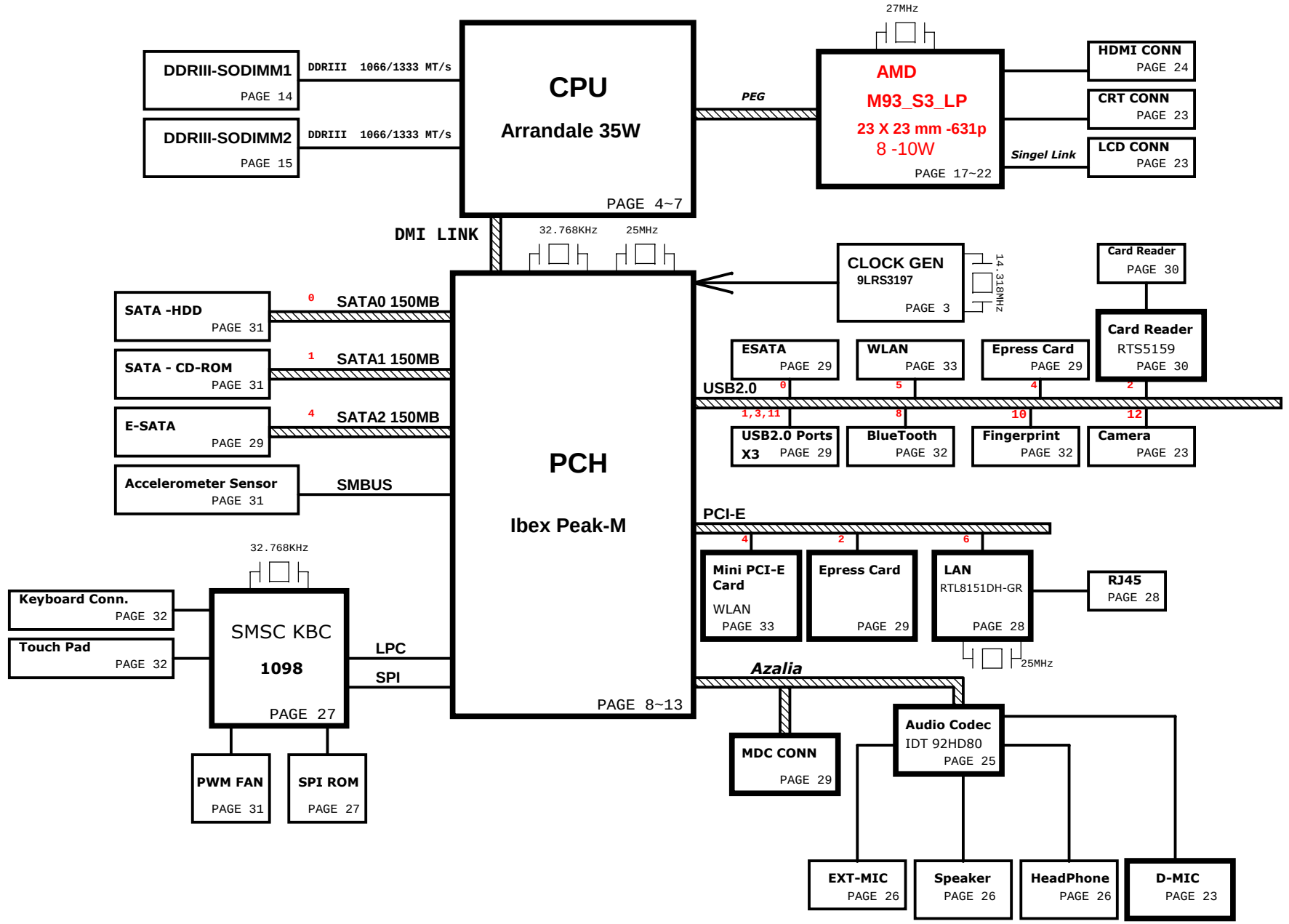
Hamilton 1.0 (SX6-DIS) BLOCK DIAGRAM

01

PCB STACK UP
8L Dis.

LAYER 1 : TOP
LAYER 2 : SGND
LAYER 3 : IN1
LAYER 4 : IN2
LAYER 5 : SVCC
LAYER 6 : IN3
LAYER 7 : SGND
LAYER 8 : BOT



NB5

PROJECT : SX6
Quanta Computer Inc.

Size	Document Number	Rev
Custom	BLOCK DIAGRAM	2B

Date: Tuesday, December 15, 2009 Sheet 1 of 43

power / State	+RTC_CELL	+VIN +3VPCU	+3VS5 +5VS5	+5VSUS +1.5VSUS	+5V +3V +1.8V_GFX +1.8V +1.5V +1.5V_CPU +1.1V_VTT +1.05V +1.0V_GFX +VGA_CORE +VCORE
S0	ON	ON	ON	ON	ON
S1	ON	ON	ON	ON	ON
S3	ON	ON	ON	ON	OFF
S4/S5 AC	ON	ON	ON	OFF	OFF
S4/S5 DC Only	ON	ON	OFF	OFF	OFF
AC/DC No Exist	ON	OFF	OFF	OFF	OFF

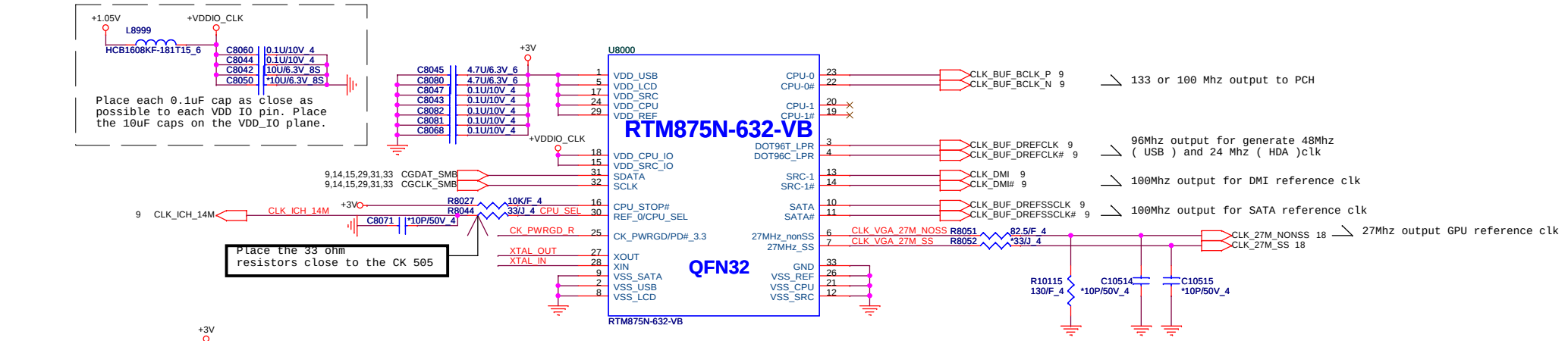
	SOURCE	BATTERY 0x16	CLK GEN 0xD2	Thermal IC 0x98(Write) / 0x99(Read)	G-SENSOR 0x3A(Write) /0x3B(Read)	WLAN	SO-DIMM DIMM0: 0xA0 DIMM1: 0xA2	SMSC 1098	GPU thermal sensor
SMBCLK SMBDATA	PCH	X	Y	Y	Y	Y	Y	X	X
SMB_CLK_ME1 SMB_DAT_ME1	PCH	X	X	X	X	X	X	Y	Y
AB1A_CLK AB1A_DATA	SMSC 1098	Y	X	X	X	X	X	X	X

NB5

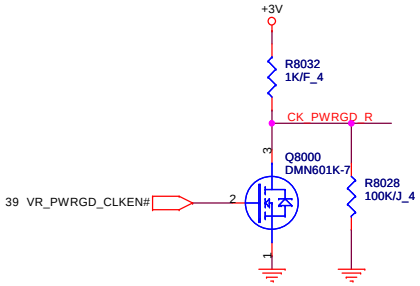
PROJECT : SX6
Quanta Computer Inc.

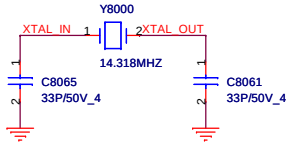
Size	Document Number	Rev
Custom	power rails	2B

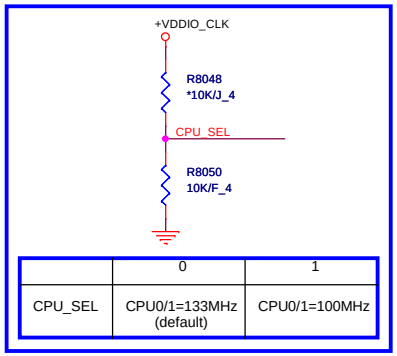
Date: Tuesday, December 15, 2009 | Sheet 2 of 43



AL000875002IC OTHER(32P) RTM875N-632-VB-GRT(QFN)RealteK
AL8SP585000IC OTHER(32P)SLG8SP585VTR(QFN)Silego







	0	1
CPU_SEL	CPU0/1=133MHz (default)	CPU0/1=100MHz

4,8,9,10,11,12,14,15,16,20,23,25,27,28,29,30,31,32,33,34,35,37,39,42 +3V

NB5

PROJECT : SX6
Quanta Computer Inc.

Size	Document Number	Rev
Custom	CLOCK GEN (9LRS3197)	2B
Date: Tuesday, December 15, 2009	Sheet 3 of 43	

U8009A

DMI_TXN0 10 — A24 DMI_RX#[0]
DMI_TXN1 10 — C23 DMI_RX#[1]
DMI_TXN2 10 — B22 DMI_RX#[2]
DMI_TXN3 10 — A21 DMI_RX#[3]

DMI_TXP0 10 — B24 DMI_RX[0]
DMI_TXP1 10 — D23 DMI_RX[1]
DMI_TXP2 10 — B23 DMI_RX[2]
DMI_TXP3 10 — A22 DMI_RX[3]

DMI_RXN0 10 — D24 DMI_TX#[0]
DMI_RXN1 10 — G24 DMI_TX#[1]
DMI_RXN2 10 — F23 DMI_TX#[2]
DMI_RXN3 10 — H23 DMI_TX#[3]

DMI_RXP0 10 — D25 DMI_TX[0]
DMI_RXP1 10 — F24 DMI_TX[1]
DMI_RXP2 10 — E23 DMI_TX[2]
DMI_RXP3 10 — G23 DMI_TX[3]

DMI

E22 FDI_TX#[0]
D21 FDI_TX#[1]
D19 FDI_TX#[2]
D18 FDI_TX#[3]
G21 FDI_TX#[4]
E19 FDI_TX#[5]
F21 FDI_TX#[6]
G18 FDI_TX#[7]

D22 FDI_TX[0]
C21 FDI_TX[1]
D20 FDI_TX[2]
C18 FDI_TX[3]
G22 FDI_TX[4]
E20 FDI_TX[5]
F20 FDI_TX[6]
G19 FDI_TX[7]

C_FDI_SYNC F17 FDI_FSYNC[0]
C_FDI_SYNC E17 FDI_FSYNC[1]
R8015 1K/F_4 C_FDI_INT C17 FDI_INT
C_FDI_SYNC F18
R8012 1K/F_4 C_FDI_SYNC D17 FDI_LSYNC[0]
FDI_LSYNC[1]

FDI_FSYNC can gang all these 4 signals together and tie them with only one 1K resistor to GND (Check list 1.0).

Intel(R) FDI

PCI EXPRESS -- GRAPHICS

PEG_ICOMPI
PEG_ICOMPO
PEG_RCOMPO
PEG_RBIAS
B26 PEG_COMP R8186 49.9/F_4
A26
B27
A25 PEG_RBIAS R8187 750/F_4

PEG_RX#[0..15] 17

K35 PEG_RX#0 — PEG_RX#[0]
J34 PEG_RX#1 — PEG_RX#[1]
J33 PEG_RX#2 — PEG_RX#[2]
G35 PEG_RX#3 — PEG_RX#[3]
G32 PEG_RX#4 — PEG_RX#[4]
F34 PEG_RX#5 — PEG_RX#[5]
F31 PEG_RX#6 — PEG_RX#[6]
D35 PEG_RX#7 — PEG_RX#[7]
E33 PEG_RX#8 — PEG_RX#[8]
C33 PEG_RX#9 — PEG_RX#[9]
D32 PEG_RX#10 — PEG_RX#[10]
B32 PEG_RX#11 — PEG_RX#[11]
C31 PEG_RX#12 — PEG_RX#[12]
B28 PEG_RX#13 — PEG_RX#[13]
B30 PEG_RX#14 — PEG_RX#[14]
A31 PEG_RX#15 — PEG_RX#[15]

J35 PEG_RX0 — PEG_RX[0]
H34 PEG_RX1 — PEG_RX[1]
H33 PEG_RX2 — PEG_RX[2]
E35 PEG_RX3 — PEG_RX[3]
G33 PEG_RX4 — PEG_RX[4]
E34 PEG_RX5 — PEG_RX[5]
F32 PEG_RX6 — PEG_RX[6]
D34 PEG_RX7 — PEG_RX[7]
F33 PEG_RX8 — PEG_RX[8]
B33 PEG_RX9 — PEG_RX[9]
D31 PEG_RX10 — PEG_RX[10]
A32 PEG_RX11 — PEG_RX[11]
C30 PEG_RX12 — PEG_RX[12]
A28 PEG_RX13 — PEG_RX[13]
B29 PEG_RX14 — PEG_RX[14]
A30 PEG_RX15 — PEG_RX[15]

10 PM_DRAM_PWRGD — PM_DRAM_PWRGD R10153 0/J_4 DRAM_PWRGD_CPU AK13
PEG_RX[0..15] 17

L33 C_PEG_TX#0 C8225 0.1U/10V_4 PEG_TX#0 — PEG_TX#[0]
M35 C_PEG_TX#1 C8222 0.1U/10V_4 PEG_TX#1 — PEG_TX#[1]
M33 C_PEG_TX#2 C8218 0.1U/10V_4 PEG_TX#2 — PEG_TX#[2]
M30 C_PEG_TX#3 C8219 0.1U/10V_4 PEG_TX#3 — PEG_TX#[3]
L31 C_PEG_TX#4 C8203 0.1U/10V_4 PEG_TX#4 — PEG_TX#[4]
K32 C_PEG_TX#5 C8208 0.1U/10V_4 PEG_TX#5 — PEG_TX#[5]
M29 C_PEG_TX#6 C8201 0.1U/10V_4 PEG_TX#6 — PEG_TX#[6]
J31 C_PEG_TX#7 C8202 0.1U/10V_4 PEG_TX#7 — PEG_TX#[7]
K29 C_PEG_TX#8 C8197 0.1U/10V_4 PEG_TX#8 — PEG_TX#[8]
H30 C_PEG_TX#9 C8196 0.1U/10V_4 PEG_TX#9 — PEG_TX#[9]
H29 C_PEG_TX#10 C8192 0.1U/10V_4 PEG_TX#10 — PEG_TX#[10]
F29 C_PEG_TX#11 C8189 0.1U/10V_4 PEG_TX#11 — PEG_TX#[11]
E28 C_PEG_TX#12 C8193 0.1U/10V_4 PEG_TX#12 — PEG_TX#[12]
D29 C_PEG_TX#13 C8188 0.1U/10V_4 PEG_TX#13 — PEG_TX#[13]
D27 C_PEG_TX#14 C8181 0.1U/10V_4 PEG_TX#14 — PEG_TX#[14]
C26 C_PEG_TX#15 C8183 0.1U/10V_4 PEG_TX#15 — PEG_TX#[15]

PEG_TX#[0..15] 17

L34 C_PEG_TX0 C8223 0.1U/10V_4 PEG_TX0 — PEG_TX[0]
M34 C_PEG_TX1 C8220 0.1U/10V_4 PEG_TX1 — PEG_TX[1]
M32 C_PEG_TX2 C8209 0.1U/10V_4 PEG_TX2 — PEG_TX[2]
L30 C_PEG_TX3 C8217 0.1U/10V_4 PEG_TX3 — PEG_TX[3]
M31 C_PEG_TX4 C8206 0.1U/10V_4 PEG_TX4 — PEG_TX[4]
K31 C_PEG_TX5 C8205 0.1U/10V_4 PEG_TX5 — PEG_TX[5]
M28 C_PEG_TX6 C8198 0.1U/10V_4 PEG_TX6 — PEG_TX[6]
H31 C_PEG_TX7 C8200 0.1U/10V_4 PEG_TX7 — PEG_TX[7]
K28 C_PEG_TX8 C8195 0.1U/10V_4 PEG_TX8 — PEG_TX[8]
G30 C_PEG_TX9 C8194 0.1U/10V_4 PEG_TX9 — PEG_TX[9]
G29 C_PEG_TX10 C8190 0.1U/10V_4 PEG_TX10 — PEG_TX[10]
F28 C_PEG_TX11 C8185 0.1U/10V_4 PEG_TX11 — PEG_TX[11]
E27 C_PEG_TX12 C8191 0.1U/10V_4 PEG_TX12 — PEG_TX[12]
D28 C_PEG_TX13 C8184 0.1U/10V_4 PEG_TX13 — PEG_TX[13]
C27 C_PEG_TX14 C8179 0.1U/10V_4 PEG_TX14 — PEG_TX[14]
C25 C_PEG_TX15 C8180 0.1U/10V_4 PEG_TX15 — PEG_TX[15]

IC,AUB_CFD_rPGA,R1P0

U8009B

R8150 20/F_4 H_COMP3 AT23 COMP3
R8148 20/F_4 H_COMP2 AT24 COMP2
R8011 49.9/F_4 H_COMP1 G16 COMP1
R8149 49.9/F_4 H_COMP0 AT26 COMP0
AH24 SKTOCC#

MISC

H_CATERR# AK14 CATERR#
11 H_PECI AT15 PECI
31,39 H_PROCHOT# AN26 PROCHOT#
11,31 PM_THRMTRIP# AK15 THERMTRIP#

THERMAL

34 H_CPURST# AP26 RESET_OBS#
10 PM_SYNC AL15 PM_SYNC
11,34 H_PWRGOOD AN14 VCCPWRGOOD_1
AN27 VCCPWRGOOD_0
SM_DRAMPWROK

34 H_PWRGD_XDP AM26 TAPPWRGOOD
H_VTTPWRGD AM15 VTTPWRGOOD
9,16,17,27,28,29,33,34 PLTRST# R8137 1.5K/F_4 CPU_PLTRST# AL14 RSTIN#
R8138 750/F_4

PWR MANAGEMENT

34 XDP_OBS[0:7]
XDP_OBS0 AJ22 BPM#[0]
XDP_OBS1 AK22 BPM#[1]
XDP_OBS2 AK24 BPM#[2]
XDP_OBS3 AJ24 BPM#[3]
XDP_OBS4 AJ25 BPM#[4]
XDP_OBS5 AH22 BPM#[5]
XDP_OBS6 AK23 BPM#[6]
XDP_OBS7 AH23 BPM#[7]

JTAG & BPM

IC,AUB_CFD_rPGA,R1P0

BCLK A16 CLK_CPU_BCLK 11
BCLK# B16 CLK_CPU_BCLK# 11
BCLK_ITP AR30 BCLK_ITP_P 34
BCLK_ITP# AT30 BCLK_ITP_N 34 For ITP CLK

CLOCKS

PEG_CLK E16 CLK_PCIE_3GPLL 9
PEG_CLK# D16 CLK_PCIE_3GPLL# 9
DPLL_REF_SSCLK A18
DPLL_REF_SSCLK# A17

SM_DRAMRST# F6 CPU_DRAMRST#

DDR3 MISC

SM_RCOMP[0] AL1 SM_RCOMP_0 R8124 100/F_4
SM_RCOMP[1] AM1 SM_RCOMP_1 R8127 24.9/F_4
SM_RCOMP[2] AN1 SM_RCOMP_2 R8218 130/F_4
R8155 10K/F_4
PM_EXT_TS#[0] AN15 PM_EXT_TS#0 R8156 *0/short_4 +1.1V_VTT
PM_EXT_TS#[1] AP15 PM_EXT_TS#1 R8147 *0/short_4 PM_EXTTS#0 14
R8154 10K/F_4 PM_EXTTS#1 15 +1.1V_VTT

PRDY# AT28 XDP_PRDY# 34
PREQ# AP27 XDP_PREQ# 34
TCK AN28 XDP_TCLK 34 T8999
TMS AP28 XDP_TMS 34 T8003
TRST# AT27 XDP_TRST# 34 T8008
TDI AT29 XDP_TDI_R T8007
TDO AR27 XDP_TDO_R T8005
TDI_M AR29 XDP_TDI_M T8006
TDO_M AP29 XDP_TDO_M T8004
DBR# AN25 XDP_DBRESET# 10,34

+1.1V_VTT

XDP_TDO R8173 51/J_4
H_CATERR# R8109 49.9/F_4
H_PROCHOT# R8153 68/J_4
CPU_PLTRST# R8140 *68/J_4
XDP_TMS R8165 *51/J_4
XDP_TDI_R R8175 *51/J_4
XDP_PREQ# R8167 *51/J_4
XDP_TCLK R8159 *51/J_4

+3V

U8006
MC74VHC1G08DFT2G
23,27,34,35,39 PWRGD
R8146 2K/F_4 H_VTTPWRGD
R8145 1K/F_4

JTAG MAPPING

XDP_TDI_R R8170 0/J_4
XDP_TDI_M R8164 *0/J_4
XDP_TDI 34
R8162 0/J_4
XDP_TDO_M R8161 *0/J_4
XDP_TDO_R R8166 0/J_4
XDP_TDO 34
XDP_TRST# R8174 51/J_4

Scan Chain (Default)	STUFF -> R97, R89, R90 NO STUFF -> R84, R512
CPU Only	STUFF -> R97, R84 NO STUFF -> R89, R512, R90
GMCH Only	STUFF -> R512, R90 NO STUFF -> R97, R84, R89

For S3 leakage issue

+1.5VSUS
R10130 1K/F_4
DDR3_DRAMRST# 14,15
Q9087 DMN601K-7
11 DDR3_RST — DDR3_RST
R10157 *0/J_4
35,40 +1.1V_VTT_PDK
MV modified for Intel comment
C10627 0.047U/25V_6
CPU_DRAMRST#
R10131 100K/F_4

+3VS5
R10155 10K/F_4
R10154 8.25K/F_4
U9059 MC74VHC1G08DFT2G
+1.5V_CPU
R8136 *1.1K/F_4
R10156 1.5K/F_4 DRAM_PWRGD_CPU
R8130 750/F_4

6,11,12,31,34,39,40 +1.1V_VTT
14,15,40,42,43 +1.5VSUS
3,8,9,10,11,12,14,15,16,20,23,25,27,28,29,30,31,32,33,34,35,37,39,42 +3V

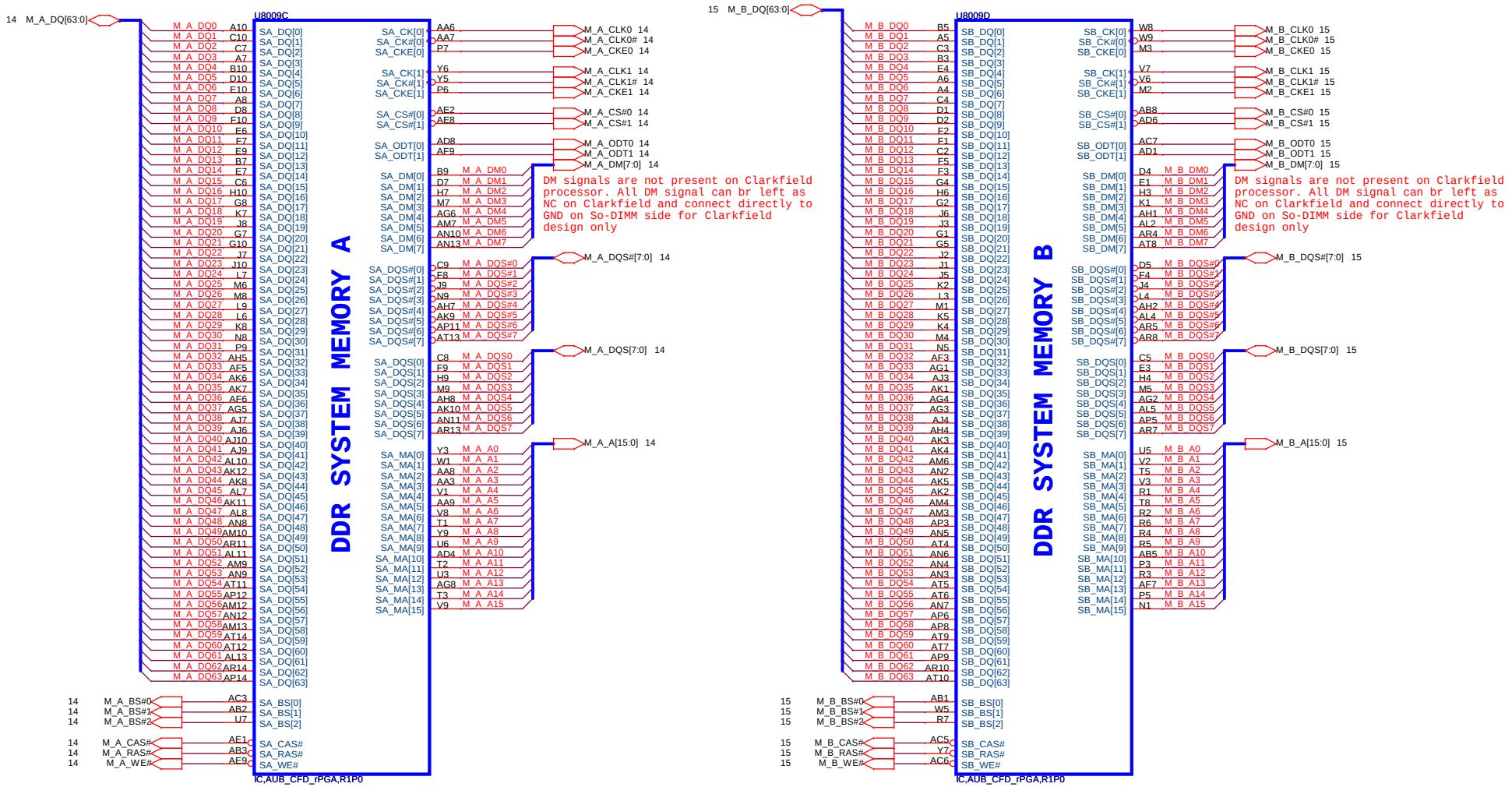
NB5

PROJECT : SX6
Quanta Computer Inc.

Size	Document Number	Rev
Custom	PROCESSER 1/4(HOST&PEX)	2B

Date: Tuesday, December 22, 2009 Sheet 4 of 43

AUBURNDALE/CLARKSFIELD PROCESSOR (DDR3)

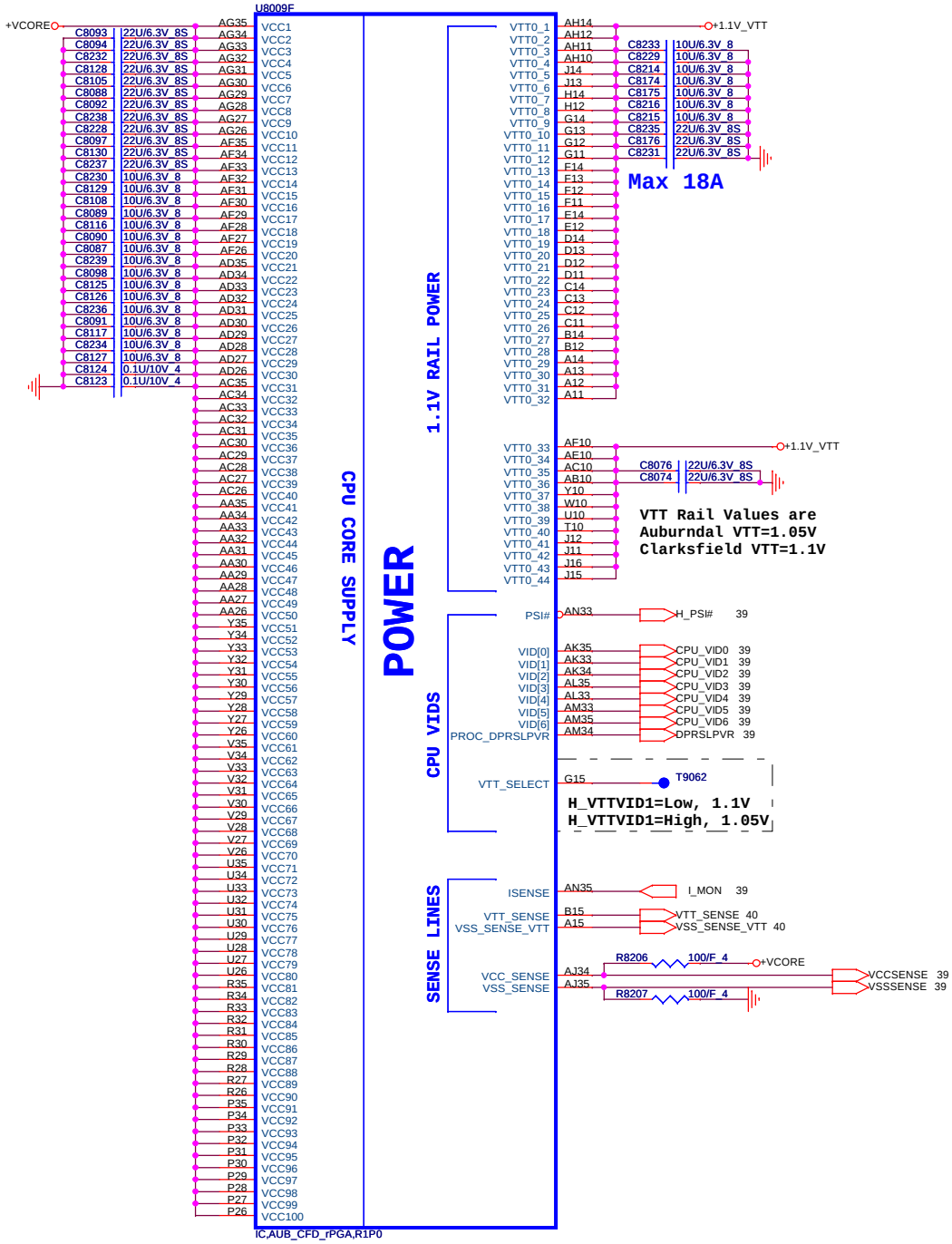


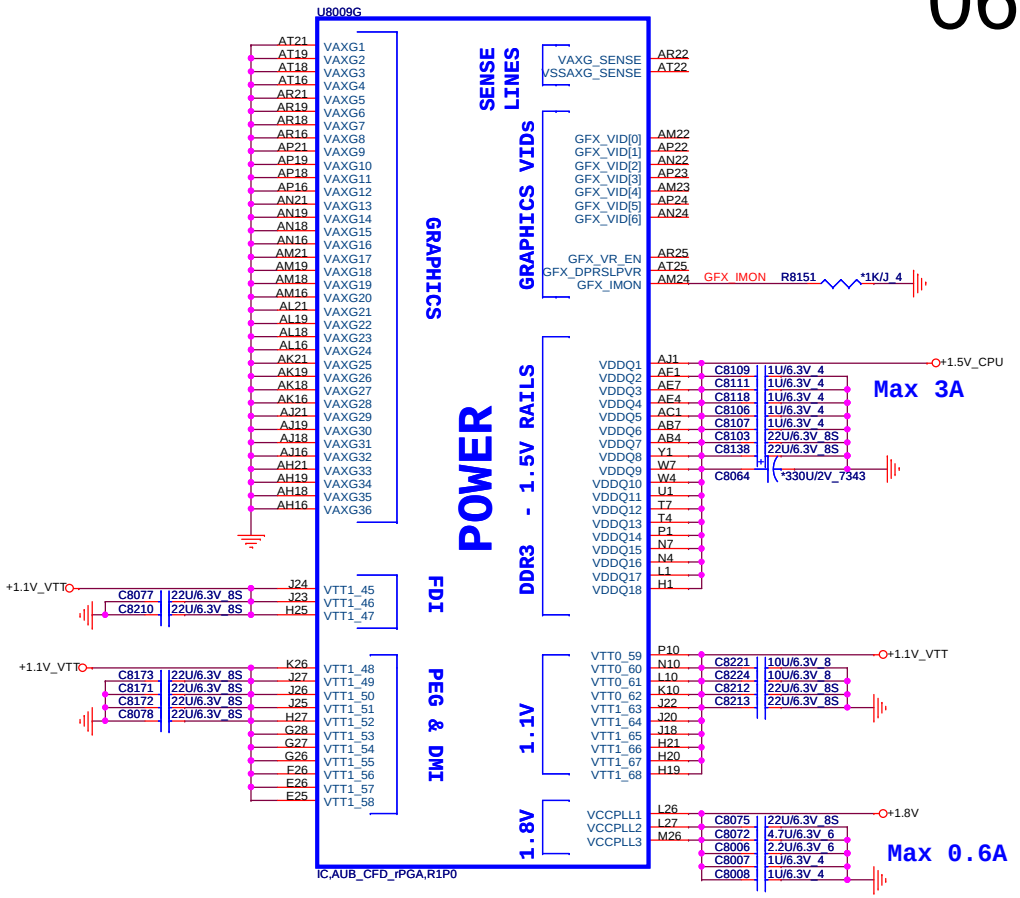
PROJECT : SX6
Quanta Computer Inc.

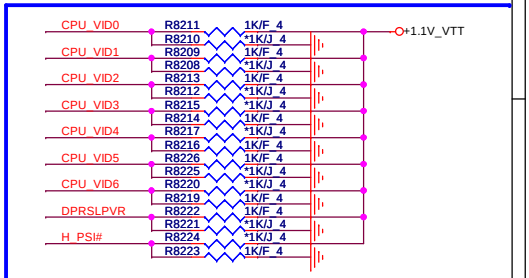
NB5

Size	Document Number	Rev
Custom	PROCESSER 2/4(DDR)	2B

Date: Tuesday, December 15, 2009 Sheet 5 of 43







39 +VCORE
4,11,12,31,34,39,40 +1.1V_VTT
4,14,15,40,42,43 +1.5VSUS
11,12,41,42 +1.8V

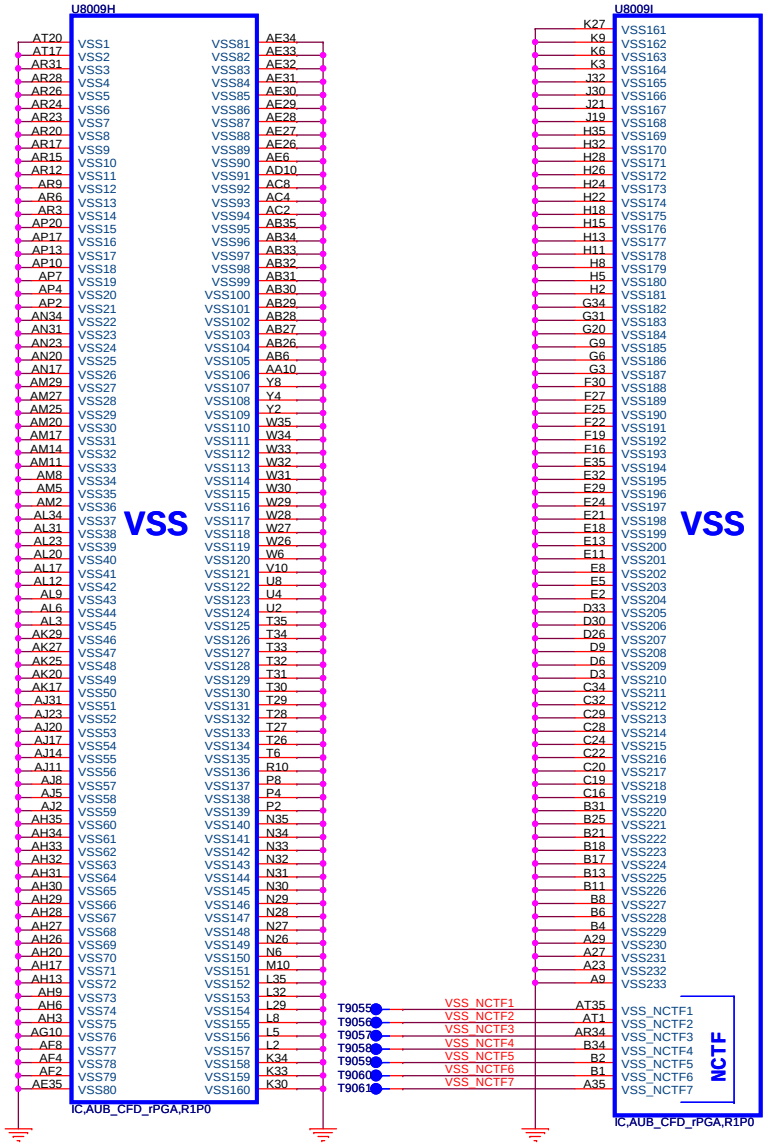
NB5

PROJECT : SX6
Quanta Computer Inc.

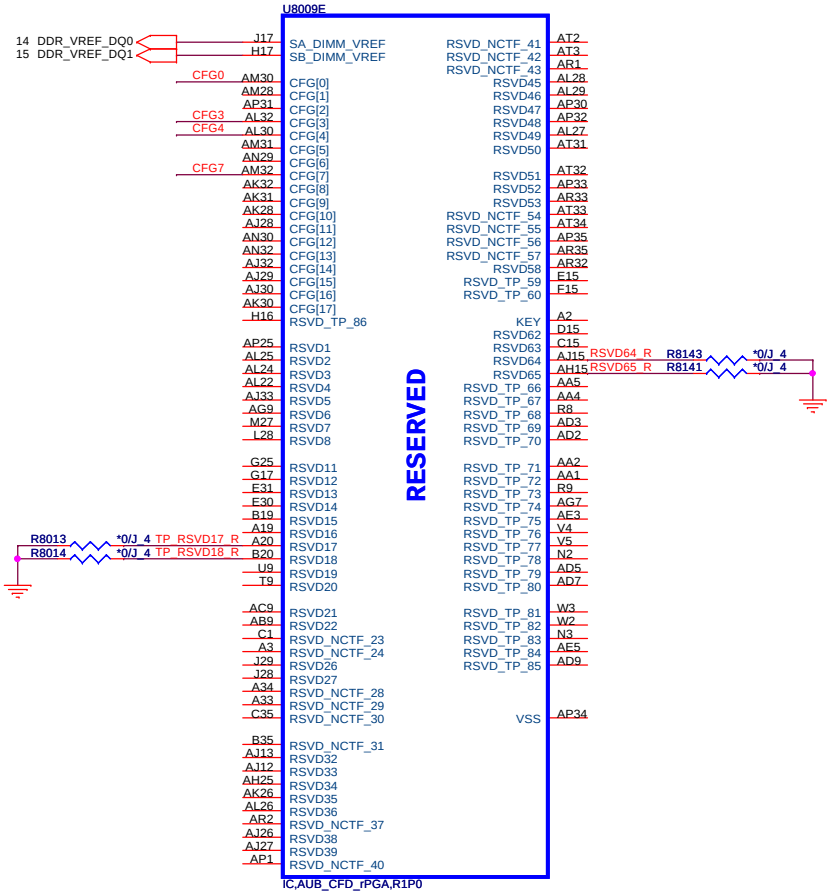
Size	Document Number	Rev
Custom	PROCESSER 3/4(POWER)	2B

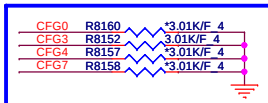
Date: Wednesday, December 16, 2009 Sheet 6 of 43

AUBURNDALE/CLARKSFIELD PROCESSOR (GND)



AUBURNDALE/CLARKSFIELD PROCESSOR(RESERVED, CFG)





CFG[1:0] - PCI_Epress Configuration Select
*** 11= 1 x 16 PEG**
*** 10= 2 x 8 PEG**

	1	0
CFG4 (Display Port Presence)	Disabled; No Physical Display Port attached to Embedded Diplay Port	Enabled; An external Display port device is connected to the Embedded Display port
CFG0 (PCI-Epress Configuration Select)	Single PEG	Bifurcation enabled
CFG3 (PCI-Epress Static Lane Reversal)	Normal Operation	Lane Numbers Reversed 15 -> 0 , 14 -> 1

The Clarkfield processor's PCI Express interface may not meet PCI Express 2.0 jitter specifications. Intel recommends placing a 3.01K +/- 5% pull down resistor to VSS on CFG[7] pin for both rPGA and BGA components. This pull down resistor should be removed when this issue is fixed.

NB5

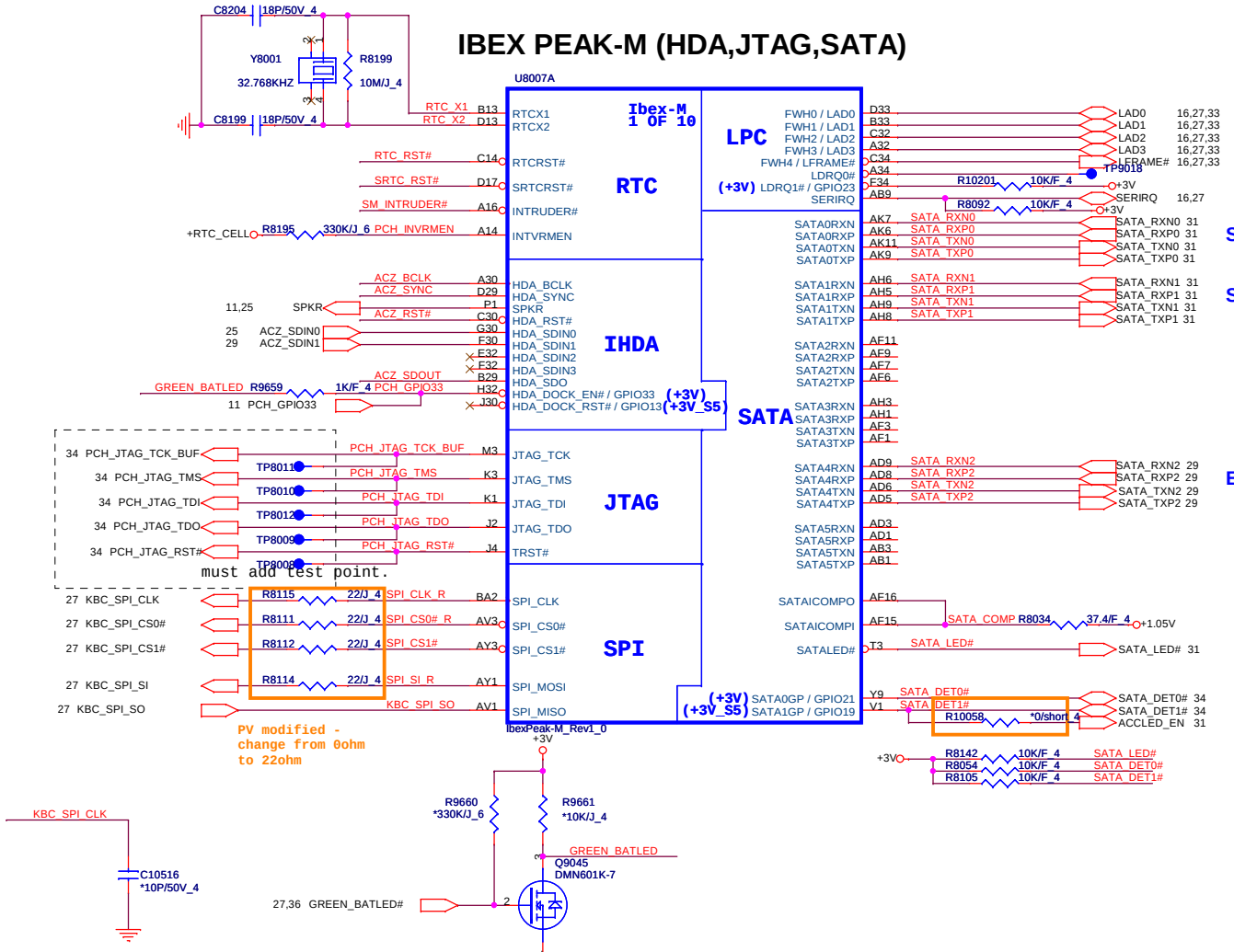
PROJECT : SX6
Quanta Computer Inc.

Size	Document Number	Rev
Custom	PROCESSER 4/4(GND)	2B

Date: Tuesday, December 15, 2009 | Sheet 7 of 43

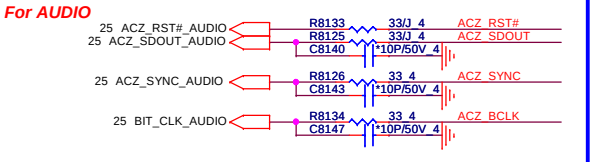
INTVRMEN - Integrated SUS 1.1V VRM Enable
High - Enable Internal VRs

IBEX PEAK-M (HDA,JTAG,SATA)

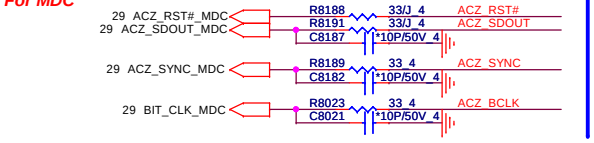


IBEX PEAK-M (LVDS,DDI)

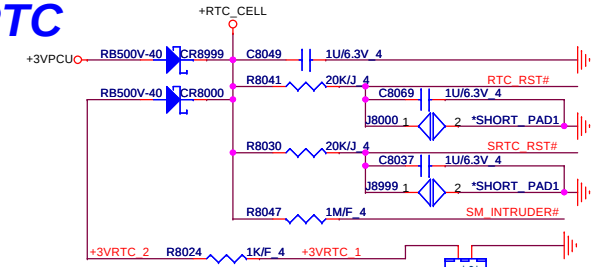
For AUDIO



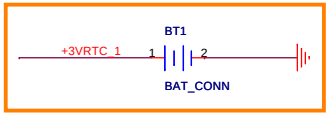
For MDC



RTC



PV modified -



CN7042
DFWF02MS022
SI change p/n
*85205-0200L

3,9,10,12,34,39,41 +1.05V
3,4,9,10,11,12,14,15,16,20,23,25,27,28,29,30,31,32,33,34,35,37,39,42 +3V
10,23,25,27,31,32,36,37,38 +3VPCU

NB5	PROJECT : SX6 Quanta Computer Inc.	
Size: Custom	Document Number: PCH 2/6 (SATA,HDA,LPC)	Rev: 2B
Date: Tuesday, December 15, 2009	Sheet 8 of 43	

IBEX PEAK-M (PCI-E,SMBUS,CLK)

09

U8007B

Ibex-M
2 OF 10

PCI-E*

SMBus

Controller Link

PEG

From CLK BUFFER

Clock Flex

[Epress Card]

[WLAN]

[PCIE_LAN]

New Card

WLAN

PCIE_RXN2 PCIE_RXP2 PCIE_TXN2 PCIE_TXP2 — C8010 0.1U/10V_4 PCIE_TXN2_C, C8016 0.1U/10V_4 PCIE_TXP2_C

PCIE_RXN4 PCIE_RXP4 PCIE_TXN4 PCIE_TXP4 — C8041 0.1U/10V_4 PCIE_TXN4_C, C8034 0.1U/10V_4 PCIE_TXP4_C

PCIE_RXN6 PCIE_RXP6 PCIE_TXN6 PCIE_TXP6 — C8004 0.1U/10V_4 PCIE_TXN6_C, C8009 0.1U/10V_4 PCIE_TXP6_C

CLK1_OE# — R8083 *0/short_4 — CLK2_OE#

PCIE_CLK_REQ0# PCIE_CLK_REQ2# PCIE_CLK_REQ3# PCIE_CLK_REQ4# PCIE_CLK_REQ5# PCIE_CLK_REQB#

CLK_PCIE_NEW# CLK_PCIE_NEW CLK_PCIE_WLAN# CLK_PCIE_WLAN

R8073 *0/short_4

SMBALERT# / GPIO11
SMBCLK
SMBDATA
SML0ALERT# / GPIO60
SML0CLK
SML0DATA
SML1ALERT# / GPIO74
SML1CLK / GPIO58
SML1DATA / GPIO75

CL_CLK1 CL_DATA1 CL_RST1#

PEG_A_CLKRQ# / GPIO47
CLKOUT_PEG_A_N CLKOUT_PEG_A_P CLKOUT_DMI_N CLKOUT_DMI_P

CLKOUT_DP_N / CLKOUT_BCLK1_N
CLKOUT_DP_P / CLKOUT_BCLK1_P

CLKIN_DMI_N CLKIN_DMI_P
CLKIN_BCLK_N CLKIN_BCLK_P
CLKIN_DOT_96N CLKIN_DOT_96P
CLKIN_SATA_N / CKSSCD_N
CLKIN_SATA_P / CKSSCD_P
REFCLK14IN
CLKIN_PCILOOPBACK

XTAL25_IN XTAL25_OUT XCLK_RCOMP — R8010 90.9/F_4 — +1.05V

PCIECLKRQ0# / GPIO73 (+3V_S5)
PCIECLKRQ1# / GPIO18 (+3V)
PCIECLKRQ2# / GPIO20 (+3V)
PCIECLKRQ3# / GPIO25 (+3V_S5)
PCIECLKRQ4# / GPIO26 (+3V_S5)
PCIECLKRQ5# / GPIO44 (+3V_S5)
PEG_B_CLKRQ# / GPIO56 (+3V_S5)

CLKOUTFLEX0 / GPIO64
CLKOUTFLEX1 / GPIO65
CLKOUTFLEX2 / GPIO66
CLKOUTFLEX3 / GPIO67

CLK_FLEX0 CLK_FLEX1 CLK_FLEX2 CLK_FLEX3 — R9663 33_4 — CLK_48M_CR 30

CLK_48M_CR — C10517 *10P/50V_4

R10132 100K/J_4 +3VS5

D9022 *SDMK0340L-7-F — LID_SW# 23,27,31

CLK1_OE# R8081 10K/F_4
CLK2_OE# R8082 10K/F_4

PCIE_CLK_REQ0# R8045 10K/F_4
PCIE_CLK_REQ3# R8064 10K/F_4
PCIE_CLK_REQ4#_R R8074 10K/F_4
PCIE_CLK_REQB# R8029 10K/F_4
PCIE_CLK_REQ5# R8099 10K/F_4
PEG_CLKREQ# R8097 10K/F_4

SMBALERT# R8042 2.2K/J_4
SMBCLK R8086 2.2K/J_4
SMBDATA R8035 10K/F_4
SML0ALERT# R8101 2.2K/J_4
SML_CLK_ME0 R8062 2.2K/J_4
SML_DATA_ME0 R8031 10K/F_4
SML1ALERT# R8061 4.7K/F_4
SML_CLK_ME1 R8046 4.7K/F_4
SML_DATA_ME1

T9048 T9049 T9050

18,27 MBCLK2 — Q8004 DMN601K-7 — SMB_CLK_ME1
18,27 MBDATA2 — Q8005 DMN601K-7 — SMB_DATA_ME1

CLK_PCIE_VGA# 17
CLK_PCIE_VGA 17
CLK_PCIE_3GPLL# 4
CLK_PCIE_3GPLL 4

CLK_DMI# 3
CLK_DMI 3

CLK_BUF_BCLK_N 3
CLK_BUF_BCLK_P 3

CLK_BUF_DREFCLK# 3
CLK_BUF_DREFCLK 3

CLK_BUF_DREFSSCLK# 3
CLK_BUF_DREFSSCLK 3

CLK_ICH_14M 3

CLK_PCI_FB — CLK_PCI_FB 10

T8000 T8002 T9051

U8003 *MC74VHC1G08DFT2G — C8139 *0.1U/10V_4

10 PLT_RST-R# — PLT_RST-R# — PLTRST# 4,16,17,27,28,29,33,34

R8108 100K/F_4 — R8121 *100K/F_4 — R8122 *0/short_4

PV modified - change from 0ohm to short pad

Q8003 DMN601K-7 — 34 SMBDATA — SMBDATA — CGDAT_SMB 3,14,15,29,31,33

R8120 4.7K/F_4

+3VO

R8107 4.7K/F_4

Q8001 DMN601K-7 — 34 SMBCLK — SMBCLK — CGCLK_SMB 3,14,15,29,31,33

Intel suggest 25MHz X'tal can be removed in POR 3/16

XTAL25_IN — C8168 *18P/50V_4 — R8183 *1M/F_4 — Y8999 *25MHZ — XTAL25_OUT — C8167 *18P/50V_4

3,8,10,12,34,39,41 +1.05V

3,4,8,10,11,12,14,15,16,20,23,25,27,28,29,30,31,32,33,34,35,37,39,42 +3V

IbexPeak-M_Rev1_0

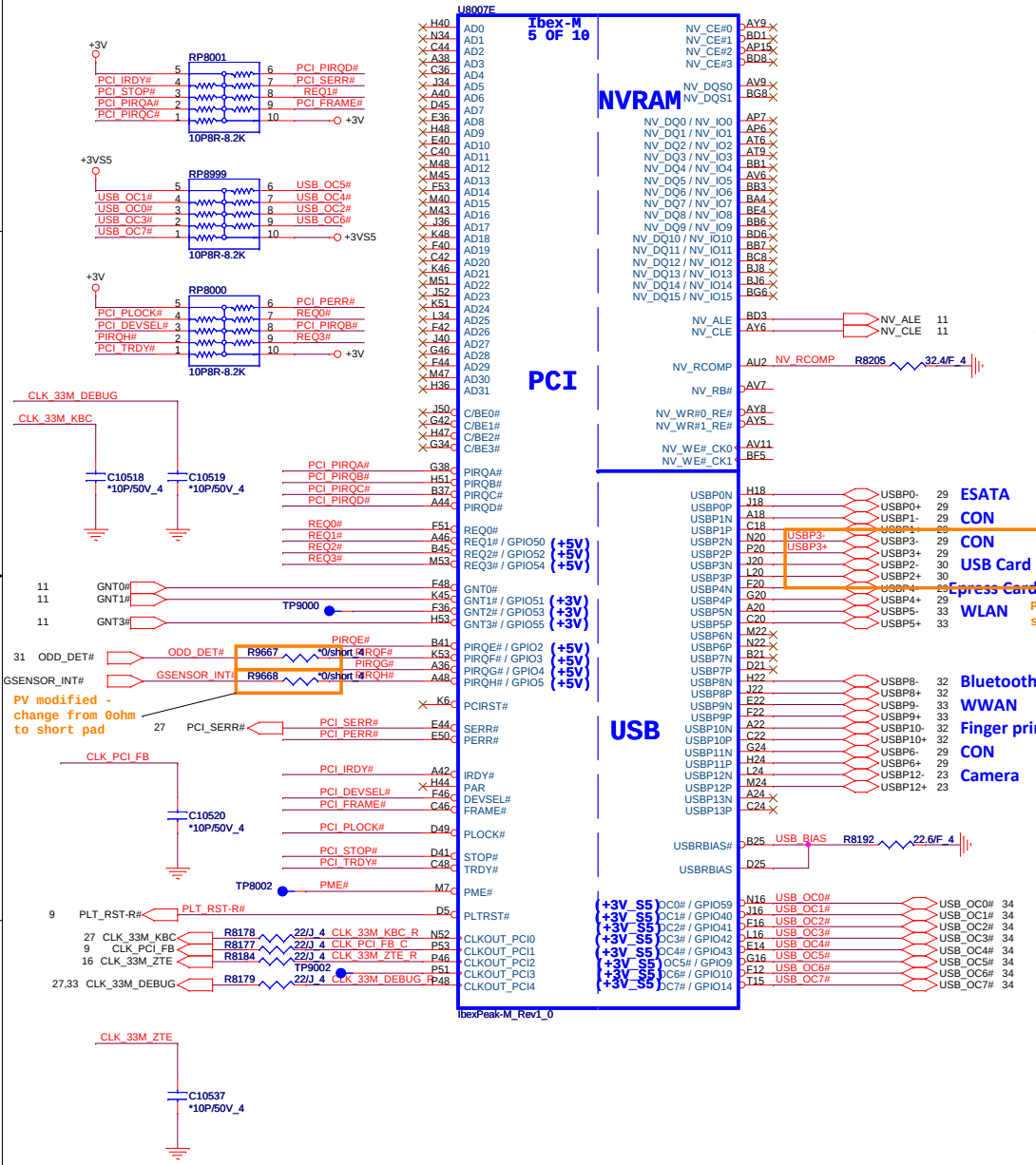
NB5

PROJECT : SX6
Quanta Computer Inc.

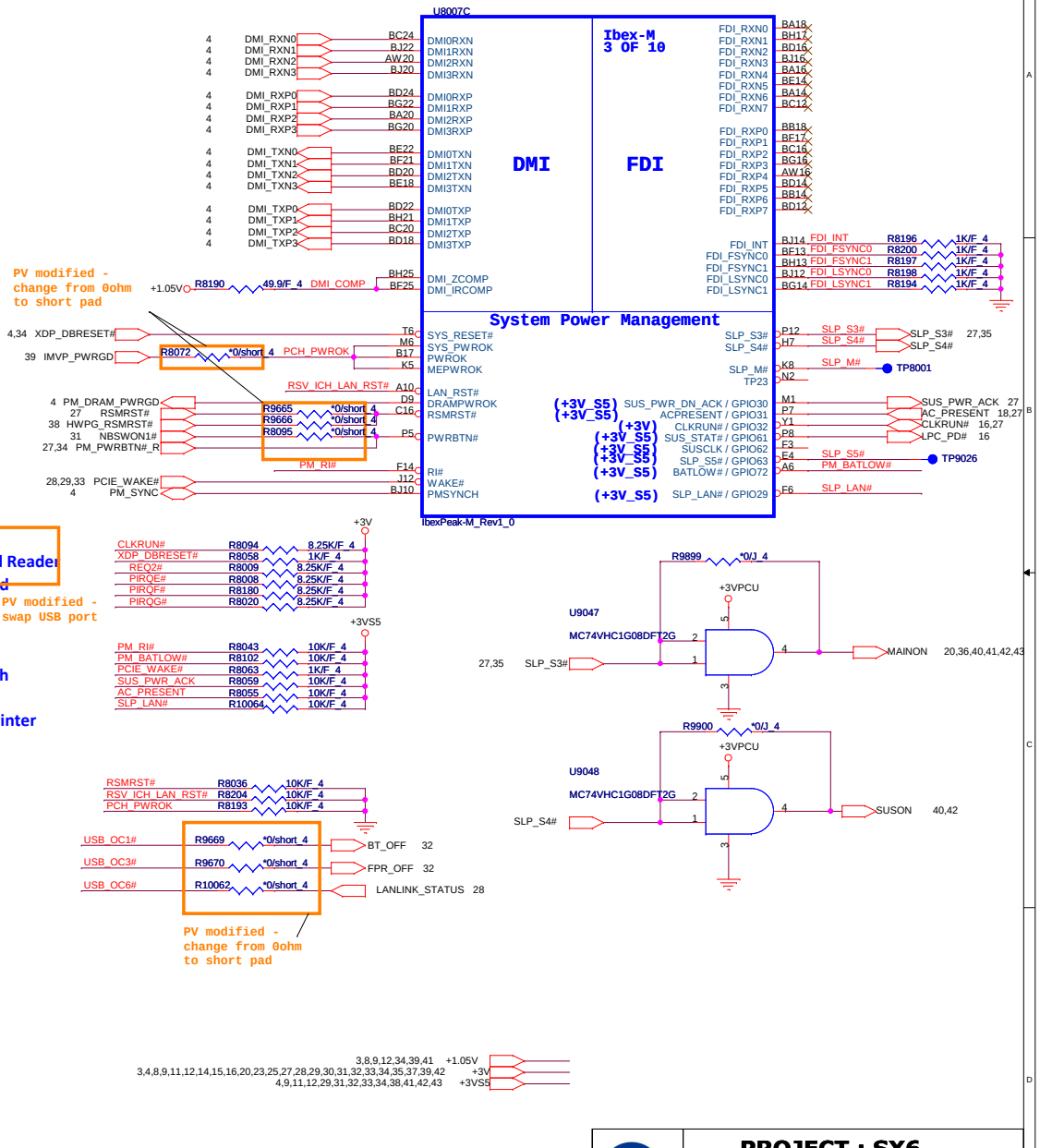
Size	Document Number	Rev
Custom	PCH 3/6 (PCI,ONFI,USB,CK)	2B

Date: Tuesday, December 15, 2009 | Sheet 9 of 43

IBEX PEAK-M (PCI,USB,NVRAM)



IBEX PEAK-M (DMI,FDI,GPIO)



IBEX PEAK-M (GPIO,VSS_NCTF,RSVD)

U8007F

Ibex-M
6 OF 10

GPIO MISC

BMBUSY# / GPIO0 (+3V)
TACH1 / GPIO1 (+3V)
TACH2 / GPIO6 (+3V)
TACH3 / GPIO7 (+3V)
GPIO8 (+3V_S5)
LAN_PHY_PWR_CTRL / GPIO12 (+3V_S5)
GPIO15 (+3V_S5)
SATA4GP / GPIO16 (+3V)
TACH0 / GPIO17 (+3V)
SCLOCK / GPIO22 (+3V)
GPIO27 (+3V_S5)
GPIO28 (+3V_S5)
SATA2GP / GPIO36 (+3V)
SATA3GP / GPIO37 (+3V)
SDATAOUT0 / GPIO39 (+3V)
PCIECLKRQ7# / GPIO46 (+3V_S5)
SDATAOUT1 / GPIO48 (+3V)
SATA5GP / GPIO49 (+3V)
GPIO24 (+3V_S5)
PCIECLKRQ6# / GPIO45 (+3V_S5)
GPIO57 (+3V_S5)
STP_PCI# / GPIO34 (+3V)
SATACLKREQ# / GPIO33 (+3V)
SLOAD / GPIO38 (+3V)

34 BMBUSY# — Y3
37 OCP# — C38
27 SIO_EXT_SCI# — SIO_EXT_SCI# — D37
31 THERM_SCI# — THERM_SCI# — J32
4 DDR3_RST — DDR3_RST — F10
28 CB_IN# — R8075 *0_4 — LAN_CABLE_DET# — K9
PCH_GPIO15 — T7
34 SATA4GP — SATA4GP — AA2
PCH_GPIO17 — F38
33 WWAN_DET# — WWAN_DET# — Y7
33 WWAN_OFF# — WWAN_OFF# — AB12
28,34 LAN_DIS# — LAN_DIS# — V13
34 SATA2GP — SATA2GP — AB7
23,34 SATA3GP — SATA3GP — AB13
23,34 WEBCAM_OFF — DOCK_ID1 — P3
GPIO46 — F1
SV_SET_UP — AB6
34 SATA5GP — SATA5GP — AA4
GPIO24 — H10
28 PCIE_LAN_CLK_REQ# — PCIE_LAN_CLK_REQ# — H3
33 WLAN_OFF# — WLAN_OFF# — F8
STP_PCI# — M11
SATACLKREQ# — V6
DOCK_ID0 — V3

CPU

CLKOUT_BCLK0_N/CLKOUT_PCIE8N — AM3 — CLK_CPU_BCLK# 4
CLKOUT_BCLK0_P/CLKOUT_PCIE8P — AM1 — CLK_CPU_BCLK 4
PECI — BG10 — PCH_PECI_R — R8201 *0/short_4 — H_PECI 4
RCIN# — T1 — KB_RST# 27
PROCPWRGD — BE10 — H_PWRGOOD 4,34
THRMTRIP# — BD10 — PCH_THRMTRIP#_R — R8037 56.2/F_4 — PM_THRMTRIP# 4,31
+1.1V_VTT — R8038 56.2/F_4

LAN

CLKOUT_PCIE6N — AH45 — CLK_PCIE_LAN# 28
CLKOUT_PCIE6P — AH46 — CLK_PCIE_LAN 28
CLKOUT_PCIE7N — AF48
CLKOUT_PCIE7P — AF47
A20GATE — U2 — GATEA20 27

RSVD

TP1 BA22
TP2 AW22
TP3 BB22
TP4 AY45
TP5 AY46
TP6 AV43
TP7 AV45
TP8 AF13
TP9 M18
TP10 N18
TP11 AJ24
TP12 AK41
TP13 AK42
TP14 M32
TP15 N32
TP16 M30
TP17 N30
TP18 H12
TP19 AA23
NC_1 AB45
NC_2 AB38
NC_3 AB42
NC_4 AB41
NC_5 T39
INIT3_3V# P6
TP24 C10

NCTF

VSS_NCTF_1 A4
VSS_NCTF_2 A49
VSS_NCTF_3 A5
VSS_NCTF_4 A50
VSS_NCTF_5 A52
VSS_NCTF_6 A53
VSS_NCTF_7 B2
VSS_NCTF_8 B4
VSS_NCTF_9 B52
VSS_NCTF_10 B53
VSS_NCTF_11 BE1
VSS_NCTF_12 BE53
VSS_NCTF_13 BF1
VSS_NCTF_14 BF53
VSS_NCTF_15 BH1
VSS_NCTF_16 BH2
VSS_NCTF_17 BH52
VSS_NCTF_18 BH53
VSS_NCTF_19 BJ1 — PCH_NCTF19
VSS_NCTF_20 BJ2
VSS_NCTF_21 BJ4
VSS_NCTF_22 BJ49
VSS_NCTF_23 BJ5
VSS_NCTF_24 BJ50
VSS_NCTF_25 BJ52
VSS_NCTF_26 BJ53 — PCH_NCTF26
VSS_NCTF_27 D1
VSS_NCTF_28 D2
VSS_NCTF_29 D53
VSS_NCTF_30 E1
VSS_NCTF_31 E53

PCH_NCTF6
PCH_NCTF7

IbexPeak-M_Rev1_0

PV modified - change from 0ohm to short pad

SATA2GP — R9674 *0/short_4 — NPCI_RST# 27

+3V
R9671 100K/F_4 — Q9046 DMN601K-7 — CRACK_BGA 19,27 — PCH_NCTF6
R9672 100K/F_4 — Q9047 DMN601K-7 — CRACK_BGA 19,27 — PCH_NCTF7
R9673 100K/F_4 — Q9048 DMN601K-7 — CRACK_BGA 19,27 — PCH_NCTF19
R9675 100K/F_4 — Q9049 DMN601K-7 — CRACK_BGA 19,27 — PCH_NCTF26

+3VS5
DDR3_RST R8065 10K/F_4
PCH_GPIO15 R8026 1K/F_4
LAN_CABLE_DET# R10147 10K/F_4
WWAN_OFF# R9676 10K/F_4
GPIO24 R8085 10K/F_4
WLAN_OFF# R8066 10K/F_4
GPIO46 R9677 10K/F_4
PCIE_LAN_CLK_REQ# R8098 10K/F_4
LAN_DIS# R8033 10K/F_4

+3V
KB_RST# R8106 10K/F_4
GATEA20 R8080 10K/F_4
SATA2GP R8053 10K/F_4
SATA3GP R8040 10K/F_4
SATA4GP R8104 10K/F_4
SATA5GP R8093 10K/F_4
BMBUSY# R8096 10K/F_4
SIO_EXT_SCI# R8018 10K/F_4
THERM_SCI# R8021 10K/F_4
PCH_GPIO17 R8017 10K/F_4
WWAN_DET# R8069 10K/F_4
STP_PCI# R8056 10K/F_4
SATACLKREQ# R8067 10K/F_4
DOCK_ID0 R8068 10K/F_4
DOCK_ID1 R8078 10K/F_4

4,6,12,31,34,39,40 +1.1V_VTT
6,12,41,42 +1.8V
3,4,8,9,10,12,14,15,16,20,23,25,27,28,29,30,31,32,33,34,35,37,39,42 +3V
4,9,10,12,29,31,32,33,34,38,41,42,43 +3VS5

10 GNT3# — R8182 *10K/J_4

A16 swap override Strap/Top-Block Swap Override jumper	
GNT3#	Low = A16 swap override/Top-Block Swap Override enabled High = Default

SV_SET_UP R8076 10K/F_4 +3V

SV_SET_UP	1-X High = Strong (Default)

10 GNT0# — R8005 *1K/J_4
10 GNT1# — R8181 *1K/J_4

Boot BIOS Strap		
PCI_GNT0#	GNT#1	Boot BIOS Location
0	0	LPC
0	1	Reserved (NAND)
1	0	PCI
1	1	SPI

10 NV_ALE — R8202 *1K/J_4
10 NV_CLE — R8203 *1K/J_4 — +1.8V

Danbury Technology Enabled	
NV_ALE	High = Enable Low = Disable

DMI Termination Voltage	
NV_CLE	Set to Vcc when LOW Set to Vcc/2 when HIGH

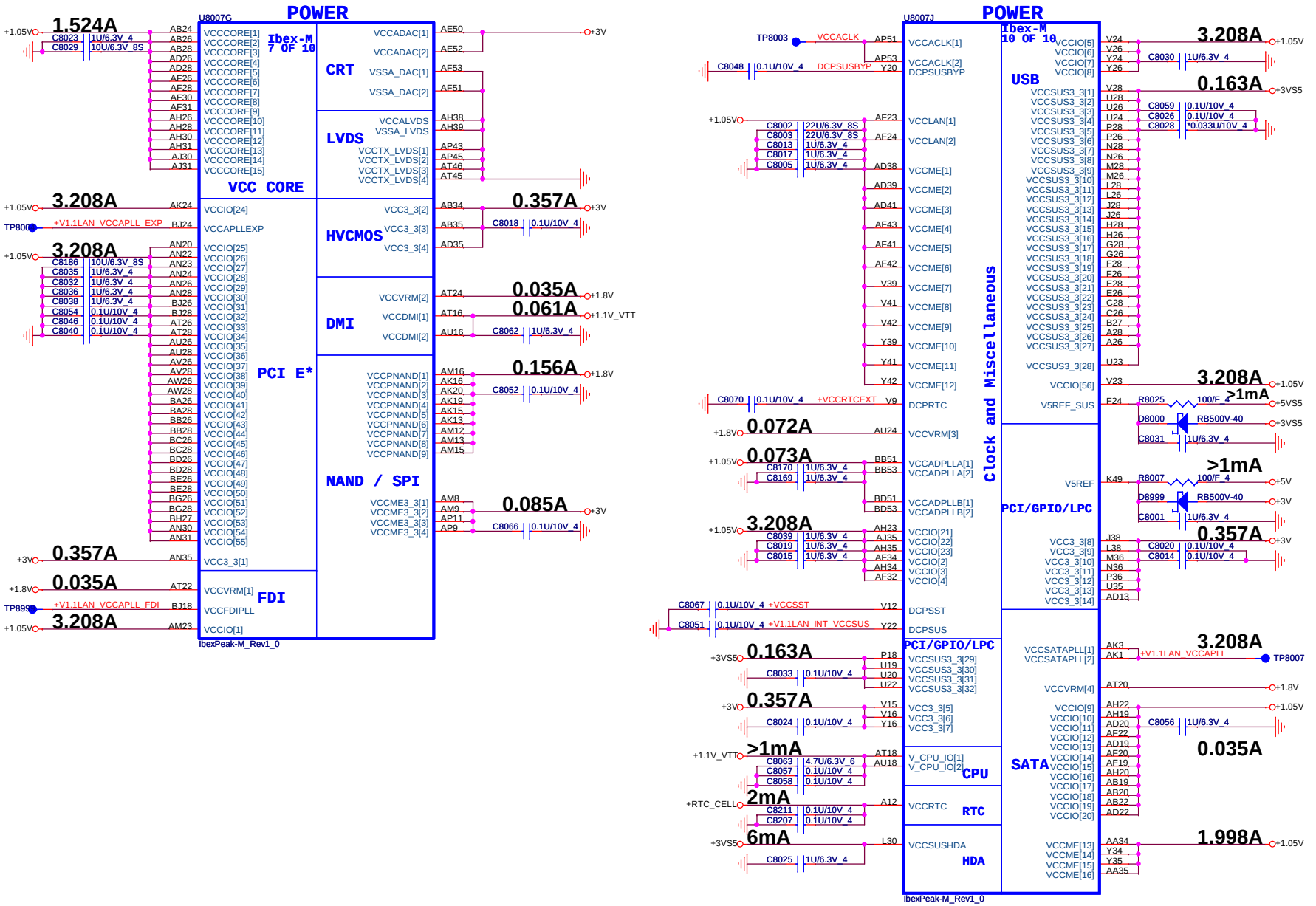
No Reboot Strap

8,25 SPKR — SPKR — R8132 *1K/J_4 — +3V
8 PCH_GPIO33 — R8022 *100K/J_4

NB5

PROJECT : SX6
Quanta Computer Inc.

Size	Document Number	Rev
Custom	PCH 4/6 (GPIO & Strap)	2B
Date: Tuesday, December 15, 2009	Sheet 11 of 43	



3,8,9,10,34,39,41 +1.05V
4,6,11,31,34,39,40 +1.1V_VTT
6,11,41,42 +1.8V
3,4,8,9,10,11,14,15,16,20,23,25,27,28,29,30,31,32,33,34,35,37,39,42 +3V
4,9,10,11,29,31,32,33,34,38,41,42,43 +3VS5
20,23,24,25,31,32,35,37,42 +5V
23,35,36,37,38,40,42 +5VS5

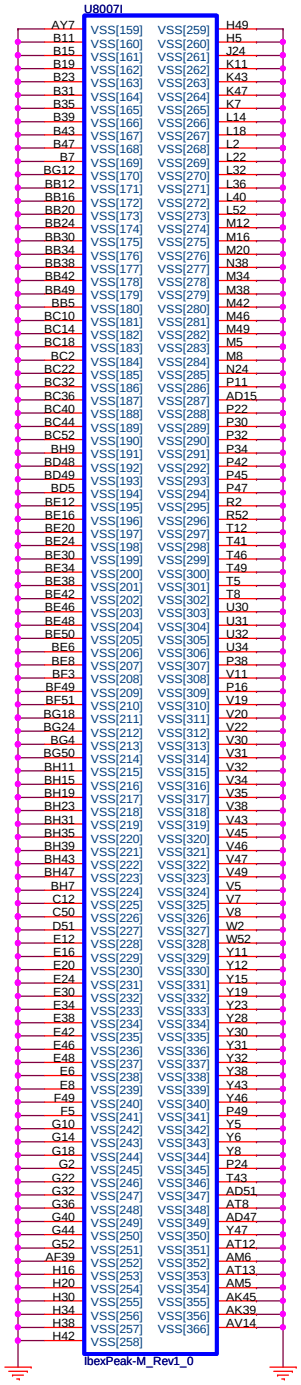
PROJECT : SX6
Quanta Computer Inc.

Size	Document Number	Rev
Custom	PCH 5/6 (POWER)	2B

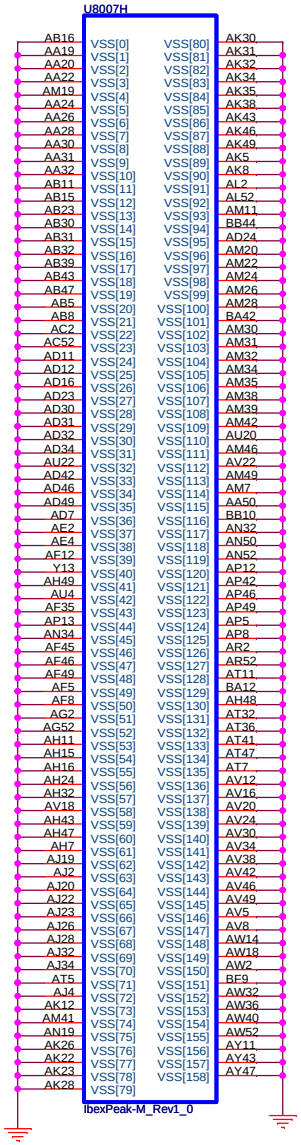
NB5

Date: Tuesday, December 15, 2009 | Sheet 12 of 43

IBEX PEAK-M (GND)



IBEX PEAK-M (GND)

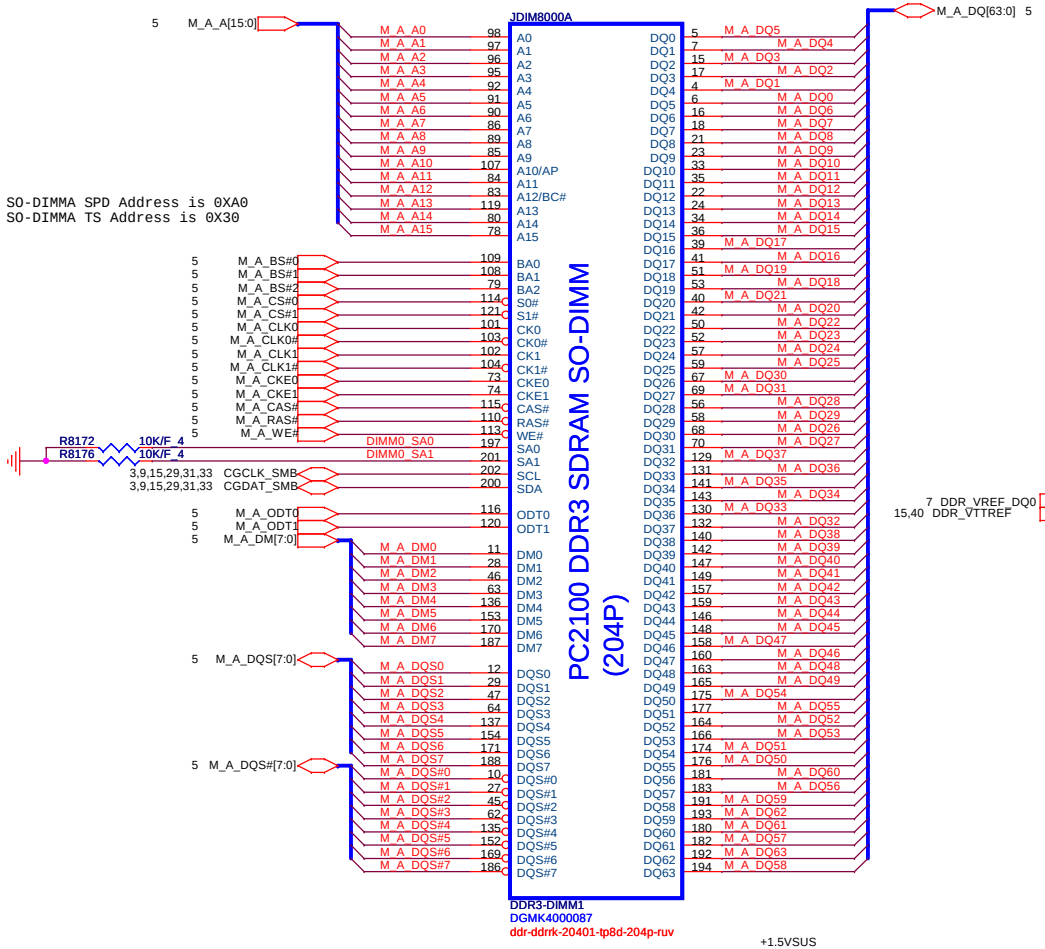


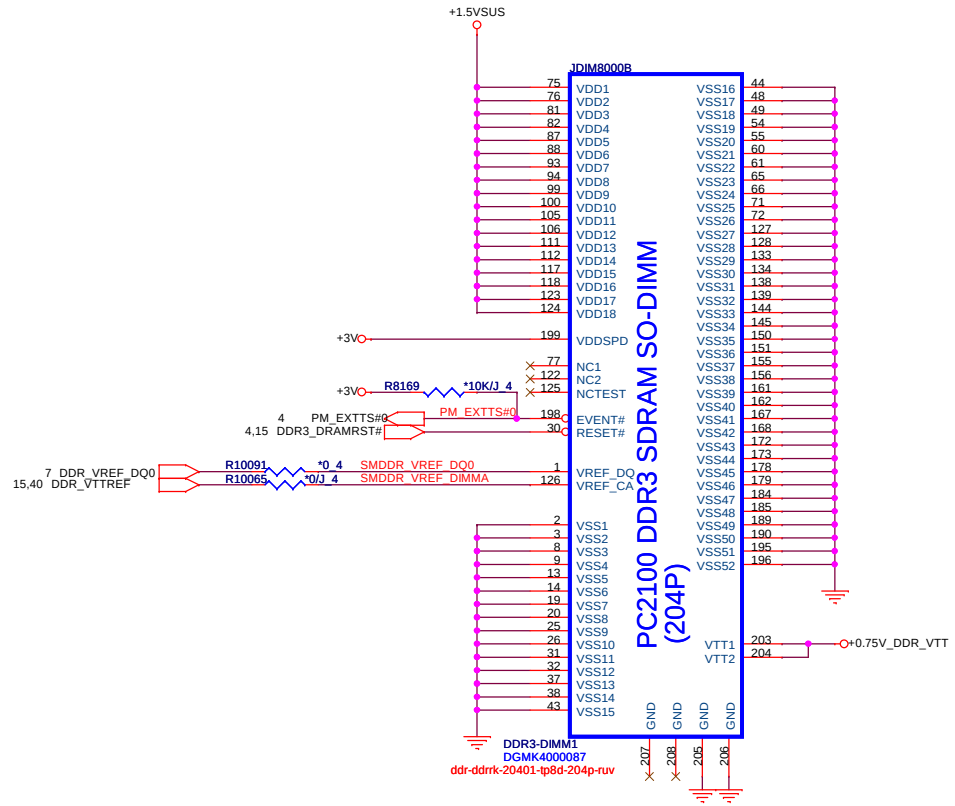
NB5

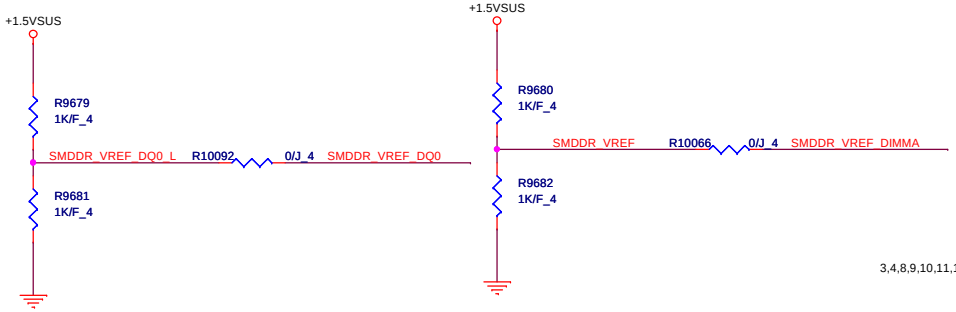
PROJECT : SX6
Quanta Computer Inc.

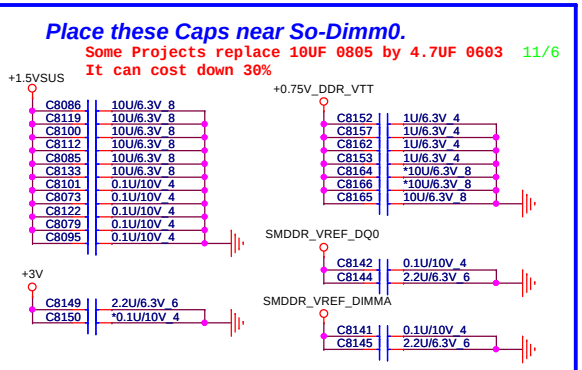
Size	Document Number	Rev
Custom	PCH 6/6 (GND)	2B

Date: Tuesday, December 15, 2009 | Sheet 13 of 43









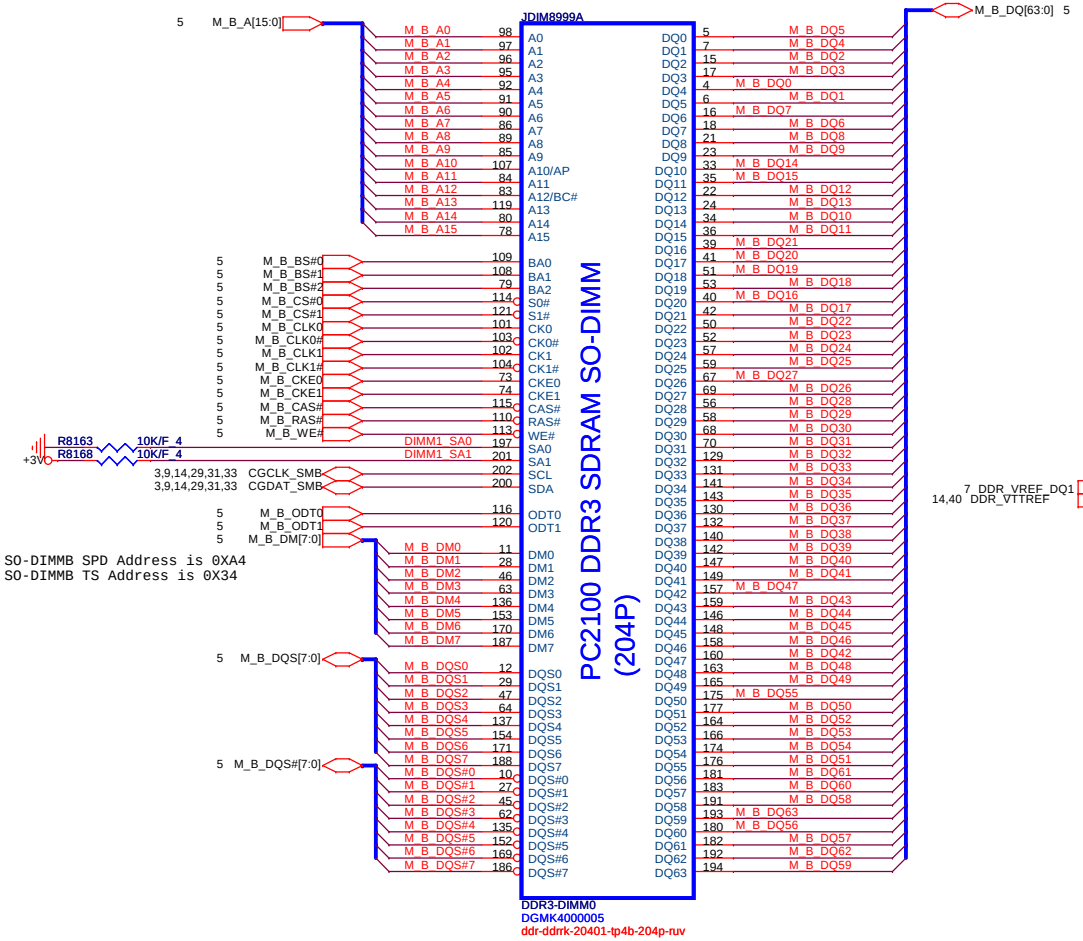
15,40,42 +0.75V_DDR_VTT
4,15,40,42,43 +1.5VSUS
3,4,8,9,10,11,12,15,16,20,23,25,27,28,29,30,31,32,33,34,35,37,39,42 +3V
8,10,23,25,27,31,32,36,37,38 +3VPCU
+5VPCU

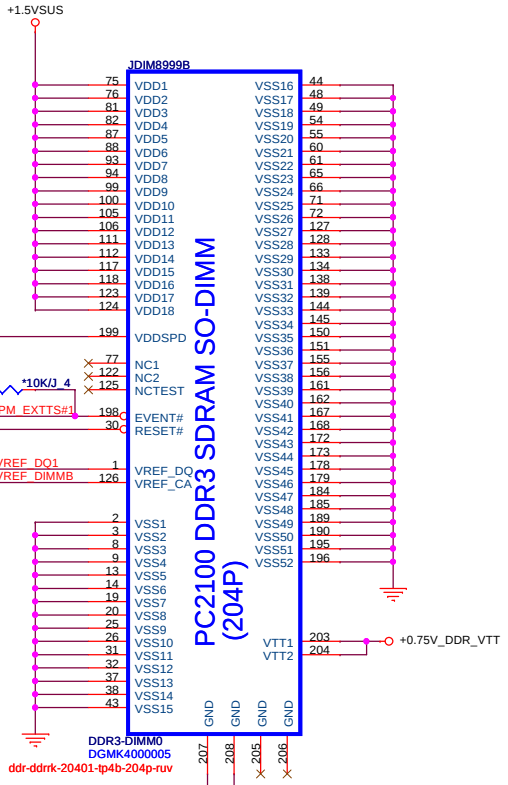
NB5

PROJECT : SX6
Quanta Computer Inc.

Size	Document Number	Rev
Custom	DDR3 DIMM-0	2B

Date: Tuesday, December 15, 2009 | Sheet 14 of 43

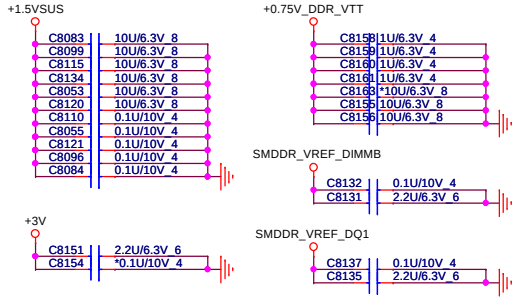


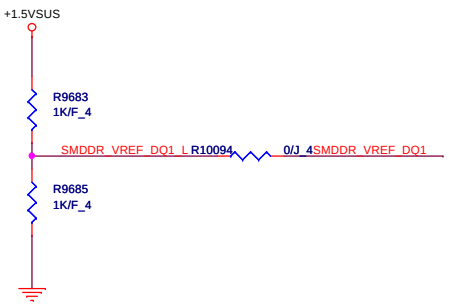


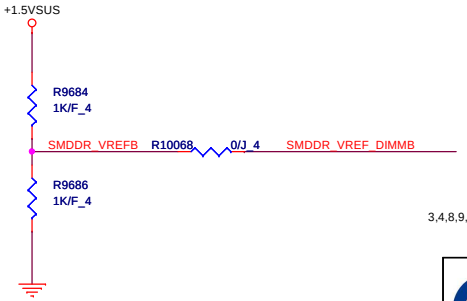
Place these Caps near So-Dimm1.

Some Projects replace 10UF 0805 by 4.7UF 0603

It can cost down 30%







14,40,42 +0.75V_DDR_VTT
4,14,40,42,43 +1.5VSUS
3,4,8,9,10,11,12,14,16,20,23,25,27,28,29,30,31,32,33,34,35,37,39,42 +3V
8,10,23,25,27,31,32,36,37,38 +3VPCU
+5VPCU

PROJECT : SX6
Quanta Computer Inc.

Size	Document Number	Rev
Custom	DDR3 DIMM-1	2B

NB5

Date: Tuesday, December 15, 2009 Sheet 15 of 43

H1 *H-C354D118P2
H2 *H-C354D118P2
H3 *H-C394D276P2
H4 *H-C394D276P2
H5 *H-C197D181P2
H6 *H-C197D181P2
VGA HOLE
H7 *H-TC374197BC197D181P2
H8 *H-TC374197BC197D181P2
H9 *H-TC374197BC197D181P2
H10 *H-TC374197BC197D181P2
CPU HOLE
H11 *H-TC2768C236D91P2
H12 *H-TC2768C236D91P2
H13 *H-TC2768C236D91P2
H14 *H-TC2768C236D91P2
Epress card screw HOLE
PAD1
PAD2
PAD3
PAD4
PAD5
PAD7
GND PAD
PAD6
PAD8
PAD9
H15 *H-C354D276P2
H16 *H-C354D276P2
H20 *H-TC3548C276D118P2
H22 *H-TC3548C276D118P2
H27 *H-TC394BC354D276P2
H29 *H-TC236BC276D118P2
H30 *H-C433D394P2
H31 *H-C315D276P2
H23 *H-C197D91P2
H24 *H-C197D91P2
HDD screw HOLE
H25 *H-C197D91P2
H26 *H-C197D91P2
ODD screw HOLE
MBAT8002019
H32 *MBAT8002019
WLAN CARD NUT
MBAT8002019
H19 *MBAT8002019
WWAN CARD NUT
H17 MBZR1002015
H18 MBZR1002015
MDC NUT
MBZR1002015

BADD1	BADD0	
0	0	EE/EF
0	1	7E/7F
1	0	2E/2F
1	1	4E/4F(Defult)

U9066
ZTEIC
*SSX44-B-H-Q
LAD0 LAD1 LAD2 LAD3 LFRAME#
PLTRST# CLK_33M_ZTE LPC_PD# CLKRUN# SERIRQ
NC_P
GPIO3 GPIO15 GPIO16
PP BADD0 BADD1
GND EPAD
VCC3
+3V
8,27,33 LAD0
8,27,33 LAD1
8,27,33 LAD2
8,27,33 LAD3
8,27,33 LFRAME#
4,9,17,27,28,29,33,34 PLTRST#
10 CLK_33M_ZTE
10 LPC_PD#
10,27 CLKRUN#
8,27 SERIRQ
LPC_PP
BADD0
BADD1
R9690 *10K/F_4
R9662 *10K/F_4
R9678 *10K/F_4
Not Stuff
Not Stuff
CLK_33M_ZTE
R9709 *33
C9981 *10P
Close to U9066
C9982 *0.1U/16V_4
C9983 *0.1U/16V_4
C9984 *0.1U/16V_4
C10464 *1U/6.3V_4

NB5

PROJECT : SX6
Quanta Computer Inc.

Size	Document Number	Rev
Custom	Hole, Nuts,TCM	2B

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POWER
+PCIE_VDDR=1.2V
+VDD_MEM1.8V=1.8V
+VGA_CORE=0.9~1.2V

POWER
for M9x-S3 DPx_VDD10=1.1V
for Park-S3 DPx_VDD10=1.0V

2.5GT/s bit rate

U9050A

PCI EXPRESS INTERFACE

M93-S3_LP

U9050G

M93-S3_LP

100MHz (+/-300ppm) input frequency,
0-0.7V single-ended swing

VGA Core BPP
VGA Core VDDC

+1.8V PCIE_VDDR
+1.8V PCIE_PVDD
+1.8V VDDR1

3.3V_Delay VDDR3

20ms 20ms

PROJECT : SX6
Quanta Computer Inc.

NB5/RD2

Size: Custom | Document Number: Park_PCIE_Interface | Rev: 2B

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R9917 10K/F_4 GPIO22

GPIO22(ROMCS#)
PD without external VBIOS ROM

MEM_ID[3:0]	Vendor	Type	Vendor P/N	Quanta P/N
0000 0100	Samsung E-die Hynix Orion-die	64*16-800MHZ 64*16-800MHZ	K4W1G1646E-HC12 H5TQ1G63BFR-12C	AKD5LGGT503 AKD5LZGTW01

I.MEMID_0: ODM, 0'Quanta 1'Wistron
II.MEMID_1: Vram size, 0'512MB, 1'1GB
III.MEMID_2: Vram vender, 0'sunsumg, 1'hyniex.

Hynix 512M 0100	上件	不上件
	R9919	R9921,R9920,R9918

Samsung 512M 0000	上件	不上件
	NA	R9921,R9920,r9919,R9918

Hynix 1G 0110	上件	不上件
	R9919,R9920	R9921,R9918

Samsung 1G 0010	上件	不上件
	R9920	R9921,R9919,R9918

	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

for Park-S3 only

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

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

PV modified - change R9929 from 0ohm to short pad

PV modified - change R9924,R9926,R9928 from 0ohm to short pad

PV modified - change Q9078 and Q9079 pin connection for fix leakage issue

PROJECT :	SX6
Quanta Computer Inc.	
Size: Custom	Document Number: Park_Main
Rev: 2B	
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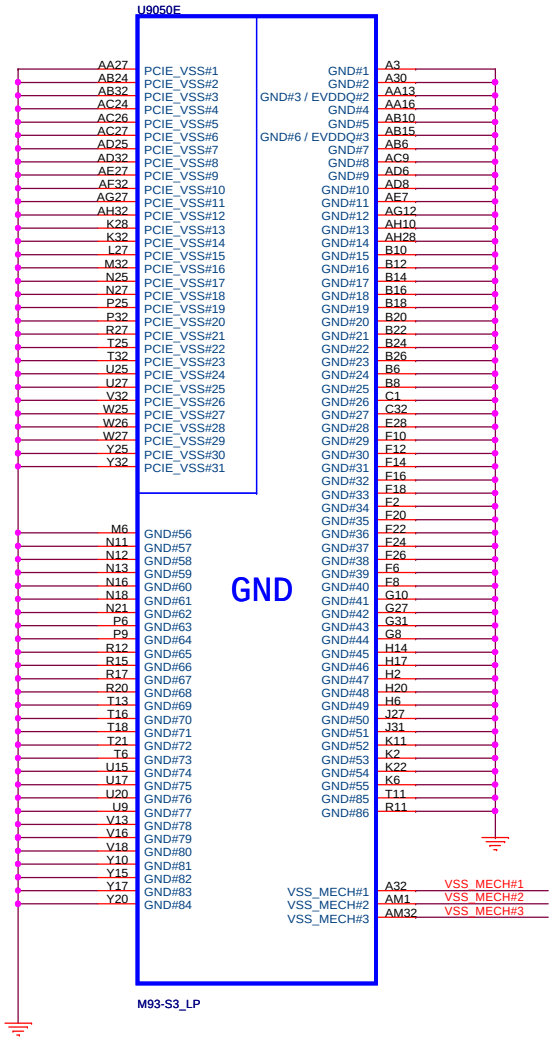
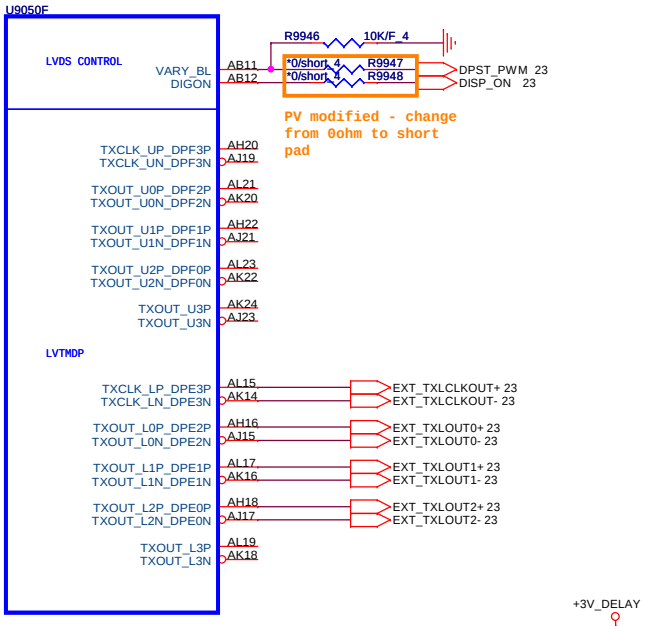
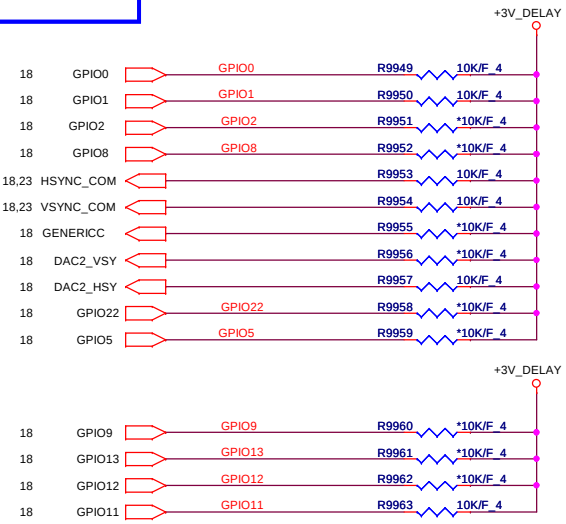
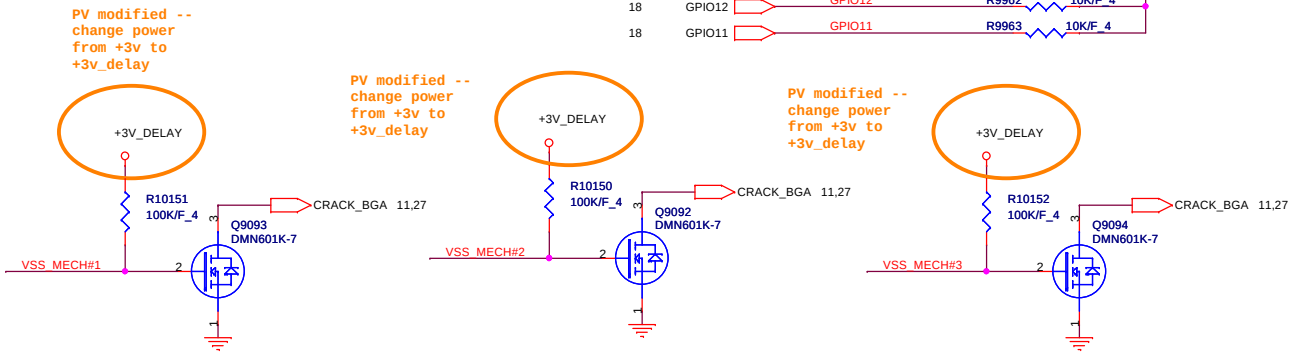
NB5/RD2









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

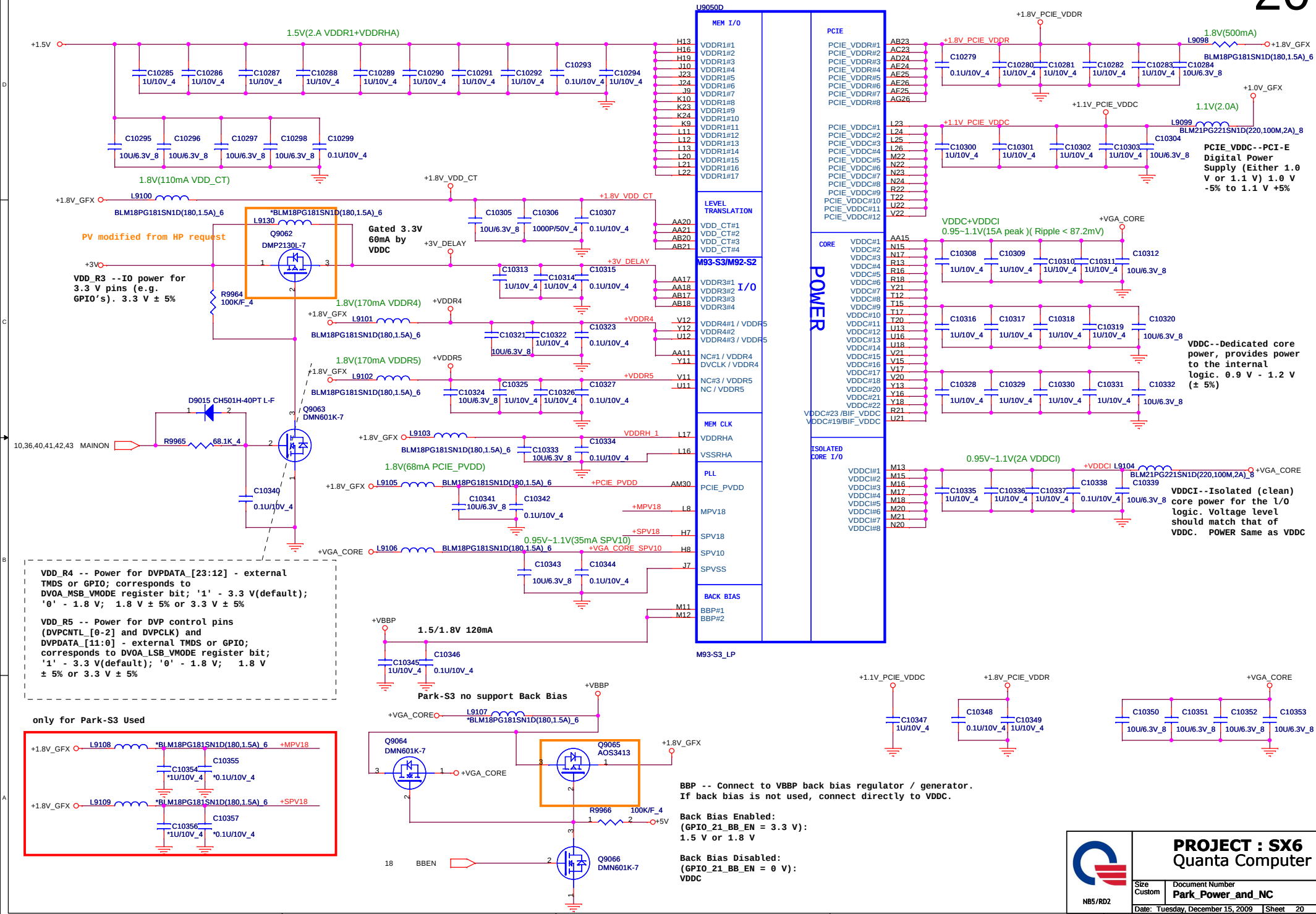
It is a shared pin strap with CONFIG[2:0] if BIOS_ROM_EN is set to 0.

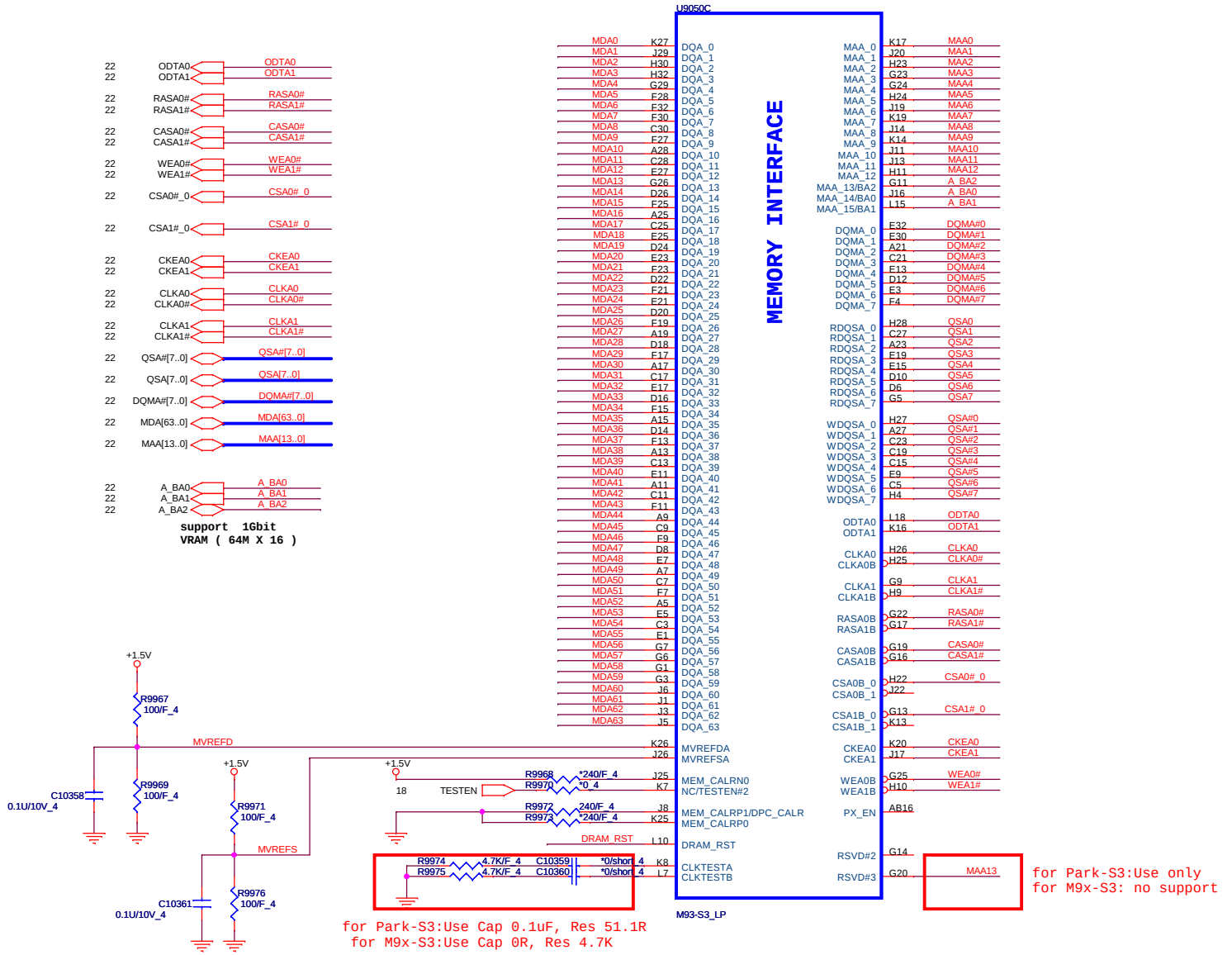
NB5/RD2

PROJECT : SX6
Quanta Computer Inc.

Size	Document Number	Rev
Custom	Park_GND / LVDS/ Straps	2B
Date: Tuesday, December 15, 2009	Sheet 19 of 43	

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



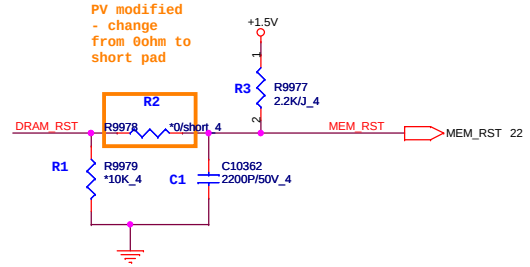


	M9x-S2/S3	Park-S3
MEM_CALRN0(J25) MEM_CALRP0(K25)	NC	240R
MEM_CALRP1(J8)	240R	150R
TESTEN2#2(K7)	NC	0R
R1	NC	10K
R2	0R	680R
R3	2.2K	NC
C1	2.2nF	68pF

240R:CS12402FB03
150R:CS11502FB21

0R:CS00002JB38
680R:CS16802JB27

2.2nF:CH22206KB16
68pF:CH06806JB01



PROJECT : SX6
Quanta Computer Inc.

NB5/RD2

Size	Document Number	Rev
Custom	Park_MEM_Interface	2B

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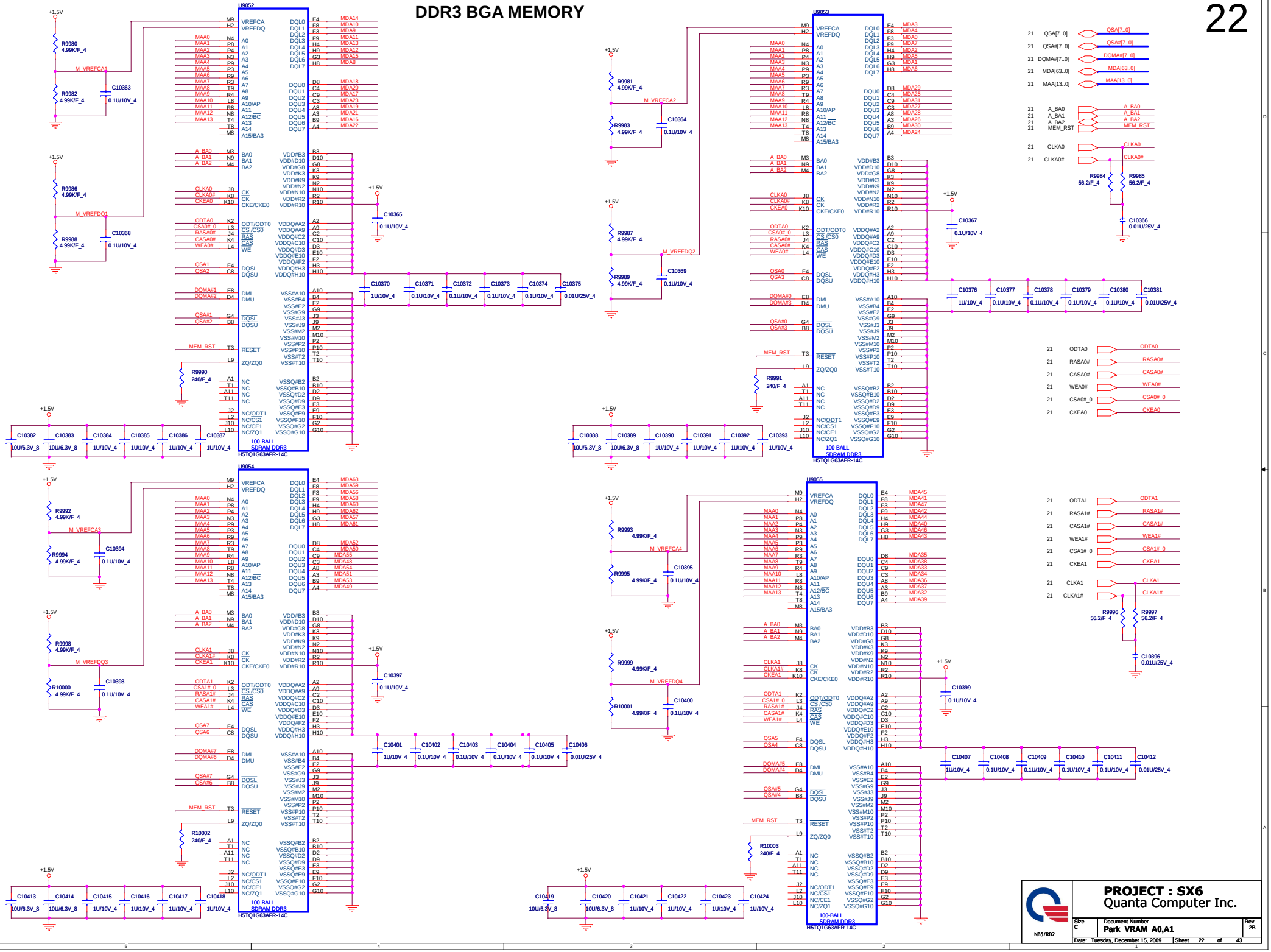
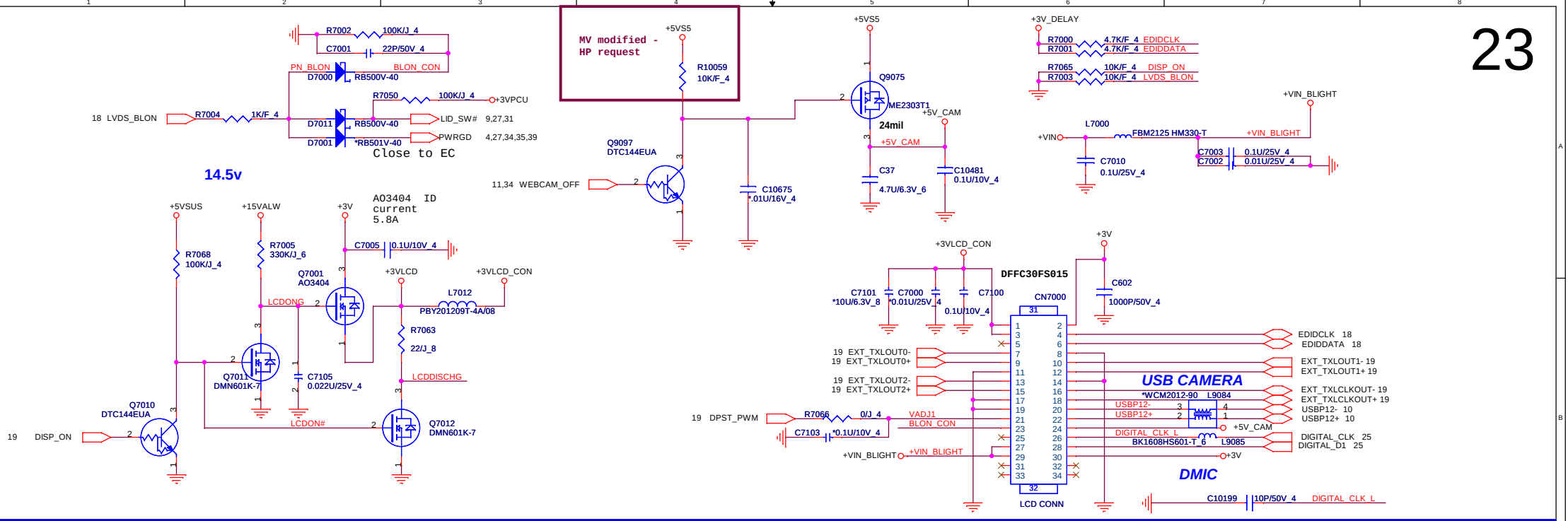
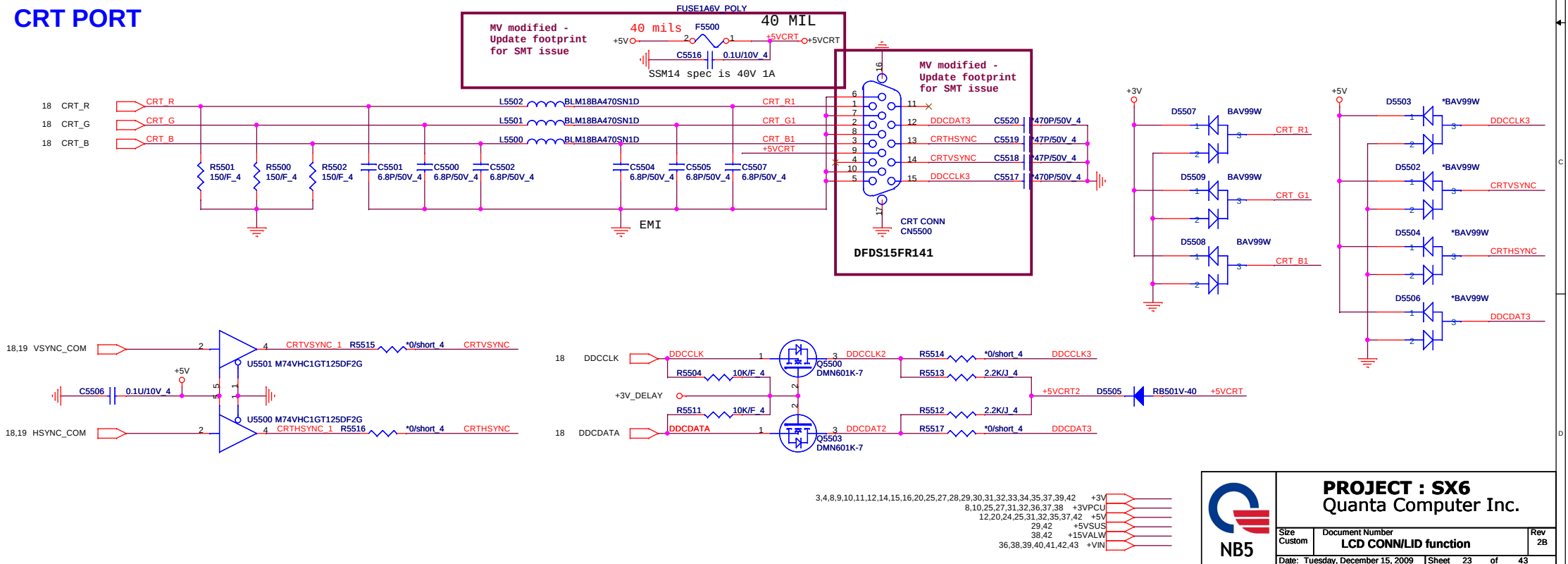
DDR3 BGA MEMORY





CRT PORT



3,4,8,9,10,11,12,14,15,16,20,25,27,28,29,30,31,32,33,34,35,37,39,42 +3V
8,10,25,27,31,32,36,37,38 +3VPCU
12,20,24,25,31,32,35,37,42 +5V
29,42 +5VSUS
38,42 +15VALW
36,38,39,40,41,42,43 +VIN

NB5

PROJECT : SX6
Quanta Computer Inc.

Size	Document Number	Rev
Custom	LCD CONN/LID function	2B
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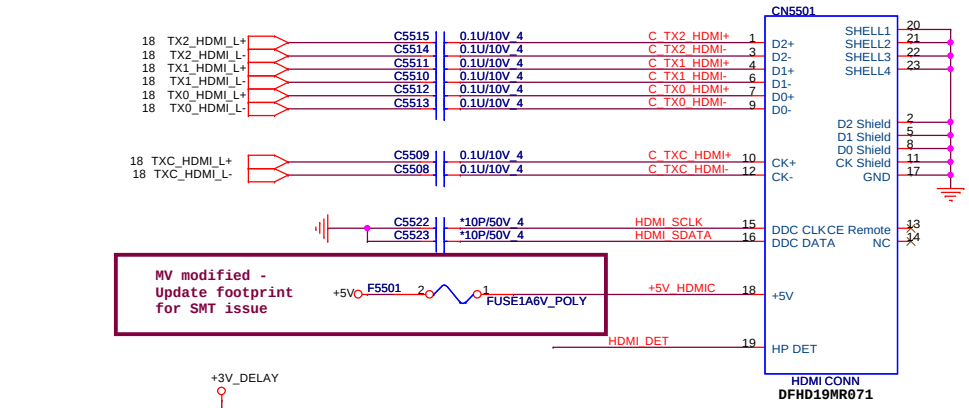
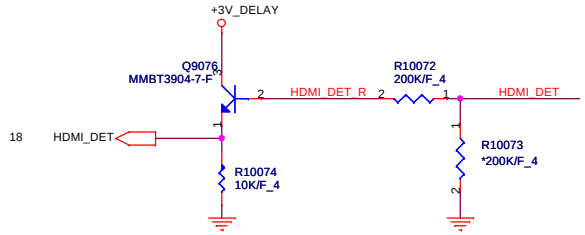
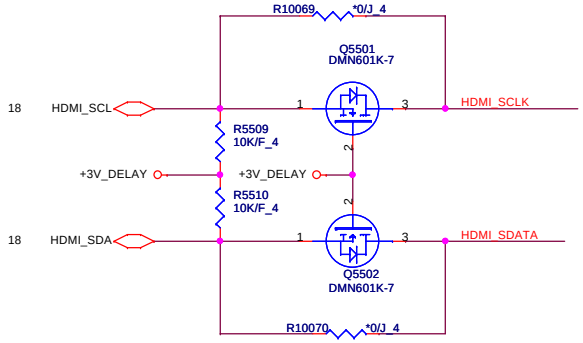
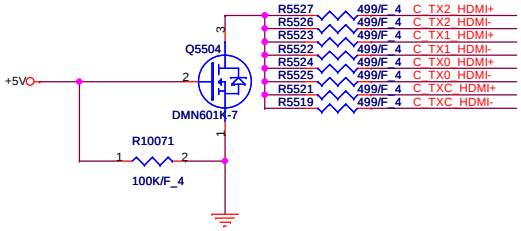
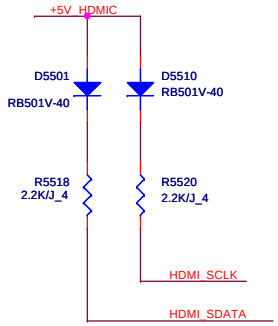
HDMI PORT











3,4,8,9,10,11,12,14,15,16,20,23,25,27,28,29,30,31,32,33,34,35,37,39,42 +3V

12,20,23,25,31,32,35,37,42 +5V

NB5

PROJECT : SX6
Quanta Computer Inc.

Size	Document Number	Rev
Custom	HDMI Conn	2B
Date: Tuesday, December 15, 2009	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

Close to CODEC

Close to CODEC

ALL CAPS CONNECTED TO THE 92HD80Bx
SHOULD BE X7R OR X5R--NO Y5V

U9026

Digital

Analog

92HD80B1

HDA Bus

IDT recommand

SENSE_A -->EXT MIC/Headphone out

TO External MIC Jack

TO Headphone Jack

TO External Speaker

PV modified --- for EMI

PV modified
-Add diodefor
leakage issue

TO Digital MIC

IDT 92HD80 EAPD LOW--mute
HI--enable AMP

PV modified - Hp
request to add

>40mils trace

MV modified -
ESD issue

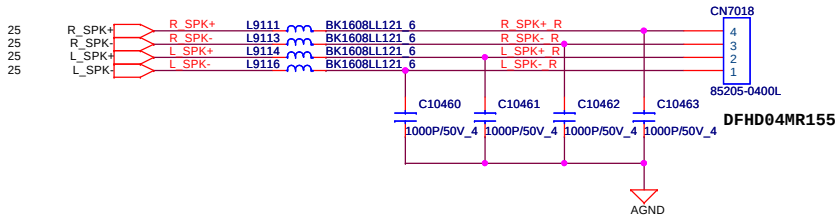
FOR EMI

RESERVE

PROJECT : SX6		
Quanta Computer Inc.		
Size: Custom	Document Number: IDT92HD80	Rev: 2B
Date: Thursday, December 17, 2009	Sheet 25 of 43	

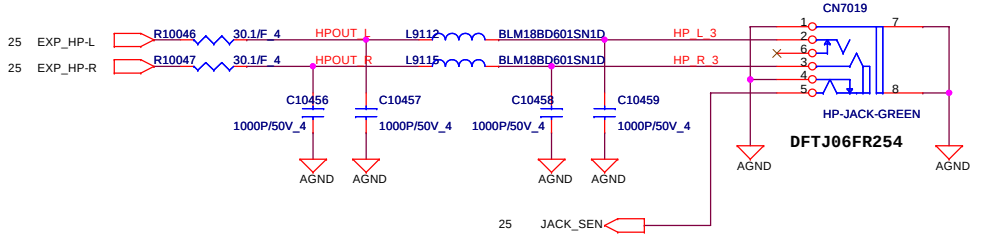
Note: JACK_SEN# is electrically floating when no jack is inserted and shorted to ground when jack is present.

INT. SPEAKER



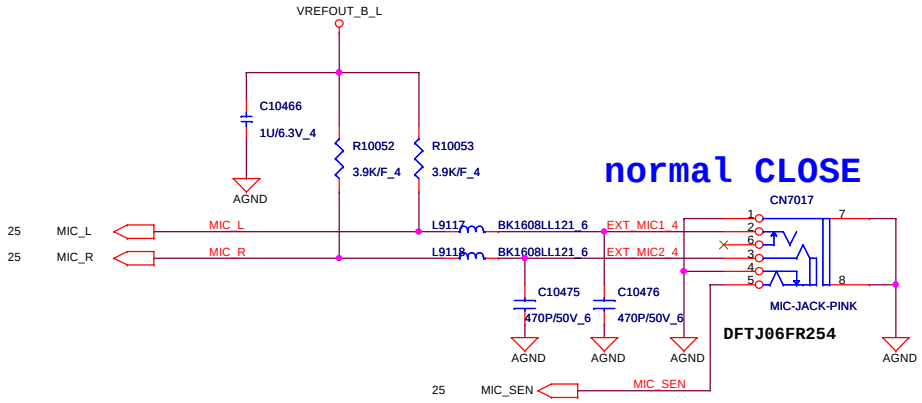
Headphone Jack

normal CLOSE



EXT Mic Jack

normal CLOSE



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

NB5	PROJECT : SX6 Quanta Computer Inc.	
Size: Custom	Document Number: HP/MIC/SPK	Rev: 2B
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MV modified -
Remove for MV

CN7016

10,33 CLK_33M_DEBUG
8,16 SERIRQ
10 PCI_SERR#
+VIN_PCU

LOOPBACK
LFRAME#
PLTRST#
LAD0
LAD1
LAD2
LAD3

8051TX
8051RX
8051_RECOVER#
DEBUG_KBC_RST
SPI_CLK_C R9691 *22/J_4 SPI_CLK_L
SPI_CS0#_C R9692 *22/J_4 SPI_CS0#
SPI_SI_C R9693 *22/J_4 SPI_SI
SPI_SO_C R9694 *22/J_4 SPI_SO
SPI_HOLD#_C R9695 *22/J_4 SPI_HOLD#
SPI_CS1#_C R9696 *22/J_4 SPI_CS1#_DEB
LOOPBACK

DEBUG_KBC_RST 30
+RTC_CELL

*87216-24

For debug(BIOS)

PV modified -
add 10uF

C9967 10U/6.3V_8
C9968 0.1U/16V_4
C9969 0.1U/16V_4
C9970 0.1U/16V_4
C9971 0.1U/16V_4
C9972 0.1U/16V_4
C9973 0.1U/16V_4
C9974 0.1U/16V_4

R9687 *0_6/short
PV modified -
change from 0ohm
to short pad

R9689 *0/short_4
PV modified -
change from 0ohm
to short pad

C9975 10U/6.3V_8
C9976 0.1U/16V_4
C9977 1U/6.3V_4

+3VPCU
+3V

U9019

SMSC 1098

Keyboard/Mouse Interface
General Purpose I/O Interface
LPC Bus

TQFP128-16X16-4

32 KSOUT[0..13]
KSOUT0 21 KSO0
KSOUT1 20 KSO1
KSOUT2 19 KSO2
KSOUT3 18 KSO3
KSOUT4 17 KSO4
KSOUT5 16 KSO5
KSOUT6 13 KSO6
KSOUT7 12 KSO7
KSOUT8 10 KSO8
KSOUT9 9 KSO9
KSOUT10 8 KSO10
KSOUT11 7 KSO11
KSOUT12 6 KSO12/GPIO00/KBRST
KSOUT13 5 KSO13/GPIO18

32 KSOUT14
32 KSOUT15
D9025 SPI_WP#
10,34 PM_PWRBTN#_R
RB501V-40
R10216 *0/J_4
SPI_WP#_L
KSOUT14 81 GPIO04/KSO14
KSOUT15 83 GPIO05/KSO15
LED_LINK_LAN#_R 4 GPIO24/KS016
108 GPIO26/KSO17

32 KSIN[0..7]
KSIN0 29 KSI0
KSIN1 28 KSI1
KSIN2 27 KSI2
KSIN3 26 KSI3
KSIN4 25 KSI4
KSIN5 24 KSI5
KSIN6 23 KSI6
KSIN7 22 KSI7

PV modified -
remove R10201for S5
power leakage issue

CLK_33M_KBC
CLK_33M_DEBUG
R9701 *33
R9702 *33
C9978 *10P
C9979 *10P

MB ID: 1=13"&14",
0=15&17.
for numeric keyboard
R10134 *10K/F_4
SIZE_DET
R10135 *10K/F_4

32 TP_CLK
32 TP_DATA
T9024 TP_CLK 35 IMCLK
T9025 TP_DATA 36 IMDAT
T9026 SP_CLK 61 KCLK
T9027 SP_DATA 62 KDAT
PS2CLK 66 EMCLK
PS2DAT 67 EMDAT

PV modified -
change from 0ohm
to short pad

11 NPCI_RST#
R9703 *0/short_4
4,9,16,17,28,29,33,34 PLTRST#
R9704 *0

8,16,33 LAD0 LAD0 46
8,16,33 LAD1 LAD1 48
8,16,33 LAD2 LAD2 50
8,16,33 LAD3 LAD3 51
8,16,33 LFRAME# LFRAME# 52
LRESET# 53
10 CLK_33M_KBC CLK_33M_KBC 54 PCI_CLK
10,16 CLKRUN# CLKRUN# 55 CLKRUN#
8,16 SERIRQ SERIRQ 57 SER_IRQ
T9028 59 NC_TEST_CLK

11 SIO_EXT_SCI#
R9706 *0/short_4 76 nEC_SCI
C7149 18P/50V_4
KBC_XTAL1 70 XTAL1
KBC_XTAL2 71 XTAL2
Y7000 32.768KHZ
C7143 18P/50V_4

PV modified -
change from 0ohm
to short pad

SPI_SI 128 FLDATAOUT
SPI_SO 95 FLDATAIN
SPI_CS0# 97 FLCS0#
SPI_CLK 3 FLCK
SPI_CS1#_DEB 32 FLCS1#
38 ADC_TO_PWM_OUT/GPIO19
41 AC[CKT#2]/GPIO23
42 ADC2/GPIO40

37 OCP_PWM_OUT
36,37 AC_AND_CHG
37 ADP_ID_ADC
R10225 330_4 ADP_ID_ADC_EC
EC_GND C10680 2200P/50V_4

4M byte SPI ROM for PCH ME & BIOS

LID_SW# R9688 10K/F_4
CRACK_BGA R9903 100K/F_4
MBDATA2 R9904 4.7K/F_4
MBCLK2 R9905 4.7K/F_4
AB1A_DATA R9906 4.7K/F_4
AB1A_CLK R9907 4.7K_4
8051_RECOVER# R9908 100K/F_4

U8002
MX25L6405DZN1-12G
VDD CE# SPI_CS0#_ROM R10223 *33_4 +3VPCU
SCK SPI_CLK_L R10179 22/J_4 SPI_CS0#
SI SPI_SI_ROM R9708 22/J_4 SPI_CLK C10521 *10P/50V_4
HOLD# SO SPI_SO_ROM R10181 22/J_4 SPI_SI
VSS WP# R10182 22/J_4 SPI_SO
R8110 4.7K/F_4 SPI_HOLD#
C8102 0.1U/10V_4
SPI_WP# R10004 10K/F_4 +3VPCU
SPI_CS0#_ROM R10217 4.7K/F_4

PV modified from hp request

MX25L3205DM2I-12G: AKE39FP0Z00
W25X32VSSIG: AKE39ZP0N00
Socket: DG008000031

R9707 *0/short_4
EC_GND
C9980 4.7U/6.3V_6

PV modified -
change from 0ohm
to short pad

GPIO35 63 BATCON BATCON 37
GPIO34 64 LID_SW# LID_SW# 9,23,31
Q/GPIO33 65 QUICKLOOK_LED QUICKLOOK_LED 32

OUT0(SCI) 124 KBC_PWR_ON KBC_PWR_ON 38
OUT1 125 GREEN_BATLED# GREEN_BATLED# 8,36
CFETA/OUT7/nSMI 123 BATSELB_A# TP9005
OUT8/KBRST 122 KB_RST# 11
OUT9/PWM2 121 FAN_PWM 31
OUT10/PWM0 120 BAT_PWM_OUT 36
CHRGCTL_PWMOUT11 118 PWM_CHGCTRL PWM_CHGCTRL 36,37

D9000 SDMK0340L-7-F

to detect battery existance

GPIO01 107 THM_MAIN# THM_MAIN# 37
GPIO02 79 ON/OFF BTN_KBC ON/OFF BTN_KBC 31
GPIO03 80 SIZE_DET
nRESET_OUT/GPIO06 60 ECPWROK_L R9699 200/J_4 ECPWROK 39
GPIO07/PWM3 85 RSMRST# RSMRST# 10
GPIO08/RXD 86 CRACK_BGA CRACK_BGA 11,19
GPIO09/TXD 87 GFX_SEL R10116 10K/F_4 GFX_SEL : PU-UMA , PD-DIS

PV modified -
change from 1Kohm
to 200ohm

GPIO11/AB2A_DATA 88 MBDATA2 MBDATA2 9,18
GPIO12/AB2A_CLK 89 MBCLK2 MBCLK2 9,18
GPIO13/AB2B_DATA 90 CELLS CELLS 36
GPIO14/AB2B_CLK 91 AUDIO_MUTE# AUDIO_MUTE# 25
GPIO15/FAN_TACH1 92 ADP_DET# ADP_DET# 37
GPIO16/FAN_TACH2 101 FAN_TACH2 TP9022
GPIO17/A20M 102 GATEA20 GATEA20 11

PV modified -
change from 0ohm
to short pad

GPIO20/PS2CLK 103 8051_RECOVER#
GPIO21/PS2DAT 105 R9901 *0/short_4 SLP_S3# 10,35
32KHZ_OUT/GPIO22/WK_SE01 75 ADP_EN ADP_EN 36
GPIO25 73 QUICKWEB_LED QUICKWEB_LED 32
ADP_PRES[CKT#2]/GPIO27/WK_SE05 74 ADP_PRES ADP_PRES 36,37,42
GPIO28 93 PM_SLP_M# TP9008
GPIO29/BC_CLK 98 SUS_PWR_ACK SUS_PWR_ACK 10
GPIO30/BC_DAT 99 AC_PRESENT AC_PRESENT 10,16
GPIO31/BC_INT# 100 MUTE_LED_CNTL TP9027
GPIO32 126 PCI_SERR# PCI_SERR# 10

Debounced AC
present output
signal from KBC
to system BIOS

AB1A_DATA 111 AB1A_DATA AB1A_DATA 37
AB1A_CLK 112 AB1A_CLK AB1A_CLK 37
AB1B_DATA 109 AB1B_DATA TP9009
AB1B_CLK 110 AB1B_CLK TP9010

To BAT SMBUS

TEST_PIN 69 R9705 1K/F_4 EC_GND
PWRGD 78 PWRGD PWRGD 4,23,34,35,39
VCC1_RST# 77 VCC1_POR# 3 VCC1_POR# 3 36,38
CFETB/GPIO10 116 FET_B TP9013
nBAT_LED# 113 AMBER_BATLED# AMBER_BATLED# 36
nPWR_LED/8051TX 115 8051TX R10110 *0/short_4 PWR_LED# 31
nFDD_LED/8051RX 114 8051RX R10117 *0/short_4 CAPS_LED 32

PV modified -
change from 0ohm
to short pad

HSTDATAOUT/GPIO45 127 KBC_SPI_SI KBC_SPI_SI 8
HSTCLK/GPIO41 2 KBC_SPI_CLK KBC_SPI_CLK 8
HSTCS0#GPIO44 96 KBC_SPI_CS0# KBC_SPI_CS0# 8
HSTCS1#/GPIO42 31 KBC_SPI_CS1# KBC_SPI_CS1# 8
HSTDATAIN/GPIO43 94 KBC_SPI_SO KBC_SPI_SO 8

GPIO39 30 MC2_DISABLE MC2_DISABLE 33
GPIO38 33 MC1_DISABLE MC1_DISABLE 32,33
GPIO37 34 MUTE_LED TP9030

ADC1/GPIO46 43 PMC_ADC_EC R10224 330_4 PMC_ADC PMC_ADC 36
ADC_TO_PWM_IN 44 OCP_IN_ADC_EC R10226 330_4 OCP_IN_ADC OCP_IN_ADC 37
Alarm[CKT#2]/GPIO36 1 BAT_ALARM TP9012

EC_GND C10681 2200P/50V_4
EC_GND C10682 2200P/50V_4

PV modified from hp request

SPI_CS1#_C R10176 10K/F_4
BAT_ALARM R10178 10K/F_4
VCC1_POR#_3 R10180 10K/F_4
KBC_PWR_ON R10177 10K/F_4

PV modified from hp request

GFX_SEL : PU-UMA , PD-DIS

PROJECT : SX6
Quanta Computer Inc.

NB5

Size	Document Number	Rev
Custom	SMSC 1098	2B

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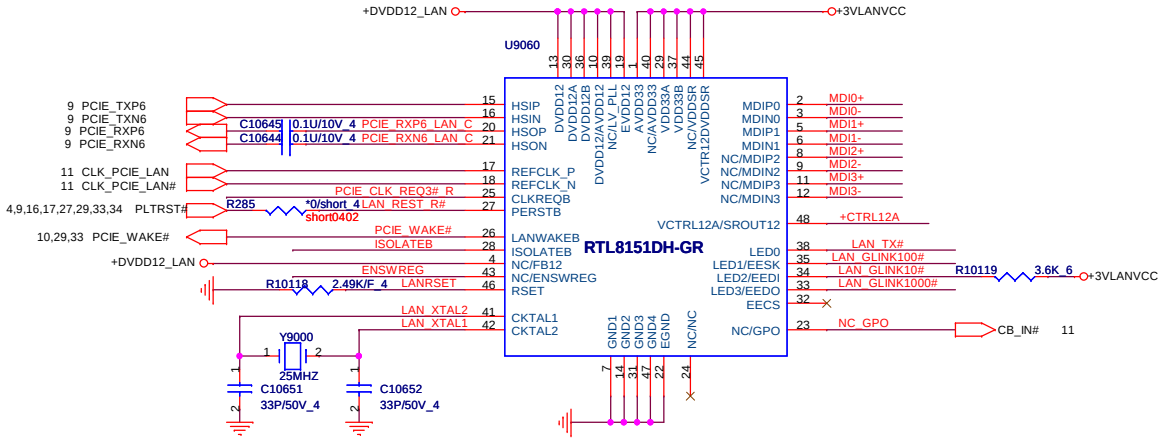
3,4,8,9,10,11,12,14,15,16,20,23,25,27,29,30,31,32,33,34,35,37,39,42 +3V
42 +3VLANVCC



RTL8151DH-GR

+3VLANVCC

Close to PIN 1	C10482 .1U/10V_4
Close to PIN 29,37,40	C10483 .1U/10V_4 C10484 .1U/10V_4 C10485 .1U/10V_4
close Pin 44,45	C10486 .1U/10V_4 C10527 *10U/6.3V_8 C10534 22U/6.3V/X5R_8

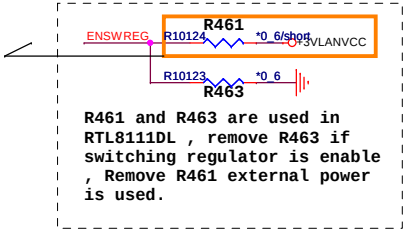
>200mil

+DVDD12_LAN

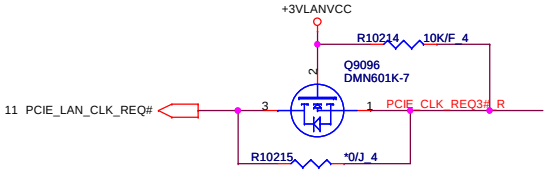
+CTRL12A L9131 L8 4.7UH,+-20%,650MA_1210 >200mil

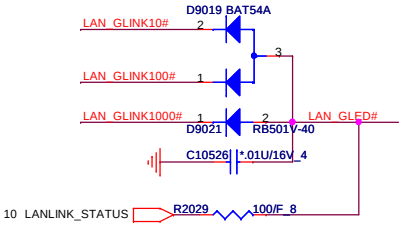
Close to 8111DL DVDD12 pins-- 19	C10531 22U/6.3V/X5R_8 C10530 .1U/10V_4 C10536 1U/6.3V_4 C10528 1U/6.3V_4
Close to 8111DL DVDD12 pins--10,13,30,36,39.	C10529 .1U/10V_4 C10532 .1U/10V_4 C10535 .1U/10V_4 C10533 .1U/10V_4

PV modified
- change
from 0ohm to
short pad

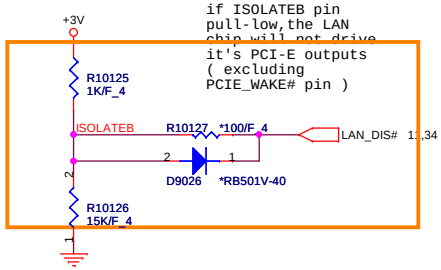


R461 and R463 are used in RTL8111DL , remove R463 if switching regulator is enable , Remove R461 external power is used.



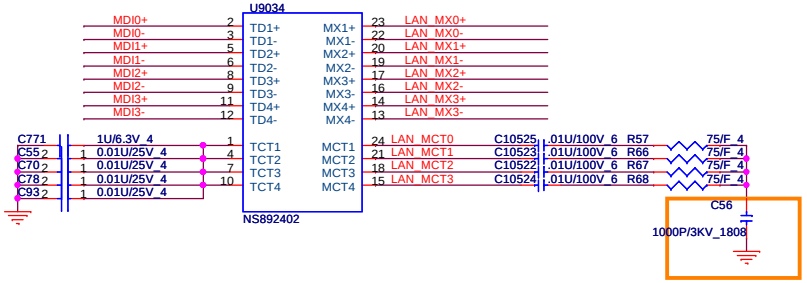


PV modified



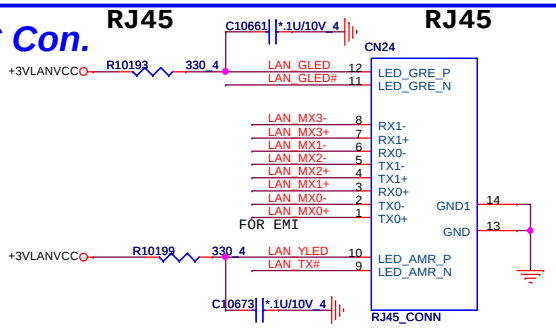
if ISOLATEB pin pull-low,the LAN chip will not drive it's PCI-E outputs (excluding PCIE_WAKE# pin)

Transformer for 10/100/1000



PV modified footprint

Lan and MDC Con.



NB5

PROJECT : SX6
Quanta Computer Inc.

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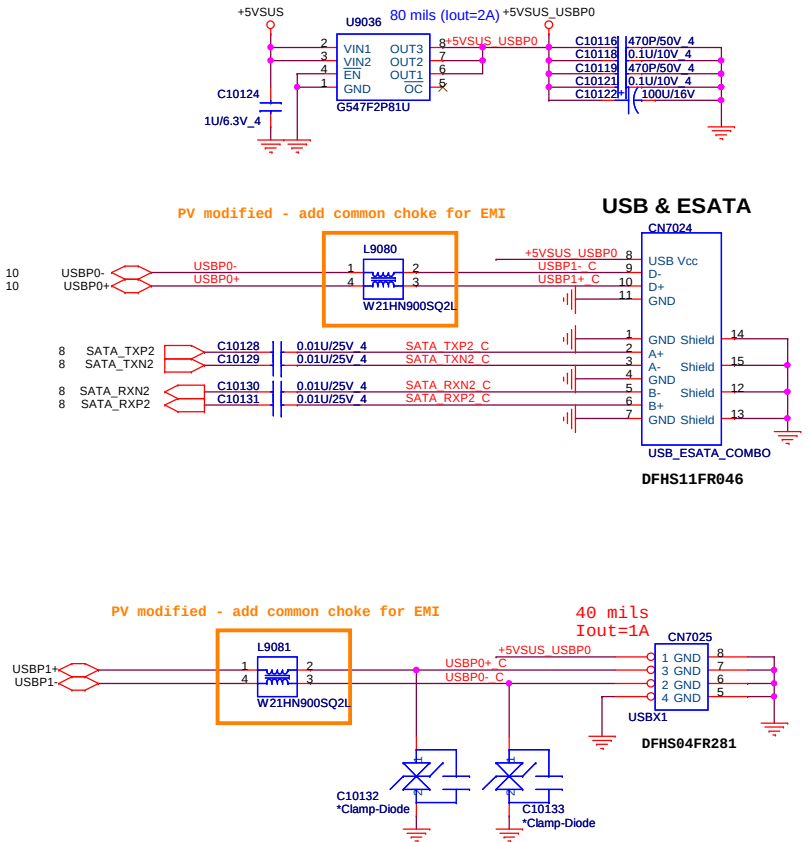
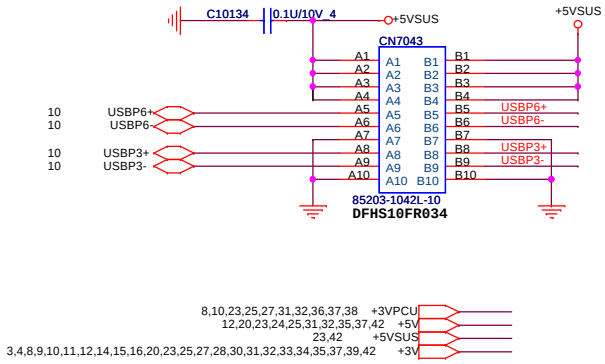
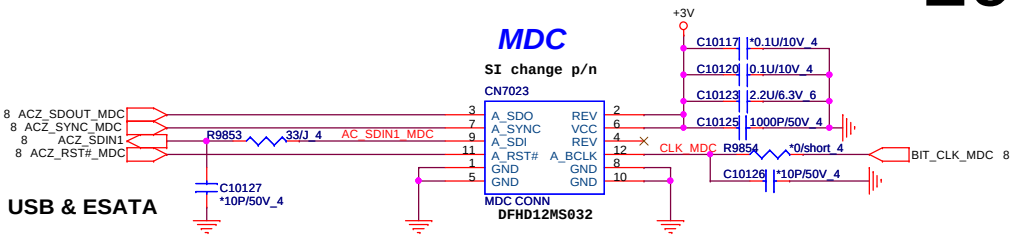
LEFT SIDE USBX1 and E-SATA/USB COMBO

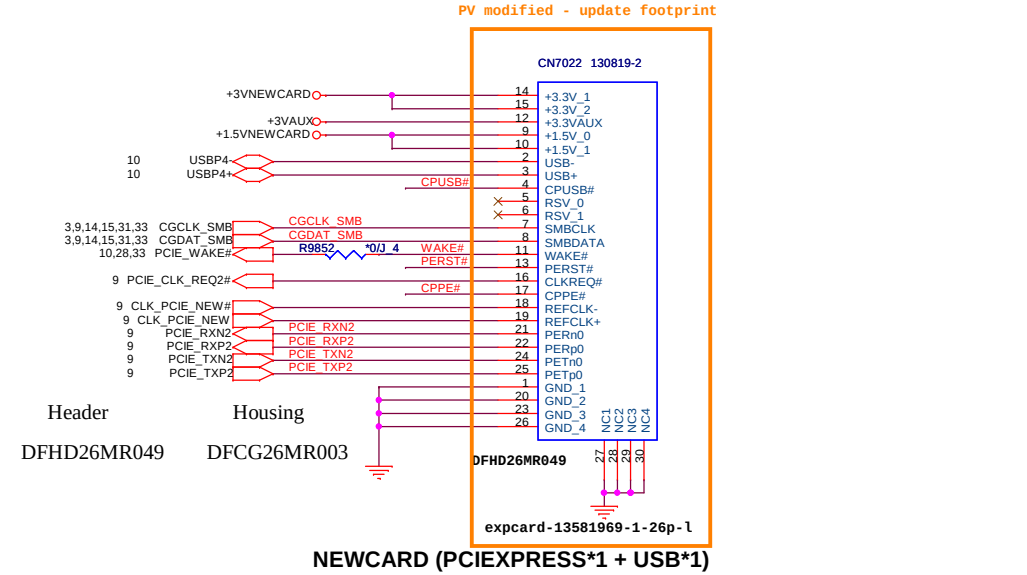


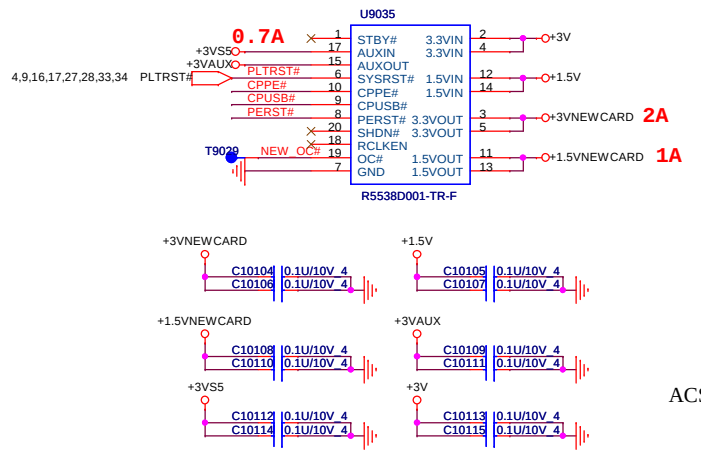
RIGHT SIDE USBX2



Modem CONN







ACS

NB5

PROJECT : SX6
Quanta Computer Inc.

Size	Document Number	Rev
Custom	EXTERNAL USB X2	2B

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3,4,8,9,10,11,12,14,15,16,20,23,25,27,28,29,31,32,33,34,35,37,39,42 +3V

Note:

	SD/MMC 4.2	MS	XD
SP0			
SP1			XD_CD#
SP2	SD_WP		
SP3	SD_CD#		
SP4	SD_DAT1		XD_D4
SP5		MS_BS	XD_D5
SP6		MS_D1	XD_D3
SP7	SD_DAT0	MS_D0	XD_D6
SP8	SD_DAT7/MMC_DAT7	MS_D2	XD_D2
SP9		MS_INS#	
SP10	SD_DAT6/MMC_DAT6	MS_D3	XD_D7
SP11	SD_CLK	MS_SCLK	XD_D1
SP12	SD_DAT5/MMC_DAT5		XD_D0
SP13	SD_DAT4/MMC_DAT4		XD_WP#
SP14			XD_R/B#
SP15	SD_DAT3		XD_WE#
SP16	SD_DAT2		XD_RE#
SP17			XD_ALE
SP18			XD_CE#
SP19			XD_CLE

XTAL control pin for 12Mhz crystal or 48Mhz clk in

+3VSUS_RTS R717 *0/short_4

U56

XTAL_CTR GPIO0 EEDO EECS EESK EEDI XD_CD# SD_WP SD_CD# MS_D4 SD_DAT1/XD_D4 MS_D5 RREF DM DP 12MHZ_XTLO 12MHZ_XTLI MODE_SEL RST#

XD_CD# SP2 SD_CD# SP4

R727 6.19K/F_4 RREF

10 USBP2- R724 *0/short_4 DM
10 USBP2+ R722 *0/short_4 DP

9 CLK_48M_CR CLK_48M_CR

C949 *5.6P/50V_4 CLK_48M_CR
R728 *270K_4
*12MHz Y10
C952 *5.6P/50V_4 XTLI_CARD
reserve

MODE_SEL R731 *0/J_4

+3VSUS_RTS R729 *100K/F_4 5158_RST#
C950 1U/6.3V_4
Internal have pull Hi 200K

XD_CLE XD_CE# XD_ALE SD_DAT2/XD_RE# SD_DAT3/XD_WE# XD_RDY SD_DAT4/XD_WP#/MS_D7 SD_CMD SD_DAT5/XD_D0/MS_D6 SD_CLK/XD_D1/MS_CLK SD_DAT6/XD_D7/MS_D3 NC MS_INS# SD_DAT7/XD_D2/MS_D2 SD_DAT0/XD_D6/MS_D0 XD_D3/MS_D1 XD_D5/MS_BS AV_PLL_IN VREG_OUT 5V_IN NC D3V3_IN D3V3_IN NC CARD_3V3_OUT AG33 AG_PLL DGND2 DGND1

SP19 SP18 SP17 SP16 SP15 SP14 SP13 SD_CMD_R SP12 SP11 SP10 MS_CD# SP8 SP7 SP6 SP5

Realtek RTS5159

SP4 R732 *0/short_4 SD_DAT1
SD_CLK_MS_CLK R725 *0/short_4 SP11

Close to Chipset
SP11 C945 *270P/25V_4

C946 0.1U/10V_4 Vreg out 1.8V from Internal 3.3VLDO C926 1U/6.3V_4

PV modified - change from 0ohm to short pad

+3VSUS_RTS R718 *0_6/short +3V
Without memory card 43mA
suspend current 350uA

C936 0.1U/10V_4 C942 4.7U/6.3V_6

0.1U/10V_4 C941
+3VSUS_RTS
0.1U/10V_4 C947 C948 *4.7U/6.3V_6

+3VCARD
C931 1U/6.3V_4

+3VCARD
C928 *.1U/10V_4 C927 *.1U/10V_4 C930 *.1U/10V_4

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

+3VCARD C955 2.2U/6.3V_6 R735 150K/F_4

+3VCARD C957 0.1U/10V_4 C958 0.1U/10V_4 C956 0.1U/10V_4

XD,MMC 4.2/SD,MS/MSP 7 IN1 CARD READER

CN42

SD C/D SD W/P xD-VCC xD-DATA7 xD-DATA6 xD-DATA5 xD-DATA4 xD-DATA3 xD-DATA2 xD-DATA1 GND SD-DATA1 MS-BS SD-DATA0 MS-DATA1 MMC-DATA7 MS-DATA0 MMC-DATA6 MS-DATA2 SD-CLK SD-VCC MS-INS

GND GND XD-CD XD-R/B XD-RE XD-CE XD-CLE XD-ALE xD-WE xD-WP XD-DATA0 GND SD-DATA2 SD-DATA3 MS-VCC MMC-DATA4 MS-SCLK SD-CMD MS-DATA3 MMC-DATA5

SD_CD# SP2 +3VCARD SP10 SP7 SP5 SP4 SP6 SP8 SP11 SD_DAT1 SP5 SP7 SP6 SP8 SP7 SP10 SP8 SD_CLK_MS_CLK +3VCARD MS_CD#

XD_CD# SP14 SP16 SP18 SP19 SP17 SP15 XD-WP#_L SP12 SP16 SP15 +3VCARD SP13 SD_CLK_MS_CLK SD_CMD_R SP10 SP12

C10513 *270P/25V_4

+3VCARD R10111 *10K/F_4

R10112 *0_6/short SP13

PLASTREN CM7S-02 CARD READER SOCKET

DFHD42MR011

NB5

PROJECT : SX6
Quanta Computer Inc.

Size	Document Number	Rev
Custom	RTS5159 & CR SOCKET	2B

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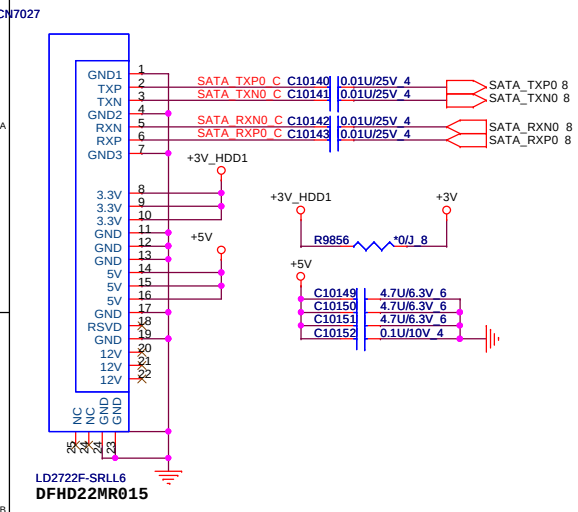
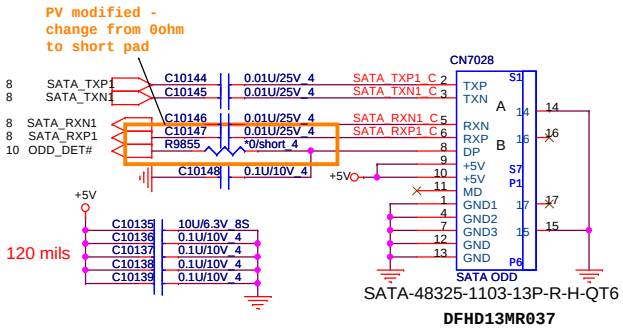
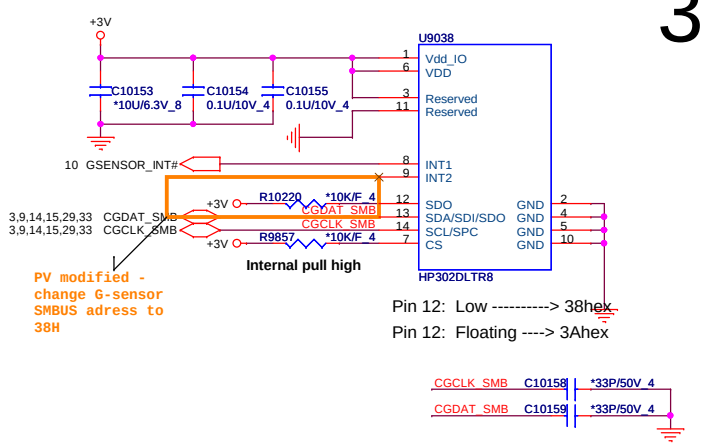
SATA HDD CONNECTOR



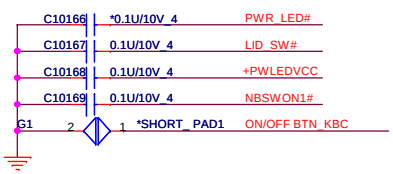
SATA CD-ROM



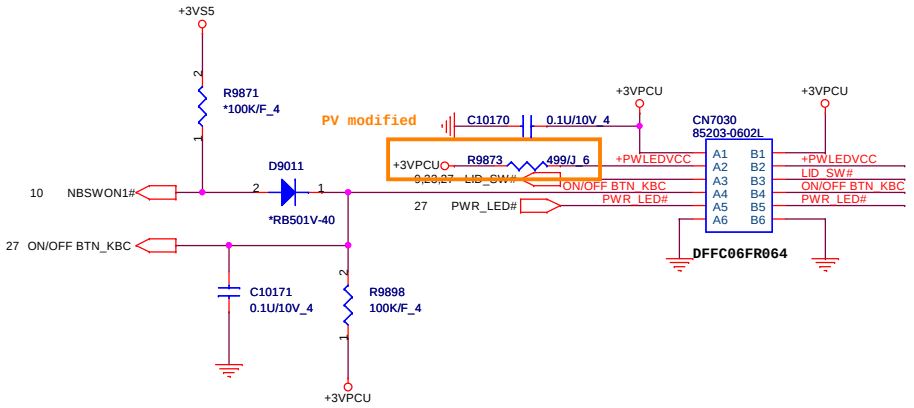
Accelerometer Sensor



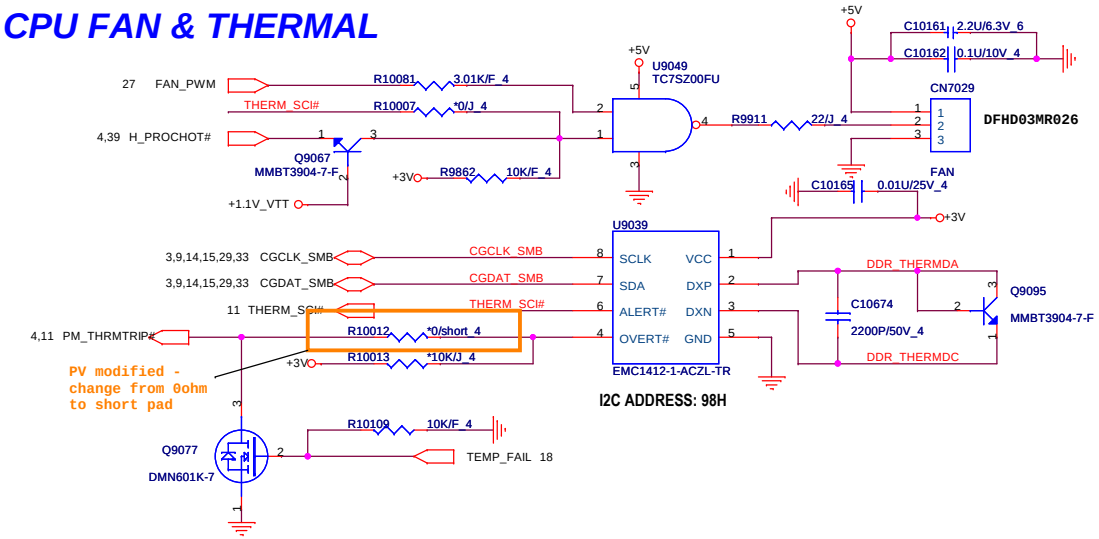
POWER BOTTON CONNECT



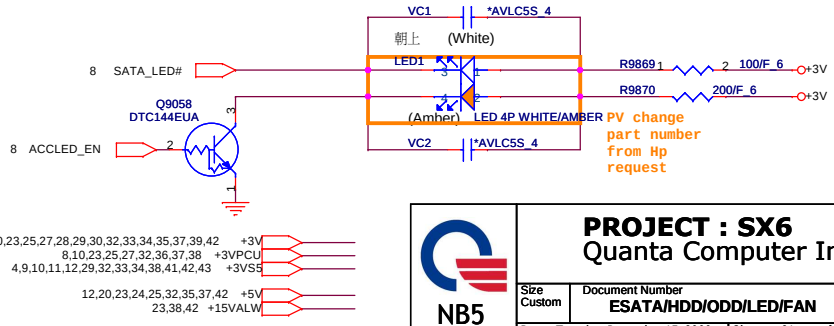
1. +3VPCU(LIDSWITCH PWR)
2. LEDVCC(+3VPCU)
3. LIDSWITCH
4. POWERON#
5. PWRLED#
6. GND



CPU FAN & THERMAL



LED



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Quanta Computer Inc.

Size	Document Number	Rev
Custom	ESATA/HDD/ODD/LED/FAN	2B
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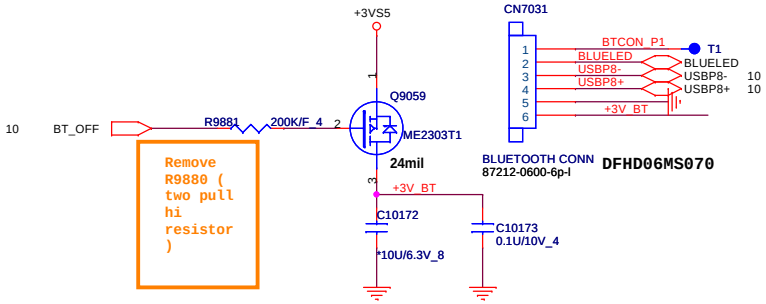
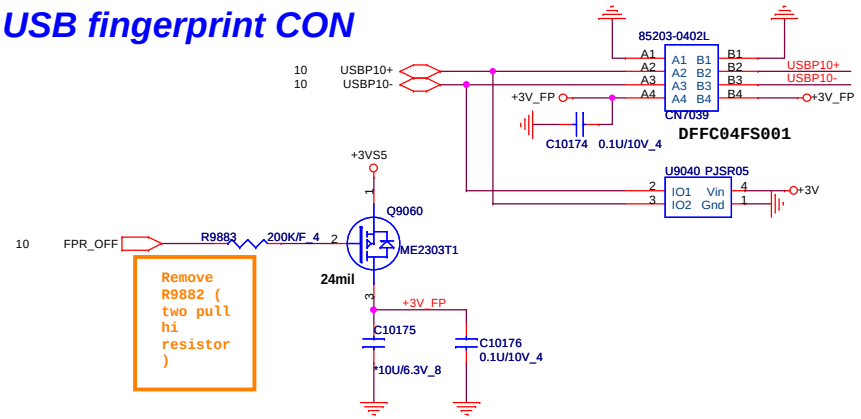
BLUETOOTH

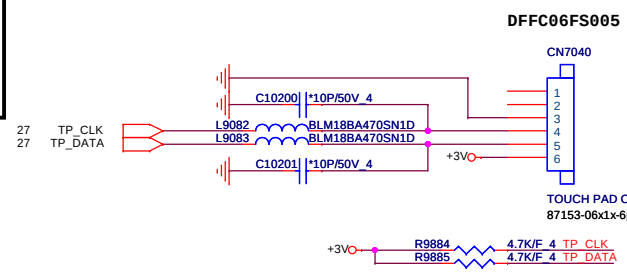


USB fingerprint CON

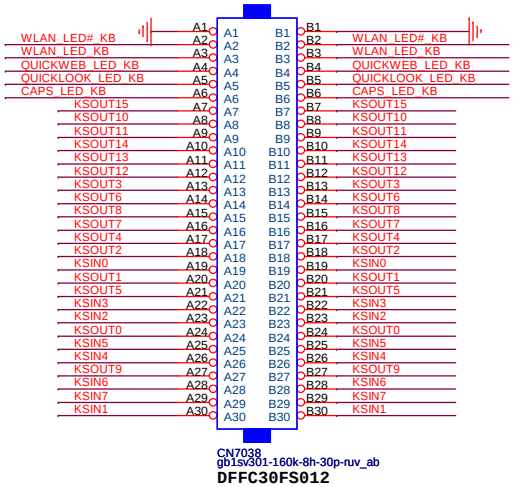


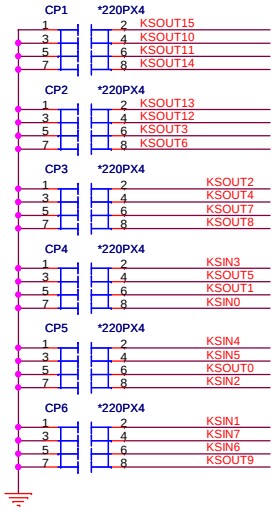
TOUCH PAD CONNECTOR

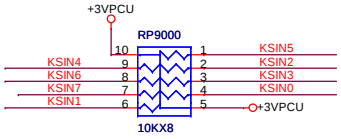
Pin1	VDD
Pin2	DATA
Pin3	CLK
Pin4	GND
Pin5	X
Pin6	X

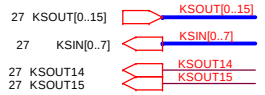


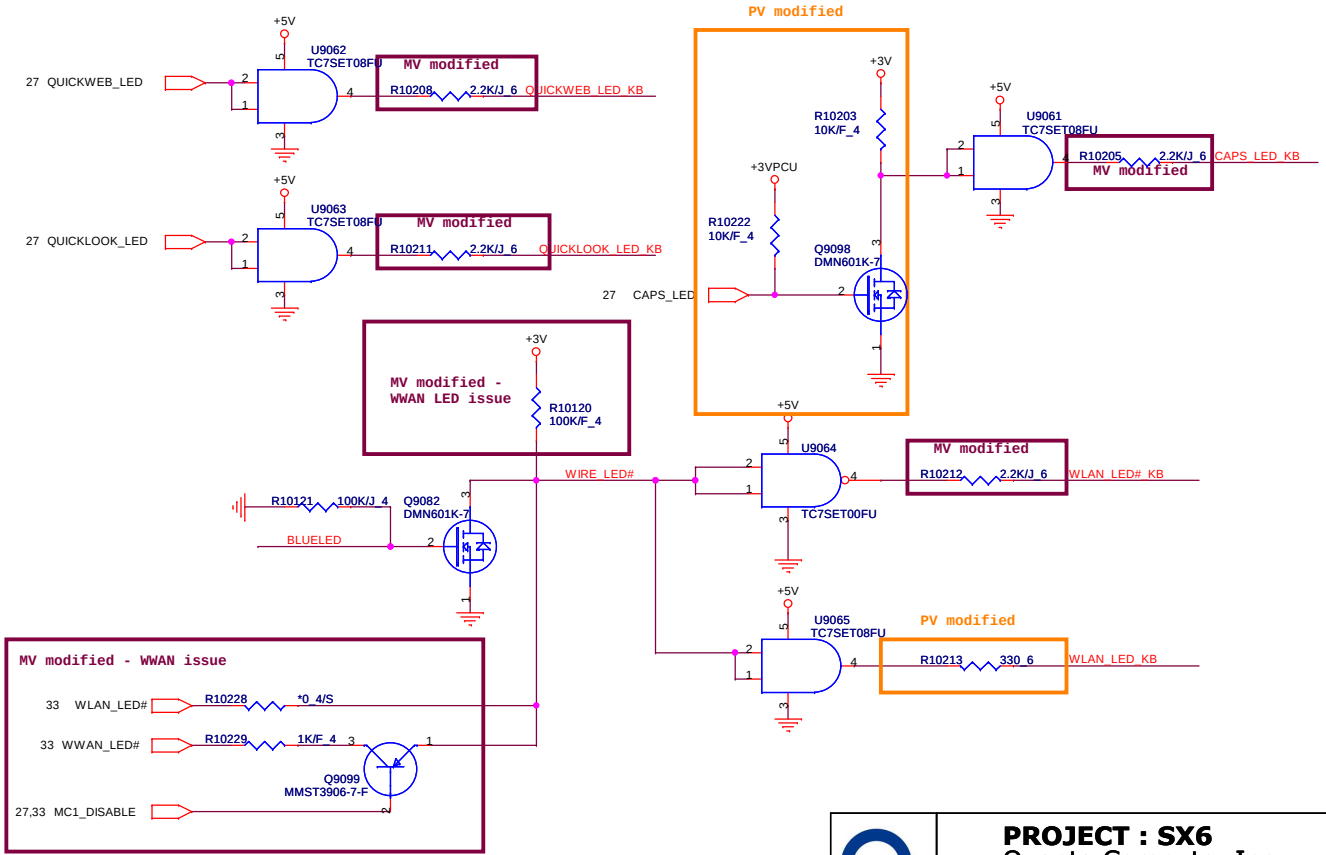
KEYBOARD CONNECTOR.











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PROJECT : SX6
Quanta Computer Inc.

Size	Document Number	Rev
Custom	BT/WC/FT/ESATA/USB/LED	2B

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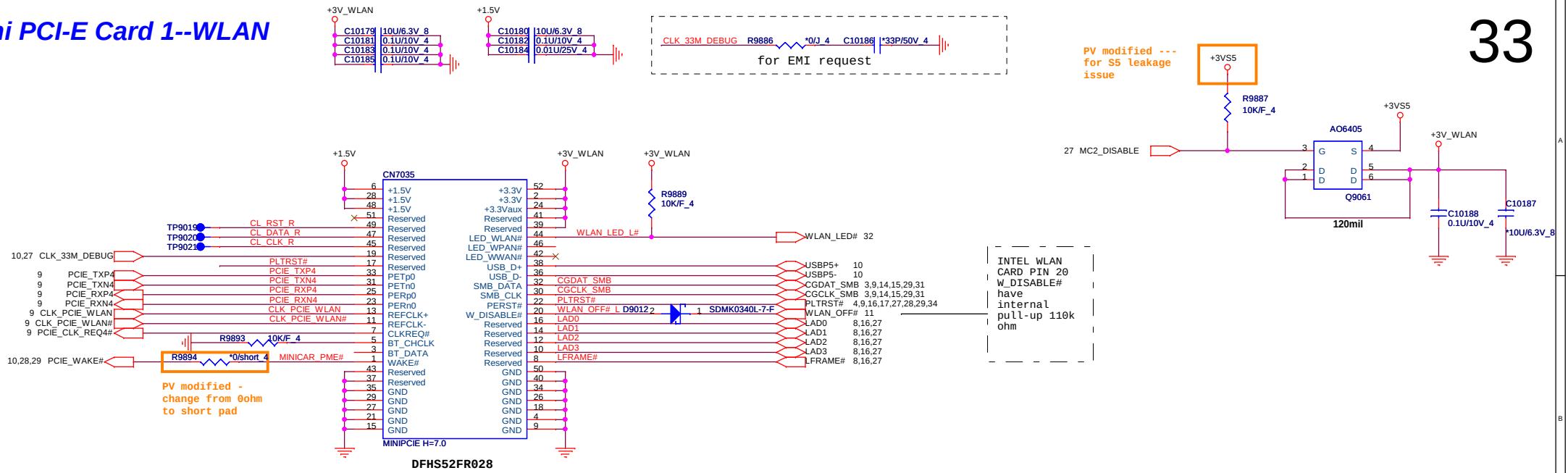
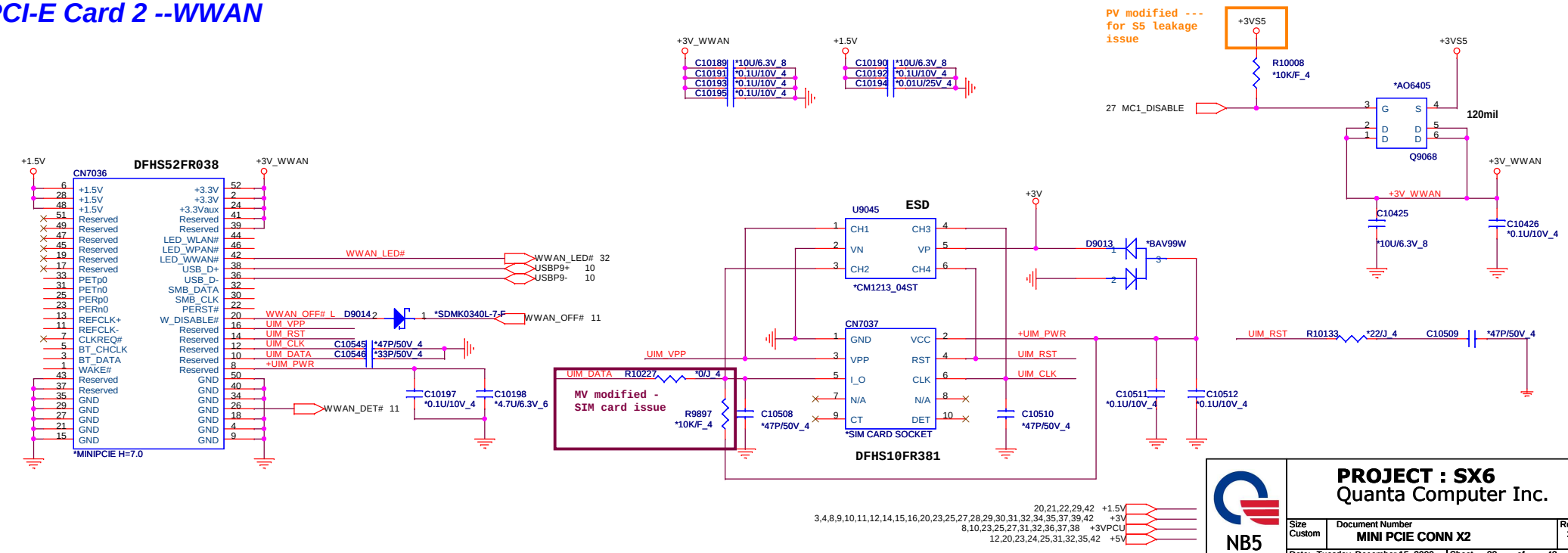
Mini PCI-E Card 1--WLAN



Mini PCI-E Card 2 --WWAN



NB5	PROJECT : SX6 Quanta Computer Inc.	
Size: Custom	Document Number: MINI PCIE CONN X2	Rev: 2B
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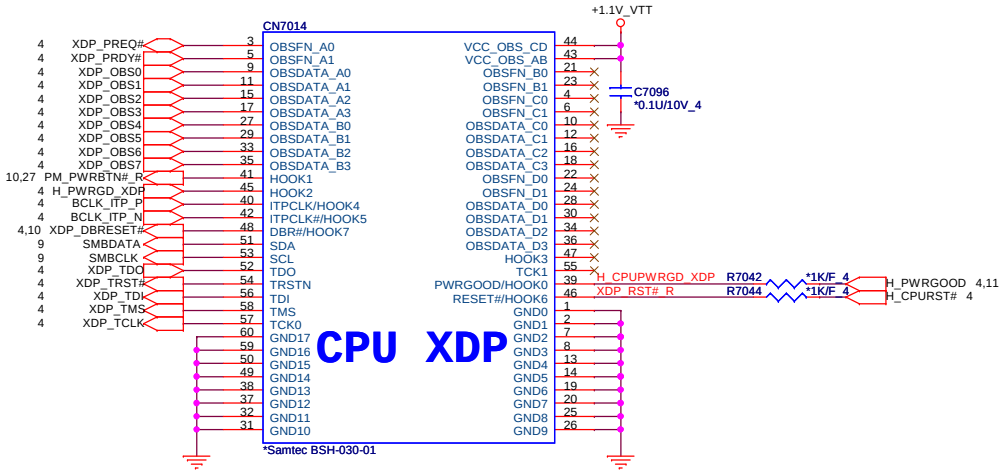
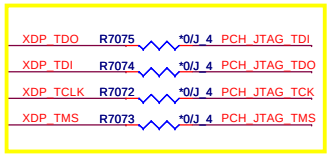
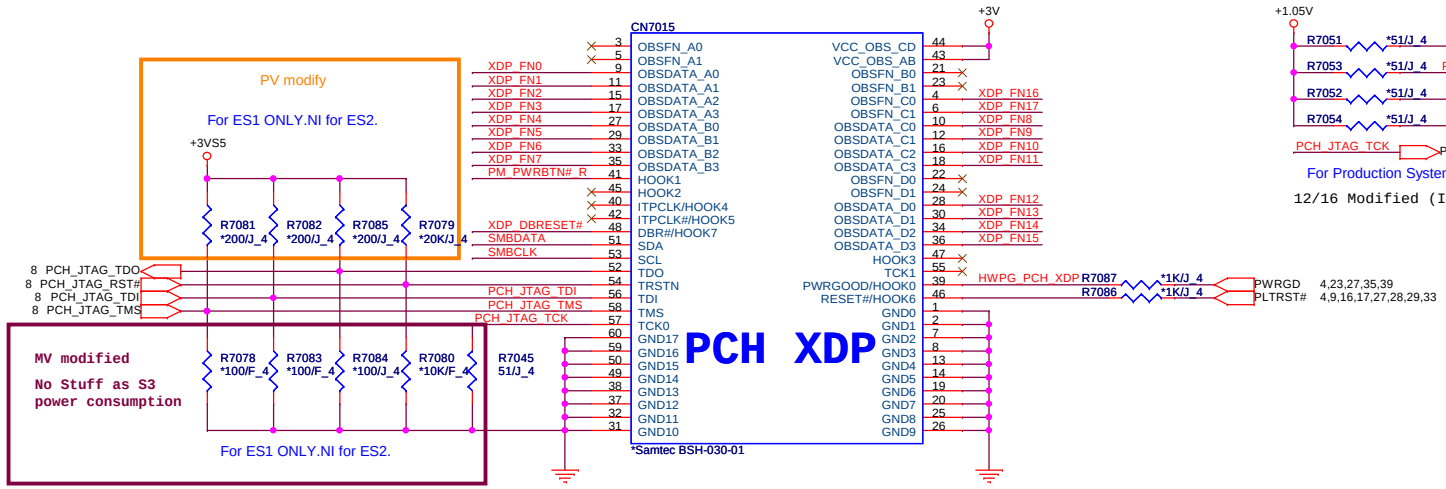
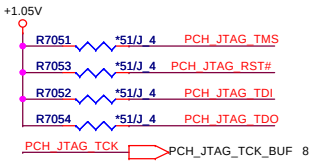
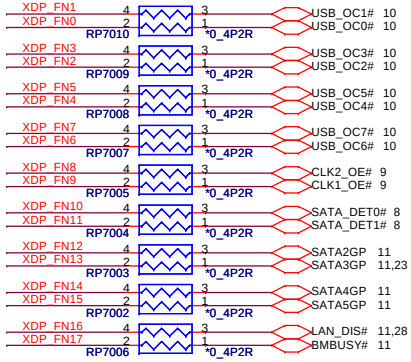


Reserve for BSDL



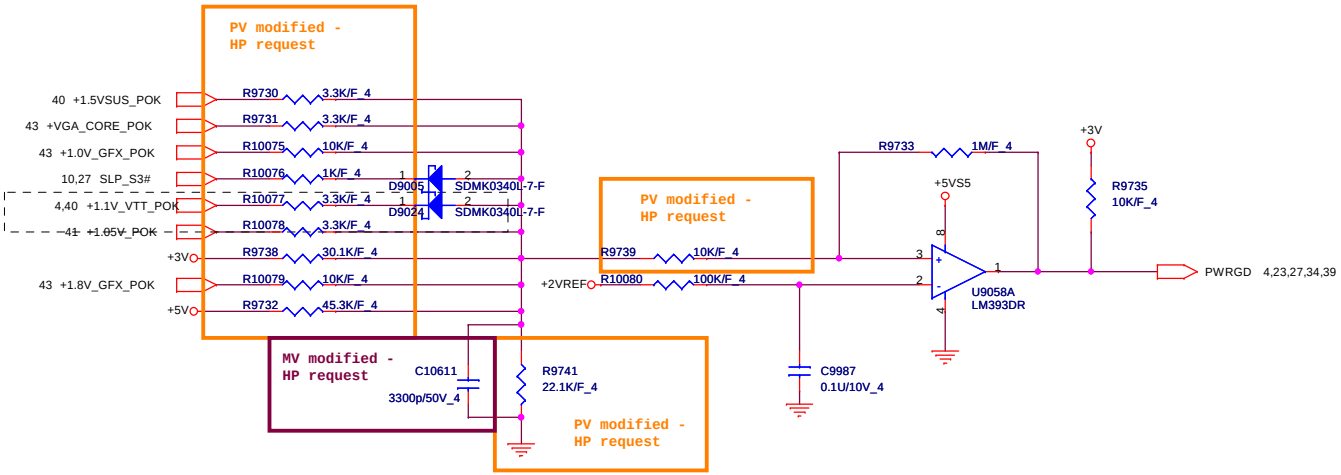






4,6,11,12,31,39,40 +1.1V_VTT
3,8,9,10,12,39,41 +1.05V
6,11,12,41,42 +1.8V
3,4,8,9,10,11,12,14,15,16,20,23,25,27,28,29,30,31,32,33,35,37,39,42 +3V
4,9,10,11,12,29,31,32,33,38,41,42,43 +3VS5

NB5	PROJECT : SX6 Quanta Computer Inc.	
Size: Custom	Document Number: XDP/BRAIDWOOD	Rev: 2B
Date: Tuesday, December 15, 2009	Sheet 34 of 43	



NB5

PROJECT : SX6
Quanta Computer Inc.

Size	Document Number	Rev
Custom	**POWER Sequance**	2B

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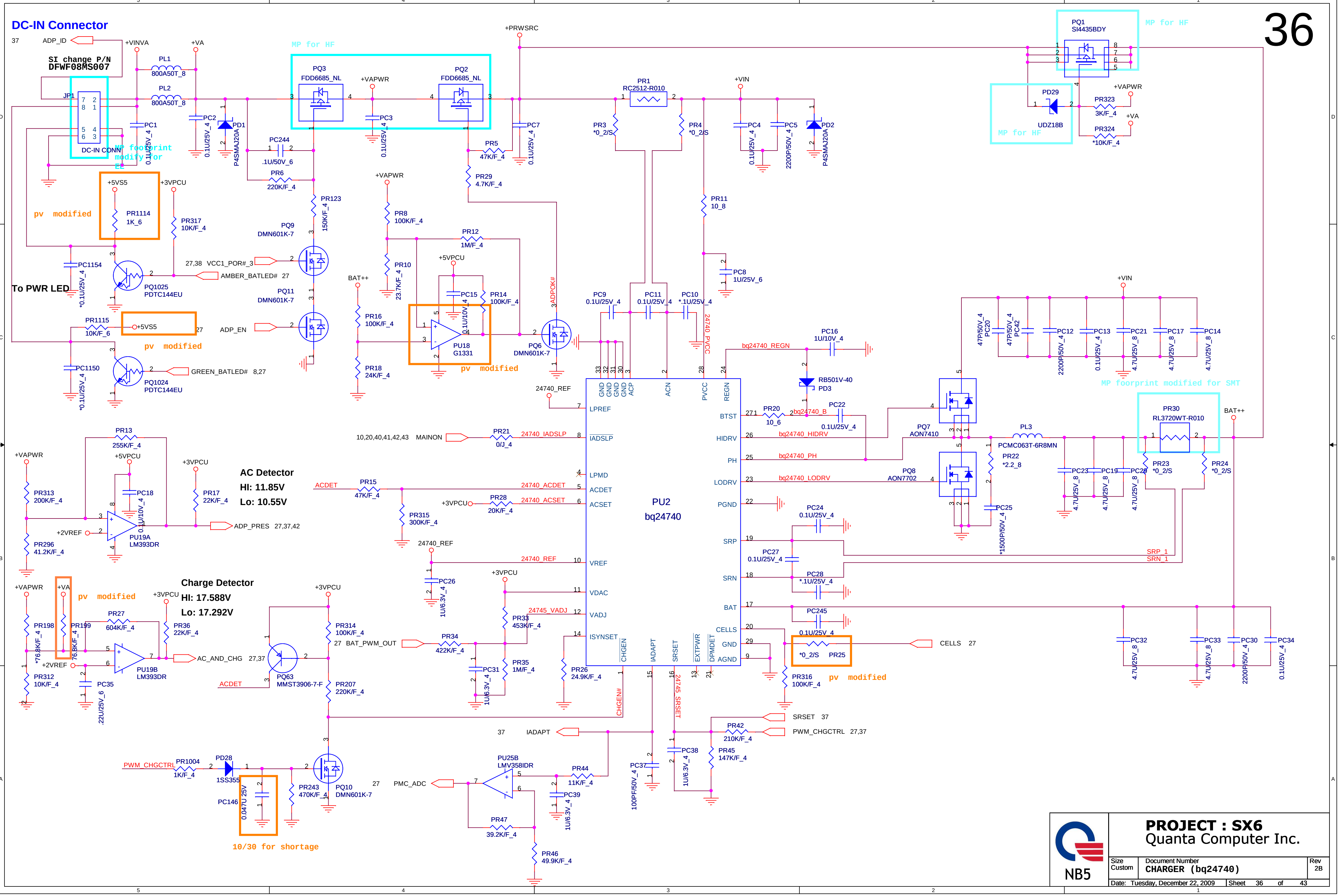

36
DC-IN Connector
SI change P/N DFWF08MS007
ADP_ID
+VINVA
+VA
PL1 800A50T_8
PL2 800A50T_8
JP1
DC-IN CONN
PC1 0.1U/25V_4
PC2 0.1U/25V_4
PD1 P4SMAJ20A
MP foorprint modify for EE
MP for HF
PQ3 FDD6685_NL
PQ2 FDD6685_NL
+VAPWR
PC3 0.1U/25V_4
+PRWSRC
PC244 .1U/50V_6
PR6 220K/F_4
PR123 150K/F_4
PQ9 DMN601K-7
PQ11 DMN601K-7
PR5 47K/F_4
PR29 4.7K/F_4
PC7 0.1U/25V_4
PR1 RC2512-R010
PR3 *0_2/S
PR4 *0_2/S
+VIN
PC4 0.1U/25V_4
PC5 2200P/50V_4
PD2 P4SMAJ20A
PR11 10_8
PC8 1U/25V_6
PQ1 SI4435BDY
PD29 UDZ18B
PR323 3K/F_4
PR324 *10K/F_4
pv modified
+5VS5
+3VPCU
PR1114 1K_6
PR317 10K/F_4
27,38 VCC1_POR#_3
AMBER_BATLED# 27
PC1154 *0.1U/25V_4
PQ1025 PDTC144EU
To PWR LED
PR1115 10K/F_6
ADP_EN
PC1150 *0.1U/25V_4
PQ1024 PDTC144EU
GREEN_BATLED# 8,27
PR8 100K/F_4
PR10 23.7K/F_4
PR12 1M/F_4
+5VPCU
PC15 0.1U/10V_4
PR14 100K/F_4
BAT++
PR16 100K/F_4
PR18 24K/F_4
PU18 G1331
ADPOK#
PQ6 DMN601K-7
PC9 0.1U/25V_4
PC11 0.1U/25V_4
PC10 *.1U/25V_4
24740_PVCC
PC16 1U/10V_4
bq24740_REGN
RB501V-40 PD3
24740_REF
PU2 bq24740
GND GND GND GND ACP ACN PVCC REGN
LPREF IADSLP LPMD ACDET ACSET VREF VDAC VADJ ISYNSET
BTST HIDRV PH LODRV PGND SRP SRN BAT CELLS GND AGND
CHGEN IADAPT SRSET EXTPWR DPMDET
PR20 10_6
PC22 0.1U/25V_4
bq24740_B
bq24740_HIDRV
bq24740_PH
bq24740_LODRV
PQ7 AON7410
PQ8 AON7702
PL3 PCMC063T-6R8MN
PR22 *2.2_8
PC25 *1500P/50V_4
PC20 47P/50V_4
PC42 47P/50V_4
PC12 2200P/50V_4
PC13 0.1U/25V_4
PC21 4.7U/25V_8
PC17 4.7U/25V_8
PC14 4.7U/25V_8
MP foorprint modified for SMT
PR30 RL3720WT-R010
PR23 *0_2/S
PR24 *0_2/S
PC23 4.7U/25V_8
PC19 4.7U/25V_8
PC28 4.7U/25V_8
SRP_1
SRN_1
PC24 0.1U/25V_4
PC27 0.1U/25V_4
PC28 *.1U/25V_4
PC245 0.1U/25V_4
*0_2/S PR25
CELLS 27
PR316 100K/F_4
pv modified
PC32 4.7U/25V_8
PC33 4.7U/25V_8
PC30 2200P/50V_4
PC34 0.1U/25V_4
10,20,40,41,42,43 MAINON
PR21 0/J_4
24740_IADSLP
PR13 255K/F_4
+VAPWR
PR313 200K/F_4
PR296 41.2K/F_4
+2VREF
PC18 0.1U/10V_4
PU19A LM393DR
PR17 22K/F_4
ADP_PRES 27,37,42
AC Detector
HI: 11.85V
Lo: 10.55V
ACDET
PR15 47K/F_4
24740_ACDET
PR28 20K/F_4
24740_ACSET
PR315 300K/F_4
24740_REF
PC26 1U/6.3V_4
+3VPCU
PR33 453K/F_4
24745_VADJ
PR26 24.9K/F_4
Charge Detector
HI: 17.588V
Lo: 17.292V
PR198 *76.8K/F_4
PR199 76.8K/F_4
PR27 604K/F_4
PR36 22K/F_4
PR312 10K/F_4
PC35 .22U/25V_6
PU19B LM393DR
AC_AND_CHG 27,37
PQ63 MMST3906-7-F
PR314 100K/F_4
27 BAT_PWM_OUT
PR207 220K/F_4
PR34 422K/F_4
PC31 1U/6.3V_4
PR35 1M/F_4
CHGEN#
24745_SRSET
SRSET 37
PWM_CHGCTRL 27,37
37 IADAPT
PR42 210K/F_4
PR45 147K/F_4
PC38 1U/6.3V_4
PC37 100PF/50V_4
PU25B LMV358IDR
PR44 11K/F_4
PC39 1U/6.3V_4
PR47 39.2K/F_4
PR46 49.9K/F_4
27 PMC_ADC
PWM_CHGCTRL
PR1004 1K/F_4
PD28 1SS355
PC146 0.047U 25V
PR243 470K/F_4
PQ10 DMN601K-7
10/30 for shortage
NB5
PROJECT : SX6
Quanta Computer Inc.
Size Custom
Document Number CHARGER (bq24740)
Rev 2B
Date: Tuesday, December 22, 2009
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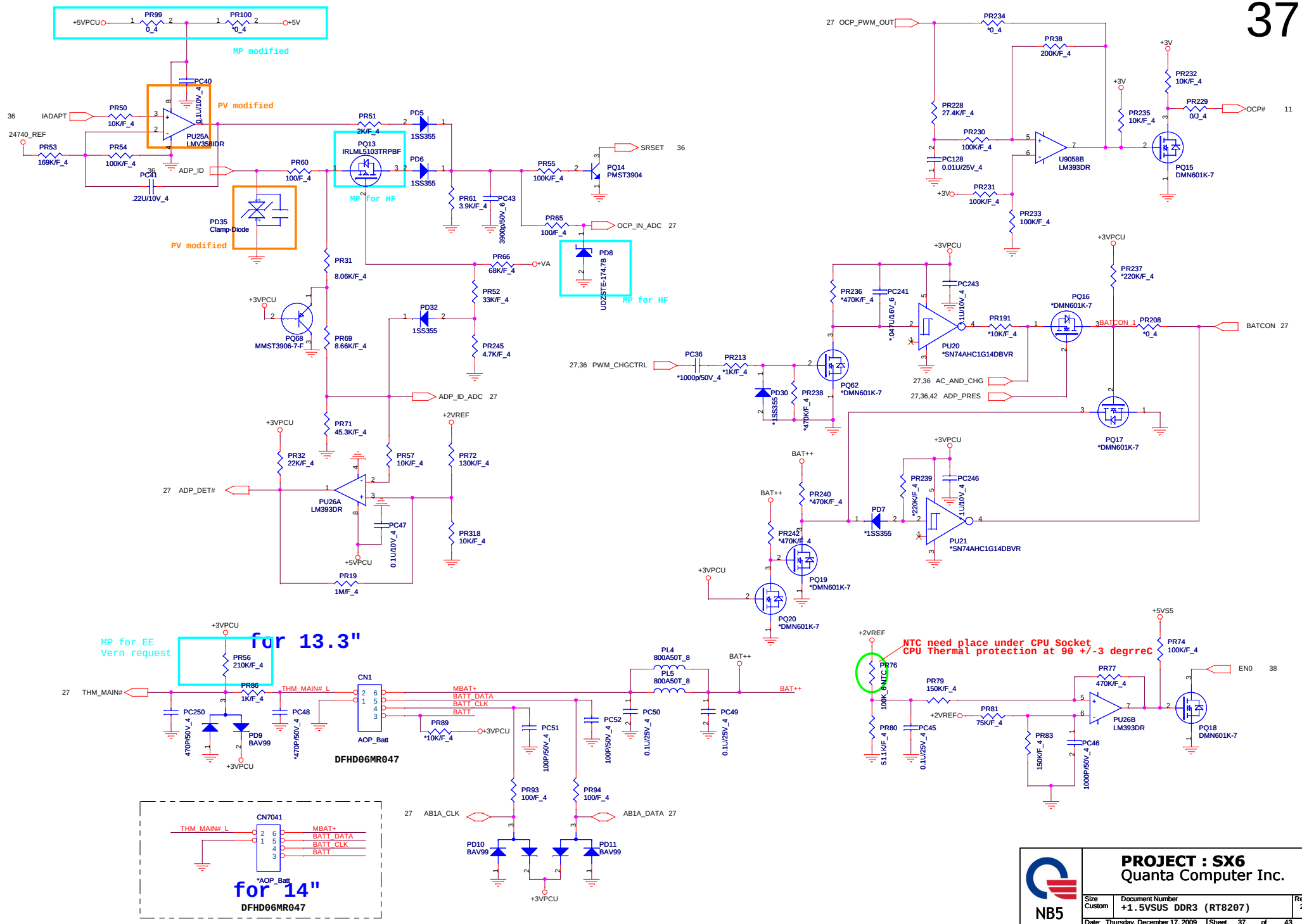
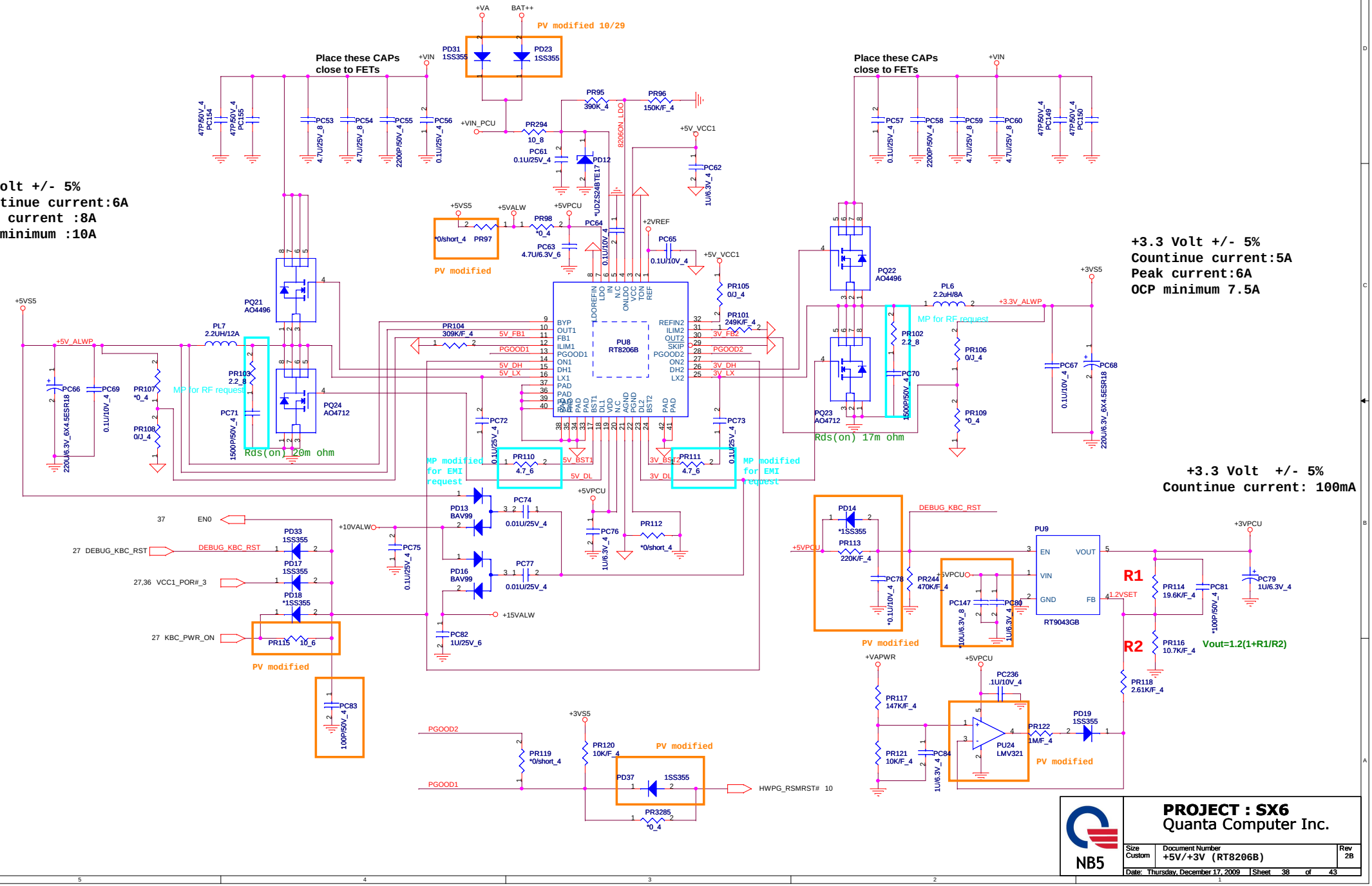
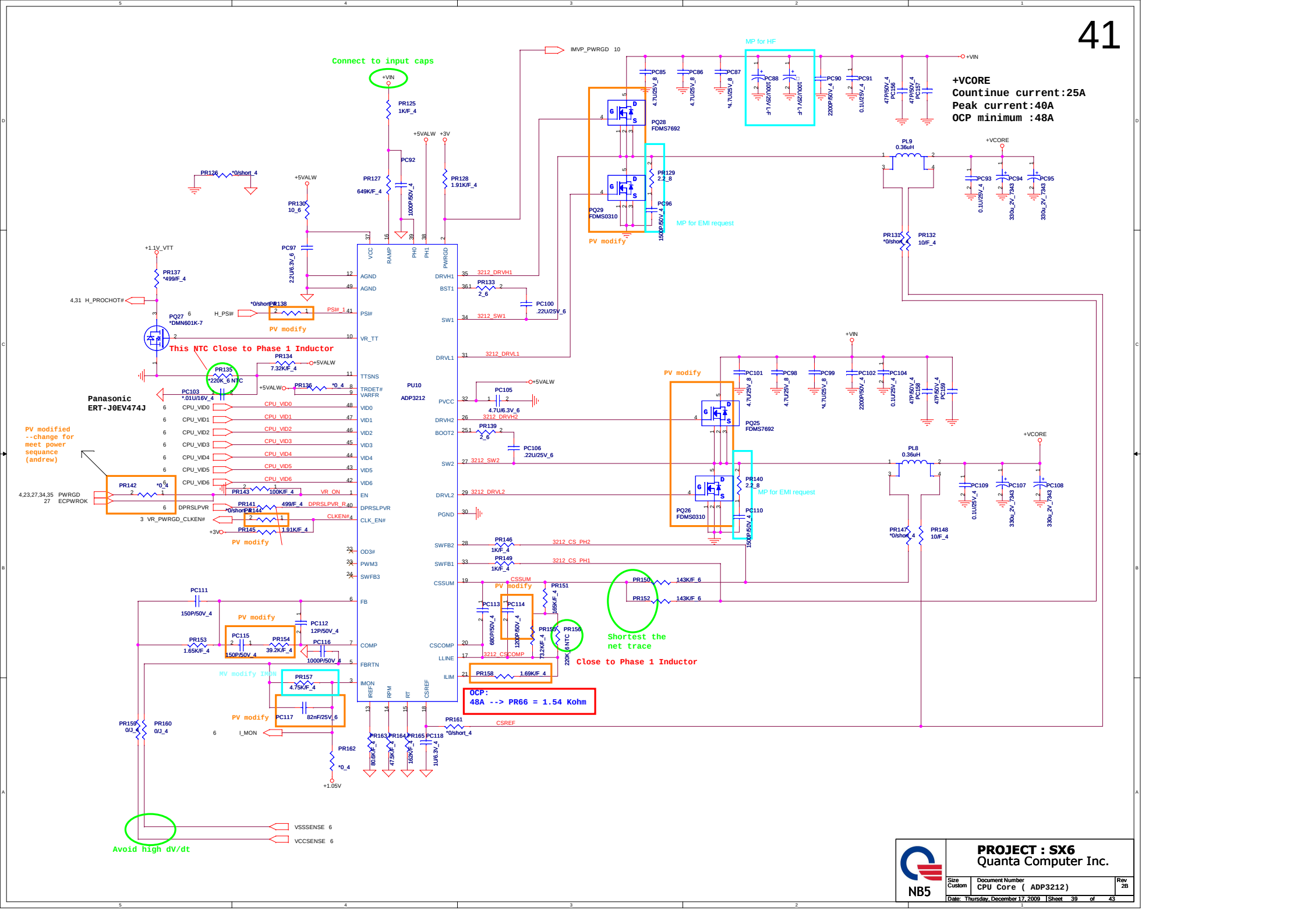


NB5	PROJECT : SX6 Quanta Computer Inc.		
	Size: Custom	Document Number: +1.5VSUS DDR3 (RT8207)	Rev: 2B
	Date: Thursday, December 17, 2009	Sheet 37 of 43	

DC/DC +3V_ALW/+5V_ALW/+5V_ALW2 /+15V_ALW





NB5	**PROJECT : SX6** Quanta Computer Inc.
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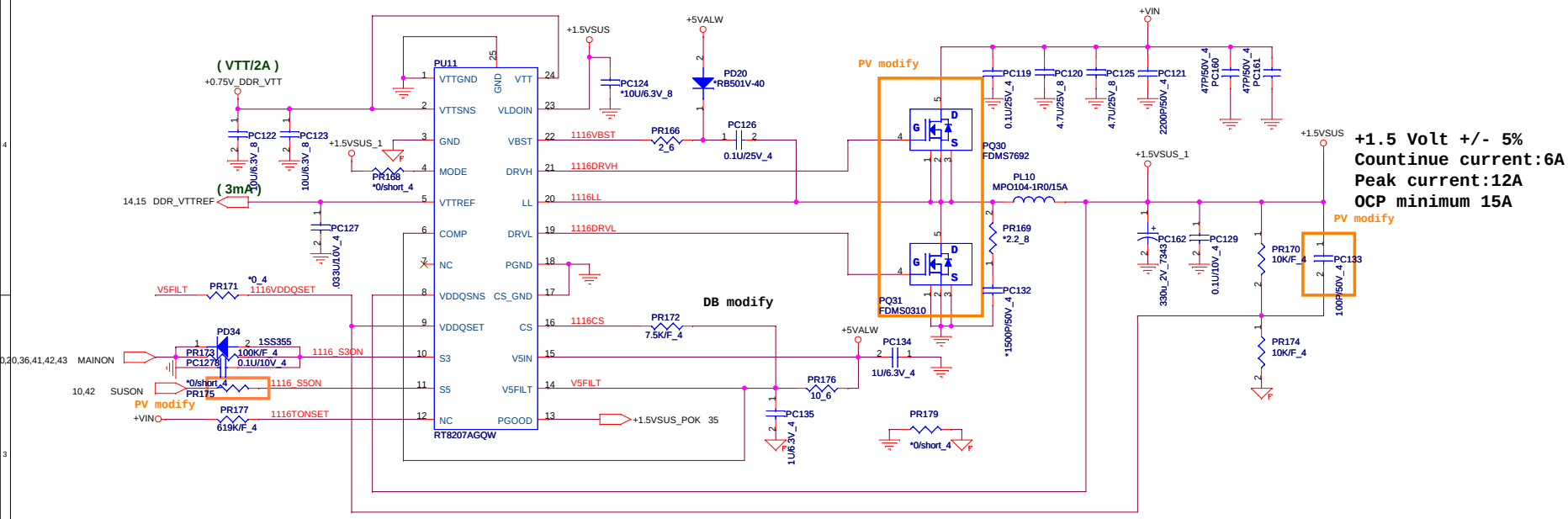
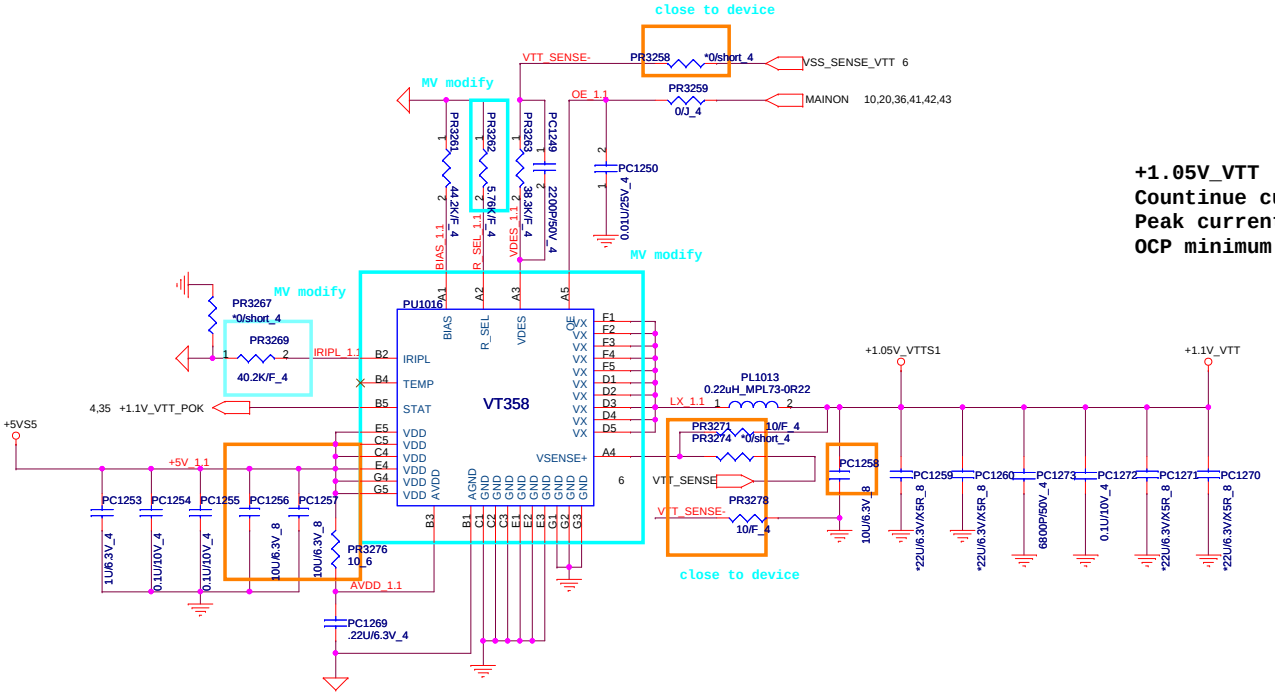
Rev: 2B	
Date: Thursday, December 17, 2009	Sheet 39 of 43





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PROJECT : SX6
Quanta Computer Inc.

Size	Document Number	Rev
Custom	DDR3 (RT8207)	2B

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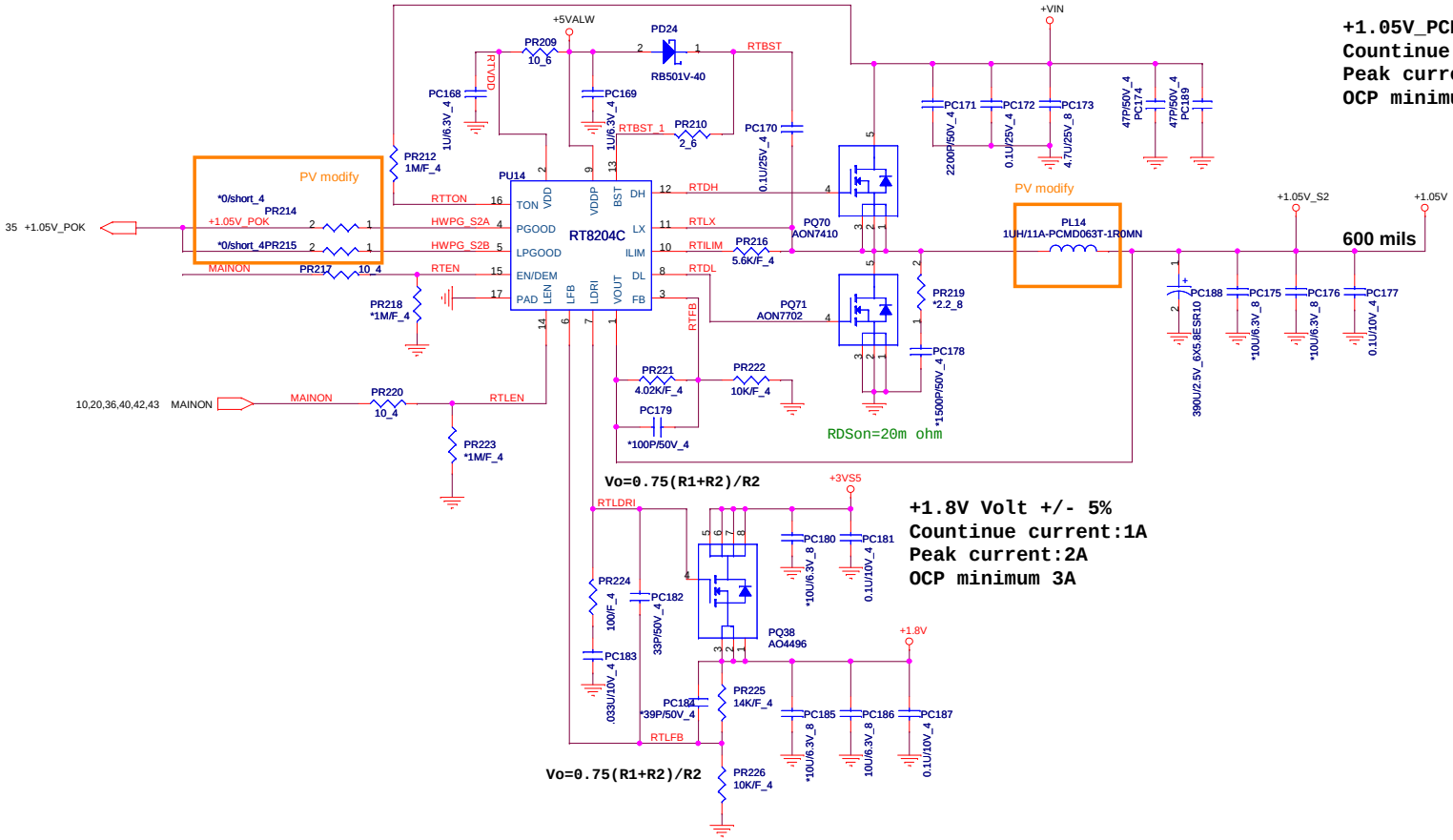
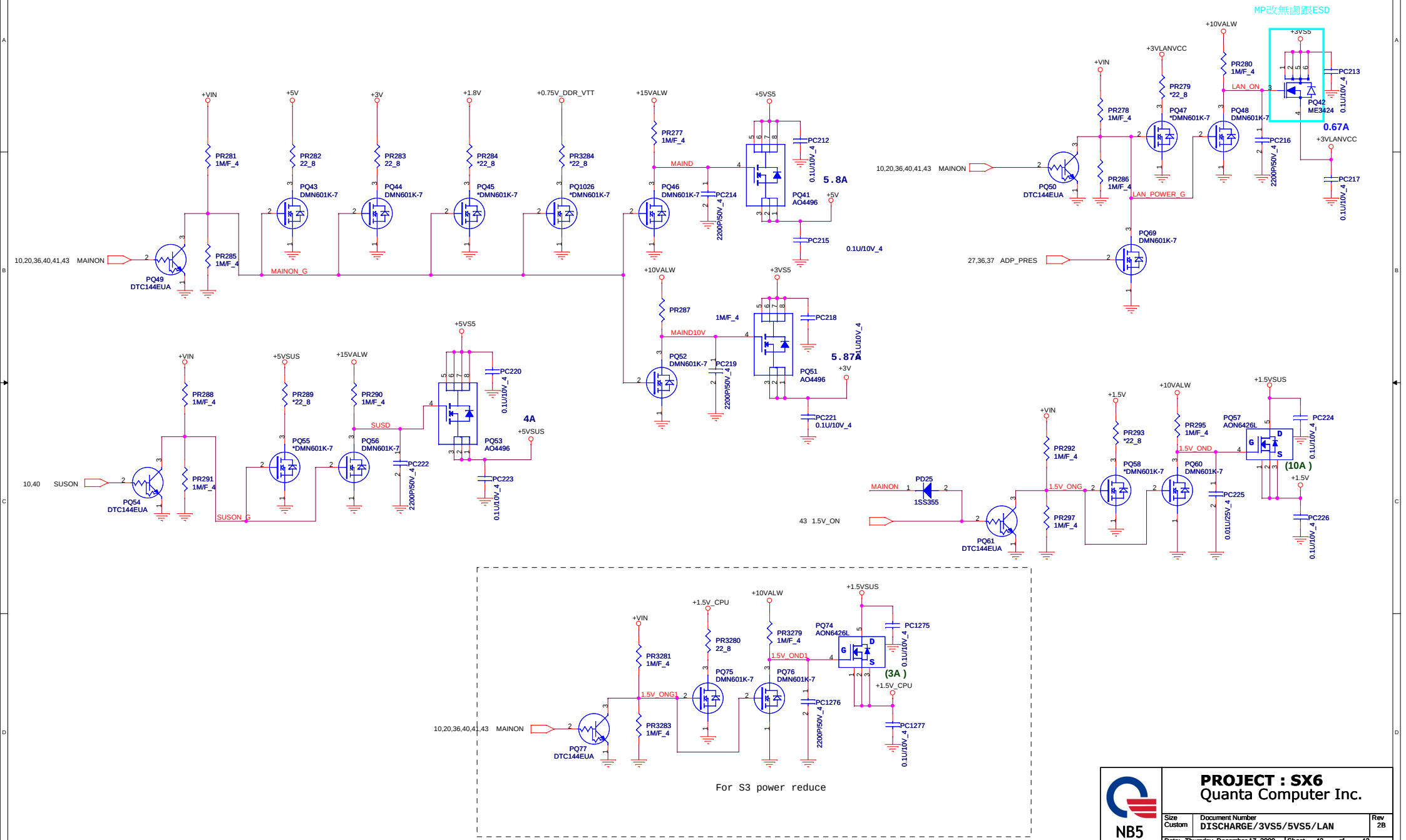


NB5	**PROJECT : SX6** Quanta Computer Inc.	
Size: Custom	Document Number: PCH +1.05V	Rev: 2B
Date: Thursday, December 17, 2009	Sheet 41 of 43	



PROJECT : SX6
Quanta Computer Inc.

Size	Document Number	Rev
Custom	DISCHARGE/3VS5/5VS5/LAN	2B
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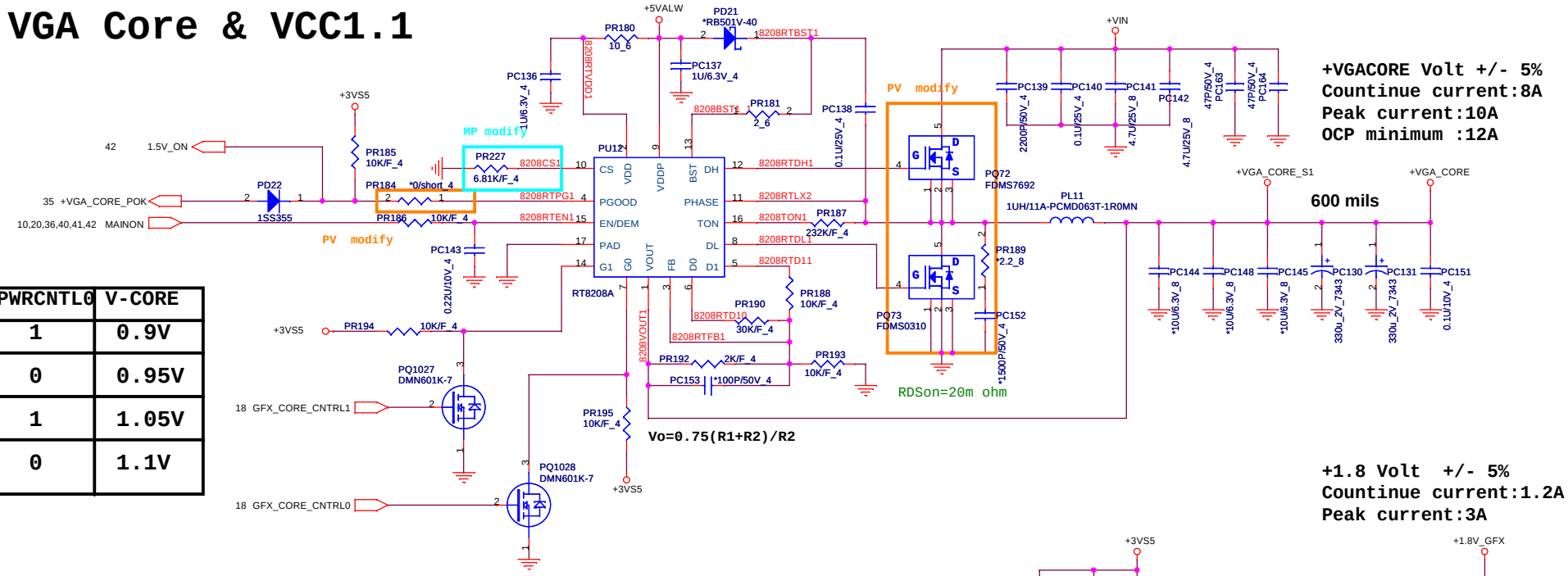
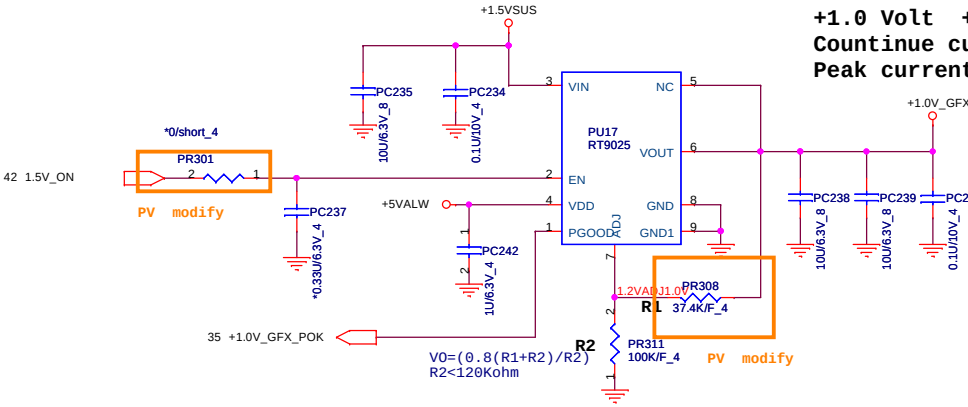
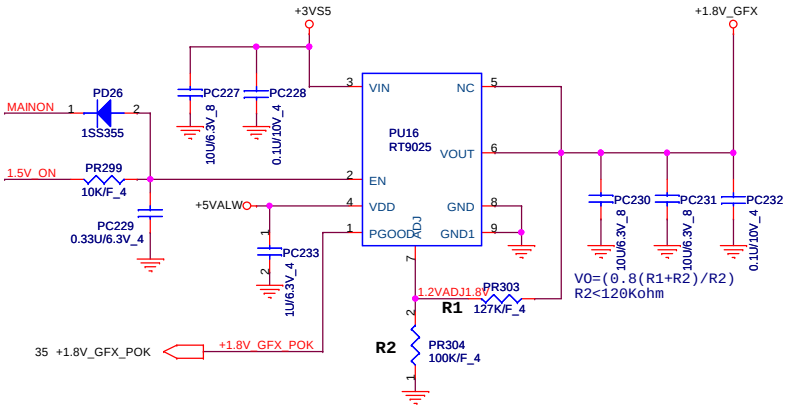
NB5

VGA Core & VCC1.1

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







PROJECT : SX6	Quanta Computer Inc.
NB5	Size: Custom; Document Number: VGA Core/+1.8VGFX/1.0VGFX; Rev: 2B
	Date: Thursday, December 17, 2009; Sheet 43 of 43