Altlantis/Apollo Block Diagram

PCB STACK UP

- LAYER 1 : TOP
- LAYER 2 : SGND1
- LAYER 3 : IN1
- LAYER 4 : IN2
- LAYER 5 : VCC
- LAYER 6 : IN3
- LAYER 7 : SGND2
- LAYER 8 : BOT

RUN POWER SW PG 36,37

AC/BATT CONNECTOR PG 34

BATT CHARGER PG 34

CPU VR PG 38

DC/DC +3VSUS +5VSUS PG 33

Turion64 Sempron
25W/35W
AMD Socket S1 638P
PG 2,3,4

DDRII-SODIMM1 PG 5 — *DDRII 667mhz*

DDRII-SODIMM2 PG 5 — *DDRII 667mhz*

HT Link

nVIDIA C51M/D
Integraded VGA Function
468PIN
PG 6,7,8

PCI-E

Mini PCI-E Card
PCI Express Mini Card
(Wireless LAN/WAN)
PG 27

Express Card
(NEW CARD)
PG 28

SIM CARD PG 27

PCI-Express 16X

NVDIA G3-64 for 15.4"
NVDIA G3-128 for 17"
Graphics PG 9,10,11,12,13,14

Option for 17" only
HDMI CON PG 18

TV_OUT

CRT_OUT

CRT/S-VIDEO PG 19

LVDS(2 Channel)

Panel Connector
15" / 17" PG 18

Cable Docking PG 31
- TV_OUT
- VGA
- RJ-45
- CIR/Pwr btn
- SPDIF Out
- Stereo MIC
- Headphone Jack
- USB Port
- VOL Cntr

HT Link

CLOCK INTERFACE

Option for 17" only

SATA - HDD PG 28 — *SATA2*

SATA - HDD PG 26 — *SATA0*

CD-ROM PG 26 — *PATA (66/100/133)*

nVIDIA MCP51M
508PIN
PG 15,16,17

USB2.0

Bluetooth PG 28

USB2.0 I/O Ports X3 PG 26

Camera 1.3MP PG 23

Mini PCI-E Card x1
Express Card x1
Cable Docking x1

PCI BUS / 33MHz

LAN

Azalia

Conexant
Venice AMOM
CX20549-12
PG 23

Two-element microphone PG 23

Audio Jacks (Phone/SPDIF/MIC) PG 23

REALTEK
RTL8201CL (10/100)/
REL8211B (10/100 /Gigabit
PG 20

RJ45 PG 20

RICOH
RICOH 832
PG 21

IEEE1394 CONN PG 21

Memory CardReader PG 22

LPC

Keyboard Touch Pad PG 29

CIR PG 23

Capacitive Sense SW PG 29

ENE KBC
KB3920 Bx
PG 30

X-Bus

FAN PG 31

Flash PG 30

AUDIO Amplifier PG 25

Jack to Speaker PG 25

MDC DAA PG 24

MODEM RJ 11 PG 20

PCI ROUTING TABLE	IDSEL	INTERUPT	DEVICE
REQ0# / GNT0#	AD21	INTA#,INTB#	RICOH832

VAULE DEFINE
A=0603,B=0805,C=1206,F=1%,
OTHER IS 0402

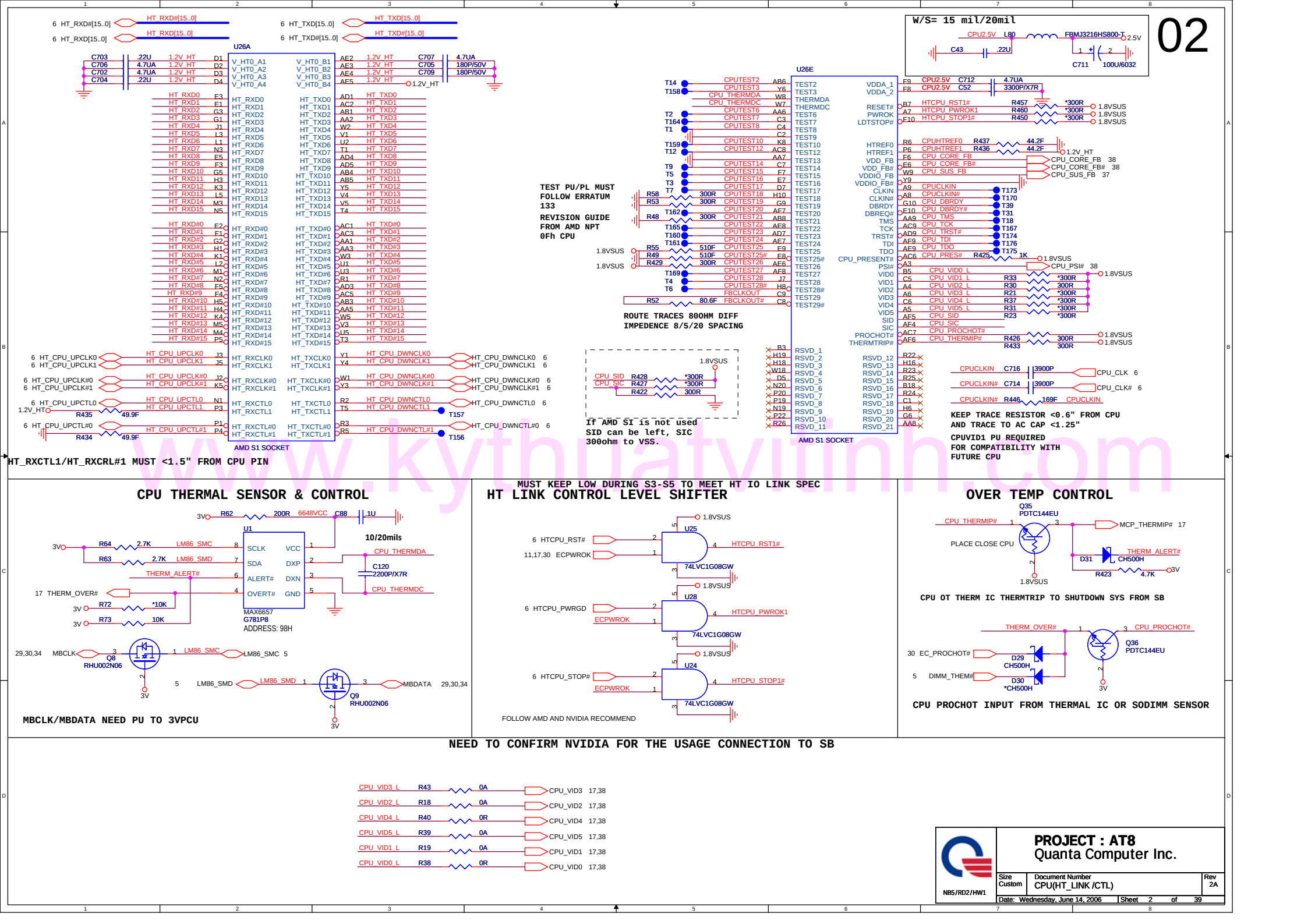
EXAMPLE
10R=10ohm(0402)
10A=10ohm(0603)
10B=10ohm(0805)
10C=10ohm(1206)
10/F=10ohm(0402 and 1%)

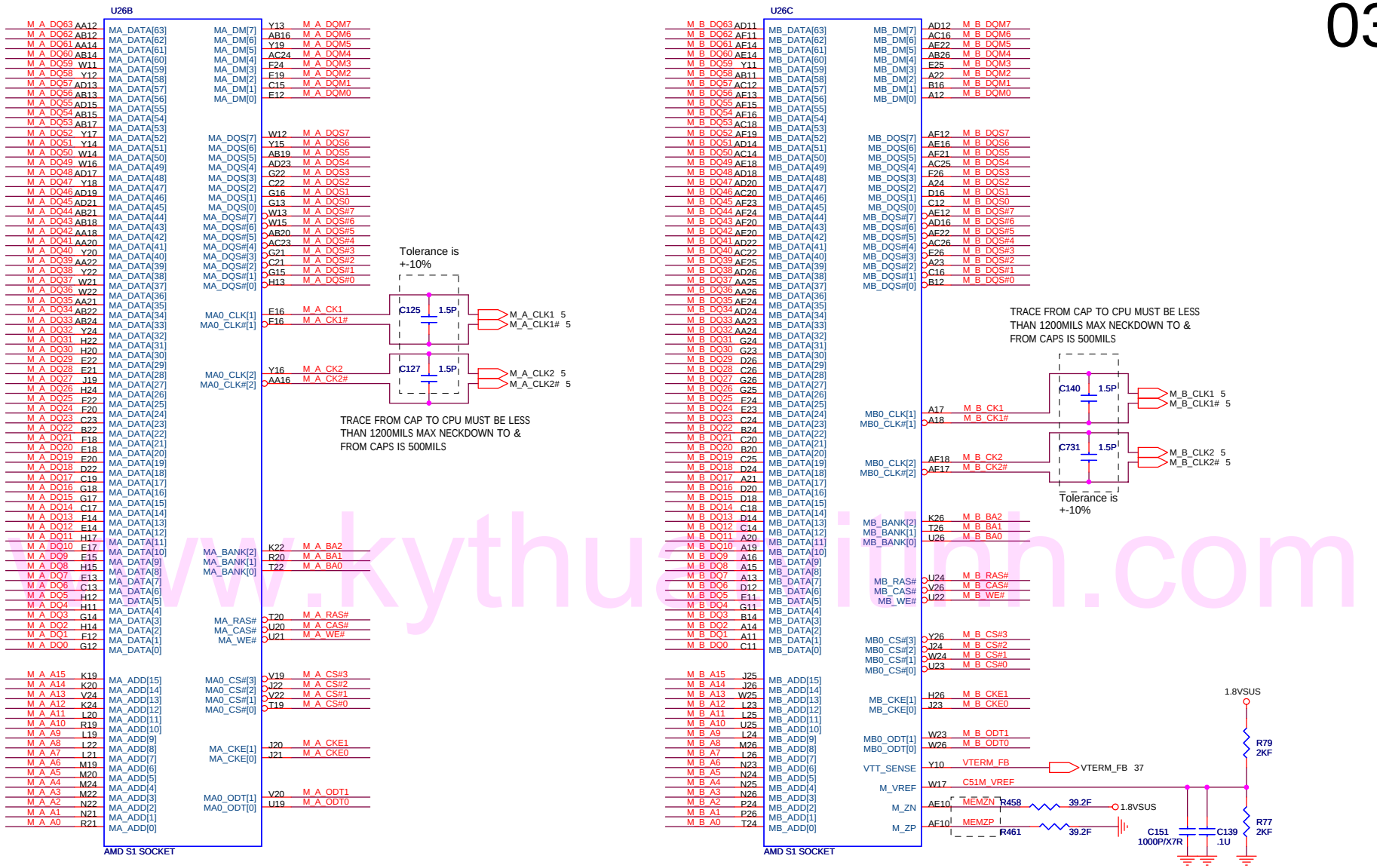
PROJECT : AT8
Quanta Computer Inc.

NB5/RD2/HW1

Size	Document Number	Rev
Custom	Block Diagram	1A

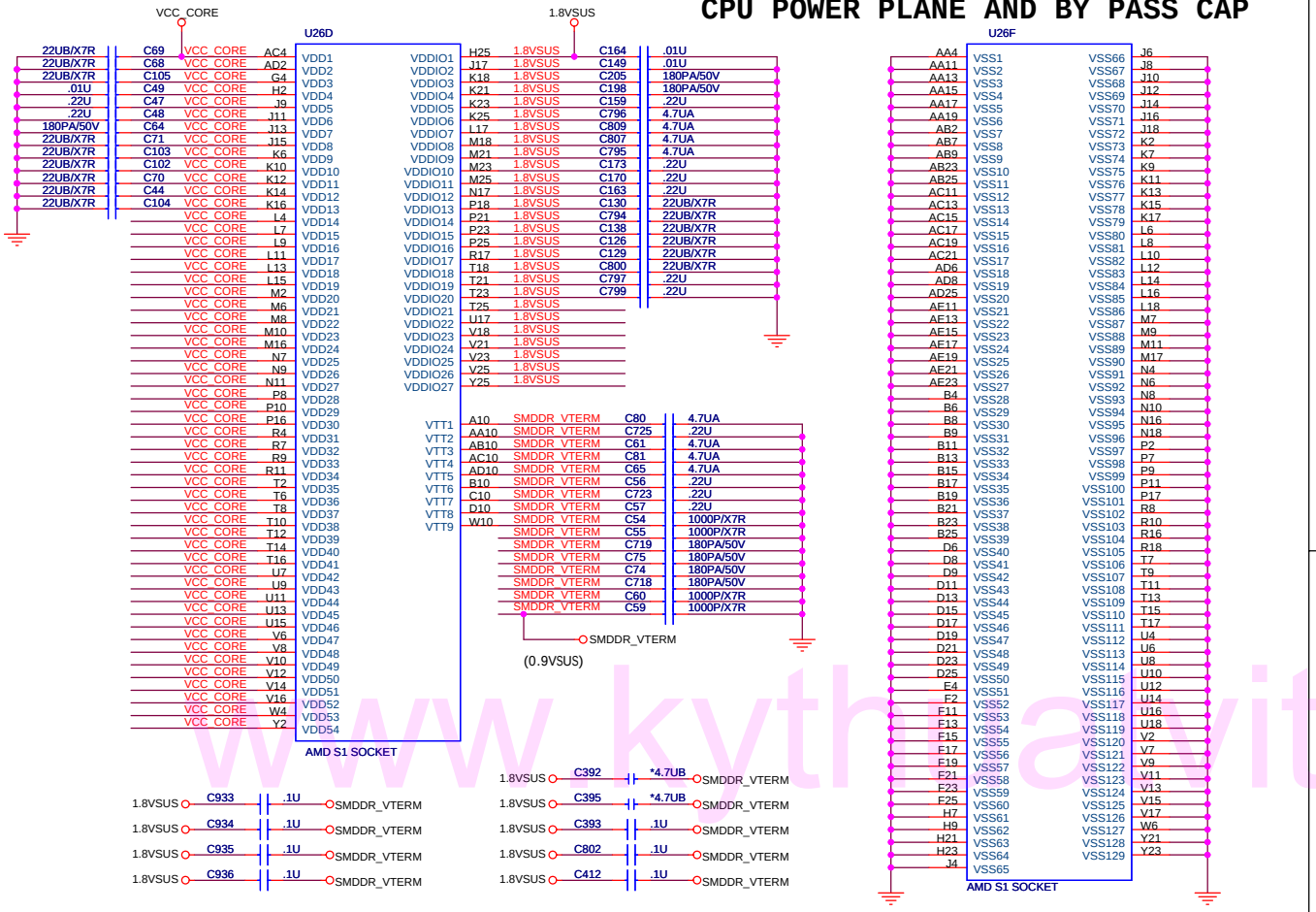
Date: Wednesday, June 14, 2006 | Sheet 1 of 39





PROJECT :	AT8
Quanta Computer Inc.	
Size: Custom	Document Number: CPU(MEM/IF)
Rev: 1A	
NB5/RD2/HW1	
Date: Wednesday, June 14, 2006	Sheet 3 of 39

CPU POWER PLANE AND BY PASS CAP

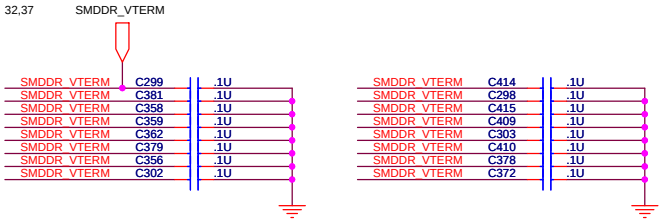


DDR2 TERMINATION BYPASS CAP

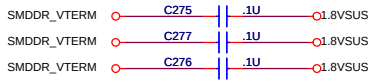
04

CHANNEL A

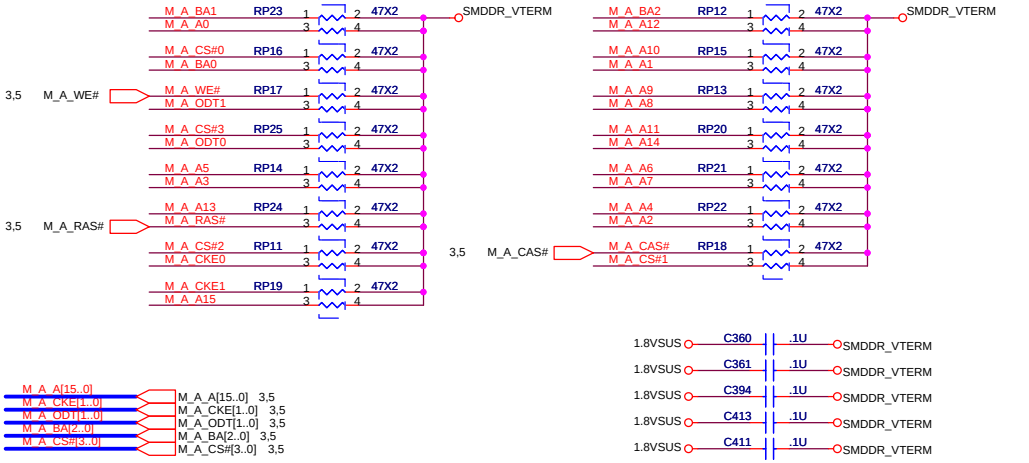
CHANNEL B



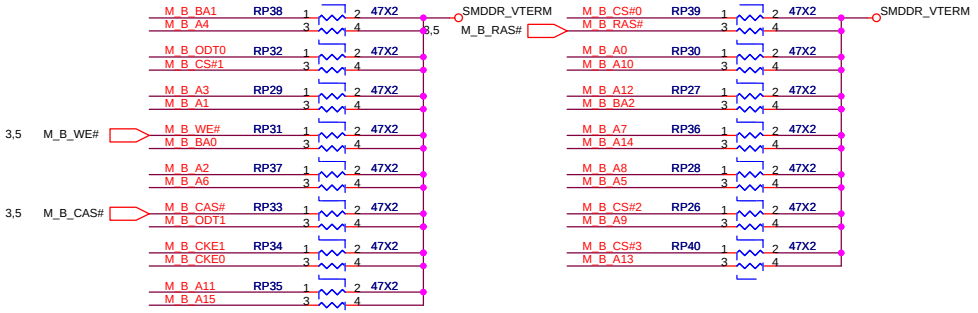
Layout note: Place one cap close to every 2 pullup resistors terminated to SMDDR_VTERM

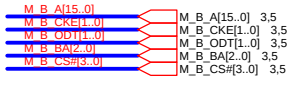


DDRII CHANNEL A TERMINATION



DDRII CHANNEL B TERMINATION





PROJECT : AT8
Quanta Computer Inc.

Size	Document Number	Rev
Custom	CPU(POWER/GND)	1A

Date: Wednesday, June 14, 2006 Sheet 4 of 39

NB5/RD2/HW1

M_A_CKE[0..1] M_A_CS#[0..3] → M_A_CKE[0..1] 3,4 / M_A_CS#[0..3] 3,4
M_A_RAS# M_A_CAS# M_A_WE# → M_A_RAS# 3,4 / M_A_CAS# 3,4 / M_A_WE# 3,4
M_A_CLK1 M_A_CLK1# M_A_CLK2 M_A_CLK2# → M_A_CLK1 3 / M_A_CLK1# 3 / M_A_CLK2 3 / M_A_CLK2# 3
M_A_BA[0..2] M_A_ODT[0..1] → M_A_BA[0..2] 3,4 / M_A_ODT[0..1] 3,4
M_A_DQM[0..7] M_A_DQ[0..63] M_A_DQS[0..7] M_A_DQS#[0..7] M_A_A[15..0] → M_A_DQM[0..7] 3 / M_A_DQ[0..63] 3 / M_A_DQS[0..7] 3 / M_A_DQS#[0..7] 3 / M_A_A[15..0] 3,4

M_B_CKE[0..1] M_B_CS#[0..3] → M_B_CKE[0..1] 3,4 / M_B_CS#[0..3] 3,4
M_B_RAS# M_B_CAS# M_B_WE# → M_B_RAS# 3,4 / M_B_CAS# 3,4 / M_B_WE# 3,4
M_B_CLK1 M_B_CLK1# M_B_CLK2 M_B_CLK2# → M_B_CLK1 3 / M_B_CLK1# 3 / M_B_CLK2 3 / M_B_CLK2# 3
M_B_BA[0..2] M_B_ODT[0..1] → M_B_BA[0..2] 3,4 / M_B_ODT[0..1] 3,4
M_B_DQM[0..7] M_B_DQ[0..63] M_B_DQS[0..7] M_B_DQS#[0..7] M_B_A[15..0] → M_B_DQM[0..7] 3 / M_B_DQ[0..63] 3 / M_B_DQS[0..7] 3 / M_B_DQS#[0..7] 3 / M_B_A[15..0] 3,4

PC2100 DDR2 SDRAM SO-DIMM (200P)

M_A_DQ5 5 M_A_DQ1 7 M_A_DQ2 17 M_A_DQ3 19 M_A_DQ0 4 M_A_DQ4 6 M_A_DQ6 14 M_A_DQ7 16 M_A_DQ9 23 M_A_DQ8 25 M_A_DQ10 35 M_A_DQ14 37 M_A_DQ13 20 M_A_DQ12 22 M_A_DQ15 36 M_A_DQ11 38 M_A_DQ17 43 M_A_DQ21 45 M_A_DQ18 55 M_A_DQ16 57 M_A_DQ20 44 M_A_DQ19 46 M_A_DQ22 56 M_A_DQ23 58 M_A_DQ24 61 M_A_DQ25 63 M_A_DQ27 73 M_A_DQ30 75 M_A_DQ28 62 M_A_DQ29 64 M_A_DQ26 74 M_A_DQ31 76

M_A_A0 102 M_A_A1 101 M_A_A2 100 M_A_A3 99 M_A_A4 98 M_A_A5 97 M_A_A6 94 M_A_A7 92 M_A_A8 93 M_A_A9 91 M_A_A10 105 M_A_A11 90 M_A_A12 89

M_A_BA0 107 M_A_BA1 106 M_A_BA2 85

M_A_CLK1 30 M_A_CLK1# 32 M_A_CLK2 164 M_A_CLK2# 166

DDR_SMBCLK 197 DDR_SMBDTA 195 DIM1_SA0 198 DIM1_SA1 200

3V 199

DQ0 DQ1 DQ2 DQ3 DQ4 DQ5 DQ6 DQ7 DQ8 DQ9 DQ10 DQ11 DQ12 DQ13 DQ14 DQ15 DQ16 DQ17 DQ18 DQ19 DQ20 DQ21 DQ22 DQ23 DQ24 DQ25 DQ26 DQ27 DQ28 DQ29 DQ30 DQ31

DQ32 DQ33 DQ34 DQ35 DQ36 DQ37 DQ38 DQ39 DQ40 DQ41 DQ42 DQ43 DQ44 DQ45 DQ46 DQ47 DQ48 DQ49 DQ50 DQ51 DQ52 DQ53 DQ54 DQ55 DQ56 DQ57 DQ58 DQ59 DQ60 DQ61 DQ62 DQ63

M_A_DQ32 123 M_A_DQ36 125 M_A_DQ34 135 M_A_DQ37 137 M_A_DQ33 124 M_A_DQ38 126 M_A_DQ39 134 M_A_DQ35 136 M_A_DQ40 141 M_A_DQ41 143 M_A_DQ42 151 M_A_DQ46 153 M_A_DQ44 140 M_A_DQ45 142 M_A_DQ43 152 M_A_DQ47 154 M_A_DQ55 157 M_A_DQ54 159 M_A_DQ49 173 M_A_DQ52 175 M_A_DQ48 158 M_A_DQ53 160 M_A_DQ50 174 M_A_DQ51 176 M_A_DQ57 179 M_A_DQ61 181 M_A_DQ63 189 M_A_DQ62 191 M_A_DQ56 180 M_A_DQ59 182 M_A_DQ58 192

M_A_DQM0 10 M_A_DQM1 26 M_A_DQM2 52 M_A_DQM3 67 M_A_DQM4 130 M_A_DQM5 147 M_A_DQM6 170 M_A_DQM7 185 M_A_DQS0 13 M_A_DQS#0 11 M_A_DQS1 31 M_A_DQS#1 29 M_A_DQS2 51 M_A_DQS#2 49 M_A_DQS3 70 M_A_DQS#3 68 M_A_DQS4 131 M_A_DQS#4 129 M_A_DQS5 148 M_A_DQS#5 146 M_A_DQS6 169 M_A_DQS#6 167 M_A_DQS7 188 M_A_DQS#7 186

M_A_CS#0 110 M_A_CS#1 115 M_A_RAS# 108 M_A_CAS# 113 M_A_WE# 109 M_A_CKE0 79 M_A_CKE1 80

CKE0 CKE1

CKE 0,1

2-1734073-1
CN23A

H 9.2

PC2100 DDR2 SDRAM SO-DIMM (200P)

M_B_DQ1 5 M_B_DQ4 7 M_B_DQ3 17 M_B_DQ2 19 M_B_DQ0 4 M_B_DQ5 6 M_B_DQ7 14 M_B_DQ6 16 M_B_DQ9 23 M_B_DQ8 25 M_B_DQ14 35 M_B_DQ15 37 M_B_DQ12 20 M_B_DQ13 22 M_B_DQ10 36 M_B_DQ11 38 M_B_DQ17 43 M_B_DQ20 45 M_B_DQ19 55 M_B_DQ18 57 M_B_DQ21 46 M_B_DQ22 56 M_B_DQ23 58 M_B_DQ24 61 M_B_DQ25 63 M_B_DQ30 73 M_B_DQ31 75 M_B_DQ28 62 M_B_DQ29 64 M_B_DQ27 74 M_B_DQ26 76

M_B_A0 102 M_B_A1 101 M_B_A2 100 M_B_A3 99 M_B_A4 98 M_B_A5 97 M_B_A6 94 M_B_A7 92 M_B_A8 93 M_B_A9 91 M_B_A10 105 M_B_A11 90 M_B_A12 89

M_B_BA0 107 M_B_BA1 106 M_B_BA2 85

M_B_CLK1 30 M_B_CLK1# 32 M_B_CLK2 164 M_B_CLK2# 166

DDR_SMBCLK 197 DDR_SMBDTA 195 DIM2_SA0 198 DIM2_SA1 200

3V 199

DQ32 DQ33 DQ34 DQ35 DQ36 DQ37 DQ38 DQ39 DQ40 DQ41 DQ42 DQ43 DQ44 DQ45 DQ46 DQ47 DQ48 DQ49 DQ50 DQ51 DQ52 DQ53 DQ54 DQ55 DQ56 DQ57 DQ58 DQ59 DQ60 DQ61 DQ62 DQ63

M_B_DQ32 123 M_B_DQ36 125 M_B_DQ38 135 M_B_DQ34 137 M_B_DQ32 124 M_B_DQ33 126 M_B_DQ39 134 M_B_DQ35 136 M_B_DQ44 141 M_B_DQ41 143 M_B_DQ47 151 M_B_DQ46 153 M_B_DQ40 140 M_B_DQ45 142 M_B_DQ42 152 M_B_DQ43 154 M_B_DQ55 157 M_B_DQ54 159 M_B_DQ53 173 M_B_DQ48 175 M_B_DQ50 158 M_B_DQ51 160 M_B_DQ49 174 M_B_DQ52 176 M_B_DQ57 179 M_B_DQ60 181 M_B_DQ62 189 M_B_DQ59 191 M_B_DQ61 180 M_B_DQ58 182 M_B_DQ63 194

M_B_DQM0 10 M_B_DQM1 26 M_B_DQM2 52 M_B_DQM3 67 M_B_DQM4 130 M_B_DQM5 147 M_B_DQM6 170 M_B_DQM7 185 M_B_DQS0 13 M_B_DQS#0 11 M_B_DQS1 31 M_B_DQS#1 29 M_B_DQS2 51 M_B_DQS#2 49 M_B_DQS3 70 M_B_DQS#3 68 M_B_DQS4 131 M_B_DQS#4 129 M_B_DQS5 148 M_B_DQS#5 146 M_B_DQS6 169 M_B_DQS#6 167 M_B_DQS7 188 M_B_DQS#7 186

M_B_CS#0 110 M_B_CS#1 115 M_B_RAS# 108 M_B_CAS# 113 M_B_WE# 109 M_B_CKE0 79 M_B_CKE1 80

CKE0 CKE1

CKE 2,3

1565917-4
CN24A

H 5.2

SMDDR_VREF_DIMM

C832 C808 C829 C803 C804 C375 C798 C830 C374 C380 C810 — 2.2UA / 2.2UA / 2.2UA / .1U / .1U / .1U / .1U / .1U / .1U / .1U / .1U — 1.8VSUS

M_A_ODT0 M_A_ODT1 M_A_CS#2 M_A_A15 M_A_A14 M_A_A13 M_A_CS#3

PC2100 DDR2 SDRAM SO-DIMM (200P)

2-1734073-1
CN23B

SMDDR_VREF_DIMM

C805 C806 C831 C825 C826 C827 C824 C376 C377 C373 C828 — 2.2UA / 2.2UA / 2.2UA / .1U / .1U / .1U / .1U / .1U / .1U / .1U / .1U — 1.8VSUS

M_B_ODT0 M_B_ODT1 M_B_CS#2 M_B_A15 M_B_A14 M_B_A13 M_B_CS#3

PC2100 DDR2 SDRAM SO-DIMM (200P)

1565917-4
CN24B

SO-DIMM BYPASS PLACEMENT :

Place these Caps near So-Dimm1.

No Vias Between the Trace of PIN to CAP.

3V 1.8VSUS → 3V 2,7,8,9,10,11,15,16,17,18,19,23,26,27,28,29,30,32,33,35,36,38 / 1.8VSUS 2,3,4,32,36,37

SMDDR_VREF_DIMM R128 2KF R123 2KF R127 *0R → SMDDR_VREF / 1.8VSUS

C382 .1U 2.2UA SMDDR_VREF_DIMM C308 C370 .1U 2.2UA C388

SMDDR_VREF_DIMM :
TRACE WIDTH > 20 MIL
PUT BYPASS CAP ON EACH DIMM

C396 .1U 2.2UA 3V C311 C384 *2.2UA .1U 3V C309

SMbus address A0

R138 10K DIM1_SA0
R139 10K DIM1_SA1

SMbus address A2

DIM2_SA0 R150 10K 3V
DIM2_SA1 R151 10K

Close DDR2 socket

U33
A0 A1 A2 SDA SCL +VS O.S GND
3V C801 *.1U DIMM_THEM# DIMM_THEM# 2
LM86_SMD LM86_SMC
*G751 (LM75CIMM3)

Address:92h

3V R537 *10K DIMM_THEM#

DDR_SMBDTA 1 Q13 2N7002E 3 CGDAT_SMB 17
3V

17 CGCLK_SMB 3 Q12 2N7002E 1 DDR_SMBCLK
3V

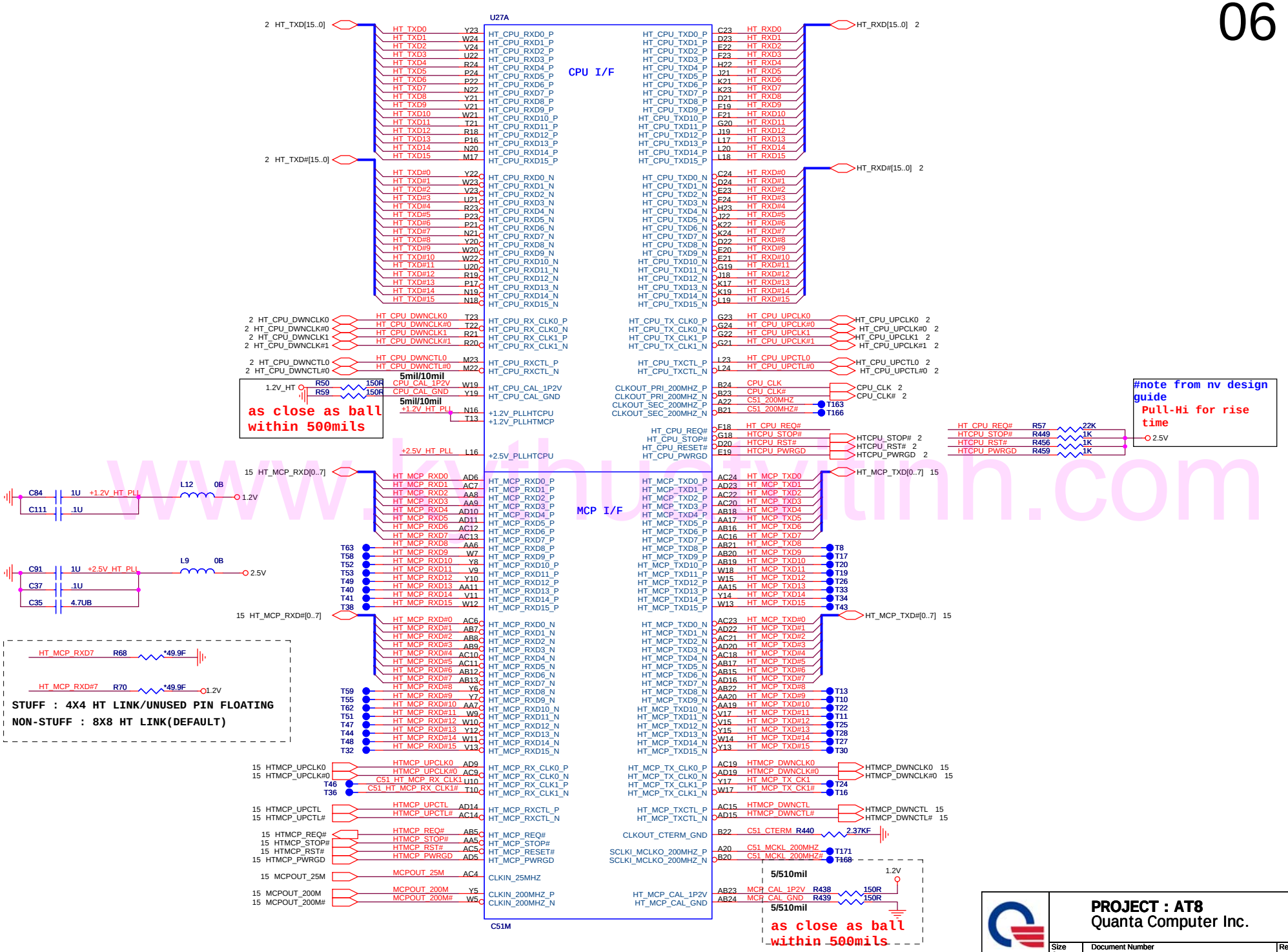
DDR_SMBDTA R141 2.2K 3V
DDR_SMBCLK R135 2.2K

NB5/RD2/HW1

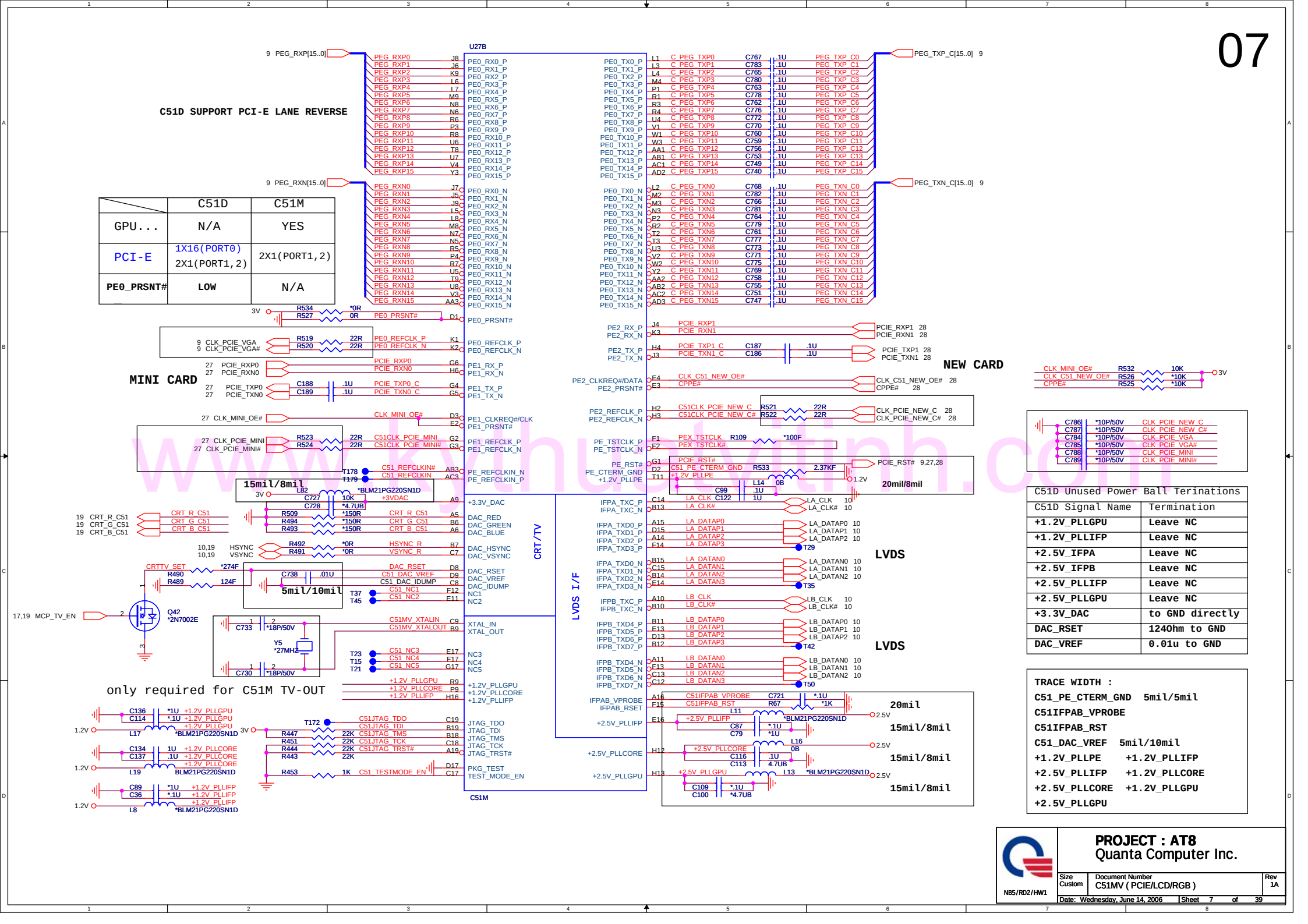
PROJECT : AT8
Quanta Computer Inc.

Size	Document Number	Rev
Custom	CPU(MEM/IF)	2A

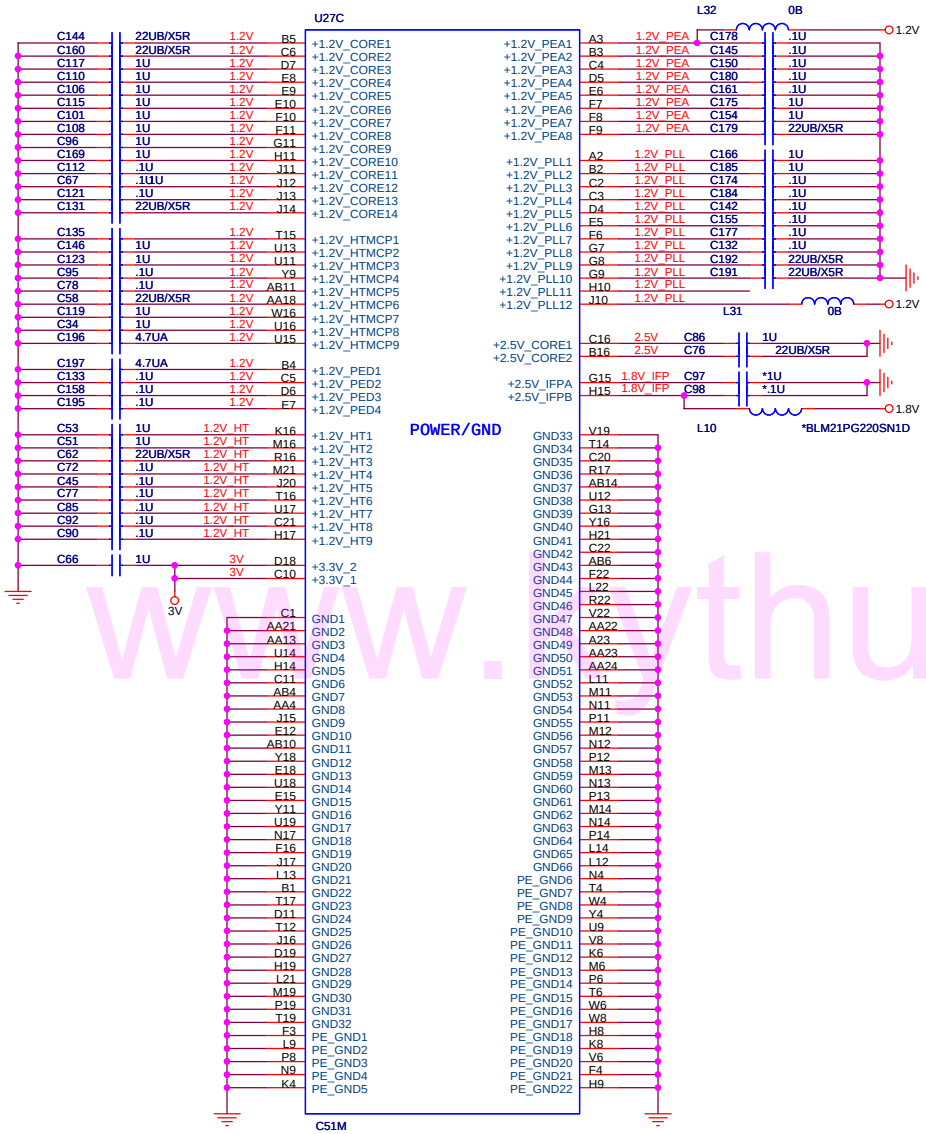
Date: Wednesday, June 14, 2006 | Sheet 5 of 39

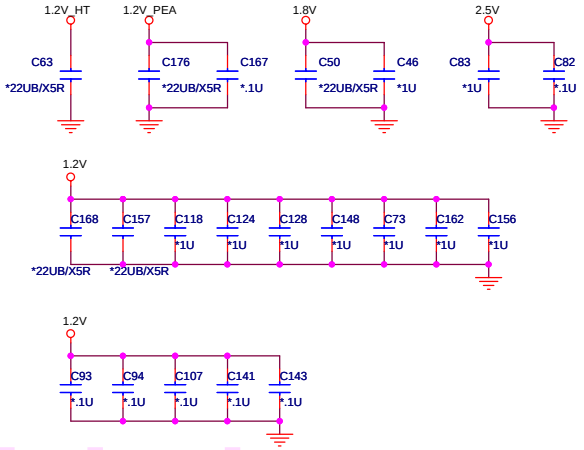


NB5/RD2/HW1	PROJECT : AT8 Quanta Computer Inc.	
Size: Custom	Document Number: C51MV (HT LINK)	Rev: 1A
Date: Wednesday, June 14, 2006	Sheet 6 of 39	

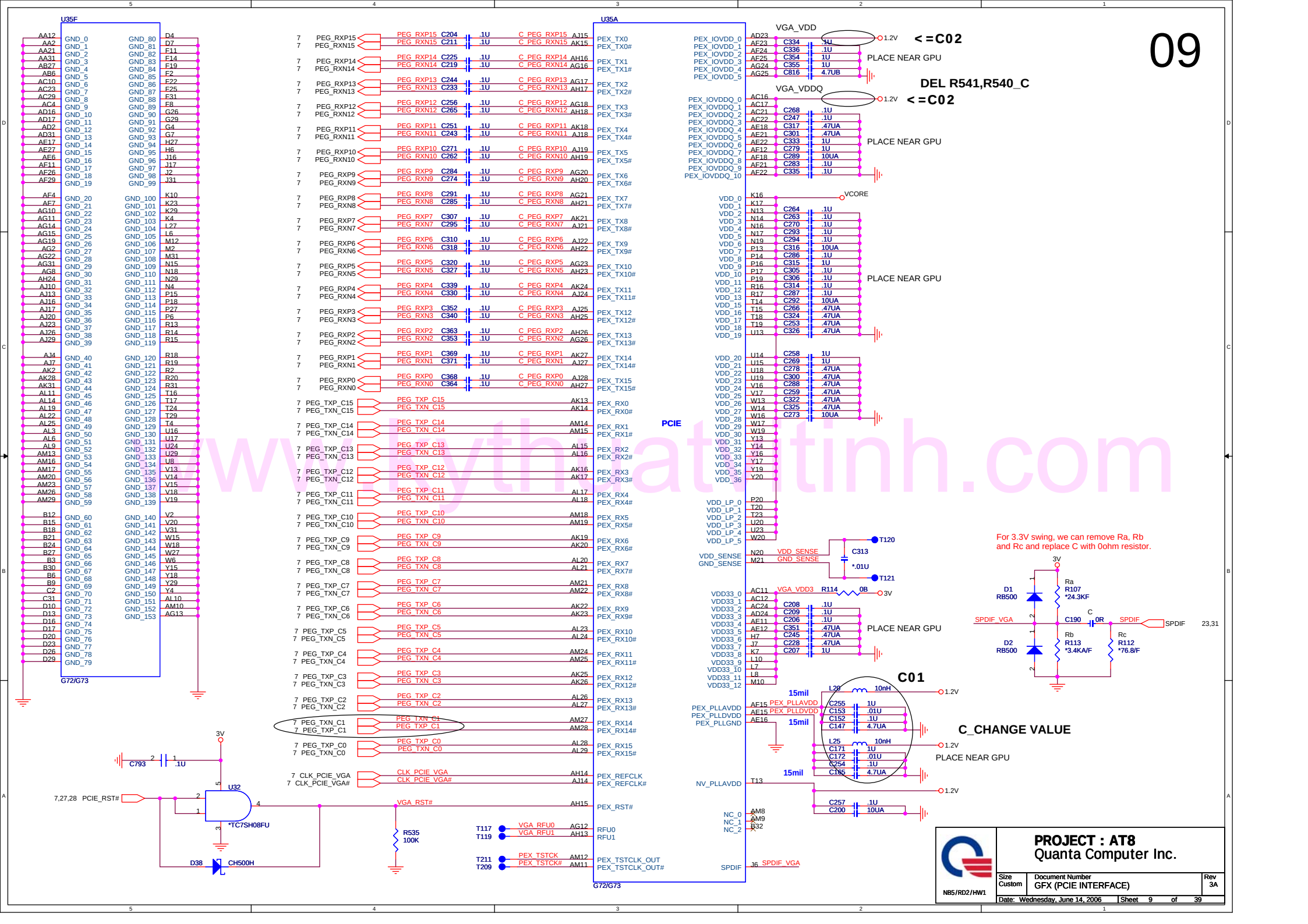


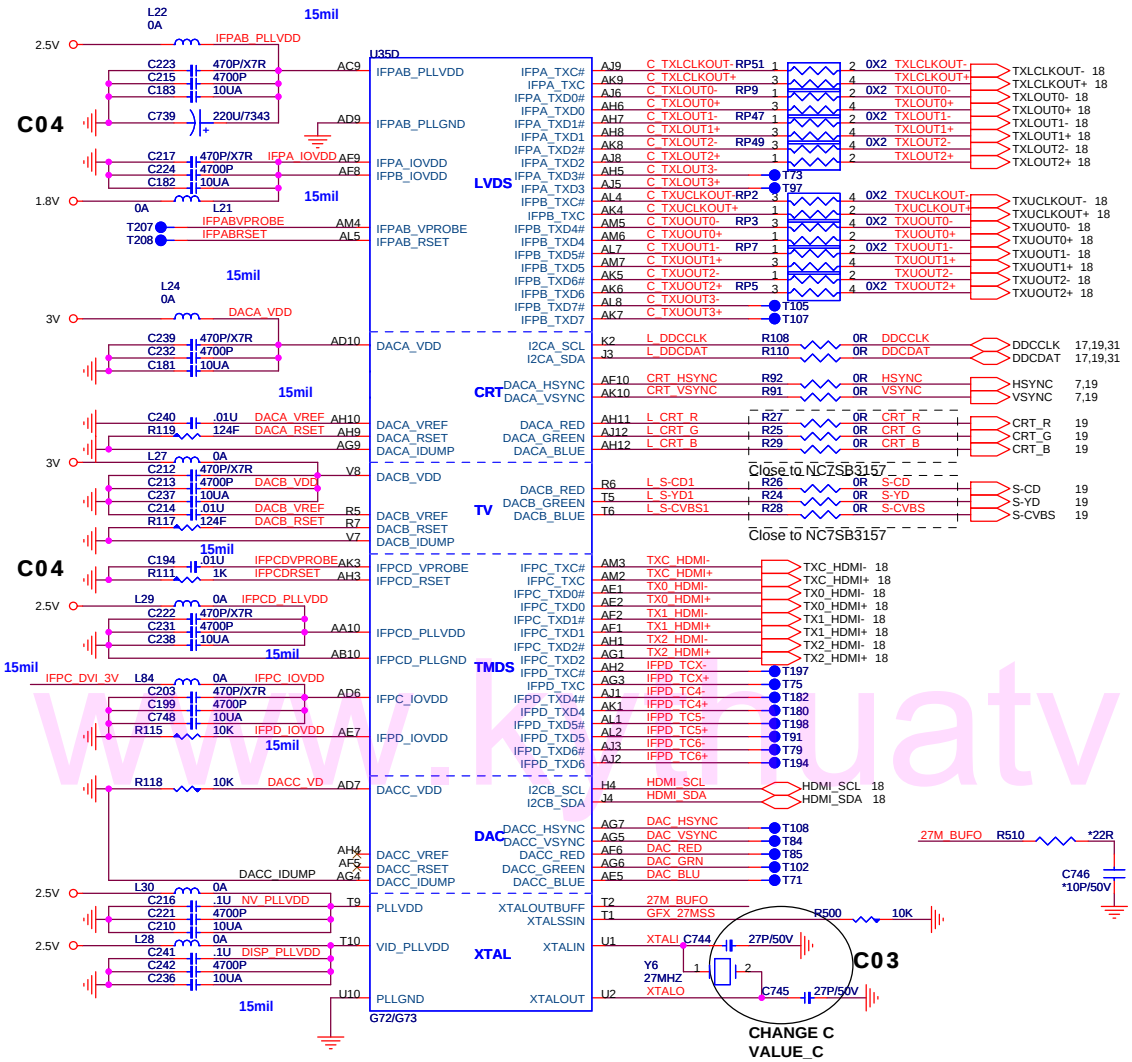
C51M/C51D POWER PLANE/GND & BYPASS

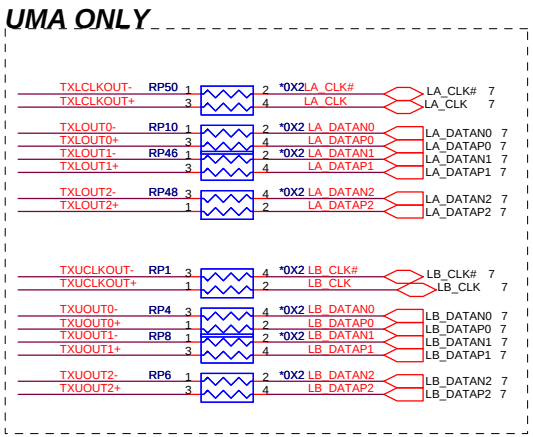


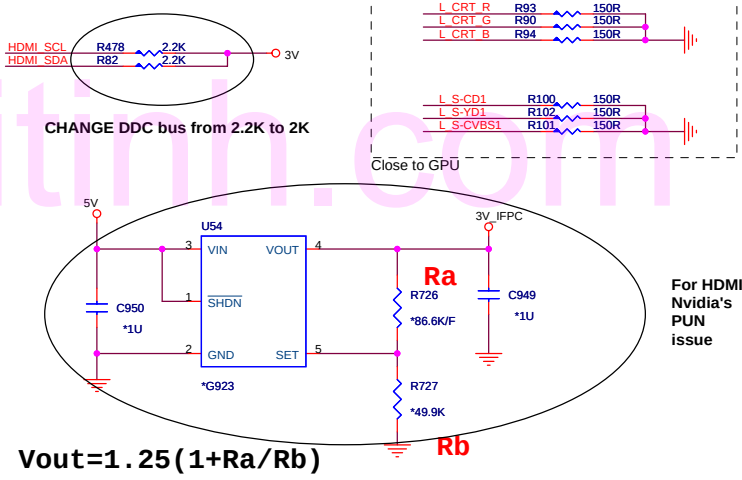


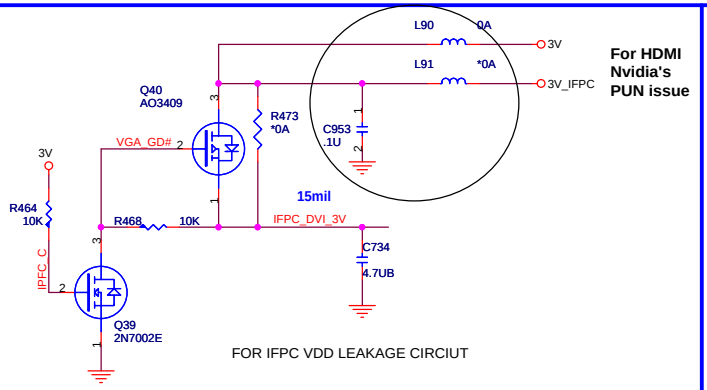
PROJECT : AT8	Quanta Computer Inc.
Size: Custom	Document Number: C51MV (POWER/GND)
Rev: 1A	
NB5/RD2/HW1	Date: Wednesday, June 14, 2006 Sheet 8 of 39

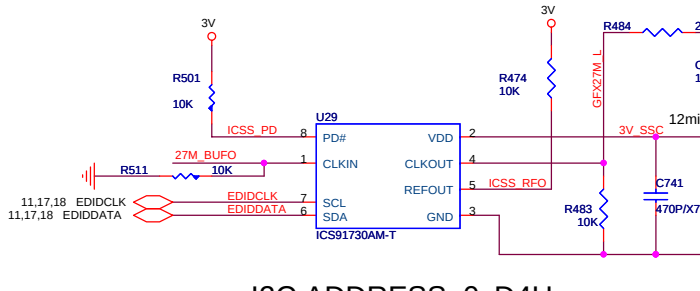










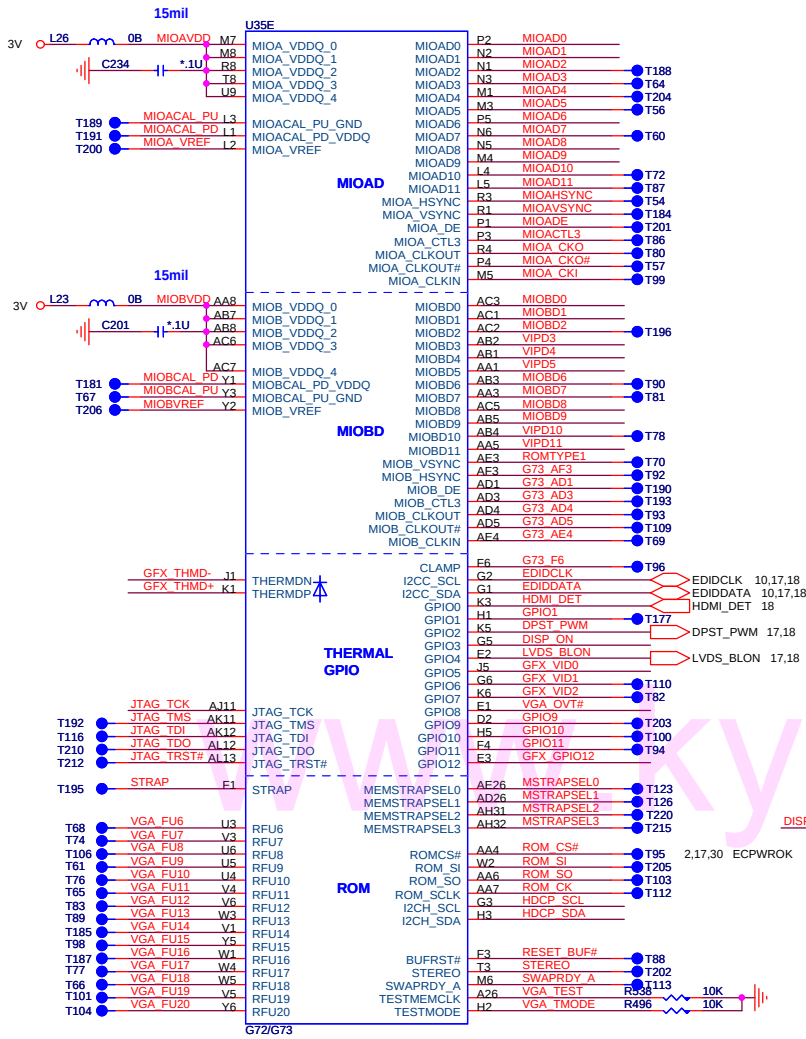


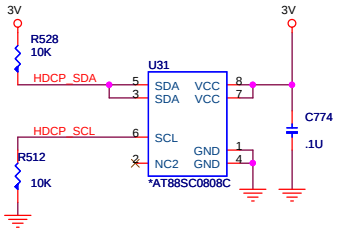
PROJECT : AT8
Quanta Computer Inc.

Size	Document Number	Rev
Custom	GFX(LVDS, CRT, TV)	2A

NB5/RD2/HW1

Date: Wednesday, June 14, 2006 | Sheet 10 of 39

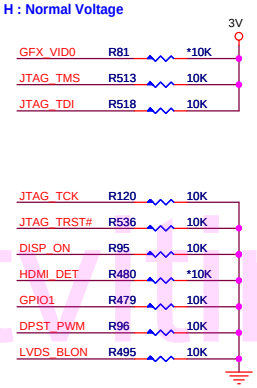


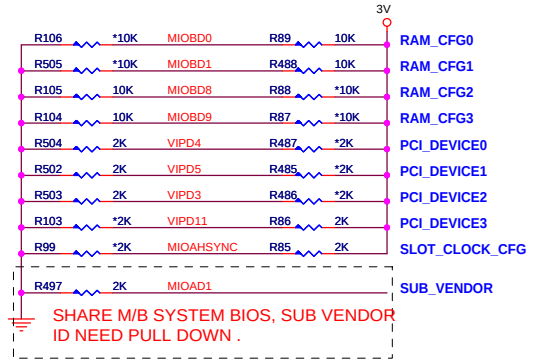


PCI DEVICE

PCI_DEVICE[3:0]	DESCRIPTION
1000	G72M/G73M
0111	G72M-V/G73M-V
others	Reserved

GFX_VID0
L : Low Voltage
H : Normal Voltage



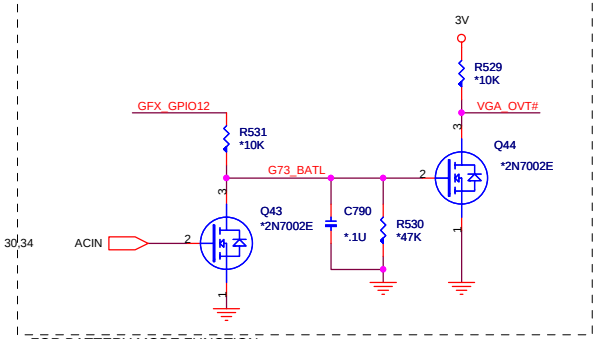


G72M VRAM Configuration Table

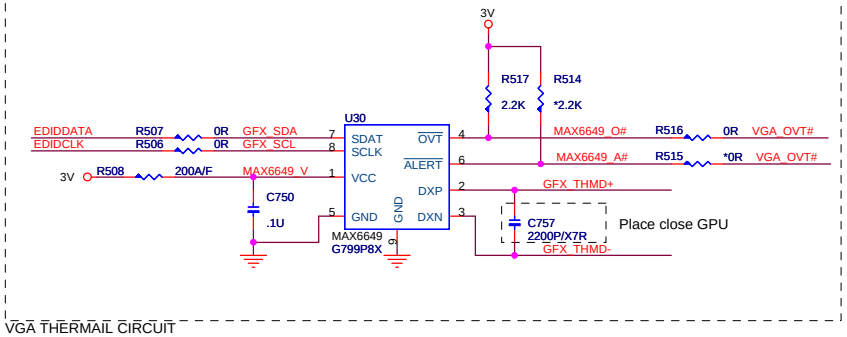
RAM_CFG[3:0]	DESCRIPTION	Vendor
0000	DDR2 16Mx16x4, 64bit, 128MB	Elpida
0001	DDR2 16Mx16x4, 64bit, 128MB	Samsung
0010	DDR2 16Mx16x4, 64bit, 128MB	Infineon
0011	DDR2 16Mx16x4, 64bit, 128MB	Hynix
0100	Reserved	
0101	DDR2 32Mx16x4, 64bit, 256MB	Samsung
0110	DDR2 32Mx16x4, 64bit, 256MB	Infineon
0111	DDR2 32Mx16x4, 64bit, 256MB	Hynix
1000	DDR2 16Mx16x2, 32bit, 64MB	Elpida
1001	DDR2 16Mx16x2, 32bit, 64MB	Samsung
1010	DDR2 16Mx16x2, 32bit, 64MB	Infineon
1011	DDR2 16Mx16x2, 32bit, 64MB	Hynix
others	Reserved	

G73M VRAM Configuration Table

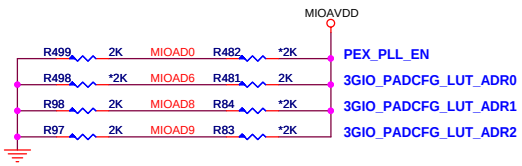
RAM_CFG[3:0]	DESCRIPTION	Vendor
0000	DDR2 16Mx16x8, 128bit, 256MB	Elpida
0001	DDR2 16Mx16x8, 128bit, 256MB	Samsung
0010	DDR2 16Mx16x8, 128bit, 256MB	Infineon
0011	DDR2 16Mx16x8, 128bit, 256MB	Hynix
0100	Reserved	
0101	DDR2 32Mx16x8, 128bit, 512MB	Samsung
0110	DDR2 32Mx16x8, 128bit, 512MB	Infineon
0111	DDR2 32Mx16x8, 128bit, 512MB	Hynix
1000	DDR2 16Mx16x4, 64bit, 128MB	Elpida
1001	DDR2 16Mx16x4, 64bit, 128MB	Samsung
1010	DDR2 16Mx16x4, 64bit, 128MB	Infineon
1011	DDR2 16Mx16x4, 64bit, 128MB	Hynix
1100	Reserved	
1101	DDR2 32Mx16x4, 64bit, 256MB	Samsung
1110	DDR2 32Mx16x4, 64bit, 256MB	Infineon
1111	DDR2 32Mx16x4, 64bit, 256MB	Hynix



FOR BATTERY MODE FUNCTION
GFX_GPIO12=H ENABLE
GFX_GPIO12=L DISABLE



VGA THERMAIL CIRCUIT



PROJECT : AT8
Quanta Computer Inc.

Size	Document Number	Rev
Custom	GFX(ROM, GPIO, STRAP)	2A

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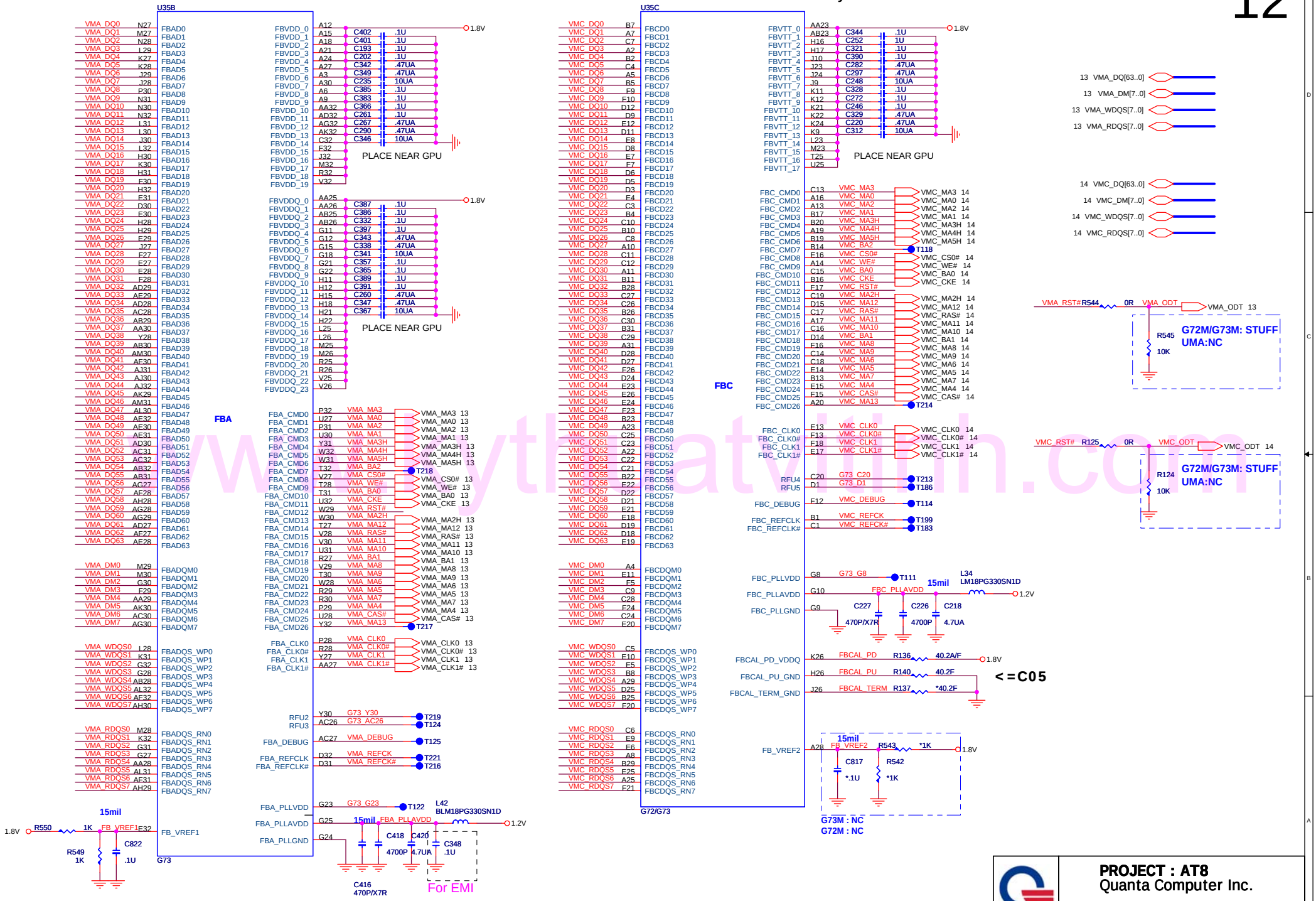
NB5/RD2/HW1

Channel C is available on G73M only

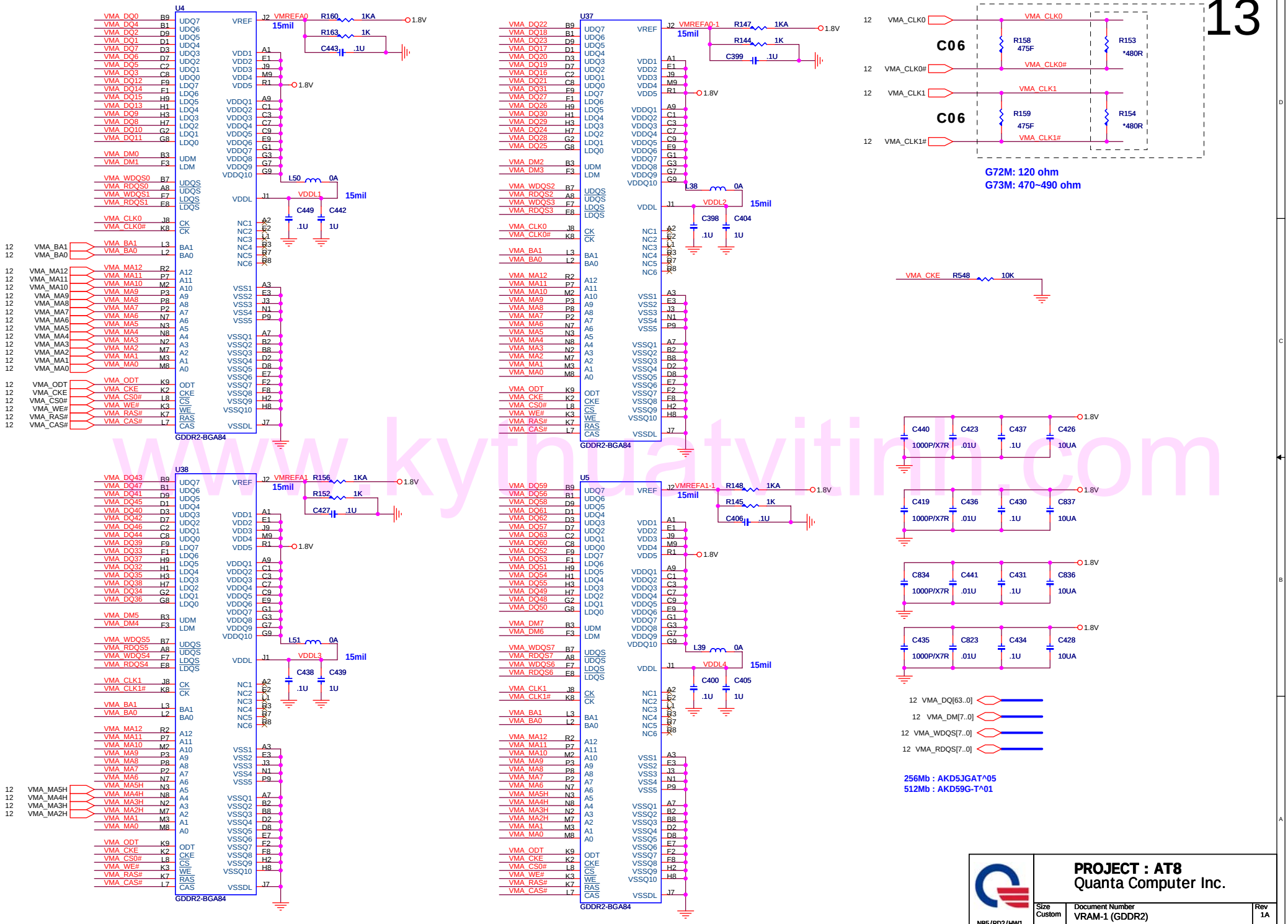


PROJECT : AT8
Quanta Computer Inc.

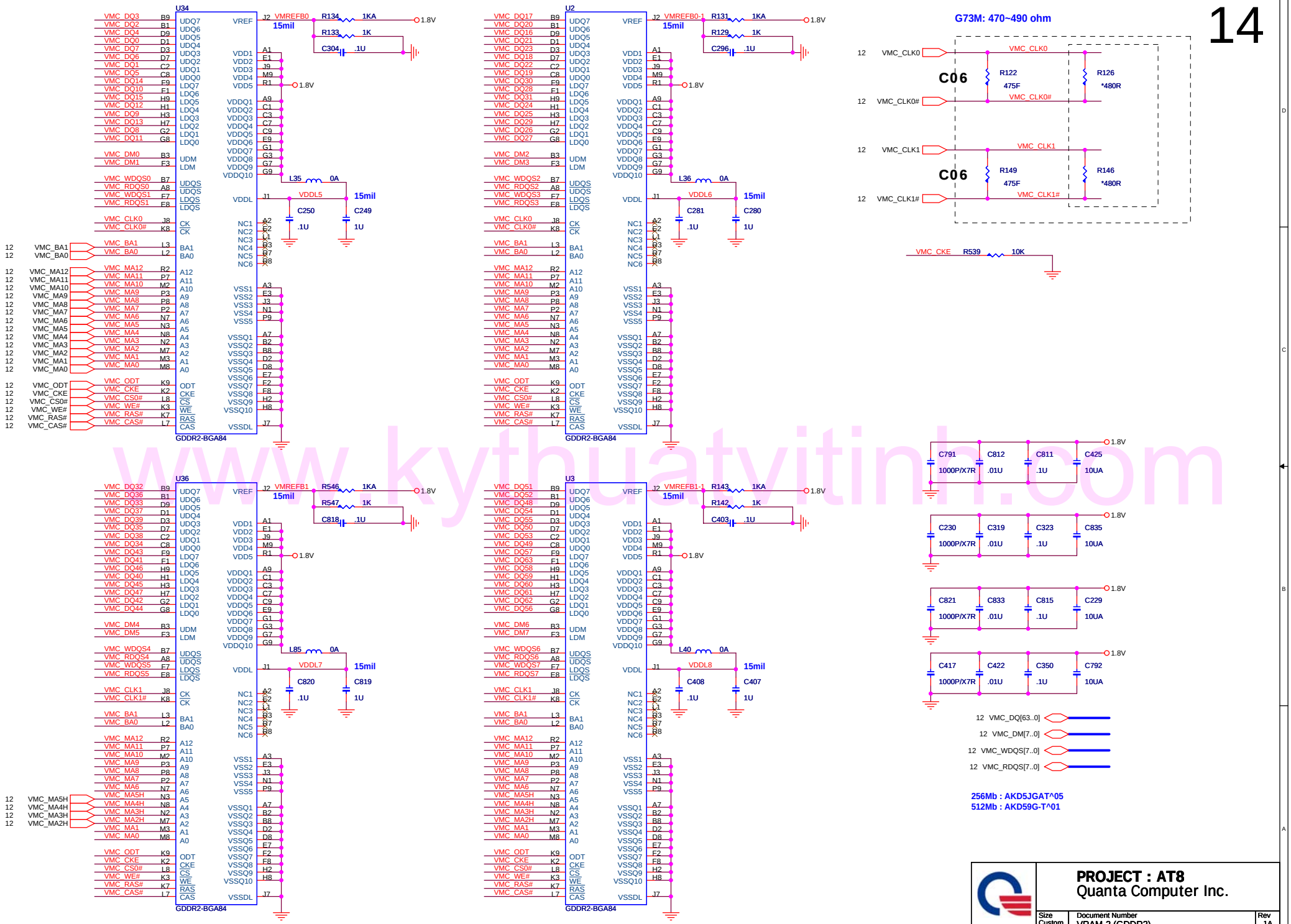
Size	Document Number	Rev
Custom	GFX (MEM INTERFACE)	1A

NB5/RD2/HW1

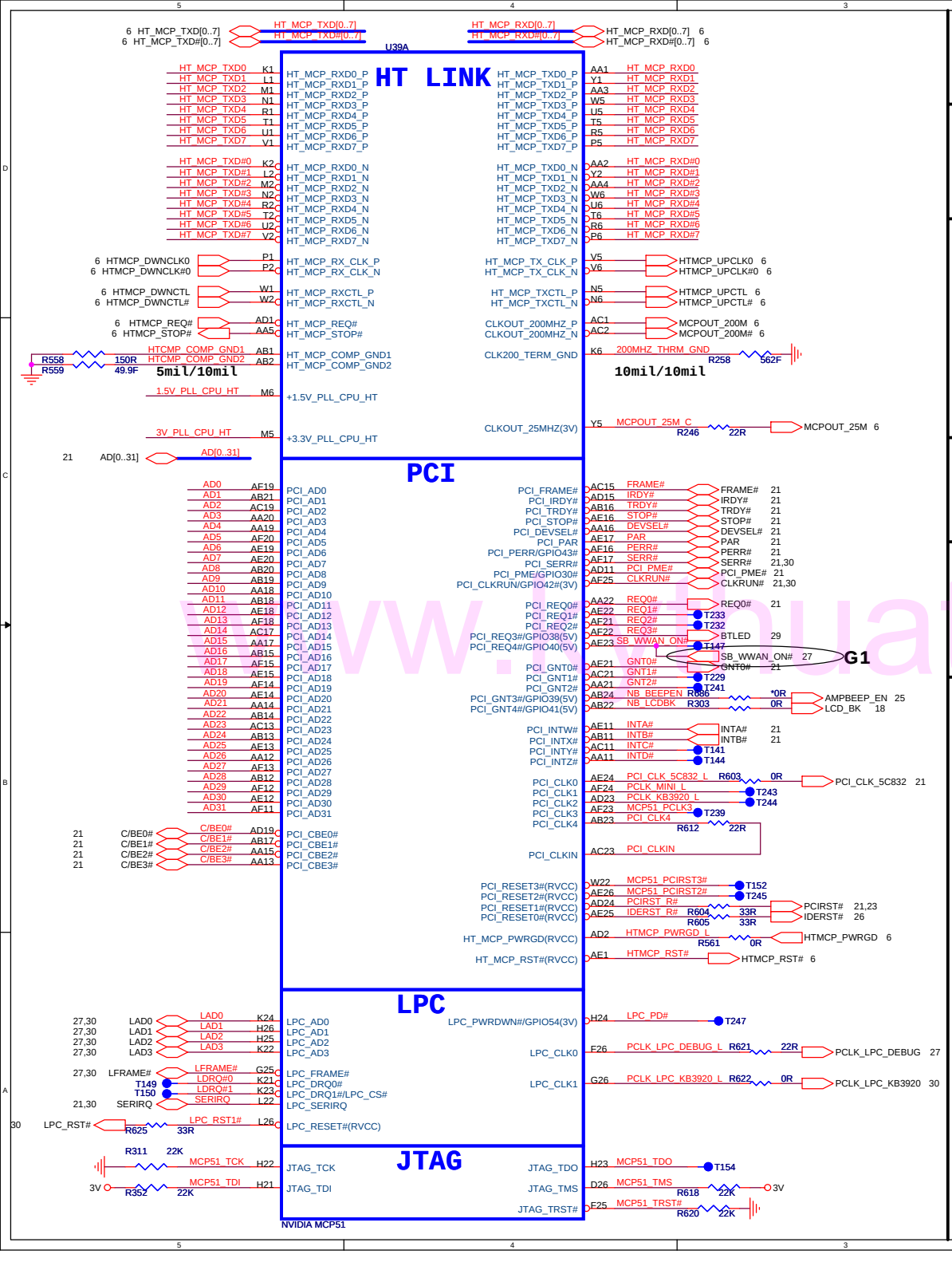
Date: Wednesday, June 14, 2006 | Sheet 12 of 39

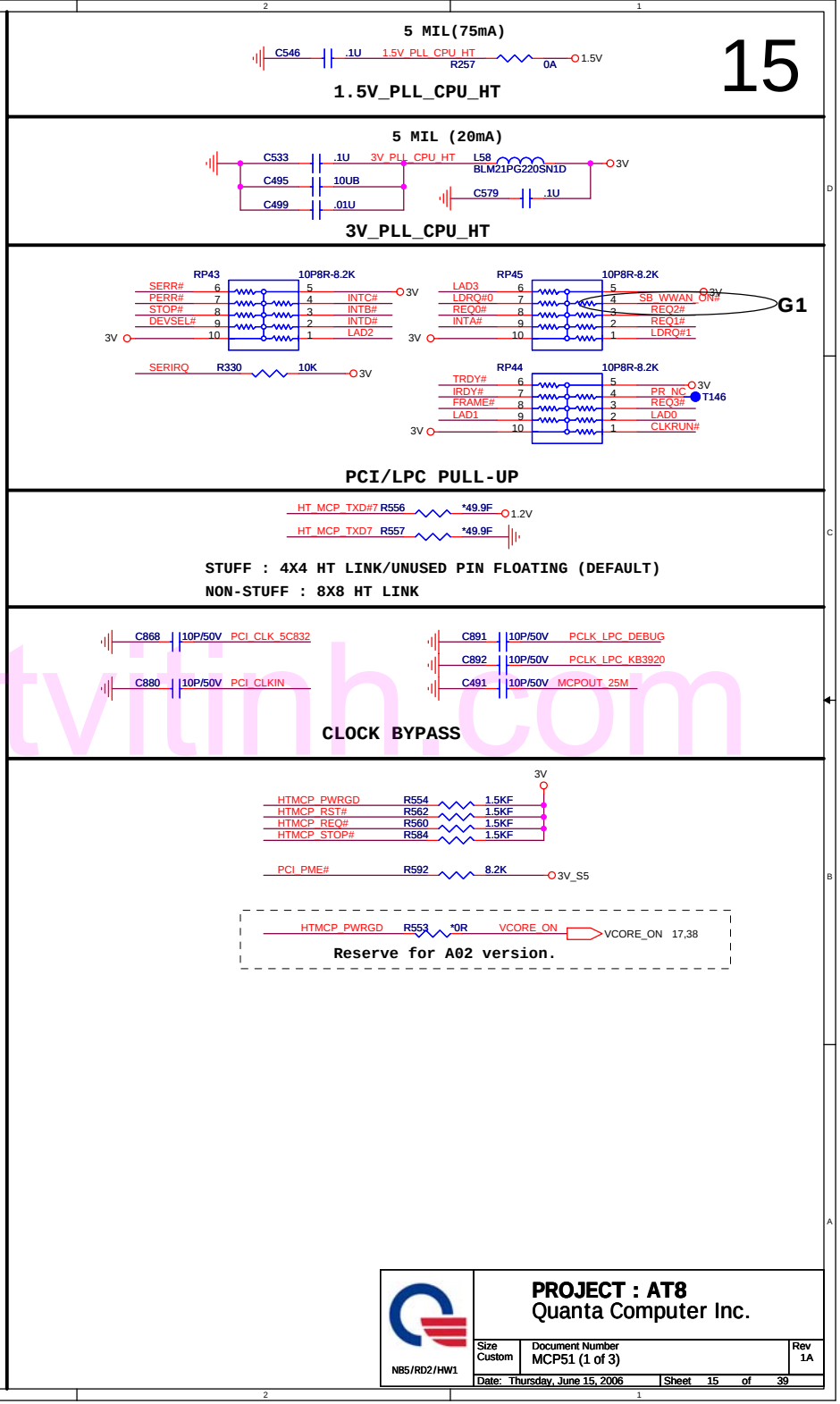


PROJECT : AT8	
Quanta Computer Inc.	
NB5/RD2/HW1	Size: Custom; Document Number: VRAM-1 (GDDR2); Rev: 1A
Date: Wednesday, June 14, 2006	Sheet 13 of 39



PROJECT : AT8	
Quanta Computer Inc.	
NB5/RD2/HW1	
Size: Custom	Document Number: VRAM-2 (GDDR2)
Rev: 1A	
Date: Wednesday, June 14, 2006	Sheet 14 of 39



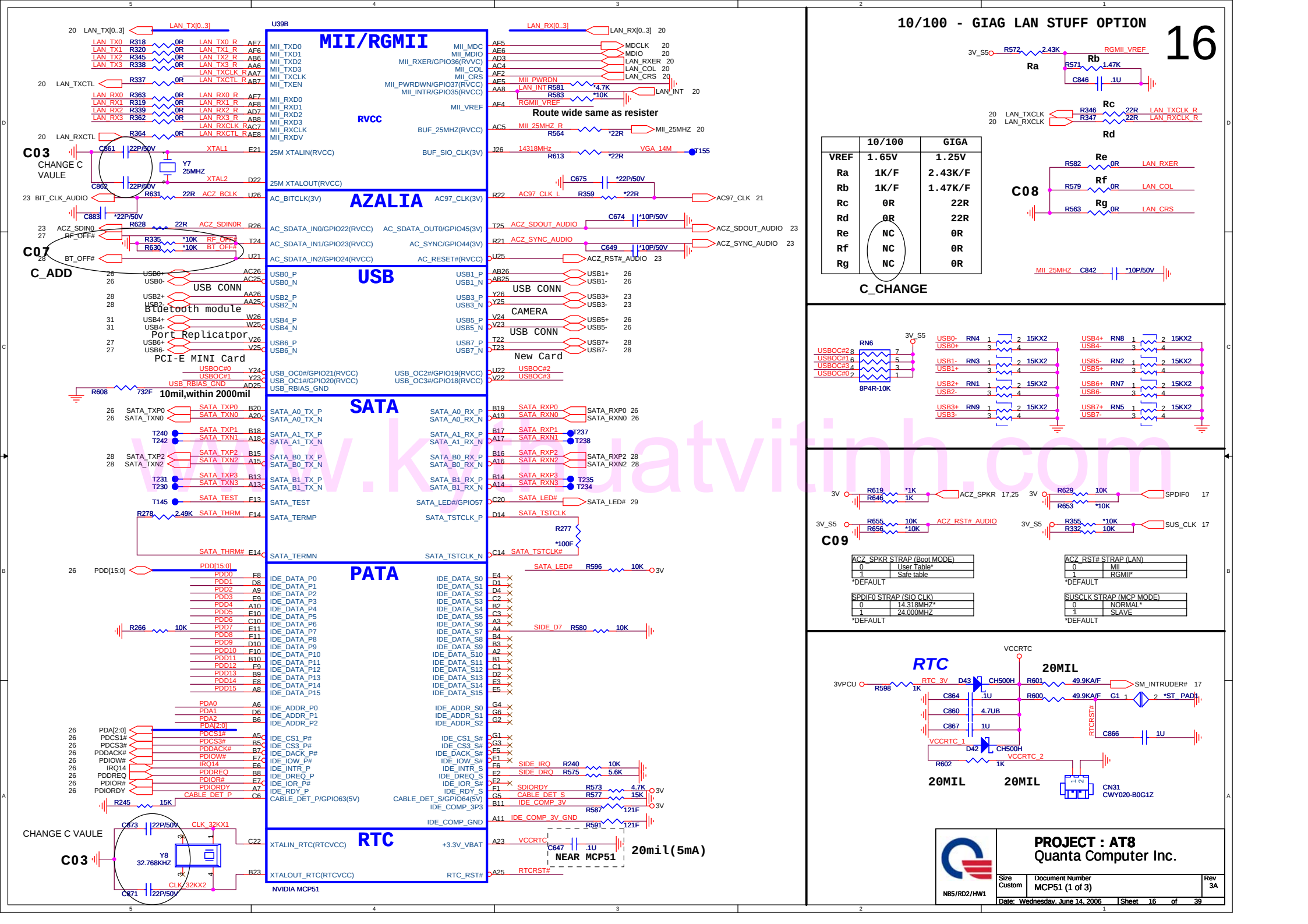


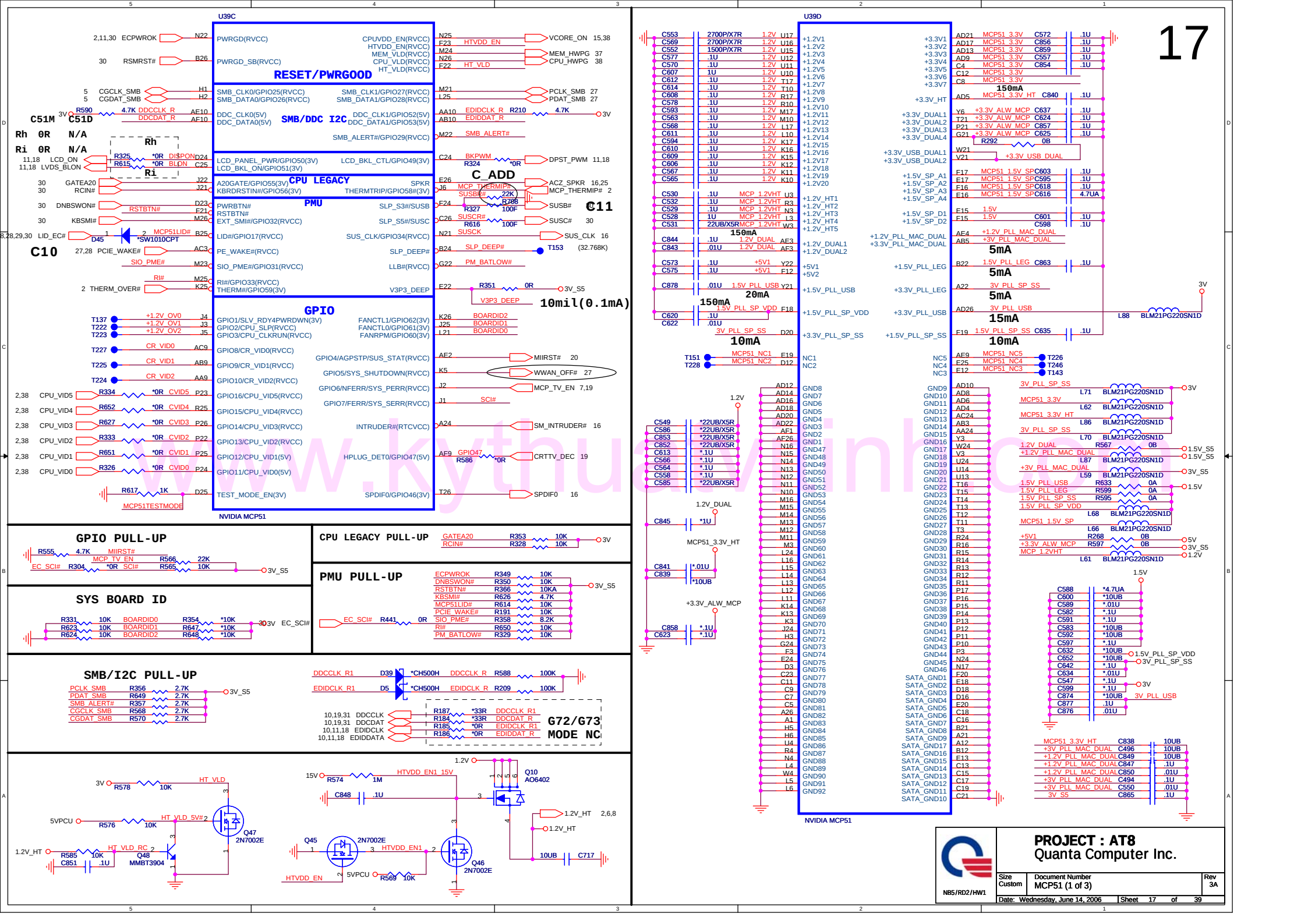
PROJECT : AT8
Quanta Computer Inc.

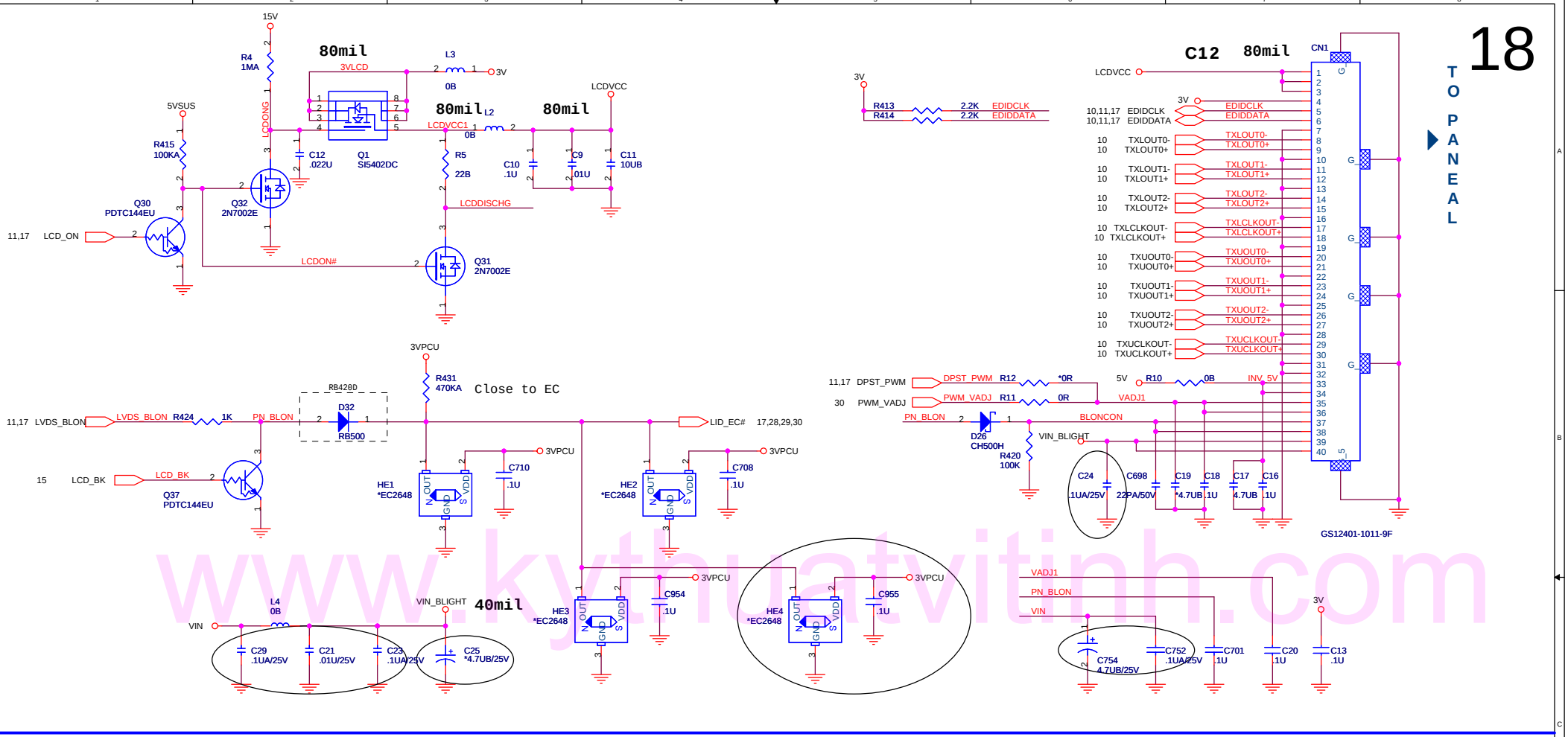
Size	Document Number	Rev
Custom	MCP51 (1 of 3)	1A

NB5/RD2/HW1

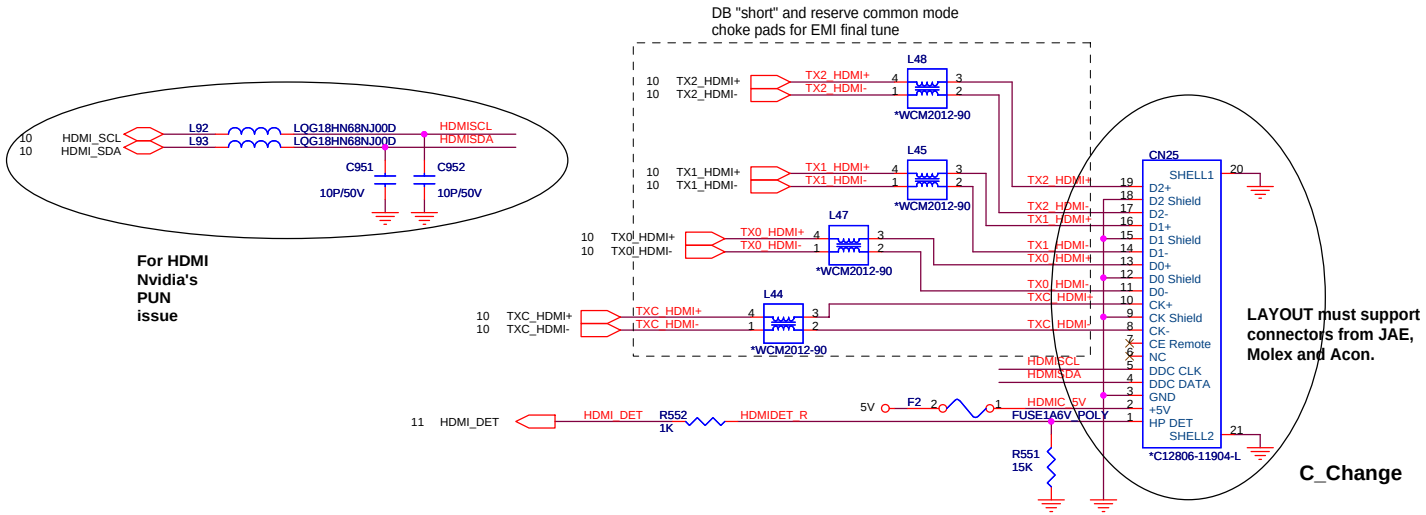
Date: Thursday, June 15, 2006 | Sheet 15 of 39





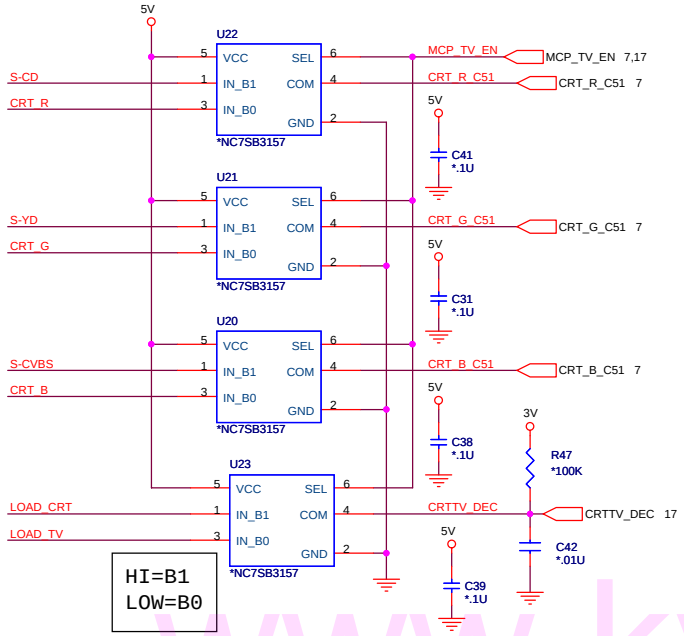


HDMI PORT

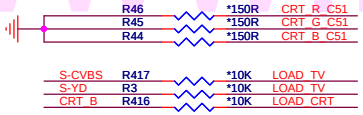


NB5/RD2/HW1	PROJECT : AT8 Quanta Computer Inc.	
Size: Custom	Document Number: LCD CONN,HDMI CONN	Rev: 3A
Date: Wednesday, June 14, 2006	Sheet 18 of 39	

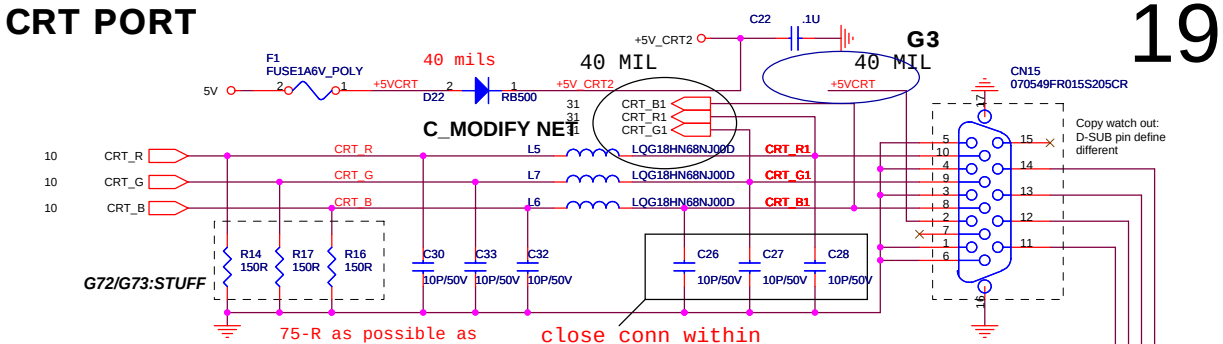
For UMA only

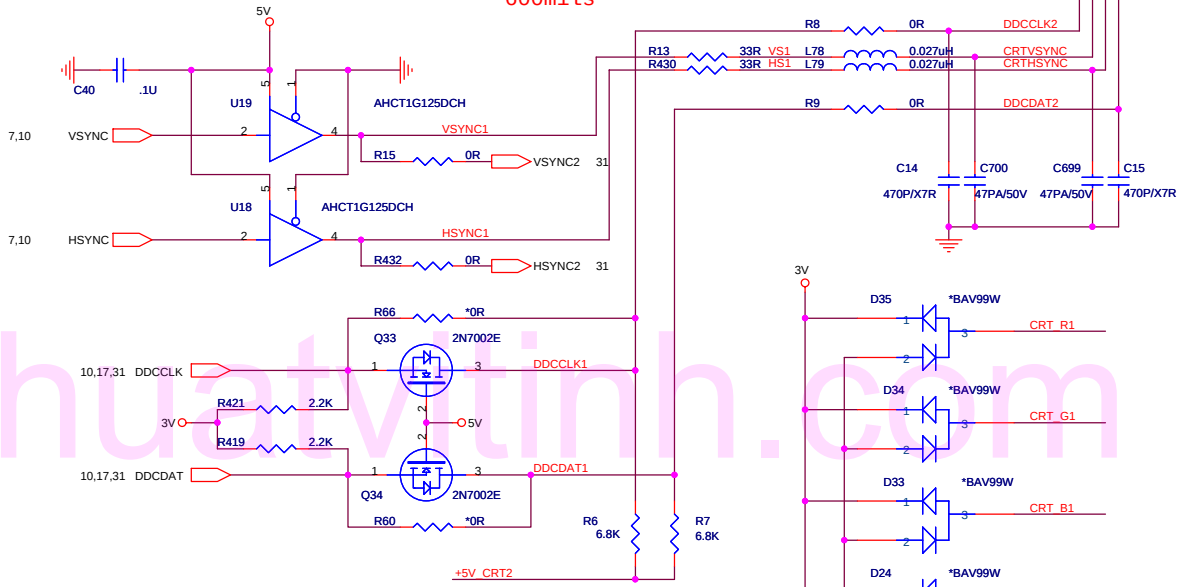


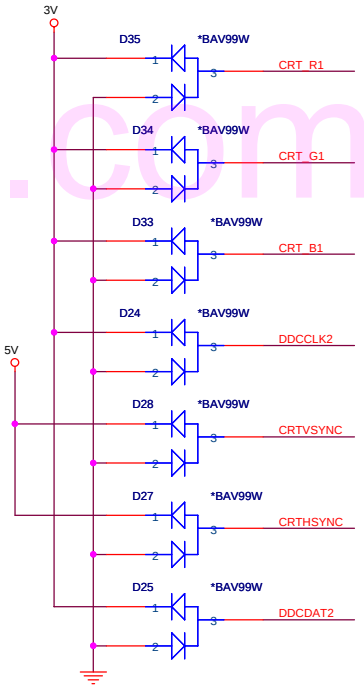
close within 600mils



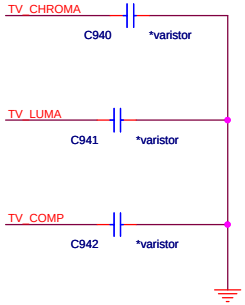
CRT PORT





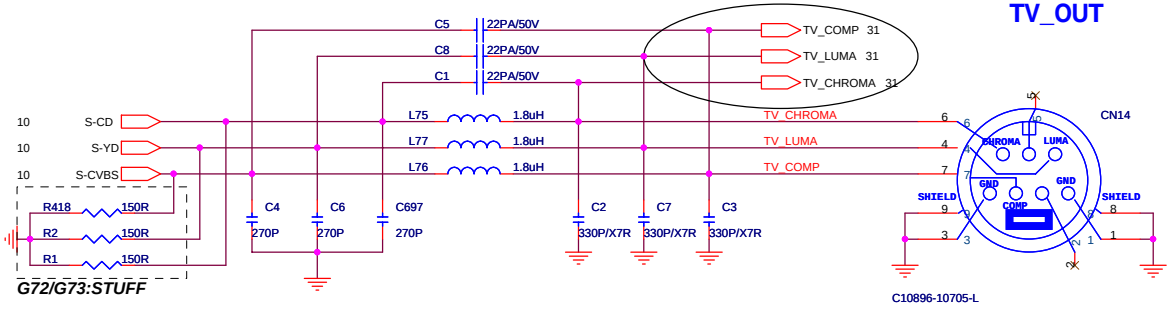


C13



C_MODIFY NET

TV_OUT



NB5/RD2/HW1

PROJECT : AT8
Quanta Computer Inc.

Size	Document Number	Rev
Custom	CRT,TV_OUT	2A

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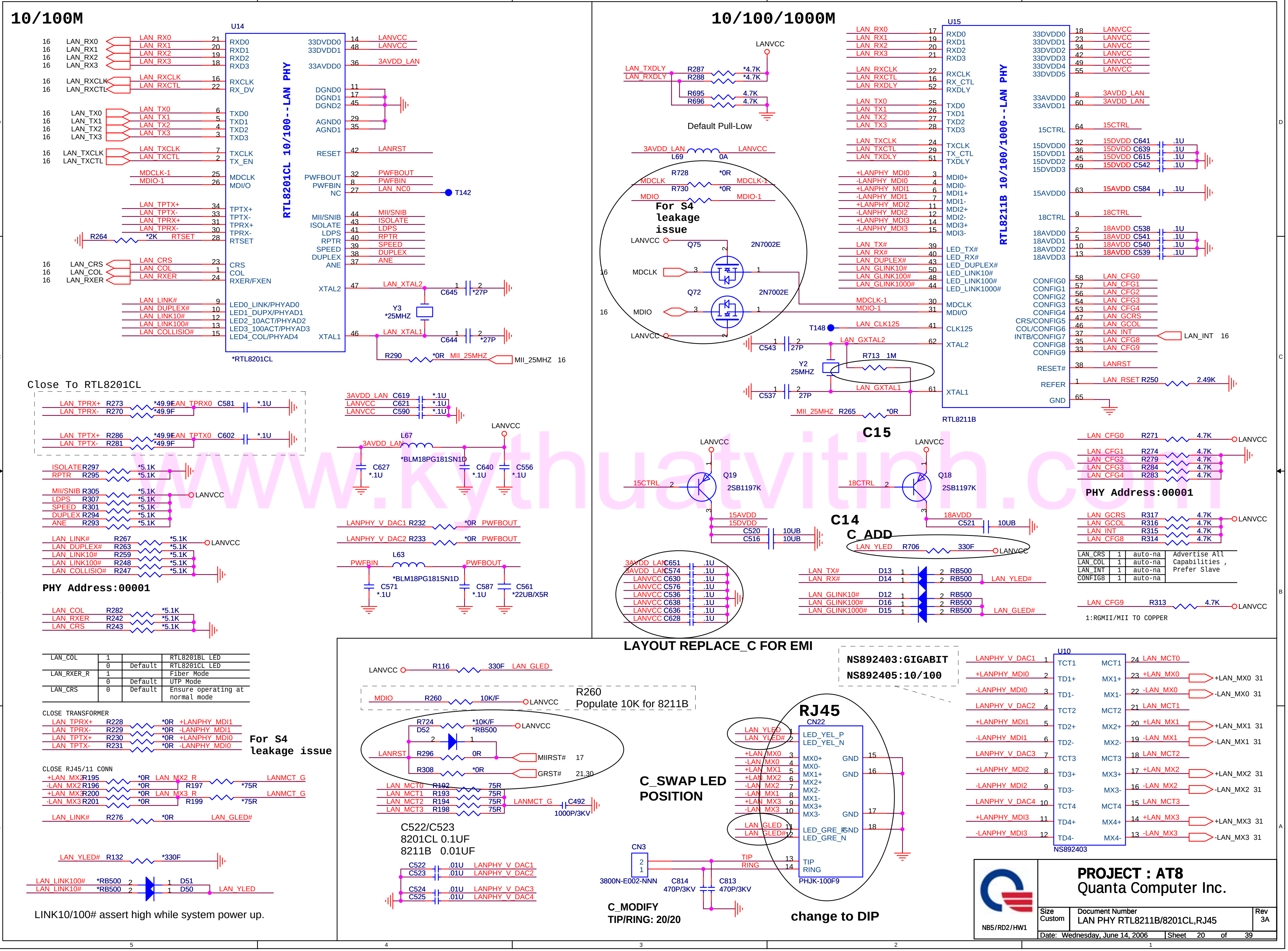

10/100M
10/100/1000M
U14
RTL8201CL 10/100--LAN PHY
*RTL8201CL
U15
RTL8211B 10/100/1000--LAN PHY
RTL8211B
Default Pull-Low
For S4 leakage issue
Close To RTL8201CL
PHY Address:00001
PHY Address:00001
C15
C14
C_ADD
LAN_COL 1 RTL8201BL LED
0 Default RTL8201CL LED
LAN_RXER_R 1 Fiber Mode
0 Default UTP Mode
LAN_CRS 0 Default Ensure operating at normal mode
LAN_CRS 1 auto-na Advertise All Capabilities , Prefer Slave
LAN_COL 1 auto-na
LAN_INT 1 auto-na
CONFIG8 1 auto-na
1:RGMII/MII TO COPPER
CLOSE TRANSFORMER
For S4 leakage issue
CLOSE RJ45/11 CONN
LINK10/100# assert high while system power up.
LAYOUT REPLACE_C FOR EMI
R260 Populate 10K for 8211B
NS892403:GIGABIT
NS892405:10/100
U10
NS892403
RJ45
CN22
PHJK-100F9
C_SWAP LED POSITION
C522/C523
8201CL 0.1UF
8211B 0.01UF
CN3
3800N-E002-NNN
C_MODIFY
TIP/RING: 20/20
change to DIP
PROJECT : AT8
Quanta Computer Inc.
NB5/RD2/HW1
Size Custom
Document Number LAN PHY RTL8211B/8201CL,RJ45
Rev 3A
Date: Wednesday, June 14, 2006
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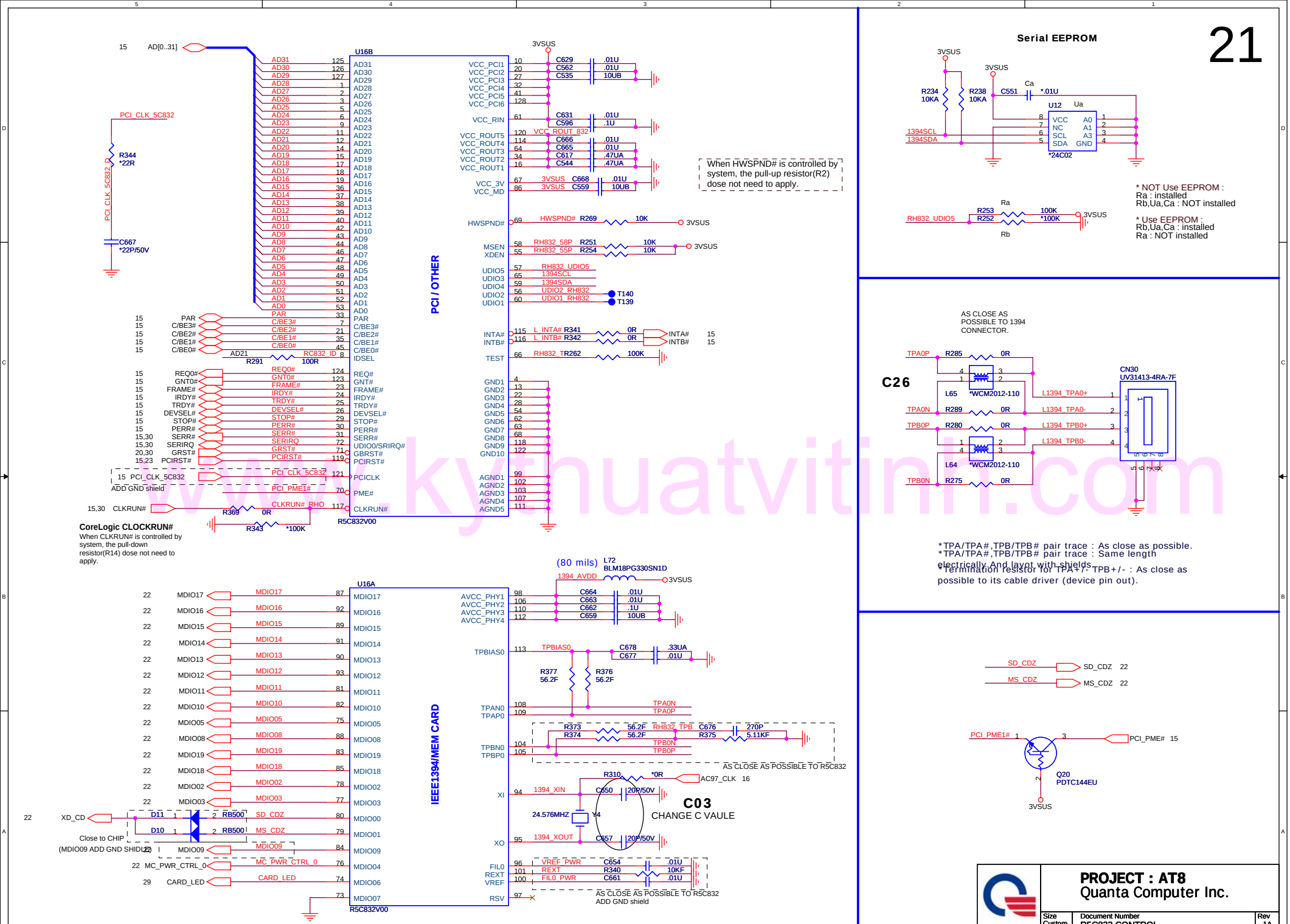
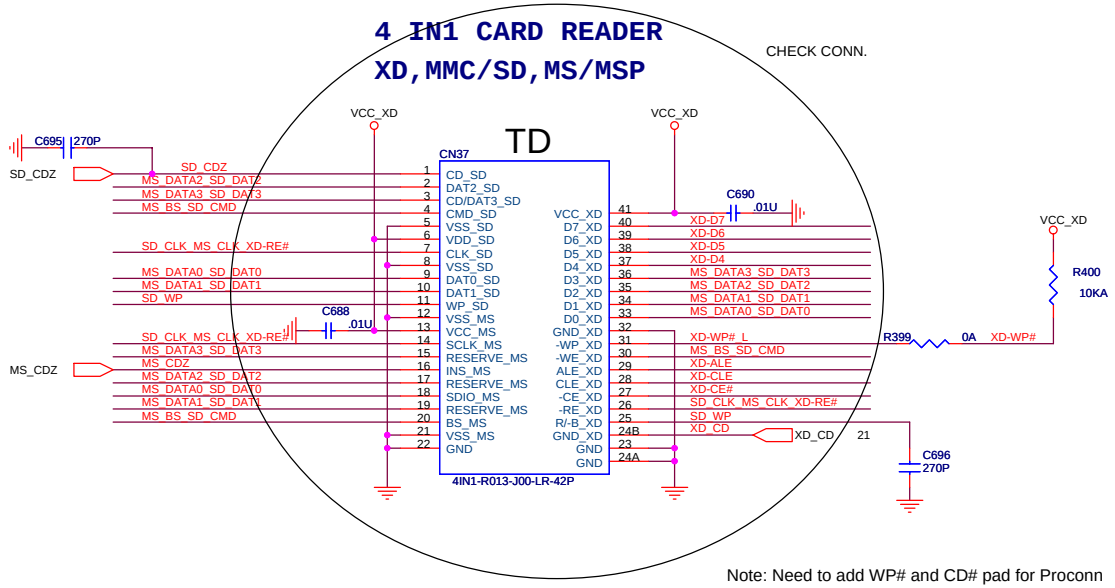


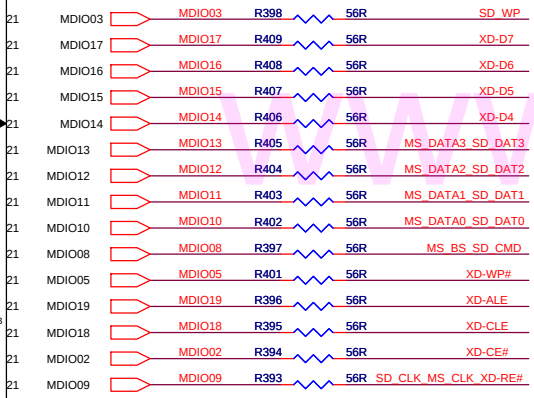
4 IN1 CARD READER
XD,MMC/SD,MS/MSP

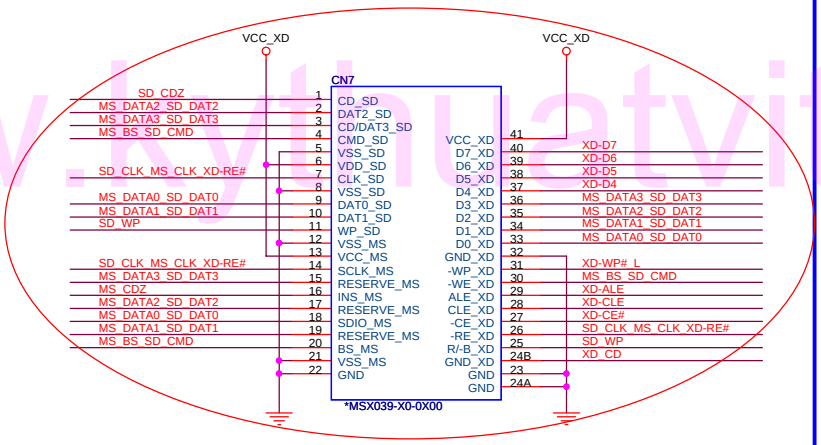
CHECK CONN.

TD

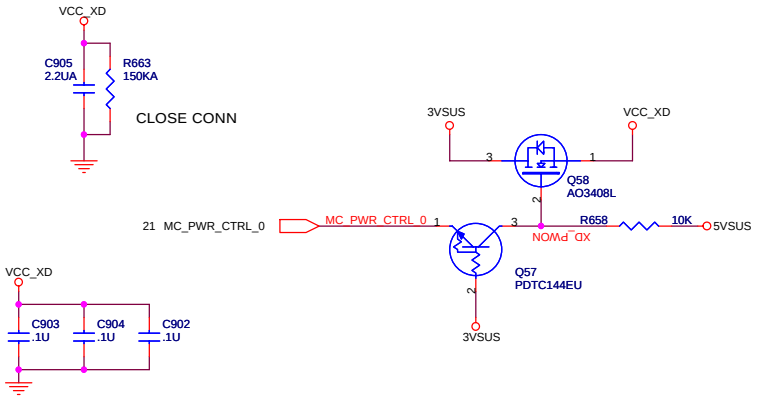


Note: Need to add WP# and CD# pad for Proconn

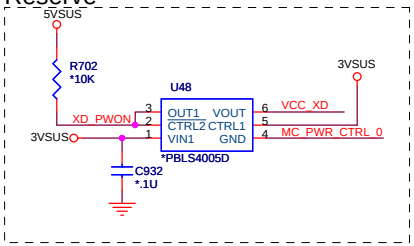




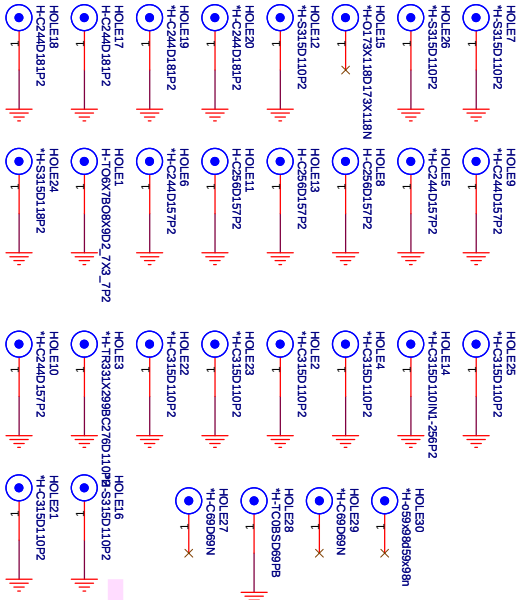
2'nd source



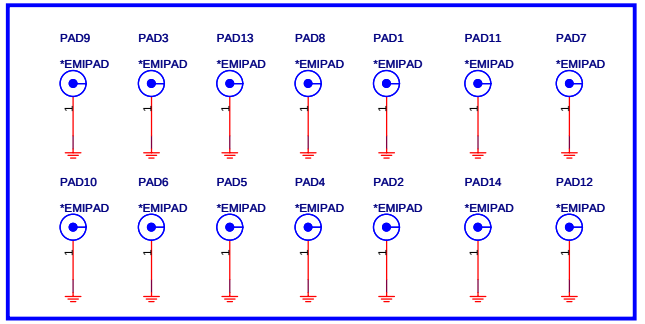
Reserve

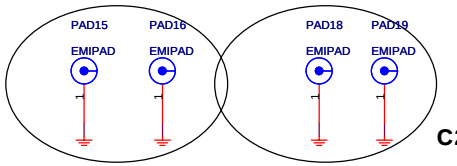


SCREW HOLE



EMI PAD





PROJECT : AT8
Quanta Computer Inc.

Size	Document Number	Rev
Custom	CARD READER CONN	3A

NB5/RD2/HW1

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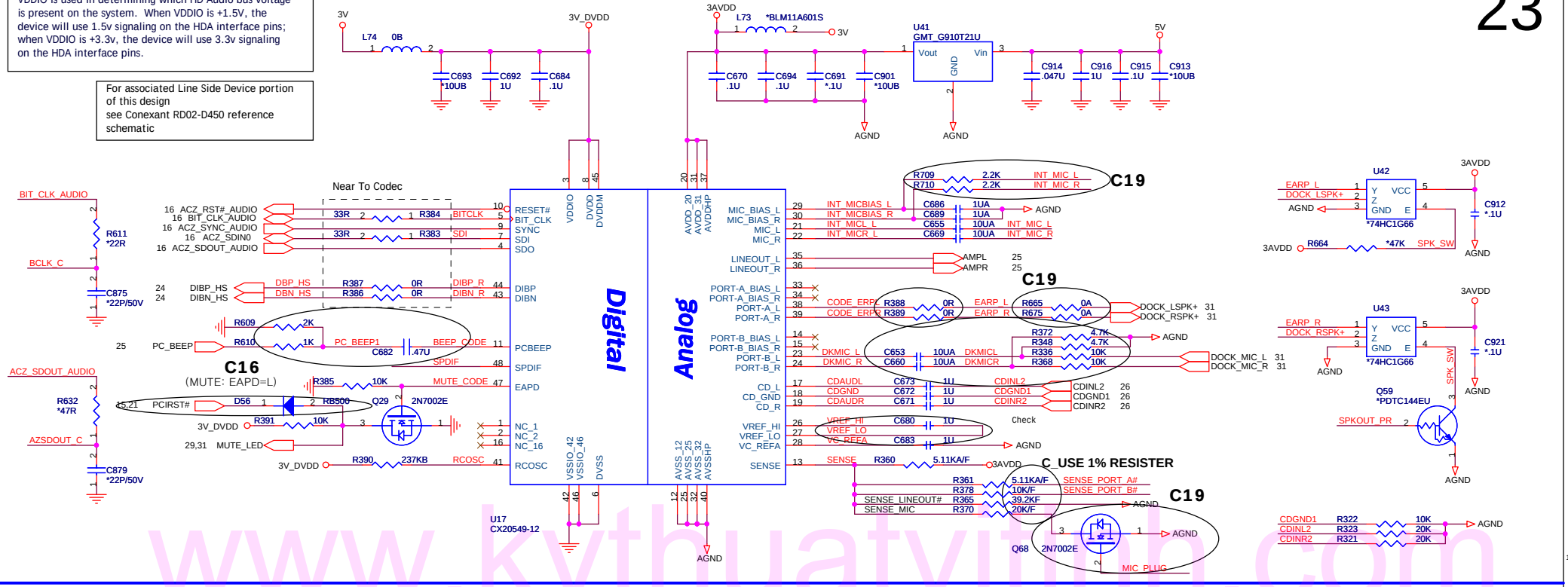
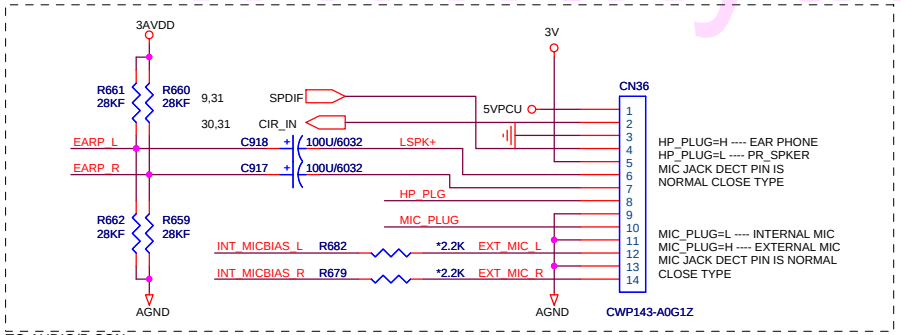
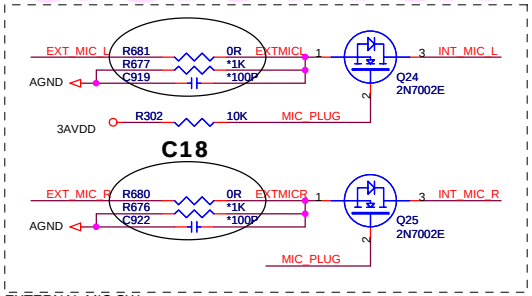
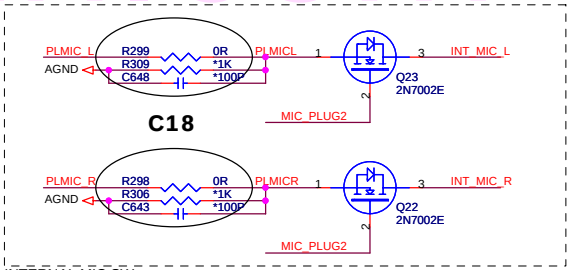
VDDIO is used in determining which HD Audio bus voltage is present on the system. When VDDIO is +1.5V, the device will use 1.5v signaling on the HDA interface pins; when VDDIO is +3.3v, the device will use 3.3v signaling on the HDA interface pins.

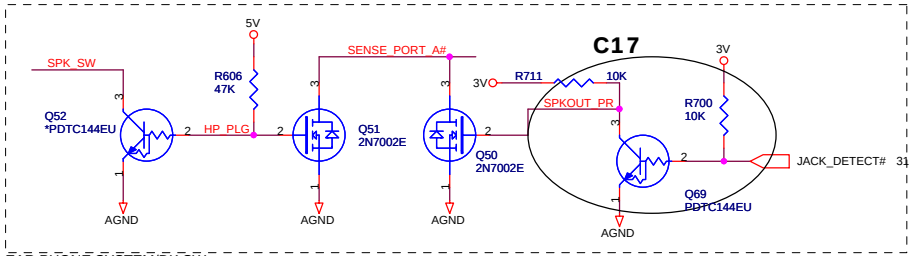
For associated Line Side Device portion of this design
see Conexant RD02-D450 reference schematic

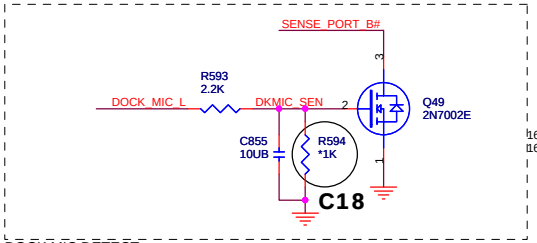


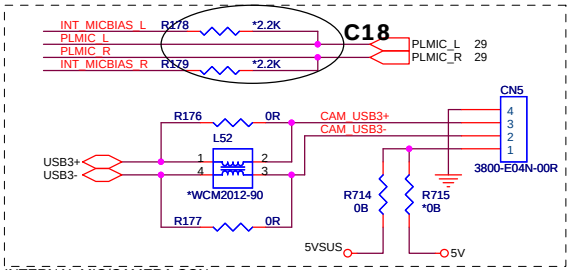


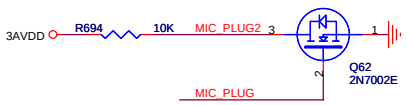












PROJECT : AT8
Quanta Computer Inc.

Size	Document Number	Rev
Custom	Azalia CTRL_CONEXANT20549-12	3A

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NB5/RD2/HW1

Revision History		
REV	Description	Date
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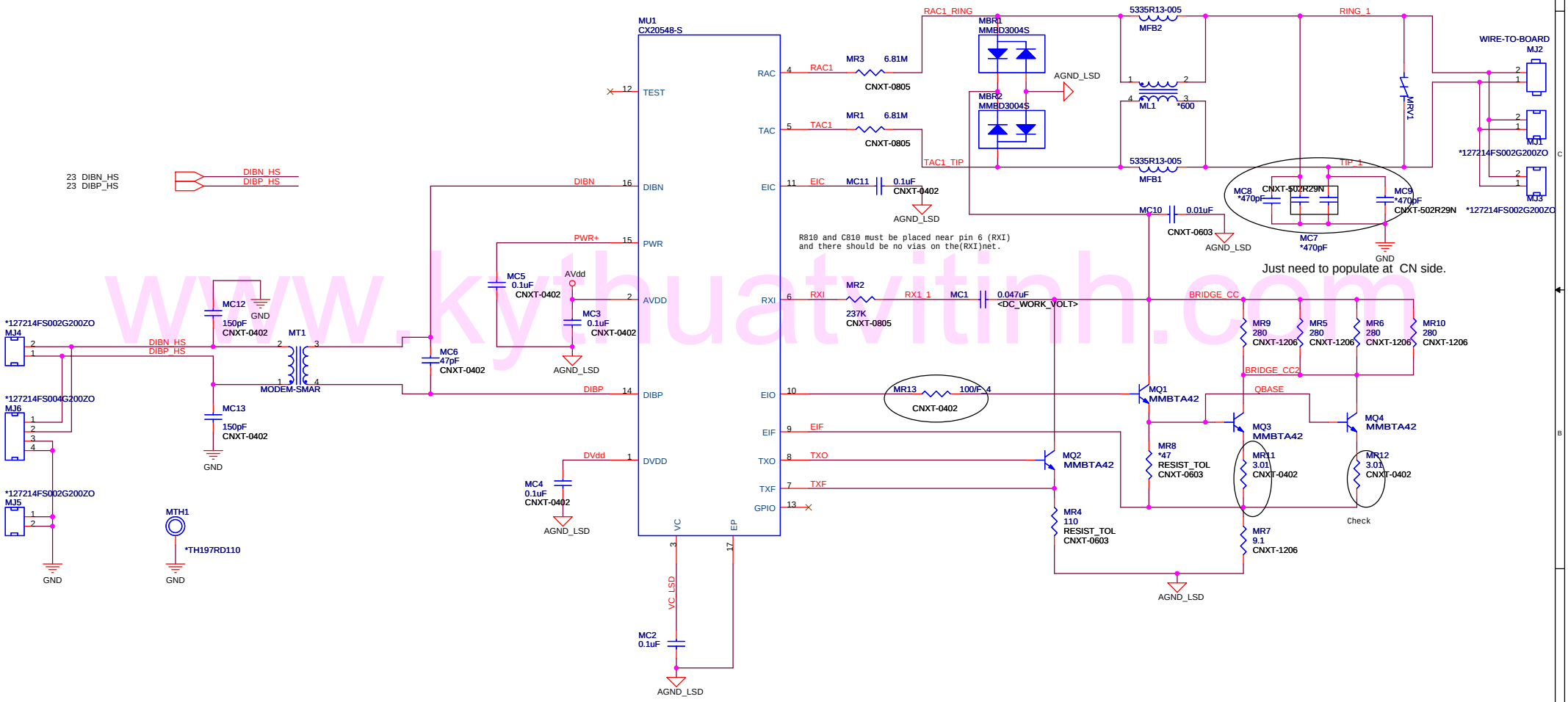
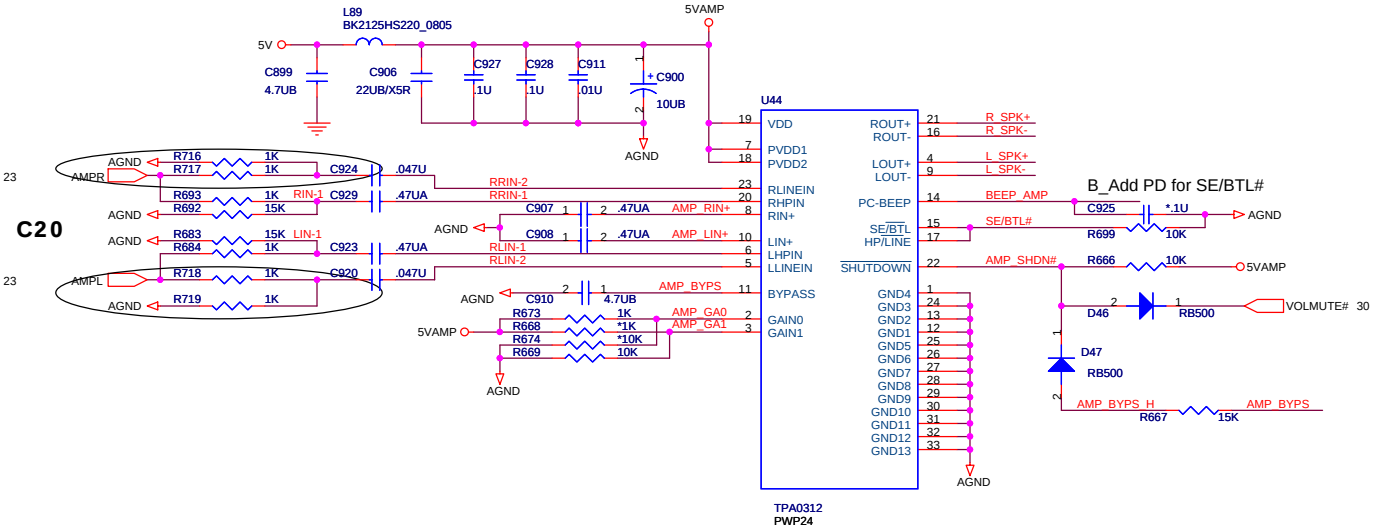
4		



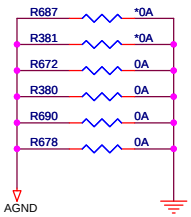
NB5/RD2/HW1	PROJECT : AT8 Quanta Computer Inc.	
	Size: Custom Document Number: MODEM (DAA)	Rev: 2A
	Date: Wednesday, June 14, 2006	Sheet 24 of 39

AUDIO AMPLIFIER

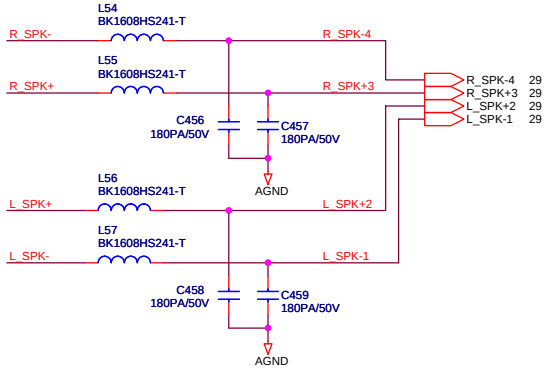


0312 Gain Table

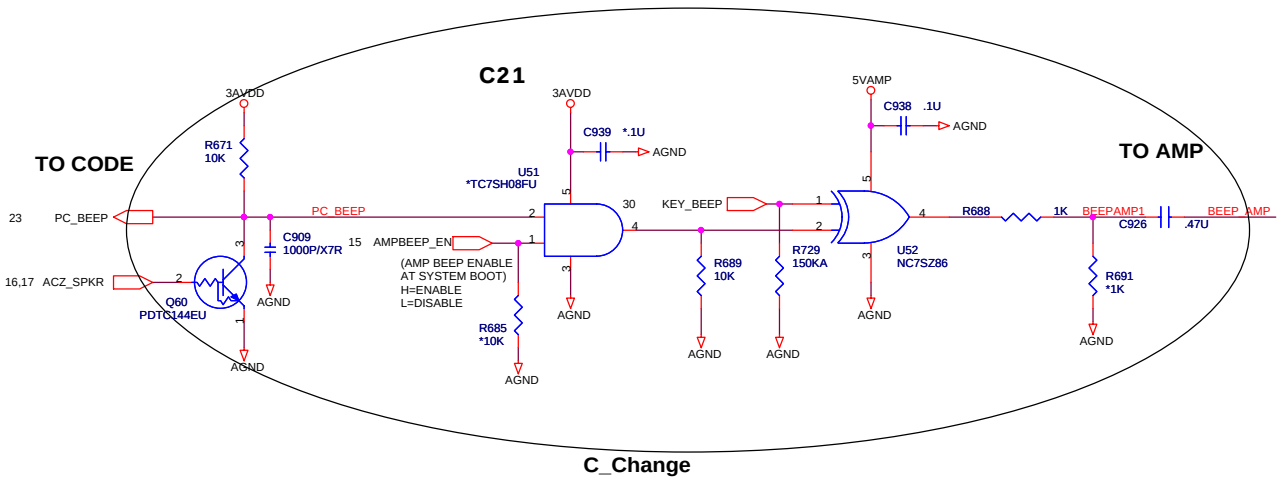
GAIN0	GAIN1	SE/BTL	AV(INV)
0	0	0	6dB
0	1	0	10dB
1	**0**	**0**	**15.6dB**
1	1	0	21.6dB
x	x	1	4.1dB



INT. SPEAKER

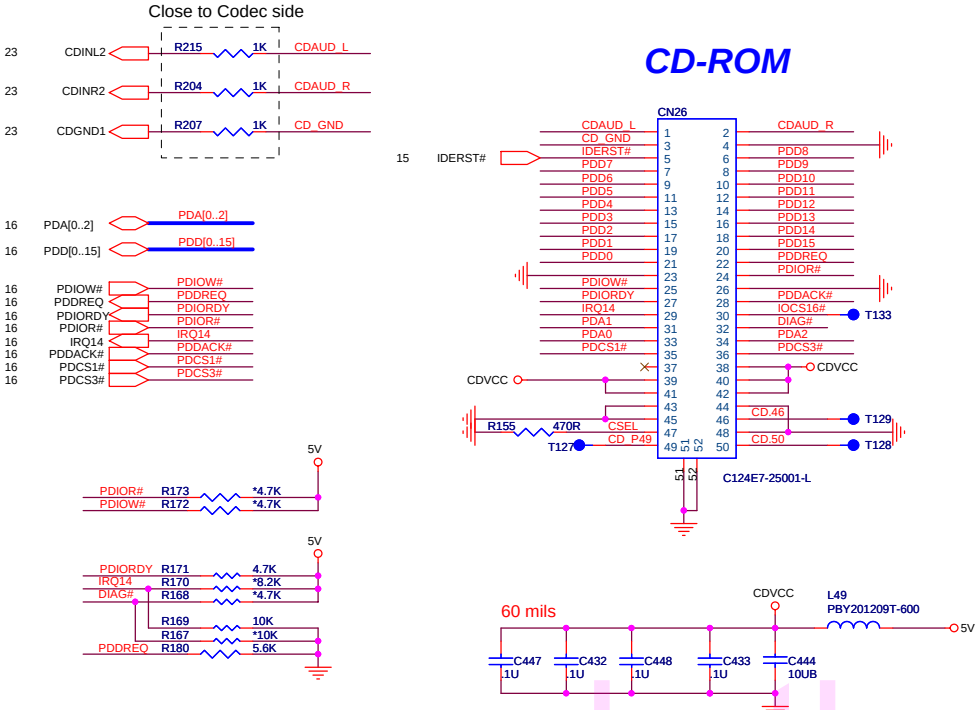


PCSPK BEEP

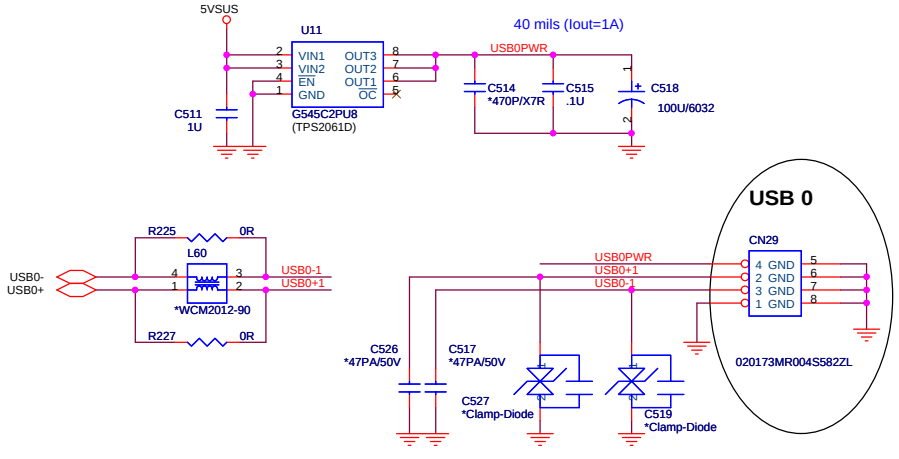


NB5/RD2/HW1	**PROJECT : AT8** Quanta Computer Inc.
Size: Custom	Document Number: JACK, AMP_TPA0312
Rev: 3A	
Date: Wednesday, June 14, 2006	Sheet 25 of 39

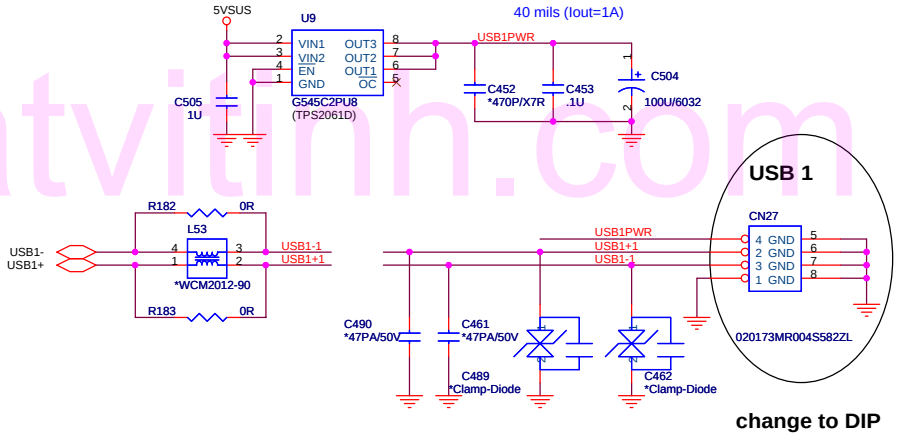
CD-ROM



USBX2

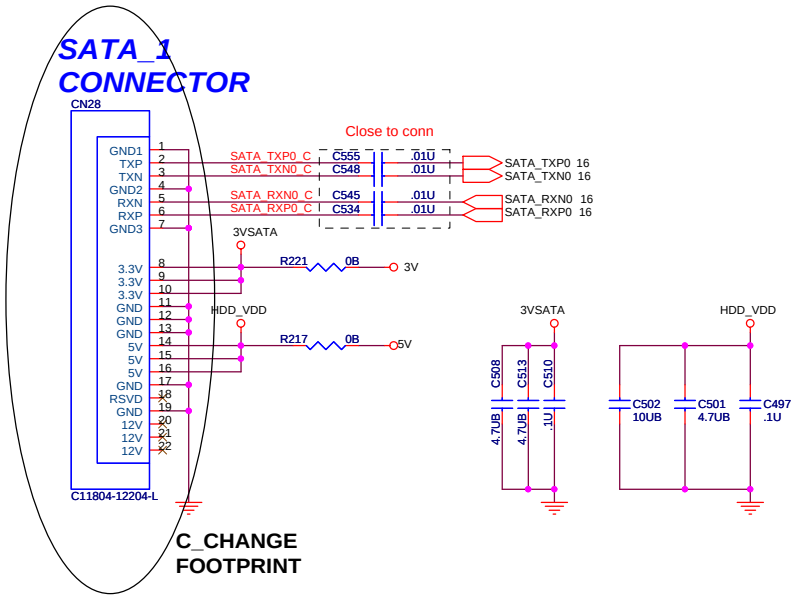


change to DIP



change to DIP

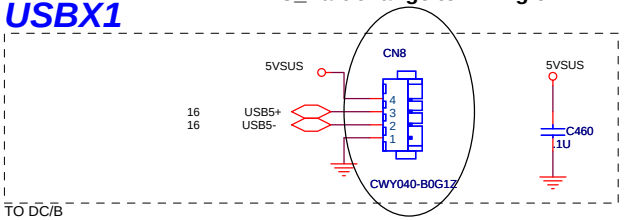
SATA_1 CONNECTOR



C_CHANGE FOOTPRINT

USBX1

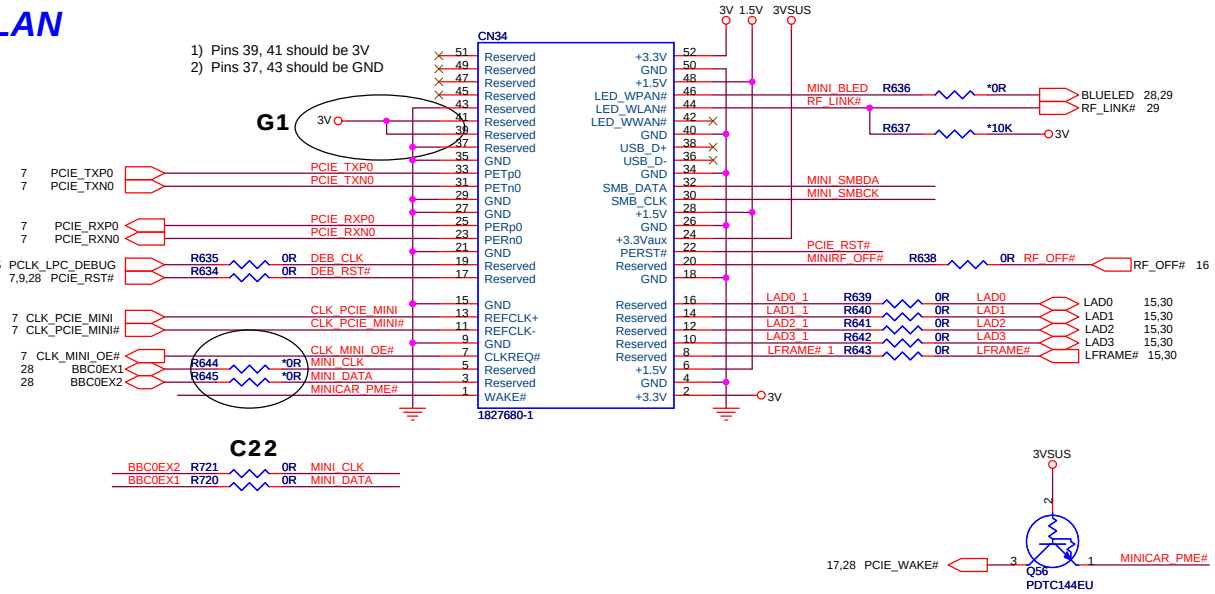
C_Part change to R-Angle

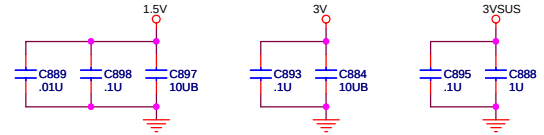


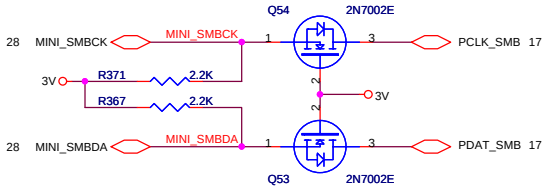
NB5/RD2/HW1	PROJECT : AT8 Quanta Computer Inc.	
Size: Custom	Document Number: SATA HDD, CD-ROM,USBX2	Rev: 3A
Date: Wednesday, June 14, 2006	Sheet 26 of 39	

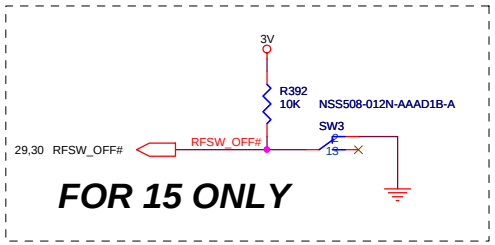
Mini PCI-E Card 1
WLAN

1) Pins 39, 41 should be 3V
2) Pins 37, 43 should be GND

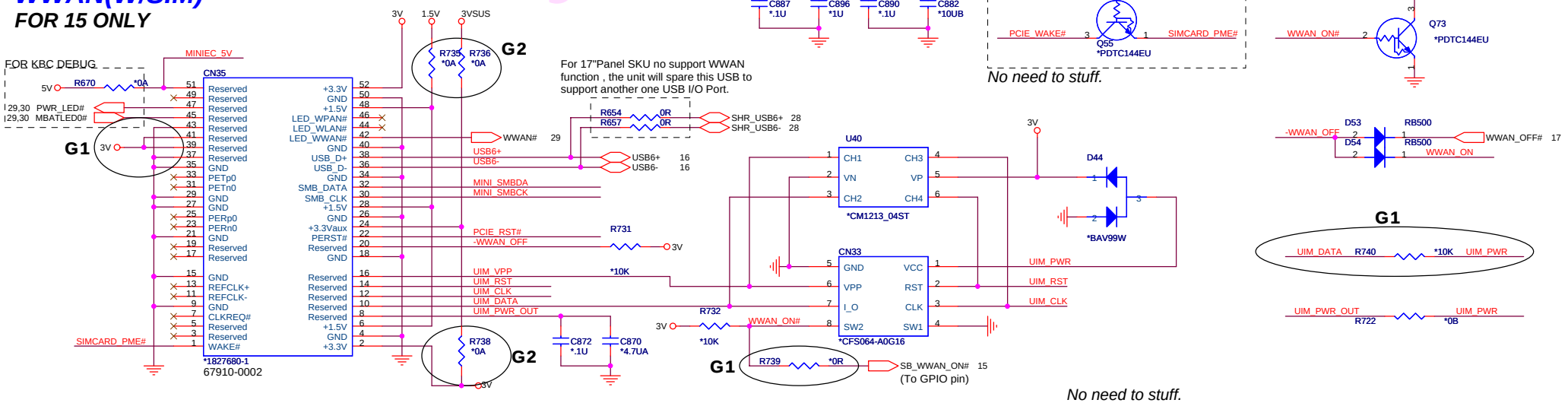






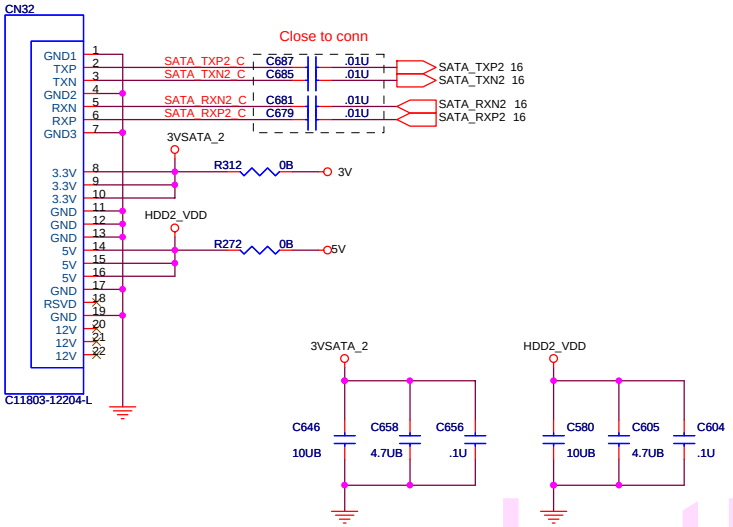


Mini PCI-E Card 2
WWAN(W/SIM)
FOR 15 ONLY

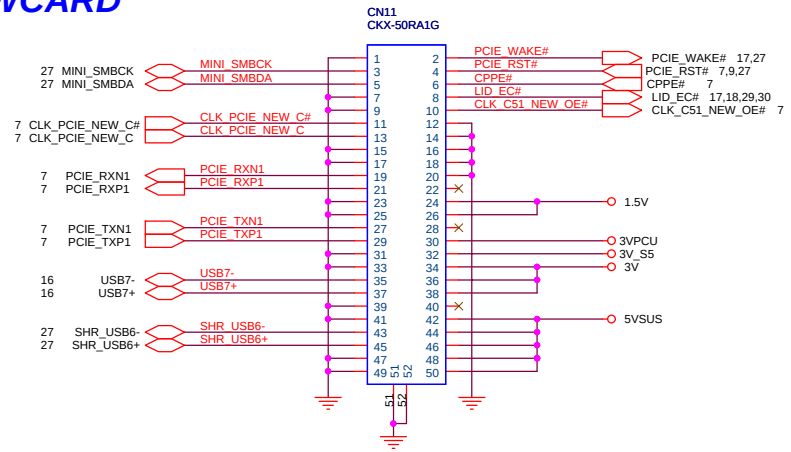


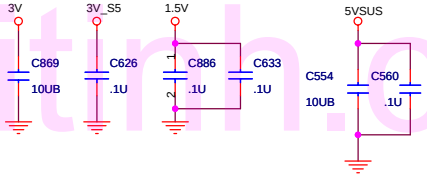
NB5/RD2/HW1	PROJECT : AT8 Quanta Computer Inc.	
Size: Custom	Document Number: MINI CARD	Rev: 3A
Date: Friday, June 16, 2006	Sheet 27 of 39	

SATA_2 CONNECTOR
For 17"W Second HDD

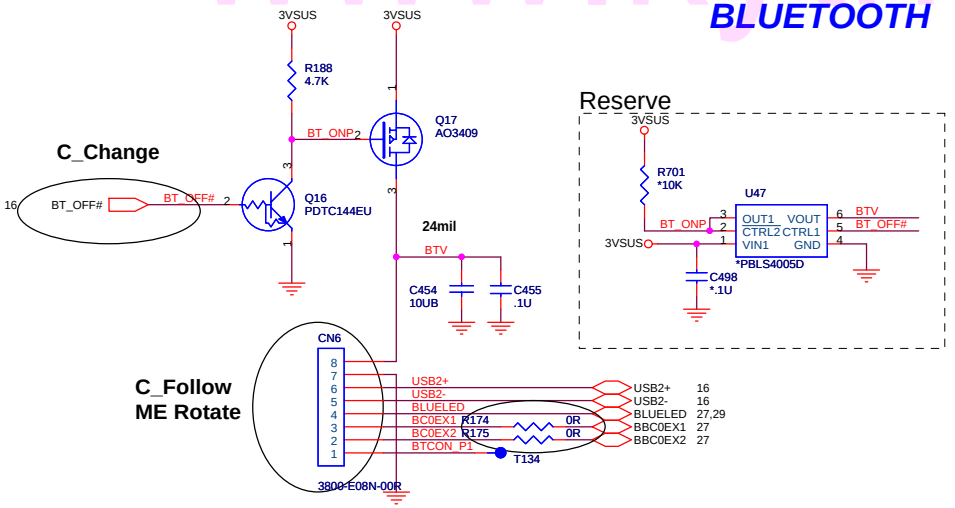


NEWCARD



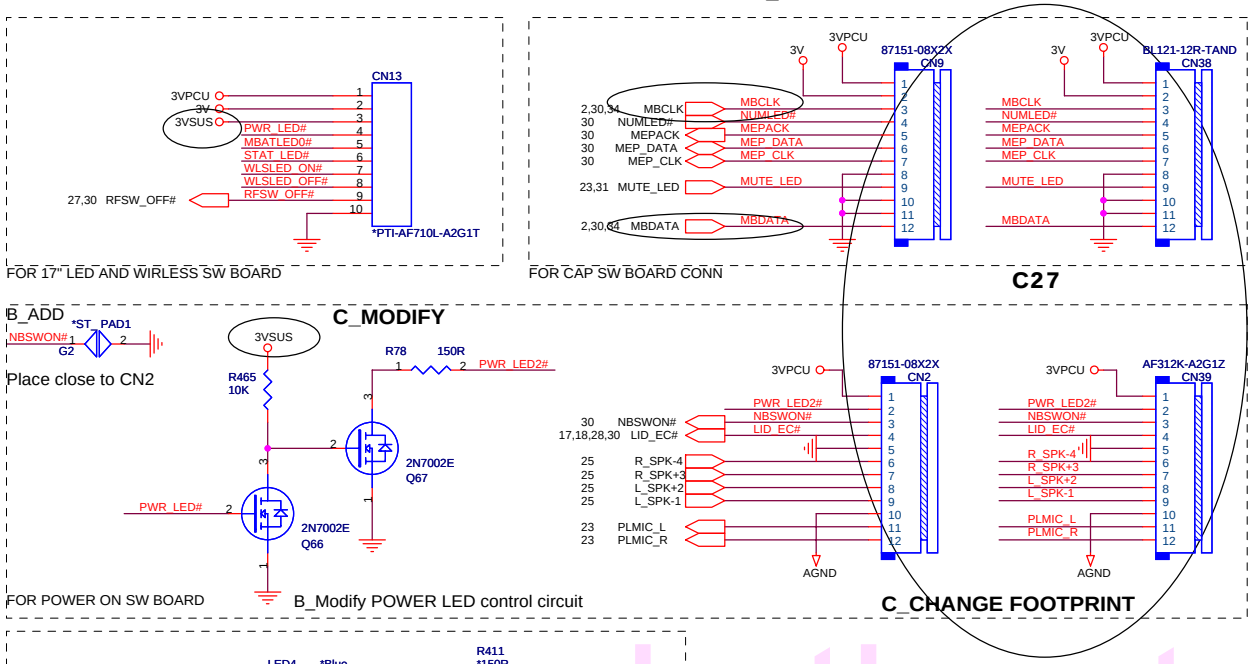


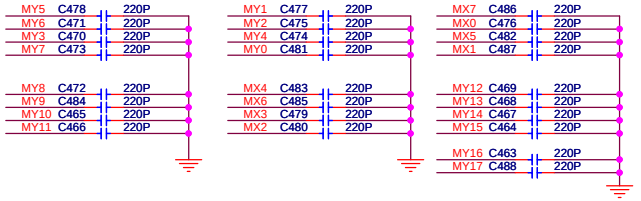
BLUETOOTH

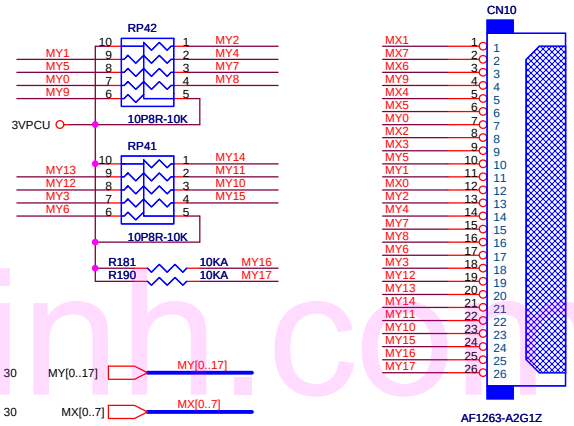


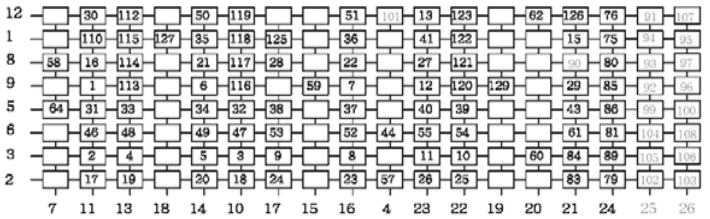
NB5/RD2/HW1	PROJECT : AT8 Quanta Computer Inc.	
Size: Custom	Document Number: NEW CARD/BT	Rev: 3A
Date: Wednesday, June 14, 2006	Sheet 28 of 39	

C_RESERVE FOR 2'ND SOURCE
C_CHANGE FOOTPRINT









PROJECT : AT8	Quanta Computer Inc.
NB5/RD2/HW1	
Size: Custom	Document Number: LED/KEYBOARD/TP
Rev: 3A	
Date: Wednesday, June 14, 2006	Sheet 29 of 39

STRAP PIN

MY0	47	TP_TEST: Clock Test Mode Low: Test Mode. HIGH: 32kHz clock in normal runing
MY1	48	TP_PLL: DPLL Test Mode Low: Test Mode. HIGH: Normal operation
MY2	49	TP_SPI: Default flash access Low: Boot from SPI flash part HIGH: Boot from ISA flash part
MY3	50	TP_ISP: In System Programming Mode Low: ISP mode HIGH: Normal Mode

MY0 R213 *10K
MY1 R214 *10K
R205 *10K
R206 *10K
MY2 R203 *10K
R202 *10K
3VPCU
MY2 R189 *0R BIOS_A19

BIOS ROM

8Mbit (1M Byte), TSSOP40

U8 — 39VF080

BIOS_A0 21 … BIOS_A19 37
A0 A1 A2 A3 A4 A5 A6 A7 A8 A9 A10 A11 A12 A13 A14 A15 A16 A17 A18 A19
DQ0 DQ1 DQ2 DQ3 DQ4 DQ5 DQ6 DQ7
VDD_1 VDD_2
NC1 NC2 NC3 NC4 NC5
OE WE CE
VSS_1 VSS_2
BIOS_D0 25 … BIOS_D7 35
BIOS_RD# 24
BIOS_WR# 9
BIOS_CS# 22
3VPCU
C500 .1U
R707 100K 3VPCU
C937 .1U

C24

4Mbit (512k Byte), TSSOP32

U46 — *39VF040

BIOS_A0 20 … BIOS_A17 6
A0 A1 A2 A3 A4 A5 A6 A7 A8 A9 A10 A11 A12 A13 A14 A15 A16 A17
D0 D1 D2 D3 D4 D5 D6 D7
A18
VCC 8 3VPCU
CE# OE# WE#
GND 24
BIOS_D0 21 … BIOS_D7 29
BIOS_A18 9

B_Use SSOP32 to replace PLCC32

TOUCH PAD CONNECTOR

25 mils

5VSUS L46 BK1608HS800-T 5VTP C429 .1U
TPCLK L43 SBK160808T-221 TPCLK-1
TPDATA L41 SBK160808T-221 TPDATA-1
C424 *10P/50V
C421 *10P/50V
CN4 AF1043-A2G12

C_Change footprint

(Amber) LED2 R211 *150R R212 *150R
TP_LED0# TPLD1 3V
TP_LED1# TPLD2 3V
(Blue) *LED BLUE/AMBER
FOR 15.4"

SW1 MX4 MY7 *NTC031-AA1G-A160T FOR 15.4"
SW2 MX4 MY7 NTC031-AA1G-A160T FOR 17"

(Amber) LED3 R249 150R R256 150R
TP_LED0# TPLD3 3V
TP_LED1# TPLD4 3V
(Blue) LED BLUE/AMBER
FOR 17"

C_ADD

15,21 SERR# D55 *RB500

KB3920

U6

SERIRQ LFRAME# LAD0 LAD1 LAD2 LAD3 PCICLK PCIRST/GPIO5 CLKRUN
SCI/GPIOE GA20/GPIO0 KBRST/GPIO1 ECRST
KSI0/GPIO30 … KSI7/GPIO37
KSO0/GPIO20 … KSO17/GPIO49
PSCLK1/GPIO4A PSDAT1/GPIO4B PSCLK2/GPIO4C PSDAT2/GPIO4D PSCLK3/GPIO4E PSDAT3/GPIO4F
RD WR SELMEM/SPICS SELIO/GPIO50 SELIO2/GPIO43
D0/GPXD0 … D7/GPXD7
A0/GPXA0 … A19/GPIO51
VCC1 VCC2 VCC3 VCC4 VCC5 VCC6 AVCC
GND1 GND2 GND3 GND4 GND5 GND6 AGND
AD0/GPI38 AD1/GPI39 AD2/GPI3A AD3/GPI3B
DA0/GPO3C DA1/GPO3D DA2/GPO3E DA3/GPO3F
PWM1/GPIOF PWM2/GPIO10
FANPWM1/GPIO12 FANPWM2/GPIO13 FANFB1/GPIO14 FANFB2/GPIO15
SCL1/GPIO44 SDA1/GPIO45 SCL2/GPIO46 SDA2/GPIO47
GPIO2 GPIO3 GPIO4 GPIO6 GPIO7 GPIO8 GPIO9 GPIOA GPIOB GPIOC GPIOD GPIO11 GPIO16 GPIO17 GPIO18
GPIO19 GPIO1A GPIO1B GPIO1C GPIO1E GPIO1F GPIO40 GPIO41 GPIO42 GPIO52 GPIO53 GPIO54 GPIO55 GPIO56 GPIO57 GPIO58 GPIO59
XCLKO XCLKI

SLPBTN# R733 *0R
NBSWON# R734 0R SLP_BTN# 31
3VPCU
C450 .1U … C512 10UB
TEMP_MBAT 34 MBATV 34 AD_AIR 34 SYS_I 34
CC-SET 34 CELL_SET 34 T132 D/C# 34
PWM_VADJ 18 KEY_BEEP 25
PWMFAN1 31 PWMFAN2 31 FANSIG1 31 CIR_IN 23,31
MBCLK 2,29,34 MBDATA 2,29,34
T131
S5_ON 32,36 SUSON 32,37 SUSB# 17 MAINON 32,34,35,36,37 HWPG 33,35,36
MEPACK 29 SUSC# 17
T135 NBSWON# 29 BL/C# 34 MBATLED0# 27,29 PWR_LED# 27,29
T136 NUMLED# 29 LAN_POWER 32 ACIN 11,34 VOLME_UP# 31 VOLME_DN# 31 LID_EC# 17,18,28,29 GRST# 20,21
T248 CAPSLED# 29
EC_PROCHOT# 2
C507 10P/50V
Y1 32.768KHZ
C506 10P/50V

3VPCU R220 470K EC_RST# D6 CH500H SYS_SHDN# 33
C503 1U
PWROK D3 SW1010CPT ECPWROK 2,11,17
DNBSWON#1 D4 SW1010CPT DNBSWON# 17
KBSMI#1 D7 SW1010CPT KBSMI# 17

3V_S5
R157 10K ECPWROK
R226 10K SUSB#
3VPCU
R261 *100K CIR_IN
R255 10K NBSWON#
R218 10K VOLME_UP#
R216 10K VOLME_DN#
R164 10K SLP_BTN#
R162 10K MBCLK
R161 10K MBDATA
R697 10K MEP_CLK
R698 10K MEP_DATA
3V
R239 *470K LAD0
R236 *470K LAD1
R235 *470K LAD2
R224 *470K LAD3
R222 *470K SERIRQ
R223 470K LFRAME#
R244 10K HWPG
5VSUS
R166 4.7K TPCLK
R165 4.7K TPDATA

U13 *M25P80
BIOS_CS# BIOS_RD# BIOS_WR# SPI_CLK
CS DO DI CLK VCC HOLD WP GND
SPI_7P SPI_3P
R241 *10K R237 *10K 3VPCU

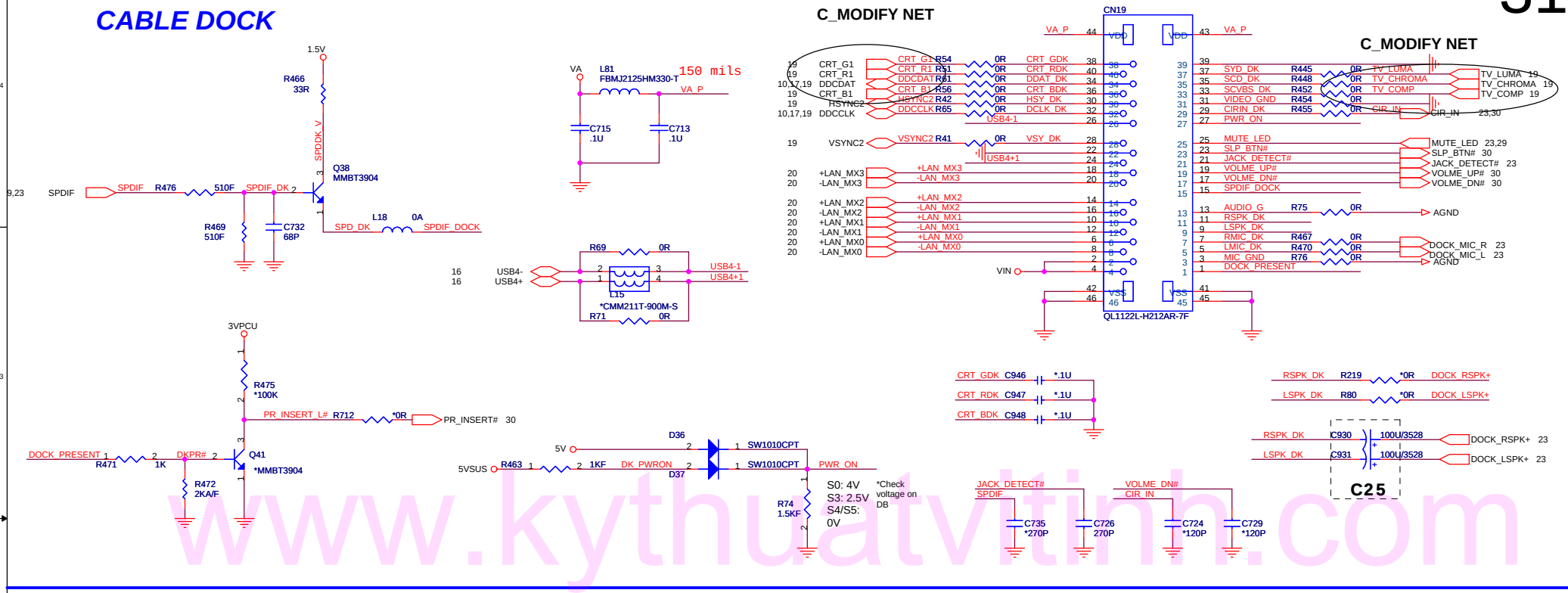
NB5/RD2/HW1

PROJECT : AT8
Quanta Computer Inc.

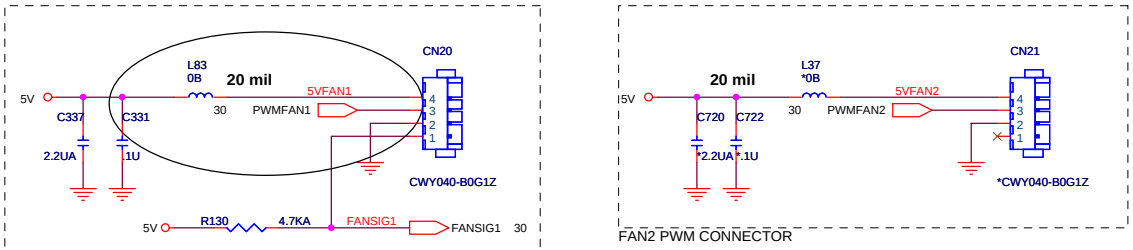
Size	Document Number	Rev
Custom	KB3920	3A

Date: Wednesday, June 14, 2006 Sheet 30 of 39

CABLE DOCK



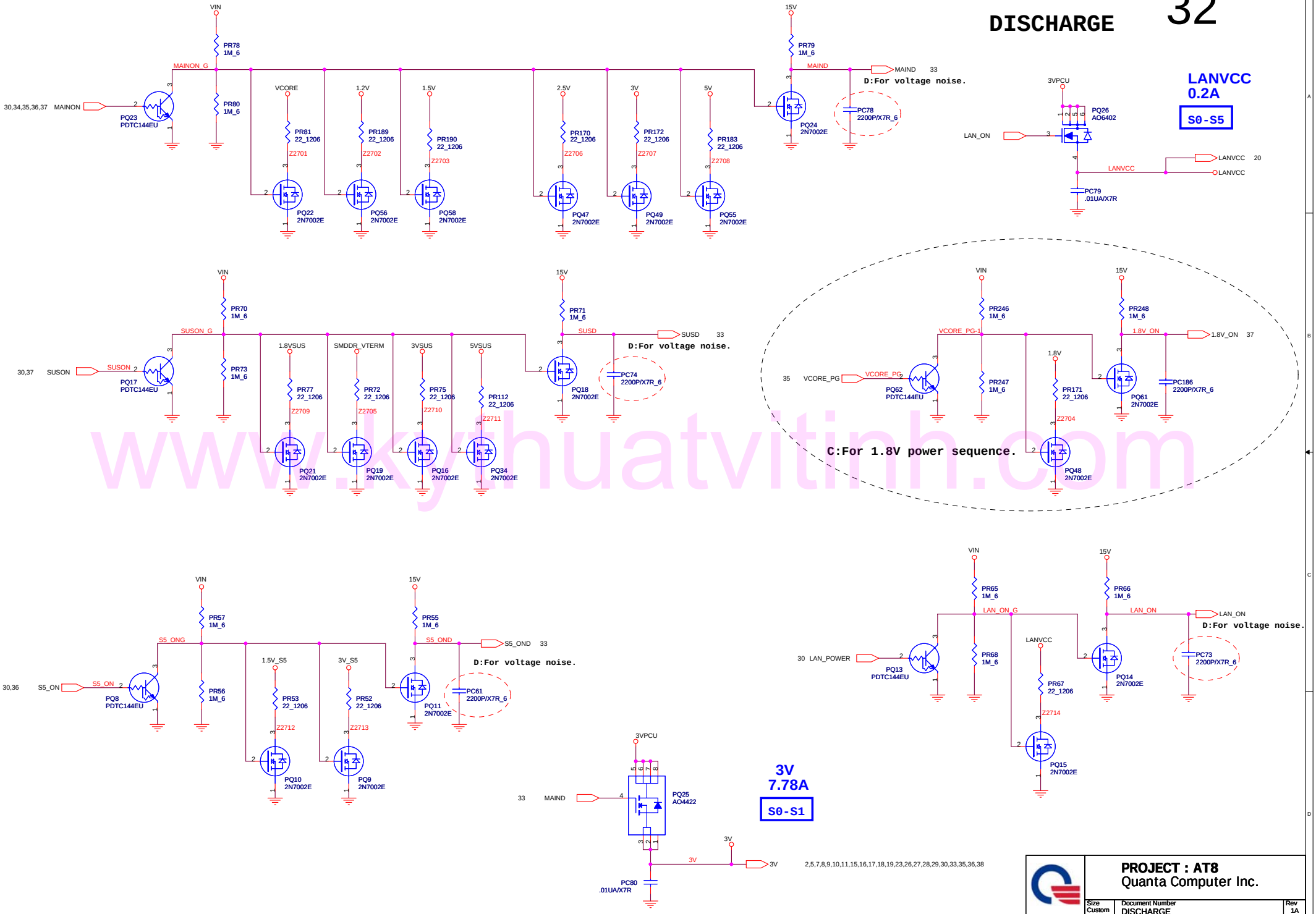
FAN



NB5/RD2/HW1	PROJECT : AT8 Quanta Computer Inc.		
	Size: Custom	Document Number: CABLE DOCKING	Rev: 3A
	Date: Wednesday, June 14, 2006	Sheet 31 of 39	

DISCHARGE

32



PROJECT : AT8
Quanta Computer Inc.

Size	Document Number	Rev
Custom	DISCHARGE	1A

NB5/RD2/HW1

Date: Wednesday, June 14, 2006 | Sheet 32 of 39

DC-DC(MAX8734A)

HW RESET USAGE

C:For Skip mode noise.

D:For battery low 8V noise.

D:For system SHDN#

D:For EC pin 3V level.

C:For EMI.

C:For OCP.

C:For dirver.

C:For voltage drop.

3VPCU
0.06A
Always
OCP=12A

5VPCU
0.01A
Always
OCP=12A

3V_S5
0.2A
S0-S5

3VSUS
1.6A
S0-S3

5V
4.69A
S0-S1

5VSUS
5A
S0-S3

PROJECT : AT8	Quanta Computer Inc.
Size: Custom	Document Number: MAX8734A (3V/5V/15V)
Rev: 1A	
Date: Wednesday, June 14, 2006	Sheet 33 of 39
NB5/RD2/HW1	

Adapter 19V/3.4A/65W 4.75A/90W

From Docking CNN

E:Change footprint.

D:For discharge current.

MAX8724A

Battery 6/8/12cell

34

B:Change footprint.

ESD protection only.

B:Change footprint.

B:Change footprint.

B:For mechanical.

C:For EMI.

C:For charge current.

C:For CC-SET floating.

C:For dock only.

Battery Low 7.5V

ESD protection only.

C:For signal noise.

C:For PQ1 soft off.

B:For dock only.

CELL-SET
0 = 4 CELL
1 = 3 CELL

90W PR96=15.4KOhm (CS31543F929)
65W PR96=30.9KOhm (CS33093F911)

PROJECT : AT8	Quanta Computer Inc.
Size: Custom	Document Number: MAX8724A CHARGE
Rev: 1A	
Date: Wednesday, June 14, 2006	Sheet 34 of 39
NB5/RD2/HW1	

MAX1992

VCORE
1.1V/20A
S0-S1

VIN, VIN_1992, PL5 HI0805R800R-10, PC142 .1UA/X7R_6, PC143 2200P/X7R_4, PC69 4.7U/25V_1210, PC59 4.7U/25V_1210, PC66 4.7U/25V_1210

5VSUS, PR158 0A, PC141 10U/10V_8, PR159 20_6, 1992VCC, PD17 CH501H-40PT, PC139 1U/10V_6, 1992AGND

5VPCU, PR245 100K_4, C:For 1.8V power sequence., VCORE_PG 32, PD22 RB751V, HWPG 30,33,36

C:For EMI., PR235 0R, 1992BST, 1992DH, PC144 .1UA/X7R_6, 1992LX, 1992DL, 1992CSP, 1992CSN, PQ46 IR7821, PQ45 IR7832, PD7 SSM34PT LF

VCORE, 9,32 VCORE, PC55 330U/2V/9m, PC136 330U/2V/9m, PC137 2.2U/10V_8, PC138 .1UA/X7R_6, PR166 6.04K/F_6 Ra, PR167 10K/F_6 Rb, PC147 100P/50V_6, 1992AGND 1992AGND

DCR 8.1m OHM, PL15 0.56uH/15A, PR234 *0R, PR50 845/F, PC56 .22U_6, PC181 *1000P/X7R_4, PR164 845/F

PU11 MAX1992ETG: VDD, BST, DH, LX, DL, PGND, CSP, CSN, OUT, FB, OVP/UVP, VCC, V+, POK, LSAT, SHDN, AGND, N.C1, GND, N.C2, TON, REF, SKIP, N.C, ILIM

1992SHDN#, PR160 100_4, MAINON 30,32,34,36,37, PC140 .1UA/X7R_6

PR161 *0R, PJ3 SHORT, 1992REF, E:For OCP., PR165 464K/F_6, PC146 1U/10V_6, 1992ILIM, PR163 100K/F_6, E:For OCP., PC145 470P/X7R_4

Vout=0.7V(1+Ra/Rb)

Fix 1.8V Output

PR168 *0R, 1992VCC

Vcs=I_L(A)*L_DCR(mOHM)=V_ILIM(mV)/10

3V, PR157 *10K_4, PR156 *0R, 30,33,36 HWPG, 30,32,34,36,37 MAINON, EN_966, PR49 0R, PC134 *.1UA, PC135 10U/10V_8, PC53 .1UA, PC54 .1UA, 5V

PU4 G966: POK, VEN, VIN, VPP, GND, ADJ, VO, NC

PC132 10U/10V_8, 2.5V, 2,6,7,8,10,32, PC48 .1UA, PR155 220K/F_6 R1, PR30 100K/F_6 R2, PR37 *0R

Vo=0.8(R1+R2)/R2

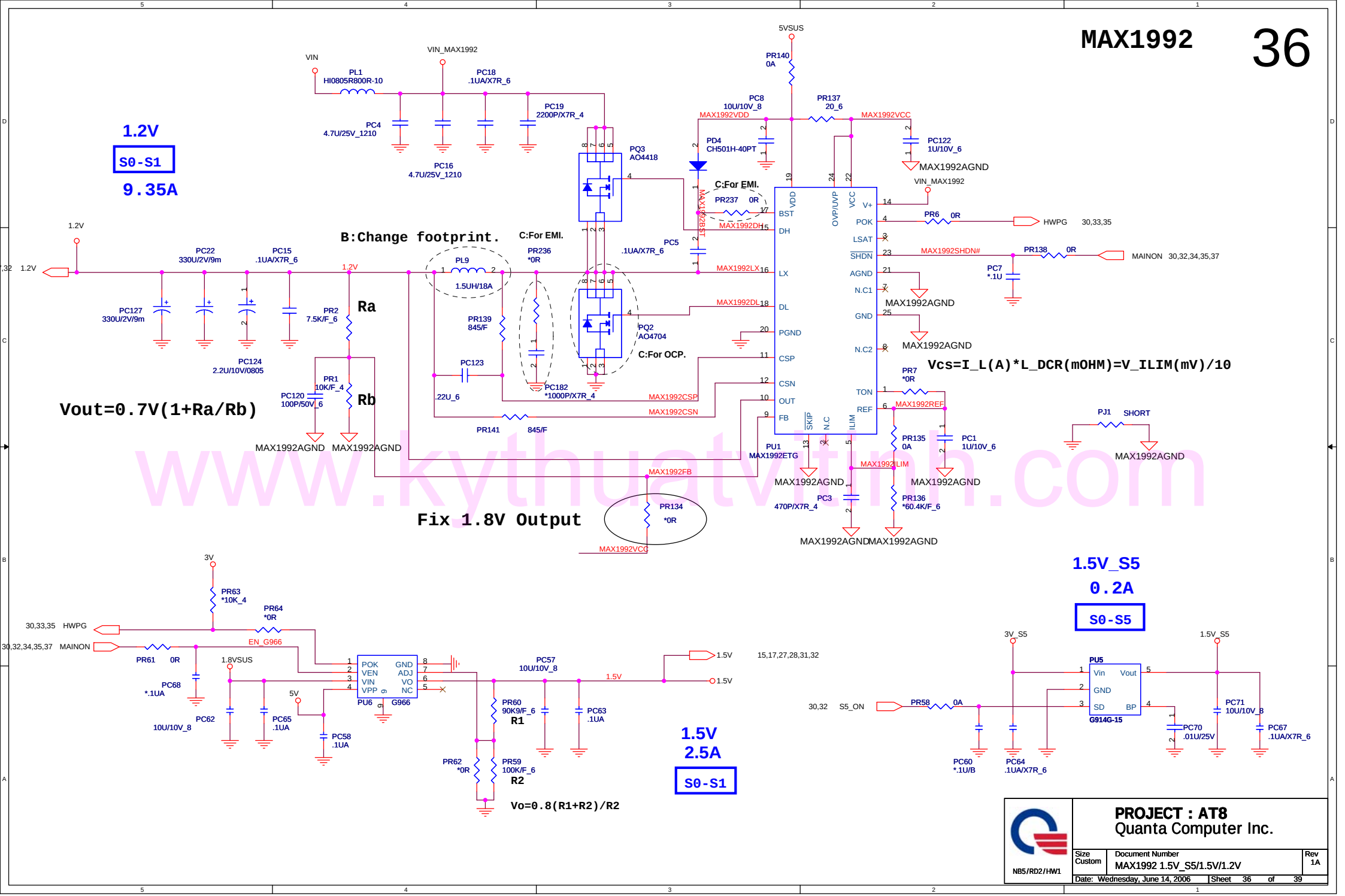
2.5V
0.88A
S0-S1

PROJECT : AT8
Quanta Computer Inc.

NB5/RD2/HW1

Size	Document Number	Rev
Custom	MAX1992 1.1V/2.5V	1A

Date: Wednesday, June 14, 2006 Sheet 35 of 39



1.8VSUS 9.1A

S0-S3

1.8 Volt +/-5%
Design Current:15.0A
OCP: Max. 18.0A

C:For voltage drop.

D:For power switch.

DCR 1.1m Ohms+-10%

C:For EMI.

B:For OCP set.

SMDDR_VTERM 1.53A / 0.9V

S0-S3

0.9 Volt +/-5%
Design Current:1.5A
Maximum Current: 1.8A

SMDDR_VTERM 0.9V ?A

S0-S3

0.9V/1.2A

*TPS51100DGQR

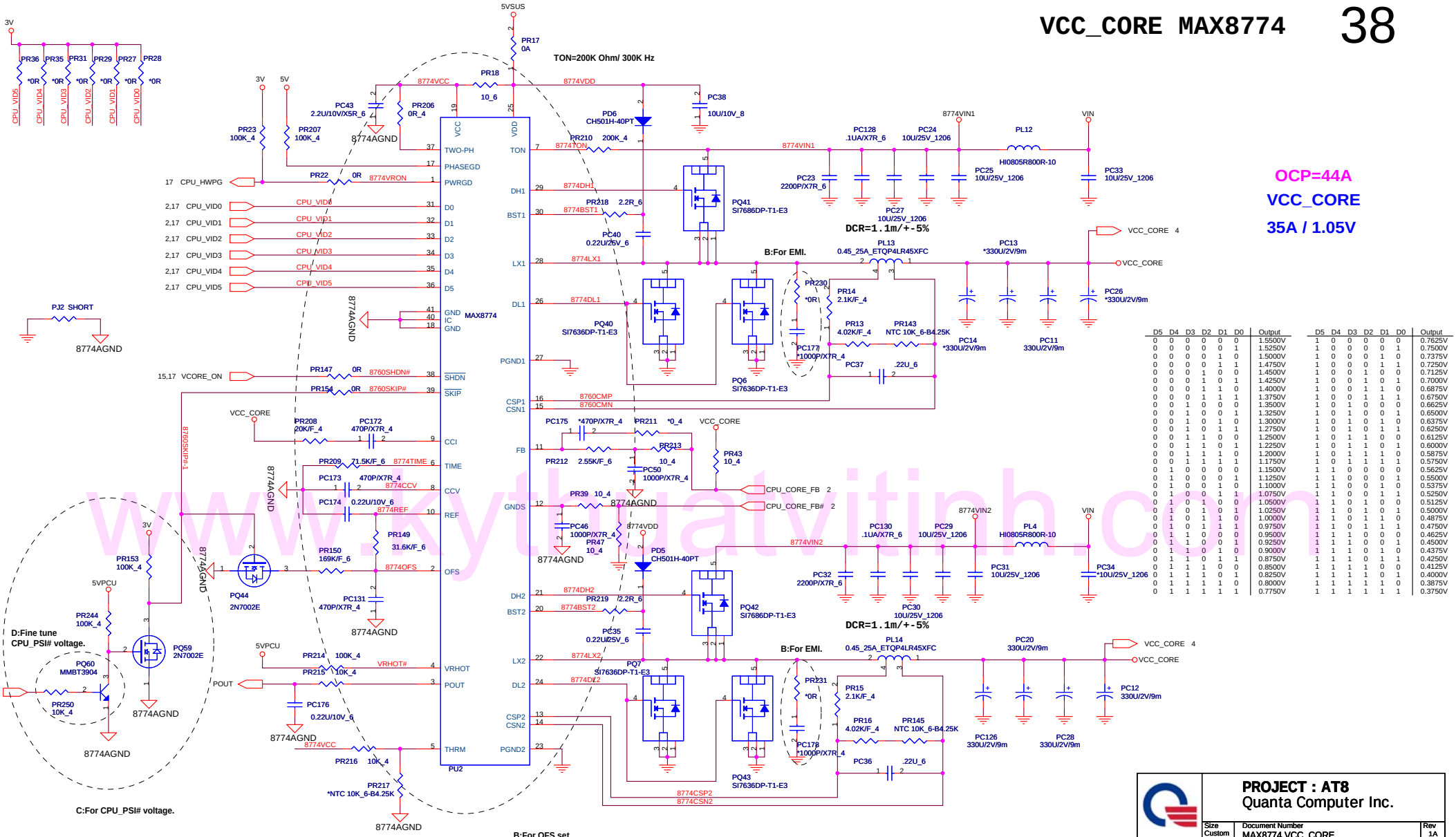
1.8V 4.75A

S0-S1

C:For 1.8V power sequence.

PROJECT : AT8	Quanta Computer Inc.
N85/RD2/HW1	Size: Custom; Document Number: SC480 1.8VSUS/1.8V/SMDDR; Rev: 1A
	Date: Wednesday, June 14, 2006; Sheet 37 of 39

VCC_CORE MAX8774



D5	D4	D3	D2	D1	D0	Output	D5	D4	D3	D2	D1	D0	Output
0	0	0	0	0	0	1.5500V	1	0	0	0	0	0	0.7625V
0	0	0	0	0	1	1.5250V	1	0	0	0	0	1	0.7500V
0	0	0	0	1	0	1.5000V	1	0	0	0	1	0	0.7375V
0	0	0	0	1	1	1.4750V	1	0	0	0	1	1	0.7250V
0	0	0	1	0	0	1.4500V	1	0	0	1	0	0	0.7125V
0	0	0	1	0	1	1.4250V	1	0	0	1	0	1	0.7000V
0	0	0	1	1	0	1.4000V	1	0	0	1	1	0	0.6875V
0	0	0	1	1	1	1.3750V	1	0	0	1	1	1	0.6750V
0	0	1	0	0	0	1.3500V	1	0	1	0	0	0	0.6625V
0	0	1	0	0	1	1.3250V	1	0	1	0	0	1	0.6500V
0	0	1	0	1	0	1.3000V	1	0	1	0	1	0	0.6375V
0	0	1	0	1	1	1.2750V	1	0	1	0	1	1	0.6250V
0	0	1	1	0	0	1.2500V	1	0	1	1	0	0	0.6125V
0	0	1	1	0	1	1.2250V	1	0	1	1	0	1	0.6000V
0	0	1	1	1	0	1.2000V	1	0	1	1	1	0	0.5875V
0	0	1	1	1	1	1.1750V	1	0	1	1	1	1	0.5750V
0	1	0	0	0	0	1.1500V	1	1	0	0	0	0	0.5625V
0	1	0	0	0	1	1.1250V	1	1	0	0	0	1	0.5500V
0	1	0	0	1	0	1.1000V	1	1	0	0	1	0	0.5375V
0	1	0	0	1	1	1.0750V	1	1	0	0	1	1	0.5250V
0	1	0	1	0	0	1.0500V	1	1	0	1	0	0	0.5125V
0	1	0	1	0	1	1.0250V	1	1	0	1	0	1	0.5000V
0	1	0	1	1	0	1.0000V	1	1	0	1	1	0	0.4875V
0	1	0	1	1	1	0.9750V	1	1	0	1	1	1	0.4750V
0	1	1	0	0	0	0.9500V	1	1	1	0	0	0	0.4625V
0	1	1	0	0	1	0.9250V	1	1	1	0	0	1	0.4500V
0	1	1	0	1	0	0.9000V	1	1	1	0	1	0	0.4375V
0	1	1	0	1	1	0.8750V	1	1	1	0	1	1	0.4250V
0	1	1	1	0	0	0.8500V	1	1	1	1	0	0	0.4125V
0	1	1	1	0	1	0.8250V	1	1	1	1	0	1	0.4000V
0	1	1	1	1	0	0.8000V	1	1	1	1	1	0	0.3875V
0	1	1	1	1	1	0.7750V	1	1	1	1	1	1	0.3750V