QL8(15.4W) BLOCK DIAGRAM

01

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

Docking PAGE 34
- CRT
- LAN/RJ-45
- Headphone Jack
- USB Port

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

14.318MHz

CLOCK GEN ALPRS355B MLF64PIN PAGE 2

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

NORTH BRIDGE Cantiga PAGE 5~9

PS8101 PAGE 20

27MHz

DDRII-SODIMM1 PAGE 10 — DDRII 667/800 MHz

DDRII-SODIMM2 PAGE 10 — DDRII 667/800 MHz

PCI-Express 16X

NVIDIA NB9M-64bit or NB9P-GE2 128bit PAGE 12~18 969p

Dual Link

HDMI CON PAGE 20

CRT PAGE 20

LCD CONN PAGE 19

DMI LINK

32.768KHz

NBSRCCLK, NBSRCCLK#

SOUTH BRIDGE ICH9-M PAGE 21,22,23,24

SATA - HDD PAGE 30 — SATA0 150MB

SATA - CD-ROM PAGE 30 — SATA1 150MB

E-SATA PAGE 31 — SATA5 150MB

USB2.0

1,2 — **USB2.0 Ports X2** PAGE 26

8 — **BlueTooth** PAGE 26

9 — **Webcam** PAGE 19

12MHz — **RTS5158E** PAGE 25

Mini PCI-E(WLAN) 10
Mini PCI-E(WWAN) 11
Express Card x1 7
Docking x1 4
E-SATA x1 0

PCI-E

Azalia

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

X1 — **LAN** Realtek PCIE-LAN RTL8102E/8111C (10/100/GagaLAN PAGE 28,29

25MHz — **RJ45** PAGE 28

X1 — **Express Card** (NEW CARD) PAGE 30

Analog Azalia ALC268 PAGE 26

MDC CONN PAGE 27

AUDIO Amplifier TPA6017A2 PAGE 27

microphone PAGE 19

Audio Jacks (Phone/ MIC) PAGE 26

Jack to Speaker PAGE 27

32.768KHz — LPC

ENE KBC KB3926 C0 PAGE 32

Keyboard Touch Pad PAGE 32

SPI PAGE 22

G995 — FAN PAGE 34

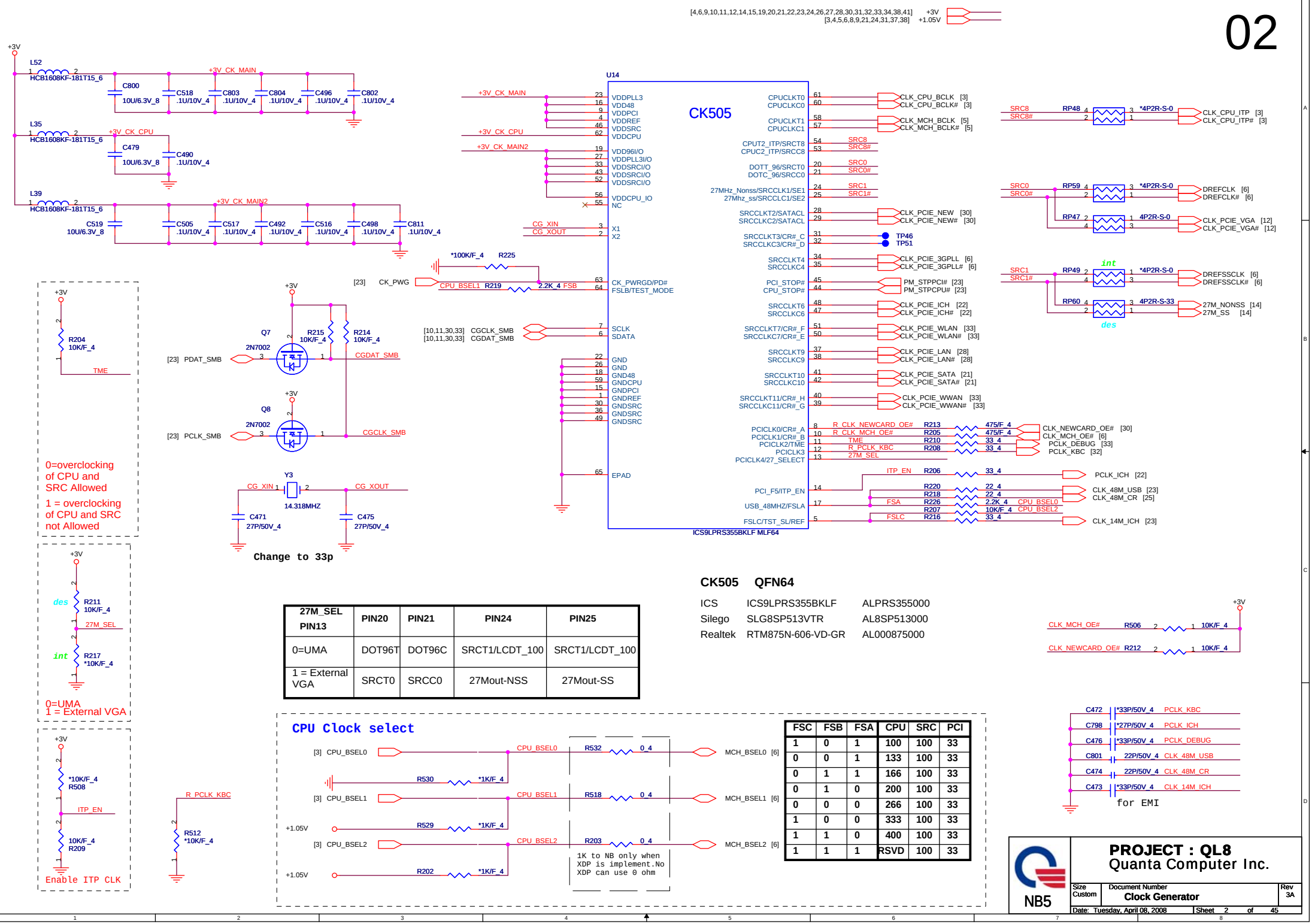
SPI PAGE 32

NB5

PROJECT : QL8
Quanta Computer Inc.

Size	Document Number	Rev
Custom	Block Diagram	3A

Date: Wednesday, April 02, 2008 Sheet 1 of 45



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

NB5

PROJECT : QL8
Quanta Computer Inc.

Size	Document Number	Rev
Custom	Clock Generator	3A

Date: Tuesday, April 08, 2008 Sheet 2 of 45

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

U25A

[5] H_A#[35:3]

H_A#3 J4
H_A#4 L5
H_A#5 L4
H_A#6 K5
H_A#7 M3
H_A#8 N2
H_A#9 J1
H_A#10 N3
H_A#11 P5
H_A#12 P2
H_A#13 L2
H_A#14 P4
H_A#15 P1
H_A#16 R1
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]#
ADDR GROUP 0

[5] H_ADSTB#0
[5] H_REQ#[4:0]
M1 ADSTB[0]#
H_REQ#0 K3
H_REQ#1 H2
H_REQ#2 K2
H_REQ#3 J3
H_REQ#4 L1
REQ[0]# REQ[1]# REQ[2]# REQ[3]# REQ[4]#

H_A#[35:3]

H_A#17 Y2
H_A#18 U5
H_A#19 R3
H_A#20 W6
H_A#21 U4
H_A#22 Y5
H_A#23 U1
H_A#24 R4
H_A#25 T5
H_A#26 T3
H_A#27 W2
H_A#28 W5
H_A#29 Y4
H_A#30 U2
H_A#31 V4
H_A#32 W1
H_A#33 AA4
H_A#34 AB2
H_A#35 AA3
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]#
ADDR GROUP 1

[5] H_ADSTB#1
V1 ADSTB[1]#

[21] H_A20M# A6 A20M#
[21] H_FERR# A5 FERR#
[21] H_IGNNE# C4 IGNNE#

[21] H_STPCLK# D5 STPCLK#
[21] H_INTR C6 LINT0
[21] H_NMI B4 LINT1
[21] H_SMI# A3 SMI#

ADS# H1 H_ADS# [5]
BNR# E2 H_BNR# [5]
BPRI# G5 H_BPRI# [5]
DEFER# H5 H_DEFER# [5]
DRDY# F21 H_DRDY# [5]
DBSY# E1 H_DBSY# [5]
BR0# F1 HBREQ#0 [5]
IERR# D20 H_IERR# R84 56.2/F_4 +1.05V
INIT# B3 H_INIT# [21]
LOCK# H4 H_LOCK# [5]
H_CPURST# [5]
RESET# C1
RS[0]# F3 H_RS#0
RS[1]# F4 H_RS#1
RS[2]# G3 H_RS#2
TRDY# G2 H_RS#[2:0] [5] H_TRDY# [5]
HIT# G6 H_HIT# [5]
HITM# E4 H_HITM# [5]
CONTROL

BPM[0]# AD4 ITP_BPM#0
BPM[1]# AD3 ITP_BPM#1
BPM[2]# AD1 ITP_BPM#2
BPM[3]# AC4 ITP_BPM#3
PRDY# AC2 ITP_BPM#4
PREQ# AC1 ITP_BPM#5
TCK AC5 ITP_TCK
TDI AA6 ITP_TDI
TDO AB3 ITP_TDO
TMS AB5 ITP_TMS
TRST# AB6 ITP_TRST#
DBR# C20 SYS_RST# [23]
ITP DEBUG PORT

THERMAL
PROCHOT# D21 R596 *0_4 H_PROCHOT# [38]
THERMDA A24 R76 68_4 +1.05V
THERMDC B25 H_THERMDA [4] H_THERMDC [4]
THERMTRIP# C7 PM_THRMTRIP# [6,21]

H CLK
BCLK[0] A22 CLK_CPU_BCLK [2]
BCLK[1] A21 CLK_CPU_BCLK# [2]

Quard Core Only
TDI_1/RSV F6
TDO_2/RSV D3
RSVD[06] D2
BMP_1#[0]/RSV N5 ITP_BPM1#0
BMP_1#[1]/RSV M4 ITP_BPM1#1
BMP_1#[2]/RSV B2
BMP_1#[3]/VSS AE8 ITP_BPM1#3
DCLKPH_1/VSS D8
ACLKPH_1/VSS F8 GTLREF_CTL
GTLREF_2/RSV D22 H_GTLREF2
THRMDA_1/RSV T2 H_THERMDA2
THRMDC_1/RSV V3 H_THERMDC2
HFPLL_1/VSS AA8
SPARE_1[4]/VSS AC8
BR1#/VCC AA7

TP4
TP2
TP1
TP3

For QC CPU
+1.05V R101 *51/F_4 F6 D3

CPU_TEST2 R86 *1K/F_4
CPU_TEST1 R97 *1K/F_4

Penryn Ball-out Rev 1a

U25B

[5] H_D#[63:0]

H_D#0 E22
H_D#1 F24
H_D#2 E26
H_D#3 G22
H_D#4 F23
H_D#5 G25
H_D#6 E25
H_D#7 E23
H_D#8 K24
H_D#9 G24
H_D#10 J24
H_D#11 J23
H_D#12 H22
H_D#13 F26
H_D#14 K22
H_D#15 H23
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 0

[5] H_DSTBN#0 J26
[5] H_DSTBP#0 H26
[5] H_DINV#0 H25
DSTBN[0]# DSTBP[0]# DINV[0]#

H_D#[63:0]

H_D#16 N22
H_D#17 K25
H_D#18 P26
H_D#19 R23
H_D#20 L23
H_D#21 M24
H_D#22 L22
H_D#23 M23
H_D#24 P25
H_D#25 P23
H_D#26 P22
H_D#27 T24
H_D#28 R24
H_D#29 L25
H_D#30 T25
H_D#31 N25
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 1

[5] H_DSTBN#1 L26
[5] H_DSTBP#1 M26
[5] H_DINV#1 N24
DSTBN[1]# DSTBP[1]# DINV[1]#

R413 1K/F_4
R412 2K/F_4

H_GTLREF AD26
CPU_TEST1 C23
CPU_TEST2 D25
CPU_TEST3 C24
CPU_TEST4 AE26
CPU_TEST5 AE1
CPU_TEST6 A26
CPU_TEST7 C3
TP6 TP76 TP77 TP78 TP7
[2] CPU_BSEL0 B22
[2] CPU_BSEL1 B23
[2] CPU_BSEL2 C21
GTLREF TEST1 TEST2 TEST3 TEST4 TEST5 TEST6 TEST7 BSEL[0] BSEL[1] BSEL[2]

MISC
COMP[0] R26 COMP0 R417 27.4/F_4
COMP[1] U26 COMP1 R416 54.9/F_4
COMP[2] AA1 COMP2 R27 27.4/F_4
COMP[3] Y1 COMP3 R28 54.9/F_4
DPRSTP# E5 H_DPRSTP# [6,21,38]
DPSLP# B5 H_DPSLP# [21]
DPWR# D24 H_DPWR# [5]
PWRGOOD D6 H_PWRGD [21]
SLP# D7 H_CPUSLP# [5]
PSI# AE6 PM_PSI# [38]

DATA GRP 2
Y22 AB24 V24 V26 V23 T22 U25 U23 Y25 W22 Y23 W24 W25 AA23 AA24 AB25
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

DSTBN[2]# DSTBP[2]# DINV[2]#
Y26 AA26 U22
H_DSTBN#2 [5] H_DSTBP#2 [5] H_DINV#2 [5]

DATA GRP 3
AE24 AD24 AA21 AB22 AB21 AC26 AD20 AE22 AF23 AC25 AE21 AD21 AC22 AD23 AF22 AC23
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

DSTBN[3]# DSTBP[3]# DINV[3]#
AE25 AF24 AC20
H_DSTBN#3 [5] H_DSTBP#3 [5] H_DINV#3 [5]

Penryn Ball-out Rev 1a

Populate ITP700Flex for bringup

+1.05V
R102 *51/F_4
R7 54.9/F_4
R11 54.9/F_4
R6 54.9/F_4
R10 54.9/F_4 ITP_TCK
R12 54.9/F_4 ITP_TRST#

JITP1
ITP_TDI 1
ITP_TMS 2
ITP_TCK 5
ITP_TDO 7
ITP_TRST# 3
TDI TMS TCK TDO TRST#

H_CPURST# R9 *22_4 ITP_RST# 12
RESET#
ITP_TCK 11
FBO
[2] CLK_CPU_ITP# 8 BCLKN
[2] CLK_CPU_ITP 9 BCLKP
C153 *100P/50V_4

VTT0 27
VTT1 28
VTAP 26
+1.05V
C19 *.1U/10V_4
C17 *.1U/10V_4

DBR# 25 SYS_RST#
DBA# 24

BPM0# 23 ITP_BPM#0
BPM1# 21 ITP_BPM#1
BPM2# 19 ITP_BPM#2
BPM3# 17 ITP_BPM#3
BPM4# 15 ITP_BPM#4
BPM5# 13 ITP_BPM#5
NC0 4
NC1 6
GND_0 29
GND_1 30
+1.05V
R8 *54.9/F_4

GND0 10
GND1 14
GND2 16
GND3 18
GND4 20
GND5 22

*ITP700Flex

NB5

PROJECT : QL8
Quanta Computer Inc.

Size	Document Number	Rev
Custom	Penryn 1/2	3A

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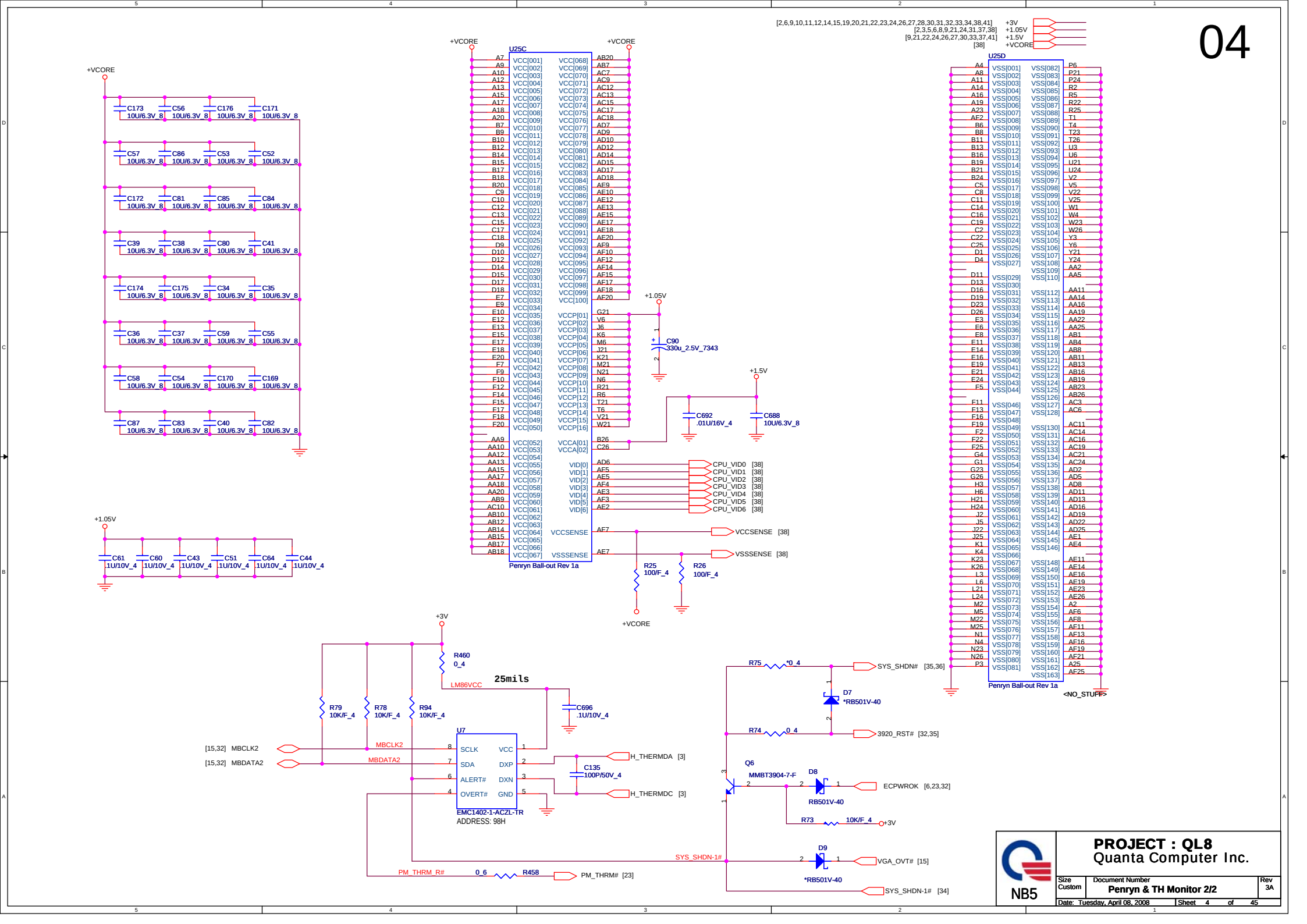
04
+VCORE
C173 10U/6.3V_8
C56 10U/6.3V_8
C176 10U/6.3V_8
C171 10U/6.3V_8
C57 10U/6.3V_8
C86 10U/6.3V_8
C53 10U/6.3V_8
C52 10U/6.3V_8
C172 10U/6.3V_8
C81 10U/6.3V_8
C85 10U/6.3V_8
C84 10U/6.3V_8
C39 10U/6.3V_8
C38 10U/6.3V_8
C80 10U/6.3V_8
C41 10U/6.3V_8
C174 10U/6.3V_8
C175 10U/6.3V_8
C34 10U/6.3V_8
C35 10U/6.3V_8
C36 10U/6.3V_8
C37 10U/6.3V_8
C59 10U/6.3V_8
C55 10U/6.3V_8
C58 10U/6.3V_8
C54 10U/6.3V_8
C170 10U/6.3V_8
C169 10U/6.3V_8
C87 10U/6.3V_8
C83 10U/6.3V_8
C40 10U/6.3V_8
C82 10U/6.3V_8
+1.05V
C61 1U/10V_4
C60 1U/10V_4
C43 1U/10V_4
C51 1U/10V_4
C64 1U/10V_4
C44 1U/10V_4
+VCORE
U25C
VCC[001] VCC[002] VCC[003] VCC[004] VCC[005] VCC[006] VCC[007] VCC[008] VCC[009] VCC[010] VCC[011] VCC[012] VCC[013] VCC[014] VCC[015] VCC[016] VCC[017] VCC[018] VCC[019] VCC[020] VCC[021] VCC[022] VCC[023] VCC[024] VCC[025] VCC[026] VCC[027] VCC[028] VCC[029] VCC[030] VCC[031] VCC[032] VCC[033] VCC[034] VCC[035] VCC[036] VCC[037] VCC[038] VCC[039] VCC[040] VCC[041] VCC[042] VCC[043] VCC[044] VCC[045] VCC[046] VCC[047] VCC[048] VCC[049] VCC[050] VCC[052] VCC[053] VCC[054] VCC[055] VCC[056] VCC[057] VCC[058] VCC[059] VCC[060] VCC[061] VCC[062] VCC[063] VCC[064] VCC[065] VCC[066] VCC[067]
VCC[068] VCC[069] VCC[070] VCC[071] VCC[072] VCC[073] VCC[074] VCC[075] VCC[076] VCC[077] VCC[078] VCC[079] VCC[080] VCC[081] VCC[082] VCC[083] VCC[084] VCC[085] VCC[086] VCC[087] VCC[088] VCC[089] VCC[090] VCC[091] VCC[092] VCC[093] VCC[094] VCC[095] VCC[096] VCC[097] VCC[098] VCC[099] VCC[100]
VCCP[01] VCCP[02] VCCP[03] VCCP[04] VCCP[05] VCCP[06] VCCP[07] VCCP[08] VCCP[09] VCCP[10] VCCP[11] VCCP[12] VCCP[13] VCCP[14] VCCP[15] VCCP[16]
VCCA[01] VCCA[02]
VID[0] VID[1] VID[2] VID[3] VID[4] VID[5] VID[6]
VCCSENSE
VSSSENSE
Penryn Ball-out Rev 1a
+1.05V
C90 330u_2.5V_7343
+1.5V
C692 .01U/16V_4
C688 10U/6.3V_8
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]
R25 100/F_4
R26 100/F_4
+VCORE
[2,6,9,10,11,12,14,15,19,20,21,22,23,24,26,27,28,30,31,32,33,34,38,41] +3V
[2,3,5,6,8,9,21,24,31,37,38] +1.05V
[9,21,22,24,26,27,30,33,37,41] +1.5V
[38] +VCORE
U25D
VSS[001] VSS[002] VSS[003] VSS[004] VSS[005] VSS[006] VSS[007] VSS[008] VSS[009] VSS[010] VSS[011] VSS[012] VSS[013] VSS[014] VSS[015] VSS[016] VSS[017] VSS[018] VSS[019] VSS[020] VSS[021] VSS[022] VSS[023] VSS[024] VSS[025] VSS[026] VSS[027] VSS[029] VSS[030] VSS[031] VSS[032] VSS[033] VSS[034] VSS[035] VSS[036] VSS[037] VSS[038] VSS[039] VSS[040] VSS[041] VSS[042] VSS[043] VSS[044] VSS[046] VSS[047] VSS[048] VSS[049] VSS[050] VSS[052] VSS[053] VSS[054] VSS[055] VSS[056] VSS[057] VSS[058] VSS[059] VSS[060] VSS[061] VSS[062] VSS[063] VSS[064] VSS[065] VSS[066] VSS[067] VSS[068] VSS[069] VSS[070] VSS[071] VSS[072] VSS[073] VSS[074] VSS[075] VSS[076] VSS[077] VSS[078] VSS[079] VSS[080] VSS[081]
VSS[082] VSS[083] VSS[084] VSS[085] VSS[086] VSS[087] VSS[088] VSS[089] VSS[090] VSS[091] VSS[092] VSS[093] VSS[094] VSS[095] VSS[096] VSS[097] VSS[098] VSS[099] VSS[100] VSS[101] VSS[102] VSS[103] VSS[104] VSS[105] VSS[106] VSS[107] VSS[108] VSS[109] VSS[110] VSS[112] VSS[113] VSS[114] VSS[115] VSS[116] VSS[117] VSS[118] VSS[119] VSS[120] VSS[121] VSS[122] VSS[123] VSS[124] VSS[125] VSS[126] VSS[127] VSS[128] VSS[130] VSS[131] VSS[132] VSS[133] VSS[134] VSS[135] VSS[136] VSS[137] VSS[138] VSS[139] VSS[140] VSS[141] VSS[142] VSS[143] VSS[144] VSS[145] VSS[146] VSS[148] VSS[149] VSS[150] VSS[151] VSS[152] VSS[153] VSS[154] VSS[155] VSS[156] VSS[157] VSS[158] VSS[159] VSS[160] VSS[161] VSS[162] VSS[163]
Penryn Ball-out Rev 1a
<NO_STUFF>
+3V
R460 0_4
LM86VCC
25mils
C696 .1U/10V_4
R79 10K/F_4
R78 10K/F_4
R94 10K/F_4
[15,32] MBCLK2
[15,32] MBDATA2
MBCLK2
MBDATA2
U7
SCLK VCC
SDA DXP
ALERT# DXN
OVERT# GND
C135 100P/50V_4
H_THERMDA [3]
H_THERMDC [3]
EMC1402-1-ACZL-TR
ADDRESS: 98H
R75 *0_4
SYS_SHDN# [35,36]
D7 *RB501V-40
R74 0_4
3920_RST# [32,35]
Q6 MMBT3904-7-F
D8 RB501V-40
ECPWROK [6,23,32]
R73 10K/F_4
+3V
SYS_SHDN-1#
D9 *RB501V-40
VGA_OVT# [15]
SYS_SHDN-1# [34]
PM_THRM_R#
0_6
R458
PM_THRM# [23]
PROJECT : QL8
Quanta Computer Inc.
NB5
Size Custom
Document Number
Penryn & TH Monitor 2/2
Rev 3A
Date: Tuesday, April 08, 2008
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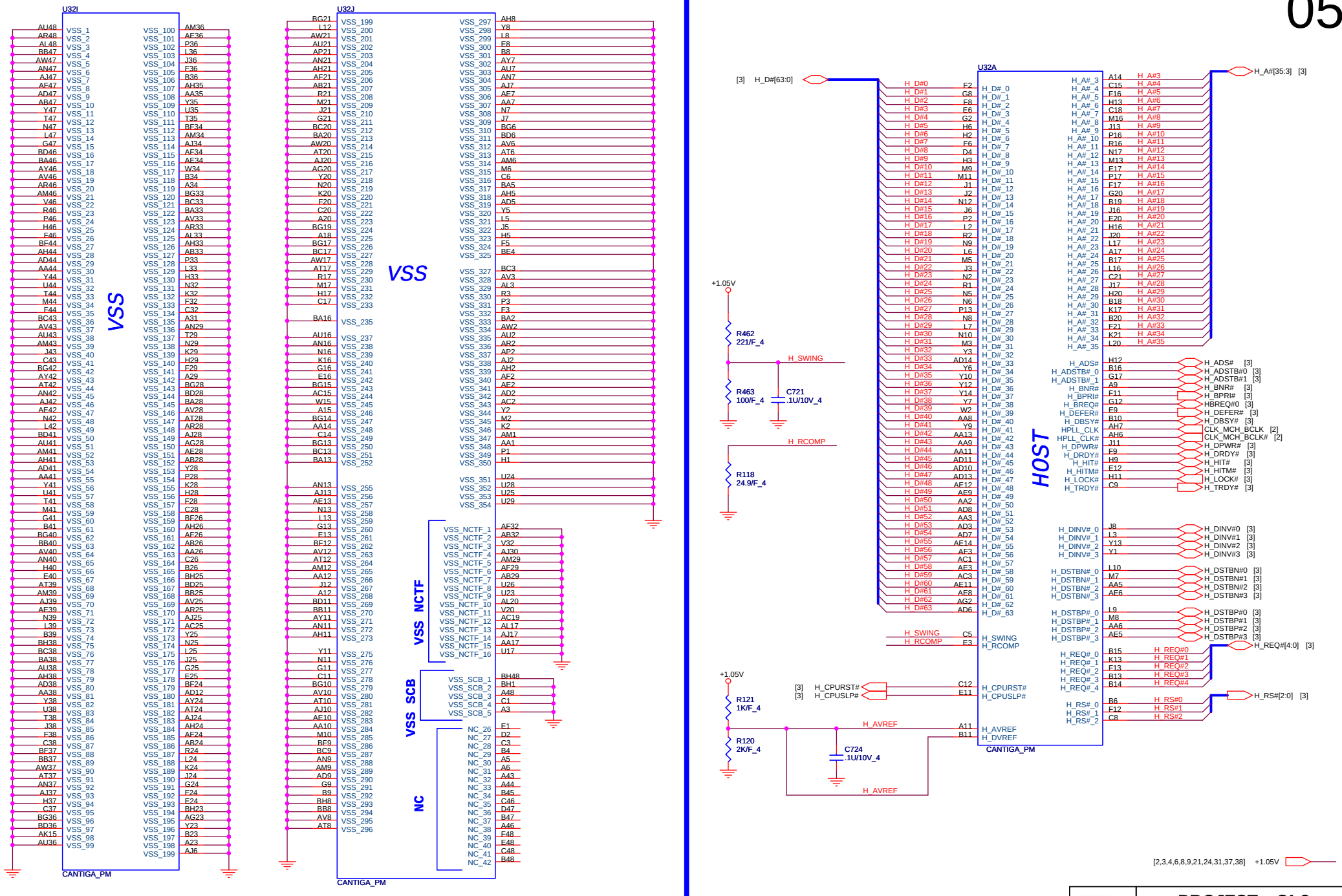

05

PROJECT : QL8
Quanta Computer Inc.

Size	Document Number	Rev
Custom	Cantiga Host & VSS 1/5	3A

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NB5

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)

DV2-FOR ITPM

SI Build
Change to 75 ohm to GND

Change to 0 ohm to GND

FOR TEST

For UMA HDMI Function

C384,C390,C409,C400
Need to install for GM
C388,C387,C399,C391

HPD# Inverting Level Shifting Circuit

CLOSE U32 EMI

PROJECT	QL8
Quanta Computer Inc.	
Size	Custom
Document Number	Cantiga DMI/DISP 2/5
Rev	3A
Date	Tuesday, April 08, 2008
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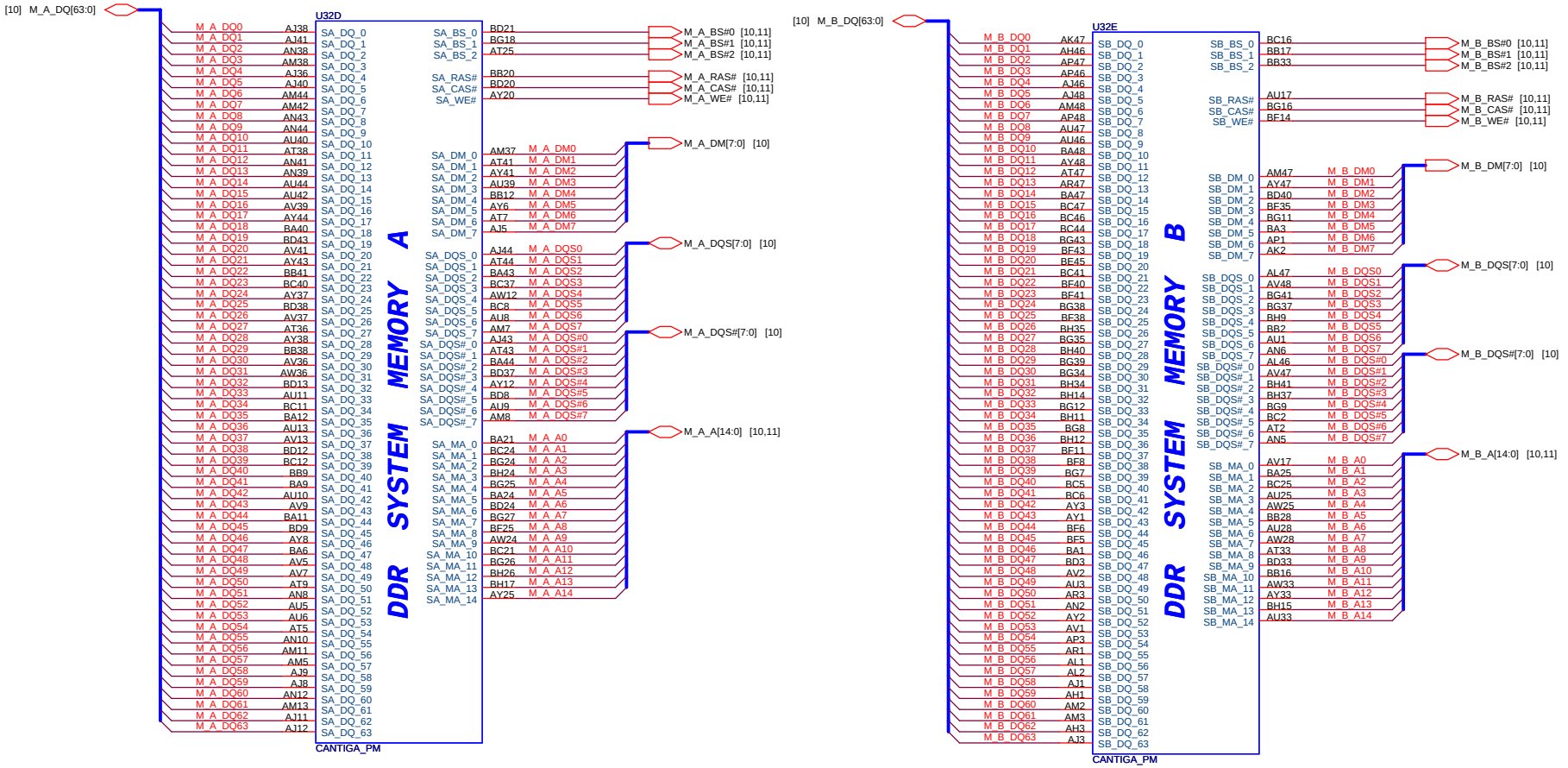
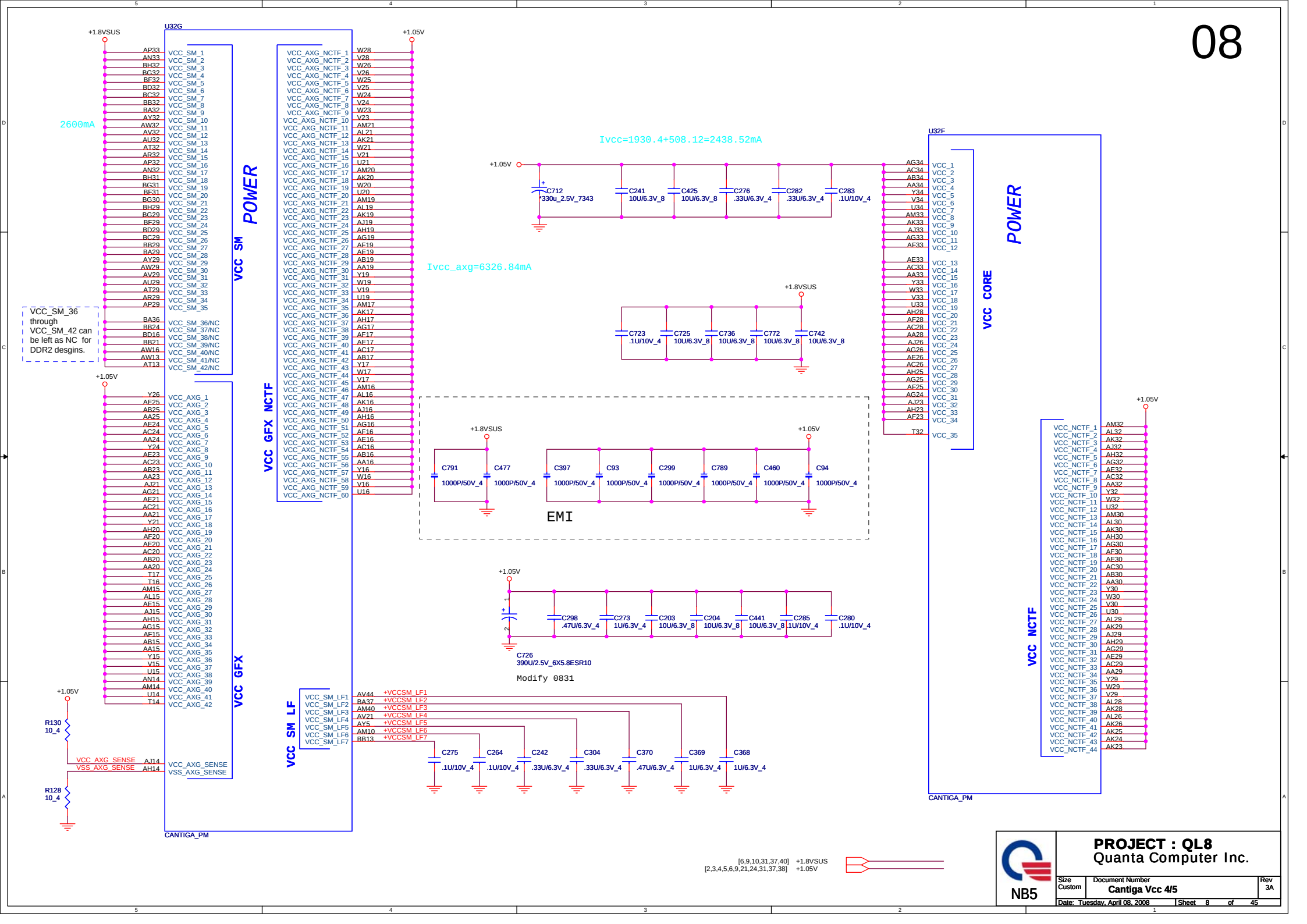
NB5



PROJECT : QL8	
Quanta Computer Inc.	
Size: Custom	Document Number: Cantiga DDR2 3/5
Rev: 3A	
Date: Tuesday, April 08, 2008	Sheet 7 of 45

NB5



PROJECT : QL8	
Quanta Computer Inc.	
NB5	
Size: Custom	Document Number: Cantiga Vcc 4/5
Rev: 3A	
Date: Tuesday, April 08, 2008	Sheet 8 of 45

+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, VCCA_CRT_DAC_2, VCCA_DAC_BG, VSSA_DAC_BG
PLL: VCCA_DPLLA, VCCA_DPLLB, VCCA_HPLL, VCCA_MPLL
A LVDS: VCCA_LVDS, VSSA_LVDS
A PEG: VCCA_PEG_BG, VCCA_PEG_PLL
A SM: VCCA_SM_1 … VCCA_SM_9
A CK: VCCA_SM_CK_1 … VCCA_SM_CK_4, VCCA_SM_CK_NCTF_1 … VCCA_SM_CK_NCTF_8
TV: VCCA_TV_DAC_1, VCCA_TV_DAC_2
HDA: VCC_HDA
D TV/CRT: VCCD_TVDAC, VCCD_QDAC, VCCD_HPLL, VCCD_PEG_PLL
LVDS: VCCD_LVDS_1, VCCD_LVDS_2
VTT: VTT_1 … VTT_25
AXF: VCC_AXF_1, VCC_AXF_2, VCC_AXF_3
SM CK: VCC_SM_CK_1 … VCC_SM_CK_4
HV: VCC_TX_LVDS, VCC_HV_1, VCC_HV_2, VCC_HV_3
PEG: VCC_PEG_1 … VCC_PEG_5
DMI: VCC_DMI_1 … VCC_DMI_4
VTTLF: VTTLF1, VTTLF2, VTTLF3

73mA — +3V_A_CRT_DAC — R475 *0_6 — C741 *.1U/10V_4 — C740 *.01U/16V_4 — B27, A26
5mA — +3V_A_DAC_BG — R472 *0_6 — C734 *.1U/10V_4 — C735 *.01U/16V_4 — A25, B25
AB total 64.8mA
24mA — +1.05V_DPLLA — F47
139.2mA — +1.05V_DPLLB — L48
+1.05V_HPLL — AD1
+1.05V_MPLL — AE1
13.2mA — +1.8VSUS_TX_LVDS — J48, J47 — int C455 *1000P/50V_4
414uA — +1.5V_PEG_BG — AD48 — C398 .1U/10V_4
50mA — C358 .1U/10V_4 — +1.05V_PEGPLL — AA48
480mA — +1.05V_A_SM — C277 10U/6.3V_8, C302 10U/6.3V_8, C286 10U/6.3V_8, C300 4.7U/6.3V_6, C281 1U/6.3V_4, C245 *220U/2.5V_B — AR20, AP20, AN20, AR17, AP17, AN17, AT16, AR16, AP16
24mA — +1.05V_A_SM_CK — C334 2.2U/6.3V_6, C349 10U/6.3V_8, C351 1U/10V_4 — AP28, AN28, AP25, AN25, AN24, AM28, AM26, AM25, AL25, AM24, AL24, AM23, AL23
79mA — +3V_A_TV_DAC — L46 *0_6 — C733 *.1U/10V_4 — B24, A24
50mA — +1.5V_HDA — R488 *0_6 — C760 *.1U/10V_4 — A32
35mA — +1.5V_TVDAC — M25
120uA — +1.5V_QDAC — L28
157.2mA — +1.05V_MPLL — AF1 — C249 .1U/10V_4
50mA — +1.05V_PEGPLL — AA47 — C364 .1U/10V_4
60.31mA — M38, L37
+1.8VSUS — R150 *0_6 — +1.8VSUS_GMCH_VCCD — C332 *1U/6.3V_4, C362 *10U/6.3V_8

852mA — +1.05V — C263 .47U/6.3V_4, C268 2.2U/6.3V_6, C202 4.7U/6.3V_6, C269 4.7U/6.3V_6, C755 *390U/2.5V_6X5.8ESR10
Modify 0829

PV — +1.05V_AXF — +1.05V — C727 1U/6.3V_4, C728 10U/6.3V_8
+1.8VSUS_SM_CK — L20 1uH/300mA_8 — C278 10U/6.3V_8, C303 .1U/10V_4, R131 1/F_6, +1.8VSUS_SM_CK_L, C272 10U/6.3V_8
+1.8VSUS_TX_LVDS — L33 *1uH/300mA_8 — C462 *1000P/50V_4, C453 *10U/6.3V_8, C448 *10U/6.3V_8
119.85mA — B22, B21, A21
+1.05V — D10 RB501V-40 — +1.05V_HV_MCH — R134 10_4
118.8mA — K47 — +3V_HV — R491 0_6 — C763 .1U/10V_4
105.3mA — C35, B35, A35 — +3V_HV — C764 .1U/10V_4
1782mA — V48, U48, V47, U47, U46 — +1.05V_PEG — C357 4.7U/6.3V_6, C450 *330u_2.5V_7343, C363 10U/6.3V_8
+1.05V_RXR_DMI — AH48, AF48, AH47, AG47
456mA — VTTLF1, VTTLF2, VTTLF3 — +VTTLF_CAP1, +VTTLF_CAP2, +VTTLF_CAP3 — A8, L1, AB2 — C405 .1U/10V_4

+VTTLF_CAP1, +VTTLF_CAP2, +VTTLF_CAP3 — C716 .47U/6.3V_4, C253 .47U/6.3V_4, C722 .47U/6.3V_4

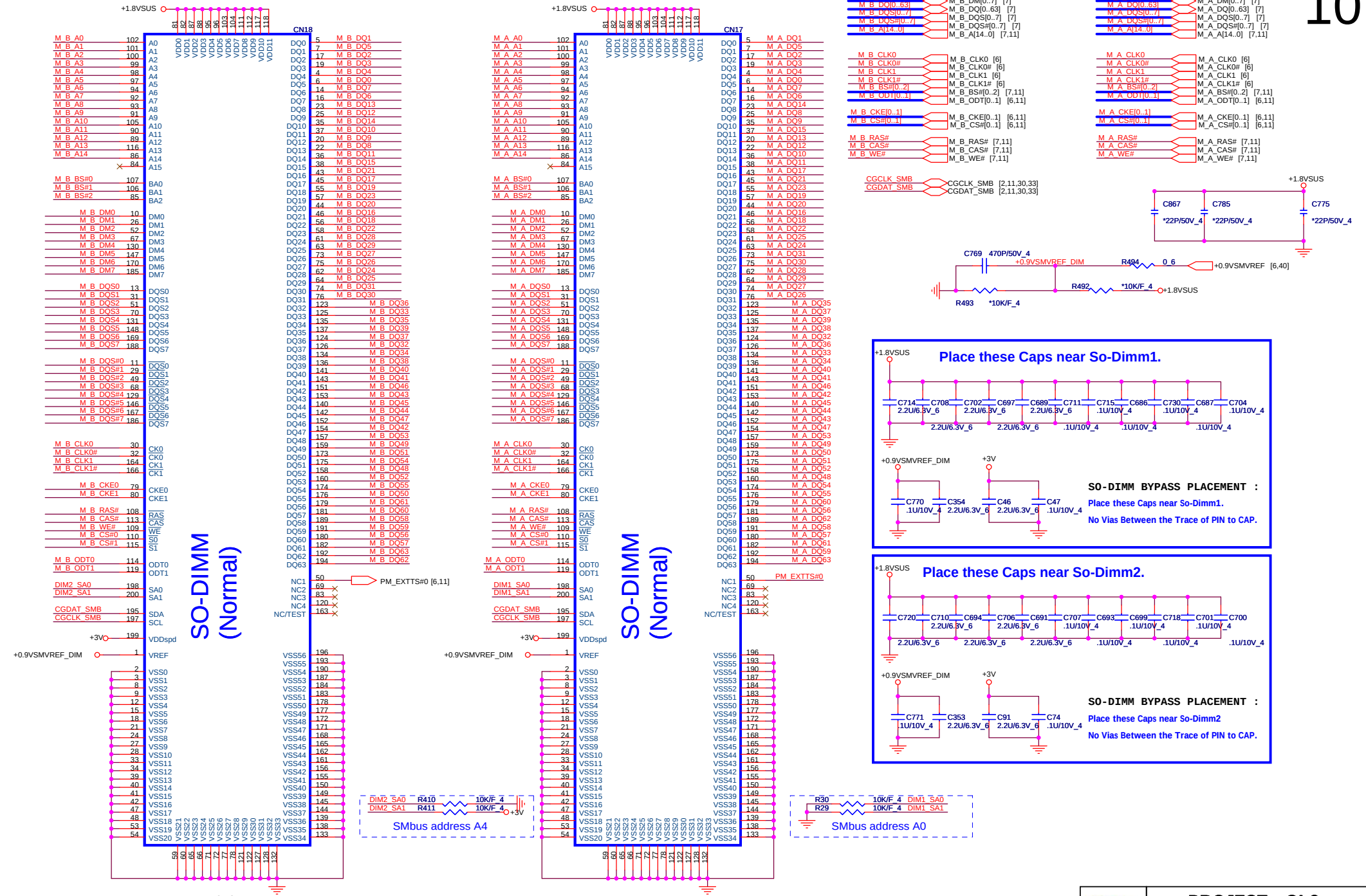
PV — +1.05V — L30 *10uH/100MA_8 — +1.05V_DPLLA — C459 *220U/2.5V_B, C447 *.1U/10V_4 — int
PV — +1.05V — L31 *10uH/100MA_8 — +1.05V_DPLLB — C449 *220U/2.5V_B, C451 *.1U/10V_4 — int
PV — +1.05V — +1.05V_HPLL — C247 4.7U/6.3V_6, C256 .1U/10V_4
PV — +1.05V — +1.05V_MPLL — L17 HCB1608KF-181T15_6 — +1.05V_MCH_PLL — R119 0.5/F_6 — C262 10U/6.3V_8, C246 .1U/10V_4
PV — +1.5V — +1.5V_TVDAC — C305 .1U/10V_4, C336 .022U/16V_4 — L21 HCB1608KF-181T15_6 — +1.5V_QDAC — C322 .1U/10V_4, C321 .1U/10V_4, C329 .022U/16V_4, C328 1U/6.3V_4
+1.05V — +1.05V_PEGPLL — L22 HCB1608KF-181T15_6 — R151 1/F_6 — C347 10U/6.3V_8

NB5

PROJECT : QL8
Quanta Computer Inc.

Size	Document Number	Rev
Custom	Cantiga Power 5/5	3A

Date: Tuesday, April 08, 2008 Sheet 9 of 45



NB5

PROJECT : QL8
Quanta Computer Inc.

Size	Document Number	Rev
Custom	DDR2 DIMM	3A

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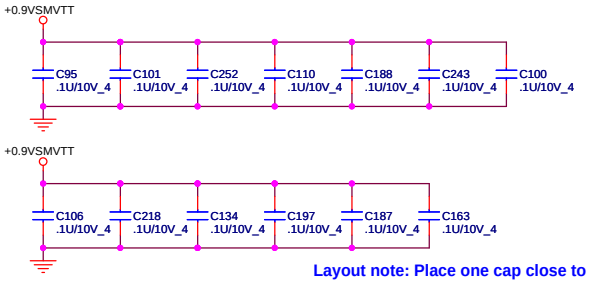
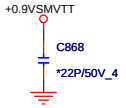
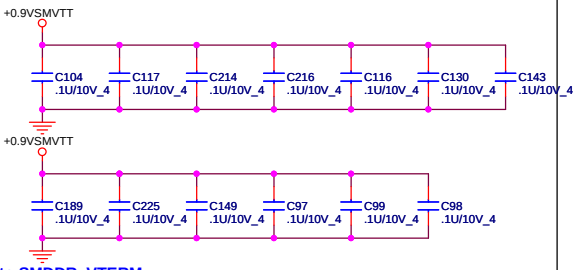
DDRII DUAL CHANNEL A,B.

DDRII A CHANNEL

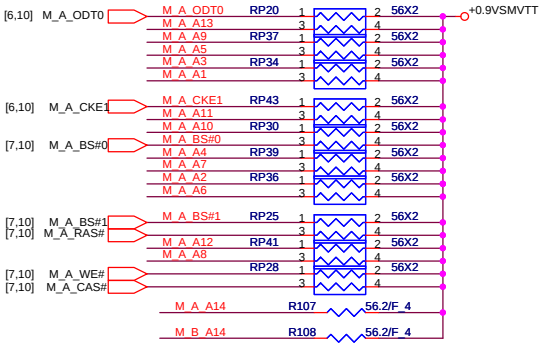


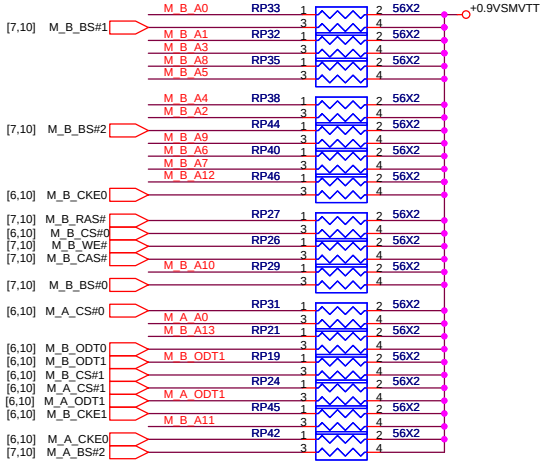


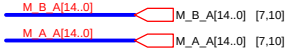
DDRII B CHANNEL

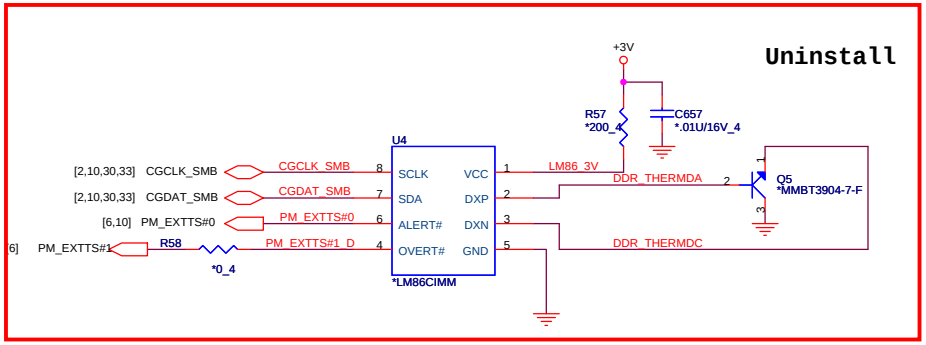


Layout note: Place one cap close to every 2 pullup resistors terminated to SMDDR_VTERM





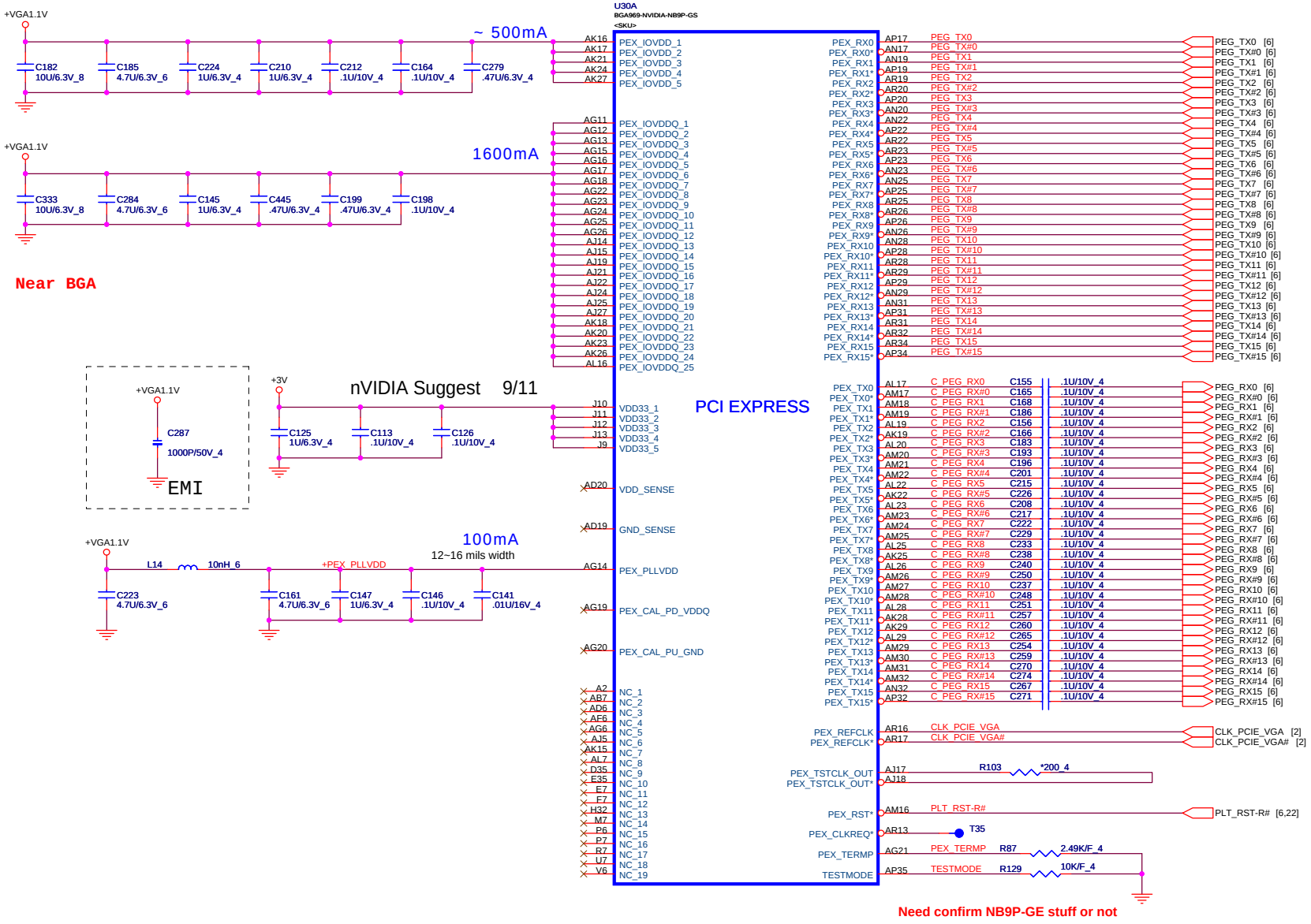




+0.9VSMVTT [40]

+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 : QL8 Quanta Computer Inc.	
	Size: Custom Document Number: DDR2 termination	Rev: 3A
	Date: Tuesday, April 08, 2008	Sheet 11 of 45



PROJECT : QL8
Quanta Computer Inc.

Size	Document Number	Rev
Custom	NV9X (PCIE I/F) 1/5	3A

NB5

Date: Tuesday, April 08, 2008 | Sheet 12 of 45

U30B
BGA969-NVIDIA-NB9P-GS
<SKU>

MEMORY I/F A

U30C
BGA969-NVIDIA-NB9P-GS
<SKU>

MEMORY I/F B

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

use internal Vref, ext divider no stuff

For Debug only

15mils width

R192 Install for DDR3

R178 no stuff

G96 only

For G96 only
For NB9P-GE2 only

PROJECT : QL8
Quanta Computer Inc.

NB5

Size: Custom | Document Number: NV9X (MEMORY I/F) 2/5 | Rev: 3A

Date: Tuesday, April 08, 2008 | Sheet 13 of 45

U30D

BGA969-NVIDIA-NB9P-GS

<SKU>

IFPAB(LVDS)

+1.8V

100 mA

L43 HCB1608KF-181T15_6 +IFPAB_PLLVDD AK9 IFPAB_PLLVDD

C684 4.7U/6.3V_6 C690 4700P/25V_4 C122 470P/50V_4

R68 *1K/F_4 AJ11 IFPAB_RSET

50 mA AG9 IFPA_IOVDD

50 mA AG10 IFPB_IOVDD

L9 HCB1608KF-181T15_6 +IFPAB_IOVDD

C66 4.7U/6.3V_6 C63 4.7U/6.3V_6 C70 4700P/25V_4 C133 4700P/25V_4 C67 470P/50V_4 C120 470P/50V_4

IFPA_TXC AM11 EXT_TXLCLKOUT+ [19]
IFPA_TXC* AM12 EXT_TXLCLKOUT- [19]
IFPA_TXD0 AM8 EXT_TXLOUT0+ [19]
IFPA_TXD0* AL8 EXT_TXLOUT0- [19]
IFPA_TXD1 AM10 EXT_TXLOUT1+ [19]
IFPA_TXD1* AM9 EXT_TXLOUT1- [19]
IFPA_TXD2 AK10 EXT_TXLOUT2+ [19]
IFPA_TXD2* AL10 EXT_TXLOUT2- [19]
IFPA_TXD3 AK11
IFPA_TXD3* AL11
IFPB_TXC AP13 EXT_TXUCLKOUT+ [19]
IFPB_TXC* AN13 EXT_TXUCLKOUT- [19]
IFPB_TXD0 AN8 EXT_TXUOUT0+ [19]
IFPB_TXD0* AP8 EXT_TXUOUT0- [19]
IFPB_TXD5 AP10 EXT_TXUOUT1+ [19]
IFPB_TXD5* AN10 EXT_TXUOUT1- [19]
IFPB_TXD6 AR11 EXT_TXUOUT2+ [19]
IFPB_TXD6* AR10 EXT_TXUOUT2- [19]
IFPB_TXD7 AN11
IFPB_TXD7* AP11

+1.8V

L11 HCB1608KF-181T15_6 +IFPCD_PLLVDD AJ9 IFPCD_PLLVDD

C195 1U/6.3V_4 0827b C102 4.7U/6.3V_6 C115 4700P/25V_4 C108 470P/50V_4

R440 1K/F_4 AK7 IFPCD_RSET

+VGA1.1V

L12 HCB1608KF-181T15_6 +IFPCD_IOVDD

C678 4.7U/6.3V_6 C114 1U/6.3V_4 C679 1U/6.3V_4 C107 4700P/25V_4 C118 470P/50V_4 C109 470P/50V_4

AJ8 IFPC_IOVDD

AK8 IFPD_IOVDD

IFPCD

IFPC

AUX* AN3
AUX AP2
DPL3_TXC AR2 N_TXC_HDMI- N_TXC_HDMI- [20]
DPL3_TXC* AP1 N_TXC_HDMI+ N_TXC_HDMI+ [20]
DPL2_TXD0 AM4 N_TX0_HDMI- N_TX0_HDMI- [20]
DPL2_TXD0* AM3 N_TX0_HDMI+ N_TX0_HDMI+ [20]
DPL1_TXD1 AM5 N_TX1_HDMI- N_TX1_HDMI- [20]
DPL1_TXD1* AL5 N_TX1_HDMI+ N_TX1_HDMI+ [20]
DPL0_TXD2 AM6 N_TX2_HDMI- N_TX2_HDMI- [20]
DPL0_TXD2* AM7 N_TX2_HDMI+ N_TX2_HDMI+ [20]

Fix Ball out and Pin Name

IFPD

AUX AN4
AUX* AP4
DPL3_TXC AR4
DPL3_TXC* AR5
DPL2_TXD0 AP5
DPL2_TXD0* AN5
DPL1_TXD1 AN7
DPL1_TXD1* AP7
DPL0_TXD2 AR7
DPL0_TXD2* AR8

TMDS channel two

IFPEF

IFPEF_PLLVDD AJ6

R85 10K/F_4 T29 AL1 IFPEF_RSET

AE7 IFPE_IOVDD

AD7 IFPF_IOVDD

R54 10K/F_4

IFPE_AUX AE4
IFPE_AUX* AD4
IFPE_L0 AH6
IFPE_L0* AH5
IFPE_L1 AH4
IFPE_L1* AG4
IFPE_L2 AF4
IFPE_L2* AF5
IFPE_L3 AF6
IFPE_L3* AE5
IFPF_AUX AE3
IFPF_AUX* AE2
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

+3V

L10 HCB1608KF-181T15_6 +DACA_VDD AJ12 DACA_VDD

0827b C88 4.7U/6.3V_6 C131 4700P/25V_4 C673 470P/50V_4 C136 .1U/10V_4

DACA_VREF AK12 DACA_VREF

DACA_RSET AK13 DACA_RSET

R453 124/F_4

DACA(CRT)

DACA_RED AM15 CRT_R [6,20]
DACA_GREEN AM14 CRT_G [6,20]
DACA_BLUE AL14 CRT_B [6,20]
DACA_HSYNC AM13 CRT_HSYNC R89 33_4 HSYNC_COM [6,20]
DACA_VSYNC AL13 CRT_VSYNC R93 33_4 VSYNC_COM [6,20]
I2CA_SCL G1 DDCCLK [6,20]
I2CA_SDA G4 DDCDATA [6,20]

CRT_R R100 150/F_4
CRT_G R98 150/F_4
CRT_B R95 150/F_4

Close to GPU

+DACB_VDD AG7 DACB_VDD

T34 AK6 DACB_VREF

T26 AH7 DACB_RSET

R45 10K/F_4

DACC(CRT2)

DACC_RED AK4
DACC_GREEN AL4
DACC_BLUE AJ4
DACC_HSYNC AM1
DACC_VSYNC AM2
I2CB_SCL G3 I2CB_SCL R43 2.2K_4
I2CB_SDA G2 I2CB_SDA R44 2.2K_4

+3V

10K/F_4 R46 +DACC_VD AC6 DACB_VDD

T8 AC5 DACB_VREF

T11 AB6 DACB_RSET

DACB(TV)

DACB_RED AA4
DACB_GREEN AB4
DACB_BLUE Y4
DACB_CSYNC AB5 T9

SI Build

+VGA1.1V

L13 HCB1608KF-181T15_6 +NV_PLLVDD AE9 PLLVDD

65mA AD9 VID_PLLVDD

50mA AF9 SP_PLLVDD

25mA

C132 1U/6.3V_4 C112 1U/6.3V_4 C121 1U/6.3V_4 C127 .1U/10V_4 C111 .1U/10V_4

XTAL_PLL

XTAL_SSIN D2 XTAL_SSIN R436 0_4 27M_SS [2]
XTAL_OUTBUFF D1 BXTALOUT
XTAL_IN B1 XTALIN
XTAL_OUT B2 XTALOUT

Y1 2 *27MHZ 1

R70 0_4 27M_NONSS [2]

C75 *18P/50V_4 5*3 package C76 *18P/50V_4

PLACE CLOSE TO GPU

STUFF PDs on XTALSSIN and XTALOUTBUFF WHEN EXT_SS IS NOT USED

SPREAD SPECTRUM

+3V R37 *10K/F_4

+3V R34 *10K/F_4

SI Build

R50 *22_4 XTAL_SSIN

C62 *10P/50V_4

GFX27M_L

U6

ICSS_PD 8 PD# VDD 2 +3V_SSC

BXTALOUT 1 CLKIN CLKOUT 4

REFOUT 5 ICSS_RFO

EDIDCLK 7 SCL

EDIDDATA 6 SDA GND 3

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

R69 *10K/F_4

C78 *470P/50V_4 C72 *1U/10V_4 C92 *4.7U/6.3V_6 C89 *4.7U/6.3V_6

R72 *4.7_6 +3V

*ICS91730AMLF-T

I2C ADDRESS: 0xD4H

27M_SS

BXTALOUT

R71 *10K/F_4 R437 *10K/F_4

Install it when not connected to Spread spectrum device

NB5	PROJECT : QL8 Quanta Computer Inc.		
Size: Custom	Document Number: NV9X (DISPLAY) 3/5		Rev: 3A
Date: Tuesday, April 08, 2008	Sheet 14 of 45		

NB9P-GE2 (G96) Straps
NB9M-GE (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 G9x Straps!

Logical Strap Bit Mapping

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

DB	9P-GE2 Qimonda	9M-GS-Hynix
R425	CS33482FB22 35K	CS34532FB18 45K
R429	CS24992FB26 4.99K	CS24992FB26 10K

not need stuff

Delete T31

HD Audio Level :3V

I2C ADDRESS: 0x98H

VGA THERMAIL CIRCUIT

THERMAL TRACE CONSTRAINTS
Use 10MIL Guard(GND) Trace around THERMDC and THERMDA

HDCP ROM

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

SI Build

Change P/N

Waiting Confirm from Nvidia

PROJECT :	QL8
Quanta Computer Inc.	
Size: C	Document Number: NV9X (GPIO & STRRAPS) 4/5
Rev: 3A	
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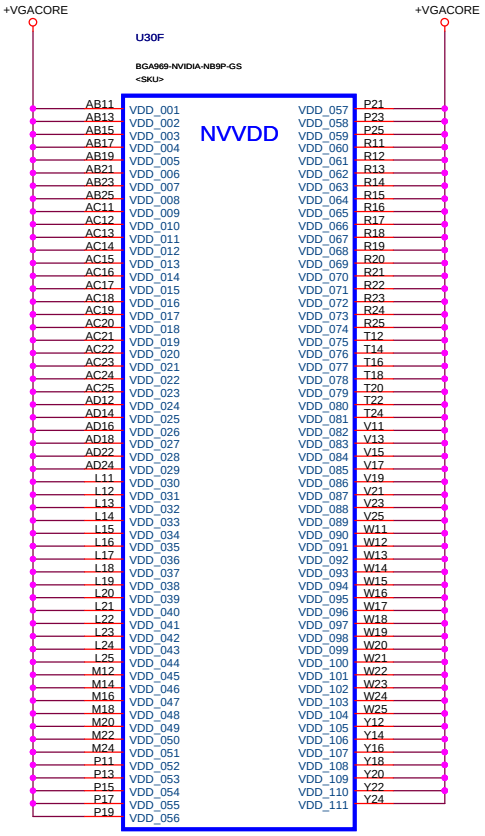
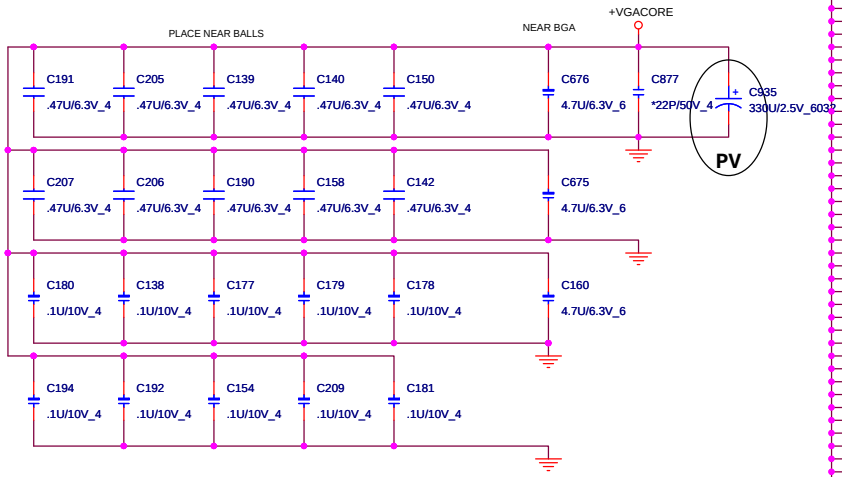
NB5

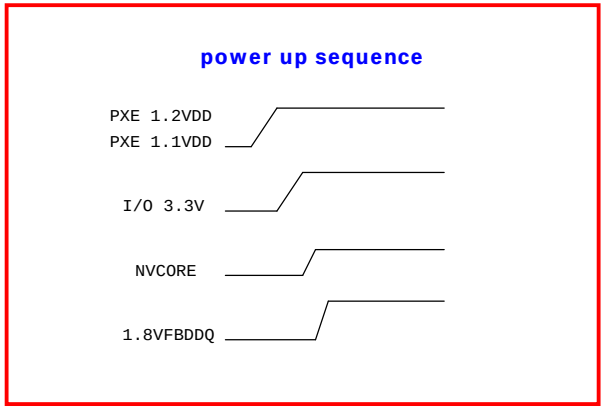
NVVDD Decoupling

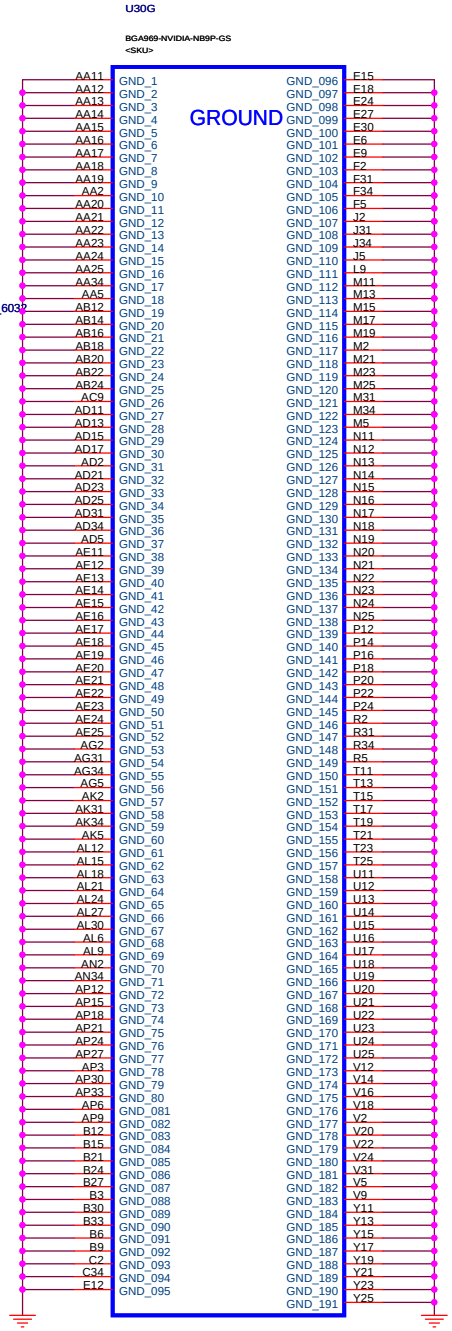




Follow Design Guide DG-03276-001 4.7uFx3 and 0.47x10 uF instead of 0.1uF x10

NB9M: VGACORE +0.90V (Normal) , +1.09V



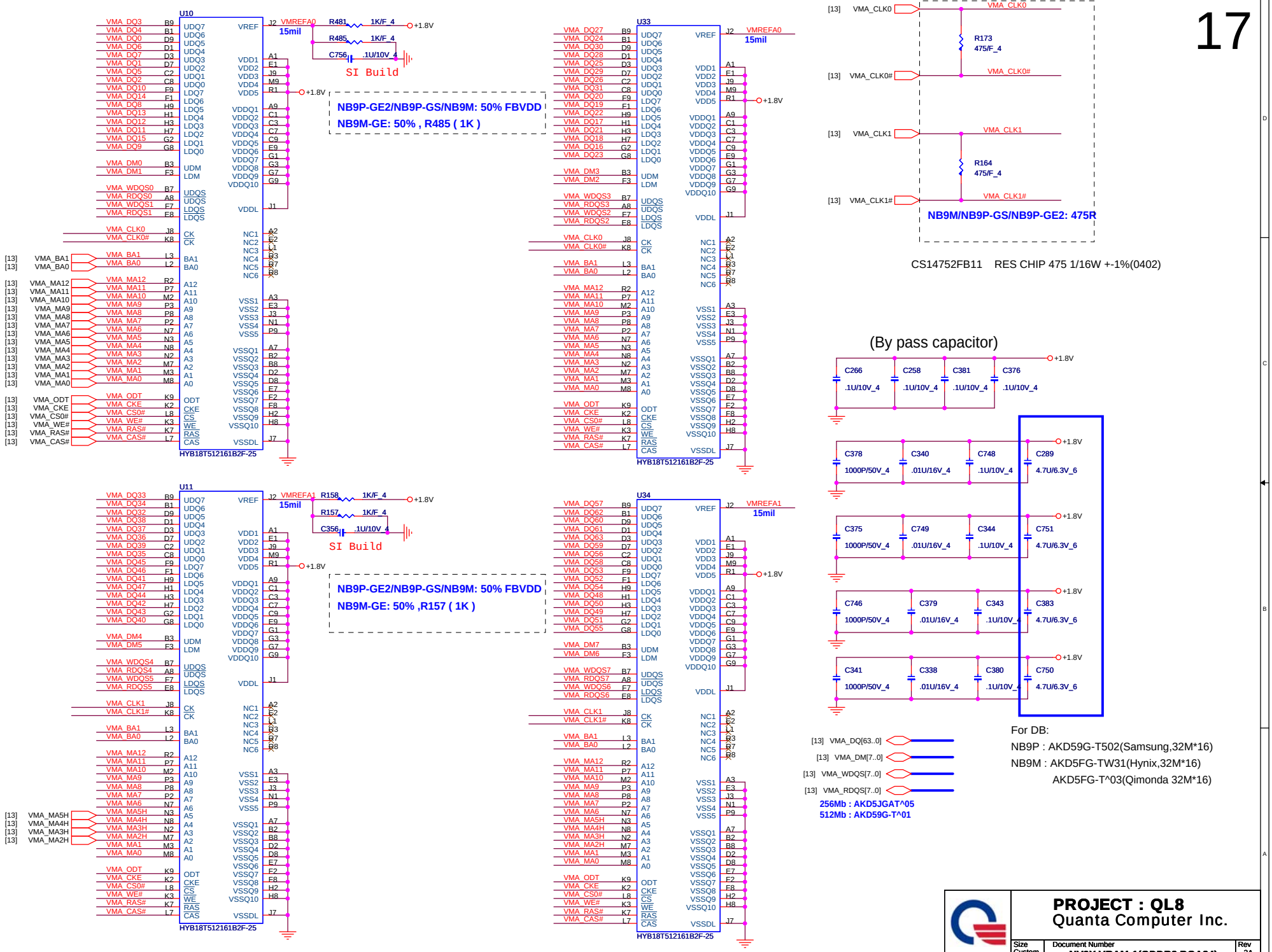


NB5

PROJECT : QL8
Quanta Computer Inc.

Size	Document Number	Rev
Custom	NV9X (POWER & GND) 5/5	3A

Date: Tuesday, April 08, 2008 Sheet 16 of 45



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

(By pass capacitor)

256Mb : AKD5JGAT^05
512Mb : AKD59G-T^01

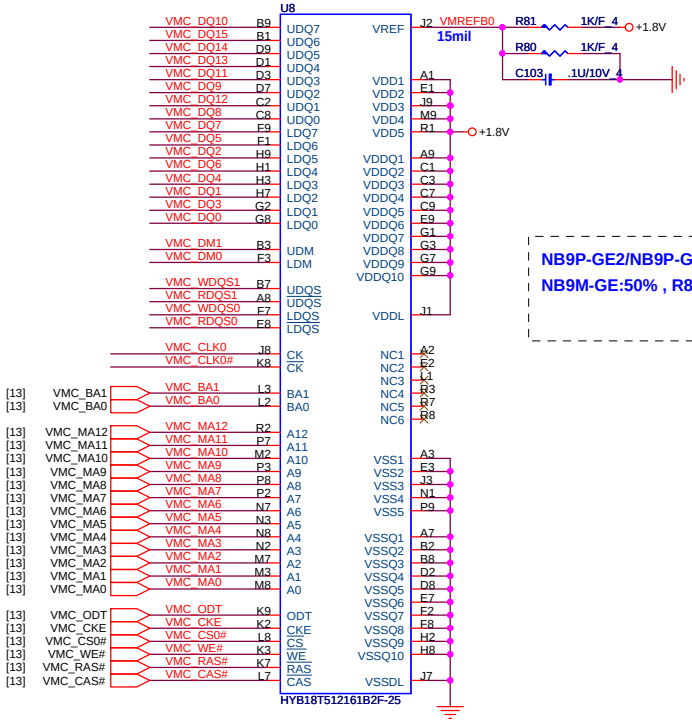
For DB:
NB9P : AKD59G-T502(Samsung,32M*16)
NB9M : AKD5FG-TW31(Hynix,32M*16)
AKD5FG-T^03(Qimonda 32M*16)

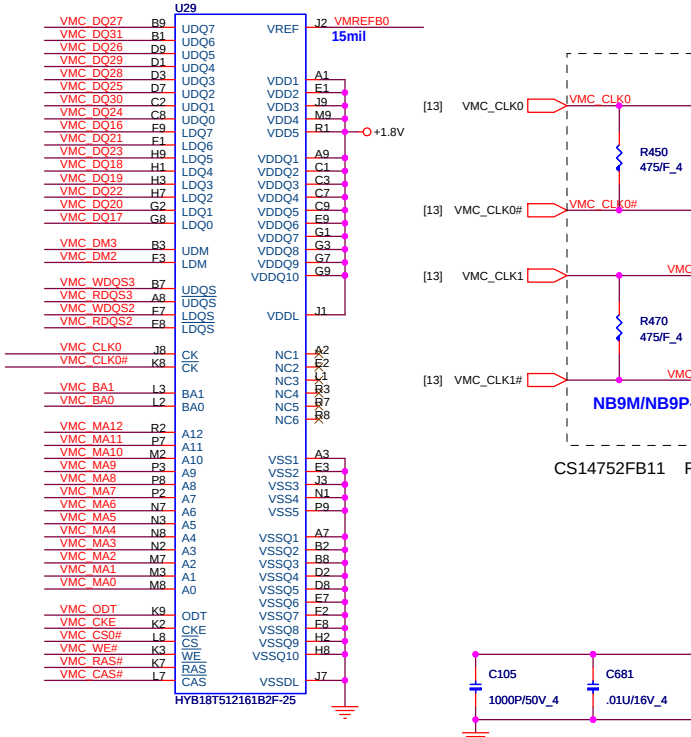
PROJECT : QL8
Quanta Computer Inc.

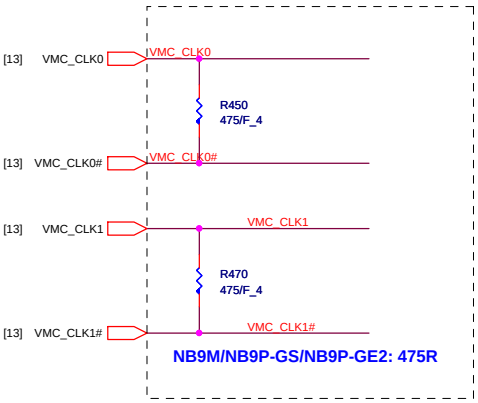
NB5

Size	Document Number	Rev
Custom	NV9X VRAM-1(GDDR2 BGA84)	3A

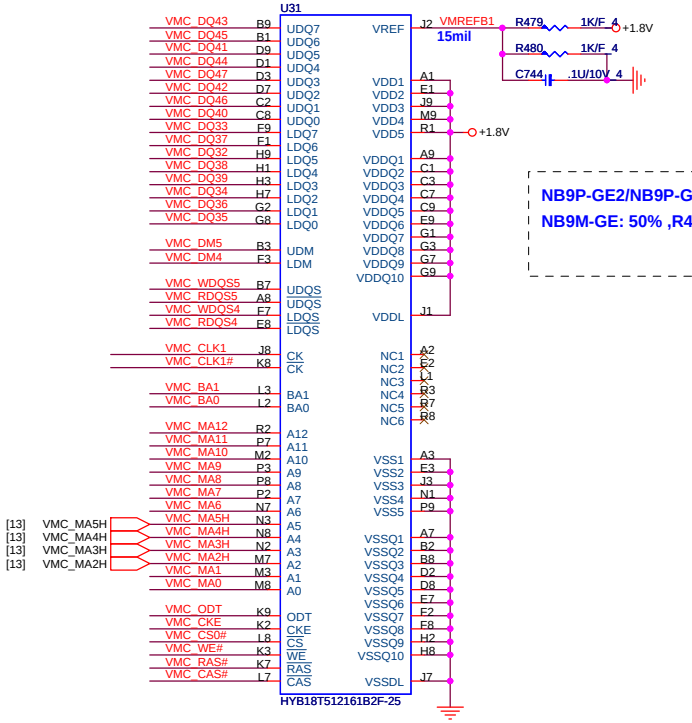
Date: Tuesday, April 08, 2008 Sheet 17 of 45

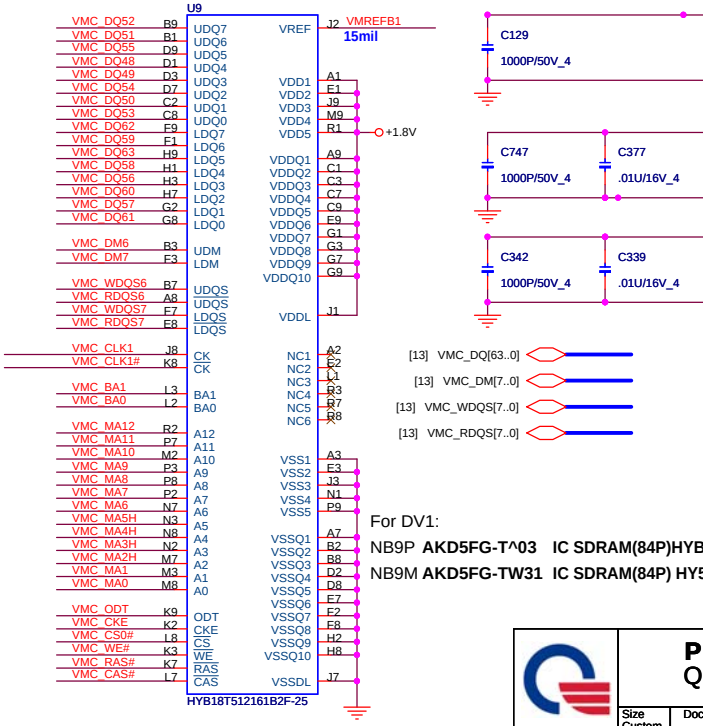


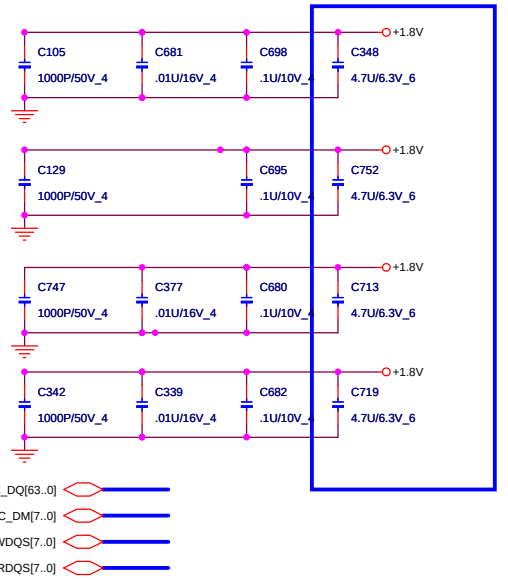




CS14752FB11 RES CHIP 475 1/16W +-1%(0402)







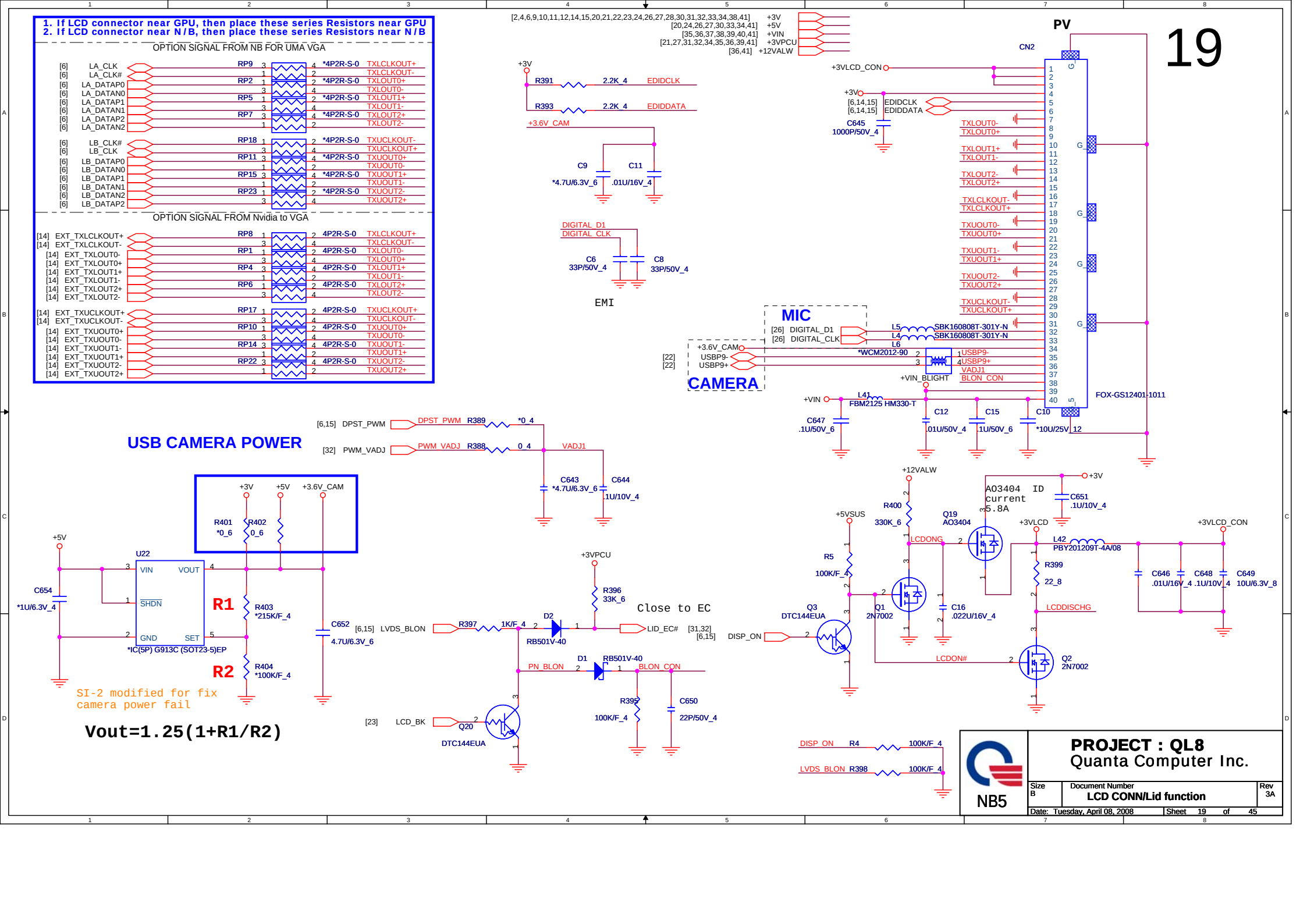
[13] VMC_DQ[63..0]
[13] VMC_DM[7..0]
[13] VMC_WDQS[7..0]
[13] VMC_RDQS[7..0]

For DV1:

NB9P **AKD5FG-T^03** IC SDRAM(84P)HYB18T512161B2F-25(TFBGA) Qimonda

NB9M **AKD5FG-TW31** IC SDRAM(84P) HY5PS121621CFP-25(FBGA) Hynix

NB5	**PROJECT : QL8** Quanta Computer Inc.	
Size: Custom	Document Number: **NV9X VRAM-2(GDDR2 BGA84)**	Rev: 3A
Date: Tuesday, April 08, 2008	Sheet 18 of 45	


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
OPTION SIGNAL FROM Nvidia to VGA
EMI
MIC
CAMERA
PV
CN2
FOX-GS12401-1011
USB CAMERA POWER
SI-2 modified for fix camera power fail
Vout=1.25(1+R1/R2)
*IC(5P) G913C (SOT23-5)EP
Close to EC
AO3404 ID current 5.8A
PROJECT : QL8
Quanta Computer Inc.
NB5
LCD CONN/Lid function
Date: Tuesday, April 08, 2008
Sheet 19 of 45
19

[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

CN11
070546FR015S202CR

+5VCRT C642 .1U/10V_4
F2 40 mils
+5V FUSE1A6V_POLY SSM14 spec is 40V 1A
40 MIL

CRT_R_CON L1 BLM18BA470SN1 CRT_R1
CRT_G_CON L2 BLM18BA470SN1 CRT_G1
CRT_B_CON L3 BLM18BA470SN1 CRT_B1

R1 150/F_4 R2 150/F_4 R3 150/F_4
C1 6.8P/50V_4 C3 6.8P/50V_4 C5 6.8P/50V_4
C7 6.8P/50V_4 C4 6.8P/50V_4 C2 6.8P/50V_4

EMI

R386 0_4 DDCCLK3
R384 0_4 CRTVSYNC
R383 0_4 CRTHSYNC
R382 0_4 DDCDAT3

C653 .1U/10V_4
U24 M74VHC1GT125DF2G
U23 M74VHC1GT125DF2G
[6,14] VSYNC_COM
[6,14] HSYNC_COM
PR_VSYNC [34]
PR_HSYNC [34]

C641 *470P/50V_4
C640 *47P/50V_4
C639 *47P/50V_4
C638 *470P/50V_4

Q18 2N7002EPT
Q17 2N7002EPT
R392 2.2K_4
R390 2.2K_4
[6,14] DDCCLK
[6,14] DDCDATA
DDCCLK2 [34]
DDCDAT2 [34]

R387 2.2K_4
R385 2.2K_4
+5VCRT +5V_CRT2
RB501V-40 D21

DV2-Change footprint

D16 *BAV99W CRT_R_CON
D18 *BAV99W CRT_G_CON
D20 *BAV99W CRT_B_CON
D22 *BAV99W DDCCLK2
D19 *BAV99W PR_VSYNC
D17 *BAV99W PR_HSYNC
D15 *BAV99W DDCDAT2
PV +5V

CRT SWITCH

U2 74CBT3257
[34] PR_RED
[34] PR_GEN
[34] PR_BLU
[34] PR_INSERT_R#
CRT_R_CON CRT_G_CON CRT_B_CON
CRT_R [6,14] CRT_G [6,14] CRT_B [6,14]
C21 .1U/10V_4 PV EMI
R15 10K/F_4

inputs		function
/E	SET	
L	L	Y - port 0
L	H	Y - port 1
H	X	Disconnect

For UMA HDMI function

L44 EMI *0_6
PC0 R448 *0_4
PC1 R445 *0_4
REXT R442 *0_4
RT_EN# R431 *0_4
CFG1 R461 *0_4
CFG0 R449 *0_4

TXC_HDMI+ TXC_HDMI- *4P2R-S-0 RP3 N_TXC_HDMI+ N_TXC_HDMI-
TX0_HDMI+ TX0_HDMI- *4P2R-S-0 RP12 N_TX0_HDMI+ N_TX0_HDMI-
TX1_HDMI+ TX1_HDMI- *4P2R-S-0 RP13 N_TX1_HDMI+ N_TX1_HDMI-
TX2_HDMI+ TX2_HDMI- *4P2R-S-0 RP16 N_TX2_HDMI+ N_TX2_HDMI-

U27 *PI3VDP411LSZDE
POWER: VCC
IN_D1+ IN_D1- IN_D2+ IN_D2- IN_D3+ IN_D3- IN_D4+ IN_D4- SCL SDA HPD
OUT_D1+ OUT_D1- OUT_D2+ OUT_D2- OUT_D3+ OUT_D3- OUT_D4+ OUT_D4- SCL_SINK SDA_SINK HPD_SINK
DDC_EN PC0 PC1 DDCBUF_EN CFG RT_EN# OE# REXT
CONTROL GND

[6] IN_CLK IN_CLK# IN_D0 IN_D0# IN_D1 IN_D1# IN_D2 IN_D2#
[6] SDVO_CLK SDVO_DATA HDMI_HPD_CON
SDVO_DATA SDVO_CLK
HDMI_SCL HDMI_SDA HDMI_DET

R422 R451 R446 R457 R452 *4.7K_4
DDC_EN PC0 PC1 CFG1 CFG0
R444 *499/F_4 REXT

C685 C666 C683 C669 C96 C667 *.1U/10V_4
*.01U/16V_4

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

SCLZ/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

+5V_HDMIC D23 RB501V-40
R124 2K/F_4 R127 2K/F_4
[15] HDMI_SCL R125 33_4 HDMI_SCL_C L18 0_6 HDMISCL
[15] HDMI_SDA R126 33_4 HDMI_SDA_C L19 0_6 HDMISDA
C731 C729 *10P/50V_4

For EXT VGA

UMA : 0R
NB9M/NB9P-GE2/NB9P-GW: 0.1uF

[14] N_TX2_HDMI+ N_TX2_HDMI- C350 C335 .1U/10V_4
[14] N_TX1_HDMI+ N_TX1_HDMI- C318 C311 .1U/10V_4
[14] N_TX0_HDMI+ N_TX0_HDMI- C323 C331 .1U/10V_4
[14] N_TXC_HDMI+ N_TXC_HDMI- C301 C288 .1U/10V_4

C_TX2_HDMI+ C_TX2_HDMI- C_TX1_HDMI+ C_TX1_HDMI- C_TX0_HDMI+ C_TX0_HDMI- C_TXC_HDMI+ C_TXC_HDMI-

Only for NVIDIA
Q22 2N7002
R482 R478 R471 R469 R474 R477 R467 R466 499/F_4

FUSE1A6V_POLY F1 +5V +5V_HDMIC
HDMI_DET_N L45 0_6 HDMI_DET_C
C732 220P/50V_4

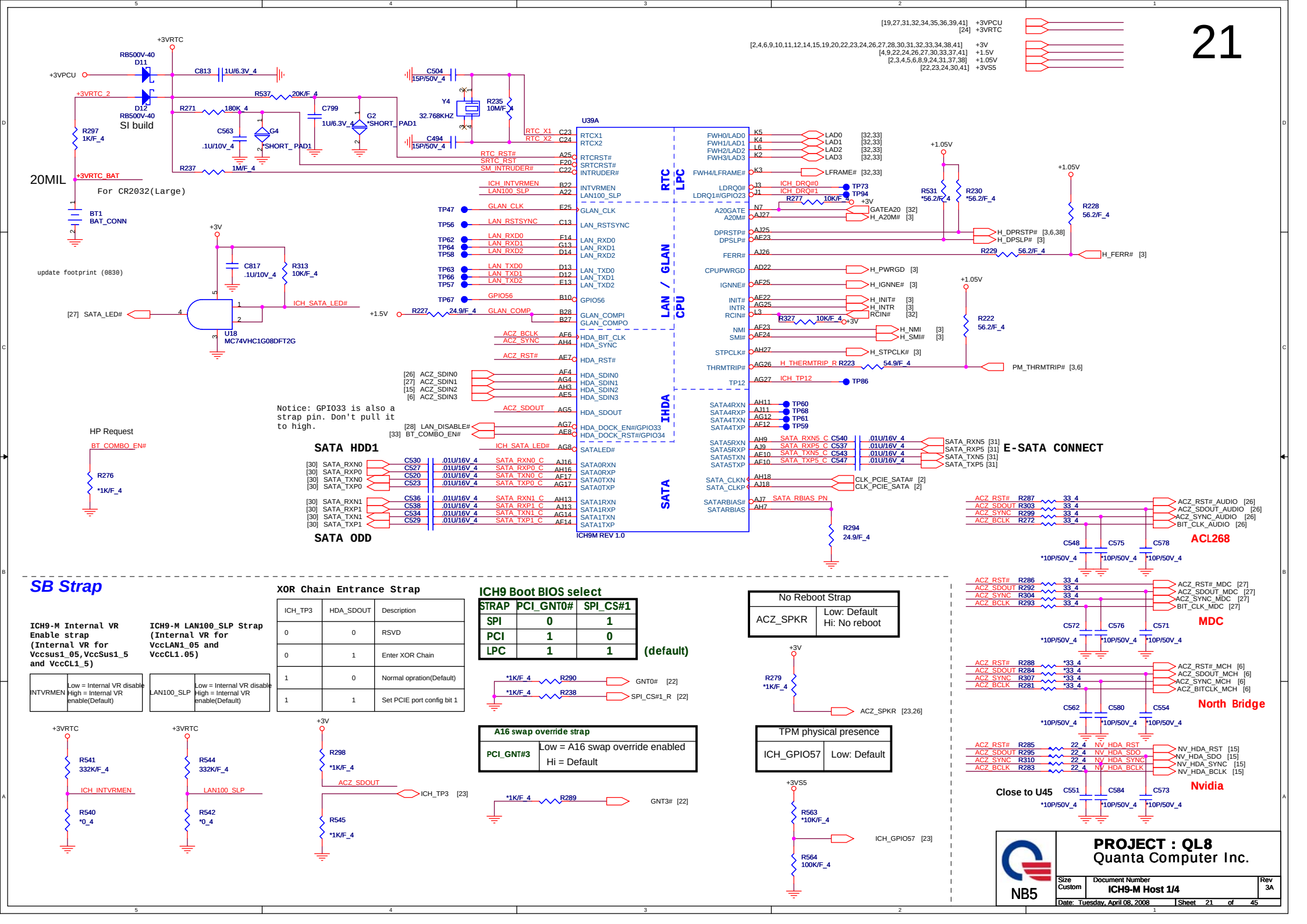
CN20 HDMI CONN
SHELL1 SHELL3 SHELL4 SHELL2
D2+ D2 Shield D2- D1+ D1 Shield D1- D0+ D0 Shield D0- CK+ CK Shield CK- CE Remote NC DDC CLK DDC DATA GND +5V HP DET

[15] HDMI_DET R47 10K/F_4 HDMI_DET_N
BAV99W D6
R48 100K/F_4

HDMI PORT

+5V_HDMIC C330 *.01U/16V_4
for EMI request

NB5	PROJECT : QL8 Quanta Computer Inc.	
Size C	Document Number CRT/PS8101 HDMI Conn	Rev 3A
Date: Tuesday, April 08, 2008	Sheet 20 of 45	



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)

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

No Reboot Strap	
ACZ_SPKR	Low: Default Hi: No reboot

TPM physical presence	
ICH_GPIO57	Low: Default

PROJECT : QL8
Quanta Computer Inc.

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

Date: Tuesday, April 08, 2008 Sheet 21 of 45

[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

DV2-FOR ITPM

U39D

PCI-Express Direct Media Interface

SPI

USB

ICH9M REV 1.0

E-SATA and USB Connector
USB Connector
USB Connector
Docking
Card reader
NEW CARD
BLUETOOTH
Carama USB
WLAN Min-Card
WWAN Min-Card

DV2-1/15

512K byte SPI ROM
For HDCP only
For GM HDCP

EMI

U39B

PCI

Interrupt I/F

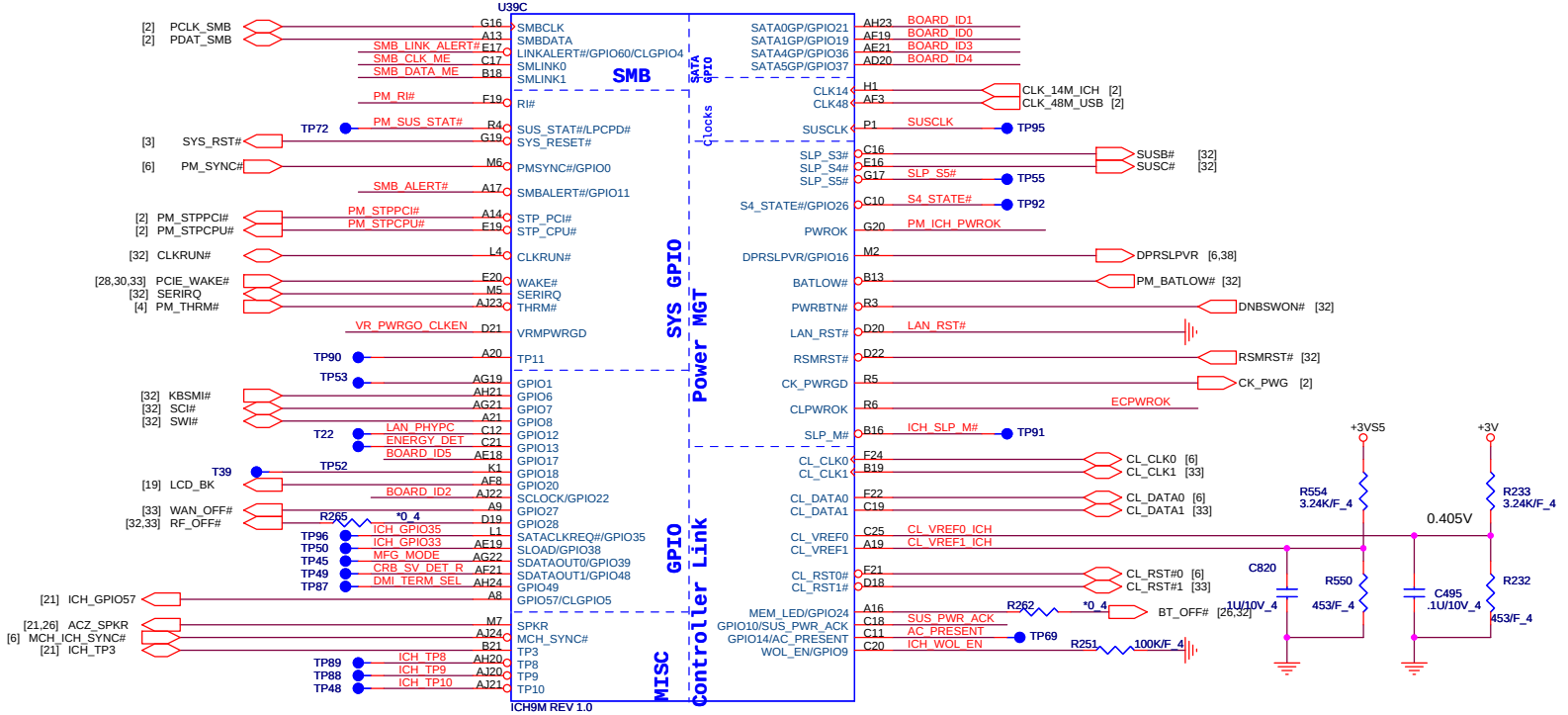
ICH9M REV 1.0

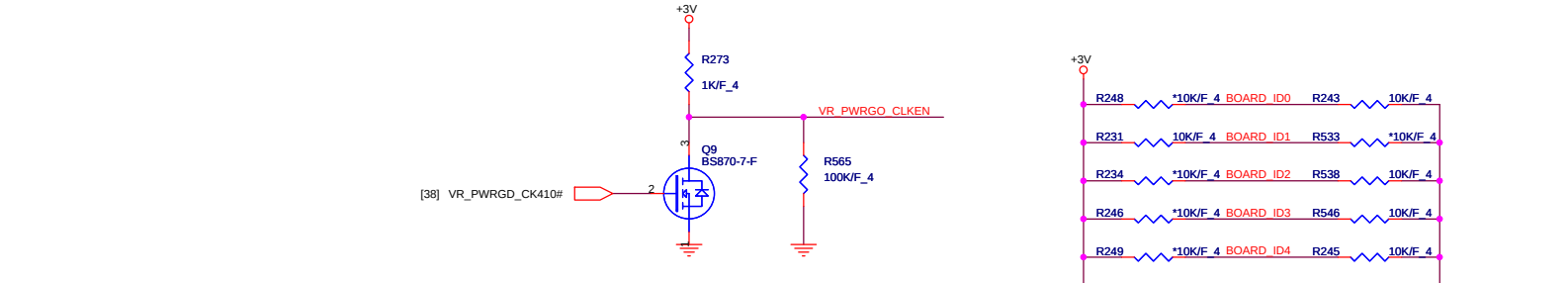
PV

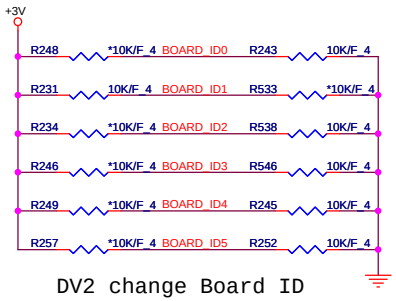
U40 *MC74VHC1G08DFT2G

RP50 RP61 RP52 RP51 10P8R-8.2K

[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



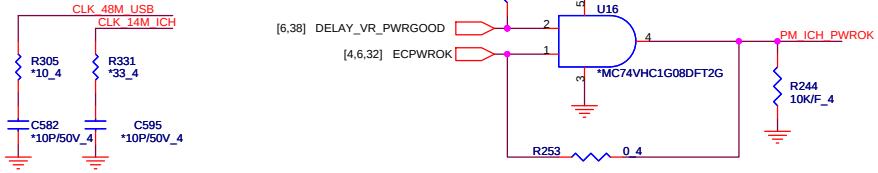


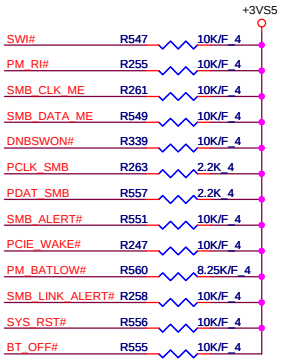


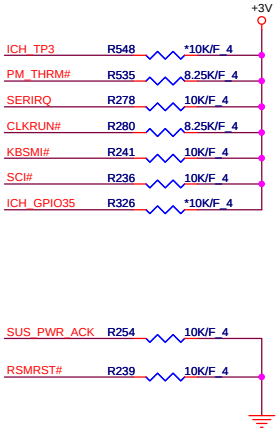
DV2 change Board ID

	Board	ID 3	ID 2	ID 1	ID 0
QL8	UMA	0	0	0	0
	9M	0	0	0	1
	9P	0	0	1	0

	Board	ID 3	ID 2	ID 1	ID 0
TW8	UMA	0	1	0	1
	9M	0	1	1	0
	9P	0	1	1	1







NB5
PROJECT : QL8
Quanta Computer Inc.
Size Custom
Document Number ICH9-M GPIO 3/4
Rev 3A
Date: Tuesday, April 08, 2008
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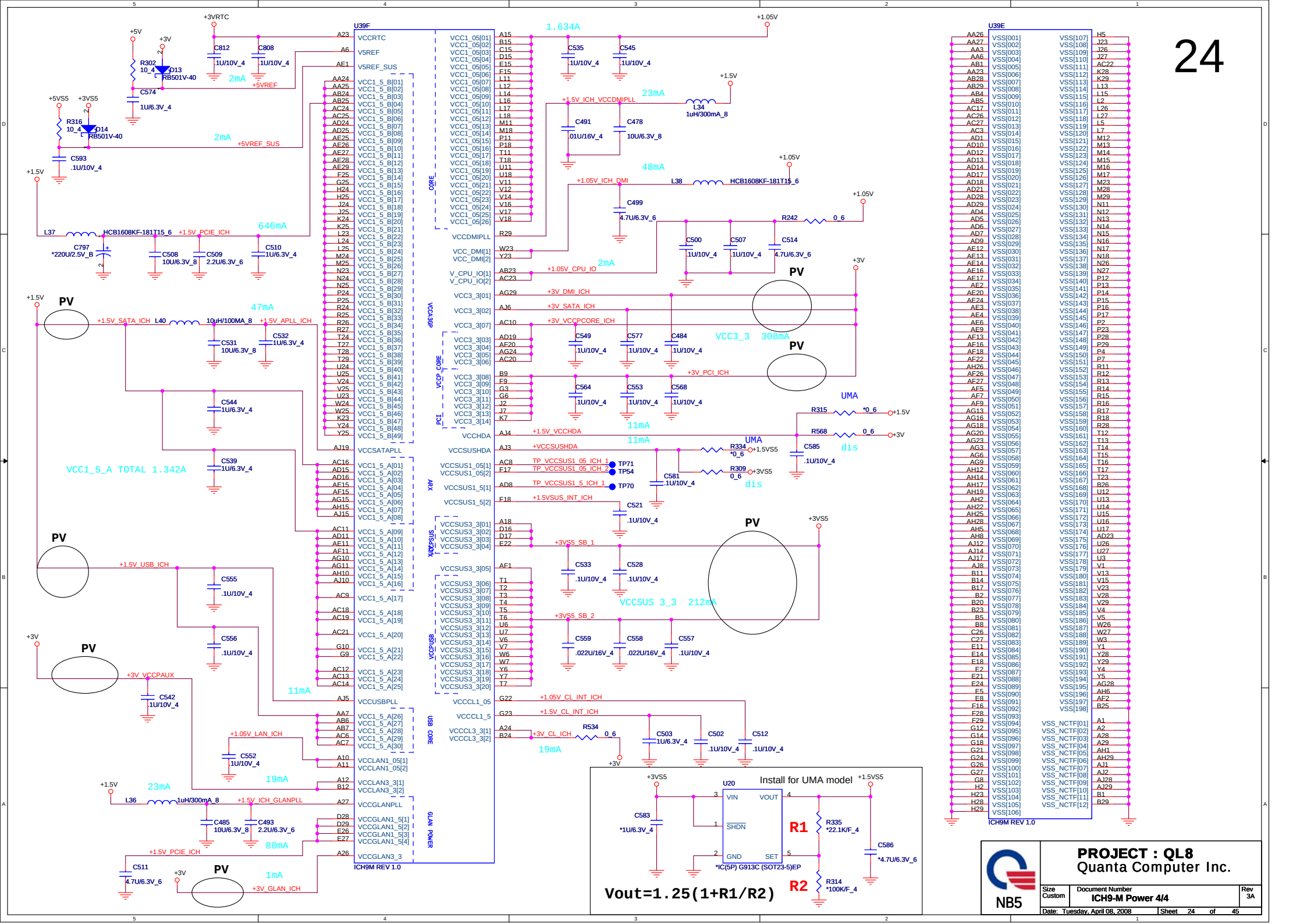

U39F
U39E
ICH9M REV 1.0
VCC1_5_A TOTAL 1.342A
1.634A
23mA
48mA
2mA
646mA
47mA
11mA
VCC3_3 308mA
VCCSUS 3_3 212mA
19mA
80mA
1mA
PV
UMA
dis
Install for UMA model
Vout=1.25(1+R1/R2)
*IC(5P) G913C (SOT23-5)EP
PROJECT : QL8
Quanta Computer Inc.
NB5
ICH9-M Power 4/4
Date: Tuesday, April 08, 2008
Sheet 24 of 45

Note:

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

For RTS5158

SP7 R525 0_4 MS_DATA0_SD_DAT0
R526 0_4 XD-D6
SP6 R527 0_4 MS_DATA1
R528 0_4 XD-D3
SP16 R514 0_4 SD_DAT2
R513 0_4 XD-RE#
SP5 R515 0_4 MS_BS
R516 0_4 XD-D5
SP15 R520 0_4 SD_DAT3
R517 0_4 XD_WE
SP11 R522 0_4 SD_CLK_MS_CLK
R521 0_4 XD-D1
SP10 R523 0_4 MS_DATA3
R524 0_4 XD-D7

For 5158E
[2] CLK_48M_CR R200 0_4 XTLO
R505 100K/F_4
+3VSUS
CARD_LEDO#
U37
CF_CD#
GPIO0
CF_D10
CF_D9
CF_D2
CF_D8/SM_CD#
CF_D1/XD_CD#
CF_D0/SM_WPM#/SD_WP
CF_A0/SD_CD#
CF_DMACK#
CF_A1/XD_D4
CF_DMARQ
XD_CD#
SD_WP
SD_CD#
XD-D4
R201 6.19K/F_4 RREF
RREF
[22] USBP6-
[22] USBP6+
R503 0_4 DM
R504 0_4 DP
DM
DP
Modify by Tony 8/10
C790 *5.6P/50V_4
R502 *270K_4
*12MHz
Y6
C794 *5.6P/50V_4
XTLO
XTLI
For 5158
BG6120000717
MODE_SEL
R507 *10K/F_4
C795 *47P/50V_4
For 5158
+3VSUS
R510 100K/F_4 5158_RST#
C796 1U/6.3V_4
RST#
Realtek RTS5158

XD_CLE/CF_D3
XD_CE#/CF_D11
XD_ALE/CF_D4
SD_DAT2/XD_RE#/CF_D12
SD_DAT3/XD_WE#/CF_D5
XD_RDY/CF_D13
SD_DAT4/XD_WP#/CF_D6
SD_CMD
SD_DAT5/XD_D0/CF_D14
SD_CLK/XD_D1/MS_CLK/CF_D7
SD_DAT6/XD_D7/MS_D3/CF_D15
CF_CS0#
MS_INS#/CF_IORD#
SD_DAT7/XD_D2/MS_D2/CF_IOWR#
SD_DAT0/XD_D6/MS_D0/CF_RST#
SD_DAT1/XD_D3/MS_D1/CF_IORDY
XD_D5/MS_BS/CF_A2
XD-CLE
XD-CE#
XD-ALE
SP16
SP15
XD-RB#
XD-WP#
SD_CMD
XD-D0
SP11
SP10
MS_CD#
MS_DATA2_XD_D2
SP7
SP6
SP5
AV_PLL_IN
C464 .1U/10V_4
C467 1U/6.3V_4
VREG_OUT
5V_IN
A3V3_IN
D3V3_IN
VREG
Vreg out 1.8V from Internal 3.3VLDO
+3VSUS_RTS
C456 .1U/10V_4
R501 0_6
+3VSUS
C454 4.7U/6.3V_6
C466 .1U/10V_4
C468 .1U/10V_4
D3V3_OUT
C465 .1U/10V_4
C463 4.7U/6.3V_6
+3VSUS
A3V3_OUT
+3VSUS
CARD_3V3_OUT
+3VCARD
AG33
AG_PLL
DGND2
DGND1
C792 1U/6.3V_4
C469 .1U/10V_4
C470 .1U/10V_4
+3VCARD
C793 .1U/10V_4
C457 .1U/10V_4
C458 .1U/10V_4

AL005158B10 -->RTS5158E
AL005158B00 -->RTS5158

For 5158
SP6 R511 *0_4 SD_DAT1
XD-D4 R509 0_4
For 5158E

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

C829 270P/25V_4
+3VCARD
+3VCARD
CN23
XD-RB#
XD-RE#
XD-CE#
XD-CLE
XD-ALE
XD_WE
XD-WP#
XD-D0
XD-D1
SD_DAT2
SD_DAT3
SD_CMD
SD_CLK_MS_CLK
MS_DATA3
MS_CD#
MS_DATA2_XD_D2
MS_DATA0_SD_DAT0
MS_DATA1
MS_BS
XD-R/B
XD-RE
XD-CE
XD-CLE
XD-ALE
XD-WE
XD-WP
XD-DATA0
XD-DATA1
SD-DATA2
SD-DATA3
SD-CMD
GND
MS-VCC
MS-SDLK
MS-DATA3
MS-INS
MS-DATA2
MS-DATA0
MS-DATA1
MS-BS
GND
SD-C/D
SD-CD-SW
SD-W/P
SD-WP-SW
XD-CD
XD-VCC
XD-DATA7
XD-DATA6
XD-DATA5
XD-DATA1
XD-DATA4
XD-DATA3
XD-DATA2
SD-DATA0
SD-CLK
SD-VCC
GND
GND
GND
GND
GND
SD_CD#
SD_CD#
SD_WP
SD_WP
XD_CD#
XD-D7
XD-D6
XD-D5
SD_DAT1
XD-D4
XD-D3
MS_DATA2_XD_D2
MS_DATA0_SD_DAT0
SD_CLK_MS_CLK
C806 270P/50V_4
C822 *270P/25V_4
5IN1 CARD READER SOCKET
PV change footprint

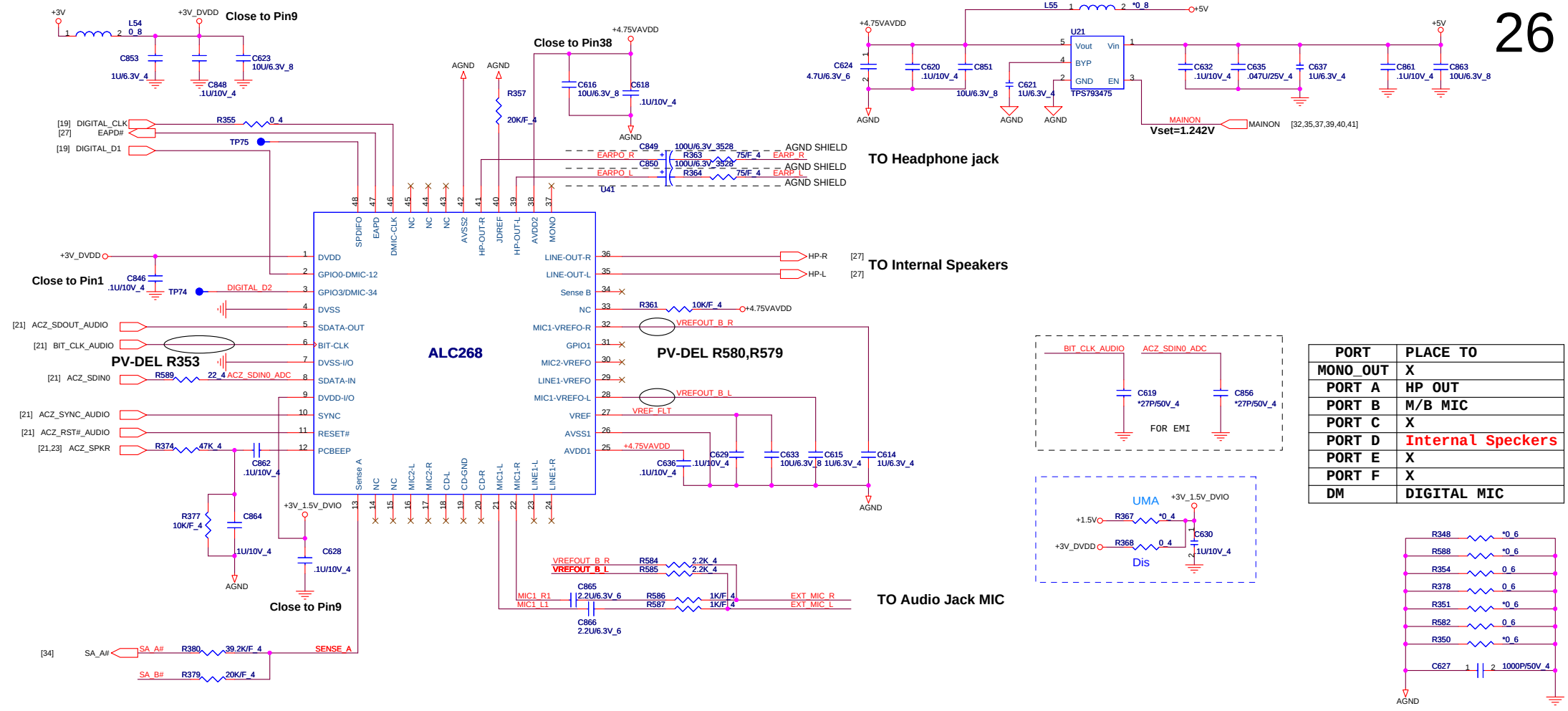
CLOSE CONN
+3VCARD
C810 4.7U/6.3V_6
R539 150K/F_4
+3VCARD
C826 .1U/10V_4
C825 .1U/10V_4
C821 .1U/10V_4

DV2 add 2'nd source
Co-lay card reader

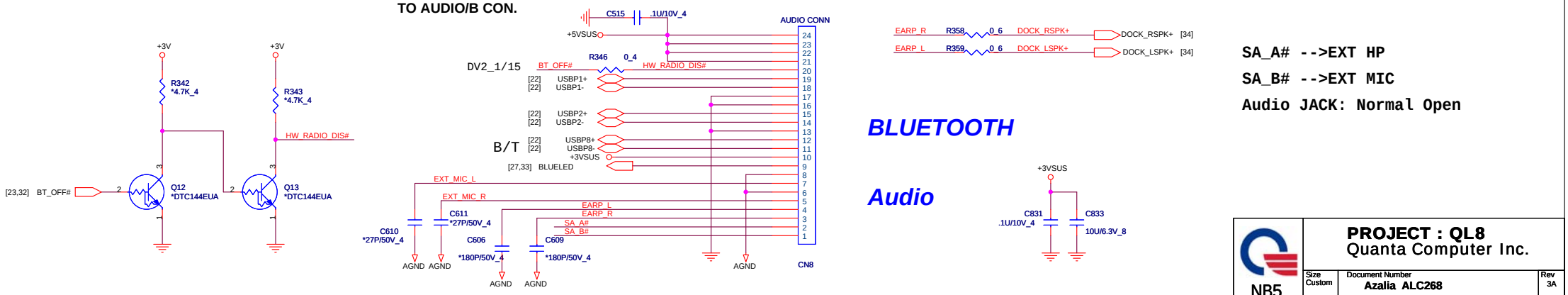
+3VCARD
+3VCARD
CN36
XD-RB#
XD-RE#
XD-CE#
XD-CLE
XD-ALE
XD_WE
XD-WP# L
XD-D0
XD-D1
SD_DAT2
SD_DAT3
SD_CMD
SD_CLK_MS_CLK
MS_DATA3
MS_CD#
MS_DATA2_XD_D2
MS_DATA0_SD_DAT0
MS_DATA1
MS_BS
xD-R/B
xD-RE
xD-CE
xD-ALE
xD-WE
xD-WP
xD-D1
SD-DAT2
SD-DAT3
SD-CMD
GND
MS-VCC
MS-SDLK
MS-DATA3
MS-INS
MS-DATA2
MS-DATA0
MS-DATA1
MS-BS
GND
GND
GND
GND
GND
NC
NC
SD-CD
SD-WP
xD-CD
xD-VCC
xD-D7
xD-D6
xD-D5
xD-D4
xD-D3
SD-DAT1
SD-DAT0
SD-CLK
SD-VCC
SD_CD#
SD_WP
XD_CD#
XD-D7
XD-D6
XD-D5
SD_DAT1
XD-D4
XD-D3
MS_DATA2_XD_D2
MS_DATA0_SD_DAT0
SD_CLK_MS_CLK
PV
PV
*TAI TWUM 5IN1 CARD READER SOCKET
PV change footprint

H2 *H-BC2360130PT
H20 *H-BC2360130PT
H13 *h-c315d106p2
H4 *h-c315d106p2
H6 *h-c315d106p2
H15 *h-c315d106p2
H9 *h-c315d106p2
H22 *h-c315d106p2
H19 *h-c315d106p2
H16 *h-c315d106p2
H1 *h-c315d106p2
H28 *H-C139D130N
H27 *H-TC2368C315D106P2
H24 *h-c236x669d236x669
H10 *H-C220D17/7P2
H5 *H-C220D17/7P2
H7 *H-C220D17/7P2
H11 *h-c256bc220d18p2
H12 *h-c256bc220d18p2
H8 *h-c256bc220d18p2
H3 *h-c315d106p2
H21 *h-c315d106p2
PAD2 *EMIPAD
PAD1 *EMIPAD
PAD3 *EMIPAD
MDC
H18 h-c148bc256d146p2
H17 h-c148bc256d146p2
MINI CARD
H26 h-c67bc276d67p2
H25 H-TC1618C276D161P2
H23 H-TC1618C276D161P2
H24 h-c67bc276d67p2
PV
PAD6 *pad-re193x114
PAD7 *pad-re528x83
PAD5 MDC_SPRING
PAD4 MDC_SPRING

NB5
PROJECT : QL8
Quanta Computer Inc.
Size: Custom
Document Number: RTS5158E & CR SOCKET &HOLE
Rev: 3A
Date: Tuesday, April 08, 2008
Sheet 25 of 45



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



SA_A# -->EXT HP

SA_B# -->EXT MIC

Audio JACK: Normal Open

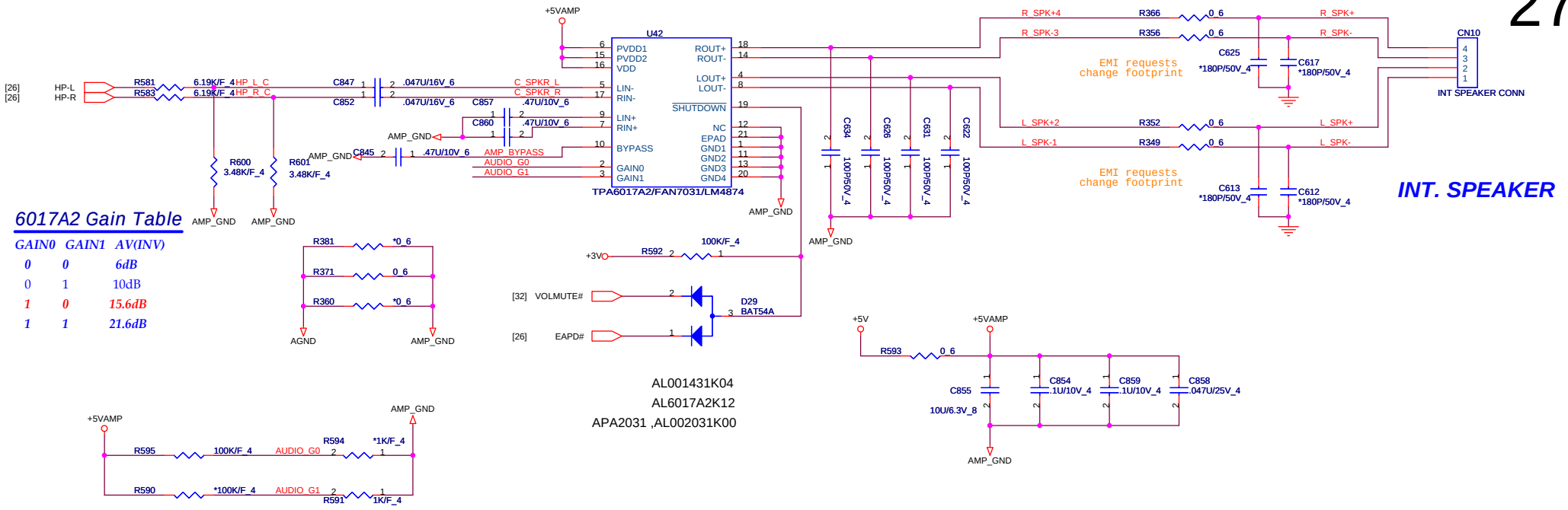
PROJECT : QL8
Quanta Computer Inc.

NB5

Size	Document Number	Rev
Custom	Azalia ALC268	3A

Date: Tuesday, April 08, 2008 | Sheet 26 of 45

AUDIO AMPLIFIER

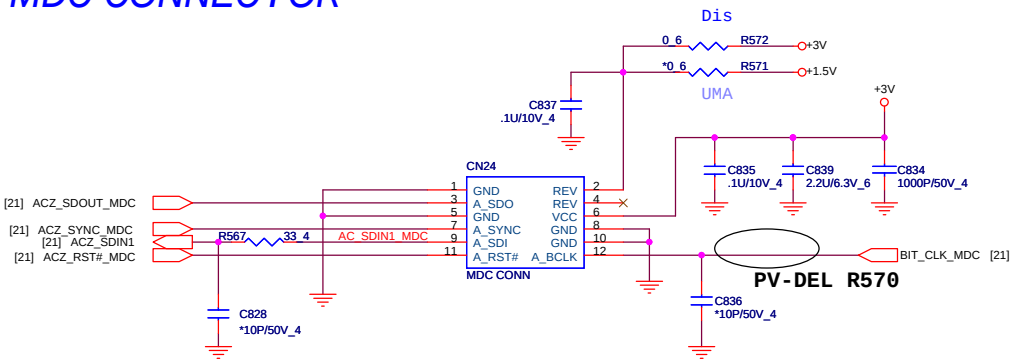


6017A2 Gain Table

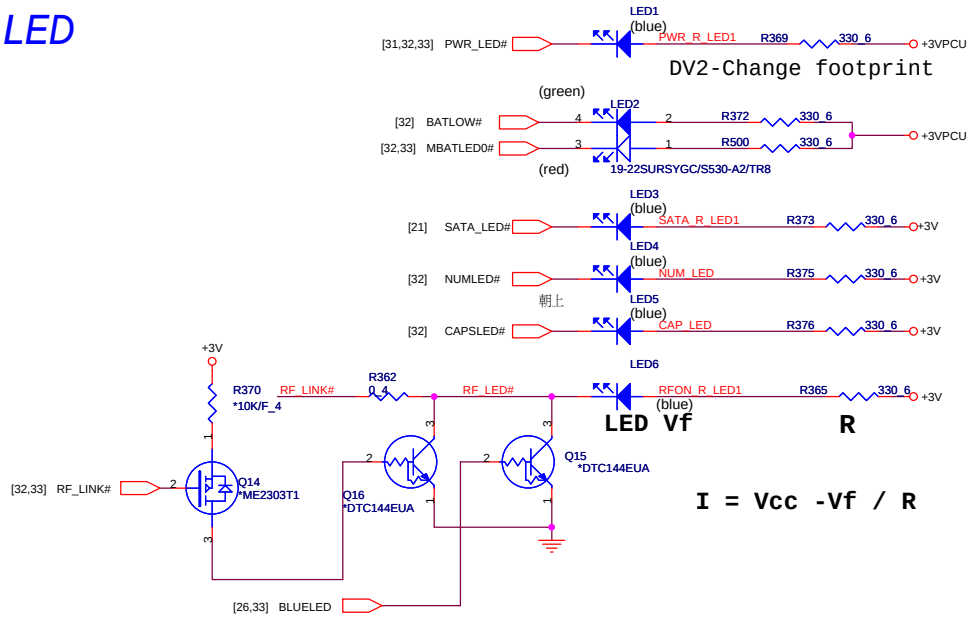
GAIN0	GAIN1	AV(INV)
0	0	6dB
0	1	10dB
1	0	15.6dB
1	1	21.6dB

AL001431K04
AL6017A2K12
APA2031 ,AL002031K00

MDC CONNECTOR



LED



DEL BOM(Q14,Q16,R370)

NB5	**PROJECT : QL8** Quanta Computer Inc.	
	Size: Custom	Document Number: AMP_TPA6017/Accelerometer — Rev: 3A
	Date: Tuesday, April 08, 2008	Sheet 27 of 45

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

E : Stuffed for 8102E(10/100)

[29] +CTRL15 — R498 *0_6 — +CTRL15_E

Stuffed for 8102E

+3VLANVCC — R496 0_6 — +CTRL15_E; C776 .1U/10V_4; C780 10U/6.3V_8; C781 10U/6.3V_8

+3VLANVCC — R174 0_6 — +3V_GVDD

Stuffed for RTL8111C(10/100/1000)

+LAN_D1.5 — R499 0_6 — +LAN_D1.5_SRVDD

[29] +FB12 — R490 0_6 — +LAN_A1.8_FB12

8111C CS00003J951

8102E NC

Y2 25MHZ; C403 27P/50V_4; C396 27P/50V_4

C389 *.1U/10V_4; R166 2.49K/F_4; LANRSET

8111C CS22492FB22 U12

8102E CS22002FB19

U12#63 wider than 40 mils

U12#1 wider than 60 mils

RTL8111C-VB-GR

Pin 65

C366 .01U/16V_4

R599 *0_6

8111C NC

8102E CS00003J951

R188 1K/F_4; R189 15K/F_4

ISOLATEB — R193 *0_4 — LAN_DISABLE# [21]

if ISOLATEB pin pull-low,the LAN chip will not drive it's PCI-E outputs (excluding PCIE_WAKE# pin)

T12 T13

[23,30,33] PCIE_WAKE# — PCIE_WAKE#

PCIE_RXN6_LAN_L — C420 .1U/10V_4 — PCIE_RXN6_LAN [22]

PCIE_RXP6_LAN_L — C417 .1U/10V_4 — PCIE_RXP6_LAN [22]

CLK_PCIE_LAN# — +LAN_E1.8 — CLK_PCIE_LAN# [2]

CLK_PCIE_LAN — CLK_PCIE_LAN [2]

[22] PCIE_TXP6_LAN — PCIE_TXP6_LAN

[22] PCIE_TXN6_LAN — PCIE_TXN6_LAN

[32] LAN_REST# — R172 *0_4

[22,30,32,33] PLTRST# — R175 0_4

LAN-AGND

for 93C56 used. NC if 93C46 is used.

R191 *10K/F_4; R190 3.6K/F_4

U36 *M93C46-WMN6TP

C432 *.1U/10V_4

DV2-change BOM 3.24->3.6k

R178 0_4; R185 0_4

GIGABIT	AL08111C001	RTL8111C-VB-GR(QFN)
10/100	AL08102E001	RTL8102E-VB-GR
	AL08101E005	TL8101E-GR(QFN)

RJ45

C81,C89 FOR EMI CLOSE TO RJ45

CN16 C100F9-110A4-L

C71 .1U/10V_4; C79 .1U/10V_4

CN19 RJ-11 CON

C234 470P/3KV-1808; C213 470P/3KV-1808

C261 .01U/16V_4; C255 .01U/16V_4; C65 .01U/16V_4; C68 .01U/16V_4

U26 NS892405

C658 .01U/16V_4; C662 .01U/16V_4; C671 .01U/16V_4; C677 .01U/16V_4

C664 C665 C670 C672 0.01U/100V_0603

R41 R42 R423 R49 75/F_4

C661 1000P/3KV_1808

D5 BAT54A; D4 RB501V-40; R31 0_4

C48 *.01U/16V_4; C50 *.01U/16V_4

Link

NS892402:GIGABIT	DB0AT9LAN05
NS892405:10/100	DB0ZB1LAN04

NB5

PROJECT : QL8
Quanta Computer Inc.

Size: Custom | Document Number: RTL8111C/8102E/RJ45 | Rev: 3A

Date: Tuesday, April 08, 2008 | Sheet 28 of 45

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

E : Stuffed for 8102E(10/100)

Power trace Layout 寬度> 30mil

LANVCC
1.2W
364mA

PV

+3VLANVCC

+3V_LAN

C365 4.7U/6.3V_6
C784 .1U/10V_4

C419 .1U/10V_4
C444 .1U/10V_4
C373 .1U/10V_4
C372 .1U/10V_4

these CAP are for LAN CHIP LANVCC pins--16, 37, 46 and 53.placement close lan chip

PV

+3V_A_LAN

C773 .1U/10V_4
C782 .1U/10V_4

these CAP are for LAN CHIP LAN_A3.3 pins-- 2 and 59.placement close lan chip

placement close to lan chipset

For Giga must change L65 to Inductor (Chipset include switch power)
+CTRL18 will become to switch power phase

L54 for Gaga lan use 4.7uH power choke
A>500mA tolerance ±15%

8111C CV-4706MN00
8102E CS00004JA40

+CTRL18

L49 4.7UH_2016

C768 10U/6.3V_8 SI build
C371 10U/6.3V_8 SI build

C767 .1U/10V_4

+FB12 [28]

L23 0_8

8111C STUFF 0ohm
8102E is NC

Power trace Layout 寬度> 30mil

+LAN_A1.8

8111C is NC
8102E STUFF 0.1UF

C777 *.1U/10V_4
C778 *.1U/10V_4
C360 *.1U/10V_4
C779 *.1U/10V_4

these cap are for lan chip LAN_A1.8 pins--5, 8, 11 and 14. placement close chip

8111C STUFF 100 ohm BEAD
8102E is NC

+LAN_E1.8

R497 0_8

C392 .1U/10V_4
C393 1U/6.3V_4

these cap are for lan chip LAN_D1.8 pins, such as 22 and 28. placement close lan chip

LAN-AGND

L51 0_8

8111C STUFF 0ohm
8102E is NC

Power domain chart

	RTL8111B / RTL8101E	RTL8111C
LANVCC	3.3V	3.3V
LAN_D1.8	1.8V	1.2V
LAN_A1.8	1.8V	1.2V
LAN_D1.5	1.5V	1.2V

Power trace Layout 寬度> 30mil

8111C is NC
8102E STUFF 0ohm

[28] +CTRL15

L50 *0_8

+LAN_D1.5

C439 .1U/10V_4
C788 .1U/10V_4
C786 .1U/10V_4
C422 .1U/10V_4
C783 .1U/10V_4
C427 .1U/10V_4
C442 .1U/10V_4
C386 .1U/10V_4
C443 .1U/10V_4
C374 .1U/10V_4

these cap are for lan chip LAN_D1.5 pins-- 15, 21, 32, 33, 38, 41, 43, 49, 52 and 58.placement close lan chip

C787 *.1U/10V_4

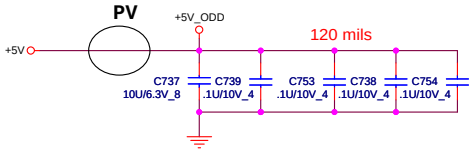
8111C is NC
8102E CH41002KB93

NB5

PROJECT : QL8
Quanta Computer Inc.

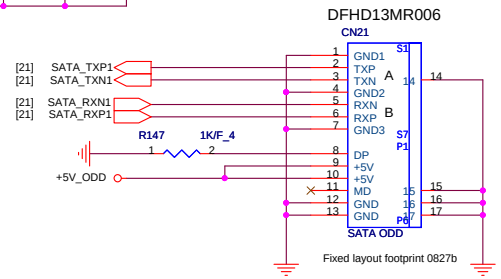
Size	Document Number	Rev
A3	LAN Power	3A

Date: Tuesday, April 08, 2008 Sheet 29 of 45



SATA CD-ROM

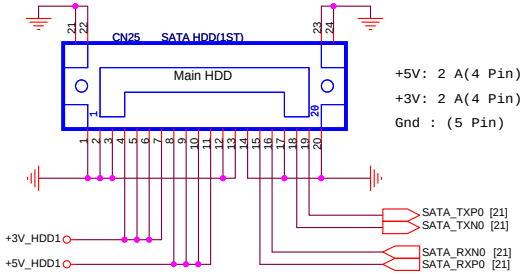
DV2 Change footprint

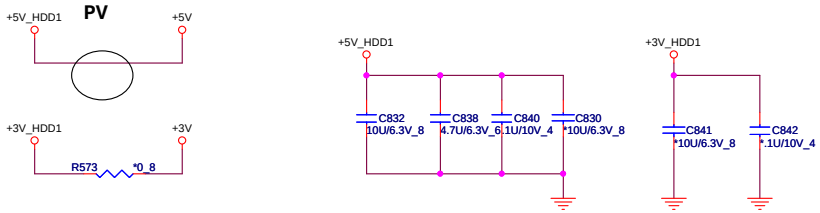


SATA-48325-1103-13P-R-H-QT6

SATA_1 CONNECTOR

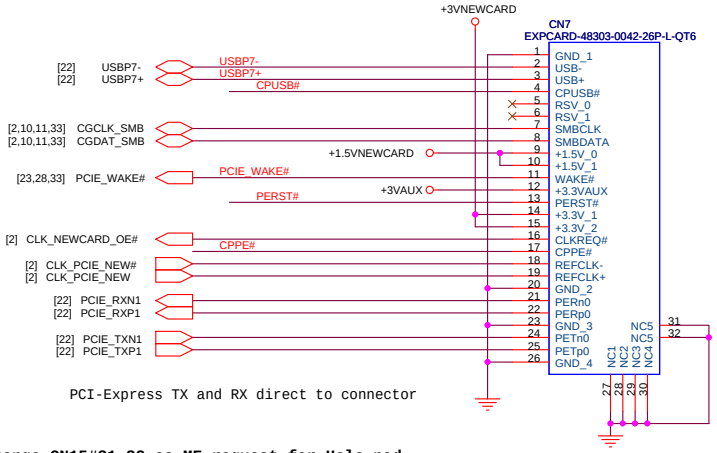
DC Current rating: 0.5 A





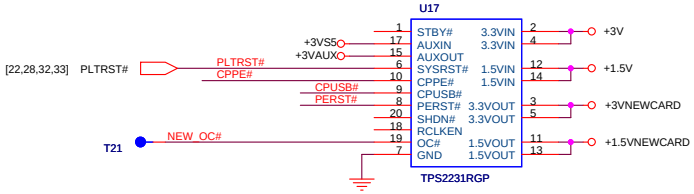
NEWCARD

NEWCARD (PCIEXPRESS*1 + USB*1)

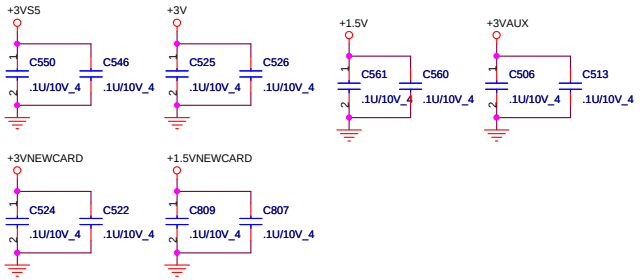


PCI-Express TX and RX direct to connector

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

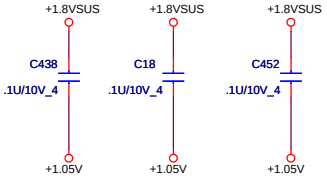


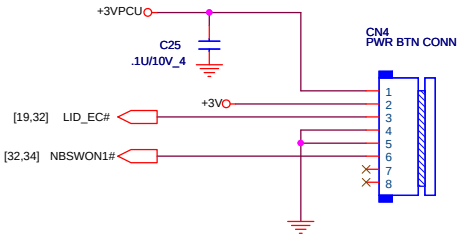
PROJECT : QL8
Quanta Computer Inc.

NB5

Size	Document Number	Rev
Custom	ODD/HDD/NEW CARD	3A

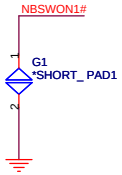
Date: Tuesday, April 08, 2008 Sheet 30 of 45



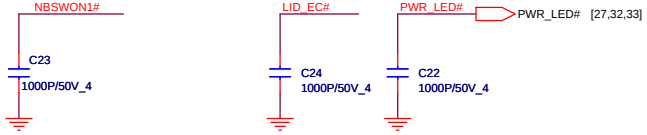


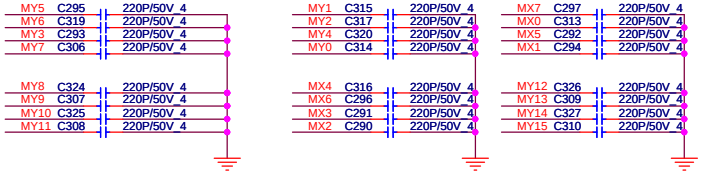
1. +3VPCU(LIDSWITCH PWR)
2. +3V
3. LIDSWITCH
4. GND
5. GND
6.POWERON#
7. NC
8. NC

Close to U21 For EMI

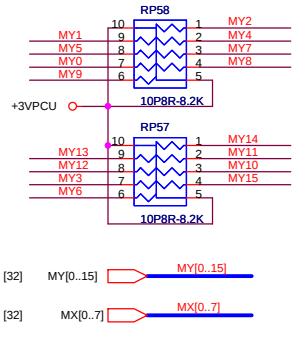


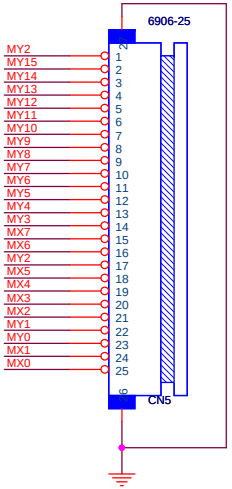
POWER BOTTON CONNECT



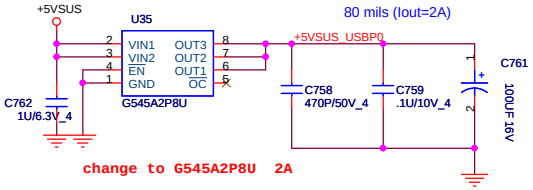


KEYBOARD PULL-UP

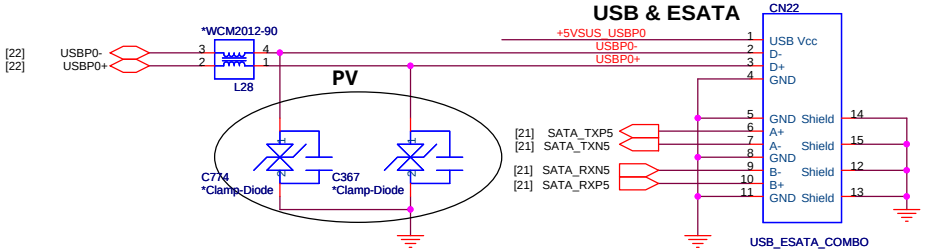




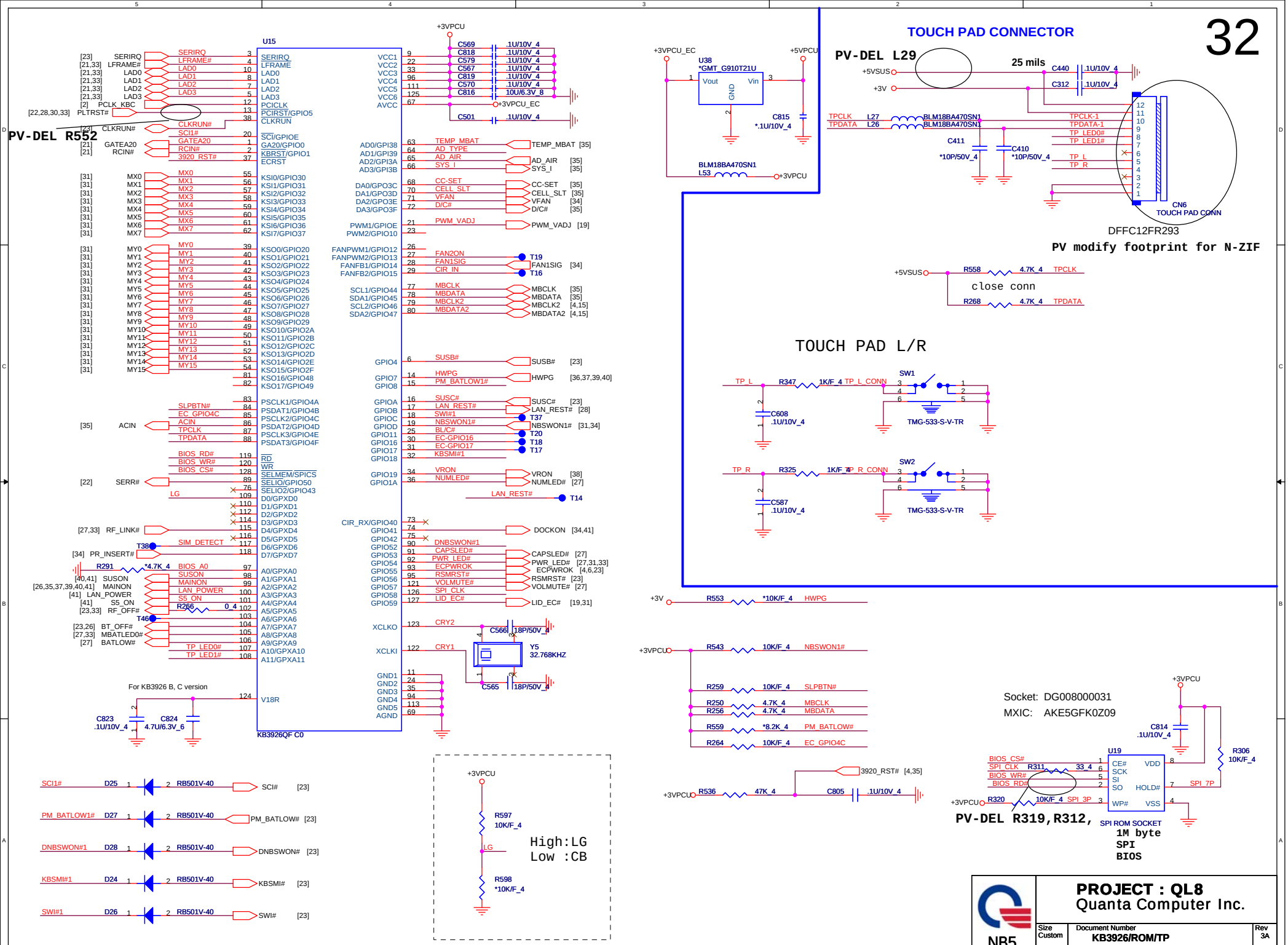
E-SATA/USB COMBO



USB & ESATA



NB5	**PROJECT : QL8** Quanta Computer Inc.	
	Size: Custom Document Number: KB/CAP/POWER CONN	Rev: 3A
	Date: Tuesday, April 08, 2008	Sheet 31 of 45


U15
KB3926QF C0
PV-DEL R552
For KB3926 B, C version
TOUCH PAD CONNECTOR
PV-DEL L29
25 mils
CN6
TOUCH PAD CONN
DFFC12FR293
PV modify footprint for N-ZIF
close conn
TOUCH PAD L/R
TMG-533-S-V-TR
Socket: DG008000031
MXIC: AKE5GFK0Z09
PV-DEL R319,R312,
SPI ROM SOCKET
1M byte
SPI
BIOS
High:LG
Low :CB
PROJECT : QL8
Quanta Computer Inc.
NB5
KB3926/ROM/TP
Tuesday, April 08, 2008

Mini PCI-E Card 1
WLAN

PCLK_DEBUG R577 *0_4 C843 *33P/50V_4

for EMI request

only resever QT6 not support IAMT

[23] CL_RST#1 R574 *0_4 CL_RST#1_R
[23] CL_DATA1 R575 *0_4 CL_DATA1_R
[23] CL_CLK1 R576 *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#
[21] BT_COMBO_EN# T44 CLK_MINI_OE#
T45 WLAN_ACTIVE_R
MINICAR_PME#

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

CN26

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 R332 *0_4 BLUELED [26,27]
RF_LINK# RF_LINK# [27,32]
R333 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]
R317 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

C588 .01U/16V_4 C598 .1U/10V_4 C603 10U/6.3V_8
C592 .1U/10V_4 C600 .1U/10V_4 C599 .1U/10V_4 C601 10U/6.3V_8 C607 .1U/10V_4 C604 1U/6.3V_4

+3VSUS R345 *10K/F_4
[23,28,30] PCIE_WAKE# Q11 *DTC144EUA MINICAR_PME#

Mini PCI-E Card 2
WWAN& Robson

+5V C844 1000P/50V_4

FOR KBC DEBUG
+5V R578 *0_6
[27,31,32] PWR_LED# R337 *0_4
[27,32] MBATLED0# R336 *0_4
PV

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#
T40 T41 T43 T42

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

USBP11+ [22]
USBP11- [22]
WWAN
CGDAT_SMB
CGCLK_SMB
R329 0_6 +3V
R328 *0_6 +3VSUS
PLTRST#
WAN_OFF# [23]
R324 10K/F_4 +3V
UIM_VPP
UIM_RST
UIM_CLK
UIM_DATA
UIM_PWR

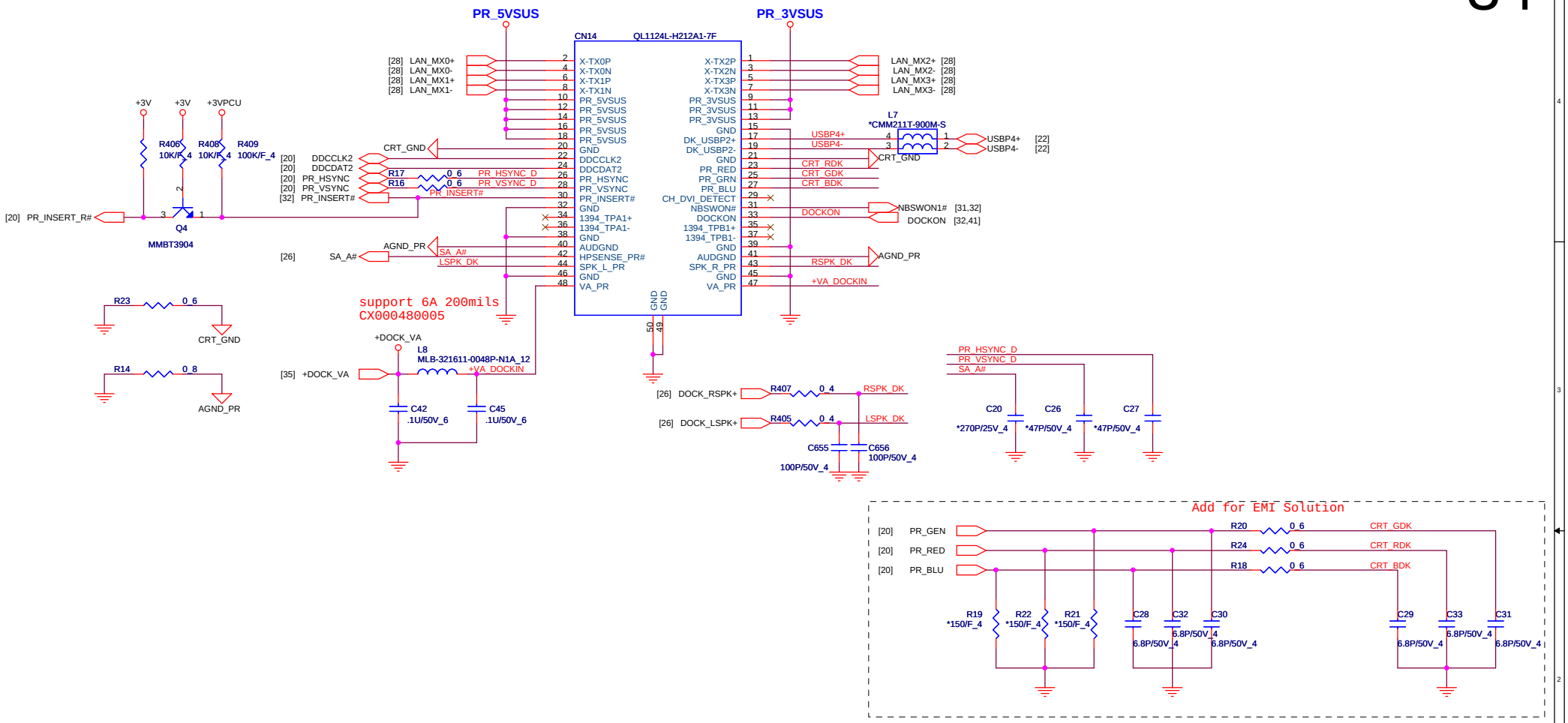
C596 .1U/10V_4 C591 .1U/10V_4 C597 .1U/10V_4 C602 10U/6.3V_8
C590 .01U/16V_4 C589 .1U/10V_4 C594 10U/6.3V_8

U1 *CM1213_04ST
D3 *BAV99W
CN1 PMPATO-08GLBS7N14N1
C14 *.1U/10V_4
C13 *.1U/10V_4

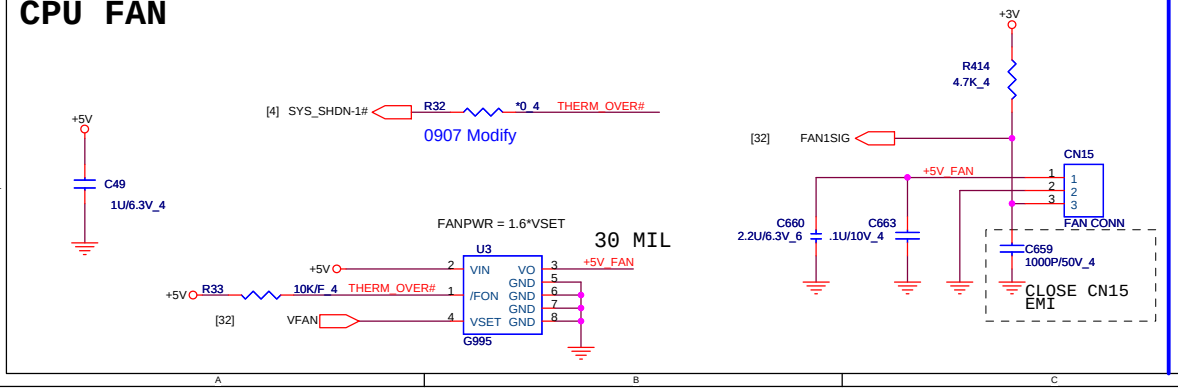
Add shielding connect to GND

PROJECT : QL8			
Quanta Computer Inc.			
NB5	Size Custom	Document Number MINI PCIE CONN X2	Rev 3A
	Date: Tuesday, April 08, 2008	Sheet 33 of 45	

DOCKING



CPU FAN



NB5	PROJECT : QL8 Quanta Computer Inc.	
Size: Custom	Document Number: DOCKING/FAN	Rev: 3A
Date: Tuesday, April 08, 2008	Sheet 34 of 45	

TOP DC_JACK
65W/90W

Close to N-CH MOSFET

ADP TYPE	PR91 VALUE	P/N
65W	31.6K/F	CS33162FB14
90W	2.61K/F	CS22612FB15

CELL_SLT = 1 -- 3 S (Cells = GND 3S)
CELL_SLT = 0 -- 4 S (Cells = VDD 4S)

Charging Curret setting =
I chg = 165mV / Rsense * (Vchlim / 3.3V)

Input Current monitor
V icm = 19.9 * (Vcsip - Vcsin)

V ACLIM = VREF *
(Rl // 152K) / (Rh // 152K + Rlow// 152K)
Input curren = 2.9A (71.5K , 10K)
(0.05/Vref * Vaclim + 0.05) / Rsense

VADJ =
VERF >> 4.2V +5%
Float >> 4.2V
GND >> 4.2 -5%

Setting the Vin min to 12V
For ACSET 1.26V

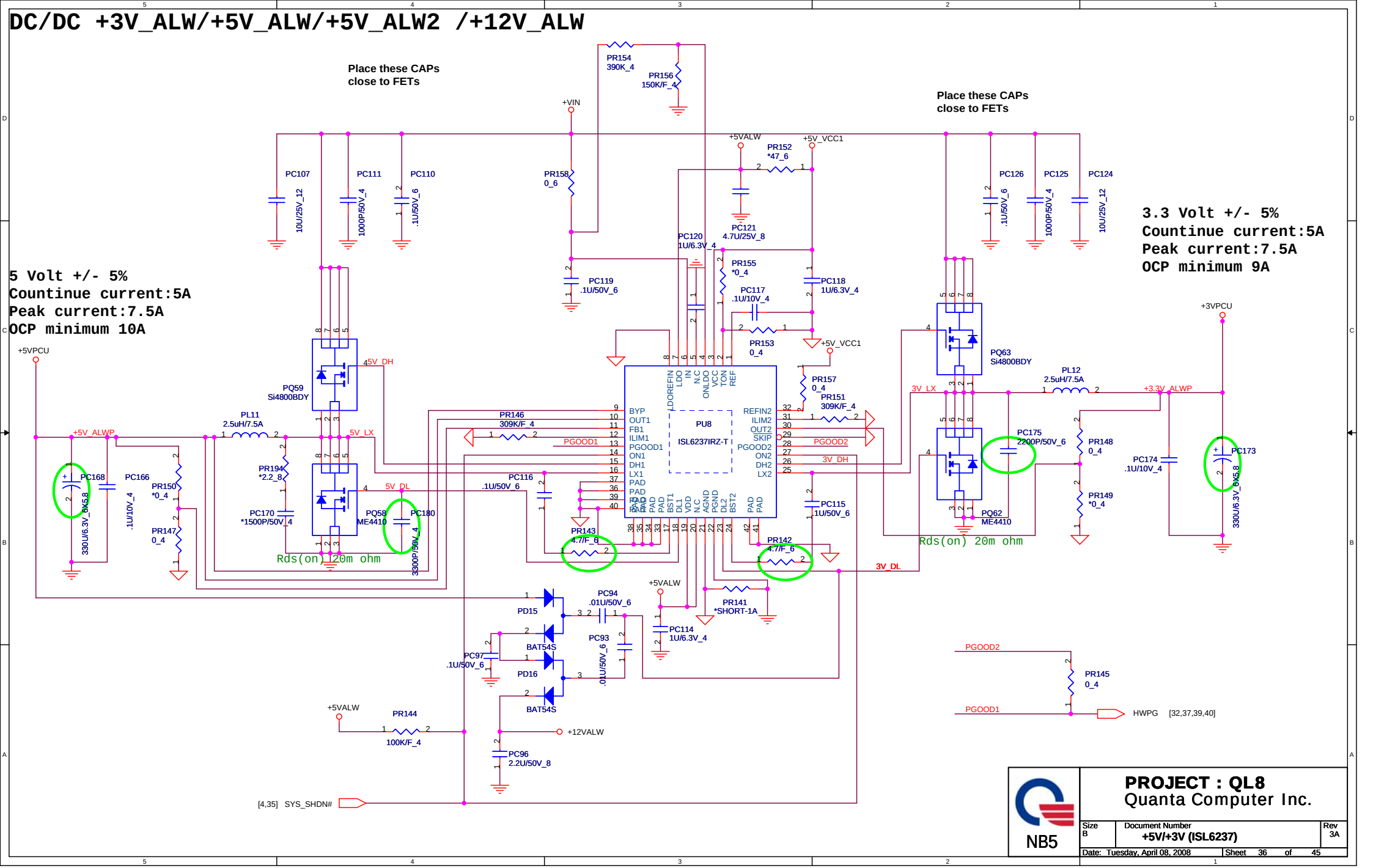
Setting the Vin min to 17V
For EN = 1.06V

PROJECT : QL8
Quanta Computer Inc.

NB5

Size	Document Number	Rev
Custom	Charger (ISL6251)	3A
Date: Tuesday, April 08, 2008	Sheet 35 of 45	

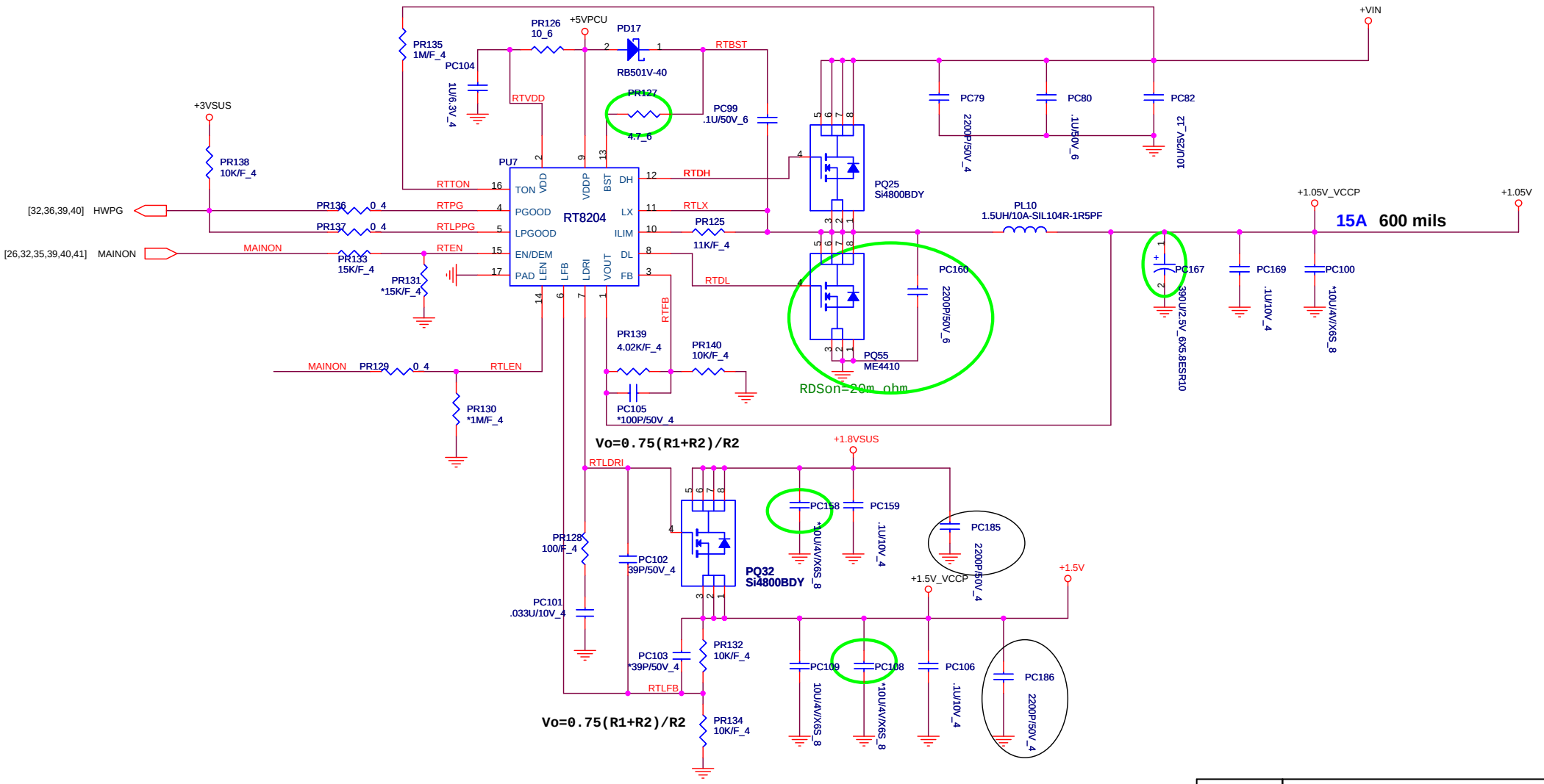
DC/DC +3V_ALW/+5V_ALW/+5V_ALW2 /+12V_ALW



NB5	**PROJECT : QL8** Quanta Computer Inc.	
	Size: B	Document Number: +5V/+3V (ISL6237) — Rev: 3A
	Date: Tuesday, April 08, 2008	Sheet 36 of 45

VCCP1.05V & +1.5V

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

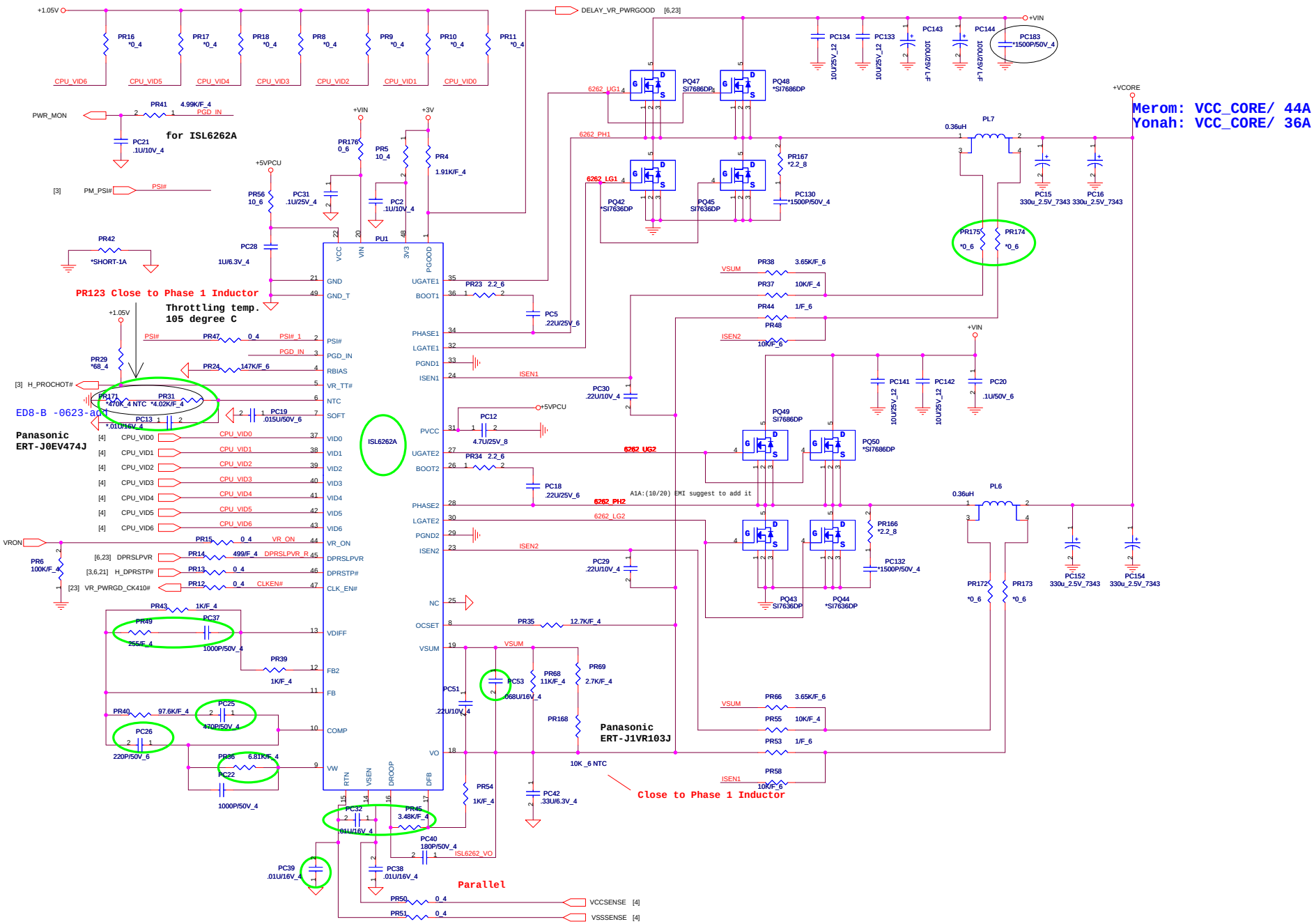


NB5

PROJECT : QL8
Quanta Computer Inc.

Size	Document Number	Rev
B	+1.05V/+1.5V (RT8204)	3A

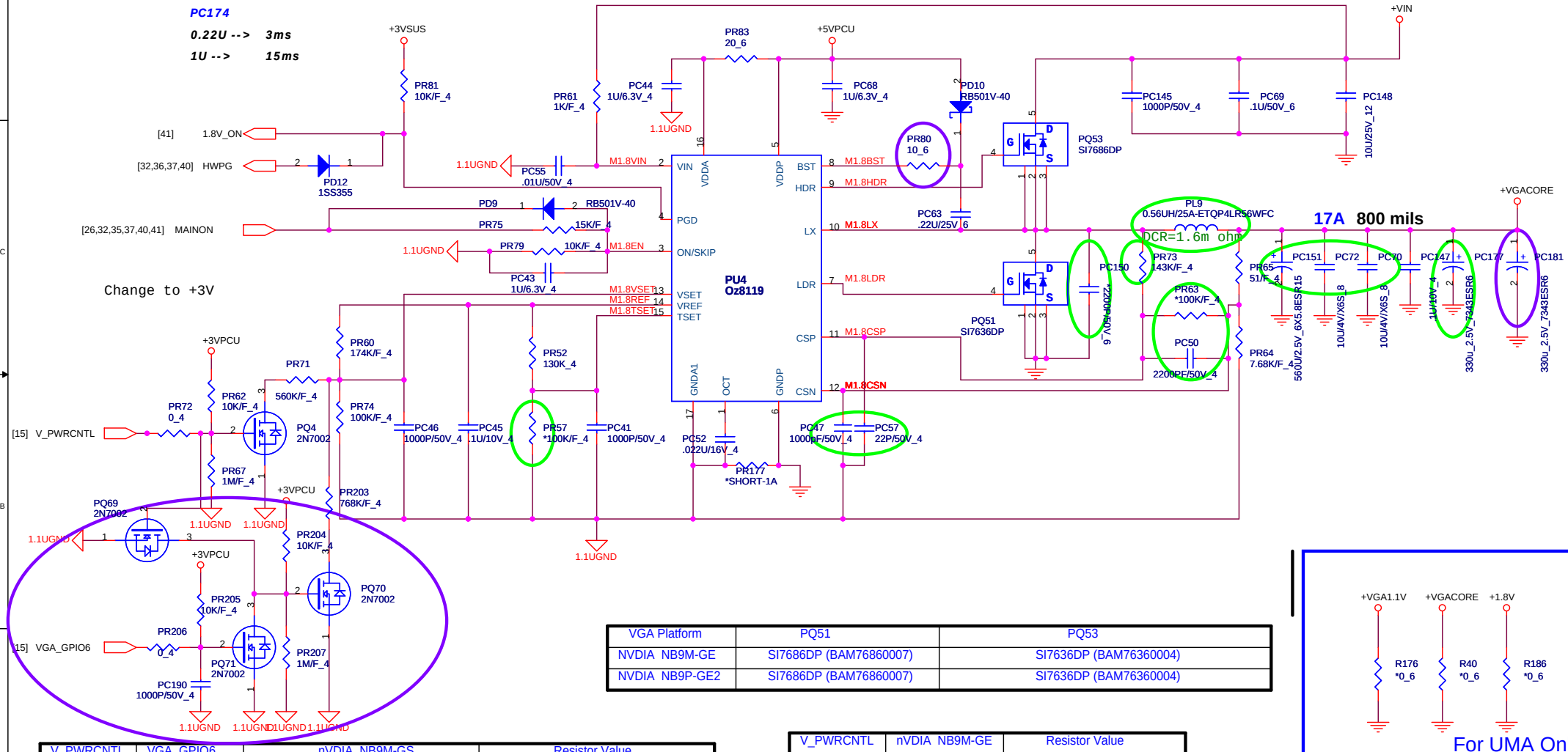
Date: Tuesday, April 08, 2008 | Sheet 37 of 45



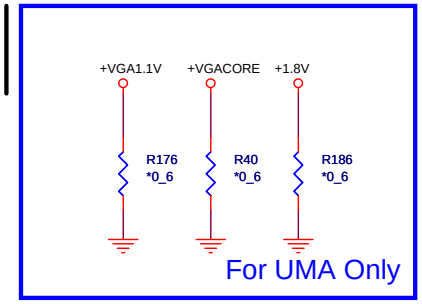
PROJECT : QL8			
Quanta Computer Inc.			
NB5	Size: Custom	Document Number: CPU Core (ISL6266A)	Rev: 3A
	Date: Tuesday, April 08, 2008	Sheet 38 of 45	

VGA Core & VCC1.1

+1.1Volt +/- 5%
Countinue current:8A
Peak current:9A
OCP minimum 12A



VGA Platform	PQ51	PQ53
NVDIA NB9M-GE	SI7686DP (BAM76860007)	SI7636DP (BAM76360004)
NVDIA NB9P-GE2	SI7686DP (BAM76860007)	SI7636DP (BAM76360004)



V_PWRCNTL	VGA_GPIO6	nVDIA NB9M-GS	Resistor Value
LO	LO	1.09V	PR203_768K_CS47682FB10
LO	HI	1.17V	PR60_133K_CS41332FB06
HI	LO	0.90V	PR71_196K_CS41962FB01
HI	HI	0.90V	

V_PWRCNTL	nVDIA NB9M-GE	Resistor Value
HI	0.90V	PR71_392K_CS43922FB17
LO	1.09V	PR60_150K_CS41502FB18

V_PWRCNTL	nVDIA NB9P-GE2	Resistor Value
HI	0.9V	PR71_560K_CS45602FB04
LO	1.0V	PR60_174K_CS41182FB10

NB5

PROJECT : QL8
Quanta Computer Inc.

Size	Document Number	Rev
B	VGA CORE OZ8118	3A

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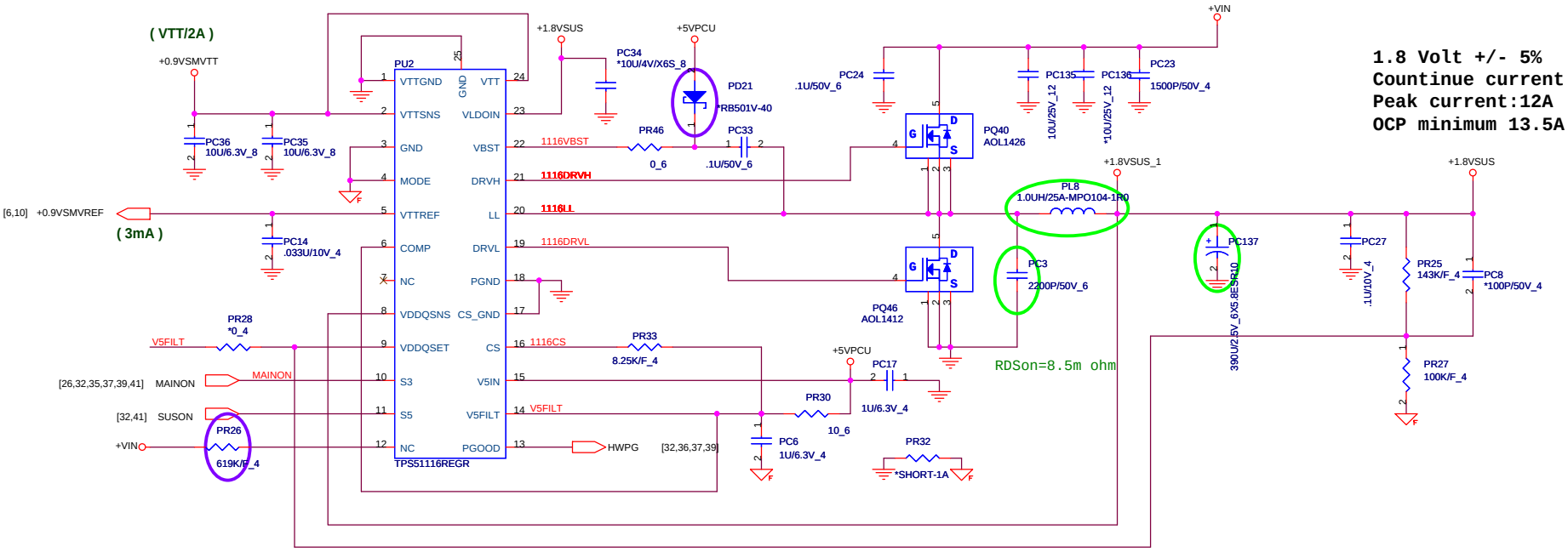
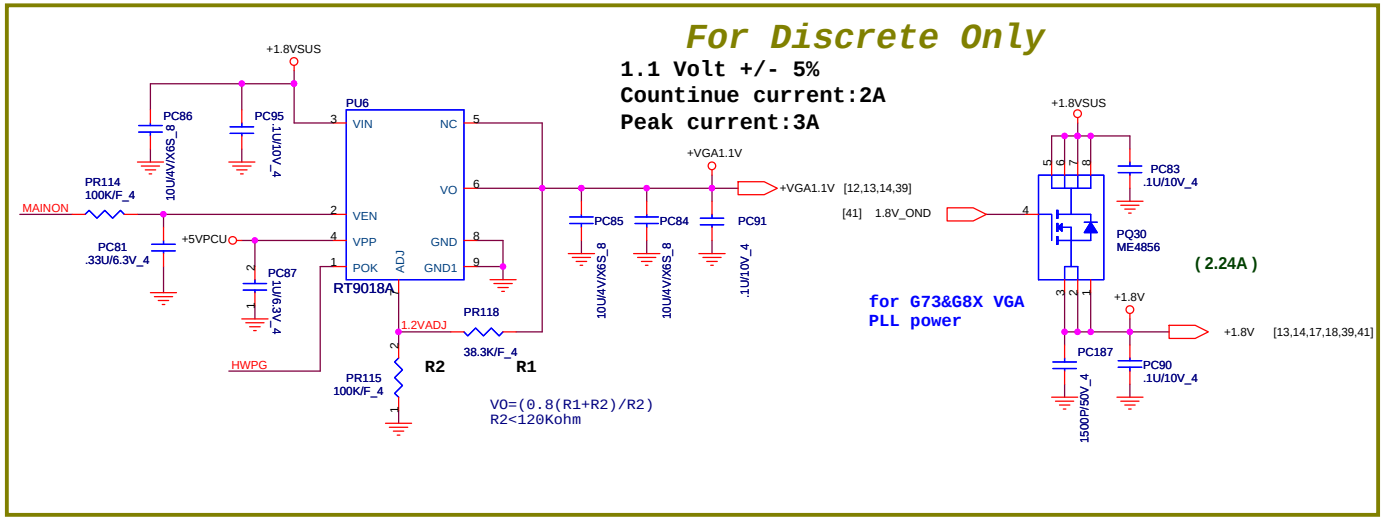
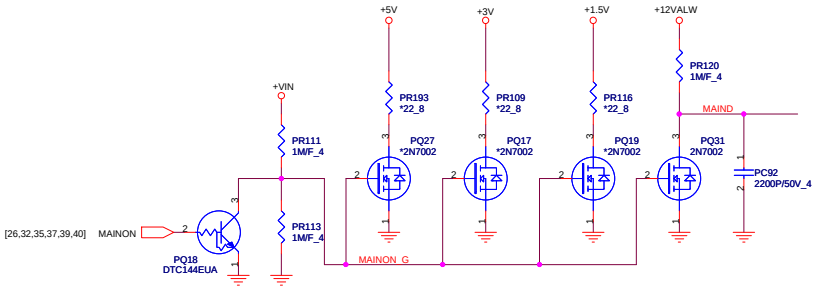
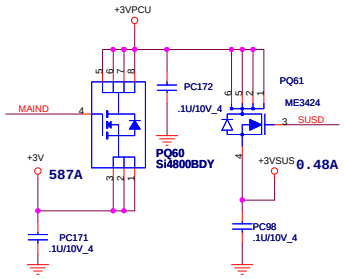
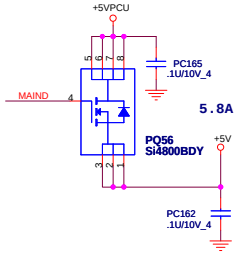


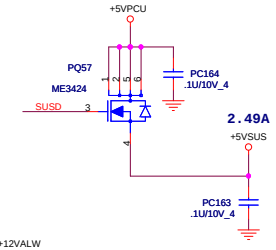


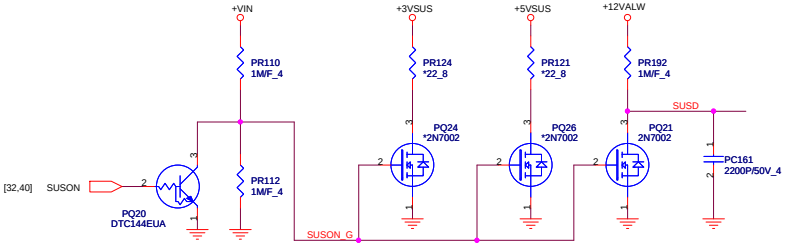
NB5	PROJECT : QL8 Quanta Computer Inc.	
	Size: Custom Document Number: 1.8V/DDR_VTER/+1.8v/+1.1V	Rev: 3A
	Date: Tuesday, April 08, 2008	Sheet 40 of 45

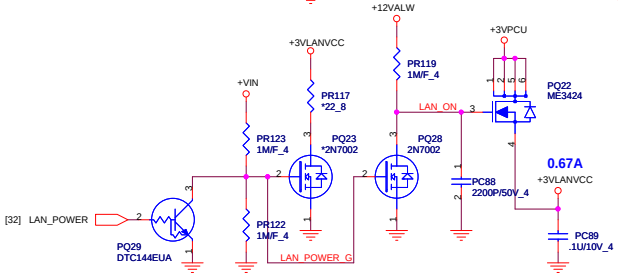


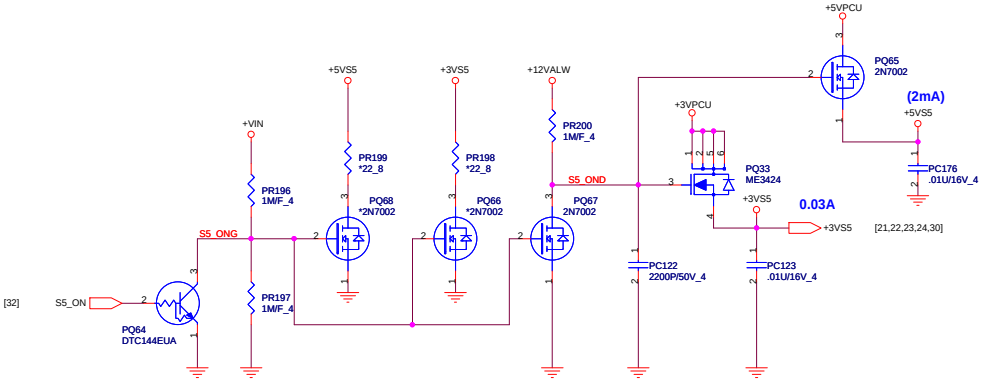


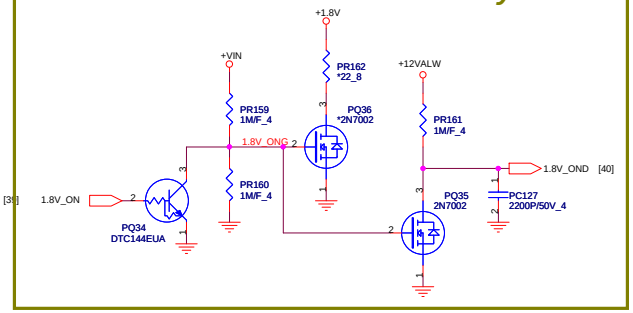


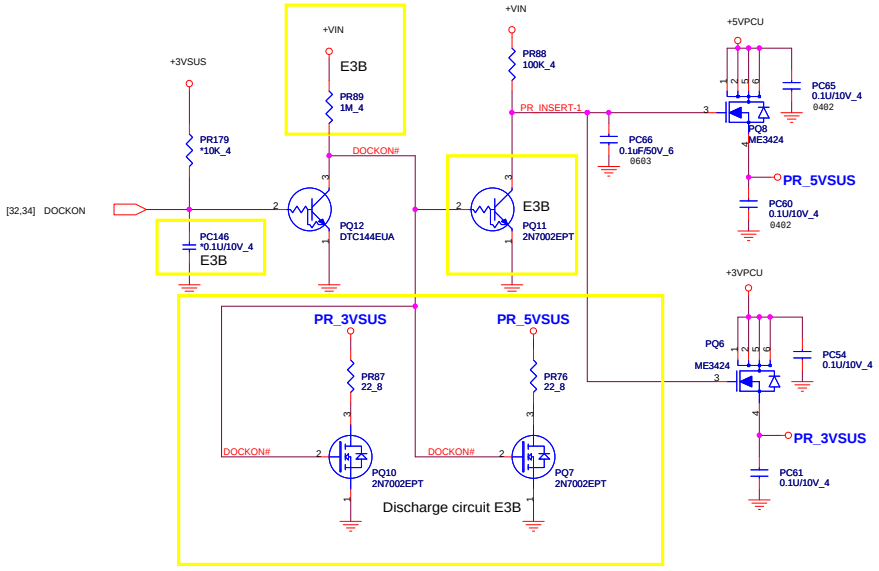












		AC MODE				DC MODE			
	Voltage level	S0	S3	S4	S5	S0	S3	S4	S5
+3VPCU	3.3V +/- 5%	V	V	V	V	V	V	V	V
+5VPCU	5V +/- 5%	V	V	V	V	V	V	V	V
+3VRTC	3.3V +/- 5%	V	V	V	V	V	V	V	V
+3VS5	3.3V +/- 5%	V	V	V	V	V	V		
+5VS5	5V +/- 5%	V	V	V	V	V	V		
+3VSUS	3.3V +/- 5%	V	V			V	V		
+5VSUS	5V +/- 5%	V	V			V	V		
+1.8VSUS	1.8V +/- 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 : QL8
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Size	Document Number	Rev
Custom	DISCHARGE/3VS5/5VS5/LAN	3A
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