

# Lenovo Caucasus 2 (Pine Trail) Block Diagram

- VTERM(+0.9V)
- VTT(+1.05V)
- +1.5VSUS
- +1.5V
- +VCC18MEM
- +1.8V
- +2.5V
- 3VPCU
- +3.3V
- +3VS5
- LCD\_3.3V
- LCD\_5V
- +5V

XDP

Thermal Sensor

CRT

10.1" LCD  
TS Panel

Pineview  
Micro-FCBGA8

CPU VCOREIMVP 6

Clock Gengerator  
CK505M

DDR2  
533/667  
SO-DIMM  
(Up to 2GB)

- VID[0:6]
- +/- CPU\_CLK
- +/- HCLK
- DOT96\_CLK
- LCD\_CLK
- PE\_CLK
- MEMCLK0,1
- MEMCLK2,3
- CHA

RJ-45  
Ethernet LAN  
10/100/1000  
BCM57780

HP/Mic  
Int. DMic  
HDA CODEC  
CX20582-11Z

SPDIF  
Int. SPK  
1.5W X 2

APS  
LIS34ALTR

Int. KB

T/P

ITE  
IT8502

Battery

SPI  
Flash

Charger

Tigerpoint  
360-MMAP

SATA  
2.5" HDD/SSD

PCI-e  
Mini PCIe Slot

PCI-e/USB  
Mini PCIe Slot

USB  
Card Reader  
AU6433B52

USBX2  
USB PORT X 2

USB  
Camera Conn

USB  
BT Connector

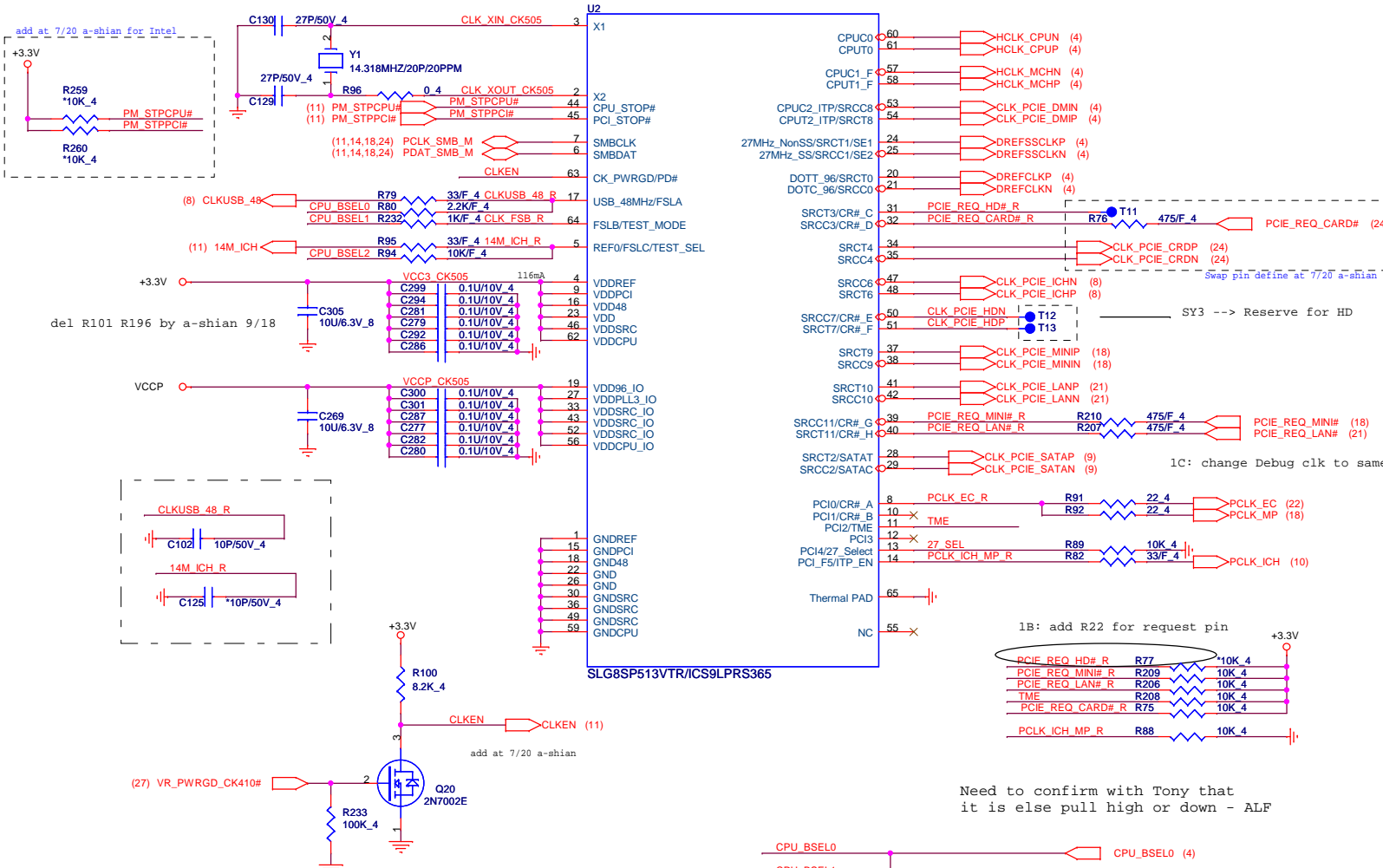
WLAN (Half)

WWAN / SIM (Fully)  
(Option DTV)

6 in 1 Card  
Reader Socket

Camera Module  
1.3M / VGA



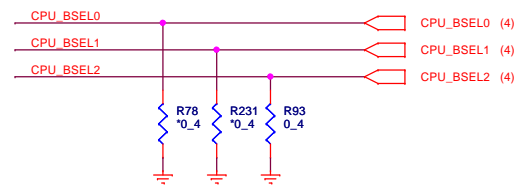


CLK REQ Mapping	REQ Mapping
CR#_C	SRC_0 or SRC_2
CR#_D	LCCLK or SRC_4
CR#_E	SRC_6
CR#_F	SRC_8
CR#_G	SRC_9
CR#_H	SRC_10

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

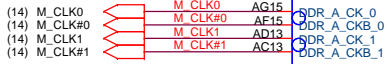
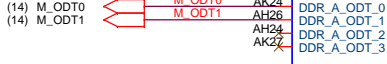
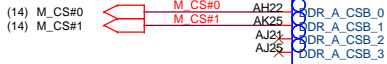
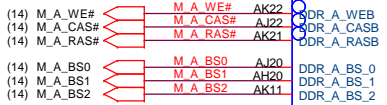
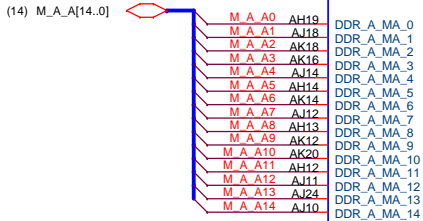
ITP_EN (PIN14)	PIN53/54
* 0	SRC8#/SRC8
1	ITP/ITP#

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	<b>166.66</b>	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

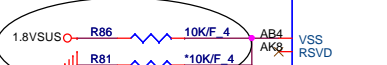


Need to confirm with Tony that it is else pull high or down - ALF

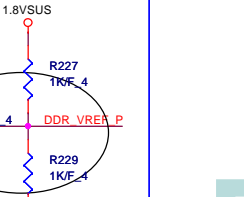
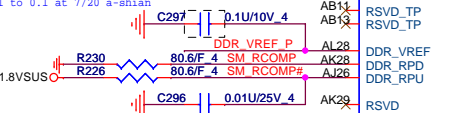




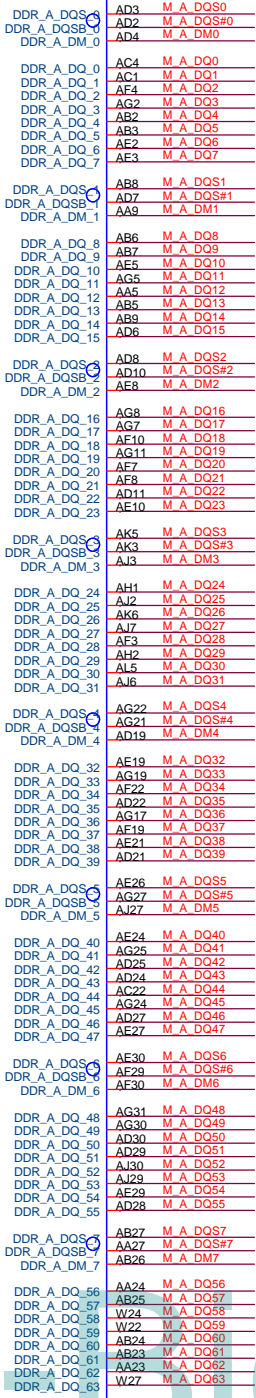
1C: reserve for ES1(WW10 MOW)



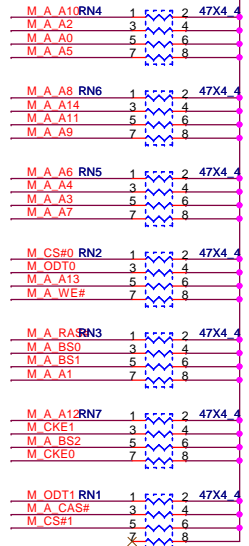
change value 0.01 to 0.1 at 7/20 a-shian



1D: add optional power for DDR\_VREF(CRB)

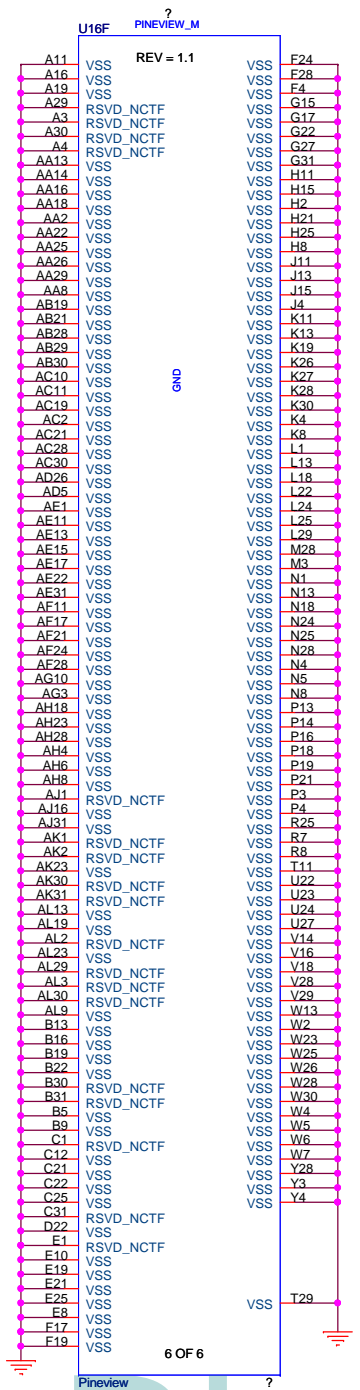


VTT\_MEM




Quanta Computer Inc.   
 PROJECT : FL2   
 Size Document Number Rev 1A   
 Pineview DDR   
 Date: Thursday, November 05, 2009 Sheet 5 of 36

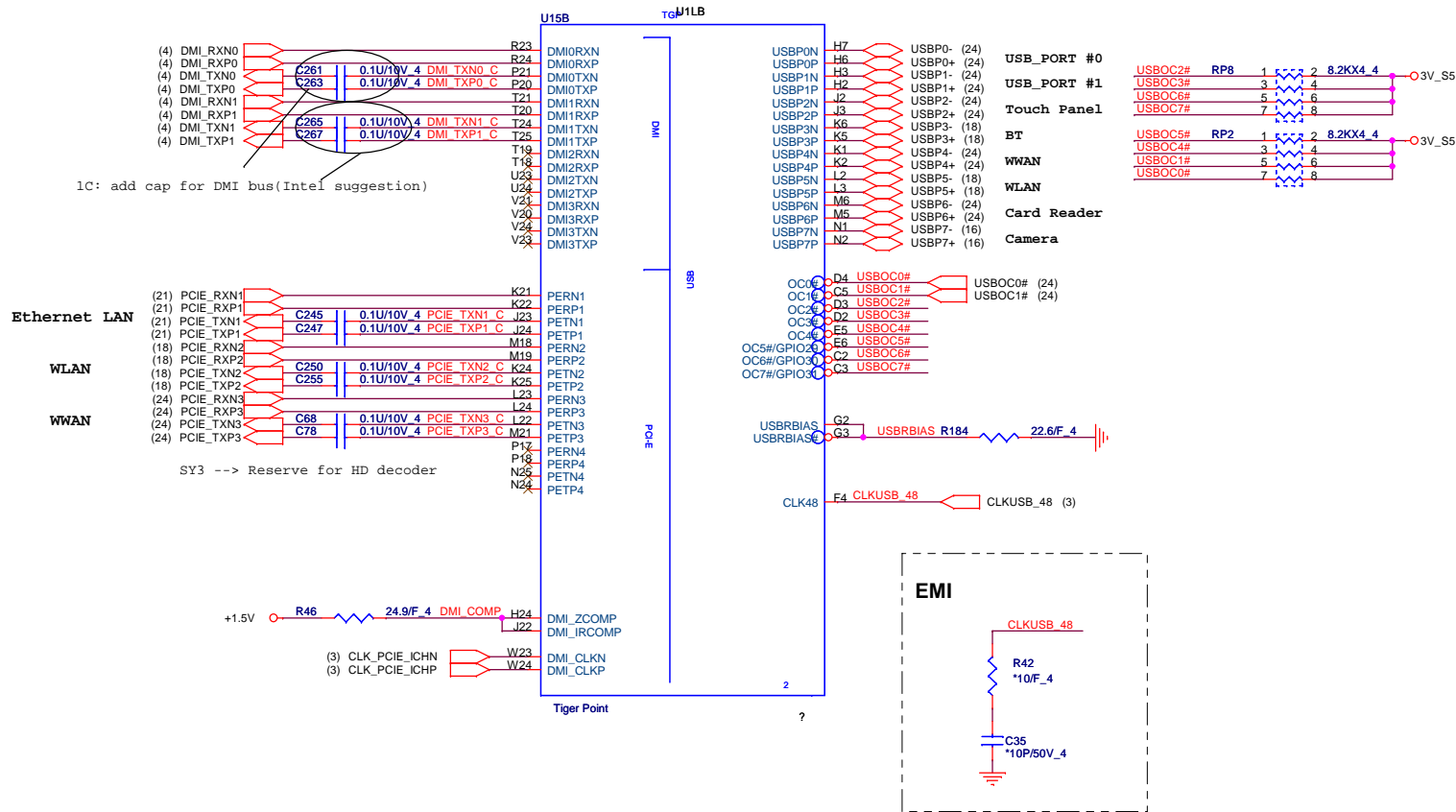




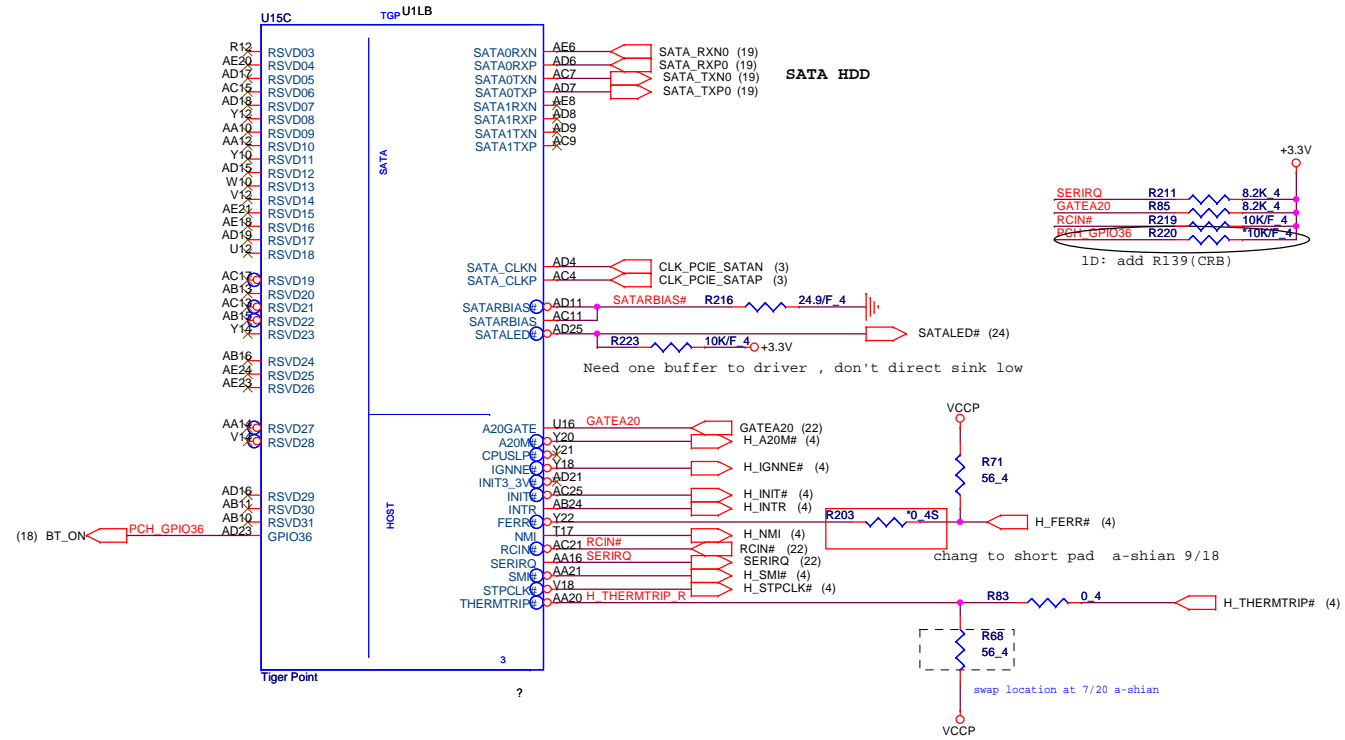
Dr-Bios.com

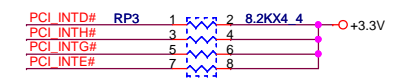
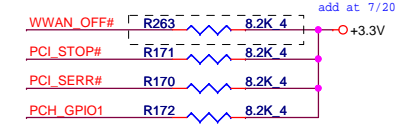
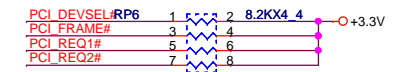
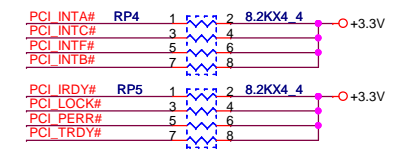
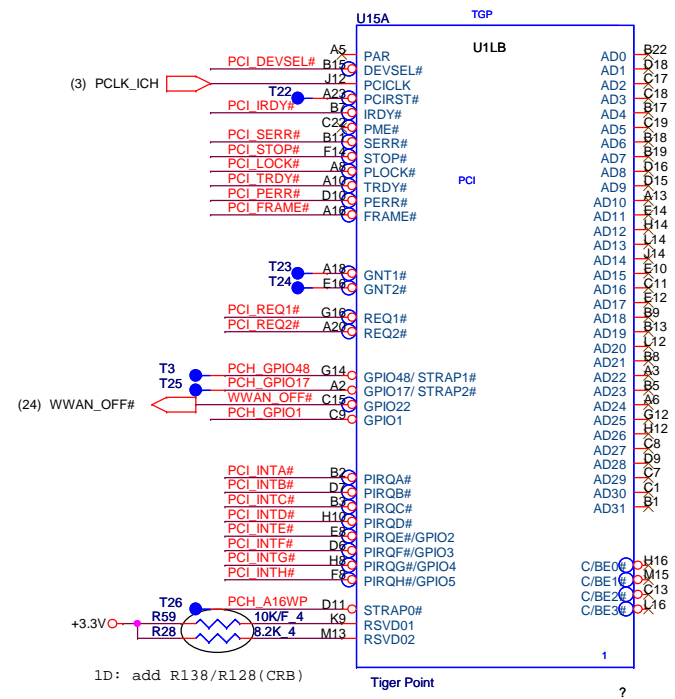
 **Quanta Computer Inc.**  
PROJECT : FL2

Size	Document Number	Rev
	<b>Pineview GND</b>	1A
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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

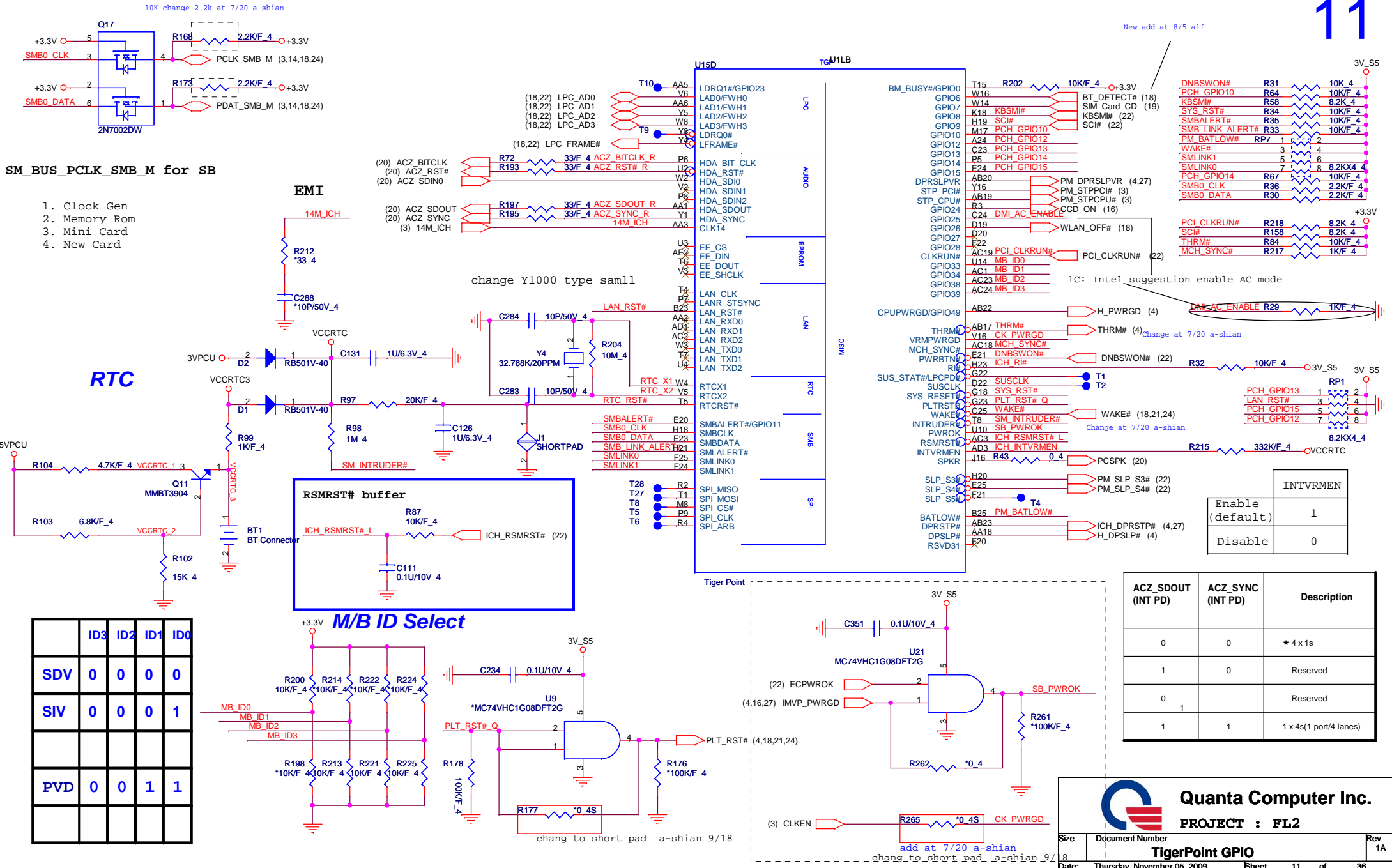
IRQ	Description
PIRQA	USB UHCI Controller #1, #4
PIRQB	AC'97 Codec; option for SMBUS
PIRQC	USB UH Controller #3; SATA/IDE Native Mode
PIRQD	USB UHCI Controller #2
PIRQE	Internal LAN; Option for SCI, TCO, HPET#0,1,2
PIRQF	Option for SCI, TCO, HPET#0,1,2
PIRQG	Option for SCI, TCO, HPET#0,1,2
PIRQH	USB EHCI Controller; Option for SCI, TCO, HPET#0,1,2
PCI_GNT#2	Internal PU Should not be PD



**Quanta Computer Inc.**  
PROJECT : FL2

Size	Document Number	Rev 1A
<b>TigerPoint PCI(3/6)</b>		
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New add at 8/5 aif



1. Clock Gen
2. Memory Rom
3. Mini Card
4. New Card

**EMI**

**RTC**

**RSMRST# buffer**

**M/B ID Select**

	ID3	ID2	ID1	ID0
SDV	0	0	0	0
SIV	0	0	0	1
PVD	0	0	1	1

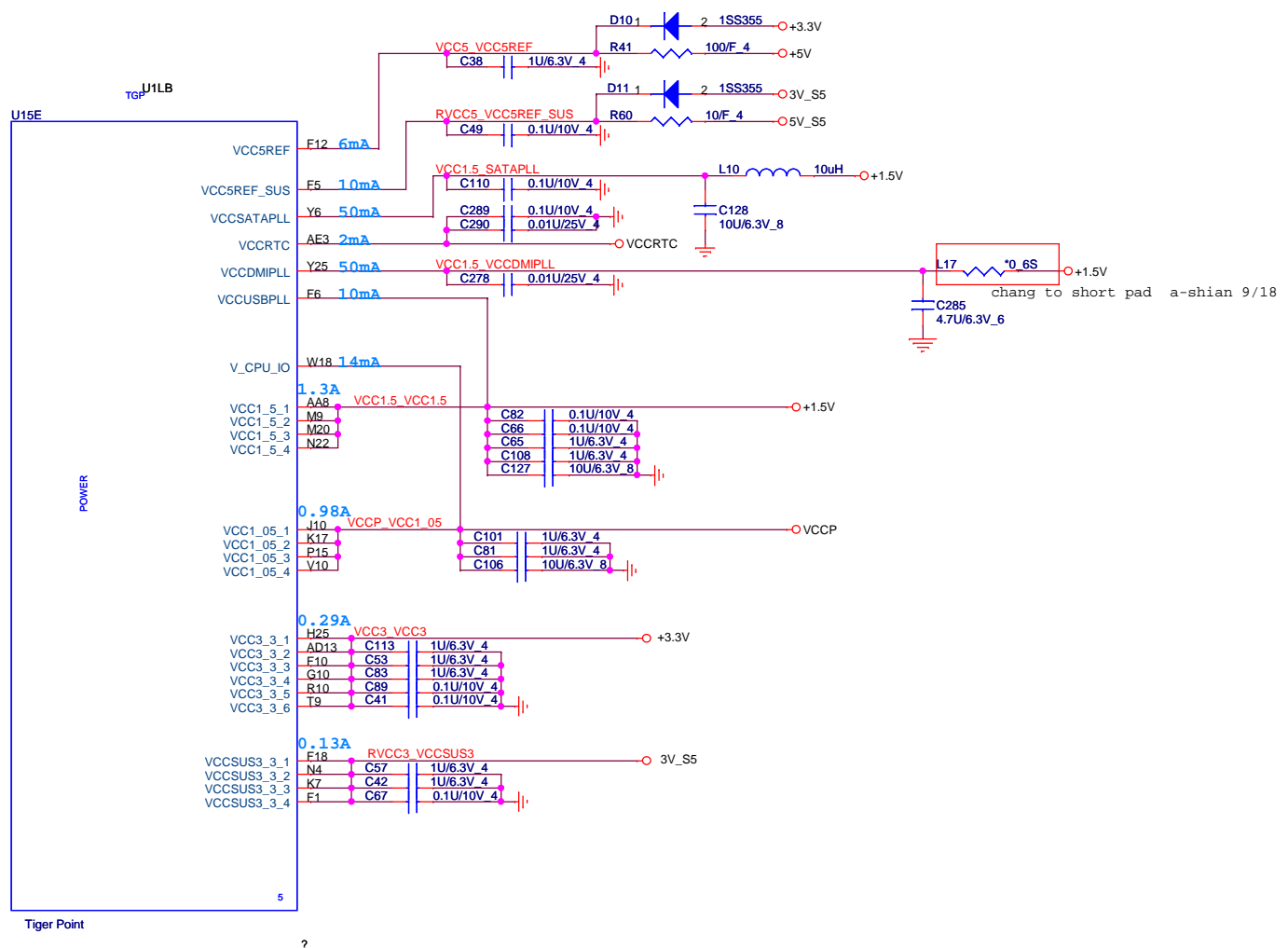
	INTVRMEN
Enable (default)	1
Disable	0

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)

**Quanta Computer Inc.**  
PROJECT : FL2

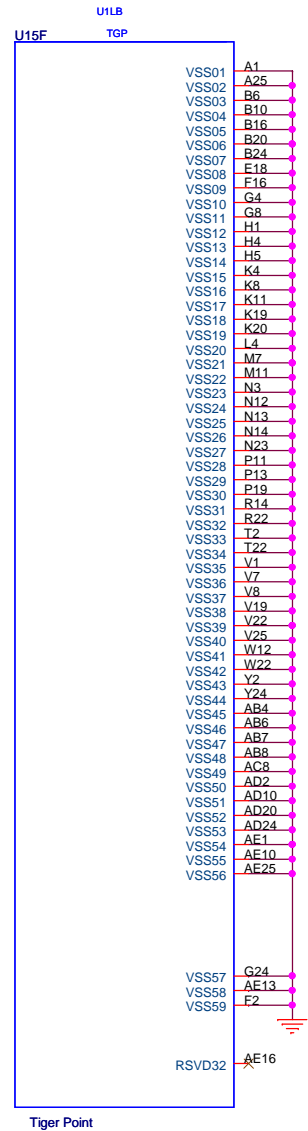
Size	Document Number	Rev
		1A


**TigerPoint GPIO**  
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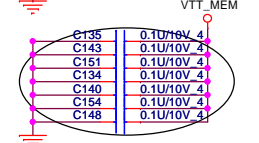
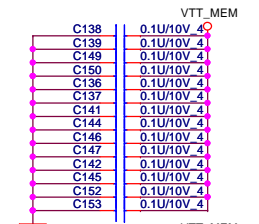
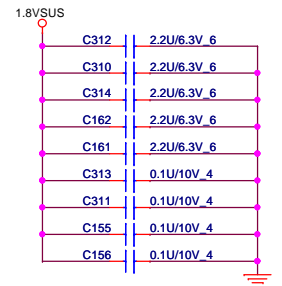
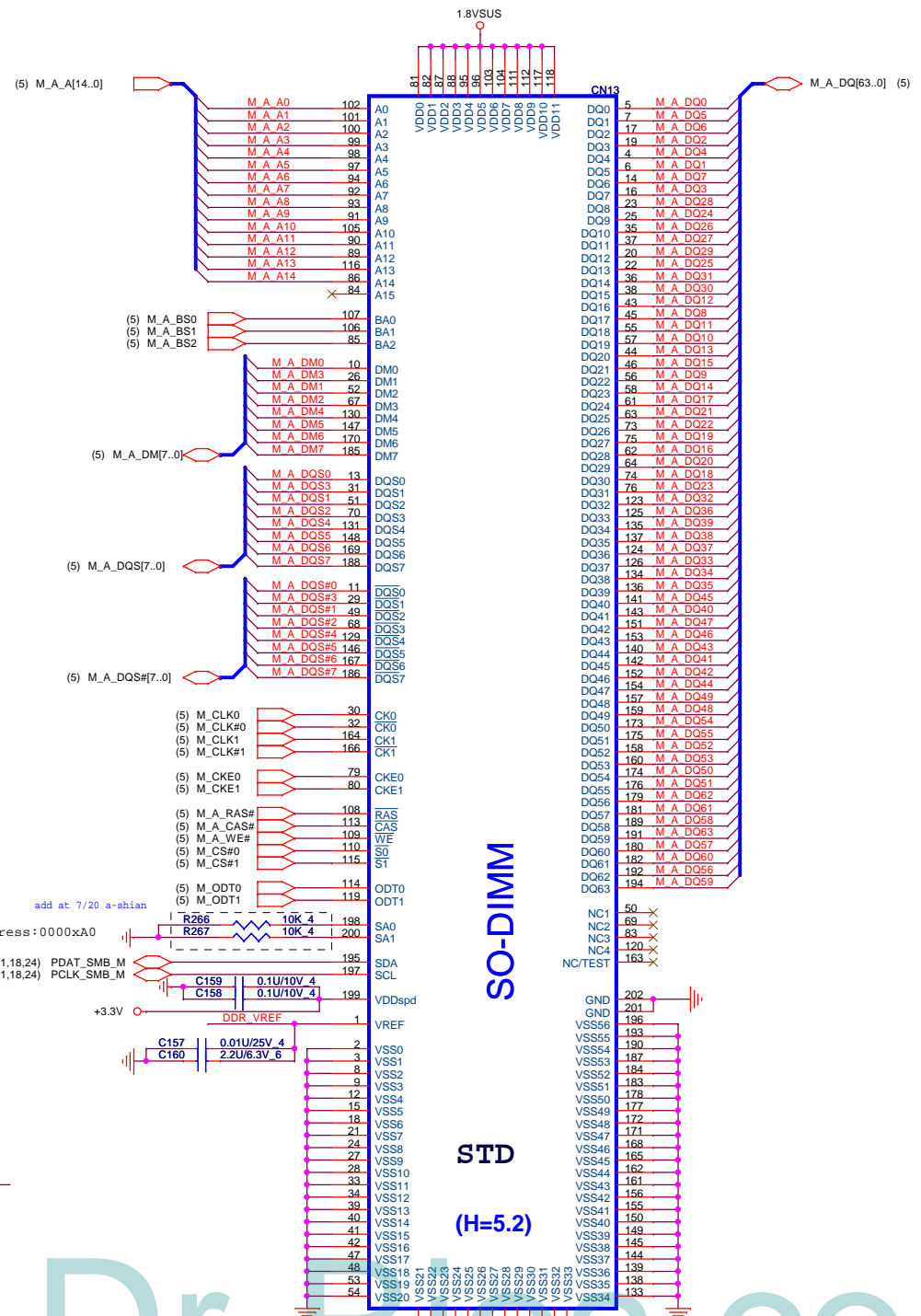


**Quanta Computer Inc.**  
PROJECT : FL2

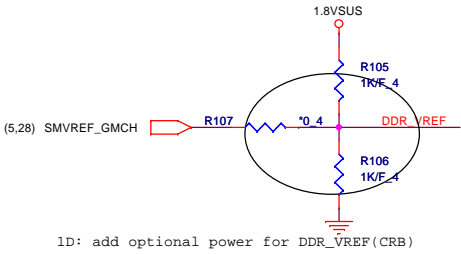
Size	Document Number	Rev
		1A
<b>TigerPoint Power</b>		
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 <b>Quanta Computer Inc.</b> <b>PROJECT : FL2</b>		Rev
		1A
Size	Document Number	
<b>TigerPoint GND</b>		
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1D: add 7 0.1u for VTT\_MEM(Intel)



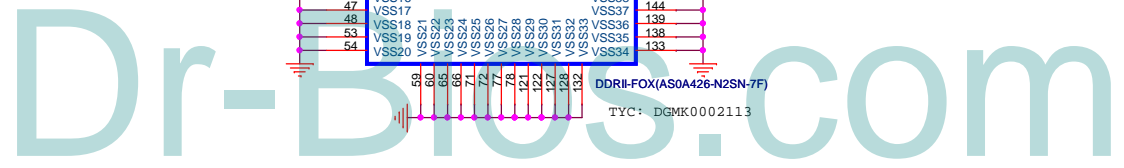
1D: add optional power for DDR\_VREF(CRB)

SO-DIMM

STD (H=5.2)

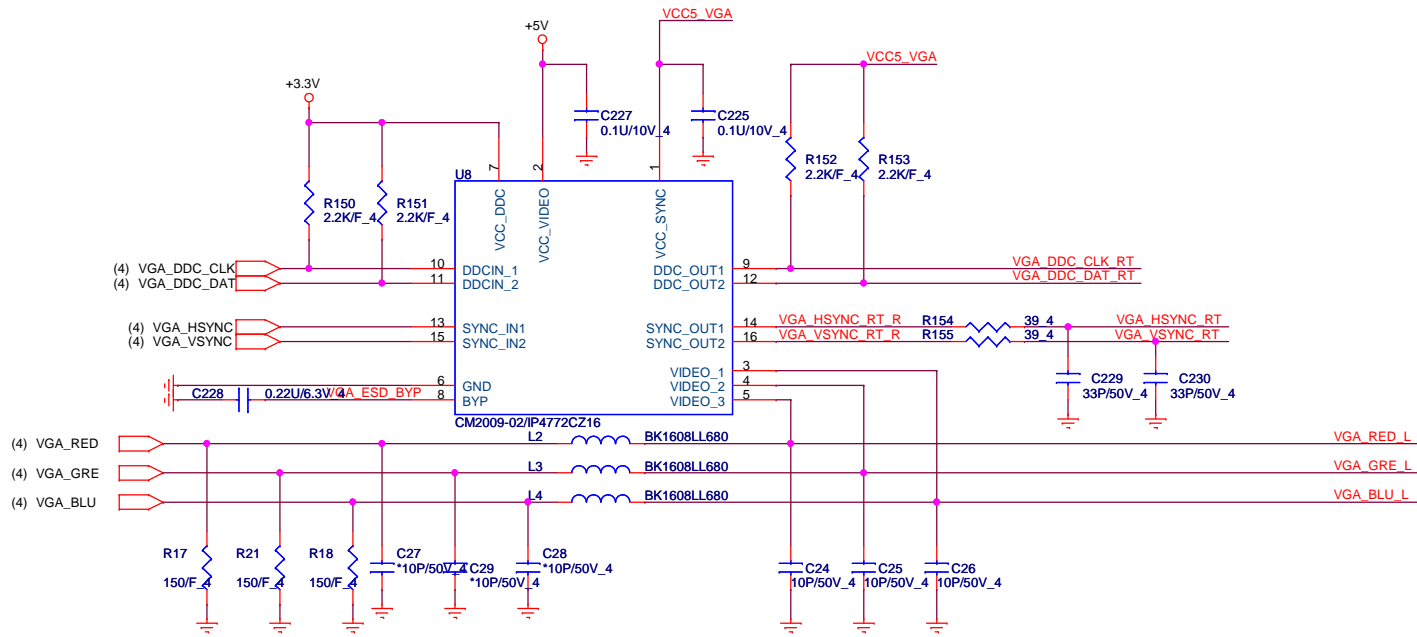
DDRII-FOX(AS0A426-N2SN-7F)

TYC: DGMK0002113

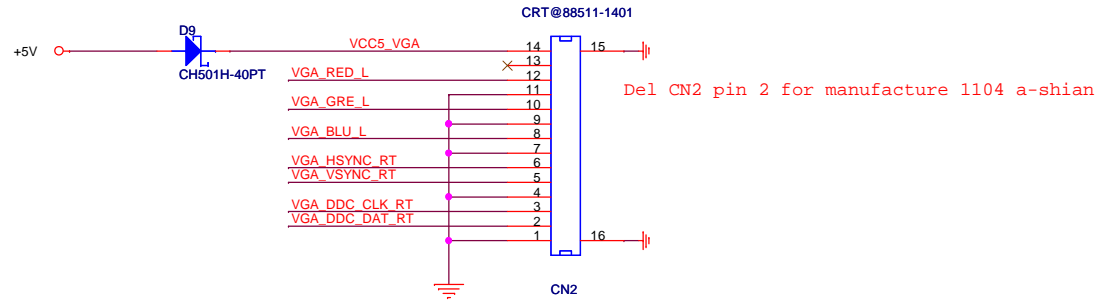



**Quanta Computer Inc.**  
**PROJECT : FL2**  
**DDRII SODIMMx1**

Size	Document Number	Rev
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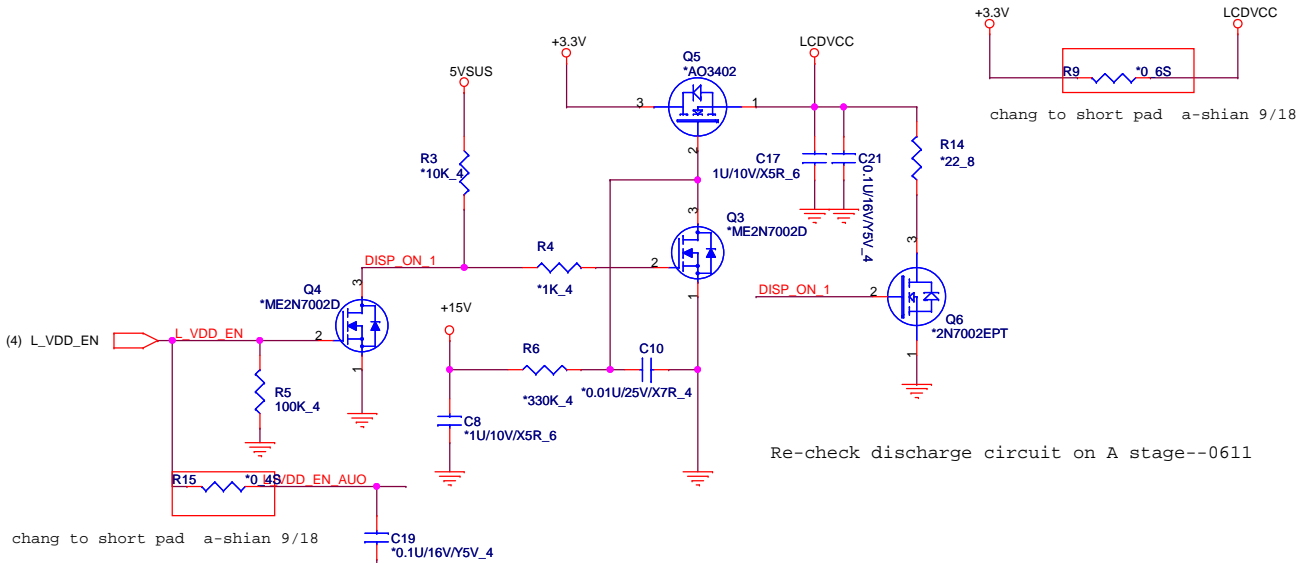
VCC5\_VGA(5V+-10%)  
 Current limit <1A  
 VCC5<55mA  
 Current limit ~ 350mA



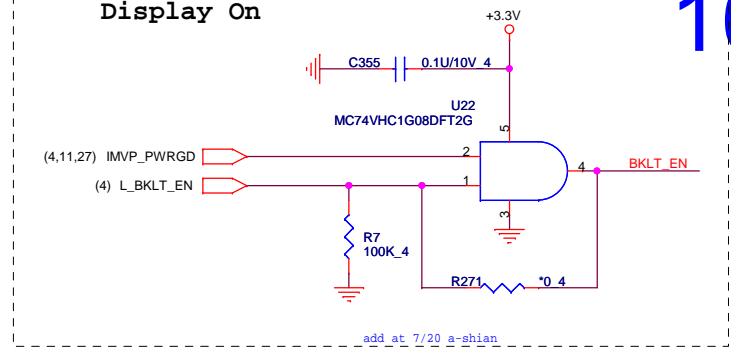
 <b>Quanta Computer Inc.</b> PROJECT : FL2		Rev
		1A
Size	Document Number	
<b>CRT</b>		
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# LVDS

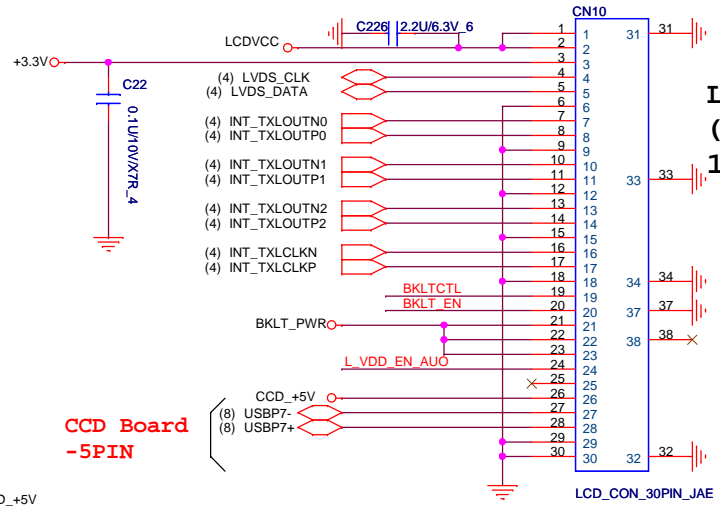
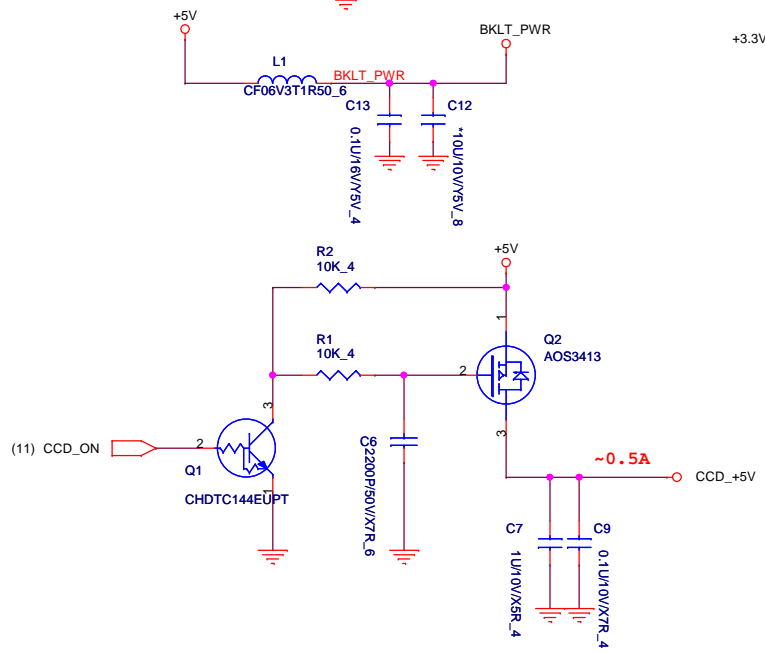
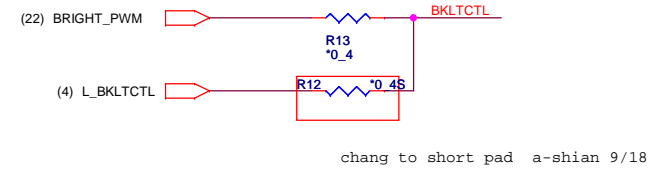
## LVDS Enable



## Display On




## Backlight Control



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

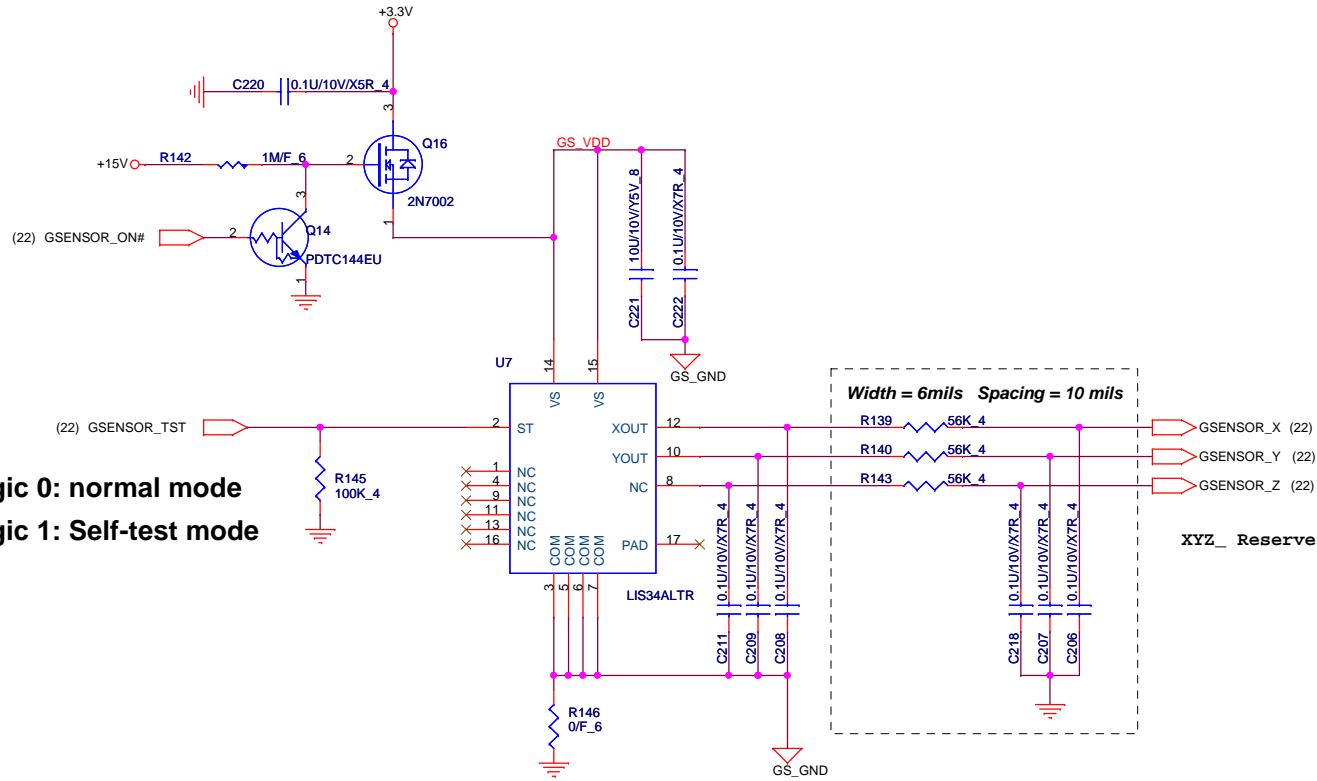
OK -alf  
change to JAE -0601

2009/06/04 reverse for layout

 <b>Quanta Computer Inc.</b> PROJECT : FL2		Rev
		1A
Date:	Thursday, November 05, 2009	Sheet
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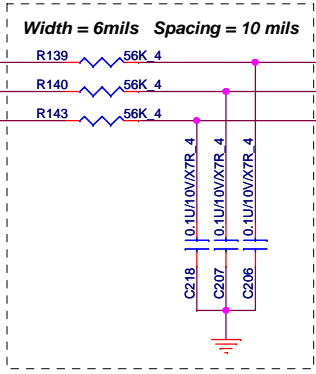



### G-SENSOR (3-Axial)



Logic 0: normal mode  
 Logic 1: Self-test mode

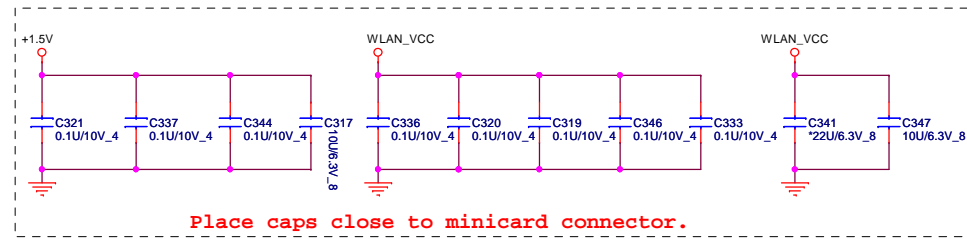
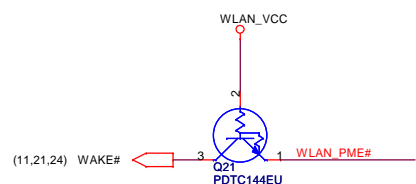
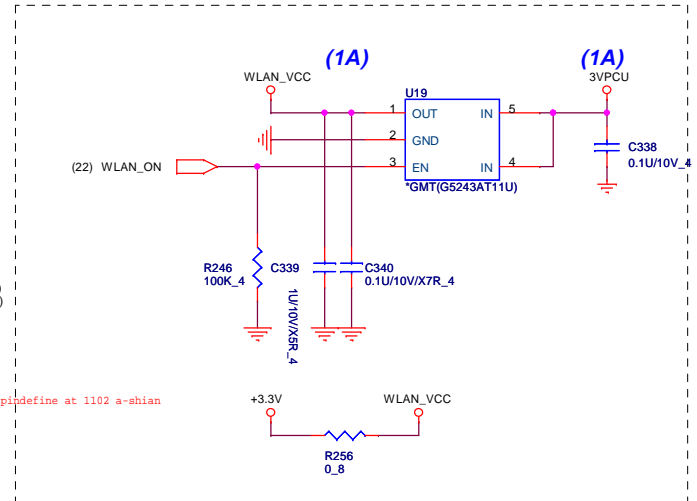
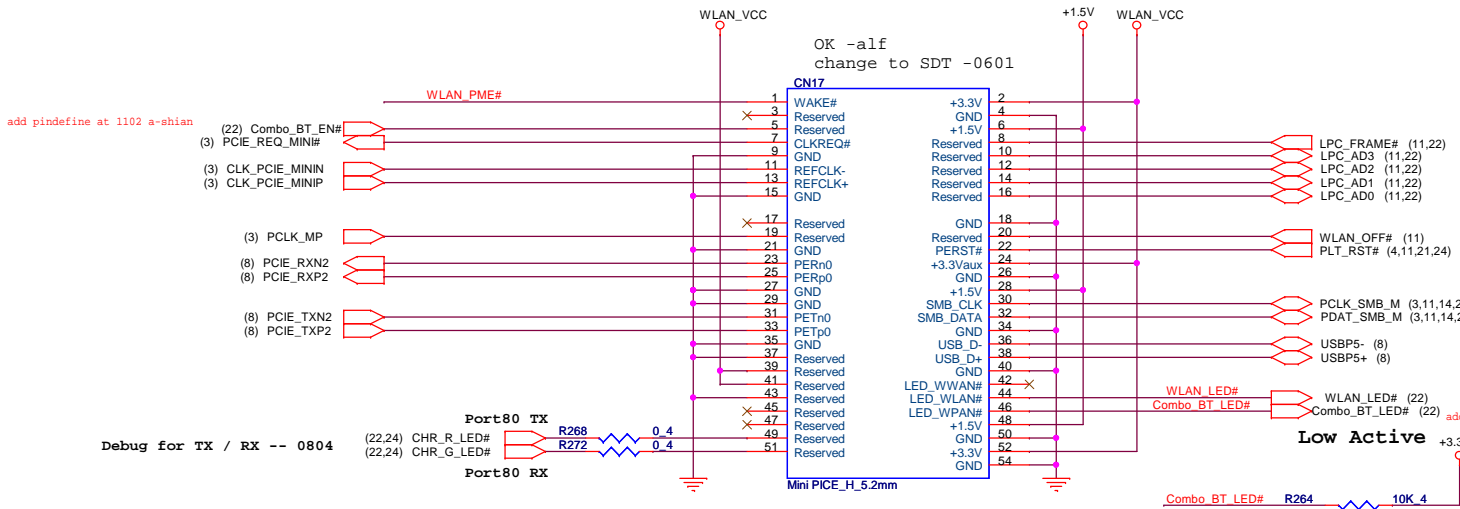
XYZ\_ Reserve C is nF grade



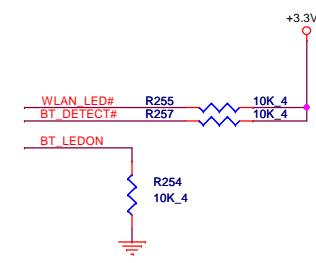
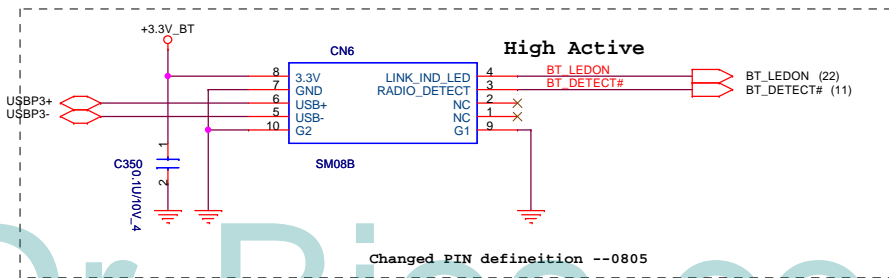
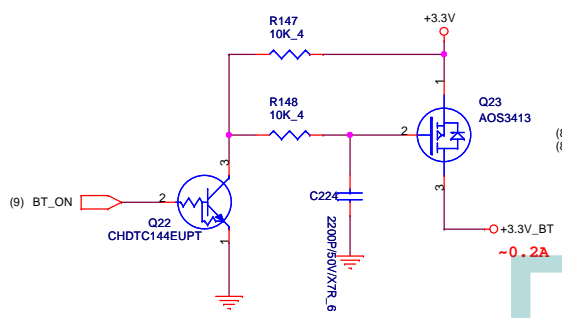
 <b>Quanta Computer Inc.</b> PROJECT : FL2		Rev
		1A
Size	Document Number	
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### 3G MiniCard WLAN connector Mini Card Version1.2

+3.3V Max 1.1A / +1.5V Max 375mA

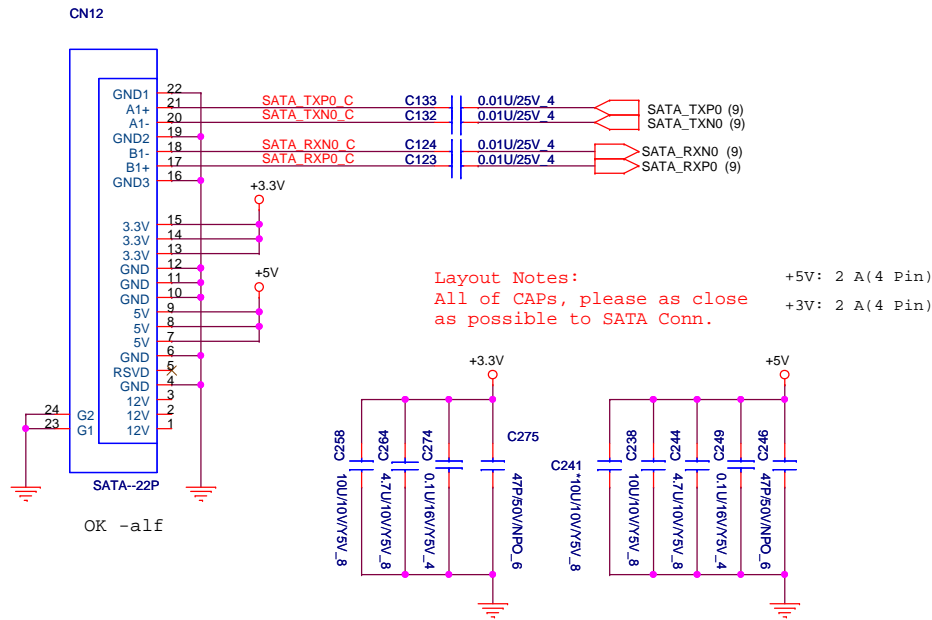


### Bluetooth



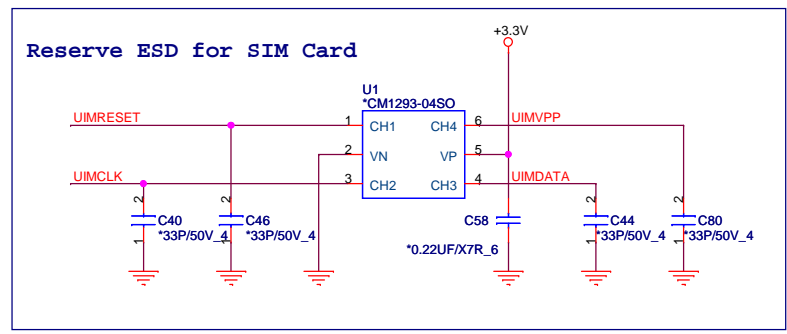
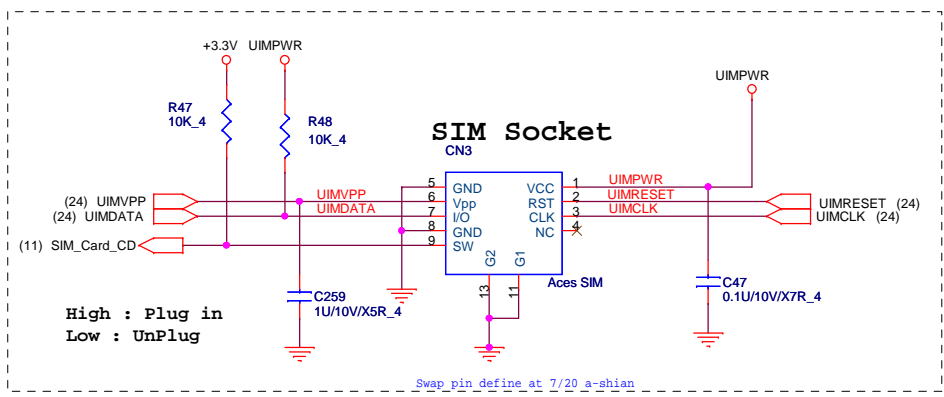
Dr-Bios.com

# SATA CONNECTOR



# SIM Card CONNECTOR

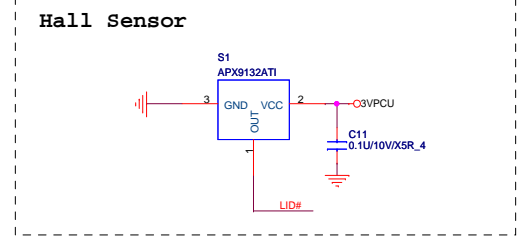
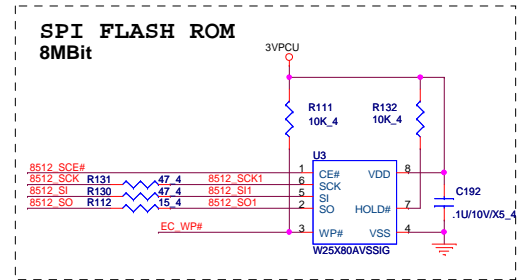
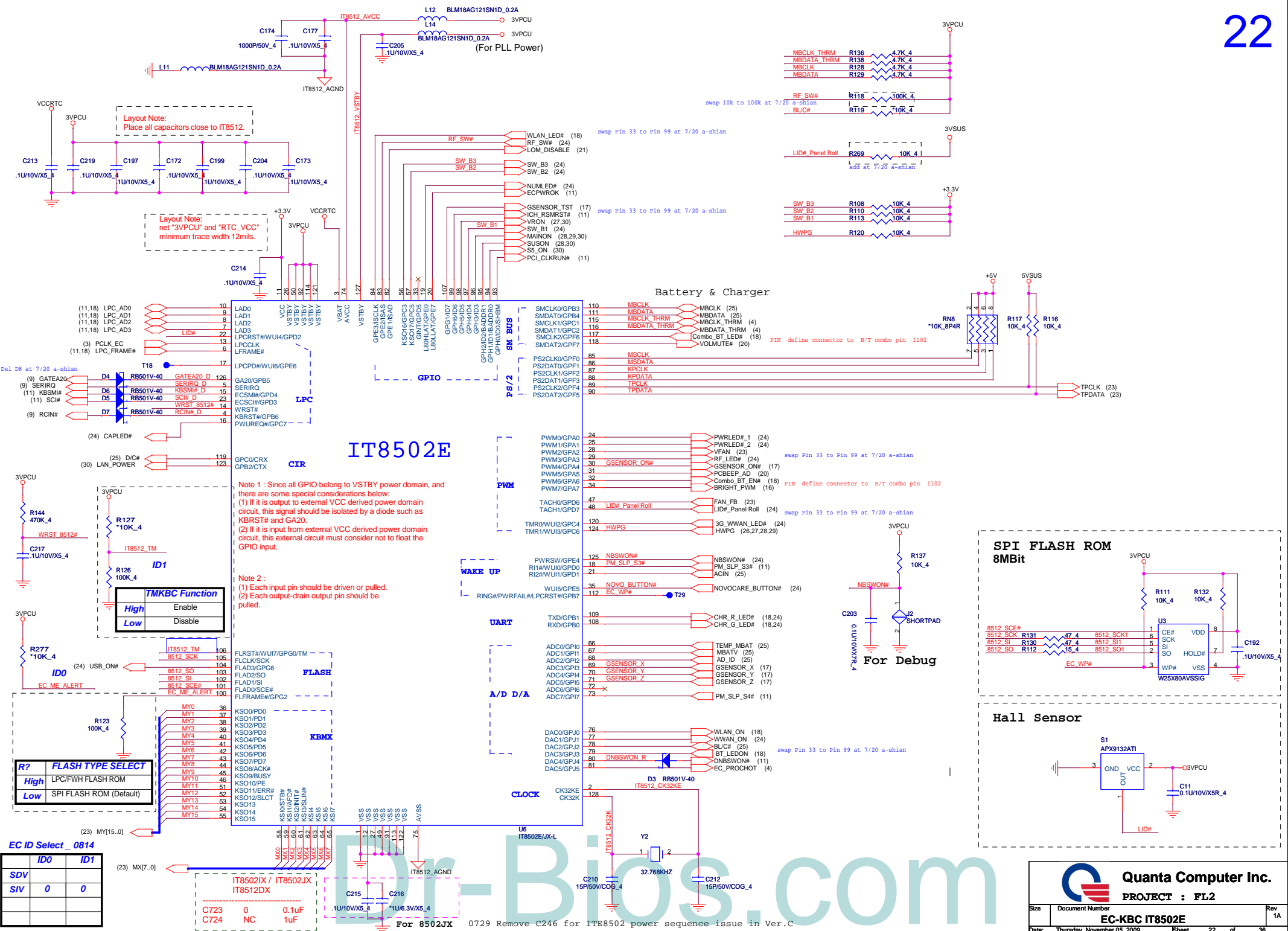
Layout Notes for SIM Card  
SIM Power (UIMPWR) trace more then 20mil



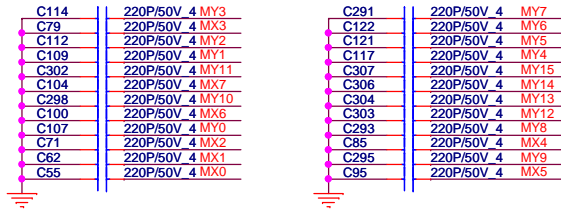
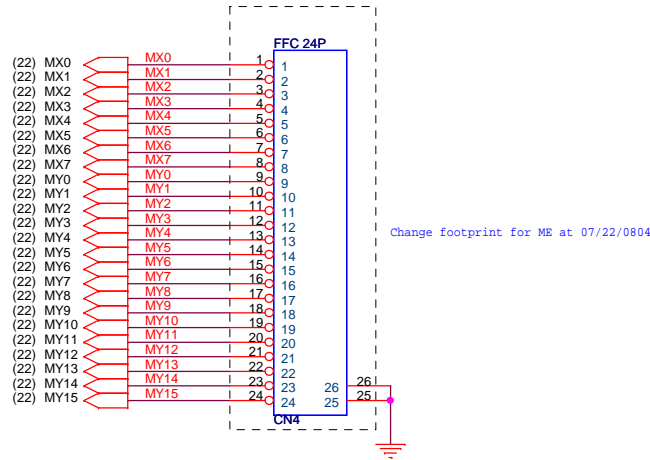
		<b>Quanta Computer Inc.</b> PROJECT : FL2	
<b>SATA / SIM Card</b>			
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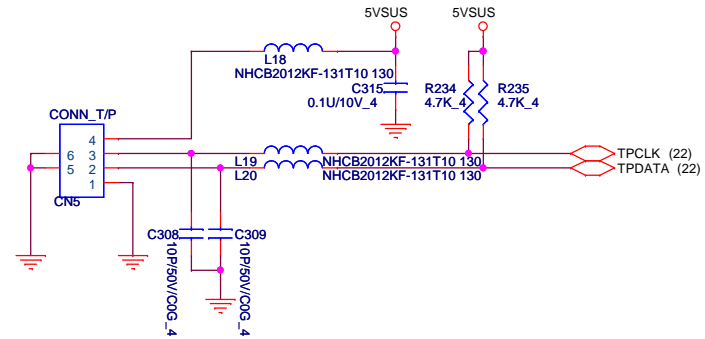


INT. KEYBOARD

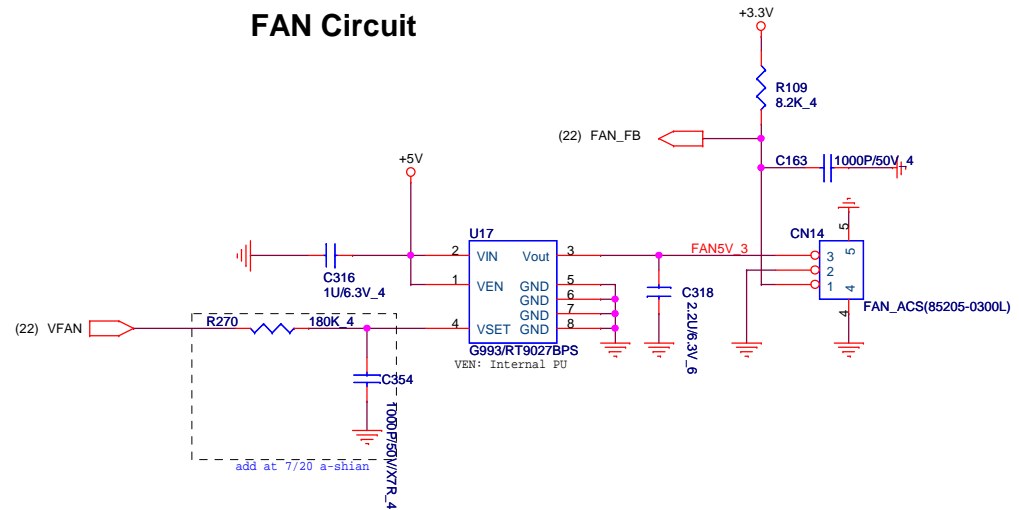



TOUCH PAD CONNECTOR

revers 6/6 for mechanism



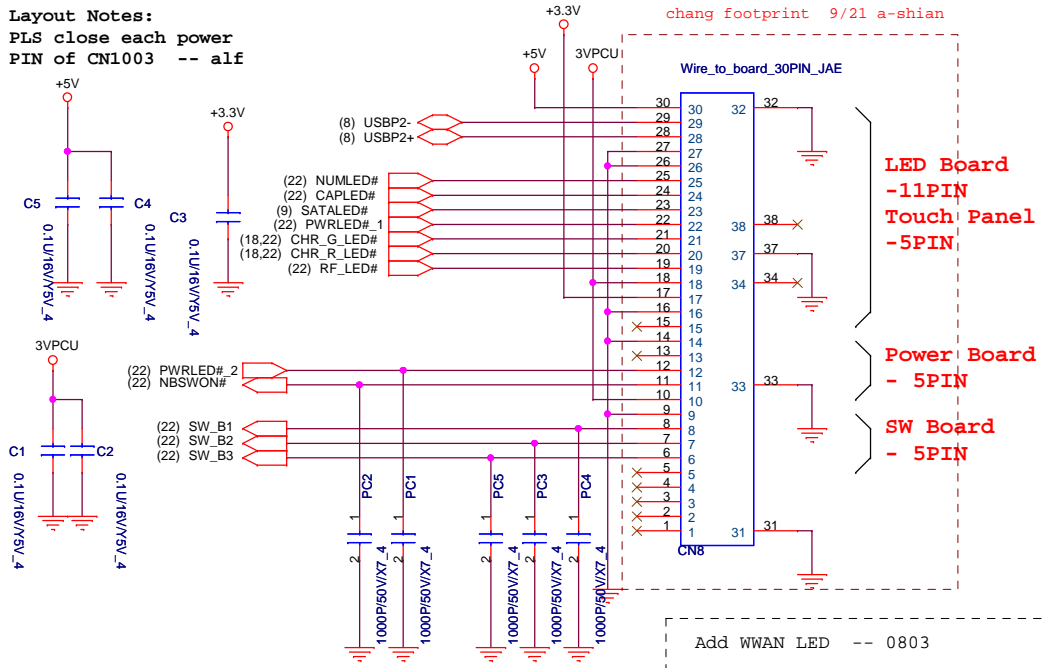
FAN Circuit



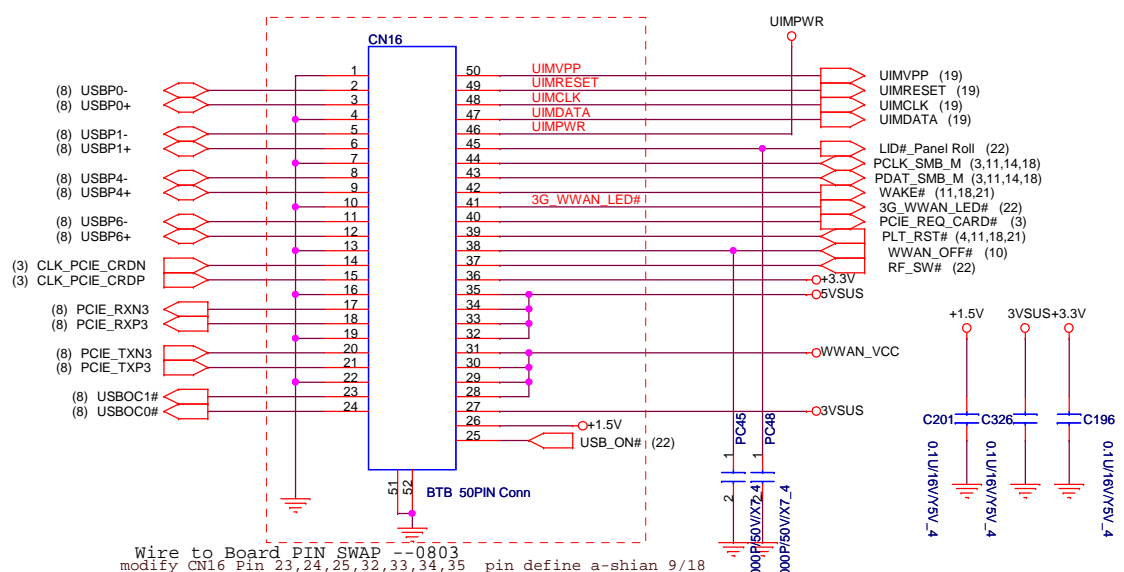
 <b>Quanta Computer Inc.</b> PROJECT : FL2		Rev
		1A
Size	Document Number	
<b>KB / TP / FAN</b>		
Date:	Thursday, November 05, 2009	Sheet 23 of 36

### LCD to MB wire

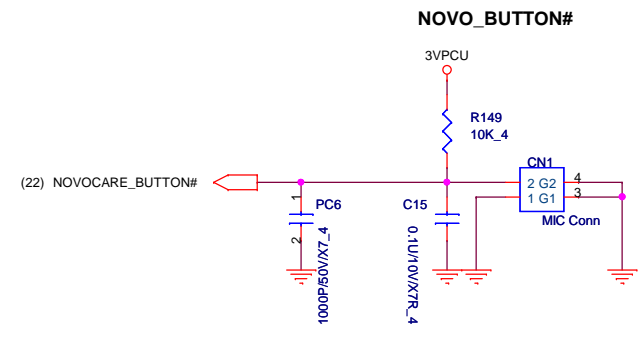
Layout Notes:  
PLS close each power  
PIN of CN1003 -- alf



### Card Reader to MB wire

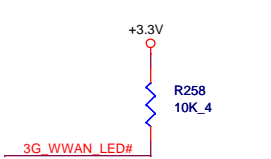


### Function Board

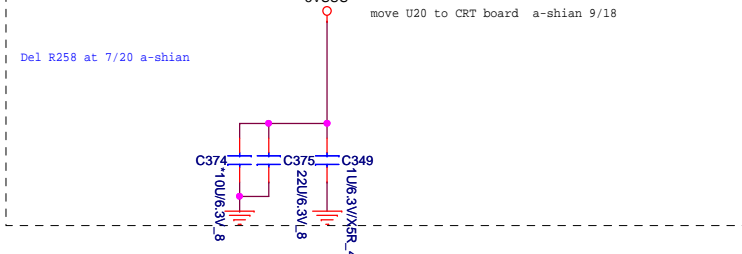


Add WWAN LED -- 0803

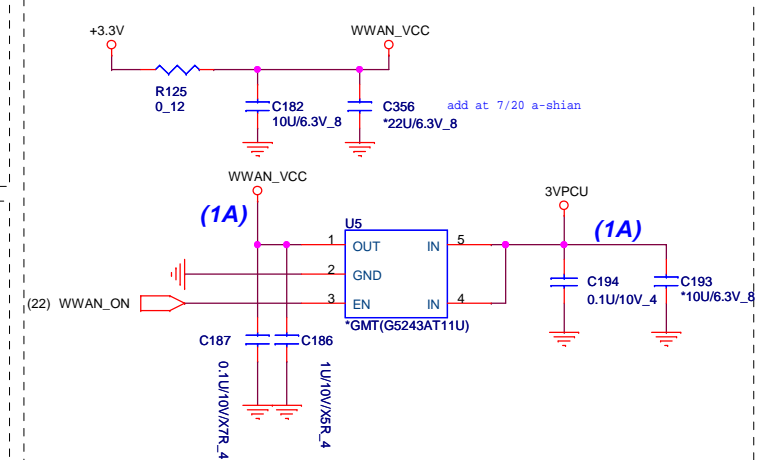
### WWAN LED PULL UP



### USB Power



EC - Reserve Power Control for WWAN -- 0205



**Quanta Computer Inc.**  
PROJECT : FL2

Size	Document Number	Rev
	Small Board	1A
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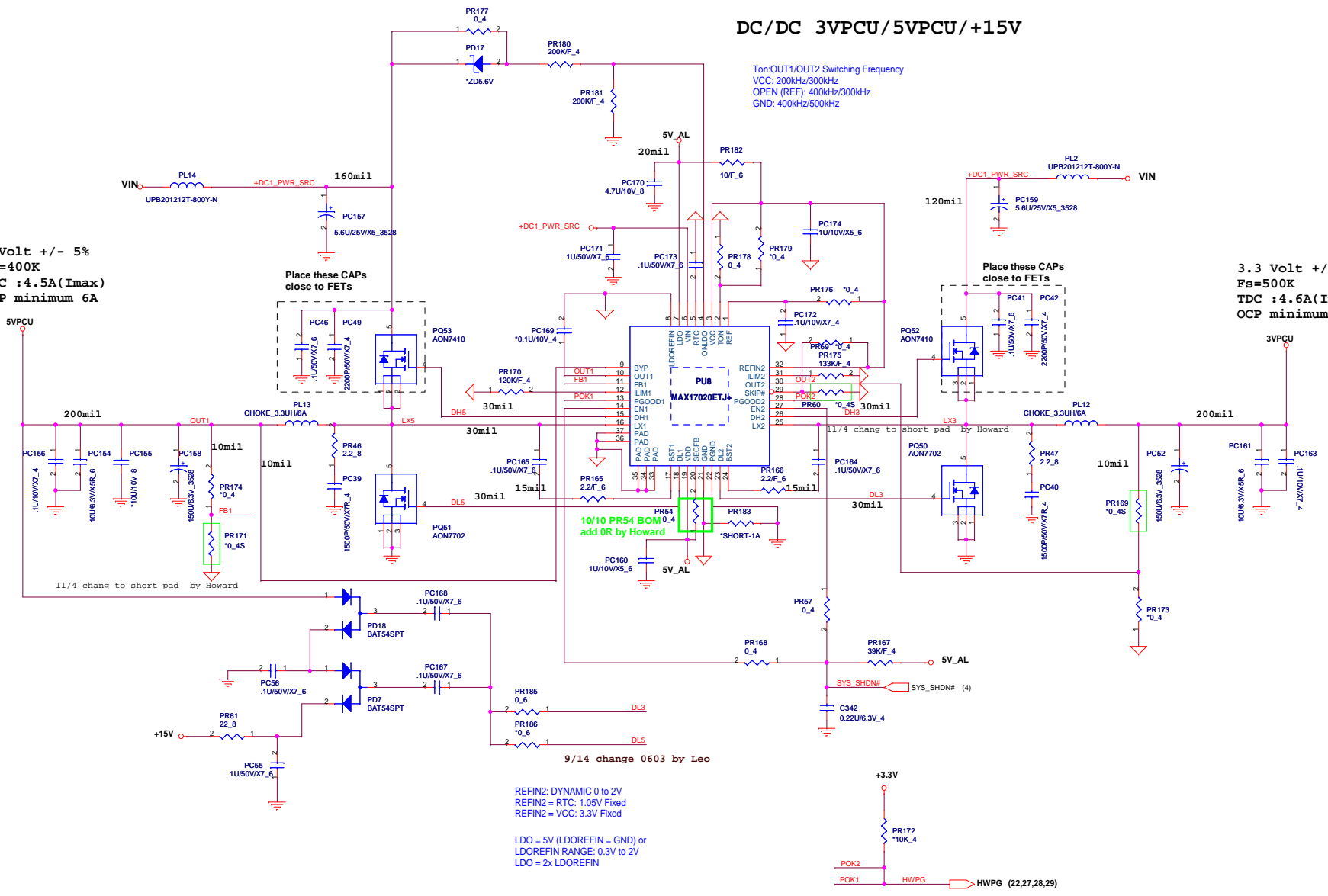


DC/DC 3VPCU/5VPCU/+15V

Ton:OUT1/OUT2 Switching Frequency  
 VCC: 200kHz/300kHz  
 OPEN (REF): 400kHz/300kHz  
 GND: 400kHz/500kHz

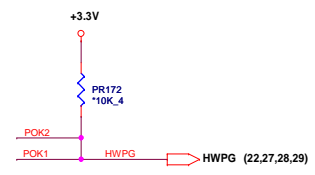
5 Volt +/- 5%  
 Fs=400K  
 TDC :4.5A(I<sub>max</sub>)  
 OCP minimum 6A

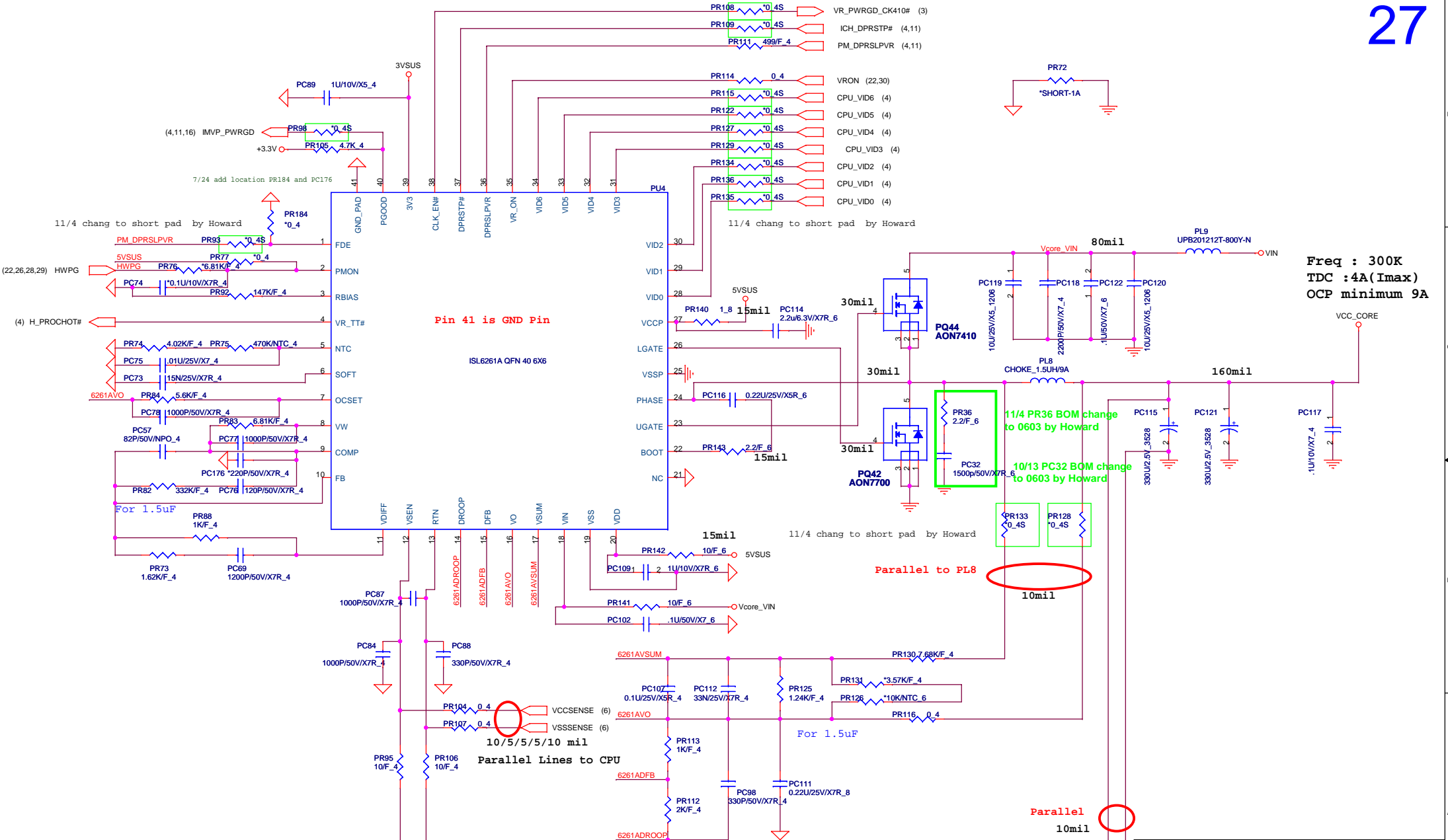
3.3 Volt +/- 5%  
 Fs=500K  
 TDC :4.6A(I<sub>max</sub>)  
 OCP minimum 6A



REFIN2 = DYNAMIC 0 to 2V  
 REFIN2 = RTC: 1.05V Fixed  
 REFIN2 = VCC: 3.3V Fixed

LDO = 5V (LDOREFIN = GND) or  
 LDOREFIN RANGE: 0.3V to 2V  
 LDO = 2x LDOREFIN



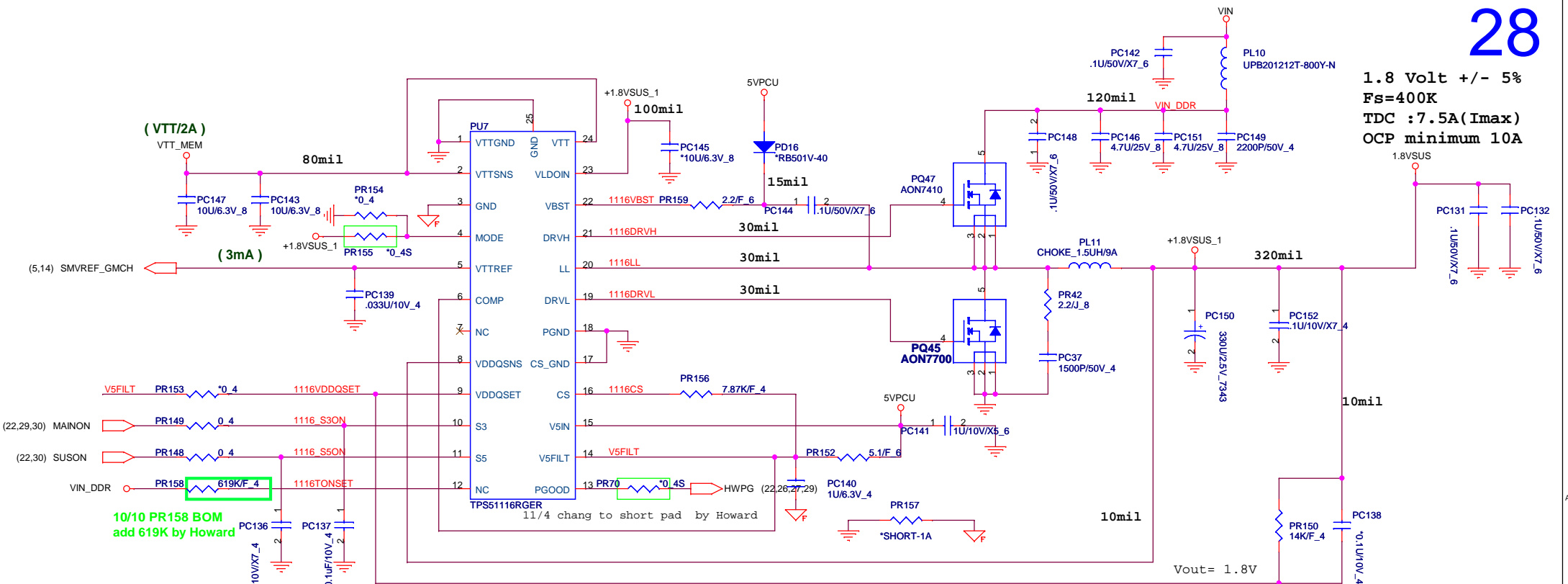


Freq : 300K  
 TDC :4A(I<sub>max</sub>)  
 OCP minimum 9A

**PROJECT MK NOTE Pine Trail**  
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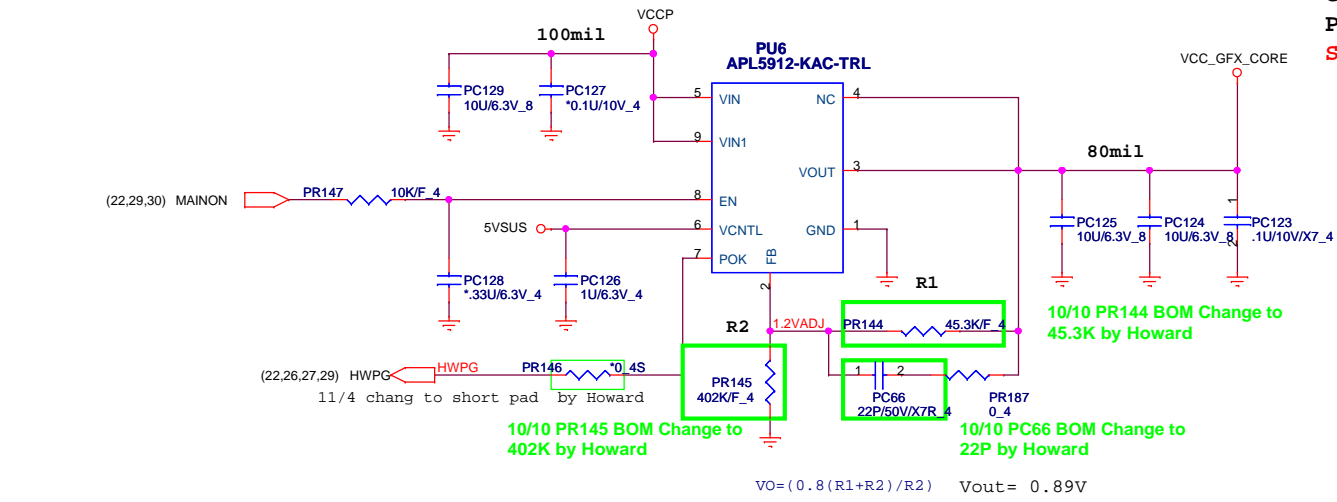
Size: Custom    Document Number: **POWER\_CPU CORE (ISL6261A)**    Rev: 1A

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1.8 Volt +/- 5%  
 Fs=400K  
 TDC : 7.5A(Imax)  
 OCP minimum 10A

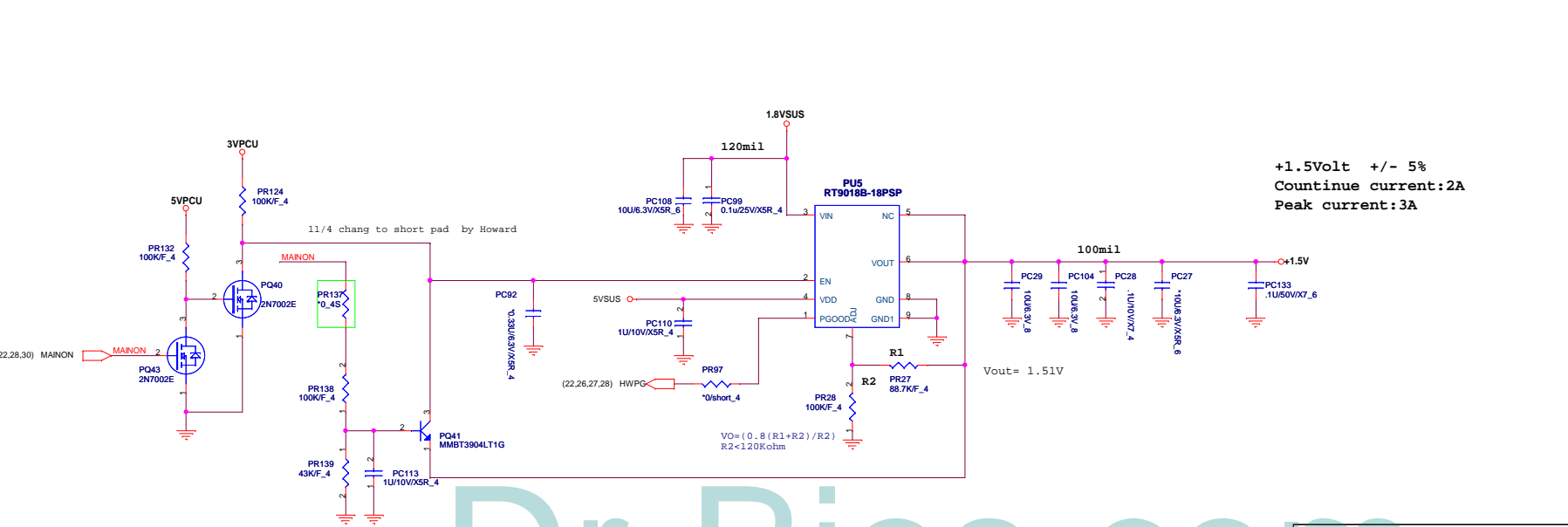
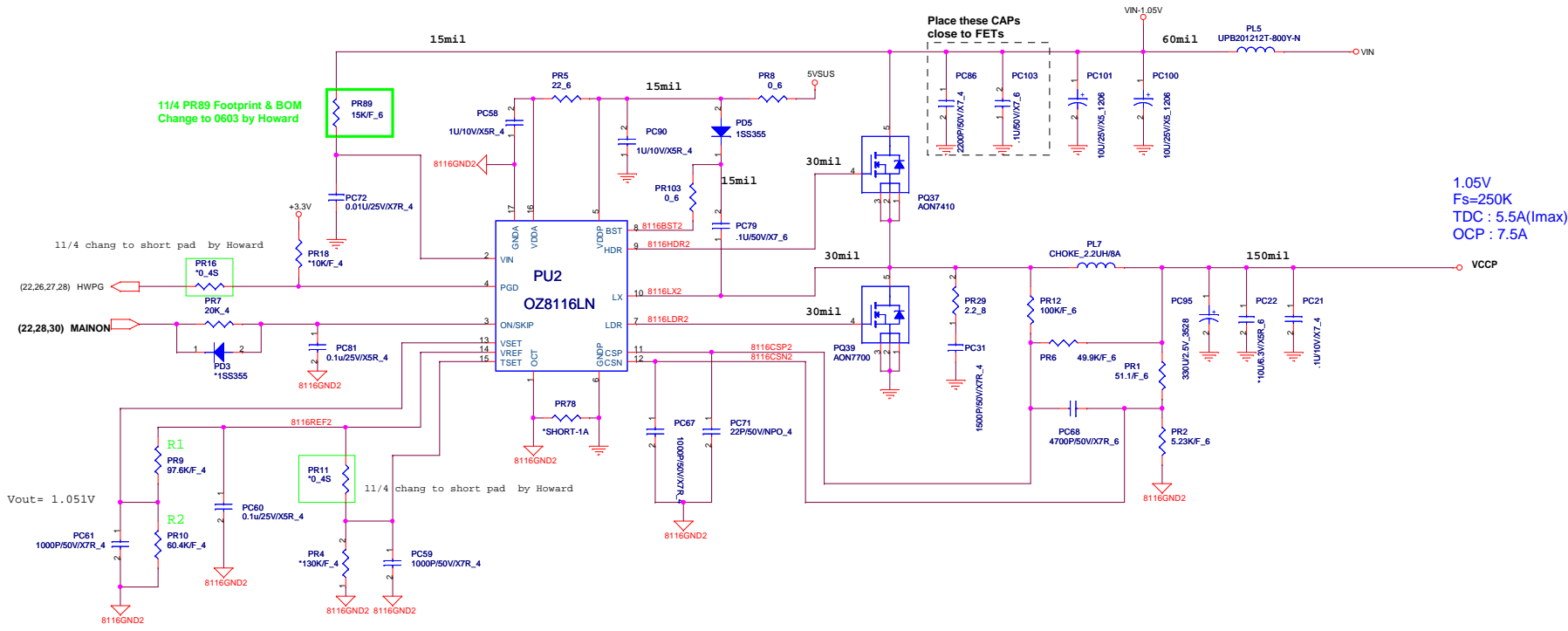
+0.89 Volt +/- 5%  
 Countinue current:1.38A  
 Peak current:2.64A  
 Sustained current:1.05A



$V_O = (0.8(R1+R2)/R2)$      $V_{out} = 0.89V$

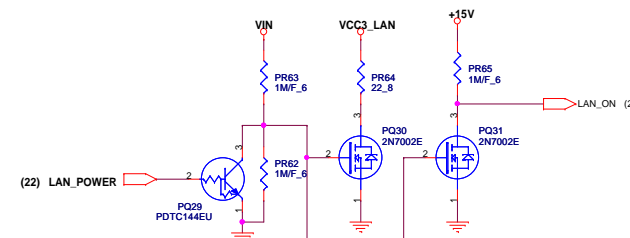
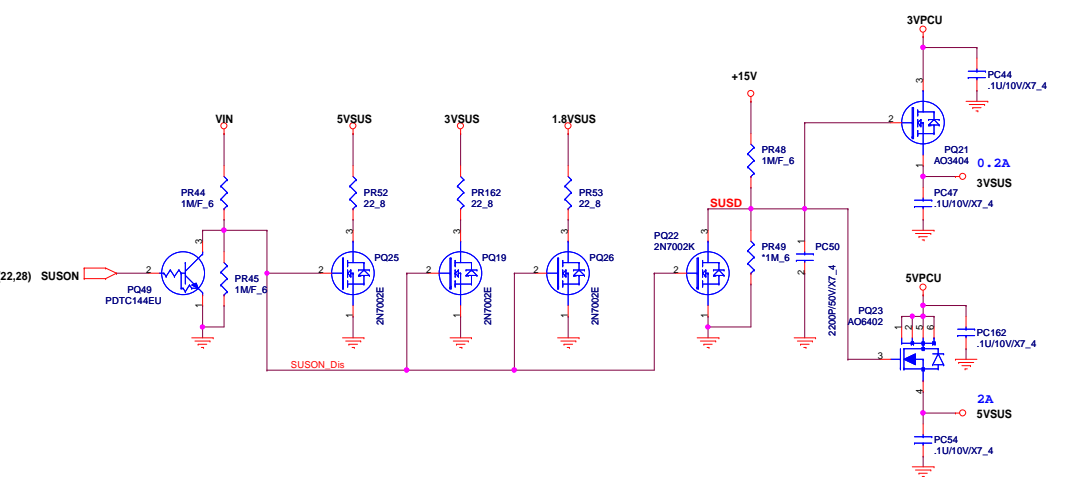
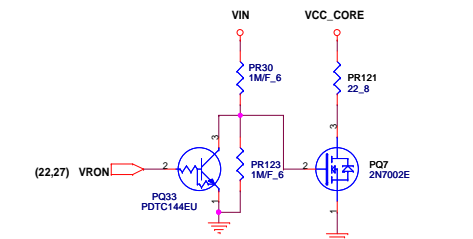
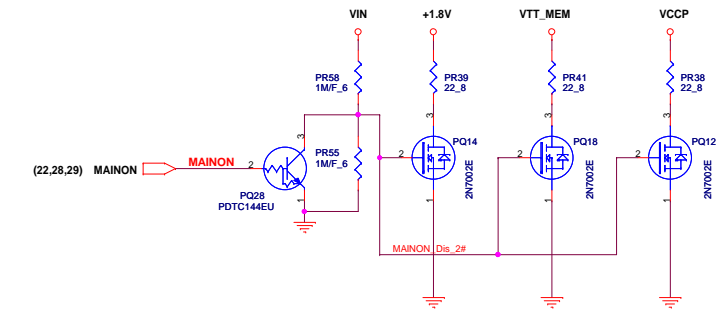
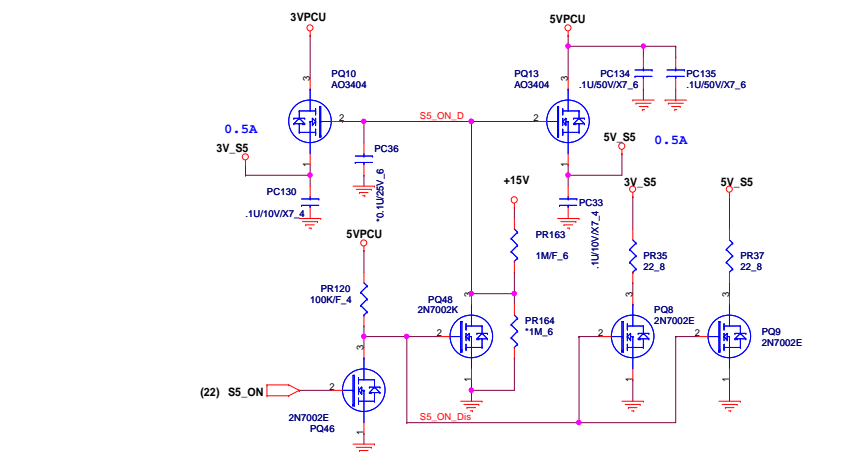
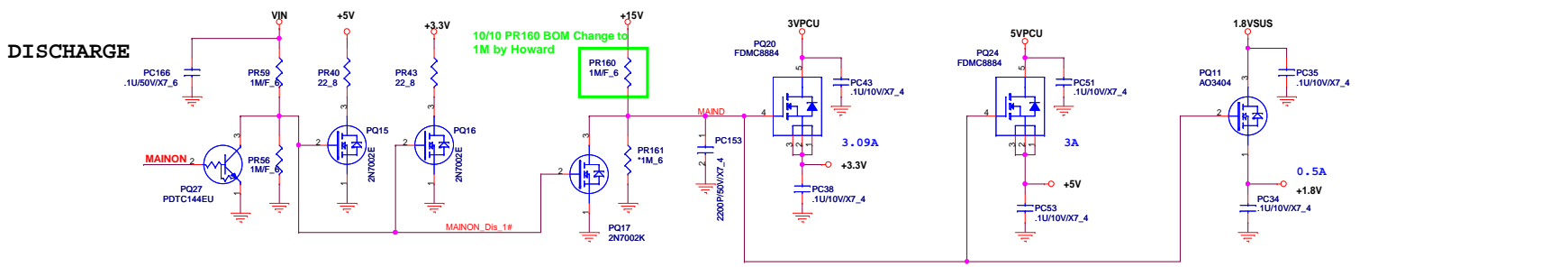
**Quanta Computer Inc.**  
 PROJECT : FL2

Size	Document Number	Rev
	<b>POWER_1.8V(TPS5116)/0.89V(RT9205)</b>	1A
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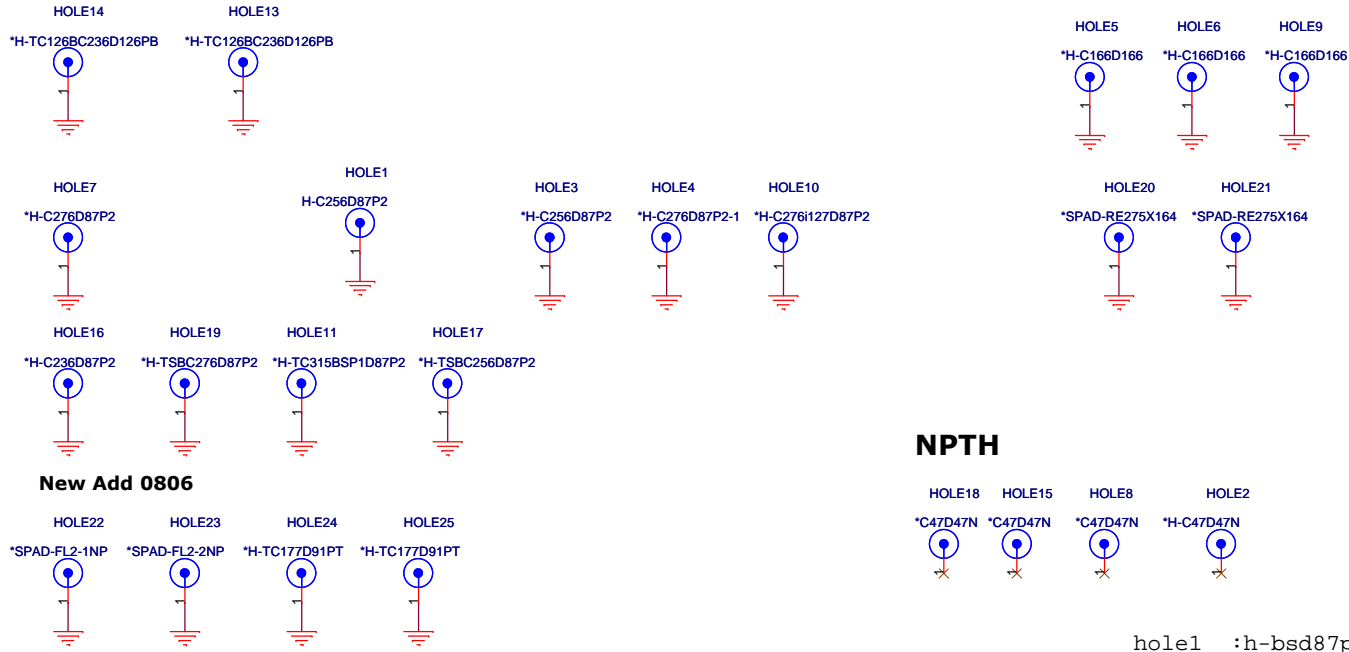


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DISCHARGE



# Screw Hole




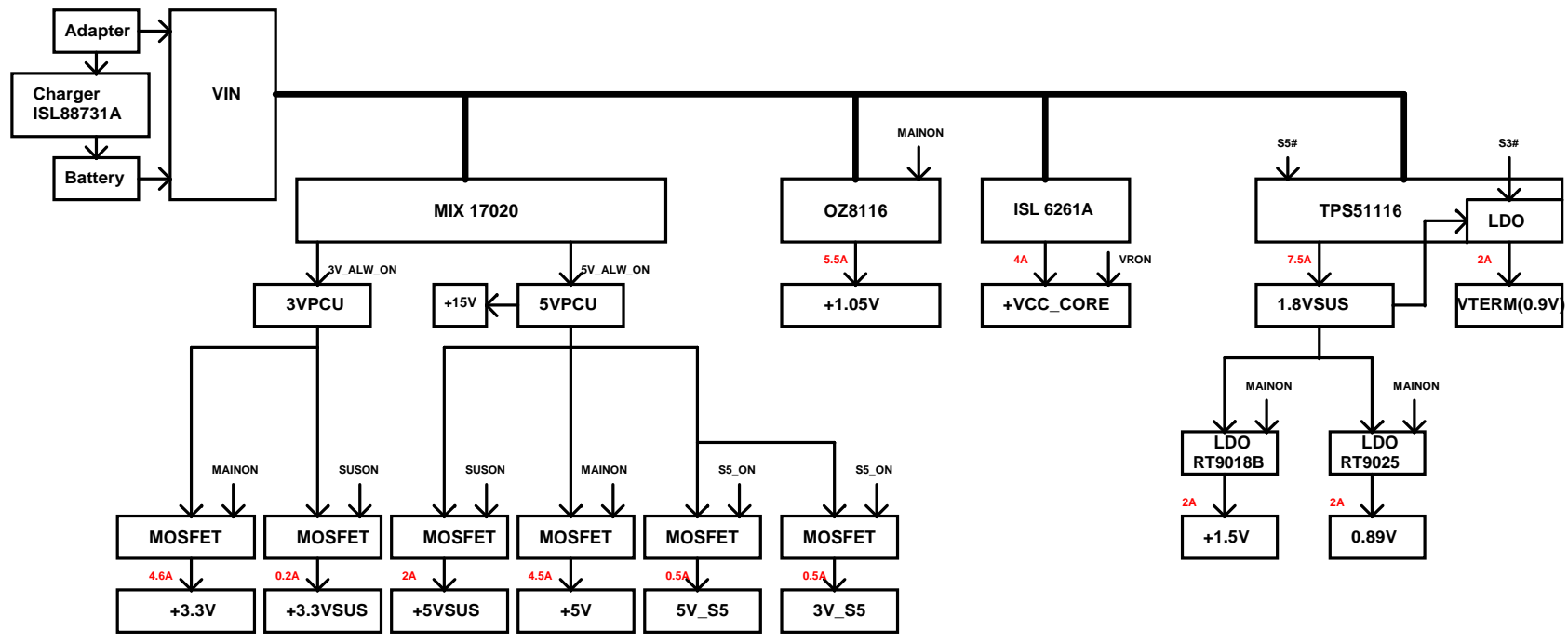
## NPTH

hole4  
hole11  
hole3  
hole10  
hole1  
hole2  
hole17

hole1 :h-bsd87pb  
hole2, del  
hole4,hole3,hole10, : h-c87d87n  
hole16: h-c236d87p2  
hole19: h-tsbcb276d87p2  
hole11:h-bsp1d87pb  
hole12 :del  
hole17:h-bsd87pt

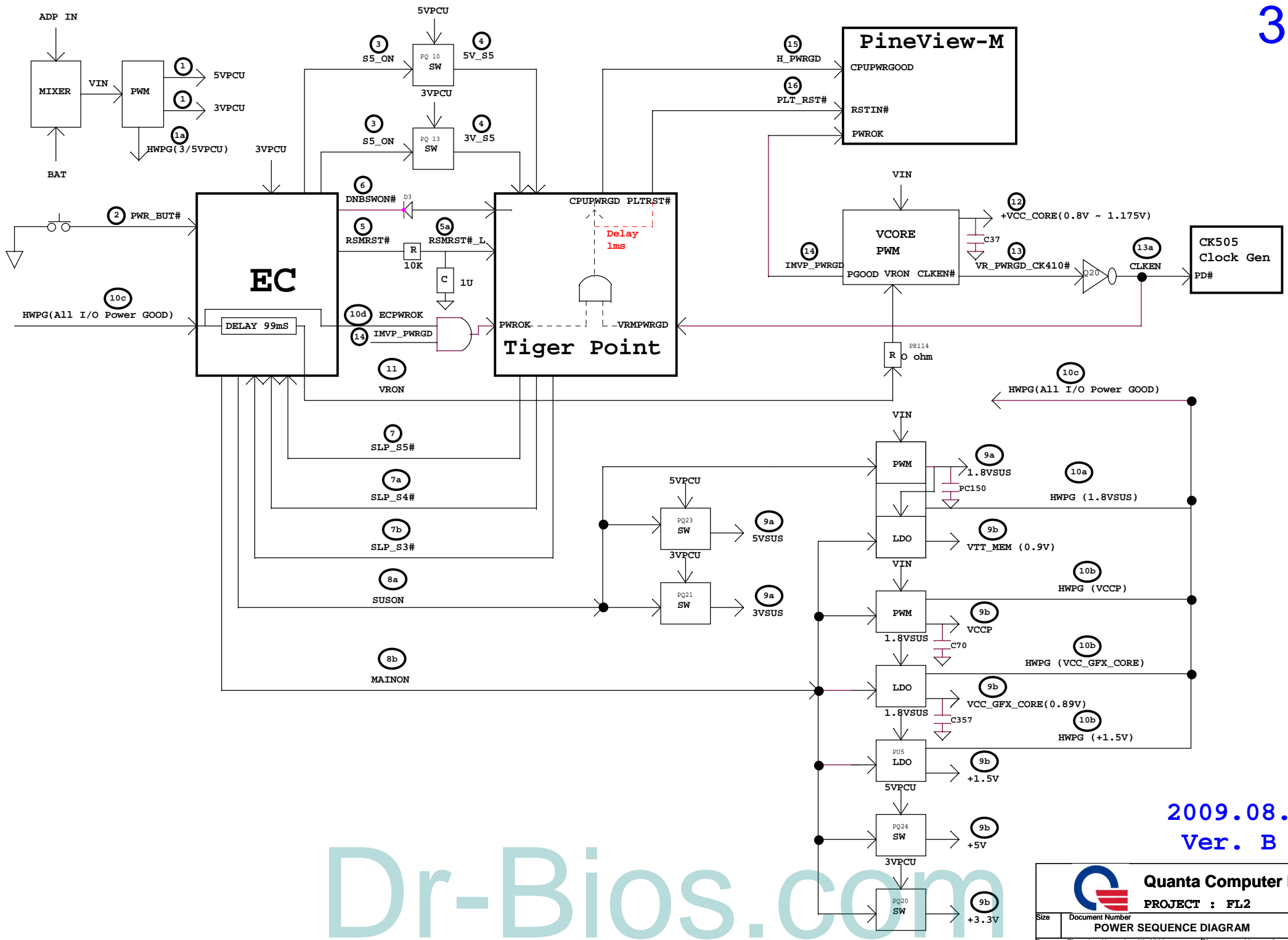
# Decoupling Cap

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2009.08.03  
Ver. B

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**POWER SEQUENCE DIAGRAM**




MODEL : REV : CHANGE LIST :

MODEL : FL2 MB

FL2  
MotherBoard

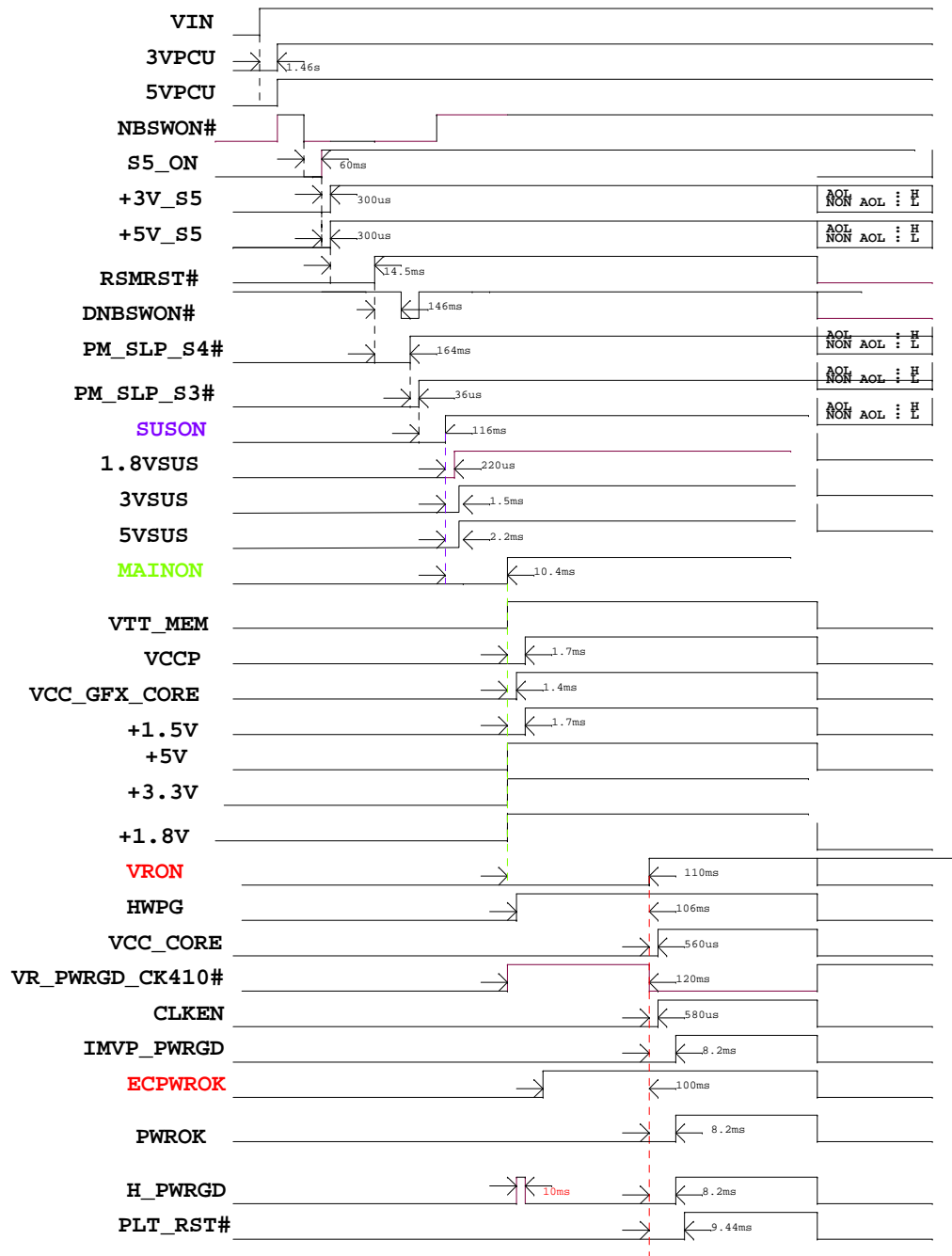
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39	1A	



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	<b>FL2 EC Record List_B</b>	1A
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