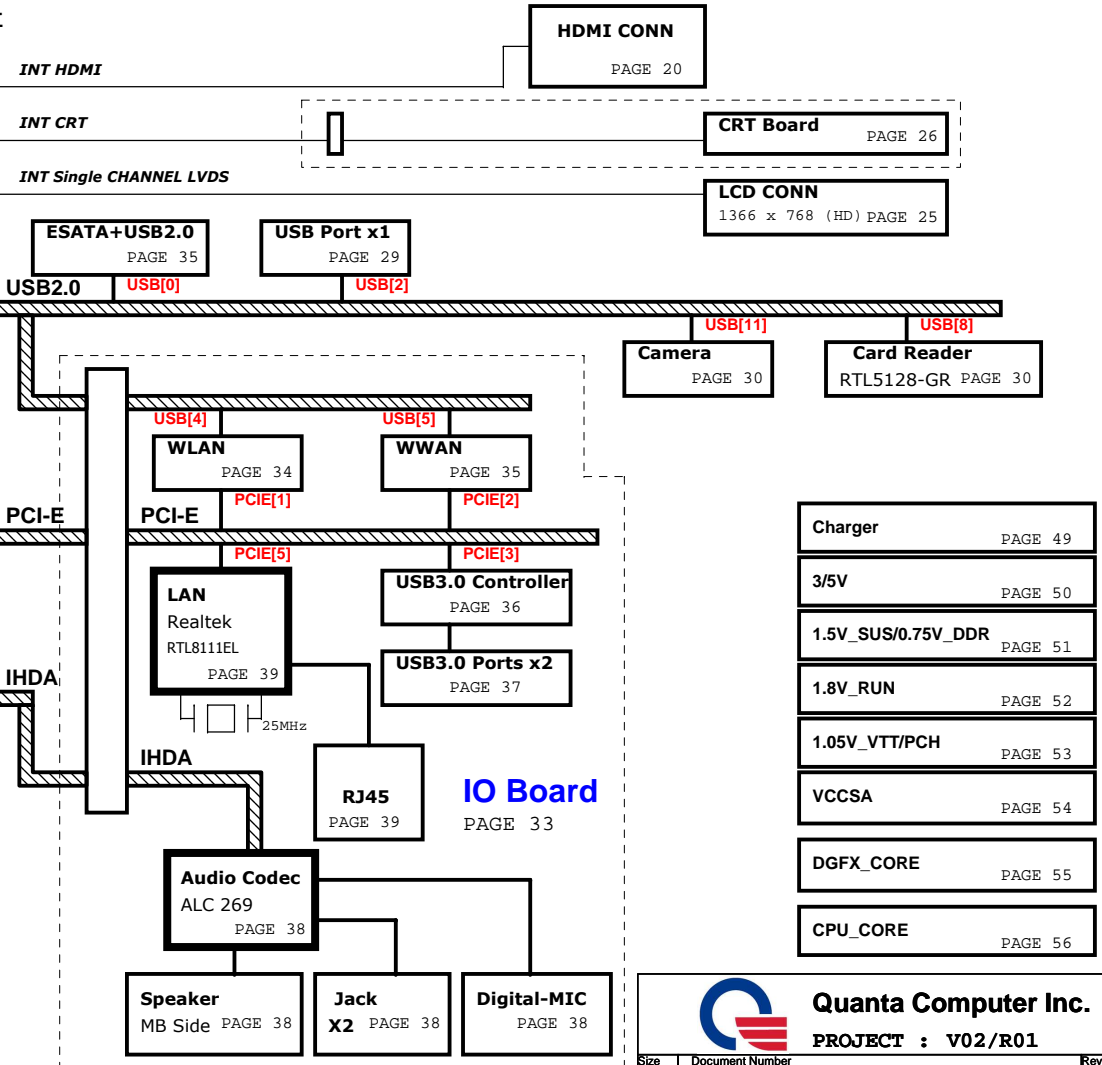
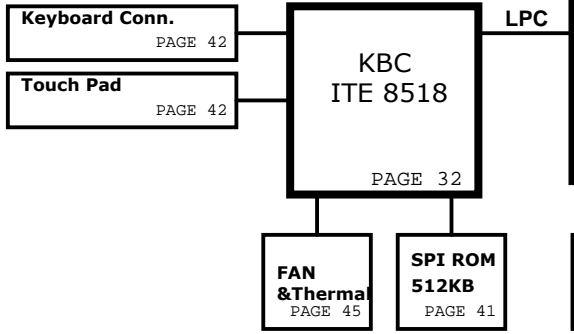
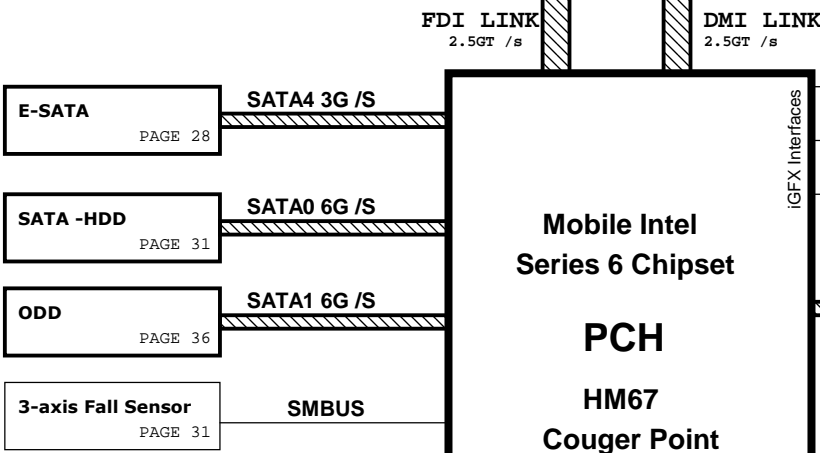
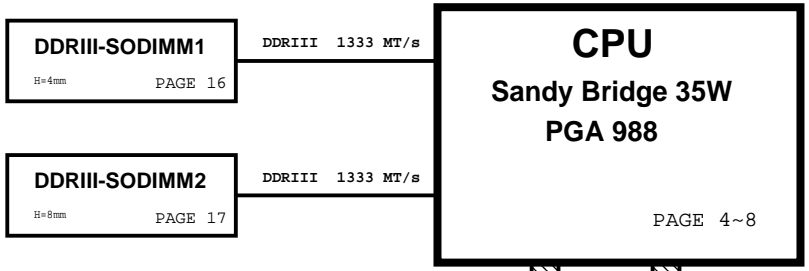


V02/R01 UMA BLOCK DIAGRAM

- LAYER 1 : TOP
- LAYER 2 : GND
- LAYER 3 : IN1
- LAYER 4 : IN2
- LAYER 5 : VCC
- LAYER 6 : BOT



- Charger PAGE 49
- 3/5V PAGE 50
- 1.5V_SUS/0.75V_DDR PAGE 51
- 1.8V_RUN PAGE 52
- 1.05V_VTT/PCH PAGE 53
- VCCSA PAGE 54
- DGFX_CORE PAGE 55
- CPU_CORE PAGE 56

power State					
S0					
S1					
S3					
S4/S5 AC					
S4/S5 DC Only					
AC/DC No Exist					

SMBCLK SMBDATA								
SMB_CLK_ME1 SMB_DAT_ME1								
AB1A_CLK AB1A_DATA								



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5

4

3

2

1

D

D

C


C

B

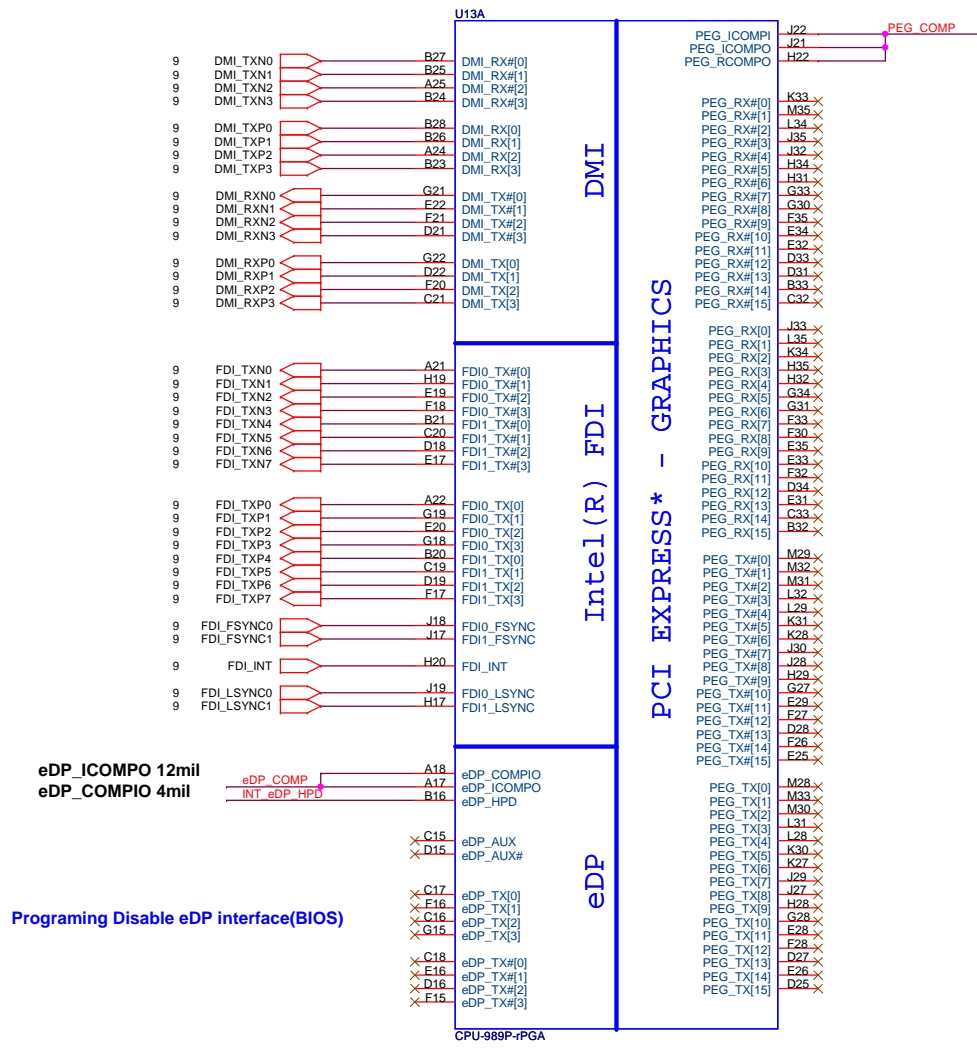
B

A

A

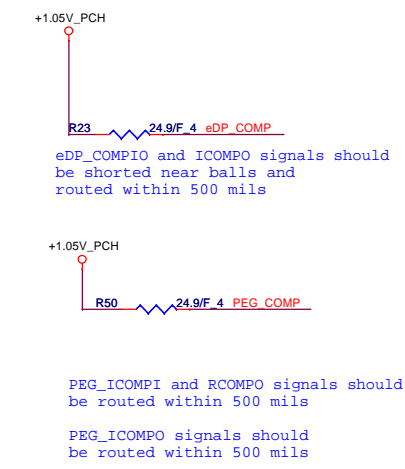
		Quanta Computer Inc.
		PROJECT : V02/R01
Size	Document Number	Rev
	BLANK	1A
Date:	Wednesday, January 19, 2011	Sheet 3 of 51

Sandy Bridge Processor (DMI, PEG, FDI)

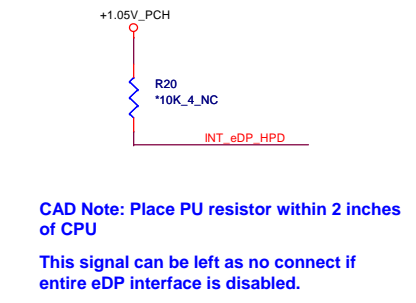


PEG_ICOMPO 12mil
PEG_ICOMPIO, PEG_RCOMPIO 4mil,

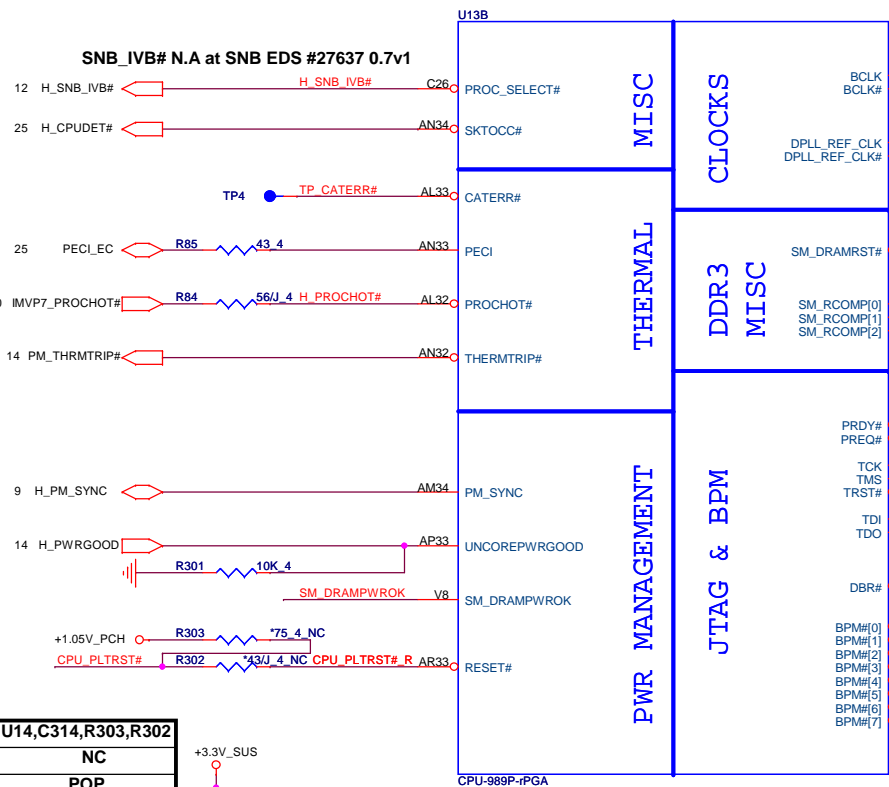
DP & PEG Compensation



eDP Hot-plug (Disable)

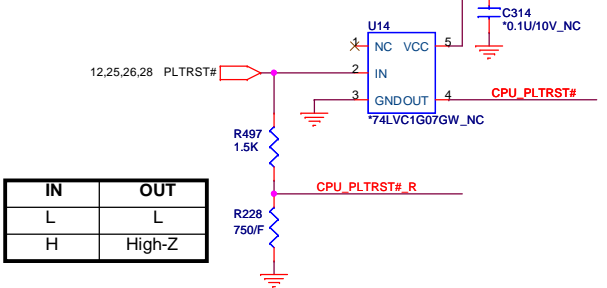


Sandy Bridge Processor (CLK,MISC,JTAG)

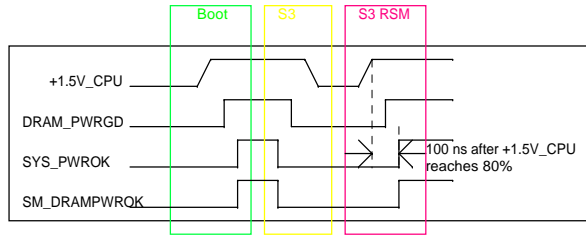


Over 130 degree C will drive low

CPU_PLTRST	R497,R228	U14,C314,R303,R302
Option1	POP	NC
Option2	NC	POP



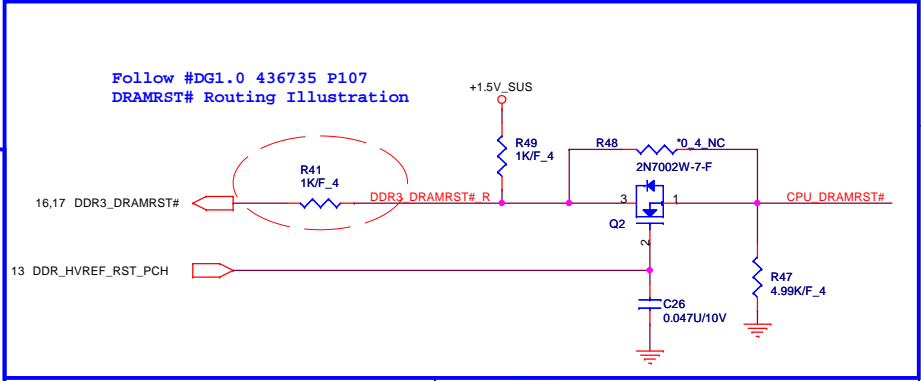
IN	OUT
L	L
H	High-Z



Schematic C/L_v1.0, P56 (PU,PD 1k/J)
(Intel and PD3)
Reserve (Intel confirm now)

SM_RCOMP_0, SM_RCOMP_1 20mil
SM_RCOMP_2 15mil,

When MP, JTAG PU/PD resistor can be removed?
Need to confirm with Intel

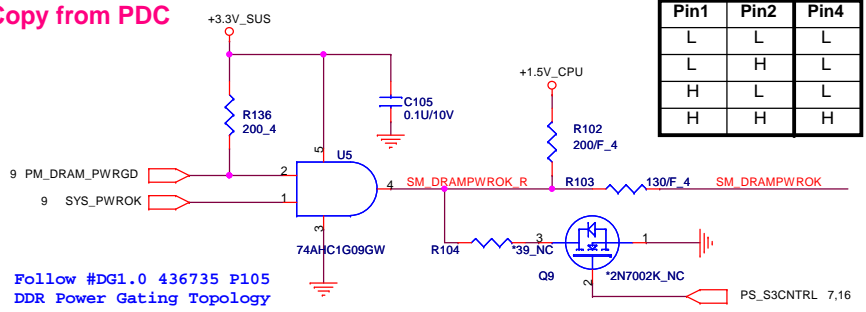


Change OD part same with PDC

Copy from PDC

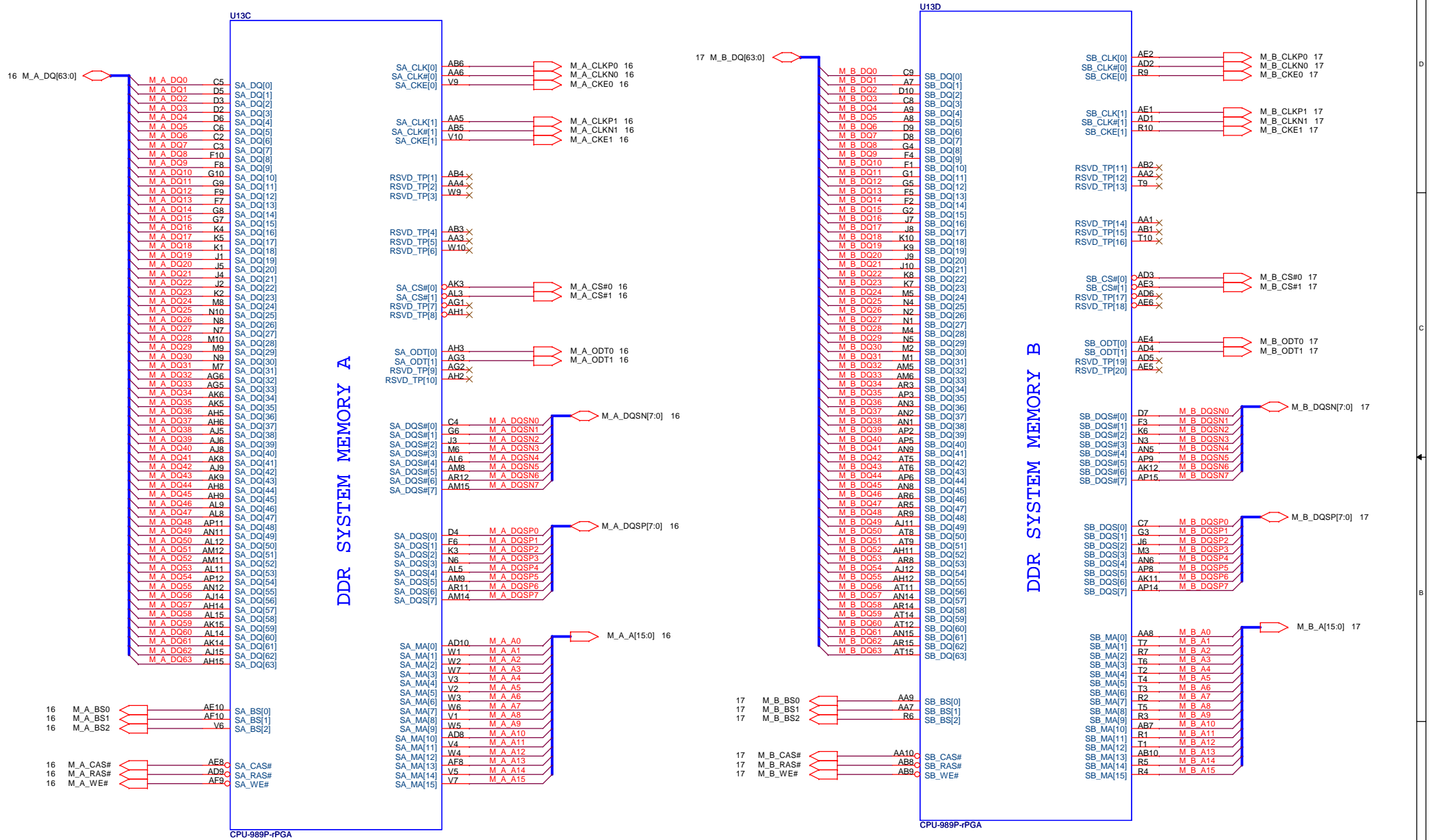
R8239, R8241 change to 5%

Pin1	Pin2	Pin4
L	L	L
L	H	L
H	L	L
H	H	H



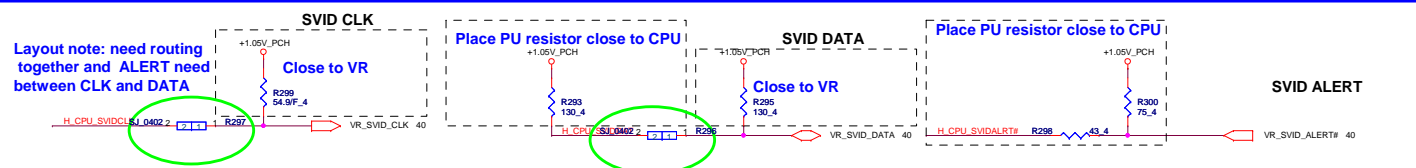
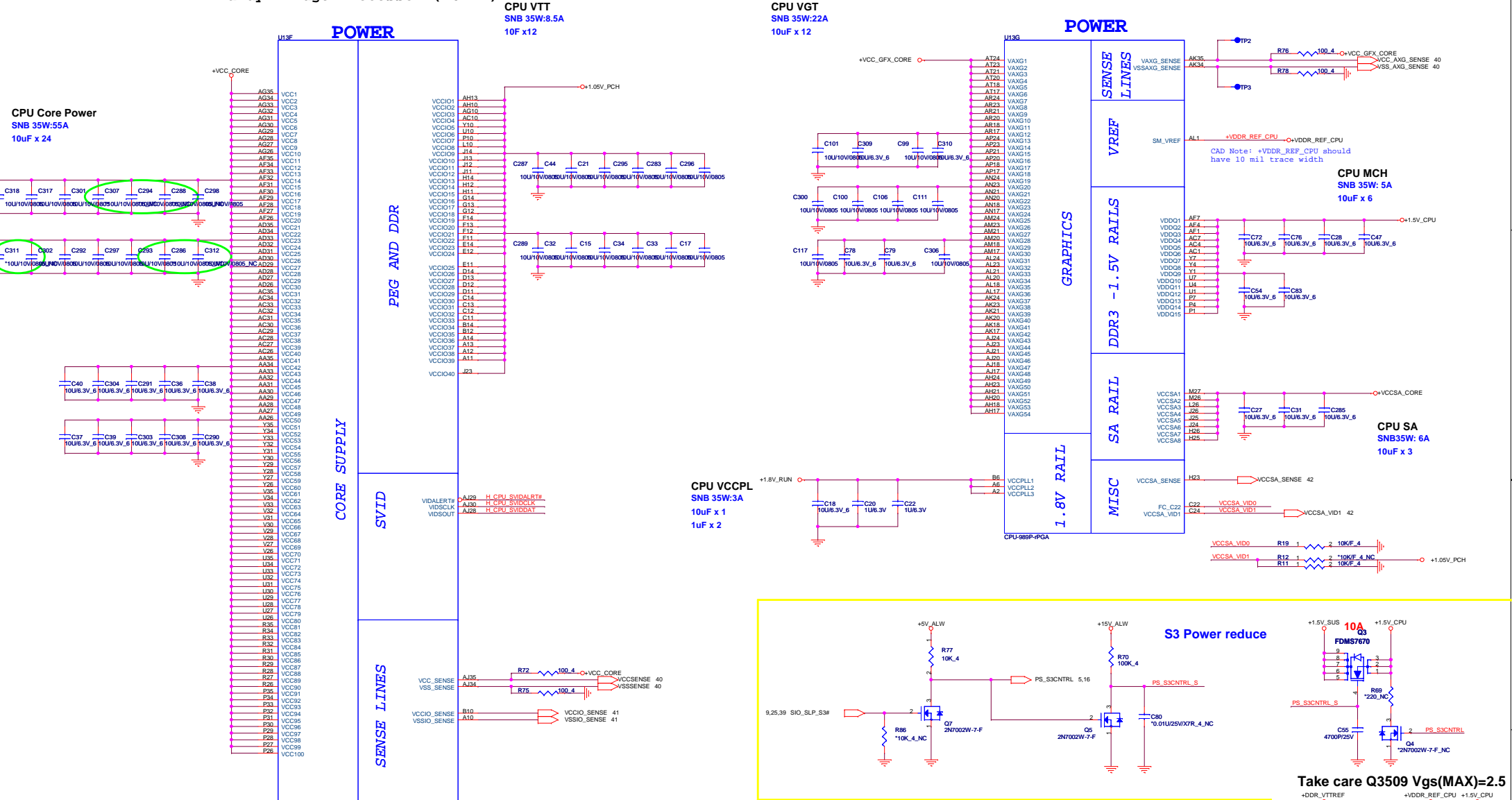
Follow #DG1.0 436735 P105
DDR Power Gating Topology

Sandy Bridge Processor (DDR3)



Sandy Bridge Processor (POWER)

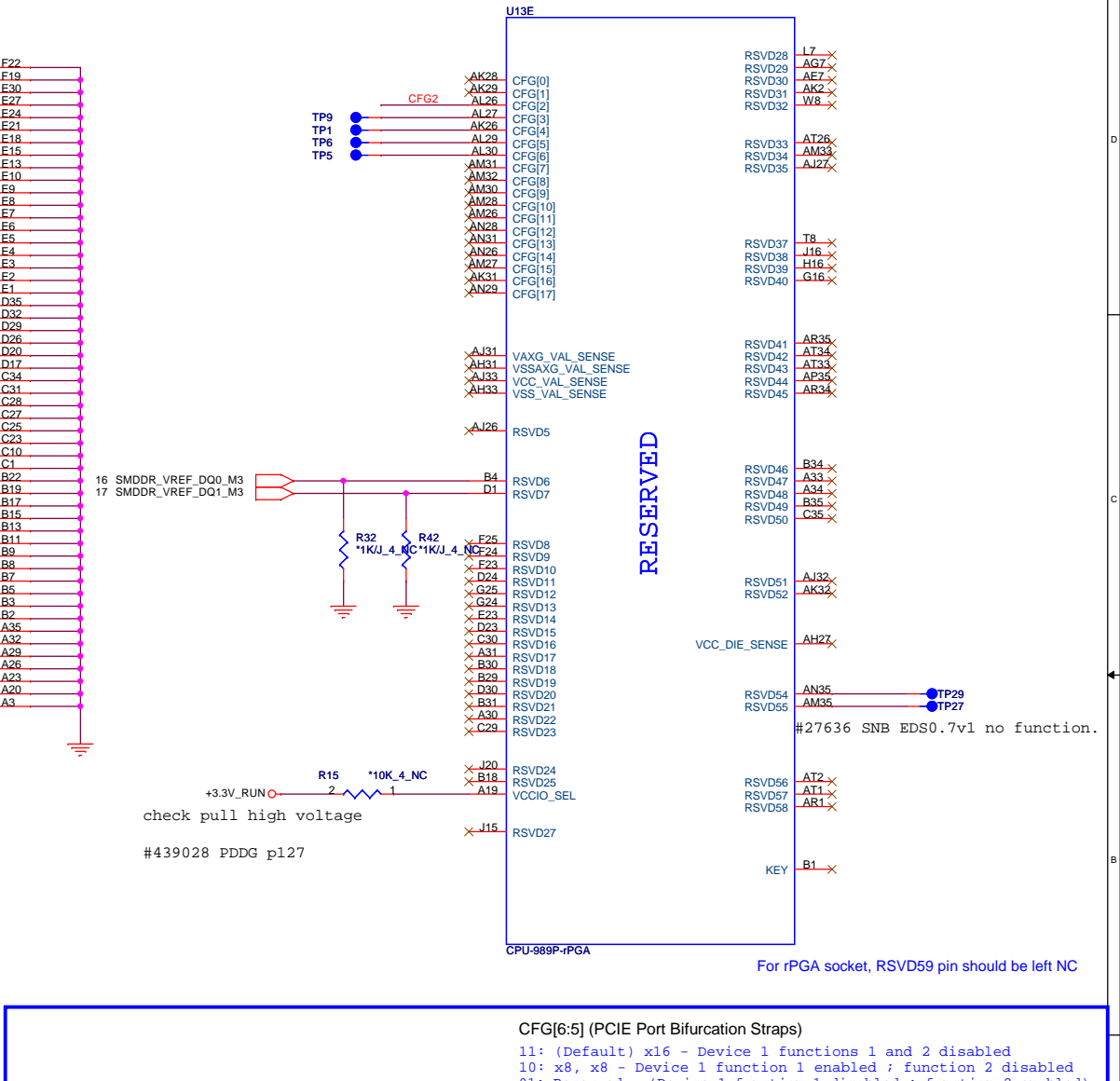
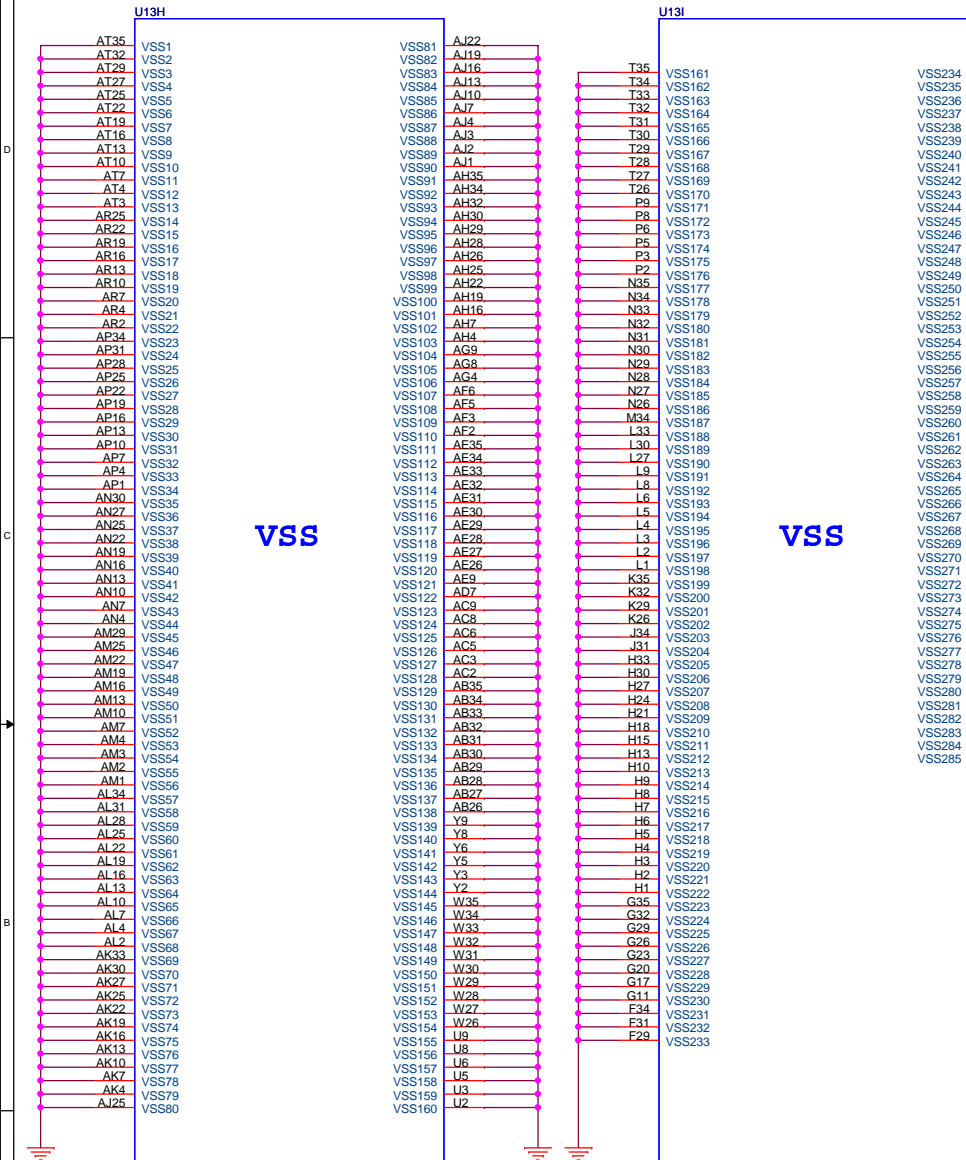
Sandy Bridge Processor (GRAPHIC POWER)



Change R8281, R8285, R8704, R8329 to +/-5%
54.9 ohm has no 5%

Sandy Bridge Processor (GND)

Sandy Bridge Processor (RESERVED, CFG)



CFG[6:5] (PCIe Port Bifurcation Straps)

11: (Default) x16 - Device 1 functions 1 and 2 disabled
 10: x8, x8 - Device 1 function 1 enabled ; function 2 disabled
 01: Reserved - (Device 1 function 1 disabled ; function 2 enabled)
 00: x8,x4,x4 - Device 1 functions 1 and 2 enabled

Processor Strapping		
The CFG signals have a default value of '1' if not terminated on the board.		
	1	0
CFG2 (PCI-E Static x16 Lane Reversal)	Normal Operation	Lane Reversed
CFG3 (PCI-E Static x4 Lane Reversal)	Normal Operation	Lane Reversed
CFG4 (DP Presence Strap)	Disable; No physical DP attached to eDP	Enable; An ext DP device is connected to eDP

CFG2 R92 1K/F 4

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Sandy Bridge 5/5

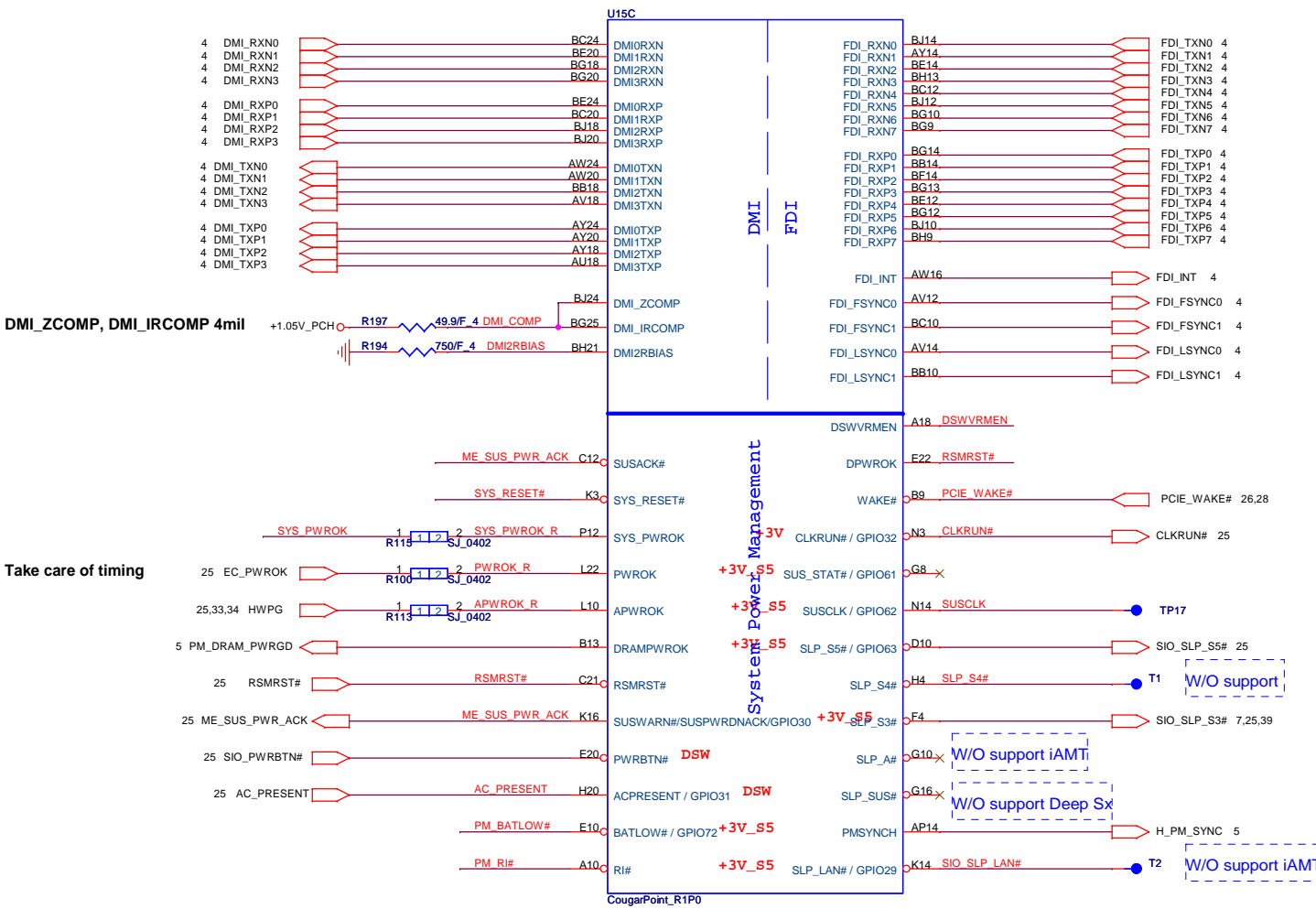
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For rPGA socket, RSVD59 pin should be left NC

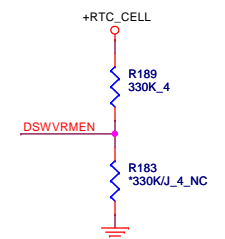
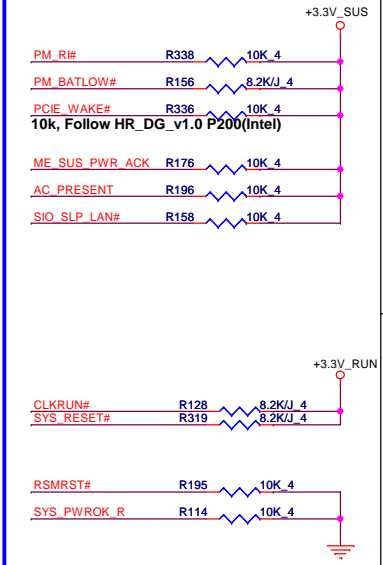
+3.3V_RUN
 check pull high voltage
 #439028 PDDG p127

#27636 SNB EDS0.7v1 no function.

Cougar Point (DMI, FDI, PM)

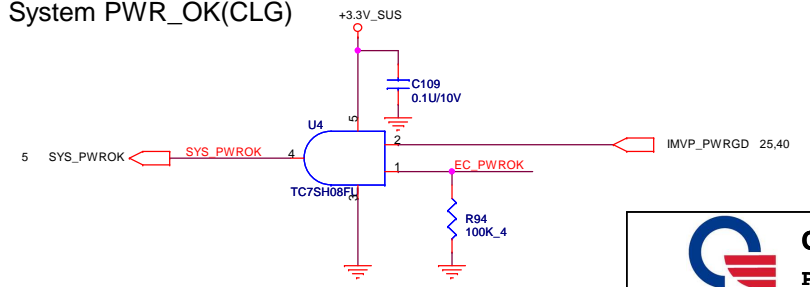


PCH Pull-high/low(CLG)



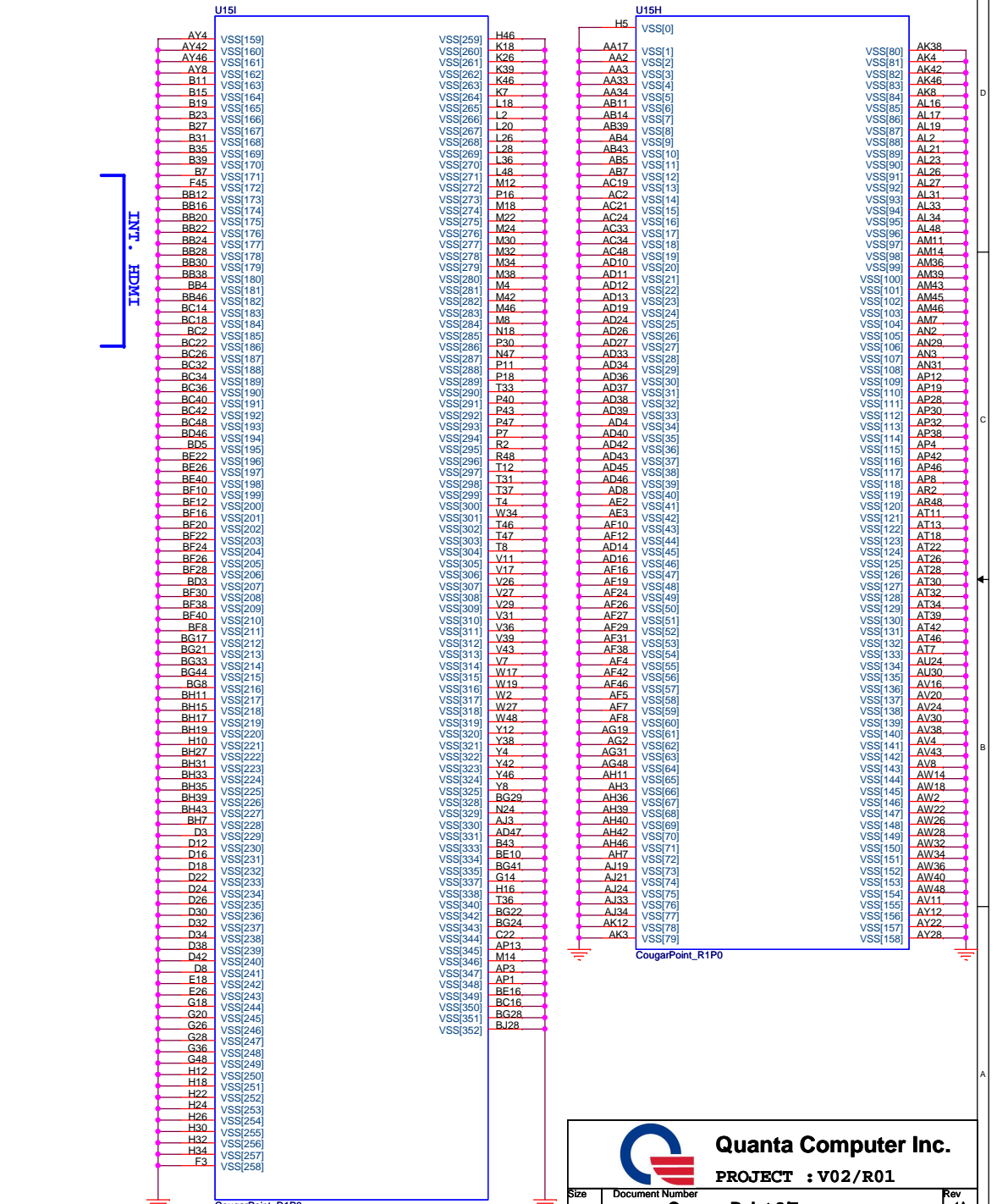
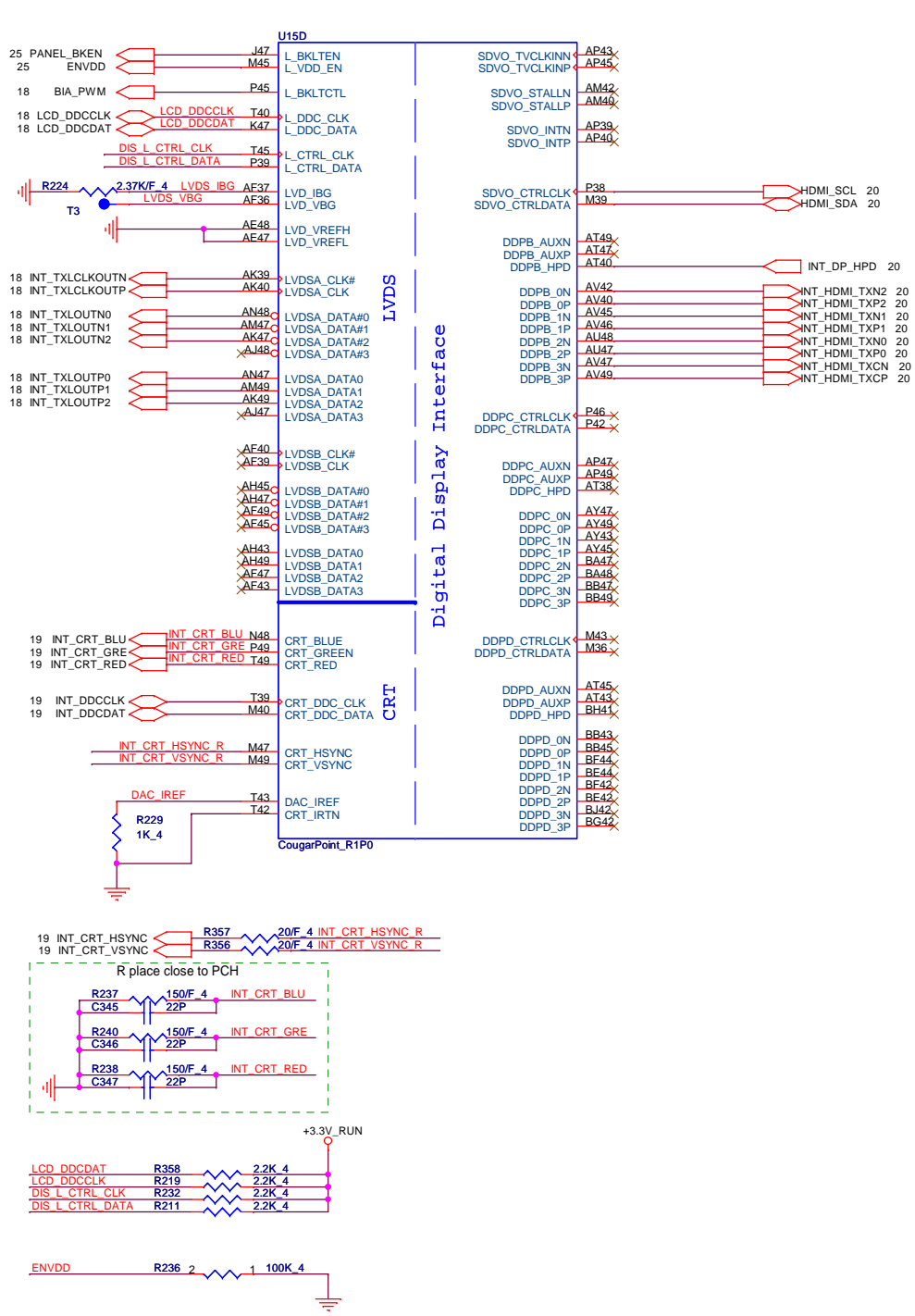
On Die DSW VR Enable
 High = Enable (Default)
 Low = Disable

System PWR_OK(CLG)



Cougar Point (LVDS,DDI)

Cougar Point (GND)

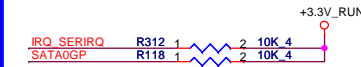
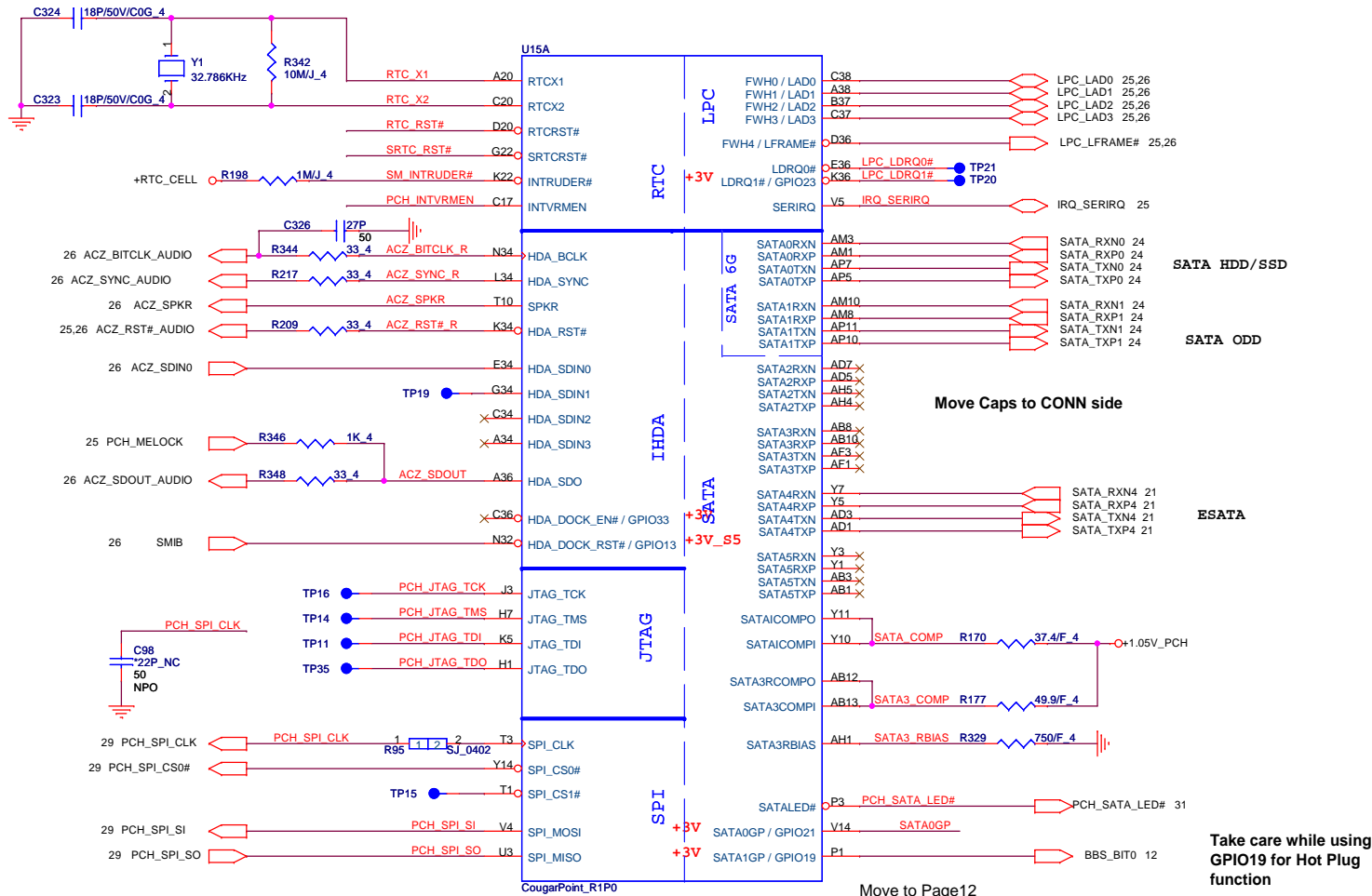


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Size Document Number Rev
Cougar Point 2/7 1A

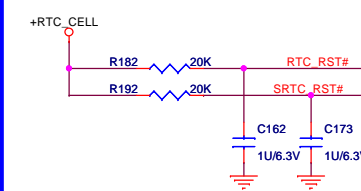
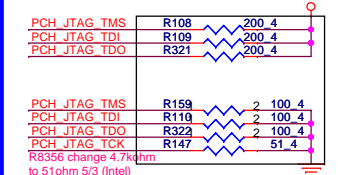
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Cougar Point (HDA, JTAG, SATA)



PCH JTAG Debug (CLG)

5% fine (Intel), 210->200 (PDDG, Intel) MP remove(Intel) +3.3V_SUS



Move to Page12

Take care while using GPIO19 for Hot Plug function

PCH Strap Table

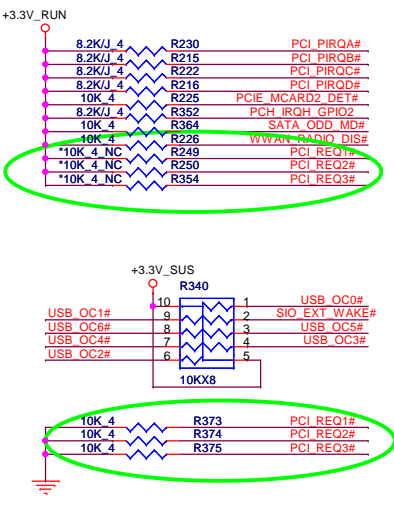
Pin Name	Strap description	Sampled	Configuration	note
SPKR	No reboot mode setting	PWROK	0 = Default (weak pull-down 20K) 1 = Setting to No-Reboot mode	+3.3V_SUS R146 *1K 4 NC ACZ_SPKR
HDA_SDO	Flash Descriptor Security	PWROK	0 = Default (weak pull-down 20K) 1 = Override	+3.3V_SUS R349 *1K 4 NC ACZ_SDO
Del 0510			Remove SPI_MOSI from PCH strapping, HR_C/L_v0.91	
INTVRMEN	Integrated 1.05V VRM enable	ALWAYS	Should be always pull-up	+RTC_CELL R181 330K 4 PCH_INTVRMEN
HDA_SYNC	On-Die PLL VR Volatge Select	RSMRST	0 = Support by 1.8V (weak PD) 1 = Support by 1.5V	+3.3V_SUS R212 1K 4 ACZ_SYNC_R

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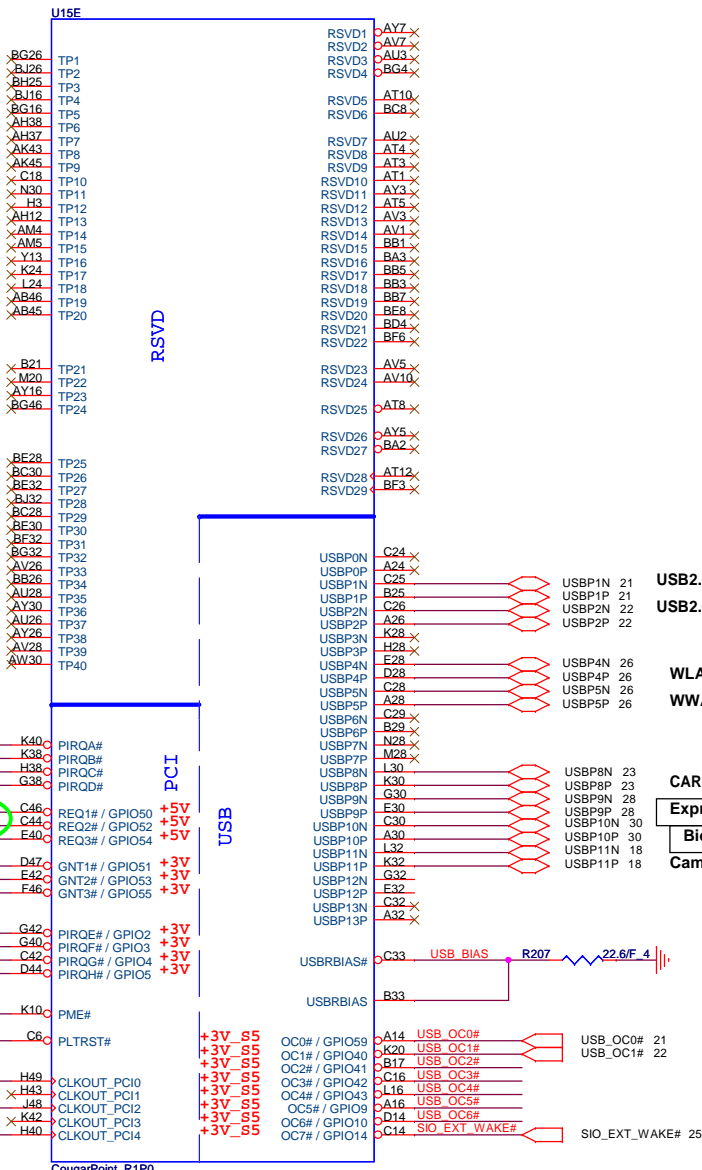
Size Document Number Rev 1A
Cougar Point 3/7

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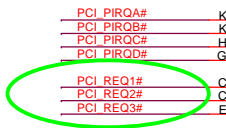
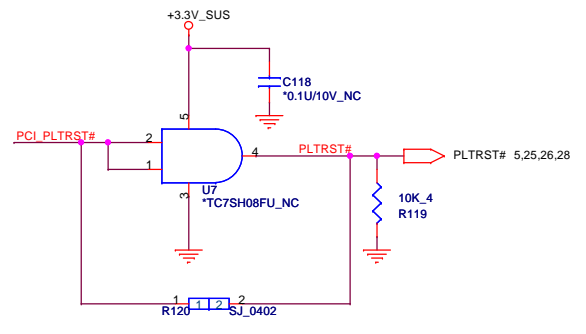
PCI/USB/OC# Pull-up(CLG)



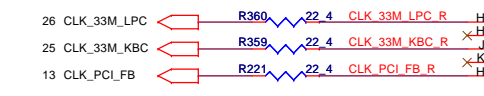
Cougar Point-M (PCI,USB,NVRAM)



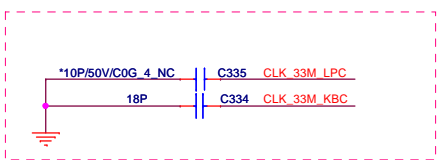
PLTRST#(CLG)



Check with BIOS program or not? (have to be not)



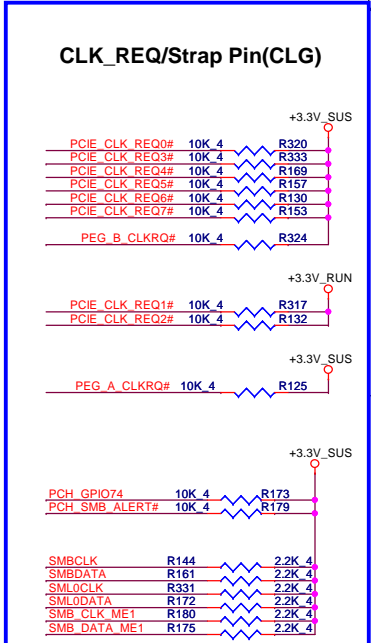
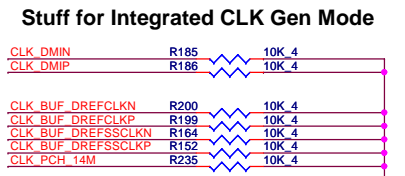
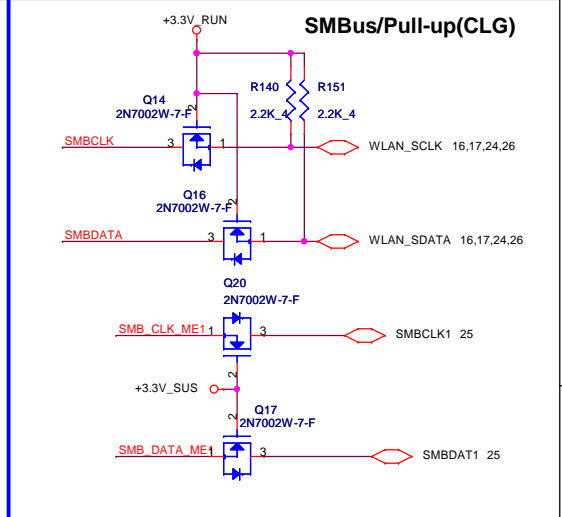
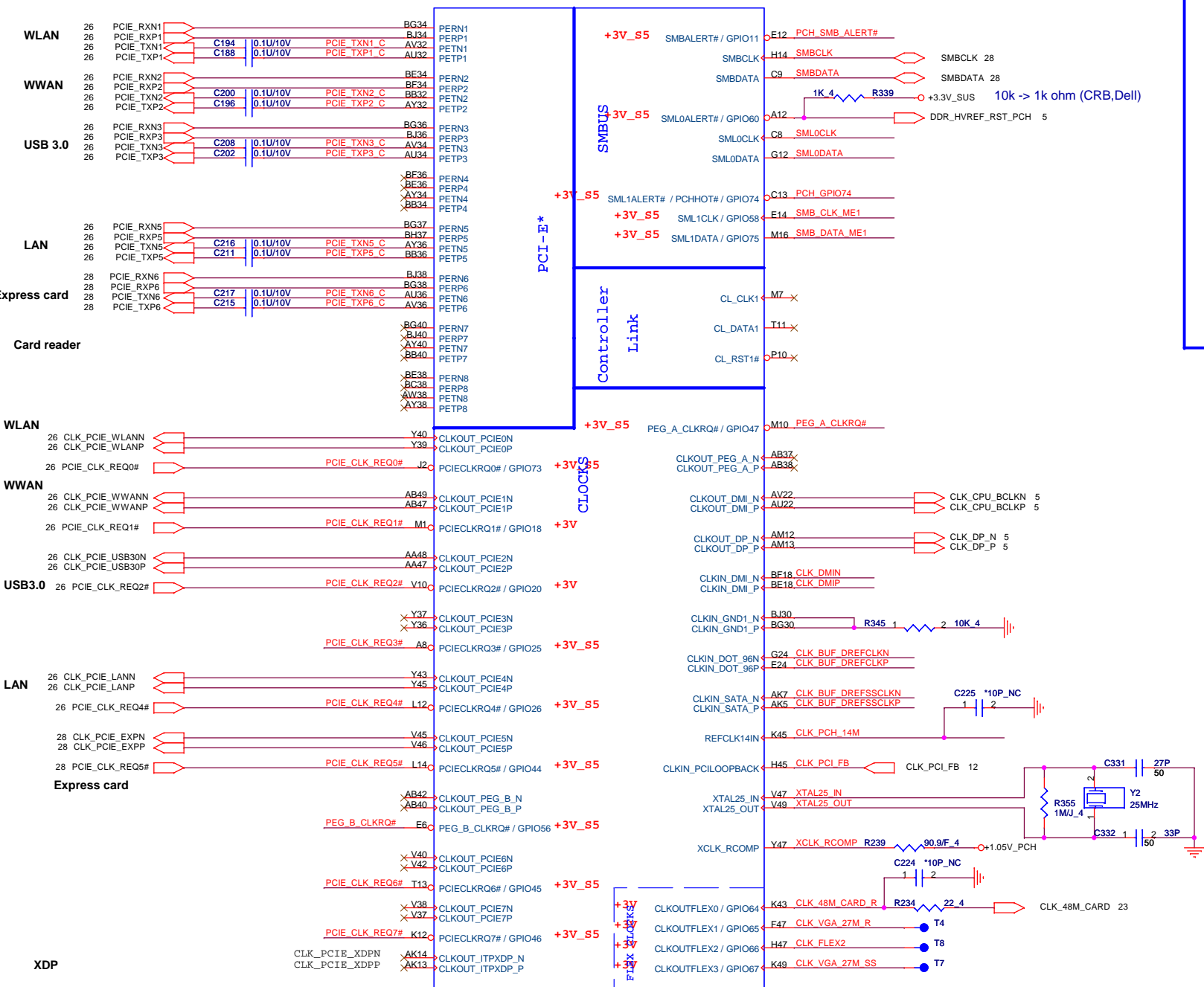
Check CLKOUT if Skew requirement?




Pin Name	Strap description	Sampled	Configuration									
GNT2# / GPIO53	ESI 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 border="1"> <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										
11 BBS_BIT0	R233 *1K_4_NC		Default weak pull-up on GNT0/1# [Need external pull-down for LPC BIOS]									
DF_TV5	DMI and FDI Tx/Rx Termination Voltage	PWROK	weak pull-down 20kohm									
R327	2.2K 4											
R326	1 SJ_0402											

Cougar Point-M (PCI-E, SMBUS, CLK)

U15B



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

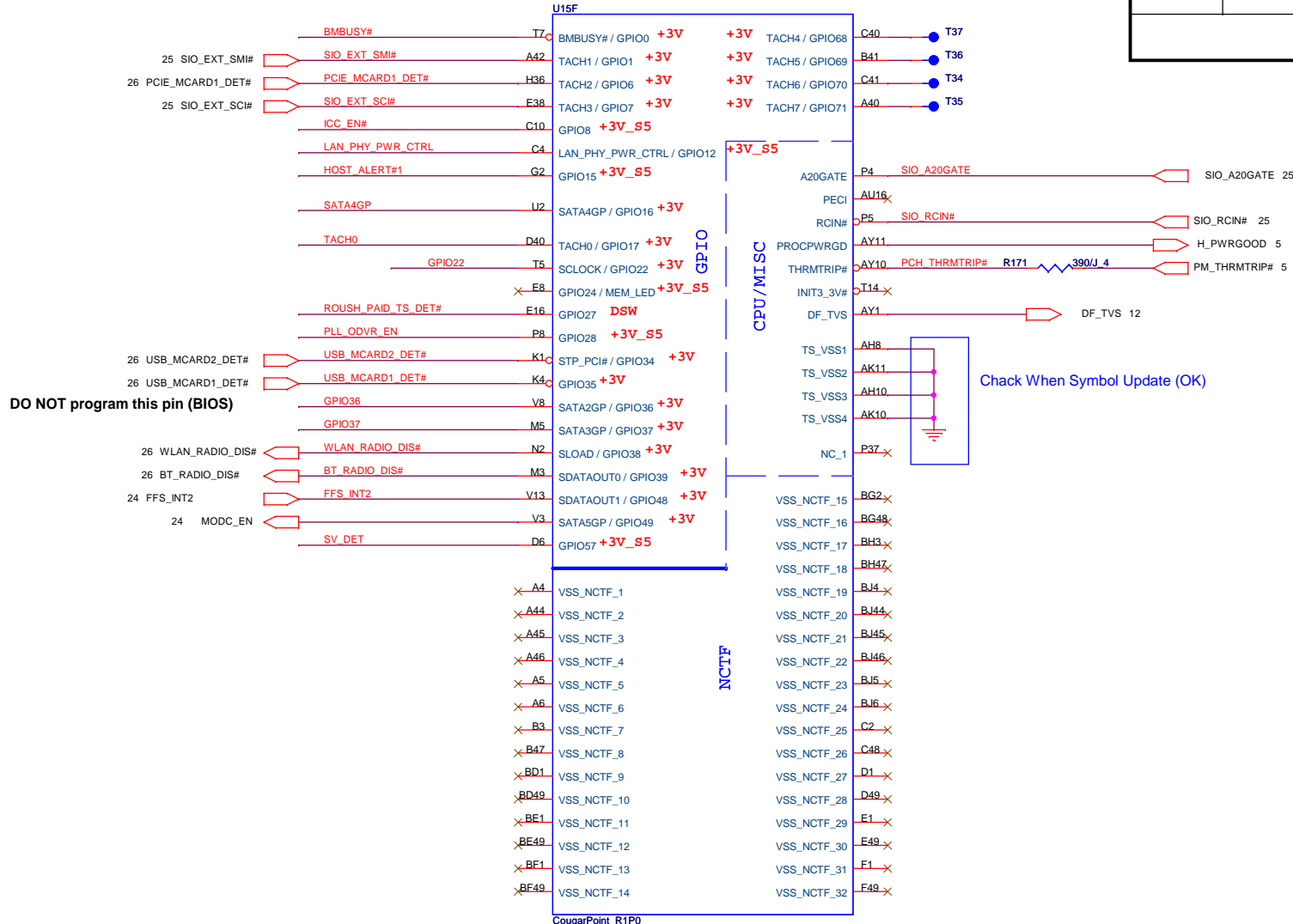


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Cougar Point 5/7

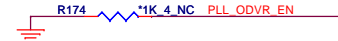
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Cougar Point (GPIO, VSS_NCTF, RSVD)



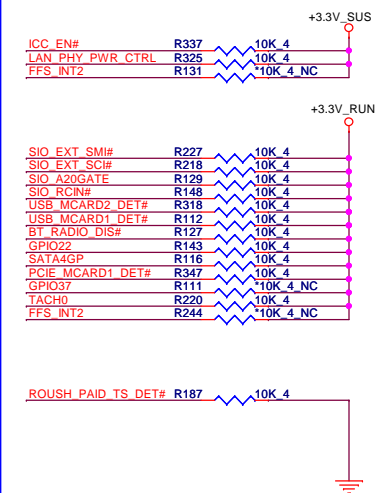
DO NOT program this pin (BIOS)

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

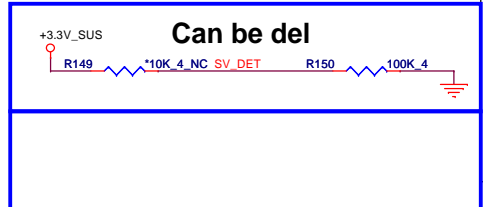


Ask Intel, what's the function?
Add Description in EC GPIO table (keyboard controller reset)

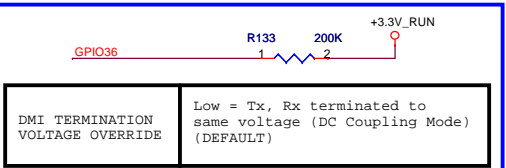
GPIO Pull-up/Pull-down(CLG)



Check When Symbol Update (OK)



Can be del



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



SGPIO Confirm with Intel
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.

Have to Reserve

HOST_ALERT#1 R323 1K 4 +3.3V_SUS

Intel ME Crypto Transport Layer Security (TLS) cipher suite
Low = Disable (Default)
High = Enable

MFG-TEST

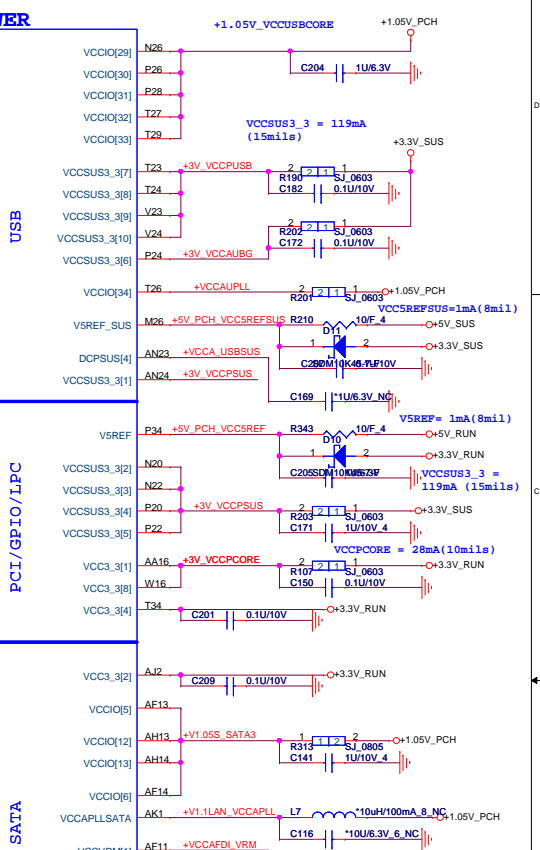
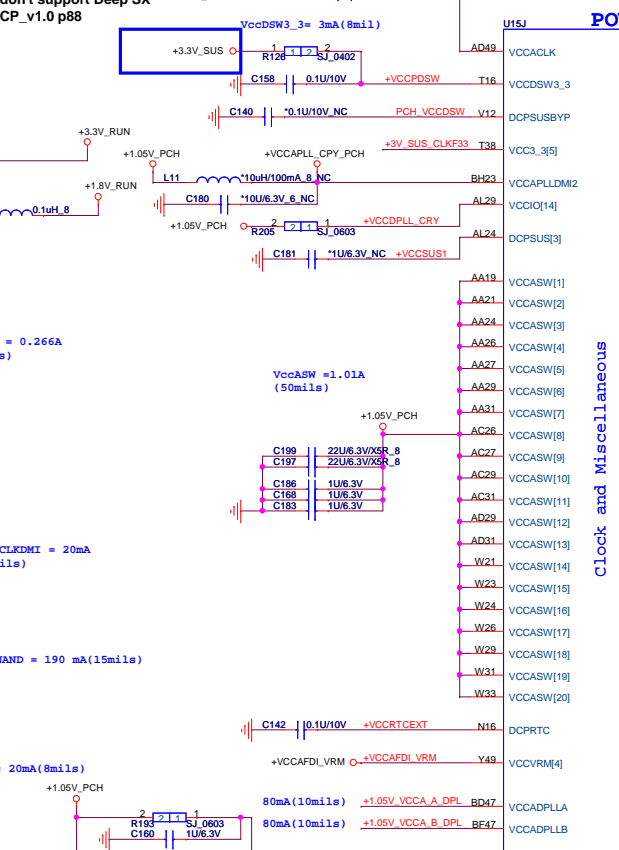
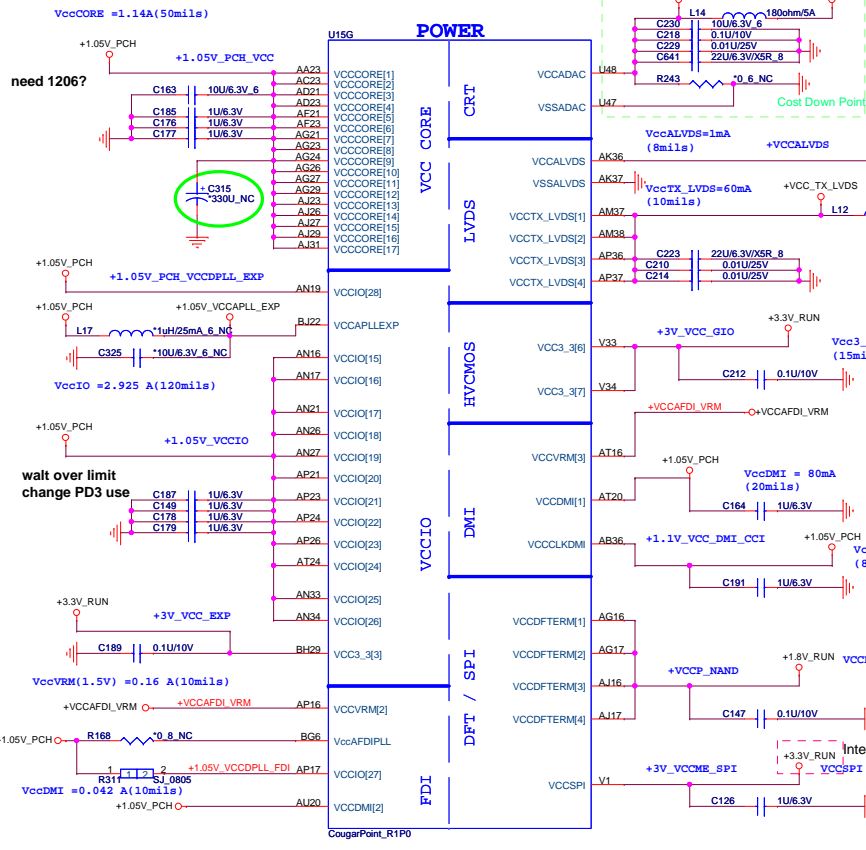
WLAN_RADIO_DIS# R316 10K 4 +3.3V_RUN

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Cougar Point 6/7

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COUGAR POINT (POWER)

Cougar Point (POWER)



need 1206?

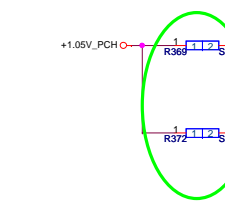
need 1206?

need 1206?

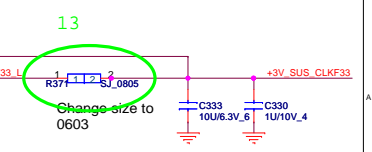
walt over limit
change PD3 use

VCCVRM: 1.8V (Desktop) 0.7/20 del for Pre-ES1
1.5V (Mobile)

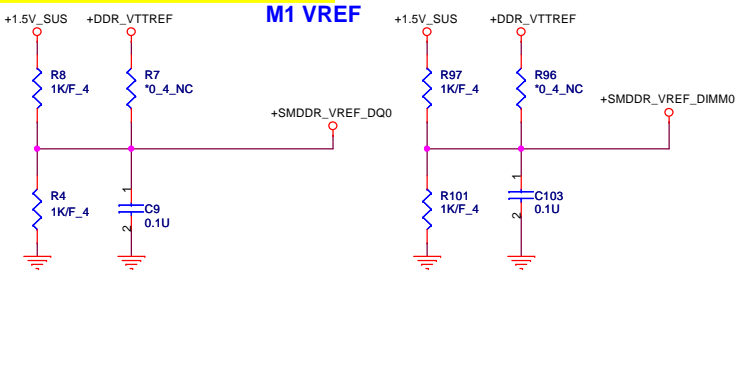
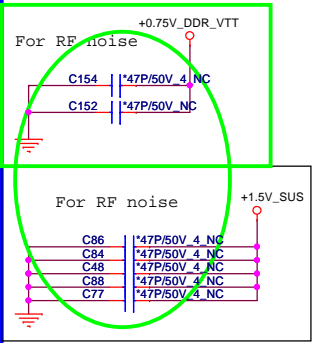
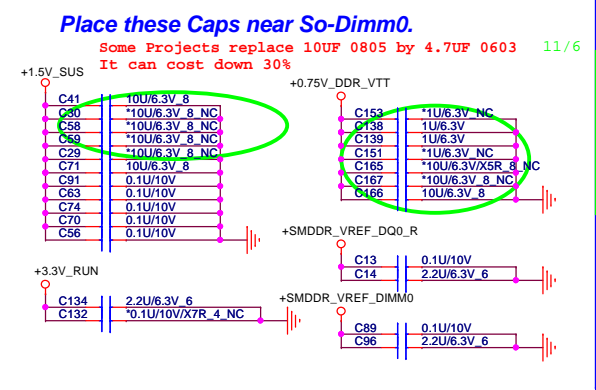
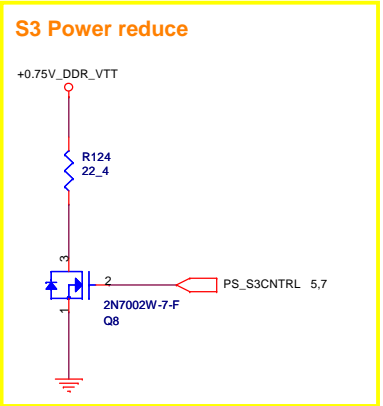
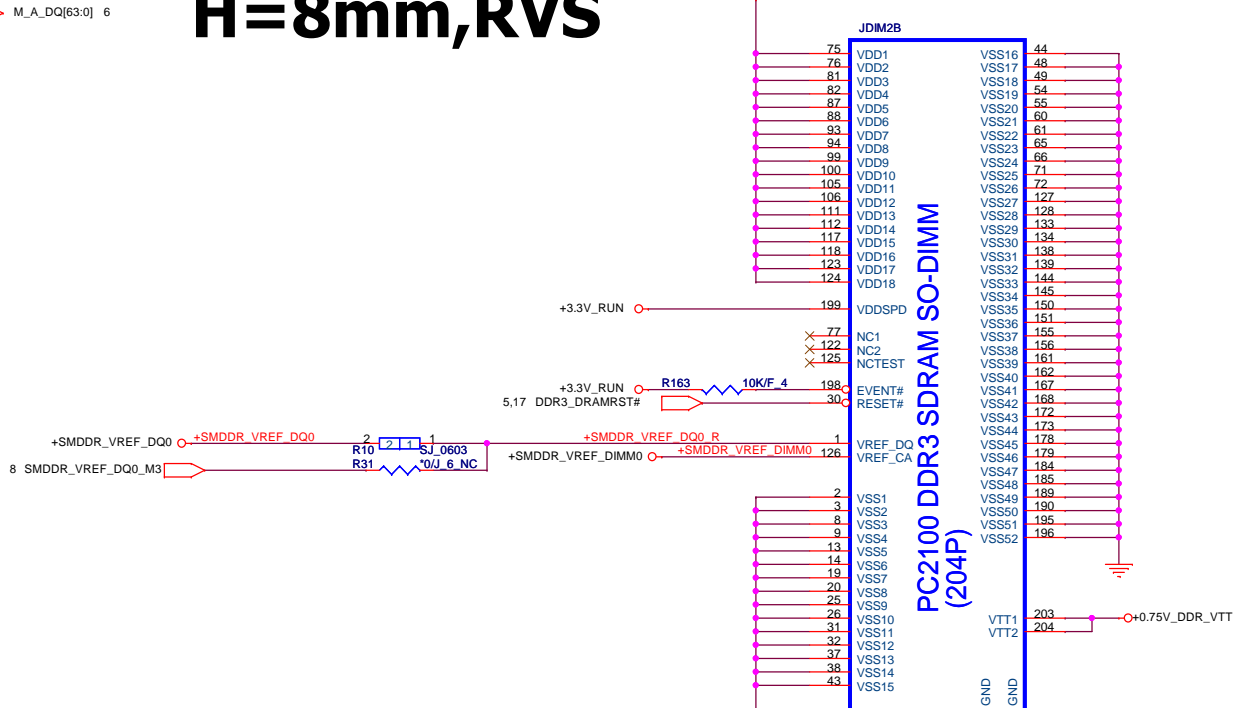
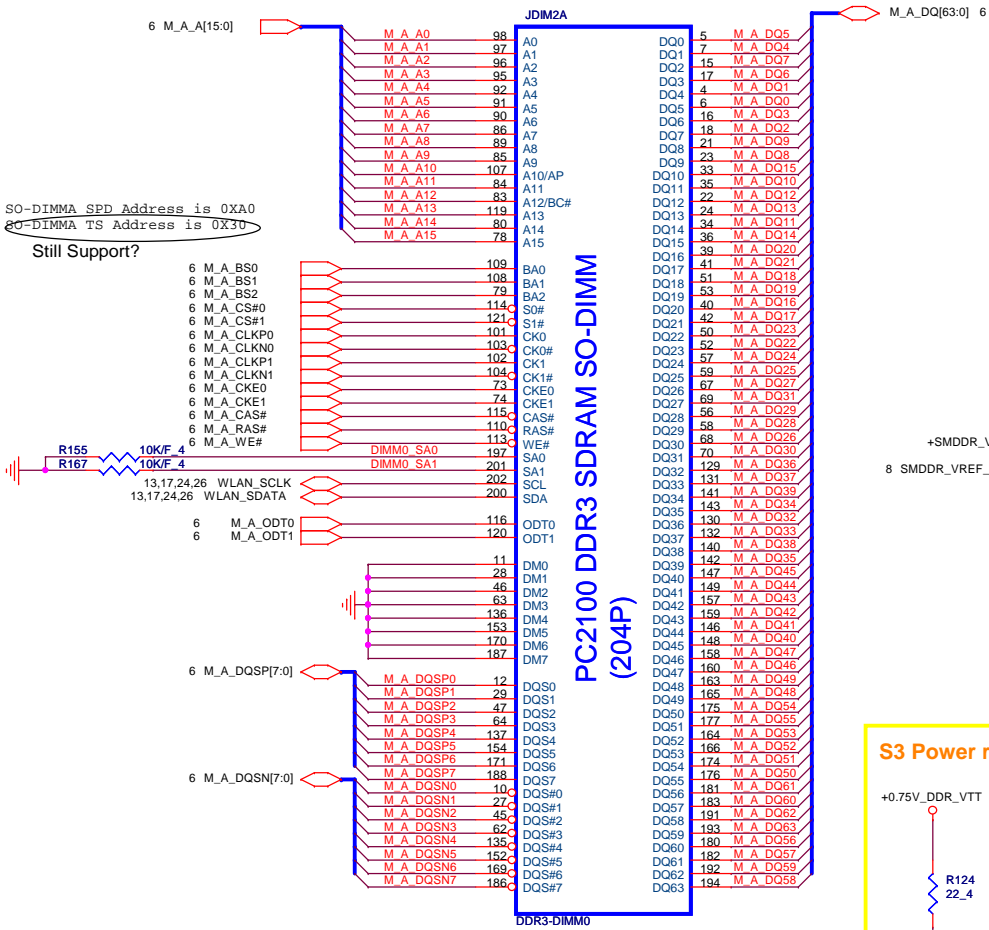
Tie to 3.3V_SUS, when
don't support Deep SX
CP_v1.0 p88



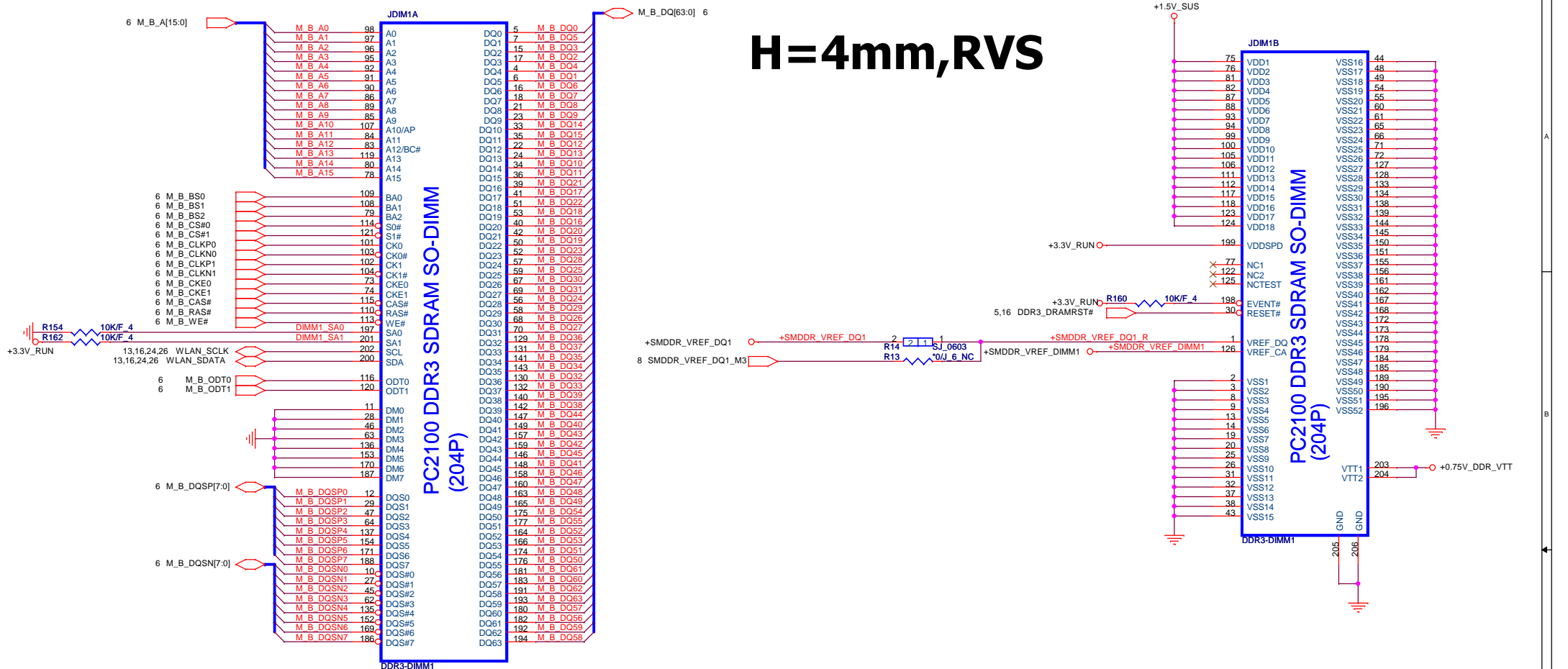
Ask PD3 or Intel, why
need 10hm
change to +/-5%



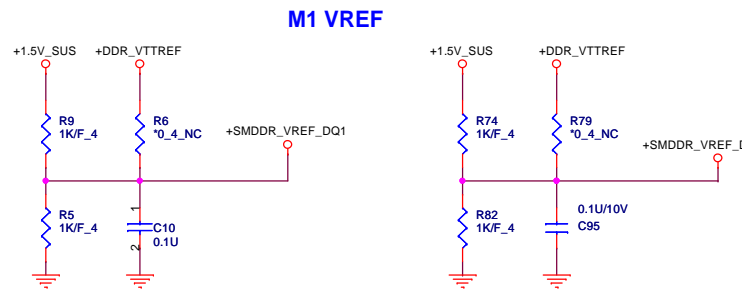
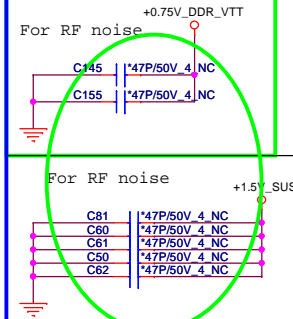
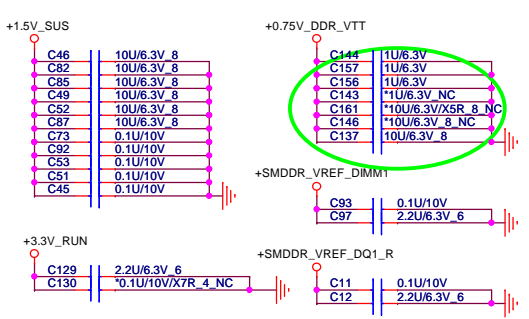
H=8mm,RVS



H=4mm,RVS



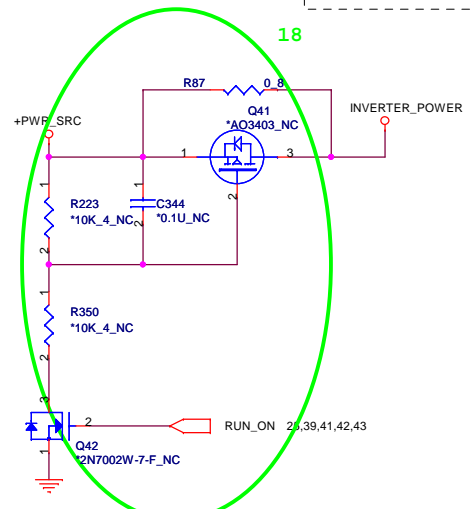
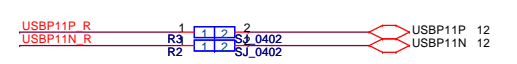
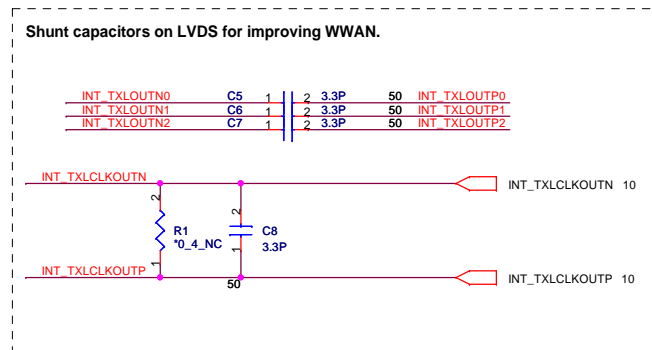
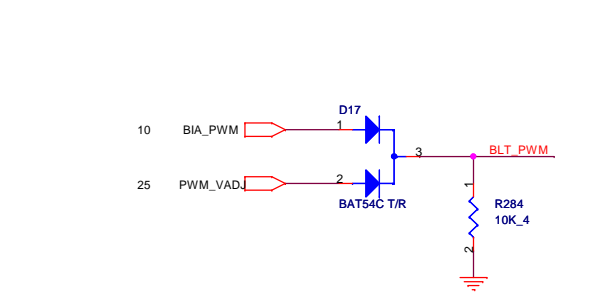
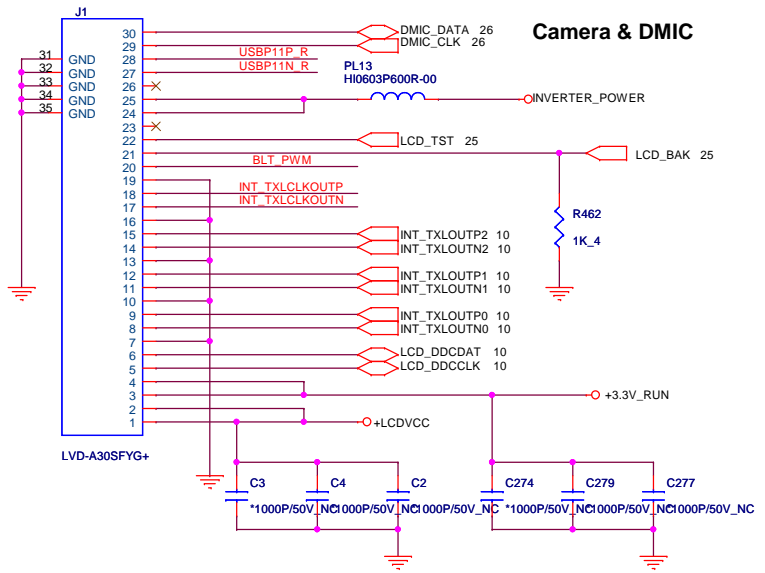
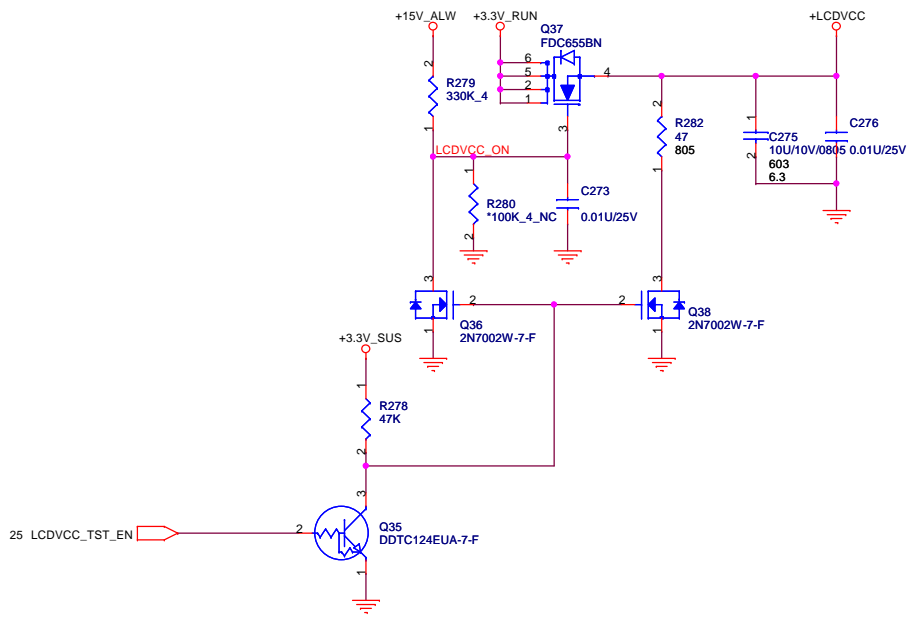
Place these Caps near So-Dimm1.
 Some Projects replace 10UF 0805 by 4.7UF 0603
 It can cost down 30%

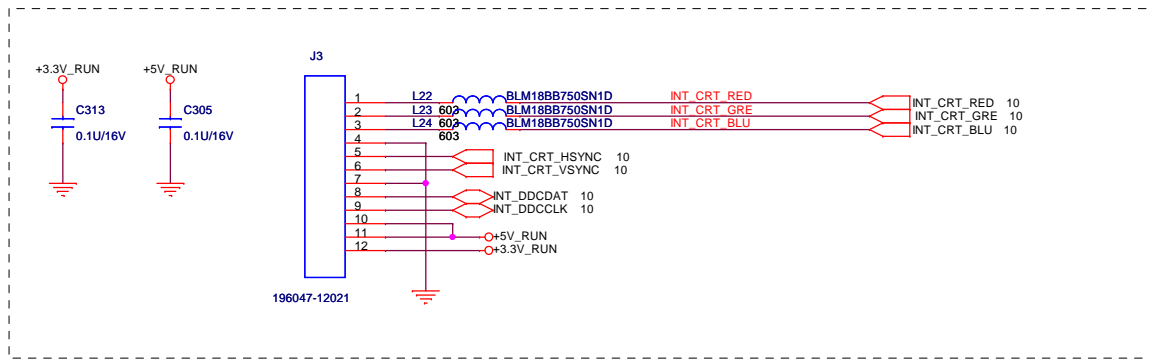


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DDR3 DIMM-1

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		1A

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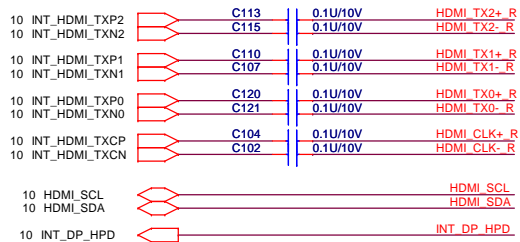


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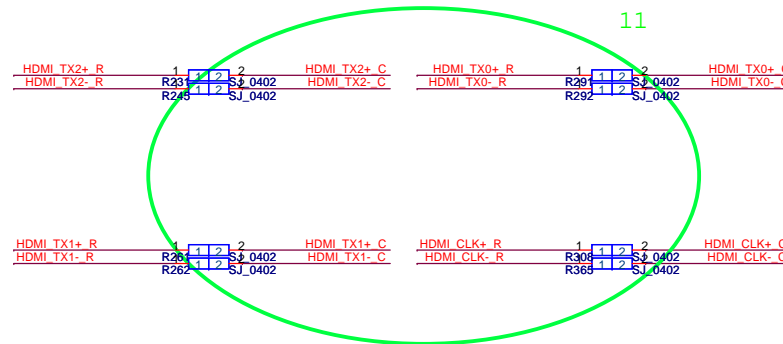
PROJECT : V02/R01

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	BLANK	1A
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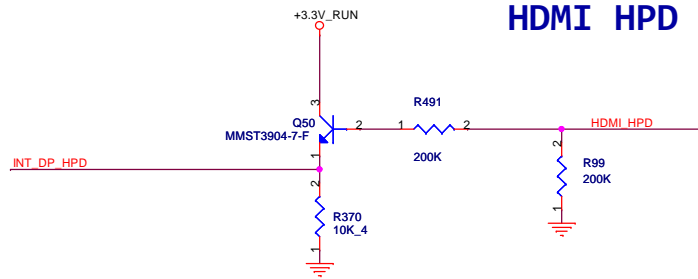
UMA HDMI



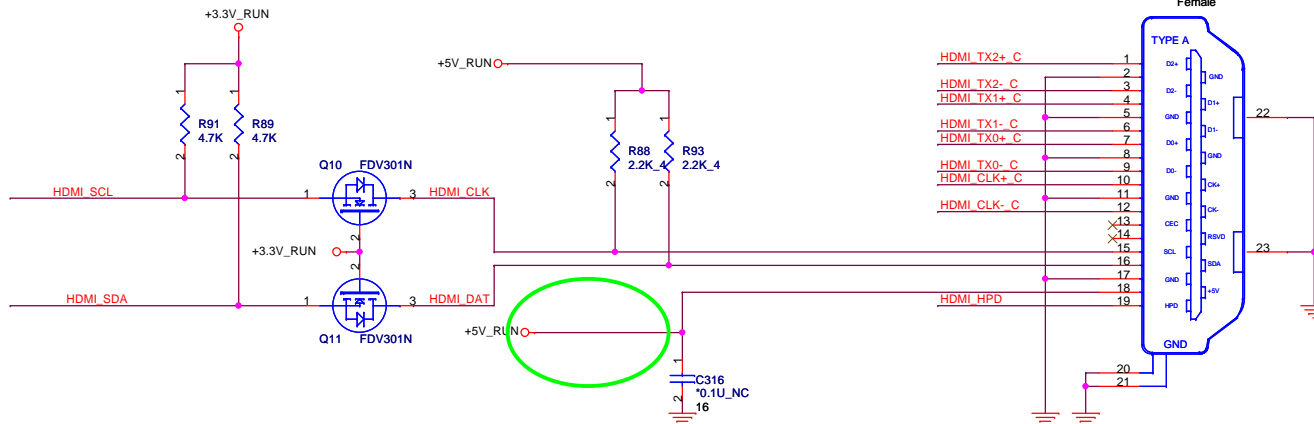
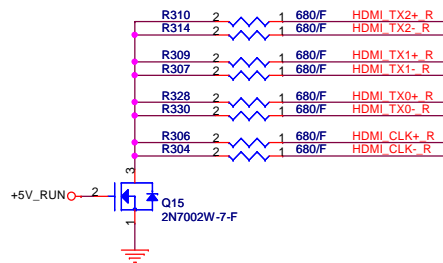
Reserve for EMI and close to HDMI CONN



HDMI HPD

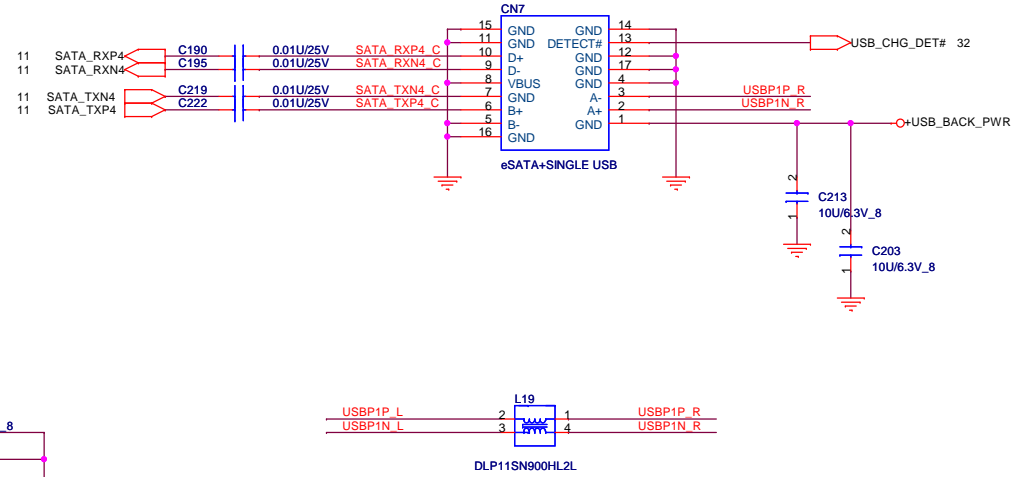
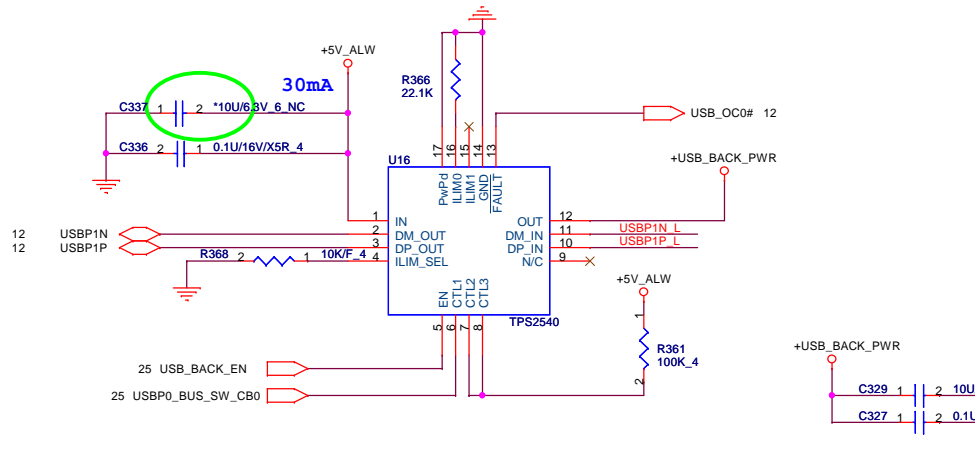


HDMI Conn.



ESATA + USB Conn + Power share

S3/S5 USB charging circuit

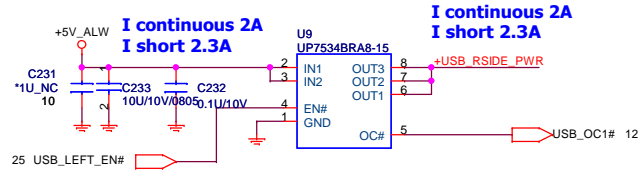


USBP0_BUS_SW_CB0	Mode
Low	DCP, Auto-detect
High	CDP, BC Spec 1.1

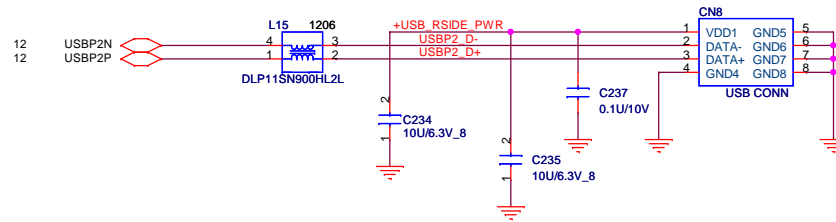
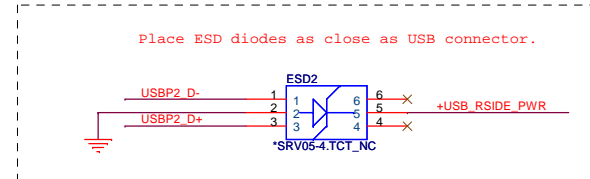
	R8224	mA
OC limitation	100k ohm	480
	22.1k ohm	2171

Applied Now

UPI power switch



Platforms should put in PADS for the USB chokes if they have the room. Chokes should be NOPOP.

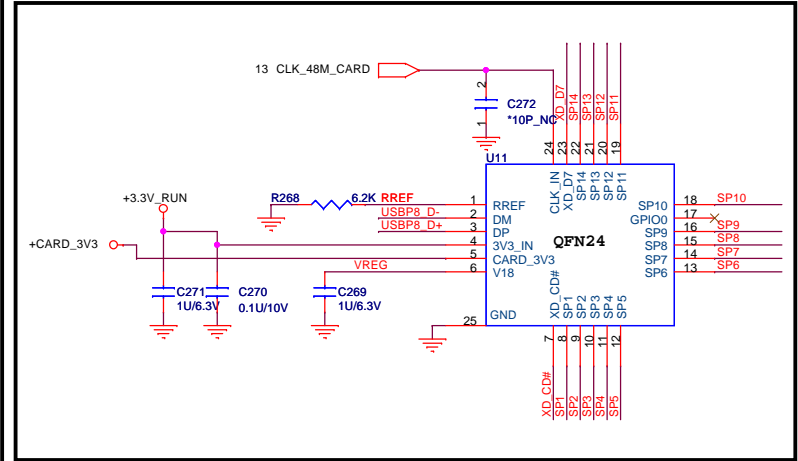
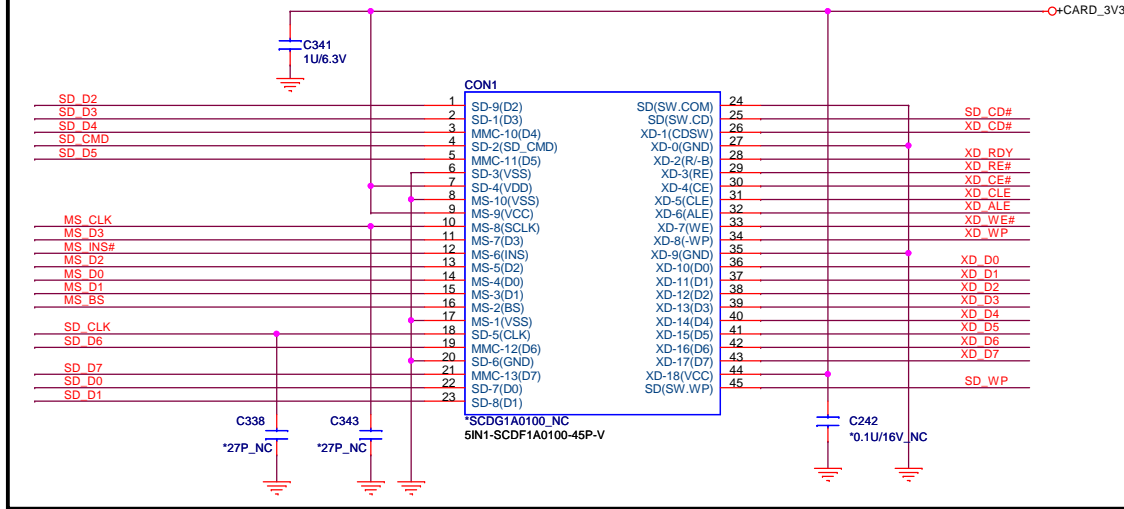


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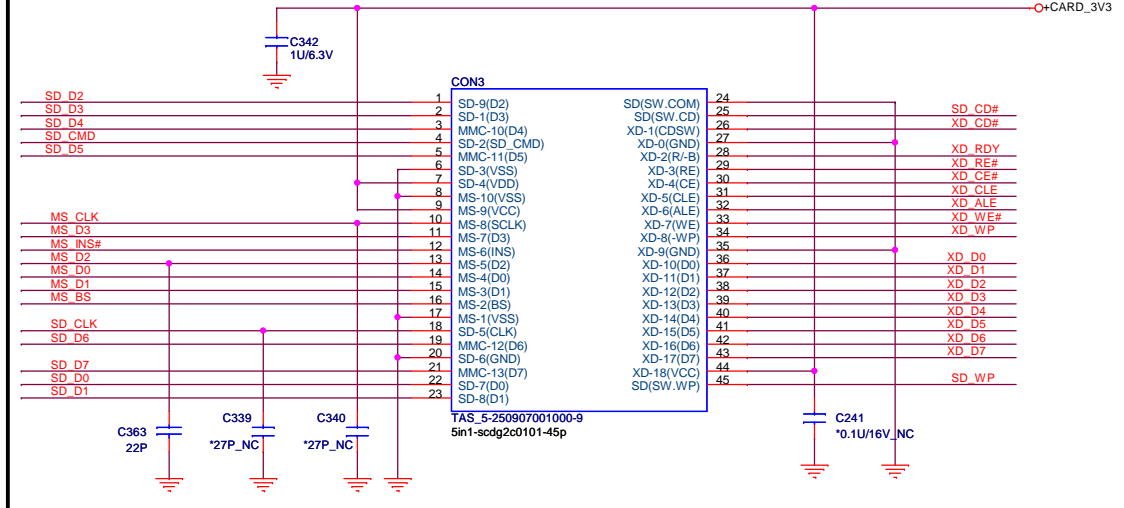
PROJECT : V02/R01

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Inspiron

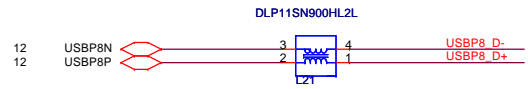


VOSTOR



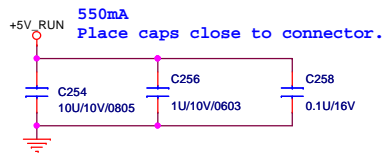
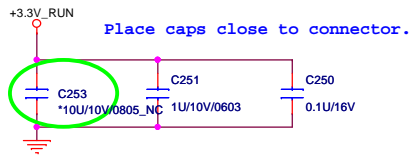
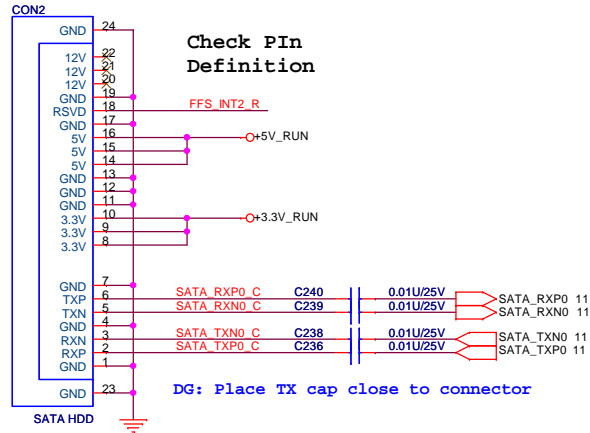
SP1	XD RDY	SD WP	MS CLK
SP2	XD RE#	SD D1	MS INS#
SP3	XD CE#	SD D0	MS D7
SP4	XD CLE	SD D7	MS D3
SP5	XD ALE	SD CD#	MS D6
SP6	XD WE#	SD D6	MS D2
SP7	XD WP	SD D5	MS D0
SP8	XD D0	SD D5	MS D0
SP9	XD D1	SD D5	MS D0
SP10	XD D2	SD CMD	MS D4
SP11	XD D3	SD D4	MS D4
SP12	XD D4	SD D3	MS D1
SP13	XD D5	SD D2	MS D5
SP14	XD D6	SD D2	MS BS

Share Pin

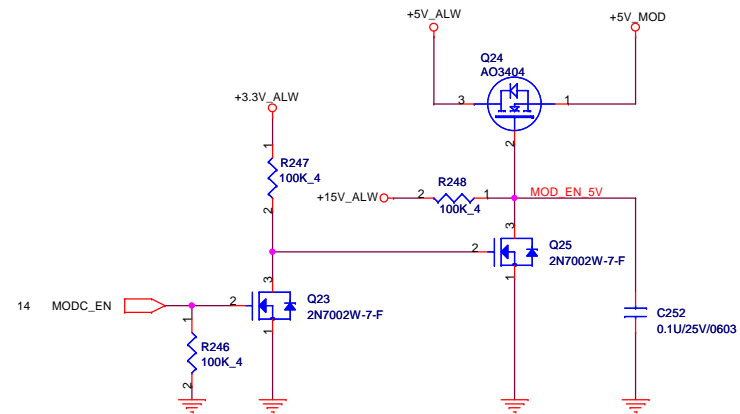
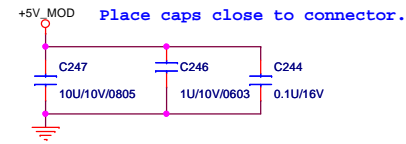
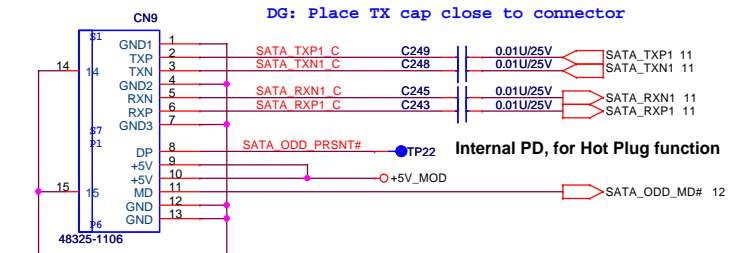


Cardreader	POP	NC
Inspiron	CON1	CON3
VOSTOR	CON3	CON1

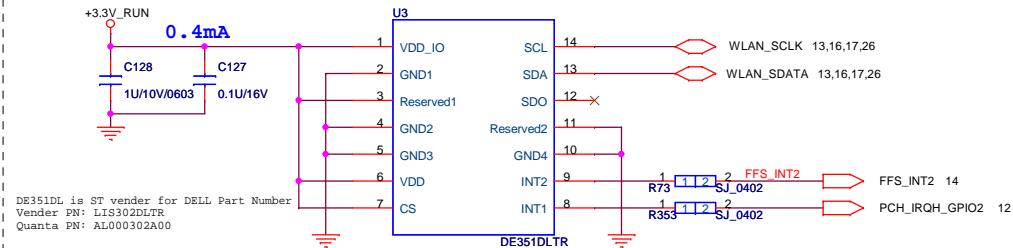
SATA Connector UM8



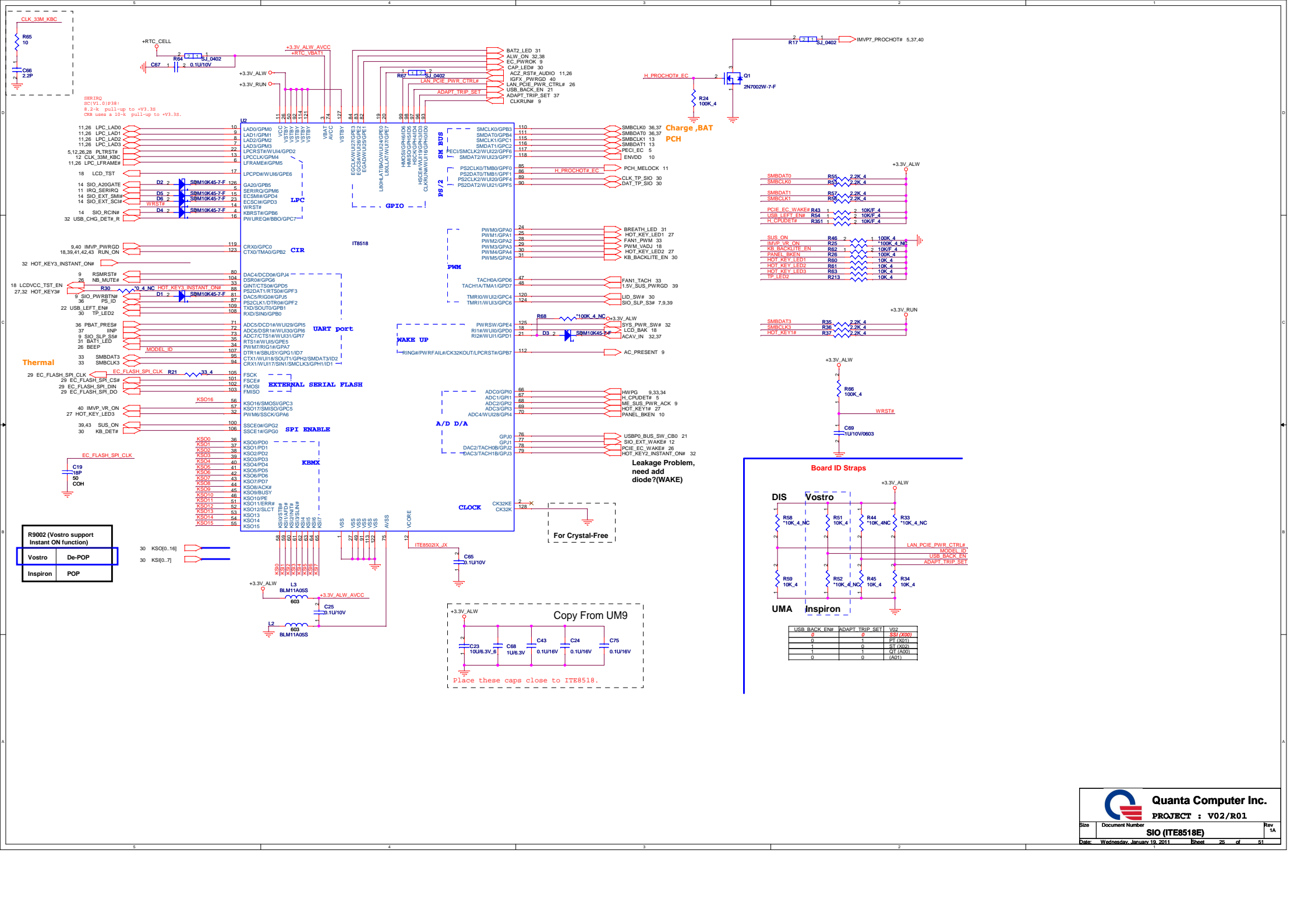
ODD Connector

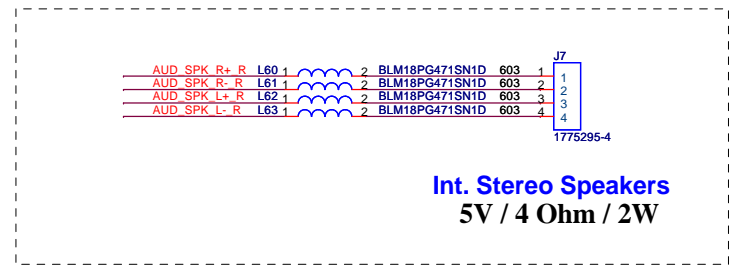
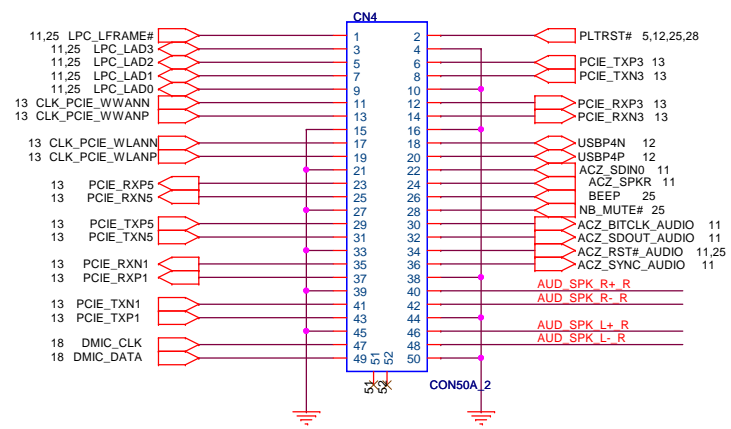
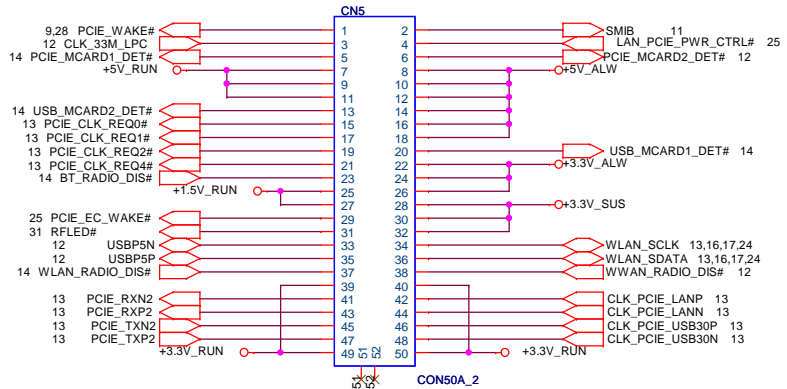


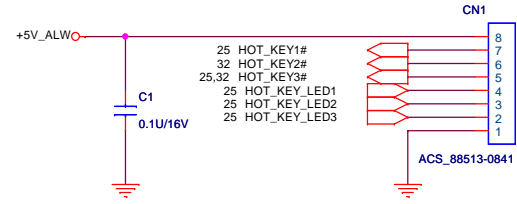
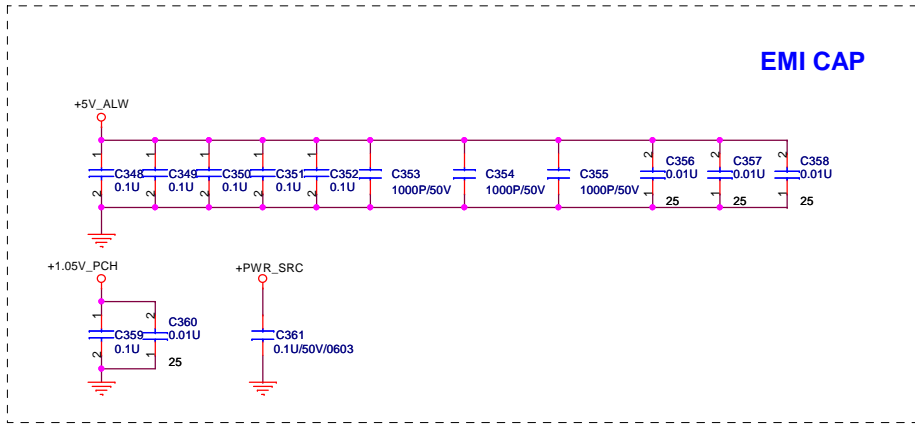
3-axis Fall Sensor (HDD data protector)



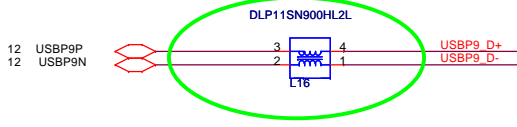
3-axis Fall Sensor	VOSTOR	Inspiron
U3, Q26, D12 R73, R254, R353 C127, C128	POP	NC



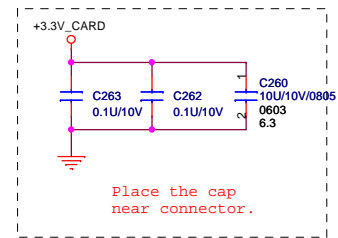
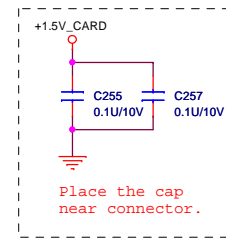
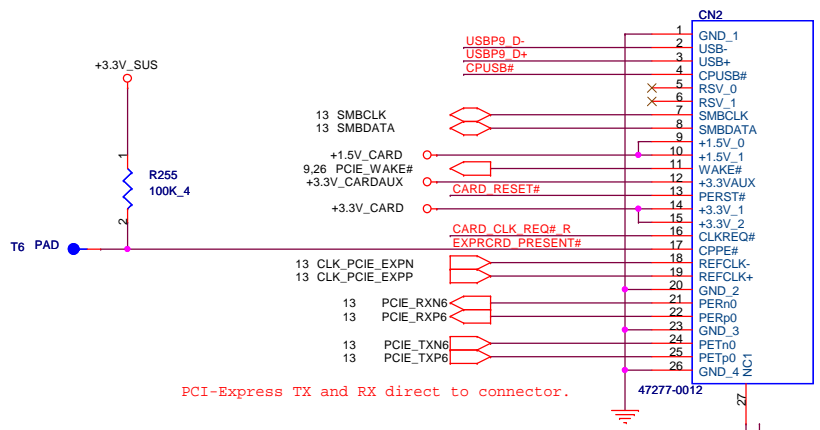
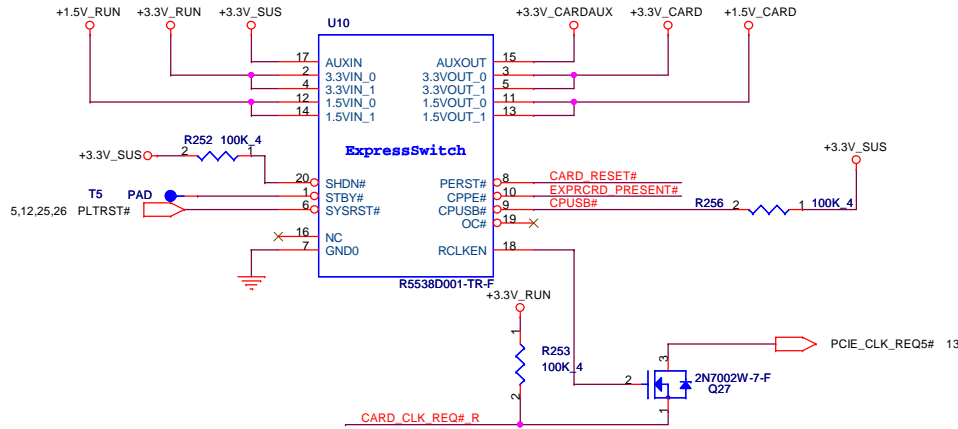




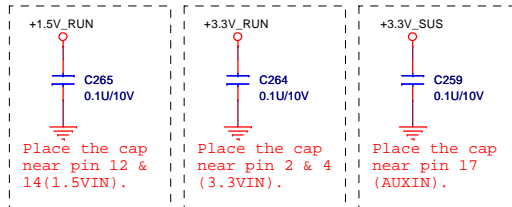
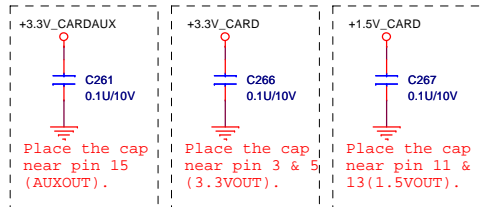
Express Card



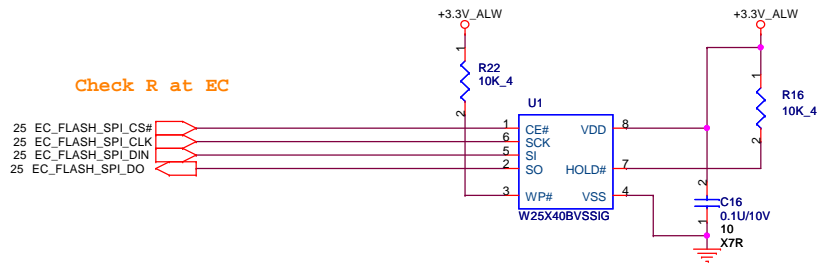
+1.5V_CARD Max. 650mA, Average 500mA.
+3V_CARD Max. 1300mA, Average 1000mA.



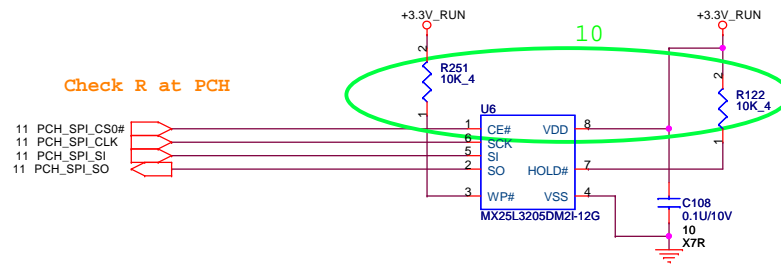
If close enough, could combine



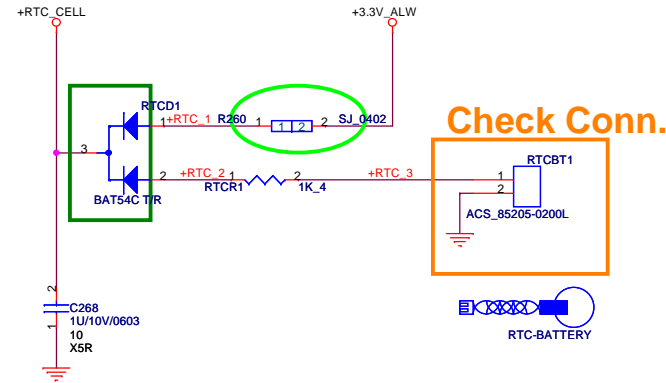
For EC 4Mbit (512K Byte)



For PCH 32Mbit (4M Byte)



RTC

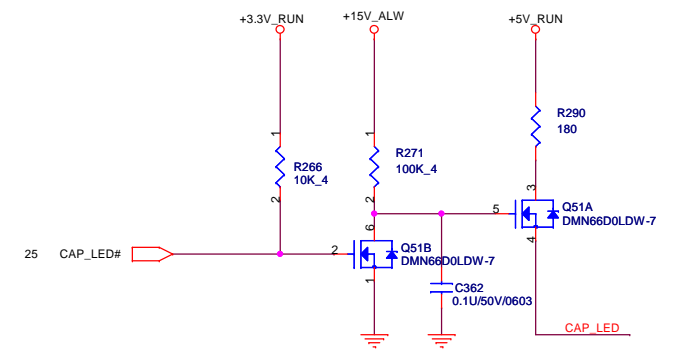
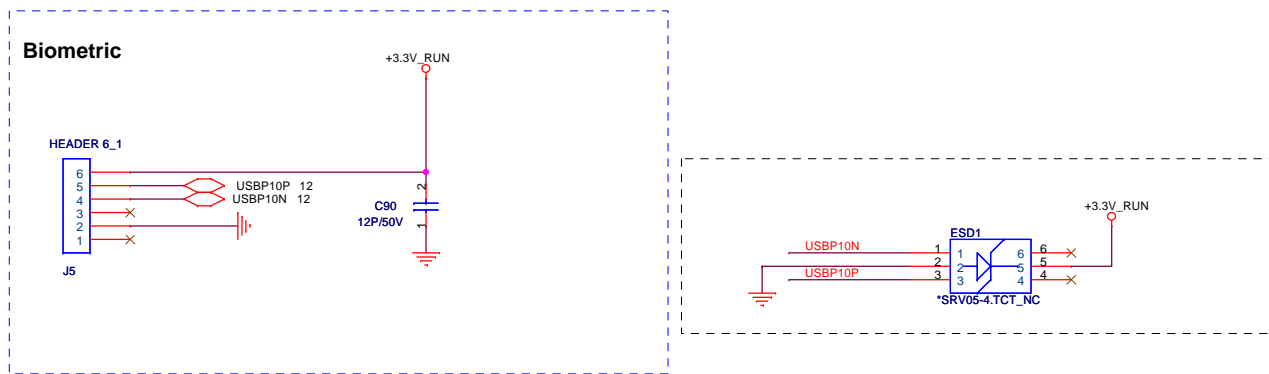
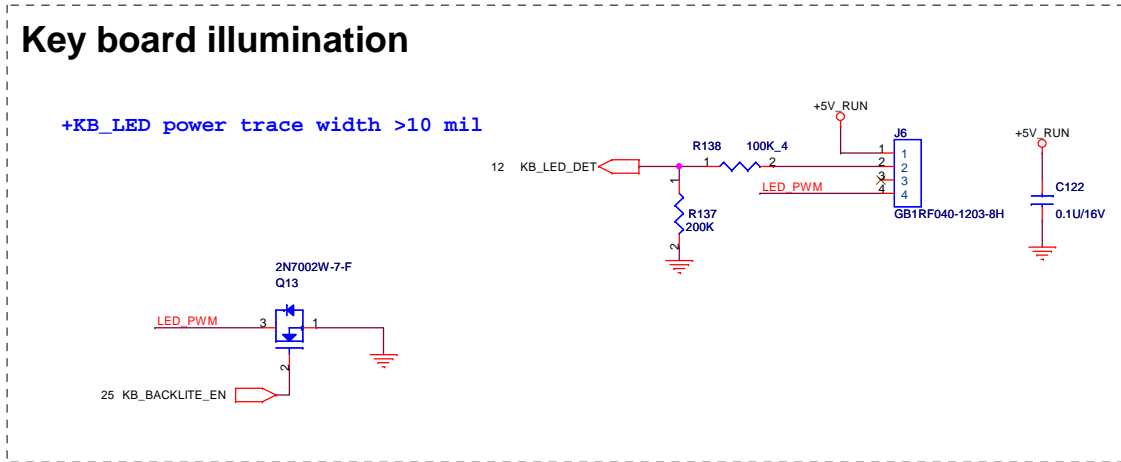
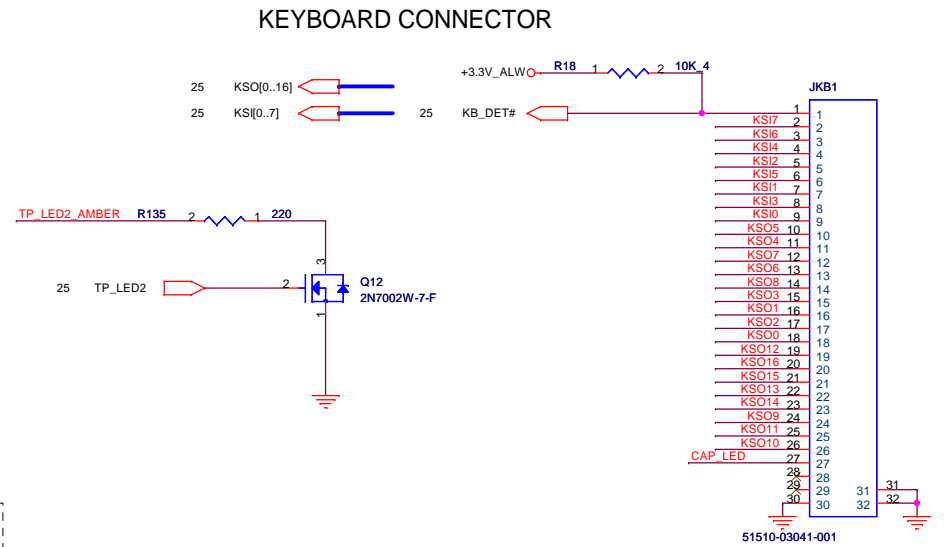
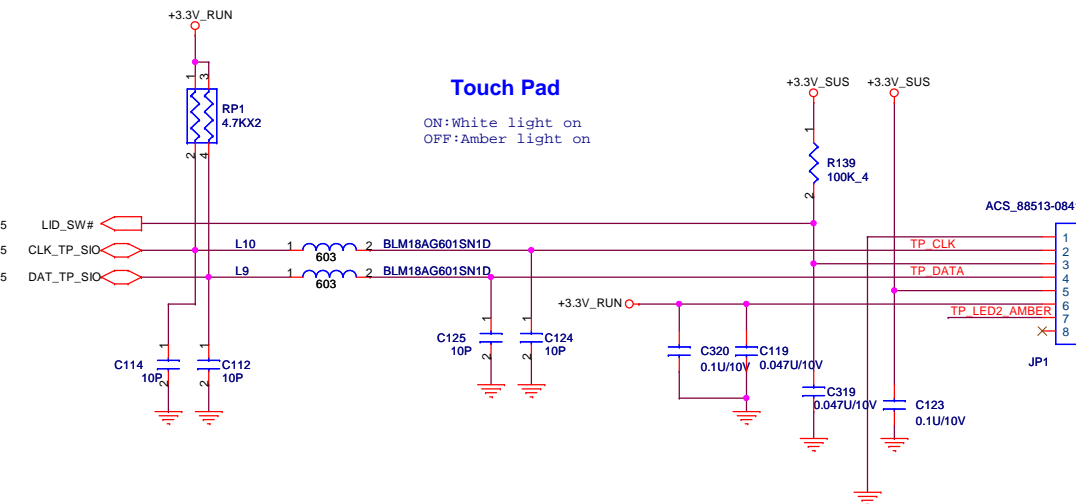


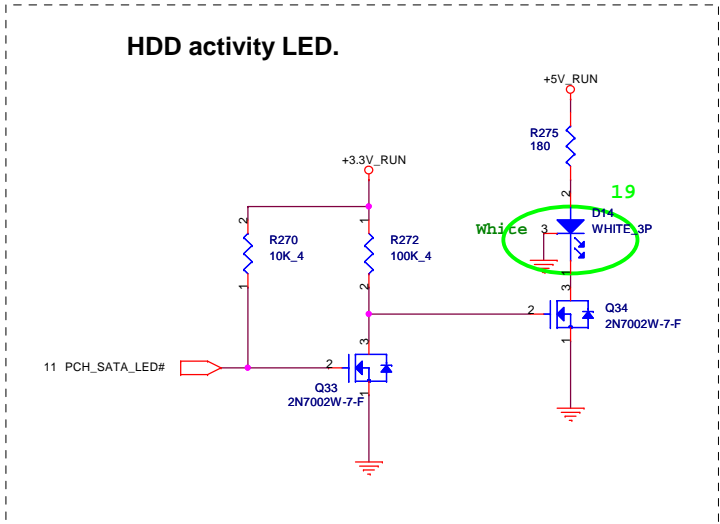
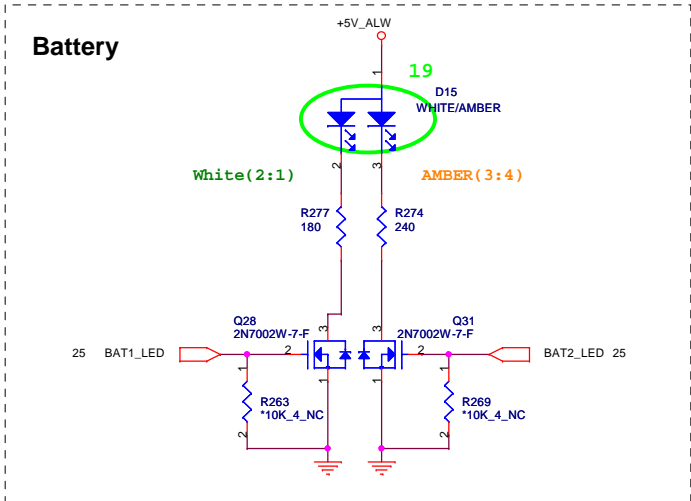
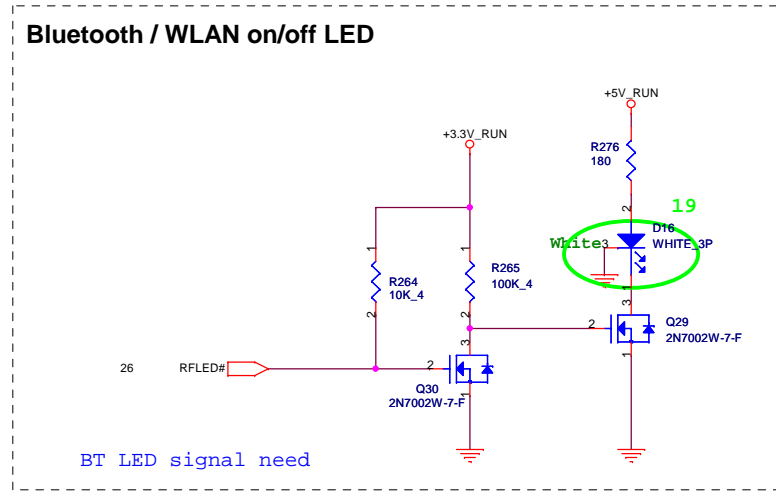
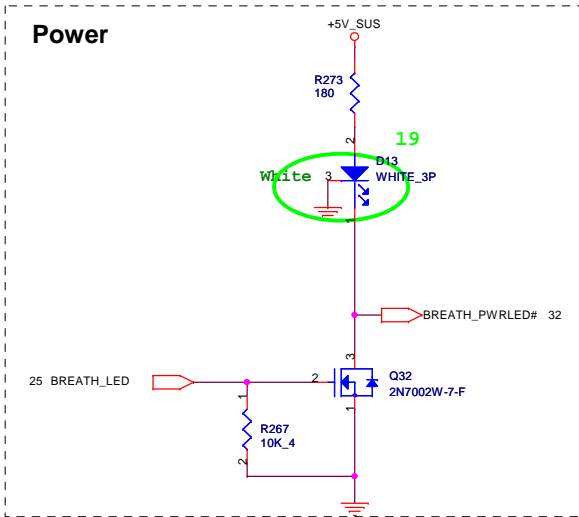
Double, 25°C, Vf=0.4V, If=25mA
 one, 25°C, Vf=0.35V, If=15.8mA



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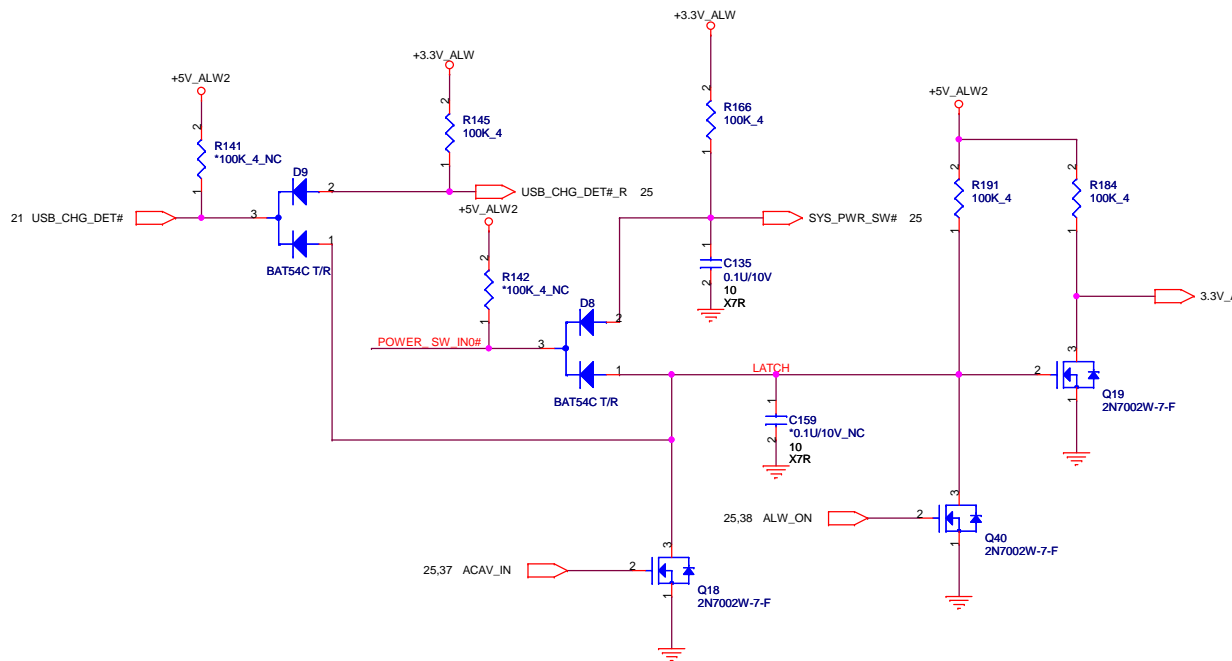
PROJECT : V02/R01



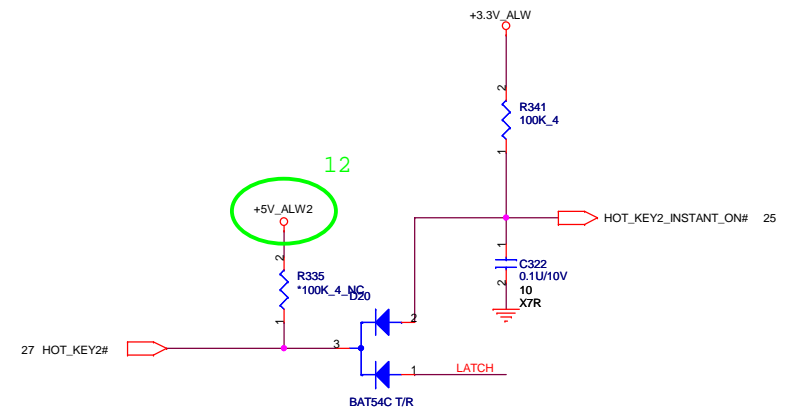


VOSTOR	R273,R276,R277,R275	R274
	180 ohm PN:CS11802JB15	240ohm PN:CS12402JB13
Inspiron	R273,R276,R277,R275	R274
	390 ohm PN:CS13902JB14	330 ohm PN:CS13302JB21

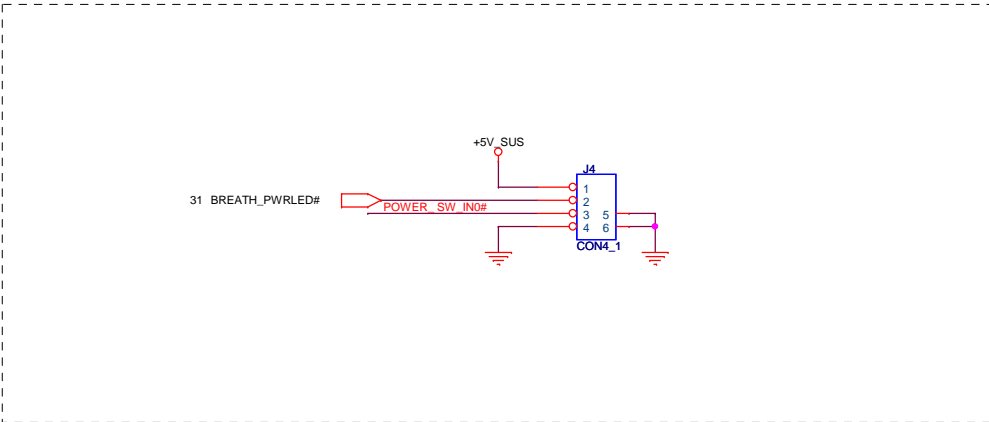
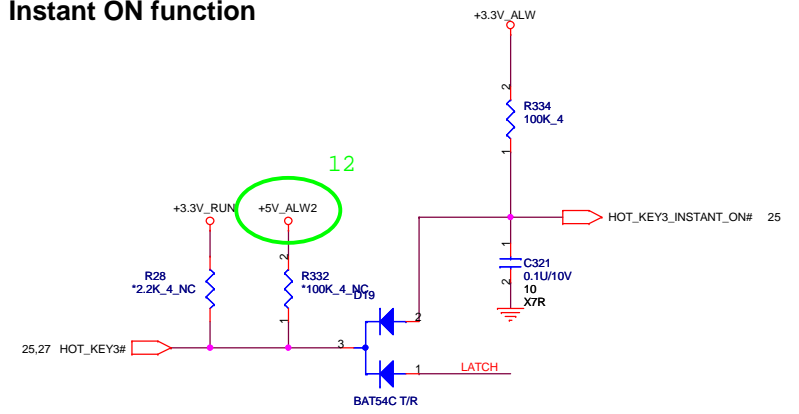
3VALW ON POWER LOGIC



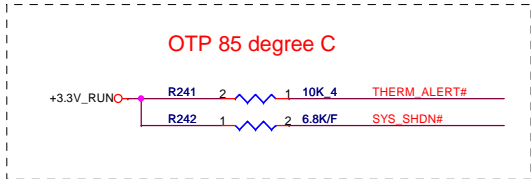
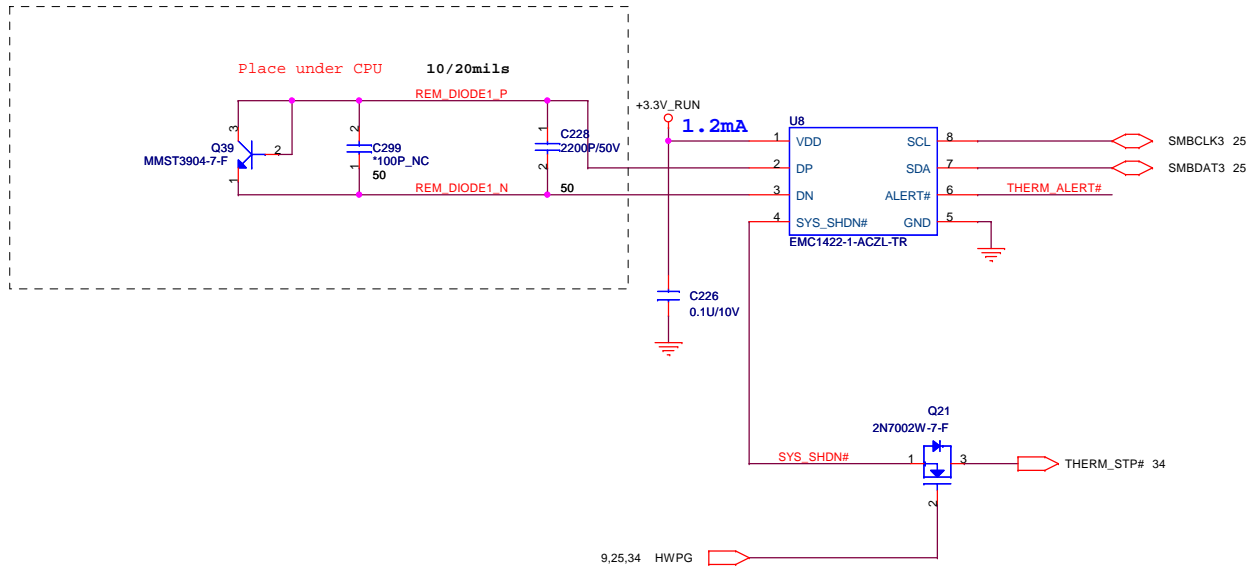
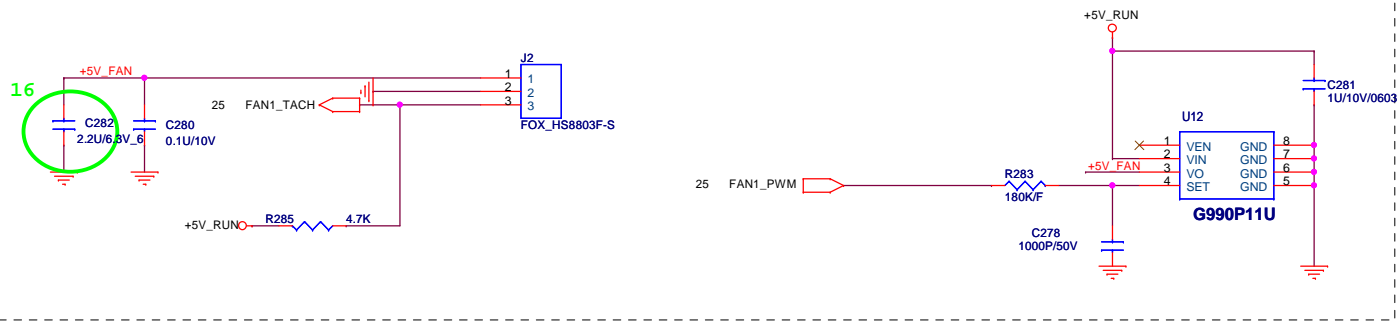
Vostro pop D19,C321,R334 depop R28,R30
 Inspiron depop D19,C321,R334 pop R28,R30



Instant ON function

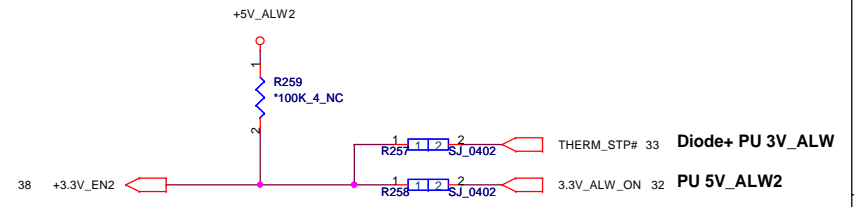
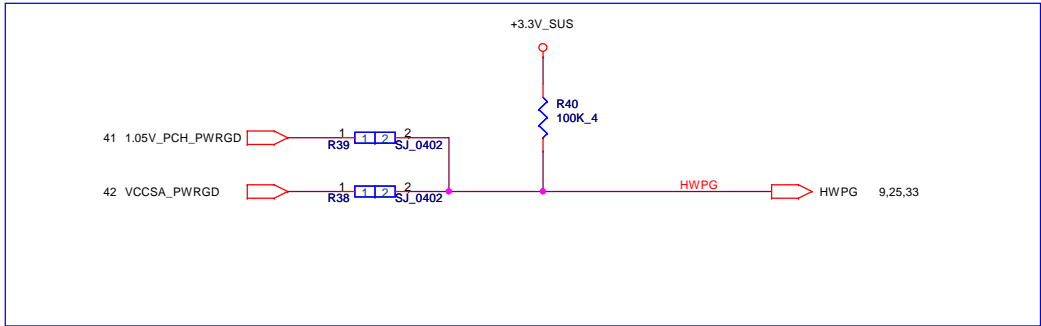


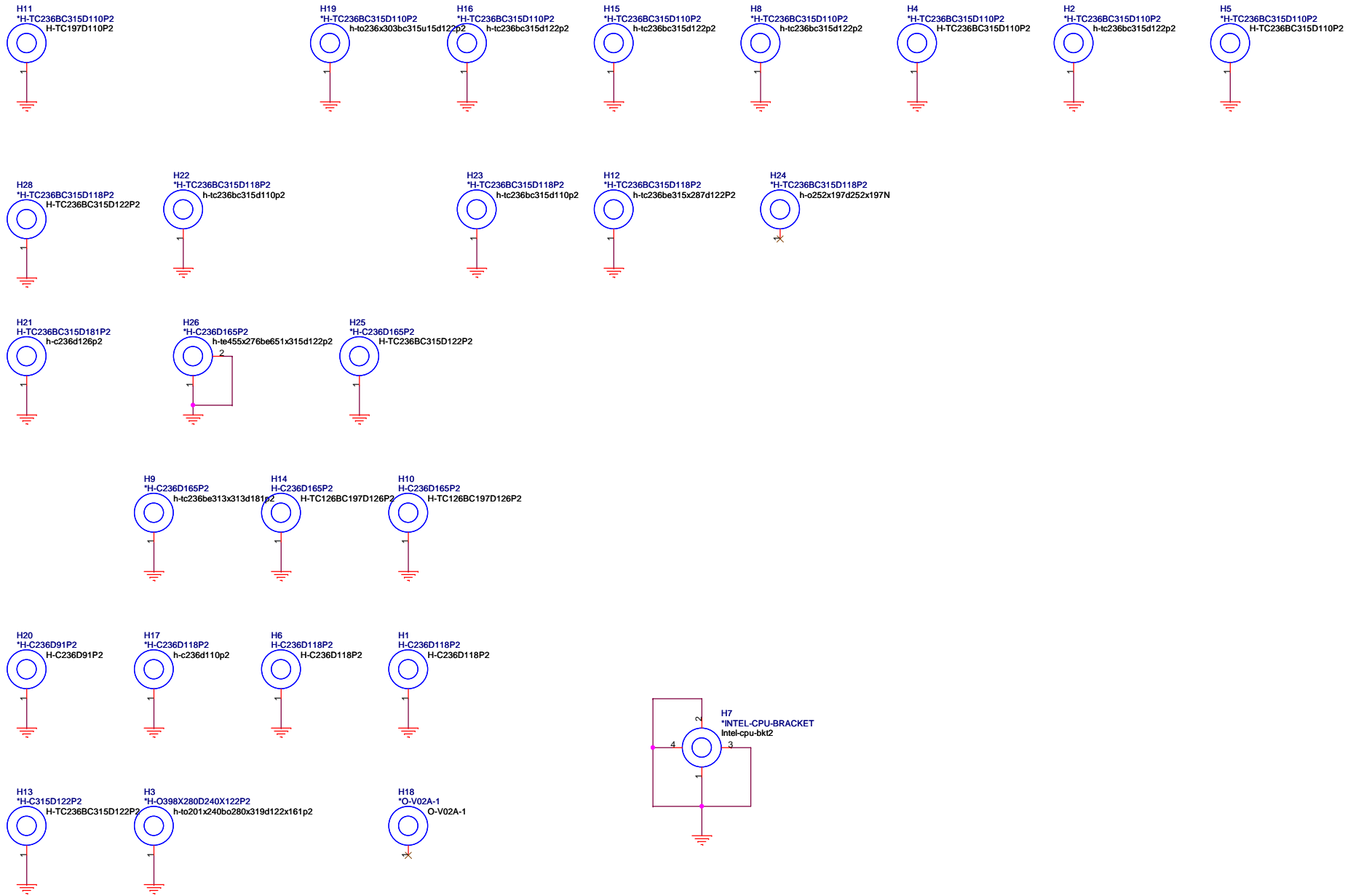
FAN CONTROL

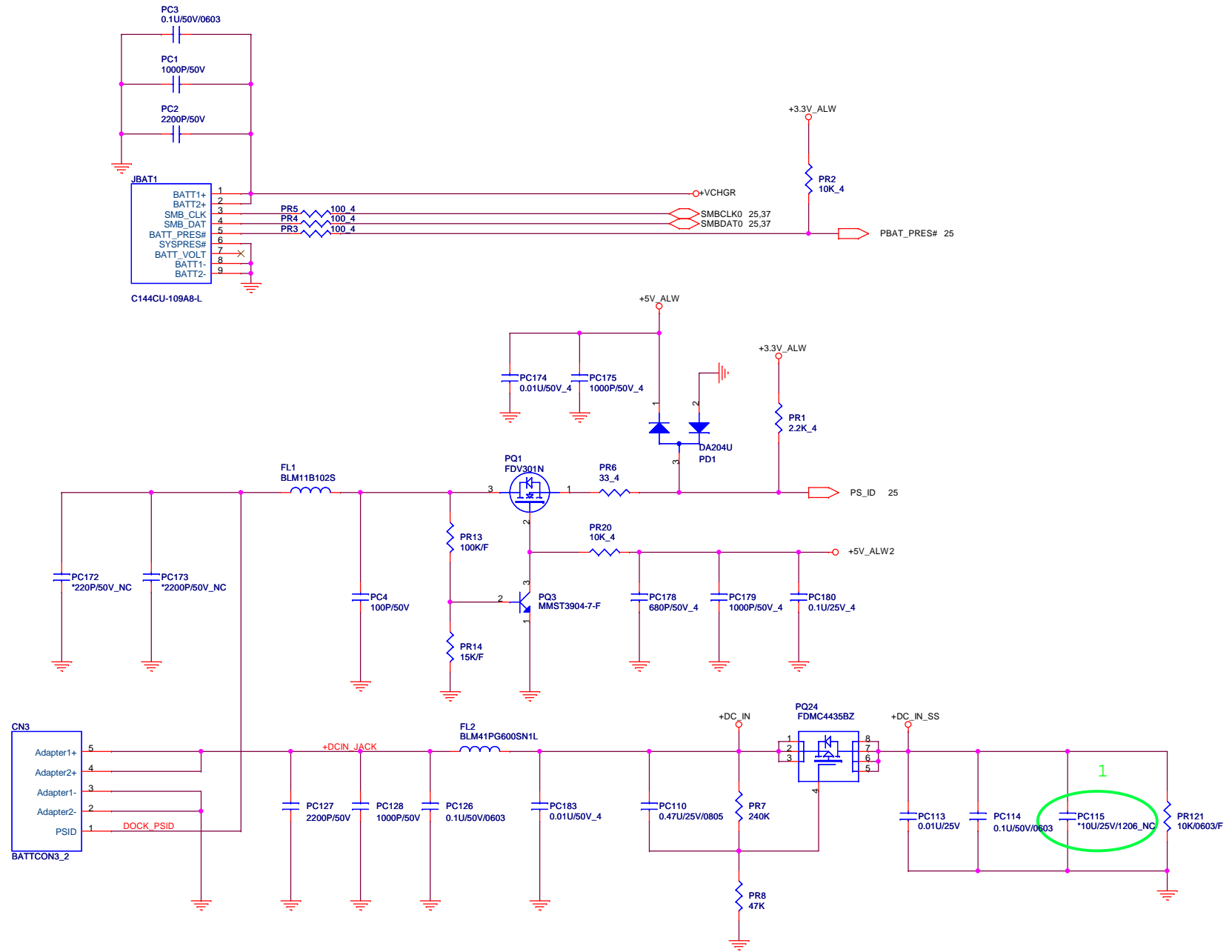


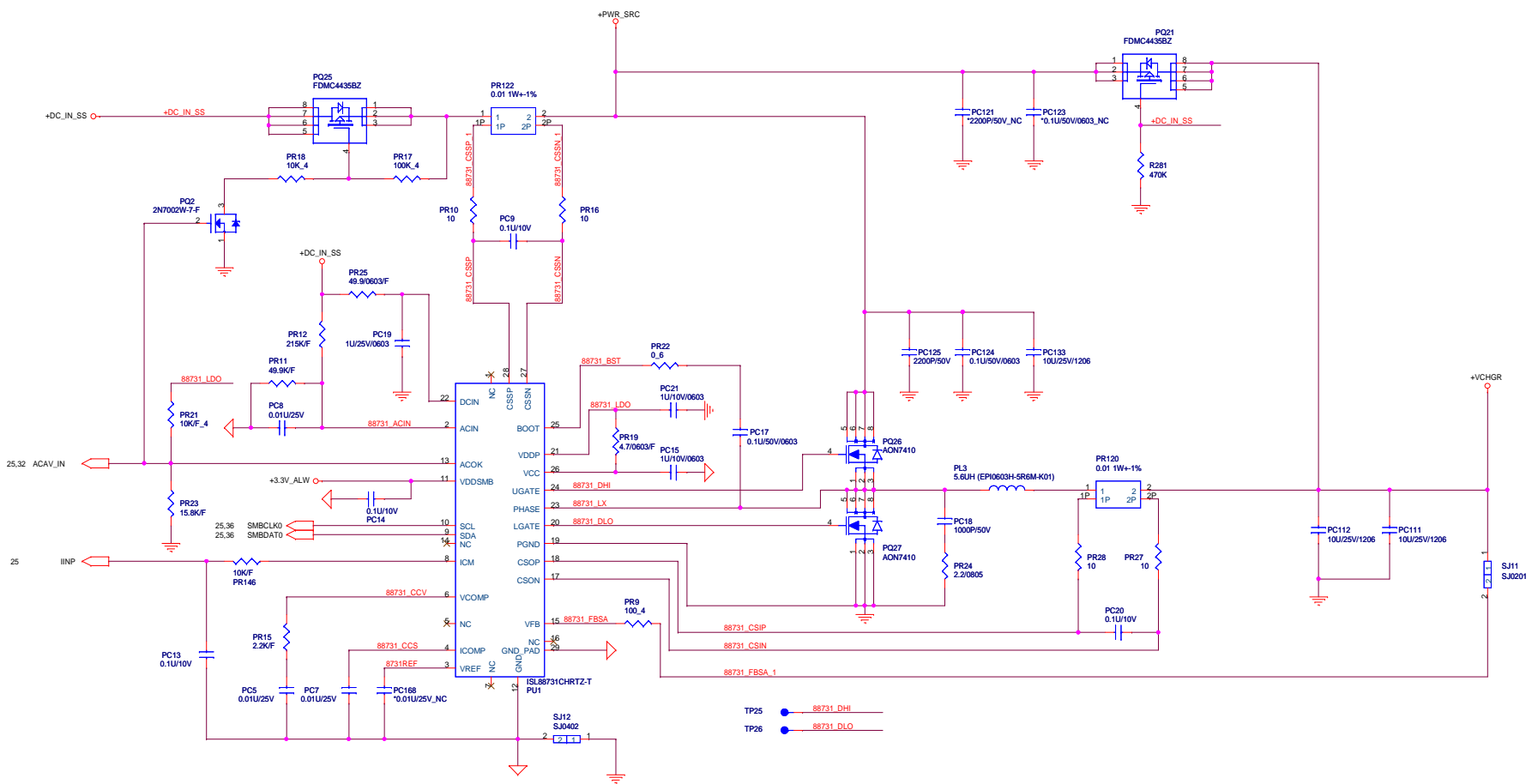
OTP 85 degree C

SYS_SHDN# \ ALERT#	4.7K	6.8K	10K	15K	22K	33K
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



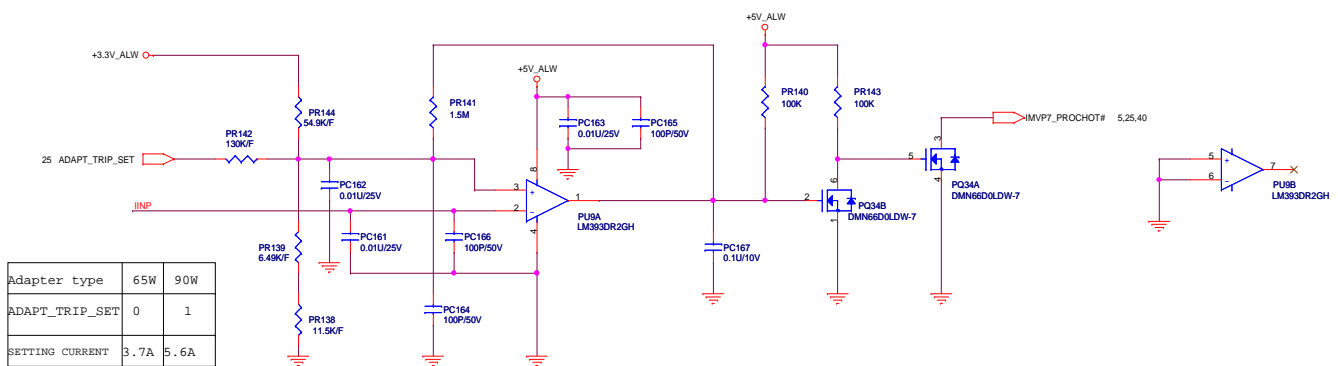


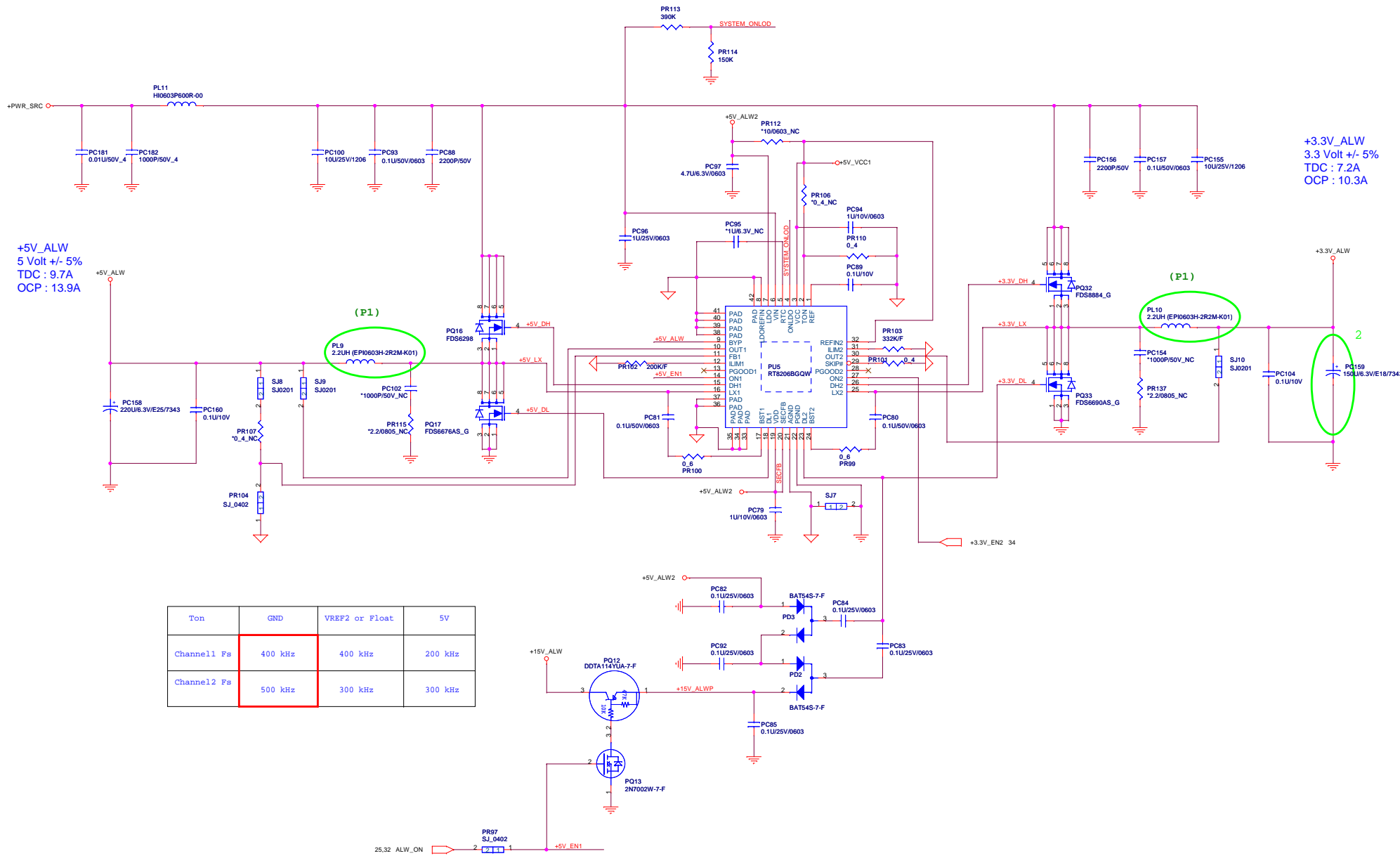




TP25 ● 88731_DHI
 TP26 ● 88731_DLO

Adapter type	65W	90W
ADAPT_TRIP_SET	0	1
SETTING CURRENT	3.7A	5.6A

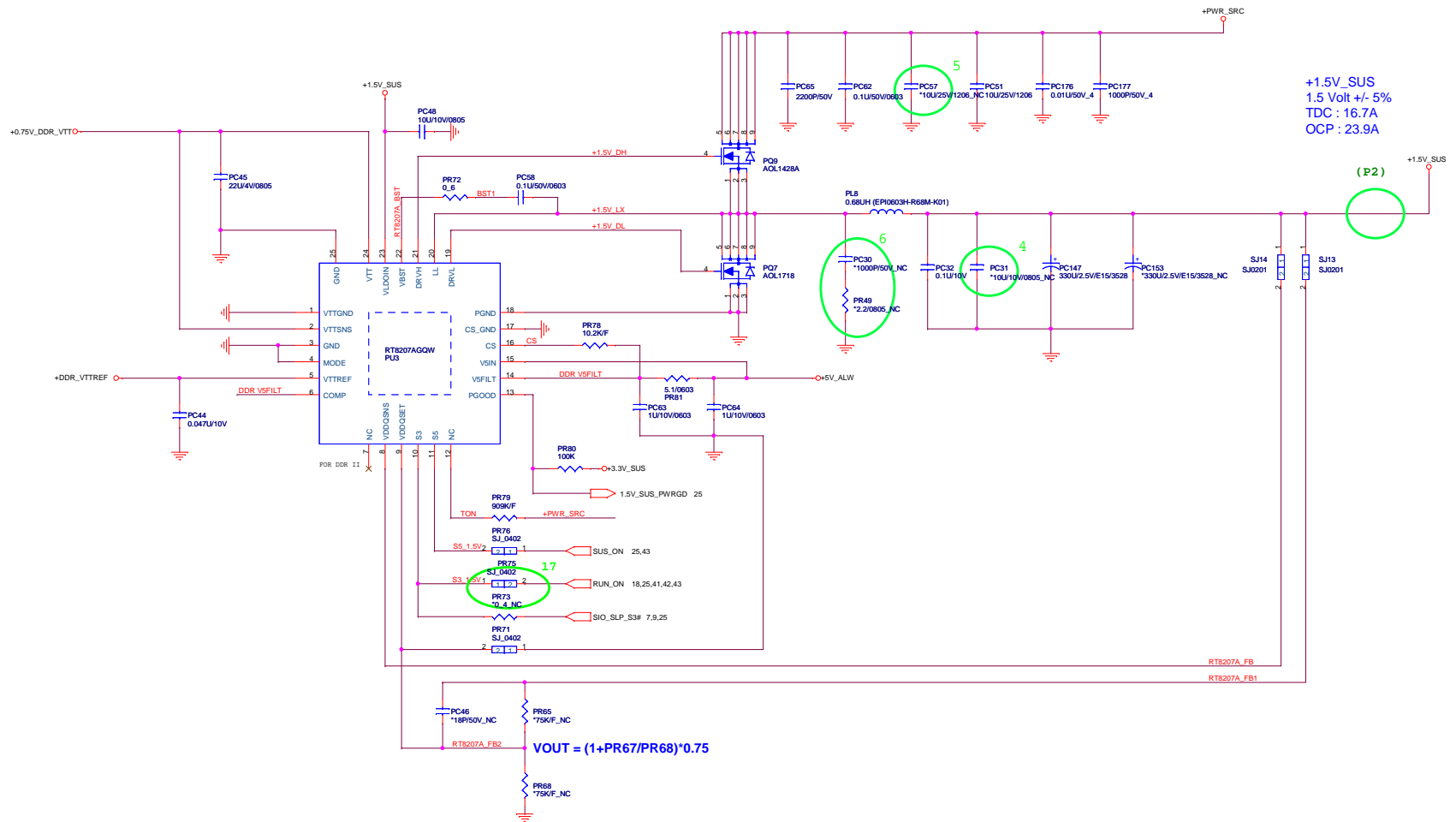




+5V_ALW
5 Volt +/- 5%
TDC : 9.7A
OCP : 13.9A

+3.3V_ALW
3.3 Volt +/- 5%
TDC : 7.2A
OCP : 10.3A

Ton	GND	VREF2 or Float	5V
Channel1 Fs	400 kHz	400 kHz	200 kHz
Channel2 Fs	500 kHz	300 kHz	300 kHz



+1.5V_SUS
1.5 Volt +/- 5%
TDC : 16.7A
OCP : 23.9A

$$V_{OUT} = (1 + PR67/PR68) * 0.75$$

VDDQ and VTT discharge control

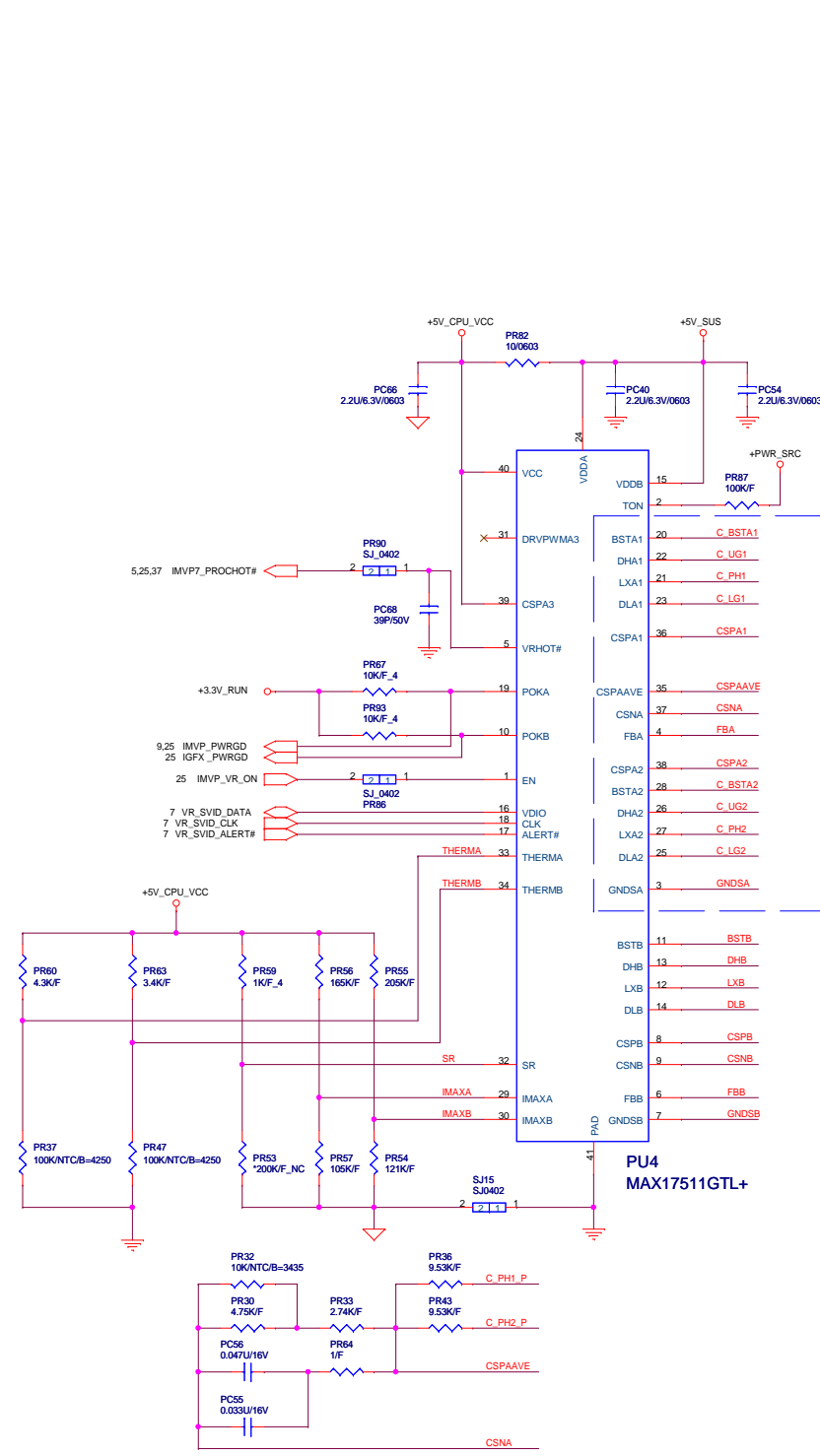
MODE pin	Discharge mode
V5IN	No discharge
VDDQ	Tracking discharge
S4/GND	Non-tracking discharge

VDDQ output voltage selection

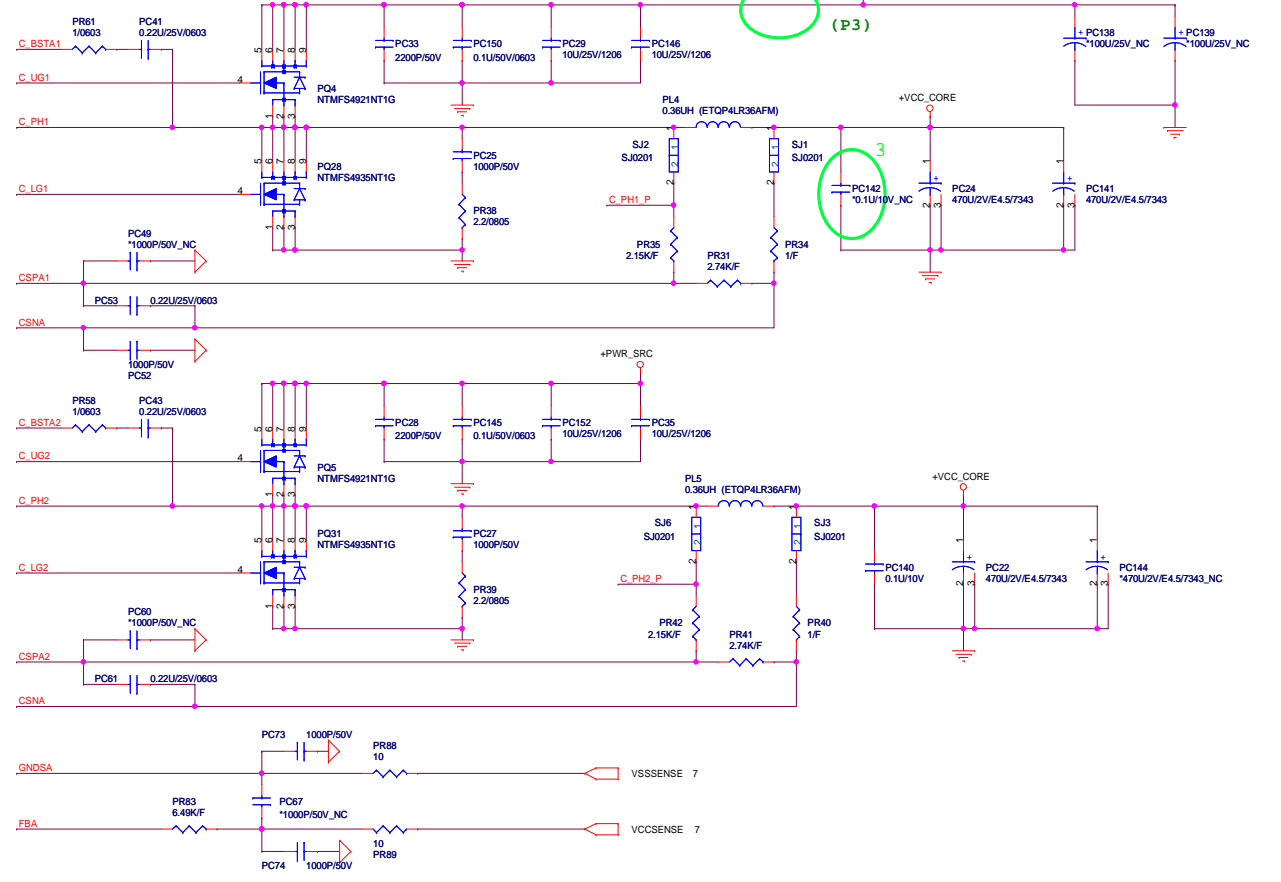
VDDQSET	VDDQ(V)	VTTREF and VTT	NOTE
GND	1.5V	VDDQSNS/2	DDR3
V5IN	1.8V	VDDQSNS/2	DDR2
FB Resistors	Adjusting	VDDQSNS/2	1.5V < VVDDQ < 3V

Outputs Management by S3, S5 control

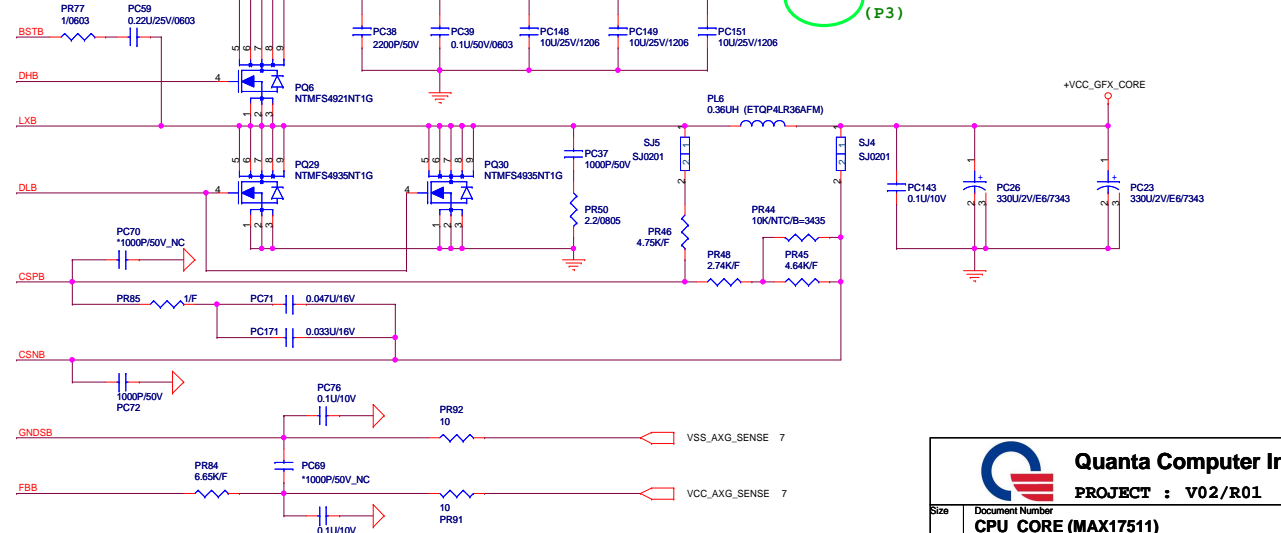
State	S3	S5	VDDQ	VTTREF	VTT
S0	HI	HI	On	On	On
S3	LO	HI	On	On	Off (Hi-Z)
S4/S5	LO	LO	On (discharge)	Off (discharge)	Off (discharge)



CPU Power

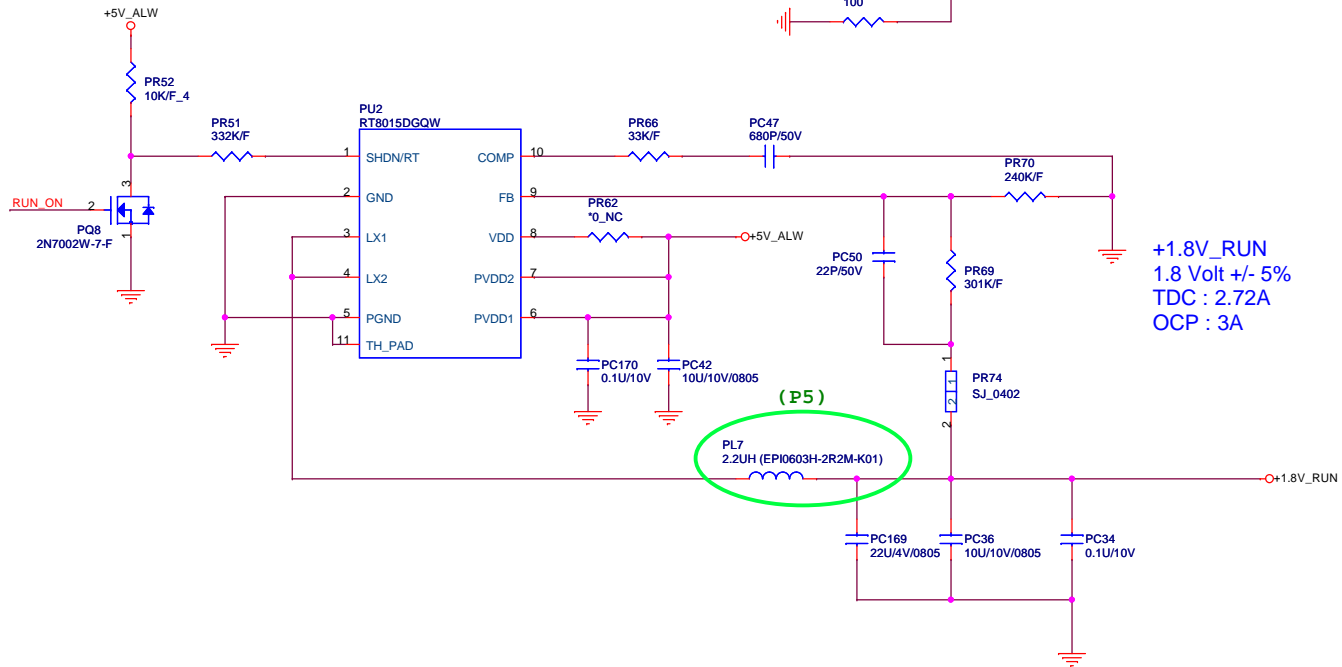
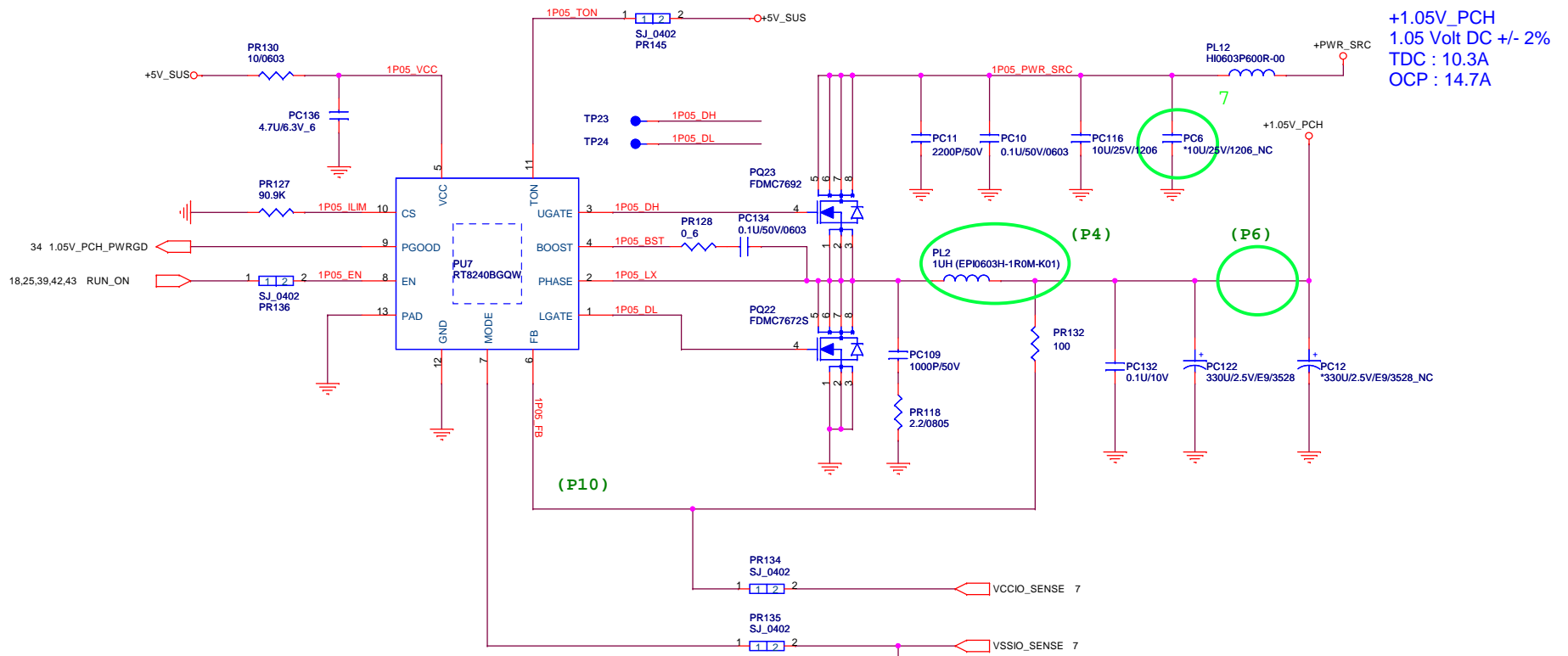


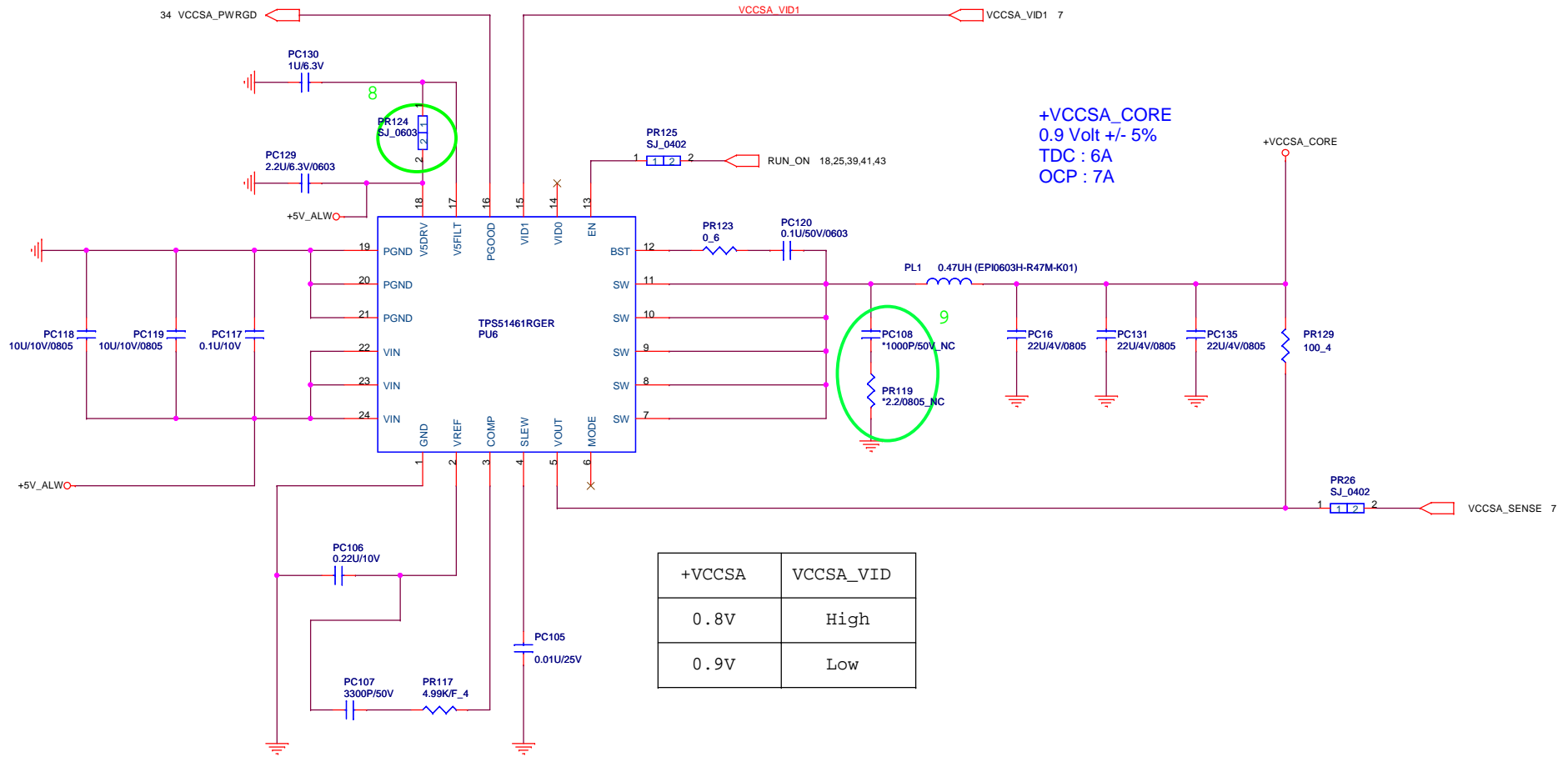
IGPU Power



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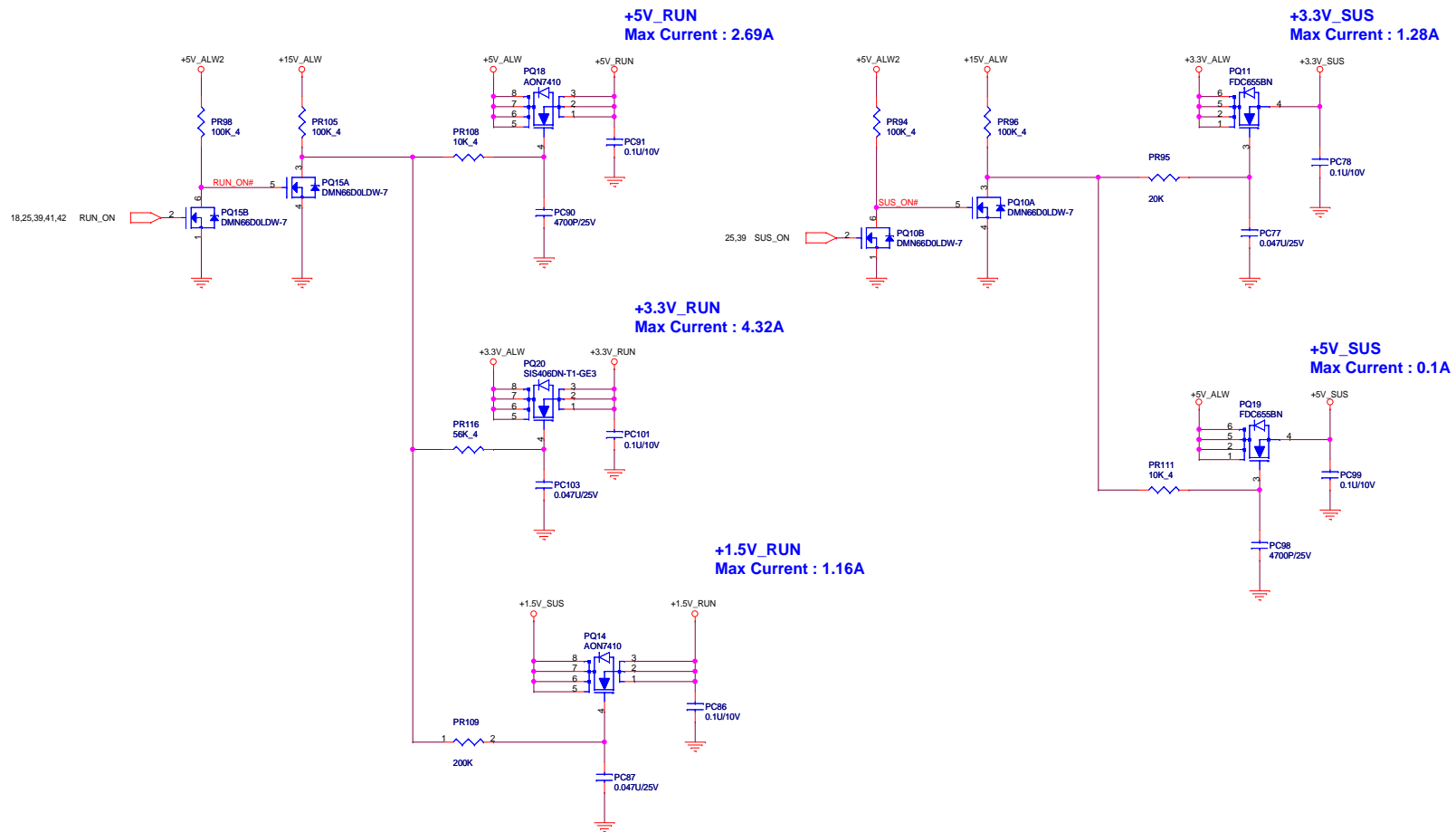
Size	Document Number	Rev
	CPU CORE (MAX17511)	1A
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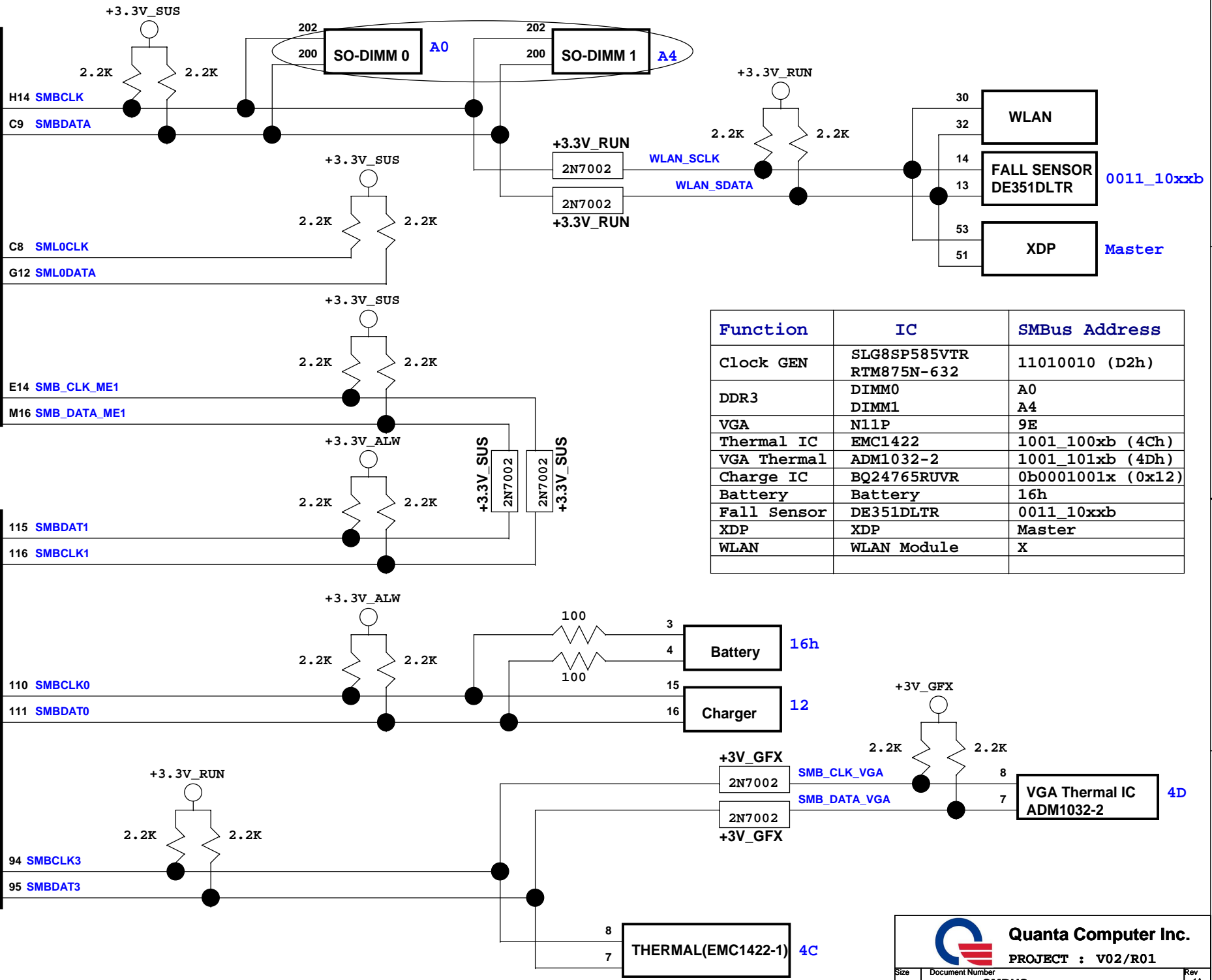
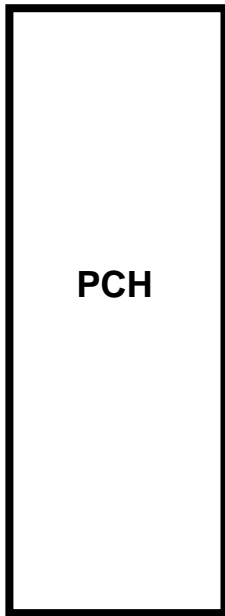
+VCCSA_CORE
 0.9 Volt +/- 5%
 TDC : 6A
 OCP : 7A

+VCCSA	VCCSA_VID
0.8V	High
0.9V	Low



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	Load Switch	1A
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Function	IC	SMBus Address
Clock GEN	SLG8SP585VTR RTM875N-632	11010010 (D2h)
DDR3	DIMM0 DIMM1	A0 A4
VGA	N11P	9E
Thermal IC	EMC1422	1001_100xb (4Ch)
VGA Thermal	ADM1032-2	1001_101xb (4Dh)
Charge IC	BQ24765RUVR	0b0001001x (0x12)
Battery	Battery	16h
Fall Sensor	DE351DLTR	0011_10xxb
XDP	XDP	Master
WLAN	WLAN Module	X

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