

# COMPAL CONFIDENTIAL

MODEL NAME : VAL91

PCB NO : DAA0006L000

GPIO P/N: 2012.8.1 Rev 2.7

BOM P/N :

X76 of SPI:

X7650731L03

SA000039A30 (64M W25Q64FVSSIQ)

SA00003K820 (32M W25Q32FVSSIQ)

X7650731L04

SA00006N000 (32M MX25L3273EM2I-10G)

SA00006N100 (64M MX25L6473EM2I-10G)

X76 of VRAM:

X7650731L53 - SAMSUNG

SA00006EU1L (128M32 K4G41325FC-HC04)

SD034453180 (4.53K +-1% 0402)

X7650731L54 - HYNIX

SA00006O41L (128M32/2.5G H5GC4H24MFR-T2C)

SD000000680 (8.45K +-1% 0402)

## SALADO 14 HSW DSC

HASWELL + LYNX POINT

2013-07-04

REV : 1.0 (A00)

@ : Nopop Component

CONN@ : Connector Component

SPI@ : For X76 SPI

VRAM@ : For X76 VRAM

14DSC

EMC@: EMI/RF/ESD ask to add

V

CXDP@ : CPU XDP

PXDP@ : PCH XDP

# COMPRESSED IMAGE

MB PCB	
Part Number	Description
DAA0006L000	PCB 0YH LA-9932P REV0 M/B DSC 6

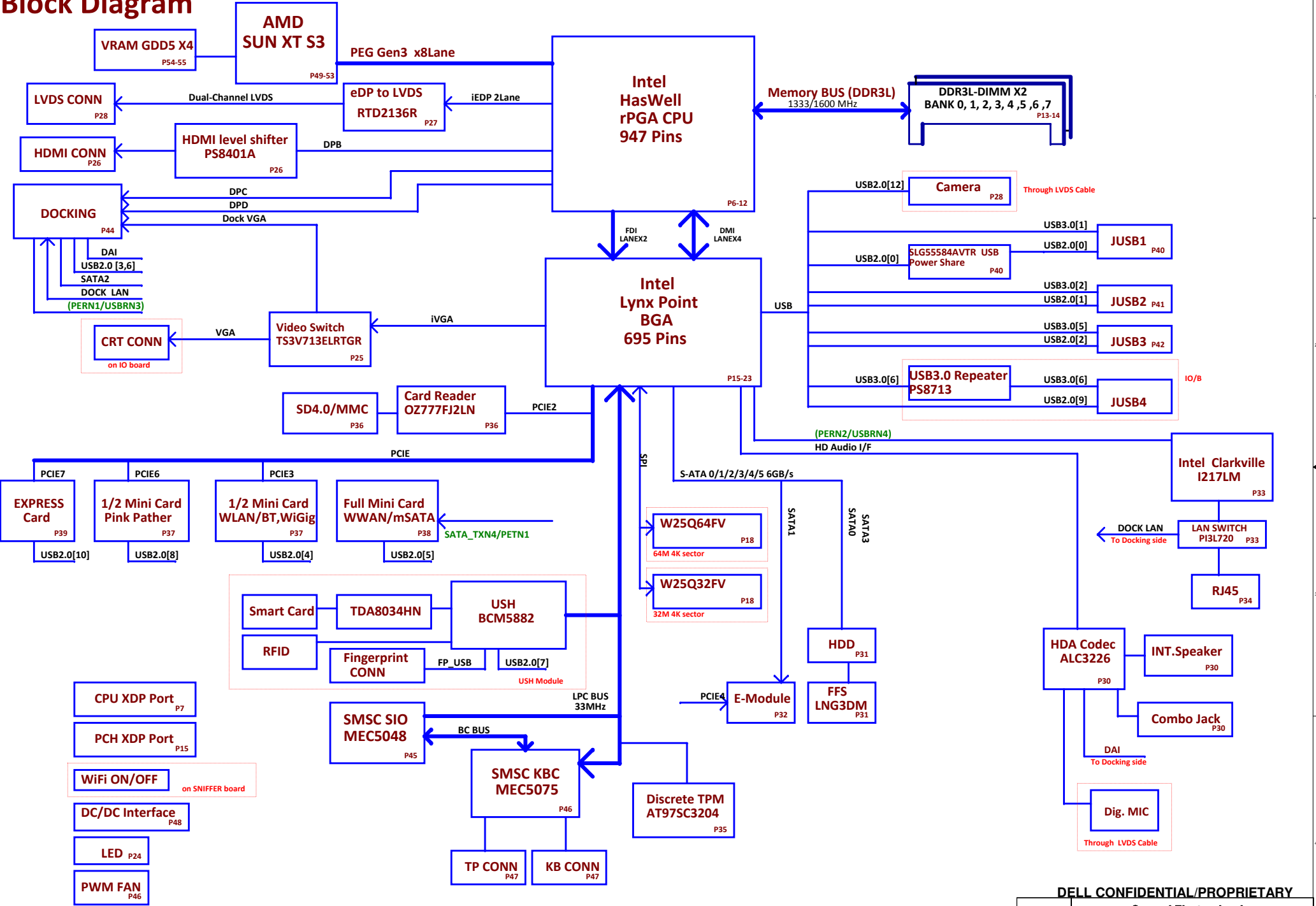
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Block Diagram



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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	+PWR_SRC +PWR_SRC_S +5V_ALW +3.3V_ALW +3.3V_ALW_PCH +3.3V_RTC_LDO	+3.3V_SUS +1.35V_MEM	+5V_RUN +3.3V_RUN +1.5V_RUN +0.675V_DDR_VTT +VCC_CORE +1.05V_RUN +GPU_CORE +1.35V_MEM_GFX +1.8V_RUN_GFX +VGA_PCIE +3.3V_RUN_GFX +VDDCI	+3.3V_M +1.05V_M	+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

PCH	USB 2.0 PORT#	USB 3.0 PORT#	DESTINATION
	0	1	Rear Side (JUSB1)
	1	2	Right Side TOP (JUSB2)
	2	5	Right Side bottom (JUSB3)
	3	3 (PERN1/USBRN3)	DOCKING (JDOCK1)
	4		WLAN (JMINI2)
	5		WWAN (JMINI1)
	6		DOCKING (JDOCK1)
	7		USH (JUSH1)
	8		Pink Pather (JMINI3)
	9	6	Left Side (JUSB4)
	10		Express card (JEXP1)
	11		None
	12		CAMERA (JCAM1)
	13		LCD Touch

PCI EXPRESS	DESTINATION
Lane 1 (SATA_TXN4/PETN1)	WWAN (JMINI1) <a href="#">SATA by default</a>
Lane 2 (SATA_RXN5/PERN2)	None
Lane 2 (PERN2/USBRN4)	10/100/1G LOM
Lane 3	WLAN (JMINI2)
Lane 4	E3 Module Bay (JSATA2)
Lane 5	None
Lane 6	Pink Pather (JMINI3)
Lane 7	Express card (JEXP1)
Lane 8	MMI

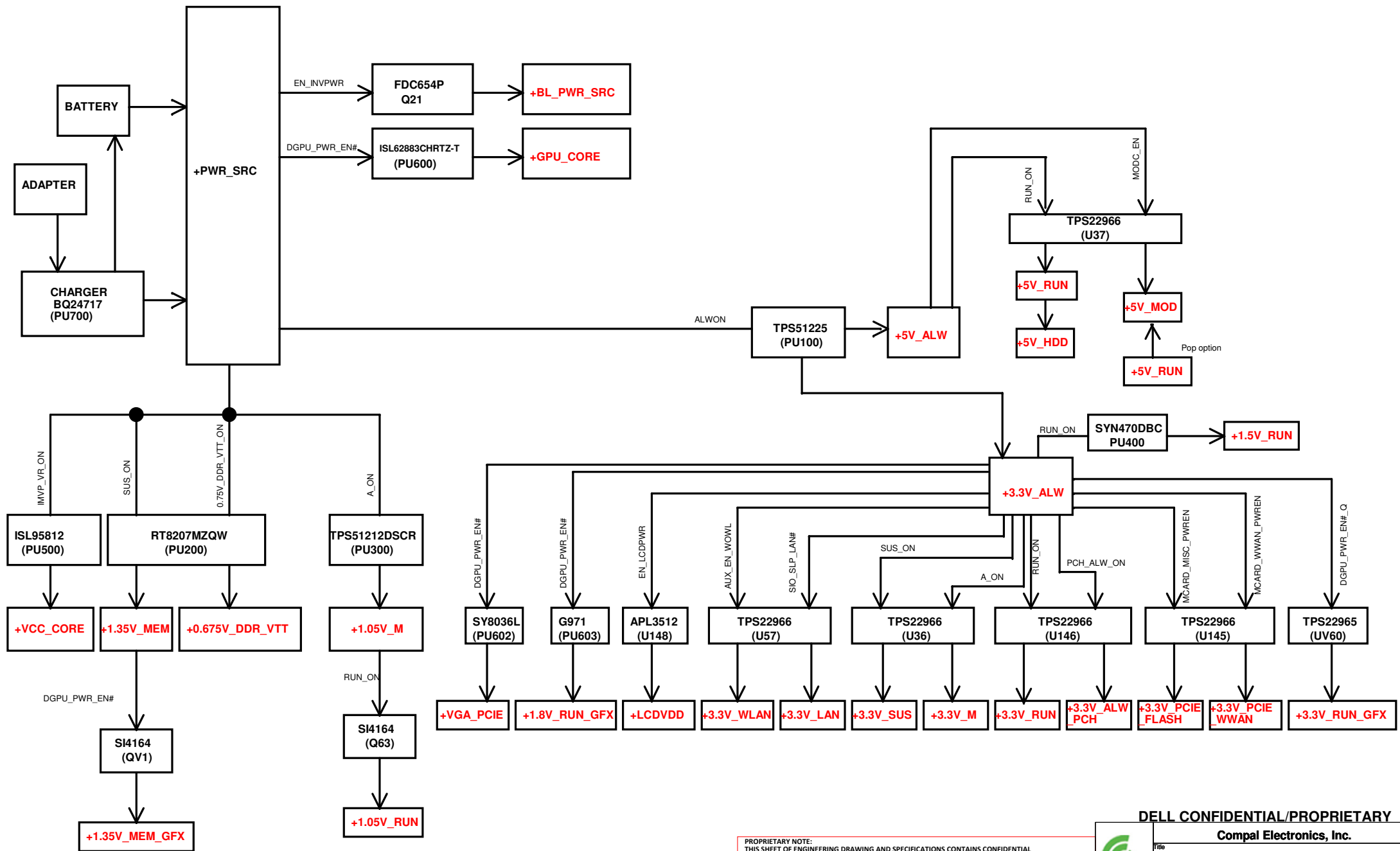
SATA	DESTINATION
SATA 0	HDD (JSATA1)
SATA 1	ODD (JSATA2)
SATA 2	Dock (JDOCK1)
SATA 3	NA
SATA 4 (SATA_TXN4/PETN1)	WWAN (JMINI1) <a href="#">SATA by default</a>

DISPLAY Ports On CPU	Connetion
DDIB	MB HDMI (JHDMI1)
DDIC	Dock DP port 1
DDID	Dock DP port 2

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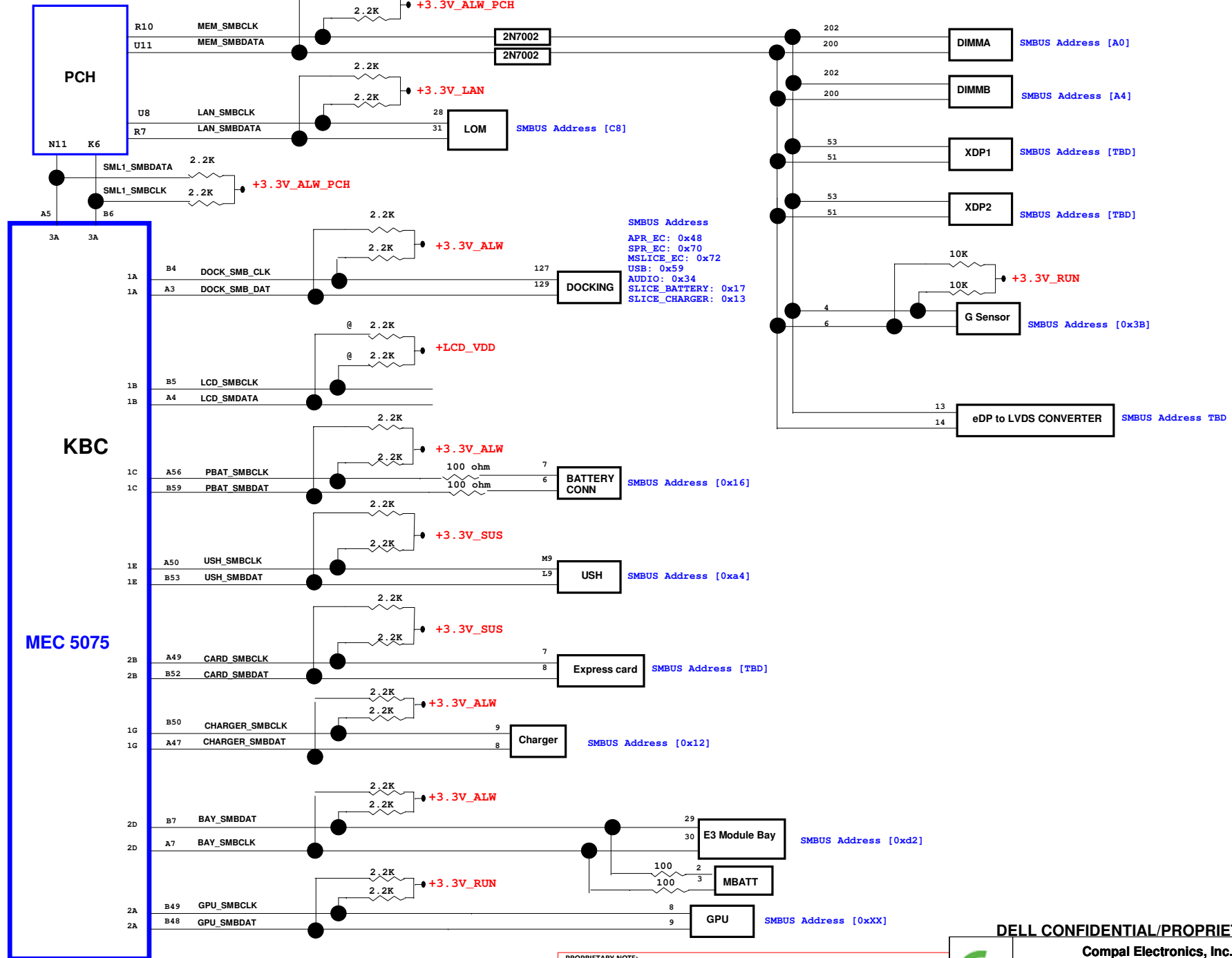
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Power Rail

LA-9932P

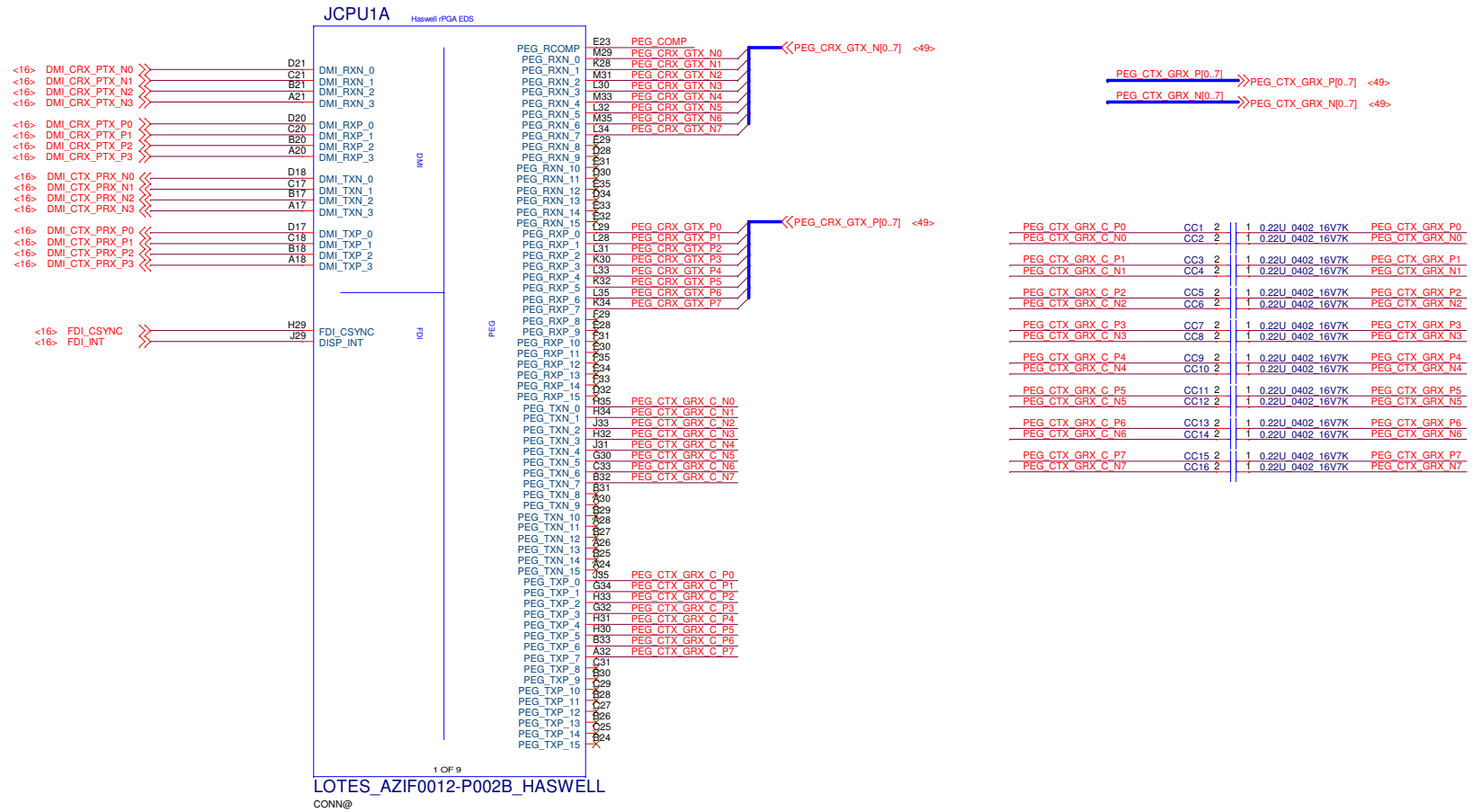
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SMBUS Address [0x9a]



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### SM\_DRAMPWROK with DDR Power Gating Topology

The schematic illustrates the power gating topology for SM\_DRAMPWROK. It shows the connection between various power supplies and the DRAM power management circuitry.

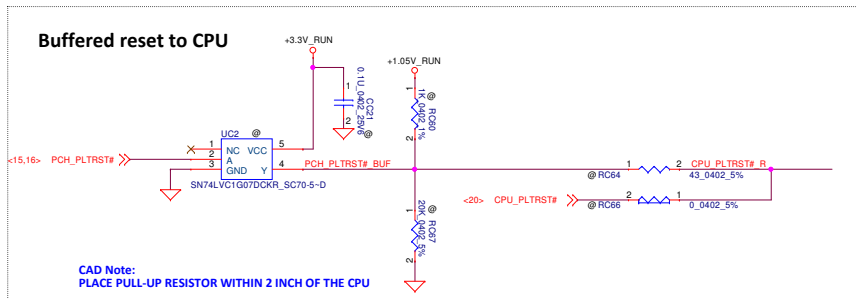
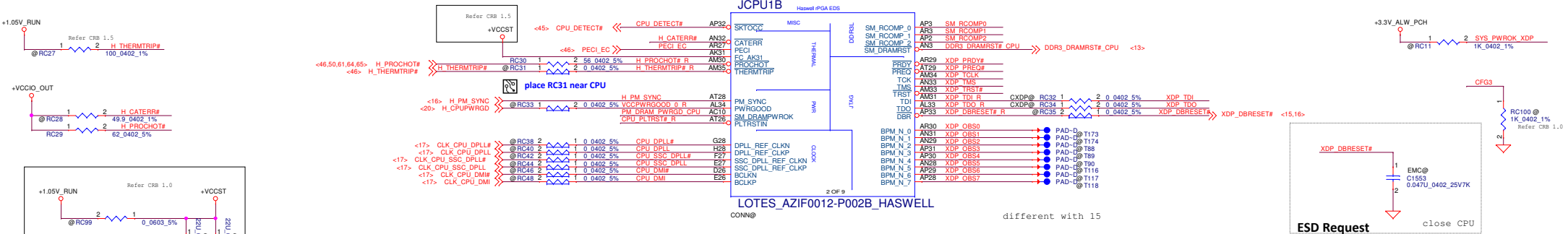
**Power Supplies:**

- +PCH\_VCCDSW3\_3
- +1.35V\_MEM
- +1.35V\_SUS\_PWRGD
- +DDR\_HVREF\_RST\_PCH
- +1.35V\_SUS\_PWRGD

**Key Components and Connections:**

- Resistors:** RC12, RC5, RC9, RC10, RC15, RC16, RC18, RC19, RC13, RC14, RC17.
- Capacitors:** CC19, CC138, CC139.
- Transistors:** UC1 (74AHC1G09GW\_TSSOP), OC5 (L2N7002WT1G\_SC-70-3), OC1 (L2N7002WT1G\_SC-70-3).
- Logic:** AND gate (UC1) combining RUNPWROK\_R and PM\_DRAM\_PWRGD\_A2 to produce RUNPWROK\_AND.
- Control Signals:** <46> RUNPWROK, <16> PM\_DRAM\_PWRGD, <46,48> RUN\_ON\_ENABLE#.
- Output Signals:** RUNPWROK\_R, PM\_DRAM\_PWRGD\_CPU, RUNPWROK\_AND.

**Reference:** Refer CRB 1.5

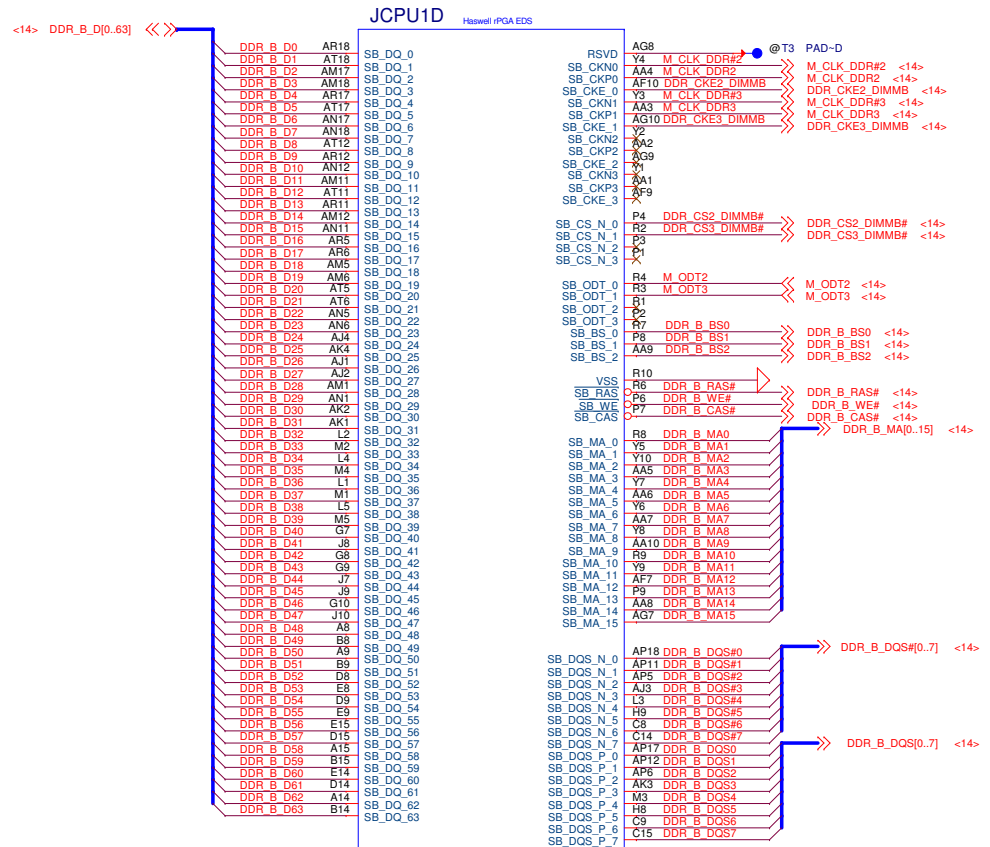
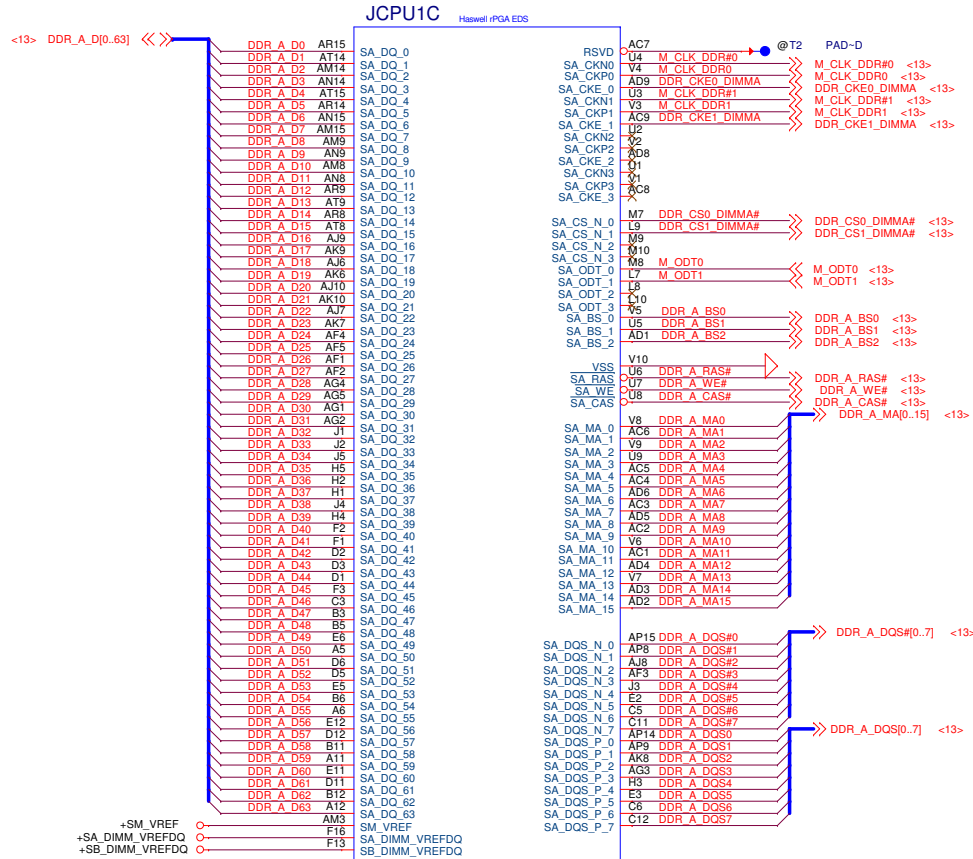


## PU/PD for JTAG signals

The diagram illustrates the PU/PD configuration for JTAG signals. It shows a 3.3V\_RUN supply and a 1.05V\_RUN supply. The signals are connected to RC52, RC54, RC55, RC57, RC59, and RC62, each with a 2 ohm resistor and a 1K 0402 1% resistor to ground. The signals are XDP\_DBRESET#, XDP\_TMS, XDP\_TDI, XDP\_PREQ#, XDP\_TDO\_CXDP#, XDP\_TCLK, and XDP\_TRST#.

Signal	Resistor Value	Resistor Type	Supply
XDP_DBRESET#	2	1K 0402 1%	3.3V_RUN
XDP_TMS	2	1K 0402 1%	1.05V_RUN
XDP_TDI	2	1K 0402 1%	1.05V_RUN
XDP_PREQ#	2	1K 0402 1%	1.05V_RUN
XDP_TDO_CXDP#	2	1K 0402 1%	1.05V_RUN
XDP_TCLK	2	1K 0402 1%	1.05V_RUN
XDP_TRST#	2	1K 0402 1%	1.05V_RUN

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CPU (3/7)

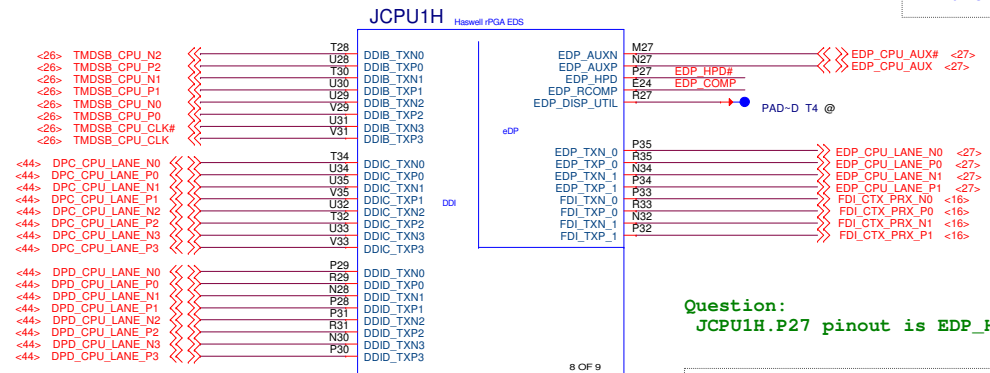
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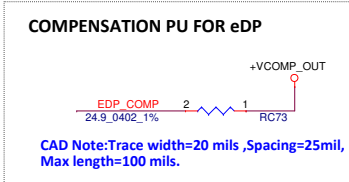
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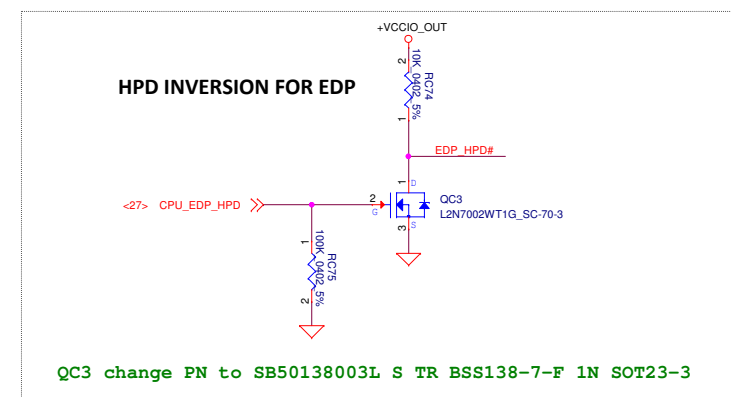




LOTES\_AZIF0012-P002B\_HASWELL  
CONN@



Question:  
JCPU1H.P27 pinout is EDP\_HPDI. is it high active when Plug in eDP device?



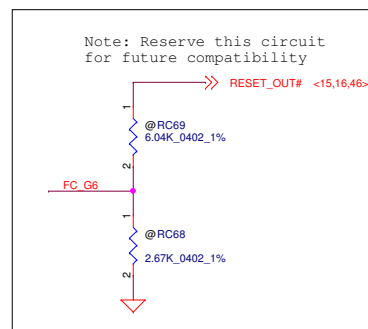
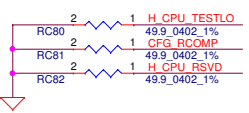
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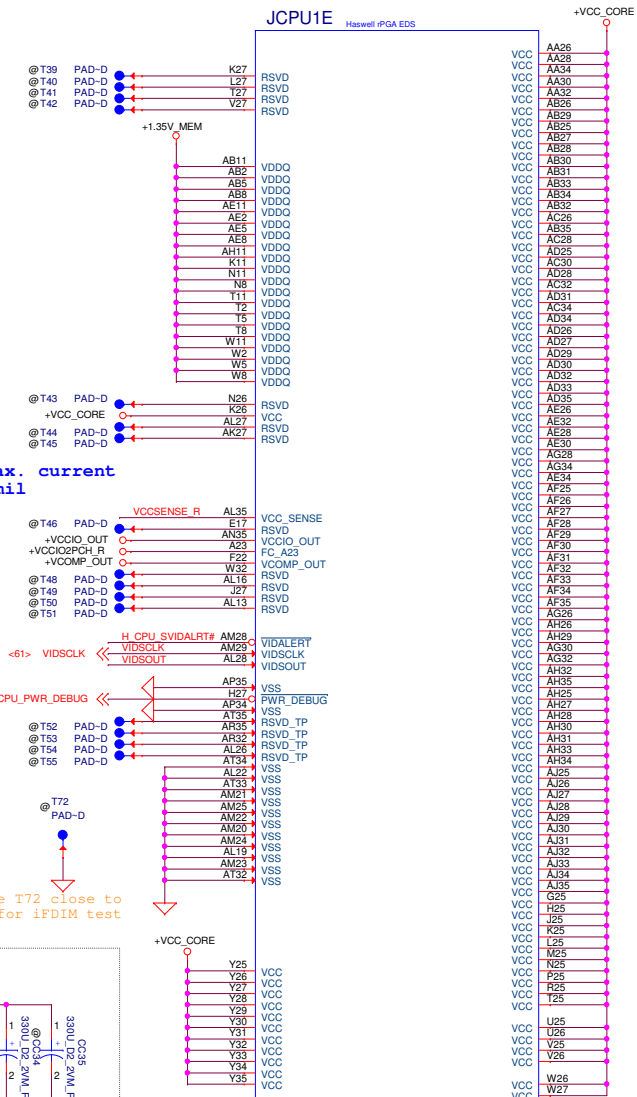
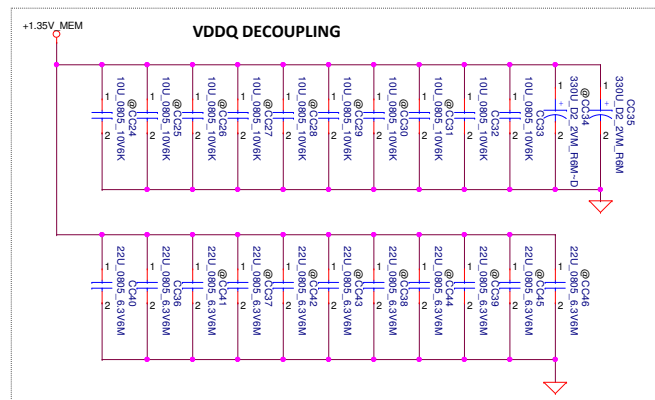
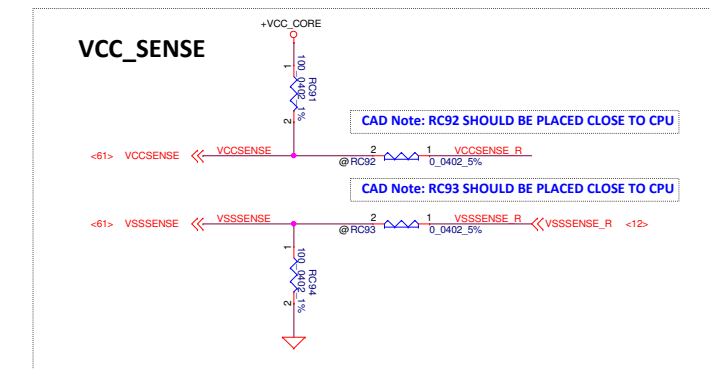


A circuit diagram showing a 1k Ohm resistor with a 1% tolerance. The resistor is connected to a 5V source labeled 'CFG2' and ground. The resistor is labeled '1K 0402 1%' and has a tolerance of 1%.



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## JCPU1F

Haswell rPGA EDS

A10	VSS	AK34	VSS
A13	VSS	AK5	VSS
A16	VSS	AL1	VSS
A19	VSS	AL10	VSS
A22	VSS	AL11	VSS
A25	VSS	AL12	VSS
A27	VSS	AL14	VSS
A29	VSS	AL15	VSS
A3	VSS	AL17	VSS
A31	VSS	AL18	VSS
A33	VSS	AL2	VSS
A4	VSS	AL20	VSS
A7	VSS	AL21	VSS
AA11	VSS	AL23	VSS
AA25	VSS	E22	VSS
AA27	VSS	AL3	VSS
AA31	VSS	AL4	VSS
AA29	VSS	AL5	VSS
AB1	VSS	AL6	VSS
AB10	VSS	AL7	VSS
AA33	VSS	AL8	VSS
AA35	VSS	AL9	VSS
AB3	VSS	AM10	VSS
AC25	VSS	AM13	VSS
AC27	VSS	AM16	VSS
AB4	VSS	AM19	VSS
AB6	VSS	E25	VSS
AB7	VSS	AM32	VSS
AB9	VSS	AM4	VSS
AC11	VSS	AM7	VSS
AD11	VSS	AN10	VSS
AC29	VSS	AN13	VSS
AC31	VSS	AN16	VSS
AC33	VSS	AN19	VSS
AC35	VSS	AN2	VSS
AD7	VSS	AN21	VSS
AE1	VSS	AN24	VSS
AE10	VSS	AN27	VSS
AE25	VSS	AN30	VSS
AE29	VSS	AN34	VSS
AE3	VSS	AN4	VSS
AE27	VSS	AN7	VSS
AE35	VSS	AP1	VSS
AE4	VSS	AP10	VSS
AE6	VSS	AP13	VSS
AE7	VSS	AP16	VSS
AE9	VSS	AP19	VSS
AF11	VSS	AP4	VSS
AF6	VSS	AP7	VSS
AF8	VSS	W25	VSS
AG11	VSS	AR10	VSS
AG25	VSS	AR13	VSS
AE31	VSS	AR16	VSS
AG31	VSS	AR19	VSS
AE33	VSS	AR2	VSS
AG6	VSS	AR22	VSS
AH1	VSS	AR25	VSS
AH10	VSS	AR28	VSS
AH2	VSS	AR31	VSS
AG27	VSS	AR34	VSS
AG29	VSS	AR4	VSS
AH3	VSS	AR7	VSS
AG33	VSS	AT10	VSS
AG35	VSS	AT13	VSS
AH4	VSS	AT16	VSS
AH5	VSS	AT19	VSS
AH6	VSS	AT21	VSS
AH7	VSS	AT24	VSS
AH8	VSS	AT27	VSS
AH9	VSS	AT3	VSS
AJ11	VSS	AT30	VSS
AJ5	VSS	AT4	VSS
AK11	VSS	AT7	VSS
AK25	VSS	B10	VSS
AK26	VSS	B13	VSS
AK28	VSS	B16	VSS
AK29	VSS	B19	VSS
AK30	VSS	B2	VSS
AK32	VSS	B22	VSS
E19	VSS		

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LOTES\_AZIF0012-P002B\_HASWELL  
CONN@

## JCPU1G

Haswell rPGA EDS

B34	VSS	K10	VSS
B4	VSS	K2	VSS
B7	VSS	K29	VSS
C1	VSS	K3	VSS
C10	VSS	K31	VSS
C13	VSS	K33	VSS
C16	VSS	K35	VSS
C19	VSS	K4	VSS
C2	VSS	K5	VSS
C22	VSS	K7	VSS
C24	VSS	K8	VSS
C26	VSS	K9	VSS
C28	VSS	L11	VSS
C30	VSS	L26	VSS
C32	VSS	L6	VSS
C34	VSS	M11	VSS
C4	VSS	M26	VSS
C7	VSS	M28	VSS
D10	VSS	M30	VSS
D16	VSS	M34	VSS
D13	VSS	M32	VSS
D18	VSS	M6	VSS
D19	VSS	N1	VSS
D22	VSS	N10	VSS
D25	VSS	N2	VSS
D27	VSS	N29	VSS
D29	VSS	N3	VSS
D31	VSS	N31	VSS
D33	VSS	N33	VSS
D35	VSS	N35	VSS
D4	VSS	N4	VSS
D7	VSS	N5	VSS
E1	VSS	N6	VSS
E10	VSS	N7	VSS
E13	VSS	N9	VSS
E16	VSS	P11	VSS
E4	VSS	P26	VSS
E7	VSS	P5	VSS
F10	VSS	R11	VSS
F11	VSS	R26	VSS
F12	VSS	R28	VSS
F14	VSS	R30	VSS
F15	VSS	R32	VSS
F17	VSS	R34	VSS
F18	VSS	R5	VSS
F20	VSS	T1	VSS
F21	VSS	T10	VSS
F23	VSS	T29	VSS
F24	VSS	T3	VSS
F26	VSS	T31	VSS
F28	VSS	T33	VSS
F30	VSS	T35	VSS
F32	VSS	T4	VSS
F34	VSS	T6	VSS
F4	VSS	T7	VSS
F6	VSS	T9	VSS
F7	VSS	U11	VSS
F8	VSS	U27	VSS
F9	VSS	Y11	VSS
G1	VSS	V28	VSS
G11	VSS	V30	VSS
G2	VSS	V32	VSS
G27	VSS	V34	VSS
G29	VSS	W1	VSS
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G4	VSS	W6	VSS
G5	VSS	W7	VSS
H10	VSS	W9	VSS
H26	VSS	Y11	VSS
H6	VSS	H11	VSS
H7	VSS	AL24	VSS
J11	VSS	F19	VSS
J26	VSS	T26	VSS
J28	VSS	AK35	VSS
J30	VSS	AK33	VSS
J32	VSS		
J34	VSS		
J6	VSS		
K1	VSS		

VSS\_SENSE  
RSVD  
PAD-D T56@7 OF 9  
LOTES\_AZIF0012-P002B\_HASWELL  
CONN@

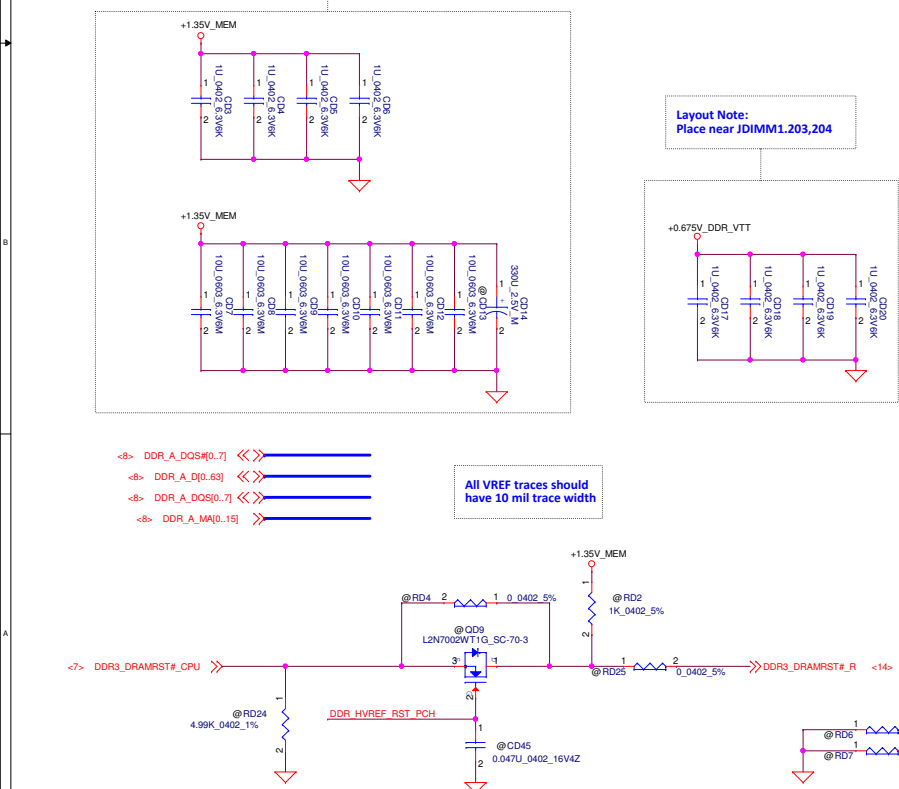
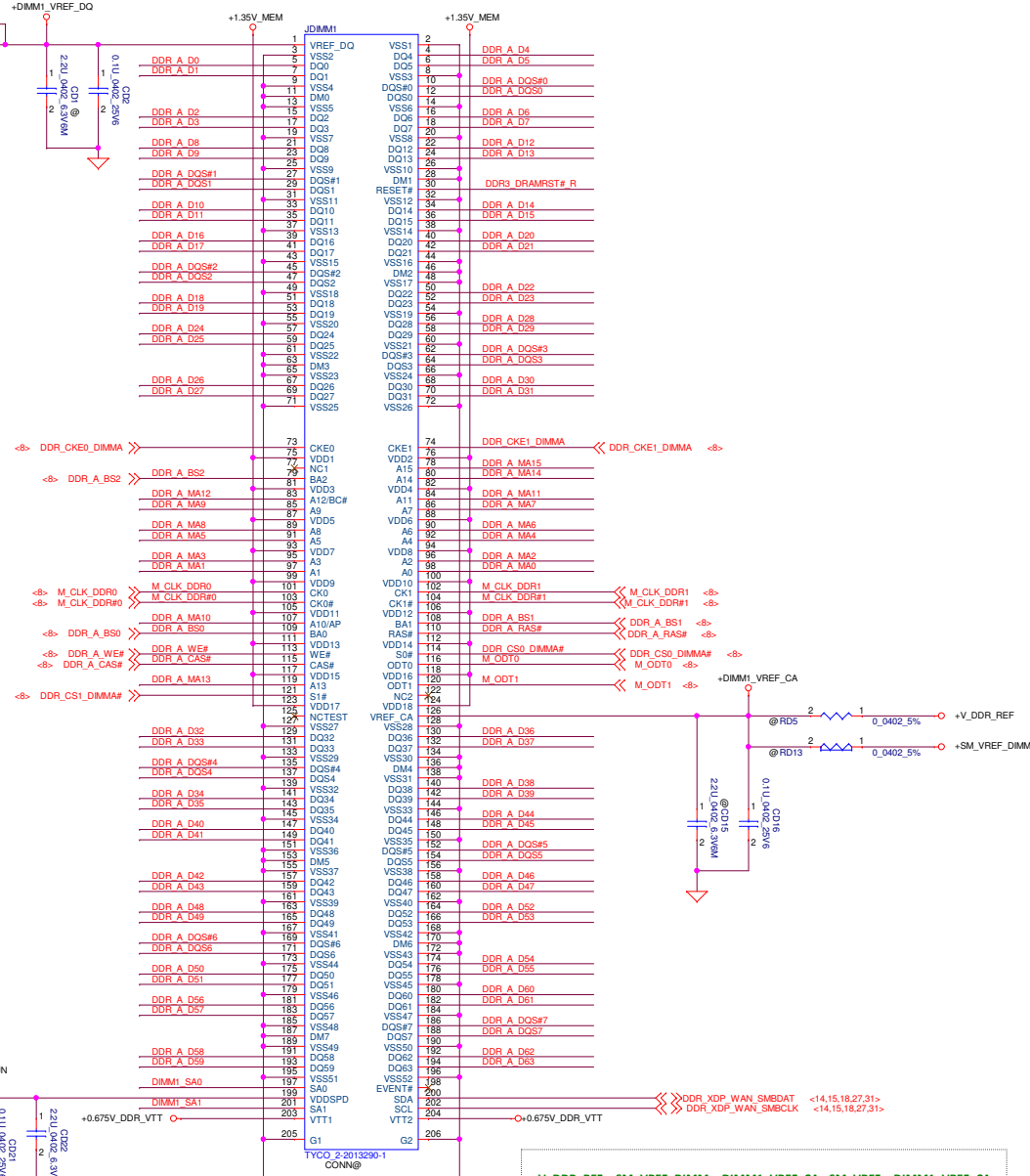
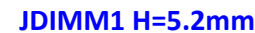
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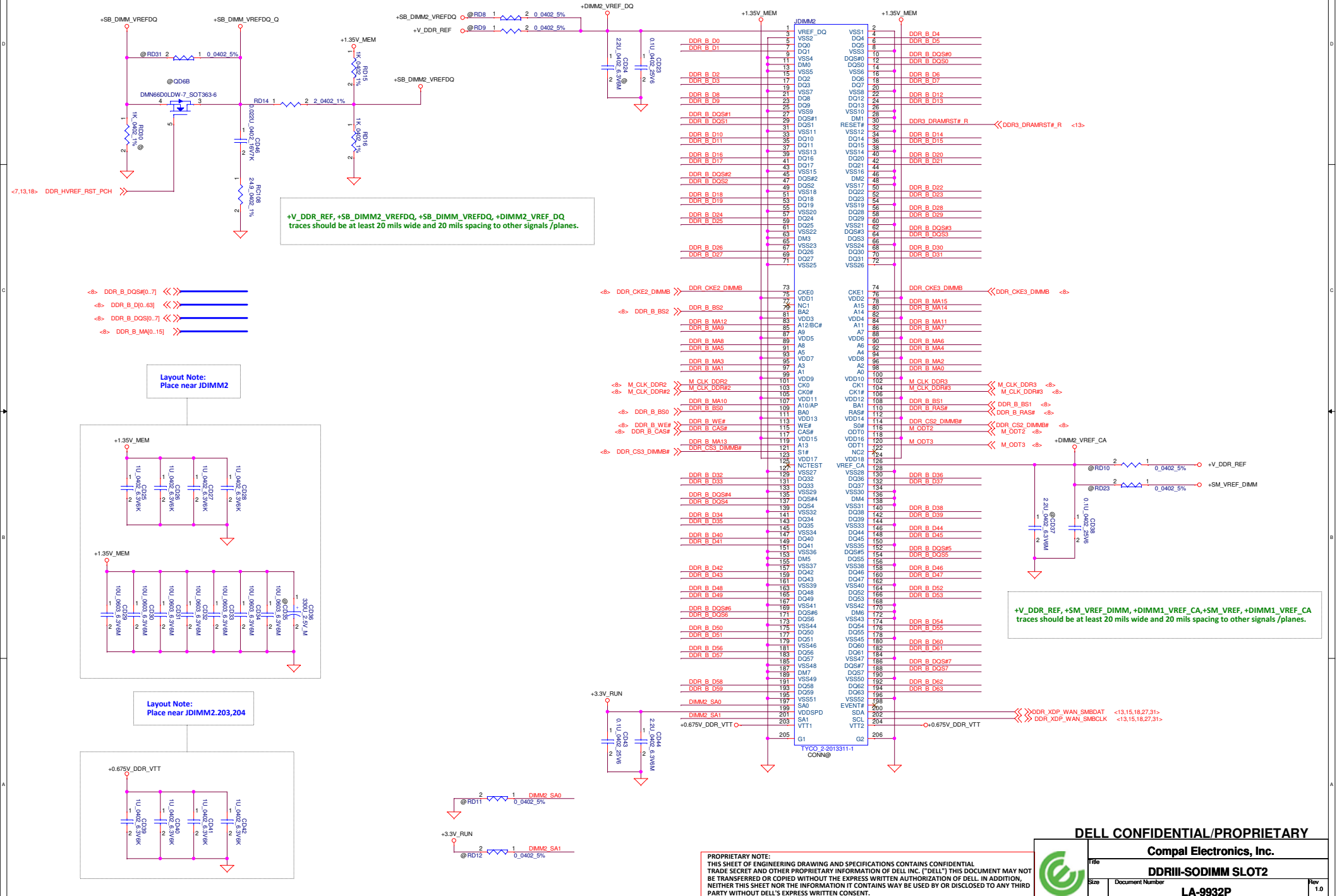
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**JDIMM2 H=9.2mm**



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**DDRIII-SODIMM SLOT2**

**LA-9932P**

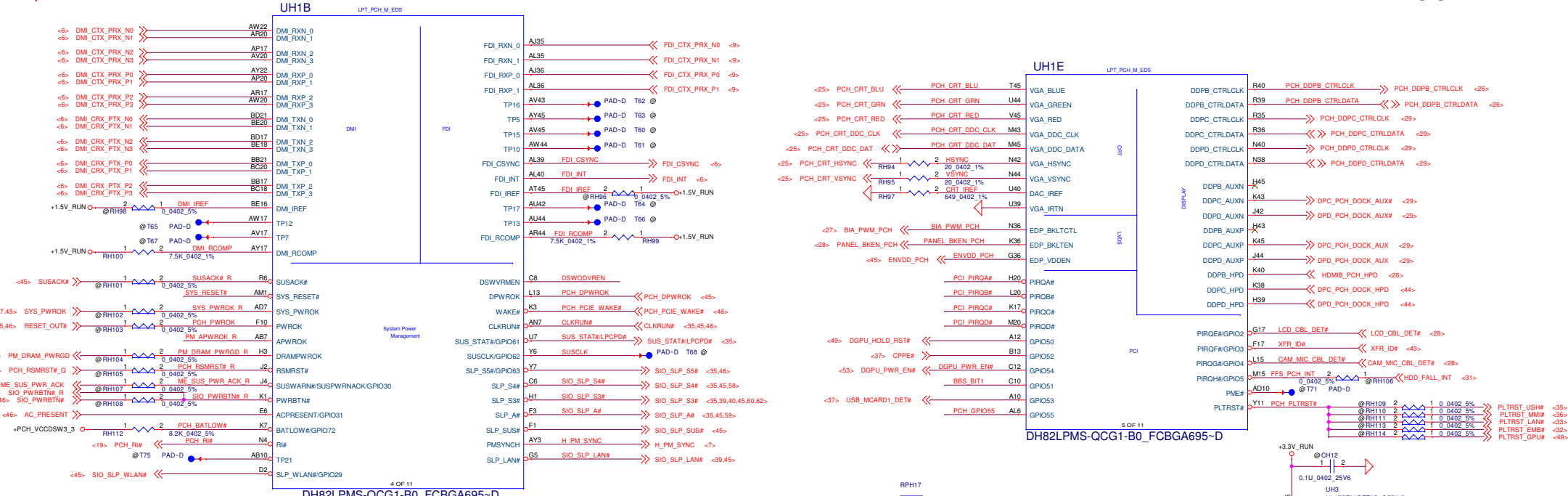
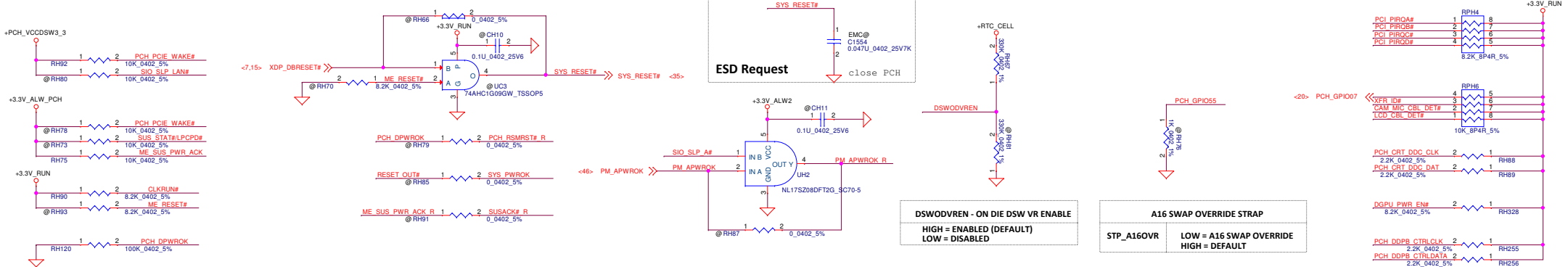
Rev

LA-9952P

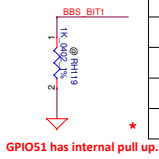
Date: Thursday, July 04, 2013 Sheet 14 of 71





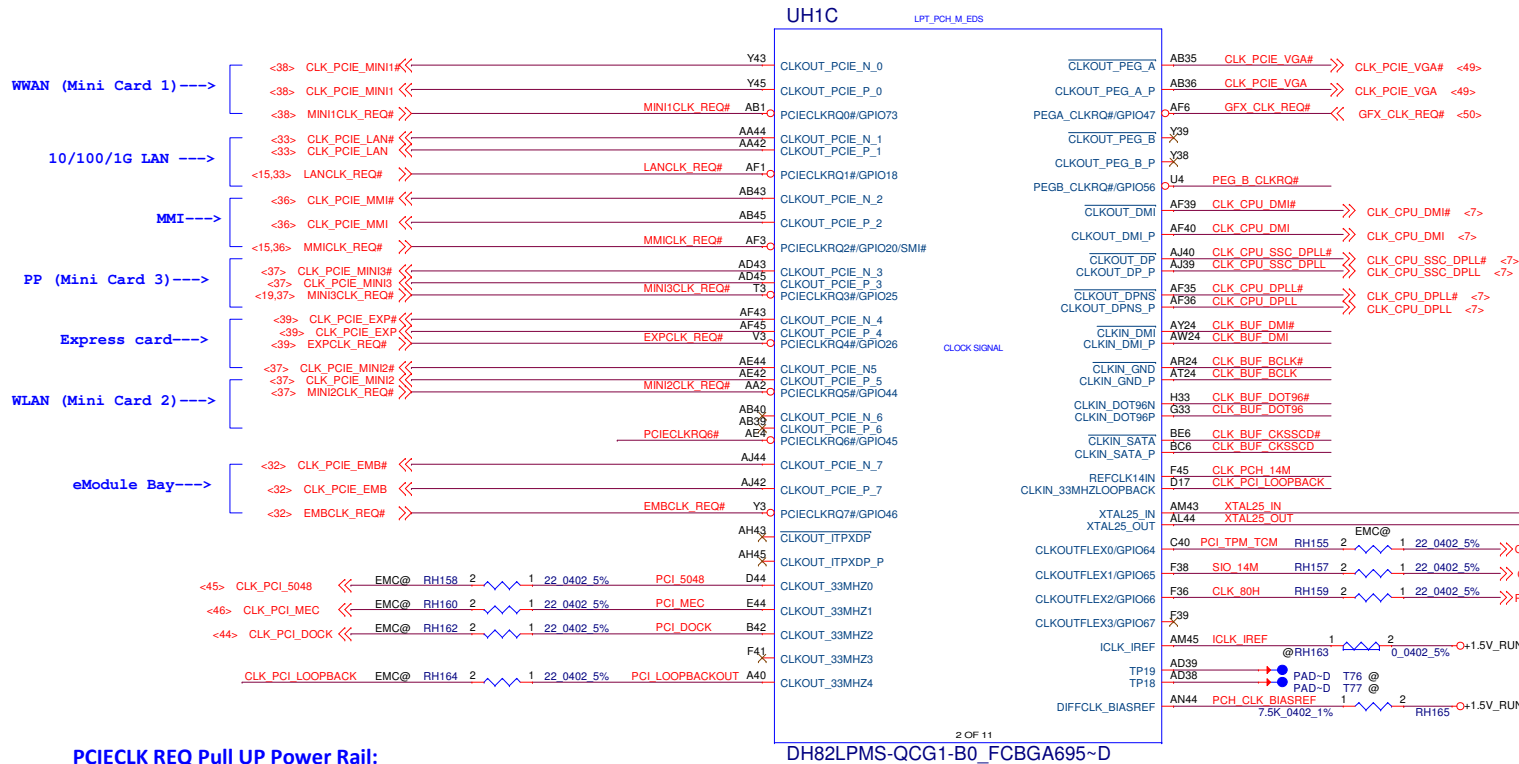
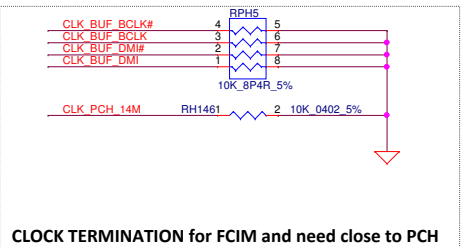
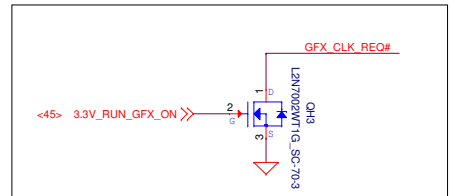
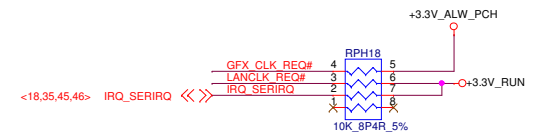
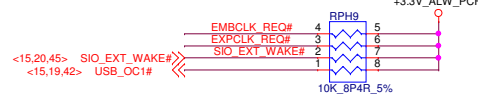
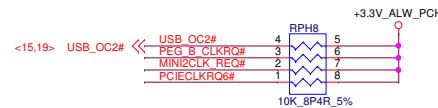
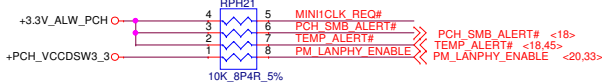
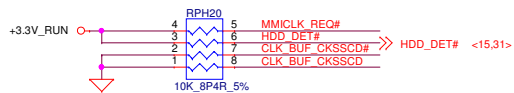


Boot BIOS Strap		
BBS_BIT1	SATA_SLPD (BBS_BIT0)	Boot BIOS Location
0	0	LPC
0	1	Reserved (NAND)
1	0	PCI
1	1	SPI

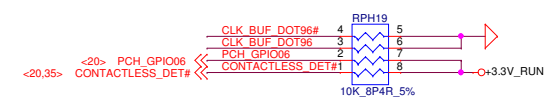
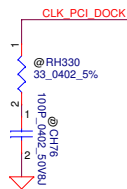


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PCIECLK REQ Pull UP Power Rail:  
SUS Rail : 0 3 4 5 6 7  
Core Rail: 1 2



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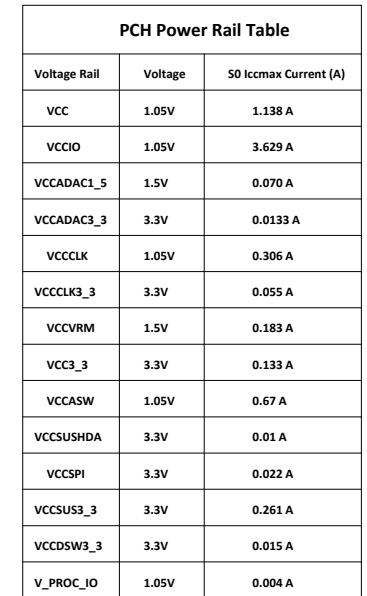
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PCH (3/9)			
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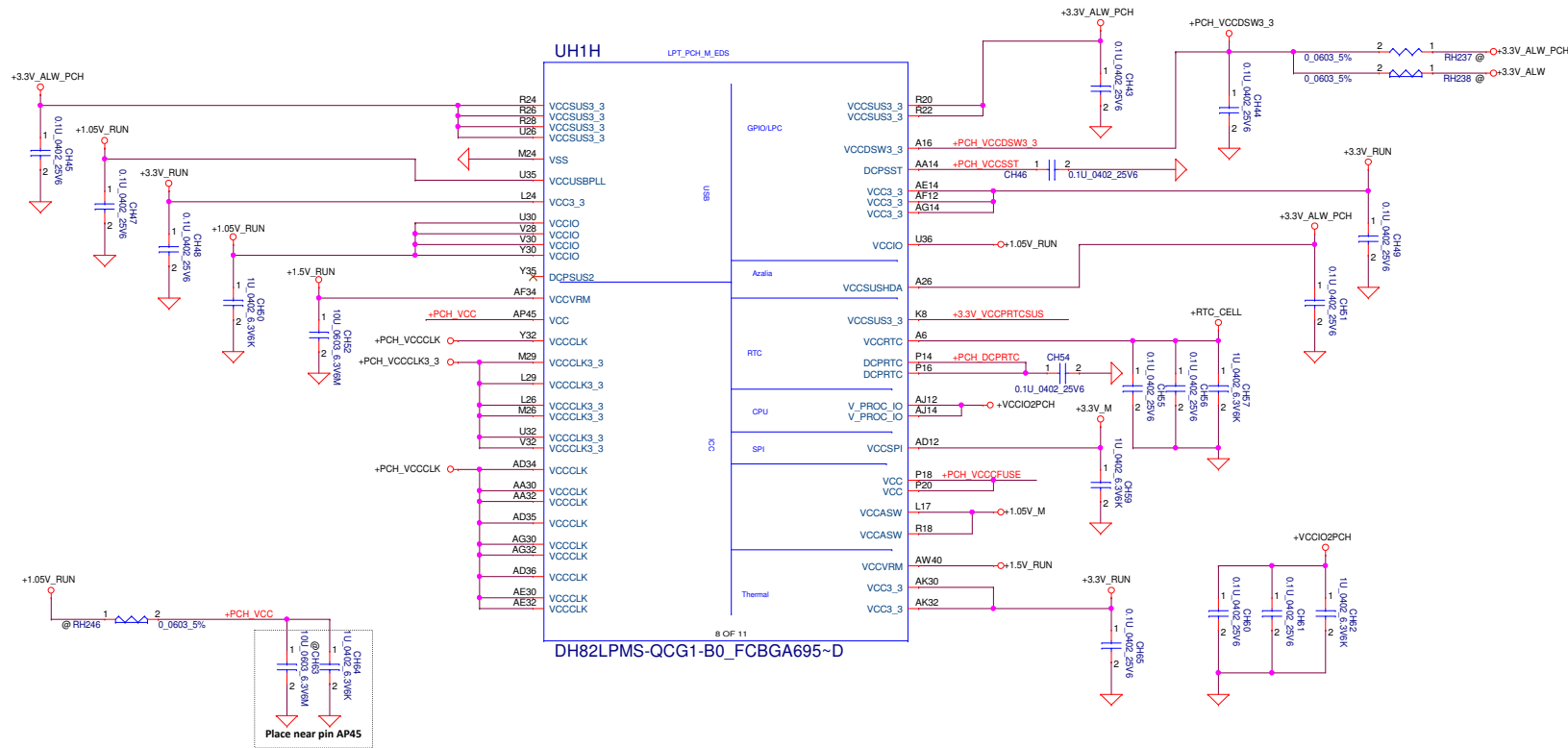




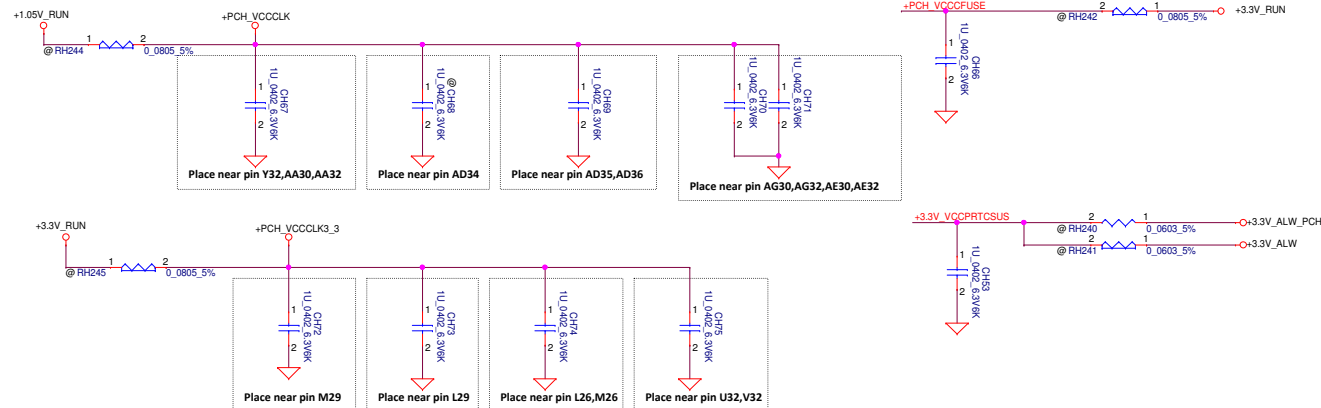


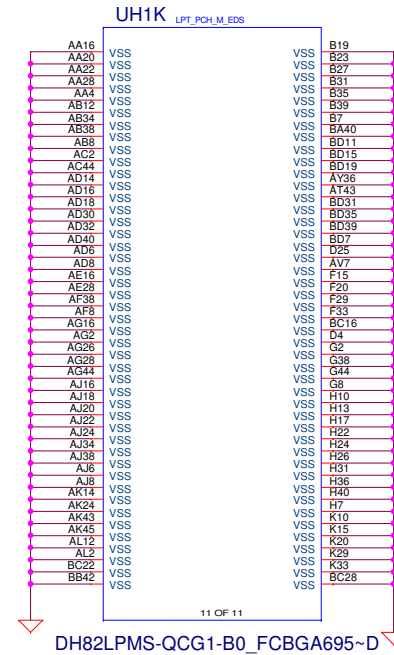
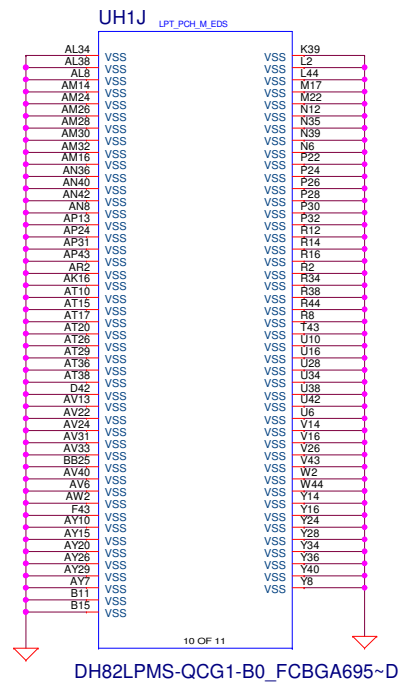


Title			
PCH (7/9)			
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PCH Power Rail Table		
Voltage Rail	Voltage	50 Iccmax Current (A)
VCC	1.05V	1.138 A
VCCIO	1.05V	3.629 A
VCCADACL_5	1.5V	0.070 A
VCCADAC3_3	3.3V	0.0133 A
VCCCLK	1.05V	0.306 A
VCCCLK_3	3.3V	0.055 A
VCCVRM	1.5V	0.183 A
VCC3_3	3.3V	0.133 A
VCCASW	1.05V	0.67 A
VCCSUSHDA	3.3V	0.01 A
VCCSPI	3.3V	0.022 A
VCCSUS3_3	3.3V	0.261 A
VCCDSW3_3	3.3V	0.015 A
V_PROC_IO	1.05V	0.004 A





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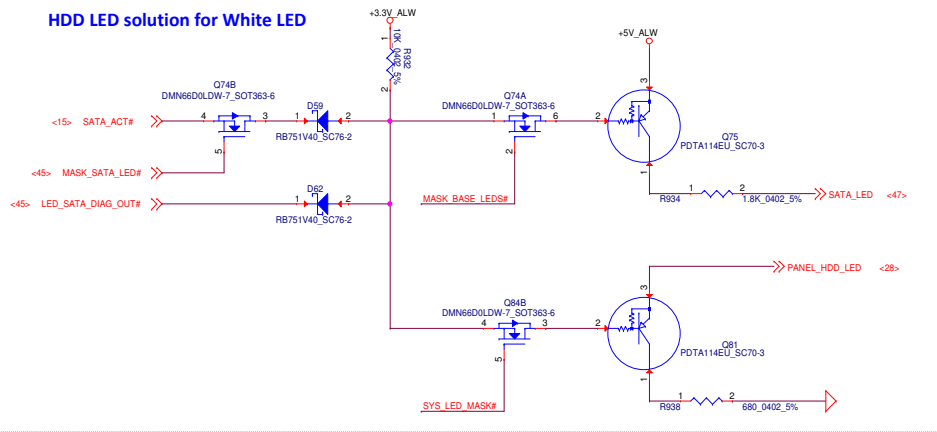


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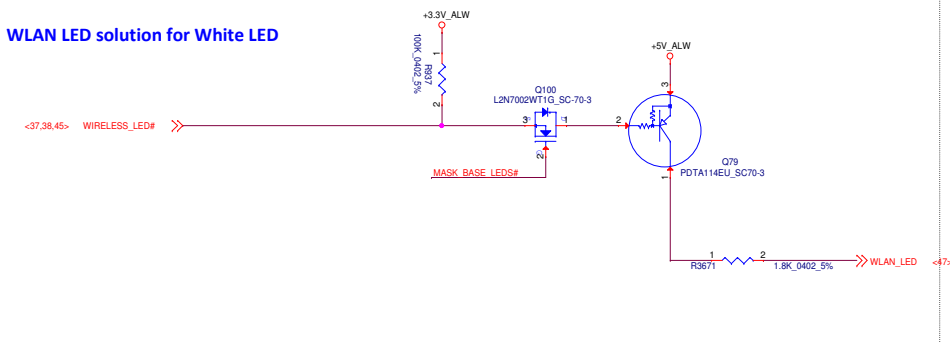
**Compal Electronics, Inc.**

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Size	Document Number	Rev	
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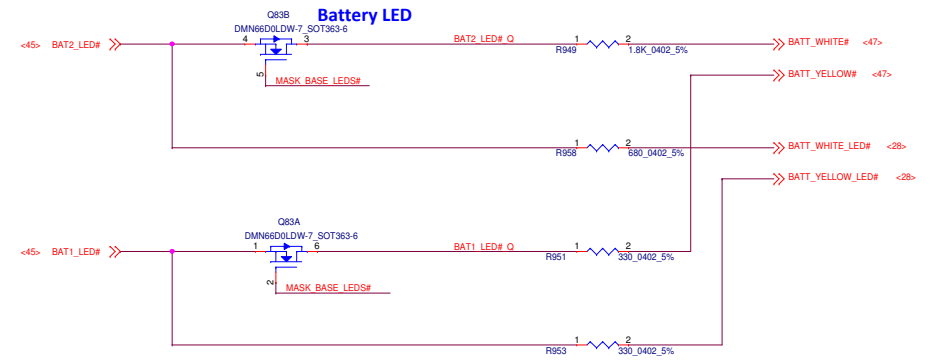
## HDD LED solution for White LED



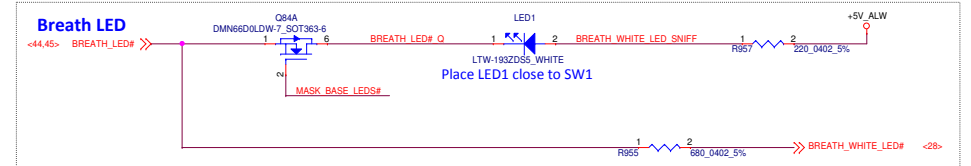
## WLAN LED solution for White LED



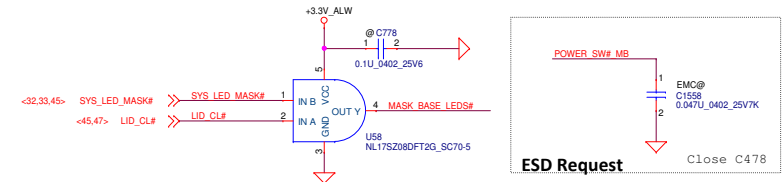
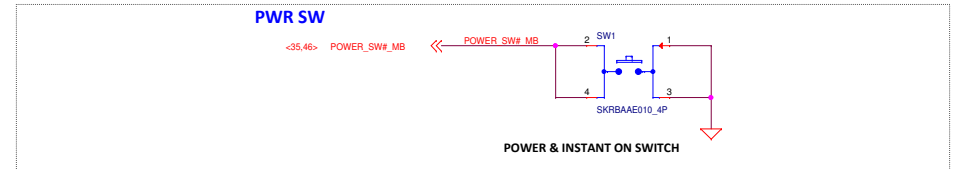
## Battery LED



## Breath LED

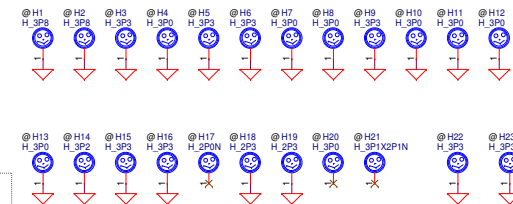


## PWR SW



## 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



## Fiducial Mark



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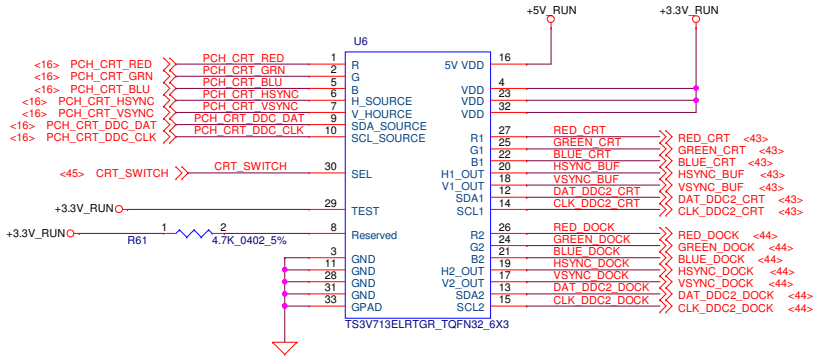
PWR SW/LED/PAD/ME

Size Document Number LA-9932P Rev 1.0

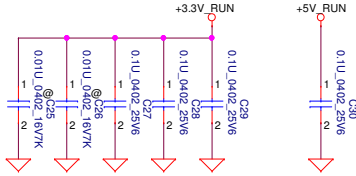
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SW for MB/DOCK



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



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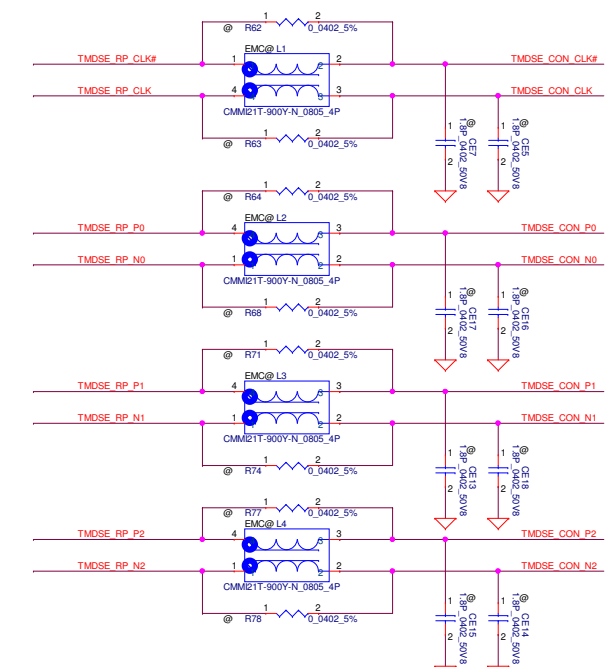
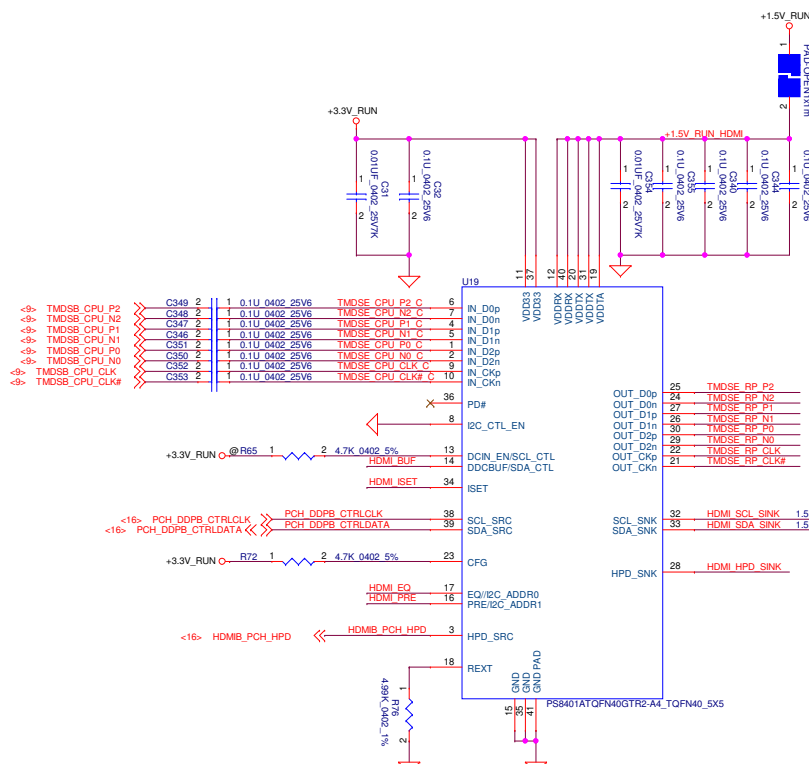
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**CRT SW**

**LA-9932P**

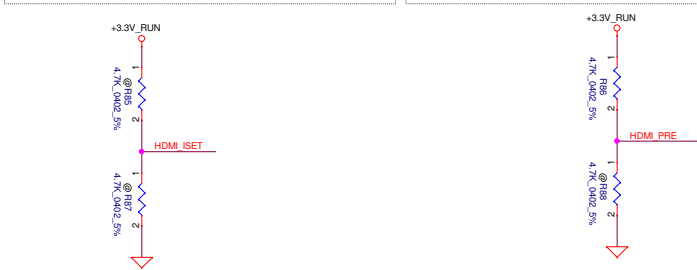
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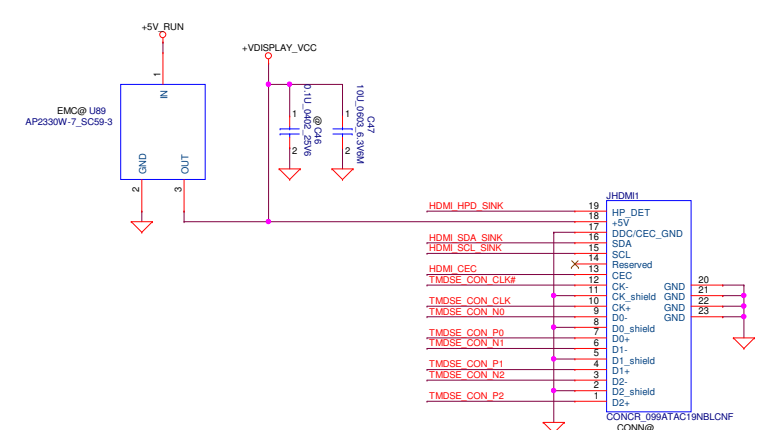
Enable active DDC buffer; Internal pull up at 150kΩ±20%, 3.3V I/O  
 L: default, passive DDC pass-through  
 H: active DDC buffer with default threshold  
 M: active DDC buffer without internal pull up resistor

Receiver equalization setting; Internal pull down at ~150kΩ, 3.3V I/O.  
 L: programmable EQ for channel loss up to 12.4dB  
 H: programmable EQ for channel loss up to 4.3dB  
 M: programmable EQ for channel loss up to 8.6dB

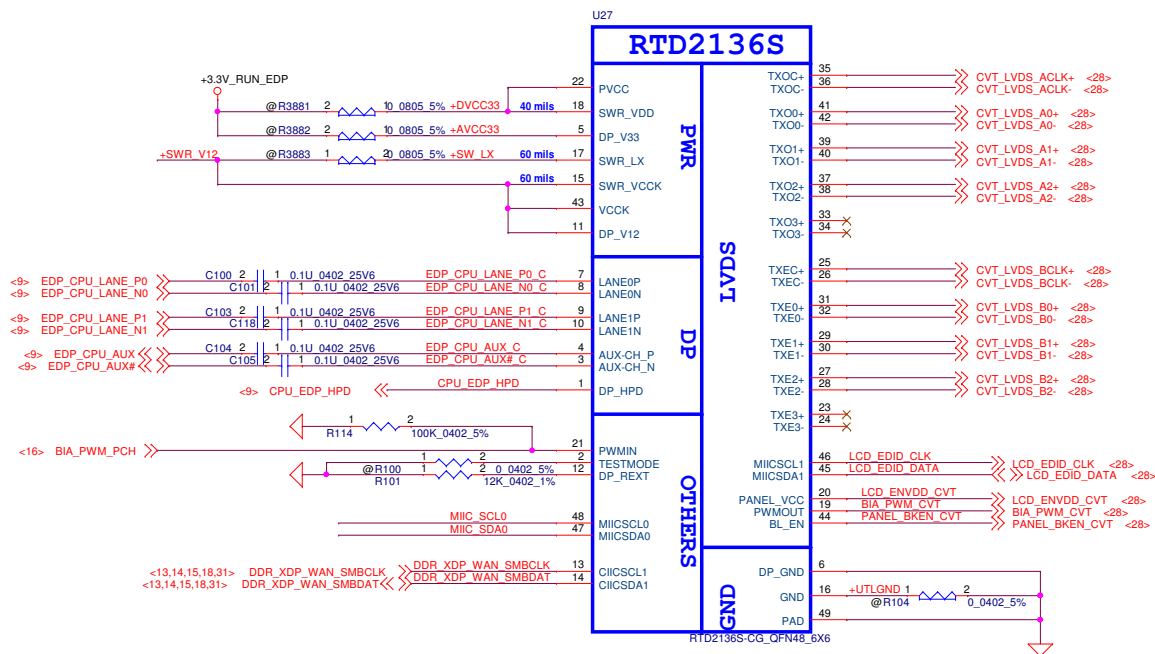
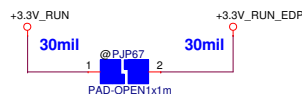


TMD5 output swing adjustment; Internal pull down at ~150kΩ, 3.3V I/O.  
 L: default  
 H: increase +13%  
 M: reduce -13%

Output pre-emphasis setting; Internal pull down at ~150kΩ, 3.3V I/O.  
 L: no pre-emphasis  
 H: 1.6dB pre-emphasis  
 M: 2.5dB pre-emphasis

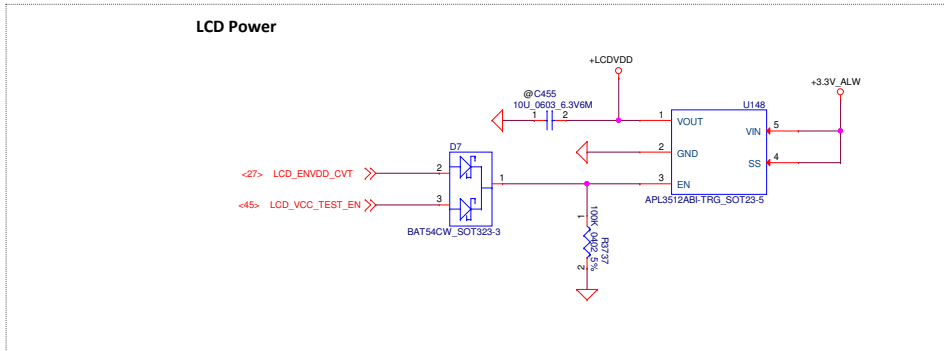
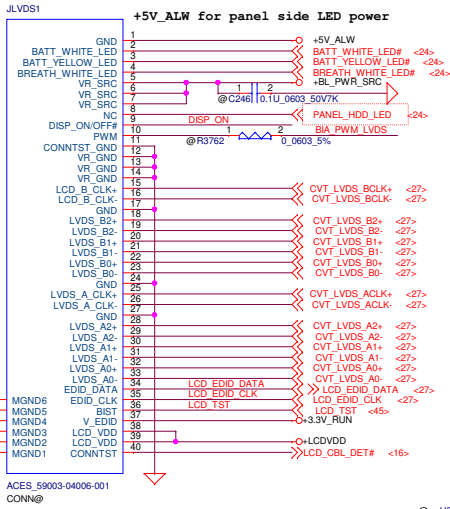


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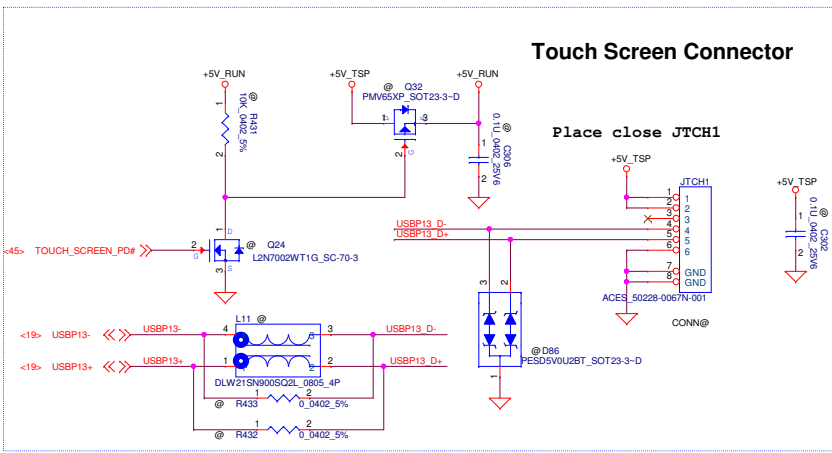
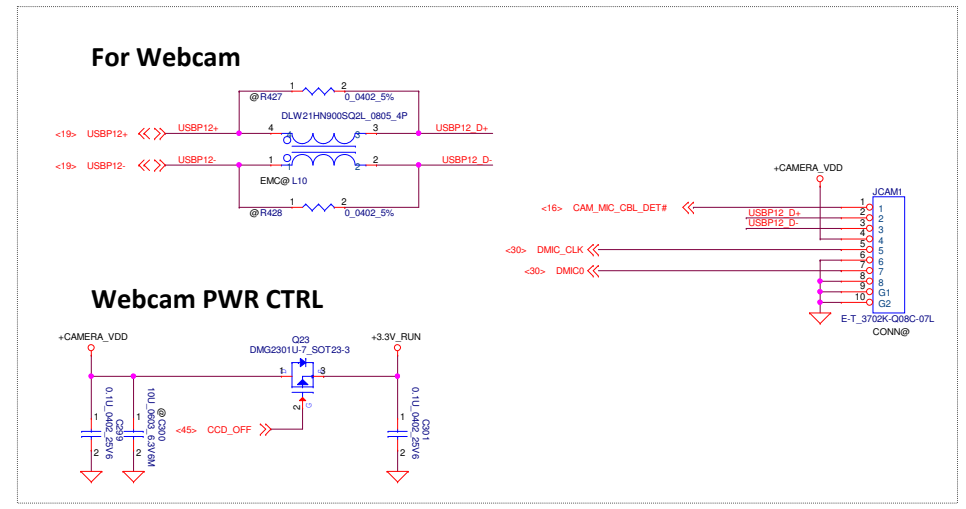
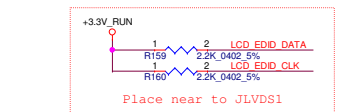
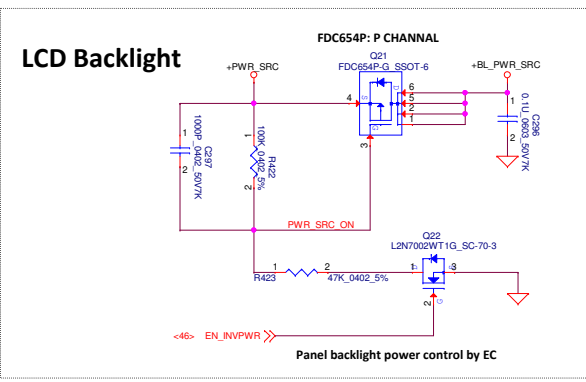


Pin5 (DPV33) < 20mA  
Pin 11 (DPV12) < 100mA  
Pin 15 (SWR\_VCCCK) < 100mA (layout trace > 60 mil)  
Pin 17 (SWR\_LX) < 600mA (layout trace > 60 mil)  
Pin 18 (SWR\_VDD) < 200mA (layout trace > 40 mil)  
Pin 22 (PVCC) < 50 mA  
Pin 43 (VCCCK) < 50mA

1. RTD2136S:SA00004NW10 Populated R102, R103, R107; De-populated R108  
 \*\*\* 2. RTD2136R SA000067100 : De-Populated R102, R103, R107; Populate R108;



Vinafix

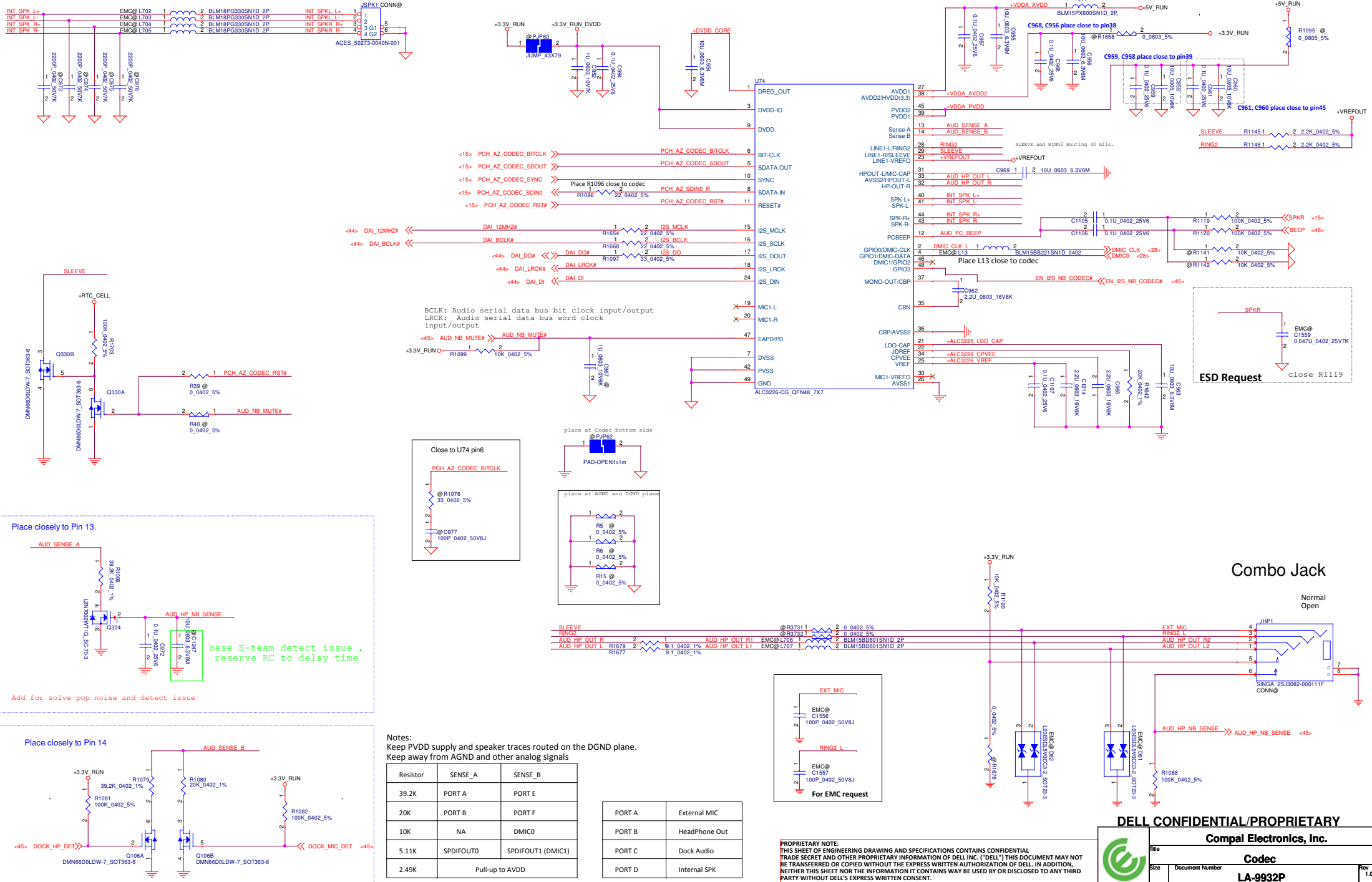


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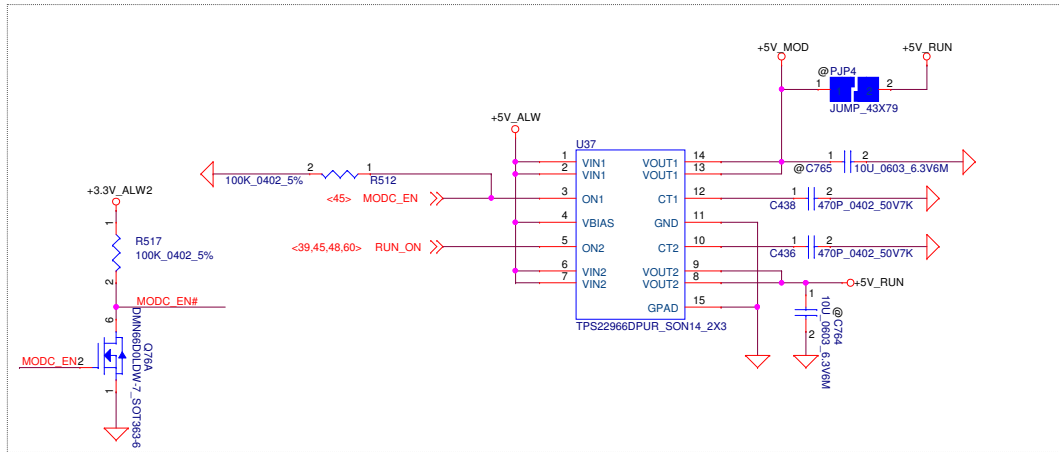
# Internal Speakers Header

INT\_SPK\_L+, INT\_SPKL\_L+ :40 mils trace, keep 10mils spacing  
 INT\_SPK\_L-, INT\_SPKL\_L- :40 mils trace, keep 10mils spacing  
 INT\_SPK\_R+, INT\_SPKR\_R+ :40 mils trace, keep 10mils spacing  
 INT\_SPK\_R-, INT\_SPKR\_R- :40 mils trace, keep 10mils spacing  
 INT\_SPK\_L-, INT\_SPKL\_L- with INT\_SPK\_R+, INT\_SPKR\_R+ keep 20mils spacing

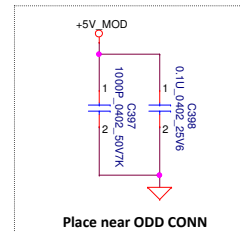
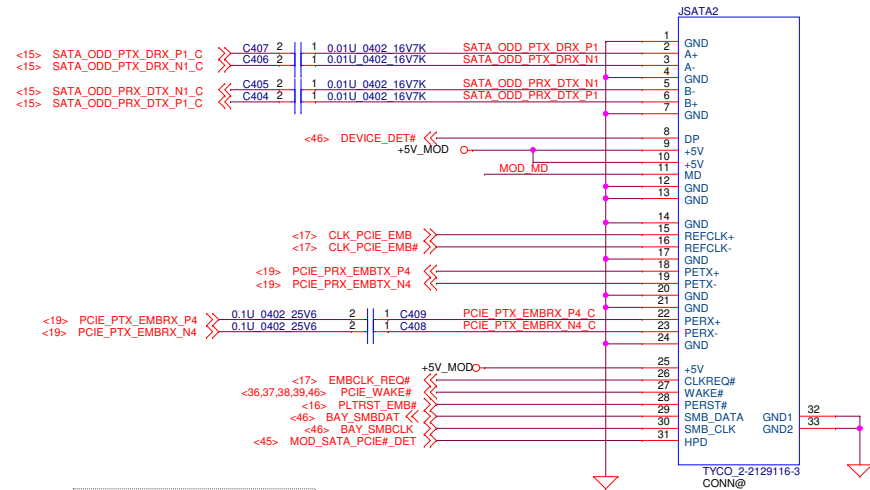
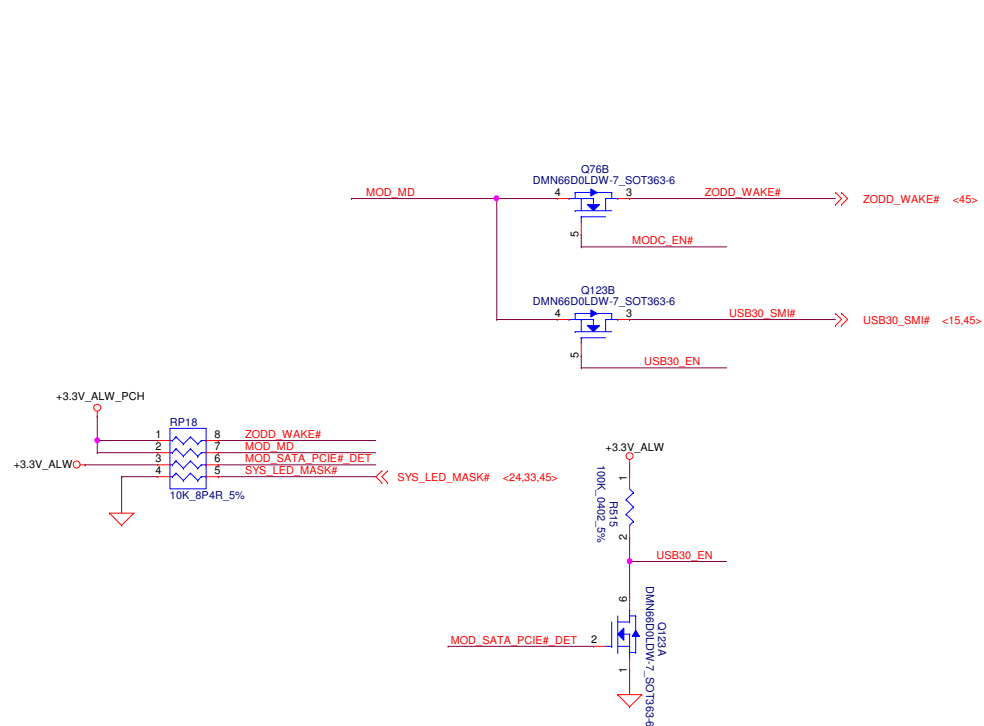


Title			
HDD			
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## +5V\_MOD/+5V\_RUN source



**ODD CONN**



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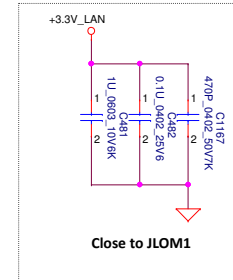
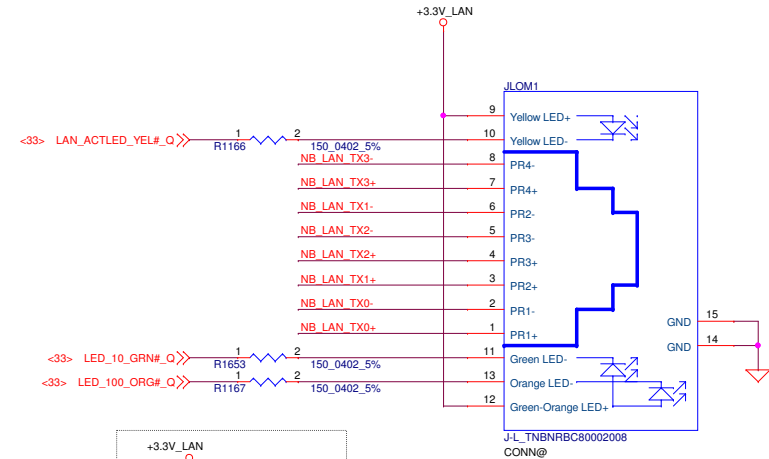
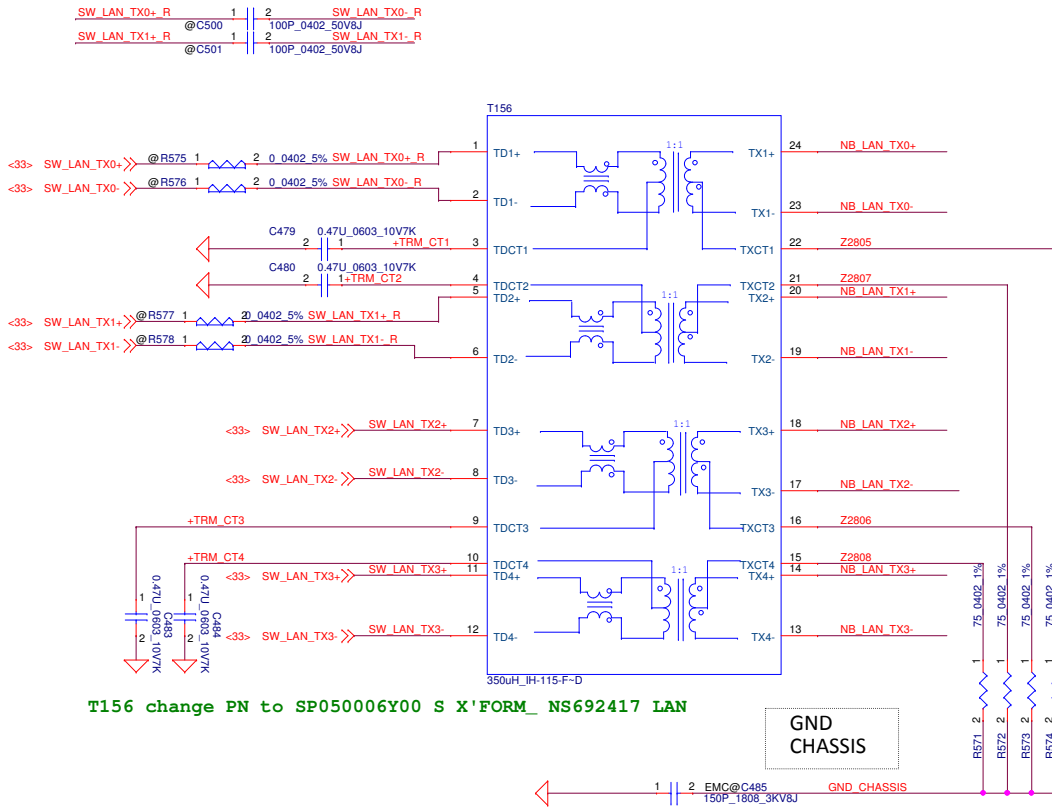
**ODD**

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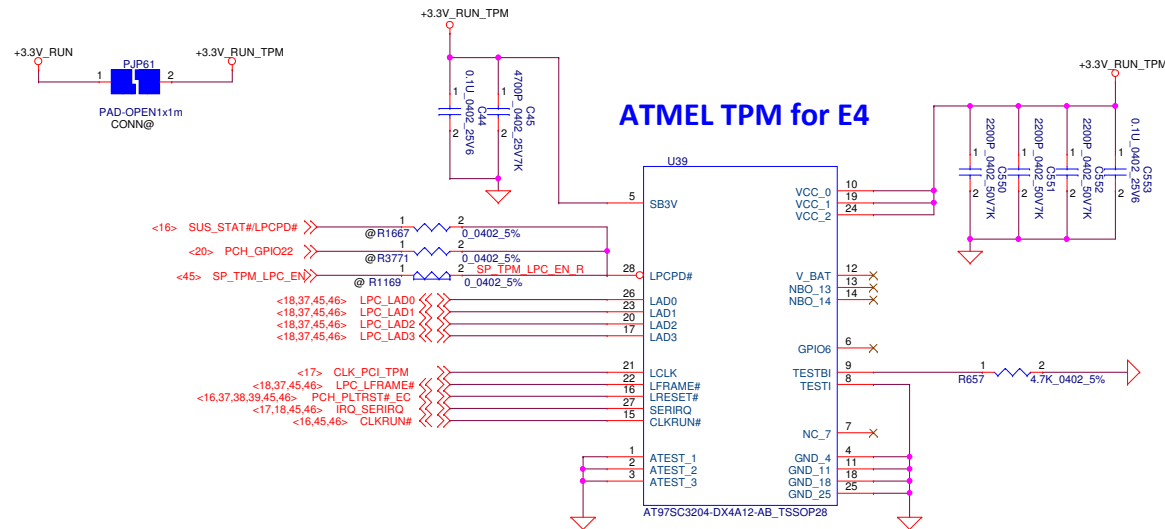




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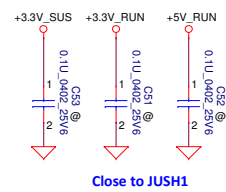
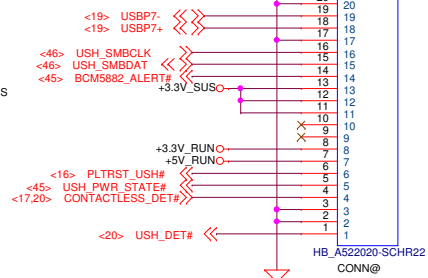
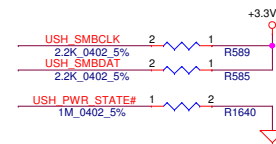
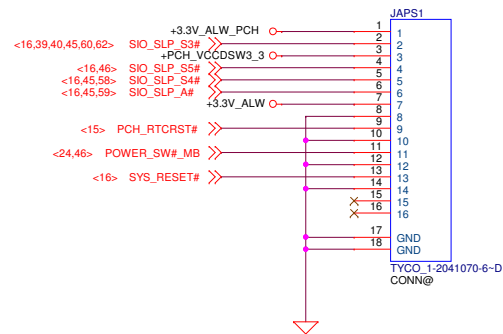
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RJ45 Conn			
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**JUSH1 pin reverse between IVY and HSW to support E4 13 USH board**

## USH CONN



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USH board conn / TPM			
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**Mini WLAN/WIMAX/60GHZ H=9**

3.3V WLAN

WLAN\_RADIO\_DIS# R

WIGIG60GHZ\_DIS# R

BT\_RADIO\_DIS# R

PCIE\_WAKE#

PCIE\_WAKE#

5/24 confirmed with Sean can remove C0542\_WLAN\_ACTIVE and pin C0543\_BT\_ACTIVE

MINI\_EGL\_NEOG

CLK\_PCIE\_MINI2

CLK\_PCIE\_MINI2

EC5048\_TX

MSDATA

WLAN\_RADIO\_DIS# R

PCH\_PLTRST# EC

PCIE\_PRX\_WLANTX\_N3

PCIE\_PRX\_WLANTX\_P3

PCIE\_PTX\_WLANRX\_N3

PCIE\_PTX\_WLANRX\_P3

CPPE#

CPPE#

PCH\_CL\_CLK1

PCH\_CL\_DATA1

PCH\_CL\_RST1#

WIMAX\_LED# STUDY FOR DEBUG

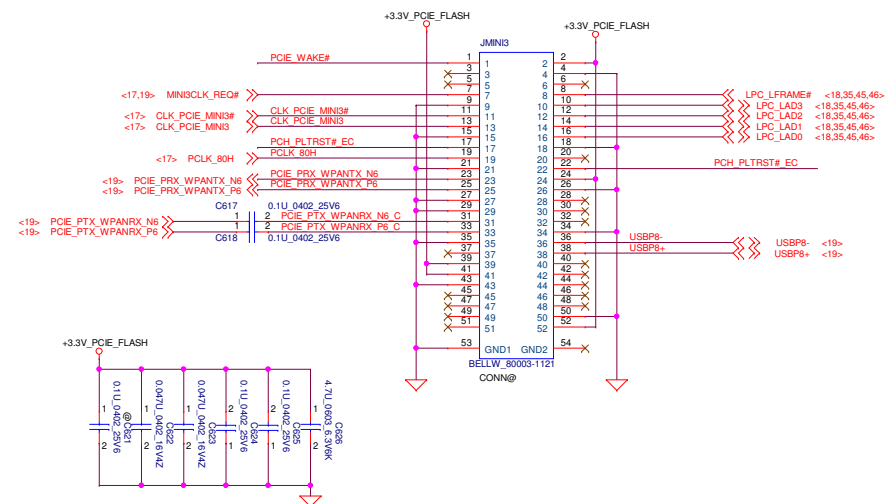
MSDATA

USB4-  
USB4+  
USB\_MCARD1\_DET#  
WIGIG\_LED#  
WLAN\_LED#  
BT\_LED#

USB4-  
USB4+  
USB\_MCARD1\_DET#  
WIGIG\_LED#  
WLAN\_LED#  
BT\_LED#

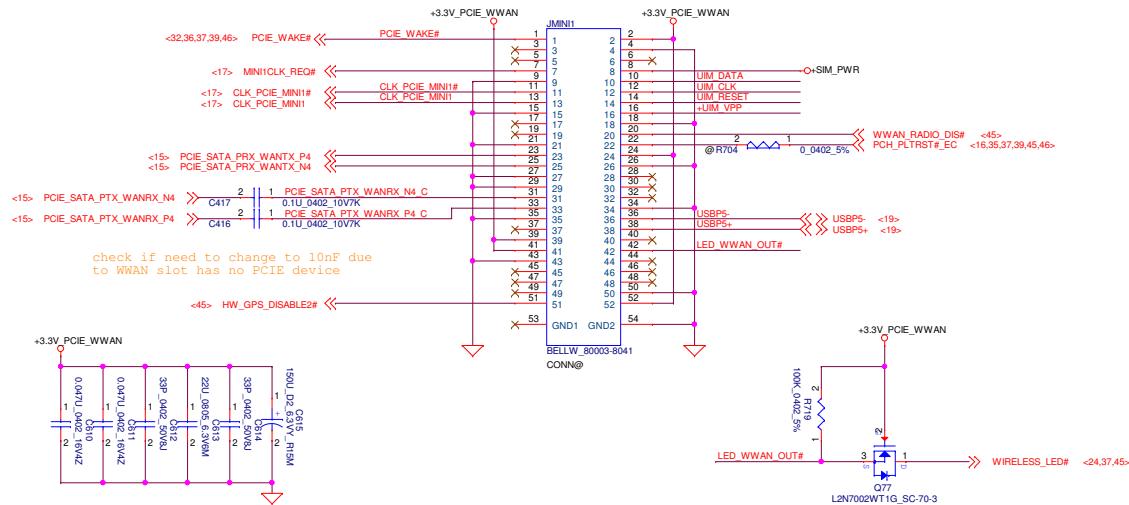
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CONN#



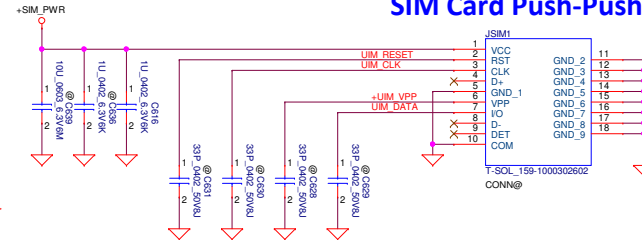
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# Mini WWAN/GPS/LTE/UWB H=9



PWR Rail	Voltage Tolerance	(1) Wake Enabled and Active (2) Wake NOT Enabled nor Active		D0-D2&D3 hot Power		D3 cold Power	
		Peak (mA)	Typ (mA)	Peak (mA)	Typ (mA)	Peak (mA)	Typ (mA)
+3.3V_PCIE_WWAN	+/-9%	2750	800	800 (1)	150 (1)	5 (2)	

## SIM Card Push-Push



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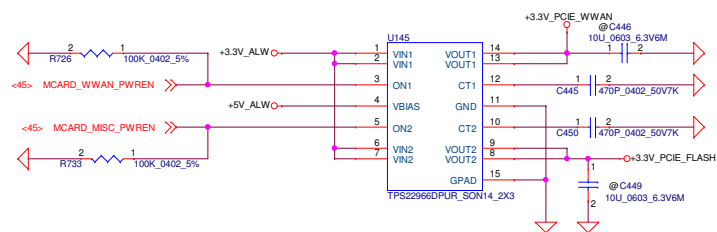
WWAN Mini Card

LA-9932P

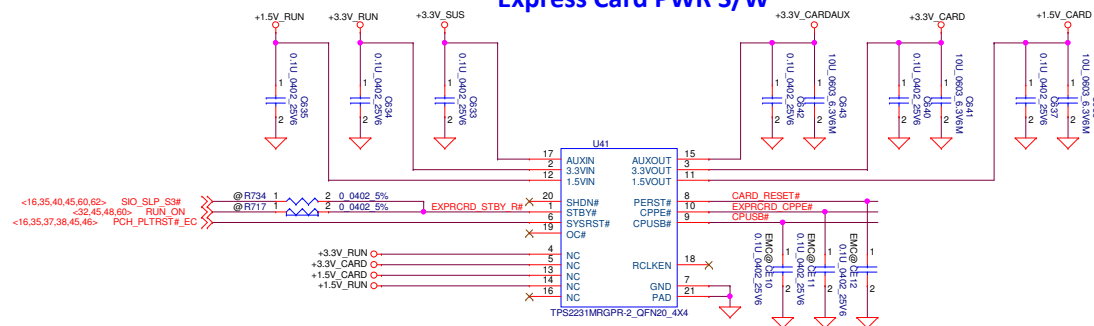
Date: Thursday, July 04, 2013 Sheet 38 of 71

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### +3.3V\_PCIE\_WWAN/+3.3V\_PCIE\_FLASH



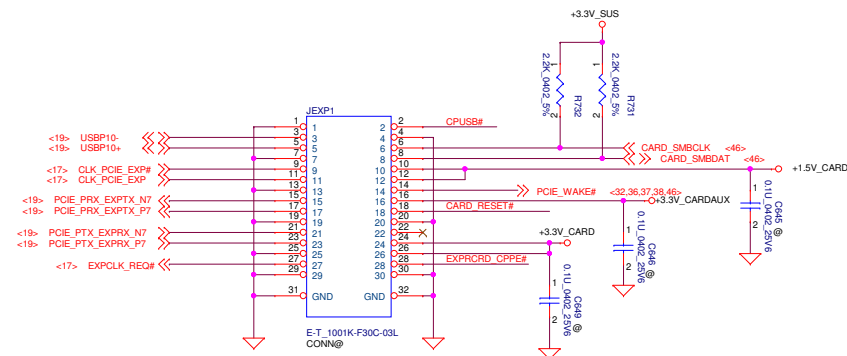
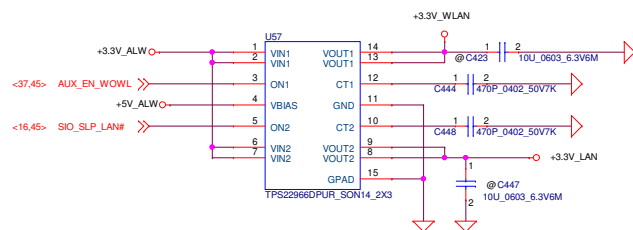
### Express Card PWR S/W



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

## Express Card Conn.

+3.3V\_WLAN/+3.3V\_LAN source



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**Compal Electronics, Inc.**

**PCIE-SATA SW / PCIE PWR**

**I A-9932P**

Date: Thursday, July 04, 2013

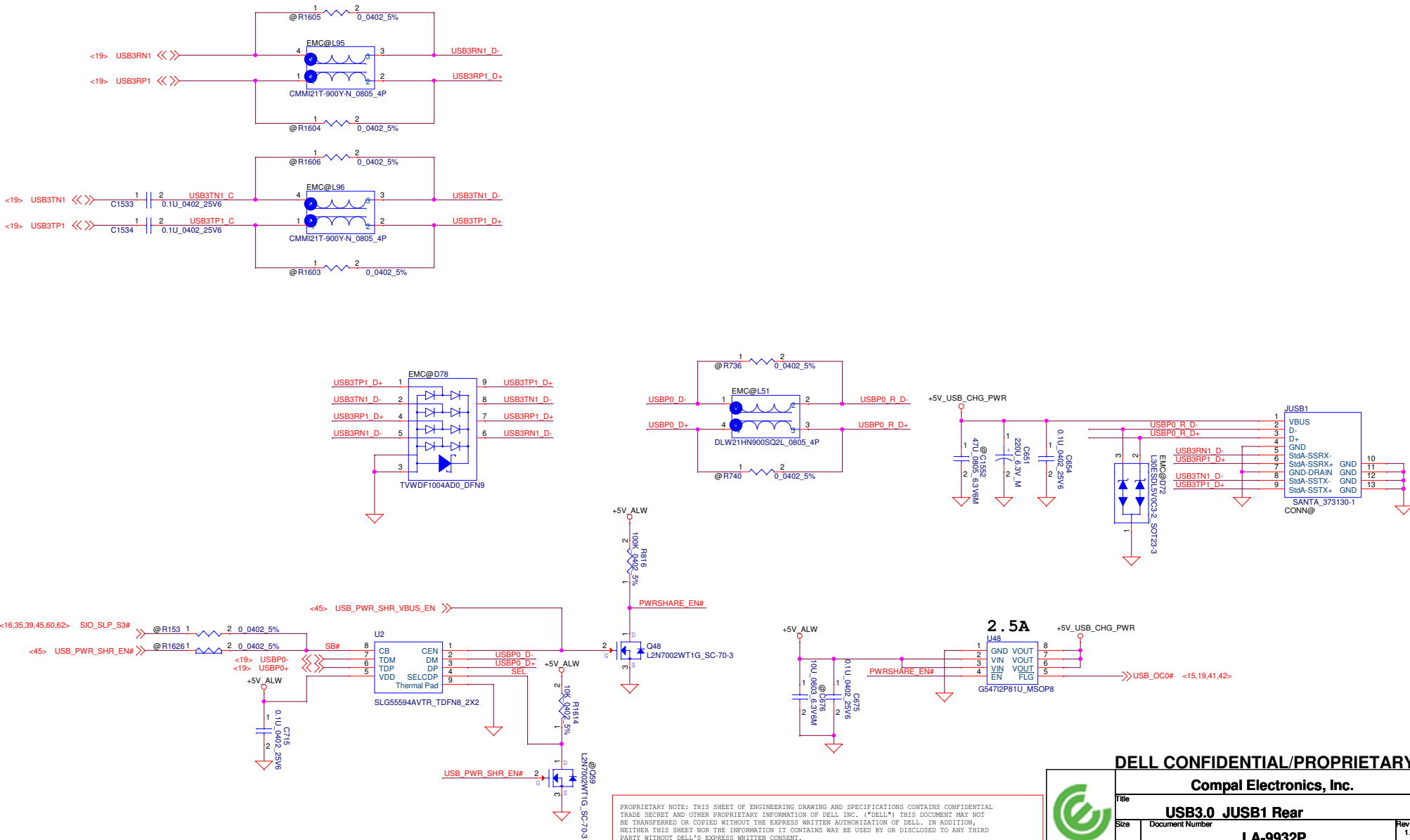
932P

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# Rear Side (JUSB1)



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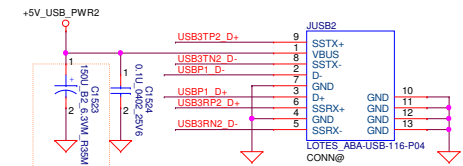
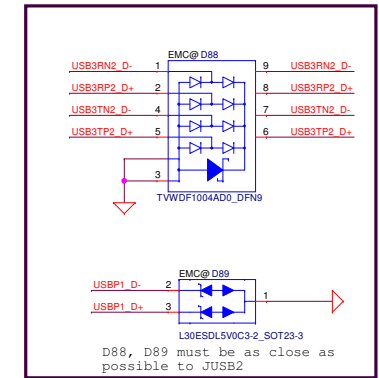
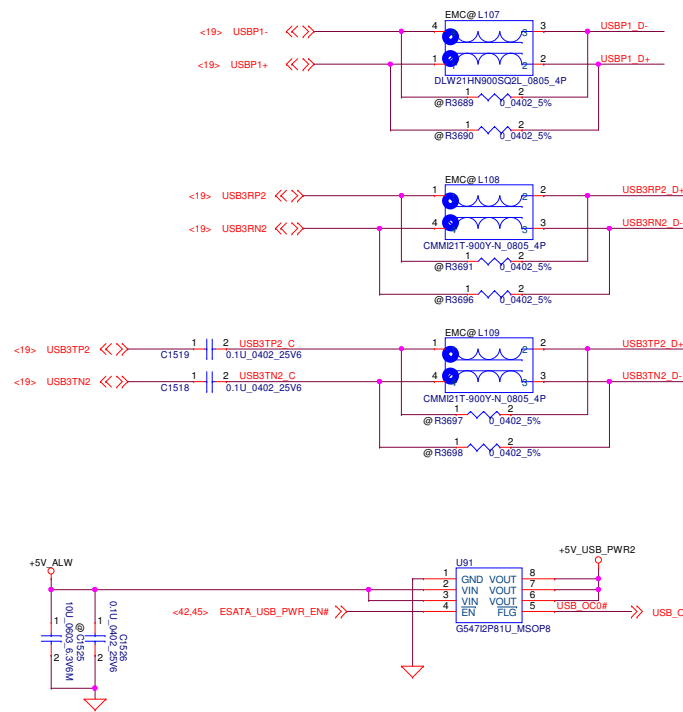
**USB3.0 JUSB1 Rear**

**LA-9932P**

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# Right Side Top (JUSB2)

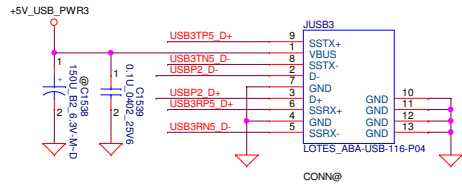
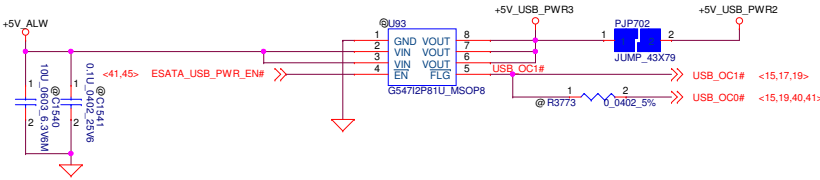
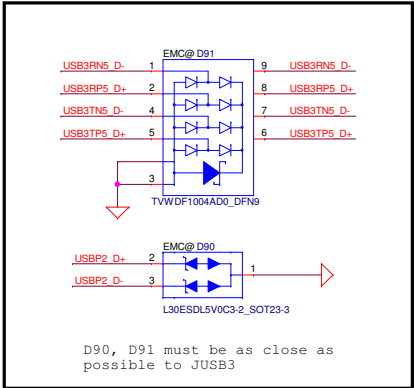
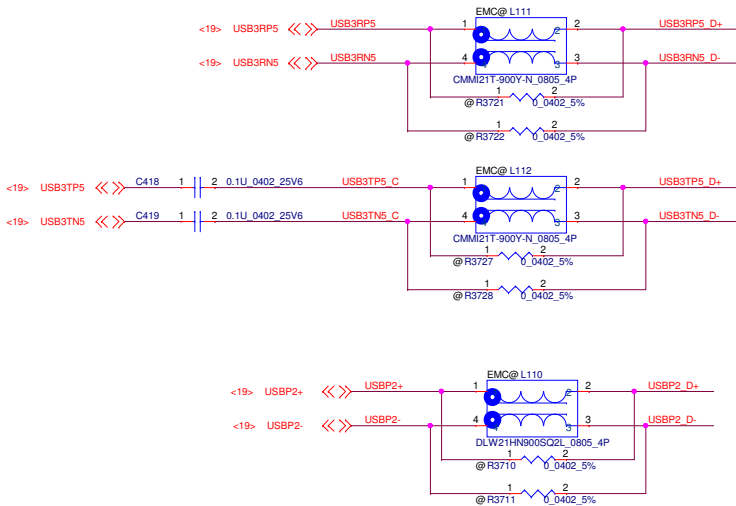


place C1523 between JUSB2 and JUSB3

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Compal Electronics, Inc.			
File	USB3.0 JUSB2 Right Side top		
Size	Document Number	LA-9932P	Rev 1.0
Date:	Thursday, July 04, 2013	Sheet 41	of 71

Right Side bottom (JUSB3)

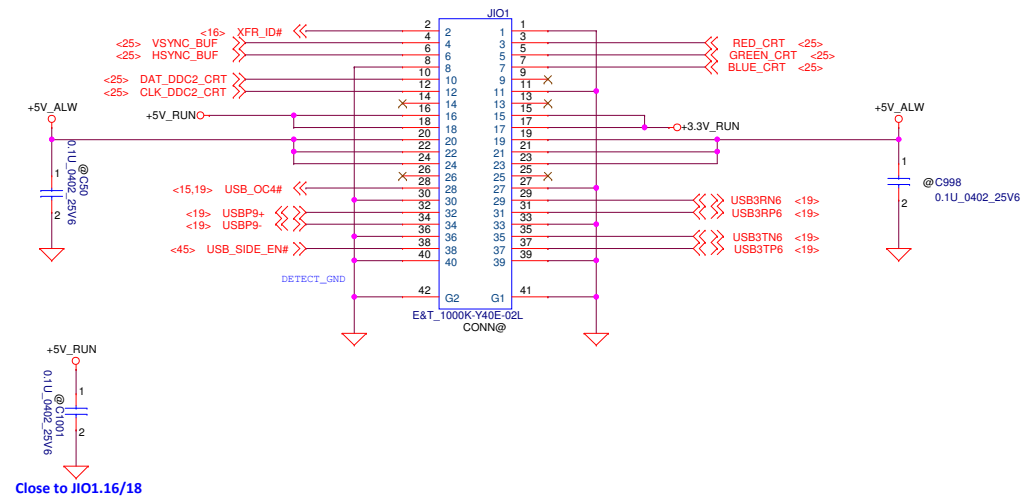


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Title		<b>USB3.0 JUSB3 Right Side bot</b>	
Size	Document Number	Rev 1.0	
Date: Thursday, July 04, 2013		Sheet 42	of 71

# I/O board CONN.

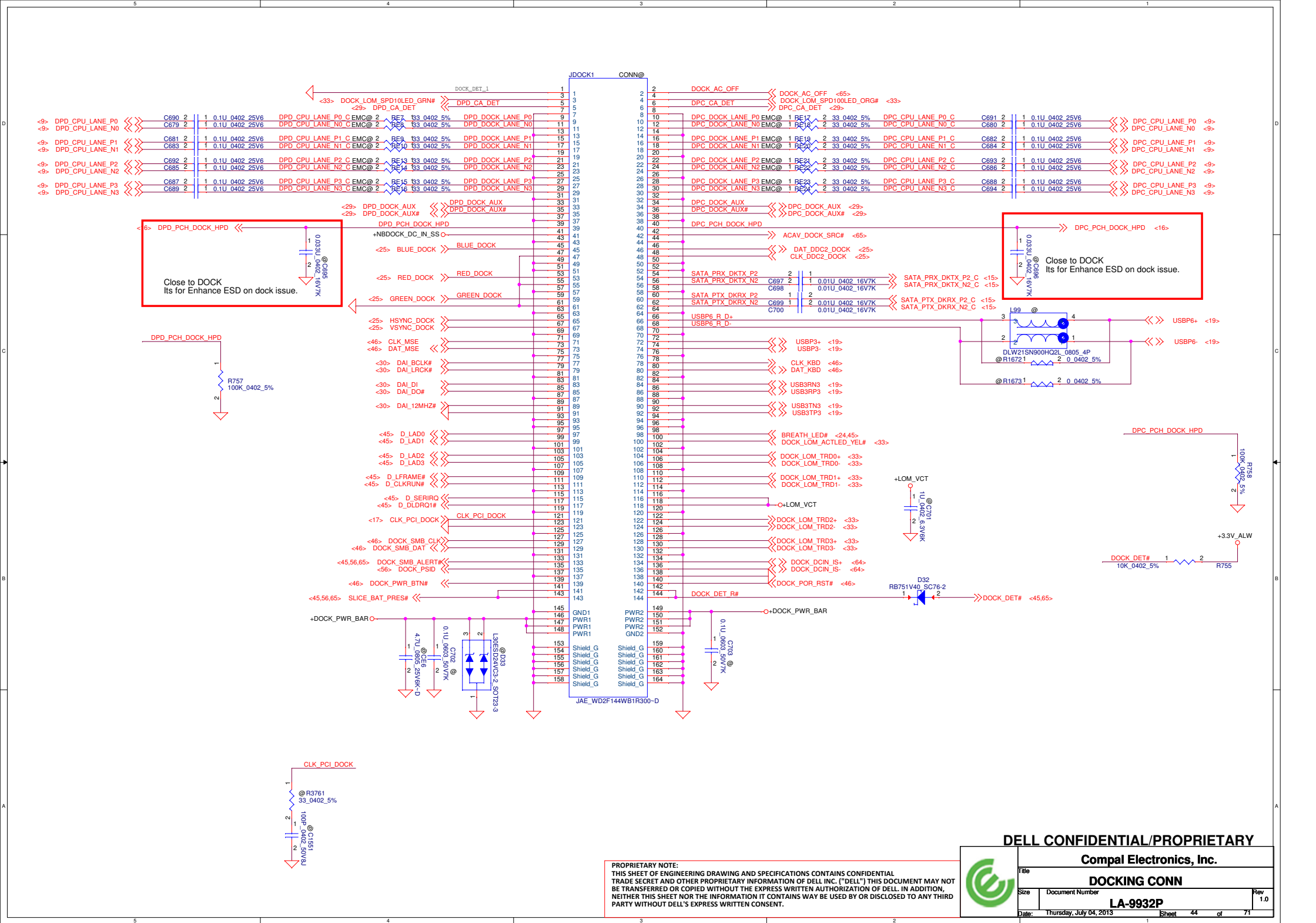


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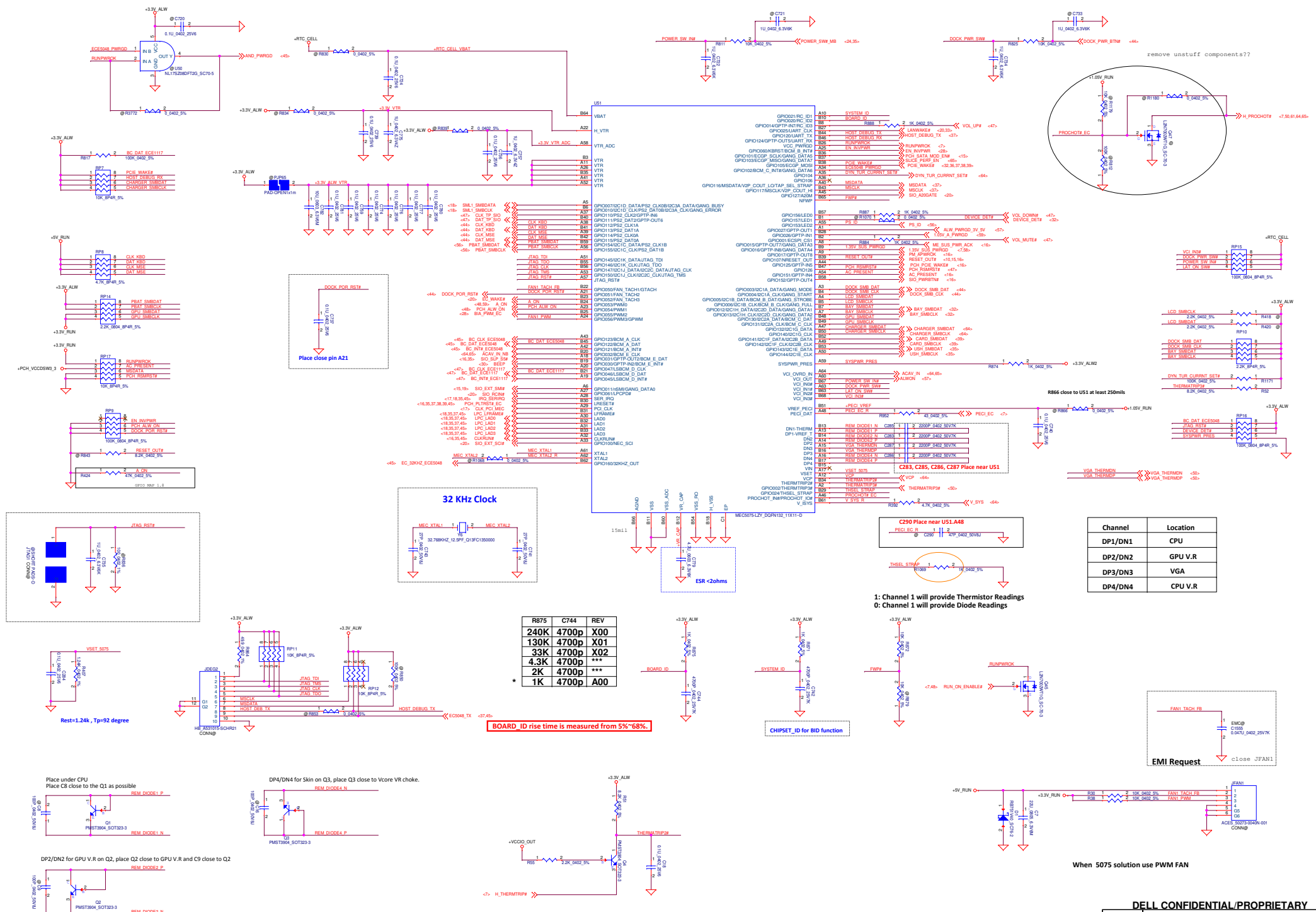


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Compal Electronics, Inc.			
Title			
USB3.0_JUSB4 Left Side			
Size	Document Number	Rev	
		1.0	
Date:	Thursday, July 04, 2013	Sheet	43 of 71

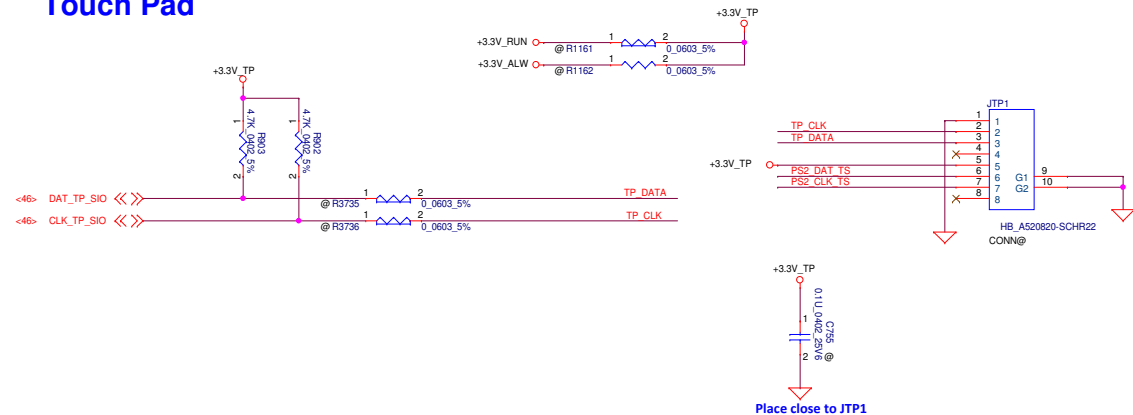




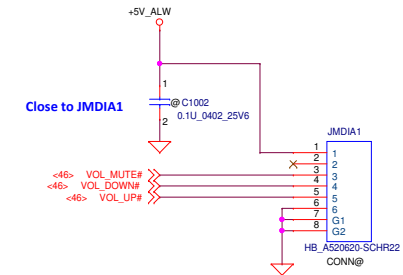


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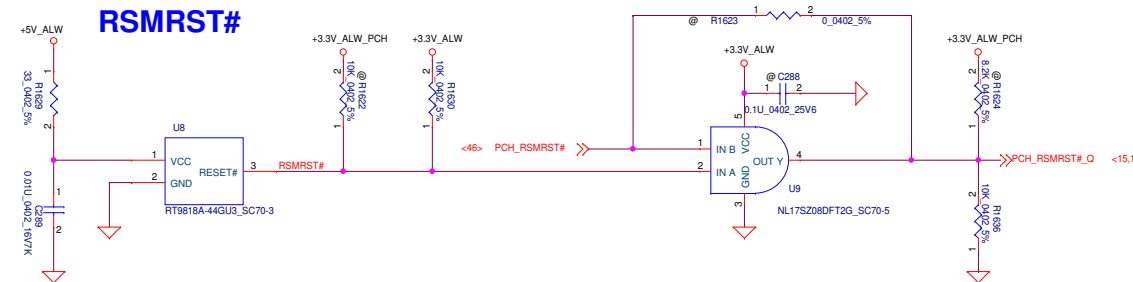
## Touch Pad



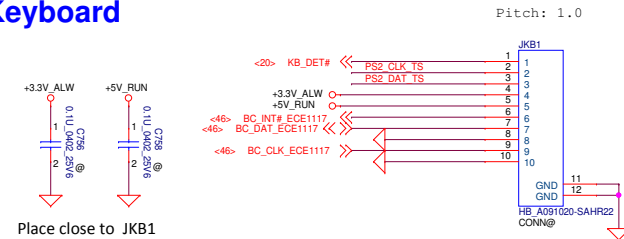
## Media Board



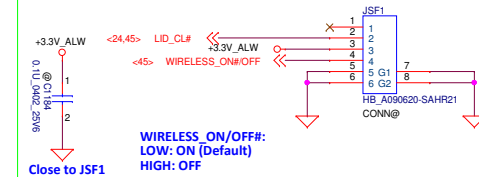
## RSMRST#



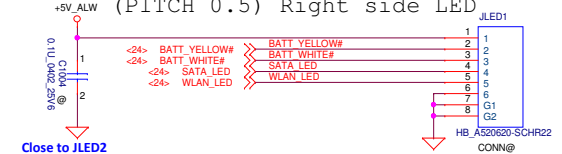
## Keyboard



## SNIFFER /Hall SENSOR BOARD



## (PITCH 0.5) Right side LED



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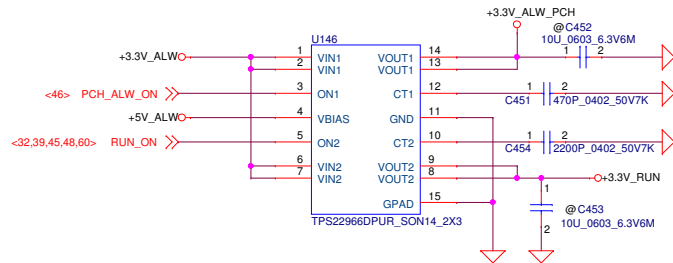


Compal Electronics, Inc.

File	Int KB/TP/BT/RSMRST		
Size	Document Number		
Date	Thursday, July 04, 2013	Sheet	47 of 71
Rev	1.0	LA-9932P	

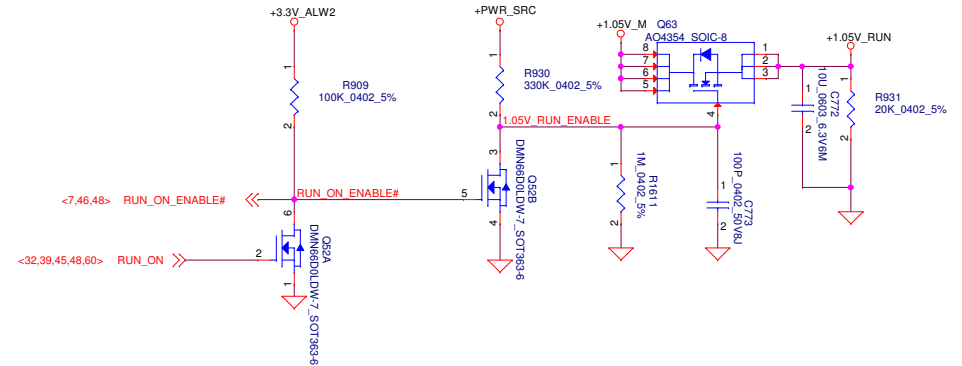
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## +3.3V\_ALW\_PCH/+3.3V\_RUN Source

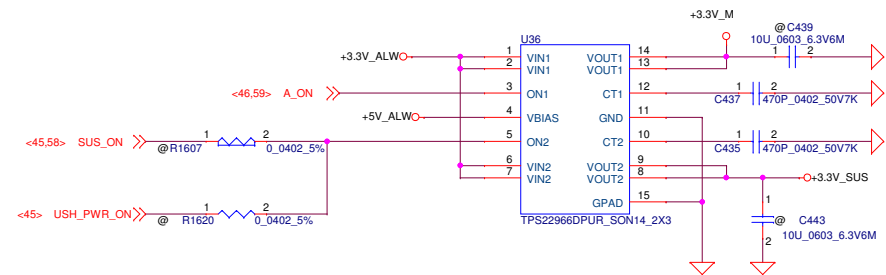


SI4164DY	RDS (on)	ID (A)
VDS	0.0032ohm at VGS=10V	30A
30	0.0039ohm at VGS=4.5V	26.3A

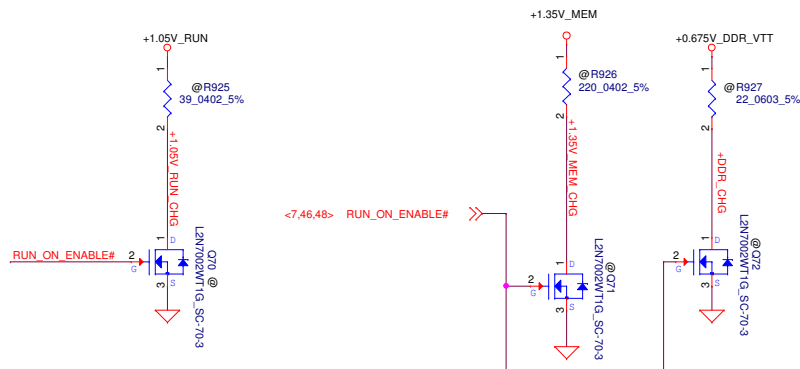
## +1.05V\_RUN Source



## +3.3V\_M/+3.3V\_SUS source



## Discharge Circuit



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POWER CONTROL

LA-9932P

Date: Thursday, July 04, 2013

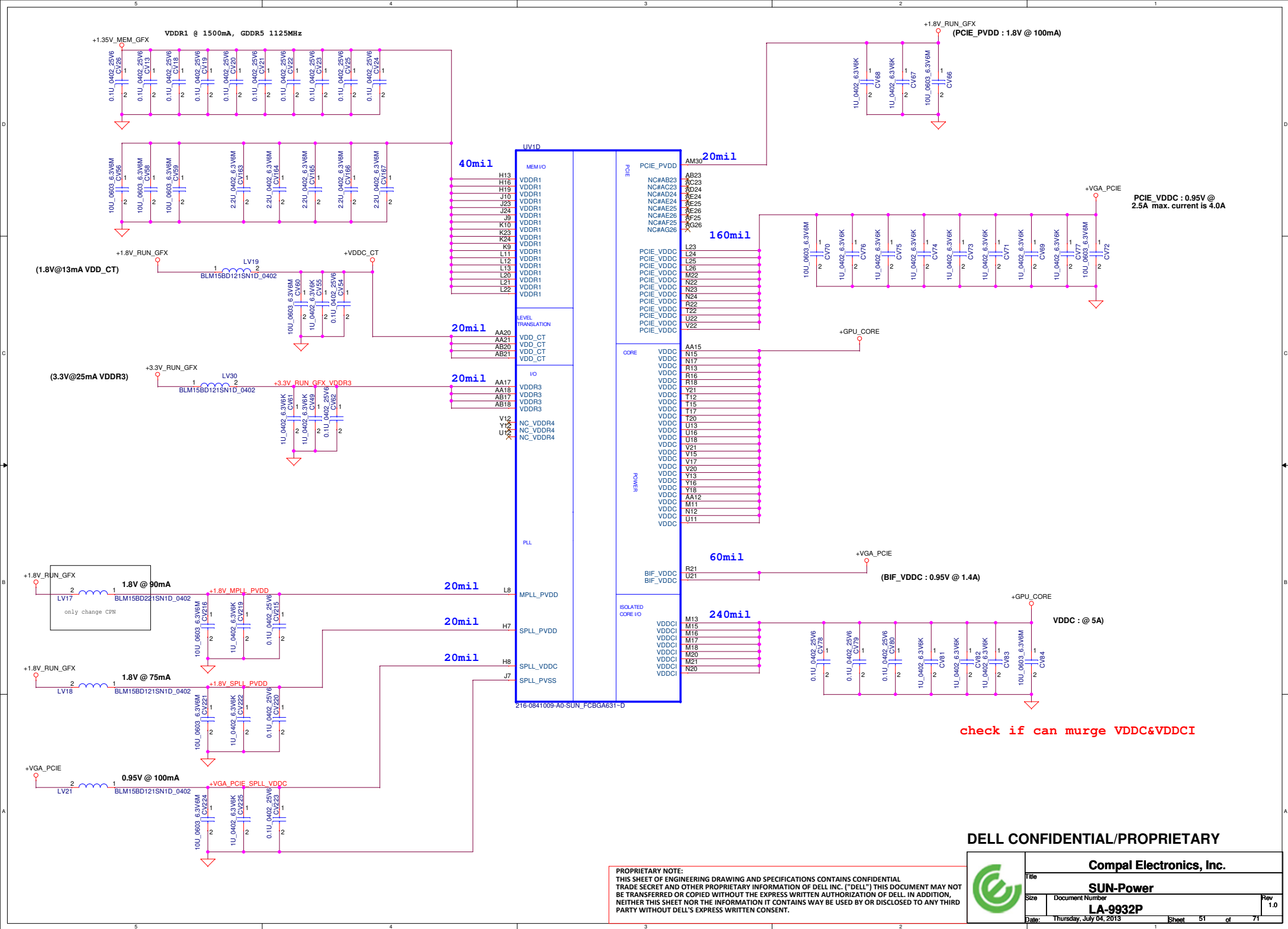
Sheet 48 of 71

Rev 1.0







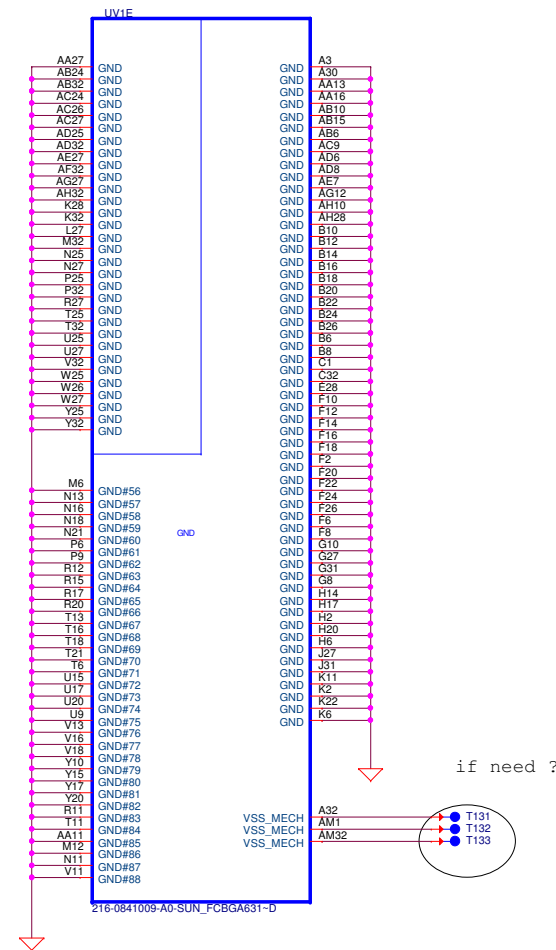
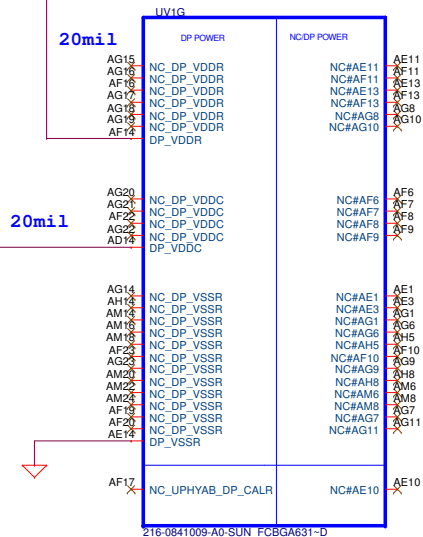
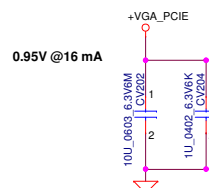
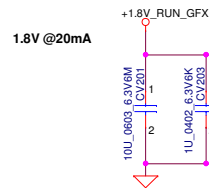


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Title			
<b>SUN-Power</b>			
Size	Document Number	Rev	
	<b>LA-9932P</b>	1.0	
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MLPS Bit	AMD recommended setting			
	strap	R_PU	R_PD	C
PS0:	11001	RV243=8.45K	RV201=2K	CV335=NC
PS1:	11000	RV237=NC	RV238=4.75K	CV329=NC
PS2:	00000	RV239=NC	RV240=4.75K	CV331=0.68u
PS3:	11000	RV241=NC	RV242=4.75K	CV333=NC

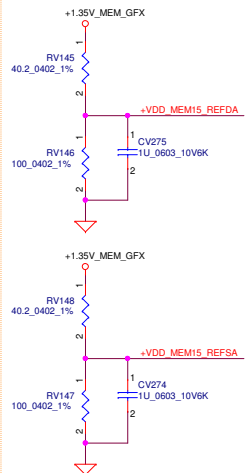
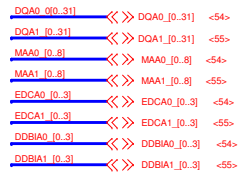
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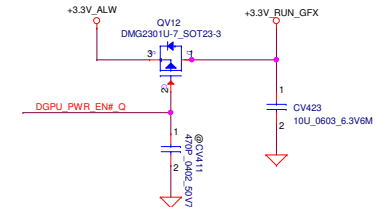
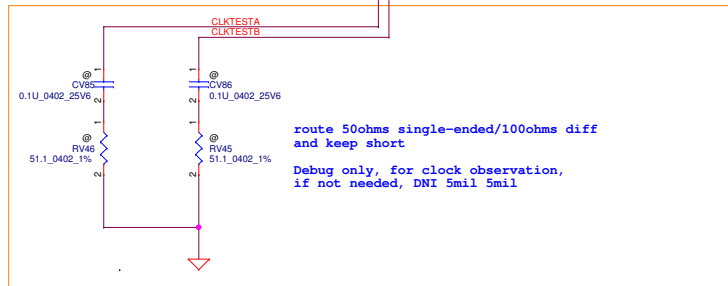
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Size	Document Number	LA-9932P	
Date	Thursday, July 04, 2013	Sheet	52 of 71



RV179

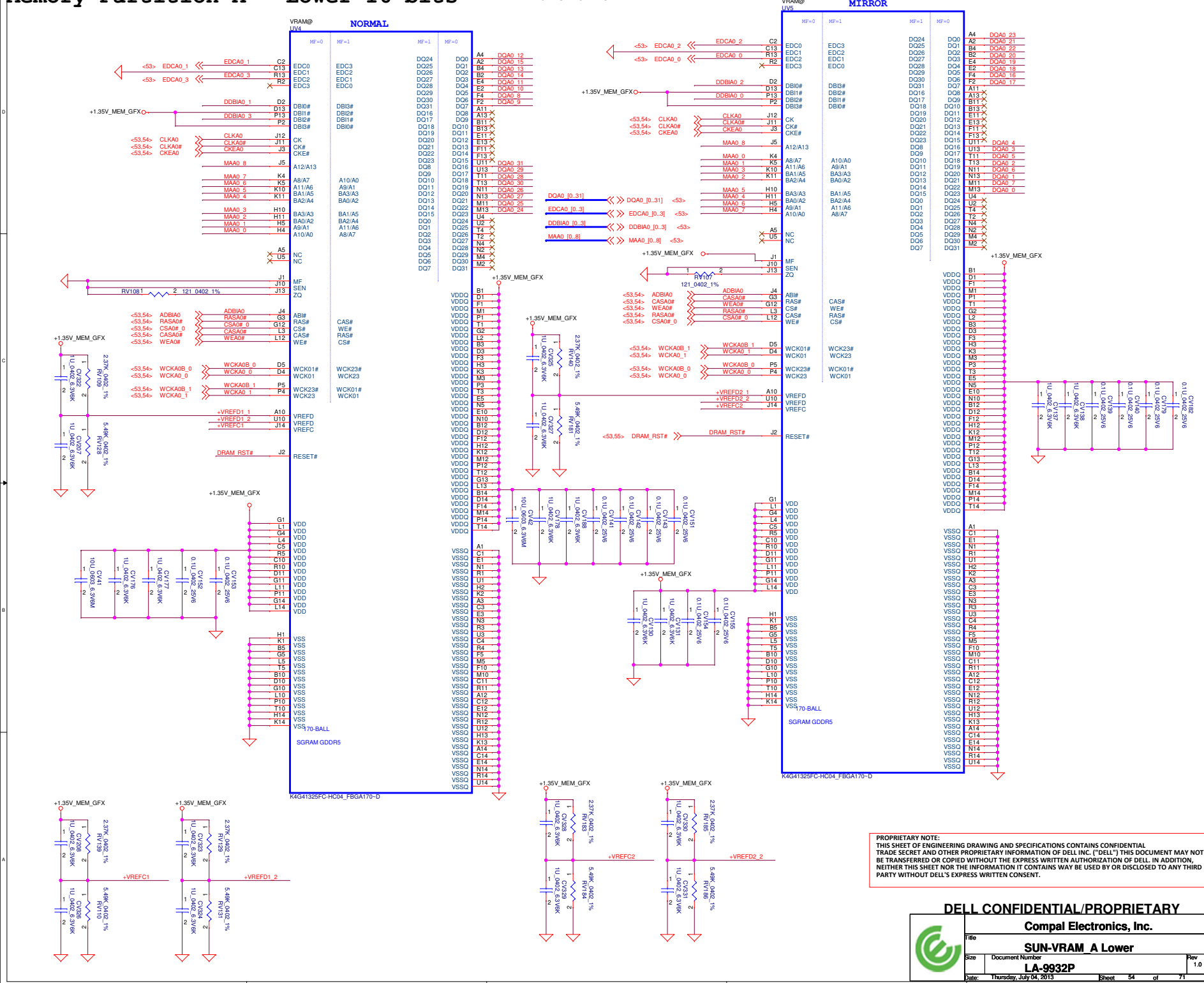
<54,55> DRAM\_RST# << 2 1 2 1

49.9\_0402\_1% 10\_0



# Memory Partition A - Lower 16 bits

64X32 GDDR5



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+PWR\_SRC

+1.35V\_MEN\_P

+1.35V\_MEN  
Ripple voltage -  
Static load 3% / Dynamic load 5%  
Frequency 250kHz  
TDC 8.71A  
Peak Current 12.45A  
OCP current 14.9A

	TYP	MAX
H/S Rds (on)	:12.2mohm	15mohm
L/S Rds (on)	:4.1mohm	5mohm
Choke DCR	2.35mohm	

Mode	S3	S5	+1.5V_MEN	+V_DDR_REF	+0.675V_P
S5	L	L	off	off	off
S3	L	H	on	on	off (Hi-Z)
S0	H	H	on	on	on

0.675Volt +/- 5%  
TDC 0.525A  
Peak Current 0.75A  
OCP Current 2.6A  
fixed by IC

FB sense trace

$$V_{FB}=0.75V, 1.35V = 0.75V * (1 + PR204/PR207)$$

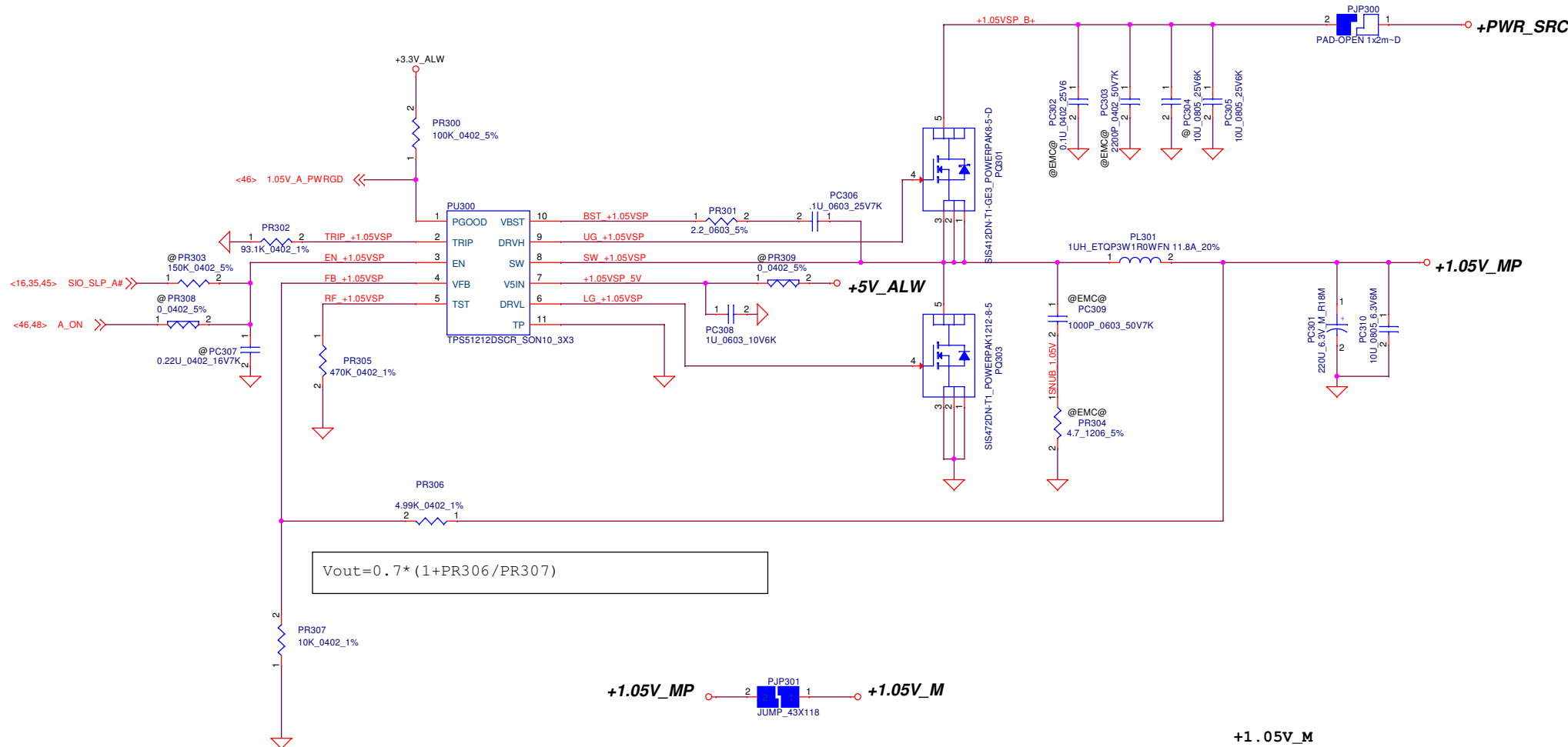
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Title			PWR +1.35V/0.675VSP
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**+1.05V\_M**  
 Ripple voltage -  
 Static load 3% / Dynamic load 5%  
 Frequency 290kHz  
 TDC 4.66A  
 Peak Current 6.52A  
 OCP current 7.8A  
 TYP MAX  
 H/S Rds(on) 24mohm , 30mohm  
 L/S Rds(on) 10.3mohm , 12.4mohm  
 Choke DCR 11mohm

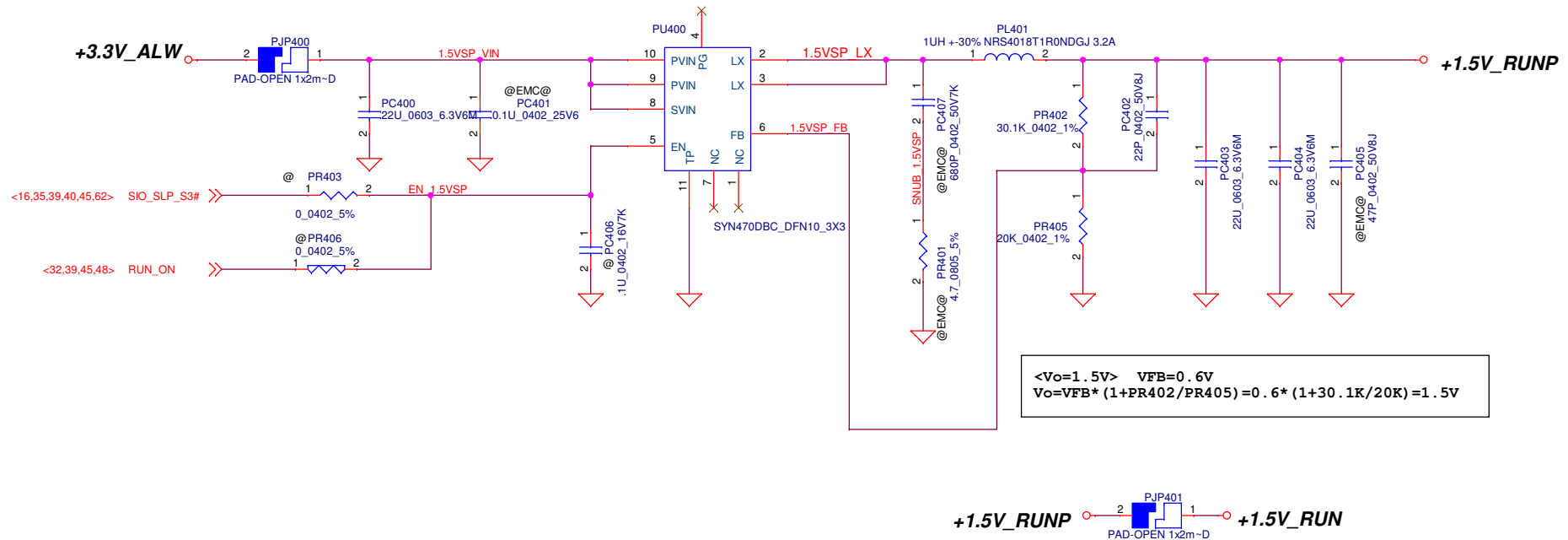
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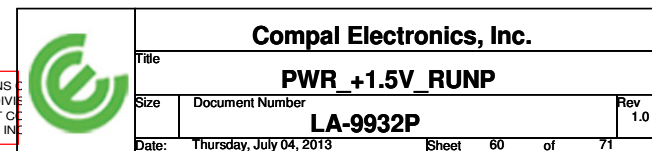
Compal Electronics, Inc.			
Title		PWR +1.05V_MP	
Size	Document Number	LA-9932P	
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		Rev	1.0

```
+1.5V_RUN
Ripple voltage -
Static load 3% / Dynamic load 5%
Frequency 1MHz
TDC 0.63A
Peak Current 0.9A
OCP current 4A fixed by IC
Choke DCR 27mohm
```



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+VCCIO\_OUT

PR507=21k, Vboot=1.7V

+5V\_ALW

VCC\_core (Base on PDDG rev 1.1)  
PL2 TDC 26A  
Peak Current 55A  
DC Load line -1.5mV/A  
Icc\_Dyn\_VID1 35A  
OCP current 64A  
Choke DCR 0.97m ohm

FSW:400Khz

TYP MAX  
H/S Rds(on) :12.2mohm , 15mohm  
L/S Rds(on) :2.75mohm , 3.5mohm

+PWR\_SRC

+VCC\_CORE

+VCC\_CORE

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PWR\_VCORE\_ISL95812 for QC

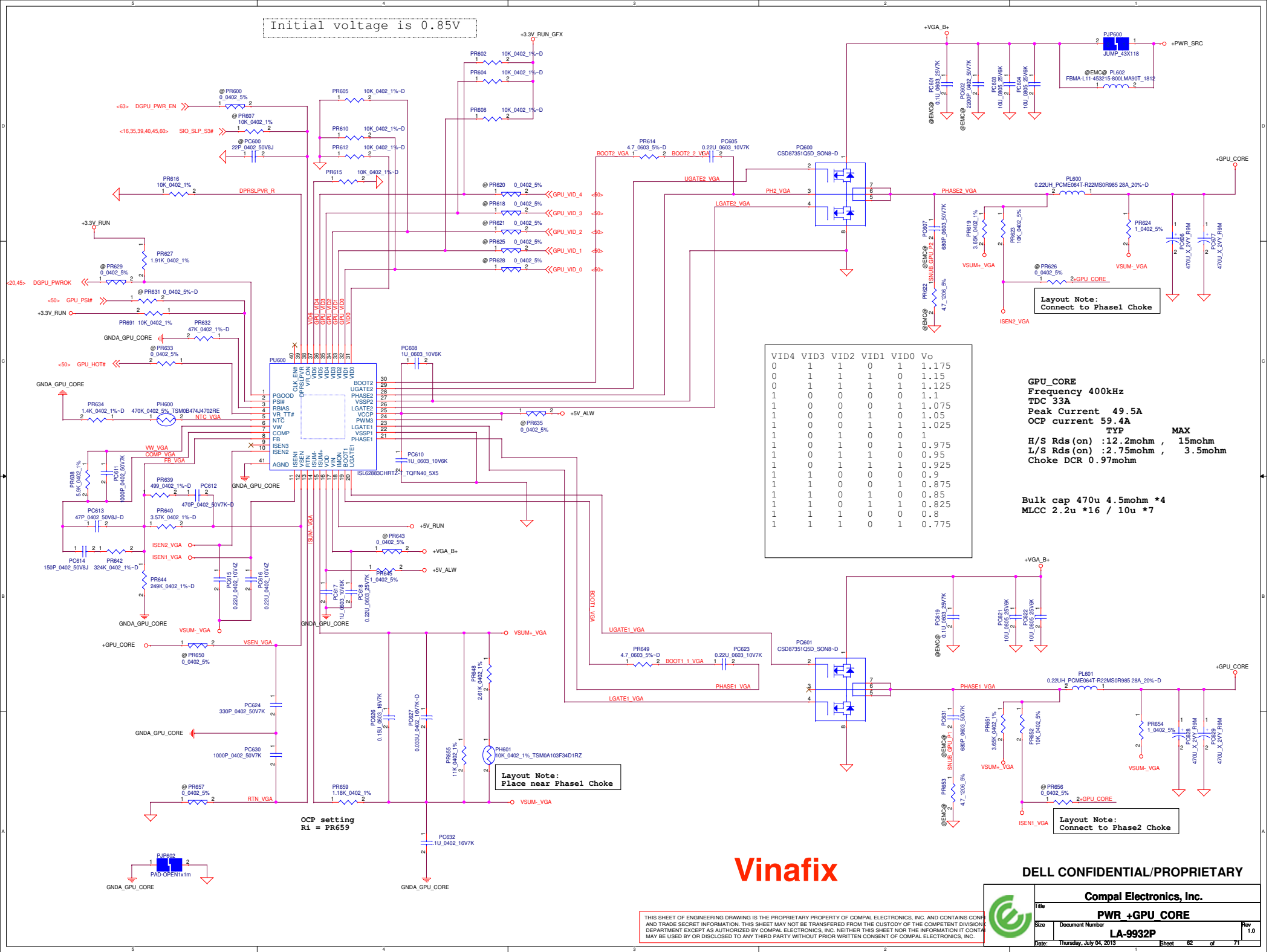
LA-9932P

Thursday, July 04, 2013

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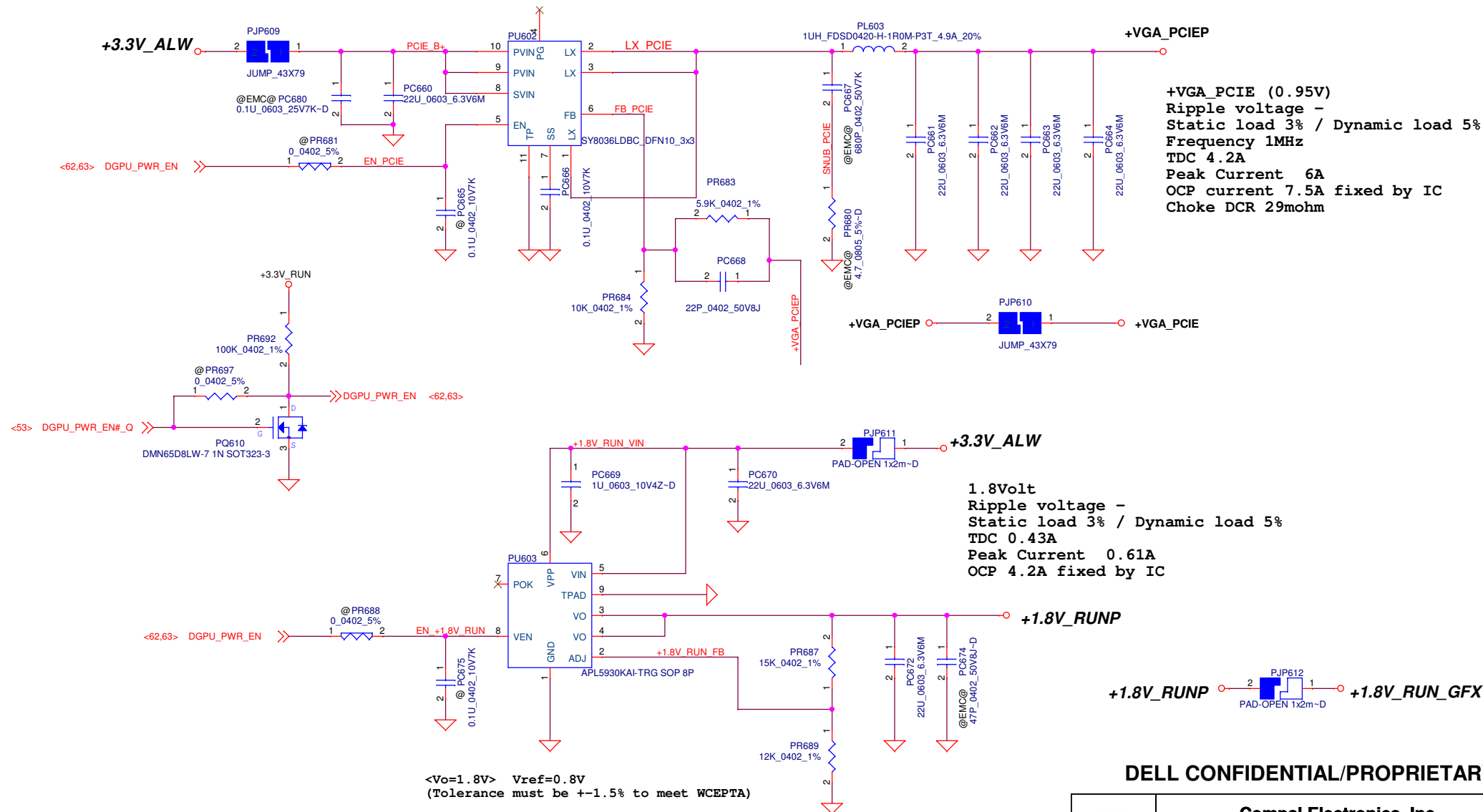
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Initial voltage is 0.85V



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$$V_{FB}=0.6V \quad V_O=V_{FB} \cdot (1+PR683/PR684)=0.6 \cdot (1+5.9K/10K)=0.95V$$



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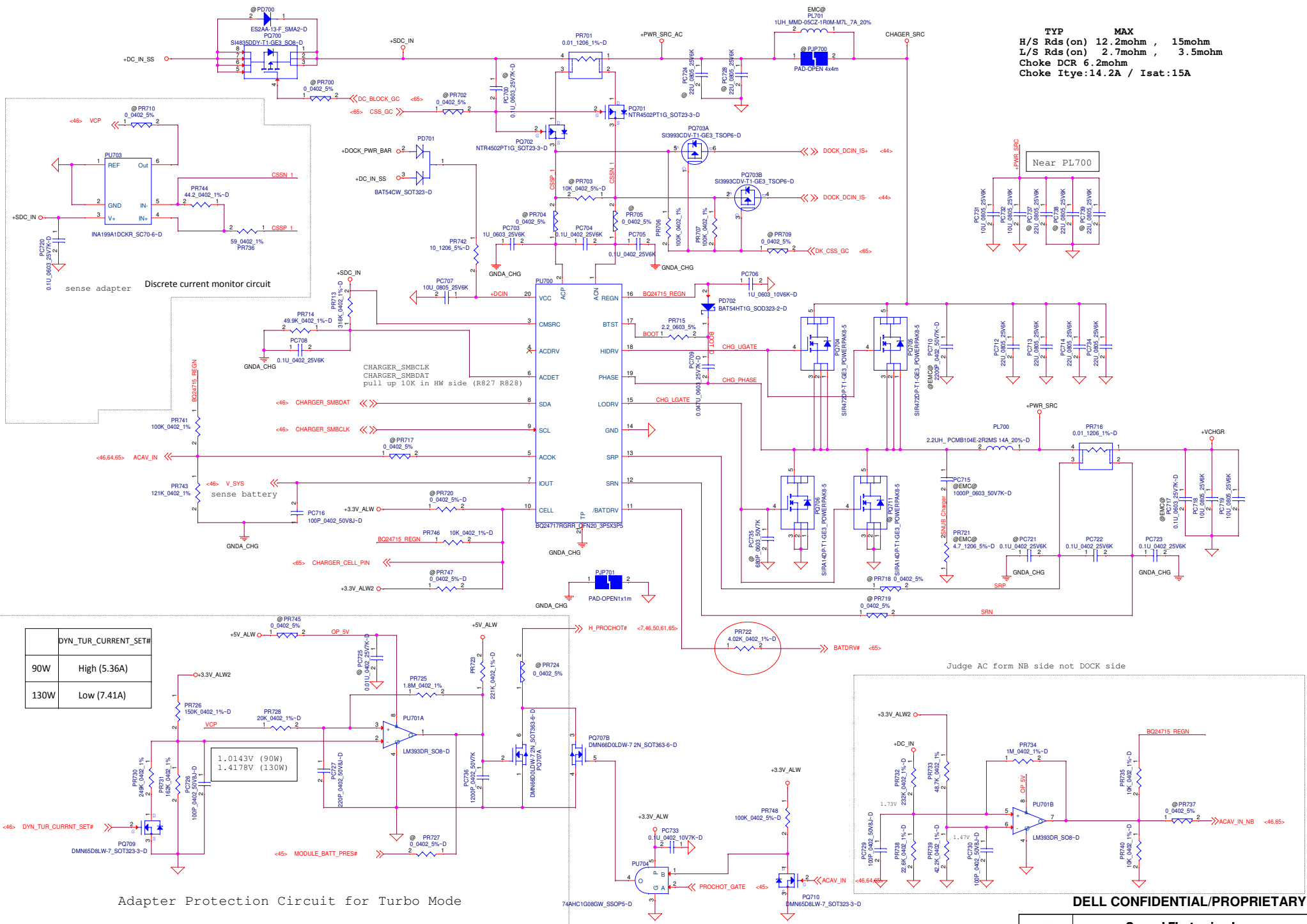
Title	PWR +VGA PCIE/+1.8V RUN GFX
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	LA 0022D	1.0

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TYP MAX  
H/S Rds(on) 12.2mohm , 15mohm  
L/S Rds(on) 2.7mohm , 3.5mohm  
Choke DCR 6.2mohm  
Choke Itye:14.2A / Isat:15A

Near PL700

Judge AC form NB side not DOCK side

Adapter Protection Circuit for Turbo Mode

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**PWR Charger for DSC**

**LA-9932P**

Size Document Number

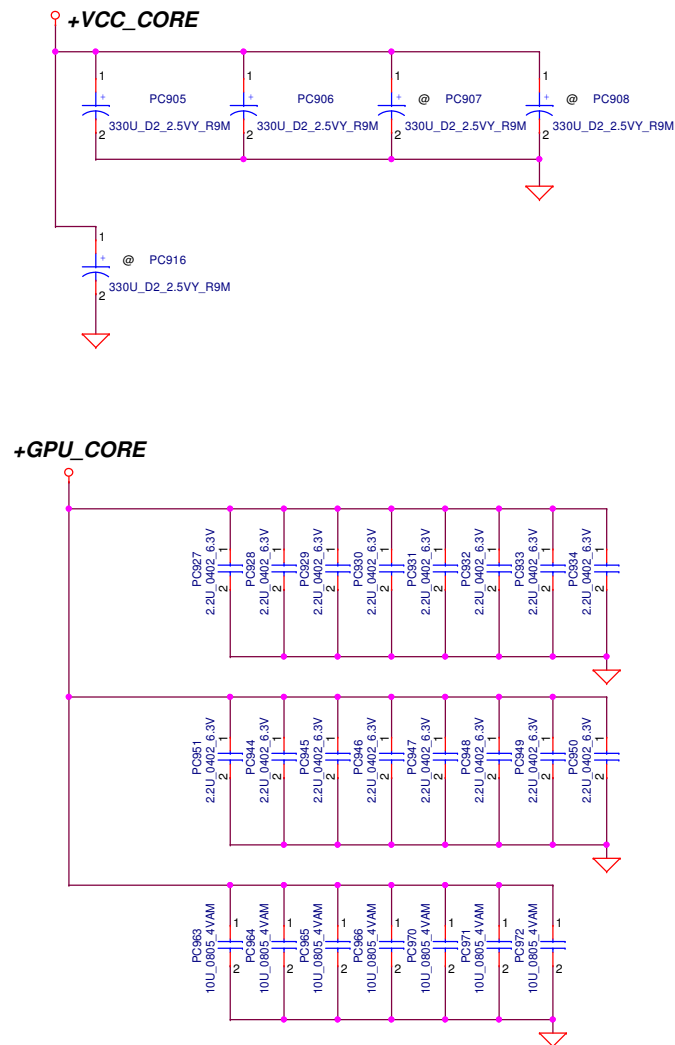
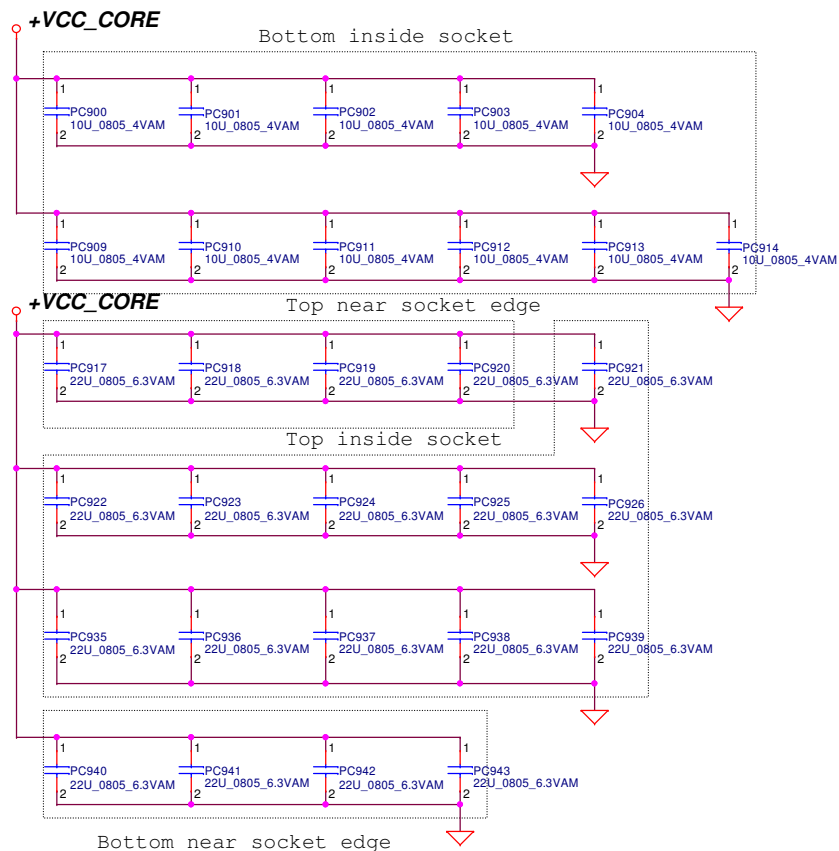
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Based on PDDG rev 1.1 Table 5-1.



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# Version Change List (P. I. R. List)

Item	Page#	Title	Date	Request Owner	Issue Description	Solution Description	Rev.
1	64	Charger	1/8	TI	Change cell pin pull high reference voltage from +3.3V_ALW to BQ24715_REGN	Depop PR720 and pop PR746	X01
2	64	Charger	1/8	Compal	Reduce adapter current ripple	PC714,PC728,PC712,PC713,PC714,PC734 pop 22uF cap	X01
3	61	VCC_CORE	1/8	Compal	Reduce adapter current ripple	Add input jump PJP500 and unpop PL504, PC516 pop 470pF	X01
4	64	Charger	1/8	Compal	Fine tune H_PROCHOT# response time.	Add 0402 cap PC736(1.2nF) on PU701 pin1	X01
5	64	Charger	1/8	Compal	Control H_PROCHOT# when AC removed.	Add PR727(0 ohm) and MODULE_BATT_PRES# connect to PU701 pin1	X01
6	61	VCC_CORE	1/8	Compal HW	Reduce noise on +VCCIO_OUT.	Add 1uF cap (PC548) on +VCCIO_OUT	X01
7	61	Charger	1/8	Compal	For Input current sense stabilize.	PC703 change from 0402 0.1uF to 0603 1uF	X01
8	65	Selector	1/8	Compal	For undock shutdown issue.	Add PQ827 and gate connect to SLICE_BAT_PRES#.	X01
9	64	Charger	1/8	Compal	To prevent charger into sleep mode when dual AC transient.	PC707 change from 1uF to 10uF.	X01
10	64	Charger	1/8	Compal	Improve ACAV_IN_NB ref voltage accuracy.	PR733 connect to +3.3V_ALW2. PR740 change from 12K to 10K PR733 change from 130k to 48.8k	X01
11	61	VCC_CORE	1/8	Intersil	Fine tune IMON, OCP, Iout offset.	Add PR558 4.99M on ISUMP to GND. PR535 change from 432 to 499. PR521 change from 95.3k to 97.6k. PC500 change from 0.01u to 1000p	X01
12	62	GPU_CORE	1/8	Compal HW	Change enable signal to DGPU_PWR_EN.	PC600 unpop, PR600 change from 10k to 0 ohm.	X01
13	64	Charger	1/9	Compal	Fine tune ACOK response time.	PC708 change from 0.01uF to 0.1uF	X01
14	56 65	DCIN selector	1/9	Compal	GPIO net - AC_DIS# is high active. Corrent net name.	AC_DIS# cahnge to AC_DIS.	X01
15	64	Charger	1/9	Compal	Improve current sense accuracy.	PR744=44.2ohm PR736=59ohm	X01
16	65	Selector	1/9	Compal	AC_DIS circuit modify to improve output voltage level.	Add PD820,PQ828,PQ829,PR895.	X01
17	59	1.05V_VM	1/11	Compal	Improve output ripple voltage.	Add 10uF(PC310) on output.	X01
18	62	GPU_CORE	1/11	Compal HW	DGPU_PWR_EN# has glitch when entry S3/S4/S5.	DGPU_PWR_EN# change to DGPU_PWR_EN#_Q.	X01
19	56	DCIN	1/14	Compal	To prevent PD2 damage issue, ESD team suggest pin5 connect to VCC.	PD2 pin5 connect to +3.3V_ALW, Add PR27 0 ohm PD2 change from NXP(SC300001100) to AMC(SC300001G00)	X01
20	61	GPU_CORE	1/15	AMD	Add GPU_VID_4.	Add GPU_VID_4 and 0ohm PR620.	X01
21	64	Charger	1/17	Compal	Adapter protect from rating+0.75A to 2A.	PR730 change from 150k to 249k PR731 change from 66.5K to 162K unpop PR727	X01

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1	37, 45, 46	HW	12/10/2012	Compal	Change R-Pak package.	Change RP3,RP4,RP5,RP6,RP9,RP13 P/N to SD309100380 (Change Package from 1206 to 0804)	X01
2	46	HW	12/10/2012	Compal	Change R-Pak package.	Change RP8 P/N to SD309470180 (Change Package from 1206 to 0804)	X01
3	35	HW	12/10/2012	Compal	Change New TPM Chip	Change U39 P/N to SA00004WQ40 (AT97SC3204-DX4A12-ABF)	X01
4	28	HW	12/18/2012	Compal	Impact SMT DFX stilt and solder risk.	Change JLVDS1 P/N from SP01001BS00 to SP01001BT00	X01
5	20, 35	HW	12/21/2012	DELL	Update GPIO map to rev 3.0C	Reserve PCH GPIO 22 for moving SP_TPM_LPC_EN from OUT65 and add PD 100k(RH332)	X01
6	30	HW	12/21/2012	Compal	Remove non-pop item	Remove R3730	X01
7	46	HW	12/21/2012	DELL	Update GPIO map to rev 3.0C	Add a 0ohm resistor R3772 to short RUNPWROK and AND_PWRGD	X01
8	28	HW	12/21/2012	DELL	ATG droop	Remove ATG config 1@,2@	X01
9	40	HW	12/26/2012	Compal	Support Samsung Galaxy Tab charger in S3.	Change USB charger P/N from SLGC55584AVTR to SLG55594AVTR	X01
10	26	HW	12/27/2012	Compal	Inter-pair skew test issue, PS8401 design change from A3 to A4.	Change HDMI LV Shift P/N from PS8401ATQFN40GTR2-A3 to PS8401ATQFN40GTR2-A4.	X01
11	38	ME	01/02/2013	Compal	JSIM1 BOSS hole update from 3.55mm to 1.7mm.	Change JSIM1 P/N from 159-1000302600 to 159-1000302602	X01
12	47	ME	01/03/2013	Compal	JSF1 pitch change from 0.5mm to 1.0mm	Change JSF1 P/N from A520620-SCHR22 to A090620-SAHR21	X01
13	30	HW	01/03/2013	COMPAL	Follow Realtek recommend circuit	1.Change R1119 ,R1120 to 100K 2.Change R1677 R1679 to 9.1 ohm 3.Change C958,C960 from 0603 to 0805	X01
14	28	HW	01/04/2013	COMPAL	Import U148 of 2nd source	U148 pin4 connect to +3.3V_ALW and remove C33	X01
15	15, 17, 18, 20, 46	HW	01/04/2013	COMPAL	Import R-Pak	R820,R818,R829,R822 change to RP14 R1125,R810,R1156,R819 change to RP15 R814,R920,R870,R876 change to RP16 RH168,RH329,RH125 change to RPH18 R799,R835,R892,R869 change to RP17 RH138,RH136,RH257,RH201 change to RPH19 RH133,RH141,RH143,RH36 change to RPH20 RH122,RH166,RH171,RH217 change to RPH21 R1183,R513,R510,R775 change to RP18 R514,R767,R3,R805 change to RP19 R728,R739,R737,R716 change to RP20	X01
16	46	HW	01/07/2013	COMPAL	Change Board ID from X00 to X01	Change R875 from 240K to 130K	X01
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17	30	HW	01/08/2013	Compal	Follow EMI request	Change 0 ohm to 33 ohm bead for internal SPK (L702~L705)	X01
18	17, 33, 46, 50	HW	01/08/2013	Compal	Follow Crystal EA result.	Change C470,471 from 33pF to 27pF Change CH13,CH14 from 18pF to 12pF Change C743,C741 from 22pF to 27pF Change CV94,CV95 from 10pF to 6.8pF	X01
19	7, 16	HW	01/11/2013	Compal	Follow ESD result.	Change RC35 from 0ohm to 0ohm short Pop RC52 1K Add C1553 0.047u Add C1554 0.047u	X01
20	46	HW	01/11/2013	Compal	Follow EMI result.	Add C1555 0.047u	X01
21	28	HW	01/14/2013	Compal	To avoid +3.3V Camera inrush	De-populate C300 10U_0805 CAP	X01
22	27	HW	01/15/2013	Compal	The RTD2136R ripple is better than S version. The cap can be use small.	Change C109 from 22uF to 10uF.	X01
23	50	HW	01/16/2013	Compal	As Sun PowerPlay Clock PA request, Sun-XT VDDC range from 0.925 to 1.150V, so extra VDDC_VID4 is needed	Add GPU_VID_4 to control ~ 1.150V	X01
24	7	HW	03/11/2013	Compal	Follow Intel DG Rev.1.5	Change RC12 from 10k to 100k.	X01
25	6~45	HW	04/01/2013	Compal	For Vender recommend circuit	Change 0 ohm resistor to short pad Change Q63,QV1 P/N from SB000000RV00 to SB000000ZN00 Change L77 P/N from SM010022010 to SM01000MO00	X02
26	27	HW	04/01/2013	Compal	Follow Realtek recommend circuit	L60,L61,L62 change to R3881,R3882,R3883(Short 0ohm)	X02
27	39	HW	04/01/2013	Dell	Dell don't want EXP@ config on MB.	Remove EXP@ config	X02
28	26	HW	04/01/2013	Compal	Follow HDMI EA result. Change repeter setting.	Pop R86	X02
29	24	HW	04/01/2013	Compal	Follow Icon Brightness result. Change LED resistance.	R955 from 1.8k to 680 ohm R938 from 1.8k to 680 ohm R958 from 620 to 680 ohm R934 from 1K to 1.8k ohm R3671 from 1.4k to 1.8k ohm R949 from 680 to 1.8k ohm	X02
30	36	HW	04/01/2013	Compal	OZ777FJ2 enters into test mode unexpectedly with SD card inserted incompletely.	Add R3884 1M ohm to GND on SD_CD#	X02

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31	15~23, 33	HW	04/01/2013	Compal	Intel ChipSet update.	Change PCH C1 version to C2 version. P/N from SA00006P30L to SA00006P33L	X02
32	13, 14, 40	HW	04/01/2013	Compal	Update OSCON P/N for DFX issue	Change 330uF OSCON P/N from SF000002Z00 to SF000003100 (CD14, CD36) Change 220uF OSCON P/N from SF000002Y00 to SF000003000 (C651)	X02
33	7	HW	04/01/2013	Compal	No support CPU XDP JTAG PU/PD issue	Pop RC59, RC62, RH52 for Intel recommend	X02
34	50	HW	04/01/2013	Compal	GPU_HOT# voltage issue	Change RV103 from 100k to 4.7k for AMD recommend	X02
35	46	HW	04/01/2013	COMPAL	Change Board ID from X01 to X02	Change R875 from 130K to 33K	X02
36	37	HW	04/08/2013	COMPAL	Schematic synchronous	Change R725 PU Net from WIGIG60GHZ_DIS# to WIGIG60GHZ_DIS#_R Add R3885 to WLAN_RADIO_DIS#_R Add R3886 to BT_RADIO_DIS#_R	X02
37	30, 24	HW	04/11/2013	COMPAL	Sleeve / Ring2 have EMI noise.	Add L706, L707 (BLM15BD601SN1D) Add C1556, C1557 (100pF) H20 connect from GND to NC for ESD request. (EMI AGND and DGND noise)	X02
38	7, 16, 32	HW	04/19/2013	COMPAL	The system running DVD will hand when doing ESD test.	Add C1559 47nF cap on SPKR Add C1558 47nF cap on POWER_SW#_MB Pop C1553	X02
39	35	HW	04/23/2013	COMPAL	TPM Chip Update.	Change TMP version from DX4A12 to X4A12. P/N from SA00004WQ40 to SA00004WQ50	X02
37	15~23, 33, 49~55	HW	06/04/2013	COMPAL	Change chip P/N to R3	Change PCH from R1 to R3. P/N from SA00006P33L to SA00006P35L Change PHY from R1 to R3. P/N from SA000050O3L to SA000050O5L Change GPU from R1 to R3. P/N from SA00006ES0L to SA00006ES1L Change VRAM from R1 to R3. P/N from SA00006EU0L to SA00006EU1L	A00
38	46	HW	06/04/2013	COMPAL	Change Board ID from X02 to A00	Change R875 from 33K to 1K	A00
39	18	HW	06/04/2013	COMPAL	Change 0 Ohm to short 0 ohm	Change RH177, RH178, RH179, RH181, RH182, RH183, RH184, RH185 to short 0 ohm	A00

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