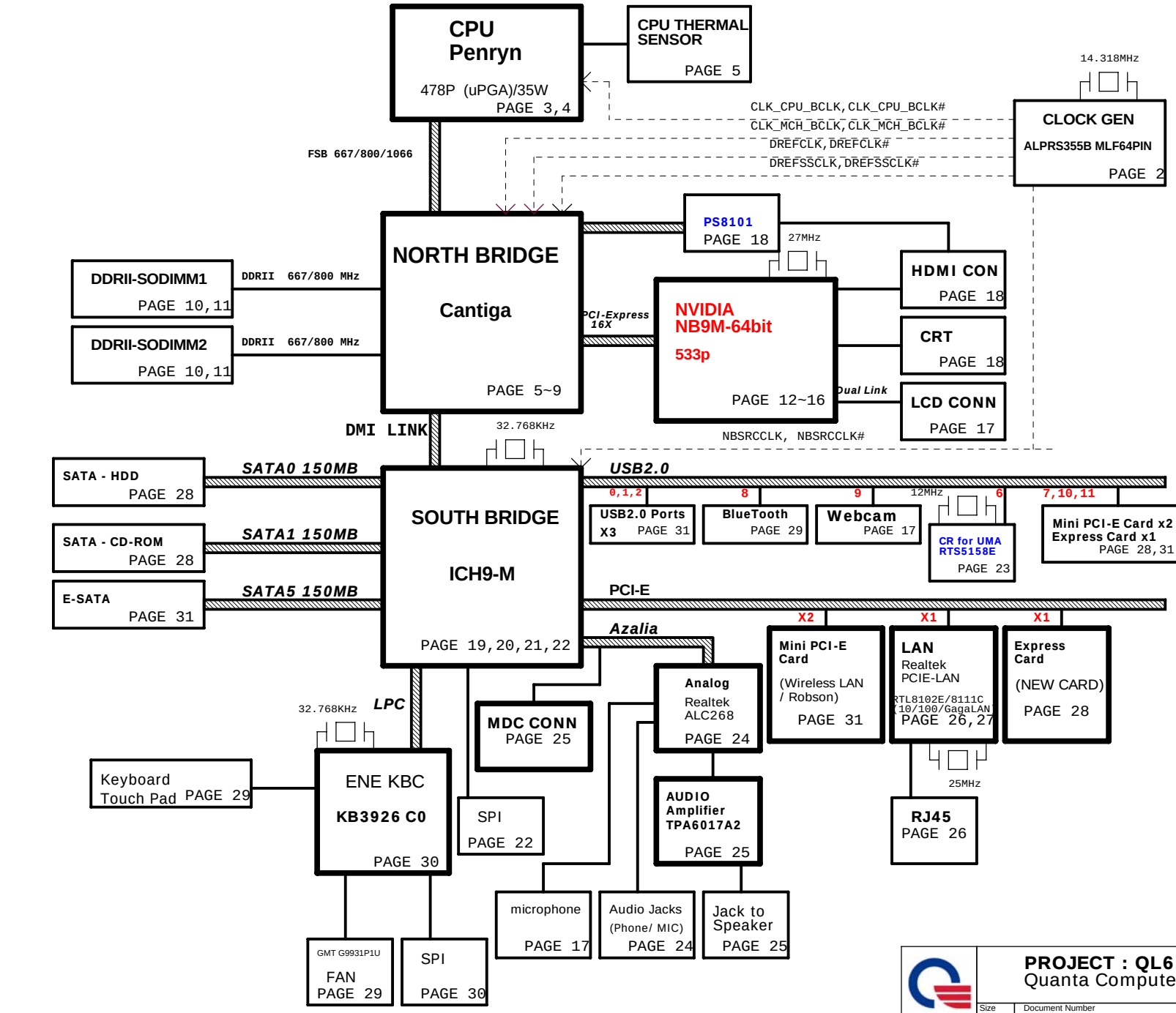
QL6 BLOCK DIAGRAM

01

PCB STACK UP

8L

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



NB5

PROJECT : QL6
Quanta Computer Inc.

Size	Document Number	Rev
Custom	Block Diagram	2A

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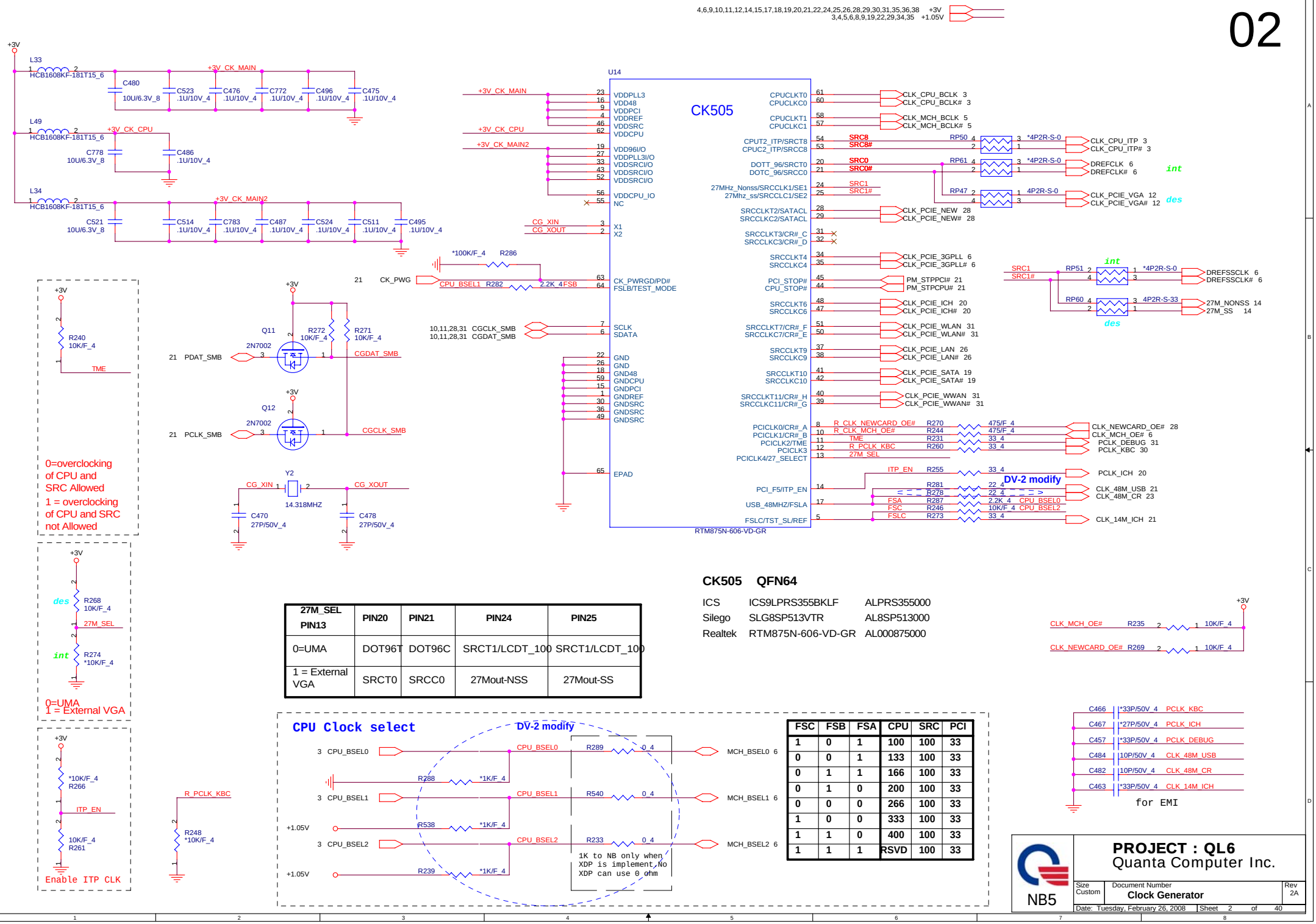

27M_SEL PIN13	PIN20	PIN21	PIN24	PIN25
0=UMA	DOT96T	DOT96C	SRCT1/LCDT_100	SRCT1/LCDT_100
1 = External VGA	SRCT0	SRCC0	27Mout-NSS	27Mout-SS

CK505 QFN64

ICS	ICS9LPRS355BKLF	ALPRS355000
Silego	SLG8SP513VTR	AL8SP513000
Realtek	RTM875N-606-VD-GR	AL000875000

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

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Size	Document Number	Rev
Custom	Clock Generator	2A
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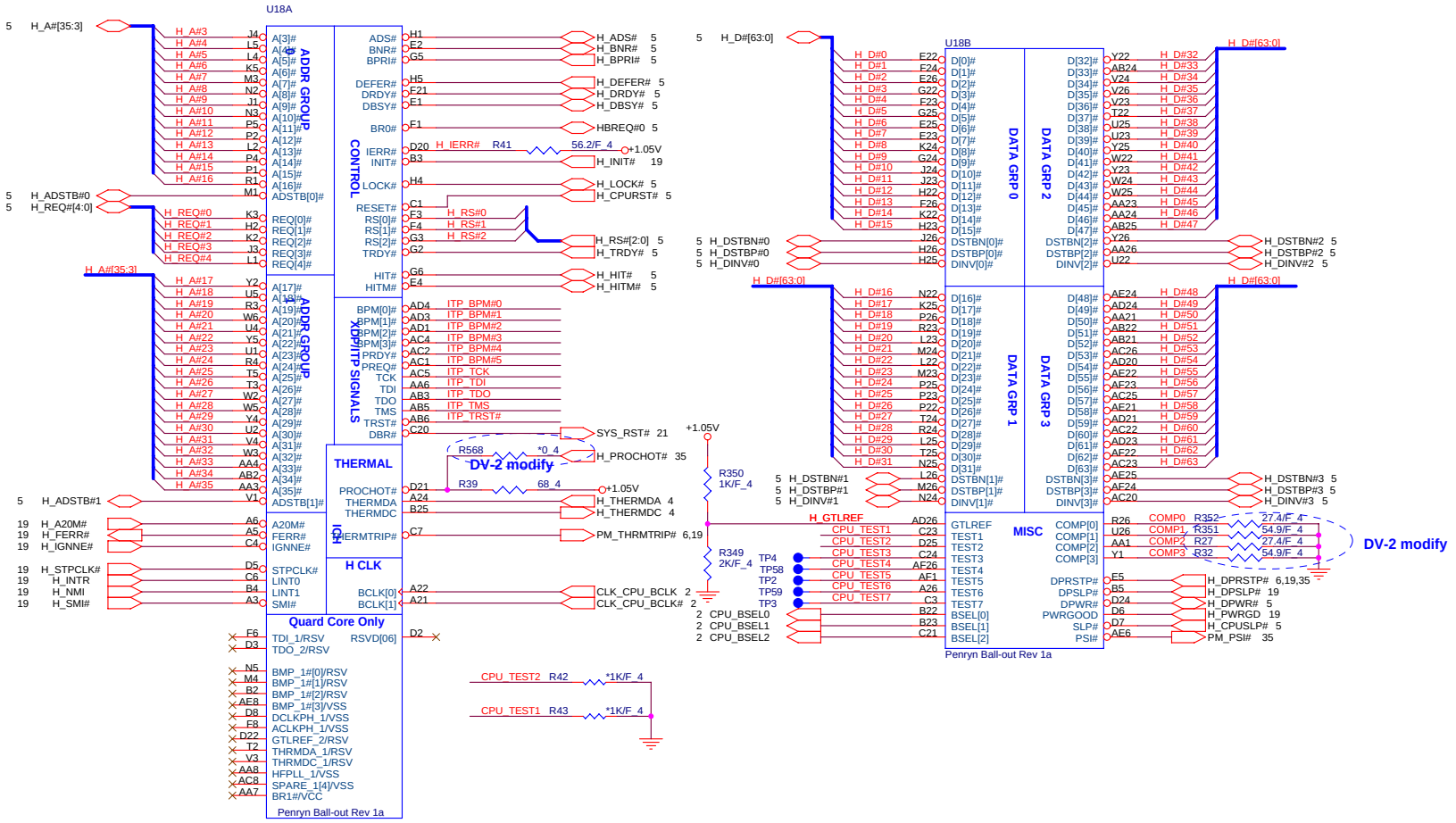
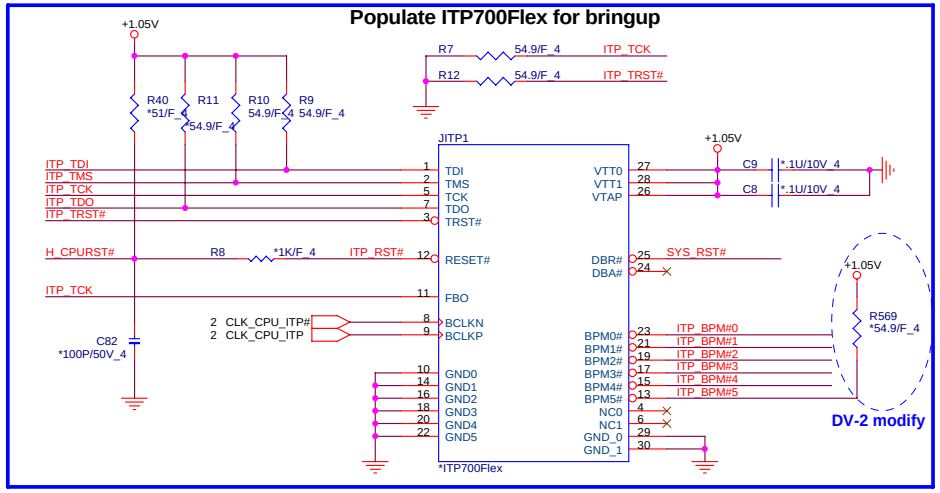


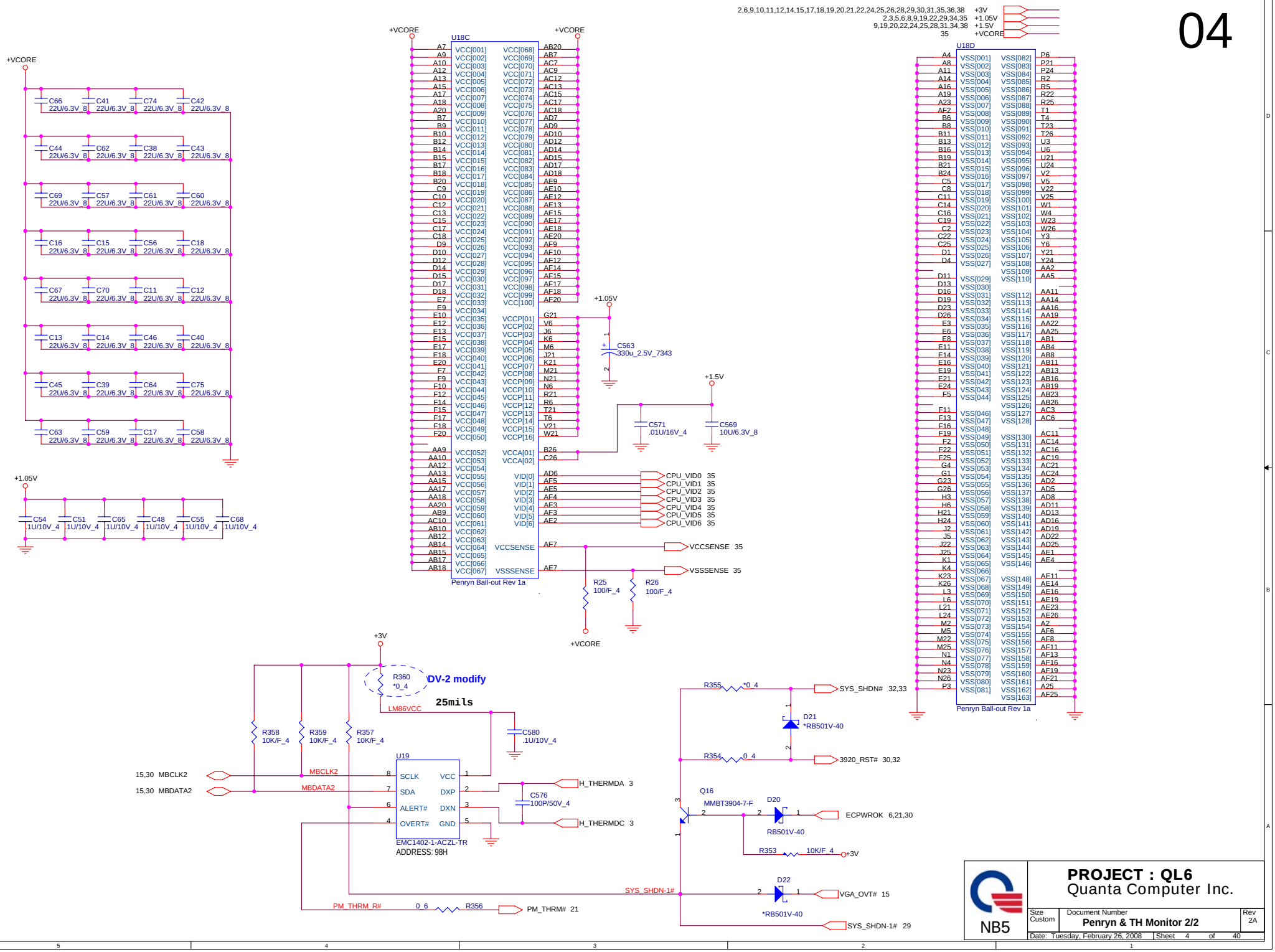


PROJECT : QL6
Quanta Computer Inc.

NB5

Size	Document Number	Rev
Custom	Penryn 1/2	2A

Date: Tuesday, February 26, 2008 | Sheet 3 of 40


04
+VCORE
C66 22U/6.3V_8
C41 22U/6.3V_8
C74 22U/6.3V_8
C42 22U/6.3V_8
C44 22U/6.3V_8
C62 22U/6.3V_8
C38 22U/6.3V_8
C43 22U/6.3V_8
C69 22U/6.3V_8
C57 22U/6.3V_8
C61 22U/6.3V_8
C60 22U/6.3V_8
C16 22U/6.3V_8
C15 22U/6.3V_8
C56 22U/6.3V_8
C18 22U/6.3V_8
C67 22U/6.3V_8
C70 22U/6.3V_8
C11 22U/6.3V_8
C12 22U/6.3V_8
C13 22U/6.3V_8
C14 22U/6.3V_8
C46 22U/6.3V_8
C40 22U/6.3V_8
C45 22U/6.3V_8
C39 22U/6.3V_8
C64 22U/6.3V_8
C75 22U/6.3V_8
C63 22U/6.3V_8
C59 22U/6.3V_8
C17 22U/6.3V_8
C58 22U/6.3V_8
+1.05V
C54 1U/10V_4
C51 1U/10V_4
C65 1U/10V_4
C48 1U/10V_4
C55 1U/10V_4
C68 1U/10V_4
U18C
Penryn Ball-out Rev 1a
C563 330u_2.5V_7343
C571 .01U/16V_4
C569 10U/6.3V_8
+1.5V
CPU_VID0 35
CPU_VID1 35
CPU_VID2 35
CPU_VID3 35
CPU_VID4 35
CPU_VID5 35
CPU_VID6 35
VCCSENSE 35
VSSSENSE 35
R25 100/F_4
R26 100/F_4
2,6,9,10,11,12,14,15,17,18,19,20,21,22,24,25,26,28,29,30,31,35,36,38 +3V
2,3,5,6,8,9,19,22,29,34,35 +1.05V
9,19,20,22,24,25,28,31,34,38 +1.5V
35 +VCORE
U18D
Penryn Ball-out Rev 1a
+3V
R360 *0_4
DV-2 modify
25mils
LM86VCC
C580 .1U/10V_4
R358 10K/F_4
R359 10K/F_4
R357 10K/F_4
U19
SCLK
SDA
ALERT#
OVERT#
VCC
DXP
DXN
GND
EMC1402-1-ACZL-TR
ADDRESS: 98H
15,30 MBCLK2
15,30 MBDATA2
MBCLK2
MBDATA2
C576 100P/50V_4
H_THERMDA 3
H_THERMDC 3
R355 *0_4
SYS_SHDN# 32,33
D21 *RB501V-40
R354 0_4
3920_RST# 30,32
Q16 MMBT3904-7-F
D20 RB501V-40
ECPWROK 6,21,30
R353 10K/F_4
D22 *RB501V-40
SYS_SHDN-1#
VGA_OVT# 15
SYS_SHDN-1# 29
PM_THRM_R#
R356 0_6
PM_THRM# 21
NB5
PROJECT : QL6
Quanta Computer Inc.
Size Custom
Document Number
Penryn & TH Monitor 2/2
Rev 2A
Date: Tuesday, February 26, 2008
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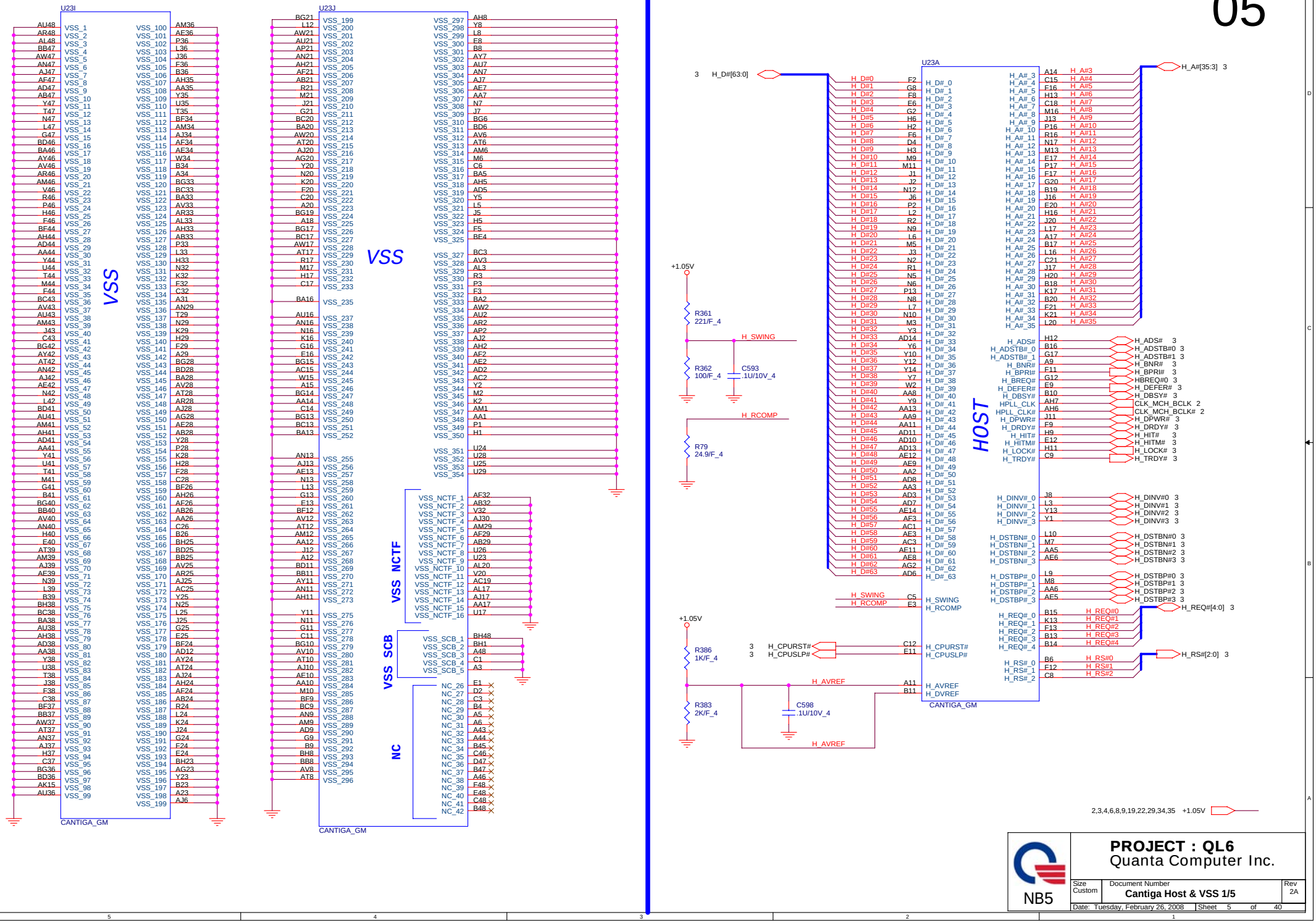
05
U23I
VSS
CANTIGA_GM
U23J
VSS
VSS NCTF
VSS SCB
NC
CANTIGA_GM
U23A
HOST
CANTIGA_GM
H_D#[63:0]
H_A#[35:3]
H_REQ#[4:0]
H_RS#[2:0]
+1.05V
R361 221/F_4
R362 100/F_4
C593 .1U/10V_4
H_SWING
R79 24.9/F_4
H_RCOMP
R386 1K/F_4
R383 2K/F_4
C598 .1U/10V_4
H_AVREF
H_CPURST#
H_CPUSLP#
H_SWING
H_RCOMP
H_ADS#
H_ADSTB#_0
H_ADSTB#_1
H_BNR#
H_BPRI#
H_BREQ#
H_DEFER#
H_DBSY#
HPLL_CLK
HPLL_CLK#
H_DPWR#
H_DRDY#
H_HIT#
H_HITM#
H_LOCK#
H_TRDY#
H_DINV#_0
H_DINV#_1
H_DINV#_2
H_DINV#_3
H_DSTBN#_0
H_DSTBN#_1
H_DSTBN#_2
H_DSTBN#_3
H_DSTBP#_0
H_DSTBP#_1
H_DSTBP#_2
H_DSTBP#_3
H_REQ#_0
H_REQ#_1
H_REQ#_2
H_REQ#_3
H_REQ#_4
H_RS#_0
H_RS#_1
H_RS#_2
2,3,4,6,8,9,19,22,29,34,35 +1.05V
PROJECT : QL6
Quanta Computer Inc.
NB5
Size Custom
Document Number
Cantiga Host & VSS 1/5
Rev 2A
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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

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

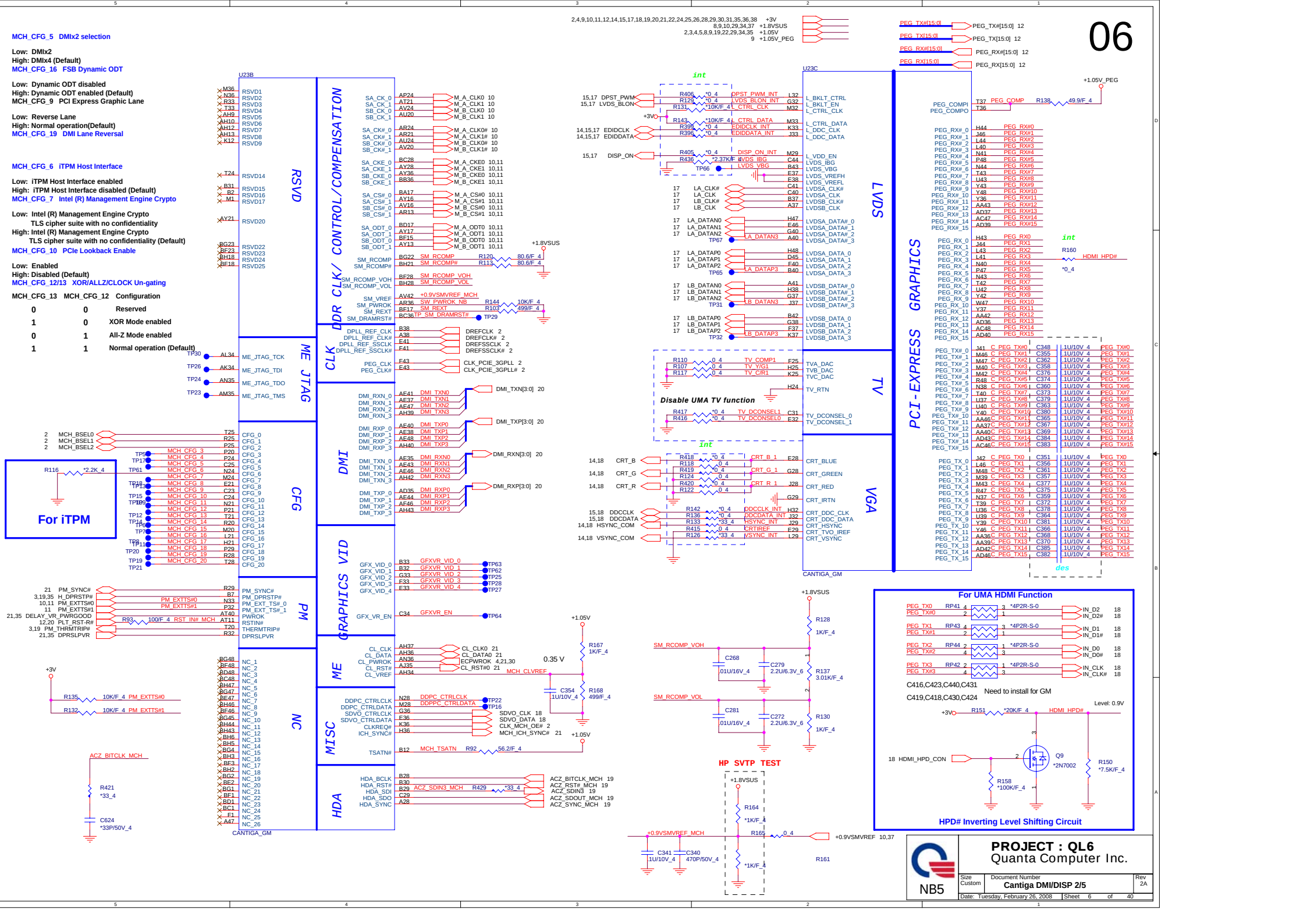
Low: Intel (R) Management Engine Crypto
TLS cipher suite with no confidentiality
High: Intel (R) Management Engine Crypto
TLS cipher suite with no confidentiality (Default)

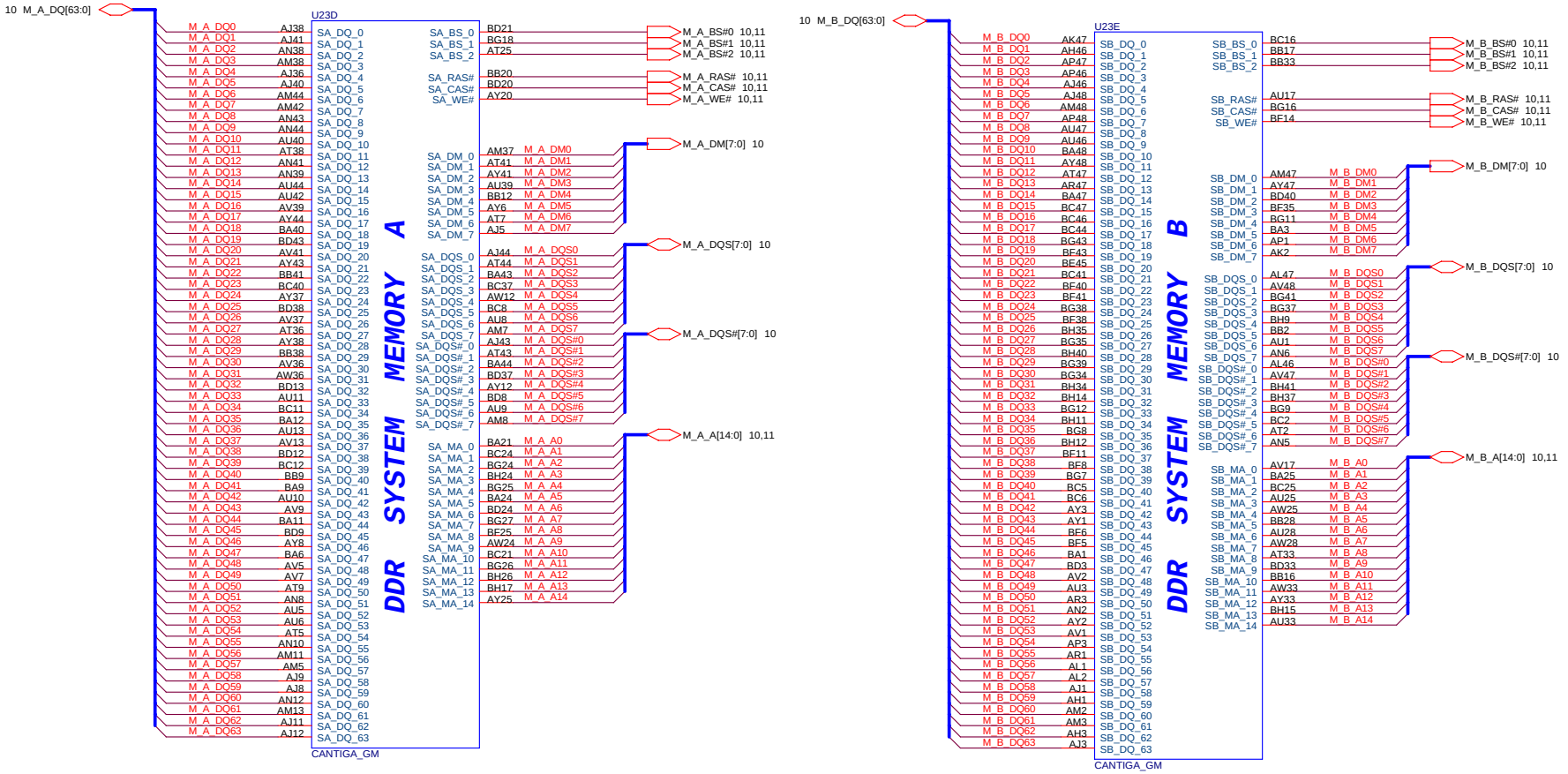
MCH_CFG_10 PCIe Lookback Enable

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)





PROJECT : QL6
Quanta Computer Inc.

NB5

Size	Document Number	Rev
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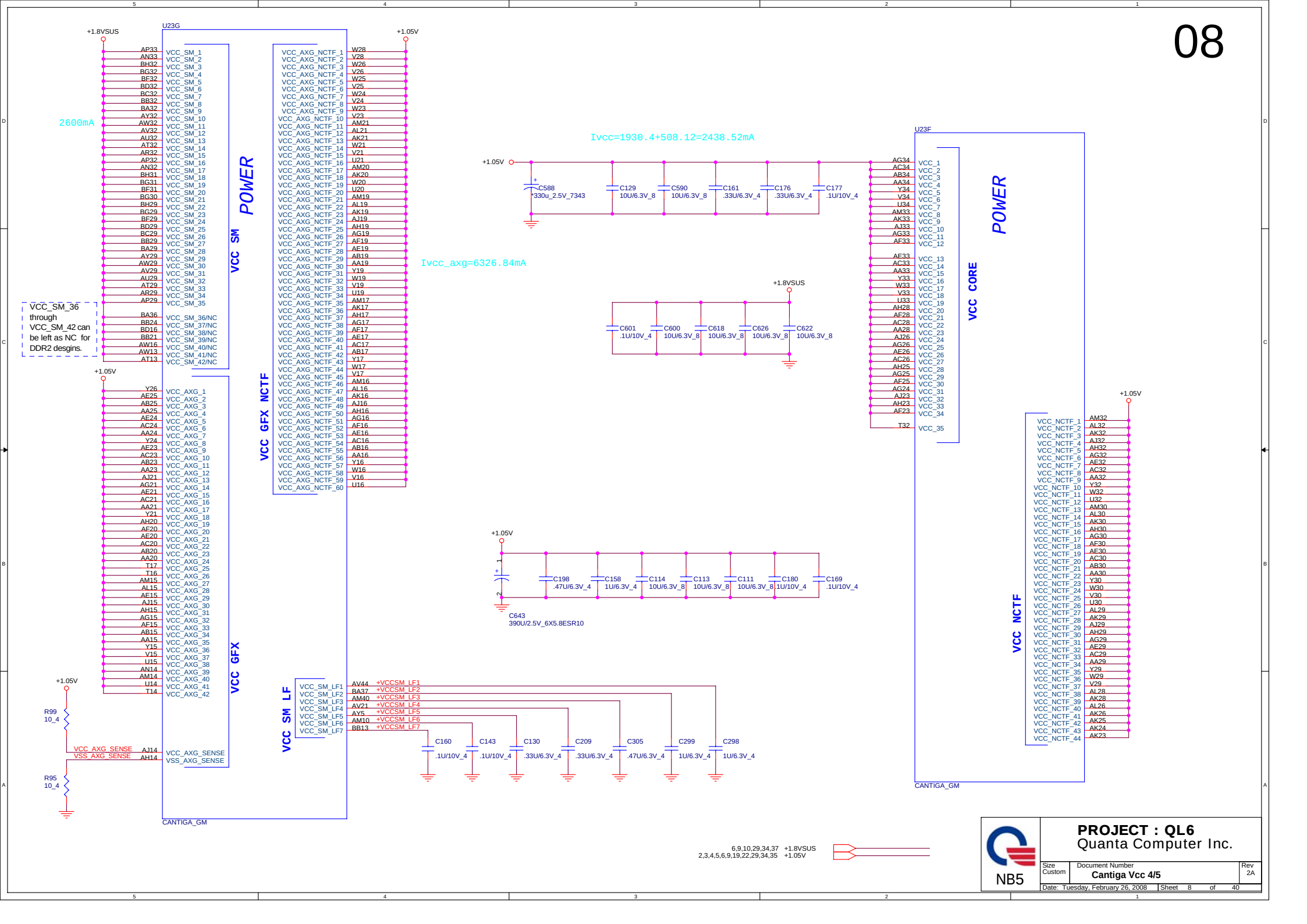

NB5	PROJECT : QL6 Quanta Computer Inc.	
Size: Custom	Document Number: Cantiga Vcc 4/5	Rev: 2A
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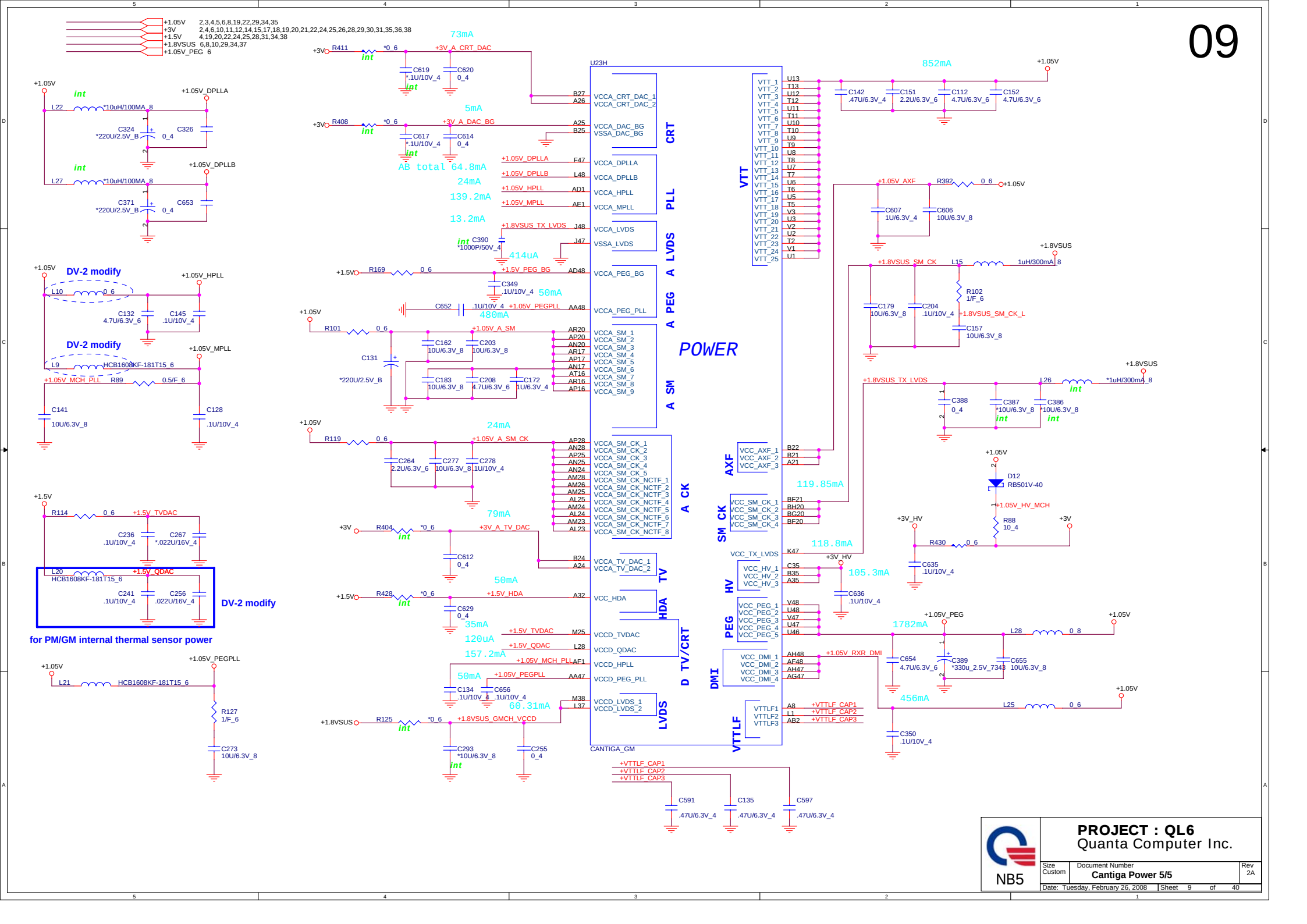
09
+1.05V 2,3,4,5,6,8,19,22,29,34,35
+3V 2,4,6,10,11,12,14,15,17,18,19,20,21,22,24,25,26,28,29,30,31,35,36,38
+1.5V 4,19,20,22,24,25,28,31,34,38
+1.8VSUS 6,8,10,29,34,37
+1.05V_PEG 6
U23H
CANTIGA_GM
POWER
CRT
PLL
A LVDS
A PEG
A SM
A CK
TV
HDA
D TV/CRT
LVDS
VTT
AXF
SM CK
HV
PEG
DMI
VTTLF
+1.05V_DPLLA
+1.05V_DPLLB
+1.05V_HPLL
+1.05V_MPLL
+1.05V_PEGPLL
DV-2 modify
for PM/GM internal thermal sensor power
NB5
PROJECT : QL6
Quanta Computer Inc.
Cantiga Power 5/5
Size Custom
Rev 2A
Date: Tuesday, February 26, 2008
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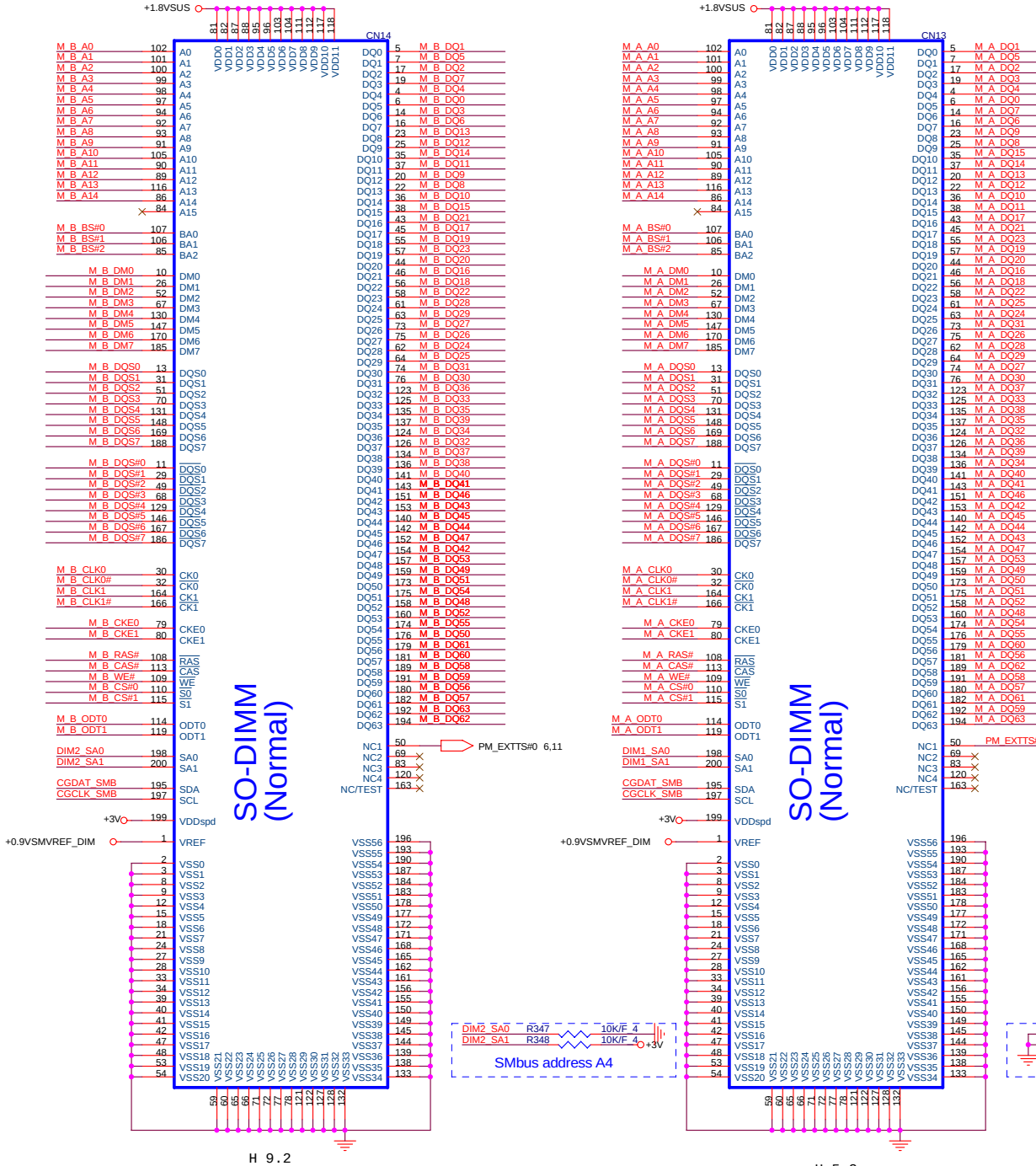
CN14
SO-DIMM (Normal)
+1.8VSUS
+3V
+0.9VSMVREF_DIM
M_B_A0
M_B_A1
M_B_A2
M_B_A3
M_B_A4
M_B_A5
M_B_A6
M_B_A7
M_B_A8
M_B_A9
M_B_A10
M_B_A11
M_B_A12
M_B_A13
M_B_A14
M_B_BS#0
M_B_BS#1
M_B_BS#2
M_B_DM0
M_B_DM1
M_B_DM2
M_B_DM3
M_B_DM4
M_B_DM5
M_B_DM6
M_B_DM7
M_B_DQS0
M_B_DQS1
M_B_DQS2
M_B_DQS3
M_B_DQS4
M_B_DQS5
M_B_DQS6
M_B_DQS7
M_B_DQS#0
M_B_DQS#1
M_B_DQS#2
M_B_DQS#3
M_B_DQS#4
M_B_DQS#5
M_B_DQS#6
M_B_DQS#7
M_B_CLK0
M_B_CLK0#
M_B_CLK1
M_B_CLK1#
M_B_CKE0
M_B_CKE1
M_B_RAS#
M_B_CAS#
M_B_WE#
M_B_CS#0
M_B_CS#1
M_B_ODT0
M_B_ODT1
DIM2_SA0
DIM2_SA1
CGDAT_SMB
CGCLK_SMB
PM_EXTTS#0 6,11
SMbus address A4
DIM2_SA0 R347 10K/F_4
DIM2_SA1 R348 10K/F_4
H 9.2
CN13
SO-DIMM (Normal)
M_A_A0
M_A_A1
M_A_A2
M_A_A3
M_A_A4
M_A_A5
M_A_A6
M_A_A7
M_A_A8
M_A_A9
M_A_A10
M_A_A11
M_A_A12
M_A_A13
M_A_A14
M_A_BS#0
M_A_BS#1
M_A_BS#2
M_A_DM0
M_A_DM1
M_A_DM2
M_A_DM3
M_A_DM4
M_A_DM5
M_A_DM6
M_A_DM7
M_A_DQS0
M_A_DQS1
M_A_DQS2
M_A_DQS3
M_A_DQS4
M_A_DQS5
M_A_DQS6
M_A_DQS7
M_A_DQS#0
M_A_DQS#1
M_A_DQS#2
M_A_DQS#3
M_A_DQS#4
M_A_DQS#5
M_A_DQS#6
M_A_DQS#7
M_A_CLK0
M_A_CLK0#
M_A_CLK1
M_A_CLK1#
M_A_CKE0
M_A_CKE1
M_A_RAS#
M_A_CAS#
M_A_WE#
M_A_CS#0
M_A_CS#1
M_A_ODT0
M_A_ODT1
DIM1_SA0
DIM1_SA1
CGDAT_SMB
CGCLK_SMB
PM_EXTTS#0
SMbus address A0
R24 10K/F_4 DIM1_SA0
R23 10K/F_4 DIM1_SA1
H 5.2
M_B_DM[0..7] M_B_DM[0..7] 7
M_B_DQ[0..63] M_B_DQ[0..63] 7
M_B_DQS[0..7] M_B_DQS[0..7] 7
M_B_DQS#[0..7] M_B_DQS#[0..7] 7
M_B_A14..0] M_B_A[14..0] 7,11
M_B_CLK0 M_B_CLK0 6
M_B_CLK0# M_B_CLK0# 6
M_B_CLK1 M_B_CLK1 6
M_B_CLK1# M_B_CLK1# 6
M_B_BS#[0..2] M_B_BS#[0..2] 7,11
M_B_ODT[0..1] M_B_ODT[0..1] 6,11
M_B_CKE[0..1] M_B_CKE[0..1] 6,11
M_B_CS#[0..1] M_B_CS#[0..1] 6,11
M_B_RAS# M_B_RAS# 7,11
M_B_CAS# M_B_CAS# 7,11
M_B_WE# M_B_WE# 7,11
M_A_DM[0..7] M_A_DM[0..7] 7
M_A_DQ[0..63] M_A_DQ[0..63] 7
M_A_DQS[0..7] M_A_DQS[0..7] 7
M_A_DQS#[0..7] M_A_DQS#[0..7] 7
M_A_A14..0] M_A_A[14..0] 7,11
M_A_CLK0 M_A_CLK0 6
M_A_CLK0# M_A_CLK0# 6
M_A_CLK1 M_A_CLK1 6
M_A_CLK1# M_A_CLK1# 6
M_A_BS#[0..2] M_A_BS#[0..2] 7,11
M_A_ODT[0..1] M_A_ODT[0..1] 6,11
M_A_CKE[0..1] M_A_CKE[0..1] 6,11
M_A_CS#[0..1] M_A_CS#[0..1] 6,11
M_A_RAS# M_A_RAS# 7,11
M_A_CAS# M_A_CAS# 7,11
M_A_WE# M_A_WE# 7,11
CGCLK_SMB CGCLK_SMB 2,11,28,31
CGDAT_SMB CGDAT_SMB 2,11,28,31
C628 470P/50V_4
+0.9VSMVREF_DIM
R425 0_6
+0.9VSMVREF 6,37
R423 *10K/F_4
+1.8VSUS
R424 *10K/F_4
Place these Caps near So-Dimm1.
+1.8VSUS
C584 2.2U/6.3V_6
C579 2.2U/6.3V_6
C575 2.2U/6.3V_6
C572 2.2U/6.3V_6
C568 2.2U/6.3V_6
C582 .1U/10V_4
C583 .1U/10V_4
C566 .1U/10V_4
C585 .1U/10V_4
C567 .1U/10V_4
C587 .1U/10V_4
+0.9VSMVREF_DIM
+3V
C262 .1U/10V_4
C258 2.2U/6.3V_6
C25 2.2U/6.3V_6
C29 .1U/10V_4
SO-DIMM BYPASS PLACEMENT :
Place these Caps near So-Dimm1.
No Vias Between the Trace of PIN to CAP.
Place these Caps near So-Dimm2.
+1.8VSUS
C589 2.2U/6.3V_6
C564 2.2U/6.3V_6
C565 2.2U/6.3V_6
C578 2.2U/6.3V_6
C570 2.2U/6.3V_6
C577 .1U/10V_4
C573 .1U/10V_4
C581 .1U/10V_4
C586 .1U/10V_4
C592 .1U/10V_4
C574 .1U/10V_4
+0.9VSMVREF_DIM
+3V
C261 .1U/10V_4
C257 2.2U/6.3V_6
C30 2.2U/6.3V_6
C26 .1U/10V_4
SO-DIMM BYPASS PLACEMENT :
Place these Caps near So-Dimm2
No Vias Between the Trace of PIN to CAP.
6,8,9,29,34,37 +1.8VSUS
2,4,6,9,11,12,14,15,17,18,19,20,21,22,24,25,26,28,29,30,31,35,36,38 +3V
PROJECT : QL6
Quanta Computer Inc.
NB5
Size Custom
Document Number DDR2 DIMM
Rev 2A
Date: Tuesday, February 26, 2008
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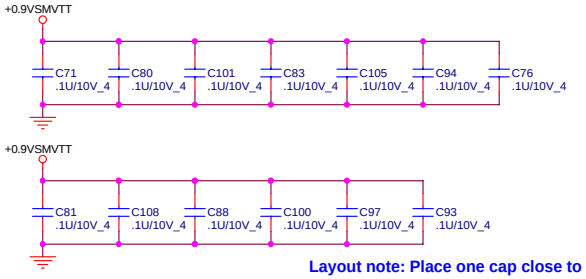
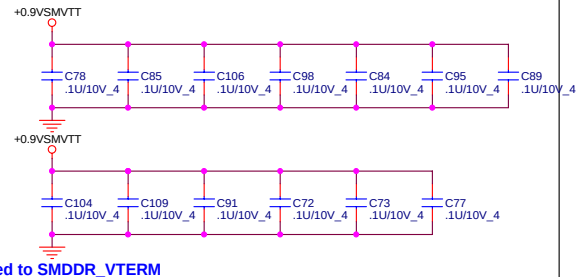
DDRII DUAL CHANNEL A,B.

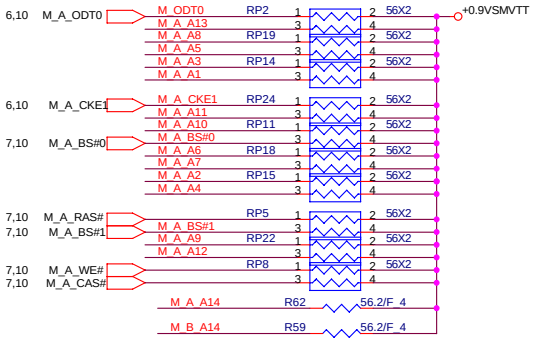
DDRII A CHANNEL

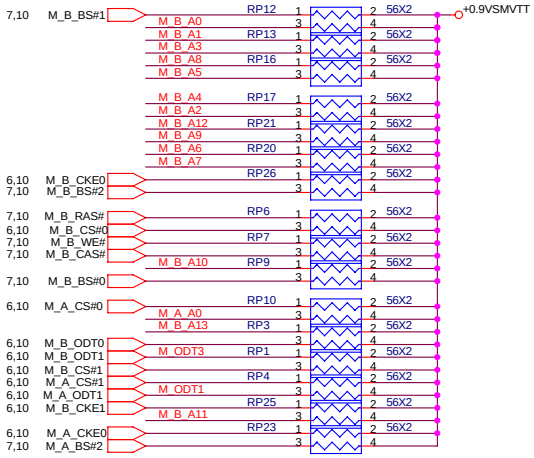


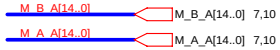
DDRII B CHANNEL



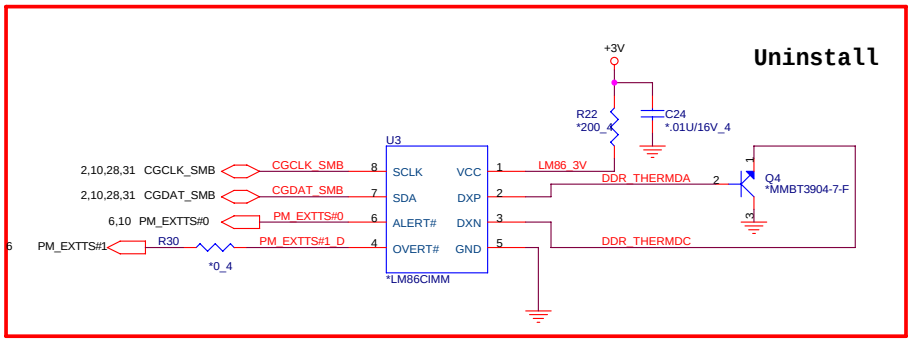
Layout note: Place one cap close to every 2 pullup resistors terminated to SMDDR_VTERM







Uninstall



+0.9VSMVTT 37

+3V 2,4,6,9,10,12,14,15,17,18,19,20,21,22,24,25,26,28,29,30,31,35,36,38

PROJECT : QL6
Quanta Computer Inc.

NB5

Size	Document Number	Rev
Custom	DDR2 termination	2A

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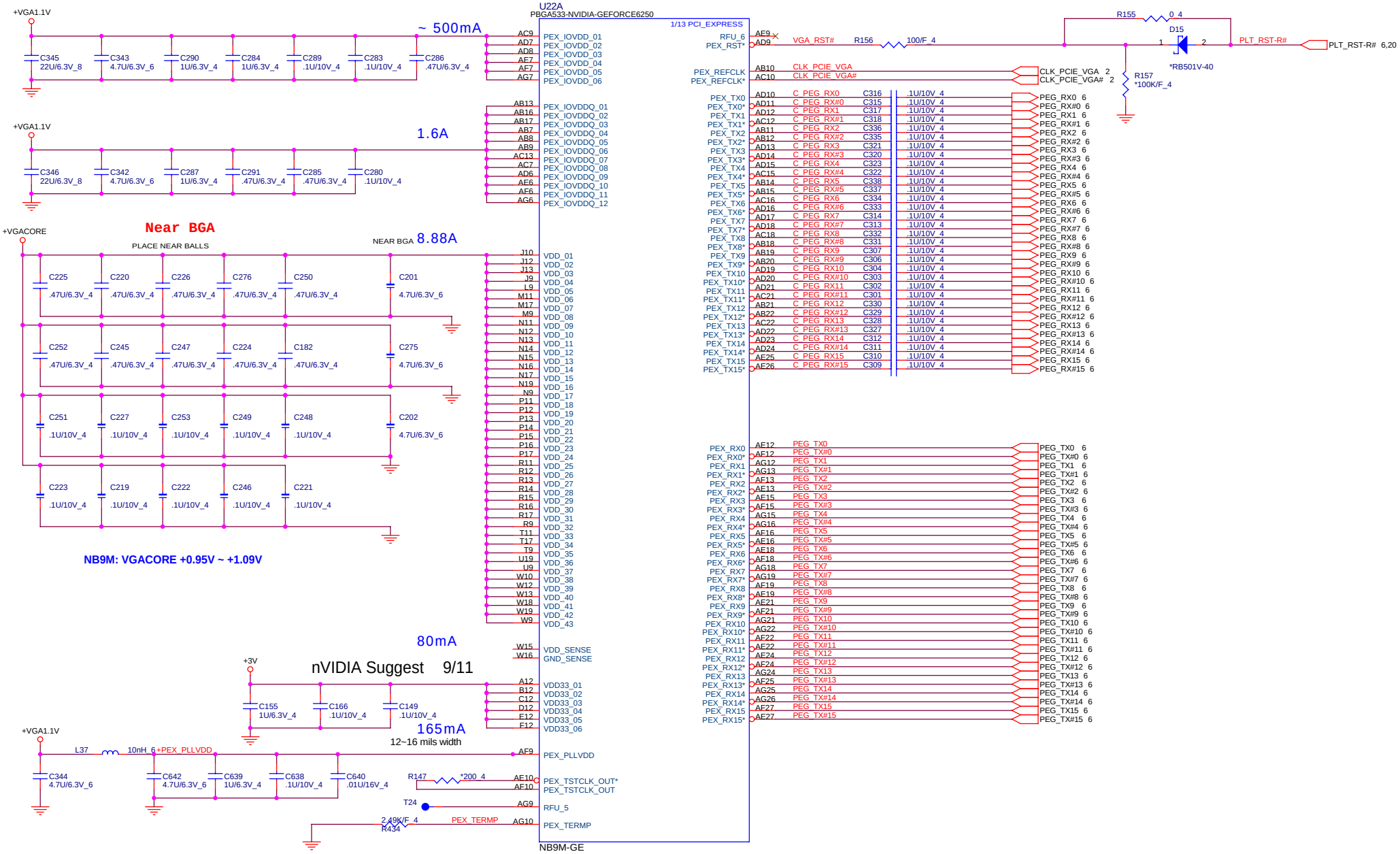

NB5

PROJECT : QL6
Quanta Computer Inc.

Size	Document Number	Rev
Custom	NV9X (PCIE I/F) 1/5	2A
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U22B
PBGA533-NVIDIA-GEFORCE6250
2/13 FRAME_BUFFER

+1.8V

1.63A

FBVDDQ_01 A13
FBVDDQ_02 B13
FBVDDQ_03 C13
FBVDDQ_04 D13
FBVDDQ_05 D14
FBVDDQ_06 E13
FBVDDQ_07 F13
FBVDDQ_08 F14
FBVDDQ_09 F15
FBVDDQ_10 F16
FBVDDQ_11 F17
FBVDDQ_12 F19
FBVDDQ_13 F22
FBVDDQ_14 H23
FBVDDQ_15 H26
FBVDDQ_16 J15
FBVDDQ_17 J16
FBVDDQ_18 J18
FBVDDQ_19 J19
FBVDDQ_20 L19
FBVDDQ_21 L23
FBVDDQ_22 L26
FBVDDQ_23 M19
FBVDDQ_24 N22
FBVDDQ_25 U22
FBVDDQ_26 Y22

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

FBA_D0 D21 VMA_DQ0
FBA_D1 C22 VMA_DQ1
FBA_D2 B22 VMA_DQ2
FBA_D3 A22 VMA_DQ3
FBA_D4 C24 VMA_DQ4
FBA_D5 B25 VMA_DQ5
FBA_D6 A25 VMA_DQ6
FBA_D7 A26 VMA_DQ7
FBA_D8 D22 VMA_DQ8
FBA_D9 E22 VMA_DQ9
FBA_D10 F24 VMA_DQ10
FBA_D11 D24 VMA_DQ11
FBA_D12 D26 VMA_DQ12
FBA_D13 D27 VMA_DQ13
FBA_D14 C27 VMA_DQ14
FBA_D15 B27 VMA_DQ15
FBA_D16 D16 VMA_DQ16
FBA_D17 E16 VMA_DQ17
FBA_D18 D17 VMA_DQ18
FBA_D19 F18 VMA_DQ19
FBA_D20 D20 VMA_DQ20
FBA_D21 F20 VMA_DQ21
FBA_D22 E21 VMA_DQ22
FBA_D23 F21 VMA_DQ23
FBA_D24 C16 VMA_DQ24
FBA_D25 B18 VMA_DQ25
FBA_D26 C18 VMA_DQ26
FBA_D27 D18 VMA_DQ27
FBA_D28 C19 VMA_DQ28
FBA_D29 C21 VMA_DQ29
FBA_D30 B21 VMA_DQ30
FBA_D31 A21 VMA_DQ31
FBA_D32 P22 VMA_DQ32
FBA_D33 P24 VMA_DQ33
FBA_D34 R23 VMA_DQ34
FBA_D35 R24 VMA_DQ35
FBA_D36 T23 VMA_DQ36
FBA_D37 U24 VMA_DQ37
FBA_D38 V23 VMA_DQ38
FBA_D39 V24 VMA_DQ39
FBA_D40 N25 VMA_DQ40
FBA_D41 N26 VMA_DQ41
FBA_D42 R25 VMA_DQ42
FBA_D43 R26 VMA_DQ43
FBA_D44 T25 VMA_DQ44
FBA_D45 V26 VMA_DQ45
FBA_D46 V25 VMA_DQ46
FBA_D47 V27 VMA_DQ47
FBA_D48 V22 VMA_DQ48
FBA_D49 W22 VMA_DQ49
FBA_D50 W23 VMA_DQ50
FBA_D51 W24 VMA_DQ51
FBA_D52 AA22 VMA_DQ52
FBA_D53 AB23 VMA_DQ53
FBA_D54 AB24 VMA_DQ54
FBA_D55 AC24 VMA_DQ55
FBA_D56 W25 VMA_DQ56
FBA_D57 W26 VMA_DQ57
FBA_D58 W27 VMA_DQ58
FBA_D59 AA25 VMA_DQ59
FBA_D60 AB25 VMA_DQ60
FBA_D61 AB26 VMA_DQ61
FBA_D62 AD26 VMA_DQ62
FBA_D63 AD27 VMA_DQ63

16 VMA_MA3 F26 FBA_CMD0
16 VMA_MA0 J24 FBA_CMD1
16 VMA_MA2 F25 FBA_CMD2
16 VMA_MA1 M23 FBA_CMD3
16 VMA_MA3H N27 FBA_CMD4
16 VMA_MA4H M27 FBA_CMD5
16 VMA_MA5H K26 FBA_CMD6
J25 FBA_CMD7
16 VMA_CS0# J27 FBA_CMD8
16 VMA_WE# G23 FBA_CMD9
16 VMA_BA0 G26 FBA_CMD10
16 VMA_CKE J23 FBA_CMD11
16 VMA_ODT M25 FBA_CMD12
16 VMA_MA2H K27 FBA_CMD13
16 VMA_MA12 G25 FBA_CMD14
16 VMA_RAS# L24 FBA_CMD15
16 VMA_MA11 K23 FBA_CMD16
16 VMA_MA10 K24 FBA_CMD17
16 VMA_BA1 G22 FBA_CMD18
16 VMA_MA8 K25 FBA_CMD19
16 VMA_MA9 H22 FBA_CMD20
16 VMA_MA6 M26 FBA_CMD21
16 VMA_MA5 H24 FBA_CMD22
16 VMA_MA7 F27 FBA_CMD23
16 VMA_MA4 J26 FBA_CMD24
16 VMA_CAS# G24 FBA_CMD25
G27 FBA_CMD26
16 VMA_BA2 M24 FBA_CMD27
K22 FBA_CMD28

J22 RFU_3
L22 RFU_4

16 VMA_CLK0 VMA_CLK0 F24 FBA_CLK0
16 VMA_CLK0# VMA_CLK0# F23 FBA_CLK0*
16 VMA_CLK1 VMA_CLK1 N24 FBA_CLK1
16 VMA_CLK1# VMA_CLK1# N23 FBA_CLK1*

NB9M-GE:stuff 30/F
CS03012FB21
+1.8V R82 30/F_4 FB_CAL_PD_VDDQ B15 FB_CAL_PD_VDDQ
R75 30/F_4 FB_CAL_PU_GND A15 FB_CAL_PU_GND
R80 *40.2/F_4 FB_CAL_TERM_GND B16 FB_CAL_TERM_GND
R192 Install for DDR3
+1.8V *60.4/F_4 R108 FB_DEBUG M22 FB_DEBUG
For Debug only

+VGA1.1V
L24 HCB1608KF-181T15_6
15mils width
+FB_PLLAVDD
10mA
R19 FB_PLLAVDD
T19 FB_DLLAVDD
C353 4.7U/6.3V_6
C244 4.7U/6.3V_6
C218 .1U/10V_4
C352 1U/6.3V_4
25mA

FBA_DQM0 D23 VMA_DM0
FBA_DQM1 C26 VMA_DM1
FBA_DQM2 D19 VMA_DM2
FBA_DQM3 B19 VMA_DM3
FBA_DQM4 T24 VMA_DM4
FBA_DQM5 T26 VMA_DM5
FBA_DQM6 AA23 VMA_DM6
FBA_DQM7 AB27 VMA_DM7

FBA_DQS_WP0 A24 VMA_WDQS0
FBA_DQS_WP1 C25 VMA_WDQS1
FBA_DQS_WP2 E19 VMA_WDQS2
FBA_DQS_WP3 A19 VMA_WDQS3
FBA_DQS_WP4 T22 VMA_WDQS4
FBA_DQS_WP5 T27 VMA_WDQS5
FBA_DQS_WP6 AA24 VMA_WDQS6
FBA_DQS_WP7 AA26 VMA_WDQS7

FBA_DQS_RN0 B24 VMA_RDQS0
FBA_DQS_RN1 D25 VMA_RDQS1
FBA_DQS_RN2 E18 VMA_RDQS2
FBA_DQS_RN3 A18 VMA_RDQS3
FBA_DQS_RN4 R22 VMA_RDQS4
FBA_DQS_RN5 R27 VMA_RDQS5
FBA_DQS_RN6 Y24 VMA_RDQS6
FBA_DQS_RN7 AA27 VMA_RDQS7

FB_VREF A16 +FB_VREF1

+1.8V
15mils width
R81 1K/F_4
R74 1K/F_4
C140 .1U/10V_4

NB9M-GE

R385 10K/F_4 VMA_ODT
R67 10K/F_4 VMA_CKE

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

power up sequence
+VGA1.1V
+3V
+VGACORE
+1.8V

U22J
PBGA533-NVIDIA-GEFORCE6250
13/13 GND_NC

AC11 GND_01
AC14 GND_02
AC17 GND_03
AC2 GND_04
AC20 GND_05
AC23 GND_06
AC26 GND_07
AC5 GND_08
AC8 GND_09
AE11 GND_10
AE14 GND_11
AE17 GND_12
AE2 GND_13
AE20 GND_14
AE23 GND_15
AE26 GND_16
AE5 GND_17
AE8 GND_18
B11 GND_19
B14 GND_20
B17 GND_21
B2 GND_22
B20 GND_23
B23 GND_24
B26 GND_25
B5 GND_26
B8 GND_27
E11 GND_28
E14 GND_29
E17 GND_30
E2 GND_31
E20 GND_32
E23 GND_33
E26 GND_34
E5 GND_35
E8 GND_36
H2 GND_37
H5 GND_38
J11 GND_39
J14 GND_40
J17 GND_41
K19 GND_42
K9 GND_43
L11 GND_44
L12 GND_45
L13 GND_46
L14 GND_47
L15 GND_48
L16 GND_49
L17 GND_50
L2 GND_51
L5 GND_52
M12 GND_53
M13 GND_54
M14 GND_55
M15 GND_56
M16 GND_57
P19 GND_58
P2 GND_59
P23 GND_60
P26 GND_61
P5 GND_62
P9 GND_63
T12 GND_64
T13 GND_65
T14 GND_66
T15 GND_67
T16 GND_68
U11 GND_69
U12 GND_70
U13 GND_71
U14 GND_72
U15 GND_73
U16 GND_74
U17 GND_75
U2 GND_76
U23 GND_77
U26 GND_78
U5 GND_79
V19 GND_80
V9 GND_81
W11 GND_82
W14 GND_83
W17 GND_84
Y2 GND_85
Y23 GND_86
Y26 GND_87
Y5 GND_88

NC_01 AA6
NC_02 AC19
NC_03 E15
NC_04 Y6

NB9M-GE

+1.8V
C148 4.7U/6.3V_6
C168 .47U/6.3V_4
C189 .47U/6.3V_4
C282 .1U/10V_4
C641 4.7U/6.3V_6
C178 .47U/6.3V_4
C123 .47U/6.3V_4
C190 .1U/10V_4
C294 .1U/10V_4
C150 .1U/10V_4
C171 .1U/10V_4
C627 .1U/10V_4
C625 .1U/10V_4
C646 .1U/10V_4

+1.8V
C645 4.7U/6.3V_6
C156 .47U/6.3V_4
C191 .47U/6.3V_4
C271 .1U/10V_4
C325 4.7U/6.3V_6
C200 .47U/6.3V_4
C242 .47U/6.3V_4
C621 .1U/10V_4
C217 .1U/10V_4
C243 .1U/10V_4
C188 .1U/10V_4
C167 .1U/10V_4
C170 .1U/10V_4
C288 .1U/10V_4

NB5

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Quanta Computer Inc.

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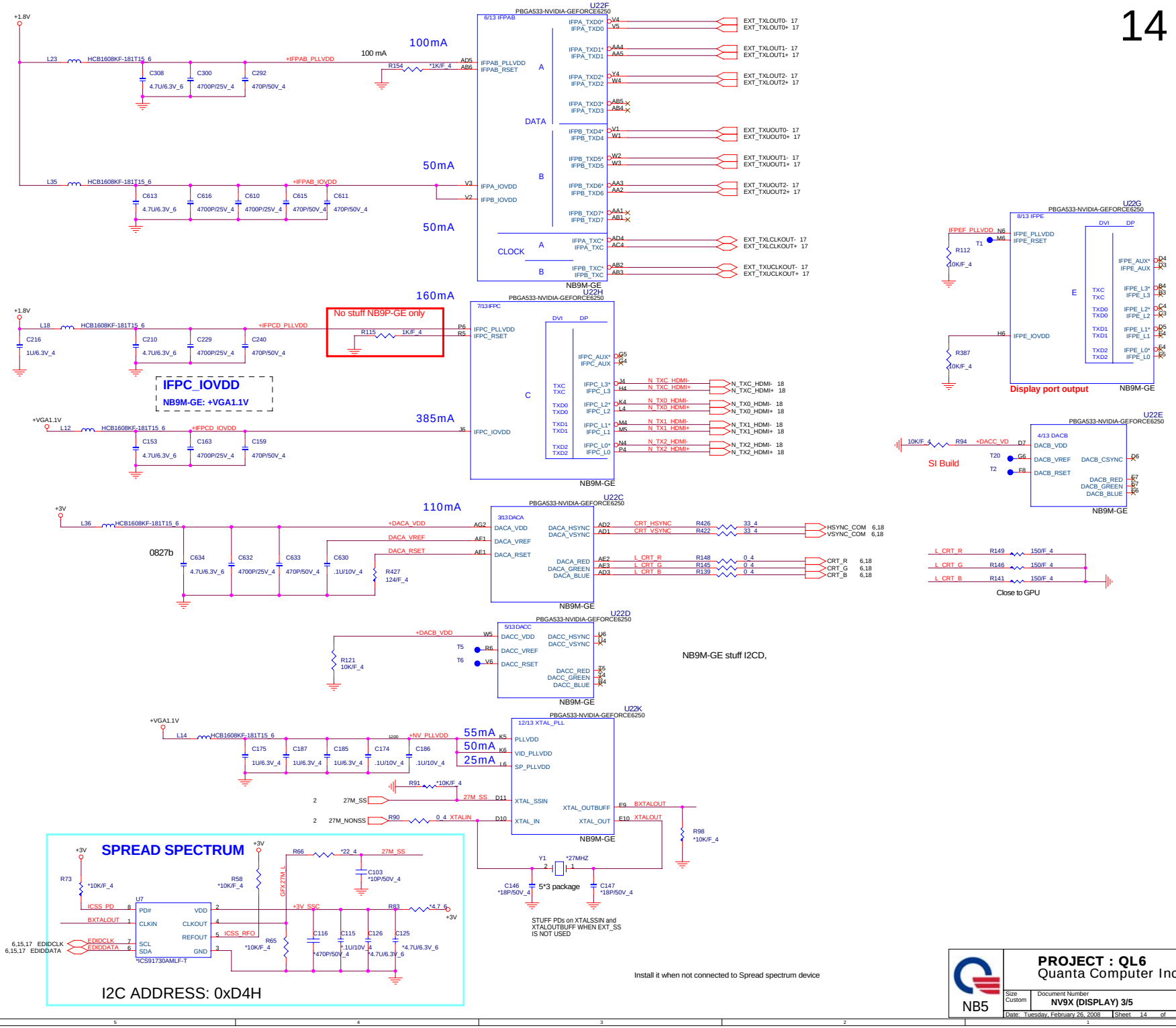

PROJECT : QL6	Quanta Computer Inc.
NB5	Size: Custom; Document Number: NV9X (DISPLAY) 3/5; Rev: 2A
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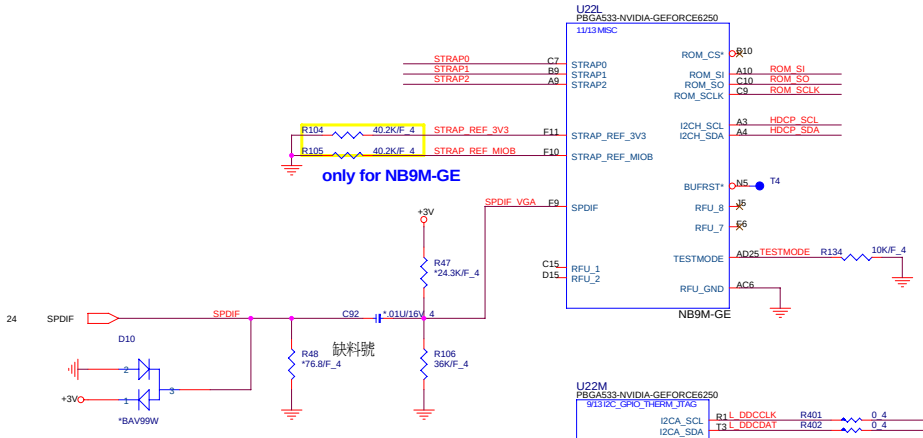
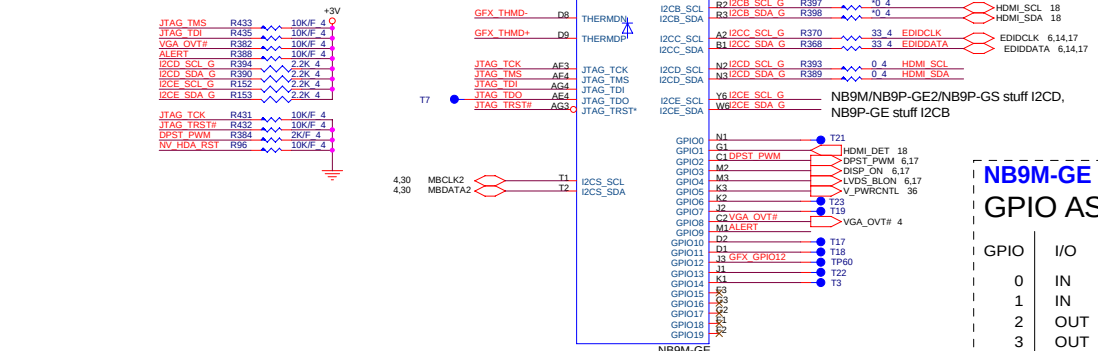
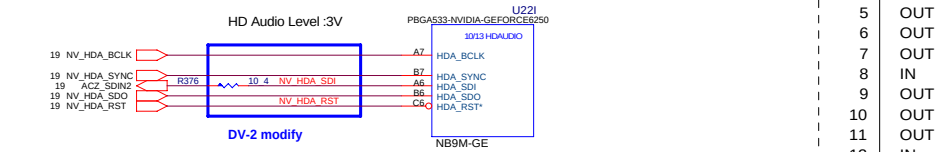
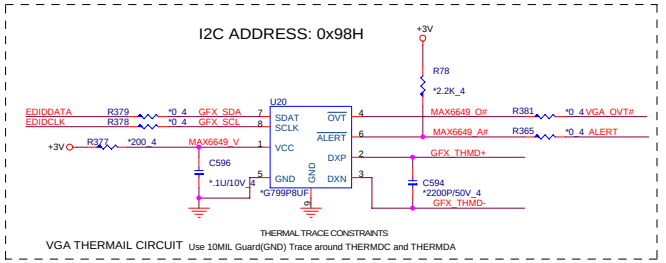
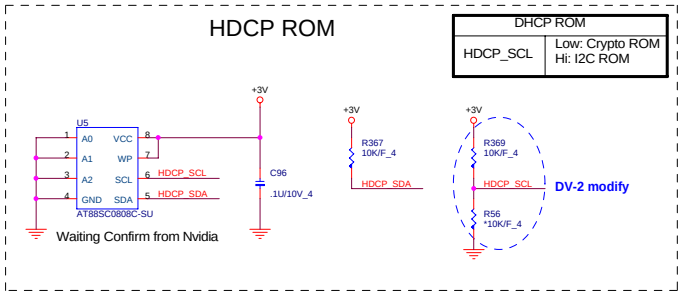






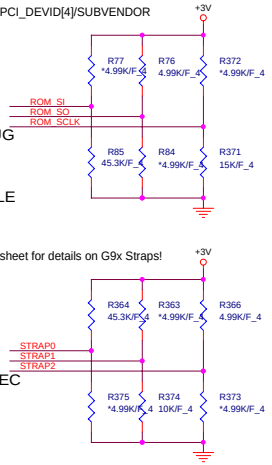




NB9M-GE (G98) Strraps

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



VRAM ID	
ROM_SI	PD 30K: Samsung PD 35K: Qimonda PD 45K: Hynix

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

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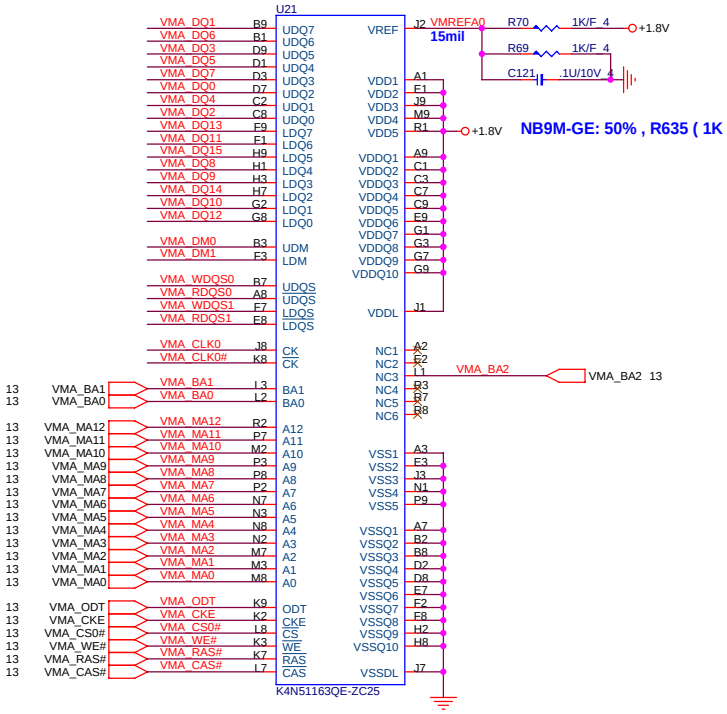
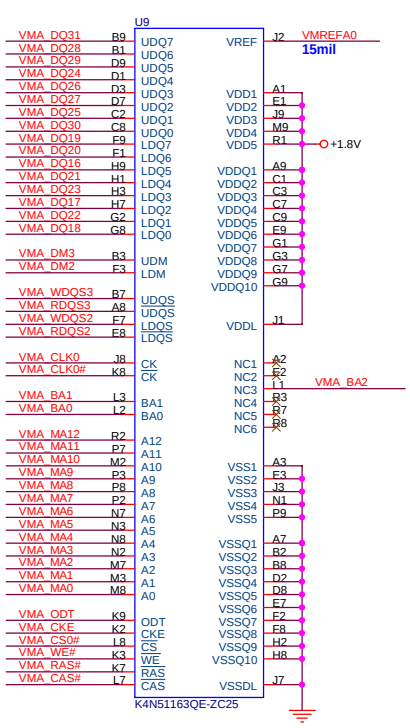
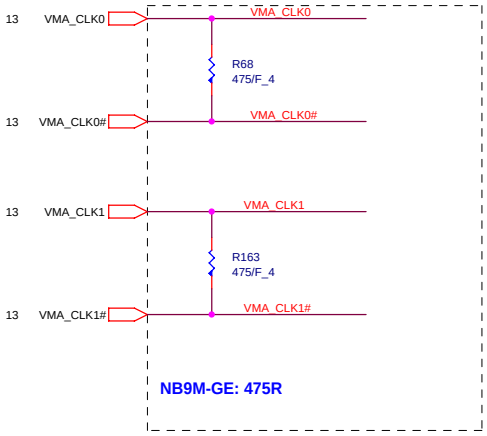
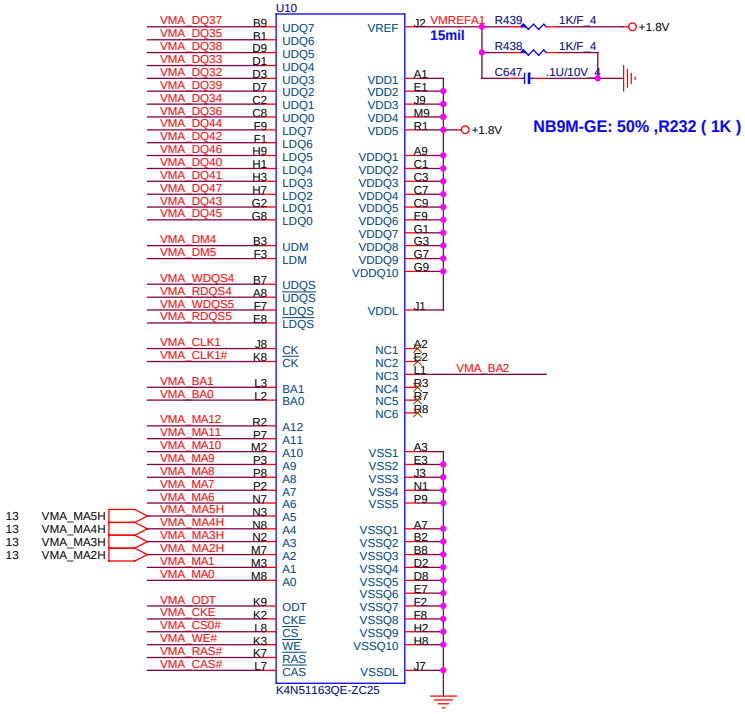
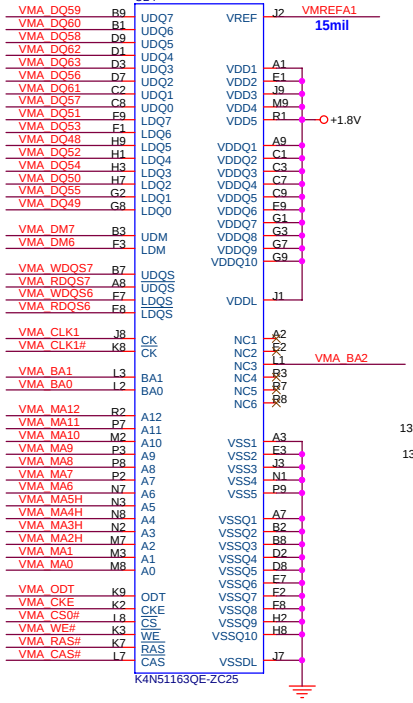




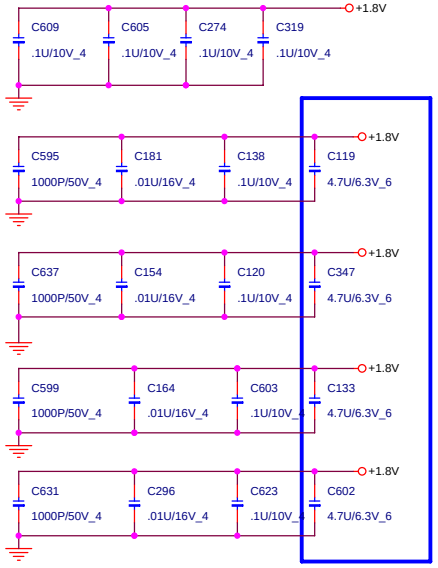


CS14752FB11 RES CHIP 475 1/16W +-1%(0402)





(By pass capacitor)



13 VMA_DQ[63..0]
13 VMA_DM[7..0]
13 VMA_WDQS[7..0]
13 VMA_RDQS[7..0]

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

NB9M : AKD5FG-TW31(Hynix,32M*16)
AKD5FG-T^03(Qimonda 32M*16)

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LCD / USB CAMERA / DIGITAL MIC CONNECTOR

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	RP40	*4P2R-S-0	TXLCLKOUT+
6	LA_CLK#			TXLCLKOUT-
6	LA_DATAP0	RP34	*4P2R-S-0	TXLOUT0+
6	LA_DATAN0			TXLOUT0-
6	LA_DATAP1	RP38	*4P2R-S-0	TXLOUT1+
6	LA_DATAN1			TXLOUT1-
6	LA_DATAP2	RP35	*4P2R-S-0	TXLOUT2+
6	LA_DATAN2			TXLOUT2-
6	LB_CLK#	RP59	*4P2R-S-0	TXUCLKOUT-
6	LB_CLK			TXUCLKOUT+
6	LB_DATAP0	RP52	*4P2R-S-0	TXUOUT0+
6	LB_DATAN0			TXUOUT0-
6	LB_DATAP1	RP55	*4P2R-S-0	TXUOUT1+
6	LB_DATAN1			TXUOUT1-
6	LB_DATAP2	RP57	*4P2R-S-0	TXUOUT2-
6	LB_DATAN2			TXUOUT2+

OPTION SIGNAL FROM Nvidia to VGA

14	EXT_TXLCLKOUT+	RP39	4P2R-S-0	TXLCLKOUT+
14	EXT_TXLCLKOUT-			TXLCLKOUT-
14	EXT_TXLOUT0-	RP33	4P2R-S-0	TXLOUT0-
14	EXT_TXLOUT0+			TXLOUT0+
14	EXT_TXLOUT1+	RP37	4P2R-S-0	TXLOUT1+
14	EXT_TXLOUT1-			TXLOUT1-
14	EXT_TXLOUT2+	RP36	4P2R-S-0	TXLOUT2+
14	EXT_TXLOUT2-			TXLOUT2-
14	EXT_TXUCLKOUT+	RP58	4P2R-S-0	TXUCLKOUT+
14	EXT_TXUCLKOUT-			TXUCLKOUT-
14	EXT_TXUOUT0+	RP53	4P2R-S-0	TXUOUT0+
14	EXT_TXUOUT0-			TXUOUT0-
14	EXT_TXUOUT1-	RP54	4P2R-S-0	TXUOUT1-
14	EXT_TXUOUT1+			TXUOUT1+
14	EXT_TXUOUT2-	RP56	4P2R-S-0	TXUOUT2-
14	EXT_TXUOUT2+			TXUOUT2+

+3V — R28 2.2K_4 EDIDCLK — R29 2.2K_4 EDIDDATA

2,4,6,9,10,11,12,14,15,18,19,20,21,22,24,25,26,28,29,30,31,35,36,38 +3V
18,22,24,25,28,29,31,38 +5V
32,33,34,35,36,37,38 +VIN
19,29,30,32,33,38 +3VPCU
33,38 +12VALW

DV-2 modify

+VIN_BLIGHT
+VIN — L4 FBM2125 HM330-T — C50 .1U/50V_6, C36 .01U/50V_4, C32 .1U/50V_6, C52 *10U/25V_12
+3V — R21 0_4 — +3VLCD_CON
C27 1000P/50V_4
+3.6V_CAM — C23 *4.7U/6.3V_6, C22 .01U/16V_4
6,14,15 EDIDDATA
6,14,15 EDIDCLK
20 USBP9+
20 USBP9-
24 DIGITAL_CLK
24 DIGITAL_D1
BLON_CON
VADJ1

CN2 — LCD_CON40 GS13407-11270-7F-40P-L

TXLCLKOUT+ / TXLCLKOUT-
TXLOUT0+ / TXLOUT0-
TXLOUT1+ / TXLOUT1-
TXLOUT2+ / TXLOUT2-
TXUCLKOUT+ / TXUCLKOUT-
TXUOUT0+ / TXUOUT0-
TXUOUT1+ / TXUOUT1-
TXUOUT2+ / TXUOUT2-

DIGITAL_CLK — C801 10P/50V_4 close with CN2

DV-2 modify

+5V — R33 0_6 — +3.6V_CAM
U4 *IC(5P) G913C (SOT23-5)EP
VIN, VOUT, SHDN, GND, SET
C53 1U/6.3V_4
R1 R34 *215K/F_4
R2 R35 *100K/F_4
C37 4.7U/6.3V_6

SI-2 modified for fix camera power fail

Vout=1.25(1+R1/R2)

DISP_ON R38 100K/F_4
LVDS_BLON R15 100K/F_4

6,15 DPST_PWM — DPST_PWM R19 *0_4
30 PWM_VADJ — PWM_VADJ R20 0_4 — VADJ1
C20 *4.7U/6.3V_6
C21 .1U/10V_4

+3VPCU — R16 36K/F_4 — D9 BAT54A
Close to EC
LID_EC# 29,30
6,15 LVDS_BLON — R17 1K/F_4 — PN_BLON — BLON_CON
21 LCD_BK — Q3 DTC144EUA
R18 100K/F_4
C19 22P/50V_4

+12VALW — R31 330K_4 — Q5 AO3404
AO3404 ID current 5.8A
+3V — C35 .1U/10V_4
+5VSUS — R37 100K/F_4 — Q8 DTC144EUA
6,15 DISP_ON
LCDONG — Q6 2N7002 — C34 .022U/16V_4
+3VLCD — L5 PBY201209T-4A/08
R36 22_8 — LCDDISCHG
C28 .01U/16V_4
C31 .1U/10V_4
C49 10U/6.3V_8
+3VLCD_CON
LCDON# — Q7 2N7002

NB5

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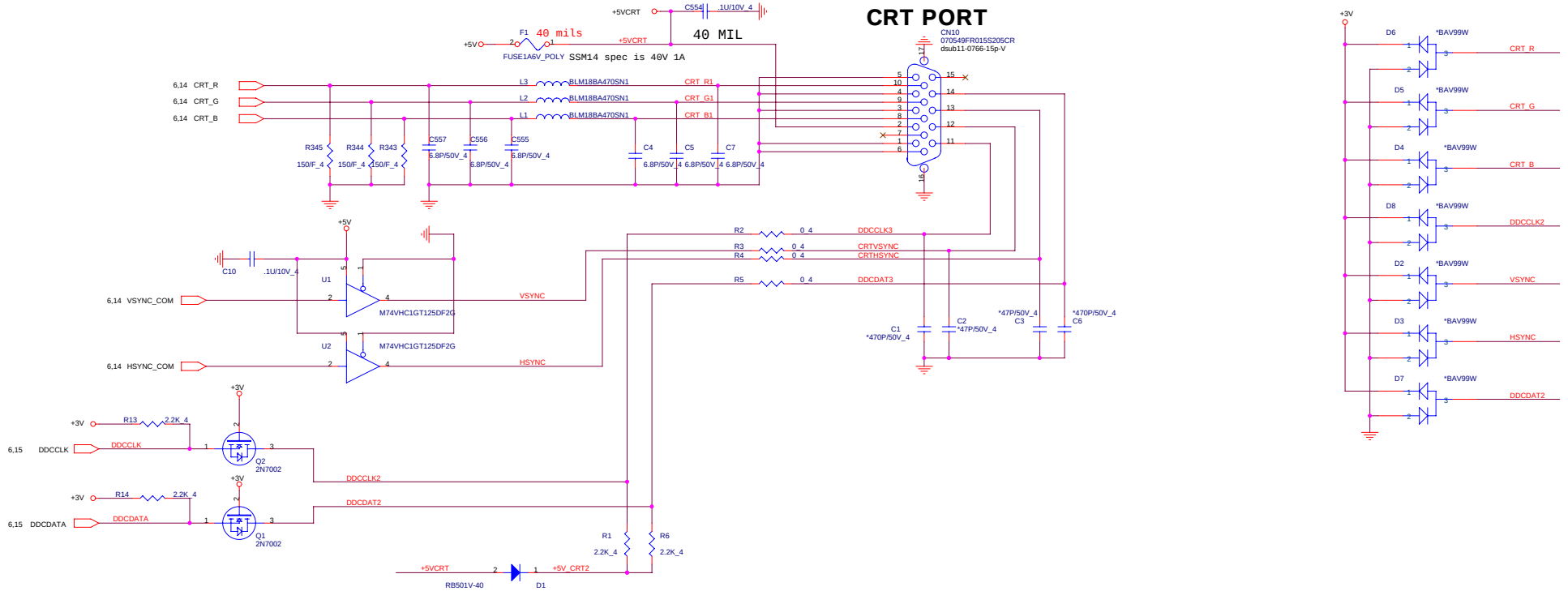
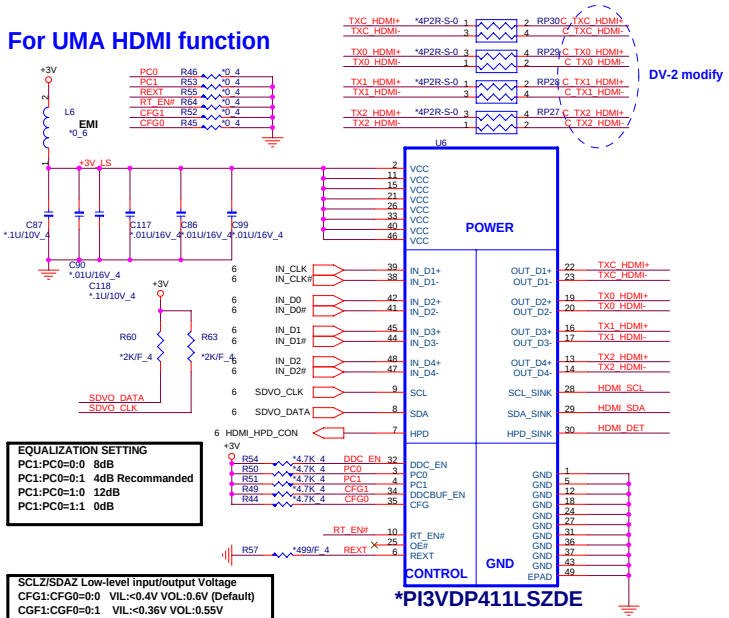
CRT PORT

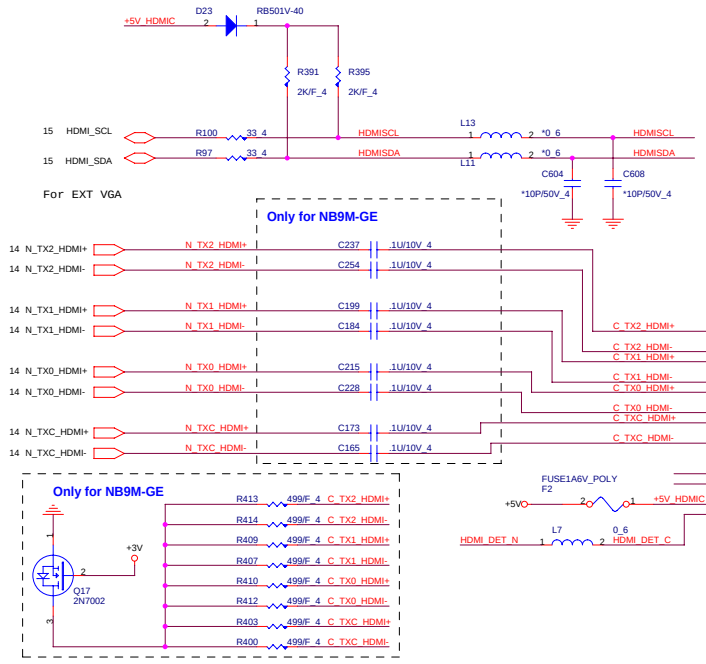


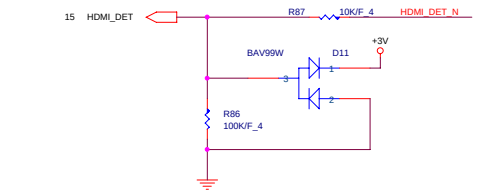
For UMA HDMI function



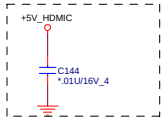
EQUALIZATION SETTING
PC1:PC0=0:0 8dB
PC1:PC0=0:1 4dB Recommanded
PC1:PC0=1:0 12dB
PC1:PC0=1:1 0dB

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

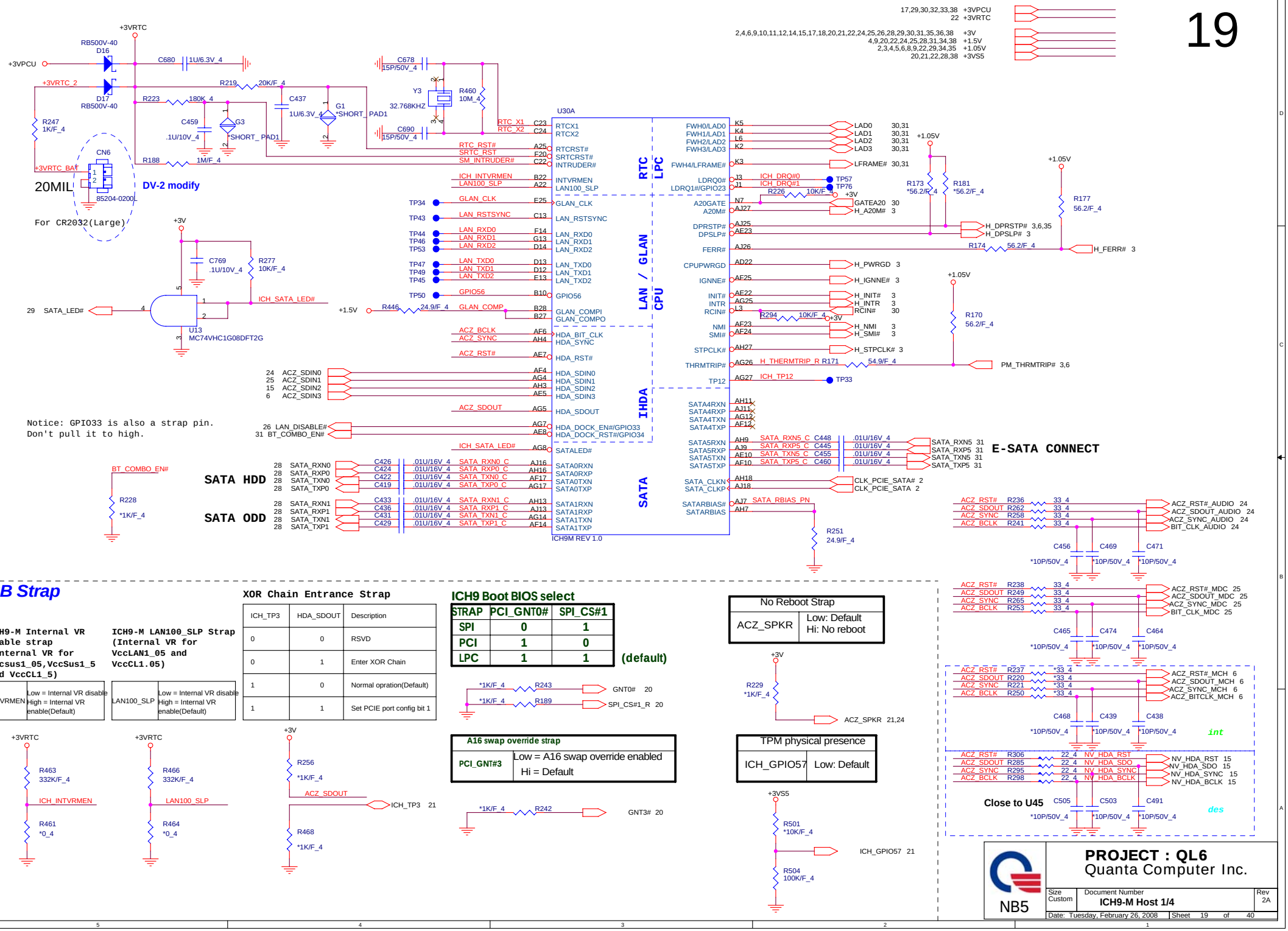




HDMI PORT



NB5	PROJECT : QL6 Quanta Computer Inc.	
Size C	Document Number CRT/PS8101 HDMI Conn	Rev 2A
Date: Tuesday, February 26, 2008	Sheet 18 of 40	



PROJECT : QL6
Quanta Computer Inc.

NB5

Size	Document Number	Rev
Custom	ICH9-M Host 1/4	2A

Date: Tuesday, February 26, 2008 Sheet 19 of 40

4,9,19,22,24,25,28,31,34,38 +1.5V
2,4,6,9,10,11,12,14,15,17,18,19,21,22,24,25,26,28,29,30,31,35,36,38 +3V
21,23,29,31,34,35,36,38 +3VSUS

MINI CARD PCI-E(WLAN)

EXPRESS CARD (NEW CARD)

MINI CARD PCI-E(Robson)

PCIE-LAN

U30D

PCI-Express Direct Media Interface

SPI

USB

ICH9M REV 1.0

E-SATA and USB Connector
USB Connector
USB Connector
DV-2 modify
Card Reader
NEW CARD
BLUETOOTH
Carama USB
DV-2 modify
Wireless Mini-Card
Robson Mini-Card

RP46 10P8R-8.2K
RP45 10P8R-8.2K
RP49 10P8R-8.2K
RP48 10P8R-8.2K

512K byte SPI ROM
For HDCP only
For GM HDCP

EMI 0828

For iTPM

U30B

PCI

Interrupt I/F

ICH9M REV 1.0

U31 *MC74VHC1G08DFT2G

PLTRST# 26,28,30,31

NB5

PROJECT : QL6
Quanta Computer Inc.

Size	Document Number	Rev
Custom	ICH9-M PCIE 2/4	2A

Date: Tuesday, February 26, 2008 Sheet 20 of 40

4,9,19,20,22,24,25,28,31,34,38 +1.5V
2,4,6,9,10,11,12,14,15,17,18,19,20,22,24,25,26,28,29,30,31,35,36,38 +3V
19,20,22,28,38 +3VS5
23,29,31,34,35,36,38 +3VSUS

U30C

SMB
SYS GPIO
Power MGT
GPIO
Controller Link
MISC
SATA GPIO
Clocks

SMBCLK
SMBDATA
LINKALERT#/GPIO60/CLGPIO4
SMLINK0
SMLINK1
RI#
SUS_STAT#/LPCPD#
SYS_RESET#
PMSYNC#/GPIO0
SMBALERT#/GPIO11
STP_PCI#
STP_CPU#
CLKRUN#
WAKE#
SERIRQ
THRM#
VRMPWRGD
TP11
GPIO1
GPIO6
GPIO7
GPIO8
GPIO12
GPIO13
GPIO17
GPIO18
GPIO20
SCLOCK/GPIO22
GPIO27
GPIO28
SATACLKREQ#/GPIO35
SLOAD/GPIO38
SDATAOUT0/GPIO39
SDATAOUT1/GPIO48
GPIO49
GPIO57/CLGPIO5
SPKR
MCH_SYNC#
TP3
TP8
TP9
TP10
ICH9M REV 1.0

SATA0GP/GPIO21
SATA1GP/GPIO19
SATA4GP/GPIO36
SATA5GP/GPIO37
CLK14
CLK48
SUSCLK
SLP_S3#
SLP_S4#
SLP_S5#
S4_STATE#/GPIO26
PWROK
DPRSLPVR/GPIO16
BATLOW#
PWRBTN#
LAN_RST#
RSMRST#
CK_PWRGD
CLPWROK
SLP_M#
CL_CLK0
CL_CLK1
CL_DATA0
CL_DATA1
CL_VREF0
CL_VREF1
CL_RST0#
CL_RST1#
MEM_LED/GPIO24
GPIO10/SUS_PWR_ACK
GPIO14/AC_PRESENT
WOL_EN/GPIO9

2 PCLK_SMB
2 PDAT_SMB
SMB_LINK_ALERT#
SMB_CLK_ME
SMB_DATA_ME
PM_RI#
TP56 PM_SUS_STAT#
3 SYS_RST#
6 PM_SYNC#
SMB_ALERT#
2 PM_STPPCI#
2 PM_STPCPU#
30 CLKRUN#
26,28,31 PCIE_WAKE#
30 SERIRQ
4 PM_THRM#
VR_PWRGO_CLKEN
TP70
TP40
30 KBSMI#
30 SCI#
30 SWI#
T11 LAN_PHYPC
ENERGY_DET
TP39 BOARD_ID5
17 LCD_BK
BOARD_ID2
31 WAN_OFF#
TP77 ICH_GPIO35
TP38 ICH_GPIO33
TP36 MFG_MODE
TP37 CRB_SV_DET_R
TP35 DMI_TERM_SEL
19 ICH_GPIO57
19,24 ACZ_SPKR
6 MCH_ICH_SYNC#
19 ICH_TP3
TP71 ICH_TP8
TP69 ICH_TP9
TP68 ICH_TP10

AH23 BOARD_ID1
AE19 BOARD_ID0
AE21 BOARD_ID3
AD20 BOARD_ID4
CLK_14M_ICH 2
CLK_48M_USB 2
R279 33_4
TP75
SUSB# 30
SUSC# 30
SLP_S5# TP42
S4_STATE# TP73
PM_ICH_PWROK
DPRSLPVR 6,35
PM_BATLOW# 30
DNBSWON# 30
LAN_RST#
RSMRST# 30
CK_PWG 2
ECPWROK
ICH_SLP_M# TP72
CL_CLK0 6
CL_CLK1 31
CL_DATA0 6
CL_DATA1 31
CL_VREF0_ICH
CL_VREF1_ICH
CL_RST#0 6
CL_RST#1 31
SUS_PWR_ACK TP78
AC_PRESENT
ICH_WOL_EN TP52
R202 100K/F_4

+3VS5
+3V
R483 3.24K/F_4
R176 3.24K/F_4
0.405V
C704 .1U/10V_4
R478 453/F_4
C408 .1U/10V_4
R179 453/F_4

SWI# R471 10K/F_4
PM_RI# R207 10K/F_4
SMB_CLK_ME R212 10K/F_4
SMB_DATA_ME R473 10K/F_4
DNBSWON# R301 10K/F_4
PCLK_SMB R213 2.2K_4
PDAT_SMB R493 2.2K_4
SMB_ALERT# R480 10K/F_4
PCIE_WAKE# R199 10K/F_4
PM_BATLOW# R496 8.25K/F_4
SMB_LINK_ALERT# R210 10K/F_4
SYS_RST# R487 10K/F_4

+3V
PR101 1K/F_4
VR_PWRGO_CLKEN
Q10 BS870-7-F
R506 100K/F_4
35 VR_PWRGD_CK410#

+3V
R201 *10K/F_4 BOARD_ID0 R195 10K/F_4
R182 *10K/F_4 BOARD_ID1 R180 10K/F_4
R184 10K/F_4 BOARD_ID2 R186 *10K/F_4
R196 *10K/F_4 BOARD_ID3 R190 10K/F_4
R203 *10K/F_4 BOARD_ID4 R197 10K/F_4
R209 *10K/F_4 BOARD_ID5 R205 10K/F_4

ICH_TP3 R469 *10K/F_4
PM_THRM# R183 8.25K/F_4
SERIRQ R227 10K/F_4
CLKRUN# R230 8.25K/F_4
KBSMI# R191 10K/F_4
SCI# R185 10K/F_4
ICH_GPIO35 R293 *10K/F_4

SUS_PWR_ACK R204 10K/F_4
RSMRST# R193 10K/F_4

+3V
+3VSUS
R214 *2K/F_4
C497 *.1U/10V_4
6,35 DELAY_VR_PWRGOOD
4,6,30 ECPWROK
U11
*MC74VHC1G08DFT2G
PM_ICH_PWROK
R198 10K/F_4
R206 0_4

CLK_48M_USB
CLK_14M_ICH
R292 *10_4
R302 *33_4
C489 *10P/50V_4
C493 *10P/50V_4

BIOS_REC:BOARD_ID2
Default is PH
For Bios recovery PD

Board ID 4/5 pull low

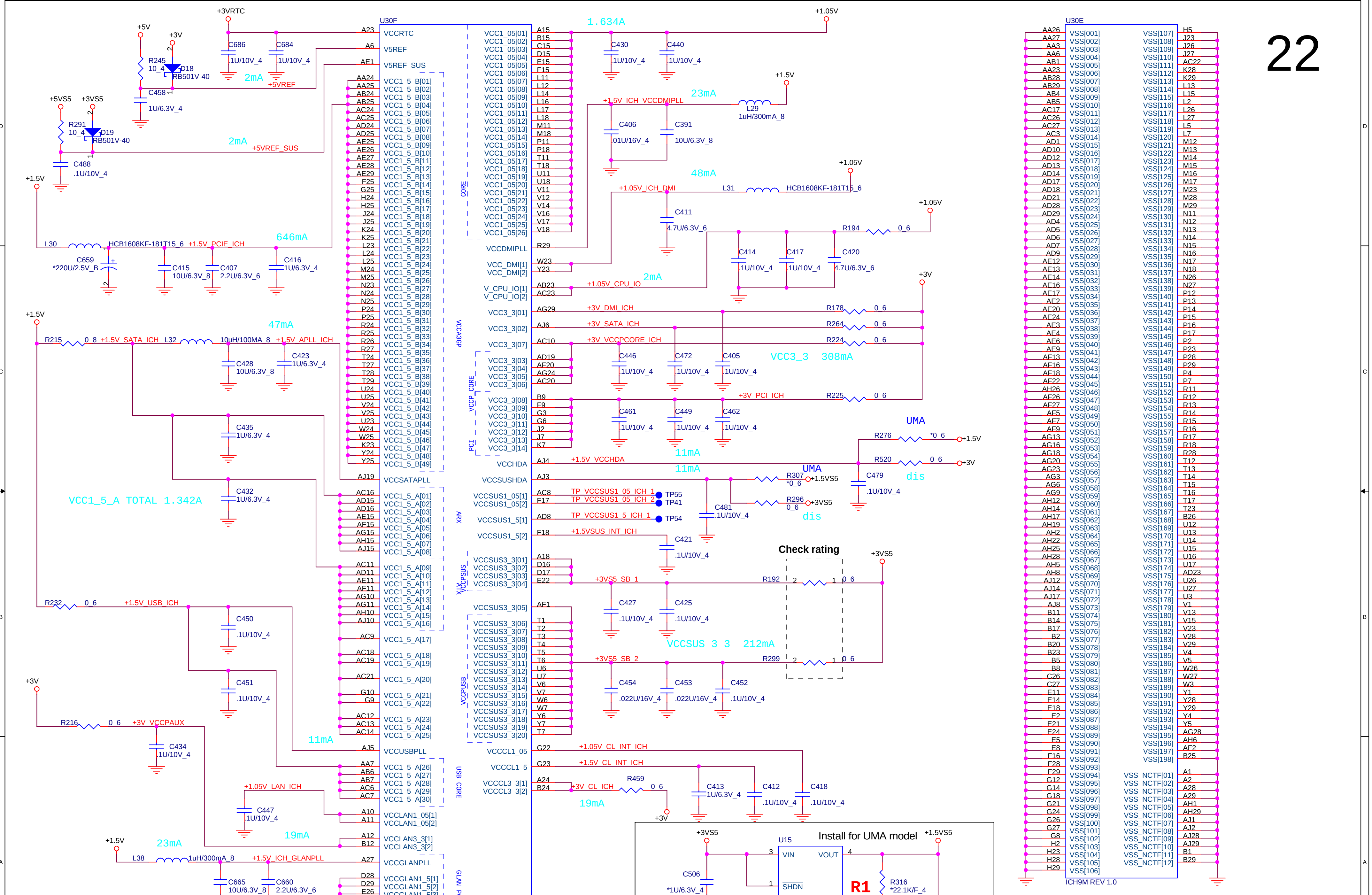
Model	Board ID 3	Board ID 2	Board ID 1	Board ID 0
QL8/GM	0	0	0	0
QL8/9M	0	0	0	1
QL8/9P	0	0	1	0
QL6/GM	0	0	1	1
QL6/9M	0	1	0	0
TW8/GM	0	1	0	1
TW8/9M	0	1	1	0
TW8/9P	0	1	1	1
SW8/GM	1	0	0	0
SW8/9M	1	0	0	1
DW8/GM	1	0	1	0

PROJECT : QL6
Quanta Computer Inc.

NB5

Size	Document Number	Rev
Custom	ICH9-M GPIO 3/4	2A

Date: Tuesday, February 26, 2008 | Sheet 21 of 40



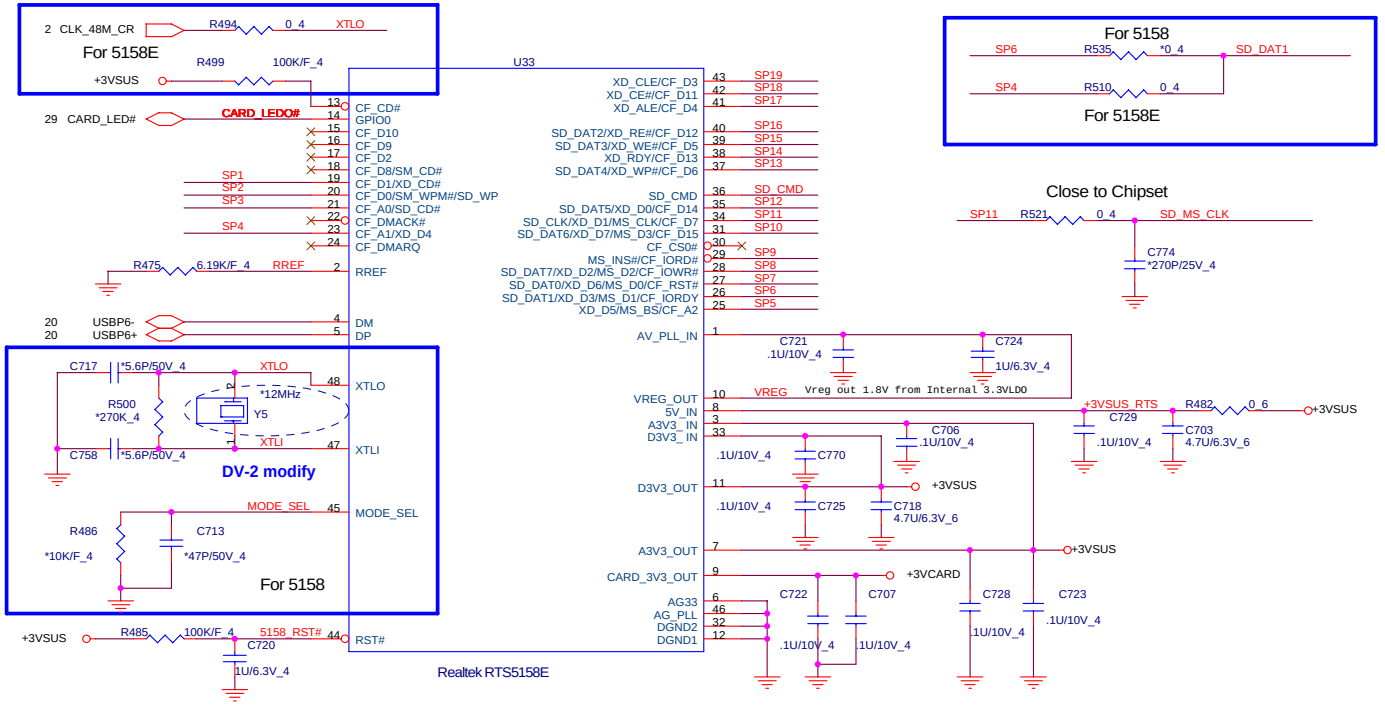
U30F
VCCRTC
V5REF
V5REF_SUS
+3VRTC
+5V
+3V
+5VS5
+3VS5
+1.5V
+1.05V
R245 10_4
D18 RB501V-40
R291 10_4
D19 RB501V-40
C686 1U/10V_4
C684 1U/10V_4
C458 1U/6.3V_4
C488 .1U/10V_4
2mA
+5VREF
+5VREF_SUS
1.634A
C430 1U/10V_4
C440 1U/10V_4
23mA
+1.5V_ICH_VCCDMIPLL
L29 1uH/300mA_8
C406 .01U/16V_4
C391 10U/6.3V_8
48mA
+1.05V_ICH_DMI
L31 HCB1608KF-181T15_6
C411 4.7U/6.3V_6
R194 0_6
C414 .1U/10V_4
C417 .1U/10V_4
C420 4.7U/6.3V_6
+1.05V_CPU_IO
646mA
L30 HCB1608KF-181T15_6
+1.5V_PCIE_ICH
C659 *220U/2.5V_B
C415 10U/6.3V_8
C407 2.2U/6.3V_6
C416 1U/6.3V_4
47mA
R215 0_8
+1.5V_SATA_ICH
L32 10uH/100mA_8
+1.5V_APLL_ICH
C428 10U/6.3V_8
C423 1U/6.3V_4
C435 1U/6.3V_4
C432 1U/6.3V_4
VCC1_5_A TOTAL 1.342A
+3V_DMI_ICH
R178 0_6
+3V_SATA_ICH
R264 0_6
+3V_VCCPCORE_ICH
R224 0_6
C446 .1U/10V_4
C472 .1U/10V_4
C405 .1U/10V_4
VCC3_3 308mA
+3V_PCI_ICH
R225 0_6
C461 .1U/10V_4
C449 .1U/10V_4
C462 .1U/10V_4
UMA
R276 *0_6
R520 0_6
+1.5V_VCCHDA
11mA
R307 *0_6
+1.5VS5
R296 0_6
+3VS5
C479 .1U/10V_4
dis
TP_VCCSUS1_05_ICH_1
TP_VCCSUS1_05_ICH_2
TP55
TP41
TP_VCCSUS1_5_ICH_1
TP54
C481 .1U/10V_4
+1.5VSUS_INT_ICH
C421 .1U/10V_4
Check rating
+3VS5_SB_1
R192 0_6
C427 .1U/10V_4
C425 .1U/10V_4
VCCSUS 3_3 212mA
+3VS5_SB_2
R299 0_6
C454 .022U/16V_4
C453 .022U/16V_4
C452 .1U/10V_4
R232 0_6
+1.5V_USB_ICH
C450 .1U/10V_4
C451 .1U/10V_4
R216 0_6
+3V_VCCPAUX
C434 .1U/10V_4
11mA
+1.05V_CL_INT_ICH
+1.5V_CL_INT_ICH
R459 0_6
+3V_CL_ICH
19mA
C413 1U/6.3V_4
C412 .1U/10V_4
C418 .1U/10V_4
+1.05V_LAN_ICH
C447 .1U/10V_4
19mA
23mA
L38 1uH/300mA_8
+1.5V_ICH_GLANPLL
C665 10U/6.3V_8
C660 2.2U/6.3V_6
80mA
+1.5V_PCIE_ICH
C400 4.7U/6.3V_6
R451 0_6
+3V_GLAN_ICH
1mA
ICH9M REV 1.0
Install for UMA model
U15
VIN
VOUT
SHDN
GND
SET
C506 *1U/6.3V_4
R1
R316 *22.1K/F_4
R2
R315 *100K/F_4
C515 *4.7U/6.3V_6
*IC(5P) G913C (SOT23-5)EP
Vout=1.25(1+R1/R2)
U30E
VSS[001] … VSS[198]
VSS_NCTF[01] … VSS_NCTF[12]
ICH9M REV 1.0

NB5

PROJECT : QL6
Quanta Computer Inc.

Size	Document Number	Rev
Custom	ICH9-M Power 4/4	2A

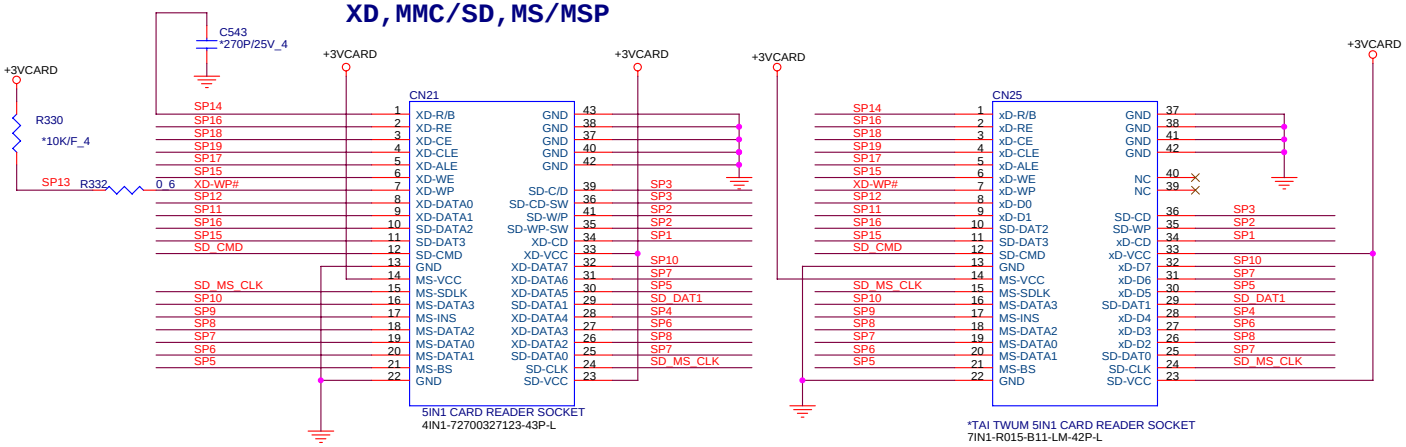
Date: Tuesday, February 26, 2008 Sheet 22 of 40



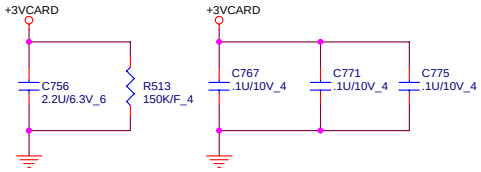
Note:

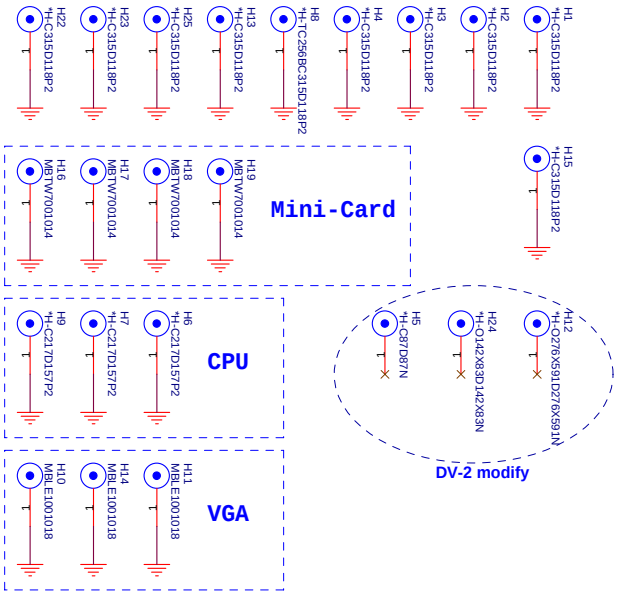
	SD/MMC	MS	XD
SP0			
SP1			XD_CD#
SP2	SD_WP		
SP3	SD_CD#		
SP4	SD_DAT1		XD_D4
SP5		MS_BS	XD_D5
SP6	SD_DAT1	MS_D1	XD_D3
SP7	SD_DAT0	MS_D0	XD_D6
SP8	SD_DAT7	MS_D2	XD_D2
SP9		MS_INS#	
SP10	SD_DAT6	MS_D3	XD_D7
SP11	SD_CLK	MS_SCLK	XD_D1
SP12	SD_DAT5		XD_D0
SP13	SD_DAT4		XD_WP#
SP14			XD_R/B#
SP15	SD_DAT3	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

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



CLOSE CONN

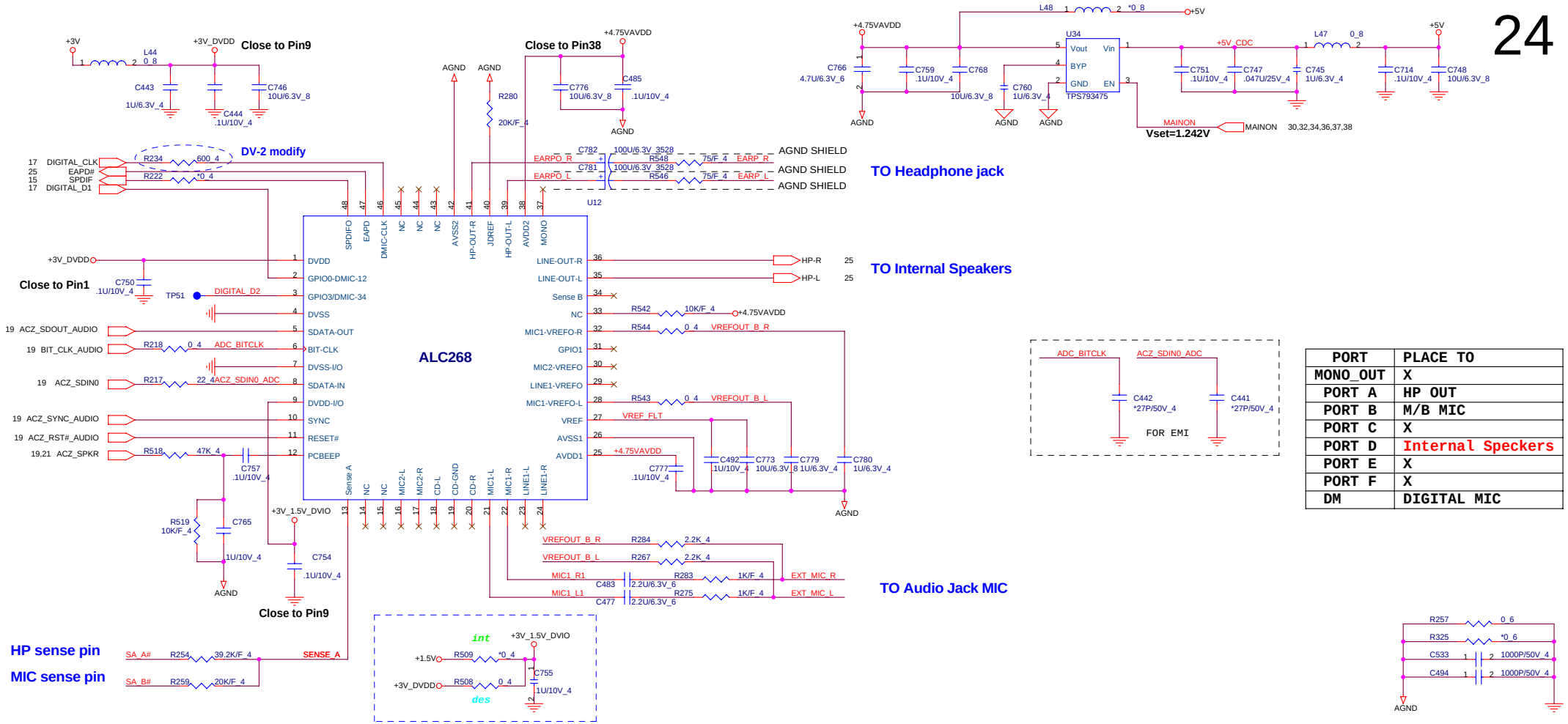




PROJECT : QL6
Quanta Computer Inc.

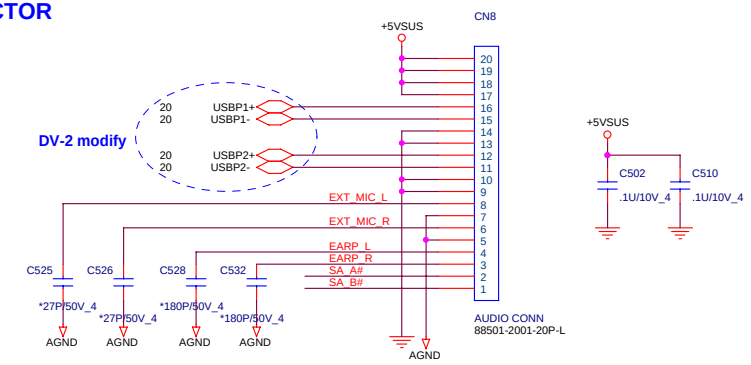
NB5

Size	Document Number	Rev
Custom	RTS5158 & CR SOCKET &HOLE	2A
Date: Tuesday, February 26, 2008	Sheet 23 of 40	



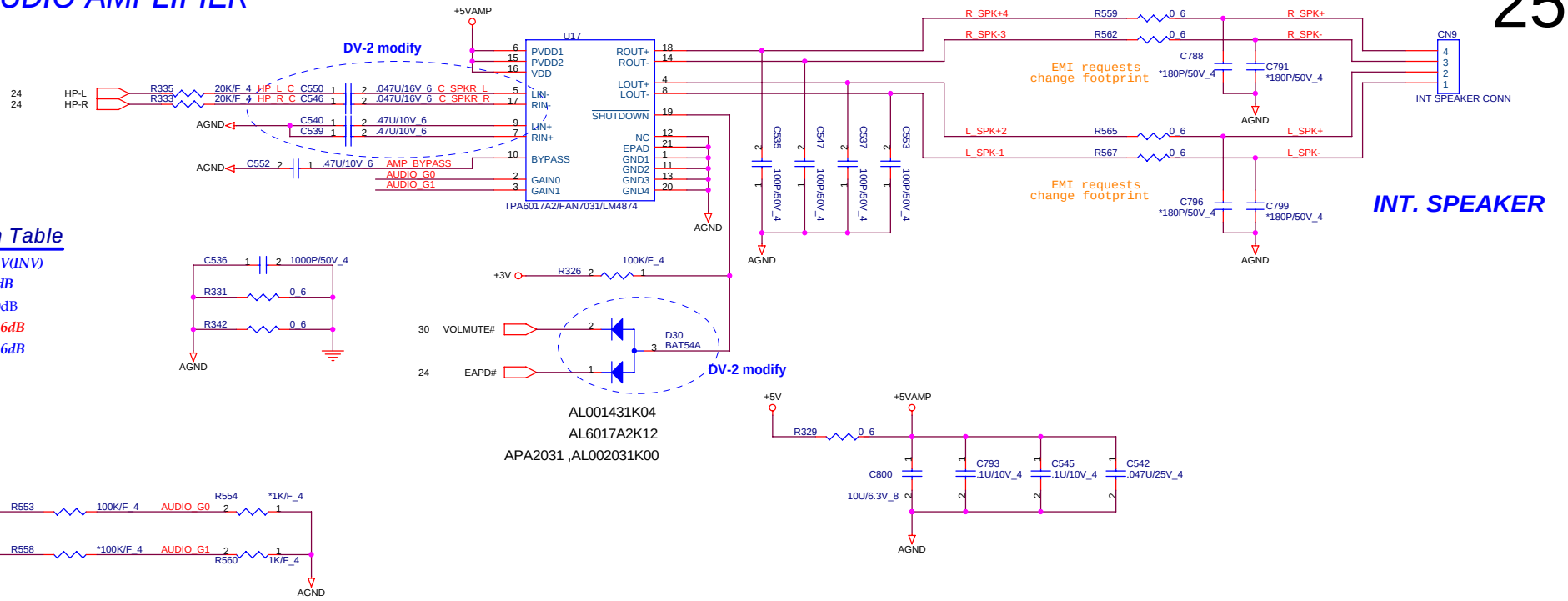
PORT	PLACE TO
MONO_OUT	X
PORT A	HP OUT
PORT B	M/B MIC
PORT C	X
PORT D	Internal Speckers
PORT E	X
PORT F	X
DM	DIGITAL MIC

AUDIO/USB BOARD CONNECTOR



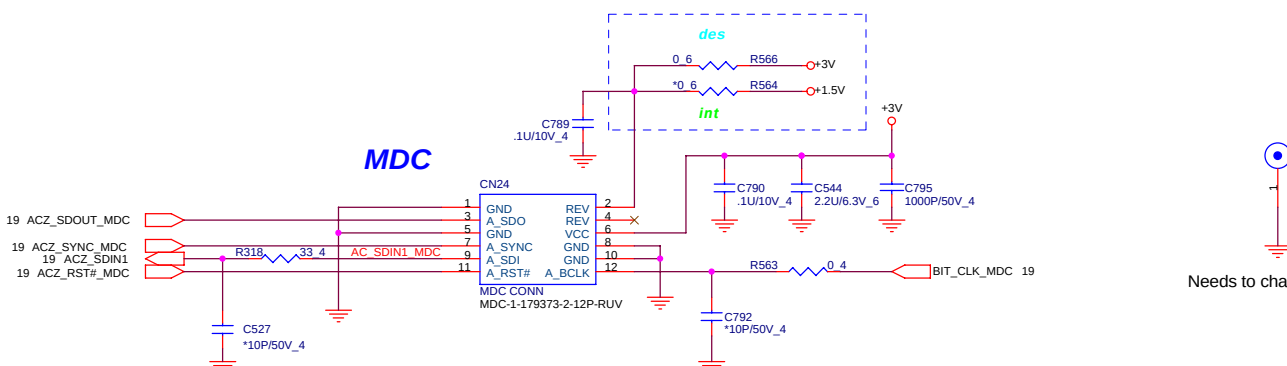
NB5	PROJECT : QL6 Quanta Computer Inc.		
	Size: Custom	Document Number: Azalia IDT92HD71B7	Rev: 2A
	Date: Tuesday, February 26, 2008	Sheet 24 of 40	

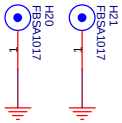
AUDIO AMPLIFIER



6017A2 Gain Table

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





Needs to change Library as ME request

NB5

PROJECT : QL6
Quanta Computer Inc.

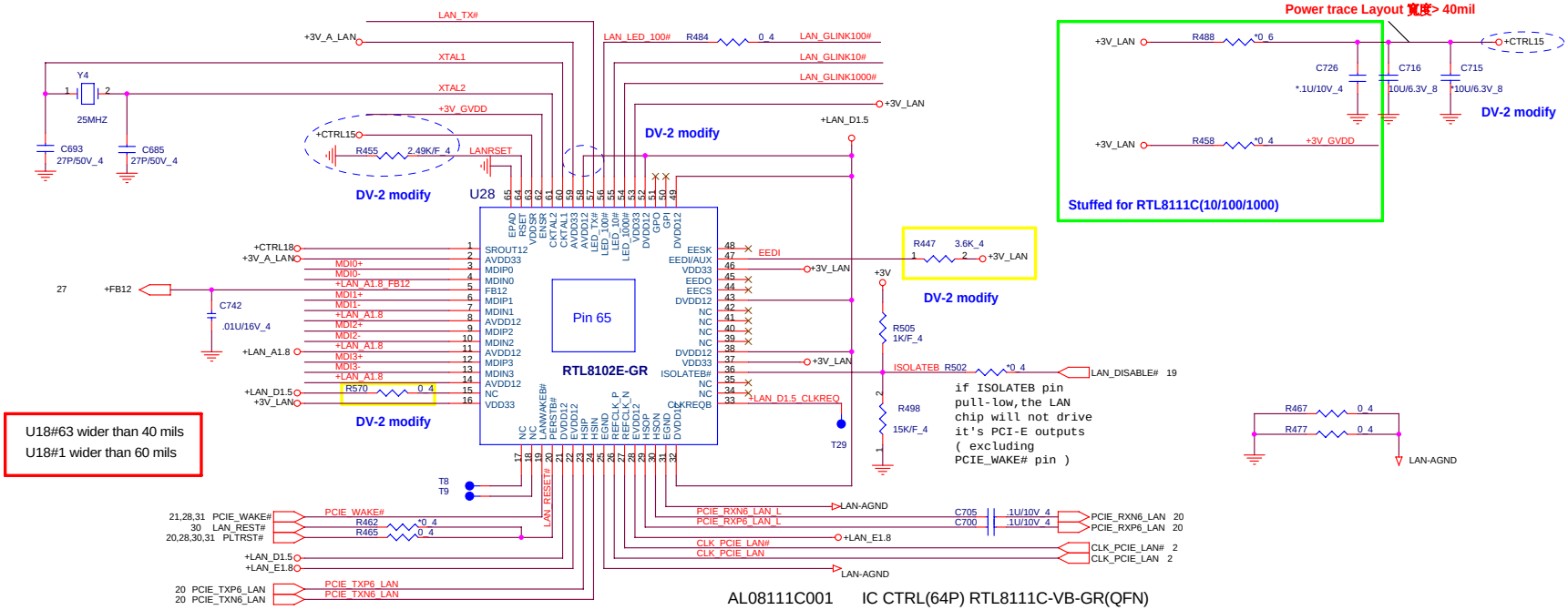
Size	Document Number	Rev
Custom	AMP_TPA6017/MDC	2A

Date: Tuesday, February 26, 2008 Sheet 25 of 40

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

E : Stuffed for 8102E(10/100)

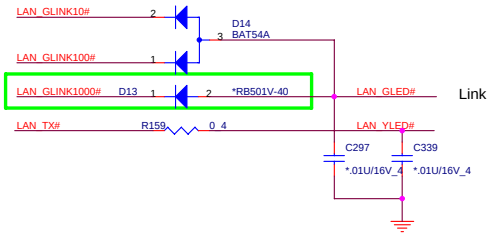
27 +3V_LAN
27 +3V_A_LAN
27 +CTRL15
27 +LAN_D1.5
27 +CTRL18
27 +LAN_A1.8
27 +LAN_E1.8

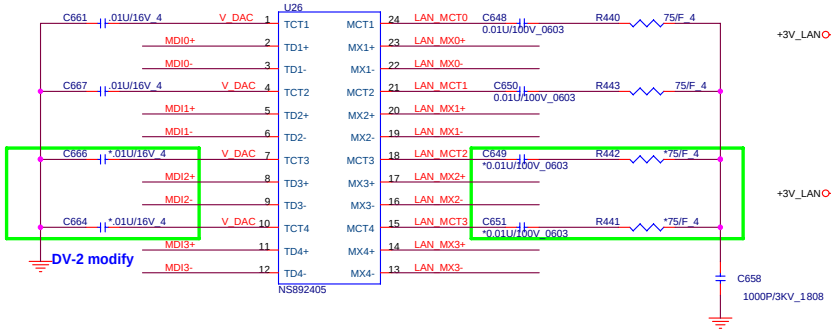


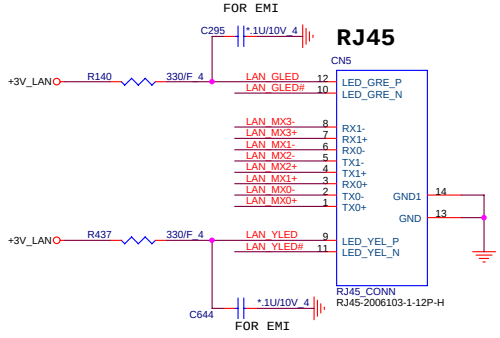
Power trace Layout 寬度> 40mil

U18#63 wider than 40 mils
U18#1 wider than 60 mils

AL08111C001	IC CTRL(64P) RTL8111C-VB-GR(QFN)
AL08102E001	IC CTRL(64P) RTL8102E-GR(QFN)







NS892402:GIGABIT	DB0AT9LAN05
NS892405:10/100	DB0ZB1LAN04

NB5

PROJECT : QL6
Quanta Computer Inc.

Size	Document Number	Rev
Custom	RTL8111C/8101E/RJ45	2A

Date: Tuesday, February 26, 2008 Sheet 26 of 40

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

E : Stuffed for 8102E(10/100)

other

Power trace Layout 寬度> 30mil

LANVCC
1.2W
364mA

+3VLANVCC — L46 0_8 — +3V_LAN

C681 4.7U/6.3V_6
C736 .1U/10V_4
C735 .1U/10V_4
C682 .1U/10V_4
C699 .1U/10V_4
C683 .1U/10V_4

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

L45 0_8 — +3V_A_LAN

C732 .1U/10V_4
C743 *.1U/10V_4

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

8111C CV-4706MN00
8102E CS00004JA40

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

placement close to lan chipset

L43 for Gaga lan use 4.7uH power choke
A>500mA tolerance ±15%

DV-2 modify

+CTRL18 — L43 0_8

C688 *10U/6.3V_8
C691 10U/6.3V_8

Power trace Layout 寬度> 30mil

+FB12 26 — L41 *0_8 — +LAN_A1.8

DV-2 modify

C674 *.1U/10V_4
C676 *.1U/10V_4
C675 *.1U/10V_4

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

+LAN_E1.8 — R470 *HCB1608KF-181T15_6

DV-2 modify

C697 *.1U/10V_4
C695 *.1U/10V_4

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

LAN-AGND

L40 *0_8

Power trace Layout 寬度> 30mil

+LAN_D1.5

DV-2 modify

+CTRL15 — L39 0_8

C687 .1U/10V_4

DV-2 modify

C677 .1U/10V_4
C702 *.1U/10V_4
C734 *.1U/10V_4
C712 *.1U/10V_4
C733 .1U/10V_4
C710 .1U/10V_4
C711 .1U/10V_4
C692 .1U/10V_4

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

Power domain chart

	RTL8111C / RTL8102E
LANVCC	3.3V
LAN_D1.8	1.2V
LAN_A1.8	1.2V
LAN_D1.5	1.2V

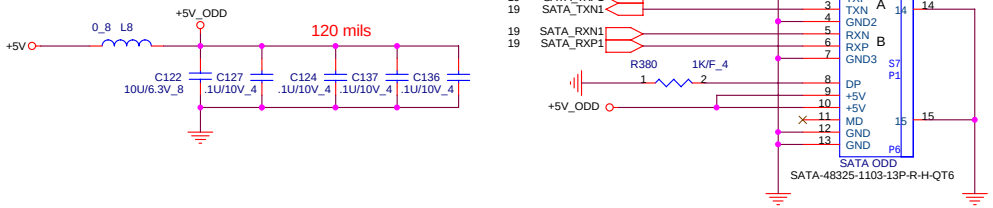
NB5

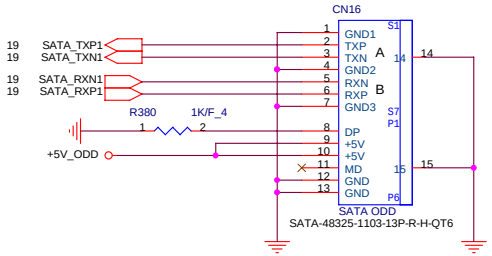
PROJECT : QL6
Quanta Computer Inc.

Size	Document Number	Rev
A3	LAN Power	2A

Date: Tuesday, February 26, 2008 Sheet 27 of 40

SATA ODD CONECTOR

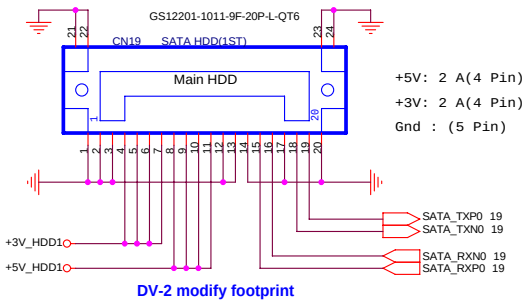




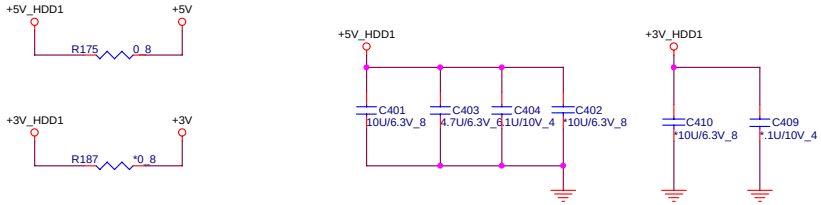
DV-2 modify footprint

SATA HDD CONNECTOR

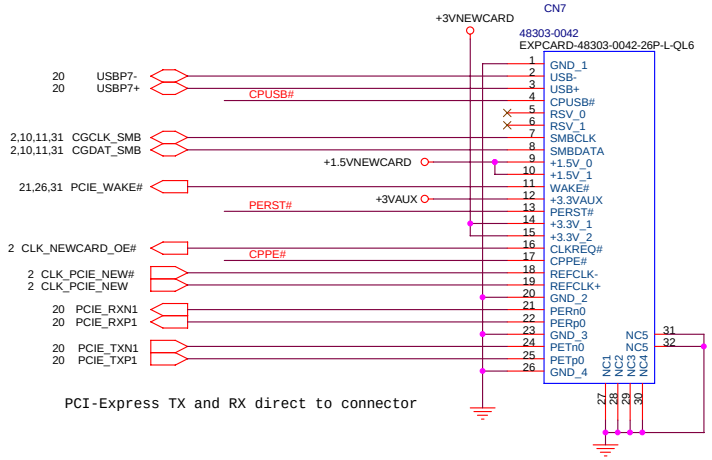
DC Current rating: 0.5 A



DV-2 modify footprint

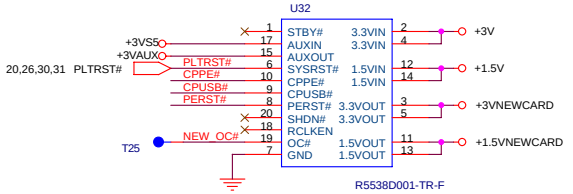


NEWCARD



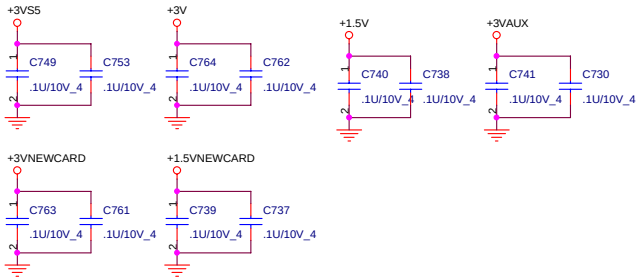
PCI-Express TX and RX direct to connector

EXPCARD-48303-0042-26P-L-QT6 as ME modify Pad size(pin31,32) DV-2 modify



add Pin 21~25 as U32 Thermal pad tied to Gnd

DV-2 modify



PROJECT : QL6
Quanta Computer Inc.

Size	Document Number	Rev
Custom	ODD/HDD/NEW CARD	2A
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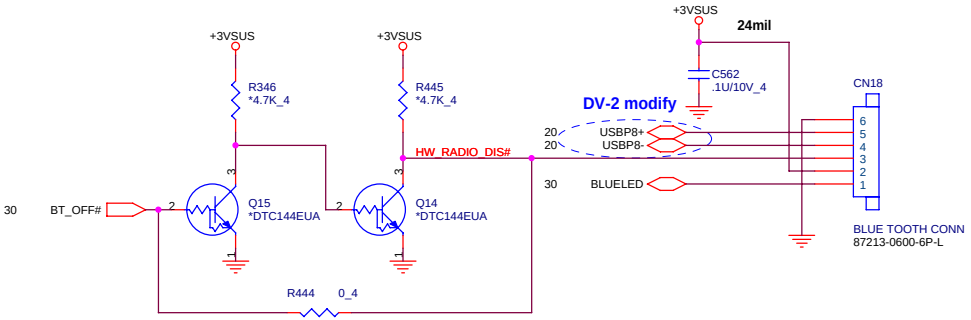
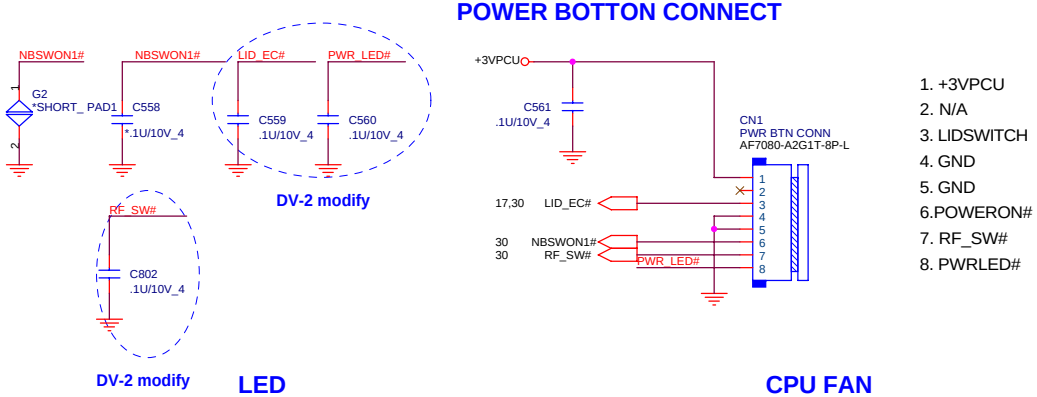
NB5

BLUETOOTH POWER

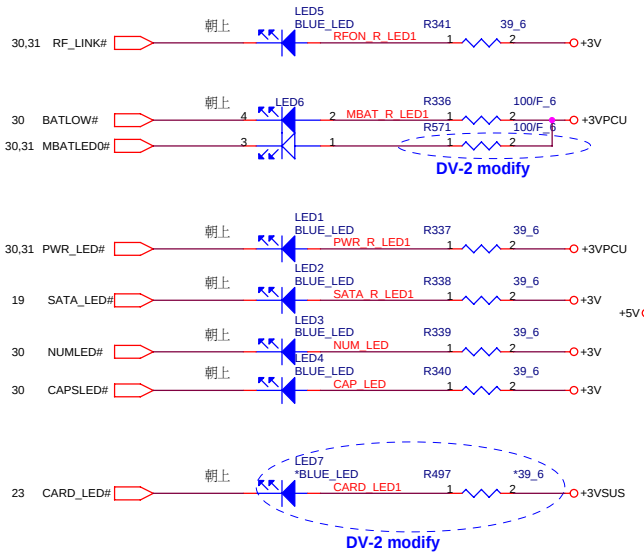


POWER BOTTON CONNECT

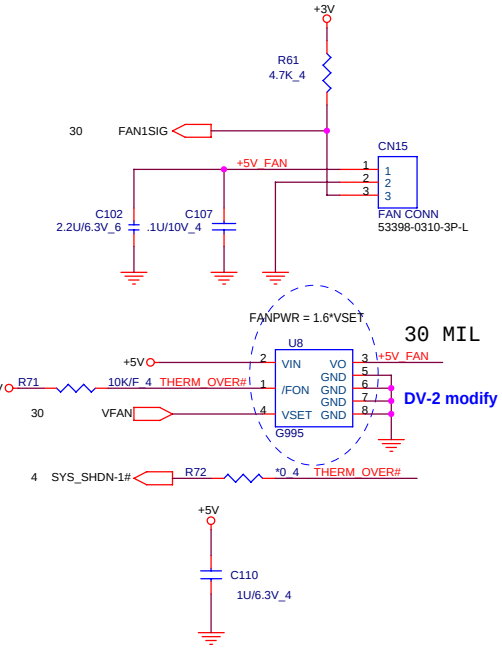


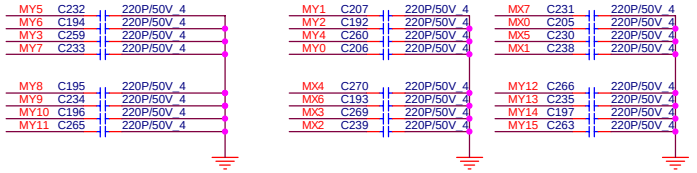
1. +3VPCU
2. N/A
3. LIDSWITCH
4. GND
5. GND
6. POWERON#
7. RF_SW#
8. PWRLED#

LED

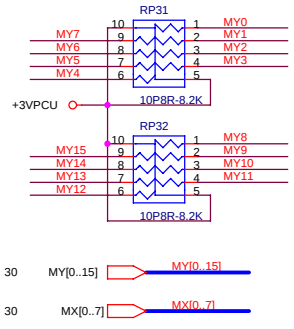


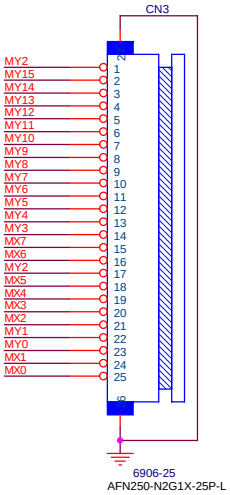
CPU FAN

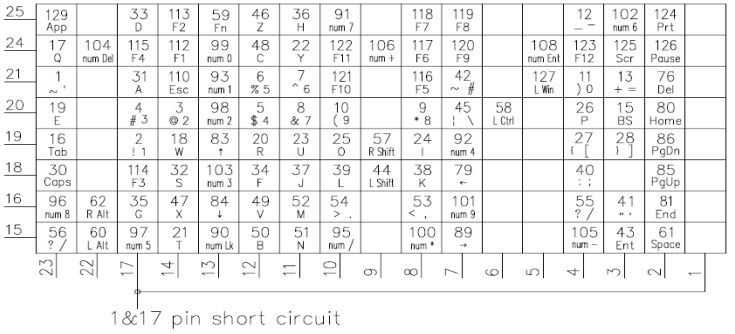


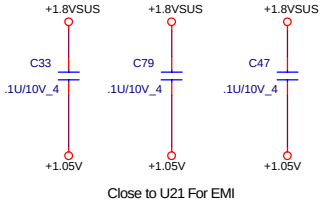


KEYBOARD PULL-UP









PROJECT : QL6
Quanta Computer Inc.

NB5

Size	Document Number	Rev
Custom	KB/FAN/POWER CONN/LED	2A

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TOUCH PAD CONNECTOR

25 mils

+5VSUS — 0_6 — L19 — +5V_TP — C214 .1U/10V_4 — C212 .1U/10V_4

+3V

TPCLK — L17 — BK1608HS470 — TPCLK-1

TPDATA — L16 — BK1608HS470 — TPDATA-1

TP_LED0#

TP_LED1#

C213 *10P/50V_4 — C211 *10P/50V_4

TP_L

TP_R

CN4
TOUCH PAD CONN
BL121-12R-12P-L-QT6

+5VSUS — R111 4.7K_4 — TPCLK

close conn

R109 4.7K_4 — TPDATA

TOUCH PAD L/R

TP_L — R319 1K/F_4 — TP_L_CONN — SW1 — TMG-533-S-V-TR

C529 .1U/10V_4

TP_R — R310 1K/F_4 — TP_R_CONN — SW2 — TMG-533-S-V-TR

C517 .1U/10V_4

U16 — KB3926 C0

+3VPCU

C798 .1U/10V_4
C501 .1U/10V_4
C538 .1U/10V_4
C551 .1U/10V_4
C786 .1U/10V_4
C541 .1U/10V_4
C473 10U/6.3V_8
+3VPCU_EC
C785 .1U/10V_4

VCC1 9
VCC2 22
VCC3 33
VCC4 96
VCC5 111
VCC6 125
AVCC 67

SERIRQ 3
LFRAME# 4
LAD0 10
LAD1 8
LAD2 7
LAD3 5
PCICLK 12
PCIRST#/GPIO5 13
CLKRUN 38
SCI/GPIOE 20
GA20/GPIO0 1
KBRST/GPIO1 2
ECRST 37

KSI0/GPIO30 55
KSI1/GPIO31 56
KSI2/GPIO32 57
KSI3/GPIO33 58
KSI4/GPIO34 59
KSI5/GPIO35 60
KSI6/GPIO36 61
KSI7/GPIO37 62

KSO0/GPIO20 39
KSO1/GPIO21 40
KSO2/GPIO22 41
KSO3/GPIO23 42
KSO4/GPIO24 43
KSO5/GPIO25 44
KSO6/GPIO26 45
KSO7/GPIO27 46
KSO8/GPIO28 47
KSO9/GPIO29 48
KSO10/GPIO2A 49
KSO11/GPIO2B 50
KSO12/GPIO2C 51
KSO13/GPIO2D 52
KSO14/GPIO2E 53
KSO15/GPIO2F 54
KSO16/GPIO48 81
KSO17/GPIO49 82

PSCLK1/GPIO4A 83
PSDAT1/GPIO4B 84
PSCLK2/GPIO4C 85
PSDAT2/GPIO4D 86
PSCLK3/GPIO4E 87
PSDAT3/GPIO4F 88

RD 119
WR 120
SELMEM/SPICS 128
SELIO/GPIO50 89
SELIO2/GPIO43 76
D0/GPXD0 109
D1/GPXD1 110
D2/GPXD2 112
D3/GPXD3 114
D4/GPXD4 115
D5/GPXD5 116
D6/GPXD6 117
D7/GPXD7 118

A0/GPXA0 97
A1/GPXA1 98
A2/GPXA2 99
A3/GPXA3 100
A4/GPXA4 101
A5/GPXA5 102
A6/GPXA6 103
A7/GPXA7 104
A8/GPXA8 105
A9/GPXA9 106
A10/GPXA10 107
A11/GPXA11 108

V18R 124

AD0/GPI38 63 — TEMP_MBAT — TEMP_MBAT 32
AD1/GPI39 64
AD2/GPI3A 65 — AD_AIR — AD_AIR 32
AD3/GPI3B 66 — SYS_I — SYS_I 32

DA0/GPO3C 68 — CC-SET — CC-SET 32
DA1/GPO3D 70 — CELL_SLT — CELL_SLT 32
DA2/GPO3E 71 — VFAN — VFAN 29
DA3/GPO3F 72 — D/C# — D/C# 32

PWM1/GPIOE 21 — PWM_VADJ — PWM_VADJ 17
PWM2/GPIO10 23

FANPWM1/GPIO12 26
FANPWM2/GPIO13 27 — FAN2ON — T14
FANFB1/GPIO14 28 — FAN1SIG — FAN1SIG 29
FANFB2/GPIO15 29

SCL1/GPIO44 77 — MBCLK — MBCLK 32
SDA1/GPIO45 78 — MBDATA — MBDATA 32
SCL2/GPIO46 79 — MBCLK2 — MBCLK2 4,15
SDA2/GPIO47 80 — MBDATA2 — MBDATA2 4,15

GPIO4 6 — SUSB# — SUSB# 21
GPIO7 14 — HWPG — HWPG 33,34,36,37
GPIO8 15 — PM_BATLOW1#

GPIOA 16 — SUSC# — SUSC# 21
GPIOB 17 — LAN_REST# — LAN_REST# 26
GPIOC 18 — SWI#1 — T28
GPIOD 19 — NBSWON1# — NBSWON1# 29
GPIO11 25 — BL/C# — T15
GPIO16 30 — EC-GPIO16 — T13
GPIO17 31 — EC-GPIO17 — T12
GPIO18 32 — KBSMI#1

GPIO19 34 — VRON — VRON 35
GPIO1A 36 — NUMLED# — NUMLED# 29

LAN_REST# — T27

CIR_RX/GPIO40 73
GPIO41 74
GPIO42 75
GPIO52 90 — DNBSWON#1
GPIO53 91 — CAPSLED# — CAPSLED# 29
GPIO54 92 — PWR_LED# — PWR_LED# 29,31
GPIO55 93 — ECPWROK — ECPWROK 4,6,21
GPIO56 95 — RSMRST# — RSMRST# 21
GPIO57 121 — VOLMUTE# — VOLMUTE# 25
GPIO58 126 — SPI_CLK
GPIO59 127 — LID_EC# — LID_EC# 17,29

XCLKO 123 — CRY2 — C549 18P/50V_4
XCLKI 122 — CRY1 — Y6 32.768KHZ — C548 18P/50V_4

GND1 11
GND2 24
GND3 35
GND4 94
GND5 113
AGND 69

21 SERIRQ
19,31 LFRAME#
19,31 LAD0
19,31 LAD1
19,31 LAD2
19,31 LAD3
2 PCLK_KBC
20,26,28,31 PLTRST# — R550 0_4 — PLTRST1#
21 CLKRUN#
19 GATEA20
19 RCIN#

29 MX0
29 MX1
29 MX2
29 MX3
29 MX4
29 MX5
29 MX6
29 MX7

29 MY0
29 MY1
29 MY2
29 MY3
29 MY4
29 MY5
29 MY6
29 MY7
29 MY8
29 MY9
29 MY10
29 MY11
29 MY12
29 MY13
29 MY14
29 MY15

32 ACIN
20 SERR#

29,31 RF_LINK#
29 RF_SW#
T16

R323 remove for KB3926 C version
R334 *4.7K_4 — BIOS_A0
37,38 SUSON
24,32,34,36,37,38 MAINON
38 LAN_POWER
38 S5_ON
31 RF_OFF#
32 ACOK#
29 BT_OFF#
29,31 MBATLED0#
29 BATLOW#

EC_GPIO4C
ACIN
TPCLK
TPDATA
BIOS_RD#
BIOS_WR#
BIOS_CS#
CLIENT_ID
SIM_DETECT
SUSON
MAINON
LAN_POWER
S5_ON
RF_OFF#
BT_OFF#
TP_LED0#
TP_LED1#

For KB3926 B, C version
C797 .1U/10V_4 — C794 4.7U/6.3V_6

DV-2 modify footprint

SCI1# — D25 RB501V-40 — SCI# 21
PM_BATLOW1# — D27 RB501V-40 — PM_BATLOW# 21
DNBSWON#1 — D29 RB501V-40 — DNBSWON# 21
KBSMI#1 — D24 RB501V-40 — KBSMI# 21
SWI#1 — D26 RB501V-40 — SWI# 21

+3VPCU — R572 10K/F_4 — R573 *10K/F_4 — CLIENT_ID

CLIENT_ID HI ==>LG
LOW==>CB

DV-2 modify

+3VPCU_EC — U35 *GMT_G910T21U (Vout, GND, Vin) — +5VPCU
C784 *.1U/10V_4
BK1608HS470 L50 — +3VPCU

+3V — R328 *10K/F_4 — HWPG

+3VPCU — R545 10K/F_4 — NBSWON1#
R547 4.7K_4 — MBCLK
R549 4.7K_4 — MBDATA
R327 *8.2K_4 — PM_BATLOW#
R556 10K/F_4 — EC_GPIO4C

+3VPCU — R304 47K_4 — 3920_RST# 4,32
C500 .1U/10V_4

RF_LINK#
29 BLUELED — Q18 DTC144EUA

Socket: DG008000031

+3VPCU — C787 .1U/10V_4

U36 (MX25L8005)
BIOS_CS# — CE#
SPI_CLK — R557 33_4 — SCK
BIOS_WR# — R561 0_4 — SI
BIOS_RD# — R551 0_4 — SO
WP# — R555 10K/F_4 SPI_3P
HOLD# — SPI_7P
VDD — R552 10K/F_4
VSS

1M byte
SPI
BIOS

NB5

PROJECT : QL6
Quanta Computer Inc.

Size	Document Number	Rev
Custom	KB3926/ROM/TP	2A

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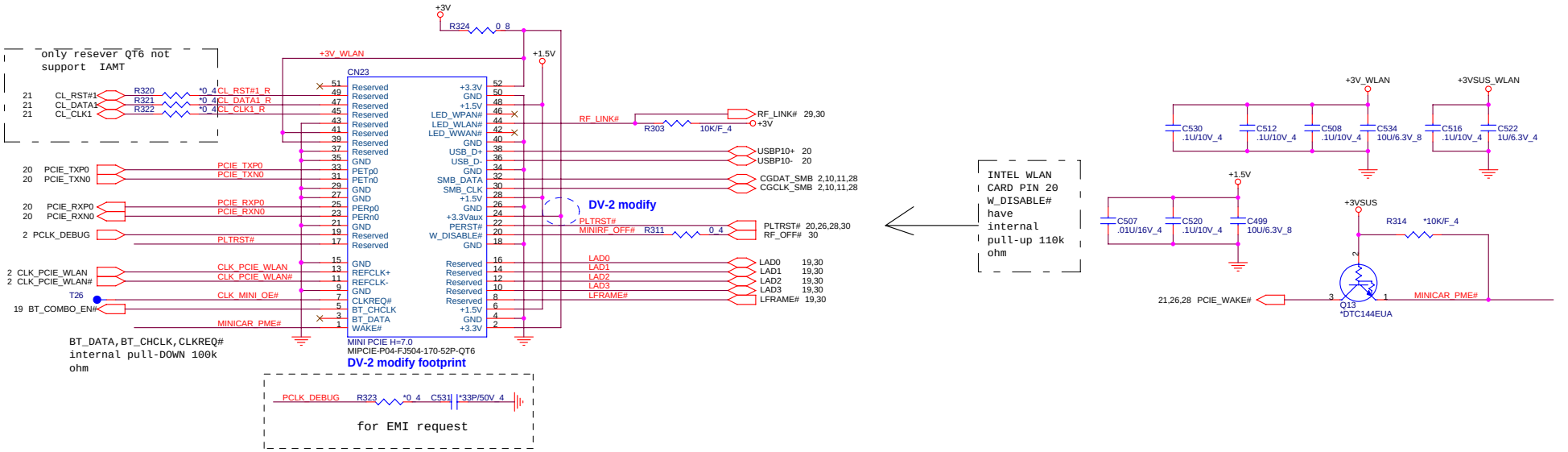
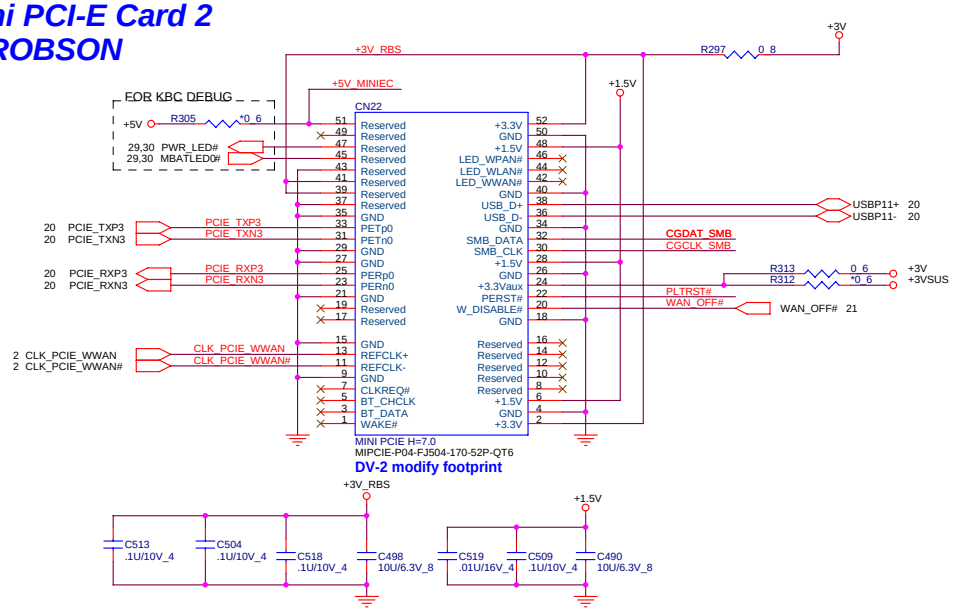
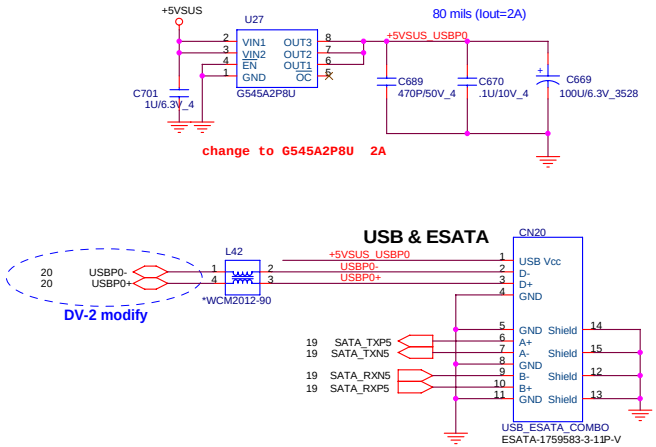
Mini PCI-E Card 1
WLAN



Mini PCI-E Card 2
ROBSON



E-SATA/USB COMBO



NB5	PROJECT : QL6 Quanta Computer Inc.		
	Size: Custom	Document Number: MINI PCIE CONN X2/E-SATA	Rev: 2A
	Date: Tuesday, February 26, 2008	Sheet 31 of 40	

TOP_DC_JACK
60W/90W

DV-2 modify

Close to N-CH MOSFET

close with PQ2

DV-2 modify

close to PQ30.

B: for ME issue.

Setting the Vin min to 12V
For ACSET 1.26V

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

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) / (Rhi // 152K + Rlow// 152K)
Input curretn = 2.9A (71.5K , 10K)
(0.05/Vref * Vaclim + 0.05) / Rsense

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

ADP TYPE	PR66 VALUE	P/N
60W	73.2K/F	CS37322FB14
90W	2.61K/F	CS22612FB15

PROJECT : QL6
Quanta Computer Inc.

NB5

Size	Document Number	Rev
Custom	Charger (ISL6251)	2A

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

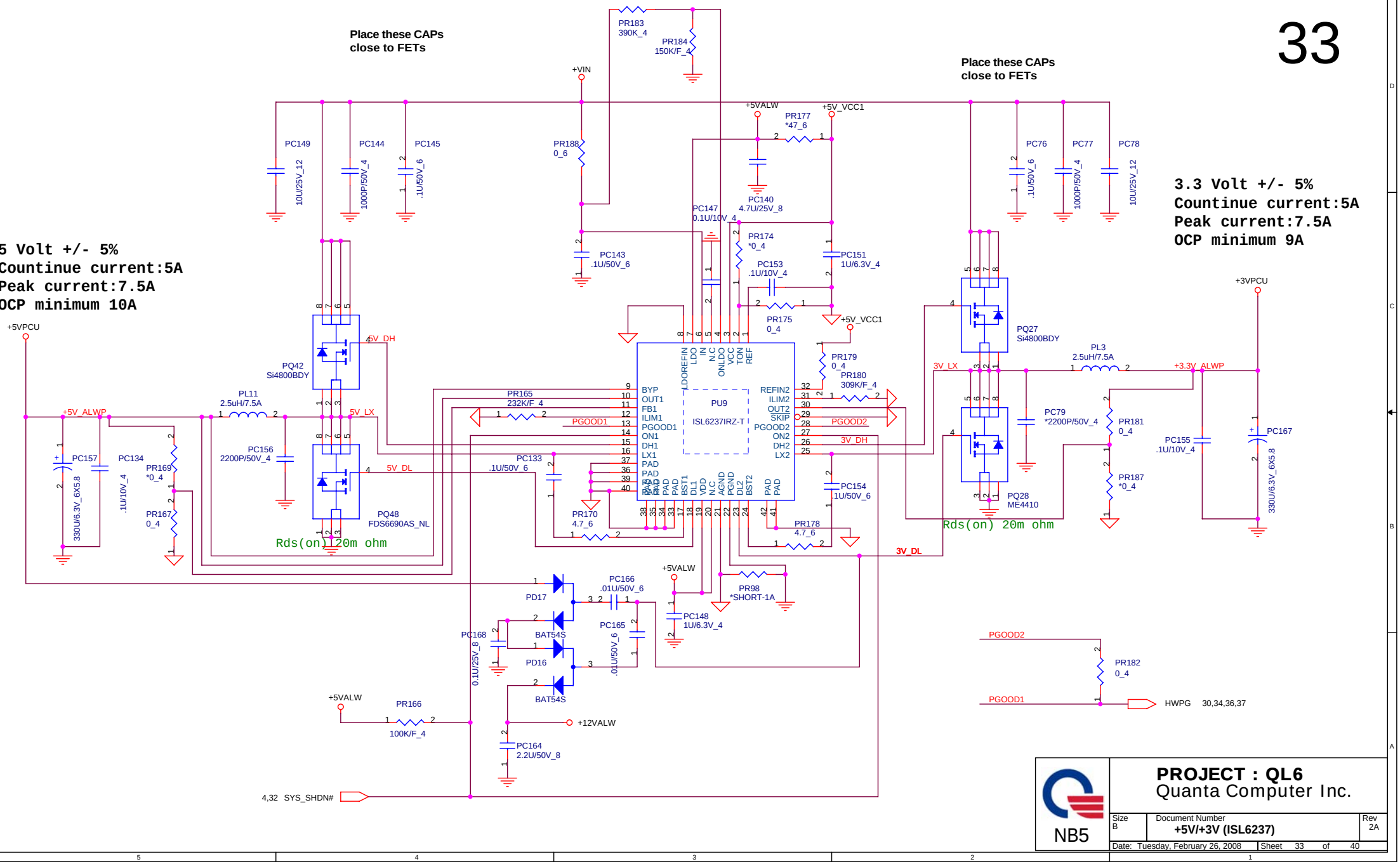
33

Place these CAPs close to FETs

Place these CAPs close to FETs

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



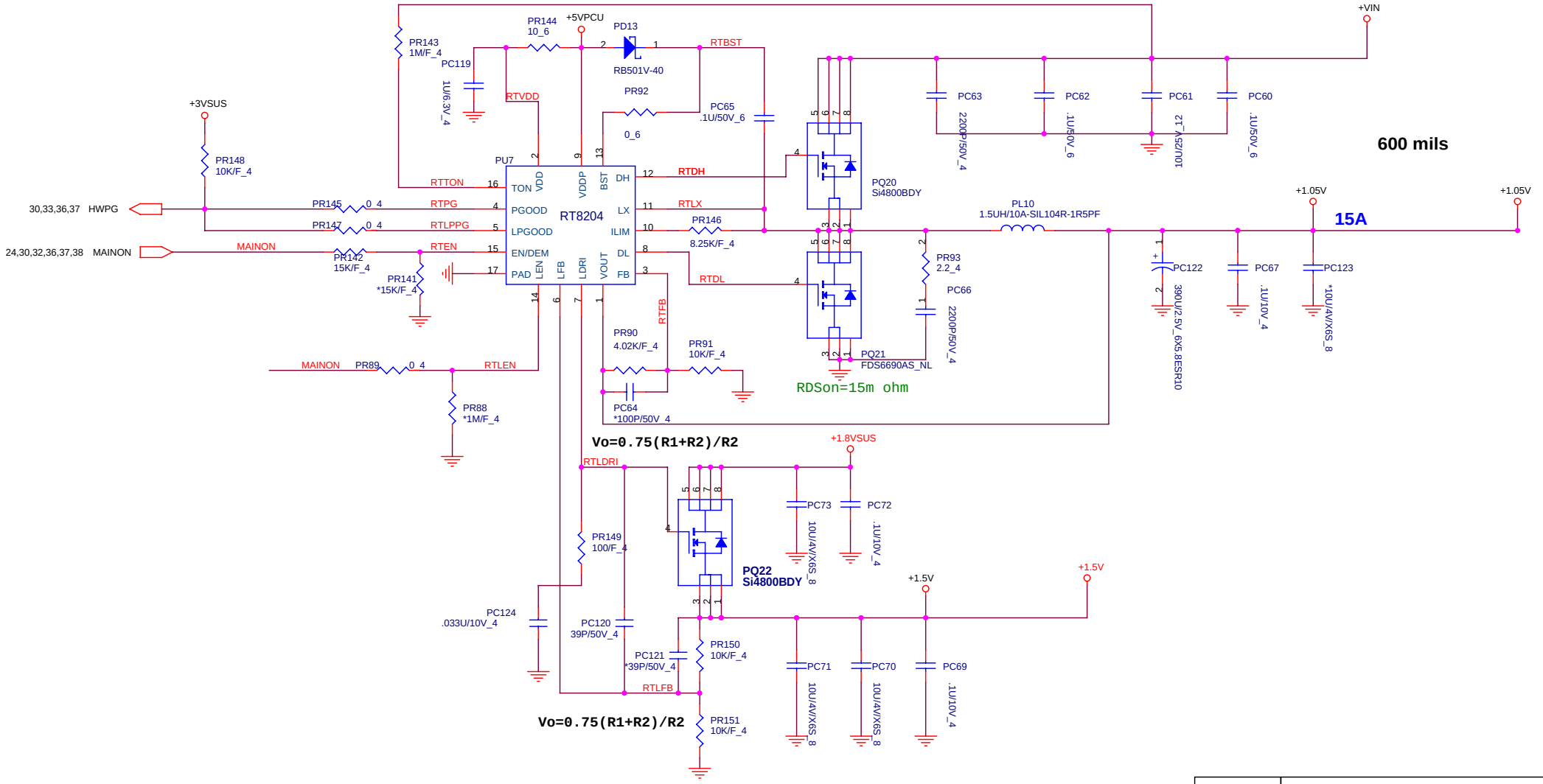
NB5

PROJECT : QL6
Quanta Computer Inc.

Size	Document Number	Rev
B	+5V/+3V (ISL6237)	2A
Date: Tuesday, February 26, 2008	Sheet 33 of 40	

VCCP1.05V & +1.5V

+1.05Volt +/- 5%
Countinue current:7.5A
Peak current:10A
OCP minimum 15A



NB5

PROJECT : QL6
Quanta Computer Inc.

Size	Document Number	Rev
B	+1.05V/+1.5V (RT8204)	2A

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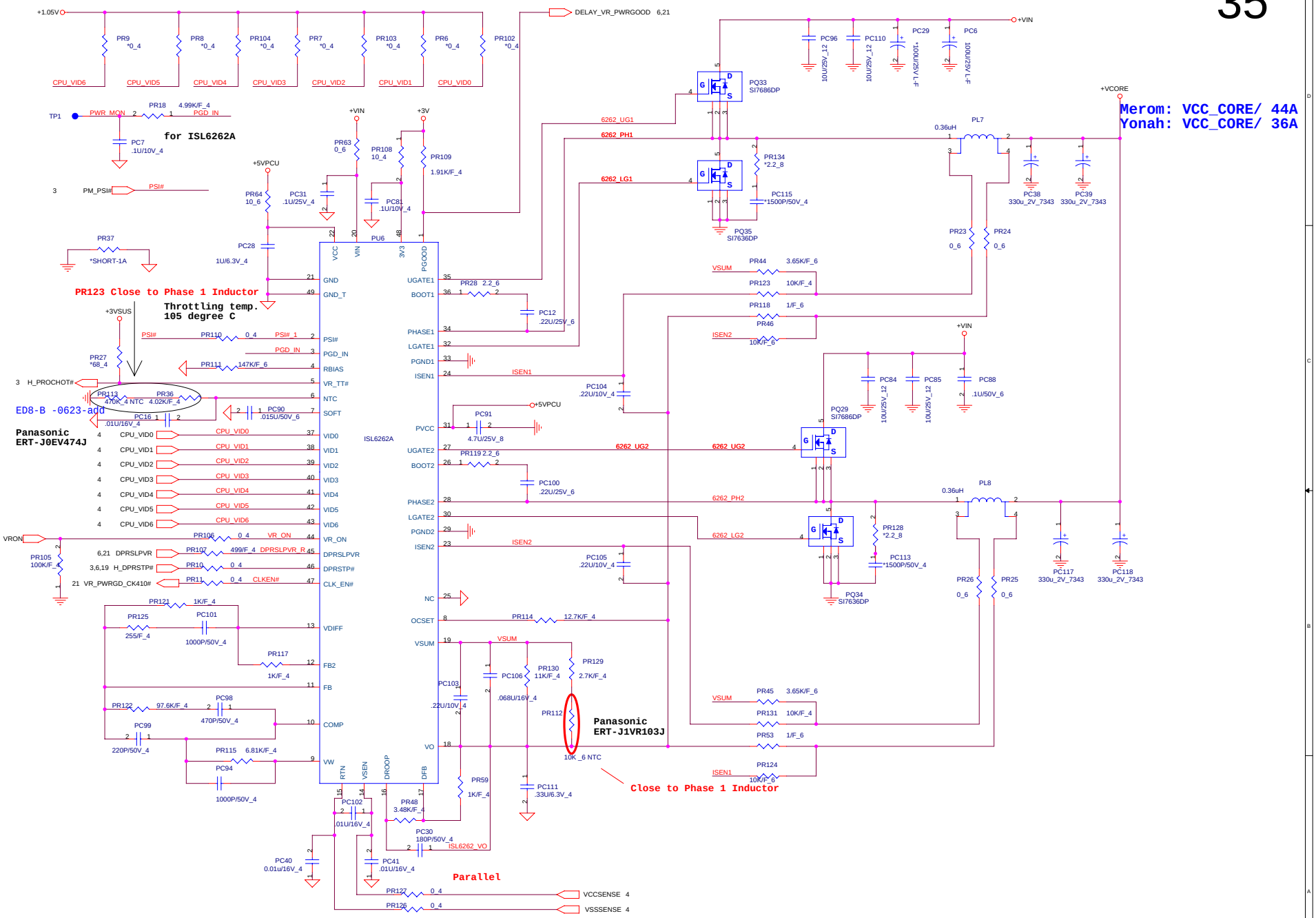
Merom: VCC_CORE/ 44A
Yonah: VCC_CORE/ 36A
for ISL6262A
PR123 Close to Phase 1 Inductor
Throttling temp.
105 degree C
ED8-B -0623-add
Panasonic
ERT-J0EV474J
Panasonic
ERT-J1VR103J
10K _6 NTC
Close to Phase 1 Inductor
Parallel
ISL6262A
+1.05V
+VIN
+VCORE
+3V
+3VSUS
+5VPCU
DELAY_VR_PWRGOOD 6,21
CPU_VID6
CPU_VID5
CPU_VID4
CPU_VID3
CPU_VID2
CPU_VID1
CPU_VID0
PWR_MON
PGD_IN
PSI#
H_PROCHOT#
VR_ON
DPRSLPVR
DPRSTP#
CLK_EN#
VR_PWRGD_CK410#
6262_UG1
6262_PH1
6262_LG1
6262_UG2
6262_PH2
6262_LG2
ISEN1
ISEN2
VSUM
ISL6262_VO
VCCSENSE 4
VSSSENSE 4
PQ33 SI7686DP
PQ35 SI7636DP
PQ29 SI7686DP
PQ34 SI7636DP
PU6
PL7
PL8
0.36uH
PC38 330u_2V_7343
PC39 330u_2V_7343
PC117 330u_2V_7343
PC118 330u_2V_7343
PROJECT : QL6
Quanta Computer Inc.
NB5
CPU Core (ISL6266A)
Date: Tuesday, February 26, 2008
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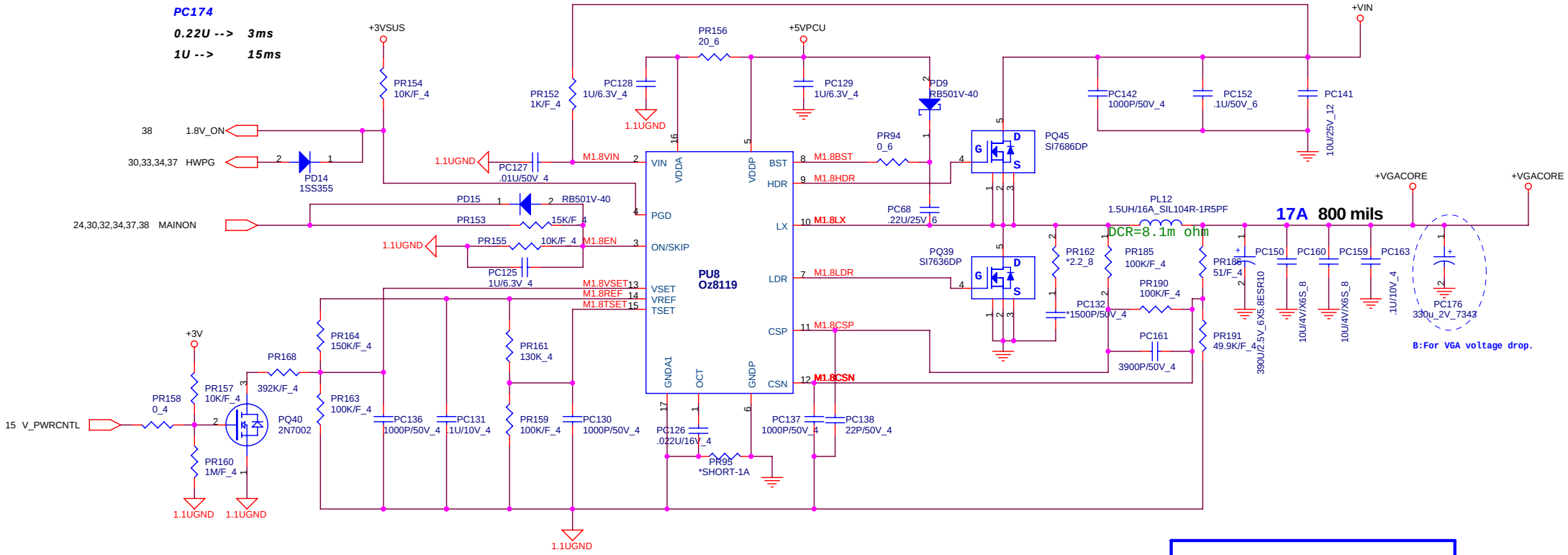
VGA Core & VCC1.1

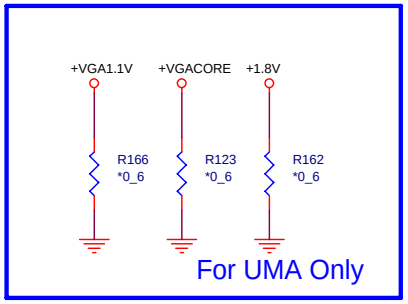
+1.1Volt +/- 5%
Countinue current:15A
Peak current:17A
OCP minimum 22A



V_PWRCNTL	NVDIA NB9M	Resistor Value
HI	0.90V	PR67_392K_CS43922FB17
LO	1.09V	PR55_150K_CS41502FB18

V_PWRCNTL	nVDIA NB9P-GE2	Resistor Value
HI	1.15V	PR67_1.43M_CS51432FB10
LO	1.2V	PR55_130K_CS41302FB00

V_PWRCNTL	NVDIA NB9M-GE	Resistor Value
HI	0.95V	PR67_402K_CS44022FB25
LO	1.09V	PR55_150K_CS41502FB18



PROJECT : QL6
Quanta Computer Inc.

NB5

Size	Document Number	Rev
B	VGA CORE OZ8118	2A

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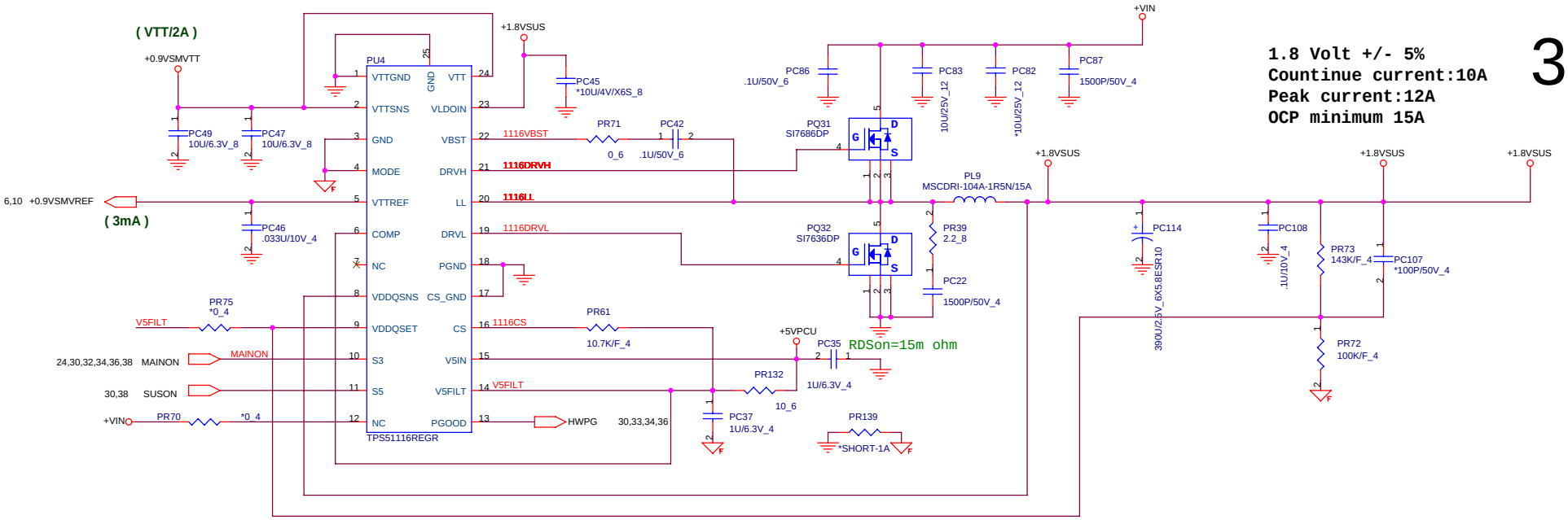

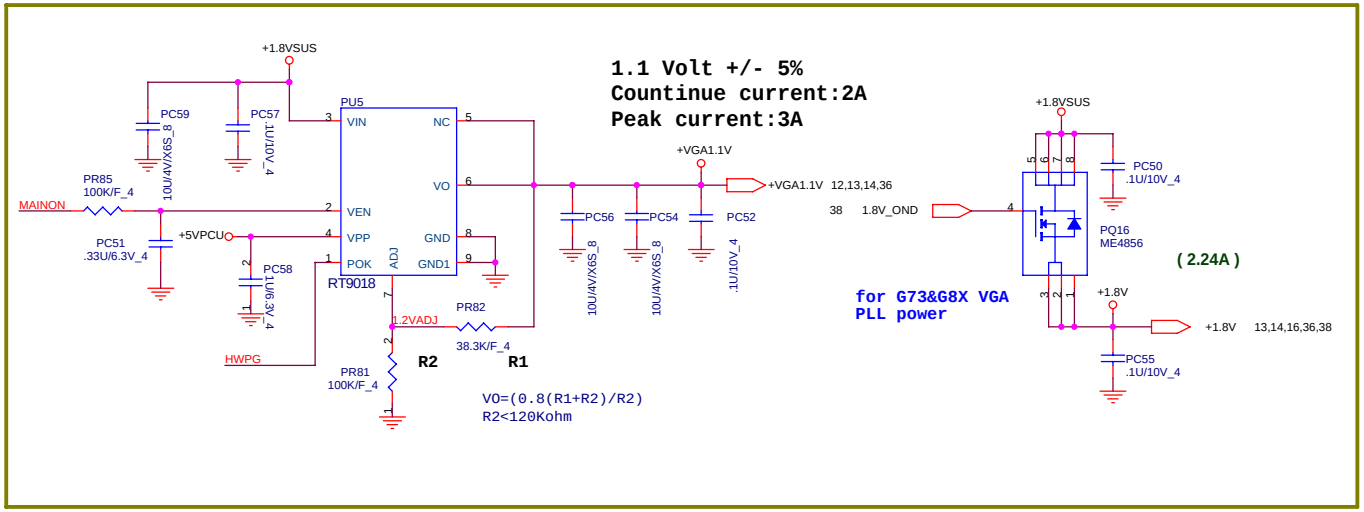

PROJECT : QL6
Quanta Computer Inc.

NB5

Size	Document Number	Rev
Custom	1.8V/DDR_VTER/+1.8v/+1.1V	2A

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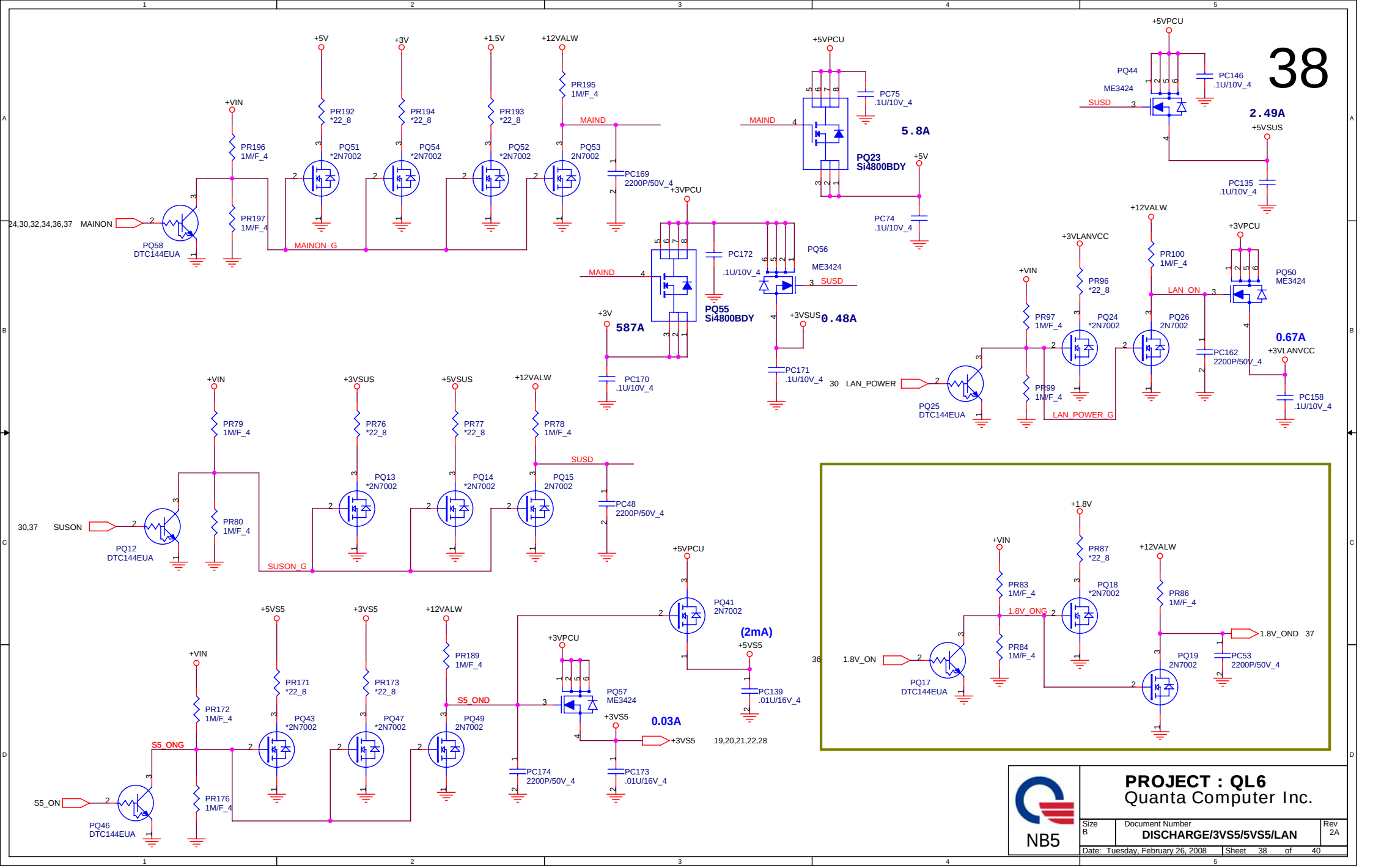
38
+5V
+3V
+1.5V
+12VALW
+VIN
PR192 *22_8
PR194 *22_8
PR193 *22_8
PR195 1M/F_4
PR196 1M/F_4
PR197 1M/F_4
PQ51 *2N7002
PQ54 *2N7002
PQ52 *2N7002
PQ53 2N7002
MAINON
MAINON_G
PQ58 DTC144EUA
MAIND
PC169 2200P/50V_4
+5VPCU
PC75 .1U/10V_4
PQ23 Si4800BDY
5.8A
PC74 .1U/10V_4
+3VPCU
PC172 .1U/10V_4
PQ56 ME3424
SUSD
PQ55 Si4800BDY
+3V
587A
+3VSUS
0.48A
PC170 .1U/10V_4
PC171 .1U/10V_4
LAN_POWER
PQ25 DTC144EUA
+5VPCU
PQ44 ME3424
PC146 .1U/10V_4
2.49A
+5VSUS
PC135 .1U/10V_4
+12VALW
+3VLANVCC
PR96 *22_8
PR97 1M/F_4
PR99 1M/F_4
PQ24 *2N7002
PR100 1M/F_4
LAN_ON
PQ26 2N7002
PQ50 ME3424
PC162 2200P/50V_4
0.67A
PC158 .1U/10V_4
LAN_POWER_G
+VIN
+3VSUS
+5VSUS
+12VALW
PR79 1M/F_4
PR80 1M/F_4
PR76 *22_8
PR77 *22_8
PR78 1M/F_4
PQ13 *2N7002
PQ14 *2N7002
PQ15 2N7002
SUSD
PC48 2200P/50V_4
SUSON
SUSON_G
PQ12 DTC144EUA
+5VPCU
PQ41 2N7002
(2mA)
+5VS5
PC139 .01U/16V_4
+5VS5
+3VS5
+12VALW
PR171 *22_8
PR173 *22_8
PR189 1M/F_4
PR172 1M/F_4
PR176 1M/F_4
PQ43 *2N7002
PQ47 *2N7002
PQ49 2N7002
S5_ONG
S5_OND
PQ57 ME3424
0.03A
PC174 2200P/50V_4
PC173 .01U/16V_4
+3VS5
19,20,21,22,28
S5_ON
PQ46 DTC144EUA
+1.8V
+VIN
+12VALW
PR83 1M/F_4
PR84 1M/F_4
PR87 *22_8
PR86 1M/F_4
1.8V_ONG
PQ18 *2N7002
PQ19 2N7002
1.8V_OND
PC53 2200P/50V_4
1.8V_ON
PQ17 DTC144EUA
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Quanta Computer Inc.
NB5
Size B
Document Number
DISCHARGE/3VS5/5VS5/LAN
Rev 2A
Date: Tuesday, February 26, 2008
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		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			