# Soyuz 2.0 SYSTEM DIAGRAM

AMD Smarter Choice

01

**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

DDRII-SODIMM1 PAGE 8,9 — DDRII 667/800 MHz

DDRII-SODIMM2 PAGE 8,9 — DDRII 667/800 MHz

AMD Griffin Lion Sabie
S1G2 Processor
638P (uPGA)/35W
PAGE 5,6,7

CPU THERMAL SENSOR PAGE 7

14.318MHz

CLOCK GEN
ICS9LPRS476AKLFT-->HP
SLG8SP626VTR-->HP
RTM880N-795 -->HP
PAGE 4

CPU_CLK
NBGFX_CLK
NBGPP_CLK
SBLINK_CLK

HT3

PCI-E

NORTH BRIDGE
RS780M
21mm X 21mm, 528pin BGA
PAGE 10,11,12,13

CRT PAGE 20

LVDS PAGE 19

S-Vidio PAGE 20

Side port

256mb RAM PAGE 10

PCIE X4

SBSRC_CLK

(2.0/1.1)
Express Card x1
Cable Docking x1
WLAN X1
PAGE 28,32

2,4,8

USB2.0

LAN
Realtek
PCIE-LAN
RTL8111C
(10/100/GagaLAN)
PAGE 26,27

Express Card
(NEW CARD)
PAGE 28

Mini PCI-E Card
(Wireless LAN/ROBSON/TV)
PAGE 31

RJ45 PAGE 26

Cable Docking PAGE 32
- TV_OUT
- VGA
- RJ-45
- CIR/Pwr btn
- SPDIF Out
- Stereo MIC
- Headphone Jack
- USB Port
- VOL Cntr

SATA - HDD PAGE 28 — SATA0 150MB

SATA - CD-ROM PAGE 28 — SATA0 150MB

SOUTH BRIDGE
SB700
21mm X 21mm, 528pin BGA
4.5W(Ext)
4.3W(Int)
PAGE 14,15.16.17.18

| 0,1,6 | 7 | 12 | 13 | 9 | 3 |
|---|---|---|---|---|---|
| USB2.0 Ports X3 PAGE 25 (2.0/1.1) | Camera PAGE 19 (2.0) | Fingerprint PAGE 19 (1.1) | Touch Screen PAGE 19 (1.1) | Bluetooth PAGE 25 (2.0) | Card Reader RTS5158 PAGE 21 (2.0) |

Memory CardReader PAGE 21

Azalia

LPC

MDC DAA PAGE 24

ALC268 PAGE 22

AUDIO Amplifier PAGE 23

Digital MIC PAGE 22

AUDIO CONN (Phone/ MIC) PAGE 22

SPEAKER Conn PAGE 23

Keyboard PAGE 29

CIR X2 PAGE 30

Touch Pad PAGE 30

ENE KBC
KB3926 Bx
PAGE 30

FAN PAGE 32

SPI PAGE 30

SYSTEM CHARGER(ISL6251A) PAGE 39

SYSTEM POWER MAX1631A PAGE 33

DDR II SMDDR_VTERM 1.8V/1.8VSUS PAGE 36

VCCP +1.1V AND +1.2V(RT8204) PAGE 34

CPU CORE ISL6265A PAGE 35

NB5/RD2/HW1

**PROJECT : TT9**
Quanta Computer Inc.

| Size | Document Number | Rev |
|---|---|---|
| Custom | Block Diagram | 1A |

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| 14-18 | SB700 | |
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| 31 | Mini CARD/Hole | |
| 32 | CABLE DOCKING/FAN | |
| 33 | 3V/5V(MAX1631A) | |
| 34 | +1.2V/+1.1V (RT8204) | |
| 35 | +CPU_CORE ISL6265 | |
| 36 | +1.8VSUS/+1.8V/+2.5V | |
| 37 | +1.1V/+1.2V_S5/+1.5V | |
| 38 | DISCHARGE | |
| 39 | Charger (ISL6251) | |

* --> Un-stuff (ex. *1K/04)

**04-- 0402 footprint**
**06-- 0603 footprint**
**08-- 0805 footprint**
**12-- 1206 footprint**
**F-- 1% tolerance**

## Power & Ground

| Label | ACTIVE | Description | Control Signal |
|---|---|---|---|
| +VIN | S0, S3, S4, S5 | AC ADAPTER (18.5V) | |
| +BATT | S0, S3, S4, S5 | MAIN BATTERY + (6.2V-8.4V) | |
| +AVBAT | S0, S3, S4, S5 | RTC & KBC POWER (3.3V) | |
| +12VALW | S0, S3, S4, S5 | +12V | |
| +VCORE | S0 | CPU CORE POWER (0.375-1.5V) | VRON |
| +CPUVDDNB | S0 | CPU CORE POWER (1.375-1.5V) | VRON |
| +1.1V_NB | S0 | +1.1 to +1.0 DYN | VRON |
| +1.1V | S0 | +1.1V | VRON |
| +1.2VS5 | S0, S3, S4, S5 | | S5_ON |
| +1.2V | S0 | +1.2V | VRON |
| +3V | S0 | | MAINON |
| +3VSUS | S0, S3 | | SUSON |
| +3VS5 | S0, S3, S4, S5 | | S5_ON |
| +3VPCU | S0, S3, S4, S5 | ALWAYS POWER (3V) | |
| +5V | S0 | | MAIND |
| +5VSUS | S0, S3 | | SUSON |
| +5VPCU | S0, S3, S4, S5 | ALWAYS POWER (5V) | |
| +1.5V | S0 | | MAIND |
| +1.8VSUS | S0, S3 | DDR CORE POWER | SUSON |
| +1.8V | S0 | | MAINON |
| +2.5V | S0 | CPU VDDA | VR2.5_ON |
| +0.9VSMVTT | S0 | DDR COMMAND & CONTROL PULL UP POWER | MAINON |
| +0.9VSMVREF_DIMM | S0, S3 | DDR REF POWER | SUSON |
| +AVDD | S0 | AUDIO ANALOG POWER (5V) | MAINON |
| +3VLANVCC | S0, S3, S4, S5 | LAN Power | LAN_ON |
| | | | |
| GND | ALL PAGES | DIGITAL GROUND | |
| AGND | | AUDIO GND | |

| | |
|---|---|
| SMBUS | SMBUS function define |
| SMBCLK0<br>SMBDAT0 | DDR / DDR THER / CLOCK GEN (+3V) |
| SMBCLK1<br>SMBDAT1 | Mini Card (+3VS5) |
| SMBCLK2<br>SMBDAT2 | New CARD (+3VS5) |

02

NB5/RD2/HW1

**PROJECT : TT9**
Quanta Computer Inc.

| Size | Document Number | Rev |
|---|---|---|
| Custom | System Information | 1A |

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## CPU Power Group A

EC Pin98
SUSON
→ +1.8VSUS → HWPG
→ +0.9VSMVTT

EC Pin102
VR2.5_ON
→ +2.5V

## CPU Power Group B

EC Pin33
VR_ON
→ +VCORE0 → VRM_PWRGD
→ +VCORE1
→ +CPUVDDNB
→ +1.2V → HWPG

EC Pin101
S5_ON
→ Delay → S5_OND → +3VS5

EC Pin101
S5_ON
→ +1.2VS5

EC Pin98
SUSON
→ Delay → SUSD → +5VSUS
→ +3VSUS

EC Pin99
MAINON
→ Delay → MAIND → +5V
→ +3V

EC Pin33
VR_ON
→ +1.1V → HWPG

EC Pin33
VR_ON
→ +1.1V DYN → HWPG

EC Pin99
MAINON
→ +1.5V → HWPG

EC Pin99
MAINON
→ Delay → 1.8V_OND → +1.8V

EC Pin100
LAN_POWER
→ Delay → LAN_ON → +3VLANVCC

3VPCU/5VPCU
NBSWON1#
DNBSWON#
S5_ON
RSMRST#
SUSC
SUSB
SUSON
MAINON
VR_ON
VR2.5_ON
HWPG
VRM_PWRGD
ECPWROK
NB_PWRGD_IN
SB_PWRGD_IN
CPU CLK IN
CPU RESET
CPU POWER OK
CPU_LDTSTOP#

NB5/RD2/HW1

**PROJECT : TT9**
Quanta Computer Inc.

| Size | Document Number | Rev |
|---|---|---|
| Custom | Power control | 1A |

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**0.2A**

60 ohm, 0.5A

+1.2V — L29 FBM-11-160808 — 600 ohms@100Mhz

+1.2V_CLKVDDIO

C273 22U/6.3VC_8 | C542 0.1U/10VC_4 | C539 0.1U/10VC_4 | C541 0.1U/10VC_4 | C269 0.1U/10VC_4 | C563 0.1U/10VC_4 | C548 0.1U/10VC_4

**0.5A**

DCR: 0.5 ohm

600 ohms@100Mhz

+3V — L30 FBM-11-160808 — 60 ohm, 0.5A

+3V_CLKVDD

C276 22U/6.3VC_8 | C284 2.2U/6.3VC_6 | C567 0.1U/10VC_4 | C565 0.1U/10VC_4 | C547 0.1U/10VC_4 | C544 0.1U/10VC_4 | C540 0.1U/10VC_4 | C545 0.1U/10VC_4 | C569 0.1U/10VC_4 | C557 0.1U/10VC_4

Clock chip has internal serial terminations for differencial pairs, external resistors are reserved for debug purpose.

NB CLOCK INPUT TABLE

| NB CLOCKS | RX780 | RS780 |
|---|---|---|
| HT_REFCLKP | 100M DIFF | 100M DIFF |
| HT_REFCLKN | 100M DIFF | 100M DIFF |
| REFCLK_P | 14M SE (1.8V) | 14M SE (1.1V) |
| REFCLK_N | NC | vref |
| GFX_REFCLK | 100M DIFF | 100M DIFF(IN/OUT)* |
| GPP_REFCLK | 100M DIFF | NC or 100M DIFF OUTPUT |
| GPPSB_REFCLK | 100M DIFF | 100M DIFF |

+3V_CLKVDD — L31 BLM18PG221SN1D

C295 22U/6.3VC_8 | C551 2.2U/6.3VC_6 | C570 2.2U/6.3VC_6

Place very close to C/G

+3V_CLK_VDDA

U31A

VDDA 49, GNDA 48, VDDREF 62, GNDREF 66, VDD48 69, VDDATIG 29, VDDCPU 54, VDDHTT 61, VDDSB_SRC 38, VDDSRC 17, VDDSATA 44, VDDDOT 3, VDDATIG_IO 28, VDDCPU_IO 53, VDDSB_SRC_IO 37, VDDSRC_IO1 12, VDDSRC_IO2 18

GND48 72, GNDATIG1 27, GNDDOT 6, GNDCPU 52, GNDHTT 58, GNDSATA 47, GNDSB_SRC 36, GNDSRC1 11, GNDSRC2 19

CPUKG0T_LPRS 56, CPUKG0C_LPRS 55 — CPUCLK0P RP37 — CPUCLK0N — 0X2_4P2R_4 — R418 *261/F_4 — CPUCLKP — CPUCLKN — CPUCLKP 5, CPUCLKN 5

ATIG0T_LPRS 33, ATIG0C_LPRS 32, ATIG1T_LPRS 31, ATIG1C_LPRS 30, ATIG2T_LPRS 26, ATIG2C_LPRS 25 — NBGFXCLK0P RP32 — NBGFXCLK0N — 0X2_4P2R_4 — NBGFX_CLKP — NBGFX_CLKN — NBGFX_CLKP 12, NBGFX_CLKN 12

SB_SRC0T_LPRS 40, SB_SRC0C_LPRS 39, SB_SRC1T_LPRS 35, SB_SRC1C_LPRS 34

SRC0T_LPRS 23, SRC0C_LPRS 22, SRC1T_LPRS 21, SRC1C_LPRS 20, SRC2T_LPRS 16, SRC2C_LPRS 15, SRC3T_LPRS 14, SRC3C_LPRS 13, SRC4T_LPRS 10, SRC4C_LPRS 9, SRC5T_LPRS 8, SRC5C_LPRS 7, SRC6T/SATAT_LPRS 46, SRC6C/SATAC_LPRS 45, SRC7T_LPRS/27Mhz_SS 5, SRC7C_LPRS/27Mhz_NS 4

PCIENEWCLK0P RP31 — PCIENEWCLK0N — 0X2_4P2R_4 — PCIE_NEW_CLKP / PCIE_NEW_CLKN — PCIE_NEW_CLKP 28, PCIE_NEW_CLKN 28

PCIEMINICLK1P RP33 — PCIEMINICLK1N — 0X2_4P2R_4 — PCIE_MINI1_CLKP / PCIE_MINI1_CLKN — PCIE_MINI1_CLKP 31, PCIE_MINI1_CLKN 31

PCILANCLK0P RP34 — PCILANCLK0N — 0X2_4P2R_4 — PCIE_LAN_CLKP / PCIE_LAN_CLKN — PCIE_LAN_CLKP 26, PCIE_LAN_CLKN 26

SBLINKCLK0P RP36 — SBLINKCLK0N — 0X2_4P2R_4 — SBLINK_CLKP / SBLINK_CLKN — SBLINK_CLKP 12, SBLINK_CLKN 12

SBSRCCLK0P RP35 — SBSRCCLK0N — 0X2_4P2R_4 — SBSRC_CLKP / SBSRC_CLKN — SBSRC_CLKP 14, SBSRC_CLKN 14

HTT0T/66M_LPRS 60, HTT0C/66M_LPRS 59, 48MHz_0 71, 48MHz_1 70

NBHTREFCLK0P R416 — NBHTREFCLK0N R417 — 0_4 — NBHT_REFCLKP / NBHT_REFCLKN — NBHT_REFCLKP 12, NBHT_REFCLKN 12

CLK48MUSBCR R405 — 33_4 — CLK_48M_USB_CR — CLK_48M_USB_CR 21

CLK48MUSB R412 — 33_4 — CLK_48M_USB — CLK_48M_USB 15

SI EMI request

REF0/SEL_HTT66 65, REF1/SEL_SATA 64, REF2/SEL_27 63

SEL_HT66, SEL_SATA, SEL_27 — R415 158/F_4 — R165 90.9/F_4 — EXT_NB_OSC 12

CLKREQ0# 24, CLKREQ1# 51, CLKREQ2# 50, CLKREQ3# 43, CLKREQ4# 42

CLKREQ0# — EXT_NWD_CLK_REQ# — EXT_NWD_CLK_REQ# 28

CLKREQ4# — CLK_MINI_OE# — CLK_MINI_OE# 31

For RS780 1.1V

PV Modify for RTC problem

C299 22P/50VA_4 — CG_XIN — X1 67

Y3 14.318MHZ

C300 22P/50VA_4 — CG_XOUT — X2 68

CLK_PD# — PD# 57

8,9,15 PCLK_SMB — PCLK_SMB — SMBCLK 1

8,9,15 PDAT_SMB — PDAT_SMB — SMBDAT 2

16 CHIPSET_PCIE_SLOW_SB# — D10 *CH501H-40PT L-F — SB_SRC_SLOW# — SB_SRC_SLOW# 41

+1.2V_CLKVDDIO

RTM880N-795-VB-GR

THERMAL GND

eGND73 73, eGND74 74, eGND75 75, eGND77 77, eGND76 76, eGND78 78

U31B

RTM880N-795-VB-GR

SI Fix SRC signal use

+3V

CLKREQ0# — 8.2K_4 — R496

CLKREQ3# — *8.2K_4 — R497

CLKREQ4# — *8.2K_4 — R498

CLK_MINI_OE# — 8.2K_4 — R499

SI Modified -- add clock request pin pull Hi for new version clock gen
note : if pull Hi will disable SRC clock output

+3V_CLKVDD

SI Fix bios can not write

R164 *8.2K_4 — SEL_27

R414 *8.2K_4 — SEL_SATA

SEL_HT66

EXT R163 8.2K_4

R160 8.2K_4

+3V

EXT_NWD_CLK_REQ# — 8.2K_4 — R402

CLK_PD# — 8.2K_4 — R155

SB_SRC_SLOW# — 8.2K_4 — R391

* default

| | | |
|---|---|---|
| SEL_HTT66 | 1 | 66 MHz 3.3V single ended HTT clock |
| | 0* | 100 MHz differential HTT clock |
| SEL_SATA | 1* | 100 MHz non-spreading differential SRC clock |
| | 0 | 100 MHz spreading differential SRC clock |
| SEL_27 | 1* | 27MHz non-spreading singled clock |
| | 0 | 100 MHz spreading differential SRC clock |

when driven low SB_SRC clocks slow only supported with to reduced setpoint custom CG IC

* RS780 can be used as clock buffer to output two PCIE refererence clocks By deault, chip will configured as input mode, BIOS can program it to output mode.

+1.2V 5,13,14,16,17,34,37

+3V 5,7,8,9,12,13,14,15,16,17,18,19,20,22,23,26,28,29,30,31,33,34,38

**PROJECT : TT9**
Quanta Computer Inc.

| Size | Document Number | Rev |
|---|---|---|
| Custom | Clock gererator | 1A |

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NB5/RD2/HW1

+1.2V 4,13,14,16,17,34,37
+1.8V 10,12,13,14,15,18,36,38
+1.8VSUS 6,7,8,9,31,35,36,37
+2.5V 37
+3V 4,7,8,9,12,13,14,15,16,17,18,19,20,22,23,26,28,29,30,31,33,34,38



+2.5V — L8 BLM21PG221SN1D LS0805-100M-N — +CPUVDDA — C74 10U/6.3VC_8 — C80 4.7U/6.3VC_6 — C86 0.22U/6.3VC_4 — C94 3300P/25VB_4

W/S= 15 mil/20mil

U27A — HT LINK — SOCKET_638_PIN

C130 4.7U/6.3VC_6 +1.2V_VLDT
C121 4.7U/6.3VC_6 +1.2V_VLDT
C129 0.22U/6.3VC_4 +1.2V_VLDT
180P/50VA_4 +1.2V_VLDT

VLDT_A0 D1 VLDT_A1 D2 VLDT_A2 D3 VLDT_A3 D4
VLDT_B0 AE2 VLDT_B1 AE3 VLDT_B2 AE4 VLDT_B3 AE5
+1.2V_VLDT 4.7U/6.3VC_6 C223
+1.2V_VLDT 0.22U/6.3VC_4 C226
+1.2V_VLDT 180P/50VA_4 C224
+1.2V_VLDT

| | | | |
|---|---|---|---|
| HT_NB_CPU_CAD_H0 | E3 | AD1 | HT_CPU_NB_CAD_H0 |
| HT_NB_CPU_CAD_L0 | E2 | AC1 | HT_CPU_NB_CAD_L0 |
| HT_NB_CPU_CAD_H1 | E1 | AC2 | HT_CPU_NB_CAD_H1 |
| HT_NB_CPU_CAD_L1 | F1 | AC3 | HT_CPU_NB_CAD_L1 |
| HT_NB_CPU_CAD_H2 | G3 | AB1 | HT_CPU_NB_CAD_H2 |
| HT_NB_CPU_CAD_L2 | G2 | AA1 | HT_CPU_NB_CAD_L2 |
| HT_NB_CPU_CAD_H3 | G1 | AA2 | HT_CPU_NB_CAD_H3 |
| HT_NB_CPU_CAD_L3 | H1 | AA3 | HT_CPU_NB_CAD_L3 |
| HT_NB_CPU_CAD_H4 | J1 | W2 | HT_CPU_NB_CAD_H4 |
| HT_NB_CPU_CAD_L4 | K1 | W3 | HT_CPU_NB_CAD_L4 |
| HT_NB_CPU_CAD_H5 | L3 | V1 | HT_CPU_NB_CAD_H5 |
| HT_NB_CPU_CAD_L5 | L2 | U1 | HT_CPU_NB_CAD_L5 |
| HT_NB_CPU_CAD_H6 | L1 | U2 | HT_CPU_NB_CAD_H6 |
| HT_NB_CPU_CAD_L6 | M1 | U3 | HT_CPU_NB_CAD_L6 |
| HT_NB_CPU_CAD_H7 | N3 | T1 | HT_CPU_NB_CAD_H7 |
| HT_NB_CPU_CAD_L7 | N2 | R1 | HT_CPU_NB_CAD_L7 |
| HT_NB_CPU_CAD_H8 | E5 | AD4 | HT_CPU_NB_CAD_H8 |
| HT_NB_CPU_CAD_L8 | F5 | AD3 | HT_CPU_NB_CAD_L8 |
| HT_NB_CPU_CAD_H9 | F3 | AD5 | HT_CPU_NB_CAD_H9 |
| HT_NB_CPU_CAD_L9 | F4 | AC5 | HT_CPU_NB_CAD_L9 |
| HT_NB_CPU_CAD_H10 | G5 | AB4 | HT_CPU_NB_CAD_H10 |
| HT_NB_CPU_CAD_L10 | H5 | AB3 | HT_CPU_NB_CAD_L10 |
| HT_NB_CPU_CAD_H11 | H3 | AB5 | HT_CPU_NB_CAD_H11 |
| HT_NB_CPU_CAD_L11 | H4 | AA5 | HT_CPU_NB_CAD_L11 |
| HT_NB_CPU_CAD_H12 | K3 | Y5 | HT_CPU_NB_CAD_H12 |
| HT_NB_CPU_CAD_L12 | K4 | W5 | HT_CPU_NB_CAD_L12 |
| HT_NB_CPU_CAD_H13 | L5 | V4 | HT_CPU_NB_CAD_H13 |
| HT_NB_CPU_CAD_L13 | M5 | V3 | HT_CPU_NB_CAD_L13 |
| HT_NB_CPU_CAD_H14 | M4 | V5 | HT_CPU_NB_CAD_H14 |
| HT_NB_CPU_CAD_L14 | M4 | U5 | HT_CPU_NB_CAD_L14 |
| HT_NB_CPU_CAD_H15 | N5 | T4 | HT_CPU_NB_CAD_H15 |
| HT_NB_CPU_CAD_L15 | P5 | T3 | HT_CPU_NB_CAD_L15 |

C484

| | | | |
|---|---|---|---|
| HT_NB_CPU_CLK_H0 | J3 | Y1 | HT_CPU_NB_CLK_H0 |
| HT_NB_CPU_CLK_L0 | J2 | W1 | HT_CPU_NB_CLK_L0 |
| HT_NB_CPU_CLK_H1 | J5 | Y4 | HT_CPU_NB_CLK_H1 |
| HT_NB_CPU_CLK_L1 | K5 | Y3 | HT_CPU_NB_CLK_L1 |

| | | | |
|---|---|---|---|
| HT_NB_CPU_CTL_H0 | N1 | R2 | HT_CPU_NB_CTL_H0 |
| HT_NB_CPU_CTL_L0 | P1 | R3 | HT_CPU_NB_CTL_L0 |
| HT_NB_CPU_CTL_H1 | P3 | T5 | HT_CPU_NB_CTL_H1 |
| HT_NB_CPU_CTL_L1 | P4 | R5 | HT_CPU_NB_CTL_L1 |

SOCKET_638_PIN

10 HT_NB_CPU_CAD_H[15..0] → HT_NB_CPU_CAD_H[15..0]
10 HT_NB_CPU_CAD_L[15..0] → HT_NB_CPU_CAD_L[15..0]
10 HT_NB_CPU_CLK_H[1..0] → HT_NB_CPU_CLK_H[1..0]
10 HT_NB_CPU_CLK_L[1..0] → HT_NB_CPU_CLK_L[1..0]
10 HT_NB_CPU_CTL_H[1..0] → HT_NB_CPU_CTL_H[1..0]
10 HT_NB_CPU_CTL_L[1..0] → HT_NB_CPU_CTL_L[1..0]
10 HT_CPU_NB_CAD_H[15..0] → HT_CPU_NB_CAD_H[15..0]
10 HT_CPU_NB_CAD_L[15..0] → HT_CPU_NB_CAD_L[15..0]
10 HT_CPU_NB_CLK_H[1..0] → HT_CPU_NB_CLK_H[1..0]
10 HT_CPU_NB_CLK_L[1..0] → HT_CPU_NB_CLK_L[1..0]
10 HT_CPU_NB_CTL_H[1..0] → HT_CPU_NB_CTL_H[1..0]
10 HT_CPU_NB_CTL_L[1..0] → HT_CPU_NB_CTL_L[1..0]

1.5A

+1.2V — R336 0_8 — R337 0_8 — +1.2V_VLDT

250mA

U27D — SOCKET_638_PIN

| | | | |
|---|---|---|---|
| +CPUVDDA | F8 | VDDA1 | KEY1 M11 |
| +CPUVDDA | F9 | VDDA2 | KEY2 W18 |
| CPUCLKIN | A9 | CLKIN_H | SVC A6 → CPU_SVC_R |
| CPUCLKIN# | A8 | CLKIN_L | SVD A4 → CPU_SVD_R |
| CPU_LDT_RST# | B7 | RESET_L | |
| CPU_PWRGD | A7 | PWROK | |
| CPU_LDT_STOP# | E10 | LDTSTOP_L | THERMTRIP_L AF6 → CPU_THERMTRIP_L# |
| CPU_LDT_REQ#_CPU | C6 | LDTREQ_L | PROCHOT_L AC7 → CPU_PROCHOT_L# → CPU_PROCHOT_L# 32 |
| | | | MEMHOT_L AA8 → CPU_MEMHOT_L# |
| CPU_SIC | AF4 | SIC | |
| CPU_SID | AF5 | SID | |
| CPU_ALERT | AE6 | ALERT_L | THERMDC W7 → H_THRMDC |
| | | | THERMDA W8 → H_THRMDA |
| CPU_HTREF0 | R6 | HT_REF0 | |
| CPU_HTREF1 | P6 | HT_REF1 | |
| CPU_VDD0_RUN_FB_H | F6 | VDD0_FB_H | VDDIO_FB_H W9 → VDDIO_FB_H 36 |
| CPU_VDD0_RUN_FB_L | E6 | VDD0_FB_L | VDDIO_FB_L Y9 → VDDIO_FB_L 36 |
| CPU_VDD1_RUN_FB_H | Y6 | VDD1_FB_H | VDDNB_FB_H H6 → CPU_VDDNB_RUN_FB_H 35 |
| CPU_VDD1_RUN_FB_L | AB6 | VDD1_FB_L | VDDNB_FB_L G6 → CPU_VDDNB_RUN_FB_L 35 |
| CPU_DBRDY | G10 | DBRDY | |
| CPU_TMS | AA9 | TMS | DBREQ_L F10 → CPU_DBREQ# → R503 300/F_4 → +1.8VSUS |
| CPU_TCK | AC9 | TCK | |
| CPU_TRST# | AD9 | TRST_L | TDO AE9 → CPU_TDO |
| CPU_TDI | AF9 | TDI | |
| CPUTEST23 | AD7 | TEST23 | TEST28_H J7 → CPUTEST28H → T20 |
| CPUTEST18 | H10 | TEST18 | TEST28_L H8 → CPUTEST28L → T17 |
| CPUTEST19 | G9 | TEST19 | |
| CPUTEST25H | E9 | TEST25_H | TEST17 D7 → CPUTEST17 → T12 |
| CPUTEST25L | E8 | TEST25_L | TEST16 E7 → CPUTEST16 → T13 |
| CPUTEST21 | AB8 | | TEST15 F7 → CPUTEST15 → T14 |
| CPUTEST20 | AE7 | TEST21 | TEST14 C7 → CPUTEST14 → T11 |
| CPUTEST24 | AE7 | TEST20 | TEST7 C3 |
| CPUTEST22 | AE8 | TEST24 | TEST10 K8 |
| CPUTEST12 | AC8 | TEST22 | TEST8 C4 |
| CPUTEST27 | AF8 | TEST12 | |
| | | TEST27 | |
| | C2 | TEST9 | TEST29_H C9 → CPUTEST29H → T3 |
| | AA6 | TEST6 | TEST29_L C8 → CPUTEST29L → T2 |
| RSVD1 | A3 | RSVD1 | RSVD10 H18 |
| RSVD2 | A5 | RSVD2 | RSVD9 H19 |
| RSVD3 | B3 | RSVD3 | RSVD8 AA7 |
| RSVD4 | B5 | RSVD4 | RSVD7 D5 |
| RSVD5 | C1 | RSVD5 | RSVD6 C5 |

SideBand Temp sense I2C

7 CPU_SIC, 7 CPU_SID, 7 CPU_ALERT
R127 44.2/F_4 CPU_HTREF0
R121 44.2/F_4 CPU_HTREF1
+1.2V_VLDT — place them to CPU within 1.5"

35 CPU_VDD0_RUN_FB_H
35 CPU_VDD0_RUN_FB_L
35 CPU_VDD1_RUN_FB_H
35 CPU_VDD1_RUN_FB_L

14 CPU_LDT_RST#
14 CPU_PWRGD
12,14 CPU_LDT_STOP#

PV modified for AMD sighting update

+1.8VSUS — R353 *510/F_4 CPUTEST25H — R354 *510/F_4 CPUTEST25L
R504 300/F_4 — R505 300/F_4
T95 — CPUTEST21 CPUTEST20 CPUTEST24 CPUTEST22 CPUTEST12 CPUTEST27
T42 T45 T43
R351 0_4 — Need check

PV modified for AMD sighting update

PV modified for AMD sighting update

CNTR_VREF → CNTR_VREF 7
C499 0.1U/10VC_4
+3V — R358 20K_4 — R357 34.8K/F_4
CNTR_VREF

Q33 *BSS138_NL/SOT23
CPU_LDT_REQ# CPU — R355 0_4 — CPU_LDT_REQ# 12

R339 0_4
CPU_LDT_RST# — Q32 BSS138_NL/SOT23 — R340 1K/F_4 — +3V — CPU_LDT_RST_HTPA#

+1.8VSUS — R112 10K/F_4
+1.8VSUS — R114 300_4
Q11 MMBT3904
CPU_MEMHOT_L# — CPU_MEMHOT# 9,15

+1.8VSUS — R136 10K/F_4
+1.8VSUS — R132 300_4
Q17 MMBT3904
CPU_PROCHOT_L# — CPU_PROCHOT# 14

+1.8VSUS — R118 10K/F_4
+1.8VSUS — R119 300_4
Q12 MMBT3904
CPU_THERMTRIP_L# — CPU_THERMTRIP# 15

## Serial VID

+1.8VSUS — R63 *2.2K_4, R72 1K/F_4, R331 1K/F_4
CPU_SVC_R R330 0_4 — CPU_SVC
CPU_SVD_R R73 0_4 — CPU_SVD
CPU_PWRGD R75 0_4 — CPU_PWRGD_SVID_REG
CPU_SVC 35
CPU_SVD 35
CPU_PWRGD_SVID_REG 35
R329 *220_4
R71 *220_4
R76 *0.1U/10VC_4

Add 0.1u
PV Remove for Power up seq

VFIX MODE — VID Override Circuit

| SVC | SVD | Voltage Output |
|---|---|---|
| 0 | 0 | 1.4V |
| 0 | 1 | 1.2V |
| 1 | 0 | 1.0V |
| 1 | 1 | 0.8V |

+1.8VSUS — C682 *0.1U/10VC_4 — +3VPCU
C683 *0.1U/10VC_4

Change from +1.8VSUS to +1.8

+1.8V
CPU_LDT_RST# 300_4 R349
CPU_LDT_STOP# 300_4 R352
CPU_PWRGD 300_4 R74
CPU_LDT_REQ# CPU 300_4 R356
G3 — CPU_LDT_RST#
*SHORT_ PAD1

## CPU CLK

CPUCLKIN R332 169/F_4 CPUCLKIN#
4 CPUCLKP — CPUCLKP C477 3900P/25VB_4 CPUCLKIN
4 CPUCLKN — CPUCLKN C475 3900P/25VB_4 CPUCLKIN#
Keep trace from resistor to CPU within 0.5"
keep trace from resistor to CPU within 0.5"

## HDT Connector

+1.8VSUS
CPU_DBREQ#
CPU_DBRDY
CPU_TCK
CPU_TMS
CPU_TDI
CPU_TRST#
CPU_TDO
C275 *0.1U/10VC_4
KEY
CPU_LDT_RST_HTPA#
CN6 *HDT CONN

**PROJECT : TT9**
Quanta Computer Inc.

| Size | Document Number | Rev |
|---|---|---|
| Custom | S1G2 HT,CTL I/F 1/3 | 1A |

NB5/RD2/HW1

Date: Wednesday, January 23, 2008 Sheet 5 of 41

# Processor Memory Interface



PLACE THEM CLOSE TO CPU WITHIN 1"

750mA

U27B — MEM:CMD/CTRL/CLK — SOCKET_638_PIN

U27C — MEM:DATA — SOCKET_638_PIN

Place close to socket

Close to CPU within 1500 mils

+0.9VSMVTT 9,31,36
+1.8VSUS 5,7,8,9,31,35,36,37

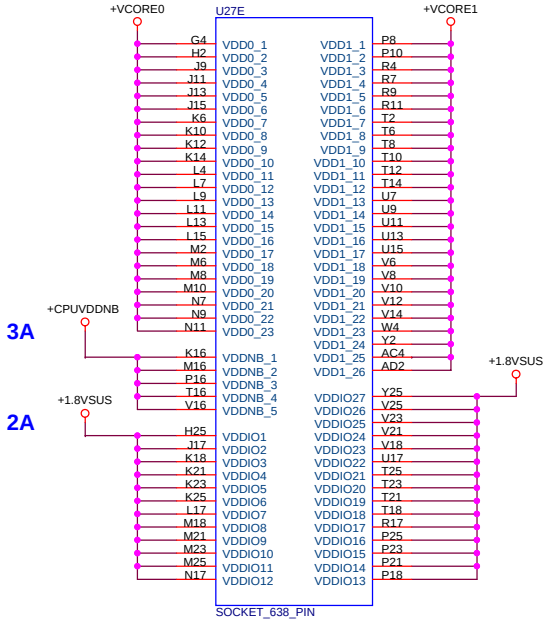


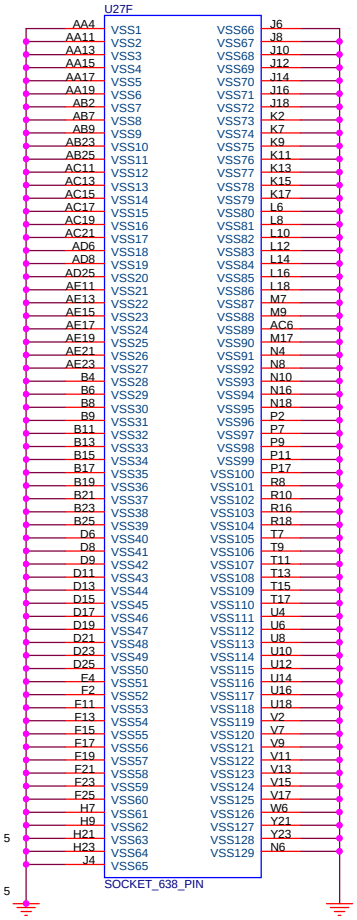
PROJECT : TT9
Quanta Computer Inc.

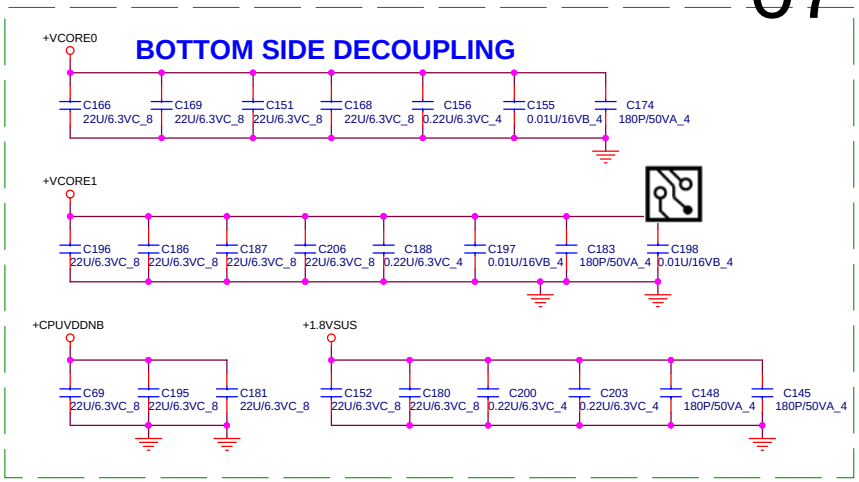
NB5/RD2/HW1

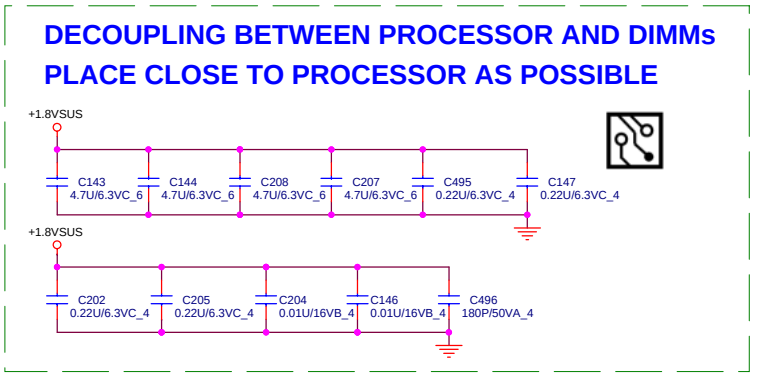
| Size | Document Number | Rev |
|---|---|---|
| Custom | S1G2 DDRII MEMORY I/F 2/3 | 1A |

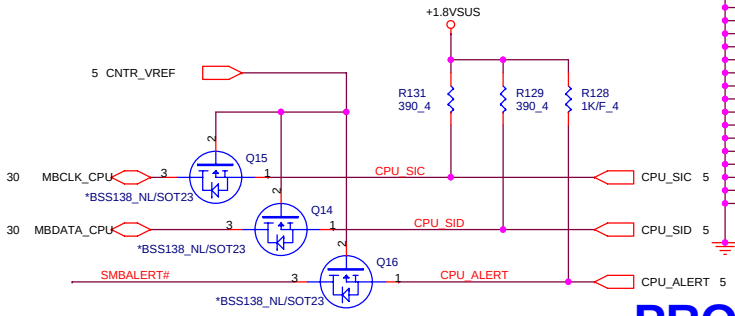
Date: Wednesday, January 23, 2008 | Sheet 6 of 41



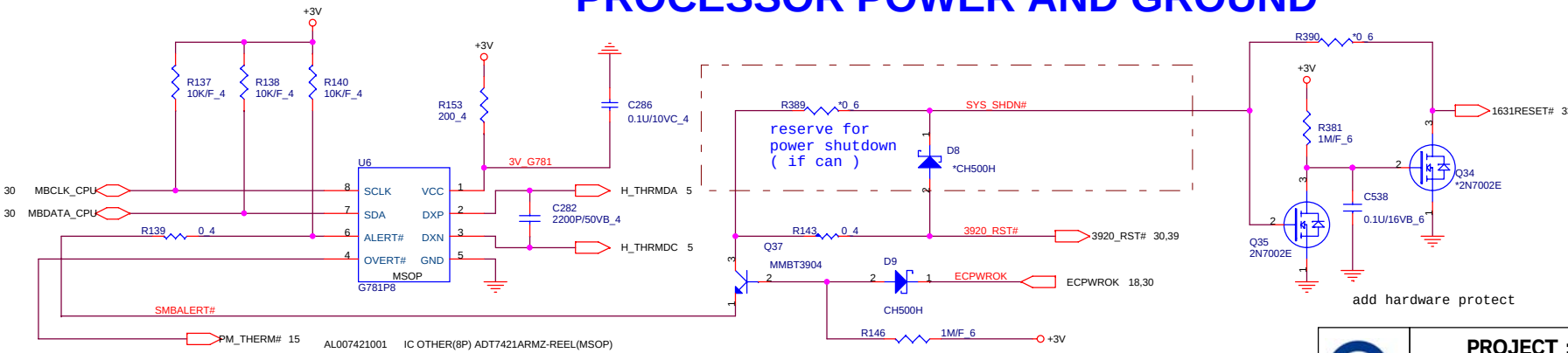




# PROCESSOR POWER AND GROUND




AL007421001 IC OTHER(8P) ADT7421ARMZ-REEL(MSOP)

AL000780000 IC OTHER(8P) G780P81U(MSOP-8)

**+VCORE0 35**
**+VCORE1 35**
**+CPUVDDNB35**
**+1.8VSUS 5,6,8,9,31,35,36,37**
**+3V 4,5,7,9,12,13,15,16,17,18,19,20,22,26,28,29,30,31,33,34,38**

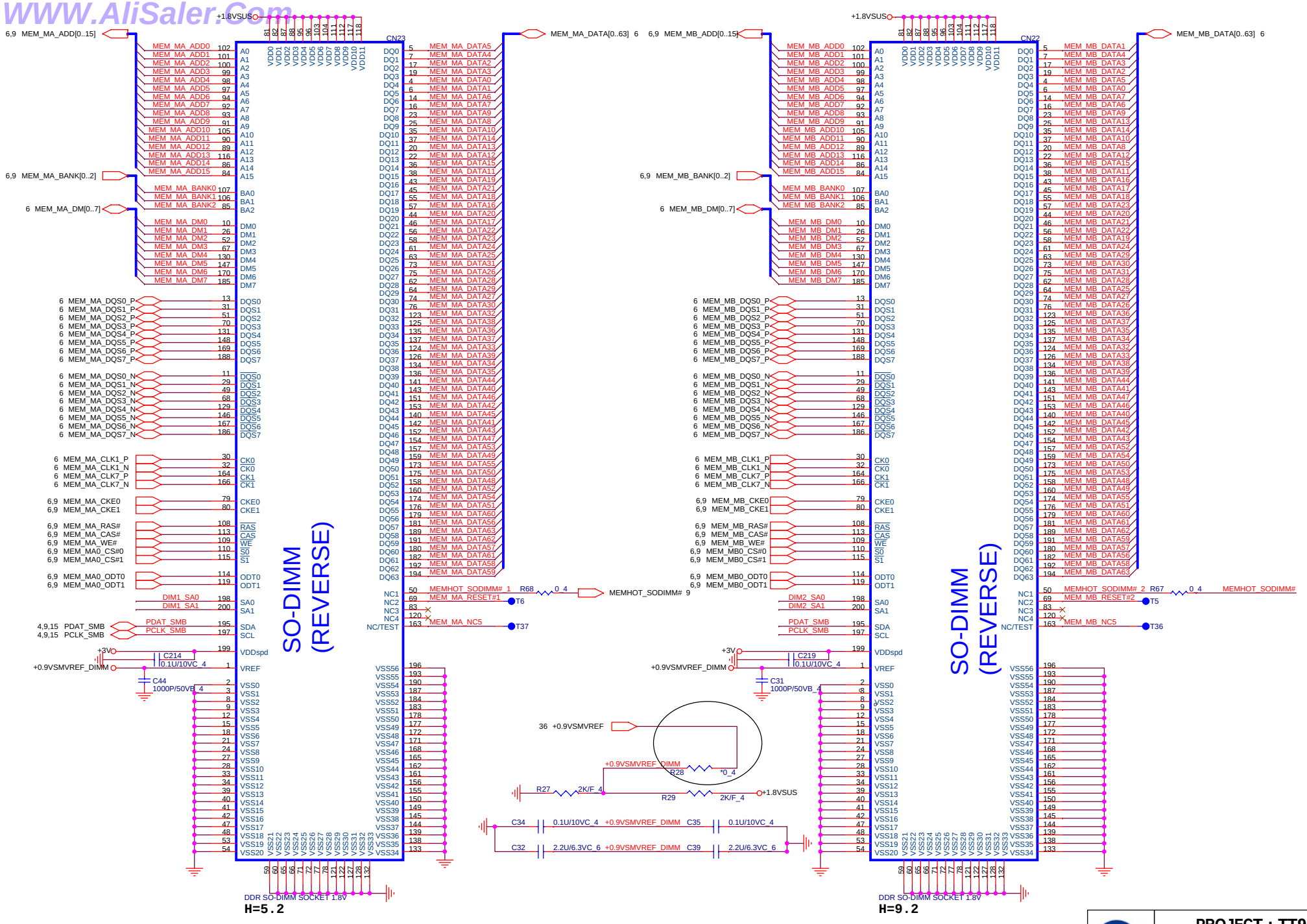


NB5/RD2/HW1

**PROJECT : TT9**
Quanta Computer Inc.

| Size | Document Number | Rev |
|---|---|---|
| Custom | S1G2 PWR & GND 3/3 | 1A |

Date: Wednesday, January 23, 2008 Sheet 7 of 41



6,8 MEM_MA_ADD[0..15] → MEM_MA_ADD[0..15]
6,8 MEM_MA_BANK[0..2] → MEM_MA_BANK[0..2]

6,8 MEM_MB_ADD[0..15] → MEM_MB_ADD[0..15]
6,8 MEM_MB_BANK[0..2] → MEM_MB_BANK[0..2]

+0.9VSMVTT

6,8 MEM_MA_CKE0 — RP5 — MEM_MA_CKE0, MEM_MA_BANK2
RP9 — MEM_MA_ADD12, MEM_MA_ADD9
RP12 — MEM_MA_ADD8, MEM_MA_ADD5
RP16 — MEM_MA_ADD3, MEM_MA_ADD1
RP18 — MEM_MA_BANK0, MEM_MA_ADD10
6,8 MEM_MA_WE#, 6,8 MEM_MA_CS#1, 6,8 MEM_MA_CAS#, 6,8 MEM_MA_ODT1 — RP22 — MEM_MA_WE#, MEM_MA_CS#1, MEM_MA_CAS#, MEM_MA_ODT1
RP2 — MEM_MA_ADD15, MEM_MA_CKE1 (6,8 MEM_MA_CKE1)
RP6 — MEM_MA_ADD14, MEM_MA_ADD7
RP10 — MEM_MA_ADD6, MEM_MA_ADD11
RP14 — MEM_MA_ADD2, MEM_MA_ADD4
6,8 MEM_MA0_ODT0, 6,8 MEM_MA0_CS#0 — RP26 — MEM_MA0_ODT0, MEM_MA0_CS#0
6,8 MEM_MA_RAS# — RP19 — MEM_MA_RAS#, MEM_MA_ADD0
RP23 — MEM_MA_ADD13, MEM_MA_BANK1

All: 47RX2_4P2R_4

C115 0.1U/10VC_4 +1.8VSUS
C107 0.1U/10VC_4
C116 0.1U/10VC_4 +1.8VSUS
C135 0.1U/10VC_4
C157 0.1U/10VC_4 +1.8VSUS
C104 0.1U/10VC_4
C128 0.1U/10VC_4 +1.8VSUS
C150 0.1U/10VC_4
C110 0.1U/10VC_4 +1.8VSUS
C106 0.1U/10VC_4
C100 0.1U/10VC_4 +1.8VSUS
C158 0.1U/10VC_4
C141 0.1U/10VC_4 +1.8VSUS
C160 0.1U/10VC_4
C138 0.1U/10VC_4 +1.8VSUS
C108 0.1U/10VC_4

+0.9VSMVTT

6,8 MEM_MB_CKE0 — RP3 — MEM_MB_CKE0, MEM_MB_BANK2
RP7 — MEM_MB_ADD9, MEM_MB_ADD12
RP11 — MEM_MB_ADD8, MEM_MB_ADD5
RP15 — MEM_MB_ADD3, MEM_MB_ADD1
RP20 — MEM_MB_BANK0, MEM_MB_ADD10
6,8 MEM_MB_WE#, 6,8 MEM_MB_CAS#, 6,8 MEM_MB0_ODT1, 6,8 MEM_MB0_CS#1 — RP24 — MEM_MB_WE#, MEM_MB_CAS#, MEM_MB0_ODT1, MEM_MB0_CS#1
RP4 — MEM_MB_ADD7, MEM_MB_ADD14
6,8 MEM_MB_CKE1 — RP1 — MEM_MB_CKE1, MEM_MB_ADD15
RP8 — MEM_MB_ADD4, MEM_MB_ADD11
RP13 — MEM_MB_ADD2, MEM_MB_ADD6
RP17 — MEM_MB_BANK1, MEM_MB_ADD0
6,8 MEM_MB0_CS#0, 6,8 MEM_MB_RAS# — RP21 — MEM_MB0_CS#0, MEM_MB_RAS#
RP25 — MEM_MB_ADD13, MEM_MB0_ODT0 (6,8 MEM_MB0_ODT0)

All: 47RX2_4P2R_4

C132 0.1U/10VC_4 +1.8VSUS
C490 0.1U/10VC_4
C140 0.1U/10VC_4 +1.8VSUS
C120 0.1U/10VC_4
C131 0.1U/10VC_4 +1.8VSUS
C109 0.1U/10VC_4
C118 0.1U/10VC_4 +1.8VSUS
C111 0.1U/10VC_4
C102 0.1U/10VC_4 +1.8VSUS
C123 0.1U/10VC_4
C153 0.1U/10VC_4 +1.8VSUS
C98 0.1U/10VC_4
C134 0.1U/10VC_4 +1.8VSUS
C119 0.1U/10VC_4
C165 0.1U/10VC_4

Emi request

+0.9VSMVTT
C220 100P/50VA_4
C79 *1200P/50VB_4
C222 *2200P/50VB_4
C77 100P/50VA_4
C221 0.1U/10VC_4
C78 0.1U/10VC_4

PLACE CLOSE TO PROCESSOR
WITHIN 1.5 INCH

PLACE CLOSE TO PROCESSOR
WITHIN 1.5 INCH

PV fix +3VS5 leakage to +3V

+3VS5
R115 10K/F_4
CPU_MEMHOT# 5,15

Remove

+3V
R116 *10K/F_4

Close DDR2 socket

MEMHOT_1# R113 *33_4 MEMHOT_2#
Q10 *2N7002E-G

U28
A0 A1 A2 SDA SCL +VS O.S GND
+3V
C215 *0.1U/10VC_4
MEMHOT_SODIMM#
Q13 *2N7002E-G
4,8,15 PDAT_SMB
4,8,15 PCLK_SMB
*DS75U+T&R
Address:92h

+3V R117 10K/F_4 MEMHOT_SODIMM# MEMHOT_SODIMM# 8

+1.8VSUS
C498 C137 C494 C105 C482 C488 0.1U/10VC_4
PLACE CLOSE TO SOCKET( PER EMI/EMC)

+1.8VSUS
C489 C486 C501 C125 C491 C112 0.1U/10VC_4
PLACE CLOSE TO SOCKET( PER EMI/EMC)

+0.9VSMVTT 6,31,36
+1.8VSUS 5,6,7,8,31,35,36,37
+3V 5,7,8,13,14,15,16,18,19,20,22,23,26,28,29,30,31,33,34,38

PROJECT : TT9
Quanta Computer Inc.

| Size | Document Number | Rev |
|---|---|---|
| Custom | DDR2 SODIMMS TERMINATIONS | 1A |

NB5/RD2/HW1

Date: Wednesday, January 23, 2008 Sheet 9 of 41

U26A

PART 1 OF 6

HYPER TRANSPORT CPU I/F

RS780M

| | | | | | |
|---|---|---|---|---|---|
| HT_CPU_NB_CAD_H0 | Y25 | HT_RXCAD0P | HT_TXCAD0P | D24 | HT_NB_CPU_CAD_H0 |
| HT_CPU_NB_CAD_L0 | Y24 | HT_RXCAD0N | HT_TXCAD0N | D25 | HT_NB_CPU_CAD_L0 |
| HT_CPU_NB_CAD_H1 | V22 | HT_RXCAD1P | HT_TXCAD1P | E24 | HT_NB_CPU_CAD_H1 |
| HT_CPU_NB_CAD_L1 | V23 | HT_RXCAD1N | HT_TXCAD1N | E25 | HT_NB_CPU_CAD_L1 |
| HT_CPU_NB_CAD_H2 | V25 | HT_RXCAD2P | HT_TXCAD2P | F24 | HT_NB_CPU_CAD_H2 |
| HT_CPU_NB_CAD_L2 | V24 | HT_RXCAD2N | HT_TXCAD2N | F25 | HT_NB_CPU_CAD_L2 |
| HT_CPU_NB_CAD_H3 | U24 | HT_RXCAD3P | HT_TXCAD3P | F23 | HT_NB_CPU_CAD_H3 |
| HT_CPU_NB_CAD_L3 | U25 | HT_RXCAD3N | HT_TXCAD3N | F22 | HT_NB_CPU_CAD_L3 |
| HT_CPU_NB_CAD_H4 | T25 | HT_RXCAD4P | HT_TXCAD4P | H23 | HT_NB_CPU_CAD_H4 |
| HT_CPU_NB_CAD_L4 | T24 | HT_RXCAD4N | HT_TXCAD4N | H22 | HT_NB_CPU_CAD_L4 |
| HT_CPU_NB_CAD_H5 | P22 | HT_RXCAD5P | HT_TXCAD5P | J25 | HT_NB_CPU_CAD_H5 |
| HT_CPU_NB_CAD_L5 | P23 | HT_RXCAD5N | HT_TXCAD5N | J24 | HT_NB_CPU_CAD_L5 |
| HT_CPU_NB_CAD_H6 | P25 | HT_RXCAD6P | HT_TXCAD6P | K24 | HT_NB_CPU_CAD_H6 |
| HT_CPU_NB_CAD_L6 | P24 | HT_RXCAD6N | HT_TXCAD6N | K25 | HT_NB_CPU_CAD_L6 |
| HT_CPU_NB_CAD_H7 | N24 | HT_RXCAD7P | HT_TXCAD7P | K23 | HT_NB_CPU_CAD_H7 |
| HT_CPU_NB_CAD_L7 | N25 | HT_RXCAD7N | HT_TXCAD7N | K22 | HT_NB_CPU_CAD_L7 |
| HT_CPU_NB_CAD_H8 | AC24 | HT_RXCAD8P | HT_TXCAD8P | F21 | HT_NB_CPU_CAD_H8 |
| HT_CPU_NB_CAD_L8 | AC25 | HT_RXCAD8N | HT_TXCAD8N | G21 | HT_NB_CPU_CAD_L8 |
| HT_CPU_NB_CAD_H9 | AB25 | HT_RXCAD9P | HT_TXCAD9P | G20 | HT_NB_CPU_CAD_H9 |
| HT_CPU_NB_CAD_L9 | AB24 | HT_RXCAD9N | HT_TXCAD9N | H21 | HT_NB_CPU_CAD_L9 |
| HT_CPU_NB_CAD_H10 | AA24 | HT_RXCAD10P | HT_TXCAD10P | J20 | HT_NB_CPU_CAD_H10 |
| HT_CPU_NB_CAD_L10 | AA25 | HT_RXCAD10N | HT_TXCAD10N | J21 | HT_NB_CPU_CAD_L10 |
| HT_CPU_NB_CAD_H11 | Y22 | HT_RXCAD11P | HT_TXCAD11P | J18 | HT_NB_CPU_CAD_H11 |
| HT_CPU_NB_CAD_L11 | Y23 | HT_RXCAD11N | HT_TXCAD11N | K17 | HT_NB_CPU_CAD_L11 |
| HT_CPU_NB_CAD_H12 | W21 | HT_RXCAD12P | HT_TXCAD12P | L19 | HT_NB_CPU_CAD_H12 |
| HT_CPU_NB_CAD_L12 | W20 | HT_RXCAD12N | HT_TXCAD12N | J19 | HT_NB_CPU_CAD_L12 |
| HT_CPU_NB_CAD_H13 | V21 | HT_RXCAD13P | HT_TXCAD13P | M19 | HT_NB_CPU_CAD_H13 |
| HT_CPU_NB_CAD_L13 | V20 | HT_RXCAD13N | HT_TXCAD13N | L18 | HT_NB_CPU_CAD_L13 |
| HT_CPU_NB_CAD_H14 | U20 | HT_RXCAD14P | HT_TXCAD14P | M21 | HT_NB_CPU_CAD_H14 |
| HT_CPU_NB_CAD_L14 | U21 | HT_RXCAD14N | HT_TXCAD14N | P21 | HT_NB_CPU_CAD_L14 |
| HT_CPU_NB_CAD_H15 | U19 | HT_RXCAD15P | HT_TXCAD15P | P18 | HT_NB_CPU_CAD_H15 |
| HT_CPU_NB_CAD_L15 | U18 | HT_RXCAD15N | HT_TXCAD15N | M18 | HT_NB_CPU_CAD_L15 |
| HT_CPU_NB_CLK_H0 | T22 | HT_RXCLK0P | HT_TXCLK0P | H24 | HT_NB_CPU_CLK_H0 |
| HT_CPU_NB_CLK_L0 | T23 | HT_RXCLK0N | HT_TXCLK0N | H25 | HT_NB_CPU_CLK_L0 |
| HT_CPU_NB_CLK_H1 | AB23 | HT_RXCLK1P | HT_TXCLK1P | L21 | HT_NB_CPU_CLK_H1 |
| HT_CPU_NB_CLK_L1 | AA22 | HT_RXCLK1N | HT_TXCLK1N | L20 | HT_NB_CPU_CLK_L1 |
| HT_CPU_NB_CTL_H0 | M22 | HT_RXCTL0P | HT_TXCTL0P | M24 | HT_NB_CPU_CTL_H0 |
| HT_CPU_NB_CTL_L0 | M23 | HT_RXCTL0N | HT_TXCTL0N | M25 | HT_NB_CPU_CTL_L0 |
| HT_CPU_NB_CTL_H1 | R21 | HT_RXCTL1P | HT_TXCTL1P | P19 | HT_NB_CPU_CTL_H1 |
| HT_CPU_NB_CTL_L1 | R20 | HT_RXCTL1N | HT_TXCTL1N | R18 | HT_NB_CPU_CTL_L1 |
| HT_RXCALP | C23 | HT_RXCALP | HT_TXCALP | B24 | HT_TXCALP |
| HT_RXCALN | A24 | HT_RXCALN | HT_TXCALN | B25 | HT_TXCALN |

R350 301/F_4 HT_RXCALP / HT_RXCALN

R341 301/F_4 HT_TXCALP / HT_TXCALN

PV modified -- follow AMD check list to change part number 300 ohm to 301 ohm

PV modified -- follow AMD check list to change part number 300 ohm to 301 ohm

U26D

PAR 4 OF 6

SBD_MEM/DVO_I/F

RS780M

| | | | | | |
|---|---|---|---|---|---|
| SPM_A0 | AB12 | MEM_A0(NC) | MEM_DQ0/DVO_VSYNC(NC) | AA18 | SPM_DQ0 |
| SPM_A1 | AE16 | MEM_A1(NC) | MEM_DQ1/DVO_HSYNC(NC) | AA20 | SPM_DQ1 |
| SPM_A2 | V11 | MEM_A2(NC) | MEM_DQ2/DVO_DE(NC) | AA19 | SPM_DQ2 |
| SPM_A3 | AE15 | MEM_A3(NC) | MEM_DQ3/DVO_D0(NC) | Y19 | SPM_DQ3 |
| SPM_A4 | AA12 | MEM_A4(NC) | MEM_DQ4(NC) | V17 | SPM_DQ4 |
| SPM_A5 | AB16 | MEM_A5(NC) | MEM_DQ5/DVO_D1(NC) | AA17 | SPM_DQ5 |
| SPM_A6 | AB14 | MEM_A6(NC) | MEM_DQ6/DVO_D2(NC) | AA15 | SPM_DQ6 |
| SPM_A7 | AD14 | MEM_A7(NC) | MEM_DQ7/DVO_D4(NC) | Y15 | SPM_DQ7 |
| SPM_A8 | AD13 | MEM_A8(NC) | MEM_DQ8/DVO_D3(NC) | AC20 | SPM_DQ8 |
| SPM_A9 | AD15 | MEM_A9(NC) | MEM_DQ9/DVO_D5(NC) | AD19 | SPM_DQ9 |
| SPM_A10 | AC16 | MEM_A10(NC) | MEM_DQ10/DVO_D6(NC) | AE22 | SPM_DQ10 |
| SPM_A11 | AE13 | MEM_A11(NC) | MEM_DQ11/DVO_D7(NC) | AC18 | SPM_DQ11 |
| SPM_A12 | AC14 | MEM_A12(NC) | MEM_DQ12(NC) | AB20 | SPM_DQ12 |
| SPM_A13 | Y14 | MEM_A13(NC) | MEM_DQ13/DVO_D9(NC) | AD22 | SPM_DQ13 |
| | | | MEM_DQ14/DVO_D10(NC) | AC22 | SPM_DQ14 |
| | | | MEM_DQ15/DVO_D11(NC) | AD21 | SPM_DQ15 |
| SPM_BA0 | AD16 | MEM_BA0(NC) | | | |
| SPM_BA1 | AE17 | MEM_BA1(NC) | | | |
| SPM_BA2 | AD17 | MEM_BA2(NC) | MEM_DQS0P/DVO_IDCKP(NC) | Y17 | SPM_DQS0P |
| | | | MEM_DQS0N/DVO_IDCKN(NC) | W18 | SPM_DQS0N |
| SPM_RAS# | W12 | MEM_RASb(NC) | MEM_DQS1P(NC) | AD20 | SPM_DQS1P |
| SPM_CAS# | Y12 | MEM_CASb(NC) | MEM_DQS1N(NC) | AE21 | SPM_DQS1N |
| SPM_WE# | AD18 | MEM_WEb(NC) | | | |
| SPM_CS# | AB13 | MEM_CSb(NC) | MEM_DM0(NC) | W17 | SPM_DM0 |
| SPM_CKE | AB18 | MEM_CKE(NC) | MEM_DM1/DVO_D8(NC) | AE19 | SPM_DM1 |
| SPM_ODT | V14 | MEM_ODT(NC) | | | |
| | | | IOPLLVDD18(NC) | AE23 | +1.8_IOPLLVDD18_NB |
| | | | IOPLLVDD(NC) | AE24 | +1.1V_IOPLLVDD |
| SPM_CLKP | V15 | MEM_CKP(NC) | | | |
| SPM_CLKN | W14 | MEM_CKN(NC) | | | |
| | | | IOPLLVSS(NC) | AD23 | |
| | AE12 | MEM_COMPP(NC) | | | |
| | AD12 | MEM_COMPN(NC) | MEM_VREF(NC) | AE18 | SPM_VREF1 |

T33

R361 40.2/F_4 SPM_COMPP

R362 40.2/F_4 SPM_COMPN

+1.8V_MEM_VDDQ

BLM18PG221SN1D L50 +1.8V

BLM18PG221SN1D L49 +1.1V

C522 2.2U/6.3VC_6

C521 2.2U/6.3VC_6

R359 1K/F_4

R360 1K/F_4

C518 0.1U/10VC_4

C517 0.1U/10VC_4

+1.8V_MEM_VDDQ

All external components connected to SPMEM signals must be removed for RX780

HT_CPU_NB_CAD_H[15..0] HT_CPU_NB_CAD_H[15..0] 5

HT_CPU_NB_CAD_L[15..0] HT_CPU_NB_CAD_L[15..0] 5

HT_CPU_NB_CLK_H[1..0] HT_CPU_NB_CLK_H[1..0] 5

HT_CPU_NB_CLK_L[1..0] HT_CPU_NB_CLK_L[1..0] 5

HT_CPU_NB_CTL_H[1..0] HT_CPU_NB_CTL_H[1..0] 5

HT_CPU_NB_CTL_L[1..0] HT_CPU_NB_CTL_L[1..0] 5

HT_NB_CPU_CAD_H[15..0] HT_NB_CPU_CAD_H[15..0] 5

HT_NB_CPU_CAD_L[15..0] HT_NB_CPU_CAD_L[15..0] 5

HT_NB_CPU_CLK_H[1..0] HT_NB_CPU_CLK_H[1..0] 5

HT_NB_CPU_CLK_L[1..0] HT_NB_CPU_CLK_L[1..0] 5

HT_NB_CPU_CTL_H[1..0] HT_NB_CPU_CTL_H[1..0] 5

HT_NB_CPU_CTL_L[1..0] HT_NB_CPU_CTL_L[1..0] 5

40mils wdith or more

+1.8V

+1.8V_MEM_VDDQ

R377 0_6

C529 0.1U/10VC_4

C246 0.1U/10VC_4

C532 1U/10VC_4

C536 1U/10VC_4

C535 10U/6.3VC_8

C528 10U/6.3VC_8

40mils wdith or more

Within 200mils

SPM_CLKN R135 100_4 SPM_CLKP

Close to U23

U29

64M*16*4

| | | | | | |
|---|---|---|---|---|---|
| SPM_BA0 | L2 | BA0 | DQ15 | B9 | SPM_DQ15 |
| SPM_BA1 | L3 | BA1 | DQ14 | B1 | SPM_DQ14 |
| | | | DQ13 | D9 | SPM_DQ9 |
| SPM_A12 | R2 | A12 | DQ12 | D1 | SPM_DQ12 |
| SPM_A11 | P7 | A11 | DQ11 | D3 | SPM_DQ8 |
| SPM_A10 | M2 | A10/AP | DQ10 | D7 | SPM_DQ10 |
| SPM_A9 | P3 | A9 | DQ9 | C2 | SPM_DQ13 |
| SPM_A8 | P8 | A8 | DQ8 | C8 | SPM_DQ11 |
| SPM_A7 | P2 | A7 | DQ7 | E9 | SPM_DQ5 |
| SPM_A6 | N7 | A6 | DQ6 | F1 | SPM_DQ3 |
| SPM_A5 | N3 | A5 | DQ5 | H9 | SPM_DQ4 |
| SPM_A4 | N8 | A4 | DQ4 | H1 | SPM_DQ1 |
| SPM_A3 | N2 | A3 | DQ3 | H3 | SPM_DQ0 |
| SPM_A2 | M7 | A2 | DQ2 | H7 | SPM_DQ7 |
| SPM_A1 | M3 | A1 | DQ1 | G2 | SPM_DQ2 |
| SPM_A0 | M8 | A0 | DQ0 | G8 | SPM_DQ6 |
| SPM_CLKN | K8 | CK | VDDQ1 | A9 | +1.8V_MEM_VDDQ |
| SPM_CLKP | J8 | CK | VDDQ2 | C1 | |
| | | | VDDQ3 | C3 | |
| SPM_CKE | K2 | CKE | VDDQ4 | C7 | |
| | | | VDDQ5 | C9 | |
| | | | VDDQ6 | E9 | |
| | | | VDDQ7 | G1 | |
| SPM_CS# | L8 | CS | VDDQ8 | G3 | |
| | | | VDDQ9 | G7 | |
| SPM_WE# | K3 | WE | VDDQ10 | G9 | |
| SPM_RAS# | K7 | RAS | VDD1 | A1 | |
| SPM_CAS# | L7 | CAS | VDD2 | F1 | |
| | | | VDD3 | J9 | |
| SPM_DM0 | F3 | LDM | VDD4 | M9 | |
| SPM_DM1 | B3 | UDM | VDD5 | R1 | |
| | | | VDDL | J1 | MEM_VDDQ_VDDL |
| SPM_ODT | K9 | ODT | VSSDL | J7 | |
| SPM_DQS0P | E7 | LDQS | | | |
| SPM_DQS0N | E8 | LDQS | VSSQ1 | A7 | |
| | | | VSSQ2 | B2 | |
| | | | VSSQ3 | B8 | |
| | | | VSSQ4 | D2 | |
| SPM_DQS1P | B7 | UDQS | VSSQ5 | D8 | |
| SPM_DQS1N | A8 | UDQS | VSSQ6 | E7 | |
| | | | VSSQ7 | F2 | |
| SPM_VREF | J2 | VREF | VSSQ8 | F8 | |
| | | | VSSQ9 | H2 | |
| | | | VSSQ10 | H8 | |
| | A2 | NC#A2 | | | |
| | E2 | NC#E2 | VSS1 | A3 | |
| | L1 | NC#L1 | VSS2 | E3 | |
| | R3 | NC#R3 | VSS3 | J3 | |
| | R7 | NC#R7 | VSS4 | N1 | |
| | R8 | NC#R8 | VSS5 | P9 | |
| SPM_BA2 | | | | | |

L53 BLM18PG221SN1D

C537 1U/10VC_4

+1.8V_MEM_VDDQ

C271 0.1U/10VC_4

R383 1K/F_4

C270 0.1U/10VC_4

R386 1K/F_4

+0.9VSMVTT 6,9,31,36

+1.1V 11,12,13,37

+1.8V 5,12,13,14,16,18,36,38



NB5/RD2/HW1

PROJECT : TT9

Quanta Computer Inc.

| Size | Document Number | Rev |
|---|---|---|
| Custom | RS780M-HT LINK I/F 1/4 | 1A |

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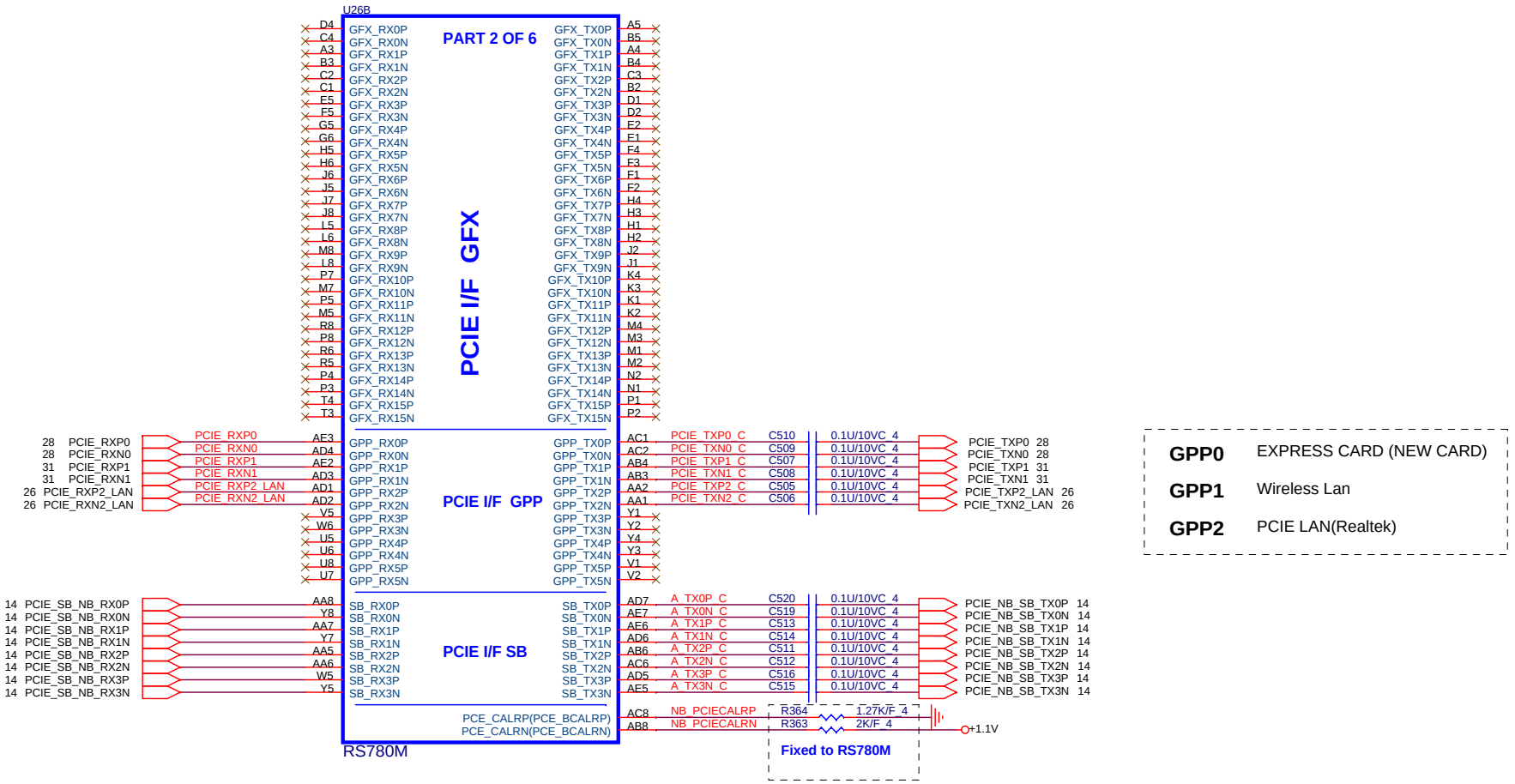


| | |
|---|---|
| **GPP0** | EXPRESS CARD (NEW CARD) |
| **GPP1** | Wireless Lan |
| **GPP2** | PCIE LAN(Realtek) |

**+1.1V** 10,12,13,37

NB5/RD2/HW1

**PROJECT : TT9**
Quanta Computer Inc.

| Size | Document Number | Rev |
|---|---|---|
| B | RS780M-PCIE I/F 2/4 | 1A |

Date: Wednesday, January 23, 2008 Sheet 11 of 41

Enables the Test Debug Bus using GPIO.
0 : Enable
1 : Disable
(RS780 use VSYNC#)

VSYNC_COM R344 3K_4 +3V
R345 *3K_4

Enables Side port memory
0: Enable (RS780)
1: Disable(RS780)
( RS780 use HSYNC#)

HSYNC_COM R95 *3K_4 +3V
R96 3K_4

RS780_AUX_CAL R100 3K_4

default values if not connected
RS780:SUS_STAT

S-CD1 R88 *3K_4
DYN_1.1_NB R91 *4.7K_4 +3V
R90 2.2K_4
AUX CAL Value need update

PV modified for AMD sighting update

R87 150/F_4 S-CD1
R86 150/F_4 S-YD1
R89 150/F_4 S-CVBS1
0.5"~1"
R347 150/F_4 CRT_R
R346 150/F_4 CRT_G
R343 150/F_4 CRT_B

U26C
PART 3 OF 6
RS780M

+3V_AVDD_NB F12 AVDD1(NC)
F12 AVDD2(NC)
+1.8V_AVDDDI_NB G15 AVDDDI(NC)
G15 AVSSDI(NC)
+1.8V_AVDDQ_NB H15 AVDDQ(NC)
H14 AVSSQ(NC)

CRT/TVOUT
20 S-CD1 S-CD1 F17 C_Pr(DFT_GPIO5)
20 S-YD1 S-YD1 F17 Y(DFT_GPIO2)
20 S-CVBS1 S-CVBS1 F15 COMP_Pb(DFT_GPIO4)
20 CRT_R CRT_R G18 RED(DFT_GPIO0)
G17 REDb(NC)
20 CRT_G CRT_G F18 GREEN(DFT_GPIO1)
F18 GREENb(NC)
20 CRT_B CRT_B E19 BLUE(DFT_GPIO3)
F19 BLUEb(NC)

20 HSYNC_COM HSYNC_COM A11 DAC_HSYNC(PWM_GPIO4)
20 VSYNC_COM VSYNC_COM B11 DAC_VSYNC(PWM_GPIO6)
20 DDCDATA DDCDATA E8 DAC_SDA(PCE_TCALRN)
20 DDCCLK DDCCLK F8 DAC_SCL(PCE_RCALRN)
R98 715/F_6 DAC_RSET_NB G14 DAC_RSET(PWM_GPIO1)

PLL PWR
+1.1V_PLLVDD A12 PLLVDD(NC)
+1.8V_PLLVDD18 D14 PLLVDD18(NC)
B12 PLLVSS(NC)
+1.8V_VDDA18HTPLL H17 VDDA18HTPLL
+1.8V_VDDA18PCIEPLL D7 VDDA18PCIEPLL1
E7 VDDA18PCIEPLL2

PM
14 PLTRST# R102 0_4 NB_RST#_IN D8 SYSRESETb
18 NB_PWRGD_IN NB_PWRGD_IN A10 POWERGOOD
NB_LDT_STOP# C10 LDTSTOPb
NB_ALLOW_LDTSTOP C12 ALLOW_LDTSTOP

CLOCKs
NBHT_REFCLKP C25 HT_REFCLKP
NBHT_REFCLKN C24 HT_REFCLKN
4 EXT_NB_OSC E11 REFCLK_P/OSCIN(OSCIN)
+1.1V R105 4.7K_4 R106 4.7K_4 E11 REFCLK_N(PWM_GPIO3)
NBGFX_CLKP T2 GFX_REFCLKP I/O
NBGFX_CLKN T1 GFX_REFCLKN I/O
U1 GPP_REFCLKP
U2 GPP_REFCLKN I/O
SBLINK_CLKP V4 GPPSB_REFCLKP(SB_REFCLKP)
SBLINK_CLKN V3 GPPSB_REFCLKN(SB_REFCLKN)

19 EDIDDATA EDIDDATA A9 I2C_DATA
19 EDIDCLK EDIDCLK B9 I2C_CLK
+3V R94 *4.7K_4 HDTV_DET B8 DDC_DATA/AUX0N(NC)
T10 A8 DDC_CLK/AUX0P(NC)
T8 RS740_DFT_GPIO1 B7 AUX1P(NC)
T7 A7 AUX1N(NC)
34 DYN_1.1_NB DYN_1.1_NB B10 STRP_DATA
T19 G11 RSVD
RS780_AUX_CAL C8 AUX_CAL(NC)

As output to the voltage regulator for PWM of RS780M core voitage.

LVTM
VDDLT18P18(NC) A13 +1.8V_VDDLTP18_NB
VSSLT18P18(NC) B13
VDDLT18_1(NC) A15 +1.8V_VDDLT_18_NB
VDDLT18_2(NC) B15
VDDLT33_1(NC) A14
VDDLT33_2(NC) B14
VSSLT1(VSS) C14
VSSLT2(VSS) D15
VSSLT3(VSS) C16
VSSLT4(VSS) C18
VSSLT5(VSS) C20
VSSLT6(VSS) E20
VSSLT7(VSS) C22

MIS.
LVDS_DIGON(PCE_TCALRP) F9 DISP_ON
LVDS_BLON(PCE_RCALRP) F7 LVDS_BLON
LVDS_ENA_BL(PWM_GPIO2) G12 DPST_PWM
TMDS_HPD(NC) D9 TMDS_HPD0 T9
HPD(NC) D10 TMDS_HPD1 T15
TVCLKIN(PWM_GPIO5) D12 SUS_STAT_1# R99 0_4 SUS_STAT# 15
THERMALDIODE_P AE8 T40
THERMALDIODE_N AD8 T39
TESTMODE D13 TEST_EN R348 1.82K/F_4

TXOUT_L0P(NC) A22 LA_DATAP0
TXOUT_L0N(NC) B22 LA_DATAN0
TXOUT_L1P(NC) A21 LA_DATAP1
TXOUT_L1N(NC) B21 LA_DATAN1
TXOUT_L2P(NC) B20 LA_DATAP2
TXOUT_L2N(DBG_GPIO0) A20 LA_DATAN2
TXOUT_L3P(NC) A19
TXOUT_L3N(DBG_GPIO2) B19
TXOUT_U0P(NC) B18
TXOUT_U0N(NC) A18
TXOUT_U1P(PCIE_RESET_GPIO3) A17
TXOUT_U1N(PCIE_RESET_GPIO2) B17
TXOUT_U2P(NC) D20
TXOUT_U2N(NC) D21
TXOUT_U3P(PCIE_RESET_GPIO5) D18
TXOUT_U3N(NC) D19
TXCLK_LP(DBG_GPIO1) B16 LA_CLK
TXCLK_LN(DBG_GPIO3) A16 LA_CLK#
TXCLK_UP(PCIE_RESET_GPIO4) D16
TXCLK_UN(PCIE_RESET_GPIO1) D17

LA_DATAP0 19
LA_DATAN0 19
LA_DATAP1 19
LA_DATAN1 19
LA_DATAP2 19
LA_DATAN2 19
LA_CLK 19
LA_CLK# 19
DISP_ON 19
LVDS_BLON 19
DPST_PWM 19

5,14 CPU_LDT_STOP# Q29 BSS138_NL/SOT23 NB_LDT_STOP#
R338 4.7K_4
R511 *0_4
PV modified for AMD sighting update
5 CPU_LDT_REQ# Q30 BSS138_NL/SOT23 NB_ALLOW_LDTSTOP
R334 4.7K_4
14 ALLOW_LDTSTOP R66 0_4
R512 *0_4

0.135A for AVDD
L42 BLM18PG221SN1D +3V_AVDD_NB
C480 2.2U/6.3VC_6
R333 0_6 +1.8V_AVDDDI_NB
C478 0.1U/16VB_6
L45 BLM18PG221SN1D +1.8V_AVDDQ_NB
C485 2.2U/6.3VC_6
PV modified for AMD sighting update

0.15A for PLLs 1.1V
L41 BLM18PG221SN1D +1.1V_PLLVDD
C479 2.2U/6.3VC_6

0.1A for PLLs 1.8V
20mils width
L13 BLM18PG221SN1D +1.8V_VDDA18PCIEPLL
C127 2.2U/6.3VC_6
20mils width
L44 BLM18PG221SN1D +1.8V_VDDA18HTPLL
C154 2.2U/6.3VC_6
L10 BLM18PG221SN1D +1.8V_PLLVDD18
C93 10U/6.3VC_8
C136 2.2U/6.3VC_6

0.08A for VDDLT18
L43 BLM18PG221SN1D +1.8V_VDDLTP18_NB
C483 2.2U/6.3VC_6
L9 BLM21PG221SN1D +1.8V_VDDLT_18_NB
C99 4.7U/6.3VC_6
C103 0.1U/10VC_4

4 NBHT_REFCLKP NBHT_REFCLKP
4 NBHT_REFCLKN NBHT_REFCLKN
4 SBLINK_CLKP SBLINK_CLKP
4 SBLINK_CLKN SBLINK_CLKN
4 NBGFX_CLKP NBGFX_CLKP
4 NBGFX_CLKN NBGFX_CLKN

+1.1V 10,11,13,37
+1.8V 5,10,13,14,15,18,36,38
+3V 4,5,7,8,9,13,14,15,16,17,18,19,20,22,23,26,28,29,30,31,33,34,38
+12VALW 19,28,31,33,38

NB5/RD2/HW1

PROJECT : TT9
Quanta Computer Inc.
Size C | Document Number RS780M-SYSTEM I/F 3/4 | Rev 1A
Date: Wednesday, January 23, 2008 | Sheet 12 of 41

## +1.1V 2A for RS780M

0.6A

+1.1V → L11 BLM21PG221SN1D → +1.1V_VDDHT

C113 4.7U/6.3VC_6, C189 0.1U/10VC_4, C162 0.1U/10VC_4, C117 0.1U/10VC_4

0.45A

L12 BLM21PG221SN1D → +1.1V_VDDHTRX

C114 4.7U/6.3VC_6, C122 0.1U/10VC_4, C126 0.1U/10VC_4, C142 0.1U/10VC_4

## +1.2V 2A for RS780M+SB700

0.5A

+1.2V → L17 BLM21PG221SN1D → +1.2V_VDDHTTX

Change from +1.35V to +1.2V

C199 4.7U/6.3VC_6, C210 0.1U/10VC_4, C170 0.1U/10VC_4, C190 0.1U/10VC_4, C175 0.1U/10VC_4

## +1.8V 1A for RS780M+SB700

0.60A

+1.8V → L16 BLM21PG221SN1D → +1.8V_VDDA18PCIE

Up from 250mA to 600mA

C177 4.7U/6.3VC_6, C184 4.7U/6.3VC_6, C178 0.1U/10VC_4, C209 0.1U/10VC_4, C192 0.1U/10VC_4, C194 0.1U/10VC_4

0.005A

+1.8V → R342 0_6 → +1.8V_VDDG18_NB

C487 1U/10VC_4

+1.8V → R122 0_6 → +1.8V_VDD18_MEM

0.005A

C216 1U/10VC_4

U26E

RS780M

PART 5/6

POWER

VDDHT_1 J17
VDDHT_2 K16
VDDHT_3 L16
VDDHT_4 M16
VDDHT_5 P16
VDDHT_6 R16
VDDHT_7 T16

VDDHTRX_1 H18
VDDHTRX_2 G19
VDDHTRX_3 F20
VDDHTRX_4 F21
VDDHTRX_5 D22
VDDHTRX_6 B23
VDDHTRX_7 A23

VDDHTTX_1 AE25
VDDHTTX_2 AD24
VDDHTTX_3 AC23
VDDHTTX_4 AB22
VDDHTTX_5 AA21
VDDHTTX_6 Y20
VDDHTTX_7 W19
VDDHTTX_8 V18
VDDHTTX_9 U17
VDDHTTX_10 T17
VDDHTTX_11 R17
VDDHTTX_12 P17
VDDHTTX_13 M17

VDDA18PCIE_1 J10
VDDA18PCIE_2 P10
VDDA18PCIE_3 K10
VDDA18PCIE_4 M10
VDDA18PCIE_5 L10
VDDA18PCIE_6 W9
VDDA18PCIE_7 H9
VDDA18PCIE_8 T10
VDDA18PCIE_9 R10
VDDA18PCIE_10 Y9
VDDA18PCIE_11 AA9
VDDA18PCIE_12 AB9
VDDA18PCIE_13 AD9
VDDA18PCIE_14 AE9
VDDA18PCIE_15 U10

VDDG18_1(VDD18_1) F9
VDDG18_2(VDD18_2) G9
VDD18_MEM1(NC) AE11
VDD18_MEM2(NC) AD11

VDDPCIE_1 A6
VDDPCIE_2 B6
VDDPCIE_3 C6
VDDPCIE_4 D6
VDDPCIE_5 E6
VDDPCIE_6 F6
VDDPCIE_7 G7
VDDPCIE_8 H8
VDDPCIE_9 J9
VDDPCIE_10 K9
VDDPCIE_11 M9
VDDPCIE_12 L9
VDDPCIE_13 P9
VDDPCIE_14 R9
VDDPCIE_15 T9
VDDPCIE_16 V9
VDDPCIE_17 U9

VDDC_1 K12
VDDC_2 J14
VDDC_3 U16
VDDC_4 J11
VDDC_5 K15
VDDC_6 M12
VDDC_7 L14
VDDC_8 L11
VDDC_9 M13
VDDC_10 M15
VDDC_11 N12
VDDC_12 N14
VDDC_13 P11
VDDC_14 P13
VDDC_15 P14
VDDC_16 R12
VDDC_17 R15
VDDC_18 T11
VDDC_19 T15
VDDC_20 U12
VDDC_21 T14
VDDC_22 J16

VDD_MEM1(NC) AE10
VDD_MEM2(NC) AA11
VDD_MEM3(NC) Y11
VDD_MEM4(NC) AD10
VDD_MEM5(NC) AB10
VDD_MEM6(NC) AC10

VDDG33_1(NC) H11
VDDG33_2(NC) H12

0.7A

+1.1V_VDD_PCIE → R107 0_8 → +1.1V

C133 0.1U/10VC_4, C149 0.1U/10VC_4, C176 1U/10VC_4, C173 1U/10VC_4, C193 4.7U/6.3VC_6

Up from 7A to 10A

## +1.1V 10A for DYN

+1.1V_NB

C172 0.1U/10VC_4, C159 0.1U/10VC_4, C185 0.1U/10VC_4, C182 0.1U/10VC_4, C96 10U/6.3VC_8

C101 0.1U/10VC_4, C171 0.1U/10VC_4, C161 0.1U/10VC_4, C87 10U/6.3VC_8

Up from 150mA to 300mA

0.30A

+1.8V_VDD_MEM → L19 BLM21PG221SN1D → +1.8V

C217 0.1U/10VC_4, C213 0.1U/10VC_4, C201 0.1U/10VC_4, C211 0.1U/10VC_4, C218 4.7U/6.3VC_6

+3V_VDDG33 → R104 0_6 → +3V

0.03A

C163 0.1U/10VC_4, C164 0.1U/10VC_4

## +3V 1A for RS780M+SB700

U26F

RS780M

PART 6/6

GROUND

VSSAPCIE1 A2
VSSAPCIE2 B1
VSSAPCIE3 D3
VSSAPCIE4 D5
VSSAPCIE5 E4
VSSAPCIE6 G1
VSSAPCIE7 G2
VSSAPCIE8 G4
VSSAPCIE9 H7
VSSAPCIE10 J4
VSSAPCIE11 R7
VSSAPCIE12 L1
VSSAPCIE13 L2
VSSAPCIE14 L4
VSSAPCIE15 L7
VSSAPCIE16 M6
VSSAPCIE17 N4
VSSAPCIE18 P6
VSSAPCIE19 R1
VSSAPCIE20 R2
VSSAPCIE21 R4
VSSAPCIE22 V7
VSSAPCIE23 U4
VSSAPCIE24 V8
VSSAPCIE25 V6
VSSAPCIE26 W1
VSSAPCIE27 W2
VSSAPCIE28 W4
VSSAPCIE29 W7
VSSAPCIE30 W8
VSSAPCIE31 Y6
VSSAPCIE32 AA4
VSSAPCIE33 AB5
VSSAPCIE34 AB1
VSSAPCIE35 AB7
VSSAPCIE36 AC3
VSSAPCIE37 AC4
VSSAPCIE38 AE1
VSSAPCIE39 AE4
VSSAPCIE40 AB2

VSS1 AE14
VSS2 D11
VSS3 G8
VSS4 E14
VSS5 E15
VSS6 J15
VSS7 J12
VSS8 K14
VSS9 M11
VSS10 L15

VSSAHT1 A25
VSSAHT2 D23
VSSAHT3 E22
VSSAHT4 G22
VSSAHT5 G24
VSSAHT6 G25
VSSAHT7 H19
VSSAHT8 J22
VSSAHT9 L17
VSSAHT10 L22
VSSAHT11 L24
VSSAHT12 L25
VSSAHT13 M20
VSSAHT14 N22
VSSAHT15 P20
VSSAHT16 R19
VSSAHT17 R22
VSSAHT18 R24
VSSAHT19 R25
VSSAHT20 H20
VSSAHT21 U22
VSSAHT22 V19
VSSAHT23 W22
VSSAHT24 W24
VSSAHT25 W25
VSSAHT26 Y21
VSSAHT27 AD25

VSS11 L12
VSS12 M14
VSS13 N13
VSS14 P12
VSS15 P15
VSS16 R11
VSS17 R14
VSS18 T12
VSS19 U14
VSS20 U11
VSS21 U15
VSS22 V12
VSS23 W11
VSS24 W15
VSS25 AC12
VSS26 AA14
VSS27 Y18
VSS28 AB11
VSS29 AB15
VSS30 AB17
VSS31 AB19
VSS32 AE20
VSS33 AB21
VSS34 K11

+1.1V_NB 34
+1.1V 10,11,12,37
+1.2V 4,5,14,16,17,34,37
+1.8V 5,10,12,14,15,18,36,38
+3V 4,5,7,8,9,12,14,15,16,17,18,19,20,22,23,26,28,29,30,31,33,34,38

NB5/RD2/HW1

**PROJECT : TT9**
Quanta Computer Inc.

| Size | Document Number | Rev |
|---|---|---|
| B | RS780M-POWER 4/4 | 1A |

Date: Wednesday, January 23, 2008 Sheet 13 of 41

PLACE THESE
PCIE AC
COUPLING CAPS
CLOSE TO U600

1.PCIE Reference Clk(Ext Clk Gen)
2. A-link Clk to North Bridge(Int Clk Gen)

SB700
Part 1 of 5

PCI EXPRESS INTERFACE
PCI INTERFACE
CLOCK GENERATOR
PCI CLKS
LPC
RTC XTAL
CPU
RTC

80mA
100MHZ
20MIL
20MIL

PV modified for AMD sighting update
PV Change GPIO pin for leakage
PV fix +3VS5 leakage to +3V

+1.2V 4,5,13,16,17,34,37
+1.8V 5,10,12,13,15,18,36,38
+3V 4,5,7,8,9,12,13,15,16,17,18,19,20,22,23,26,28,29,30,31,33,34,38
+3VPCU 5,19,25,29,30,32,33,36,37,39



**PROJECT : TT9**
Quanta Computer Inc.

| Size | Document Number | Rev |
|---|---|---|
| Custom | SB700-PCIE/PCI/CPU/LPC 1/4 | 1A |

Date: Wednesday, January 23, 2008 | Sheet 14 of 41

NB5/RD2/HW1

SB700 SBTEST0/1/2 has internal 10K PD.

+3VS5
R241 *2.2K_4 SB_TEST0
R468 *2.2K_4 SB_TEST1
R469 *2.2K_4 SB_TEST2

+3VS5
R226 2.2K_4 PCLK_SMB_S5
R225 2.2K_4 PDAT_SMB_S5
R224 1K_4 PWR_BTN#

For SATA ODD hot plug

+3V
R203 2.2K_4 PCLK_SMB
R195 2.2K_4 PDAT_SMB
R227 4.7K_4 SUS_STAT#
R198 10K/F_4 SATA_IS1

G1
2 1 SYS_RST#
*SHORT_PAD1

5,9 CPU_MEMHOT# 1 D19 2 CPU_MEMHOT#_IN
CH501H-40PT L-F
30 RSMRST# R239 0_4 RSMRST#_1

## To Azalia

ACZ_SDOUT R465 33_4 ACZ_SDOUT_AUDIO 22
C657 *10P/50VA_4
ACZ_SYNC R455 33_4 ACZ_SYNC_AUDIO 22
C648 *10P/50VA_4
ACZ_BCLK R463 33_4 BIT_CLK_AUDIO 22
C655 *10P/50VA_4
ACZ_RST# R471 33_4 ACZ_RST#_AUDIO 22
ACZ_SDIN0_R R450 0_4 ACZ_SDIN0 22

## To Modem Board

ACZ_SDOUT R464 33_4 ACZ_SDOUT_AUDIO_MDC 24
C656 *10P/50VA_4
ACZ_SYNC R454 33_4 ACZ_SYNC_AUDIO_MDC 24
C647 *10P/50VA_4
ACZ_BCLK R462 33_4 BIT_CLK_AUDIO_MDC 24
C654 *10P/50VA_4
ACZ_RST# R472 33_4 ACZ_RST#_AUDIO_MDC 24
ACZ_SDIN1_R R449 33_4 ACZ_SDIN1 24

Fix for IMC problem

+3V
4,8,9 PCLK_SMB 1 Q44 3 PCLK_SMB_S5 28,31
BSS138_NL/SOT23
+3V
4,8,9 PDAT_SMB 1 Q45 3 PDAT_SMB_S5 28,31
BSS138_NL/SOT23

28 NEWCARD_DETECT T88 T123 NEWCARD_DETECT
RI#
18,30 SUSB# R461 0_4 SLP_S3#
30 SUSC# R222 0_4 SLP_S5#
30 DNBSWON# R223 0_4 PWR_BTN#
18 SB_PWRGD_IN SB_PWRGD_IN
12 SUS_STAT# SUS_STAT#
SB_TEST2
SB_TEST1
SB_TEST0
30 GATEA20 GATEA20
30 RCIN# RCIN#
30 SCI# SCI#
30 KBSMI# KBSMI#
T86 S3_STATES
SYS_RST#
26,28,31 PCIE_WAKE# R238 0_4 PCIE_WAKE#
30 SW#
5 CPU_THERMTRIP# CPU_THERMTRIP#
18 WD_PWRGD WD_PWRGD
RSMRST#_1

T70 SATA_IS1
28 SB_NWD_CLK_REQ# R442 0_4
23 ACZ_SPKR R439 0_4 SB_SPKR_1
4,8,9 PCLK_SMB PCLK_SMB
4,8,9 PDAT_SMB PDAT_SMB
T139 T140 T115 T117
30 PM_BATLOW# PM_BATLOW#
SES_INT
T118 T137 GEVENT7#

7 PM_THERM# *0_4 R209 SMBALERT#_1
CPU_MEMHOT#_IN
SB_JTAG_TDO
SB_JTAG_TCK
SB_JTAG_TDI
SB_JTAG_RST#

ACZ_BCLK
ACZ_SDOUT
ACZ_SDIN0_R
ACZ_SDIN1_R
T122 T85 ACZ_SYNC
18 ACZ_RST# ACZ_RST#

+1.8V R178 *20K_4 HDD_AUX_RST#

U16D

SB700 Part 4 of 5

PCI_PME#/GEVENT4#
RI#/EXTEVNT0#
SLP_S2/GPM9#
SLP_S3#
SLP_S5#
PWR_BTN#
PWR_GOOD
SUS_STAT#
TEST2
TEST1
TEST0
GA20IN/GEVENT0#
KBRST#/GEVENT1#
LPC_PME#/GEVENT3#
LPC_SMI#/EXTEVNT1#
S3_STATE/GEVENT5#
SYS_RESET#/GPM7#
WAKE#/GEVENT8#
BLINK/GPM6#
SMBALERT#/THRMTRIP#/GEVENT2#
NB_PWRGD
RSMRST#

ACPI / WAKE UP EVENTS

SATA_IS0#/GPIO10
CLK_REQ3#/SATA_IS1#/GPIO6
SMARTVOLT/SATA_IS2#/GPIO4
CLK_REQ0#/SATA_IS3#/GPIO0
CLK_REQ1#/SATA_IS4#/FANOUT3/GPIO39
CLK_REQ2#/SATA_IS5#/FANIN3/GPIO40
SPKR/GPIO2
SCL0/GPOC0#
SDA0/GPOC1#
SCL1/GPOC2#
SDA1/GPOC3#
DDC1_SCL/GPIO9
DDC1_SDA/GPIO8
LLB#/GPIO66
SHUTDOWN#/GPIO5
DDR3_RST#/GEVENT7#

GPIO

USB_OC6#/IR_TX1/GEVENT6#
USB_OC5#/IR_TX0/GPM5#
USB_OC4#/IR_RX0/GPM4#
USB_OC3#/IR_RX1/GPM3#
USB_OC2#/GPM2#
USB_OC1#/GPM1#
USB_OC0#/GPM0#

USB OC

AZ_BITCLK
AZ_SDOUT
AZ_SDIN0/GPIO42
AZ_SDIN1/GPIO43
AZ_SDIN2/GPIO44
AZ_SDIN3/GPIO46
AZ_SYNC
AZ_RST#
AZ_DOCK_RST#/GPM8#

HD AUDIO

IMC_GPIO0
IMC_GPIO1
SPI_CS2#/IMC_GPIO2
IDE_RST#/F_RST#/IMC_GPO3
IMC_GPIO4
IMC_GPIO5
IMC_GPIO6
IMC_GPIO7

INTEGRATED uC

USBCLK/14M_25M_48M_OSC C8 CLK_48M_USB CLK_48M_USB 4
USB_RCOMP G8 USB_RCOMP_SB R448 11.8K/F_6

USB MISC

USB_FSD13P E6 USBP13+ 19
USB_FSD13N E7 USBP13- 19 Touch screen
USB_FSD12P E7 USBP12+ 19
USB_FSD12N E8 USBP12- 19 FINGE RPRINTER

USB 1.1

USB_HSD11P H11
USB_HSD11N J10
USB_HSD10P E11
USB_HSD10N F11
USB_HSD9P A11 USBP9+ 25
USB_HSD9N B11 USBP9- 25 BLUETOOTH
USB_HSD8P C10 USBP8+ 28
USB_HSD8N D10 USBP8- 28 NEW CARD
USB_HSD7P G11 USBP7+ 19
USB_HSD7N H12 USBP7- 19 USB Carama
USB_HSD6P E12 USBP6+ 25
USB_HSD6N E14 USBP6- 25 USB Connector (Dual)
USB_HSD5P C12
USB_HSD5N D12
USB_HSD4P B12 USBP4+ 31
USB_HSD4N A12 USBP4- 31 WLAN Mini card
USB_HSD3P G12 USBP3+ 21
USB_HSD3N G14 USBP3- 21 USB Card Reader
USB_HSD2P H14 USBP2+ 32
USB_HSD2N H15 USBP2- 32 Docking
USB_HSD1P A13 USBP1+ 25
USB_HSD1N B13 USBP1- 25 USB Connector (Dual)
USB_HSD0P B14 USBP0+ 25
USB_HSD0N A14 USBP0- 25 USB Connector

USB 2.0

IMC_GPIO8 A18
IMC_GPIO9 B18
IMC_PWM0/IMC_GPIO10 F21
SCL2/IMC_GPIO11 D21
SDA2/IMC_GPIO12 F19
SCL3_LV/IMC_GPIO13 E20 SB_SCLK3
SDA3_LV/IMC_GPIO14 F21 SB_SDATA3
IMC_PWM1/IMC_GPIO15 E19
IMC_PWM2/IMC_GPO16 D19 SB_GPIO16 18
IMC_PWM3/IMC_GPO17 E18 SB_GPIO17 18 SPI/LPC define

Fix for IMC problem
T141 T142 T110 T68

IMC_GPIO18 G20
IMC_GPIO19 G21
IMC_GPIO20 D25
IMC_GPIO21 D24
IMC_GPIO22 C25
IMC_GPIO23 C24
IMC_GPIO24 B25
IMC_GPIO25 C23
IMC_GPIO26 B24
IMC_GPIO27 B23
IMC_GPIO28 A23
IMC_GPIO29 C22
IMC_GPIO30 A22
IMC_GPIO31 B22
IMC_GPIO32 B21
IMC_GPIO33 A21
IMC_GPIO34 D20
IMC_GPIO35 C20
IMC_GPIO36 A20
IMC_GPIO37 B20
IMC_GPIO38 B19
IMC_GPIO39 A19
IMC_GPIO40 D18
IMC_GPIO41 C18

CLK_48M_USB
R205 *10_6
C344 *10P/50VA_4

SB JTAG
+3VSUS
C293 10P/50VA_4
CN7
1 SB_JTAG_TCK
2 SB_JTAG_TDO
3 SB_JTAG_TDI
4 SB_TEST1
5
6 SB_JTAG_RST#
7
8
*S/W JTAG DEBUG

SB700

+1.8VSUS 5,6,7,8,9,31,35,36,37
+1.8V 5,10,12,13,14,18,36,38
+3VSUS 21,24,25,29,31,33,34,35,36,38
+3VS5 9,14,16,17,18,28,33,38
+3V 4,5,7,8,9,12,13,14,16,17,18,19,20,22,23,26,28,29,30,31,33,34,38

NB5/RD2/HW1

**PROJECT : TT9**
Quanta Computer Inc.

| Size | Document Number | Rev |
|---|---|---|
| Custom | SB700-ACPI/GPIO/USB 2/4 | 1A |

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PLACE SATA AC COUPLING CAPS CLOSE TO SB600

SATA1

SATA ODD

U16B

SB700
Part 2 of 5

SERIAL ATA

SATA_TX0P / SATA_TX0N — AD9 / AE9
SATA_RX0N / SATA_RX0P — AB10 / AC10
SATA_TX1P / SATA_TX1N — AE10 / AD10
SATA_RX1N / SATA_RX1P — AD11 / AE11
SATA_TX2P / SATA_TX2N — AB12 / AC12
SATA_RX2N / SATA_RX2P — AE12 / AD12
SATA_TX3P / SATA_TX3N — AD13 / AE13
SATA_RX3N / SATA_RX3P — AB14 / AC14
SATA_TX4P / SATA_TX4N — AE14 / AD14
SATA_RX4N / SATA_RX4P — AD15 / AE15
SATA_TX5P / SATA_TX5N — AB16 / AC16
SATA_RX5N / SATA_RX5P — AE16 / AD16
SATA_CAL — V12
SATA_X1 — Y12
SATA_X2 — AA12
SATA_ACT#/GPIO67 — W11
PLLVDD_SATA — AA11
XTLVDD_SATA — W12

SATA PWR

ATA 66/100/133

IDE_IORDY AA24 T55
IDE_IRQ AA25 T64
IDE_A0 Y22 T109
IDE_A1 AB23 T57
IDE_A2 Y23 T97
IDE_DACK# AB24 T56
IDE_DRQ AD25 T66
IDE_IOR# AC25 T65
IDE_IOW# AC24 T58
IDE_CS1# Y25 T63
IDE_CS3# Y24 T105

IDE_D0/GPIO15 AD24 T143
IDE_D1/GPIO16 AD23 T67
IDE_D2/GPIO17 AE22 T144
IDE_D3/GPIO18 AC22 T145
IDE_D4/GPIO19 AD21 T146
IDE_D5/GPIO20 AE20 T147
IDE_D6/GPIO21 AB20 T148
IDE_D7/GPIO22 AD19 T149
IDE_D8/GPIO23 AE19 T150
IDE_D9/GPIO24 AC20 T116
IDE_D10/GPIO25 AD20 T69
IDE_D11/GPIO26 AE21 T151
IDE_D12/GPIO27 AB22 T152
IDE_D13/GPIO28 AD22 T153
IDE_D14/GPIO29 AE23 T61
IDE_D15/GPIO30 AC23 T59

IF THERE IS NO IDE, TEST POINTS FOR DEBUG BUS IS MANDATORY

SPI ROM

SPI_DI/GPIO12 G6 T124
SPI_DO/GPIO11 D2 T87
SPI_CLK/GPIO47 D1 T83
SPI_HOLD#/GPIO31 F4 T138
SPI_CS#/GPIO32 F3 T132

LAN_RST#/GPIO13 M8 — SB_FANOUT0 T120
ROM_RST#/GPIO14 M5 — SB_FANOUT1 T135
FANOUT2/GPIO49 M7 — T127

HW MONITOR

FANIN0/GPIO50 P5 — SB_FANTACH0 T136
FANIN1/GPIO51 P8 — SB_FANTACH1 T125
FANIN2/GPIO52 R8 — PORT_80_PWR_DWN T129

TEMP_COMM C6
TEMPIN0/GPIO61 B6 — R187 0_4 — BTLED 29
TEMPIN1/GPIO62 A6 — DGT_STOP# 19
TEMPIN2/GPIO63 A5 — DGT_RESET 19
TEMPIN3/TALERT#/GPIO64 B5

VIN0/GPIO53 A4
VIN1/GPIO54 B4
VIN2/GPIO55 C4 — R438 0_4 — BT_COMBO_EN# 31 / AMPBEEP_EN 23
VIN3/GPIO56 D4
VIN4/GPIO57 D5 — BOARDID0
VIN5/GPIO58 D6 — BOARDID1
VIN6/GPIO59 A7 — BOARDID2
VIN7/GPIO60 B7 — T71

AVDD F6 — +3V_VDD_HWM — L67 0_6 — +3VS5
AVSS G7 — C642 *0.1U/10VC_4 — C643 *2.2U/6.3VC_6

5mA

SB700

R453 1K/F_4 SATA_RBIAS_PN

SATA_X1

SATA_X2

19 SATA_LED#

+3V — R458 10K/F_4 — +1.2V_PLLVDD_SATA

+3V_XTLVDD_SATA

PLACE SATA_CAL RES VERY CLOSE TO BALL OF U600

NOTE:
R635 IS 1K 1% FOR 25MHz XTAL, 4.99K 1% FOR 100MHz INTERNAL CLOCK

C352 27P/50VA_4 — SATA_X1
Y5 25MHZ
R207 10M_6
C355 27P/50VA_4 — SATA_X2

| VRAM / Clock Gen / Board ID | Samsung Realtek (0.0.0) | Qimonda ICS (1.0.0) | Hynix Silego (0.1.0) |
|---|---|---|---|
| BOARDID0 | R192 Stuff | R193 Stuff | R192 Stuff |
| BOARDID1 | R430 Stuff | R430 Stuff | R431 Stuff |
| BOARDID2 | R188 Stuff | R188 Stuff | R188 Stuff |

DB2 MODIFY

SYS BOARD ID

R192 *10K_4 BOARDID0 R193 10K_4 — +3VS5
R430 10K_4 BOARDID1 R431 *10K_4
R188 10K_4 BOARDID2 R189 *10K_4

PV SB internal pull Hi to 3VS5 , modified to samepower rail with SB

PV fix +3VS5 leakage to +3V

0.1A

+1.2V — +1.2V_PLLVDD_SATA — L66 BLM18PG221SN1D — ( 1.2V @ 60mA) — C636 1U/10VC_4 — C635 0.1U/10VC_4

1mA

+3V — +3V_XTLVDD_SATA — L64 BLM18PG221SN1D — ( 3.3V @ 1.2mA) — C631 1U/10VC_4

Place near ball

+1.2V 4,5,13,14,17,34,37
+3V 4,5,7,8,9,12,13,14,15,17,18,19,20,22,23,26,28,29,30,31,33,34,38



NB5/RD2/HW1

PROJECT : TT9
Quanta Computer Inc.

| Size | Document Number | Rev |
|---|---|---|
| Custom | SB700-SATA/IDE/HWM/SPI 3/4 | 1A |

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PLACE ALL THE DECOUPLING CAPS ON
THIS SHEET CLOSE TO SB AS POSSIBLE.

Change from +1.2VS5 to +1.2V

R265 for A12 chip

## SB700 Part 3 of 5

U16C

0.8A

+3V

C377 100U/6.3V_3528

C607 10U/6.3V_8

C640 1U/10VC_4

C634 1U/10VC_4

C621 1U/10VC_4

C618 1U/10VC_4

C630 1U/10VC_4

C609 1U/10VC_4

VDDQ_1 M9
VDDQ_2 T15
VDDQ_3 U9
VDDQ_4 U16
VDDQ_5 U17
VDDQ_6 V8
VDDQ_7 W7
VDDQ_8 Y6
VDDQ_9 AA4
VDDQ_10 AB5
VDDQ_11 AB21
VDDQ_12

PCI/GPIO I/O

CORE S0

VDD_1 L15
VDD_2 M12
VDD_3 M14
VDD_4 N13
VDD_5 P12
VDD_6 P14
VDD_7 R11
VDD_8 R15
VDD_9 T16

+1.2V_VCC_SB_R

0.6A

C626 1U/10VC_4

C633 1U/10VC_4

C632 1U/10VC_4

C627 1U/10VC_4

C629 22U/6.3VC_8

R441 0R_8

+1.2V

## 1.8V : FLASH MEMORY MODE(DEFAULT)

+3V

R437 0_8

+VDD33_18

0.45A

C597 22U/6.3VC_8

C603 1U/10VC_4

C596 1U/10VC_4

C611 1U/10VC_4

C599 1U/10VC_4

VDD33_18_1 Y20
VDD33_18_2 AA21
VDD33_18_3 AA22
VDD33_18_4 AE25

IDE/FLSH I/O

CLKGEN I/O

CKVDD_1.2V_1 L21
CKVDD_1.2V_2 L22
CKVDD_1.2V_3 L24
CKVDD_1.2V_4 L25

+1.2V_CKVDD

286mA

C602 2.2U/6.3VC_6

C601 2.2U/6.3VC_6

C320 2.2U/6.3VC_6

C585 2.2U/6.3VC_6

L60 BLM18PG221SN1D

+1.2V

## POWER

L32 BLM18PG221SN1D

+1.2V

+1.2V_PCIE_VDDR

844mA

C308 22U/6.3VC_8

C606 1U/10VC_4

C605 1U/10VC_4

C608 1U/10VC_4

C610 0.1U/10VC_4

C614 0.1U/10VC_4

PCIE_VDDR_1 P18
PCIE_VDDR_2 P19
PCIE_VDDR_3 P20
PCIE_VDDR_4 P21
PCIE_VDDR_5 R22
PCIE_VDDR_6 R24
PCIE_VDDR_7 R25

A-LINK I/O

3.3V_S5 I/O

S5_3.3V_1 A17
S5_3.3V_2 A24
S5_3.3V_3 B17
S5_3.3V_4 J4
S5_3.3V_5 J5
S5_3.3V_6 L1
S5_3.3V_7 L2

+3VALW_R

0.01A

C604 1U/10VC_4

C644 1U/10VC_4

C650 22U/6.3VC_8

R467 0_6

Change to 0603

+3VS5

L34 BLM18PG221SN1D

+1.2V

+1.2V_AVDD_SATA

0.2A

C343 22U/6.3VC_8

C616 0.1U/10VC_4

C615 0.1U/10VC_4

C624 1U/10VC_4

C619 1U/10VC_4

AVDD_SATA_1 AA14
AVDD_SATA_4 AB18
AVDD_SATA_2 AA15
AVDD_SATA_3 AA17
AVDD_SATA_5 AC18
AVDD_SATA_6 AD17
AVDD_SATA_7 AE17

SATA I/O

CORE S5

S5_1.2V_1 G2
S5_1.2V_2 G4

0.22A

+1.2VALW_R

R460 0_6

Change to 0603

+1.2VS5

0.2A

USB_PHY_1.2V_1 A10
USB_PHY_1.2V_2 B10

+1.2V_USB_PHY_R

L35 BLM18PG221SN1D

+3VS5

+3V_AVDD_USB

0.2A

C338 10U/6.3VC_8

C623 10U/6.3VC_8

C622 0.1U/10VC_4

C625 0.1U/10VC_4

For support USB wakeup-->3V_S5

C341 1U/10VC_4

C340 1U/10VC_4

C342 1U/10VC_4

C617 0.1U/10VC_4

C628 0.1U/10VC_4

C612 0.1U/10VC_4

C620 0.1U/10VC_4

AVDDTX_0 A16
AVDDTX_1 B16
AVDDTX_2 C16
AVDDTX_3 D16
AVDDTX_4 D17
AVDDTX_5 E17
AVDDRX_0 F15
AVDDRX_1 F17
AVDDRX_2 F18
AVDDRX_3 G15
AVDDRX_4 G17
AVDDRX_5 G18

USB I/O

PLL

V5_VREF AE7

+5V_VREF

4mA

R212 1K/F_4

+5V

+3V

D18 CH501H-40PT L-F

AVDDCK_3.3V J16

+3V_AVDDCK

7mA

AVDDCK_1.2V K17

+1.2V_AVDDCK

44mA

AVDDC E9

+3V_AVDDC

16mA

C360 1U/10VC_4

SB700

## SB700 Part 5 of 5

U16E

AVSS_SATA_1 T10
AVSS_SATA_2 U10
AVSS_SATA_3 U11
AVSS_SATA_4 U12
AVSS_SATA_5 V11
AVSS_SATA_6 V14
AVSS_SATA_7 W9
AVSS_SATA_8 Y9
AVSS_SATA_9 Y11
AVSS_SATA_10 Y14
AVSS_SATA_11 Y17
AVSS_SATA_12 AA9
AVSS_SATA_13 AB9
AVSS_SATA_14 AB11
AVSS_SATA_15 AB13
AVSS_SATA_16 AB15
AVSS_SATA_17 AB17
AVSS_SATA_18 AC8
AVSS_SATA_19 AD8
AVSS_SATA_20 AE8

AVSS_USB_1 A15
AVSS_USB_2 B15
AVSS_USB_3 C14
AVSS_USB_4 D8
AVSS_USB_5 D9
AVSS_USB_6 D11
AVSS_USB_7 D13
AVSS_USB_8 D14
AVSS_USB_9 D15
AVSS_USB_10 E15
AVSS_USB_11 F12
AVSS_USB_12 F14
AVSS_USB_13 G9
AVSS_USB_14 H9
AVSS_USB_15 H17
AVSS_USB_16 J9
AVSS_USB_17 J11
AVSS_USB_18 J12
AVSS_USB_19 J14
AVSS_USB_20 J15
AVSS_USB_21 K10
AVSS_USB_22 K12
AVSS_USB_23 K14
AVSS_USB_24 K15

PCIE_CK_VSS_1 H18
PCIE_CK_VSS_2 J17
PCIE_CK_VSS_3 J22
PCIE_CK_VSS_4 K25
PCIE_CK_VSS_5 M16
PCIE_CK_VSS_6 M17
PCIE_CK_VSS_7 M21
PCIE_CK_VSS_8 P16

AVSSC F9

AVSSCK L17

VSS_1 A2
VSS_2 A25
VSS_3 B1
VSS_4 D7
VSS_5 F20
VSS_6 G19
VSS_7 H8
VSS_8 K9
VSS_9 K11
VSS_10 K16
VSS_11 L4
VSS_12 L7
VSS_13 L10
VSS_14 L11
VSS_15 L12
VSS_16 L14
VSS_17 L16
VSS_18 M6
VSS_19 M10
VSS_20 M11
VSS_21 M13
VSS_22 M15
VSS_23 N4
VSS_24 N12
VSS_25 N14
VSS_26 P6
VSS_27 P9
VSS_28 P10
VSS_29 P11
VSS_30 P13
VSS_31 P15
VSS_32 R1
VSS_33 R2
VSS_34 R4
VSS_35 R9
VSS_36 R10
VSS_37 R12
VSS_38 R14
VSS_39 T11
VSS_40 T12
VSS_41 T14
VSS_42 U4
VSS_43 U14
VSS_44 V6
VSS_45 Y21
VSS_46 AB1
VSS_47 AB19
VSS_48 AB25
VSS_49 AE1
VSS_50 AE24

PCIE_CK_VSS_9 P23
PCIE_CK_VSS_10 R16
PCIE_CK_VSS_11 R19
PCIE_CK_VSS_12 T17
PCIE_CK_VSS_13 U18
PCIE_CK_VSS_14 U20
PCIE_CK_VSS_15 V18
PCIE_CK_VSS_16 V20
PCIE_CK_VSS_17 V21
PCIE_CK_VSS_18 W19
PCIE_CK_VSS_19 W22
PCIE_CK_VSS_20 W24
PCIE_CK_VSS_21 W25

GROUND

SB700

+1.2VS5

R208 0_4

C357 1U/10VC_4

C358 1U/10VC_4

C354 10U/6.3VC_8

+1.2V_USB_PHY_R

+3VS5

L65 BLM18PG221SN1D

+3V_AVDDC

C637 0.1U/10VC_4

C638 10U/6.3VC_8

+1.2V

L58 BLM18PG221SN1D

+1.2V_AVDDCK

C598 2.2U/6.3VC_6

+3V

L63 BLM18PG221SN1D

+3V_AVDDCK

C613 2.2U/6.3VC_6

+3VS5 9,14,15,16,18,28,33,38
+1.2VS5 37
+1.2V 4,5,13,14,16,34,37
+3VS5 9,14,15,16,18,28,33,38
+3V 4,5,7,8,9,12,13,14,15,16,18,19,20,22,23,26,28,29,30,31,33,34,38
+5V 19,20,22,23,28,31,32,33,37,38,39
+1.8V 5,10,12,13,14,15,18,36,38

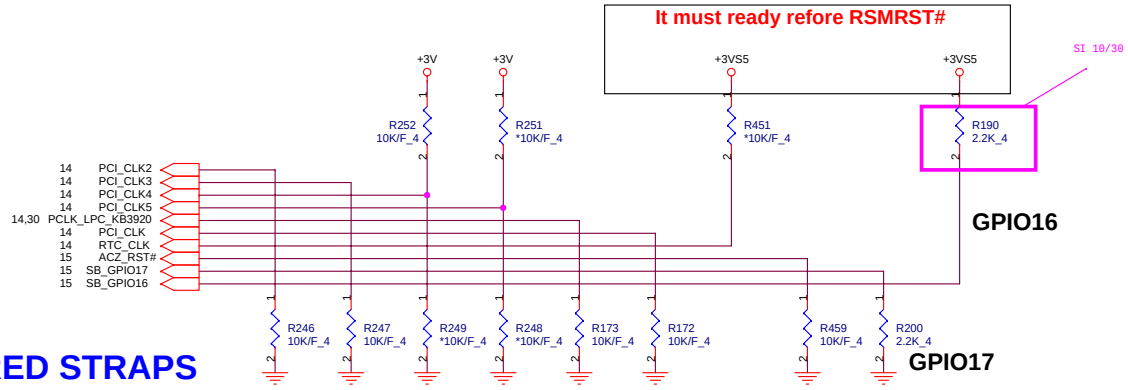
NB5/RD2/HW1

**PROJECT : TT9**
Quanta Computer Inc.

| Size | Document Number | Rev |
|---|---|---|
| Custom | SB700-PWR/DECOUPLING 4/4 | 1A |

Date: Wednesday, January 23, 2008 | Sheet 17 of 41

NOTE: SB700 HAS INTERNAL 15K PULL UP RESISTOR FOR RTC_CLK



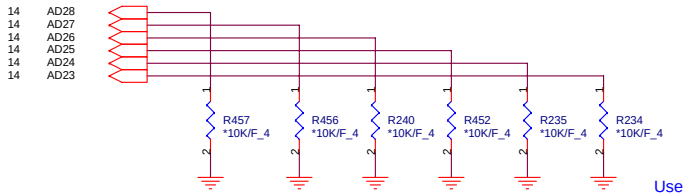

OVERLAP COMMON PADS WHERE POSSIBLE FOR DUAL-OP RESISTORS.

## REQUIRED STRAPS

| | PCI_CLK2 | PCI_CLK3 | PCI_CLK4 | PCI_CLK5 | PCLK_LPC_KB3920 | PCI_CLK | RTC_CLK | AZ_RST# | GP17 GP16 |
|---|---|---|---|---|---|---|---|---|---|
| PULL HIGH | BOOTFAIL TIMER ENABLED | USE DEBUG STRAPS | RESERVED | RESERVED | EC ENABLED | CLKGEN ENABLED | INTERNAL RTC DEFAULT | ENABLE PCI MEM BOOT | ROM TYPE: H, H = Reserved |
| PULL LOW | BOOTFAIL TIMER DISABLED DEFAULT | IGNORE DEBUG STRAPS DEFAULT | | | EC DISABLED DEFAULT | CLKGEN DISABLED DEFAULT | EXT. RTC (PD on X1, apply 32KHz to RTC_CLK) | DISABLE PCI MEM BOOT DEFAULT | H, L = SPI ROM<br>L, H = LPC ROM DEFAULT<br>L, L = FWH ROM |

## DEBUG STRAPS

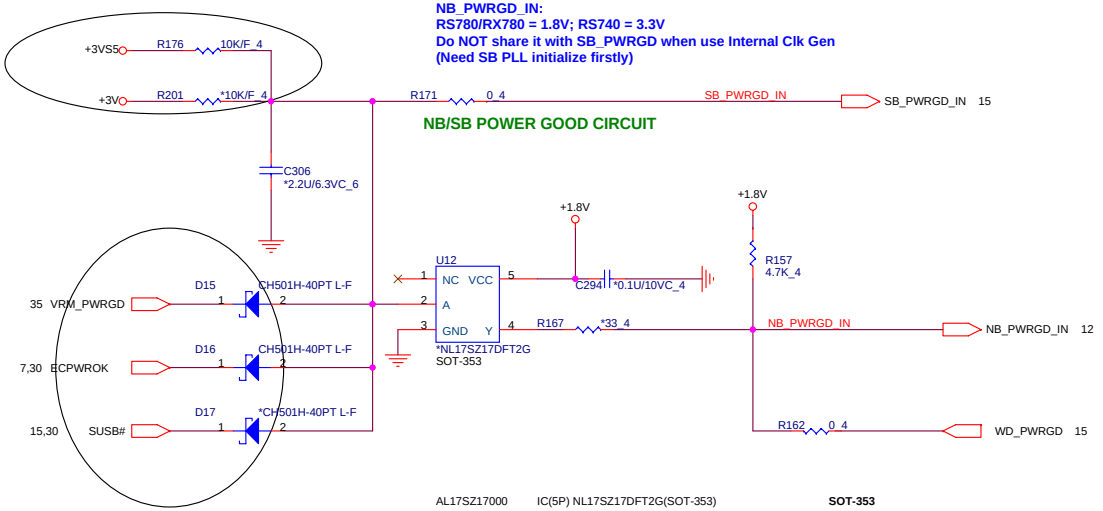
SB700 HAS 15K INTERNAL PU FOR PCI_AD[28:23]




Use 2.2K PD.

| | PCI_AD28 | PCI_AD27 | PCI_AD26 | PCI_AD25 | PCI_AD24 | PCI_AD23 |
|---|---|---|---|---|---|---|
| PULL HIGH | USE LONG RESET DEFAULT | USE PCI PLL DEFAULT | USE ACPI BCLK DEFAULT | USE IDE PLL DEFAULT | USE DEFAULT PCIE STRAPS DEFAULT | RESERVED |
| PULL LOW | USE SHORT RESET | BYPASS PCI PLL | BYPASS ACPI BCLK | BYPASS IDE PLL | USE EEPROM PCIE STRAPS | |

NB_PWRGD_IN:
RS780/RX780 = 1.8V; RS740 = 3.3V
Do NOT share it with SB_PWRGD when use Internal Clk Gen
(Need SB PLL initialize firstly)




| | | |
|---|---|---|
| AL17SZ17000 | IC(5P) NL17SZ17DFT2G(SOT-353) | SOT-353 |
| ALUC1G17000 | IC OTHER(5P) SN74AUC1G17DBVR(SOT23-5) | SOT23-5 |

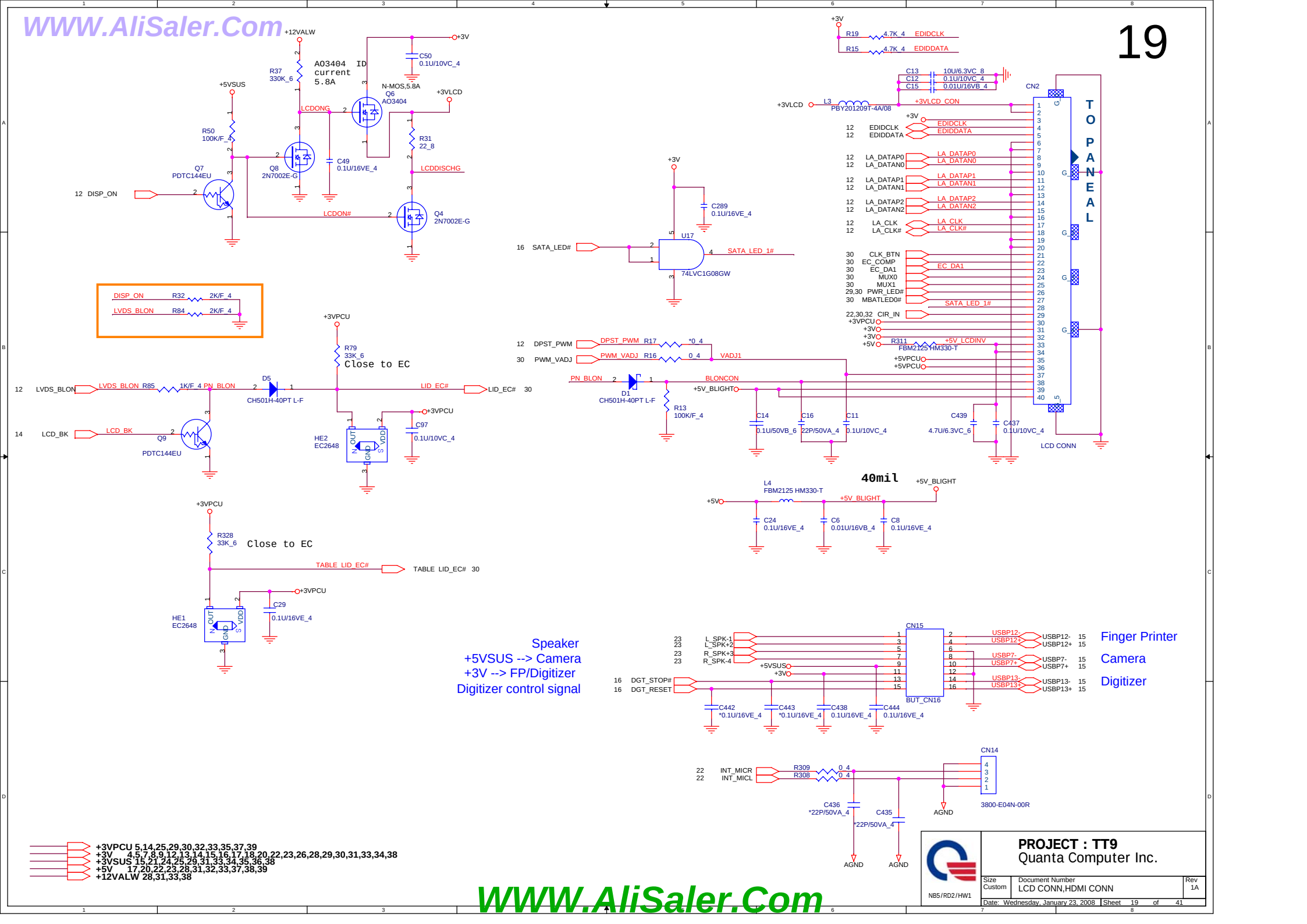
+1.8V 5,10,12,13,14,15,36,38
+3V 4,5,7,8,9,12,13,14,15,16,17,19,20,22,23,26,28,29,30,31,33,34,38
+3VS5 9,14,15,16,17,28,33,38

PROJECT : TT9
Quanta Computer Inc.

| Size | Document Number | Rev |
|---|---|---|
| Custom | SB700-STRAPS,PWRGD | 1A |

NB5/RD2/HW1

Date: Wednesday, January 23, 2008 Sheet 18 of 41



# CRT SWITCH



## U5

74CBT3257

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

EMI

## CRT PORT

40 MIL

close conn within 600mils

## check footprint

## ESD PROTECTION

CM2009



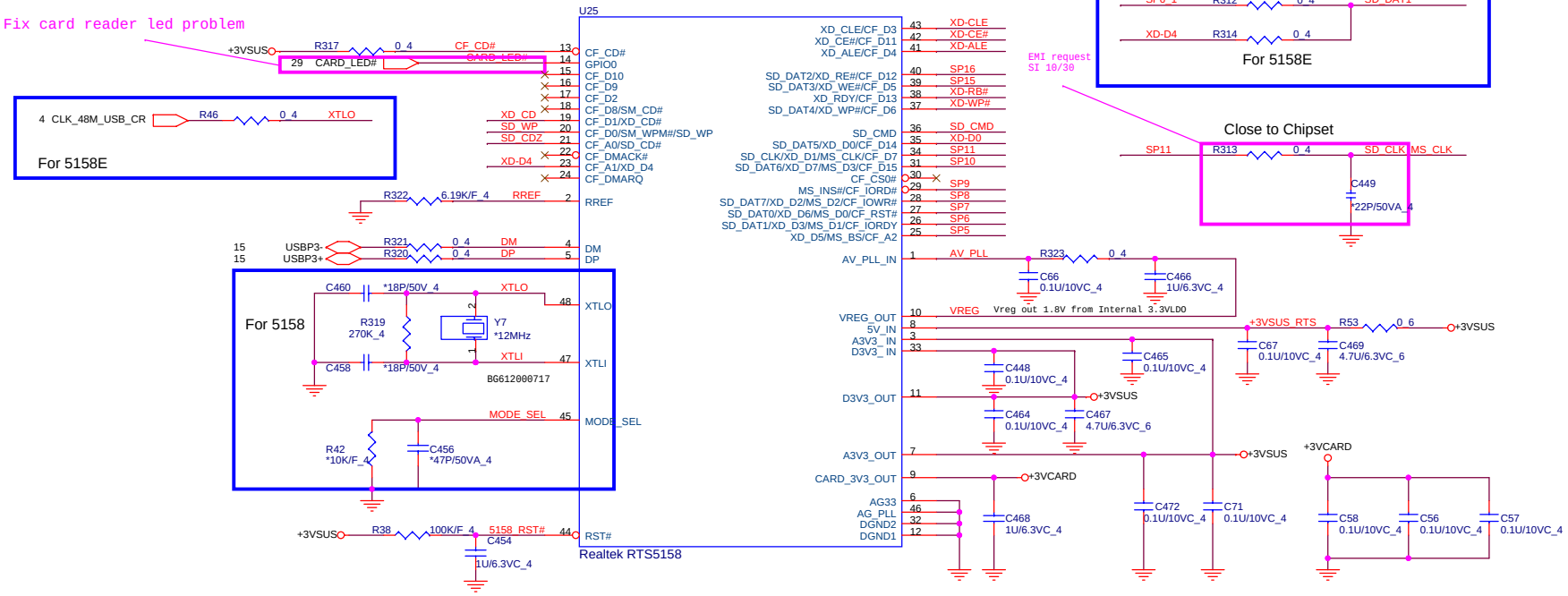
**PROJECT : TT9**
Quanta Computer Inc.

| Size | Document Number | Rev |
|---|---|---|
| Custom | CRT,TV_OUT | 1A |

Date: Wednesday, January 23, 2008 Sheet 20 of 41

NB5/RD2/HW1

Fix card reader led problem




**Note:**

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

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

Add Connector for joint

Remove Acce from HP information

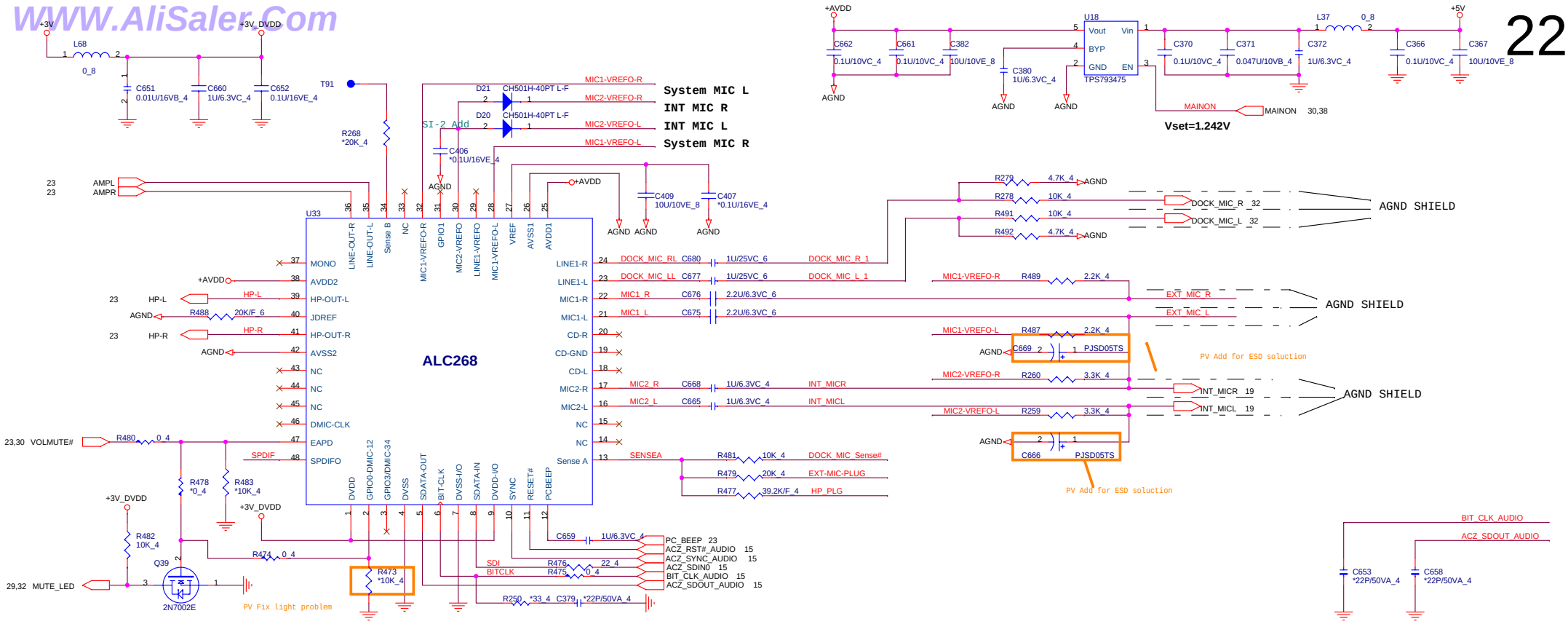
+3VSUS 15,24,25,29,31,33,34,35,36,38

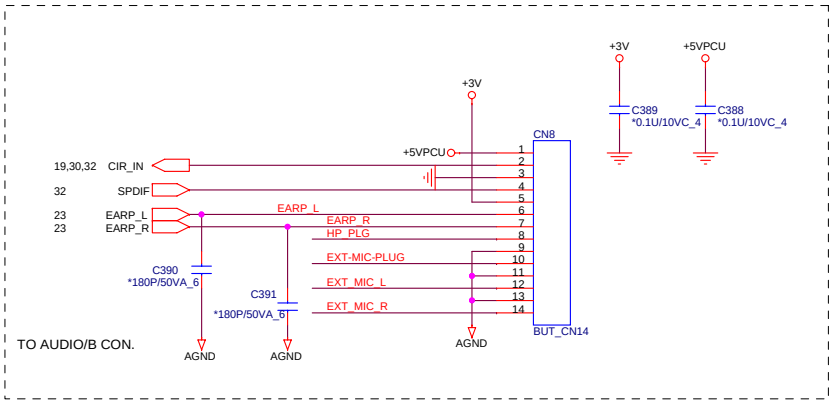
**PROJECT : TT9**
Quanta Computer Inc.

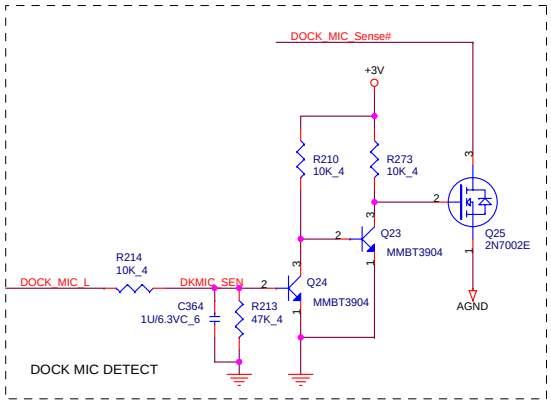
| Size | Document Number | Rev |
|---|---|---|
| Custom | RT5158 CARD READER CONTROLLER | 1A |

NB5/RD2/HW1

Date: Wednesday, January 23, 2008 Sheet 21 of 41




Delect for audio jack function

**+3V** 4,5,7,8,9,12,13,14,15,16,17,18,19,20,23,26,28,29,30,31,33,34,38
**+5V** 17,19,20,23,28,31,32,33,37,38,39
**+AVDD** 23
**+5VPCU** 19,28,29,30,33,34,35,36,37

**PROJECT : TT9**
Quanta Computer Inc.

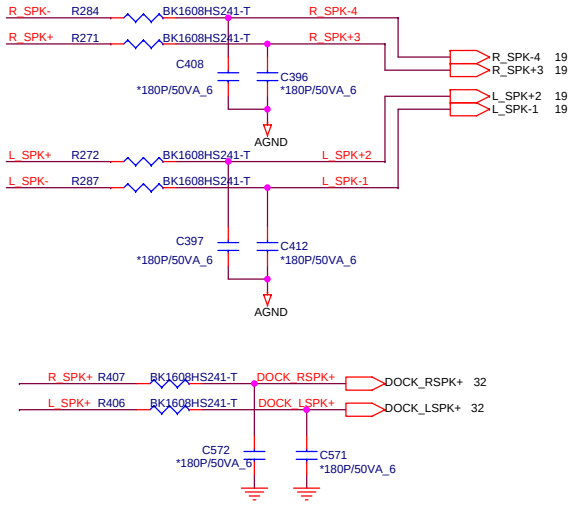
| Size | Document Number | Rev |
|---|---|---|
| Custom | Realtek Azalia ALC268 | 1A |

NB5/RD2/HW1

Date: Wednesday, January 23, 2008 Sheet 22 of 41

# AUDIO AMPLIFIER

## INT. SPEAKER




SI-2 remove r739 ,r731 from realtek request for fix BO voice when audio jack unplug

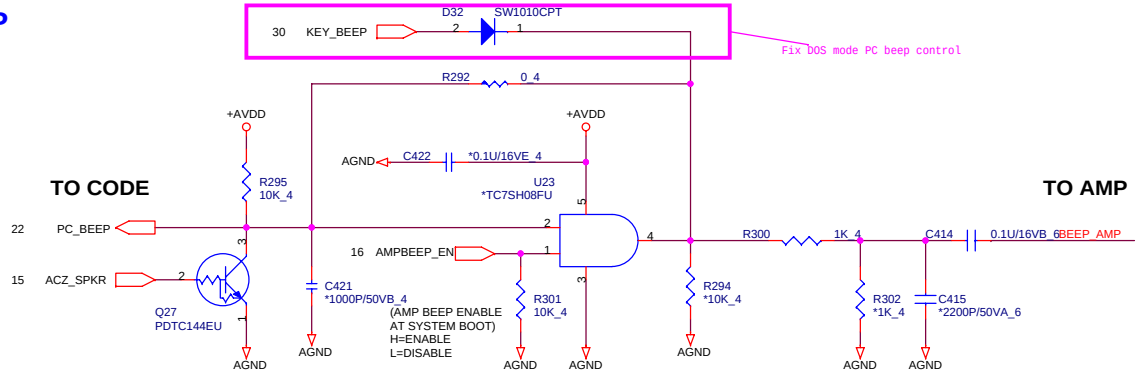
### 0312 Gain Table

| 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 |

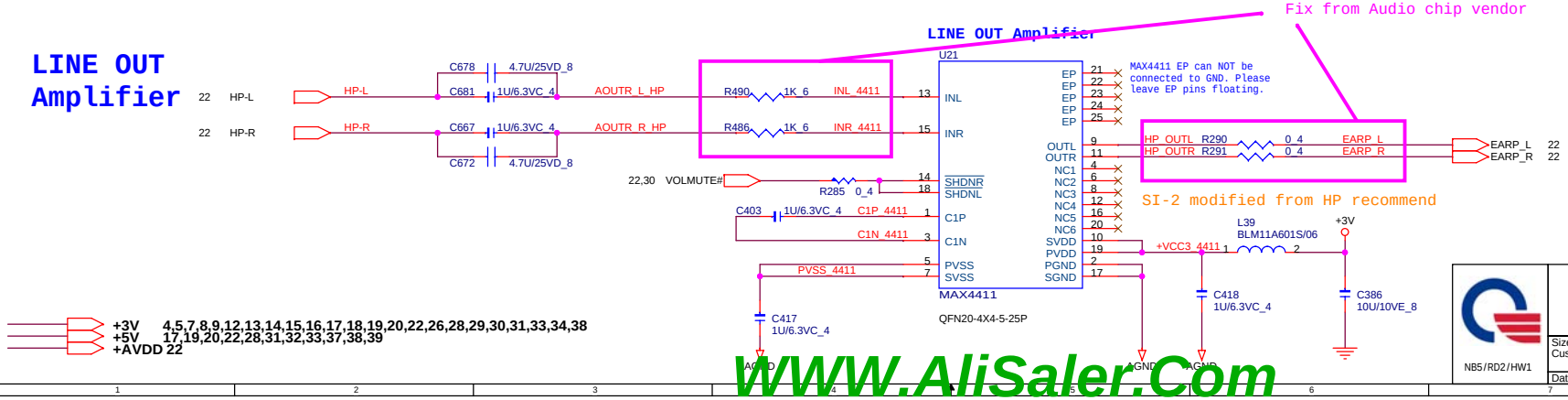
for emi requests

PV Change Gain from 15.6db to 10db

## PCSPK BEEP




## LINE OUT Amplifier




+3V 4,5,7,8,9,12,13,14,15,16,17,18,19,20,22,26,28,29,30,31,33,34,38
+5V 17,19,20,22,28,31,32,33,37,38,39
+AVDD 22

PROJECT : TT9
Quanta Computer Inc.

| Size | Document Number | Rev |
|---|---|---|
| Custom | JACK/AMP_TAP0312 | 1A |

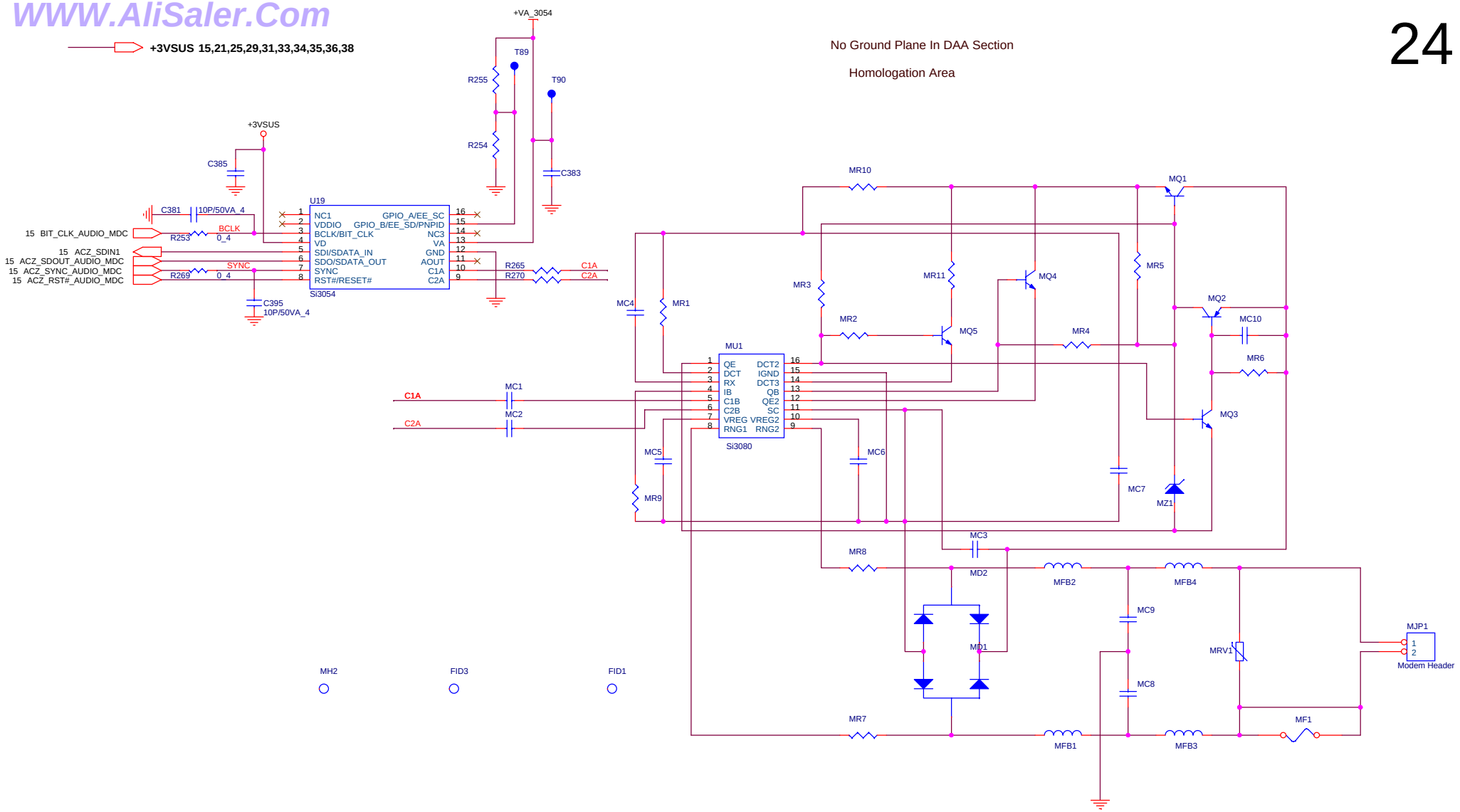
Date: Wednesday, January 23, 2008 Sheet 23 of 41

NB5/RD2/HW1

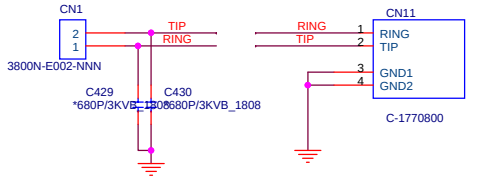
+3VSUS 15,21,25,29,31,33,34,35,36,38

No Ground Plane In DAA Section

Homologation Area




**RJ11**

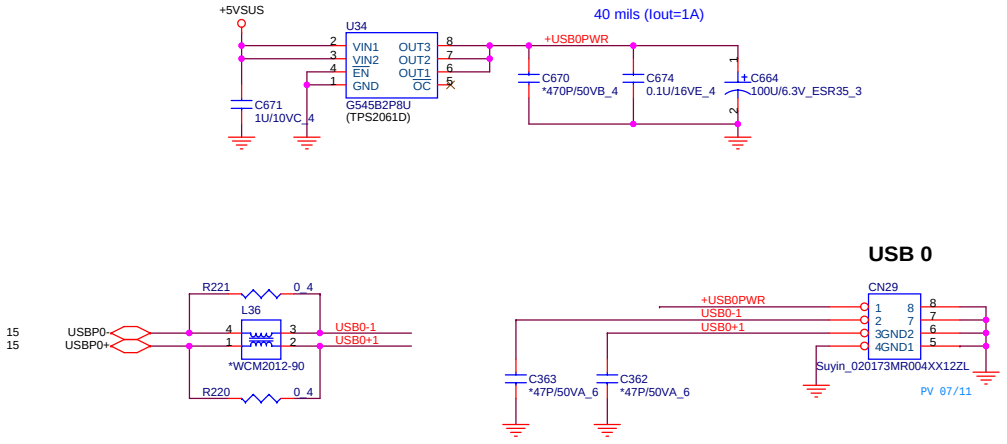



DESIGN SUBJECT TO CHANGE

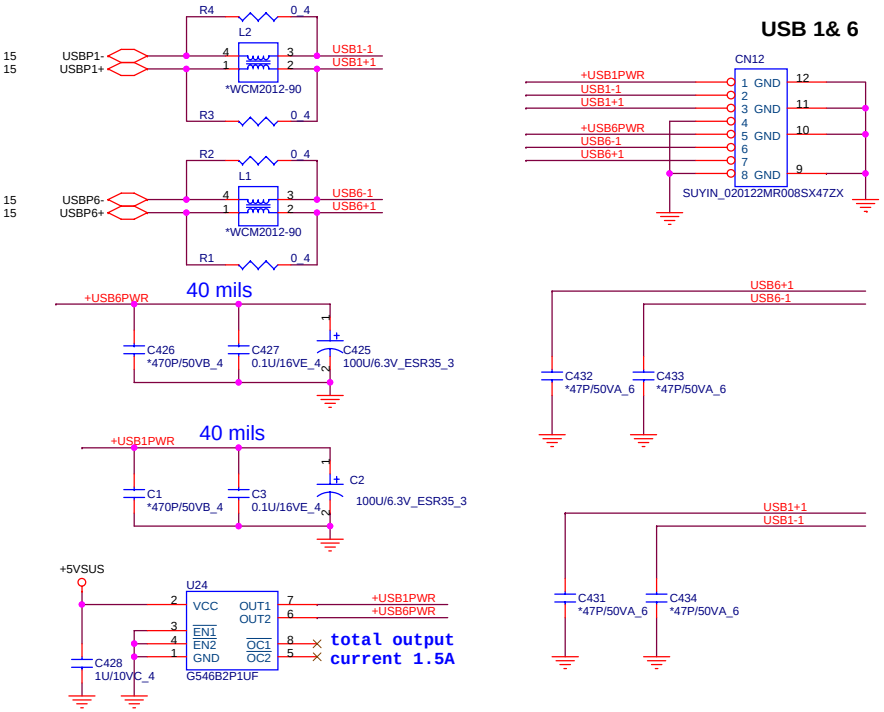
**SILICON LABORATORIES CONFIDENTIAL**

| | | |
|---|---|---|
| NB5/RD2/HW1 | **PROJECT : TT9**<br>Quanta Computer Inc. | |
| Size: Custom | Document Number: MODEM (DAA) | Rev: 1A |
| Date: Wednesday, January 23, 2008 | Sheet 24 of 41 | |

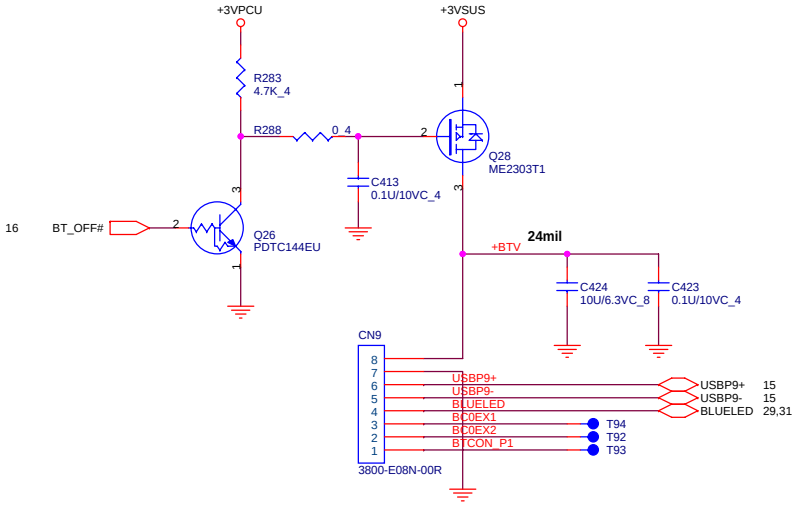
## USBX1




## USBX2




## BLUETOOTH




Delect TPM function from HP information

+3VPCU 5,14,19,29,30,32,33,35,37,39
+3VSUS 15,21,24,29,31,33,34,35,36,38
+5VSUS 19,30,32,33,38

NB5/RD2/HW1

**PROJECT : TT9**
Quanta Computer Inc.

| Size | Document Number | Rev |
|---|---|---|
| Custom | Blue Tooth/USBX3 | 1A |

Date: Wednesday, January 23, 2008 | Sheet 25 of 41

# RTL8111C(10/100/1000)



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

Control LAN power

Remove LAN EEPROM

for +3VLANVCC > 40mil

for +CTRL18 > 60mil

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

PV change forn SB to EC control

RJ45

From HP recommend

FOR EMI

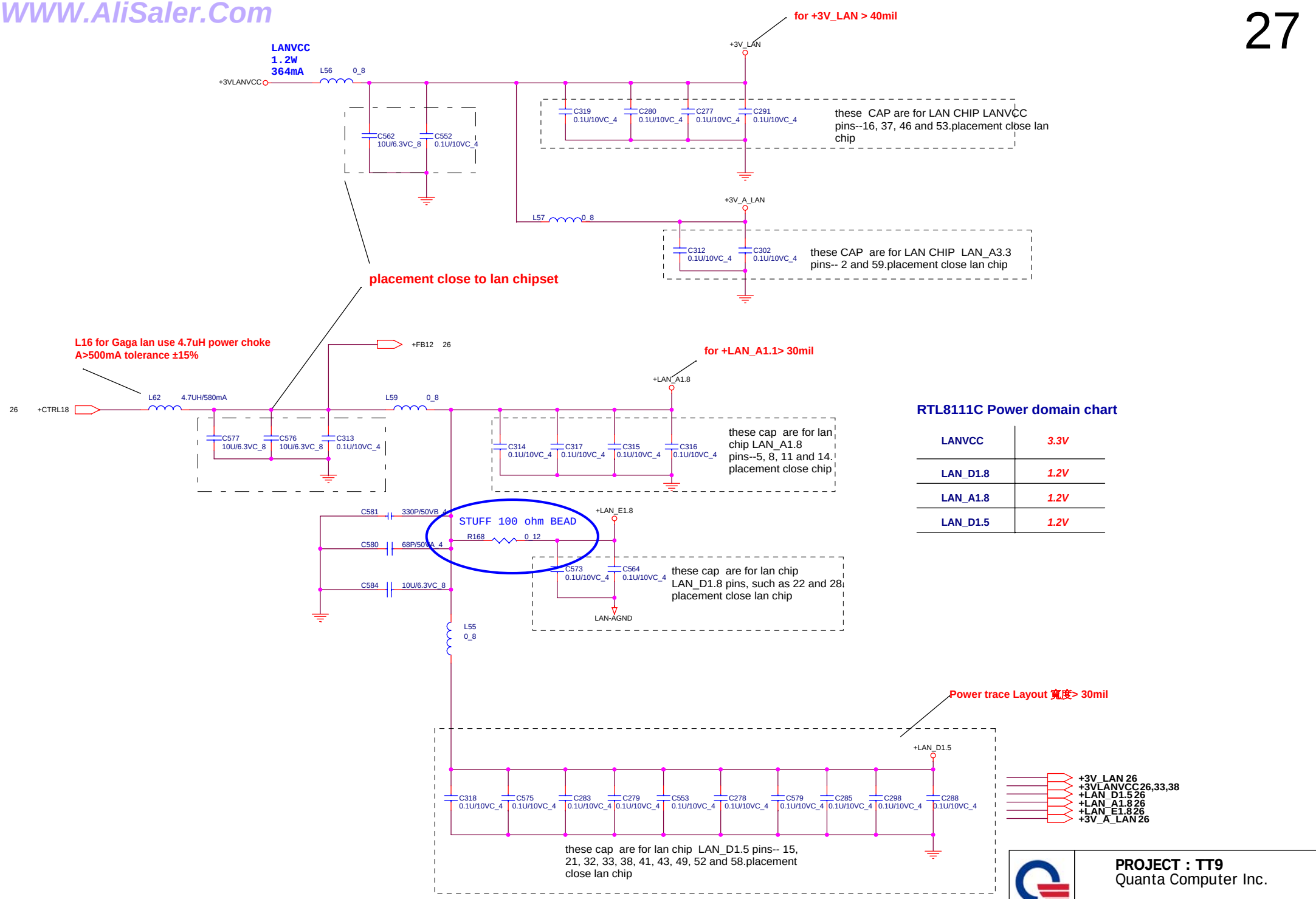


PROJECT : TT9
Quanta Computer Inc.

NB5/RD2/HW1

Size: Custom | Document Number: Pealtek RTL8111C | Rev: 1A

Date: Wednesday, January 23, 2008 | Sheet 26 of 41




## RTL8111C Power domain chart

| | |
|---|---|
| LANVCC | 3.3V |
| LAN_D1.8 | 1.2V |
| LAN_A1.8 | 1.2V |
| LAN_D1.5 | 1.2V |

+3V_LAN 26
+3VLANVCC 26,33,38
+LAN_D1.5 26
+LAN_A1.8 26
+LAN_E1.8 26
+3V_A_LAN 26

**PROJECT : TT9**
Quanta Computer Inc.

| Size | Document Number | Rev |
|---|---|---|
| A3 | LAN POWER | 1A |

NB5/RD2/HW1

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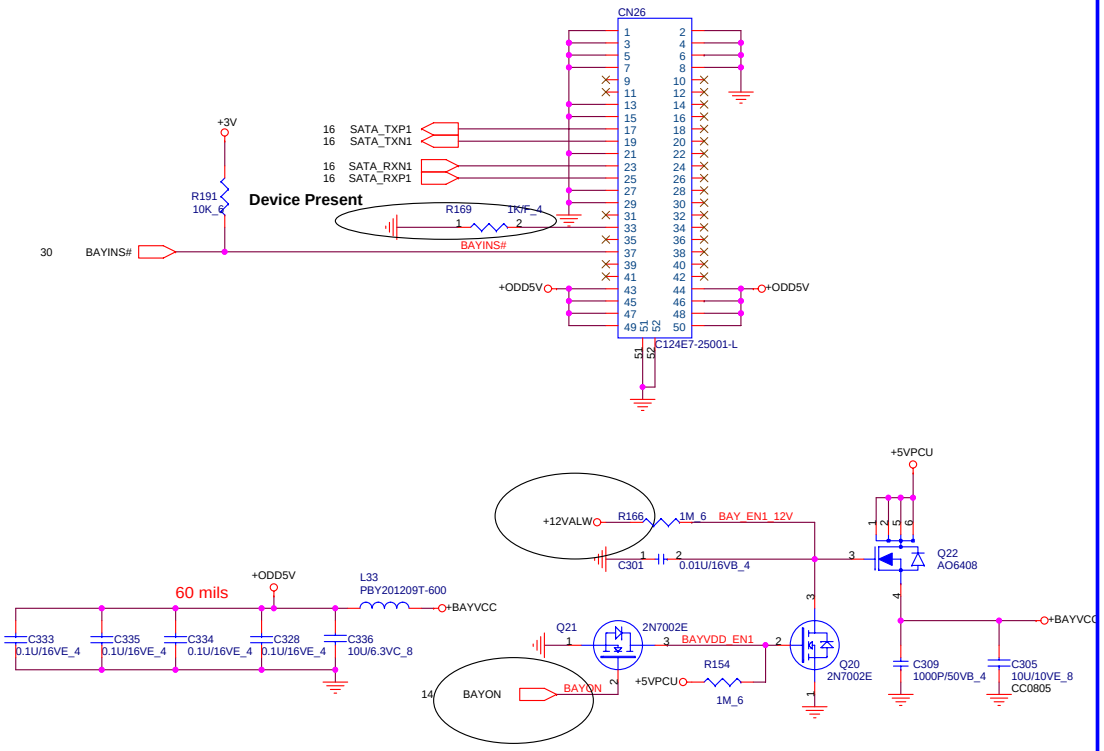
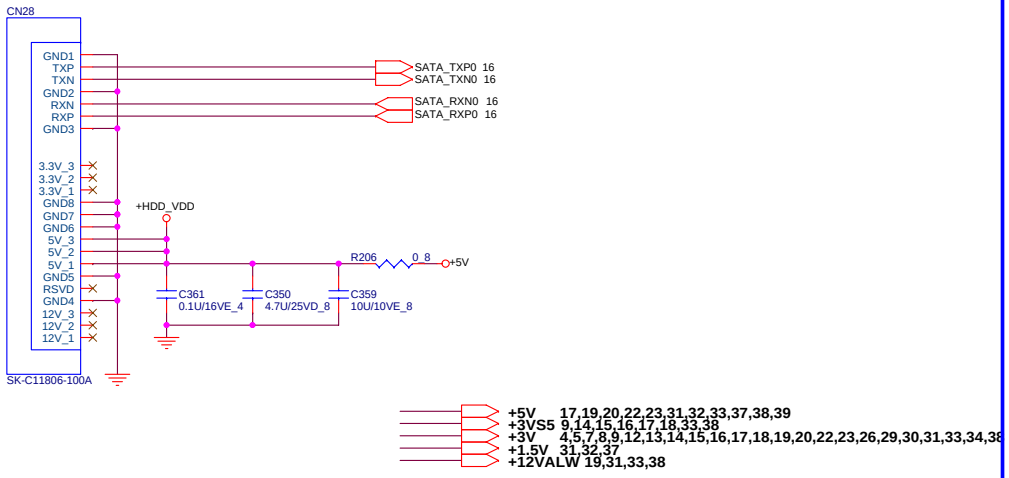
# SATA ODD




# SATA CONNECTOR

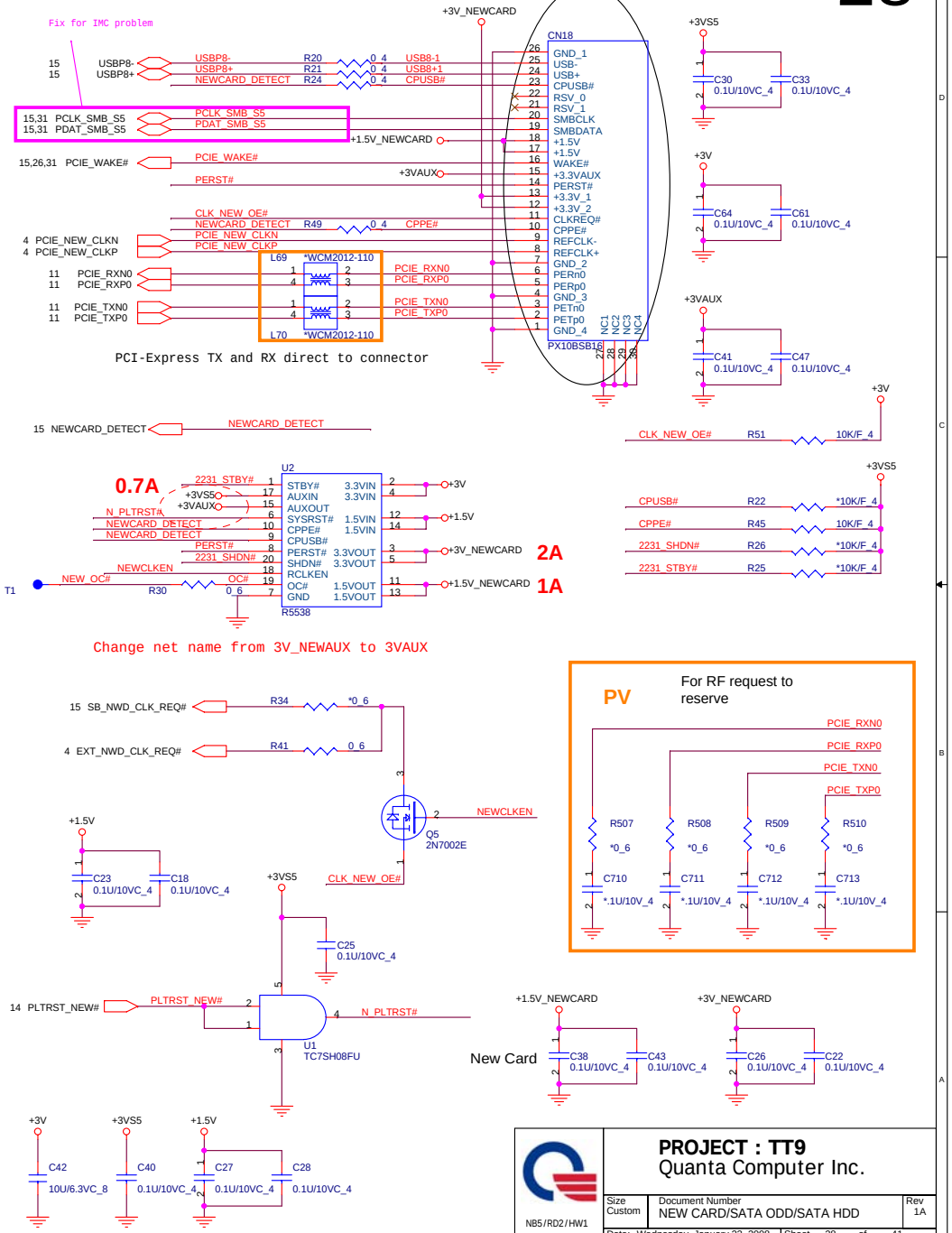



**+5V 17,19,20,22,23,31,32,33,37,38,39**
**+3VS5 9,14,15,16,17,18,33,38**
**+3V 4,5,7,8,9,12,13,14,15,16,17,18,19,20,22,23,26,29,30,31,33,34,38**
**+1.5V 31,32,37**
**+12VALW 19,31,33,38**

# NEWCARD

## NEWCARD (PCIEXPRESS*1 + USB*1)






**PROJECT : TT9**
Quanta Computer Inc.

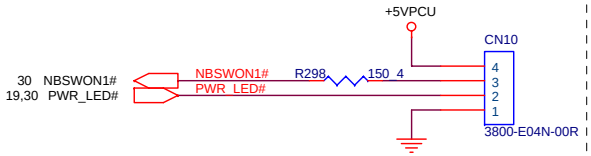
| Size | Document Number | Rev |
|---|---|---|
| Custom | NEW CARD/SATA ODD/SATA HDD | 1A |

NB5/RD2/HW1

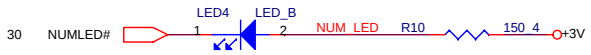
Date: Wednesday, January 23, 2008 Sheet 28 of 41

# Keyboard

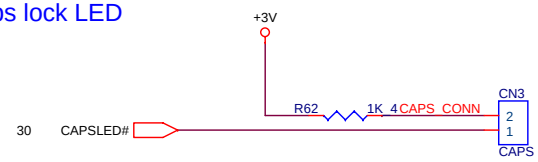
## FOR POWER ON SW BOARD



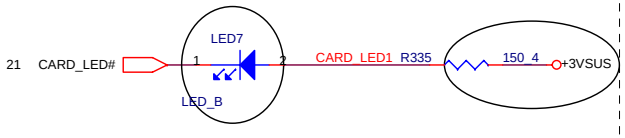

## Num lock LED



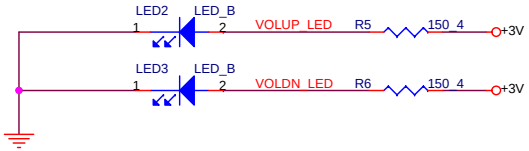

## Caps lock LED



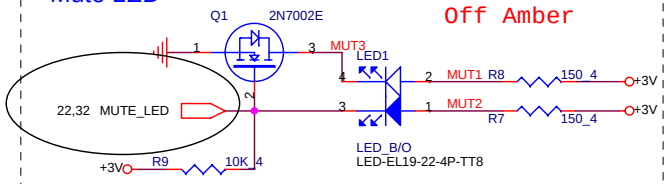

## Card Reader LED



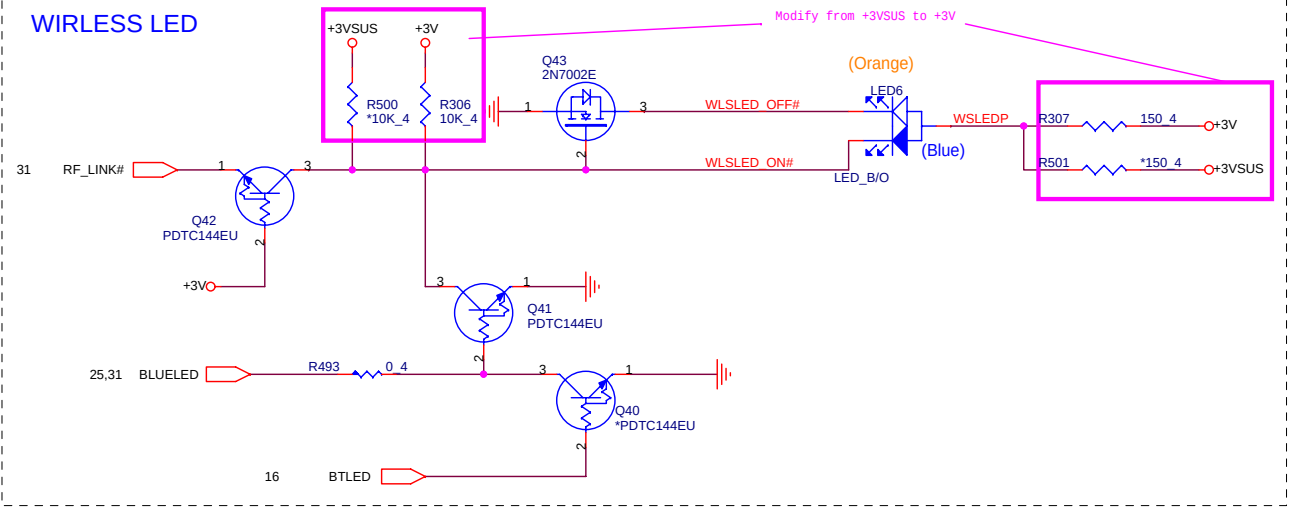

## Volume up/down LED

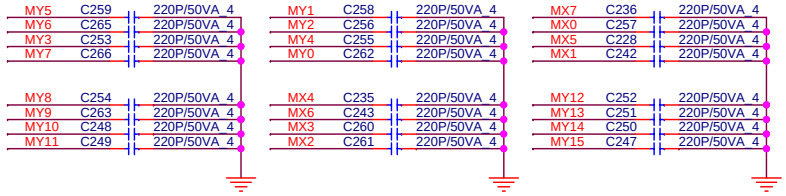



## Mute LED

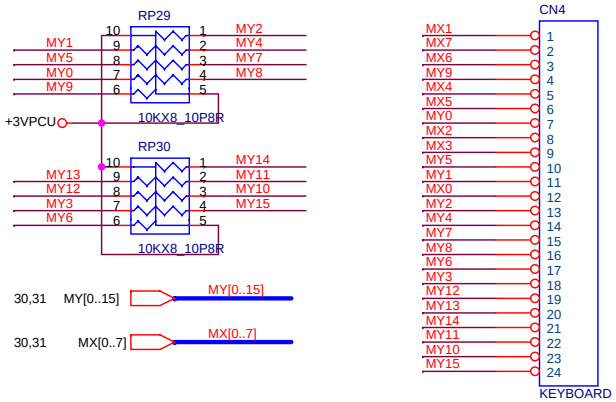



## WIRLESS LED




## KEYBOARD PULL-UP




+5VPCU 19,22,28,30,33,34,35,36,37
+3V 4,5,7,8,9,12,13,14,15,16,17,18,19,20,22,23,26,28,30,31,33,34,38
+3VSUS 15,21,24,25,31,33,34,35,36,38

NB5/RD2/HW1

**PROJECT : TT9**
Quanta Computer Inc.

| Size | Document Number | Rev |
|---|---|---|
| B | LED/KEYBOARD/SW | 1A |

Date: Wednesday, January 23, 2008 Sheet 29 of 41

Change B die to C die

U30

KB3926

## TOUCH PAD CONNECTOR

25 mils

CN5

AF1043-A2G1Z

Pull high for system hand up problem

Fix DOS mode beep

## Touch pad On/Off LED

(Amber)

LED-EL19-22-4P-TT8

(Blue)

## Volume/Mute Switch

NTC031-AA1G-A160T

## Touch pad On/Off Switch

| | |
|---|---|
| Socket: | DG008000031 |
| SST | AKE5GFK0Z09 |
| WINBOND | AKE3GFP0N08 |
| PME | AKE3GZP0500 |
| EON | AKE3GZP0Q00 |

**1M byte**
**SPI**
**BIOS**

For KB3926C

+3VPCU 5,14,19,25,29,32,33,35,37,39
+5VSUS 19,25,32,33,38
+3V 4,5,7,9,12,15,16,17,18,19,20,22,26,28,29,31,33,34,38



**PROJECT : TT9**
Quanta Computer Inc.

NB5/RD2/HW1

| Size | Document Number | Rev |
|---|---|---|
| Custom | KB3926/ROM/TP | 1A |

Date: Wednesday, January 23, 2008 Sheet 30 of 41

+1.5V 28,32,37
+3V 4,5,7,8,9,12,13,14,15,16,17,18,19,20,22,23,26,28,29,30,33,34,38
+3VSUS 15,21,24,25,29,33,34,35,36,38
+VIN 32,33,34,35,36,38,39

# Mini PCI-E Card 1
# WLAN

1.3A 0.7A 0.3A

CN20

1827680-1

close south bridge

EMI request

Fix for IMC problem

PV Fic leakage problem

## Wireless On/Off LED

SW5
NSS607-212N-FEEG1T

Q31
PDTC144EU

H1 *H-C295D157P2
H2 *H-C295D110P2
H8 *H-C295D110P2
H5 *H-C295D110P2
H7 *H-C295D110P2
H9 *H-C276D177P2
H10 *H-C276D177P2
H12 *H-C276D177P2
H13 *H-C276D177P2
H6 *H-C295D110P2-A
H14 *H-C295D110P2
H19 *H-C295D110P2
H21 *H-C295D110P2
H20 *H-C295D110P2
H16 *H-C276D110P2
H11 *H-E276X228D110P2
H15 *H-E213X189D110P2
H18 *C134D134N
H17 H-C256D134P2
H3 *h-tc177bc197d91i131p2
H4 *h-tc177bc197d91i131n
HR3 *EPAD
HR8 *EPAD
HR13 *EPAD
HR12 *EPAD
HR11 *EPAD
HR6 *EPAD
HR10 *EPAD
HR7 *EPAD
HR4 *EPAD
HR2 *EPAD
HR1 *EPAD
HR5 *EPAD
HR9 *EPAD

PA12 *EMIPAD
PA11 *EMIPAD
PA10 EMIPAD
PA1 EMIPAD
PA2 EMIPAD
PA3 EMIPAD
PA4 EMIPAD
PA6 *EMIPAD
PA9 EMIPAD
PA8 EMIPAD
PA7 EMIPAD
PA5 EMIPAD
PA13 EMIPAD

AGND

**PROJECT : TT9**
Quanta Computer Inc.

| Size | Document Number | Rev |
|---|---|---|
| Custom | Mini CARD/Hole | 1A |

NB5/RD2/HW1

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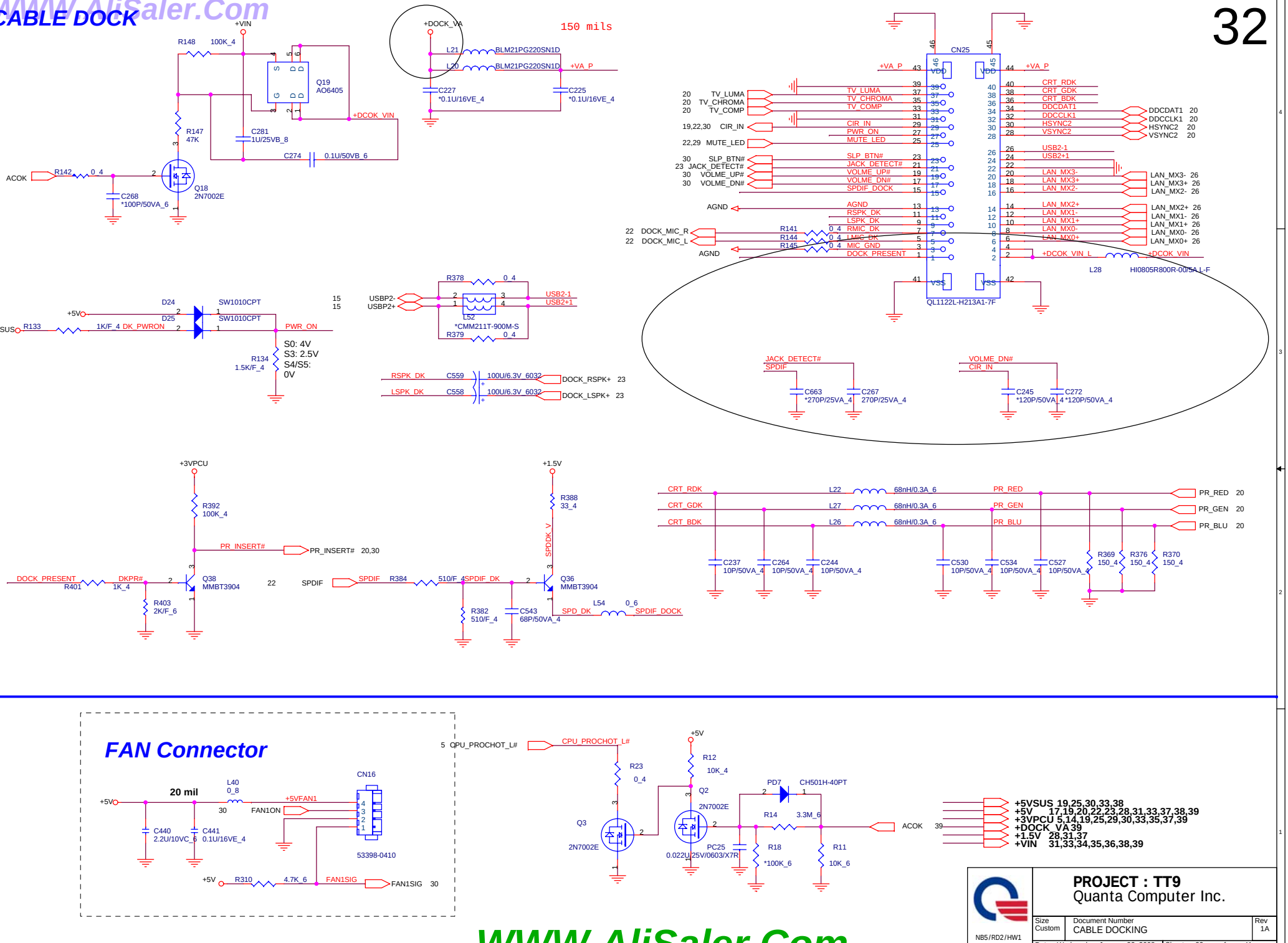
# CABLE DOCK






## FAN Connector

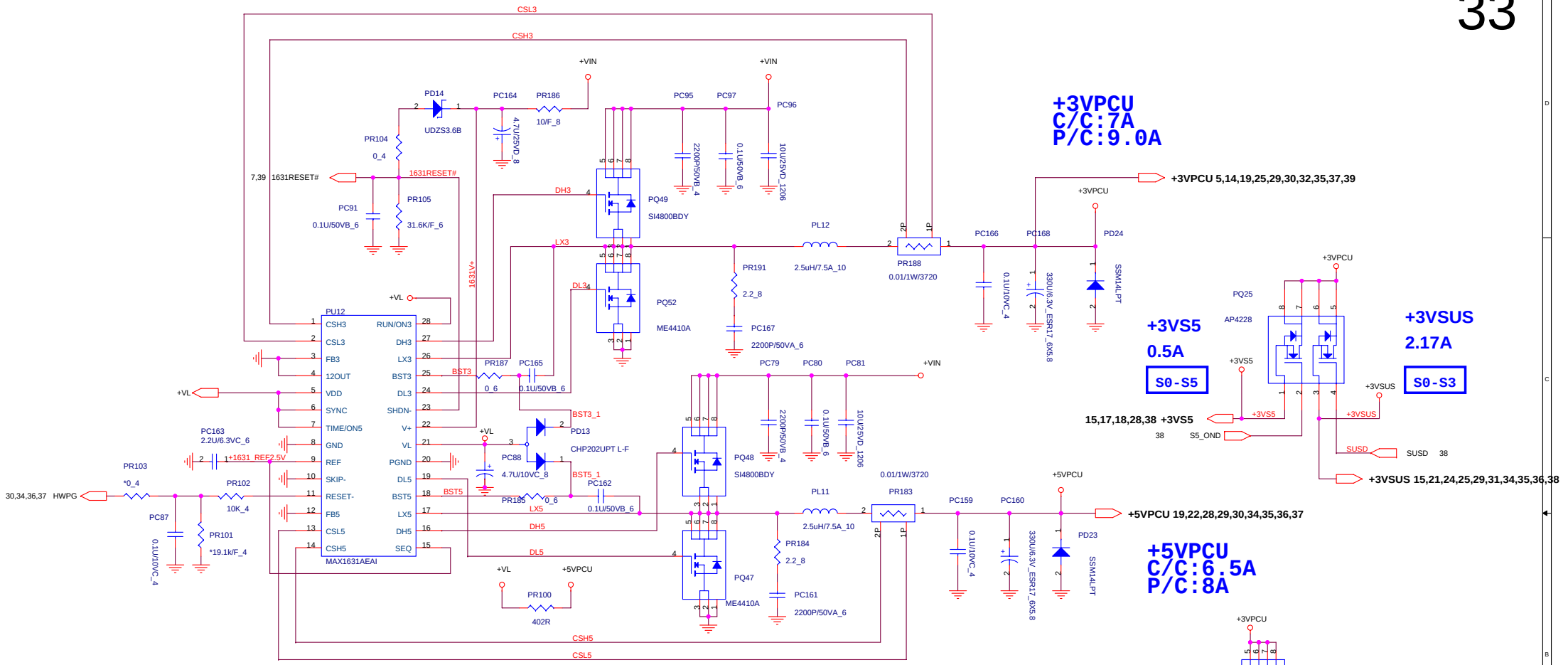


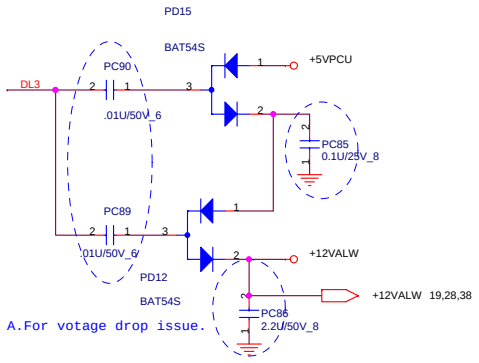


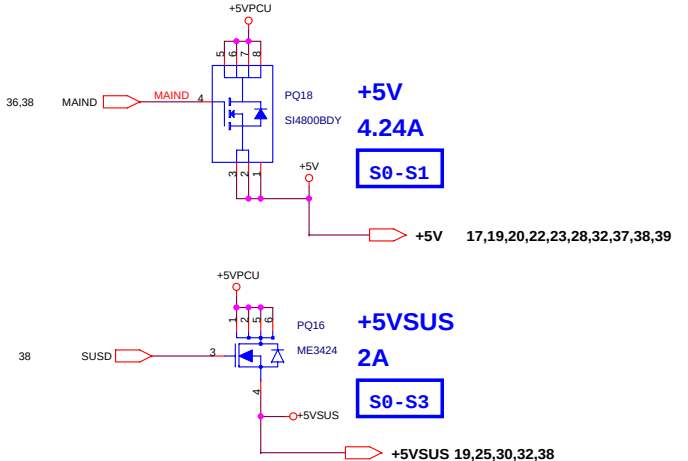


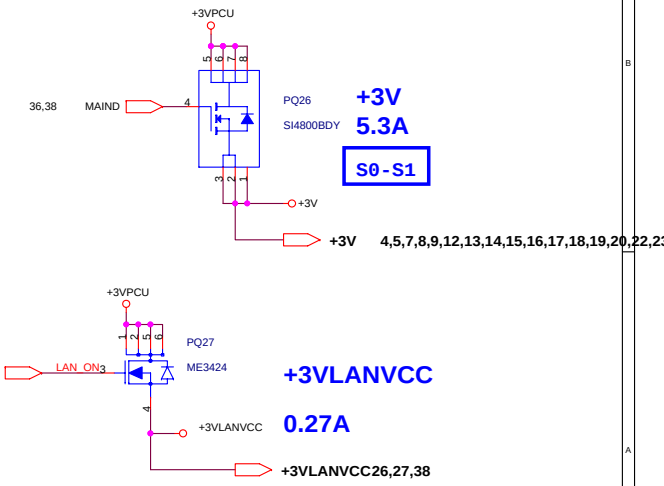
+5VSUS 19,25,30,33,38
+5V 17,19,20,22,23,28,31,33,37,38,39
+3VPCU 5,14,19,25,29,30,33,35,37,39
+DOCK_VA 39
+1.5V 28,31,37
+VIN 31,33,34,35,36,38,39

| | | |
|---|---|---|
| NB5/RD2/HW1 | PROJECT : TT9<br>Quanta Computer Inc. | |
| Size: Custom | Document Number: CABLE DOCKING | Rev: 1A |
| Date: Wednesday, January 23, 2008 | Sheet 32 of 41 | |



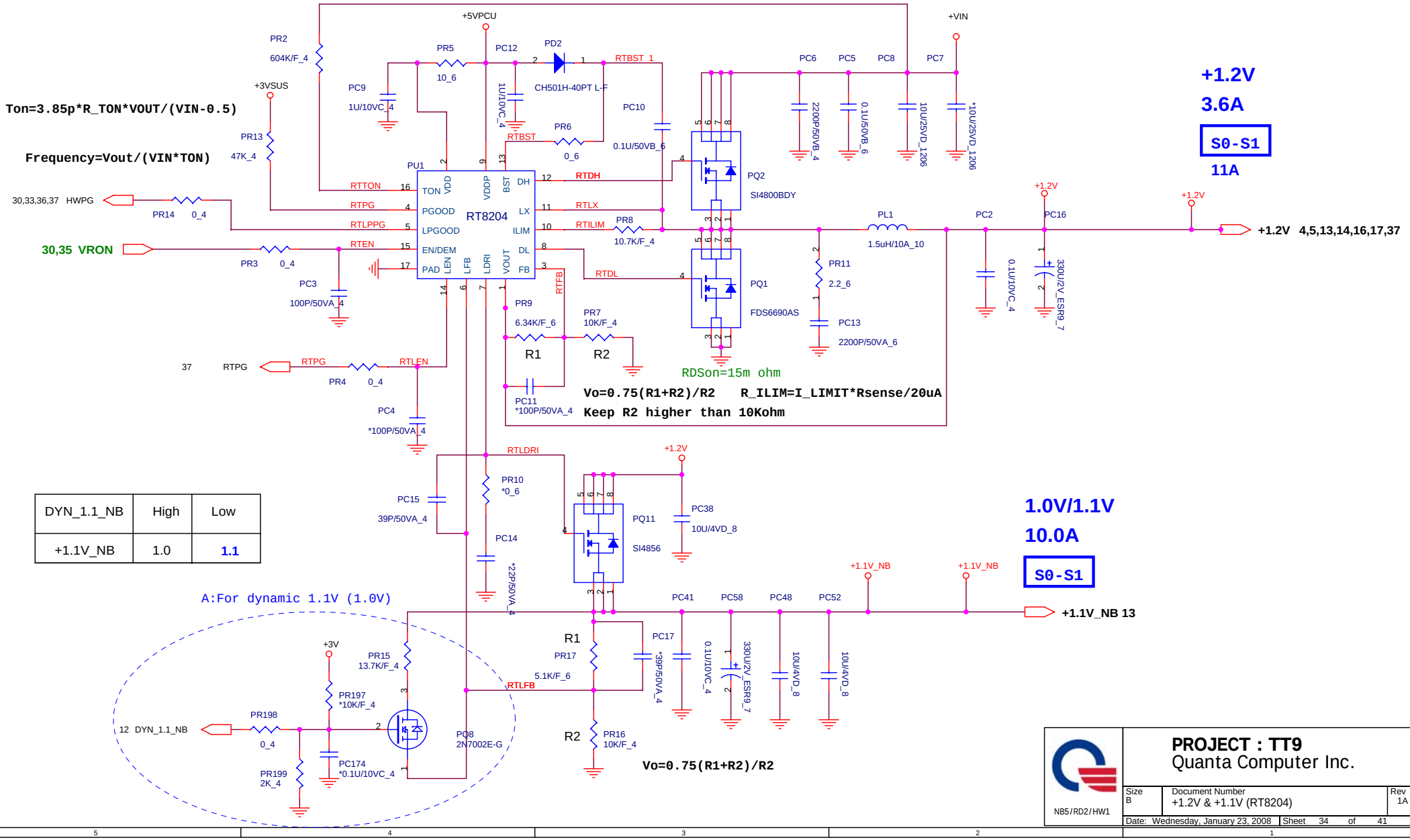






| | | |
|---|---|---|
| N85/RD2/HW1 | PROJECT : TT9<br>Quanta Computer Inc. | |
| | Size: Custom | Document Number: 3V/5V(MAX1631A) Rev: 1A |
| | Date: Wednesday, January 23, 2008 | Sheet 33 of 41 |

# VCCP1.05V & +1.5V






| DYN_1.1_NB | High | Low |
|---|---|---|
| +1.1V_NB | 1.0 | 1.1 |

**+1.2V**
**3.6A**
**S0-S1**
**11A**

**1.0V/1.1V**
**10.0A**
**S0-S1**

**PROJECT : TT9**
Quanta Computer Inc.

| Size | Document Number | Rev |
|---|---|---|
| B | +1.2V & +1.1V (RT8204) | 1A |

NB5/RD2/HW1

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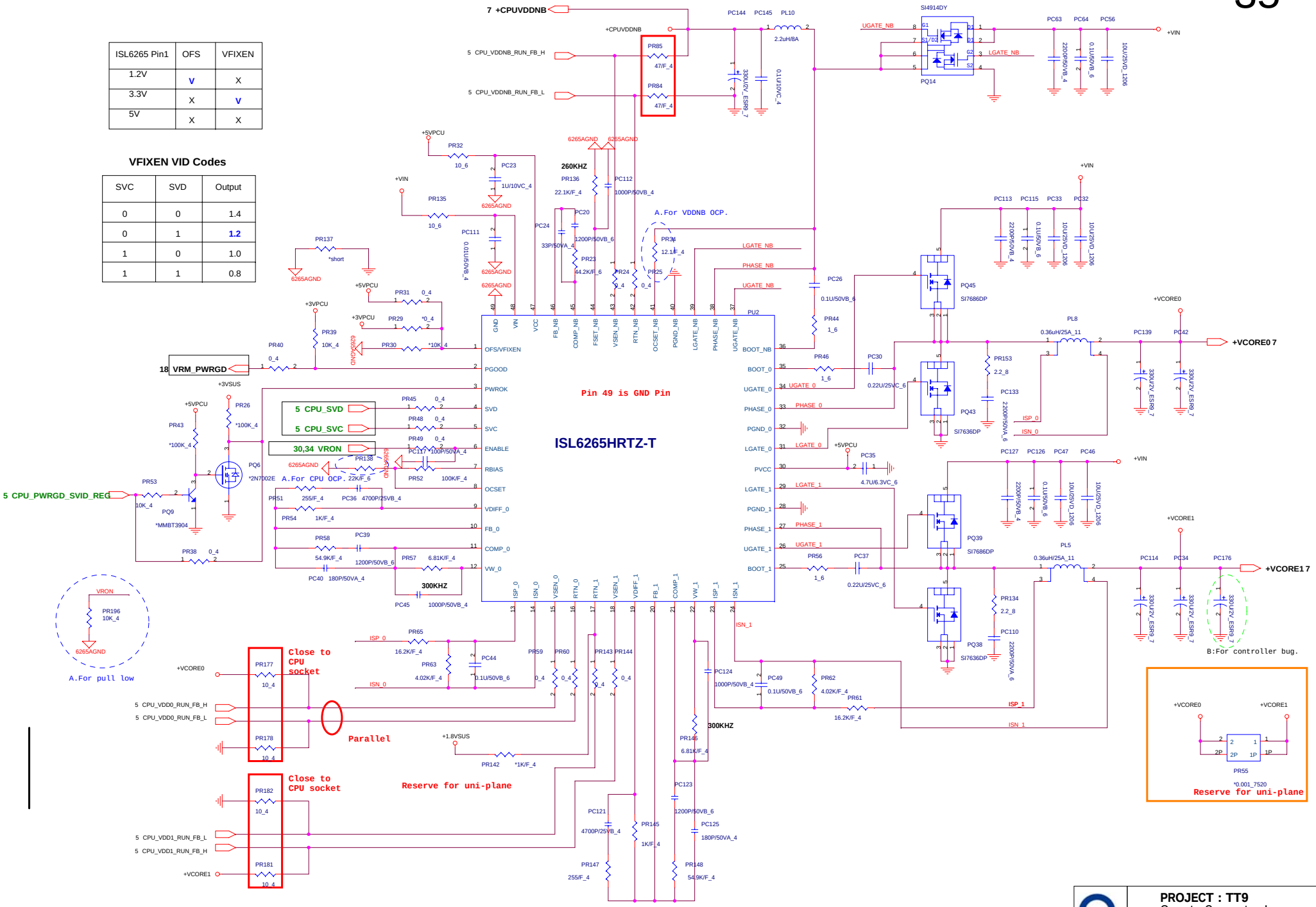
| ISL6265 Pin1 | OFS | VFIXEN |
|---|---|---|
| 1.2V | V | X |
| 3.3V | X | V |
| 5V | X | X |

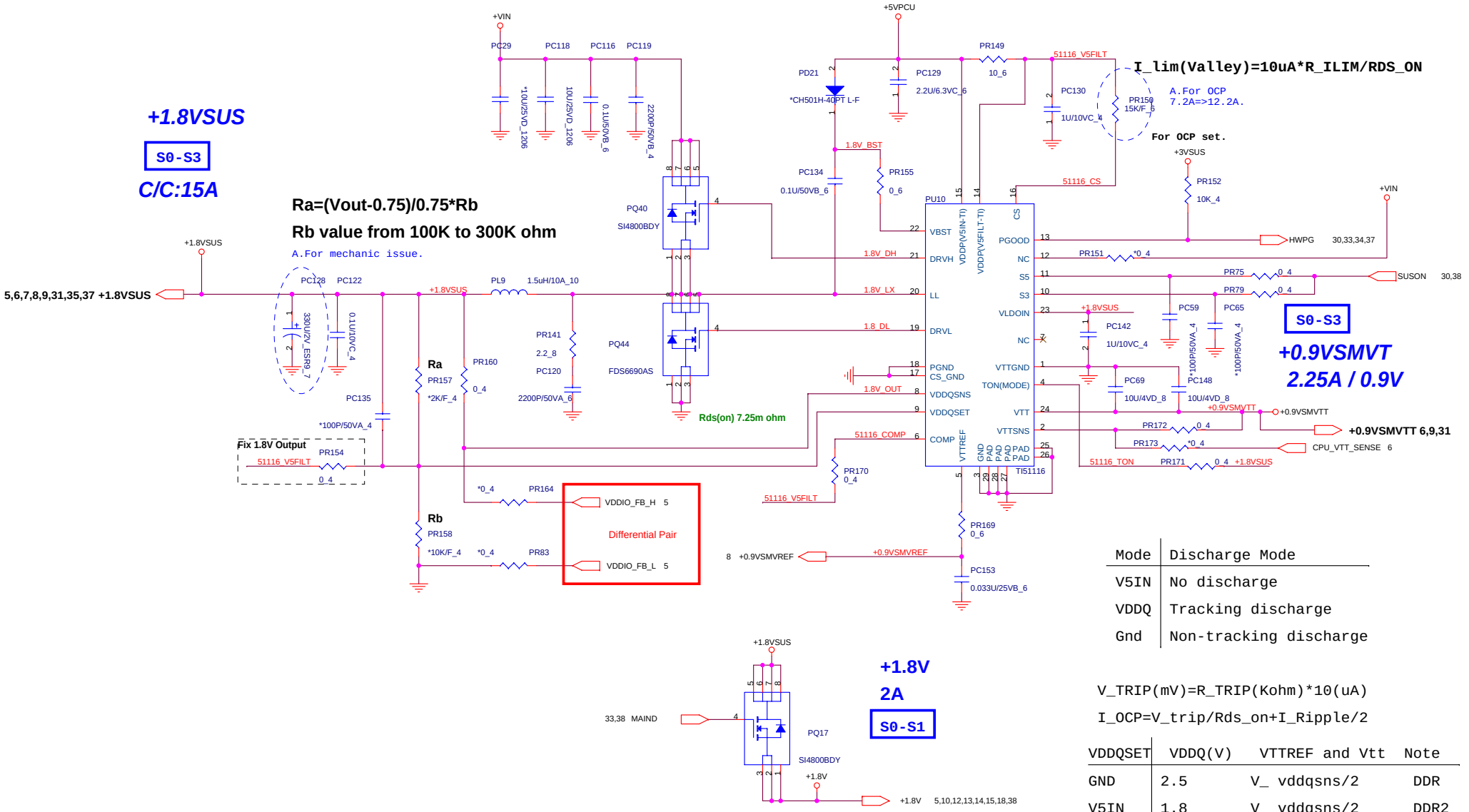
**VFIXEN VID Codes**

| SVC | SVD | Output |
|---|---|---|
| 0 | 0 | 1.4 |
| 0 | 1 | 1.2 |
| 1 | 0 | 1.0 |
| 1 | 1 | 0.8 |






| | |
|---|---|
| PROJECT : TT9 | |
| Quanta Computer Inc. | |
| Size: C | Document Number: CPU_CORE (ISL6265) |
| Rev: 1A | |
| NB5/RD2/HW1 | Date: Wednesday, January 23, 2008 Sheet 35 of 41 |




| 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 |

**PROJECT : TT9**
Quanta Computer Inc.

| Size | Document Number | Rev |
|---|---|---|
| Custom | 1.8VSUS/DDR_VTER/+1.8V/2.5V | 1A |

NB5/RD2/HW1

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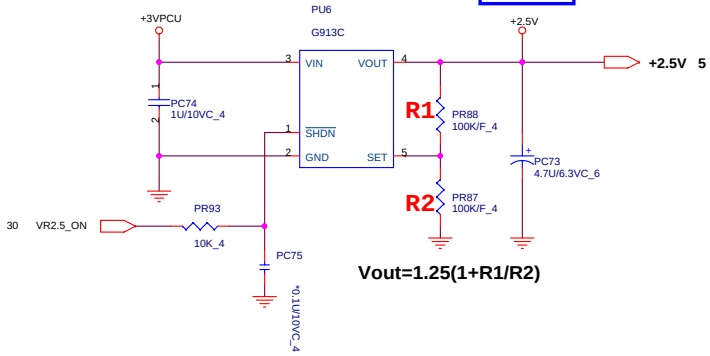
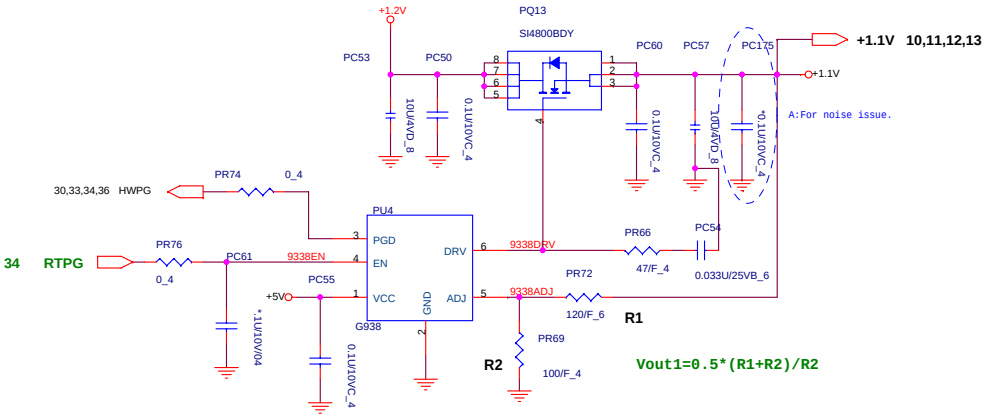
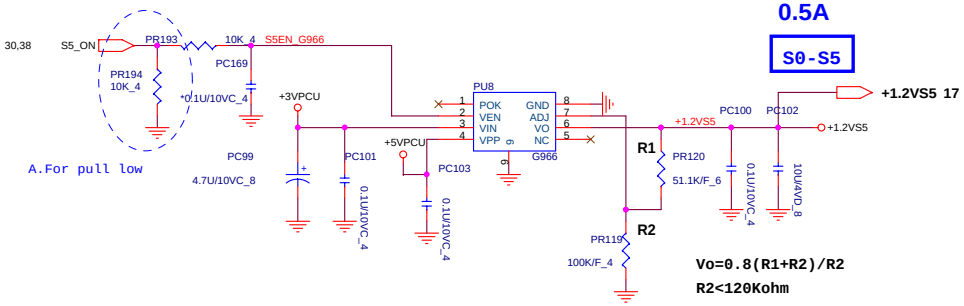
## +2.5V
## 0.25A
S0-S1



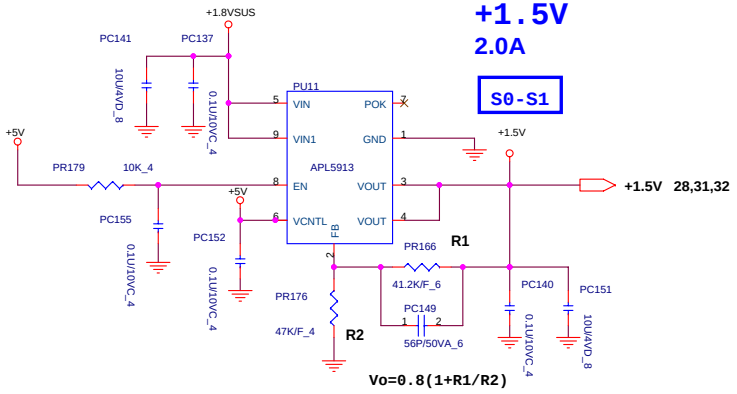

## +1.1V
## 2.A
S0-S1




## +1.2VS5
## 0.5A
S0-S5




## +1.5V
## 2.0A
S0-S1




NB5/RD2/HW1

**PROJECT : TT9**
Quanta Computer Inc.

| Size | Document Number | Rev |
|---|---|---|
| Custom | +1.2V_S5/+1.5/+1.1V/+2.5V | 1A |

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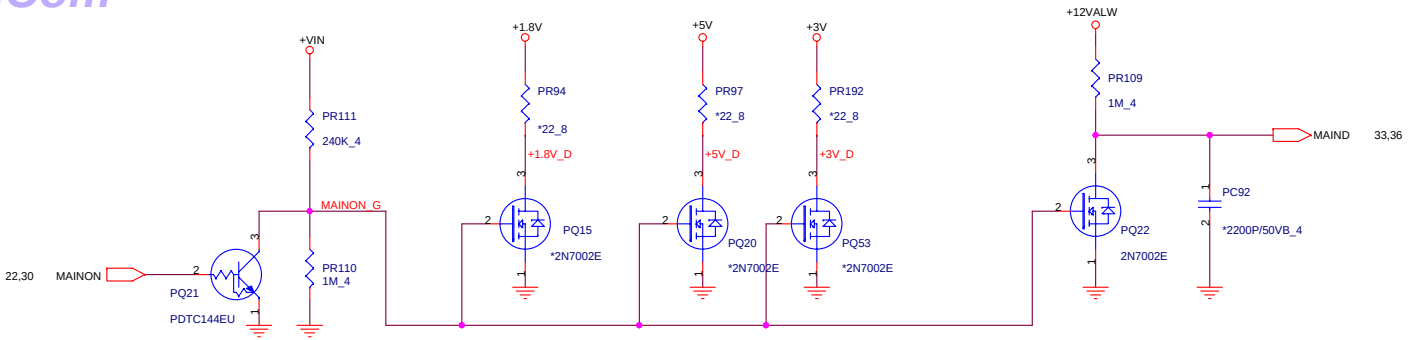


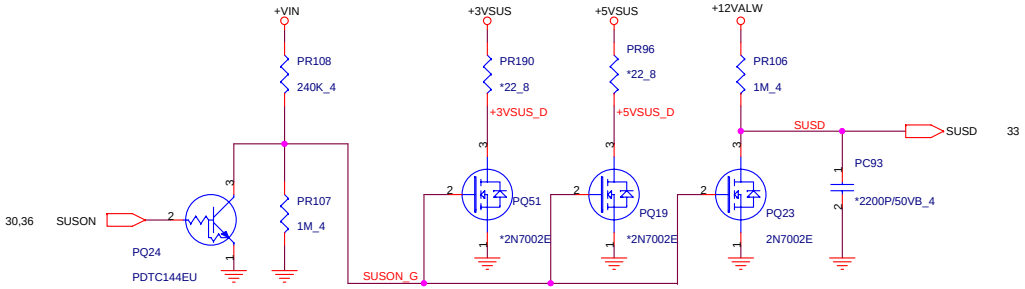


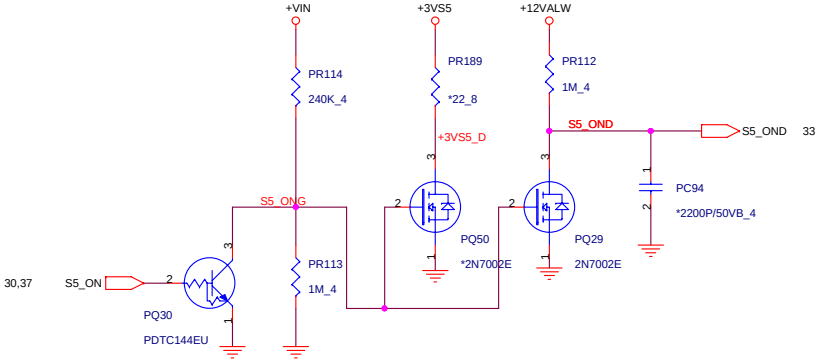


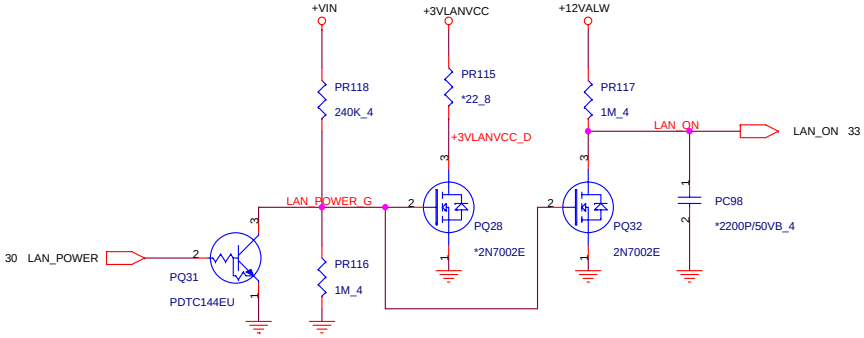


| | | |
|---|---|---|
| NB5/RD2/HW1 | **PROJECT : TT9**<br>Quanta Computer Inc. | |
| | Size: Custom<br>Document Number: DISCHARGE | Rev: 1A |
| | Date: Wednesday, January 23, 2008 | Sheet 38 of 41 |

Charge current:
4 & 6 cell =>3A
8 cell =>3.5A

Close to AC soft-start MOSFET

Ra

CELL_SET = 1 -- 3 S (Cells = GND 3S)
CELL_SET = 0 -- 4 S (Cells = VDD 4S)
CELL_SET = Float -- 2 S

| ADP TYPE | Ra VALUE | |
|---|---|---|
| 65W | 52.3K/F_4 | CS35232FB10 |
| 90W | 6.2K/F_4 | CS26202FB17 |

PROJECT : TT9
Quanta Computer Inc.
NB5/RD2/HW1
Charger (ISL6251)
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