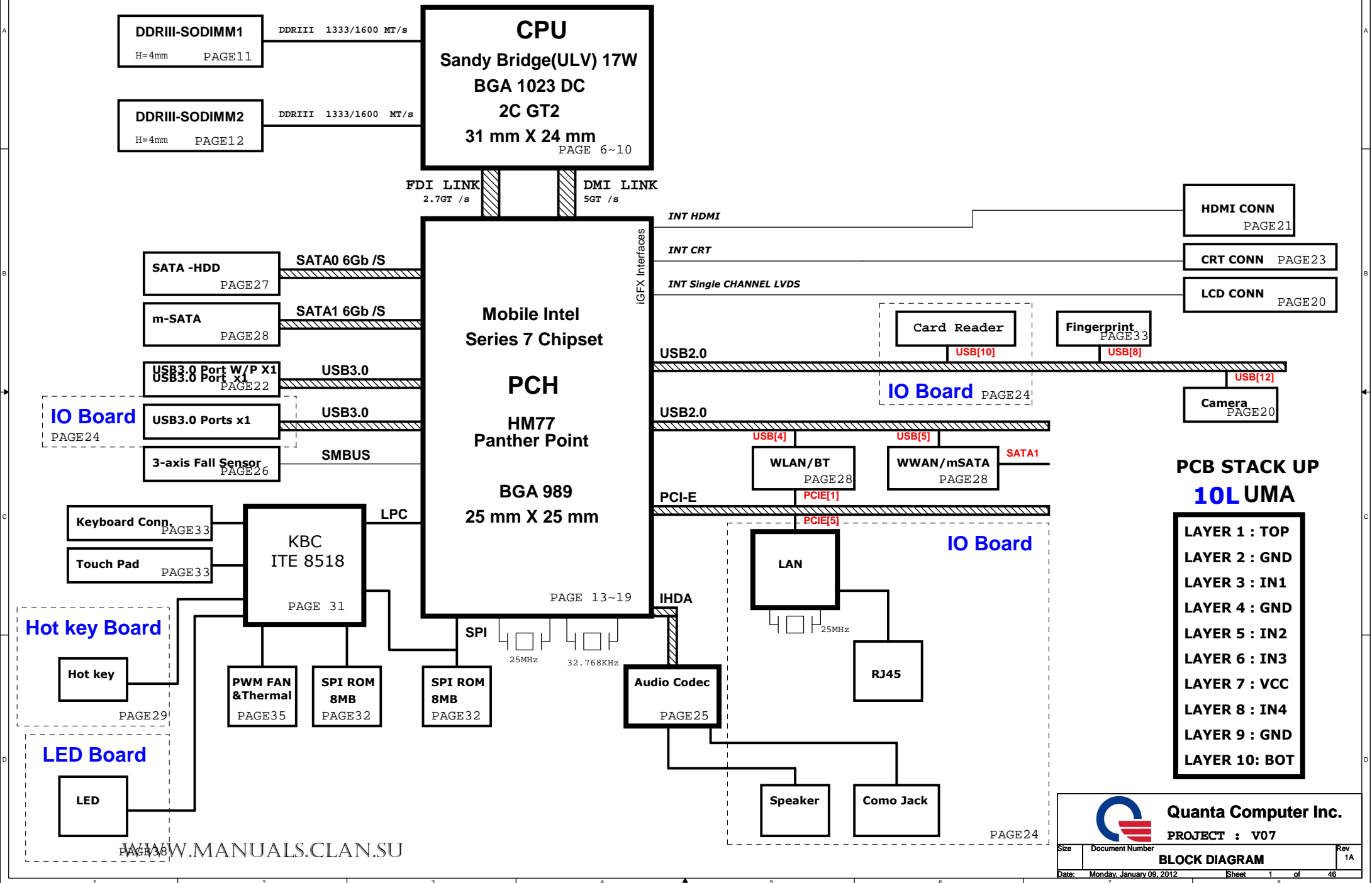
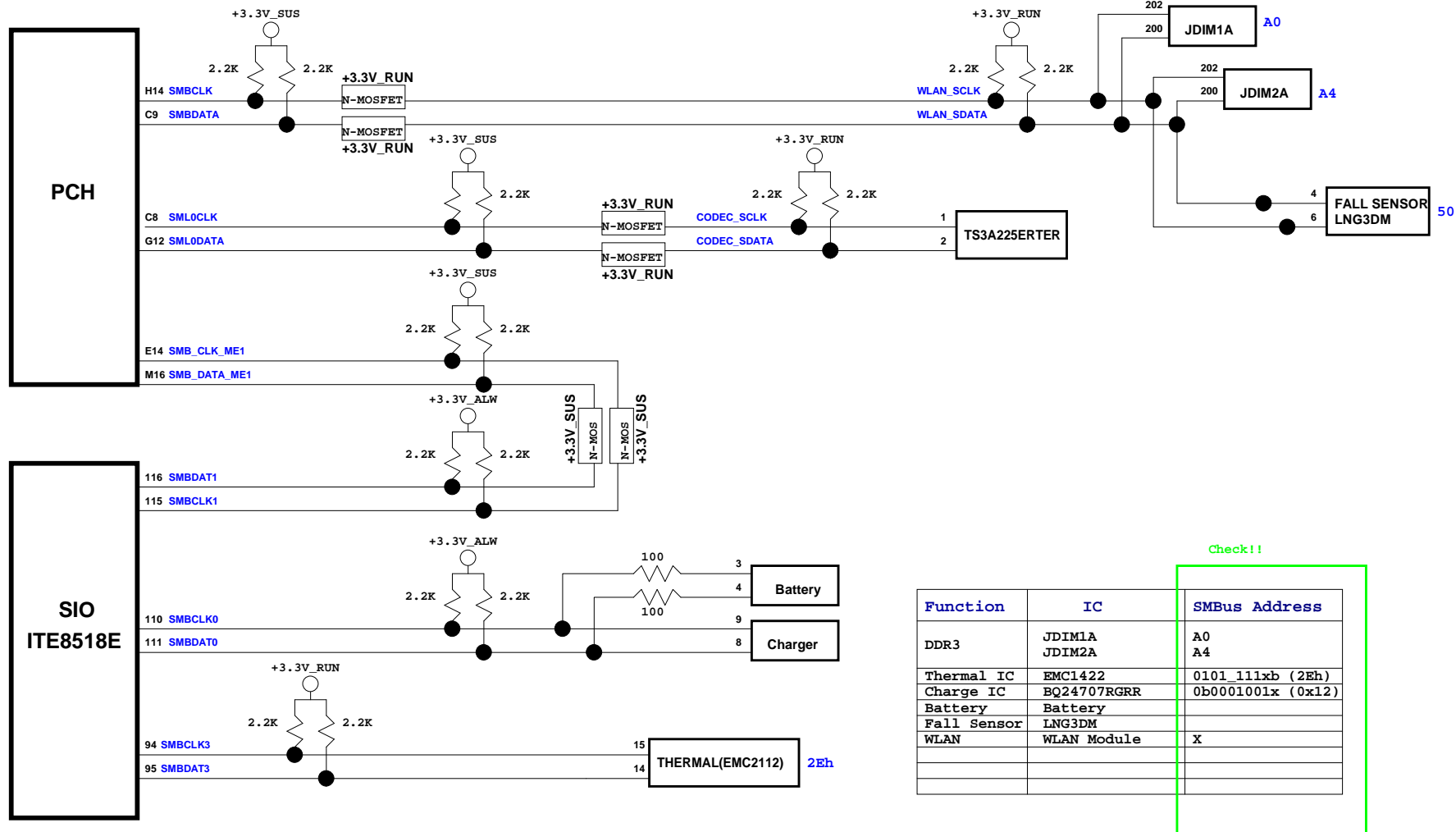


V07 BLOCK DIAGRAM





SCREW PAD

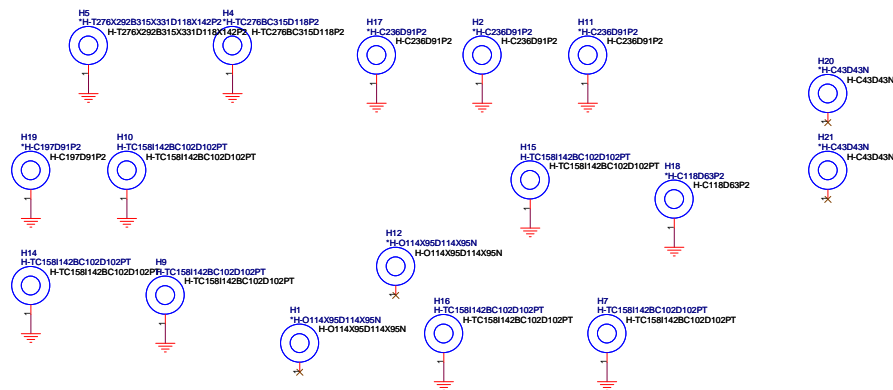
0704 Delet H1-H10, H12-H25

MB

CPU

PCH

GPU



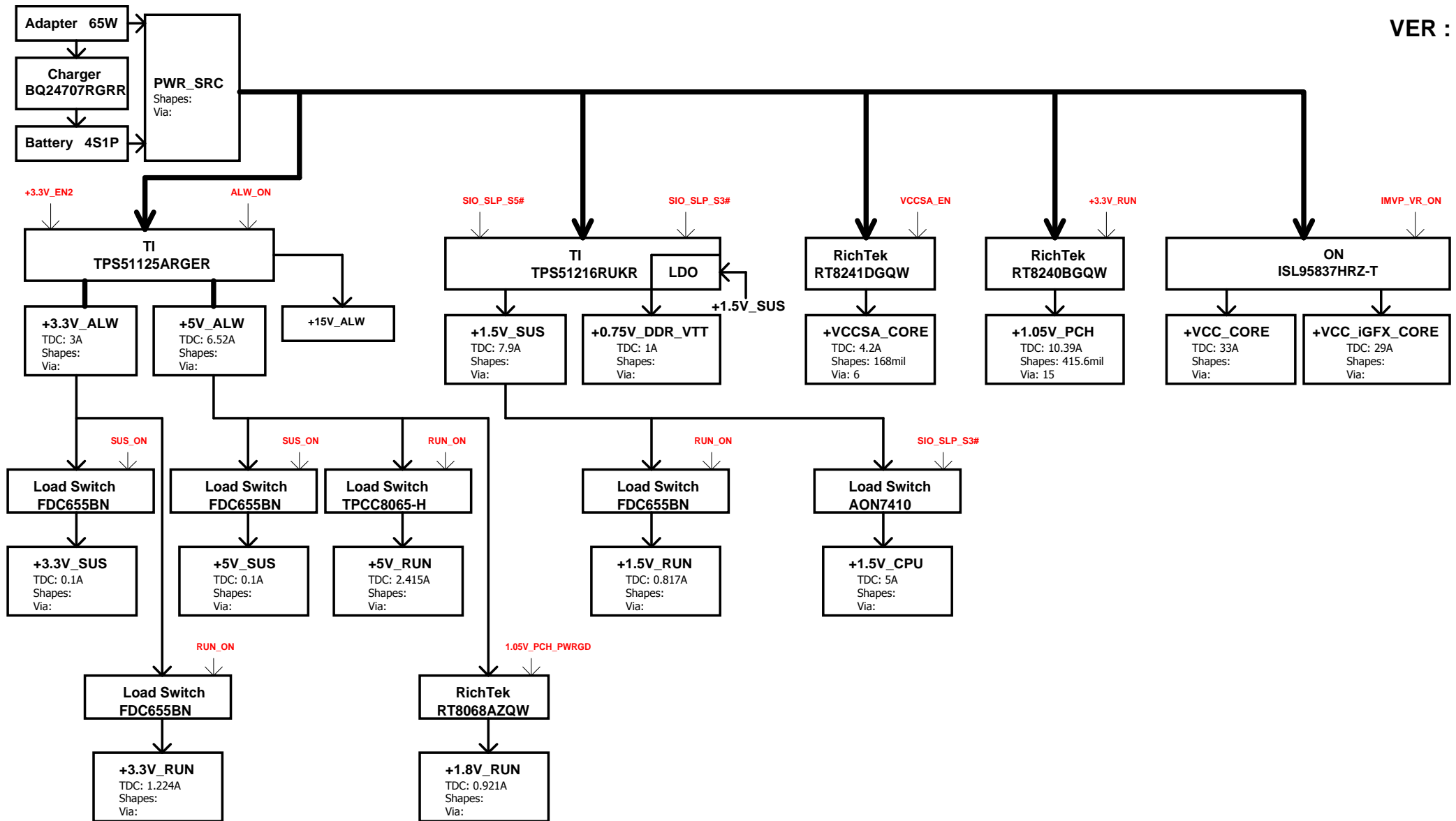
For CPU Use

0704 Modify footprint from "INTEL-CPU-BRACKET" to "intel-cpu-bkt2"

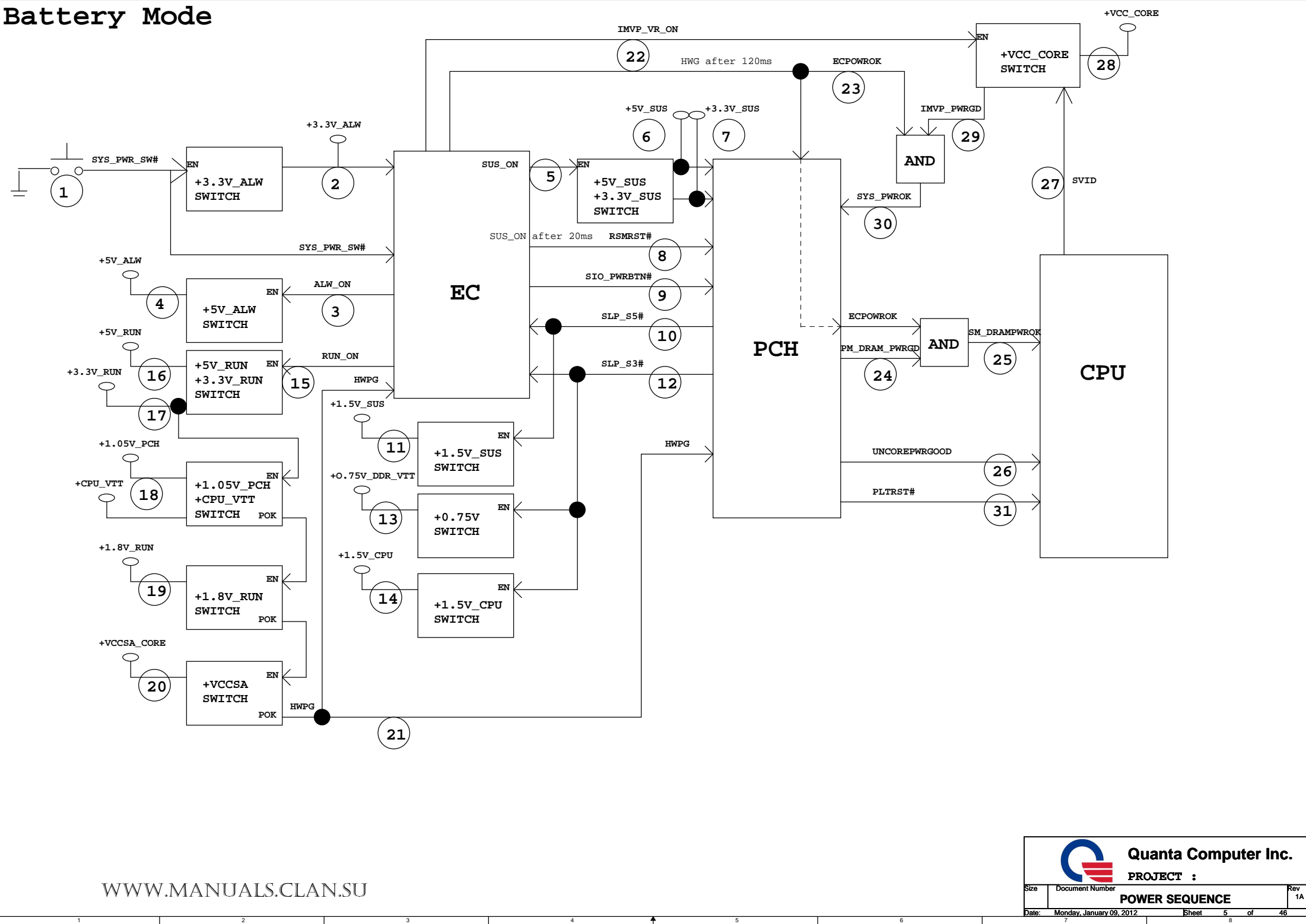
USB Master	Port Assignment
USB0	External port#1 (USB3.0)
USB1	External port#2 (USB3.0/eSATA/ Power share/ debug port)
USB2	External port#3 (USB3.0)
USB3	External port#4 (USB3.0) (NC)
USB4	MiniCard 1 (WLAN/BT/WiMAX)
USB5	MiniCard 2 (WWAN)
USB6	X(FOR HM77)
USB7	X(FOR HM77)
USB8	Fingerprint
USB9	Touch panel (NC, for debug)
USB10	Card Reader
USB11	Express Card (NC)
USB12	Camera
USB13	NC

SATA Master	Port Assignment
SATA0	HDD
SATA1	mSATA
SATA2	NC
SATA3	ODD (NC)
SATA4	eSATA (NC)
SATA5	NC

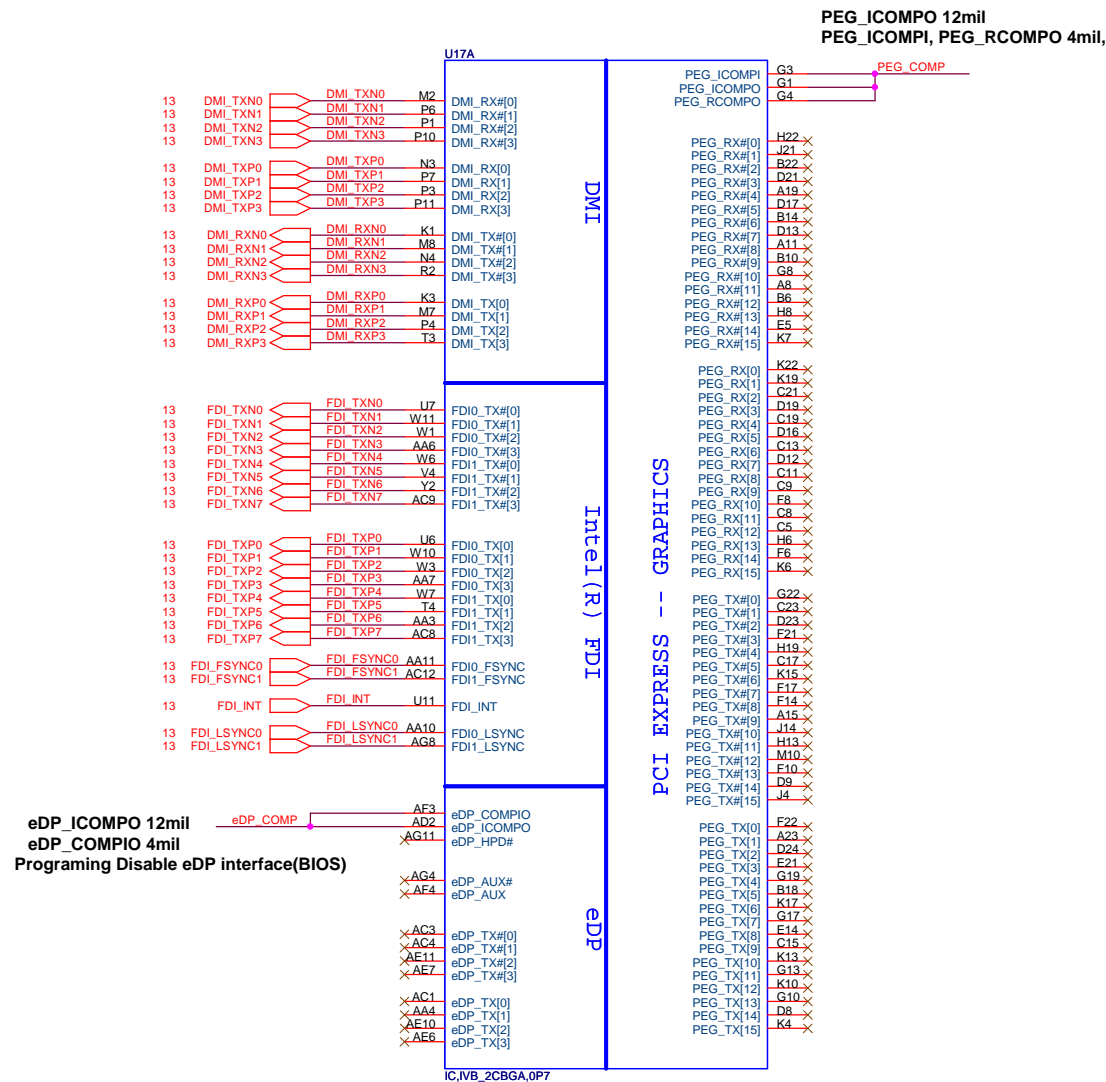
PCIE Master	Port Assignment
PCIE 1	WLAN
PCIE 2	WWAN (NC)
PCIE 3	Card reader (NC)
PCIE 4	NC
PCIE 5	LAN
PCIE 6	Express card (NC)
PCIE 7	NC
PCIE 8	NC



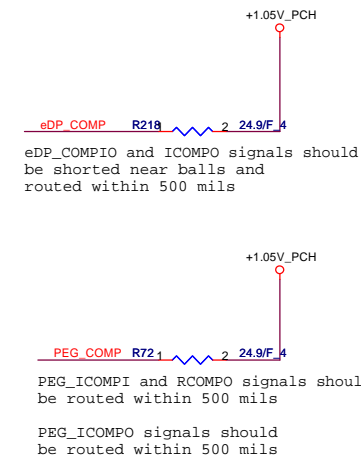
Battery Mode



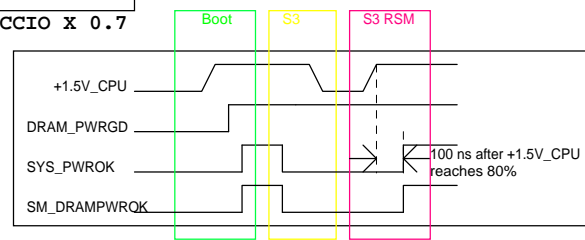
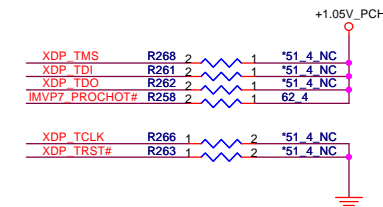
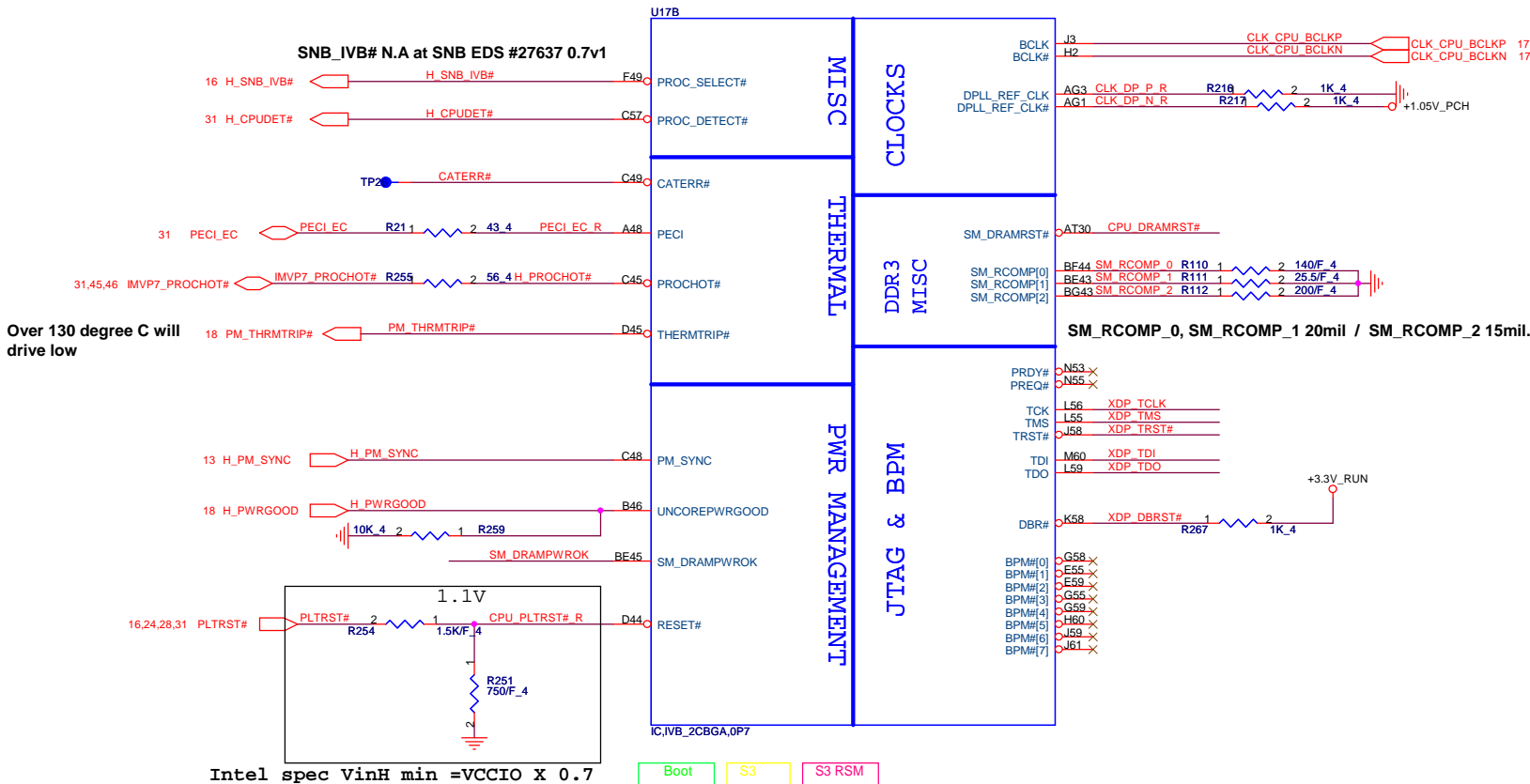
Ivy Bridge Processor (RESERVED, CFG)



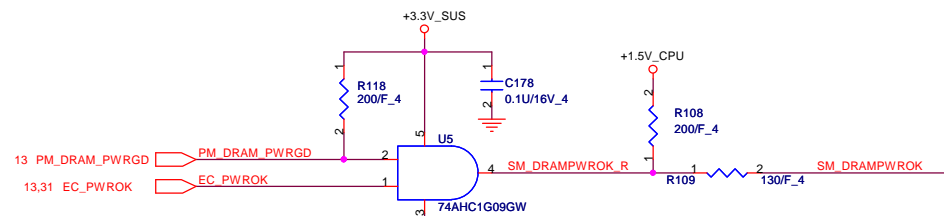
DP & PEG Compensation



Ivy Bridge Processor (CLK,MISC,JTAG)

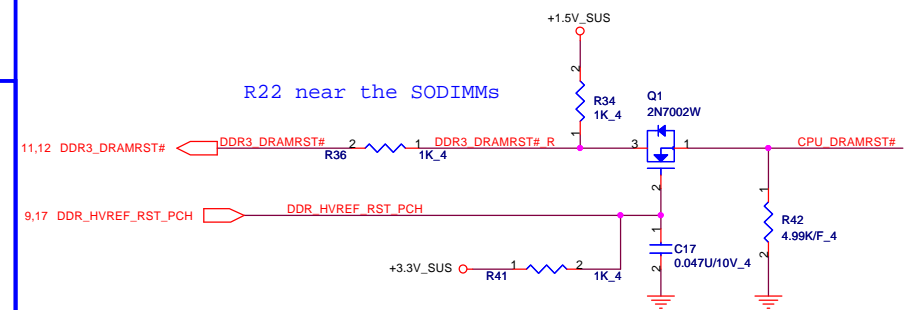


Follow #DG1.0 436735 P105
DDR Power Gating Topology



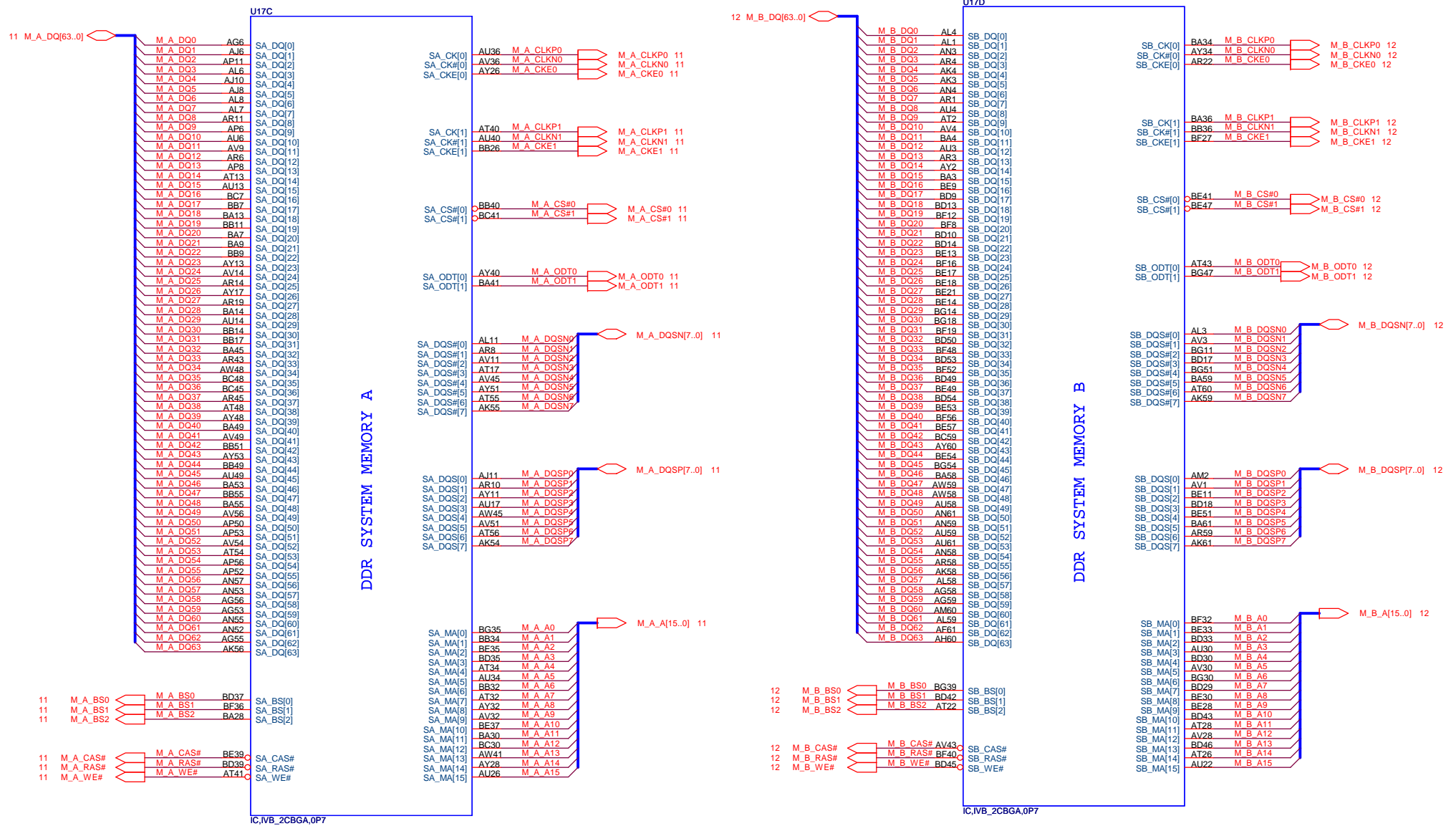
WWW.MANUALS.CLEAN.SU

Follow #DG1.0 436735 P107
DRAMRST# Routing Illustration



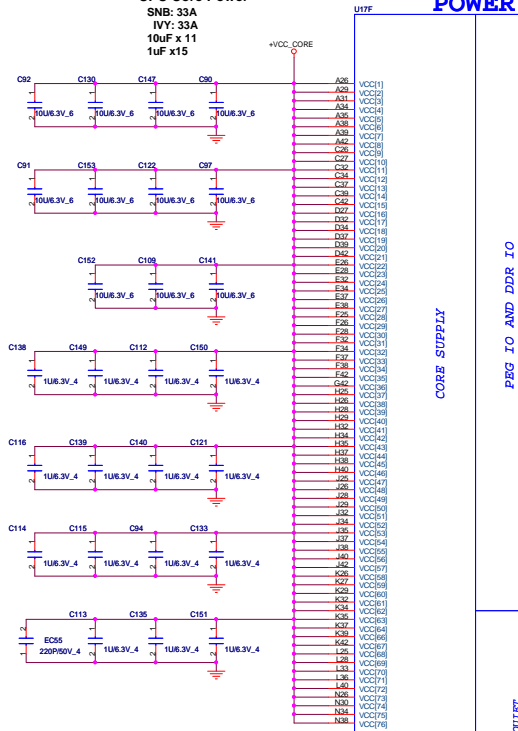
Quanta Computer Inc.
PROJECT : V07

Ivy Bridge Processor (DDR3)



Ivy Bridge Processor

CPU Core Power
SNB: 33A
IVY: 33A
10uF x 11
1uF x 15



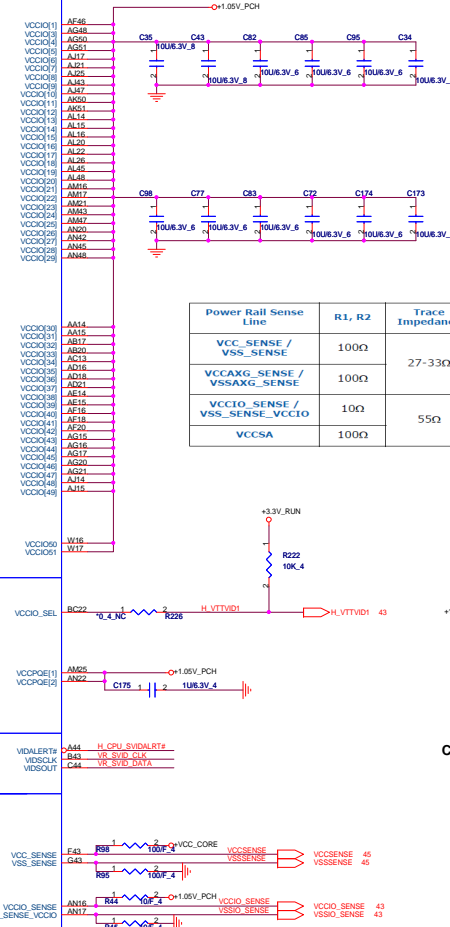
POWER

CORE SUPPLY
PBG IO AND DDR IO

QUIET RAILS
SVID

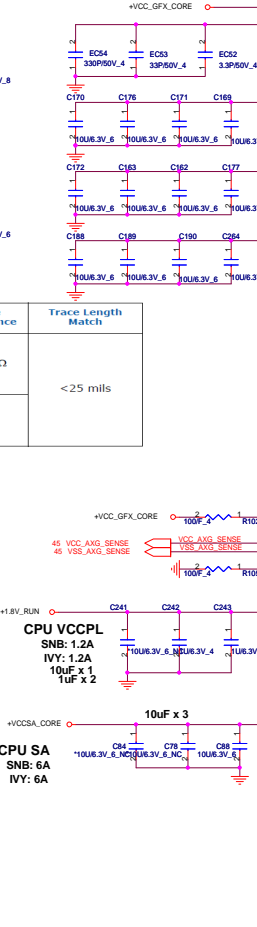
SENSE LINES

1.05V_PCH
SNB: 8.5A
IVY: 8.5A
10uF x 12



Power Rail Sense Line	R1, R2	Trace Impedance	Trace Length Match
VCCG_SENSE / VSS_SENSE	100Ω	27-33Ω	< 25 mils
VCCAGG_SENSE / VSSAGG_SENSE	100Ω		
VCCIO_SENSE / VSS_SENSE_VCCIO	10Ω	55Ω	
VCCSA	100Ω		

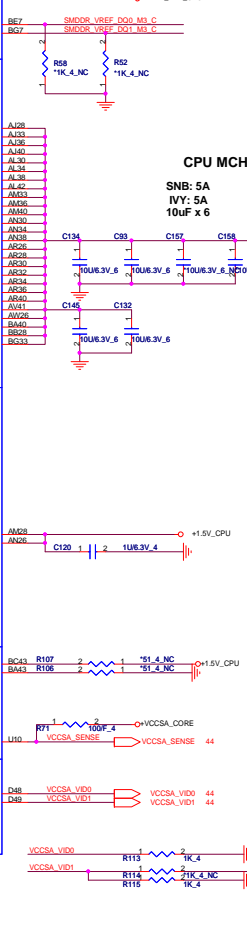
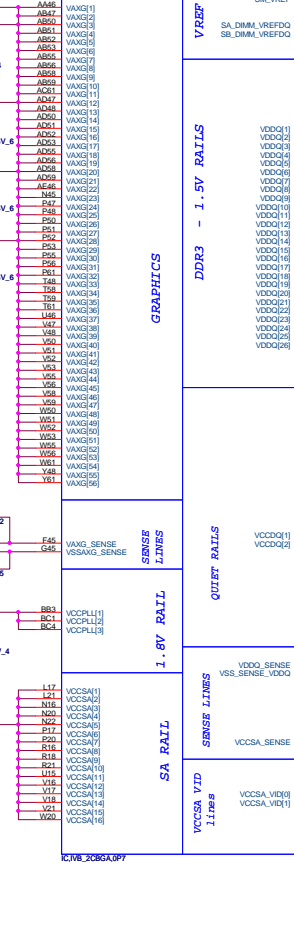
CPU VGT
SNB: 29A
IVY: 29A
10uF x 12



Ivy Bridge Processor (GRAPHIC POWER)

POWER

CAD Note: +VDDR_REF_CPU should have 10 mil trace width



CPU MCH
SNB: 5A
IVY: 5A
10uF x 6

QUIET RAILS
SENSE LINES

1.8V RAIL
SENSE LINES

SA RAIL
SENSE LINES

VCCSA V/D LINES

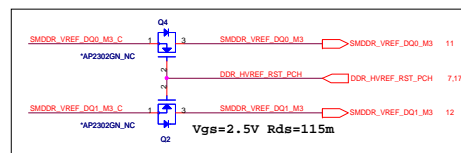
VCCSA V/D LINES

VCCSA V/D LINES

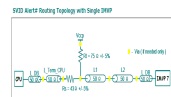
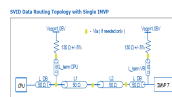
VCCSA V/D LINES

VCCSA V/D LINES

M3 VREF



Vgs=2.5V Rds=115m



Layout note: need routing together and ALERT need between CLK and DATA

SVID CLK

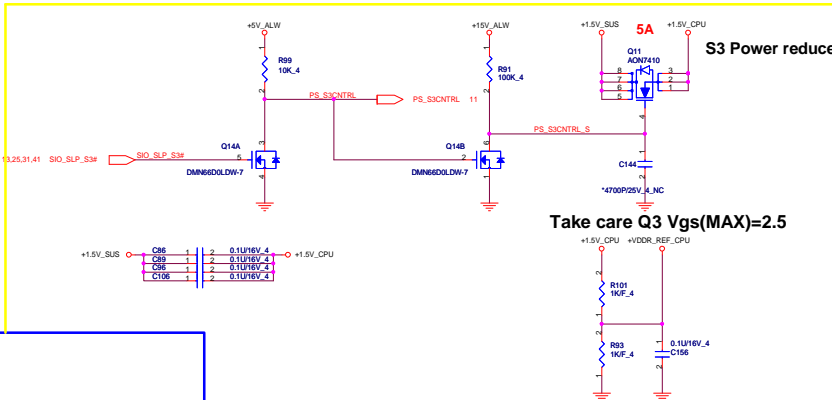
Place PU resistor close to CPU

SVID DATA

Place PU resistor close to CPU

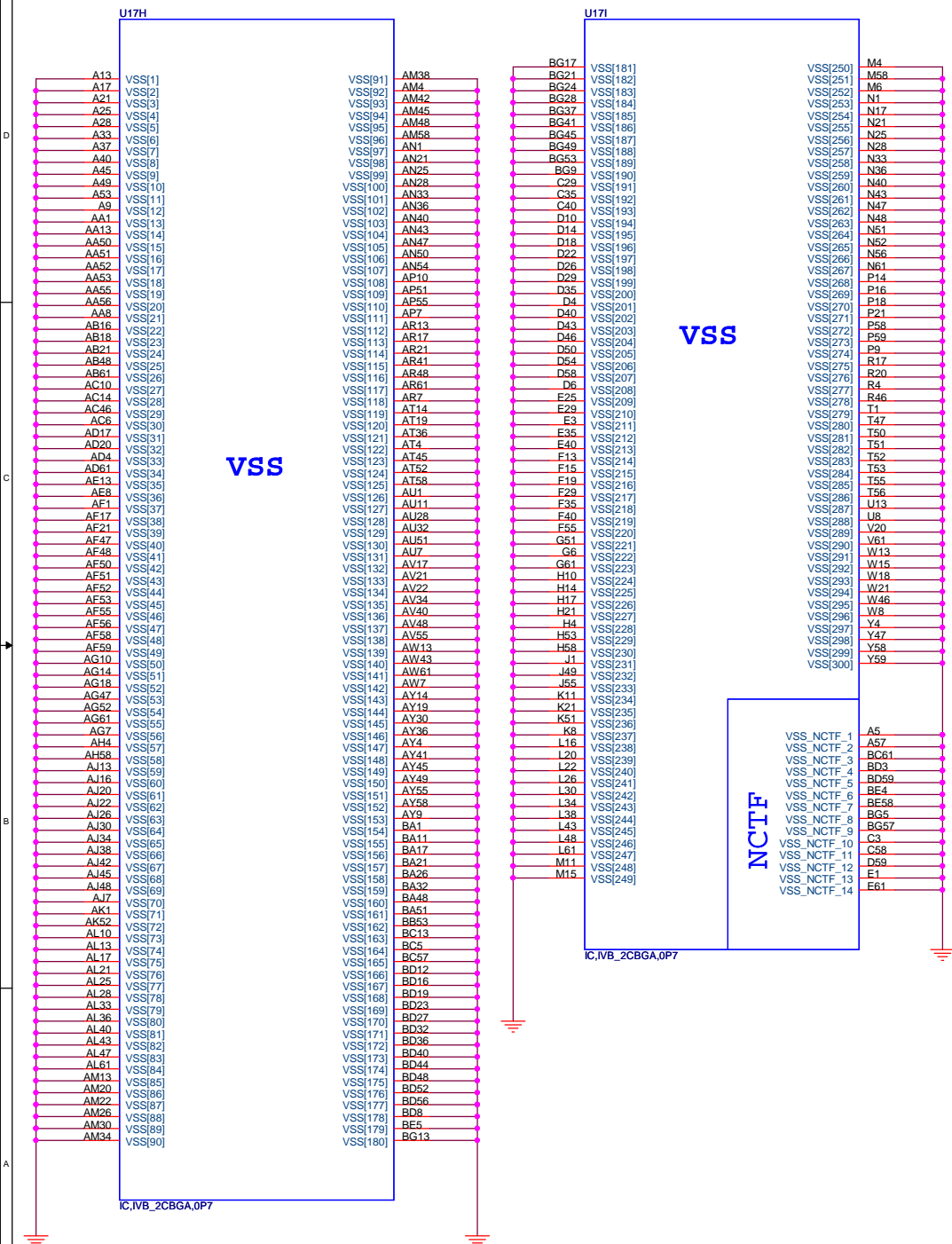
SVID ALERT

S3 Power reduce

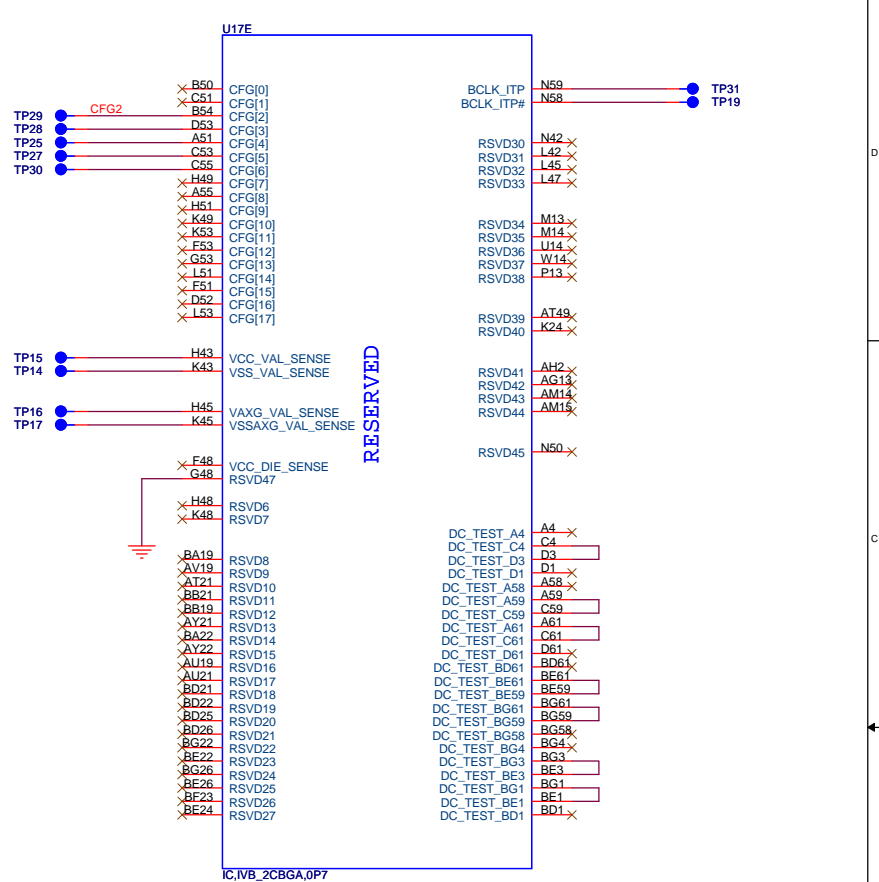


Take care Q3 Vgs(MAX)=2.5

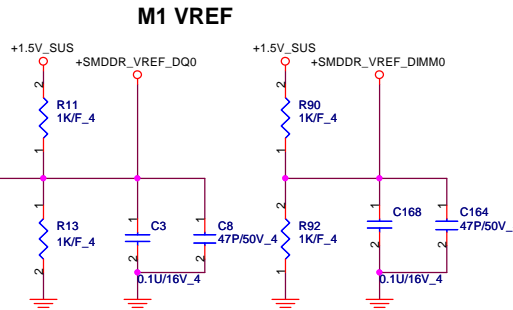
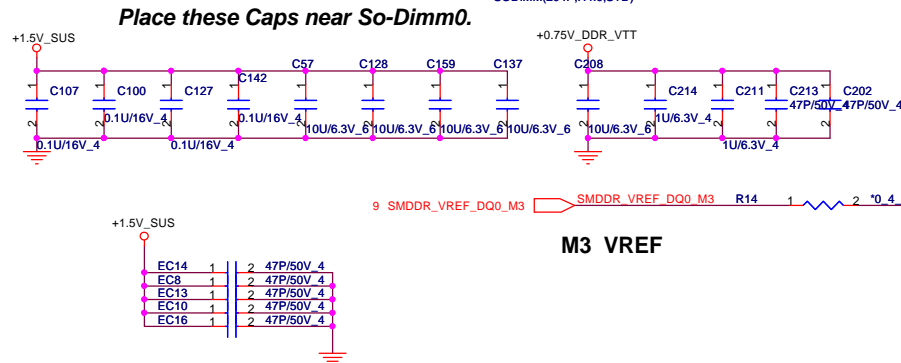
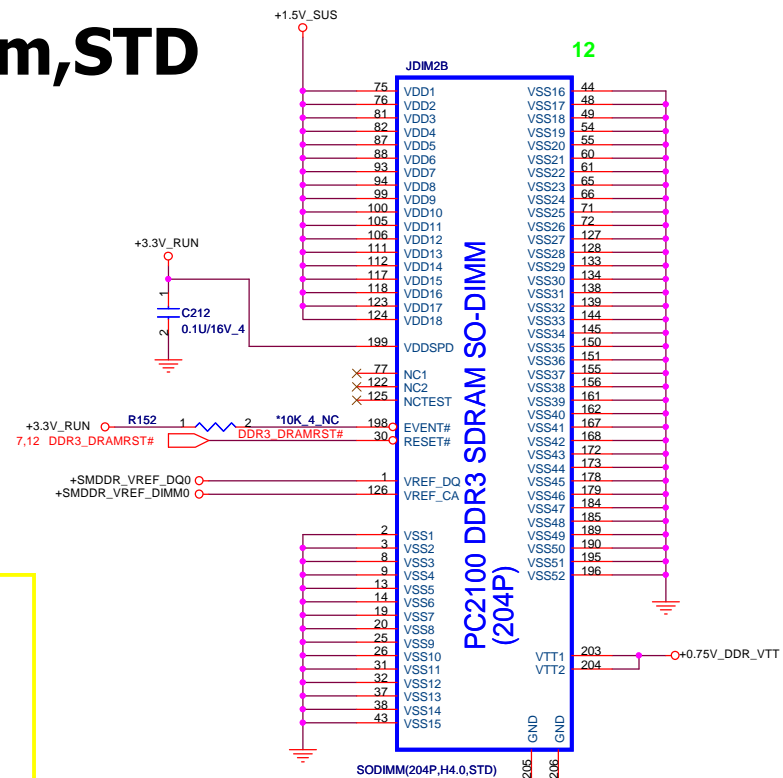
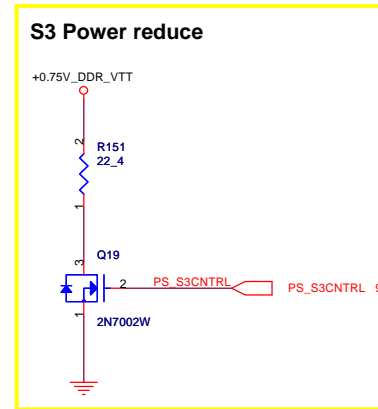
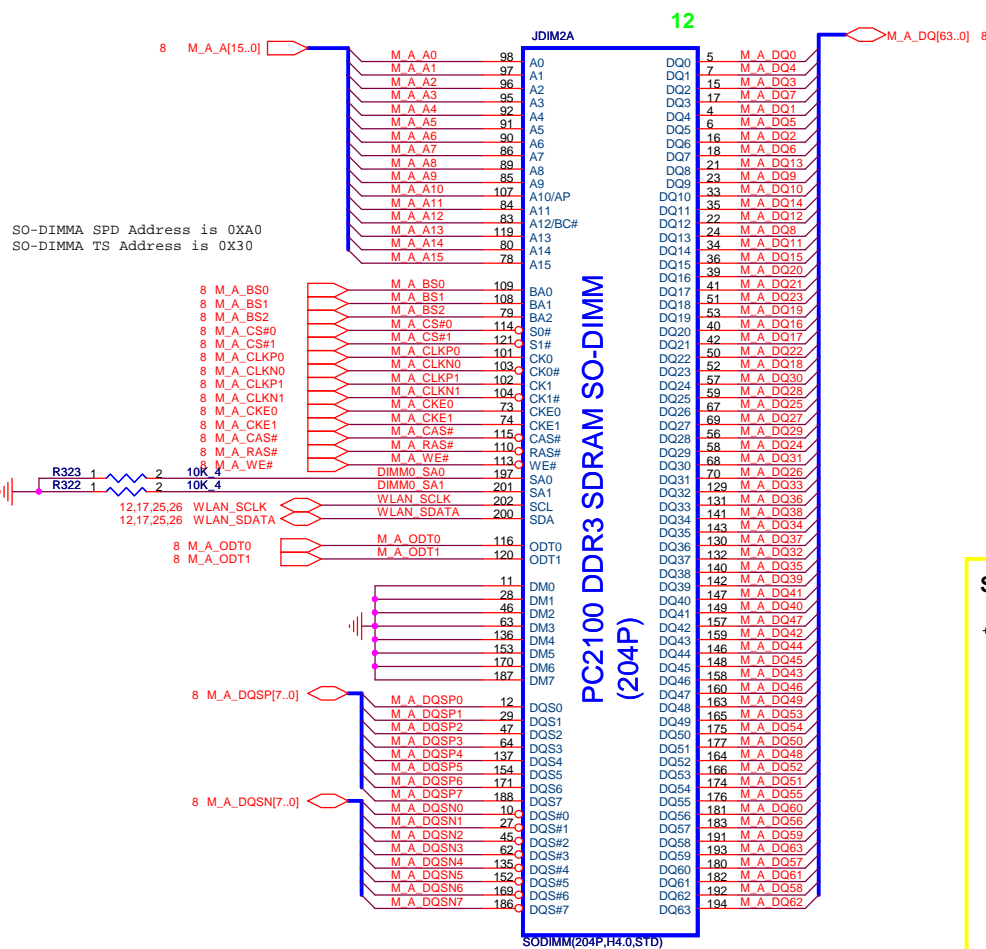
Ivy Bridge Processor (GND)



Ivy Bridge Processor (RESERVED, CFG)



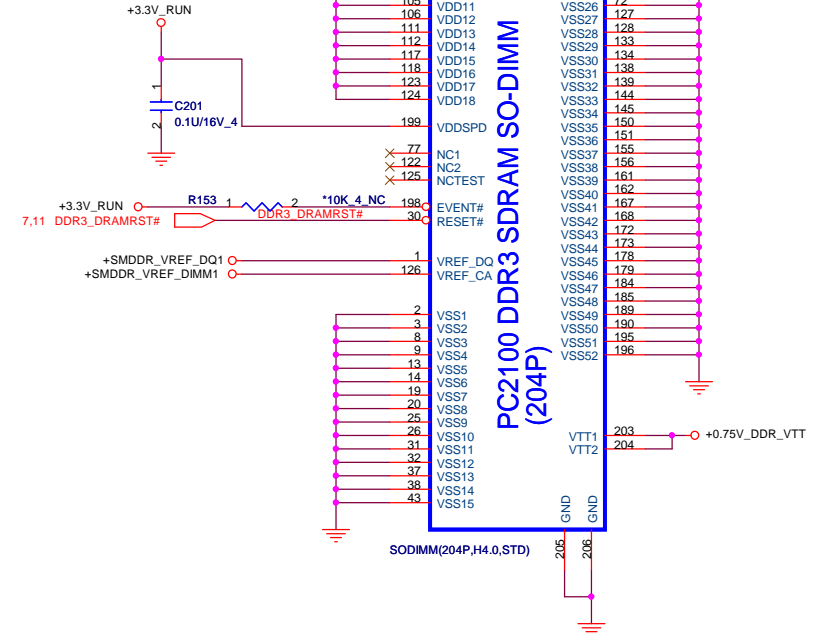
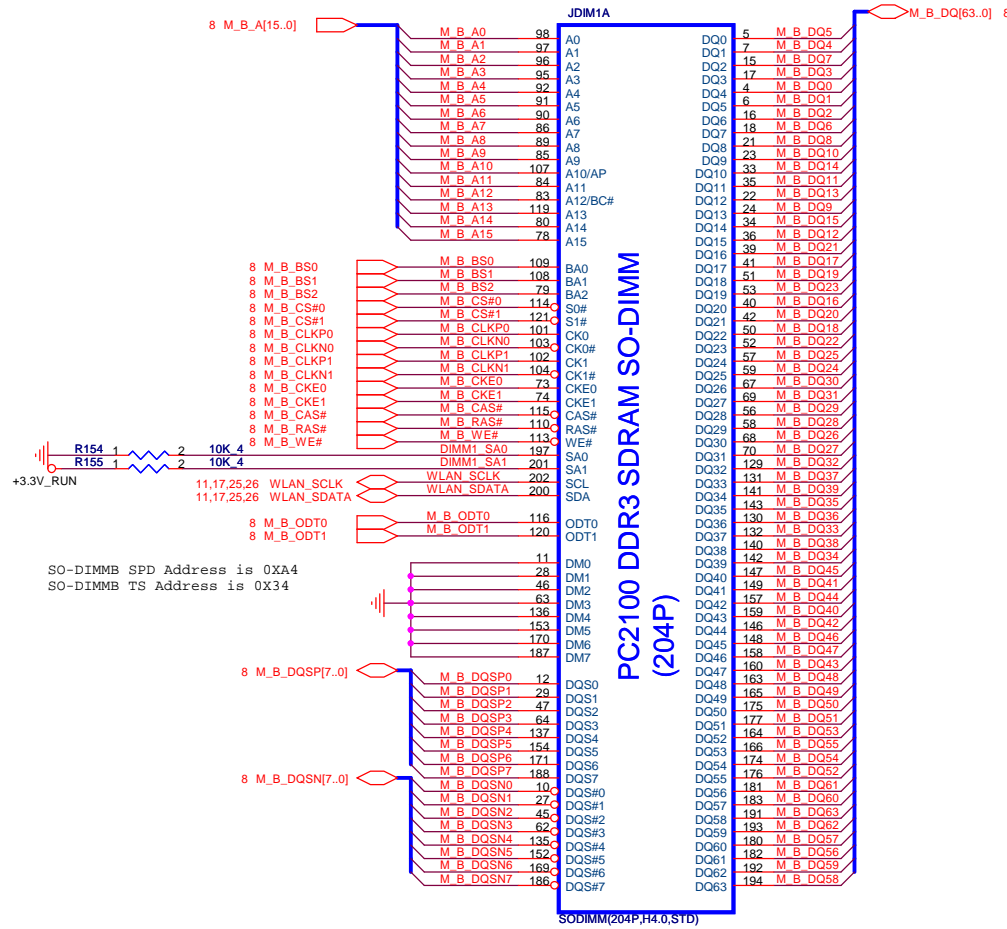
H=4mm,STD



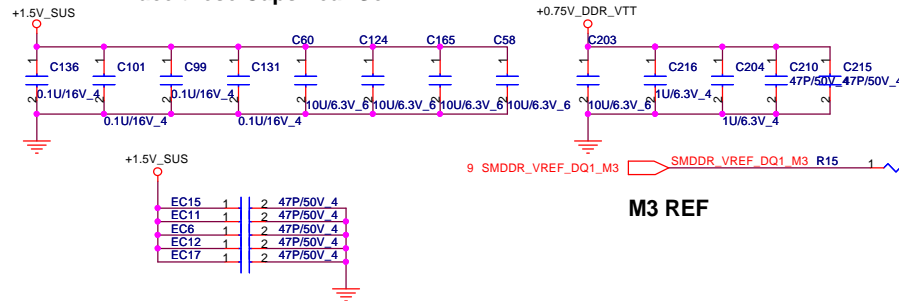
Place these Caps near So-Dimm0.

WWW.MANUALS.CLAN.SU

H=4mm,STD

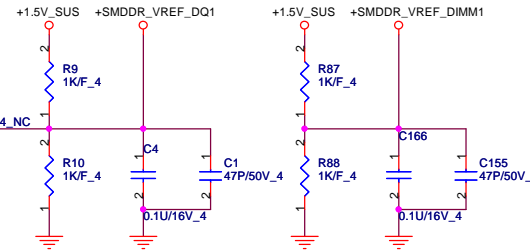


Place these Caps near So-Dimm1.

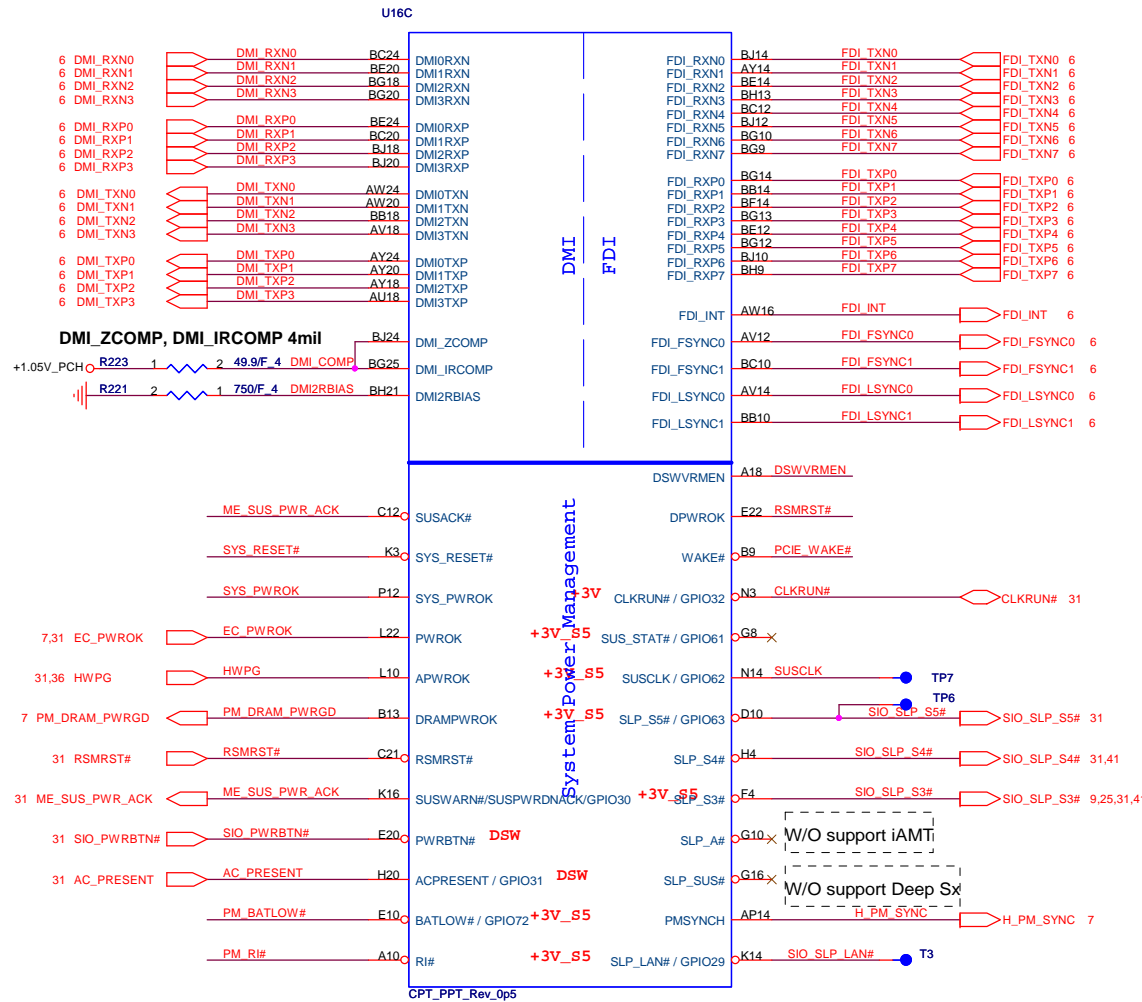


Place these Caps near So-Dimm0.

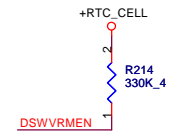
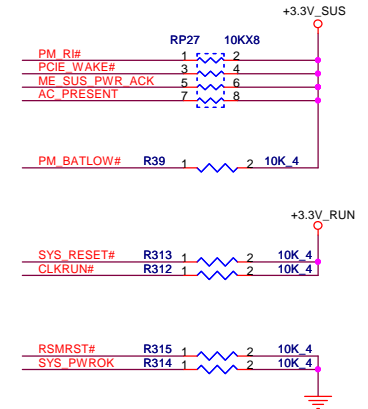
M1 VREF



Cougar Point/Panther Point (DMI,FDI,PM)



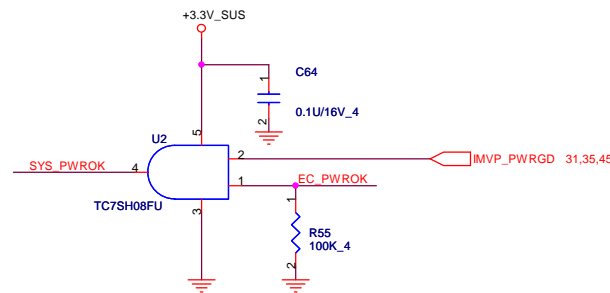
PCH Pull-high/low(CLG)



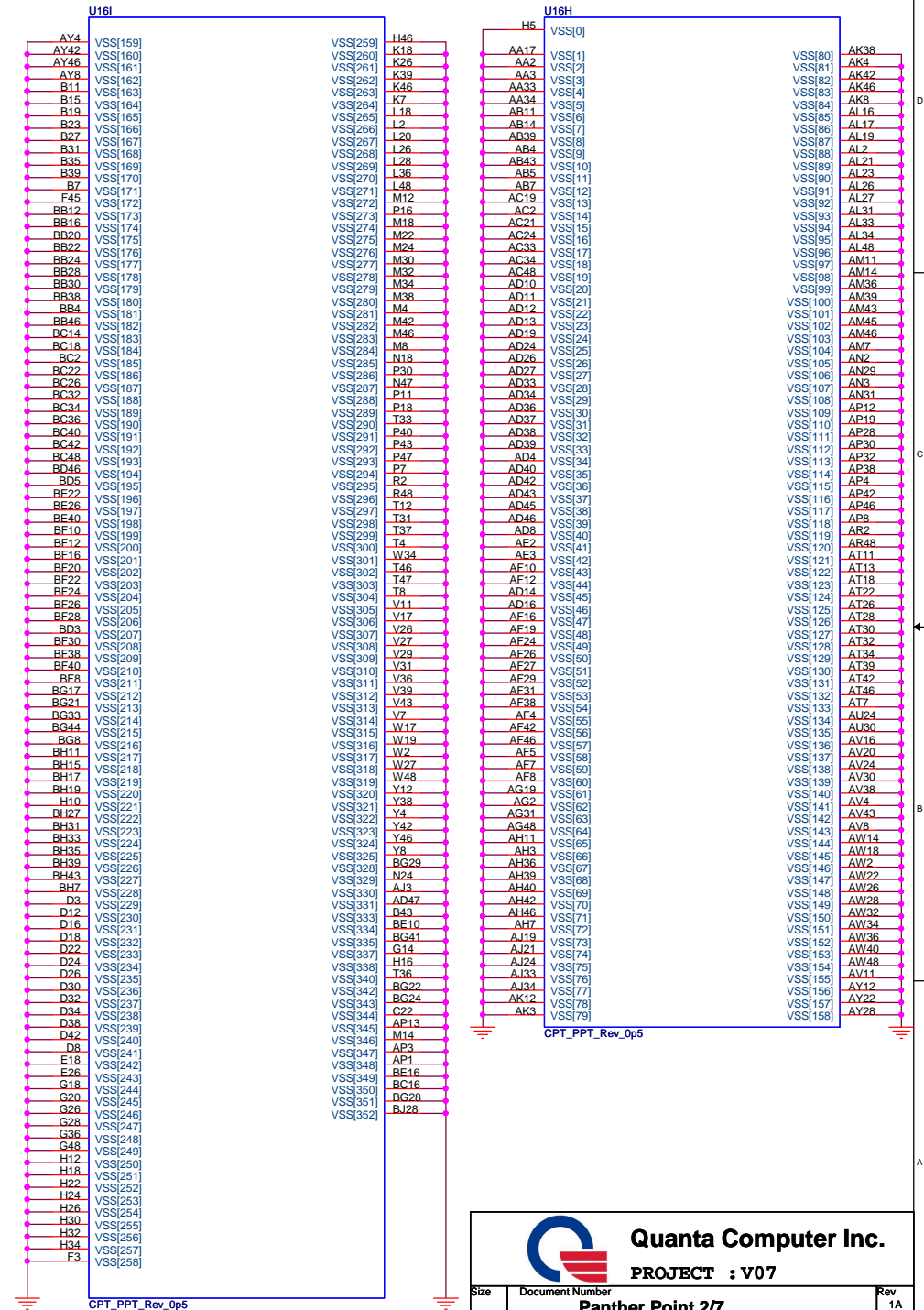
On Die DSW VR Enable

High = Enable (Default)

Low = Disable

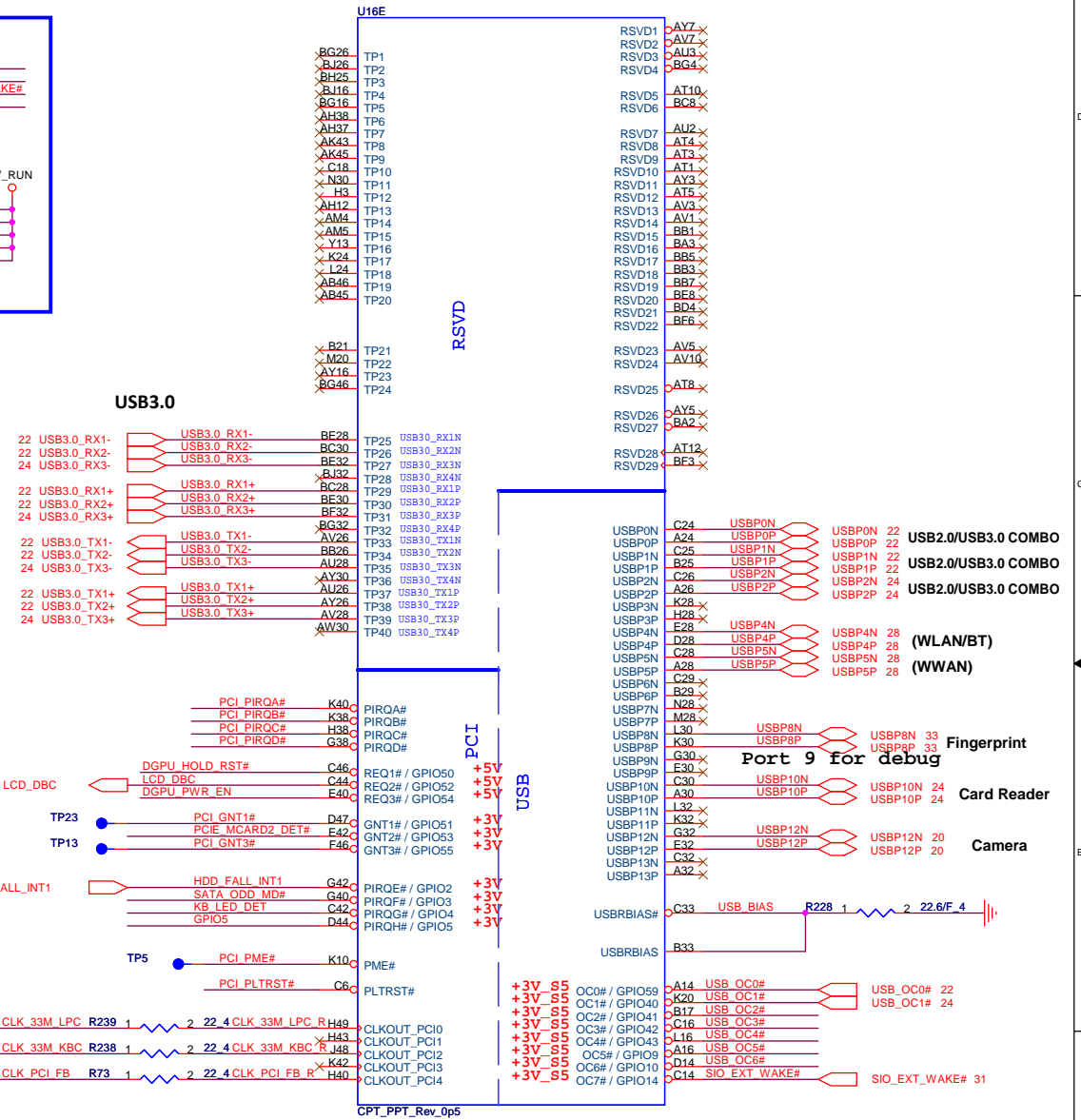
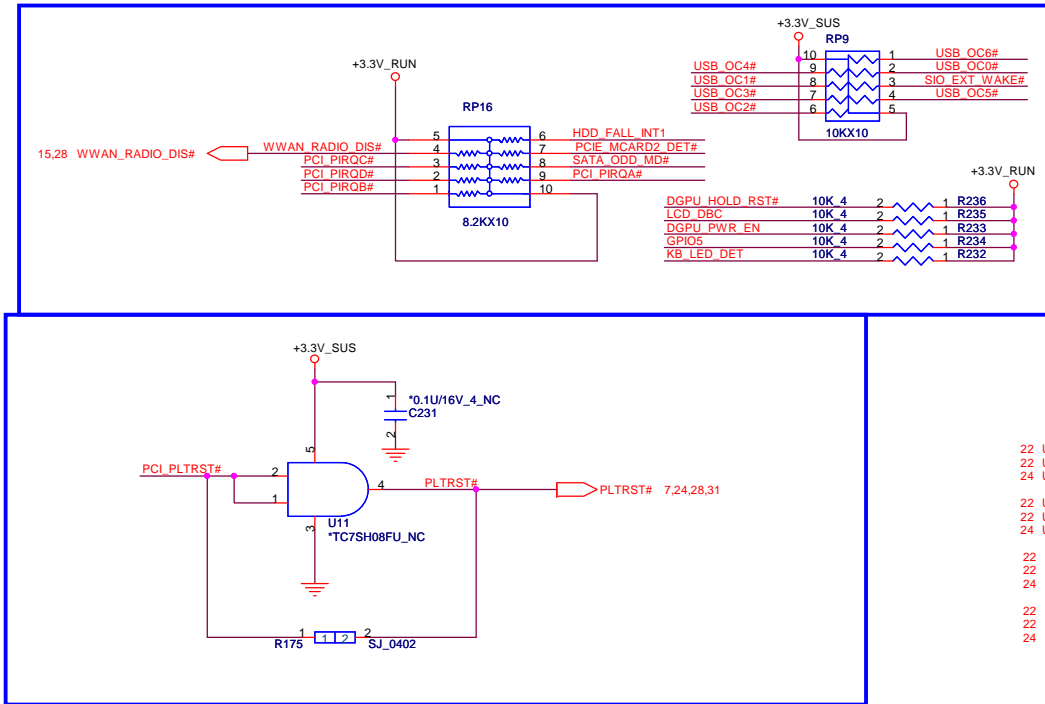


Cougar Point/Panther Point (GND)

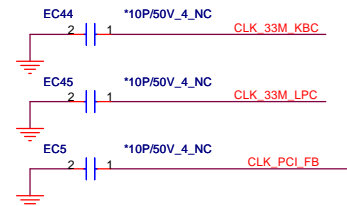


BOM setup	Vostro	Inspiron
R241,R242,R243	POP	NC

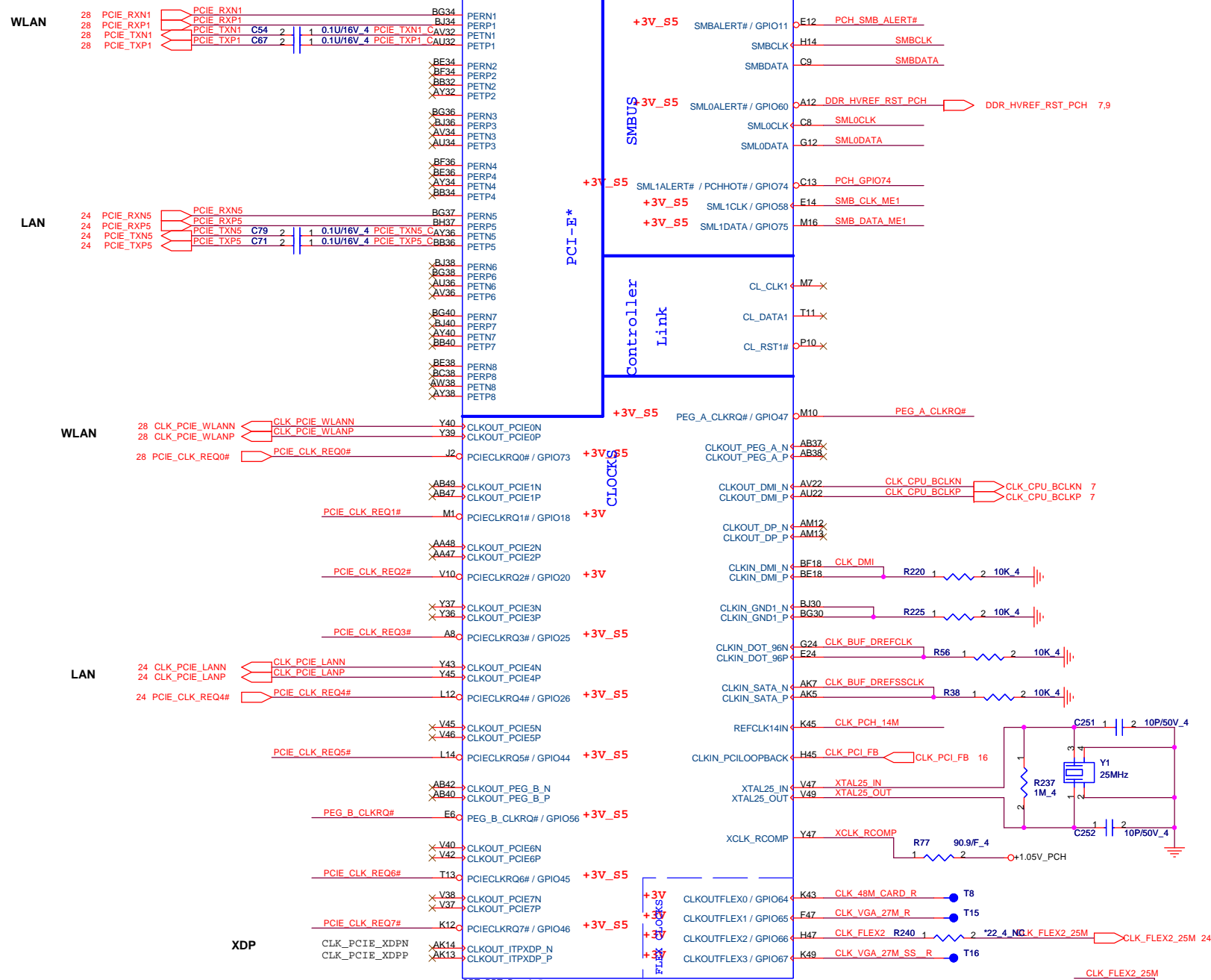
Cougar Point-M/Panther Point (PCI,USB,NVRAM)



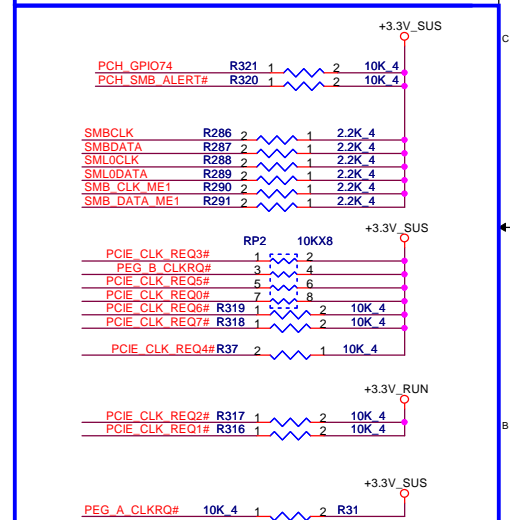
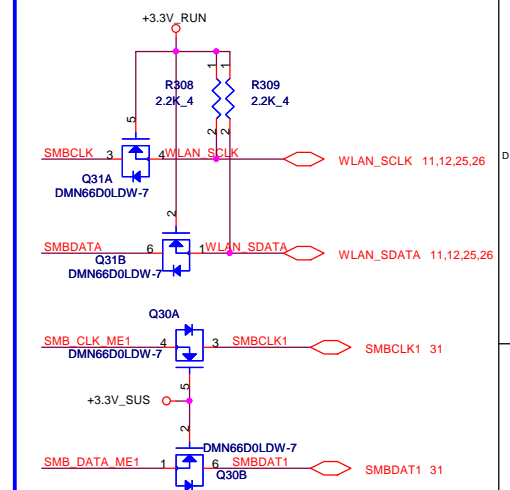
Pin Name	Strap description	Sampled	Configuration									
GNT2# / GPIO53	ESl strap (Server only)	PWROK	Should not be pull-down (weak pull-up 20K)									
GNT3# / GPIO55	Top-Block Swap Override	PWROK	0 = "top-block swap" mode 1 = Default (weak pull-up 20K)									
GNT1# / GPIO51	Boot BIOS Selection 1 [bit-1]	PWROK	<table><tr><th>Bit 0</th><th>Bit 1</th><th>Boot Location</th></tr><tr><td>1</td><td>1</td><td>SPI *</td></tr><tr><td>0</td><td>0</td><td>LPC</td></tr></table>	Bit 0	Bit 1	Boot Location	1	1	SPI *	0	0	LPC
Bit 0	Bit 1	Boot Location										
1	1	SPI *										
0	0	LPC										
GPIO19	Boot BIOS Selection 0 [bit-0]	PWROK										
Default weak pull-up on GNT0/1# [Need external pull-down for LPC BIOS]												
DF_TVS	DML and FDI Tx/Rx Termination Voltage	PWROK	weak pull-down 20kohm									
<p>R25 2k 1 2.2K 4 +1.8V_RUN</p> <p>DF_TVS 1</p> <p>H_SNB_IVB# 7</p> <p>DF_TVS 1</p> <p>H_SNB_IVB# 7</p>												



U16B Cougar Point-M/Panther Point (PCI-E,SMBUS,CLK)

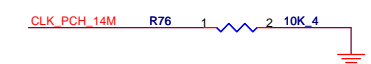


CLKOUTFLEX0 / GPIO64	Configurable as a GPIO or as a programmable output clock which can be configured as one of the following:
CLKOUTFLEX1 / GPIO65	• 33 / 27 / 48/ 14.318 MHz / DC Output logic '0'
CLKOUTFLEX2 / GPIO66	unsupported clock output value (Default) / 27/ 14.318 MHz output to SIO/EC / 48/24 MHz
CLKOUTFLEX3 / GPIO67	• 33/25/27/48/24/14.318 MHz / DC Output logic '0'
	• 27 / 14.318 output to SIO/48/24 MHz (Default)



CLK_REQ/Strap Pin(CLG)

Stuff for Integrated CLK Gen Mode

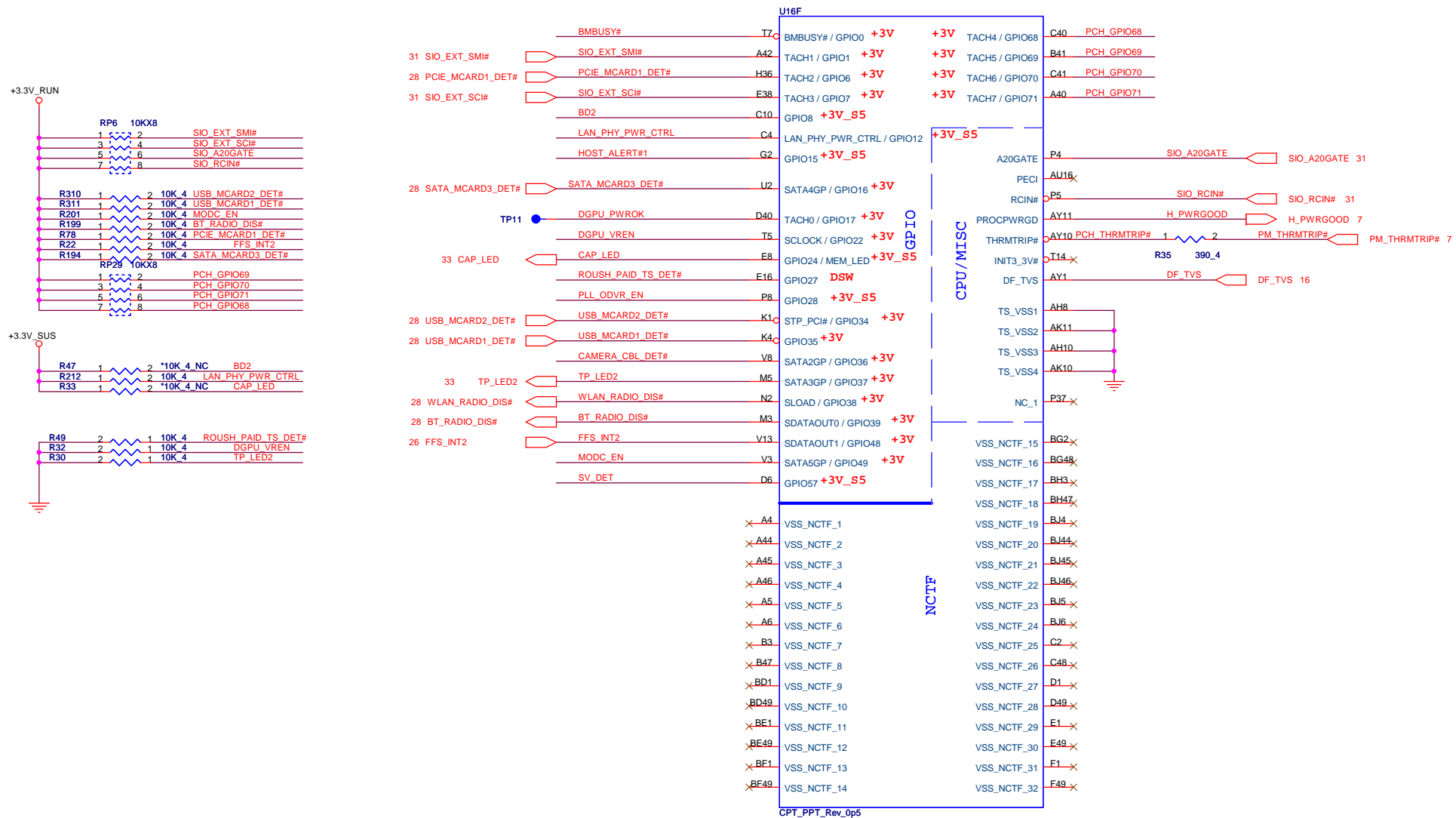
**Quanta Computer Inc.**

PROJECT : V07

Panther Point 5/7

Size	Document Number	Rev
	Panther Point 5/7	1A
Date:	Monday, January 09, 2012	Sheet 17 of 46

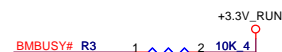
Cougar Point/Panther Point (GPIO,VSS_NCTF,RSVD)



Pin Name	Strap description	Sampled	Configuration
GPIO28	On-die PLL Voltage Regulator	RSMRST#	0 = Disable 1 = Enable (Default)

	DMI TERMINATION VOLTAGE OVERRIDE Low = Tx, Rx terminated to same voltage (DC Coupling Mode) (Default)
--	---

SGPIO



BMBUSY#:(Intel feedback)
Follow CRB checklist, 1K is
for intel BIOS validation purpose.

BMBUSY#:
If not used, require a weak pull-up
(8.2- KΩ to 10 KΩ) to Vcc3_3.
CRB(V1.0)P28: it has 1K PU and
100 ohm on this net for validation purpose.

+3.3V_SUS HOST_ALERT#1 R195 1 1K 4	+3.3V_SUS R28 1 10K 4 SV_DET
Intel ME Crypto Transport Layer Security (TLS) cipher suite Low = Disable (Default) High = Enable	

MFG-TEST

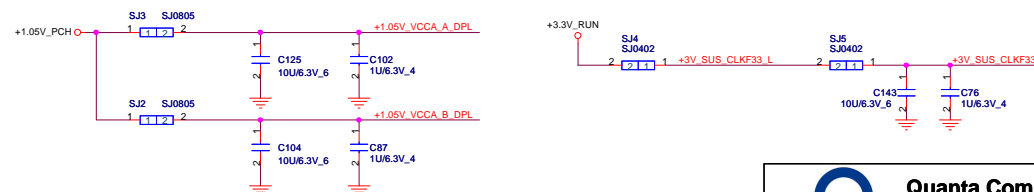
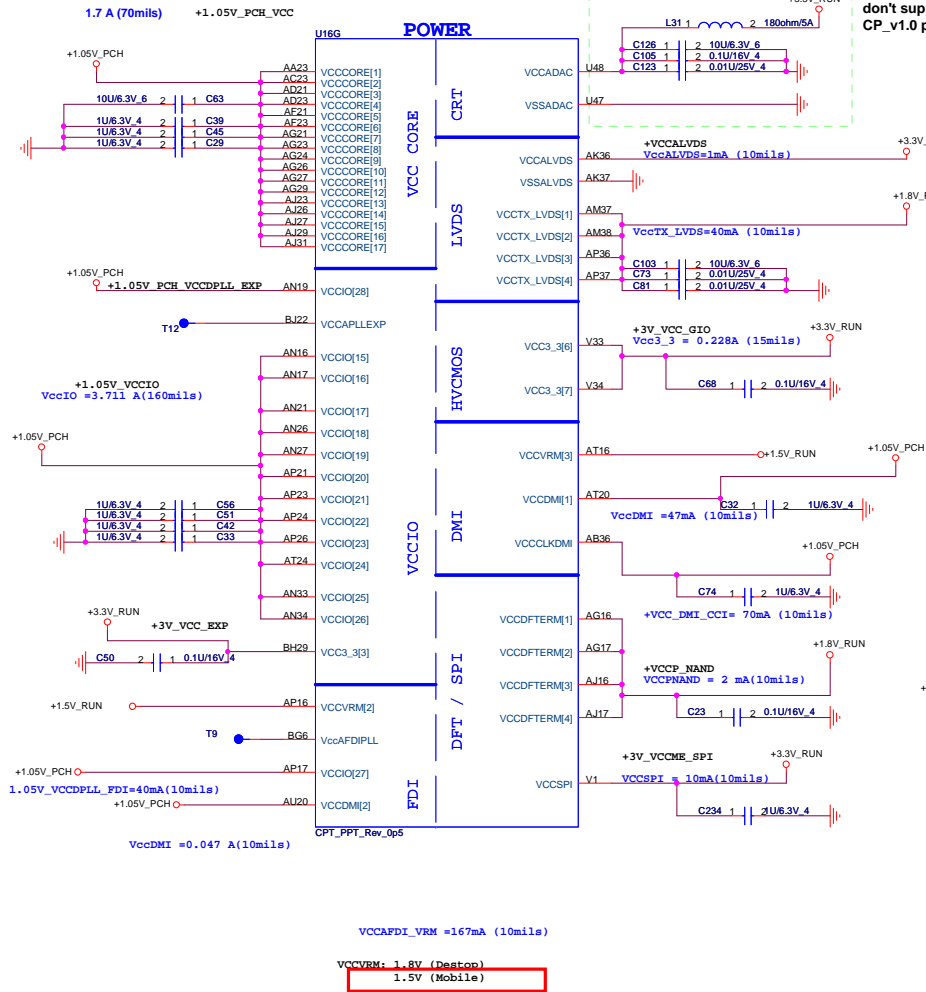


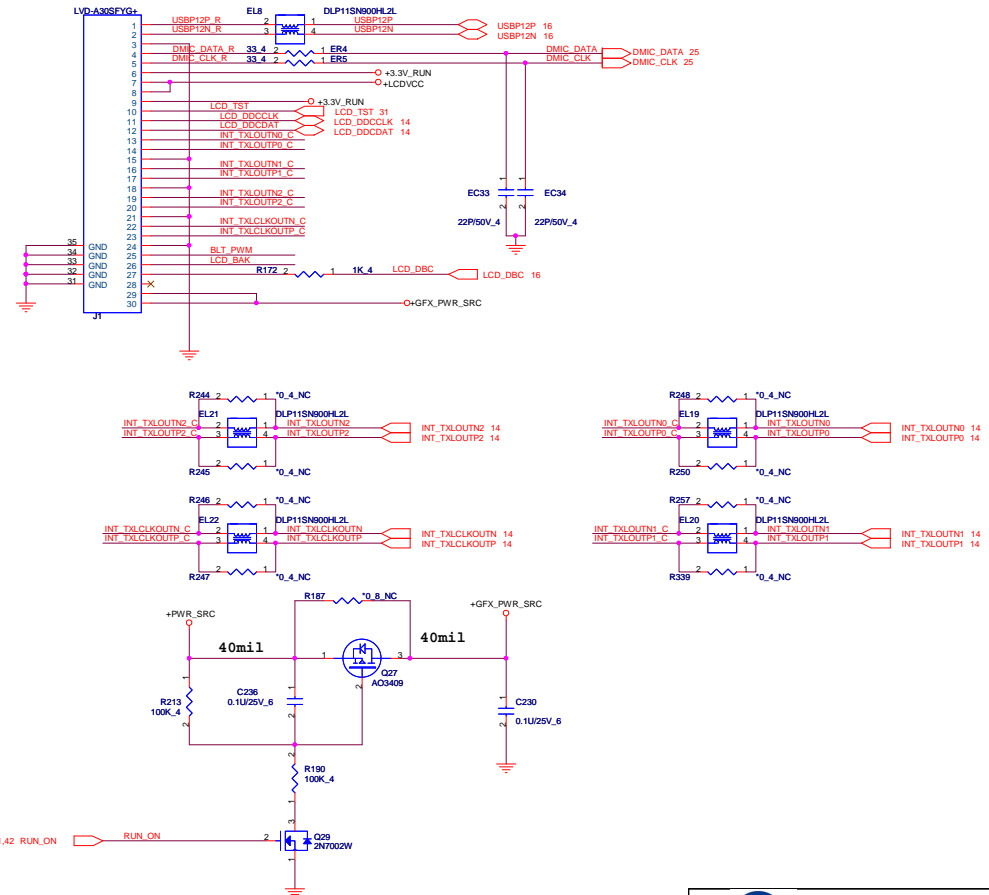
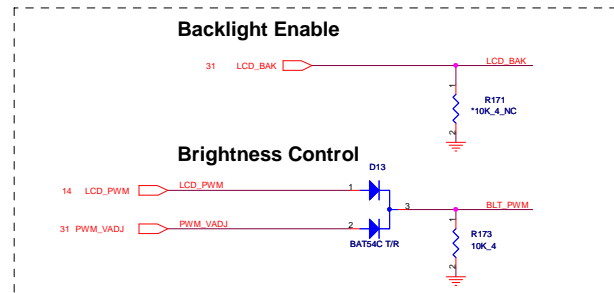
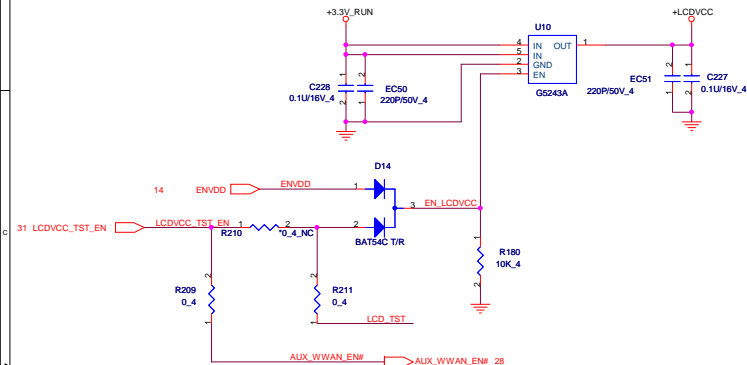
Quanta Computer Inc.
PROJECT : V07

Size	Document Number	Rev
	Panther Point 6/7	1A
Date:	Monday, January 09, 2012	Sheet 18 of 46

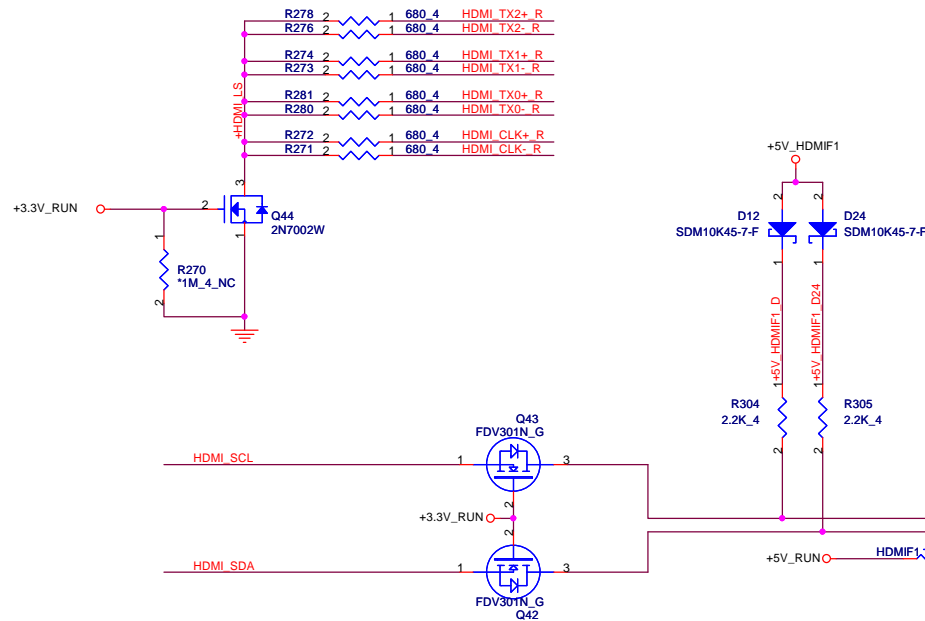
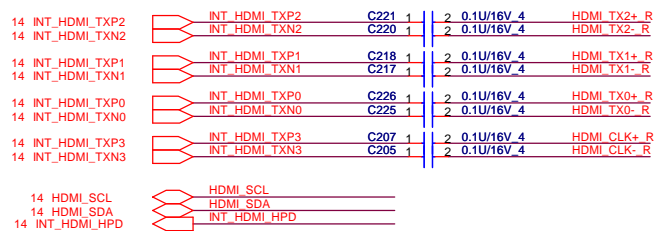
BOM setup	VOSTOR(V07)	Inspiron(R07)
L31 QPN	CX000181024	CS00003J951

BOM setup	VOSTOR(V07)	Inspiron(R07)
C126,C105 C123	POP	NC

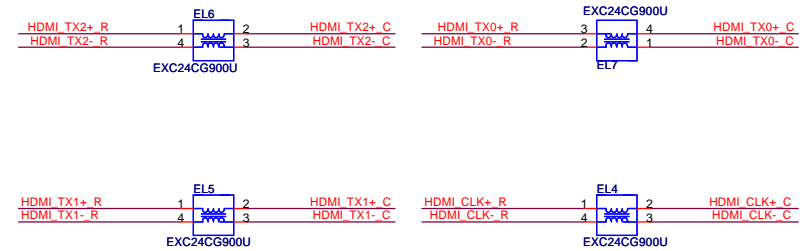




INT HDMI

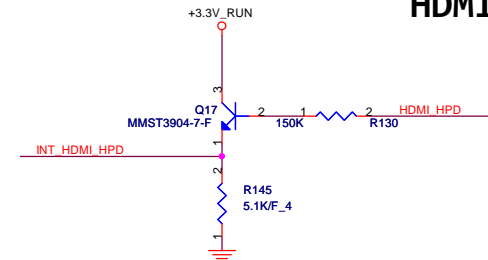


Reserve for EMI and close to HDMI CONN



HDMI_HPD spec VinH_min=2.0V

HDMI HPD



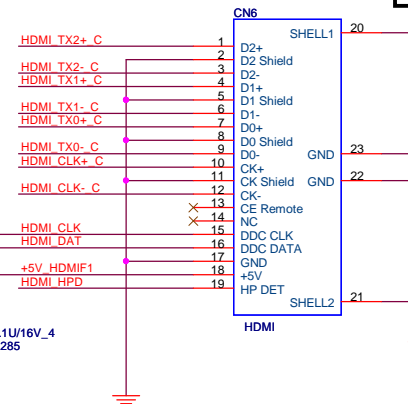
$$IB = (5V - 0.7V) / (150K + (70 + 1) 5.1K) = 8.4\mu A$$

$$IE = (1 + 70) \times 8.4\mu A = 596.4\mu A$$

$$VE = 596.4\mu A \times 5.1K = 3.04V$$

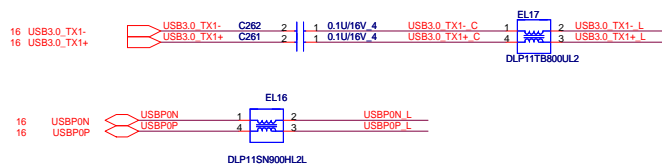
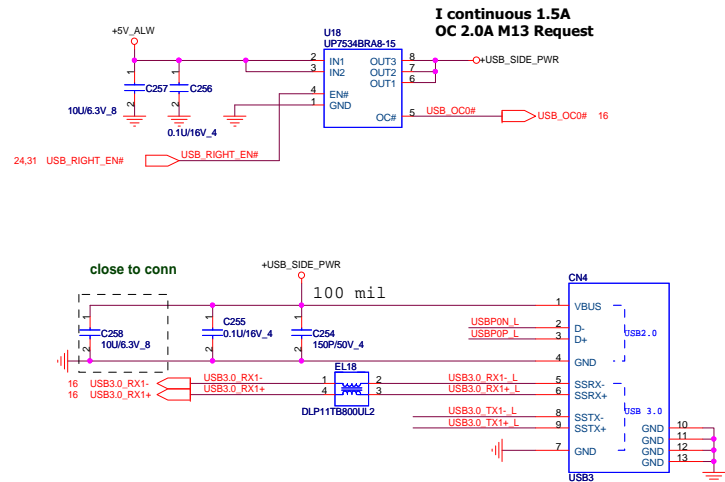
$$B = 70$$

HDMI Conn.

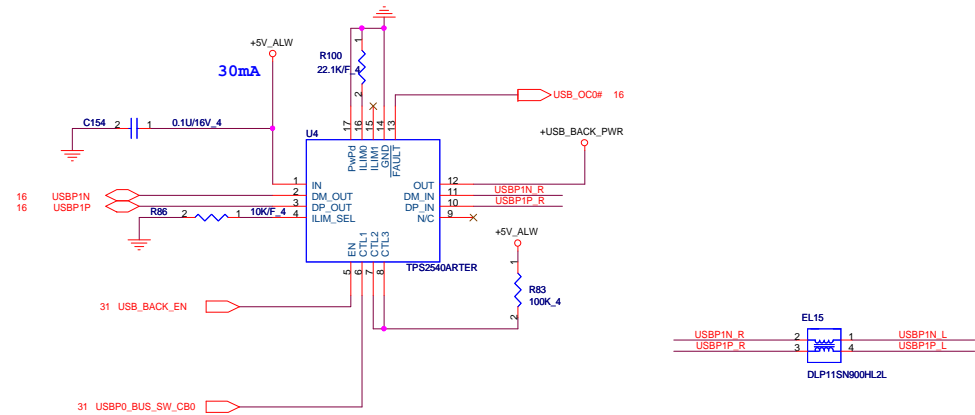


BOM setup	VOSTOR(V07)	Inspiron(R07)
CN6 QPN	DFHS19FR067	DFHS19FR066

USB3.0 x2 (x1 with powershare)



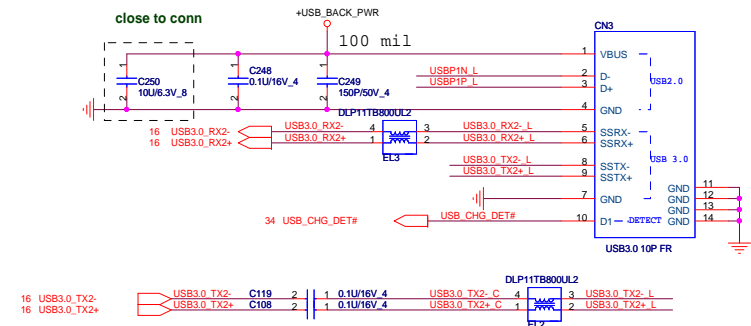
S3/S5 USB charging circuit



USBP0_BUS_SW_CB0	Mode
Low	DCP, Auto-detect
High	CDP, BC Spec 1.1

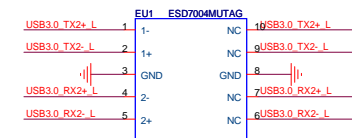
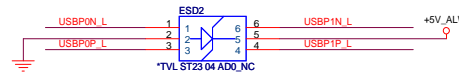
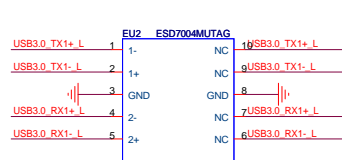
	R8224	mA
OC limitation	100k ohm	480
	22.1k ohm	2171

Applied Now



ESD Function

Place ESD diodes as close as USB connector.



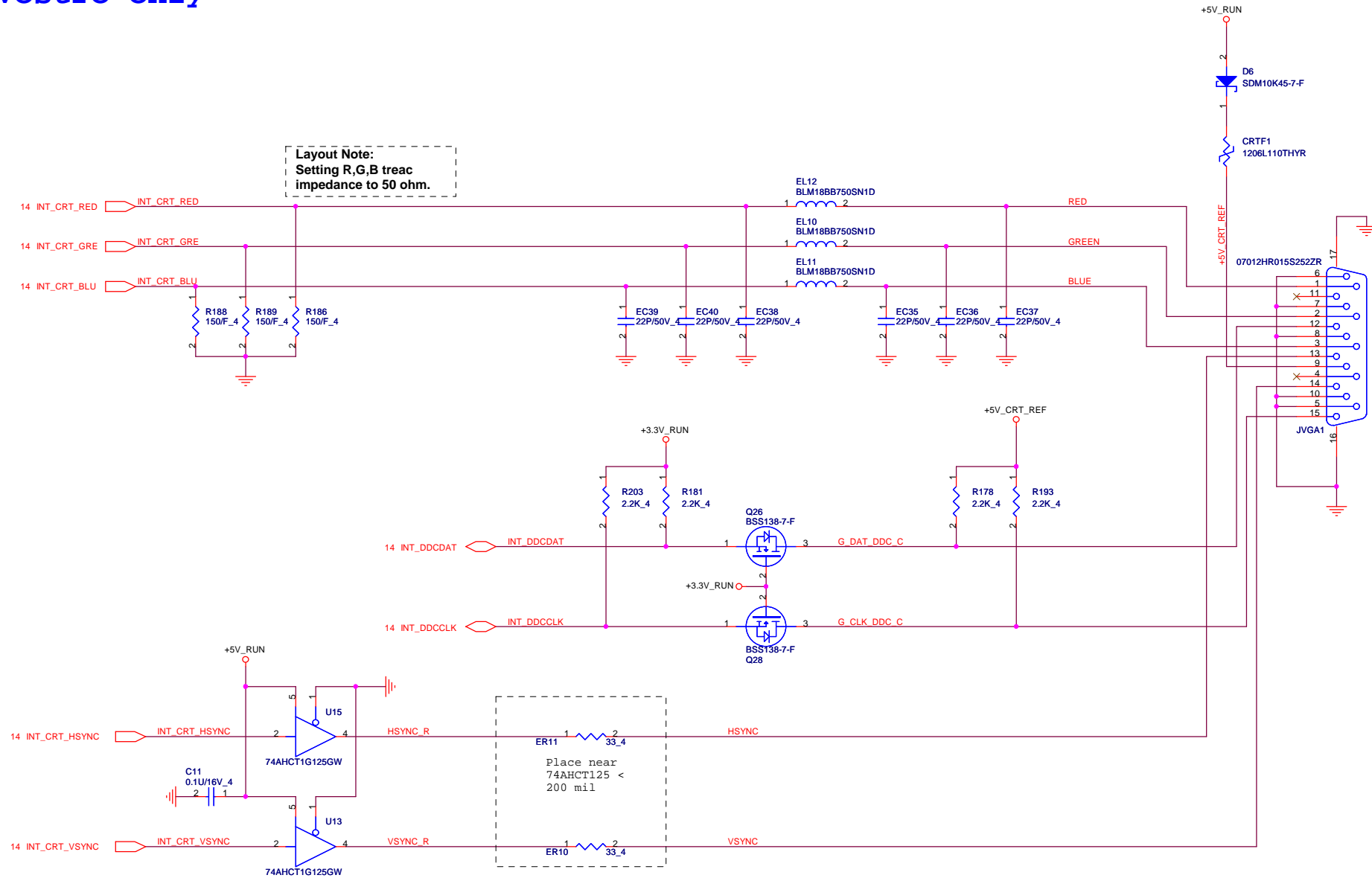
Quanta Computer Inc.

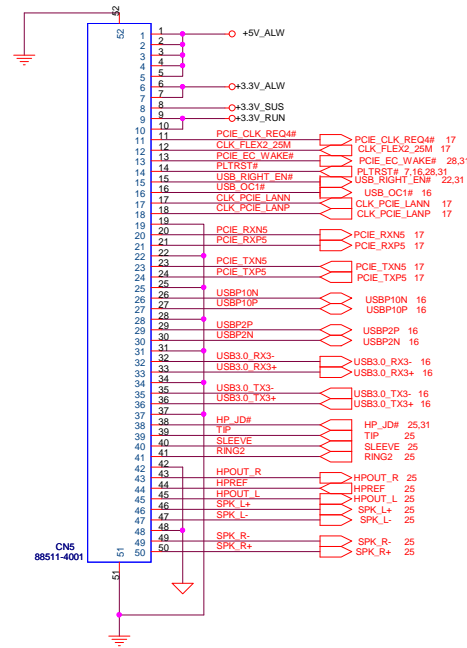
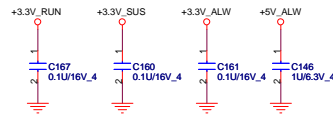
PROJECT : V07

Size	Document Number	Rev
	USB3.0	1A

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Vostro only

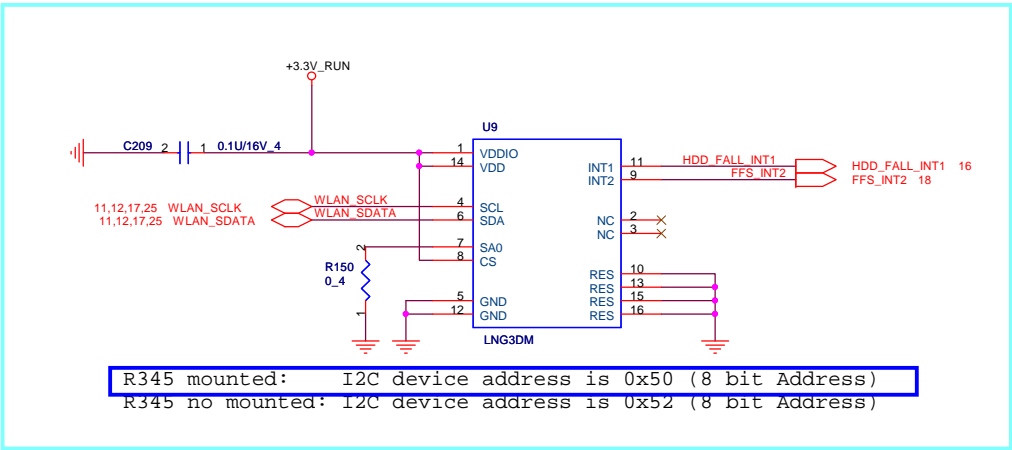
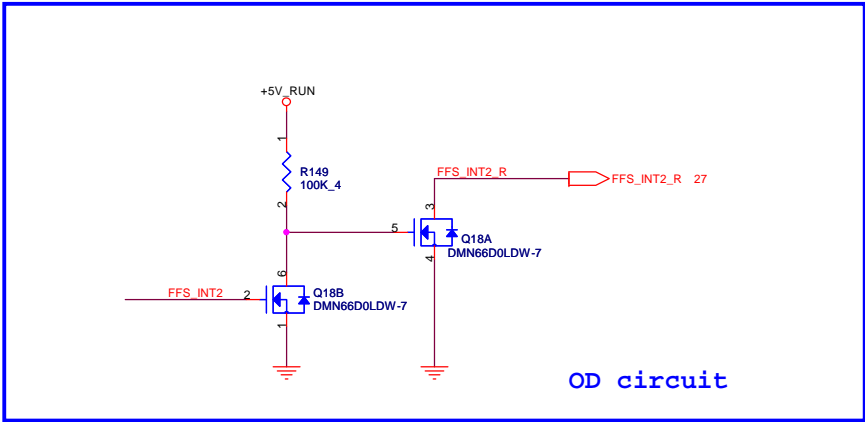




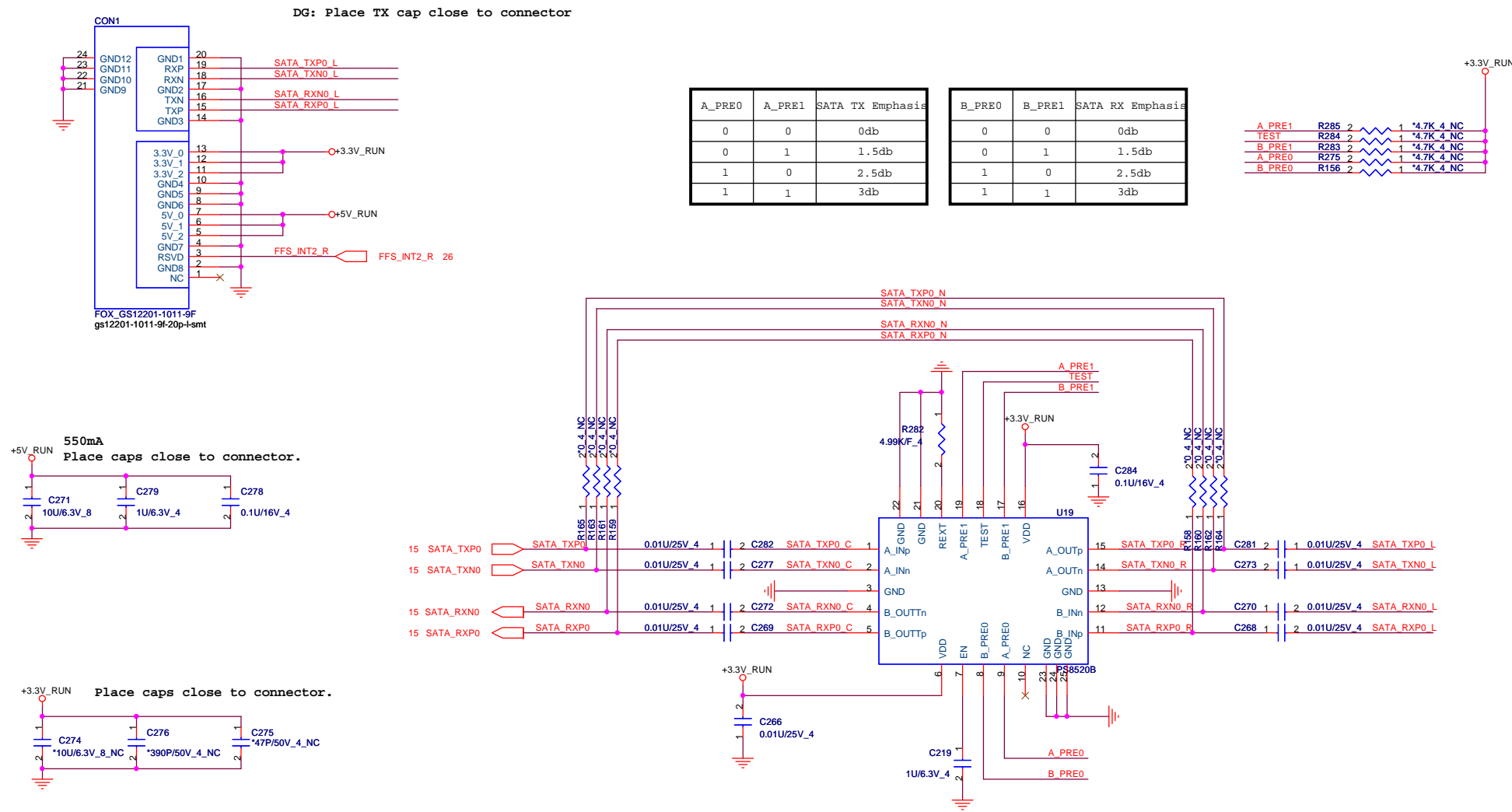
3-axis Fall Sensor

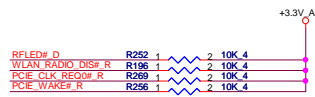
Vostro only

If you have two HDD,need add two OD circuit for Fall sensor interrupt circuit

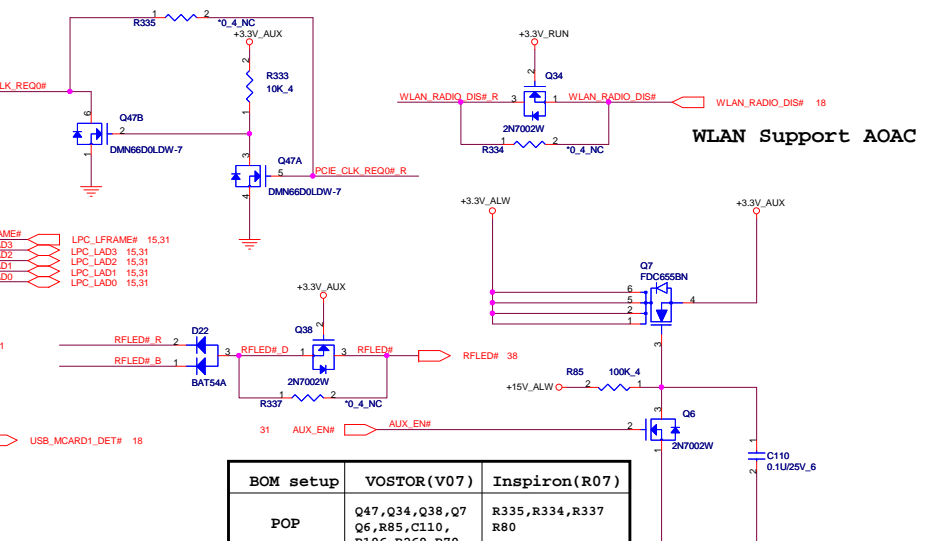
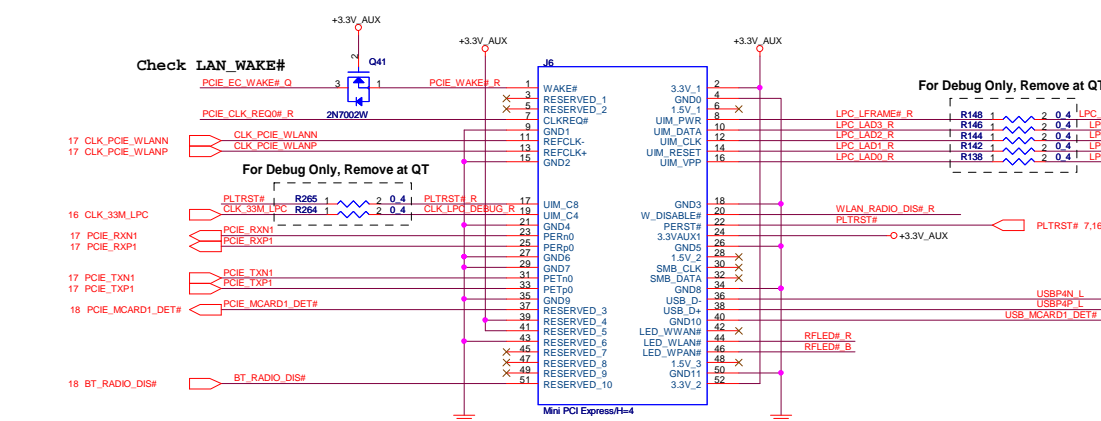


HDD

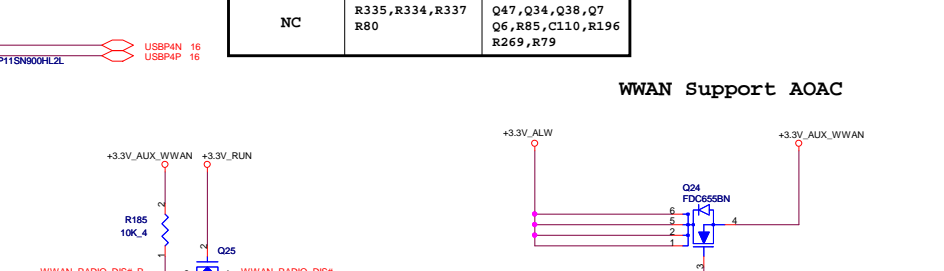
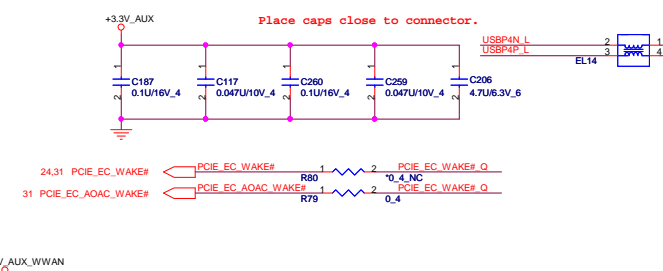
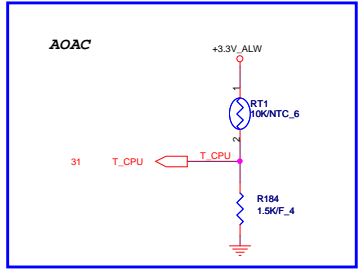




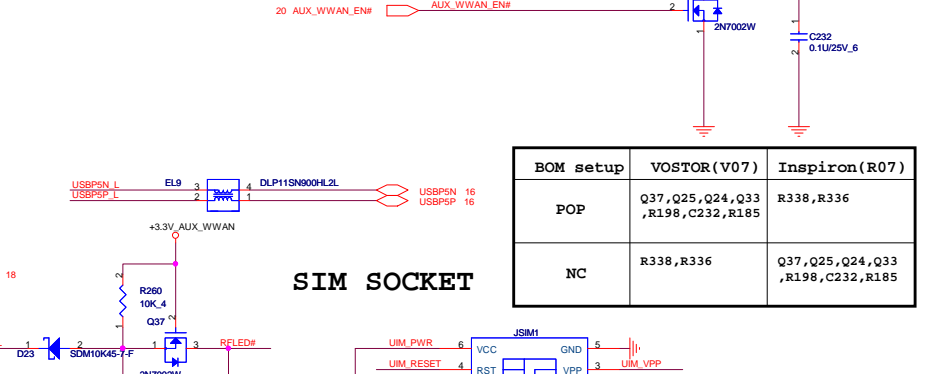
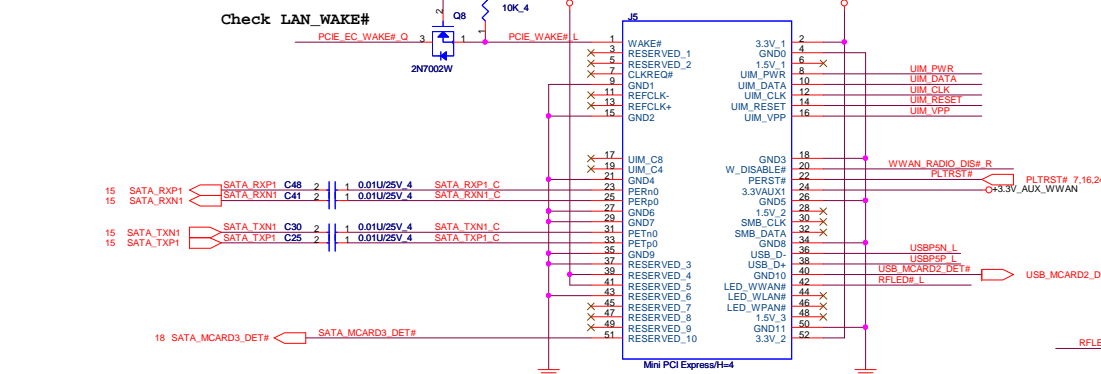
MiniCard WLAN connector



BOM setup	VOSTOR(V07)	Inspiron(R07)
POP	Q47,Q34,Q38,Q7 Q6,R85,C110, R196,R269,R79	R335,R334,R337 R80
NC	R335,R334,R337 R80	Q47,Q34,Q38,Q7 Q6,R85,C110,R196 R269,R79



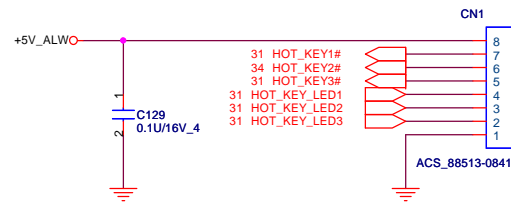
BOM setup	VOSTOR(V07)	Inspiron(R07)
POP	Q37,Q25,Q24,Q33 ,R198,C232,R185	R338,R336
NC	R338,R336	Q37,Q25,Q24,Q33 ,R198,C232,R185



SIM SOCKET


Place as close as possible to JSIM1 connector

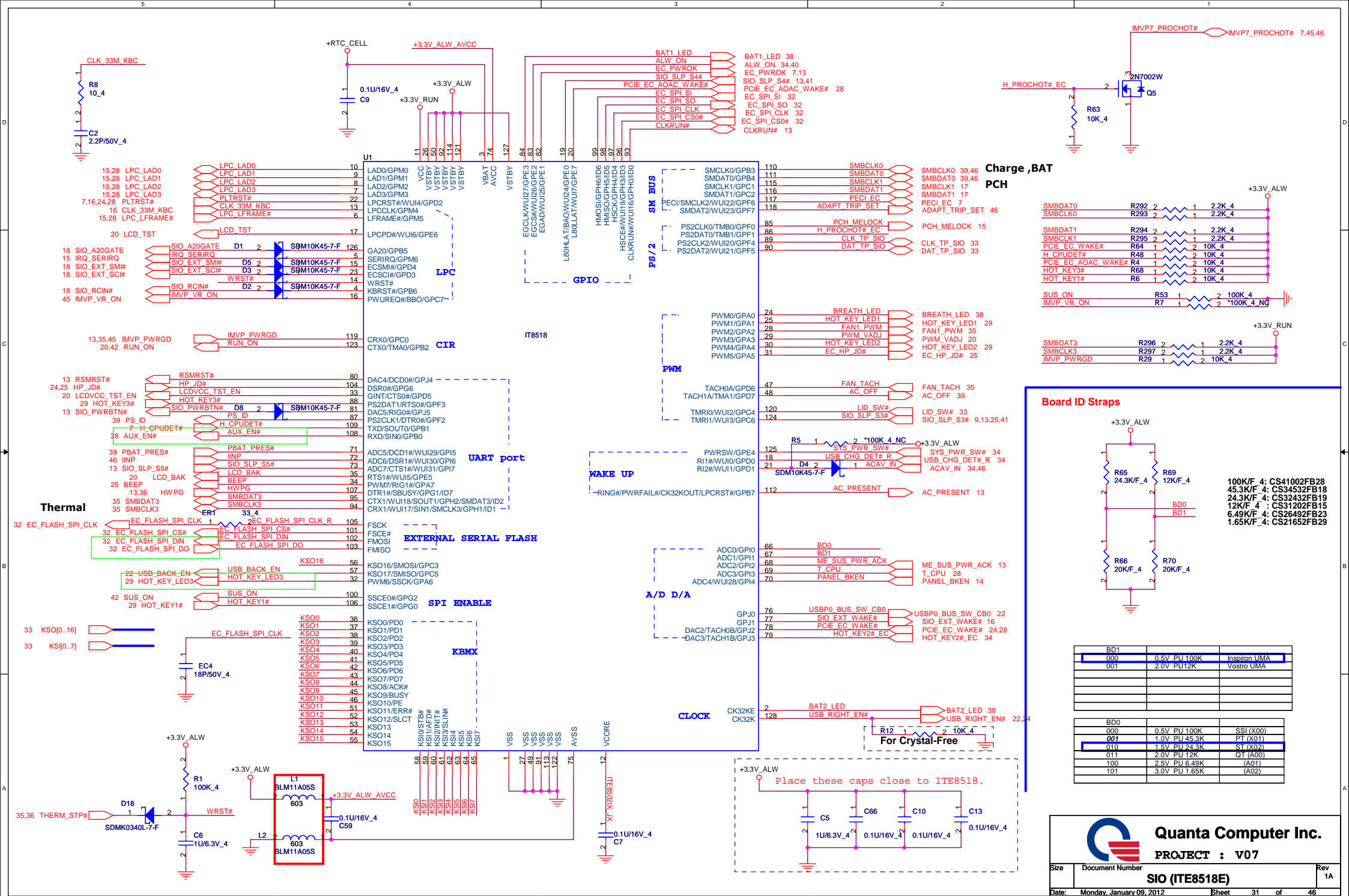
Spacing 2:1



HOTKEY CON

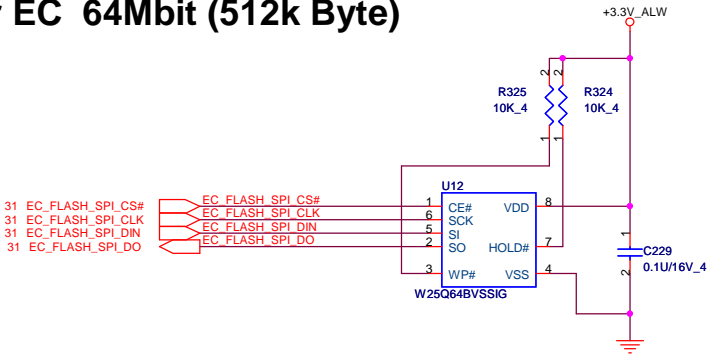
1	2	3	4	5	6	7	8
A							A
B							B
C							C
D							D
1	2	3	4	5	6	7	8

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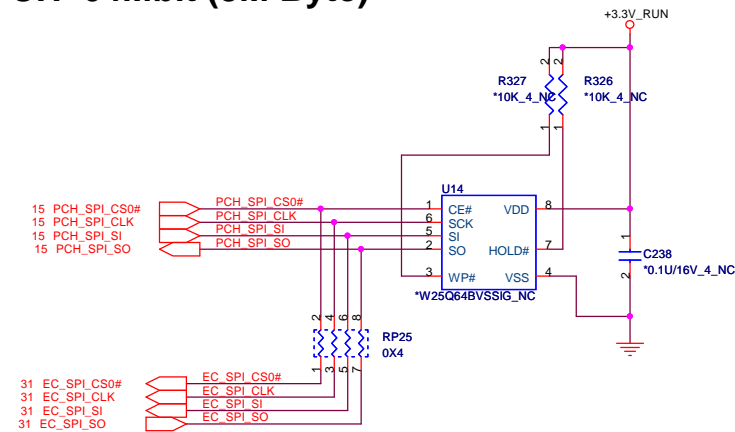


FLASH / RTC

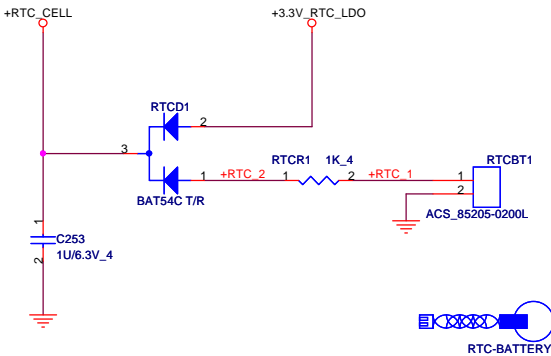
For EC 64Mbit (512k Byte)



For PCH 64Mbit (8M Byte)

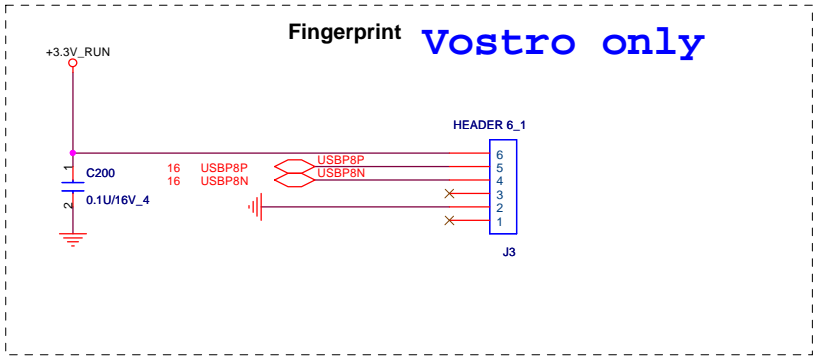
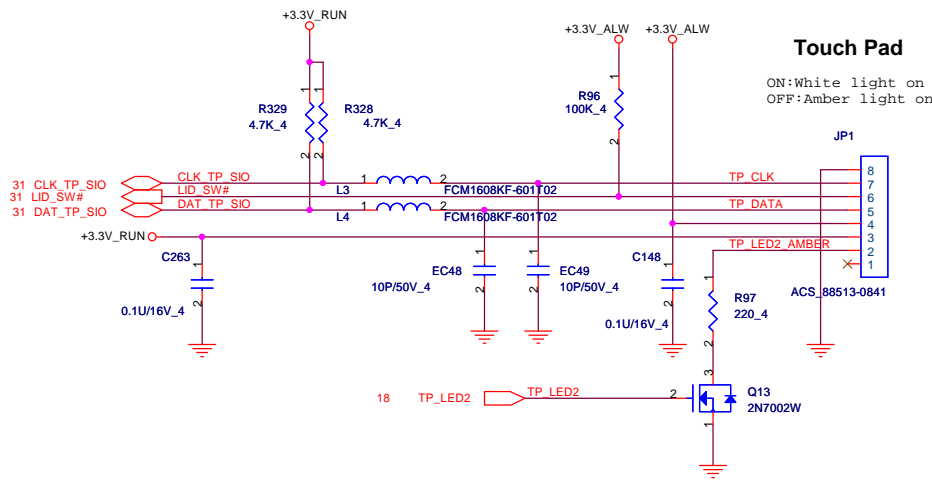


RTC

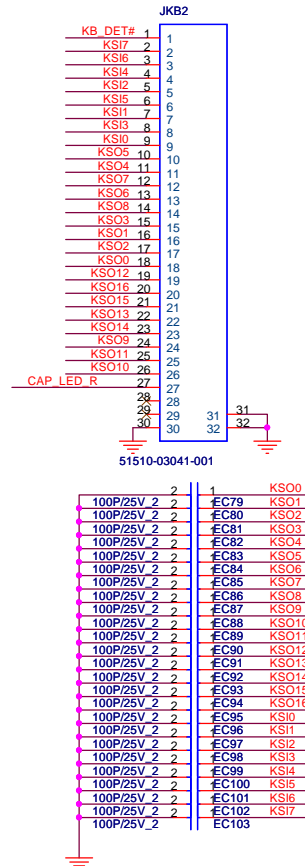


Double, 25'C, Vf=0.4V, If=25mA
one, 25'C, Vf=0.35V, If=15.8mA

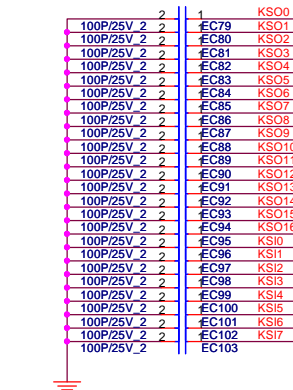
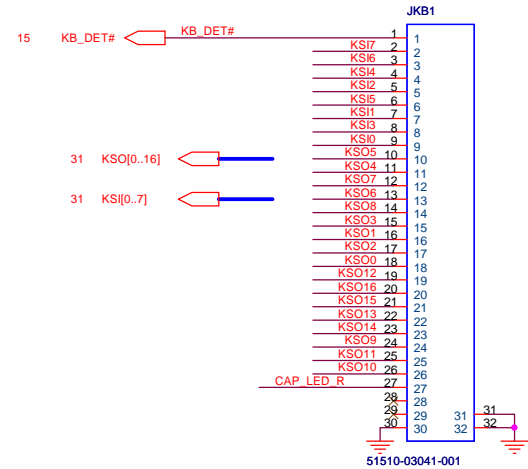
KEYBOARD CONNECTOR



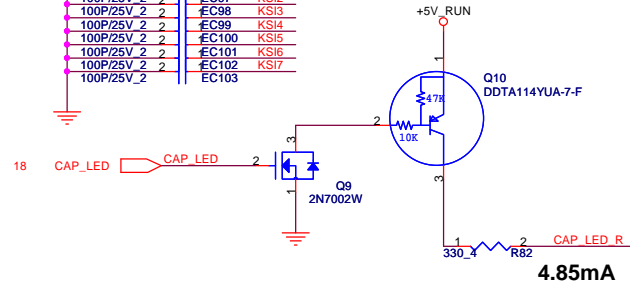
Vostro



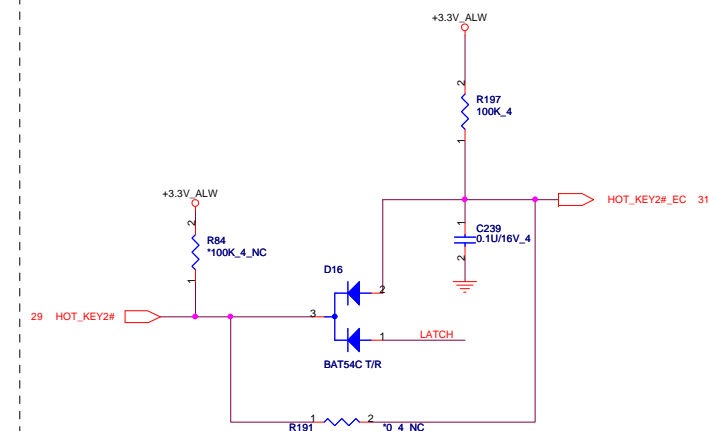
Inspiron



Vi(on_max)= -1.4V
Vi(off_min)=-0.3

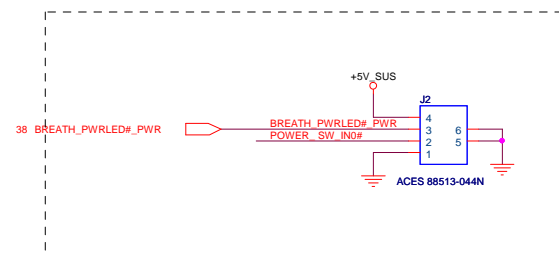


3V ALW ON POWER LOGIC

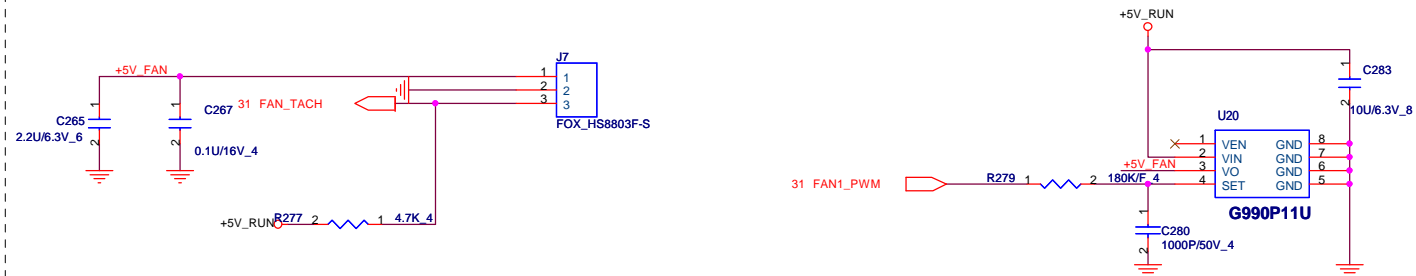


	BOM setup	NC	POP
	Vostro	R84.R191	D16,C239,R197
	Inspiron	D16,C239,R197	R84.R191

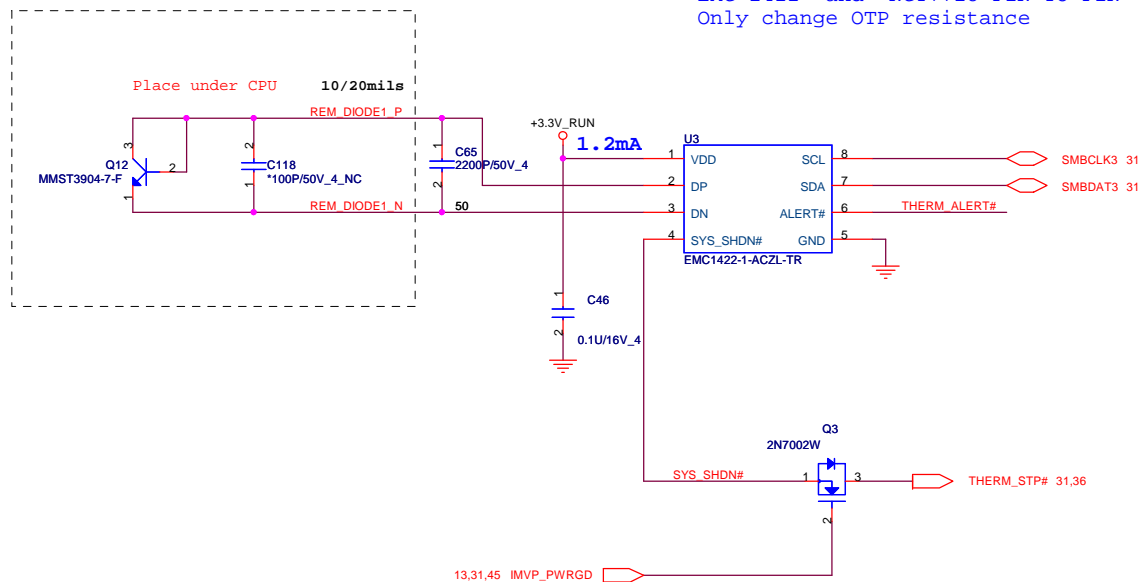
TO PWR button board



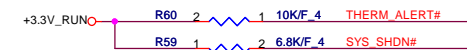
FAN CONTROL



EMC 1422 and NCT7718 PIN TO PIN
Only change OTP resistance

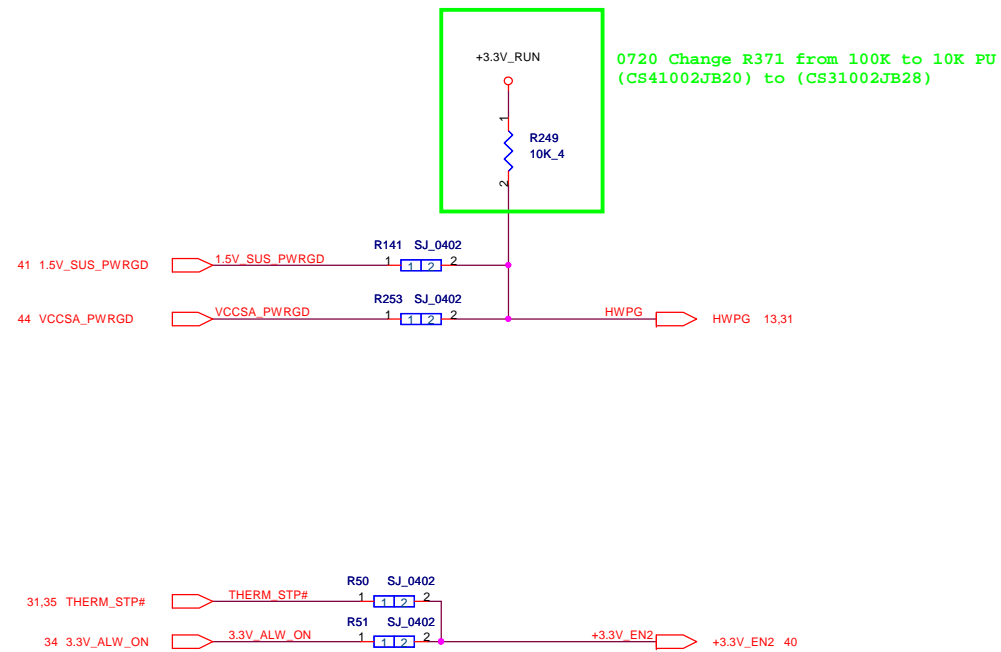


OTP 85 degree C



SYSD#	4.7K	6.8K	10K	15K	22K	33K
ALERT#	77'C	83'C	89'C	95'C	101'C	107'C
4.7K	77'C	83'C	89'C	95'C	101'C	107'C
6.8K	78'C	84'C	90'C	96'C	102'C	108'C
10K	79'C	85'C	91'C	97'C	103'C	109'C
15K	80'C	86'C	92'C	98'C	104'C	110'C
22K	81'C	87'C	93'C	99'C	105'C	111'C
33K	82'C	88'C	94'C	100'C	106'C	112'C





5

4

3

2

1

D

D

C

C

B

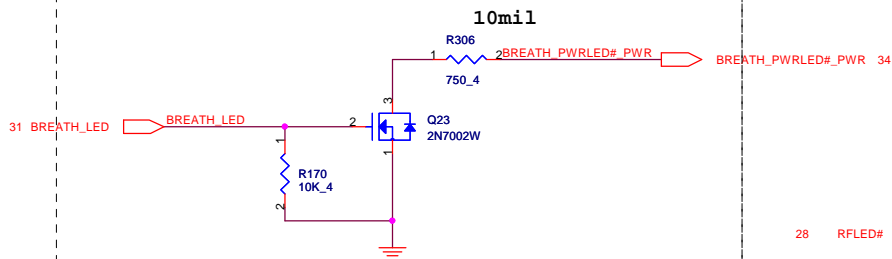
B

A

A

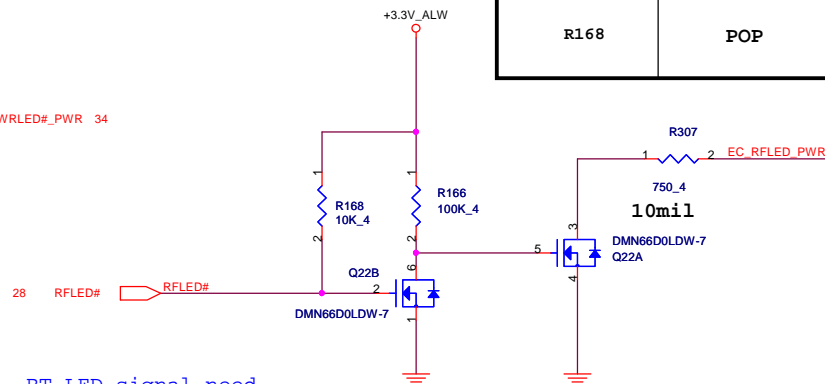


Power



Bluetooth / WLAN on/off LED

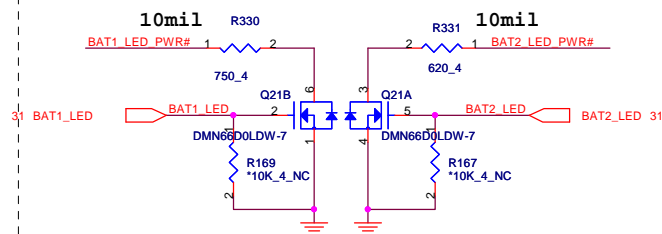
BOM setup	VOSTOR(V07)	Inspiron(R07)
R168	POP	NC



BT LED signal need

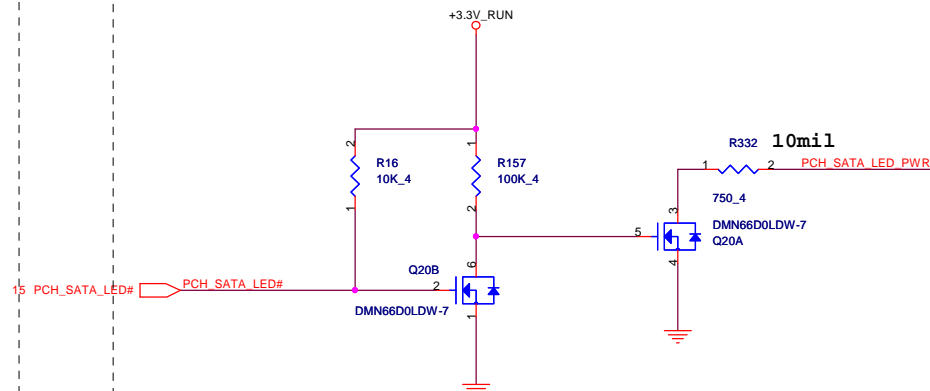
Change from 2N7002W-7-F to DMN66D0LDW-7

Battery

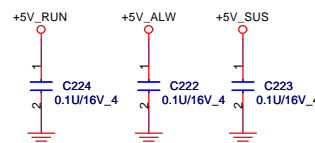
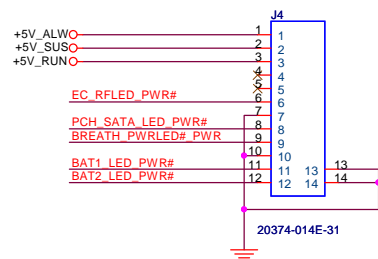


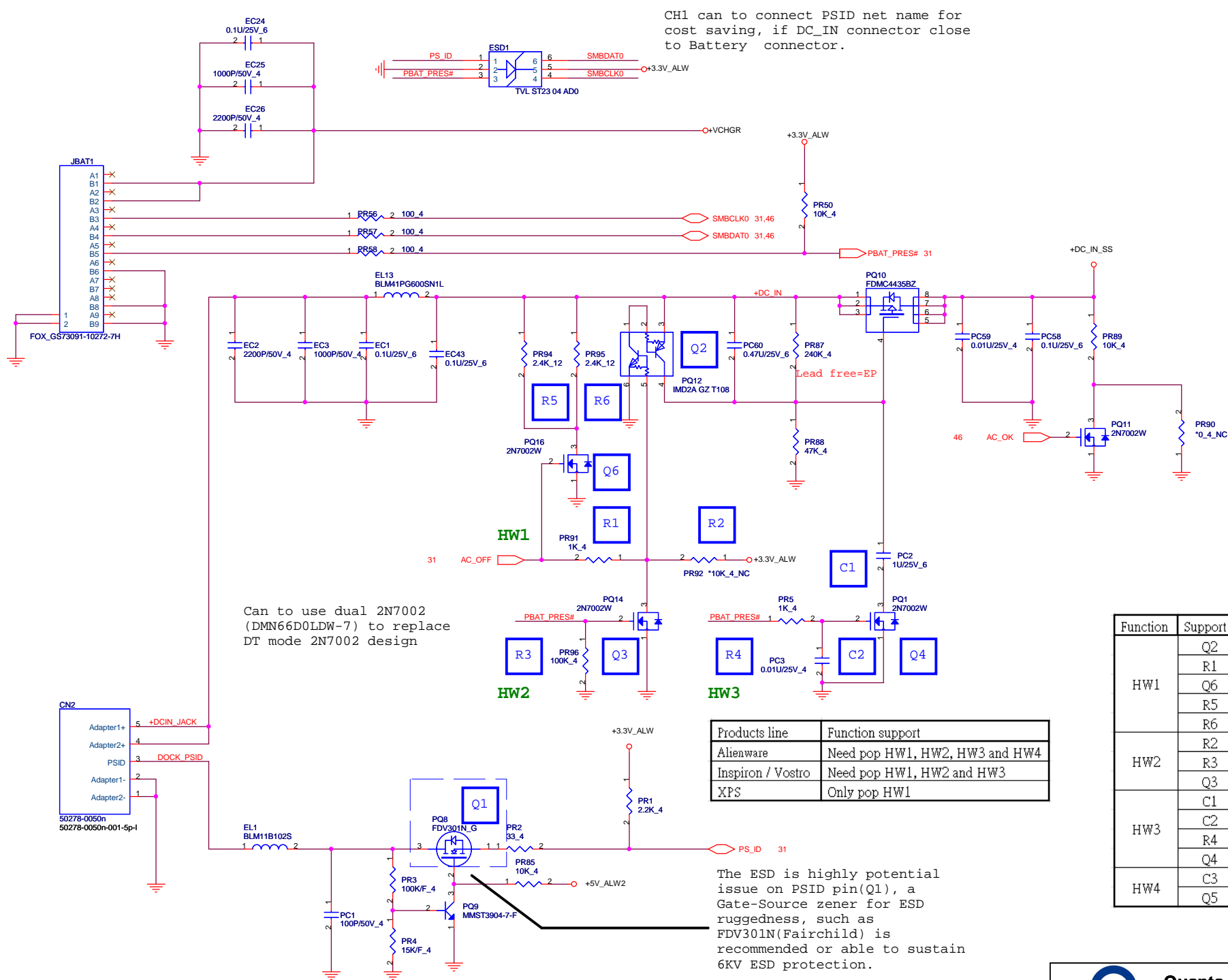
Change from 2N7002W-7-F to DMN66D0LDW-7(9/2)

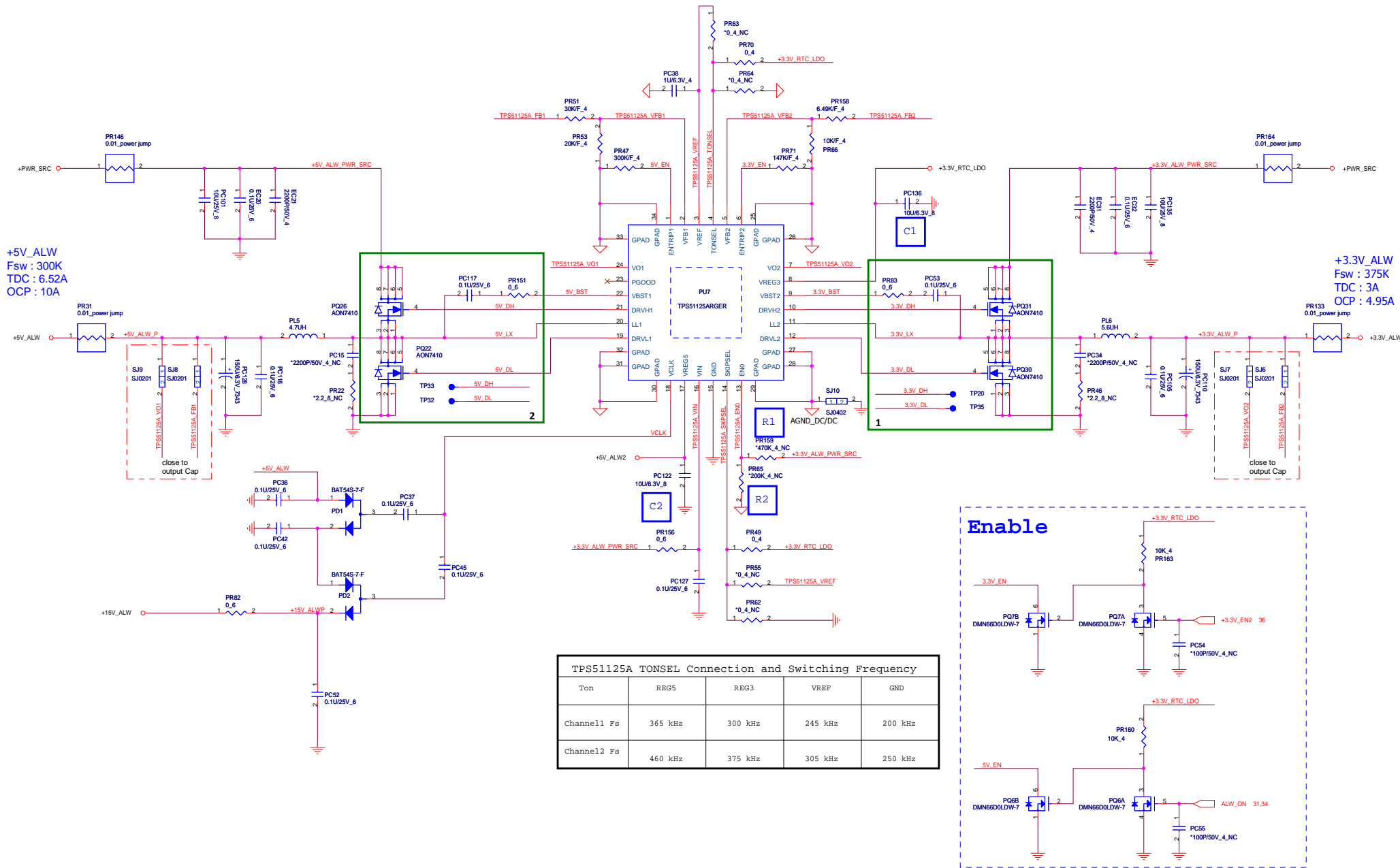
HDD activity LED.



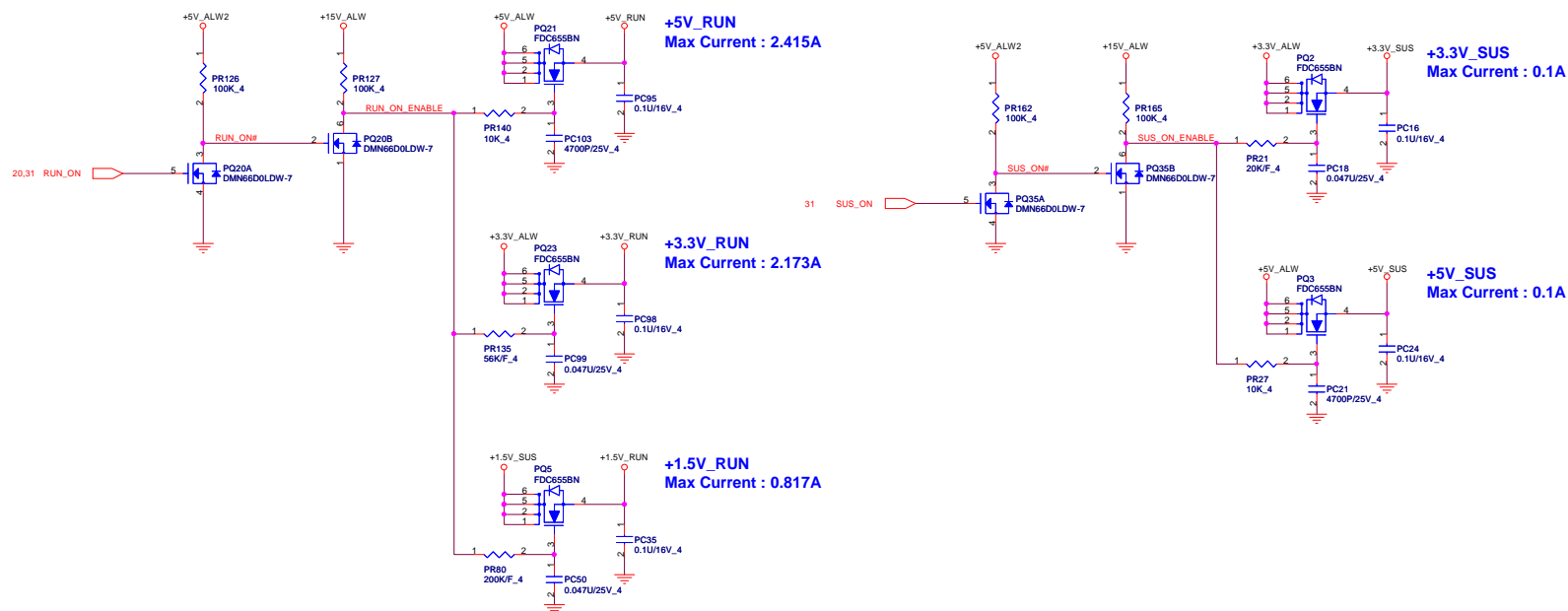
Change from 2N7002W-7-F to DMN66D0LDW-7(9/2)



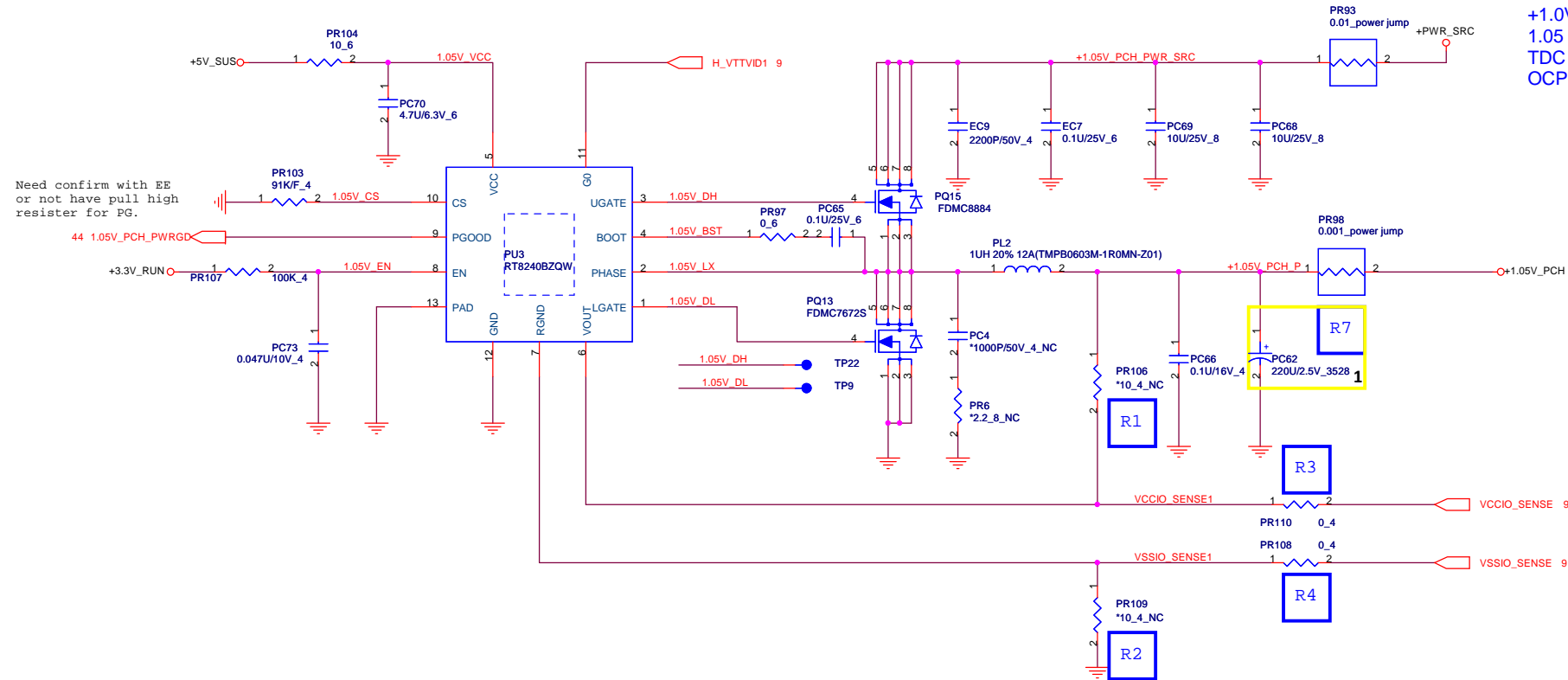




P.1. Change PQ30 and PQ31 from FDMC8884 to AON7410, change PR83 to 0ohm
P.2. Change PQ22 and PQ26 from FDMC8884 to AON7410, change PR151 to 0ohm



Need confirm with EE
or not have pull high
resistor for PG.



+1.0V_VCCIO
1.05 Volt DC +/- 2%
TDC : 10.669A
OCP : 16A

For EA test	
R1	10_4
R2	10_4
R3	NC
R4	NC
R5	NC
R6	NC
R7	NC



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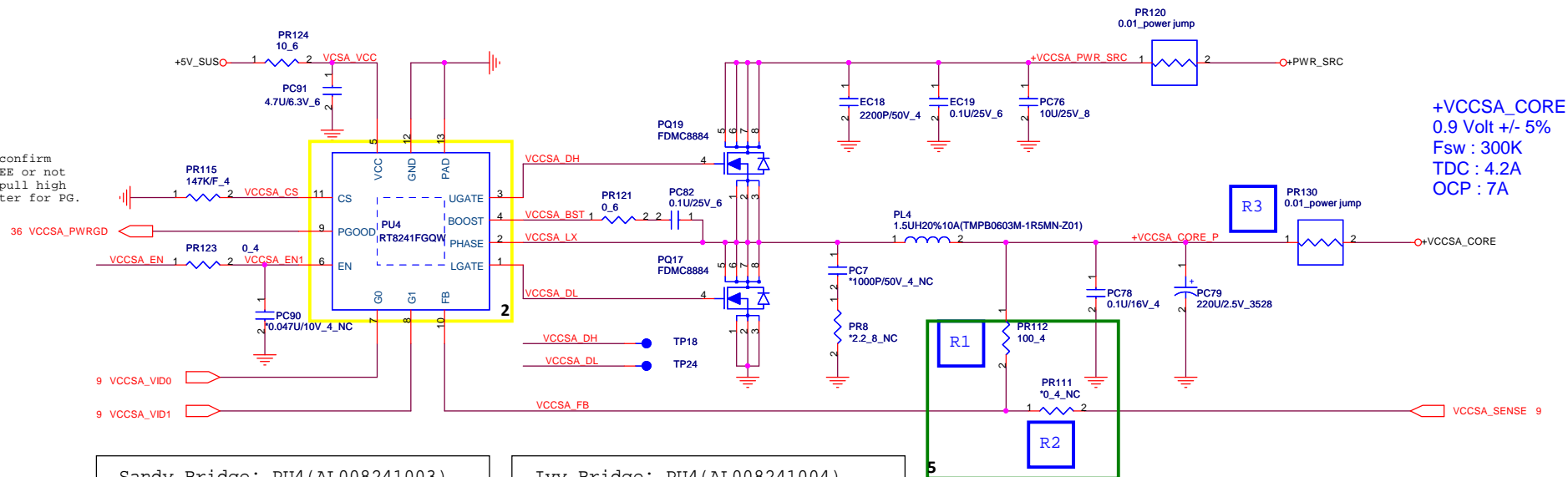
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	+1.05V_PCH / VTT (RT8240BGQW)	1A
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S_1. Change PC62 to 220uF/ESR15 for shortage issue

WWW.MANUALS.CLAN.SU

Need confirm
with EE or not
have pull high
resistor for PG.

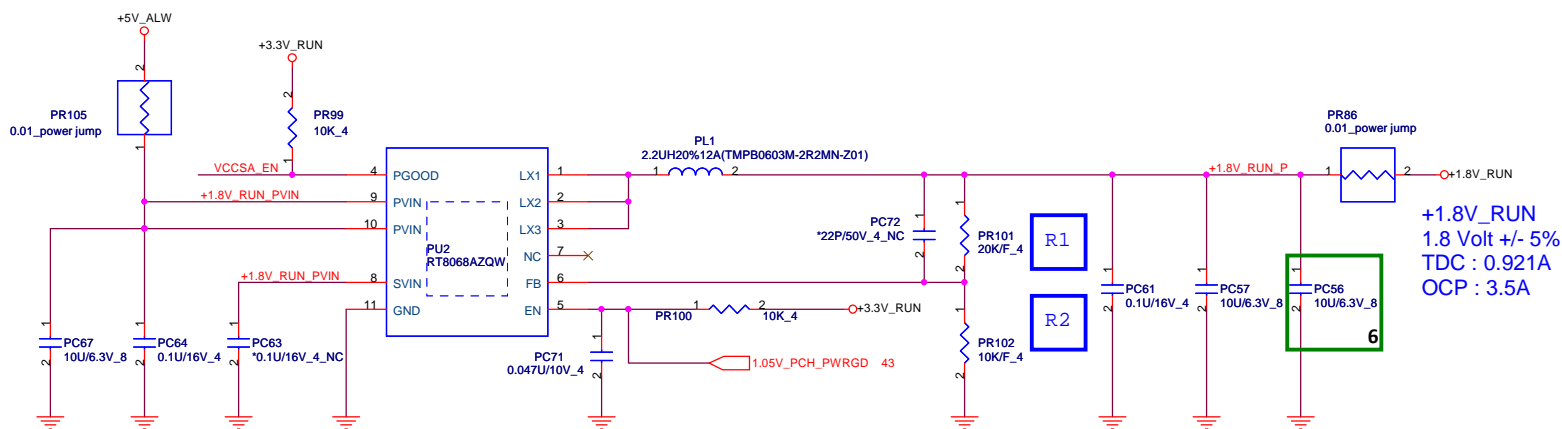


+VCCSA_CORE
0.9 Volt +/- 5%
Fsw : 300K
TDC : 4.2A
OCP : 7A

Sandy Bridge: PU4(AL008241003)		
VCCSA_VID1	VCCSA_VID0	VCCSA_CORE
Low	Low	0.9V
High	Low	0.85V
Low	High	0.725V
High	High	0.675V

Ivy Bridge: PU4(AL008241004)		
VCCSA_VID1	VCCSA_VID0	VCCSA_CORE
Low	Low	0.9V
High	Low	0.85V
Low	High	0.775V
High	High	0.75V

For EA test	
R1	100_4
R2	NC
R3	NC
R4	NC



+1.8V_RUN
1.8 Volt +/- 5%
TDC : 0.921A
OCP : 3.5A

$$VOUT = 0.6(1+R1/R2)$$

P_5. Change to local sense

P_6. Pop PC56

S_2. Change PU4 P/N for IMB GPU change

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	VCCSA (RT8241DGQW)	1A
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Adapter type	65W	90W
ADAPT_TRIP_SET	0	1
SETTING CURRENT	3.7A	5.6A

P_10. Change PC120 to 10uF.

S_1. Add PC137 for input voltage stability.