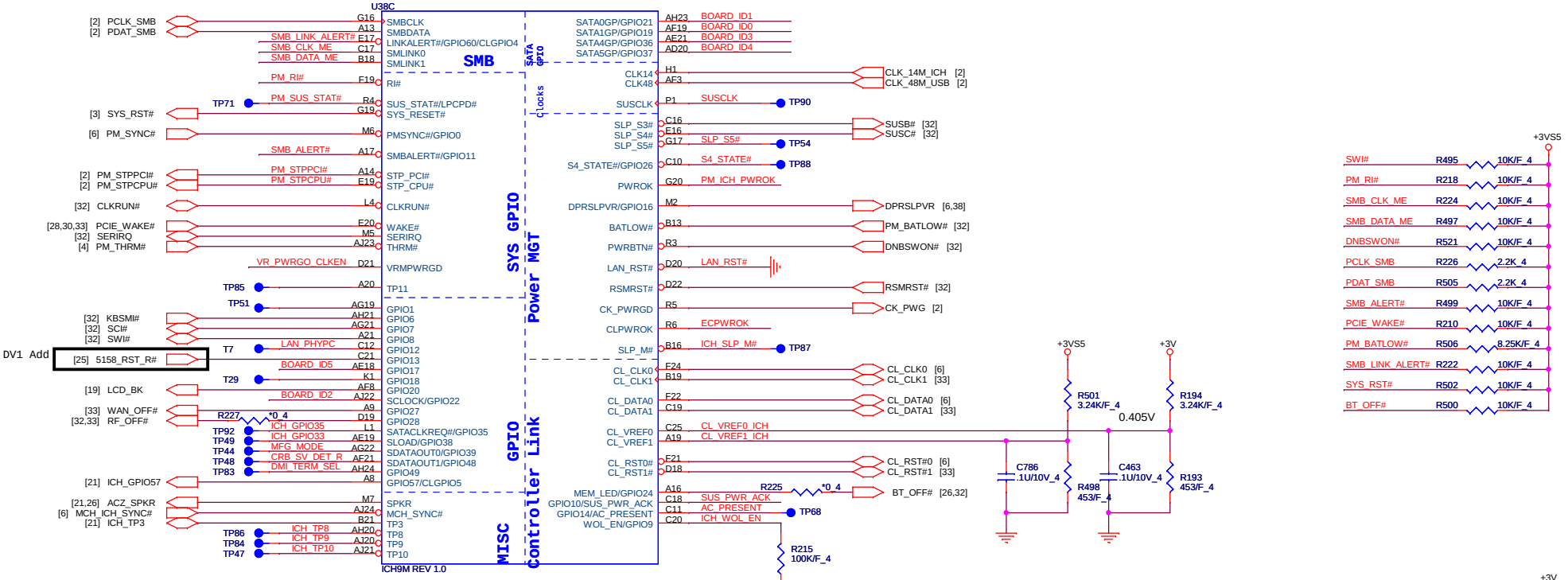
PCI

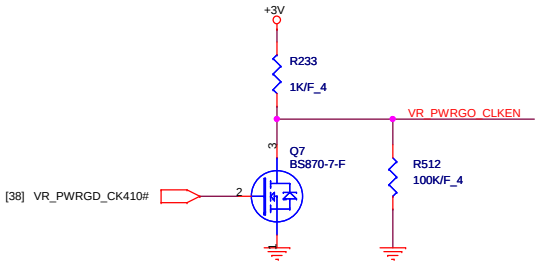
Interrupt I/F

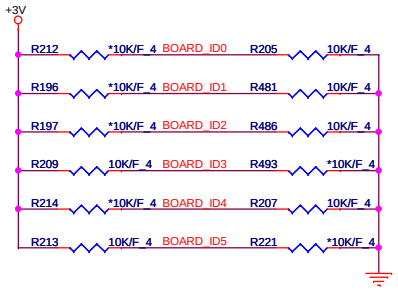
ICH9M REV 1.0

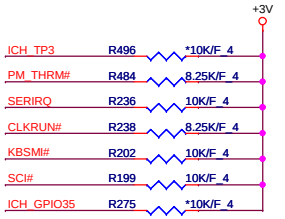
U39 *MC74VHC1G08DFT2G

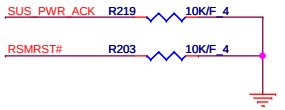
[4,9,21,22,24,26,27,30,33,37,41] +1.5V
[2,4,6,9,10,11,12,14,15,19,20,21,22,24,26,27,28,30,31,32,33,34,38,41] +3V
[21,22,24,30,41] +3VS5
[25,26,33,37,39,41] +3VSUS

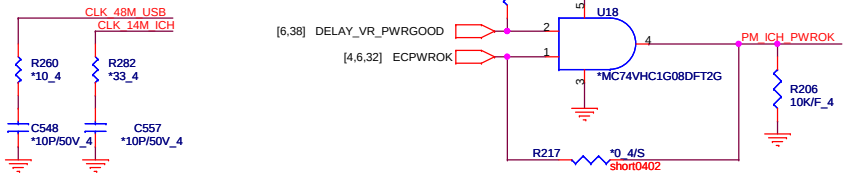












System Board ID

PV change system board ID set

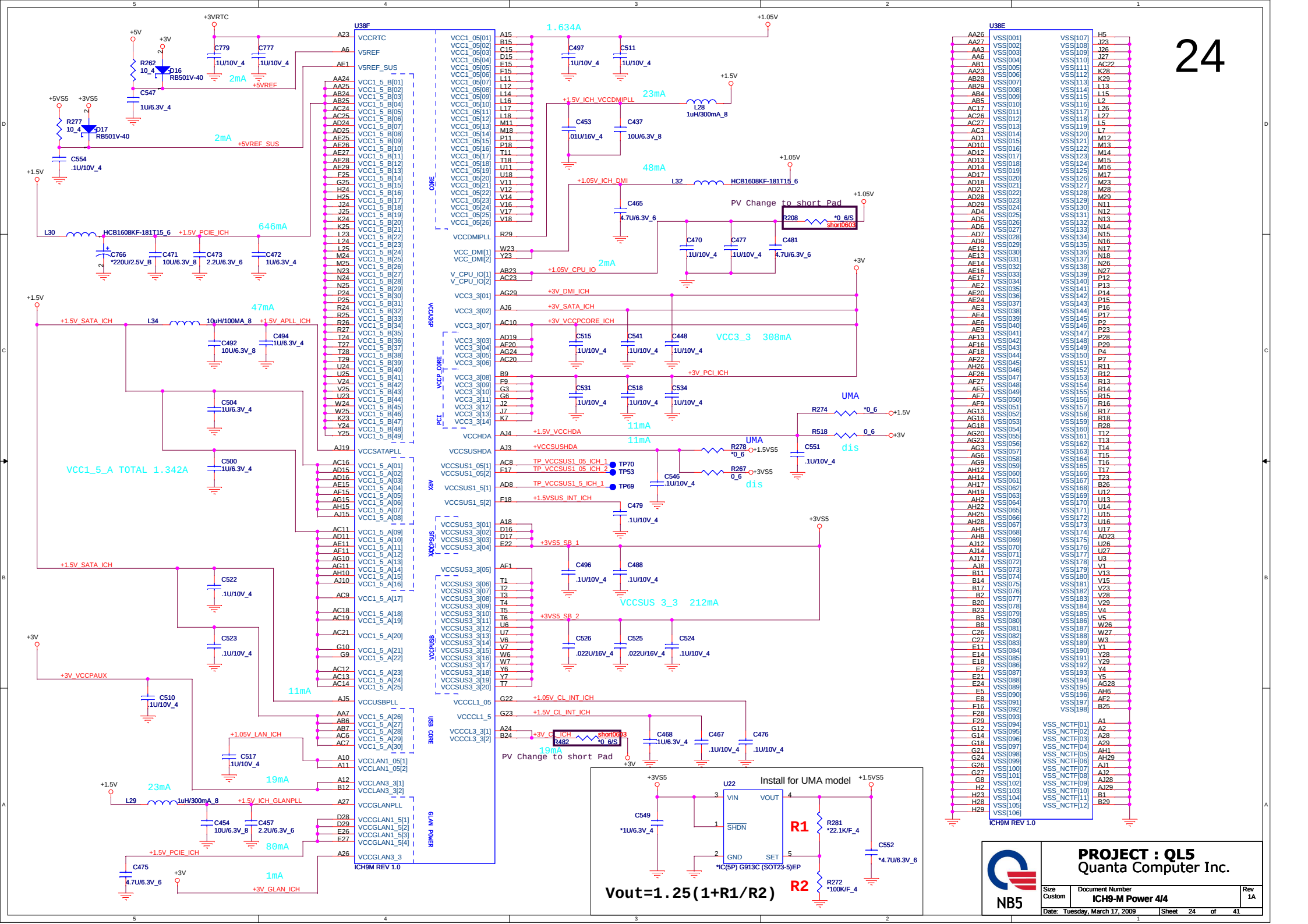
		ID 5	ID 4	ID 3	ID 2	ID 1	ID 0
QL5	GL40	1	0	1	0	0	0
QL5	GM45	1	0	1	0	0	0
QL5	N10M	1	0	1	1	0	0
QL5	N10P	1	0	1	0	0	0

NB5

PROJECT : QL5
Quanta Computer Inc.

Size	Document Number	Rev
Custom	ICH9-M GPIO 3/4	1A

Date: Tuesday, March 17, 2009 Sheet 23 of 41


U38F
ICH9M REV 1.0
U38E
ICH9M REV 1.0
VCC1_5_A TOTAL 1.342A
VCCSUS 3_3 212mA
VCC3_3 308mA
1.634A
23mA
48mA
2mA
646mA
47mA
11mA
19mA
80mA
1mA
PV Change to short Pad
Install for UMA model
Vout=1.25(1+R1/R2)
*IC(5P) G913C (SOT23-5)EP
UMA
dis
NB5
PROJECT : QL5
Quanta Computer Inc.
ICH9-M Power 4/4
Size Custom
Rev 1A
Date: Tuesday, March 17, 2009
Sheet 24 of 41

Note:

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

For RTS5159

U36

Realtek RTS5159

XD-D4 R459 *0_4/S short0402 SD_DAT1

For 5158E/5159

EMI request PV Add C837

R474 NBQ1005050T-121Y SP11_1

C837 33P/25V_4

AL005158B10 -->RTS5158E

AL005158B00 -->RTS5158

For 5159

PV Del Y5,C761,C762,R454

Del C763 in DV2

DV2 Change R456 to short_pad

RTS5158E 時, R456=NC

RTS5159時, R456 = short

PV change to 0.1uF

DV2 Add for ESD issue

5 IN1 CARD READER

XD,MMC/SD,MS/MSP

DV2 add 2'nd source

CN23

5IN1 CARD READER SOCKET

CN24

*TAI TWUM 5IN1 CARD READER SOCKET

PV change footprint

PV bom remove C771

CLOSE CONN

VGA

CPU

MDC

MINI CARD

PAD4 FAN Contact

PAD3 FAN contact

PV EMI request

PAD2 MDC_SPRING

PAD1 MDC_SPRING

PROJECT : QL5
Quanta Computer Inc.

Size	Document Number	Rev
Custom	RTS5159 & CR SOCKET &HOLE	1A

Date: Tuesday, March 17, 2009 Sheet 25 of 41

UMA
+1.5V
+3V_DVDD
R299 *0_4
R302 0_4
Dis
+3V_1.5V_DVIO
C585 10U/6.3V_8

+3V
+3V_DVDD
Close to Pin9
C575 1U/6.3V_4
C567 .1U/10V_4
C577 10U/6.3V_8

DV2 Change R308 to short_pad
[19] DIGITAL_CLK
[27] EAPD#
[19] DIGITAL_D1
R308 *0_4/S short0402

AGND AGND
R537 20K/F_4
Close to Pin38
+4.75VAVDD
C595 10U/6.3V_8
C605 .1U/10V_4
AGND

+4.75VAVDD
C827 4.7U/6.3V_6
C826 .1U/10V_4
C828 10U/6.3V_8
C834 1U/6.3V_4
AGND AGND AGND
L43 1 2 *0_8
+5V
U40
Vout Vin
BYP
GND EN
TPS793475
C817 .1U/10V_4
C818 .047U/25V_4
C819 1U/6.3V_4
C820 .1U/10V_4
C822 10U/6.3V_8
R543 10K_4
Vset=1.242V

PORT	PLACE TO
MONO_OUT	X
PORT A	HP OUT
PORT B	M/B MIC
PORT C	X
PORT D	Internal Speckers
PORT E	X
PORT F	X
DM	DIGITAL MIC

U23
ALC272
SPDIFO1 EAPD DMIC-CLK SPDIFO2 DMIC-CLK3/4 NC AVSS2 SURR-R JDREF SURR-L AVDD2 MONO
48 47 46 45 44 43 42 41 40 39 38 37
1 DVDD
2 GPIO0-DMIC-12
3 GPIO3/DMIC-34
4 DVSS
5 SDATA-OUT
6 BIT-CLK
7 DVSS-I/O
8 SDATA-IN
9 DVDD-I/O
10 SYNC
11 RESET#
12 PCBEEP
36 FRONT-R
35 FRONT-L
34 Sense B
33 HPOUT-L
32 HPOUT-R
31 CPVEE
30 CBN
29 CBP
28 MIC1-VREFO-L
27 VREF
26 AVSS1
25 AVDD1
Sense A LINE2-L LINE2-R MIC2-L MIC2-R LINE1-VREFO MIC2-VREFO LINE2-VREFO MIC1-L MIC1-R LINE1-L LINE1-R
13 14 15 16 17 18 19 20 21 22 23 24

+3V_DVDD
Close to Pin1
C562 .1U/10V_4
[21] ACZ_SDOUT_AUDIO
[21] BIT_CLK_AUDIO
[21] ACZ_SDIN0
R288 22_4 ACZ_SDIN0_ADC
[21] ACZ_SYNC_AUDIO
[21] ACZ_RST#_AUDIO

PV change C829,C830, 1uF to 0.47uF
C830 .47U/10V_6
C829 .47U/10V_6
HP-R
HP-L
HP_R_C [27]
HP_L_C [27]
TO Internal Speakers
SENSE_B R540 5.1K/F_4 SB_A#
EARPO_L R326 64.9/F_4 EARP_L
EARPO_R R324 64.9/F_4 EARP_R
AGND SHIELD
C832 2.2U/6.3V_6
PV change to 64.9 Ohm
C831 2.2U/6.3V_6
VREFOUT_B_L
VREF_FLT
PV-DEL R580,R579
+4.75VAVDD
C604 10U/6.3V_8
C594 .1U/10V_4
C823 1U/10V_4
C816 10U/6.3V_8
C833 1U/6.3V_4

PV Add U41,C836
C836 .1U/10V_4
DV2 Add R546 to support EC BEEP
[21,23] ACZ_SPKR
[32] PC_BEEP_EC
U41 NC7SZ86
R287 10K_4
R546 150K/F_4
R290 10K/F_4
C569 .1U/10V_4
C578 .1U/10V_4
+3V_1.5V_DVIO
C584 .1U/10V_4
Close to Pin9
SA_B# R307 20K/F_4 SENSE_A

D19 RB501V-40 R325 2.2K_4
D18 RB501V-40 R322 2.2K_4
VREFOUT_B_L
MIC1_R1
MIC1_L1
C596 2.2U/6.3V_6
R321 1K/F_4
R314 1K/F_4
EXT_MIC_R
EXT_MIC_L
C590 2.2U/6.3V_6
TO Audio Jack MIC

BIT_CLK_AUDIO
ACZ_SDIN0_ADC
C574 *27P/50V_4
C573 *27P/50V_4
FOR EMI

R319 *0_6/S short0603
R530 *0_6/S short0603
R534 *0_6/S short0603
R318 *0_6/S short0603
R320 *0_6/S short0603
R541 *0_6/S short0603
R311 *0_6/S short0603
C821 *0_4/S short0402
AGND
C821 to ShortPad

TO AUDIO/B CON.

+3V +3V
R268 *4.7K_4
R516 *4.7K_4
HW_RADIO_DIS#
[23,32] BT_OFF#
Q17 *DTC144EUA
Q8 *DTC144EUA

C813 .1U/10V_4
+5VSUS
DV2_1/15
BT_OFF# R517 *0_4/S short0402 HW_RADIO_DIS#
[22] USBP1+
[22] USBP1-
[22] USBP2+
[22] USBP2-
B/T
[22] USBP8+
[22] USBP8-
+3VSUS
[27,33] BLUELED
EXT_MIC_L
EXT_MIC_R
EARP_L
EARP_R
SB_A#
SA_B#
C597 *27P/50V_4
C598 *27P/50V_4
C600 *180P/50V_4
C599 *180P/50V_4
AGND AGND AGND AGND AGND
CN10
AUDIO CONN

Audio
CN29
+5VSUS
HW_RADIO_DIS#
USBP1+
USBP1-
USBP2+
USBP2-
USBP8+
USBP8-
+3VSUS
BLUELED
EXT_MIC_L
EXT_MIC_R
EARP_L
EARP_R
SB_A#
SA_B#
AGND
AUDIO CONN

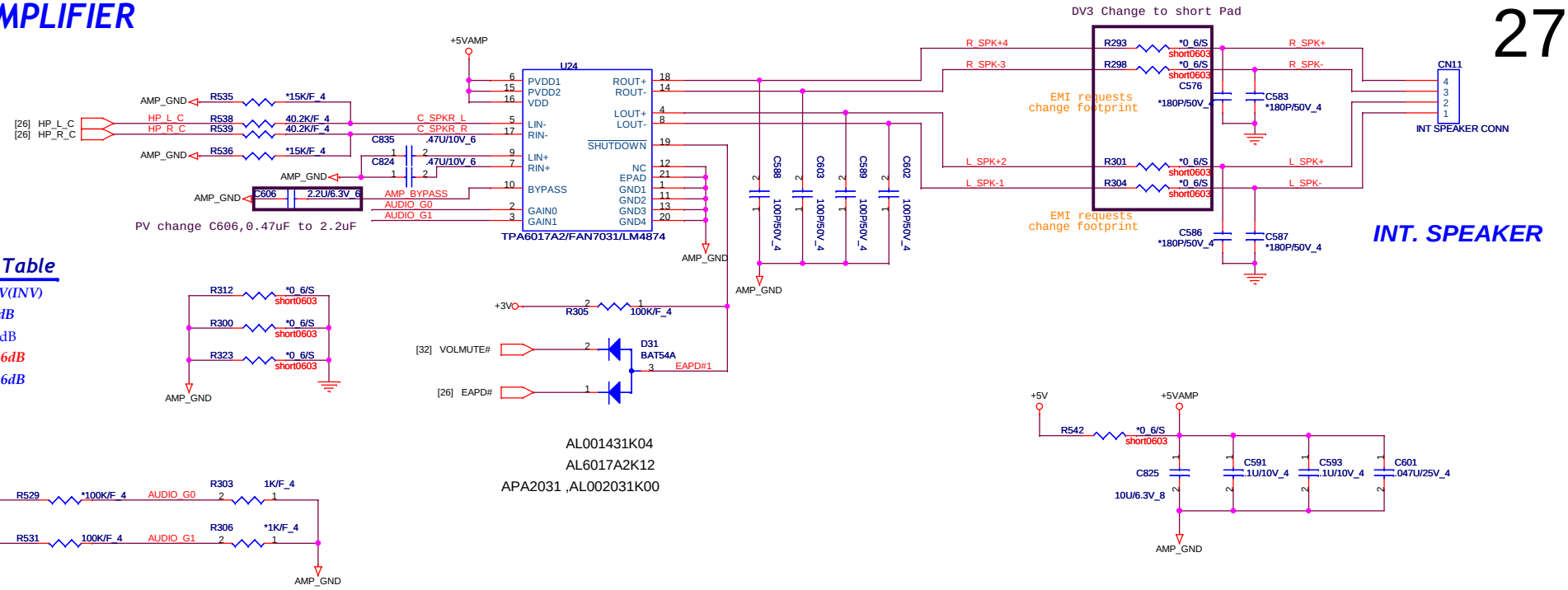
SB_A# -->EXT HP
SA_B# -->EXT MIC
Audio JACK: Normal Open

+3VSUS
C811 .1U/10V_4
C812 10U/6.3V_8

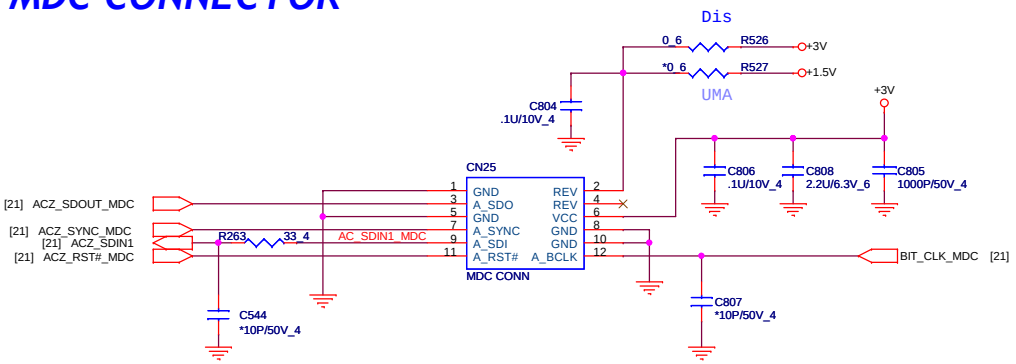
BLUETOOTH
PV change audio connector footprint CN10,CN29 to co-layout

NB5
PROJECT : QL5
Quanta Computer Inc.
Size Custom
Document Number Azalia ALC272
Rev 1A
Date: Tuesday, March 17, 2009
Sheet 26 of 41

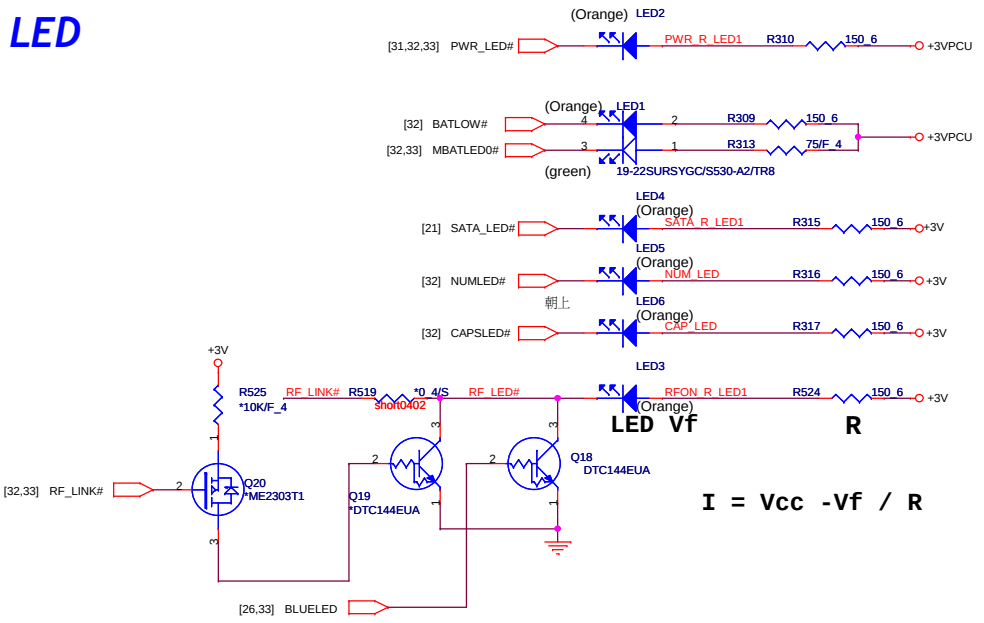
AUDIO AMPLIFIER



MDC CONNECTOR



LED



NB5

PROJECT : QL5
Quanta Computer Inc.

Size	Document Number	Rev
Custom	AMP_TPA6017/Accelerometer	1A

Date: Tuesday, March 17, 2009 | Sheet 27 of 41

T : Stuffed for RTL8111DL(10/100/1000)

E : Stuffed for 8103EL(10/100)

for RTL8111DL use

close Pin 44,45

C755 10U/6.3V_8
C754 10U/6.3V_8
C757 0.1U/10V_4
+CTRL12DVDD
+CTRL12DVDD

for RTL8111DL use

R449 0_6 +3V_LAN

R442 *0_6 +DVDD12_LAN

for RTL8103E use

Remove R3571,R3573

R3571 and R3573 are used in RTL8111DL , remove R3573 if switching regulator is enable , Remove R3571 external power is used.

Y1 25MHZ
C392 33P/50V_4
C384 33P/50V_4
DV2 change C384,C392 22p to 33p
R141 2.49K/F_4 LANRSET
XTAL1
XTAL2
+3V_LAN
+DVDD12_LAN
ENSWREG
LAN_TX#
[29] +CTRL12A
+CTRL12A
+3V_LAN

U14 RTL8103EL/8111DL

AVDD33 MDIP0 MDIN0 NC/FB12 MDIP1 MDIN1 GND1 NC/MDIP2 NC/MDIN2 DVDD12/AVDD12 NC/MDIP3 NC/MDIN3
VCTRL12A/SROUT12 GND4 RSET VCTRL2VDDDSR NC/VDD33 NC/ENSWREG CKTAL2 CKTAL1 NC/AVDD33 NC/LED1/EU LED0 VDD33B
DVDD12B LED1/EESK LED2/EEDI LED3/EEDO EECS GND3 DVDD12A VDD33A ISOLATEB PERSTB LANWAKEB CLKREQB
DVDD12 GND2 HSIP HSIN REFCLK_P REFCLK_N EVDD12 HSOP HSON NC/GPO NC/NC

+3V_LAN
+DVDD12_LAN
+DVDD12_LAN
MDI0+ MDI0- MDI1+ MDI1- MDI2+ MDI2- +DVDD12_LAN MDI3+ MDI3-

LAN_GLINK100# LAN_GLINK10# EECS ISOLATEB LAN_REST_R# PCIE_WAKE#
R149 3.6K_6
R147 *0_4
R148 *0_4/S short0402
LAN_REST# [32]
PLTRST# [22,30,32,33]
PCIE_WAKE# [23,30,33]

R148 DV3 Change to short -pad

for RTL8103E use

R150 *1K/F_4

+3V
if ISOLATEB pin pull-low,the LAN chip will not drive it's PCI-E outputs (excluding PCIE_WAKE# pin)
R156 *1K/F_4
ISOLATEB
R157 100_4
LAN_DISABLE# [21,32]
R155 15K/F_4
*RB501V-40
D12

+DVDD12_LAN
LAN CABLE DETECT [32]

[22] PCIE_TXP6_LAN
[22] PCIE_TXN6_LAN
[2] CLK_PCIE_LAN
[2] CLK_PCIE_LAN#
PCIE_TXP6_LAN
PCIE_TXN6_LAN
CLK_PCIE_LAN
CLK_PCIE_LAN#

PCIE_RXN6_LAN_L C396 0.1U/10V_4 PCIE_RXN6_LAN [22]
PCIE_RXP6_LAN_L C391 0.1U/10V_4 PCIE_RXP6_LAN [22]
EVDD12

AL08111DB00 RTL8111DL-GR

AL08103EB00 RTL8103EL-GR

LAN_GLINK100# LAN_TX# R70 *0_4/S short0402 LAN_GLED# LAN_YLED#
C144 *.01U/16V_4
C122 *.01U/16V_4

Link

U26 NS892405

C42 .01U/16V_4 V_DAC0
C55 .01U/16V_4 V_DAC1
C63 .01U/16V_4 V_DAC2
C75 .01U/16V_4 V_DAC3

TCT1 TD1+ TD1- TCT2 TD2+ TD2- TCT3 TD3+ TD3- TCT4 TD4+ TD4-
MCT1 MX1+ MX1- MCT2 MX2+ MX2- MCT3 MX3+ MX3- MCT4 MX4+ MX4-

MDI0+ MDI0- MDI1+ MDI1- MDI2+ MDI2- MDI3+ MDI3-

LAN_MCT0 LAN_MX0+ LAN_MX0- LAN_MCT1 LAN_MX1+ LAN_MX1- LAN_MCT2 LAN_MX2+ LAN_MX2- LAN_MCT3 LAN_MX3+ LAN_MX3-

C73 0.01U/100V_0603
C81 0.01U/100V_0603
C91 0.01U/100V_0603
C98 0.01U/100V_0603

R42 75/F_4
R45 75/F_4
R51 75/F_4
R56 75/F_4

C43 1000P/3KV_1808

NS892402:GIGABIT DB0AT9LAN05

NS892405:10/100 DB0ZB1LAN04

RJ45

+3V_LAN R64 330/F_4
C105,C135 FOR EMI CLOSE TO RJ45
C105 .1U/10V_4
+3V_LAN R73 330/F_4
C135 .1U/10V_4

CN18 C100F9-110A4-L

LAN_YLED LAN_YLED# LAN_MX0+ LAN_MX0- LAN_MX1+ LAN_MX2+ LAN_MX2- LAN_MX1- LAN_MX3+ LAN_MX3- LAN_GLED LAN_GLED#
LED_YEL_P LED_YEL_N MX0+ MX0- MX1+ MX2+ MX2- MX1- MX3+ MX3- LED_GRE_P LED_GRE_N TIP RING GND

CN19 RJ-11 CON
TIP RING
C242 470P/3KV-1808
C233 470P/3KV-1808

CHASSIS2_GND
C255 .01U/16V_4
C256 .01U/16V_4
CHASSIS1_GND
C50 *.01U/16V_4
C49 *.01U/16V_4

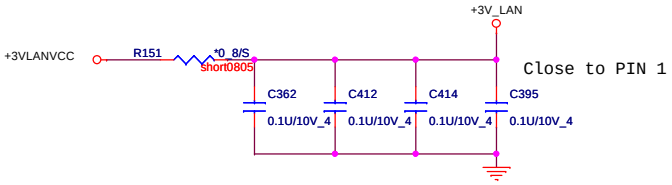
NB5

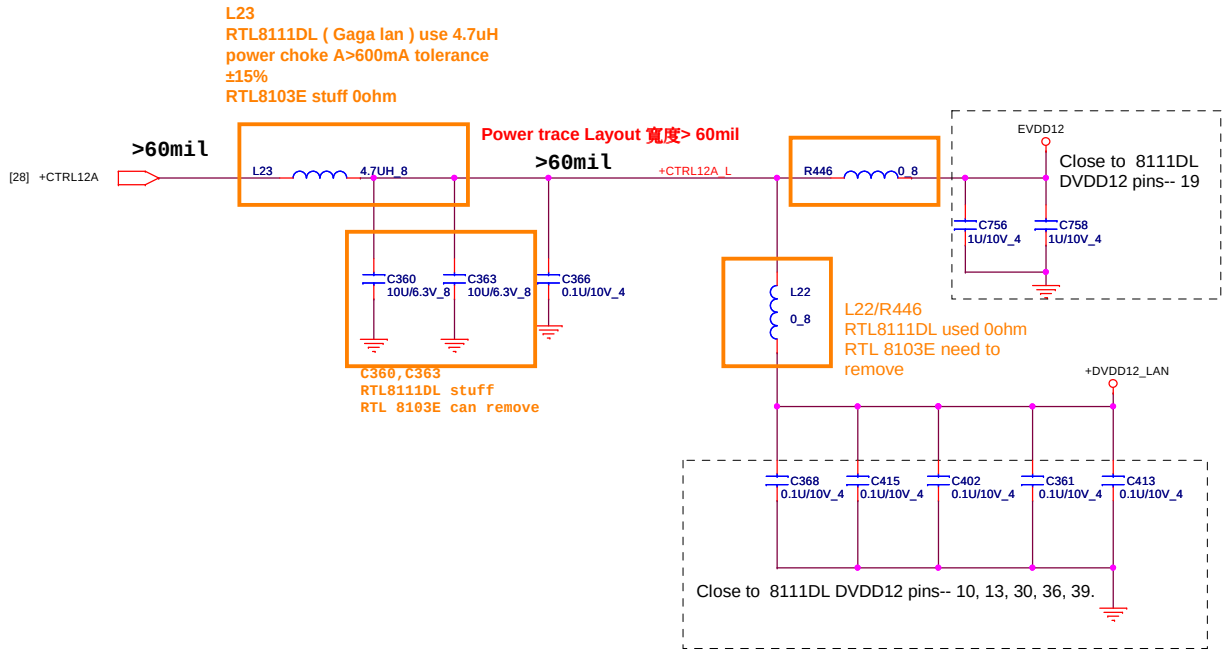
PROJECT : QL5
Quanta Computer Inc.

Size	Document Number	Rev
Custom	RTL8111DL/8103EL/RJ45	1A
Date: Tuesday, March 17, 2009	Sheet 28 of 41	

T : Stuffed for RTL8111C(10/100/1000)

E : Stuffed for 8102E(10/100)





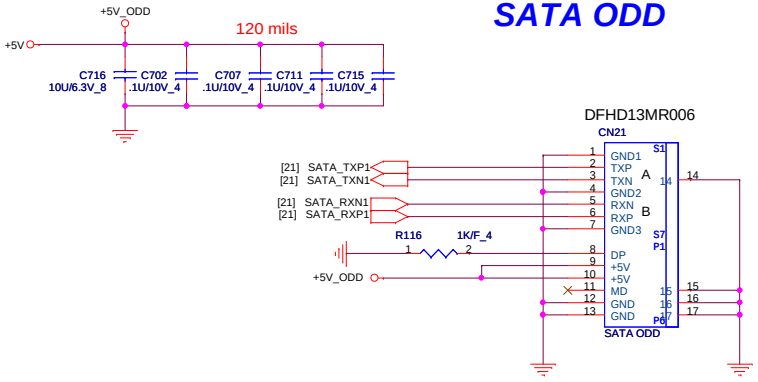
NB5

PROJECT : QL5
Quanta Computer Inc.

Size	Document Number	Rev
A3	LAN Power	1A

Date: Tuesday, March 17, 2009 Sheet 29 of 41

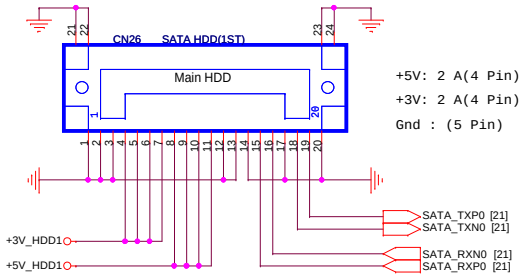
SATA ODD

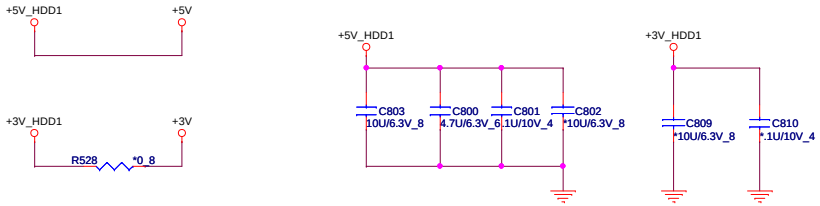


sata-48325-1103-13p-r-h-ql6

SATA_1 CONNECTOR

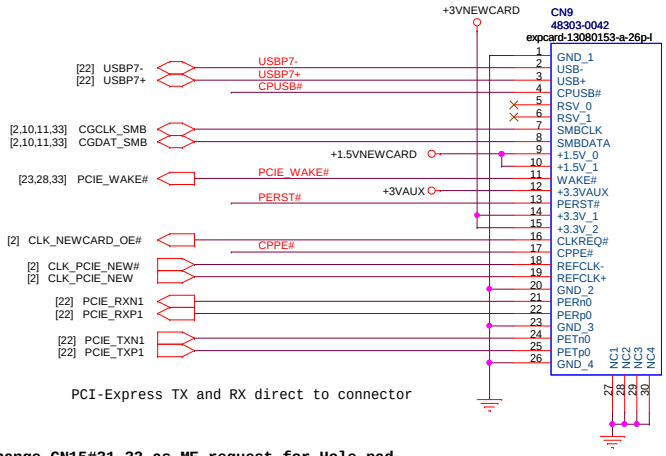
DC Current rating: 0.5 A





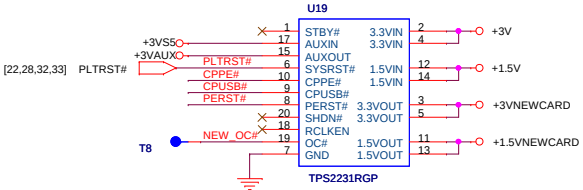
NEWCARD

NEWCARD (PCIEXPRESS*1 + USB*1)

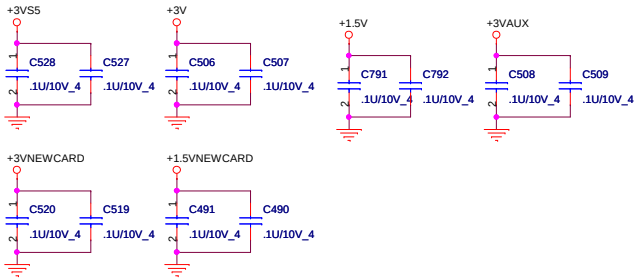


PCI-Express TX and RX direct to connector

Change CN15#31,32 as ME request for Hole pad
expcard-48303-0042-26p-l-qt6 as ME modify Pad size(pin31,32)
Move CN15#29,30 Pin as ME request(Molex confirm drawing)



Change net name from 3V_NEWAUX to 3VAUX

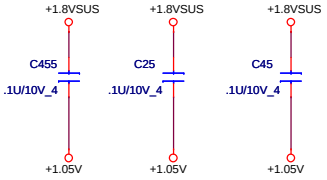


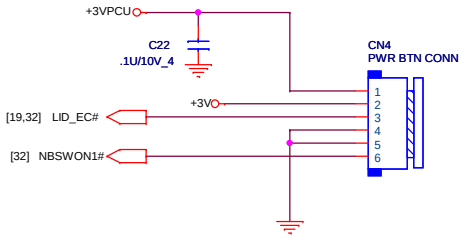
NB5

PROJECT : QL5
Quanta Computer Inc.

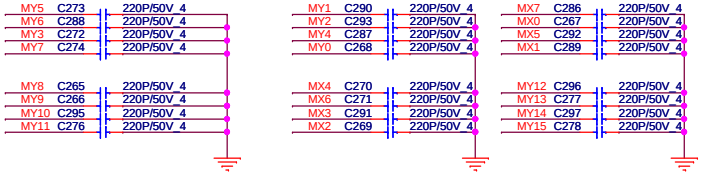
Size	Document Number	Rev
Custom	ODD/HDD/NEW CARD	1A

Date: Tuesday, March 17, 2009 Sheet 30 of 41

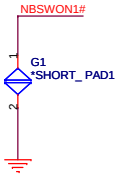




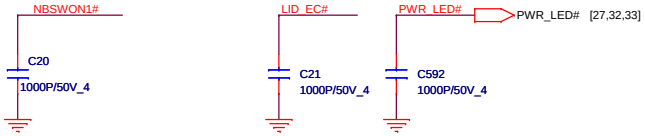
1. +3VPCU(LIDSWITCH PWR)
2. +3V
3. LIDSWITCH
4. GND
5. GND
6.POWERON#
7. NC
8. NC



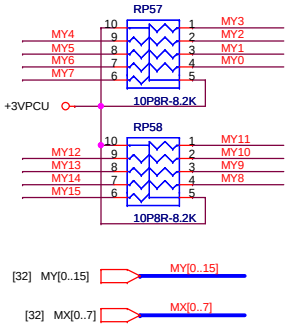
Close to U21 For EMI

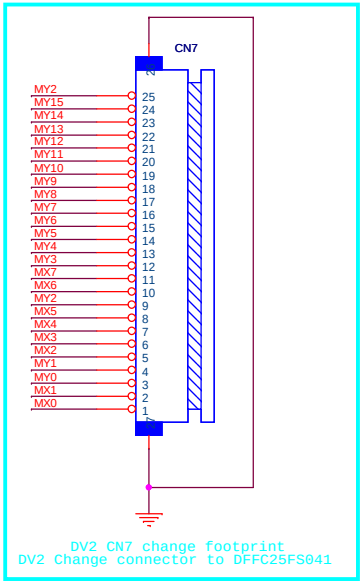


POWER BOTTON CONNECT

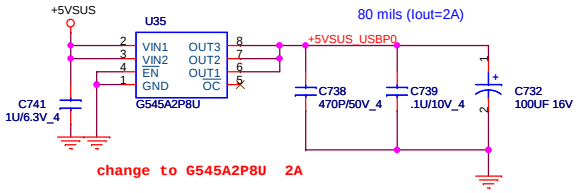


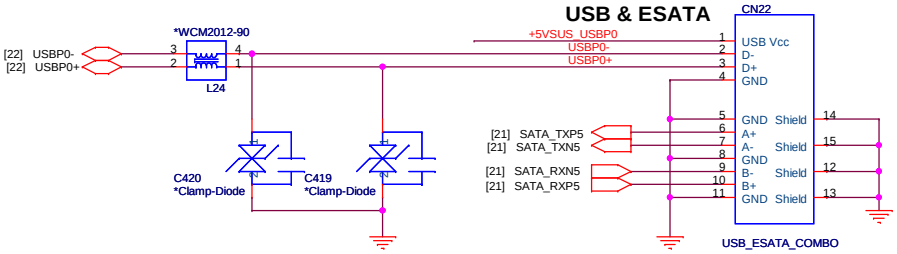
KEYBOARD PULL-UP

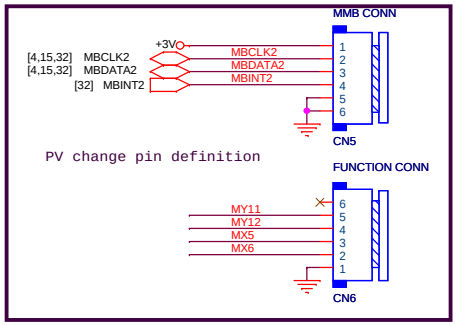




E-SATA/USB COMBO





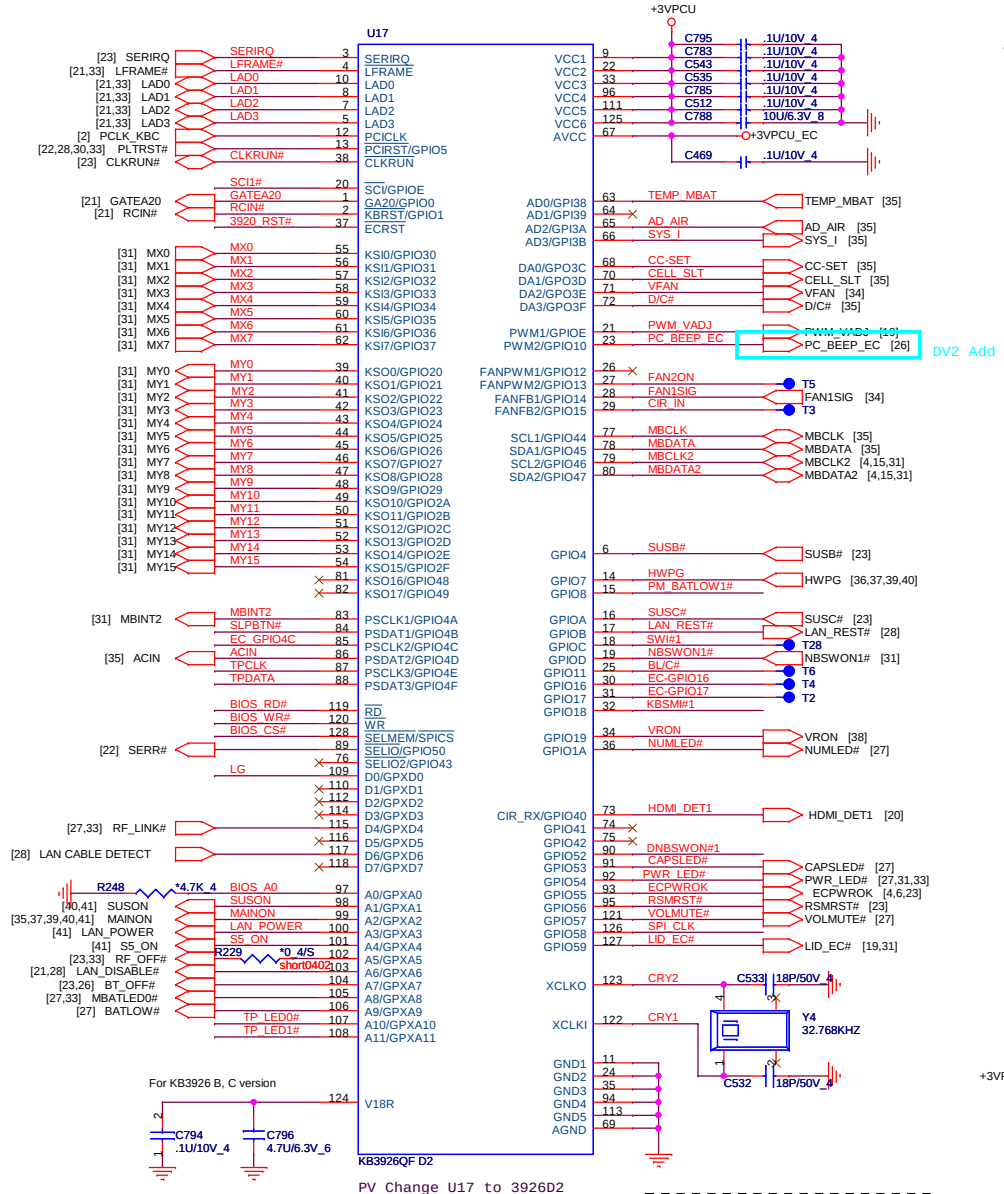


NB5

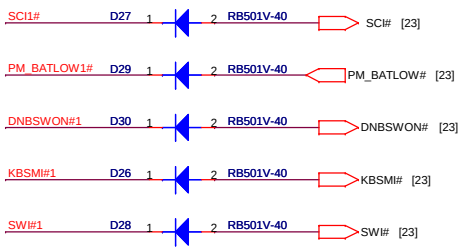
PROJECT : QL5
Quanta Computer Inc.

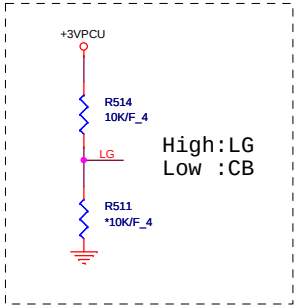
Size	Document Number	Rev
Custom	KB/CAP/POWER CONN	1A

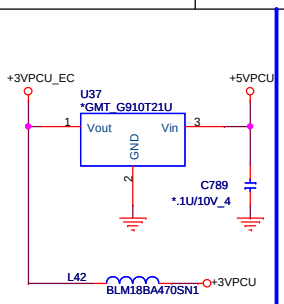
Date: Tuesday, March 17, 2009 | Sheet 31 of 41



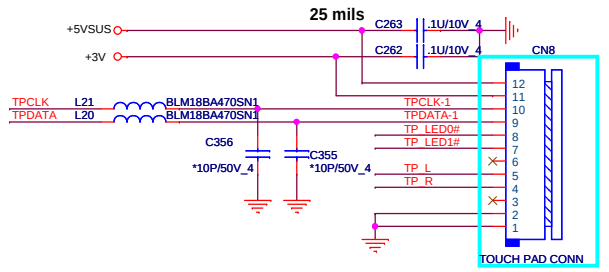
PV Change U17 to 3926D2





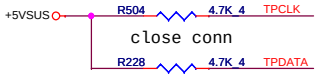


TOUCH PAD CONNECTOR



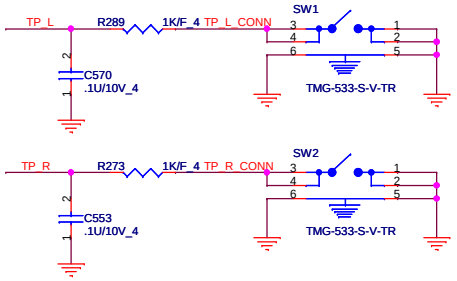
DFFC12FR293

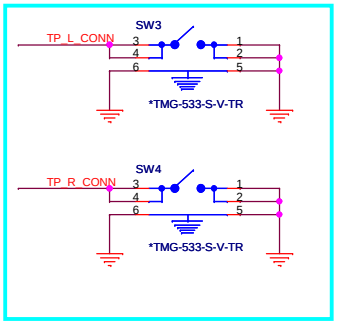
DV2 modify footprint to BL121-12R-12P-L-QT6



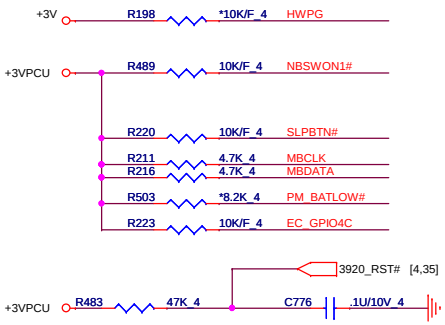
TOUCH PAD L/R

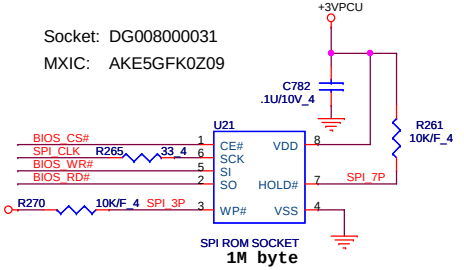
SW1,SW2 in QL5 use, SW3,SW4 in TW9 use





DV2 Add support TW9 Touch-pad SW





NB5	**PROJECT : QL5** Quanta Computer Inc.	
Size: Custom	Document Number: KB3926/ROM/TP	Rev: 1A
Date: Tuesday, March 17, 2009	Sheet 32 of 41	

Mini PCI-E Card 1
WLAN

PCLK_DEBUG R532 *0_4 C814 *33P/50V_4

for EMI request

only reseved QT6 not support IAMT

[23] CL_RST#1 R295 *0_4 CL_RST#1_R
[23] CL_DATA1 R296 *0_4 CL_DATA1_R
[23] CL_CLK1 R297 *0_4 CL_CLK1_R

[22] PCIE_TXP0 PCIE_TXP0
[22] PCIE_TXN0 PCIE_TXN0

[22] PCIE_RXP0 PCIE_RXP0
[22] PCIE_RXN0 PCIE_RXN0

[2] PCLK_DEBUG

PLTRST#

[2] CLK_PCIE_WLAN CLK_PCIE_WLAN
[2] CLK_PCIE_WLAN# CLK_PCIE_WLAN#

T34 CLK_MINI_OE#
[21] BT_COMBO_EN# WLAN_ACTIVE_R
T35 MINICAR_PME#

BT_DATA,BT_CHCLK,CLKREQ# internal pull-DOWN 100k ohm

CN27

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

MLX_67910-5700

MINI_BLED R283 *0_4 → BLUELED [26,27]
RF_LINK# → RF_LINK# [27,32]

R284 10K/F_4 → +3V

USBP10+ [22]
USBP10- [22]

CGDAT_SMB [2,10,11,30]
CGCLK_SMB [2,10,11,30]

PLTRST# [22,28,30,32]
MINIRF_OFF# → RF_OFF# [23,32]

R286 10K/F_4 → +3V

LAD0 [21,32]
LAD1 [21,32]
LAD2 [21,32]
LAD3 [21,32]
LFRAME# [21,32]

INTEL WLAN CARD PIN 20 W_DISABLE# have internal pull-up 110k ohm

C564 .01U/16V_4 C561 .1U/10V_4 C563 10U/6.3V_8 (+1.5V)

C565 .1U/10V_4 C582 .1U/10V_4 C581 .1U/10V_4 C568 10U/6.3V_8 C579 .1U/10V_4 C571 1U/6.3V_4 (+3V)

+3VSUS
R294 *10K/F_4
[23,28,30] PCIE_WAKE# → Q9 *DTC144EUA → MINICAR_PME#

Mini PCI-E Card 2
WWAN& Robson

C815 1000P/50V_4 (+5V)

FOR KBC DEBUG
+5V R533 *0_6
[27,31,32] PWR_LED# R291 *0_4
[27,32] MBATLED0# R292 *0_4

Robson

[22] PCIE_TXP3 PCIE_TXP3
[22] PCIE_TXN3 PCIE_TXN3

[22] PCIE_RXP3 PCIE_RXP3
[22] PCIE_RXN3 PCIE_RXN3

[2] CLK_PCIE_WWAN CLK_PCIE_WWAN
[2] CLK_PCIE_WWAN# CLK_PCIE_WWAN#

T30 T31 T32 T33

CN28

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

MLX_67910-5700

USBP11+ [22]
USBP11- [22]

WWAN

CGDAT_SMB
CGCLK_SMB
R279 DV3 Change to short-pad
R279 *0_6/S
short0603
+3V

R285 *0_6 +3VSUS

PLTRST#

WAN_OFF# [23]

R280 10K/F_4 +3V

UIM_VPP
UIM_RST
UIM_CLK
UIM_DATA
UIM_PWR

C559 .1U/10V_4 C558 .1U/10V_4 C560 .1U/10V_4 C580 10U/6.3V_8 (+3V)

C555 .01U/16V_4 C566 .1U/10V_4 C556 10U/6.3V_8 (+1.5V)

U1 *CM1213_04ST
CH1 CH3 VN VP CH2 CH4

D1 *BAV99W

CN1 SIMCARD-PMPATO-08GLBS7N14N-9P
GND VCC VPP RST I_O NC CLK NC SHIELD NC SHIELD

UIM_VPP UIM_DATA UIM_PWR UIM_RST UIM_CLK

C12 .1U/10V_4 C11 .1U/10V_4

Add shielding connect to GND

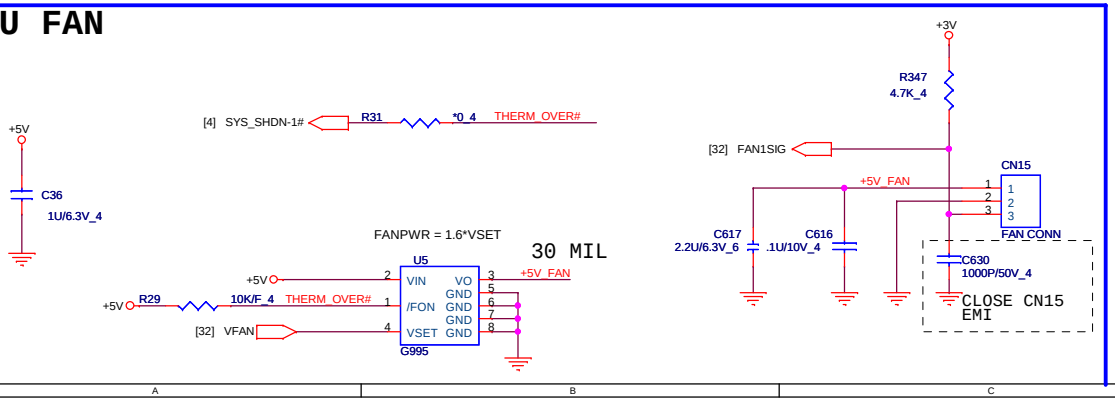
NB5

PROJECT : QL5
Quanta Computer Inc.

Size	Document Number	Rev
Custom	MINI PCIE CONN X2	1A

Date: Tuesday, March 17, 2009 Sheet 33 of 41

CPU FAN



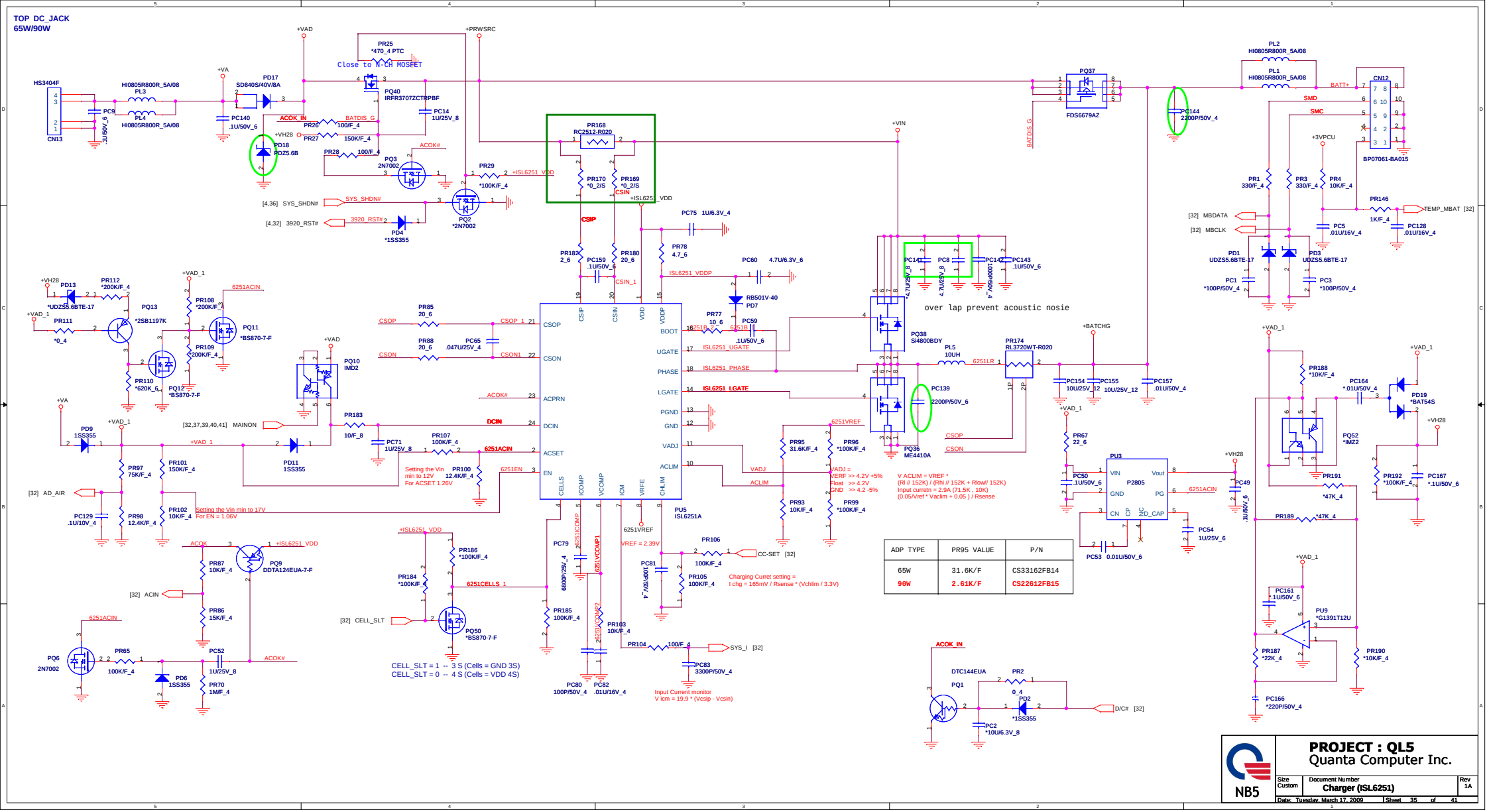
NB5

PROJECT : QL5
Quanta Computer Inc.

Size	Document Number	Rev
Custom	DOCKING/FAN	1A

Date: Tuesday, March 17, 2009 | Sheet 34 of 41

TOP DC_JACK
65W/90W



ADP TYPE	PR95 VALUE	P/N
65W	31.6K/F	CS33162FB14
90W	2.61K/F	CS22612FB15

NB5

PROJECT : QL5
Quanta Computer Inc.

Size	Document Number	Rev
Custom	Charger (ISL6251)	1A
Date: Tuesday, March 17, 2009	Sheet 35 of 41	

DC/DC +3V_ALW/+5V_ALW/+5V_ALW2 /+12V_ALW

DV3 prevent battery mode voltage droop

Place these CAPs close to FETs

Place these CAPs close to FETs

over lap prevent acoustic nosie

over lap prevent acoustic nosie

PV Del PR158

5 Volt +/- 5%
Countinue current:5A
Peak current:7.5A
OCP minimum 10A

3.3 Volt +/- 5%
Countinue current:5A
Peak current:7.5A
OCP minimum 9A

PR157 1K/F_4
PR198 150K/F_4
PD20 UDZ5V6B-7-F
+VIN
PC108 *4.7U/25V_8
PC179 4.7U/25V_8
PC186 1000P/50V_4
PC187 .1U/50V_6
PC100 .1U/50V_6
PC103 1000P/50V_4
PC134 4.7U/25V_8
PC188 *4.7U/25V_8
+5VALW
PR197 *47_6
+5V_VCC1
PC132 4.7U/25V_8
PC185 1U/6.3V_4
PR156 *0_4
PC130 .1U/10V_4
PC131 1U/6.3V_4
PC133 .1U/50V_6
PR155 0_4
PR154 0_4
PR153 309K/F_4
+5VPCU
PQ64 Si4800BDY
PL12 2.5uH/7.5A
3V_LX
+3.3V_ALWP
PQ59 Si4800BDY
PL11 2.5uH/7.5A
+5V_ALWP
5V_DH
5V_LX
5V_DL
PU8 ISL6237IRZ-T
DOREFIN LDO IN N.C ONLDO VCC TON REF
BYP OUT1 FB1 ILIM1 PGOOD1 ON1 DH1 LX1 PAD PAD PAD PAD
REFIN2 ILIM2 OUT2 SKIP PGOOD2 ON2 DH2 LX2
PR150 309K/F_4
PGOOD1
PGOOD2
3V_DH
PC122 .1U/50V_6
PR144 4.7/F_6
PC127 .1U/50V_6
PR145 4.7/F_6
3V_DL
PC169 330U/6.3V_6X5.8
PC175 .1U/10V_4
PR195 *0_4
PR152 0_4
PR194 *2.2_8
PC177 *1500P/50V_4
PQ58 ME4410
PC178 3300P/50V_4
Rds(on) 20m ohm
PC183 1000P/50V_6
EMI request Add
PR149 0_4
PR151 *0_4
PQ62 ME4410
Rds(on) 20m ohm
PC123 .1U/10V_4
PC184 330U/6.3V_6X5.8
PC121 .01U/50V_6
PD16
PD15
BAV99
BAV99
PR135 0_4
PR134 *0_4
PC109 .1U/50V_6
PC117 .01U/50V_6
+10VALW
+5VALW
PR196 *SHORT-1A
PC120 1U/6.3V_4
+5VALW
PR148 100K/F_4
PC110 1U/25V_8
+15VALW
[4,35] SYS_SHDN#
PGOOD2
PR147 0_4
PGOOD1
HWPG [32,37,39,40]

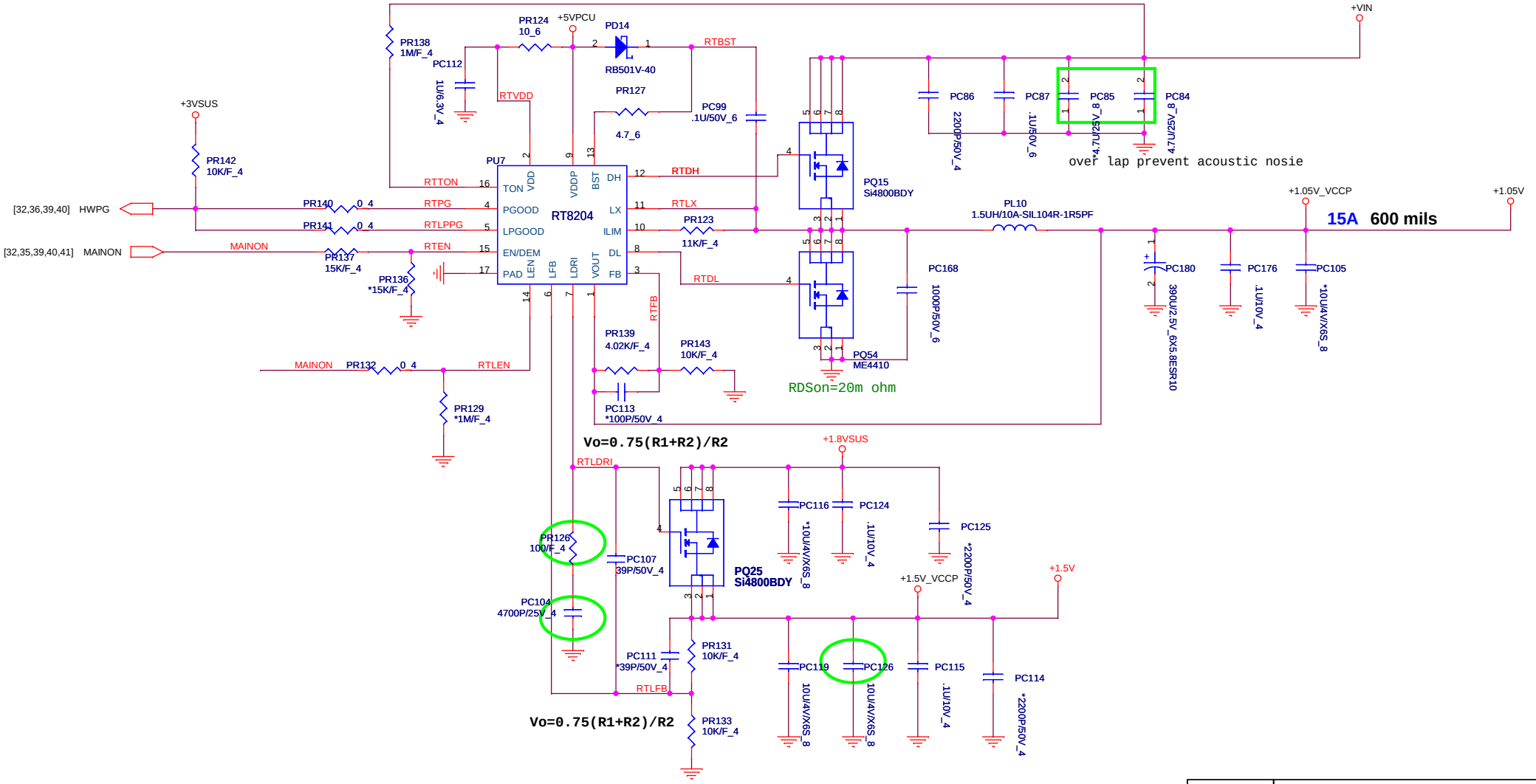
NB5

PROJECT : QL5
Quanta Computer Inc.

Size	Document Number	Rev
B	+5V/+3V (ISL6237)	1A
Date: Tuesday, March 17, 2009	Sheet 36 of 41	

VCCP1.05V & +1.5V

+1.05Volt +/- 5%
Countinue current 6A
Peak current:8A
OCP minimum 12A

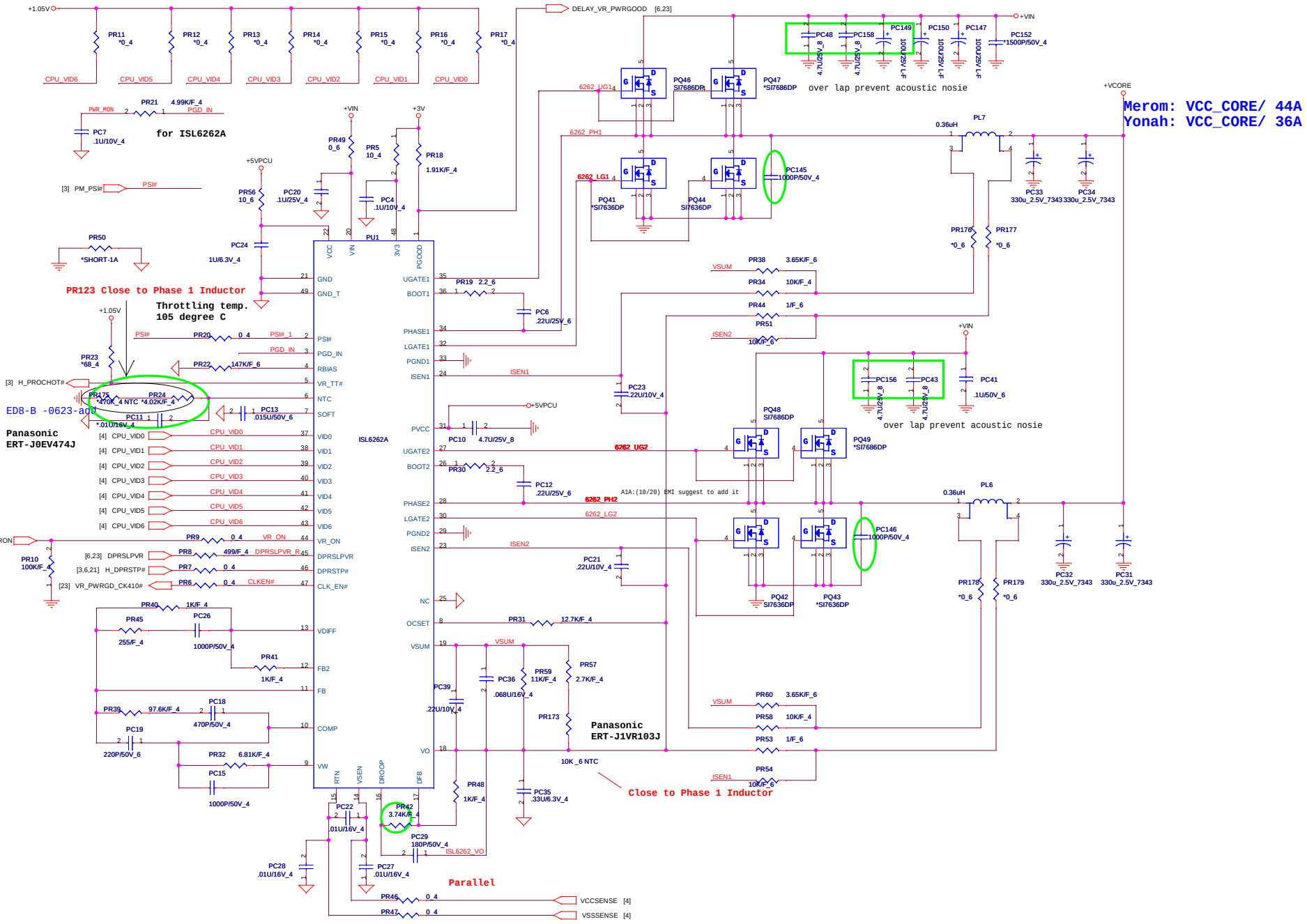


NB5

PROJECT : QL5
Quanta Computer Inc.

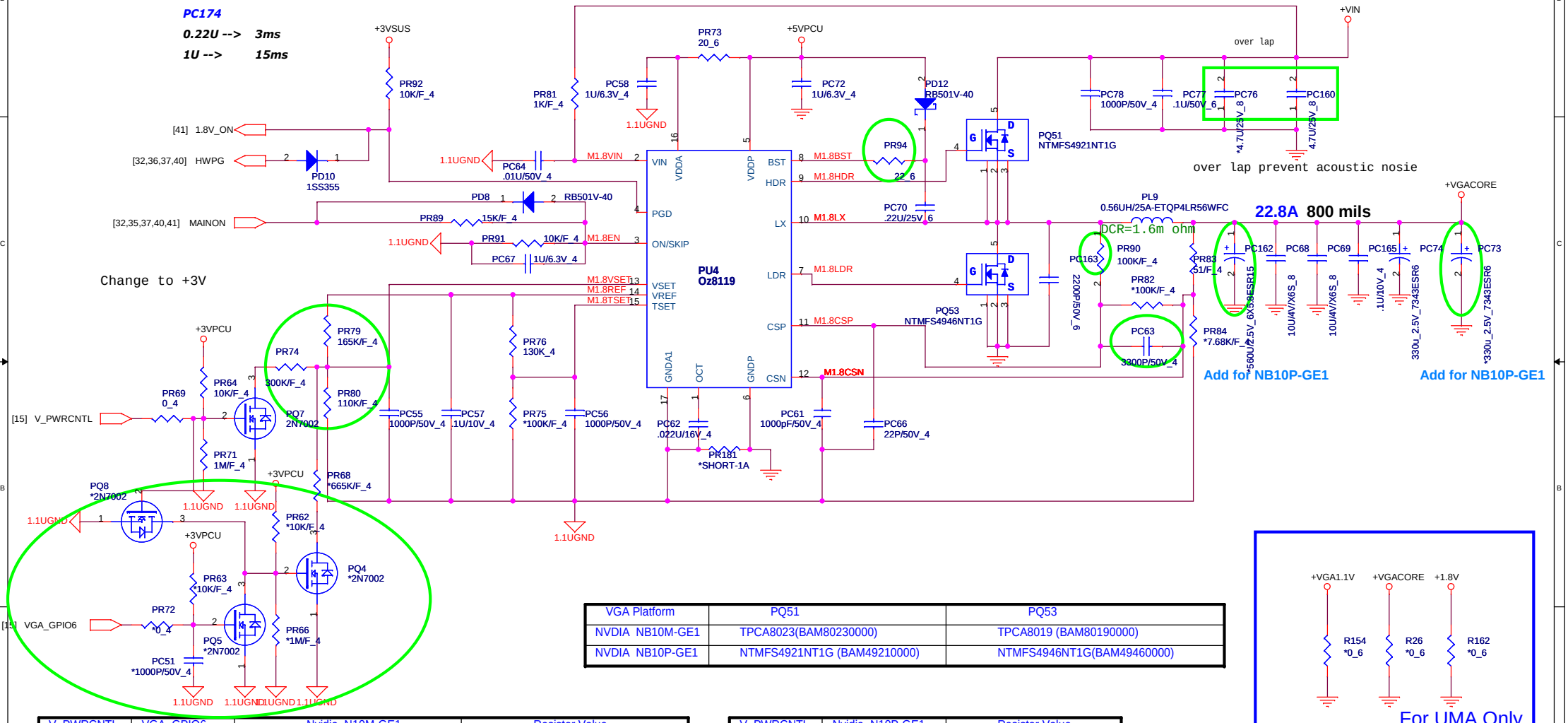
Size	Document Number	Rev
B	+1.05V/+1.5V (RT8204)	1A

Date: Tuesday, March 17, 2009 Sheet 37 of 41


Merom: VCC_CORE/ 44A
Yonah: VCC_CORE/ 36A
for ISL6262A
PR123 Close to Phase 1 Inductor
Throttling temp.
105 degree C
ED8-B -0623-ac
Panasonic
ERT-J0EV474J
Panasonic
ERT-J1VR103J
over lap prevent acoustic nosie
over lap prevent acoustic nosie
Close to Phase 1 Inductor
Parallel
ISL6262A
DELAY_VR_PWRGOOD [6,23]
+VCORE
VCCSENSE [4]
VSSSENSE [4]
PROJECT : QL5
Quanta Computer Inc.
CPU Core (ISL6266A)
Rev 1A
Date: Tuesday, March 17, 2009
Sheet 38 of 41

VGA Core & VCC1.1

+1.1Volt +/- 5%
Countinue current:17.54A
Peak current:22.8A
OCP minimum 25A



VGA Platform	PQ51	PQ53
NVDIA NB10M-GE1	TPCA8023(BAM80230000)	TPCA8019 (BAM80190000)
NVDIA NB10P-GE1	NTMFS4921NT1G (BAM49210000)	NTMFS4946NT1G(BAM49460000)

V_PWRCNTL	VGA_GPIO6	Nvidia N10M-GE1	Resistor Value
LO	LO	1.09V	PR68_665K_CS46652FB00
LO	HI	1.20V	PR79_154K_CS41542FB16
HI	LO	0.90V	PR74_200K_CS42002FB04
HI	HI	0.90V	PR80_120K_CS41202FB17

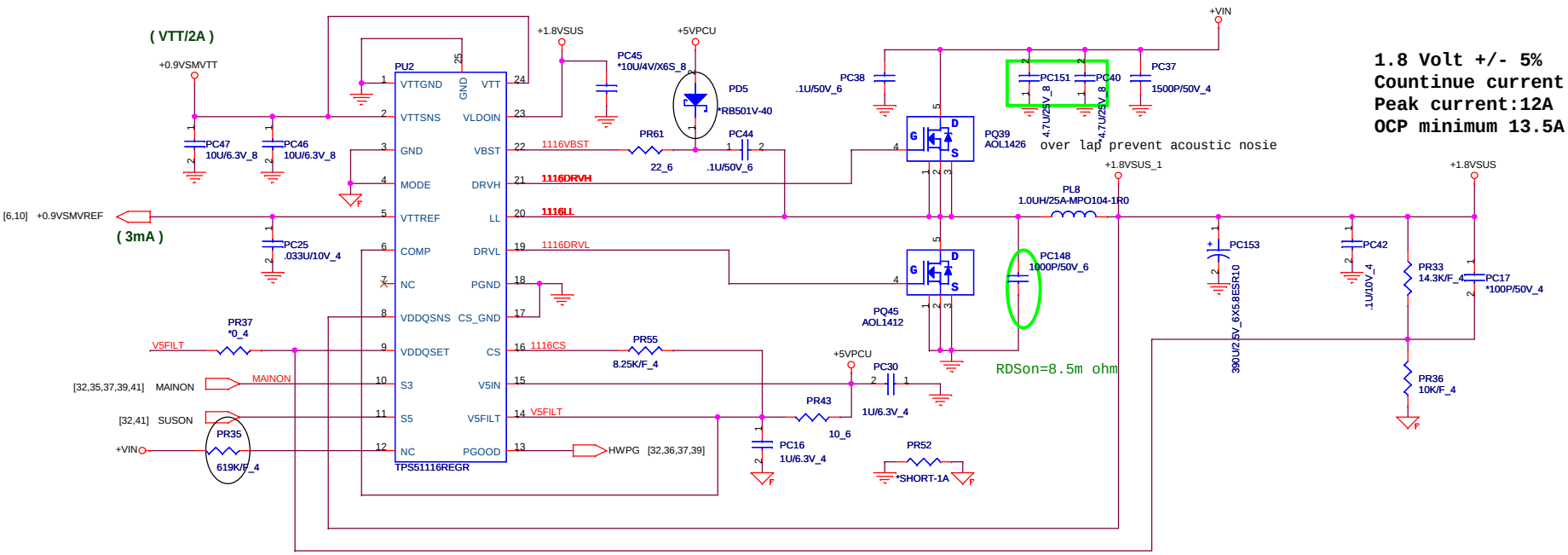
V_PWRCNTL	Nvidia N10P-GE1	Resistor Value
HI	0.9V	PR80_110K_CS41102FB13
		PR74_300K_CS43002FB15
LO	1.1V	PR79_165K_CS41652FB14

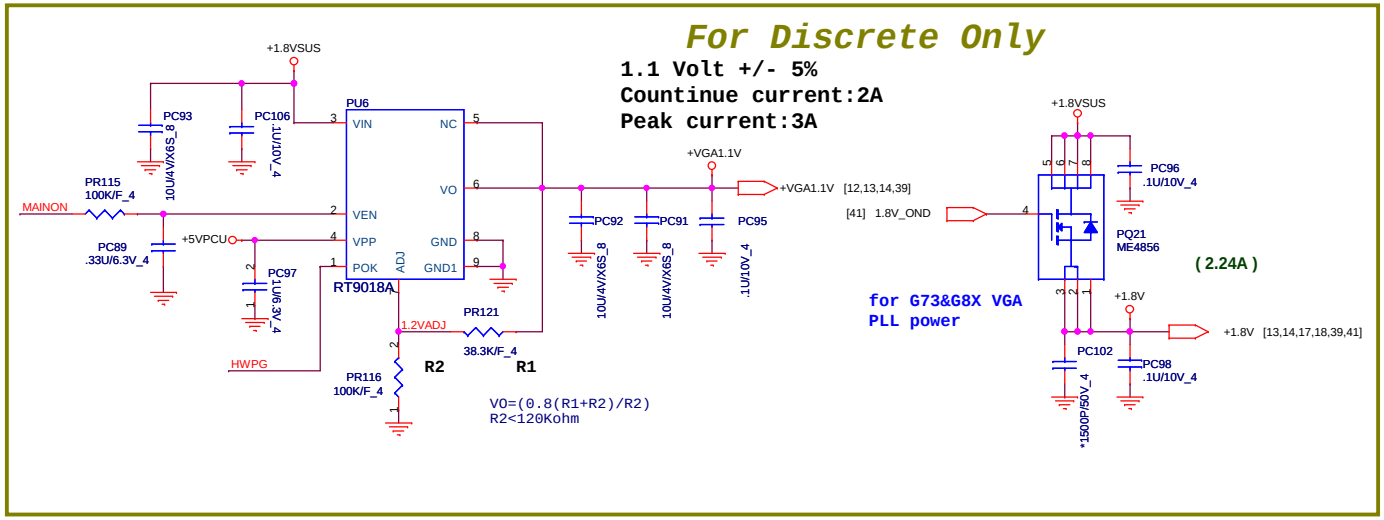
NB5

PROJECT : QL5
Quanta Computer Inc.

Size	Document Number	Rev
B	VGA CORE OZ8118	1A

Date: Tuesday, March 17, 2009 Sheet 39 of 41



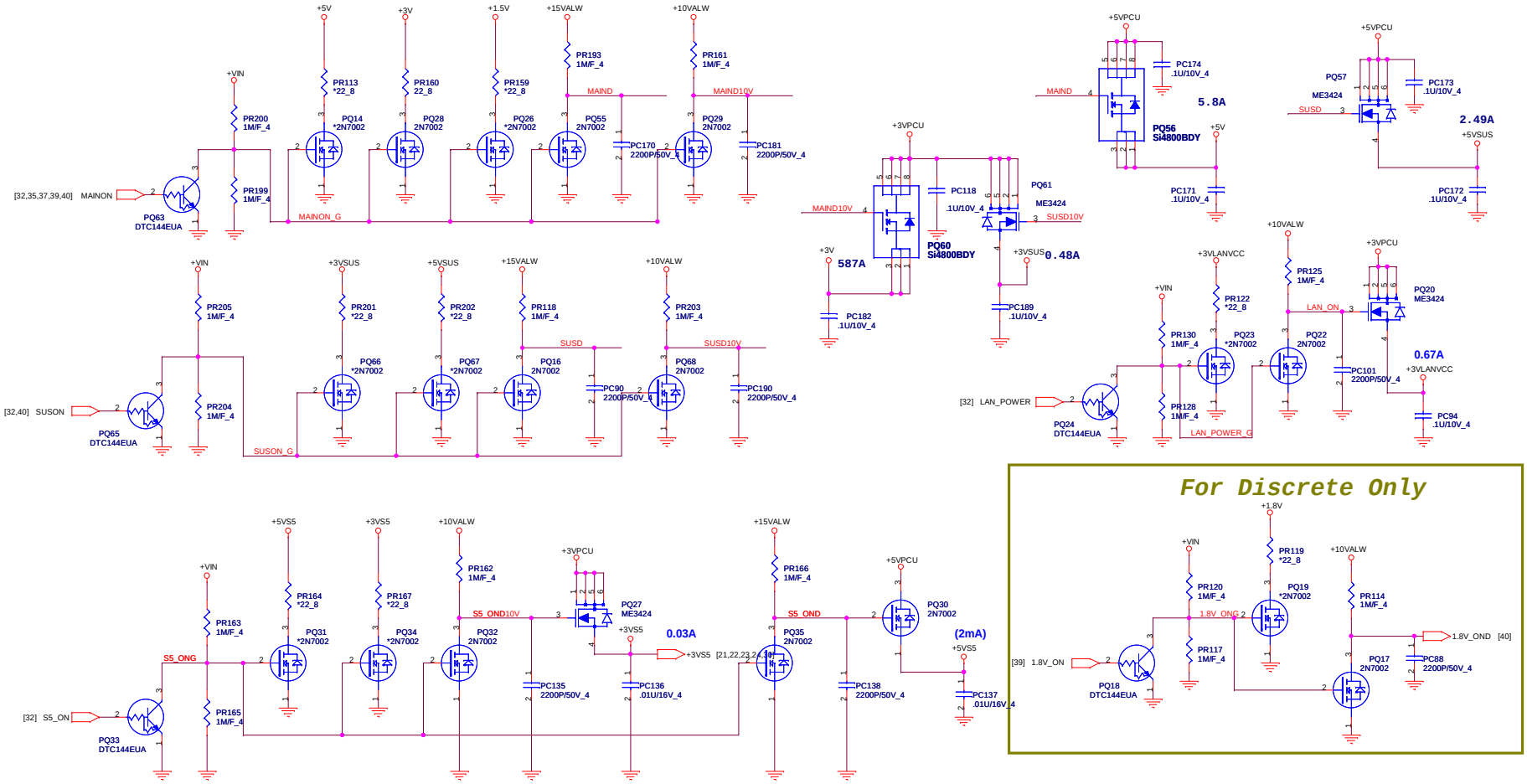


NB5

PROJECT : QL5
Quanta Computer Inc.

Size	Document Number	Rev
Custom	1.8V/DDR_VTER/+1.8v/+1.1V	1A

Date: Tuesday, March 17, 2009 | Sheet 40 of 41



		AC MODE				DC MODE			
	Voltage level	S0	S3	S4	S5	S0	S3	S4	S5
+3VPCU	3.3V +/- 5%	V	V	V	V	V	V	V	V
+5VPCU	5V +/- 5%	V	V	V	V	V	V	V	V
+3VRTC	3.3V +/- 5%	V	V	V	V	V	V	V	V
+3VS5	3.3V +/- 5%	V	V	V	V	V	V		
+5VS5	5V +/- 5%	V	V	V	V	V	V		
+3VSUS	3.3V +/- 5%	V	V			V	V		
+5VSUS	5V +/- 5%	V	V			V	V		
+1.8VSUS	1.8V +/- 5%	V	V			V	V		
+0.9VSMVTT	0.9V +/- 5%	V	V			V	V		
+1.5V	1.5V +/- 5%	V				V			
+1.05V	1.05V +/- 5%	V				V			
+VCORE	0.9~1.15V	V				V			
+VGA_CORE	0.9~1.2V	V				V			
+VGA1.1V	1.1V +/- 5%	V				V			
+1.8V	1.8V +/- 5%	V				V			
+3VLANVCC	3.3V +/- 5%	V				V			

NB5

PROJECT : QL5
Quanta Computer Inc.

Size	Document Number	Rev
Custom	DISCHARGE/3VS5/5VS5/LAN	1A
Date: Tuesday, March 17, 2009	Sheet 41 of 41	