

# Compal Confidential

## NAV51 Schematics Document

### Intel Pineview Processor with Tigerpoint + DDRII

2010-03-31

REV: 1.0

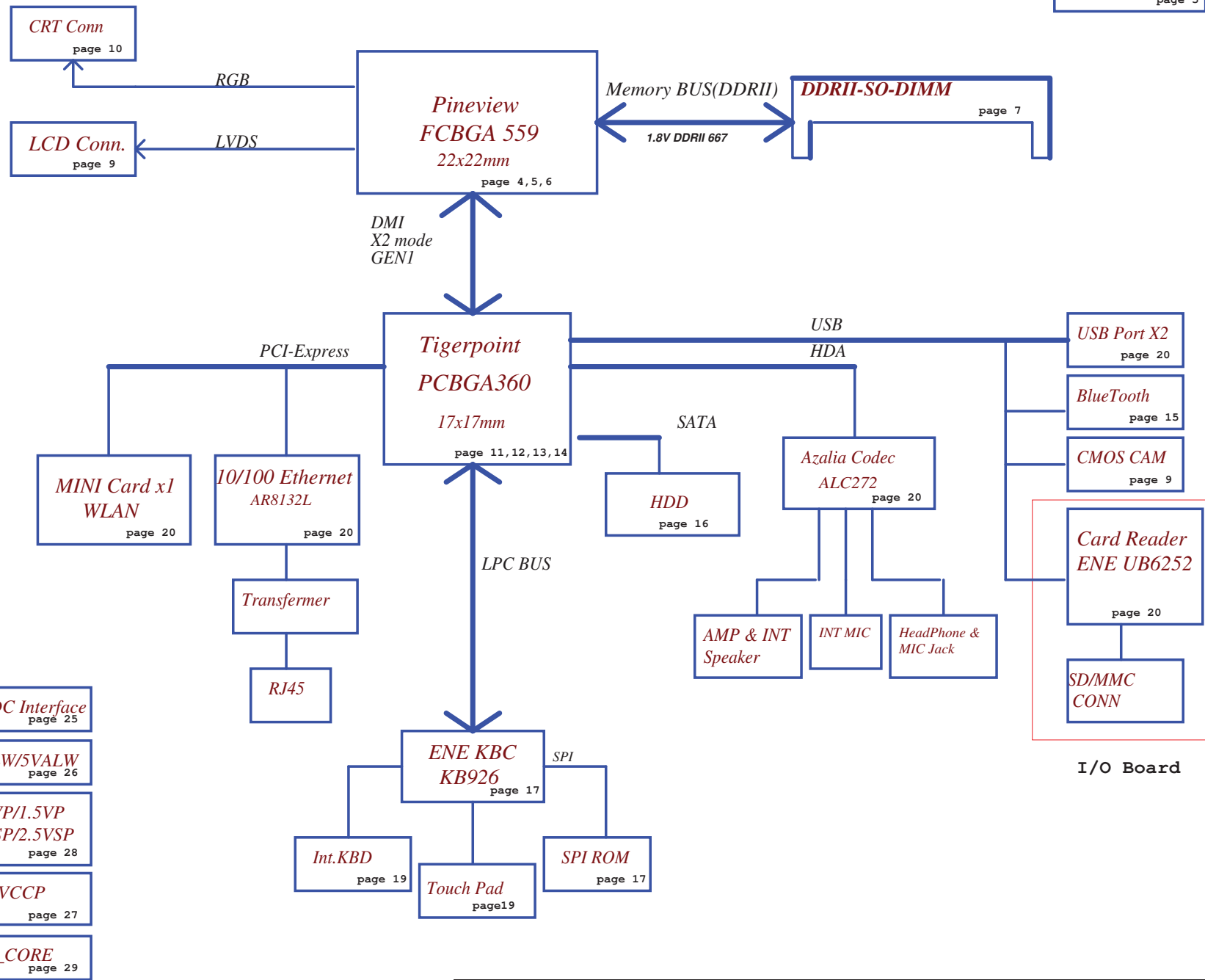
Security Classification	Compal Secret Data			Compal Electronics, Inc.		
Issued Date	2006/08/18	Deciphered Date	2007/8/18	Title	Cover Page	
<small>THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&amp;D OR ANY OTHER ENGINEERING AUTHORIZED PERSONNEL. ANY REPRODUCTION OF THIS SHEET WITHOUT THE WRITTEN CONSENT OF COMPAL ELECTRONICS, INC. MAY BE USE BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.</small>				Size	Document Number	Rev
				B	NAV51 LA-6311P	1.0
				Date:	Tuesday, April 13, 2010	Sheet 1 of 33

# Compal Confidential

Model Name : NAV51  
File Name : LA-6311P

Clock Generator  
CK505  
page 8

Thermal Sensor  
EMC1402  
page 5



- Power ON/OFF** page 18
- DC IN** page 23
- BATT IN** page 24
- CHARGER** page 25
- DC/DC Interface** page 25
- 3VALW/5VALW** page 26
- 0.89VP/1.5VP**  
**0.9VSP/2.5VSP** page 28
- 1.8V/VCCP** page 27
- CPU\_CORE** page 29

Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2006/08/18	Deciphered Date	2007/8/18	Title	
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT OR ENGINEERING DEPARTMENT WITHOUT WRITTEN CONSENT FROM THE PROPRIETARY UNIT CONTAINING. ANY REUSE BY OR DISCLOSURE TO ANY THIRD PARTY WITHOUT WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.				Size	Document Number
				B	NAV51 LA-6311P
				Date	Rev
				Tuesday, April 13, 2010	1.0
				Sheet	2 of 33

## Voltage Rails

Power Plane	Description	S1	S3	S5
VIN	Adapter power supply (19V)	ON	ON	ON
B+	AC or battery power rail for power circuit.	ON	ON	ON
+CPU_CORE	Core voltage for CPU	ON	OFF	OFF
+0.9VS	0.9V switched power rail for DDR terminator	ON	OFF	OFF
+VCCP	VCCP switched power rail	ON	OFF	OFF
+1.5VS	1.5V switched power rail	ON	OFF	OFF
+1.8V	1.8V power rail for DDR	ON	ON	OFF
+0.89V	Graphic core power rail	ON	OFF	OFF
+3VALW	3.3V always on power rail	ON	ON	ON*
+3VS	3.3V switched power rail	ON	OFF	OFF
+5VALW	5V always on power rail	ON	ON	ON*
+5VS	5V switched power rail	ON	OFF	OFF
+VSB	VSB always on power rail	ON	ON	ON*
+RTCVCC	RTC power	ON	ON	ON

Note : ON\* means that this power plane is ON only with AC power available, otherwise it is OFF.

STATE	SIGNAL	SLP_S3#	SLP_S4#	SLP_S5#	+VALW	+V	+VS	Clock
Full ON	HIGH	HIGH	HIGH	HIGH	ON	ON	ON	ON
S1 (Power On Suspend)	HIGH	HIGH	HIGH	HIGH	ON	ON	ON	LOW
S3 (Suspend to RAM)	LOW	HIGH	HIGH	HIGH	ON	ON	OFF	OFF
S4 (Suspend to Disk)	LOW	LOW	HIGH	HIGH	ON	OFF	OFF	OFF
S5 (Soft OFF)	LOW	LOW	LOW	LOW	ON	OFF	OFF	OFF

## BOARD ID Table(Page 17)

Board ID	Rb / Rd / Rf	V <sub>AD_BID</sub> min	V <sub>AD_BID</sub> typ	V <sub>AD_BID</sub> max
0 (EVT)	0	0 V	0 V	0 V
1 (DVT)	8.2K +/- 5%	0.216 V	0.250 V	0.289 V
2 (PVT)	18K +/- 5%	0.436 V	0.503 V	0.538 V
3 (MP)	33K +/- 5%	0.712 V	0.819 V	0.875 V
4	56K +/- 5%	1.036 V	1.185 V	1.264 V
5	100K +/- 5%	1.453 V	1.650 V	1.759 V
6	200K +/- 5%	1.935 V	2.200 V	2.341 V
7	NC	2.500 V	3.300 V	3.300 V

## BOARD ID Table

Board ID	PCB Revision
0	0.1
1	0.2
2	
3	
4	
5	
6	
7	

## External PCI Devices

DEVICE	IDSEL #	REQ/GNT #	PIRQ
--------	---------	-----------	------

No PCI Device

## EC SM Bus1 address

Device	Address
Smart Battery	0001 011X b

## EC SM Bus2 address

Device	Address
EMC1402	100_1100

## Tiger Point SM Bus address

Device	Address
Clock Generator (SLG8SP556VTR)	1101 001Xb
DDR DIMMA	1010 000Xb

## USB table

EHCI1	UHCI1	Port0	MB USB Conn1.	
		Port1	MB USB Conn2.	
	UHCI2	Port2		
	UHCI3	Port3	CMOS	
		Port4	Card Reader	
		Port5		
EHCI2		Port6	BT	
		Port7	WLAN	
	UHCI4	Port8		
		UHCI5	Port9	
			Port10	
			Port11	

## PCIE table

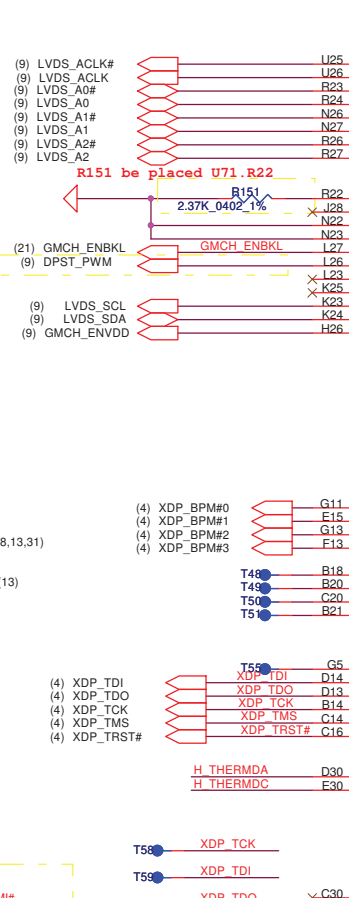
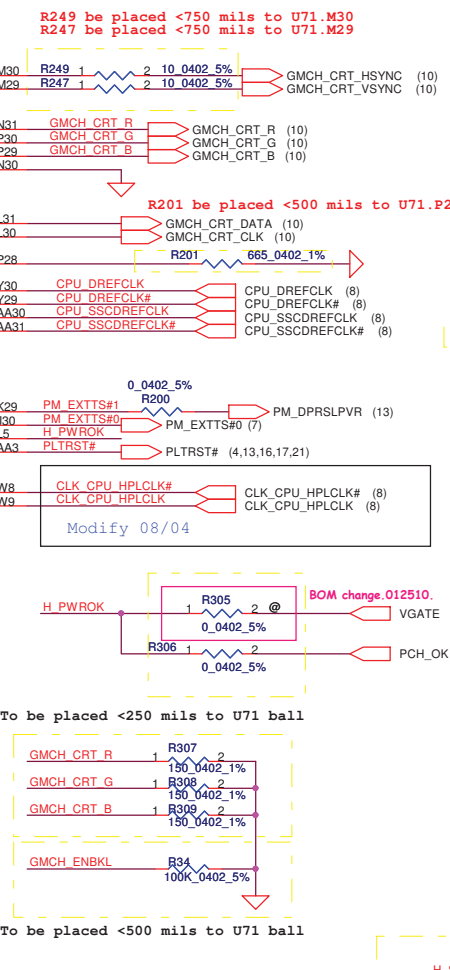
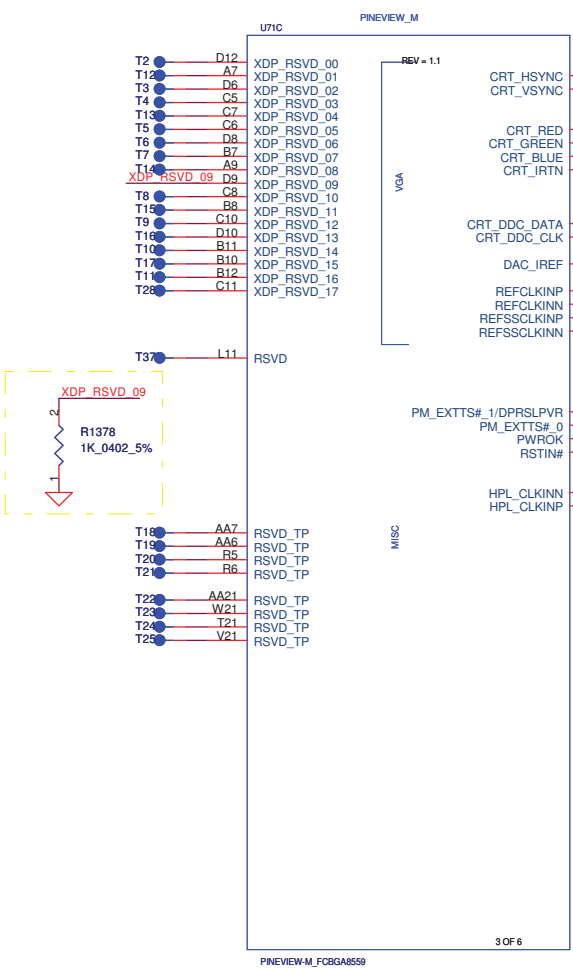
PCIE port1	LAN
PCIE port2	Wireless Card
PCIE port3	
PCIE port4	
PCIE port5	
PCIE port6	

## SATA table

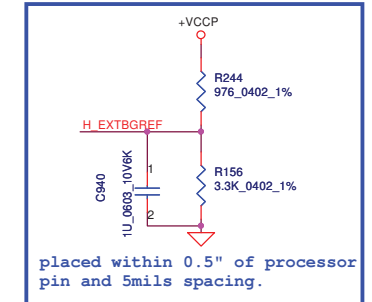
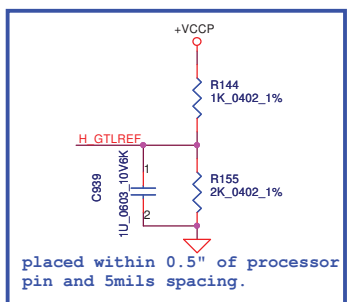
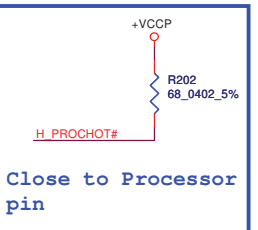
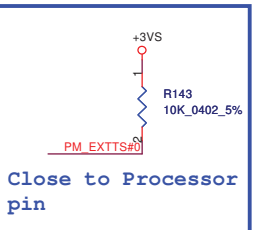
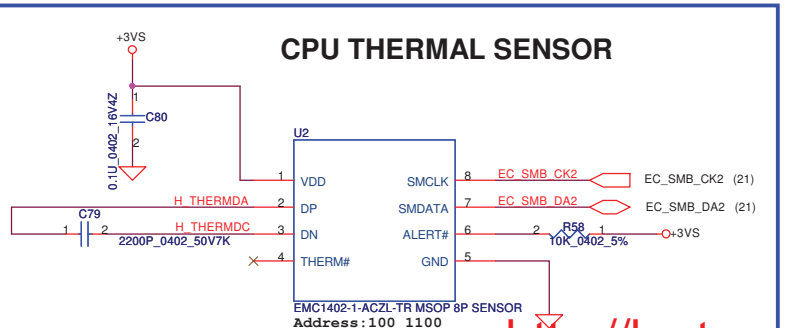
SATA port0	HDD
SATA port1	
SATA port2	
SATA port3	
SATA port4	
SATA port5	

Security Classification	Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2006/08/18	Deciphered Date	2007/8/18	Title
				Notes List
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT ENGINEERING WITHOUT WRITTEN PERMISSION FROM THE COMPETENT DIVISION OF R&D DEPARTMENT. ANY USE OF THIS SHEET WITHOUT WRITTEN PERMISSION FROM THE COMPETENT DIVISION OF R&D DEPARTMENT IS STRICTLY PROHIBITED.				Size B
NAV51 LA-6311P				Rev 1.0
Date: Tuesday, April 13, 2010				Sheet 3 of 33





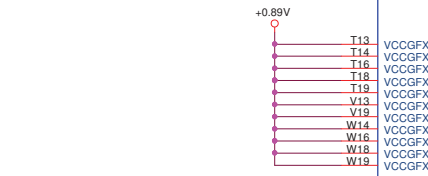
H\_THERMDA, H\_THERMDC routing together.  
Trace width / Spacing = 10 / 10 mil



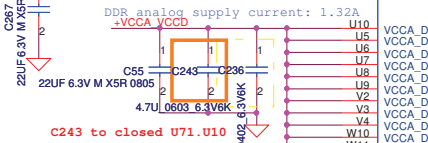
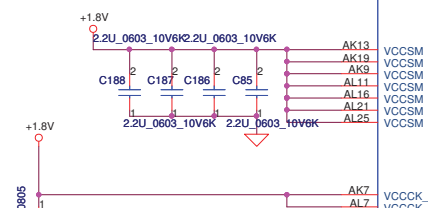
Security Classification		Compal Secret Data	
Issued Date	2006/08/18	Deciphered Date	2007/8/18
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED FOR OR DISCLOSED TO ANY THIRD PARTY WITHOUT WRITTEN PERMISSION FROM COMPAL ELECTRONICS, INC.			

Title		Compal Electronics, Inc.	
Pineview(2/3)		Size B	
Document Number	NAV51 LA-6311P	Date:	Tuesday, April 13, 2010
Rev	1.0	Sheet	5 of 33

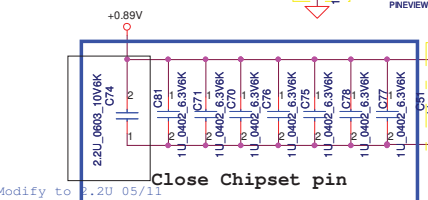
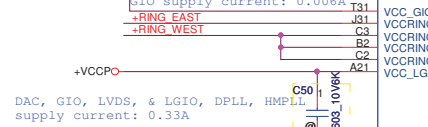
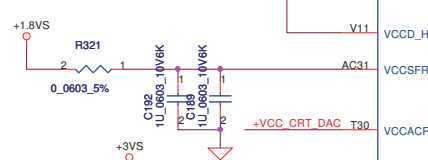
GFX supply current: 1.38A  
Sustained GFX supply current: 1.05A



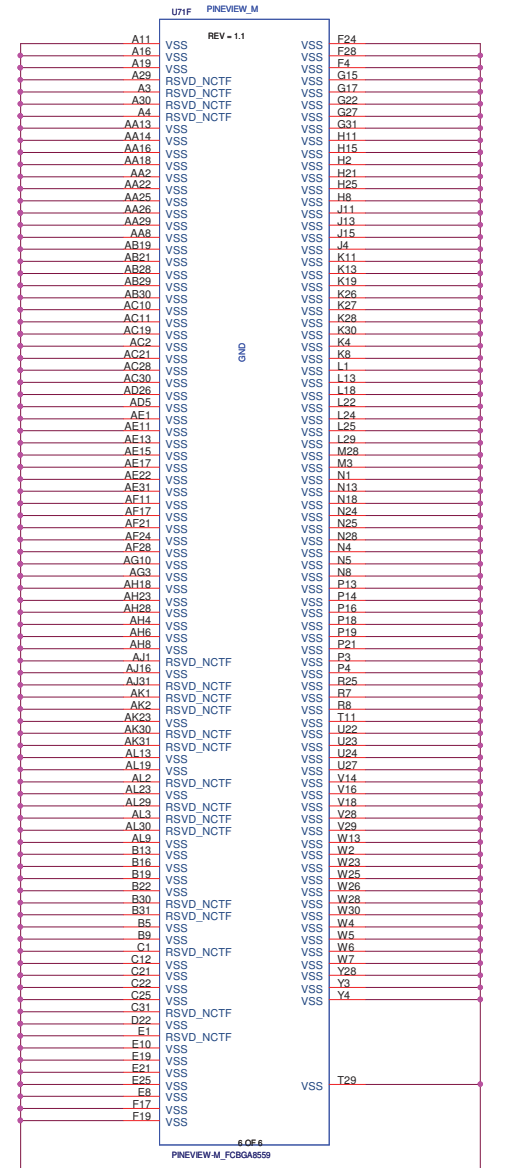
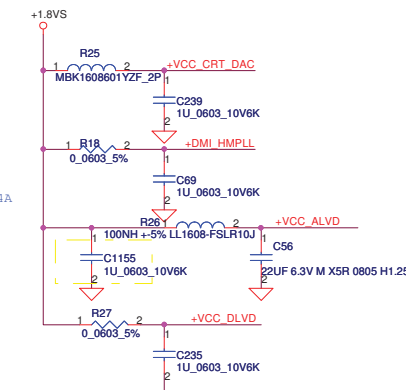
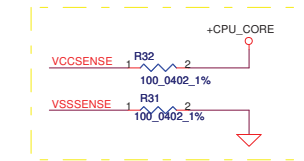
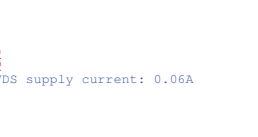
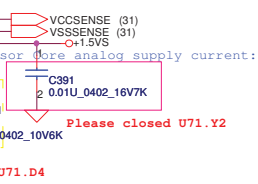
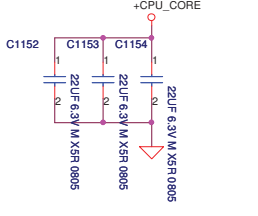
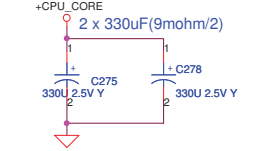
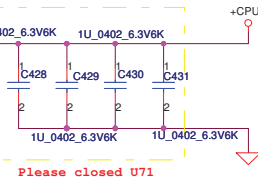
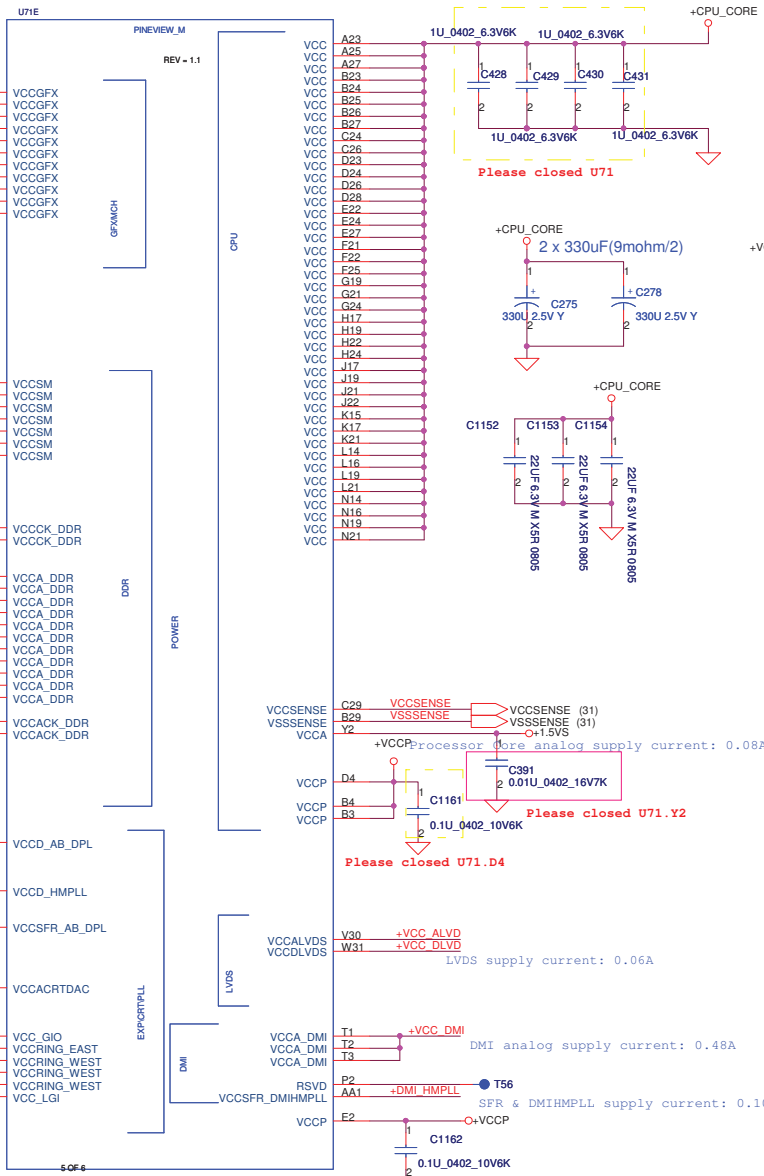
DDR supply current 2.27A



Display PLL SFR and CRT DAC supply current: 0.154A



Modify to 2.2U 05/11



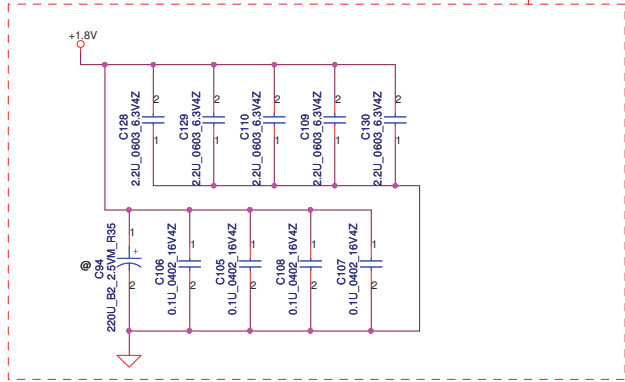
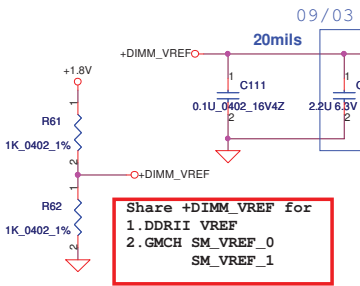
Security Classification	Compal Secret Data		
Issued Date	2006/08/18	Deciphered Date	2007/8/18
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT OR BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS WITHOUT THE WRITTEN PERMISSION OF COMPAL ELECTRONICS, INC. ANY USE BY OR FOR OTHER THAN THE ORIGINAL PART OR THE ORIGINAL POWER WITH THE WRITTEN PERMISSION OF COMPAL ELECTRONICS, INC.			

Compal Electronics, Inc.			
Title Pineview(3/3)			
Size Custom	Document Number NAV51 LA-6311P	Rev 1.0	
Date: Tuesday, April 13, 2010	Sheet 6	of 33	

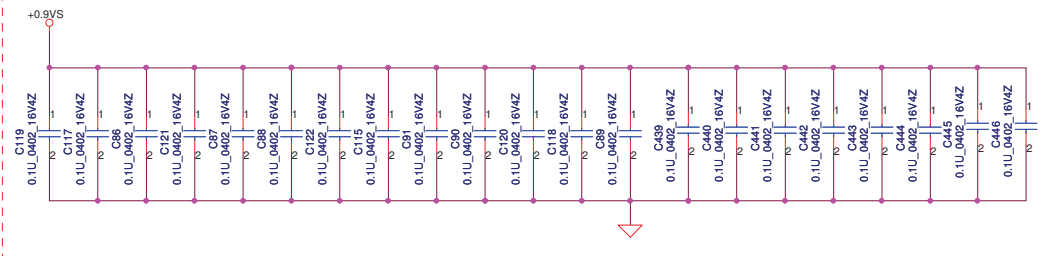
<http://laptop-motherboard-schematic.blogspot.com/>

- (4) DDR\_A\_DOS[0..7]
- (4) DDR\_A\_D[0..63]
- (4) DDR\_A\_DM[0..7]
- (4) DDR\_A\_DOS[0..7]
- (4) DDR\_A\_MA[0..14]

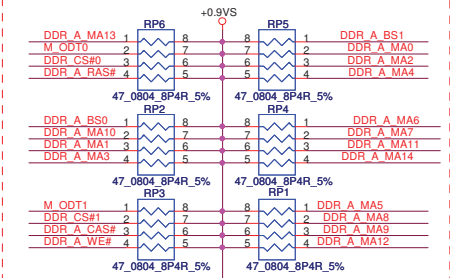
**Layout Note:**  
Place near JDIM1



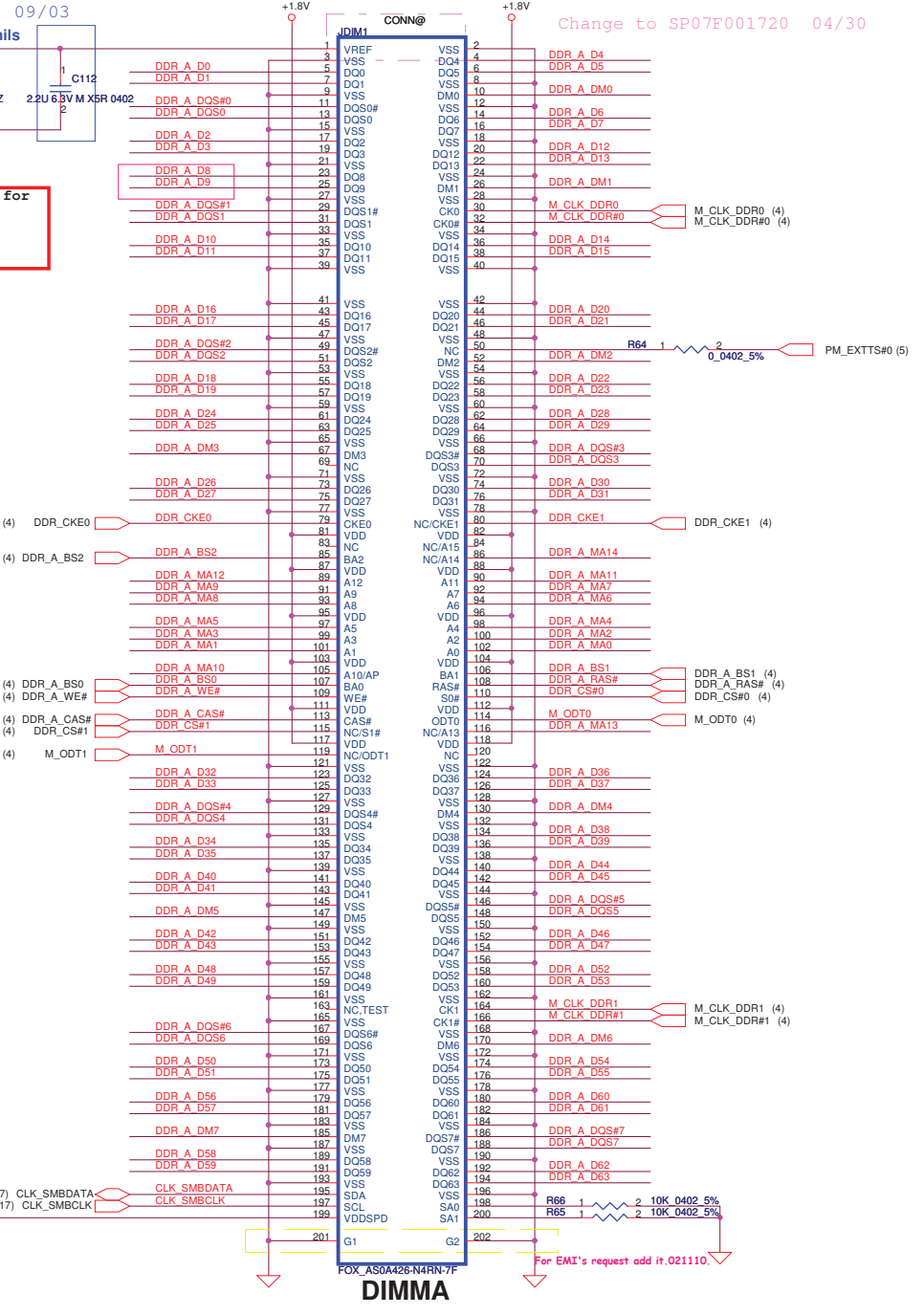
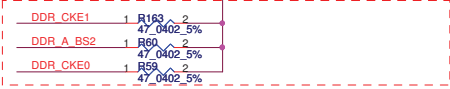
**Layout Note:**  
Place one cap close to every 2 pullup resistors terminated to +0.9VS



**Layout Note:**  
Place this resistor closely DIMMA, all trace length < 1000 mil



**Layout Note:**  
Place this resistor closely DIMMA, all trace length Max=1000 mil



Change to SP07F001720 04/30

Security Classification	Compal Secret Data	
Issued Date	2006/08/18	Deciphered Date
		2007/8/18

THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE REPRODUCED OR DISCLOSED TO ANY THIRD PARTY WITHOUT THE WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.

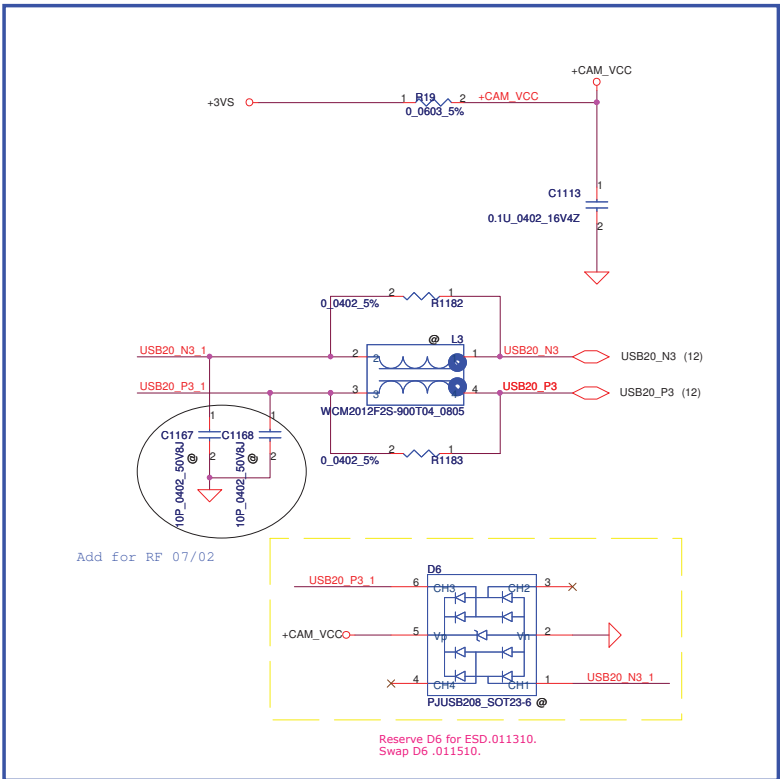
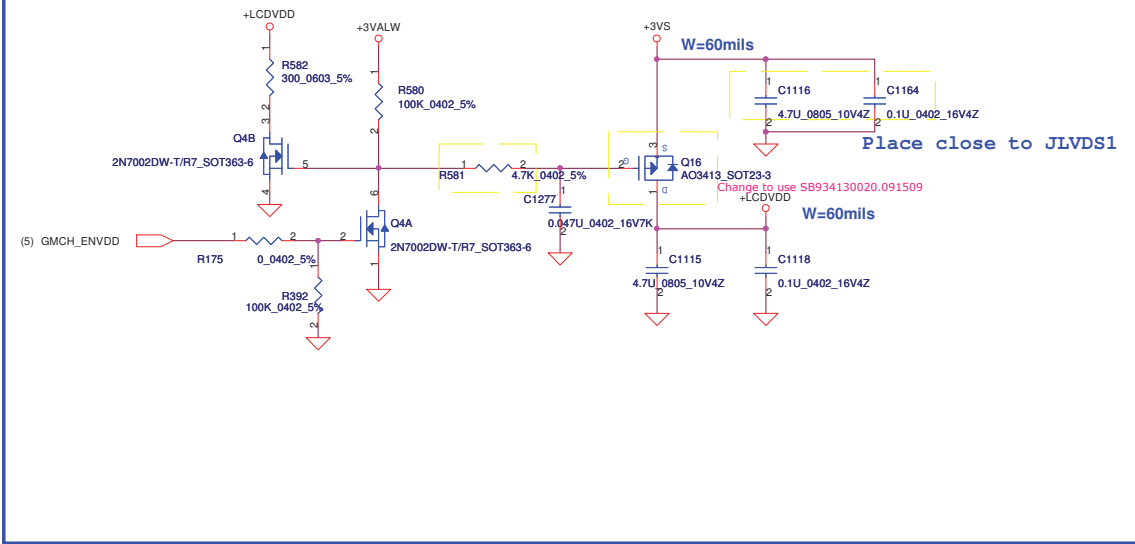
Compal Electronics, Inc.		
Title		
DDRII-SODIMMA		
Size	Document Number	Rev
B	NAV51 LA-6311P	1.0
Date:	Tuesday, April 13, 2010	Sheet 7 of 33



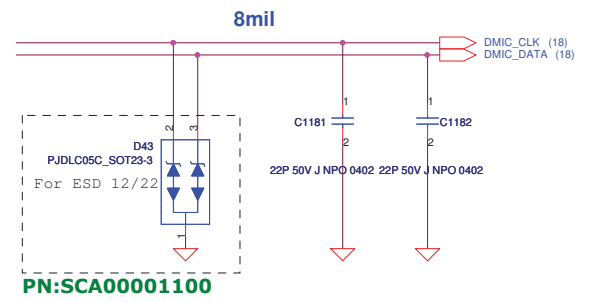
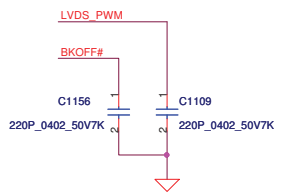
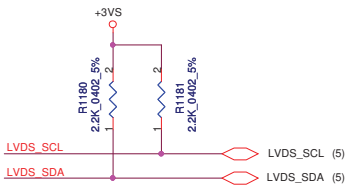
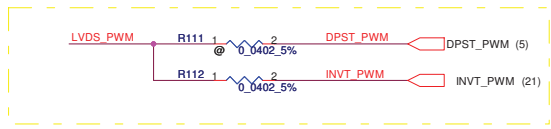
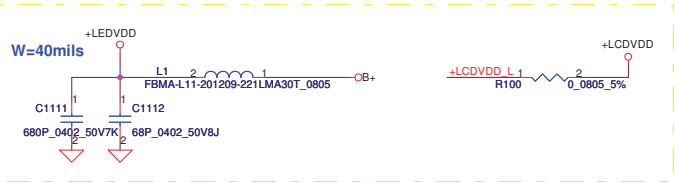
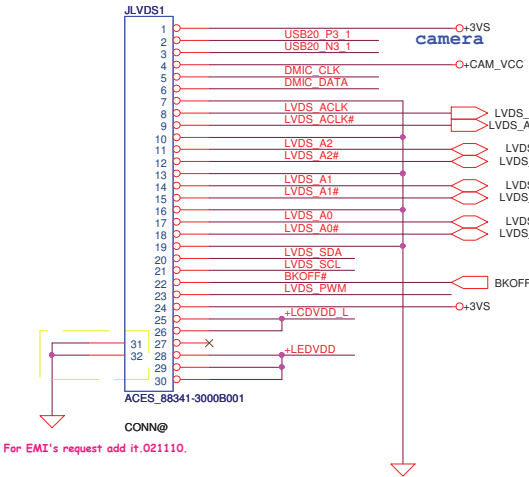




# LCD POWER CIRCUIT

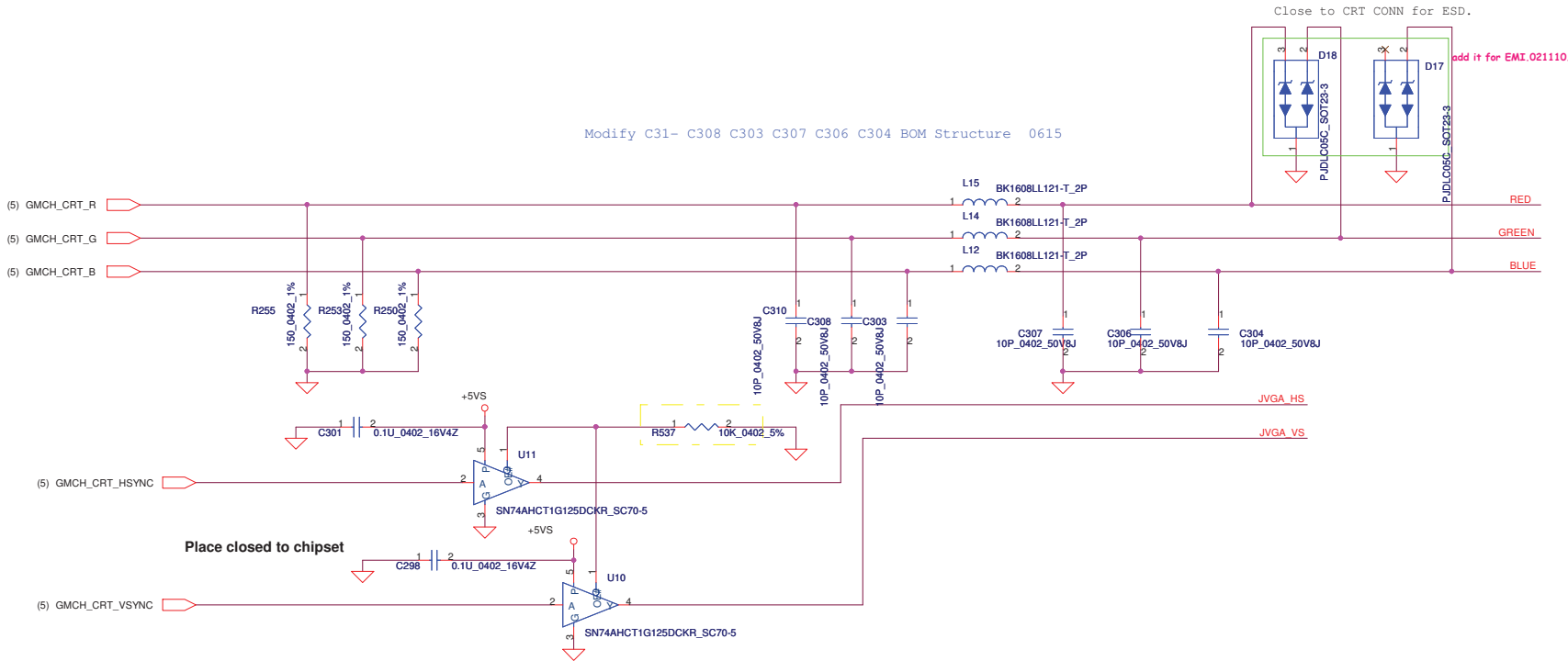


# CMOS & LCD/PANEL BD. Conn.

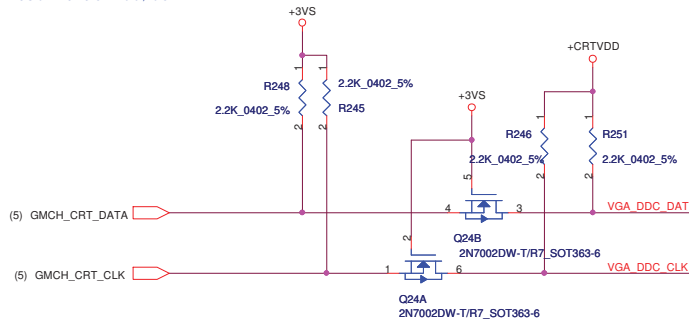


For EMI's request add it.021110.

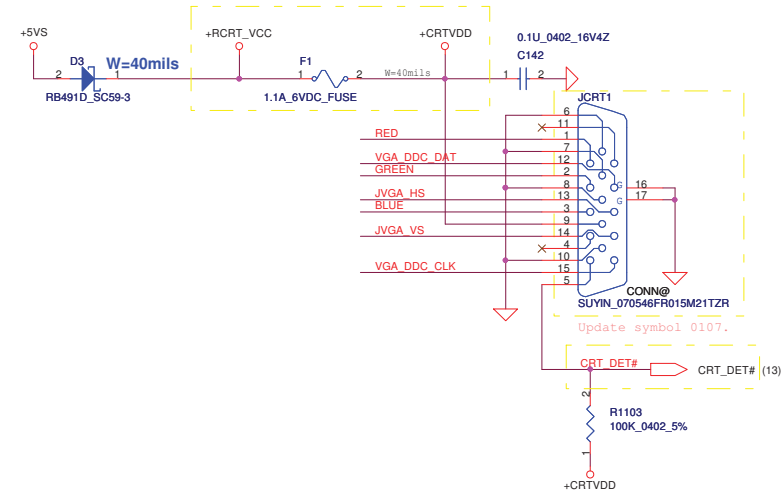
Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2006/08/18	Deciphered Date	2007/8/18	Title	
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT OR BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS WITHOUT THE WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.				Size	Document Number
				B	NAV51 LA-6311P
				Date:	Tuesday, April 13, 2010
				Sheet	9 of 33



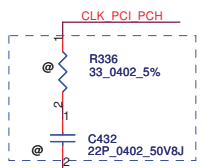
Add R1283 R1284  
Change R247 R249 to 10 ohm  
Add @ on U10 U11 C301 C298 06/08



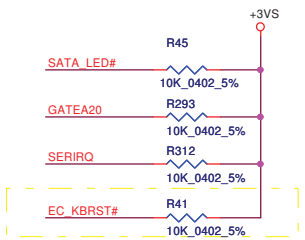
### CRT PORT



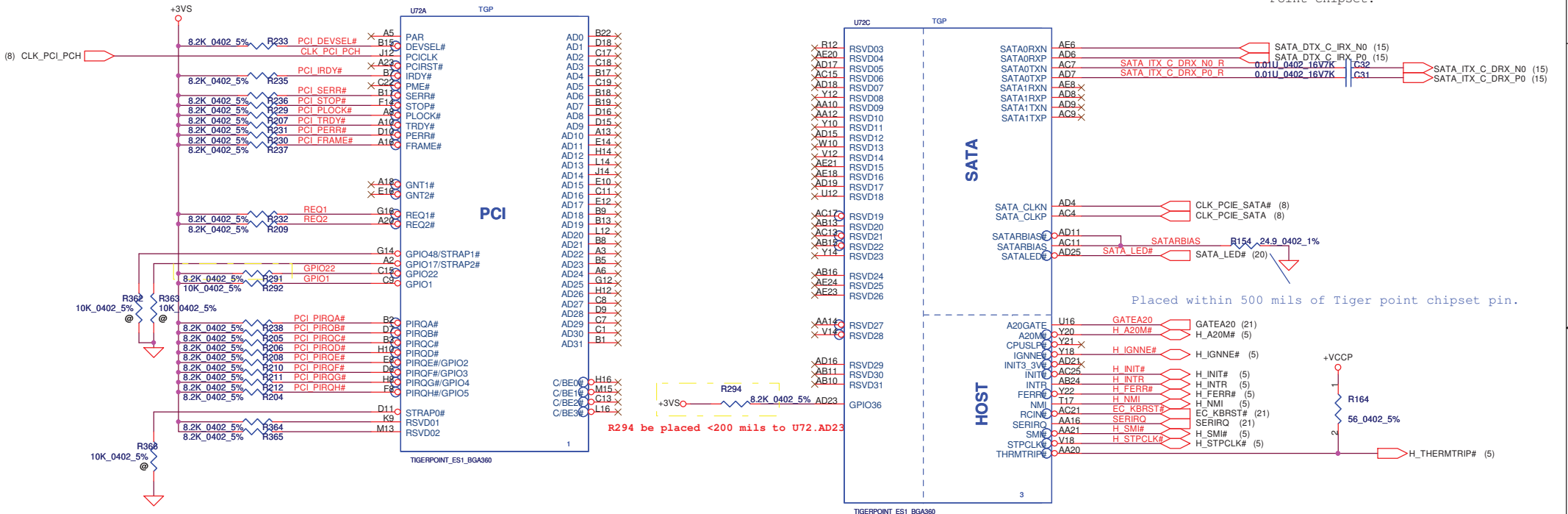
Security Classification			Compal Secret Data			Compal Electronics, Inc.		
Issued Date	2006/08/18	Deciphered Date	2007/8/18	Title				
				CRT PORT				
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT OR ENGINEERING DEPARTMENT TO ANY THIRD PARTY WITHOUT WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.		Size B		Document Number		Rev		
				NAV51 LA-6311P		0.2		
Date: Tuesday, April 13, 2010			Sheet 10 of 33					



For EMI, close to TigerPoint



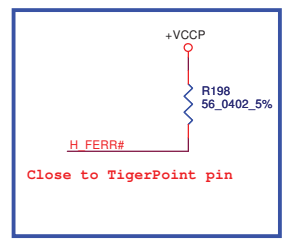
56 ohm±5% pull-up resistor has to be within 1" from the Tiger Point chipset.



Placed within 500 mils of Tiger point chipset pin.

R294 be placed <200 mils to U72.AD23

STRAP2# GPIO17	STRAP1# GPIO48	Boot BIOS
0	1	SPI
1	0	PCI
1	1	LPC



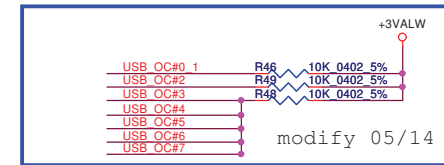
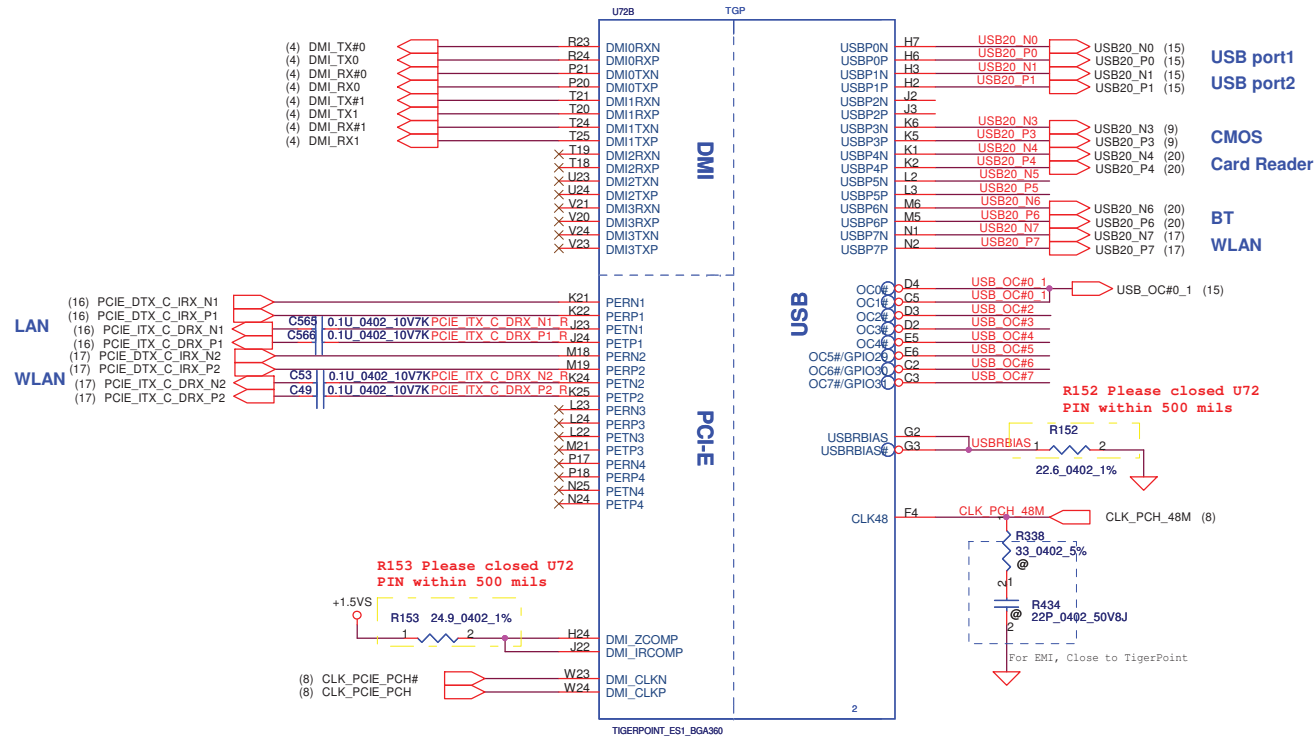
Close to TigerPoint pin

ESD request		
H_A20M#	C450@	2 100P 0402 50V8J
H_IGNNE#	C451@	2 100P 0402 50V8J
H_INIT#	C452@	2 100P 0402 50V8J
H_INTR#	C453@	2 100P 0402 50V8J
H_FERR#	C454@	2 100P 0402 50V8J
H_NMI#	C455@	2 100P 0402 50V8J
H_SM#	C456@	2 100P 0402 50V8J
H_STPCLK#	C457@	2 100P 0402 50V8J

Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2006/08/18	Deciphered Date	2007/8/18	Title	
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE REPRODUCED OR DISCLOSED TO ANY THIRD PARTY WITHOUT WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.				Tigerpoint(1/4)	
Size	Document Number	NAV51 LA-6311P		Rev	1.0
Date:	Tuesday, April 13, 2010	Sheet	11	of	33

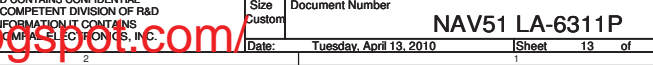
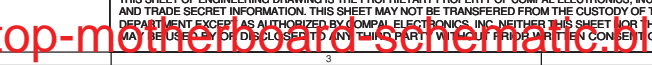
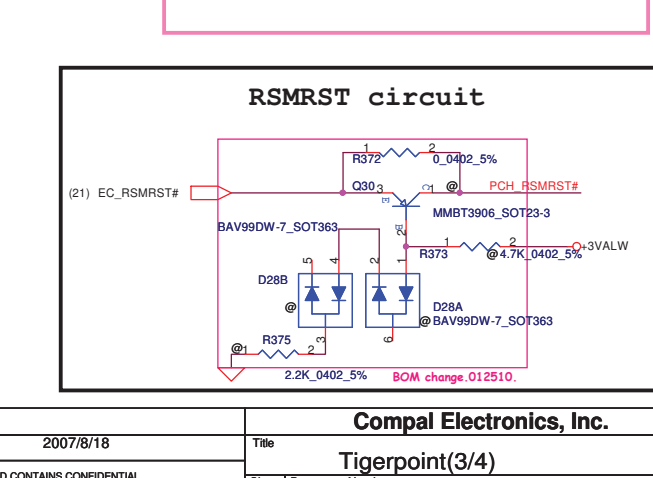
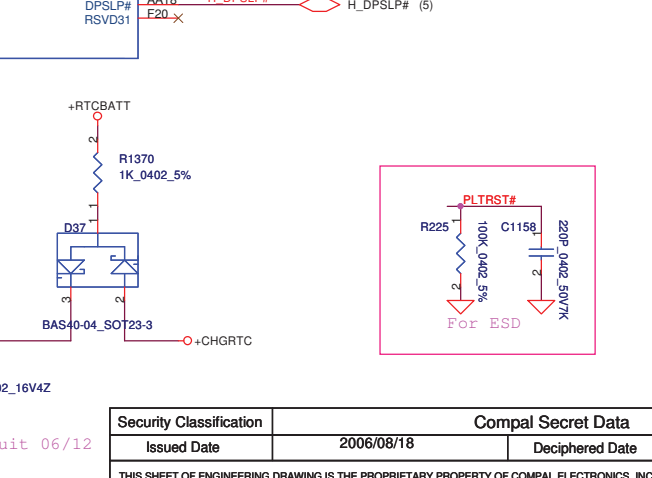
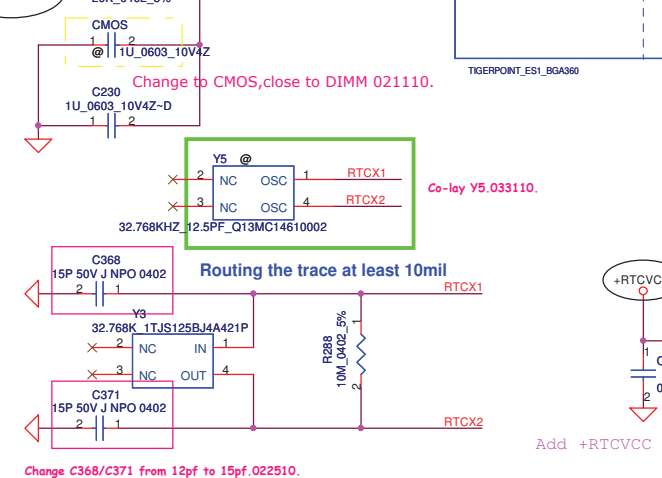
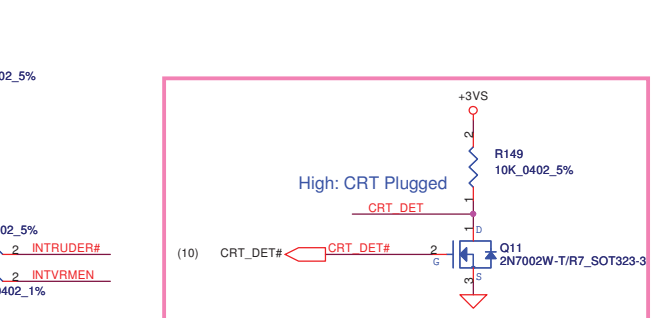
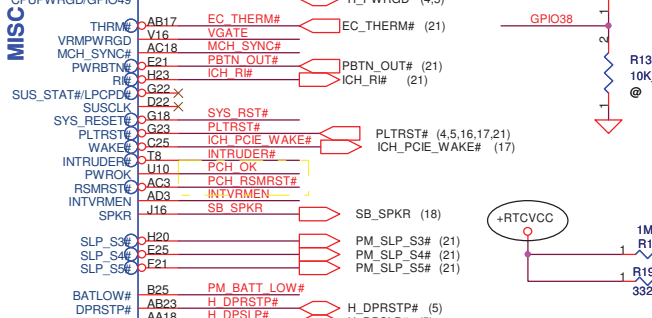
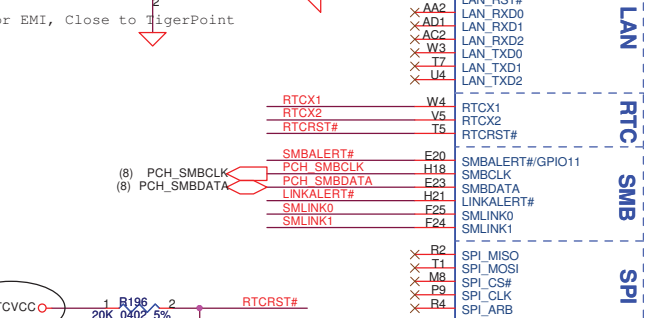
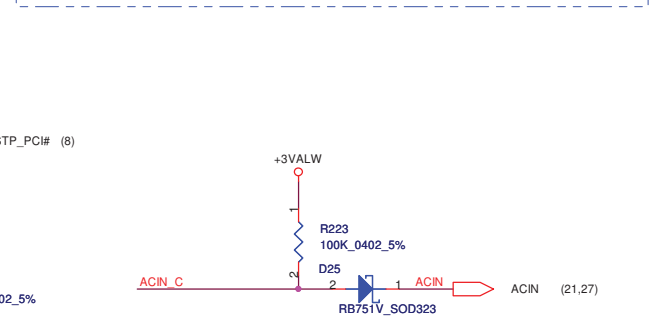
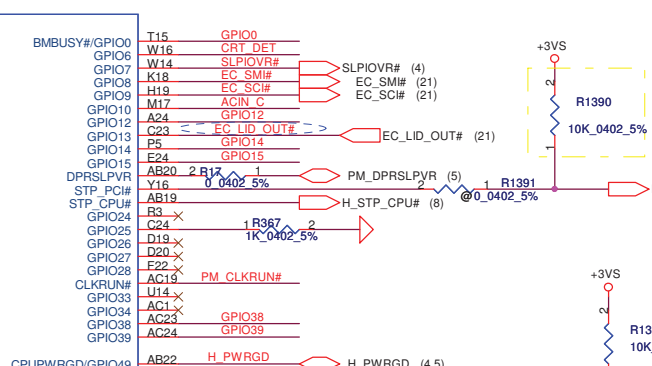
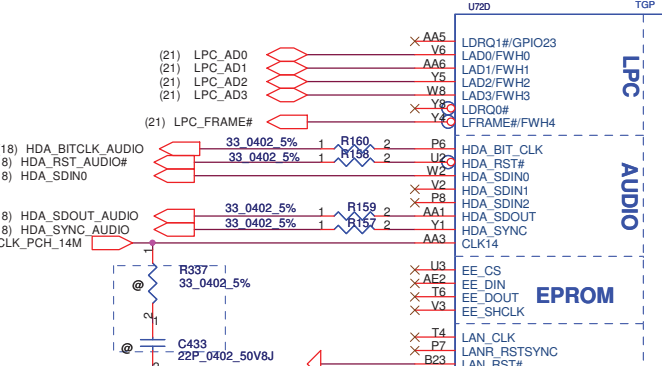
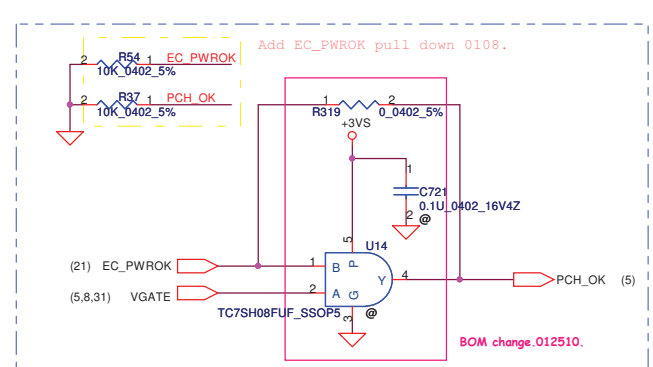
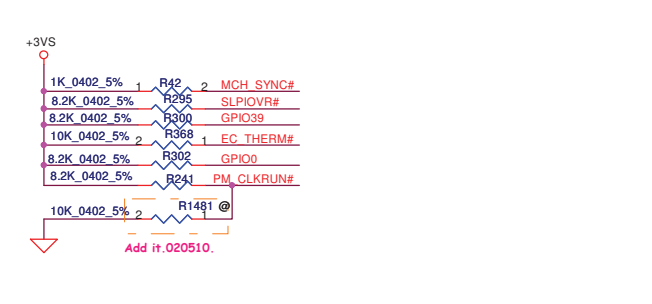
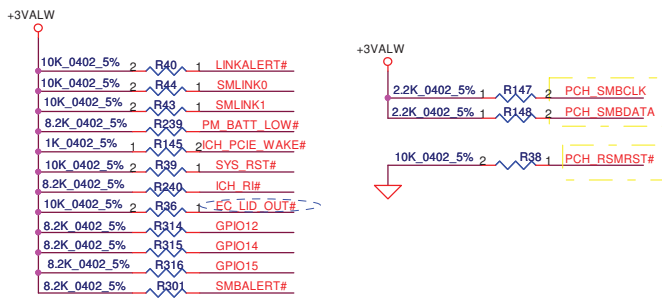
PCIe Port List	
1	LAN
2	WLAN
3	
4	

USB Port List	
0	USB Left1
1	USB Left2
2	
3	CMOS
4	CardReader
5	
6	BT
7	WLAN



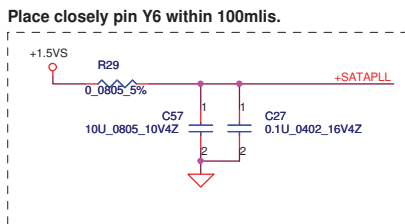
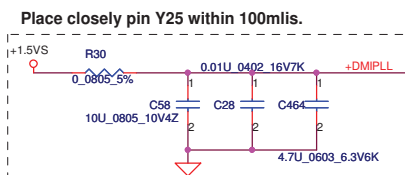
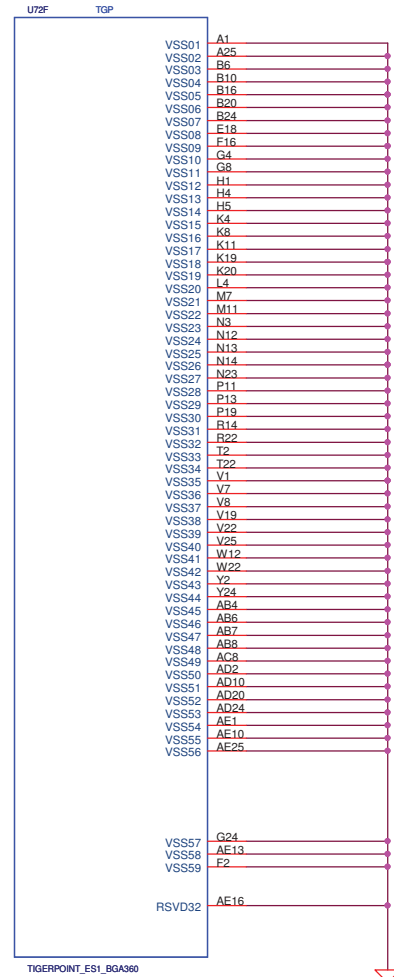
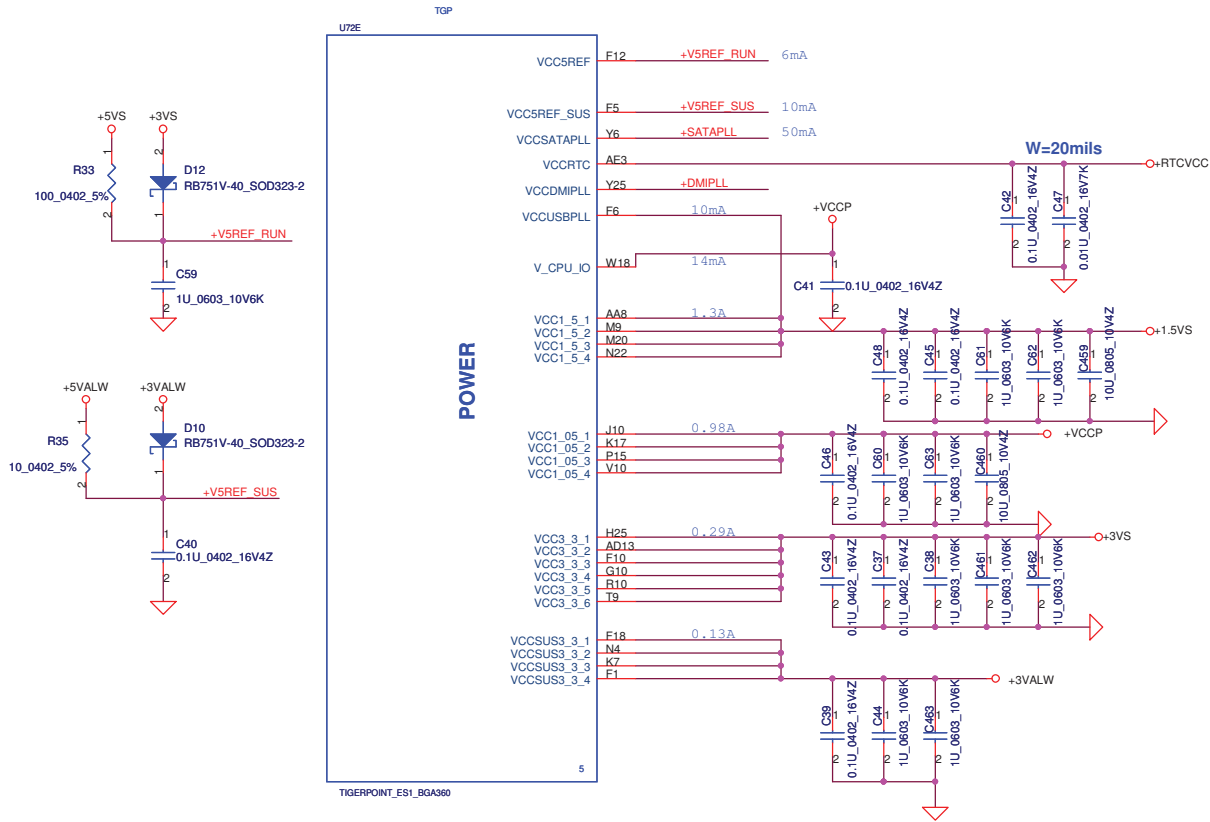
Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2006/08/18	Deciphered Date	2007/8/18	Title	
				Tigerpoint(2/4)	
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE REPRODUCED OR DISCLOSED TO ANY THIRD PARTY WITHOUT WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.					
Size	Custom	Document Number	NAV51 LA-6311P		Rev
Date:	Tuesday, April 13, 2010	Sheet	12	of	33

<http://laptop-motherboard-schematic.blogspot.com/>



Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2006/08/18	Deciphered Date	2007/8/18	Title	
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE REPRODUCED OR DISCLOSED TO ANY THIRD PARTY WITHOUT WRITTEN PERMISSION FROM COMPAL ELECTRONICS, INC.				Tigerpoint(3/4)	
Size Custom	Document Number	NAV51 LA-6311P		Rev 1.0	
Date	Tuesday, April 13, 2010	Sheet	13	of 33	

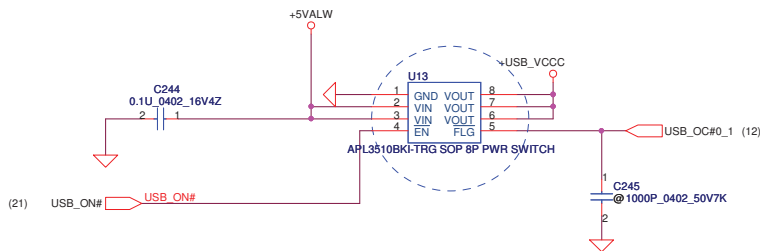
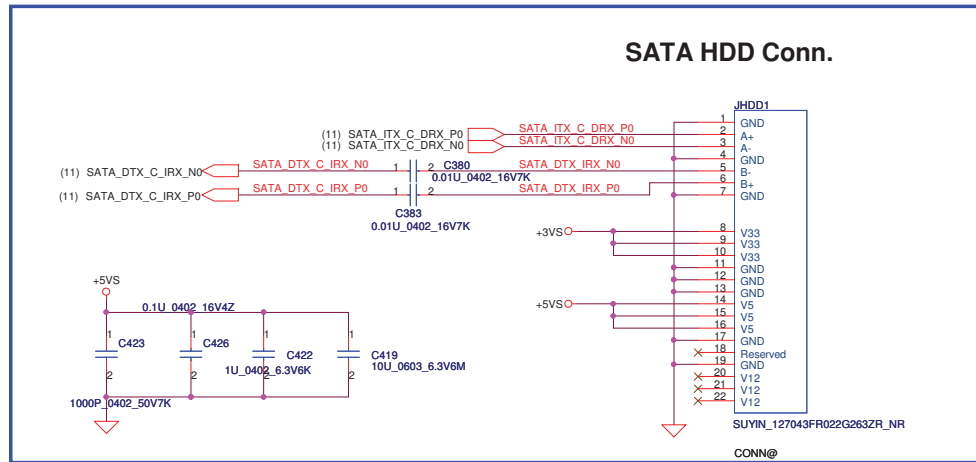
<http://laptop-motherboard-schematic.blogspot.com/>



Security Classification	Compal Secret Data			Compal Electronics, Inc.	
Issued Date	2009/04/15	Deciphered Date	2010/04/15	Title	
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY ANY PERSON IN ANY MANNER WITHOUT THE WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.				Tigerpoint(4/4)	
Size	Document Number	NAV51 LA-6311P		Rev	0.1
Custom	Date:	Tuesday, April 13, 2010	Sheet	14	of 33

<http://laptop-motherboard-schematic.blogspot.com/>

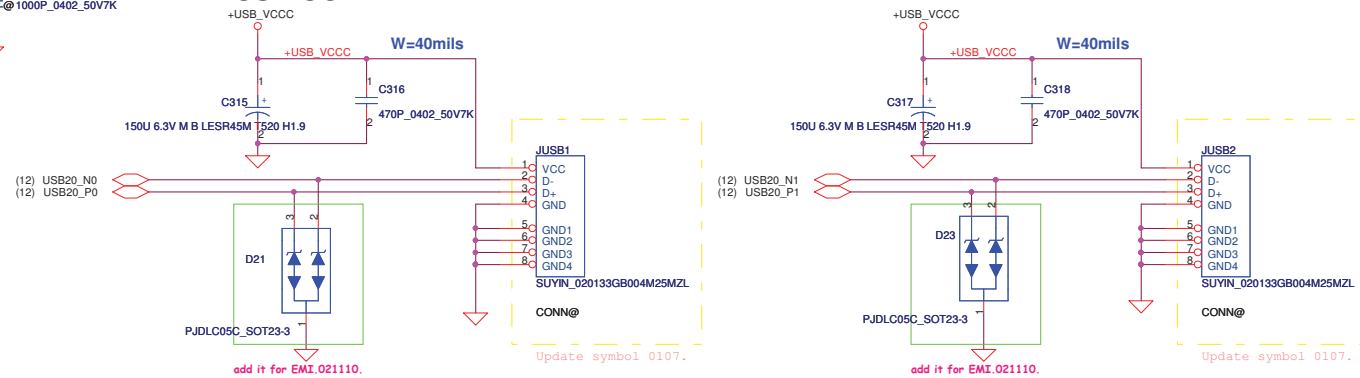




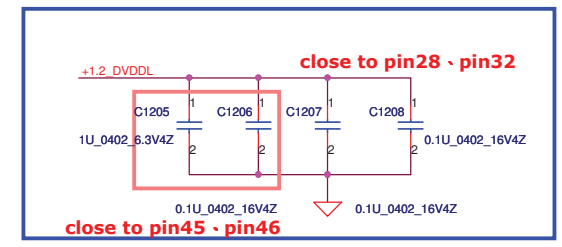
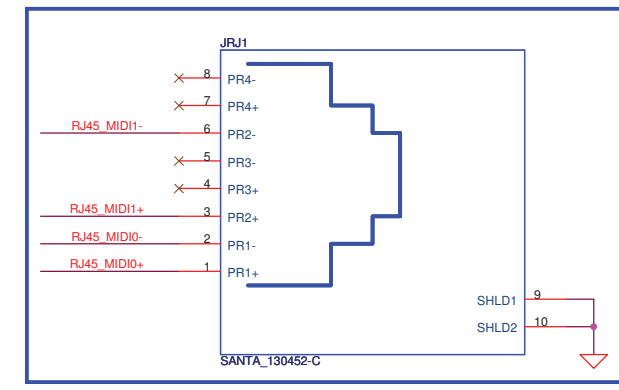
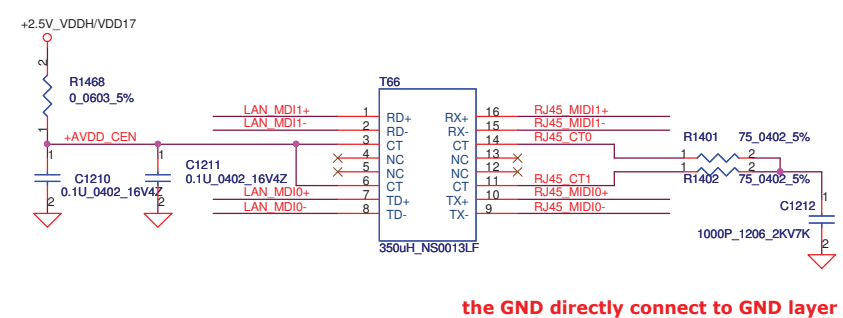
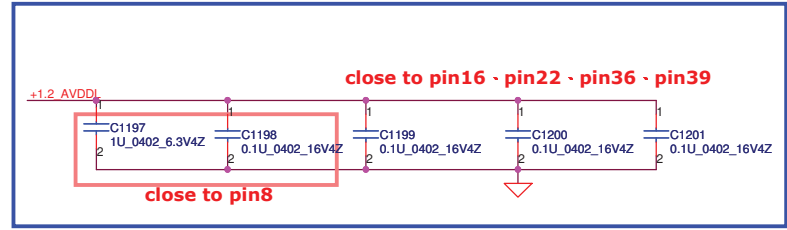
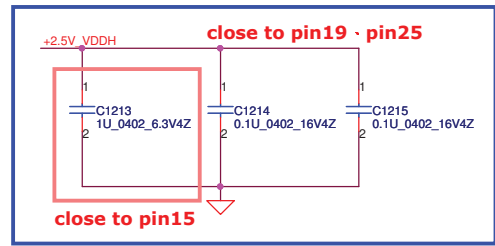
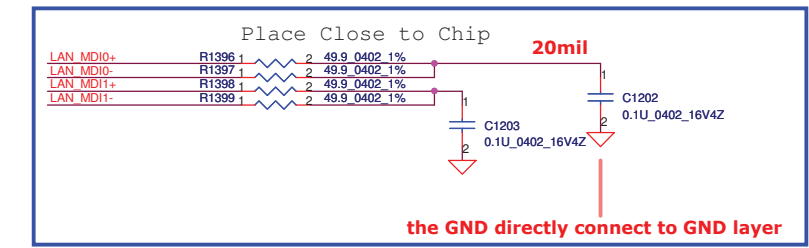
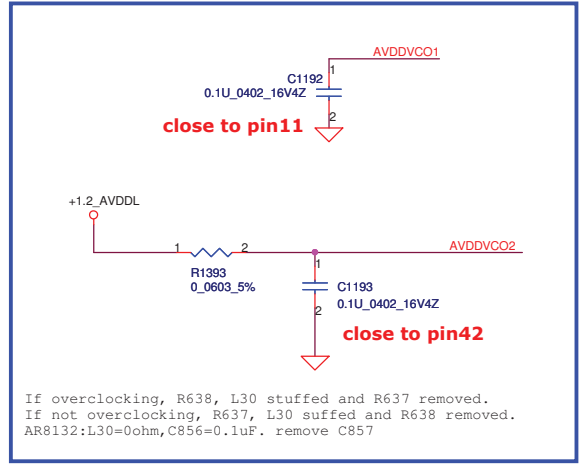
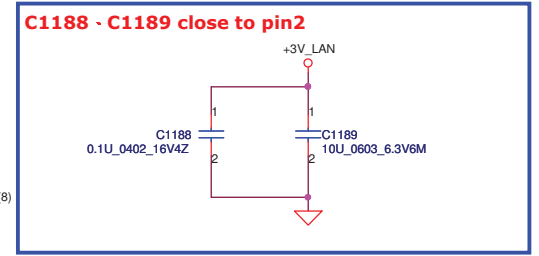
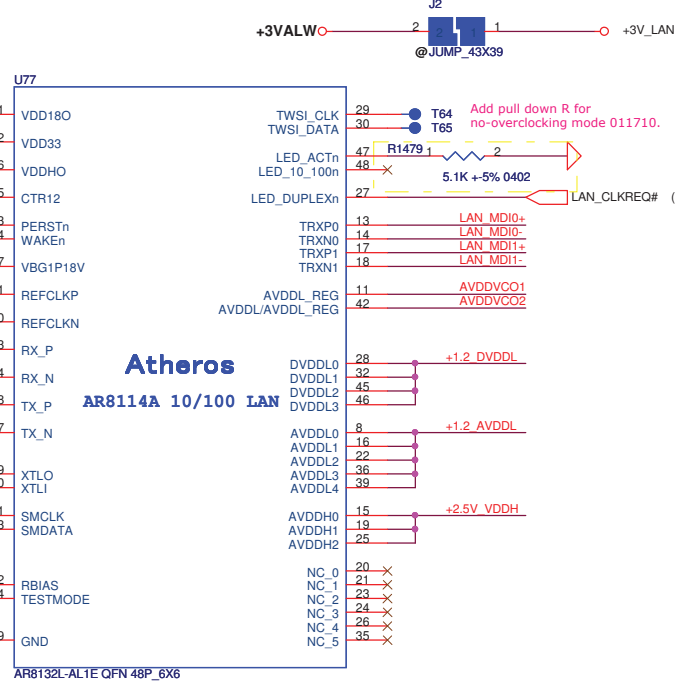
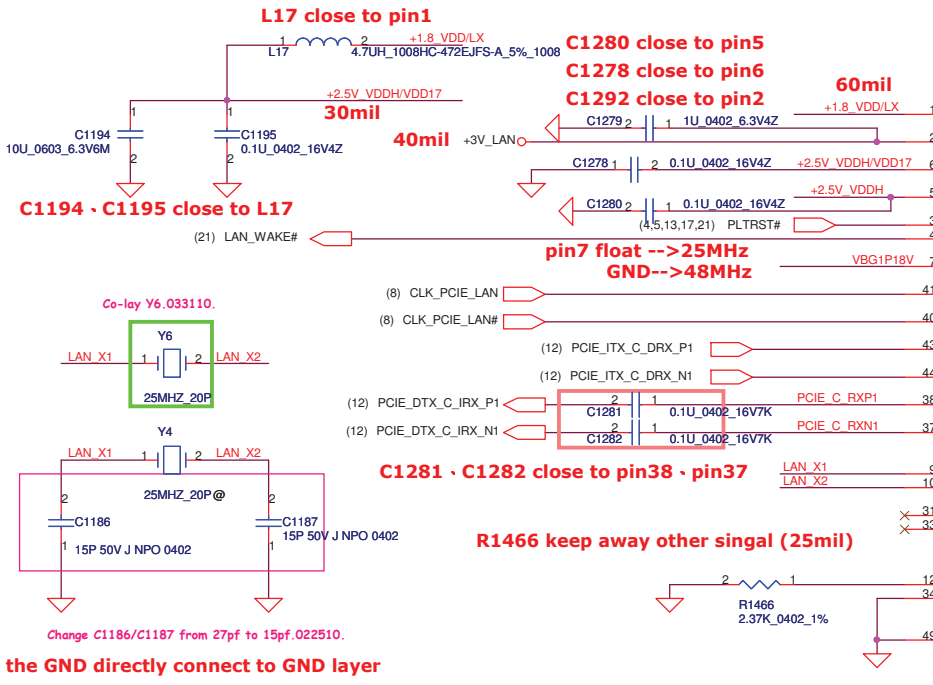
### USB CONN.1

Change JUSB1 JUSB2 to NEW P/N SP010906181 06/23

### USB CONN.2

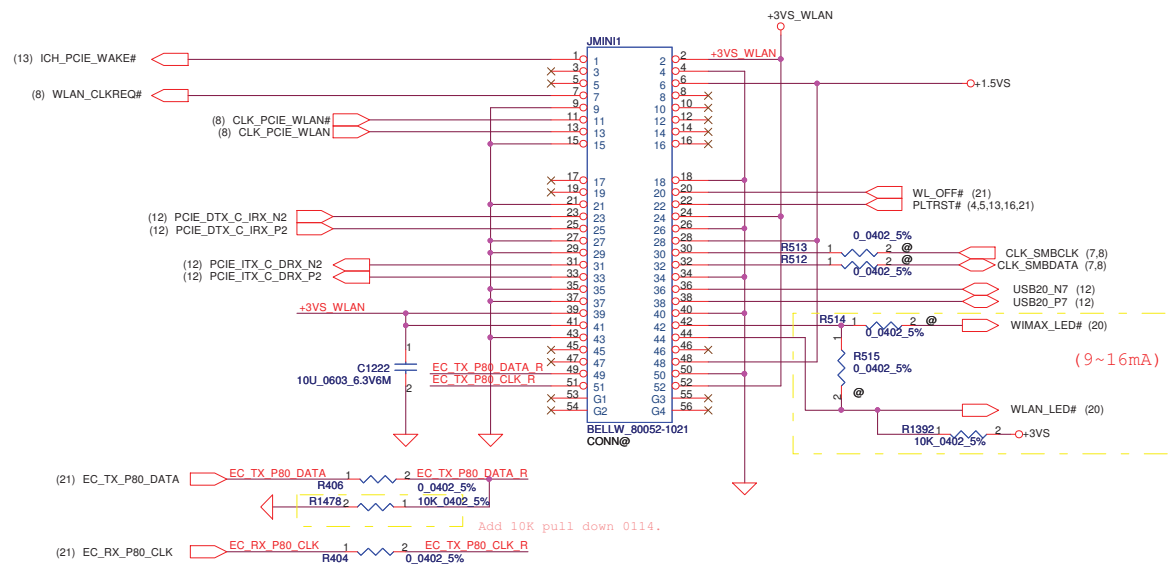
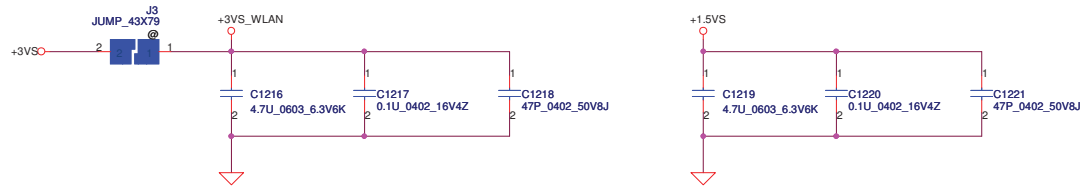


Security Classification		Compal Secret Data		<b>Compal Electronics, Inc.</b>	
Issued Date	2006/08/18	Deciphered Date	2007/8/18	Title <b>SATA,CONN. / USB CONN.</b>	
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D OR ANY OTHER DIVISION OF COMPAL ELECTRONICS, INC. WITHOUT THE WRITTEN CONSENT OF COMPAL ELECTRONICS, INC. ANY USE BY OR DISCLOSURE TO ANY THIRD PARTY WITHOUT THE WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.				Size B	Document Number <b>NAV51 LA-6311P</b>
				Date Tuesday, April 13, 2010	Sheet 15 of 33

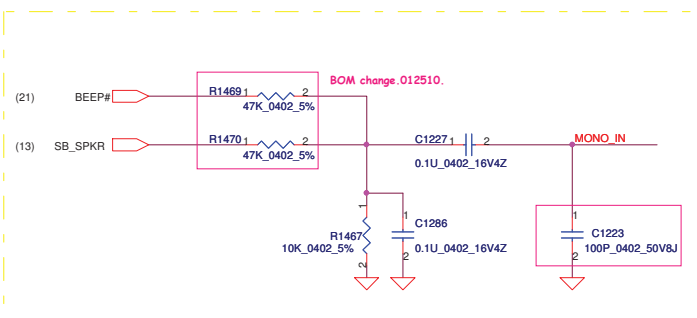


Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2006/08/18	Deciphered Date	2007/8/18	Title	
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.				Atheros 8131	
Size	Document Number	Date		Sheet	Rev
Custom	NAV51 LA-6311P	Tuesday, April 13, 2010		16	1.0
				of	33

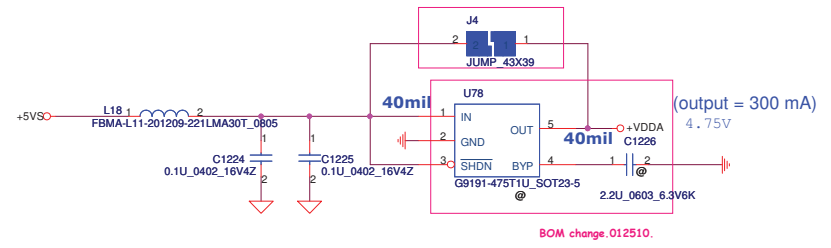
# Mini-Express Card for WLAN



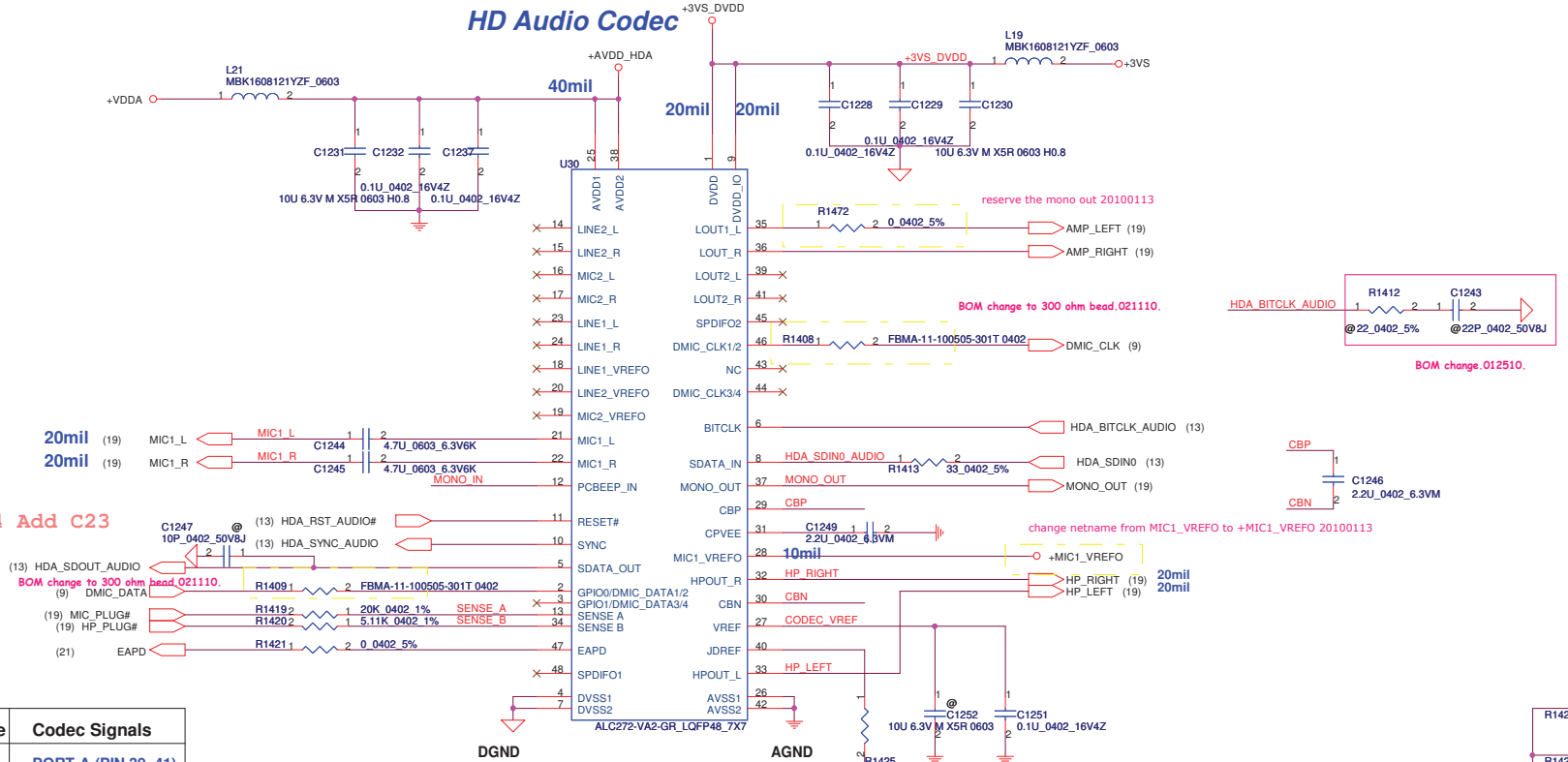
<b>Compal Electronics, Inc.</b>			
Title	<Title> <b>WLAN</b>		
Size	Document Number	Rev	
Customer	NAV51 LA-6311P	NAV51 LA-6311P	0.1
Date:	Tuesday, April 13, 2010	Sheet	17 of 33



simplify the pcbecp circuit 011410.



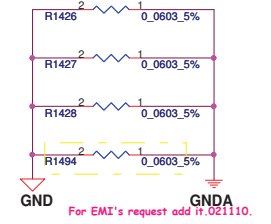
### HD Audio Codec



7/04 Add C23

Sense Pin	Impedance	Codec Signals
SENSE A	39.2K	PORT-A (PIN 39, 41)
	20K	PORT-B (PIN 21, 22)
	10K	PORT-C (PIN 23, 24)
	5.1K	PORT-D (PIN 35, 36)
SENSE B	39.2K	PORT-E (PIN 14, 15)
	20K	PORT-F (PIN 16, 17)
	10K	PORT-G (PIN 43, 44)
	5.1K	PORT-H (PIN 45, 46)

Change to SA00002CI20 ALC272-VA2-GR



Security Classification	Compal Secret Data	
Issued Date	2006/08/18	Deciphered Date
		2007/8/18

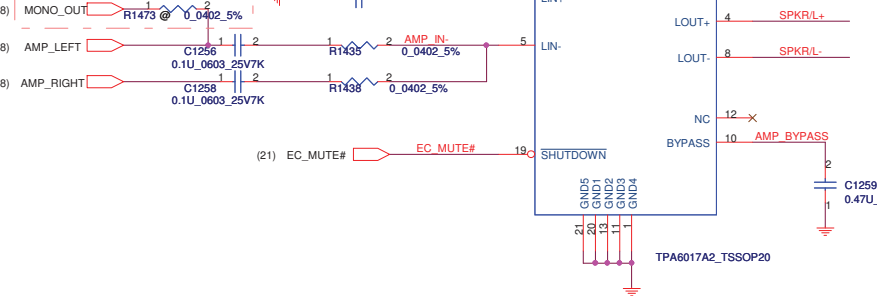
Compal Electronics, Inc.		
Title	HD Audio Codec ALC272	
Size	Document Number	Rev
Custom	NAV51 LA-6311P	1.0

THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DESIGN, PRODUCTION, ENGINEERING, MARKETING, SALES, SERVICE, OR OTHER DEPARTMENT OF COMPAL ELECTRONICS, INC. WITHOUT THE WRITTEN CONSENT OF COMPAL ELECTRONICS, INC. ANY UNAUTHORIZED DISCLOSURE TO ANY THIRD PARTY WITHOUT THE WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.

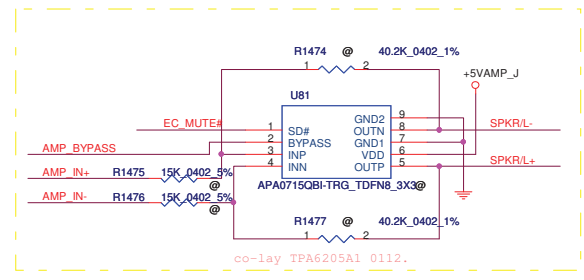
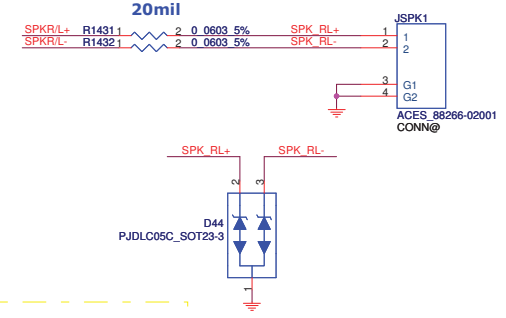


change C1255 - C1256 - C1257 - C1258 - C1283 from 0.47uF to 0.1uF 20100113

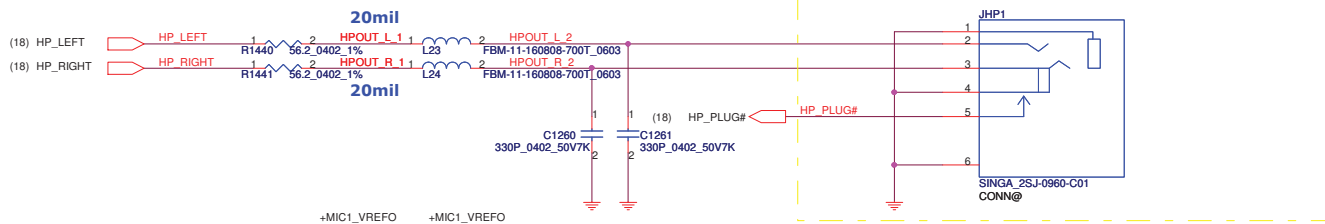
reserve the mono out 20100113



**Int. Speaker Conn.**

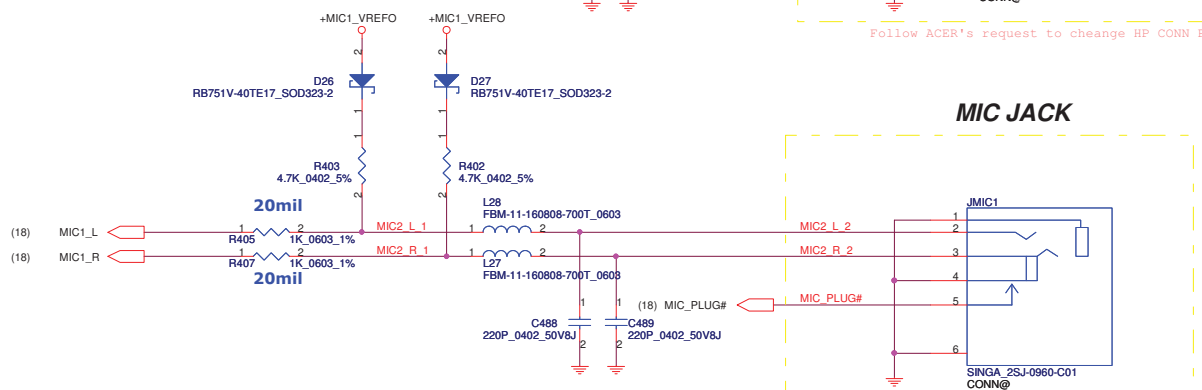


**Headphone Out**



Follow ACER's request to change HP CONN P/N.011410.

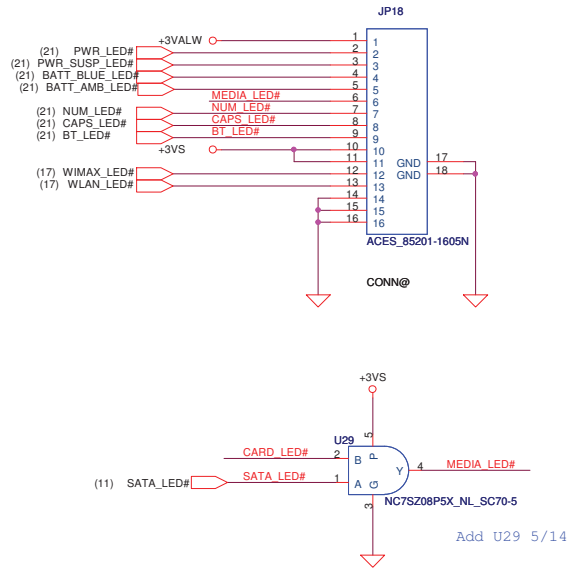
**MIC JACK**



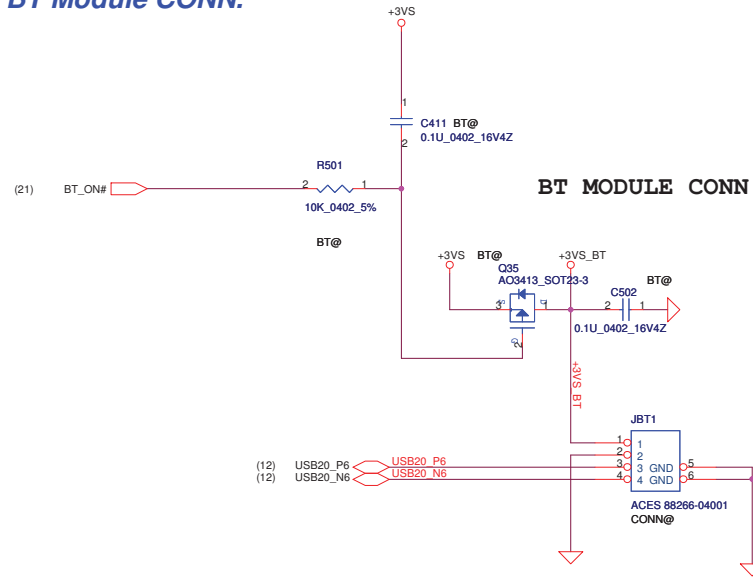
Follow ACER's request to change MIC CONN P/N.011410.

<b>Compal Electronics, Inc.</b>			
Title	<Title> <b>Amplifier &amp; Audio Jack</b>		
Size	Document Number	Rev	
Customer	NAV51 LA-6311P	NAV51 LA-6311P	0.1
Date:	Tuesday, April 13, 2010	Sheet	19 of 33

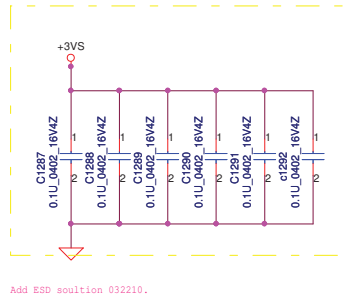
### LED PCB CONN.



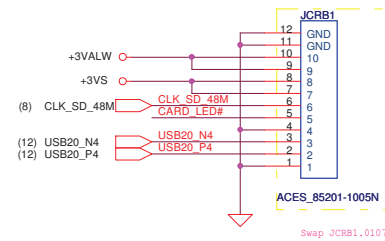
### BT Module CONN.



### ESD



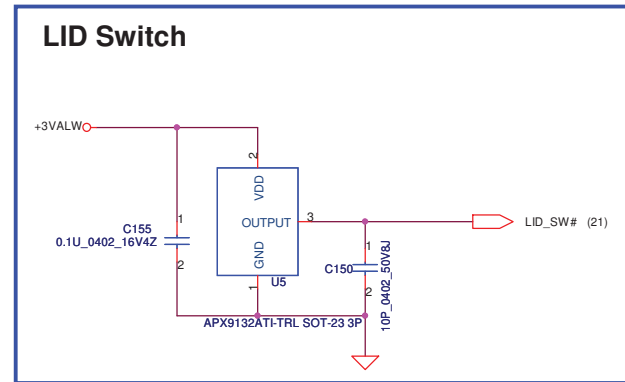
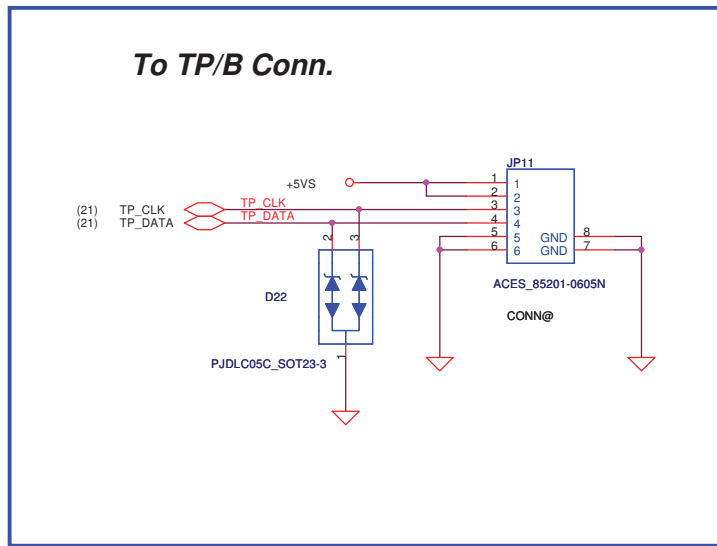
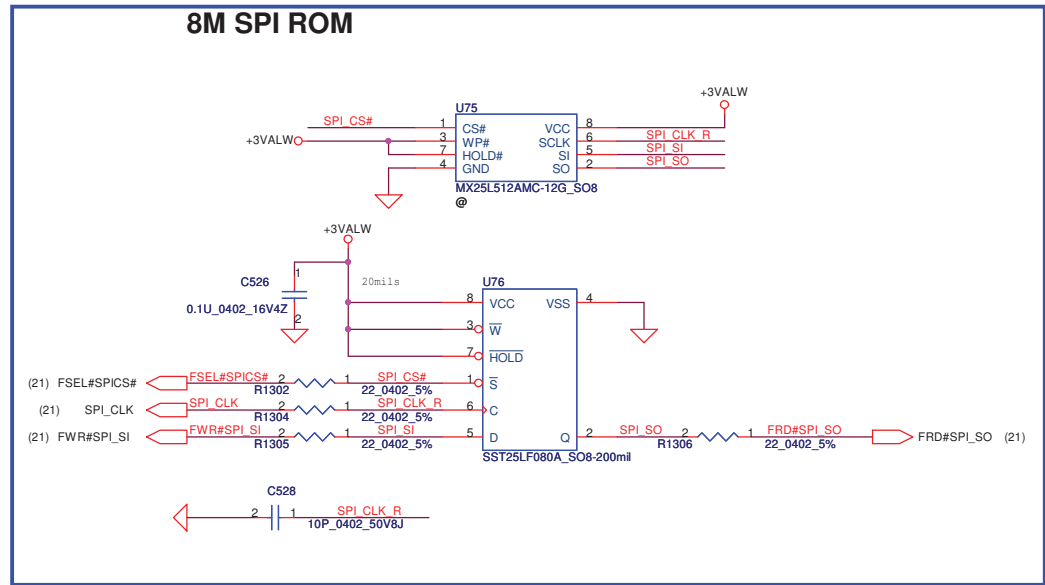
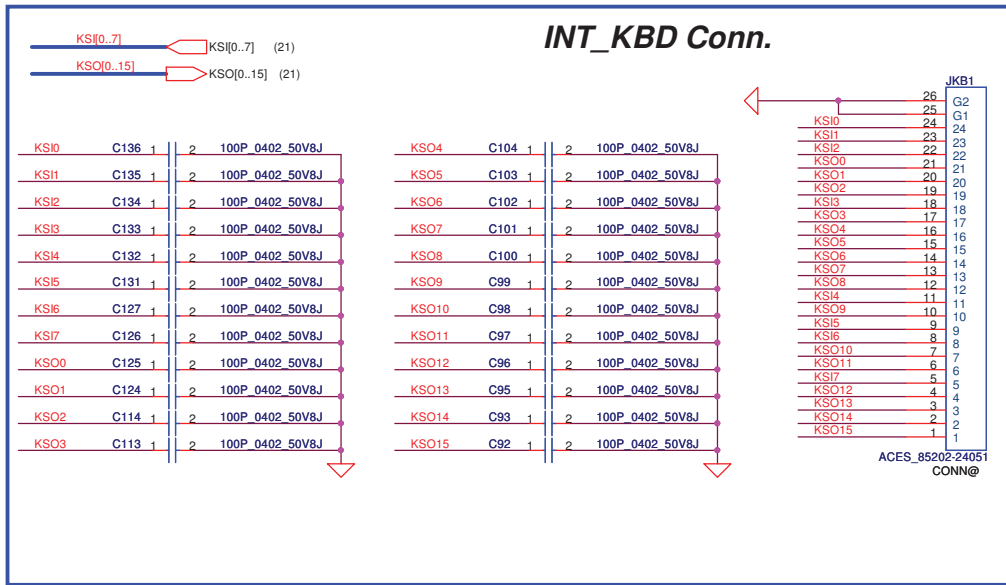
### Card Reader CONN.



Security Classification	Compal Secret Data			Compal Electronics, Inc.		
Issued Date	2009/01/22	Deciphered Date	2009/11/20	Title		
				Card reader		
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT OR BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS WITHOUT THE WRITTEN CONSENT OF COMPAL ELECTRONICS, INC. ANY USE BY OR DISCLOSURE TO ANY THIRD PARTY WITHOUT THE WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.				Size	Document Number	Rev
				Custom	NAV51 LA-6311P	0.1
				Date:	Tuesday, April 13, 2010	Sheet 20 of 33



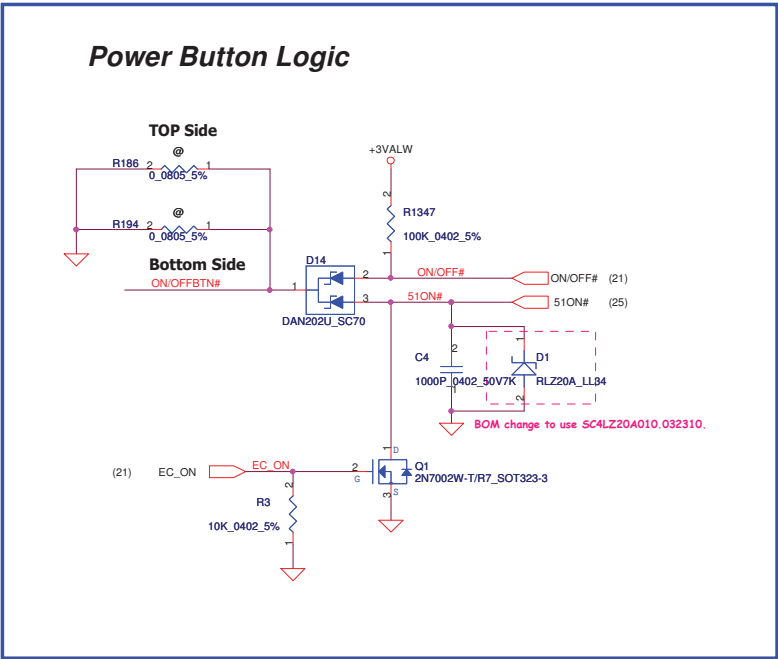
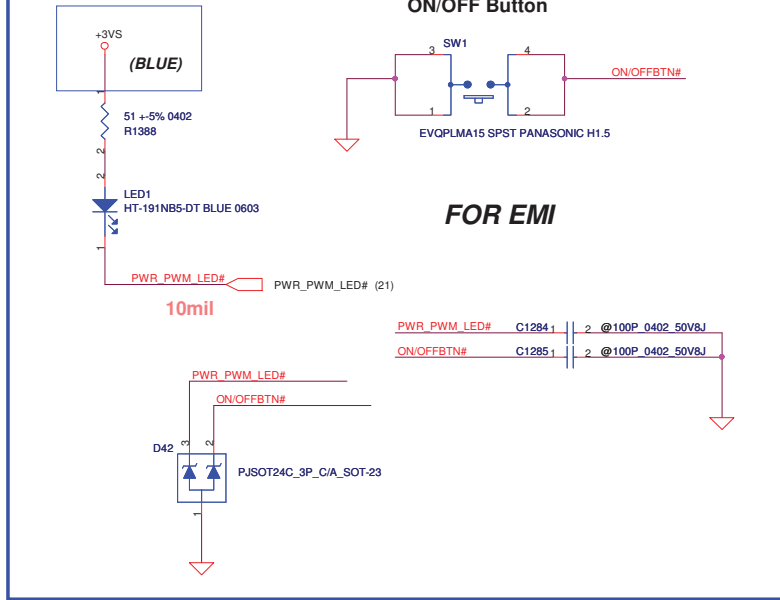




Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2006/08/18	Deciphered Date	2007/8/18	Title	
				KB CONN/TP/LID SW	
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED OR DISCLOSED TO ANY THIRD PARTY WITHOUT WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.					
Size	Document Number	Date		Rev	
B	NAV51 LA-6311P	Tuesday, April 13, 2010		0.2	
				Sheet	22 of 33

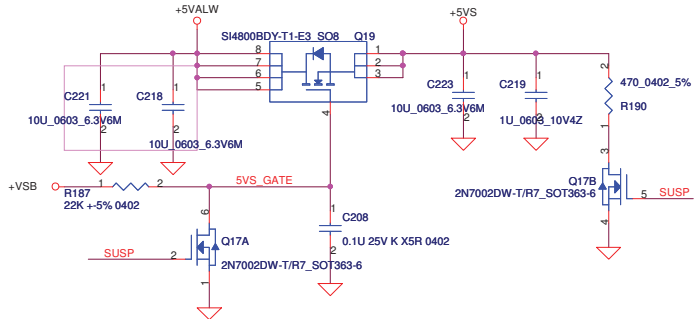
<http://laptop-motherboard-schematic.blogspot.com/>

Add For NAV50 07/06  
09/03 Change +5VS to +3VS

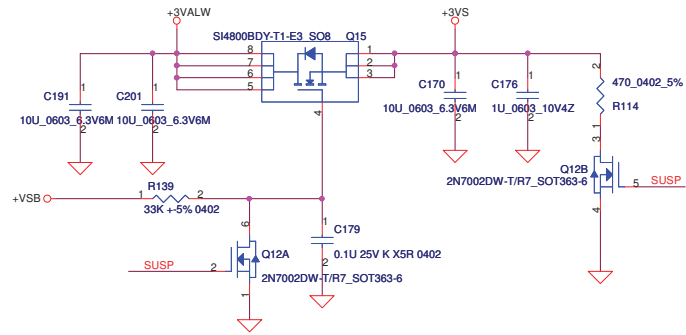


Security Classification	Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2006/08/18	Deciphered Date	2007/8/18	Title
				ON/OFF / LID SW
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE REPRODUCED OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.				Rev
Size	Document Number	NAV51 LA-6311P		0.2
B	Date:	Tuesday, April 13, 2010	Sheet	23 of 33

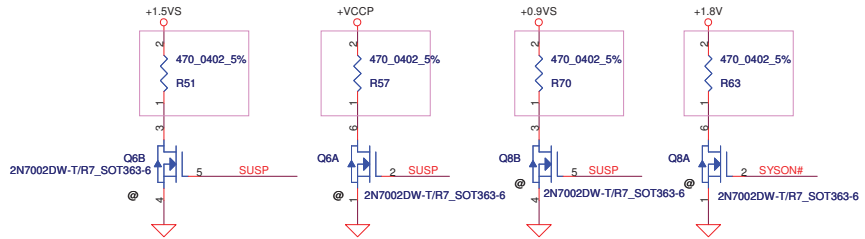
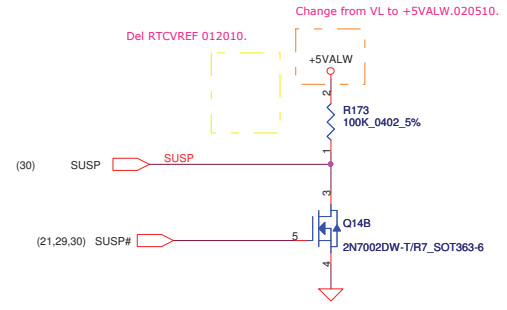
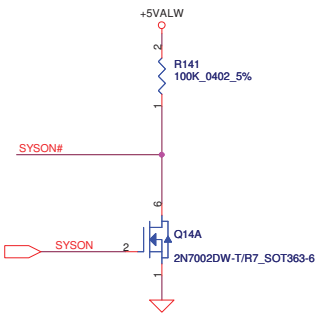
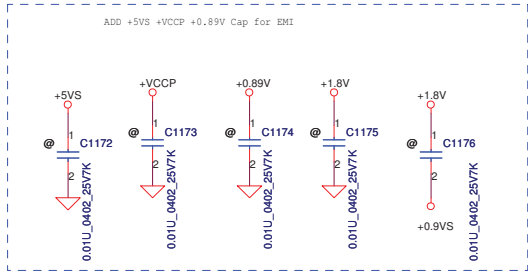
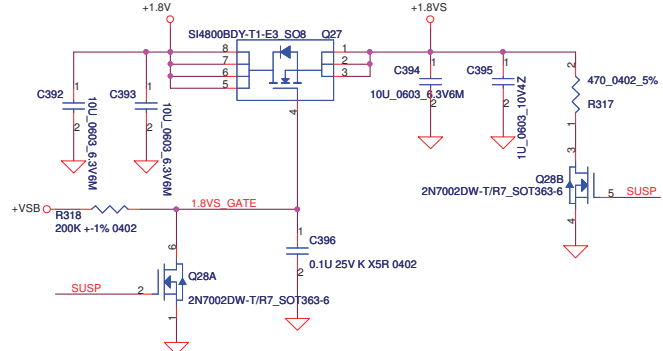
**+5VALW TO +5VS**



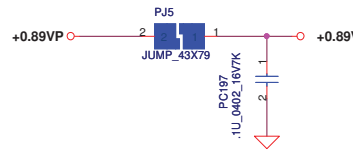
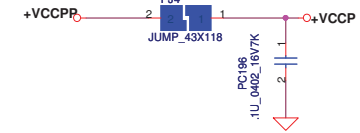
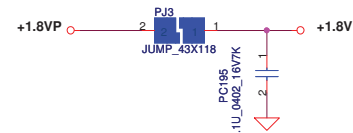
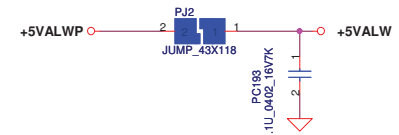
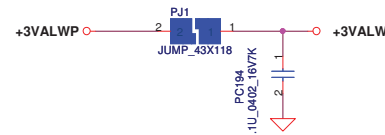
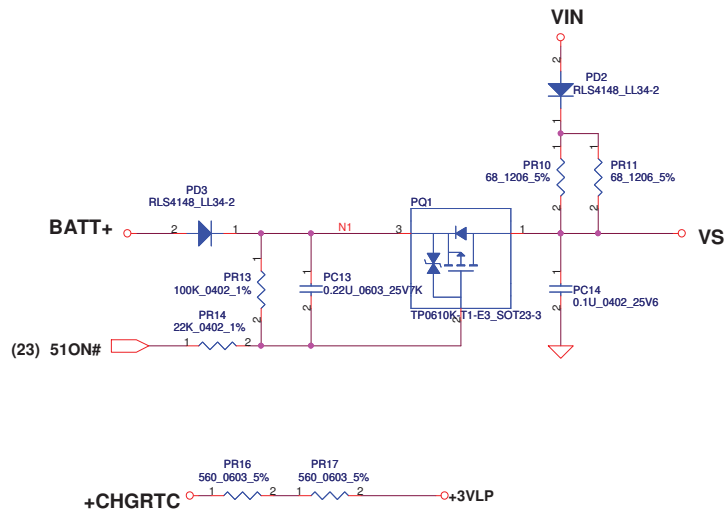
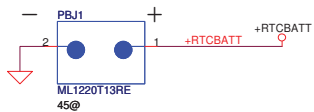
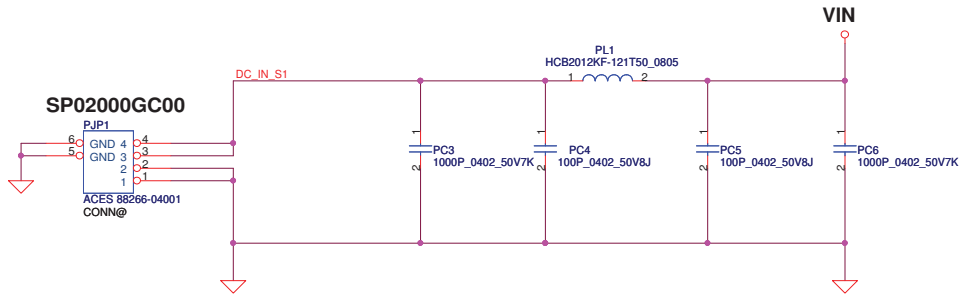
**+3VALW TO +3VS**



**+1.8V to +1.8VS**



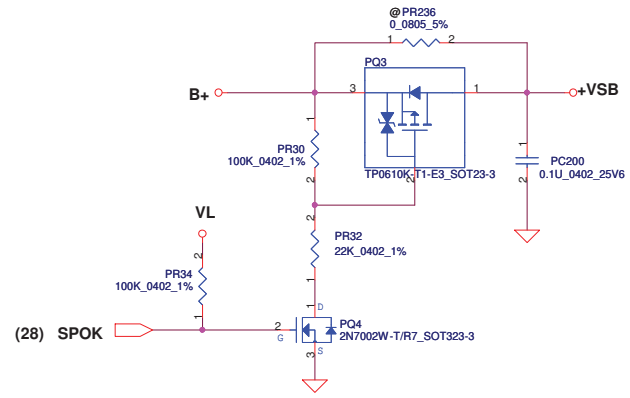
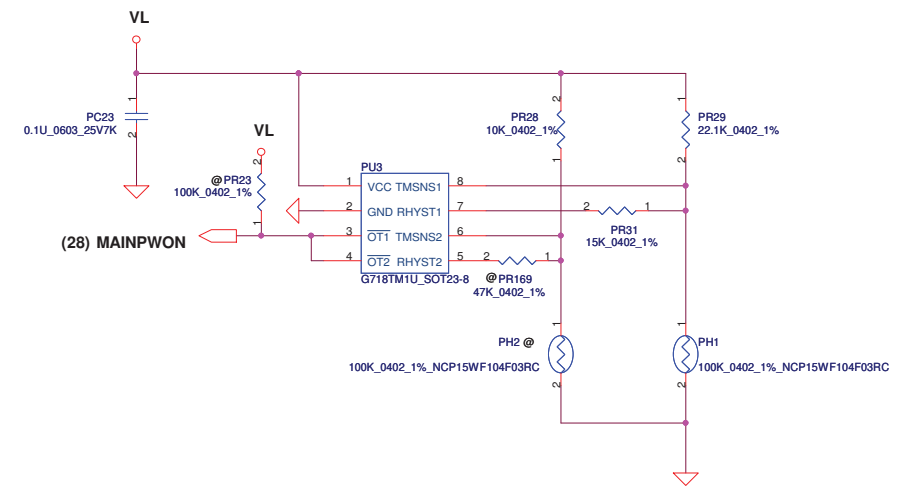
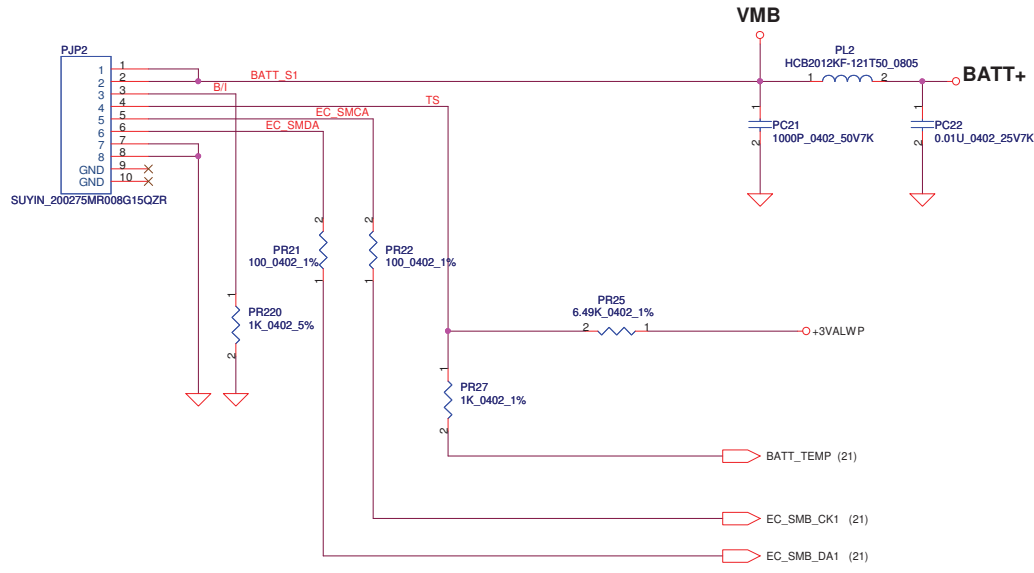
Security Classification		Compal Secret Data		Title	
Issued Date	2006/08/18	Deciphered Date	2007/8/18	DC INTERFACE	
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT OR BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS WITHOUT THE WRITTEN PERMISSION OF COMPAL ELECTRONICS, INC. ANY USE BY OTHERS IS STRICTLY PROHIBITED.				Size	Document Number
				B	NAV51 LA-6311P
				Date:	Rev
				Tuesday, April 13, 2010	0.2
				Sheet	24 of 33



Security Classification		Compal Secret Data		Compal Electronics, Inc.		
Issued Date	2007/09/20	Deciphered Date	2008/09/20	Title		
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL INFORMATION. ANY REPRODUCTION OF THIS SHEET WITHOUT THE WRITTEN PERMISSION OF COMPAL ELECTRONICS, INC. IS STRICTLY PROHIBITED. ANY REPRODUCTION OF THIS SHEET FOR ANY OTHER PURPOSE IS STRICTLY PROHIBITED. ANY REPRODUCTION OF THIS SHEET FOR ANY OTHER PURPOSE IS STRICTLY PROHIBITED. ANY REPRODUCTION OF THIS SHEET FOR ANY OTHER PURPOSE IS STRICTLY PROHIBITED.				DCIN & DETECTOR		
Size	Document Number	Rev		Date		
Custom	NAV51 LA-6311P	0.1		Wednesday, April 14, 2010		
				Sheet	25	of 32

<http://laptop-motherboard.com/>

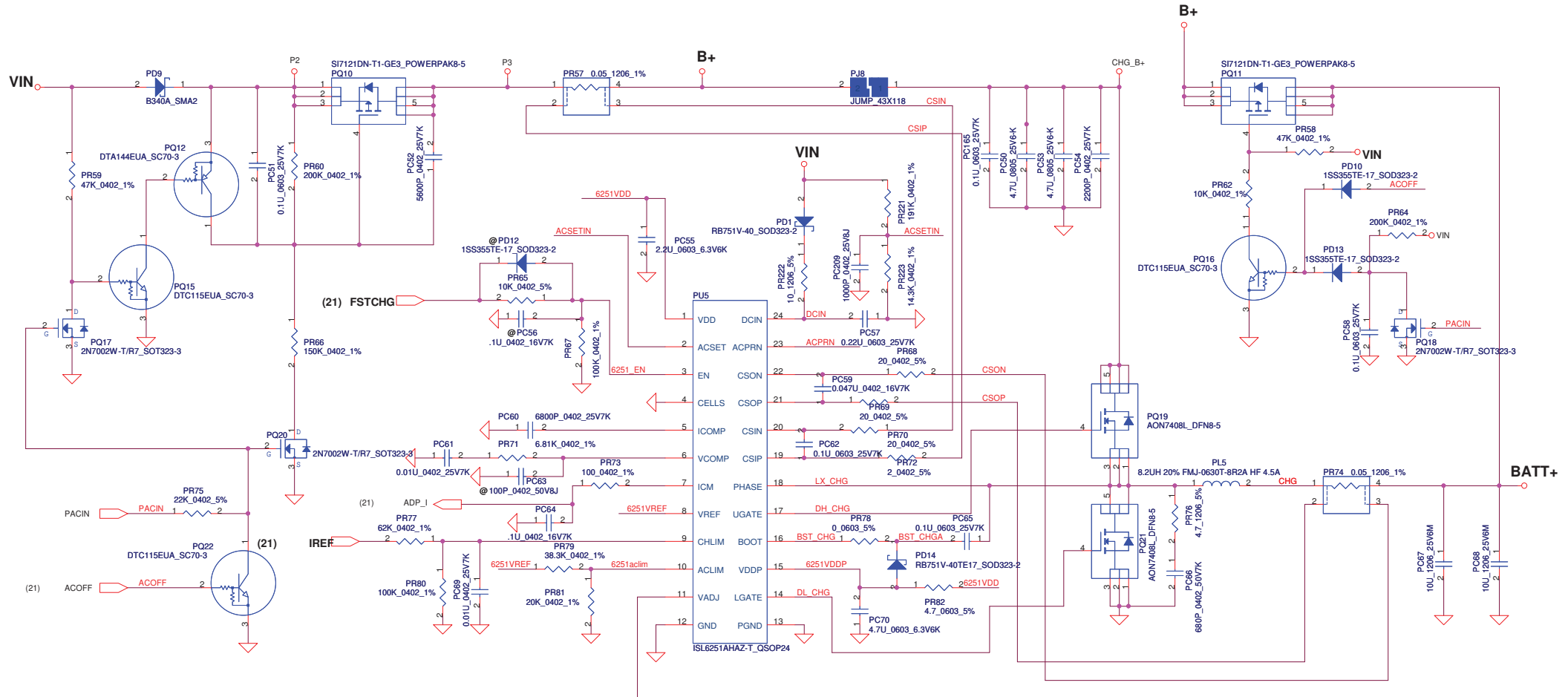
PH1 under CPU bottom side :  
 CPU thermal protection at 92 degree C  
 Recovery at 72 degree C



Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2007/09/20	Deciphered Date	2008/09/20	Title	BATTERY CONN / OTP
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL INFORMATION. ANY REPRODUCTION OF THIS SHEET WITHOUT THE WRITTEN PERMISSION OF THE CUSTOMER SUPPORT DIVISION OF COMPAL ELECTRONICS, INC. IS STRICTLY PROHIBITED. ANY REPRODUCTION OF THIS SHEET OF INFORMATION CONTAINED HEREIN WITHOUT THE WRITTEN PERMISSION OF COMPAL ELECTRONICS, INC. IS STRICTLY PROHIBITED. ANY REPRODUCTION OF THIS SHEET OF INFORMATION CONTAINED HEREIN WITHOUT THE WRITTEN PERMISSION OF COMPAL ELECTRONICS, INC. IS STRICTLY PROHIBITED.					
Size	Document Number	Rev			0.1
Custom	NAV51 LA-6311P	Date:			Wednesday, April 14, 2010
		Sheet		26	of 33

<http://laptop-motherboards.com/>





Iada=0~1.58A(30W) CP = 85%\*Iada ; CP = 1.343A

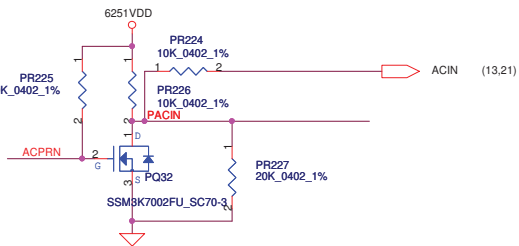
CP mode  
 $V_{acLim} = 2.39 * (20K / (20K + 38.3K)) = 0.8199V$   
 $I_{input} = (1 / 0.05) * ((0.05 * V_{acLim}) / 2.39 + 0.05)$   
 where  $V_{acLim} = 0.8199V$ ,  $I_{input} = 1.343A$

CC=0.3~1.76A  
 $I_{REF} = 1.62 * I_{charge}$   
 $I_{REF} = 0.486V \sim 2.85V$   
 $3.24V \implies 2A$

BATT Type	Charging Voltage (0x15)	CV mode
Normal 3S LI-ON Cells	12600mV	12.60V

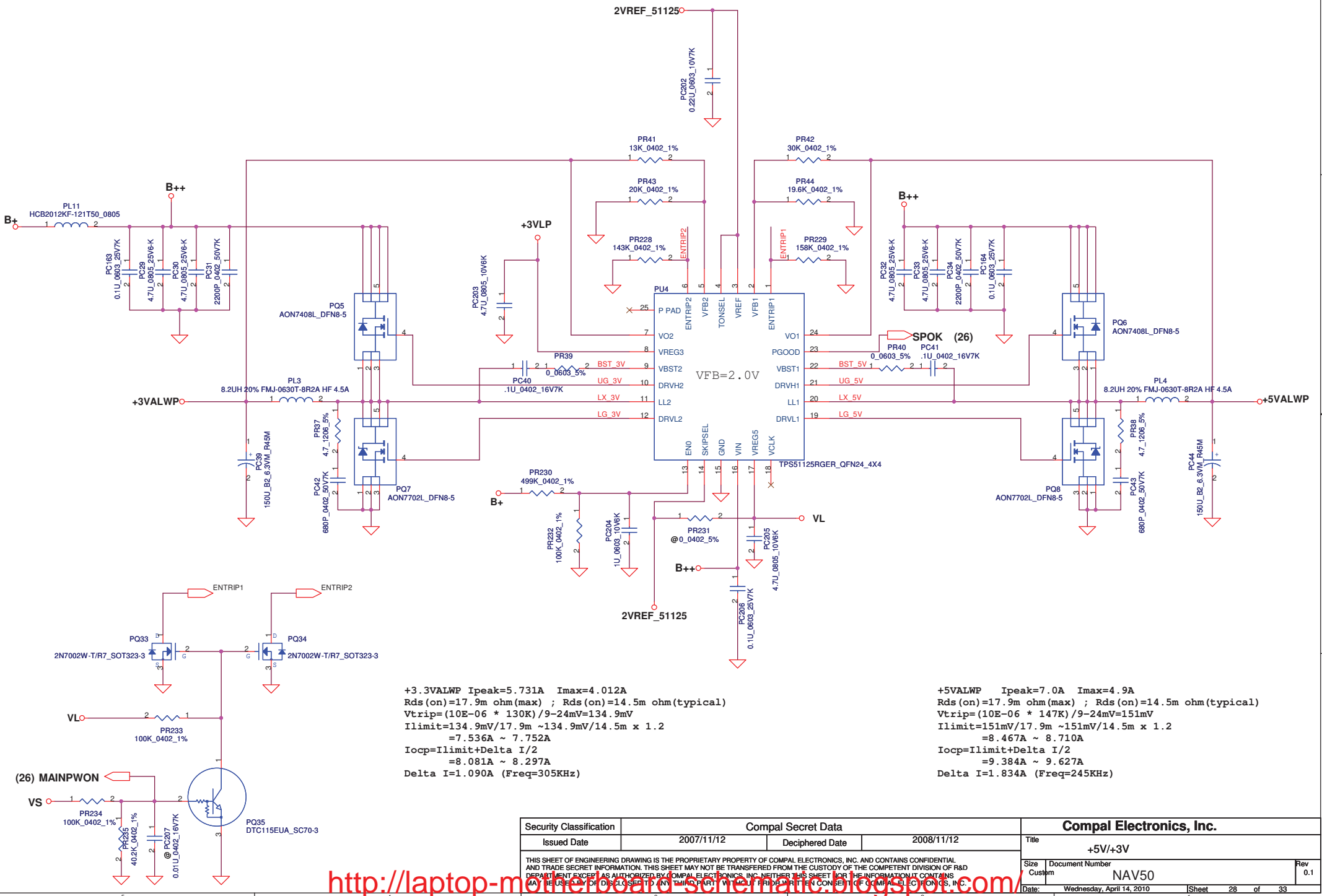
VADJ-->VREF-->4.41V  
 VADJ-->Ground-->3.59V  
 $V_{cell} = (0.175 * VADJ + 3.99)$

$V_{th, rise (typical)} = ((191K / 14.3K) + 1) * 1.26$   
 $= 18.89V$   
 $V_{th, fall (typical)} = ((191K / 14.3K) + 1) * 1.26 - 3.4\mu A * 191K$   
 $= 17.43V$



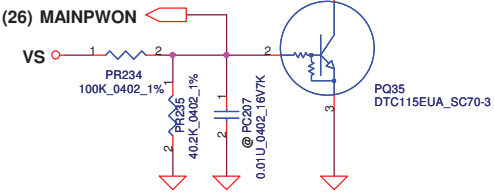
<http://laptop-motherboard.com/>

Security Classification		Compal Secret Data		Compal Electronics, Inc.		
Issued Date	2007/09/20	Deciphered Date	2008/09/20	Title		
				CHARGER		
				Size	Document Number	Rev
				Custom	NAV51 LA-6311P	0.1
				Date:	Wednesday, April 14, 2010	Sheet 27 of 33



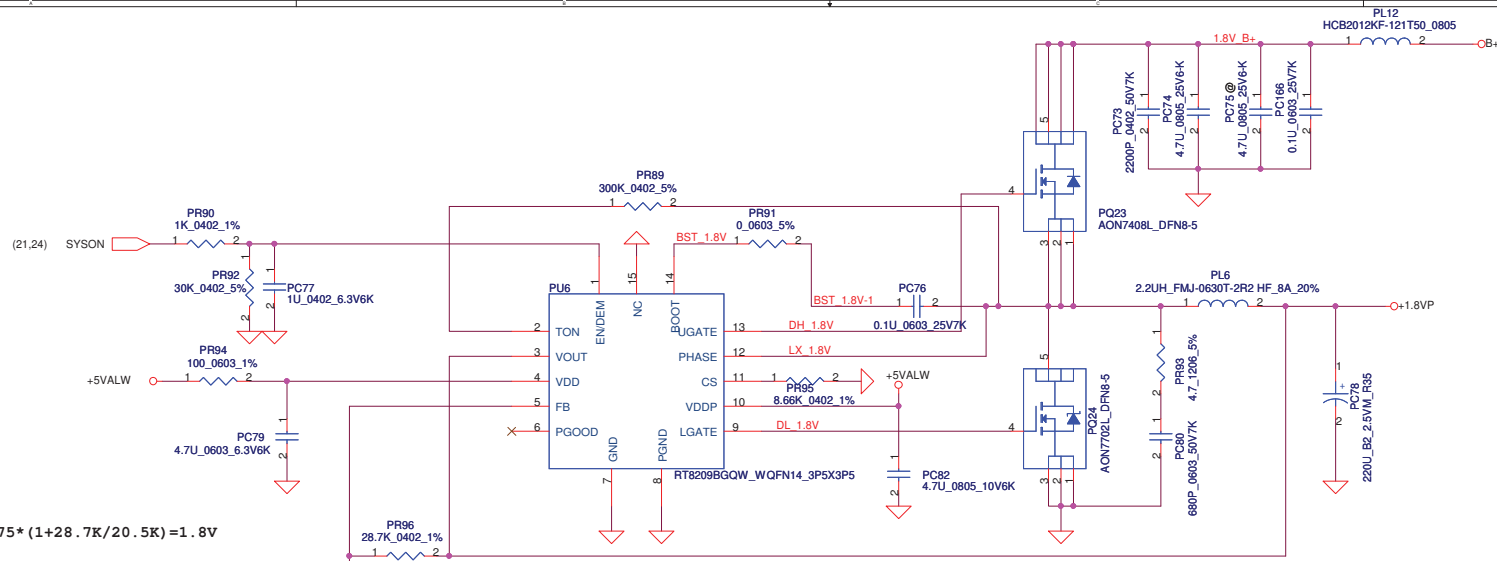
+3.3VALWP Ipeak=5.731A Imax=4.012A  
 Rds(on)=17.9m ohm(max) ; Rds(on)=14.5m ohm(typical)  
 $V_{trip} = (10E-06 * 130K) / 9 - 24mV = 134.9mV$   
 $I_{limit} = 134.9mV / 17.9m \sim 134.9mV / 14.5m \times 1.2$   
 $= 7.536A \sim 7.752A$   
 $I_{ocp} = I_{limit} + \Delta I / 2$   
 $= 8.081A \sim 8.297A$   
 $\Delta I = 1.090A$  (Freq=305KHz)

+5VALWP Ipeak=7.0A Imax=4.9A  
 Rds(on)=17.9m ohm(max) ; Rds(on)=14.5m ohm(typical)  
 $V_{trip} = (10E-06 * 147K) / 9 - 24mV = 151mV$   
 $I_{limit} = 151mV / 17.9m \sim 151mV / 14.5m \times 1.2$   
 $= 8.467A \sim 8.710A$   
 $I_{ocp} = I_{limit} + \Delta I / 2$   
 $= 9.384A \sim 9.627A$   
 $\Delta I = 1.834A$  (Freq=245KHz)

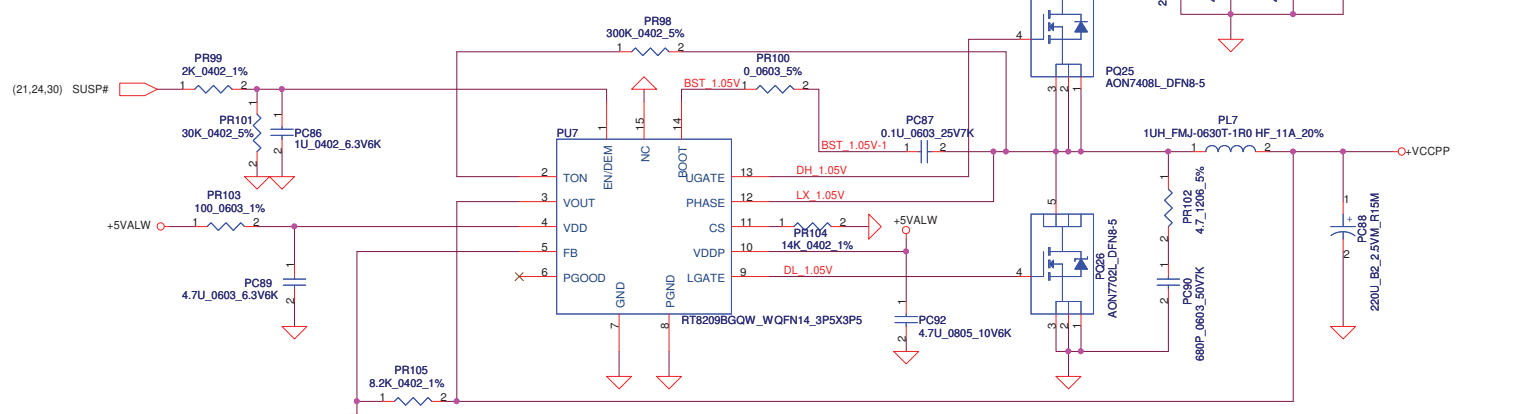


Security Classification		Compal Secret Data	
Issued Date	2007/11/12	Deciphered Date	2008/11/12
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED, REPRODUCED, DISCLOSED TO ANY THIRD PARTY, COPIED, EITHER WRITTEN OR ORALLY, OR IN ANY MANNER WITHOUT THE WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.			

Compal Electronics, Inc.			
Title		+5V/+3V	
Size	Document Number	Rev	
Custom	NAV50	0.1	
Date:	Wednesday, April 14, 2010	Sheet	28 of 33

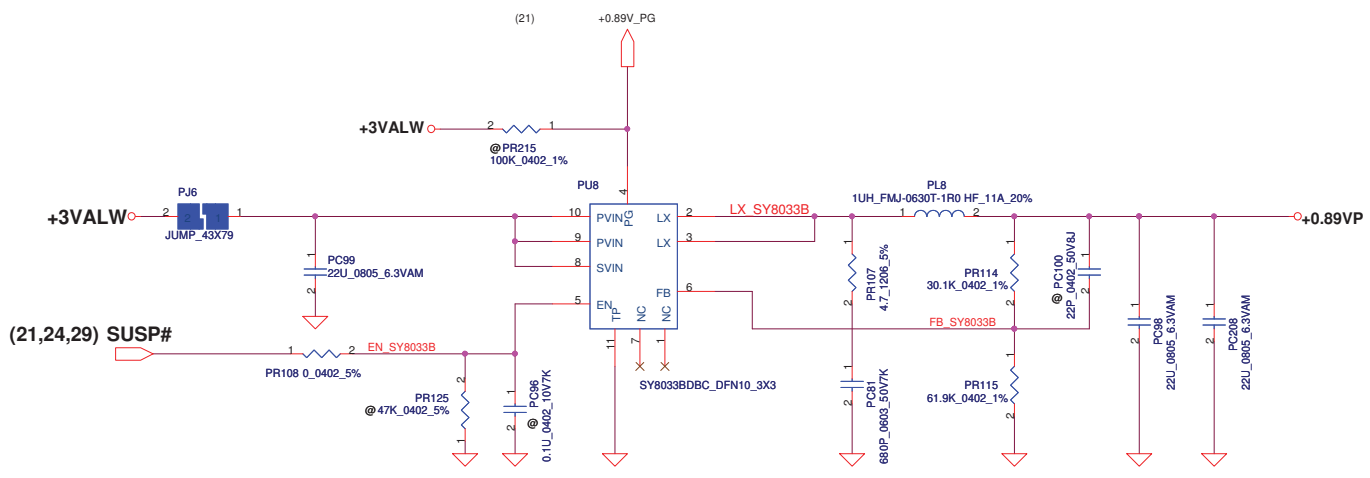


$V_o = 1.8V$      $V_{FB} = 0.75V$   
 $V_o = V_{FB} * (1 + PR96/PR97) = 0.75 * (1 + 28.7K/20.5K) = 1.8V$   
 $F_{sw} = 328KHz$   
 $C_{out} ESR = 15m\ \Omega$      $R_{dson(max)} = 17.9m\ \Omega$      $R_{dson(typical)} = 14.5m\ \Omega$   
 $I_{peak} = 4.97A$ ,  $I_{max} = 3.479A$ ,  $I_{ocp} = 5.964A$   
 $\Delta I = ((19 - 1.8) * (1.8/19)) / (2.2u * 328K) = 2.259A$   
 $\Rightarrow 1/2 \Delta I = 1.129A$   
 $V_{trip} = R_{trip} * I_{0uA} = 8.66K * 10uA = 0.0866V$   
 $I_{ocpmin} = V_{trip} / (R_{dsonmax}) + 1.129$   
 $= 0.0866 / (0.0179) + 1.129 = 5.967A$   
 $I_{ocpmax} = (0.0866 / (0.0145 * 1.2)) + 1.129A = 6.106A$   
 $I_{ocp} = 5.967A \sim 6.106A$

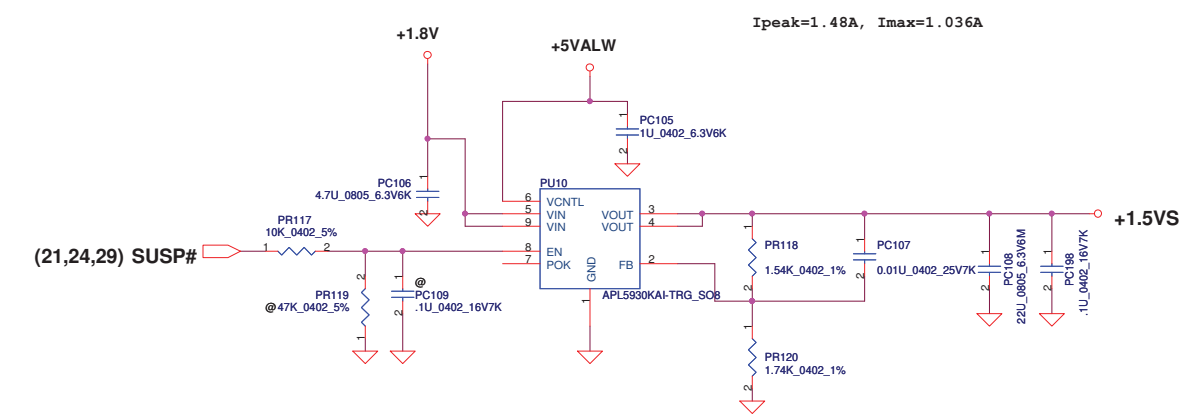


$V_o = 1.05V$      $V_{FB} = 0.75V$   
 $V_o = V_{FB} * (1 + PR105/PR106) = 0.75 * (1 + 8.2K/20.5K) = 1.05V$   
 $F_{sw} = 280KHz$   
 $C_{out} ESR = 15m\ \Omega$      $R_{dson(max)} = 17.9m\ \Omega$      $R_{dson(typical)} = 14.5m\ \Omega$   
 $I_{peak} = 3.124A$ ,  $I_{max} = 2.187A$ ,  $I_{ocp} = 3.749A$   
 $\Delta I = ((19 - 1.05) * (1.05/19)) / (1.5u * 280K) = 3.549A$   
 $\Rightarrow 1/2 \Delta I = 1.774A$   
 $V_{trip} = R_{trip} * I_{0uA} = 14K * 10uA = 0.14V$   
 $I_{ocpmin} = V_{trip} / (R_{dsonmax}) + 1.774$   
 $= 0.14 / (0.0179) + 1.774 = 9.596A$   
 $I_{ocpmax} = (0.14 / (0.0145 * 1.2)) + 1.774A = 9.820A$   
 $I_{ocp} = 9.596A \sim 9.820A$

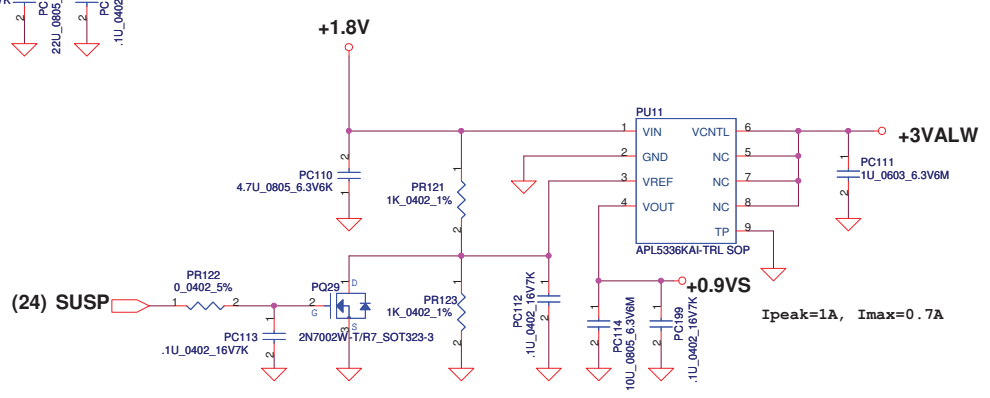
Security Classification	Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2007/09/20	Deciphered Date	2008/09/20	Title
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS ARE TO BE DISCLOSED TO ANY THIRD PARTY WITHOUT THE WRITTEN PERMISSION OF COMPAL ELECTRONICS, INC.				1.8VP / +VCCPP
Size	Document Number	Rev		
Custom	NAV51 LA-6311P	0.1		
Date:	Wednesday, April 14, 2010	Sheet	29 of 33	



<Vo=0.89V> VFB=0.6V  
 $V_o = V_{FB} * (1 + PR_{114} / PR_{115}) = 0.6 * (1 + 30.1K / 61.9) = 0.89V$   
 $I_{peak} = 2.64A, I_{max} = 1.848A$



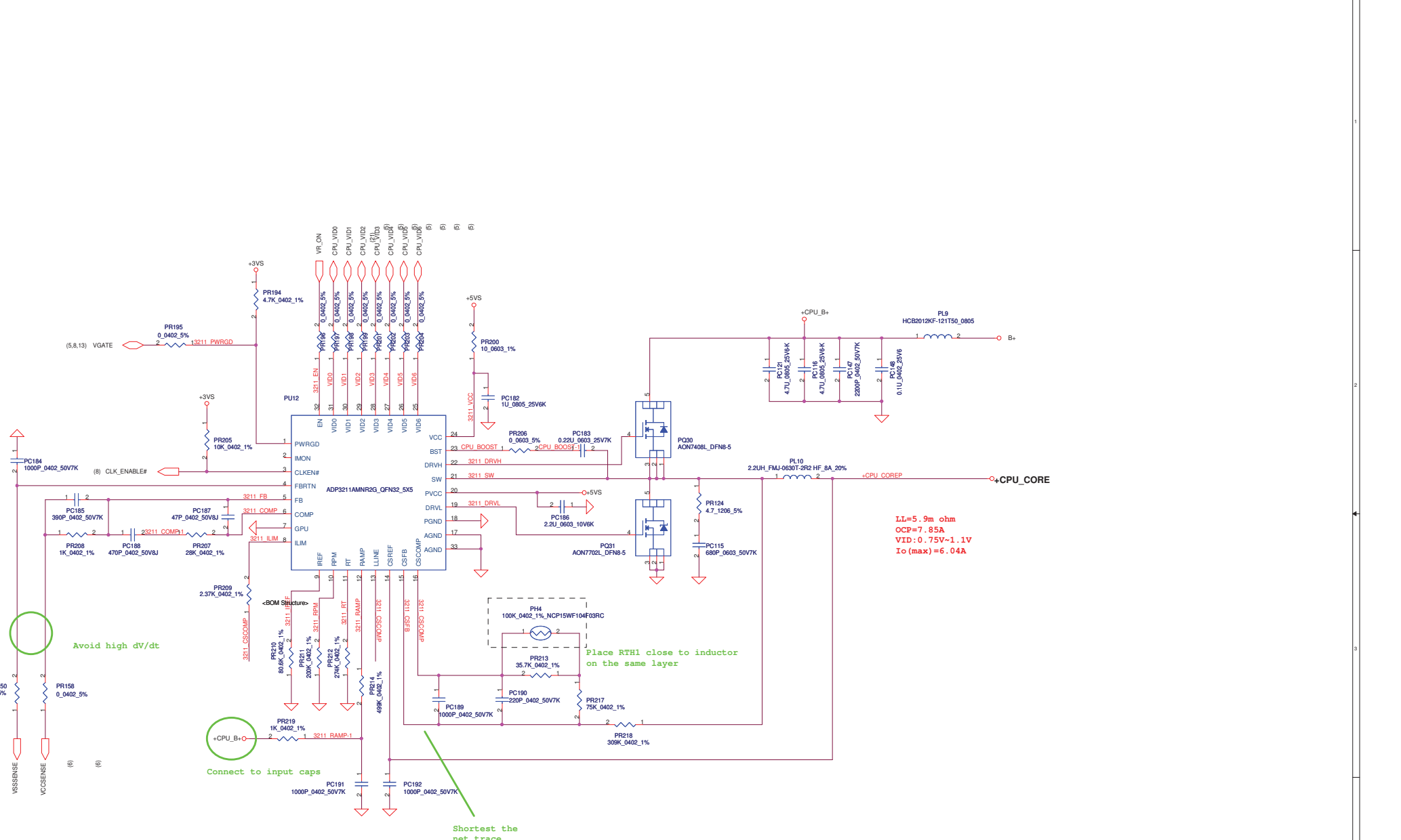
$I_{peak} = 1.48A, I_{max} = 1.036A$



$I_{peak} = 1A, I_{max} = 0.7A$

Security Classification	Compal Secret Data		Compal Electronics, Inc.		
Issued Date	2007/09/20	Deciphered Date	2008/09/20	Title	
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTOMER TO THE COMPETITION OR R&D DEPARTMENT (CEPT) OR ANY OTHER COMPAL ELECTRONICS, INC. EMPLOYEE. THIS SHEET OR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.				Size	Rev
				Custom	0.1
				Date:	Wednesday, April 14, 2010
				Sheet	30 of 33

<http://laptop-motherboard.com/>



<http://laptop-motherboard.com/>

Security Classification	Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2007/09/20	Deciphered Date	2008/09/20	
<small>THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS WITHOUT THE WRITTEN PERMISSION OF COMPAL ELECTRONICS, INC. ANY UNAUTHORIZED REPRODUCTION OR USE OF THIS SHEET IS STRICTLY PROHIBITED. ANY UNAUTHORIZED REPRODUCTION OR USE OF THIS SHEET IS STRICTLY PROHIBITED.</small>				
Title	+CPU_CORE			
Size	Document Number	NAV51 LA-6311P		Rev
C				0.1
Date:	Wednesday, April 14, 2010	Sheet	31	of 33

Item	Fixed Issue	Reason for change	Rev.	PG#	Modify List	Date	Phase
1						2010.1.8	EVT
2						2010.1.11	EVT
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							

Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2006/08/04	Deciphered Date	2007/8/18	Title	PIR_HW
<small>THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&amp;D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED OR DISCLOSED TO ANY THIRD PARTY WITHOUT WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.</small>				Size Custom	Document Number NAV51 LA-6311P
				Date	Wednesday, April 14, 2010
				Sheet	32 of 33
				Rev	1.0

<http://laptop-motherboard-schematic.blogspot.com/>



Item	Fixed Issue	Reason for change	Rev.	PG#	Modify List	Date	Phase
1	PU8 Vin change to +3VALW	modify for HW layout request	0.1	30		2010.1.8	EVT
2	PU4 Pin25 change to no connect	modify for 3/5V load balance(TI FAE request)	0.1	28		2010.1.11	EVT
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							

Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2007/09/20	Deciphered Date	2008/09/20	Title	
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT. ENGINEER IS AUTHORIZED BY COMPAL ELECTRONICS, INC. TO EITHER PRINT THIS SHEET OR THE INFORMATION IT CONTAINS. IT MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.				Size	Document Number
				Custody	NAV51 LA-6311P
				Date	Rev
				Wednesday, April 14, 2010	0.1
				Sheet	33 of 33

<http://laptop-motherboard-schematic.blogspot.com/>