Tonga-e (ZN5)

01

BOM Option Note

IV@	INSTALL FOR UMA SKU
EV@	INSTALL FOR DISCRETE GRAPHIC SKU
PROTO	INSTALL FOR PROTO ONLY
NI	UNINSTALL
I	INSTALL FOR ALL SKU

Quanta Computer Inc.
PROJECT : ZN5
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Tonga-E _ZN5 System Block Diagram

02

VCCP

V_1P1_CORE
V_1P1_PCIEXPRESS
V_1P1_ICH
V_FSB_VTT

V_1P1_CL_MCH
V_3P3_CL

VCC3
3VSB

VCC
5VSB
+12V

V_SM
V_1P5_ICH

System Power

Intel
Yorkfield LP
Wolfdale/Conroe
E7XX0/E8XX0
LGA775
Page 3,4

FSB(800/1067/1333HZ)

CLOCK GENERATOR
CK505
CV193
Page 2

800/1067 MHZ DDR III

CH A/B: DDRIII-SO-DIMM
Page 14

LCD PANEL
21.5" Full HD

NB
Eaglelake
Q43
1254 pin
Page 5,6,7,8,9

PCI-E 2.0 16X

MUX
PI3PCIE2612-A

SDVO

LVDS Transmitter
CH7308B
Page 16

LVDS

LVDS_CONNECT 1

PCI-E(0-3)
PCI-E(7-15)
PCI-E(4-6)

MXM CONNECTOR
VER:3.0
Page 15

LVDS

LVDS_CONNECT 2

DP

DP connect

MUX
PI3PCIE2612-A

SATA - HDD(3.5)
Page 17

SATA 1

SATA - ODD
Page 17

SATA 2

DMI

USB 2.0

Camera
Page 24

USB-1

USB/wirless KB
Dongle

USB-4

USB*4(Rear)
USB-0 for DEBUG
Page 23

USB-0,7,8,9

USB*2(Side)
Page 23

USB-3,5

Azalia

SB
ICH10D
676 pin
Page 10,11,12,13

PCI-Express 1X

PCIE-2

MINI CARD-1
WLAN Page 18
Bluetooth

USB-10

WLAN antenna

PCIE-3

MINI CARD-2
TV card
Page 18

TV antenna or
(F connect)

PCIE-1

LAN
82567QM
Page 20

RJ45

PCIE-4

Card Reader
/JMB380 /JMB385
Page 20

Media Slot

1394a

USB-11

SPI

LPC_BUS

32.768KHz

SUPER IO
SMSC SCH5327
Page 25

TPM
Page 22

EC ITE8512
Page 30

FLASH
ROM

IR
Blaster
Page 30

CIR
Page 30

PS2
Keyboard
Page 25

FAN
Page 24

PS2
Mouse
Page 25

H.P
Page 26

A_MIC IN
Page 26

INT SPK
Page 26

DMIC IN
Page 26

2WX2

AUDIO CODEC
ALC272
Page 26

LINE OUT
Page 27

Quanta Computer Inc.
PROJECT : ZN5

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	System Block Diagram	X4

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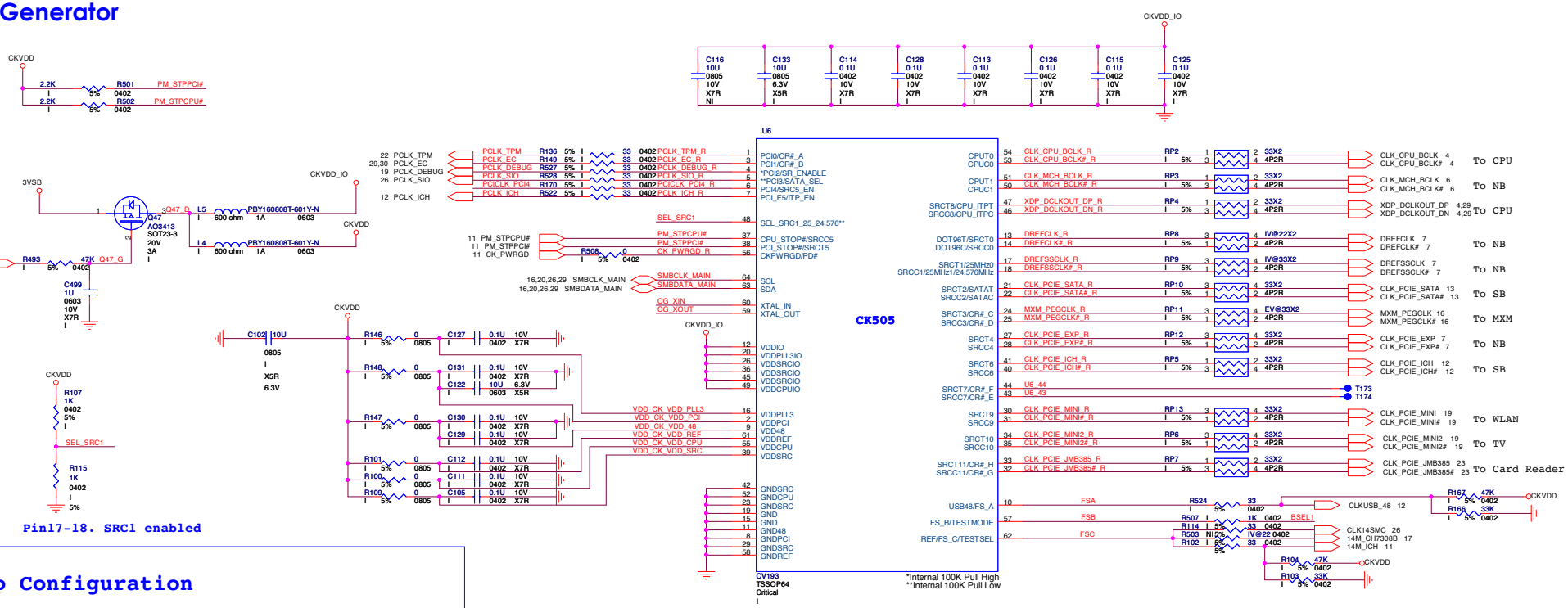
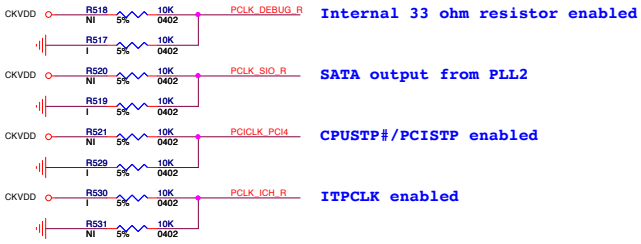
Clock Generator

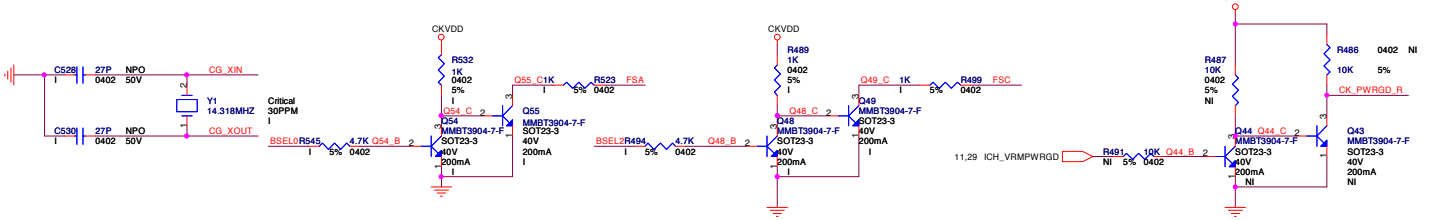
03



Pin17-18. SRC1 enabled

Strap Configuration

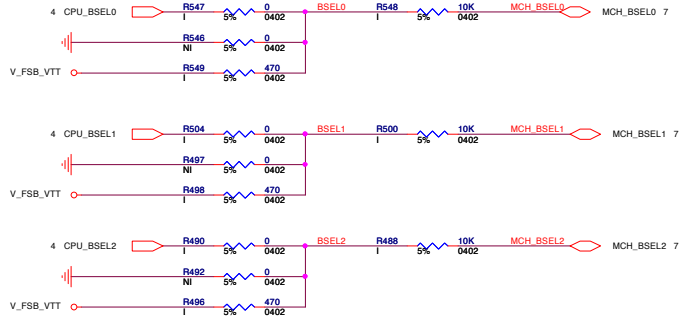


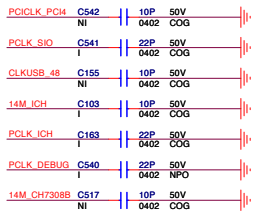


FREQ. SEL TABLE

BSEL Frequency Select Table

FSC	FSB	FSA	Frequency
0	0	0	266Mhz
0	0	1	133Mhz
0	1	1	166Mhz
0	1	0	200Mhz
1	0	0	333Mhz
1	0	1	100Mhz
1	1	0	400Mhz
1	1	1	Reserved





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PROJECT : ZN5

Size	Document Number	Rev
	CLK. GEN/ CK505	X4

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Termination

S1	S0	RATIO SET
0	0	0.615xVTT
0	1	0.63xVTT
1	0	0.65xVTT
1	1	0.67xVTT

XDP

IC design

Thermal Sensor

Address: 9AH

Quanta Computer Inc.

PROJECT : ZN5

Size	Document Number	Rev
	CPU(1/2)- Host Bus	X4

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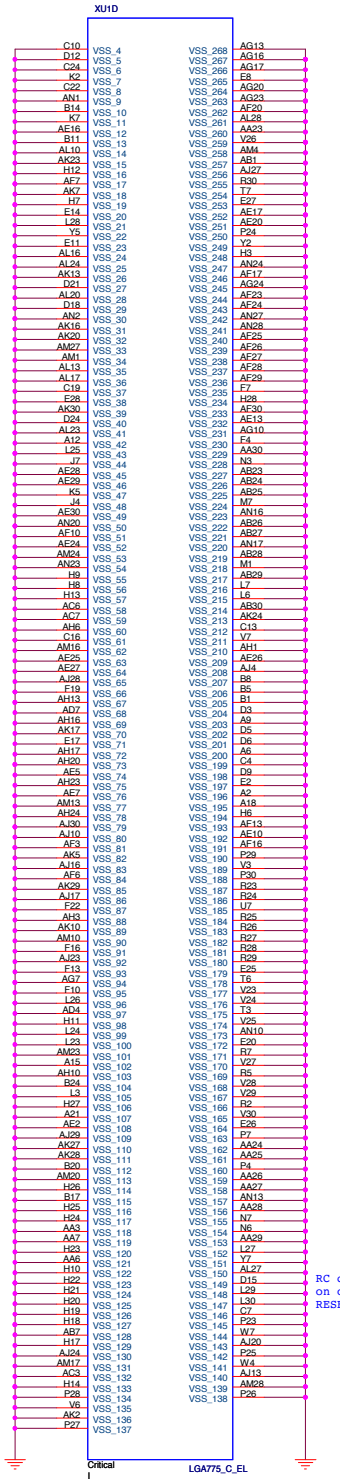
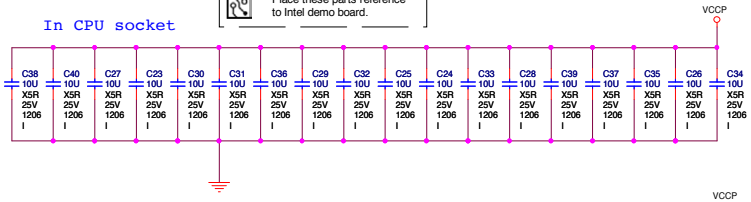
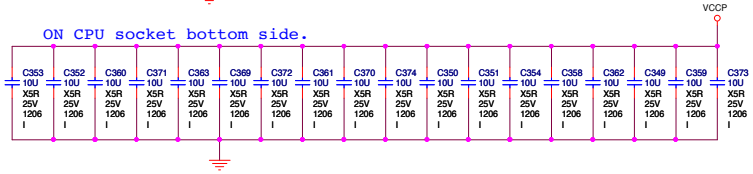


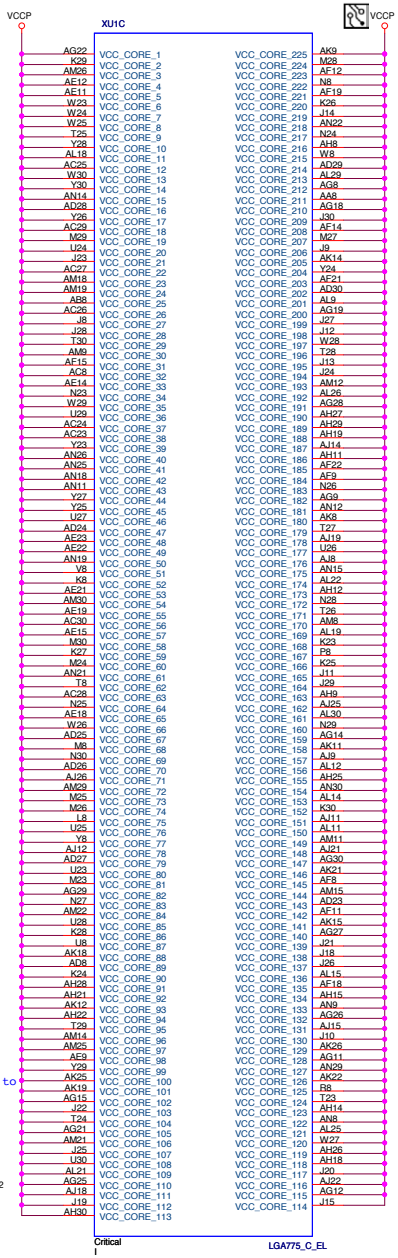
Place these parts reference to Intel demo board.

In CPU socket



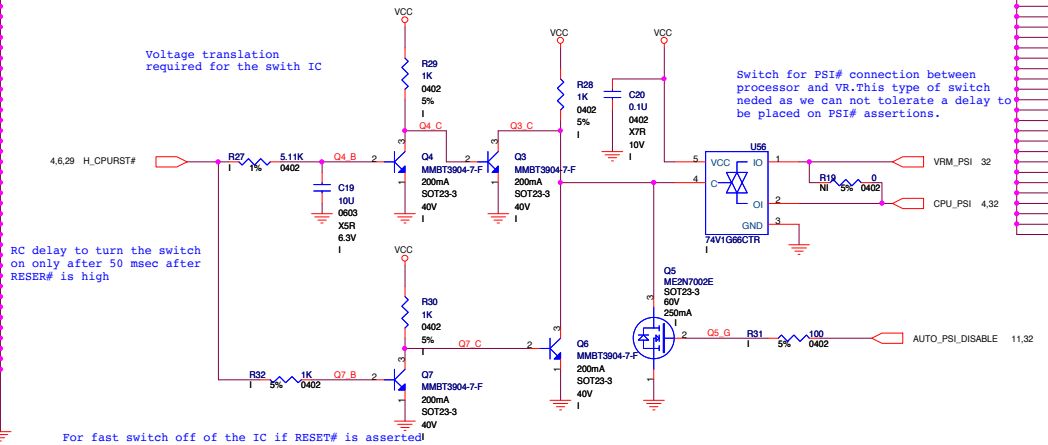
ON CPU socket bottom side.





Yorkfield/Wolfdale CPU Power Status and max current table

POWER PLANE	S0	S3	S4/S5	Voltage	I(max)	Note
VCC_CORE	O	X	X	VID	100A	Yorkfield@65W
VCC_CORE	O	X	X	VID	75A	Wolfdale
VTT	O	X	X	VCC1.2	4.6A	After VCC stable
VTT	O	X	X	VCC1.2	4.5A	Before VCC stable
VCC_PLL	O	X	X	VCC1.5	260mA	



C-step Erratum for PSI

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Size	Document Number	Rev
	CPU(2/2)- Power	X4
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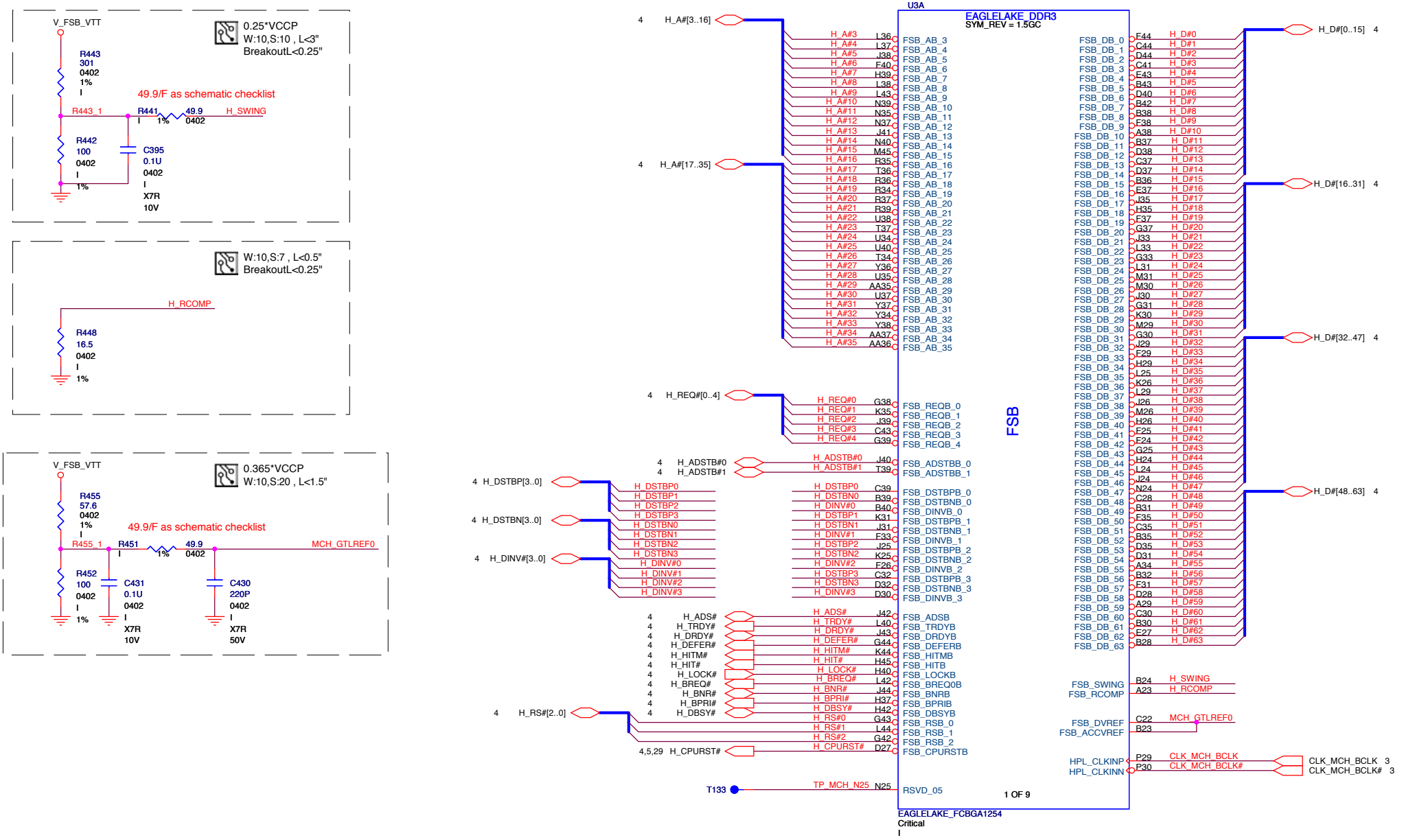

06

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PROJECT : ZN5		
Size	Document Number: NB (1/5) HOST	Rev: X4
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SDVO -> LVDS

H:SDVO TO LVDS
L:for MXM lane

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

CLPWROK sequence request
1. asserted after VCC_CL ramp to 1.0V
2. asserted before PWROK

Enable Digital Port B had PU 5.6K to VCC2.5 on CH7308 side need to check with intel

ICH_DPRSTP# The Daisy chain topology should be routed from ICH10 to IMVP , then to (G)MCH and CPU, in that order.

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PROJECT : ZN5			
Size	Document Number		Rev
	NB (2/5)- VGA, DMI, PCIE		X4
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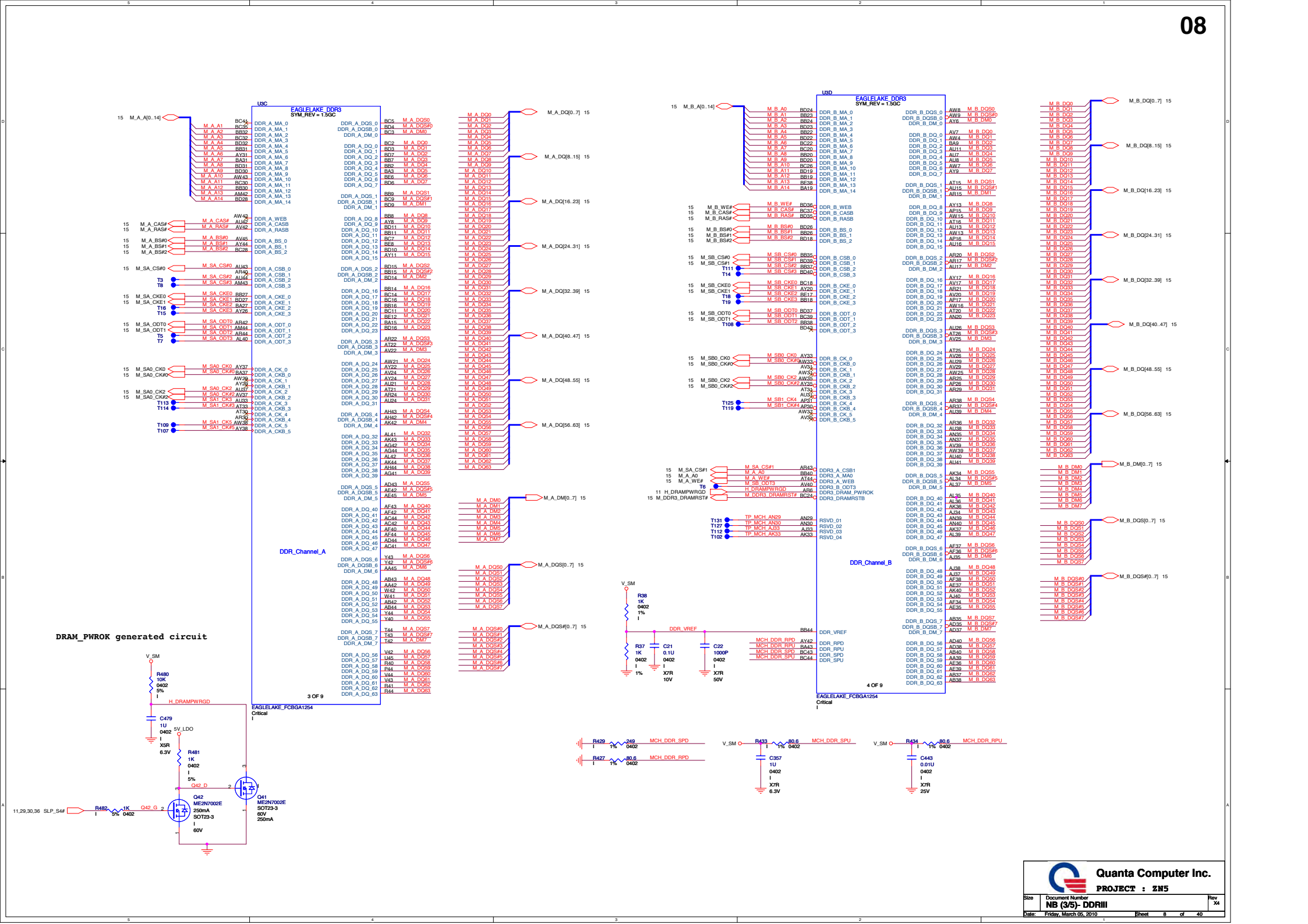
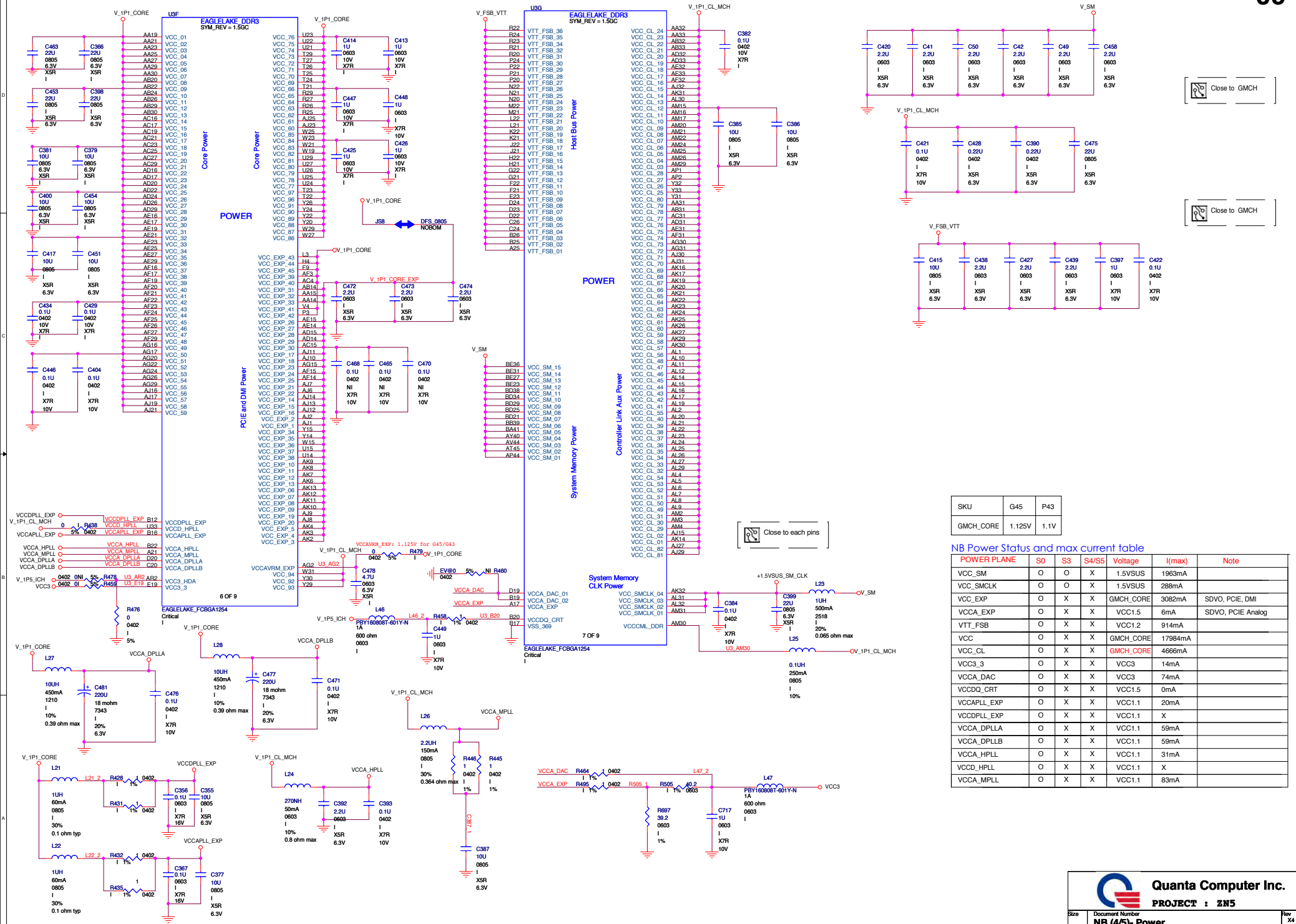


Quanta Computer Inc.			
PROJECT : ZN5			
Size	Document Number		Rev
	NB (3/5)- DDRIII		X4
Date: Friday, March 05, 2010		Sheet 8 of 40	



SKU	G45	P43
GMCH_CORE	1.125V	1.1V

NB Power Status and max current table

POWER PLANE	S0	S3	S4/S5	Voltage	I(max)	Note
VCC_SM	O	O	X	1.5VSUS	1963mA	
VCC_SMCLK	O	O	X	1.5VSUS	288mA	
VCC_EXP	O	X	X	GMCH_CORE	3082mA	SDVO, PCIE, DMI
VCCA_EXP	O	X	X	VCC1.5	6mA	SDVO, PCIE Analog
VTT_FSB	O	X	X	VCC1.2	914mA	
VCC	O	X	X	GMCH_CORE	17984mA	
VCC_CL	O	X	X	GMCH_CORE	4666mA	
VCC3_3	O	X	X	VCC3	14mA	
VCCA_DAC	O	X	X	VCC3	74mA	
VCCDQ_CRT	O	X	X	VCC1.5	0mA	
VCCAPLL_EXP	O	X	X	VCC1.1	20mA	
VCCDPLL_EXP	O	X	X	VCC1.1	X	
VCCA_DPLLA	O	X	X	VCC1.1	59mA	
VCCA_DPLLB	O	X	X	VCC1.1	59mA	
VCCA_HPLL	O	X	X	VCC1.1	31mA	
VCCD_HPLL	O	X	X	VCC1.1	X	
VCCA_MPLL	O	X	X	VCC1.1	83mA	

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Size	Document Number	Rev
	NB (4/5)- Power	X4
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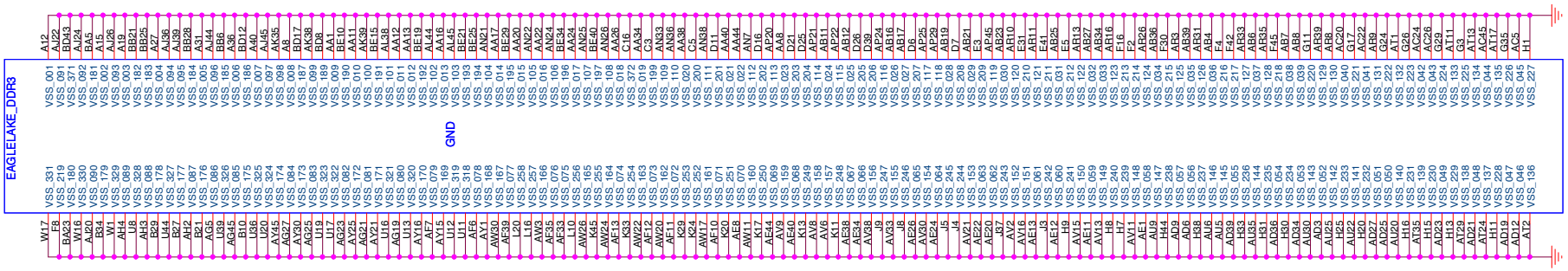

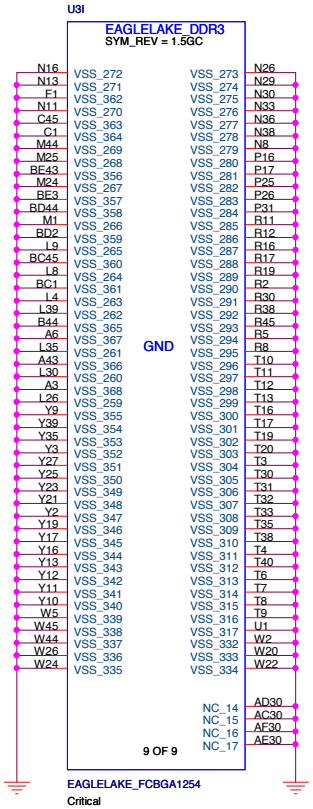

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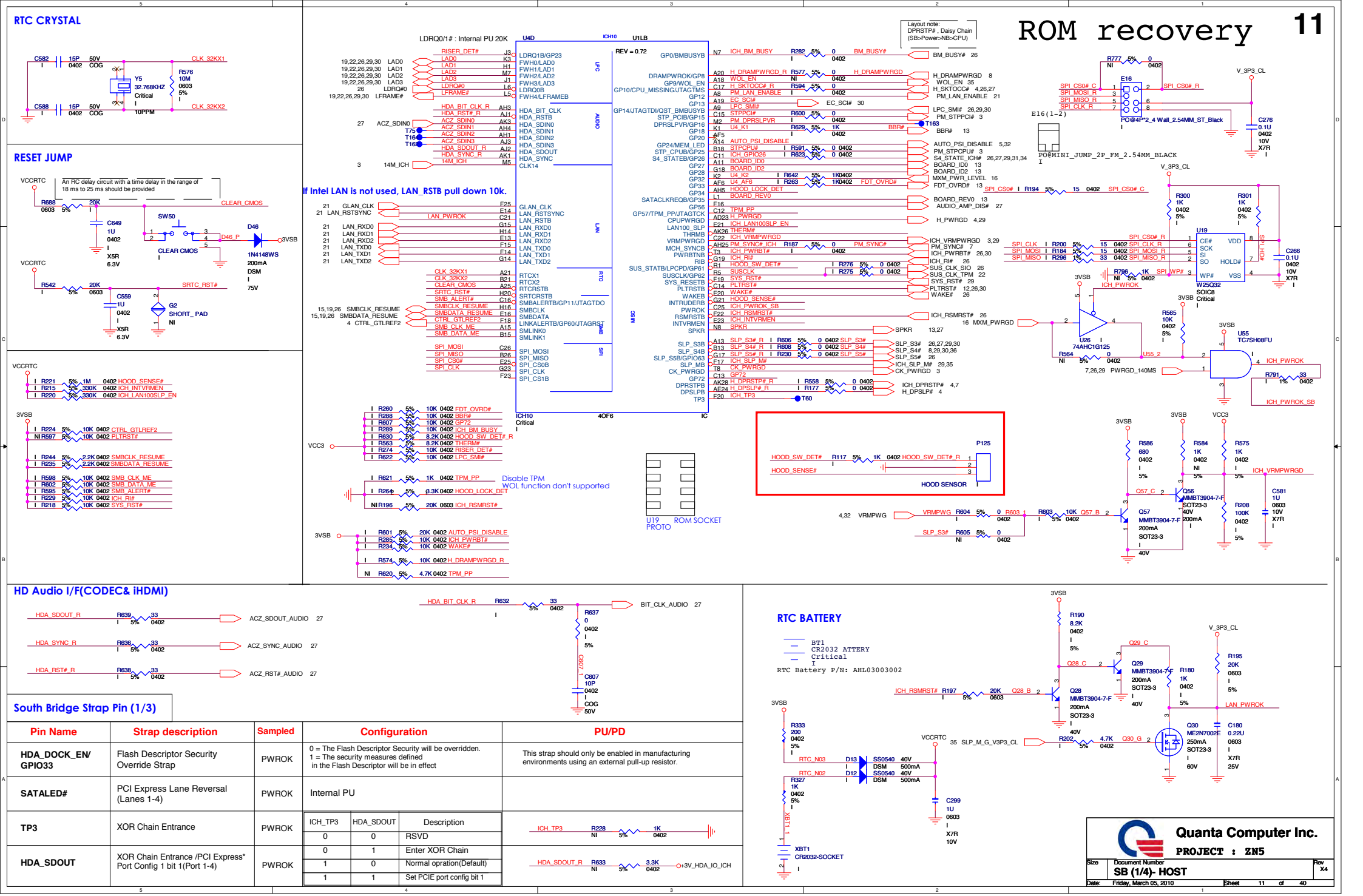
PROJECT : ZN5

Size	Document Number	Rev
	NB (5/5)- VSS	X4
Date: Friday, March 05, 2010	Sheet 10 of 40	


RTC CRYSTAL
RESET JUMP
ROM recovery
11
If Intel LAN is not used, LAN_RSTB pull down 10k.
Disable TPM
WOL function don't supported
U19 ROM SOCKET
PROTO
HOOD SENSOR
RTC BATTERY
BT1
CR2032 ATTERY
Critical
RTC Battery P/N: AHL03003002
XBT1
CR2032-SOCKET
HD Audio I/F(CODEC& iHDMI)
South Bridge Strap Pin (1/3)
Pin Name
Strap description
Sampled
Configuration
PU/PD
HDA_DOCK_EN/ GPIO33
Flash Descriptor Security Override Strap
PWROK
0 = The Flash Descriptor Security will be overridden.
1 = The security measures defined in the Flash Descriptor will be in effect
This strap should only be enabled in manufacturing environments using an external pull-up resistor.
SATALED#
PCI Express Lane Reversal (Lanes 1-4)
PWROK
Internal PU
TP3
XOR Chain Entrance
PWROK
ICH_TP3
HDA_SDOUT
Description
0
0
RSVD
0
1
Enter XOR Chain
1
0
Normal opration(Default)
1
1
Set PCIE port config bit 1
HDA_SDOUT
XOR Chain Entrance /PCI Express* Port Config 1 bit 1(Port 1-4)
PWROK
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PROJECT : ZN5
SB (1/4)- HOST
Size
Document Number
Rev
X4
Date: Friday, March 05, 2010
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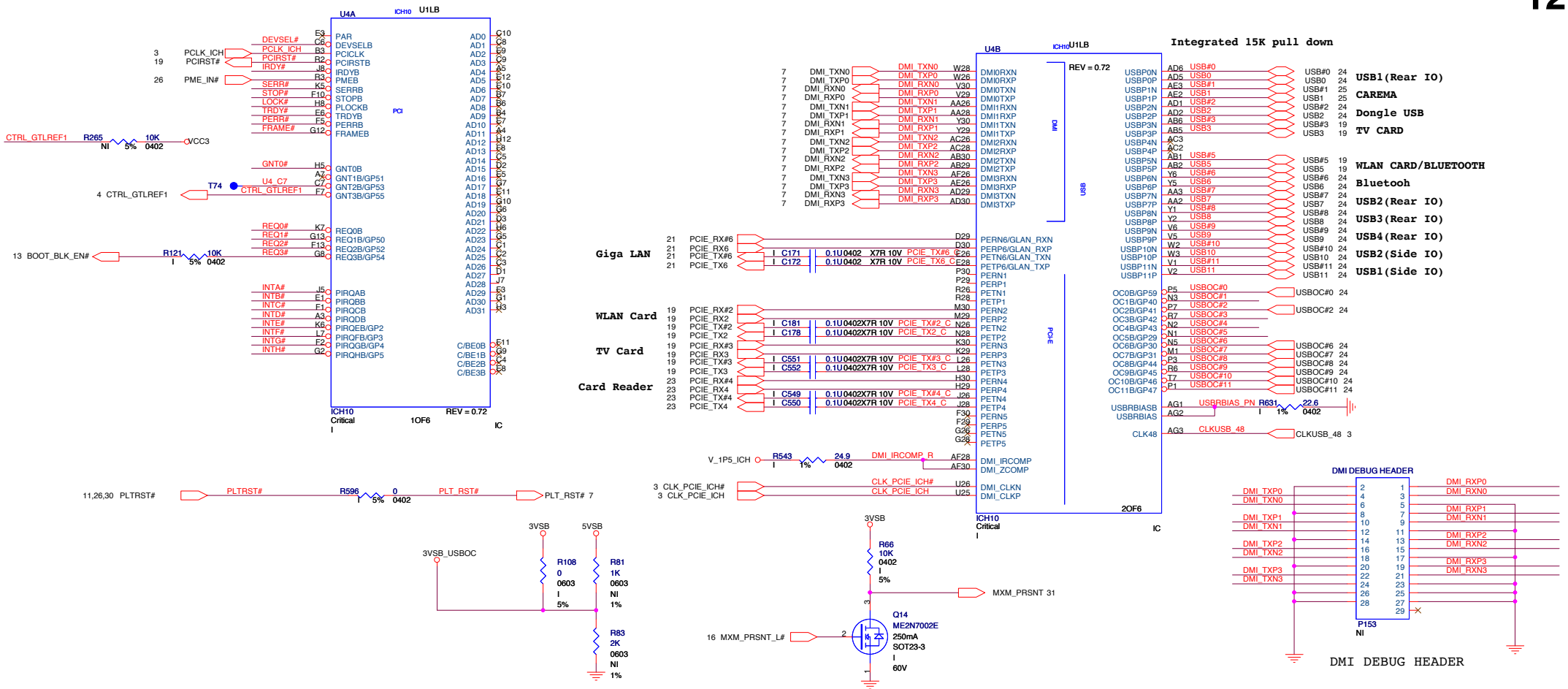
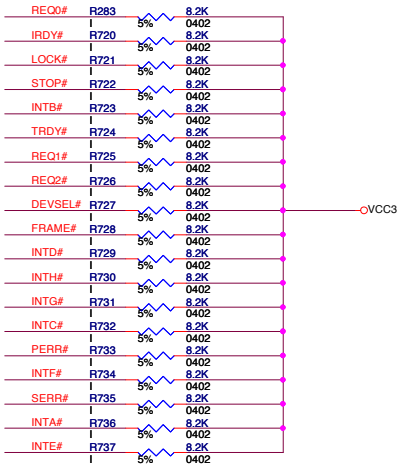
PCI/PCI-E/USB/DMI/SPI



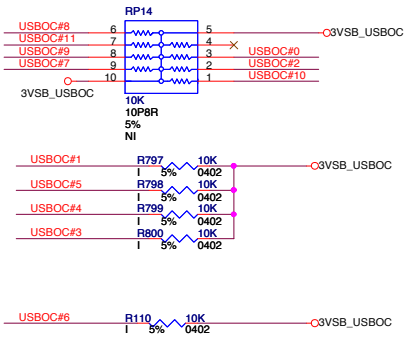
South Bridge Strap Pin (2/3)

Pin Name	Strap description	Sampled	Configuration	PU/PD
HDA_SYNC	PCI Express Port Config 1 bit 0 (Port 1-4)	PWROK	0 = Default 1 = Setting bit 0	
GNT2# / GPIO53	PCI Express Port Config 2 bit 2 (Port 5-6)	PWROK	0 = Setting bit 2 1 = Default	
GNT1# / GPIO51	ESI Strap(Server Only)	PWROK	0 = DMI for ESI-compatible 1 = Default	
GNT3# / GPIO55	Top-Block Swap Override	PWROK	0 = "top-block swap" mode 1 = Default	CTRL_GTLREF1 R266 1K NI 5% 0402
GNT0#	Boot BIOS Selection 0	PWROK	PCI_GNT#0 / SPI_CS#1 / Boot Location 0 / 1 / SPI(Default) 1 / 0 / PCI 1 / 1 / LPC	GNT0# R270 NI 1K 0402 5% VCC3 R271 I 1K 0402 5%
SPI_CS1# / GPIO58 / CLGPIO6	Boot BIOS Selection 1	CLPWROK		

PCI PULL-UP



USBOC# PULL-UP



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PROJECT : ZN5

Size	Document Number	Rev
	SB (2/4) PCIE/PCI/USB/DMI	X4

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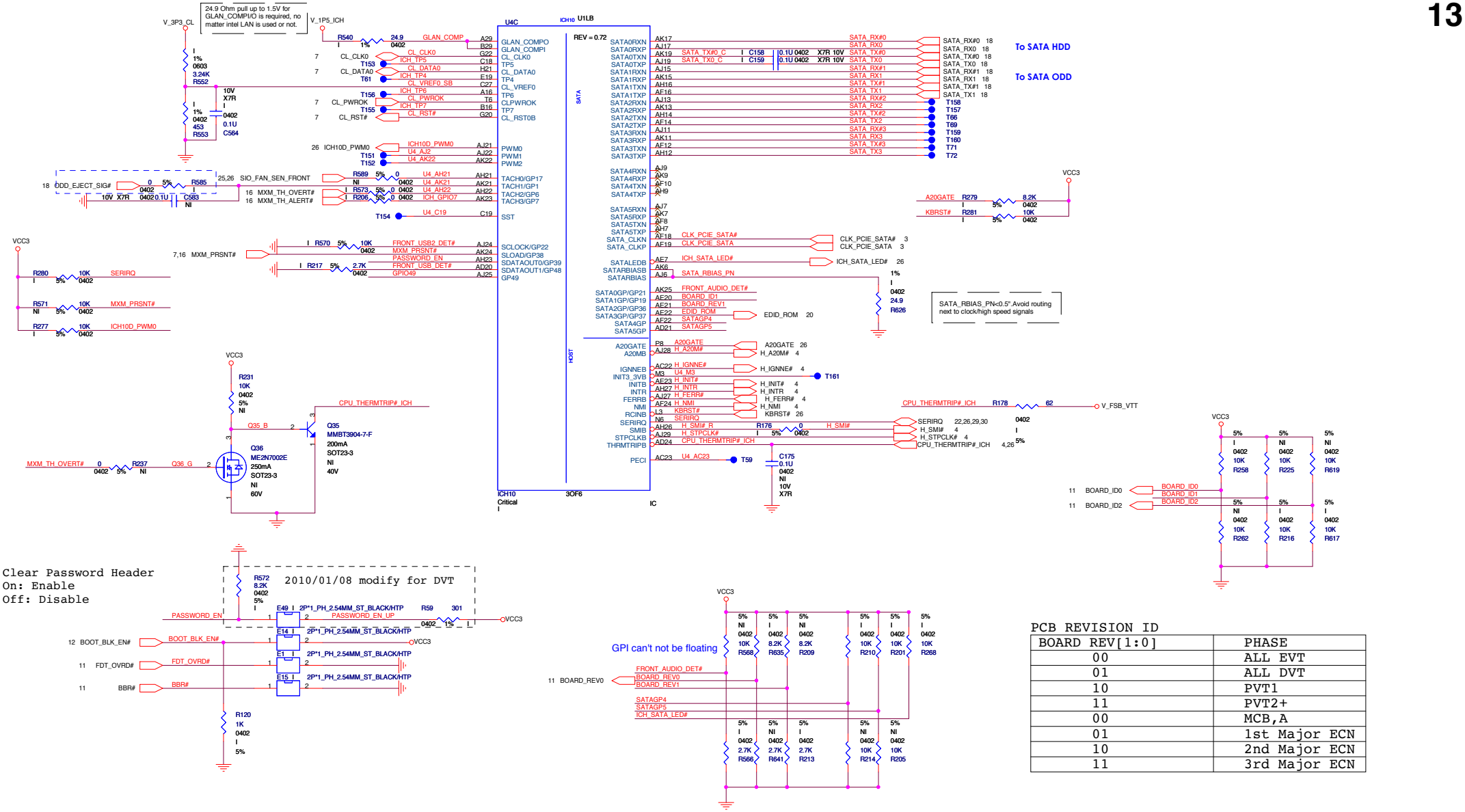

PCB REVISION ID

BOARD REV[1:0]	PHASE
00	ALL EVT
01	ALL DVT
10	PVT1
11	PVT2+
00	MCB,A
01	1st Major ECN
10	2nd Major ECN
11	3rd Major ECN

South Bridge Strap Pin (3/3)

Pin Name	Strap description	Sampled	Configuration	PU/PD
GPIO20	Reserved	PWROK		
SPKR	No Reboot	PWROK	0 = Default 1 = No Reboot mode	SPKR R284 1K 0402 VCC3
GPIO49	DMI Termination Voltage	PWROK	0 = AC coupled 1 = DC coupled Internal PU	GPIO49 R562 1K 0402

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PROJECT : ZN5

Size	Document Number	Rev
	SB(3/4) SATA/GPIO	X4

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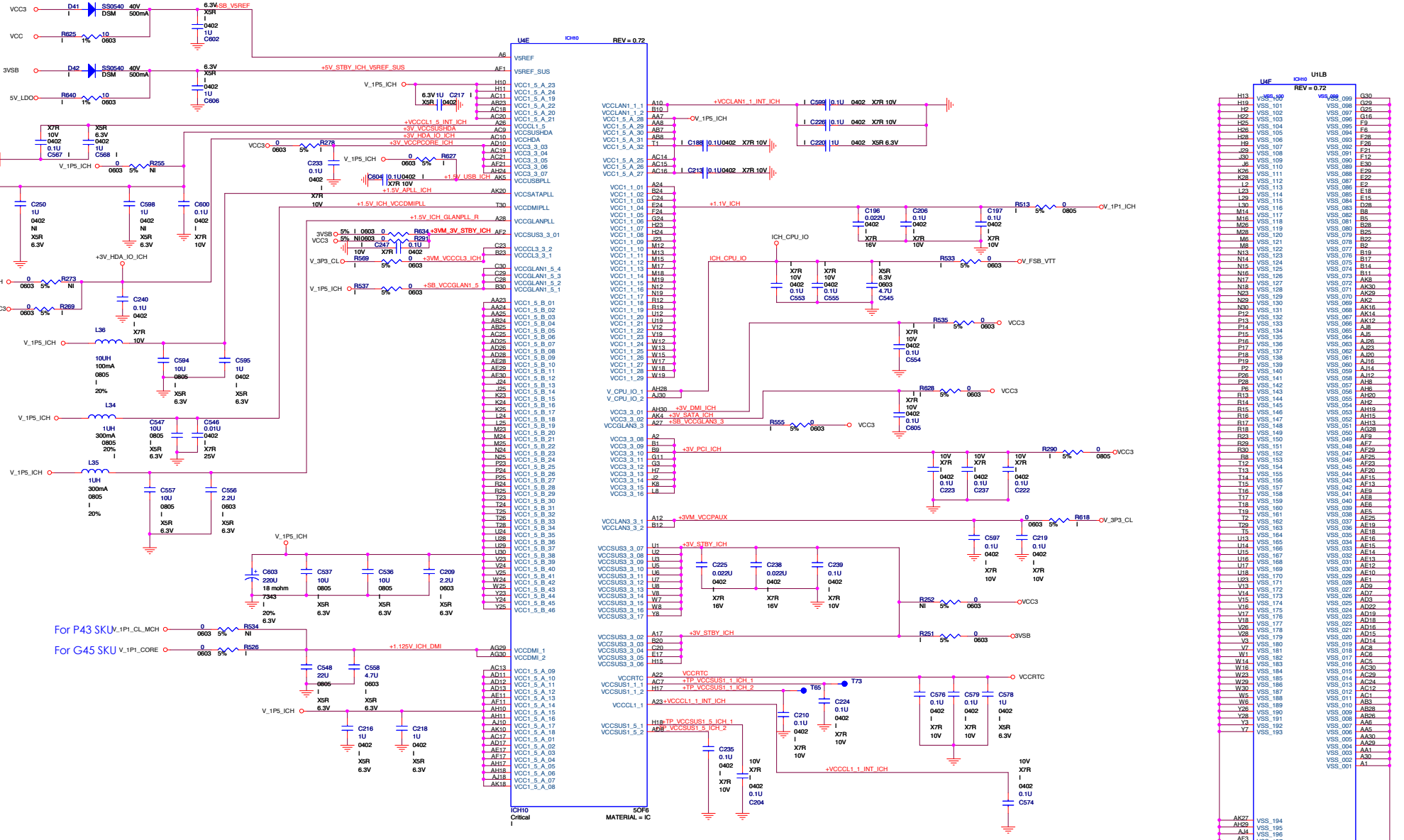

SB Power Status and max current table(1/2)

POWER PLANE	S0	S3	S4/S5	Voltage	I(max)	Note
VCCRTC	X	X	X	VCCRTC	6uA	6uA@G3
V5REF	O	X	X	VCC5	2mA	
V5REF_SUS	O	O	O	5V_STBY	2mA	2mA@S0,1mA@S3/S5
VCC1_5_B	O	X	X	VCC1.5	646mA	
VCCSATAPLL	O	X	X	VCC1.5	47mA	
VCC1_5_A	O	X	X	VCC1.5	1644mA	
VCCUSBPLL	O	X	X	VCC1.5	11mA	
VCCLAN1_1	X	X	X	1.1V	X	Internal VR powered, S3/S5 powered when AMT actived
VCCLAN3_3	O	X	X	VCC3	78mA	78mA@S3/S5 powered when AMT actived
VCCGLANPLL	O	X	X	VCC1.5	23mA	
VCCGLAN1_5	O	X	X	VCC1.5	80mA	
VCCGLAN3_3	O	X	X	VCC3	1mA	

SB Power Status and max current table(2/2)

POWER PLANE	S0	S3	S4/S5	Voltage	I(max)	Note
VCC1_1	O	X	X	VCC1.1	1.634A	ICH CORE
VCCDMIPLL	O	X	X	VCC1.5	23mA	
VCC_DMI	O	X	X	GMCH_CORE	50mA	1.125V@G45, 1.1V@P43
V_CPU_IO	O	X	X	VCC1.2	2mA	
VCC3_3	O	X	X	VCC3	308mA	
VCCHDA	O	X	X	VCC1.5	70mA	
VCCSUSHDA	O	O	O	RVCC1.5	70mA	
VCCSUS1_1	X	X	X	1.1V	X	Internal VR powered
VCCSUS1_5	X	X	X	1.5V	X	Internal VR powered
VCCSUS3_3	O	O	O	3V_STBY	212mA	53mA@S3/S5
VCCCL1_1	X	X	X	1.1V	X	Internal VR powered
VCCCL1_5	X	X	X	1.5V	X	Internal VR powered
VCCCL3_3	O	X	X	VCC3	73mA	S3/S5 powered when AMT actived

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PROJECT : ZN5

Size	Document Number	Rev
	SB(4/4) POWER/VSS	X4

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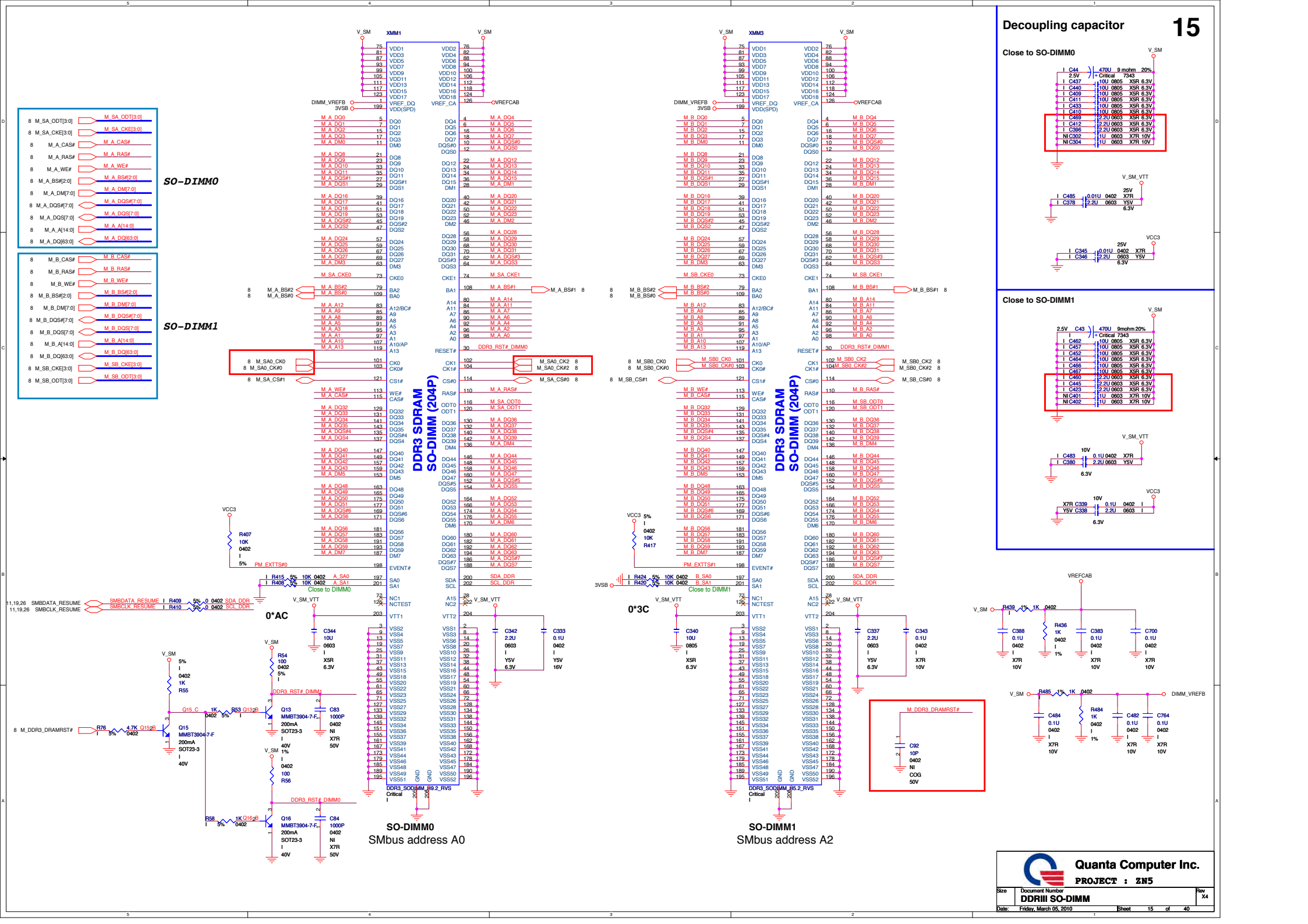

SO-DIMM0
SO-DIMM1
DDR3 SDRAM SO-DIMM (204P)
XMM1
XMM3
0*AC
0*3C
SO-DIMM0
SMbus address A0
SO-DIMM1
SMbus address A2
Close to DIMM0
Close to DIMM1
Decoupling capacitor
15
Close to SO-DIMM0
Close to SO-DIMM1
Quanta Computer Inc.
PROJECT : ZN5
DDRIII SO-DIMM
Rev X4
Date: Friday, March 05, 2010
Sheet 15 of 40

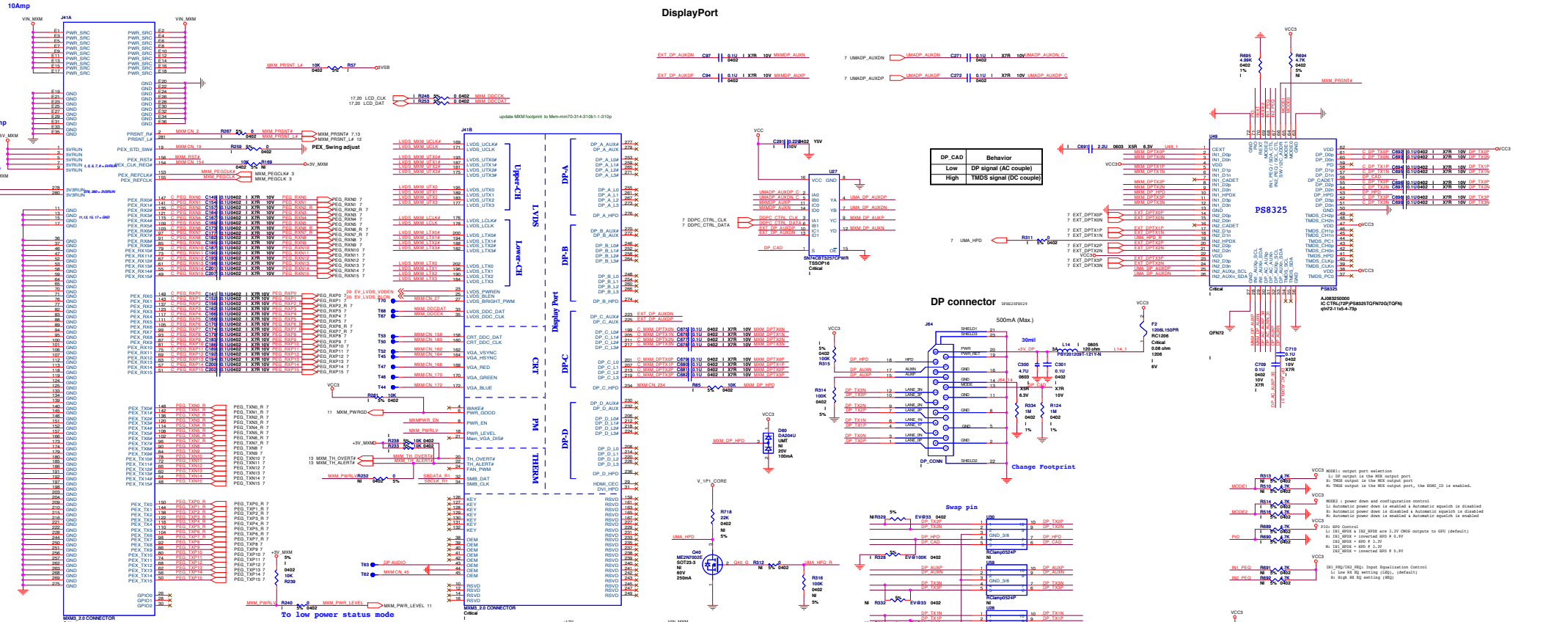
MXM Module

MXM_PRSNT#	Sku
Low	MXM
High	WO/ MXM

10Amp

2.5Amp

1Amp



DP_CAD	Behavior
Low	DP signal (AC couple)
High	TMDS signal (DC couple)

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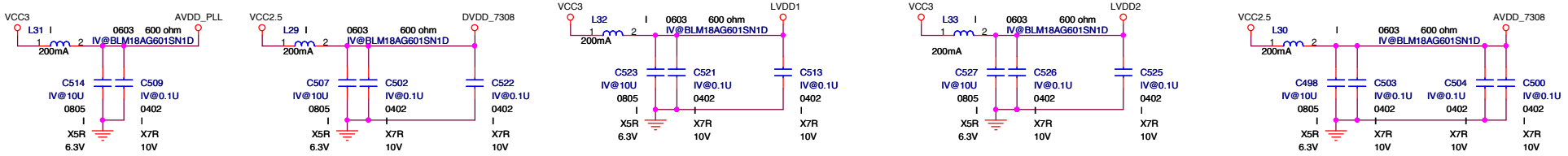
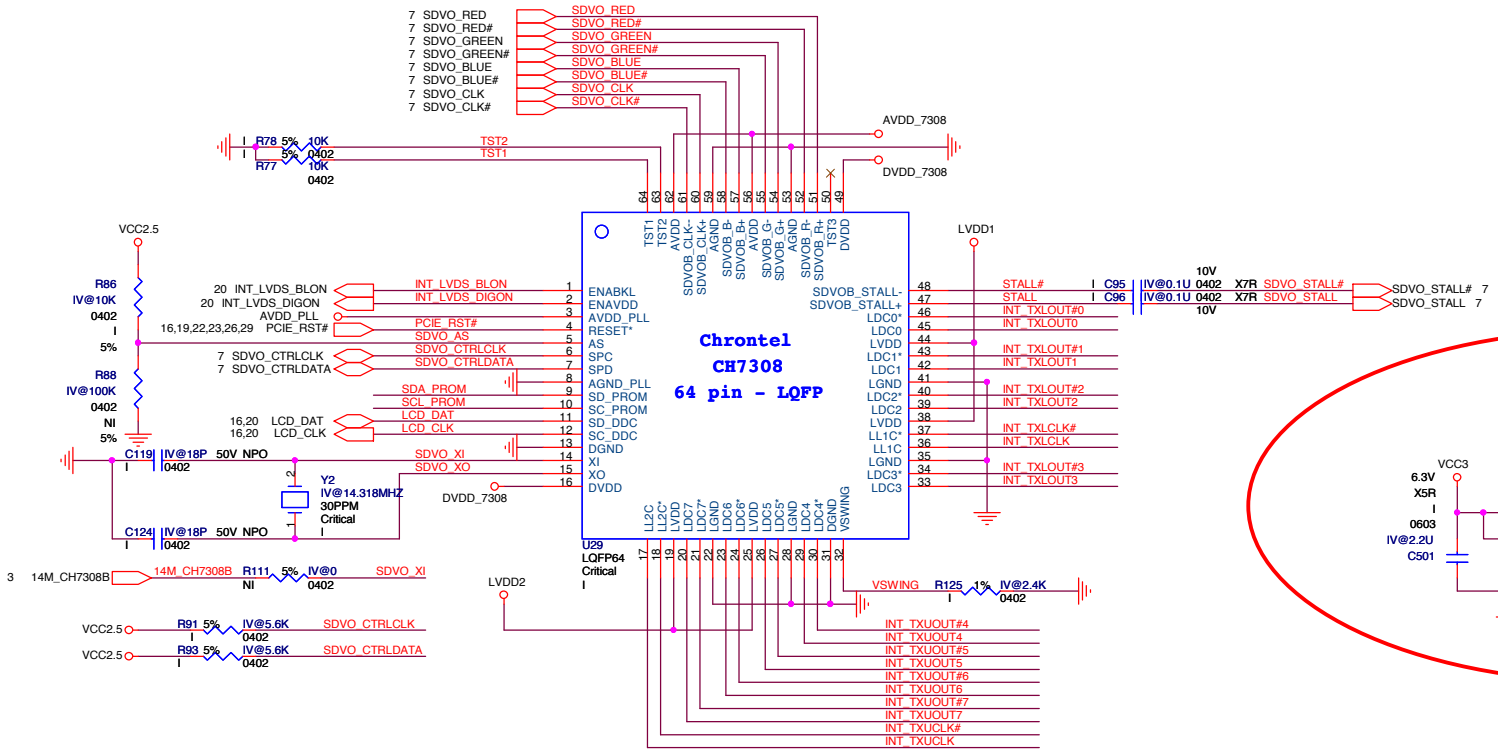
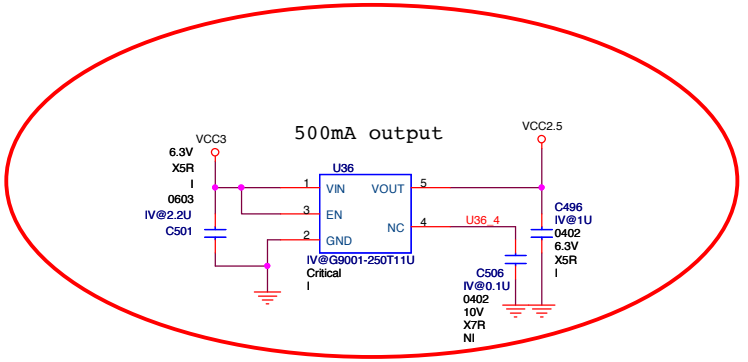
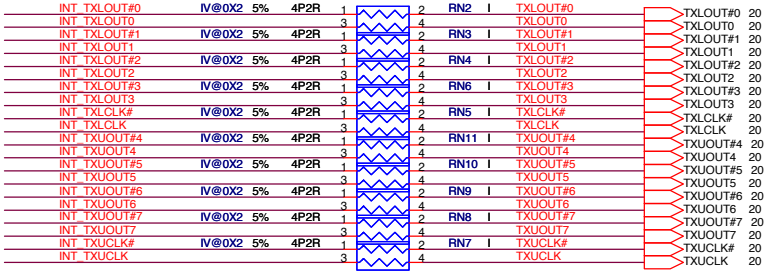
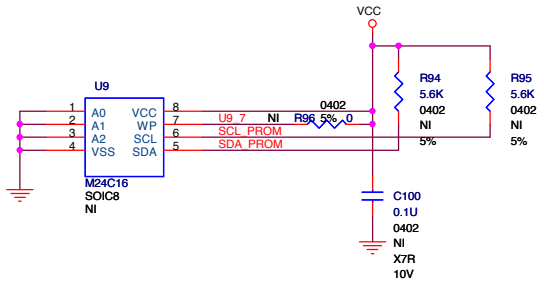
Size | Document Number | Rev 3A
MXM3.0
Date: Friday, March 05, 2010 | Sheet 16 of 40









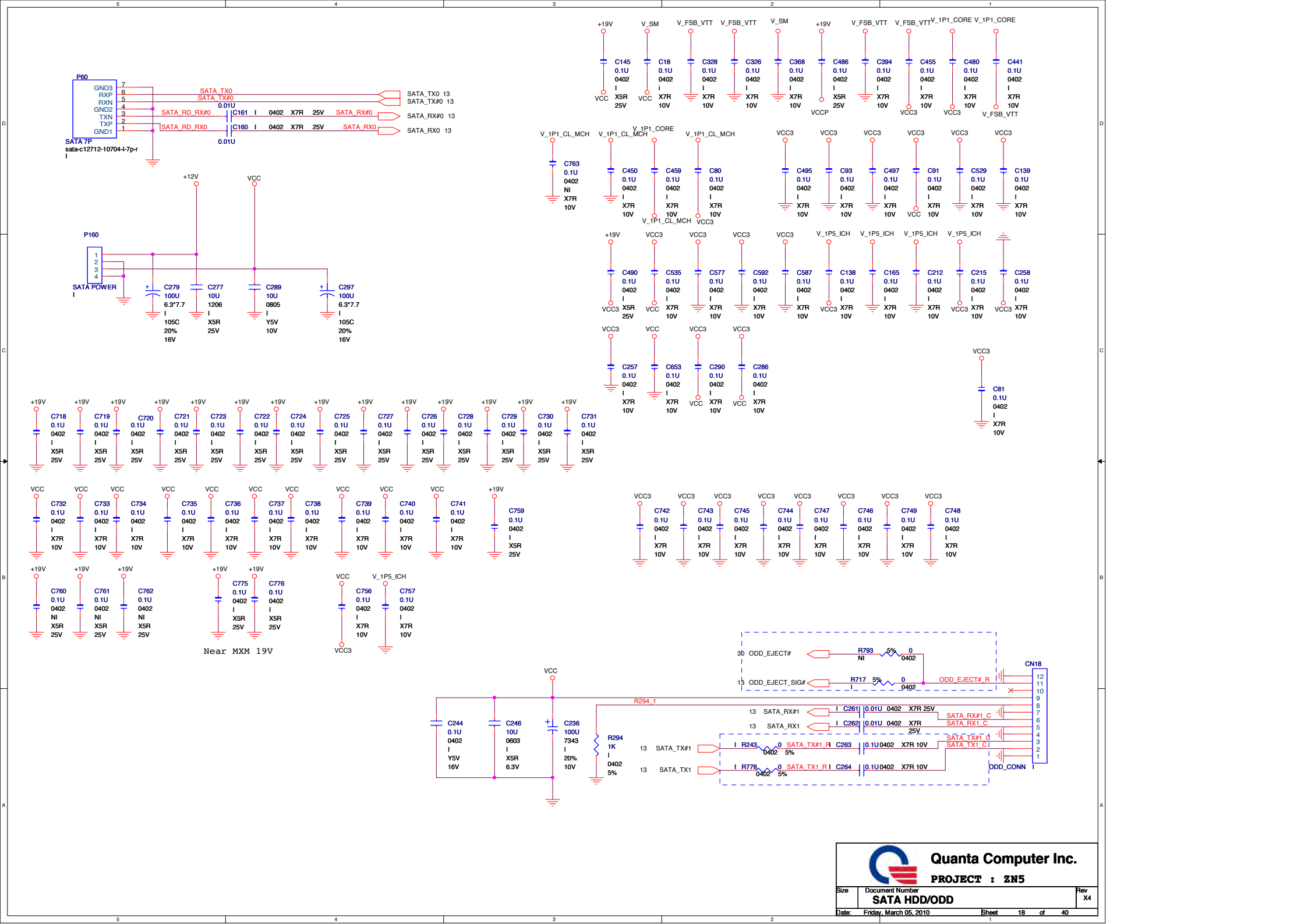


Quanta Computer Inc.

PROJECT : ZN5

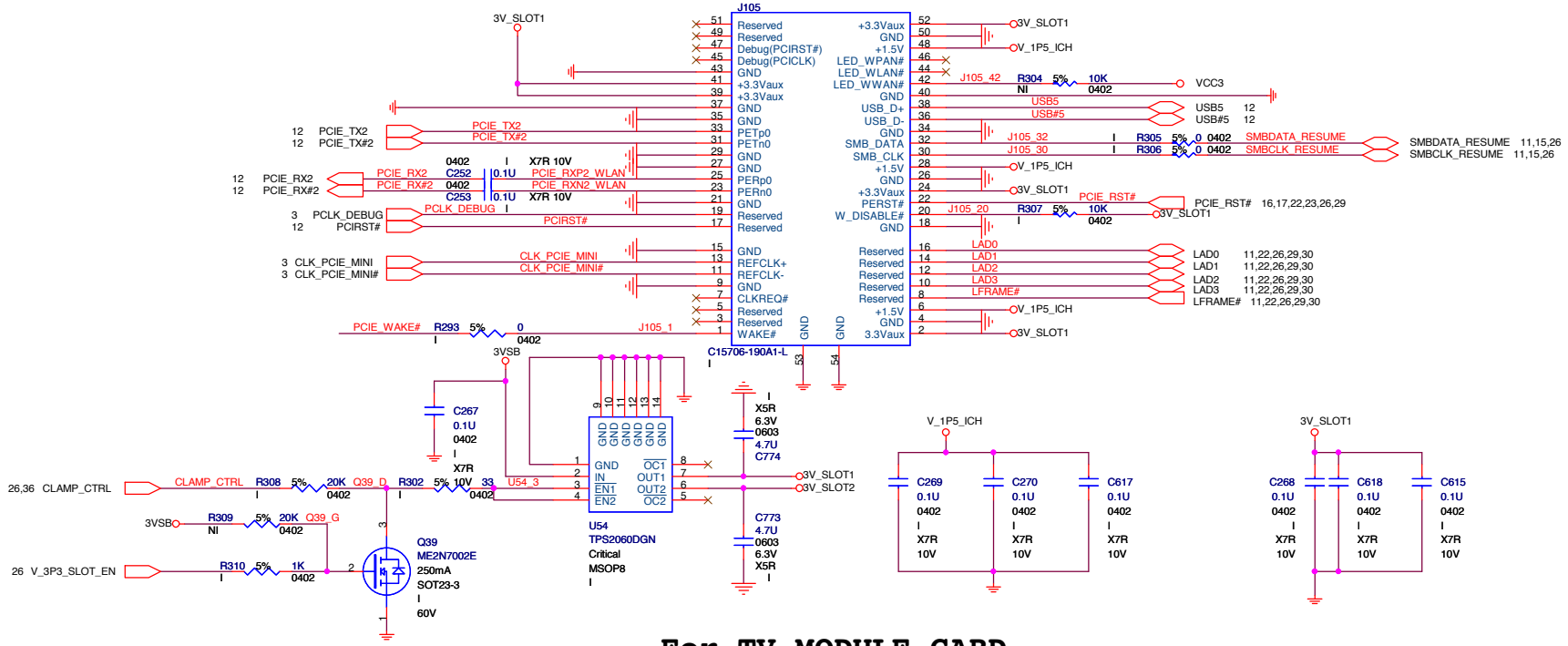
Size	Document Number	Rev
	LVDS TRANSMITTER	X4

Date: Friday, March 05, 2010 Sheet 17 of 40

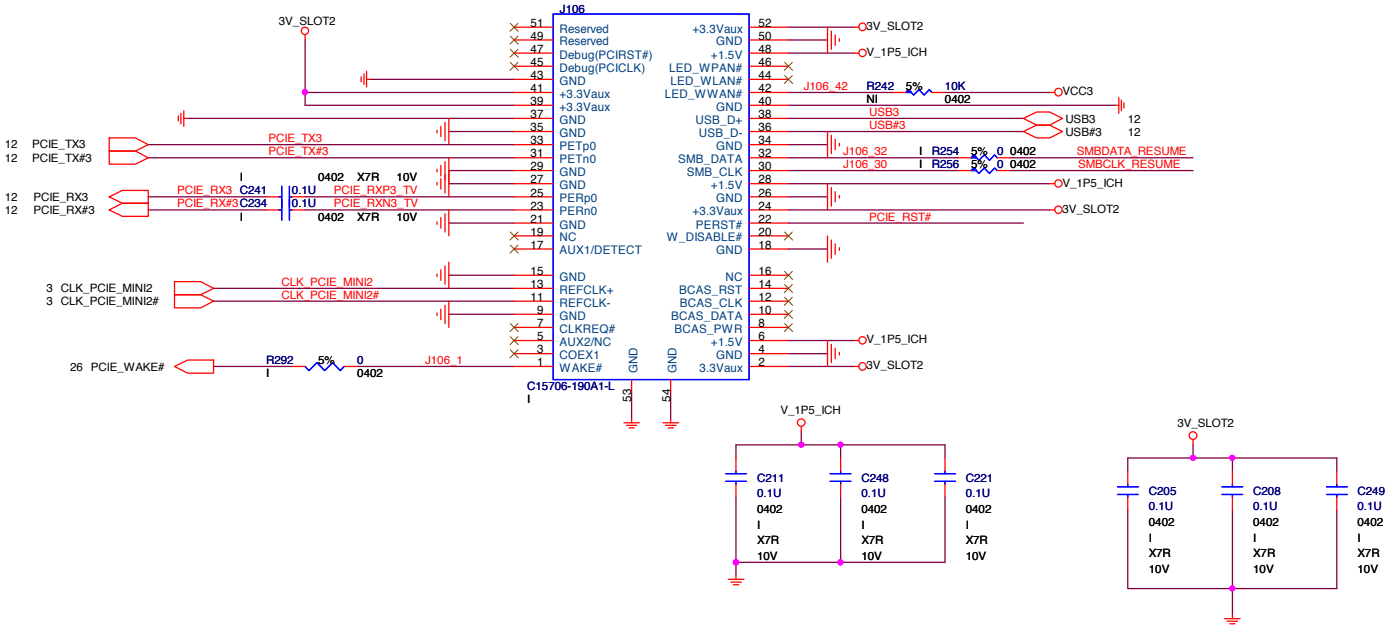


Quanta Computer Inc.		
PROJECT : ZN5		
Size	Document Number: SATA HDD/ODD	Rev: X4
Date: Friday, March 05, 2010	Sheet 18 of 40	

For wirlesss Lan card/Bluetooth



For TV MODULE CARD



Quanta Computer Inc.

PROJECT : ZN5

Size	Document Number	Rev
	MINI PCIE(WLAN/TV)	X4

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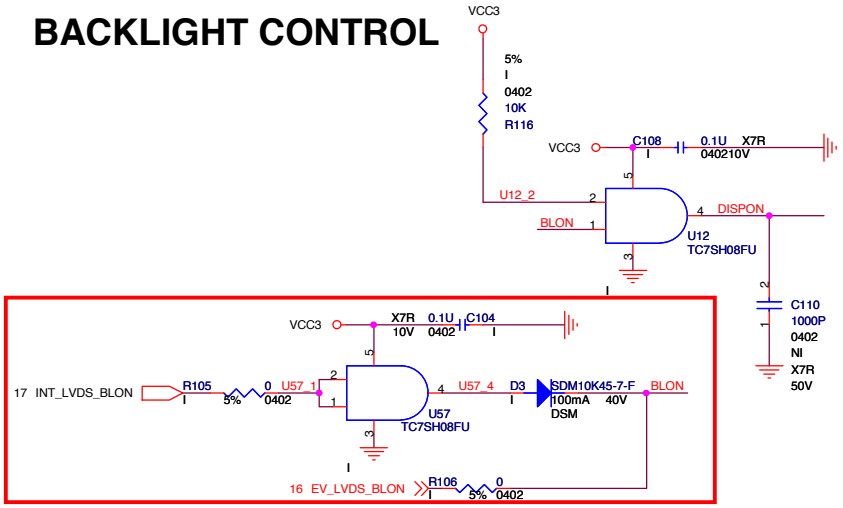
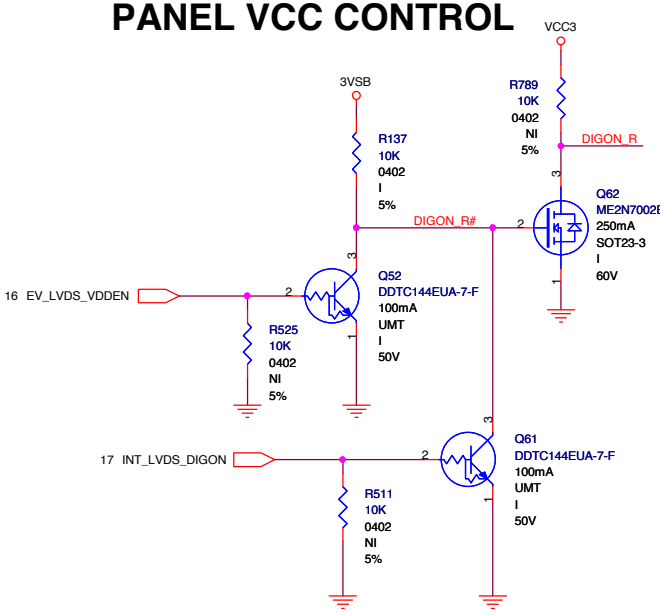
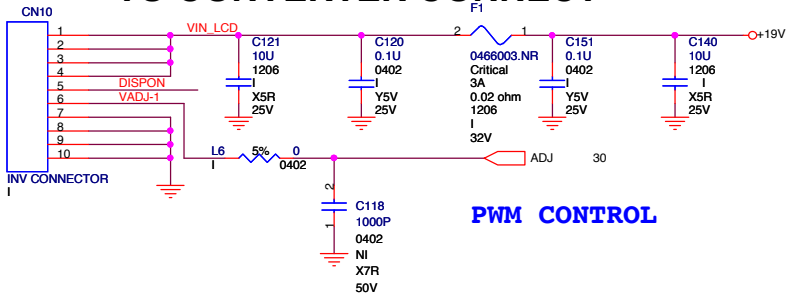
BACKLIGHT CONTROL



PANEL VCC CONTROL



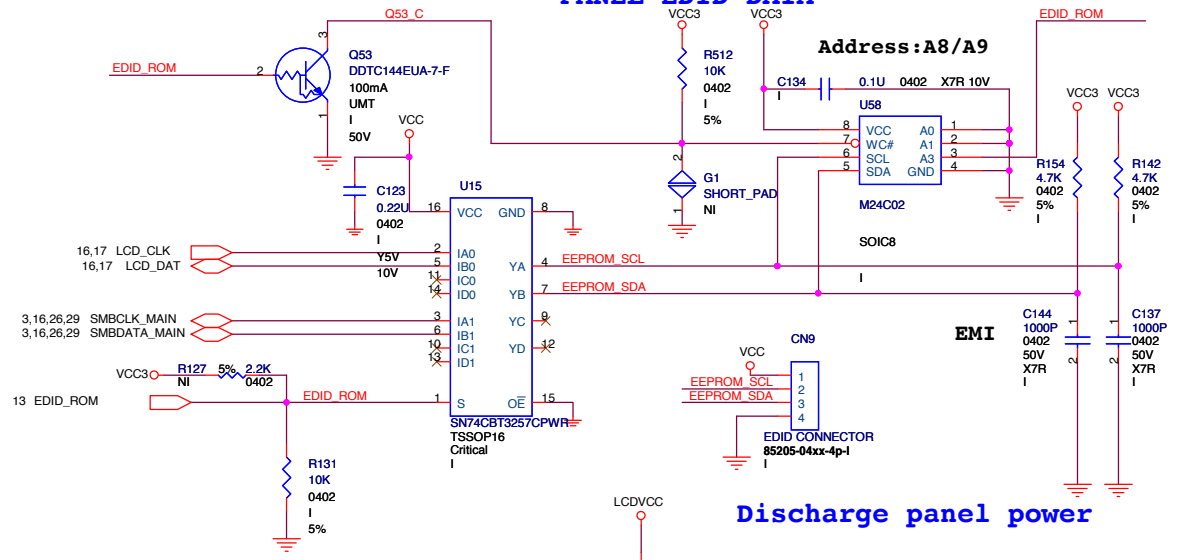
TO CONVERTER CONNECT



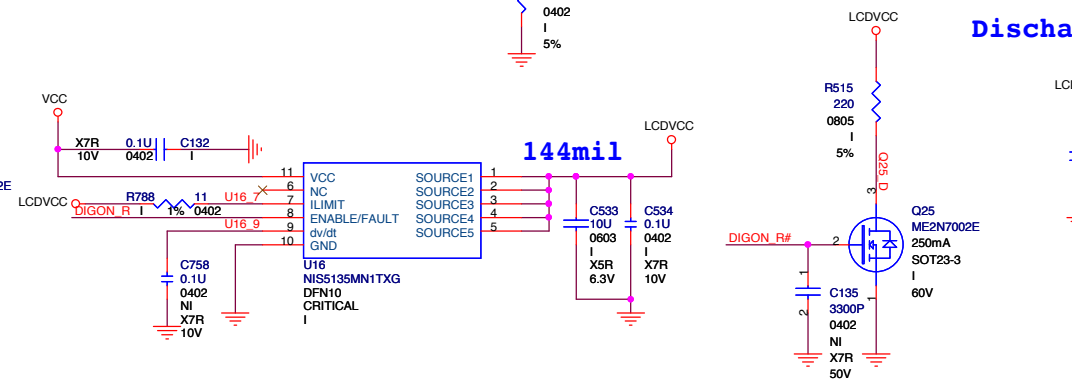
PWM CONTROL

EEPROM IIC Selection

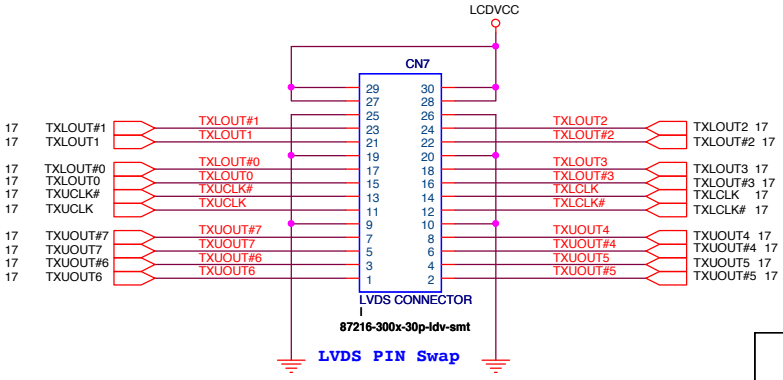
PANEL EDID DATA



Discharge panel power



LCD PANEL CONNECTOR



LVDS PIN Swap

Quanta Computer Inc.

PROJECT : ZN5

Size	Document Number	Rev
	LCD PANEL	X4
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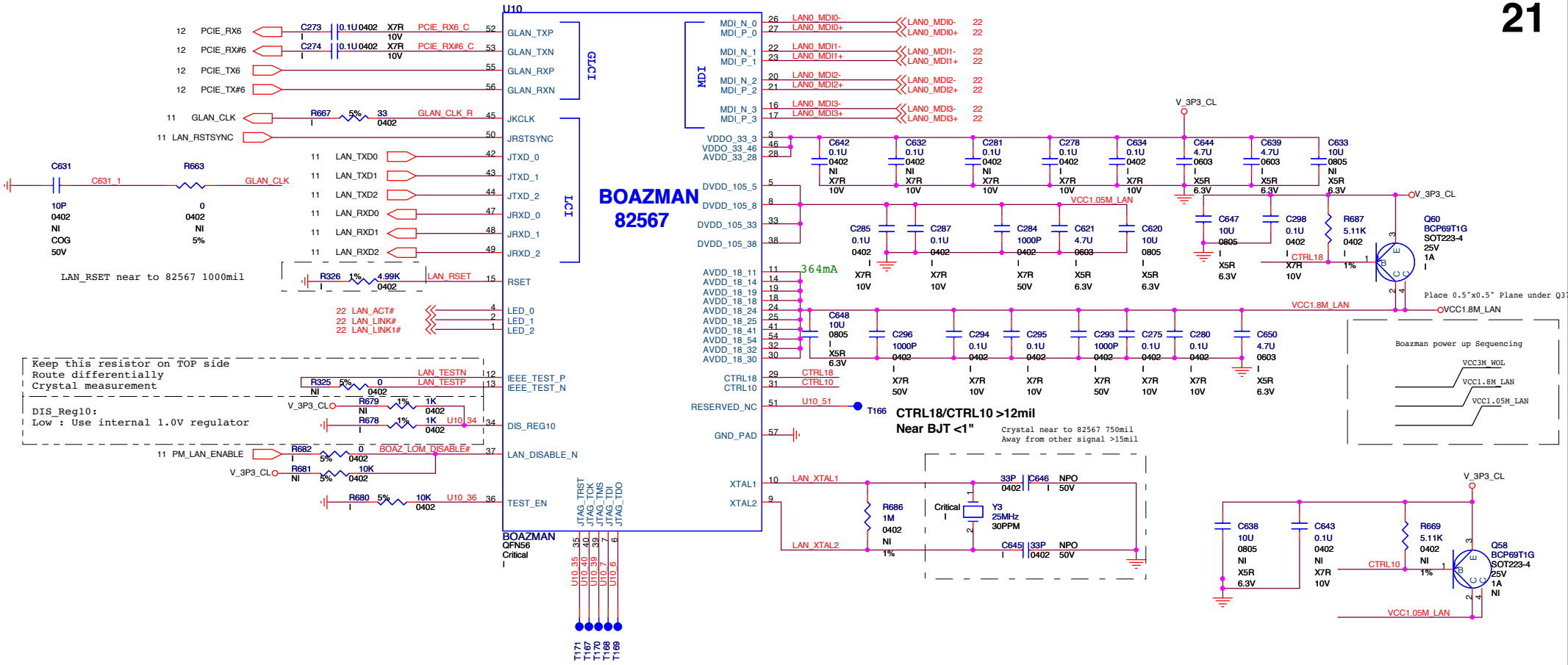

Quanta Computer Inc.			
PROJECT : ZN5			
Size	Document Number		Rev
	LAN BOAZMAN 82567		X4
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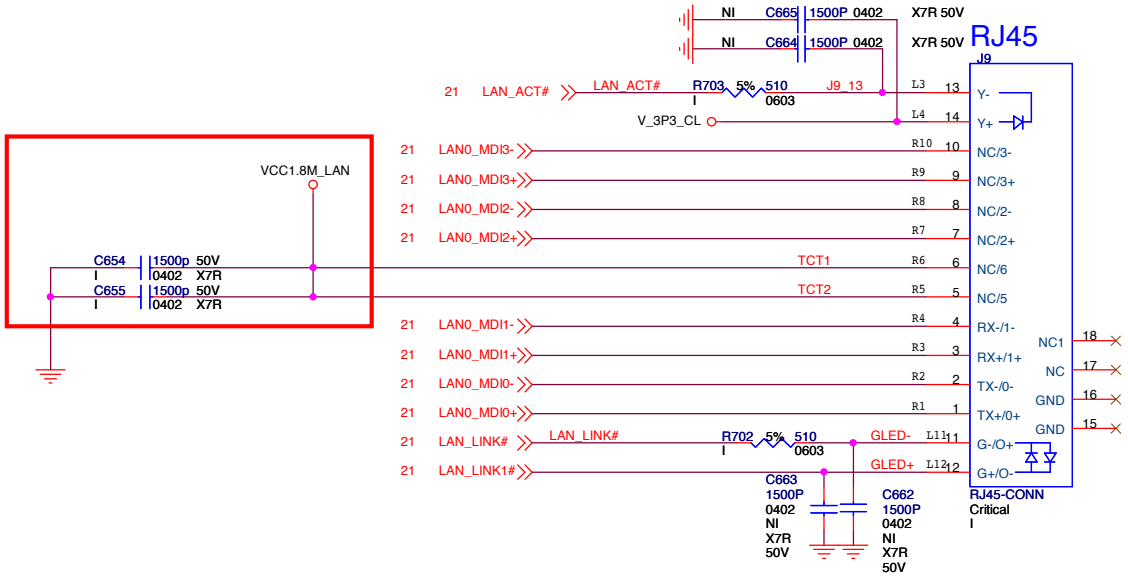
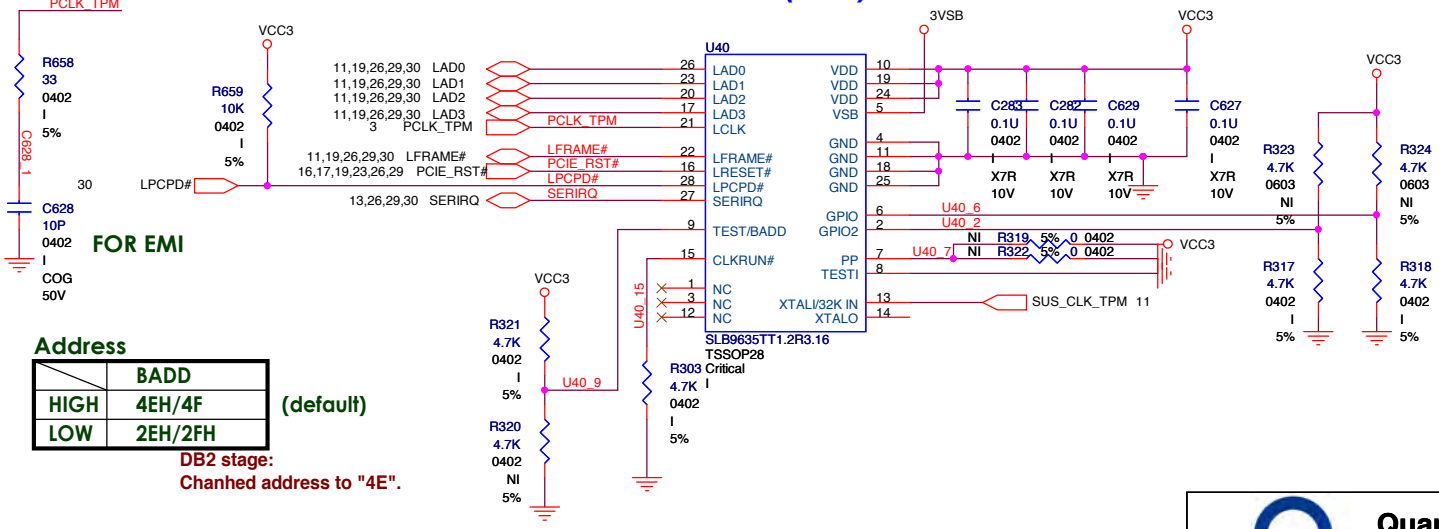
LAN Transformer & EOS CONN to RJ45



TPM (3.16)



Address

	BADD	
HIGH	4EH/4F	(default)
LOW	2EH/2FH	

DB2 stage:
Chanhed address to "4E".

Quanta Computer Inc.
PROJECT : ZN5

Size	Document Number	Rev
	TPM & RJ45 with LAN Transformer	X4

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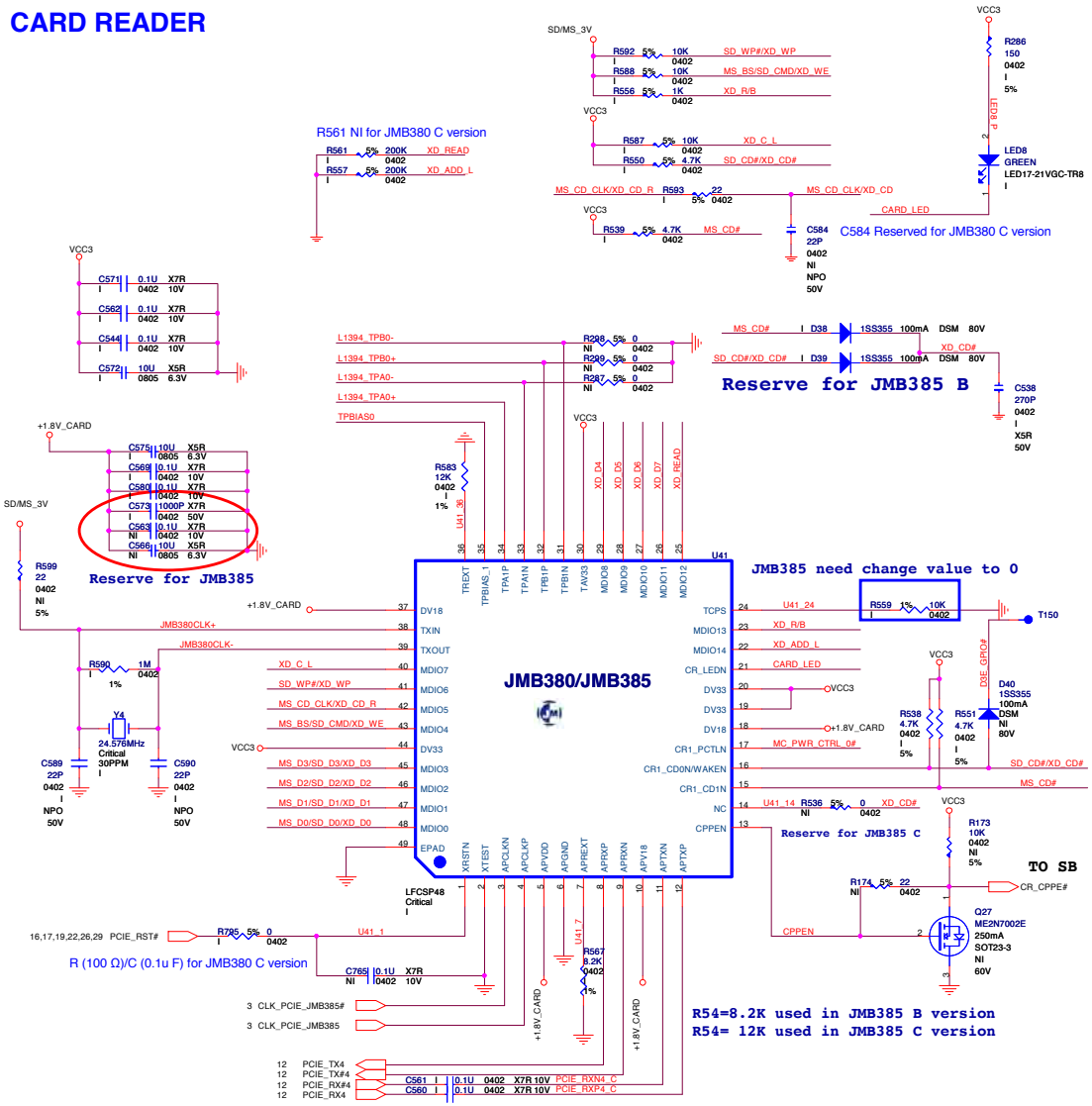
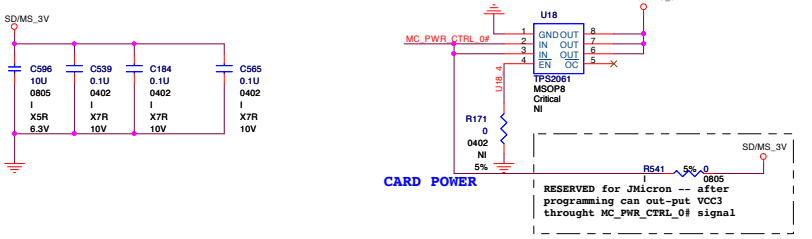
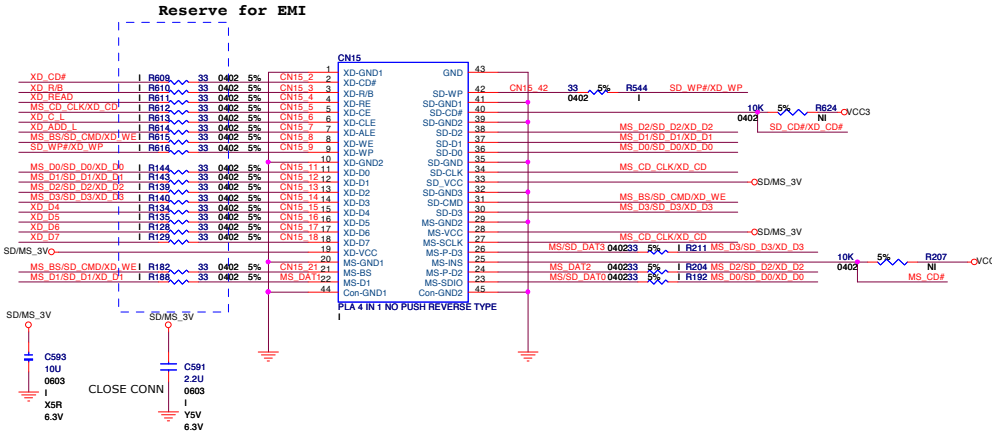
CARD READER



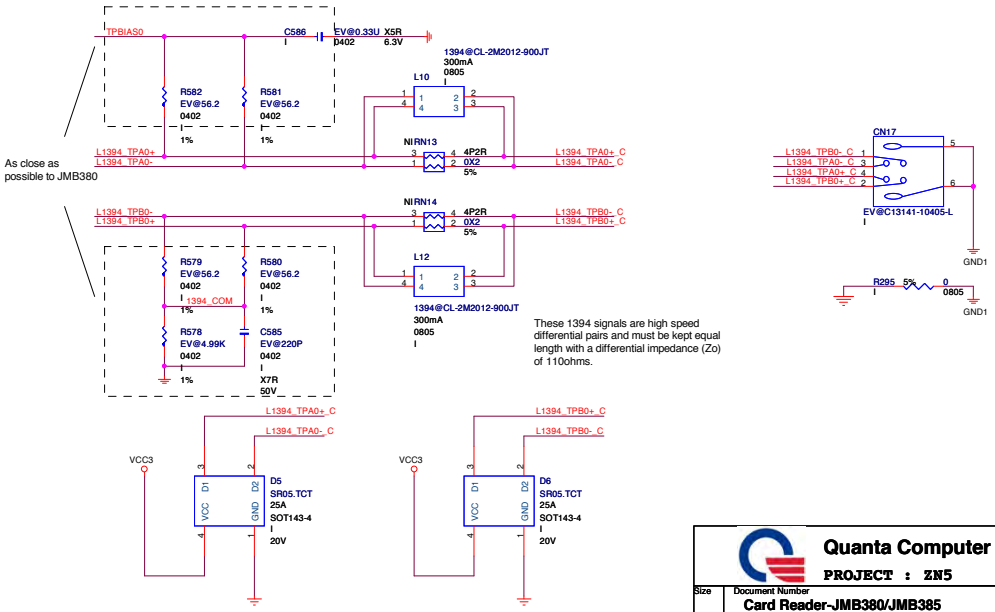
CARDREADER POWER



4 IN 1 CONN



1394



Quanta Computer Inc.

PROJECT : ZN5

Size	Document Number	Rev
	Card Reader-JMB380/JMB385	X4

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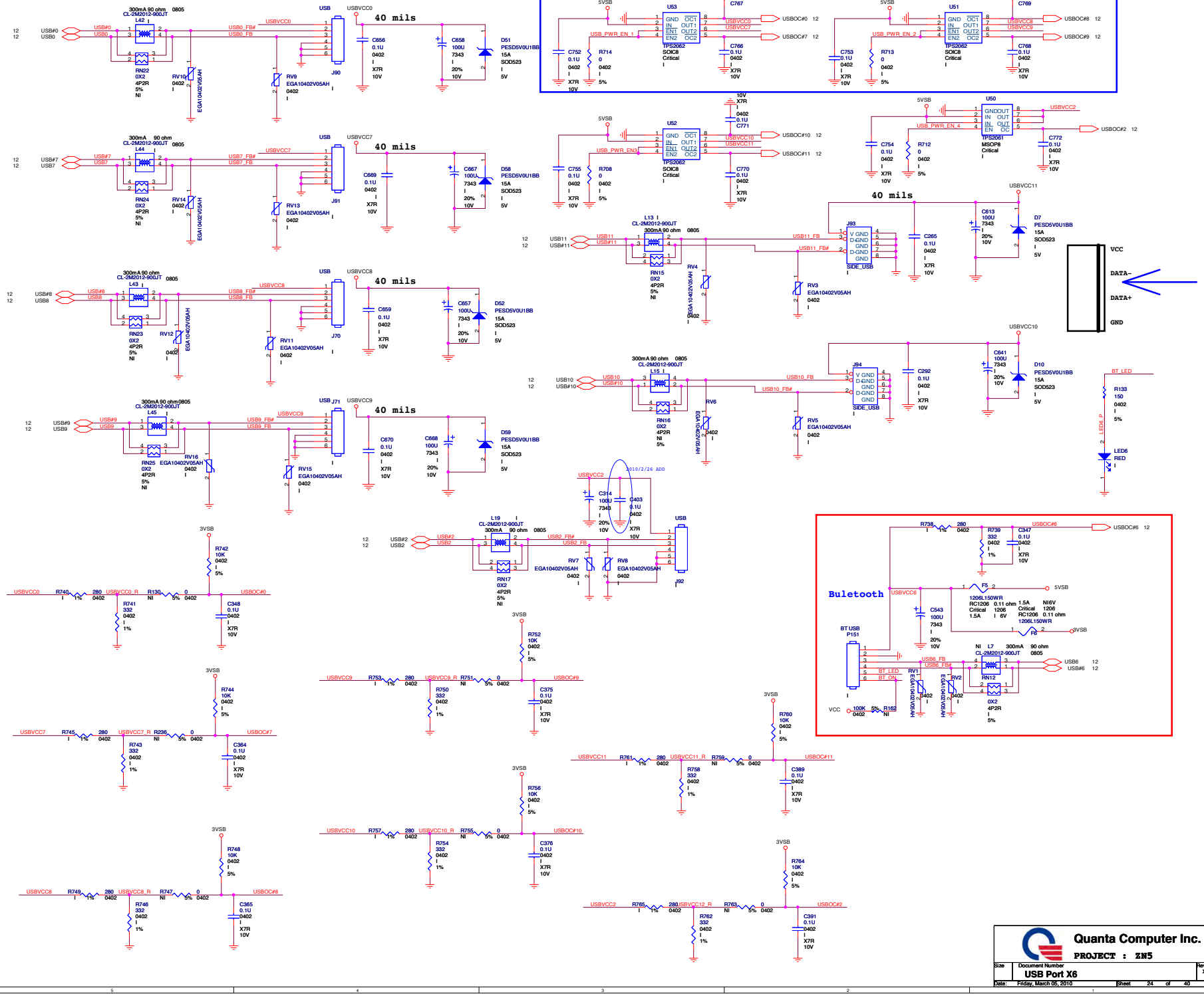
Rear USB


USB#0
USB#7
USB#8
USB#9
USB#10
USB#2
USB11
USB0_FB#
USB7_FB#
USB8_FB#
USB9_FB#
USB10_FB#
USB2_FB#
USB11_FB#
USBVCC0
USBVCC7
USBVCC8
USBVCC9
USBVCC10
USBVCC2
USBVCC11
USBOC#0
USBOC#7
USBOC#8
USBOC#9
USBOC#10
USBOC#11
USBOC#2
USBOC#6
5VSB
3VSB
VCC
DATA-
DATA+
GND
Buletooth
BT_LED
BT_ON
2010/2/26 ADD
Quanta Computer Inc.
PROJECT : ZN5
USB Port X6
Rev X4
Friday, March 05, 2010
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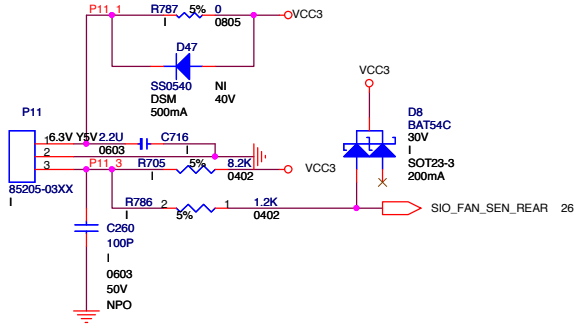
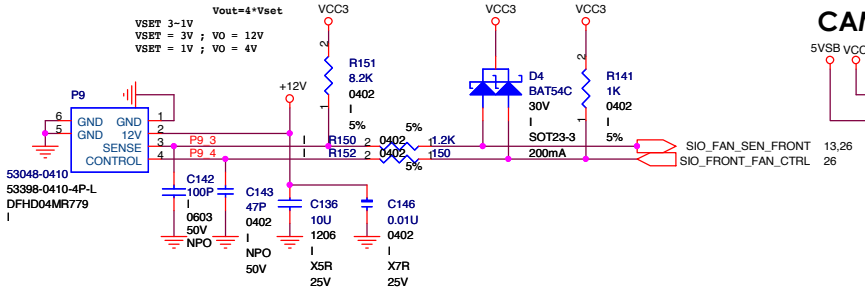
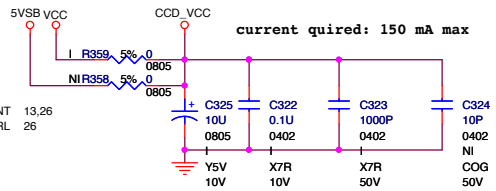
2nd FAN



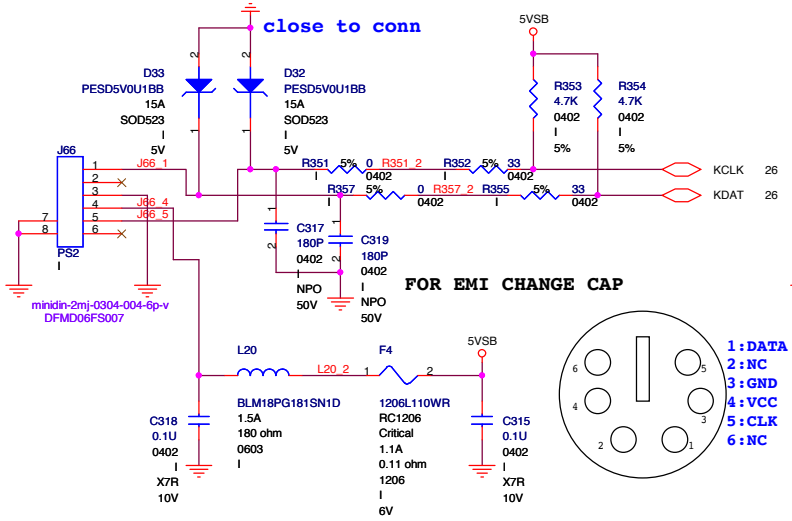
SYSTEM FAN CONN

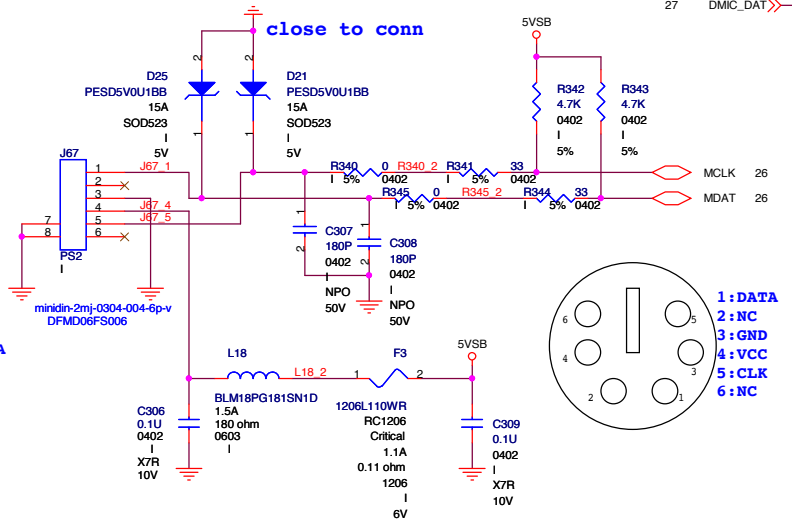


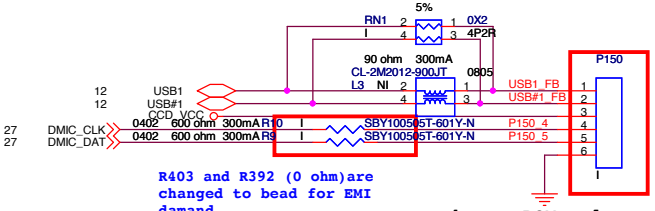
CAMERA POWER CONTROL



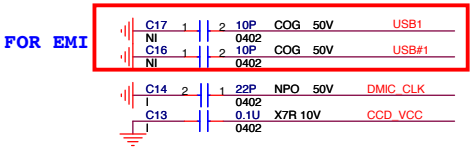
PS2 KEYBOARD& PS2 MOUSE







TO WEB CAM MODULE



Quanta Computer Inc.

PROJECT : ZN5

Size	Document Number	Rev
	FAN/CAM/PS2	X4
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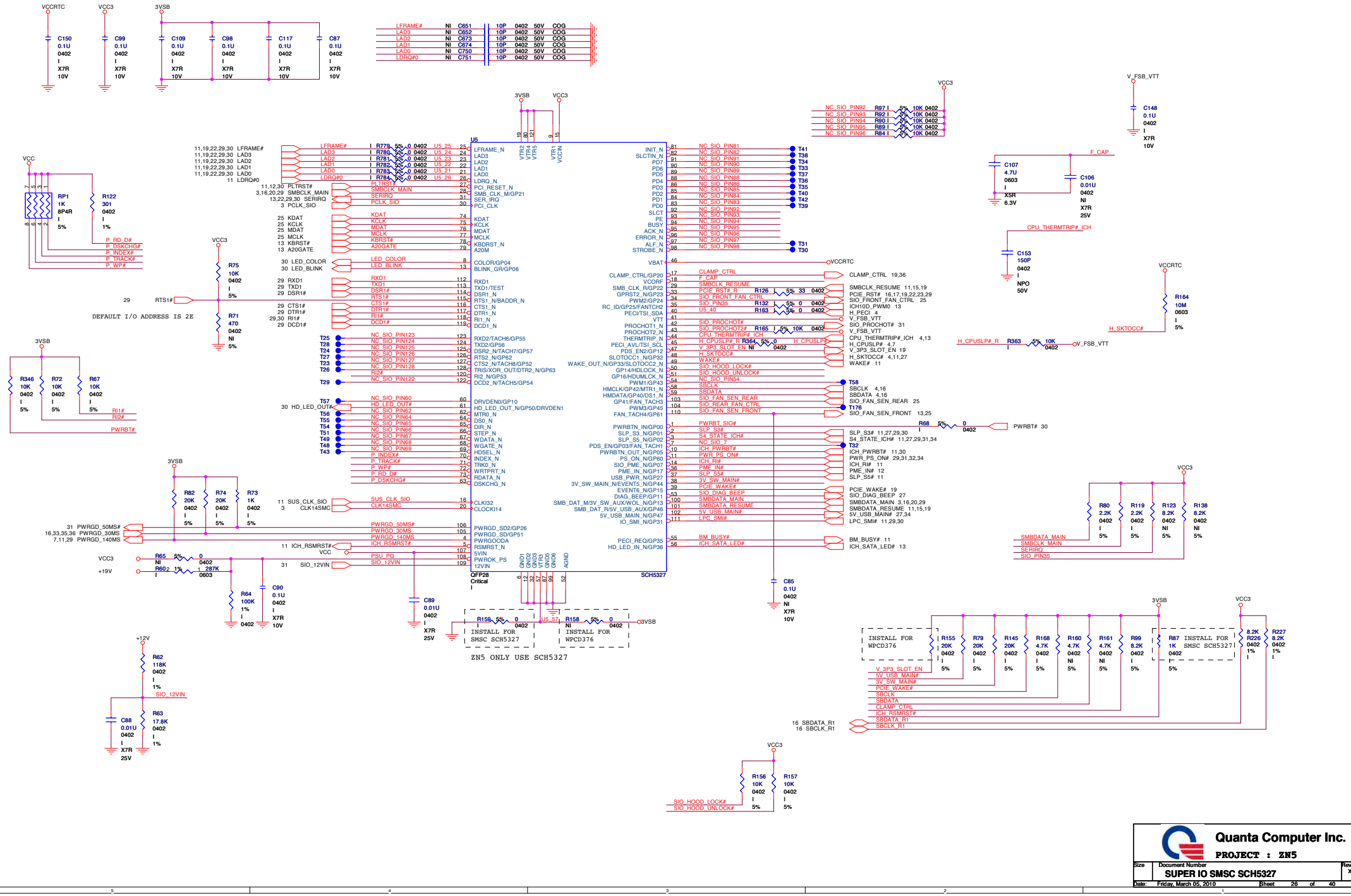
U5
SCH5327
QFP28
Critical
DEFAULT I/O ADDRESS IS 2E
ZN5 ONLY USE SCH5327
INSTALL FOR SMSC SCH5327
INSTALL FOR WPCD376
Quanta Computer Inc.
PROJECT : ZN5
SUPER IO SMSC SCH5327
Size
Document Number
Rev
X4
Date: Friday, March 05, 2010
Sheet 26 of 40

1/20 Wei modify;
AR34 I change to NI

AR34 0R 0603
AC18 NI
0.1U X5R 10V 0402
Please next to U14

AR15 0R 0603
AC14 NI
0.1U X5R 10V 0402
Analog_ground
digital_ground
Please next to CODEC

2/12 Wei modify:
from Vendor suggesion reduce POP noise
AC25 from 0.1uF/10v X5R --> 0,1uF/ 16v X7R
AC27 from 10uF / 6.3v --> 2.2uF/ 6,3v

ALC272AF-GR

Spilt by DGND

ANALOG

DIGITAL

Place next to pin 25

Place next to pin 9

2/10 Wei modify:
from HP request import sonic focus in DVT 1.5

2/12 Wei modify:
from Vendor suggesion
LDO grounding from AGND to DGND

Vout = Vref(1+AR20/AR21)
1.24(1+309K/100K)=5.07

1/20 Wei modify;
AGND --> DGND

1/25 Wei modify;
AGND --> DGND

2/10 Wei modify;
impot correct HF connector for ZN5

PIN1:Internal SPK_L+
PIN2:Internal SPK_L-
PIN3:Internal SPK_R-
PIN4:Internal SPK_R+

100 mil

30mil

Quanta Computer Inc.
PROJECT : ZN5
Realtek ALC272AF-GR
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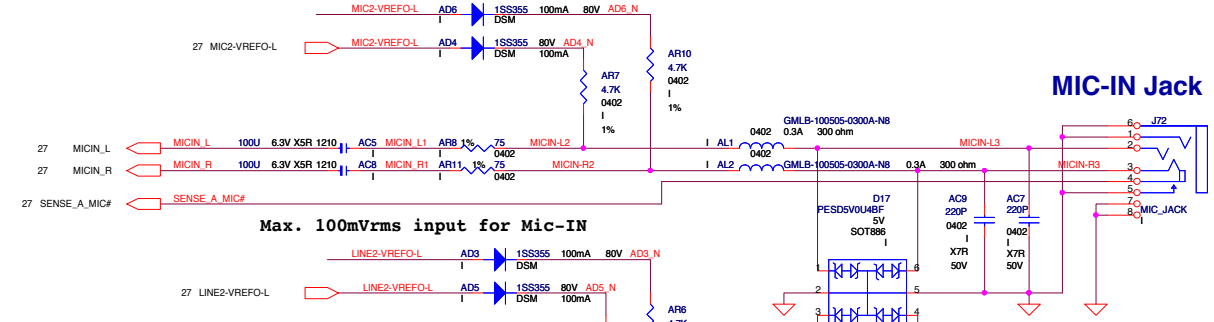
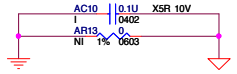
MIC-IN Jack

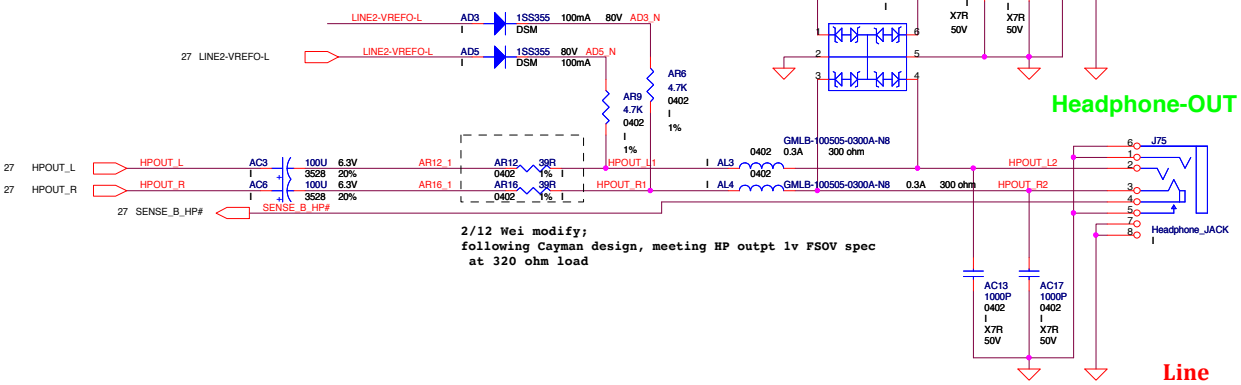


Max. 100mVrms input for Mic-IN



Please next to MIC IN Jack

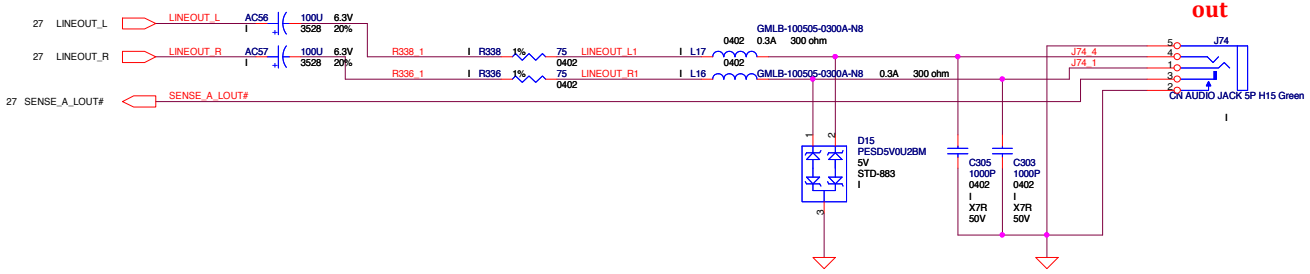
Headphone-OUT

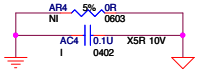


2/12 Wei modify;
following Cayman design, meeting HP outpt 1v FSOV spec
at 320 ohm load

Please next to Headphone Out Jack

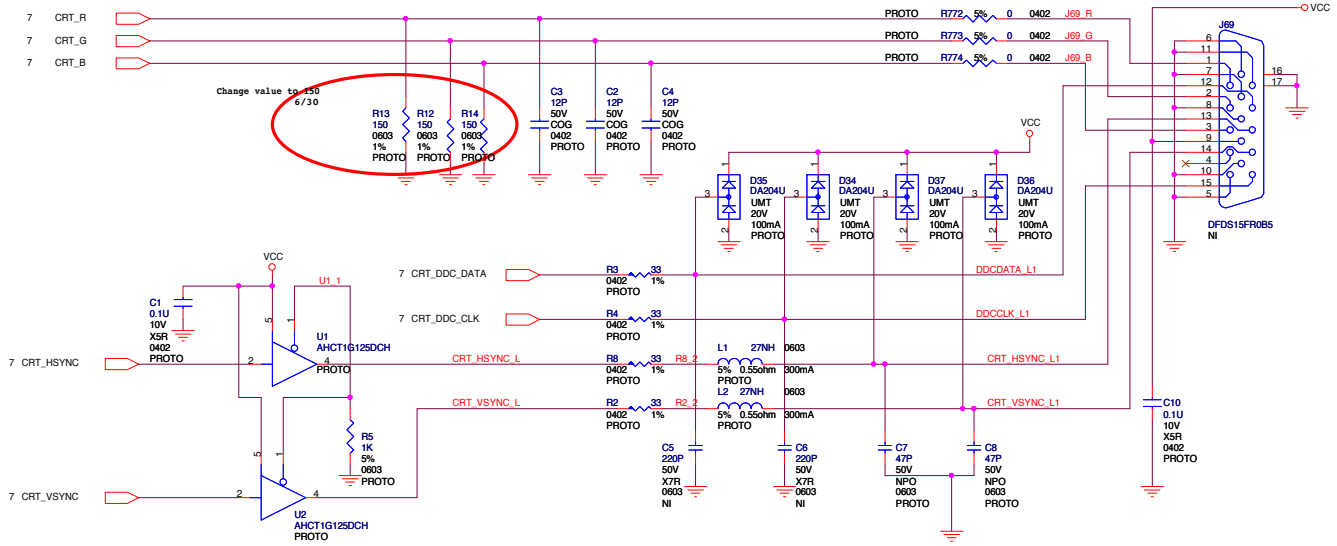
Line out





Please next to Line Out Jack

Reserve to CRT



Quanta Computer Inc.

PROJECT : ZN5

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	AUDIO JACK/CRT	X4
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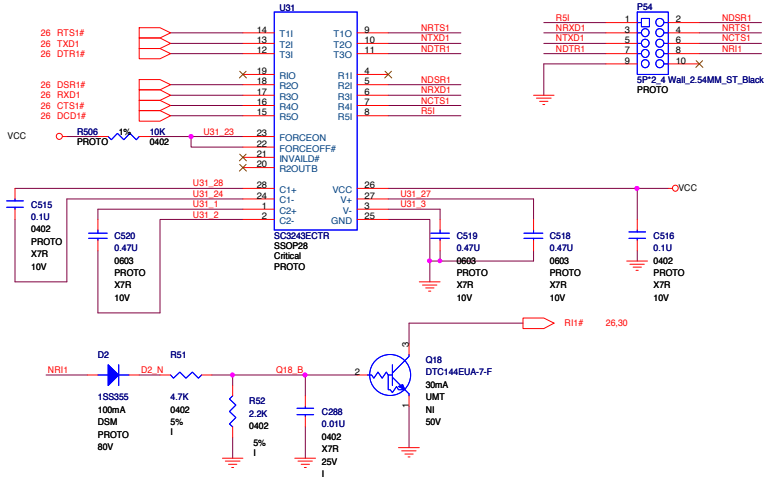
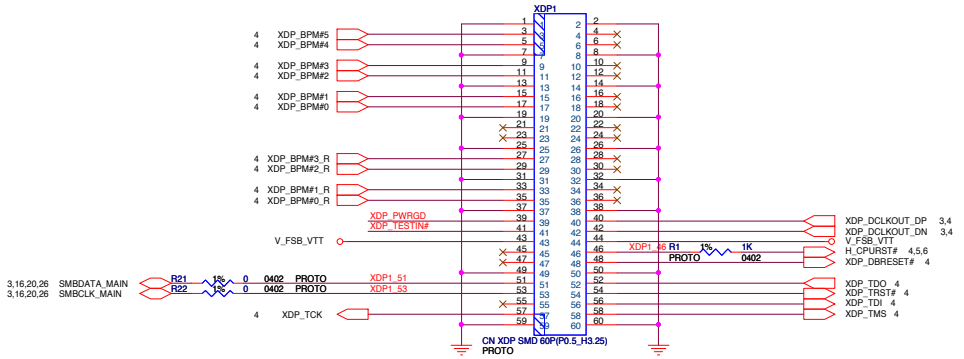
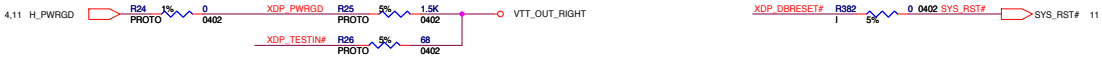
SERIAL PORT



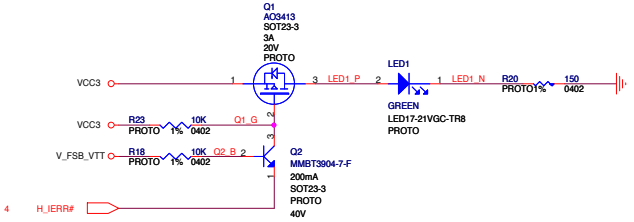


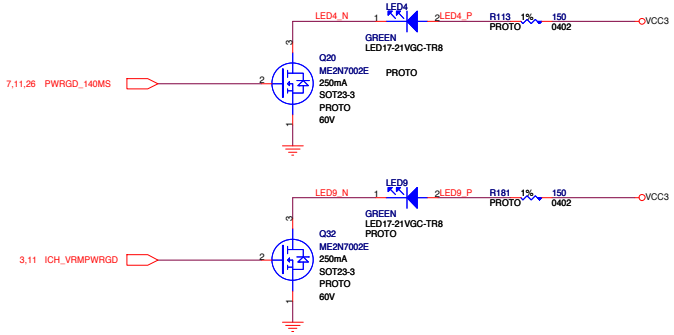
CPU XDP Debug Port

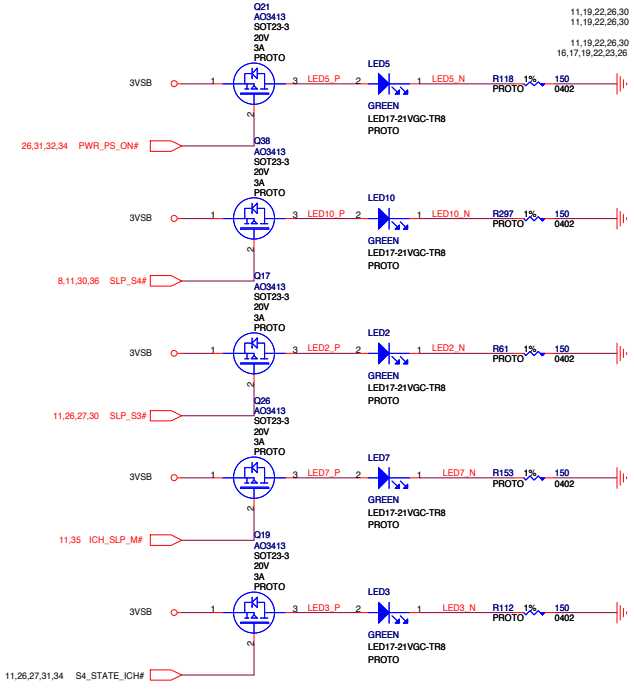


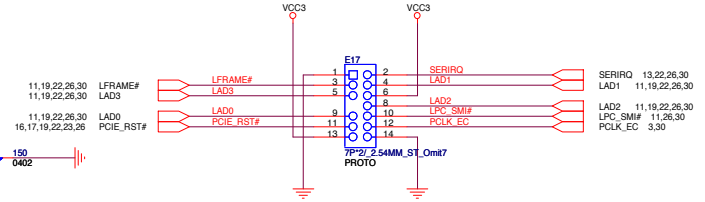
LPC HEADER

LED









Quanta Computer Inc.
PROJECT : ZN5

Size	Document Number	Rev
	LED/SERIAL PORT/XDP	X4
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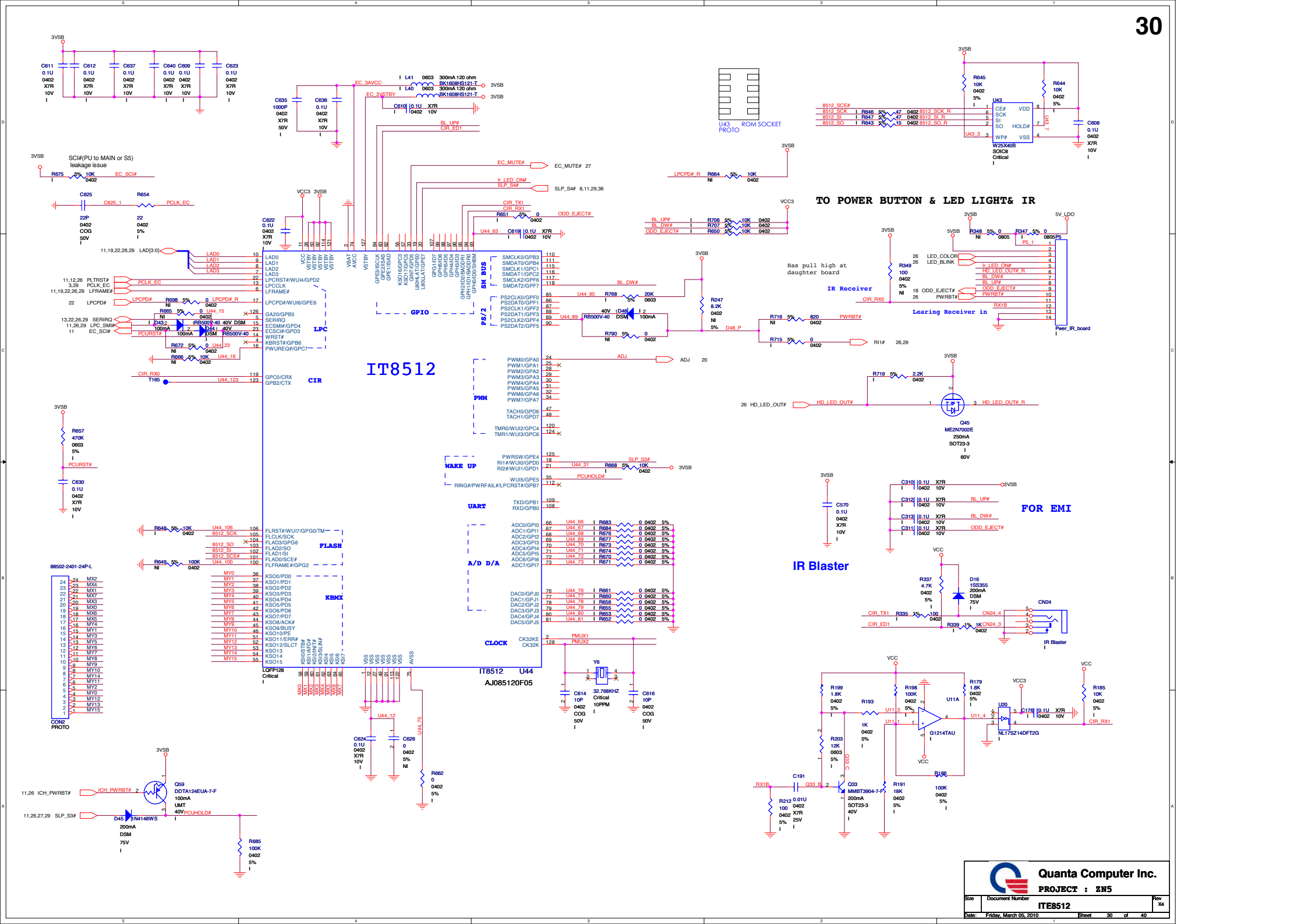

Quanta Computer Inc.	
PROJECT : ZN5	
Size	Document Number: ITE8512 — Rev X4
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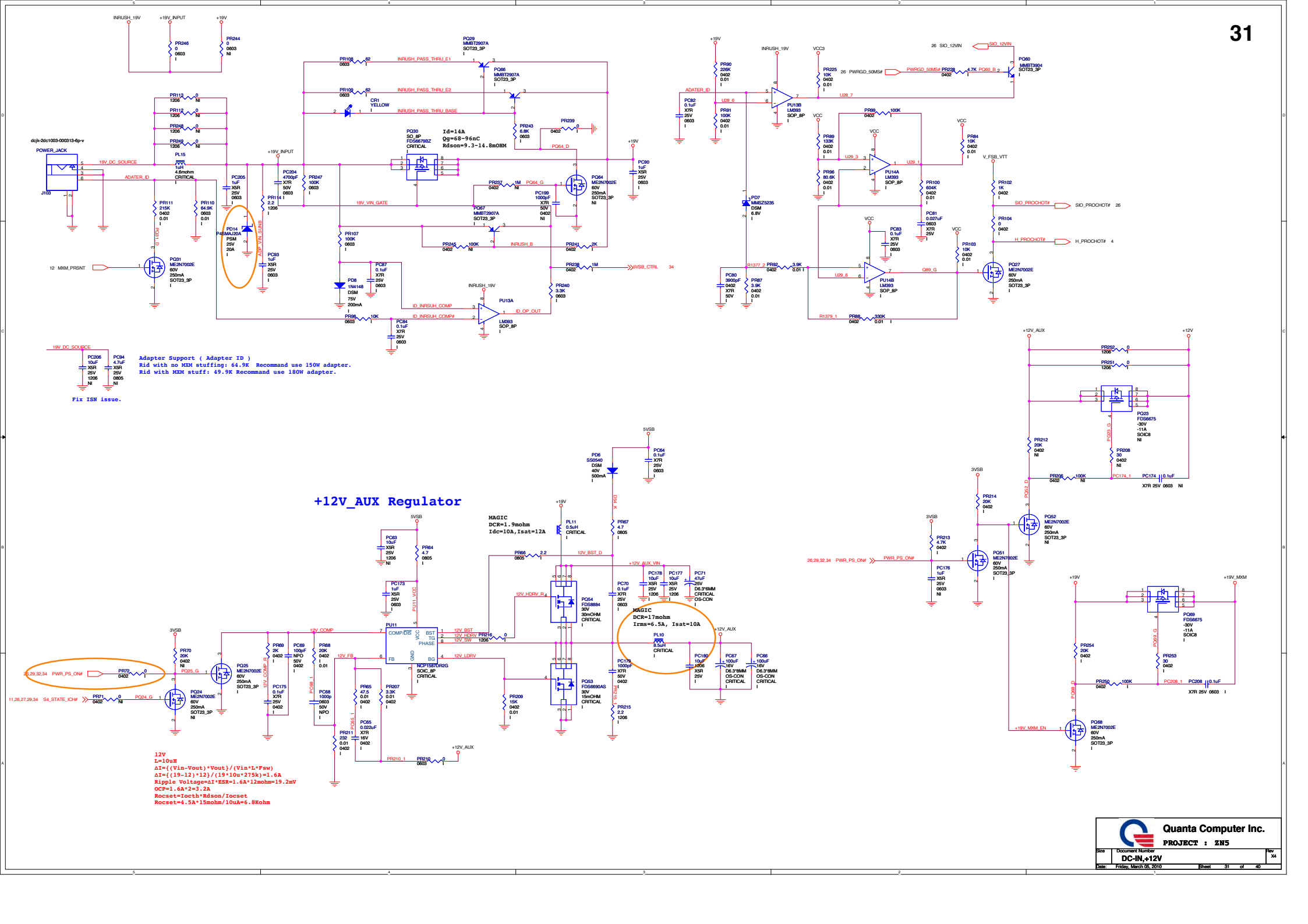

Quanta Computer Inc.

PROJECT : ZN5

Size	Document Number	Rev
	DC-IN,+12V	X4

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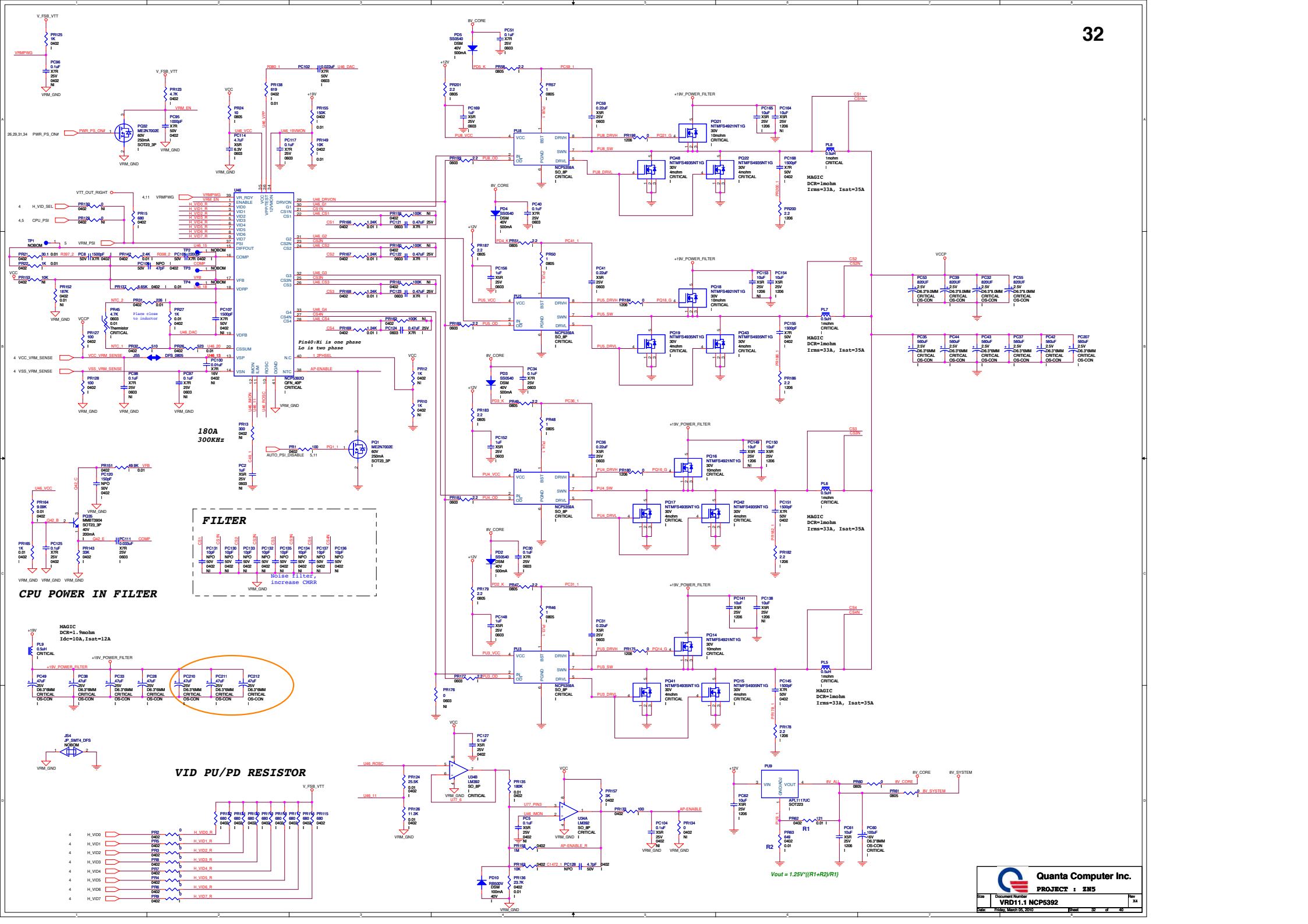
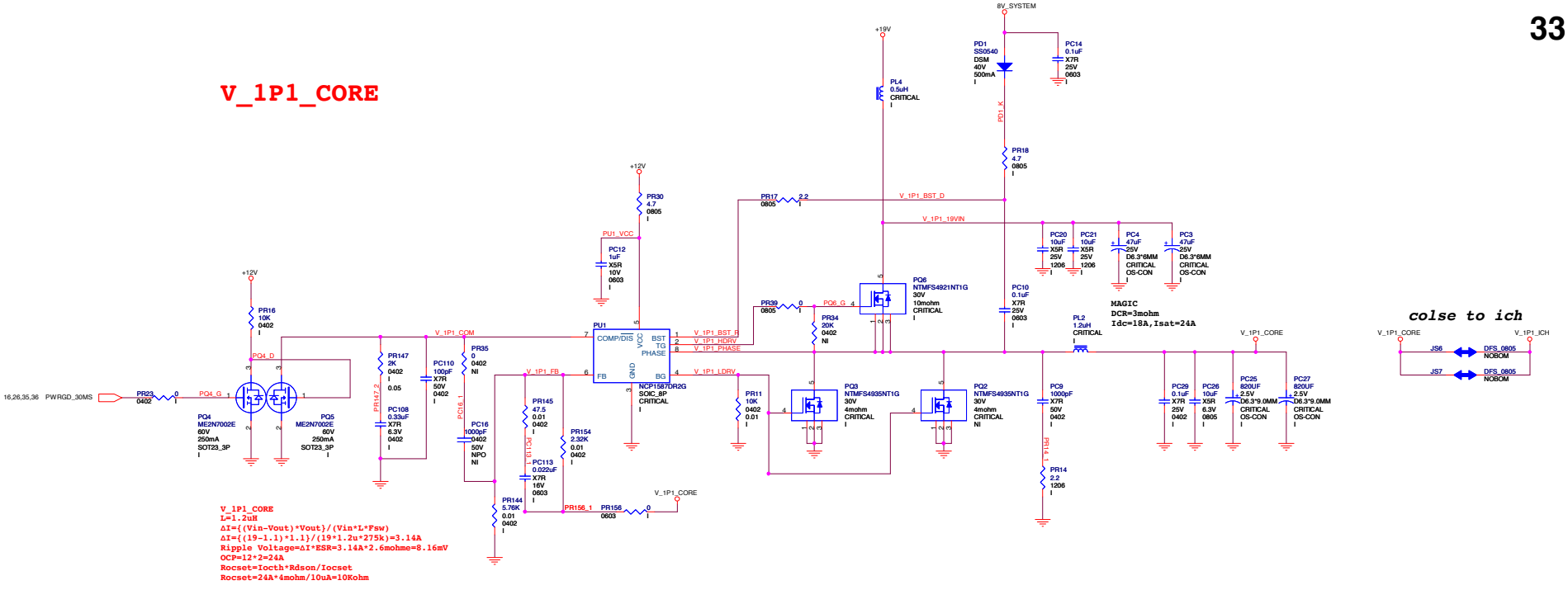

180A
300KHz
Pin60:Hi is one phase
Lo is two phase
FILTER
Noise filter,
increase CMRR
CPU POWER IN FILTER
VID PU/PD RESISTOR
MAGIC
DCR=1mohm
Irms=33A, Isat=35A
MAGIC
DCR=1.9mohm
Idc=10A,Isat=12A
Vout = 1.25V*((R1+R2)/R1)
Quanta Computer Inc.
PROJECT : ZN5
VRD11.1 NCP5392
Friday, March 05, 2010

V_1P1_CORE



V_1P1_CORE
L=1.2uH
ΔI={(Vin-Vout)*Vout}/(Vin*L*Fsw)
ΔI={(19-1.1)*1.1}/(19*1.2u*275k)=3.14A
Ripple Voltage=ΔI*ESR=3.14A*2.6mohme=8.16mV
OCP=12*2=24A
Rocset=Iocth*Rdson/Iocset
Rocset=24A*4mohm/10uA=10Kohm

Quanta Computer Inc.			
PROJECT : ZN5			
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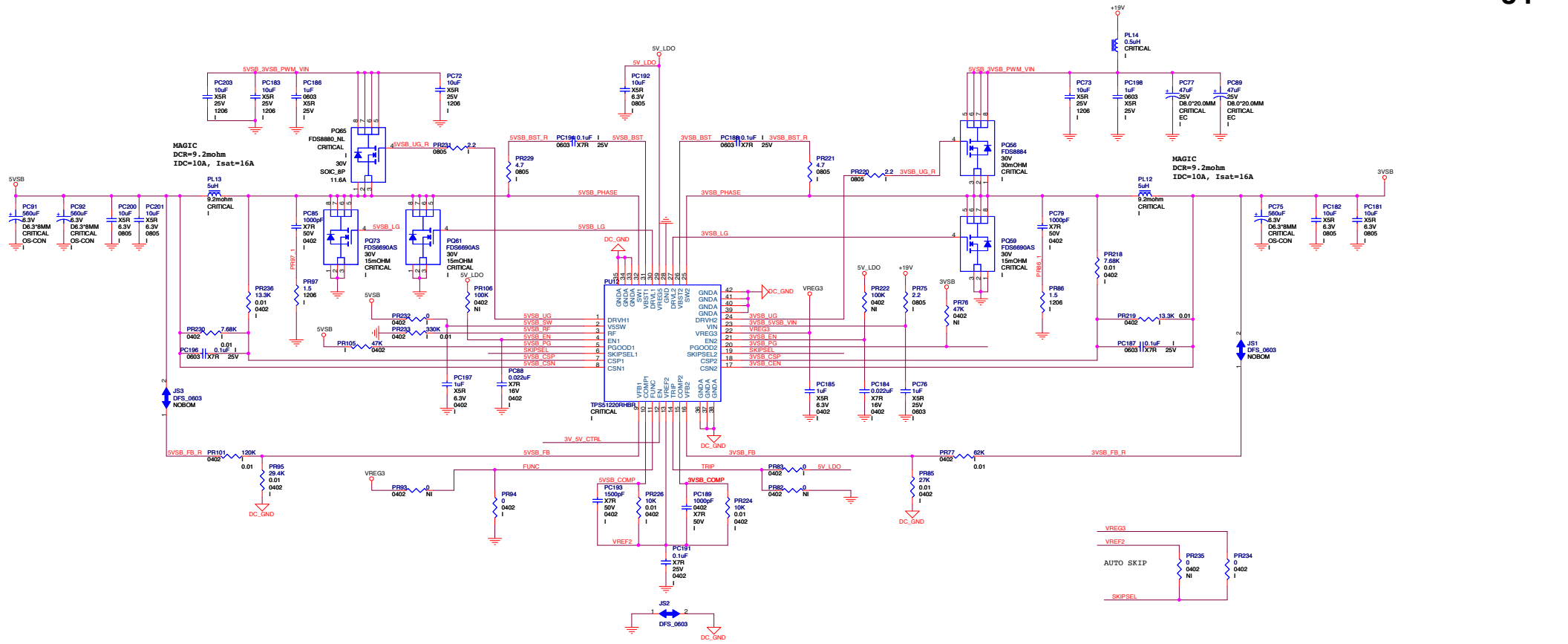
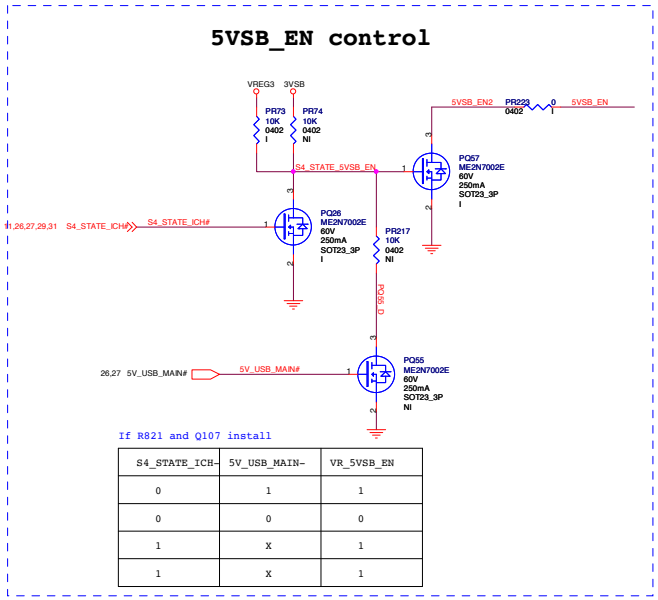
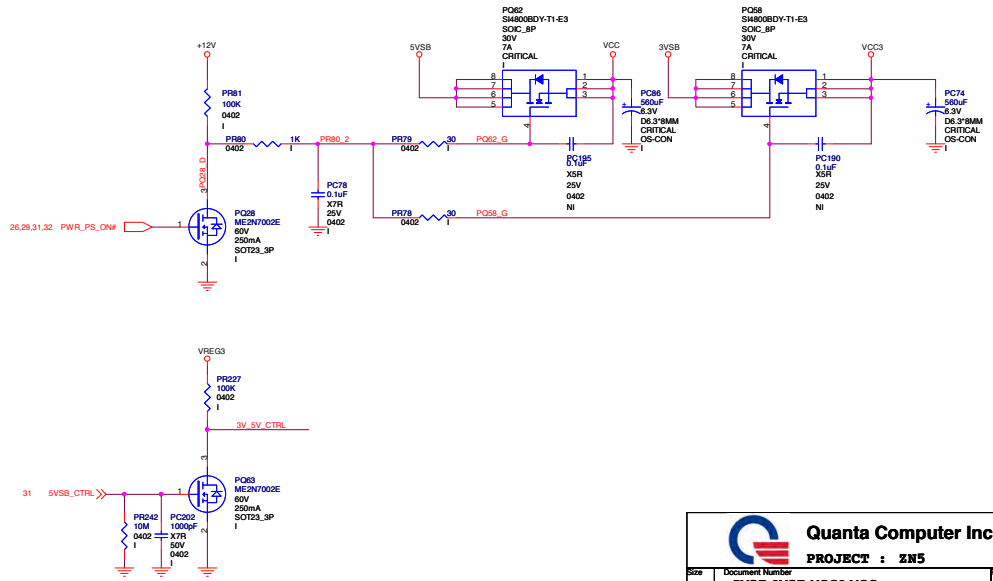
	V_1P1_CORE		X4
Date: Friday, March 05, 2010	Sheet 33 of 40		



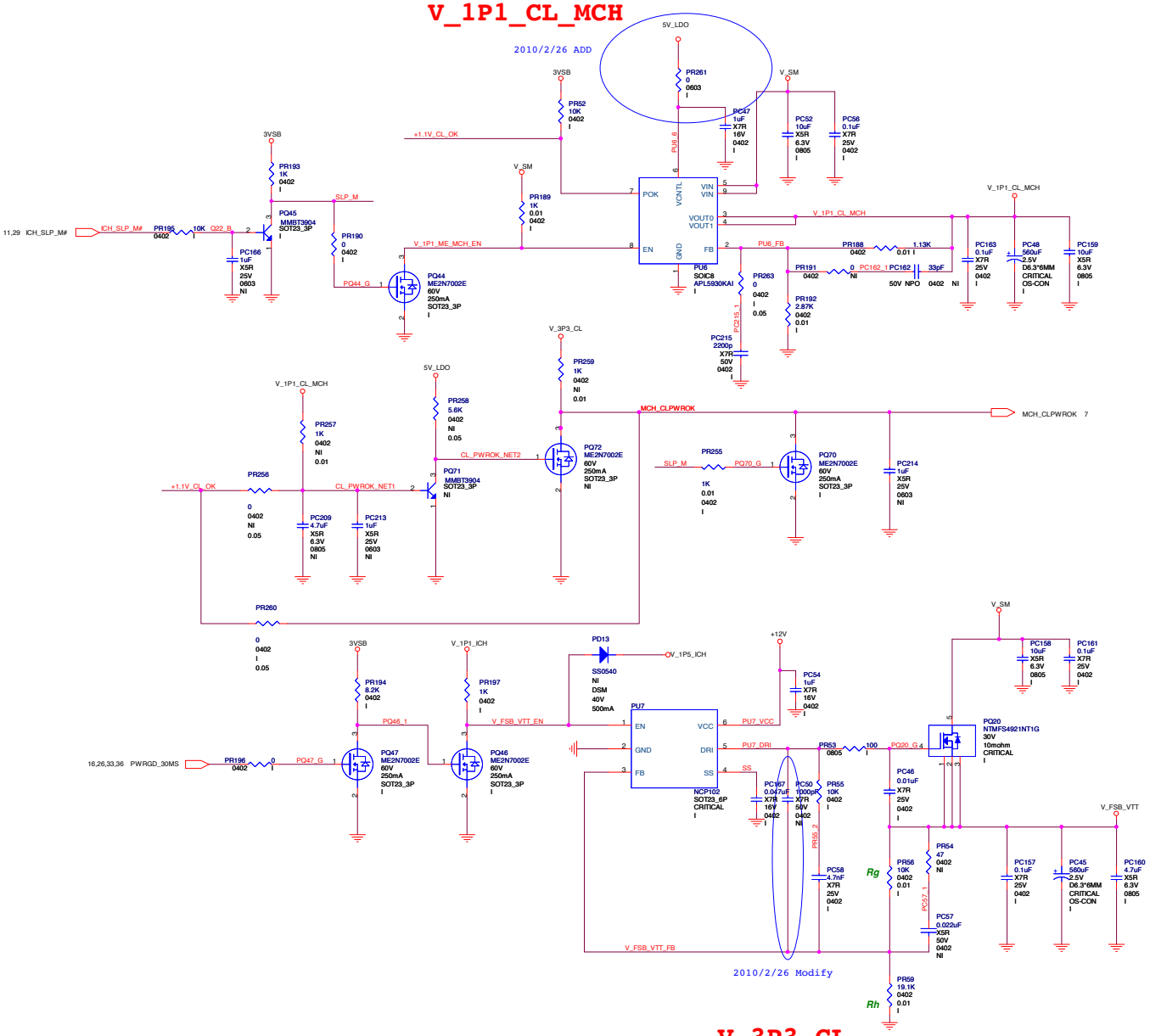


S4_STATE_ICH#	5V_USB_MAIN#	VR_5VSB_EN
0	1	1
0	0	0
1	X	1
1	X	1

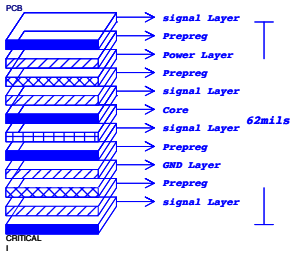


V_1P1_CL_MCH

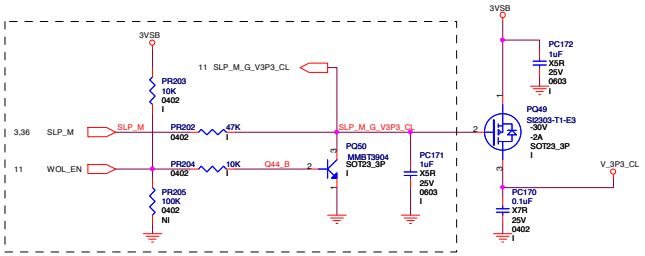
2010/2/26 ADD



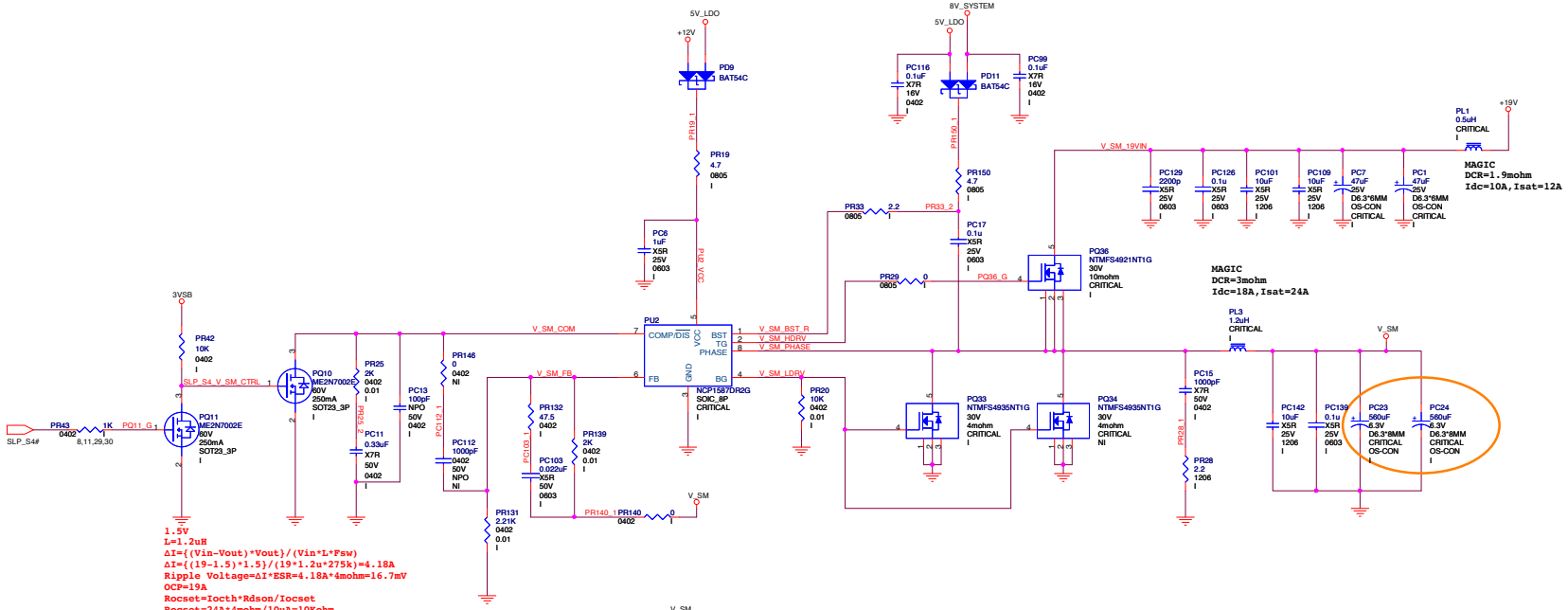
2010/2/26 Modify

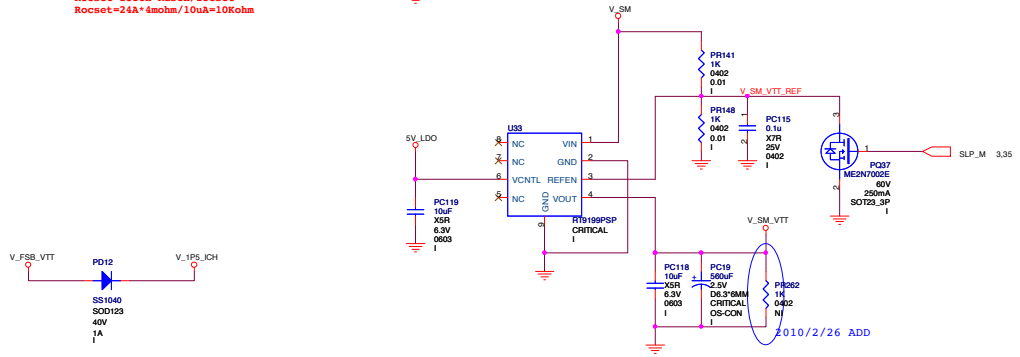


V_3P3_CL

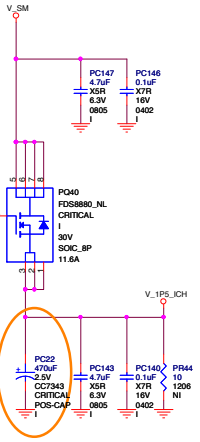


Quanta Computer Inc.		
PROJECT : ZN5		
Size	Document Number	Rev
	V_3P3_CL/V_1V_1P1_ME+T/U PAR	X4
Date: Friday, March 05, 2010	Sheet 35 of 40	

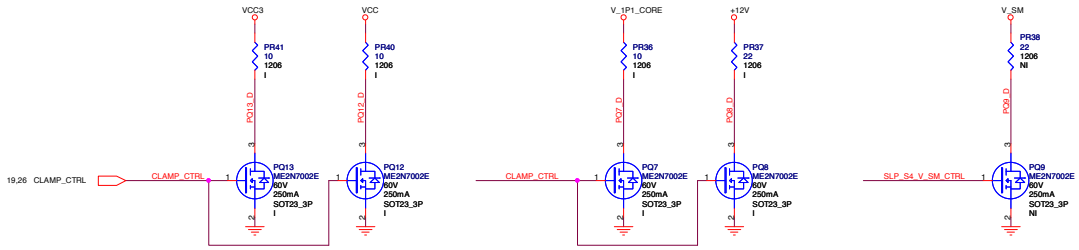


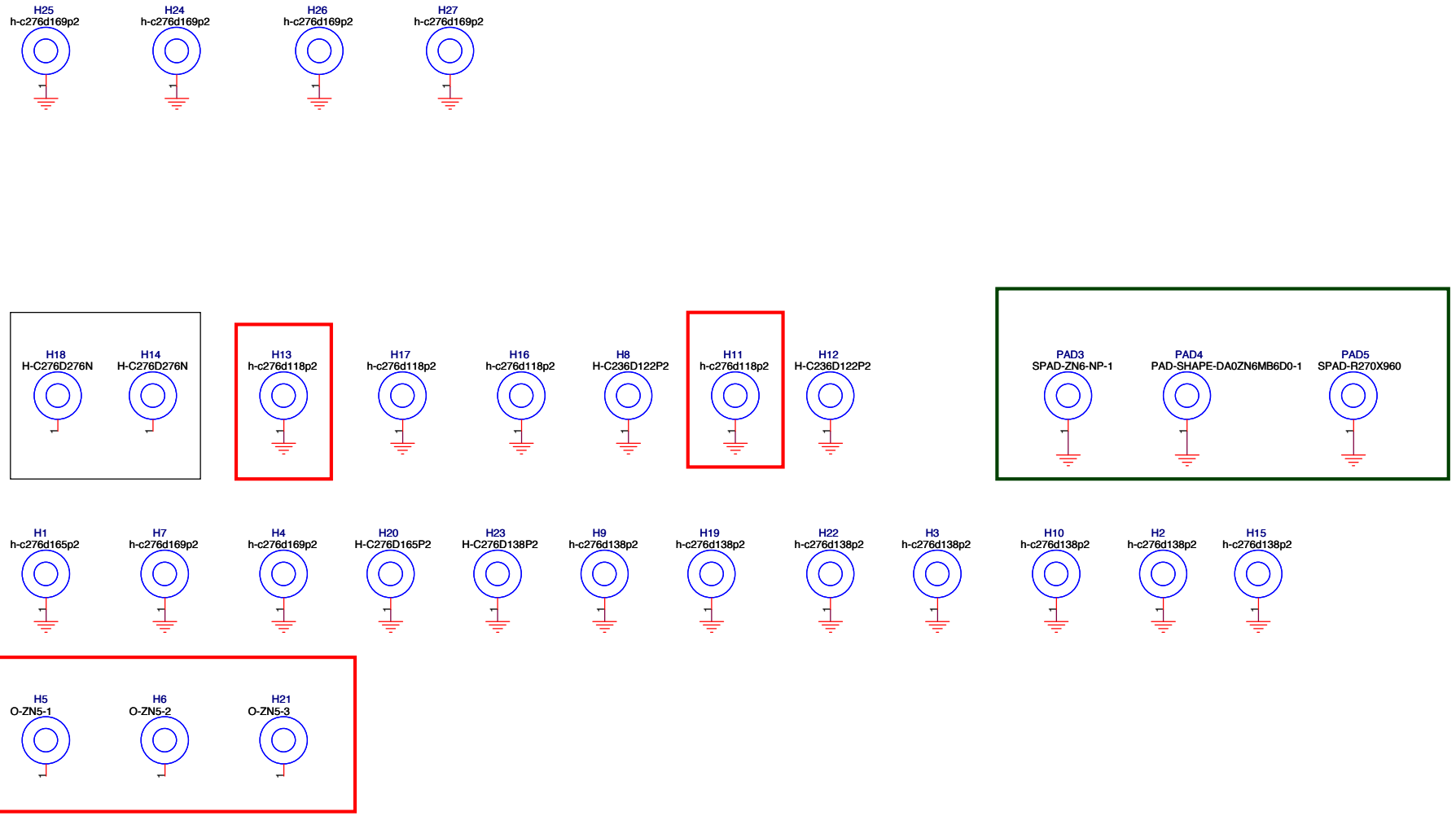


V_1P5_ICH



CLAMP_CTRL





Quanta Computer Inc.

PROJECT : ZN5

Size	Document Number	Rev
	SCREW HOLE & EMI	X4
Date: Friday, March 05, 2010	Sheet 37 of 40	

DATE	EN5 Schematic file for EVT2	Revision
18th Dec. 2009	EN5-1218-1.DSN	X2
PS	EN5 Schematic Change from EVT1 to EVT2	

Schematic Change Description
1. Change AVDD/DVDD name to AVDD_7308/DVDD_7308 on C87308 chip side
2. Add R81(I),R83(I),R715(I), R716(NI), R717(NI), change 3VSB name to 3VSB_USBOC of RP14 and RP18
3. Add 32 pcs 0.1uF capacitor C718-C749 (NI), change SATA HDD connector footprint and reverse pin define
4. Change dedicated component location to follow HP PCA specification
ACH1 to J74, ACH2 to J72, ACH3 to J75, ACH4 to P6, AU2 to U13, AU3 to U14, BT1 to XBT1, CH1 to J69, CH11 to P60, CH12 to P151
CH13 to P9, CH14 to J41, CH16 to J106, CH19 to J105, CH2 to P11, CH20 to J93, CH22 to J94, CH21 to P160, CH23 to J64, CH25 to J67
CH33 to J66, CH26 to J9, CH27 to J70, CH28 to J90, CH29 to P5, CH3 to P150, CH30 to J92, CH31 to J71, CH32 to J91, CH4 to KD91
CH5 to XMH2, CH6 to XMH1, CH8 to P125, P1 to P54, P2 to P153, SW1 to SW50, U10 to U29, U11 to U5, U29 to U53, U19 to U11
U13 to U51, U14 to U52, U23 to U19, U25 to U40, U40 to U55, U3 to U50, U37 to U31, U31 to U54, U39 to U6, U6 to U10, P21 to J103
U5 to U3, U42 to U4, U4 to XU1, Y1 to Y2, Y2 to Y1, Y3 to Y6, Y6 to Y3
5. Change Audio Amplifier from TPA6020A2 to SSM2306CP2, Del de-pop circuit
Del AC1(NI), AC2(NI), AC20(NI), AC21(NI) AC38(I), AC40-AC44(I) AD1(NI), AD2(NI), AQ1(NI), AQ2(NI), AR1-AR3(NI)
Change AC18 and AC19 from 1000pF(NI) to 0.1uF(NI), change footprint
Change AC45 from 1uF(I) to 0.047uF(I), change footprint Del D57, BAT54A(I)
Add AC56 and AC57, 22uF(I) Add AC58, 1000pF(I) Add AC60,AC77, 0.047uF(I) Add AC71,AC72,AC73,AC65, 470pF(I)
Add AC74, 10uF(I) Add AC75, 0.1uF(I) Add AC66, AC76,AC78,AC79, 10pF(I) Add AC64, 10uF(I)
Add AD43, AD8, SS1040(I) Add AD44,AD7, SSM3P4FT(I) Add AD46, BAT54A(I) Add AL15-19, MP81608S221AT(I)
Change AR17 POP from I to NI
Change AR33, AR41 value from 14K ohm to 76.8K ohm (I)
Change AR34, AR38 value from 14K ohm to 0 ohm(NI)
Add AR72 and AR74 76.8K ohm(I) Add AR76 and AR80 0 ohm (I)
6. Change Speaker connector kyrpe from vertical to right angle
7. Del DP AUX EN unnecessary circuit Del C101, 0.1uF (I) Del C276, 0.22uF (I), Del Q22 and Q23, MS2N7002E(I)
8. Change 2nd FAN connector from 4 pin to 3pin Del C11, 0.01uF (I) C12, 100pF (I) C15, 10uF (I), C9, 47pF(I), Del D1, BAT54A(I)
9. Change C122 voltage rating from 10V to 6.3V
10. Change C175 POP from I to NI
11. Change C236(I), C260(NI),C288(NI),C314(I),C543(I),C668(I)C289(I) footprint and QFN
12. Change C256(NI),C613(I),C641(I), C302(NI), C304(NI) footprint and QFN
13. Change C356(I) and C367(I), C449(I) footprint and QFN to follow Intel Spec
14. Del C651(I), C652(I), C673(I), C674(NI)
15. Add C675-C715, 0.1uF(I), Add C716, 2.2uF(I), Add C717, 1uF(I), Add C718-C749, 0.1uF(NI)
16. Change CCD connector type from right angle to vertical
17. Change CN9 EDID connector POP from NI to I
18. Del CT1, CT label(I)
19. Change D11 and D14 value(I)
20. Change D6 from BAT54A to BAT54C(I)
21. Change L34 and L35 footprint and QFN(I), Add L46(I) and L47(I)to follow Intel Spec
22. Del Q24, DDTC144EUA(I). Del Q31(I), Q34(I), Q40(I), Q45(I), Q46(I), Q50(I), Q51(I), MS2N7002E
23. Change Q52(I) footprint and QFN, Chnage L21(I) and L22(I) QFN
24. Add Q61(I), BA001440013 Del Q62(NI), Q63(NI), Q64(NI)
25. Del R108(I), R110(I), R11(I), R15(I), R16(I), R17(NI), R236(I), R283(I), R312(I), R316(I), R6(I), R7(I),RN18-21(I)
26. Change R117(I) value from 0 ohm to 1K ohm
27. Change R123,R172,R196,R226,R227,R282,R347,R348, R564 POP friom I to NI
28. Change R282, R347, R565, R650, R693 POP from NI to I
29. Change R308(I) value from 100 ohm to 20K ohm
30. Change R313(NI) value from 0 ohm to 4.7K ohm
31. Change R464(I) value from 0 ohm to 1 ohm
32. Change R495(I) value from 1M ohm to 1 ohm
33. Change R505(I) value from 1M ohm to 40.2 ohm
34. Change R510(NI) value 0 ohm to 4.7K ohm
35. Change R514(I), R516(I) value from 2K ohm to 4.7K ohm
36. Change R515(I) value from 169 ohm to 220 ohm
37. Change R62(I) value from 11.8K ohm to 118K ohm, Change R63(I) value from 1.78K ohm to 17.8K ohm
38. Change R630(I) value from 10K ohm to 8.2K ohm
39. Change R689(I), R690(I) value from 1K to 4.7K ohm
40. Change R691(NI) and R692(NI) value from 30K ohm to 4.7K ohm
41.Change R694(NI) value from 1K ohm to 4.7K ohm
42.Change R695(I) value from 1K ohm to 4.99K ohm
43.Change R697(I) value from 30K ohm to 39.2K ohm
44. Change R698(NI) value from 30K ohm to 0 ohm
45. Add R710-714(I) and R716(I), R715(NI), R717(NI)
46. Change R81(I)value from 100K ohm to 1K ohm
47. Change R83(I)value from 100K ohm to 1K ohm
48. Del RN18-21(I)
49. Change RP1(I) QFN
50. Change U26 value from SN74CBT3257CPWR to 74ANC1G125
51. Add PS8325 DisplayPort Dual Mode 2x2 Crosspoint Switch
52. Change C646(I) and C645(I) value from 180pF to 18pF
53. Change PC102(I), PC113(I), PC115(I), PC175(I), PC186(I), PC198(I), PC47(I), PR100(I), PR102(I), PR103(I) QFN
54. Change PC18(I), PC19(I), PC22(I), PC23(I), PC24(I). PC25(I), PC27(I), PC45(I), PC48(I), PC60(I) footprint and QFN
55. Add PC207(I), PC208(NI). PC209(NI), PC210(I), PC211(I), PC212(I), PQ68(NI), PQ69(NI), PQ70(NI), PR250-PR254(NI)
56. Change PC35(I) and PC37(I), PC42(I), PC43(I), PC44(I) value, footprint and QFN
57. Change PC66(I), PC67(I), PR90(I) footprint and QFN
58. Change PD1-PD7(I), PR111(I), PR241(I), PR62(I), PR63(I)footprint
59. Change PC11(I), PC1107(I) , PR125(I), PR132(I), PR141(I), PR148(I), PR149(I), PR156(I). PR16(I), PR163 QFN
60. Change PC137(I), PR142(I), PR166-PR169(I) value and QFN
61. Change PR170(I), PR171(I), PR193(I), PR195(I), PR197(I), PR203(I), PR204(I). PR213(I), PR221(I) QFN
62. Change PR224-PR229(I), PR23(I), PR232(I), PR234(I), PR42(I), PR43(I), PR52(I), PR55(I), PR56(I), PR73(I) QFN
63. Change PR45 POP from NI to I
64. Change PR80(I), PR81(I), PR83-84(I), PR87-89(I), PR91-92(I), PR94(I), PR96(I) QFN
65. Change Thermal sensor from EMC1412-2 to EMC1402-2
66. Change R127 POP from NI to I, R131, R309 POP from I to NI
67. Del 20 pcs 10uF 0805 package capacitor in page 5
68. Add R718(NI). R312(NI), R316(NI), Q40(NI). Q45(I), R719(I)
69. Change EH1 Cap POP from NI to I in page 18, Change USB/1394 Resistor array to common choke in page 23 and page 24
70. Change P5 pin2 power source from VCC3 to 5VSB
71. RP14 pin 10 change to 3VSB_USBOC, PCLK_ICH change to U39 pin 7
72. Change J41, CON1, P31, P125. CN7 footprint
73. DEL D48(NI),D47(NI),D54(NI),D53(NI),D50(NI),D49(NI),D56(NI),D55(NI),D9(NI),D8(NI),D14(NI),D11(NI)
74. Change AC14 and AC18 POP from I to NI
75. Change AR34/AR15 POP from NI to I, footprint and QFN
76. Change AC37/AC77/AC60/AC45/AR31/AR32/AR42/AR43 QFN
77. Change AC47/AC46/AC36/AC35 footprint and QFN
78. Change L8, L9 and L11 POP form NI to I, Change L37, L38 and L39 from I to NI.
79. Move R226 and R227 tp page 26 and change them POP from NI to I, Change R160 and R161 and C85 from I to NI
80. Add over current design for each USB port, HT power add over current design and reverse power connect to 3VSB
81. Del R130(I) in page 20, change C55 POP form I to NI
82. Del RP15-RP17(I) footprint, and Add R720-737(I) footprint
83. Move 1394 ESD protect device to near connector side
84. Change PQ40 value from FDC653N to SI4800BDY and footprint change
85. Change P5 pin 1 power source from 5VSB to 5V_LDO
86. Change R249 value from 10K ohm to 20K ohm, Add R766(I), R767(I), Q46(I)
87. Add R768(I) for EC code ID selection
88. Change All component that use BS870-7-F originally to MS2N7002E
89. Connecto PQ52 pin 1 to PQ68 pin1, Change PR254, PR250, PR253, PC208, PQ69 from NI to I
90. Add R769-R776(I)
91. Change PL2(I). PL3(I), PL5(I), PL6(I), PL7(I), PL8(I) QFN
92. Change PC210, PC211, PC212 from NI to I
93. Change PQ40(I), PR209(I), PR20(I), PC58(I) value to QFN
94. Change PQ2, PC164, PC149, PC153, PC138 from I to NI
95. Change CRT connector from I to NI
96. Change R241 POP from I to NI, R223 POP form NI to I
97. Add E16(I) and R777(NI), E16(1-2)Jumper(I)
98. Change R296(I) value and QFN
99. Change AC3(I) and AC6(I) value, description and QFN
100. Add R243(I), R778-R784(I), C651(NI), C652(NI), C673(NI), C674(NI), C750(NI), C751(NI)
101. Change CN15, CN17, J66, J67, J105, J106, J74, CN24, J72, J75 QFN
102. Change Location: JP1 to JP49, JP2 to E1, JP3 to E15, JP4 to E14
103. Change schematic reversion from 1B to X2
104. Change R81, R83, RP14 from I to NI
105. Add R110(I), R108(I), C752-C755(I)

Quanta Computer Inc.
PROJECT : EN5
CHANGE LIST(EVT1 to EVT2)

DATE	ZN5 Schematic file for EVT2	Revision
6th Feb. 2010	ZN5-0206.DSN	X3
PS	ZN5 Schematic Change from EVT2 to DVT1.0	

Schematic Change Description
1. Update schematic reversion and sheet number
2. Change C43 POP from NI to I, F6 POP from I to NI
3. Change U7, U10 value, footprint and QPN
4. Add CN25(I),R785(I),C756(I),C757(I) for B-CAS feature
5. Change dedicated location: XMM1 to XMM3, XMM3 to XMM1
6. Change R59 to 301 ohm, R572 to 8.2K ohm, Change JP49 dedicated location to E49.
7. Add PAD3, PAD4 and PAD5 for gasket mount.
8. Del PC18(I), Change value, footprint and QPN for PC22,PC25,PC27, Change PC23 and PC24 footprint and QPN
9. Change R704 from 0 ohm to 22 ohm, Del R705(I) in page 27
10. Chnage R693 ,R696, R336 and R338 footprint, QPN
11. Del D20(I), D22(I), D27(I), D31(I), C302(NI), C304(NI)
12. Change D15 ,D17 value, footprint and QPN, Change AR18 and AC15 vlue and QPN
13. Change C303 and C305 footprint and QPN, Change AL1, AL2, AL3, AL4, L16, L17, AR17, AC16, AC56,,AC57 value, footprint and QPN
14. Change Speaker conn to DFHD04MR103 for halogen free request
15. Add AQ8(I), AQ9(I), AR44(I), AR45(I), AC20(I), AD45(I), AR46(I), AR47(I)
16. Add R786(NI), R787(I), D47(NI), R705(I),C260(I),D8(I) for 2nd FAN
17. Change SATA HDD CONN footprint and QPN
18. Change dedicated location: U50 to U56, U51 to U57, U52 to U58, U53 to U59, U54 to U53, U48 to U50, U47 to U51, U45 to U52
19. Change dedicated location: U10 to U47, U46 to U10, PU10 to U46, U24 to U54
20. Change E16 vaule, footprint and QPN, B-CAS connector footprint and QPN
21. Change R9 and R10 value and QPN
22. Change PL10 value, footprint and QPN
23. Change R127 POP from I to NI, R131 POP from NI to I, AR46 POP from I to NI, R468 and R469 POP from I to NI
24. Change AQ9 value to QPN, Change PR132 value
25. modify netname MICIN-L1 error
26. Change AR12 and AR16 value and QPN
27. Change SW50 material to Halogen free
28. Add PR251(NI), PR252(NI)
29. SWAP Memory CHA CK0/CK0# and CK2/CK2#
30. Connect RJ45 CONN Pin 5 to power plane VCC1.8M_LAN
31. Change LED1 vaule and QPN
32. Change AR45 from 49.9K to 100K, AR44 from 100K to 49.9K
33. Change AC3, AC6, H14, H18, H20, H23 footprint
33. Change C163, C540, R654, C625, C103 POP from NI to I
34. Change C119, C124, C656, C646, C582 and C588 value and QPN
35. Change R769, R770, R771, R775 and R776 POP from I to NI
36. Change AR34 POP from I to NI
37. Change AQ7 pin 1, U14 Pin.16 and Pin.17 connect from AGND to DGND
38. Change AC58, AC64, AC65, AC66, AC71, AC72, AC73, AC76, AC78, AC79, AQ3.1, AQ6.1 connect from AGND to DGND
39. Add VCC1.8M_LAN power source node
40. Add U19 and U43 ROM SOCKET
41. Change U16 to NIS5135, Add R788(I), C758(NI), PD14(I)
42. Change AR34 and AR15 change footprint to 0603
43. Don't connect RJ-45 pin15 & pin16 to GND, and connect H18 and H14 to GND
44. Change PR71,PR70,PR212,PR206,PR208,PC174,PQ24,PQ52,PQ23 POP from I to NI. Change PR72,PR252,PR251 POP from NI to I
45. Move PR72 to PQ24.3
46. Change AL1~AL4, L16 and L17 value and QPN, Change R709, R700, R350, R701 QPN(from 5% to 1%)
47. Change P5, P150, P151, CN7, CON1, CN18 QPN for plating request
48. Change R104 and R112 value and QPN for 14M CLK fine tune
49. Change C163,C625 vaule and QPN, Stuff C541 22pF. Change R658 and C628 POP from NI to I
50. Change Q52 and Q61 from bipolar to MOS(footprint change). Add Q62(I) and R789(I)
50. Change C654 and C655 value, footprint and QPN
51. Change L24 and L26 power source to V_1P1_CL_MCH, Change L26 and L23 value/footprint, QPN and current rating
52. Change C41,C42,C49,C50,C420,C458 value, footprint and QPN
53. Change C469,C412,C396,C460,C445 and C423 QPN and temperature characteristic
54. Change C43 and C44 value and QPN
55. Change E1, E14, E15, E49, E16, E17, P54 QPN for plating 15u request
56. Del R247(I) and R257(I),T123,T124
57. Change C357 and C443 value and QPN
58. Add C302(NI), C304(NI), C401(NI), C402(NI)
59. Change XMM1 and XMM3 QPN for silkscreen modificaton
60. Change R213,PR36,PR40,PR41,D43,D44,R716 value and QPN
61. Change C135 POP from I to NI
62. Change Q61 from MOS to bipolar
63. Change R525, R517,R476 POP from NI to I
64. Change R789,R518,R641,R478 POP from I to NI, Change R641 value
65. Change R635 from NI to I, Change R635, R209 vaule and QPN
66. Change PC121,PC122,PC123,PC124,PR166,PR167,PR168,PR169,PC167 value and QPN
67. Change XDP1,R1,R21,R22,R24,R51,R52,R25,R26,LED1,R20,R113,R181,R118,R297,R61,R153,R112,Q1,Q21,Q38,Q17 POP to PROTO
68. Change Q26,Q19,R18,R23,R506,Q2,Q20,Q32,LED4,LED9,LED5,LED10,LED2,LED7,LED3,U31,C515,C516,C518,C519,C520,D2,P54 POP to PROTO
69. Change E17,U19,U43,R12,R13.R14,R39,R40,R42,C2,C3,C4,R772,R773,R774,U1,U2,C1,C10,R5,R2,R3,R4,R8,L1,L2,C7,C8,D34 POP to PROTO
70. Change D35,D36,D37,CON2 POP to PROTO

DATE	ZN5 Schematic file for EVT2	Revision
5th Mar. 2010	ZN5-0305.DSN	X4
PS	ZN5 Schematic Change from DVT1.0 to DVT1.5	

Schematic Change Description
1. Update schematic reversion and sheet number
2. Add JS8 short pin to separate V_1P1_CORE_EXP to V_1P1_CORE
3. Connect RJ45 connector pin 6 to VCC1.8M_LAN
4. Change Q25 pin 2 netname to DIGON_R#
5. Change R716 POP from I to NI, R715 and R259 POP form NI to I
6. Add D48(I), R790(NI),R247(NI)
7. Add R791(I) as ICH_PWROK damping resistor
8. Change L23 footprint
9. Change R718 pull up source to V_1P1_CORE
10. Add D60(NI),R257(NI),R792(NI)
11. Add C759(I) for stitching cap, Change R51,R52 value to 4.7K & 2.2K. Add C288(I)
12. Change R39,R40 and R42 the footprint to 0402 from 0603 and change the location near to GMCH
13. BOM change apply correct HF speaker connector
14. BOM change from HP request, apply sonic focus function ALC272AF-GR chip
15. Change Pin L3, H4, F9, AF3, AC4, V4, P3 power source to V_1P1_CORE
16. Change R131 POP from NI to I and R127 POP from I to NI
17. Schematic change from vendor suggestion. LDO Vin GND from AGND to DGND
18. Reduce POP noise, AC27 from 0.1uF/10v X5R to 0.1uF/25v/X7R ; AC25 from 10uF / 6.3v to 2.2uF /6.3v
19. Follow Cayman design HP output FSOV >= 1Vrms spec AR12/AR16 from 56 ohm to 39 ohm
20. Change R85 value and QPN
21. Change R585 and R717 POP from NI to I. Add R793(NI), Move C263 and C264 near to ODD connector side
22. update dedicated netname on schematic page 31-36
23. Change C486, C490,C718-C731,C756-C759 QPN, Add C760(NI),C761(NI),C762(NI),C763(NI)
24. Change R481 pull high source to 5V_LDO, Change PU6 pin 6 connect to 5V_LDO, Add PR255(I), PQ70(I)
25. Add C766-C772(I) ,PR256-PR259(NI), PR260(I),PC209(NI), PC213(NI), PC214(NI), PQ71(NI), PQ72(NI)
26. Change R420 pull up power source to 3VSB, Add C403(I), Change PC159 value
27. Add PC215(I), PR261(I), Change PR191 and PC162 from I to NI, Add PR262(NI), PC50(NI)
28. Change R437 and R483 POP from I to NI, Change R439, R436, R485, R484 POP from NI to I
29. Add C764(I), R794(I), C405(NI), Change R525 POP from I to NI, Change Q52 to Bipolar, R137 pull up voltage change to 3VSB
30. Add R795(I), C765(NI), Change D40 POP from I to NI, Add R796(NI), Change R300 and R301 value and QPN
31. Change C7, C8, C321, C260,C142, PC68, C481, C477, C603, R264, PR95 QPN, Change C153 footprint and QPN
32. Del RP18, Add R797-R800(I), Change J93,J94,J70,J71,J90,J91,J92 QPN
33. Change PD13 to SS0540 and POP from I to NI
34. Update dedicated netname on schematic page 3-36
35. Change AL1-AL4, L16, L17 value and QPN
36. Change U8 to PI3PCIE2612-BZFE
37. Move PC215 to PU6.2 and Change PC215 footprint and QPN, Add PR263(I), C773(I), C774(I)
38. Change U54 to TPS2060, Correct 2 pcs Mini Card CONN Symbol, Connect the pin 41,39,24 to 3V_SLOT1 for 2 pcs Mini Card CONN.
39. Add PQ73(I)
40. Del R785(I), CN25(I)
41. Change D12, D13, D41, D42 to SS0540, Swap U8 some net for la yout smoothly
42. Change XMM1 and XMM3 to right color, Change L21, L22, L23, L24, L26 component, Add AC38(NI)
43. Del C81(I), R437(NI), R483(NI), Change L23 value footprint and QPN, Change L27, L28 footprint and QPN
44. Move R791 near U55 output side, Change R21, R22, R24 and R26 value and QPN, Chnage XDP conn pin 48 connection
45. Add C81(I), Change L23 value footprint and QPN for HP reqeust
46. Change to AU1 pin7 and pin9 to AGND

Quanta Computer Inc.

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