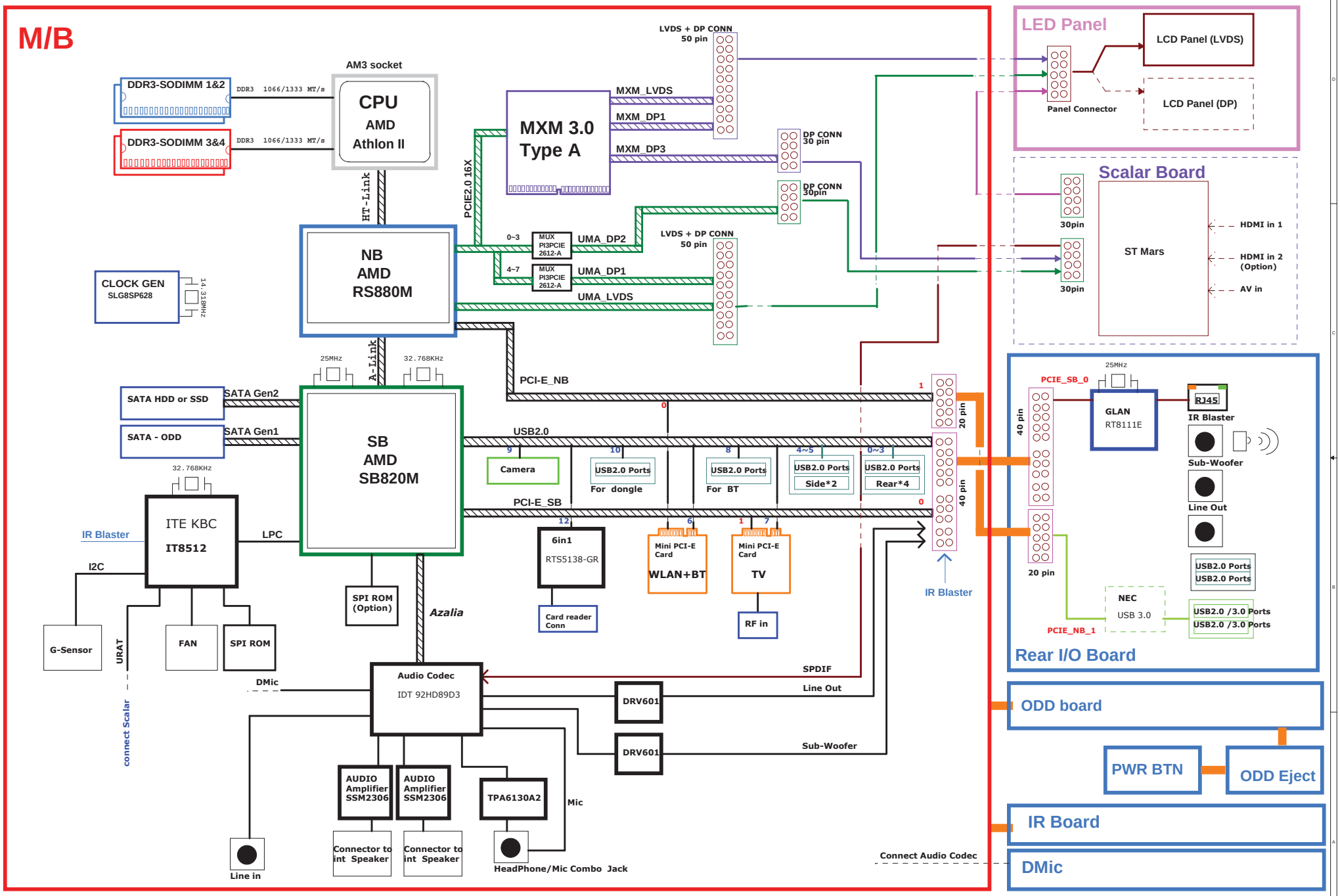
M3 System Block Diagram



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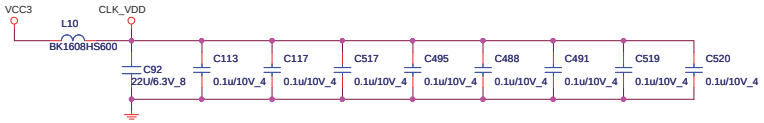
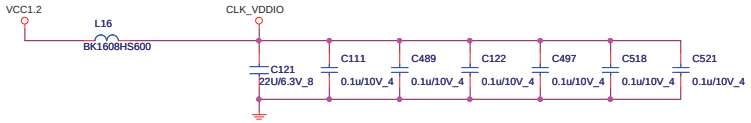
PROJECT : ZN8

Size	Document Number	Rev
	System Block Diagram	A

Date: Monday, March 22, 2010 Sheet 1 of 43

CLK_GEN_SLG8SP628





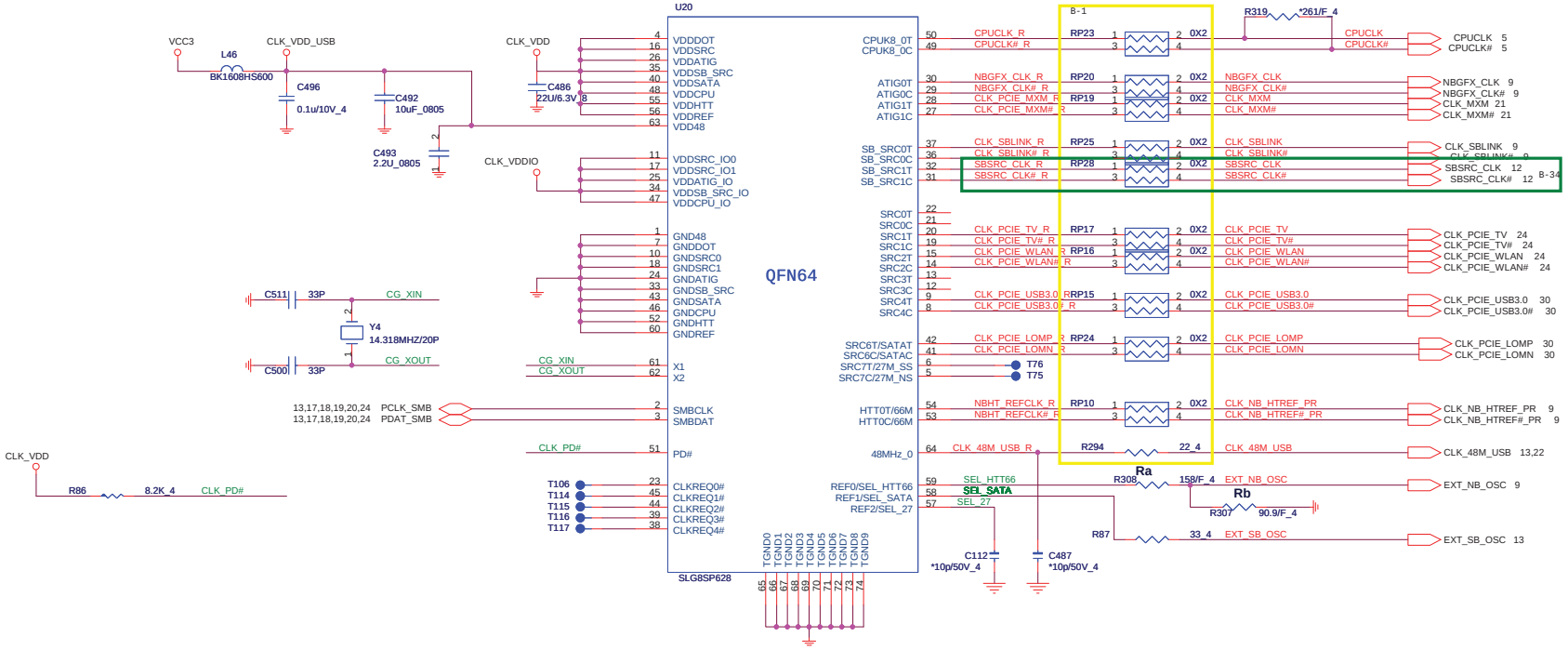
Clock chip has internal serial terminations for differencial pairs, external resistors are reserved for debug purpose.

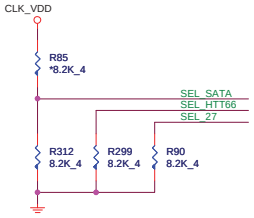
Place within 0.5" of CLKGEN

ICS9LPRS480 P/N : ALPRS480000

SLG8SP628 P/N : AL8SP628000

RTM880N-796 P/N : AL000880000





To CPU	200 Mhz	
To NB	RS880M for VGA	
To NB To SB	100 Mhz	
To LAN Controller To Mini PCIE Slot(TV) To Mini PCIE Slot(WLAN) To 6 in 1 Controller To USB 3.0	100 Mhz	
To NB HT BUS	100 Mhz	
To SB USB	48 Mhz	
To NB		

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 and 27M SS outputs
	0*	100 MHz SRC clock

* default

CLOCK INPUT TABLE

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

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PROJECT : ZN8

Size	Document Number	Rev
	Clock Generator	1A

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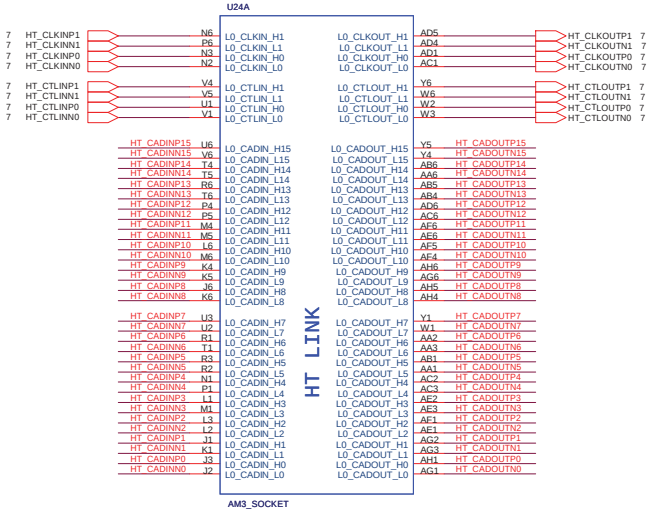
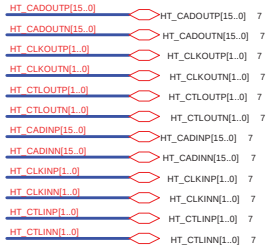
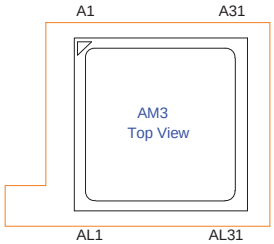
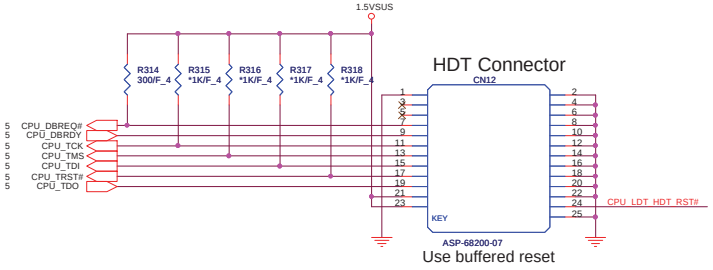
CPU HyperTransport and Debug



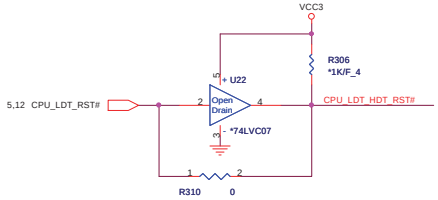






Use buffered reset

HDT Header

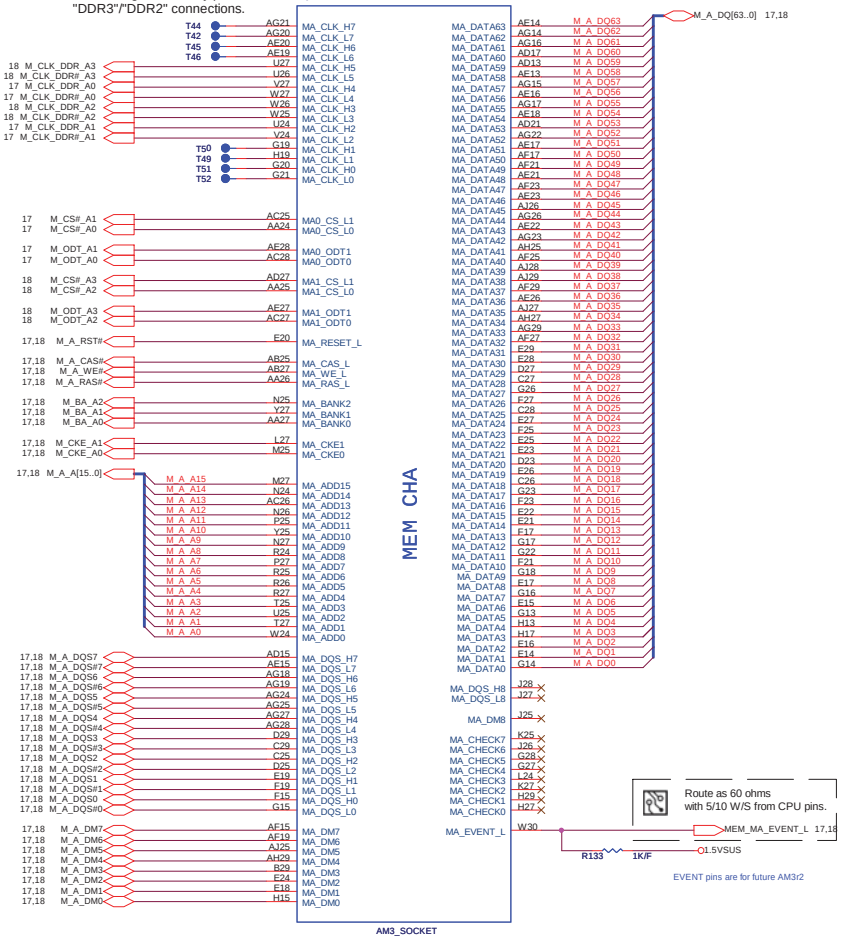


Quanta Computer Inc.		
PROJECT : ZN8		
Size	Document Number: CPU HyperTransport and Debug	Rev: 1A
Date: Monday, March 22, 2010	Sheet 3 of 40	

CPU Memory

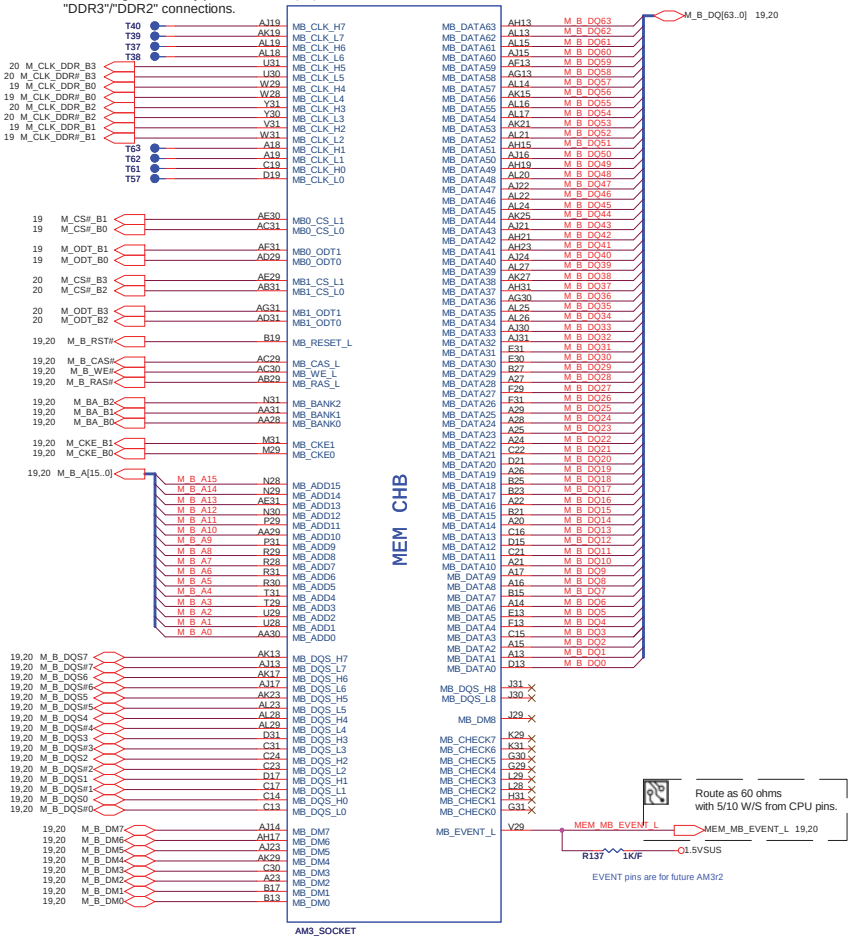
DDR3 Memory Interface A

Pin naming for memory pins indicate "DDR3"/"DDR2" connections.

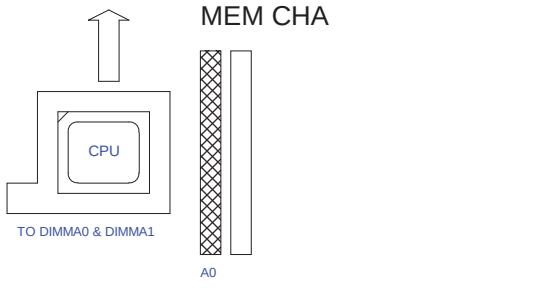


DDR3 Memory Interface B

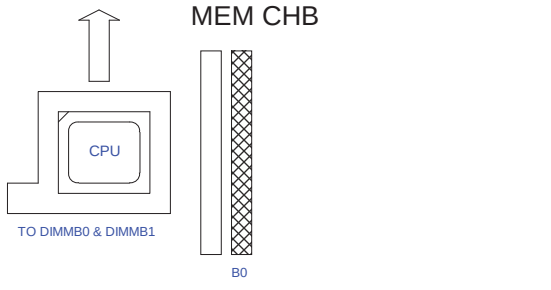
Pin naming for memory pins indicate "DDR3"/"DDR2" connections.



MEM CHA



MEM CHB



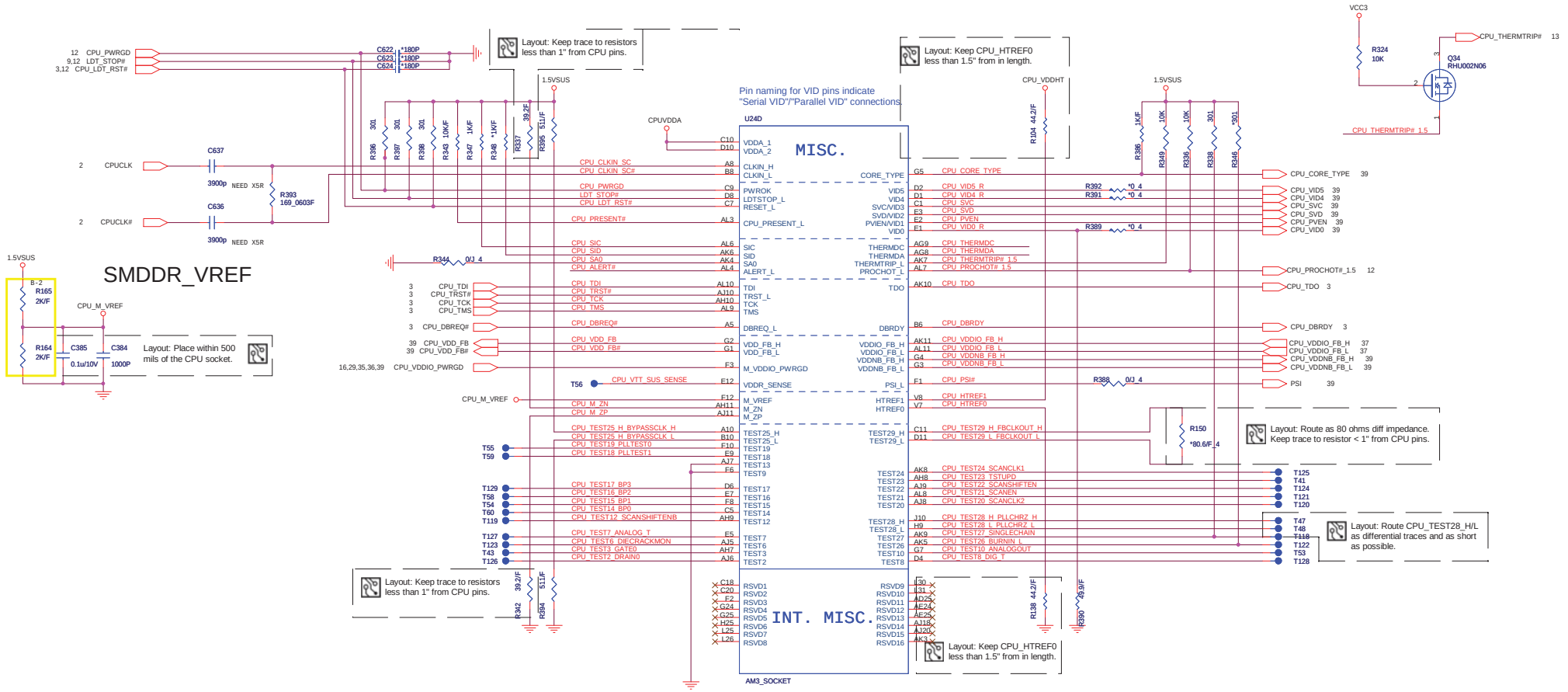
Quanta Computer Inc.

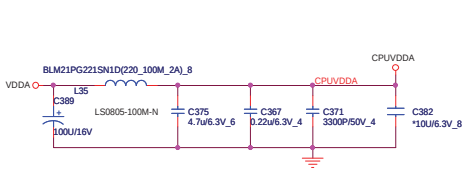
PROJECT : ZN8

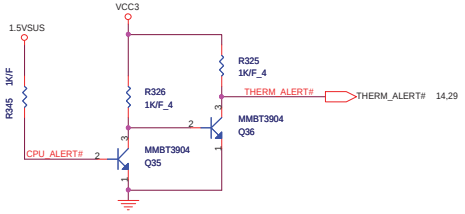
Size	Document Number	Rev
	CPU Memory	1A

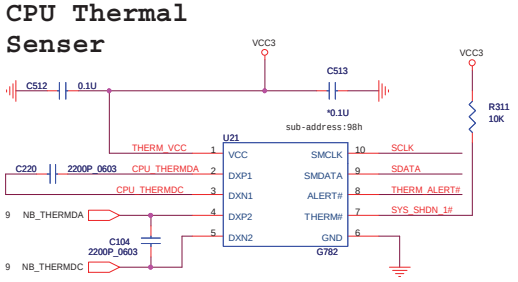
Date: Monday, March 22, 2010 Sheet 4 of 40

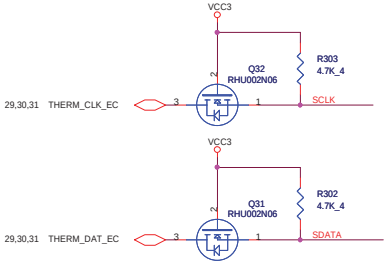
CPU Control and Miscellaneous

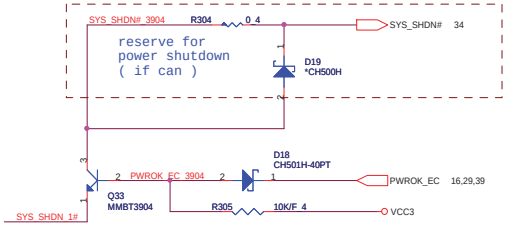












Quanta Computer Inc.		
PROJECT : ZN8		
Size	Document Number	Rev
	CPU Control & Misc	1A
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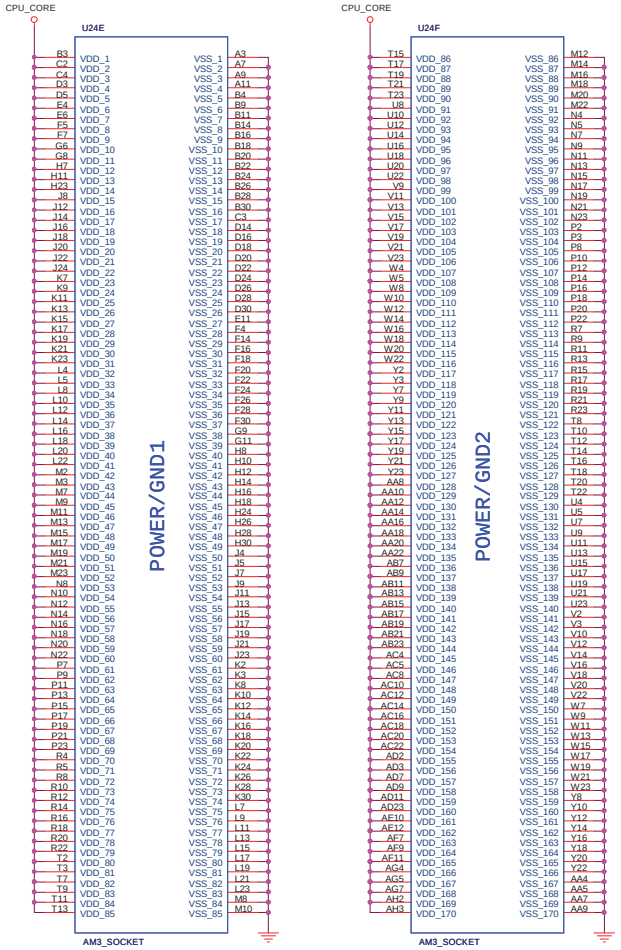
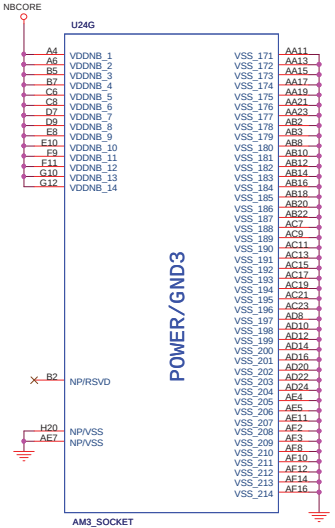
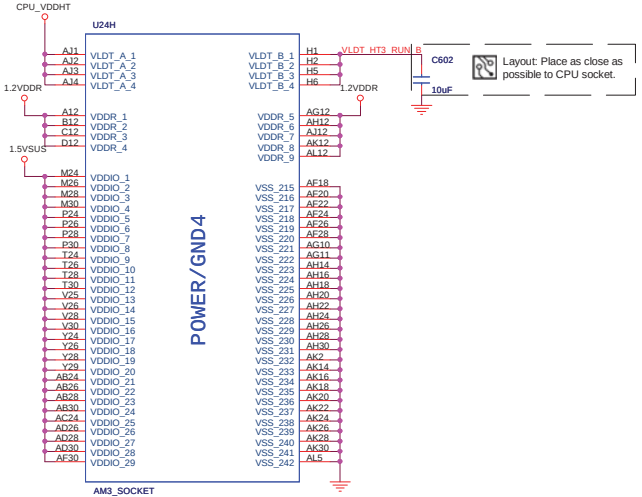
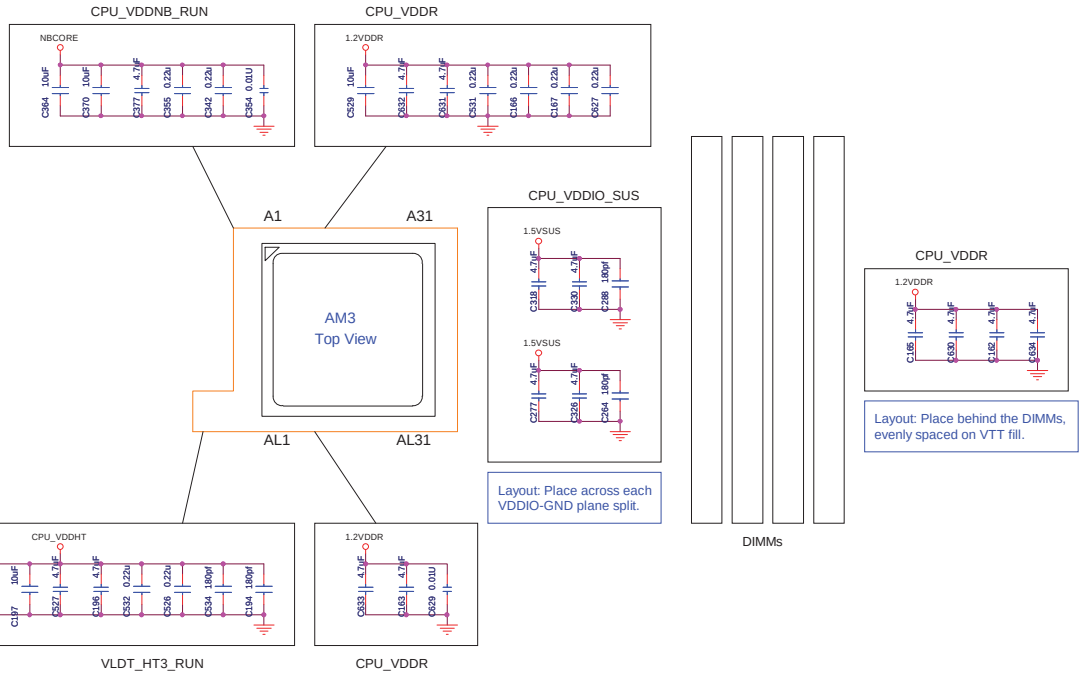
Processor Power and Ground

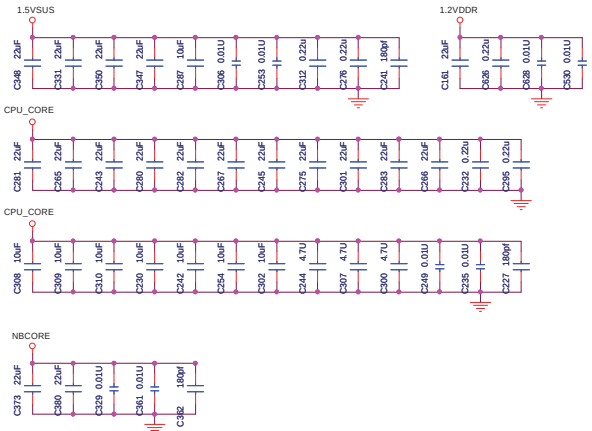








Bottom Side Decoupling



Quanta Computer Inc.			
PROJECT : ZN8			
Size	Document Number: CPU Power & GND		Rev: 1A
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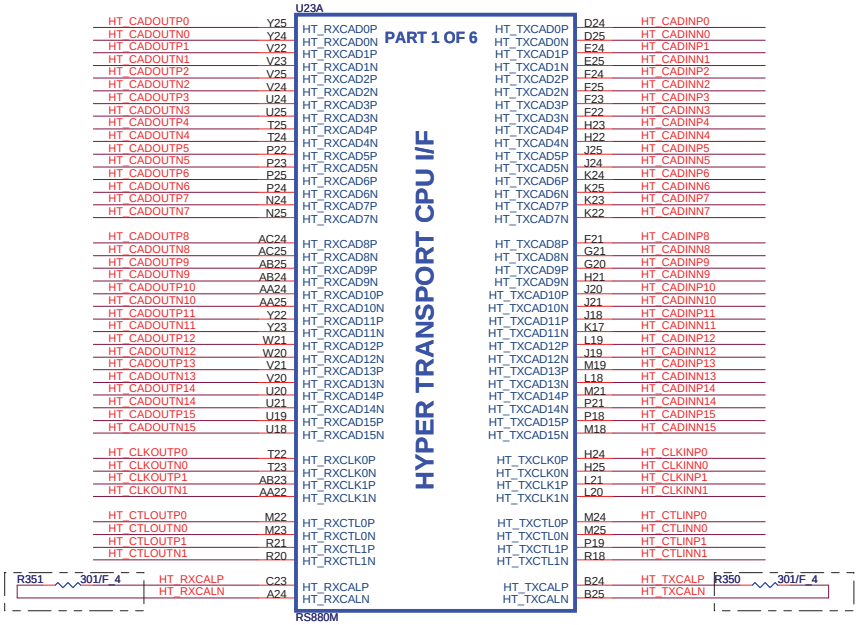

HT_CADOUTP[15..0] → HT_CADOUTP[15..0] 3
HT_CADOUTN[15..0] → HT_CADOUTN[15..0] 3
HT_CLKOUTP[1..0] → HT_CLKOUTP[1..0] 3
HT_CLKOUTN[1..0] → HT_CLKOUTN[1..0] 3
HT_CTLOUTP[1..0] → HT_CTLOUTP[1..0] 3
HT_CTLOUTN[1..0] → HT_CTLOUTN[1..0] 3
HT_CADINP[15..0] → HT_CADINP[15..0] 3
HT_CADINN[15..0] → HT_CADINN[15..0] 3
HT_CLKINP[1..0] → HT_CLKINP[1..0] 3
HT_CLKINN[1..0] → HT_CLKINN[1..0] 3
HT_CTLINP[1..0] → HT_CTLINP[1..0] 3
HT_CTLINN[1..0] → HT_CTLINN[1..0] 3

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

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Size	Document Number	Rev
	RS880M-HT Link I/F	1A
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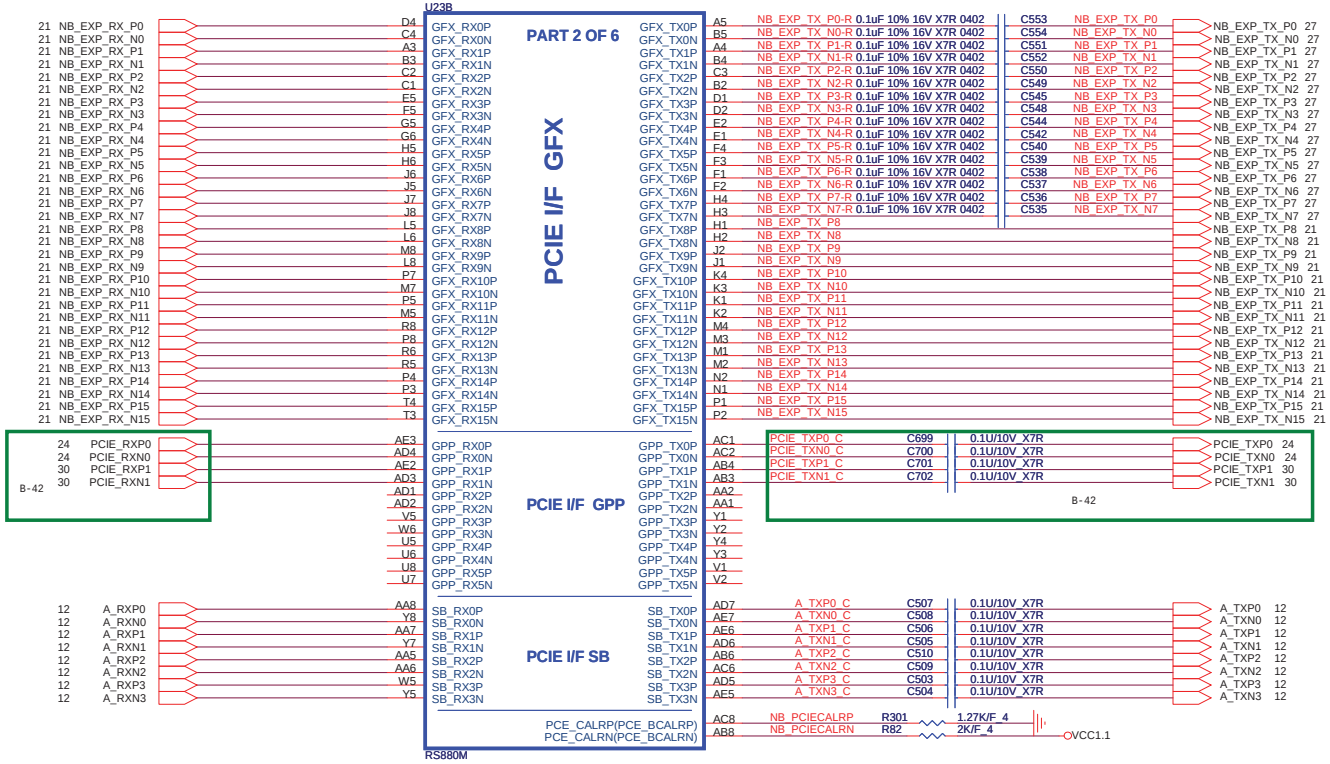

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Size	Document Number: RS880M-PCIE I/F	Rev: 1A
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Enables Debug Bus acess
through memory I/O pads and GPIO.
0 : Enable RS880M , Default
1 : Disable RS880M
(RX881 use DAC_VSYNC)

INT_CRT_VSYNC_NB R357 3K/J_4 VCC3
R352 *3K/J_4

Indicates if memory Side port
is available or not
0: Reserved
1: Required setting. Select with a pull-up
resistor on the strap
(RX881 use DAC_HSYNC)

INT_CRT_HSYNC_NB R356 3K/J_4 VCC3

140ohm CS11402FB19

28 INT_CRT_RED R364 *0/short_4 INT_CRT_RED_R
R353 140/F_4
28 INT_CRT_GREEN R365 *0/short_4 INT_CRT_GRE_R
R354 150/F_4
28 INT_CRT_BLU R366 *0/short_4 INT_CRT_BLU_R
R355 150/F_4
10,28 INT_CRT_HSYNC R361 *0/short_4 INT_CRT_HSYNC_NB
10,28 INT_CRT_VSYNC R362 *0/short_4 INT_CRT_VSYNC_NB
28 INT_CRT_DDCDAT R371 *0/short_4 INT_DDCDAT_NB
28 INT_CRT_DDCCLK R370 *0/short_4 INT_DDCCLK_NB
R115 715/F_6 DAC_RSET_NB

20mA
120mA

B-66
12 A_RST#_CR
16 NB_PWRGD
R111 0_2
NB_RST#_IN
NB_PWRGD
NB_LDT_STOP#
NB_ALLOW_LDTSTOP

2 CLK_NB_HTREF_PR
2 CLK_NB_HTREF#_PR
2 EXT_NB_OSC
RP27 4 3 0_4P2R_4 2 1 B-3
NB_REFCLK_N
R313 *4.7K
R309 *4.7K
B-36
2 NBGFX_CLK
2 NBGFX_CLK#

VCC1.1 B-35 R373 150/F_4 R375 150/F_4
for_EXT Gen

For A11 version
R335 *49.9/F_4 CLK_SBLINK
R333 *49.9/F_4 CLK_SBLINK#

2 CLK_SBLINK
2 CLK_SBLINK#

B-4 21,26 LCD_CLK
21,26 LCD_DAT

26 DP_AUX0P
26 DP_AUX0N
26 DP_AUX1P
26 DP_AUX1N

VCC3 R360 4.7K/J_4 R359 4.7K/J_4
EDID_CLK EDID_CLK
EDID_DATA

R374 *2K/F STRP_DATA
VCC3
R372 *2K/F

STRP_DATA
T36
R358 150R RS880_AUX_CAL

DDR3 based CPU : Level shifted to 1.8 V on the
Northbridge side using an open-drain buffer and
pulled up to 1.8V_S0 through a 2.2k Ohm 5% resistor
on the Northbridge side.

VCC1.8
VCC1.8
R119 1K/F_4
U8
5,12 LDT_STOP# 2 Open Drain 4 NB_LDT_STOP#
3 - 74LVC07

R121 1K/F_4 VCC1.8
12 ALLOW_LDTSTOP R120 *0/short_4 NB_ALLOW_LDTSTOP

ALLOW_LDTSTOP	OC
LDT_STOP#	3.3V Input

* Although defined as 3.3V I/Os, a 1.8V signaling level is supported on LDT_STOP#/ALLOW_LDTSTOP given that Vih is 1.4V.
3.3V to 1.8V level translation is not required.

U23C
PART 3 OF 6
RS880M

+3V_AVDD_NB F12
+1.8V_AVDDDI_NB E12
+1.8V_AVDDQ_NB F14
G15
H15
H14
E17
F17
F15
G18
G17
F18
E18
F19
E19
A11
B11
F8
E8
G14
A12
D14
B12
H17
D7
E7
D8
A10
C10
C12
C25
C24
E11
F11
T2
T1
U1
U2
V4
V3
B9
A9
A8
B8
B7
A7
B10
G11
C8

AVDD1(NC)
AVDD2(NC)
AVDDDI(NC)
AVSSDI(NC)
AVDDQ(NC)
AVSSQ(NC)
C_Pr(DFT_GPIO5)
Y(DFT_GPIO2)
COMP_Pb(DFT_GPIO4)
RED(DFT_GPIO0)
REDb(NC)
GREEN(DFT_GPIO1)
GREENb(NC)
BLUE(DFT_GPIO3)
BLUEb(NC)
DAC_HSYNC(PWM_GPIO4)
DAC_VSYNC(PWM_GPIO6)
DAC_SCL(PCE_RCALRN)
DAC_SDA(PCE_TCALRN)
DAC_RSET(PWM_GPIO1)
PLLVDD(NC)
PLLVDD18(NC)
PLLVSS(NC)
VDDA18HTPLL
VDDA18PCIEPLL1
VDDA18PCIEPLL2
SYSRESETb
POWERGOOD
LDTSTOPb
ALLOW_LDTSTOP
HT_REFCLKP
HT_REFCLKN
REFCLK_P/OSCIN(OSCIN)
REFCLK_N(PWM_GPIO3)
GFX_REFCLKP
GFX_REFCLKN
GPP_REFCLKP
GPP_REFCLKN
GPPSB_REFCLKP(SB_REFCLKP)
GPPSB_REFCLKN(SB_REFCLKN)
I2C_CLK
I2C_DATA
DDC_CLK0/AUX0P(NC)
DDC_DATA0/AUX0N(NC)
DDC_CLK1/AUX1P(NC)
DDC_DATA1/AUX1N(NC)
STRP_DATA
RSVD
AUX_CAL(NC)

CRT/TVOUT
PLL PWR
PM
CLOCKs
LVTM
MIS.

A22 TXOUT_L0P(NC) LVDS_TX_L0P 26
B22 TXOUT_L0N(NC) LVDS_TX_L0N 26
A21 TXOUT_L1P(NC) LVDS_TX_L1P 26
B21 TXOUT_L1N(NC) LVDS_TX_L1N 26
B20 TXOUT_L2P(NC) LVDS_TX_L2P 26
A20 TXOUT_L2N(DBG_GPIO0) LVDS_TX_L2N 26
A19 TXOUT_L3P(NC) LVDS_TX_L3P 26
B19 TXOUT_L3N(DBG_GPIO2) LVDS_TX_L3N 26
B18 TXOUT_U0P(NC) LVDS_TX_U0P 26
A18 TXOUT_U0N(NC) LVDS_TX_U0N 26
A17 TXOUT_U1P(PCIE_RESET_GPIO3) LVDS_TX_U1P 26
B17 TXOUT_U1N(PCIE_RESET_GPIO2) LVDS_TX_U1N 26
D20 TXOUT_U2P(NC) LVDS_TX_U2P 26
D21 TXOUT_U2N(NC) LVDS_TX_U2N 26
D18 TXOUT_U3P(PCIE_RESET_GPIO5) LVDS_TX_U3P 26
D19 TXOUT_U3N(NC) LVDS_TX_U3N 26
B16 TXCLK_LP(DBG_GPIO1) LVDS_TXCLK_LP 26
A16 TXCLK_LN(DBG_GPIO3) LVDS_TXCLK_LN 26
D16 TXCLK_UP(PCIE_RESET_GPIO4) LVDS_TXCLK_UP 26
D17 TXCLK_UN(PCIE_RESET_GPIO1) LVDS_TXCLK_UN 26
A13 +1.8V_VDDLTP18_NB
B13 VDDLTP18(NC)
VSSLTP18(NC)
A15 +1.8V_VDDLT_18_NB
B15 VDDLT18_1(NC)
B14 VDDLT18_2(NC)
VDDLT33_1(NC)
VDDLT33_2(NC)
C14 VSSLT1(VSS)
D15 VSSLT2(VSS)
C16 VSSLT3(VSS)
C18 VSSLT4(VSS)
C20 VSSLT5(VSS)
E20 VSSLT6(VSS)
C22 VSSLT7(VSS)
LVDS_DIGON(PCE_TCALRP)
LVDS_BLON(PCE_RCALRP)
LVDS_ENA_BL(PWM_GPIO2)
TMDS_HPD(NC)
HPD(NC)
SUS_STAT#(PWM_GPIO5)
THERMALDIODE_P
THERMALDIODE_N
TESTMODE

E9 R107 *0/short_4 INT_LVDS_PWREN 27
F7 R112 *0/short_4 INT_LVDS_BRIGHT 27
G12 R113 *0/short_4 INT_LVDS_BLON 27
R108 4.7K R106 4.7K R109 4.7K

D9 DP2_HPD 26
D10 DP_HPD 26
D12 R127 *0/short_4 SUS_STAT# 13
SUS_STAT#_R 10
AE8 NB_THERMDA NB_THERMDA 5
AD8 NB_THERMDC NB_THERMDC 5
D13 TEST_EN R122 1.8K/F_4

VCC1.8
VDDA18PCIEPLL -PCIE PLL
L27 20mils width +1.8V_VDDA18PCIEPLL
BLM18PG221SN1D _6
C198 2.2U/6.3V_6

VDDA18HTPLL -HT LINK PLL
L17 20mils width +1.8V_VDDA18HTPLL
BLM18PG221SN1D _6
C193 2.2U/6.3V_6

RS880M DEBUG PIN MAPPING

DEBUG_OUT0	LVDS_DIGON
DEBUG_OUT1	LVDS_ENA_BL
DEBUG_OUT2	LVDS_BLON
DEBUG_OUT3	TMDS_HPD
DEBUG_OUT4	AUX1N
DEBUG_OUT5	AUX1P
DEBUG_OUT6	HPD
DEBUG_OUT7	AUX_CAL

VCC3 L33 BLM18PG181SN1D(180,1.5A)_6 +3V_AVDD_NB
AVDD-DAC Analog
C238 2.2U/6.3V_6

VCC1.1 BLM18PG181SN1D(180,1.5A)_6 +1.1V_PLLVDD
L28
C222 2.2U/6.3V_6
PLLVDD - Graphics PLL

VCC1.8 BLM18PG181SN1D(180,1.5A)_6 +1.8V_VDDLTP18_NB
L32
C234 2.2U/6.3V_6
VDDLTP18 - LVDS or DVI/HDMI PLL

BLM21PG221SN1D(220,100M,2A)_8 +1.8V_VDDLT_18_NB
L31
C202 4.7U/6.3V_6
C221 2.2U/6.3V_6
C200 0.1U/10V_4
VDDLT18 - LVDS or DVI/HDMI digital

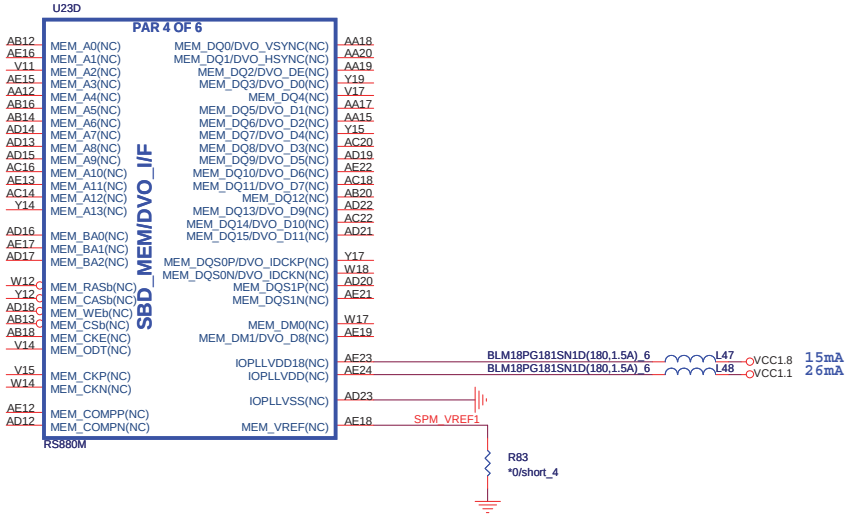
VCC1.8 PLLVDD18 - Graphics PLL
L29 BLM18PG181SN1D(180,1.5A)_6 +1.8V_PLLVDD18
C233 10U/6.3V_8
C203 0.1U/10V_4

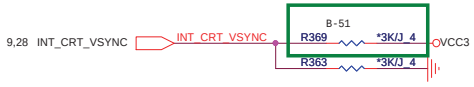
VCC1.8
R117 0/J_6 +1.8V_AVDDDI_NB
AVDDI-DAC Digital
C223 0.1U/10V_4

BLM18PG181SN1D(180,1.5A)_6 +1.8V_AVDDQ_NB
L30
AVDDQ-DAC Bandgap Reference
C224 0.1U/10V_4

Quanta Computer Inc.
PROJECT : ZN8

Size	Document Number	Rev
	RS880M-System I/F	1A
Date: Monday, March 22, 2010	Sheet 9 of 40	

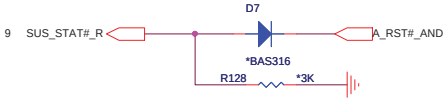




STRAP_DEBUG_BUS_GPIO_ENABLEb

Enables the Test Debug Bus using GPIO.

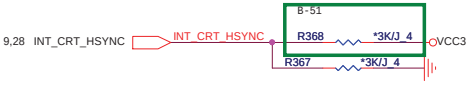
RS880M	
1 Disable	
0 Enable	



DFT_GPIO1: LOAD_EEPROM_STRAPS

Selects Loading of STRAPS from EPROM

1 : Bypass the loading of EEPROM straps and use Hardware Default Values
0 : I2C Master can load strap values from EEPROM if connected, or use default values if not connected



RS880M: Enables Side port memory

RS880M:HSYNC#

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

Quanta Computer Inc.
PROJECT : ZN8

Size	Document Number	Rev
	RS880M-Spmem/Straps	1A

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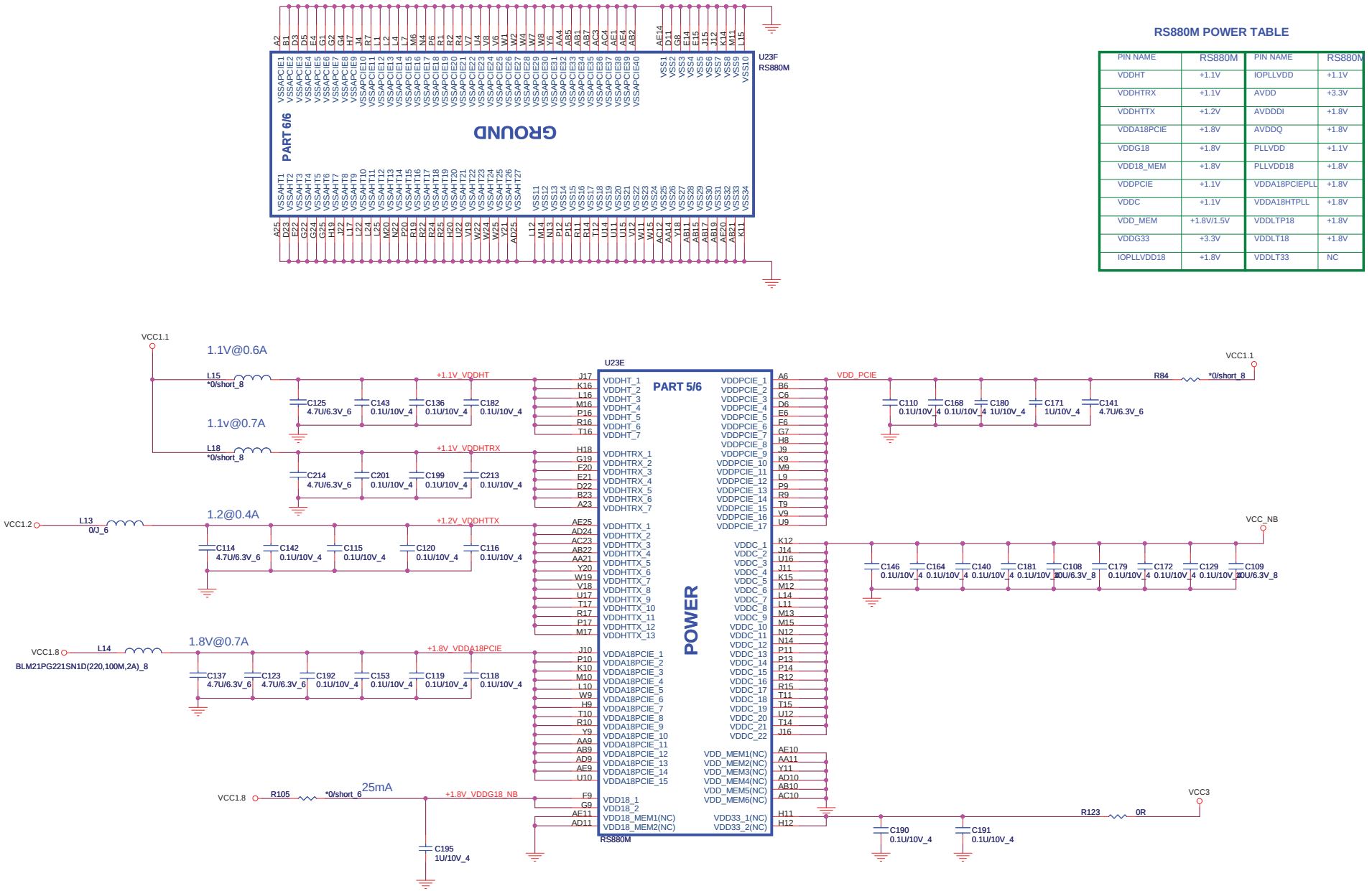

RS880M POWER TABLE

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

Quanta Computer Inc.
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Size	Document Number	Rev
	RS880M-Power	1A
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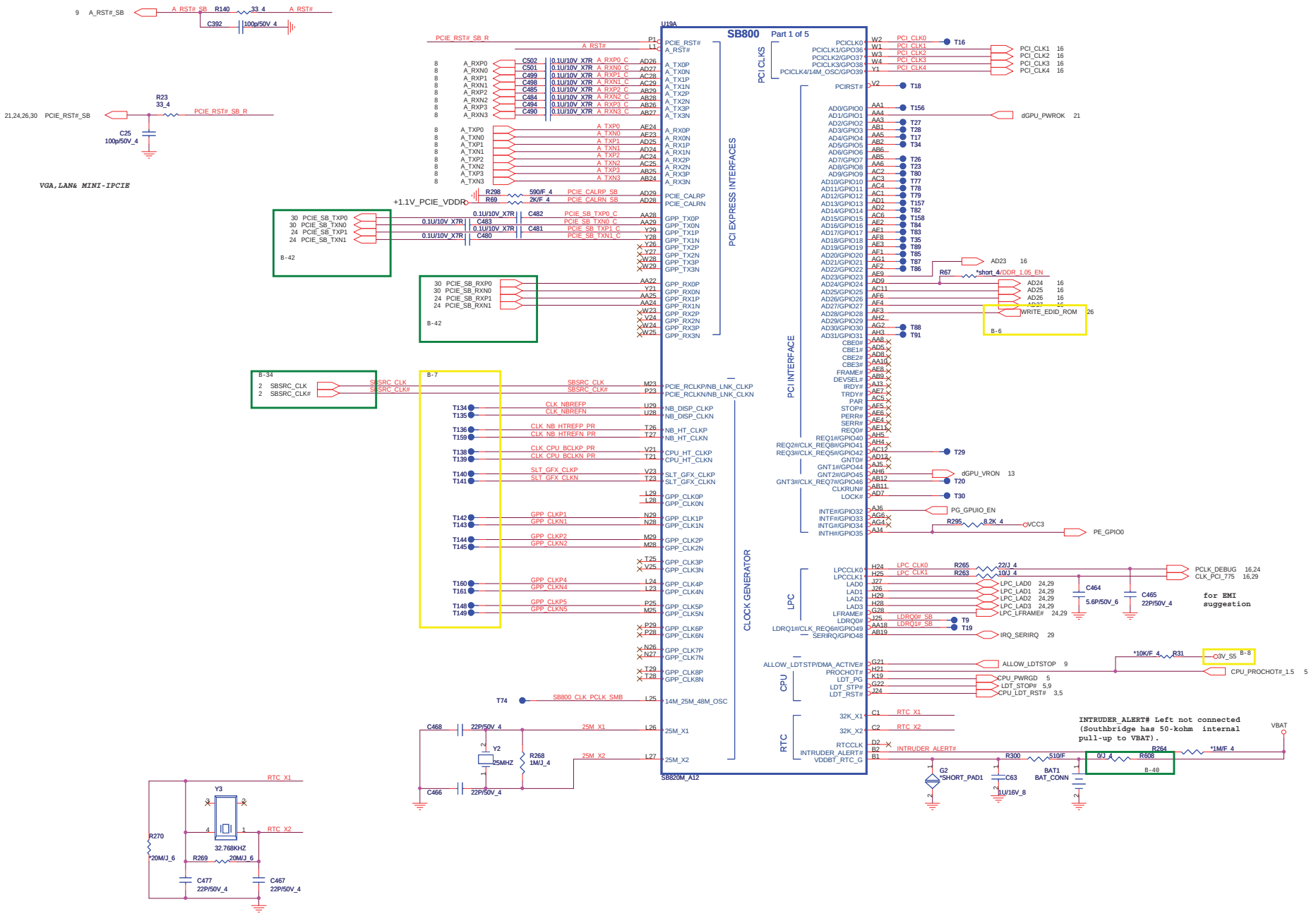
SB800 Part 1 of 5
U19A
SB820M_A12
PCI CLKS
PCI EXPRESS INTERFACES
PCI INTERFACE
CLOCK GENERATOR
LPC
CPU
RTC
VGA,LAN& MINI-IPCIE
+1.1V_PCIE_VDDR
INTRUDER_ALERT# Left not connected (Southbridge has 50-kohm internal pull-up to VBAT).
for EMI suggestion
*short_4/DDR_1.05_EN
WRITE_EDID_ROM
dGPU_PWROK
dGPU_VRON
PG_GPUIO_EN
PE_GPIO0
*1M/F_4
32.768KHZ
25MHZ

NC only ,Can't be install

3V_S5 R41 *2.2K/J_4 SB_TEST0
R37 *2.2K/J_4 SB_TEST1
B-8 R51 *2.2K/J_4 SB_TEST2

3V_S5 B-48 R609 *2.2K/J_4 PCIE_WAKE#

VCC3 SCL0/SDATA0 is 3V tolerance AMD datasheet define it
R73 2.2K/J_4 PCLK_SMB
R74 2.2K/J_4 PDAT_SMB
Clock gen/Robson/TV tuner /DDR2/DDR2 thermal/Accelerometer

3V_S5 SCL1/SDATA1 is 3V/S5 tolerance AMD datasheet define it
B-8 R36 2.2K/J_4 SB_SMBCLK1
R47 2.2K/J_4 SB_SMBDATA1

3V_S5 SCL2/SDATA2 is 3V/S5 tolerance AMD datasheet define it
R33 2.2K/J_4 SB_SCLK2
R32 2.2K/J_4 SB_SDATA2
B-8 R186 *2.2K/J_4 DNBSWON#

VCC3 R52 *4.7K/J_4 SUS_STAT#

VCC3 B-9 R80 100K/F_6
dGPU_VRON 2ms MXM_PWR_EN
21 MXM_PWREN
29 MXMPWR_EN MXMPWR_EN
12 dGPU_VRON
D5 RB501V-40
C107 0.1u/10V_4
D4 *SW@RB501V-40
>1mS delay is required between all MXM power rail stable and MXM_PWREN(enables the module internal power)

CN1 C23 10P/50V_4
SB_JTAG_TCK SB_JTAG_TDO SB_JTAG_TDI SB_TEST1 SB_JTAG_RST#
*S/W JTAG DEBUG
SB JTAG

41 ACZ_SDOUT_AUDIO ACZ_SDOUT_AUDIO R273 33/J_4 ACZ_SDOUT
21 MXM_SDOUT_HDMI MXM_SDOUT_HDMI R249 33_4C478 *10P/50V_4
41 ACZ_SYNC_AUDIO ACZ_SYNC_AUDIO R277 33/J_4 ACZ_SYNC
21 MXM_SYNC_HDMI MXM_SYNC_HDMI R247 33_4C479 *10P/50V_4
41 ACZ_BITCLK_AUDIO ACZ_BITCLK_AUDIO R271 33/J_4 ACZ_BCLK
21 MXM_BIT_CLK_HDMI MXM_BIT_CLK_HDMI R248 33_4C75 10P/50V_4
41 ACZ_RST#_AUDIO ACZ_RST#_AUDIO R281 33/J_4 ACZ_RST#
21 MXM_RST#_R MXM_RST#_R R250 33_4
ACZ_SDIN0 ACZ_SDIN0 41
ACZ_SDIN1 ACZ_SDIN1 21

If the VDDIO_AZ_S power rail is configured for 1.5V_S5 then AZ_SDIN[3:0] can not be connected to 3.3-V devices.

2,3,5,9,10,11,12,14,15,16,17,18,19,20,21,22,23,24,25,26,27,29,30,31,33,34,38,39,41 VCC3 VCC3

USBCLK/41M_25M_48M_OSC pin is CLK input pin when EXT CLKGEN mode.
It is output CLK source when INT CLKGEN mode.

U19D
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

29 SUSB# SUSB#
29 SUSC# SUSC#
29 DNBSWON# DNBSWON#
16 SB_PWRGD_IN SB_PWRGD_IN
9 SUS_STAT# SUS_STAT#
SB_TEST0 SB_TEST1 SB_TEST2
29 SIO_A20GATE SIO_A20GATE
29 SIO_RCIN# SIO_RCIN#
T70 LANLINK_STATE#
29 SIO_EXT_SMI# SIO_EXT_SMI#
29 SIO_EXT_SCI# SIO_EXT_SCI#
T71 SYS_RST#
B-48 30 PCIE_WAKE# PCIE_WAKE#
T73 IR_RX1
5 CPU_THERMTRIP# R57 *0/short_4 SB_THERMTRIP#
16 NB_PWRGD_IN

USBCLK/14M_25M_48M_OSC
USB_RCOMP
USB 1.1 USB MISC

A10 R257 22_4 CLK_48M_USB 2,22
G19 USB_RCOMP_SB R44 11.8K/F_6
USB_FSD1P/GPIO186 USB_FSD1N
USB_FSD0P/GPIO185 USB_FSD0N
J10 H11 H9 J8

29 ICH_RSMRST# B-53 3V_S5 R610 *0_4 R611 22K C703 4.7U/6.3V_6
SB_GPIO_PCIE_RST#

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

T31 MXM_PWR_EN
T33 SB_GPIO59
41 SPKR SPKR
2,17,18,19,20,24 PCLK_SMB PCLK_SMB
2,17,18,19,20,24 PDAT_SMB PDAT_SMB
26 SB_SMBCLK1 SB_SMBCLK1
B-50 26 SB_SMBDATA1 SB_SMBDATA1
21,27,29 dGPU_PRSNT#
T25 CRD_CLKREQ#
T11
2 EXT_SB_OSC

USB 2.0

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

F11 E11 USB_CARDP 22 USB_CARDN 22
E14 E12 USB_FDS12P USB_FSD12N USB_FDS12P 25 USB_FSD12N 25 MULTI-TOUCH
J12 J14 USBP10+ 25 USBP10- 25 Dongle
A13 B13 USBP9+ 25 USBP9- 25 USB
D13 C13 USBP8+ 25 USBP8- 25 CAMERA BLUETOOTH
G12 G14 USBP7+ 24 USBP7- 24 TV MINI
G16 G18 USBP6+ 24 USBP6- 24 CARD WLAN MINI
D16 C16 USBP5+ 25 USBP5- 25 CARD Side
B14 A14 USBP4+ 25 USBP4- 25 USB Side
E18 E16 USBP3+ 30 USBP3- 30 USB USB
J16 J18 USBP2+ 30 USBP2- 30 board USB
B17 A17 USBP1+ 30 USBP1- 30 board USB
A16 B16 USBP0+ 30 USBP0- 30 board USB board

T72 OC7#
T3 OC6#
T5
T4 OC4#
SB_JTAG_TDO SB_JTAG_TCK SB_JTAG_TDI SB_JTAG_RST#
USB OC

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#

HD audio interface is +3VS5 voltage

16 ACZ_SDOUT
R56 *10K/F_4 ACZ_BCLK
ACZ_SDOUT
R422 *10K/F_4 ACZ_SDIN0
R144 *10K/F_4 ACZ_SDIN1
R272 *10K/F_4 ACZ_SDIN2
R59 *10K/F_4 ACZ_SDIN3
ACZ_SYNC
ACZ_RST#
HD AUDIO

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

3V_S5 B-8
R276 10K/F_4 GBE_COL
R63 10K/F_4 GBE_CRS
R58 10K/F_4 GBE_MDIO
R65 10K/F_4 GBE_RXERR
R64 10K/F_4 GBE_PHY_INTR
GBE LAN

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

T2 ADP_PRES0
T6
EMBEDDED CTRL

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

SCL2/GPIO193 D25 SB_SCLK2
SDA2/GPIO194 F23 SB_SDATA2
SCL3_LV/GPIO195 B26 SB_GPIO195
SDA3_LV/GPIO196 F26 SB_GPIO196
EC_PWM0/EC_TIMER0/GPIO197 F25
EC_PWM1/EC_TIMER1/GPIO198 E22
EC_PWM2/EC_TIMER2/GPIO199 F22 GPIO199 16
EC_PWM3/EC_TIMER3/GPIO200 F21 GPIO200 16

KSI_0/GPIO201 G24
KSI_1/GPIO202 G25
KSI_2/GPIO203 E28
KSI_3/GPIO204 E29
KSI_4/GPIO205 D29
KSI_5/GPIO206 D28
KSI_6/GPIO207 C29
KSI_7/GPIO208 C28
KSO_0/GPIO209 B28
KSO_1/GPIO210 A27
KSO_2/GPIO211 B27
KSO_3/GPIO212 D26
KSO_4/GPIO213 A26
KSO_5/GPIO214 C26
KSO_6/GPIO215 A24
KSO_7/GPIO216 B25
KSO_8/GPIO217 A25
KSO_9/GPIO218 D24
KSO_10/GPIO219 B24
KSO_11/GPIO220 C24
KSO_12/GPIO221 B23
KSO_13/GPIO222 A23
KSO_14/GPIO223 D22
KSO_15/GPIO224 C22
KSO_16/GPIO225 A22
KSO_17/GPIO226 B22
EMBEDDED CTRL

SB_GPIO195 R266 10K/F_4
SB_GPIO196 R267 10K/F_4

SB820M_A12

Quanta Computer Inc.
PROJECT : ZN8

Size	Document Number	Rev
	SB820-ACPI/GPIO/USB 2/4	1A
Date: Monday, March 22, 2010	Sheet 13 of 40	

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

SATA1

SATA ODD

U19B

SB800
Part 2 of 5

SERIAL ATA

23 SATA_TX0+ → AH9 SATA_TX0P
23 SATA_TX0- → AJ9 SATA_TX0N
23 SATA_RX0- → AJ8 SATA_RX0N
23 SATA_RX0+ → AH8 SATA_RX0P
23 SATA_TX1+ → AH10 SATA_TX1P
23 SATA_TX1- → AJ10 SATA_TX1N
23 SATA_RX1- → AG10 SATA_RX1N
23 SATA_RX1+ → AF10 SATA_RX1P
AG12 SATA_TX2P
AF12 SATA_TX2N
AJ12 SATA_RX2N
AH12 SATA_RX2P
AH14 SATA_TX3P
AJ14 SATA_TX3N
AG14 SATA_RX3N
AF14 SATA_RX3P
AG17 SATA_TX4P
AF17 SATA_TX4N
AJ17 SATA_RX4N
AH17 SATA_RX4P
AJ18 SATA_TX5P
AH18 SATA_TX5N
AH19 SATA_RX5N
AJ19 SATA_RX5P

Signal Name	Explanation
SATA_CALRP	SB800 A11: 800-? 1% resistor to GND. P/N:CS18062FB00(806 Ohm) SB800 A12: TBD-? 1% resistor to GND. (1K ohm)
SATA_CALRN	SB800 A11: 931-? 1% resistor to VDDAN_11_SATA. SB800 A12: TBD-? 1% resistor to VDDAN_11_SATA.

+1.1V_AVDD_SATA
R66 806/F_4 SATA_CALRP → AB14 SATA_CALRP
R68 931/F_4 SATA_CALRN → AA14 SATA_CALRN

PLACE SATA_CAL
RES VERY CLOSE
TO BALL OF SB820

23 SATA_ACT# → AD11 SATA_ACT#/GPIO67
VCC3 R77 10K/F_4

C106 22P/50V_4 SATA_X1 → AD16 SATA_X1
Y5 25MHZ
R81 1M/J_4
C105 22P/50V_4 SATA_X2 → AC16 SATA_X2

B-54 SB_SO → J5 SPI_DI/GPIO164
SB_SI → E2 SPI_DO/GPIO163
SB_SCK → K4 SPI_CLK/GPIO162
SB_SCE# → K9 SPI_CS1#/GPIO165
T8 → G2 ROM_RST#/GPIO161
SPI ROM

SB820M_A12

FLASH

FC_CLK AH28 T110
FC_FBCLKOUT AG28 T93
FC_FBCLKIN AF26 T112
FC_OE#/GPIOD145 AF28 T100
FC_AVD#/GPIOD146 AG29 T113
FC_WE#/GPIOD148 AG26 T105
FC_CE1#/GPIOD149 AF27 T108
FC_CE2#/GPIOD150 AF29 T109
FC_INT1/GPIOD144 AF29 T92
FC_INT2/GPIOD147 AH27 T103
FC_ADQ0/GPIOD128 AJ27 T95
FC_ADQ1/GPIOD129 AJ26 T96
FC_ADQ2/GPIOD130 AH25 T104
FC_ADQ3/GPIOD131 AH24 T107
FC_ADQ4/GPIOD132 AG23 T94
FC_ADQ5/GPIOD133 AH23 T99
FC_ADQ6/GPIOD134 AJ22 T97
FC_ADQ7/GPIOD135 AG21 T98
FC_ADQ8/GPIOD136 AF21 T102
FC_ADQ9/GPIOD137 AH22 T101
FC_ADQ10/GPIOD138 AJ23 T111
FC_ADQ11/GPIOD139 AF23 BOARD_ID0
FC_ADQ12/GPIOD140 AJ24 BOARD_ID1
FC_ADQ13/GPIOD141 AJ25 BOARD_ID2
FC_ADQ14/GPIOD142 AG25 BOARD_ID3
FC_ADQ15/GPIOD143 AH26 BOARD_ID4

HW MONITOR

FANOUT0/GPIO52 W5
FANOUT1/GPIO53 W6
FANOUT2/GPIO54 Y9
FANIN0/GPIO56 W7 WWAN_DET# T22
FANIN1/GPIO57 V9 CPPE_NC1# T15
FANIN2/GPIO58 W8 CRD_REQ1# T21
TEMPIN0/GPIO171 B6 TEMPIN0
TEMPIN1/GPIO172 A6 TEMPIN1
TEMPIN2/GPIO173 A5 MB_THRMDA_SB
TEMPIN3/TALERT#/GPIO174 B5 THERM_ALERT# → THERM_ALERT# 5,29
TEMP_COMM C7 → TEMP_COMM R38 *0/short_4
VIN0/GPIO175 A3 SB_GPIO175
VIN1/GPIO176 B4 SB_GPIO176
VIN2/GPIO177 A4 SIDE_PORT_ID0
VIN3/GPIO178 C5 SIDE_PORT_ID1
VIN4/GPIO179 A7 R612 *0_4 SB_BIOS_WP#
VIN5/GPIO180 B7 GPIO180
VIN6/GBE_STAT3/GPIO181 B8 CLR_BIOS_DATA
VIN7/GBE_LED3/GPIO182 A8 CLR_PASSWD
B-54

NC1 G27
NC2 Y2

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

TEMPIN0 R252 10K/F_4
TEMPIN1 R259 10K/F_4
MB_THRMDA_SB R260 10K/F_4
SB_GPIO175 R262 10K/F_4
SB_GPIO176 R254 10K/F_4
SIDE_PORT_ID0 R261 10K/F_4
SIDE_PORT_ID1 R253 10K/F_4
GPIO180 R258 10K/F_4

VCC3
R323 *10K/F_4 BOARD_ID0 R332 10K/F_4
R322 *10K/F_4 BOARD_ID1 R331 10K/F_4
R321 *10K/F_4 BOARD_ID2 R330 10K/F_4
R320 *10K/F_4 BOARD_ID3 R329 10K/F_4
R327 *10K/F_4 BOARD_ID4 R328 *10K/F_4

	ID4	ID3	ID2	ID1	ID0
0				UMA	14"
1				Discrete	15"

8Mbit , SPI

B-54
3V_S5
R613 *10K_4
R614 *1K/F_4
R615 *10K_4
U31
SB_SCE# → CE#
SB_SCK R616 *47R_4 → SCK
SB_SI R617 *47R_4 → SI
SB_SO R618 *15R_4 → SO
SB_BIOS_WP# → WP#
VDD
HOLD#
VSS
C704 *0.1U/25V/4
*MX25L1605A
U32
CE# SCK SI SO WP# VDD HOLD# VSS
*MX25L1605A

VCC3
R340 10K/F_4
R339 10K/F_4
JP2
CLR_BIOS_DATA
CLR_PASSWD
CONN RCPT 4x2

Quanta Computer Inc.
PROJECT : ZN8

Size	Document Number	Rev
	SB820-SATA/IDE/HWM/SPI 3/4	1A

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

VDDQ--3.3V I/O power

VDD-- S/B CORE power

U19C

SB800

Part 3 of 5

POWER

SB820M_A12

SB820 without GBE: Connected to GND plane.

U19E

SB800

GROUND

Part 5 of 5

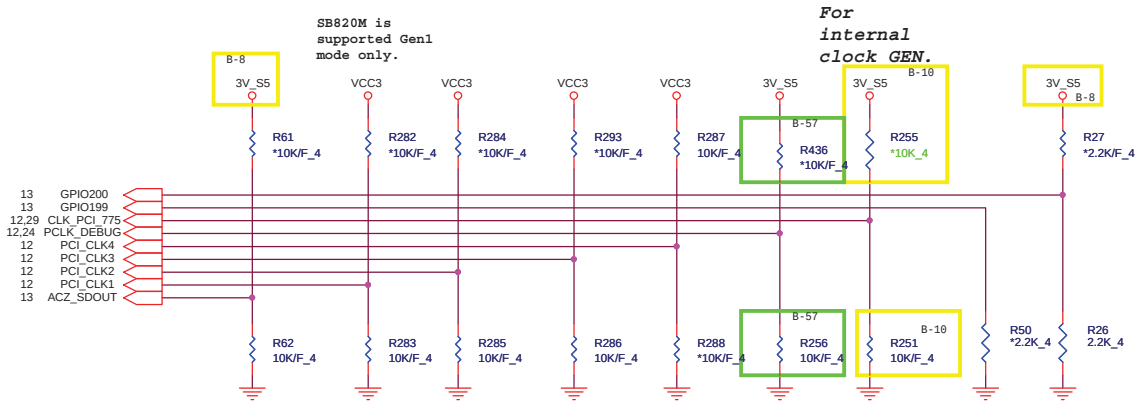
SB820M_A12

If the VDDIO_AZ_S power rail is configured for 1.5V_S5 then AZ_SDIN[3:0] can not be connected to 3.3-V devices.

For support USB wakeup-->3V_S5

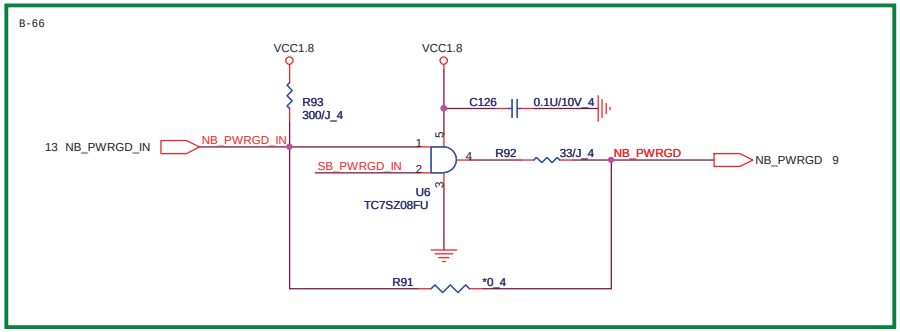
OVERLAP COMMON PADS WHERE POSSIBLE FOR DUAL-OP RESISTORS.

REQUIRED STRAPS

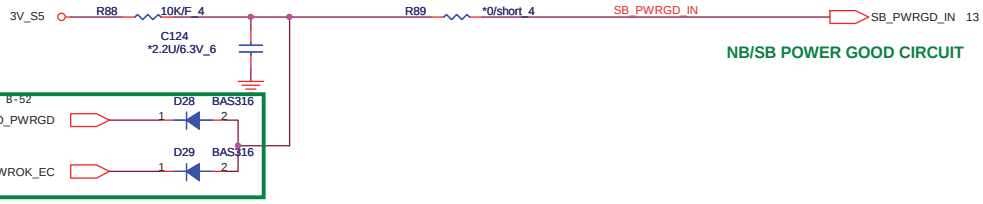


	AZ_SDOUT	PCI_CLK1	PCI_CLK2	PCI_CLK3	PCI_CLK4	LPC_CLK0	LPC_CLK1	GPIO200 GPIO199
PULL HIGH	LOW POWER MODE	ALLOW PCIE Gen2	Watchdog Timer Enable	USE DEBUG STRAPS	non_Fusion CLOCK MODE DEFAULT	EC ENABLED	INT. CLKGEN ENABLED DEFAULT	H, H=Reserved H, L=SPI ROM
PULL LOW	PERFORMANCE MODE DEFAULT	FORCE PCIE Gen1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

internal have pull Hi 10K



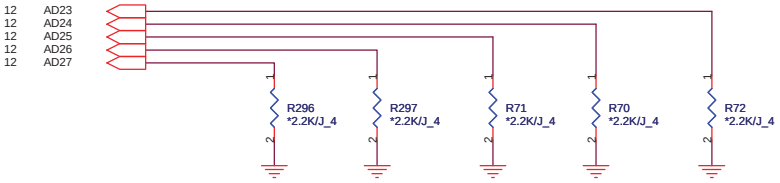
NB_PWRGD_IN:
RS880/RX881 = 1.8V;
Do NOT share it with SB_PWRGD when use Internal Clk Gen (Need SB PLL initialize firstly)



NB/SB POWER GOOD CIRCUIT

DEBUG STRAPS

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



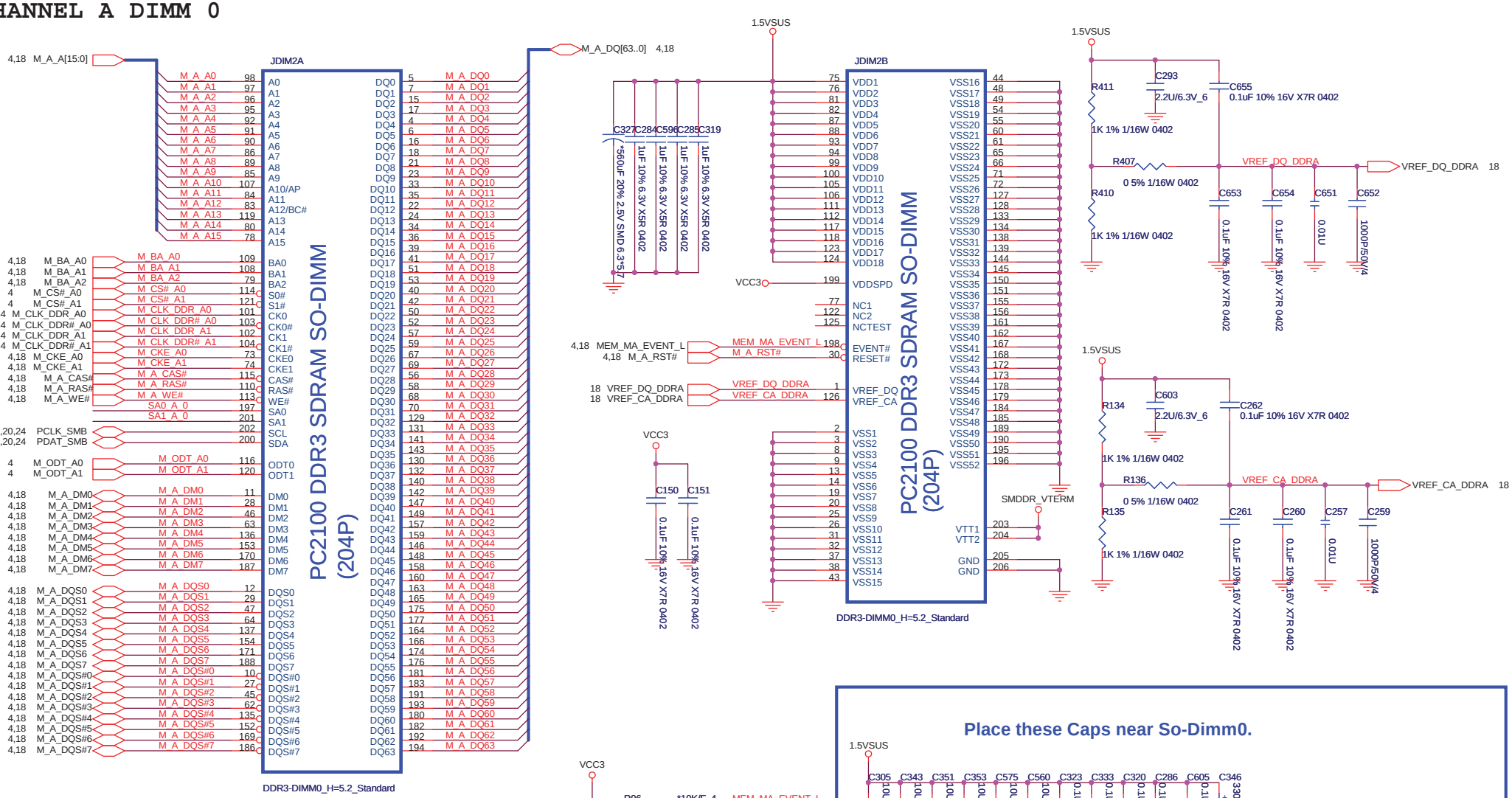
	PCI_AD27	PCI_AD26	PCI_AD25	PCI_AD24	PCI_AD23
PULL HIGH	USE PCI PLL DEFAULT	DISABLE ILA AUTORUN DEFAULT	USE FC PLL DEFAULT	DISABLE I2C ROM DEFAULT	DISABLE PCI MEM BOOT DEFAULT
PULL LOW	BYPASS PCI PLL	ENABLE ILA AUTORUN	BYPASS FC PLL	ENABLE I2C ROM use REQ3# as SDA use GNT3# as SCL	ENABLE PCI MEM BOOT

Quanta Computer Inc.
PROJECT : ZN8

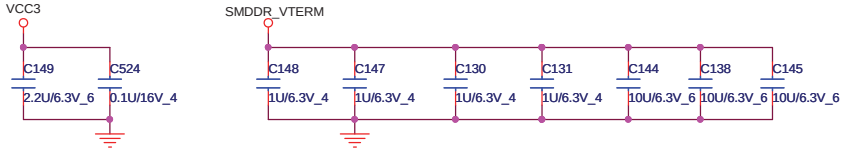
Size	Document Number	Rev
	SB820-STRAPS/PWRGD	1A

Date: Monday, March 22, 2010 Sheet 16 of 40

CHANNEL A DIMM 0



Place these Caps near So-Dimm0.



SPD SA0	0
SPD SA1	0

R98 0 5% 1/16W 0402 SA1_A_0
R99 0 5% 1/16W 0402 SA0_A_0

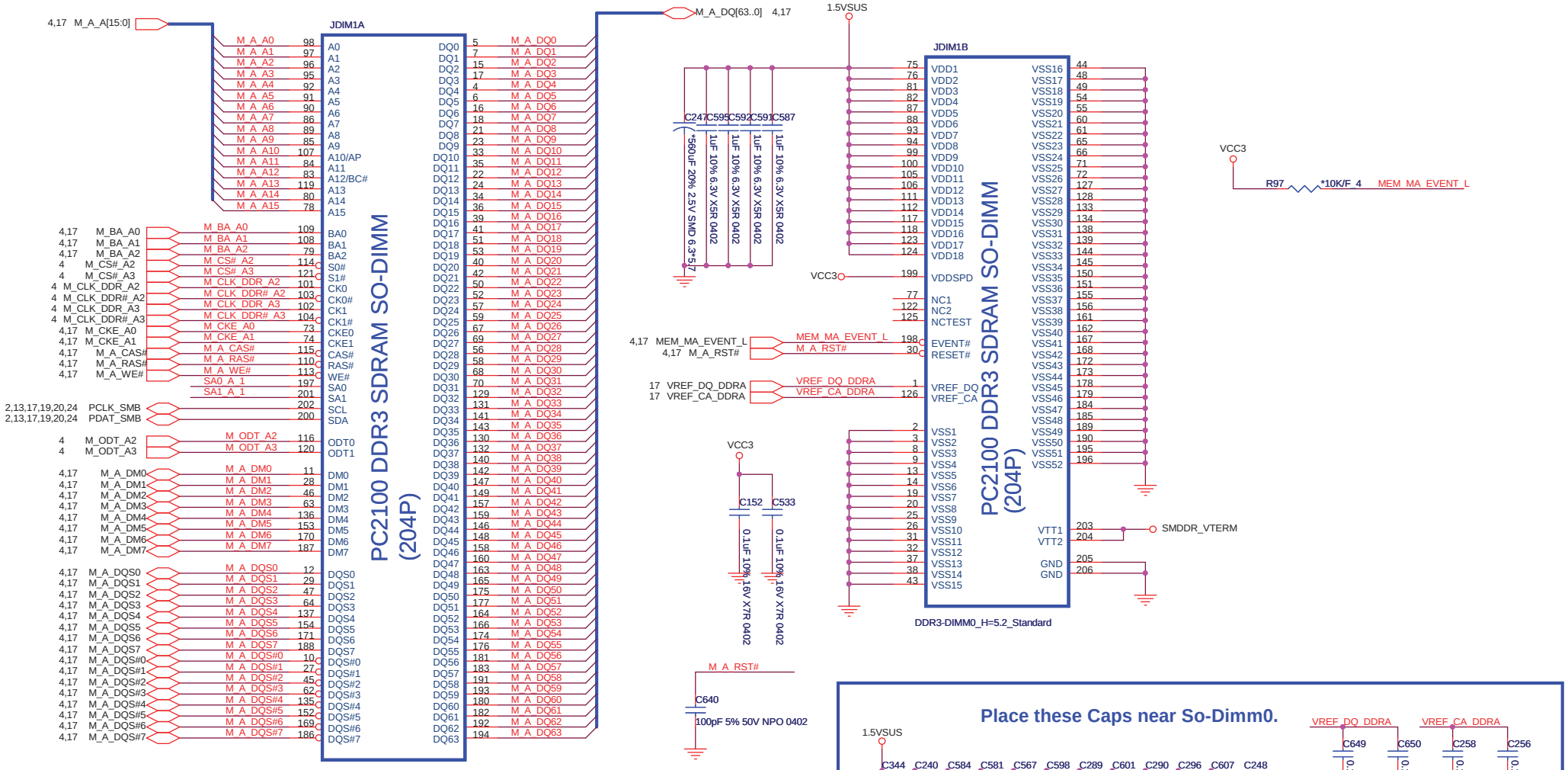
AM3

FOX H:9.2 white

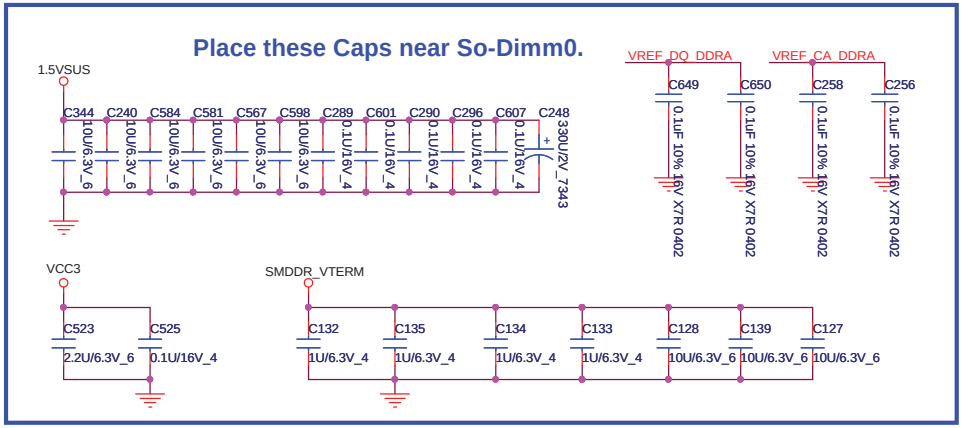
PCB Placement

Quanta Computer Inc.			
PROJECT : ZN8			
Size	Document Number: DDR3 CHA DIMM 0		Rev 1A
Date: Monday, March 22, 2010		Sheet 17 of 40	

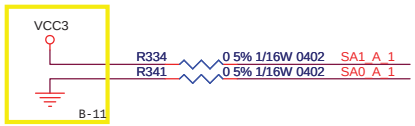
CHANNEL A DIMM 1



Place these Caps near So-Dimm0.



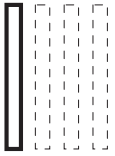
SPD SA0	1
SPD SA1	0



AM3

FOX H:5.2 white

PCB Placement

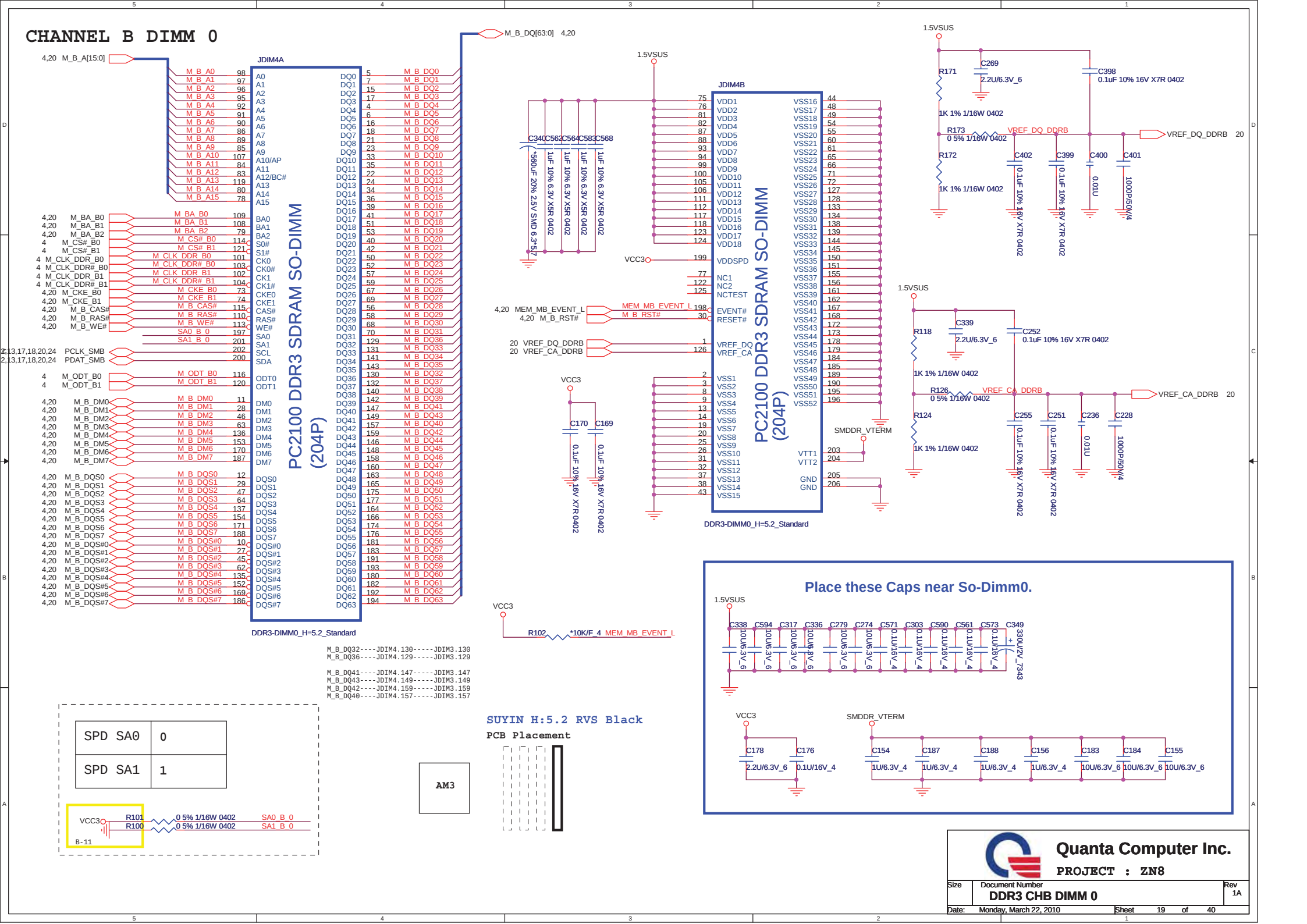


Quanta Computer Inc.

PROJECT : ZN8

Size	Document Number	Rev
	DDR3 CHA DIMM1	1A
Date: Monday, March 22, 2010	Sheet 18 of 40	

CHANNEL B DIMM 0



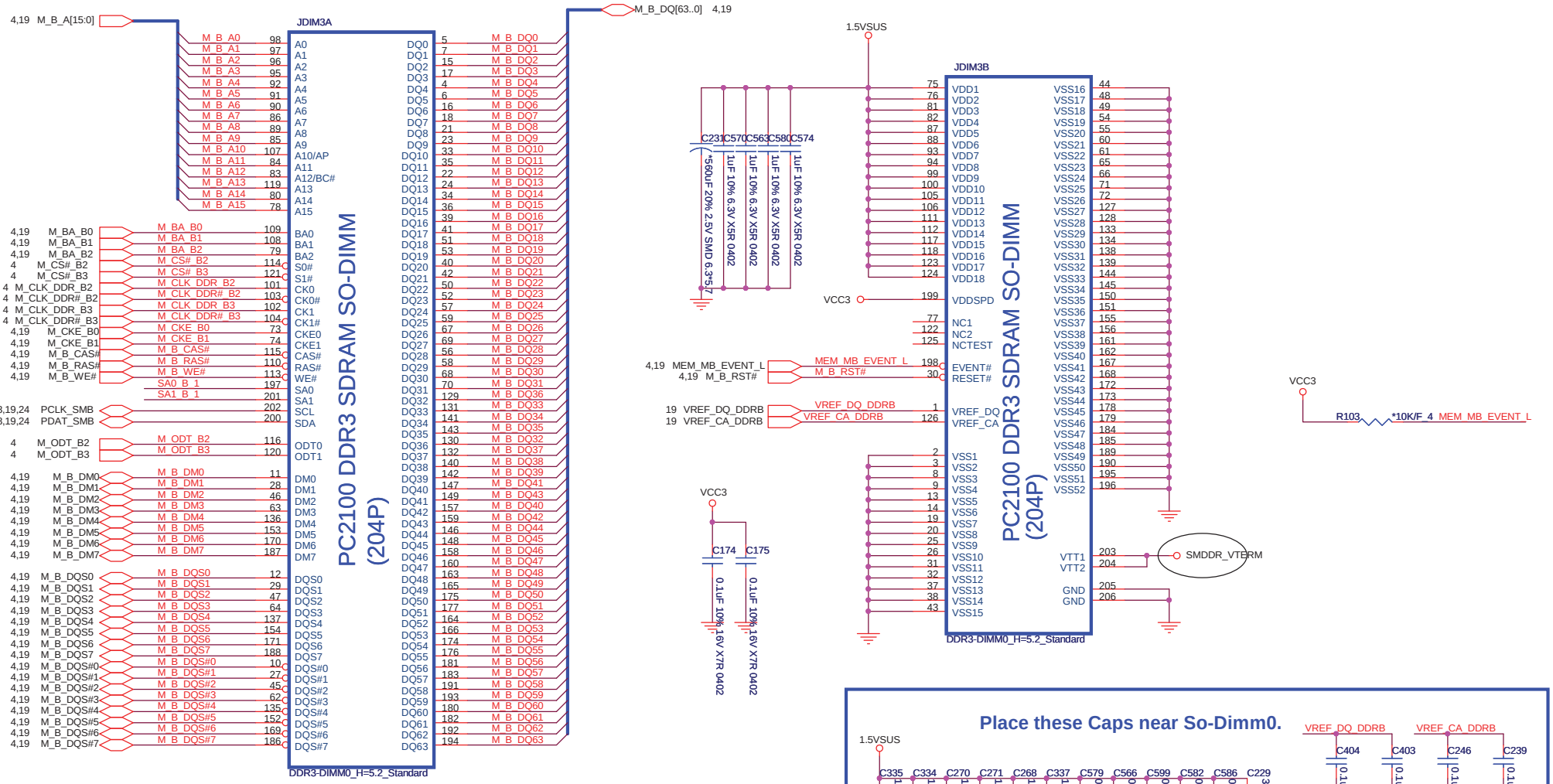
SPD SA0	0
SPD SA1	1

Quanta Computer Inc.

PROJECT : ZN8

Size	Document Number	Rev
	DDR3 CHB DIMM 0	1A
Date: Monday, March 22, 2010	Sheet 19 of 40	

CHANNEL B DIMM 1



M_B_DQ32----JDIM4.130-----JDIM3.130
M_B_DQ36----JDIM4.129-----JDIM3.129

M_B_DQ41----JDIM4.147-----JDIM3.147
M_B_DQ43----JDIM4.149-----JDIM3.149
M_B_DQ42----JDIM4.159-----JDIM3.159
M_B_DQ40----JDIM4.157-----JDIM3.157

SUYIN H:9.2 RVS Black

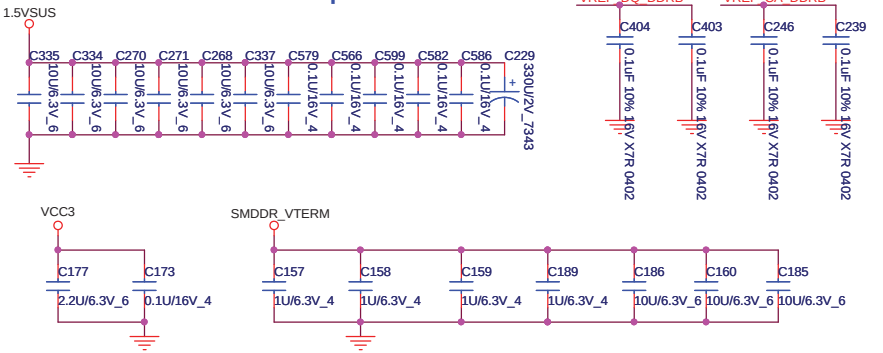
PCB Placement

AM3

SPD SA0	1
SPD SA1	1

VCC3 R95 0 5% 1/16W 0402 SA0_B_1
R94 0 5% 1/16W 0402 SA1_B_1

Place these Caps near So-Dimm0.



Quanta Computer Inc.		
PROJECT : ZN8		
Size	Document Number: DDR3 CHB DIMM1	Rev: 1A
Date: Monday, March 22, 2010	Sheet 20 of 40	

MXM Module

6/25 Change CN22 pin define and footprint at C test.

MXM3.0	n-Vidia	AMD
LVDS	LVDS	LVDS/Int. DP
DP_D	N/A	X
DP_A	HDMI	HDMI
DP_C	Ext. DP/DVI	Ext. DP/DVI
DP_B	N/A	N/A

dGPU_PRSNT#	Sku
Low	MXM
High	WO/ MXM

7/28: add decoupling capacitors for AMD recommendation

MXM DP CONN for Scalar Board

LVDS+DP CONN for MXM

Thermo SMBus

MXM VIN Power switch

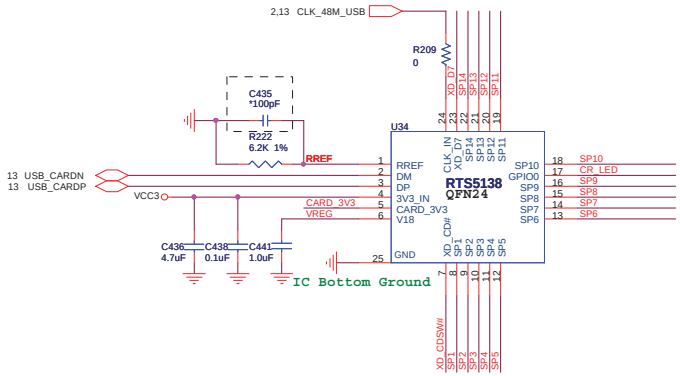
MXM 3V/5V Power switch

To EC

For CRT Debug

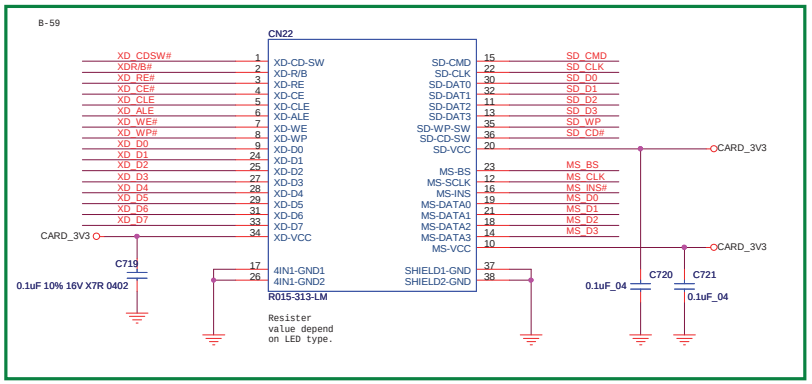
Quanta Computer Inc.
PROJECT : ZN8

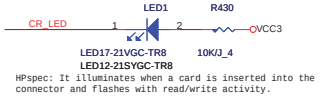
Size	Document Number	Rev
	MXM 3.0	1A
Date: Monday, March 22, 2010	Sheet 21 of 40	

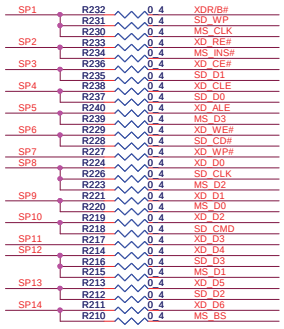


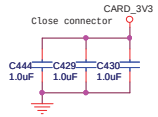
Share Pin

Share Pin	XD	MS	SD
SP1	XDR/B#	MS_CLK	SD_WP
SP2	XD_RE#	MS_INS#	
SP3	XD_CE#		SD_D1
SP4	XD_CLE	MS_D7	SD_D0
SP5	XD_ALE	MS_D3	SD_D7
SP6	XD_WE#		SD_CD#
SP7	XD_WP	MS_D6	SD_D6
SP8	XD_D0	MS_D2	SD_CLK
SP9	XD_D1	MS_D0	SD_D5
SP10	XD_D2		SD_CMD
SP11	XD_D3	MS_D4	SD_D4
SP12	XD_D4	MS_D1	SD_D3
SP13	XD_D5	MS_D5	SD_D2
SP14	XD_D6	MS_BS	









Quanta Computer Inc.

PROJECT : ZN8

Size	Document Number	Rev
	RTS5138	1A

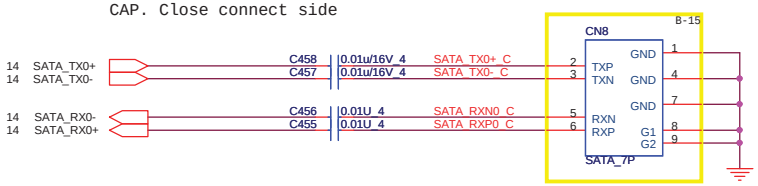
Date: Monday, March 22, 2010 Sheet 22 of 40

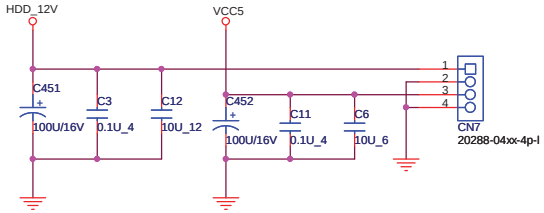
1st 2.5"/3/5" SATA HDD

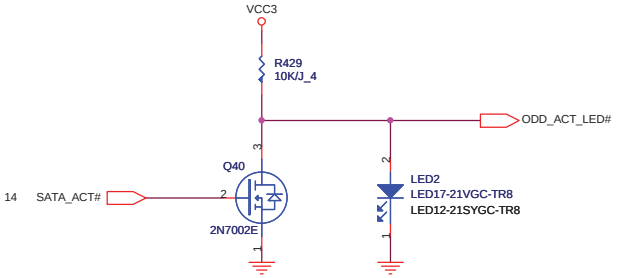
From PCH SATA

CAP. Close connect side

SATA HDD CONNECTOR





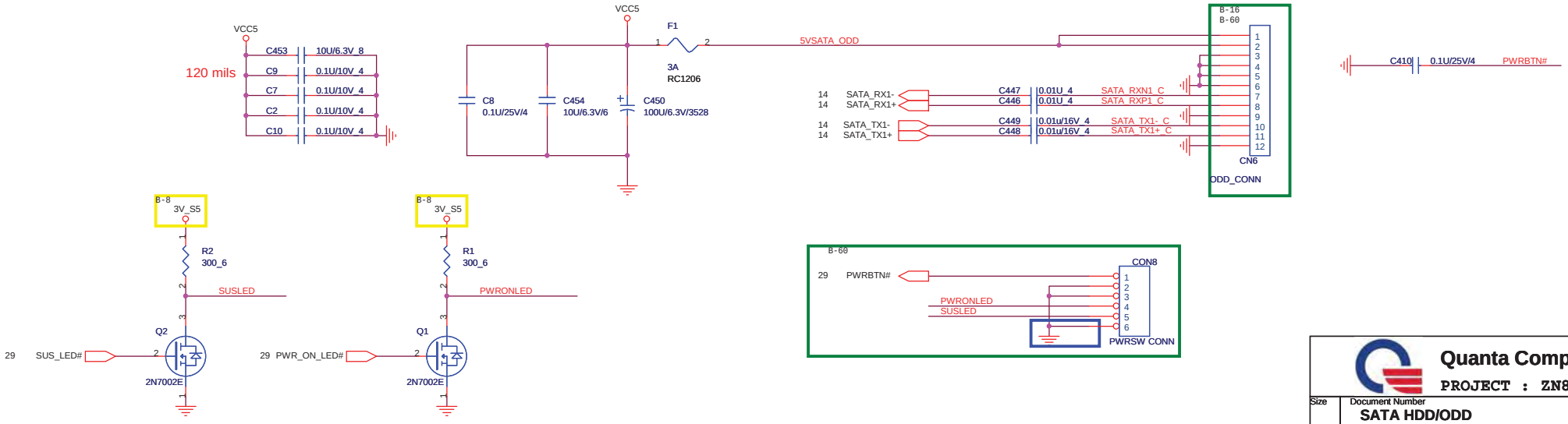


SATA CD-ROM

To SATA-HDD conn

SATA ODD CONNECTOR

USB connector same as ZN6



Quanta Computer Inc.

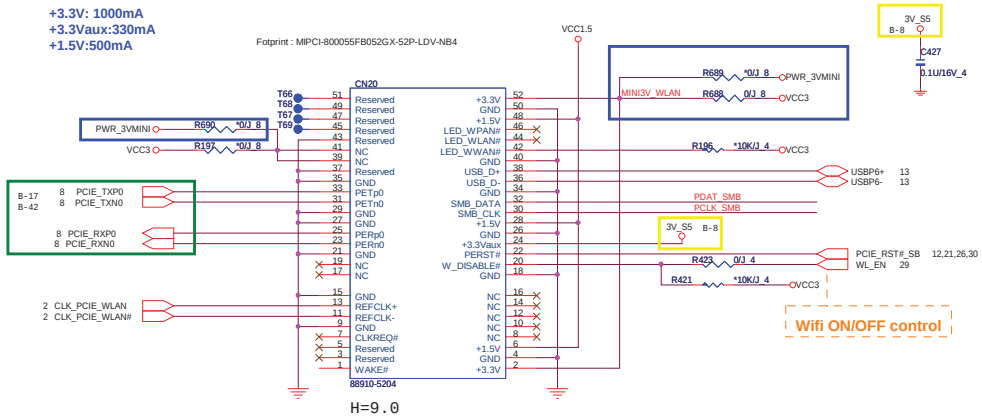
PROJECT : ZN8

Size	Document Number	Rev
	SATA HDD/ODD	1A

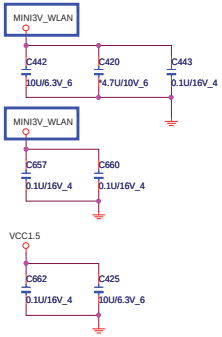
Date: Monday, March 22, 2010 Sheet 23 of 40

Wireless + BT

+3.3V: 1000mA
+3.3Vaux:330mA
+1.5V:500mA

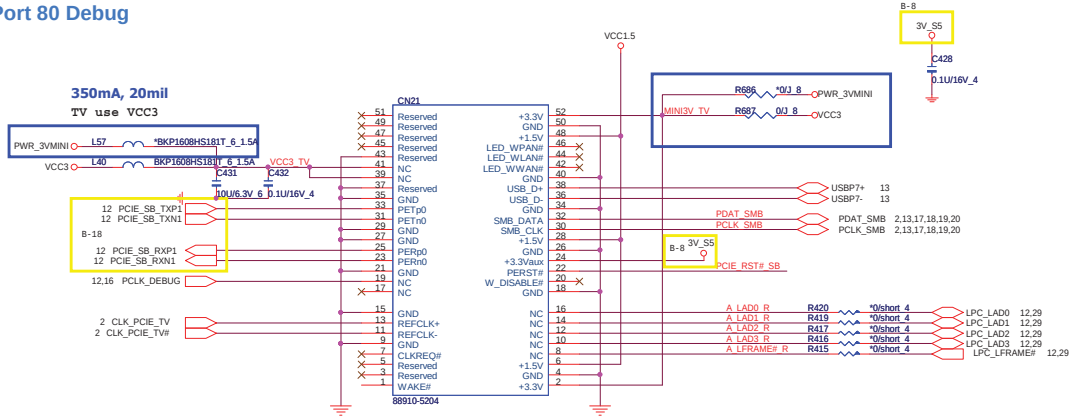


H=9.0



TV and Port 80 Debug

350mA, 20mil
TV use VCC3



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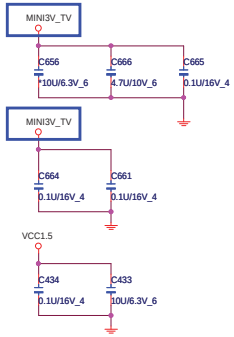
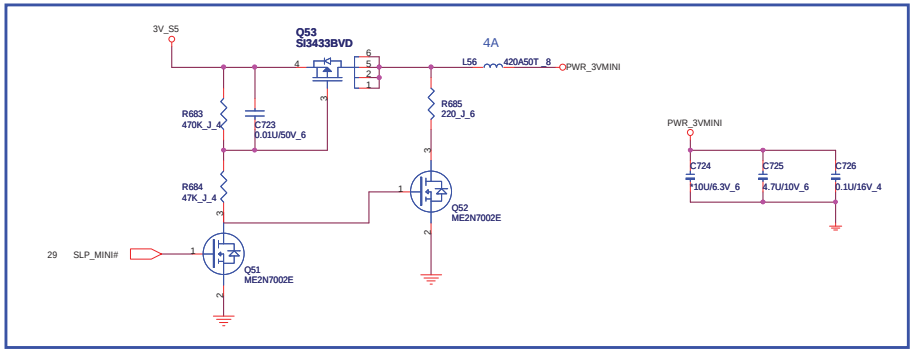
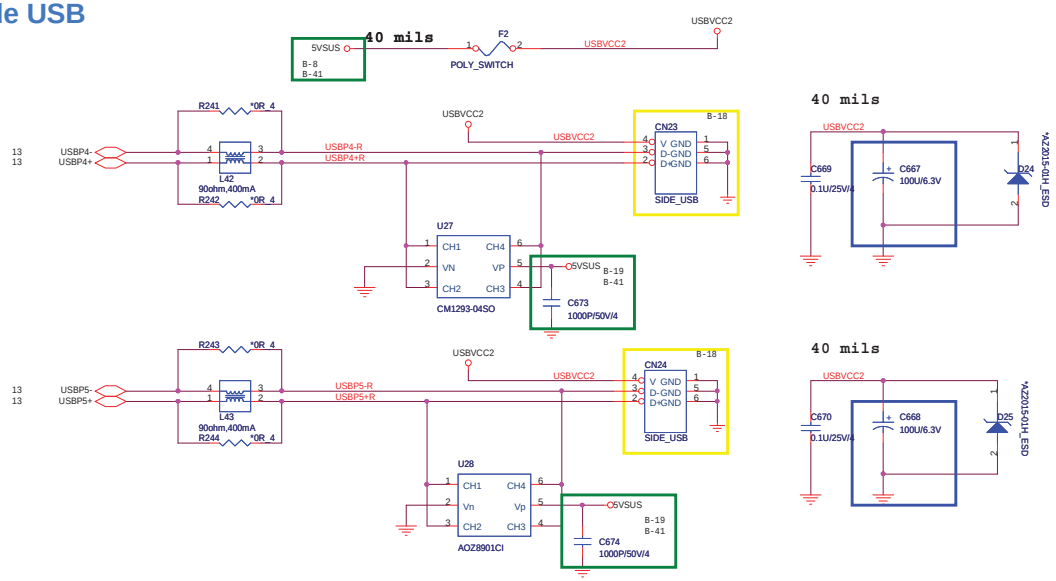
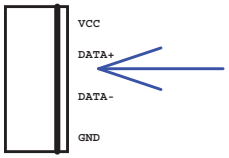




Quanta Computer Inc.		
PROJECT : ZN8		
Size	Document Number: MINI PCIE (WLAN/TV)	Rev: 1A
Date: Monday, March 22, 2010	Sheet 24 of 40	

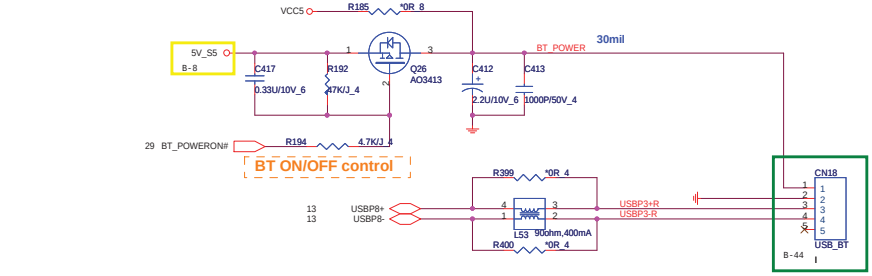
Side USB



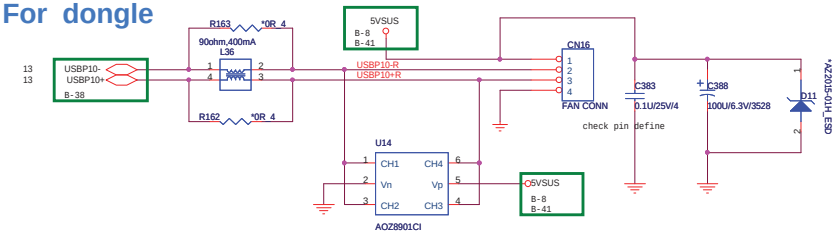


USB connector same as ZN6

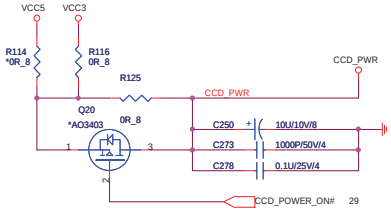
BLUETOOTH CONNECTOR



For dongle

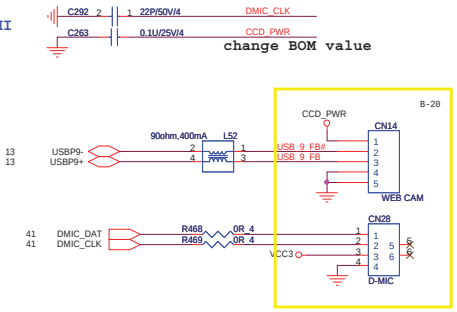


WEB CAM MODULE



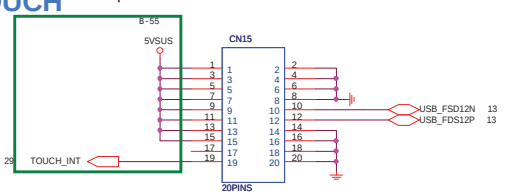
TO WEB CAM MODULE

FOR EMI



MULTI-TOUCH

HP spec:USB header for touch controller must be able to support 3.0 A.



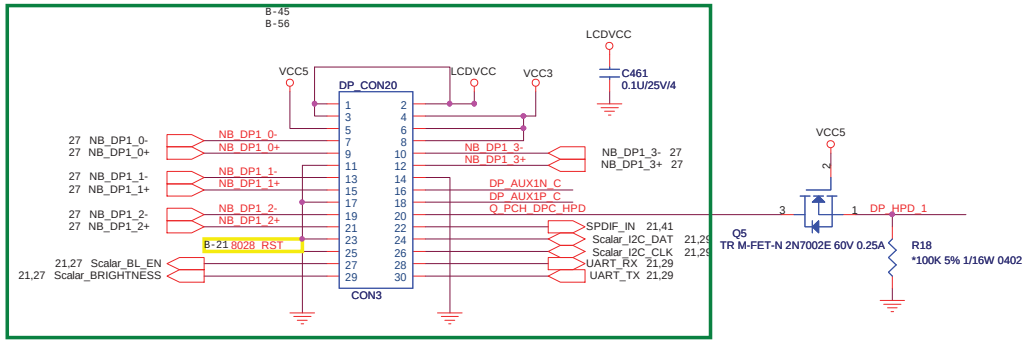
Quanta Computer Inc.

PROJECT : ZN8

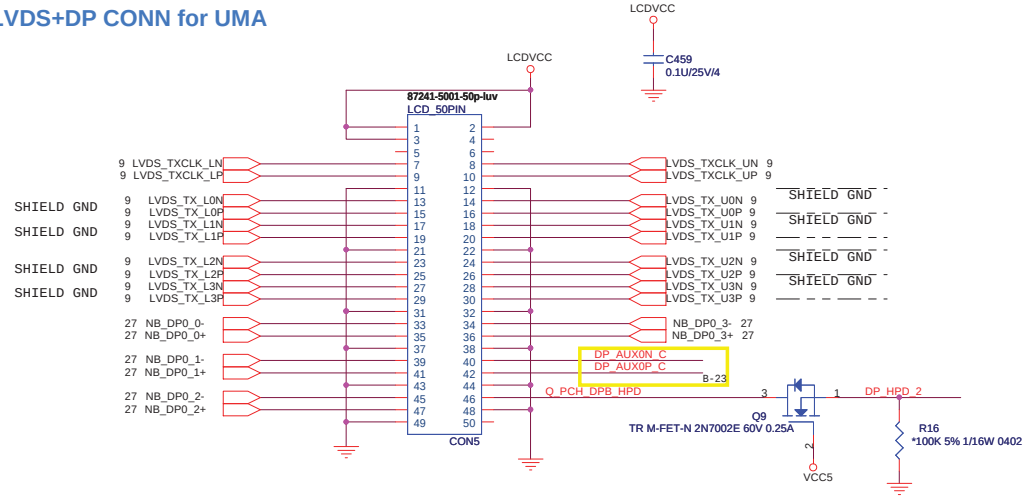
Size	Document Number	Rev
	USB/CCD/BT/MT	1A

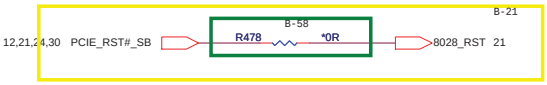
Date: Monday, March 22, 2010 Sheet 25 of 40

UMA DP CONN for scalar Board



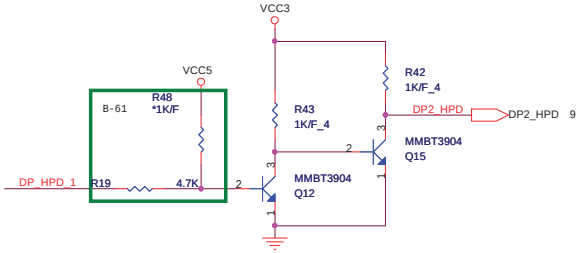
LVDS+DP CONN for UMA

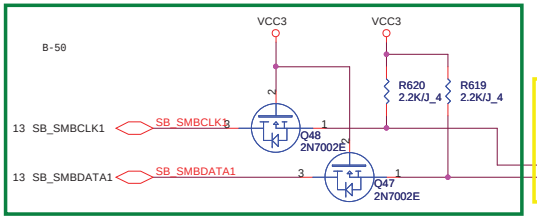


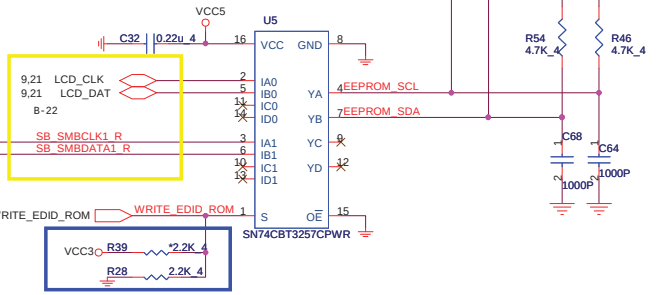


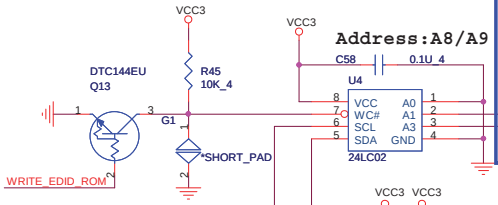
EEPROM IIC Selection

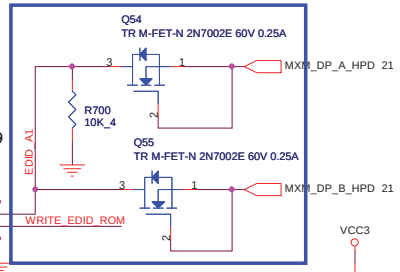
PANEL EDID DATA

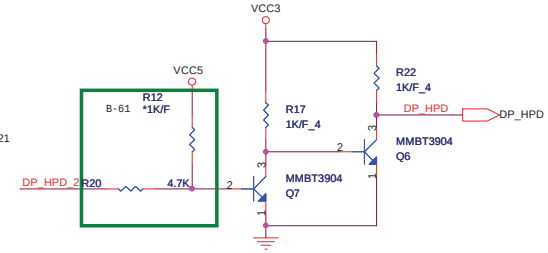


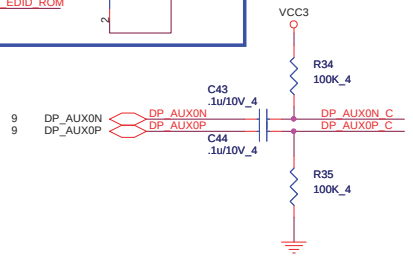


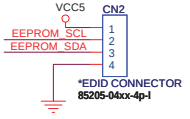


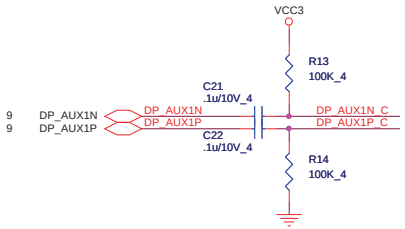












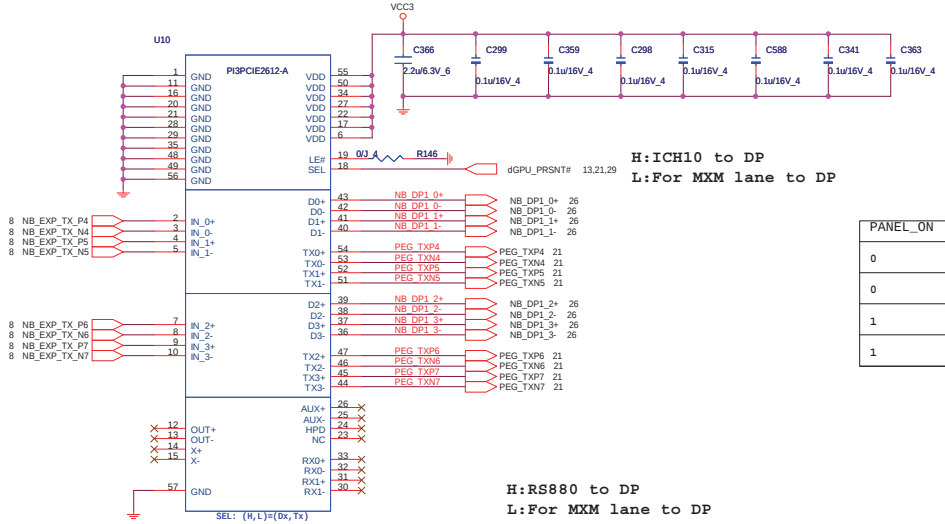
Quanta Computer Inc.

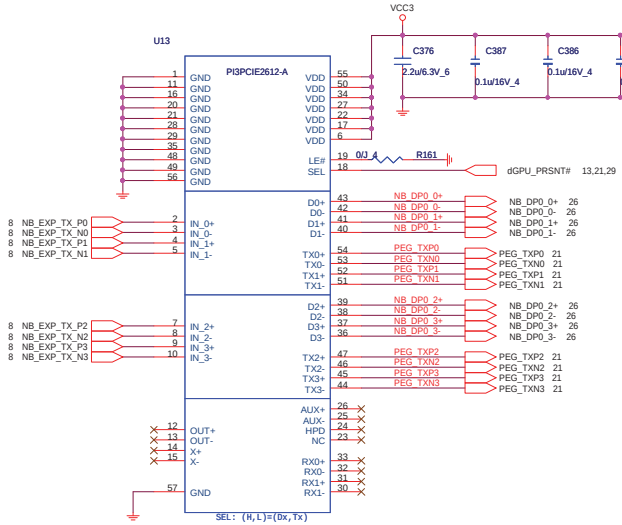
PROJECT : ZN8

Size	Document Number	Rev
	Panel (DP/LVDS)	1A

Date: Monday, March 22, 2010 Sheet 26 of 40

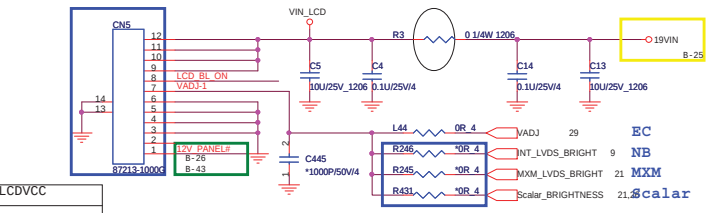
TO Converter Board



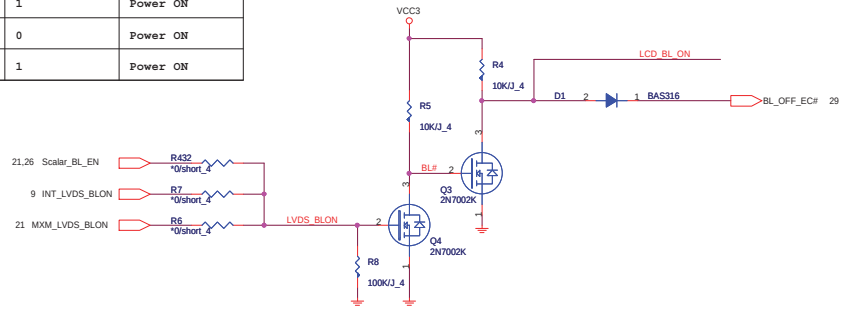


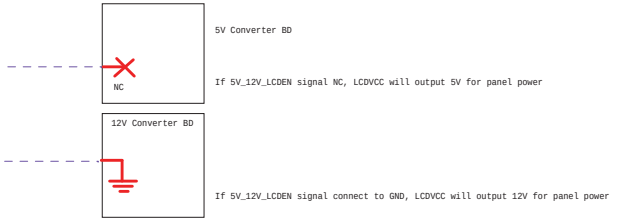
H:RS880 to DP
L:For MXM lane to DP

PWM_CONTROL



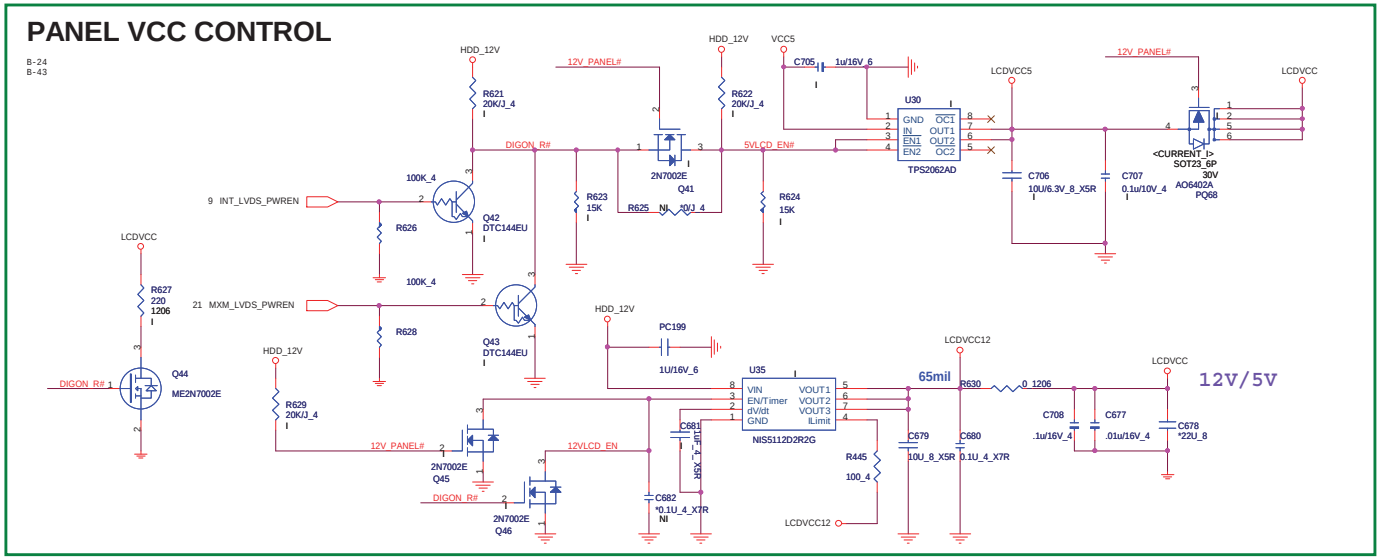
PANEL_ON	PANEL_ON_EC	LCDVCC
0	0	Power OFF
0	1	Power ON
1	0	Power ON
1	1	Power ON





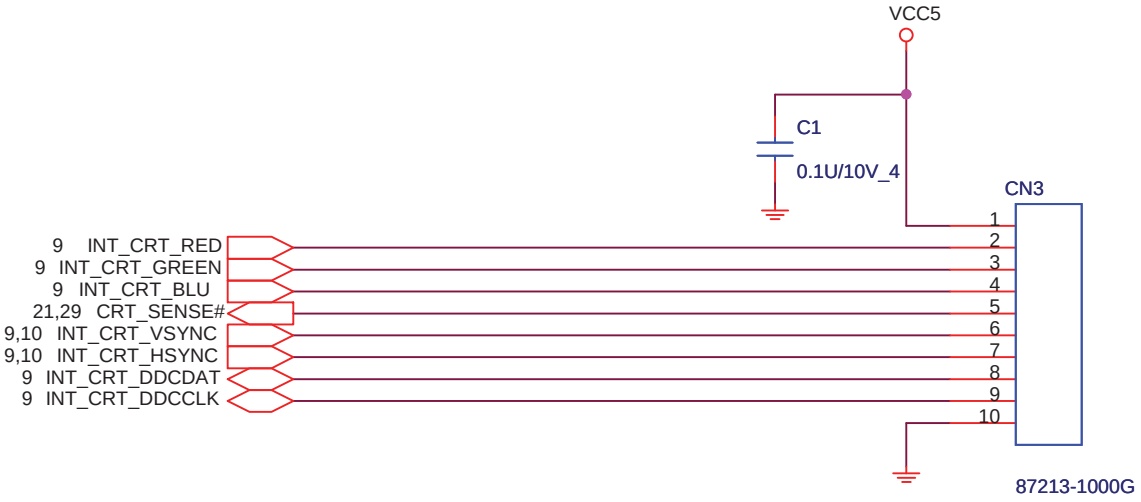
Option 2
a.5V panel --- remove Q41,C675,R438,R441,D26
b.12V panel --- remove Q41,R442,D26
Option 4
remove R441,R442

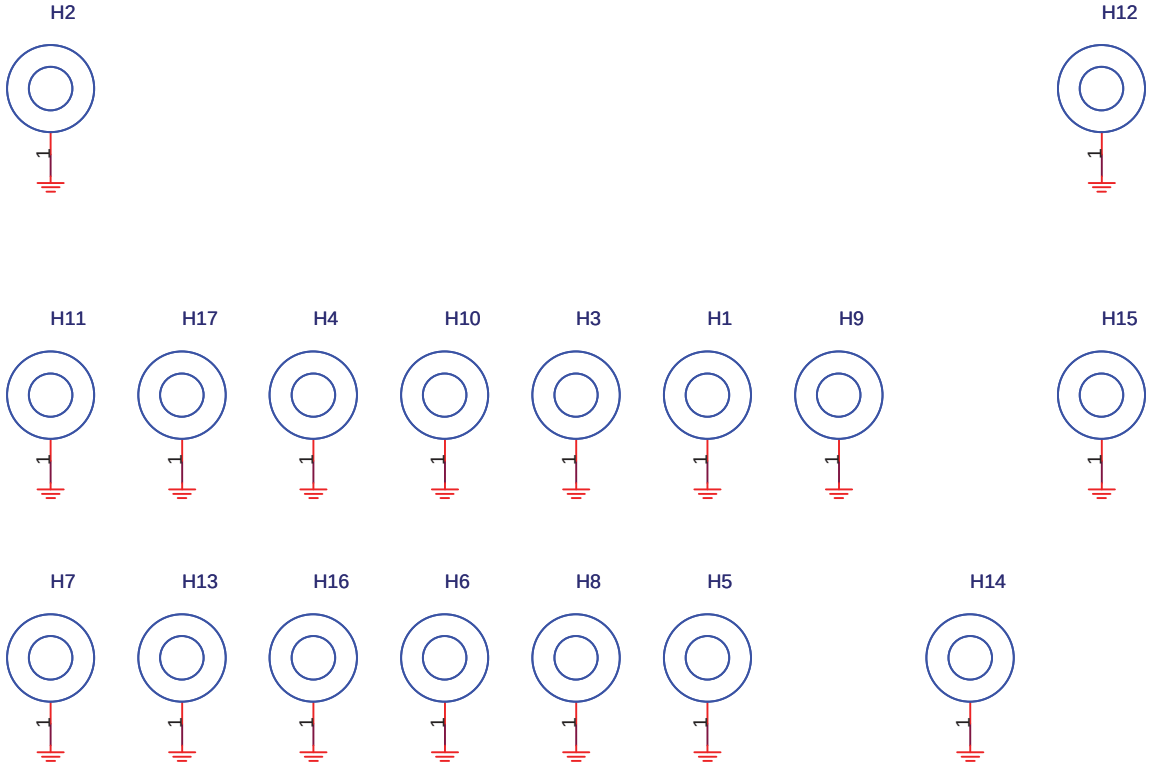
PANEL VCC CONTROL



Quanta Computer Inc.
PROJECT : ZN8
Size | Document Number: Panel (Control) | Rev 1A
Date: Monday, March 22, 2010 | Sheet 27 of 40

CRT for Debug





Quanta Computer Inc.		
PROJECT : ZN8		
Size	Document Number: CRT	Rev: 1A
Date: Monday, March 22, 2010	Sheet 28 of 40	

EC

Layout Note:
Place all capacitors close to IT8512.

Layout Note:
net "3VPCU" and "RTC_VCC"
minimum trace width 12mils.

(For PLL Power)

IT8512NX

LPC
GPIO
SM BUS
PS/2
CIR
PWM
UART port
WAKE UP
EXTERNAL SERIAL FLASH
SPI Device
KBMX
A/D D/A
CLOCK

For PS2

Input only

HWPG

8Mbit , SPI

Note 1 : Since all GPIO belong to VSTBY power domain, and there are some special considerations below:
(1) If it is output to external VCC derived power domain circuit, this signal should be isolated by a diode such as KBRST# and GA20.
(2) If it is input from external VCC derived power domain circuit, this external circuit must consider not to float the GPIO input.

Note 2 :
(1) Each input pin should be driven or pulled.
(2) Each output-drain output pin should be pulled.

Layout Note:
Place R471,R498,R534 within 500 mils from SPI Flash.Place R567 within 500mils from R534; R520 within 500mils from R498 and R570 within 500mils from R471.

For Debug use

Layout Note:
32.768kHz clock lines:
a. If possible, please avoid using any through-hole.
b. Please make the trace length short, and the trace width wide enough.
c. The spacing to the closest neighbor should be wide enough.

Quanta Computer Inc. PROJECT : ZN8			
Size	Document Number		Rev
	EC ITE 8512N/FLASH		1A
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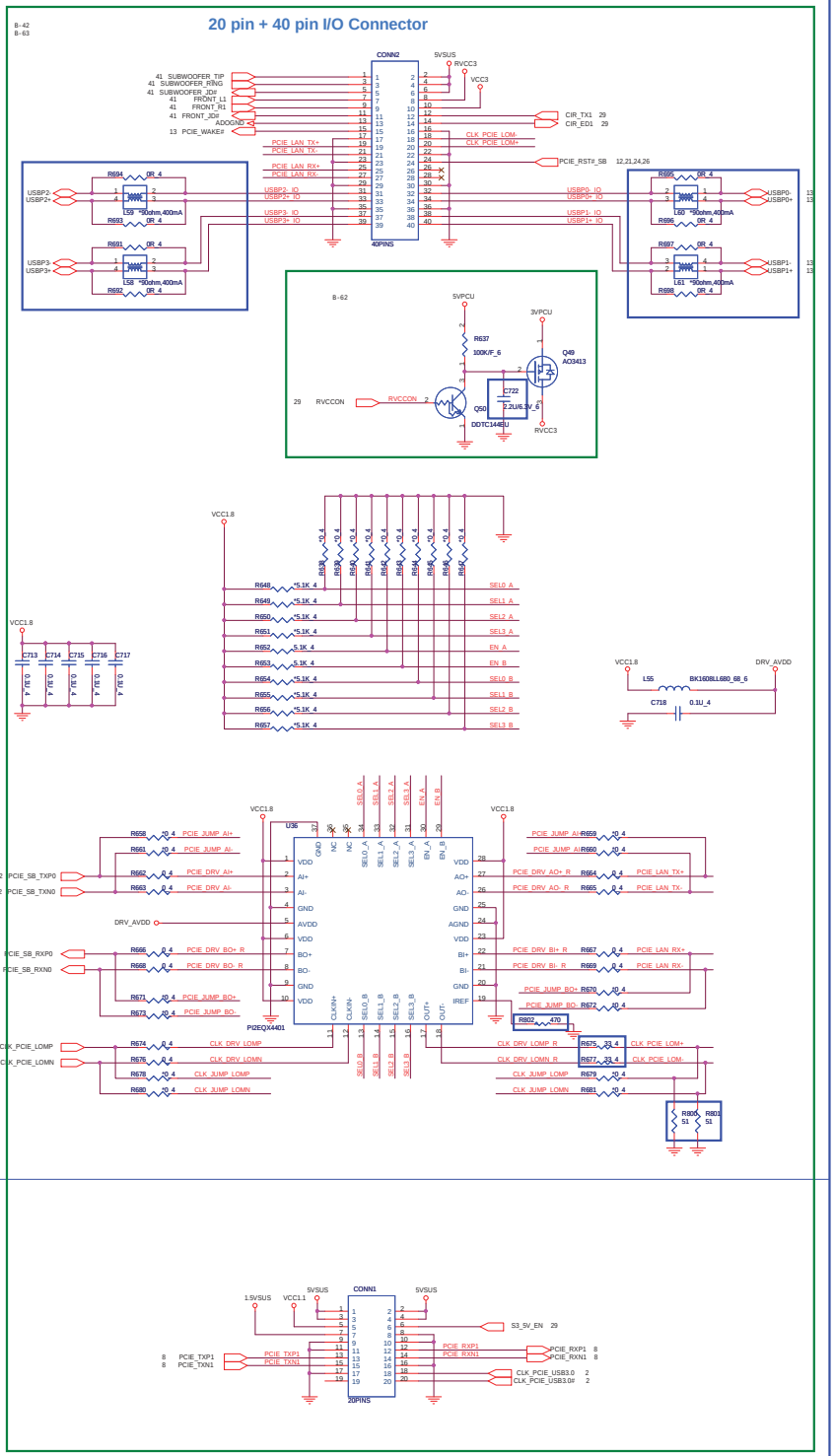
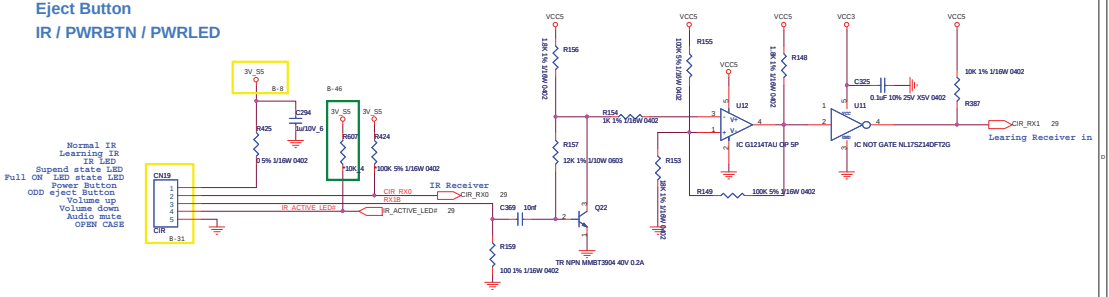
20 pin + 40 pin I/O Connector

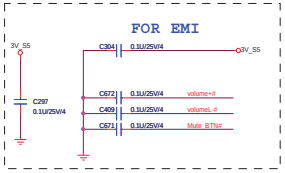


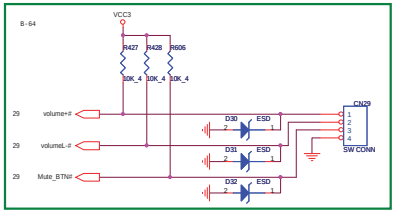
Eject Button
IR / PWRBTN / PWRLED

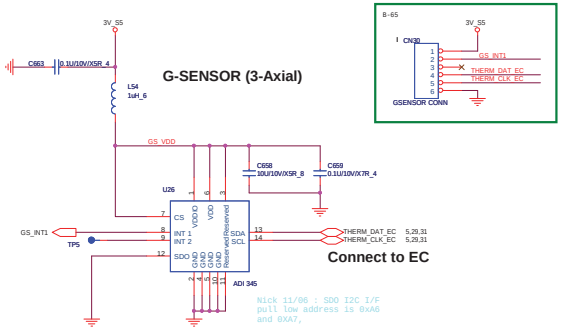


The aqua-white (470 +/- 5 nm) color is used to indicate the system is powered on and in the S0 state. The amber (590 +/- 5 nm) color is used to indicate the system is in one of the standby states (S3, S4, S5).

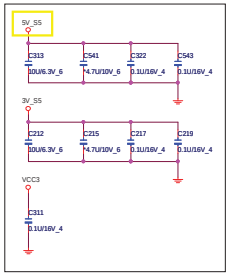
PWRBTN# must pull up to PCU power well

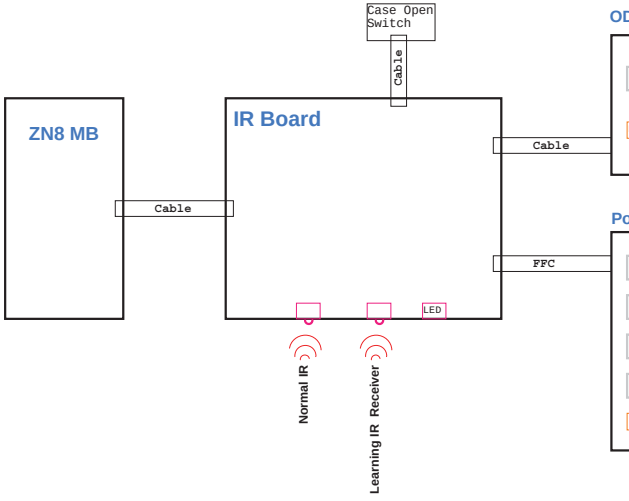




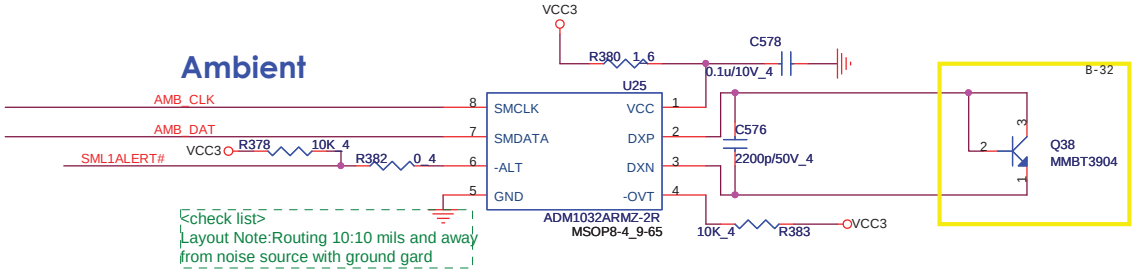


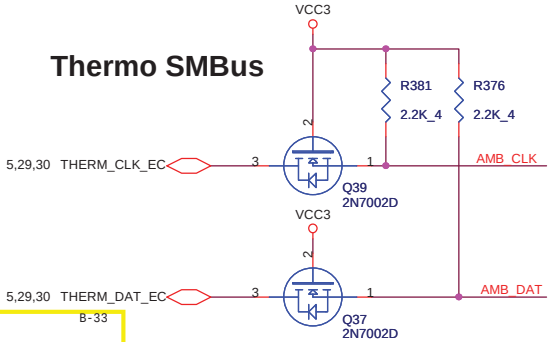
Nick 11/06 : SDO I2C I/F pull low address is 0xA6 and 0XA7,

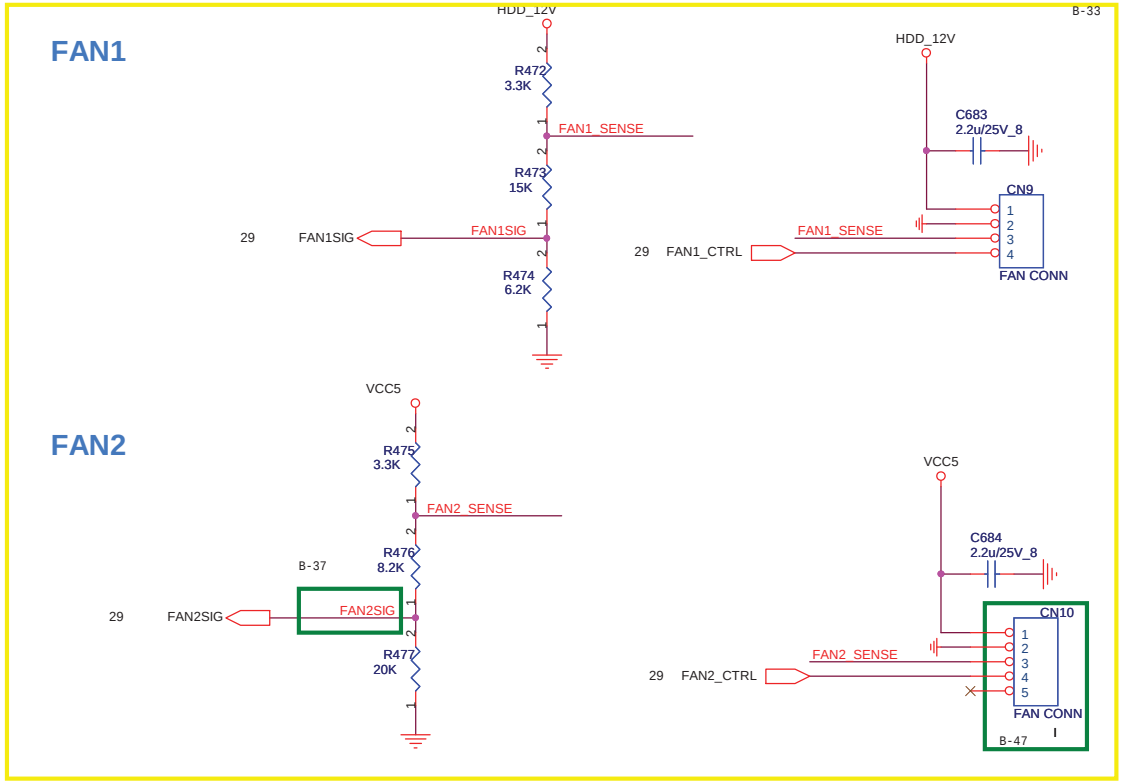




Quanta Computer Inc.			
PROJECT : ZN8			
Size	Document Number		Rev
	I/O Board Connector		1A
Date: Tuesday, March 23, 2010		Sheet 30 of 40	







Quanta Computer Inc.

PROJECT : ZN8

Size	Document Number	Rev
	FAN/Thermal Protection	1A

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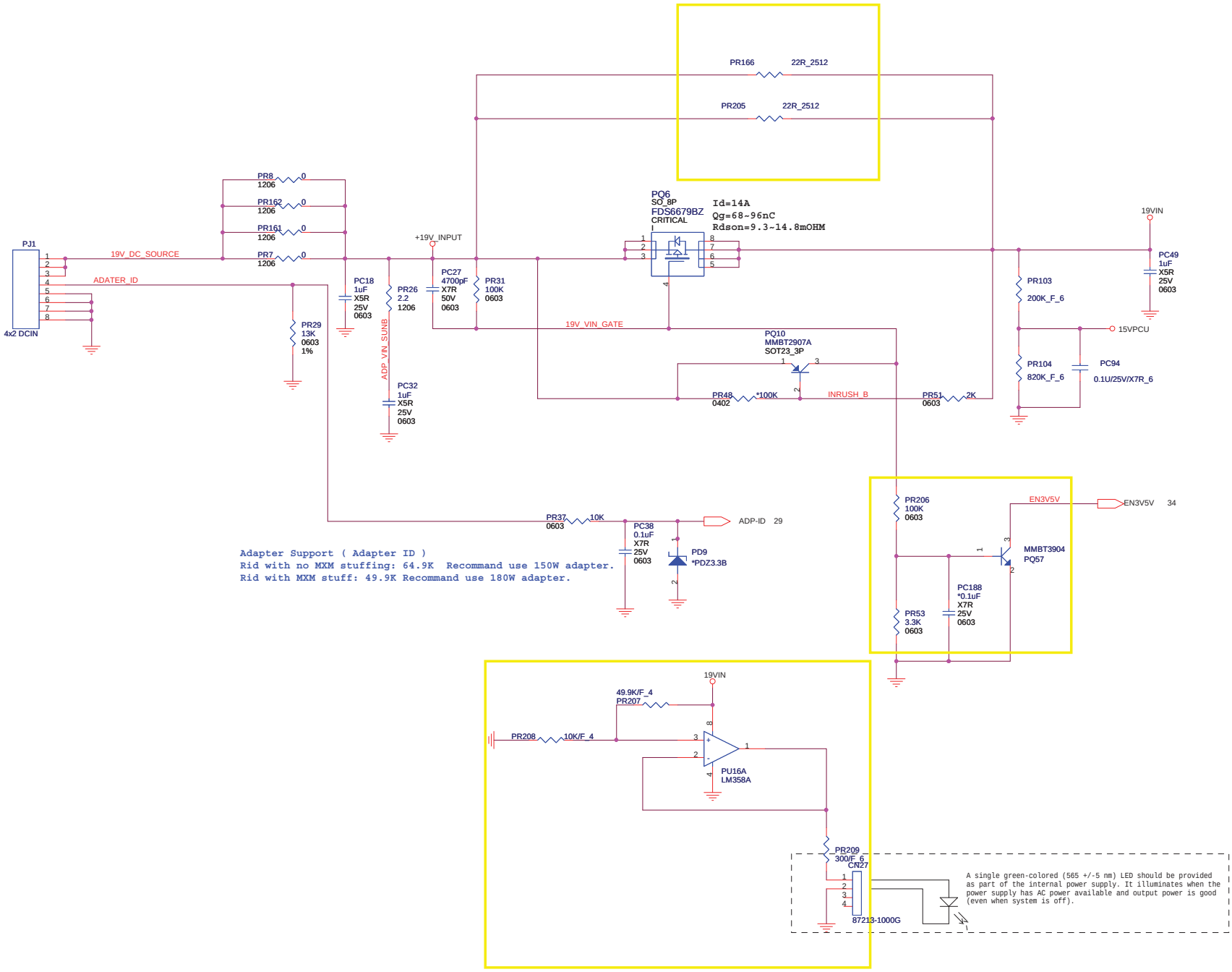

Quanta Computer Inc.

PROJECT : ZN8

Size	Document Number	Rev
	ACIN	1A

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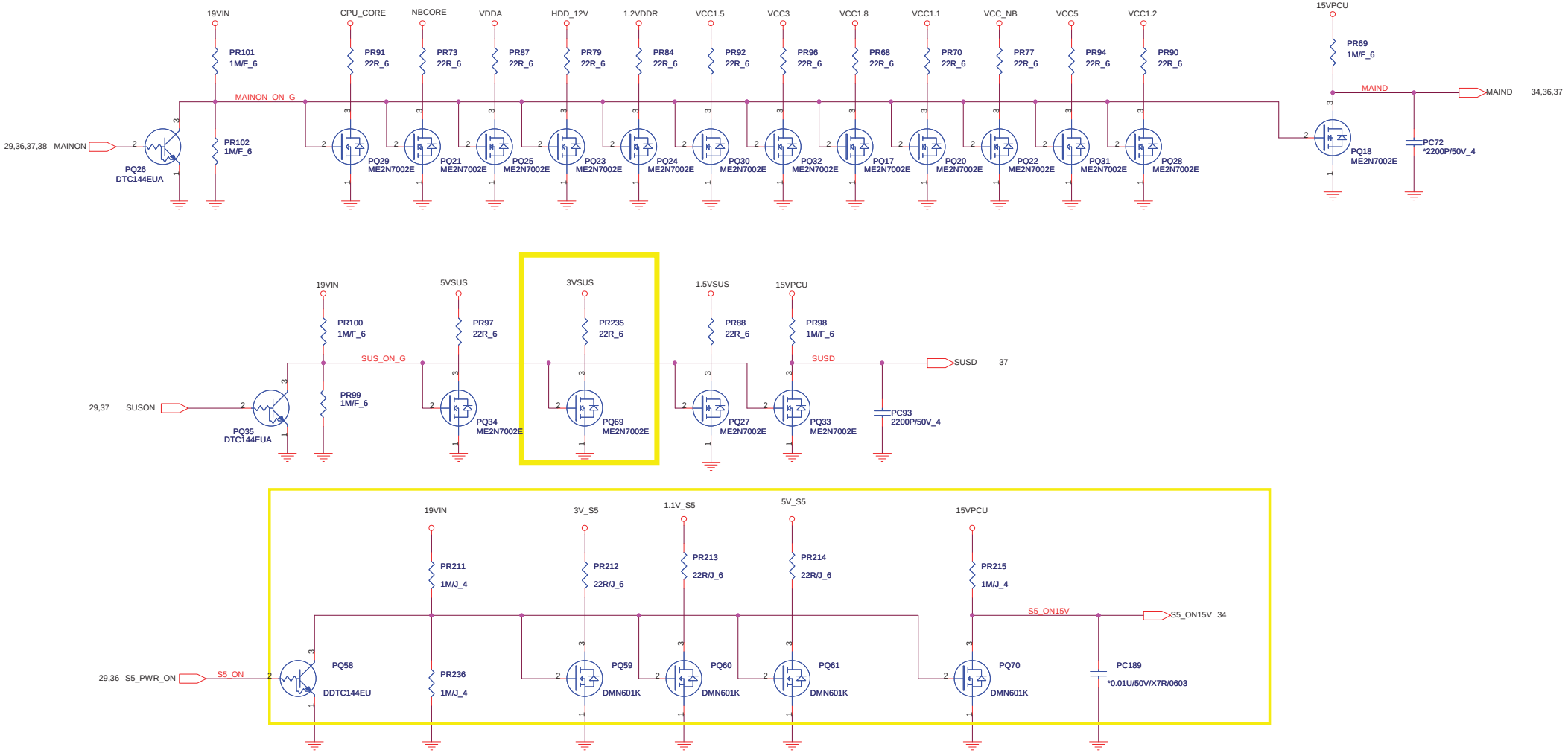

Quanta Computer Inc.

PROJECT : ZN8

Size	Document Number	Rev
	DISCHG & MOS SW	1A

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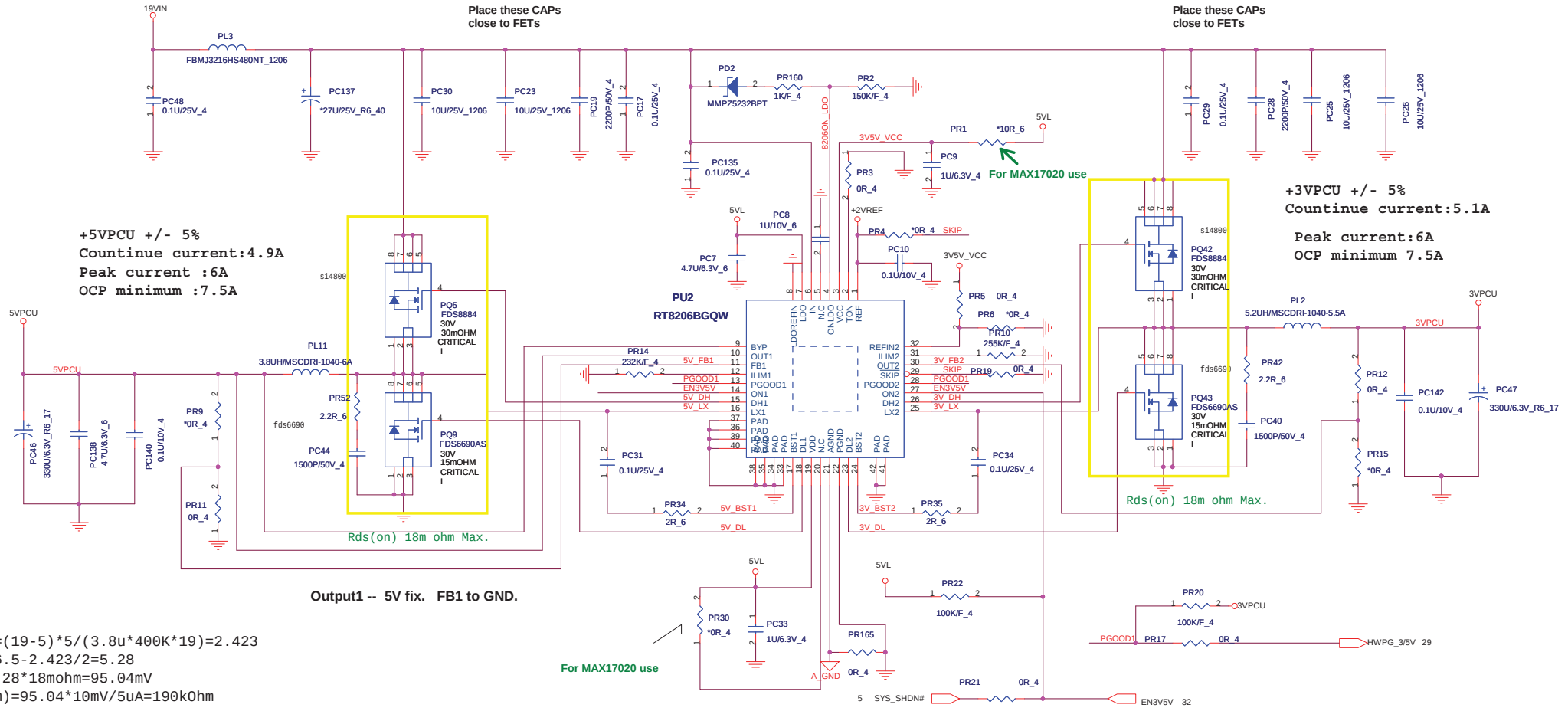
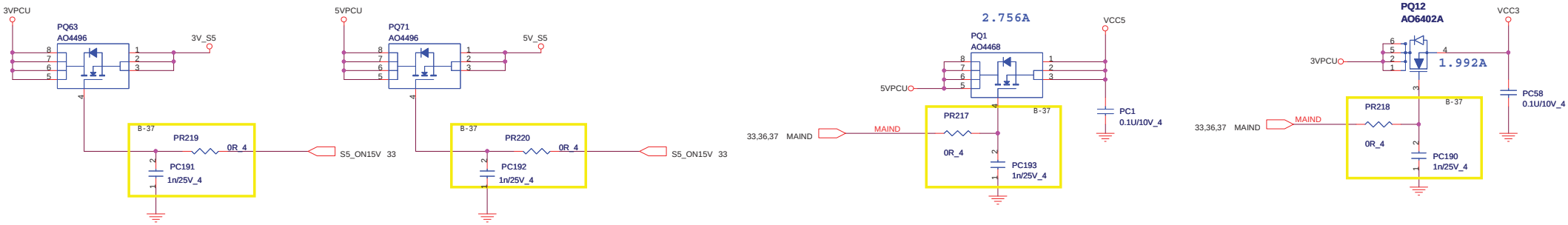
DC/DC +3V_ALW/+5V_ALW/+5V_ALW2 /+15V_ALW



del I=(19-5)*5/(3.8u*400K*19)=2.423
Iocp=6.5-2.423/2=5.28
Vth=5.28*18mohm=95.04mV
R(Ilim)=95.04*10mV/5uA=190kOhm

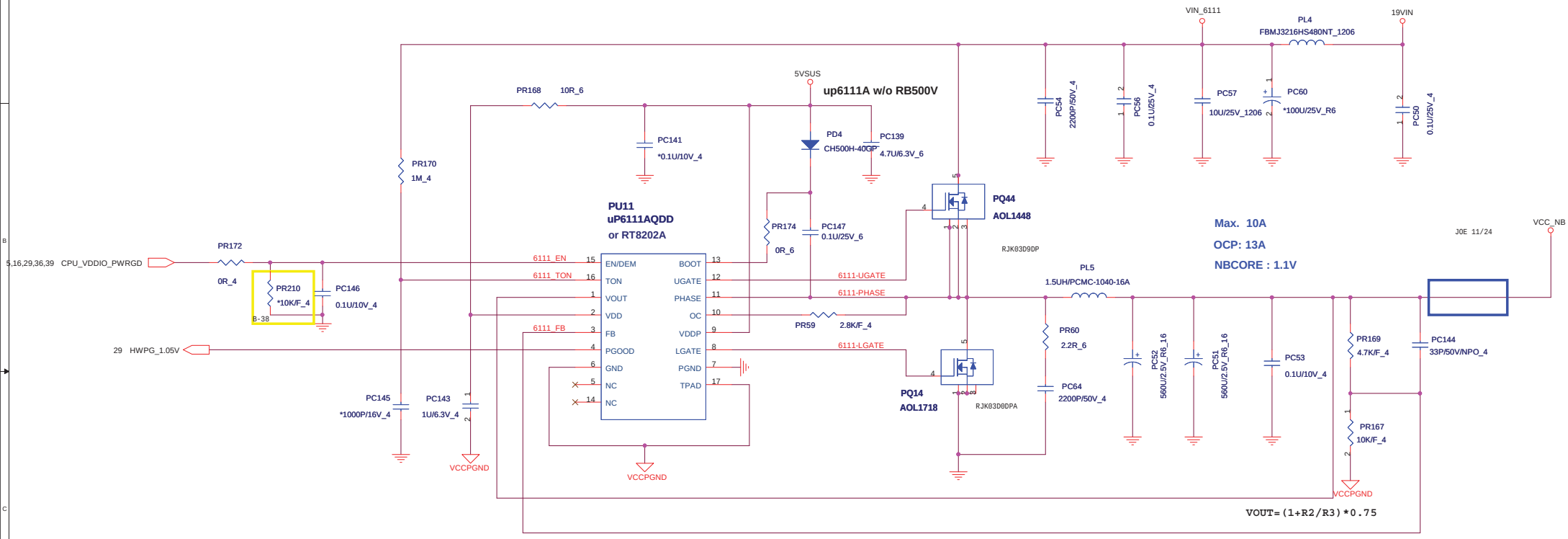


ZN8_POWER-3V/5V

Design common circuit for ,
RT8206B or Max17020 or TPS51427

Quanta Computer Inc.
PROJECT : ZN8

Size	Document Number	Rev
	+5V/+3V (RT8206B)	1A
Date: Monday, March 22, 2010	Sheet 34 of 43	



TON=3.85p*RTON*Vout/(Vin-0.5)

Frequency=Vout/(Vin*TON)

PR171 short

VCCPGND

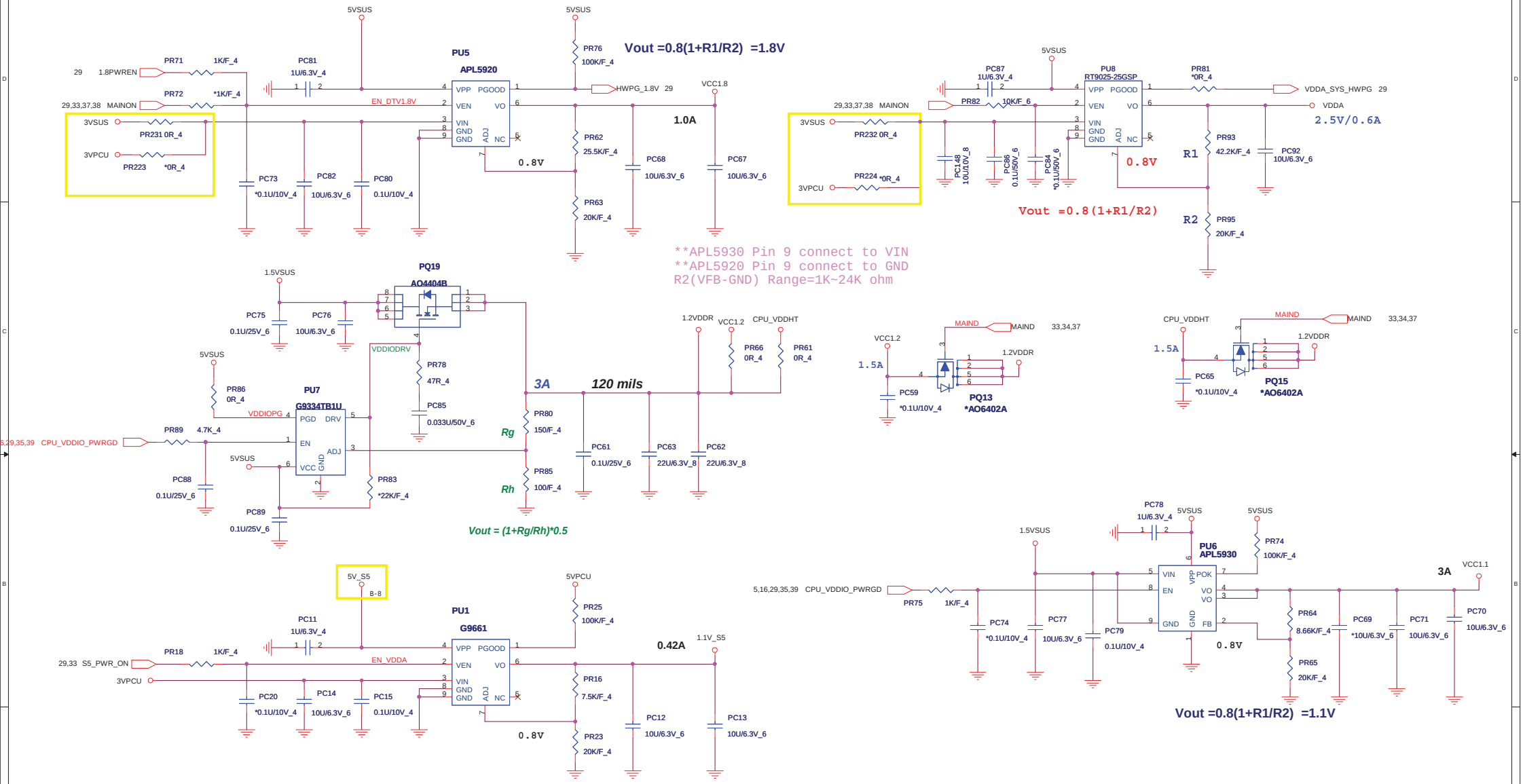
AO4712 Rds=4.3m Ohm Max./4.5V

Rds * OCP = RILIM * 20uA

13A OCP --- R_OC = 2.8K

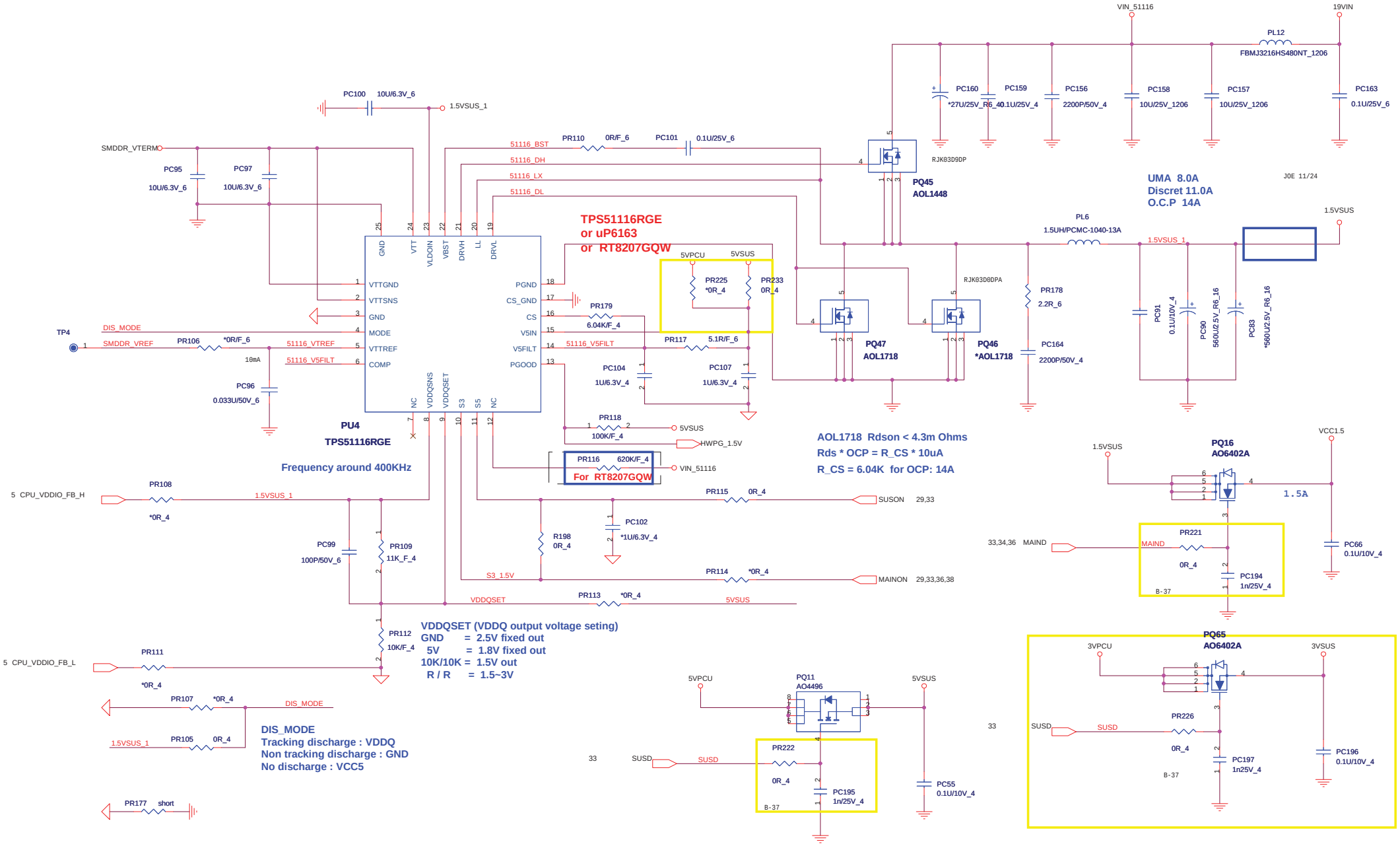
Quanta Computer Inc.		
PROJECT : ZN8		
Size	Document Number: NBCORE_1.1V(uP6111)	Rev: 1A
Date: Monday, March 22, 2010	Sheet 35 of 43	

VCC1.1V, 1.2VDDR, VCC1.8V,VDDA,1.1V_S5

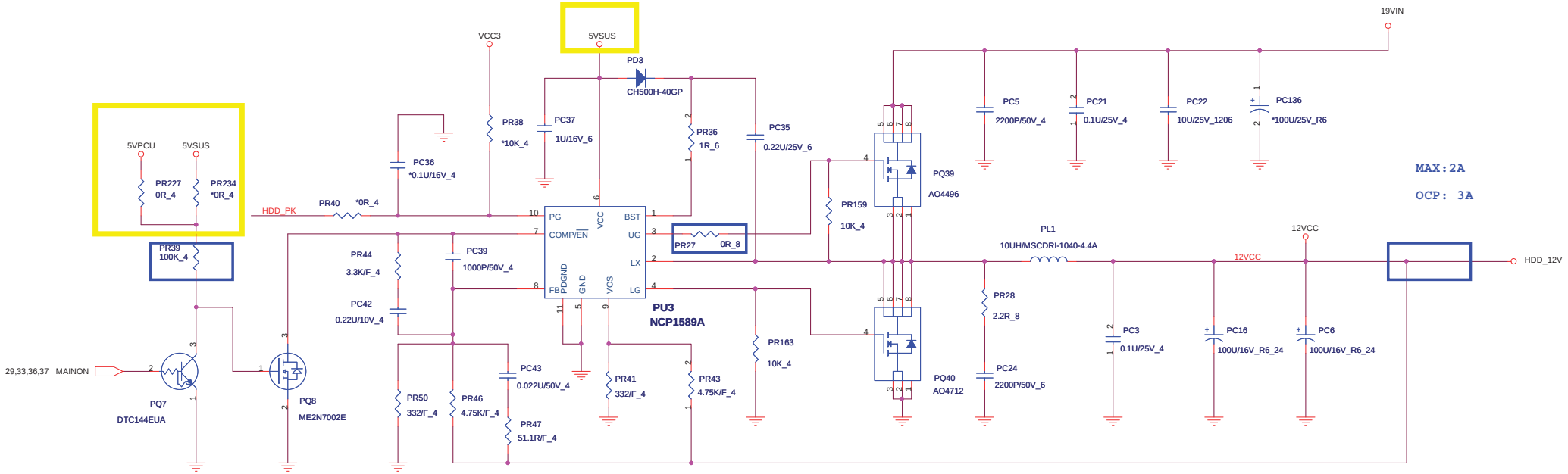


Quanta Computer Inc.			
PROJECT : ZN8			
Size	Document Number		Rev
	VCC1.1,VDD1.8,2.5V(LDO)		1A
Date: Monday, March 22, 2010	Sheet 36 of 43		

DDRIII-- 1.5VSUS



Quanta Computer Inc.	
PROJECT : ZN8	
Size	Document Number: DDR(TPS51116)
Rev	1A
Date: Tuesday, March 23, 2010	Sheet 37 of 43



Quanta Computer Inc.

PROJECT : ZN8

Size	Document Number	Rev
	HDD12V	1A

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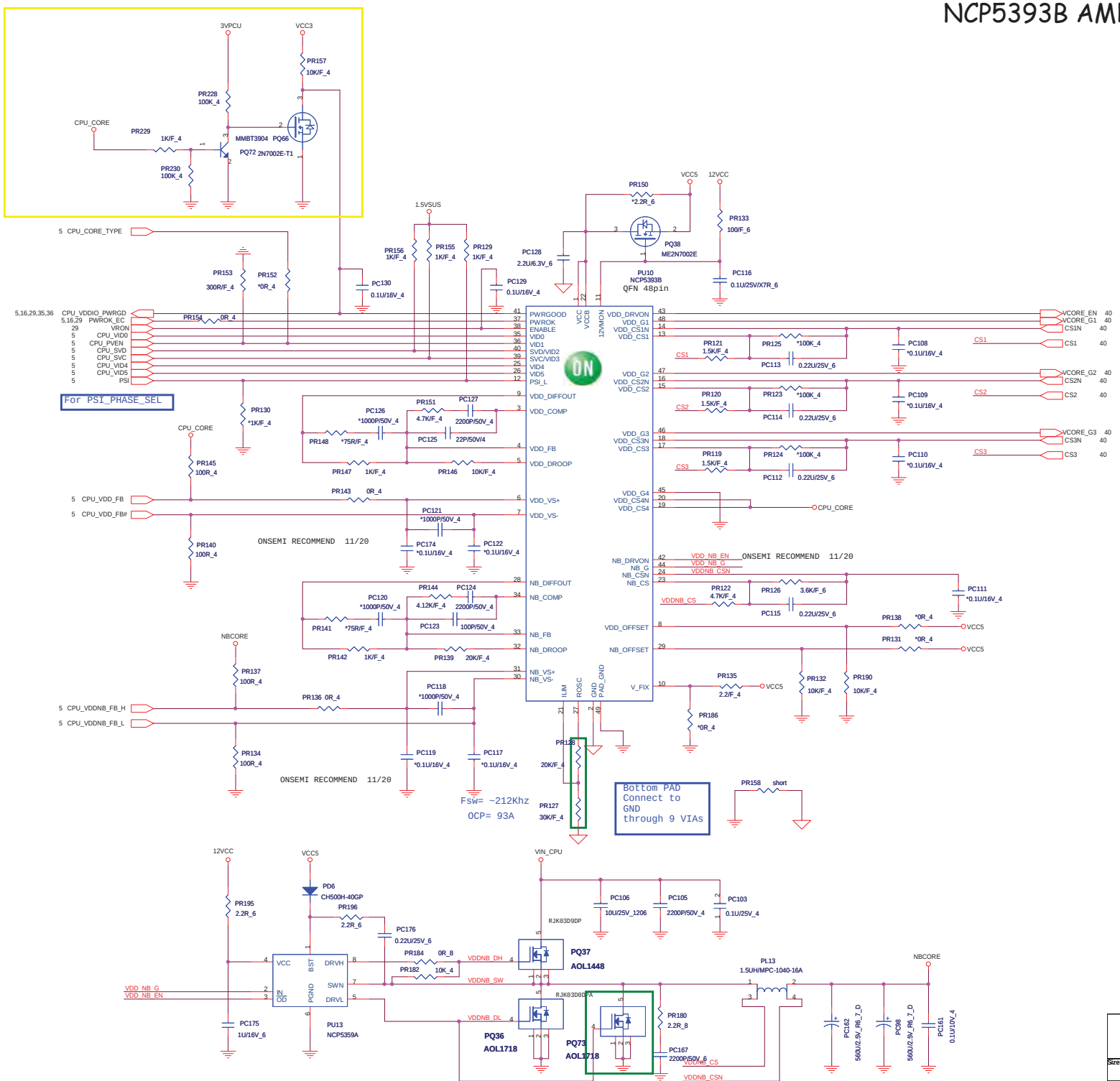
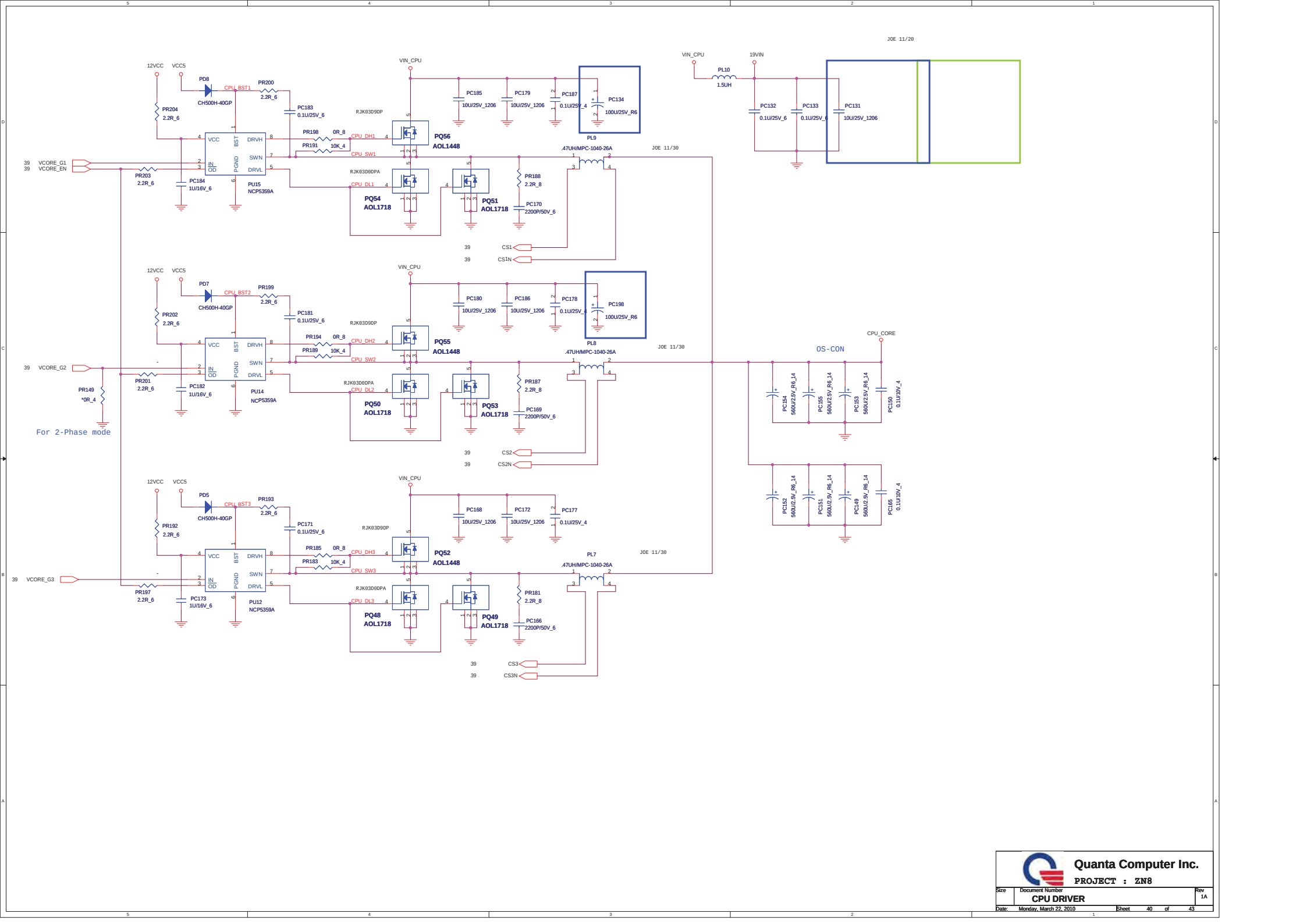
NCP5393B AMD AM3 POWER CKT



Quanta Computer Inc.

PROJECT : ZN8

Size	Document Number	Rev
	AMD AM3 CPUCORE(NCP5293)	1A
Date: Monday, March 22, 2010	Sheet 39 of 43	



Quanta Computer Inc.

PROJECT : ZN8

Size	Document Number	Rev
	CPU DRIVER	1A

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CODEC

Near sense pin

12/8 AC90/AC93 change to 0ohms by IDT demanded

2/3 AC17/AC19 from 1u to 10u solved the THD issue.

2/3 AC20/AC21 from 1u to 100u solved the THD issue.

AC19/AC21 place near AU7 Pin9

2/3 AC14/AC16/AC18 from 1u to 10u solved the THD issue.

2/3 AC22/AC23 from 1u to 100u solved the THD issue.

AC92/AC23 place near AU7 Pin1,3

12/8. AR59 need move close to the MIC by IDT demanded

12/8 resistors change to null by IDT demanded

VOUT = 1.25 (1+R1/R2)

R1	R2
4.8375V	28.7K
	10K

2nd source : G923-330T1U

AL000923003

12/8. AU3 current too small, when use we need to find other by IDT demanded

AC17 should near AU2

AC12 should near AU1

Place near AU4

11/30. change net name HPL and HPR to HPL1 and HPR1

BUZZER

BZ1 3.6V 90DB 8.5*8.5MM DNGJ4B20001

MMBT3904 40V 0.2A

MUTE

Check

EC — 29 EC_AMP_MUTE# — AD2 RB500V-40 — VCC3 — AR15 47K_F4 — AMP_MUTE# 42

PCH CODEC_RST — PCH_AZ_CODEC_RST# — AD1 RB500V-40

11/25 cancel BAT54C*2 by IDT demanded

LINE IN/Mic Reserved Jack

Normal Close

11/25 add filter by IDT demanded

HeadPhone/Mic Combo Jack

Normal Close

2/3 change 22ohm to 16ohm for meet 2Vrms output.

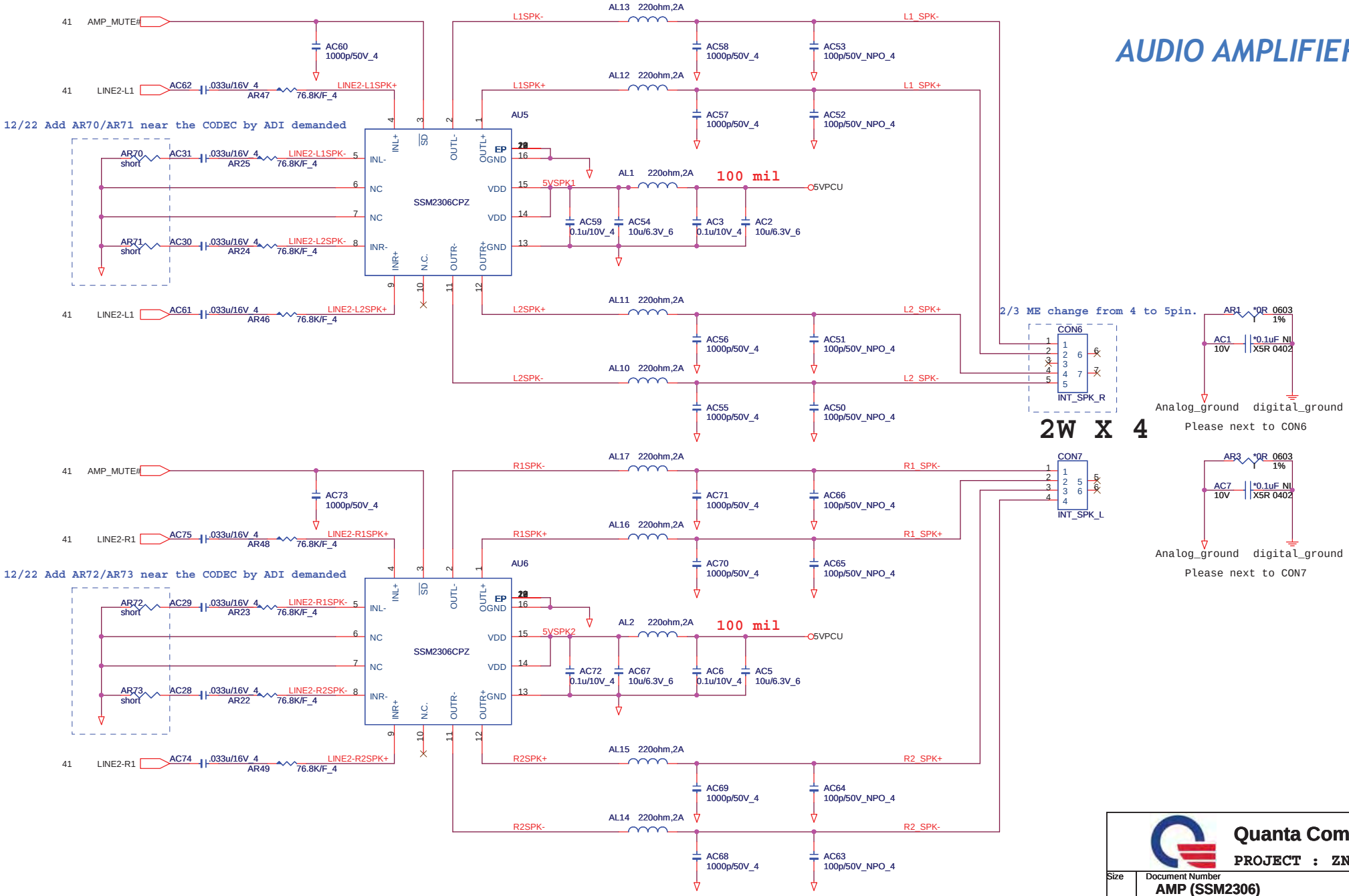
11/25 value change from 100P to 0.01u by IDT demanded

AC97 ALC1 SCHEMATIC (AFTER PLUG IN)

AC97 ALC1 SCHEMATIC (BEFORE PLUG IN)

Quanta Computer Inc.			
PROJECT : ZN8			
Size	Document Number		Rev
	HD Audio Codec(92HD89D3)		A
Date: Monday, March 22, 2010		Sheet 41 of 43	

AUDIO AMPLIFIER



Quanta Computer Inc.		
PROJECT : ZN8		
Size	Document Number: AMP (SSM2306)	Rev: 1A
Date: Monday, March 22, 2010	Sheet 42 of 43	

B-1 : CLK source change to CLK GEN from SB
B-2 : Change resistor footprint type
B-3 : Remove resistor for CLK GEN source
B-4 : Linking for EDID read
B-5 : For LAN and USB3.0 PCIE signal
B-6 : For EDID writing contorl
B-7 : Change CLK source from SB to CLK GEN
B-8 : Separate system S5 power from 3VPCU
B-9 : Mount R80 and D5 for MXM control
B-10 : Change SB strap setting
B-11 : Correct DIMM setting
B-12 : Linking for EDID read
B-13 : Correct 19V power rail net name
B-14 : Correct PCIE_RST#_SB connection
B-15 : Change HDD connector type
B-16 : Change ODD connector type
B-17 : Change mini PCIE controller form NB to SB
B-18 : Change mini PCIE controller form NB to SB
B-19 : Add cpapacitor for noise filtration
B-20 : Separate DMIC and camera connector
B-21 : Correct scalar board reset signal
B-22 : Modify panel EDID read / write function
B-23 : Modify display port AUX channel connection
B-24 : Add panel power 12V/5V switch function
B-25 : Correct 19V power rail net name
B-26 : Panel power 12V/5V power selection
B-27 : Link HP amp I2C to EC for GAIN control
B-28 : PWM driving for FAN control
B-29 : CPU_CORE PWRD assertion for EC
B-30 : Adjust I/O port pin define
B-31 : Change CIR connector type
B-32 : Correct DIMM thermal detect function
B-33 : Modify FAN circuit for 12V FAN
B-34: CLK_SBSRCP_PR / CLK_SBSRCN_PR link to CLK GEN SBSRC_CLK_R / SBSRC_CLK#_R
B-35: Change R373,R375 to 150 ohm from 4.7k
B-36: De-pop R313,R309
B-37: Fix FAN net name issue
B-38: Fix USB dongle issue
B-39: Change MXM DB from prot B to port C
B-40: Fix VBAT issue
B-41:Change USB power to 5VSUS
B-42: Change PCIEx1 Lane to fix Lan issue
B-43: Modified Panel power circuit
B-44: Change CN18(BT) from 4pin to 5pin
B-45: Change CON2, CON3 pin definition
B-46: Reserve PU Res. for IR con pin4.
B-47: Change FAN2(CN10) from 4pin to 5pin
B-48: Connector PCIE_WAKE to IO_BD for WOL
B-49: Remove CN11 Logo_light# circuit
B-50: Change U5 SMBUS from main to resume
B-51: De-pop R368,R369
B-52: Change D6 to D28,D29
B-53: Add ICH_RSMRST# RC delay circuit
B-54: Reserve SB_SPI for debug
B-55: Change MT touch power to 5VSUS
B-56: Change scalar BD conn. power.
B-57: Disable SB EC strap
B-58: De-pop R478 to fix scalar BD reset issue
B-59: Change carder connector type(CN22)
B-60: isolate power btn from CN6 to CON8
B-61: Change R19,R20 to 4.7k and de-pop R12,R48 for HPD issue
B-62: Add RVCC3 power control circuit
B-63: Add re-driver IC for PCIE LAN and USB3.0
B-64: Add CN29 for vol+/vol-/mute function
B-65: Add CN30 for G-SENSOR
B-66: Add NB_PWRGD control circuit for spike issue

PAGE 32

1.del DCIN1、PR176、PR175、PR173、PR24、PQ4、PQ2、PR32、PR24、PR49、PD1、PC41、PR33、PR164、CR1、PR13、PQ41、PQ3、PR55、PR56、PC45、PR54、PR45、PR57、PC4、PC2

2、ADD PR206/100kohm 、PC188/0.1uF、 PQ57/MMBT3904、 PR207/49.9kohm、PR37/10kohm、PU16A/LM358、PR166/22ohm、PD9/PDZ3.3B、PR209/300ohm

3、change PR29 FROM 64.9k ohm TO 13kohm

PAGE 35

1、change PR172 FROM 1k ohm TO 0 ohm

2、ADD PR?/10kohm 、PC51/560uF/2.5V

PAGE 36

1、change PU8 VEN FROM CPU_VDDIO_PWRGD TO MAINON

PAGE 37

1、change VCC1.5V TO VCC1.5

2、add pq65, pr226,pc197,pc196 for 3vsus

PAGE 39

1、change PU10 PWRGOOD FROM CPU_CORE TO VCC3

2、add mosfet in VDDNB

3、add pr229,pr230,pr228,pr157,pq67,p166 for pwrgood