R22 SYSTEM DIAGRAM

AMD Smarter Choice

01

DDR3-SODIMM1 PAGE 6

DDR3-SODIMM2 PAGE 7

DDR3 channel A

DDR3 channel B

AMD Champlain
35mm X 35mm
S1G4 Processor
638P (PGA)35W/25W
PAGE 3,4,5

CPU THERMAL SENSOR PAGE 5

HT3

PCI-E

PCI-Express 8X

NORTH BRIDGE
RS880M A12
21mm X 21mm, 528pin BGA
PAGE 8,9,10,11

HDMI PAGE 25

CRT PAGE 24

LVDS PAGE 23

VRAM PAGE 22

DDR3

ATI SEYMOUR-XT
23mm X 23mm
PAGE 17,18,19
20,21

Side port

DDR3 RAM for UMA only PAGE 8

X1 Flash Media RTS5219-GR PAGE 26

X1 LAN Realtek PCIE-LAN RTS8165EH-CG (10/100) PAGE 30

X1 Mini PCI-E Card (Wireless LAN) PAGE 33

RJ45 PAGE 30

ALINK X4

SOUTH BRIDGE
SB820 A13
21mm X 21mm, 605pin FCBGA
4.5W(Ext)
4.3W(Int)
PAGE 12,13,14,15,16

SATA0 150MB

SATA - HDD PAGE 29

SATA4 150MB

SATA - CD-ROM PAGE 29

USB2.0

0,5,8 USB2.0 Ports X3 PAGE 29

15 BT softbreeze PAGE 29

2 Webcam X1 PAGE 23

10 PCI-E WLAN Card x1 PAGE 33

Azalia

IDT 92HD80 PAGE 27

DIG MIC PAGE 27

AUDIO CONN (Phone/ MIC) PAGE 28

LPC

ENE KBC
KB3930 Qx
PAGE 32

Keyboard PAGE 31
Touch Pad PAGE 31

FAN PAGE 28

SPI PAGE 31

SYSTEM CHARGER(ISL6251) PAGE 40

SYSTEM POWER ISL6237 PAGE 34

DDR II SMDDR_VTERM 1.8V/1.8VSUS(RT8207) PAGE 37

VCCP +1.1V AND +1.2V(RT8204) PAGE 35

VGACORE(1.1V~1.2V)Oz8118 PAGE 38

CPU CORE ISL6265HRTZ-T PAGE 36

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

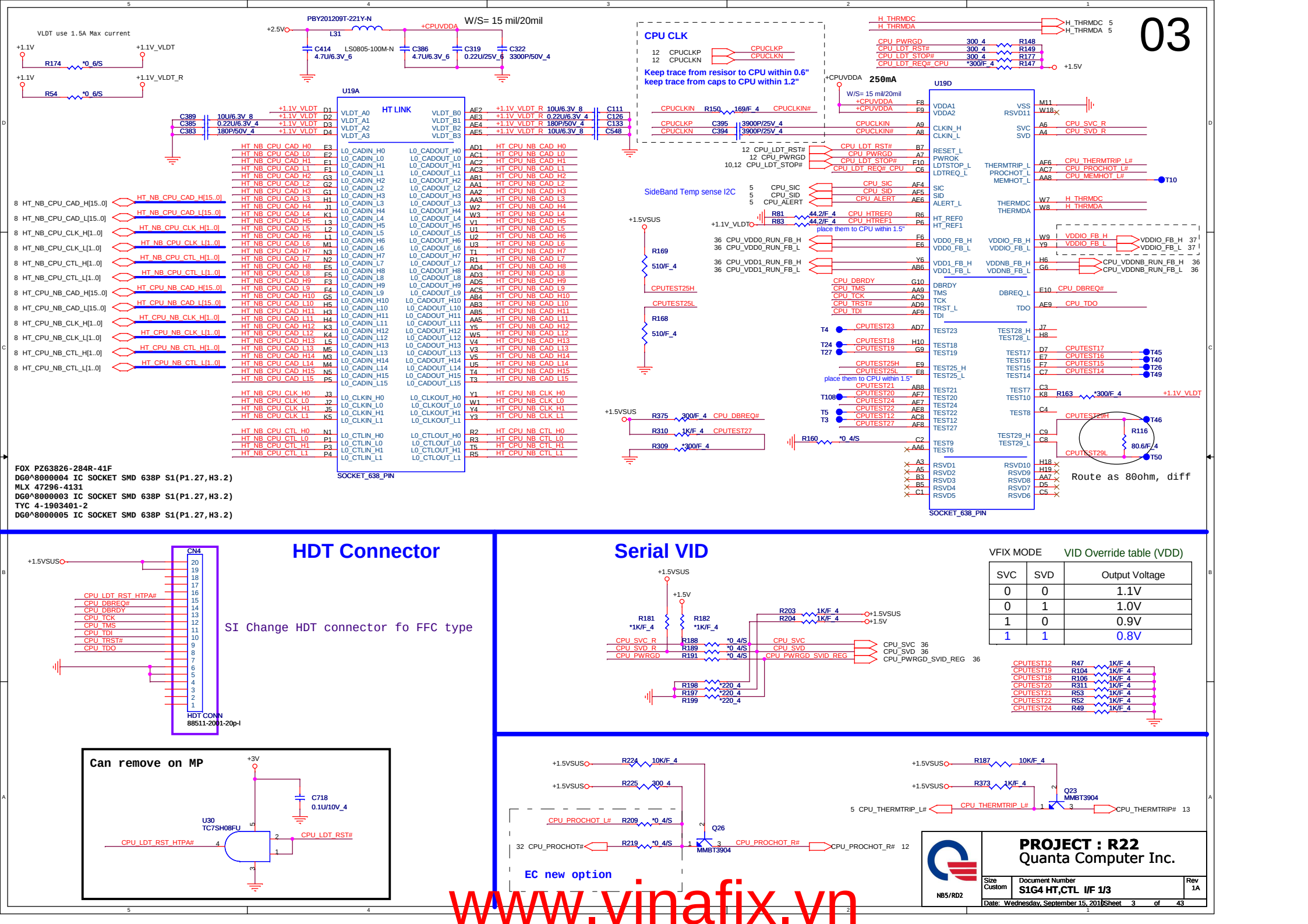
NB5/RD2

PROJECT : R22
Quanta Computer Inc.

Size Custom | Document Number Block Diagram | Rev 1A

Date: Wednesday, September 15, 2010 Sheet 1 of 43

Use internal CLK GEN



HDT Connector

SI Change HDT connector fo FFC type

Can remove on MP

Serial VID

VFIX MODE — VID Override table (VDD)

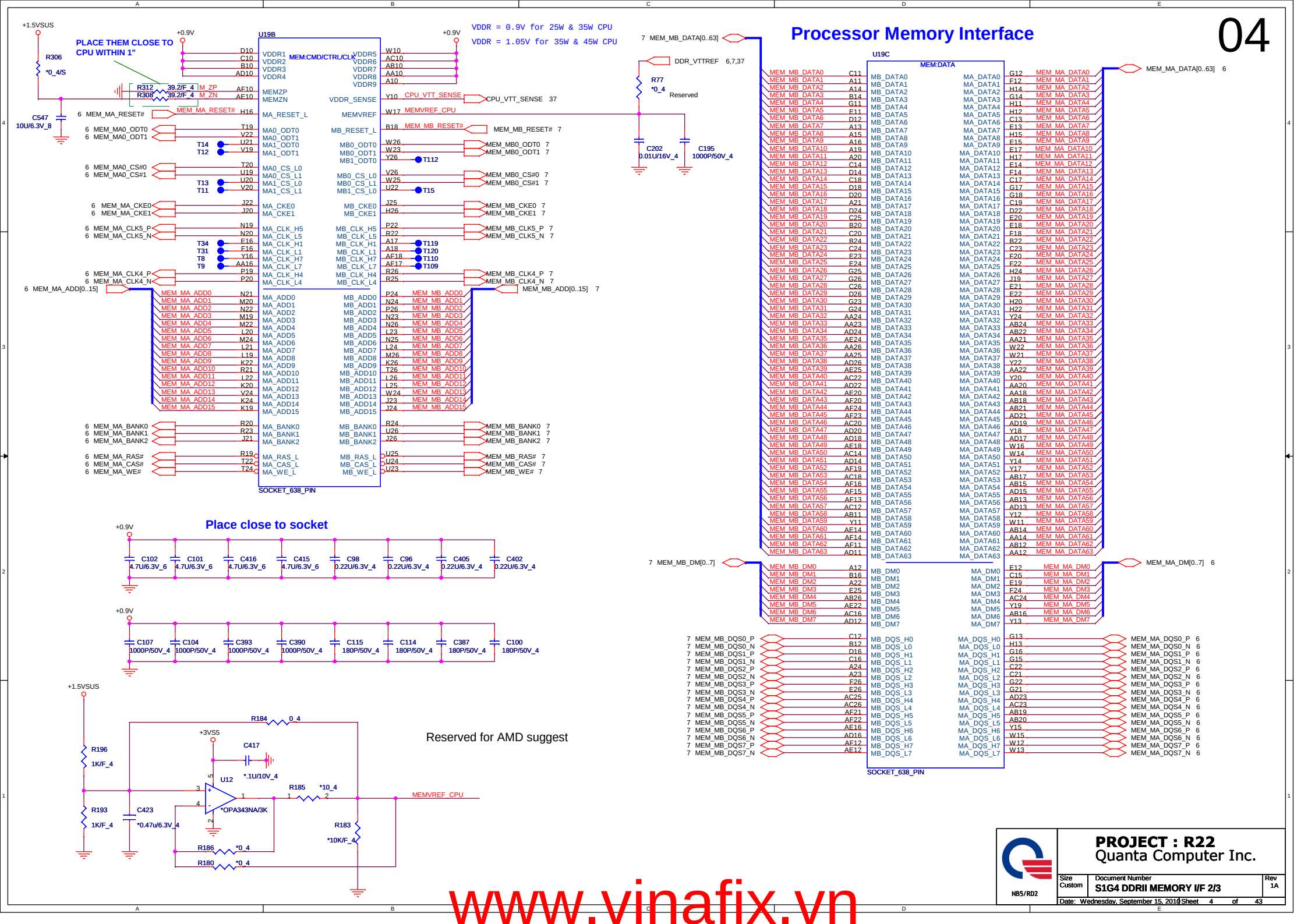
SVC	SVD	Output Voltage
0	0	1.1V
0	1	1.0V
1	0	0.9V
1	1	0.8V

PROJECT : R22
Quanta Computer Inc.

NB5/RD2

Size	Document Number	Rev
Custom	S1G4 HT,CTL I/F 1/3	1A

Date: Wednesday, September 15, 2010 Sheet 3 of 43


Processor Memory Interface
04
PLACE THEM CLOSE TO CPU WITHIN 1"
VDDR = 0.9V for 25W & 35W CPU
VDDR = 1.05V for 35W & 45W CPU
U19B
MEM:CMD/CTRL/CLK
SOCKET_638_PIN
U19C
MEM:DATA
SOCKET_638_PIN
Place close to socket
Reserved for AMD suggest
Reserved
PROJECT : R22
Quanta Computer Inc.
S1G4 DDRII MEMORY I/F 2/3
NB5/RD2
Size Custom
Rev 1A
Date: Wednesday, September 15, 2010
Sheet 4 of 43
www.vinafix.vn

PROCESSOR POWER AND GROUND

BOTTOM SIDE DECOUPLING

+VCORE: C201 22U/6.3V_8, C235 22U/6.3V_8, C249 22U/6.3V_8, C266 22U/6.3V_8, C275 0.22U/6.3V_4, C274 0.01U/16V_4, C273 180P/50V_4

+VCORE: C261 22U/6.3V_8, C270 22U/6.3V_8, C247 22U/6.3V_8, C234 22U/6.3V_8, C198 0.22U/6.3V_4, C199 0.01U/16V_4, C197 180P/50V_4

+CPUVDDNB: C243 22U/6.3V_8, C229 22U/6.3V_8, C256 22U/6.3V_8

+1.5VSUS: C231 22U/6.3V_8, C246 22U/6.3V_8, C257 0.22U/6.3V_4, C276 0.22U/6.3V_4, C277 180P/50V_4

DECOUPLING BETWEEN PROCESSOR AND DIMMs
PLACE CLOSE TO PROCESSOR AS POSSIBLE

+1.5VSUS: C128 4.7U/6.3V_6, C137 4.7U/6.3V_6, C309 4.7U/6.3V_6, C307 4.7U/6.3V_6, C130 0.22U/6.3V_4, C134 0.22U/6.3V_4

+1.5VSUS: C144 0.22U/6.3V_4, C141 0.22U/6.3V_4, C208 0.01U/16V_4, C193 0.1U/10V_4, C305 180P/50V_4, C303 180P/50V_4, C209 0.1U/10V_4

U19E — SOCKET_638_PIN

+VCORE, +CPUVDDNB (4A), +1.5VSUS (2A), +1.5VSUS

U19F — SOCKET_638_PIN

+1.5VSUS: R226 2K/F_4, R206 2K/F_4, R216 1K/F_4, R201 1K/F_4, R176 1K/F_4

Q27 MMBT3904, Q25 MMBT3904, RB501V-40 D20, RB501V-40 D19

32,40 MBCLK — MBCLK — CPU_SIC — CPU_SIC 3

32,40 MBDATA — MBDATA — CPU_SID — CPU_SID 3

CPU_ALERT — CPU_ALERT 3

+3V: R367 10K/F_4, R368 10K/F_4, R360 10K/F_4, R356 200/F_6, C619 0.1U/10V_4

U22 MSOP: SCLK, SDA, ALERT#, OVERT#, VCC, DXP, DXN, GND — G786P8

32 MBCLK2, 32 MBDATA2, 13 PM_THERM#, H_THRMDA 3, H_THRMDC 3, C621 1000P/50V_4

SMBALERT#

Q24 MMBT3904, R190 *0_4/S, 3920_RST# — 3920_RST# 32

D18 CH501H-40PT, ECPWROK — ECPWROK 16,20,32

R194 10K/F_4 +3V

+1.5V: R374 10K/F_4, Q36 MMBT3904

3 CPU_THERMTRIP_L# — CPU_THERMTRIP_L# — SMBALERT#

PQ30 *2N7002E-G, R200 10K/F_4, TEMP_FAIL 18

ADD VGA TEMP_ FAIL function
M92 is active Hi

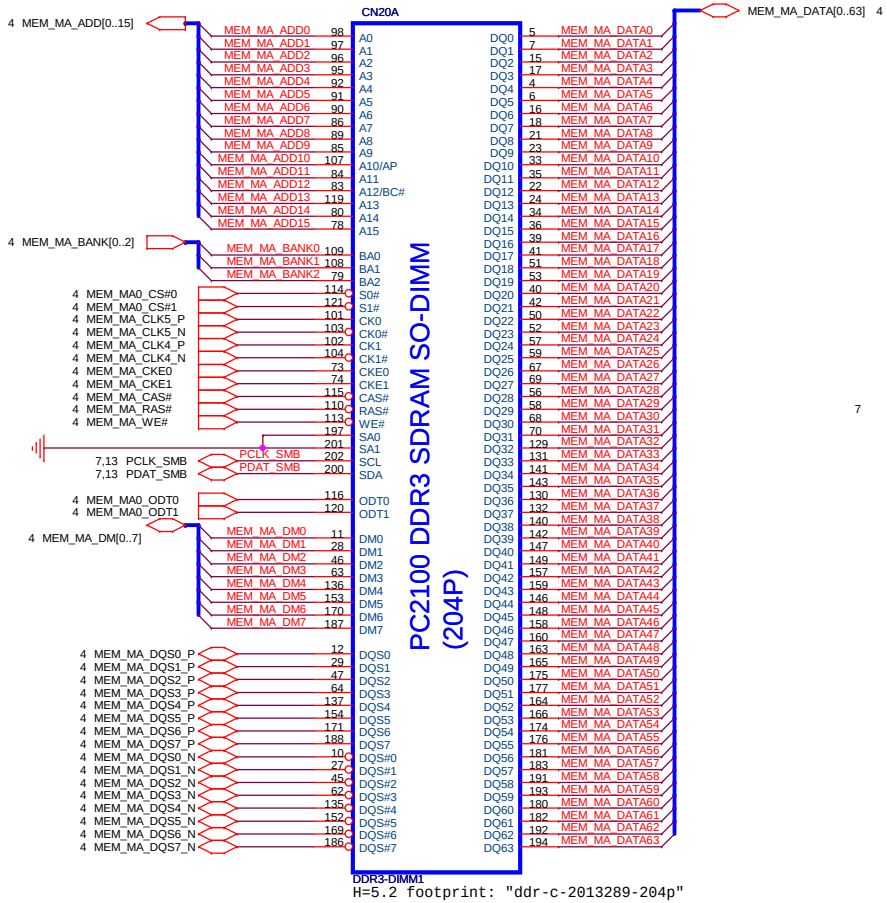
+1.5V_VGA: EC10 *0.01U/16V_4 +3V
+1.8V_VGA: EC14 *0.01U/16V_4 +3V
+VGA_CORE: EC8 *0.01U/16V_4 +3V

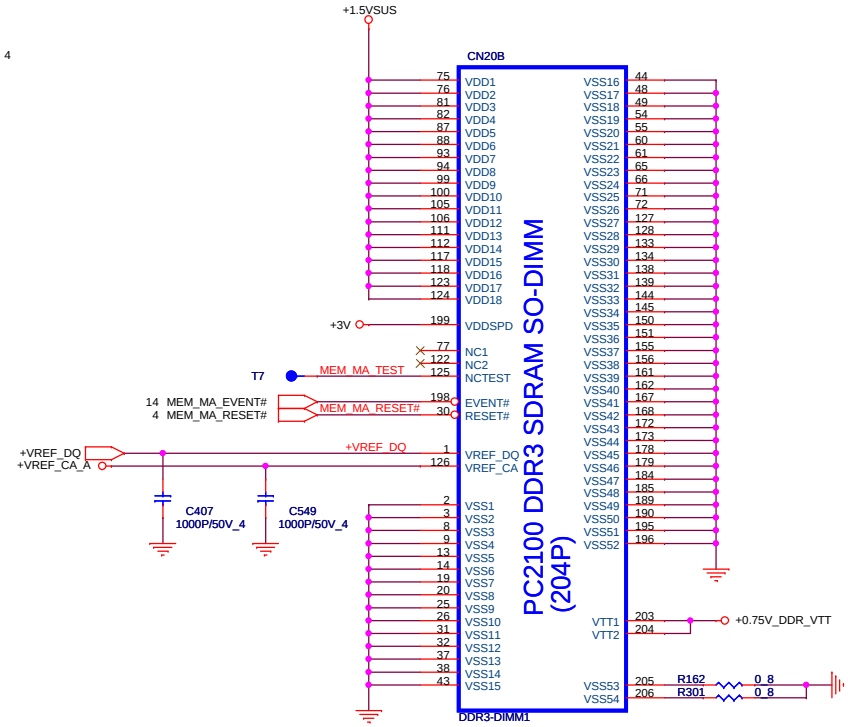
+VGA_CORE: EC5 *0.1U/10V_4
+3V: EC12 *0.1U/10V_4

+1.5V_VGA: EC11 *0.01U/16V_4 +3V
+5V: EC6 *0.01U/16V_4 +3V
+1.5VSUS: EC9 *0.01U/16V_4 +1.1V
+VGA_CORE: EC13 *0.01U/16V_4 +1.8V_VGA

For fix HyperTransport nets across plane splits

	PROJECT : R22 Quanta Computer Inc.
NB5/RD2	Size: Custom Document Number: S1G4 PWR & GND 3/3 Rev: 1A Date: Wednesday, September 15, 2010 Sheet 5 of 43



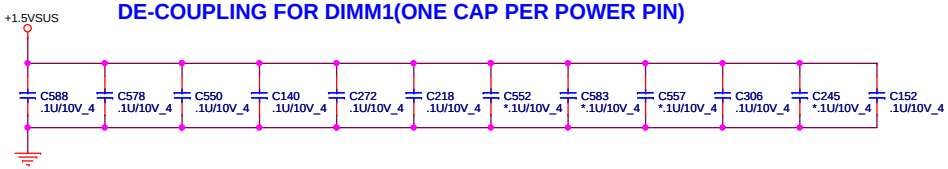


SO-DIMM BYPASS PLACEMENT :

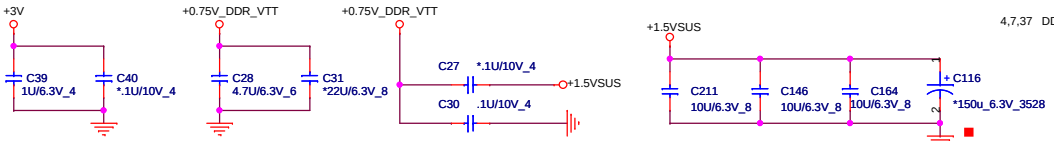
Place these Caps near So-Dimm1.

No Vias Between the Trace of PIN to CAP.

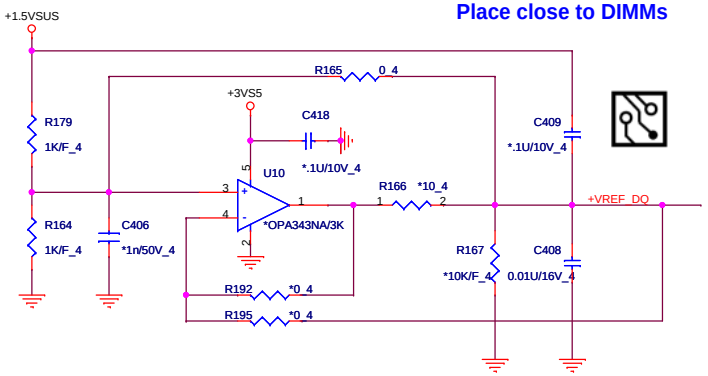
DE-COUPLING FOR DIMM1(ONE CAP PER POWER PIN)

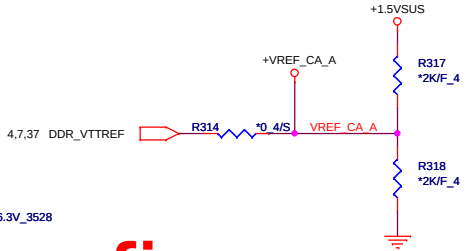


DE-COUPLING FOR DIMM1



Place close to DIMMs



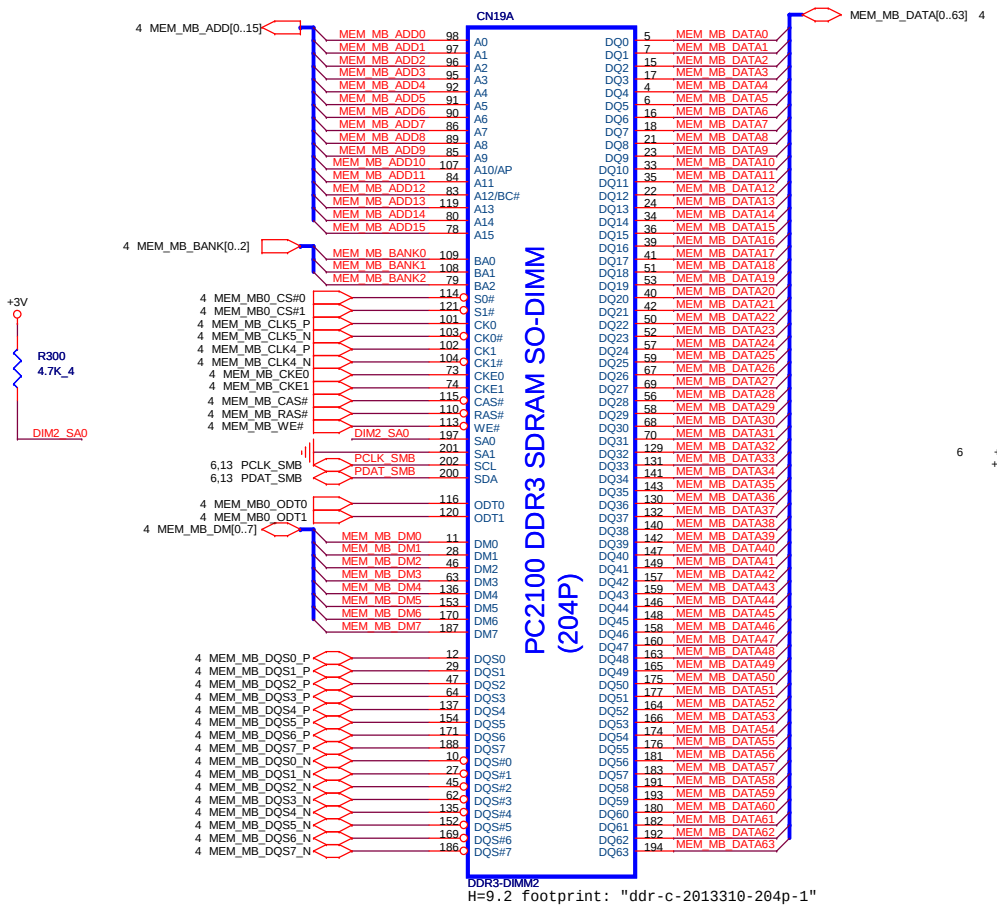


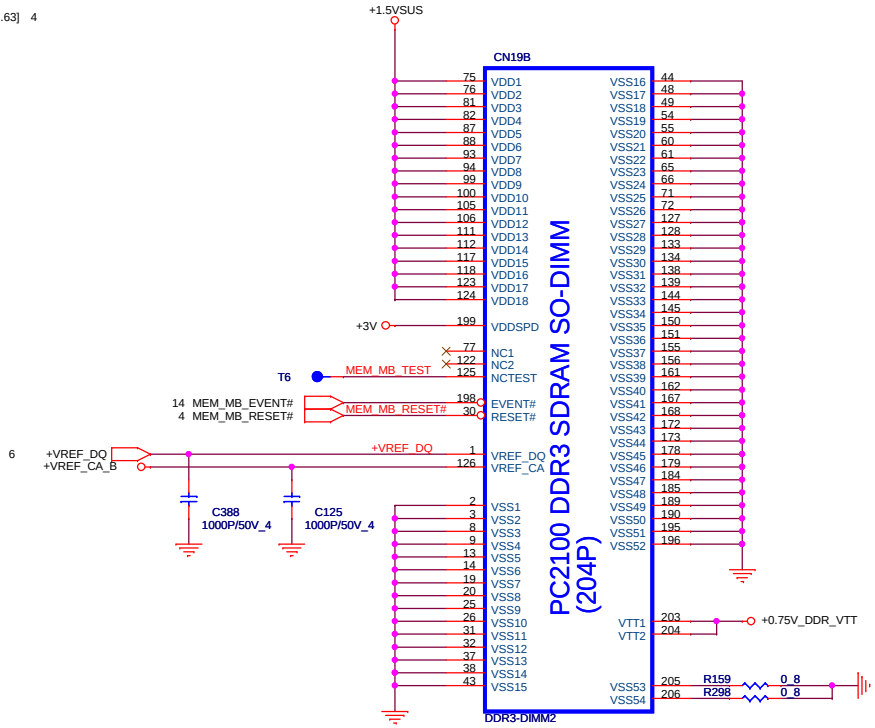
PROJECT : R22
Quanta Computer Inc.

Size	Document Number	Rev
Custom	DDR3 SODIMMS: A/B CHANNEL	1A

NB5/RD2

Date: Wednesday, September 15, 2010 Sheet 6 of 43



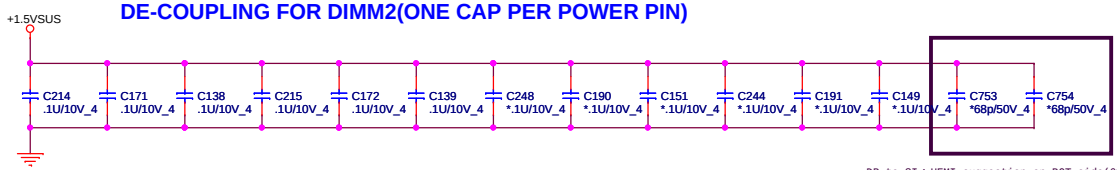


SO-DIMM BYPASS PLACEMENT :

Place these Caps near So-Dimm1.

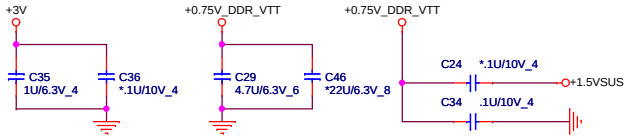
No Vias Between the Trace of PIN to CAP.

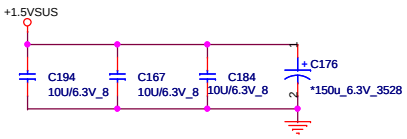
DE-COUPLING FOR DIMM2(ONE CAP PER POWER PIN)

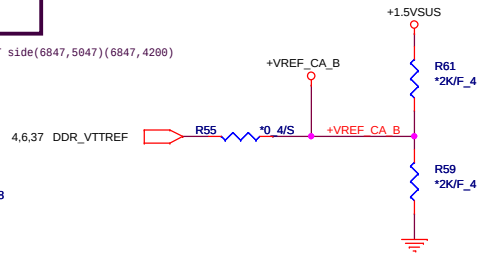


DB to SI : UEMI suggestion on BOT side(6847,5047)(6847,4200)

DE-COUPLING FOR DIMM2







PROJECT : R22
Quanta Computer Inc.

Size	Document Number	Rev
Custom	DDR3 SODIMMS TERMINATIONS	1A

Date: Wednesday, September 15, 2010 Sheet 7 of 43

NB5/RD2

HT_CPU_NB_CAD_H[15..0] — HT_CPU_NB_CAD_H[15..0] 3
HT_CPU_NB_CAD_L[15..0] — HT_CPU_NB_CAD_L[15..0] 3
HT_CPU_NB_CLK_H[1..0] — HT_CPU_NB_CLK_H[1..0] 3
HT_CPU_NB_CLK_L[1..0] — HT_CPU_NB_CLK_L[1..0] 3
HT_CPU_NB_CTL_H[1..0] — HT_CPU_NB_CTL_H[1..0] 3
HT_CPU_NB_CTL_L[1..0] — HT_CPU_NB_CTL_L[1..0] 3
HT_NB_CPU_CAD_H[15..0] — HT_NB_CPU_CAD_H[15..0] 3
HT_NB_CPU_CAD_L[15..0] — HT_NB_CPU_CAD_L[15..0] 3
HT_NB_CPU_CLK_H[1..0] — HT_NB_CPU_CLK_H[1..0] 3
HT_NB_CPU_CLK_L[1..0] — HT_NB_CPU_CLK_L[1..0] 3
HT_NB_CPU_CTL_H[1..0] — HT_NB_CPU_CTL_H[1..0] 3
HT_NB_CPU_CTL_L[1..0] — HT_NB_CPU_CTL_L[1..0] 3

U20A — HYPER TRANSPORT CPU I/F — PART 1 OF 6 — RS880

signals	RS880	RX880
HT_TXCALP	R430 301 ohm 1%	R430 1.21k ohm 1%
HT_TXCALN		
HT_RXCALP	R434 301 ohm 1%	R434 1.21k ohm 1%
HT_RXCALN		

U17 — 100-BALL SDRAM DDR3 — *H5TQ1G63AFR-14C

This block is for UMA only , DIS can remove all component

U20D — SBD_MEM/DVO_I/F — PAR 4 OF 6 — RS880

40mils wdith or more

PROJECT :	R22
	Quanta Computer Inc.
Size: Custom	Document Number: RS880-HT LINK I/F 1/5
Rev	1A
NB5/RD2	Date: Wednesday, September 15, 2010 Sheet 8 of 43

GFX_RX can remove
at next stage for MUXLESS

UMA can remove all GFX_TX CAP

To HDMI CONN

U20B

PART 2 OF 6

PCIE I/F GFX

PCIE I/F GPP

PCIE I/F SB

RS880

TO WLAN

TO PCIE-LAN

TO PCIE CARD READER

RS880 Display Port Support (muxed on GFX)

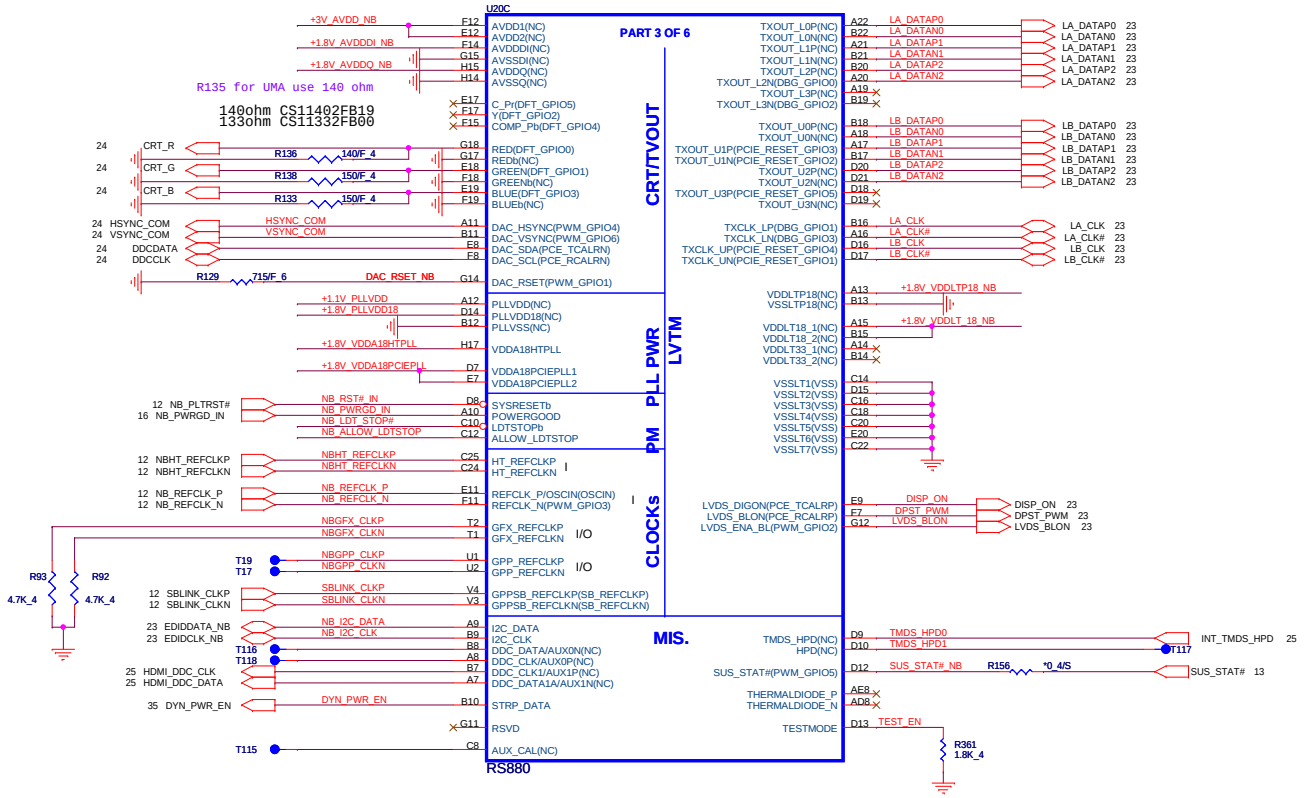
DP0	GFX_TX0,TX1,TX2 and TX3 AUX0 and HPD0
DP1	GFX_TX4,TX5,TX6 and TX7 AUX1 and HPD1

PROJECT : R22
Quanta Computer Inc.

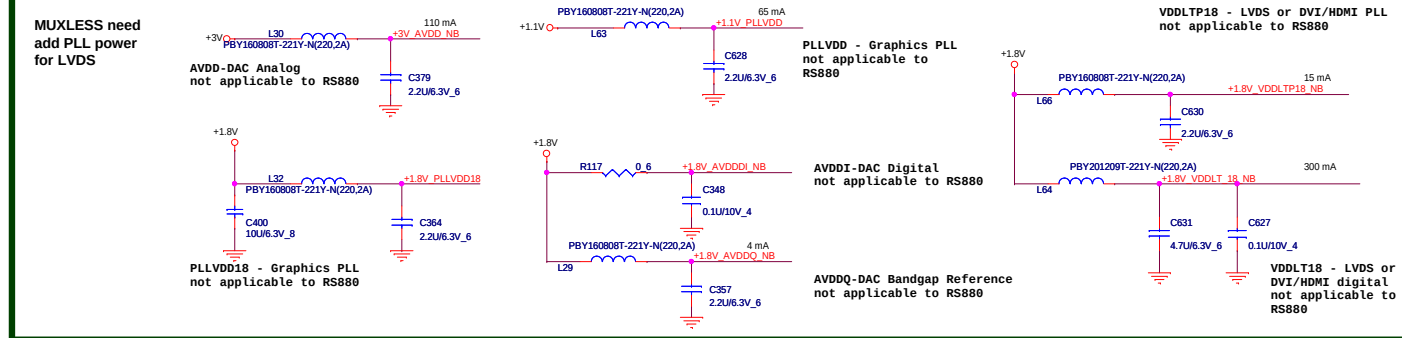
NB5/RD2

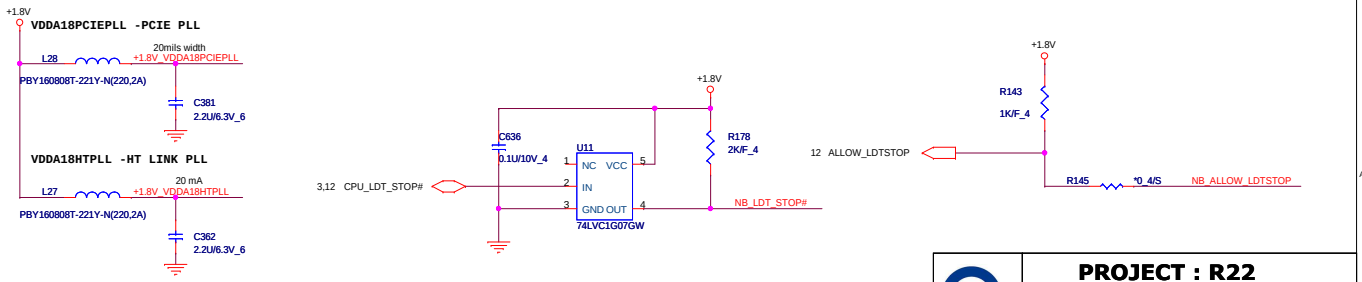
Size: Custom | Document Number: RS880-PCIE I/F 2/5 | Rev: 1A

Date: Wednesday, September 15, 2010 | Sheet 9 of 43



MUXLESS need add PLL power for LVDS





STRAP_DEBUG_BUS_GPIO_ENABLEb

Enables the Test Debug Bus using GPIO.

RS880M
1 Disable
0 Enable

RS880M: Enables Side port memory

RS880M:HSYNC#

Selects if Memory SIDE PORT is available or not
1 = Memory Side port Not available
0 = Memory Side port available
Register Readback of strap: NB_CLKCFG:CLK_TOP_SPARE_D[1]

For external EEPROM Debug only

RS780/RX780

PROJECT : R22
Quanta Computer Inc.

Size	Document Number	Rev
Custom	RS880-SYSTEM I/F 3/5	1A

Date: Wednesday, September 15, 2010 | Sheet 10 of 43

N85/RD2

RS880M POWER TABLE

PIN NAME	RS880M	PIN NAME	RS880M
VDDHT	+1.1V	IOPLLVDD	+1.1V
VDDHTRX	+1.1V	AVDD	+3.3V
VDDHTTX	+1.2V	AVDDDI	+1.8V
VDDA18PCIE	+1.8V	AVDDQ	+1.8V
VDDG18	+1.8V	PLLVDD	+1.1V
VDD18_MEM	+1.8V	PLLVDD18	+1.8V
VDDPCIE	+1.1V	VDDA18PCIEPLL	+1.8V
VDDC	+1.1V	VDDA18HTPLL	+1.8V
VDD_MEM	+1.8V/1.5V	VDDLTP18	+1.8V
VDDG33	+3.3V	VDDLT18	+1.8V
IOPLLVDD18	+1.8V	VDDLT33	NC

U20F — PART 6/6 — GROUND

VDDHT - HT LINK digital I/O for RX780/RS780

+1.1V 2A for RS880M

VDDHTRX - HT LINK RX I/O for RX780/RS780

VDDHTTX - HT LINK TX I/O for RS880

+1.1V 2A for RS880M

+1.8V 1A for RS780M+SB700

VDDA18PCIE - PCIE TX stage I/O for RX780/RS780

U20E — PART 5/6 — POWER — RS880

VDDPCIE - PCIE-E Main power

VDDC - Core Logic power

VDD_MEM For UMA RS780 only
Not applicable to RX780
memory I/O transform

VDD18 - RS780 I/O transform

VDD18_MEM For UMA RS780 only
Not applicable to RX780
memory I/O transform

VDD33 - 3.3V I/O
Not applicable to RX780

This is side port power
DIS remove L55 ,
change C205 to 0 ohm
and short to GND

PROJECT : R22
Quanta Computer Inc.

NB5/RD2

Size: Custom | Document Number: RS880-POWER5/5 | Rev: 1A

Date: Wednesday, September 15, 2010 | Sheet 11 of 43

PLACE THESE PCIE AC COUPLING CAPS CLOSE TO SB

To RS880

SB800 Part 1 of 5

PCI EXPRESS INTERFACES

PCI INTERFACE

CLOCK GENERATOR

LPC

CPU

RTC

All the PCI bus has build-in Pull-UP/Down resistors

All RP resistor need within 0.5"of SB

Support BACO, remove R465 and U6508 , add R6601

DB to SI Change C673,C675 to 33P

DB to SI CN27 Change PN
PN : DFWF02MS022
Footprint : 50273-0027N-001-2P-L

EMI suggestion

INTRUDER_ALERT# Left not connected (Southbridge has 50-kohm internal pull-up to VBAT).

SB820M A12

PROJECT : R22	Quanta Computer Inc.
Size: Custom	Document Number: SB820-PCIE/PCI/CPU/LPC 1/4
Rev: 1A	
Date: Wednesday, September 15, 2010	Sheet 12 of 43
NB5/RD2	

NC,no install by default

R245 *2.2K_4 SB_TEST0
R417 *2.2K_4 SB_TEST1
R239 *2.2K_4 SB_TEST2

remove pull hi
(chip internal
have pull hi)

SCL1/SDATA1 is 3V/S5 tolerance
AMD datasheet define it

R412 2.2K_4 SB_SMBCLK1
R411 2.2K_4 SB_SMBDATA1

SCL0/SDATA0 is 3V tolerance
AMD datasheet define it

R282 2.2K_4 PCLK_SMB
R281 2.2K_4 PDAT_SMB

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

Pure UMA can
remove D25

R430 10K/F_4
RB501V-40 D25
37 VGA_REQ

SCL2/SDATA2 is 3V/S5 tolerance
AMD datasheet define it

R286 2.2K_4 SB_SCLK2
R284 2.2K_4 SB_SDATA2
R408 *10K_4 SYS_RST#

R413 2.2K_4 DNBSWON#

R414 4.7K_4 SUS_STAT#
R431 8.2K_4 WLAN_CLKREQ#
R272 8.2K_4 LAN_CLKREQ#

To Azalia

ACZ_SDOUT R240 33_4 ACZ_SDOUT_AUDIO 27
C461 *10P/50V_4
ACZ_SYNC R244 33_4 ACZ_SYNC_AUDIO 27
C467 *10P/50V_4
BIT_CLK_AUDIO 27
ACZ_BCLK R247 33_4 C463 27P/50V_4
ACZ_RST# R241 33_4 ACZ_RST#_AUDIO 27
ACZ_SDIN0 ACZ_SDIN0 27

EMI suggestion

C477 100P/50V_4

For Zero ODD

31 ODD_DA#_FCH
31 ODD_PLUGIN#
5 PM_THERM# R238 *0_4 SMBALERT# 1
T81 SB_JTAG_TCK
T76 SB_JTAG_TDI
T80 SB_JTAG_RST#

R248 *10K/F_4
16 ACZ_SDOUT
R392 *10K/F_4 ACZ_SDIN0
R394 *10K/F_4 ACZ_SDIN1
R393 *10K/F_4 ACZ_SDIN2_R
R395 *10K/F_4 ACZ_SDIN3_R
ACZ_SYNC
ACZ_RST#

HD audio
interface is
3.3S5 voltage

R398 10K/F_4
R390 10K/F_4
R235 10K/F_4
R246 10K/F_4
R257 10K/F_4

14 MEM_GEVEN#
T122 RI#
T68 SPI_CS3#
32 SUSB# SUSB#
32 SUSC# SUSC#
32 DNBSWON# SB_PWRGD_IN
16 SB_PWRGD_IN SUS_STAT#
10 SUS_STAT# SB_TEST0
SB_TEST1
T71 SB_TEST2
32 GATEA20 GATEA20
32 RCIN# RCIN#
32 KBSMI# SCI#
32 SCI# SYS_RST#
30,33 PCIE_WAKE#
3 CPU_THERMTRIP# WD_PWRGD
16 WD_PWRGD
32 RSMRST# RSMRST#
26 CARD_CLKREQ#
30 LAN_CLKREQ#
30,32 LAN_DISABLE# R404 *0_4 LAN_DISABLE# SB
T104
T101
27 ACZ_SPKR ACZ_SPKR
6,7 PCLK_SMB PCLK_SMB
6,7 PDAT_SMB PDAT_SMB
SB_SMBCLK1
SB_SMBDATA1
33 WLAN_CLKREQ# VGA_REQ_R
T121
T129
8 SP_DDR3_RST#
T65
T73
T74
T70
T105 EXT_SB_OSC

U28D

SB800
Part 4 of 5

PCI_PME#/GEVENT4#
RI#/GEVENT22#
SPI_CS3#/GBE_STAT1/GEVENT21#
SLP_S3#
SLP_S5#
PWR_BTN#
PWR_GOOD
SUS_STAT#
TEST0
TEST1/TMS
TEST2
GA20IN/GEVENT0#
KBRST#/GEVENT1#
LPC_PME#/GEVENT3#
LPC_SMI#/GEVENT23#
GEVENT5#
SYS_RESET#/GEVENT19#
WAKE#/GEVENT8#
IR_RX1/GEVENT20#
THRMTRIP#/SMBALERT#/GEVENT2#
NB_PWRGD
RSMRST#

ACPI / WAKE UP EVENTS

CLK_REQ4#/SATA_IS0#/GPIO64
CLK_REQ3#/SATA_IS1#/GPIO63
SMARTVOLT1/SATA_IS2#/GPIO50
CLK_REQ0#/SATA_IS3#/GPIO60
SATA_IS4#/FANOUT3/GPIO55
SATA_IS5#/FANIN3/GPIO59
SPKR/GPIO66
SCL0/GPIO43
SDA0/GPIO47
SCL1/GPIO227
SDA1/GPIO228
CLK_REQ2#/FANIN4/GPIO62
CLK_REQ1#/FANOUT4/GPIO61
IR_LED#/LLB#/GPIO184
SMARTVOLT2/SHUTDOWN#/GPIO51
DDR3_RST#/GEVENT7#
GBE_LED0/GPIO183
GBE_LED1/GEVENT9#
GBE_LED2/GEVENT10#
GBE_STAT0/GEVENT11#
CLK_REQG#/GPIO65/OSCIN

GPIO

BLINK/USB_OC7#/GEVENT18#
USB_OC6#/IR_TX1/GEVENT6#
USB_OC5#/IR_TX0/GEVENT17#
USB_OC4#/IR_RX0/GEVENT16#
USB_OC3#/AC_PRES/TDO/GEVENT15#
USB_OC2#/TCK/GEVENT14#
USB_OC1#/TDI/GEVENT13#
USB_OC0#/TRST#/GEVENT12#

USB OC

AZ_BITCLK
AZ_SDOUT
AZ_SDIN0/GPIO167
AZ_SDIN1/GPIO168
AZ_SDIN2/GPIO169
AZ_SDIN3/GPIO170
AZ_SYNC
AZ_RST#

HD AUDIO

GBE_COL
GBE_CRS
GBE_MDCK
GBE_MDIO
GBE_RXCLK
GBE_RXD3
GBE_RXD2
GBE_RXD1
GBE_RXD0
GBE_RXCTL/RXDV
GBE_RXERR
GBE_TXCLK
GBE_TXD3
GBE_TXD2
GBE_TXD1
GBE_TXD0
GBE_TXCTL/TXEN
GBE_PHY_PD
GBE_PHY_RST#
GBE_PHY_INTR

GBE LAN

PS2_DAT/SDA4/GPIO187
PS2_CLK/SCL4/GPIO188
SPI_CS2#/GBE_STAT2/GPIO166
FC_RST#/GPO160
PS2KB_DAT/GPIO189
PS2KB_CLK/GPIO190
PS2M_DAT/GPIO191
PS2M_CLK/GPIO192

EMBEDDED CTRL

SB820M A12

USBCLK/14M_25M_48M_OSC
USB_RCOMP
USB_FSD1P/GPIO186
USB_FSD1N
USB_FSD0P/GPIO185
USB_FSD0N
USB_HSD13P
USB_HSD13N
USB_HSD12P
USB_HSD12N
USB_HSD11P
USB_HSD11N
USB_HSD10P
USB_HSD10N
USB_HSD9P
USB_HSD9N
USB_HSD8P
USB_HSD8N
USB_HSD7P
USB_HSD7N
USB_HSD6P
USB_HSD6N
USB_HSD5P
USB_HSD5N
USB_HSD4P
USB_HSD4N
USB_HSD3P
USB_HSD3N
USB_HSD2P
USB_HSD2N
USB_HSD1P
USB_HSD1N
USB_HSD0P
USB_HSD0N

USB 1.1 USB MISC
USB 2.0

CLK_48M_USB
USB_RCOMP_SB R270 11.8K/F_6

USBP15+ 29
USBP15- 29
BLUETOOTH
USBP10+ 33
USBP10- 33
WLAN Min-Card
USBP6+ 29
USBP6- 29
USB Connector
USBP5+ 29
USBP5- 29
USB Connector
USBP2+ 23
USBP2- 23
Carama USB
USBP0+ 29
USBP0- 29
USB Connector

C485 *2.2P/50V_4
for EMI

SCL2/GPIO193
SDA2/GPIO194
SCL3_LV/GPIO195
SDA3_LV/GPIO196
EC_PWM0/EC_TIMER0/GPIO197
EC_PWM1/EC_TIMER1/GPIO198
EC_PWM2/EC_TIMER2/GPIO199
EC_PWM3/EC_TIMER3/GPIO200

SB_SCLK2
SB_SDATA2
SB_SCLK3
T130
T132
SB_GPIO199 16
SB_GPIO200 16
SPI/LPC define

KSI_0/GPIO201
KSI_1/GPIO202
KSI_2/GPIO203
KSI_3/GPIO204
KSI_4/GPIO205
KSI_5/GPIO206
KSI_6/GPIO207
KSI_7/GPIO208
KSO_0/GPIO209
KSO_1/GPIO210
KSO_2/GPIO211
KSO_3/GPIO212
KSO_4/GPIO213
KSO_5/GPIO214
KSO_6/GPIO215
KSO_7/GPIO216
KSO_8/GPIO217
KSO_9/GPIO218
KSO_10/GPIO219
KSO_11/GPIO220
KSO_12/GPIO221
KSO_13/GPIO222
KSO_14/GPIO223
KSO_15/GPIO224
KSO_16/GPIO225
KSO_17/GPIO226

EMBEDDED CTRL

PROJECT : R22
Quanta Computer Inc.

NB5/RD2

Size	Document Number	Rev
Custom	SB820-ACPI/GPIO/USB 2/4	1A

Date: Wednesday, September 15, 2010 Sheet 13 of 43

SATA PORT 0,1,2,3 can support AHCI mode

PLACE SATA AC COUPLING CAPS CLOSE TO SB820

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

SATA1

SATA ODD

PLVDD_SATA-- SATA PLL POWER

XTLVDD_SATA-- SATA crystal power

PLACE SATA_CAL RES VERY CLOSE TO BALL OF SB820

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

U28B

SB800
Part 2 of 5

SB820M A12

SIDE_PORT_ID2	SIDE_PORT_ID1	SIDE_PORT_ID0	
1	0	0	Samsung
1	0	1	Hynix
0	0	0	No support side port

Side port ID H/W setting

For Zero ODD

ID4	ID3	ID2	ID1	ID0	CONFIG	31- Level BOM	Item
0	0	0	0	0	UMA		1
0	0	0	1	0			2
0	0	1	0	0			3
0	0	1	1	0			4
0	1	0	1	0			5
0	1	1	1	0			6
1	0	0	1	0			7
1	0	1	1	0			8
0	0	0	0	1	SG / Muxless		9
0	0	1	0	1			10
1	0	0	1	1			11
1	0	1	1	1			12

Item	Board ID Hardware setting
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	

PROJECT : R22
Quanta Computer Inc.

Size	Document Number	Rev
Custom	SB820-ACPI/GPIO/USB 2/4	1A

Date: Wednesday, September 15, 2010 Sheet 14 of 43

NB5/RD2

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

VDD-- S/B CORE power

SB800 Part 3 of 5

U28C

1.8V : FLASH MEMORY MODE(DEFAULT)
3.3V: IDE MODE

VDDQ--3.3V I/O power 131mA

VDD33_18--3.3V IDE I/O power
1.8V flash memory I/O power 71mA

Delete Cap and change +1.8V to pull low from AMD command , due to no IDE & flash mode

PCIE_VDDR--PCIE I/O power 600mA

AVDD_SATA--SATA phy power 567mA

For support USB wakeup-->3V_S5

AVDDTX--USB Phy Analog I/O power 658mA

CORE S0 510mA

CKVDD_1.1V--Internal clock Generator I/O power TBDmA

CLKGEN I/O

FLASH I/O

GBE LAN 43mA

PCI EXPRESS

SERIAL ATA 93mA

3.3V_S5 I/O 32mA

S5_3.3--3.3v standby power

CORE S5 113mA

S5_1.1V--1.1V standby power

TBDmA

USB I/O

PLL 197mA 47mA 62mA 17mA 5mA

VDDAN_1.1V_USB TBDmA

32mA

SB820M A12

GROUND

Part 5 of 5

Close to pin M8

Close to pin F19

PROJECT : R22
Quanta Computer Inc.

NB5/RD2

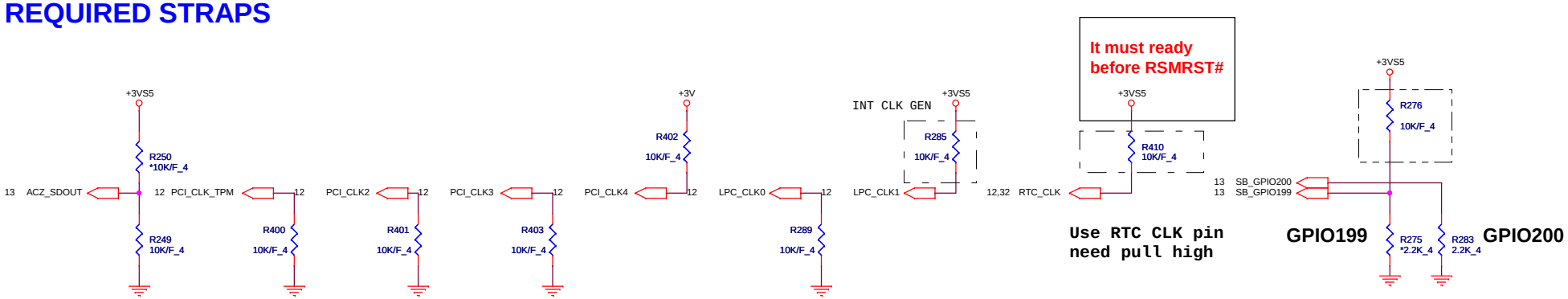
Size: Custom | Document Number: SB820-PWR/DECOUPLING 4/4 | Rev: 1A

Date: Wednesday, September 15, 2010 | Sheet 15 of 43

OVERLAP COMMON PADS WHERE POSSIBLE FOR DUAL-OP RESISTORS.

intermal have pull Hi 10K , confirm AMD ward this pull Hi not need

REQUIRED STRAPS



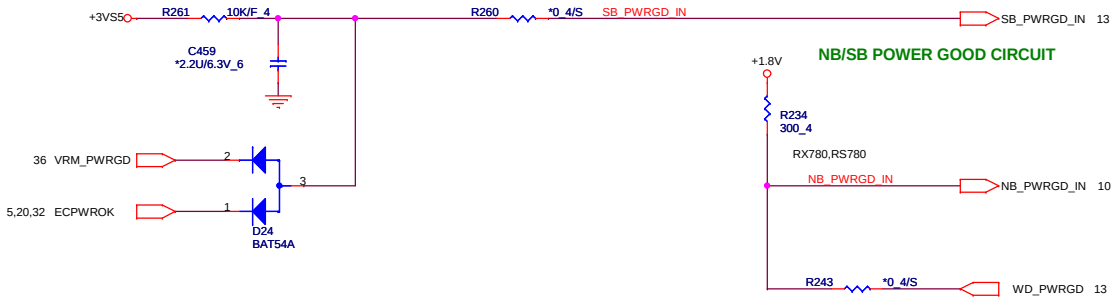
REQUIRED STRAPS

	AZ_SDOUT	PCI_CLK1	PCI_CLK2	PCI_CLK3	PCI_CLK4	LPC_CLK0	LPC_CLK1	GPIO200 GPIO199
PULL HIGH	LOW POWER MODE	ALLOW PCIE Gen2 DEFAULT	Watchdog Timer Enabled	USE DEBUG STRAP	non_Fusion CLOCK MODE DEFAULT	EC ENABLED	CLKGEN ENABLED DEFAULT	H,H = Reserved H,L = SPI ROM
PULL LOW	PERFORMANCE MODE DEFAULT	FORCE PCIE Gen1	Watchdog Timer Disabled DEFAULT	IGNORE DEBUG STRAP DEFAULT	FUSION CLOCK MODE	EC DISABLED DEFAULT	CLKGEN DISABLED	L,H = LPC ROM (Default) L,L = FWH ROM

DEBUG STRAPS

SB800 HAS 15K INTERNAL PU FOR PCI_AD[27:23]

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)



	PCI_AD27	PCI_AD26	PCI_AD25	PCI_AD24	PCI_AD23
PULL HIGH	USE PCI PLL DEFAULT	DISABLE ILA AUTORUN DEFAULT	USE FC PLL DEFAULT	USE DEFAULT PCIE STRAPS DEFAULT	DISABLE PCI MEM BOOT DEFAULT
PULL LOW	BYPASS PCI PLL	ENABLE ILA AUTORUN	BYPASS FC PLL	USE EEPROM PCIE STRAPS	ENABLE PCI MEM BOOT

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

NB5/RD2

PROJECT : R22
Quanta Computer Inc.

Size	Document Number	Rev
Custom	SB820-STRAPS	1A

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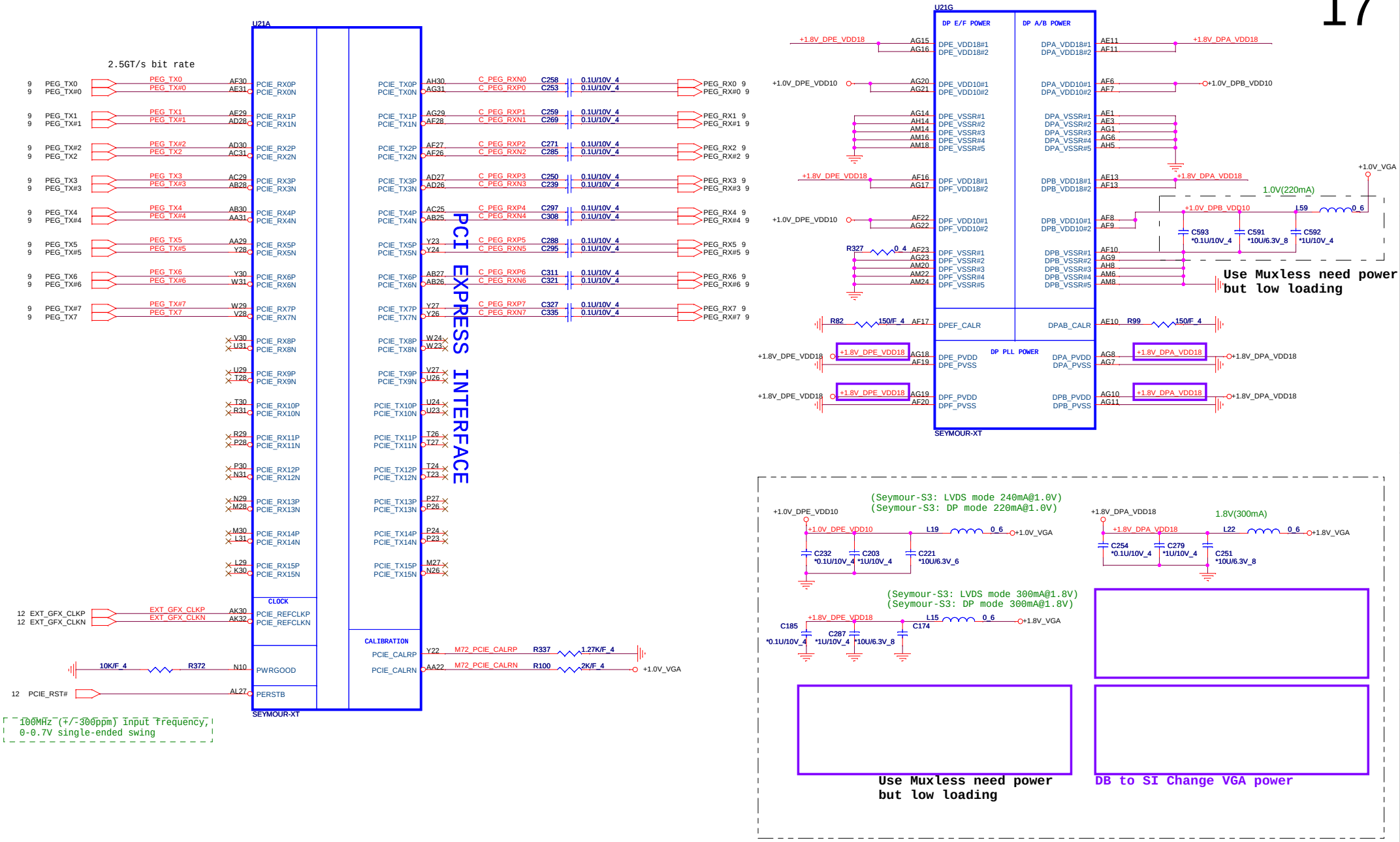


PROJECT : R22
Quanta Computer Inc.

NB5/RD2

Size	Document Number	Rev
Custom	SEYMOUR-XT PCIE_Interface	1A

Date: Wednesday, September 15, 2010 Sheet 17 of 43

MEM_ID[3:0]	Vendor	Type	Vendor P/N
0000	Samsung- E die	64*16-800MHZ	K4W1G1646E-HC12
0001	Hynix- Vega die	64*16-800MHZ	H5TQ1G63DFR-12C
0010	Hynix- Vega die	128*16-800MHZ	H5TQ2G63BFR-12C
0011	Samsung- C die	128*16-800MHZ	K4W2G1646C-HC12
0100	Micron	128*16-800MHZ	MT41J128M16HA-125:D
0101	Reserved		
0110	Hynix- Vega die	64*16-900MHZ	H5TQ1G63DFR-11C
0111	Samsung- E die	64*16-900MHZ	K4W1G1646E-HC11
1000	Samsung- G die	64*16-900MHZ	K4W1G1646G-BC11
1001	Reserved		
1010	Hynix- Vega die	128*16-900MHZ	H5TQ2G63BFR-11C
1011	Samsung- C die	128*16-900MHZ	K4W2G1646C-HC11
1100	Reserved		
1101	Reserved		
1110	Reserved		
1111	Reserved		

MEM_ID[3:0]	31 Level BOM	H/W setting
0000	TBD	TBD
0001	TBD	TBD
0010	TBD	TBD
0011	TBD	TBD
0100	TBD	TBD

Memory ID

Access to SCL and SDA is mandatory on BACO designs for debug purposes

GPIO22(ROMCS#) PD without external VBIOS ROM

Add a 3K ohm pull-down resistor to set the correct VDDC during power up.

Seymour uninstall to meet AF24 N/C

If no contact this pin to LVDS need pull low

BACO MODE:AD19 & AE17 & AE20 need with power

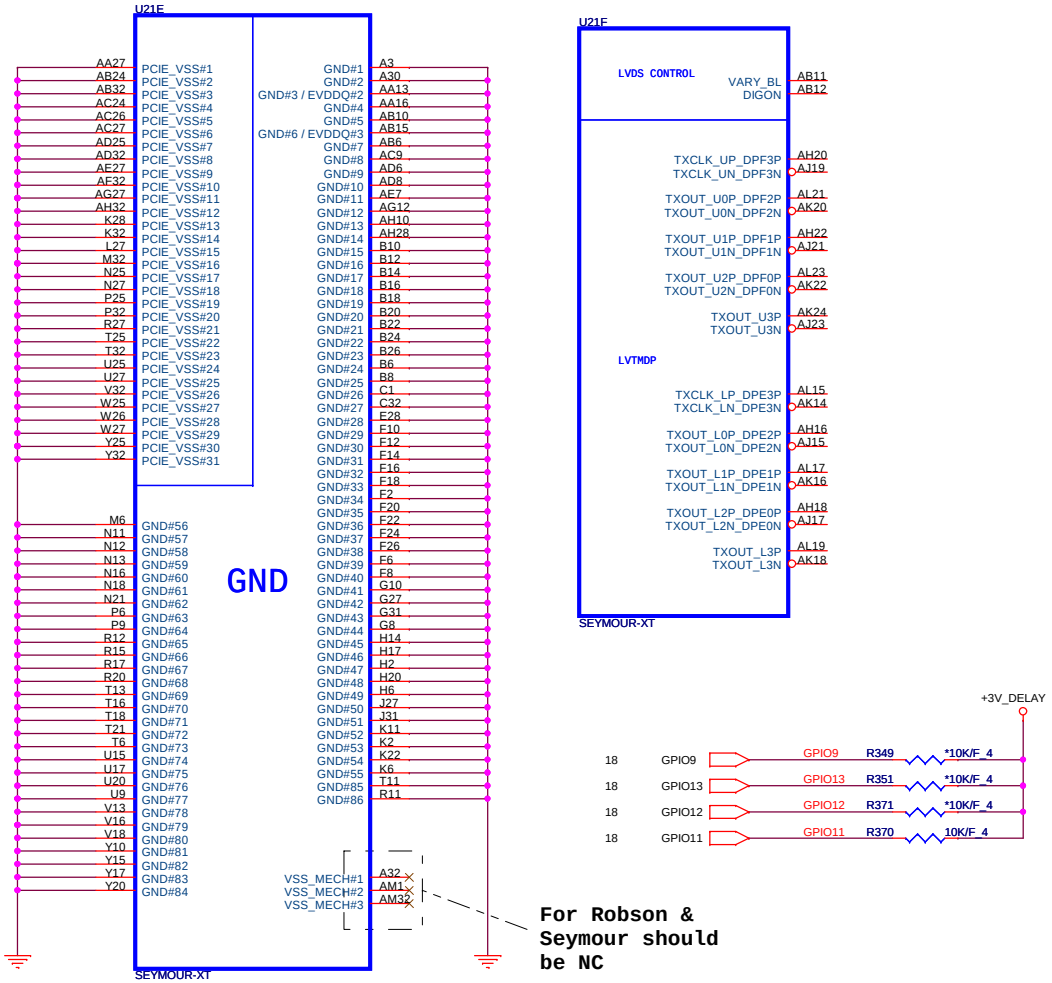
Robson-- Install
Seymour-- NC

Robson-- Install
Seymour-- NC
BACO mode -- install

For Int Clk 27Mhz

PROJECT :	R22
Quanta Computer Inc.	
Size: Custom	Document Number: SEYMOUR-XT Main
Rev: 1A	
Date: Wednesday, September 15, 2010	Sheet 18 of 43

NB5/RD2



For Robson & Seymour should be NC

CONFIGURATION STRAPS-- SEE EACH DATABOOK FOR STRAP DETAILS

ALLOW FOR PULLUP PADS FOR THESE STRAPS AND IF THESE GPIOS ARE USED, THEY MUST NOT CONFLICT DURING RESET

RECOMMENDED SETTINGS
0= DO NOT INSTALL RESISTOR
1 = INSTALL 3K RESISTOR
X = DESIGN DEPENDANT
NA = NOT APPLICABLE

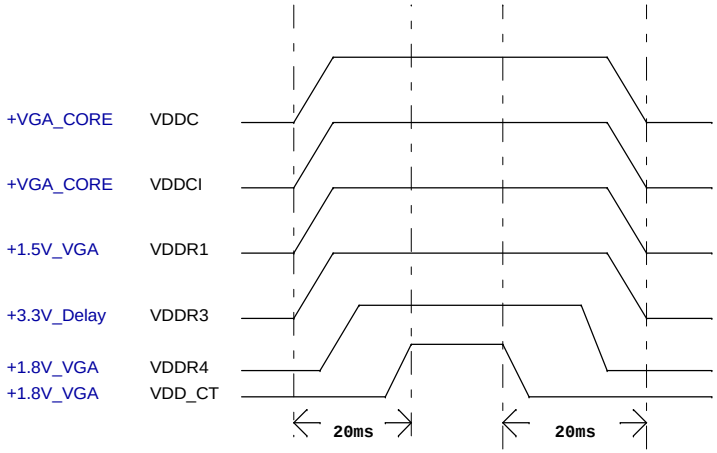
STRAPS	PIN	DESCRIPTION OF DEFAULT SETTINGS	
TX_PWRS_ENB	GPIO0	PCIE FULL TX OUTPUT SWING	
TX_DEEMPH_EN	GPIO1	PCIE TRANSMITTER DE-EMPHASIS ENABLED	0 X
RSVD RSVD	GPIO2 GPIO8	RESERVED RESERVED	0 0
BIF_VGA DIS	GPIO9	VGA ENABLED	0
RSVD	GPIO21	RESERVED	0
BIOS_ROM_EN	GPIO_22_ROMCSB	ENABLE EXTERNAL BIOS ROM	0
ROMIDCFG(2:0)	GPIO[13:11]	SERIAL ROM TYPE OR MEMORY APERTURE SIZE SELECT	0 0 1
VIP_DEVICE_STRAP_ENA	V2SYNC	IGNORE VIP DEVICE STRAPS (Removed on Seymour/Whistler)	0
RSVD	H2SYNC	RESERVED	0
AUD[1] AUD[0]	HSYNC VSYNC	SEE DATABOOK FOR DETAIL SEE DATABOOK FOR DETAIL	0 0
RSVD	GENERICC	RESERVED	0

NOTE1: AMD RESERVED CONFIGURATION STRAPS

ALLOW FOR PULLUP PADS FOR THESE STRAPS BUT DO NOT INSTALL RESISTOR. IF THESE GPIOS ARE USED, THEY MUST KEEP "LOW" AND NOT CONFLICT DURING RESET.

GPIO21 H2SYNC GENERICC GPIO8 GPIO2

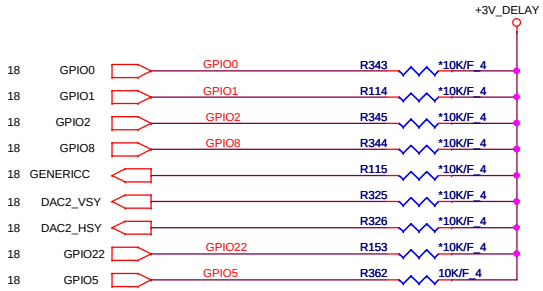
Power Up/Down Sequence



Memory Aperture size

GPIO9 BIOSROM		GPIO13 ROMIDCFG2	GPIO12 ROMIDCFG1	GPIO11 ROMIDCFG0
0	128M	0	0	0
0	256M	0	0	1
0	64M	0	1	0
0	32M	0	1	1
0	512M	1	0	0
0	1G	1	0	1
0	2G	1	1	0
0	4G	1	1	1

It is a shared pin strap with CONFIG[2:0] if BIOS_ROM_EN is set to 0.



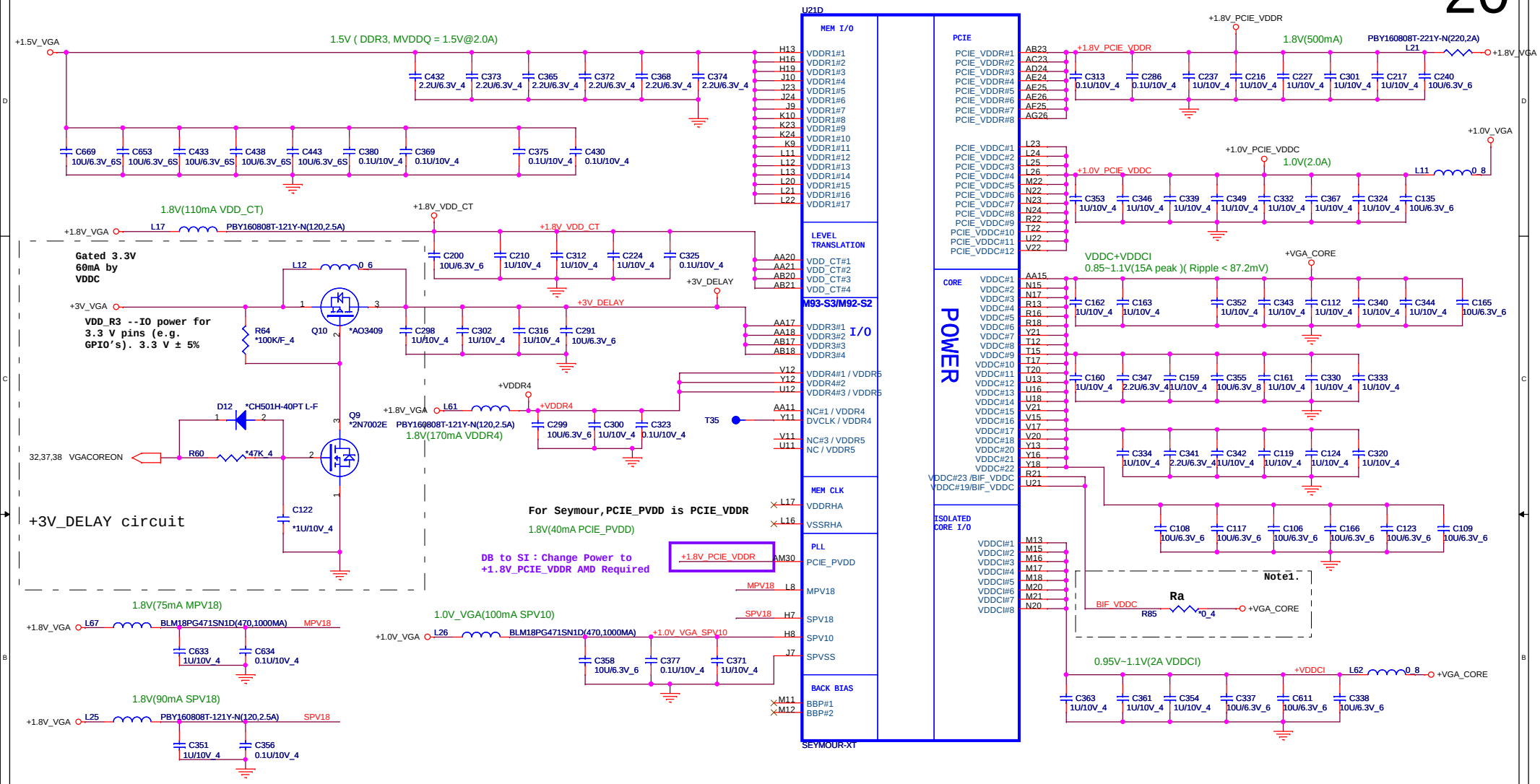
NB5/RD2

PROJECT : R22
Quanta Computer Inc.

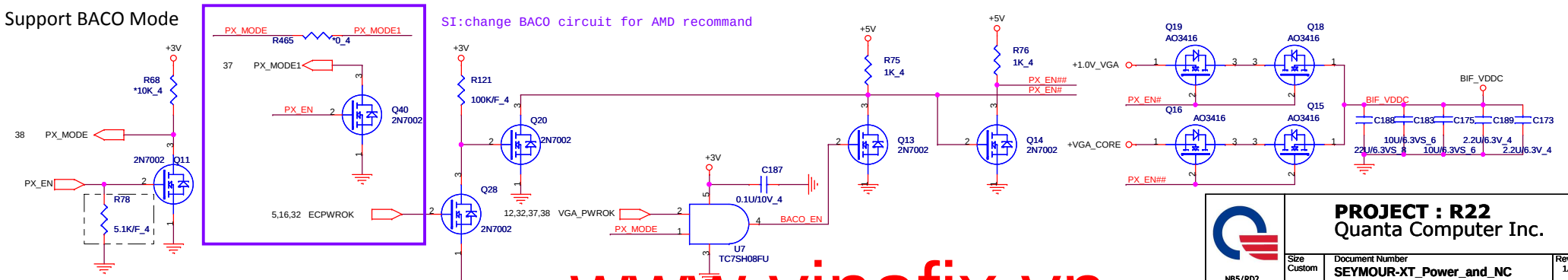
Size	Document Number	Rev
Custom	SEYMOUR-XT GND / LVDS/ Straps	1A

Date: Wednesday, September 15, 2010 Sheet 19 of 43

PCIE_VDDR--PCI-E I/O power. 1.8 V ± 5%



Support BACO Mode



NB5/RD2	PROJECT : R22 Quanta Computer Inc.	
Size: Custom	Document Number: SEYMOUR-XT_Power_and_NC	Rev: 1A
Date: Wednesday, September 15, 2010	Sheet 20 of 43	

22 VMA_ODT0 — VMA_ODT0
22 VMA_ODT1 — VMA_ODT1
22 VMA_RAS0# — VMA_RAS0#
22 VMA_RAS1# — VMA_RAS1#
22 VMA_CAS0# — VMA_CAS0#
22 VMA_CAS1# — VMA_CAS1#
22 VMA_WE0# — VMA_WE0#
22 VMA_WE1# — VMA_WE1#
22 VMA_CS0# — VMA_CS0#
22 VMA_CS1# — VMA_CS1#
22 VMA_CKE0 — VMA_CKE0
22 VMA_CKE1 — VMA_CKE1
22 VMA_CLK0 — VMA_CLK0
22 VMA_CLK0# — VMA_CLK0#
22 VMA_CLK1 — VMA_CLK1
22 VMA_CLK1# — VMA_CLK1#
22 VMA_WDQS[7..0] — VMA_WDQS[7..0]
22 VMA_RDQS[7..0] — VMA_RDQS[7..0]
22 VMA_DM[7..0] — VMA_DM[7..0]
22 VMA_DQ[63..0] — VMA_DQ[63..0]
22 VMA_MA[13..0] — VMA_MA[13..0]
22 VMA_BA0 — VMA_BA0
22 VMA_BA1 — VMA_BA1
22 VMA_BA2 — VMA_BA2

support 1Gbit VRAM (64M X 16)

U21C

MEMORY INTERFACE

VMA_DQ0	K27	DQA_0	MAA_0	K17	VMA_MA0
VMA_DQ1	J29	DQA_1	MAA_1	J20	VMA_MA1
VMA_DQ2	H30	DQA_2	MAA_2	H23	VMA_MA2
VMA_DQ3	H32	DQA_3	MAA_3	G23	VMA_MA3
VMA_DQ4	G29	DQA_4	MAA_4	G24	VMA_MA4
VMA_DQ5	F28	DQA_5	MAA_5	H24	VMA_MA5
VMA_DQ6	F32	DQA_6	MAA_6	J19	VMA_MA6
VMA_DQ7	F30	DQA_7	MAA_7	K19	VMA_MA7
VMA_DQ8	C30	DQA_8	MAA_8	J14	VMA_MA8
VMA_DQ9	F27	DQA_9	MAA_9	K14	VMA_MA9
VMA_DQ10	A28	DQA_10	MAA_10	J11	VMA_MA10
VMA_DQ11	C28	DQA_11	MAA_11	J13	VMA_MA11
VMA_DQ12	E27	DQA_12	MAA_12	H11	VMA_MA12
VMA_DQ13	G26	DQA_13	MAA_13/BA2	G11	VMA_BA2
VMA_DQ14	D26	DQA_14	MAA_14/BA0	J16	VMA_BA0
VMA_DQ15	F25	DQA_15	MAA_15/BA1	L15	VMA_BA1
VMA_DQ16	A25	DQA_16			
VMA_DQ17	C25	DQA_17	DQMA_0	E32	VMA_DM0
VMA_DQ18	E25	DQA_18	DQMA_1	E30	VMA_DM1
VMA_DQ19	D24	DQA_19	DQMA_2	A21	VMA_DM2
VMA_DQ20	E23	DQA_20	DQMA_3	C21	VMA_DM3
VMA_DQ21	F23	DQA_21	DQMA_4	E13	VMA_DM4
VMA_DQ22	D22	DQA_22	DQMA_5	D12	VMA_DM5
VMA_DQ23	F21	DQA_23	DQMA_6	E3	VMA_DM6
VMA_DQ24	E21	DQA_24	DQMA_7	F4	VMA_DM7
VMA_DQ25	D20	DQA_25			
VMA_DQ26	F19	DQA_26	RDQSA_0	H28	VMA_RDQS0
VMA_DQ27	A19	DQA_27	RDQSA_1	C27	VMA_RDQS1
VMA_DQ28	D18	DQA_28	RDQSA_2	A23	VMA_RDQS2
VMA_DQ29	F17	DQA_29	RDQSA_3	E19	VMA_RDQS3
VMA_DQ30	A17	DQA_30	RDQSA_4	E15	VMA_RDQS4
VMA_DQ31	C17	DQA_31	RDQSA_5	D10	VMA_RDQS5
VMA_DQ32	E17	DQA_32	RDQSA_6	D6	VMA_RDQS6
VMA_DQ33	D16	DQA_33	RDQSA_7	G5	VMA_RDQS7
VMA_DQ34	E15	DQA_34			
VMA_DQ35	A15	DQA_35	WDQSA_0	H27	VMA_WDQS0
VMA_DQ36	D14	DQA_36	WDQSA_1	A27	VMA_WDQS1
VMA_DQ37	F13	DQA_37	WDQSA_2	C23	VMA_WDQS2
VMA_DQ38	A13	DQA_38	WDQSA_3	C19	VMA_WDQS3
VMA_DQ39	C13	DQA_39	WDQSA_4	C15	VMA_WDQS4
VMA_DQ40	E11	DQA_40	WDQSA_5	E9	VMA_WDQS5
VMA_DQ41	A11	DQA_41	WDQSA_6	C5	VMA_WDQS6
VMA_DQ42	C11	DQA_42	WDQSA_7	H4	VMA_WDQS7
VMA_DQ43	F11	DQA_43			
VMA_DQ44	A9	DQA_44	ODTA0	L18	VMA_ODT0
VMA_DQ45	C9	DQA_45	ODTA1	K16	VMA_ODT1
VMA_DQ46	F9	DQA_46			
VMA_DQ47	D8	DQA_47	CLKA0	H26	VMA_CLK0
VMA_DQ48	E7	DQA_48	CLKA0B	H25	VMA_CLK0#
VMA_DQ49	A7	DQA_49			
VMA_DQ50	C7	DQA_50	CLKA1	G9	VMA_CLK1
VMA_DQ51	F7	DQA_51	CLKA1B	H9	VMA_CLK1#
VMA_DQ52	A5	DQA_52			
VMA_DQ53	E5	DQA_53	RASA0B	G22	VMA_RAS0#
VMA_DQ54	C3	DQA_54	RASA1B	G17	VMA_RAS1#
VMA_DQ55	E1	DQA_55			
VMA_DQ56	G7	DQA_56	CASA0B	G19	VMA_CAS0#
VMA_DQ57	G6	DQA_57	CASA1B	G16	VMA_CAS1#
VMA_DQ58	G1	DQA_58			
VMA_DQ59	G3	DQA_59	CSA0B_0	H22	VMA_CS0#
VMA_DQ60	J6	DQA_60	CSA0B_1	J22	
VMA_DQ61	J1	DQA_61			
VMA_DQ62	J3	DQA_62	CSA1B_0	G13	VMA_CS1#
VMA_DQ63	J5	DQA_63	CSA1B_1	K13	
	K26	MVREFDA	CKEA0	K20	VMA_CKE0
	J26	MVREFSA	CKEA1	J17	VMA_CKE1
	J25	MEM_CALRN0	WEA0B	G25	VMA_WE0#
	K7	NC/TESTEN#2	WEA1B	H10	VMA_WE1#
	J8	MEM_CALRP1/DPC_CALR	PX_EN	AB16	PX_EN 20
	K25	MEM_CALRP0	RSVD#2	G14	
			RSVD#3	G20	VMA_MA13
DRAM_RST	L10	DRAM_RST			
CLKTESTA	K8	CLKTESTA			
CLKTESTB	L7	CLKTESTB			

SEYMOUR-XT

+1.5V_VGA
R217 40.2/F_4
MVREFD
C429 0.1U/10V_4
R212 100/F_4
+1.5V_VGA
R228 40.2/F_4
MVREFS
C439 0.1U/10V_4
R222 100/F_4
+1.5V_VGA
R378 243/F_4
R161 5.1K/F_4
R126 150/F_4
R377 243/F_4

C618 *0.1U/10V_4
C616 *0.1U/10V_4
R355 *51.1/F_4
R352 *51.1/F_4

Can remove it when MP from AMD review reply

route 50ohms
single-ended/100ohms diff
and keep short
For PARK-S3 only

From GPU

25mm (max) — 5mm (max) — 25mm (max)

DRAM_RST — R208 10_4 — R220 51/F_4 — DRAM_RST_M — DRAM_RST_M 22

R213 5.1K/F_4
C427 120P/50V_4

DB to SI : R213 & C427 exchange

Place all these components very close to GPU (Within 25mm) and keep all component close to each Other (within 5mm) except Rser2

This basic topology should be used for DRAM_RST for DDR3/GDDR5.These Capacitors and Resistor values are an example only. The Series R and || Cap values will depend on the DRAM load and will have to be calculated for different Memory ,DRAM Load and board to pass Reset Signal Spec.

PROJECT : R22
Quanta Computer Inc.

NB5/RD2

Size	Document Number	Rev
Custom	SEYMOUR-XT MEM_Interface	1A

Date: Wednesday, September 15, 2010 Sheet 21 of 43

512MB DDR3

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

U14 / U24 / U13 / U23 — K4W1G1646E-HC12 (100-BALL SDRAM DDR3)

Should be 240 Ohms +-1%

R227 243/F_4 (U14) · R382 243/F_4 (U24) · R218 243/F_4 (U13) · R379 243/F_4 (U23)

+1.5V_VGA

R386 4.99K/F_4 · R385 4.99K/F_4 · C655 .1U/10V_4 · VREFC_VMA1
R202 4.99K/F_4 · R207 4.99K/F_4 · C431 .1U/10V_4 · VREFD_VMA1
R384 4.99K/F_4 · R387 4.99K/F_4 · C663 .1U/10V_4 · VREFC_VMA2
R205 4.99K/F_4 · R210 4.99K/F_4 · C646 .1U/10V_4 · VREFD_VMA2
R231 4.99K/F_4 · R230 4.99K/F_4 · C445 .1U/10V_4 · VREFC_VMA3
R223 4.99K/F_4 · R229 4.99K/F_4 · C440 .1U/10V_4 · VREFD_VMA3
R381 4.99K/F_4 · R383 4.99K/F_4 · C651 .1U/10V_4 · VREFC_VMA4
R376 4.99K/F_4 · R380 4.99K/F_4 · C645 .1U/10V_4 · VREFD_VMA4

VMA_CLK0 · R214 56.2/F_4 · C436 · VMA_CLK0_COMM · .01U/16V_4
R221 56.2/F_4 · VMA_CLK0# · VMA_CLK1
R211 56.2/F_4 · C428 · VMA_CLK1_COMM · .01U/16V_4
R215 56.2/F_4 · VMA_CLK1#

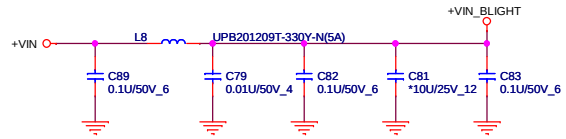
C425 C426 C452 C441 C434 C424 C422 C666 1U/6.3V_4
C640 C638 C664 C421 C667 C656 C637 C635 1U/6.3V_4
C670 C668 C658 C446 C449 C451 C661 C665 1U/6.3V_4
C642 C641 C639 C649 C650 C652 C442 C448 1U/6.3V_4
C662 C643 C455 C457 C454 10U/6.3V_6S
C644 C654 C657 C648 C453 C456 C450 10U/6.3V_6S

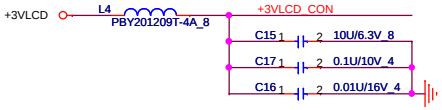
	QCI PN
SAMSUNG	AKD5LGGT502
HYNIX	AKD5LZGTW00

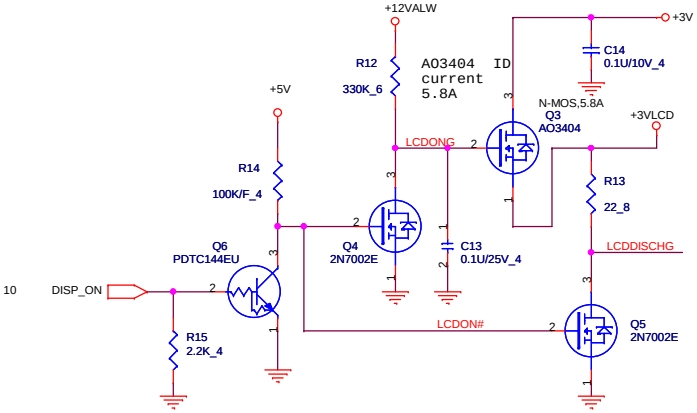
NB5/RD2

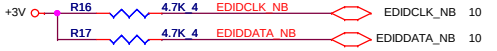
PROJECT : R22
Quanta Computer Inc.

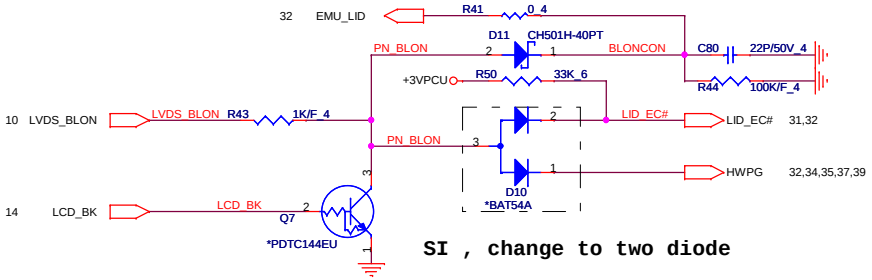
Size: Custom | Document Number: SEYMOUR-XT VRAM(DDR3 BGA96) | Rev: 3A
Date: Wednesday, September 15, 2010 | Sheet 22 of 43



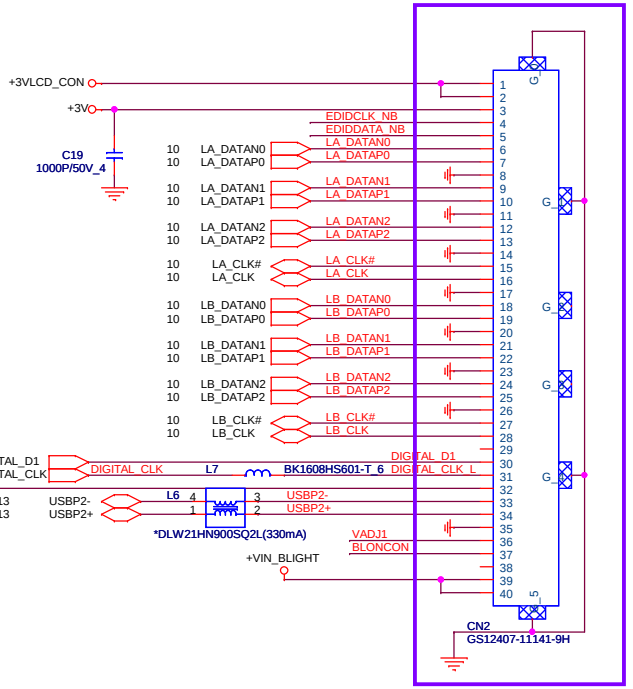




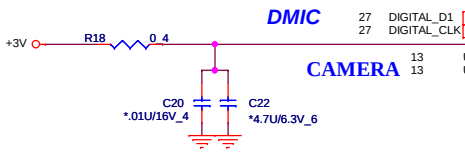




SI , change to two diode

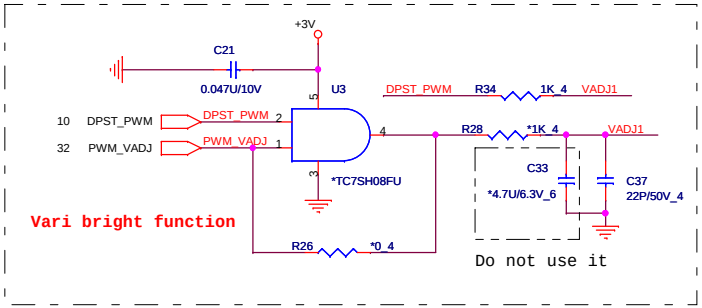


CN2 Change PN DFHS40FS036



DMIC

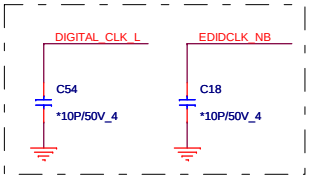
CAMERA



Vari bright function

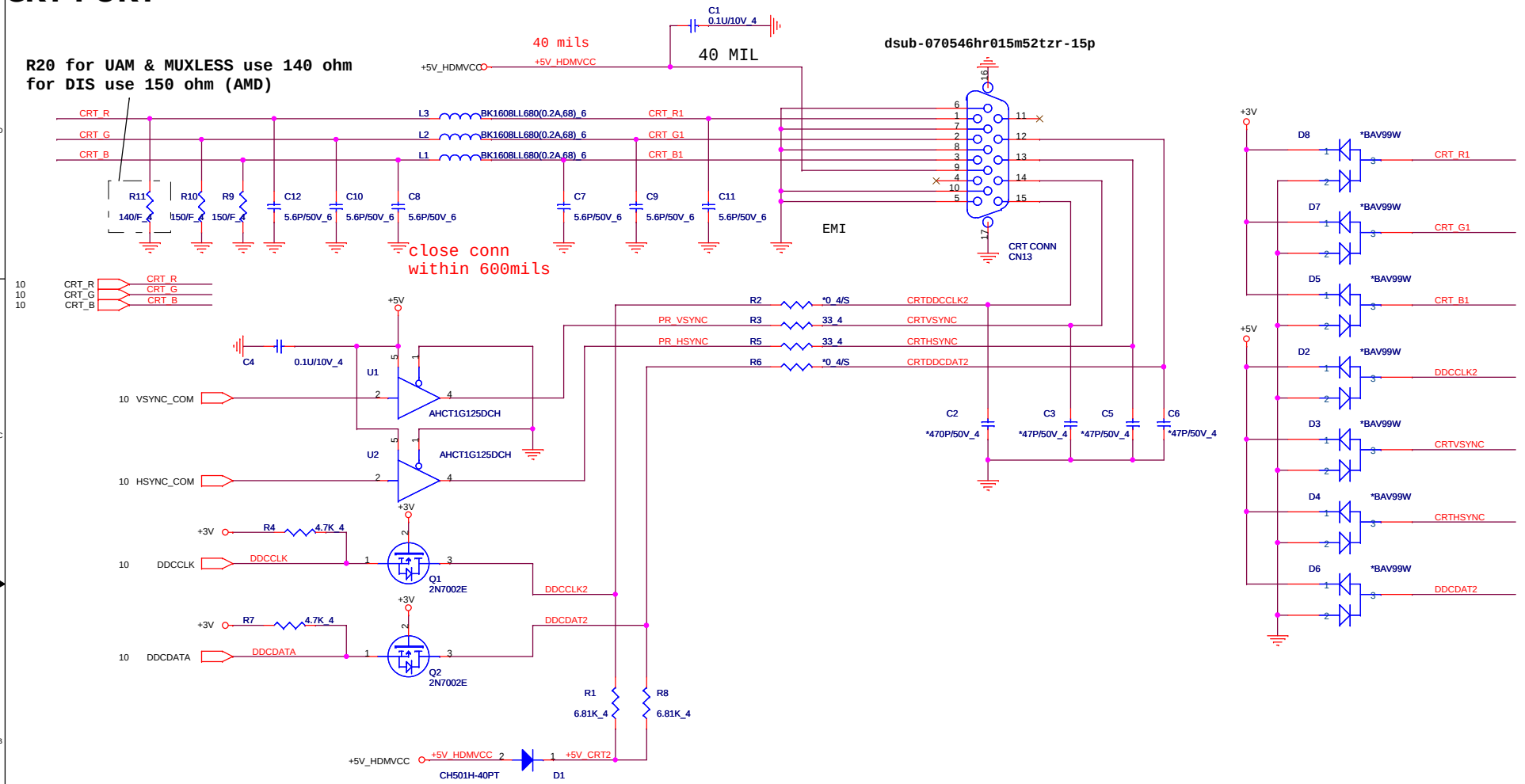
Do not use it

Reserve for EMI



NB5/RD2	**PROJECT : R22** Quanta Computer Inc.	
	Size: Custom — Document Number: LCD CONN	Rev: 1A
	Date: Wednesday, September 15, 2010 — Sheet 23 of 43	

CRT PORT

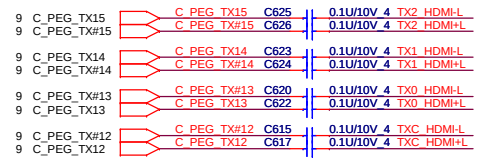


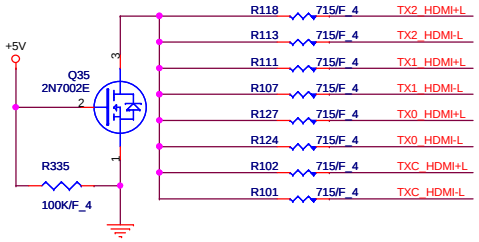
PROJECT : R22	Quanta Computer Inc.
Size: Custom	Document Number: CRT
Rev: 1A	
NB5/RD2	Date: Wednesday, September 15, 2010 Sheet 24 of 43

UMA/DISCRETE select for HDMI

From RS880M

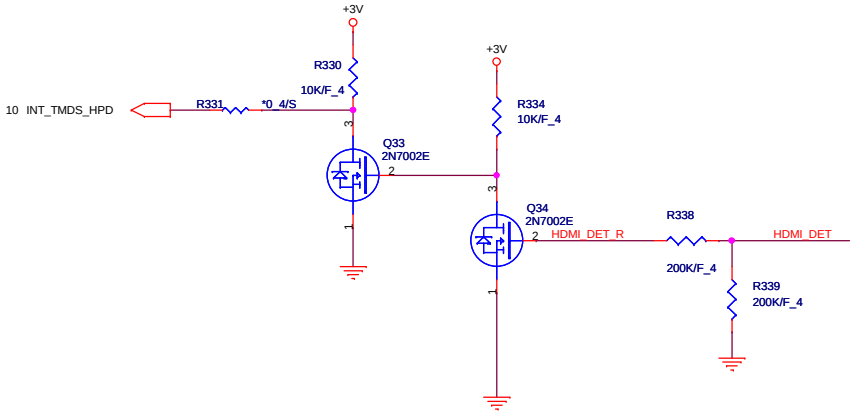
for Layout concern ,placement close north bridge



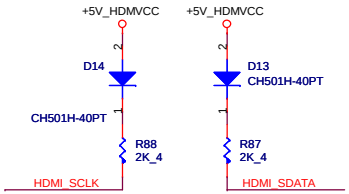


Close to HDMI Connector

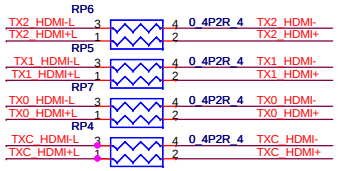
HDMI HPD SENSE



HDMI Connector



Add for EMI debug



Need add nearby HDMI CONN

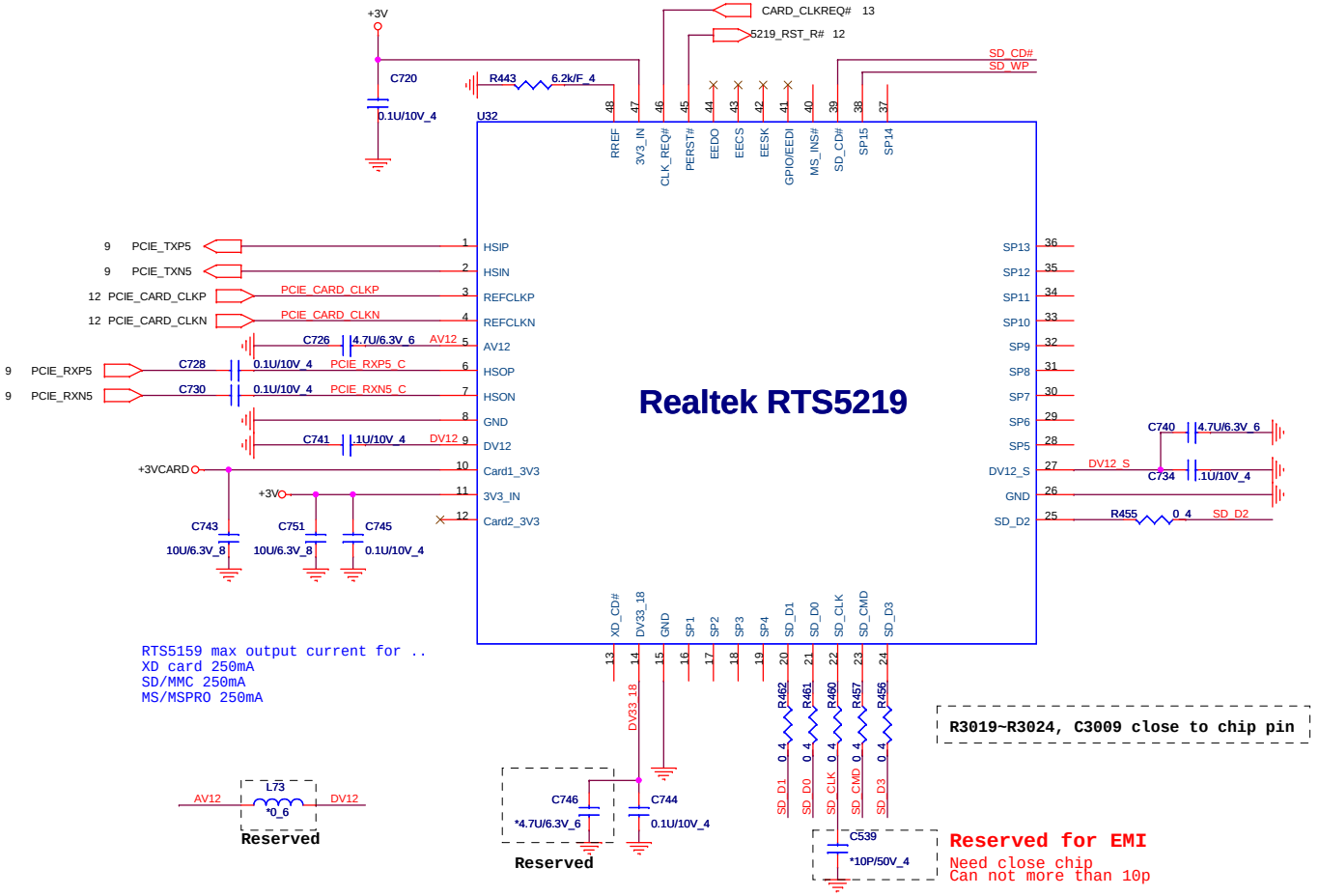
hdmi-100042mr019s172zl-19p-v

UMA HDMI I2C SELECT

Close to HDMI Connector

UMA

NB5/RD2	PROJECT : R22 Quanta Computer Inc.	
Size: Custom	Document Number: HDMI	Rev: 1A
Date: Wednesday, September 15, 2010	Sheet 25 of 43	



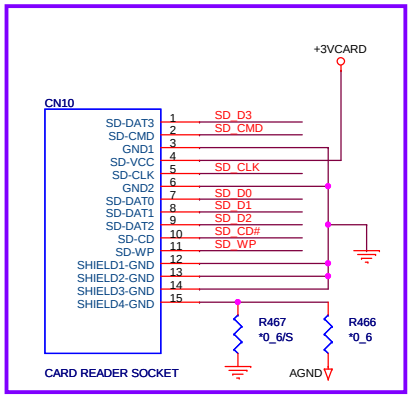
RTS5159 max output current for ..
XD card 250mA
SD/MMC 250mA
MS/MSPRO 250mA

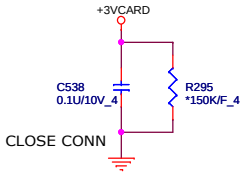
Reserved

Reserved

R3019~R3024, C3009 close to chip pin

Reserved for EMI
Need close chip
Can not more than 10p





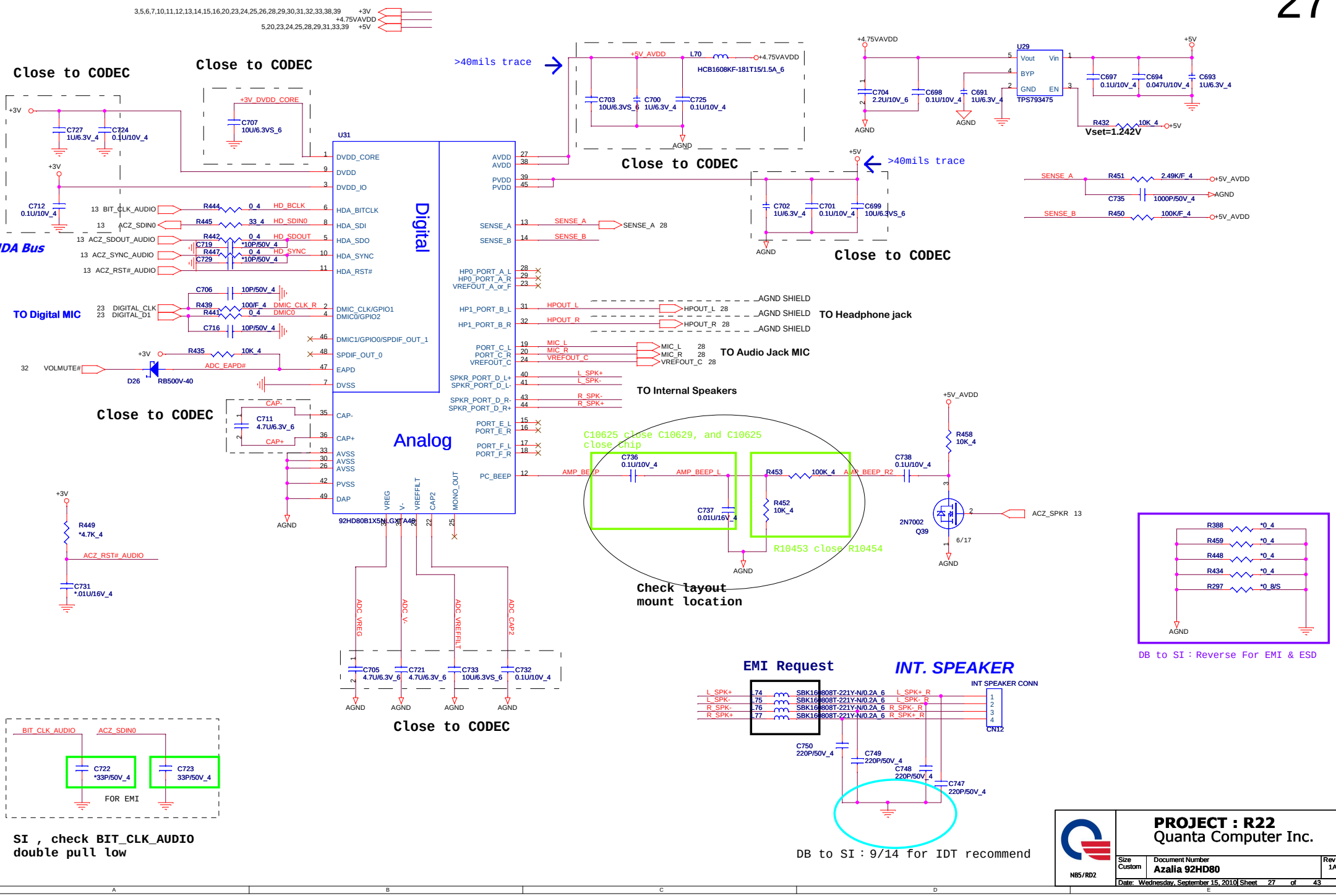
DB to SI Change Footprint to SDCARD-CS1S-038-11P-SMT For SMT issue

PROJECT : R22
Quanta Computer Inc.

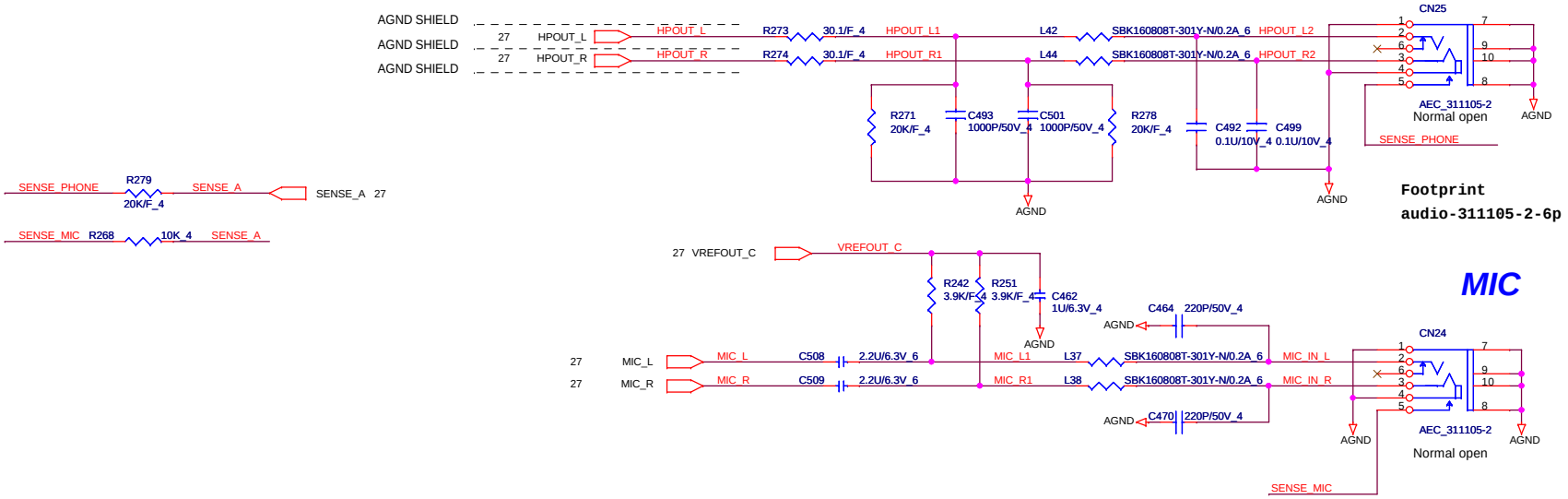
Size	Document Number	Rev
Custom	RTS5219 & CR SOCKET	1A

NB5/RD2

Date: Wednesday, September 15, 2010 Sheet 26 of 43

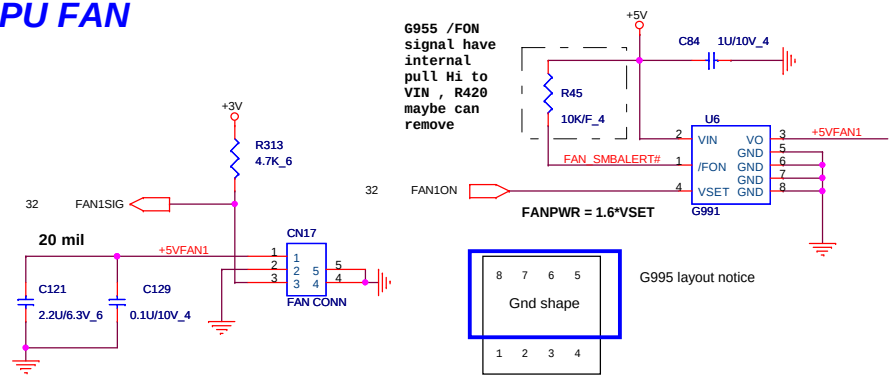


Line out

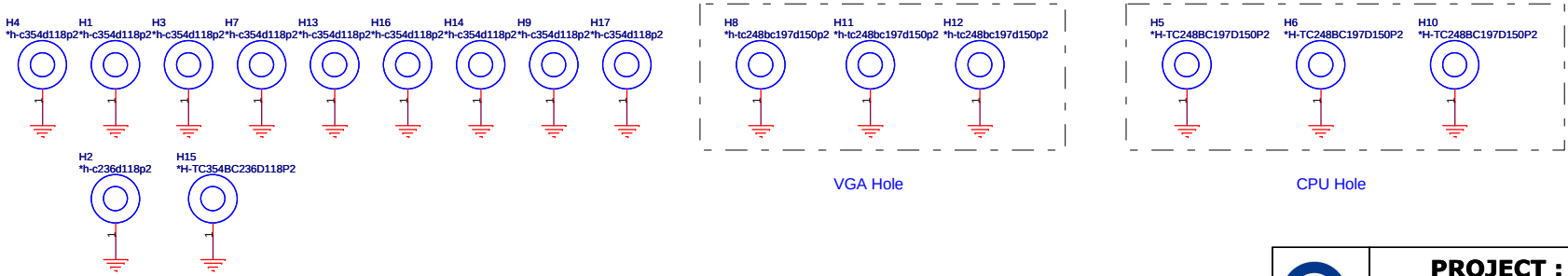


MIC

CPU FAN

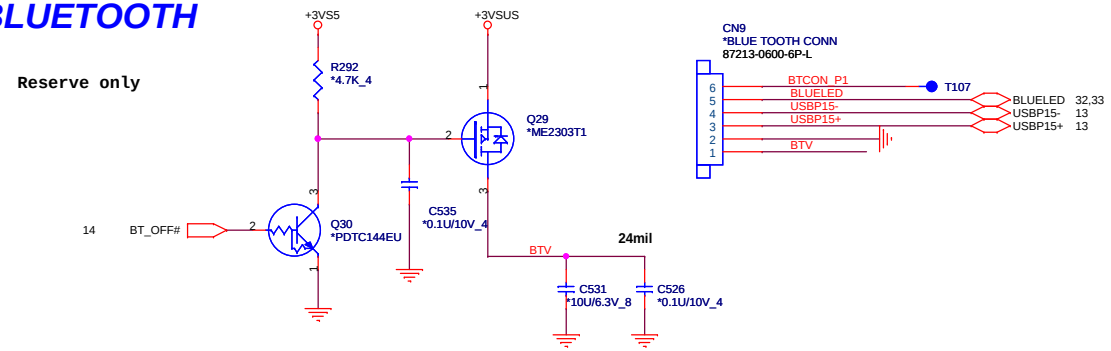


HOLE

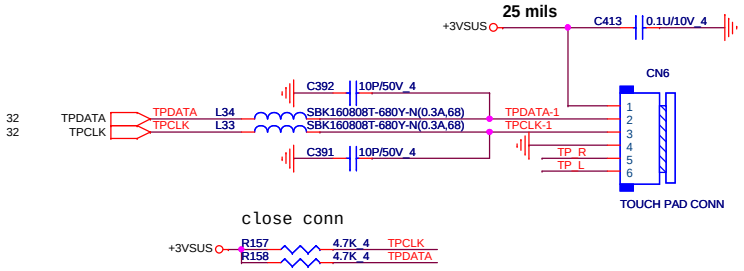


NB5/RD2	**PROJECT : R22** Quanta Computer Inc.	
Size: Custom	Document Number: AMP_TPA6017/CPU FAN/HOLE	Rev: 1A
Date: Wednesday, September 15, 2010	Sheet 28 of 43	

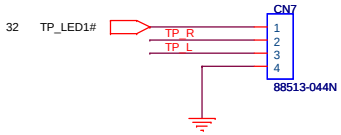
BLUETOOTH



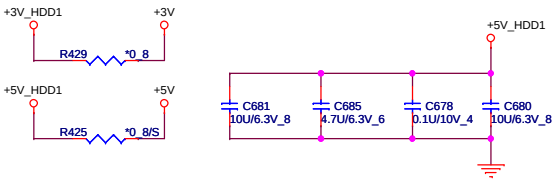
TOUCH PAD CONN

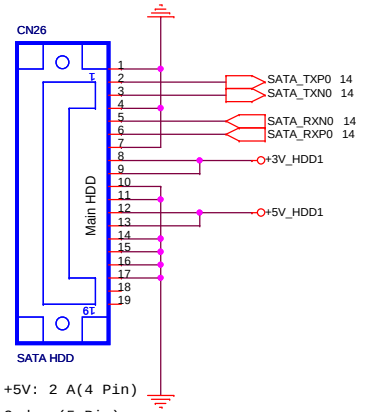


To TOUCH PAD SW board



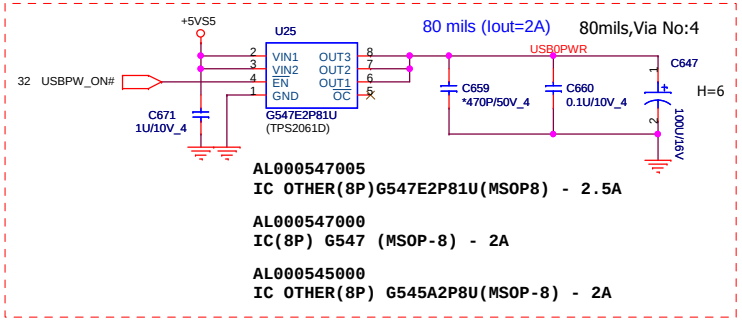
SATA HDD CONNECTOR

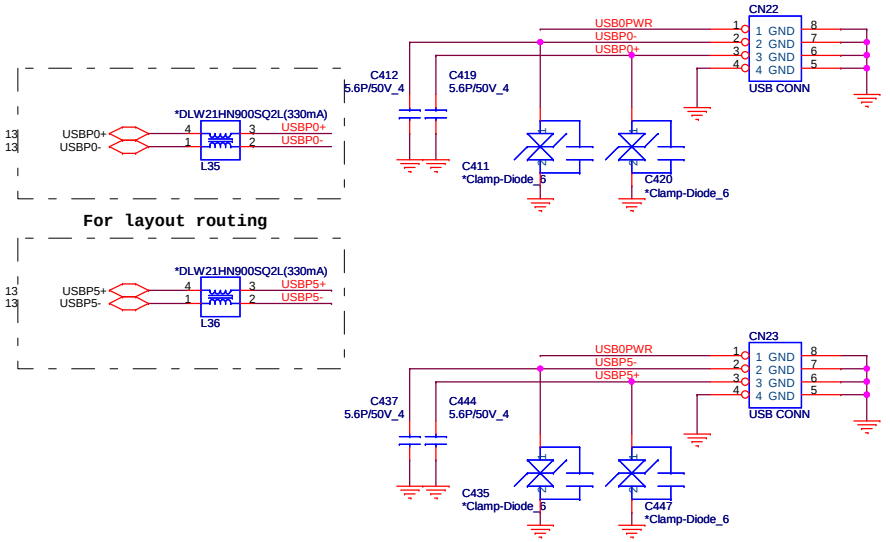




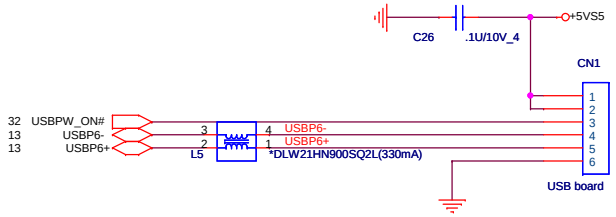
ANT CONN

LEFT SIDE USBX2





Right SIDE USBX1



NB5/RD2	**PROJECT : R22** Quanta Computer Inc.	
Size: Custom	Document Number: BT/USBX3/TP/HDD	Rev: 1A
Date: Wednesday, September 15, 2010	Sheet 29 of 43	

IND SMD 4.7UH +-20% 680MA(CBC2518T4R7M)
CV-4707MZ00

GND VIA x 9 Pcs

Power trace Layout 寬度> 60mil

C55,C56 near pins 21.

VDD10 near pins 13, 29, 45.

DB to SI：For Realtek

DB to SI：U5-Pin21 Change to +1.05V_LAN

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

Check schematic control by EC ?

VDD33 nesr pins 27, 39, 47, 48.

Transformer for 10/100

Footprint : rj45-130452-u4-12p

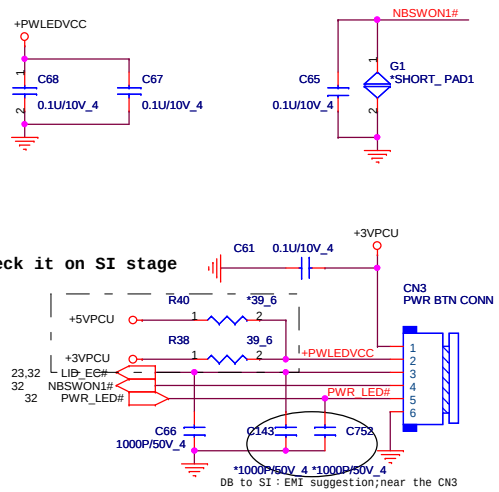
PROJECT : R22
Quanta Computer Inc.

Size	Document Number	Rev
Custom	RTL8102EL/RJ45	1A

Date: Wednesday, September 15, 2010 Sheet 30 of 43

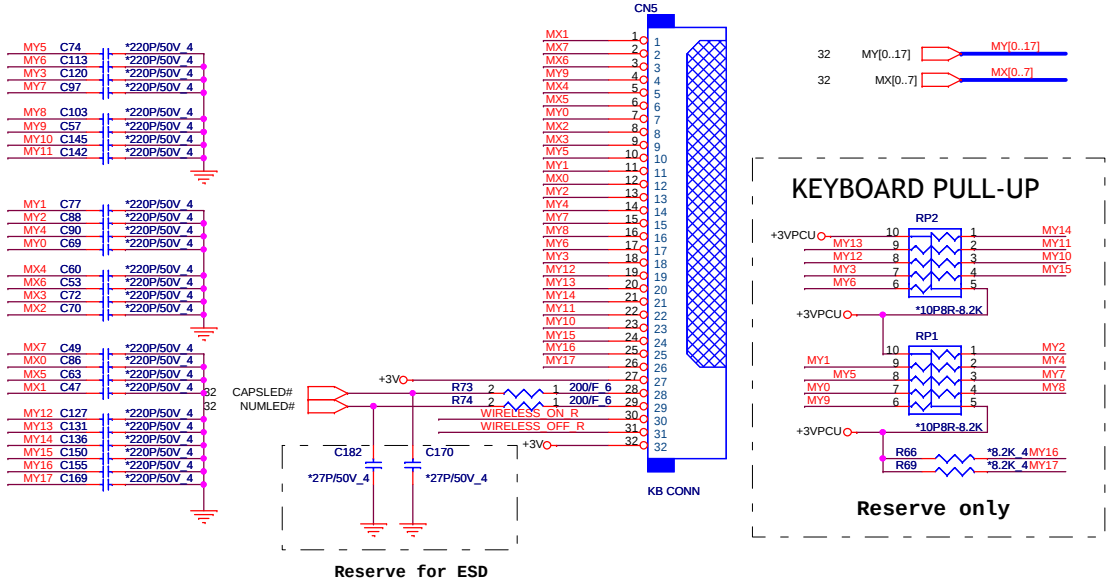
NB5/RD2

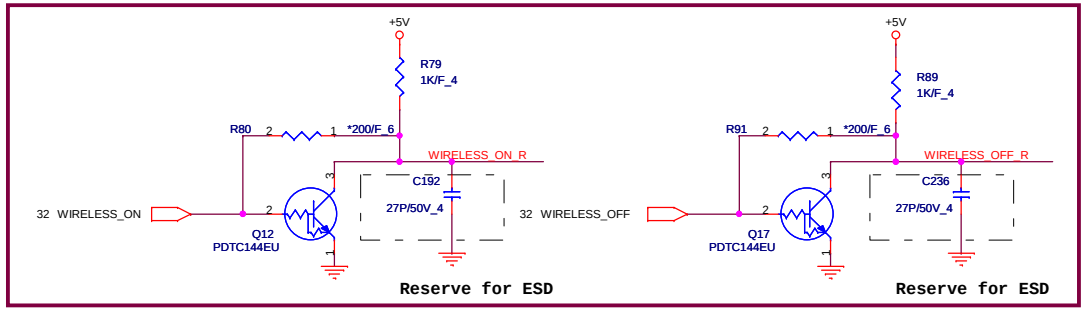
POWER BUTTON CONNECTOR



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

KEYBOARD CONN

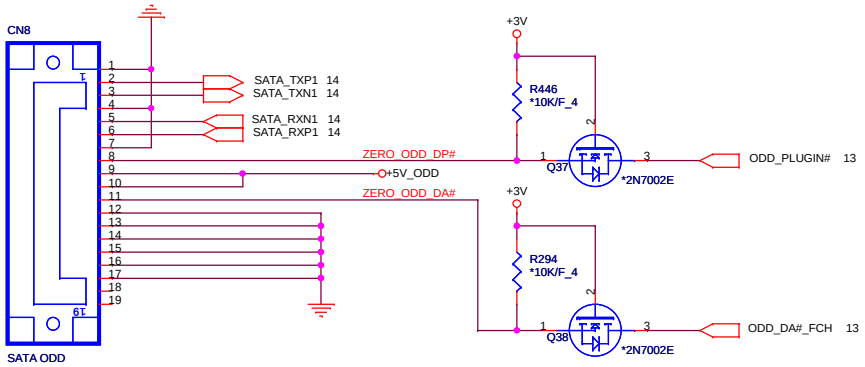




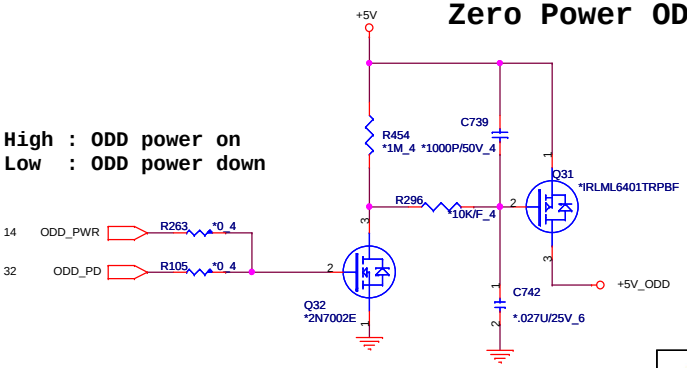
DB to SI : K/B RF LED Change

SATA CD-ROM

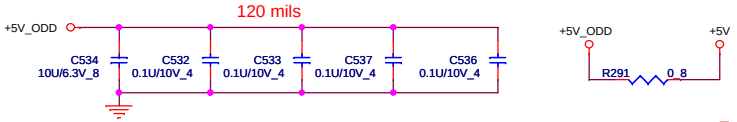
ANT CONN



Zero Power ODD circuit



High : ODD power on
Low : ODD power down



NB5/RD2	**PROJECT : R22** Quanta Computer Inc.	
Size: Custom	Document Number: KEYBOARD/SW_BOARD/ODD	Rev: 1A
Date: Wednesday, September 15, 2010	Sheet 31 of 43	

U9

KB3930QF A1

VGA thermal

Battery charge/discharge Cap button

system thermal

Enable Vari-bright need pull low

MAX AKE38FP0Z00 2M byte SPI
WINBOND AKE38FP0N01 BIOS
EON AKE38ZA0Q00
SOCKET DFHS08FS023

MX25L1605DM2I-12G

Platform model	GPIO42
SG/DIS	High
UMA	Low
TBD	Middle (1.5V)

Hi ==> 90W

Low ==> 65W

If use SB RTC CLK should change to 20P

For KB3926 C version

Put close to EC side

Change D12, D16 to RB500 for current loss

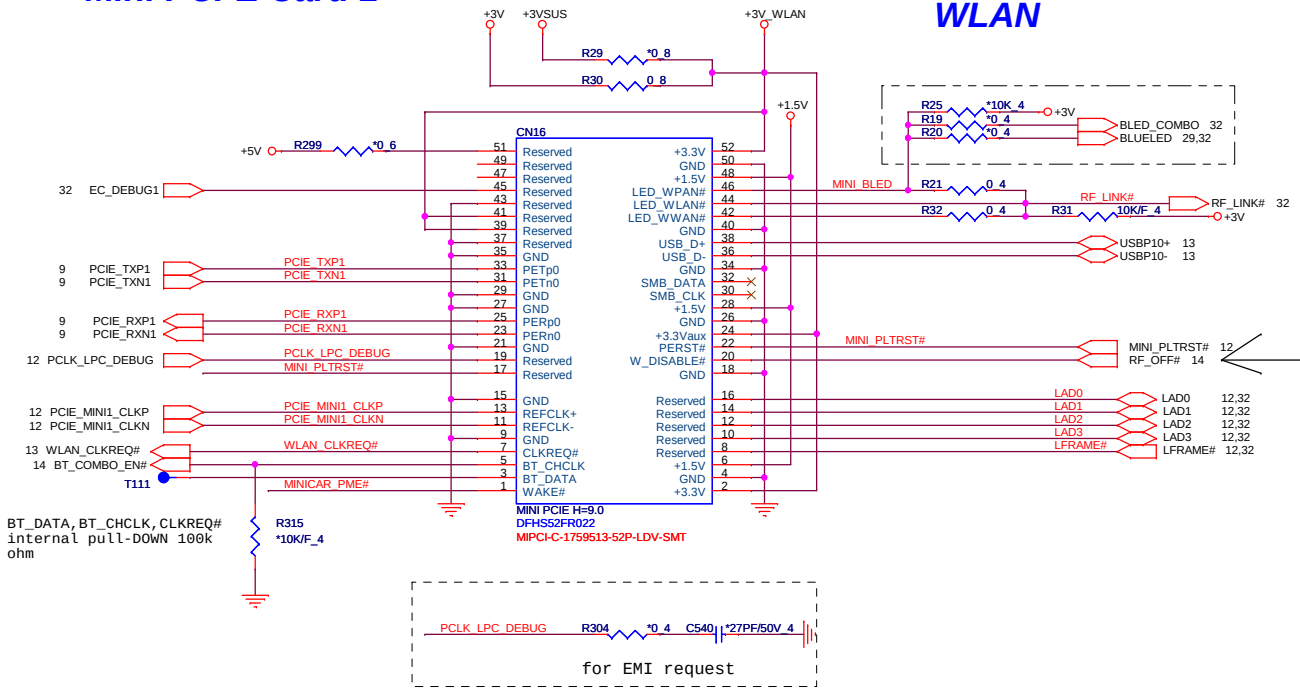
adapter Type check

PROJECT : R22
Quanta Computer Inc.

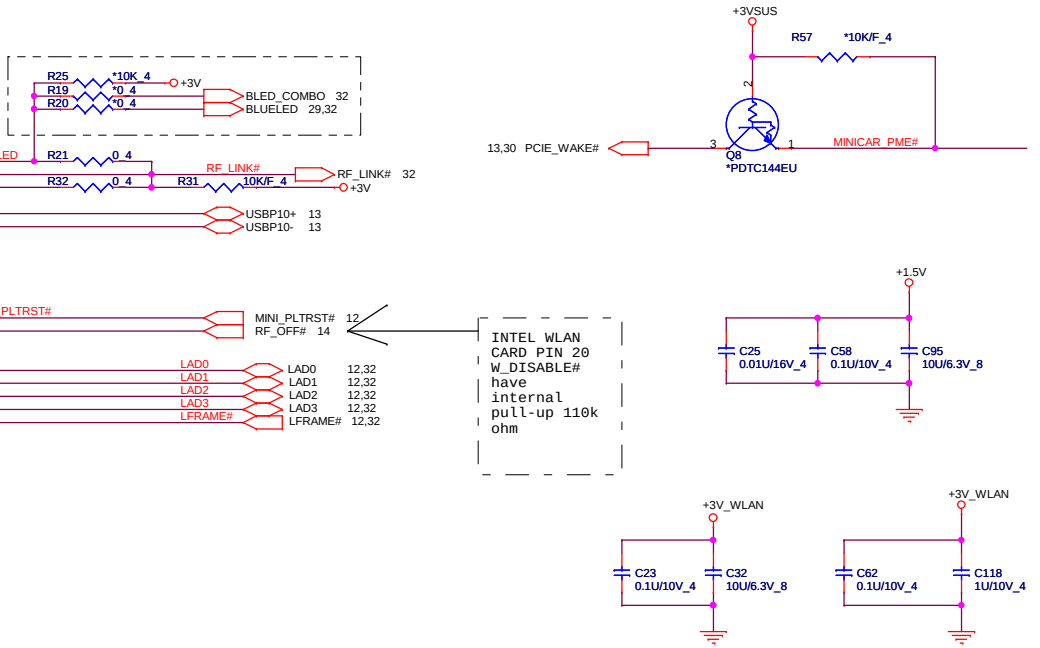
Size: Custom | Document Number: KB3926/ROM/TP | Rev: 1A

Date: Wednesday, September 15, 2010 | Sheet 32 of 43

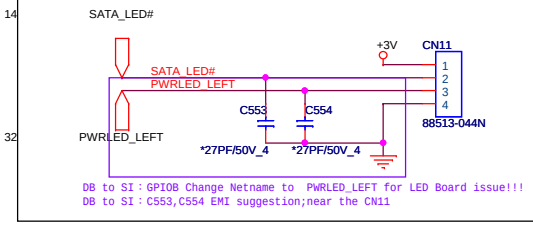
Mini PCI-E Card 1



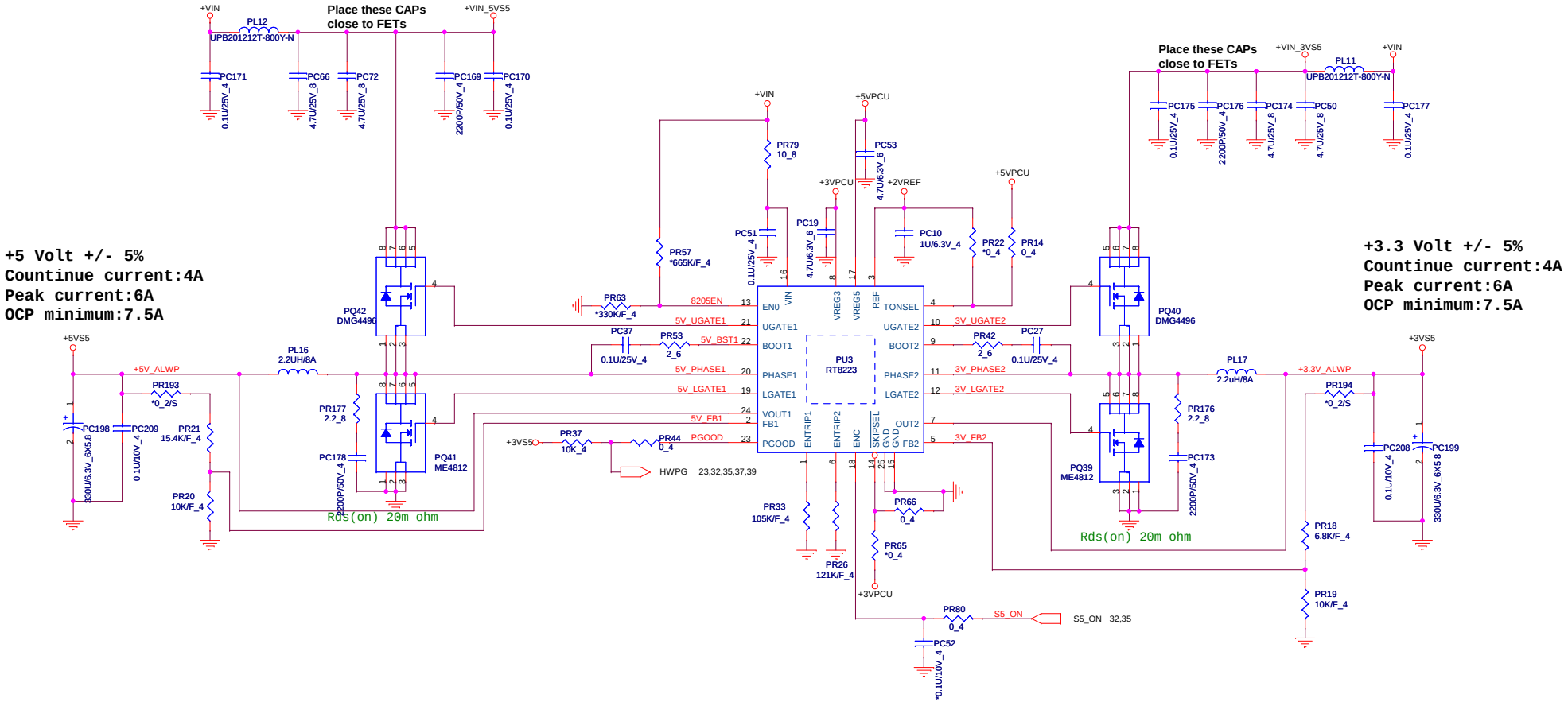
WLAN



LED board CONN



NB5/RD2	PROJECT : R22 Quanta Computer Inc.	
Size: Custom	Document Number: Mini CARD/LED CONN	Rev: 1A
Date: Wednesday, September 15, 2010	Sheet 33 of 43	



N85/RD2	PROJECT : R22 Quanta Computer Inc.	
Size: Custom	Document Number: +5V/+3V (RT8206B)	Rev: 1A
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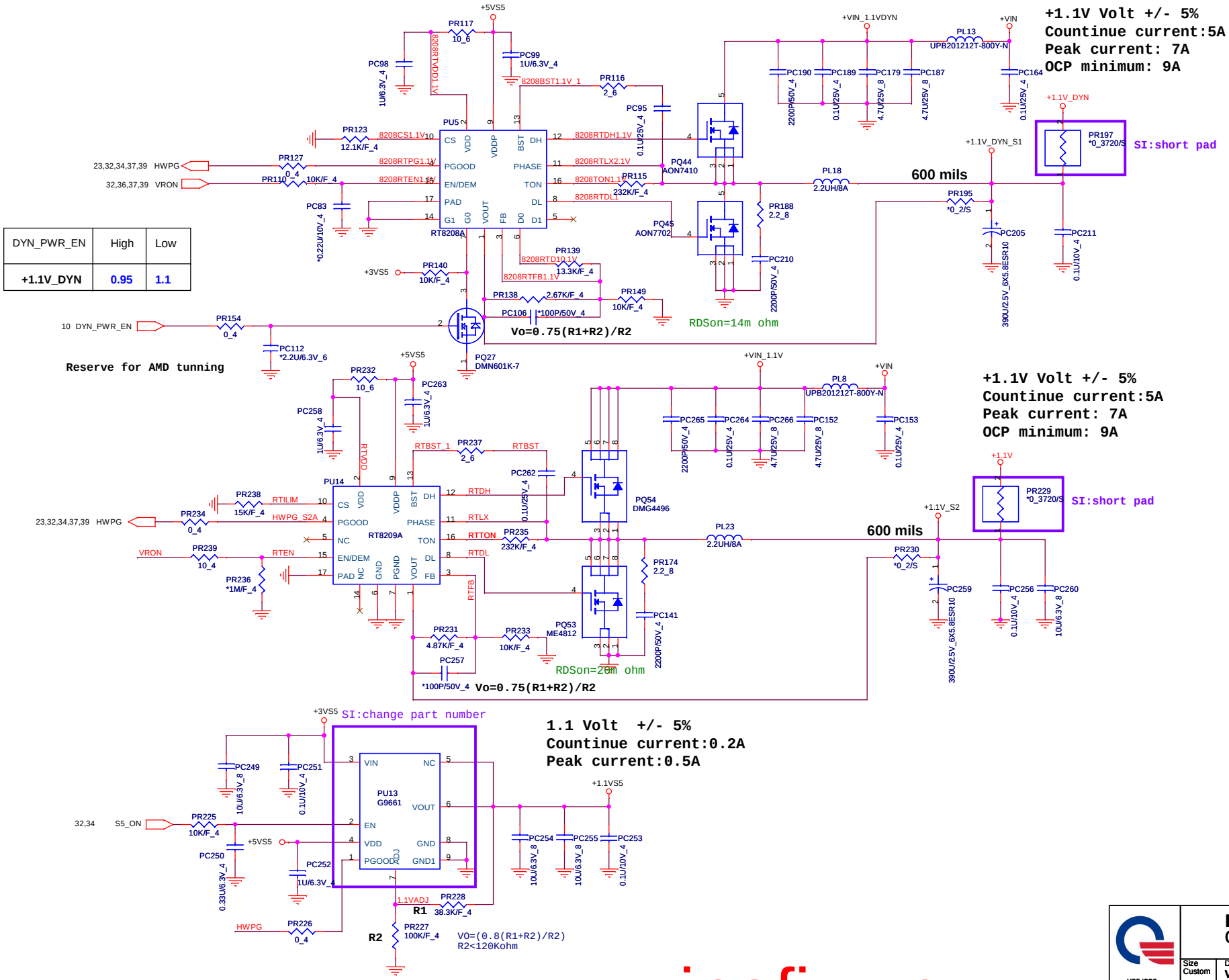

DYN_PWR_EN	High	Low
+1.1V_DYN	0.95	1.1

PROJECT : R22
Quanta Computer Inc.

Size	Document Number	Rev
Custom	VGA Core/+1.8VGFX/1.0VGFX	1A

NB5/RD2

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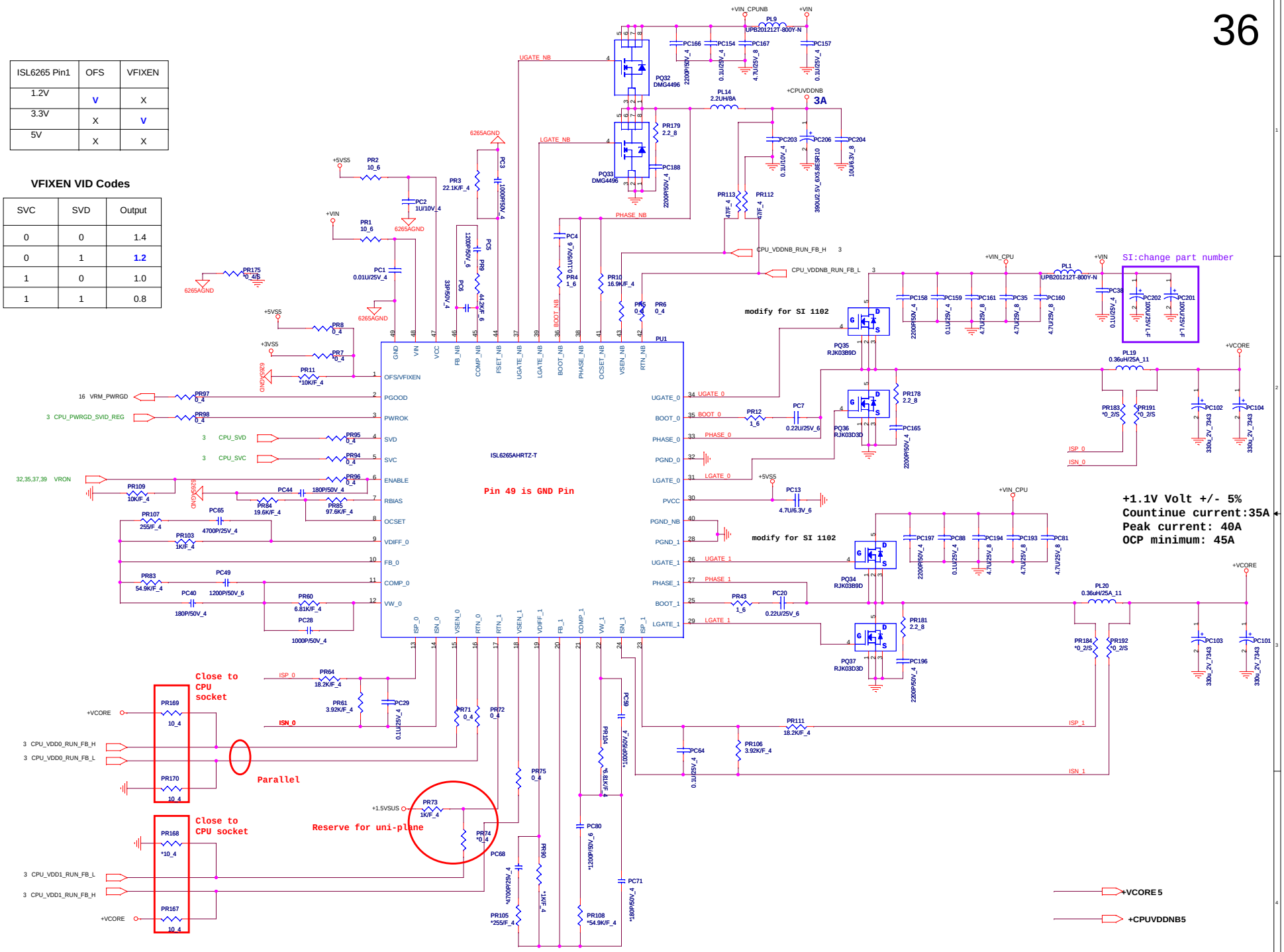
ISL6265 Pin1	OFS	VFIXEN
1.2V	V	X
3.3V	X	V
5V	X	X

VFIXEN VID Codes

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



PROJECT : R22	Quanta Computer Inc.
NB5/RD2	Size C · Document Number CPU_CORE(ISL6265) · Rev 1A
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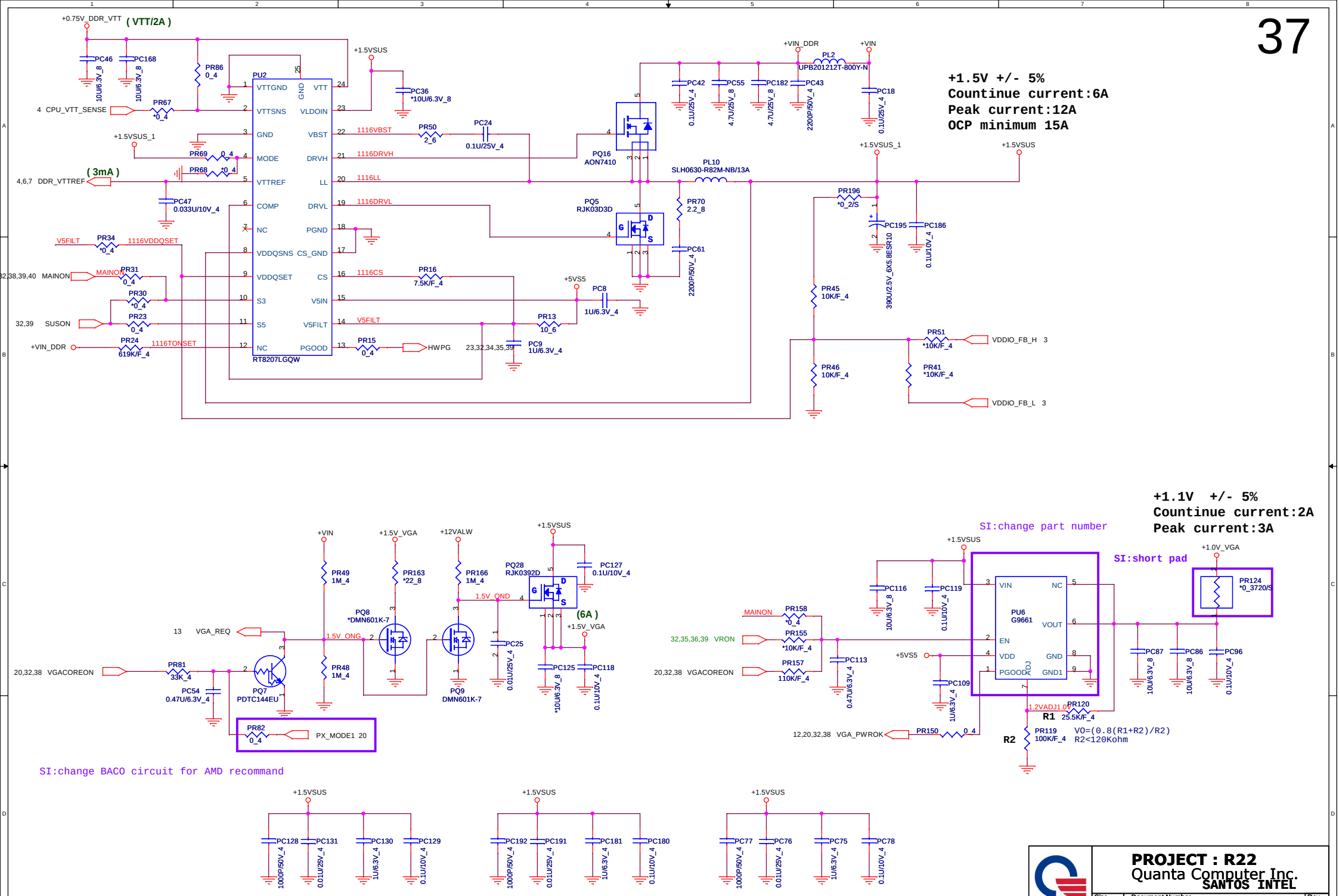
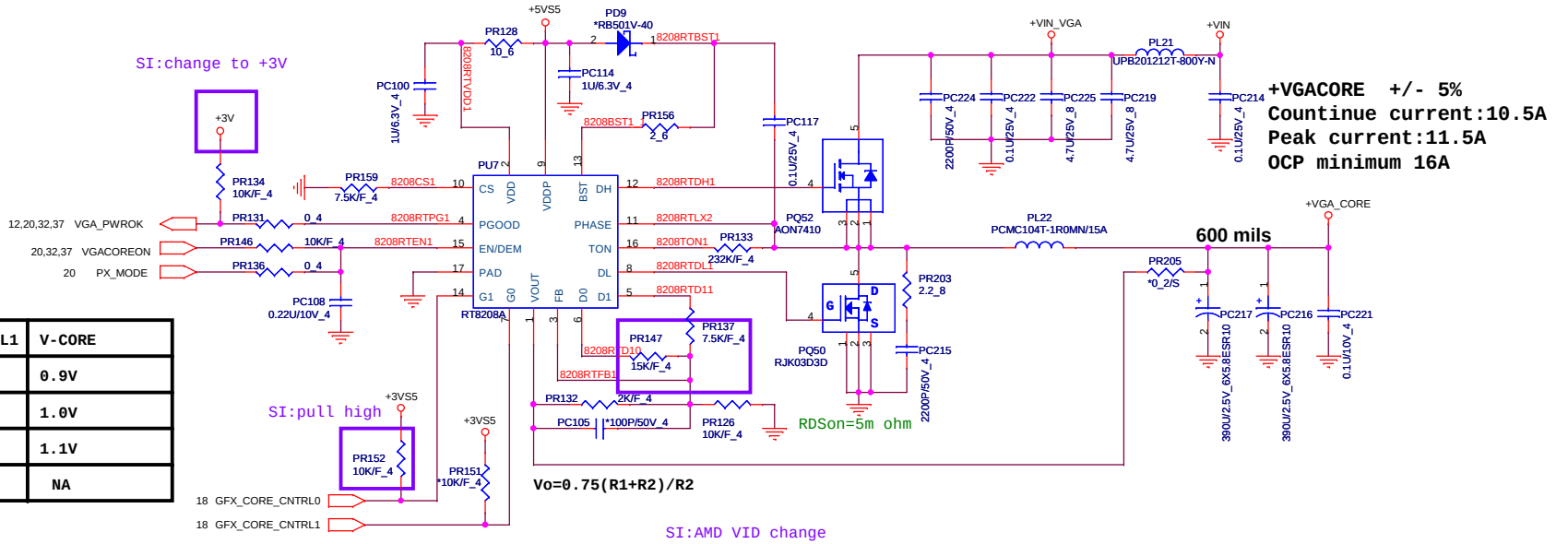
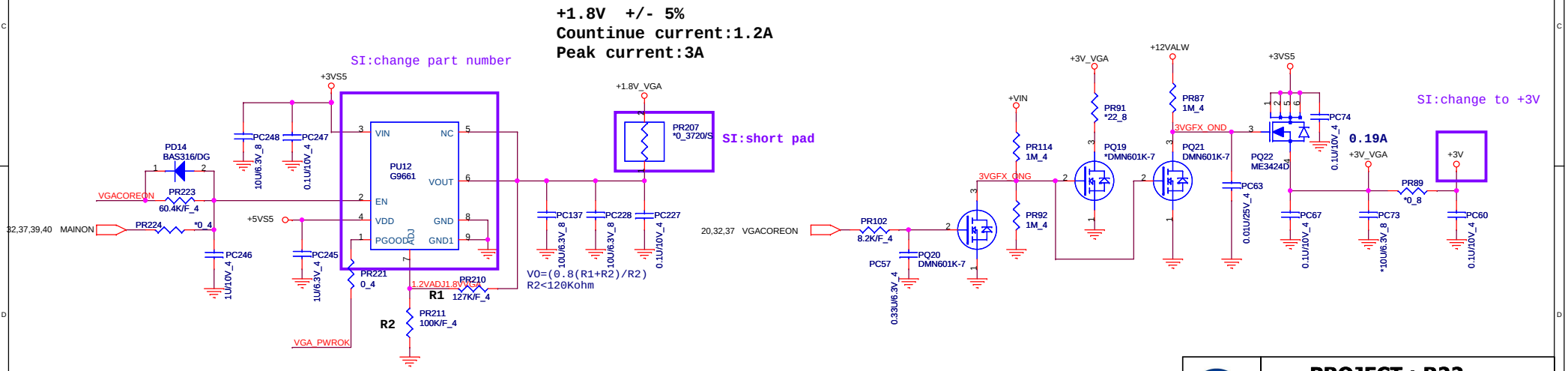


PROJECT : R22		
Quanta Computer Inc.		
SANTOS INTEL		
Size	Document Number	Rev
	DDR3 (RT8207)	1A
NB5/RD2	Date: Wednesday, September 15, 2010 Sheet 37 of 43	

VGA Core

Park-LP	PWRCNTL0	PWRCNTL1	V-CORE
L	0	0	0.9V
M	0	1	1.0V
H	1	0	1.1V
TBD	1	1	NA





PROJECT : R22
Quanta Computer Inc.

Size	Document Number	Rev
Custom	+VGACORE (RT8208/1.8V)	1A

NB5/RD2

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+0.9V +/- 5%
Countinue current:1.5A
Peak current:2A

SI:change part number

+2.5 Volt +/- 5%
Countinue current: 200mA
Peak current: 600mA

+1.8V +/- 5%
Countinue current:0.7A
Peak current:1A

SI:change part number

SI:change part number

SI:short pad

SI:short pad

R1 = 12.7K/F_4
R2 = 100K/F_4
VO=(0.8(R1+R2)/R2)
R2<120Kohm

R1 = 110K/F_4
R2 = 100K/F_4
Vout=1.2(1+R1/R2)

R1 = 127K/F_4
R2 = 100K/F_4
VO=(0.8(R1+R2)/R2)
R2<120Kohm

VDDR_1.05_EN:
1 : VDDR =1.05V
0 : VDDR = 0.9V (Default)

5.2A
0.4A
0.7A
5.1A
2.35A

PROJECT : R22	
Quanta Computer Inc.	
Size: Custom	Document Number: Dis-charge IC (G5934)
Rev: 1A	
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N85/RD2	

SI:change part number & footprint

DC_JACK
90W

Place this ZVS close to Idea Diode

Do Not add test pad on BATDIS_G signal

To PWR LED

Place this ZVS close to Far-Far away +VIN

Place this cap close to EC

Place this cap close to EC

Place this cap close to EC

Place this cap close to EC

PU8
OZ8681

PROJECT : R22
Quanta Computer Inc.

Size	Document Number	Rev
Custom	CHARGER (ISL6251)	1A

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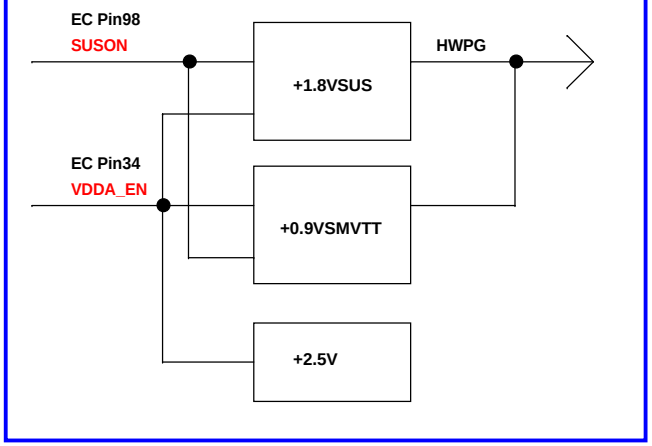
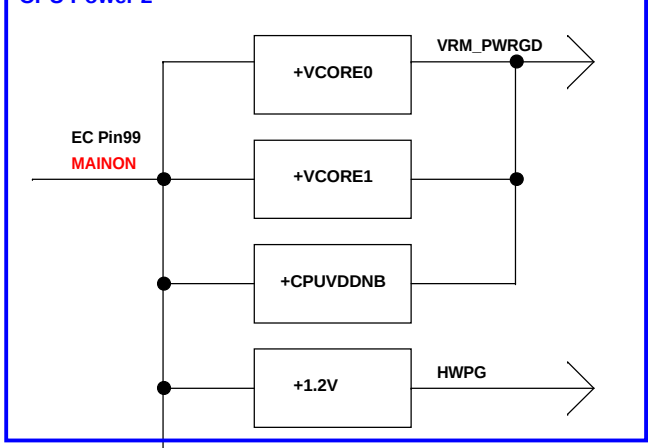
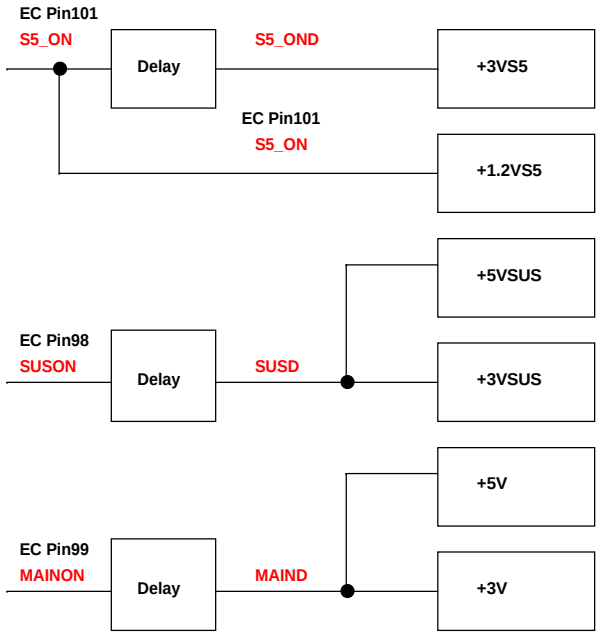
N85/RD2

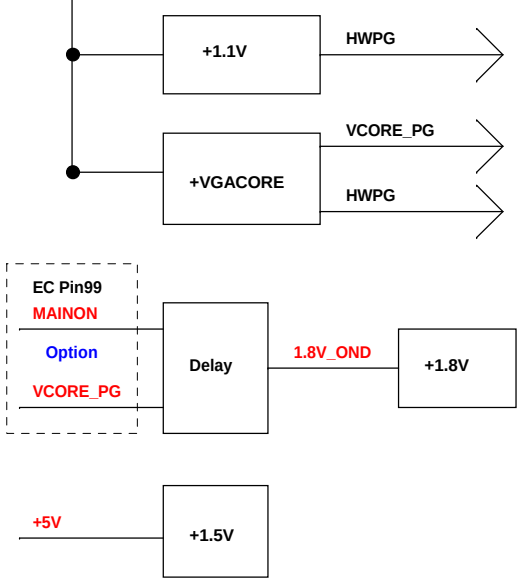
CPU Power 1



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

	PROJECT : R22 Quanta Computer Inc.		
NB5/RD2	Size: Custom	Document Number: Power control	Rev: 3A
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Power & Ground

Label	ACTIVE	Description	Control Signal
+VIN	S0, S3, S4, S5	AC ADAPTER (19V)	
+3VPCU	S0, S3, S4, S5	ALWAYS POWER (3V)	
+3V	S0		MAINON
+3VSUS	S0, S3		SUSON
+3VS5	S0, S3, S4, S5		S5_ON
+3VLANVCC	S0		LAN_POWER
+5VPCU	S0, S3, S4, S5	ALWAYS POWER (5V)	
+5V	S0		MAINON
+5V_VCC1			
+5VALW			
+10VALW			
+15VALW			
+1.8V	S0		+1.5_ON
+1.8VSUS	S0, S3		
+1.5V	S0		MAINON
+1.5VSUS	S0, S3	DDR CORE POWER	SUSON
+1.5VSUS_1			
+1.5V_VGA	S0	VGA , VRAM POWER	+1.5_ON
+1.2V	S0		VRON
+1.2VSUS	S0, S3		SUSON
+1.1V	S0	VDDPCIE - PCIE-E MAIN POWER	VRON
+1.1VS5	S0, S3, S4, S5	STANDBY POWER	S5_ON
+1.1V_DYN	S0	NB VDDC - CORE LOGIC POWER	DYN_PWR_EN
+1.05V	S0	HT POWER (1.05V)	VRON
+1.0V_VGA	S0	PARK DPX_VDD10 POWER	VRON
+2.5V	S0	CPU VDDA POWER	VR2.5_ON
+VCORE0	S0	CPU CORE POWER (?V)	VRON
+VCORE1	S0	CPU CORE POWER (?V)	VRON
+CPUVDDNB	S0	CPU VDDNB POWER	VRON
+0.75_DDR_VTT	S0	DDR COMMAND & CONTROL PULL UP POWER	SUSON
DDR_VTTREF	S0, S3	DDR REFERENCE POWER	SUSON
+VGA_CORE	S0	VGA CORE POWER	MAINON
+AVBAT	S0, S3, S4, S5	RTC & KBC POWER（3_3V）	

SMBUS

DEVICE	ADDRESS	BUS
CLOCK GENERATOR		
DDR3		
CPU THERMAL SENSOR		
CHARGER		

PCB STACK UP

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

PCI DEVICES IRQ ROUTING

DEVICE	IDSEL #	REQ/GNT #	PCI_INT

Custom<Doc>
NB5/RD2

PROJECT : R22
Quanta Computer Inc.

Size	Document Number	Rev
		1A

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