

COMPAL CONFIDENTIAL

MODEL NAME : QAL70
PCB NO : LA-7741P(DAB000000800)
BOM P/N : 4619EO31L01 TPM ;4519EO31L02 TPM/TAA
GPIO MAP: Rev0.9

Dalmore 13 UMA

Ivy Bridge + Panther POINT

2011-06-23
REV : 0.1 (X00)
@ : Nopop Component
CONN@ : Connector Component

MB Type	BOM P/N	
TPM EN/ TCM DIS		1@ 3@
TPM DIS/ TCM EN		2@ 4@
TPM DIS/ TCM DIS		2@ 3@
TAA		@TAA

SPI ON BOARD

@SPI

MB PCB	
Part Number	Description
DA800001700	PCB OFH LA-6562P REV0 M/B UMA

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On IO board



POWER STATES

Signal State	SLP S3#	SLP S4#	SLP S5#	SLP A#	ALWAYS PLANE	M PLANE	SUS PLANE	RUN PLANE	CLOCKS
S0 (Full ON) / M0	HIGH	HIGH	HIGH	HIGH	ON	ON	ON	ON	ON
S3 (Suspend to RAM) / M3	LOW	HIGH	HIGH	HIGH	ON	ON	ON	OFF	OFF
S4 (Suspend to DISK) / M3	LOW	LOW	HIGH	HIGH	ON	ON	OFF	OFF	OFF
S5 (SOFT OFF) / M3	LOW	LOW	LOW	HIGH	ON	ON	OFF	OFF	OFF
S3 (Suspend to RAM) / M-OFF	LOW	HIGH	HIGH	LOW	ON	OFF	ON	OFF	OFF
S4 (Suspend to DISK) / M-OFF	LOW	LOW	HIGH	LOW	ON	OFF	OFF	OFF	OFF
S5 (SOFT OFF) / M-OFF	LOW	LOW	LOW	LOW	ON	OFF	OFF	OFF	OFF

PM TABLE

power plane State	+15V_ALW +5V_ALW +3.3V_ALW_PCH +3.3V_RTC_LDO	+3.3V_SUS +1.5V_MEM	+5V_RUN +3.3V_RUN +1.8V_RUN +1.5V_RUN +0.75V_DDR_VTT +VCC_CORE +1.05V_RUN_VTT +1.05V_RUN	+3.3V_M +1.05V_M (M-OFF)	+3.3V_M +1.05V_M (M-OFF)
S0	ON	ON	ON	ON	ON
S3	ON	ON	OFF	ON	OFF
S5 S4/AC	ON	OFF	OFF	ON	OFF
S5 S4/AC don't exist	OFF	OFF	OFF	OFF	OFF

need to update Power Status and PM
Table

SATA	DESTINATION
SATA 0	HDD
SATA 1	ODD/ E3 Module Bay
SATA 2	NA
SATA 3	NA
SATA 4	ESATA
SATA 5	Dock

UMA DP/HDMI Port	Connetion
Port B	MB HDMI Conn
Port C	Dock DP port 2
Port D	Dock DP port 1

PCH	USB PORT#	DESTINATION
	0	JUSB1 (Right side)
	1	JUSB2 (Rear Left side)
	2	NA
	3	MLK DOCK
	4	WLAN
	5	WWAN
	6	JMINI3(PP)
	7	USH->BIO
	8	DOCKING
	9	JESATA1 (right side)
	10	Express card
	11	Bluetooth
	12	Camera
	13	NA

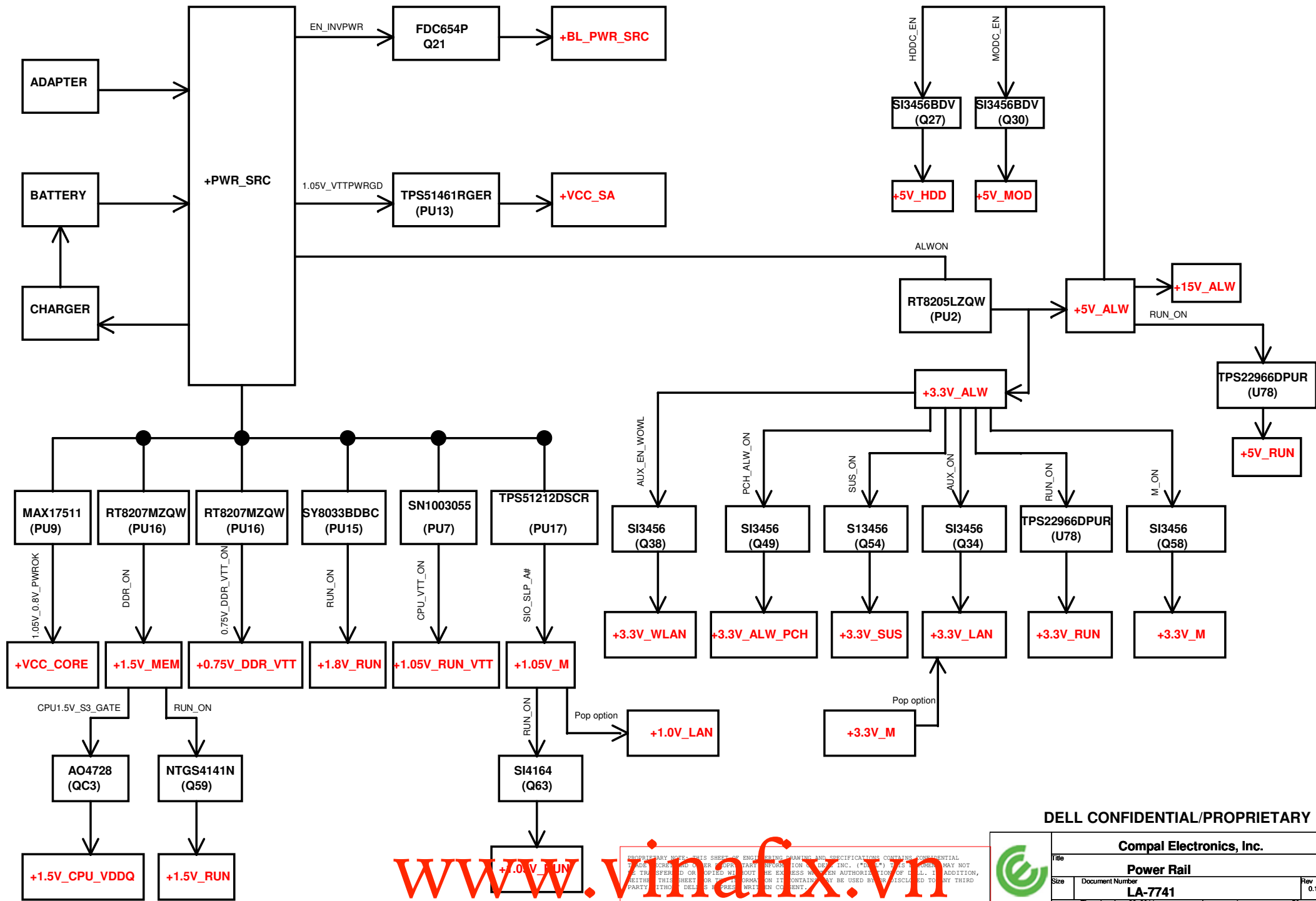
USH		
	0	BIO
	1	NA

PCI EXPRESS	DESTINATION
Lane 1	MINI CARD-1 WWAN
Lane 2	MINI CARD-2 WLAN
Lane 3	Express card
Lane 4	E3 Module Bay (USB3)
Lane 5	1/2vMINI CARD-3 PCIE
Lane 6	MMI
Lane 7	10/100/1G LOM
Lane 8	None

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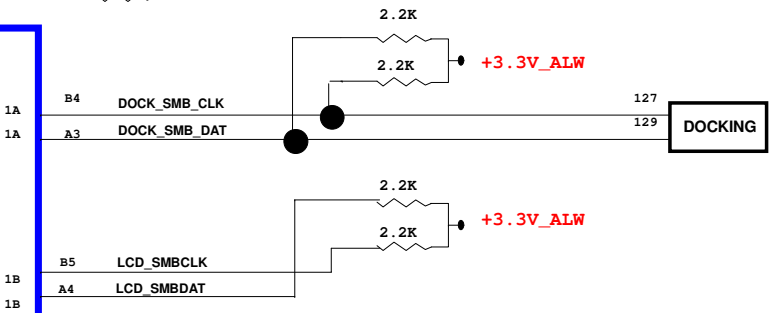
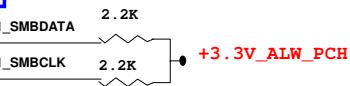
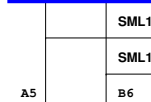
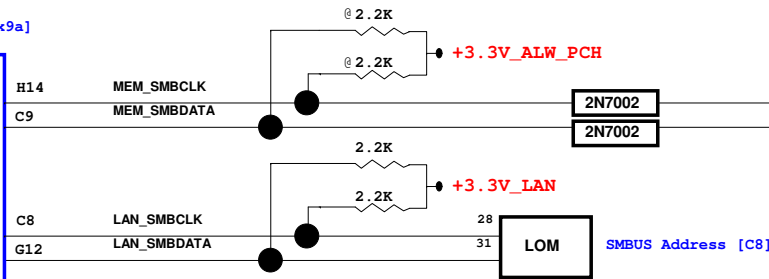
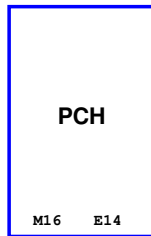


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Power Rail			
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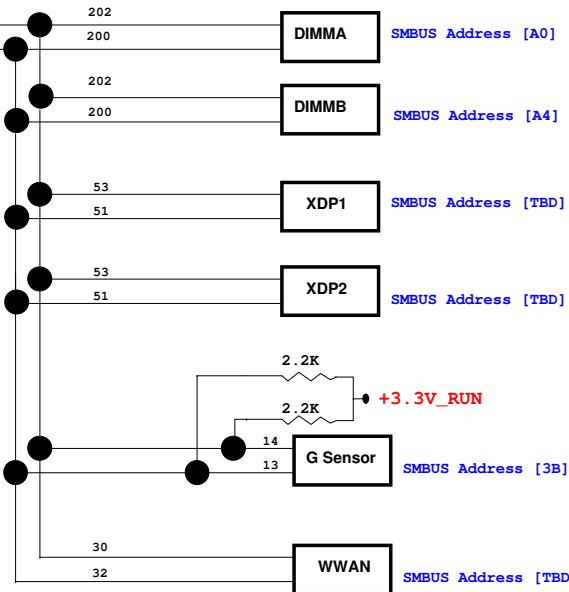
SMBUS Address [0x9a]



SMBUS Address
APR_EC: 0x48
SPR_EC: 0x70
MSLICE_EC: 0x72
USB: 0x59
AUDIO: 0x34
SLICE_BATTERY: 0x17
SLICE_CHARGER: 0x13

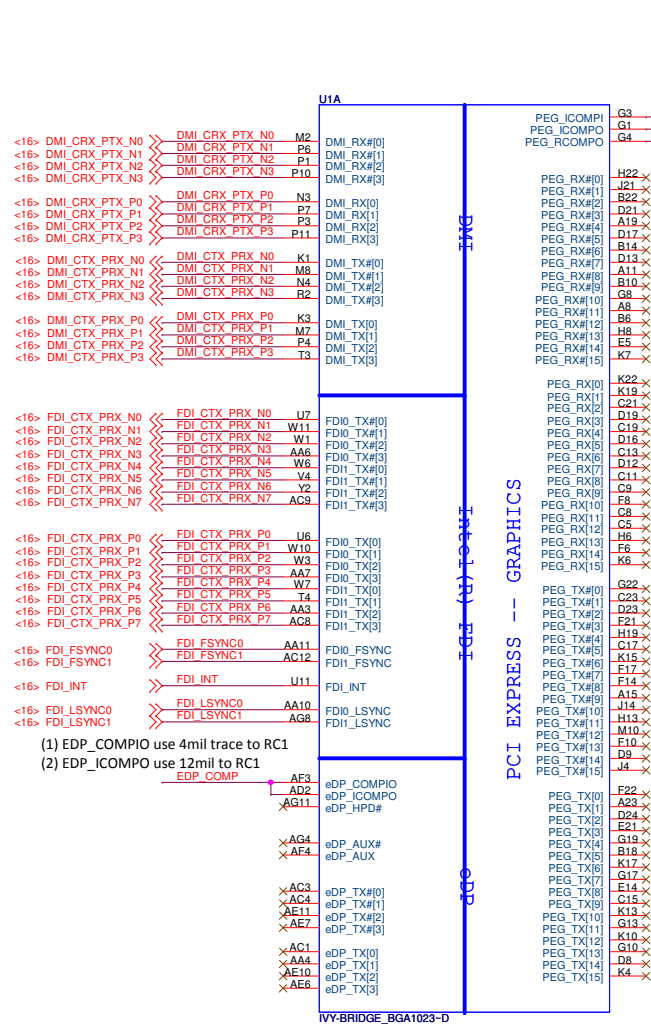
KBC

MEC 5065



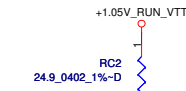
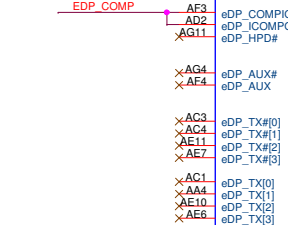
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- (1) PEG_RCOMP0 (G4) use 4mil connect to PEG_ICOMPI, then use 4mil connect to RC2.
(2) PEG_ICOMPO use 12mil connect to RC2



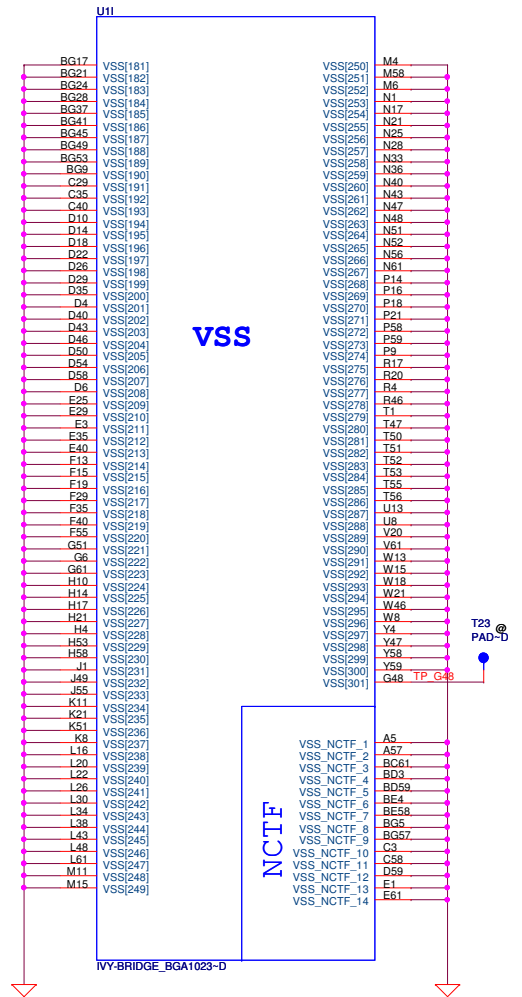
(1) EDP_COMPIO use 4mil trace to RC1

(2) EDP_ICOMPO use 12mil to RC1



PEG Compensation

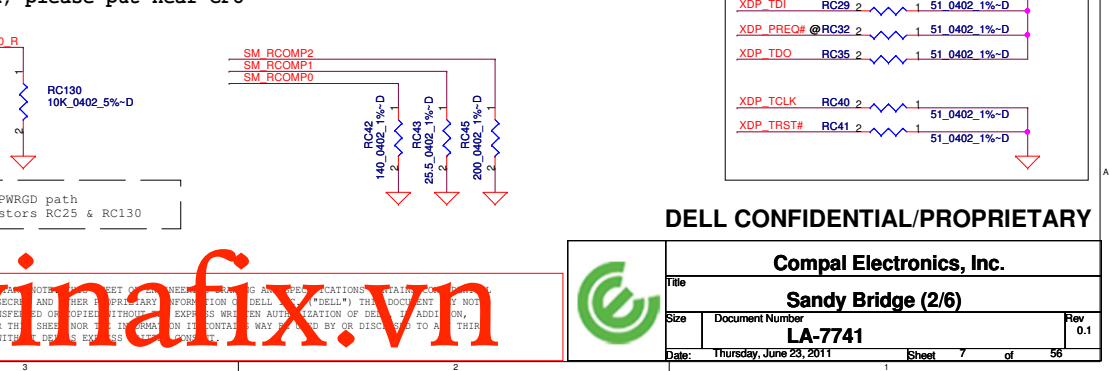
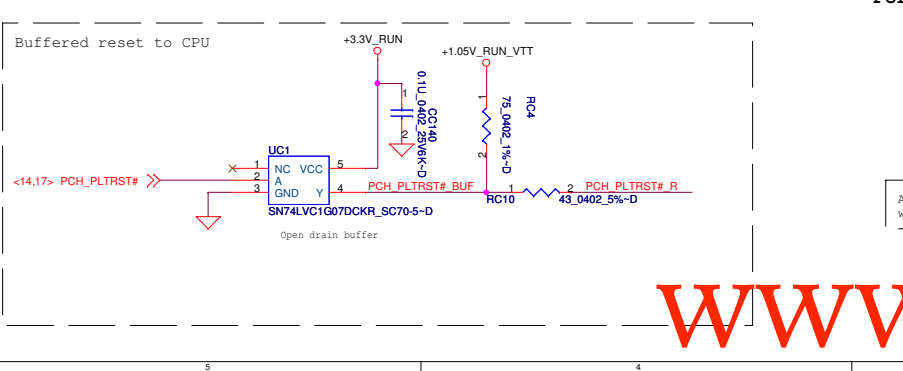
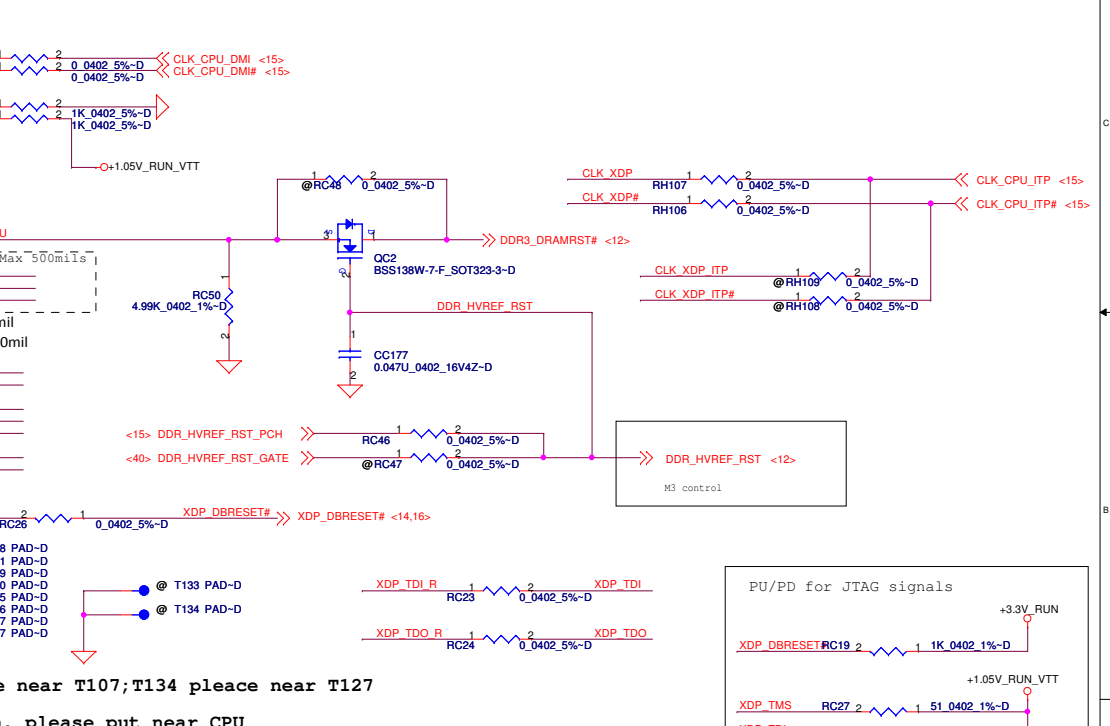
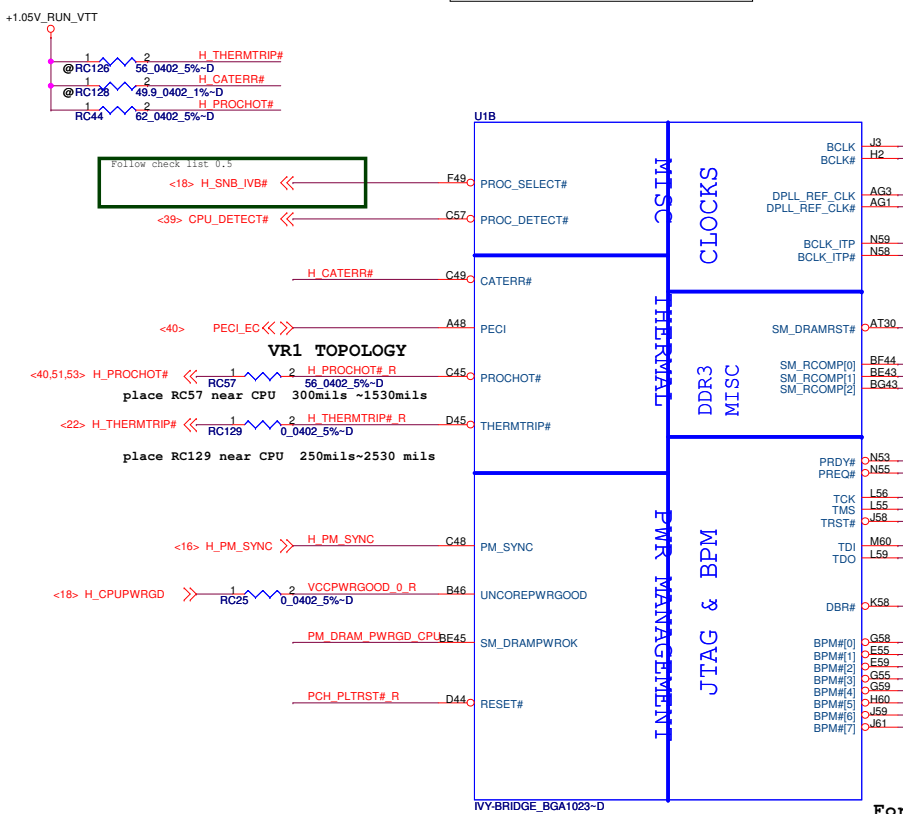
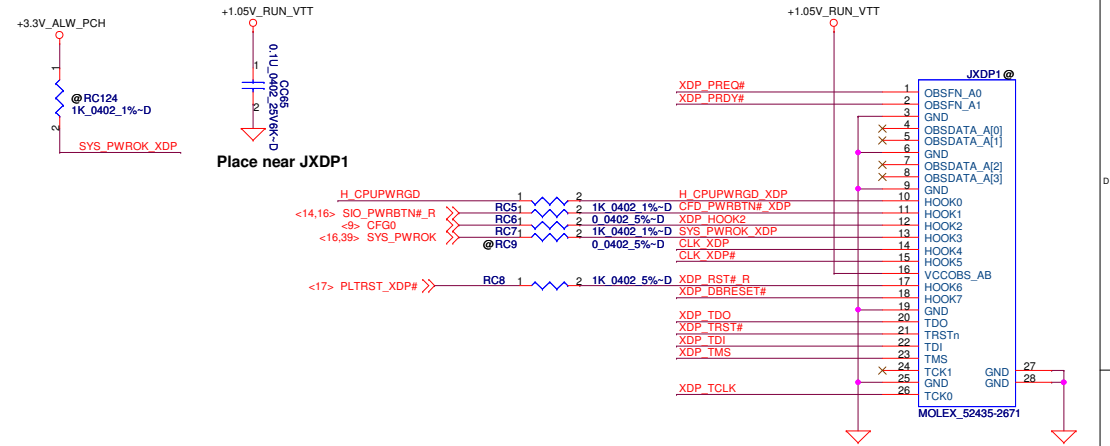
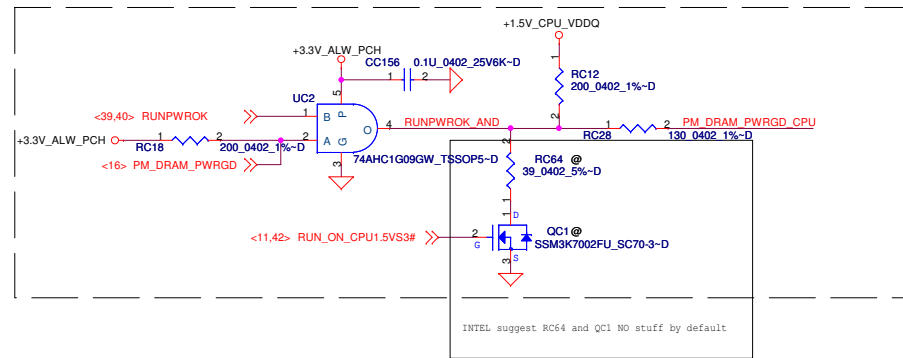
PEG_ICOMPI and RCOMP0 signals should be shorted and routed with - max length = 500 mils - typical impedance = 43 mohms
PEG_ICOMPO signals should be routed with - max length = 500 mils - typical impedance = 14.5 mohms



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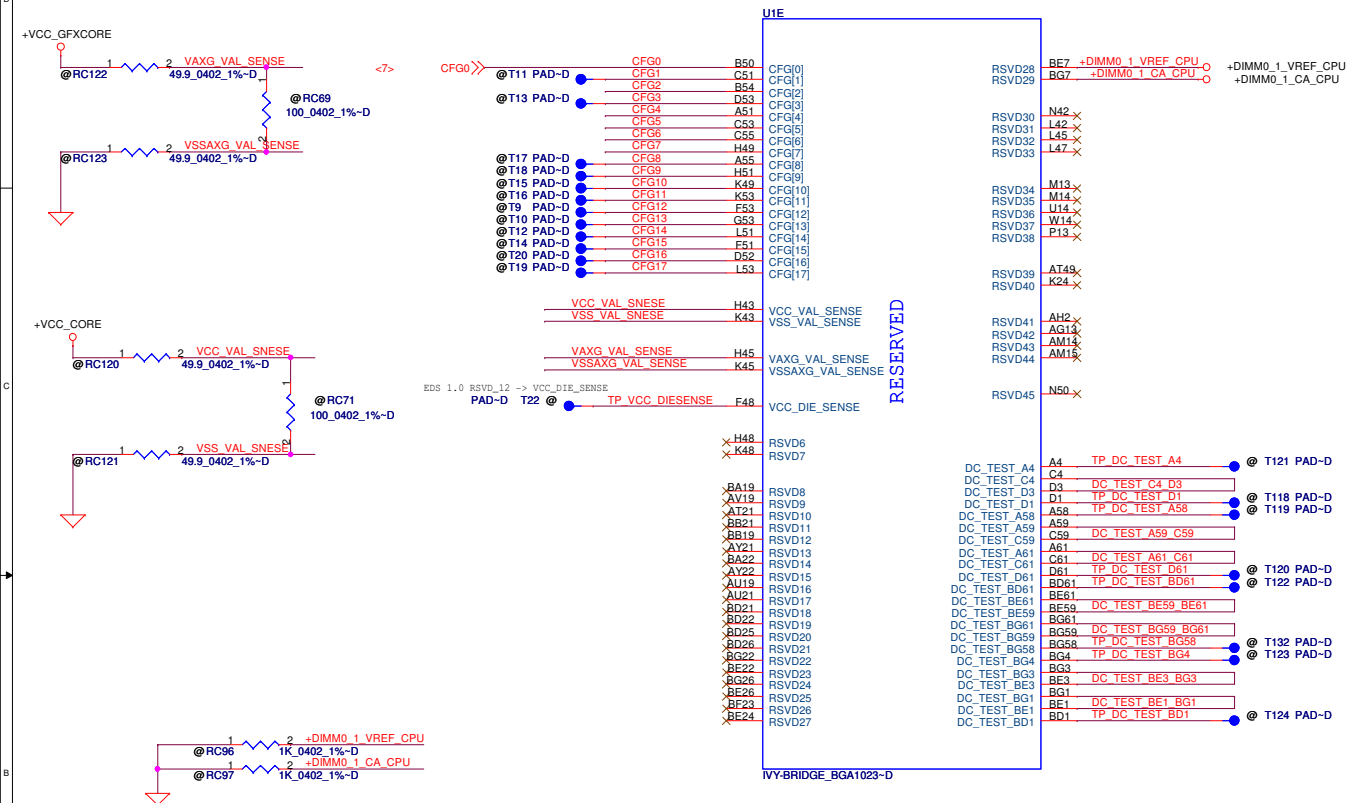


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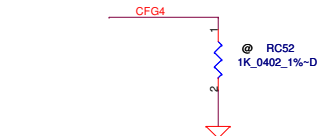
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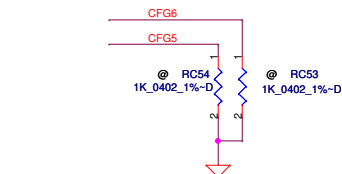
CFG Straps for Processor



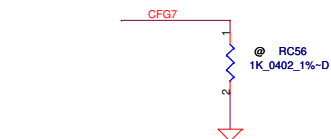
PEG Static Lane Reversal - CFG2 is for the 16x	
CFG2	1: (Default) Normal Operation; Lane # definition matches socket pin map definition 0: Lane Reversed



Display Port Presence Strap	
CFG4	1 : Disabled; No Physical Display Port attached to Embedded Display Port 0 : Enabled; An external Display Port device is connected to the Embedded Display Port



PCIe Port Bifurcation Straps	
CFG[6:5]	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

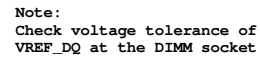


PEG DEFER TRAINING	
CFG7	1: (Default) PEG Train immediately following xRESETB de assertion 0: PEG Wait for BIOS for training

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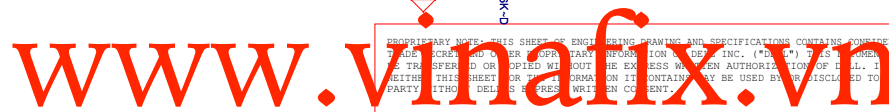
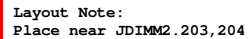
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```
<8> DDR_B_DQS#[0..7] << >>
<8> DDR_B_D[0..63] << >>
<8> DDR_B_DQS[0..7] << >>
<8> DDR_B_MA[0..15] >>
```

Layout Note:
Place near JDIMM2



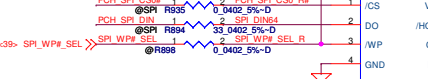
```


PCB_AZ_SYNC is sampled
at the rising edge of RSMRST# pin.
So signal should be PU to the ALWAYS rail.

```

ers

INTVRMEN- Integrated SUS
1.1V VRM Enable
High - Enable Internal VRs
Low - Enable External VRs



Link Done 

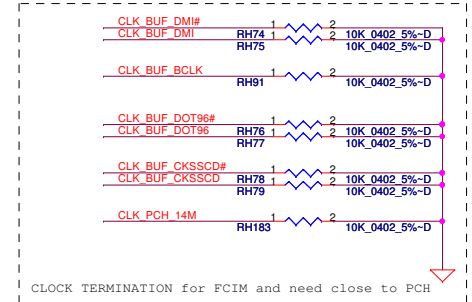
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10/100/1G LAN ---->



RF request

0.0402_5%-D

YH2

OUT IN

25MHZ_10PF_G22FA2380049900

12P_0402_50V81-D

0.0402_5%-D

05V_RUN

05V_TPM

CLK_PCL_TPM_TCM <32>

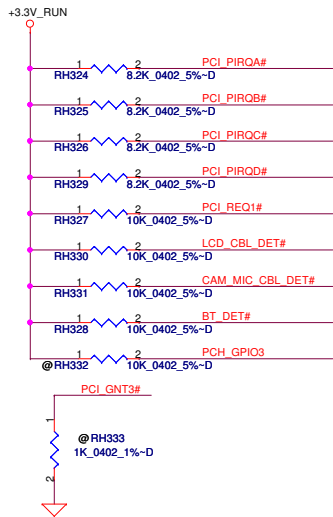
CLK_SIO_14M <39>

PCLK_80H <34>

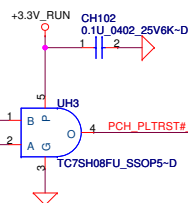
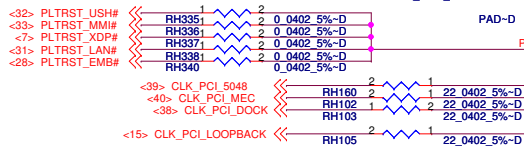
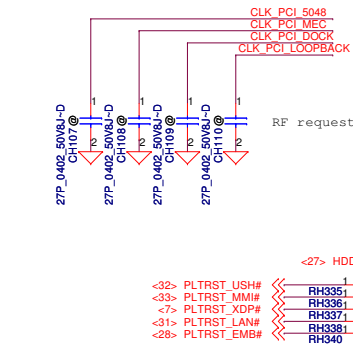
JETWAY_CLK14M <32>

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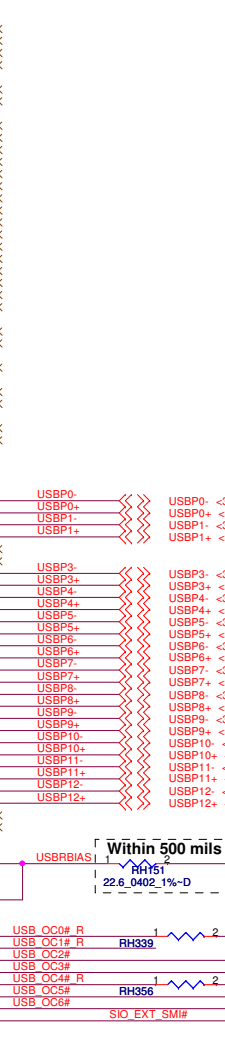
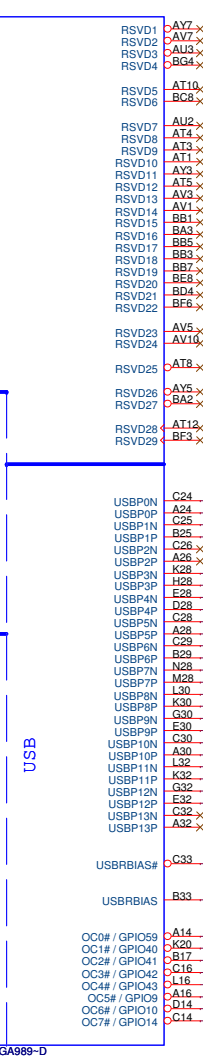
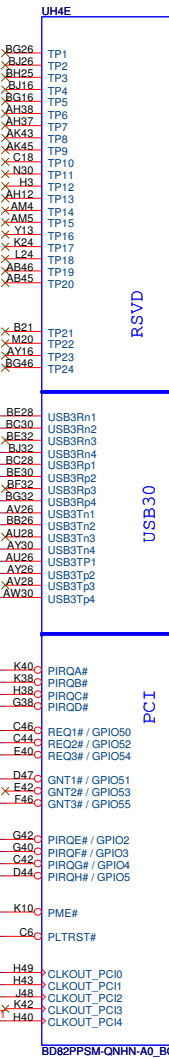
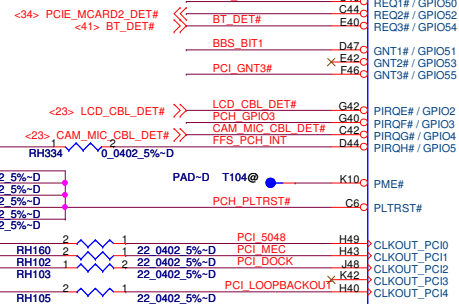
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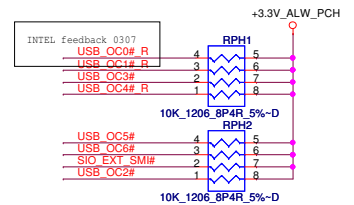
A16 swap override Strap/Top-Block Swap Override jumper	
PCI_GNT#3	Low = A16 swap High = Default



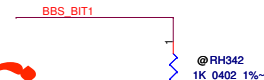
<7,14> PCH_PLTRST# >> PCH_PLTRST# >> PCH_PLTRST#_EC <32,34,35,39,40>



- >Right Side
- >Rear Left side
- >MLK DOCK
- >WLAN/WIMAX
- >WWAN/UWB
- >PP
- >USH
- >DOCK
- >Right side E-SATA
- >Express Card
- >Blue Tooth
- >Camera



Boot BIOS Strap		
BBS_BIT1	SATA_SLPD (BBS_BIT0)	Boot BIOS Location
0	0	LPC
0	1	Reserved (NAND)
1	0	Reserved (NAND)
1	1	Reserved (NAND)



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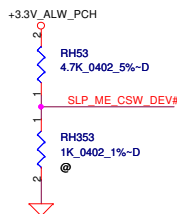
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PCH (4/8)

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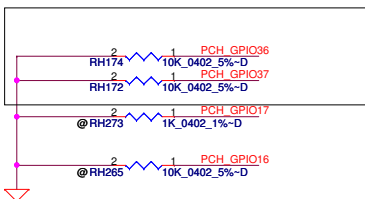
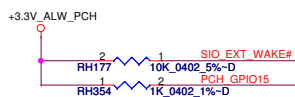
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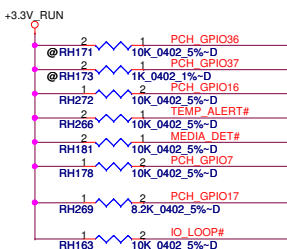
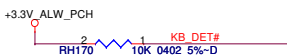
Note: PCH has internal pull up 20k ohm on E3_PAID_TS_DET# (GPIO27)

SLP_ME_CSW_DEV# PLL ON DIE VR ENABLE

ENABLED - HIGH DEFAULT
DISABLED - LOW

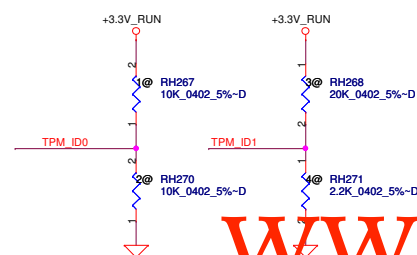


Layout note:
Trace wide 10mil & length 30mil
All NCTF pins should have thick traces at 45° from the pad.

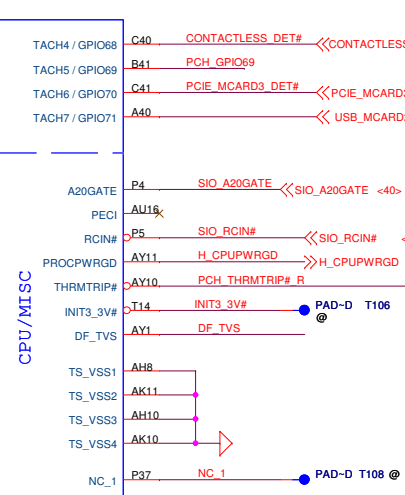


VSS_NCTF_1	A4	VSS_NCTF_1
VSS_NCTF_2	A44	VSS_NCTF_2
VSS_NCTF_3	A45	VSS_NCTF_3
VSS_NCTF_4	A46	VSS_NCTF_4
VSS_NCTF_5	A5	VSS_NCTF_5
VSS_NCTF_6	A6	VSS_NCTF_6
VSS_NCTF_7	B3	VSS_NCTF_7
VSS_NCTF_8	B47	VSS_NCTF_8
VSS_NCTF_9	BD1	VSS_NCTF_9
VSS_NCTF_10	BD49	VSS_NCTF_10
VSS_NCTF_11	BE1	VSS_NCTF_11
VSS_NCTF_12	BE49	VSS_NCTF_12
VSS_NCTF_13	BF1	VSS_NCTF_13
VSS_NCTF_14	BF49	VSS_NCTF_14

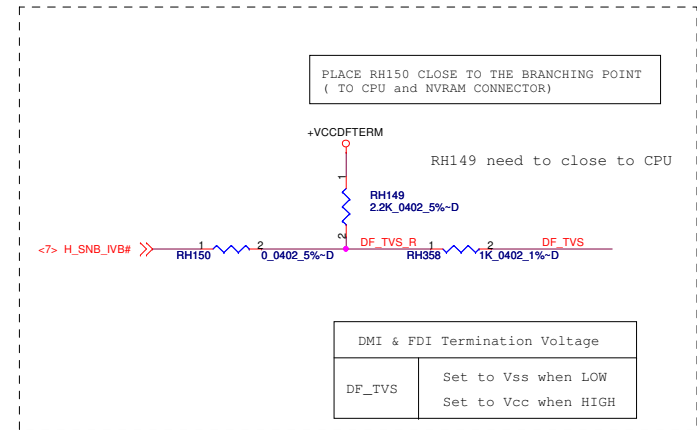
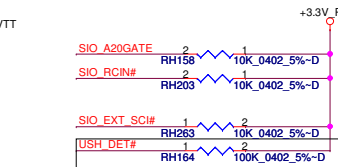
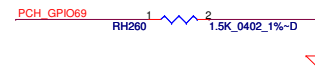
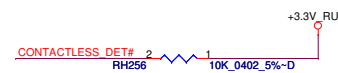
BD82PPSM-QNH-N-A0_BGA989-D



	TPM_ID0	TPM_ID1
China TPM	0	0
No TPM, No China TPM	0	1
USH1.0 (For SSI)	1	0
USH2.0	1	1



Layout note:
Trace wide 10mil & length 30mil
All NCTF pins should have thick traces at 45° from the pad.



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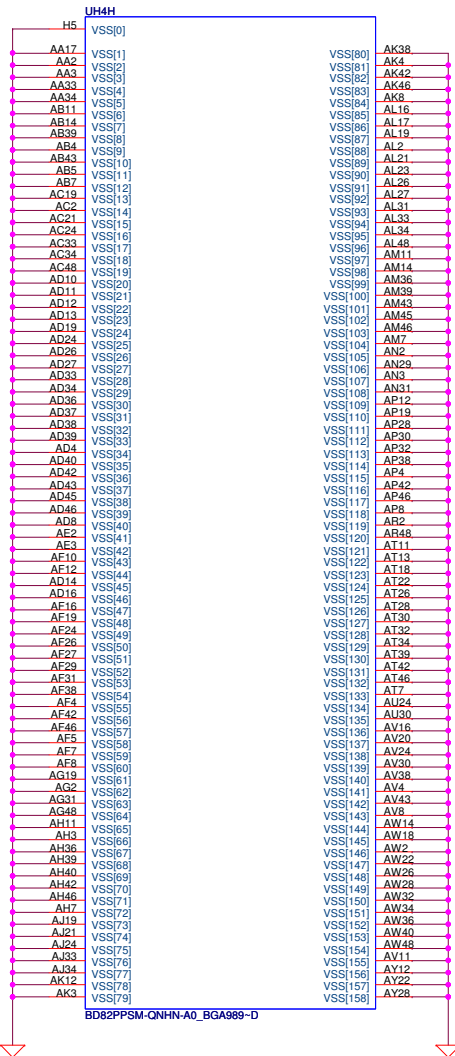
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PCH (5/8)

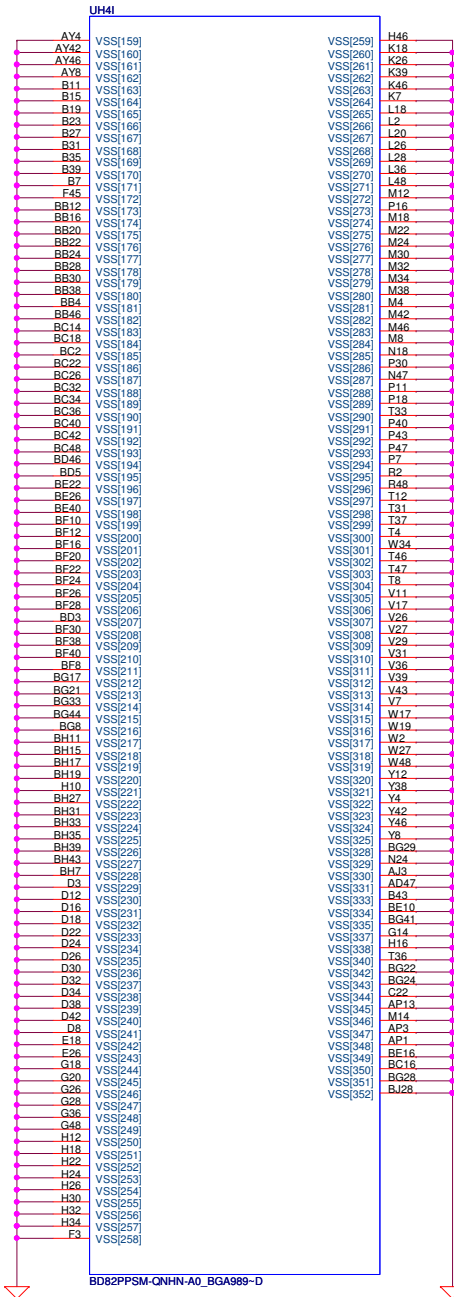
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BD82PPSM-QNH-N-A0_BGA989-D



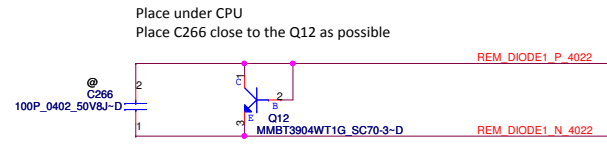
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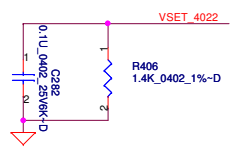
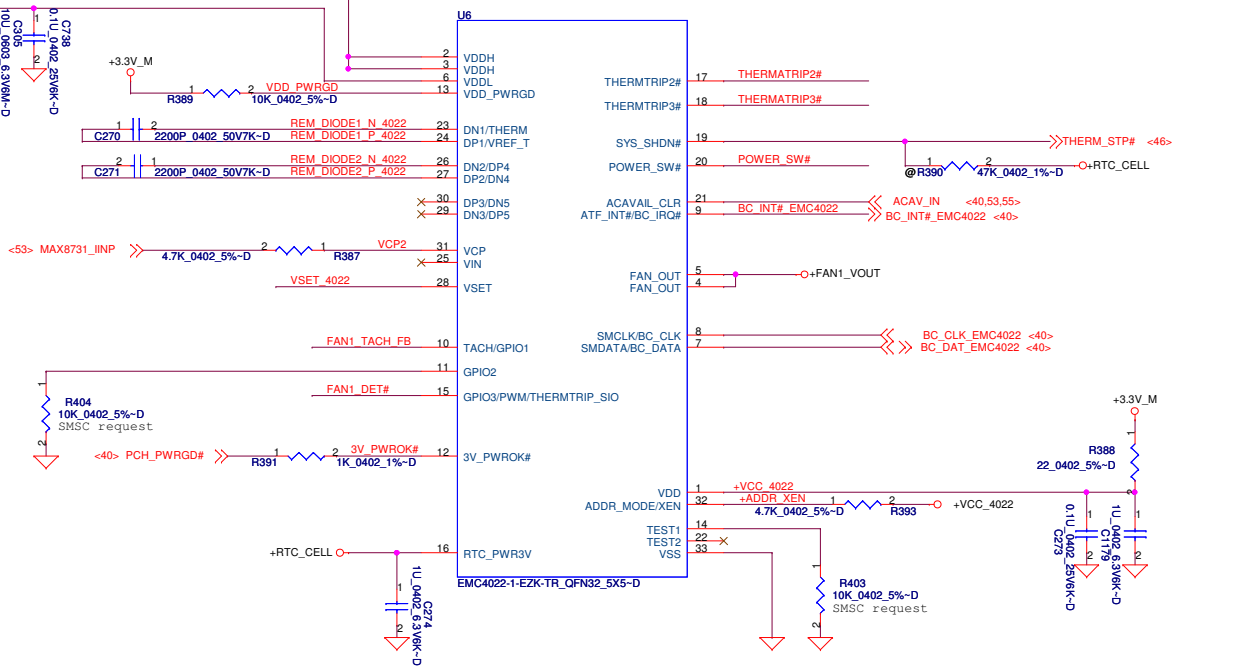
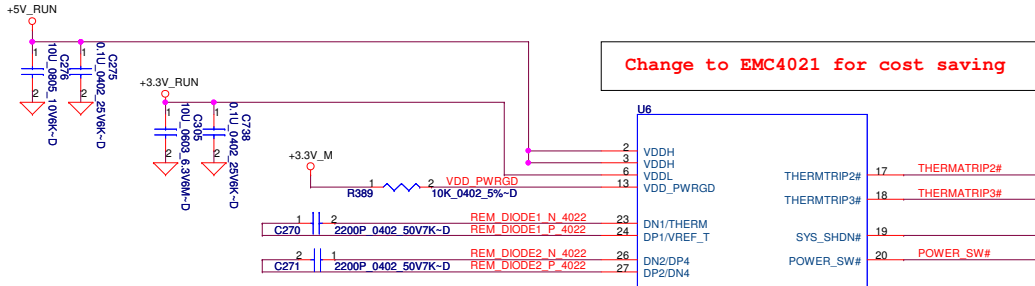
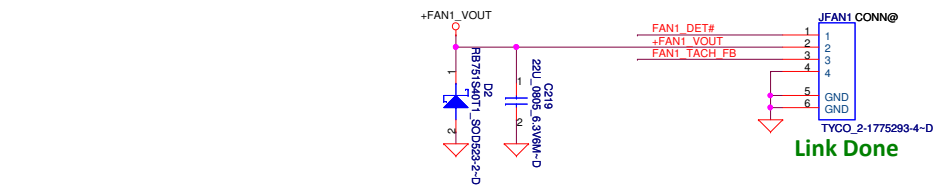
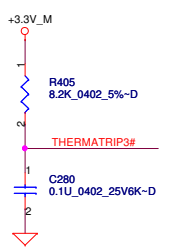
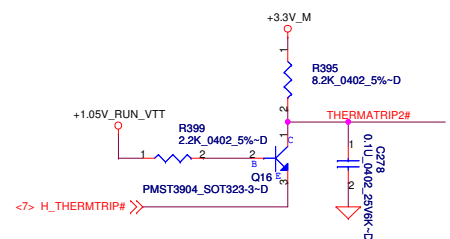
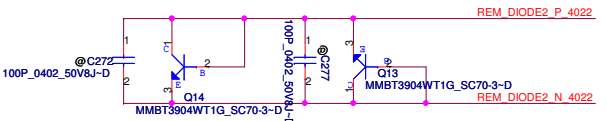
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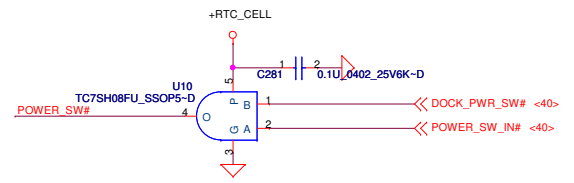
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- (1) DP3/DN3 for SODIMM on Q14, place Q14 close to SODIMM and C272 close to Q14
(2) DP5/DN5 for Skin on Q13, place Q13 close to Vcore VR choke.



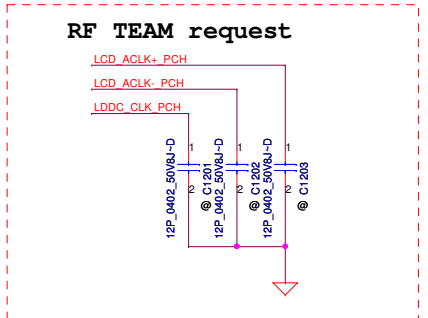
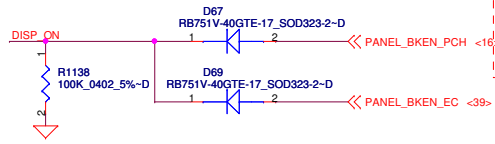
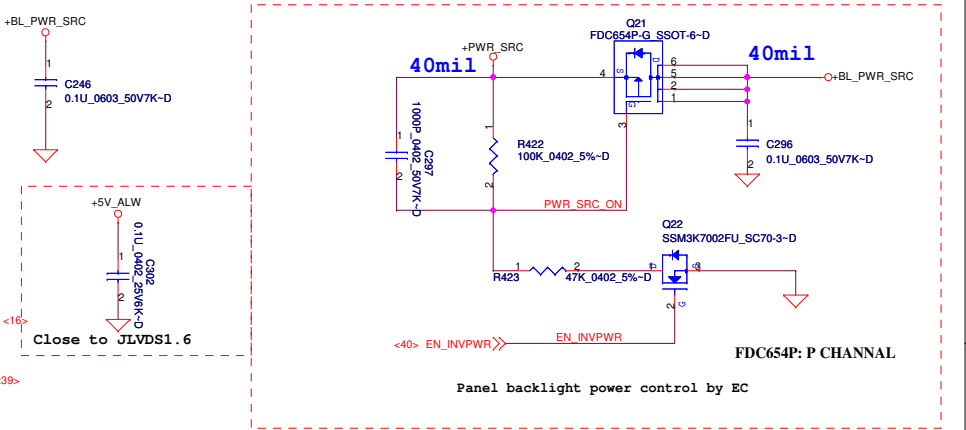
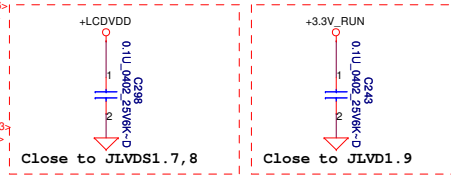
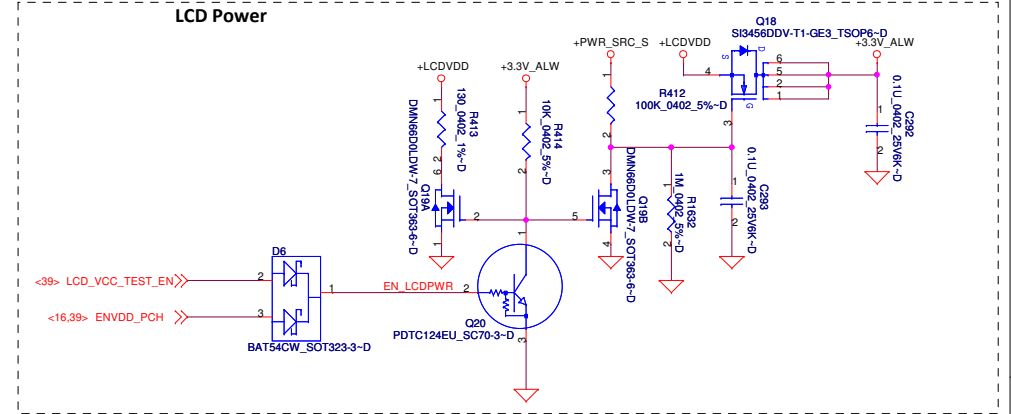
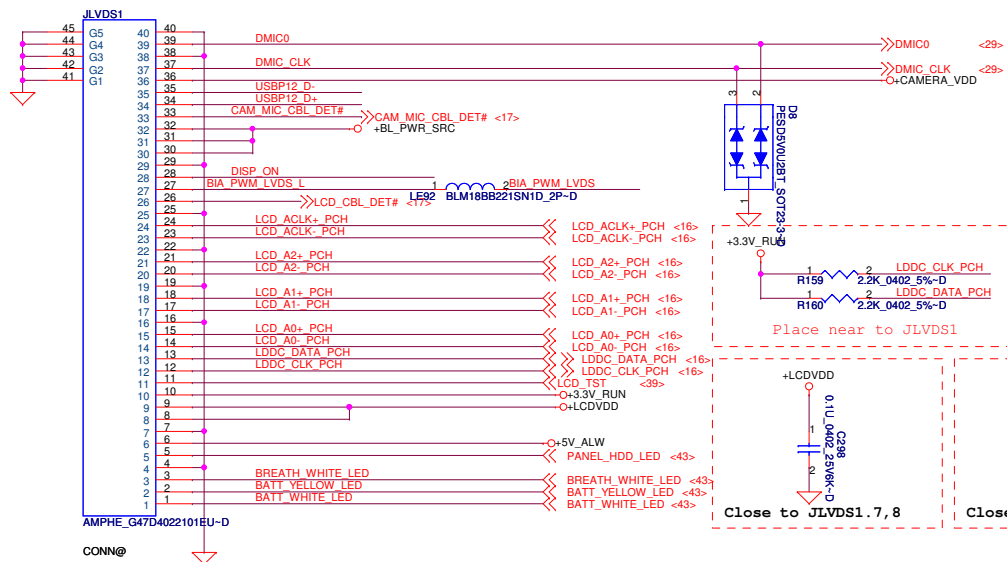
Rest=1400 Tp=94degree



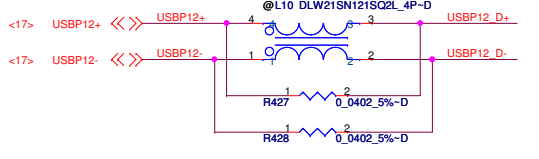
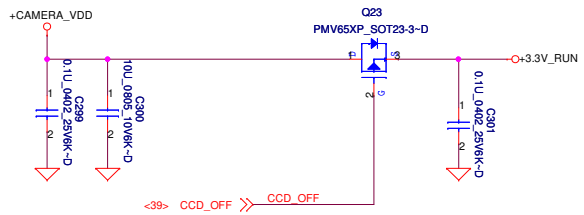
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FAN & Thermal Sensor			
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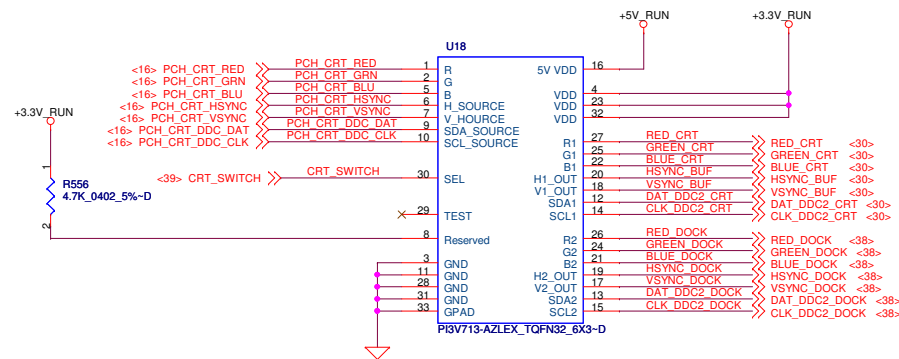


For Webcam

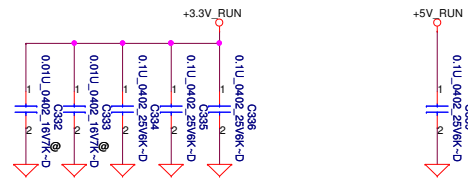


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SW for MB/DOCK



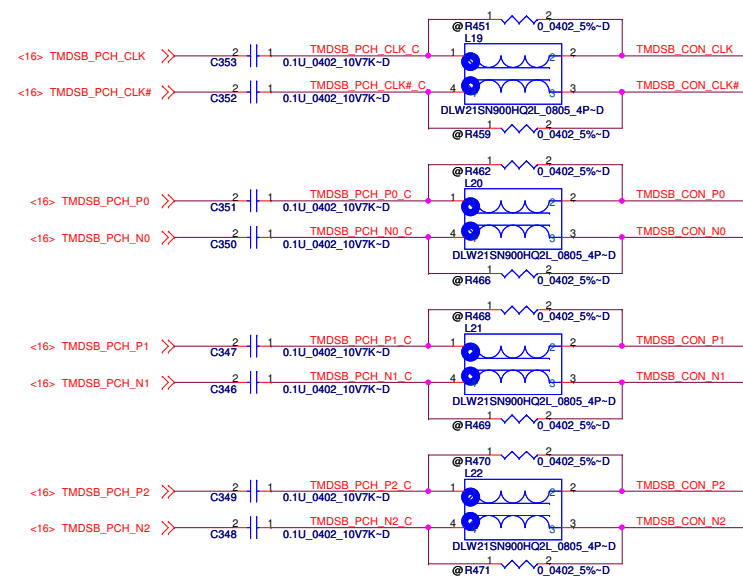
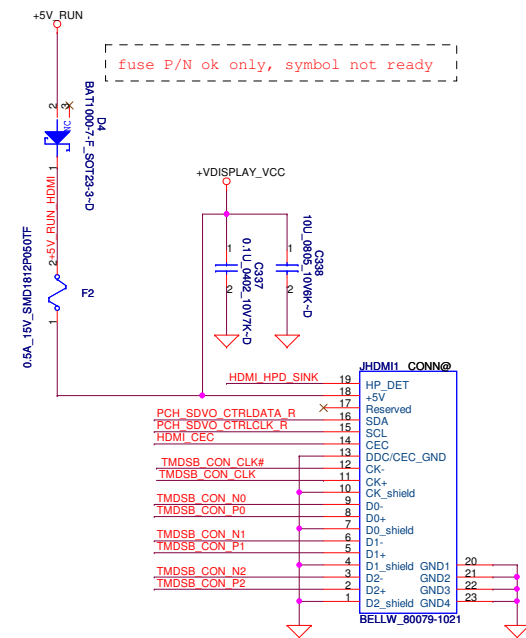
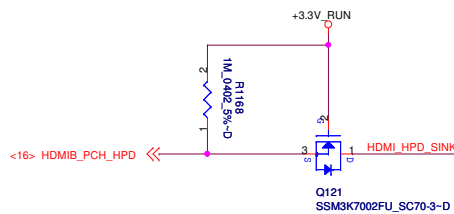
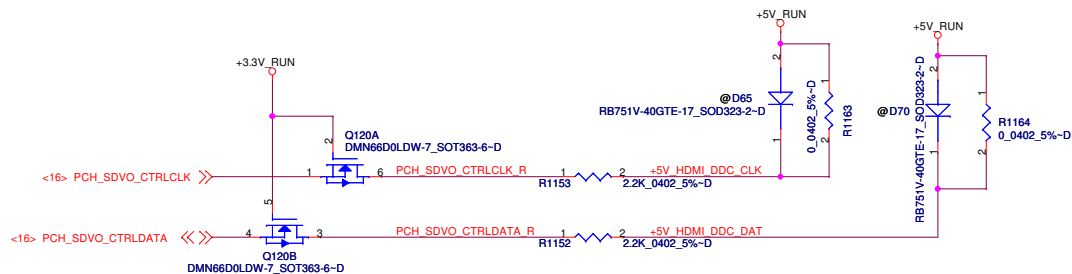
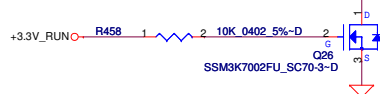
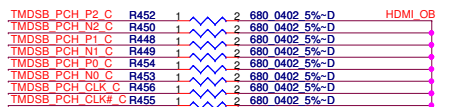
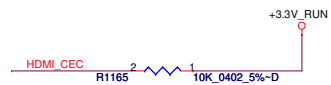
SEL1/SEL2	Chanel	Source
0	A=B1	MB
1	A=B2	APR/SPR



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Compal Electronics, Inc.			
Title CRT/Video switch			
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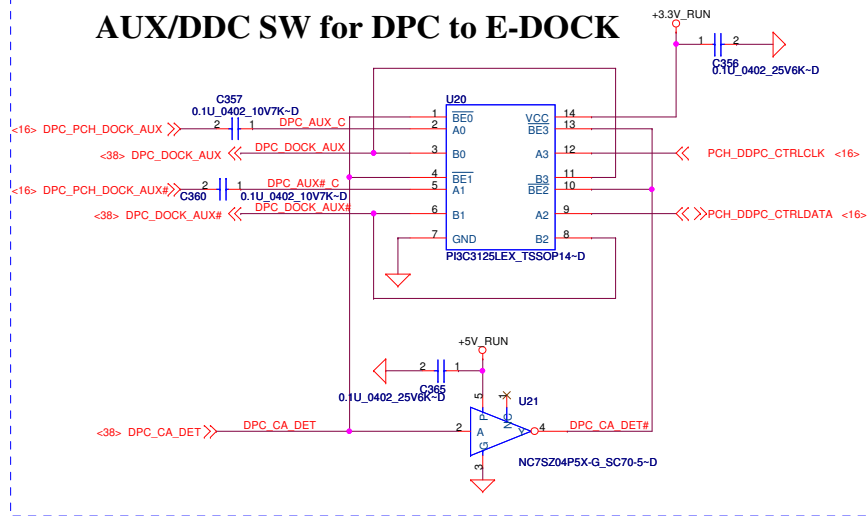
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Compal Electronics, Inc.	
HDMI port	
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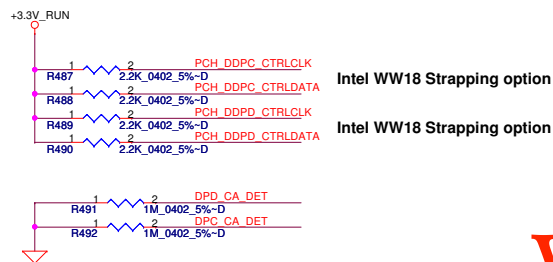
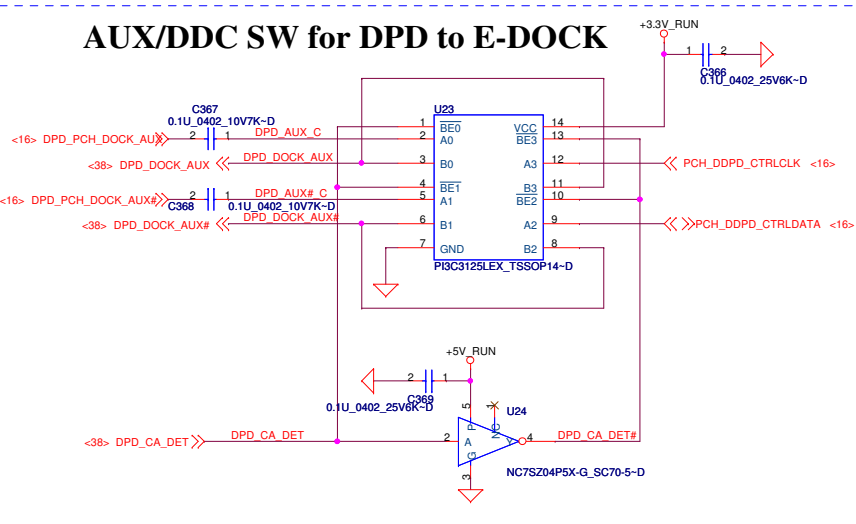
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AUX/DDC SW for DPC to E-DOCK



There is a new die for PI3C3125. Sample available on May.

AUX/DDC SW for DPD to E-DOCK

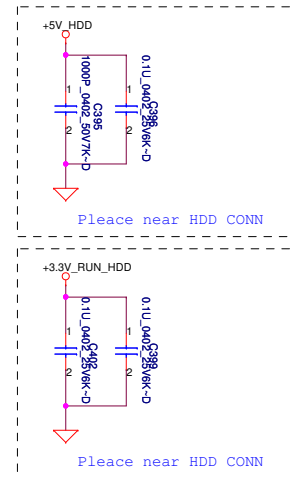
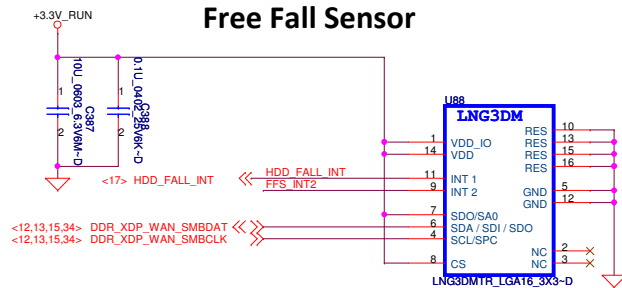


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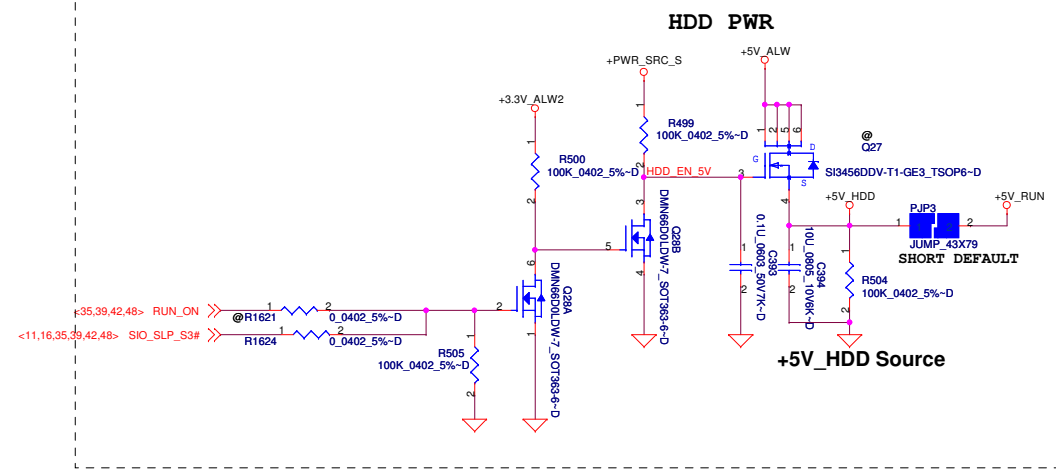
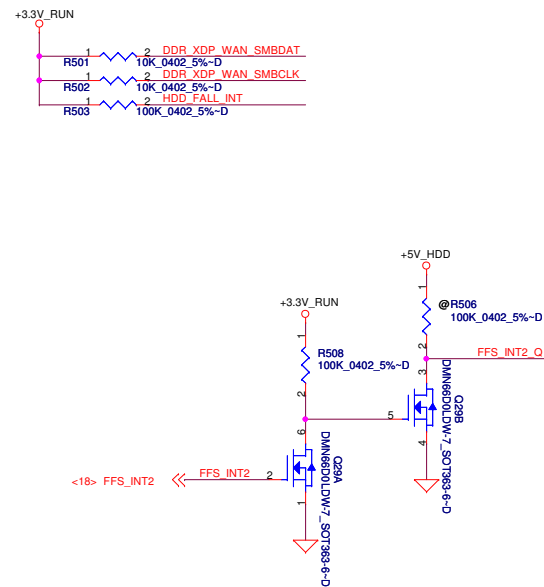
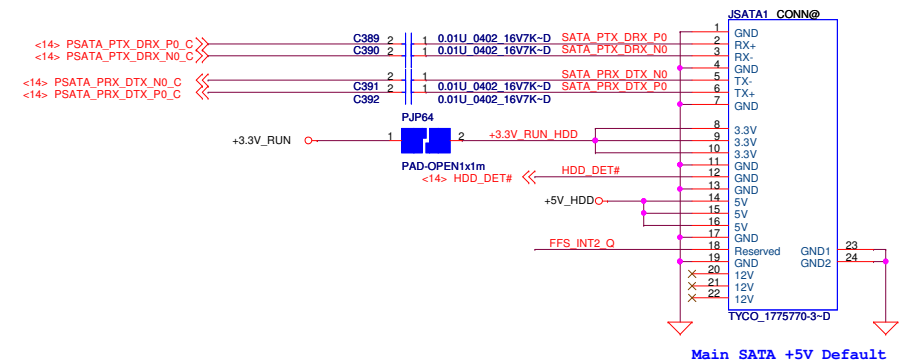
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Compal Electronics, Inc.			
Title	DP125		
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Free Fall Sensor



For HDD Temp.



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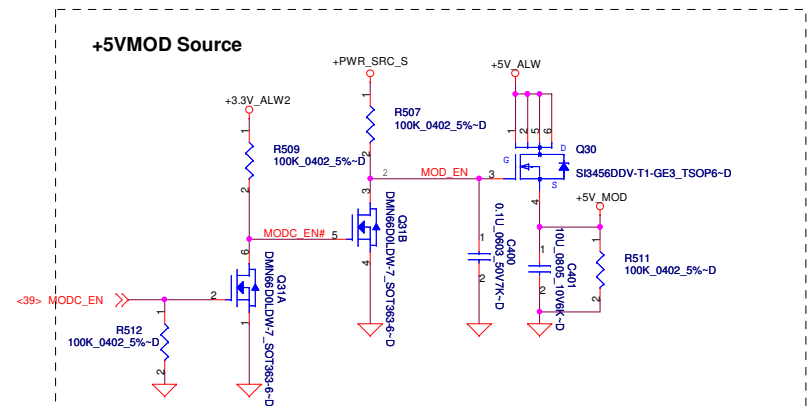
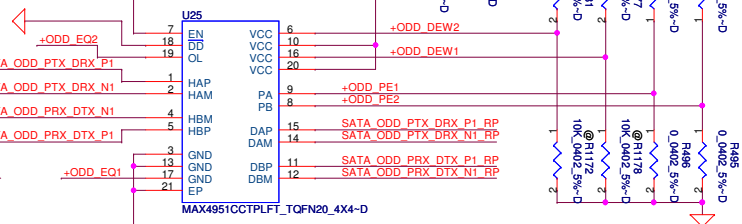
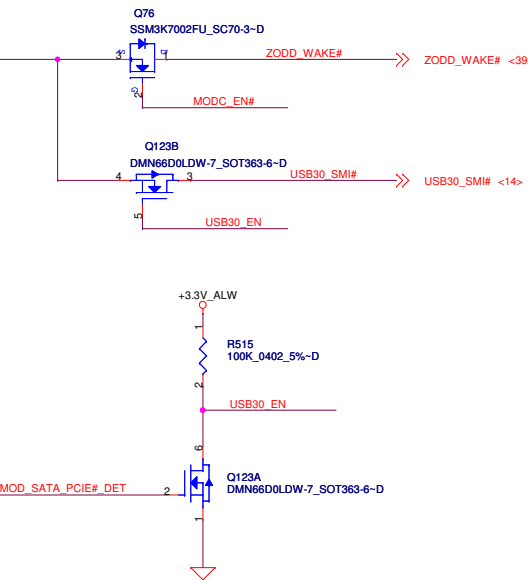
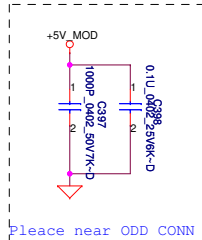
Compal Electronics, Inc.

HDD CONNECTOR

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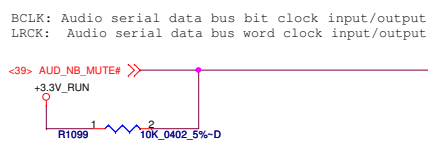
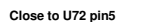
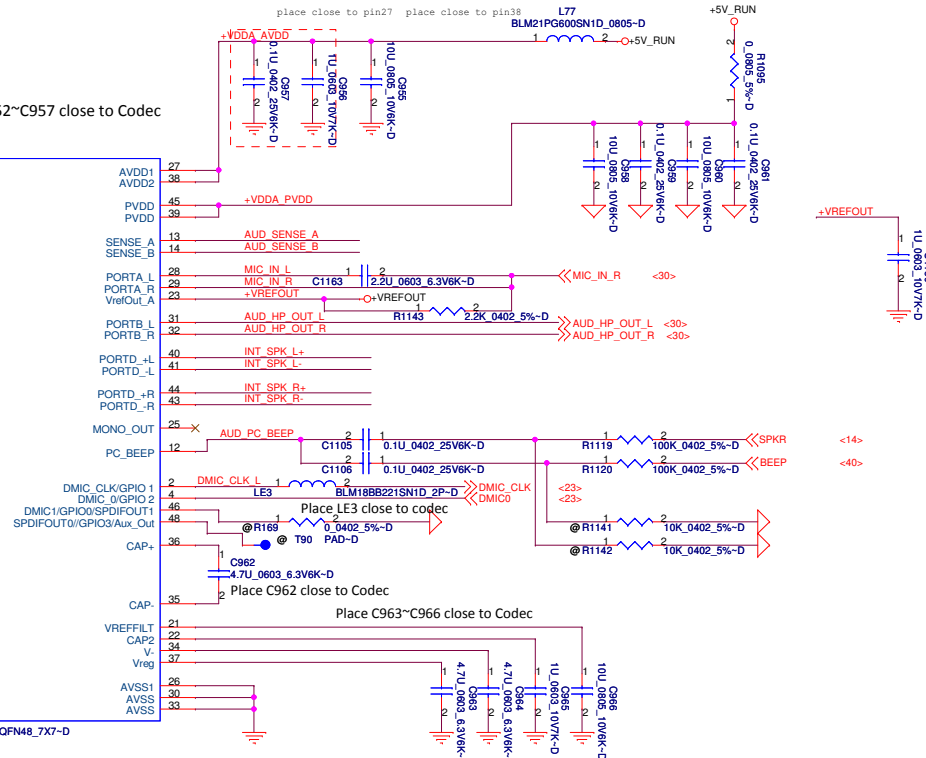
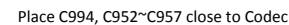
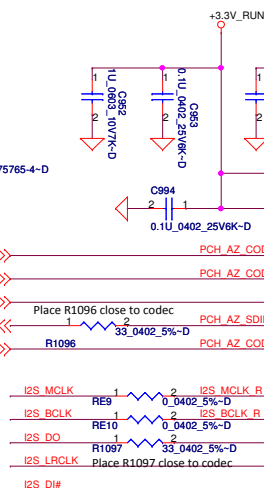
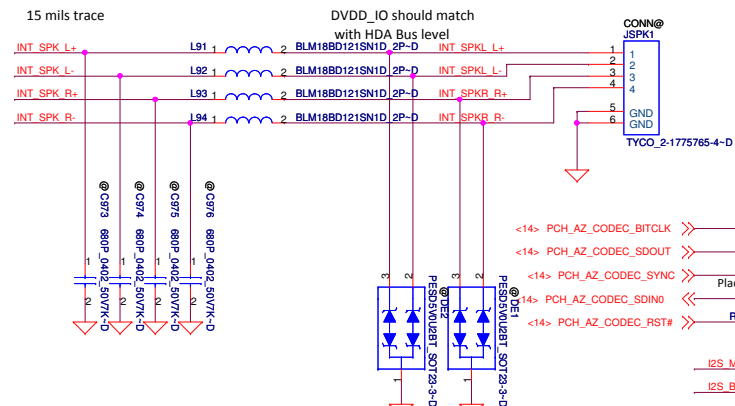
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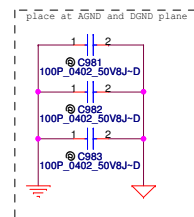
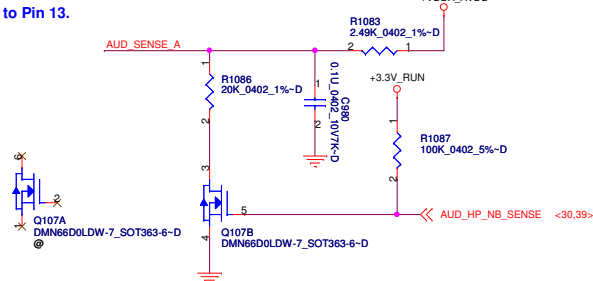
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Internal Speakers Header

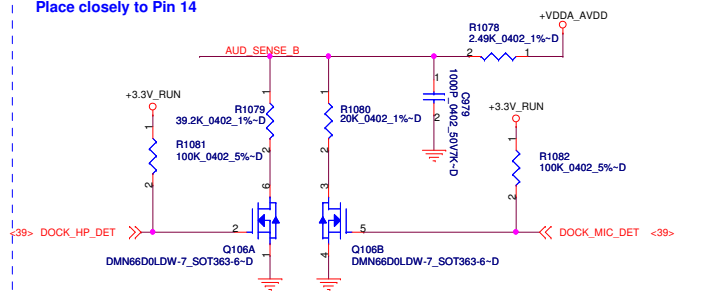
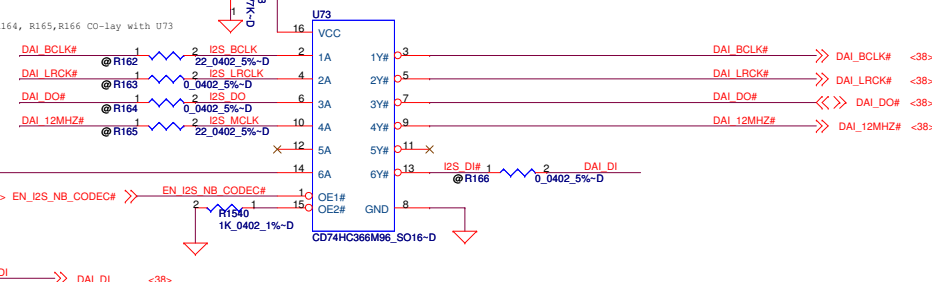
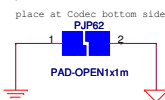


BCLK: Audio serial data bus bit clock input/output
LRCK: Audio serial data bus word clock input/output



Notes:

Keep PVDD supply and speaker traces routed on the DGND plane.
Keep away from AGND and other analog signals



Resistor	SENSE_A	SENSE_B
39.2K	PORT A	PORT E
20K	PORT B	PORT F
10K	NA	DMIC0
5.11K	SPDIFOUT0	SPDIFOUT1 (DMIC1)
2.49K	Pull-up to AVDD	

PORT A	External MIC
PORT B	HeadPhone Out
PORT C	Dock Audio
PORT D	Internal SPK

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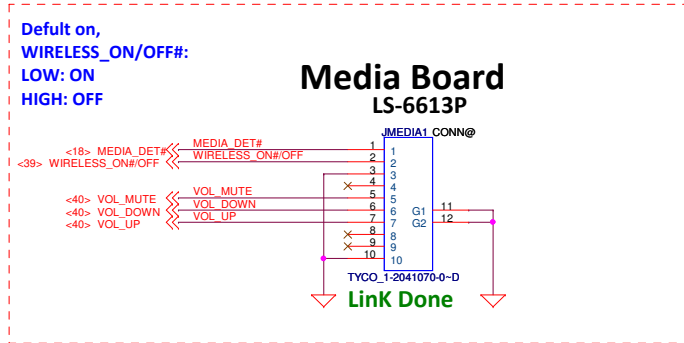
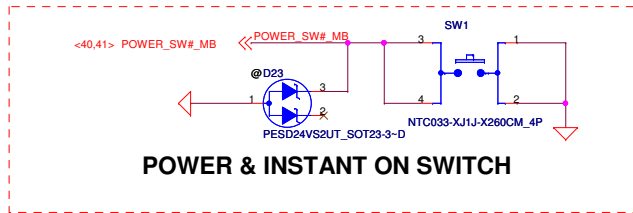
Azalia (HD) Codec

Number
LA-7741

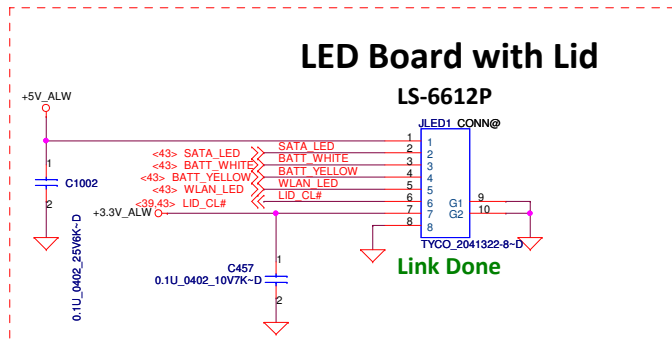
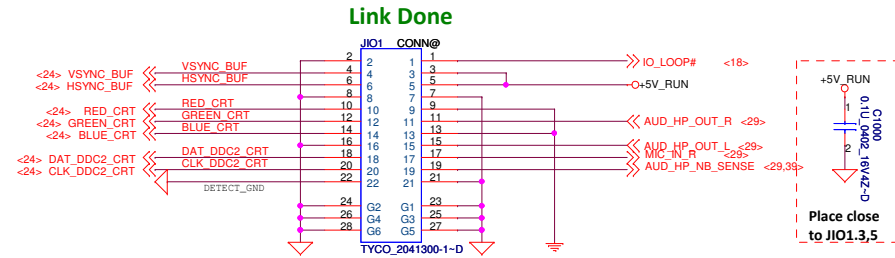
Date: Thursday, June 23, 2011

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I/O board CONN.



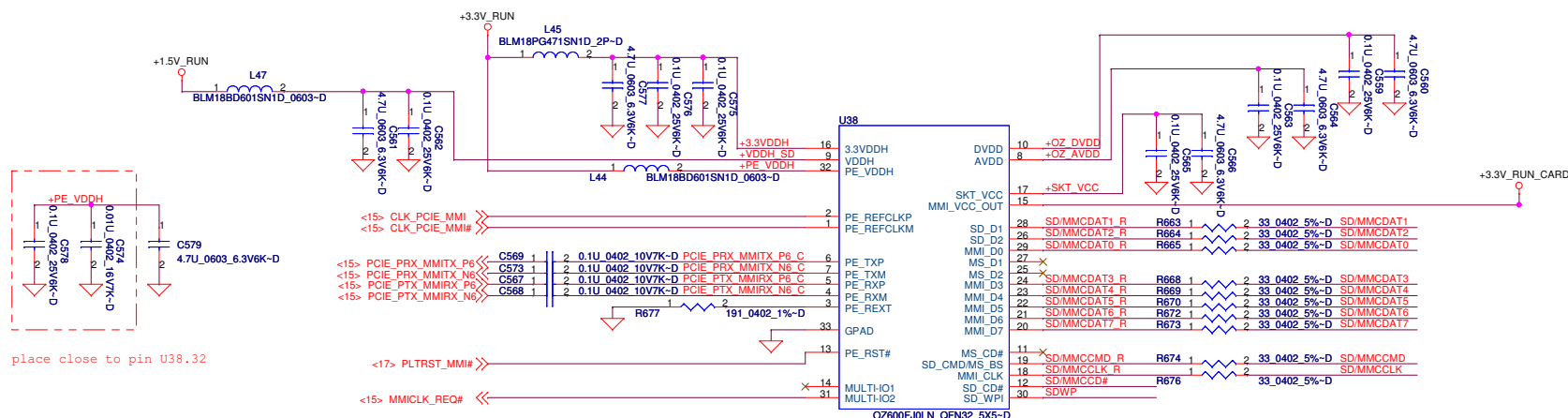
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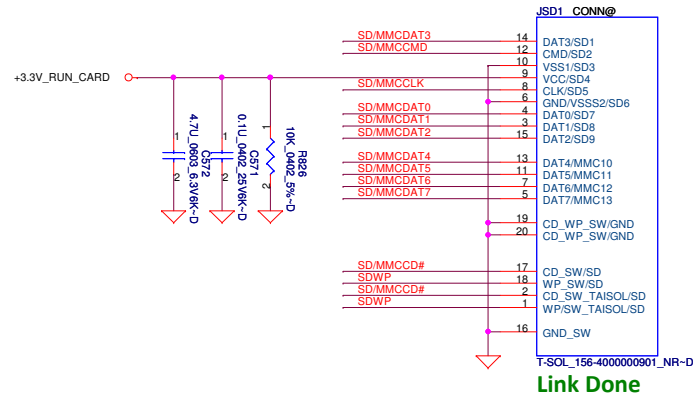
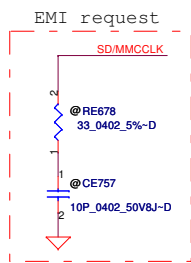
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Title			PWR SW/Sub-board Connector
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place close to pin U38.32



Link Done

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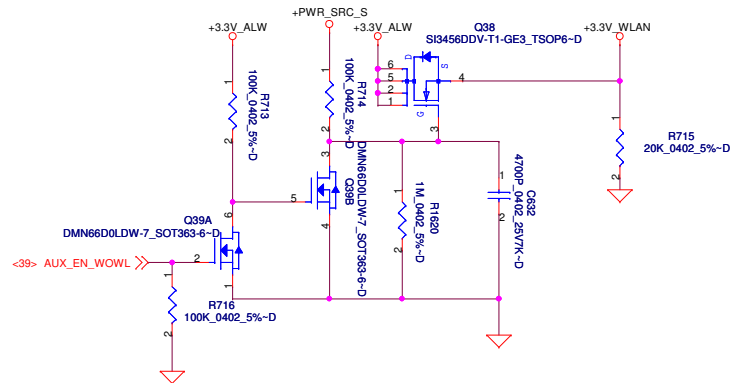
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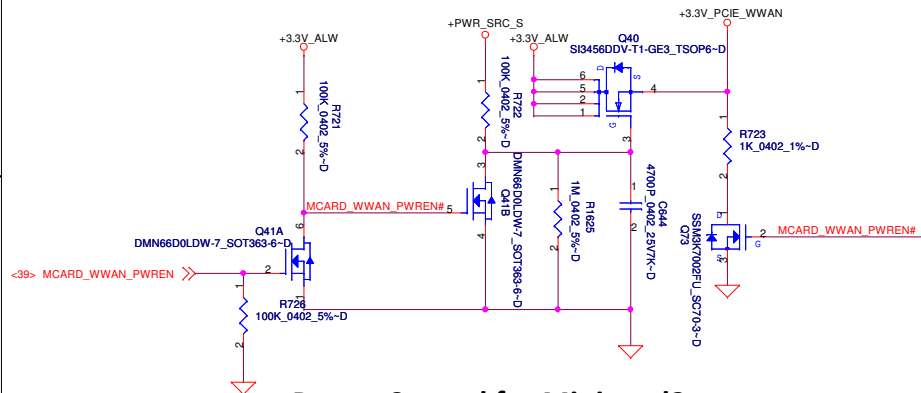


Card Reader				Rev
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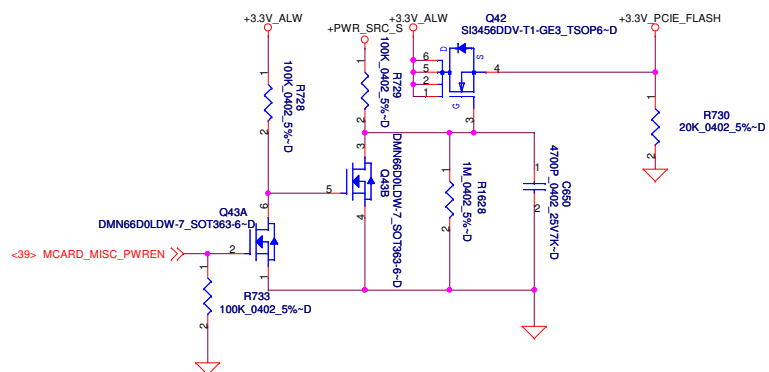
Power Control for Mini card2



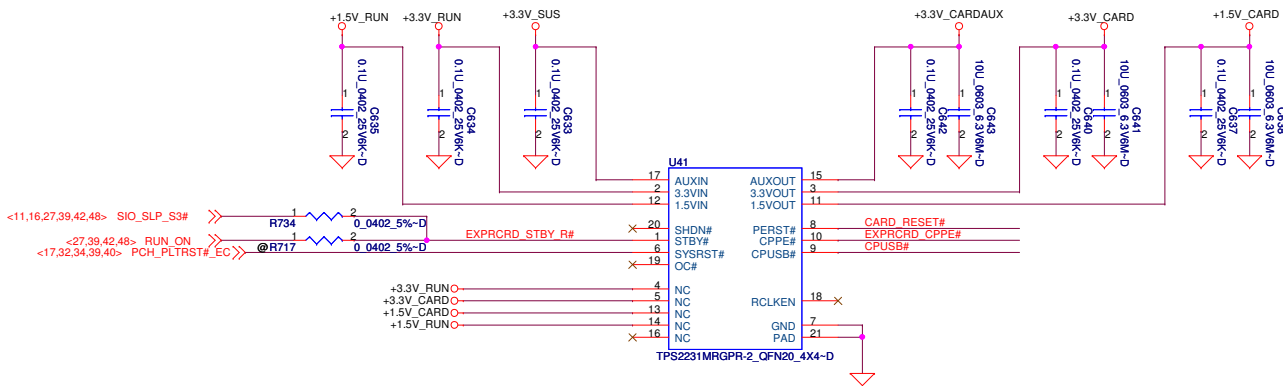
Power Control for Mini card1



Power Control for Mini card3

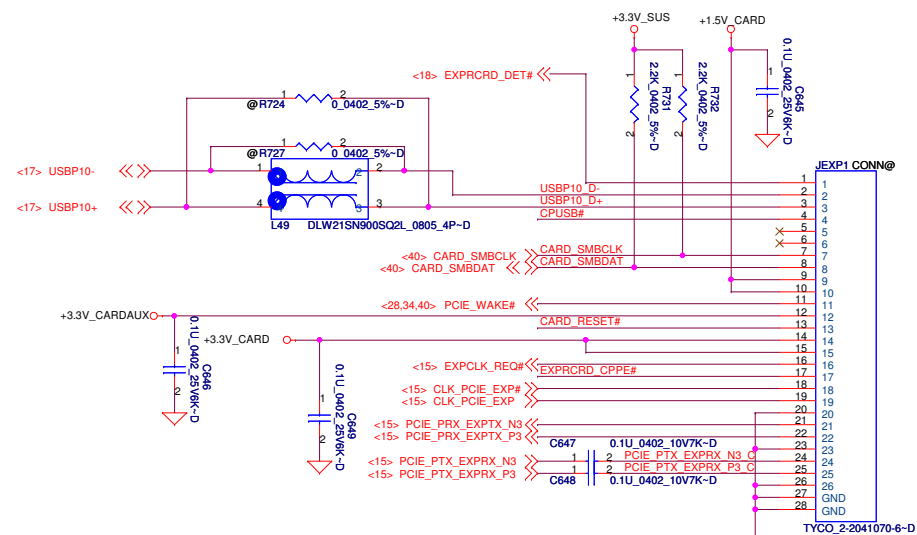


Express Card PWR S/W



Note: Add connection on pin4, pin5, pin 13 and pin14 to support GMT 2nd source part

Express Card Conn.



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PCIE-SATA SW / PCIE PWR

LA-7741

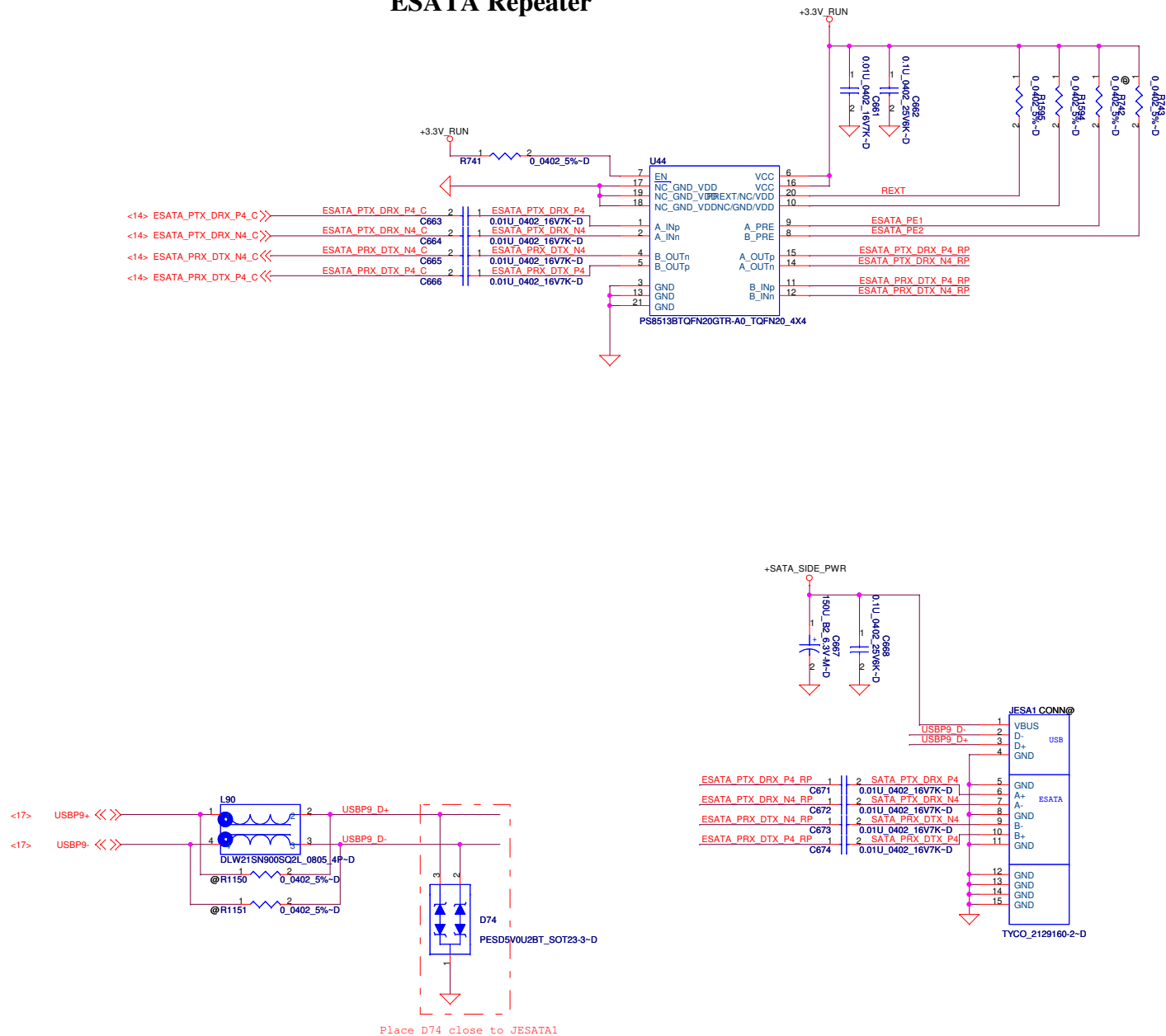
Rev	0.1
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ESATA Repeater



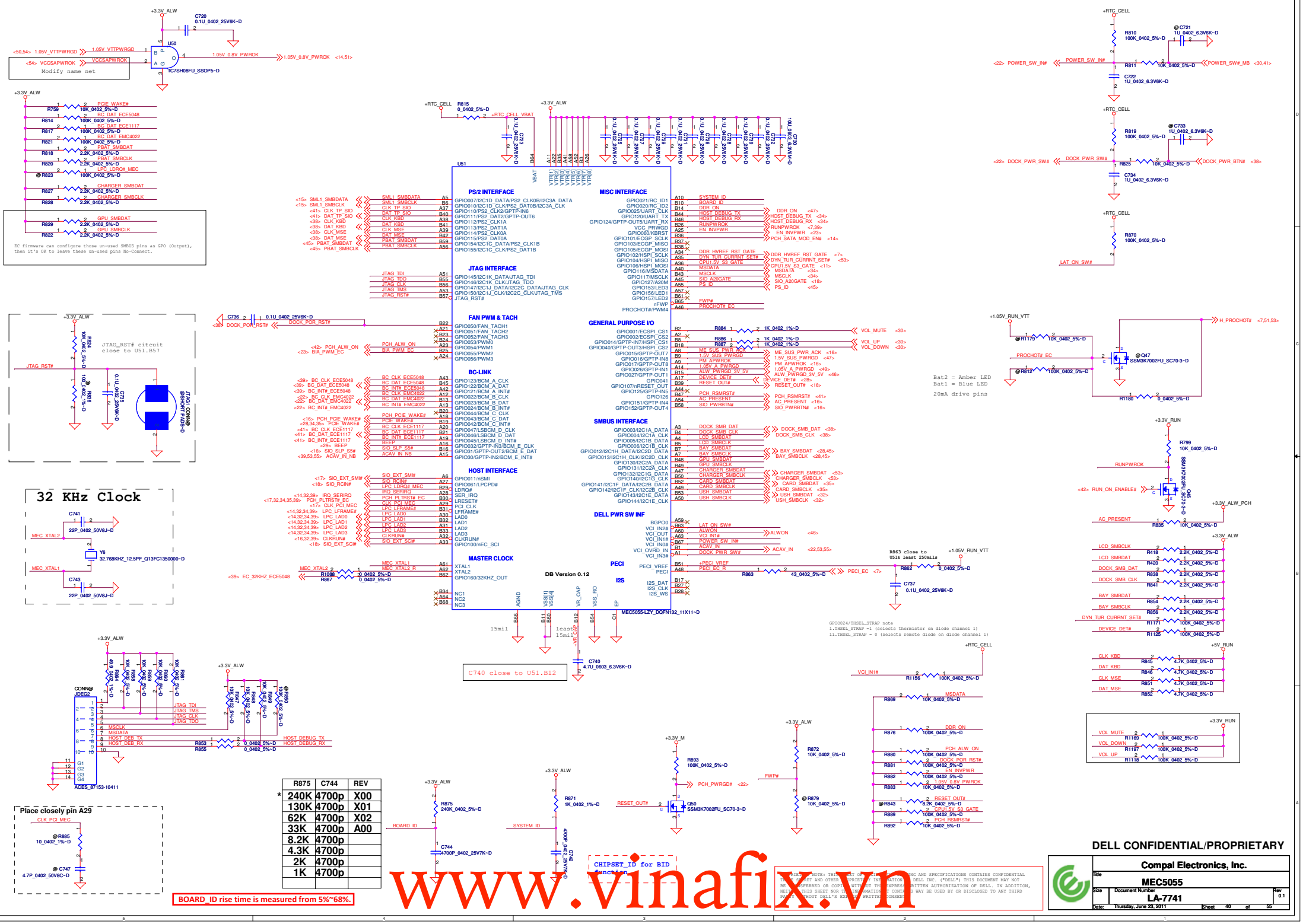
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Title			
USB/ESATA/IO/MDC			
Size	Document Number		Rev
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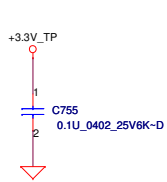
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Size: 10.402.5VW-K-D

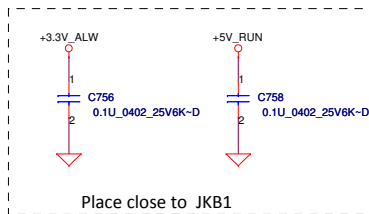
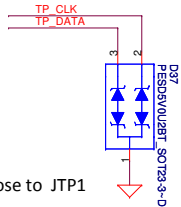
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Date: Thursday, June 23, 2011

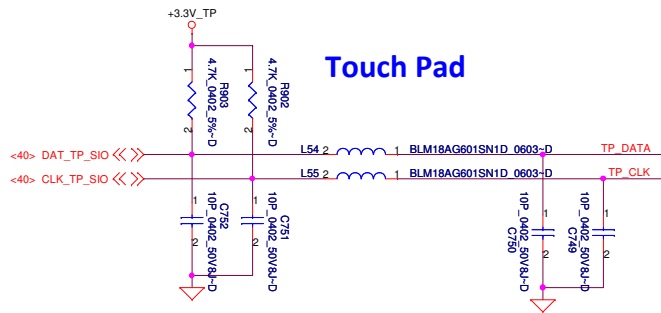
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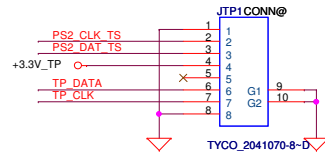
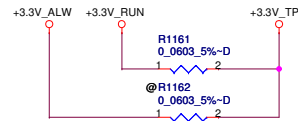
Place close to JTP1



Place close to JKB1

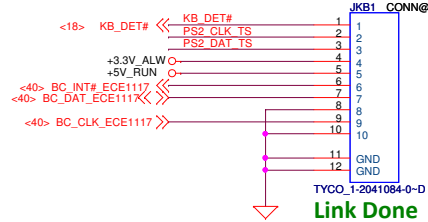


Touch Pad

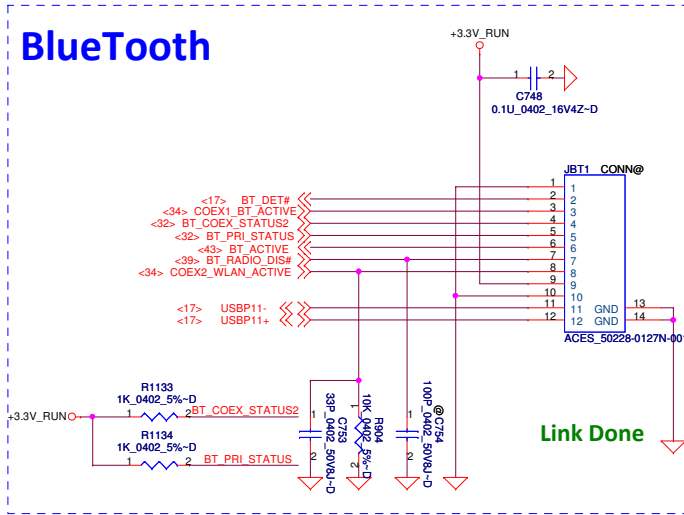


Link Done

KB Conn. Pitch=1.0mm

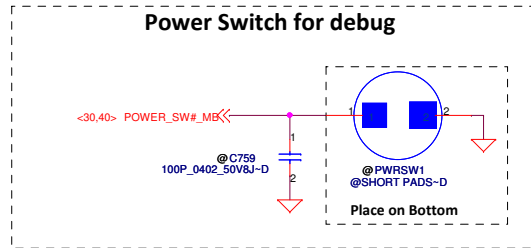


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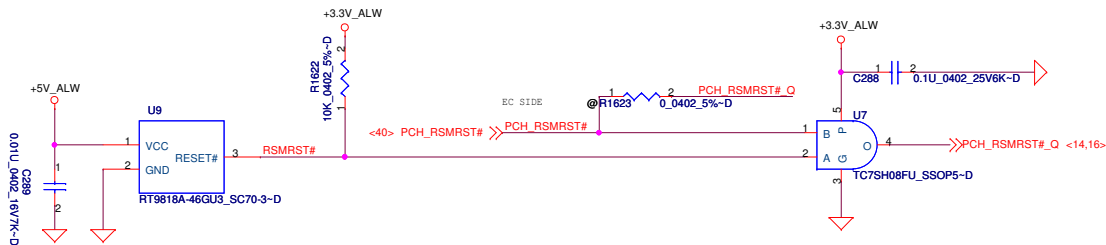


BlueTooth

Link Done



Power Switch for debug



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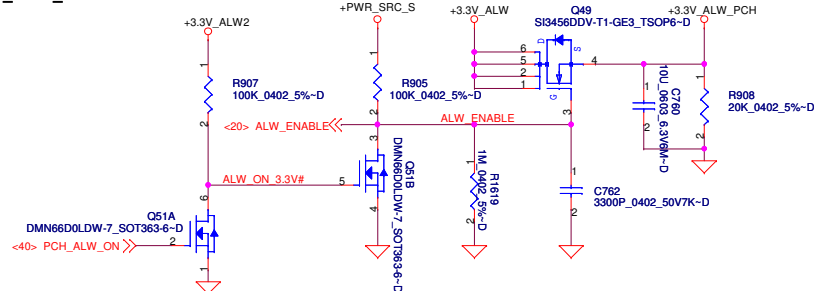
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Touch PAD/Int KB/BT

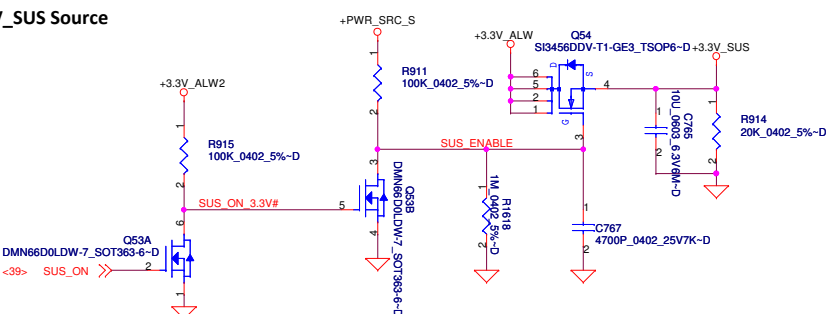
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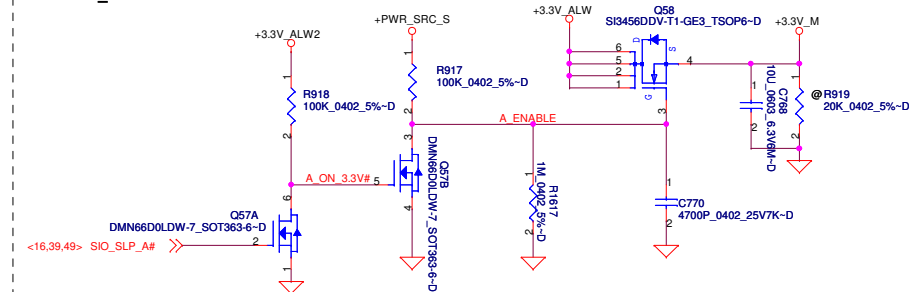
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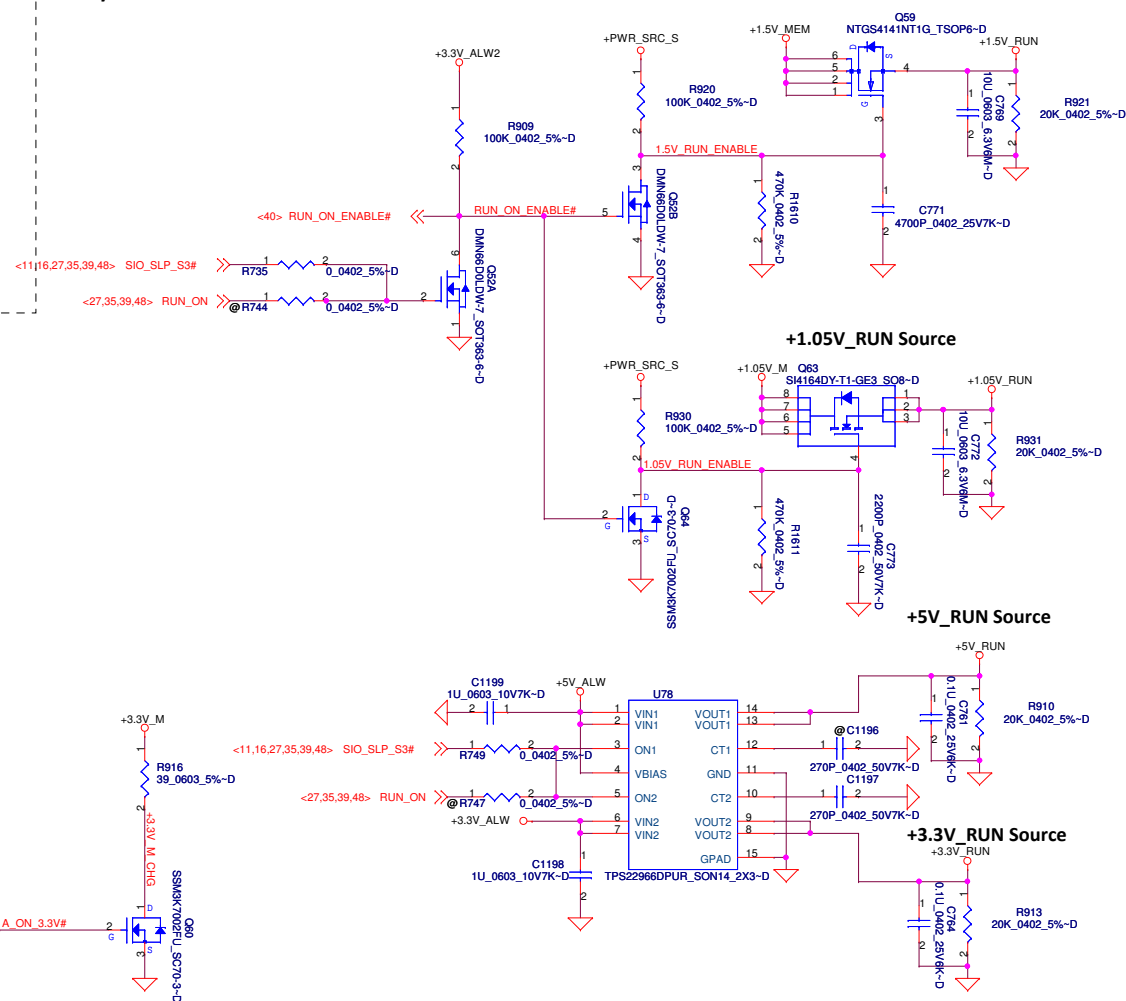
+3.3V_SUS Source



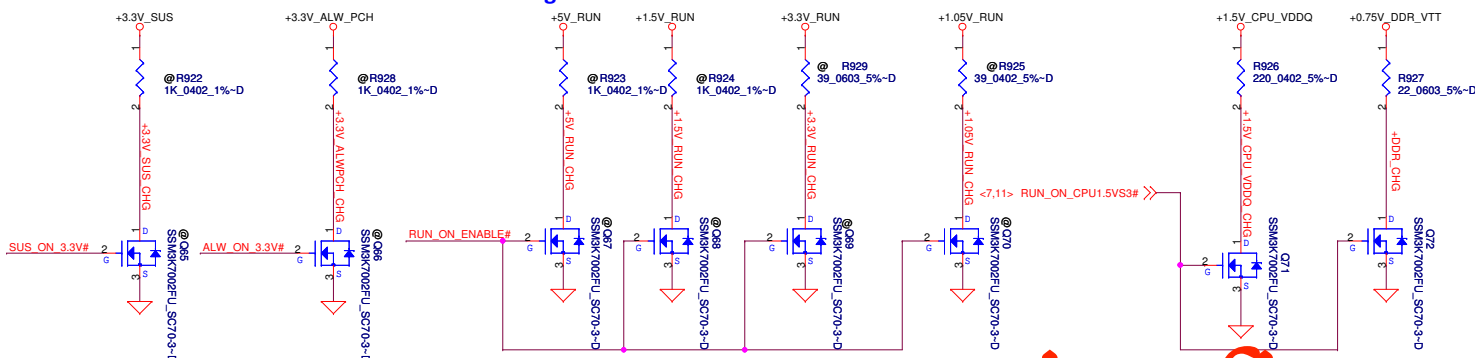
+3.3V_M Source



DC/DC Interface



Discharg Circuit



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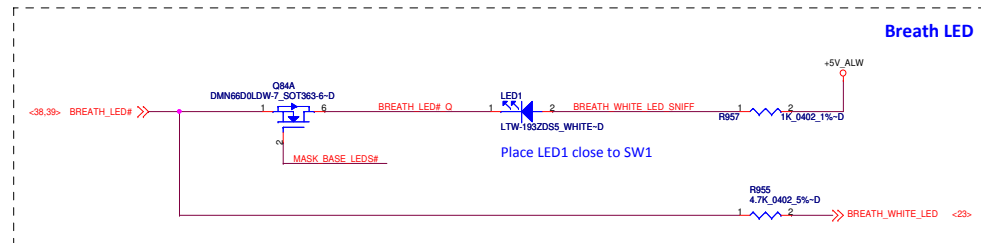
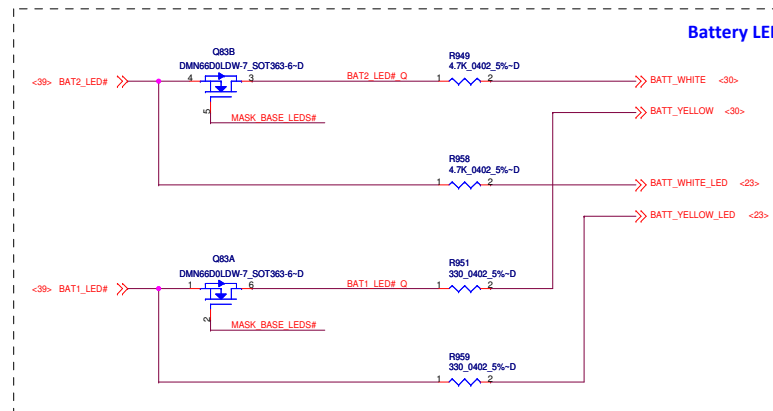
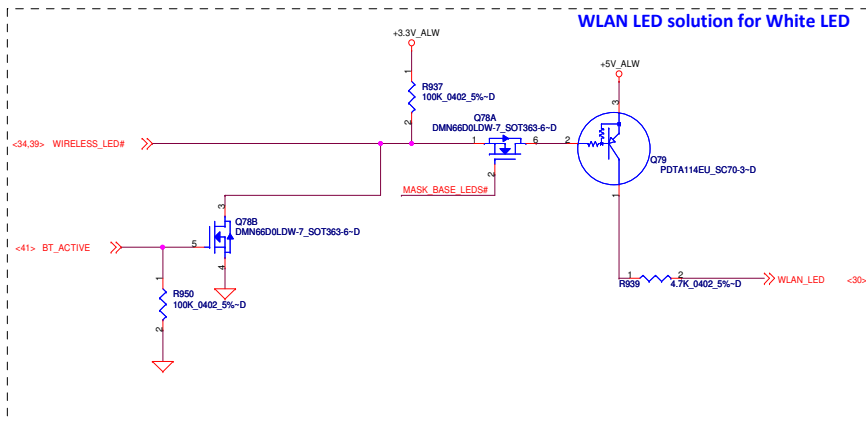
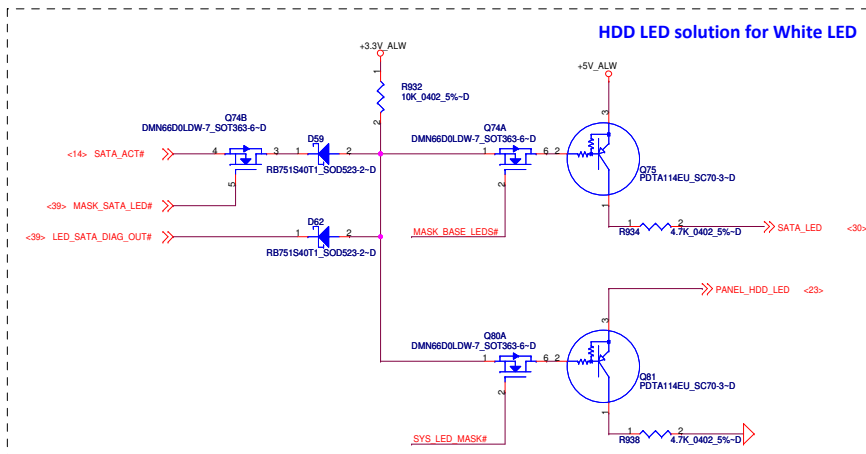
Compal Electronics, Inc.

POWER CONTROL

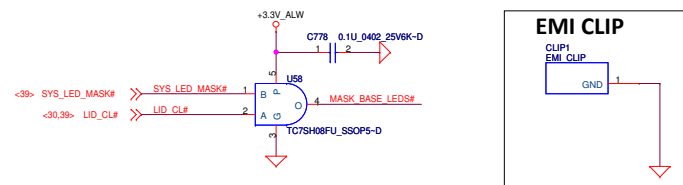
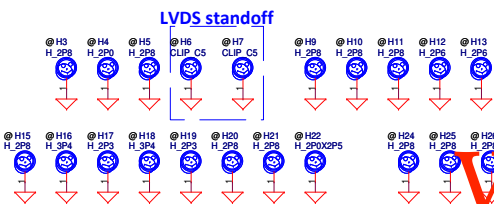
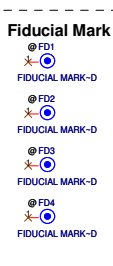
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LED Circuit Control Table		
	SYS_LED_MASK#	LID_CL#
Mask All LEDs (Sniffer Function)	0	X
Mask Base MB LEDs (Lid Closed)	1	0
Do not Mask LEDs (Lid Opened)	1	1



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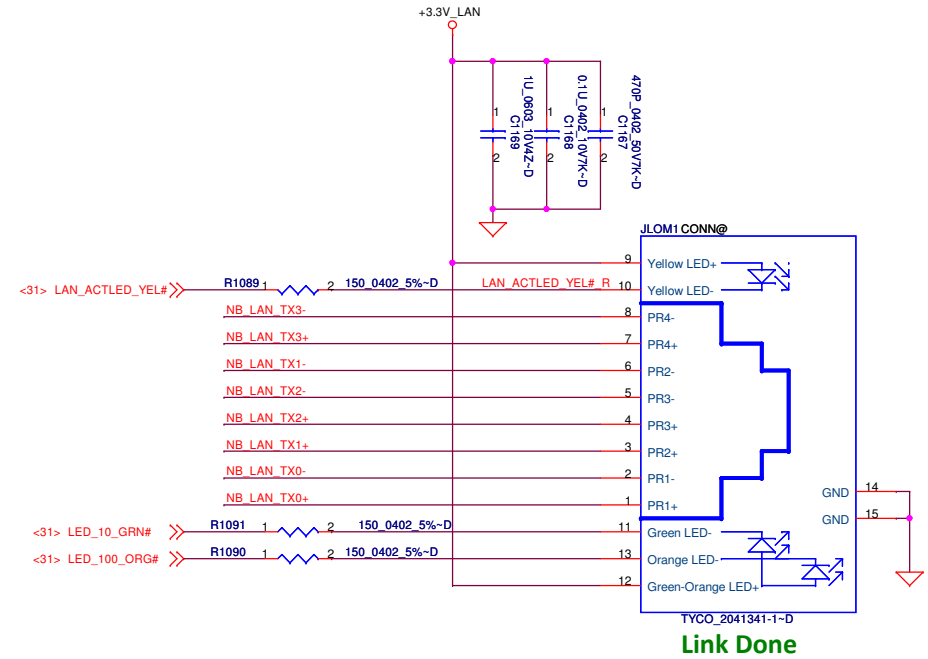
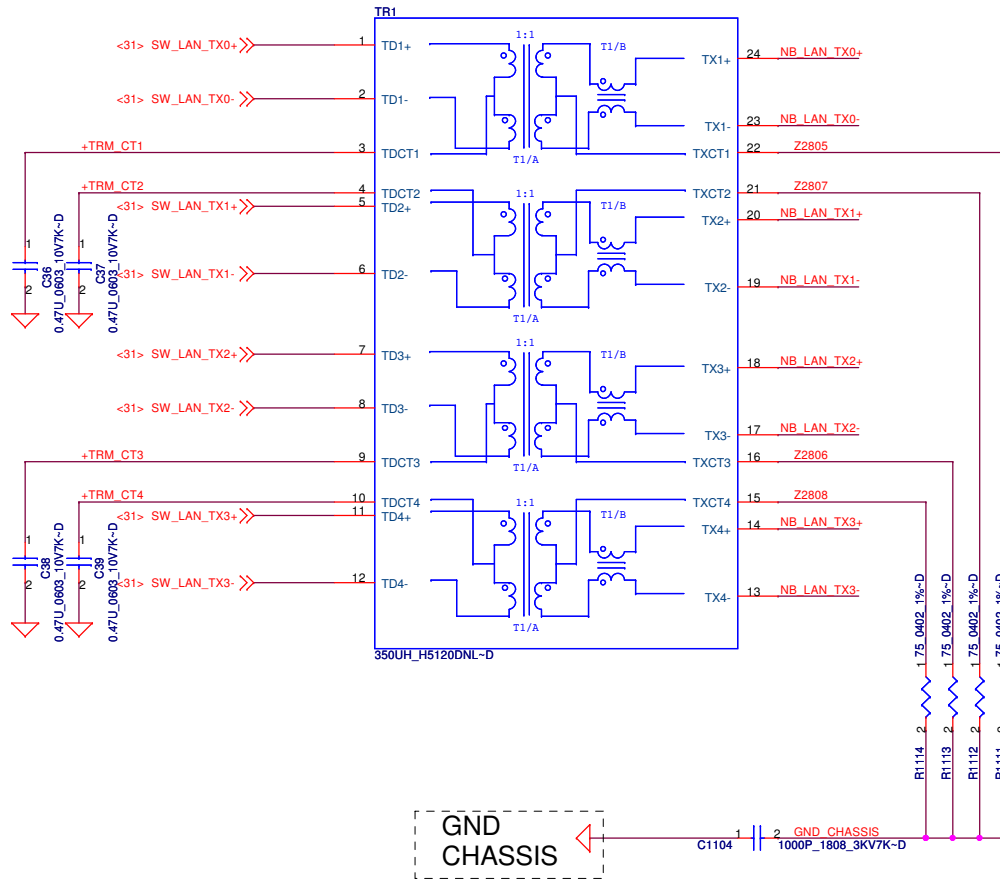
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PAD and Standoff

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3.3VALWP +/- 5%
TDC=5.45A
Peak Current=7.786A
OCP min=10.122A
L/S RDS(on) 14.2m ohm(typ), 17.5m ohm(max)
FSW=375KHz
Delta_Iin=1.246A
Delta_Io=3.231A

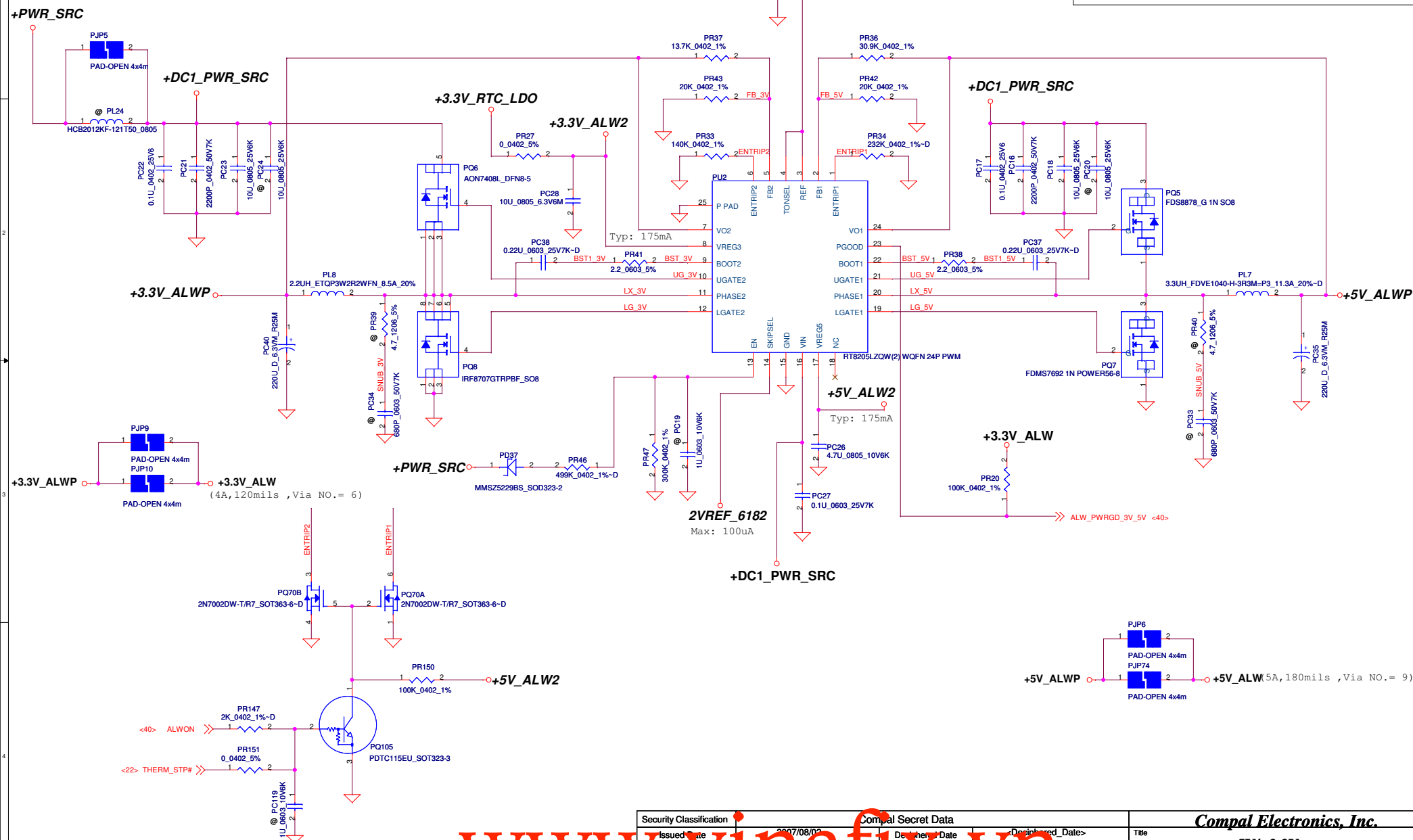
+5V_ALWP/ +3.3V_ALWP

Charlie_note :

SKIPSEL Connect to REF : DEM Mode
@DEM VFBx=2.0V

TONSEL
Frequency Selectable Input for VOUT1(+5v)/VOUT2(+3.3v)
respectively.
300kHz/375kHz : Connect to REF

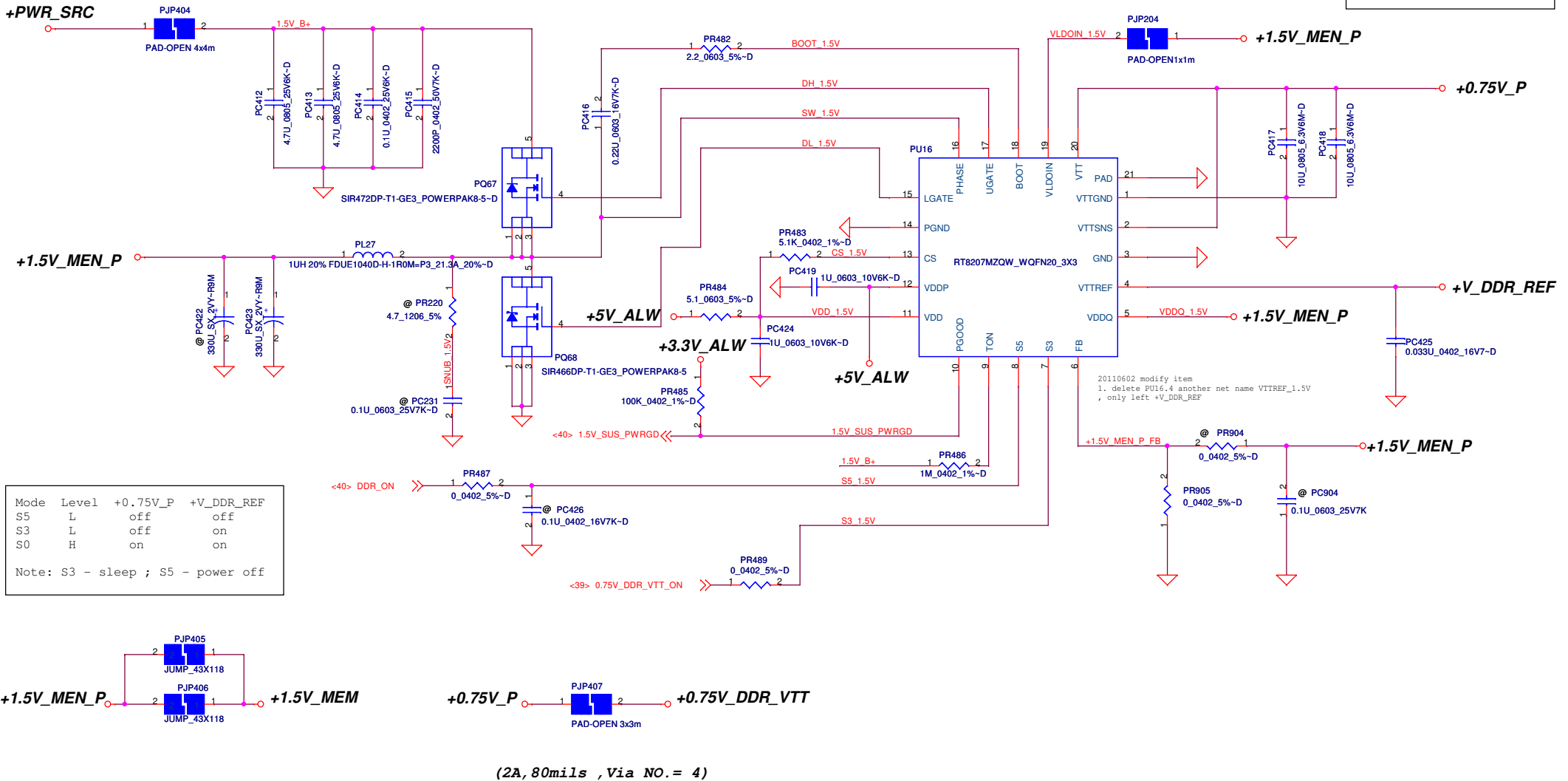
5VALWP +/- 5%
TDC=8.41A
Peak Current=12.012A
OCP min=15.62A
L/S RDS(on) 14.2m ohm(typ), 17.5m ohm(max)
FSW=300KHz
Delta_Iin=1.64A
Delta_Io=3.756A



1.5Volt +/- 5%
TDC=7.18A
Peak Current=10.25A
OCP min=13.33A
L/S RDS(on) 3.8m ohm(typ), 4.8m ohm(max)
FSW=253KHz for RTON=1M ohm, spec. On-Time =303.947ns
Delta_Iin=1.458A
Delta_Io=5.4728A

+1.5V_MEN_P/ +0.75V_P

0.75Volt +/- 5%
TDC=0.525A
Peak Current=0.75A
OCP min=0.975A



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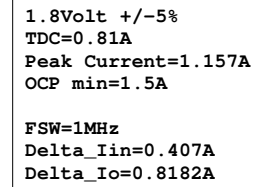
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+1.5V MEN/+0.75V DDR_VTT

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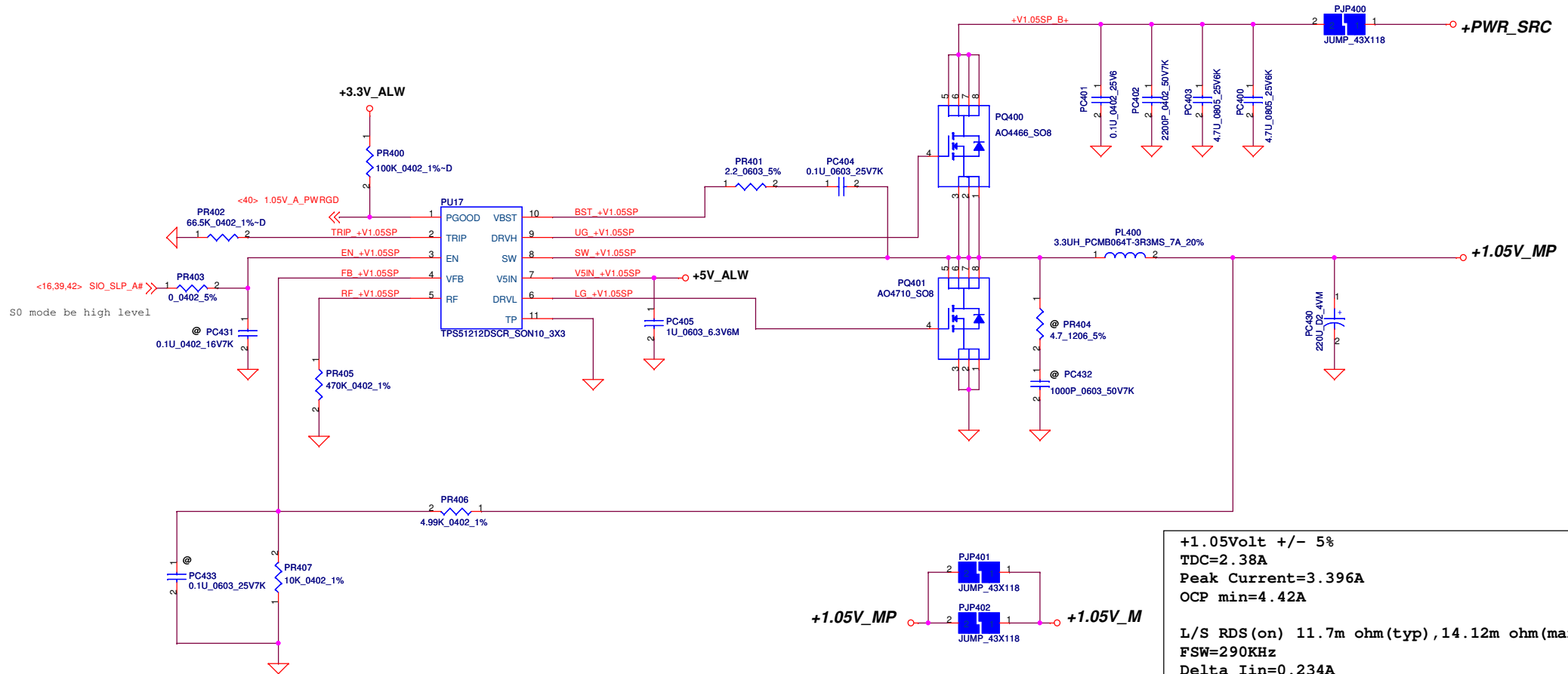
+1.8V RUNP



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+1.8V_RUN			
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+1.05V_MP



+1.05Volt +/- 5%
TDC=2.38A
Peak Current=3.396A
OCP min=4.42A
L/S RDS(on) 11.7m ohm(typ), 14.12m ohm(max)
FSW=290KHz
Delta_Iin=0.234A
Delta_Io=1.038A

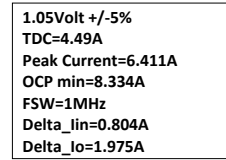
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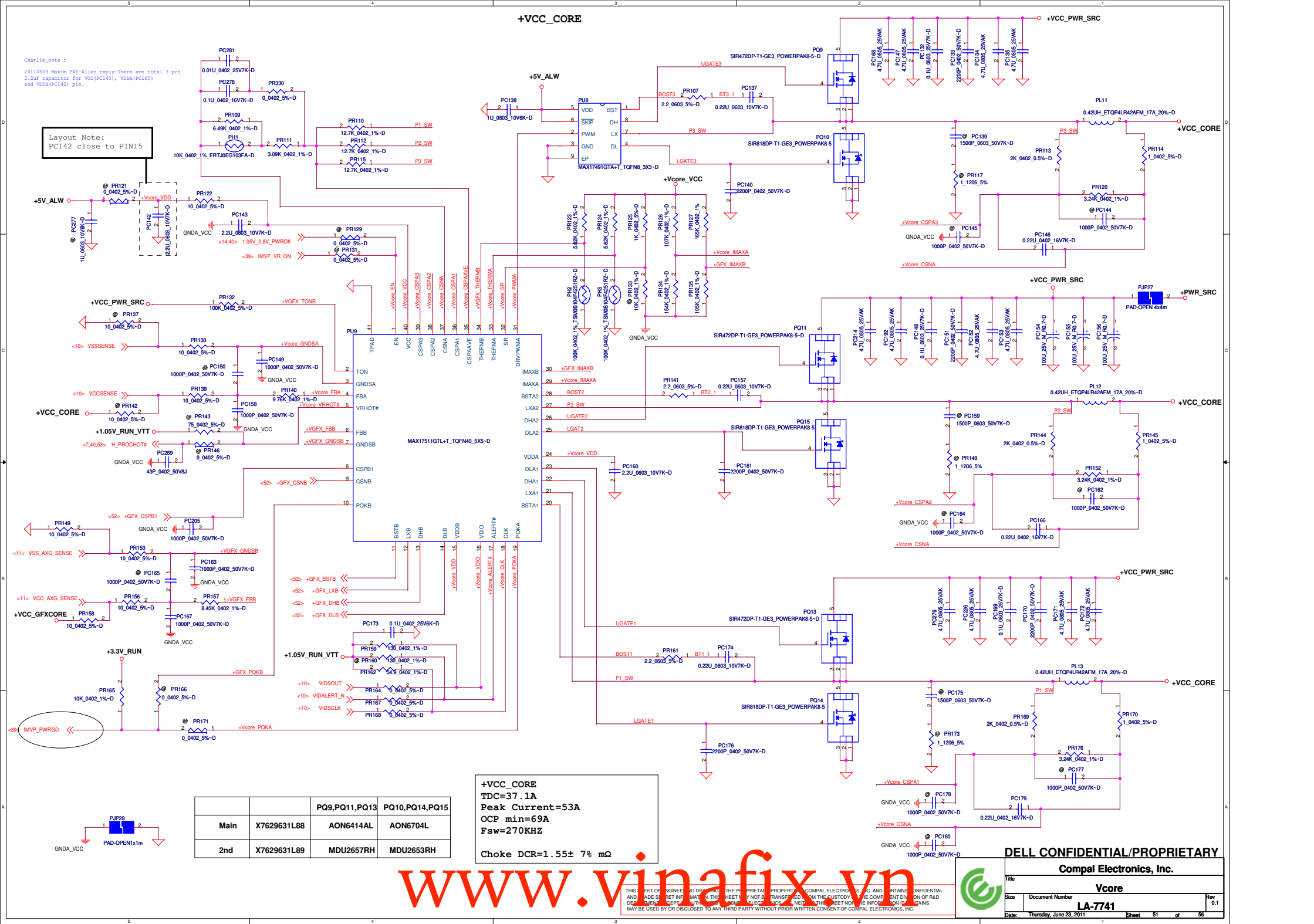
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Charlie_note :

20110509 Maxim FAE-Allen reply:There are total 3 pcs
2.2uF capacitor for VCC(PC143), VDDA(PC160)
and VDDDB(PC142) pin.

Layout Note:
PC142 close to



```
+VCC_CORE
TDC=37.1A
Peak Current=53A
OCP min=69A
Fsw=270KHZ
```

Choke DCR=1.55± 7% mΩ

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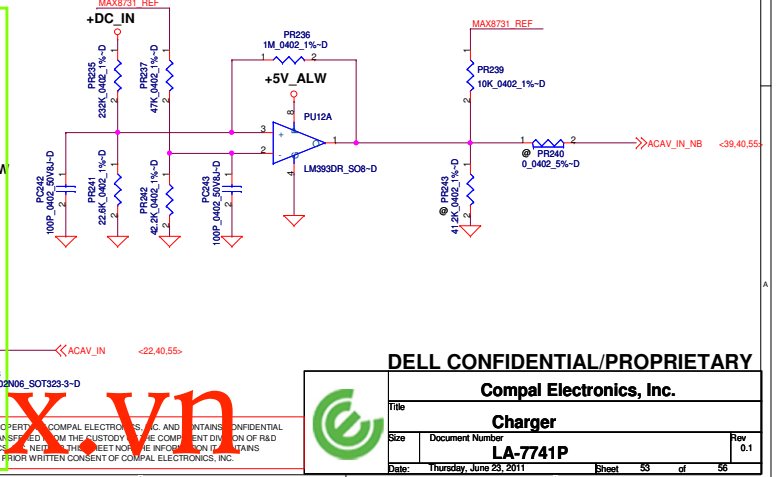
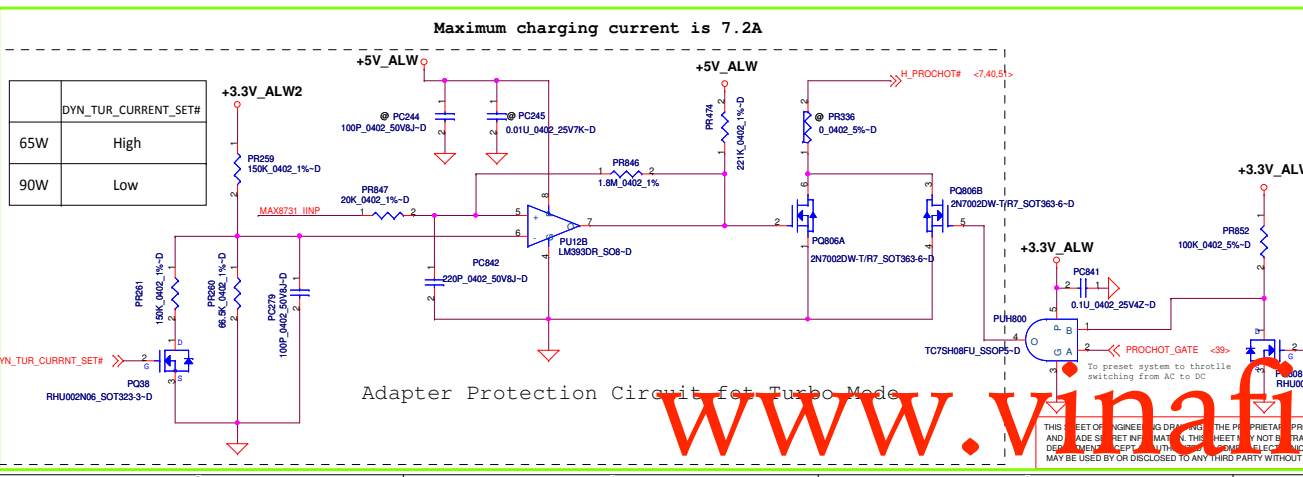
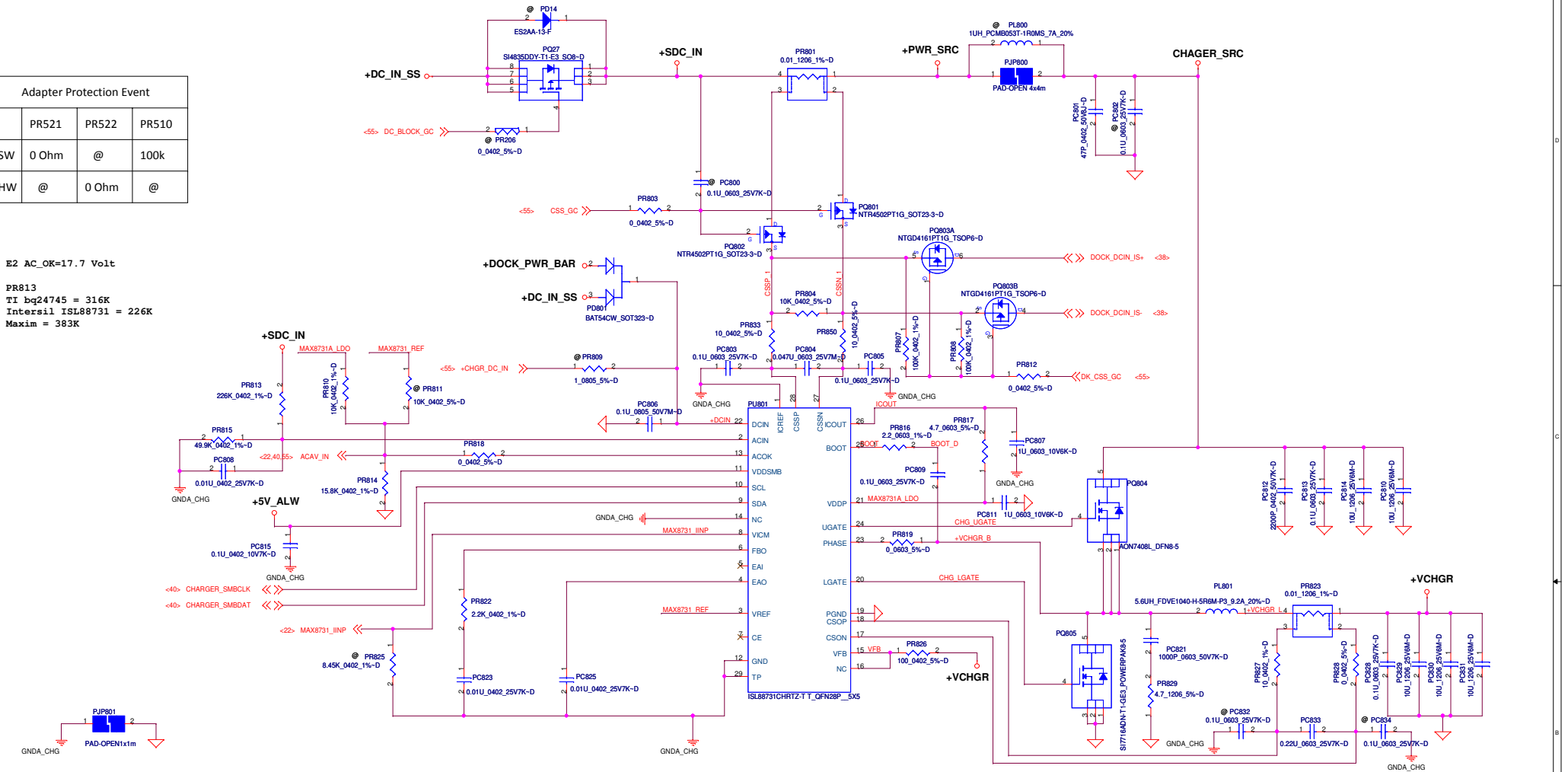
Vcon
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0.1

Adapter Protection Event			
	PR521	PR522	PR510
SW	0 Ohm	@	100k
HW	@	0 Ohm	@

E2 AC_OK=17.7 VoIt

PR813
TI bq24745 = 316K
Intersil ISL88731 = 226K
Maxim = 383K



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Charger

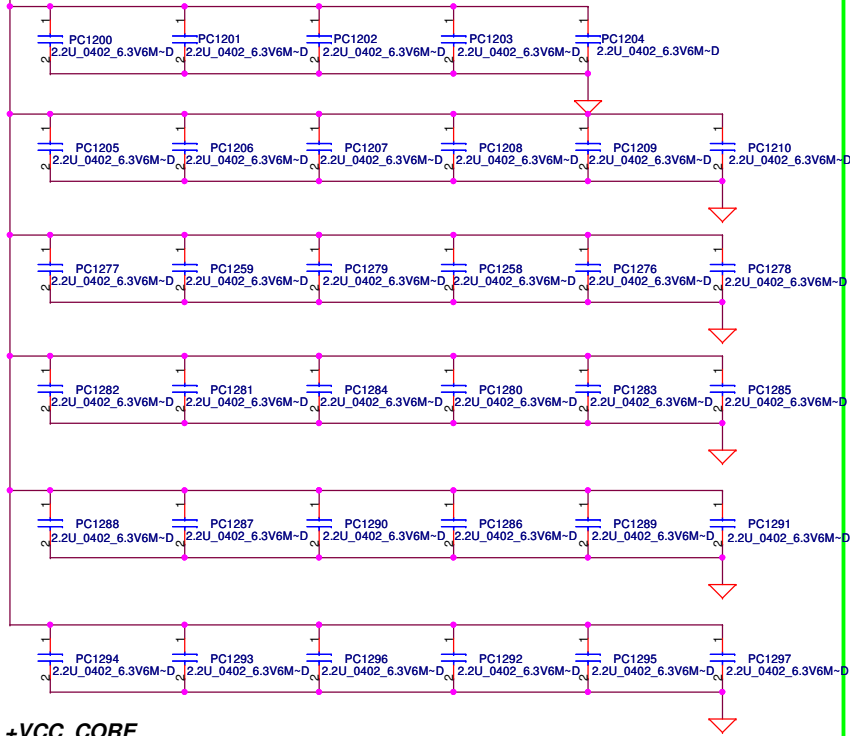
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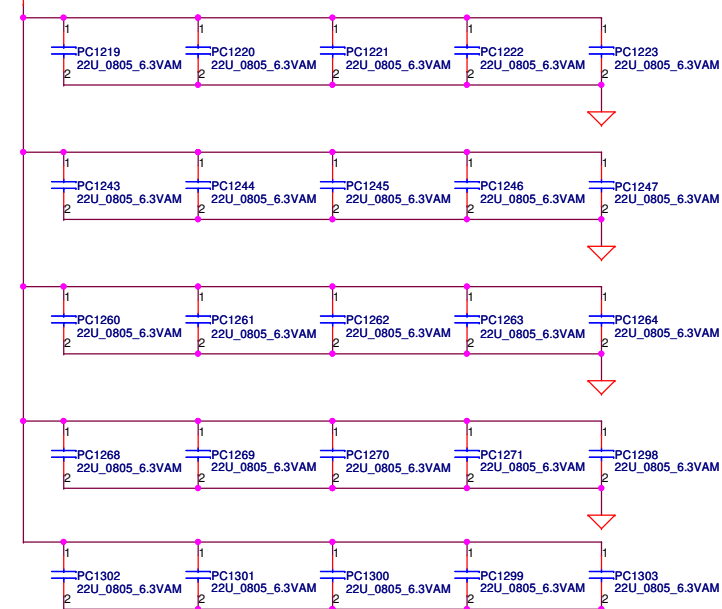
+VCC_CORE

Charlie note: Vcore_Cout1
1.22uF*35 (SE00000888L)
2.22uF*25 (SE00000888L)
Vcore_Cout2
1.470uF 4.5m *4 (SGA00004X80)

+VCC_CORE

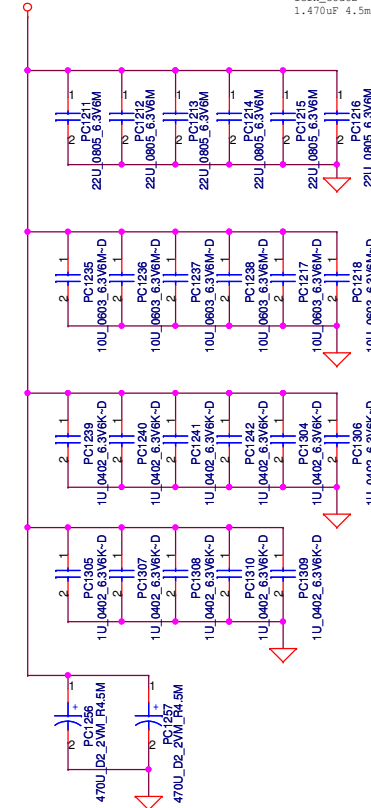


+VCC_CORE



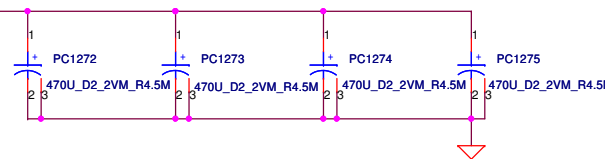
+VCC_GFXCORE

Charlie note:
iGfx_Cout1
1.22uF*6 (SE000000110)
2.10uF*6 (SE00000578L)
3.11uF*11 (SE000000K8L)
iGfx_Cout2
1.470uF 4.5m *2 (SGA00004200)



+VCC_CORE

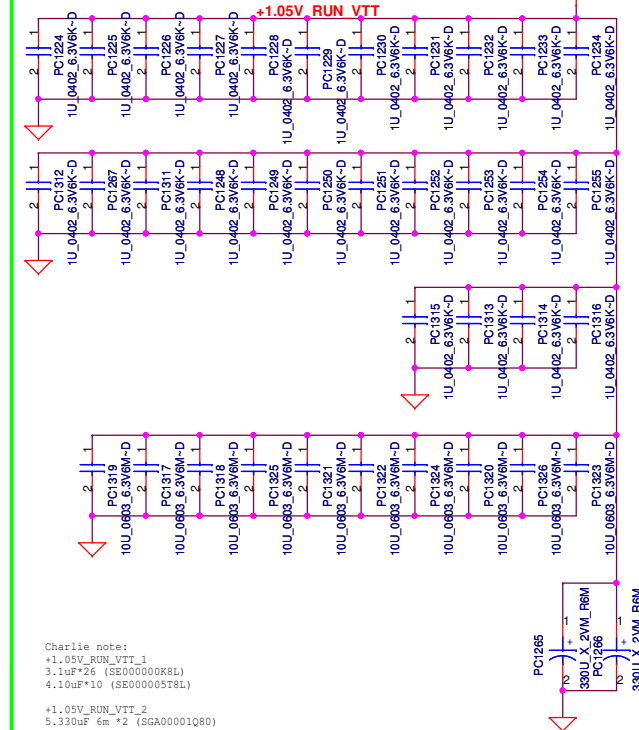
+VCC_CORE



Below is 458544_CRV_PDDG_0.5 Table 5-8.

Socket Bottom	5 x 22 μ F (0805) 5 x (0805) no-stuff sites
Socket Top	7 x 22 μ F (0805) 2 x (0805) no-stuff sites

+1.05V_RUN_VTT



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PROCESSOR DECOUPLING

Title

Size

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