SX7 SYSTEM DIAGRAM

AMD Smarter Choice

01

PCB STACK UP

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

DDRIII-SODIMM1 PAGE 6,7 — DDRIII 1066 MHz

DDRIII-SODIMM2 PAGE 6,7 — DDRIII 1066 MHz

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

CPU THERMAL SENSOR PAGE 5

14.318MHz

CLOCK GEN
ICS9LPRS476AKLFT-->HP
SLG8SP628VTR-->HP
RTM880N-796 -->HP
PAGE 2

CPU_CLK
NBGFX_CLK
NBGPP_CLK
SBLINK_CLK

HT3

PCI-E

X1 New Card PAGE 29

X1 LAN Realtek PCIE-LAN RTL8151DH (10/100/1000) PAGE 28

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

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

PCI-Express 16X

M93-S3/ Park-S3
64 Bit,DDR3*4
23mm X 23mm, 631pin BGA
PAGE 17,18,19,20,21,22

HDMI PAGE 24

CRT PAGE 23

LVDS PAGE 23

RJ45 PAGE 28

ALINK X4

SBSRC_CLK

SYSTEM CHARGER(bq24740) PAGE 36,37

3/5VS5 RT8206B PAGE 38

+1.1V(RT8029)/+1.1VS5/+1.8V PAGE 39

DDR3 (RT8207)/+1.0V_VGA PAGE 40

VGACORE(1.1V~0.9V)RT8028A PAGE 41

CPU_CORE ISL6265 PAGE 42

SATA - HDD PAGE 31 — SATA0 150MB

SATA - CD-ROM PAGE 31 — SATA4 150MB

E-SATA PAGE 29 — SATA1 150MB

SOUTH BRIDGE
SB820M
23mm X 23mm, 605pin BGA
PAGE 12,13.14.15.16

USB2.0

0,2,3,5 USB2.0 Ports PAGE 29

9 1 Blueflame PAGE 32

4 7 Webcam PAGE 23

FS1 8 Finger Printer PAGE 32

6 Flash Media RTS5159 PAGE 30

New Card PAGE 29

Wireless WAN PAGE 33

PCI-E WLAN Card x1 PAGE 33

Azalia

IDT 92HD80B1 PAGE 25

MDC CONN PAGE 29

Digital MIC PAGE 23

AUDIO CONN Phone/ MIC PAGE 28

LPC

SPI

Keyboard Touch Pad PAGE 32

SMSC KBC
KBC1098
PAGE 27

FAN PAGE 28

SPI ROM PAGE 35

SMBUS TABLE		
SB--SCL0/SD0	Clock gen/ wirless LAN/ New card/ DDR3/ DDR3 thermal/ Accelerometer/system thermal	+3V
EC -- AB1A	Battery charge/discharge	+3VPCU
EC -- AB2A	VGA thermal	+3V

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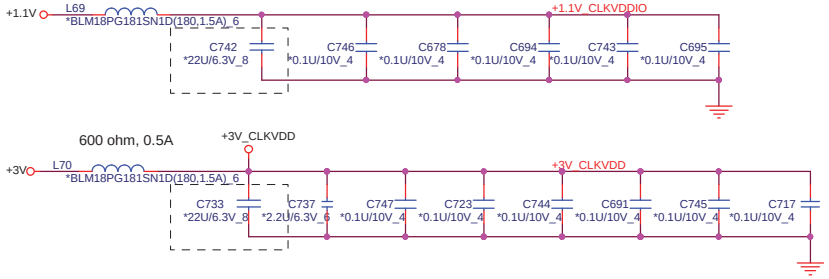
NB5/RD2

PROJECT : SX7
Quanta Computer Inc.

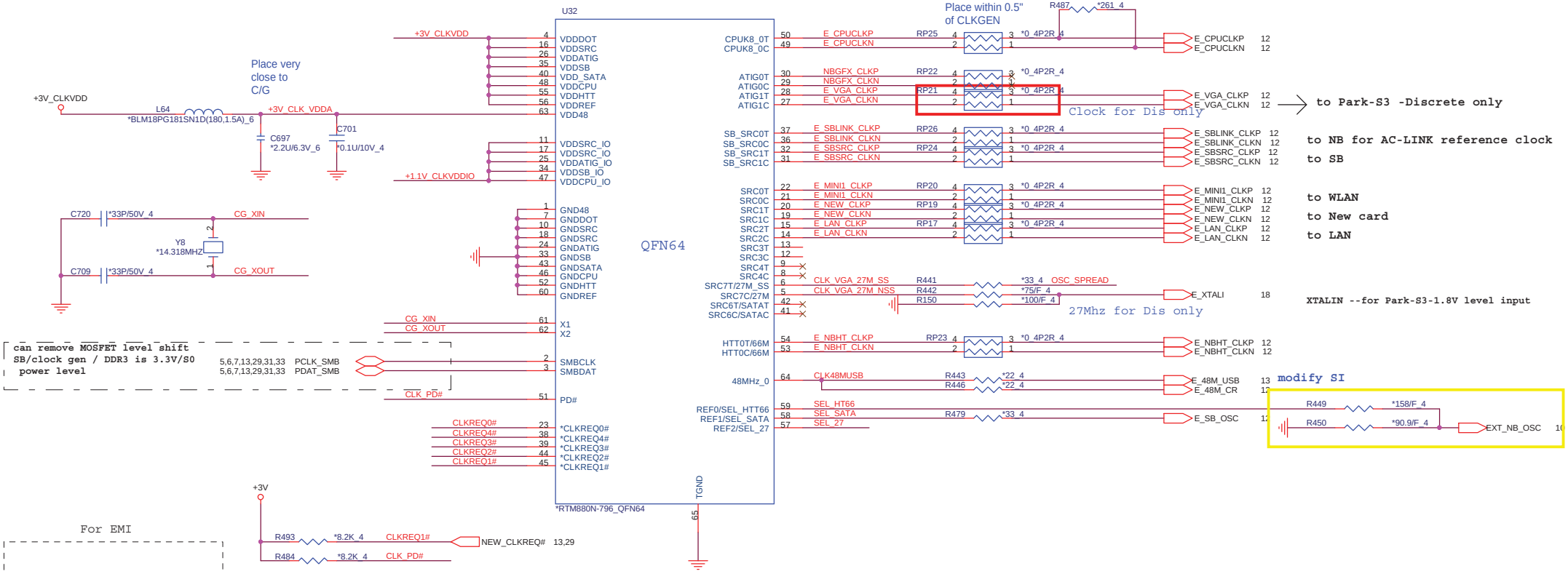
Size	Document Number	Rev
Custom	Block Diagram	3A

Date: Monday, March 15, 2010 Sheet 1 of 43

CLOCKS name	Discrete	Clock pin function
NBGFX_CLKP NBGFX_CLKN	NA	to NB for VGA reference clock
EXT_GFX_CLKP EXT_GFX_CLKN	RP21 STUFF	to Park-S3 external reference clock -Discrete only
SBLINK_CLKP SBLINK_CLKN	RP26 STUFF	to NB for AC-LINK reference clock
CLK_VGA_27M_SS CLK_VGA_27M_NSS	R441,R442 STUFF	To Park-S3 27Mhz - Discrete only



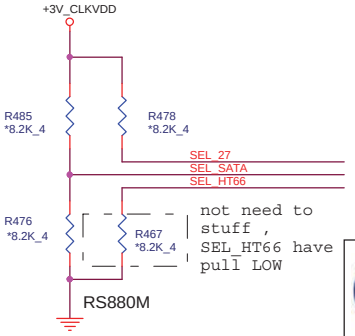
Need check the net name for the short pad



IDT ICS9LPRS480AKLFT--ALPRS480000
SLG SLG8SP628VTR--AL8SP628000
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



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

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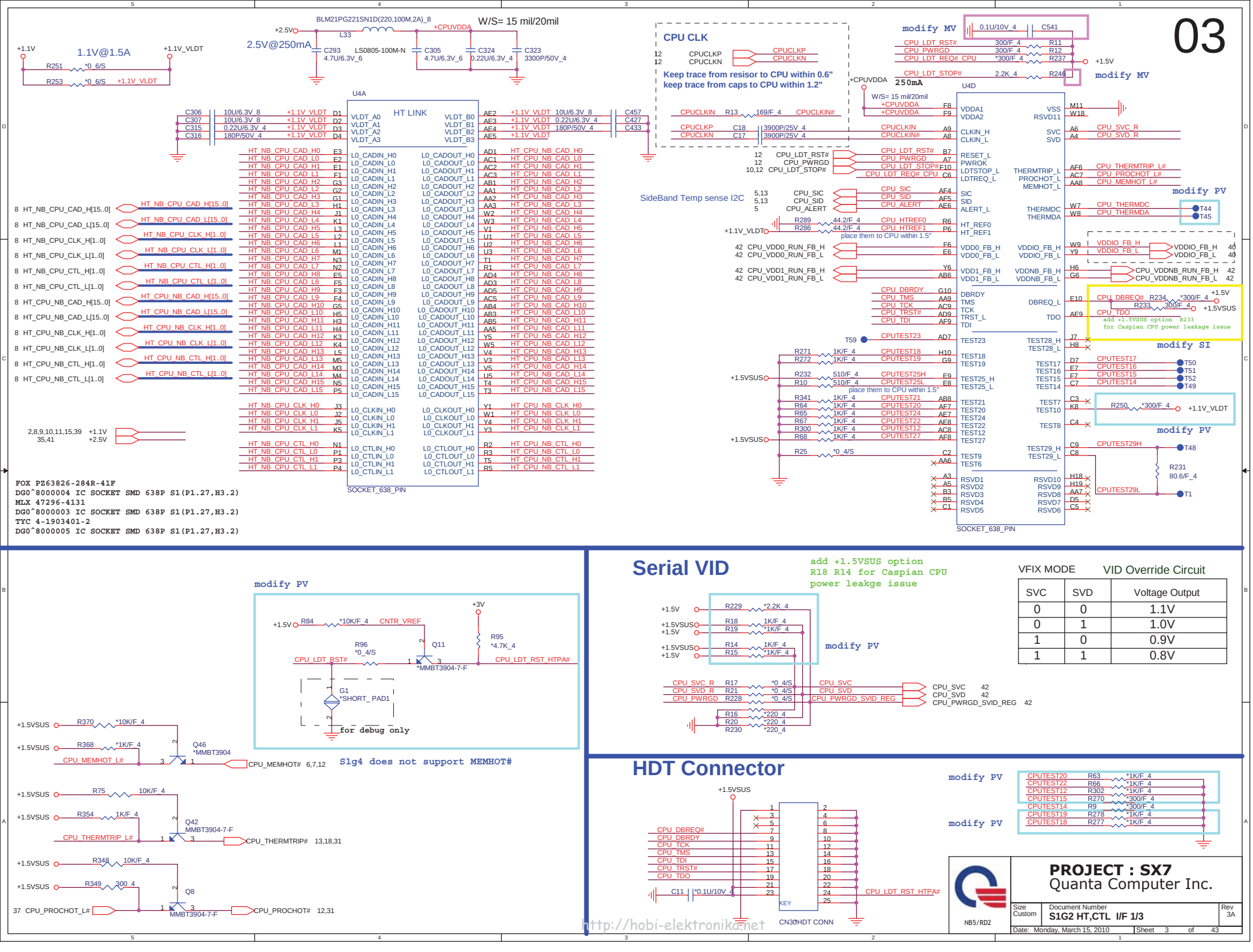
PROJECT : SX7
Quanta Computer Inc.

Size	Document Number	Rev
Custom	Clock Generator	3A

NB5/RD2

Date: Monday, March 15, 2010 Sheet 2 of 43


03
CPU CLK
Keep trace from resisor to CPU within 0.6"
keep trace from caps to CPU within 1.2"
modify MV
modify PV
modify SI
SideBand Temp sense I2C
HT LINK
SOCKET_638_PIN
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
add +1.5VSUS option
R18 R14 for Caspian CPU
power leakge issue
VFIX MODE
VID Override Circuit
SVC SVD Voltage Output
0 0 1.1V
0 1 1.0V
1 0 0.9V
1 1 0.8V
for debug only
S1g4 does not support MEMHOT#
HDT Connector
CN30 HDT CONN
PROJECT : SX7
Quanta Computer Inc.
NB5/RD2
S1G2 HT,CTL I/F 1/3
Monday, March 15, 2010
http://hobi-elektronika.net

Processor Memory Interface

04

0.9V@1.5A

PLACE THEM CLOSE TO CPU WITHIN 1"

modify PV

U4B

MEM:CMD/CTRL/CLK

SOCKET_638_PIN

U4C

MEM:DATA

SOCKET_638_PIN

Place close to socket

PROJECT :	SX7
	Quanta Computer Inc.
Size	Custom
Document Number	S1G2 DDRII MEMORY I/F 2/3
Rev	3A
Date:	Monday, March 15, 2010
Sheet	4 of 43

NB5/RD2

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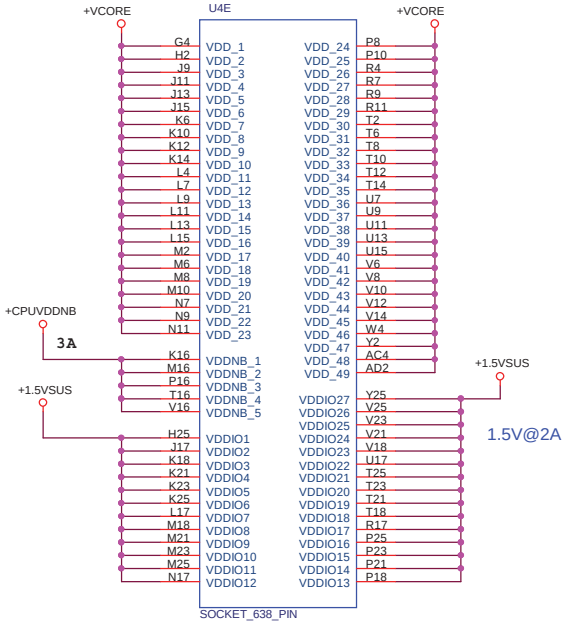
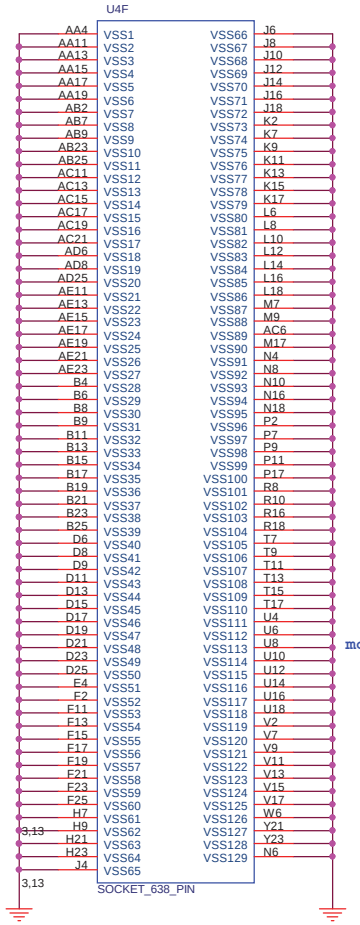
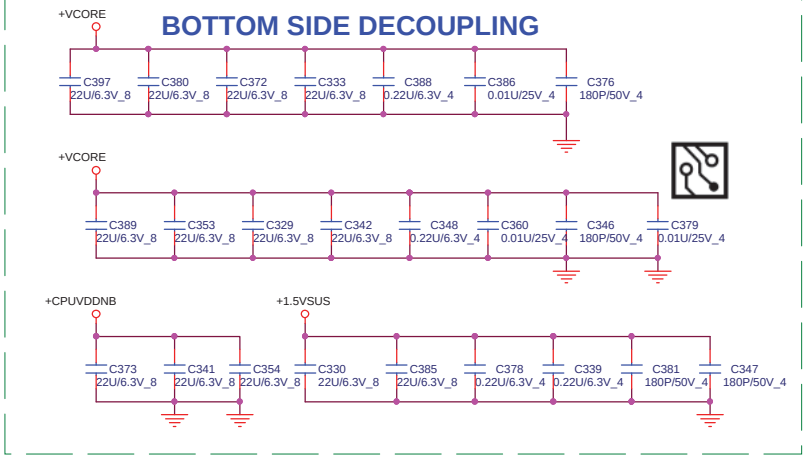
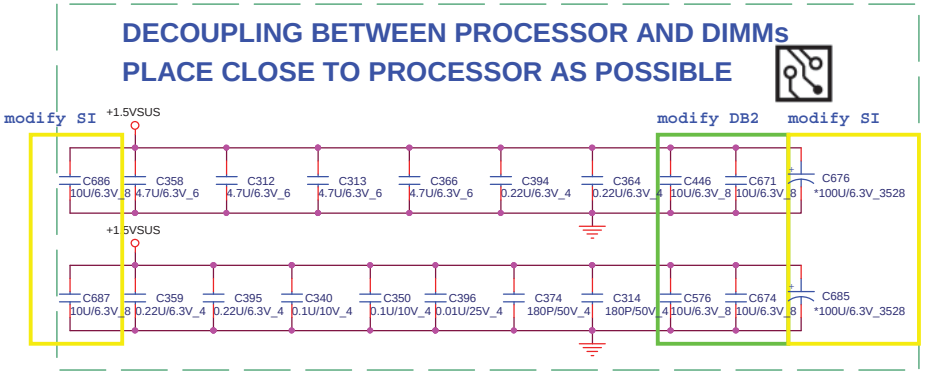
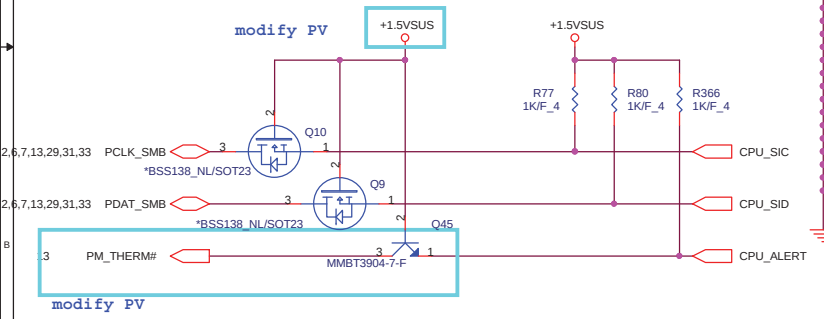
PROCESSOR POWER AND GROUND

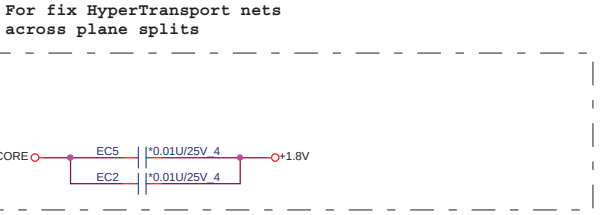


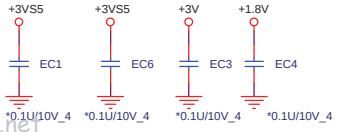












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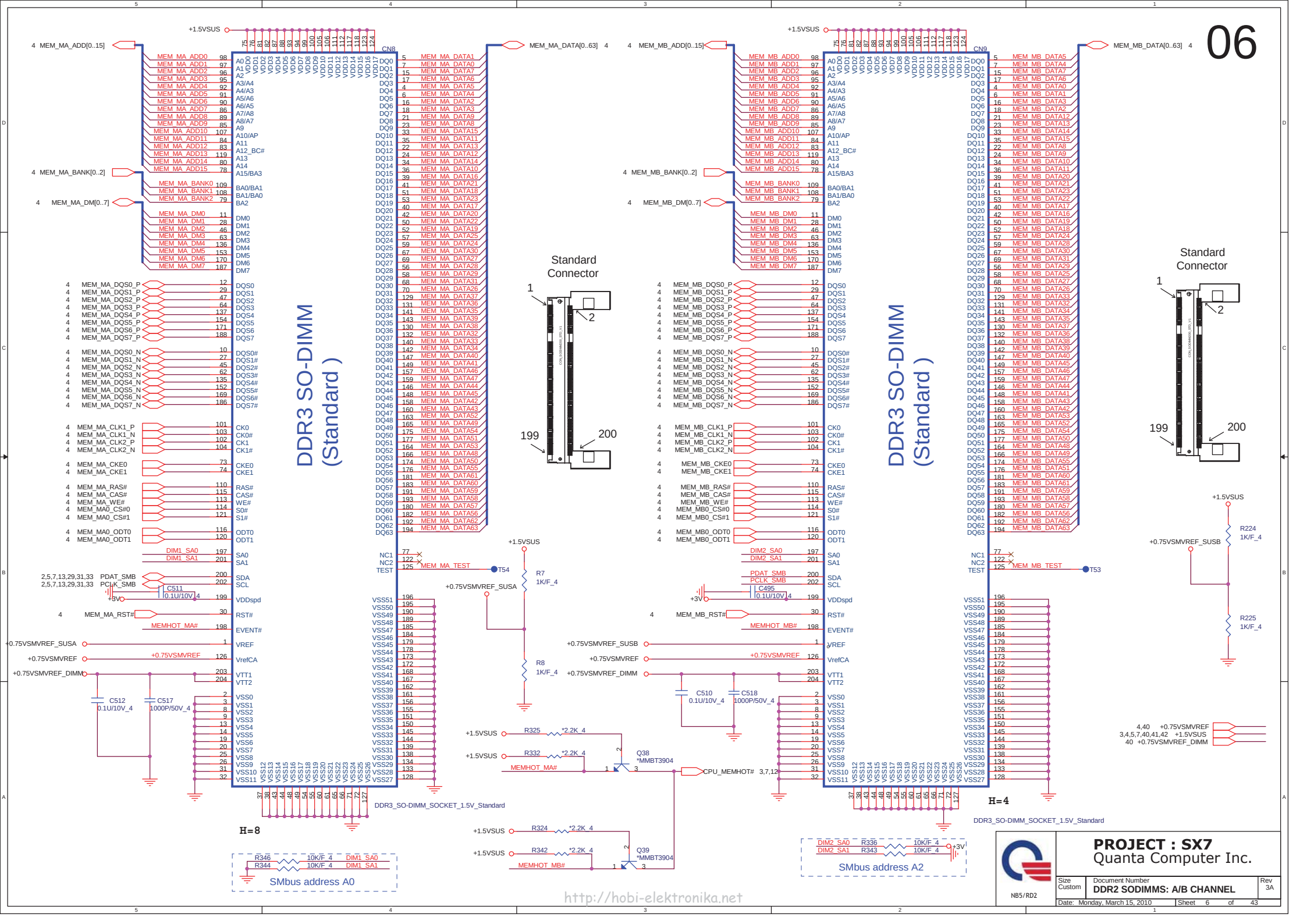
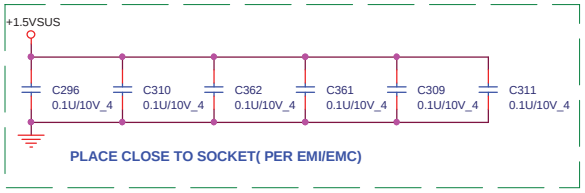
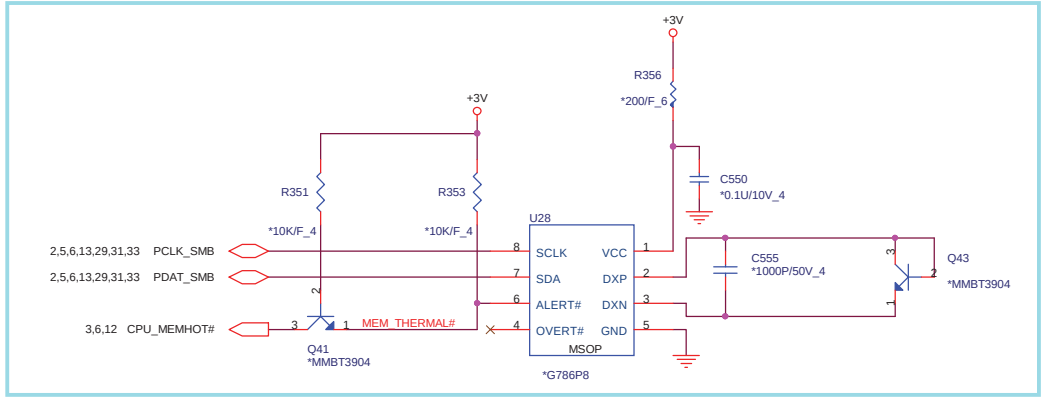
NB5/RD2	PROJECT : SX7 Quanta Computer Inc.	
Size: Custom	Document Number: S1G2 PWR & GND 3/3	Rev: 3A
Date: Monday, March 15, 2010	Sheet 5 of 43	


06
DDR3 SO-DIMM (Standard)
CN8
CN9
MEM_MA_ADD[0..15]
MEM_MA_BANK[0..2]
MEM_MA_DM[0..7]
MEM_MA_DATA[0..63]
MEM_MB_ADD[0..15]
MEM_MB_BANK[0..2]
MEM_MB_DM[0..7]
MEM_MB_DATA[0..63]
+1.5VSUS
Standard Connector
DDR3_SO-DIMM_SOCKET_1.5V_Standard
H=8
H=4
SMbus address A0
SMbus address A2
PROJECT : SX7
Quanta Computer Inc.
DDR2 SODIMMS: A/B CHANNEL
NB5/RD2
http://hobi-elektronika.net



modify PV



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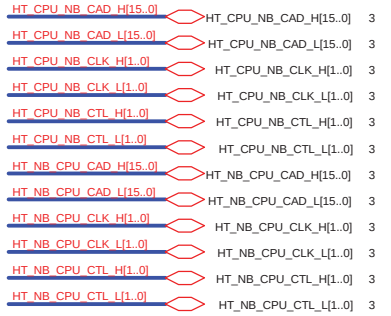
NB5/RD2

PROJECT : SX7
Quanta Computer Inc.

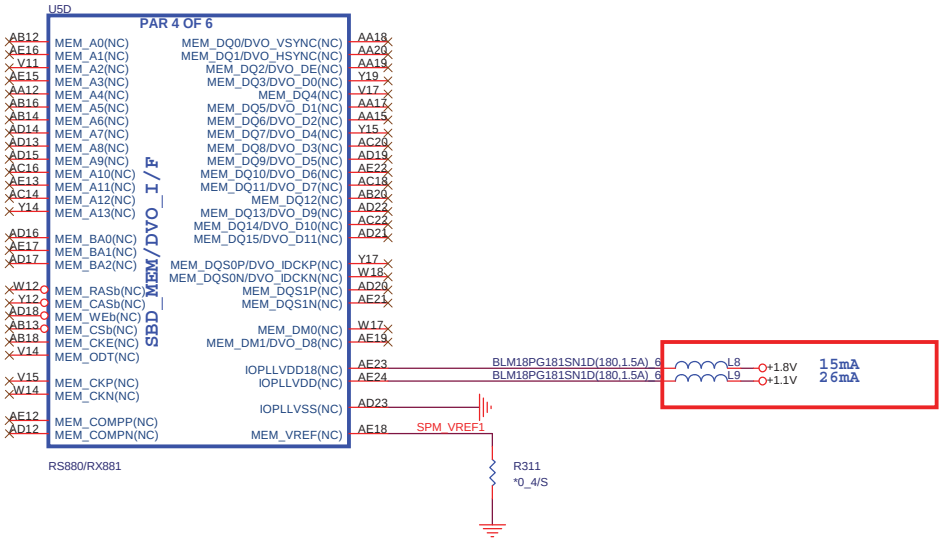
Size	Document Number	Rev
Custom	DDR2 SODIMMS TERMINATIONS	3A

Date: Monday, March 15, 2010 | Sheet 7 of 43



signals	RS880M
HT_TXCALP	R430 301 ohm 1%
HT_TXCALN	
HT_RXCALP	R434 301 ohm 1%
HT_RXCALN	

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



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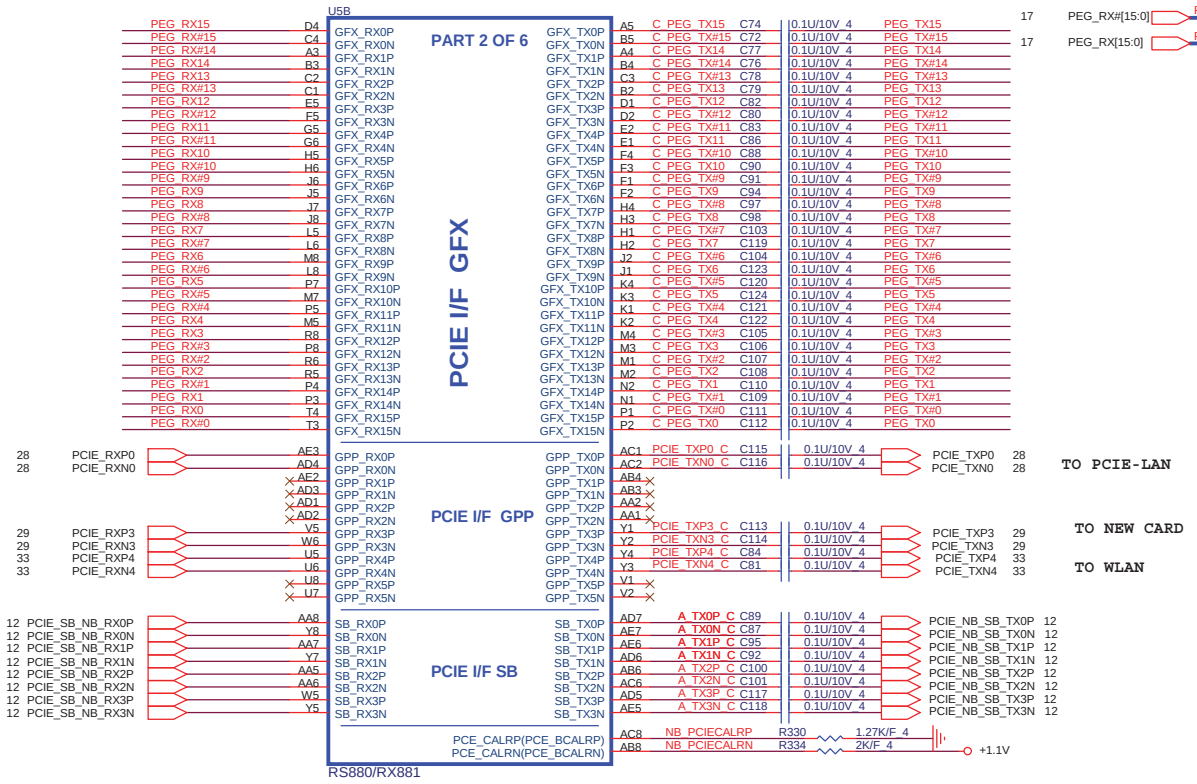
PROJECT : SX7
Quanta Computer Inc.

Size	Document Number	Rev
Custom	RS880M-HT LINK I/F 1/5	3A

NB5/RD2

Date: Monday, March 15, 2010 Sheet 8 of 43



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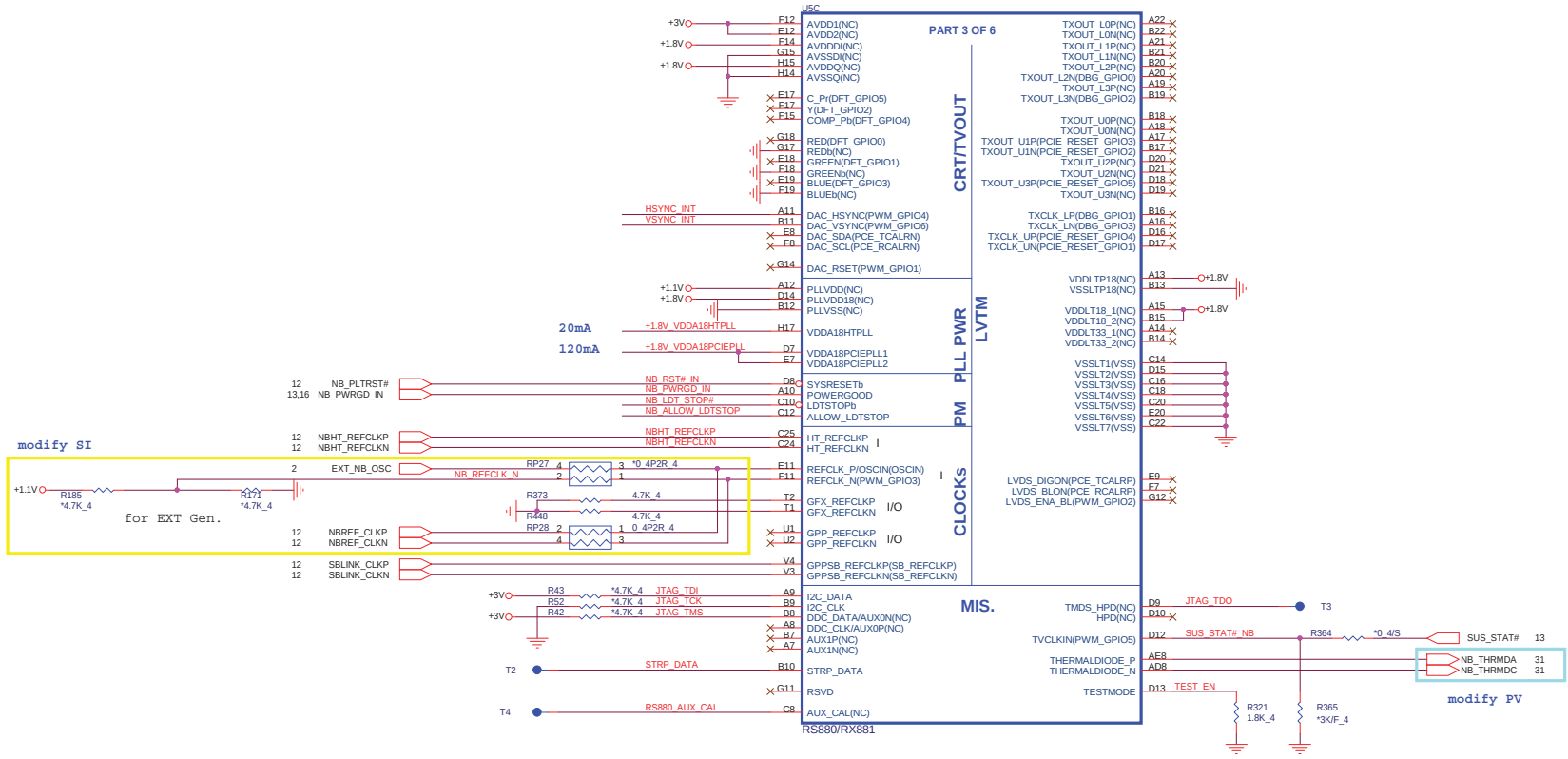
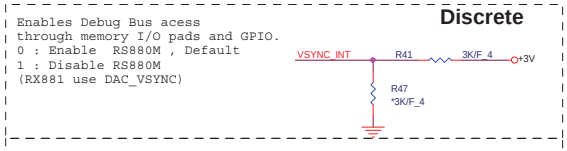
NB5/RD2

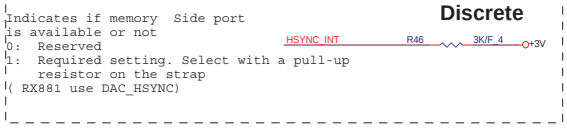
PROJECT : SX7
Quanta Computer Inc.

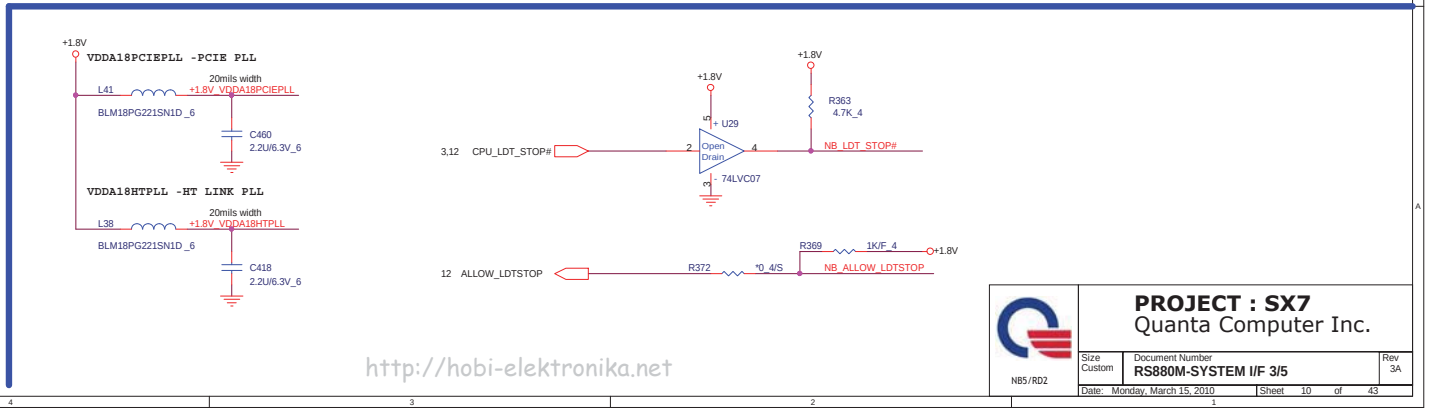
Size	Document Number	Rev
Custom	RS880M-PCIE I/F 2/5	3A

Date: Monday, March 15, 2010 Sheet 9 of 43









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PROJECT : SX7
Quanta Computer Inc.

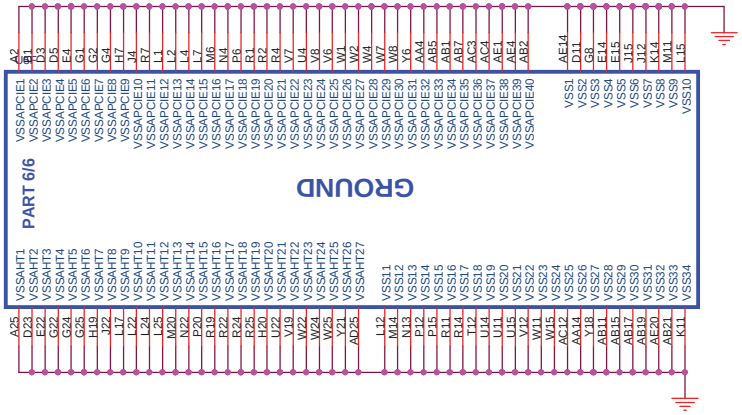
Size	Document Number	Rev
Custom	RS880M-SYSTEM I/F 3/5	3A

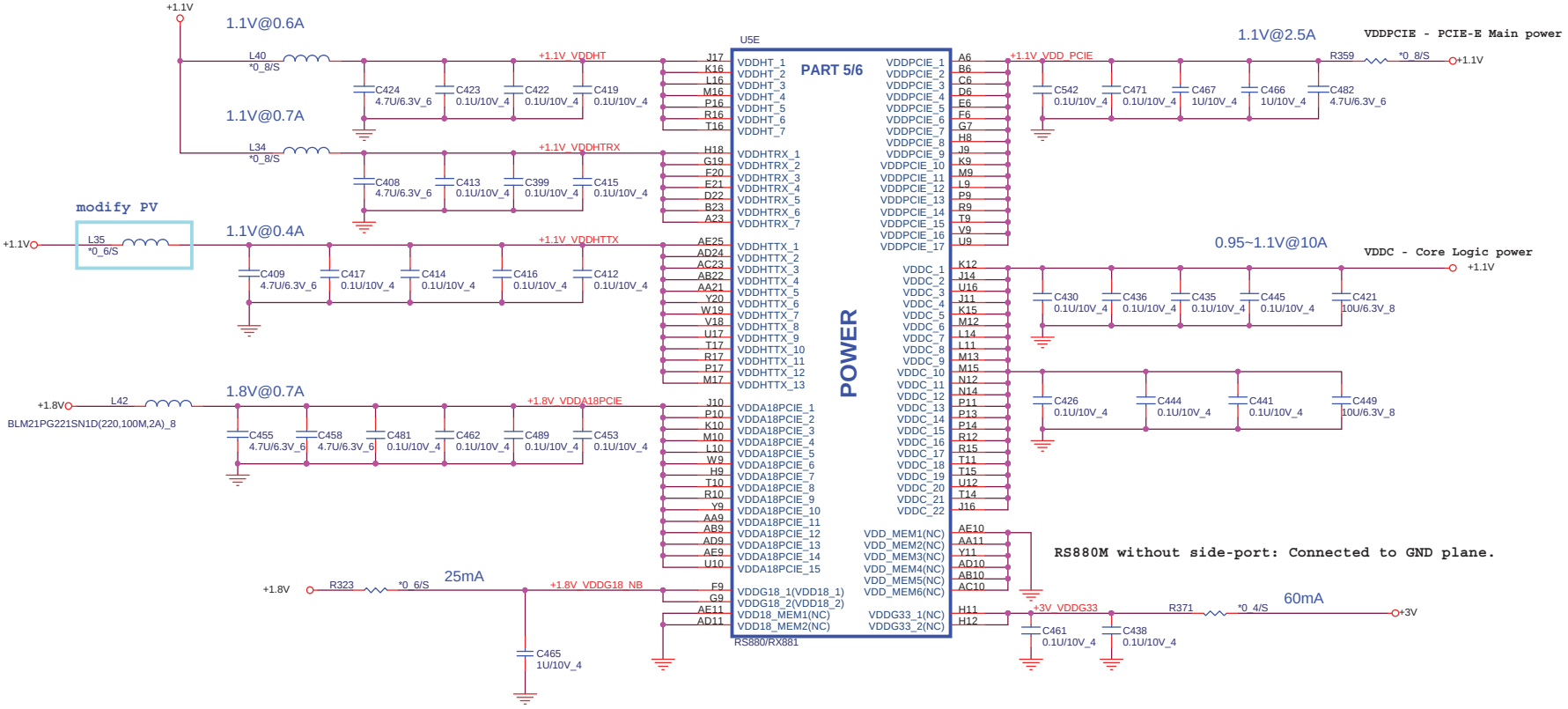
NB5/RD2

Date: Monday, March 15, 2010 Sheet 10 of 43

RX881/RS880 POWER DIFFERENCE TABLE

PIN NAME	RX881	RS880	PIN NAME	RX881	RS880
VDDHT	+1.1V	+1.1V	IOPLLVDD	+1.1V	+1.1V
VDDHTRX	+1.1V	+1.1V	AVDD	GND	+3.3V
VDDHTTX	+1.2V	+1.2V	AVDDDI	GND	+1.8V
VDDA18PCIE	+1.8V	+1.8V	AVDDQ	GND	+1.8V
VDDG18	+1.8V	+1.8V	PLLVDD	GND	+1.1V
VDD18_MEM	GND	+1.8V	PLLVDD18	GND	+1.8V
VDDPCIE	+1.1V	+1.1V	VDDA18PCIEPLL	+1.8V	+1.8V
VDDC	+1.1V	+1.1V	VDDA18HTPLL	+1.8V	+1.8V
VDD_MEM	GND	+1.8V/1.5V	VDDLTP18	GND	+1.8V
VDDG33	+3.3V	+3.3V	VDDLT18	GND	+1.8V
IOPLLVDD18	+1.8V	+1.8V	VDDLT33	NC	NC





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PROJECT : SX7
Quanta Computer Inc.

Size	Document Number	Rev
Custom	RS880M-POWER5/5	3A

Date: Monday, March 15, 2010 | Sheet 11 of 43

NB5/RD2

modify SI

modify PV

PLACE THESE
PCIE AC
COUPLING CAPS
CLOSE TO SB820

To RS880

U11A

SB800 Part 1 of 5

PCI CLKS

PCI EXPRESS INTERFACES

PCI INTERFACE

CLOCK GENERATOR

LPC

CPU

RTC

Change from
0ohm to 1K
for safty
issue

modify SI

modify PV

modify PV

for EMI
suggestion

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

SB800 A11

IC CTRL(528P) SB710 A14(218-0660017)
P/N : AJ066000T01

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NB5/RD2

PROJECT : SX7
Quanta Computer Inc.

Size	Document Number	Rev
Custom	SB820-PCIE/PCI/CPU/LPC 1/4	3A

Date: Monday, March 15, 2010 | Sheet 12 of 43

NC only ,Can't be install

+3VS5 R427 *2.2K_4 SB_TEST0
R432 *2.2K_4 SB_TEST1
R423 *2.2K_4 SB_TEST2

+3V SCL0/SDATA0 is 3V tolerance
AMD datasheet define it
R377 2.2K_4 PCLK_SMB
R376 2.2K_4 PDAT_SMB
Clock gen/CPU thermal /DDR3/DDR3 thermal/Accelerometer

+3VS5 SCL1/SDATA1 is 3V/S5 tolerance
AMD datasheet define it
R428 2.2K_4 SB_SMBCLK1
R422 2.2K_4 SB_SMBDATA1

+3VS5 SCL2/SDATA2 is 3V/S5 tolerance
AMD datasheet define it
R458 2.2K_4 SB_SCLK2
R459 2.2K_4 SB_SDATA2

+3V modify PV
R418 4.7K_4 SUS_STAT#
modify MV

+3VS5
R514 *10K_4 SYS_RST#
R513 *10K_4 SB_RSMRST#
C857 *0.1U/10V_4

RCIN# 1
27 RCIN# 2 Q47 2N7002E

To Azalia

ACZ_SDOUT R139 33_4 ACZ_SDOUT_AUDIO 25
C166 *10P/50V_4
ACZ_SYNC R138 33_4 ACZ_SYNC_AUDIO 25
C163 *10P/50V_4
ACZ_BCLK R141 33_4 BIT_CLK_AUDIO 25
C169 22P/50V_4 EMI modify PV
ACZ_RST# R137 33_4 ACZ_RST#_AUDIO 25
ACZ_SDIN0 ACZ_SDIN0 25
Remove short pad

To Modem Board

ACZ_SDOUT R404 33_4 ACZ_SDOUT_MDC 29
C625 *10P/50V_4
ACZ_SYNC R402 33_4 ACZ_SYNC_MDC 29
C620 *10P/50V_4
ACZ_BCLK R142 33_4 BIT_CLK_MDC 29
C172 22P/50V_4 EMI modify PV
ACZ_RST# R400 33_4 ACZ_RST#_MDC 29
ACZ_SDIN1 ACZ_SDIN1 29
Remove short pad

modify DB2
T77 LID_SW# SB
27 SUSB# SUSC#
27,31 NBSWON1#
16 SB_PWRGD_IN
10 SUS_STAT#
SB_TEST0 SB_TEST1 SB_TEST2
GATEA20_SB RCIN# 1
modify DB2
27 KBC_SCI# 28 DSM#
T43 T42 CRD_REQ# SYS_RST#
modify DB2
28,29,33 PCIE_WAKE#
SB_THERMTRIP#
10,16 WD_PWRGD
27 RSMRST# R512 10K_4 SB_RSMRST#
modify MV

2,29 NEW_CLKREQ# T70
2,28 LAN_CLKREQ#
23 WEBCAM_OFF
33 MC2_DISABLE
25 SPKR
2,5,6,7,29,31,33 PCLK_SMB
2,5,6,7,29,31,33 PDAT_SMB
SB_SMBCLK1 SB_SMBDATA1
modify DB2
2,33 WLAN_CLKREQ# T69
CRD_CLKREQ#
28 LP_EN#
D18 RB501V-40 LID_SW# SB
23,27,31 LID_SW#
D17 RB501V-40 GATEA20_SB
27 GATEA20
modify PV
D22 RB501V-40 SB_THERMTRIP#
3,18,31 CPU_THERMTRIP#
29 NEW_CPPE#
5 PM_THERM#
R438 150K/F_4
27,36,37 ADP_PRES
SB_JTAG_TDO SB_JTAG_TCK SB_JTAG_TDI SB_JTAG_RST#

HD audio interface is +3VS5 voltage

R140 *10K/F_4
16 ACZ_SDOUT
ACZ_BCLK ACZ_SDOUT ACZ_SDIN0 ACZ_SDIN1 ACZ_SYNC ACZ_RST#

T81 ADP_PRES0

CN32 +3VS5
1 SB_JTAG_TCK
2 SB_JTAG_TDO
3 SB_JTAG_TDI
4 SB_TEST1
5
6 SB_JTAG_RST#
7
8
modify PV
C689 *10P/50V_4
SB JTAG
*S/W JTAG DEBUG

U11D
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

USBCLK/14M_25M_48M_OSC
USB_RCOMP
USB 1.1 USB MISC

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

SB800 A11

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 2.0

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
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

A10 E_48M_USB 2
G19 USB_RCOMP_SB R433 11.8K/F_6
for EMI
E_48M_USB C198 *2.2P/50V_4
J10 H11 USBFSDP1+ USBFSDP1- 32 Finger Printer
H9 J8 USB_FDS12P USB_FSD12N T78 T76
B12 A12 F11 E11 E14 E12 J12 J14
A13 B13 USBP9+ USBP9- 32 BLUETOOTH
D13 C13 USBP8+ USBP8- 33 WLAN Min-Card
G12 G14 USBP7+ USBP7- 33 WWAN
G16 G18 USBP6+ USBP6- 30 USB card reader
D16 C16 USBP5+ USBP5- 29 USB Connector
B14 A14 USBP4+ USBP4- 23 Carama USB
E18 E16 USBP3+ USBP3- 29 USB Connector
J16 J18 USBP2+ USBP2- 29 E-SATA and USB Connector
B17 A17 USBP1+ USBP1- 29 New Card
A16 B16 USBP0+ USBP0- 29 USB Connector

D25 F23 B26 E26 E25 E22 F22 F21 SB_SCLK2 SB_SDATA2 GPIO199 GPIO200
CPU_SIC 3,5
CPU_SID 3,5
GPIO199 16
GPIO200 16

U10 TC7SH08FU +3VS5
SUSB# MAINON 20,35,36,40,41,43
U9 TC7SH08FU +3VS5
SUSC# SUSON 28,40,43

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NB5/RD2

PROJECT : SX7
Quanta Computer Inc.

Size	Document Number	Rev
Custom	SB820-ACPI/GPIO/USB 2/4	3A

Date: Monday, March 15, 2010 Sheet 13 of 43

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

SATA HDD

SATA ODD

E-SATA

U11B

SB800
Part 2 of 5

SERIAL ATA

FLASH

HW MONITOR

SPI ROM

modify DB2

PLACE SATA_CAL
RES VERY CLOSE
TO BALL OF SB820

modify DB2

for EXT Gen.

modify SI

modify MV

modify PV

modify PV

SB800 A11

ID3	ID2	ID1	ID0	
0	0	0	0	SX7 UMA
0	0	0	1	SX7 UMA
0	0	1	0	SX7 Dis
0	0	1	1	SX7 Dis
0	1	0	0	SX7 UMA DF
0	1	0	1	SX7 UMA DF
0	1	1	0	SX7 Dis DF
0	1	1	1	SX7 Dis DF

PROJECT : SX7
Quanta Computer Inc.

NB5/RD2

Size: Custom | Document Number: SB820-ACPI/GPIO/USB 2/4 | Rev: 3A

Date: Monday, March 15, 2010 | Sheet 14 of 43

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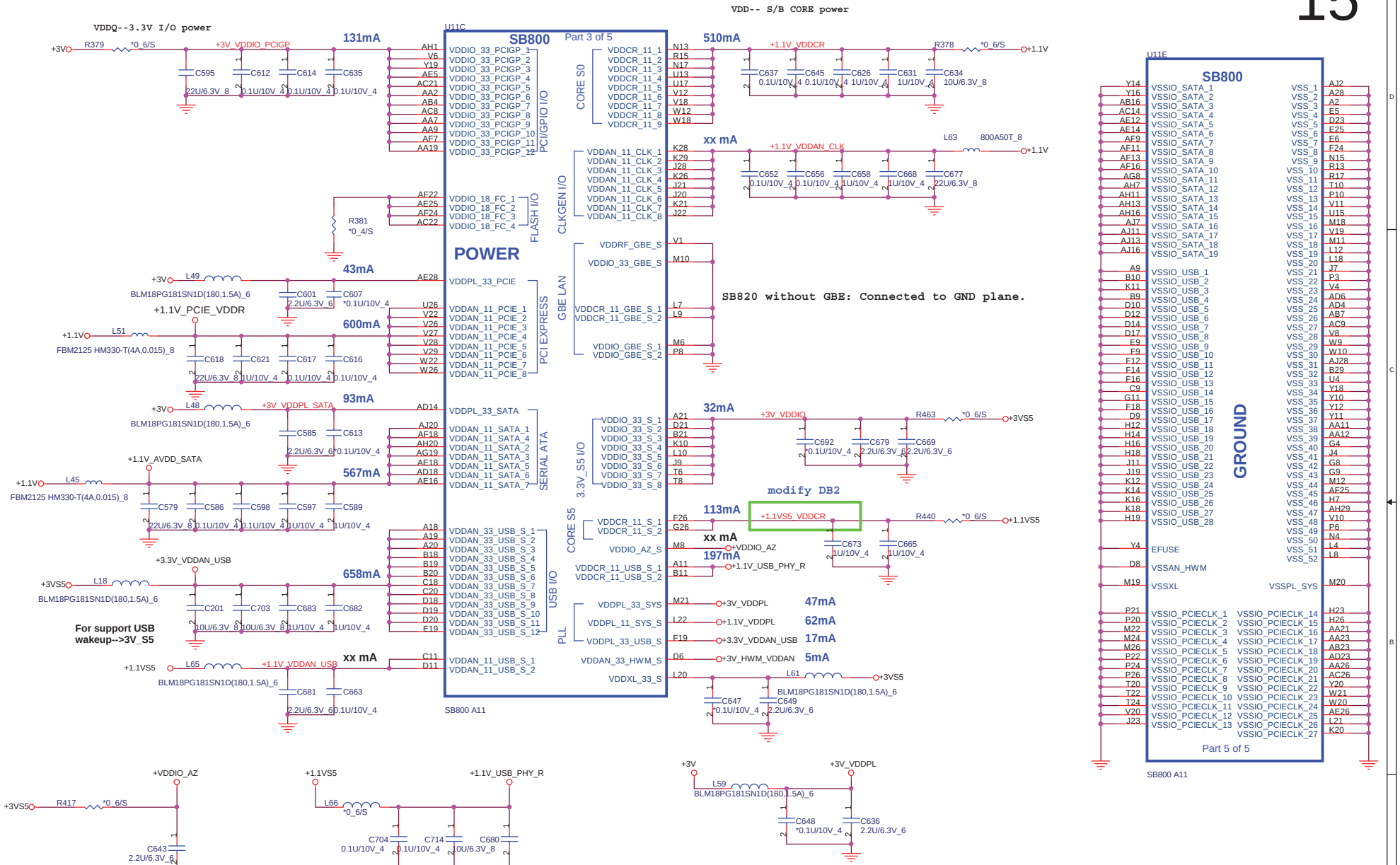
PLACE ALL THE DECOUPLING CAPS ON
THIS SHEET CLOSE TO SB AS POSSIBLE.



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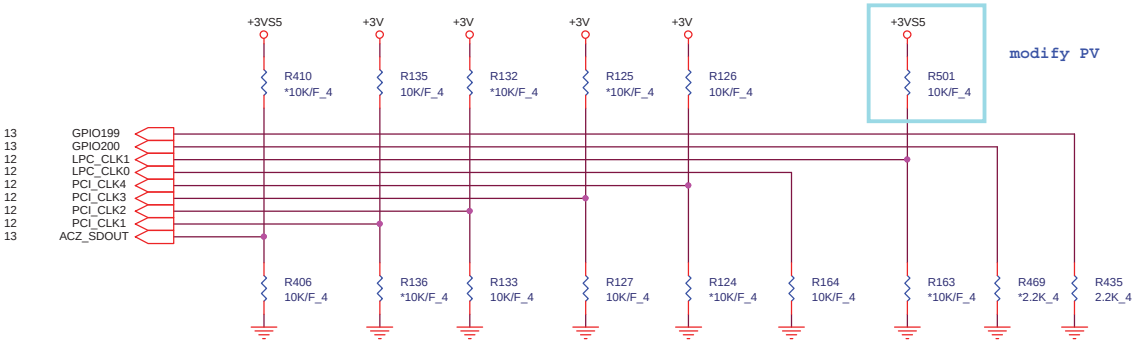
NB5/RD2	PROJECT : SX7 Quanta Computer Inc.	
Size: Custom	Document Number: SB820-PWR/DECOUPLING 4/4	Rev: 3A
Date: Monday, March 15, 2010	Sheet 15 of 43	

REQUIRED STRAPS

OVERLAP COMMON PADS WHERE POSSIBLE FOR DUAL-OP RESISTORS.



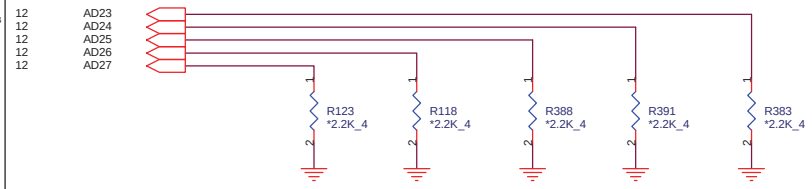
	AZ_SDOUT	PCI_CLK1	PCI_CLK2	PCI_CLK3	PCI_CLK4	LPC_CLK0	LPC_CLK1	GPIO200 GPIO199
PULL HIGH	LOW POWER MODE	ALLOW PCIE Gen2 DEFAULT	Watchdog Timer Enable	USE DEBUG STRAPS	non_Fusion CLOCK MODE DEFAULT	EC ENABLED	CLKGEN ENABLED DEFAULT	H, H=Reserved H, L=SPI ROM DEFAULT
PULL LOW	PERFORMANCE MODE DEFAULT	FORCE PCIE Gen1	Watchdog Timer Disable DEFAULT	IGNORE DEBUG STRAPS DEFAULT	Fusion CLOCK MODE	EC DISABLED DEFAULT	CLKGEN DISABLED	L, H=LPC ROM L, L=FWH ROM

modify DB2

internal have pull Hi 10K

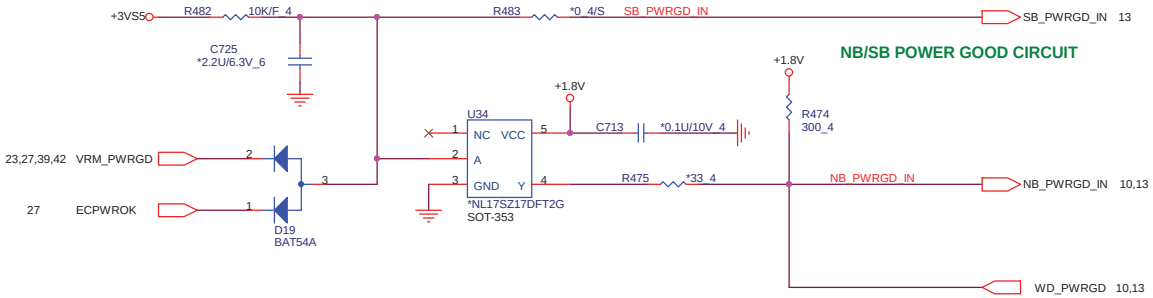
DEBUG STRAPS

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



	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

NB_PWRGD_IN:
RS880/RX881 = 1.8V;
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

PROJECT : SX7
Quanta Computer Inc.

Size	Document Number	Rev
Custom	SB820-STRAPS	3A

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NB5/RD2

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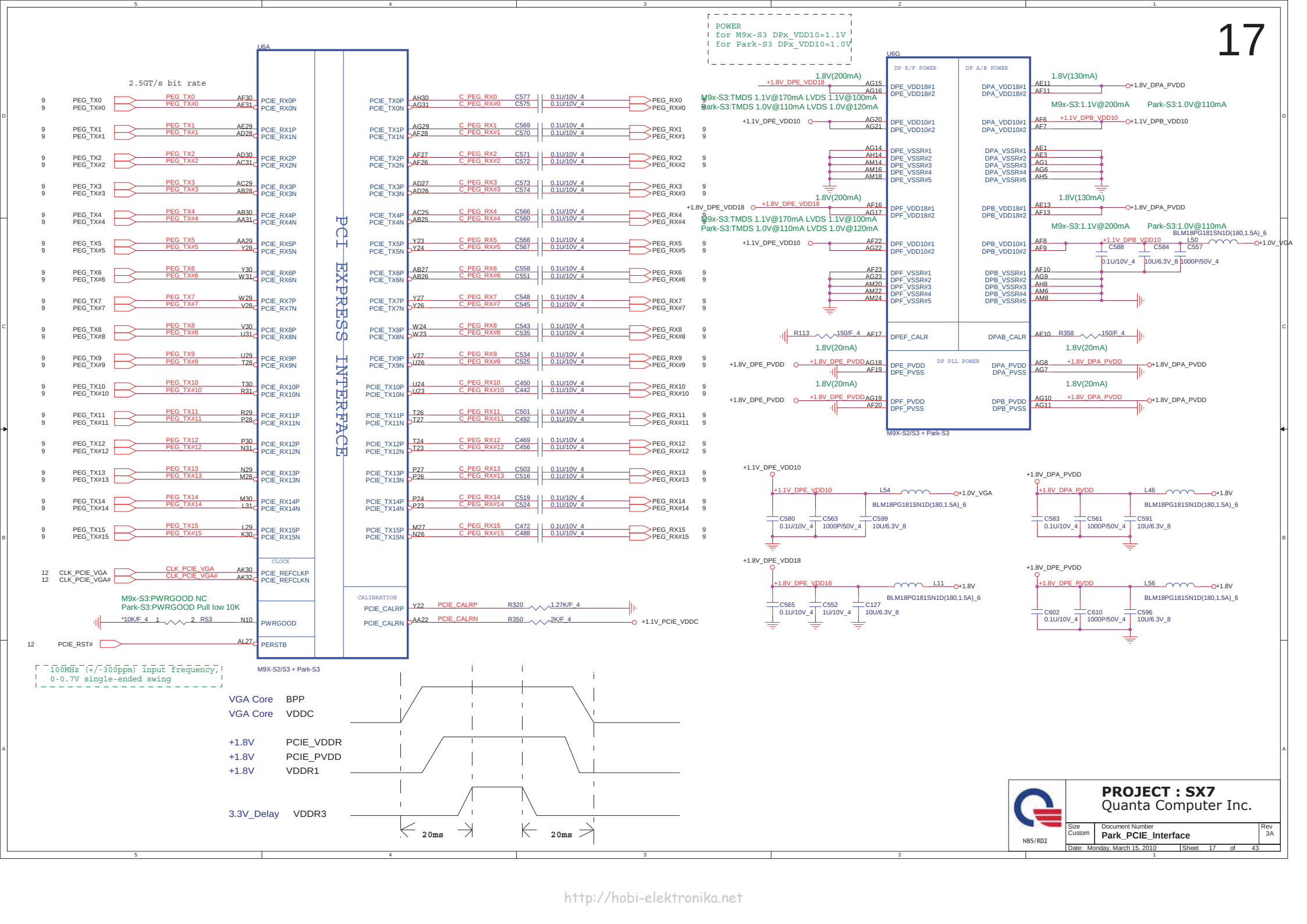

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MEM_ID[2:0]	Vendor	Type	Vendor P/N
000	Samsung E-die	64M*16-800MHZ	K4W1G1646E-HC12
100	Hynix Orion-die	64M*16-800MHZ	H5TQ1G63BFR-12C
010	Samsung E-die	128M*16-800MHZ	
110	Hynix Orion-die	128M*16-800MHZ	

	PWRCNTL1	PWRCNTL0	V-CORE
	1	1	0.9V
	1	0	0.95V
	0	1	1.05V
	0	0	1.1V

	BBEN	BBP
L	0	V-CORE
H	1	+1.8V

No need "CLK_27M_SS" connect to GPIO_16, since M9x chip support memory SS function in VBIOS

modify PV

modify PV

modify PV

modify PV

modify PV

modify PV

modify SI

Memory ID

GPIO22(ROMCS#) PD without external VBIOS ROM

1.8V(200mA DPC_PVDD)

1.8V(130mA DPC_VDD18)

1.1V(110mA DPC_VDD10)

For Park-S3 only

M93-S3/ Park-S3:Use 150R Pull down
Park-S3:NC

1.8V(70mA)

1.8V(90mA VDD1DI+VDD2DI)

ADD VGA TEMP_ FAIL function
M93 is active Hi

1.8V(75mA DPLL_PVDD)

1.0V(125mA DPLL_VDDC)
1.1V(150mA DPLL_VDDC)

1.8V(20mA TSVDD)

CL=20PF

For Int Clk 27Mhz

M9X-S2/S3 + Park-S3

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PROJECT : SX7
Quanta Computer Inc.

NB5/RD2

Size: Custom | Document Number: Park_Main | Rev: 3A

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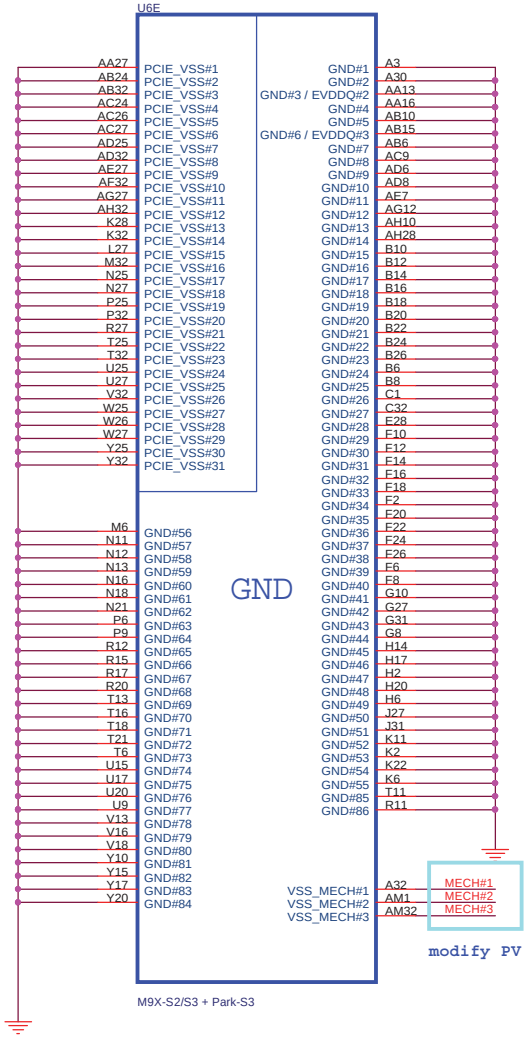

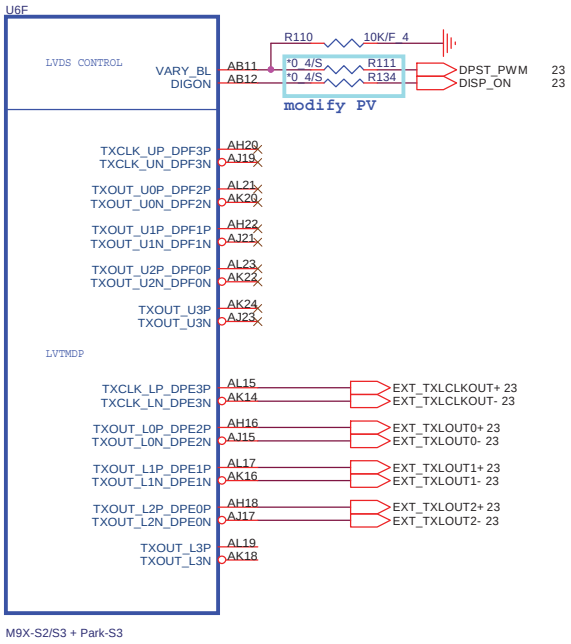

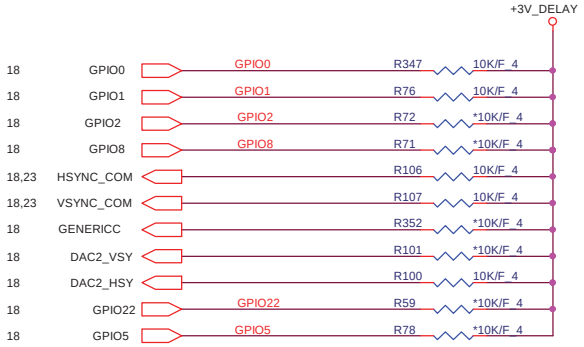

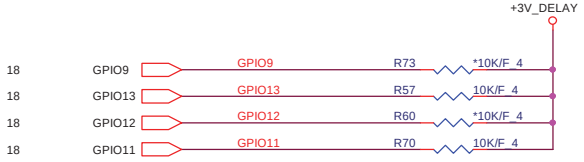

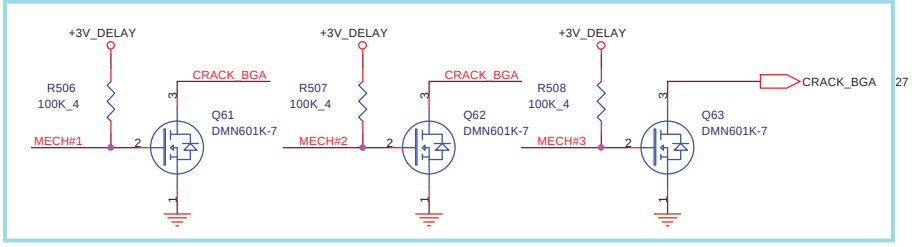

Strap Name		Pin Straps description	Default Value
TX_PWRS_ENB	GPIO0	PCI Express Full TX Output Swing 0: 50% Tx output swing for mobile mode 1: full Tx output swing (Default setting for Desktop)	1
TX_DEEMPH_EN	GPIO1	PCI Express Transmitter De-emphasis Enable 0: Tx de-emphasis disabled for mobile mode 1: Tx de-emphasis enabled (Default setting for Desktop)	1
BIF_GEN2_EN_A	GPIO2	0 = Advertises the PCI-E device as 2.5 GT/s capable at power-on. 1 = Advertises the PCI-E device as 5.0 GT/s capable at power-on. 5.0 GT/s capability will be controlled by software.	1
RSVD BIF_VGA_DIS RSVD	GPIO8 GPIO9 GPIO21	Enable CLKREQ# Power Management 0 - CLKREQ# power management capability is disabled 1 - CLKREQ# power management capability is enabled	0 0 0
BIOS_ROM_EN	GPIO22	Enable external BIOS ROM device 0 - Disable external BIOS ROM device 1 - Enable external BIOS ROM device	1
AUD[0] AUD(1)	VSYNC HSYNC	AUD[1] AUD[0] 00 No Audio function 01 Audio for DisplayPort and HDMI if dongle is detected 10 Audio for DisplayPort only 11 Audio for both DisplayPort and HDMI	1 1
VIP_DEVICE_STRAP_ENA	V2SYNC	If VIP_DEVICE_STRAP_EN is set to ?? then this pin is used to sense whether a VIP slave device is connected to the VIP Host interface. If VIP_DEVICE_STRAP_EN is set to ?? then this pin is not used as a strap at all (i.e. its value during reset is unimportant), and it can be used as a regular GPIO	0
RSVD	GENERICC		0

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.

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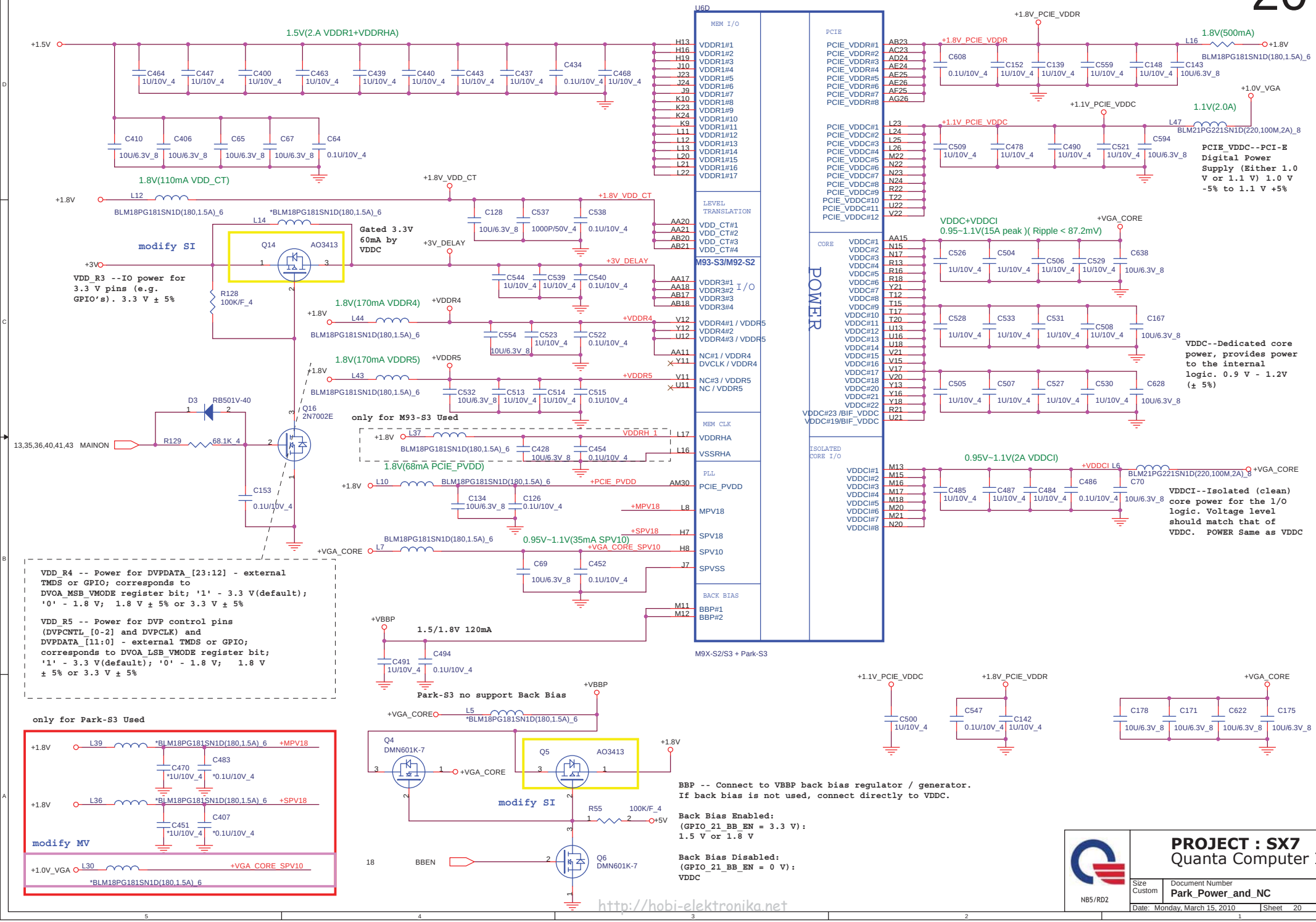
NB5/RD2

PROJECT : SX7
Quanta Computer Inc.

Size	Document Number	Rev
Custom	Park_GND / LVDS/ Straps	3A
Date: Monday, March 15, 2010	Sheet 19 of 43	

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



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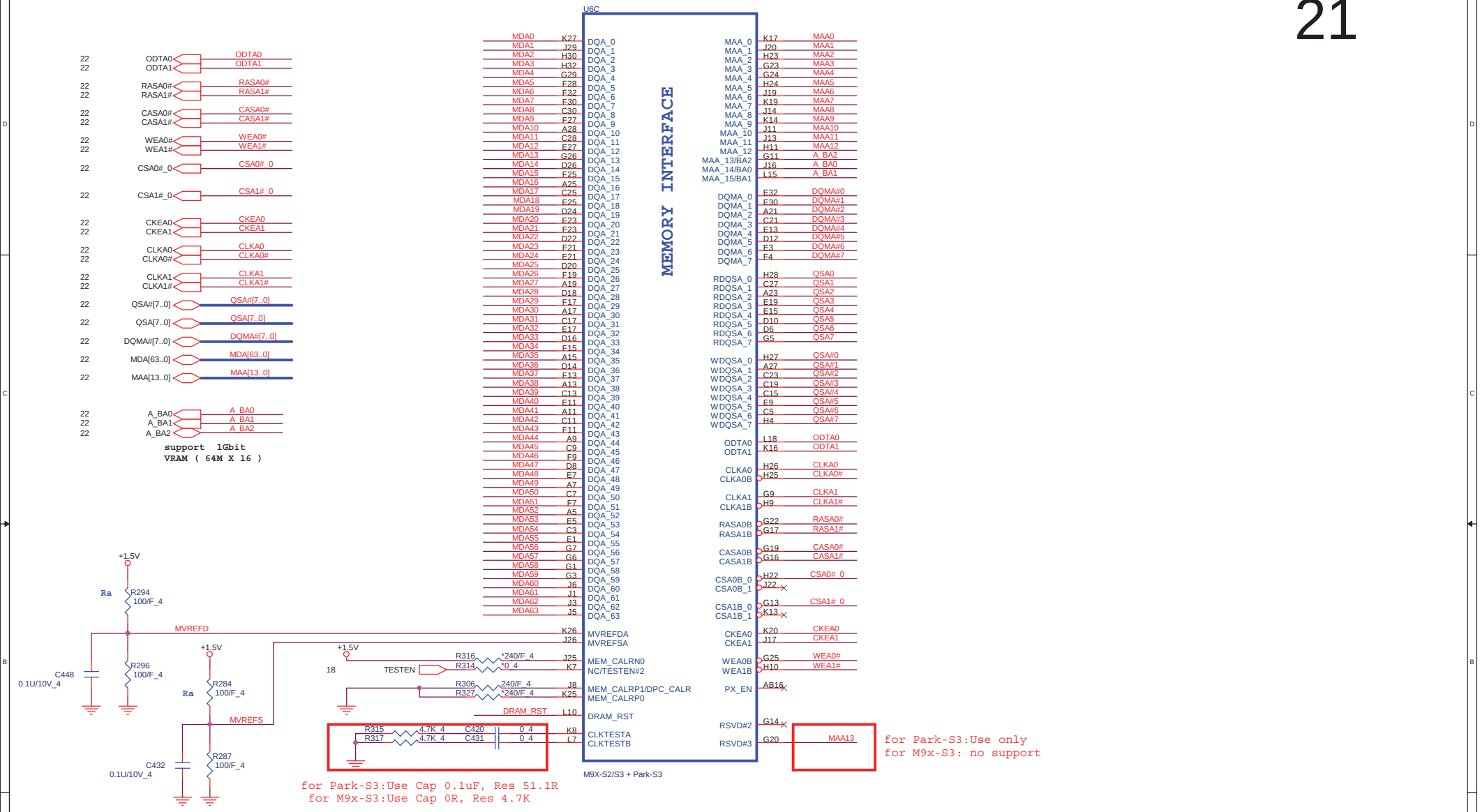
NB5/RD2

PROJECT : SX7
Quanta Computer Inc.

Size	Document Number	Rev
Custom	Park_Power_and_NC	3A

Date: Monday, March 15, 2010 Sheet 20 of 43



for Park-S3:Use Cap 0.1uF, Res 51.1R
for M9x-S3:Use Cap 0R, Res 4.7K

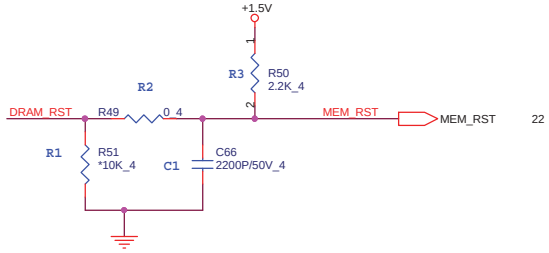
for Park-S3:Use only
for M9x-S3: no support

	M9x-S2/S3	Park-S3
MEM_CALRN0(J25) MEM_CALRP0(K25)	NC	240R
MEM_CALRP1(J8)	240R	150R
TESTEN2#2(K7)	NC	0R
R1	NC	10K
R2	0R	51R
R3	2.2K	NC
C1	2.2nF	68pF

240R:CS12402FB03
150R:CS11502FB21

0R:CS00002JB38
680R:CS16802JB27

2.2nF:CH22206KB16
68pF:CH06806JB01



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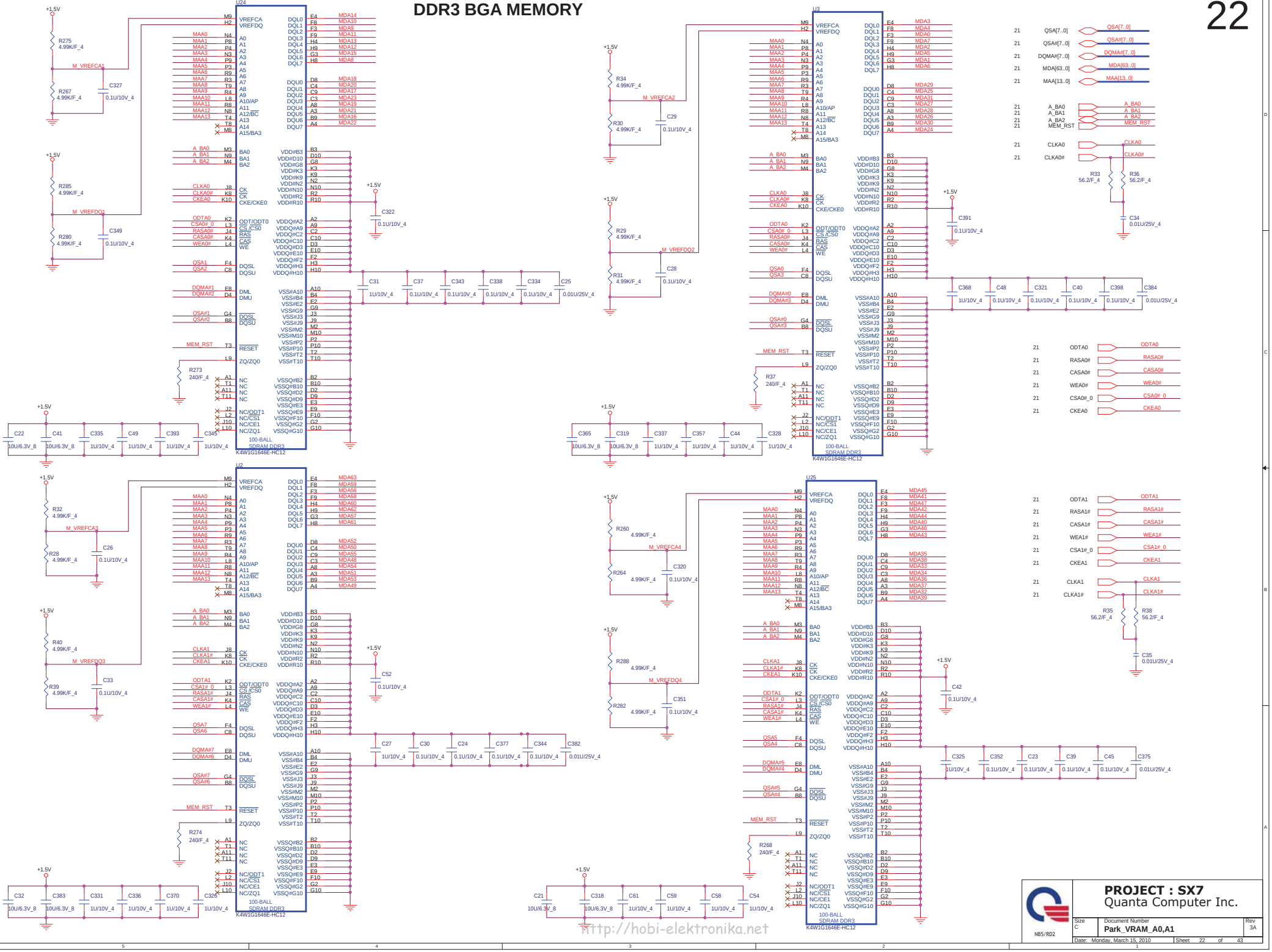
NB5/RD2

PROJECT : SX7
Quanta Computer Inc.

Size	Document Number	Rev
Custom	Park_MEM_Interface	3A

Date: Monday, March 15, 2010 | Sheet 21 of 43

DDR3 BGA MEMORY



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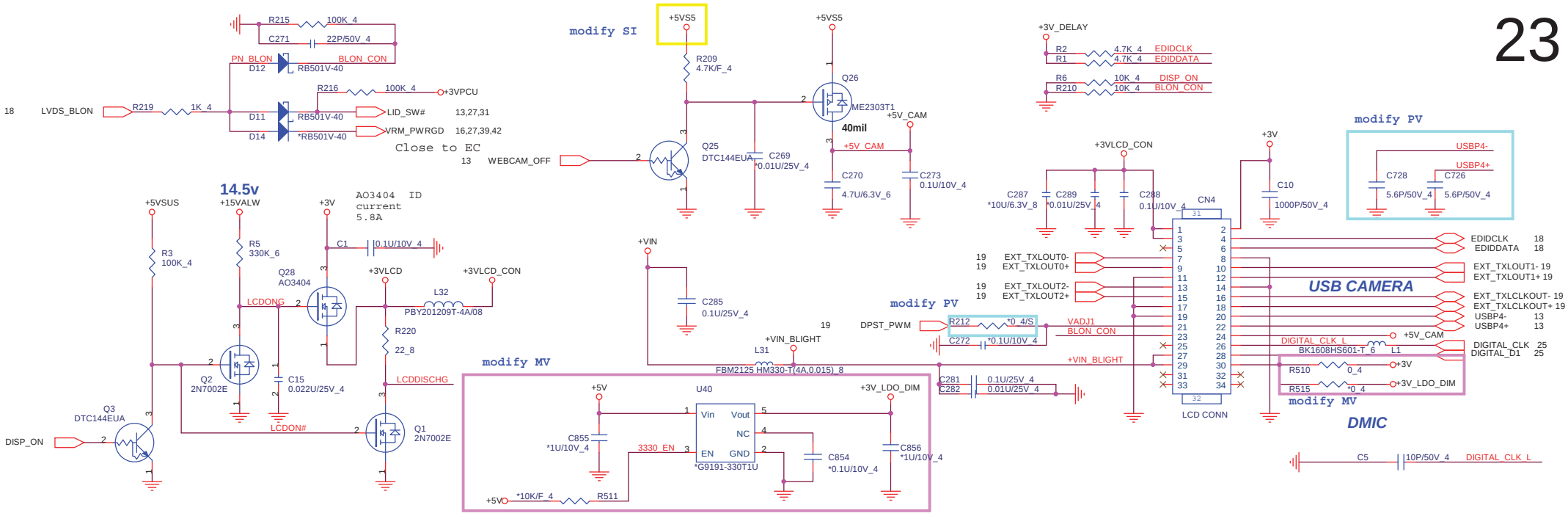
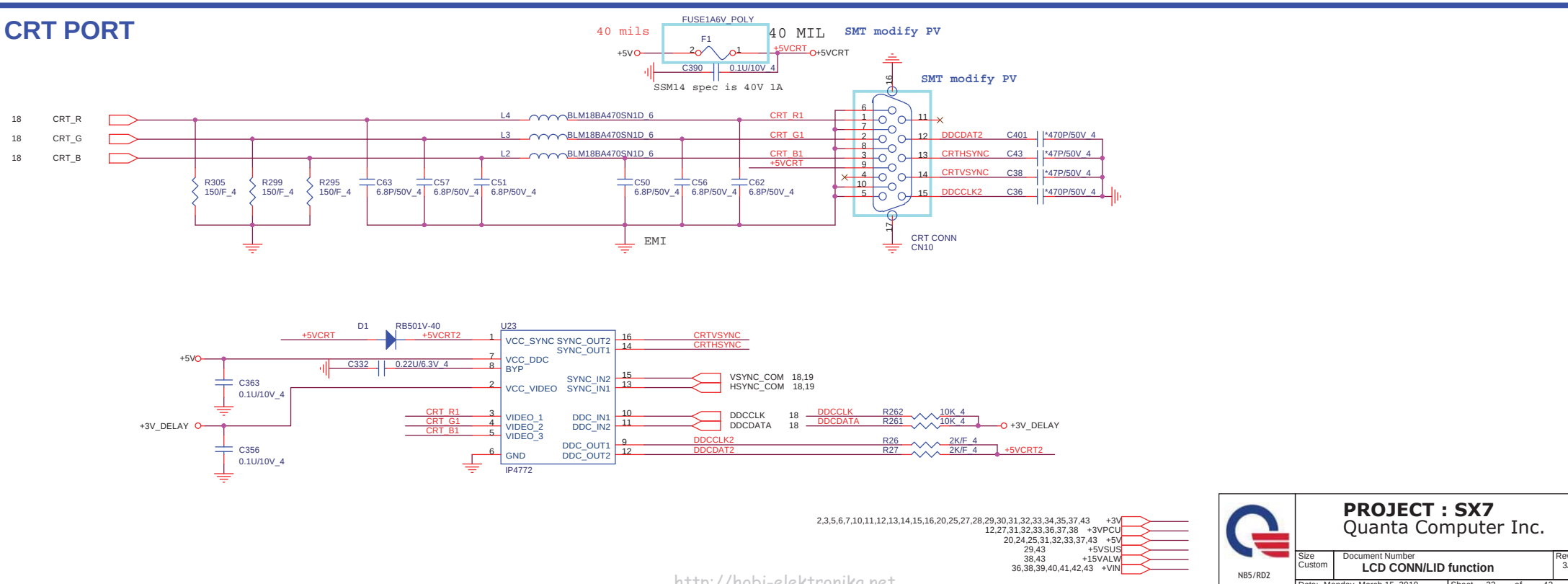
	PROJECT : SX7 Quanta Computer Inc.		
Size C	Document Number Park_VRAM_A0,A1		Rev 3A
NB5/RD2	Date: Monday, March 15, 2010	Sheet 22 of 43	



CRT PORT



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NB5/RD2	PROJECT : SX7 Quanta Computer Inc.	
Size: Custom	Document Number: LCD CONN/LID function	Rev: 3A
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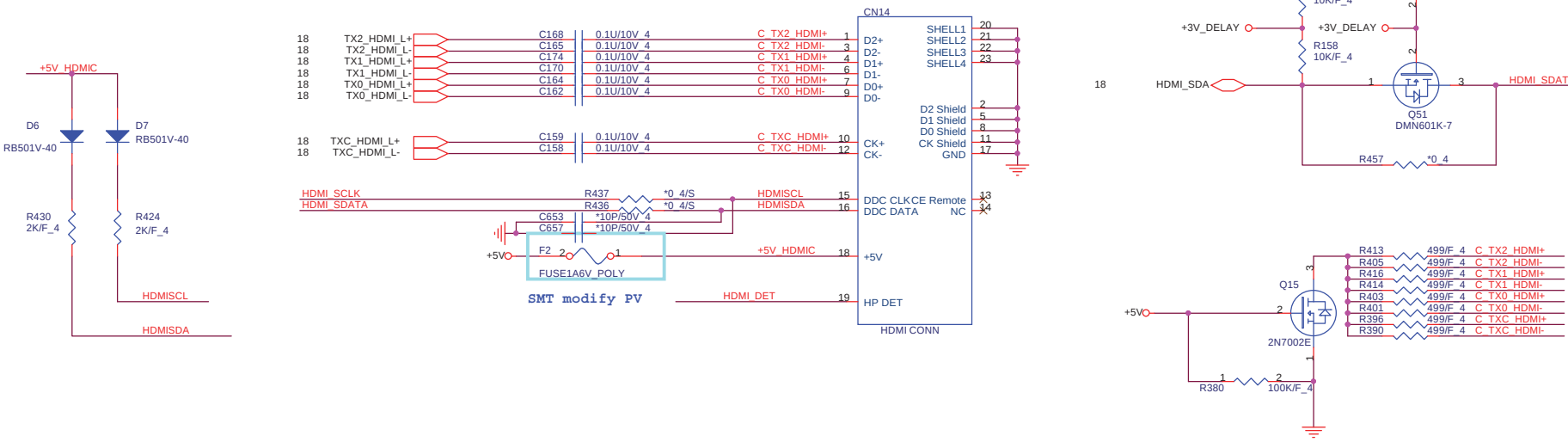
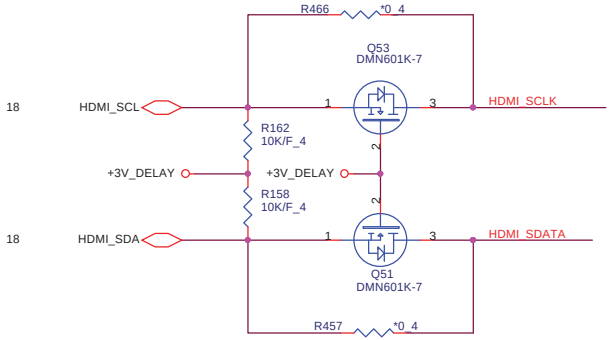
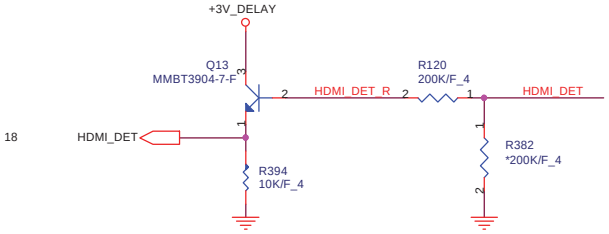
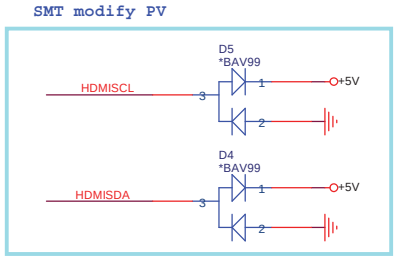
HDMI PORT









20,23,25,31,32,33,37,43 +5V

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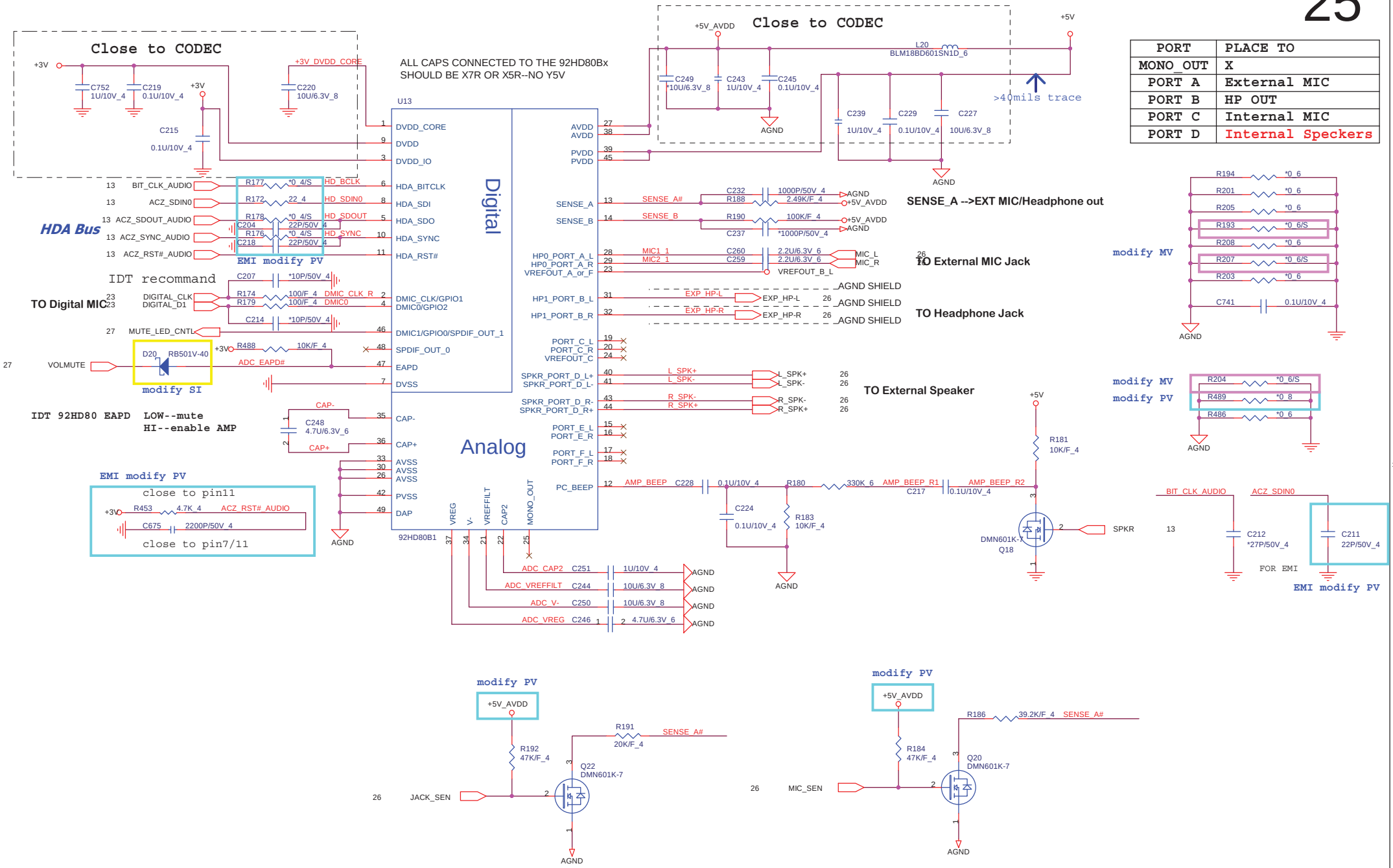
NB5/RD2

PROJECT : SX7
Quanta Computer Inc.

Size	Document Number	Rev
Custom	**HDMI Conn**	3A
Date: Monday, March 15, 2010	Sheet 24 of 43	

PORT	PLACE TO
MONO_OUT	X
PORT A	External MIC
PORT B	HP OUT
PORT C	Internal MIC
PORT D	Internal Speckers



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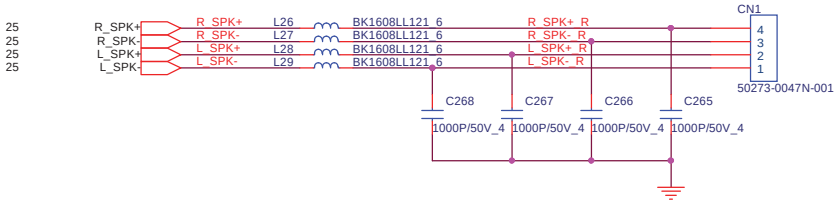
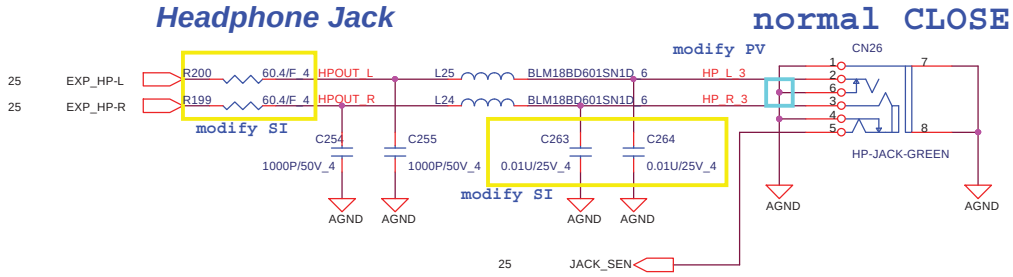
PROJECT : SX7	
Quanta Computer Inc.	
Size: Custom	Document Number: IDT92HD80
Rev: 3A	
Date: Monday, March 15, 2010	Sheet 25 of 43
NB5/RD2	

Note: JACK_SEN# is electrically floating when no jack is inserted and shorted to ground when jack is present.

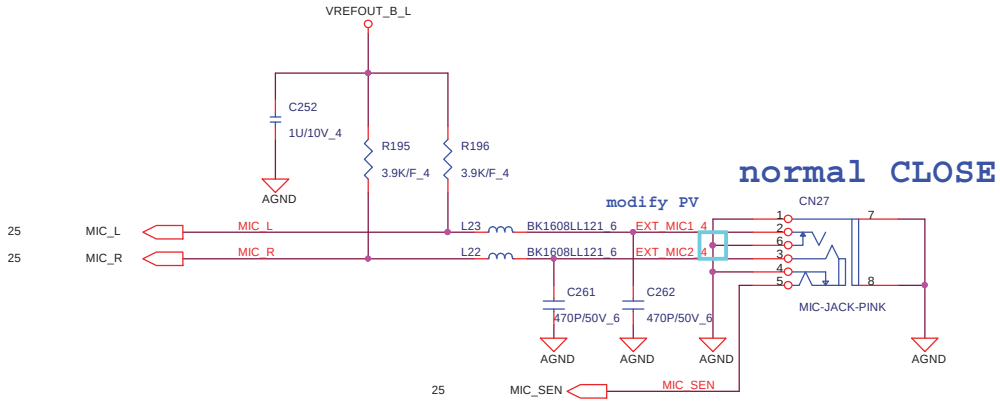
INT. SPEAKER



Headphone Jack



EXT Mic Jack



Note: MIC_SEN# is electrically floating when no jack is inserted and shorted to ground when jack is present.

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NB5/RD2	PROJECT : SX7 Quanta Computer Inc.	
Size: Custom	Document Number: HP/MIC/SPK	Rev: 3A
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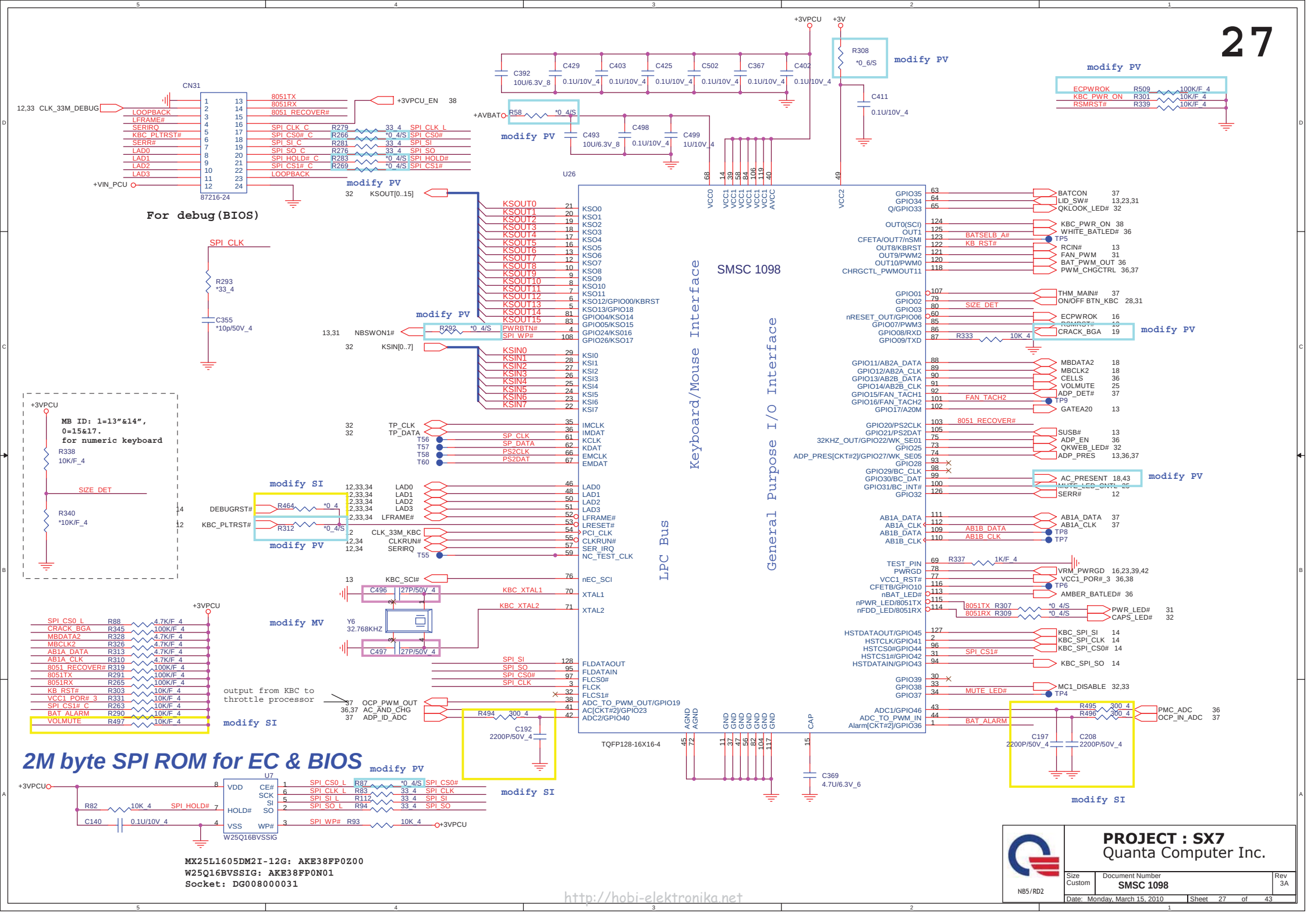
SMSC 1098
Keyboard/Mouse Interface
General Purpose I/O Interface
LPC Bus
TQFP128-16X16-4
CN31
87216-24
For debug(BIOS)
modify PV
modify SI
modify MV
+3VPCU
+3V
+AVBAT
+VIN_PCU
U26
SPI_CLK
MB ID: 1=13"&14", 0=15&17. for numeric keyboard
output from KBC to throttle processor
2M byte SPI ROM for EC & BIOS
U7
W25Q16BVSSIG
MX25L1605DM2I-12G: AKE38FP0Z00
W25Q16BVSSIG: AKE38FP0N01
Socket: DG008000031
PROJECT : SX7
Quanta Computer Inc.
NB5/RD2
Document Number
SMSC 1098
Rev 3A
Size Custom
Date: Monday, March 15, 2010
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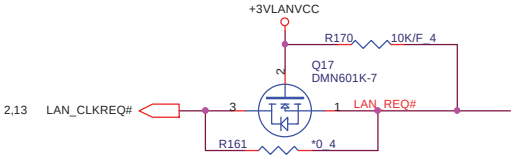
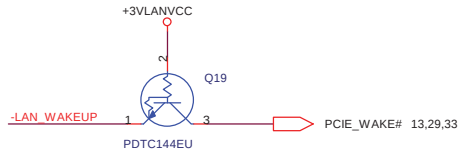
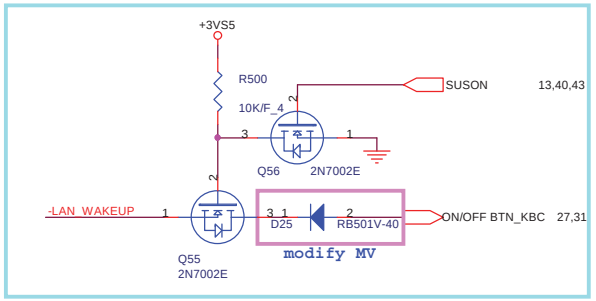
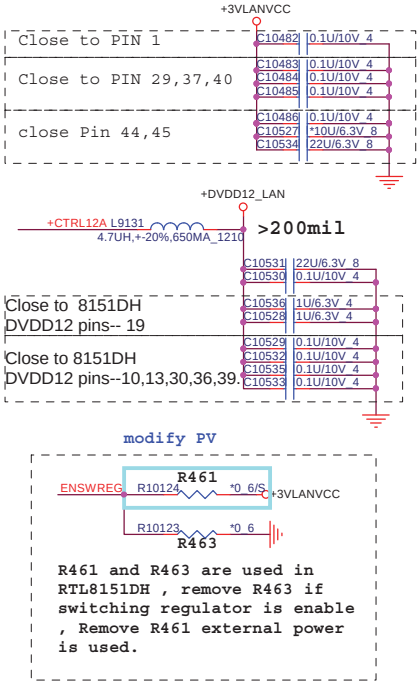
modify DB2

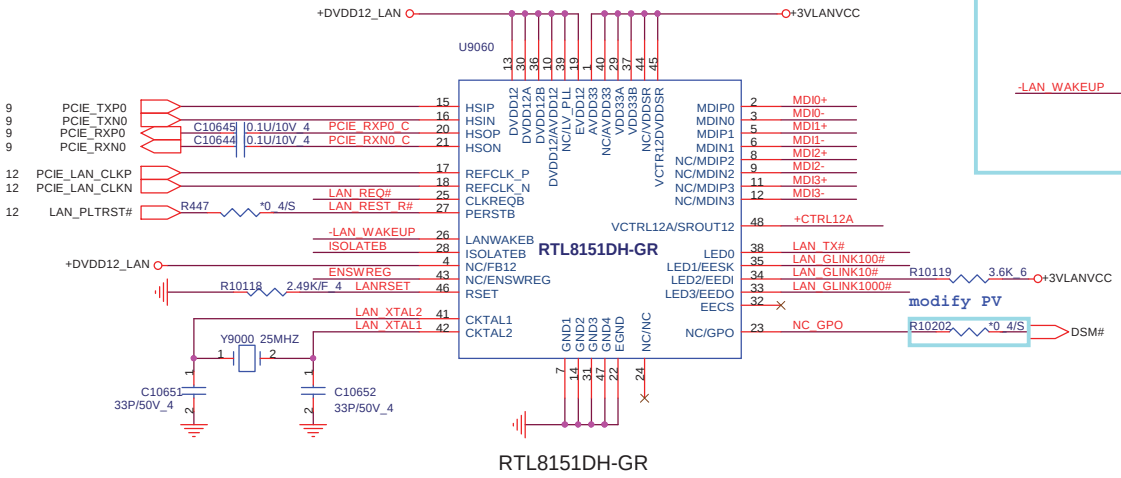


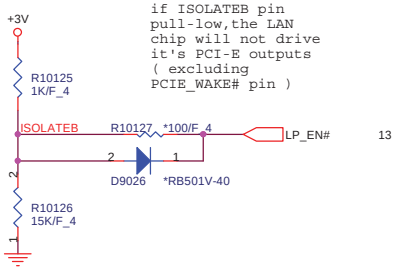


modify PV







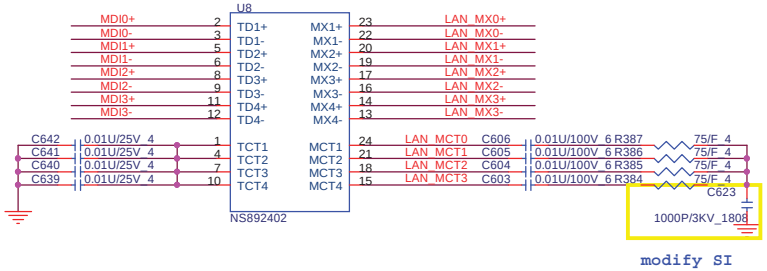


if ISOLATEB pin pull-low,the LAN chip will not drive it's PCI-E outputs (excluding PCIE_WAKE# pin)

modify PV

R461 and R463 are used in RTL8151DH , remove R463 if switching regulator is enable , Remove R461 external power is used.

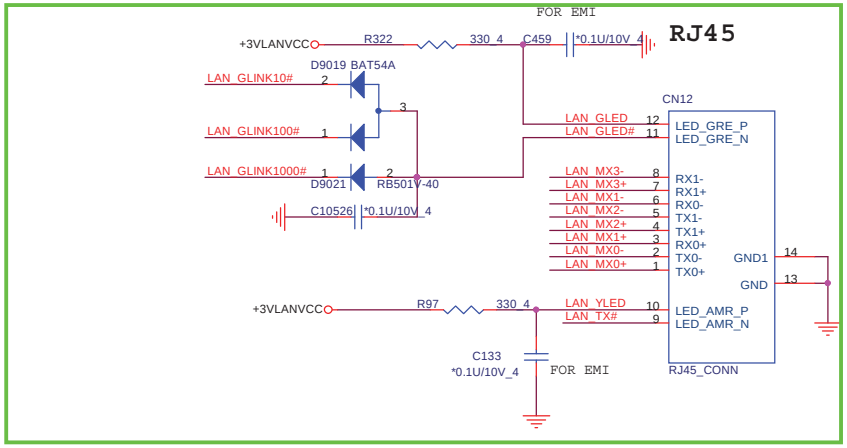
Transformer for 10/100/1000



modify SI

Lan Con.

modify DB2



43 +3VLANVCC
2,3,5,6,7,10,11,12,13,14,15,16,20,23,25,27,29,30,31,32,33,34,35,37,43 +3V

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NB5/RD2	PROJECT : SX7 Quanta Computer Inc.	
	Size: Custom Document Number: LAN RTL8151/RJ45	Rev: 3A
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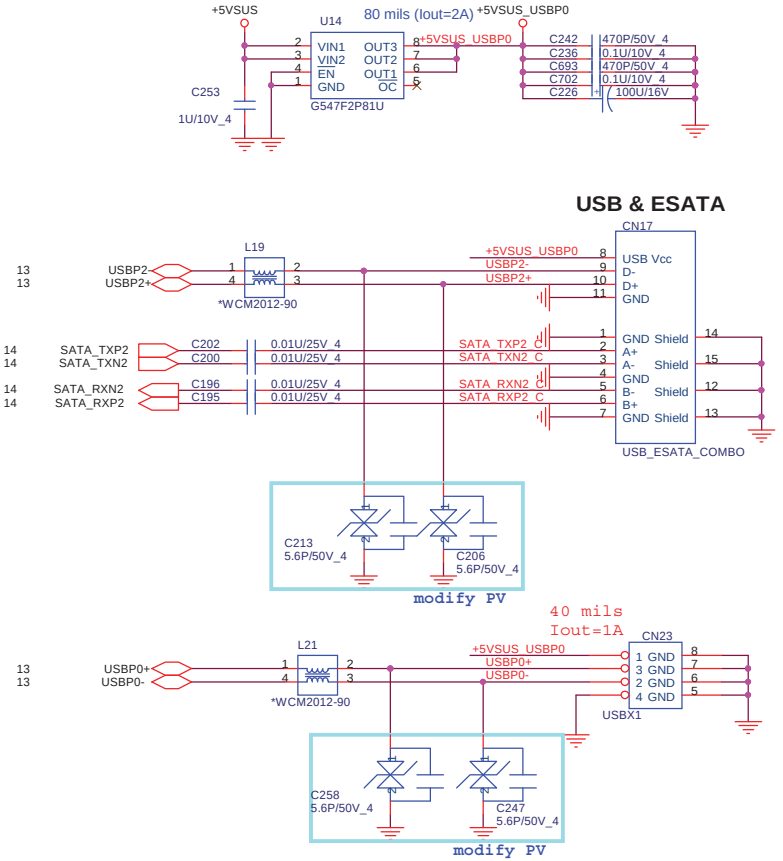
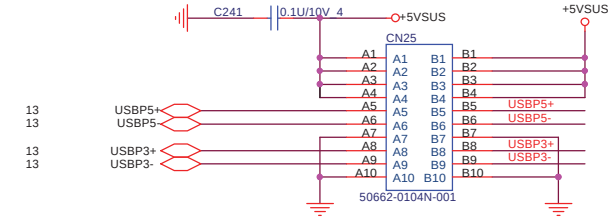
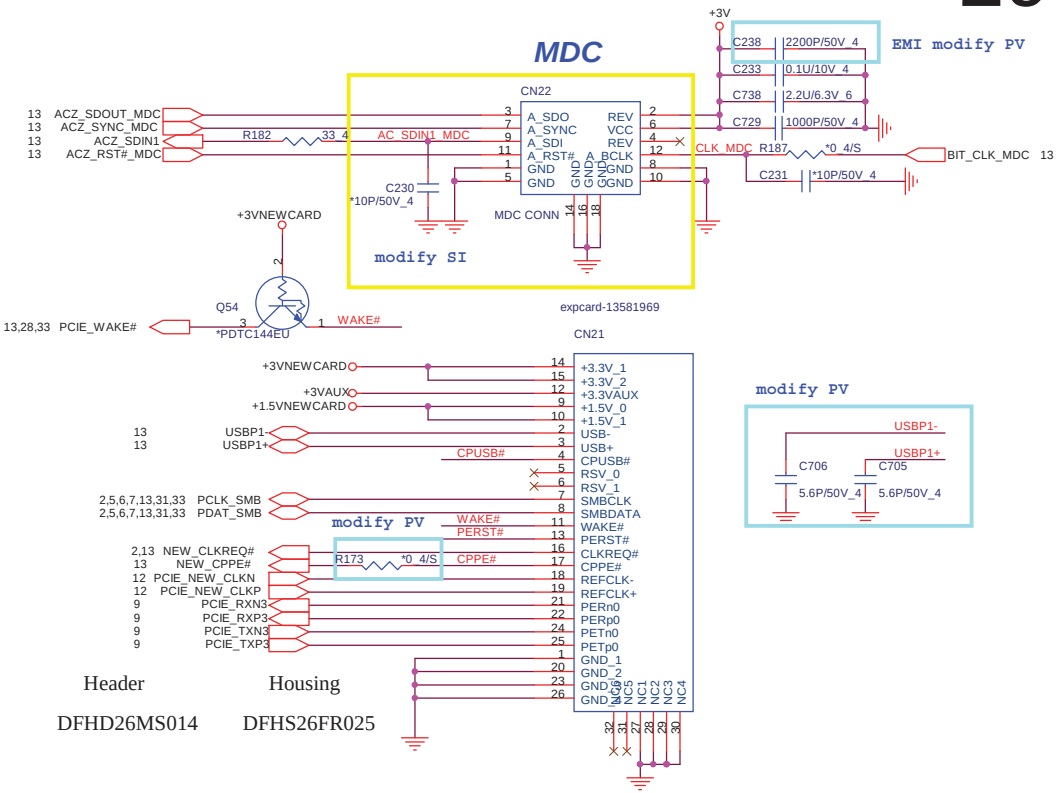
LEFT SIDE USBX1 and E-SATA/USB COMBO



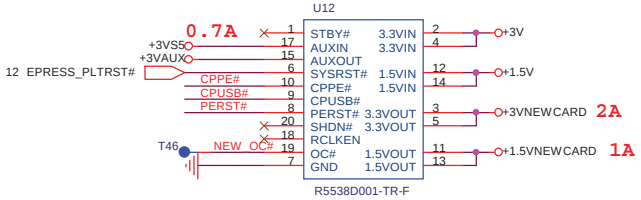
RIGHT SIDE USBX2

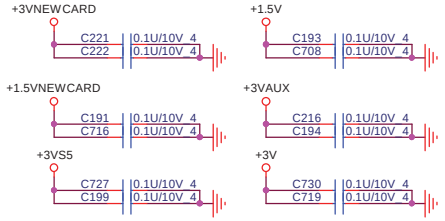


Modem CONN



NEWCARD (PCIEXPRESS*1 + USB*1)





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NB5/RD2

PROJECT : SX7
Quanta Computer Inc.

Size	Document Number	Rev
Custom	EXTERNAL USB X2	3A
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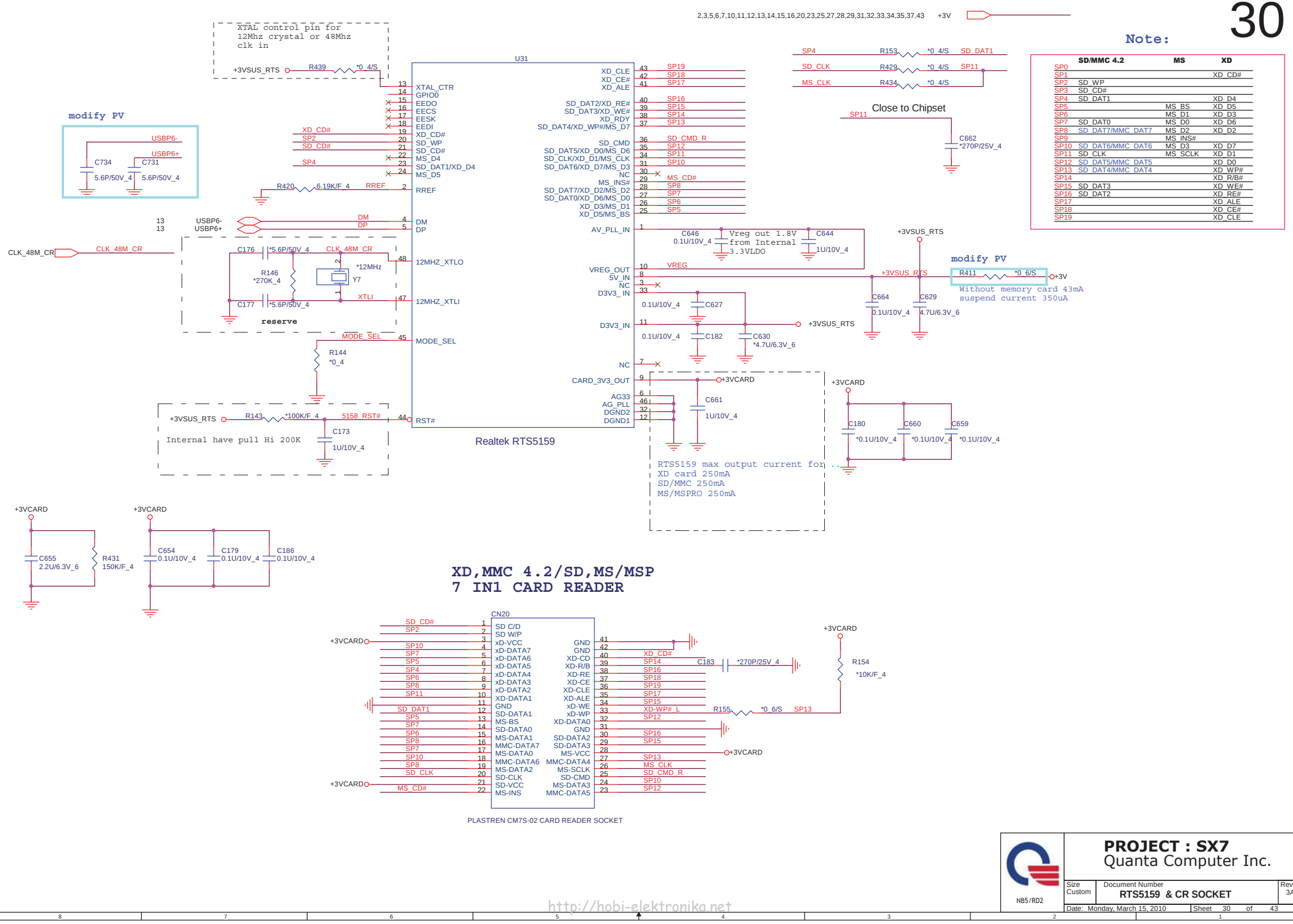

PROJECT : SX7	
Quanta Computer Inc.	
Size: Custom	Document Number: RTS5159 & CR SOCKET
Rev: 3A	
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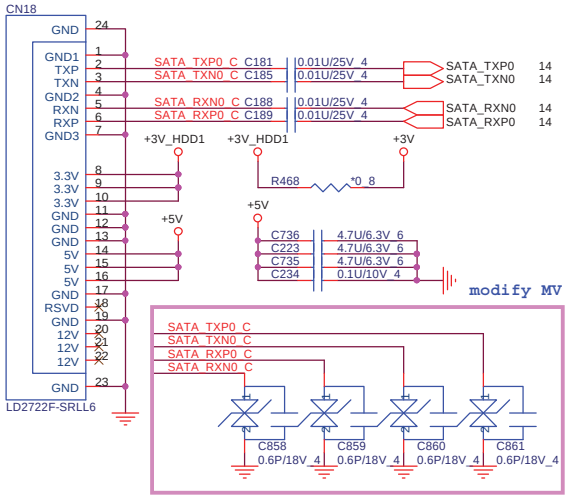
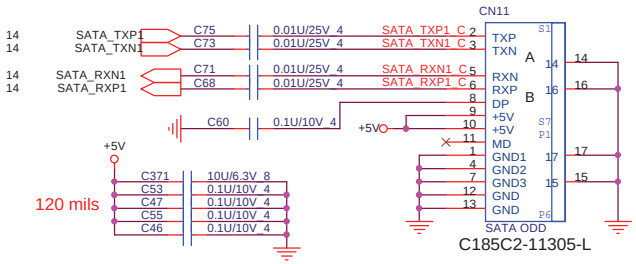
NB5/RD2	

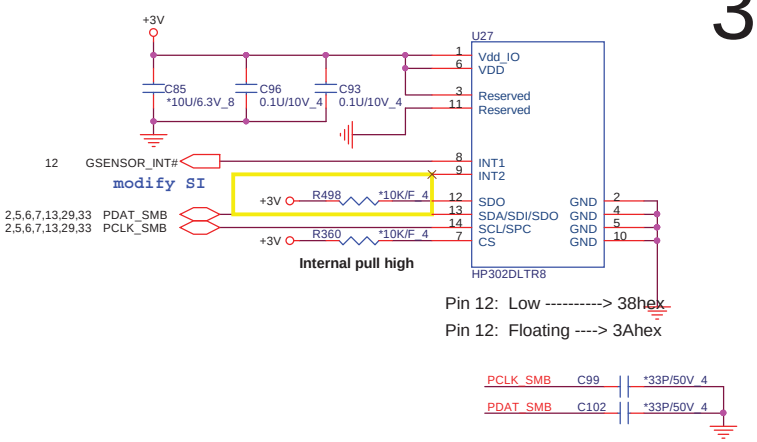
SATA HDD CONNECTOR



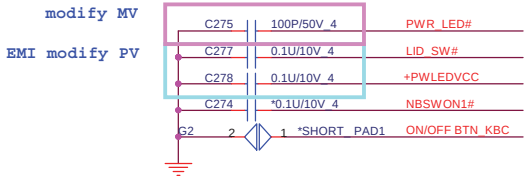
SATA CD-ROM



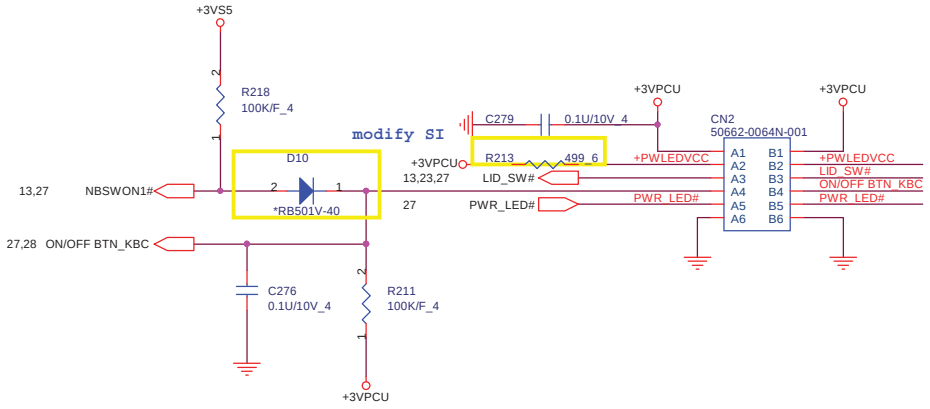
Accelerometer Sensor



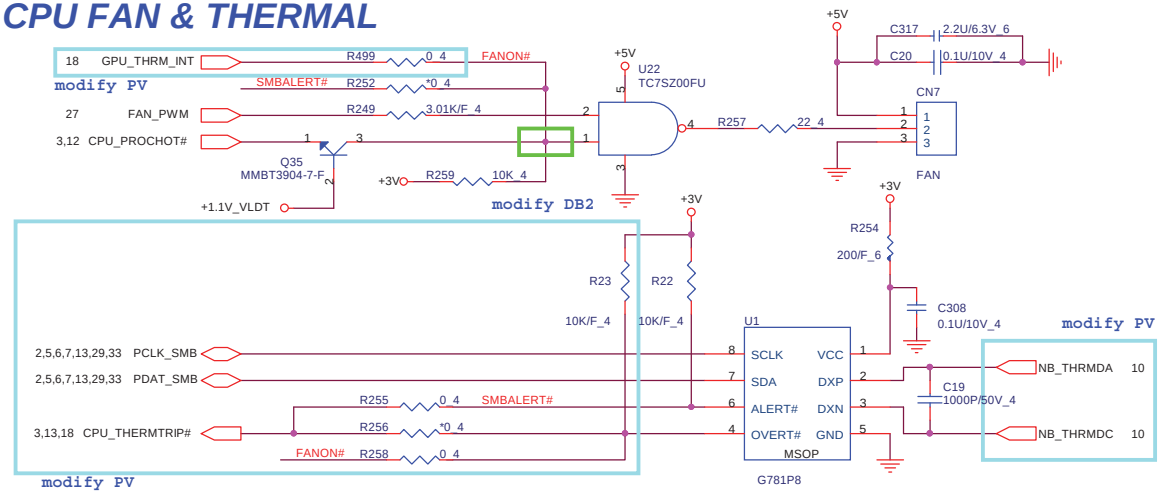
POWER BOTTON CONNECT



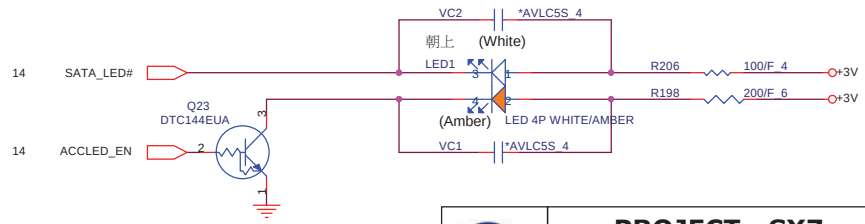
1. +3VPCU(LIDSWITCH PWR)
2. +PWLEDVCC(+3VPCU)
3. LIDSWITCH
4. POWERON#
5. PWRLED#
6. GND



CPU FAN & THERMAL



LED



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Quanta Computer Inc.

Size	Document Number	Rev
Custom	ESATA/HDD/ODD/LED/FAN	3A
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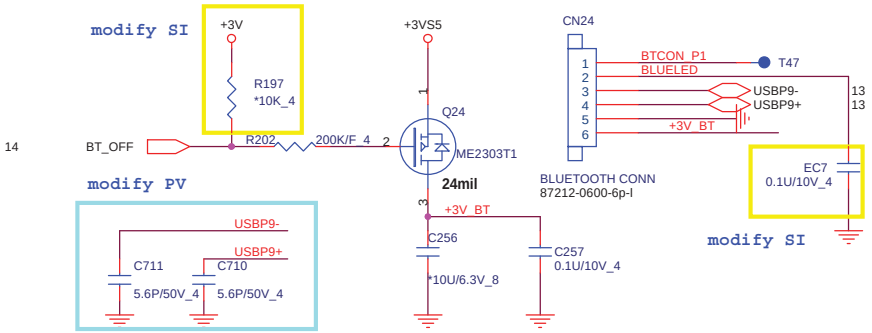
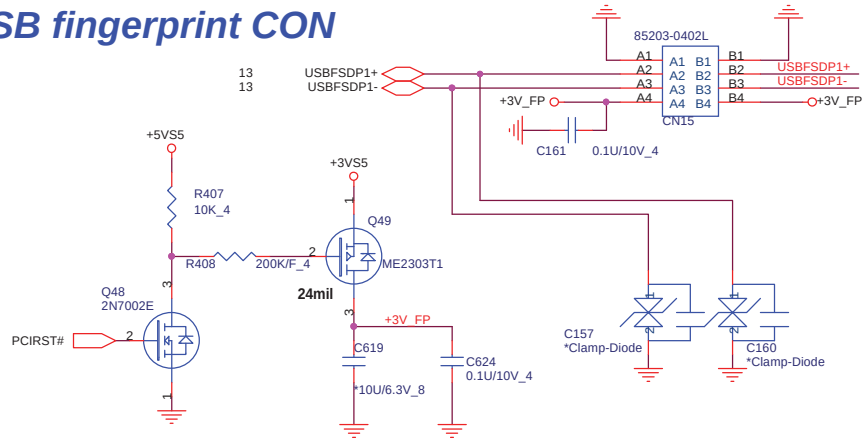
BLUETOOTH

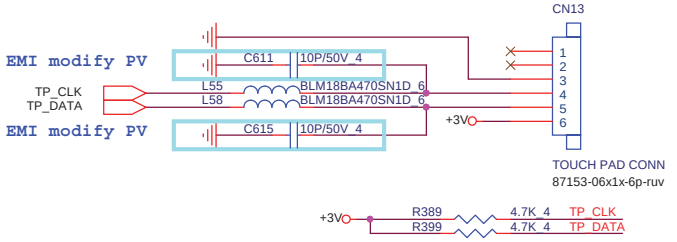


USB fingerprint CON

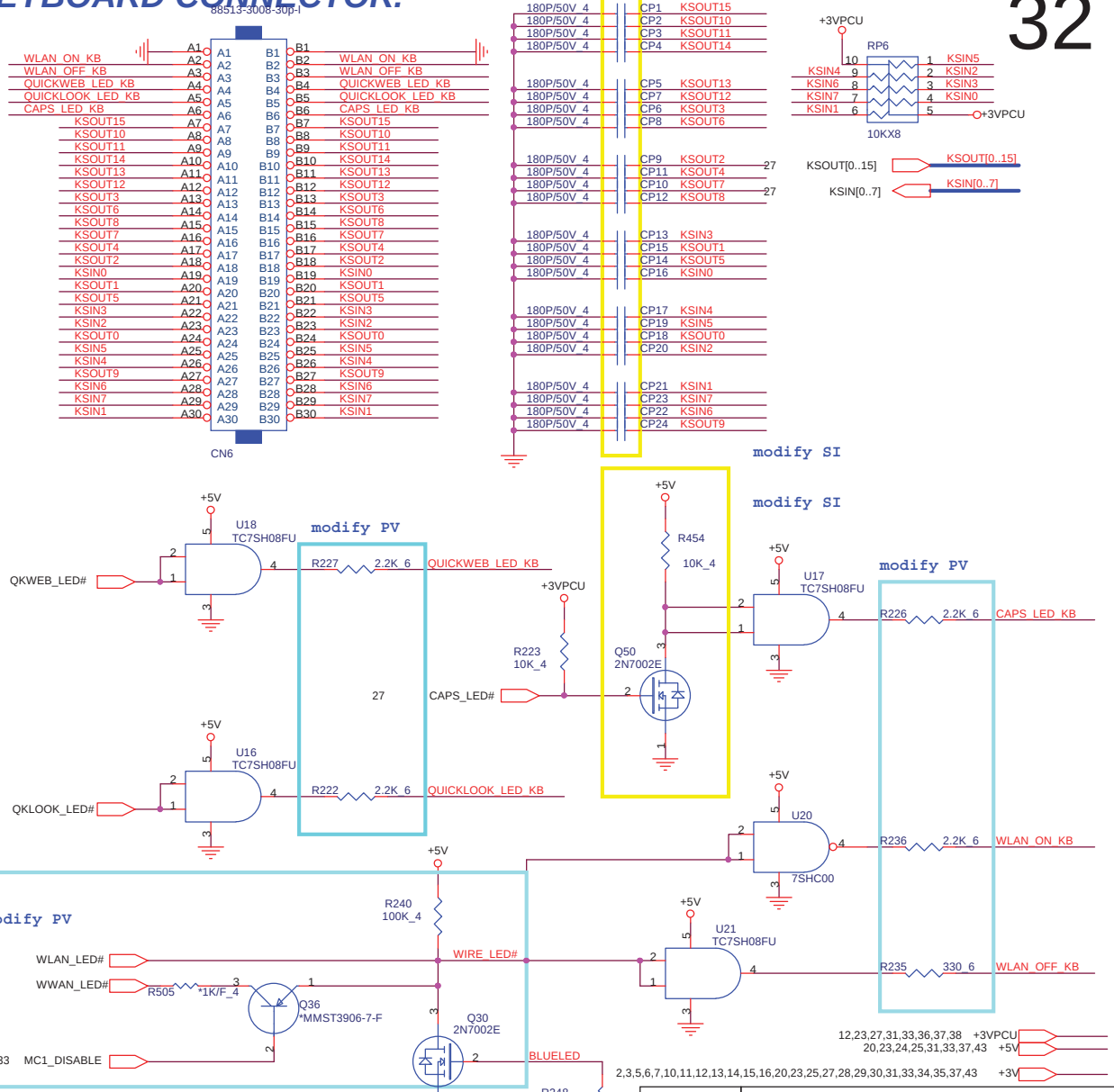


TOUCH PAD CONNECTOR

Pin1	VDD
Pin2	DATA
Pin3	CLK
Pin4	GND
Pin5	X
Pin6	X



KEYBOARD CONNECTOR.



PROJECT : SX7
Quanta Computer Inc.

Size	Document Number	Rev
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NB5/RD2

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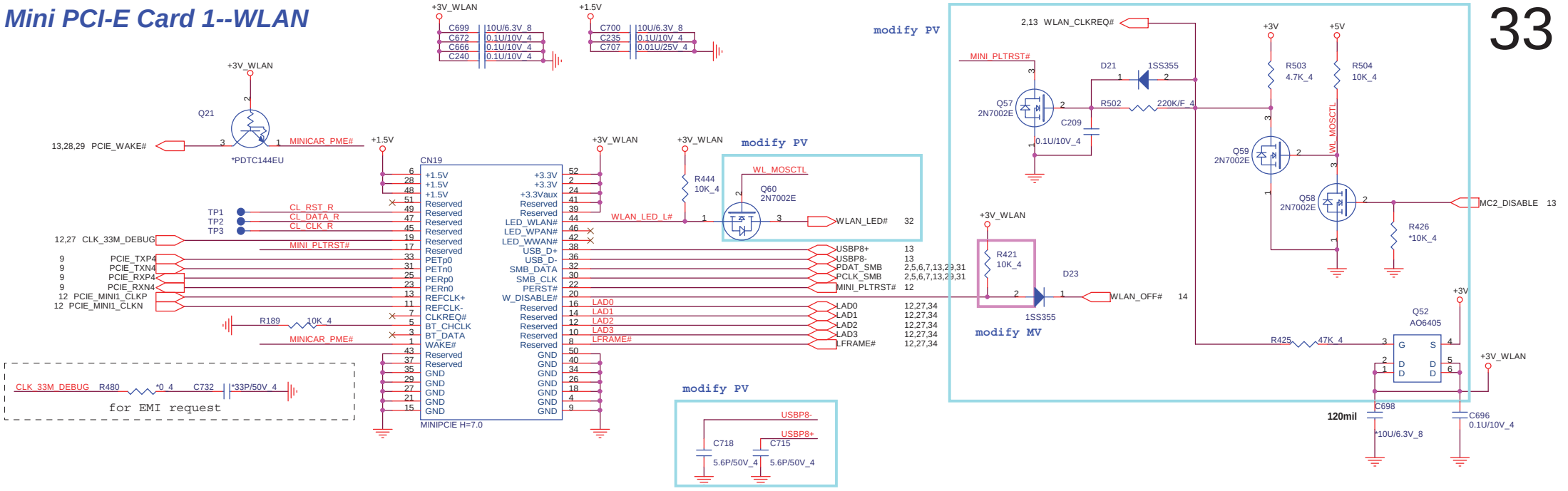
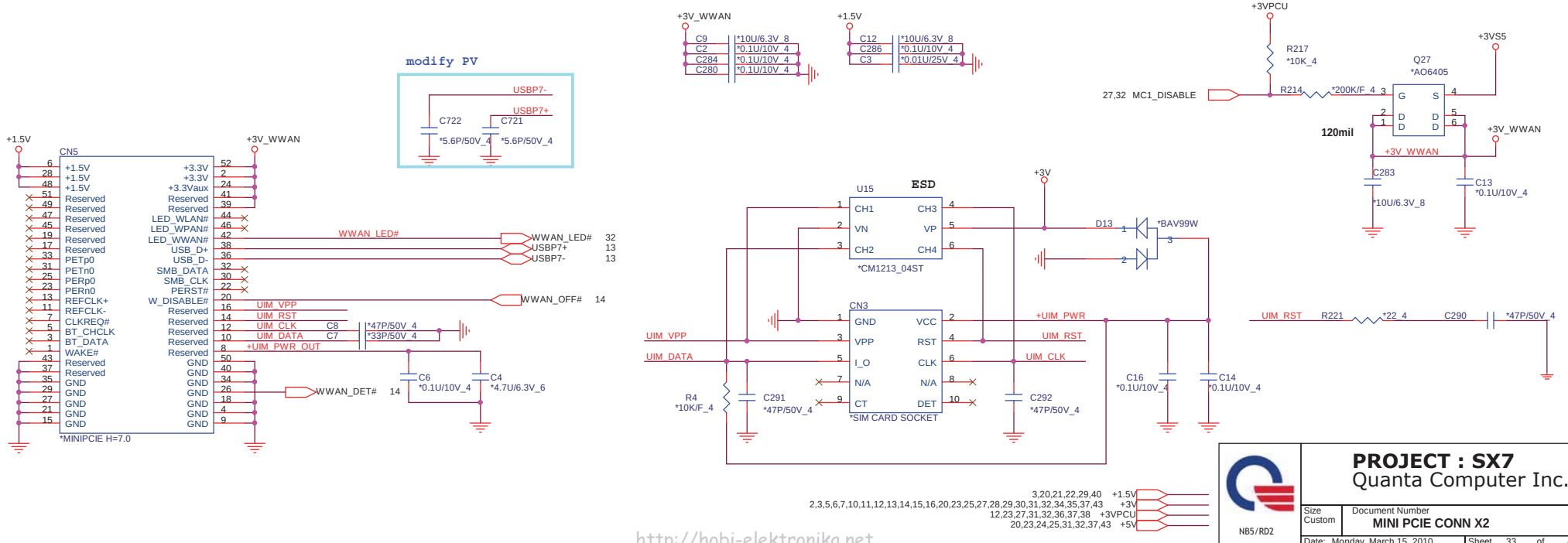
Mini PCI-E Card 1--WLAN



Mini PCI-E Card 2 --WWAN



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PROJECT : SX7
Quanta Computer Inc.

Size	Document Number	Rev
Custom	MINI PCIE CONN X2	3A
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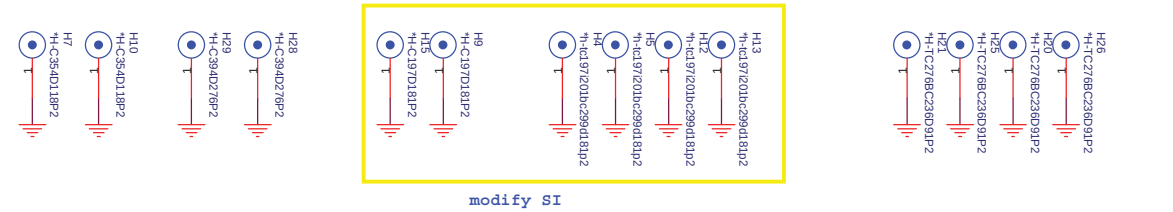
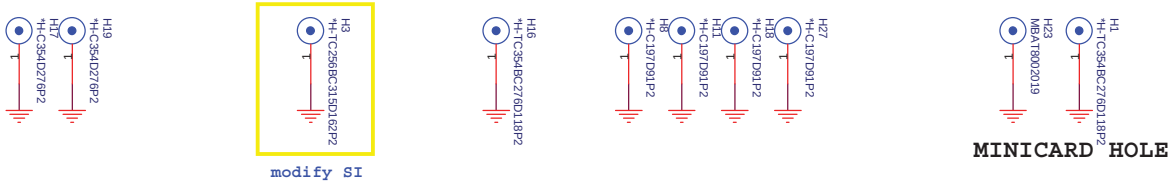
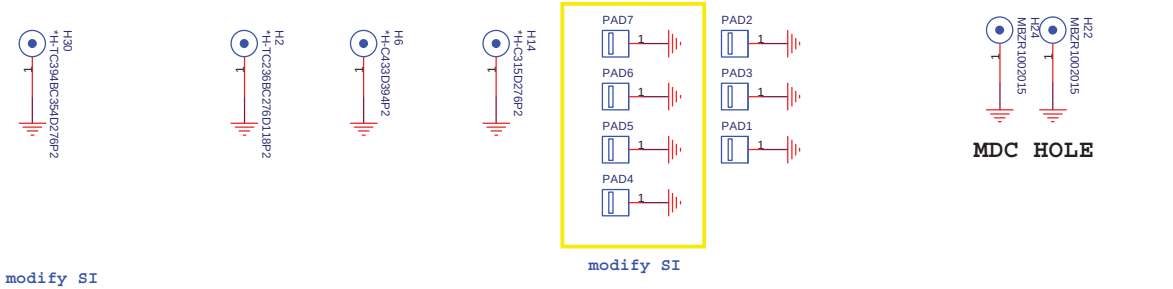
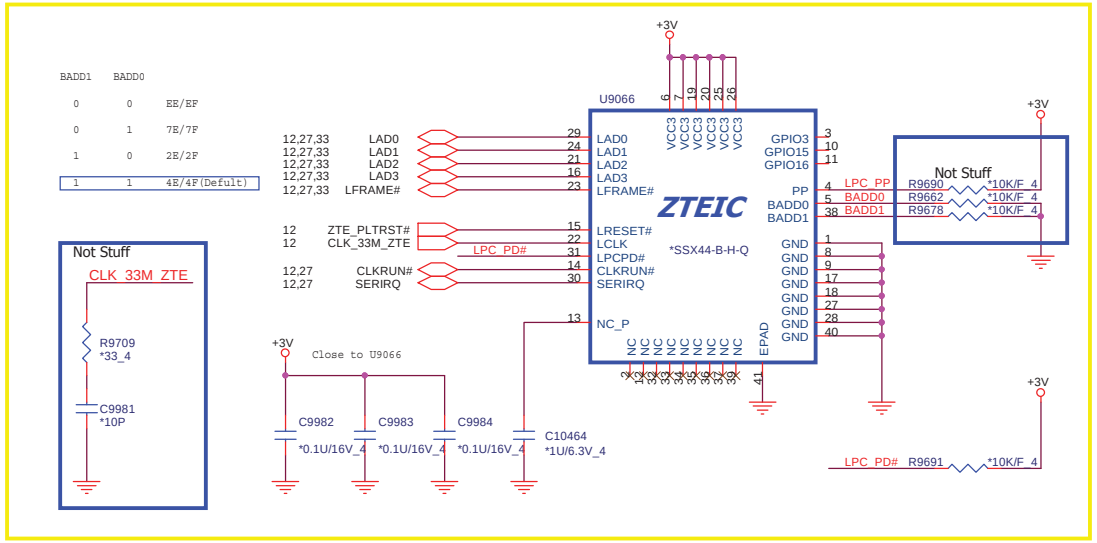
NB5/RD2









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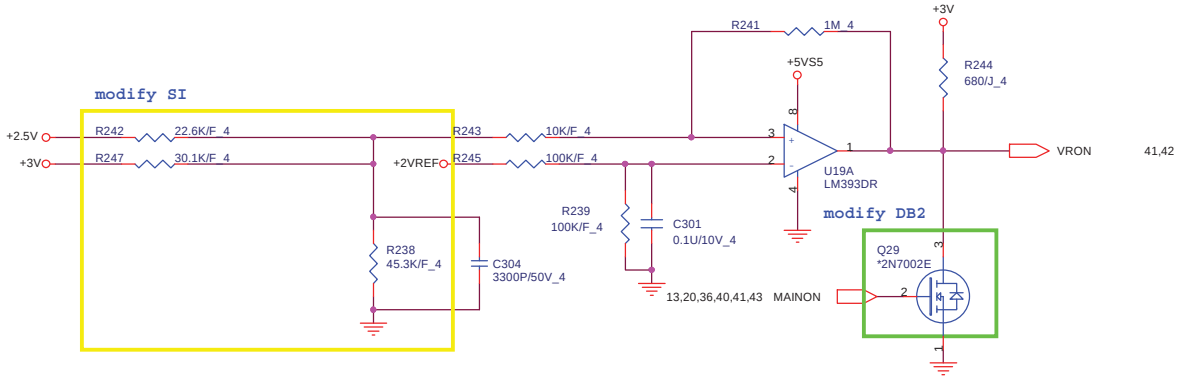
NB5/RD2	PROJECT : SX7 Quanta Computer Inc.	
	Size: Custom	Document Number: Hole, Nuts — Rev: 3A
	Date: Monday, March 15, 2010	Sheet 34 of 43



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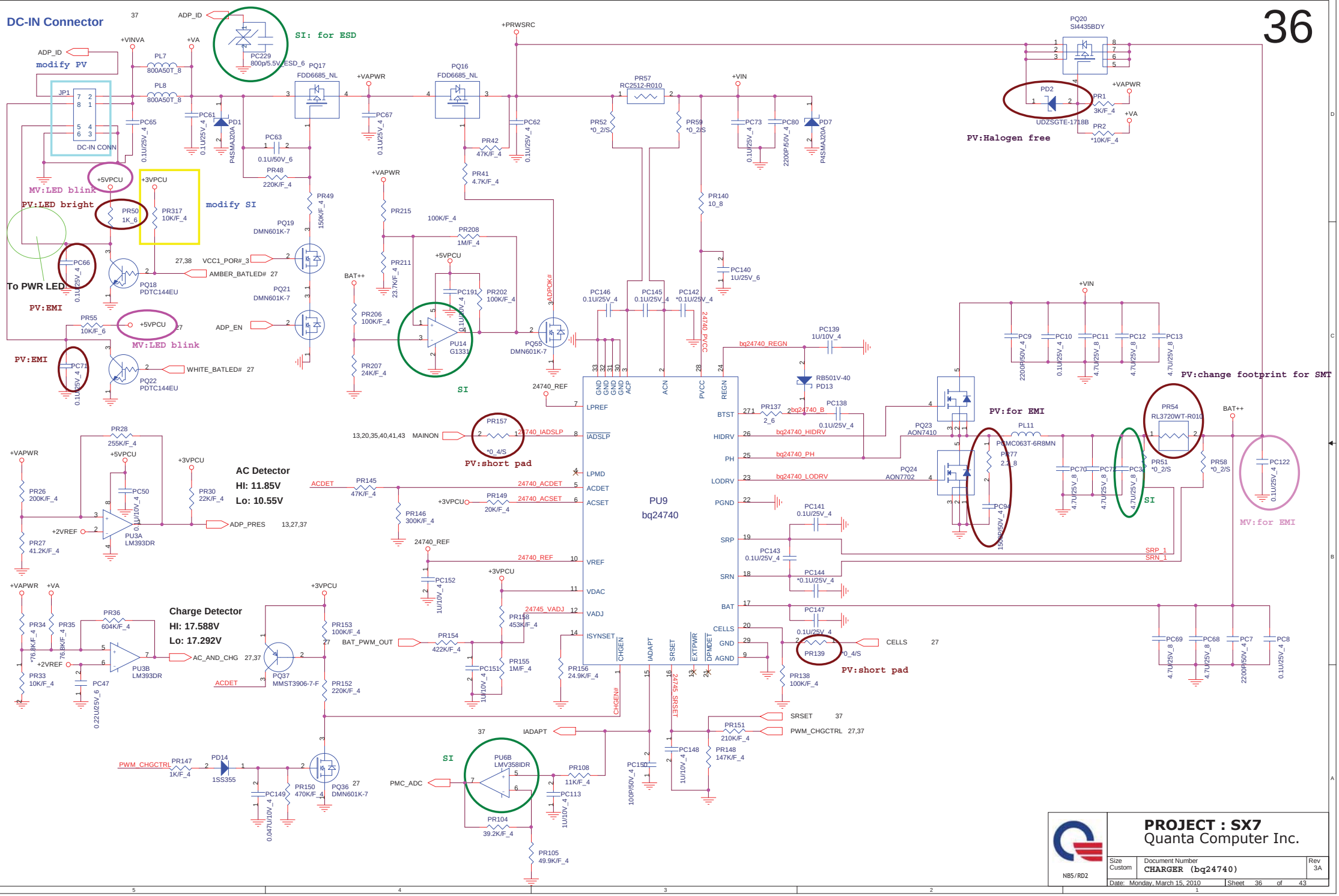
NB5/RD2	**PROJECT : SX7** Quanta Computer Inc.	
Size: Custom	Document Number: **POWER Sequance**	Rev: 3A
Date: Monday, March 15, 2010	Sheet 35 of 43	



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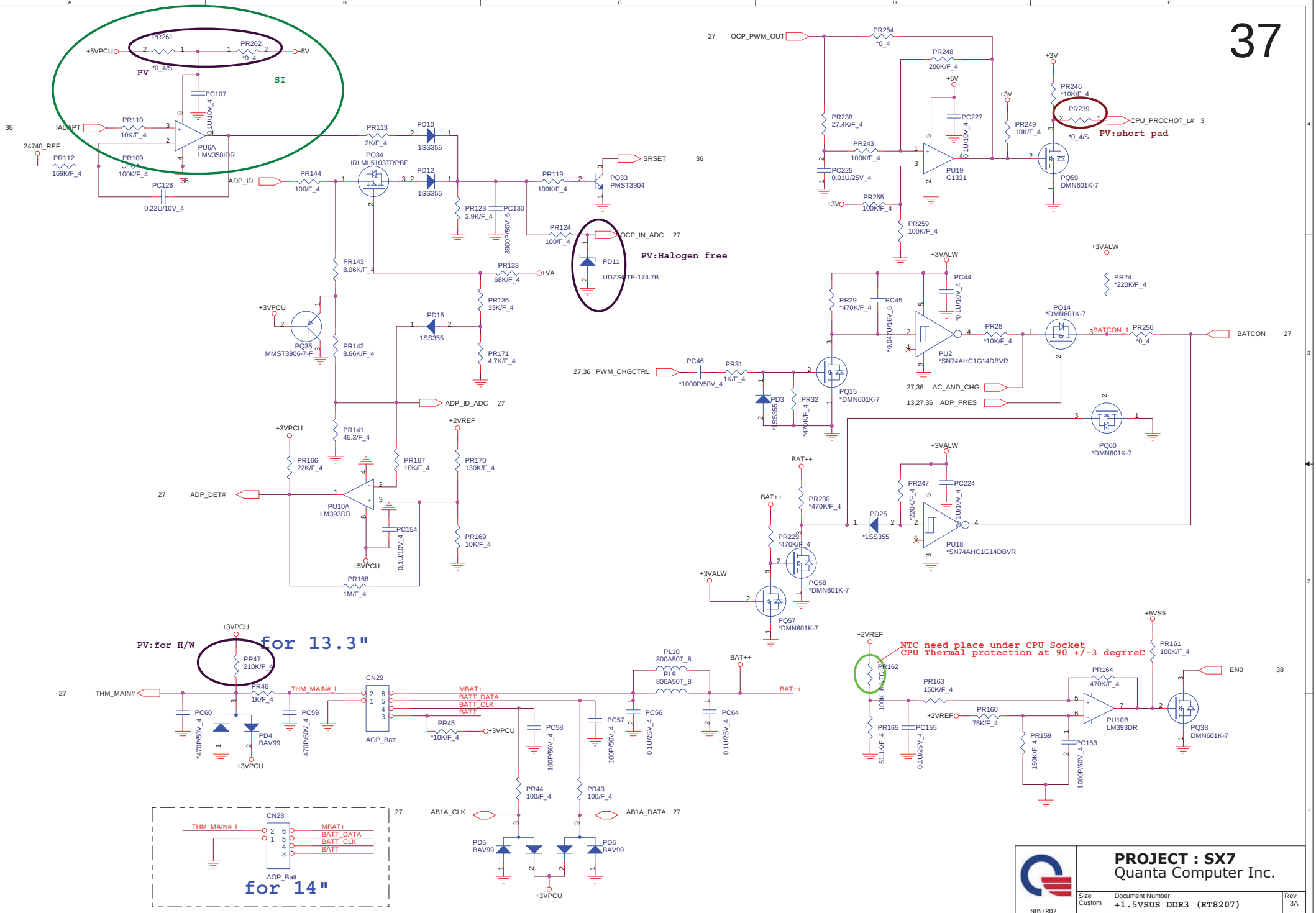

PROJECT : SX7	Quanta Computer Inc.
Size: Custom	Document Number: +1.5VSUS DDR3 (RT8207)
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Date: Monday, March 15, 2010	Sheet 37 of 43
N85/RD2	

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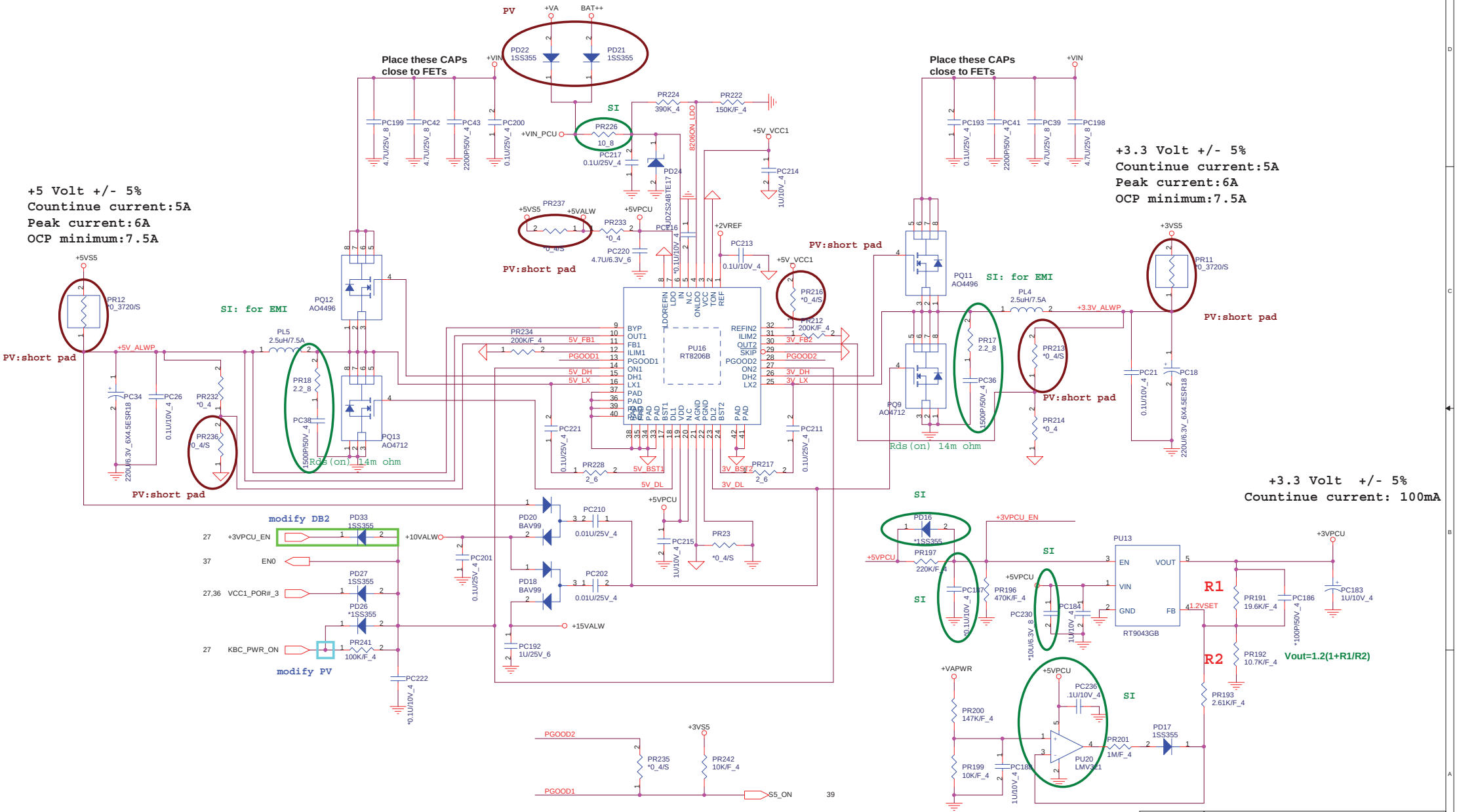
+5 Volt +/- 5%
Countinue current:5A
Peak current:6A
OCP minimum:7.5A

+3.3 Volt +/- 5%
Countinue current:5A
Peak current:6A
OCP minimum:7.5A

+3.3 Volt +/- 5%
Countinue current: 100mA

Vout=1.2(1+R1/R2)



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PROJECT : SX7 Quanta Computer Inc.		
Size: Custom	Document Number: +5V/+3V (RT8206B)	Rev: 3A
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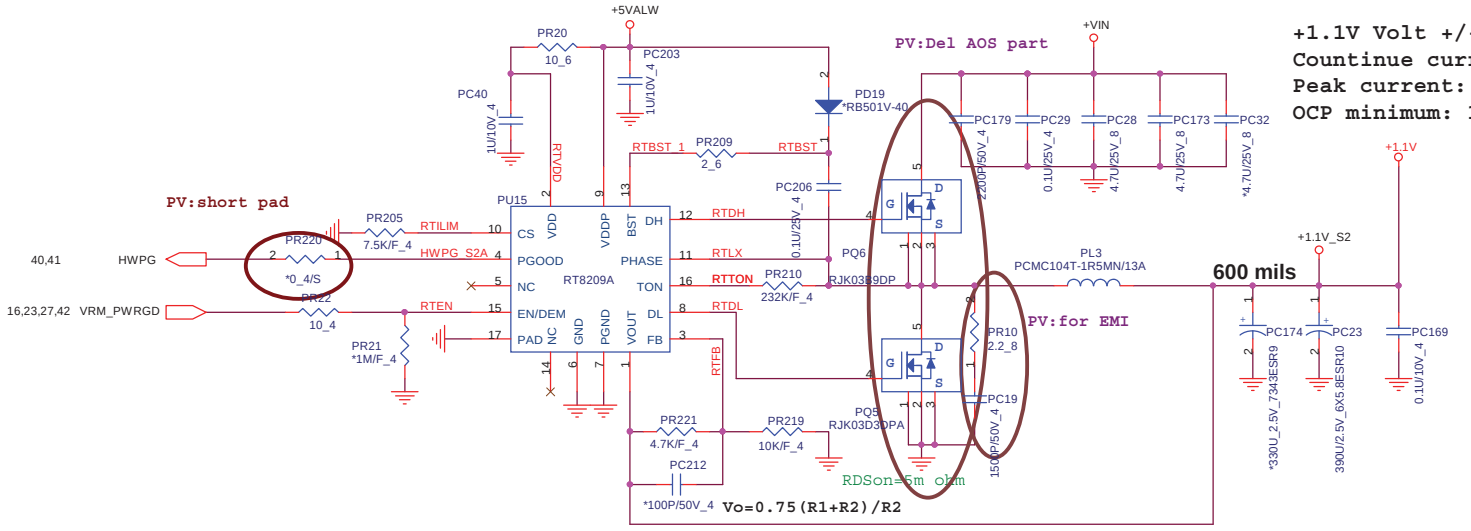
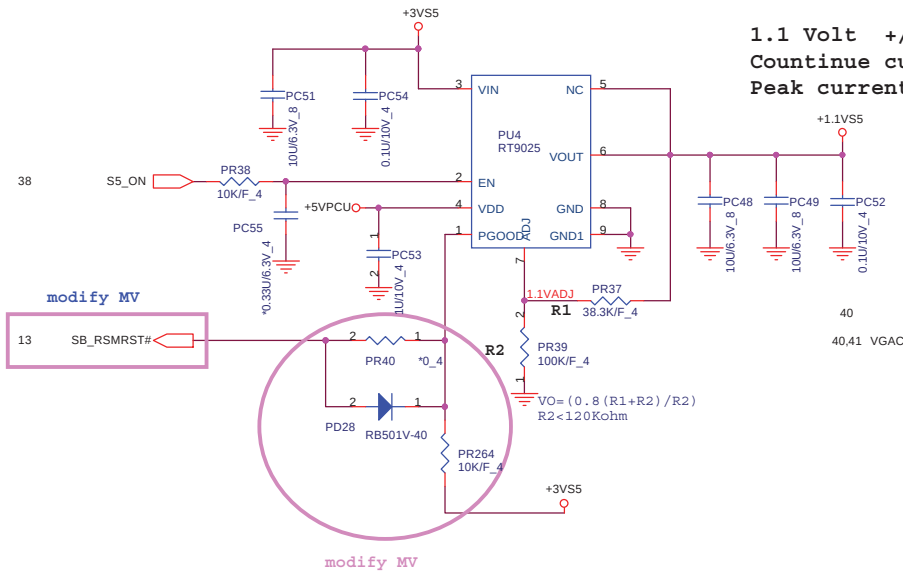
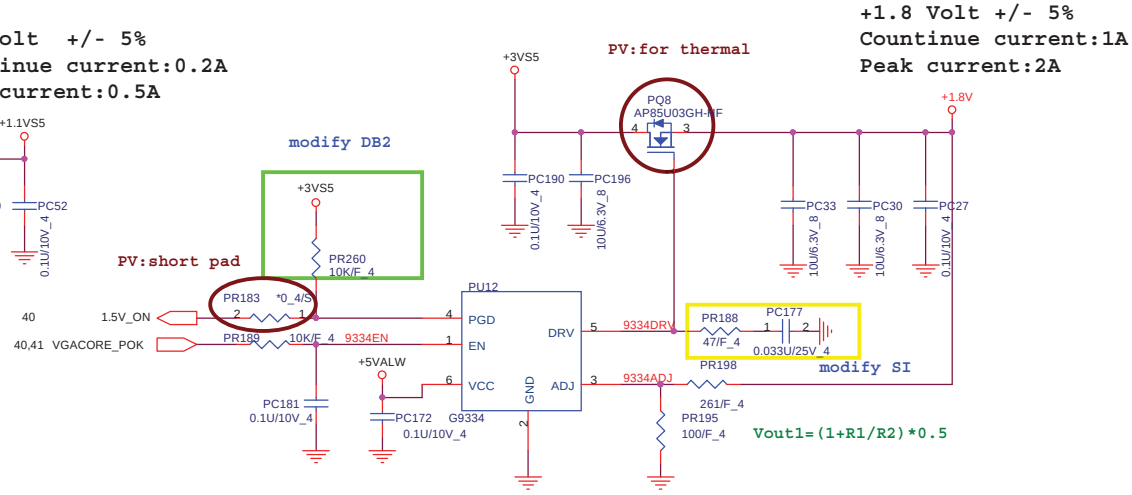
N85/RD2		







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NB5/RD2	PROJECT : SX7 Quanta Computer Inc.	
Size: Custom	Document Number: VGA Core/+1.8VGFX/1.0VGFX	Rev: 3A
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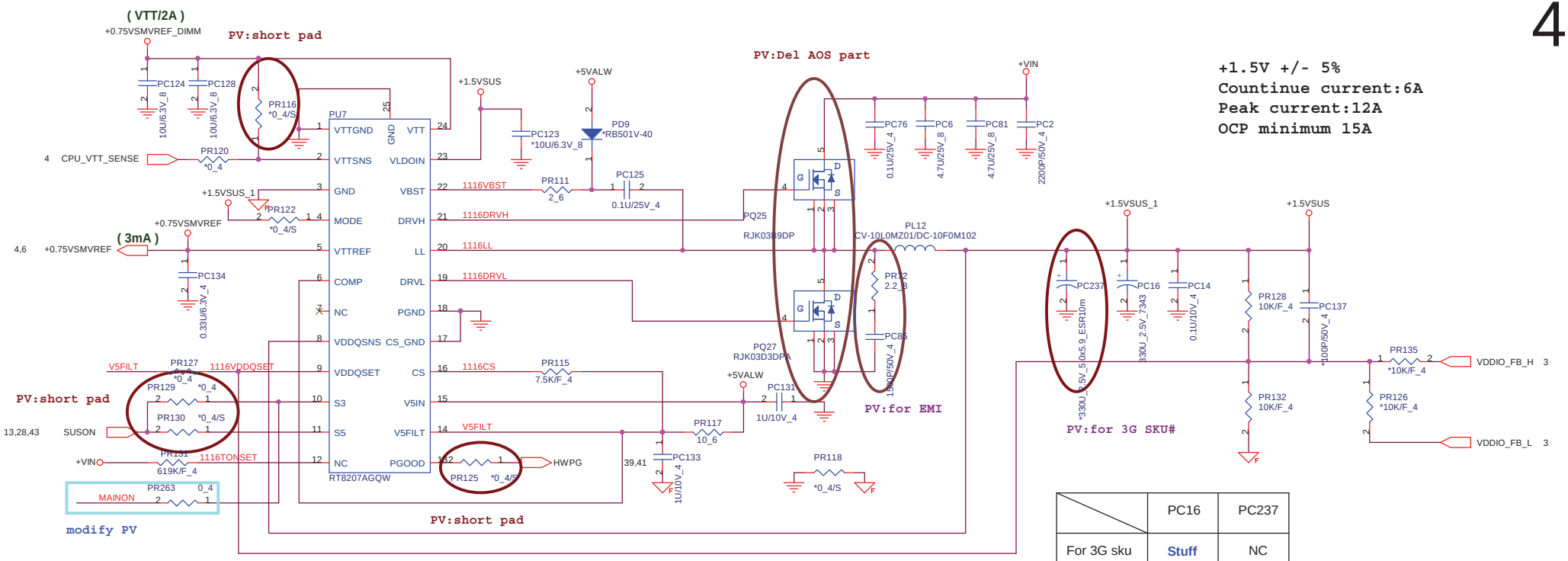
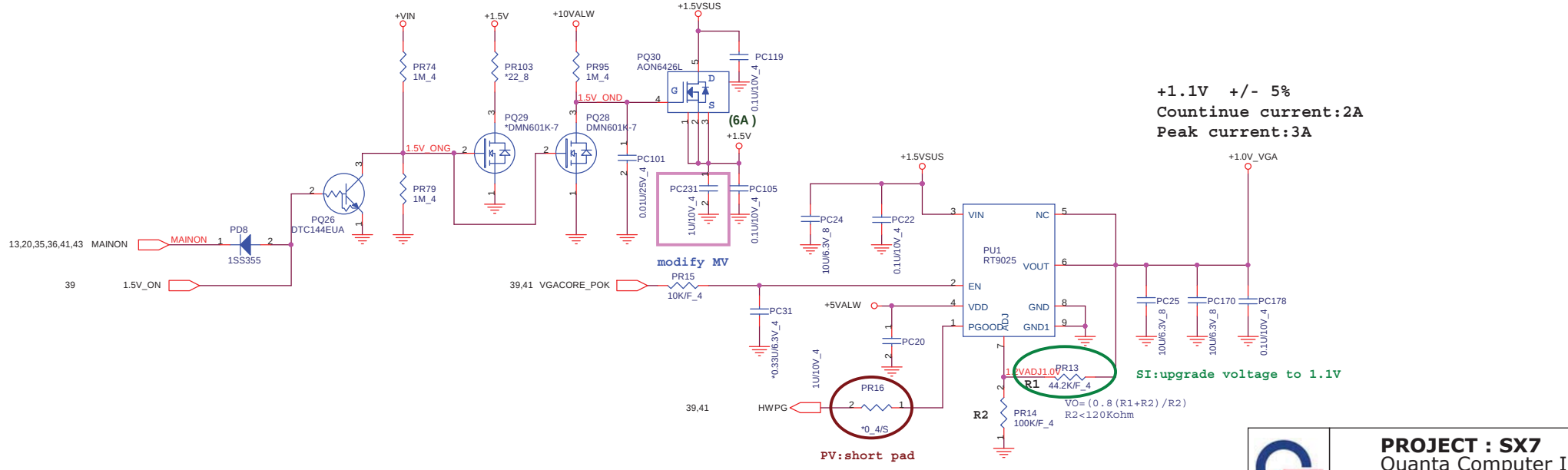


	PC16	PC237
For 3G sku	**Stuff**	NC
non 3G sku	NC	**Stuff**



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NB5/RD2	**PROJECT : SX7** Quanta Computer Inc.	
Size: Custom	Document Number: **DDR3 (RT8207)**	Rev: 3A
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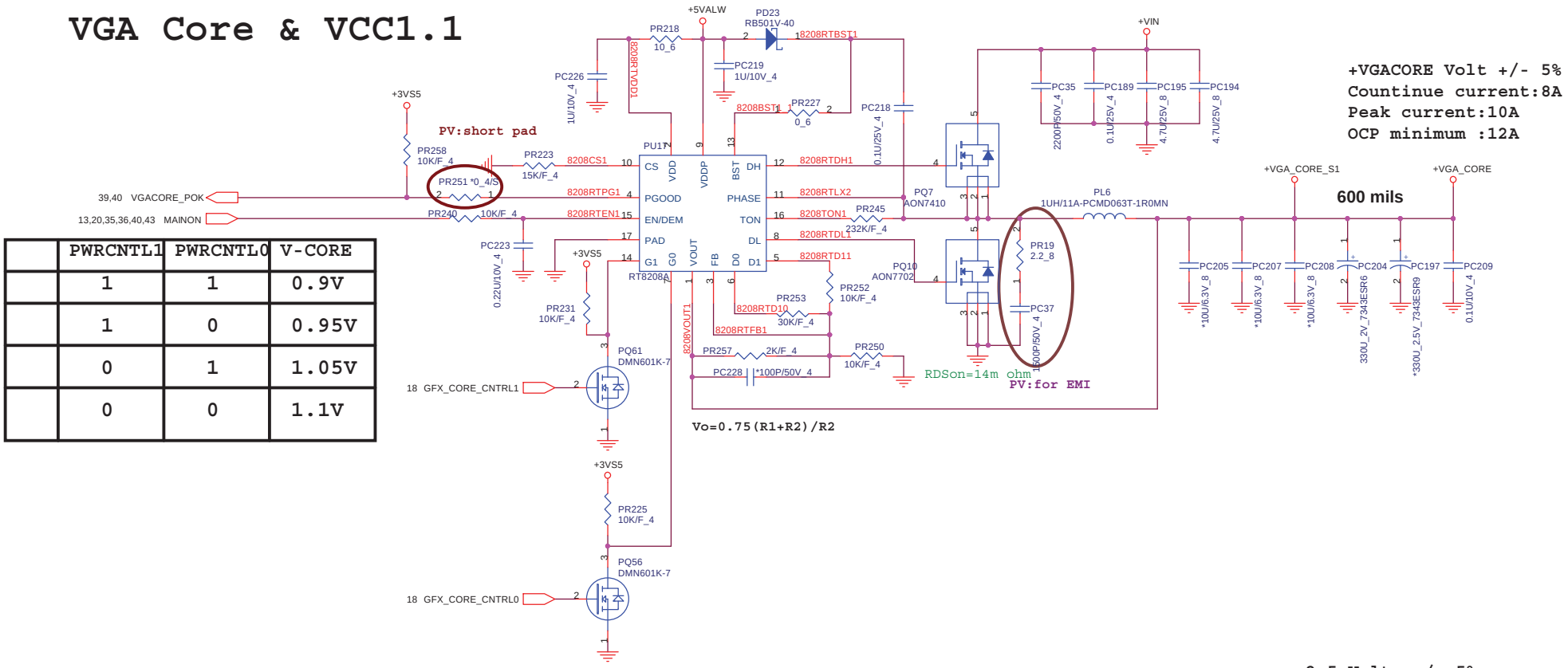
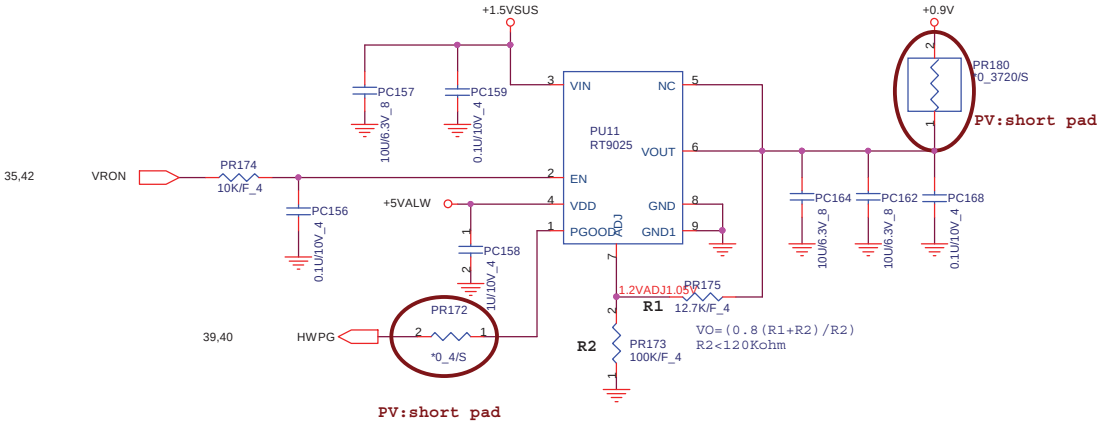
VGA Core & VCC1.1

	PWRCNTL1	PWRCNTL0	V-CORE
	1	1	0.9V
	1	0	0.95V
	0	1	1.05V
	0	0	1.1V

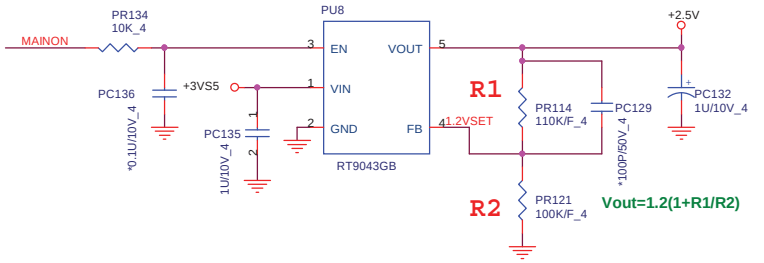


+VGACORE Volt +/- 5%
Countinue current:8A
Peak current:10A
OCP minimum :12A

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



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



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NB5/RD2

PROJECT : SX7
Quanta Computer Inc.

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Custom	VGA Core/+1.8VGFX/1.0VGFX	3A
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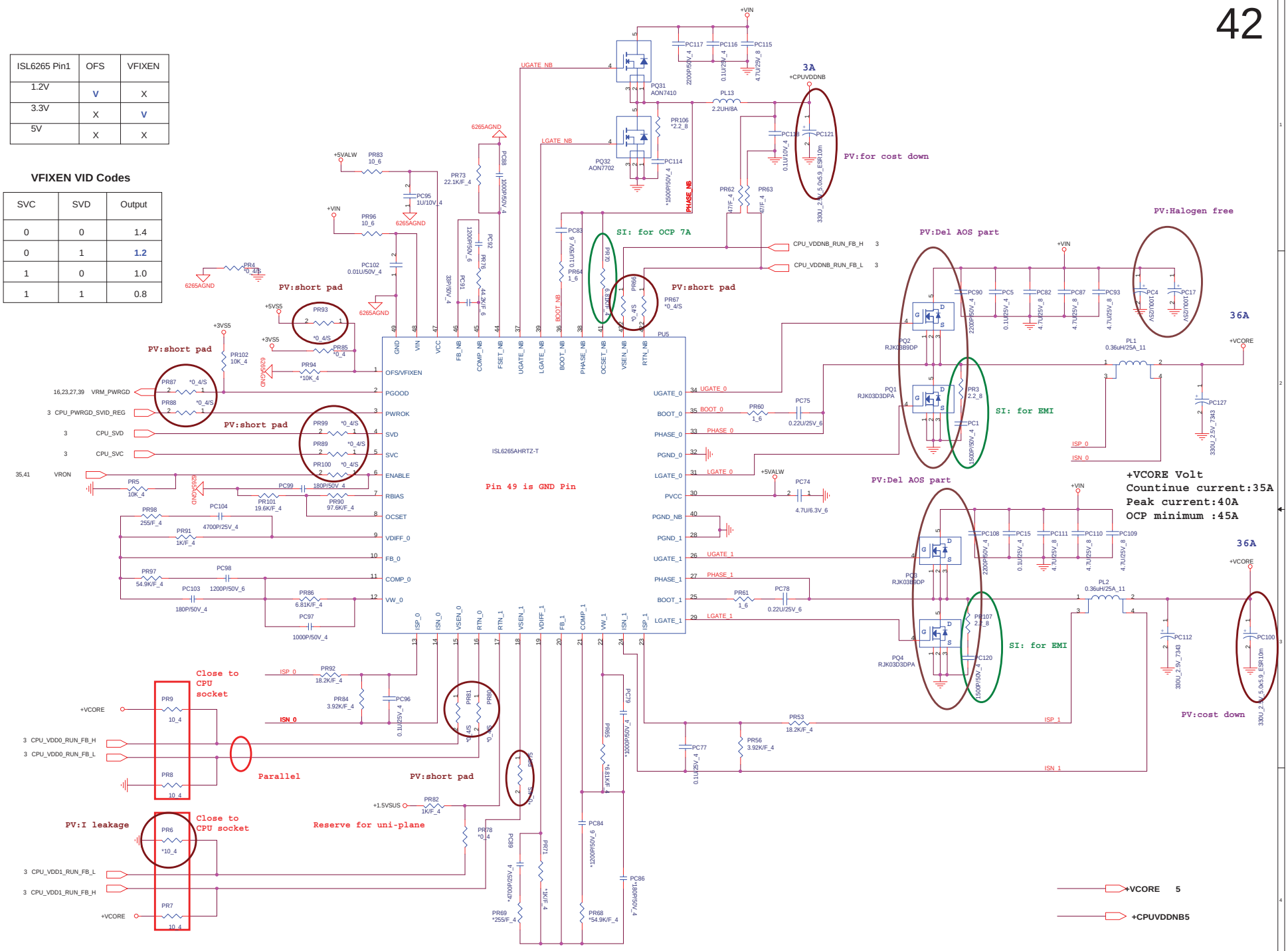
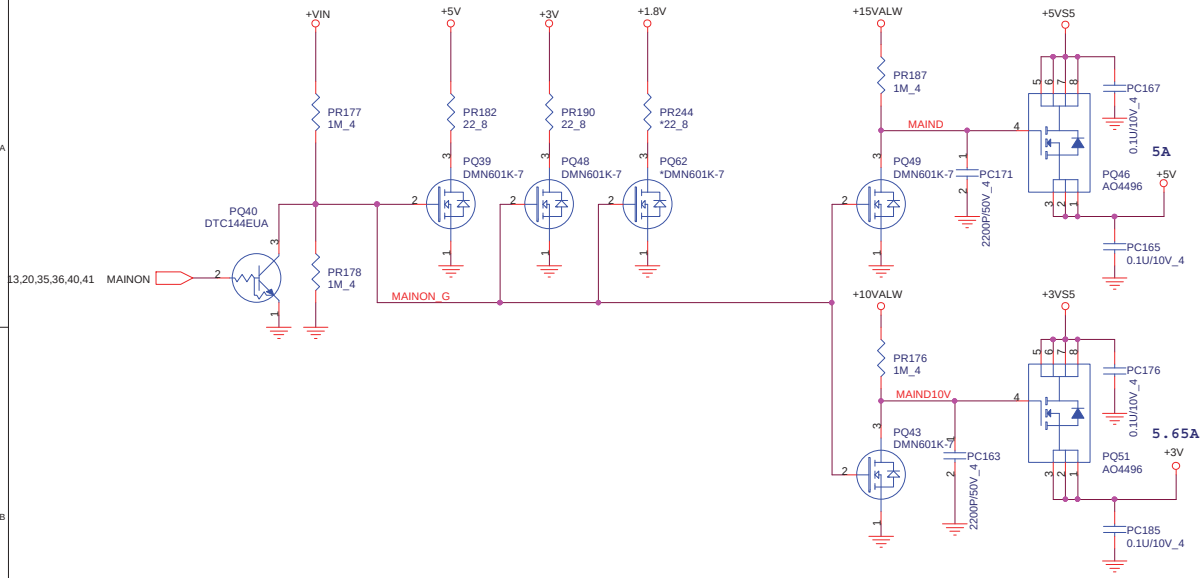
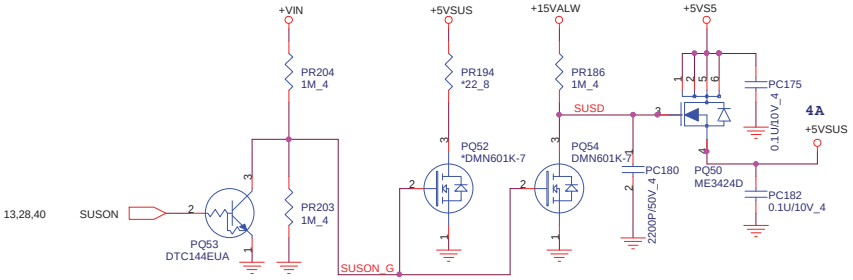
ISL6265 Pin1	OFS	VFIXEN
1.2V	V	X
3.3V	X	V
5V	X	X

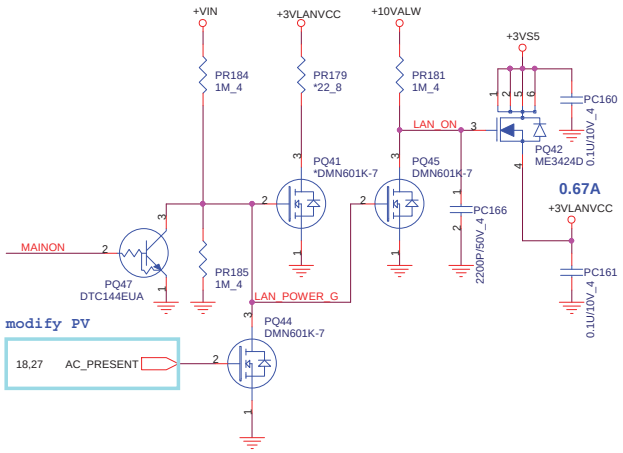
VFIXEN VID Codes

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









NB5/RD2	**PROJECT : SX7** Quanta Computer Inc.	
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