ARES/ARTEMIS Block Diagram

SI - PHASE

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 MCP67 MCP67D

Integraded VGA Function
836PIN

PCI-E X 1

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 NB8M-64bit
Graphics
PG 12,13,14,15,16,17

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

CLOCK INTERFACE

USB2.0

Bluetooth PG 28

FingrPrint 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

Option for 17" only
SATA - HDD PG 26 — *SATA1*

SATA - HDD PG 26 — *SATA0*

PATA- CD-ROM PG 26 — *PATA (66/100/133)*

PCI BUS / 33MHz

LAN

HD AUDIO

PG 5,6,7,8,9,10,11

Cable Docking PG 31

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

Conexant
Venice AMOM
CX20549-12
PG 23

Two-element microphone PG 23

Audio Jacks
-Phone
-SPDIF
-MIC
PG 23

REALTEK
RTL8201CL (10/100)
RTL8211B (10/100/Gigabit)
PG 20

RICOH
RICOH R5C832
R5C833
PG 21

LAN RJ45 PG 20

IEEE1394 CONN PG 21

Memory Card Reader PG 22

TPM SLB9635 PG 28 — *LPC*

Keyboard Touch Pad PG 29

CIR PG 23

Capacitive Sense SW PG 29

ENE KBC
KB3920 Bx
KB3926
PG 30,31

X-Bus

FAN PG 31

SPI ROM PG 30

AUDIO Amplifier TPA0312 PG 25

Jack to Speaker PG 25

MDC DAA CX20548-S 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
V=Y5V,U=Y5U,R=X5R,S=X6S, X=X7R,G=COG,O=NPO

EXAMPLE

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

EXAMPLE

0.1U/16V/R=0.1U/16V/X5R(0402)
0.47UA/10V/X=0.47U/10V/X7R(0603)
10UB/10V/U=10U/10V/Y5U(0805)

NB5/RD2/HW1

PROJECT : AT1
Quanta Computer Inc.

Size	Document Number	Rev
Custom	BLOCK DIAGRAM	C2A

Date: Wednesday, December 20, 2006 Sheet 1 of 40

02

W/S= 15 mil/20mil

2.5V

C49 CPU2.5V L74 C684

0.22U/6.3V/R 48/6A/3216 100U/6.3V/6032

[6] HT_RXD#[15..0] HT_RXD#[15..0]

[6] HT_RXD[15..0] HT_RXD[15..0]

[6] HT_TXD[15..0] HT_TXD[15..0]

[6] HT_TXD#[15..0] HT_TXD#[15..0]

C669 0.22U/6.3V/R
C670 0.22UA/10V/X
C668 4.7UA/6.3V/R
C672 4.7UA/6.3V/R

1.2V_HT

DB2 MODIFY 1107
FOR AMD RECOMMEND

U27A

V_HT0_A1 V_HT0_A2 V_HT0_A3 V_HT0_A4

V_HT0_B1 V_HT0_B2 V_HT0_B3 V_HT0_B4

C673 4.7UA/6.3V/R
C671 180PA/50V/O
C674 180P/50V/O

1.2V_HT

DB2 MODIFY 1106
FOR AMD RECOMMEND

HT_RXD0 HT_RXD1 HT_RXD2 HT_RXD3 HT_RXD4 HT_RXD5 HT_RXD6 HT_RXD7 HT_RXD8 HT_RXD9 HT_RXD10 HT_RXD11 HT_RXD12 HT_RXD13 HT_RXD14 HT_RXD15

HT_TXD0 HT_TXD1 HT_TXD2 HT_TXD3 HT_TXD4 HT_TXD5 HT_TXD6 HT_TXD7 HT_TXD8 HT_TXD9 HT_TXD10 HT_TXD11 HT_TXD12 HT_TXD13 HT_TXD14 HT_TXD15

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

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

[6] HT_CPU_UPCLK0 HT_CPU_UPCLK0
[6] HT_CPU_UPCLK1 HT_CPU_UPCLK1

HT_CPU_DWNCLK0 HT_CPU_DWNCLK1

HT_CPU_DWNCLK0 [6]
HT_CPU_DWNCLK1 [6]

[6] HT_CPU_UPCLK#0 HT_CPU_UPCLK#0
[6] HT_CPU_UPCLK#1 HT_CPU_UPCLK#1

HT_CPU_DWNCLK#0 HT_CPU_DWNCLK#1

HT_CPU_DWNCLK#0 [6]
HT_CPU_DWNCLK#1 [6]

[6] HT_CPU_UPCTL0 HT_CPU_UPCTL0
1.2V_HT R563 49.9/F

HT_CPU_DWNCTL0

HT_CPU_DWNCTL0 [6]

T119

[6] HT_CPU_UPCTL#0 HT_CPU_UPCTL#1
R562 49.9/F

HT_CPU_DWNCTL1

HT_CPU_DWNCTL#0 [6]

T118

AMD S1 SOCKET

HT_RXCTL1/HT_RXCRL#1 MUST <1.5" FROM CPU PIN

TEST PU/PL MUST
FOLLOW ERRATUM 133

REVISION GUIDE FROM
AMD NPT 0Fh CPU

CPUTEST2 CPUTEST3 CPUTEST6 CPUTEST7 CPUTEST8 CPUTEST10

DB2 MODIFY
1027

REMOVE
TEST POINTS
FOR AMD
RECOMMEND

CPUTEST27 CPUTEST28 CPUTEST28#

CPU_THERMDA CPU_THERMDC

CPUTEST12 CPUTEST14 CPUTEST15 CPUTEST16 CPUTEST17 CPUTEST18 CPUTEST19 CPUTEST20 CPUTEST21 CPUTEST22 CPUTEST23 CPUTEST24 CPUTEST25 CPUTEST25# CPUTEST26

FBCLKOUT FBCLKOUT#

R43 80.6/F

ROUTE TRACES 80ohm DIFF
IMPEDENCE 8/5/20 SPACING

U27E

TEST2 TEST3 THERMDA THERMDC TEST6 TEST7 TEST8 TEST9 TEST10 TEST12 TEST13 TEST14 TEST15 TEST16 TEST17 TEST18 TEST19 TEST20 TEST21 TEST22 TEST23 TEST24 TEST25 TEST25# TEST26 TEST27 TEST28 TEST28# TEST29 TEST29#

RESET# PWROK LDTSTOP#

HTREF0 HTREF1 VDD_FB VDD_FB# VDDIO_FB VDDIO_FB# CLKIN CLKIN# DBRDY DBREQ# TMS TCK TRST# TDI TDO CPU_PRESENT# PSI# VID0 VID1 VID2 VID3 VID4 VID5 SID SIC PROCHOT# THERMTRIP#

VDDA_1 VDDA_2

CPU2.5V CPU2.5V

C683 4.7UA/6.3V/R
C56 3300P/50V/X

DB2 BOM MODIFY 1107

HTCPU_RST1# HTCPU_PWROK1 HTCPU_STOP1#

CPU_CORE_FB CPU_CORE_FB# CPU_SUS_FB

CPUCLKIN CPUCLKIN# CPU_DBRDY CPU_DBRDY# CPU_TMS CPU_TCK CPU_TRST# CPU_TDI CPU_TDO CPU_PRES# CPU_SID CPU_SIC CPU_PROCHOT# CPU_THERMIP#

CPU_VID0_L CPU_VID1_L CPU_VID2_L CPU_VID3_L CPU_VID4_L CPU_VID5_L

RSVD_1 RSVD_2 RSVD_3 RSVD_4 RSVD_5 RSVD_6 RSVD_7 RSVD_8 RSVD_9 RSVD_10 RSVD_11 RSVD_12 RSVD_13 RSVD_14 RSVD_15 RSVD_16 RSVD_17 RSVD_18 RSVD_19 RSVD_20 RSVD_21

AMD S1 SOCKET

CPU_SID CPU_SIC R555 R554 R550 *300R *300R 300R

If AMD SI is not used SID can be left, SIC 300ohm to VSS.

CPUCLKIN C692 3900P/25V/X CPU_CLK [6]

CPUCLKIN# C687 3900P/25V/X CPU_CLK# [6]

CPUCLKIN# R569 169/F CPUCLKIN

KEEP TRACE RESISTOR <0.6" FROM CPU
AND TRACE TO AC CAP <1.25"

CPUVID1 PU REQUIRED FOR
COMPATIBILITY WITH FUTURE CPU

CPU THERMAL SENSOR & CONTROL

3V R55 200R 6648VCC C83 0.1U/16V/V

10/20mils

CPU_THERMDA C102 2200P/50V/X CPU_THERMDC

R57 2.7K LM86_SMC
R56 2.7K LM86_SMD
R72 10K THERM_ALERT#
[10] THERM_OVER#

U3

SCLK SDA ALERT# OVERT# VCC DXP DXN GND

G781P8
MAX6657,G781P8,W83L771G
ADDRESS: 98H

3V R71 *10K

REMOVE FOR MCP67
INTERNAL PULL-UP

MBCLK [15,29,30,31,34] MBDATA [15,29,30,31,34]

Q2 RHU002N06 Q6 RHU002N06

LM86_SMC [5] LM86_SMD [5]

MBCLK/MBDATA NEED PU TO 3VPCU

HT LINK CONTROL LEVEL SHIFTER

MUST KEEP LOW DURING S3-S5 TO MEET HT IO LINK SPEC

HTCPU_RST1# R62 0R
[6] HTCPU_RST#
[10,14,30] ECPWROK

U26 *74LVC1G08GW

HTCPU_RST1#

For AMD Warm Reset R63 *0R

HTCPU_PWROK1 R74 0R
[6] HTCPU_PWRGD
ECPWROK

U28 *74LVC1G08GW

HTCPU_PWROK1

HTCPU_STOP1# R568 0R
[6] HTCPU_STOP#
ECPWROK

U25 *74LVC1G08GW

HTCPU_STOP1#

FOLLOW AMD AND NVIDIA RECOMMEND 0904

OVER TEMP CONTROL

PLACE CLOSE CPU
SI MODIFY 1219

MCP67_THERMIP# [6]

R829 0R Q43 *PDTC144EU

CPU_THERMIP#

CPU OR THERM IC THERMTRIP TO
SHUTDOWN SYS FROM MCP67

SYS_SHDN# [30,33]
ECPWROK [10,14,30]

D34 CH500H R557 10K Q44 MMBT3904

DB2 BOM MODIFY 1101

DB2 MODIFY

1.8VSUS

SI MODIFY 1219

MCP67_THERMIP#

SYS_SHDN# [30,33]
ECPWROK [10,14,30]

D50 CH500H R830 10KA 3V Q73 MMBT3904

D33 CH500H THERM_ALERT#

SI MODIFY 1219

CPU PROCHOT INPUT FROM THERMAL IC OR SODIMM SENSOR

[31] EC_PROCHOT# D31 CH500H
[5] DIMM_THEM# D32 *CH500H
MODIFY 0809 [6] MCP67_PROCHOT# D30 *CH500H

THERM_OVER# Q45 PDTC144EU CPU_PROCHOT#

1.2V_HT [6,10,11]
1.8VSUS [3,4,5,6,32,36,37]
2.5V [13,32,36]
3V [5,6,7,8,9,10,11,12,13,14,15,18,19,21,22,23,26,27,28,29,30,31,32,33,36,38]

NEED TO CONFIRM NVIDIA FOR
THE USAGE CONNECTION TO SB

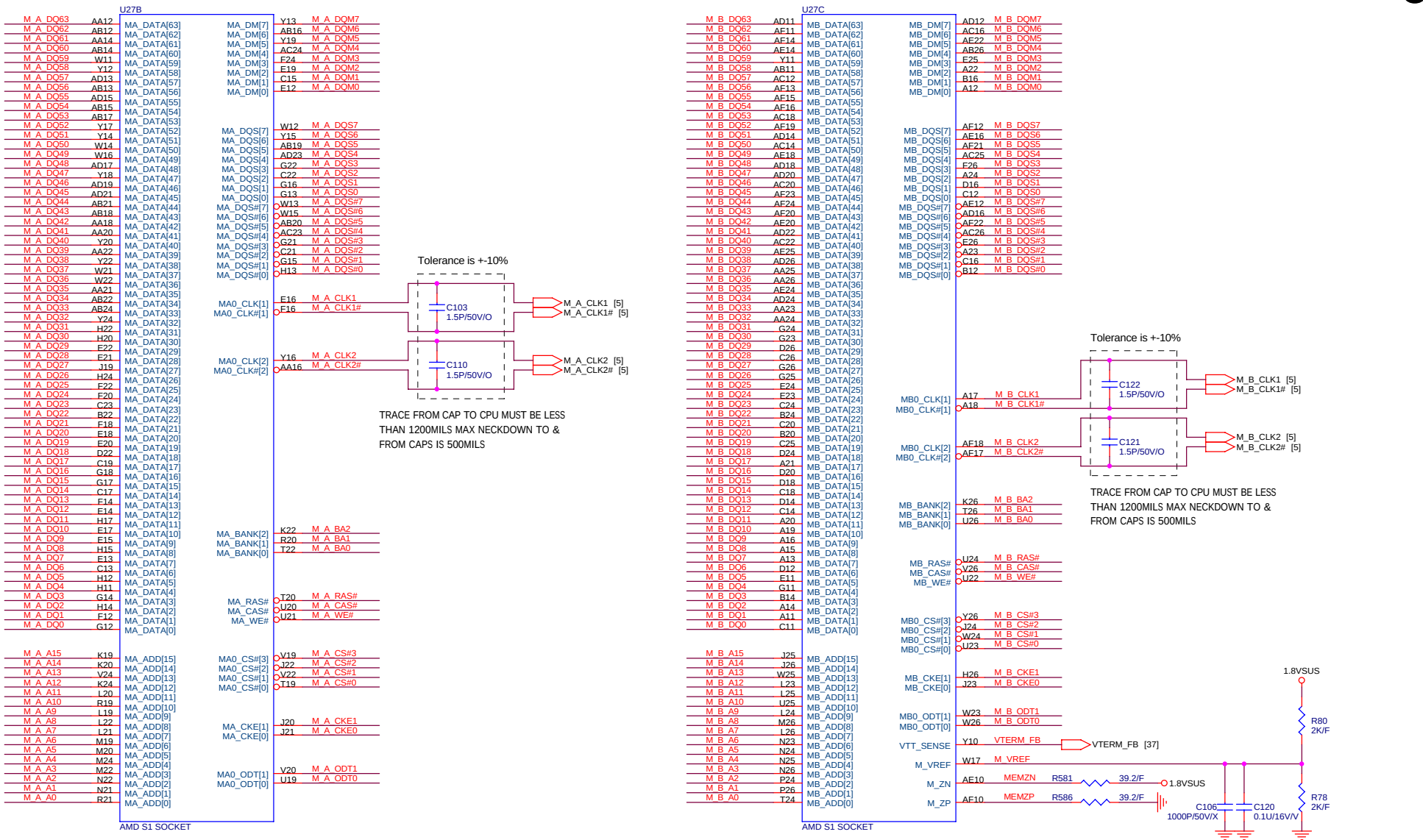
CPU_VID3_L R37 0A CPU_VID3 [38]
CPU_VID2_L R30 0A CPU_VID2 [38]
CPU_VID4_L R33 0R CPU_VID4 [38]
CPU_VID5_L R34 0A CPU_VID5 [38]
CPU_VID1_L R21 0A CPU_VID1 [38]
CPU_VID0_L R24 0R CPU_VID0 [38]

NB5/RD2/HW1

PROJECT : AT1
Quanta Computer Inc.

Size	Document Number	Rev
Custom	CPU (HT_I/F,CTL)	C2A

Date: Wednesday, December 20, 2006 Sheet 2 of 40



1.8VSUS [2,4,5,6,32,36,37]

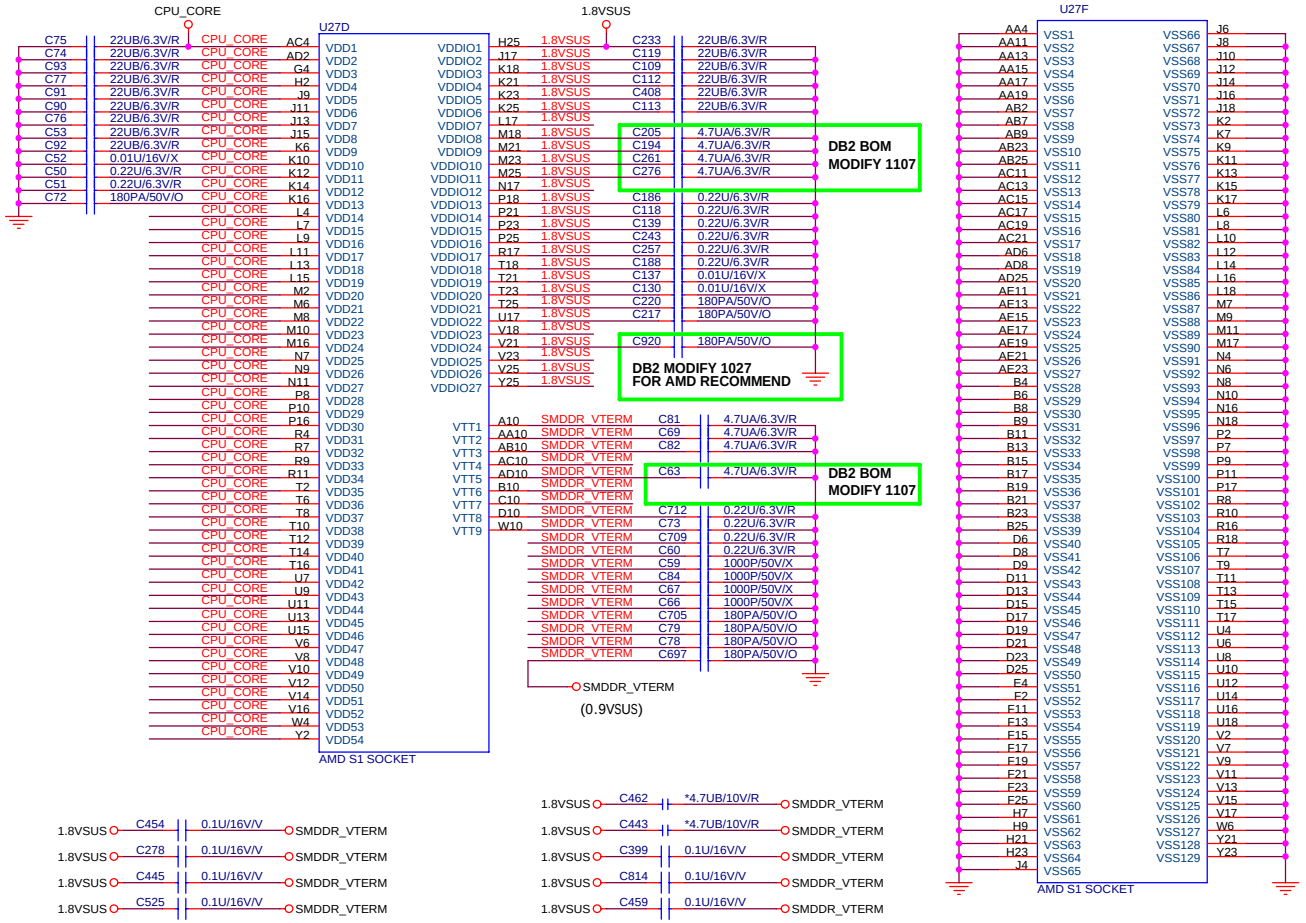
NB5/RD2/HW1

PROJECT : AT1
Quanta Computer Inc.

Size	Document Number	Rev
Custom	CPU (MEM_I/F)	C2A

Date: Wednesday, December 20, 2006 Sheet 3 of 40

CPU POWER PLANE AND BY PASS CAP

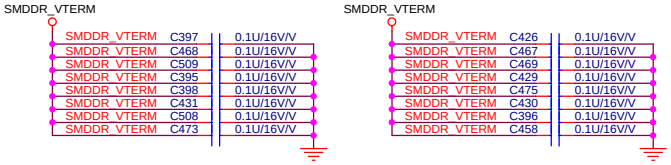


DDR2 TERMINATION BYPASS CAP

04

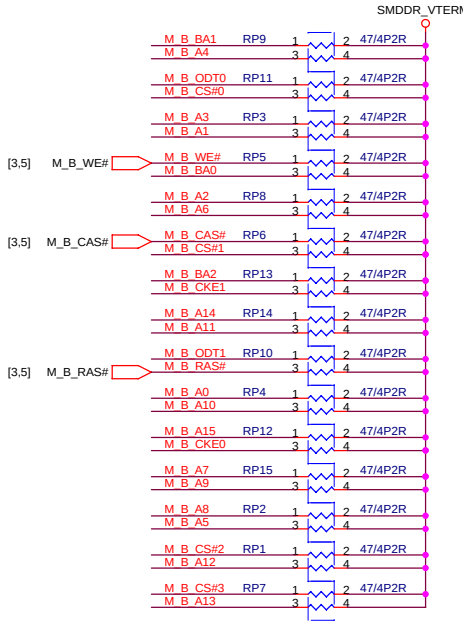
CHANNEL A

CHANNEL B



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

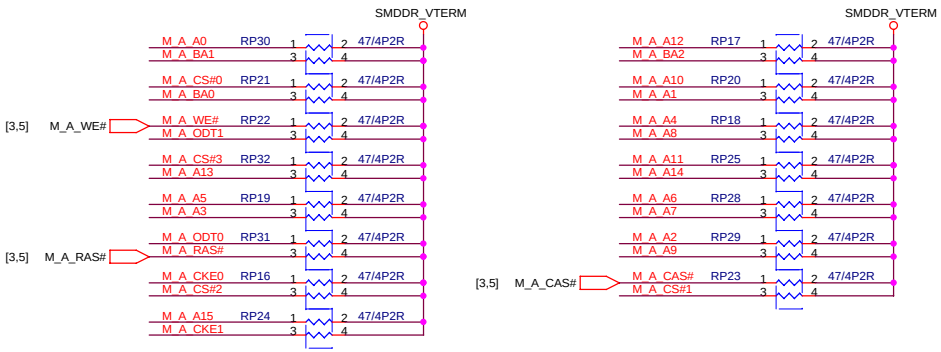
DDRII CHANNEL B TERMINATION



SMDDR_VTERM C316 0.1U/16V/V 1.8VSUS
SMDDR_VTERM C288 0.1U/16V/V 1.8VSUS
SMDDR_VTERM C307 0.1U/16V/V 1.8VSUS

M_B_A[0..15] M_B_A[0..15] [3,5]
M_B_CKE[0..1] M_B_CKE[0..1] [3,5]
M_B_ODT[0..1] M_B_ODT[0..1] [3,5]
M_B_BA[0..2] M_B_BA[0..2] [3,5]
M_B_CS#[0..3] M_B_CS#[0..3] [3,5]

DDRII CHANNEL A TERMINATION



M_A_A[0..15] M_A_A[0..15] [3,5]
M_A_CKE[0..1] M_A_CKE[0..1] [3,5]
M_A_ODT[0..1] M_A_ODT[0..1] [3,5]
M_A_BA[0..2] M_A_BA[0..2] [3,5]
M_A_CS#[0..3] M_A_CS#[0..3] [3,5]

SMDDR_VTERM [37]
CPU_CORE [32,38]
1.8VSUS [2,3,5,6,32,36,37]

NB5/RD2/HW1

PROJECT : AT1
Quanta Computer Inc.

Size	Document Number	Rev
Custom	CPU (POWER,GND),DDR2_TERM	C2A

Date: Wednesday, December 20, 2006 Sheet 4 of 40

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_BA[0..2] [3,4]

M_A_CS#[0..3] → M_A_CS#[0..3] [3,4]

M_A_CKE[0..1] → M_A_CKE[0..1] [3,4]

M_A_ODT[0..1] → M_A_ODT[0..1] [3,4]

M_A_DQ[0..63] → M_A_DQ[0..63] [3]

M_A_A[15..0] → M_A_A[15..0] [3,4]

M_A_DQM[0..7] → M_A_DQM[0..7] [3]

M_A_DQS[0..7] → M_A_DQS[0..7] [3]

M_A_DQS#[0..7] → M_A_DQS#[0..7] [3]

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_BA[0..2] [3,4]

M_B_CS#[0..3] → M_B_CS#[0..3] [3,4]

M_B_CKE[0..1] → M_B_CKE[0..1] [3,4]

M_B_ODT[0..1] → M_B_ODT[0..1] [3,4]

M_B_DQ[0..63] → M_B_DQ[0..63] [3]

M_B_A[0..15] → M_B_A[0..15] [3,4]

M_B_DQM[0..7] → M_B_DQM[0..7] [3]

M_B_DQS[0..7] → M_B_DQS[0..7] [3]

M_B_DQS#[0..7] → M_B_DQS#[0..7] [3]

CKE 0,1

PC2100 DDR2 SDRAM SO-DIMM (200P)

M_A_DQ5	5	DQ0	DQ32	123	M_A_DQ32
M_A_DQ1	7	DQ1	DQ33	125	M_A_DQ36
M_A_DQ2	17	DQ2	DQ34	135	M_A_DQ34
M_A_DQ3	19	DQ3	DQ35	137	M_A_DQ37
M_A_DQ0	4	DQ4	DQ36	124	M_A_DQ33
M_A_DQ4	6	DQ5	DQ37	126	M_A_DQ38
M_A_DQ6	14	DQ6	DQ38	134	M_A_DQ39
M_A_DQ7	16	DQ7	DQ39	136	M_A_DQ35
M_A_DQ9	23	DQ8	DQ40	141	M_A_DQ40
M_A_DQ8	25	DQ9	DQ41	143	M_A_DQ41
M_A_DQ10	35	DQ10	DQ42	151	M_A_DQ42
M_A_DQ14	37	DQ11	DQ43	153	M_A_DQ46
M_A_DQ13	20	DQ12	DQ44	140	M_A_DQ44
M_A_DQ12	22	DQ13	DQ45	142	M_A_DQ45
M_A_DQ15	36	DQ14	DQ46	152	M_A_DQ43
M_A_DQ11	38	DQ15	DQ47	154	M_A_DQ47
M_A_DQ17	43	DQ16	DQ48	157	M_A_DQ55
M_A_DQ21	45	DQ17	DQ49	159	M_A_DQ54
M_A_DQ18	55	DQ18	DQ50	173	M_A_DQ49
M_A_DQ16	57	DQ19	DQ51	175	M_A_DQ52
M_A_DQ20	44	DQ20	DQ52	158	M_A_DQ48
M_A_DQ19	46	DQ21	DQ53	160	M_A_DQ53
M_A_DQ22	56	DQ22	DQ54	174	M_A_DQ50
M_A_DQ23	58	DQ23	DQ55	176	M_A_DQ51
M_A_DQ24	61	DQ24	DQ56	179	M_A_DQ57
M_A_DQ25	63	DQ25	DQ57	181	M_A_DQ61
M_A_DQ27	73	DQ26	DQ58	189	M_A_DQ63
M_A_DQ30	75	DQ27	DQ59	191	M_A_DQ62
M_A_DQ28	62	DQ28	DQ60	180	M_A_DQ56
M_A_DQ29	64	DQ29	DQ61	182	M_A_DQ60
M_A_DQ26	74	DQ30	DQ62	192	M_A_DQ59
M_A_DQ31	76	DQ31	DQ63	194	M_A_DQ58
M_A_A0	102	A0	DM0	10	M_A_DQM0
M_A_A1	101	A1	DM1	26	M_A_DQM1
M_A_A2	100	A2	DM2	52	M_A_DQM2
M_A_A3	99	A3	DM3	67	M_A_DQM3
M_A_A4	98	A4	DM4	130	M_A_DQM4
M_A_A5	97	A5	DM5	147	M_A_DQM5
M_A_A6	94	A6	DM6	170	M_A_DQM6
M_A_A7	92	A7	DM7	185	M_A_DQM7
M_A_A8	93	A8	DQS0	13	M_A_DQS0
M_A_A9	91	A9	DQS0	11	M_A_DQS#0
M_A_A10	105	A10/AP	DQS1	31	M_A_DQS1
M_A_A11	90	A11	DQS1	29	M_A_DQS#1
M_A_A12	89	A12	DQS2	51	M_A_DQS2
			DQS2	49	M_A_DQS#2
M_A_BA0	107	BA0	DQS3	70	M_A_DQS3
M_A_BA1	106	BA1	DQS3	68	M_A_DQS#3
M_A_BA2	85	NC/BA2	DQS4	131	M_A_DQS4
			DQS4	129	M_A_DQS#4
M_A_CLK1	30	CLK0	DQS5	148	M_A_DQS5
M_A_CLK1#	32	CLK0	DQS5	146	M_A_DQS#5
			DQS6	169	M_A_DQS6
M_A_CLK2	164	CLK1	DQS6	167	M_A_DQS#6
M_A_CLK2#	166	CKL1	DQS7	188	M_A_DQS7
			DQS7	186	M_A_DQS#7
DDR_SMBCLK	197	SCL			
DDR_SMBDTA	195	SDA	CS0	110	M_A_CS#0
DIM1_SA0	198	SA0	CS1	115	M_A_CS#1
DIM1_SA1	200	SA1	RAS	108	M_A_RAS#
			CAS	113	M_A_CAS#
3V	199	VDDSPD	WE	109	M_A_WE#
			CKE0	79	M_A_CKE0
			CKE1	80	M_A_CKE1

CN28A
2-1734073-1

HEIGHT=9.2mm

R320 10K DIM1_SA0
R321 10K DIM1_SA1
SMbus address A0

DDR_SMBDTA — Q13 2N7002E — CGDAT_SMB [10]

DDR_SMBCLK — Q11 2N7002E — CGCLK_SMB [10]

CKE 2,3

PC2100 DDR2 SDRAM SO-DIMM (200P)

M_B_DQ1	5	DQ0	DQ32	123	M_B_DQ36
M_B_DQ4	7	DQ1	DQ33	125	M_B_DQ37
M_B_DQ3	17	DQ2	DQ34	135	M_B_DQ38
M_B_DQ2	19	DQ3	DQ35	137	M_B_DQ34
M_B_DQ0	4	DQ4	DQ36	124	M_B_DQ32
M_B_DQ5	6	DQ5	DQ37	126	M_B_DQ33
M_B_DQ7	14	DQ6	DQ38	134	M_B_DQ39
M_B_DQ6	16	DQ7	DQ39	136	M_B_DQ35
M_B_DQ9	23	DQ8	DQ40	141	M_B_DQ44
M_B_DQ8	25	DQ9	DQ41	143	M_B_DQ41
M_B_DQ14	35	DQ10	DQ42	151	M_B_DQ47
M_B_DQ15	37	DQ11	DQ43	153	M_B_DQ46
M_B_DQ12	20	DQ12	DQ44	140	M_B_DQ40
M_B_DQ13	22	DQ13	DQ45	142	M_B_DQ45
M_B_DQ10	36	DQ14	DQ46	152	M_B_DQ42
M_B_DQ11	38	DQ15	DQ47	154	M_B_DQ43
M_B_DQ17	43	DQ16	DQ48	157	M_B_DQ55
M_B_DQ20	45	DQ17	DQ49	159	M_B_DQ54
M_B_DQ19	55	DQ18	DQ50	173	M_B_DQ53
M_B_DQ18	57	DQ19	DQ51	175	M_B_DQ48
M_B_DQ16	44	DQ20	DQ52	158	M_B_DQ51
M_B_DQ21	46	DQ21	DQ53	160	M_B_DQ50
M_B_DQ22	56	DQ22	DQ54	174	M_B_DQ49
M_B_DQ23	58	DQ23	DQ55	176	M_B_DQ52
M_B_DQ24	61	DQ24	DQ56	179	M_B_DQ57
M_B_DQ25	63	DQ25	DQ57	181	M_B_DQ60
M_B_DQ30	73	DQ26	DQ58	189	M_B_DQ62
M_B_DQ31	75	DQ27	DQ59	191	M_B_DQ59
M_B_DQ28	62	DQ28	DQ60	180	M_B_DQ61
M_B_DQ29	64	DQ29	DQ61	182	M_B_DQ56
M_B_DQ27	74	DQ30	DQ62	192	M_B_DQ58
M_B_DQ26	76	DQ31	DQ63	194	M_B_DQ63
M_B_A0	102	A0	DM0	10	M_B_DQM0
M_B_A1	101	A1	DM1	26	M_B_DQM1
M_B_A2	100	A2	DM2	52	M_B_DQM2
M_B_A3	99	A3	DM3	67	M_B_DQM3
M_B_A4	98	A4	DM4	130	M_B_DQM4
M_B_A5	97	A5	DM5	147	M_B_DQM5
M_B_A6	94	A6	DM6	170	M_B_DQM6
M_B_A7	92	A7	DM7	185	M_B_DQM7
M_B_A8	93	A8	DQS0	13	M_B_DQS0
M_B_A9	91	A9	DQS0	11	M_B_DQS#0
M_B_A10	105	A10/AP	DQS1	31	M_B_DQS1
M_B_A11	90	A11	DQS1	29	M_B_DQS#1
M_B_A12	89	A12	DQS2	51	M_B_DQS2
			DQS2	49	M_B_DQS#2
M_B_BA0	107	BA0	DQS3	70	M_B_DQS3
M_B_BA1	106	BA1	DQS3	68	M_B_DQS#3
M_B_BA2	85	NC/BA2	DQS4	131	M_B_DQS4
			DQS4	129	M_B_DQS#4
M_B_CLK1	30	CLK0	DQS5	148	M_B_DQS5
M_B_CLK1#	32	CLK0	DQS5	146	M_B_DQS#5
			DQS6	169	M_B_DQS6
M_B_CLK2	164	CLK1	DQS6	167	M_B_DQS#6
M_B_CLK2#	166	CKL1	DQS7	188	M_B_DQS7
			DQS7	186	M_B_DQS#7
DDR_SMBCLK	197	SCL			
DDR_SMBDTA	195	SDA	CS0	110	M_B_CS#0
DIM2_SA0	198	SA0	CS1	115	M_B_CS#1
DIM2_SA1	200	SA1	RAS	108	M_B_RAS#
			CAS	113	M_B_CAS#
3V	199	VDDSPD	WE	109	M_B_WE#
			CKE0	79	M_B_CKE0
			CKE1	80	M_B_CKE1

CN26A
1565917-4

HEIGHT=5.2mm

DIM2_SA0 R280 10K
DIM2_SA1 R266 10K
3V
SMbus address A2

DDR_SMBDTA R281 2.2K 3V
DDR_SMBCLK R282 2.2K

SMDDR_VREF_DIMM — VREF
C526 C819 C840 C813 C815 C402 C817 C821 C822 C824 C816 — 2.2UA/6.3V/R 0.1U/16V/V — 1.8VSUS
VDD_1 VDD_2 VDD_3 VDD_4 VDD_5 VDD_6 VDD_7 VDD_8 VDD_9 VDD_10 VDD_11 VDD_12
M_A_ODT0 M_A_ODT1 → ODT0 ODT1
M_A_CS#2 M_A_A15 M_A_A14 M_A_A13 M_A_CS#3 → NC_1 NC_2 NC_3 NC_4/A15 NC_5/A14 NC_6/A13 NC_7 NC_8
VSS_45 VSS_46 VSS_47 VSS_48 VSS_49 VSS_50 VSS_51 VSS_52 VSS_53 VSS_54 VSS_55 VSS_56 VSS_57 VSS_58
VSS_1 VSS_2 VSS_3 VSS_4 VSS_5 VSS_6 VSS_7 VSS_8 VSS_9 VSS_10 VSS_11 VSS_12 VSS_13 VSS_14 VSS_15 VSS_16 VSS_17 VSS_18 VSS_19 VSS_20 VSS_21 VSS_22 VSS_23 VSS_24 VSS_25 VSS_26 VSS_27 VSS_28 VSS_29 VSS_30 VSS_31 VSS_32 VSS_33 VSS_34 VSS_35 VSS_36 VSS_37 VSS_38 VSS_39 VSS_40 VSS_41 VSS_42 VSS_43 VSS_44 VSS_59

PC2100 DDR2 SDRAM SO-DIMM (200P)

CN28B
2-1734073-1

SMDDR_VREF_DIMM — VREF
C820 C818 C466 C838 C839 C836 C835 C401 C450 C823 C837 — 2.2UA/6.3V/R 0.1U/16V/V — 1.8VSUS
VDD_1 VDD_2 VDD_3 VDD_4 VDD_5 VDD_6 VDD_7 VDD_8 VDD_9 VDD_10 VDD_11 VDD_12
M_B_ODT0 M_B_ODT1 → ODT0 ODT1
M_B_CS#2 M_B_A15 M_B_A14 M_B_A13 M_B_CS#3 → NC_1 NC_2 NC_3 NC_4/A15 NC_5/A14 NC_6/A13 NC_7 NC_8
VSS_45 VSS_46 VSS_47 VSS_48 VSS_49 VSS_50 VSS_51 VSS_52 VSS_53 VSS_54 VSS_55 VSS_56 VSS_57 VSS_58
VSS_1 VSS_2 VSS_3 VSS_4 VSS_5 VSS_6 VSS_7 VSS_8 VSS_9 VSS_10 VSS_11 VSS_12 VSS_13 VSS_14 VSS_15 VSS_16 VSS_17 VSS_18 VSS_19 VSS_20 VSS_21 VSS_22 VSS_23 VSS_24 VSS_25 VSS_26 VSS_27 VSS_28 VSS_29 VSS_30 VSS_31 VSS_32 VSS_33 VSS_34 VSS_35 VSS_36 VSS_37 VSS_38 VSS_39 VSS_40 VSS_41 VSS_42 VSS_43 VSS_44 VSS_59

PC2100 DDR2 SDRAM SO-DIMM (200P)

CN26B
1565917-4

SO-DIMM BYPASS PLACEMENT :

Place these Caps near So-Dimm1.

No Vias Between the Trace of PIN to CAP.

Close DDR2 socket

3V
C520 C483 — 0.1U/16V/V 2.2UA/6.3V/R — 3V 3V — C507 C463 — *2.2UA/6.3V/R 0.1U/16V/V

SMDDR_VREF_DIMM — R259 *0R — SMDDR_VREF [37]
R258 2K/F R253 2K/F 1.8VSUS
C474 C407 — 0.1U/16V/V 2.2UA/6.3V/R — SMDDR_VREF_DIMM SMDDR_VREF_DIMM — C457 C472 — 0.1U/16V/V 2.2UA/6.3V/R

SMDDR_VREF_DIMM :

TRACE WIDTH > 20 MIL
PUT BYPASS CAP ON EACH DIMM

Address:92h

U34 (*G751 (LM75CIMM3))
3V
A0 A1 A2 — +VS O.S SDA SCL GND
C804 *0.1U/16V/V
DIMM_THEM# → DIMM_THEM# [2]
[2] LM86_SMD [2] LM86_SMC → LM86_SMD LM86_SMC

3V R673 *10K DIMM_THEM#

1.8VSUS [2,3,4,6,32,36,37]
3V [2,6,7,8,9,10,11,12,13,14,15,18,19,21,22,23,26,27,28,29,30,31,32,33,36,38]

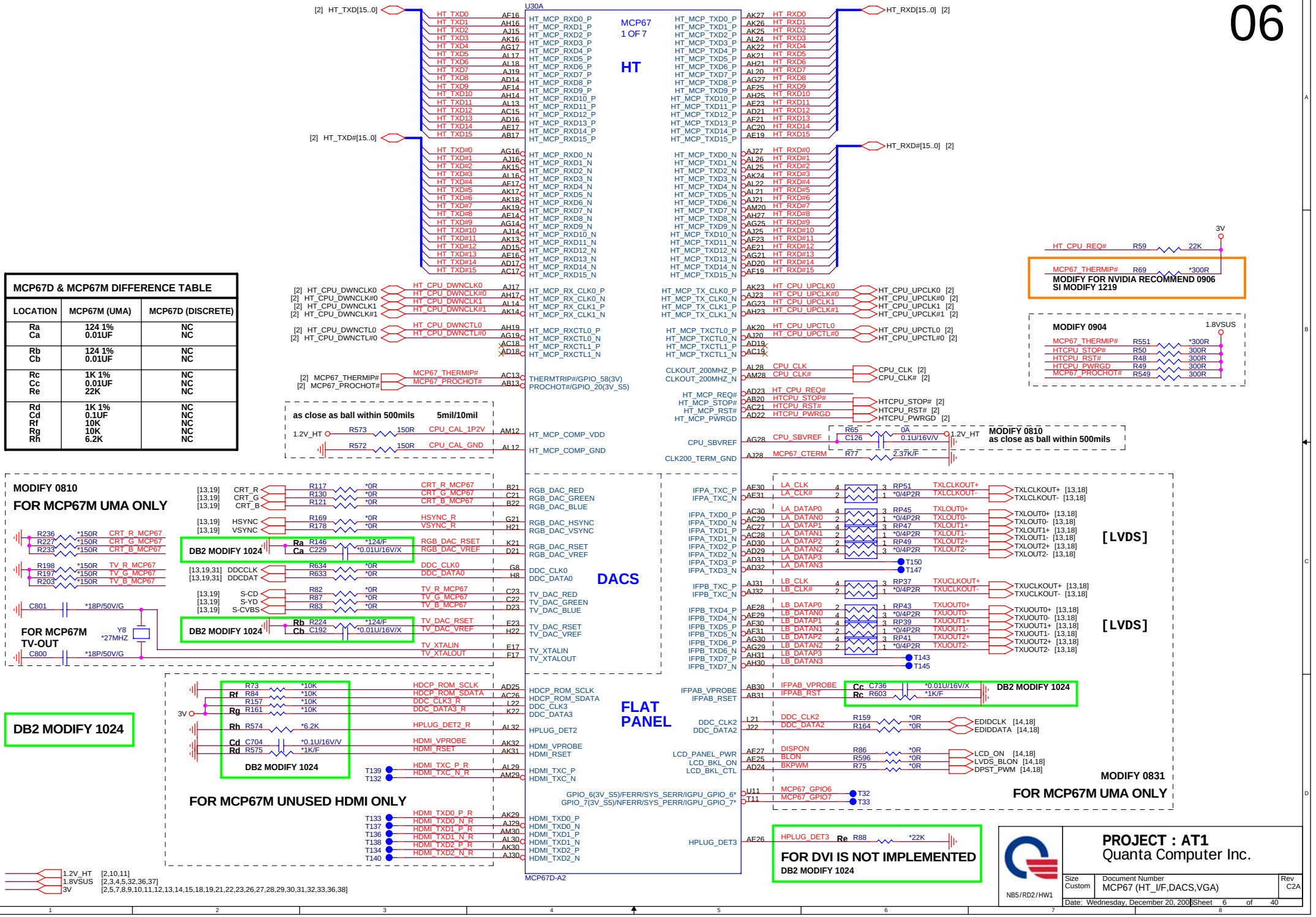
NB5/RD2/HW1

PROJECT : AT1
Quanta Computer Inc.

Size	Document Number	Rev
Custom	DDR SO-DIMMx2 (200P)	C2A

Date: Wednesday, December 20, 2006 Sheet 5 of 40

MCP67D & MCP67M DIFFERENCE TABLE		
LOCATION	MCP67M (UMA)	MCP67D (DISCRETE)
Ra Ca	124 1% 0.01UF	NC NC
Rb Cb	124 1% 0.01UF	NC NC
Rc Cc Re	1K 1% 0.01UF 22K	NC NC NC
Rd Cd Rf Rg Rh	1K 1% 0.1UF 10K 10K 6.2K	NC NC NC NC NC



C51D SUPPORT PCI-E LANE REVERSE

U30B

MCP67
2 OF 7

PCIE

[12] PEG_RXP[15..0]

PEG_RXP0 F23 → PE0_RX0_P
PEG_RXP1 F24 → PE0_RX1_P
PEG_RXP2 D25 → PE0_RX2_P
PEG_RXP3 C28 → PE0_RX3_P
PEG_RXP4 C29 → PE0_RX4_P
PEG_RXP5 D29 → PE0_RX5_P
PEG_RXP6 F26 → PE0_RX6_P
PEG_RXP7 F28 → PE0_RX7_P
PEG_RXP8 H23 → PE0_RX8_P
PEG_RXP9 H25 → PE0_RX9_P
PEG_RXP10 H27 → PE0_RX10_P
PEG_RXP11 K24 → PE0_RX11_P
PEG_RXP12 K27 → PE0_RX12_P
PEG_RXP13 K28 → PE0_RX13_P
PEG_RXP14 J31 → PE0_RX14_P
PEG_RXP15 K31 → PE0_RX15_P

[12] PEG_RXN[15..0]

PEG_RXN0 G23 → PE0_RX0_N
PEG_RXN1 F25 → PE0_RX1_N
PEG_RXN2 D26 → PE0_RX2_N
PEG_RXN3 D28 → PE0_RX3_N
PEG_RXN4 C30 → PE0_RX4_N
PEG_RXN5 D30 → PE0_RX5_N
PEG_RXN6 F27 → PE0_RX6_N
PEG_RXN7 F29 → PE0_RX7_N
PEG_RXN8 H24 → PE0_RX8_N
PEG_RXN9 H26 → PE0_RX9_N
PEG_RXN10 H28 → PE0_RX10_N
PEG_RXN11 K25 → PE0_RX11_N
PEG_RXN12 K26 → PE0_RX12_N
PEG_RXN13 K29 → PE0_RX13_N
PEG_RXN14 J30 → PE0_RX14_N
PEG_RXN15 K30 → PE0_RX15_N

PE0_TX0_P D24 → C_PEG_TXP0 C789 0.1U/16V/V PEG_TXP_C0
PE0_TX1_P A24 → C_PEG_TXP1 C774 0.1U/16V/V PEG_TXP_C1
PE0_TX2_P B25 → C_PEG_TXP2 C791 0.1U/16V/V PEG_TXP_C2
PE0_TX3_P B26 → C_PEG_TXP3 C776 0.1U/16V/V PEG_TXP_C3
PE0_TX4_P C27 → C_PEG_TXP4 C793 0.1U/16V/V PEG_TXP_C4
PE0_TX5_P A28 → C_PEG_TXP5 C778 0.1U/16V/V PEG_TXP_C5
PE0_TX6_P A29 → C_PEG_TXP6 C795 0.1U/16V/V PEG_TXP_C6
PE0_TX7_P A30 → C_PEG_TXP7 C780 0.1U/16V/V PEG_TXP_C7
PE0_TX8_P B31 → C_PEG_TXP8 C797 0.1U/16V/V PEG_TXP_C8
PE0_TX9_P C31 → C_PEG_TXP9 C782 0.1U/16V/V PEG_TXP_C9
PE0_TX10_P D31 → C_PEG_TXP10 C784 0.1U/16V/V PEG_TXP_C10
PE0_TX11_P E31 → C_PEG_TXP11 C771 0.1U/16V/V PEG_TXP_C11
PE0_TX12_P F31 → C_PEG_TXP12 C767 0.1U/16V/V PEG_TXP_C12
PE0_TX13_P G29 → C_PEG_TXP13 C760 0.1U/16V/V PEG_TXP_C13
PE0_TX14_P H29 → C_PEG_TXP14 C755 0.1U/16V/V PEG_TXP_C14
PE0_TX15_P H32 → C_PEG_TXP15 C753 0.1U/16V/V PEG_TXP_C15

PEG_TXP_C[15..0] [12]

FOR USED NB8X ONLY

IF NOT USED, LEAVE NC

PE0_TX0_N C24 → C_PEG_TXN0 C790 0.1U/16V/V PEG_TXN_C0
PE0_TX1_N B24 → C_PEG_TXN1 C775 0.1U/16V/V PEG_TXN_C1
PE0_TX2_N C25 → C_PEG_TXN2 C792 0.1U/16V/V PEG_TXN_C2
PE0_TX3_N C26 → C_PEG_TXN3 C777 0.1U/16V/V PEG_TXN_C3
PE0_TX4_N D27 → C_PEG_TXN4 C794 0.1U/16V/V PEG_TXN_C4
PE0_TX5_N B28 → C_PEG_TXN5 C779 0.1U/16V/V PEG_TXN_C5
PE0_TX6_N B29 → C_PEG_TXN6 C796 0.1U/16V/V PEG_TXN_C6
PE0_TX7_N B30 → C_PEG_TXN7 C781 0.1U/16V/V PEG_TXN_C7
PE0_TX8_N B32 → C_PEG_TXN8 C798 0.1U/16V/V PEG_TXN_C8
PE0_TX9_N C32 → C_PEG_TXN9 C783 0.1U/16V/V PEG_TXN_C9
PE0_TX10_N D32 → C_PEG_TXN10 C785 0.1U/16V/V PEG_TXN_C10
PE0_TX11_N E30 → C_PEG_TXN11 C770 0.1U/16V/V PEG_TXN_C11
PE0_TX12_N F30 → C_PEG_TXN12 C764 0.1U/16V/V PEG_TXN_C12
PE0_TX13_N G30 → C_PEG_TXN13 C757 0.1U/16V/V PEG_TXN_C13
PE0_TX14_N H30 → C_PEG_TXN14 C754 0.1U/16V/V PEG_TXN_C14
PE0_TX15_N H31 → C_PEG_TXN15 C751 0.1U/16V/V PEG_TXN_C15

PEG_TXN_C[15..0] [12]

IF NOT USED NB8X, LEAVE NC

[G7xM/NB8X]

[12] CLK_PCIE_VGA
[12] CLK_PCIE_VGA#
Rb R649 22R
Rc R648 22R

PE0_REFCLK_P R29 → PE0_REFCLK_P
PE0_REFCLK_N R30 → PE0_REFCLK_N

PE0_PRSNTX1#/DDC_CLK1 U31 → PE0_PRSNTX1
PE0_PRSNTX4#/DDC_DATA1 U30 → PE0_PRSNTX4
PE0_PRSNTX8#/EXP_EN U29 → PE0_PRSNTX8
PE0_PRSNTX16# U28 → PE0_PRSNTX16

Ra R135 0R
R640 *10K
R636 *10K
R108 *10K
R138 *10K
3V

PE0_PRSNTX1#
PE0_PRSNTX4#
PE0_PRSNTX8#
Internal Pull-up

DB2 MODIFY

[NEW CARD]

[28] PCIE_RXP0
[28] PCIE_RXN0
[28] CLK_NEW_OE#
[28] CPPE#

PCIE_RXP0 L29 → PE1_RX_P
PCIE_RXN0 L30 → PE1_RX_N
CLK_NEW_OE# W27 → PEA_CLKREQ#
CPPE# W28 → PEA_PRSNT#

PE1_TX_P M28 → PCIE_TXP0_C C171 0.1U/16V/V → PCIE_TXP0 [28]
PE1_TX_N M29 → PCIE_TXN0_C C175 0.1U/16V/V → PCIE_TXN0 [28]
PE1_REFCLK_P T32 → CLK_PCIE_NEW_C_R R647 22R → CLK_PCIE_NEW_C [28]
PE1_REFCLK_N T31 → CLK_PCIE_NEW_C#_R R645 22R → CLK_PCIE_NEW_C# [28]

[NEW CARD]

[MINI CARD]

[27] PCIE_RXP1
[27] PCIE_RXN1
[27] CLK_MINI_OE#

PCIE_RXP1 M26 → PE2_RX_P
PCIE_RXN1 M27 → PE2_RX_N
CLK_MINI_OE# U26 → PEB_CLKREQ#
U27 → PEB_PRSNT#

PE2_TX_P M24 → PCIE_TXP1_C C180 0.1U/16V/V → PCIE_TXP1 [27]
PE2_TX_N M25 → PCIE_TXN1_C C182 0.1U/16V/V → PCIE_TXN1 [27]
PE2_REFCLK_P T29 → CLK_PCIE_MINI_R R643 22R → CLK_PCIE_MINI [27]
PE2_REFCLK_N T30 → CLK_PCIE_MINI#_R R641 22R → CLK_PCIE_MINI# [27]

[MINI CARD]

[MINI CARD]

[27] PCIE_RXP2
[27] PCIE_RXN2
[27] CLK_MINI2_OE#

PCIE_RXP2 N23 → PE3_RX_P
PCIE_RXN2 N22 → PE3_RX_N
CLK_MINI2_OE# U25 → PEC_CLKREQ#
U24 → PEC_PRSNT#

PE3_TX_P M22 → PCIE_TXP2_C C912 *0.1U/16V/V → PCIE_TXP2 [27]
PE3_TX_N M23 → PCIE_TXN2_C C913 *0.1U/16V/V → PCIE_TXN2 [27]
PE3_REFCLK_P T27 → CLK_PCIE_MINI2_R R801 *22R → CLK_PCIE_MINI2 [27]
PE3_REFCLK_N T28 → CLK_PCIE_MINI2#_R R802 *22R → CLK_PCIE_MINI2# [27]

[MINI CARD]
DB2 MODIFY

N30 → PE4_RX_P
N31 → PE4_RX_N
R22 → PED_CLKREQ#/GPIO_16(3V)
U23 → PED_PRSNT#

M30 → PE4_TX_P
M31 → PE4_TX_N
T25 → PE4_REFCLK_P
T26 → PE4_REFCLK_N

P31 → PE5_RX_P
P30 → PE5_RX_N
T22 → PEE_CLKREQ#/GPIO_17(3V)
V31 → PEE_PRSNT#

P29 → PE5_TX_P
P28 → PE5_TX_N
T23 → PE5_REFCLK_P
T24 → PE5_REFCLK_N

P26 → PE6_RX_P
P27 → PE6_RX_N
U22 → PEF_CLKREQ#/GPIO_18(3V)
V30 → PEF_PRSNT#

P24 → PE6_TX_P
P25 → PE6_TX_N
P23 → PE6_REFCLK_P
R23 → PE6_REFCLK_N

DB2 MODIFY

PE_RST# W30 → PCIE_RST#
PE_RST1# W29

PCIE_RST# [12,27,28]

PE_CLK_COMP V24 → PE_COMP R118 2.37K/F

MCP67D-A2

DB2 MODIFY 1025
Ra,Rb IF NOT USED : LEAVE NC (INTERNAL PU)

CLK_MINI2_OE# Rb R811 *10K, R812 *10K, R813 *10K → 3V
CLK_MINI_OE# Ra R98 10K → 3V
CLK_NEW_OE# R109 *10K → 3V
CPPE# R107 *10K

CLOCK BYPASS

C747 *10P/50V/G CLK_PCIE_NEW_C
C746 *10P/50V/G CLK_PCIE_NEW_C#
C750 *10P/50V/G CLK_PCIE_VGA
C749 *10P/50V/G CLK_PCIE_VGA#
C744 *10P/50V/G CLK_PCIE_MINI
C742 *10P/50V/G CLK_PCIE_MINI#

MCP67D & MCP67M DIFFERENCE TABLE			
LOCATION	MCP67M (UMA)	MCP67M (DISCRETE)	MCP67D (DISCRETE)
Ra	NC	0R	0R
Rb Rc	NC NC	22R 22R	22R 22R

NET NAME	MCP67D (DISCRETE)	MCP67M (GPU)
PE0_PRSNTX16	LOW	NC

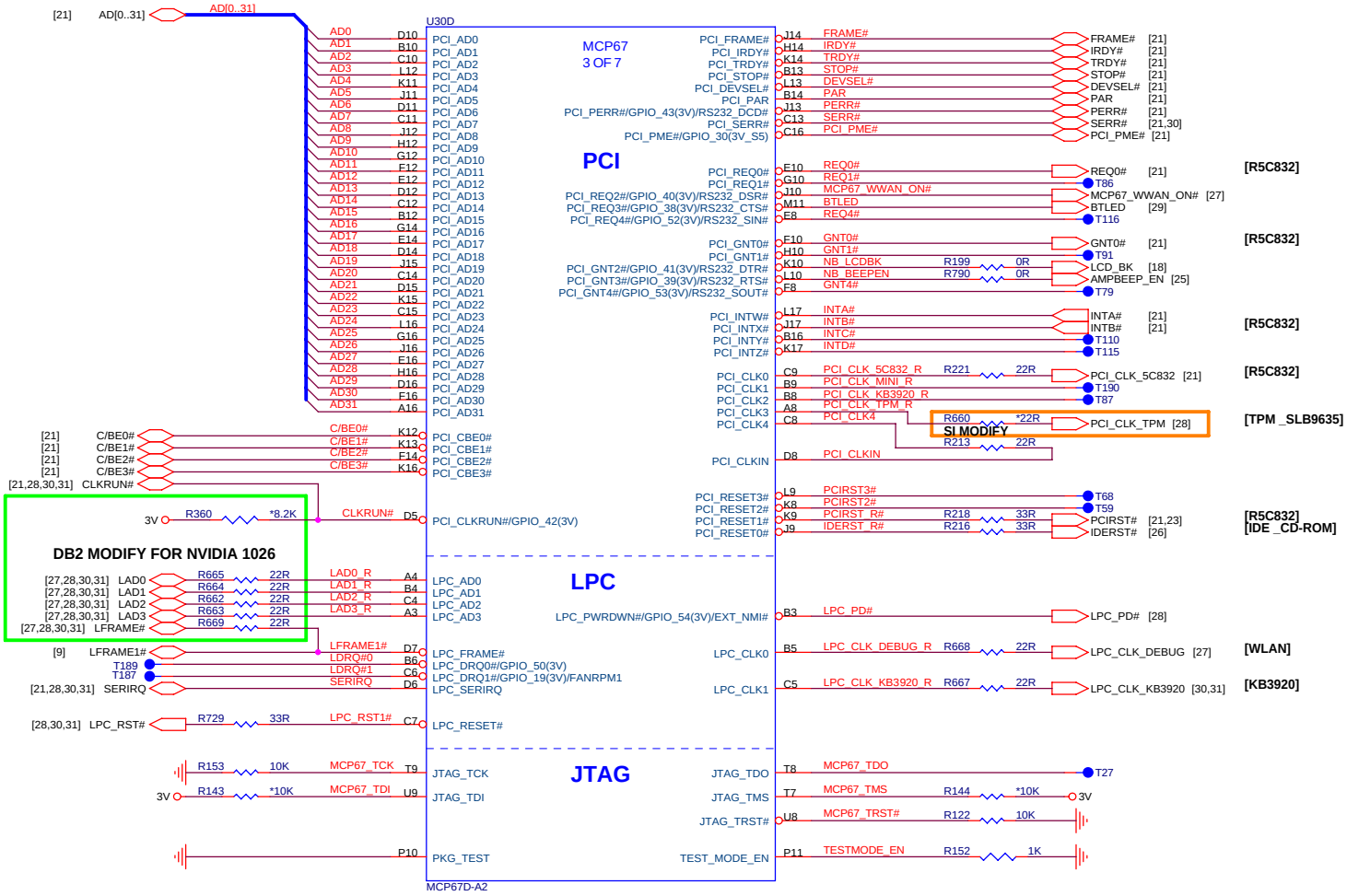
3V [2,5,6,8,9,10,11,12,13,14,15,18,19,21,22,23,26,27,28,29,30,31,32,33,36,38]

NB5/RD2/HW1

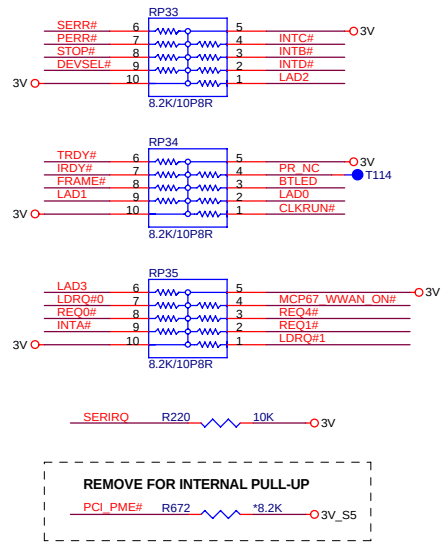
PROJECT : AT1
Quanta Computer Inc.

Size	Document Number	Rev
Custom	MCP67 (PCI-E_I/F)	C2A

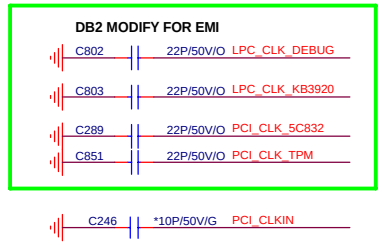
Date: Wednesday, December 20, 2006 Sheet 7 of 40



PCI/LPC PULL-UP



CLOCK BYPASS



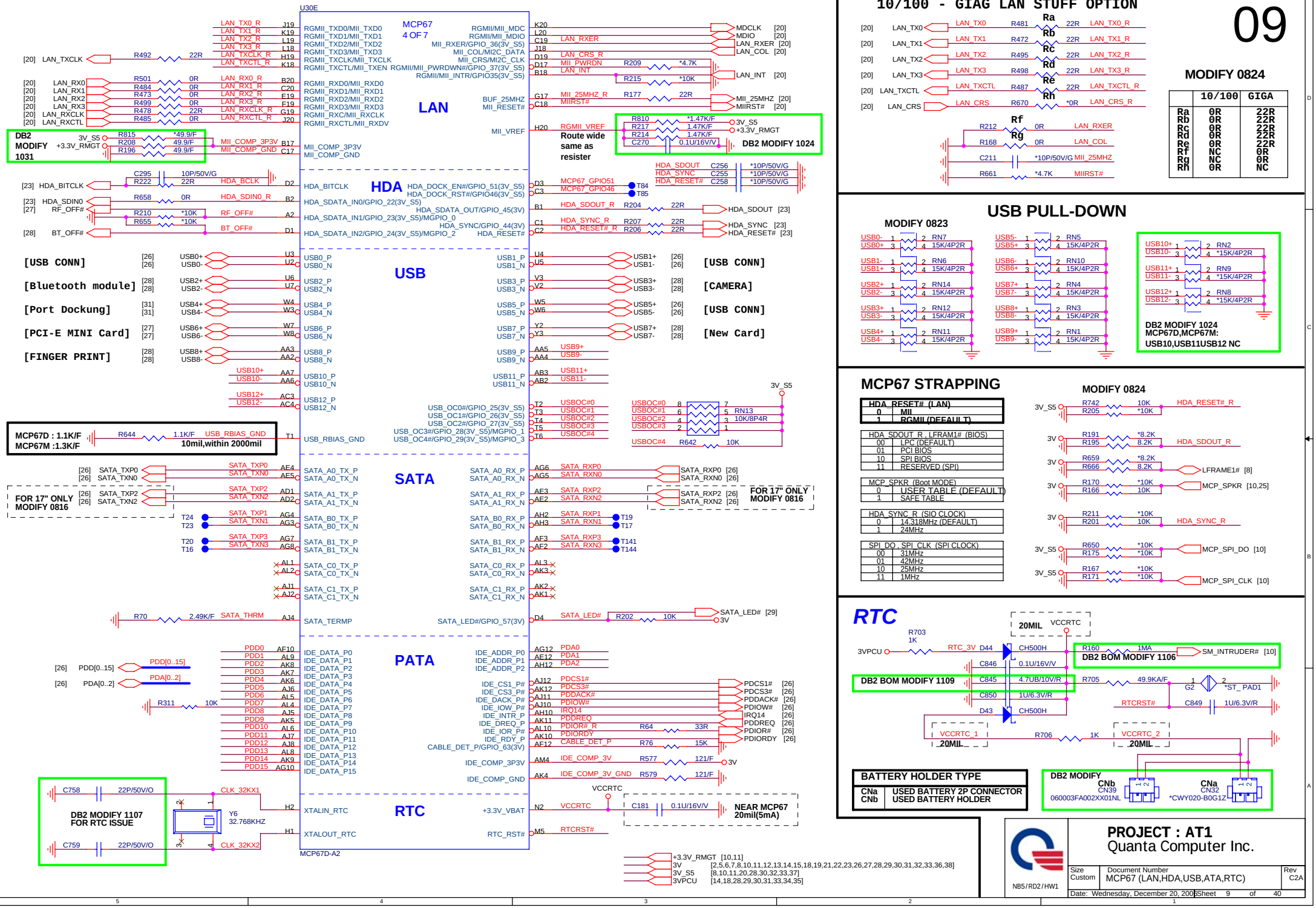
3V	[2,5,6,7,9,10,11,12,13,14,15,18,19,21,22,23,26,27,28,29,30,31,32,33,36,38]
3V_S5	[9,10,11,20,28,30,32,33,37]

PROJECT : AT1
Quanta Computer Inc.

Size	Document Number	Rev
Custom	MCP67 (PCI,LPC,JTAG)	C2A

NB5/RD2/HW1

Date: Wednesday, December 20, 2006 Sheet 8 of 40



10/100 - GIAG LAN STUFF OPTION

	10/100	GIGA
Ra	0R	22R
Rb	0R	22R
Rc	0R	22R
Rd	0R	22R
Re	0R	22R
Rf	NC	0R
Rg	NC	0R
Rh	0R	NC

09

MODIFY 0824

USB PULL-DOWN

MODIFY 0823

DB2 MODIFY 1024
MCP67D,MCP67M:
USB10,USB11USB12 NC

MCP67 STRAPPING

HDA_RESET# (LAN)
0 MII
1 RGMII (DEFAULT)

HDA_SDOUT_R , LFRAM1# (BIOS)
00 LPC (DEFAULT)
01 PCI BIOS
10 SPI BIOS
11 RESERVED (SPI)

MCP_SPKR (Boot MODE)
0 USER TABLE (DEFAULT)
1 SAFE TABLE

HDA_SYNC_R (SIO CLOCK)
0 14.318MHz (DEFAULT)
1 24MHz

SPI_DO , SPI_CLK (SPI CLOCK)
00 31MHz
01 42MHz
10 25MHz
11 1MHz

MODIFY 0824

RTC

BATTERY HOLDER TYPE	
CNa	USED BATTERY 2P CONNECTOR
CNb	USED BATTERY HOLDER

DB2 MODIFY
CNb CN39 060003FA002XX01NL
CNa CN32 *CWY020-B0G1Z

PROJECT : AT1
Quanta Computer Inc.

NB5/RD2/HW1

Size	Document Number	Rev
Custom	MCP67 (LAN,HDA,USB,ATA,RTC)	C2A

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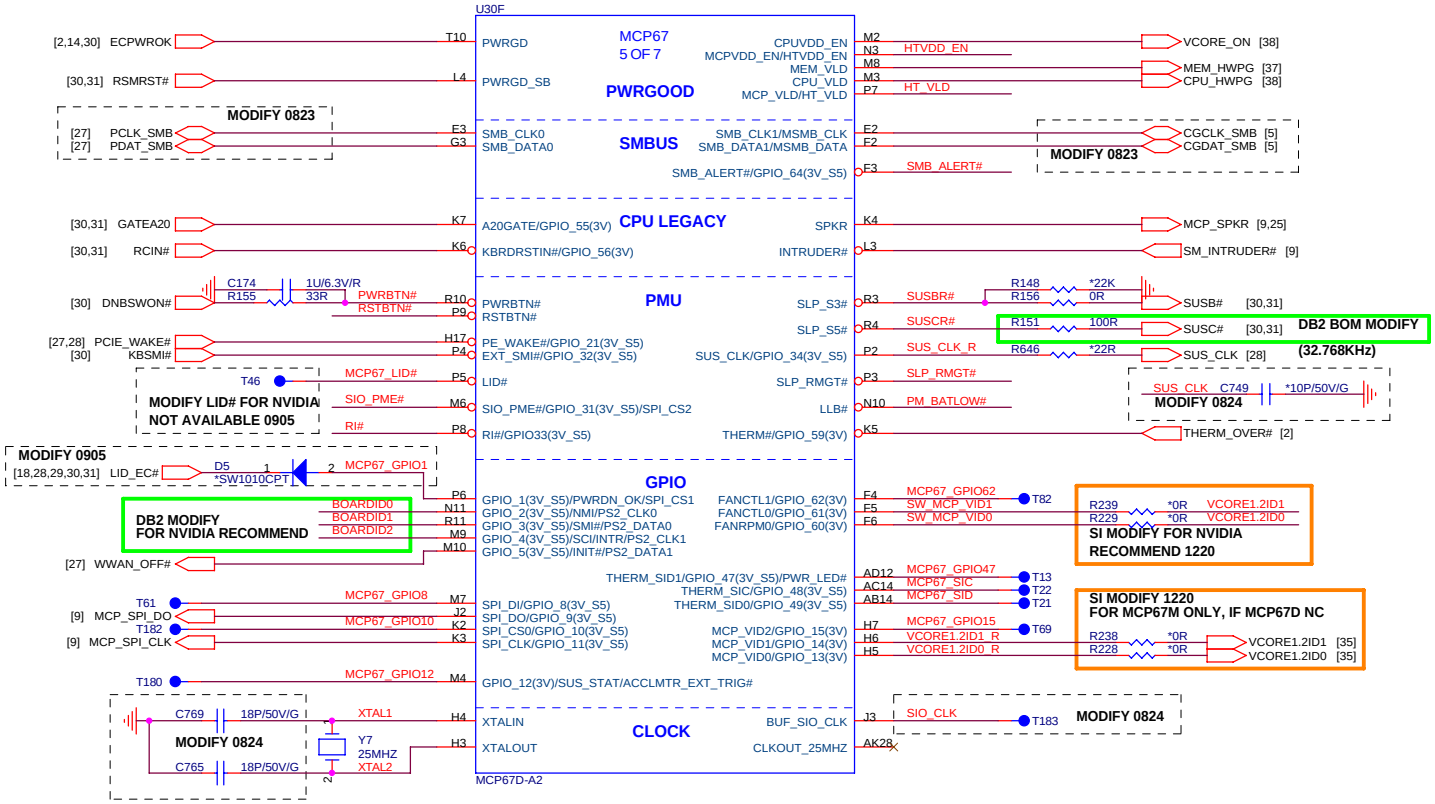

CORE POWER CIRCIUT FOR SLEEP MODE
MCP67M SUPPORT ONLY

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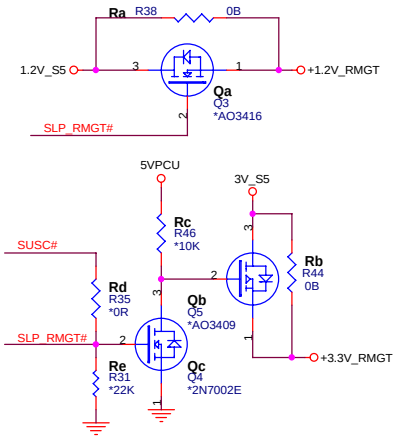
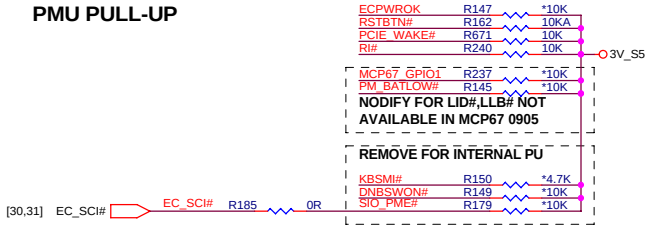
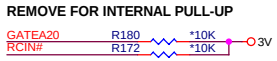
MCP67M & MCP67D DIFFERENCE TABLE		
	MCP67M UMA	MCP67D DISCRETE
Ra	NC	STUFF
Rb	NC	STUFF
Rc	STUFF	NC
Rd	NC	NC
Re	STUFF	NC
Qa	STUFF	NC
Qb	STUFF	NC
Qc	STUFF	NC



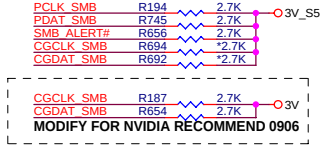
PMU PULL-UP



CPU LEGACY PULL-UP

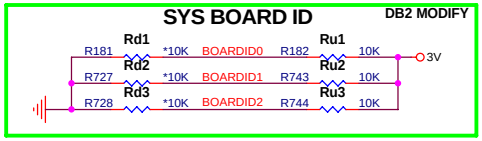


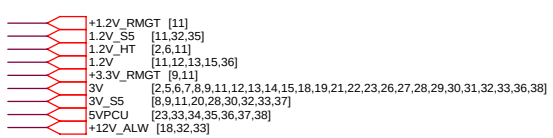
SMB/I2C PULL-UP



SKU (BOARD ID)	AT1A (DISCRETE)	AT1A (UMA)	AT1B (UMA ONLY)	AT2A (DISCRETE)	AT2A (UMA)
Board ID	X10	X00	X00	X11	X01
ID0 STUFF	Rd1	Rd1	Rd1	Ru1	Ru1
ID1 STUFF	Ru2	Rd2	Rd2	Ru2	Rd2
ID2 STUFF	Rd3				

Board ID :	0/1	0/1	0/1
DIFINE	RESERVE / RESERVE	UMA / DISCRETE	AT1 / AT2





NB5/RD2/HW1

PROJECT : AT1
Quanta Computer Inc.

Size	Document Number	Rev
Custom	MCP67 (PG,SMB,PMU,GPIO,CLK)	C2A

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MCP67 POWER PLANE/GND & BYPASS

4717mA
1.2V_VCORE
C688 2 + 1 47U/6032 1.2V_VCORE AA22 +1.2V1
C61 22UB/6.3V/R 1.2V_VCORE V19 +1.2V10
C694 22UB/6.3V/R 1.2V_VCORE W20 +1.2V11
C689 4.7UA/6.3V/R 1.2V_VCORE Y20 +1.2V12
C43 4.7UA/6.3V/R 1.2V_VCORE Y19 +1.2V13
C62 4.7UA/6.3V/R 1.2V_VCORE V17 +1.2V14
C40 4.7UA/6.3V/R 1.2V_VCORE AB21 +1.2V15
C717 1U/6.3V/R 1.2V_VCORE AA23 +1.2V16
C693 1U/6.3V/R 1.2V_VCORE Y30 +1.2V17
C150 1U/6.3V/R 1.2V_VCORE U17 +1.2V18
C708 1U/6.3V/R 1.2V_VCORE U18 +1.2V19
C156 1U/6.3V/R 1.2V_VCORE Y31 +1.2V2
C151 1U/6.3V/R 1.2V_VCORE W17 +1.2V20
C39 1U/6.3V/R 1.2V_VCORE Y18 +1.2V21
C686 1U/6.3V/R 1.2V_VCORE U16 +1.2V22
C711 0.1U/16V/V 1.2V_VCORE AA24 +1.2V23
C164 0.1U/16V/V 1.2V_VCORE V18 +1.2V24
C161 0.1U/16V/V 1.2V_VCORE AA25 +1.2V25
C38 0.1U/16V/V 1.2V_VCORE AA26 +1.2V26
C42 0.1U/16V/V 1.2V_VCORE AB22 +1.2V27
C714 0.1U/16V/V 1.2V_VCORE W18 +1.2V28
C170 0.1U/16V/V 1.2V_VCORE AB23 +1.2V29
C719 0.1U/16V/V 1.2V_VCORE AA27 +1.2V3
C157 0.1U/16V/V 1.2V_VCORE AA28 +1.2V4
C720 0.1U/16V/V 1.2V_VCORE AA29 +1.2V5
C152 0.1U/16V/V 1.2V_VCORE W19 +1.2V6
C169 0.1U/16V/V 1.2V_VCORE AA30 +1.2V7
C41 0.1U/16V/V 1.2V_VCORE AA31 +1.2V8
C724 0.1U/16V/V 1.2V_VCORE V20 +1.2V9

390mA
1.2V_HT L19 30A/1A 1.2V_HT_MCP Y15 +1.2V_HT1
C153 0.1U/16V/V 1.2V_HT_MCP Y17 +1.2V_HT2
C159 1U/6.3V/R 1.2V_HT_MCP Y16 +1.2V_HT3

1.2V R139 *0A +1.2V_RBB V15 +1.2V_RBB1
V16 +1.2V_RBB2
W16 +1.2V_RBB3
W15 +1.2V_RBB4

242mA
3V 3V AJ9 +3.3V1
AG9 +3.3V2
F11 +3.3V3
H11 +3.3V4

DB2 MODIFY 1024
1.2V_S5 R158 0A 1.2V_DUAL N16 +1.2V_DUAL1
C185 0.1U/16V/V 1.2V_DUAL N17 +1.2V_DUAL2
C184 0.1U/16V/V
100mA
52mA
3V_S5 R154 0B +3V_DUAL L6 +3.3V_DUAL1
C189 0.1U/16V/V +3V_DUAL L8 +3.3V_DUAL2
C204 0.1U/16V/V
+3V_DUAL

ONLY FOR MCP67D (DISCRETE)	
MCP67 Signal Name	Component
+3VDAC	NC
+1.8V_IFP	NC
+3.3V_HDMI	NC
+3.3V_PLL_IFPP	NC
+3.3V_PLL	NC

TRACE WIDTH / SPACING :	
+1.2V_HT_PLL	25mil / 10mil
+3.3V_PLL	25mil / 10mil
+3VDAC	25mil / 10mil
+1.8V_IFP	
+3.3V_HDMI	25mil / 10mil
+3.3V_PLL_IFPP	25mil / 10mil
1.2V_PEA	25mil / 10mil
+1.2V_PED	25mil / 10mil
+1.2V_PLLPE	25mil / 10mil
+1.2V_PLLPE_SS	25mil / 10mil
+1.2V_SP_D	25mil / 10mil
+1.2V_SP_A	25mil / 10mil
+1.2V_PLL_SP_VDD	
+1.2V_PLL_SP_SS	25mil / 10mil
+1.2V_RMGT	
+3.3V_RMGT	
+3.3V_PLL_MAC_DUAL	
+3.3V_USB_DUAL	25mil / 10mil
1.2V_DUAL	25mil / 10mil
+3V_DUAL	25mil / 10mil
+1.2V_RBB	25mil / 10mil

U30C
MCP67 6 OF 7
POWER GND
MCP67D-A2

PCI-E
+1.2V_PEA1 Y22 1.2V_PEA
+1.2V_PEA2 Y23 1.2V_PEA
+1.2V_PEA3 Y27 1.2V_PEA
+1.2V_PEA4 Y29 1.2V_PEA
+1.2V_PEA5 Y25 1.2V_PEA
+1.2V_PEA6 W22 1.2V_PEA
+1.2V_PEA7 W23 1.2V_PEA
+1.2V_PEA8 Y24 1.2V_PEA

1533mA
C158 0.1U/16V/V
C163 0.1U/16V/V
C162 0.1U/16V/V
C165 1U/6.3V/R
C730 4.7UA/6.3V/R
C132 22UB/6.3V/R
C726 22UB/6.3V/R
C111 22UB/6.3V/R

+1.2V_PED1 V23 +1.2V_PED
+1.2V_PED2 W25 +1.2V_PED
+1.2V_PED3 W24 +1.2V_PED
+1.2V_PED4 V22 +1.2V_PED
+1.2V_PED5 W26 +1.2V_PED

308mA
L85 0A 1.2V
C173 0.1U/16V/V
C172 0.1U/16V/V
C731 0.1U/16V/V

SATA
+1.2V_SP_D1 AE8 +1.2V_SP_D
+1.2V_SP_D2 AE7 +1.2V_SP_D
+1.2V_SP_D3 AE9 +1.2V_SP_D
+1.2V_SP_D4 AE6 +1.2V_SP_D

75mA
L78 0A 1.2V
C86 10UB/6.3V/R
C80 10UB/6.3V/R
C703 10UB/6.3V/R

+1.2V_SP_A1 AB11 +1.2V_SP_A
+1.2V_SP_A2 AB10 +1.2V_SP_A
+1.2V_SP_A3 AD10 +1.2V_SP_A
+1.2V_SP_A4 AC10 +1.2V_SP_A
+1.2V_SP_A5 AE10 +1.2V_SP_A

350mA
L77 31B/4.5A 1.2V
C147 0.1U/16V/V
C149 0.1U/16V/V
C698 4.7UA/6.3V/R
C68 4.7UA/6.3V/R

CPU
+1.2V_PLL_CPU_HT AB15 +1.2V_HT_PLL
+3.3V_PLL_CPU AB16 +3.3V_PLL

47mA
L6 30A/1A 1.2V_HT
C160 0.1U/16V/V
C691 10UB/6.3V/R

15mA
C146 0.1U/16V/V
C100 4.7UA/6.3V/R

UMA
+3.3V_RGB_DAC F21 +3VDAC
+3.3V_TV_DAC F21 +3VDAC

L31 *30A/1A 3V
C353 *4.7UA/6.3V/R
C206 *0.1U/16V/V
C364 *0.1U/16V/V

DB2 MODIFY 1024
FOR USED MCP67M UMA ONLY
NVIDIA RECOMMEND

+1.8V_IFPA AC24 +1.8V_IFP
+1.8V_IFPB AC25 +1.8V_IFP

L86 *0A 1.8V
C735 *1U/6.3V/R
C734 *0.1U/16V/V
C729 *0.1U/16V/V

+3.3V_HDMI AH29 +3.3V_HDMI

R68 *30A/1A 3V
C97 *4.7UA/6.3V/R
C99 *0.1U/16V/V

+3.3V_IFPAB_HVDD AC23 +3.3V_PLL_IFPP
+3.3V_HDMI_PLL_HVDD AC22 +3.3V_PLL_IFPP

R45 *30A/1A 3V
C148 *4.7UA/6.3V/R
C677 *0.1U/16V/V
C676 *0.1U/16V/V

25mA
+3.3_PLL_DISP N15 +3.3V_PLL
C96 0.1U/16V/V

PCI-E
+1.2V_PLL_PE1 R20 +1.2V_PLLPE
+1.2V_PLL_PE2 R19 +1.2V_PLLPE

268mA
L76 31B/4.5A 1.2V
C34 4.7UA/6.3V/R
C176 0.1U/16V/V

+1.2V_PLL_PE_SS1 U19 +1.2V_PLLPE_SS
+1.2V_PLL_PE_SS2 U20 +1.2V_PLLPE_SS

52mA
L75 30A/1A 1.2V
C675 4.7UA/6.3V/R
C680 0.1U/16V/V

+3.3V_PLL_PE_SS1 P19 +3.3V_PLL
+3.3V_PLL_PE_SS2 P20 +3.3V_PLL

L10 *30A/1A La 1.2V
L7 30A/1A Lb 3V
C179 0.1U/16V/V
C177 4.7UA/6.3V/R

La STUFF
Lb EMPTY
FOR MCP6B

30mA
SATA
+1.2V_PLL_SP_VDD W13 +1.2V_PLL_SP_VDD
+1.2V_PLL_SP_SS V13 +1.2V_PLL_SP_SS
+3.3V_PLL_SP_SS R13 +3.3V_PLL
+3.3V_PLL_LEG P13

117mA
L25 30A/1A 1.2V
C203 10UB/6.3V/R
C154 0.1U/16V/V

8mA
R123 30A/1A 1.2V
C168 0.1U/16V/V

91mA
C89 0.1U/16V/V

70mA
LAN
+1.2V_DUAL_RMGT N18 +1.2V_RMGT
+3.3V_DUAL_RMGT L14 +3.3V_RMGT
+3.3V_PLL_MAC_DUAL N13 +3.3V_PLL_MAC_DUAL

C183 0.1U/16V/V
C187 0.1U/16V/V

15mA
L90 *30A/1A 3V_S5
DB2 MODIFY 1024

USB
+3.3V_USB_DUAL1 Y8 +3.3V_USB_DUAL
+3.3V_USB_DUAL2 Y9 +3.3V_USB_DUAL

127mA
L26 30A/1A +3.3V_RMGT
C232 4.7UA/6.3V/R
C228 0.1U/16V/V
R163 0B +3V_DUAL
C190 0.1U/16V/V
C155 0.1U/16V/V

L9 31B/4.5A 1.2V
DB2 BOM MODIFY 1106
FOR LEAD-FREE

+1.2V_SP_D C695 0.1U/16V/V
C145 0.1U/16V/V
C141 0.1U/16V/V
C144 0.1U/16V/V
C702 4.7UA/6.3V/R

1.2V C47 *22UB/6.3V/R
C48 *22UB/6.3V/R
C105 *1U/6.3V/R
C178 *1U/6.3V/R
C98 *1U/6.3V/R
C115 *1U/6.3V/R
C718 *1U/6.3V/R
C715 *1U/6.3V/R
C678 *1U/6.3V/R
C45 *0.1U/16V/V
C44 *0.1U/16V/V
C679 *0.1U/16V/V
C58 *0.1U/16V/V
C54 *0.1U/16V/V

3V C207 0.1U/16V/V
C108 0.1U/16V/V
C745 0.1U/16V/V
C127 0.1U/16V/V
C700 0.1U/16V/V
C701 0.1U/16V/V

1.8V C124 1U/6.3V/R
C143 0.1U/16V/V
C133 0.1U/16V/V

1.2V_HT C696 *22UB/6.3V/R

U30G
MCP67 7 OF 7
MCP67D-A2

WUSB_VREF AB9
WUSB_CCA_STATUS AC6
WUSB_SERIAL_DATA AC8
WUSB_PHY_RESET# AA8
WUSB_TX_EN AD3
WUSB_RX_EN AD4
WUSB_PHY_ACTIVE AA9
WUSB_STOPC AC5
WUSB_VDD AC9

WUSB_PCLK AC7
WUSB_DATA_EN AB8
WUSB_DATA7 V9
WUSB_DATA6 W11
WUSB_DATA5 W10
WUSB_DATA4 W9
WUSB_DATA3 Y11
WUSB_DATA2 Y10
WUSB_DATA1 AA11
WUSB_DATA0 AA10

GND
L11 GND128 R18
V8 GND129 H9
H13 GND13 R17
N6 GND130 A1
AA1 GND131 D9
AD13 GND132 AG26
K23 GND133 G4
AM16 GND134 AB6
AH1 GND135 J25
U13 GND136 R25
R6 GND137 T16
R8 GND138 T15
M1 GND139 J29
N1 GND14 W14
U1 GND140 AD6
J1 GND141 AB24
J4 GND142 AM13
J6 GND143 R16
Y13 GND144 V6
AE1 GND145 A13
Y6 GND146 N32
A5 GND147 AM25
A12 GND15 F9
N8 GND16 N9
E6 GND17 AL31
AC11 GND18 G25
H15 GND19 AB18
T17 GND2 AH32
J21 GND20 D13
D18 GND21 N25
A20 GND22 A25
N4 GND23 R9
G6 GND24 R14
AG22 GND25 AF27
P16 GND26 AH8
T19 GND27 A32
AE24 GND28 P14
AJ26 GND29 E29
AJ24 GND3 E32
U32 GND30 V10
T20 GND31 J23
AM24 GND32 N14
AF29 GND33 AB29
AJ13 GND34 E4
AA32 GND35 AE13
AG13 GND36 L27
AE15 GND37 J27
F13 GND38 A9
AF6 GND39 J32
AB4 GND4 AE20
AG15 GND40 AJ22
E25 GND41 AG18
AM17 GND42 AG20
R15 GND43 V14
A17 GND44 F18
AG24 GND45 F20
N20 GND46 D20
N24 GND47 E1
AM1 GND48 V4
AM21 GND49 J8
A21 GND5 F7
V25 GND50 T18
AJ3 GND51 J24
L25 GND52 A31
P17 GND53 Y1
H18 GND54 T13
L24 GND55 D22
AM5 GND56 Y4
U14 GND57 P18
AC16 GND58 AJ18
U10 GND59 AF22
N29 GND6 R24
AM2 GND183 N19
AM3 GND184 T14

GND60 R18
GND61 H9
GND62 R17
GND63 A1
GND64 D9
GND65 AG26
GND66 G4
GND67 AB6
GND68 J25
GND69 R25
GND7 T16
GND70 T15
GND71 J29
GND72 W14
GND73 AD6
GND74 AB24
GND75 AM13
GND76 R16
GND77 V6
GND78 A13
GND79 N32
GND8 AM25
GND80 F9
GND81 N9
GND82 AL31
GND83 G25
GND84 AB18
GND85 AH32
GND86 D13
GND87 N25
GND88 A25
GND89 R9
GND9 R14
GND90 AF27
GND91 AH8
GND92 A32
GND93 P14
GND94 E29
GND95 E32
GND96 V10
GND97 J23
GND98 N14
GND99 AB29
GND148 E4
GND149 AE13
GND150 L27
GND151 J27
GND152 A9
GND153 J32
GND154 AE20
GND155 AJ22
GND156 AG18
GND157 AG20
GND158 V14
GND159 F18
GND160 F20
GND161 D20
GND162 E1
GND163 V4
GND164 J8
GND165 F7
GND166 T18
GND167 J24
GND168 A31
GND169 Y1
GND170 T13
GND171 D22
GND172 Y4
GND173 P18
GND174 AJ18
GND175 AF22
GND176 R24
GND185 N19
GND186 T14

3V [2,5,6,7,8,9,10,12,13,14,15,18,19,21,22,23,26,27,28,29,30,31,32,33,36,38]
3V_S5 [8,9,10,20,28,30,32,33,37]
+3.3V_RMGT [9,10]
1.8V [13,15,16,17,32,37]
1.2V_VCORE [35,36]
1.2V [10,12,13,15,36]
1.2V_HT [2,6,10]
1.2V_S5 [10,32,35]
+1.2V_RMGT [10]

NB5/RD2/HW1

PROJECT : AT1
Quanta Computer Inc.

Size	Document Number	Rev
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U33F

GND_0 GND_1 GND_2 GND_3 GND_4 GND_5 GND_6 GND_7 GND_8 GND_9 GND_10 GND_11 GND_12 GND_13 GND_14 GND_15 GND_16 GND_17 GND_18 GND_19 GND_20 GND_21 GND_22 GND_23 GND_24 GND_25 GND_26 GND_27 GND_28 GND_29 GND_30 GND_31 GND_32 GND_33 GND_34 GND_35 GND_36 GND_37 GND_38 GND_39 GND_40 GND_41 GND_42 GND_43 GND_44 GND_45 GND_46 GND_47 GND_48 GND_49 GND_50 GND_51 GND_52 GND_53 GND_54 GND_55 GND_56 GND_57 GND_58 GND_59 GND_60 GND_61 GND_62 GND_63 GND_64 GND_65 GND_66 GND_67 GND_68 GND_69 GND_70 GND_71 GND_72 GND_73 GND_74 GND_75 GND_76 GND_77 GND_78 GND_79 GND_80 GND_81 GND_82 GND_83 GND_84 GND_85 GND_86 GND_87 GND_88 GND_89 GND_90 GND_91 GND_92 GND_93 GND_94 GND_95 GND_96 GND_97 GND_98 GND_99 GND_100 GND_101 GND_102 GND_103 GND_104 GND_105 GND_106 GND_107 GND_108 GND_109 GND_110 GND_111 GND_112 GND_113 GND_114 GND_115 GND_116 GND_117 GND_118 GND_119 GND_120 GND_121 GND_122 GND_123 GND_124 GND_125 GND_126 GND_127 GND_128 GND_129 GND_130 GND_131 GND_132 GND_133 GND_134 GND_135 GND_136 GND_137 GND_138 GND_139 GND_140 GND_141 GND_142 GND_143 GND_144 GND_145 GND_146 GND_147 GND_148 GND_149 GND_150 GND_151 GND_152 GND_153

NB8M-GS-B-A1/H

PEG_RXP0 PEG_RXN0 PEG_RXP1 PEG_RXN1 PEG_RXP2 PEG_RXN2 PEG_RXP3 PEG_RXN3 PEG_RXP4 PEG_RXN4 PEG_RXP5 PEG_RXN5 PEG_RXP6 PEG_RXN6 PEG_RXP7 PEG_RXN7 PEG_RXP8 PEG_RXN8 PEG_RXP9 PEG_RXN9 PEG_RXP10 PEG_RXN10 PEG_RXP11 PEG_RXN11 PEG_RXP12 PEG_RXN12 PEG_RXP13 PEG_RXN13 PEG_RXP14 PEG_RXN14 PEG_RXP15 PEG_RXN15

C215 C227 C222 C231 C238 C254 C252 C260 C269 C280 C275 C286 C310 C299 C285 C293 C309 C321 C326 C334 C331 C338 C346 C351 C359 C349 C373 C363 C367 C376 C375 C366

0.1U/16V/V

C_PEG_RXP0 C_PEG_RXN0 C_PEG_RXP1 C_PEG_RXN1 C_PEG_RXP2 C_PEG_RXN2 C_PEG_RXP3 C_PEG_RXN3 C_PEG_RXP4 C_PEG_RXN4 C_PEG_RXP5 C_PEG_RXN5 C_PEG_RXP6 C_PEG_RXN6 C_PEG_RXP7 C_PEG_RXN7 C_PEG_RXP8 C_PEG_RXN8 C_PEG_RXP9 C_PEG_RXN9 C_PEG_RXP10 C_PEG_RXN10 C_PEG_RXP11 C_PEG_RXN11 C_PEG_RXP12 C_PEG_RXN12 C_PEG_RXP13 C_PEG_RXN13 C_PEG_RXP14 C_PEG_RXN14 C_PEG_RXP15 C_PEG_RXN15

AJ15 AK15 AH16 AG16 AG17 AH17 AG18 AH18 AK18 AJ18 AJ19 AH19 AG20 AH20 AG21 AH21 AK21 AJ21 AJ22 AH22 AG23 AH23 AK24 AJ24 AJ25 AH25 AH26 AG26 AK27 AJ27 AJ28 AH27

PEX_TX0 PEX_TX0# PEX_TX1 PEX_TX1# PEX_TX2 PEX_TX2# PEX_TX3 PEX_TX3# PEX_TX4 PEX_TX4# PEX_TX5 PEX_TX5# PEX_TX6 PEX_TX6# PEX_TX7 PEX_TX7# PEX_TX8 PEX_TX8# PEX_TX9 PEX_TX9# PEX_TX10 PEX_TX10# PEX_TX11 PEX_TX11# PEX_TX12 PEX_TX12# PEX_TX13 PEX_TX13# PEX_TX14 PEX_TX14# PEX_TX15 PEX_TX15#

U33A

PCIE

PEG_TXP_C0 PEG_TXN_C0 PEG_TXP_C1 PEG_TXN_C1 PEG_TXP_C2 PEG_TXN_C2 PEG_TXP_C3 PEG_TXN_C3 PEG_TXP_C4 PEG_TXN_C4 PEG_TXP_C5 PEG_TXN_C5 PEG_TXP_C6 PEG_TXN_C6 PEG_TXP_C7 PEG_TXN_C7 PEG_TXP_C8 PEG_TXN_C8 PEG_TXP_C9 PEG_TXN_C9 PEG_TXP_C10 PEG_TXN_C10 PEG_TXP_C11 PEG_TXN_C11 PEG_TXP_C12 PEG_TXN_C12 PEG_TXP_C13 PEG_TXN_C13 PEG_TXP_C14 PEG_TXN_C14 PEG_TXP_C15 PEG_TXN_C15

AK13 AK14 AM14 AM15 AL15 AL16 AK16 AK17 AL17 AL18 AM18 AM19 AK19 AK20 AL20 AL21 AM21 AM22 AK22 AK23 AL23 AL24 AM24 AM25 AK25 AK26 AL26 AL27 AM27 AM28 AL28 AL29

PEX_RX0 PEX_RX0# PEX_RX1 PEX_RX1# PEX_RX2 PEX_RX2# PEX_RX3 PEX_RX3# PEX_RX4 PEX_RX4# PEX_RX5 PEX_RX5# PEX_RX6 PEX_RX6# PEX_RX7 PEX_RX7# PEX_RX8 PEX_RX8# PEX_RX9 PEX_RX9# PEX_RX10 PEX_RX10# PEX_RX11 PEX_RX11# PEX_RX12 PEX_RX12# PEX_RX13 PEX_RX13# PEX_RX14 PEX_RX14# PEX_RX15 PEX_RX15#

CLK_PCIE_VGA CLK_PCIE_VGA# AH14 AJ14

PEX_REFCLK PEX_REFCLK#

VGA_RST# AH15

PEX_RST#

RFU0 RFU1

VGA_RFU0 VGA_RFU1 AG12 AH13

T88 T93

PEX_TSTCLK_OUT PEX_TSTCLK_OUT#

PEX_TSTCK PEX_TSTCK# AM12 AM11

T186 T184

[7,27,28] PCIE_RST#

U31 *TC7SH08FU

C761 0.1U/16V/V 3V

R653 100K

G7XM:STUFF,G8X:NC

D41 CH500H

VGA_VDD

PEX_IOVDD_0 PEX_IOVDD_1 PEX_IOVDD_2 PEX_IOVDD_3 PEX_IOVDD_4 PEX_IOVDD_5

AD23 AF23 AF24 AF25 AG24 AG25

C292 C296 C371 C237 C808 4.7UB/10V/R

1.2V

PLACE NEAR GPU

DB2 BOM MODIFY 1109

VGA_VDDQ

PEX_IOVDDQ_0 PEX_IOVDDQ_1 PEX_IOVDDQ_2 PEX_IOVDDQ_3 PEX_IOVDDQ_4 PEX_IOVDDQ_5 PEX_IOVDDQ_6 PEX_IOVDDQ_7 PEX_IOVDDQ_8 PEX_IOVDDQ_9 PEX_IOVDDQ_10

AC16 AC17 AC21 AC22 AE18 AE21 AE22 AE12 AF18 AF21 AF22

C320 C361 C291 C308 C347 C264 C319 C332 C314

0.1U/16V/V 0.47UA/10V/X 1U/6.3V/R 10UA/6.3V/R

1.2V

PLACE NEAR GPU

VDD_0 VDD_1 VDD_2 VDD_3 VDD_4 VDD_5 VDD_6 VDD_7 VDD_8 VDD_9 VDD_10 VDD_11 VDD_12 VDD_13 VDD_15 VDD_16 VDD_17 VDD_18 VDD_19

K16 K17 N13 N14 N16 N17 N19 P13 P14 P16 P17 P19 R16 R17 T14 T15 T18 T19 U13

C312 C311 C325 C329 C274 C271 C324 C284 C273 C267 C283 C330 C272 C297 C335 C249 C268

0.1U/16V/V 10UA/6.3V/R 1U/6.3V/R 0.47UA/10V/X

VGA_CORE

PLACE NEAR GPU

VDD_20 VDD_21 VDD_22 VDD_23 VDD_24 VDD_25 VDD_26 VDD_27 VDD_28 VDD_29 VDD_30 VDD_31 VDD_32 VDD_33 VDD_34 VDD_35 VDD_36

U14 U15 U18 U19 V16 V17 W13 W14 W16 W17 W19 Y13 Y14 Y16 Y17 Y19 Y20

C318 C317 C298 C304 C322 C277 C337 C341 C300

1U/6.3V/R 0.47UA/10V/X 10UA/6.3V/R

VDD_LP_0 VDD_LP_1 VDD_LP_2 VDD_LP_3 VDD_LP_4 VDD_LP_5

P20 T20 T23 U20 U23 W20

VDD_SENSE GND_SENSE

N20 M21

VDD_SENSE GND_SENSE

C328 *0.01U/16V/X

T94 T95

VDD33_0 VDD33_1 VDD33_2 VDD33_3 VDD33_4 VDD33_5 VDD33_6 VDD33_7 VDD33_8 VDD33_9 VDD33_10 VDD33_11 VDD33_12

AC11 AC12 AC24 AD24 AE11 AE12 H7 J7 K7 L10 L7 L8 M10

VGA_VDD3 R119 0B 3V

C198 C197 C193 C362 C250 C230 C199

0.1U/16V/V 0.47UA/10V/X 1U/6.3V/R

PLACE NEAR GPU

PEX_PLLAVDD PEX_PLLDVDD PEX_PLLGND

AE15 AE15 AE16

15mil PEX_PLLAVDD PEX_PLLDVDD 15mil

L14 10nHA/0.3A 1.2V

C263 1U/6.3V/R C135 0.01U/16V/X C134 0.1U/16V/V C128 4.7UA/6.3V/R

L12 10nHA/0.3A 1.2V

C131 1U/6.3V/R C123 0.01U/16V/X C282 0.1U/16V/V C101 4.7UA/6.3V/R

PLACE NEAR GPU

NV_PLLAVDD

T13

15mil NV_PLLAVDD

VGA_CORE

SI MODIFY 1215
FOR NVIDIA RECOMMEND

NC_0 NC_1 NC_2

AM8 AM9 B32

SPDIF

J6 SPDIF_VGA

1.2V [10,11,13,15,36]
VGA_CORE [35]
3V [2,5,6,7,8,9,10,11,13,14,15,18,19,21,22,23,26,27,28,29,30,31,32,33,36,38]

3V

D2 CH501H

D1 CH501H

SPDIF_VGA

Ra R126 *24.3K/F

SI MODIFY

C166 C 0.01U/16V/X

Rb R120 *3.4KA/F

Rc R136 *76.8/F

SPDIF SPDIF [23,31]

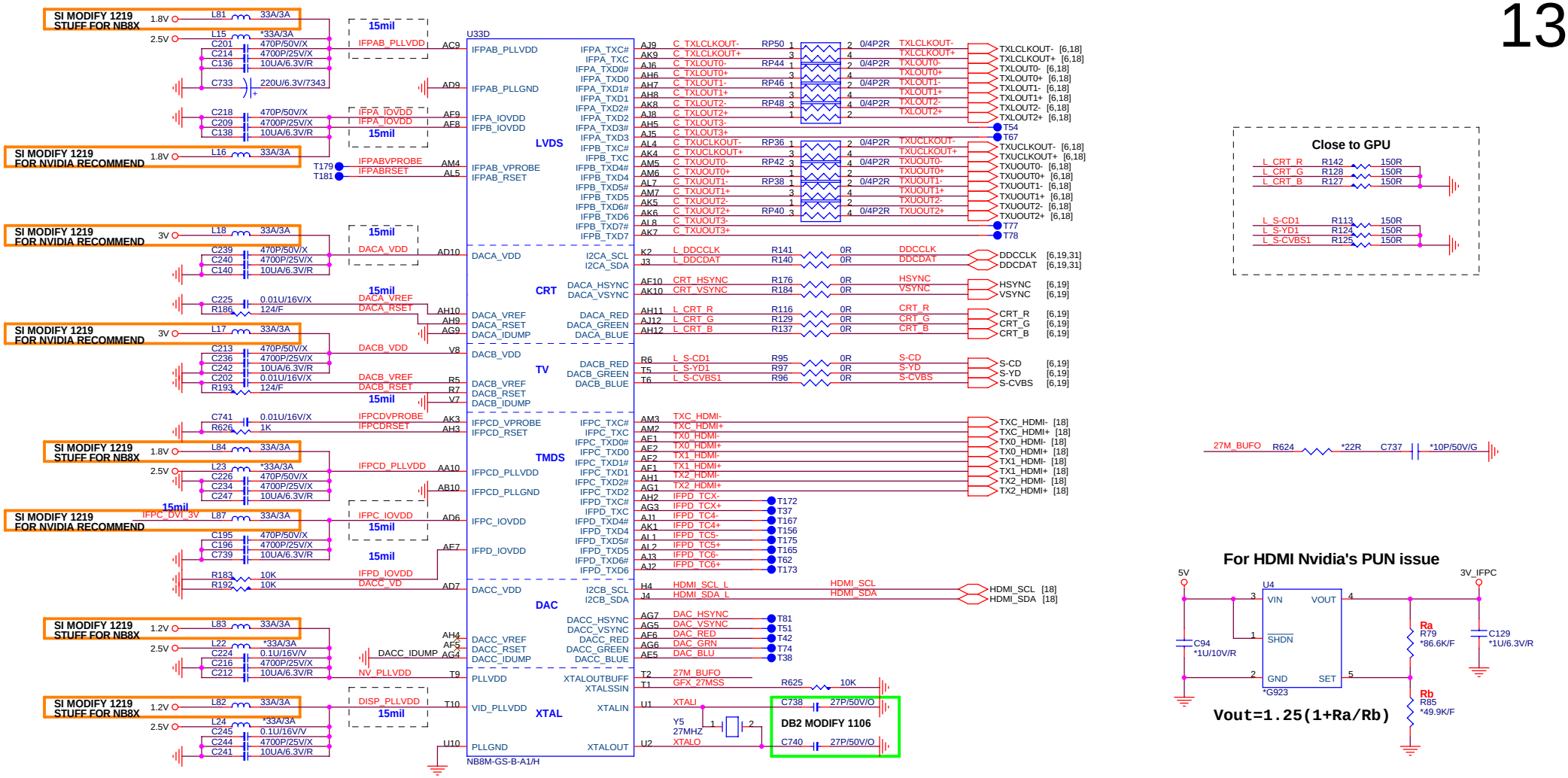
For 3.3V swing, we can remove Ra, Rb and Rc and replace C with 0ohm resistor.

PROJECT : AT1
Quanta Computer Inc.

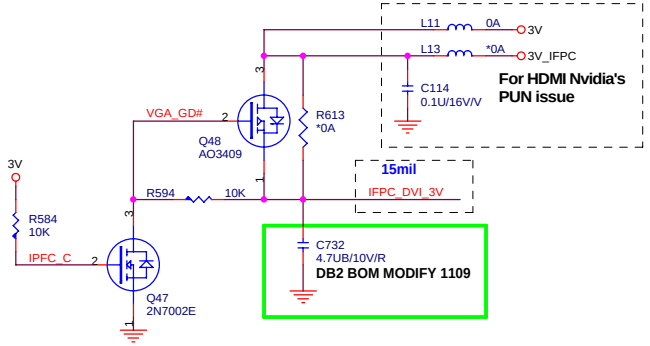
NB5/RD2/HW1

Size	Document Number	Rev
Custom	NV_NB8M (PCIE_I/F,GND)	C2A

Date: Wednesday, December 20, 2006 Sheet 12 of 40



FOR IFPC VDD LEAKAGE CIRCIUT



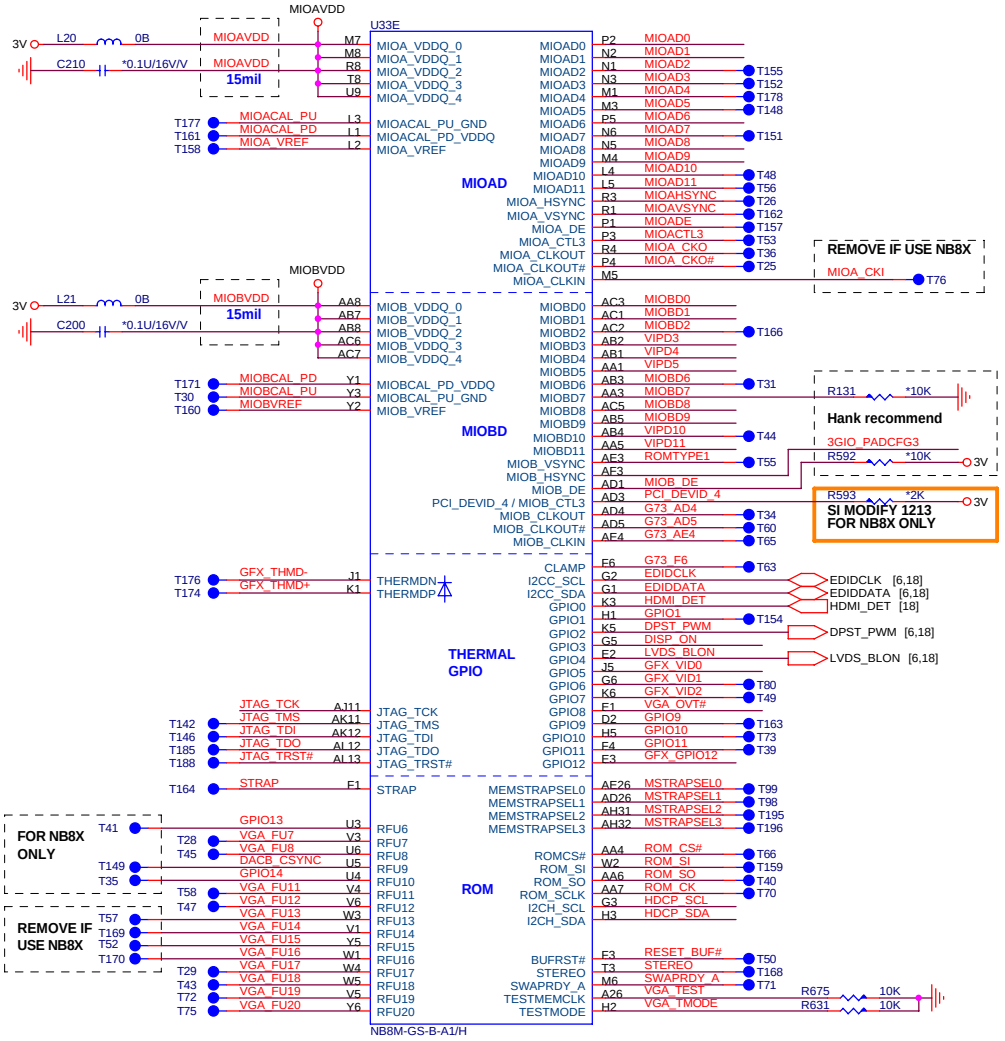
1.2V	[10,11,12,15,36]
1.8V	[11,15,16,17,32,37]
2.5V	[2,32,36]
3V	[2,5,6,7,8,9,10,11,12,14,15,18,19,21,22,23,26,27,28,29,30,31,32,33,36,38]
5V	[18,19,22,23,25,26,27,28,29,31,32,33,36,38]

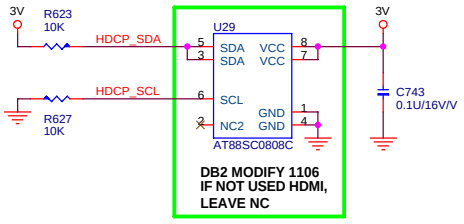
NB5/RD2/HW1

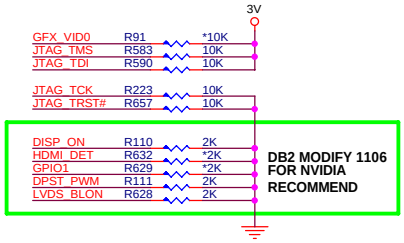
PROJECT : AT1
Quanta Computer Inc.

Size	Document Number	Rev
Custom	NV_NB8M (LVDS,CRT,TV,HDMI)	C2A

Date: Wednesday, December 20, 2006 Sheet 13 of 40

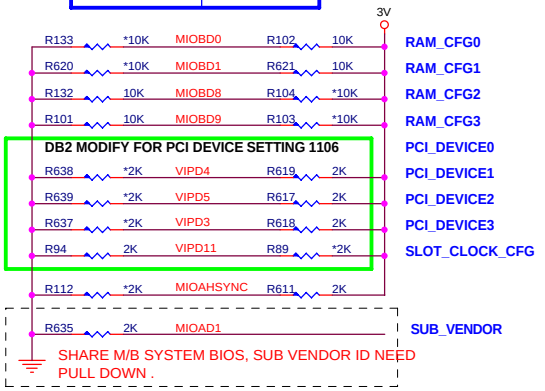






PCI DEVICE ID SETTING

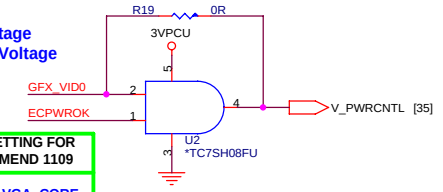
PCI_DEVICE[4:0]	DESCRIPTION
00111	NB8M
OTHERS	RESERVED



GFX_VID0

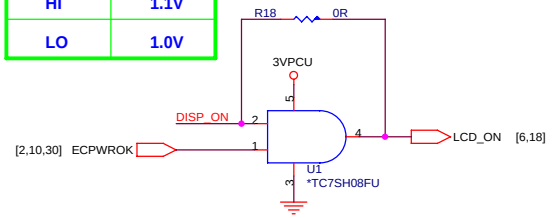
L : Low Voltage

H : Normal Voltage



DB2 MODIFY SETTING FOR NVIDIA RECOMMEND 1109

GFX_VID0 (GPIO5)	VGA_CORE (NB8X)
HI	1.1V
LO	1.0V

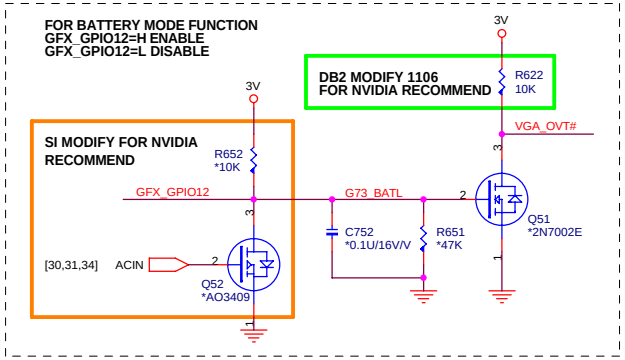


NB8X 64bit VRAM Configuration Table

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	

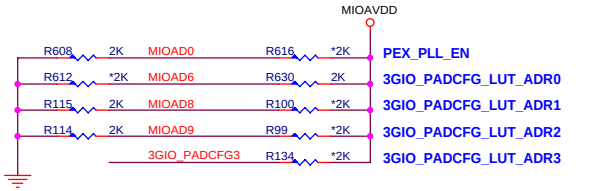
NB8X 128bit VRAM Configuration Table

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



3GIO_PADCFG STRAP

3GIO_PDACFG[3:0]	DESCRIPTION
0000	DESKTOP
0001	MOBILE
OTHERS	RESERVED



3V [2,5,6,7,8,9,10,11,12,13,15,18,19,21,22,23,26,27,28,29,30,31,32,33,36,38]
3VPCU [9,18,28,29,30,31,33,34,35]

NB5/RD2/HW1

PROJECT : AT1
Quanta Computer Inc.

Size	Document Number	Rev
Custom	NV_NB8M (ROM,GPIO,STRAP)	C2A

Date: Wednesday, December 20, 2006 Sheet 14 of 40

Channel C is available for 128bit only

U33B

VMA_DQ0 N27 … VMA_DQ63 AE28 — FBAD0 … FBAD63 — FBA

VMA_DM0 M29, VMA_DM1 M30, VMA_DM2 G30, VMA_DM3 F29, VMA_DM4 AA29, VMA_DM5 AK30, VMA_DM6 AC30, VMA_DM7 AG30 — FBADQM0 … FBADQM7

VMA_WDQS0 L28, VMA_WDQS1 K31, VMA_WDQS2 G32, VMA_WDQS3 G28, VMA_WDQS4 AB28, VMA_WDQS5 AL32, VMA_WDQS6 AE32, VMA_WDQS7 AH30 — FBADQS_WP0 … FBADQS_WP7

VMA_RDQS0 M28, VMA_RDQS1 K32, VMA_RDQS2 G31, VMA_RDQS3 G27, VMA_RDQS4 AA28, VMA_RDQS5 AL31, VMA_RDQS6 AE31, VMA_RDQS7 AH29 — FBADQS_RN0 … FBADQS_RN7

FBVDD_0 A12, FBVDD_1 A15, FBVDD_2 A18, FBVDD_3 A21, FBVDD_4 A24, FBVDD_5 A27, FBVDD_6 A3, FBVDD_7 A30, FBVDD_8 A6, FBVDD_9 A9, FBVDD_10 AA32, FBVDD_11 AD32, FBVDD_12 AG32, FBVDD_13 AK32, FBVDD_14 C32, FBVDD_15 F32, FBVDD_16 J32, FBVDD_17 M32, FBVDD_18 R32, FBVDD_19 V32 — 1.8V

C420 0.1U/16V/V, C208 0.1U/16V/V, C419 0.1U/16V/V, C763 0.1U/16V/V, C799 0.1U/16V/V, C369 0.1U/16V/V, C352 0.1U/16V/V, C167 0.1U/16V/V, C333 0.47UA/10V/X, C360 0.47UA/10V/X, C279 0.47UA/10V/X, C810 0.47UA/10V/X, C235 10UA/6.3V/R, C356 10UA/6.3V/R

PLACE NEAR GPU

FBVDDQ_0 AA25, FBVDDQ_1 AA26, FBVDDQ_2 AB25, FBVDDQ_3 AB26, FBVDDQ_4 G11, FBVDDQ_5 G12, FBVDDQ_6 G15, FBVDDQ_7 G18, FBVDDQ_8 G21, FBVDDQ_9 G22, FBVDDQ_10 H11, FBVDDQ_11 H12, FBVDDQ_12 H15, FBVDDQ_13 H18, FBVDDQ_14 H21, FBVDDQ_15 H22, FBVDDQ_16 L25, FBVDDQ_17 L26, FBVDDQ_18 M25, FBVDDQ_19 M26, FBVDDQ_20 R25, FBVDDQ_21 R26, FBVDDQ_22 V25, FBVDDQ_23 V26 — 1.8V

C343 0.1U/16V/V, C427 0.1U/16V/V, C345 0.1U/16V/V, C365 0.1U/16V/V, C339 0.1U/16V/V, C372 0.1U/16V/V, C381 0.1U/16V/V, C380 0.1U/16V/V, C354 0.47UA/10V/X, C348 0.47UA/10V/X, C265 0.47UA/10V/X, C355 0.47UA/10V/X, C350 10UA/6.3V/R, C812 10UA/6.3V/R

PLACE NEAR GPU

FBA_CMD0 P32 VMA_MA3 … FBA_CMD26 Y32 VMA_MA13 — VMA_MA3 [16] … VMA_MA13 [16]

T196 VMA_BA2, T193 VMA_CAS#

FBA_CLK0 P28 VMA_CLK0, FBA_CLK0# R28 VMA_CLK0#, FBA_CLK1 Y27 VMA_CLK1, FBA_CLK1# AA27 VMA_CLK1# — VMA_CLK0 [16] … VMA_CLK1# [16]

RFU2 Y30 — FBA_CMD27 — T194 — RESERVED FOR NB8X

RFU3 AC26 — G73_AC26 — T96

FBA_DEBUG AC27 — VMA_DEBUG — T97

FBA_REFCLK D32 VMA_REFCK — T199; FBA_REFCLK# D31 VMA_REFCK# — T197 — REMOVE IF USE NB8X

FBA_PLLVDD/H_PLLVDD G23 — L32 220A/0.2A — C377 0.1U/16V/V, C378 4.7UA/6.3V/R — 1.2V — DB2 MODIFY 1024 STUFF FOR NB8X

FBA_PLLAVDD G25 — FBA_PLLAVDD — 15mil — L40 33A/3A — 1.2V

FBA_PLLGND G24 — C389 470P/50V/X, C391 4700P/25V/X, C406 4.7UA/6.3V/R

C370 0.1U/16V/V — For EMI

FB_VREF1 E32 — VREF=FBVDDQ*Rbot/(Rtop+Rbot)

1.8V — R682 1K — FB_VREF1 — 15mil

DB2 MODIFY 1103 STUFF FOR NB8X — R680 1K, C825 0.1U/16V/V

NB8M-GS-B-A1/H

U33C

VMC_DQ0 B7 … VMC_DQ63 E19 — FBCD0 … FBCD63 — FBC

VMC_DM0 A4, VMC_DM1 F11, VMC_DM2 F5, VMC_DM3 C9, VMC_DM4 C28, VMC_DM5 F24, VMC_DM6 C24, VMC_DM7 E20 — FBCDQM0 … FBCDQM7

VMC_WDQS0 C5, VMC_WDQS1 E10, VMC_WDQS2 E5, VMC_WDQS3 B8, VMC_WDQS4 A29, VMC_WDQS5 D25, VMC_WDQS6 B25, VMC_WDQS7 E20 — FBCDQS_WP0 … FBCDQS_WP7

VMC_RDQS0 C6, VMC_RDQS1 F9, VMC_RDQS2 E6, VMC_RDQS3 A8, VMC_RDQS4 B29, VMC_RDQS5 E25, VMC_RDQS6 A25, VMC_RDQS7 F21 — FBCDQS_RN0 … FBCDQS_RN7

FBVTT_0 AA23, FBVTT_1 AB23, FBVTT_2 H16, FBVTT_3 H17, FBVTT_4 J10, FBVTT_5 J23, FBVTT_6 J24, FBVTT_7 J9, FBVTT_8 K11, FBVTT_9 K12, FBVTT_10 K21, FBVTT_11 K22, FBVTT_12 K24, FBVTT_13 K9, FBVTT_14 L23, FBVTT_15 M23, FBVTT_16 T25, FBVTT_17 U25 — 1.8V

C344 0.1U/16V/V, C756 1U/6.3V/R, C358 0.1U/16V/V, C827 0.1U/16V/V, C303 0.47UA/10V/X, C313 0.47UA/10V/X, C253 10UA/6.3V/R, C357 0.1U/16V/V, C374 0.1U/16V/V, C290 0.1U/16V/V, C336 0.47UA/10V/X, C219 0.47UA/10V/X, C327 10UA/6.3V/R

PLACE NEAR GPU

FBC_CMD0 C13 VMC_MA3 … FBC_CMD26 A20 VMC_MA13 — VMC_MA3 [17] … VMC_MA13 [17]

T92 VMC_BA2, T192 VMC_CAS#

FBC_CLK0 E13 VMC_CLK0, FBC_CLK0# E13 VMC_CLK0#, FBC_CLK1 E18 VMC_CLK1, FBC_CLK1# E17 VMC_CLK1# — VMC_CLK0 [17] … VMC_CLK1# [17]

RFU4 C20 FBC_CMD27 — T191; RFU5 D1 G73_D1 — T153 — RESERVED FOR NB8X

FBC_DEBUG F12 — VMC_DEBUG — T90

FBC_REFCLK B1 VMC_REFCK, FBC_REFCLK# C1 VMC_REFCK# — R610 *0R I2CS_SDA R609 *2.2K; R605 *0R I2CS_SCL R604 *2.2K — 3V

G73_G8 — T83

FBC_PLLVDD G8 — 15mil — FBC_PLLAVDD G10 — L27 *33A/3A — 1.2V

FBC_PLLGND G9 — C221 *470P/50V/X, C251 *4700P/25V/X, C262 *4.7UA/6.3V/R

DB2 MODIFY 1103 IF NOT USED C PORT DDR2, FB_PLLAVDD LEAVE NC

FBCAL_PD_VDDQ K26 FBCAL_PD — R242 40.2A/F — 1.8V

FBCAL_PU_GND H26 FBCAL_PU — R243 40.2/F

FBCAL_TERM_GND J26 FBCAL_TERM — R241 *40.2/F

SI MODIFY FOR NVIDIA RECOMMEND 1220

FB_VREF2 A28 — 15mil — FB_VREF2 — R677 *1K — 1.8V

C811 *0.1U/16V/V, R676 *1K

IF NOT USED C PORT DDR2, FB_VREF2 LEAVE NC

NB8M-GS-B-A1/H

VMA_RST# — R678 0R — VMA_ODT — VMA_ODT [16]

R679 10K

VMC_RST# — R226 *0R — VMC_ODT — VMC_ODT [17]

Ra

R225 *10K

Rb

DB2 MODIFY 1103 IF NOT USED C PORT DDR2, Ra,Rb LEAVE NC

MBDATA [2,29,30,31,34] — R820 *0R — Q71 *RHU002N06 — 3V — I2CS_SDA

MBCLK [2,29,30,31,34] — R821 *0R — Q72 *RHU002N06 — 3V — I2CS_SCL

SI MODIFY FOR NVIDIA RECOMMEND 1212

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

[17] VMC_DQ[63..0], [17] VMC_DM[7..0], [17] VMC_WDQS[7..0], [17] VMC_RDQS[7..0]

1.2V, 1.8V, 3V — [10,11,12,13,36] [11,13,16,17,32,37] [2,5,6,7,8,9,10,11,12,13,14,18,19,21,22,23,26,27,28,29,30,31,32,33,36,38]

NB5/RD2/HW1

PROJECT : AT1
Quanta Computer Inc.

Size	Document Number	Rev
Custom	NV_NB8M (MEM_I/F)	C2A

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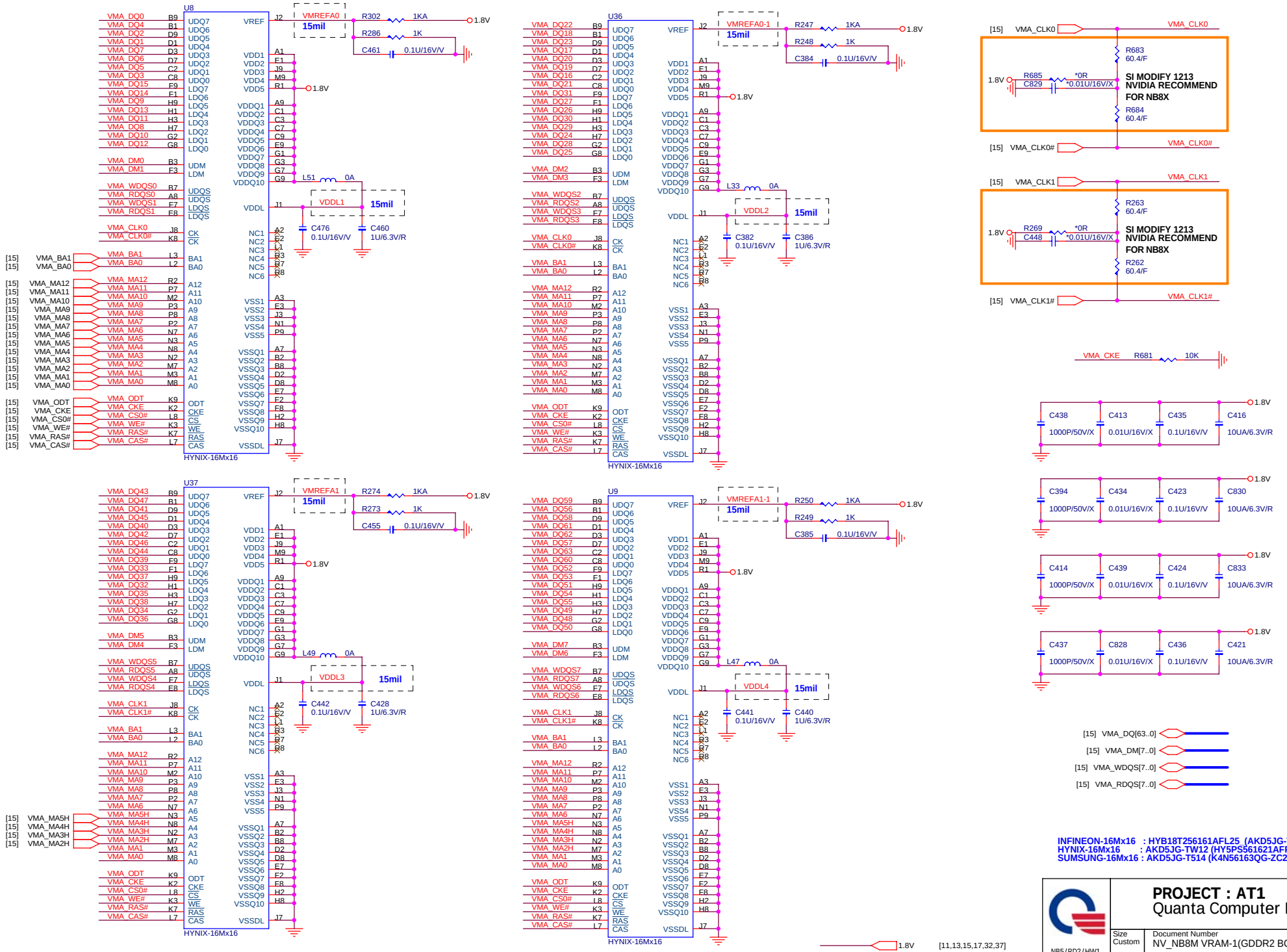
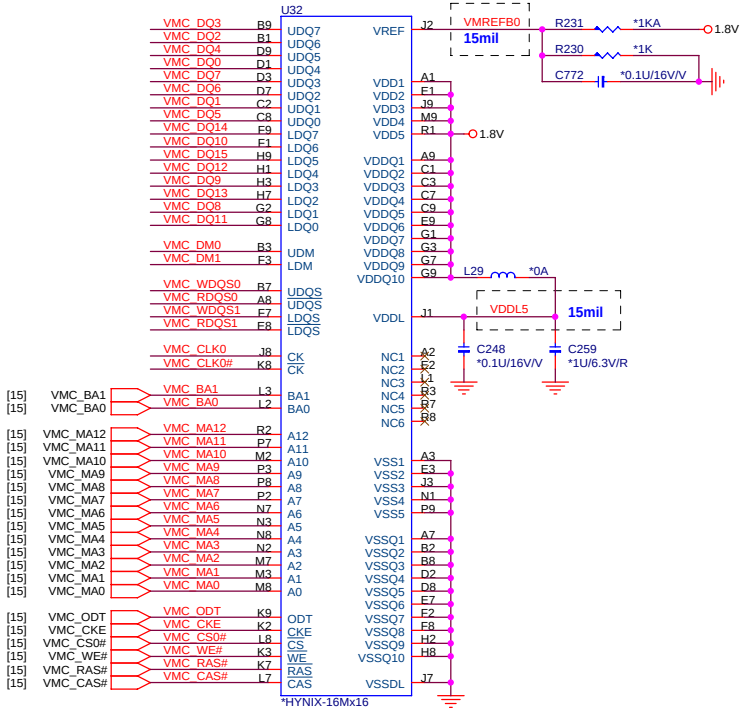
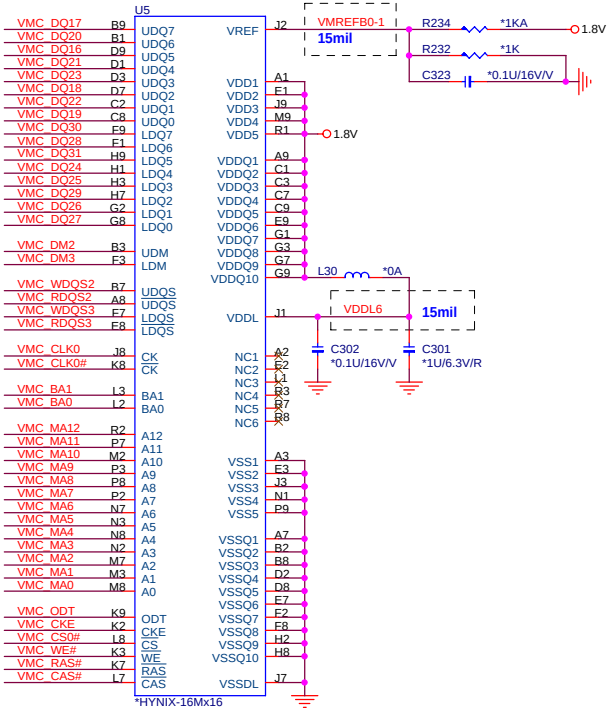
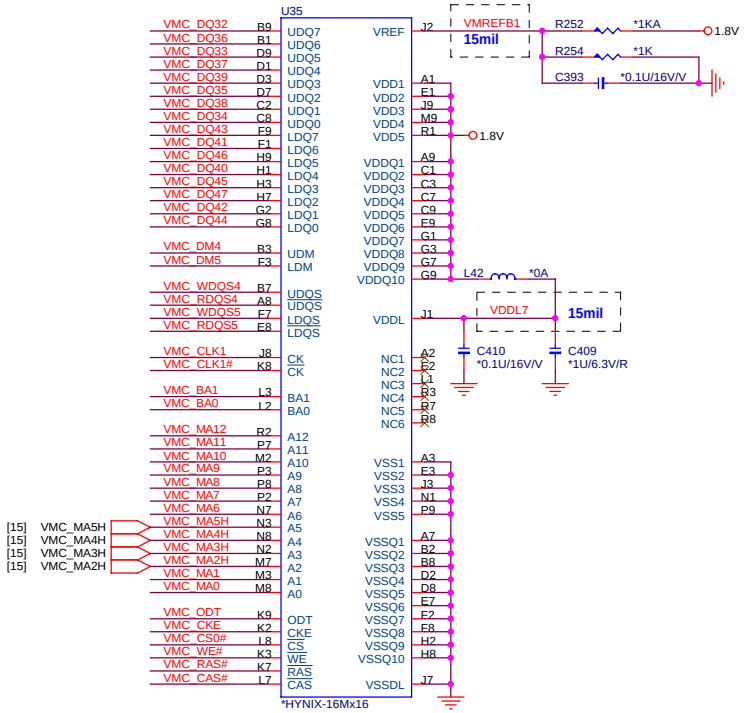
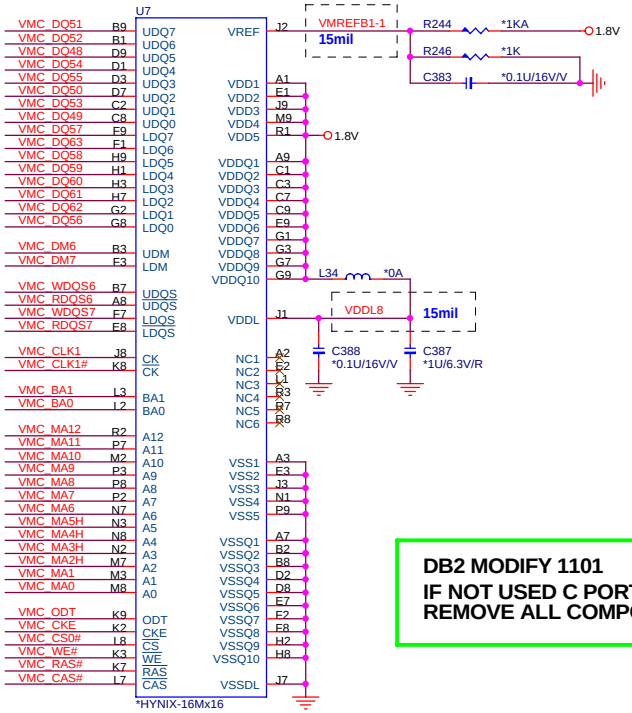
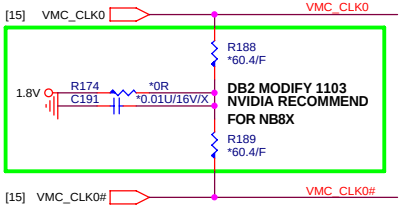

U8
VMA_DQ0 VMA_DQ4 VMA_DQ2 VMA_DQ1 VMA_DQ7 VMA_DQ6 VMA_DQ5 VMA_DQ3 VMA_DQ15 VMA_DQ14 VMA_DQ9 VMA_DQ13 VMA_DQ11 VMA_DQ8 VMA_DQ10 VMA_DQ12
VMA_DM0 VMA_DM1
VMA_WDQS0 VMA_RDQS0 VMA_WDQS1 VMA_RDQS1
VMA_CLK0 VMA_CLK0#
VMA_BA1 VMA_BA0
VMA_MA12 VMA_MA11 VMA_MA10 VMA_MA9 VMA_MA8 VMA_MA7 VMA_MA6 VMA_MA5 VMA_MA4 VMA_MA3 VMA_MA2 VMA_MA1 VMA_MA0
VMA_ODT VMA_CKE VMA_CS0# VMA_WE# VMA_RAS# VMA_CAS#
VREF J2 VMREFA0 15mil R302 1KA R286 1K C461 0.1U/16V/V 1.8V
VDD1 A1 VDD2 E1 VDD3 J9 VDD4 M9 VDD5 R1 1.8V
VDDQ1 A9 VDDQ2 C1 VDDQ3 C3 VDDQ4 C7 VDDQ5 C9 VDDQ6 E9 VDDQ7 G1 VDDQ8 G3 VDDQ9 G7 VDDQ10 G9
L51 0A
VDDL J1 VDDL1 15mil C476 0.1U/16V/V C460 1U/6.3V/R
NC1 A2 NC2 E2 NC3 L1 NC4 R3 NC5 R7 NC6 R8
VSS1 A3 VSS2 E3 VSS3 J3 VSS4 N1 VSS5 P9
VSSQ1 A7 VSSQ2 B2 VSSQ3 B8 VSSQ4 D2 VSSQ5 D8 VSSQ6 E7 VSSQ7 F2 VSSQ8 F8 VSSQ9 H2 VSSQ10 H8
VSSDL J7
HYNIX-16Mx16
U36
VMA_DQ22 VMA_DQ18 VMA_DQ23 VMA_DQ17 VMA_DQ20 VMA_DQ19 VMA_DQ16 VMA_DQ21 VMA_DQ31 VMA_DQ27 VMA_DQ26 VMA_DQ30 VMA_DQ29 VMA_DQ24 VMA_DQ28 VMA_DQ25
VMA_DM2 VMA_DM3
VMA_WDQS2 VMA_RDQS2 VMA_WDQS3 VMA_RDQS3
VMA_CLK0 VMA_CLK0#
VMA_BA1 VMA_BA0
VMA_MA12 VMA_MA11 VMA_MA10 VMA_MA9 VMA_MA8 VMA_MA7 VMA_MA6 VMA_MA5 VMA_MA4 VMA_MA3 VMA_MA2 VMA_MA1 VMA_MA0
VMA_ODT VMA_CKE VMA_CS0# VMA_WE# VMA_RAS# VMA_CAS#
VREF J2 VMREFA0-1 15mil R247 1KA R248 1K C384 0.1U/16V/V 1.8V
VDD1 A1 VDD2 E1 VDD3 J9 VDD4 M9 VDD5 R1 1.8V
VDDQ1 A9 VDDQ2 C1 VDDQ3 C3 VDDQ4 C7 VDDQ5 C9 VDDQ6 E9 VDDQ7 G1 VDDQ8 G3 VDDQ9 G7 VDDQ10 G9
L33 0A
VDDL J1 VDDL2 15mil C382 0.1U/16V/V C386 1U/6.3V/R
NC1 A2 NC2 E2 NC3 L1 NC4 R3 NC5 R7 NC6 R8
VSS1 A3 VSS2 E3 VSS3 J3 VSS4 N1 VSS5 P9
VSSQ1 A7 VSSQ2 B2 VSSQ3 B8 VSSQ4 D2 VSSQ5 D8 VSSQ6 E7 VSSQ7 F2 VSSQ8 F8 VSSQ9 H2 VSSQ10 H8
VSSDL J7
HYNIX-16Mx16
[15] VMA_CLK0 VMA_CLK0
R683 60.4/F
1.8V R685 C829 *0R *0.01U/16V/X
SI MODIFY 1213 NVIDIA RECOMMEND FOR NB8X
R684 60.4/F
[15] VMA_CLK0# VMA_CLK0#
[15] VMA_CLK1 VMA_CLK1
R263 60.4/F
1.8V R269 C448 *0R *0.01U/16V/X
SI MODIFY 1213 NVIDIA RECOMMEND FOR NB8X
R262 60.4/F
[15] VMA_CLK1# VMA_CLK1#
VMA_CKE R681 10K
C438 1000P/50V/X C413 0.01U/16V/X C435 0.1U/16V/V C416 10UA/6.3V/R 1.8V
C394 1000P/50V/X C434 0.01U/16V/X C423 0.1U/16V/V C830 10UA/6.3V/R 1.8V
C414 1000P/50V/X C439 0.01U/16V/X C424 0.1U/16V/V C833 10UA/6.3V/R 1.8V
C437 1000P/50V/X C828 0.01U/16V/X C436 0.1U/16V/V C421 10UA/6.3V/R 1.8V
U37
VMA_DQ43 VMA_DQ47 VMA_DQ41 VMA_DQ45 VMA_DQ40 VMA_DQ42 VMA_DQ46 VMA_DQ44 VMA_DQ39 VMA_DQ33 VMA_DQ37 VMA_DQ32 VMA_DQ35 VMA_DQ38 VMA_DQ34 VMA_DQ36
VMA_DM5 VMA_DM4
VMA_WDQS5 VMA_RDQS5 VMA_WDQS4 VMA_RDQS4
VMA_CLK1 VMA_CLK1#
VMA_BA1 VMA_BA0
VMA_MA12 VMA_MA11 VMA_MA10 VMA_MA9 VMA_MA8 VMA_MA7 VMA_MA6 VMA_MA5H VMA_MA4H VMA_MA3H VMA_MA2H VMA_MA1 VMA_MA0
VMA_ODT VMA_CKE VMA_CS0# VMA_WE# VMA_RAS# VMA_CAS#
VREF J2 VMREFA1 15mil R274 1KA R273 1K C455 0.1U/16V/V 1.8V
VDD1 A1 VDD2 E1 VDD3 J9 VDD4 M9 VDD5 R1 1.8V
VDDQ1 A9 VDDQ2 C1 VDDQ3 C3 VDDQ4 C7 VDDQ5 C9 VDDQ6 E9 VDDQ7 G1 VDDQ8 G3 VDDQ9 G7 VDDQ10 G9
L49 0A
VDDL J1 VDDL3 15mil C442 0.1U/16V/V C428 1U/6.3V/R
NC1 A2 NC2 E2 NC3 L1 NC4 R3 NC5 R7 NC6 R8
VSS1 A3 VSS2 E3 VSS3 J3 VSS4 N1 VSS5 P9
VSSQ1 A7 VSSQ2 B2 VSSQ3 B8 VSSQ4 D2 VSSQ5 D8 VSSQ6 E7 VSSQ7 F2 VSSQ8 F8 VSSQ9 H2 VSSQ10 H8
VSSDL J7
HYNIX-16Mx16
U9
VMA_DQ59 VMA_DQ56 VMA_DQ58 VMA_DQ61 VMA_DQ62 VMA_DQ57 VMA_DQ63 VMA_DQ60 VMA_DQ52 VMA_DQ53 VMA_DQ51 VMA_DQ54 VMA_DQ55 VMA_DQ49 VMA_DQ48 VMA_DQ50
VMA_DM7 VMA_DM6
VMA_WDQS7 VMA_RDQS7 VMA_WDQS6 VMA_RDQS6
VMA_CLK1 VMA_CLK1#
VMA_BA1 VMA_BA0
VMA_MA12 VMA_MA11 VMA_MA10 VMA_MA9 VMA_MA8 VMA_MA7 VMA_MA6 VMA_MA5H VMA_MA4H VMA_MA3H VMA_MA2H VMA_MA1 VMA_MA0
VMA_ODT VMA_CKE VMA_CS0# VMA_WE# VMA_RAS# VMA_CAS#
VREF J2 VMREFA1-1 15mil R250 1KA R249 1K C385 0.1U/16V/V 1.8V
VDD1 A1 VDD2 E1 VDD3 J9 VDD4 M9 VDD5 R1 1.8V
VDDQ1 A9 VDDQ2 C1 VDDQ3 C3 VDDQ4 C7 VDDQ5 C9 VDDQ6 E9 VDDQ7 G1 VDDQ8 G3 VDDQ9 G7 VDDQ10 G9
L47 0A
VDDL J1 VDDL4 15mil C441 0.1U/16V/V C440 1U/6.3V/R
NC1 A2 NC2 E2 NC3 L1 NC4 R3 NC5 R7 NC6 R8
VSS1 A3 VSS2 E3 VSS3 J3 VSS4 N1 VSS5 P9
VSSQ1 A7 VSSQ2 B2 VSSQ3 B8 VSSQ4 D2 VSSQ5 D8 VSSQ6 E7 VSSQ7 F2 VSSQ8 F8 VSSQ9 H2 VSSQ10 H8
VSSDL J7
HYNIX-16Mx16
[15] VMA_DQ[63..0]
[15] VMA_DM[7..0]
[15] VMA_WDQS[7..0]
[15] VMA_RDQS[7..0]
1.8V [11,13,15,17,32,37]
INFINEON-16Mx16 : HYB18T256161AFL25 (AKD5JG-T^08))
HYNIX-16Mx16 : AKD5JG-TW12 (HY5PS561621AFP-25 1.8V)
SUMSUNG-16Mx16 : AKD5JG-T514 (K4N56163QG-ZC25_1.8V)
NB5/RD2/HW1
PROJECT : AT1
Quanta Computer Inc.
Size Custom
Document Number NV_NB8M VRAM-1(GDDR2 BGA84)
Rev C2A
Date: Wednesday, December 20, 2006 Sheet 16 of 40

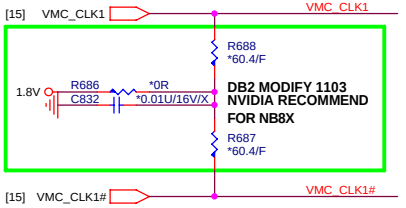


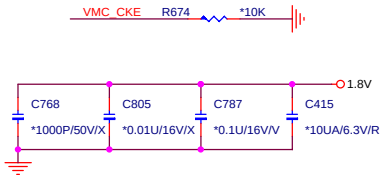


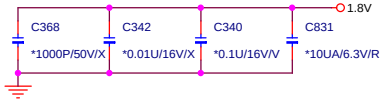


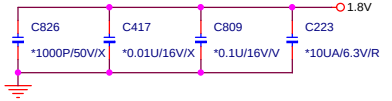


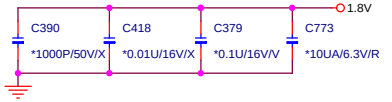












[15] VMC_DQ[63..0]
[15] VMC_DM[7..0]
[15] VMC_WDQS[7..0]
[15] VMC_RDQS[7..0]

DB2 MODIFY 1101
IF NOT USED C PORT DDR2, REMOVE ALL COMPONENTS

INFINEON-16Mx16 : HYB18T256161AFL25 (AKD5JG-T^08)
HYNIX-16Mx16 : AKD5JG-TW12 (HY5PS561621AFP-25 1.8V)
SUMSUNG-16Mx16 : AKD5JG-T514 (K4N56163QG-ZC25 1.8V)

1.8V [11,13,15,16,32,37]

NB5/RD2/HW1

PROJECT : AT1
Quanta Computer Inc.

Size	Document Number	Rev
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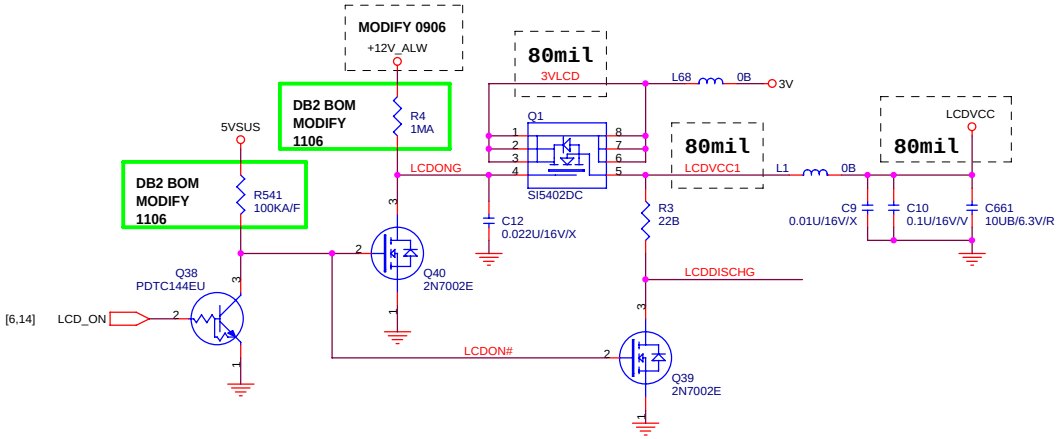
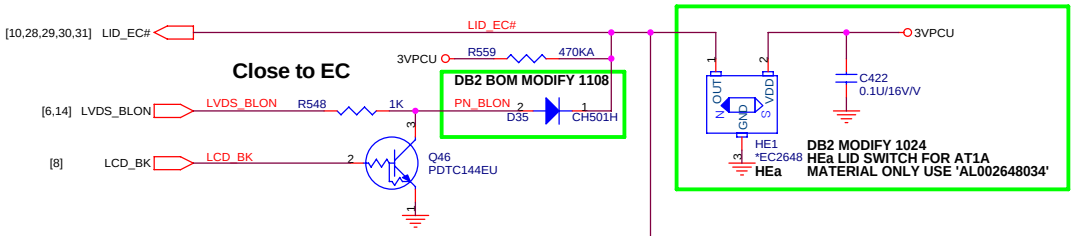
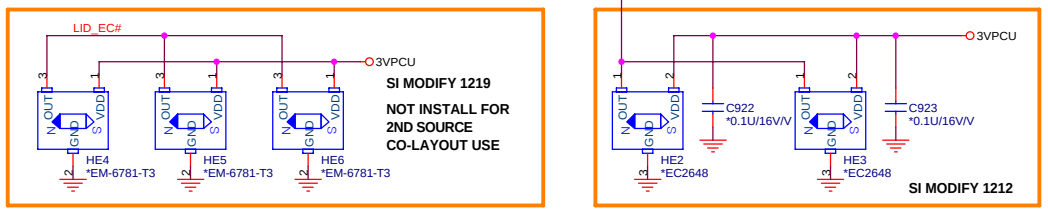
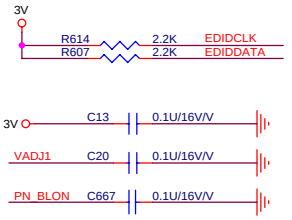
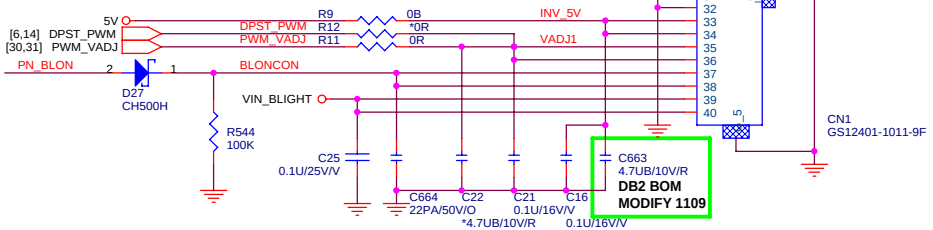
LCD CONNECTOR

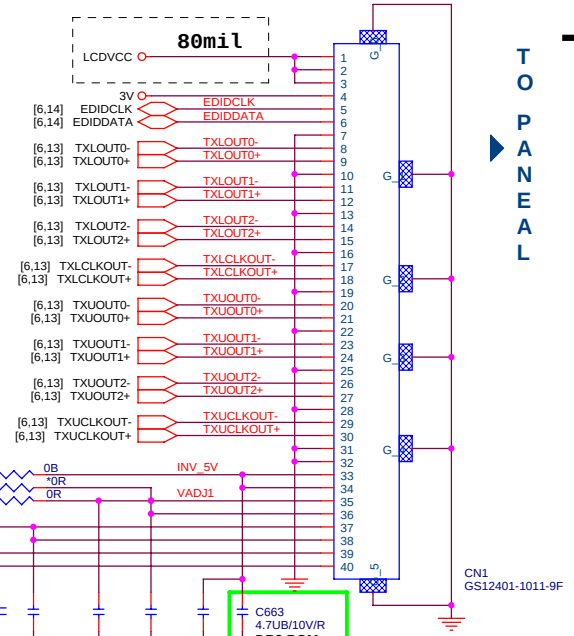


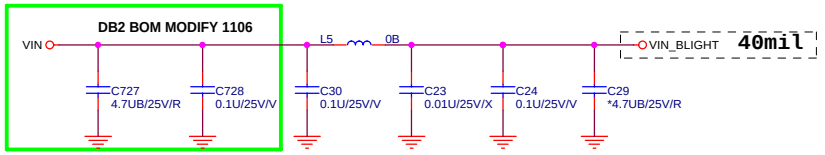




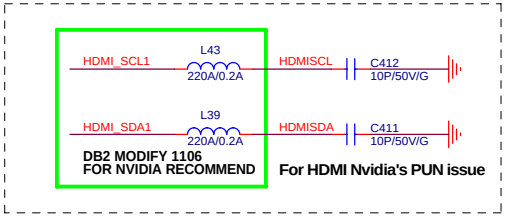


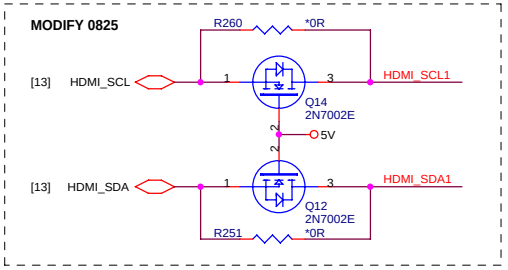


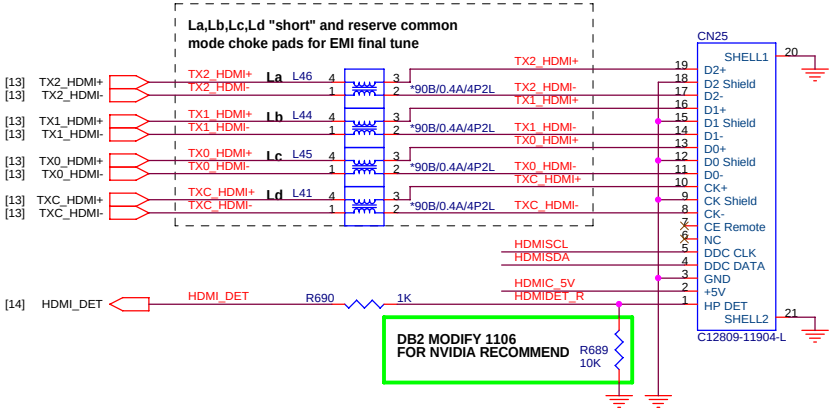


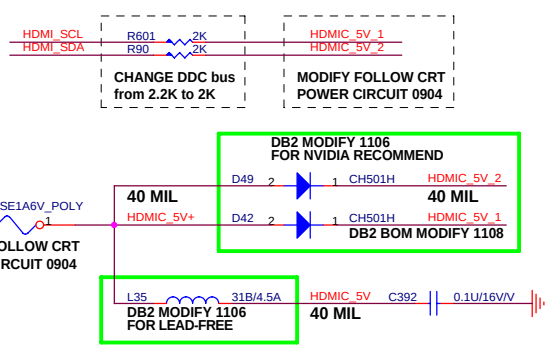


HDMI PORT









3V	[2,5,6,7,8,9,10,11,12,13,14,15,19,21,22,23,26,27,28,29,30,31,32,33,36,38]
3VPCU	[9,14,28,29,30,31,33,34,35]
5V	[13,19,22,23,25,26,27,28,29,31,32,33,36,38]
5VSUS	[26,28,30,31,32,33,37]
+12V_ALW	[10,32,33]
VIN	[31,32,33,34,35,36,37,38]

PROJECT : AT1
Quanta Computer Inc.

Size	Document Number	Rev
Custom	LCD,HDMI,LID_SW	C2A

NB5/RD2/HW1

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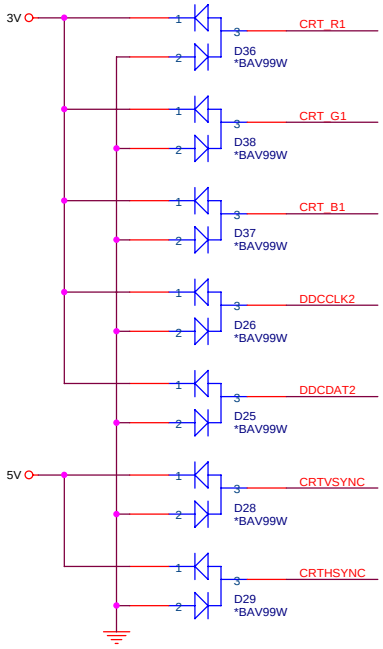
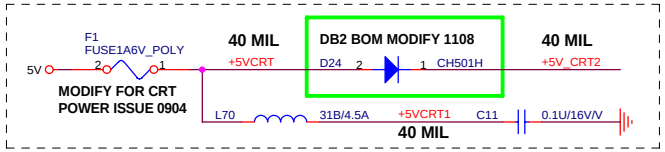
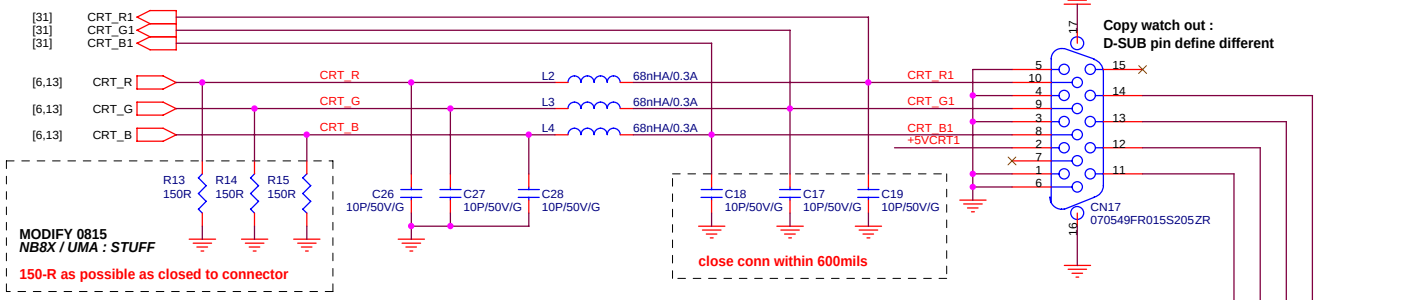
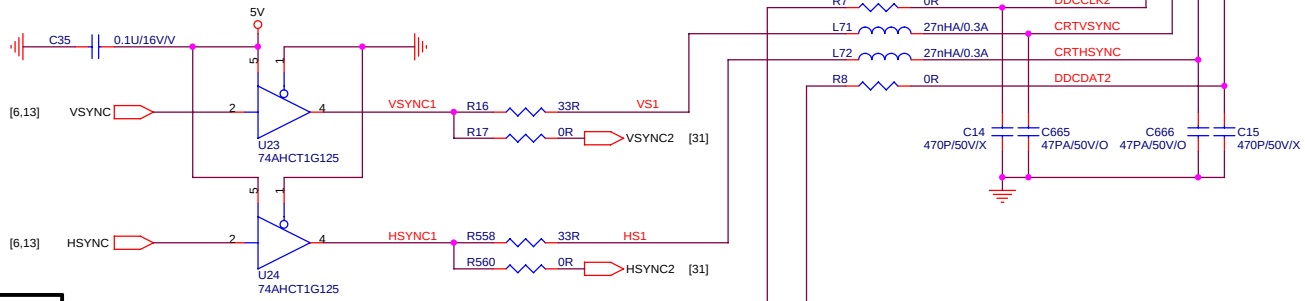
CRT PORT

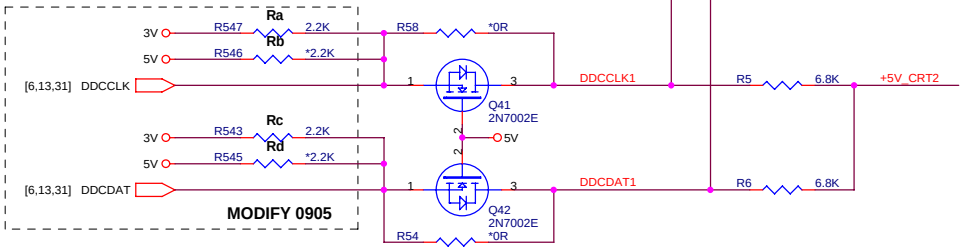






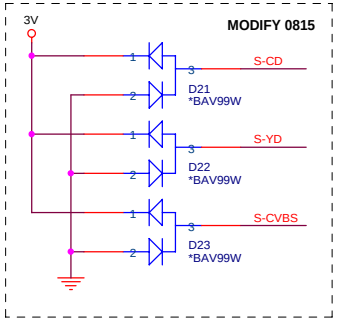


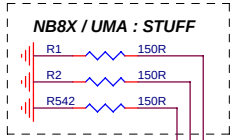
NB8X & MCP67M DIFFERENCE		
LOCATION	NB8X (DISCRETE)	MCP67M (UMA)
Ra Rb	2.2K NC	NC 2.2K
Rc Rd	2.2K NC	NC 2.2K

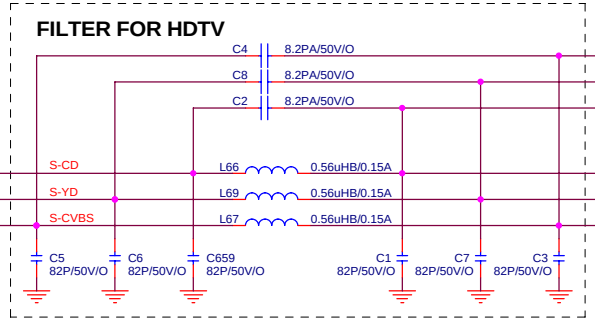


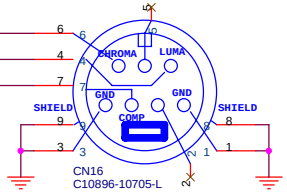
3V [2,5,6,7,8,9,10,11,12,13,14,15,18,21,22,23,26,27,28,29,30,31,32,33,36,38]
5V [13,18,22,23,25,26,27,28,29,31,32,33,36,38]

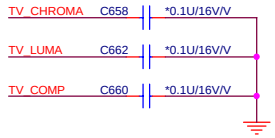
TV_OUT











NB5/RD2/HW1

PROJECT : AT1
Quanta Computer Inc.

Size	Document Number	Rev
Custom	CRT,TV_OUT	C2A

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10/100M

U19 — RTL8201CL 10/100--LAN PHY

[9]	LAN_RX0	21	RXD0	33VDVDD0	14
[9]	LAN_RX1	20	RXD1	33VDVDD1	48
[9]	LAN_RX2	19	RXD2	33AVDD0	36
[9]	LAN_RX3	18	RXD3	DGND0	11
[9]	LAN_RXCLK	16	RXCLK	DGND1	17
[9]	LAN_RXCTL	22	RX_DV	DGND2	45
[9]	LAN_TX0	6	TXD0	AGND0	29
[9]	LAN_TX1	5	TXD1	AGND1	35
[9]	LAN_TX2	4	TXD2	RESET	42
[9]	LAN_TX3	3	TXD3	PWFBOUT	32
[9]	LAN_TXCLK	7	TXCLK	PWFBIN	8
[9]	LAN_TXCTL	2	TX_EN	NC	27
	MDCLK-1	25	MDCLK	MII/SNIB	44
	MDIO-1	26	MDI/O	ISOLATE	43
	LAN_TPTX+	34	TPTX+	LDPS	41
	LAN_TPTX-	33	TPTX-	RPTR	40
	LAN_TPRX+	31	TPRX+	SPEED	39
	LAN_TPRX-	30	TPRX-	DUPLEX	38
R420 *2K/F	RTSET	28	RTSET	ANE	37
[9]	LAN_CRS	23	CRS	XTAL2	47
[9]	LAN_COL	1	COL	XTAL1	46
[9]	LAN_RXER	24	RXER/FXEN		
	LAN_LINK#	9	LED0_LINK/PHYAD0		
	LAN_DUPLEX#	10	LED1_DUPX/PHYAD1		
	LAN_LINK10#	12	LED2_10ACT/PHYAD2		
	LAN_LINK100#	13	LED3_100ACT/PHYAD3		
	LAN_COLLISIO#	15	LED4_COL/PHYAD4		

*RTL8201CL

LANVCC: 14, 48 — 3AVDD_LAN: 36 — LANRST: 42 — PWFBOUT: 32 — PWFBIN: 8 — LAN_NC0: 27 → T113

3AVDD_LAN C600 *0.1U/16V/V; 3AVDD_LAN C597 *0.1U/16V/V

LANVCC C598 *0.1U/16V/V; LANVCC C558 *0.1U/16V/V; LANVCC C560 *0.1U/16V/V; LANVCC C574 *0.1U/16V/V

LAN_XTAL2 — C611 *27P/50V/O — Y3 *25MHZ — LAN_XTAL1 — C610 *27P/50V/O

R436 *0R MII_25MHZ_C

3AVDD_LAN L61 *180A/1.5A LANVCC

LANPHY_V_DAC1 R372 *0R PWFBOUT

LANPHY_V_DAC2 R377 *0R PWFBOUT

PWFBIN L60 *180A/1.5A PWFBOUT

C591 *0.1U/16V/V; C587 *0.1U/16V/V; C602 *22UB/6.3V/R

Close To RTL8201CL

LAN_TPRX+	R426	*49.9/F	LAN_TPRX0	C584	*0.1U/16V/V
LAN_TPRX-	R423	*49.9/F			
LAN_TPTX+	R433	*49.9/F	LAN_TPTX0	C592	*0.1U/16V/V
LAN_TPTX-	R430	*49.9/F			

ISOLATE	R442	*5.1K	
RPTR	R440	*5.1K	
MII/SNIB	R449	*5.1K	LANVCC
LDPS	R451	*5.1K	
SPEED	R447	*5.1K	
DUPLEX	R439	*5.1K	
ANE	R438	*5.1K	

LAN_LINK#	R424	*5.1K	LANVCC
LAN_DUPLEX#	R418	*5.1K	
LAN_LINK10#	R414	*5.1K	
LAN_LINK100#	R401	*5.1K	
LAN_COLLISIO#	R400	*5.1K	

PHY Address:00001

LAN_COL	R431	*5.1K	
LAN_RXER	R398	*5.1K	
LAN_CRS	R399	*5.1K	

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

CLOSE TRANSFORMER

LAN_TPRX+	R373	*0R	+LANPHY_MDI1
LAN_TPRX-	R374	*0R	-LANPHY_MDI1
LAN_TPTX+	R375	*0R	+LANPHY_MDI0
LAN_TPTX-	R376	*0R	-LANPHY_MDI0

CLOSE RJ45/11 CONN

+LAN_MX2	R331	*0R	LAN_MX2_R	R333	*75R
-LAN_MX2	R332	*0R			LANMCT_G
+LAN_MX3	R336	*0R	LAN_MX3_R	R335	*75R
-LAN_MX3	R337	*0R			LANMCT_G

LAN_LINK#	R428	*0R	LAN_GLED#	C585	*470P/50V/X
LAN_YLED#	R190	*330/F			

DB2 MODIFY 1101

LAN_LINK100# *CH501H; LAN_LINK10# *CH501H — D3, D4 — LAN_YLED

LINK10/100# assert high while system power up.

LANVCC [32,33]
3V_S5 [8,9,10,11,28,30,32,33,37]

10/100/1000M

U20 — RTL8211B 10/100/1000--LAN PHY

LAN_RX0	17	RXD0	33DVDD0	18	LANVCC
LAN_RX1	19	RXD1	33DVDD1	23	LANVCC
LAN_RX2	20	RXD2	33DVDD2	34	LANVCC
LAN_RX3	21	RXD3	33DVDD3	42	LANVCC
LAN_RXCLK	22	RXCLK	33DVDD4	49	LANVCC
LAN_RXCTL	16	RX_CTL	33DVDD5	55	LANVCC
LAN_RXDLY	52	RXDLY	33AVDD0	8	3AVDD_LAN
LAN_TX0	25	TXD0	33AVDD1	60	3AVDD_LAN
LAN_TX1	26	TXD1	15CTRL	64	15CTRL
LAN_TX2	27	TXD2	15DVDD0	32	15DVDD C594 0.1U/16V/V
LAN_TX3	28	TXD3	15DVDD1	36	15DVDD C606 0.1U/16V/V
LAN_TXCLK	24	TXCLK	15DVDD2	45	15DVDD C595 0.1U/16V/V
LAN_TXCTL	29	TX_CTL	15DVDD3	59	15DVDD C561 0.1U/16V/V
LAN_TXDLY	51	TXDLY	15AVDD0	63	15AVDD C582 0.1U/16V/V
+LANPHY_MDI0	3	MDI0+	18CTRL	9	18CTRL
-LANPHY_MDI0	4	MDI0-	18AVDD0	2	18AVDD C559 0.1U/16V/V
+LANPHY_MDI1	6	MDI1+	18AVDD1	5	18AVDD C567 0.1U/16V/V
-LANPHY_MDI1	7	MDI1-	18AVDD2	10	18AVDD C571 0.1U/16V/V
+LANPHY_MDI2	11	MDI2+	18AVDD3	13	18AVDD C570 0.1U/16V/V
-LANPHY_MDI2	12	MDI2-	CONFIG0	58	LAN_CFG0
+LANPHY_MDI3	14	MDI3+	CONFIG1	57	LAN_CFG1
-LANPHY_MDI3	15	MDI3-	CONFIG2	56	LAN_CFG2
LAN_TX#	39	LED_TX#	CONFIG3	54	LAN_CFG3
LAN_RX#	40	LED_RX#	CONFIG4	53	LAN_CFG4
LAN_DUPLEX#	43	LED_DUPLEX#	CRS/CONFIG5	47	LAN_GCRS
LAN_GLINK10#	50	LED_LINK10#	COL/CONFIG6	46	LAN_GCOL
LAN_GLINK100#	48	LED_LINK100#	INTB/CONFIG7	37	LAN_INT
LAN_GLINK1000#	44	LED_LINK1000#	CONFIG8	35	LAN_CFG8
MDCLK-1	30	MDCLK	CONFIG9	33	LAN_CFG9
MDIO-1	31	MDI/O	RESET#	38	LANRST
LAN_CLK125	41	CLK125	REFER	1	LAN_RSET R391 2.49K/F
LAN_GXTAL2	62	XTAL2	GND	65	
LAN_GXTAL1	61	XTAL1			

LAN_INT [9]

RTL8211B

R454 4.7K, R455 4.7K — LAN_TXDLY R394 *4.7K, LAN_RXDLY R390 *4.7K — Default Pull-Low

Q20 2SB1197K — 15AVDD C541 10UB/6.3V/R; 15DVDD C547 10UB/6.3V/R — 15CTRL

Q19 2SB1197K — 18AVDD C548 10UB/6.3V/R — 18CTRL

LANVCC L62 0A 3AVDD_LAN

3AVDD_LAN C568 0.1U/16V/V; 3AVDD_LAN C581 0.1U/16V/V

LANVCC C601 0.1U/16V/V; LANVCC C575 0.1U/16V/V; LANVCC C607 0.1U/16V/V; LANVCC C608 0.1U/16V/V; LANVCC C588 0.1U/16V/V; LANVCC C586 0.1U/16V/V

T117

C556 *27P/50V/O — Y2 *25MHZ — R406 *1M — C566 *27P/50V/O

MII_25MHZ_C R393 0R

R462 4.7K LANVCC — LAN_CFG9 — **1:RGMII/MII TO COPPER**

LAN_YLED R173 330/F LANVCC

LAN_TX# D17 CH501H; LAN_RX# D18 CH501H — LAN_YLED#

LAN_GLINK10# D16 CH501H; LAN_GLINK100# D15 CH501H; LAN_GLINK1000# D19 CH501H — LAN_GLED#

LAN_GCRS	R464	4.7K			
LAN_GCOL	R458	4.7K			
LAN_INT	R465	4.7K			
LAN_CFG8	R463	4.7K	LANVCC		

LAN_CRS	1	auto-na	Advertise All Capabilities , Prefer Slave
LAN_COL	1	auto-na	
LAN_INT	1	auto-na	
CONFIG8	1	auto-na	

LAN_CFG0	R386	4.7K	
LAN_CFG1	R387	4.7K	
LAN_CFG2	R395	4.7K	LANVCC
LAN_CFG3	R405	4.7K	
LAN_CFG4	R404	4.7K	

PHY Address:00001

SI MODIFY 1215
FOR LANVCC LEAKAGE

3V_S5 — U48 *TC7SH08FU

[9] MII_25MHZ — LAN_POWER_R — MII_25MHZ_C

[9] MII_25MHZ — R828 0R — MII_25MHZ_C

[30,31,32] LAN_POWER — R833 *0R — LAN_POWER_R

LAN_GLED R235 330/F LANVCC

R445 10K/F LANVCC **SI MODIFY 1220**

DB2 MODIFY 1106
STUFF DIODE FOR LEAKAGE ISSUE

D14 CH501H — LANRST — R441 *0R MIIRST# [9] — R452 *0R GRST# [21,30,31]

LAN_MCT0 R328 75R; LAN_MCT1 R329 75R — LANMCT_G — C523 1000P/3KV/1808

LAN_MCT2 Ra R330 75R; LAN_MCT3 Rb R334 75R; MDIO Rc R403 10K/F — LANVCC

Ca C551 0.01U/16V/X LANPHY_V_DAC1
Cb C552 0.01U/16V/X LANPHY_V_DAC2
Cc C553 0.01U/16V/X LANPHY_V_DAC3
Cd C550 0.01U/16V/X LANPHY_V_DAC4

RTL8211B : Ca,Cb 0.01U/16V/X Rc 10K/F

RTL8201CL : Ca,Cb 0.1U/16V/V Ra,Rb,Cc,Cd REMOVE Rc 1.5K/F

DB2 MODIFY 1106

[9] MDCLK — Q22 2N7002E — MDCLK-1 — R419 *0R

[9] MDIO — Q21 2N7002E — MDIO-1 — R383 *0R

FOR LEAKAGE ISSUE

RTL8211B : NS892402
RTL8201CL : NS892405

U16 — NS892402

LANPHY_V_DAC1	1	TCT1	MCT1
+LANPHY_MDI0	2	TD1+	MX1+
-LANPHY_MDI0	3	TD1-	MX1-
LANPHY_V_DAC2	4	TCT2	MCT2
+LANPHY_MDI1	5	TD2+	MX2+
-LANPHY_MDI1	6	TD2-	MX2-
LANPHY_V_DAC3	7	TCT3	MCT3
+LANPHY_MDI2	8	TD3+	MX3+
-LANPHY_MDI2	9	TD3-	MX3-
LANPHY_V_DAC4	10	TCT4	MCT4
+LANPHY_MDI3	11	TD4+	MX4+
-LANPHY_MDI3	12	TD4-	MX4-

LAN_MCT0	24		
+LAN_MX0	23	+LAN_MX0	+LAN_MX0 [31]
-LAN_MX0	22	-LAN_MX0	-LAN_MX0 [31]
LAN_MCT1	21		
+LAN_MX1	20	+LAN_MX1	+LAN_MX1 [31]
-LAN_MX1	19	-LAN_MX1	-LAN_MX1 [31]
LAN_MCT2	18		
+LAN_MX2	17	+LAN_MX2	+LAN_MX2 [31]
-LAN_MX2	16	-LAN_MX2	-LAN_MX2 [31]
LAN_MCT3	15		
+LAN_MX3	14	+LAN_MX3	+LAN_MX3 [31]
-LAN_MX3	13	-LAN_MX3	-LAN_MX3 [31]

DB2 EMI MODIFY

LANVCC — C914 470P/50V/X LAN_YLED; C915 470P/50V/X LAN_YLED#; C916 470P/50V/X LAN_GLED; C917 470P/50V/X LAN_GLED#

C918 0.1U/16V/V; C919 0.1U/16V/V

RJ45

CN24 — C100F9-110A4-L

LAN_YLED	1	LED_YEL_P	
LAN_YLED#	2	LED_YEL_N	
+LAN_MX0	3	MX0+	GND 15
-LAN_MX0	4	MX0-	
+LAN_MX1	5	MX1+	GND 16
+LAN_MX2	6	MX2+	
-LAN_MX2	7	MX2-	
-LAN_MX1	8	MX1-	
+LAN_MX3	9	MX3+	
-LAN_MX3	10	MX3-	GND 17
LAN_GLED	11	LED_GRE_P	GND 18
LAN_GLED#	12	LED_GRE_N	

RJ11

CN2 — 3800N-E002-NNN-1

TIP 13, RING 14

C806 470P/3KV/1808; C807 470P/3KV/1808

RTL8211B : C100F9-110A4-L
RTL8201CL : C100J2-100A4-L

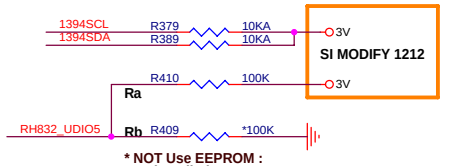
NB5/RD2/HW1

PROJECT : AT1
Quanta Computer Inc.

Size	Document Number	Rev
Custom	RTL8211B,8201CL,RJ45,RJ11	C2A

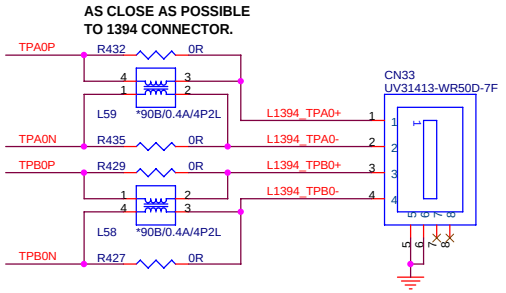
Date: Wednesday, December 20, 2006 Sheet 20 of 40

Serial EEPROM



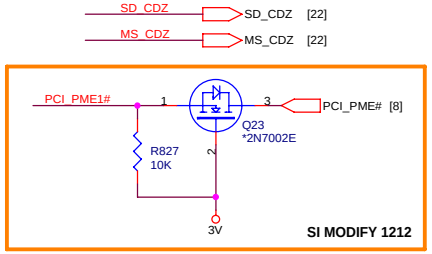
*** NOT Use EEPROM :**
Ra : installed
Rb : NOT installed

*** Use EEPROM :**
Ra : NOT installed
Rb : installed



***TPA/TPA#,TPB/TPB# pair trace : As close as possible.**
***TPA/TPA#,TPB/TPB# pair trace : Same length electrically.And layot with shields.**

***Termination resistor for TPA+/- TPB+/- : As close as possible to its cable driver (device pin out).**



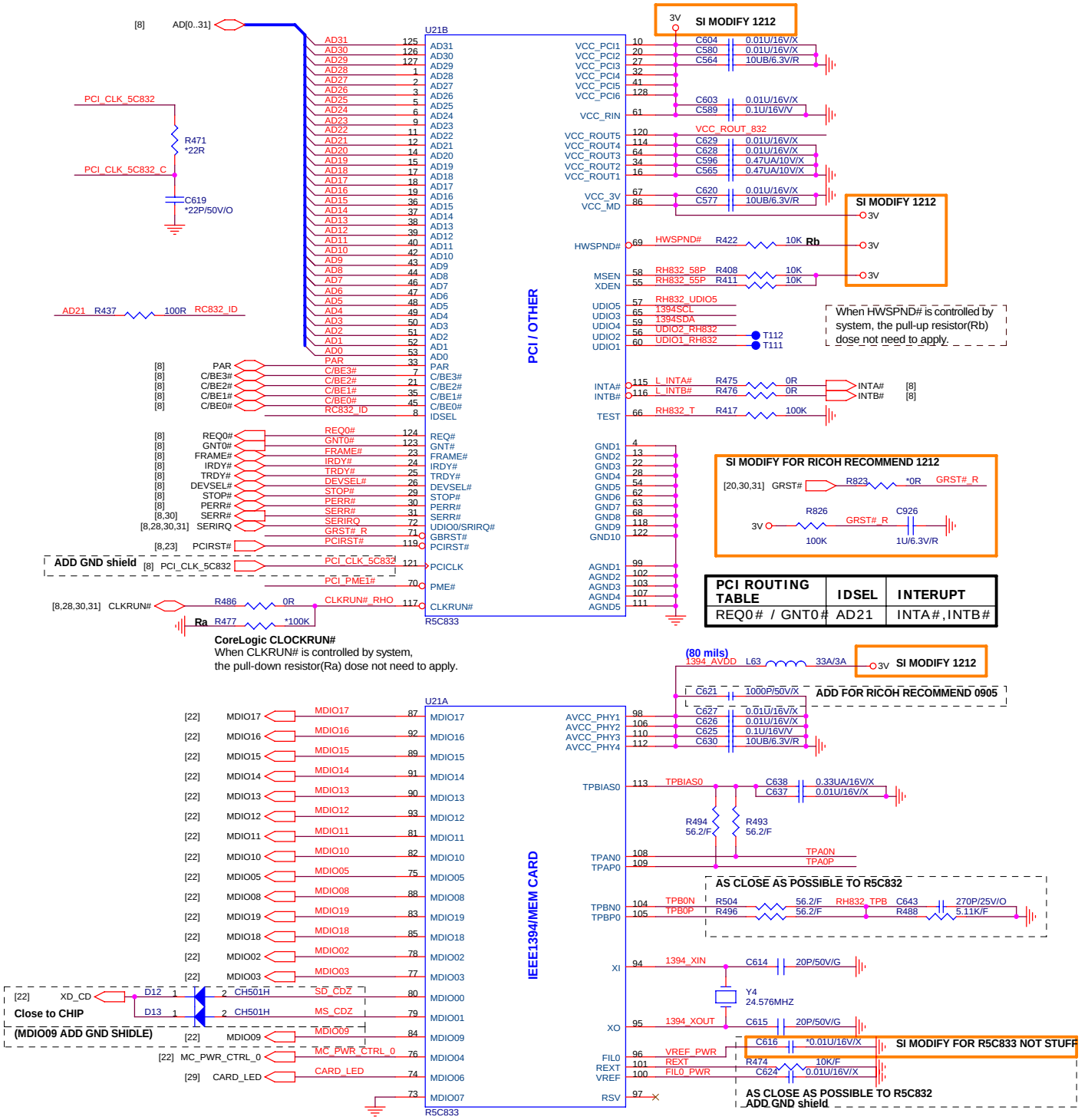
3V [2,5,6,7,8,9,10,11,12,13,14,15,18,19,22,23,26,27,28,29,30,31,32,33,36,38]

PROJECT : AT1
Quanta Computer Inc.

Size	Document Number	Rev
Custom	R5C832V00,1394 PORT	C2A

NB5/RD2/HW1

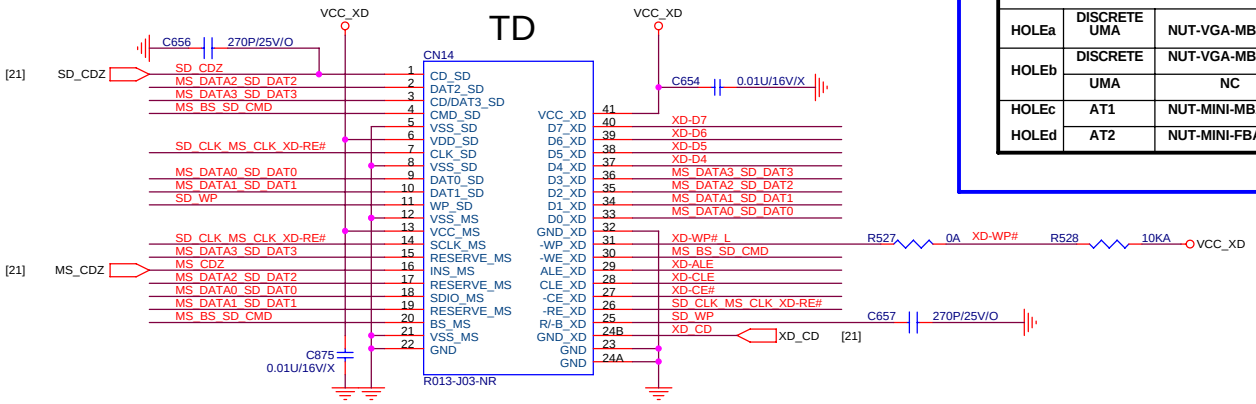
Date: Wednesday, December 20, 2006 Sheet 21 of 40



4 IN1 CARD READER

XD,MMC/SD,MS/MSP

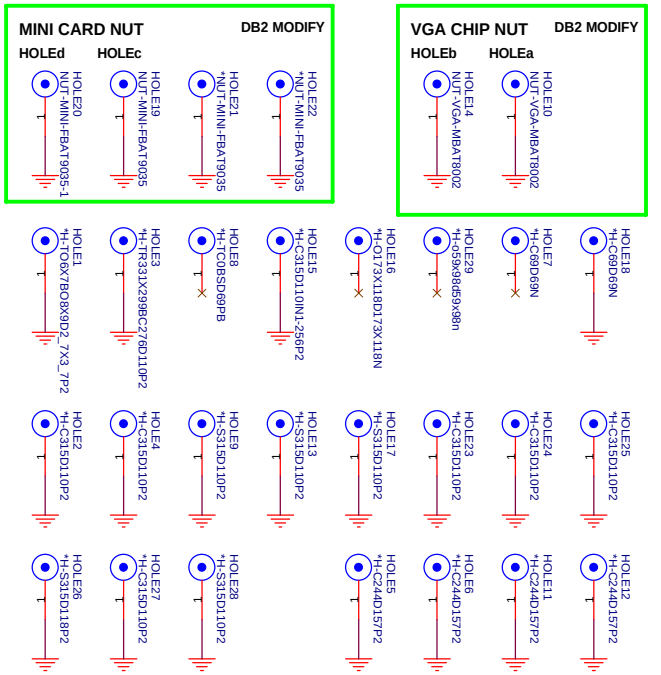
TD

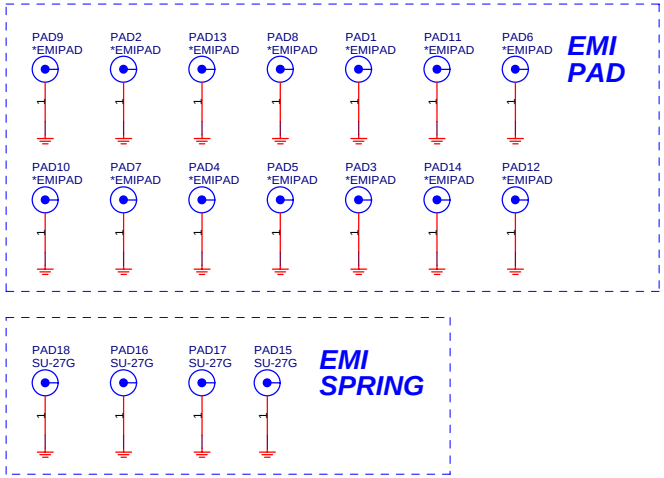


Note: Need to add WP# and CD# pad for Proconn

AT1 & AT2 AND DISCRETE & UMA DIFFERENCE TABLE		
HOLE	STATUS	NUT
HOLEa	DISCRETE UMA	NUT-VGA-MBAT8002
HOLEb	DISCRETE	NUT-VGA-MBAT8002
	UMA	NC
HOLEc	AT1	NUT-MINI-MBAT8004
HOLEd	AT2	NUT-MINI-FBAT9035

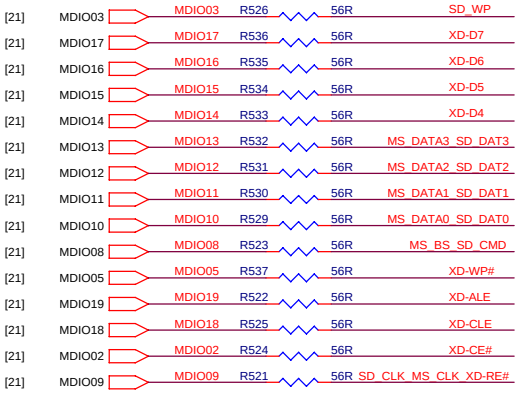
SCREW HOLE

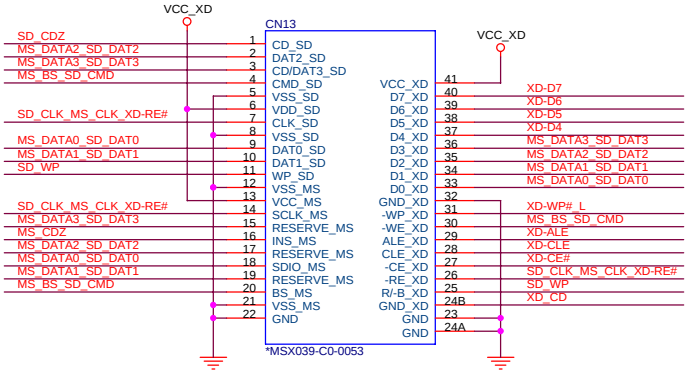




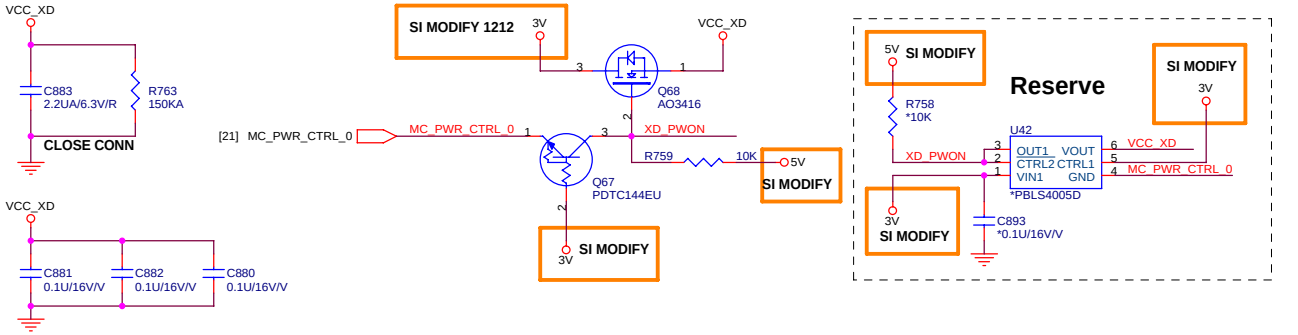
3V [2,5,6,7,8,9,10,11,12,13,14,15,18,19,21,23,26,27,28,29,30,31,32,33,36,38]
5V [13,18,19,23,25,26,27,28,29,31,32,33,36,38]

2ND SOURCE



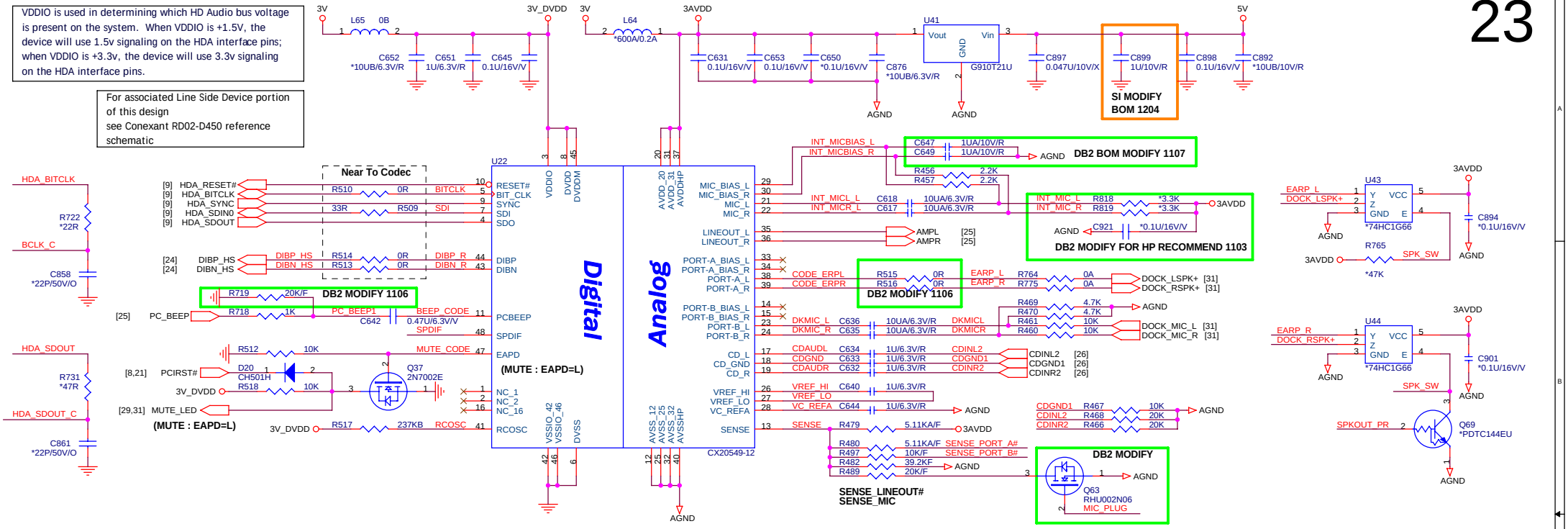


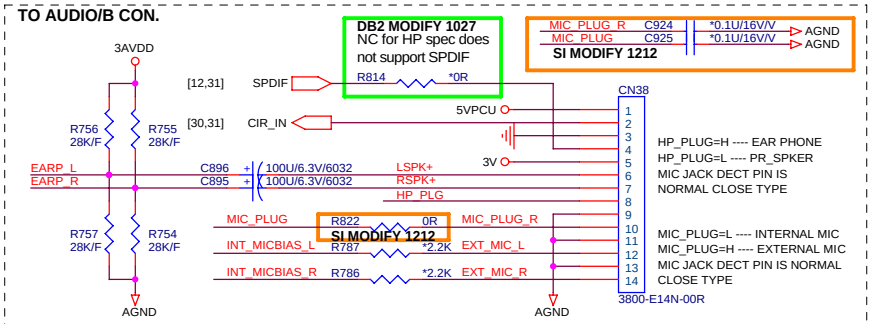
*** NOT INSTALL FOR 2ND SOURCE CO-LAYOUT USED***

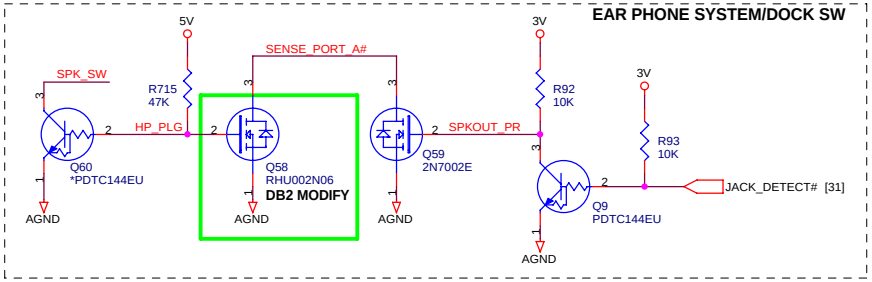


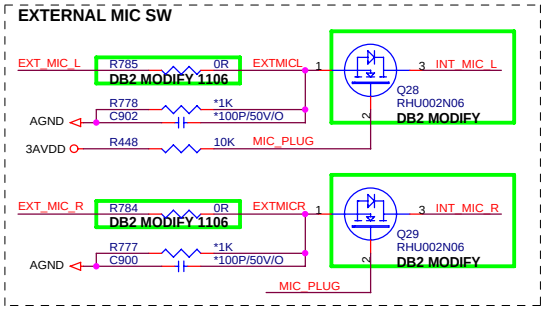
VDDIO is used in determining which HD Audio bus voltage is present on the system. When VDDIO is +1.5V, the device will use 1.5v signaling on the HDA interface pins; when VDDIO is +3.3v, the device will use 3.3v signaling on the HDA interface pins.

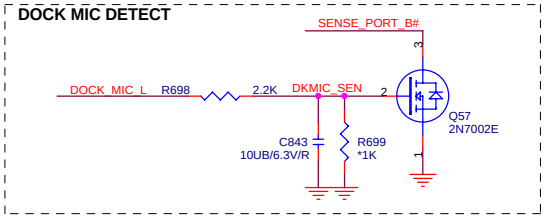
For associated Line Side Device portion of this design
see Conexant RD02-D450 reference schematic

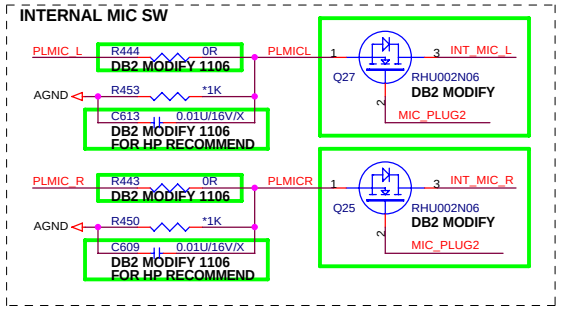


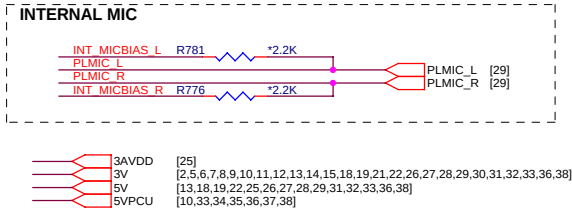












3AVDD [25]
3V [2,5,6,7,8,9,10,11,12,13,14,15,18,19,21,22,26,27,28,29,30,31,32,33,36,38]
5V [13,18,19,22,25,26,27,28,29,31,32,33,36,38]
5VPCU [10,33,34,35,36,37,38]

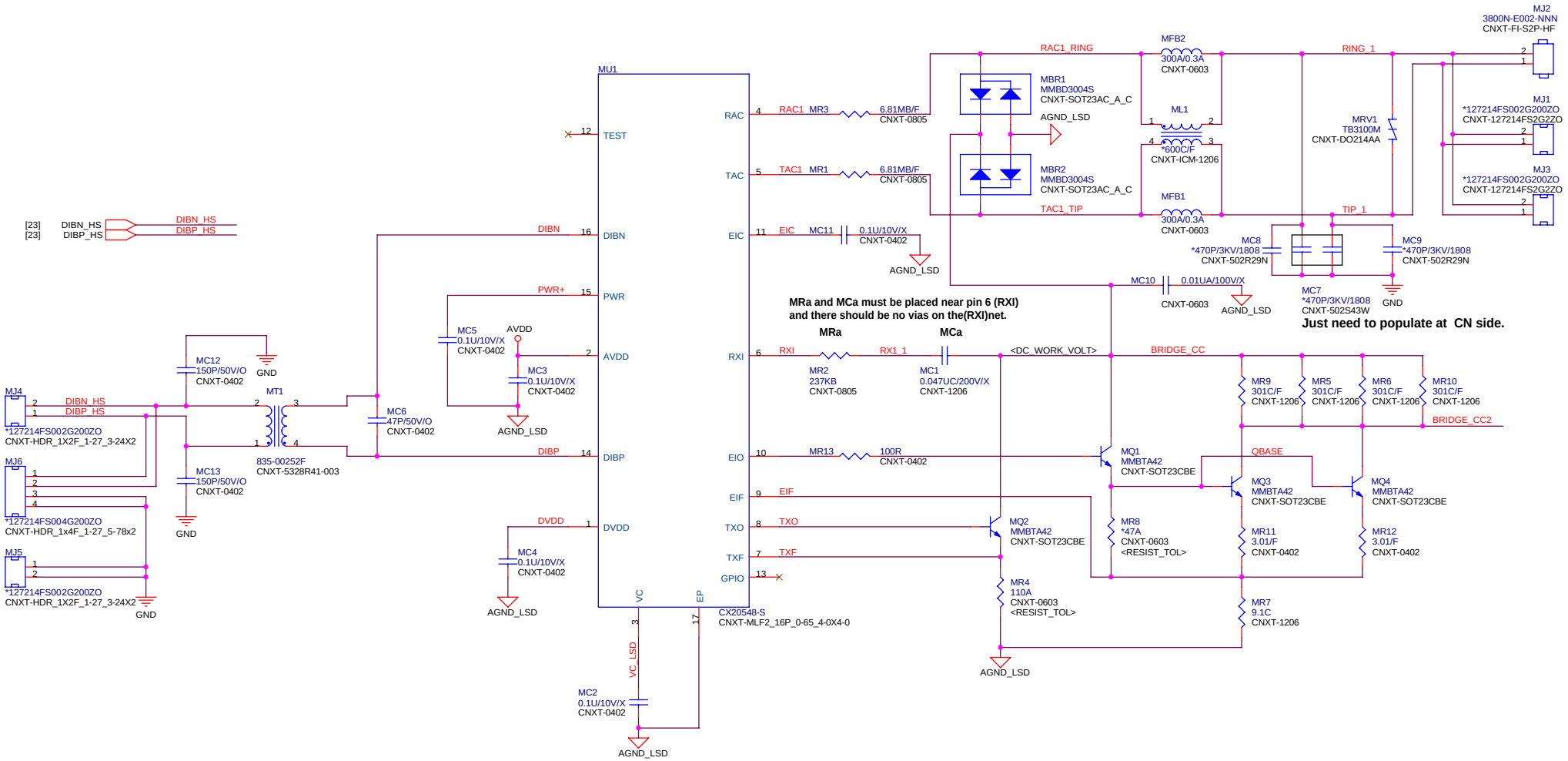
PROJECT : AT1
Quanta Computer Inc.

Size	Document Number	Rev
Custom	HDA_CX20549-12,AUDIO_BOARD	C2A

NB5/RD2/HW1

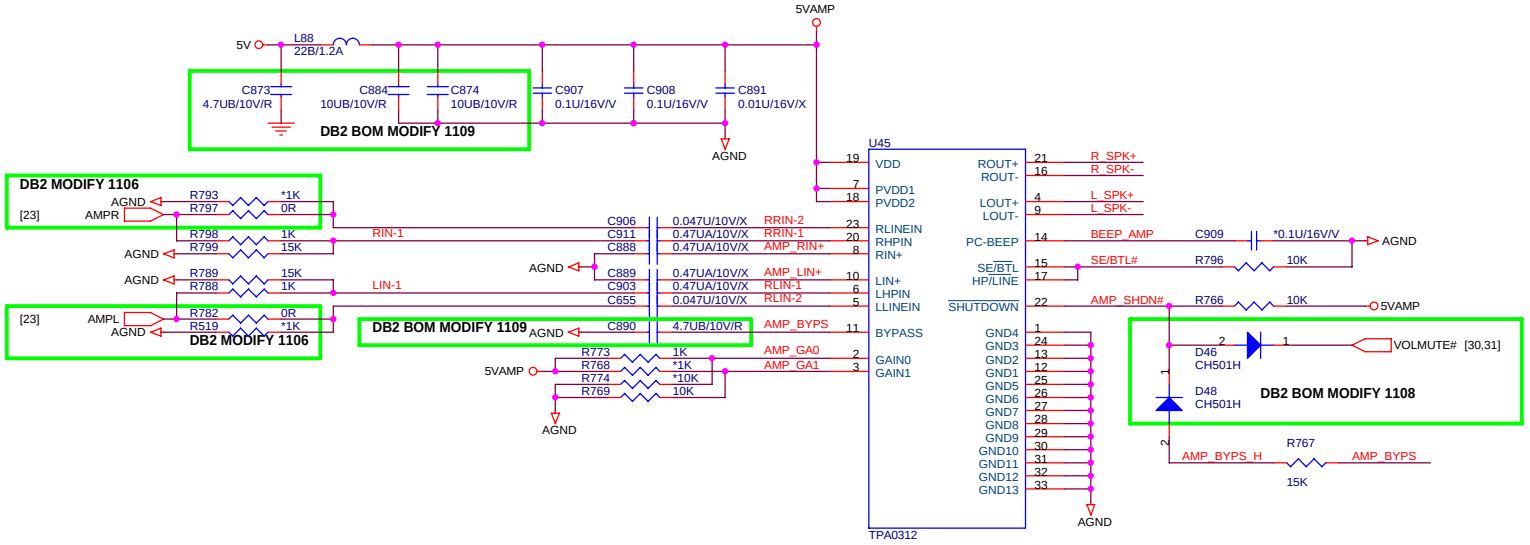
Date: Wednesday, December 20, 2006 Sheet 23 of 40

Revision History		
REV	Description	Date
0	Initial Release	April 26, 2005
4		



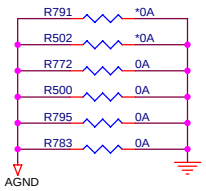
NB5/RD2/HW1	PROJECT : AT1 Quanta Computer Inc.		
	Size: Custom	Document Number: MODEM(DAA)_CX20548-S	Rev: C2A
	Date: Wednesday, December 20, 2005	Sheet 24 of 40	

AUDIO AMPLIFIER

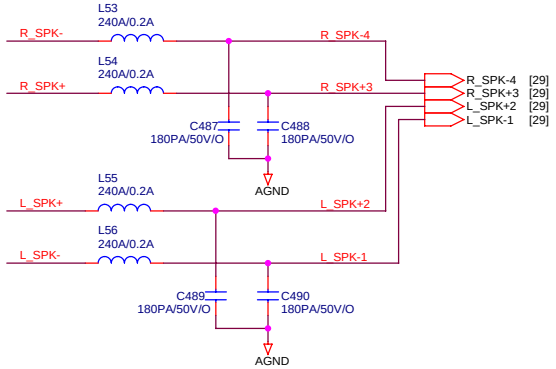


0312 Gain Table

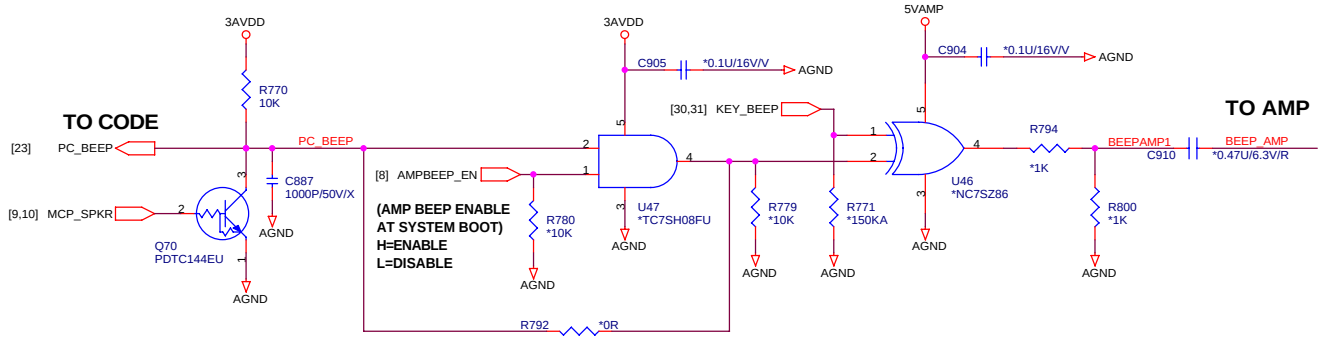
GAIN0	GAIN1	SE/BTL	AV(INV)
0	0	0	6dB
0	1	0	10dB
1	**0**	**0**	**15.6dB**
1	1	0	21.6dB
x	x	1	4.1dB



INT. SPEAKER



PCSPK BEEP



3AVDD [23]
5V [13,18,19,22,23,26,27,28,29,31,32,33,36,38]

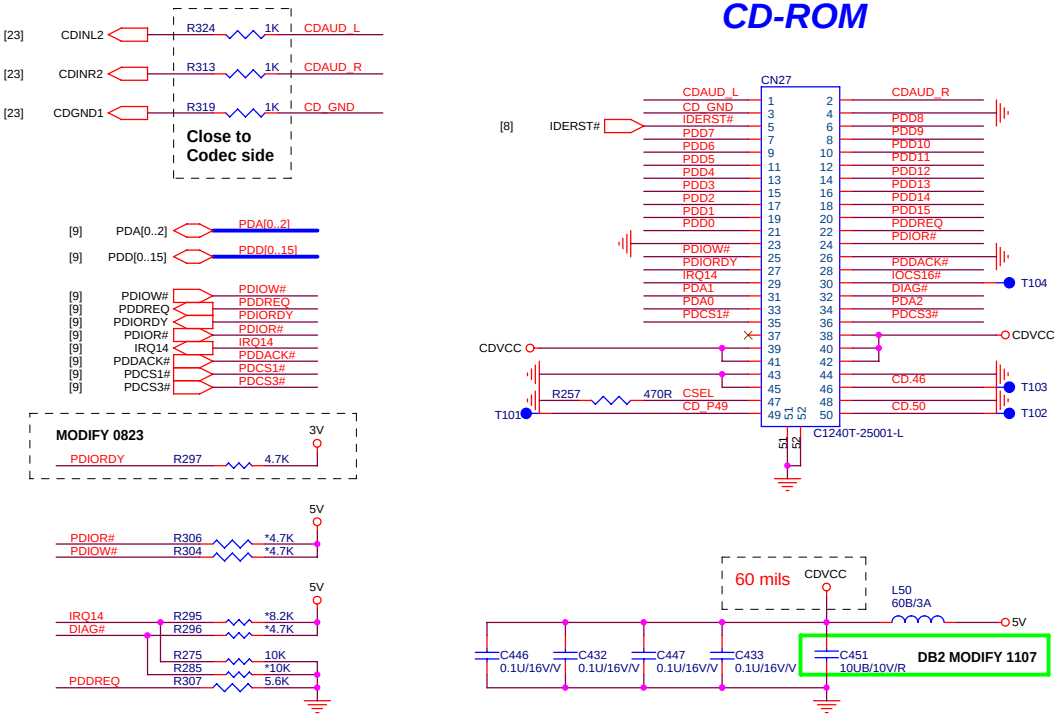
PROJECT : AT1
Quanta Computer Inc.

Size	Document Number	Rev
Custom	AMP_TPA0312	C2A

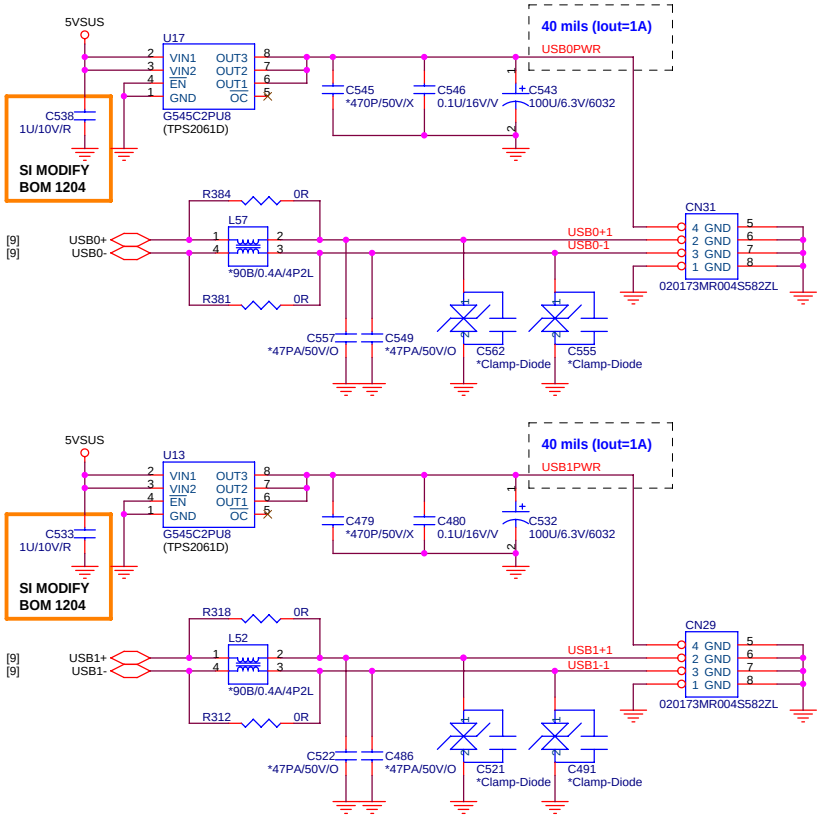
NB5/RD2/HW1

Date: Wednesday, December 20, 2006 Sheet 25 of 40

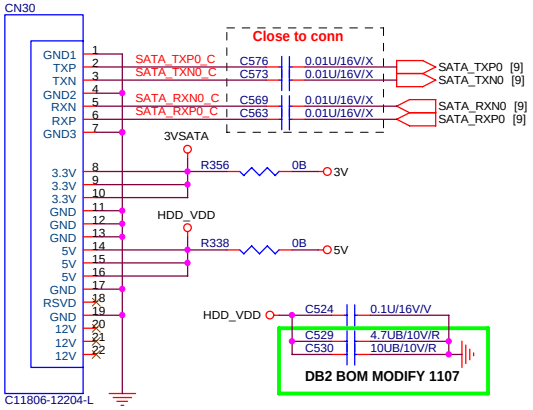
CD-ROM



USB DIP CONNECTOR X 2

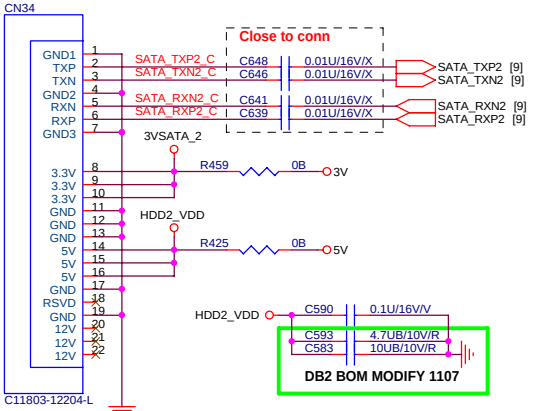


SATA_1 CONNECTOR

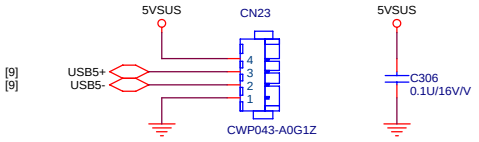


For 17"W Second HDD

SATA_2 CONNECTOR



USB WIRE TO DC BOARD X 1



3V [2,5,6,7,8,9,10,11,12,13,14,15,18,19,21,22,23,27,28,29,30,31,32,33,36,38]
5VSUS [18,28,30,31,32,33,37]
5V [13,18,19,22,23,25,27,28,29,31,32,33,36,38]

NB5/RD2/HW1

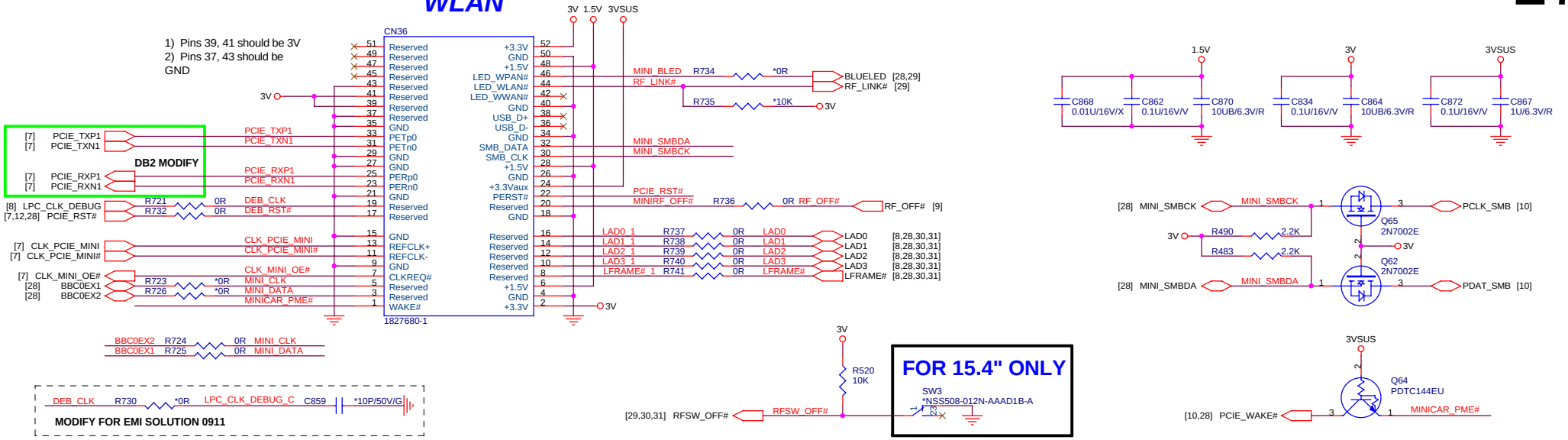
PROJECT : AT1
Quanta Computer Inc.

Size	Document Number	Rev
Custom	SATA HDDx2,CD-ROM,USBx3	C2A

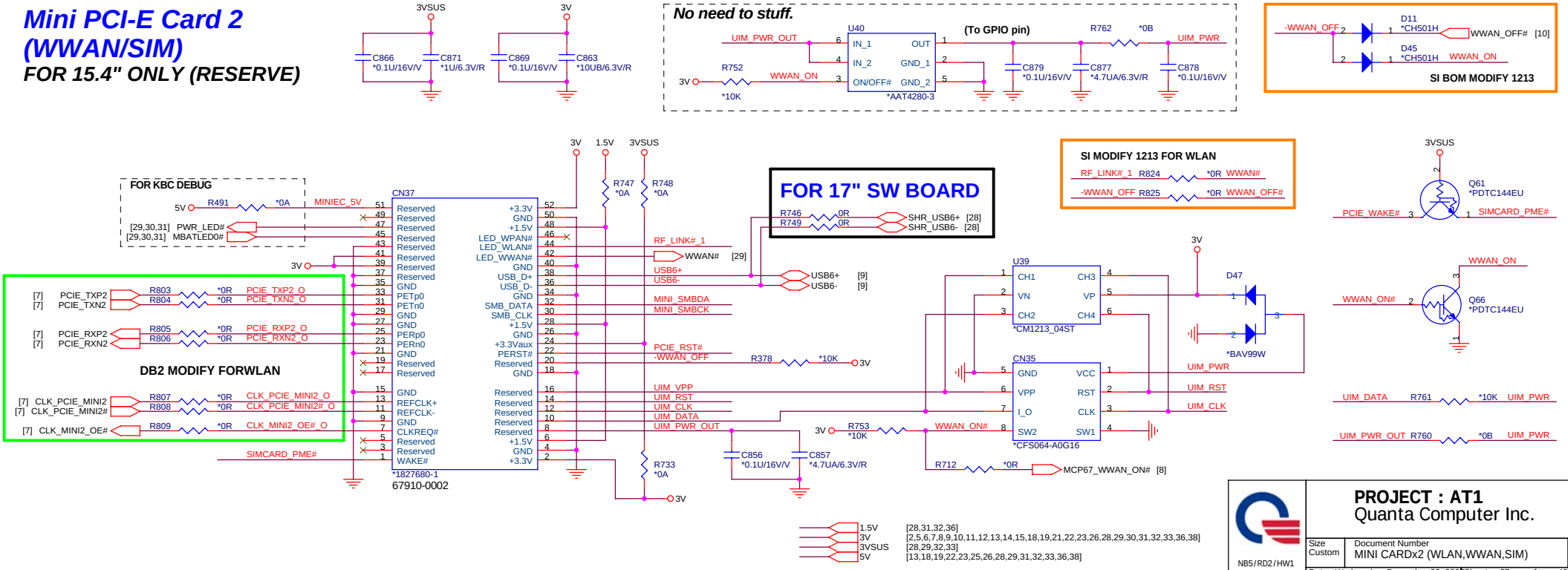
Date: Wednesday, December 20, 2006 Sheet 26 of 40

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/SIM)
FOR 15.4" ONLY (RESERVE)



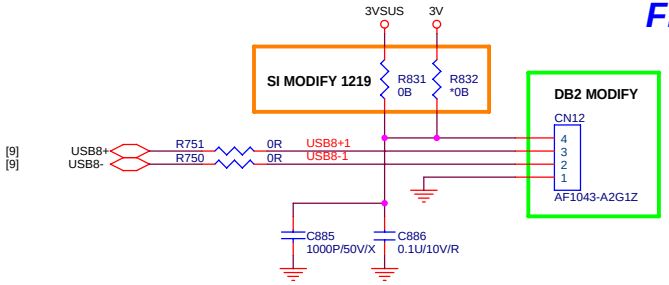
PROJECT : AT1
Quanta Computer Inc.

Size	Document Number	Rev
Custom	MINI CARDx2 (WLAN,WWAN,SIM)	C2A

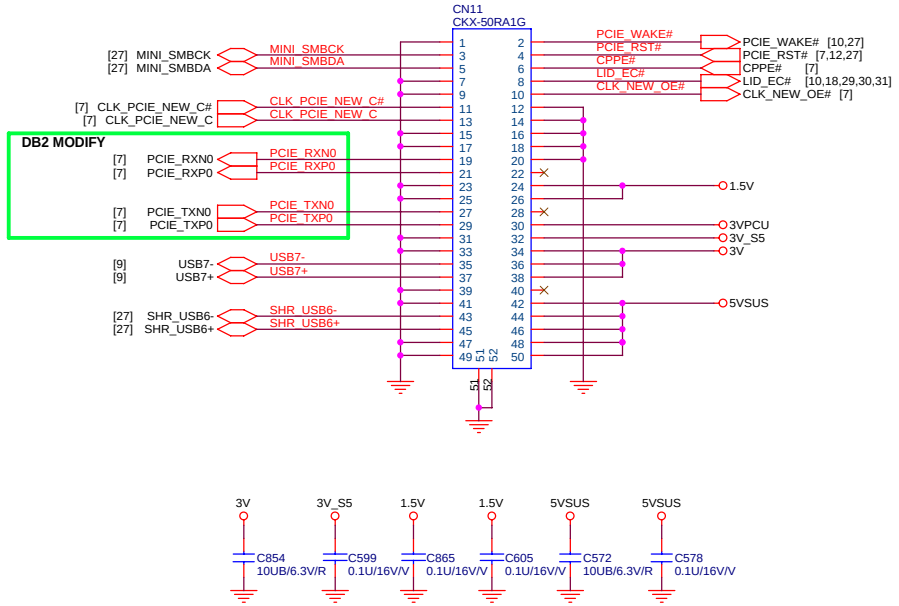
Date: Wednesday, December 20, 2006 Sheet 27 of 40

NB5/RD2/HW1

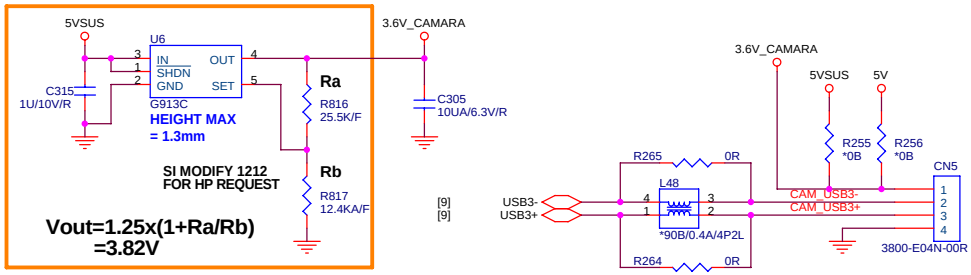
FINGER PRINT



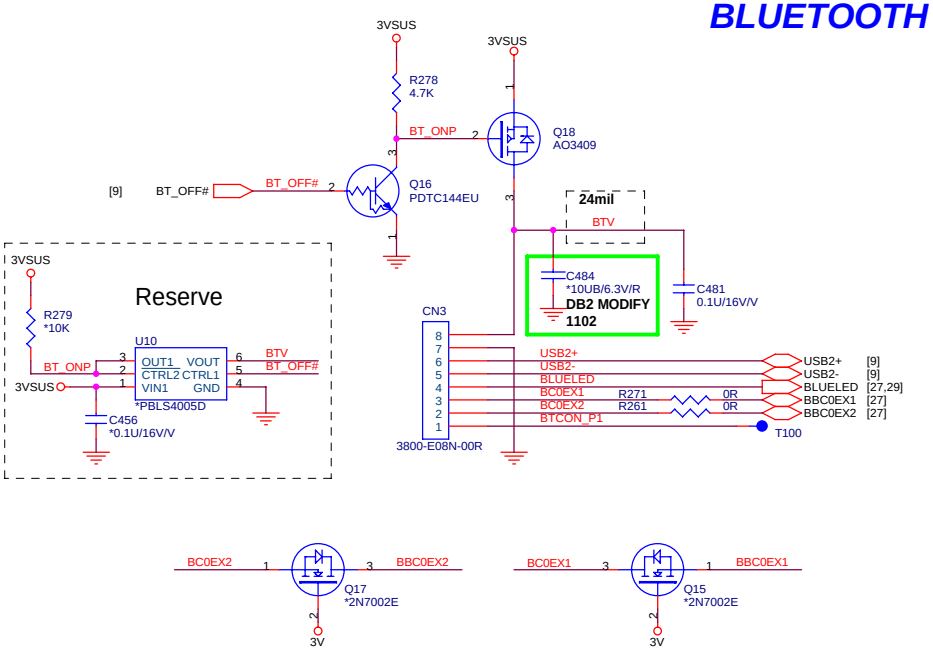
NEW CARD



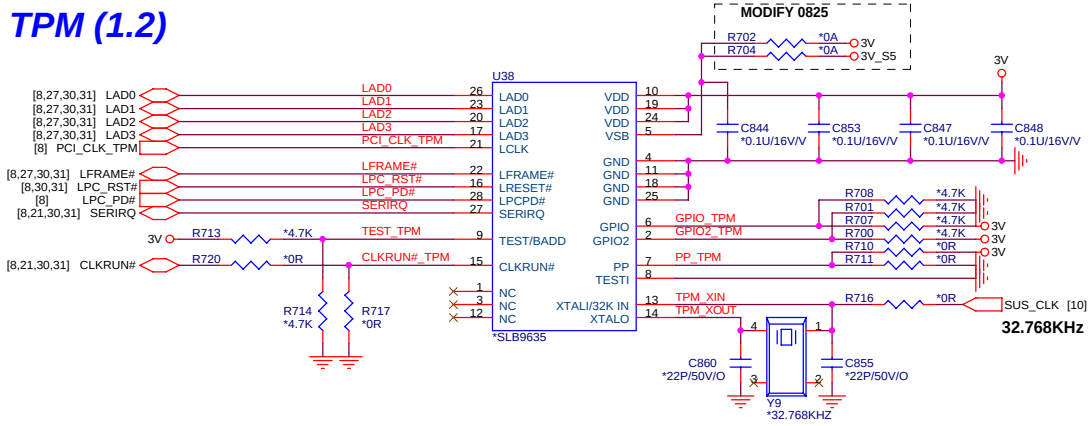
CAMERA

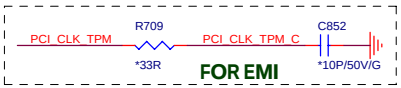


BLUETOOTH



TPM (1.2)





Address

	BADD
HIGH	4EH/4F (dafault)
LOW	2EH/2FH

*** DEFAULT**

PP (PHYSICAL PRESENCE)	
*L	PLATFORM PROTECT
H	USER ACCESS

1.5V	[27,31,32,36]
3V	[2,5,6,7,8,9,10,11,12,13,14,15,18,19,21,22,23,26,27,29,30,31,32,33,36,38]
3VSUS	[27,29,32,33]
3V_S5	[8,9,10,11,20,30,32,33,37]
3VPCU	[9,14,18,29,30,31,33,34,35]
5V	[13,18,19,22,23,25,26,27,29,31,32,33,36,38]
5VSUS	[18,26,30,31,32,33,37]

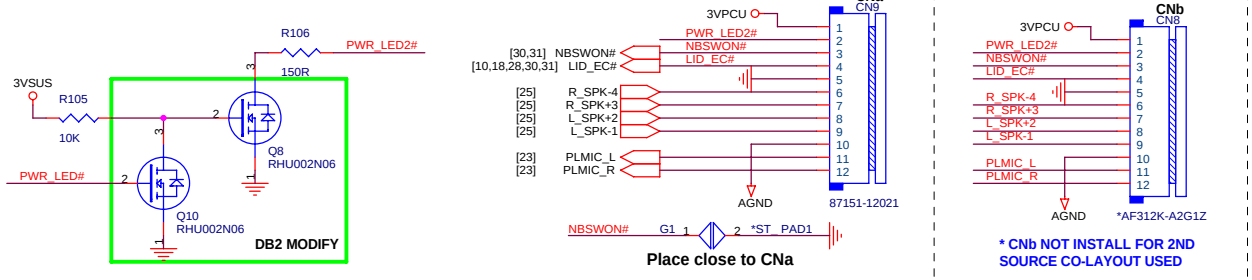
NB5/RD2/HW1

PROJECT : AT1
Quanta Computer Inc.

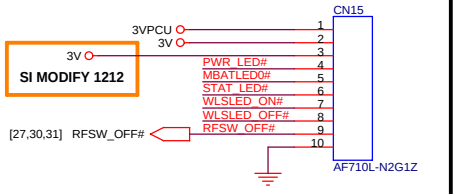
Size	Document Number	Rev
Custom	NEW CARD,CAMER,TPM,F/P,B/T	C2A

Date: Wednesday, December 20, 2006 Sheet 28 of 40

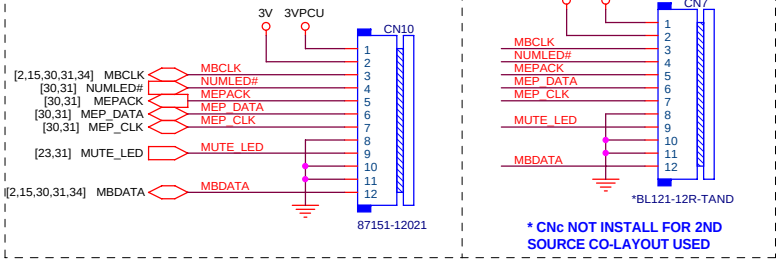
FOR POWER ON AND INTERNAL SPK / MIC SW BOARD



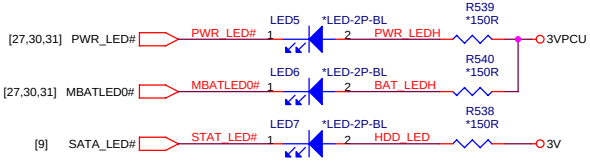
FOR 17" LED AND WIRLESS SW BOARD



FOR QLB SW BOARD

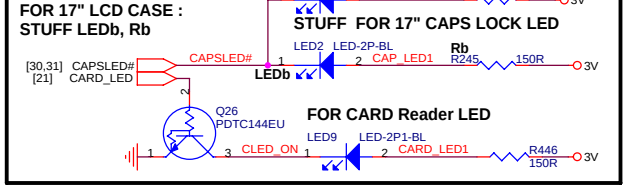


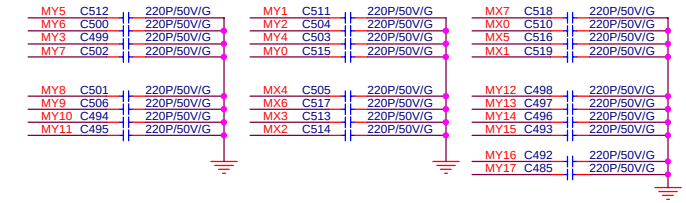
STUFF FOR 15.4" LED USED



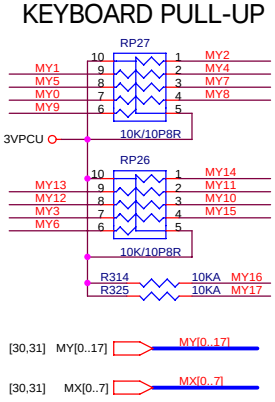
FOR 15.4" LCD CASE : STUFF LEDa, Ra

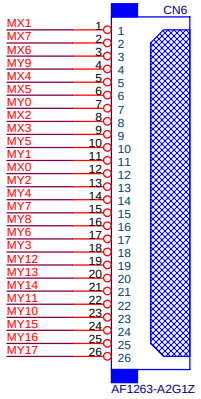
FOR 17" LCD CASE : STUFF LEDb, Rb

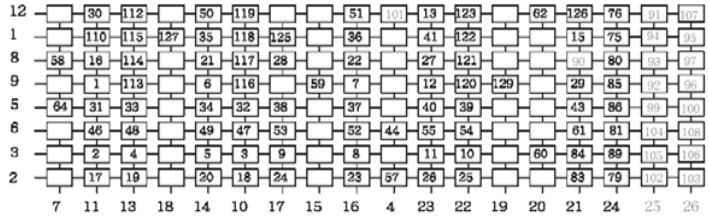


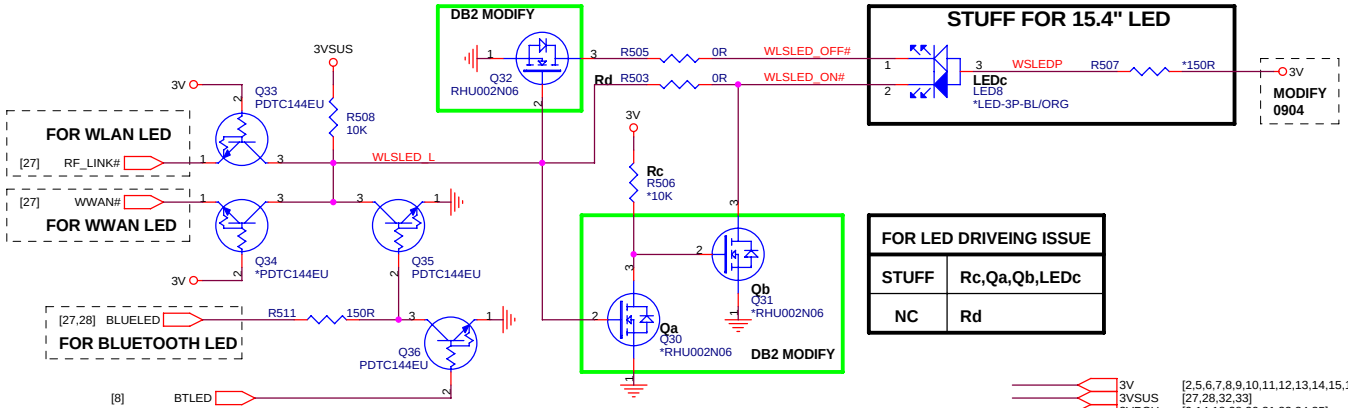


KEYBOARD PULL-UP

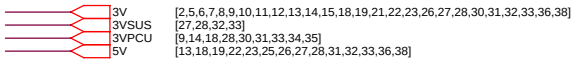




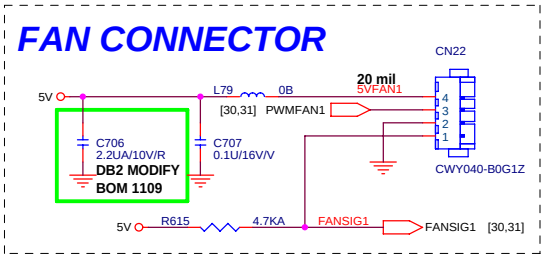




FOR LED DRIVEING ISSUE	
STUFF	Rc,Qa,Qb,LEDc
NC	Rd



FAN CONNECTOR



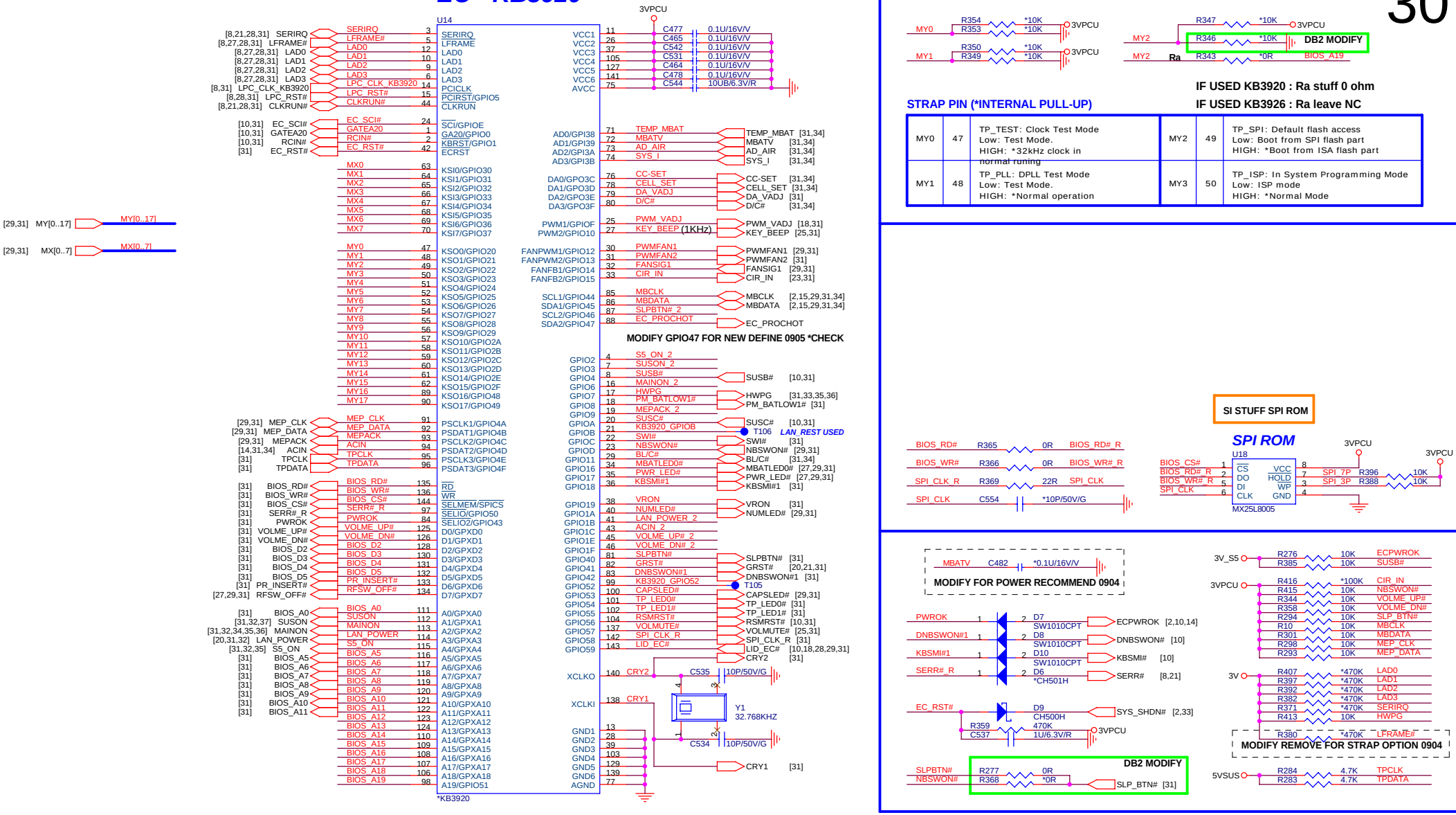
NB5/RD2/HW1

PROJECT : AT1
Quanta Computer Inc.

Size	Document Number	Rev
Custom	KB,FAN,LED,SW (PWR,QLB,LED)	C2A

Date: Wednesday, December 20, 2006 Sheet 29 of 40

EC - KB3920



DB2 MODIFY

IF USED KB3920 : Ra stuff 0 ohm

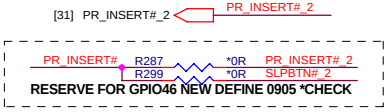
IF USED KB3926 : Ra leave NC

STRAP PIN (*INTERNAL PULL-UP)

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

SI STUFF SPI ROM

SPI ROM



3V [2,5,6,7,8,9,10,11,12,13,14,15,18,19,21,22,23,26,27,28,29,31,32,33,36,38]
3V_S5 [8,9,10,11,20,28,32,33,37]
3VPCU [9,14,18,28,29,31,33,34,35]
5VSUS [18,26,28,31,32,33,37]

NB5/RD2/HW1

PROJECT : AT1
Quanta Computer Inc.

Size	Document Number	Rev
Custom	KB3920,SPI_ROM	C2A

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EC - KB3926

U15

[8,21,28,30] SERIRQ	SERIRQ	3	SERIRQ	VCC1	9
[8,27,28,30] LFRAME#	LFRAME#	4	LFRAME	VCC2	22
[8,27,28,30] LAD0	LAD0	10	LAD0	VCC3	33
[8,27,28,30] LAD1	LAD1	8	LAD1	VCC4	96
[8,27,28,30] LAD2	LAD2	7	LAD2	VCC5	111
[8,27,28,30] LAD3	LAD3	5	LAD3	VCC6	125
[8,30] LPC_CLK_KB3920	LPC_CLK_KB3920	12	PCICLK	AVCC	67
[8,28,30] LPC_RST#	LPC_RST#	13	PCIRST/GPIO5		3VPCU
[8,21,28,30] CLKRUN#	CLKRUN#	38	CLKRUN		
			SCI/GPIOE		
[10,30] EC_SCI#	EC_SCI#	20	GA20/GPIO0		
[10,30] GATEA20	GATEA20	1	KBRST/GPIO1	AD0/GPI38	63 TEMP_MBAT TEMP_MBAT [30,34]
[10,30] RCIN#	RCIN#	2	ECRST	AD1/GPI39	64 MBATV MBATV [30,34]
[30] EC_RST#	EC_RST#	37		AD2/GPI3A	65 AD_AIR AD_AIR [30,34]
				AD3/GPI3B	66 SYS_I SYS_I [30,34]
	MX0	55	KSI0/GPIO30		
	MX1	56	KSI1/GPIO31	DA0/GPO3C	68 CC-SET CC-SET [30,34]
	MX2	57	KSI2/GPIO32	DA1/GPO3D	70 CELL_SET CELL_SET [30,34]
	MX3	58	KSI3/GPIO33	DA2/GPO3E	71 DA_VADJ DA_VADJ [30]
	MX4	59	KSI4/GPIO34	DA3/GPO3F	72 D/C# D/C# [30,34]
	MX5	60	KSI5/GPIO35		
	MX6	61	KSI6/GPIO36	PWM1/GPIOE	21 PWM_VADJ PWM_VADJ [18,30]
	MX7	62	KSI7/GPIO37	PWM2/GPIO10	23 KEY_BEEP KEY_BEEP [25,30]
	MY0	39	KSO0/GPIO20	FANPWM1/GPIO12	26 PWMFAN1 PWMFAN1 [29,30]
	MY1	40	KSO1/GPIO21	FANPWM2/GPIO13	27 PWMFAN2 PWMFAN2 [30]
	MY2	41	KSO2/GPIO22	FANFB1/GPIO14	28 FANSIG1 FANSIG1 [29,30]
	MY3	42	KSO3/GPIO23	FANFB2/GPIO15	29 CIR_IN CIR_IN [23,30]
	MY4	43	KSO4/GPIO24		
	MY5	44	KSO5/GPIO25	SCL1/GPIO44	77 MBCLK MBCLK [2,15,29,30,34]
	MY6	45	KSO6/GPIO26	SDA1/GPIO45	78 MBDATA MBDATA [2,15,29,30,34]
	MY7	46	KSO7/GPIO27	SCL2/GPIO46	79 PR_INSERT#_2 PR_INSERT#_2 [30]
	MY8	47	KSO8/GPIO28	SDA2/GPIO47	80 EC_PROCHOT# EC_PROCHOT# [2]
	MY9	48	KSO9/GPIO29		
	MY10	49	KSO10/GPIO2A		MODIFY GPIO46,47
	MY11	50	KSO11/GPIO2B		FOR NEW DEFINE
	MY12	51	KSO12/GPIO2C		0905 *CHECK
	MY13	52	KSO13/GPIO2D		
	MY14	53	KSO14/GPIO2E	GPIO4	6 SUSB# SUSB# [10,30]
	MY15	54	KSO15/GPIO2F		
	MY16	81	KSO16/GPIO48	GPIO7	14 HWPG HWPG [30,33,35,36]
	MY17	82	KSO17/GPIO49	GPIO8	15 PM_BATLOW1# PM_BATLOW1# [30]
[29,30] MEP_CLK	MEP_CLK	83	PSCLK1/GPIO4A	GPIOA	16 SUSC# SUSC# [10,30]
[29,30] MEP_DATA	MEP_DATA	84	PSDAT1/GPIO4B	GPIOB	17 KB3926_GPIOB T107 LAN_REST USED
[29,30] MEPACK	MEPACK	85	PSCLK2/GPIO4C	GPIOC	18 SWI# SWI# [30]
[14,30,34] ACIN	ACIN	86	PSDAT2/GPIO4D	GPIOD	19 NBSWON# NBSWON# [29,30]
[30] TPCLK	TPCLK	87	PSCLK3/GPIO4E	GPIO11	25 BL/C# BL/C# [30,34]
[30] TPDATA	TPDATA	88	PSDAT3/GPIO4F	GPIO16	30 MBATLED0# MBATLED0# [27,29,30]
				GPIO17	31 PWR_LED# PWR_LED# [27,29,30]
[30] BIOS_RD#	BIOS_RD#	119	RD	GPIO18	32 KBSMI#1 KBSMI#1 [30]
[30] BIOS_WR#	BIOS_WR#	120	WR		
[30] BIOS_CS#	BIOS_CS#	128	SELMEM/SPICS	GPIO19	34 VRON VRON [30]
[30] SERR#_R	SERR#_R	89	SELIO/GPIO50	GPIO1A	36 NUMLED# NUMLED# [29,30]
[30] PWROK	PWROK	76	SELIO2/GPIO43		
[30] VOLME_UP#	VOLME_UP#	109	D0/GPXD0		
[30] VOLME_DN#	VOLME_DN#	110	D1/GPXD1		
[30] BIOS_D2	BIOS_D2	112	D2/GPXD2		
[30] BIOS_D3	BIOS_D3	114	D3/GPXD3	GPIO40	73 SLPBTN# SLPBTN# [30]
[30] BIOS_D4	BIOS_D4	115	D4/GPXD4	GPIO41	74 GRST# GRST# [20,21,30]
[30] BIOS_D5	BIOS_D5	116	D5/GPXD5	GPIO42	75 DNBSWON#1 DNBSWON#1 [30]
[30] PR_INSERT#	PR_INSERT#	117	D6/GPXD6	GPIO52	90 KB3926_GPIO52 T109
[27,29,30] RFSW_OFF#	RFSW_OFF#	118	D7/GPXD7	GPIO53	91 CAPSLED# CAPSLED# [29,30]
				GPIO54	92 TP_LED0# TP_LED0# [30]
[30] BIOS_A0	BIOS_A0	97	A0/GPXA0	GPIO55	93 TP_LED1# TP_LED1# [30]
[30,32,37] SUSON	SUSON	98	A1/GPXA1	GPIO56	95 RSMRST# RSMRST# [10,30]
[30,32,34,35,36] MAINON	MAINON	99	A2/GPXA2	GPIO57	121 VOLMUTE# VOLMUTE# [25,30]
[20,30,32] LAN_POWER	LAN_POWER	100	A3/GPXA3	GPIO58	126 SPI_CLK_R SPI_CLK_R [30]
[30,32,35] S5_ON	S5_ON	101	A4/GPXA4	GPIO59	127 LID_EC# LID_EC# [10,18,28,29,30]
[30] BIOS_A5	BIOS_A5	102	A5/GPXA5		
[30] BIOS_A6	BIOS_A6	103	A6/GPXA6	XCLKO	123 CRY2 [30]
[30] BIOS_A7	BIOS_A7	104	A7/GPXA7		
[30] BIOS_A8	BIOS_A8	105	A8/GPXA8	XCLKI	122 CRY1 [30]
[30] BIOS_A9	BIOS_A9	106	A9/GPXA9		
[30] BIOS_A10	BIOS_A10	107	A10/GPXA10		
[30] BIOS_A11	BIOS_A11	108	A11/GPXA11	GND1	11
				GND2	24
T108	KB3926_V18R	124	V18R	GND3	35
				GND4	94
				GND5	113
				AGND	69

KB3926

SPI H/W STRAPPING

BIOS_A0 R315 1K

DB2 MODIFY 1101

[29,30] MY[0..17] MY[0..17]

[29,30] MX[0..7] MX[0..7]

LPC_CLK_KB3920 R421 *0R LPC_CLK_KB3920_C C579 *10P/50V/G

MODIFY FOR EMI SOLUTION 0911

CABLE DOCK

CN21

DB2 MODIFY 1107
FOR EMI SOLUTION

[19] CRT_G1	CRT_G1	R36	120/0.5A	CRT_GDK	38	VA_P	44
[19] CRT_R1	CRT_R1	R32	120/0.5A	CRT_RDK	40	VDD	43
[6,13,19] DDCDAT	DDCDAT	R51	0R	DDAT_DK	34	VA_P	
[19] CRT_B1	CRT_B1	R40	120/0.5A	CRT_BDK	36		
[19] HSYNC2	HSYNC2	R25	0R	HSY_DK	30		
[6,13,19] DDCCLK	DDCCLK	R53	0R	DCLK_DK	32		
				USB4-1	26		
[19] VSYNC2	VSYNC2	R26	0R	VSY_DK	28		
				USB4+1	24		
[20] +LAN_MX3	+LAN_MX3				18		
[20] -LAN_MX3	-LAN_MX3				20		
[20] +LAN_MX2	+LAN_MX2				14		
[20] -LAN_MX2	-LAN_MX2				16		
[20] +LAN_MX1	+LAN_MX1				10		
[20] -LAN_MX1	-LAN_MX1				12		
[20] +LAN_MX0	+LAN_MX0				6		
[20] -LAN_MX0	-LAN_MX0				8		
VIN					2		
					4		
					42	VSS	41
					46		45

QL1122L-H212CR-7F-44P

SYD_DK	R566	0R	TV_LUMA	TV_LUMA [19]
SCD_DK	R567	0R	TV_CHROMA	TV_CHROMA [19]
SCVBS_DK	R570	0R	TV_COMP	TV_COMP [19]
VIDEO_GND	R576	0R		
CIRIN_DK	R578	0R	CIR_IN	CIR_IN [23,30]
PWR_ON				
MUTE_LED				MUTE_LED [23,29]
SLP_BTN#				SLP_BTN# [30]
JACK_DETECT#				JACK_DETECT# [23]
VOLME_UP#				VOLME_UP# [30]
VOLME_DN#				VOLME_DN# [30]
SPDIF_DOCK				
AUDIO_G	R606	0R	AGND	
RSPK_DK				
LSPK_DK				
RMIC_DK	R588	0R	DOCK_MIC_R	[23]
LMIC_DK	R599	0R	DOCK_MIC_L	[23]
MIC_GND	R597	0R	AGND	
DOCK_PRESENT				

SPDIF	C723	*270P/25V/O	
JACK_DETECT#	C713	270P/25V/O	
CIR_IN	C710	*120P/50V/O	
VOLME_DN#	C716	*120P/50V/O	

DB2 MODIFY 1030
FOR POWER RECOMMEND

VA L89 0.015B/4A L73 0.015B/4A

150 mils VA_P

C681 0.1U/25V/V C682 0.1U/25V/V **MODIFY 0831**

5VSUS R582 1K DK_PWRON D40 SW1010CPT

DB2 MODIFY 1106

5V D39 SW1010CPT

R60 1.5K/F PWR_ON

S0: 4V
S3: 2.5V
S4/S5: 0V

***Check voltage on DB**

3VPCU R595 *100K

[30] PR_INSERT# R600 *0R PR_INSERT_L#

DOCK_PRESENT R598 1K DKPR# Q50 *MMBT3904

R602 2KA/F

1.5V R587 33R SPDDK_V Q49 MMBT3904 SPD_DK L80 0A SPDIF_DOCK

[12,23] SPDIF SPDIF R591 510/F SPDIF_DK R589 510/F C722 68P/50V/G

RSPK_DK C107 100U/6.3V/3528 R67 *0R DOCK_RSPK+ [23]

LSPK_DK C142 100U/6.3V/3528 R81 *0R DOCK_LSPK+ [23]

[9] USB4- [9] USB4+ R61 0R L8 *90B/0.33A/4P2L R66 0R USB4-1 USB4+1

RESERVE FOR EMI SOULTION

TV_LUMA	C55	*82P/50V/O	RSPK_DK	C104	*10P/50V/G
TV_CHROMA	C64	*82P/50V/O	LSPK_DK	C116	*10P/50V/G
TV_COMP	C70	*82P/50V/O	RMIC_DK	C721	*10P/50V/G
SYD_DK	C685	*82P/50V/O	LMIC_DK	C725	*10P/50V/G
SCD_DK	C690	*82P/50V/O			
SCVBS_DK	C699	*82P/50V/O			
			USB4+1	C95	*10P/50V/G
			USB4-1	C88	*10P/50V/G
CRT_GDK	C36	*10P/50V/G	+LAN_MX0	C762	*10P/50V/G
CRT_RDK	C33	*10P/50V/G	-LAN_MX0	C766	*10P/50V/G
CRT_BDK	C57	*10P/50V/G	+LAN_MX1	C125	*10P/50V/G
CRT_G1	C37	*10P/50V/G	-LAN_MX1	C117	*10P/50V/G
CRT_R1	C32	*10P/50V/G	+LAN_MX2	C281	*10P/50V/G
CRT_B1	C46	*10P/50V/G	-LAN_MX2	C294	*10P/50V/G
HSY_DK	C31	*10P/50V/G	+LAN_MX3	C786	*10P/50V/G
VSY_DK	C87	*10P/50V/G	-LAN_MX3	C788	*10P/50V/G
DDAT_DK	C65	*10P/50V/G			
DCLK_DK	C85	*10P/50V/G			

TOUCH PAD CONNECTOR

SW1 MX4 MY7 *TACT-SWITCH

(Amber) LED3 TP_LED0# TPLD1 *150R R342 3V

TP_LED1# (Blue) TPLD2 *150R R341 3V

*LED-4P-BL/ORG **FOR 15.4"**

SW2 MX4 MY7 TACT-SWITCH

(Amber) LED4 TP_LED0# TPLD3 150R R402 3V

TP_LED1# (Blue) TPLD4 150R R412 3V

LED-4P-BL/ORG **FOR 17"**

5VSUS C403 0.1U/16V/V 25 mils 5VTP CN4 AF1043-A2G1Z

TPCLK L36 80A/0.6A TPCLK-1

TPDATA L37 220A/0.2A TPDATA-1

L38 220A/0.2A

C404 *10P/50V/G C405 *10P/50V/G

1.5V	[27,28,32,36]
3V	[2,5,6,7,8,9,10,11,12,13,14,15,18,19,21,22,23,26,27,28,29,30,32,33,36,38]
3VPCU	[9,14,18,28,29,30,33,34,35]
5VSUS	[18,26,28,30,32,33,37]
5V	[13,18,19,22,23,25,26,27,28,29,32,33,36,38]
VA	[34]
VIN	[18,32,33,34,35,36,37,38]

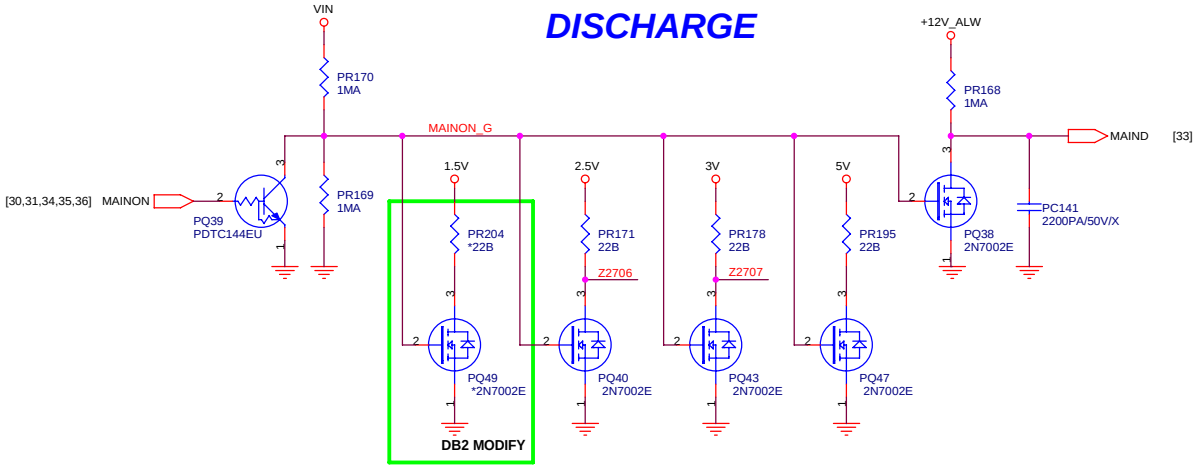
NB5/RD2/HW1

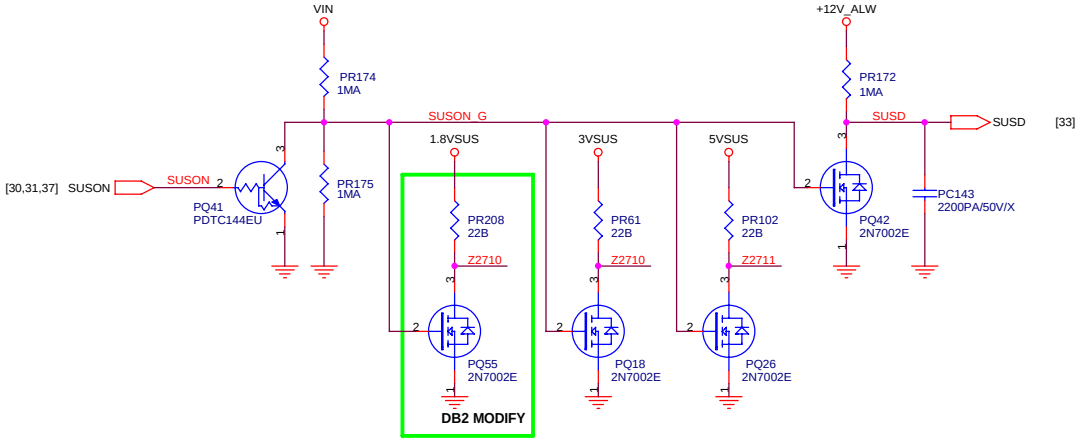
PROJECT : AT1
Quanta Computer Inc.

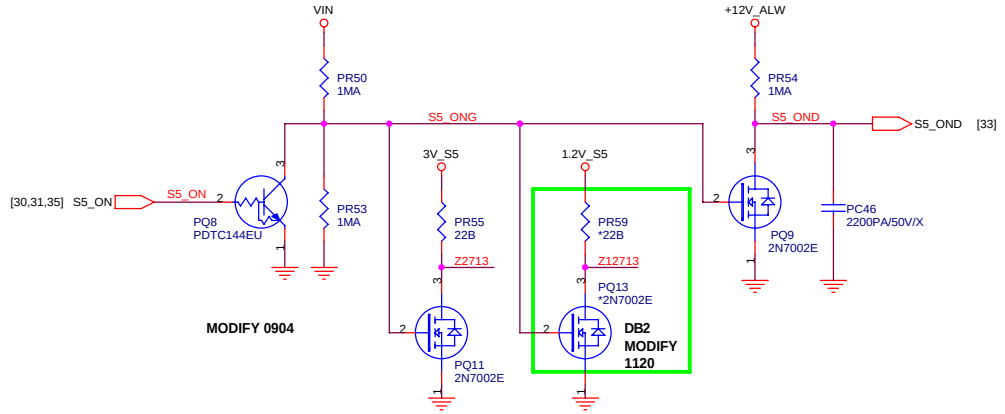
Size	Document Number	Rev
Custom	KB3926,DOCKING,TOUCH_PAD	C2A

Date: Wednesday, December 20, 2006 Sheet 31 of 40

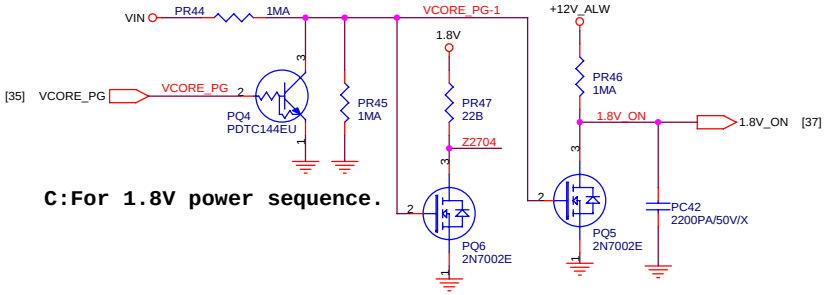
DISCHARGE



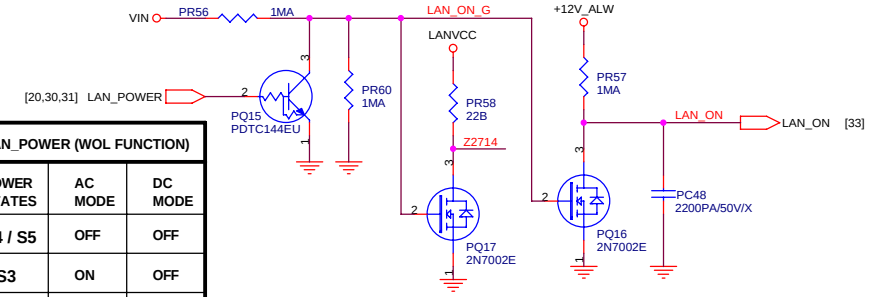




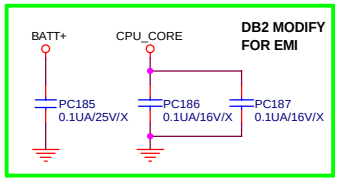
SI POWER MODIFY



C:For 1.8V power sequence.



LAN_POWER (WOL FUNCTION)		
POWER STATES	AC MODE	DC MODE
S4 / S5	OFF	OFF
S3	ON	OFF
S0	ON	ON



CPU_CORE	[4,38]
1.2V_S5	[10,11,35]
1.5V	[27,28,31,36]
1.8V	[11,13,15,16,17,37]
1.8VSUS	[2,3,4,5,6,36,37]
2.5V	[2,13,36]
LANVCC	[20,33]
3V	[2,5,6,7,8,9,10,11,12,13,14,15,18,19,21,22,23,26,27,28,29,30,31,33,36,38]
3VSUS	[27,28,29,33]
3V_S5	[8,9,10,11,20,28,30,33,37]
5V	[13,18,19,22,23,25,26,27,28,29,31,33,36,38]
5VSUS	[18,26,28,30,31,33,37]
+12V_ALW	[10,18,33]
VIN	[18,31,33,34,35,36,37,38]

NB5/RD2/HW1

PROJECT : AT1
Quanta Computer Inc.

Size	Document Number	Rev
Custom	DISCHARGE	C2A

Date: Wednesday, December 20, 2006 Sheet 32 of 40

DC/DC 3VPCU/ 5VPCU/ +12V_ALW

TOPN: OUT1/OUT2
GND=400KHz/500KHz
REF = 400KHz /300KHz
VCC5=200KHz/300KHz

5 Volt +/- 5%

5VPCU
C/C:8A
P/C:10A

Vout=0.7(Ra+Rb)/Rb
Rb around 49.9k

3.3 Volt +/- 5%

3VPCU
C/C:8A
P/C:10A

Place these CAPs close to FETs

Place these CAPs close to FETs

PU6 ISL6236

Rds(on) 13m ohm

Rds(on) 13m ohm

I_lim*MOSFET(RDSON)=V_ILIM(mV)/10
V_ILIM(mV)=5uA*R_ILIM

DB2 MODIFY

DB2 MODIFY

LANVCC
0.2A

3V
9.0A
S0-S1

4.59A
S0-S1

5A
S0-S3

1A
S0-S5

1.6A
S0-S3

+12V_ALW	[10,18,32]
LANVCC	[20,32]
3V	[2,5,6,7,8,9,10,11,12,13,14,15,18,19,21,22,23,26,27,28,29,30,31,32,36,38]
3VSUS	[27,28,29,32]
3V_S5	[8,9,10,11,20,28,30,32,37]
3VPCU	[9,14,18,28,29,30,31,34,35]
5V	[13,18,19,22,23,25,26,27,28,29,31,32,36,38]
5VSUS	[18,26,28,30,31,32,37]
5VPCU	[10,23,34,35,36,37,38]
VIN	[18,31,32,34,35,36,37,38]

PROJECT : AT1
Quanta Computer Inc.

Size	Document Number	Rev
Custom	ISL6236 (5VPCU,3VPCU)	C2A

NB5/RD2/HW1

Date: Wednesday, December 20, 2006 Sheet 33 of 40

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

MAX8724

Battery 6/8/12cell

34

From Docking CNN

360mil

FOR AT2 17"

FOR AT1 15.4"

Setting the Vin min to 8V

SI power

Battery Low 7.5V

V=I*0.01*3*R

I_INPUT=V_CLS/4.096*0.075/0.01

0 = 4 CELL
1 = 3 CELL

CELLS	Cell	
LOW	2	0.4
FLOAT	3	REFIN/2-0.2~REFIN/2+0.2
HIGH	4	REFIN-0.4

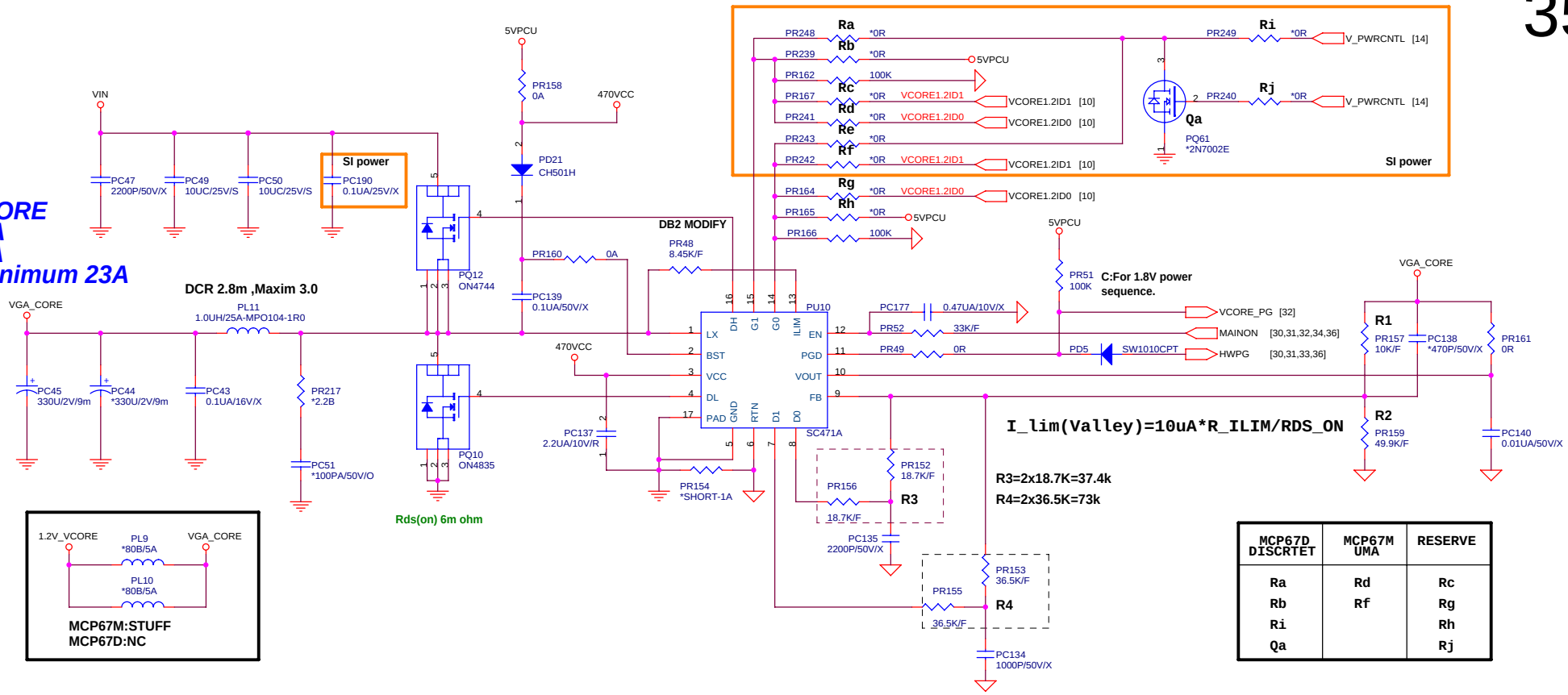
90W PRa=15.4KOhm(CS31543F929)19.0V/4.23A=80.5W
65W PRa=30.9KOhm (CS33093F911) 18.5V/2.94A=54.5W

PROJECT : AT1
Quanta Computer Inc.

Size	Document Number	Rev
Custom	MAX8724 CHARGER	C2A

Date: Wednesday, December 20, 2006 Sheet 34 of 40

NB5/RD2/HW1



MCP67D DISCRTET	MCP67M UMA	RESERVE
Ra	Rd	Rc
Rb	Rf	Rg
Ri		Rh
Qa		Rj

INPUTS		OUTPUTS			VGA_CORE
G0	G1	OD1	OD2	OD3	
0	0	0.75x(1+R1/R2+R1/R3+R1/R4)			1.2V
0	1	0.75x(1+R1/R2+R1/R3)			1.1V
1	0	0.75x(1+R1/R2+R1/R4)			1.0V
1	1	0.75x(1+R1/R2)			0.9V

1.2V
0.5A
S0-S5

Vo=0.8(R1+R2)/R2
R2<120Kohm

GFX_VID0
H: Normal Voltage
L: Low Voltage

VGACORECTL	NB8X	R2	R3/PR294	PR1293/PR295
HI	1.2V	CS43012FB10	NA	Mounted
LO	1.XV			

1.2V_S5 [10,11,32]
1.2V_VCORE [11,36]
VGA_CORE [12]
3VPCU [9,14,18,28,29,30,31,33,34]
5VPCU [10,23,33,34,36,37,38]
VIN [18,31,32,33,34,36,37,38]

NB5/RD2/HW1

PROJECT : AT1
Quanta Computer Inc.

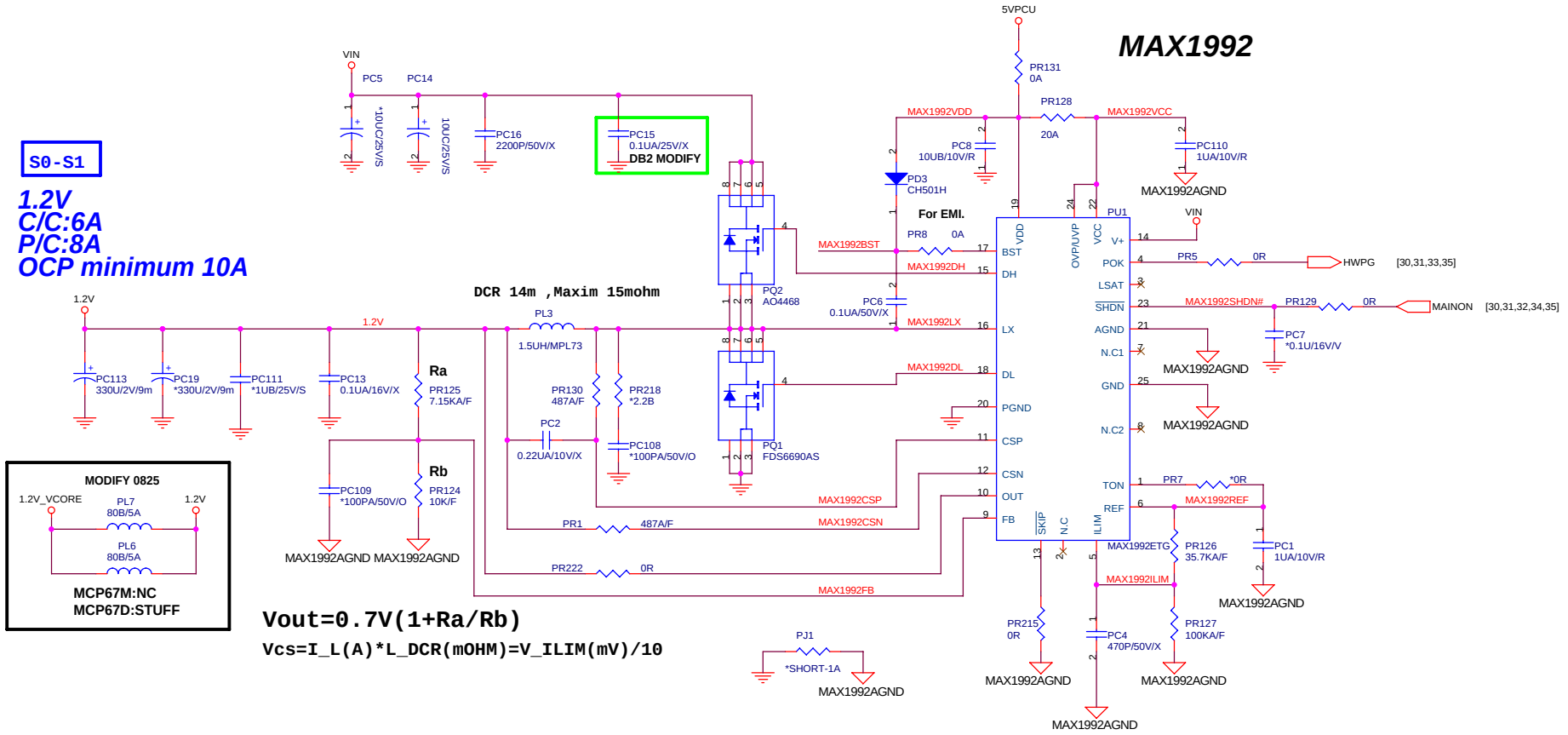
Size	Document Number	Rev
Custom	SC471A (VGA_CORE),1.2V_S5	C2A

Date: Wednesday, December 20, 2006 Sheet 35 of 40

MAX1992

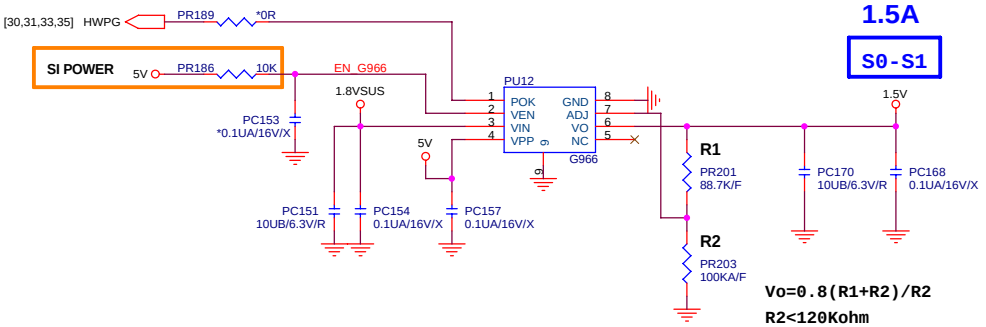
S0-S1

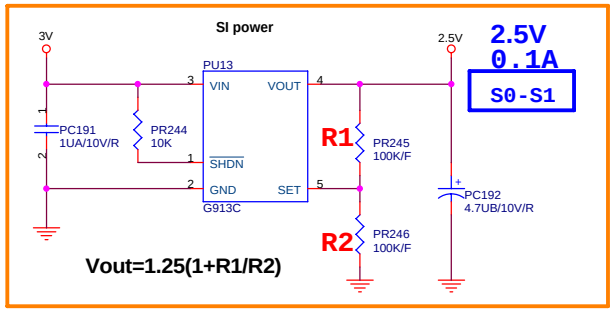
1.2V
C/C:6A
P/C:8A
OCP minimum 10A



Vout=0.7V(1+Ra/Rb)

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





1.2V_VCORE	[11,35]
1.2V	[10,11,12,13,15]
1.5V	[27,28,31,32]
1.8VSUS	[2,3,4,5,6,32,37]
2.5V	[2,13,32]
3V	[2,5,6,7,8,9,10,11,12,13,14,15,18,19,21,22,23,26,27,28,29,30,31,32,33,38]
5V	[13,18,19,22,23,25,26,27,28,29,31,32,33,38]
5VPCU	[10,23,33,34,35,37,38]
VIN	[18,31,32,33,34,35,37,38]

NB5/RD2/HW1

PROJECT : AT1
Quanta Computer Inc.

Size	Document Number	Rev
Custom	MAX1992 (1.2V),1.5V,2.5V	C2A

Date: Wednesday, December 20, 2006 Sheet 36 of 40

S0-S3

1.8VSUS
C/C:12A
P/C:15.2A
OCP minimum 25A

VIN
PC58 10UC/25V/S
PC169 *10UC/25V/S
PC71 10UC/25V/S
PC74 2200P/50V/X
PC73 0.1UA/25V/X

5VPCU
PR104 0A
51116_V5IN
PR108 10A
51116_V5FILT
PD11 CH501H
PC89 4.7UB/10V/R
PC96 1UA/10V/R
PR101 10K/F
For OCP set.

I_lim(Valley)=10uA*R_ILIM/RDS_ON

S0-S3

SMDDR_VTERM
1.53A / 0.9V

1.8BST
PC77 0.1UA/50V/X
PR100 0A
3V_S5
PR113 100K

SI MODIFY FOR POWER SEQUENCE 1211
PR114 15K
PC193 0.01U/16V/X
MEM_HWPG [10]

PU7
VBST
DRVH
LL
DRVL
PGND
CS_GND
VDDQSNS
VDDQSET
COMP
VTTREF
VDDP(V5IN-TI)
VDDP(V5FILT-TI)
CS
PGOOD
NC
S5
S3
VLDOIN
NC
VTTGND
TON(MODE)
VTT
VTTSNS
GND PAD PAD PAD PAD
Ti51116

1.8_DH
1.8V_LX
1.8_DL
1.8V_OUT
51116_COMP
PR122 0R
51116_V5IN
PR112 0A
[5] SMDDR_VREF
PC101 0.033UA/25V/X

PR207 0R
SUSON [30,31,32]
PR121 0R
51116_VLDOIN
PR99 0B
1.8VSUS
PC79 1UA/10V/R

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

PC78 10UB/6.3V/R
PC80 10UB/6.3V/R
PC81 10UB/6.3V/R
SMDDR_VTERM
PR103 0R
PR105 *0R
VTERM_FB [3]
51116_TON
PR109 0R
1.8VSUS

1.8 Volt +/-5%
1.8VSUS
PC142 330U/2V/9m
PC146 *330U/2V/9m
PC148 0.1U/10V/X

DCR 2.8m ,Maxim 3.0
1.8VSUS
PL12
1.0UH/25A-MPO104-1R0
PQ23 ON4744
PQ21 ON4835
Rds(on) 4.2m ohm

PR219 *2.2B
PC162 *100PA/50V/O
PC102 *100PA/50V/O
100pF for SC480

Ra
PR120 *2K
PR117 0R

Rb
PR118 *10K
PR116 *0R

51116_V5IN
PR119 0R
Fix 1.8V Output

Ra=(Vout-0.75)/0.75*Rb
Rb value from 100K to 300K ohm

CPU_SUS_FB [2]

1.8VSUS
[32] 1.8V_ON
PQ7 AO4430
1.8V
PC136 0.1UA/16V/X

1.8V
4.75A
S0-S1

S0-S3

SMDDR_VTERM
0.9V
?A

0.9V/1.2A
1.8VSUS
5VSUS
PU11
VDDSSNS
VLDOIN
VTT
PGND
VTTSNS
VIN
S5
GND
S3
VTTREF
*TPS51100DGQR
PC147 *10UB/6.3V/R
PC149 *0.1UA/50V/X
PC145 *10UB/6.3V/R
PC144 *10UB/6.3V/R
PC150 *0.1UA/50V/X
SMDDR_VTERM
PR173 *0B
PR176 *0R
PR177 *0R
[3] VTERM_FB
PR184 *0R
SUSON [30,31,32]
PR185 *0R
SUSON [30,31,32]
PR179 *0A
SMDDR_VREF [5]

Mode	Discharge Mode
V5IN	No discharge
VDDQ	Tracking discharge
Gnd	Non-tracking discharge

V_TRIP(mV)=R_TRIP(Kohm)*10(uA)
I_OCP=V_trip/Rds_on+I_Ripple/2

VDDQSET	VDDQ(V)	VTTREF and Vtt	Note
GND	2.5	V_ vddqsns/2	DDR
V5IN	1.8	V _vddqsns/2	DDR2
FB	adjustable	V_VDDQSNS/2	1.5V<VDDQ<3V

SMDDR_VTERM [4]
1.8V [11,13,15,16,17,32]
1.8VSUS [2,3,4,5,6,32,36]
3V_S5 [8,9,10,11,20,28,30,32,33]
5VSUS [18,26,28,30,31,32,33]
5VPCU [10,23,33,34,35,36,38]
VIN [18,31,32,33,34,35,36,38]

NB5/RD2/HW1

PROJECT : AT1
Quanta Computer Inc.

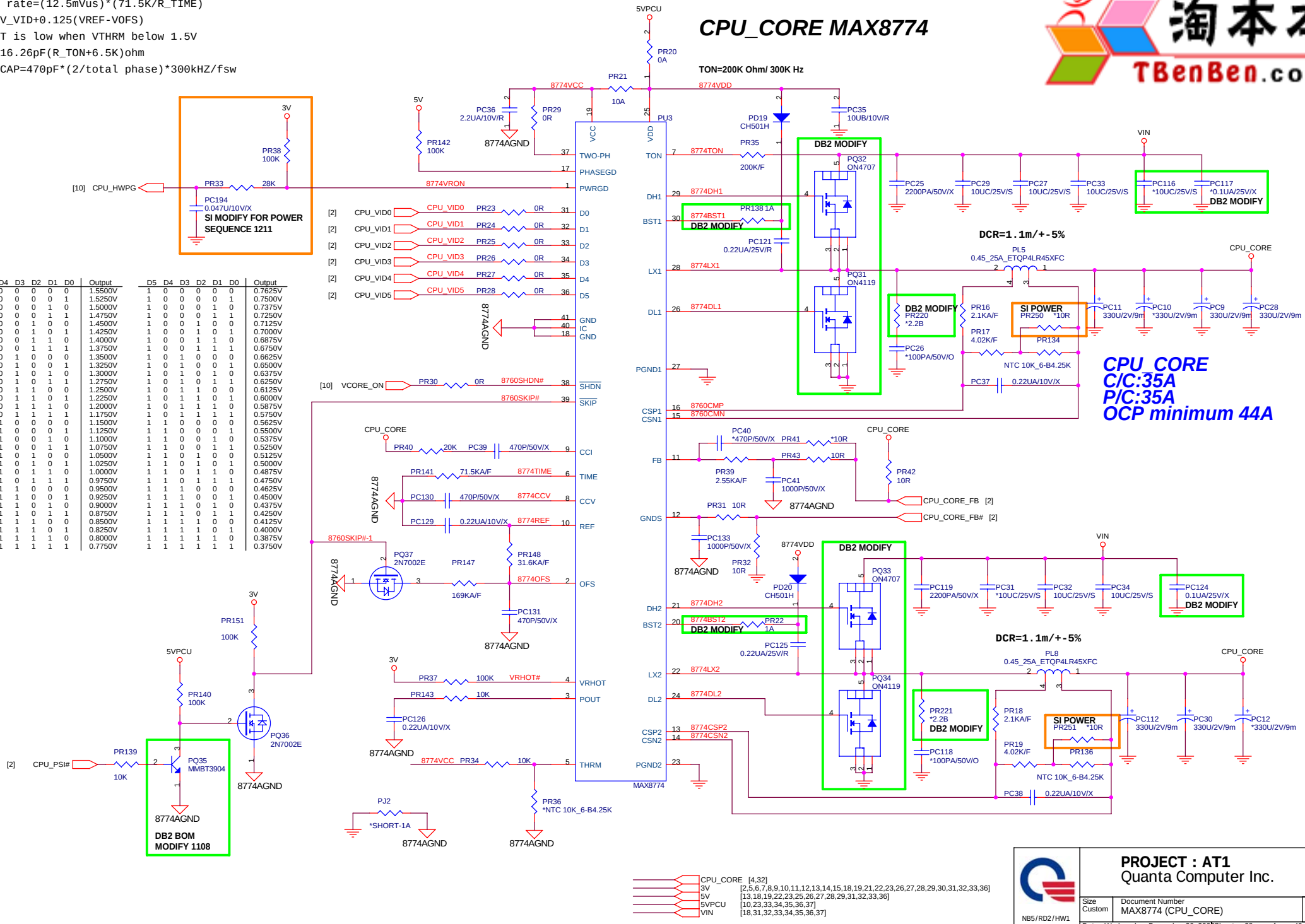
Size	Document Number	Rev
Custom	TI51116 (1.8VSUS,VTER),1.8V	C2A

Date: Wednesday, December 20, 2006 Sheet 37 of 40

Slew rate=(12.5mVus)*(71.5K/R_TIME)
VFB=V_VID+0.125(VREF-VOFS)
VRHOT is low when VTHRM below 1.5V
Tsw=16.26pF(R_TON+6.5K)ohm
CCV CAP=470pF*(2/total phase)*300kHZ/fsw

CPU_CORE MAX8774

TON=200K Ohm/ 300K Hz



D5	D4	D3	D2	D1	D0	Output
0	0	0	0	0	0	1.5500V
0	0	0	0	0	1	1.5250V
0	0	0	0	1	0	1.5000V
0	0	0	0	1	1	1.4750V
0	0	0	1	0	0	1.4500V
0	0	0	1	0	1	1.4250V
0	0	0	1	1	0	1.4000V
0	0	0	1	1	1	1.3750V
0	0	1	0	0	0	1.3500V
0	0	1	0	0	1	1.3250V
0	0	1	0	1	0	1.3000V
0	0	1	0	1	1	1.2750V
0	0	1	1	0	0	1.2500V
0	0	1	1	0	1	1.2250V
0	0	1	1	1	0	1.2000V
0	0	1	1	1	1	1.1750V
0	1	0	0	0	0	1.1500V
0	1	0	0	0	1	1.1250V
0	1	0	0	1	0	1.1000V
0	1	0	0	1	1	1.0750V
0	1	0	1	0	0	1.0500V
0	1	0	1	0	1	1.0250V
0	1	0	1	1	0	1.0000V
0	1	0	1	1	1	0.9750V
0	1	1	0	0	0	0.9500V
0	1	1	0	0	1	0.9250V
0	1	1	0	1	0	0.9000V
0	1	1	0	1	1	0.8750V
0	1	1	1	0	0	0.8500V
0	1	1	1	0	1	0.8250V
0	1	1	1	1	0	0.8000V
0	1	1	1	1	1	0.7750V

D5	D4	D3	D2	D1	D0	Output
1	0	0	0	0	0	0.7625V
1	0	0	0	0	1	0.7500V
1	0	0	0	1	0	0.7375V
1	0	0	0	1	1	0.7250V
1	0	0	1	0	0	0.7125V
1	0	0	1	0	1	0.7000V
1	0	0	1	1	0	0.6875V
1	0	0	1	1	1	0.6750V
1	0	1	0	0	0	0.6625V
1	0	1	0	0	1	0.6500V
1	0	1	0	1	0	0.6375V
1	0	1	0	1	1	0.6250V
1	0	1	1	0	0	0.6125V
1	0	1	1	0	1	0.6000V
1	0	1	1	1	0	0.5875V
1	0	1	1	1	1	0.5750V
1	1	0	0	0	0	0.5625V
1	1	0	0	0	1	0.5500V
1	1	0	0	1	0	0.5375V
1	1	0	0	1	1	0.5250V
1	1	0	1	0	0	0.5125V
1	1	0	1	0	1	0.5000V
1	1	0	1	1	0	0.4875V
1	1	0	1	1	1	0.4750V
1	1	1	0	0	0	0.4625V
1	1	1	0	0	1	0.4500V
1	1	1	0	1	0	0.4375V
1	1	1	0	1	1	0.4250V
1	1	1	1	0	0	0.4125V
1	1	1	1	0	1	0.4000V
1	1	1	1	1	0	0.3875V
1	1	1	1	1	1	0.3750V

CPU_CORE [4,32]
3V [2,5,6,7,8,9,10,11,12,13,14,15,18,19,21,22,23,26,27,28,29,30,31,32,33,36]
5V [13,18,19,22,23,25,26,27,28,29,31,32,33,36]
5VPCU [10,23,33,34,35,36,37]
VIN [18,31,32,33,34,35,36,37]

PROJECT : AT1
Quanta Computer Inc.

Size	Document Number	Rev
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