UT12(UMA) SYSTEM DIAGRAM

01

PCB STACK UP

LAYER 1 : TOP
LAYER 2 : IN1
LAYER 3 : IN2
LAYER 4 : VCC
LAYER 5 : IN3
LAYER 6 : BOT

DDRII-SODIMM1 PAGE 6,7
DDRII-SODIMM2 PAGE 6.7
DDRII 667/800 MHz
DDRII 667/800 MHz

AMD Griffin
Lion Sabie
S1G2 Processor
638P (uPGA)/35W
PAGE 3,4,5

CPU THERMAL SENSOR PAGE 5

AMD Smarter Choice

14.318MHz

CPU_CLK
NBGFX_CLK
NBGPP_CLK
SBLINK_CLK

CLOCK GEN
ICS9LPRS480-->HP
SLG628(QFN-64)-->HP
RTM880N-796 -->HP
PAGE 2

HT3

PCI-E

NORTH BRIDGE
RX781 / RS780MN
A12
21mm X 21mm, 528pin BGA
PAGE 8,9,10,11,

HDMI PAGE 18
CRT PAGE 17
LVDS PAGE 18

Side port
256mb RAM for UMA only PAGE 8

X1 PCIE Card reader
JMICRON
JMB380
PAGE 19

X1 LAN
Realtek
PCIE-LAN
RTL8103E/8111DL
(10/100/GagaLAN)
PAGE 26,27

X1 Express Card
(NEW CARD)
PAGE 28

X2 Mini PCI-E Card
(Wireless LAN/TV TUNNER)
PAGE 31

10 PCI-E WLAN Card x1 PAGE 31
11 TV-TUNER Card x1 PAGE 31
7 Express Card x1 PAGE 28
4 Cable Docking x1 PAGE 32

1394 PAGE 19
RJ45 PAGE 27

ALINK X4

SBSRC_CLK

USB2.0

SOUTH BRIDGE
SB700 A12
21mm X 21mm, 528pin BGA
4.5W(Ext)
4.3W(Int)
PAGE 12,13.14.15.16

1,8,5 USB2.0 Ports X3 PAGE 25
9 Blueflame PAGE 25
2 Webcam X1 PAGE 25
6 Fingerprint PAGE 25
3 Flash Media for RTS5158E PAGE 20

TWO SATA - HDD PAGE 28
SATA0,1 150MB
SATA - CD-ROM PAGE 28
SATA0 150MB
E-SATA PAGE 25
SATA4 150MB

Azalia

SMBUS
LPC

Accelerometer LIS3LV02DL PAGE 22
Keyboard PAGE 29
Touch Pad PAGE 30
CIR (AUDIO CONN) PAGE 30
Capacitive Sense SW PAGE 29

ENE KBC
KB3926 Cx
PAGE 30

FAN PAGE 32
SPI PAGE 30

MDC CONN PAGE 24

IDT 92HP61B7 PAGE 21

AUDIO Amplifier TPA6047A4 PAGE 22

SUBWOOFER PAGE 23

Digital MIC PAGE 21
AUDIO CONN (Phone/ MIC) PAGE 21
Audio Conn PAGE 22

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

SYSTEM CHARGER(ISL6251A) PAGE 39
SYSTEM POWER ISL6237 PAGE 33
DDR II SMDDR_VTERM 1.8V/1.8VSUS(TPS51116REGR) PAGE 36
VCCP +1.1V AND +1.2V(RT8204) PAGE 34
CPU CORE ISL6265A PAGE 35

SMBUS TABLE

SB--SCL0/SD0	Clock gen/Robson/TV tuner /DDR2/DDR2 thermal/Accelerometer Wlan Card	+3V
	epress card	+3VS5
EC --SCL/SD	Battery charge/discharge	+3VPCU
EC--SCL2/SD2	VGA thermal/system thermal	+3V

NB5

PROJECT : UT12
Quanta Computer Inc.

Size	Document Number	Rev
Custom	Block Diagram	1A

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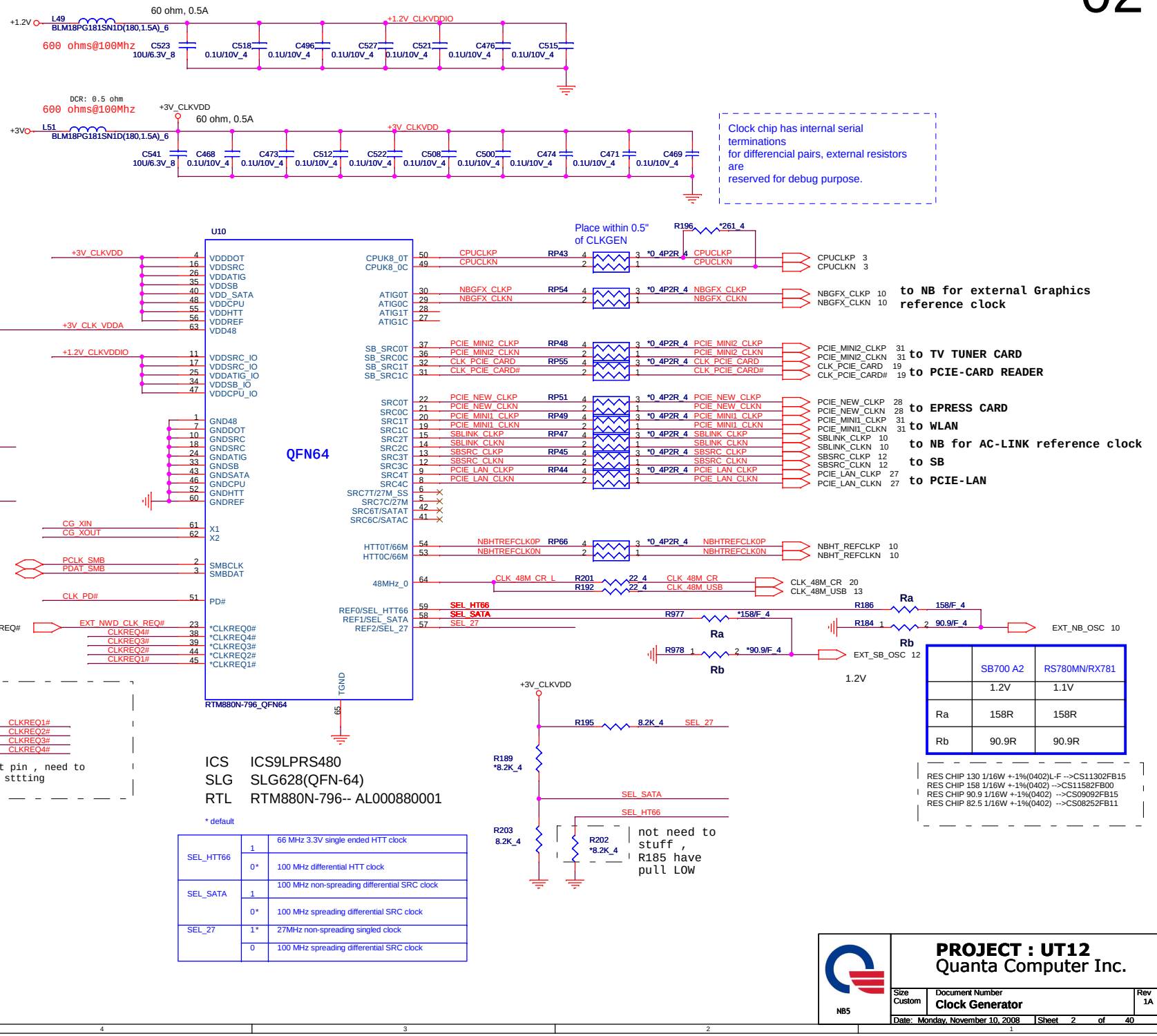
+1.2V
L49
BLM18PG181SN1D(180,1.5A)_6
60 ohm, 0.5A
600 ohms@100Mhz
C523 10U/6.3V_8
C518 0.1U/10V_4
C496 0.1U/10V_4
C527 0.1U/10V_4
C521 0.1U/10V_4
C476 0.1U/10V_4
C515 0.1U/10V_4
+1.2V_CLKVDDIO
DCR: 0.5 ohm
600 ohms@100Mhz
+3V
L51
BLM18PG181SN1D(180,1.5A)_6
+3V_CLKVDD
60 ohm, 0.5A
C541 10U/6.3V_8
C468 0.1U/10V_4
C473 0.1U/10V_4
C512 0.1U/10V_4
C522 0.1U/10V_4
C508 0.1U/10V_4
C500 0.1U/10V_4
C474 0.1U/10V_4
C471 0.1U/10V_4
C469 0.1U/10V_4
Clock chip has internal serial terminations for differencial pairs, external resistors are reserved for debug purpose.
U10
QFN64
RTM880N-796_QFN64
VDDDOT
VDDSRC
VDDATIG
VDDSB
VDD_SATA
VDDCPU
VDDHTT
VDDREF
VDD48
VDDSRC_IO
VDDSRC_IO
VDDATIG_IO
VDDSB_IO
VDDCPU_IO
GND48
GNDDOT
GNDSRC
GNDSRC
GNDATIG
GNDSB
GNDSATA
GNDCPU
GNDHTT
GNDREF
X1
X2
SMBCLK
SMBDAT
PD#
*CLKREQ0#
*CLKREQ4#
*CLKREQ3#
*CLKREQ2#
*CLKREQ1#
TGND
+3V_CLKVDD
+3V_CLK_VDDA
+1.2V_CLKVDDIO
L42
BLM18PG181SN1D(180,1.5A)_6
C464 10U/6.3V_8
C482 0.1U/10V_4
Place very close to C/G
C466 33P/50V_4
C465 33P/50V_4
Y2 14.318MHZ
CG_XIN
CG_XOUT
can remove MOSFET level shift
SB/clock gen / DDR2 is 3.3V/S0
power level
6,7,13,22,31 PCLK_SMB
6,7,13,22,31 PDAT_SMB
PCLK_SMB
PDAT_SMB
CLK_PD#
28 EXT_NWD_CLK_REQ#
EXT_NWD_CLK_REQ#
CLKREQ4#
CLKREQ3#
CLKREQ2#
CLKREQ1#
+3V
EXT_NWD_CLK_REQ# 8.2K_4 R219
CLK_PD# 8.2K_4 R204
C952 *10P/50V_4 EXT_NB_OSC
C953 *10P/50V_4 CLK_48M_USB
C954 *10P/50V_4 CLK_48M_CR
R1123 *8.2K_4 CLKREQ1#
R757 *8.2K_4 CLKREQ2#
R758 *8.2K_4 CLKREQ3#
R759 *8.2K_4 CLKREQ4#
if use clock request pin , need to pull Hi for default sttting
CPUK8_0T
CPUK8_0C
ATIG0T
ATIG0C
ATIG1T
ATIG1C
SB_SRC0T
SB_SRC0C
SB_SRC1T
SB_SRC1C
SRC0T
SRC0C
SRC1T
SRC1C
SRC2T
SRC2C
SRC3T
SRC3C
SRC4T
SRC4C
SRC7T/27M_SS
SRC7C/27M
SRC6T/SATAT
SRC6C/SATAC
HTT0T/66M
HTT0C/66M
48MHz_0
REF0/SEL_HTT66
REF1/SEL_SATA
REF2/SEL_27
Place within 0.5" of CLKGEN
R196 *261_4
CPUCLKP RP43 *0_4P2R_4 CPUCLKP
CPUCLKN CPUCLKN
CPUCLKP 3
CPUCLKN 3
NBGFX_CLKP RP54 *0_4P2R_4 NBGFX_CLKP
NBGFX_CLKN NBGFX_CLKN
NBGFX_CLKP 10
NBGFX_CLKN 10
to NB for external Graphics reference clock
PCIE_MINI2_CLKP RP48 *0_4P2R_4 PCIE_MINI2_CLKP
PCIE_MINI2_CLKN PCIE_MINI2_CLKN
CLK_PCIE_CARD RP55 *0_4P2R_4 CLK_PCIE_CARD
CLK_PCIE_CARD# CLK_PCIE_CARD#
PCIE_MINI2_CLKP 31
PCIE_MINI2_CLKN 31
CLK_PCIE_CARD 19
CLK_PCIE_CARD# 19
to TV TUNER CARD
to PCIE-CARD READER
PCIE_NEW_CLKP RP51 *0_4P2R_4 PCIE_NEW_CLKP
PCIE_NEW_CLKN PCIE_NEW_CLKN
PCIE_MINI1_CLKP RP49 *0_4P2R_4 PCIE_MINI1_CLKP
PCIE_MINI1_CLKN PCIE_MINI1_CLKN
SBLINK_CLKP RP47 *0_4P2R_4 SBLINK_CLKP
SBLINK_CLKN SBLINK_CLKN
SBSRC_CLKP RP45 *0_4P2R_4 SBSRC_CLKP
SBSRC_CLKN SBSRC_CLKN
PCIE_LAN_CLKP RP44 *0_4P2R_4 PCIE_LAN_CLKP
PCIE_LAN_CLKN PCIE_LAN_CLKN
PCIE_NEW_CLKP 28
PCIE_NEW_CLKN 28
PCIE_MINI1_CLKP 31
PCIE_MINI1_CLKN 31
SBLINK_CLKP 10
SBLINK_CLKN 10
SBSRC_CLKP 12
SBSRC_CLKN 12
PCIE_LAN_CLKP 27
PCIE_LAN_CLKN 27
to EPRESS CARD
to WLAN
to NB for AC-LINK reference clock
to SB
to PCIE-LAN
NBHTREFCLK0P RP66 *0_4P2R_4 NBHTREFCLK0P
NBHTREFCLK0N NBHTREFCLK0N
NBHT_REFCLKP 10
NBHT_REFCLKN 10
CLK_48M_CR_L R201 22_4 CLK_48M_CR
R192 22_4 CLK_48M_USB
CLK_48M_CR 20
CLK_48M_USB 13
SEL_HT66
SEL_SATA
SEL_27
R977 *158/F_4
R978 *90.9/F_4
R186 158/F_4
R184 90.9/F_4
Ra
Rb
EXT_NB_OSC 10
EXT_SB_OSC 12
1.2V
+3V_CLKVDD
R195 8.2K_4 SEL_27
R189 *8.2K_4
SEL_SATA
SEL_HT66
R203 8.2K_4
R202 *8.2K_4
not need to stuff , R185 have pull LOW
ICS ICS9LPRS480
SLG SLG628(QFN-64)
RTL RTM880N-796-- AL000880001
* 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
SB700 A2 RS780MN/RX781
Ra 158R 158R
Rb 90.9R 90.9R
RES CHIP 130 1/16W +-1%(0402)L-F -->CS11302FB15
RES CHIP 158 1/16W +-1%(0402) -->CS11582FB00
RES CHIP 90.9 1/16W +-1%(0402) -->CS09092FB15
RES CHIP 82.5 1/16W +-1%(0402) -->CS08252FB11
PROJECT : UT12
Quanta Computer Inc.
NB5
Size Custom
Document Number
Clock Generator
Rev 1A
Date: Monday, November 10, 2008
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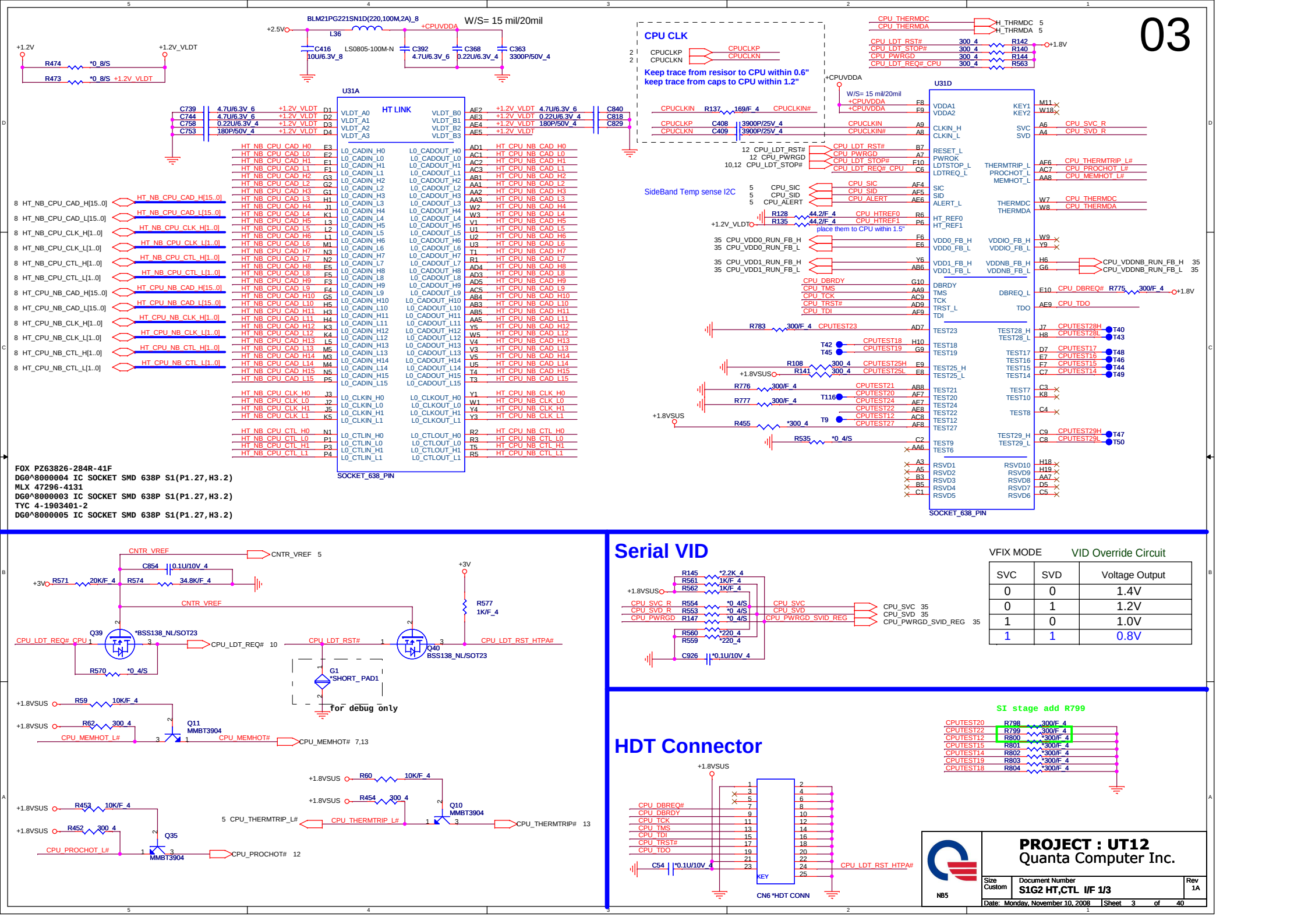
03
CPU CLK
Keep trace from resisor to CPU within 0.6"
keep trace from caps to CPU within 1.2"
U31A
HT LINK
SOCKET_638_PIN
U31D
SOCKET_638_PIN
SideBand Temp sense I2C
place them to CPU within 1.5"
FOX PZ63826-284R-41F
DG0^8000004 IC SOCKET SMD 638P S1(P1.27,H3.2)
MLX 47296-4131
DG0^8000003 IC SOCKET SMD 638P S1(P1.27,H3.2)
TYC 4-1903401-2
DG0^8000005 IC SOCKET SMD 638P S1(P1.27,H3.2)
Serial VID
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
HDT Connector
SI stage add R799
for debug only
PROJECT : UT12
Quanta Computer Inc.
Size Custom
Document Number S1G2 HT,CTL I/F 1/3
Rev 1A
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Sheet 3 of 40
NB5

Processor Memory Interface

04

PLACE THEM CLOSE TO CPU WITHIN 1"

U31B — MEM:CMD/CTRL/CLK — SOCKET_638_PIN

750 mA

R459 39.2/F_4 M_ZP
R458 39.2/F_4 M_ZN
T41 MEM_MA_RESET#
R81 2K/F_4
R82 *0_4 Reserved
R77 2K/F_4
C197 0.1U/10V_4
C177 1000P/50V_4
T51 MEM_MB_RESET#

U31C — MEM:DATA — SOCKET_638_PIN

Place close to socket

C112 4.7U/6.3V_6
C399 4.7U/6.3V_6
C99 4.7U/6.3V_6
C398 4.7U/6.3V_6
C213 0.22U/6.3V_4
C369 0.22U/6.3V_4
C364 0.22U/6.3V_4
C201 0.22U/6.3V_4

C401 1000P/50V_4
C202 1000P/50V_4
C400 1000P/50V_4
C185 1000P/50V_4
C183 180P/50V_4
C189 180P/50V_4
C390 180P/50V_4
C396 180P/50V_4

Close to CPU within 1500 mils

C736 1.5P/50V_4 — MEM_MB_CLK7_P / MEM_MB_CLK7_N
C734 1.5P/50V_4 — MEM_MA_CLK7_P / MEM_MA_CLK7_N
C366 1.5P/50V_4 — MEM_MB_CLK1_P / MEM_MB_CLK1_N
C367 1.5P/50V_4 — MEM_MA_CLK1_P / MEM_MA_CLK1_N

NB5

PROJECT : UT12
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Size	Document Number	Rev
Custom	S1G2 DDRII MEMORY I/F 2/3	1A

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PROCESSOR POWER AND GROUND

BOTTOM SIDE DECOUPLING

+VCORE0: C287 22U/6.3V_8, C308 22U/6.3V_8, C307 22U/6.3V_8, C306 22U/6.3V_8, C285 0.22U/6.3V_4, C286 0.01U/16V_4, C301 180P/50V_4

+VCORE1: C230 22U/6.3V_8, C272 22U/6.3V_8, C273 22U/6.3V_8, C267 22U/6.3V_8, C206 0.22U/6.3V_4, C226 0.01U/16V_4, C205 180P/50V_4, C225 0.01U/16V_4

+CPUVDDNB: C264 22U/6.3V_8, C231 22U/6.3V_8, C279 22U/6.3V_8

+1.8VSUS: C248 22U/6.3V_8, C284 22U/6.3V_8, C309 0.22U/6.3V_4, C247 0.22U/6.3V_4, C214 180P/50V_4, C315 180P/50V_4

DECOUPLING BETWEEN PROCESSOR AND DIMMs

PLACE CLOSE TO PROCESSOR AS POSSIBLE

+1.8VSUS: C750 4.7U/6.3V_6, C802 4.7U/6.3V_6, C236 4.7U/6.3V_6, C749 4.7U/6.3V_6, C803 0.22U/6.3V_4, C240 0.22U/6.3V_4

+1.8VSUS: C238 0.22U/6.3V_4, C751 0.22U/6.3V_4, C752 0.01U/16V_4, C120 0.01U/16V_4, C118 180P/50V_4

U31E — SOCKET_638_PIN

+VCORE0: VDD0_1 … VDD0_23 (G4, H2, J9, J11, J13, J15, K6, K10, K12, K14, L4, L7, L9, L11, L13, L15, M2, M6, M8, M10, N7, N9, N11)

+VCORE1: VDD1_1 … VDD1_26 (P8, P10, R4, R7, R9, R11, T2, T6, T8, T10, T12, T14, U7, U9, U11, U13, U15, V6, V8, V10, V12, V14, W4, Y2, AC4, AD2)

+CPUVDDNB 3A: VDDNB_1 … VDDNB_5 (K16, M16, P16, T16, V16)

+1.8VSUS 2A: VDDIO1 … VDDIO12 (H25, J17, K18, K21, K23, K25, L17, M18, M21, M23, M25, N17)

+1.8VSUS: VDDIO13 … VDDIO27 (P18, P21, P23, P25, R17, T18, T21, T23, U17, V18, V21, V23, V25, Y25)

U31F — SOCKET_638_PIN

VSS1 … VSS129 (AA4, AA11, AA13, AA15, AA17, AA19, AB2, AB7, AB9, AB23, AB25, AC11, AC13, AC15, AC17, AC19, AC21, AD6, AD8, AD25, AE11, AE13, AE15, AE17, AE19, AE21, AE23, B4, B6, B8, B9, B11, B13, B15, B17, B19, B21, B23, B25, D6, D8, D9, D11, D13, D15, D17, D19, D21, D23, D25, E4, F2, F11, F13, F15, F17, F19, F21, F23, F25, H7, H9, H21, H23, J4, J6, J8, J10, J12, J14, J16, J18, K2, K7, K9, K11, K13, K15, K17, L6, L8, L10, L12, L14, L16, L18, M7, M9, AC6, M17, N4, N8, N10, N16, N18, P2, P7, P9, P11, P17, R8, R10, R16, R18, T7, T9, T11, T13, T15, T17, U4, U6, U8, U10, U12, U14, U16, U18, V2, V7, V9, V11, V13, V15, V17, W6, Y21, Y23, N6)

CPU_THERMTRIP_L# / CPU_ALERT / CPU_SIC / CPU_SID

3 CNTR_VREF

+1.8VSUS: R164 390_4, R166 390_4, R167 1K/F_4

Q14 *BSS138_NL/SOT23: MBCLK2 (30) → CPU_SIC → CPU_SIC 3

Q15 *BSS138_NL/SOT23: MBDATA2 (30) → CPU_SID → CPU_SID 3

Q13 *BSS138_NL/SOT23: SMBALERT# → CPU_ALERT → CPU_ALERT 3

SMBALERT# / H_THRMDA / H_THRMDC

+3V: R149 10K/F_4, R151 10K/F_4, R148 10K/F_4

+3V: R572 200/F_6, C856 0.1U/10V_4

U36 G786P8 MSOP: SCLK, SDA, ALERT#, OVERT#, VCC, DXP, DXN, GND

30 MBCLK2, 30 MBDATA2, 13 PM_THERM#

C855 1000P/50V_4

H_THRMDA 3, H_THRMDC 3

SMBALERT#

reserve for power shutdown (if can)

R170 *0_4 SYS_SHDN# → SYS_SHDN# 33,39

D34 *CH500H

R168 *0_4/S 3920_RST# → 3920_RST# 30,39

Q16 MMBT3904

D33 CH501H-40PT

ECPWROK → ECPWROK 16,30

R172 10K/F_4 +3V

CPU_THERMTRIP_L#

+1.8VSUS R805 *10K/F_4

Q71 *MMBT3904

3 CPU_THERMTRIP_L# CPU_THERMTRIP_L# SMBALERT#

For fix HyperTransport nets across_plane_splits

+1.8VSUS: EC10 0.01U/16V_4 +3VPCU

+1.8V: EC5 0.01U/16V_4 +3VPCU

+1.8V: EC4 0.01U/16V_4 +3V

+3VPCU: EC7 0.01U/16V_4 +3V

+5V: EC1 *0.01U/16V_4 +3V

EC2 *0.01U/16V_4

+VGA_CORE: EC8 0.01U/16V_4 +1.8V

EC9 0.01U/16V_4

+VCORE0: C69 0.01U/16V_4, C71 0.01U/16V_4, C67 0.01U/16V_4, C64 0.01U/16V_4

+VCORE1

+1.8VSUS: EC3 0.01U/16V_4 +5V

+5V: EC6 0.01U/16V_4 +3VPCU

+3VS5: EC13 *0.1U/10V_4, EC14 *0.1U/10V_4

+3V: EC11 *0.1U/10V_4

+1.8V: EC12 *0.1U/10V_4

NB5

PROJECT : UT12
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Size	Document Number	Rev
Custom	S1G2 PWR & GND 3/3	1A

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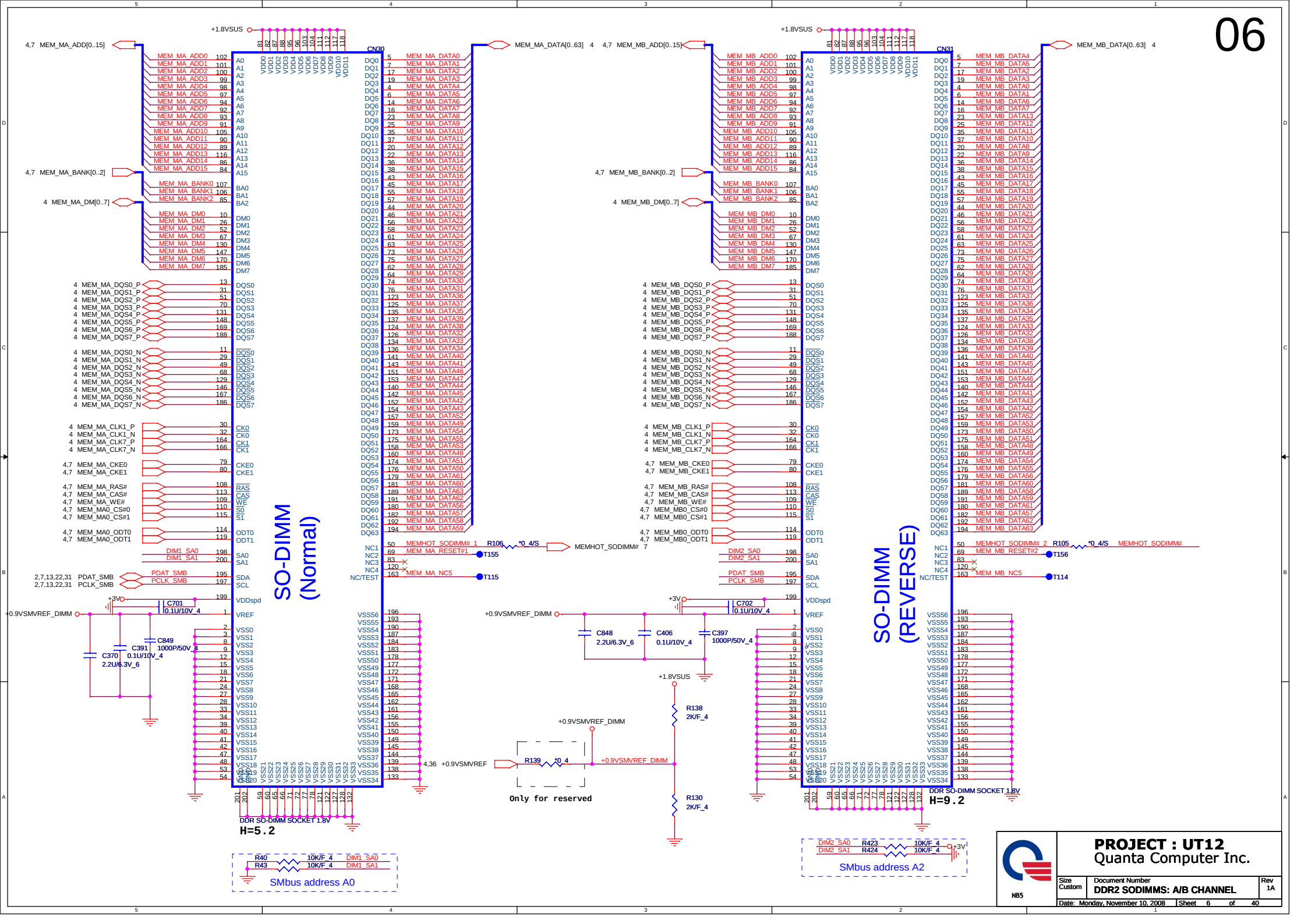

PROJECT : UT12
Quanta Computer Inc.

Size	Document Number	Rev
Custom	DDR2 SODIMMS: A/B CHANNEL	1A

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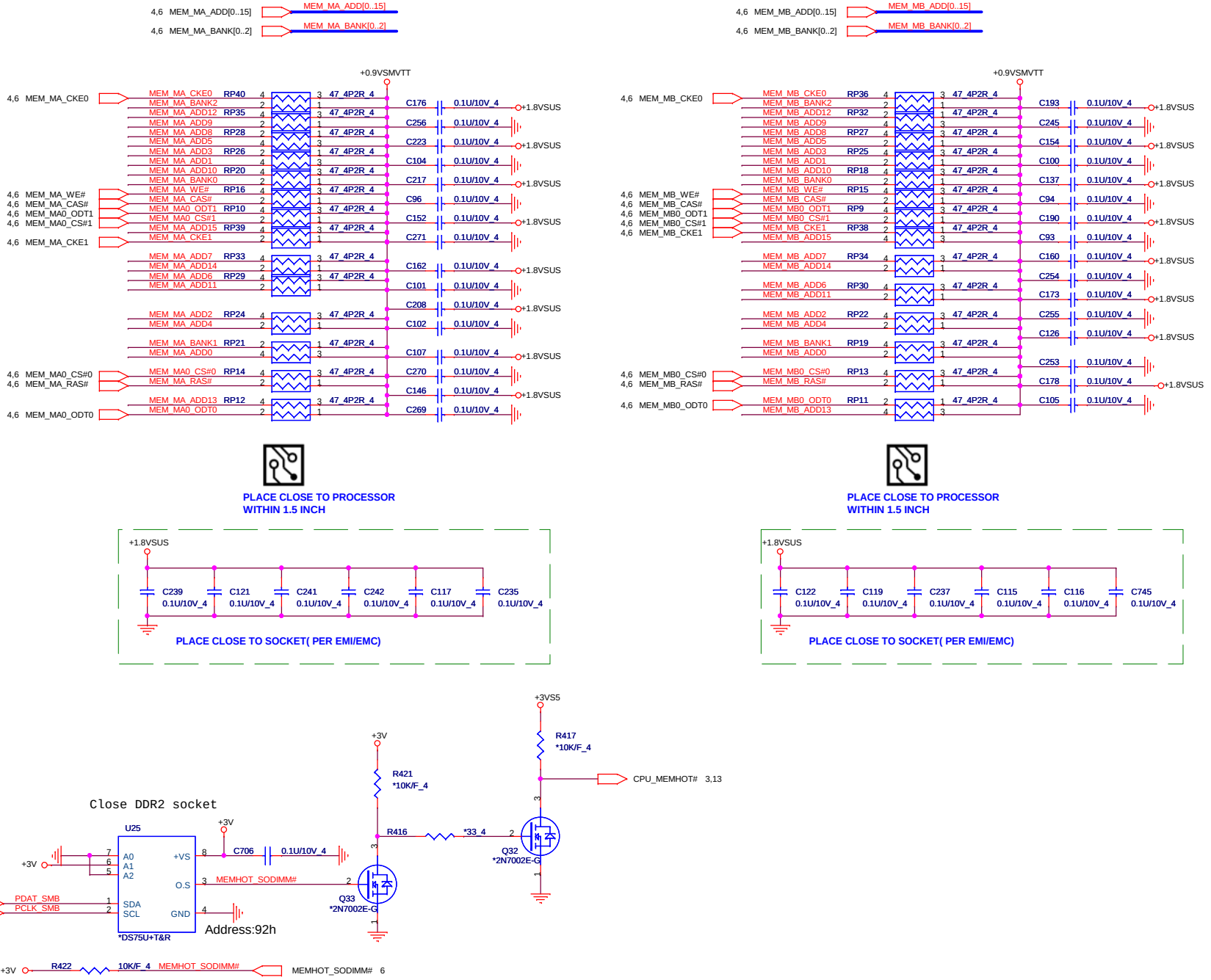
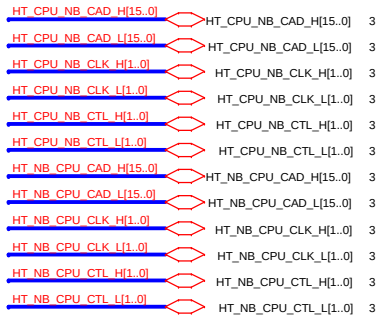
NB5

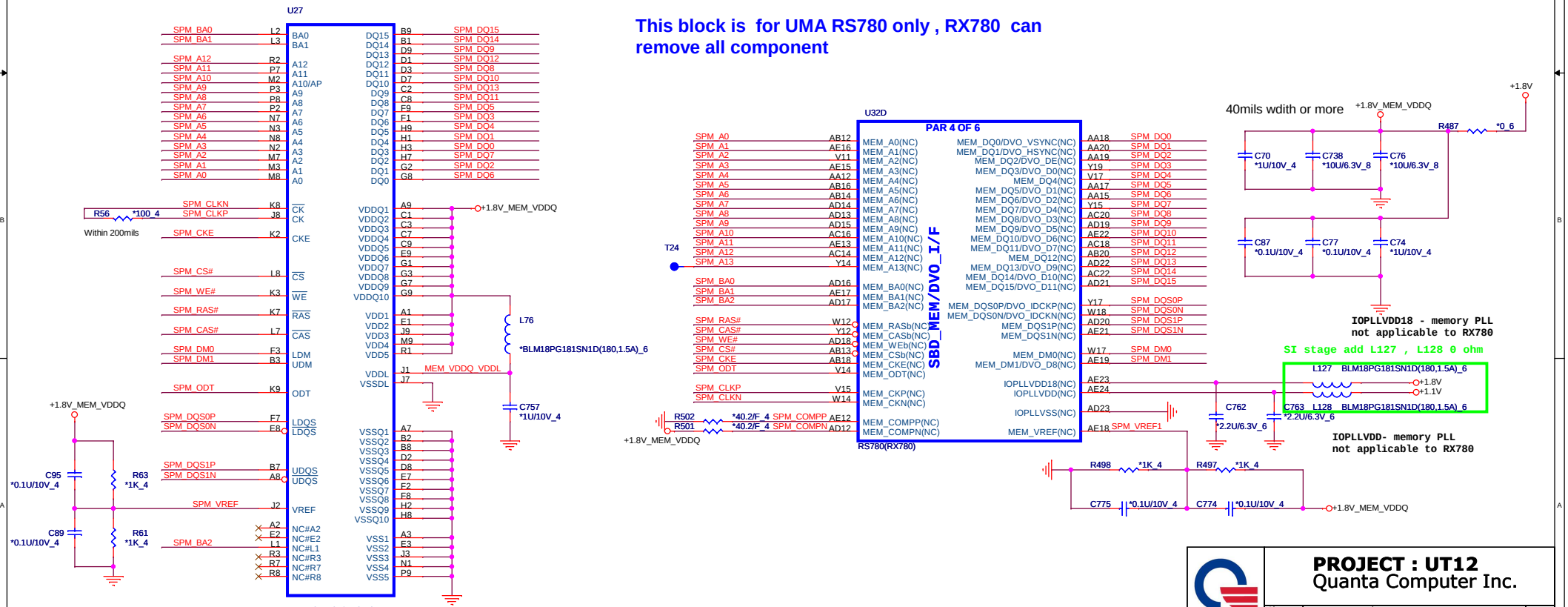

4,6 MEM_MA_ADD[0..15]
MEM_MA_ADD[0..15]
4,6 MEM_MA_BANK[0..2]
MEM_MA_BANK[0..2]
4,6 MEM_MB_ADD[0..15]
MEM_MB_ADD[0..15]
4,6 MEM_MB_BANK[0..2]
MEM_MB_BANK[0..2]
+0.9VSMVTT
4,6 MEM_MA_CKE0
4,6 MEM_MA_WE#
4,6 MEM_MA_CAS#
4,6 MEM_MA0_ODT1
4,6 MEM_MA0_CS#1
4,6 MEM_MA_CKE1
4,6 MEM_MA0_CS#0
4,6 MEM_MA_RAS#
4,6 MEM_MA0_ODT0
4,6 MEM_MB_CKE0
4,6 MEM_MB_WE#
4,6 MEM_MB_CAS#
4,6 MEM_MB0_ODT1
4,6 MEM_MB0_CS#1
4,6 MEM_MB_CKE1
4,6 MEM_MB0_CS#0
4,6 MEM_MB_RAS#
4,6 MEM_MB0_ODT0
47_4P2R_4
0.1U/10V_4
+1.8VSUS
PLACE CLOSE TO PROCESSOR
WITHIN 1.5 INCH
+1.8VSUS
C239 C121 C241 C242 C117 C235
C122 C119 C237 C115 C116 C745
0.1U/10V_4
PLACE CLOSE TO SOCKET(PER EMI/EMC)
Close DDR2 socket
U25
*DS75U+T&R
A0
A1
A2
SDA
SCL
+VS
O.S
GND
Address:92h
+3V
+3VS5
C706
MEMHOT_SODIMM#
2,6,13,22,31 PDAT_SMB
2,6,13,22,31 PCLK_SMB
R417 *10K/F_4
R421 *10K/F_4
R416 *33_4
Q32 *2N7002E-G
Q33 *2N7002E-G
CPU_MEMHOT# 3,13
R422 10K/F_4
MEMHOT_SODIMM# 6



signals	RS780	RX780
HT_TXCALP	R641 301 ohm 1%	R641 1.21k ohm 1%
HT_TXCALN		
HT_RXCALP	R655 301 ohm 1%	R655 1.21k ohm 1%
HT_RXCALN		

RES CHIP 1.21K 1/16W +-1%(0402)
P/N : CS21212FB18

RES CHIP 301 1/16W +-1%(0402)
P/N : CS13012FB14



PROJECT : UT12
Quanta Computer Inc.

Size	Document Number	Rev
Custom	RS740/RS780-HT LINK I/F 1/5	1A

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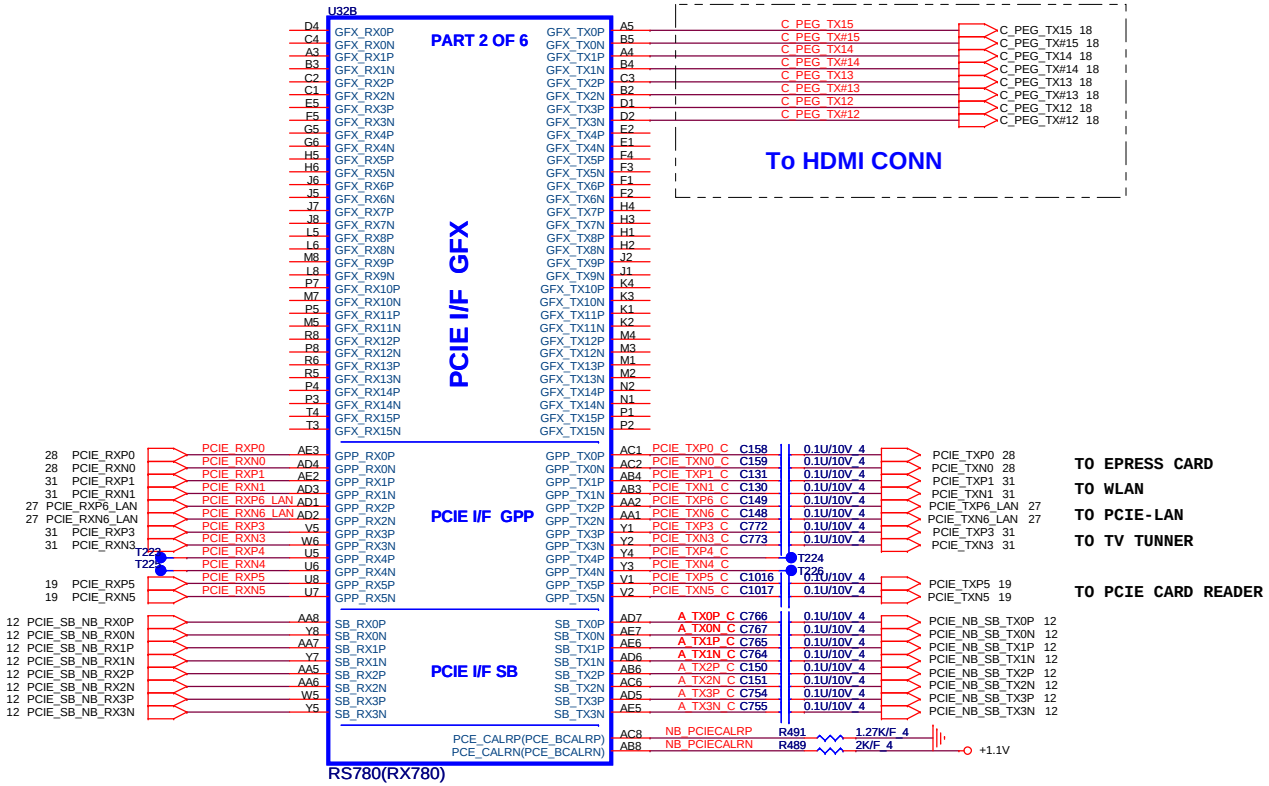
NB5



RX780/RS740/RS780 difference table (PCIE LINK)

	RS740	RX780/RS780
NB_PCIECALRP	562R (GND)	1.27K (GND)
GPP4	NC	GPP4
GPP5	NC	GPP5

RS780 Display Port Support (muxed on GFX)

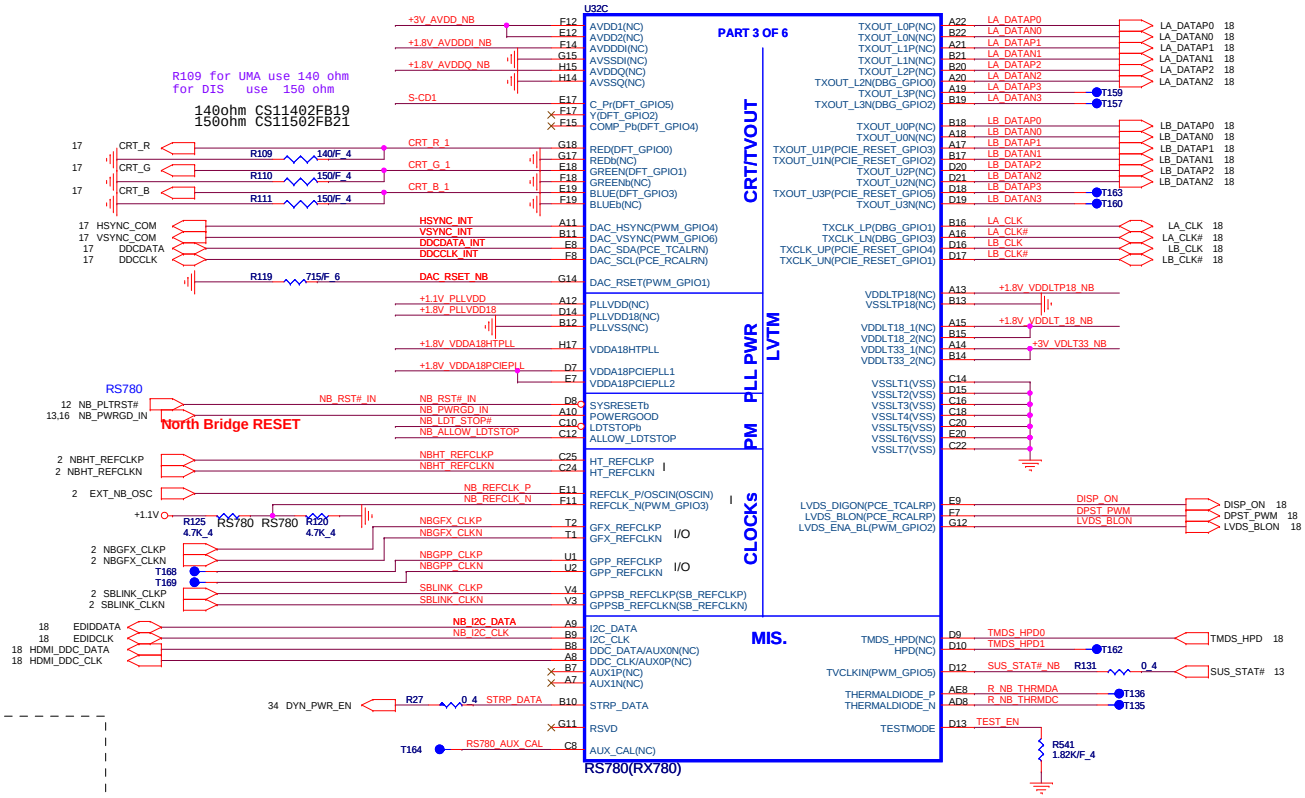
DP0	GFX_TX0,TX1,TX2 and TX3 AUX0 and HPD0
DP1	GFX_TX4,TX5,TX6 and TX7 AUX1 and HPD1

NB5

PROJECT : UT12
Quanta Computer Inc.

Size	Document Number	Rev
Custom	RS740/RS780-PCIE I/F 2/5	1A

Date: Monday, November 10, 2008 | Sheet 9 of 40



selects Loading of straps from EPROM
1 : use default vaule , default
0 : I2C Master can load strap values from EEPROM
if connected, or use default values if not connected
RX780 --RS780_AUX_CAL
RS780 -- SUS_ATAT

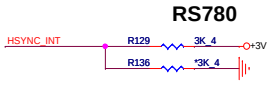
RX780

Enables Debug Bus acess through memory T/O pads and GPIO.
0 : Enable RS780 , Default
1 : Disable RS780
(RS780 use VSYNC#)

RS780

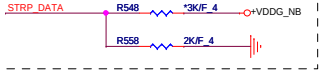
Indicates if memory Side port is available or not
0: available RS780 , Default
1: Not available RS780
(RS780 use HSYNC#)

RS780



For extrnal EEPROM Debug only

RS780/RX780

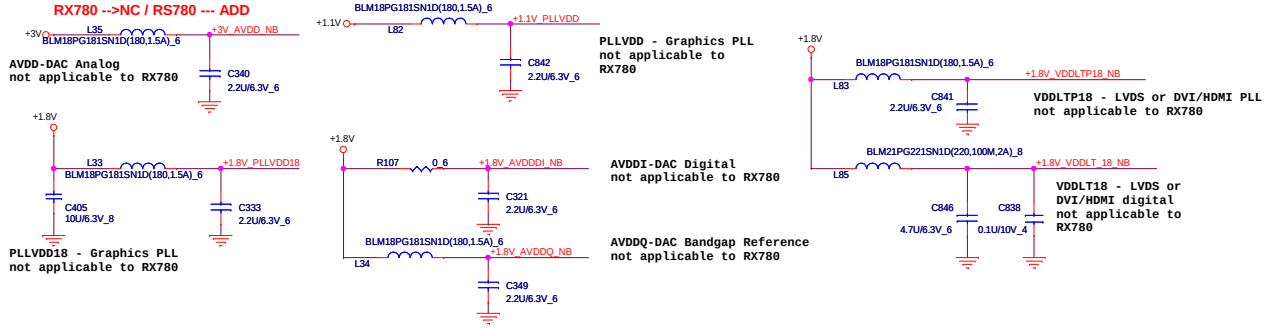


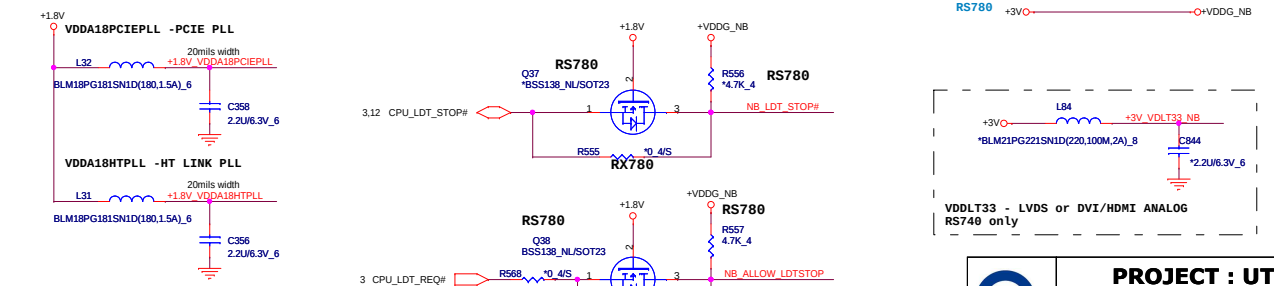
Enables Debug Bus acess through memory T/O pads and GPIO.
1 : Enable RX780 , Default
0 : Disable RX780

RX780

Reserved only

RX780 -->NC / RS780 --- ADD





PROJECT : UT12
Quanta Computer Inc.

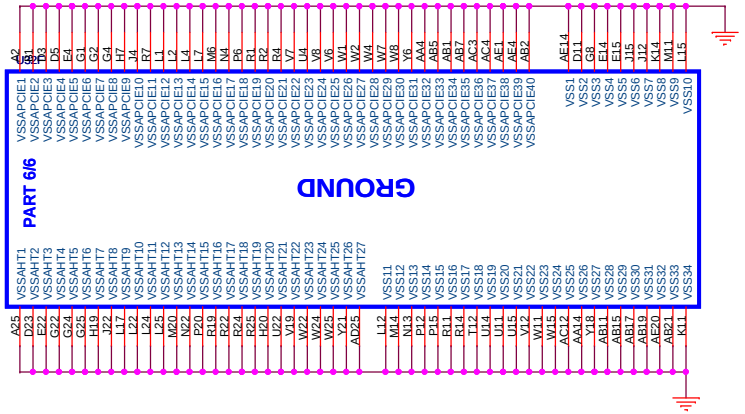
Size	Document Number	Rev
Custom	RS740/RS780-SYSTEM I/F 3/5	1A

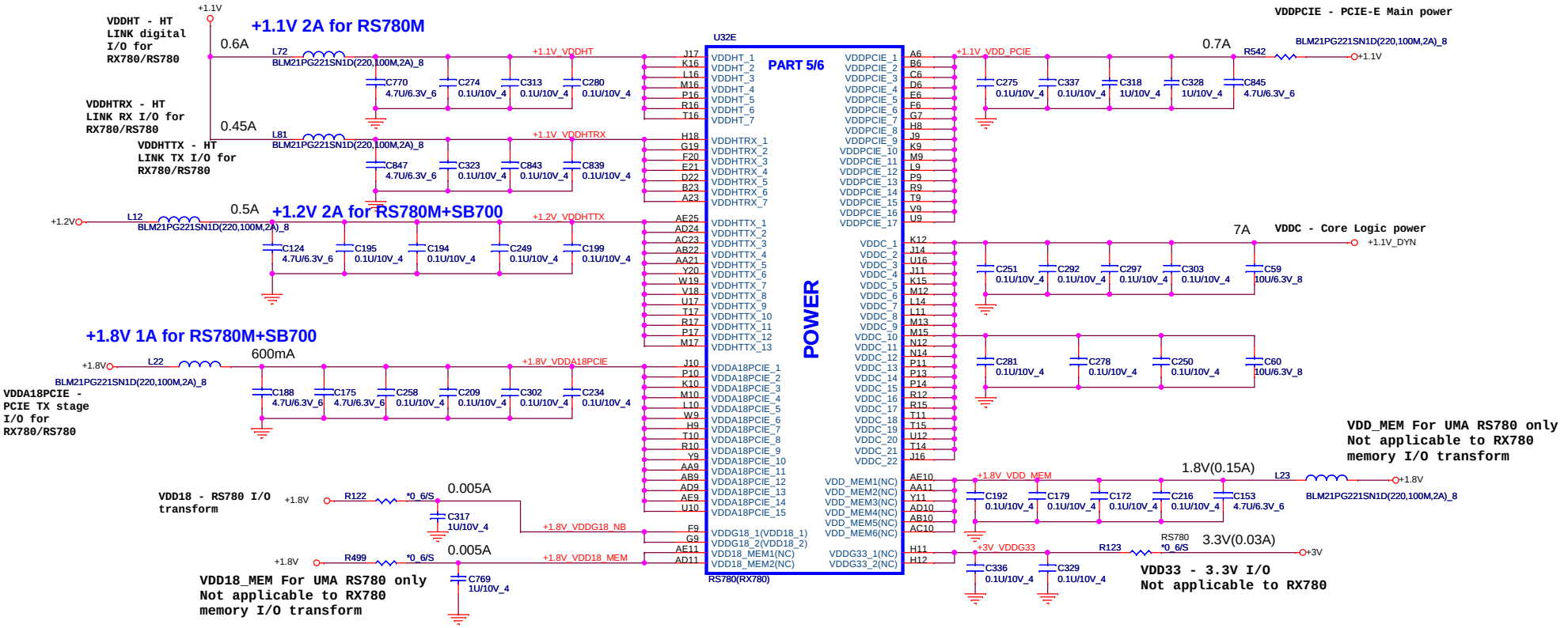
Date: Monday, November 10, 2008 Sheet 10 of 40

N85

RX780/RS780 POWER DIFFERENCE TABLE

PIN NAME	RX780	RS780	PIN NAME	RX780	RS780
VDDHT	+1.1V	+1.1V	IOPLLVDD	NC	+1.1V
VDDHTRX	+1.1V	+1.1V	AVDD	NC	+3.3V
VDDHTTX	+1.2V	+1.2V	AVDDDI	NC	+1.8V
VDDA18PCIE	+1.8V	+1.8V	AVDDQ	NC	+1.8V
VDDG18	+1.8V	+1.8V	PLLVDD	NC	+1.1V
VDD18_MEM	NC	+1.8V	PLLVDD18	NC	+1.8V
VDDPCIE	+1.1V	+1.1V	VDDA18PCIEPLL	+1.8V	+1.8V
VDDC	+1.1V	+1.1V	VDDA18HTPLL	+1.8V	+1.8V
VDD_MEM	NC	+1.8V/1.5V	VDDLTP18	NC	+1.8V
VDDG33	NC	+3.3V	VDDLT18	NC	+1.8V
IOPLLVDD18	NC	+1.8V	VDDLT33	NC	NC





PROJECT : UT12
Quanta Computer Inc.
NB5
Size: Custom
Document Number: RS740/RS780-POWER5/5
Rev: 1A
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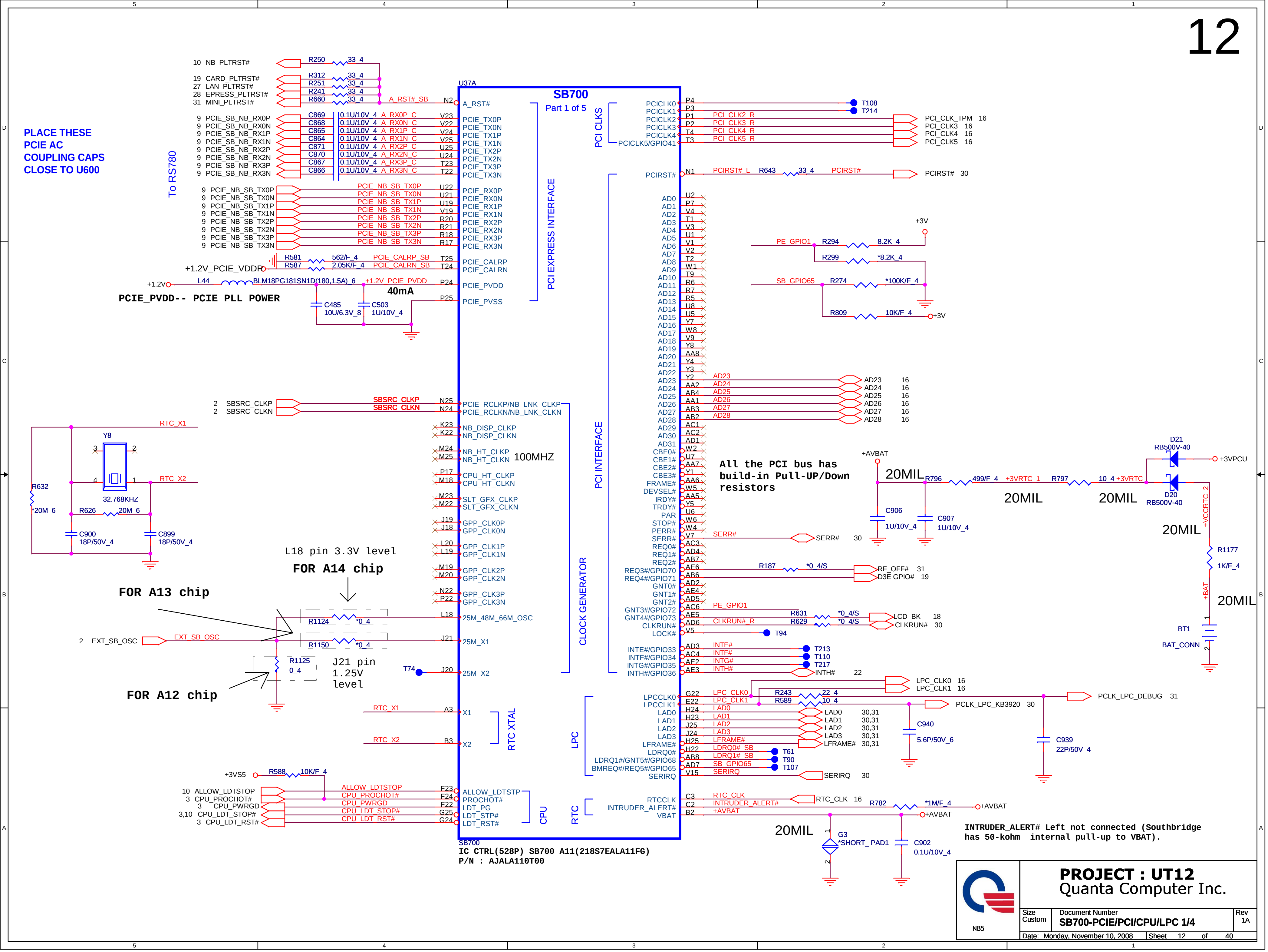
12
SB700
Part 1 of 5
U37A
PLACE THESE PCIE AC COUPLING CAPS CLOSE TO U600
To RS780
PCIE EXPRESS INTERFACE
PCI CLKS
PCI INTERFACE
CLOCK GENERATOR
RTC XTAL
LPC
CPU
RTC
PCIE_PVDD-- PCIE PLL POWER
40mA
+1.2V_PCIE_VDDR
L44 BLM18PG181SN1D(180,1.5A)_6
C485 10U/6.3V_8
C503 1U/10V_4
100MHZ
L18 pin 3.3V level
FOR A14 chip
FOR A13 chip
FOR A12 chip
J21 pin 1.25V level
Y8 32.768KHZ
R632 *20M_6
R626 20M_6
C900 18P/50V_4
C899 18P/50V_4
All the PCI bus has build-in Pull-UP/Down resistors
20MIL
D21 RB500V-40
D20 RB500V-40
+3VPCU
+AVBAT
R796 499/F_4
R797 10_4
C906 1U/10V_4
C907 1U/10V_4
R1177 1K/F_4
BT1 BAT_CONN
R294 8.2K_4
R299 *8.2K_4
R274 *100K/F_4
R809 10K/F_4
R643 33_4
PCIRST# 30
PCI_CLK_TPM 16
PCI_CLK3 16
PCI_CLK4 16
PCI_CLK5 16
SERR# 30
RF_OFF# 31
D3E GPIO# 19
LCD_BK 18
CLKRUN# 30
INTH# 22
LPC_CLK0 16
LPC_CLK1 16
PCLK_LPC_DEBUG 31
PCLK_LPC_KB3920 30
C940 5.6P/50V_6
C939 22P/50V_4
SERIRQ 30
RTC_CLK 16
R782 *1M/F_4
G3 *SHORT_PAD1
C902 0.1U/10V_4
INTRUDER_ALERT# Left not connected (Southbridge has 50-kohm internal pull-up to VBAT).
IC CTRL(528P) SB700 A11(218S7EALA11FG)
P/N : AJALA110T00
PROJECT : UT12
Quanta Computer Inc.
NB5
Size Custom
Document Number SB700-PCIE/PCI/CPU/LPC 1/4
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NC only ,Can't be install

+3VSUS
R297 *2.2K_4 SB_TEST0
R240 *2.2K_4 SB_TEST1
R287 *2.2K_4 SB_TEST2

+3VSUS
R289 *10K/F_4 SWI#

+3V
SCL0/SDATA0 is 3V tolerance
AMD datasheet define it
R245 2.2K_4 PCLK_SMB
R253 2.2K_4 PDAT_SMB

Clock gen/Robson/TV tuner
/DDR2/DDR2 thermal/Accelerometer

+3VS5
SCL1/SDATA1 is 3V/S5 tolerance
AMD datasheet define it
R648 10K/F_4 SB_SMBCLK1
R649 10K/F_4 SB_SMBDATA1

remove pull hi
(chip internal
have pull hi)

+3VS5
SCL2/SDATA2 is 3V/S5 tolerance
AMD datasheet define it
R222 10K/F_4 SB_SCLK2
R227 10K/F_4 SB_SDATA2

+3V
R276 4.7K_4 SUS_STAT#
R349 *0_4 SYS_RST#

+3VS5
R763 2.2K_4 DNBSWON#

To Azalia

ACZ_SDOUT R644 33_4 → ACZ_SDOUT_AUDIO 21
C908 *10P/50V_4

ACZ_SYNC R290 33_4 → ACZ_SYNC_AUDIO 21
C569 *10P/50V_4

ACZ_BCLK R646 33_4 → BIT_CLK_AUDIO 21
C910 10P/50V_4

ACZ_RST# R296 33_4 → ACZ_RST#_AUDIO 21

ACZ_SDIN0_R → ACZ_SDIN0 21

To Modem Board

ACZ_SDOUT R645 33_4 → ACZ_SDOUT_AUDIO_MDC 24
C909 *10P/50V_4

ACZ_SYNC R292 33_4 → ACZ_SYNC_AUDIO_MDC 24
C577 *10P/50V_4

ACZ_BCLK R647 33_4 → BIT_CLK_AUDIO_MDC 24
C911 10P/50V_4

ACZ_RST# R293 33_4 → ACZ_RST#_AUDIO_MDC 24

ACZ_SDIN1_R → ACZ_SDIN1 24

28 NEWCARD_DETECT → NEWCARD_DETECT R283 0_4 NEWCARD_DETECT_R
T211 RI#
T99 SLP_S2
30 SUSB# R271 *0_4/S SUSB#
30 SUSC# R191 *0_4/S SUSC#
30 DNBSWON# R233 *0_4/S DNBSWON#
16 SB_PWRGD_IN SB_PWRGD_IN
10 SUS_STAT# SUS_STAT#
SB_TEST2
SB_TEST1
SB_TEST0
30 GATEA20 GATEA20
30 RCIN# RCIN#
30 SCI# SCI#
30 KBSMI# KBSMI#
T109 GEVENT5#
SYS_RST#
27,31 PCIE_WAKE# PCIE_WAKE# R307 0_4 PCIE_WAKE#_R
30 SWI# R211 *0_4/S SWI#
3 CPU_THERMTRIP# R786 0_4 SB_THERMTRIP#
10,16 WD_PWRGD WD_PWRGD
30 RSMRST# R284 *0_4/S RSMRST#

T63 SATA_IS1
T194 LAN_DISABLE#_SB
27,30 LAN_DISABLE# R217 *0_4
SB_NWD_CLK_REQ#
T222
21,22 ACZ_SPKR R302 *0_4/S ACZ_SPKR
2,6,7,22,31 PCLK_SMB PCLK_SMB
2,6,7,22,31 PDAT_SMB PDAT_SMB
SB_SMBCLK1
SB_SMBDATA1
T69
T75
30 PM_BATLOW# PM_BATLOW#
SES_INT
T72
19 D3E_SCI#

3,7 CPU_MEMHOT# → CPU_MEMHOT#_IN
5 PM_THERM#
R275 *0_4 SMBALERT#_1
+3VS5 R279 10K/F_4

28 NEWCARD_WAKE# R285 *0_4 NEWCARD_WAKE#_R
SB_JTAG_TDO
SB_JTAG_TCK
SB_JTAG_TDI
SB_JTAG_RST#

ACZ_BCLK
ACZ_SDOUT
R246 10K/F_4 ACZ_SDIN0_R
R249 10K/F_4 ACZ_SDIN1_R
R254 10K/F_4 ACZ_SDIN2_R
R308 10K/F_4 ACZ_SDIN3_R
ACZ_SYNC
16 ACZ_RST# ACZ_RST#

HD audio interface is 3.3S5 voltage

U37D

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/GEVENT16#
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 2
USB_RCOMP ← G8 USB_RCOMP_SB R267 11.8K/F_6

USB MISC

USB_FSD13P E6
USB_FSD13N E7
USB_FSD12P F7 → USB_FSD12P → T91
USB_FSD12N E8 → USB_FSD12N → T93

USB 1.1

USB_HSD11P H11 → USBP11+ 31 — TV Min-Card
USB_HSD11N J10 → USBP11- 31
USB_HSD10P E11 → USBP10+ 31 — WLAN Min-Card
USB_HSD10N F11 → USBP10- 31
USB_HSD9P A11 → USBP9+ 25 — BLUETOOTH
USB_HSD9N B11 → USBP9- 25
USB_HSD8P C10 → USBP8+ 25 — USB Connector
USB_HSD8N D10 → USBP8- 25
USB_HSD7P G11 → USBP7+ 28 — NEW CARD
USB_HSD7N H12 → USBP7- 28
USB_HSD6P E12 → USBP6+ 25 — FINGERPRINT
USB_HSD6N E14 → USBP6- 25
USB_HSD5P C12 → USBP5+ 25 — USB Connector
USB_HSD5N D12 → USBP5- 25
USB_HSD4P B12 → USBP4+ 32 — Docking
USB_HSD4N A12 → USBP4- 32
USB_HSD3P G12 → USBP3+ 20 — USB card reader or Touch screen
USB_HSD3N G14 → USBP3- 20
USB_HSD2P H14 → USBP2+ 25 — Carama USB
USB_HSD2N H15 → USBP2- 25
USB_HSD1P A13 → USBP1+ 25 — E-SATA and USB Connector
USB_HSD1N B13 → USBP1- 25
USB_HSD0P B14 → USBP0+ 25 — USB Connector
USB_HSD0N A14 → USBP0- 25

USB 2.0

IMC_GPIO8 A18
IMC_GPIO9 B18
IMC_PWM0/IMC_GPIO10 F21
SCL2/IMC_GPIO11 D21 → SB_SCLK2
SDA2/IMC_GPIO12 F19 → SB_SDATA2
SCL3_LV/IMC_GPIO13 E20 → SB_SCLK3
SDA3_LV/IMC_GPIO14 F21 → 5158_RST_R# → T64 → 5158_RST_R# 20
IMC_PWM1/IMC_GPIO15 E19
IMC_PWM2/IMC_GPIO16 D19 → SB_GPIO16
IMC_PWM3/IMC_GPIO17 E18 → SB_GPIO17
SB_GPIO16 16
SB_GPIO17 16 SPI/LPC define

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

INTEGRATED uC

CLK_48M_USB
C554 *2.2P/50V_4

for EMI & del R268 change 2.2P

+3VS5
R764 2K/04
28 SCLK_WLAN
+3V
Q66 2N7002EPT
PCLK_SMB

+3VS5
R765 2K/04
28 SDATA_WLAN
+3V
2N7002EPT Q67
PDAT_SMB

CN16
+3VSUS
C462 10P/50V_4
SB_JTAG_TCK
SB_JTAG_TDO
SB_JTAG_TDI
SB_TEST1
SB_JTAG_RST#
SB JTAG
*S/W JTAG DEBUG

PROJECT : UT12
Quanta Computer Inc.
NB5
Size: Custom
Document Number: SB700-ACPI/GPIO/USB 2/4
Rev: 1A
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SATA PORT 0,1,2,3 can support AHCI mode

PLACE SATA AC COUPLING CAPS CLOSE TO SB600

SATA1

SATA ODD

E-SATA

SATA HDD2

SATA PORT 4,5 are only support IDE mode

U37B

SB700

Part 2 of 5

SERIAL ATA

ATA 66/100/133

SPI ROM

SATA PWR

HW MONITOR

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

SIDE_PORT_ID1	SIDE_PORT_ID0	
0	0	Samsung
0	1	Qimonda
1	0	Hynix
1	1	no supprot side port

PLACE SATA_CAL RES VERY CLOSE TO BALL OF SB700

NOTE:

R361 IS 1K 1% FOR 25MHz XTAL, 4.99K 1% FOR 100MHz INTERNAL CLOCK

PLVDD_SATA-- SATA PLL POWER

XTLVDD_SATA-- SATA crystal power

AVDD--H/W monitor Analog power

5mA

1mA

77mA

(1.2V @ 60mA)

(3.3V @ 1.2mA)

SI stage remove C548 , C551

Place near ball

ID3	ID2	ID1	ID0	
0	0	0	0	UT1 UMA
0	0	0	1	UT2 UMA
0	0	1	0	UT1 M92
0	0	1	1	UT2 M92
0	1	0	0	UT1 M96
0	1	0	1	UT2 M96
0	1	1	0	
0	1	1	1	

PROJECT : UT12
Quanta Computer Inc.

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

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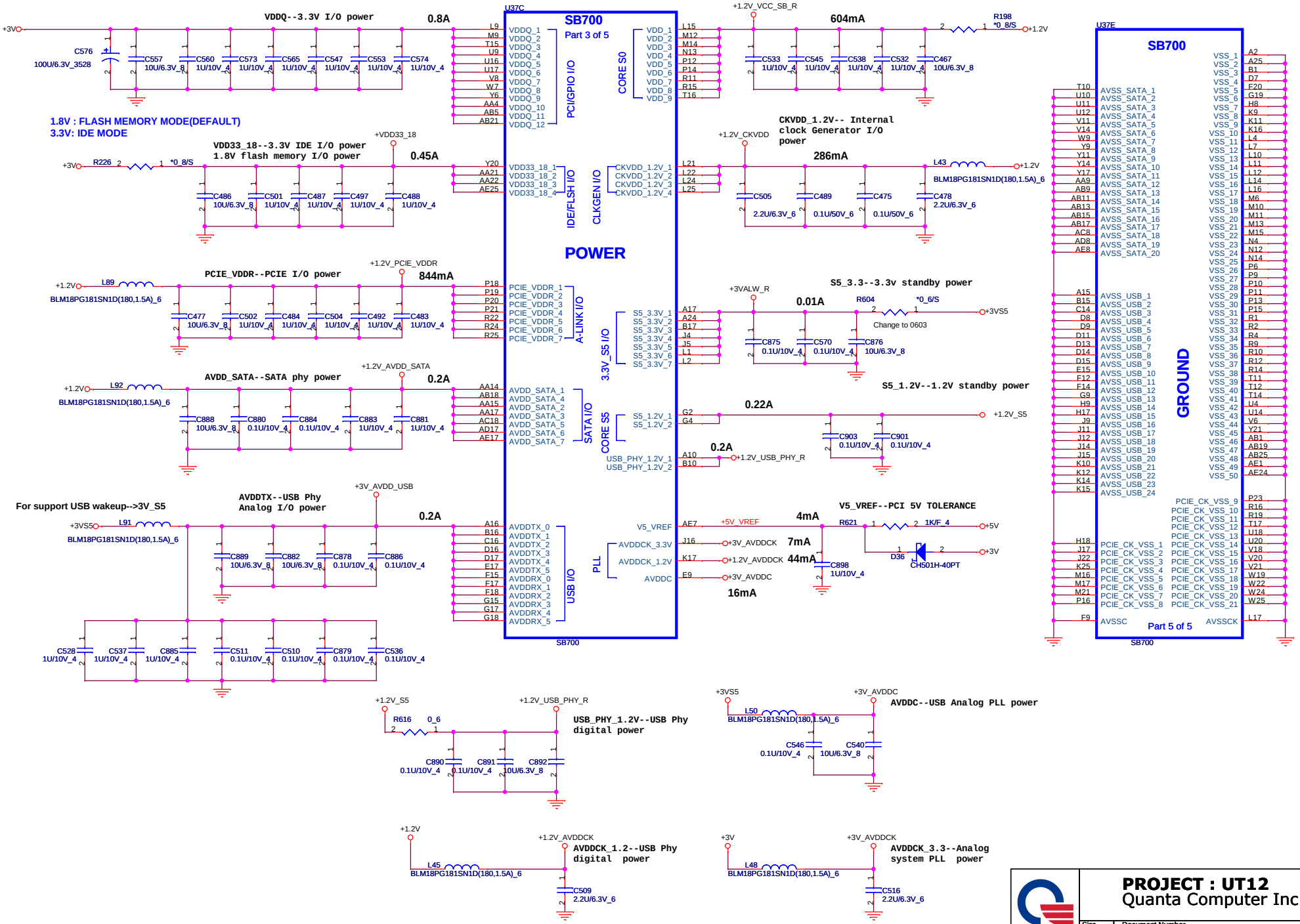
NB5

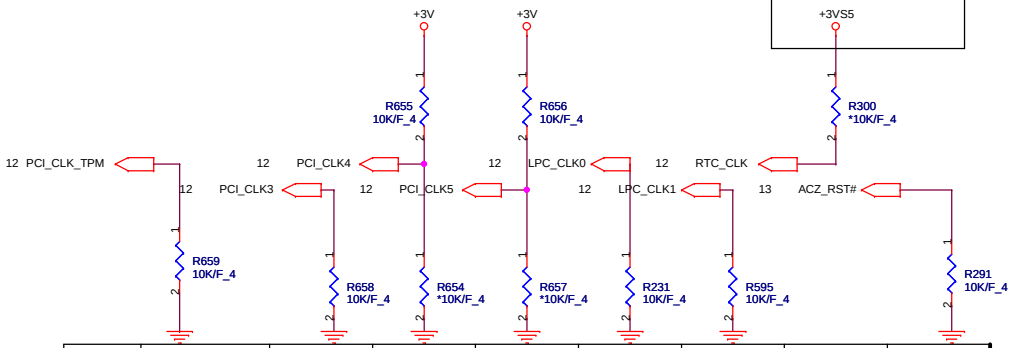
PLACE ALL THE DECOUPLING CAPS ON
THIS SHEET CLOSE TO SB AS POSSIBLE.



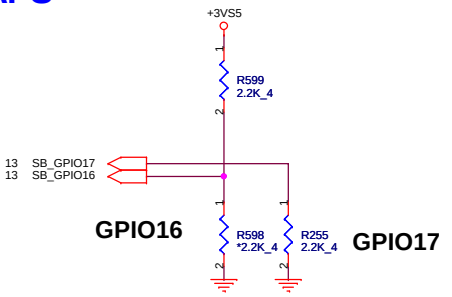
OVERLAP COMMON PADS WHERE POSSIBLE FOR DUAL-OP RESISTORS.

It must ready refore RSMRST#

REQUIRED STRAPS



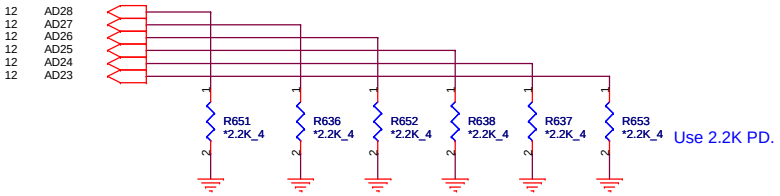
	PCI_CLK_TPM	PCI_CLK3	PCI_CLK4	PCI_CLK5	LPC_CLK0	LPC_CLK1	RTC_CLK	AZ_RST#
PULL HIGH	BOOTFAIL TIMER ENABLED	USE DEBUG STRAPS	RESERVED	RESERVED	IMC ENABLED	CLKGEN ENABLED	INTERNAL RTC DEFAULT	ENABLE PCI ROM BOOT
PULL LOW	BOOTFAIL TIMER DISABLED DEFAULT	IGNORE DEBUG STRAPS DEFAULT			IMC DISABLED DEFAULT	CLKGEN DISABLED DEFAULT	EXT. RTC (PD on X1, apply 32KHz to RTC_CLK)	DISABLE PCI ROM BOOT DEFAULT



TYPE	GPIO16	GPIO17
FWH	L : 2.2K pull down	L : 2.2K pull down
LPC	NC	L : 2.2K pull down
SPI	L : 2.2K pull down	NC
RSVD	NC	NC

DEBUG STRAPS

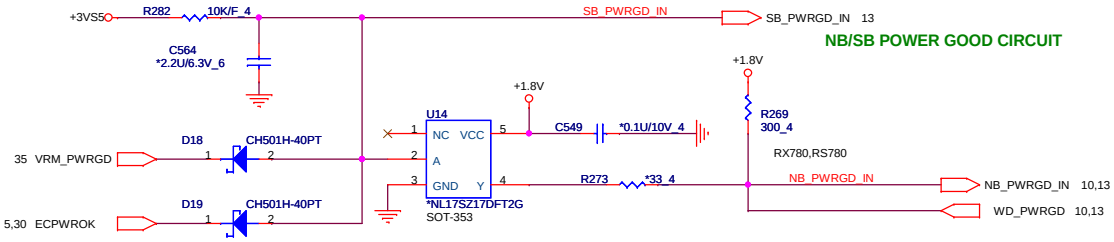
SB700 HAS 15K INTERNAL PU FOR PCI_AD[28:23]



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

NB5

PROJECT : UT12
Quanta Computer Inc.

Size	Document Number	Rev
Custom	SB700-STRAPS	1A

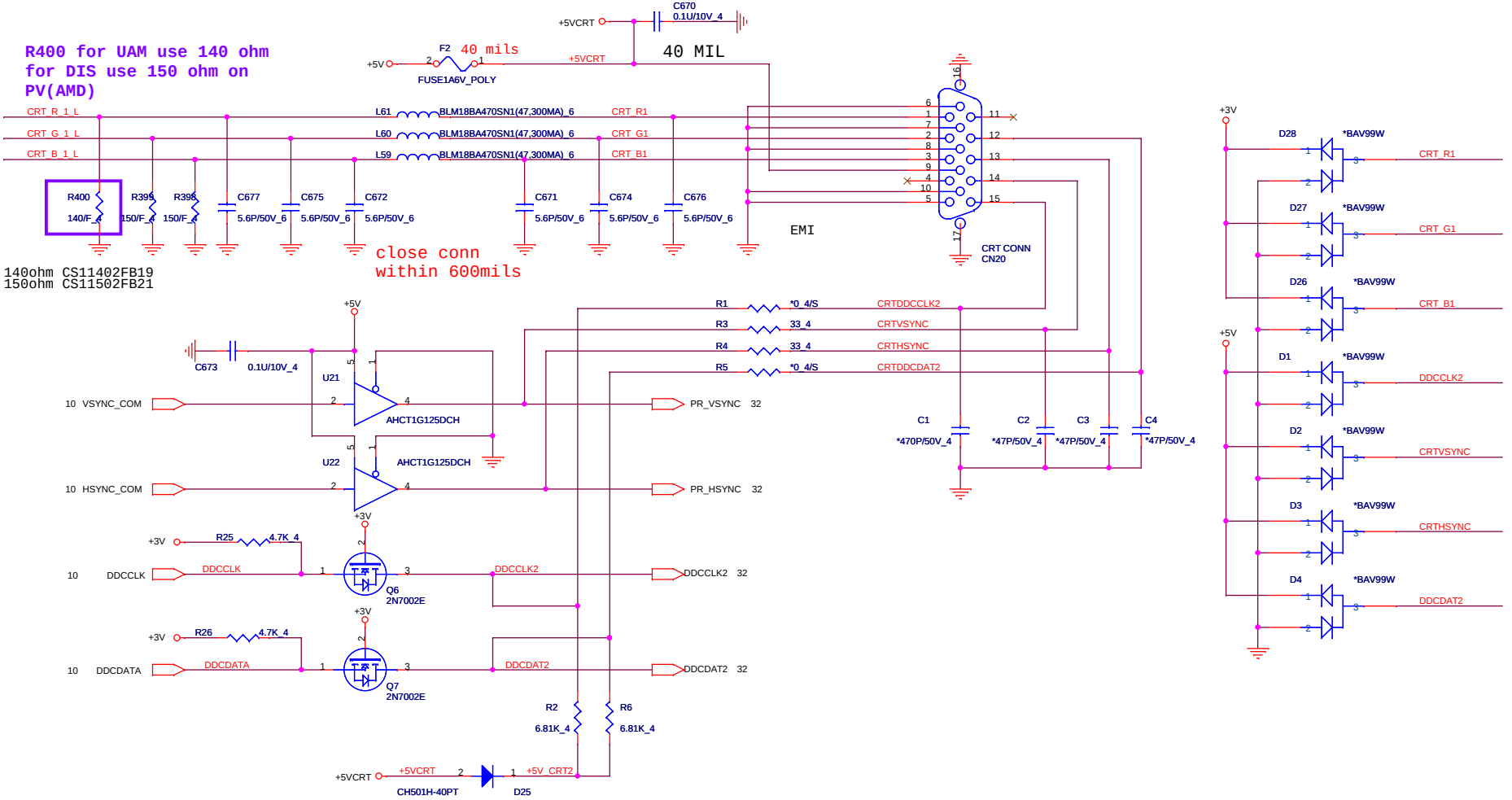
Date: Monday, November 10, 2008 | Sheet 16 of 40

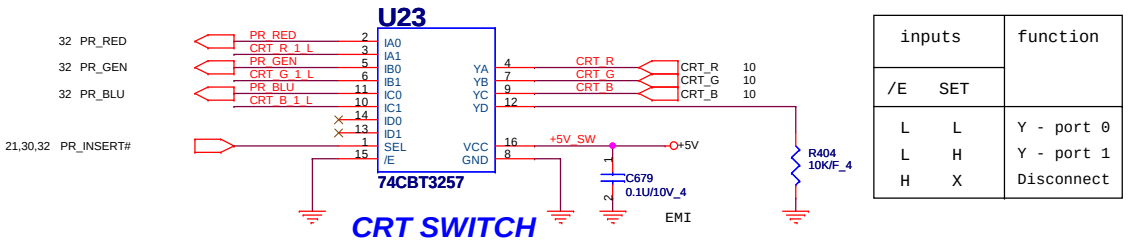
CRT PORT

R400 for UAM use 140 ohm
for DIS use 150 ohm on
PV(AMD)

140ohm CS11402FB19
150ohm CS11502FB21

close conn
within 600mils





CRT SWITCH

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

NB5

PROJECT : UT12
Quanta Computer Inc.

Size	Document Number	Rev
Custom	CRT	1A

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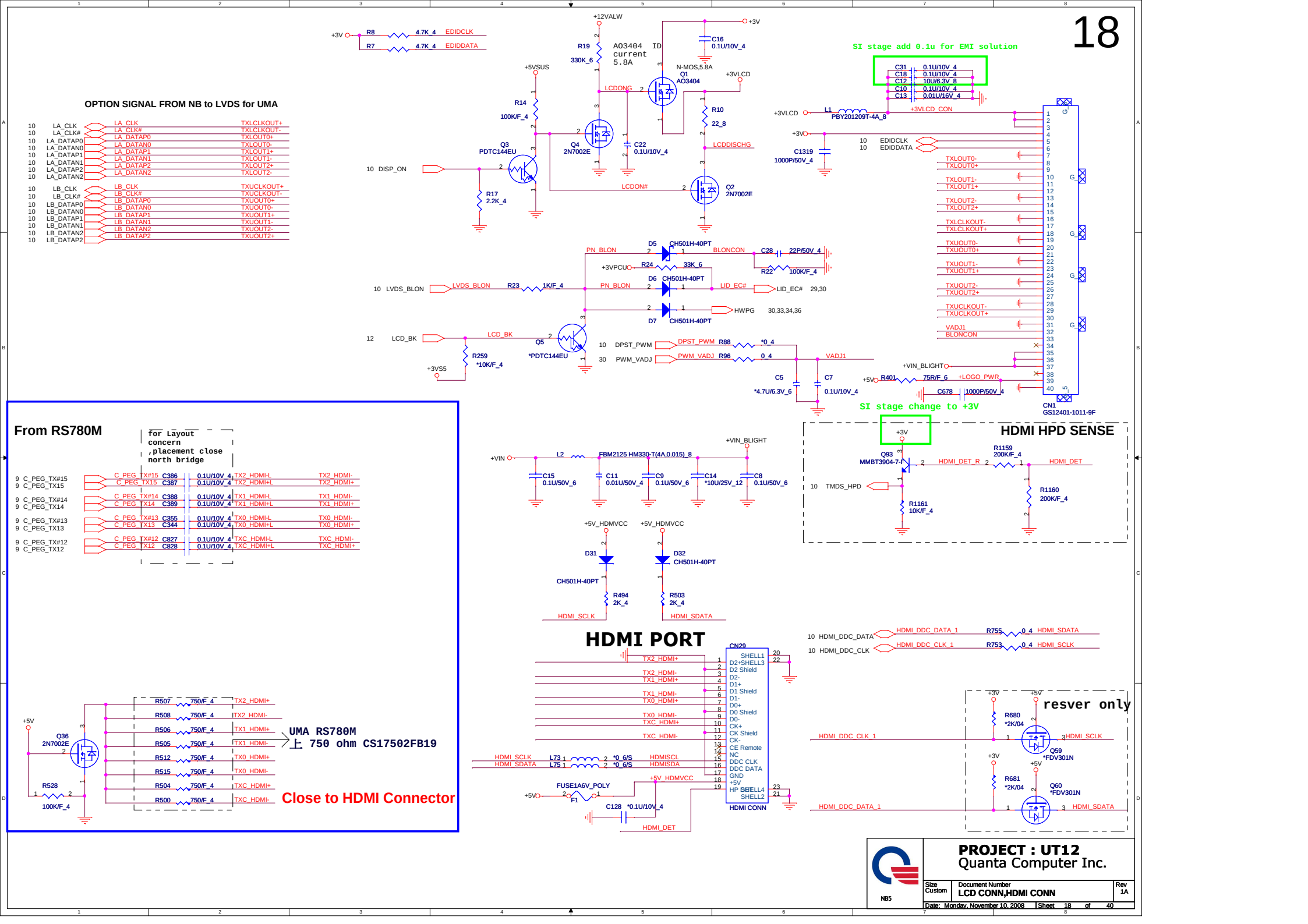

PROJECT :	UT12
Quanta Computer Inc.	
Size	Custom
Document Number	LCD CONN,HDMI CONN
Rev	1A
Date:	Monday, November 10, 2008
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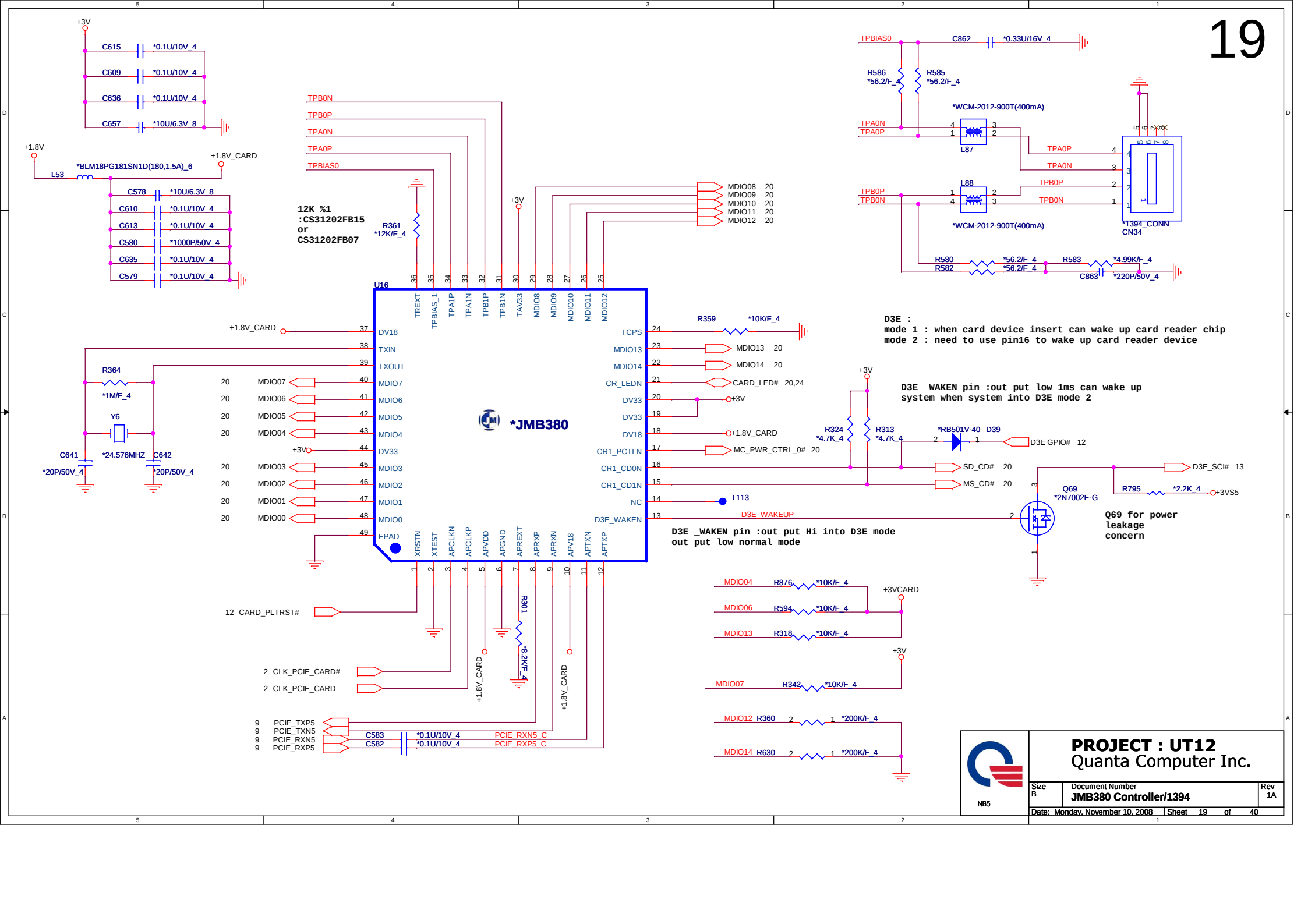
N85	


+3V
C615 *0.1U/10V_4
C609 *0.1U/10V_4
C636 *0.1U/10V_4
C657 *10U/6.3V_8
+1.8V
+1.8V_CARD
L53 *BLM18PG181SN1D(180,1.5A)_6
C578 *10U/6.3V_8
C610 *0.1U/10V_4
C613 *0.1U/10V_4
C580 *1000P/50V_4
C635 *0.1U/10V_4
C579 *0.1U/10V_4
TPB0N
TPB0P
TPA0N
TPA0P
TPBIAS0
12K %1
:CS31202FB15
or
CS31202FB07
R361 *12K/F_4
U16
TREXT
TPBIAS_1
TPA1P
TPA1N
TPB1P
TPB1N
TAV33
MDIO8
MDIO9
MDIO10
MDIO11
MDIO12
MDIO08 20
MDIO09 20
MDIO10 20
MDIO11 20
MDIO12 20
DV18
TXIN
TXOUT
MDIO7
MDIO6
MDIO5
MDIO4
DV33
MDIO3
MDIO2
MDIO1
MDIO0
EPAD
TCPS
MDIO13
MDIO14
CR_LEDN
DV33
DV33
DV18
CR1_PCTLN
CR1_CD0N
CR1_CD1N
NC
D3E_WAKEN
R359 *10K/F_4
MDIO13 20
MDIO14 20
CARD_LED# 20,24
+3V
+1.8V_CARD
MC_PWR_CTRL_0# 20
T113
D3E_WAKEUP
*JMB380
XRSTN
XTEST
APCLKN
APCLKP
APVDD
APGND
APREXT
APRXP
APRXN
APV18
APTXN
APTXP
R364 *1M/F_4
Y6
C641 *20P/50V_4
*24.576MHZ
C642 *20P/50V_4
12 CARD_PLTRST#
2 CLK_PCIE_CARD#
2 CLK_PCIE_CARD
R301 *8.2K/F_4
9 PCIE_TXP5
9 PCIE_TXN5
9 PCIE_RXN5
9 PCIE_RXP5
C583 *0.1U/10V_4
C582 *0.1U/10V_4
PCIE_RXN5_C
PCIE_RXP5_C
TPBIAS0
C862 *0.33U/16V_4
R586 *56.2/F_4
R585 *56.2/F_4
*WCM-2012-900T(400mA)
L87
L88
*1394_CONN
CN34
R580 *56.2/F_4
R582 *56.2/F_4
R583 *4.99K/F_4
C863 *220P/50V_4
D3E :
mode 1 : when card device insert can wake up card reader chip
mode 2 : need to use pin16 to wake up card reader device
D3E _WAKEN pin :out put low 1ms can wake up
system when system into D3E mode 2
R324 *4.7K_4
R313 *4.7K_4
*RB501V-40 D39
D3E GPIO# 12
SD_CD# 20
MS_CD# 20
Q69
*2N7002E-G
R795 *2.2K_4
+3VS5
D3E_SCI# 13
Q69 for power
leakage
concern
D3E _WAKEN pin :out put Hi into D3E mode
out put low normal mode
MDIO04 R876 *10K/F_4
MDIO06 R594 *10K/F_4
MDIO13 R318 *10K/F_4
+3VCARD
MDIO07 R342 *10K/F_4
MDIO12 R360 *200K/F_4
MDIO14 R630 *200K/F_4
NB5
PROJECT : UT12
Quanta Computer Inc.
Size B
Document Number
JMB380 Controller/1394
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For 5158E/5159

2 CLK_48M_CR — R397 0_4 — XTLO

+3VSUS — R321 100K/F_4

19,24 CARD_LED# — R320 0_4 — CARD_LED0

U19

CF_CD# GPIO0 CF_D10 CF_D9 CF_D2 CF_D8/SM_CD# CF_D1/XD_CD# CF_D0/SM_WPM#/SD_WP CF_A0/SD_CD# CF_DMACK# CF_A1/XD_D4/SD_DAT1 CF_DMARQ

XD_CD# — SP2 — SD_CD# — SP4

R362 6.19K/F_4 — RREF

13 USBP3- — DM
13 USBP3+ — DP

C665 *5.6P/50V_4 — XTLO — *12MHz — Y5 — XTLI — C668 *5.6P/50V_4

R395 *270K_4

only For 5158

MODE_SEL — R394 0_4

+3VSUS — R667 100K/F_4 — 5158_RST# — C925 1U/10V_4

RST#

RTS5158E 時, R394=NC
RTS5159時, R394 = short

XD_CLE/CF_D3 XD_CE#/CF_D11 XD_ALE/CF_D4 — SP19 SP18 SP17

SD_DAT2/XD_RE#/CF_D12 SD_DAT3/XD_WE#/CF_D5 XD_RDY/CF_D13 SD_DAT4/XD_WP#/CF_D6 — SP16 SP15 SP14 SP13

SD_CMD SD_DAT5/XD_D0/CF_D14 SD_CLK/XD_D1/MS_CLK/CF_D7 SD_DAT6/XD_D7/MS_D3/CF_D15 CF_CS0# — SD_CMD_R SP12 SP11 SP10

MS_INS#/CF_IORD# — MS_CD#

SD_DAT7/XD_D2/MS_D2/CF_IOWR# SD_DAT0/XD_D6/MS_D0/CF_RST# XD_D3/MS_D1/CF_IORDY XD_D5/MS_BS/CF_A2 — SP8 SP7 SP6 SP5

AV_PLL_IN — C647 0.1U/10V_4 — C918 1U/10V_4

VREG_OUT — VREG

D3V3_IN. A3V3_IN D3V3_IN — C634 0.1U/10V_4 — C633 0.1U/10V_4 — C612 0.1U/10V_4 — C589 4.7U/6.3V_6 — C593 0.1U/10V_4 — C598 4.7U/6.3V_6 — +3VSUS

D3V3_OUT

A3V3_OUT — +3VSUS

CARD_3V3_OUT — +3VCARD

AG33 AG_PLL DGND2 DGND1 — C629 1U/10V_4 — C624 0.1U/10V_4 — C917 0.1U/10V_4 — C628 0.1U/10V_4 — C618 0.1U/10V_4 — C617 0.1U/10V_4

RTS5159

AL005158B10 -->RTS5158E
???? -->RTS5159

Note:

	SD/MMC	MS	XD
SP1			XD_CD#
SP2	SD_WP		
SP3	SD_CD#		
SP4	SD_DAT1		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

SP7 — R315 0_4 — MS_DATA0_SD_DAT0
SP6 — R316 0_4 — XD-D6
R334 0_4 — MS_DATA1
SP8 — R338 0_4 — XD-D3
R345 0_4 — MS_DATA2_XD_D2
SP16 — R666 0_4 — SD_DAT2
R676 0_4 — XD-RE#
SP5 — R327 0_4 — MS_BS
R335 0_4 — XD-D5
SP15 — R675 0_4 — SD_DAT3
R390 0_4 — XD_WE
SP11 — R354 0_4 — SD_CLK_MS_CLK
R358 0_4 — XD-D1
SP2 — R319 0_4 — SD_WP
SP13 — R677 0_4 — XD-WP#
SP19 — R393 0_4 — XD-CLE
SP4 — R317 0_4 — XD-D4
SP10 — R351 0_4 — MS_DATA3
R348 0_4 — XD-D7
SP14 — R389 0_4 — XD-RB#
SP12 — R369 0_4 — XD-D0
SP17 — R391 0_4 — XD-ALE
SP18 — R392 0_4 — XD-CE#
SD_CMD_R — R372 0_4 — SD_CMD
SP4 — R333 0_4 — SD_DAT1

*CH501H-40PT
D23 1 2 MS_CD#
XD_CD# — D24 1 2 SD_CD#
*CH501H-40PT
C873 *270P/25V_4
for Jmicron only

5158_RST# 2 — CH501H-40PT — 1 5158_RST_R# — 5158_RST_R# 13
D49
for RT5158/RT5158E/5159only

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

C905 *270P/25V_4

+3VCARD — R678 *10K/F_4 — XD-WP#

CN36

XD-RB# XD-RE# XD-CE# XD-CLE XD-ALE XD_WE XD-WP XD-D0 XD-D1 SD_DAT2 SD_DAT3 SD_CMD — SD-C/D SD-CD-SW SD-W/P SD-WP-SW XD-CD XD-VCC XD-DATA7 XD-DATA6 XD-DATA5 XD-DATA1 XD-DATA4 XD-DATA3 XD-DATA2 XD-DATA0 SD-CLK SD-VCC — GND GND GND GND GND

SD_CD# SD_CD# SD_WP SD_WP XD_CD# — SD_CD#

XD-D7 XD-D6 XD-D5 SD_DAT1 XD-D4 XD-D3 MS_DATA2_XD_D2 MS_DATA0_SD_DAT0 SD_CLK_MS_CLK

SD_CLK_MS_CLK MS_DATA3 MS_CD# MS_DATA2_XD_D2 MS_DATA0_SD_DAT0 MS_DATA1 MS_BS — 19 MS_CD#

5IN1 CARD READER SOCKET

+3VCARD — C872 2.2U/6.3V_6 — R607 150K/F_4 — CLOSE CONN

+3V — Q25 *AO3409 — +3VCARD

+5V

19 MC_PWR_CTRL_0# — XD_PWON R387 *10K/F_4

+3VCARD — R332 *0_8

C887 0.1U/10V_4 — C894 0.1U/10V_4 — C874 0.1U/10V_4

RESERVED for JMicron -- after programming can out-put +3.3V throught MC_PWR_CTRL_0# signal

CN42

XD-RB# XD-RE# XD-CE# XD-CLE XD-ALE XD_WE XD-WP# XD-D0 XD-D1 SD_DAT2 SD_DAT3 SD_CMD — xD-R/B xD-RE xD-CE xD-CLE xD-ALE xD-WE xD-WP xD-D0 xD-D1 SD-DAT2 SD-DAT3 SD-CMD GND MS-VCC MS-SDLK MS-DATA3 MS-INS MS-DATA2 MS-DATA0 MS-DATA1 MS-BS GND — GND GND GND GND — NC NC — SD-CD SD-WP xD-CD xD-VCC xD-D7 xD-D6 xD-D5 SD-DAT1 xD-D4 xD-D3 xD-D2 SD-DAT0 SD-CLK SD-VCC

SD_CD# SD_WP XD_CD# XD-D7 XD-D6 XD-D5 SD_DAT1 XD-D4 XD-D3 MS_DATA2_XD_D2 MS_DATA0_SD_DAT0 SD_CLK_MS_CLK — SD_CD# 19

SD_CLK_MS_CLK MS_DATA3 MS_CD# MS_DATA2_XD_D2 MS_DATA0_SD_DAT0 MS_DATA1 MS_BS

*TAI TWUM 5IN1 CARD READER SOCKET

MDIO00 — R611 *0_4 — MS_DATA0_SD_DAT0
MDIO01 — R623 *0_4 — XD-D0
R608 *0_4 — SD_DAT1
R610 *0_4 — MS_DATA1
R622 *0_4 — XD-D1
MDIO02 — R612 *0_4 — MS_DATA2_XD_D2
R620 *0_4 — SD_DAT2
MDIO03 — R614 *0_4 — MS_DATA3
R619 *0_4 — SD_DAT3
R606 *0_4 — XD-D3
MDIO04 — R618 *0_4 — SD_CMD
R609 *0_4 — MS_BS
R627 *0_4 — XD_WE
R617 *47/F_4 — SD_CLK_MS_CLK
MDIO05 — R634 *47/F_4 — XD-CE#
MDIO06 — R593 *0_4 — SD_WP
R591 *0_4 — XD-WP#
MDIO07 — R633 *0_4 — XD-CLE
MDIO08 — R605 *0_4 — XD-D4
MDIO09 — R603 *0_4 — XD-D5
MDIO10 — R602 *0_4 — XD-D6
MDIO11 — R601 *0_4 — XD-D7
MDIO12 — R679 *0_4 — XD-RE#
MDIO13 — R635 *0_4 — XD-RB#
MDIO14 — R628 *0_4 — XD-ALE

PAD14 — *MDC_SPRING
PAD15 — *MDC_SPRING
PAD16 — *MDC_SPRING

H38 *H-d98x79098X79N
H26 *H-1S0118p2
H34 *H-C315D118P2
H37 *H-C315D118P2
H35 *H-c315d256p2

PAD8 *MDC_SPRING — PAD9 *MDC_SPRING — PAD10 *MDC_SPRING — PAD11 *MDC_SPRING

H32 *H-S315D110P2 — H31 *H-S315D110P2 — H2 *H-S315D110P2 — H13 *H-OT73X118D173X118N — PAD7 *MDC_SPRING

H22 *H-S315D110P2 — H23 *H-C244D181P2 — H3 *H-C256D157P2

H6 *H-C217D157P2 — H9 *H-C217D157P2 — H8 *H-C217D157P2

PAD4 MDC_SPRING — PAD5 MDC_SPRING — PAD2 *MDC_SPRING

H12 — H7 *H-S315D110P2 — H25 *H-C315D118P2 — H17 *H-C256D217P2

K/B SCREW HOLE

PAD17 *GND PAD — PAD18 *GND PAD

PAD6 MDC_SPRING

SI stage add for EMI solution

for MDC cable routing

H5 *H-S315D110P2 — H1 *H-C315D118p2 — H4 *H-C217D181P2

PAD19 *GND PAD — PAD20 *GND PAD — PAD21 *GND PAD

Mini Card Hole

PAD13 *MDC_SPRING

H20 *H-C256D217P2 — H14 *H-C256D217P2 — H28 *H-C236D87P2 — H29 *H-C236D87P2 — H30 *H-C236D87P2 — H27 *H-C256D217P2 — PAD12 *MDC_SPRING

PAD22 *GND PAD

NB5

PROJECT : UT12
Quanta Computer Inc.

Size	Document Number	Rev
Custom	RTS5158 & CR SOCKET &HOLE	1A

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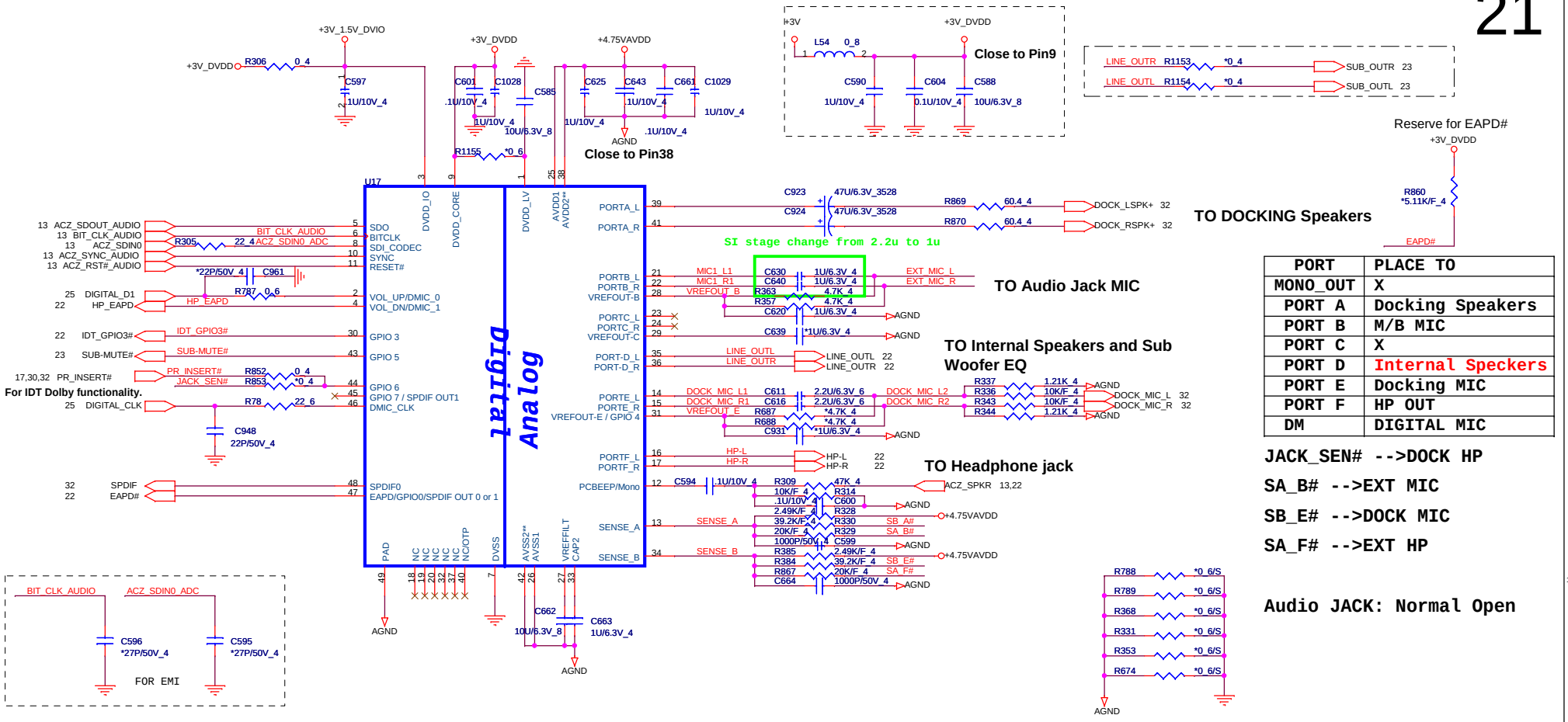

PORT	PLACE TO
MONO_OUT	X
PORT A	Docking Speakers
PORT B	M/B MIC
PORT C	X
PORT D	Internal Speckers
PORT E	Docking MIC
PORT F	HP OUT
DM	DIGITAL MIC

NB5

PROJECT : UT12
Quanta Computer Inc.

Size	Document Number	Rev
Custom	Azalia AD1883	1A

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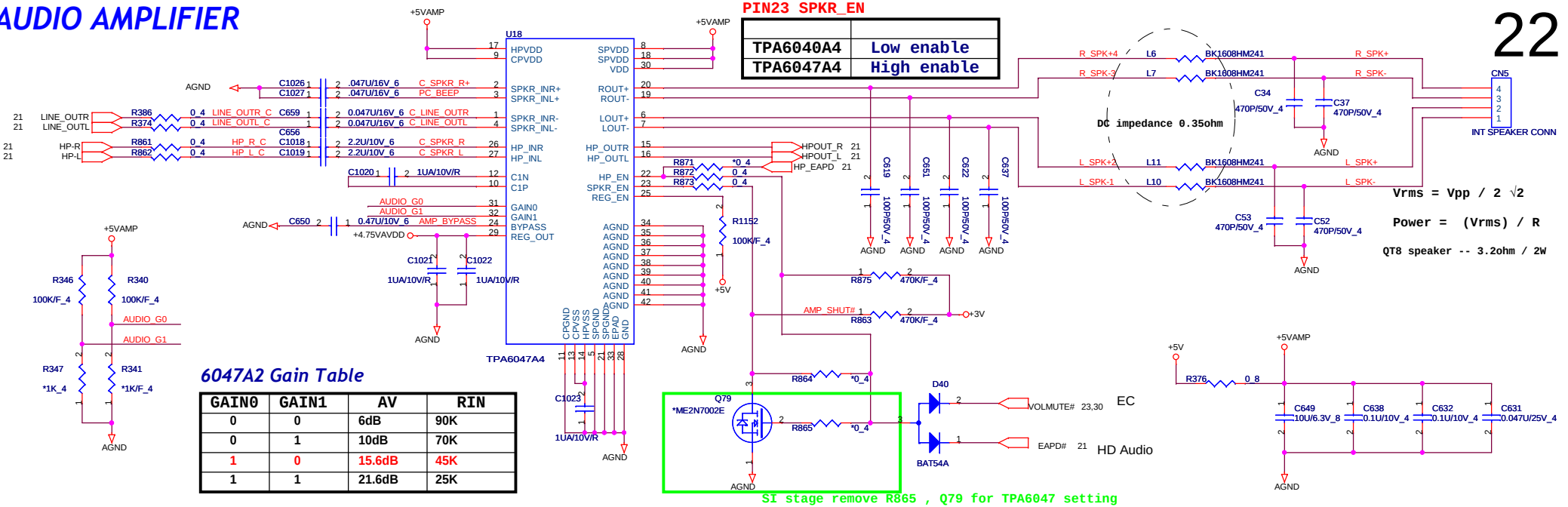
AUDIO AMPLIFIER

PIN23 SPKR_EN

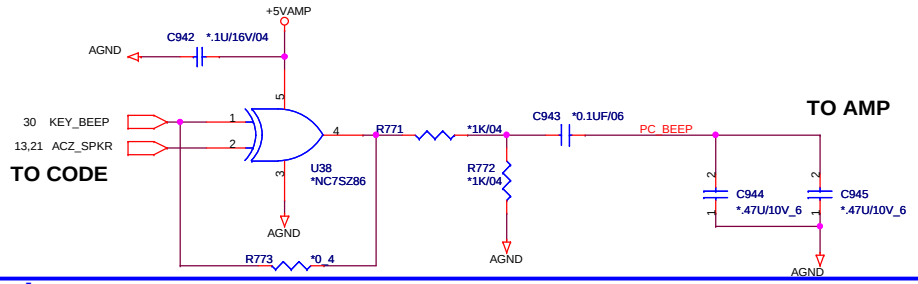
TPA6040A4	Low enable
TPA6047A4	High enable



6047A2 Gain Table

GAIN0	GAIN1	AV	RIN
0	0	6dB	90K
0	1	10dB	70K
1	0	15.6dB	45K
1	1	21.6dB	25K

PC-BEEP

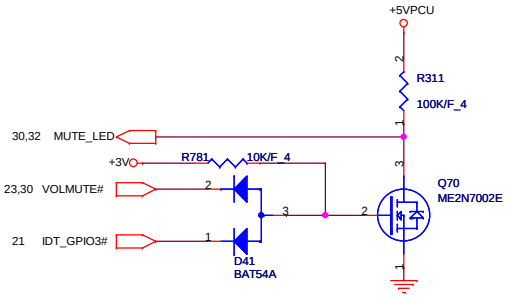


INT. SPEAKER

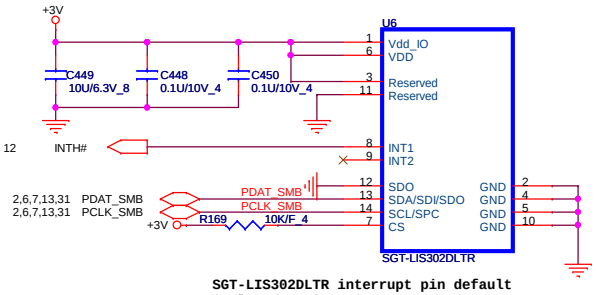
MUTE_LED

Low -->un-MUTE

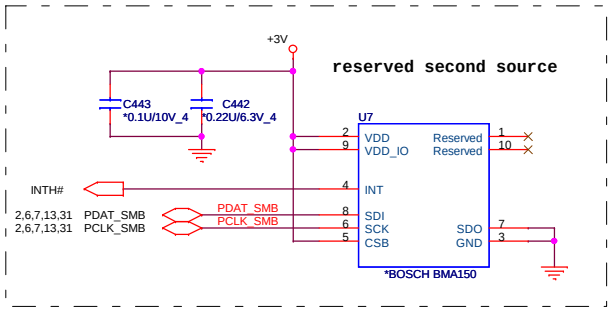
High-->Mute



Acceleration sensor



SGT-LIS302DLTR interrupt pin default is low / active Hi , BIOS need to programming 22h to change status from active Hi to low



PROJECT : UT12
Quanta Computer Inc.

Size	Document Number	Rev
Custom	AMP_TPA6017/INT SPK	1A

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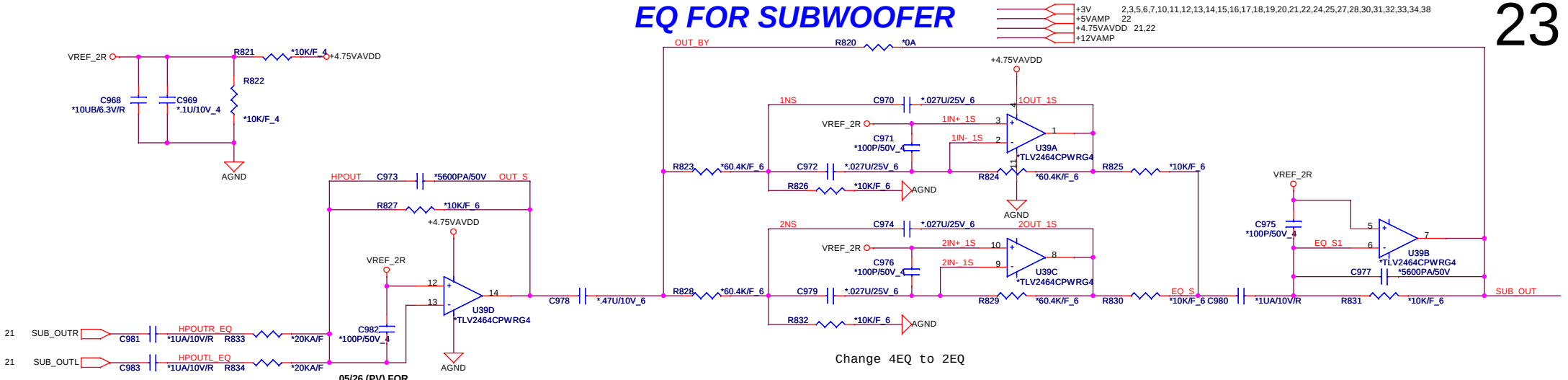
NB5

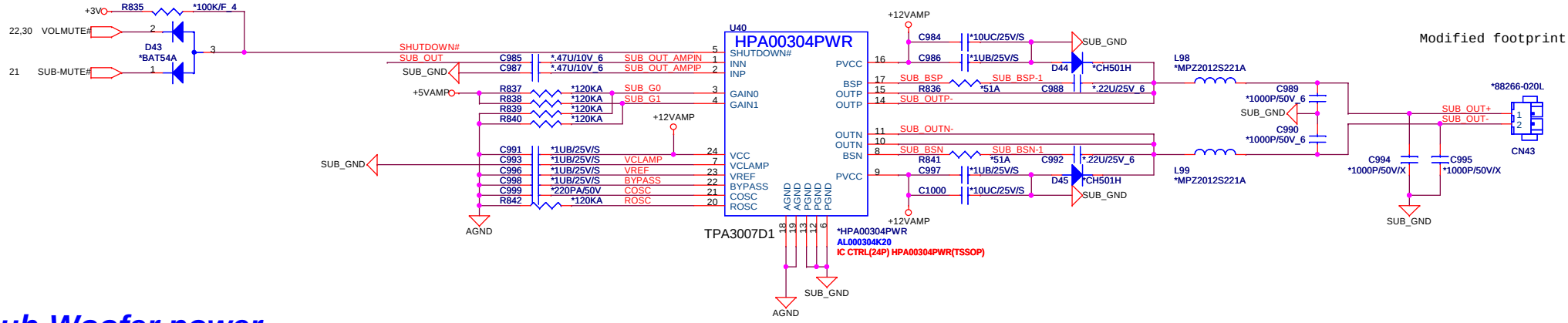
EQ FOR SUBWOOFER



Change 4EQ to 2EQ

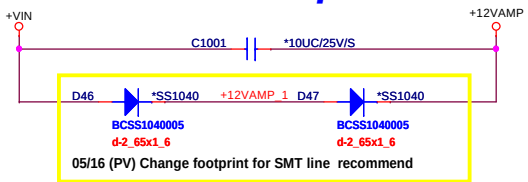
05/26 (PV) FOR BOM update.

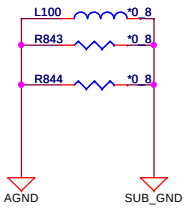
MODEL	UT1	UT2
R823	60.4K/F_6	40.2K/F_6
R824	60.4K/F_6	40.2K/F_6
R828	60.4K/F_6	80.6K/F_6
R829	60.4K/F_6	80.6K/F_6
C970	0.027U/25V_6	0.022U/50V_6
C972	0.027U/25V_6	0.022U/50V_6
C974	0.027U/25V_6	0.039U/16V_6
C976	0.027U/25V_6	0.039U/16V_6



Modified footprint

Sub-Woofer power





PROJECT : UT12
Quanta Computer Inc.

Size	Document Number	Rev
Custom	SUBWOOFER(EQ & AMP.)	1A

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NB5

Modem CONN

H21 H-C217D63P2

H19 H-C217D63P2

MDC

CN18 MDC CONN

13 ACZ_SDOUT_AUDIO_MDC → ACZ_SDOUT_AUDIO_MDC

13 ACZ_SYNC_AUDIO_MDC → ACZ_SYNC_AUDIO_MDC

13 ACZ_SDIN1 → AC_SDIN1_MDC

13 ACZ_RST#_AUDIO_MDC

GND A_SDO GND A_SYNC A_SDI A_RST# A_BCLK

REV REV VCC GND GND A_BCLK

R326 33_4

C603 *10P/50V_4

+3V

C653 0.1U/10V_4

C654 2.2U/6.3V_6

C658 1000P/50V_4

R377 0_4 BIT_CLK_AUDIO_MDC 13

For EMI

C652 *10P/50V_4

+3V

R750 *10K/F_4

Q65 *PDTC144EU

Q64 *PDTC144EU

R766 0_6

30 LEDVCC_EN#

14 SATA_LED#

Q26 PDTC144EU

14 ACCLED_EN

(White) (Amber)

R767 200/F_6

LED4 LED 3P WHITE/AMBER

SATA_R_LED1 R381 39_6 +3V

LED6 2P WHITE LED PWR_R_LED1 R378 39_6 +3VPCU_LED

29,30 PWR_LED#

LED5 2P WHITE LED MBAT_R_LED1 R379 39_6 +3VPCU_LED

30 MBATLED0#

LED7 2P WHITE LED CARD_LED1 R584 39_6 +3V

19,20 CARD_LED#

Single Color ,Right angle LTW-110TLA

LED PWR CONTROL

+15VALW

R180 *1M_4

R178 *1M/F_4 LED_CTL

30 LEDVCC_EN# → LEDVCC_EN#

*2N7002E Q17

R817 0_8 Q18 *2N7002E

+3V → +3V_LED → +3V_LED

20~40mils

C457 10U/6.3V_8

C460 0.1U/10V_4

C451 *1U/25V_8

C932 *.22U/25V_6

C933 *.22U/25V_6

add LED auto dim function

R818 0_8 Q23 *2N7002E

+3VPCU → +3VPCU_LED → +3VPCU_LED

20~40mils

LED_CTL

C566 10U/6.3V_8

C568 0.1U/10V_4

R819 0_8 Q12 *AO3404

+5V → +5V_LED

20~40mils

LED_CTL

C410 0.1U/10V_4

C556 *10U/6.3V_8

FOR UT2 17.3"

LED1 *2P WHITE

30 CAPSLED# → CAP_LED R185 39_6 +3V_LED

FOR UT1 16"

LED9 2P WHITE

30 CAPSLED# → CAP_LED

3 White

Anode 2 1 Amber

Dual Color ,Right angle LTW-326DSKF-5A

FOR UT1 16"

LED Vf

R

Vcc

(Amber)

30 TP_LED1# → TP_LED1# TPLD3 R183 200/F_6 +3V_LED

30 TP_LED2# → TP_LED2# TPLD4 R182 39_6 +3V_LED

(White)

LED3 LED 4P WHITE/AMBER

(Amber)

I = Vcc -Vf / R

朝上

30 TP_LED1# → TP_LED1# TPLD3

30 TP_LED2# → TP_LED2# TPLD4

(White)

LED8 *LED 4P WHITE/AMBER

FOR UT2 17.3"

Amber

4 2 + Anode

3 1 +

White

NB5

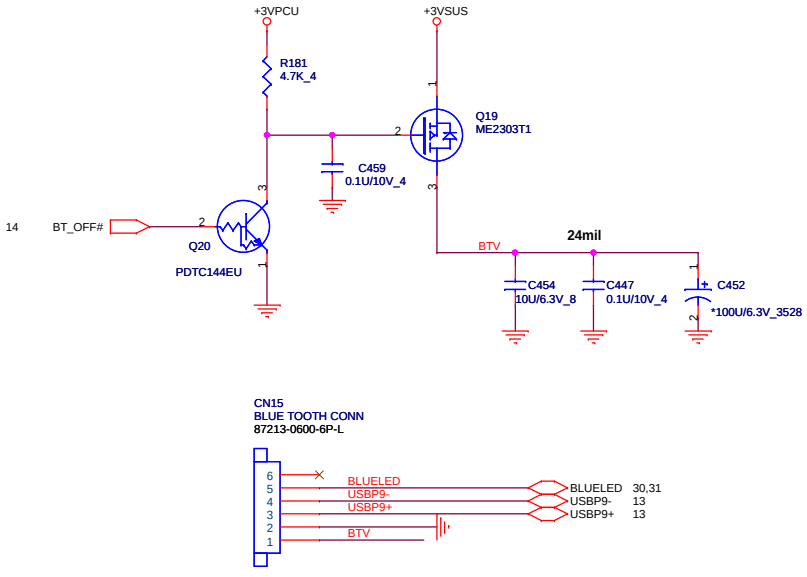
PROJECT : UT12

Quanta Computer Inc.

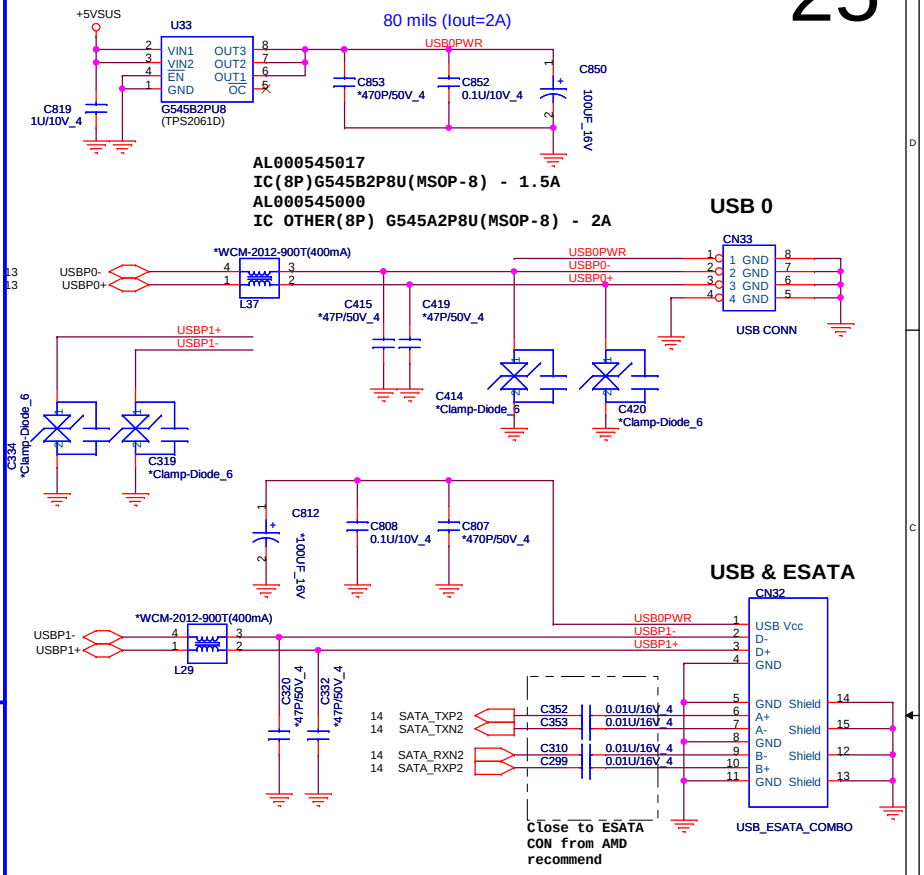
Size	Document Number	Rev
Custom	MDC1.5 Con Accelerometer/ILED	1A

Date: Monday, November 10, 2008 Sheet 24 of 40

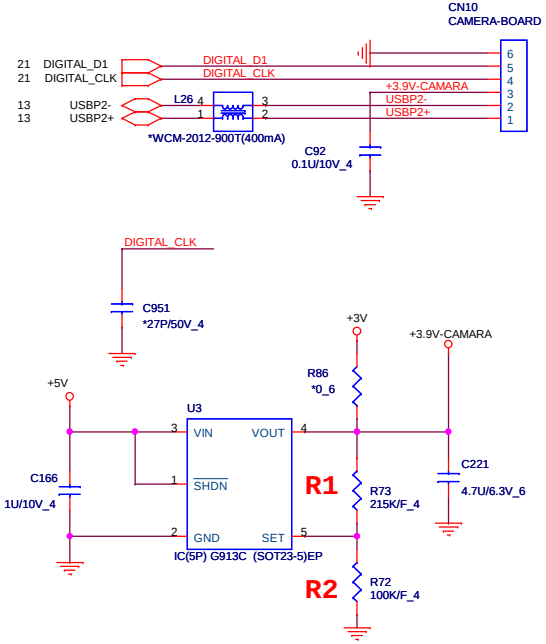
BLUETOOTH



LEFT SIDE USBX1 and E-SATA/USB COMBO



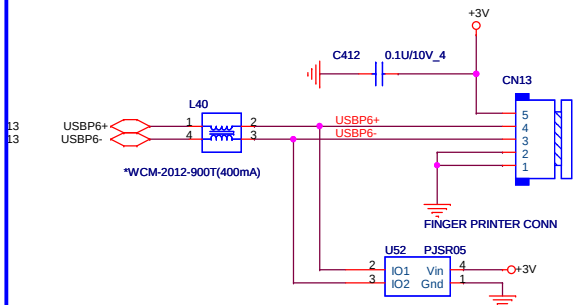
USB CAMERA CONNECT



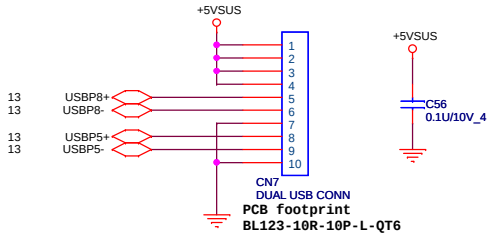
Vout=1.25(1+R1/R2)

USB Fingerprint CON

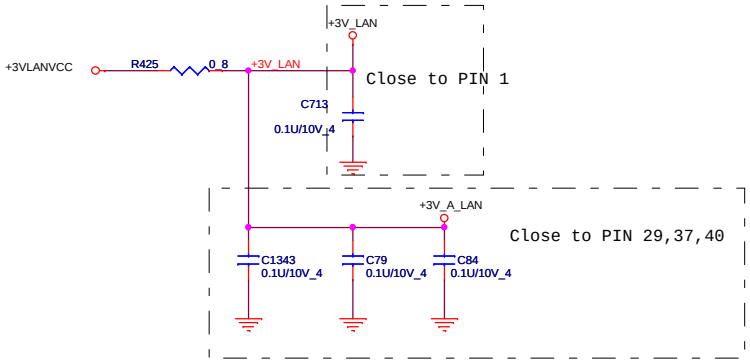
1. ESD GND
2. SYSTEM GND
3. USB-
4. USB+
5. USB PWR(+3V)



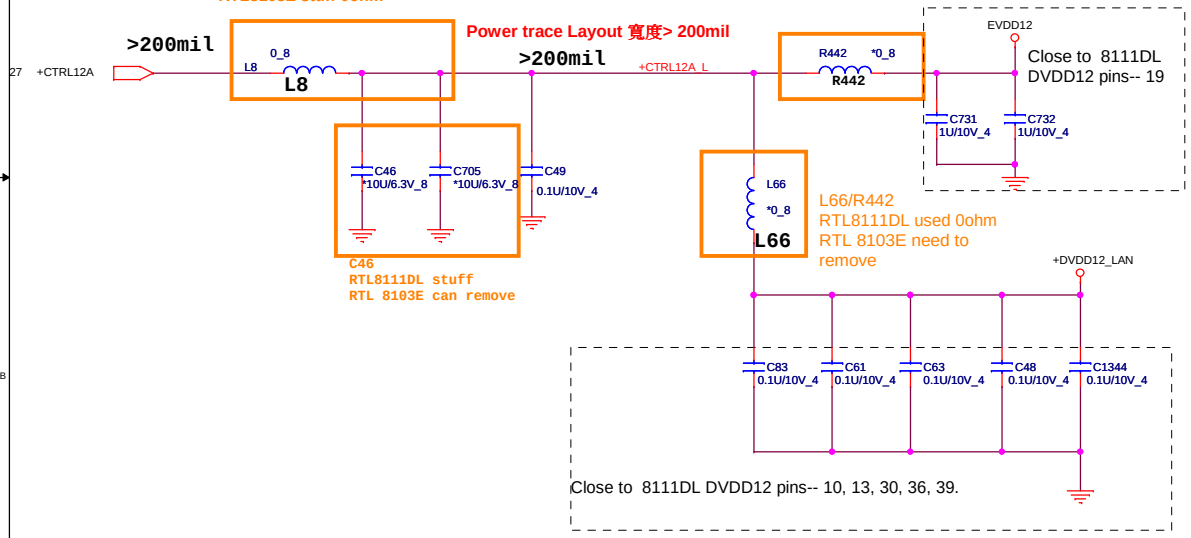
RIGHT SIDE USBX2



NB5	PROJECT : UT12 Quanta Computer Inc.	
Size: Custom	Document Number: BT/WEBCAM/FT/USBX4/ESATA	Rev: 1A
Date: Monday, November 10, 2008	Sheet 25 of 40	



L8
RTL8111DL (Gaga lan) use 4.7uH
power choke A>600mA tolerance
±15%
RTL8103E stuff 0ohm



NB5

PROJECT : UT12
Quanta Computer Inc.

Size	Document Number	Rev
Custom	LAN Power	1A

Date: Monday, November 10, 2008 | Sheet 26 of 40

for RTL8111DL use

close Pin 44,45

C1342 *10U/6.3V_8

C1340 *10U/6.3V_8

C1341 0.1U/10V_4

+CTRL12DVDD

for RTL8111DL use

R462 *0_6 +3V_LAN

+CTRL12DVDD R38 0_6 +DVDD12_LAN

for RTL8103E use

R461

ENSWREG R461 *0_6 +3V_LAN

R463 *0_6

R463

R461 and R463 are used in RTL8111DL , remove R463 if switching regulator is enable , Remove R461 external power is used.

+3V

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

R456 *1K/F_4

ISOLATEB R457 100_4 LAN_DISABLE# 13,30

*RB501V-40

D42

R441 15K/F_4

Y1 25MHZ

C45 30P/50V_4

C44 30P/50V_4

XTAL1

XTAL2

+CTRL12DVDD R37 2.49K/F_4 LANRSET

+3V_LAN +DVDD12_LAN

LAN_TX#

26 +CTRL12A +CTRL12A

U2

RTL8103EL/8111DL

SI stage change pull high resistor R427 from EEDO to EEDI

+3V_A_LAN

+DVDD12_LAN

+DVDD12_LAN

AVDD33 MDIP0 MDIN0 NC/FB12 MDIP1 MDIN1 GND1 NC/MDIP2 NC/MDIN2 DVDD12/AVDD12 NC/MDIP3 NC/MDIN3

MDI0+ MDI0- MDI1+ MDI1- MDI2+ MDI2- +DVDD12_LAN MDI3+ MDI3-

VCTRL12A/SROUT12 GND4 RSET VCTR12DVDDR NC/VDDSR NC/ENSWREG CKTAL2 CKTAL1 NC/AVDD33 NC/LV_PLL LED0 VDD33B

DVDD12B LED1/EESK LED2/EEDI LED3/EEDO EECS GND3 DVDD12A VDD33A ISOLATEB PERSTB LANWAKEB CLKREQB

LAN_GLINK100# LAN_GLINK10# LAN_GLINK1000# EECS ISOLATEB LAN_REST_R# PCIE_WAKE#

R427 3.6K_6

+DVDD12_LAN +3V_LAN +DVDD12_LAN +3V_LAN

R460 *0_4

LAN_REST# 30

PCIE_WAKE# 13,31

for RTL8103E use

R1162 1K/F_4

DVDD12 GND2 HSIP HSIN REFCLK_P REFCLK_N EVDD12 HSOP HSON EGND NC/GPO NC/NC

+DVDD12_LAN

LAN CABLE DETECT 30

9 PCIE_TXP6_LAN PCIE_TXP6_LAN

9 PCIE_TXN6_LAN PCIE_TXN6_LAN

2 PCIE_LAN_CLKP PCIE_LAN_CLKP

2 PCIE_LAN_CLKN PCIE_LAN_CLKN

PCIE_RXN6_LAN_L C82 0.1U/10V_4 PCIE_RXN6_LAN 9

PCIE_RXP6_LAN_L C81 0.1U/10V_4 PCIE_RXP6_LAN 9

EVDD12

RJ45

CN27

+3V_LAN R58 330_4 LAN_GLED LAN_GLED# 12 10

LED_GRE_P LED_GRE_N

LAN_MX3- 8 LAN_MX3+ 7 LAN_MX1- 6 LAN_MX2- 5 LAN_MX2+ 4 LAN_MX1+ 3 LAN_MX0- 2 LAN_MX0+ 1

RX1- RX1+ RX0- TX1- TX1+ RX0+ TX0- TX0+ GND1 GND

14 13

+3V_LAN R34 330_4 LAN_YLED LAN_YLED# 9 11

LED_YEL_P LED_YEL_N

RJ45_CONN

AL08111DB00 RTL8111DL-GR

AL08103EB00 RTL8103EL-GR

LAN_GLINK10# LAN_GLINK100# D37 BAT54A

LAN_GLINK1000# D38 RB501V-40 LAN_GLED#

LAN_TX# LAN_YLED#

Link

C39 *0.01U/16V_4 C85 *0.01U/16V_4

+3V_LAN C733 0.1U/10V_4

12 LAN_PLTRST# LAN_PLTRST# U28 TC7SH08FU LAN_REST_R#

U26

C709 0.01U/16V_4 V_DAC

C68 0.01U/16V_4 V_DAC

C62 0.01U/16V_4 V_DAC

C65 0.01U/16V_4 V_DAC

MDI0+ MDI0- MDI1+ MDI1- MDI2+ MDI2- MDI3+ MDI3-

TCT1 TD1+ TD1- TCT2 TD2+ TD2- TCT3 TD3+ TD3- TCT4 TD4+ TD4-

MCT1 MX1+ MX1- MCT2 MX2+ MX2- MCT3 MX3+ MX3- MCT4 MX4+ MX4-

NS892405

LAN_MCT0 C927 0.01U/100V_6 R39 75/F_4 LAN_MX0+ 32 LAN_MX0- 32

LAN_MCT1 C928 0.01U/100V_6 R44 75/F_4 LAN_MX1+ 32 LAN_MX1- 32

LAN_MCT2 C929 0.01U/100V_6 R47 75/F_4 LAN_MX2+ 32 LAN_MX2- 32

LAN_MCT3 C930 0.01U/100V_6 R51 75/F_4 LAN_MX3+ 32 LAN_MX3- 32

C708 1000P/3KV_1808

LAN_YLED LAN_GLED

EMI

C88 *0.1U/50V_6 C40 *0.1U/50V_6

NS892402:GIGABIT

NS892405:10/100

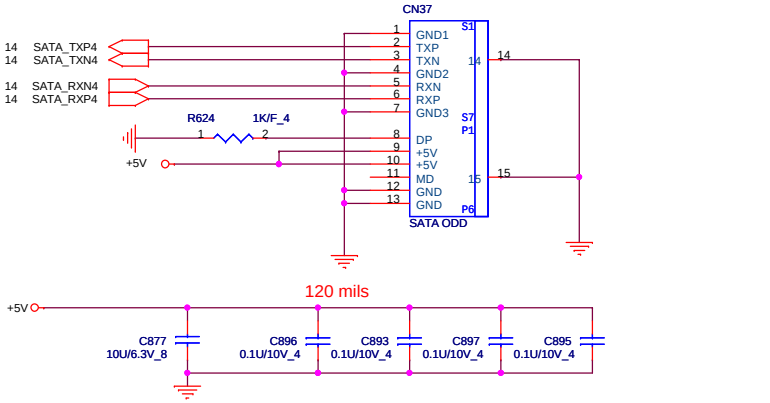
DB0AT9LAN05

DB0ZB1LAN04

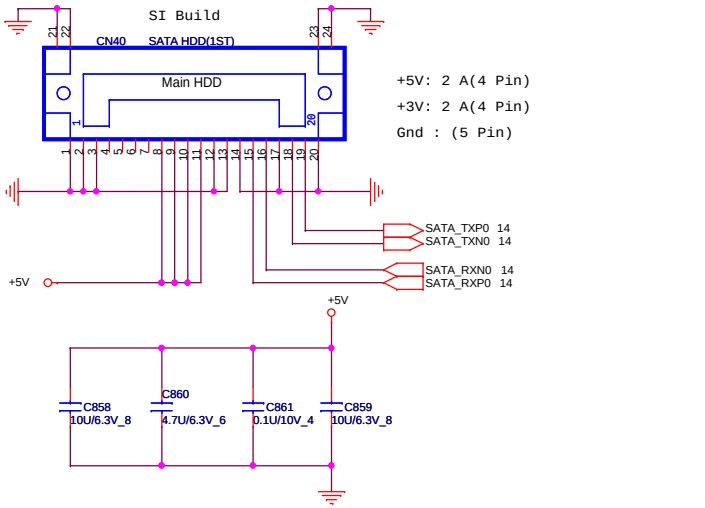
N85	PROJECT : UT12 Quanta Computer Inc.	
Size: Custom	Document Number: RTL8111C/8101E/RJ11-RJ45 CN	Rev: 1A
Date: Monday, November 10, 2008	Sheet 27 of 40	

SATA CD-ROM

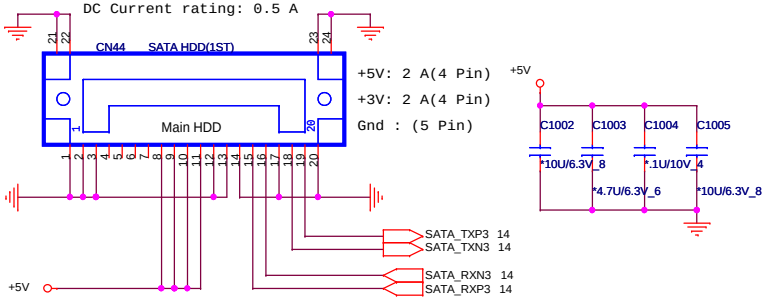
17.3 ODD P/N : DFHS13FR030 or DFHS13FR040
16.3 ODD P/N : DFHD13MR006 , DFHD13MR009 , DFHD13MR008



SATA_1 HDD CONNECTOR



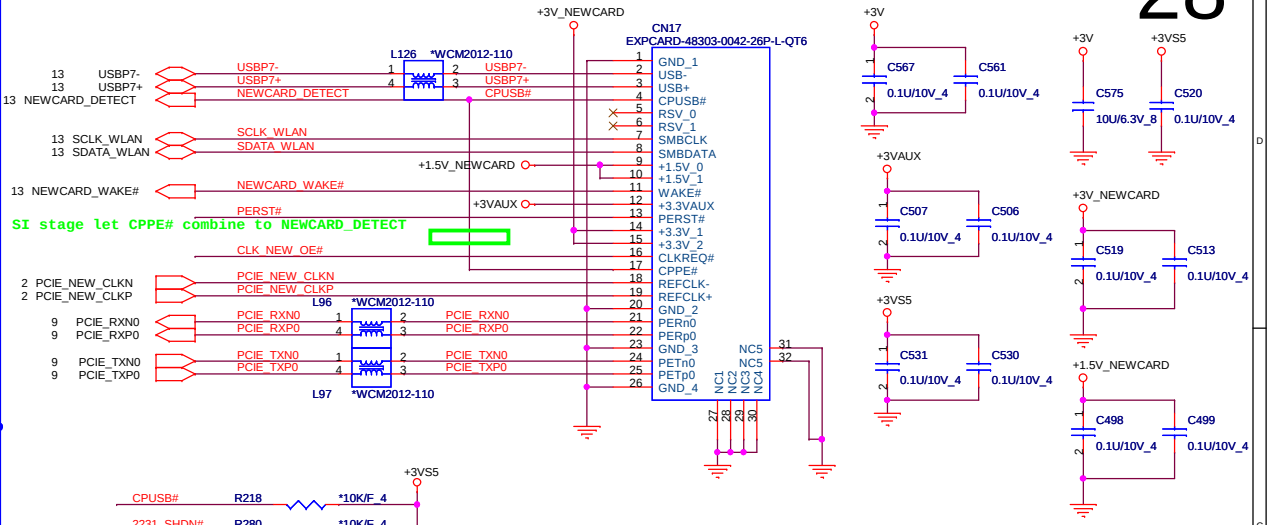
SATA_2 CONNECTOR

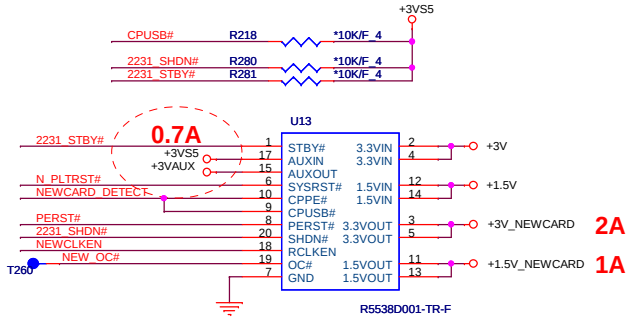


NEWCARD

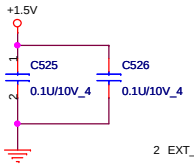
NEWCARD (PCIEXPRESS*1 + USB*1)

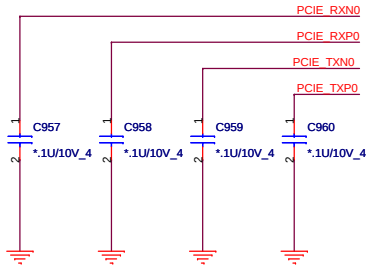
28

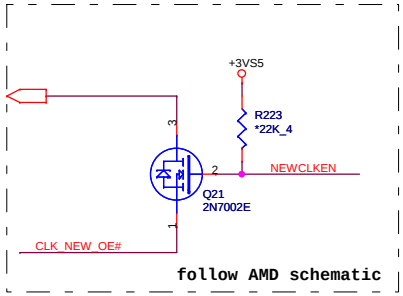


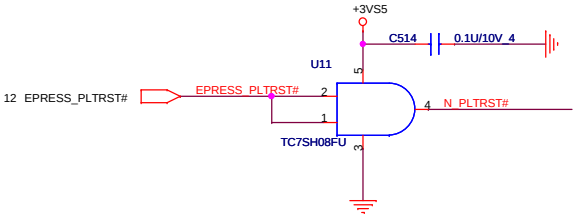


R5538 NEW CARD POWER SWITCH	
pin name	pull hi/low
CPPE#	internal pull up to AUXIN
SYSRST#	internal pull up to AUXIN
CPUSB##	internal pull up to AUXIN
PERST#	a logic level power good
SHDN#	internal pull up to AUXIN
RCLKEN	internal pull up to AUXIN
OC#	over current status
STBY#	internal pull up to AUXIN









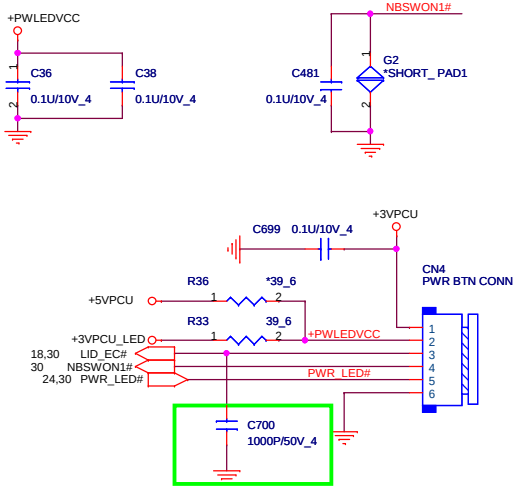
PROJECT : UT12
Quanta Computer Inc.

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

Date: Monday, November 10, 2008 | Sheet 28 of 40

NB5

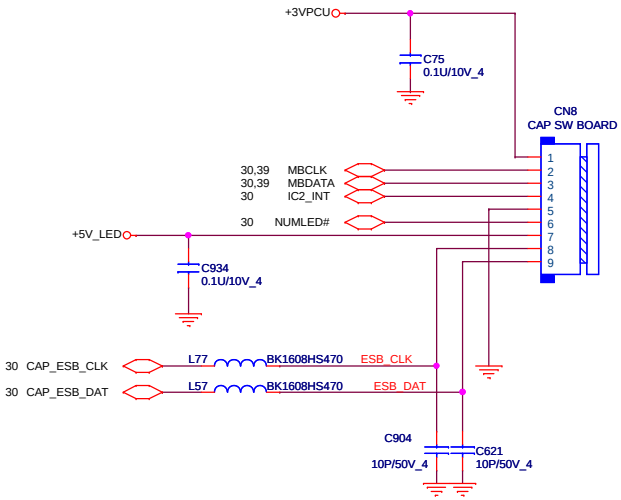
POWER BUTTON CONNECT



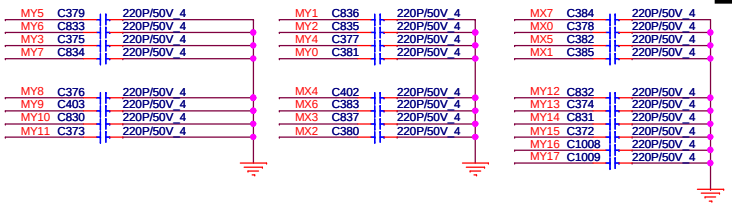
SI stage add 1000P for EMI solution

1. +3VPCU(LIDSWITCH PWR)
2. LEDVCC(+3VPCU)
3. LIDSWITCH
4.POWERON#
5. PWRLED#
6. GND

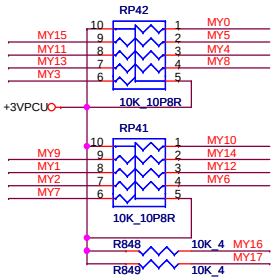
CAP SW CONNECT

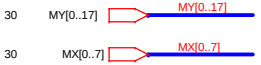


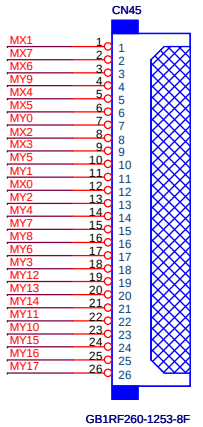
1. +3VPCU
2. MBCLK
3. MBDATA
4. CAP_INT
5. GND
6. NUM LOCK LED
7. +5V
8. ESB_CLK
9. ESB_DAT



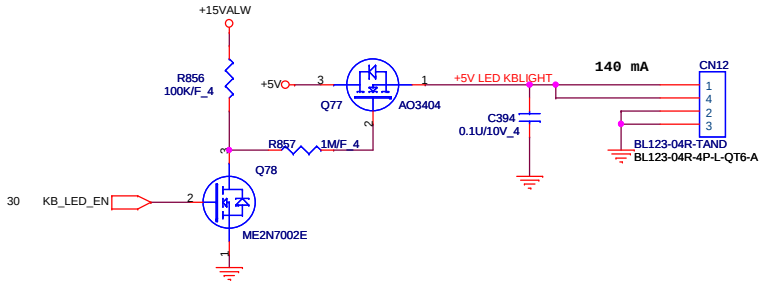
KEYBOARD PULL-UP

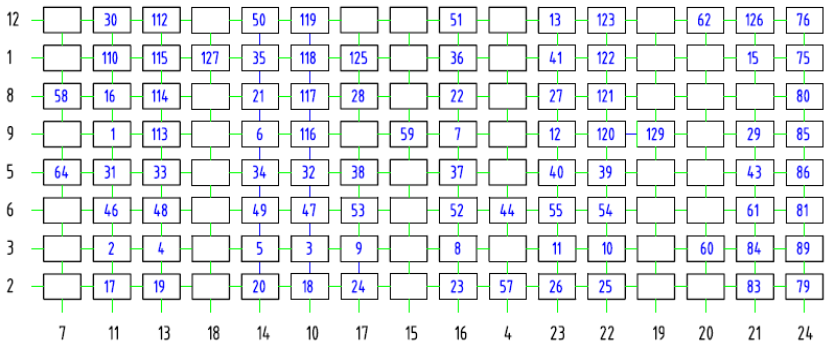






Footprint: "gb1rf260-1253-7f-26p-l





NB5

PROJECT : UT12
Quanta Computer Inc.

Size	Document Number	Rev
Custom	LED/KEYBOARD/SW	1A

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U9 KB3926

Battery charge/discharge Cap button

VGA thermal system thermal

Project Model	GPIO42
UT1 16"	Low
UT2 17.3"	High

GPIO42 control fan table

Project Model	GPIO43
UT1(65W/90W)	Low
UT2(65W/90W)	Low
UT2(120W)	High

Hi ==> 120W

Low ==> 65W/90W

GPIO43 read adapter type , if worog can not power on

SI stage change from 18P to 27P

SB780 internal have pull hi

SB internal pull Hi 10k to 3v_s5

SB internal pull Hi 10k to 3v_s5

SST	AKE5GFK0Z09	1M byte SPI BIOS
WINBOND	AKE3GFP0N08	
PME	AKE3GZP0500	
EON	AKE3GZP0Q00	

close conn

TOUCH PAD CONNECTOR

25 mils

CN14 TOUCH PAD CONN

FOR UT1 16"

TOUCH PAD ON/OFF

TOUCH PAD L/R

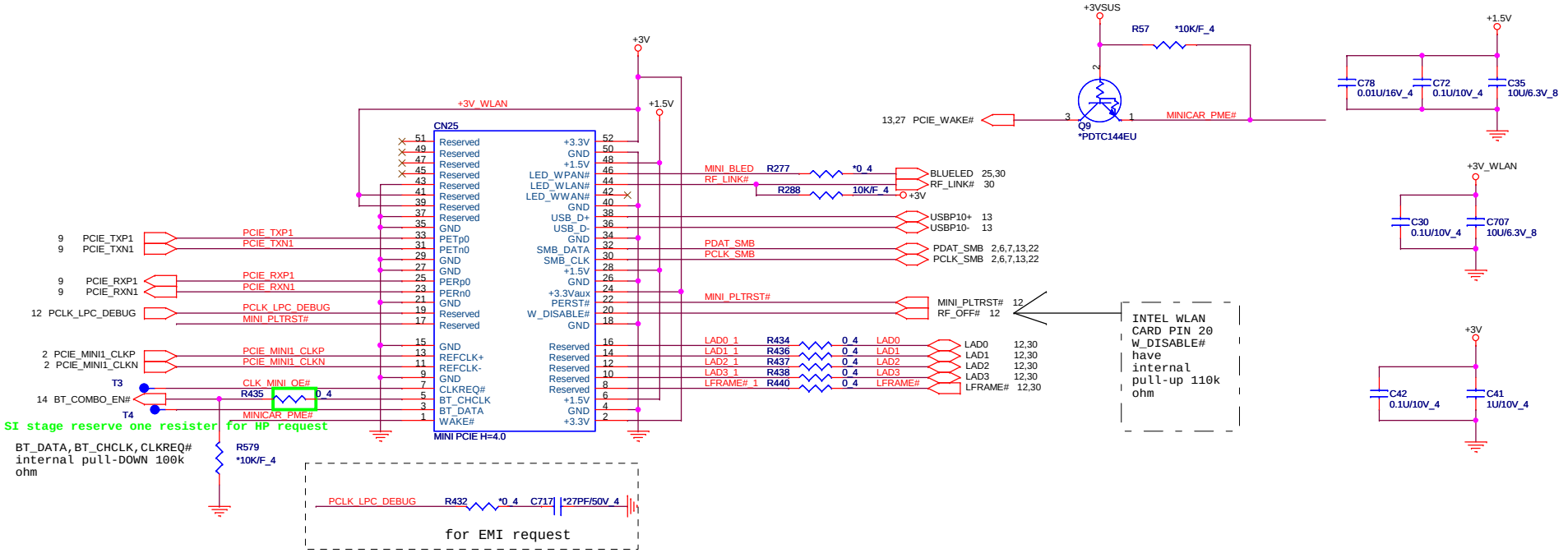
FOR UT2 17.3"

TOUCH PAD ON/OFF

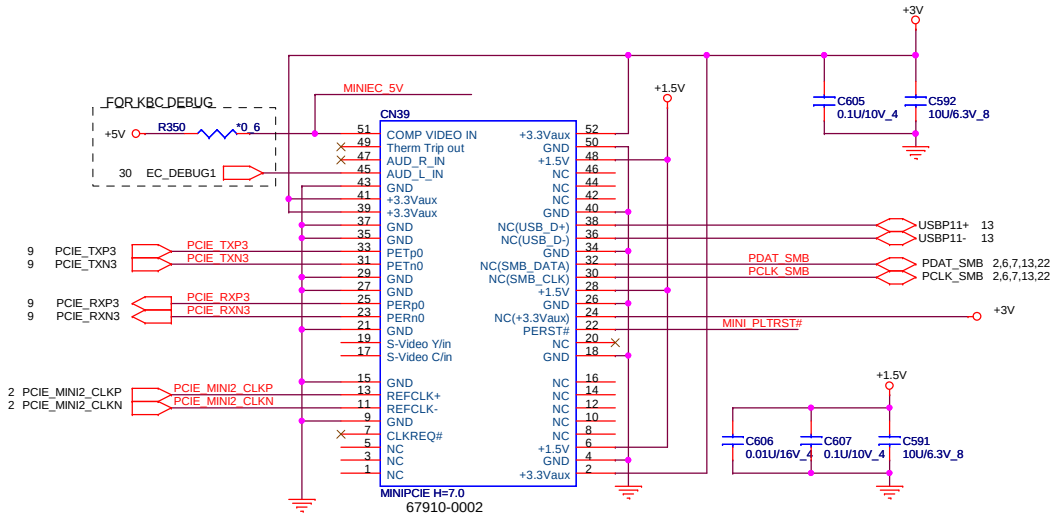
*TOUCH PAD EN SW

PROJECT :	UT12
	Quanta Computer Inc.
Size: Custom	Document Number: KB3926/ROM/TP
Rev:	1A
Date:	Monday, November 10, 2008
Sheet	30 of 40

Mini PCI-E Card 1 WLAN



Mini PCI-E Card 2 TV tuner card

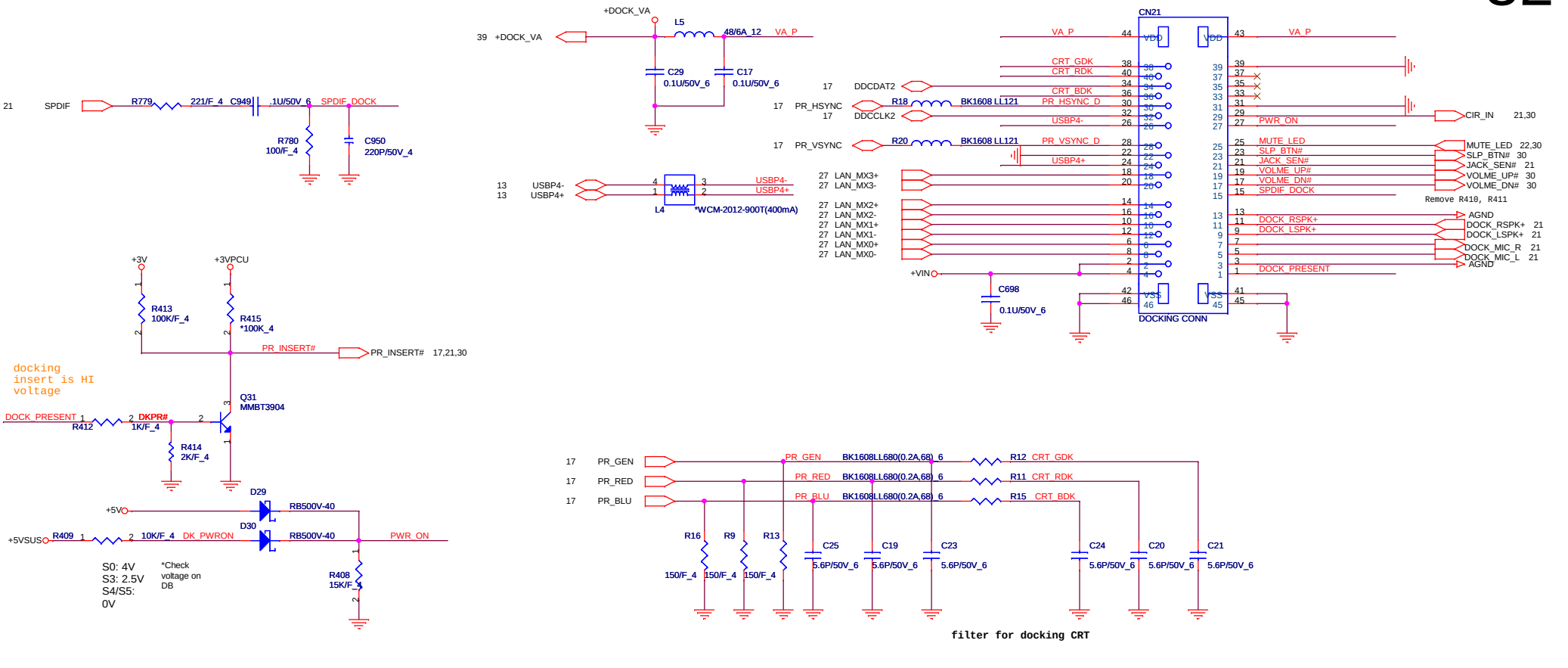


PROJECT :	UT12
Quanta Computer Inc.	
Size: Custom	Document Number: Mini CARD X 3
Rev: 1A	
Date: Monday, November 10, 2008	Sheet 31 of 40

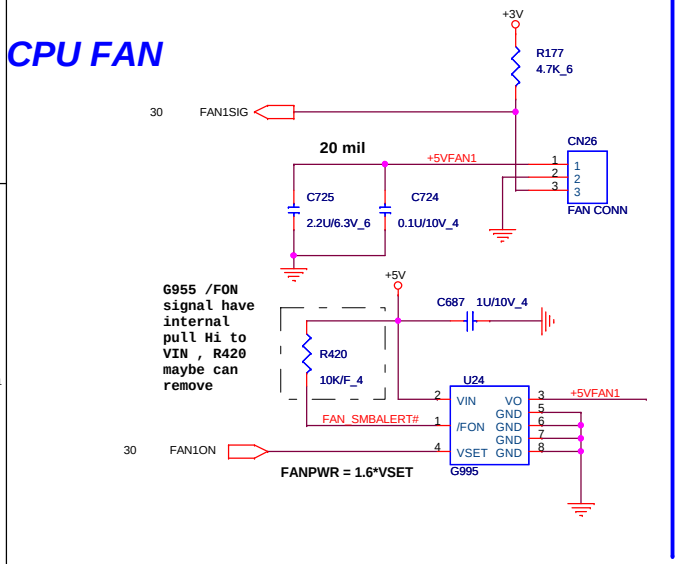
NB5

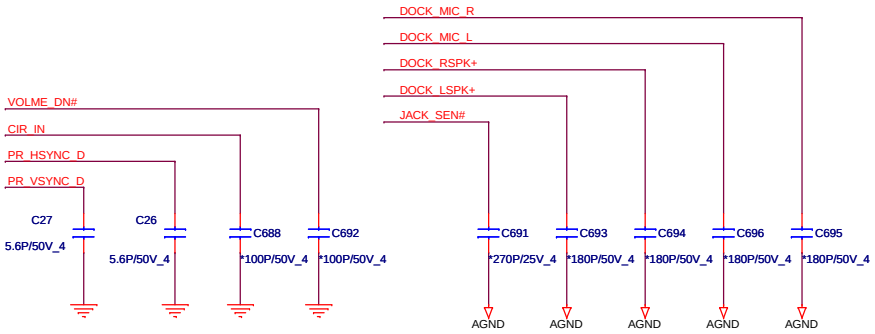
CABLE DOCK

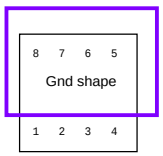
support 6A 200mils
CX000480005



CPU FAN







G995 layout notice

NB5	PROJECT : UT12 Quanta Computer Inc.	
Size: Custom	Document Number: CABLE DOCKING/FAN	Rev: 1A
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DC/DC +3VPCU/+ 5VPCU/ +12VALW

+3V 2,3,5,6,7,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,27,28,30,31,32,34,38

+5VPCU 21,22,29,30,34,35,36,37
+3VPCU 5,12,18,24,25,29,30,32,35,36,37,39
+3VSUS 13,20,25,31,34,36,38
+3VS5 5,7,12,13,14,15,16,18,19,28,38
+5VSUS 18,25,30,32,38
+5V 5,15,17,18,20,21,22,24,25,28,29,31,32,34,37,38
+LANVCC

TON: 5V / 3.3V
GND = 400 / 500KHz
REF = 400 / 300KHz
VCC = 200 / 300KHz

5 Volt +/- 5%
+5VPCU
C/C:8A
P/C:10A

Place these CAPs close to FETs

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

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

Rds(on) 15m ohm

3.3 Volt +/- 5%
+3VPCU
C/C:8A
P/C:10A

Place these CAPs close to FETs

Rds(on) 15m ohm

+3V
6.76A
S0-S1

+3VS5
0.5A
S0-S5

+3VSUS
1.84A
S0-S3

+5V
4.31A
S0-S1

+5VSUS
4.5A
S0-S3

+LANVCC
0.27A

For EMI-SI

PROJECT : UT12
Quanta Computer Inc.

Size	Document Number	Rev
Custom	+5V/+3V(ISL6237)	1A
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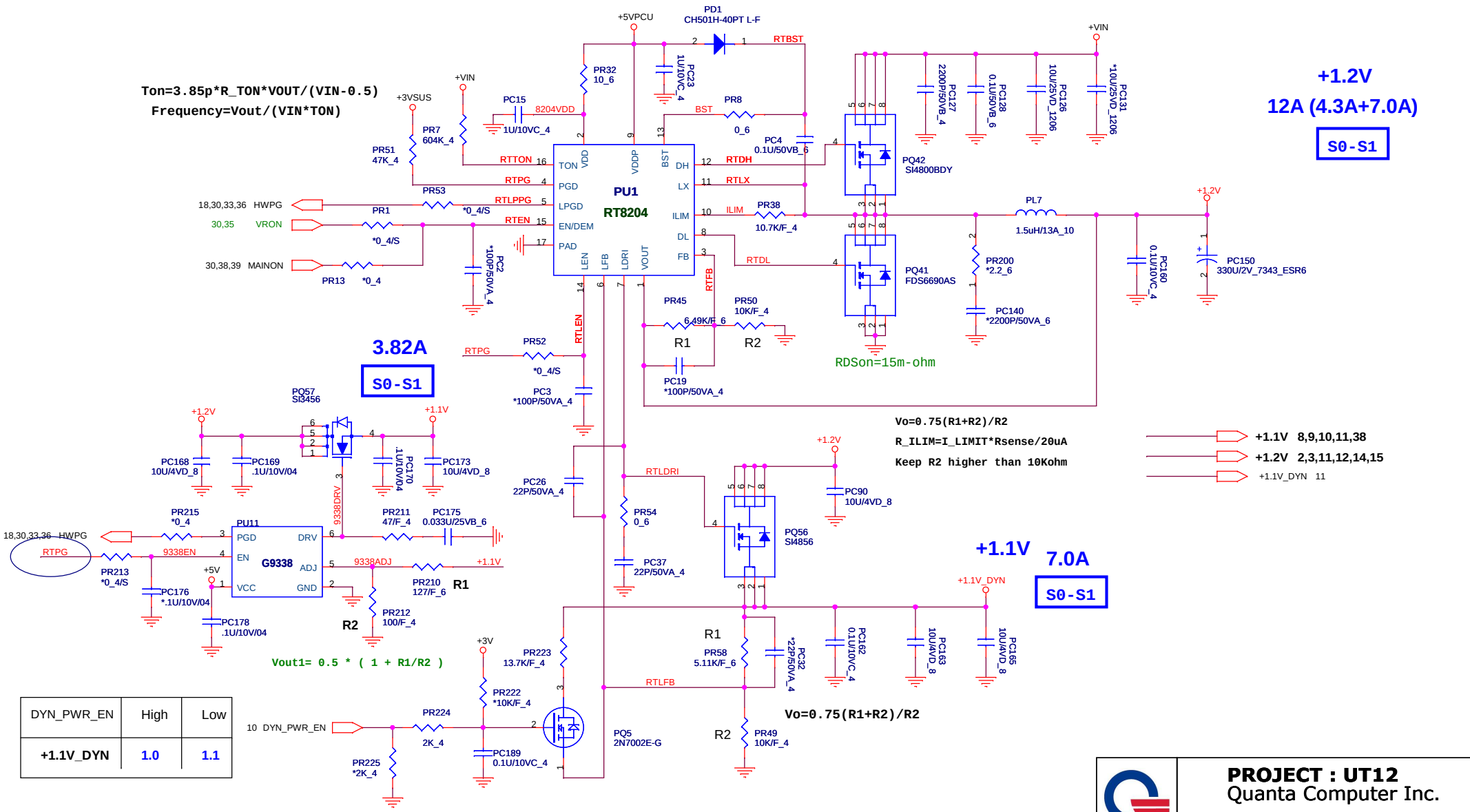
+1.1V & +1.2V



DYN_PWR_EN	High	Low
+1.1V_DYN	1.0	1.1

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Quanta Computer Inc.

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B	+1.2V & +1.1V(RT8204)	1A

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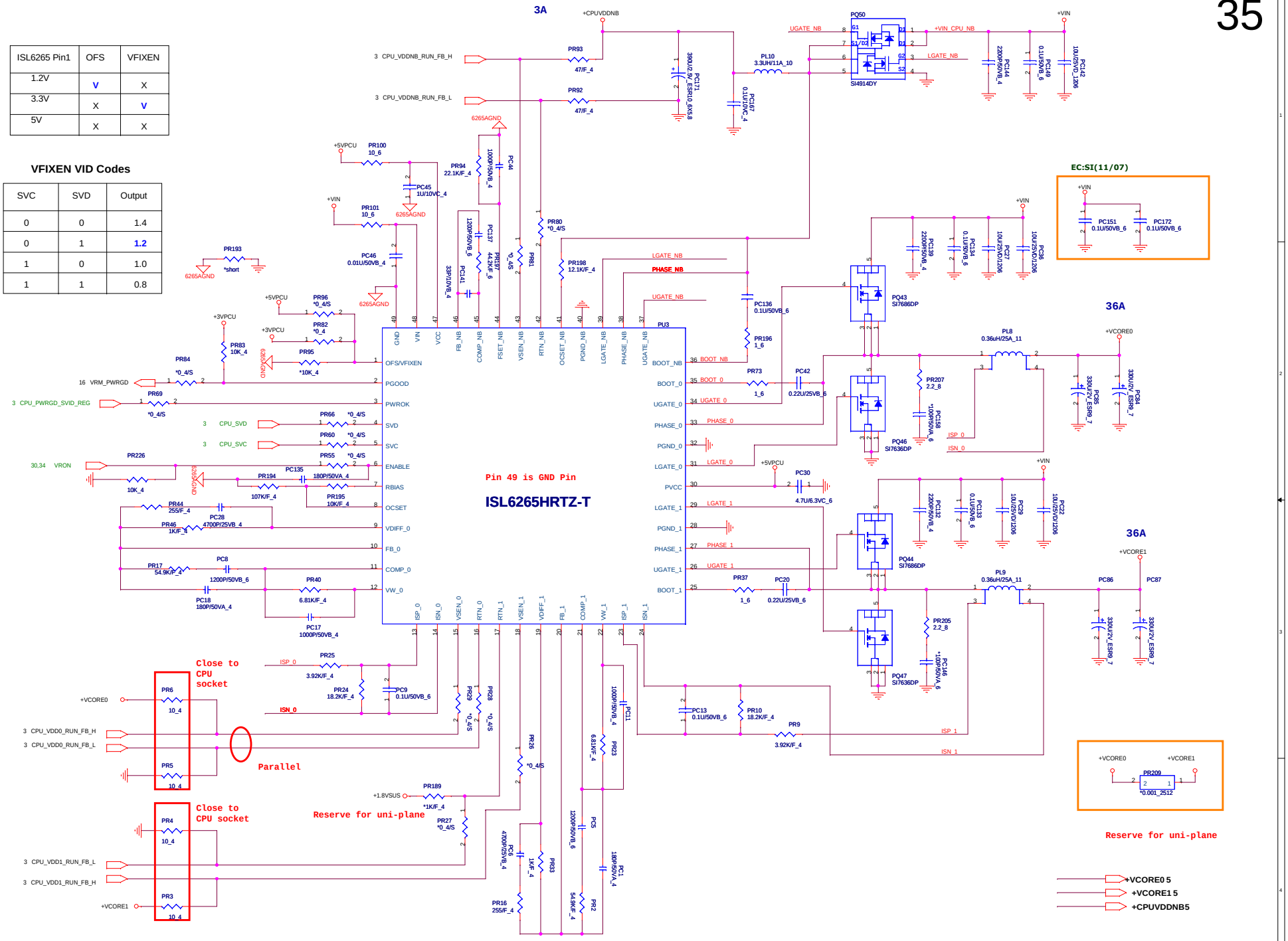
NB5

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 : UT12
Quanta Computer Inc.

Size	Document Number	Rev
C	CPU_CORE(ISL6265)	1A

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+2.5V 3
+1.8VSUS 3,4,5,6,7,35,37

EC:SI(11/07)

+VIN
PC154 0.1U/50VB_6

+VIN
PC159 *100U/25V_6.3X7.7
PC164 *100U/25V_6.3X7.7
PC47 *10U/25VD_1206
PC48 10U/25VD_1206
PC34 0.1U/50VB_6
PC33 2200P/50VB_4

EC:SI(11/07)
PD22 CH501H-40PT
+5VPCU
PC25 2.2U/6.3VC_6
PR39 10_6
51116_V5FILT
PC16 1U/10VC_4
+3VSUS
PR31 10K_4
HWPG 18,30,33,34

I_lim(Valley)=10uA*R_ILIM/RDS_ON
For OCP set.

23.65A
S0~S3

+1.8VSUS
PC143 390U/2.5V_6X5.8ESR10
PC153 0.1U/10VC_4
PL6 1.5uH/10A_10
PR221 2.2_6
2200P/50VA_6 PC152
PQ39 AOL1426
PQ48 AOL1412
PC39 0.1U/50VB_6
PR71 2.2_6

PU2 TI51116
BST 22
VBST
V5IN 15
V5FILT 14
CS 16
PR48 8.45K/F_6
PGOOD 13
1.8V_DH 21
DRVH
1.8V_LX 20
LL
1.8_DL 19
DRVL
1.8V_OUT 8
VDDQSNS
9 VDDQSET
COMP 6
COMP
NC 7
NC 12
VTTREF
CS_GND
GND
S5 11
S3 10
VLDOIN 23
VTTGND 1
MODE 4
VTT 24
VTTSNS 2
PGND 18
PAD 25

S5ON
S3ON
PR18 *0_4/S
PR19 *0_4/S
SUSON 30,38
+1.8VSUS
PC40 1U/10VC_4
PC41 10U/4VD_8
PC38 10U/4VD_8
+0.9VSMVTT
PC37 *100P/50VA_4
PC14 *100P/50VA_4
+0.9VSMVTT 4,7
VTTSNS
PR56 *0_4/S
PR57 *0_4
CPU_VTT_SENSE 4
MODE
PR47 *0_4/S
+1.8VSUS

+0.9VSMVT
2.25A
S0~S3

Ra
PR21 147K/F_4
PC10 *100P/50VA_4
Fix 1.8V Output
51116_V5FILT
PR36 *0_4
Rb
PR20 100K/F_4
Ra=(Vout-0.75)/0.75*Rb
Rb value from 100K to 300K ohm

PR41 *0_4/S
51116_V5FILT
PR64 619K/F_4
+VIN
PR43 *0_6/S
EC:1108 SI
4,6 +0.9VSMVREF
PR204 *SHORT-1A
PC35 0.033U/25VB_6

Add 0.1u CAP PC211, PC212, PC213 for EMI
+1.8VSUS
PC211 0.1U/10VC_4
PC212 0.1U/10VC_4
PC213 0.1U/10VC_4

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

Close to CPU
SI power

+2.5V
0.25A
S0~S1

30 VR2.5_ON
PR167 10K_4
PU9 G913C
SHDN 1
VIN 3
GND 2
VOUT 4
SET 5
+3VPCU
PC112 0.1U/10VC_4
PC113 1U/10VC_4
+2.5V
PC111 4.7U/6.3VC_6
R1 PR166 100K/F_4
R2 PR165 100K/F_4
Vout=1.25(1+R1/R2)

38 1.8V_OND
+1.8VSUS
PQ27 SI4856
PC196 0.1U/10VC_4
For EMI-SI
+1.8V
PC197 0.1U/10VC_4
For EMI-SI
+1.8V 3,5,8,10,11,16,19,38

+1.8V
10.4A
S0~S1

Discrete:SI4856
UMA:SI4800

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Quanta Computer Inc.
NB5
Size Custom
Document Number 1.8VSUS/DDR_VTER/+1.8V/2.5V
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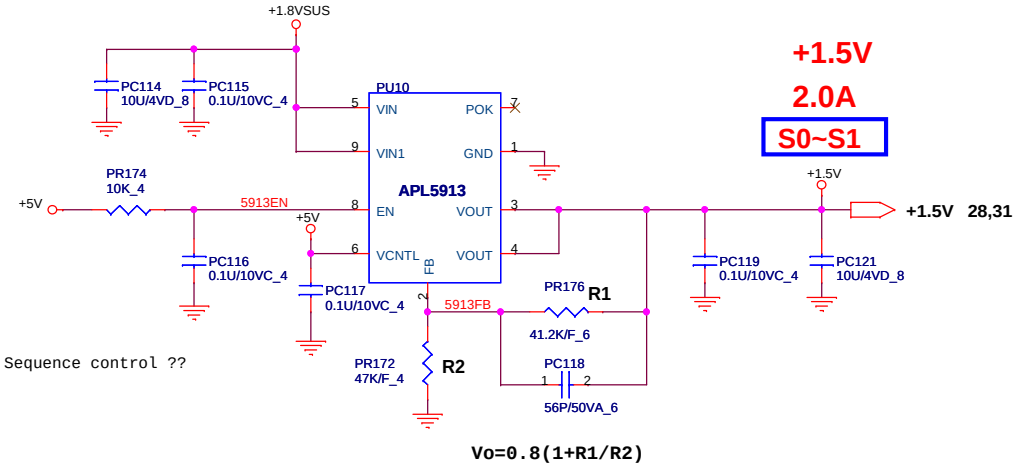
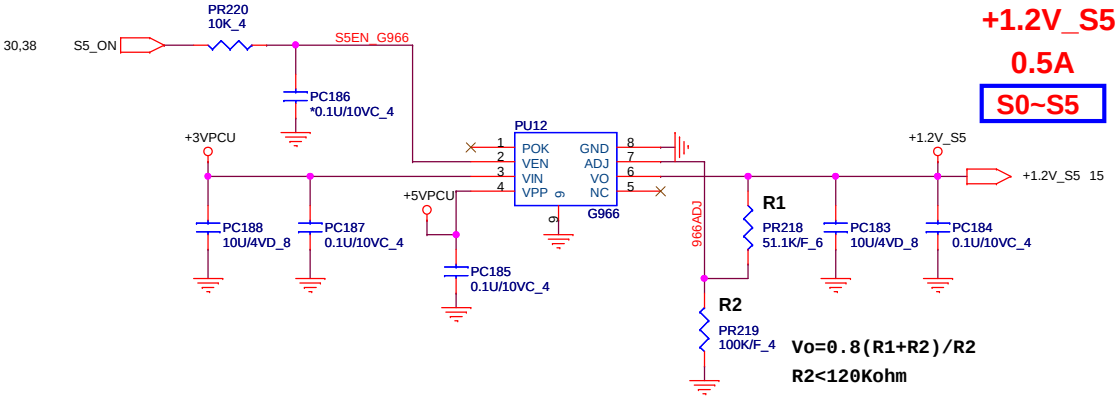


+1.5V

2.0A

S0~S1

$Vo=0.8(1+R1/R2)$



+1.2V_S5

0.5A

S0~S5

$Vo=0.8(R1+R2)/R2$

$R2<120Kohm$

NB5

PROJECT : UT12

Quanta Computer Inc.

Size	Document Number	Rev
B	VGA PWR OZ8118/1.2V_S5/+1.5	1A

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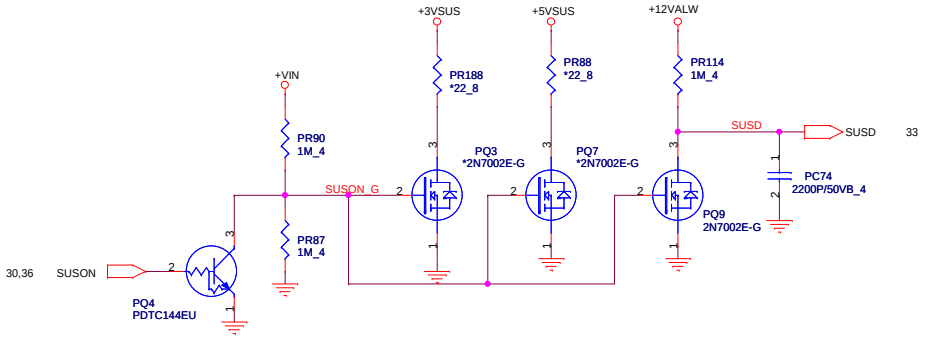
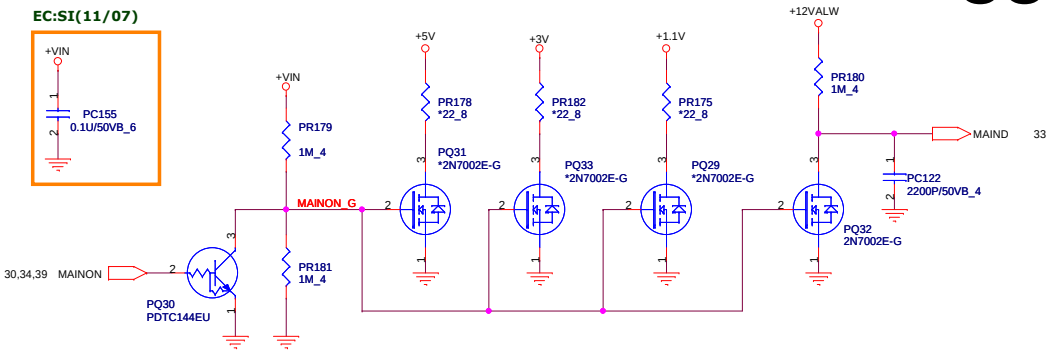
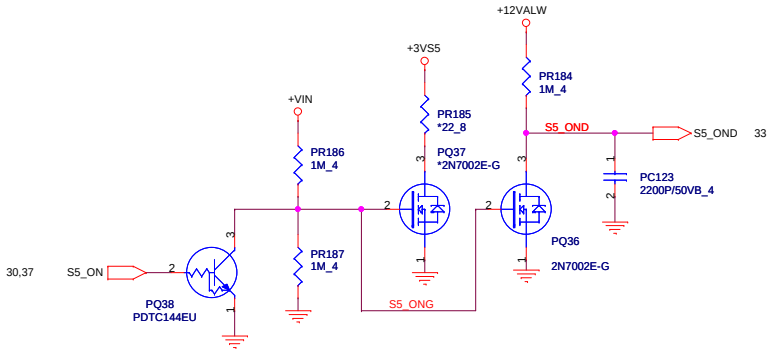
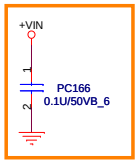


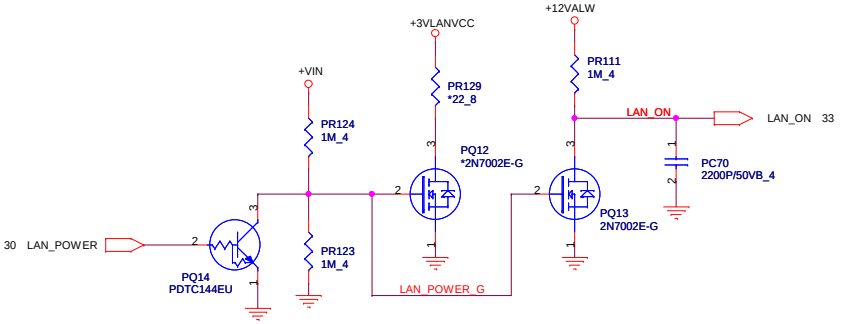
EC:SI(11/07)

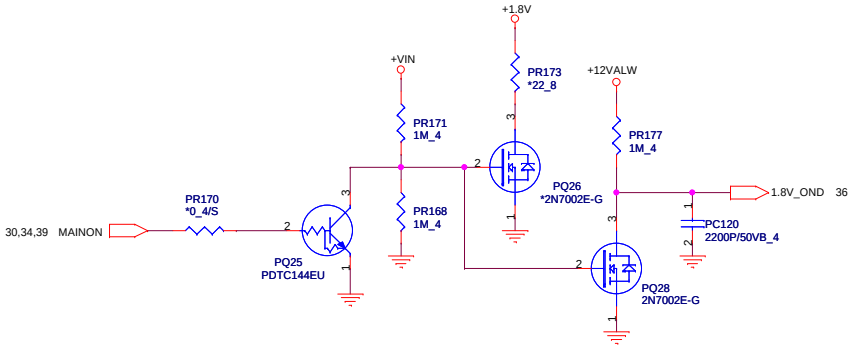




EC:SI(11/07)







N85

PROJECT : UT12
Quanta Computer Inc.

Size	Document Number	Rev
Custom	DISCHARGE	1A
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TOP DC_JACK
65W/90W

ISL6251A

QT8 only support
3S battery pack

Setting the Vin min to 11.42V
For ACSET
1.26V

Setting the Vin min to 15.88V
For EN = 1.06V

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

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

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

CLOSE TO EC SIDE

ADP TYPE	PR72 Value	P/N
65W	40.2K/F	CS34022FB15
90W	27K/F	CS32702FB16

FOR 17.3"

Project	PROJECT : UT12 Quanta Computer Inc.
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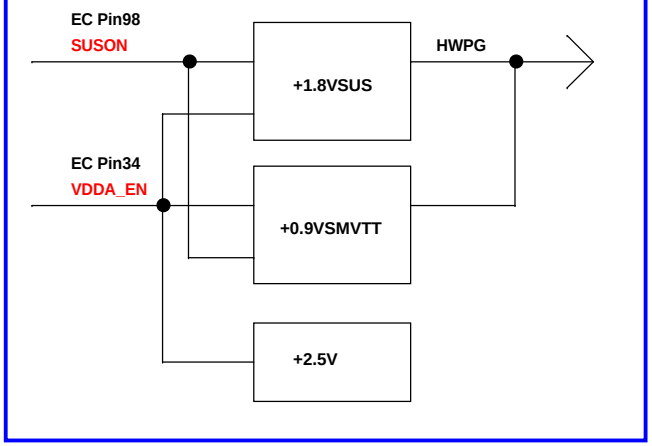
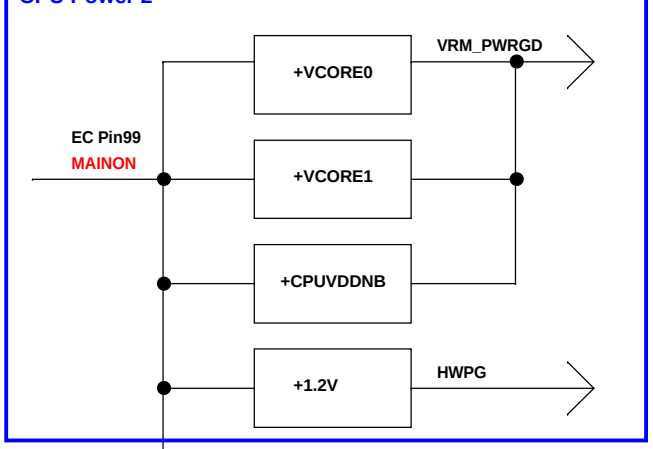
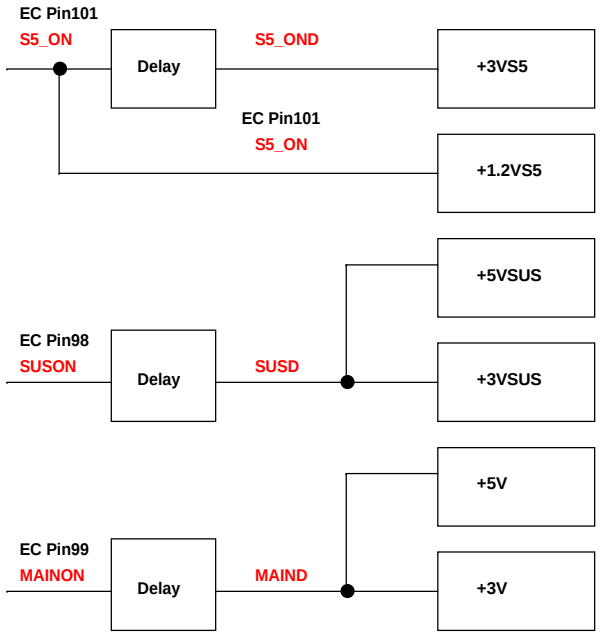
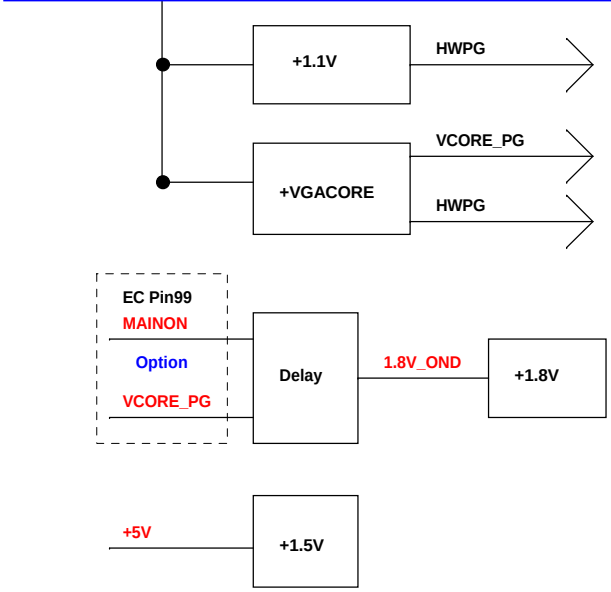
CPU Power 1



CPU Power 2







1 S5_ON, S5_OND, RSMRST# → 2 SUSON, SUSD → 3 MAINON, MAIND → 4 HWPG, VCORE_PG, VRM_PWRGD → EC Pin76 ECPWROK, Delay 600ms → SB_PWRGD_IN, 3.3V → NB_PWRGD_IN, 1.8V

NB5	PROJECT : UT12 Quanta Computer Inc.		
	Size: Custom	Document Number: Power control	Rev: 1A
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