Mariana 3 Block Diagram -- Pine Trail-M

01

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(Page 4) Thermal Sensor

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CRT (Page 17) — RGB

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Clock Gengerator CK505M (Page 3)

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CPU VCORE IMVP 6 (Page 38)

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System Power 3V/5VPCU SVR (Page 37)

VCCP Power 1.05V SVR (Page 36)

Other Power 1.5V, 0.89V LVR (Page 39)

X2 DMI

(Page 16) RJ-45 — 10/100M Ethernet Realtek RTL8103EL — PCIe

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(Page 19) Audio AMP TIC TPA6017A2

Internal MIC

Internal SPK

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SATA — 2.5" HDD / SSD Module (Option) (Page 20)

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PCIe /USB — Mini PCIe Slot — WLAN Module — USIM Card

USB — SKU Option — Bluetooth 2.1 (Page 25)

LPC BUS

ITE8502E (Page 31) — SPI Flash

USB — Camera Module 1.3M pixel (Page 16)

USB — Card Reader RTS5159 (Page 22) — 5 in 1 (SD/MMC/ MS/MSPRO/XD)

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Size	Document Number	Rev
Custom	Block Diagram	1A
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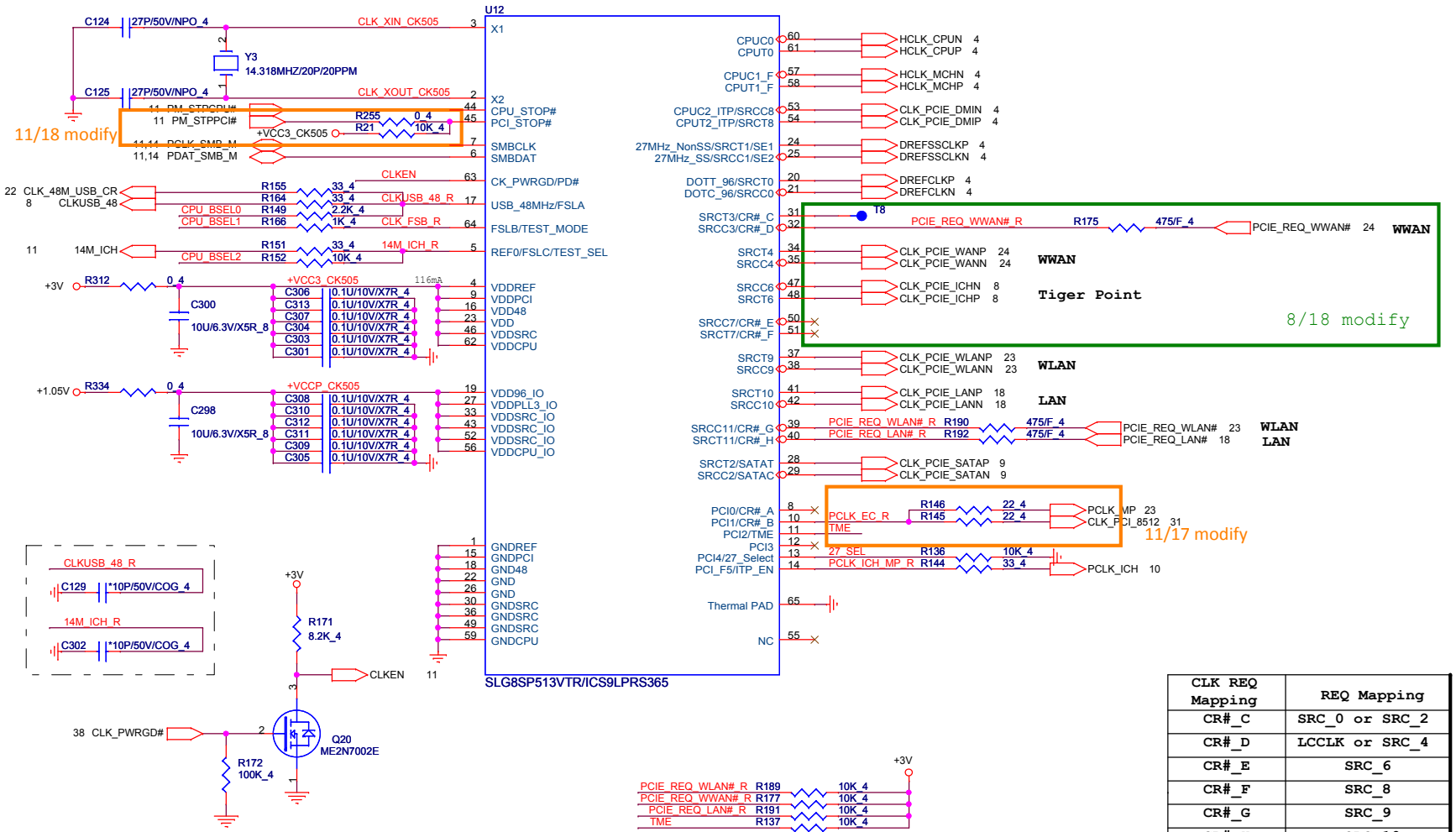
Table of Contents

Power States

POWER PLANE	VOLTAGE	PAGE	DESCRIPTION	CONTROL SIGNAL	ACTIVE IN
VIN	10V~+20V	34,35,36,37,38	MAIN POWER		S0~S5
+3VRTC	+3.0V~+3.3V	11,12,31	RTC		S0~S5
3VPCU	+3.3V	11,15,18,25,26,28,30,31,34,36	ITE8052 POWER	3V5V_EN	S0~S5
5VPCU	+5V	11,30,31,32,33,34,36	DC/DC POWER IC SOURCE	3V5V_EN	S0~S5
+15V	+15V	15,30,32,34	LARGE POWER	3V5V_EN	S0~S5
LANVCC	+3.3V	18,30	LAN POWER	LAN_ON	
5V_S5	+5V	12,20,30	PCH SUS POWER	S5_ON	S0~S3
3V_S5	+3.3V	8,11,12,21,22,30	Sys Management,PCH Resume Well,Intel HD Audio,USB,WLAN WiMAX POWER	S5_ON	S0~S3
5VSUS	+5V	15,30,35,36	SLP_S4# CTRLD POWER	SUSON	S0~S3
3VSUS	+3.3V	26,30,35,36	SLP_S4# CTRLD POWER	SUSON	S0~S3
+VCC_GFX_CORE	+0.9V~+1.2V	6,36	VGA CORE POWER	MAIN_ON	S0
0.9VSMDDR_VTERM	+0.75V	5,14,32	DDR2 SODIMM REFERENCE POWER	MAIN_ON	S0
+5V	+5V	12,15,16,17,19,25,27,28,30	SLP_S3# CTRLD POWER	MAIN_ON	S0
+3V	+3.3V	3,4,6,9,10,11,12,14,15,16,17,18,19,21,22,23, 24,26,28,30,32,33,34,35	SLP_S3# CTRLD POWER	MAIN_ON	S0
+1.8V	+1.8V	6,21,32	LVDS,NVM POWER	MAIN_ON	S0
+1.5V	+1.5V	6,8,12,17,22,23,36	Mini PCIe,Express Card POWER	MAIN_ON	S0
+1.05V	+1.05V	3,4,6,9,12,30,33	PCH CORE POWER	MAIN_ON	S0
VCC_CORE		6,30,35	CPU CORE POWER	VRON	S0
+LCDVCC	+3.3V	15	LCD Power	L_VDD_EN	S0
BAT-V	+10V~+17V	31	MAIN BATTERY	CHG_PBATT	S0~S5



FSC BSEL2	FSB BSEL1	FSA BSEL0	CPU	SRC	PCI	REF	USB	DOT	Spread %
0	0	0	266.66	100	33.33	14.318	48	96	0.5 Down
0	0	1	133.33	100	33.33	14.318	48	96	0.5 Down
0	1	0	200.00	100	33.33	14.318	48	96	0.5 Down
0	1	1	**166.66**	100	33.33	14.318	48	96	0.5 Down
1	0	0	333.33	100	33.33	14.318	48	96	0.5 Down
1	0	1	100.00	100	33.33	14.318	48	96	0.5 Down
1	1	0	400.00	100	33.33	14.318	48	96	0.5 Down
1	1	1	RESERVED						

CLK REQ Mapping	REQ Mapping
CR#_C	SRC_0 or SRC_2
CR#_D	LCCLK or SRC_4
CR#_E	SRC_6
CR#_F	SRC_8
CR#_G	SRC_9
CR#_H	SRC_10

27 Select PIN13	PIN 20/21	PIN 24/25
* 0	DOT_96 / DOT_96#	LCDCLK / LCDCLK#
1	SRC_0 / SRC_0#	27M / 27M_SS

ITP_EN(PIN14)	PIN53/54
* 0	SRC8#/SRC8
1	ITP/ITP#

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Size	Document Number	Rev
Custom	Clock Generator	1A
Date: Wednesday, November 18, 2009	Sheet 3 of 40	

U26C PINEVIEW_M REV = 1.1 — 3 OF 6 — Pineview

U26D PINEVIEW_M REV = 1.1 — 4 OF 6 — Pineview

U26A REV = 1.1 — 1 OF 6 — Pineview

XDP PU

XDP_BPM#5 : Length<200mil

10/16 add test point

Tiger Point chipset follows this flow for THRMTRIP#.
At boot (PLTRST# low), THRMTRIP# ignored.

Thermal Sensor

Themal I2C

8/18 modify

EMC1412-1-ACZL-TR

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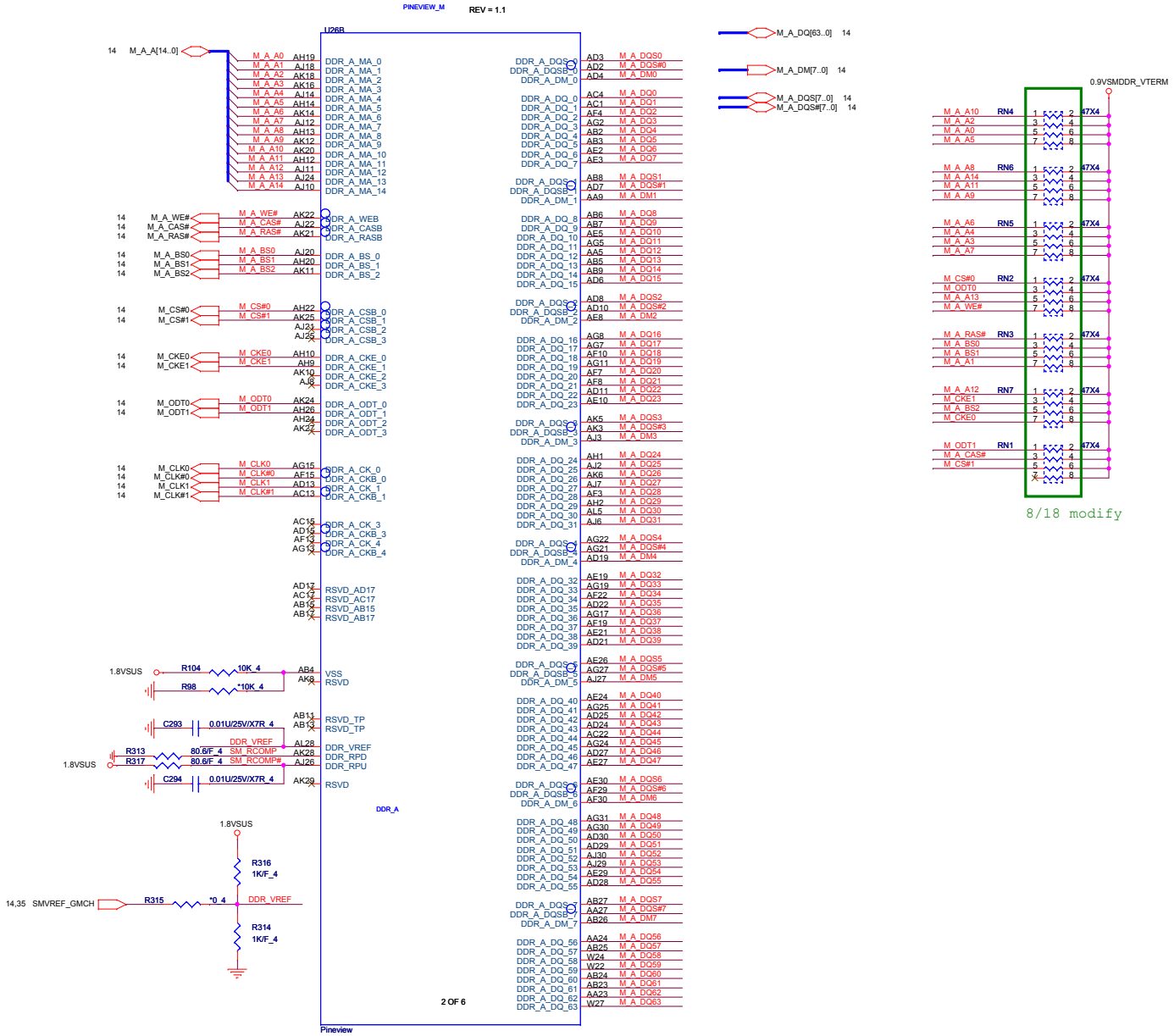
PROJECT : Mariana 3.0

Size	Document Number	Rev
Custom	Pineview DMI/Display (1/4)	1A
Date: Monday, November 02, 2009	Sheet 4 of 40	



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Size	Document Number	Rev
Custom	Pineview DDR (2/4)	1A
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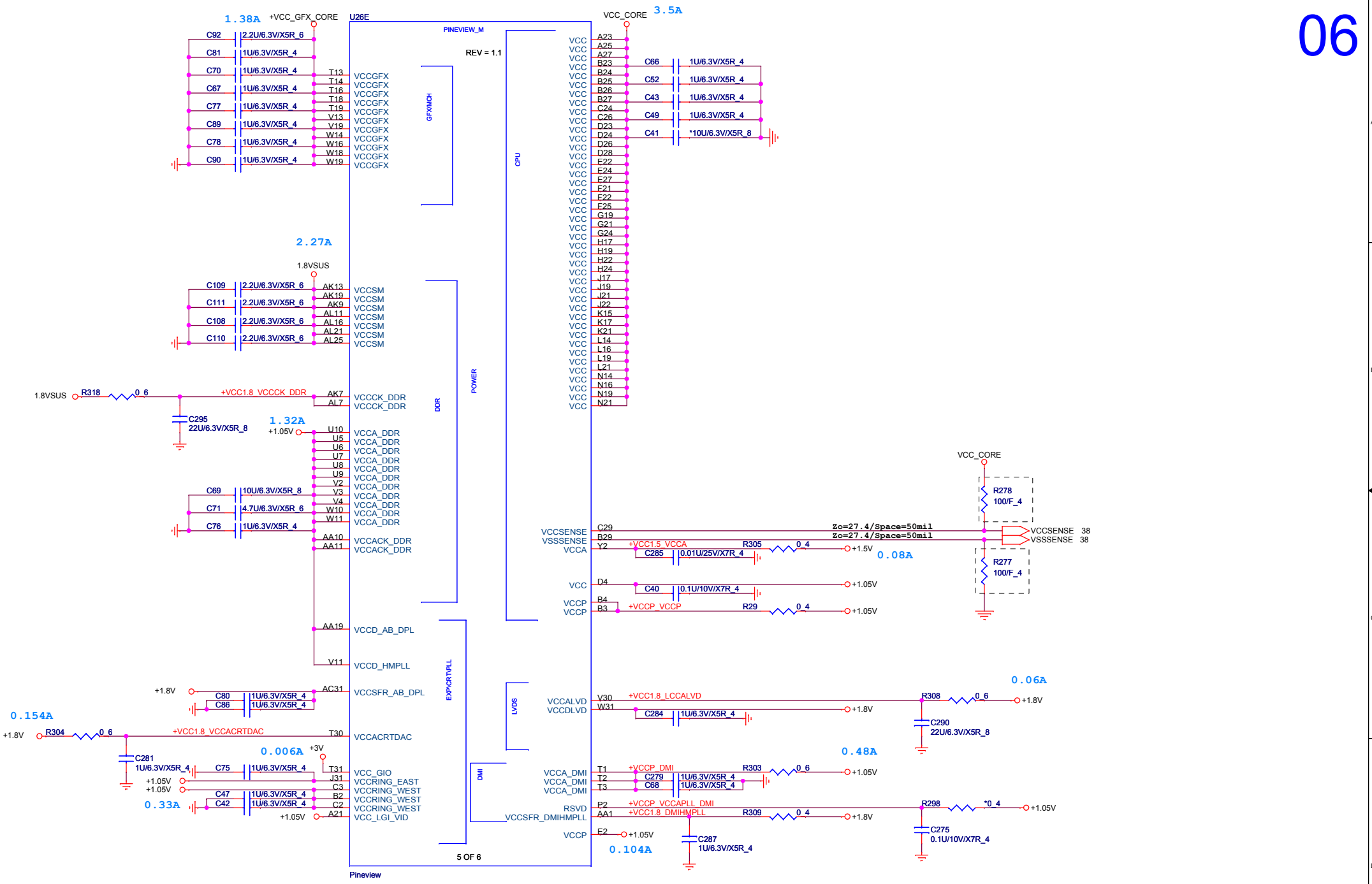

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Size	Document Number	Rev
Custom	Pineview Power (3/4)	1A
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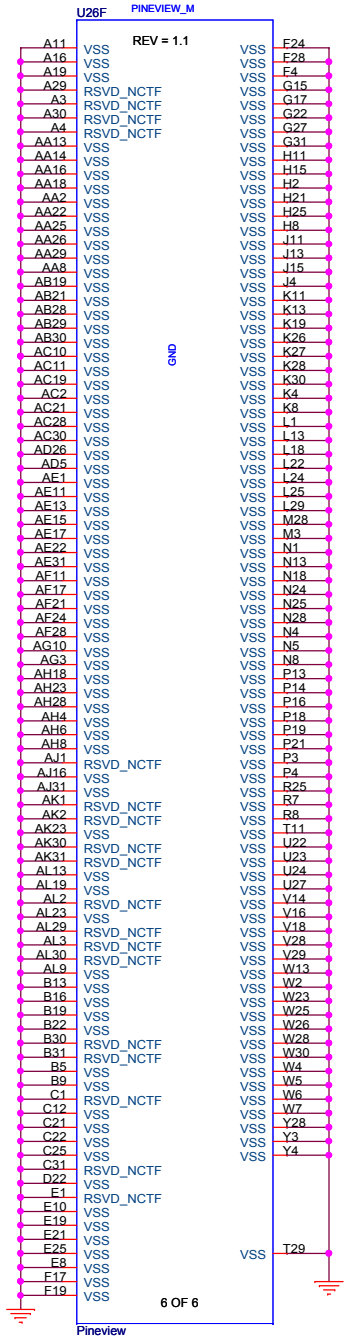

A11	VSS	VSS	F24
A16	VSS	VSS	F28
A19	VSS	VSS	F4
A29	RSVD_NCTF	VSS	G15
A3	RSVD_NCTF	VSS	G17
A30	RSVD_NCTF	VSS	G22
A4	RSVD_NCTF	VSS	G27
AA13	VSS	VSS	G31
AA14	VSS	VSS	H11
AA16	VSS	VSS	H15
AA18	VSS	VSS	H2
AA2	VSS	VSS	H21
AA22	VSS	VSS	H25
AA25	VSS	VSS	H8
AA26	VSS	VSS	J11
AA29	VSS	VSS	J13
AA8	VSS	VSS	J15
AB19	VSS	VSS	J4
AB21	VSS	VSS	K11
AB28	VSS	VSS	K13
AB29	VSS	VSS	K19
AB30	VSS	VSS	K26
AC10	VSS	VSS	K27
AC11	VSS	VSS	K28
AC19	VSS	VSS	K30
AC2	VSS	VSS	K4
AC21	VSS	VSS	K8
AC28	VSS	VSS	L1
AC30	VSS	VSS	L13
AD26	VSS	VSS	L18
AD5	VSS	VSS	L22
AE1	VSS	VSS	L24
AE11	VSS	VSS	L25
AE13	VSS	VSS	L29
AE15	VSS	VSS	M28
AE17	VSS	VSS	M3
AE22	VSS	VSS	N1
AE31	VSS	VSS	N13
AF11	VSS	VSS	N18
AF17	VSS	VSS	N24
AF21	VSS	VSS	N25
AF24	VSS	VSS	N28
AF28	VSS	VSS	N4
AG10	VSS	VSS	N5
AG3	VSS	VSS	N8
AH18	VSS	VSS	P13
AH23	VSS	VSS	P14
AH28	VSS	VSS	P16
AH4	VSS	VSS	P18
AH6	VSS	VSS	P19
AH8	VSS	VSS	P21
AJ1	RSVD_NCTF	VSS	P3
AJ16	VSS	VSS	P4
AJ31	VSS	VSS	R25
AK1	RSVD_NCTF	VSS	R7
AK2	RSVD_NCTF	VSS	R8
AK23	VSS	VSS	T11
AK30	RSVD_NCTF	VSS	U22
AK31	RSVD_NCTF	VSS	U23
AL13	VSS	VSS	U24
AL19	VSS	VSS	U27
AL2	RSVD_NCTF	VSS	V14
AL23	VSS	VSS	V16
AL29	RSVD_NCTF	VSS	V18
AL3	RSVD_NCTF	VSS	V28
AL30	RSVD_NCTF	VSS	V29
AL9	VSS	VSS	W13
B13	VSS	VSS	W2
B16	VSS	VSS	W23
B19	VSS	VSS	W25
B22	VSS	VSS	W26
B30	RSVD_NCTF	VSS	W28
B31	RSVD_NCTF	VSS	W30
B5	VSS	VSS	W4
B9	VSS	VSS	W5
C1	RSVD_NCTF	VSS	W6
C12	VSS	VSS	W7
C21	VSS	VSS	Y28
C22	VSS	VSS	Y3
C25	VSS	VSS	Y4
C31	RSVD_NCTF		
D22	VSS		
E1	RSVD_NCTF		
E10	VSS		
E19	VSS		
E21	VSS		
E25	VSS	VSS	T29
E8	VSS		
F17	VSS		
F19	VSS		

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U1LB

U27B

TGP

4 DMI_RXN0
4 DMI_RXP0
4 DMI_TXN0
4 DMI_TXP0
4 DMI_RXN1
4 DMI_RXP1
4 DMI_TXN1
4 DMI_TXP1

C286 0.1U/10V/X7R_4 DMI_TXN0_C
C283 0.1U/10V/X7R_4 DMI_TXP0_C
C289 0.1U/10V/X7R_4 DMI_TXN1_C
C291 0.1U/10V/X7R_4 DMI_TXP1_C

R23 DMI0RXN
R24 DMI0RXP
P21 DMI0TXN
P20 DMI0TXP
T21 DMI1RXN
T20 DMI1RXP
T24 DMI1TXN
T25 DMI1TXP
T19 DMI2RXN
T18 DMI2RXP
U23 DMI2TXN
U24 DMI2TXP
V21 DMI3RXN
V20 DMI3RXP
V24 DMI3TXN
V23 DMI3TXP

DMI

USB

PCI-E

LAN

18 PCIE_RXN1
18 PCIE_RXP1
18 PCIE_TXN1
18 PCIE_TXP1

C271 0.1U/10V/X7R_4 PCIE_TXN1_C
C272 0.1U/10V/X7R_4 PCIE_TXP1_C

K21 PERN1
K22 PERP1
J23 PETN1
J24 PETP1

T19
T20
T21
T22

C274 0.1U/10V/X7R_4 PCIE_TXN2_C
C277 0.1U/10V/X7R_4 PCIE_TXP2_C

M18 PERN2
M19 PERP2
K24 PETN2
K25 PETP2

WLAN

23 PCIE_RXN3
23 PCIE_RXP3
23 PCIE_TXN3
23 PCIE_TXP3

C280 0.1U/10V/X7R_4 PCIE_TXN3_C
C282 0.1U/10V/X7R_4 PCIE_TXP3_C

L23 PERN3
L24 PERP3
L22 PETN3
M21 PETP3
P17 PERN4
P18 PERP4
N25 PETN4
N24 PETP4

10/5 remove netname PCIE_RXN2/P2, PCIE_TXN2/P2 and add test point T19~T22

+1.5V R81 24.9/F_4 DMI_COMP

H24 DMI_ZCOMP
J22 DMI_IRCOMP

3 CLK_PCIE_ICHN
3 CLK_PCIE_ICHP

W23 DMI_CLKN
W24 DMI_CLKP

2

Tiger Point

?

USBP0N H7 USBP0- 21 **USB_PORT #0**
USBP0P H6 USBP0+ 21
USBP1N H3 USBP1- 18 **USB_PORT #1**
USBP1P H2 USBP1+ 18
USBP2N J2 USBP2- 18 **USB_PORT #2**
USBP2P J3 USBP2+ 18
USBP3N K6 USBP3- **BT**
USBP3P K5 USBP3+
USBP4N K1 USBP4- 24 **WWAN**
USBP4P K2 USBP4+ 24
USBP5N L2 USBP5- 23 **WLAN**
USBP5P L3 USBP5+ 23
USBP6N M6 USBP6- 22 **Card Reader**
USBP6P M5 USBP6+ 22
USBP7N N1 USBP7- 16 **Camera**
USBP7P N2 USBP7+ 16

OC0# D4 USBOC0# USBOC0# 21
OC1# C5 USBOC1# USBOC1# 18
OC2# D3 USBOC2# USBOC2# 18
OC3# D2 USBOC3#
OC4# E5 USBOC4#
OC5#/GPIO29 E6 USBOC5#
OC6#/GPIO30 C2 USBOC6#
OC7#/GPIO31 C3 USBOC7#

USBRBIAS G2
USBRBIAS# G3 USBRBIAS R87 22.6/F_4

CLK48 F4 CLKUSB_48 CLKUSB_48 3

8/18 modify

USBOC2# RP13 1 2 8.2KX4 3V_S5
USBOC3# 3 4
USBOC7# 5 6
USBOC6# 7 8

USBOC5# RP1 1 2 8.2KX4 3V_S5
USBOC4# 3 4
USBOC1# 5 6
USBOC0# 7 8

USIM

*0X2

USBP3- 3 4 USBP3-_USIM 24
USBP3+ 1 2 USBP3+_USIM 24
RP5

BT

RP4

USBP3- 1 2 USBP3-_BT 25
USBP3+ 3 4 USBP3+_BT 25
0X2

EMI

CLKUSB_48
R287
*10/F_4
C267
*10P/50V/COG_4

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Size	Document Number	Rev
Custom	TigerPoint DMI/PCIE(1/6)	1A
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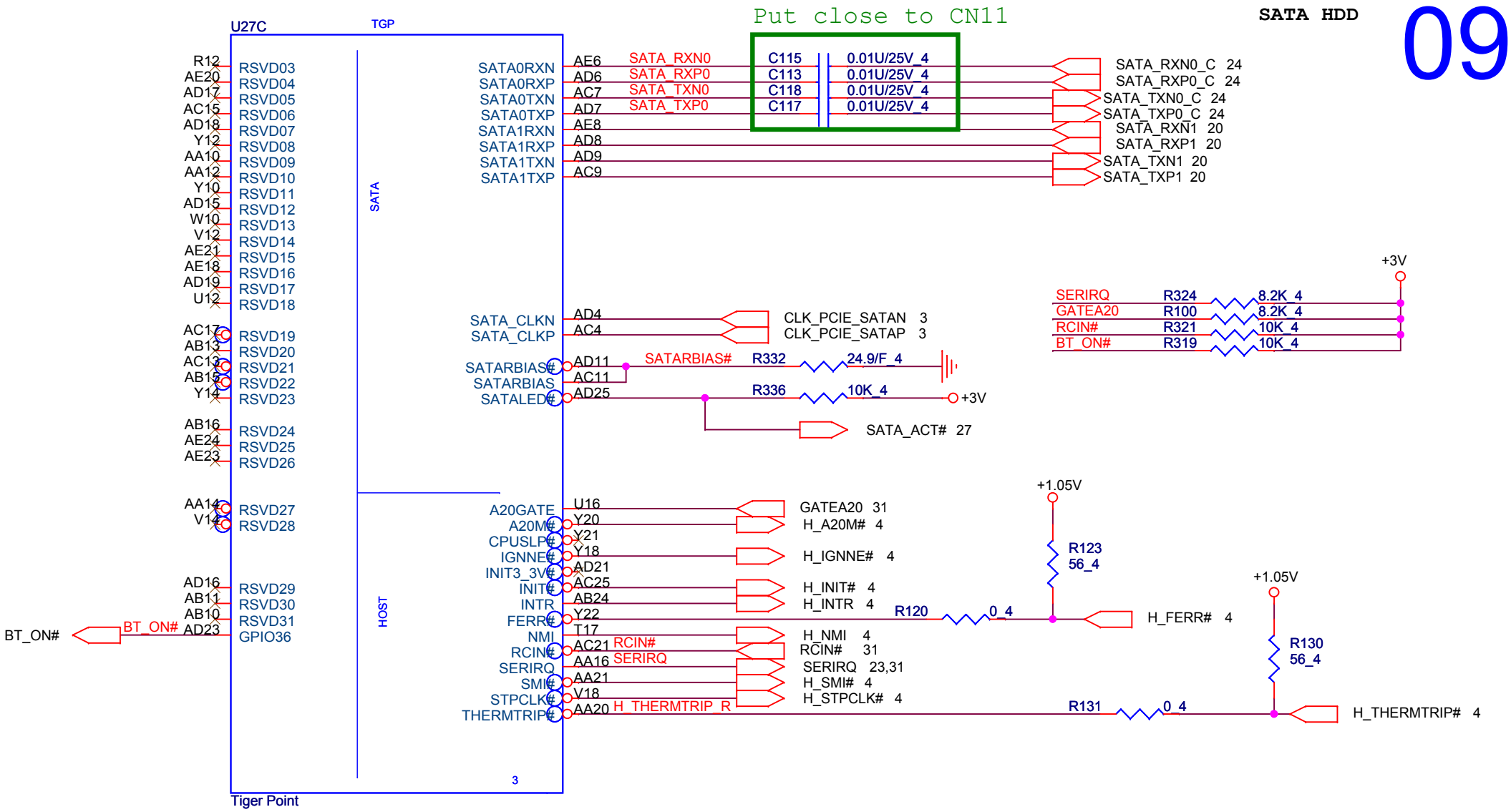

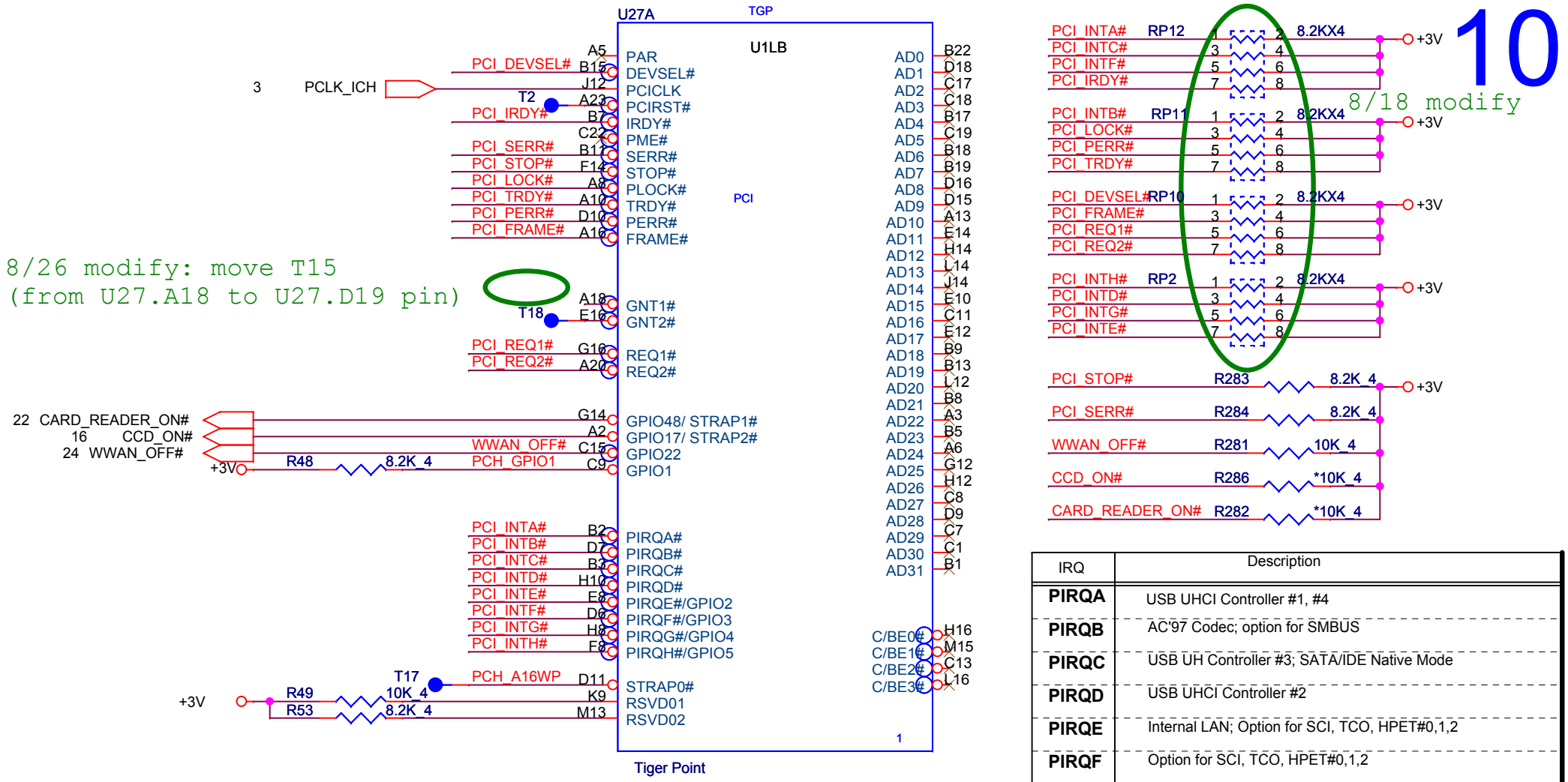

IRQ	Description
PIRQA	USB UHCI Controller #1, #4
PIRQB	AC'97 Codec; option for SMBUS
PIRQC	USB UH Controller #3; SATA/IDE Native Mode
PIRQD	USB UHCI Controller #2
PIRQE	Internal LAN; Option for SCI, TCO, HPET#0,1,2
PIRQF	Option for SCI, TCO, HPET#0,1,2
PIRQG	Option for SCI, TCO, HPET#0,1,2
PIRQH	USB EHCI Controller; Option for SCI, TCO, HPET#0,1,2

PCI_GNT#2	Internal PU Should not be PD

ICH Boot BIOS select

PCH_GPIO17 (INT PU)	PCH_GPIO48 (INT PU)	Boot BIOS Location
0	1	SPI
1	0	PCI
1	1	LPC (Default)

A16 SWAP Override strap

PCH_A16WP (INT PU)	**Low = A16 swap override enabled** **High = Default**

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Custom	TigerPoint PCI(3/6)	1A
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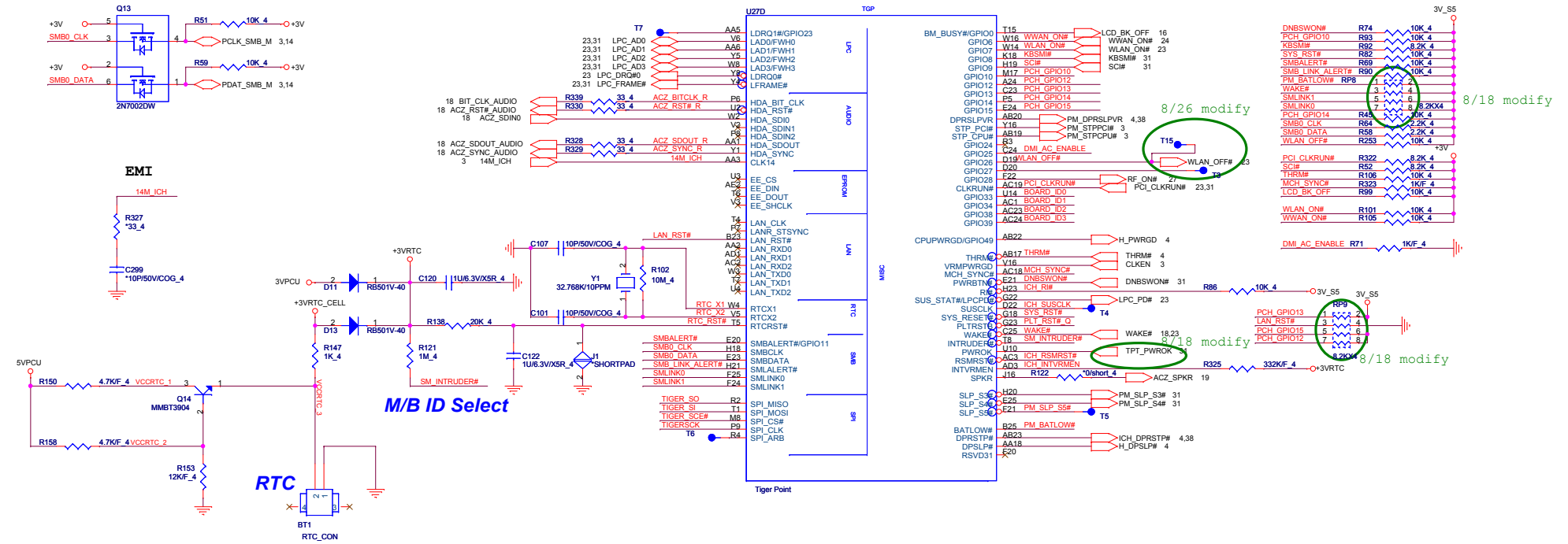
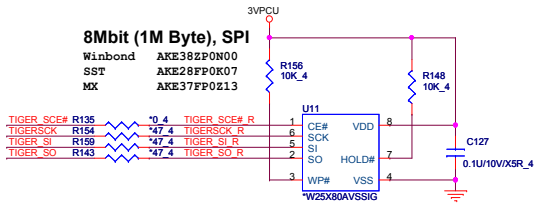


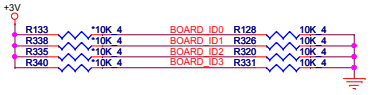


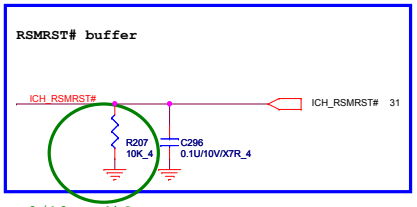
	INTVRMEN
Enable (default)	1
Disable	0

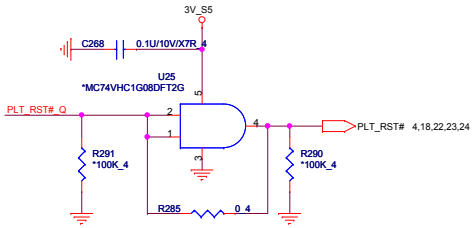
ACZ_SDOUT (INT PD)	ACZ_SYNC (INT PD)	Description
0	0	★ 4 x 1s
1	0	Reserved
0	1	Reserved
1	1	1 x 4s(1 port/4 lanes)

Board ID

Board ID For Function	ID3 GPIO39	ID2 GPIO38	ID1 GPIO34	ID0 GPIO33
SDV	0	0	0	0
SIV	0	0	0	1
SIT	0	0	1	0
SVT	0	0	1	1
SOVP	0	1	0	0







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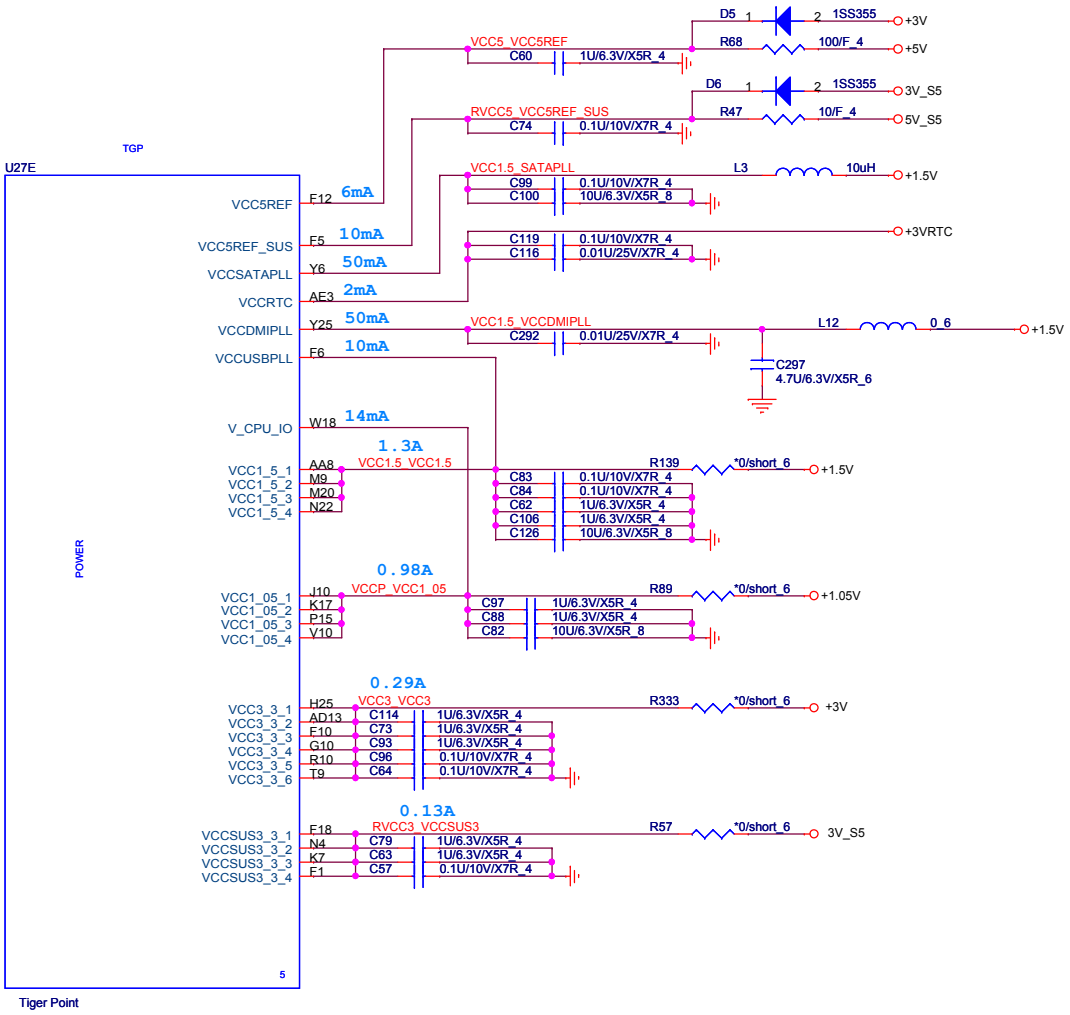

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PROJECT : Mariana 3.0			
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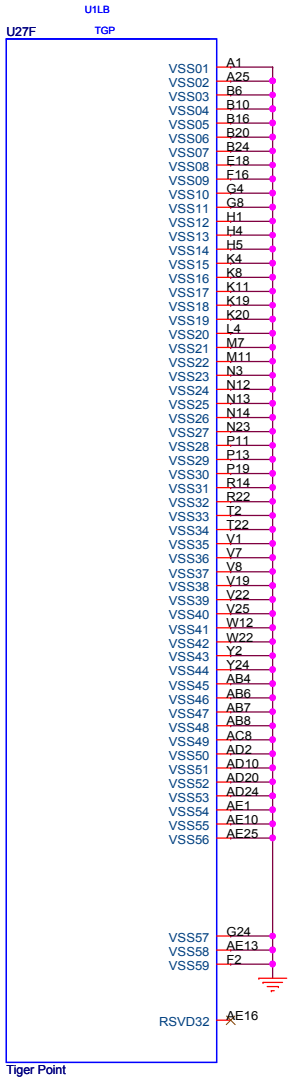

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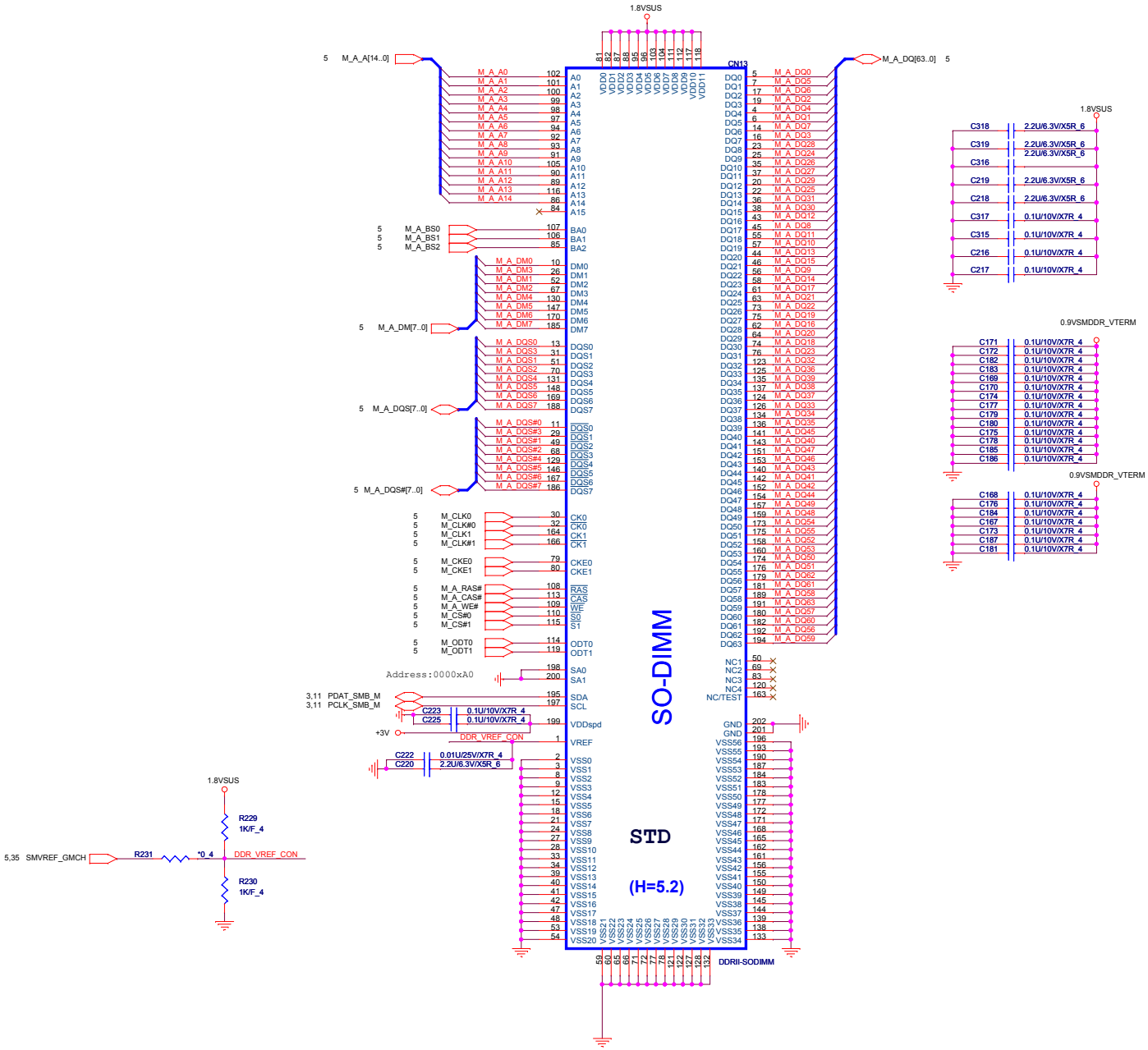

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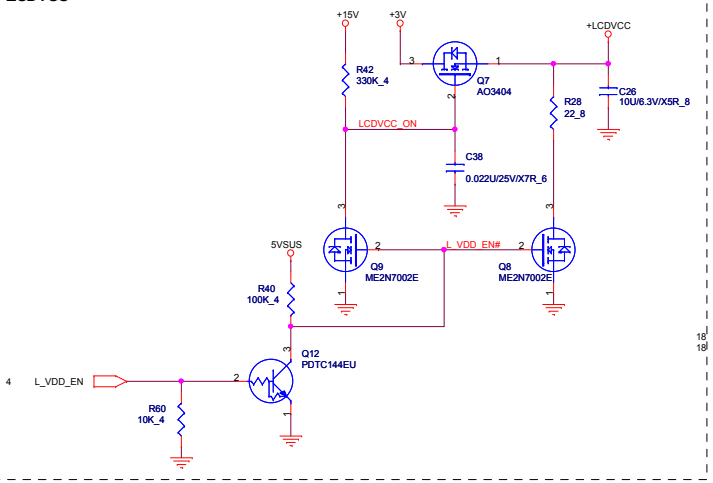
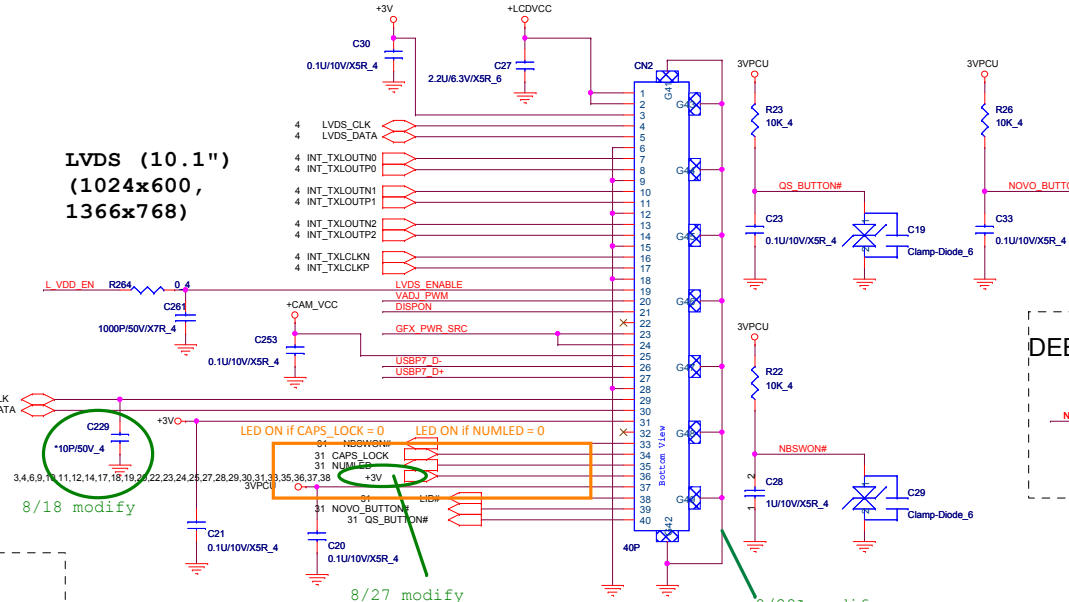
LCDVCC



LVDS (10.1") (1024x600, 1366x768)

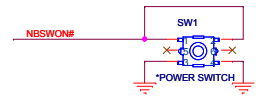


8/18 modify

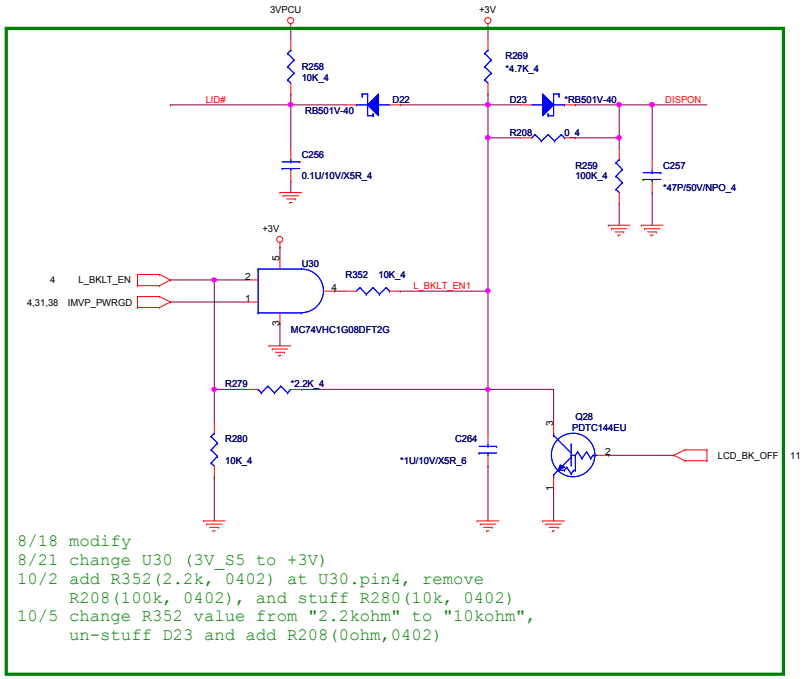
8/27 modify
original RSVD_LED#, changed as +3V

8/28A modify
change LVDS connector symbol,
add pin.41~pin.49 (GND)

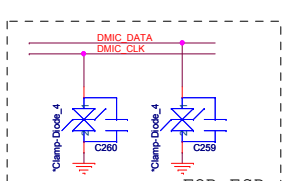
DEBUG POWER SWITCH



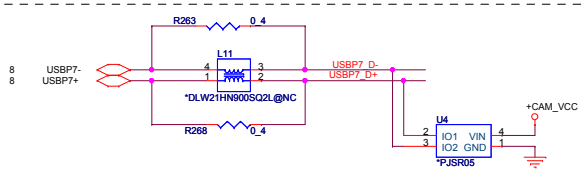
back light



8/18 modify
8/21 change U30 (3V_S5 to +3V)
10/2 add R352(2.2k, 0402) at U30.pin4, remove
R208(100k, 0402), and stuff R280(10k, 0402)
10/5 change R352 value from "2.2kohm" to "10kohm",
un-stuff D23 and add R208(0ohm,0402)



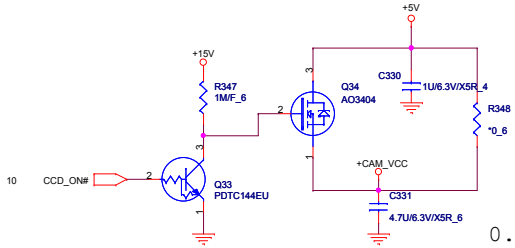
FOR ESD



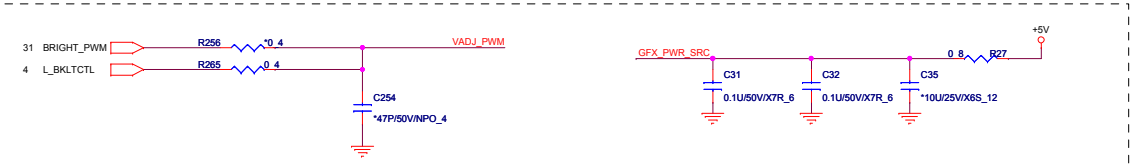
FOR ESD

CAMERA VCC Control

8/21 Modify (add CCD_ON# Power Switch)



0.15A



Quanta Computer Inc.
PROJECT : Mariana 3.0

Size	Document Number	Rev
Custom	LCD + CAMERA CONN	1A
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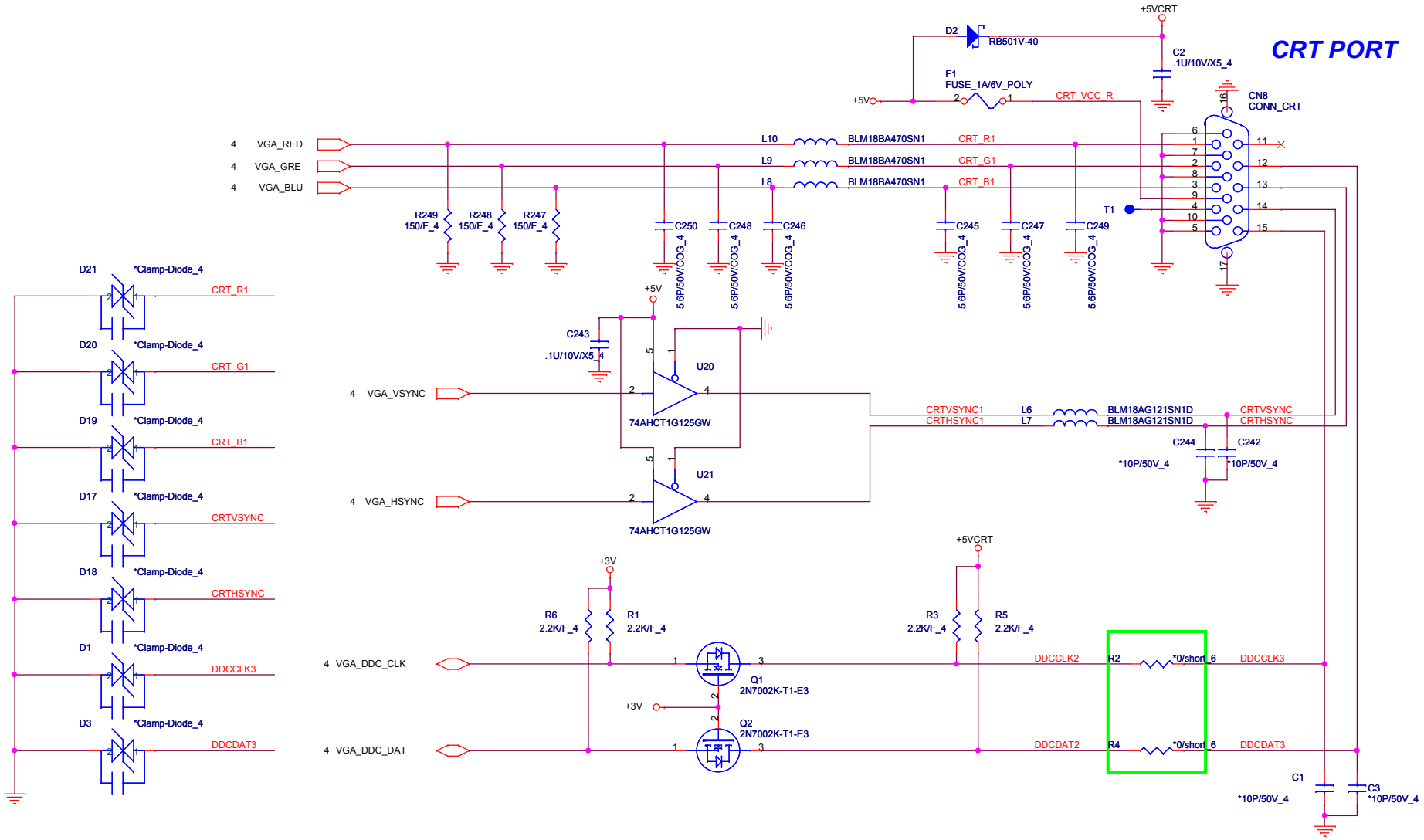

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PROJECT : Mariana 3.0

Size	Document Number	Rev
Custom	CRT CONN	1A
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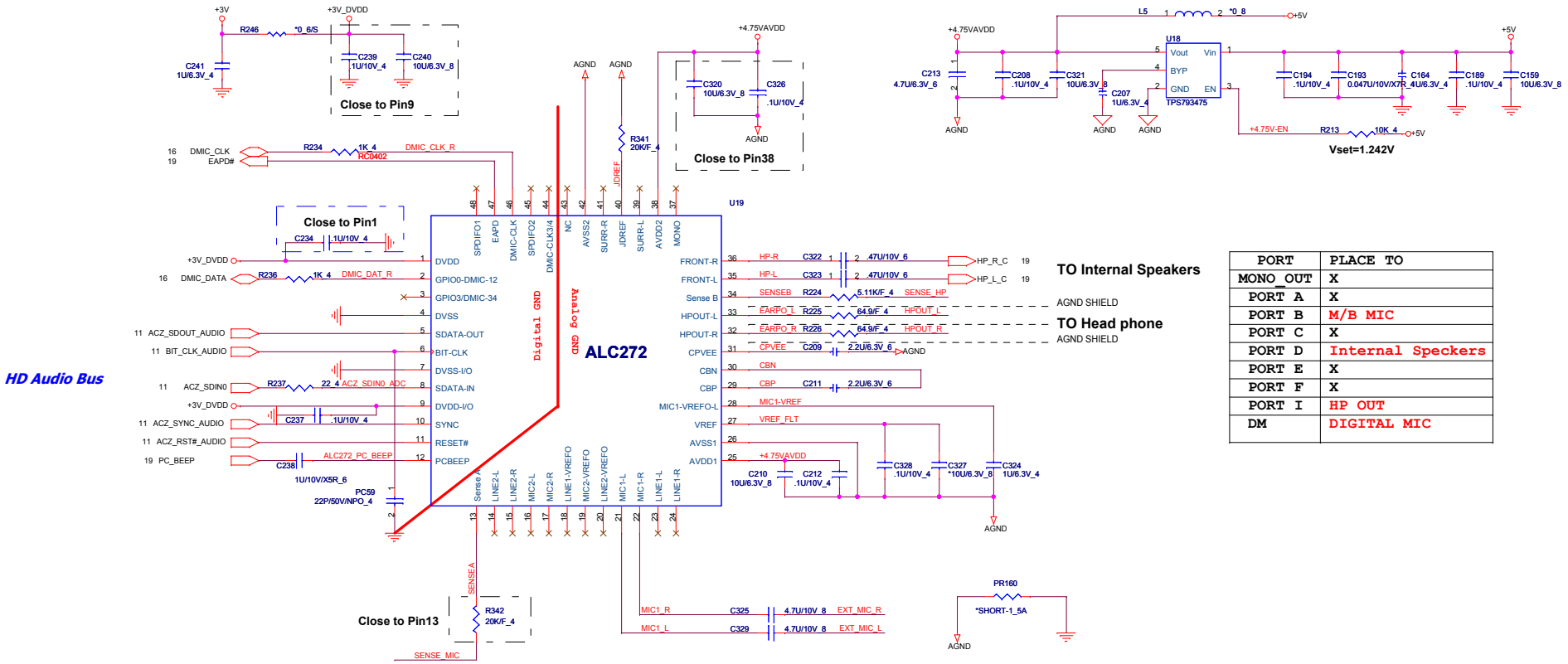
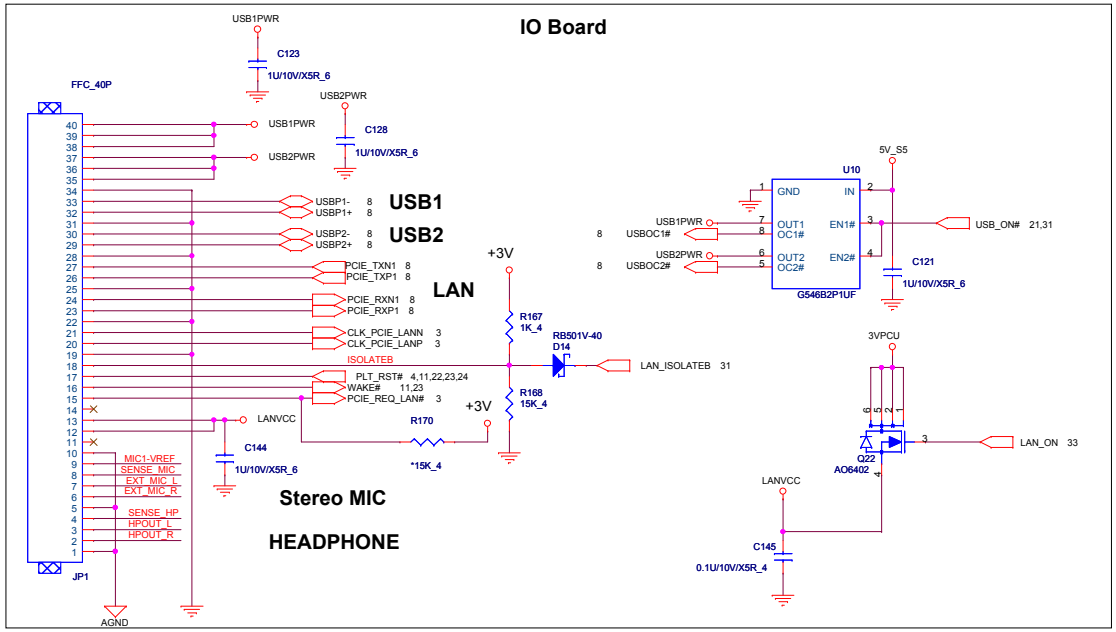


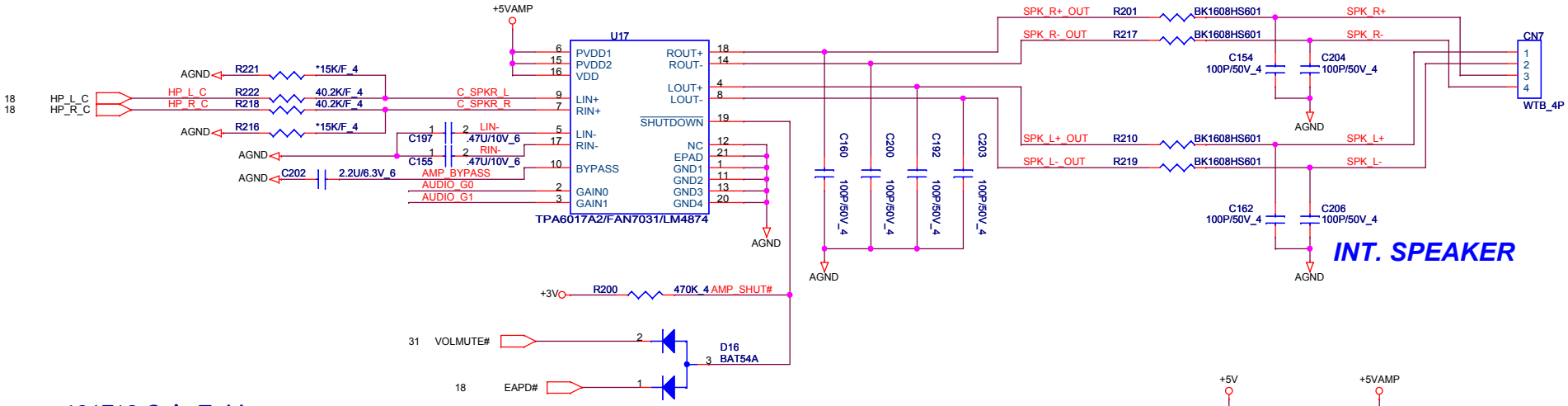
PORT	PLACE TO
MONO_OUT	X
PORT A	X
PORT B	M/B MIC
PORT C	X
PORT D	Internal Speckers
PORT E	X
PORT F	X
PORT I	HP OUT
DM	DIGITAL MIC



Quanta Computer Inc.

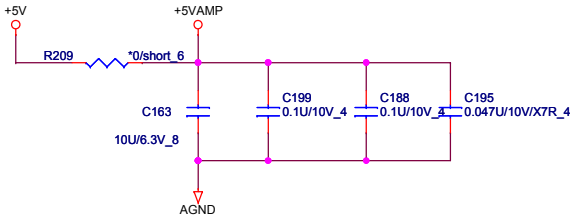
PROJECT : Mariana 3.0

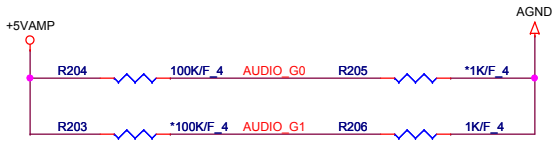
Size	Document Number	Rev
Custom	AUDIO (ALC272)	1A
Date: Thursday, October 08, 2009	Sheet 18 of 40	

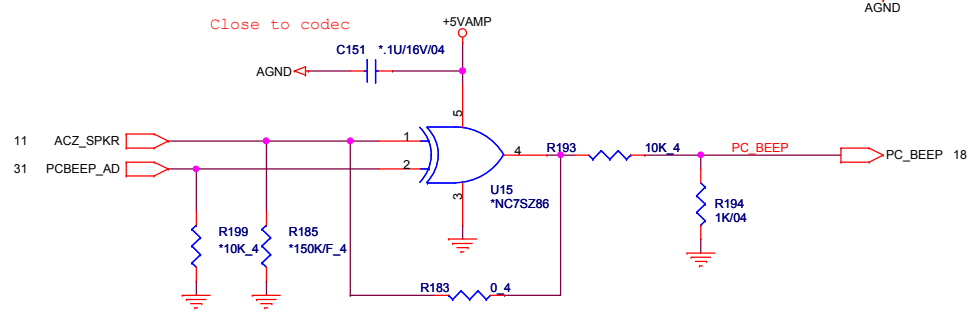


6017A2 Gain Table

GAIN0	GAIN1	AV(INV)
0	0	6dB
0	1	10dB
1	0	15.6dB
1	1	21.6dB







Quanta Computer Inc.

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Size	Document Number	Rev
Custom	AMP_TPA6017A	1A
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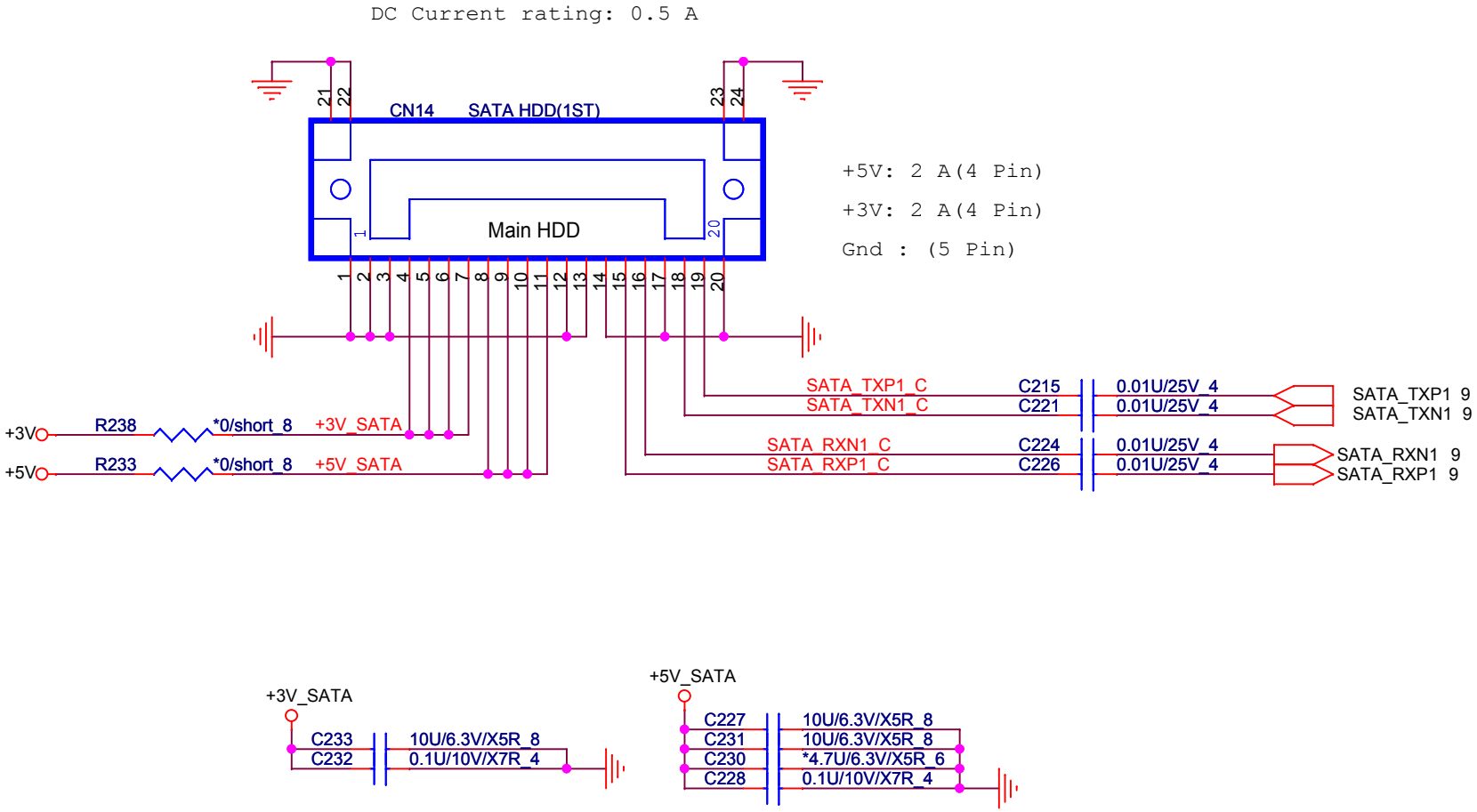
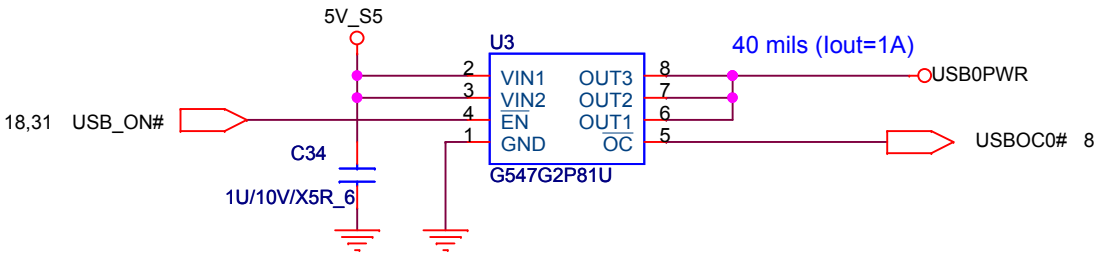
HDD

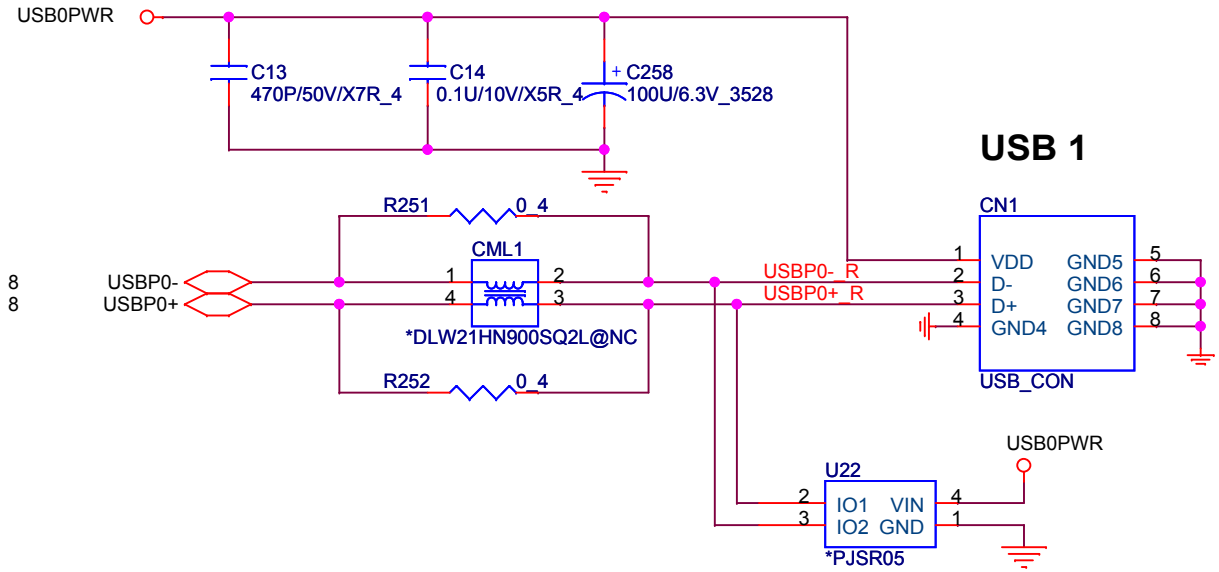


Quanta Computer Inc.

PROJECT : Mariana 3.0

Size	Document Number	Rev
Custom	SATA	1A
Date: Wednesday, October 14, 2009	Sheet 20 of 40	





Quanta Computer Inc.

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Size	Document Number	Rev
Custom	USB	1A
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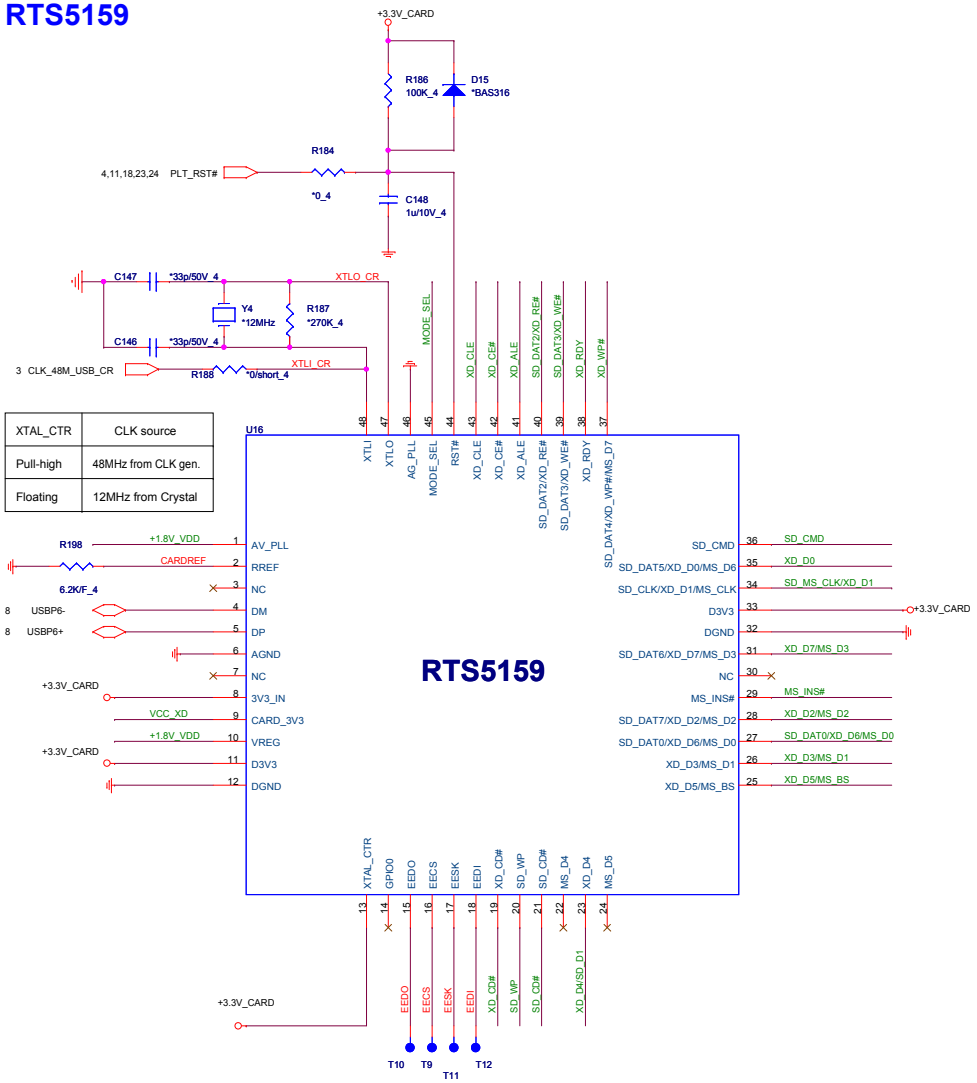
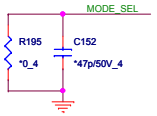
RTS5159



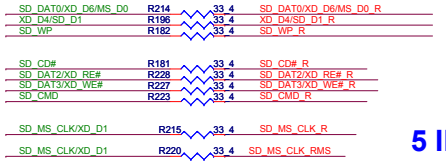
XTAL_CTR	CLK source
Pull-high	48MHz from CLK gen.
Floating	12MHz from Crystal



MODE_SEL Table (Please refer to Realtek Application Notes for more detail description)

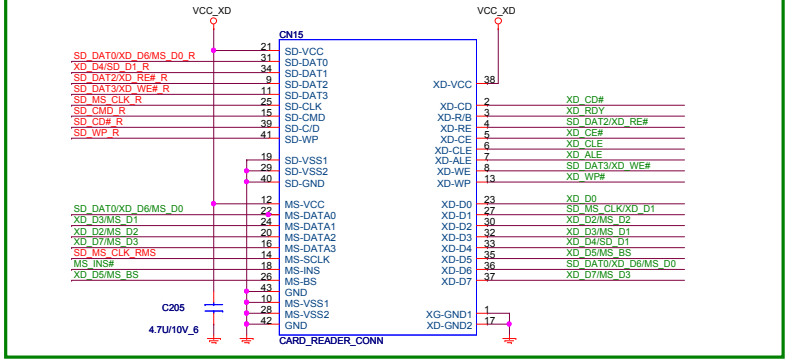
	R195	C152	Power mode	SD_D1 Out From
RTS 5158E	NC	NC	Power Saving	Pin23
RTS 5159	0 ohm	NC	Power Saving	Pin23

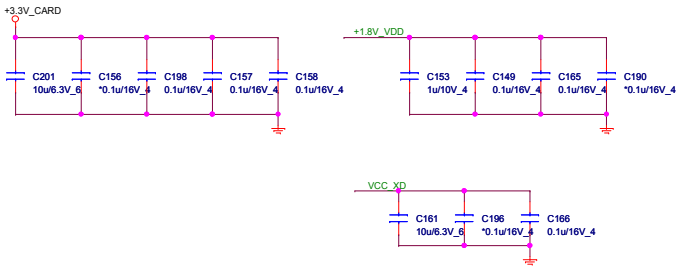
Power Saving mode need install Realtek icon driver.
USB Hotfix KB941600 is also needed for Vista SP0 but SP1.

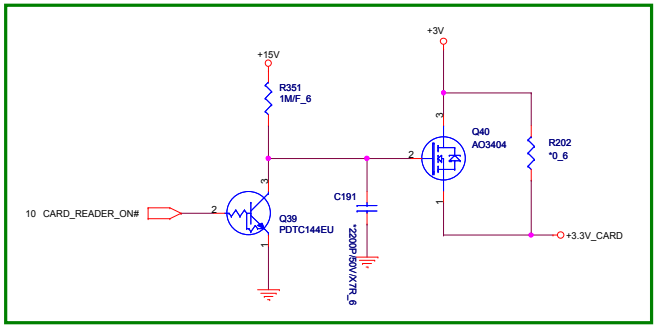


5 IN 1 CARD READER

10/01: change card reader connector from 3in1 to 5in1







8/21 Modify Card_Reader_On# Power Switch

Quanta Computer Inc.
PROJECT : Mariana 3.0
Size: Custom | Document Number: RTS5159 CardReader | Rev: 1A
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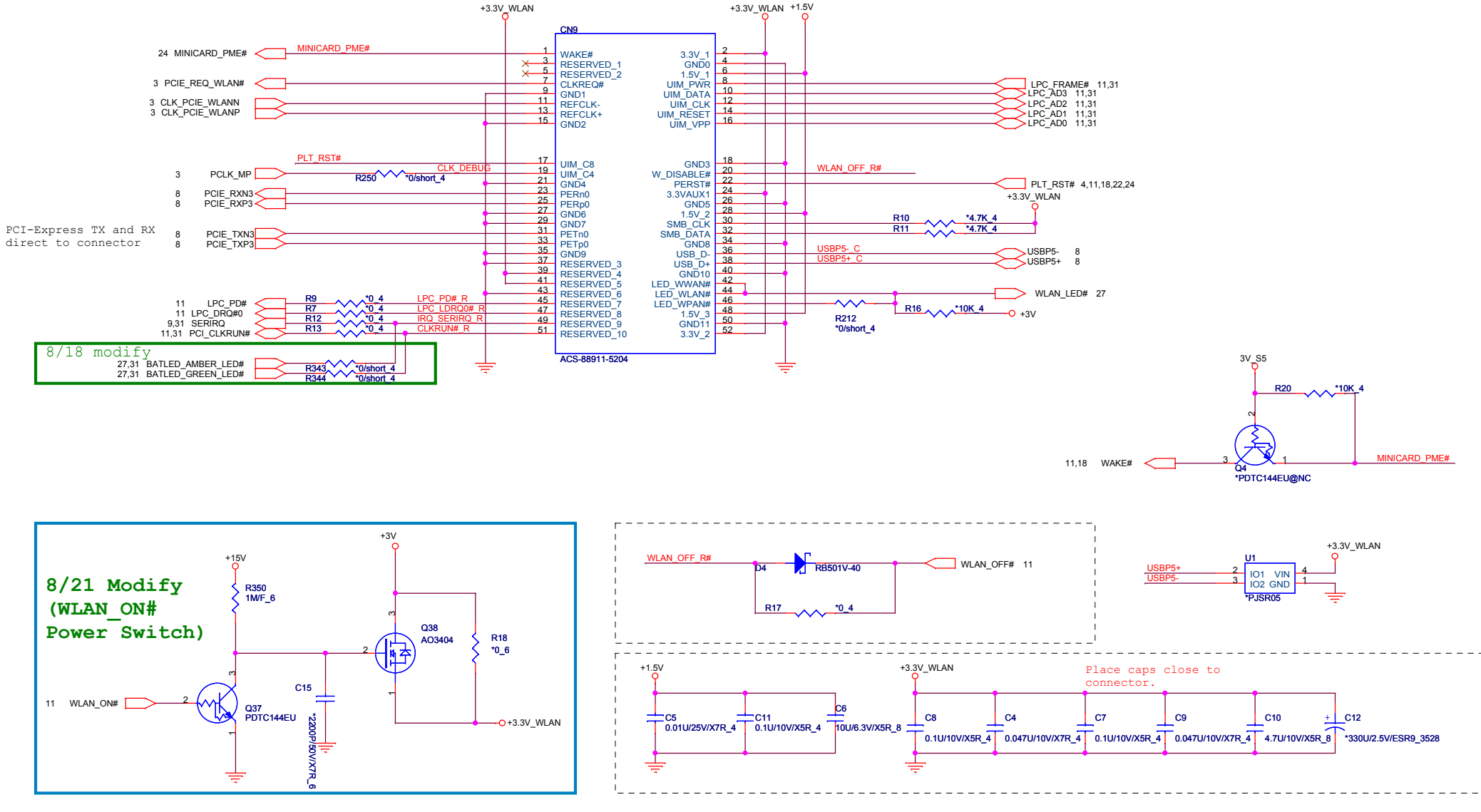
MiniCard WLAN connector



Quanta Computer Inc.

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Custom	WLAN	1A
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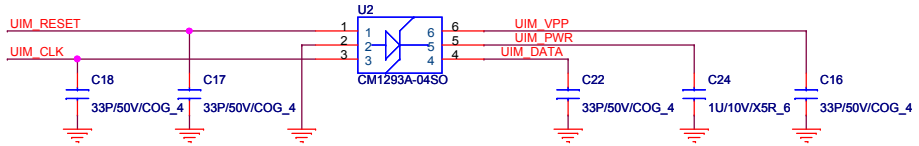
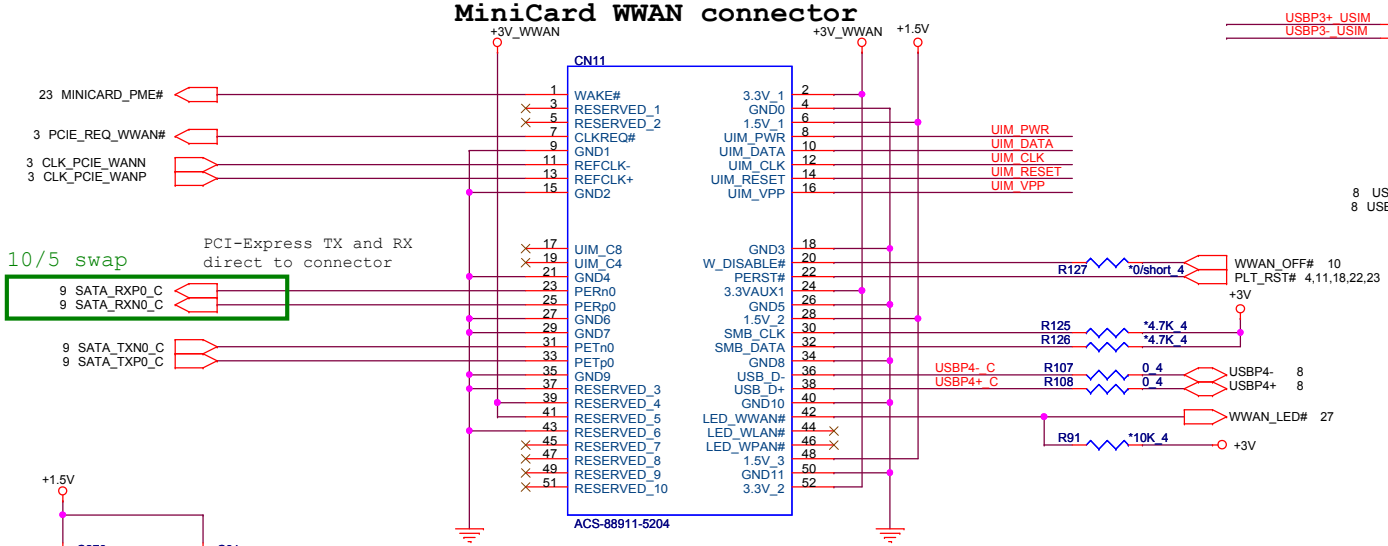
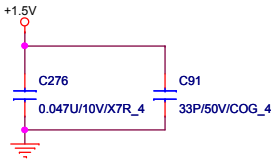
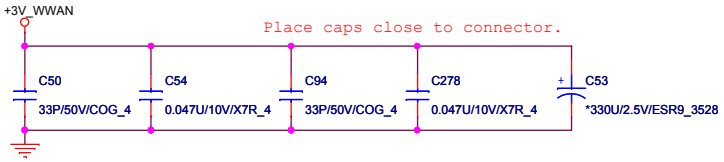
Layout Note:
UIM_RESET,UIM_CLK,UIM_DATA routting as short as possible

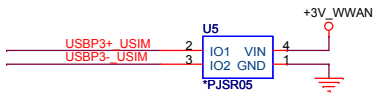


MiniCard WWAN connector

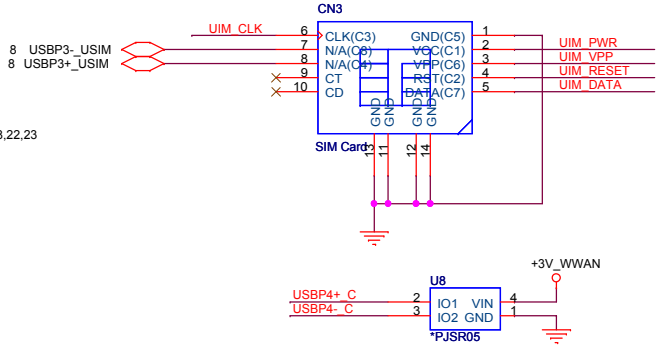


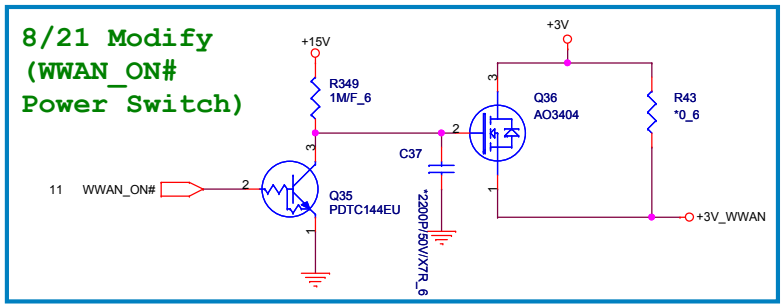






SIM Card CONN





Quanta Computer Inc.
PROJECT : Mariana 3.0
Size: Custom
Document Number: WWAN
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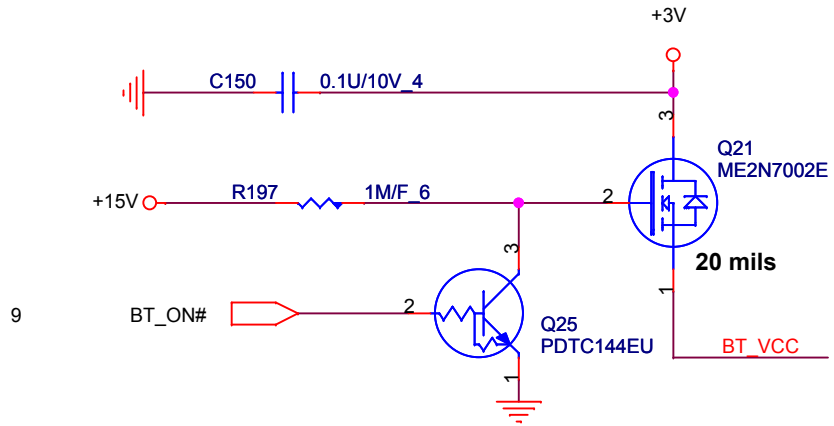
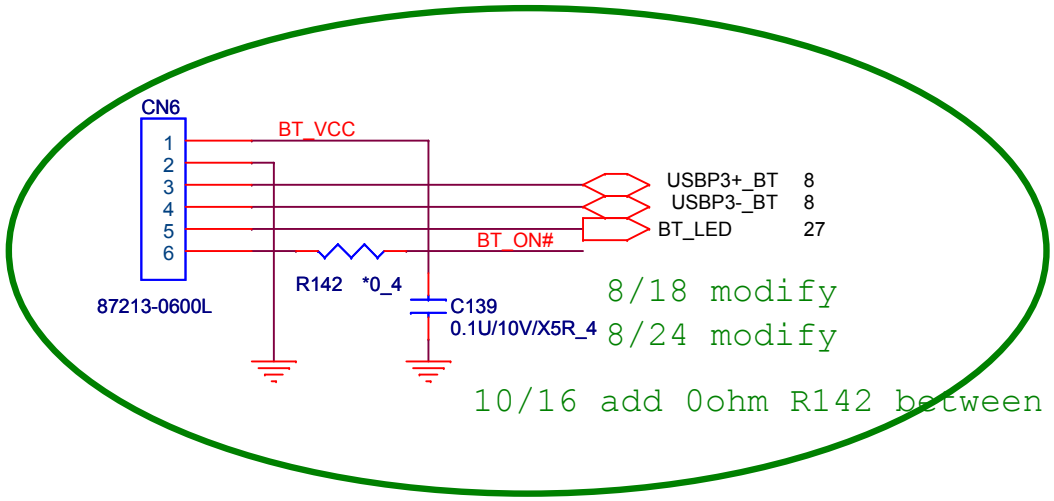
BLUETOOTH





Quanta Computer Inc.

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Custom	BLUETOOTH	1A
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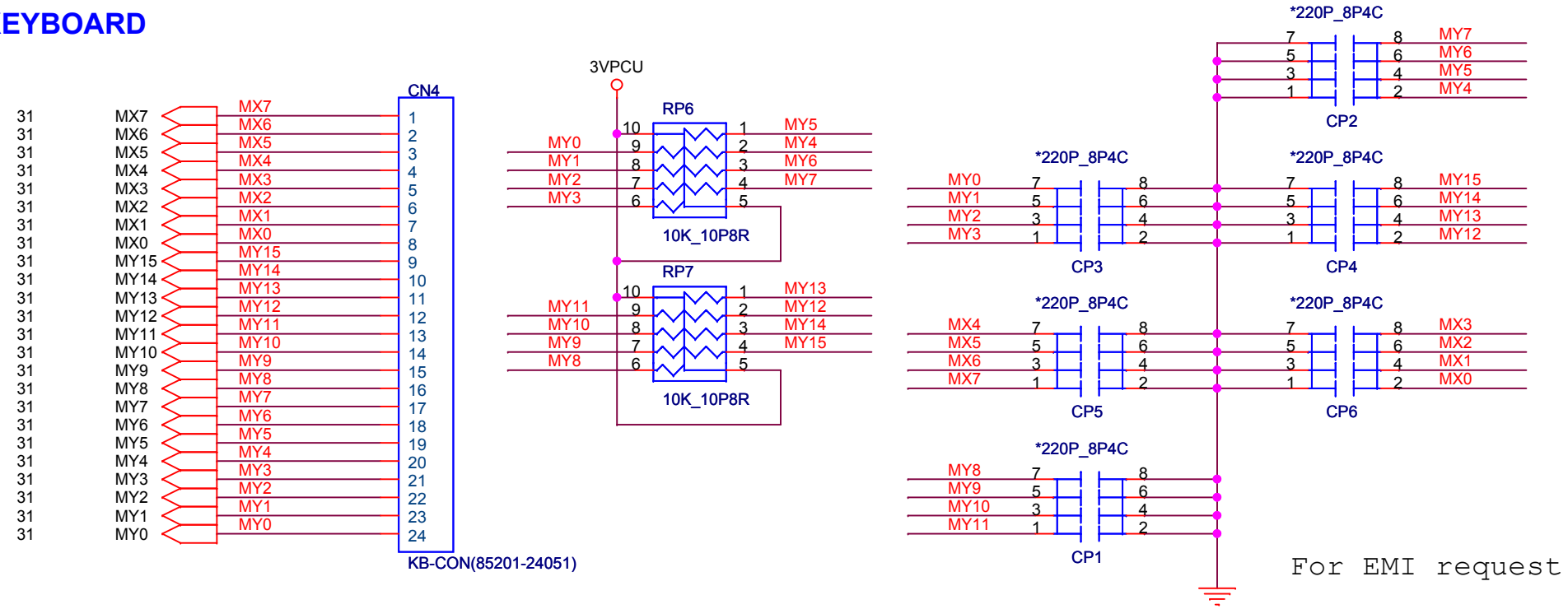
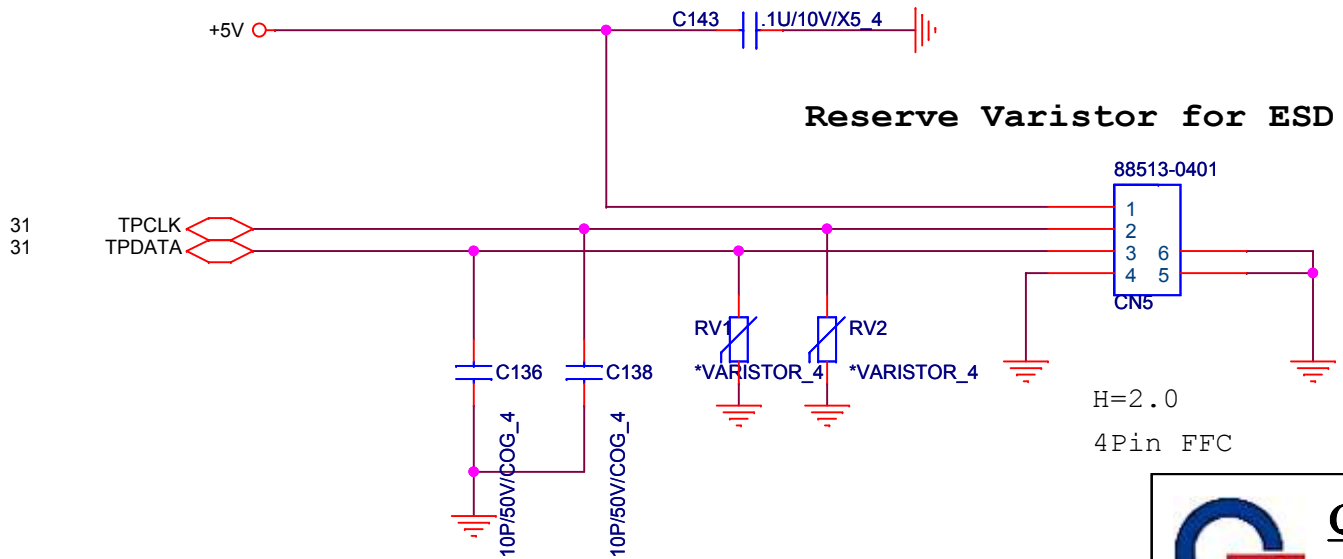
KEYBOARD



Touch pad



Quanta Computer Inc.

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Size	Document Number	Rev
Custom	KB/TP	1A
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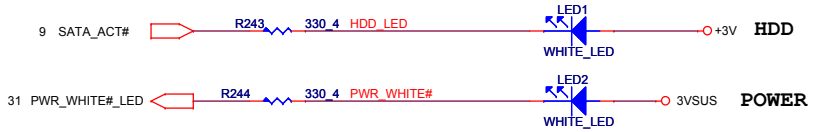

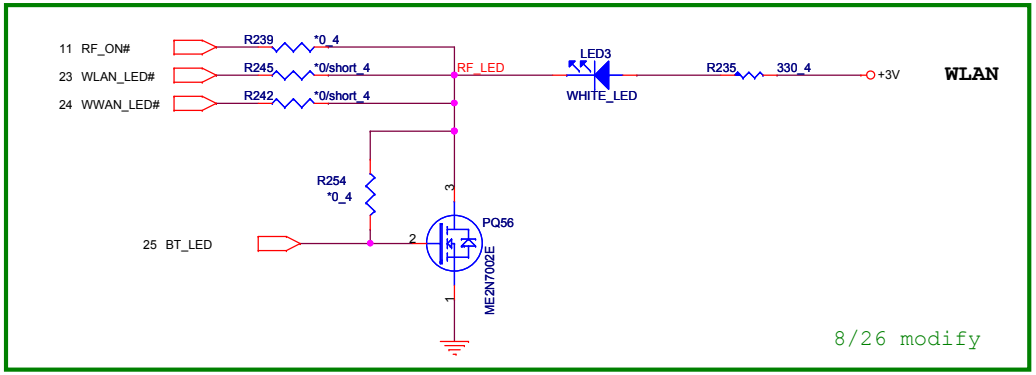

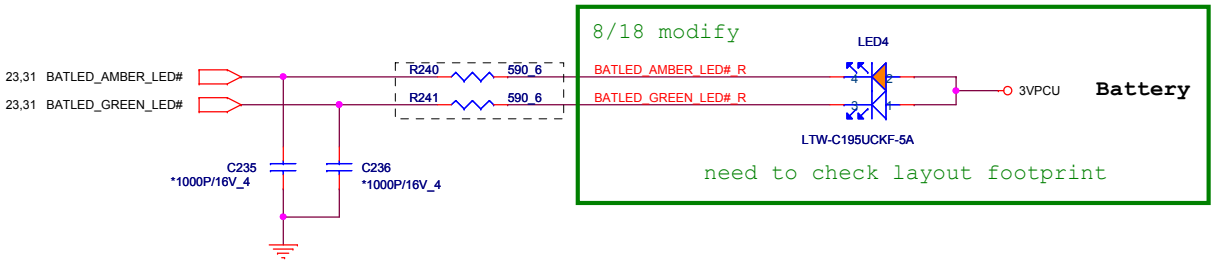

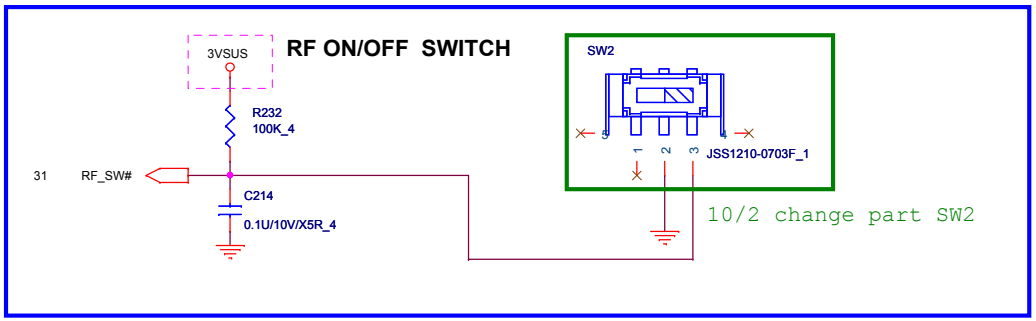

Quanta Computer Inc.

PROJECT : Mariana 3.0

Size	Document Number	Rev
Custom	SW/LED/Other	1A
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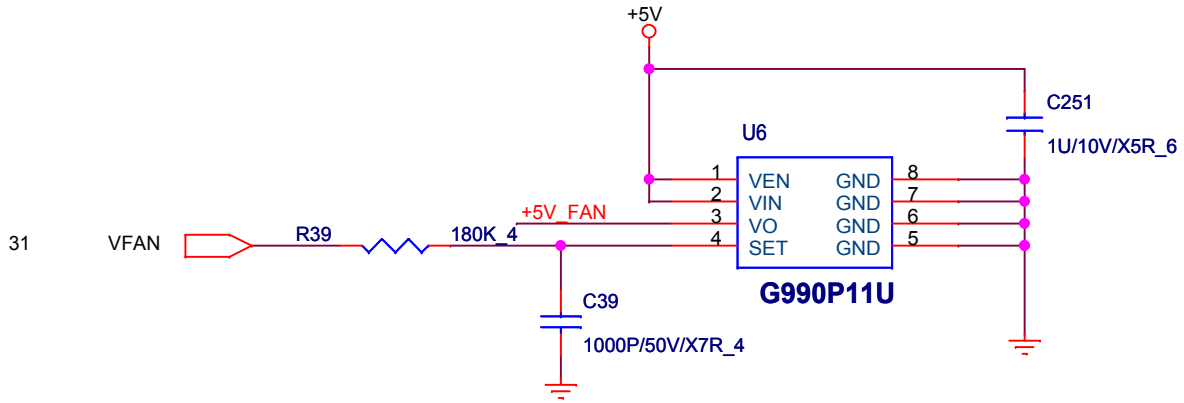

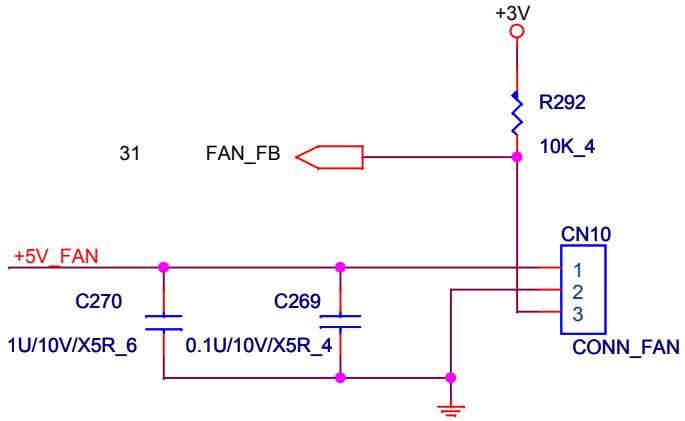

Quanta Computer Inc.		
PROJECT : Mariana 3.0		
Size: Custom	Document Number: FAN	Rev: 1A
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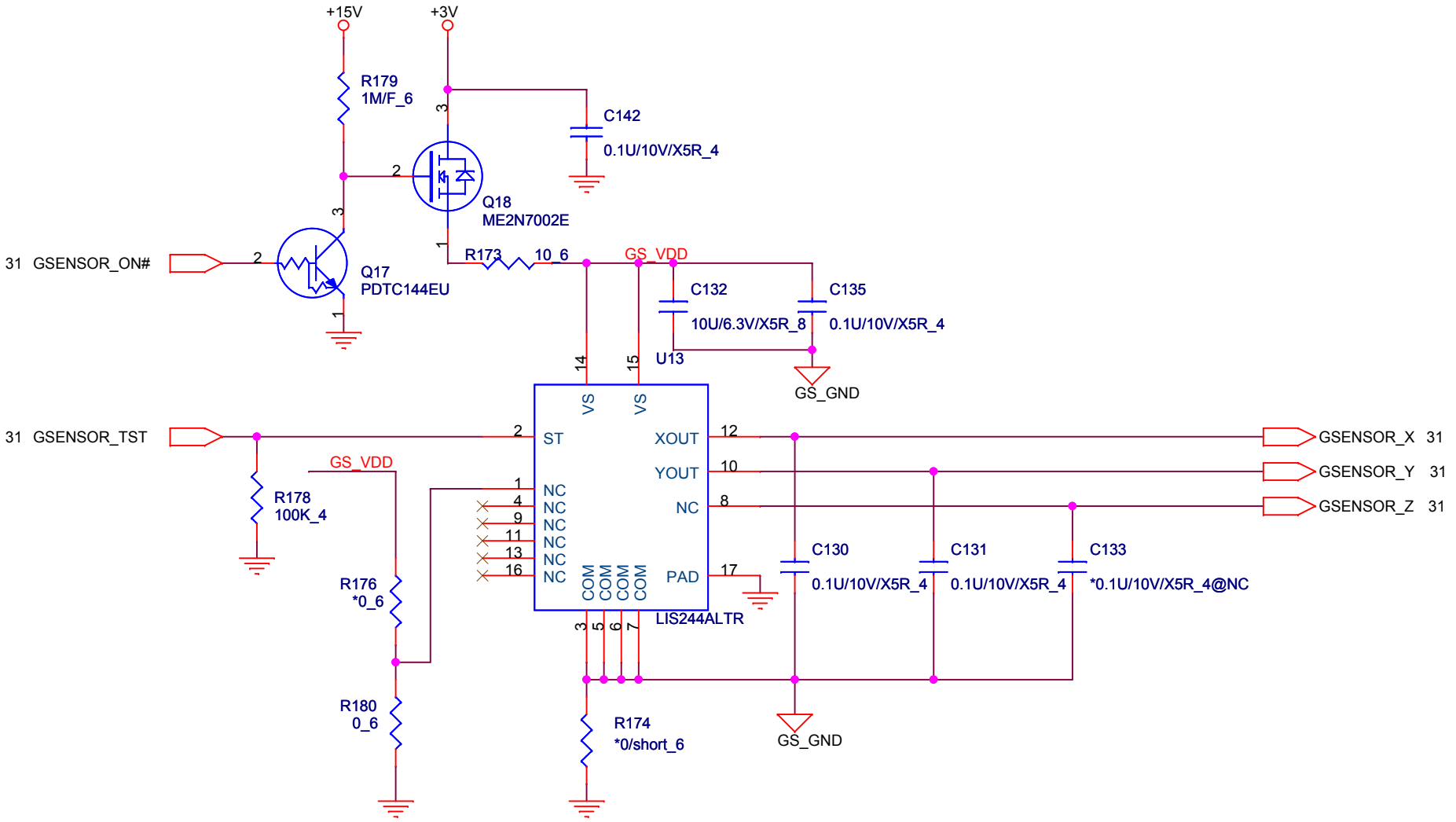

Quanta Computer Inc.		
PROJECT : Mariana 3.0		
Size: Custom	Document Number: G-SENSOR	Rev: 1A
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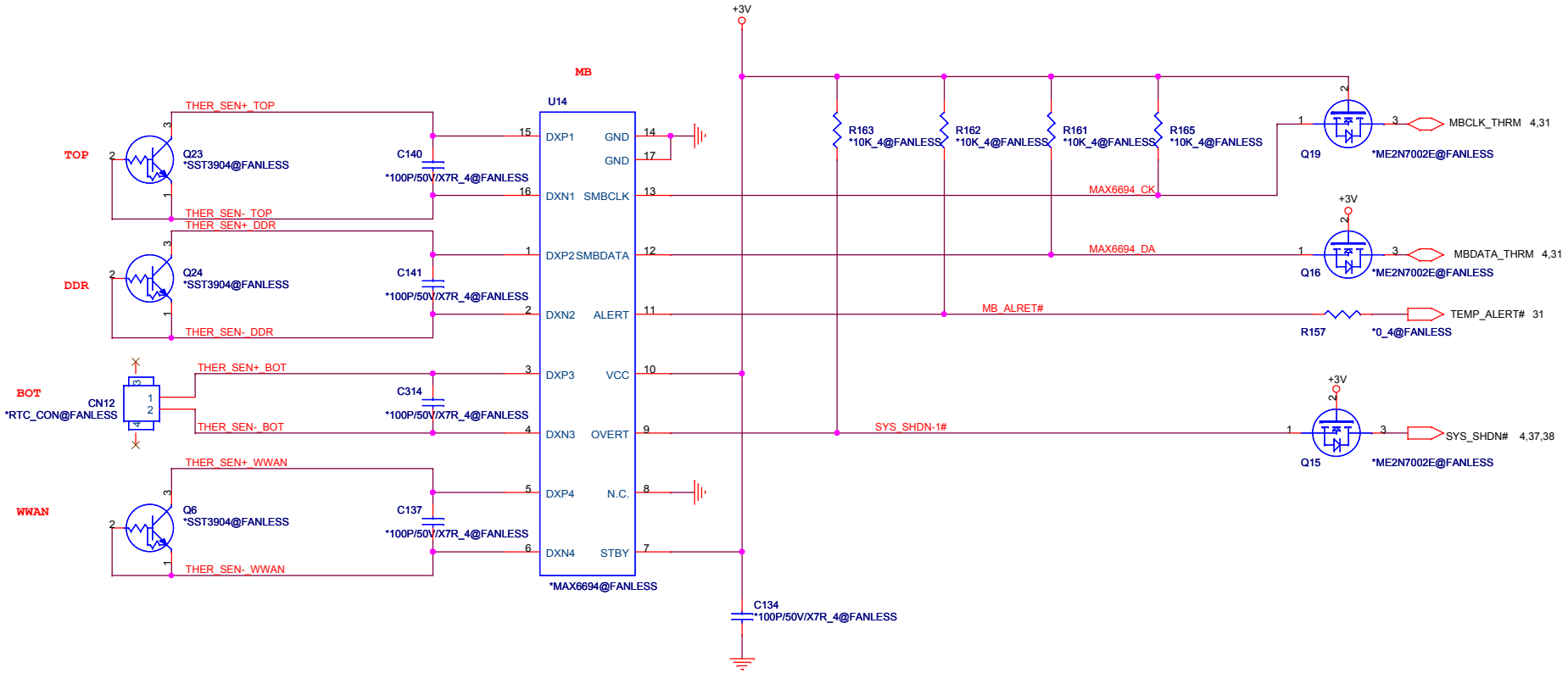
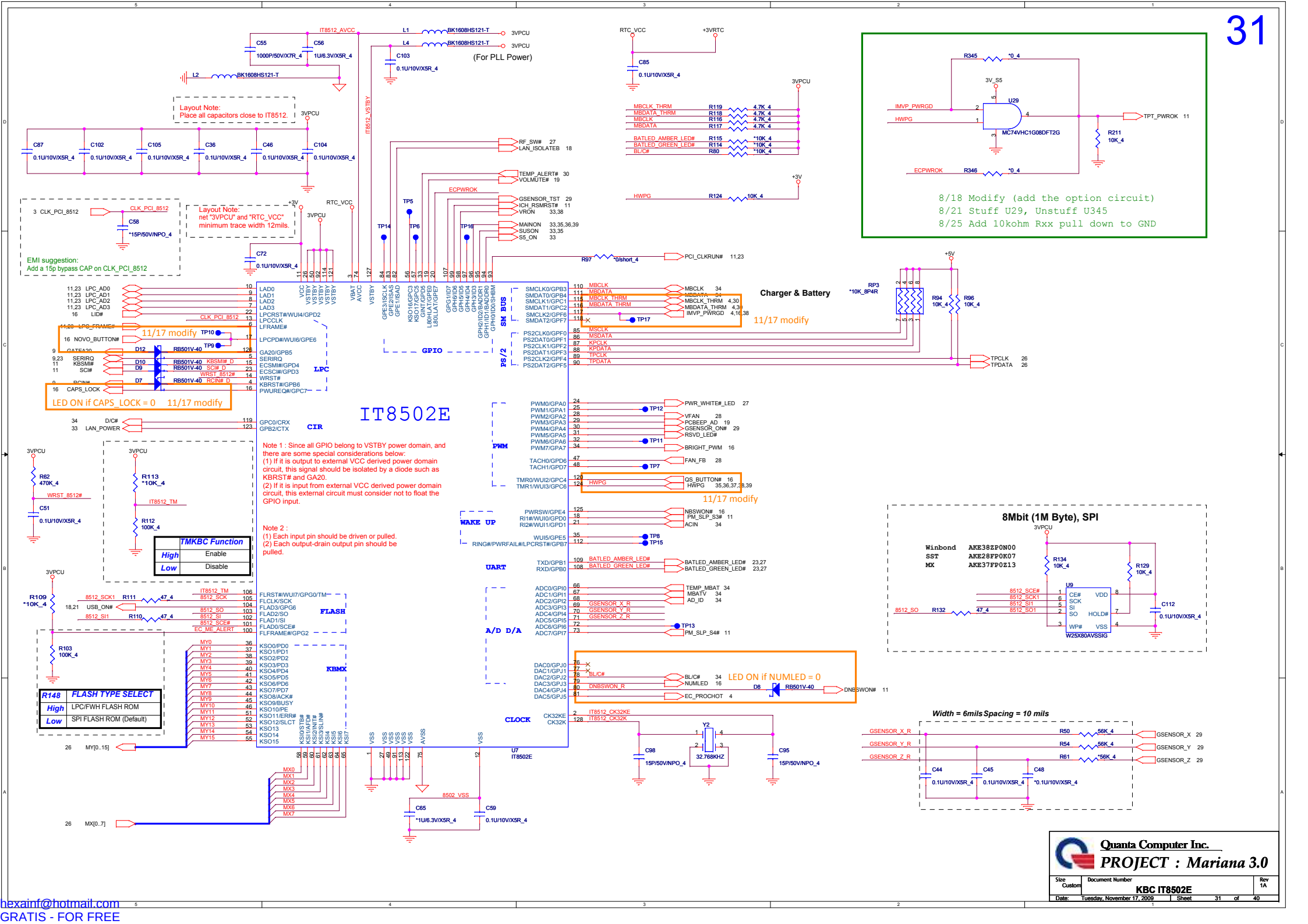


Quanta Computer Inc.		
PROJECT : Mariana 3.0		
Size: Custom	Document Number: 5 Channel Thermal	Rev: 1A
Date: Thursday, October 08, 2009	Sheet 30 of 40	



SCREW HOLE

HOLE8

*H-C87D87N

HOLE3

*H-C87D87N

HOLE2

*H-TC197BC276D91P2

HOLE7

*H-TBSH-FL5D137X91P2

HOLE1

*H-C276D91P2

HOLE9

*H-C276D91P2

HOLE10

*H-C276D91P2

HOLE5

*H-TC236BC276D78P2

CPU

HOLE11

*H-C198D107P2

HOLE12

*H-C198I147D107P2

Mini PCIE

HOLE4

*H-TC197BC115D107P2

HOLE6

*H-TC197BC115D107P2

PAD1

*ESDPAD

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PROJECT : Mariana 3.0

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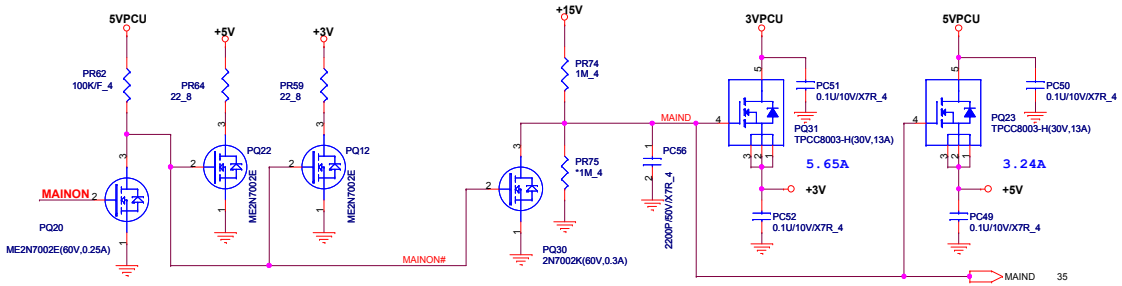
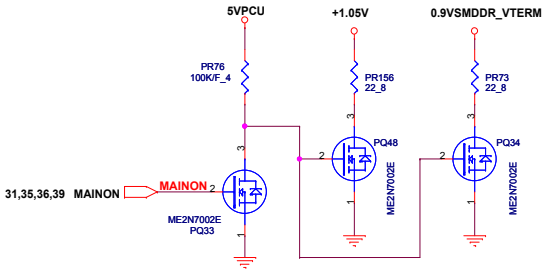
DISCHARGE

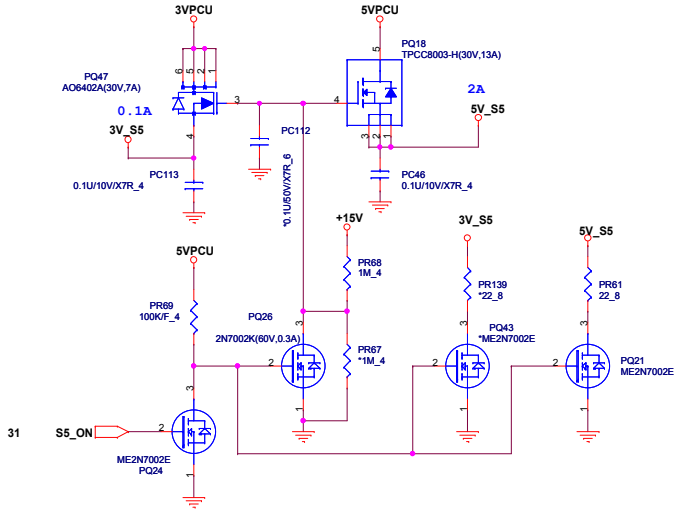
+3V, +5V



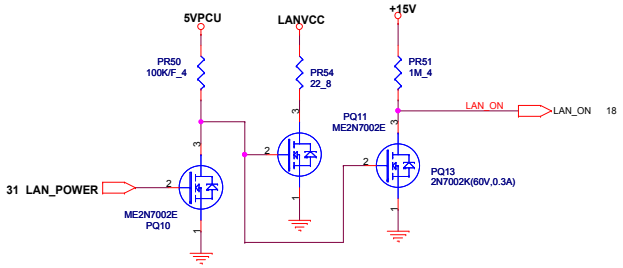
+1.05V, SMDDR_VTERM



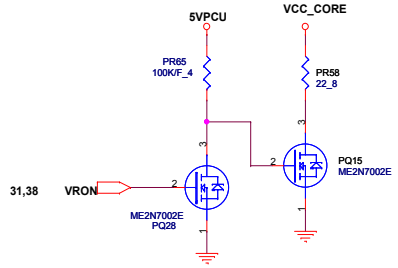
3V_S5, 5V_S5



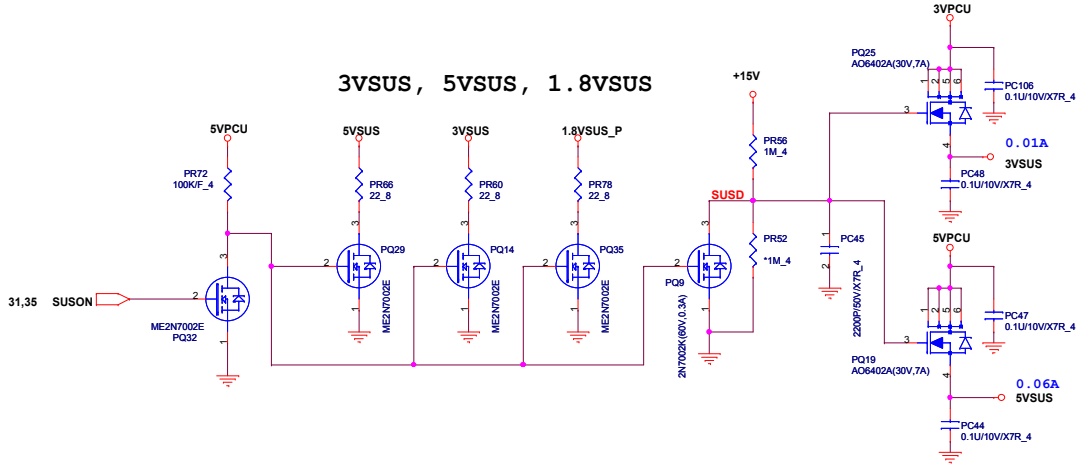
LANVCC



VCC_CORE



3VSUS, 5VSUS, 1.8VSUS



Quanta Computer Inc.

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Custom	Discharge	1A
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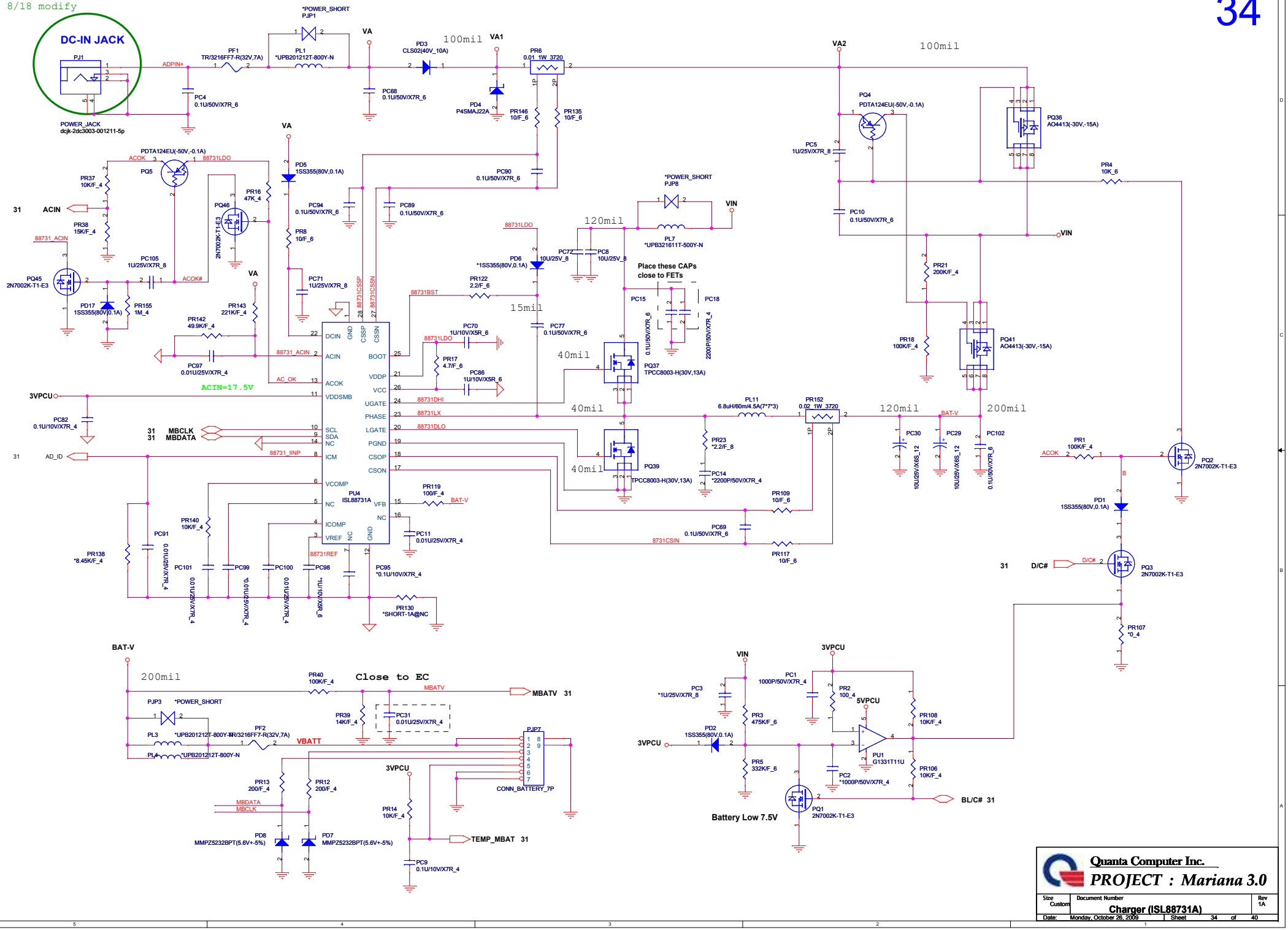
8/18 modify



Quanta Computer Inc.			
PROJECT : Mariana 3.0			
Size: Custom	Document Number: Charger (ISL88731A)		Rev: 1A
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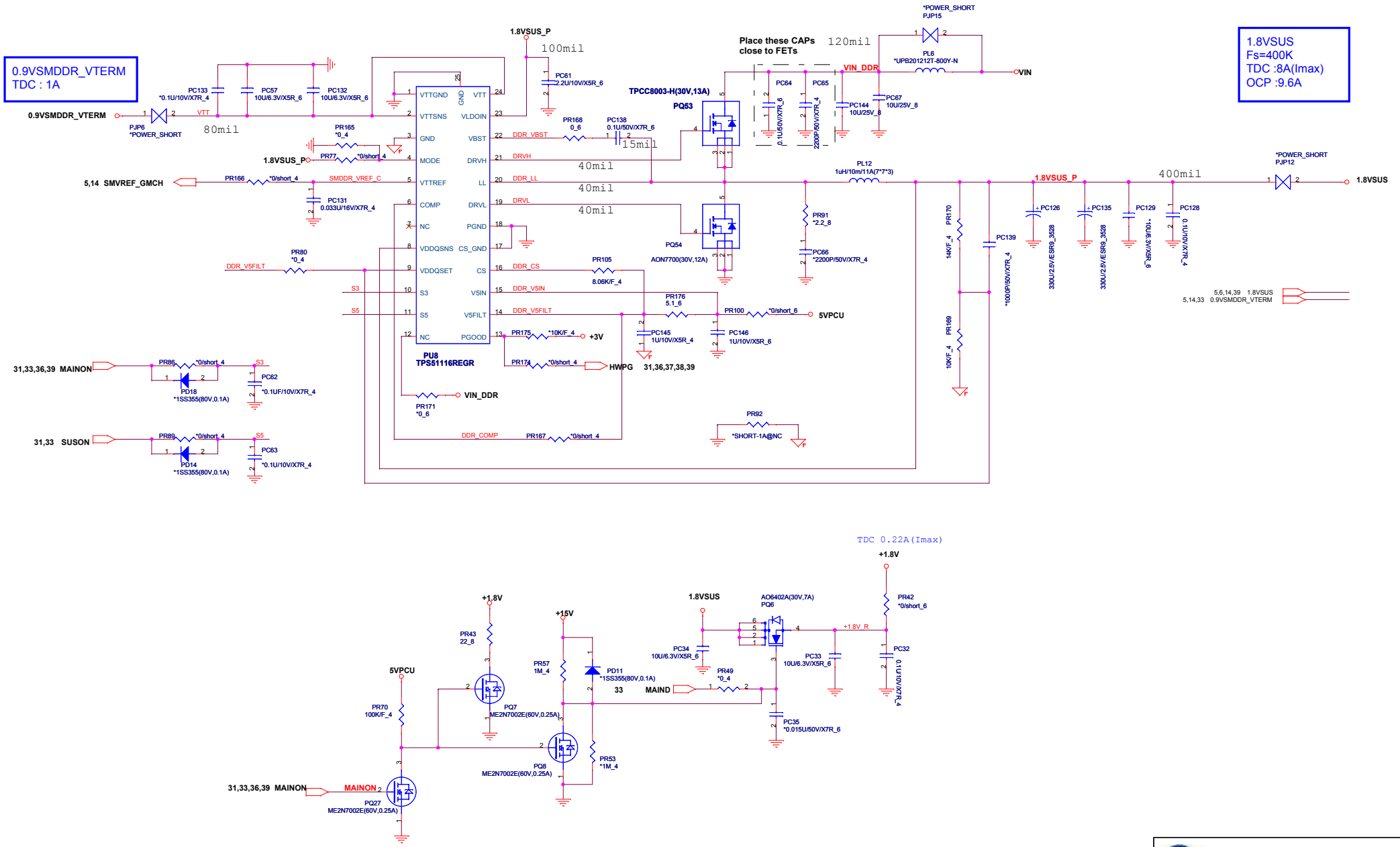

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Size	Document Number	Rev
Custom	DDR 1.8V(TPS51116)	1A
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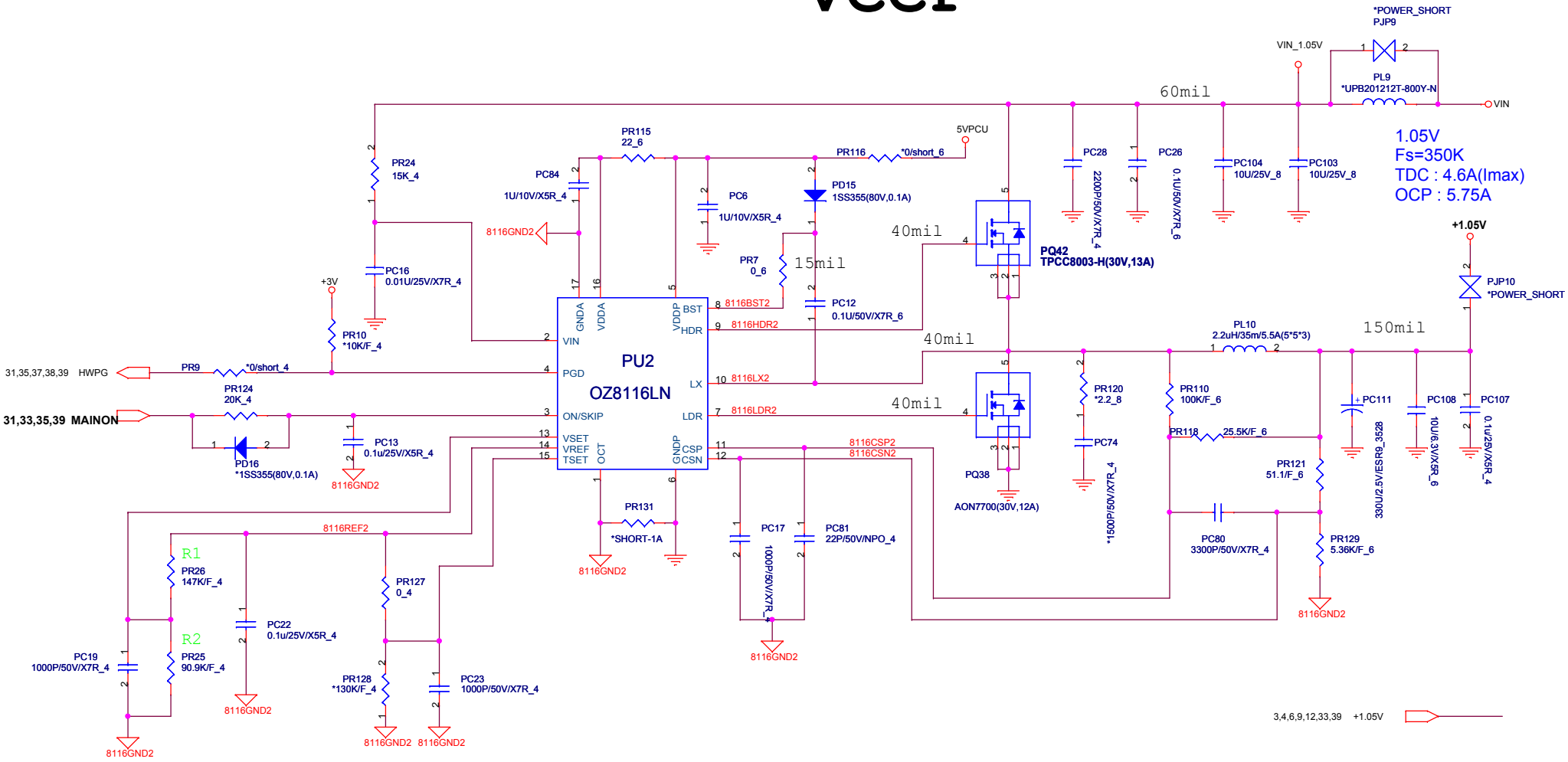
VCCP



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Size: Custom	Document Number: VCCP (OZ8116LN)		Rev: 1A
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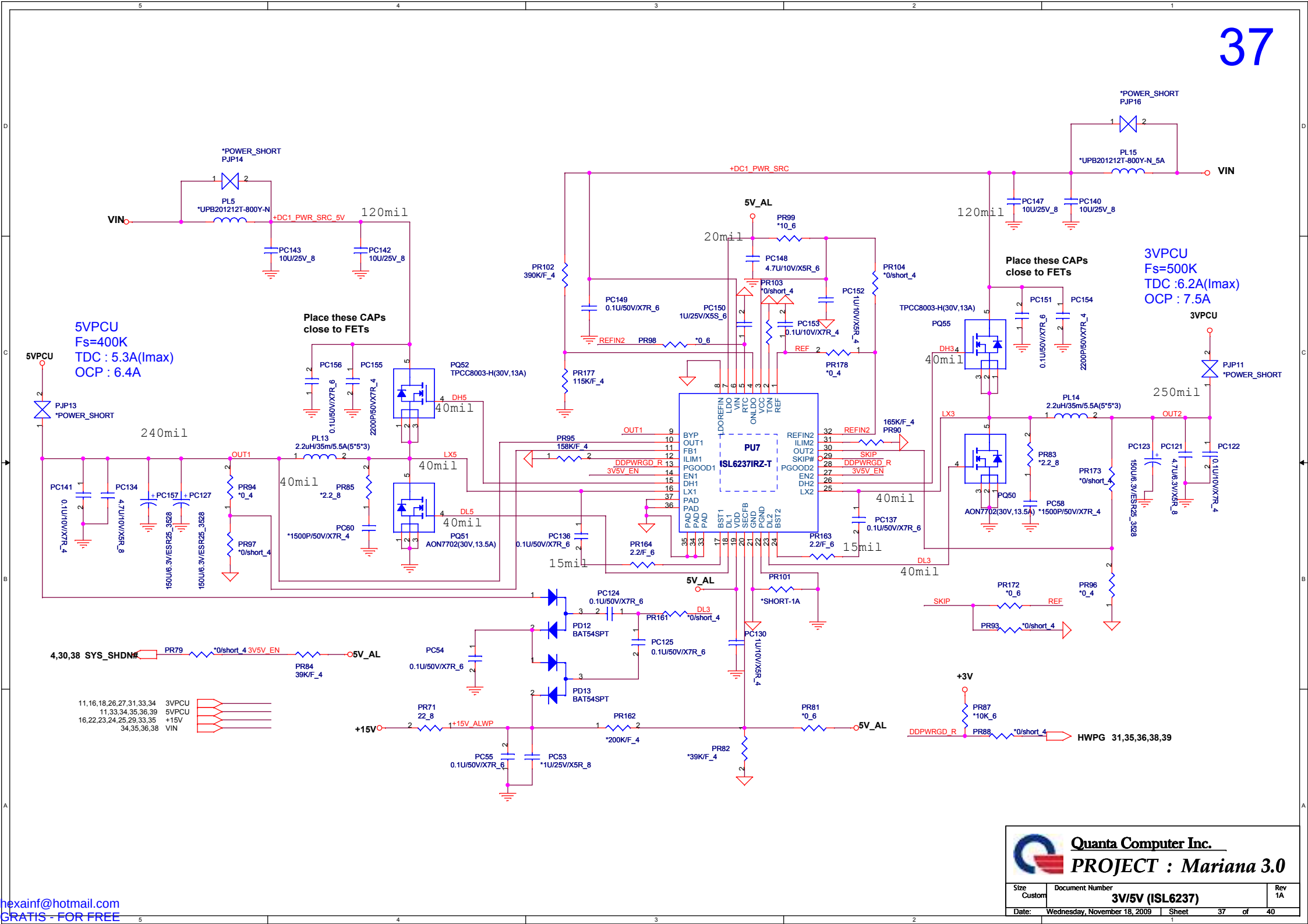

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PROJECT : Mariana 3.0

Size	Document Number	Rev
Custom	3V/5V (ISL6237)	1A
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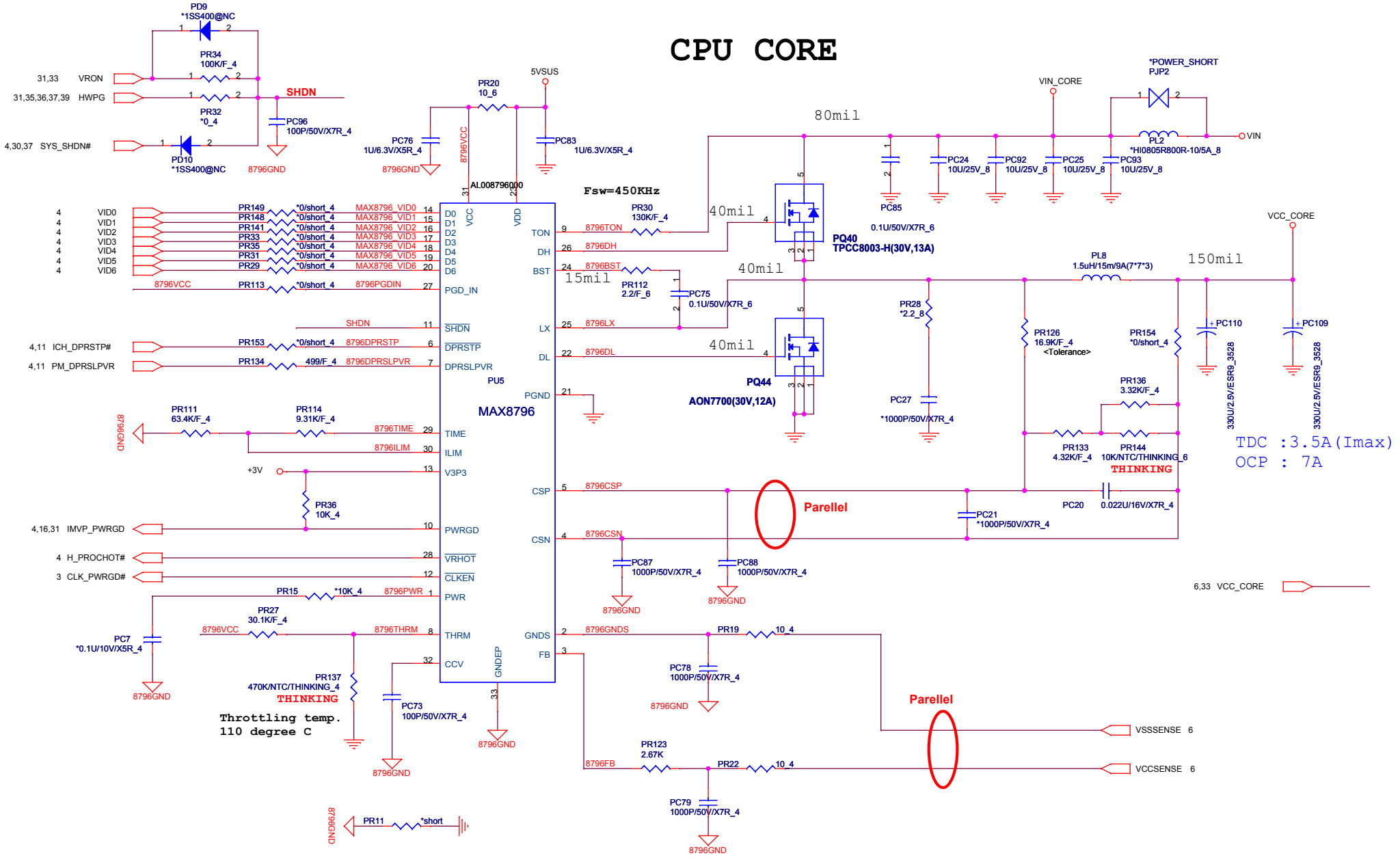
CPU CORE



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PROJECT : Mariana 3.0

Size	Document Number	Rev
Custom	VCore(MAX8796)	1A
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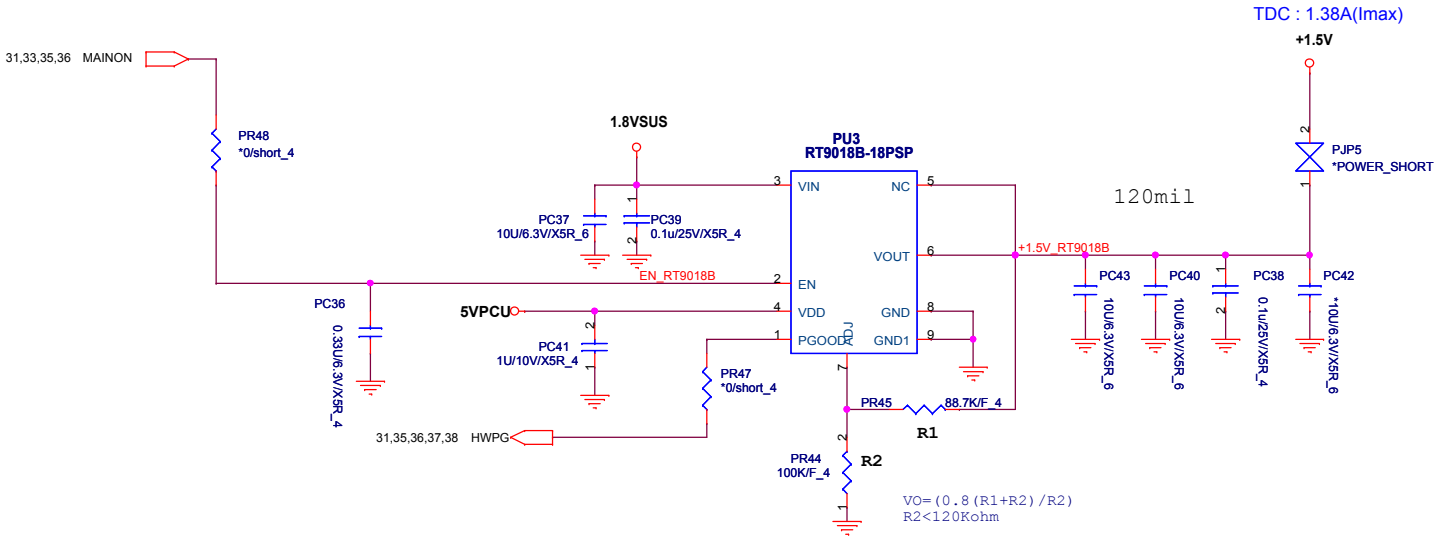
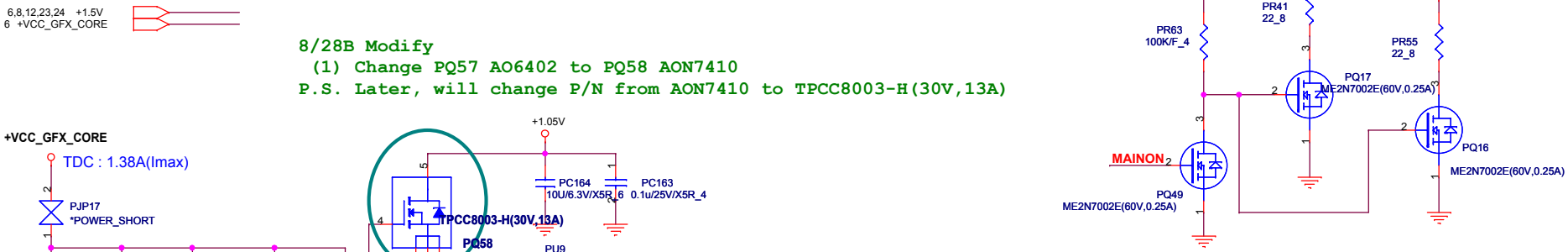
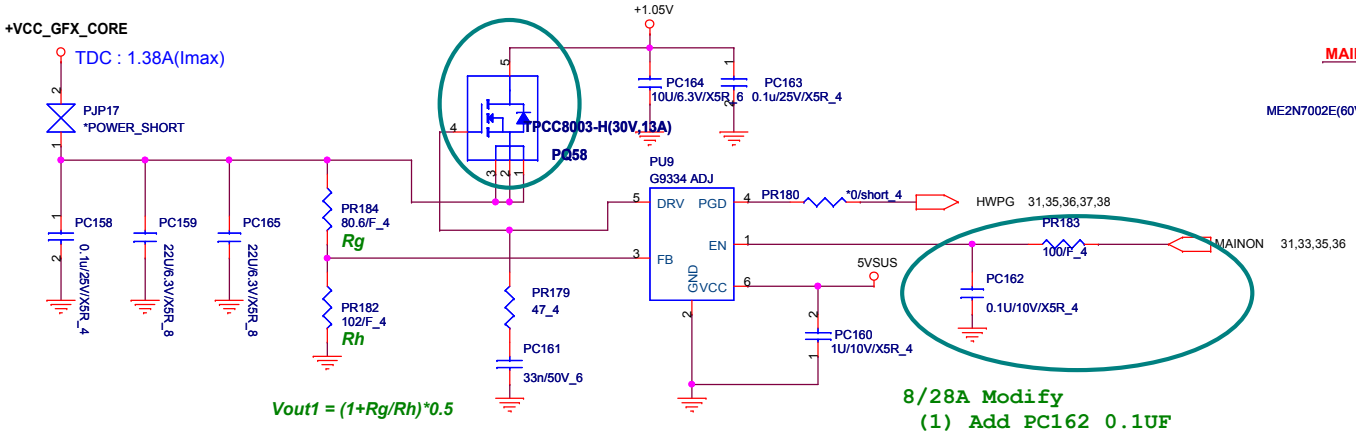




6,8,12,23,24 +1.5V
6 +VCC_GFX_CORE

8/28B Modify
(1) Change PQ57 AO6402 to PQ58 AON7410
P.S. Later, will change P/N from AON7410 to TPCC8003-H(30V,13A)



8/28A Modify
(1) Add PC162 0.1UF
(2) Change PR183 from 0 to 100

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PROJECT : Mariana 3.0

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