

2

# Compal Confidential

## NDWGO Schematics Document

AMD S1g3/ RS880M/ SB710

2009 / 09 / 22

3

LA-5991P

Rev:0.1

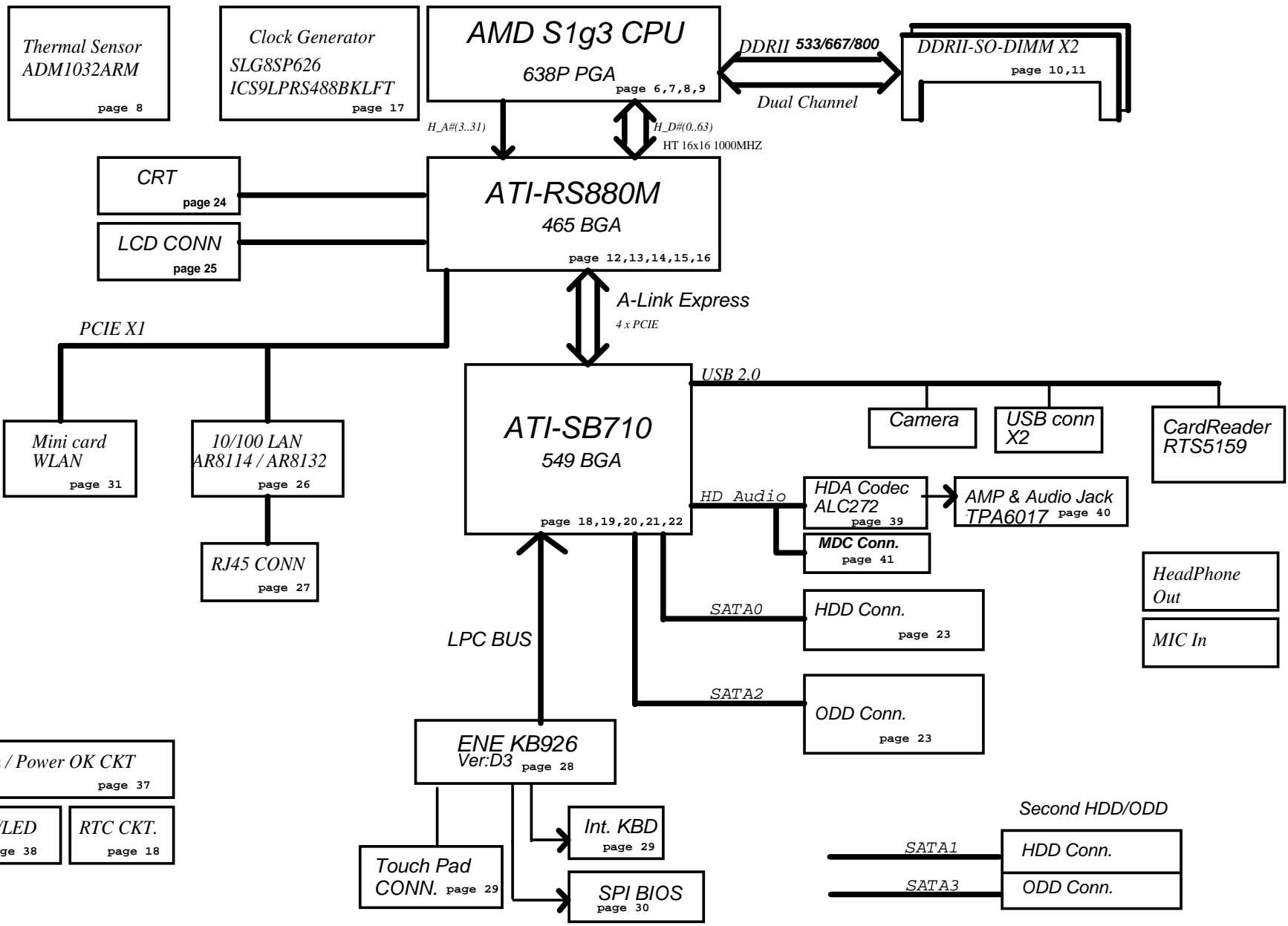
4

Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2009/09/11	Deciphered Date	2010/03/12	Title	SCHEMATIC,MB A5991
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.				Size Custom	Document Number 401830
				Date	Tuesday, October 13, 2009
				Sheet	1 of 47
				Rev	A

# Compal confidential

Project Code: NDWG0/H0

File Name : LA-5991P



Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2009/09/11	Deciphered Date	2010/03/12	Title	SCHEMATIC, MB A5991
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.				Size Custom	Document Number 401830
				Date:	Tuesday, October 13, 2009
				Sheet	2 of 47
				Rev	A

## Voltage Rails

VIN	Adapter power supply (19V)			
B+	AC or battery power rail for power circuit.			
+CPU_CORE	Core voltage for CPU			
+0.9V	0.9V switched power rail for DDR terminator			
+1.2V_HT	1.2V switched power rail	ON	OFF	
+1.5VS	1.5V switched power rail	ON	OFF	OFF
+1.8V	1.8V power rail for DDR	ON		ON*
+1.8VS	1.8V switched power rail		OFF	
+2.5VS	2.5V switched 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	USB always on power rail	ON	ON	ON*
+RTCVCC	RTC power	ON	ON	ON

## External PCI Devices

Device	IDSEL#	REQ#/GNT#	Interrupts
--------	--------	-----------	------------

**EC SM Bus1 address**

Device	Address	Device	Address
Smart Battery	0001 011X b	ADM1032	1001 100X b

### EC SM Bus2 address

Device	Address
ADM1032	1001 100X b

**SB600 SM Bus 1 address**

Device	Address	Device	Address
Clock Generator	1101 001Xb	New Card	
DDR DIMM0	1001 000Xb		
DDR DIMM2	1001 010Xb		
Wireless Lan			

### SB600 SM Bus 2 address

Device	Address
New Card	

STATE \ SIGNAL	SLP_S1#	SLP_S3#	SLP_S4#	SLP_S5#	+VALW	+V	+VS	Clock
Full ON	HIGH	HIGH	HIGH	HIGH	ON	ON	ON	ON
S1(Power On Suspend)	LOW	HIGH	HIGH	HIGH	ON	ON	ON	LOW
S3 (Suspend to RAM)	LOW	LOW	HIGH	HIGH	ON	ON	OFF	OFF
S4 (Suspend to Disk)	LOW	LOW	LOW	HIGH	ON	OFF	OFF	OFF
S5 (Soft OFF)	LOW	LOW	LOW	LOW	ON	OFF	OFF	OFF

### Board ID / SKU ID Table for AD channel

V <sub>CC</sub>	3.3V +/- 5%			
R <sub>A</sub> /R <sub>C</sub> /R <sub>E</sub>	100K +/- 5%			
Board ID	R <sub>B</sub> / R <sub>D</sub> / R <sub>F</sub>	V <sub>AD_BID</sub> min	V <sub>AD_BID</sub> typ	V <sub>AD_BID</sub> max
0	0	0 V	0 V	0 V
1	8.2K +/- 5%	0.216 V	0.250 V	0.289 V
2	18K +/- 5%	0.436 V	0.503 V	0.538 V
3	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	No Support VaryBright
1	
2	
3	Support VaryBright
4	
5	
6	
7	

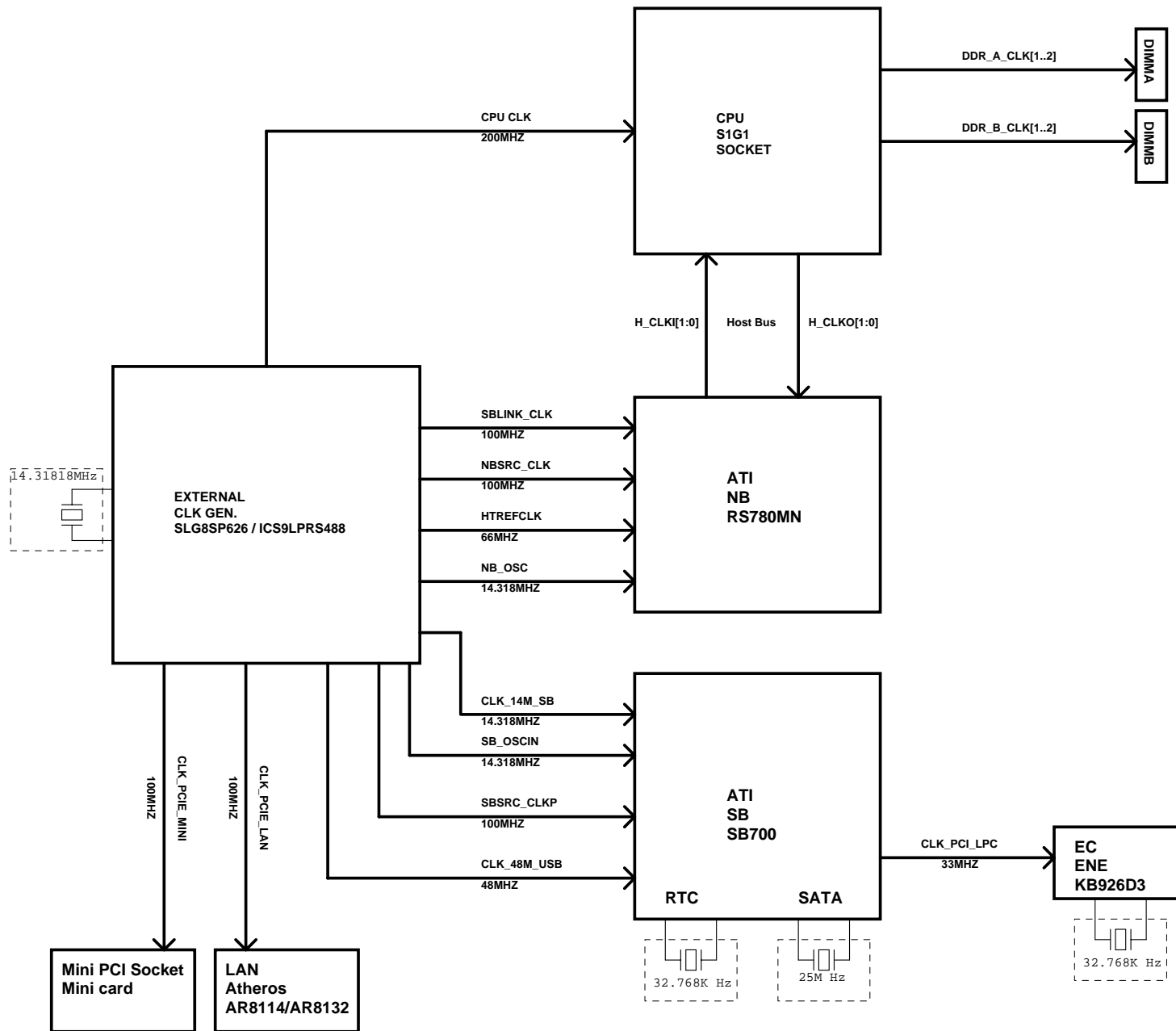
### BTO Option Table

[illegible]

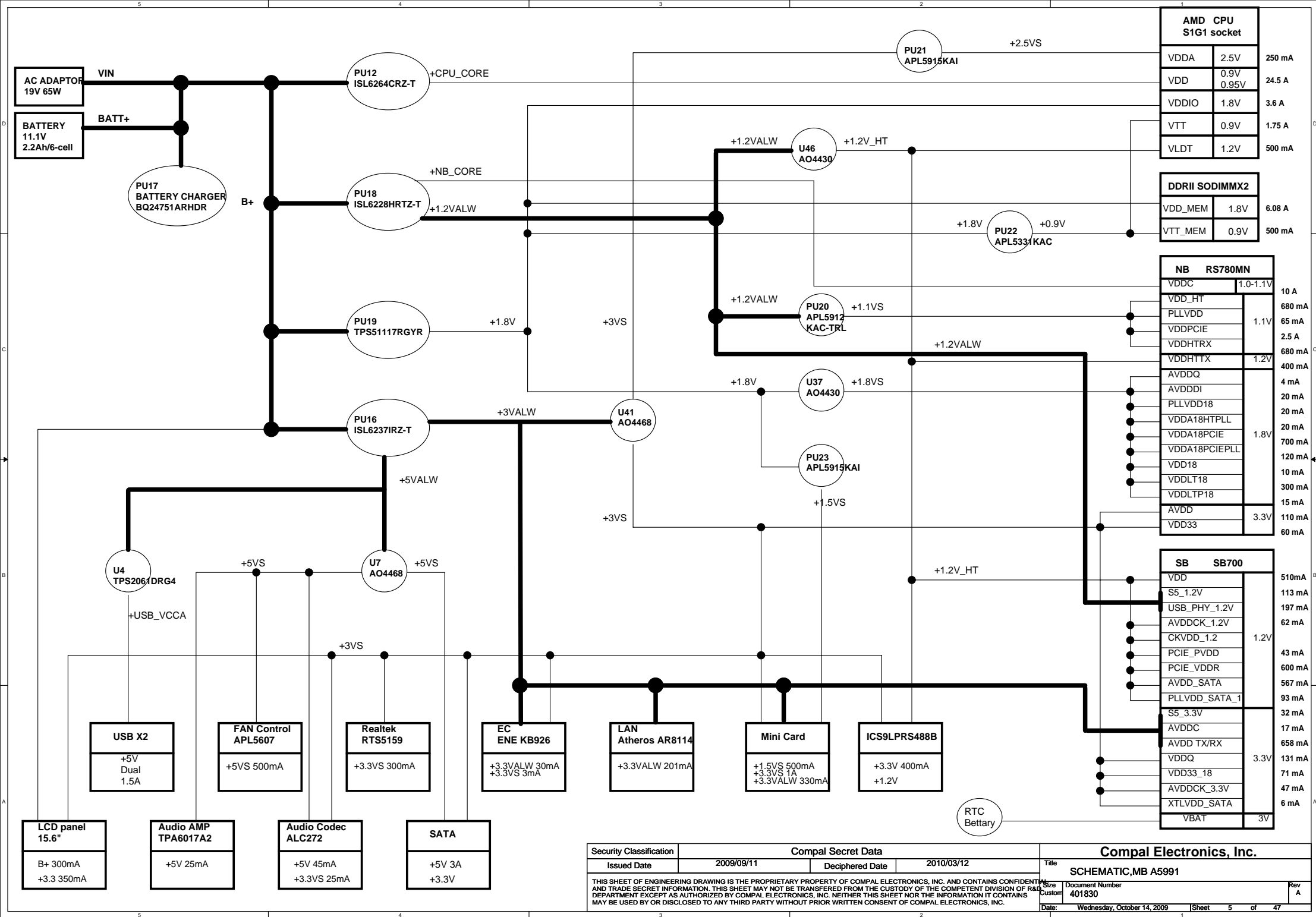
### PROJECT ID Table

SKU ID	SKU
0	NCWG0
1	
2	
3	NAL00
4	
5	
6	
7	
	NCWH0

Security Classification	Compal Secret Data			Compal Electronics, Inc.		
Issued Date	2009/09/11	Deciphered Date	2010/03/12	Title	SCHEMATIC,MB A5991	
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.				Size	Document Number	Rev
				Custom	401830	A
Date:	Tuesday, October 13, 2009	Sheet	3	of	47	

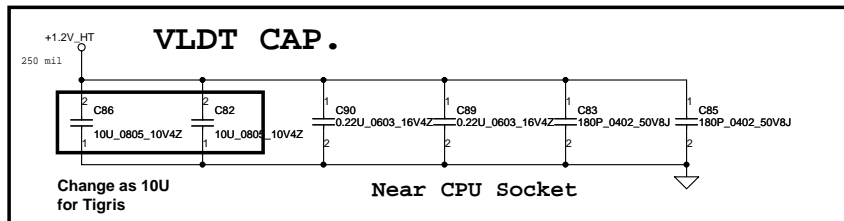
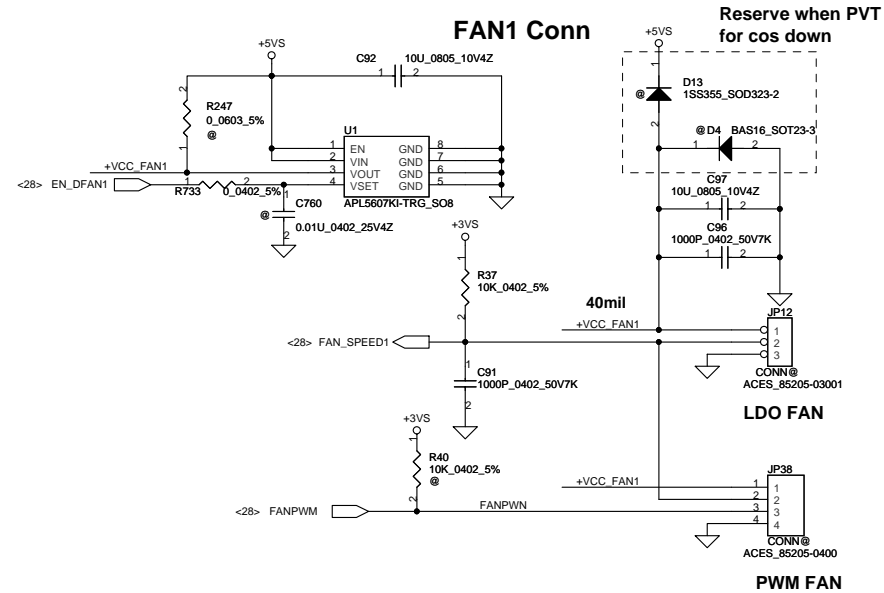
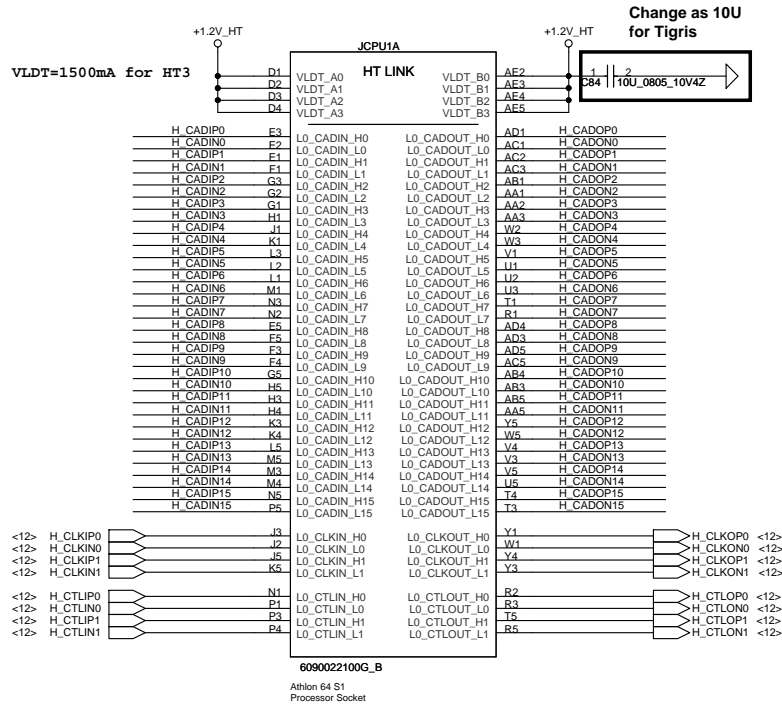


Security Classification		Compal Secret Data				Compal Electronics, Inc.			
Issued Date		2009/09/11		Deciphered Date		2010/03/12		Title	
								SCHEMATIC, MB A5991	
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. 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.						Size	Document Number		Rev
						Custom	401830		



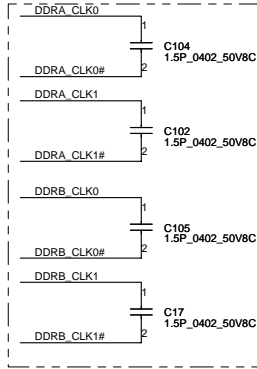
<12> H\_CADIP[0..15] H\_CADIP[0..15]  
 <12> H\_CADIN[0..15] H\_CADIN[0..15]

H\_CADOP[0..15] H\_CADOP[0..15] <12>  
 H\_CADON[0..15] H\_CADON[0..15] <12>

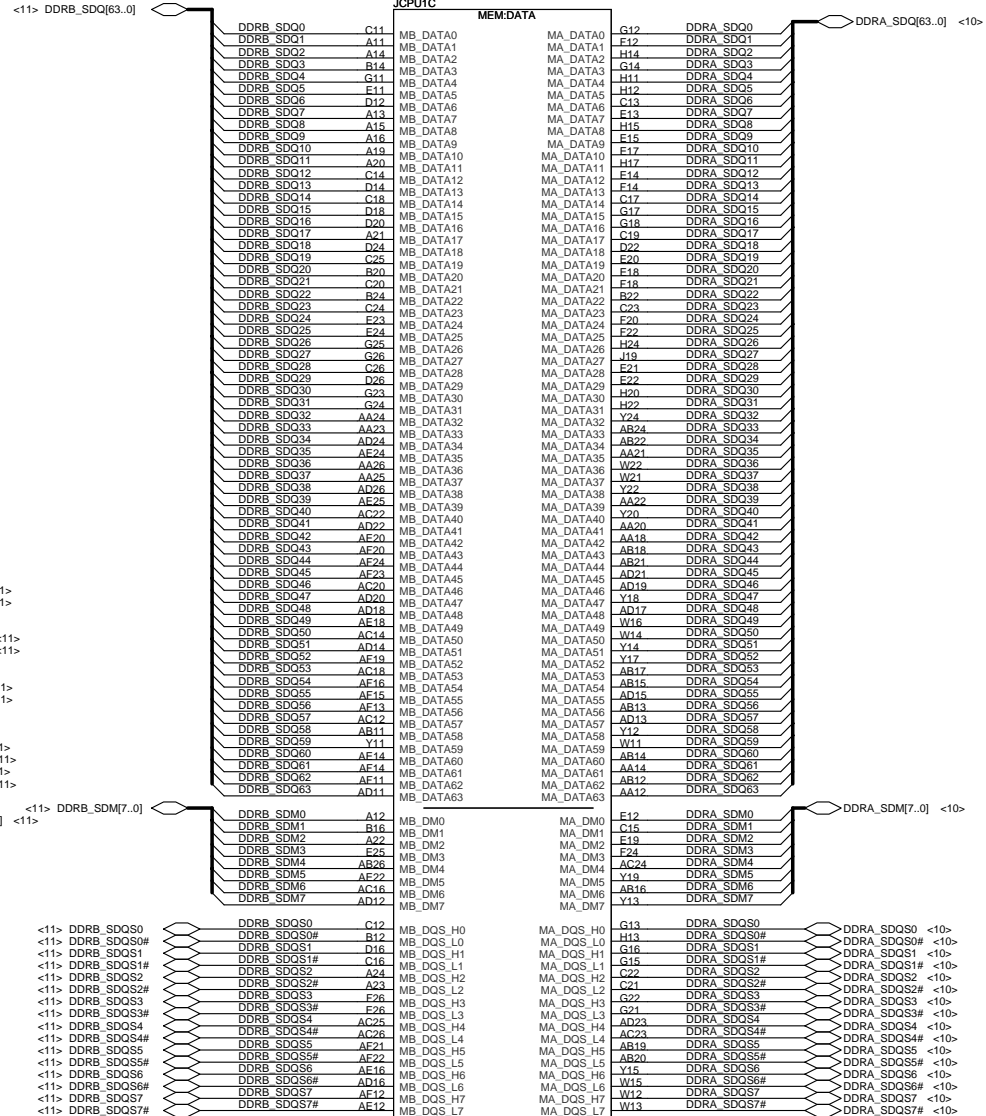
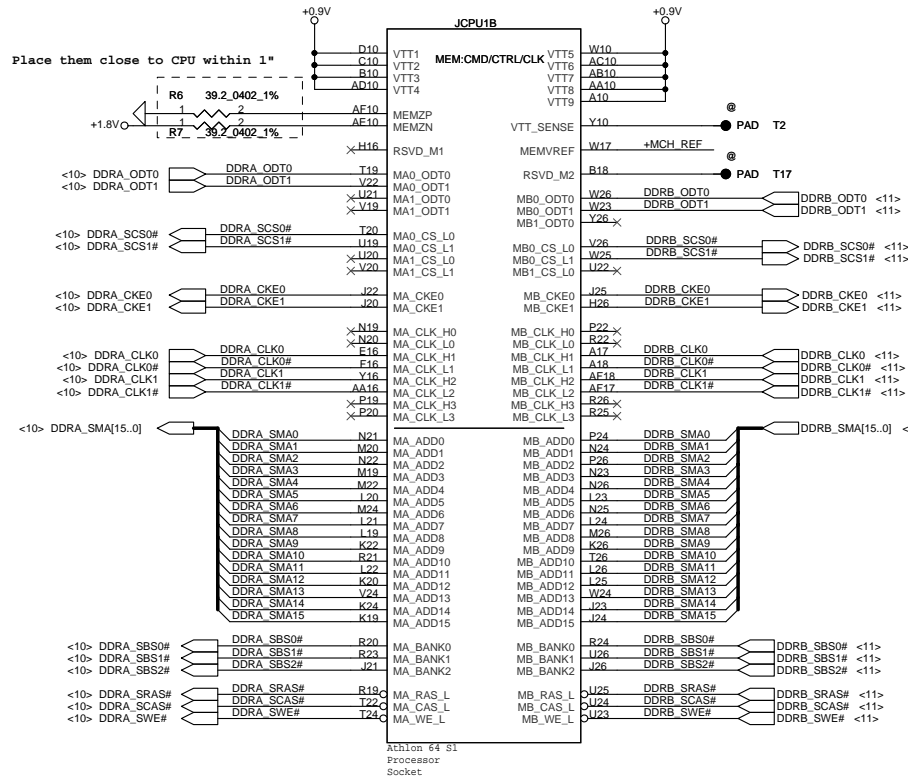
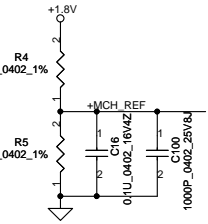


Security Classification	Compal Secret Data			Compal Electronics, Inc.	
Issued Date	2009/09/11	Deciphered Date	2010/03/12	Title	SCHMATIC, MB A5991
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET 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.				Document Number	401830
				Date:	Tuesday, October 13, 2009
				Sheet	6 of 47

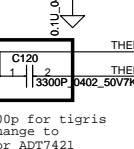
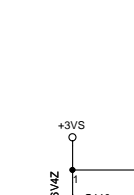
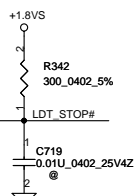
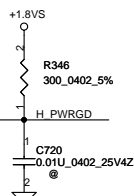
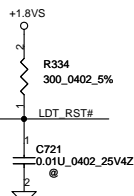
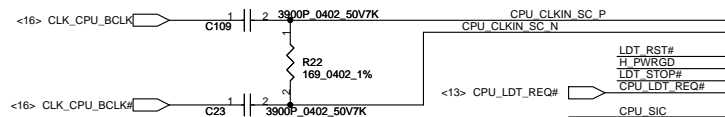
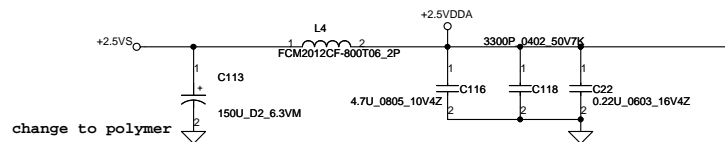
PLACE CLOSE TO PROCESSOR  
WITHIN 1.5 INCH



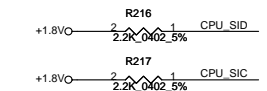
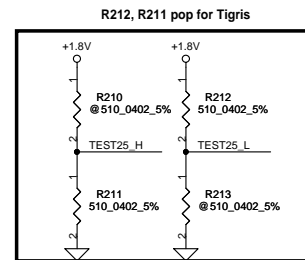
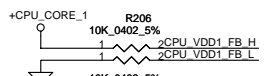
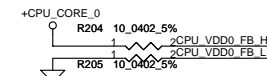
## Processor DDR2 Memory Interface



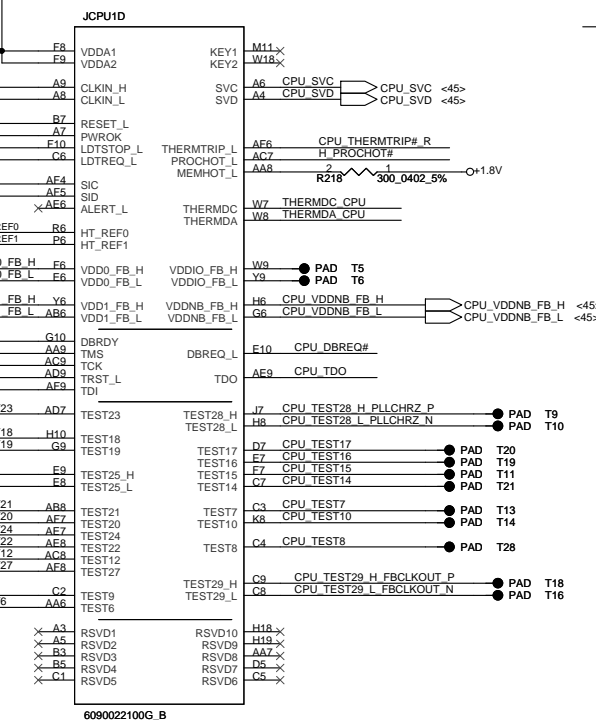
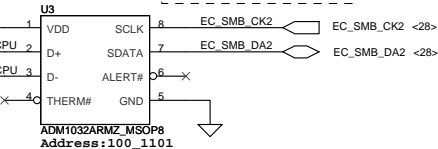
Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2009/09/11	Deciphered Date	2010/03/12	Title	
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF RESEARCH AND DEVELOPMENT 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.				SCHEMATIC,MB A5991	
				Document Number	
				401830	Rev A
Date:		Tuesday, October 13, 2009		Sheet	7 of 47



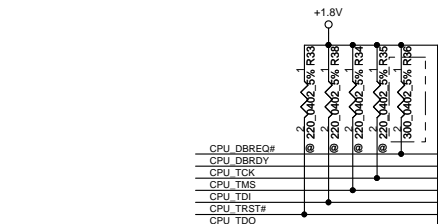
C449 3300p for tigris  
2200p change to  
1000p for AD77421



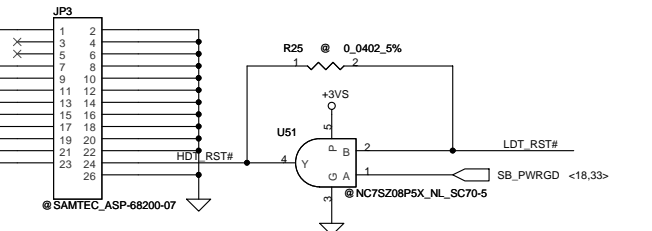
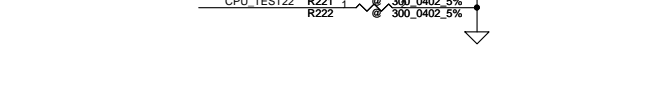
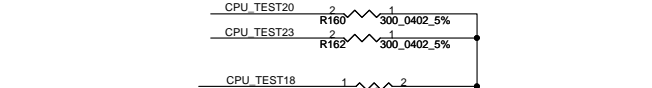
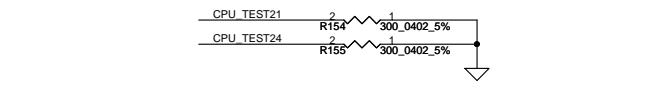
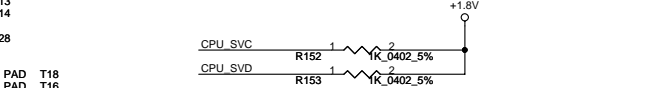
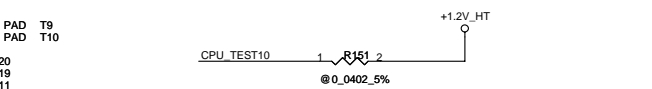
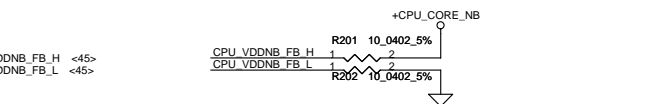
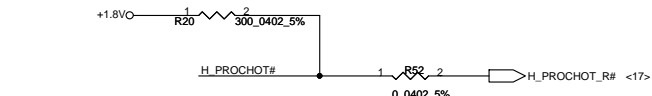
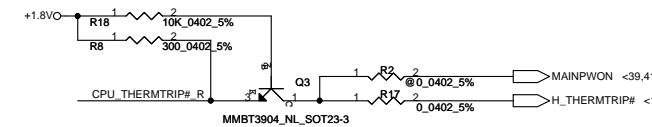
FDV301N, the Vgs is:  
min = 0.65V  
Typ = 0.85V  
Max = 1.5V



6090022100G\_B



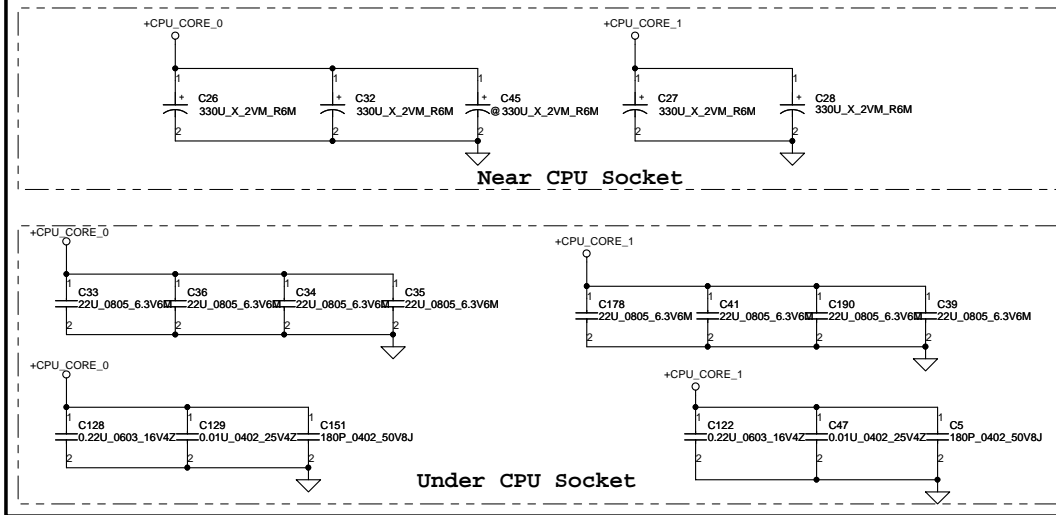
NOTE: HDT TERMINATION IS REQUIRED  
FOR REV. A.x SILICON ONLY.



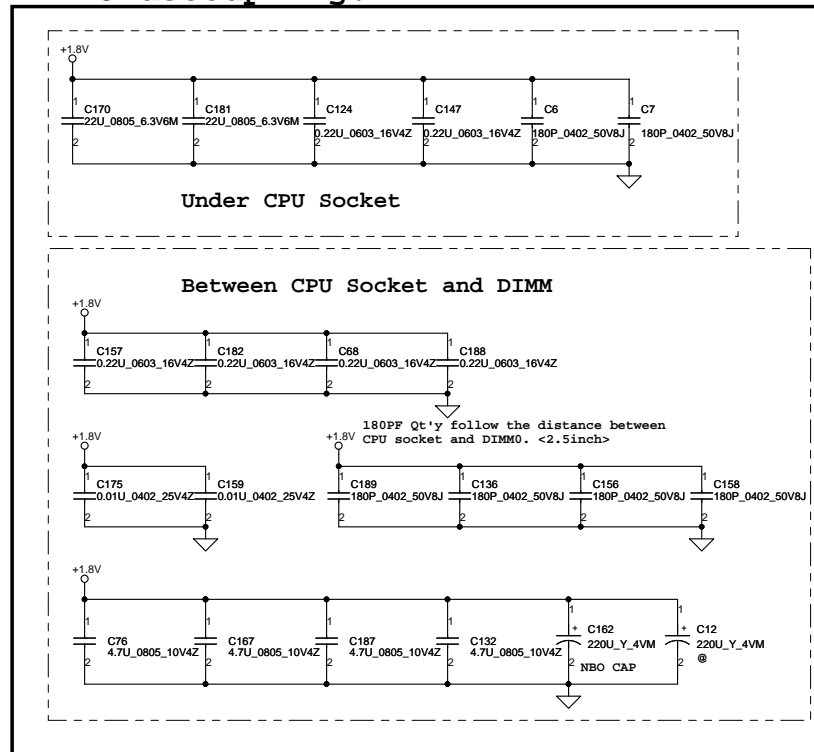
Security Classification		Compal Secret Data				<b>Compal Electronics, Inc.</b>					
Issued Date		2009/09/11		Deciphered Date		2010/03/12		Title			
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET 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.						<b>SCHEMATIC,MB A5991</b>					
						Rev		Document Number		Rev A	
						401830		401830			
						Date:		Tuesday, October 13, 2009		Sheet 8 of 47	



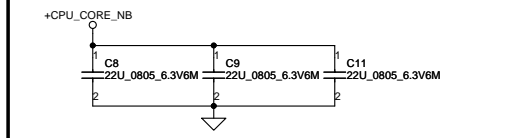
## VDD(+CPU\_CORE) decoupling.



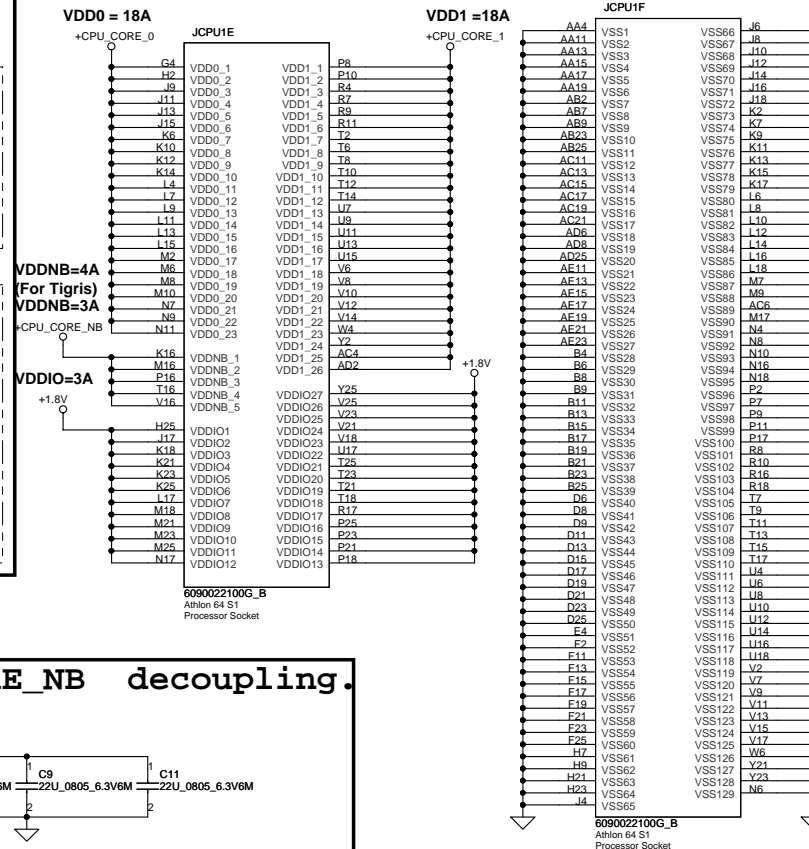
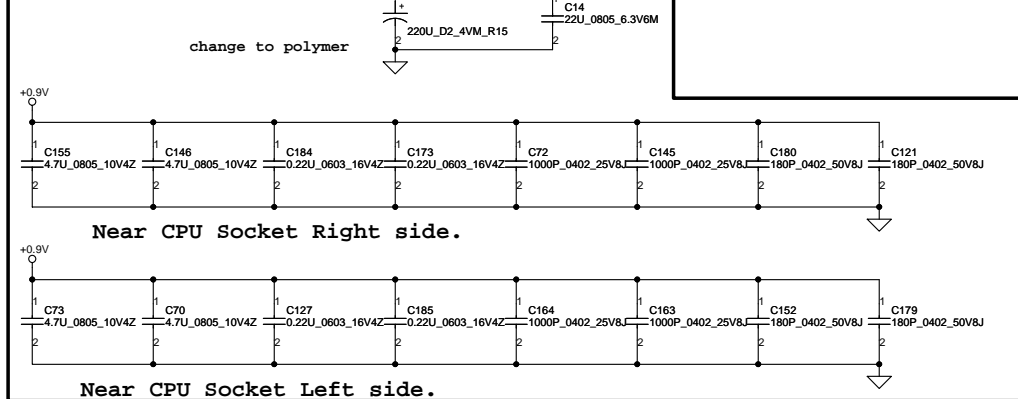
## VDDIO decoupling.



## +CPU\_CORE\_NB decoupling.



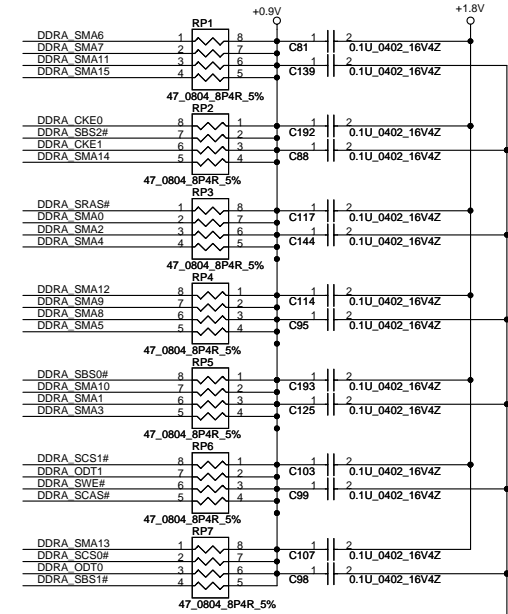
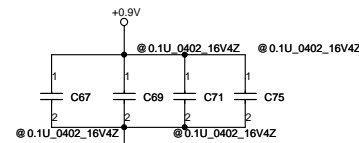
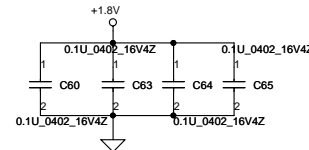
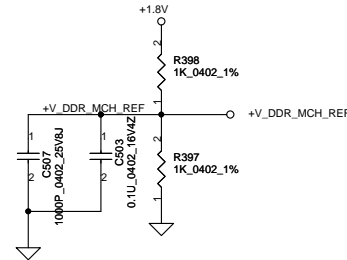
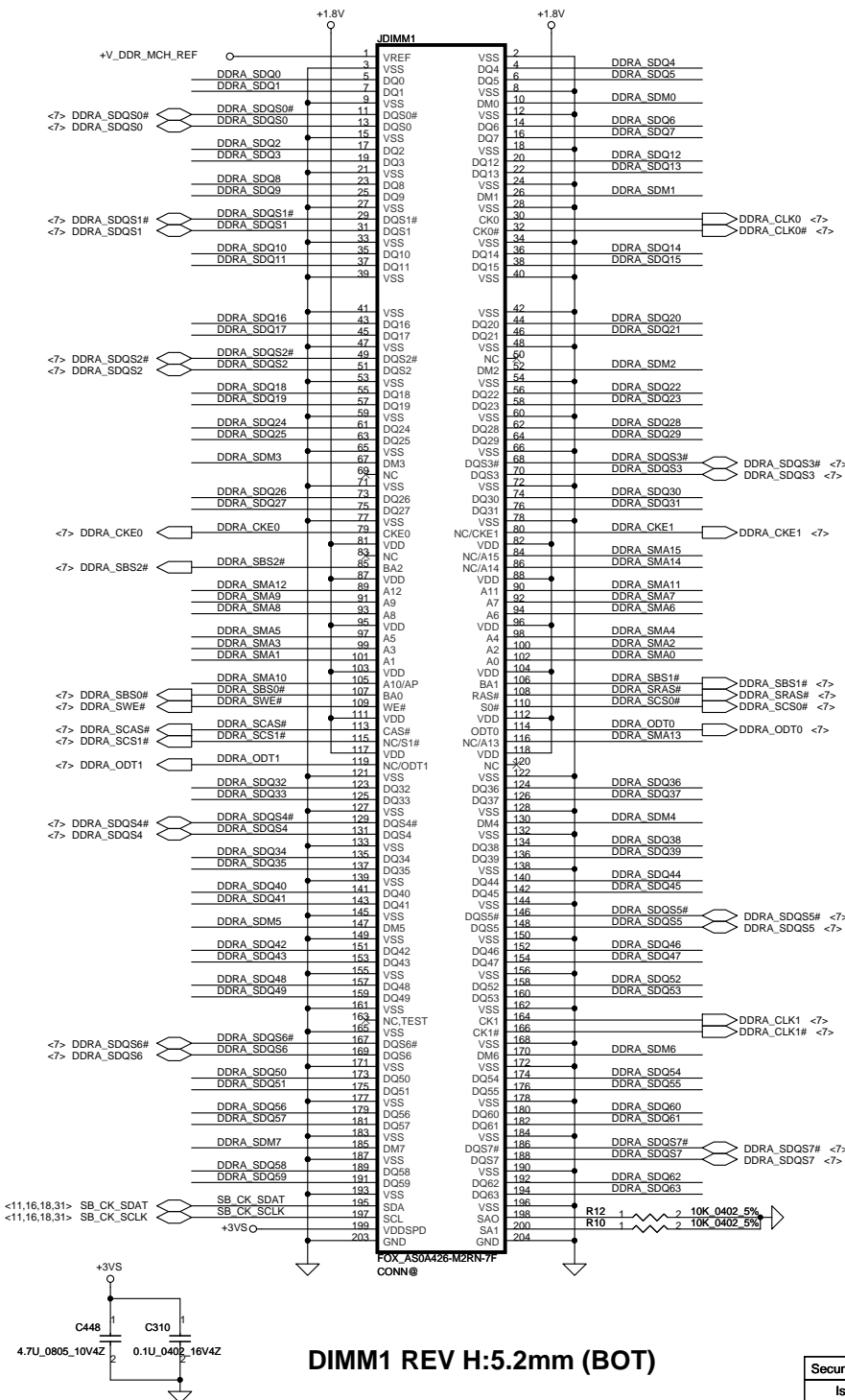
## VTT decoupling.



Security Classification		Compal Secret Data		Title	
Issued Date	2009/09/11	Deciphered Date	2010/03/12	Document Number	Rev A
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.				Date: Tuesday, October 13, 2009	Sheet 9 of 47

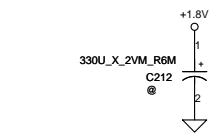
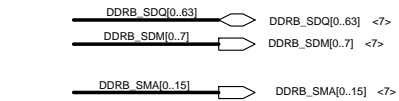
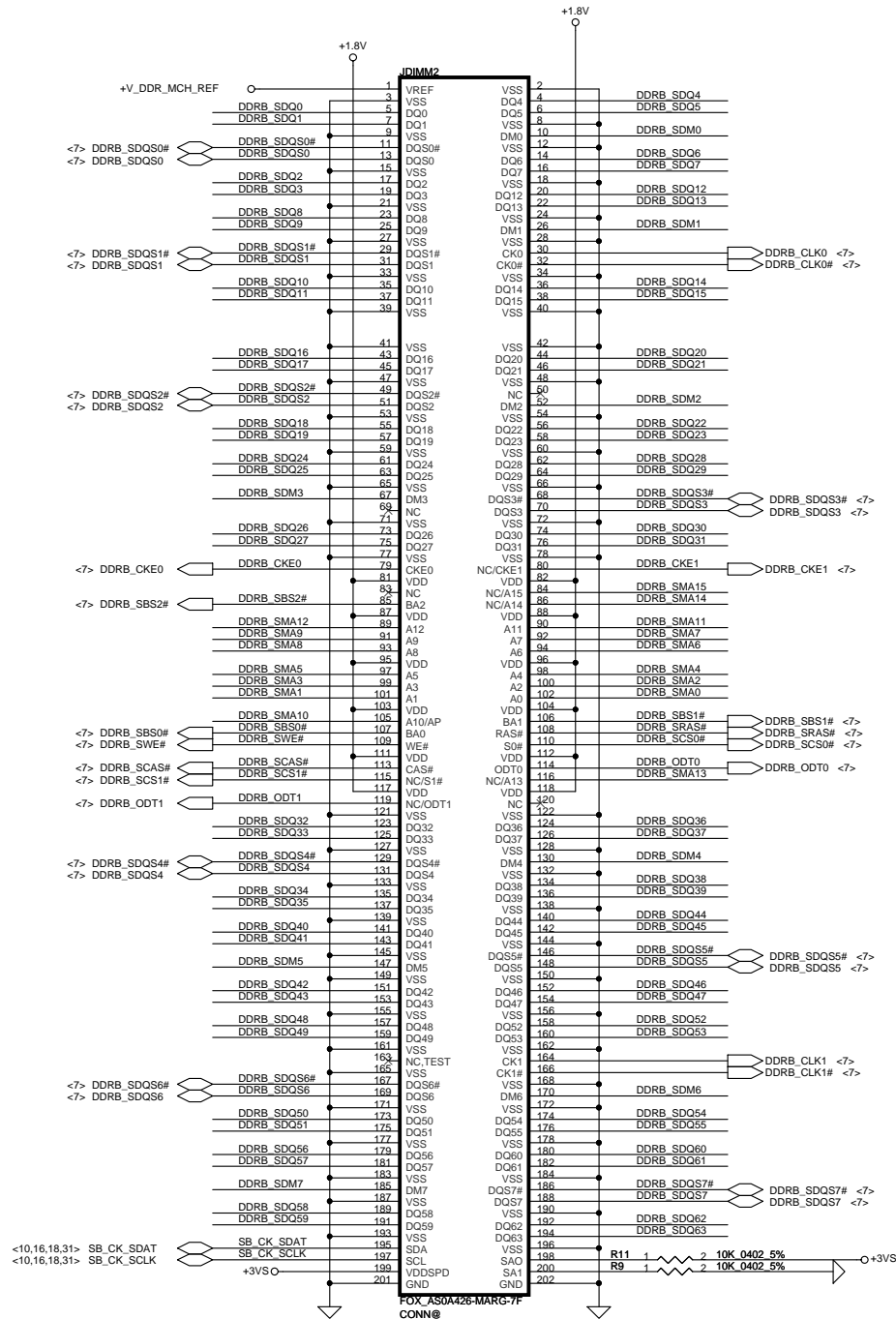
Compal Electronics, Inc.

**SCHEMATIC, MB A5991**

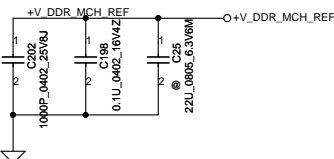


RESERVE  
+V\_DDR\_MCH\_REF BUFFER CIRCUIT

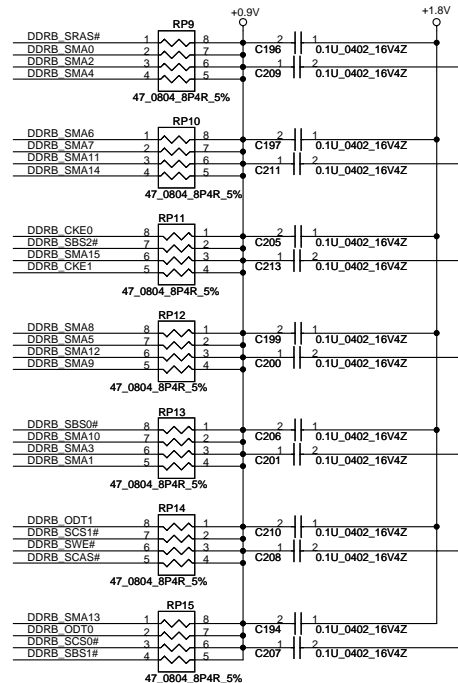
Security Classification		Compal Secret Data		Title	
Issued Date	2009/09/11	Deciphered Date	2010/03/12	Compal Electronics, Inc.	
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED 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.				Document Number	Rev
				401830	A
				Date: Tuesday, October 13, 2009	Sheet 10 of 47



Place near to DIMM2



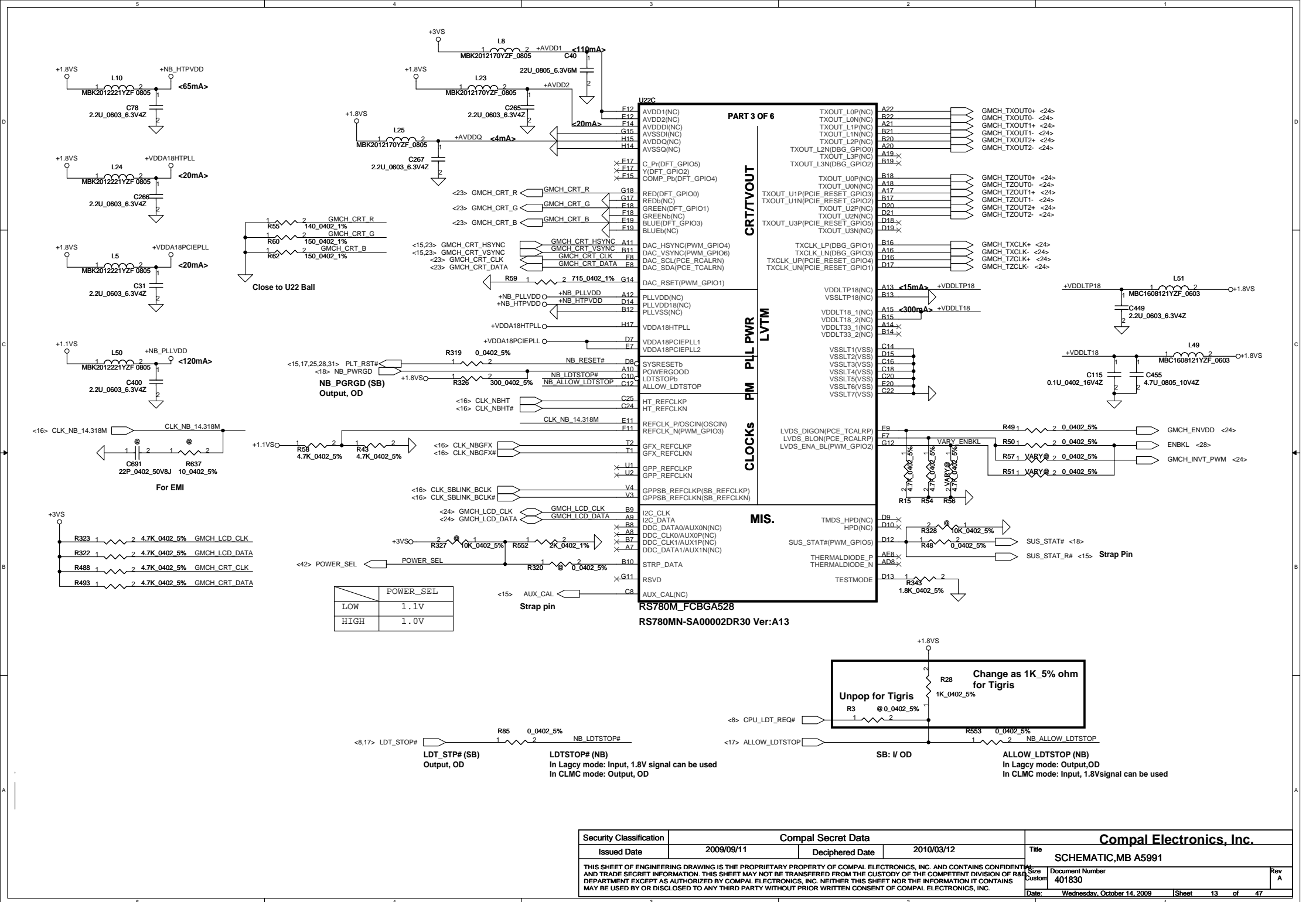
AMD recommend

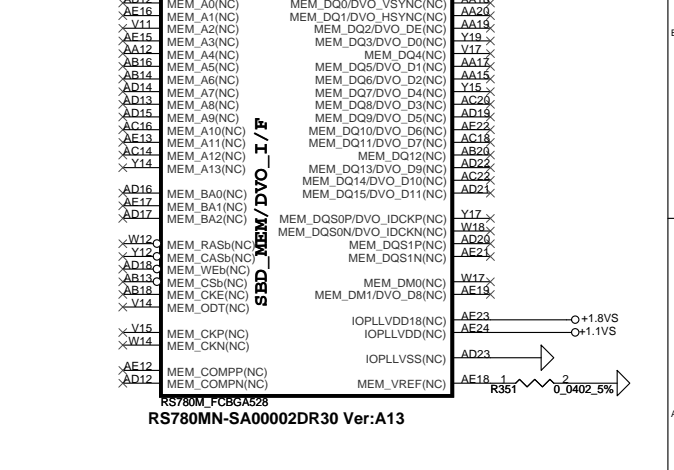
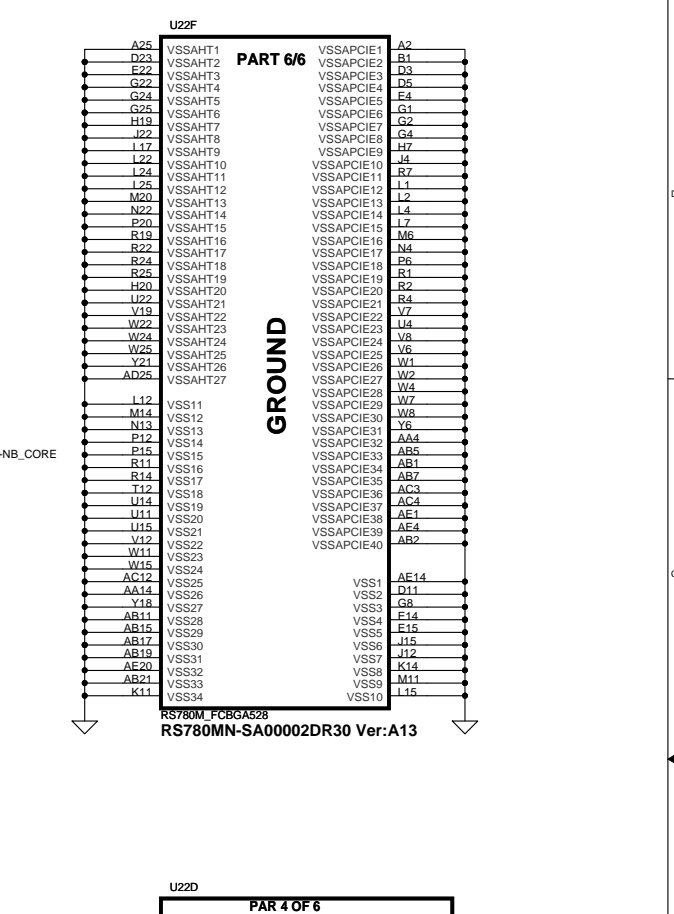
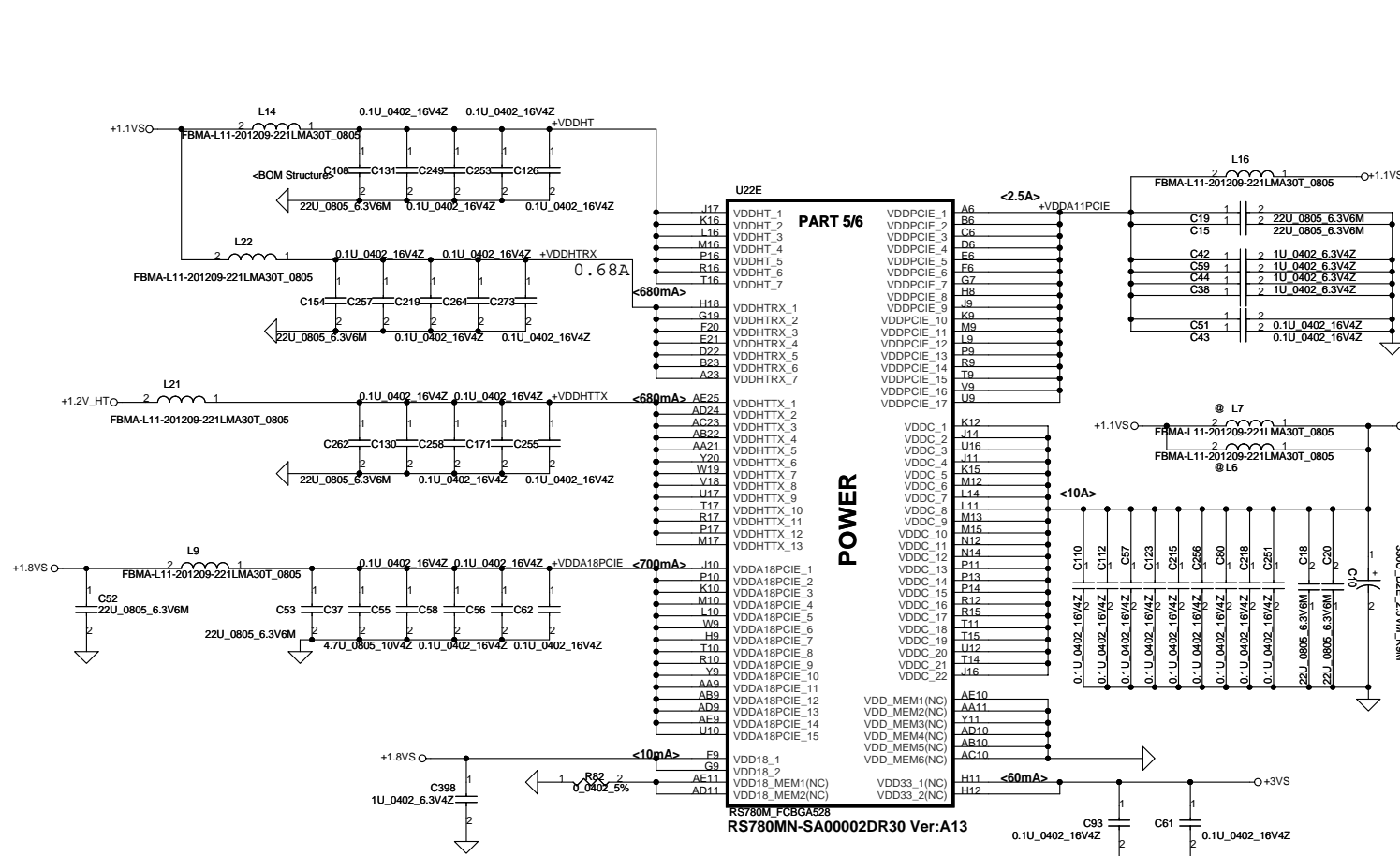


DIMM1 REV H:9.2mm (BOT)

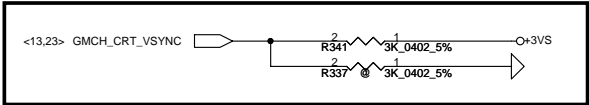
Security Classification		Compal Secret Data				Compal Electronics, Inc.									
Issued Date		2009/09/11		Deciphered Date		2010/03/12		Title		SCHEMATIC, MB A5991					
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. 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.										Document Number		Rev A			
										Customer		401830			
										Date:		Tuesday, October 13, 2009		Sheet 11 of 47	





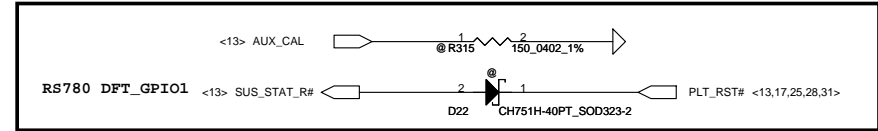


Security Classification		Compal Secret Data		Compal Electronics, Inc.		
Issued Date	2009/09/11	Deciphered Date	2010/03/12	Title	SCHEMATIC,MB A5991	
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET 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.				Size	Document Number	Rev
					401830	A
Date:		Wednesday, October 14, 2009		Sheet	14	of 47



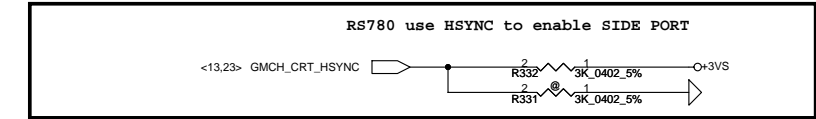
DFT\_GPIO5:STRAP\_DEBUG\_BUS\_GPIO\_ENABLEb

Enables the Test Debug Bus using GPIO. (VSYNC)  
1 : Disable (RS780)  
0 : Enable (Rs780)



DFT\_GPIO1: LOAD\_EEPROM\_STRAPS

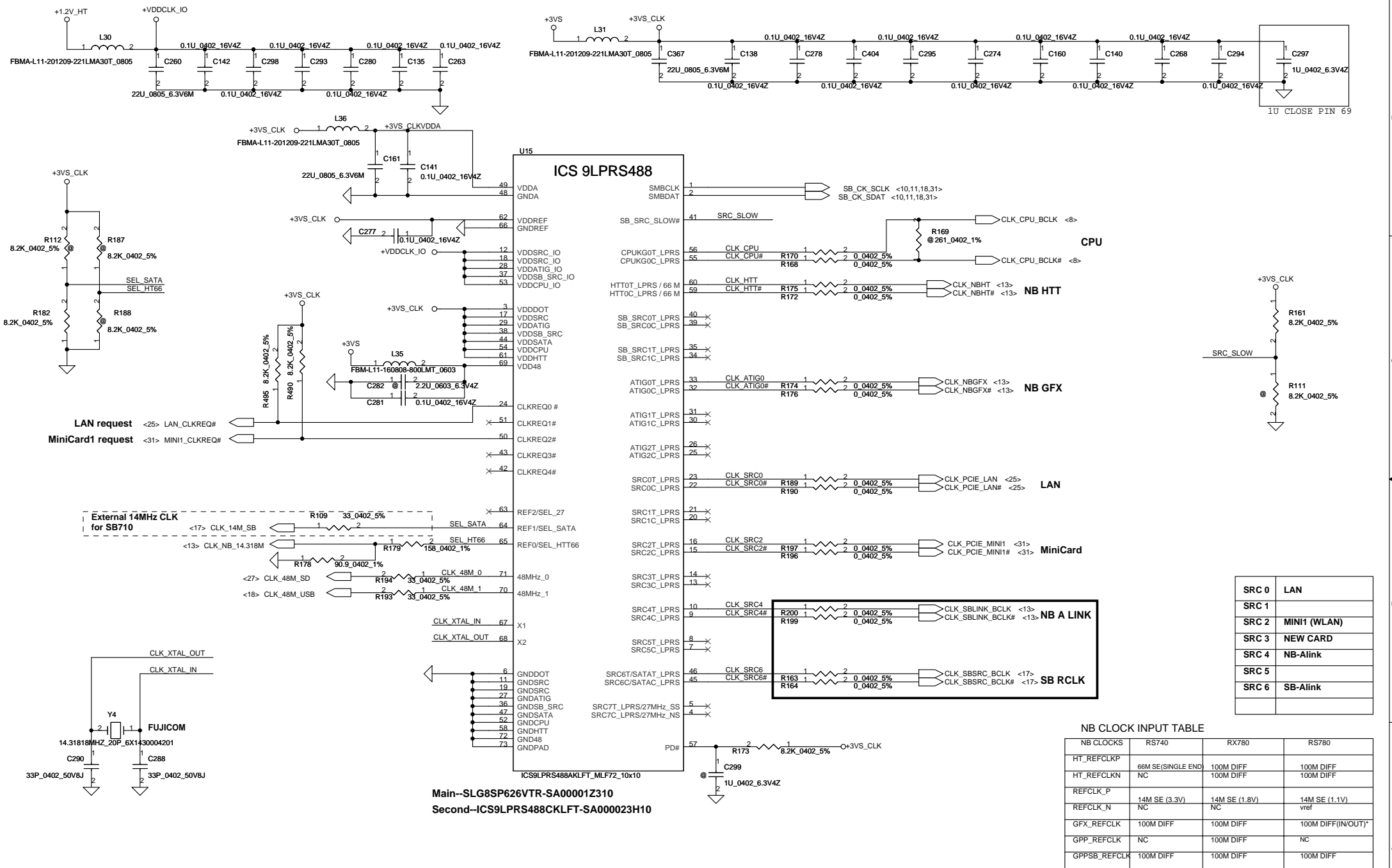
Selects Loading of STRAPS from EPROM  
1 : Bypass the loading of EEPROM straps and use Hardware Default Values  
0 : I2C Master can load strap values from EEPROM if connected, or use default values if not connected  
RS740/RX780: DFT\_GPIO1 RS780:SUS\_STAT



RS780 use HSYNC to enable SIDE PORT

RS740/RS780: Enables Side port memory ( RS780 use HSYNC#)  
0. Enable (RS780)  
1 : Disable(RS780)

Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2009/09/11	Deciphered Date	2010/03/12	Title	SCHEMATIC,MB A5991
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.				Size Custom	Document Number 401830
				Date: Wednesday, October 14, 2009	Sheet 15 of 47



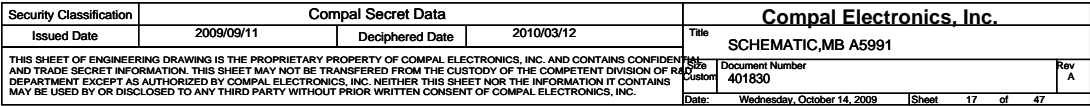
SEL_HTT66	1	configure as single-ended 66MHz output
	0*	configure as differential 100MHz output
SEL_SATA	1*	SS 100M SATA SRC6 output
	0	SS 100M SATA SRC6 output

\* default

SEL_27M No used	1	configure as 27M and 27M_SS output
	0	configure as SRC_7 output

Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date		2009/09/11		Deciphered Date	
		2010/03/12		Title	
				SCHEMATIC,MB A5991	
				Size	
				Custom	
				Document Number	
				401830	
				Date:	
				Wednesday, October 14, 2009	
				Sheet	
				16	
				of	
				47	
				Rev	
				A	







[illegible]

for ACIN level issue

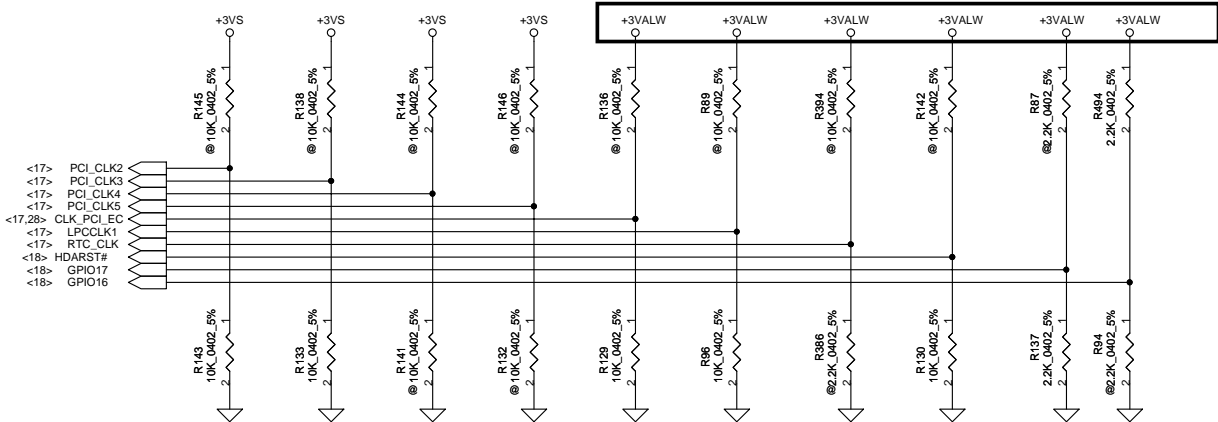
Security Classification		Compal Secret Data				Compal Electronics, Inc.							
Issued Date		2009/09/11		Deciphered Date		2010/03/12		Title					
								SCHEMATIC,MB A5991					
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE 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.								Size	Document Number	Rev			
								Custom	401830	A			
								Date:	Wednesday, October 14, 2009	Sheet	19	of	47



REQUIRED STRAPS

NOTE: SB700 HAS INTERNAL 15K PULL UP RESISTOR FOR RTC\_CLK

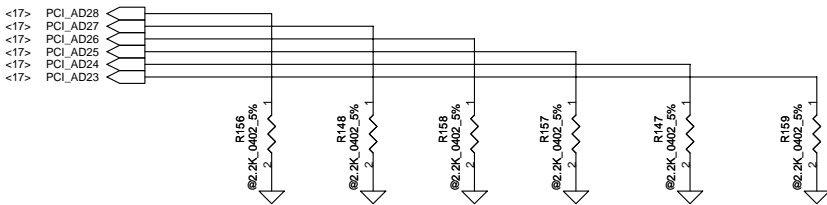
	PCI_CLK2	PCI_CLK3	PCI_CLK4	PCI_CLK5	LPC_CLK0 CLK_PCI_EC	LPC_CLK1	RTC_CLK	AZ_RST_CD#	GP17	GP16
PULL HIGH	BOOTFAIL TIMER ENABLED	USE DEBUG STRAPS	RESERVED	RESERVED	ENABLE PCI MEM BOOT	CLKGEN ENABLED	INTERNAL RTC  DEFAULT	EC ENABLED	Internal pull up H,H = Reserved H,L = SPI ROM	
PULL LOW	BOOTFAIL TIMER DISABLED DEFAULT	IGNORE DEBUG STRAPS DEFAULT			DISABLE PCI MEM BOOT  DEFAULT	CLKGEN DISABLED  DEFAULT	EXT. RTC (PD on X1, apply 32KHz to RTC_CLK)	EC DISABLED DEFAULT		L,H = LPC ROM (Default L,NC) L,L = FWH ROM

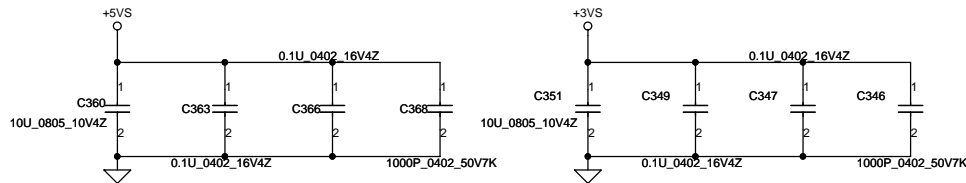


DEBUG STRAPS

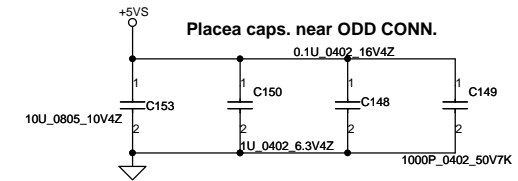
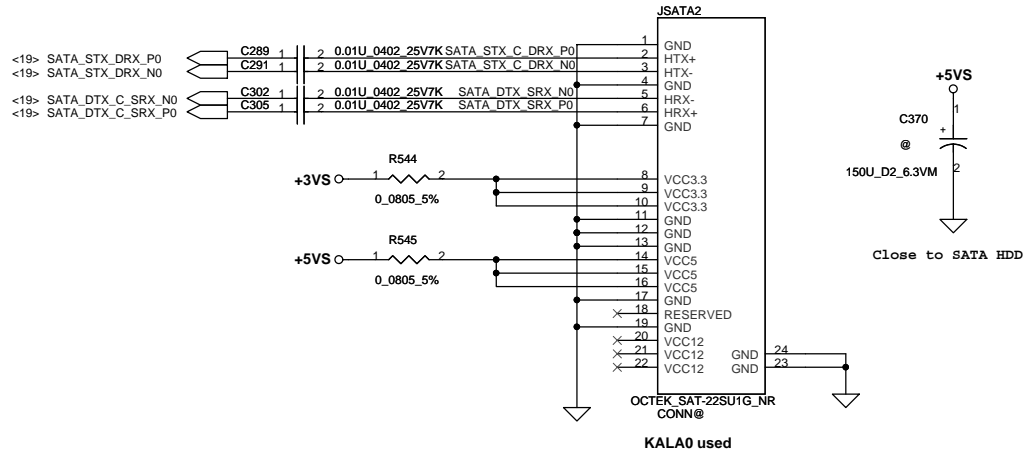
DEBUG STRAPS  
SB700 HAS 15K INTERNAL PU FOR PCI\_AD[28:23]

	PCI_AD28	PCI_AD27	PCI_AD26	PCI_AD25	PCI_AD24	PCI_AD23
PULL HIGH	USE LONG RESET DEFAULT	USE PCI PLL  DEFAULT	USE ACPI BCLK  DEFAULT	USE IDE PLL  DEFAULT	USE DEFAULT PCIE STRAPS  DEFAULT	RESERVED
PULL LOW	USE SHORT RESET	BYPASS PCI PLL	BYPASS ACPI BCLK	BYPASS IDE PLL	USE EEPROM PCIE STRAPS	

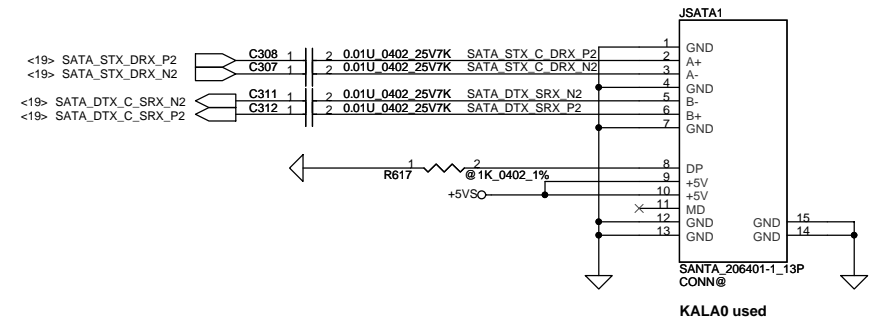




## SATA HDD CONN

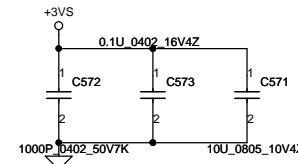
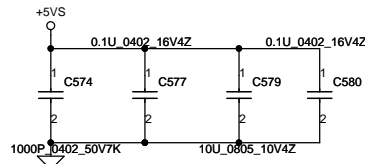
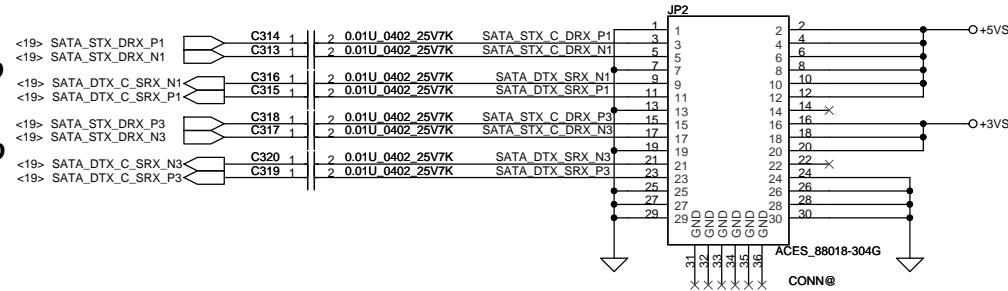


## SATA ODD CONN



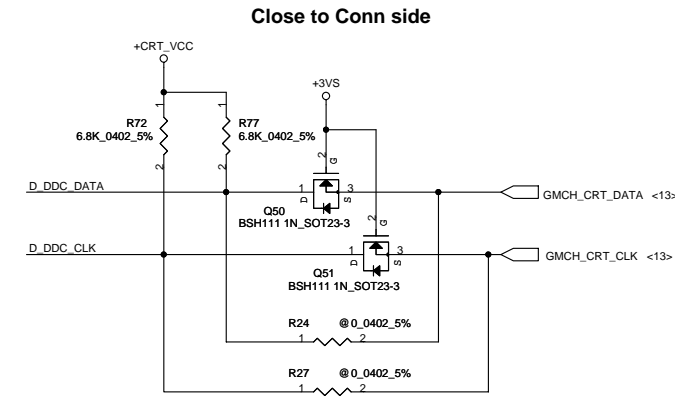
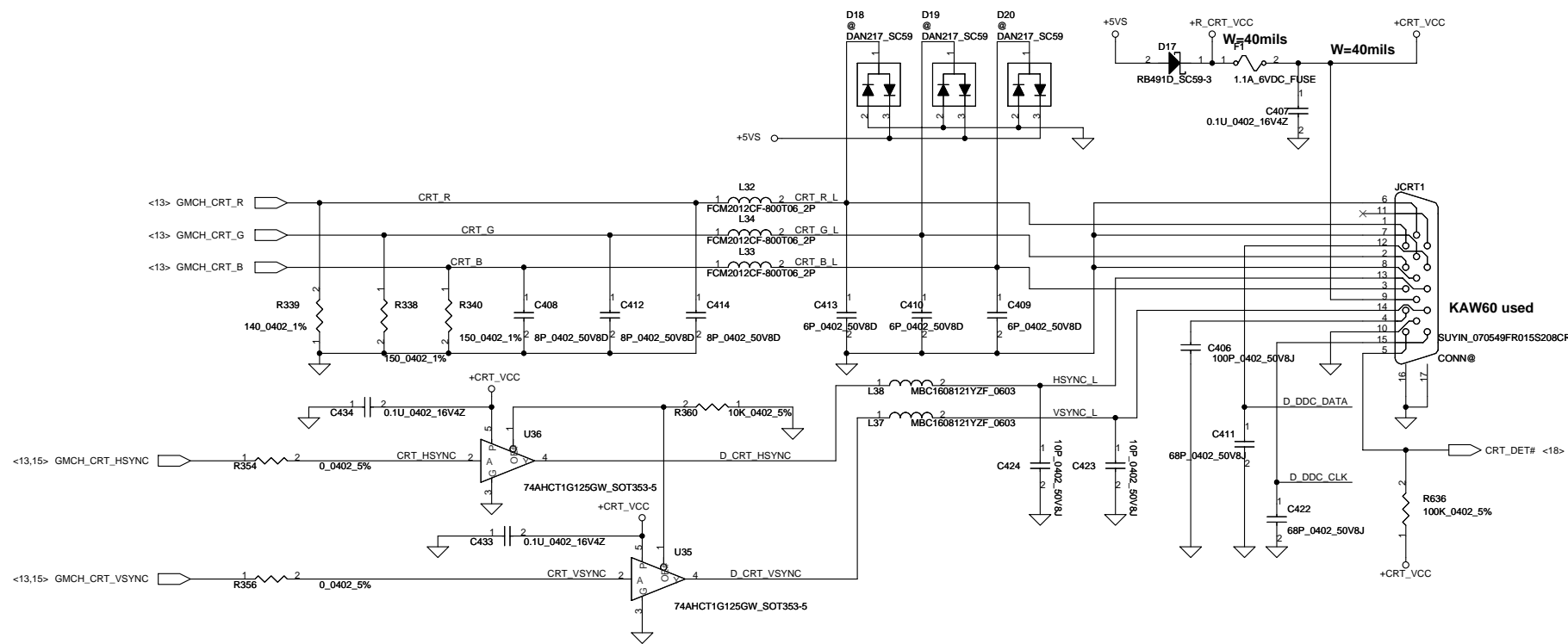
## Second HDD

## Second ODD



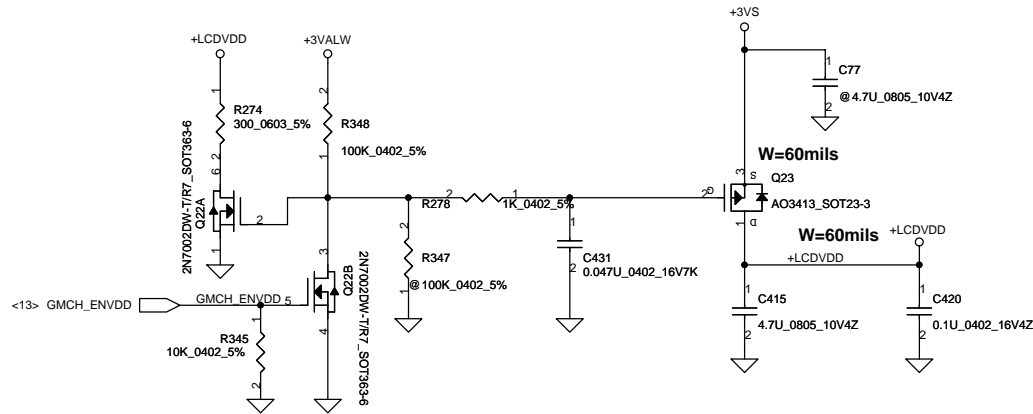
Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2009/09/11	Deciphered Date	2010/03/12	Title	SCHEMATIC, MB A5991
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET 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.				Document Number	401830
				Date	Thursday, October 15, 2009
				Sheet	22 of 47

CRT Connector

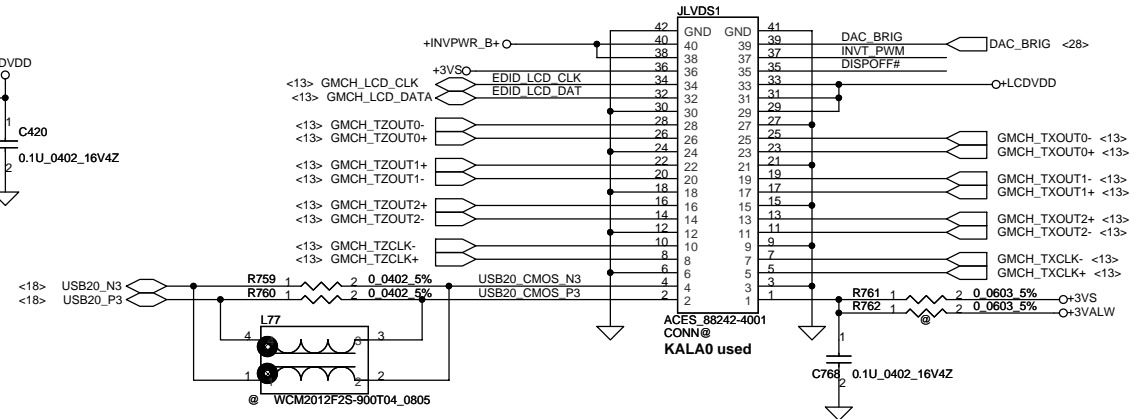


Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2009/09/11	Deciphered Date	2010/03/12	Title	SCHEMATIC,MB A5991
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET 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.				Document Number	401830
				Date:	Thursday, October 15, 2009
				Sheet	23 of 47
				Rev	A

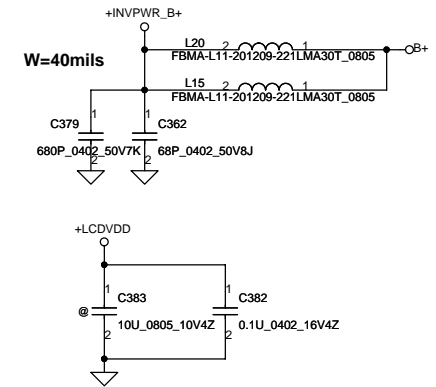
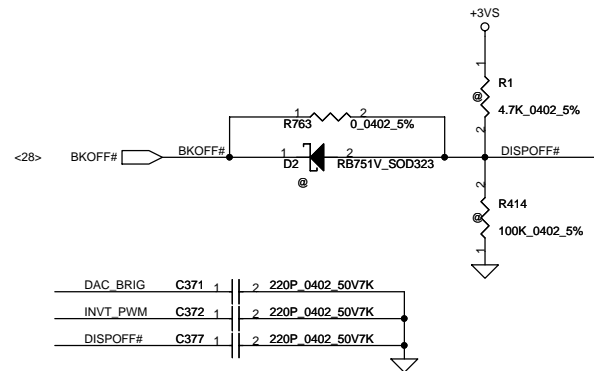
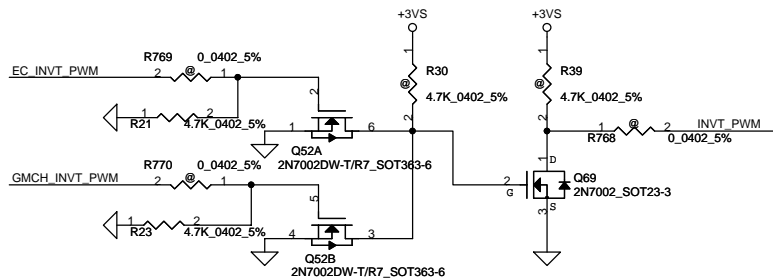
## LCD POWER CIRCUIT



## LCD/PANEL CONN.

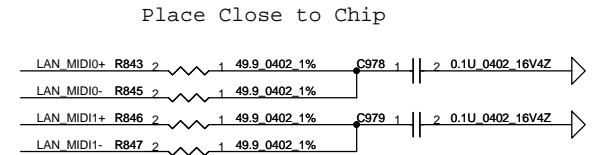
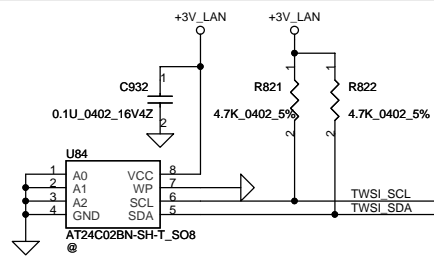
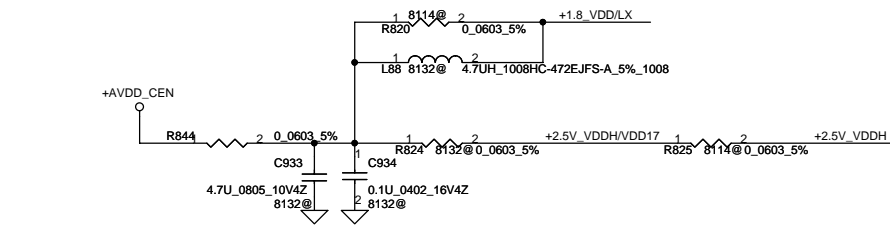


## VARYBRIGHT FUNCTION

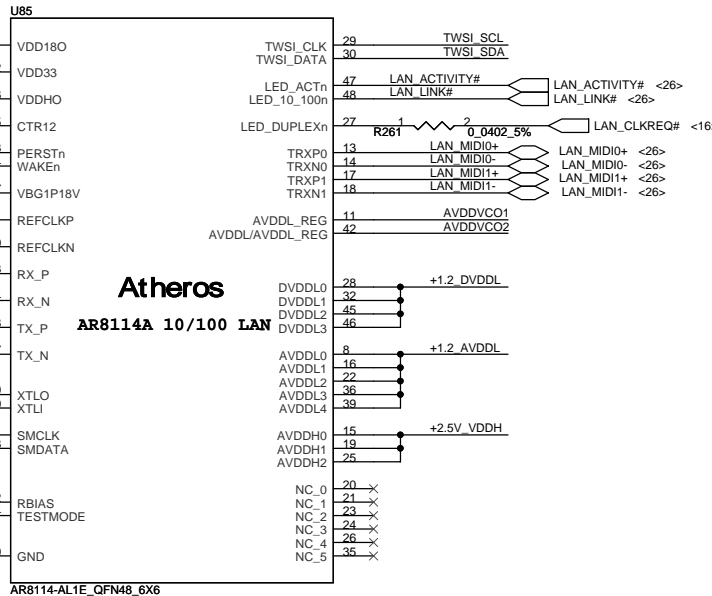
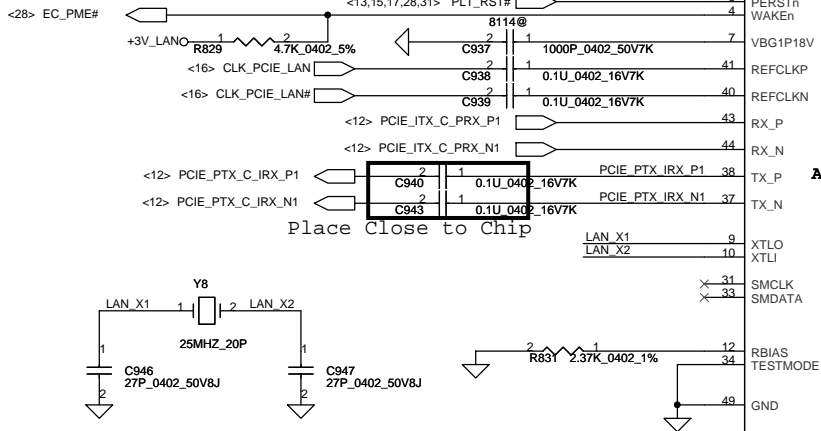


Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2009/09/11	Deciphered Date	2010/03/12	Title	SCHEMATIC, MB A5991
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET 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.				Document Number	401830
				Date	Thursday, October 15, 2009
				Sheet	24 of 47





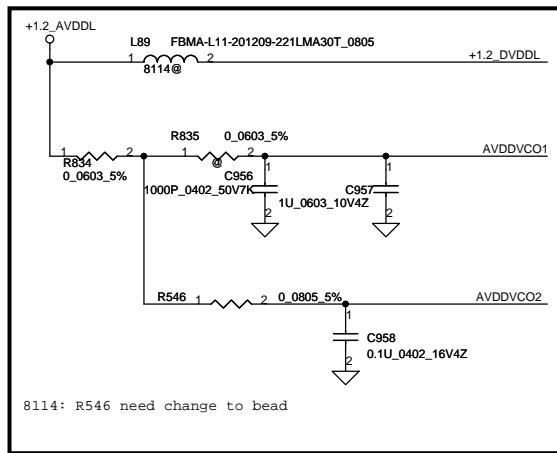
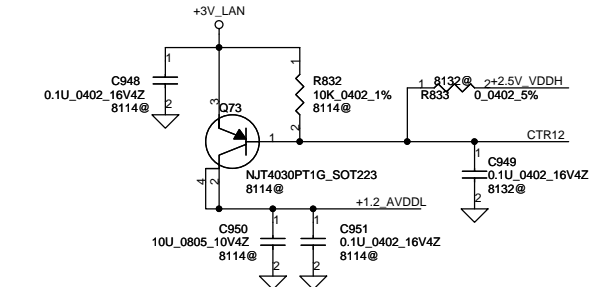
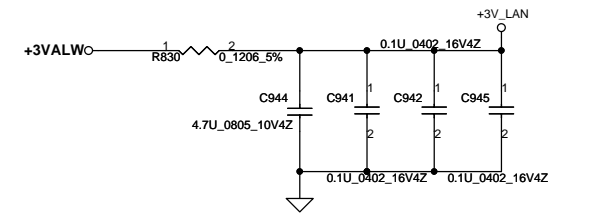
WAKEn  
8114: Internal PU  
8132: OD



**Atheros**  
**AR8114A 10/100 LAN**  
change to AR8132L-AL1E

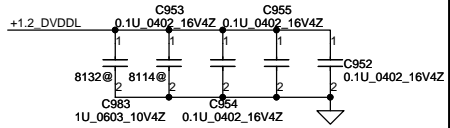
Place Close to Chip

Layout Notice : Close to chip

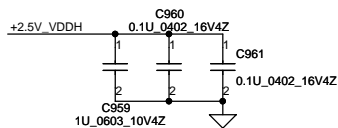


8114: R546 need change to bead

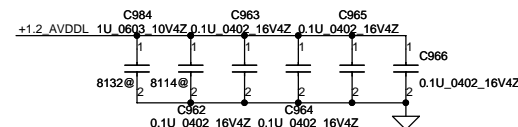
Place Close to Pin 28, 32, 45, 46



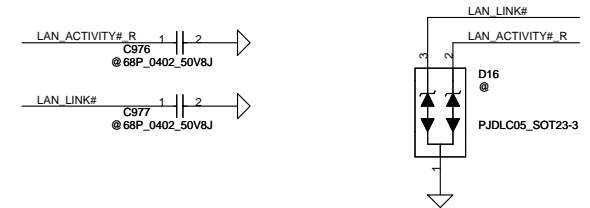
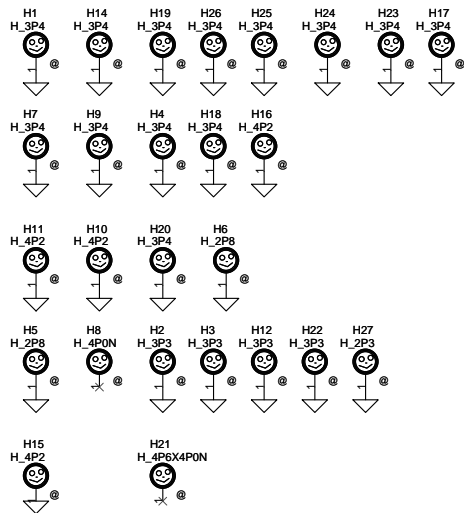
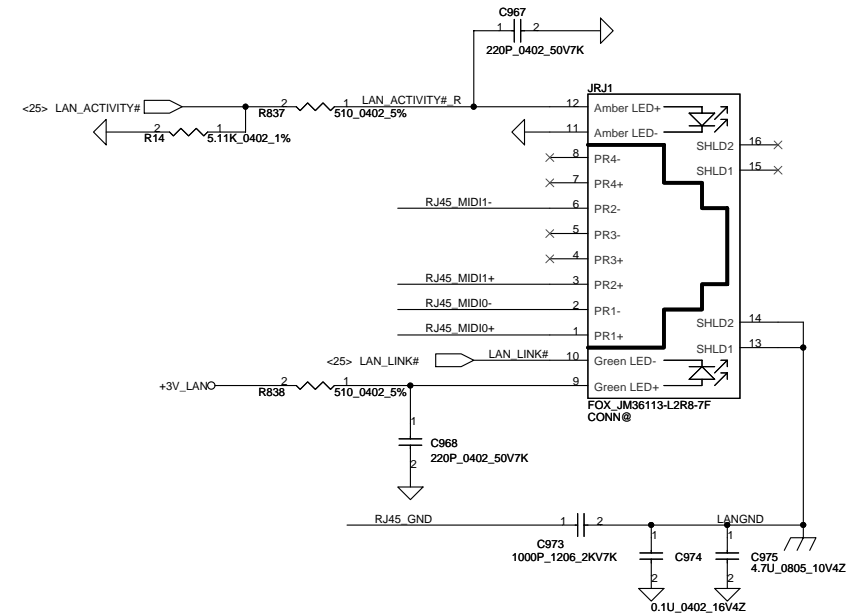
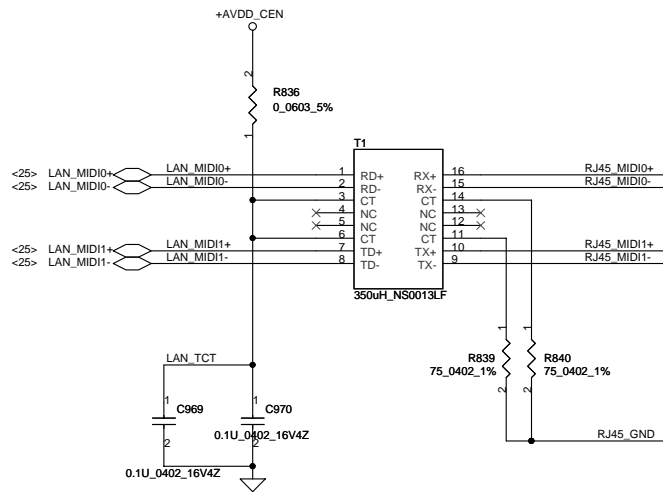
Place Close to Pin15, 19, 25



Place Close to Pin8, 16, 22, 36, 39



Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2009/09/11	Deciphered Date	2010/03/12	Title	SCHEMATIC,MB A5991
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.				Document Number	401830
				Date:	Thursday, October 15, 2009
				Sheet	25 of 47



Security Classification		Compal Secret Data				Compal Electronics, Inc.			
Issued Date		2009/09/11		Deciphered Date		2010/03/12		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.						SCHEMATIC,MB A5991			
						Size Custom		Document Number 401830	
Date: Thursday, October 15, 2009				Sheet 26 of 47					





## For 15"

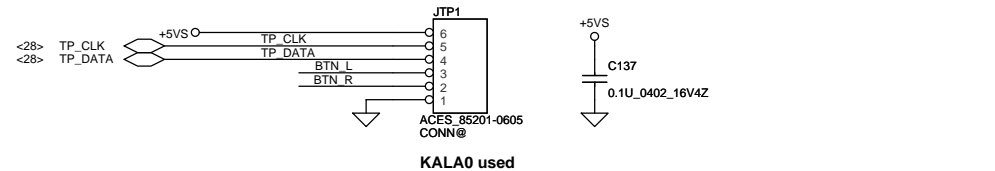


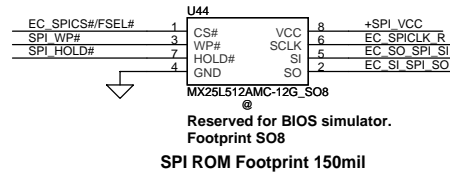
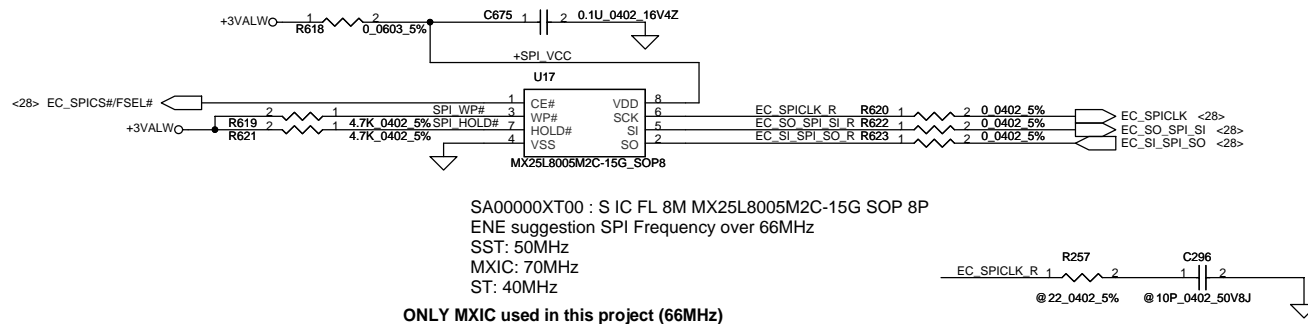
Figure 1 illustrates the pin connections for the ACES 88747-2601 connector. The diagram is divided into three main sections: a top view, a side view, and a bottom view. Each view shows the pin numbers and their corresponding functions.

**Top View:** Shows pins 1 through 28. Pins 1 through 14 are labeled KSO1 through KSO14. Pins 15 through 28 are labeled KSO15 through KSO28. The diagram also shows the pin connections for the ACES 88747-2601 connector, with pins 1 through 28 labeled KSO1 through KSO28.

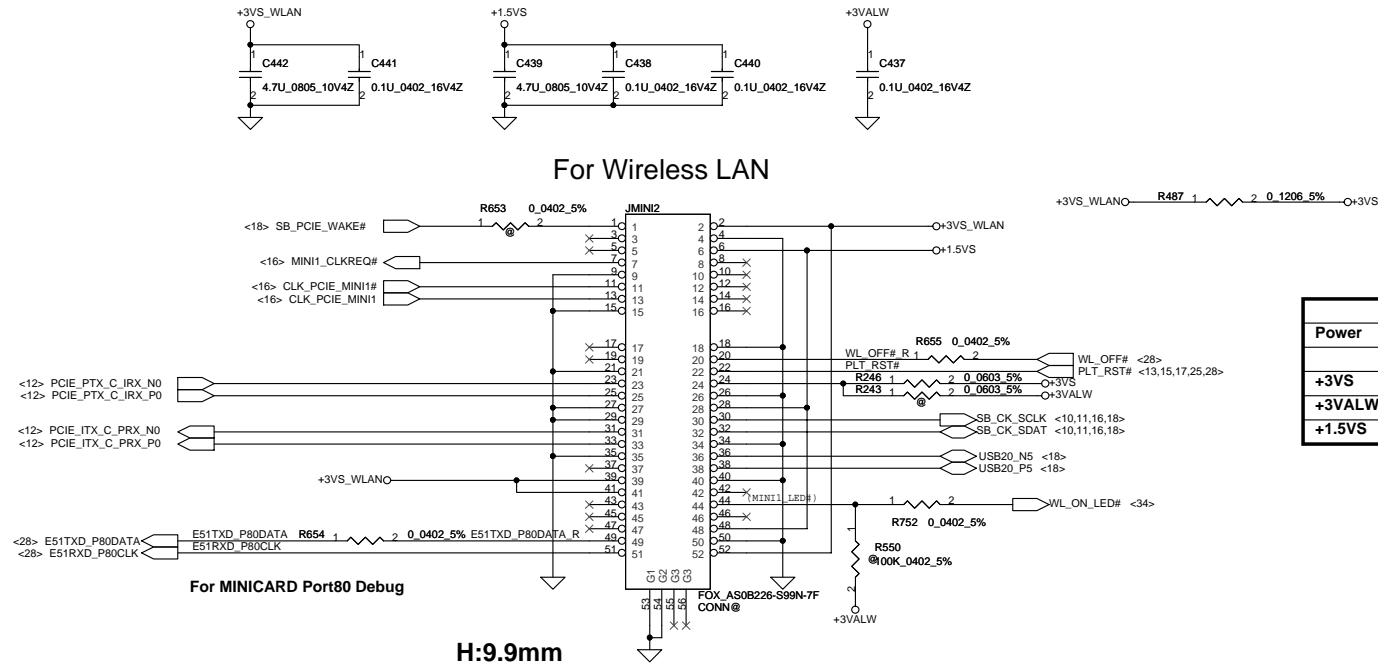
**Side View:** Shows pins 1 through 28. Pins 1 through 14 are labeled KSO1 through KSO14. Pins 15 through 28 are labeled KSO15 through KSO28. The diagram also shows the pin connections for the ACES 88747-2601 connector, with pins 1 through 28 labeled KSO1 through KSO28.

**Bottom View:** Shows pins 1 through 28. Pins 1 through 14 are labeled KSO1 through KSO14. Pins 15 through 28 are labeled KSO15 through KSO28. The diagram also shows the pin connections for the ACES 88747-2601 connector, with pins 1 through 28 labeled KSO1 through KSO28.

Security Classification	Compal Secret Data			Compal Electronics, Inc.		
Issued Date	2009/09/11	Deciphered Date	2010/03/12	Title	SCHEMATIC, MB A5991	
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.				Size	Document Number	Rev
				Custom	401830	A
Date:				Thursday, October 15, 2009	Sheet	29 of 47



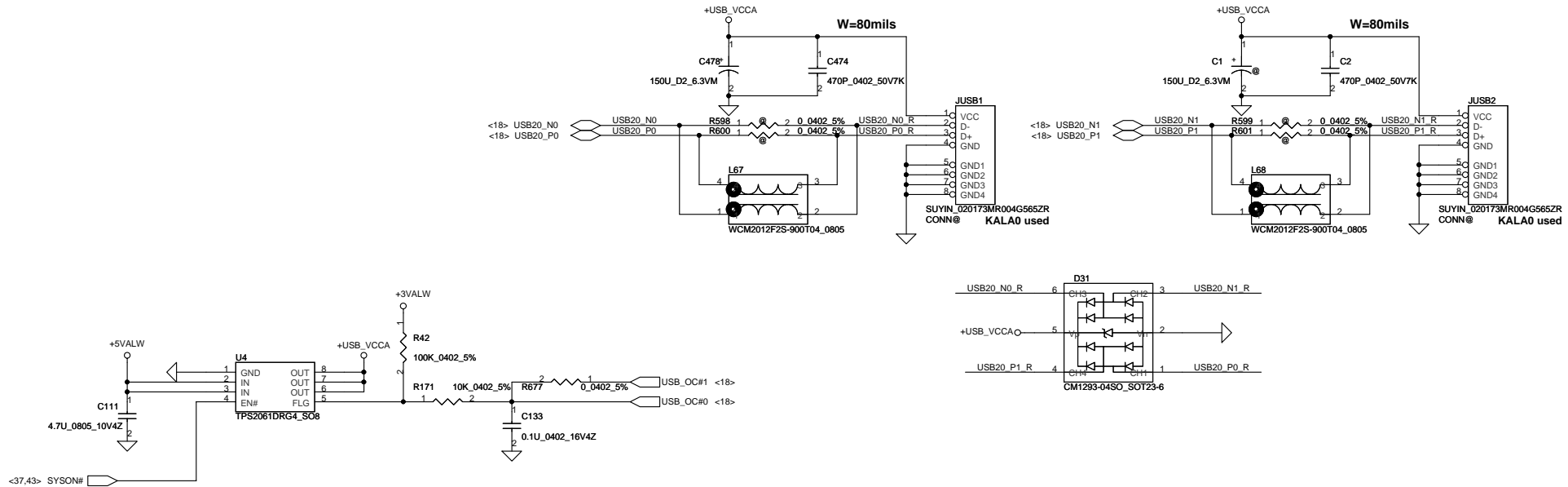
Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2009/09/11	Deciphered Date	2010/03/12	Title	SCHEMATIC,MB A5991
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET 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.				Document Number	401830
				Date:	Monday, October 19, 2009
				Sheet	30 of 47
				Rev	A



Mini Card Power Rating			
Power	Primary Power (mA)		Auxiliary Power (mA)
	Peak	Normal	Normal
+3VS	1000	750	
+3VALW	330	250	250 (wake enable)
+1.5VS	500	375	5 (Not wake enable)

Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2009/09/11	Deciphered Date	2010/03/12	Title	SCHEMATIC, MB A5991
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.				Document Number	401830
				Date:	Thursday, October 15, 2009
				Sheet	31 of 47

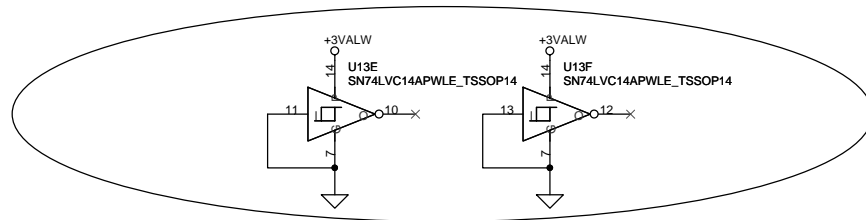
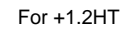
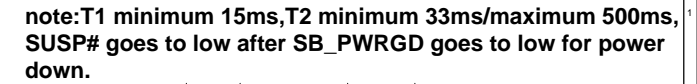
# USB CONN. 1 & 2



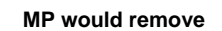
Security Classification		Compal Secret Data				Compal Electronics, Inc.					
Issued Date		2009/09/11		Deciphered Date		2010/03/12		Title			
								SCHEMATIC,MB A5991			
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET 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.								Document Number		Rev	
								401830		A	
								Date		Thursday, October 15, 2009	



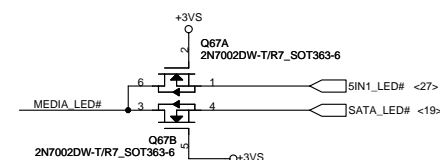
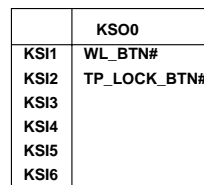
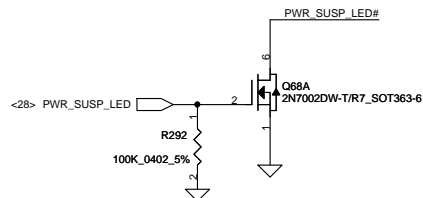
For South Bridge



**TOP Side**

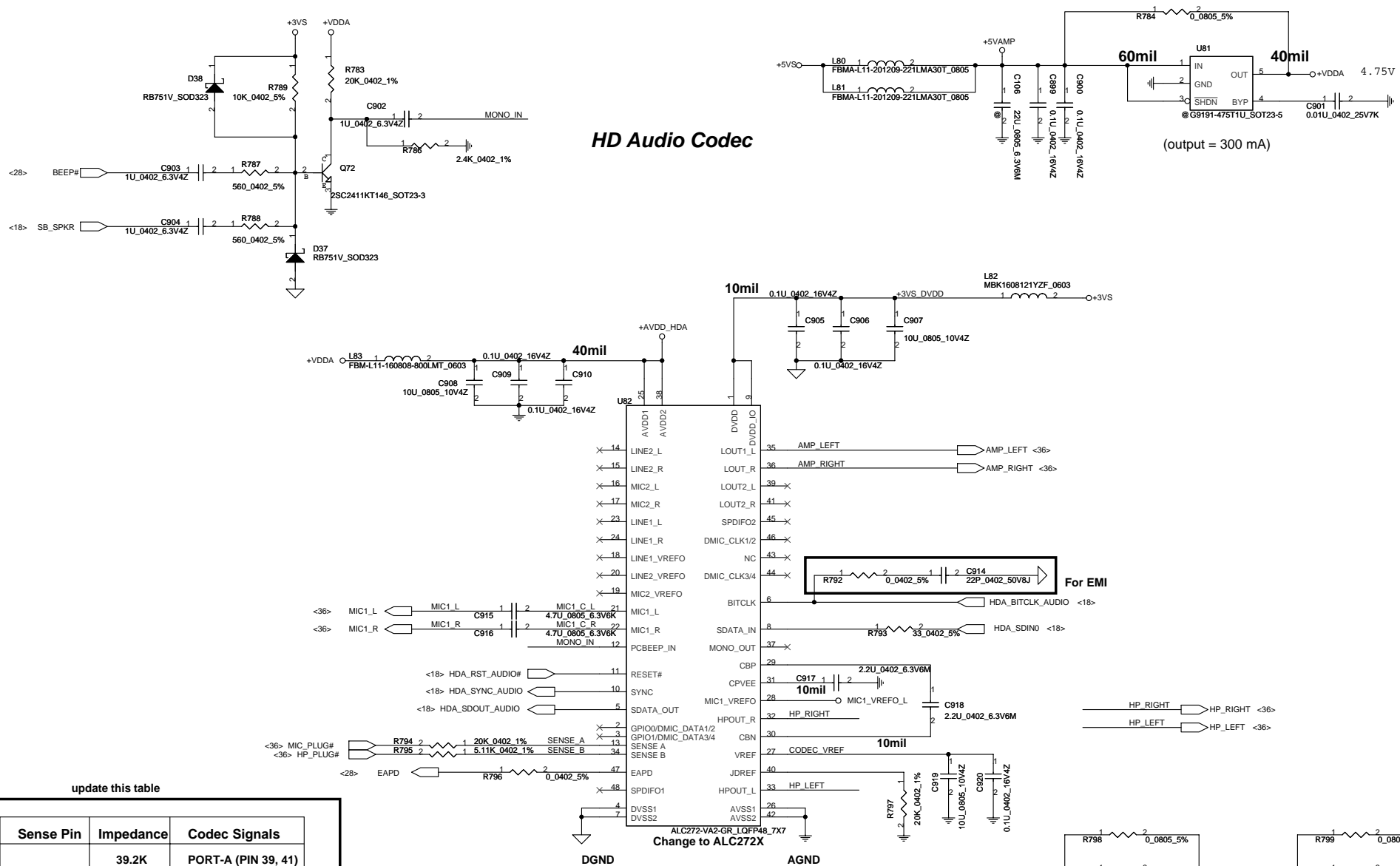


Security Classification		Compal Secret Data				Compal Electronics, Inc.					
Issued Date		2009/09/11		Deciphered Date		2010/03/12		Title			
								SCHEMATIC, MB A5991			
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET 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.						Size		Document Number		Rev	
						B		401830		A	
Date:						Monday, October 19, 2009		Sheet		33 of 47	



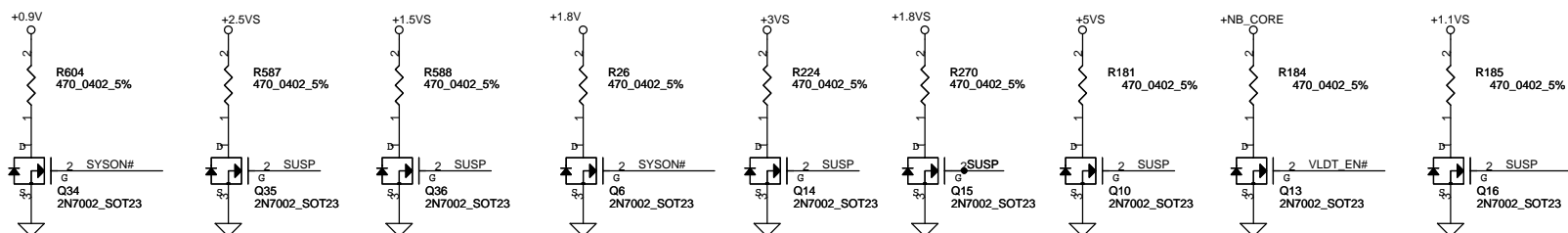
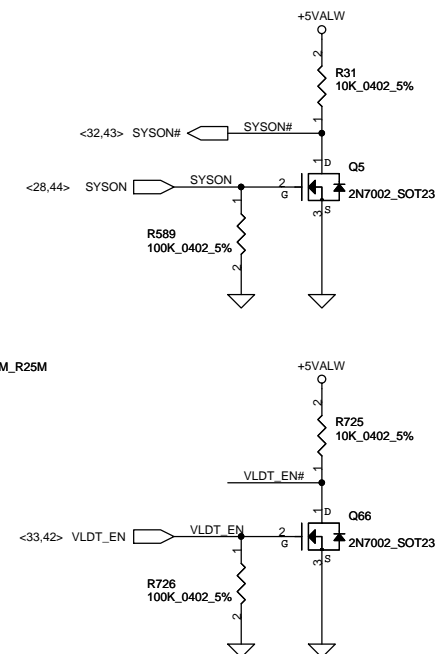
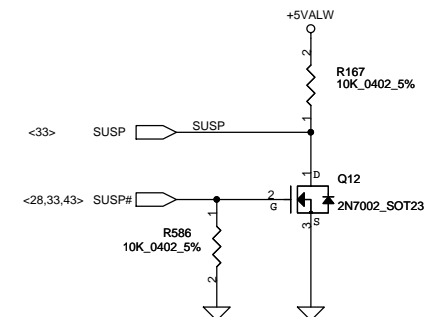
Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2009/09/11	Deciphered Date	2010/03/12	Title	SCHEMATIC, MB A5991
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET 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.				Document Number	401830
				Date	Thursday, October 15, 2009
				Sheet	34 of 47

# HD Audio Codec

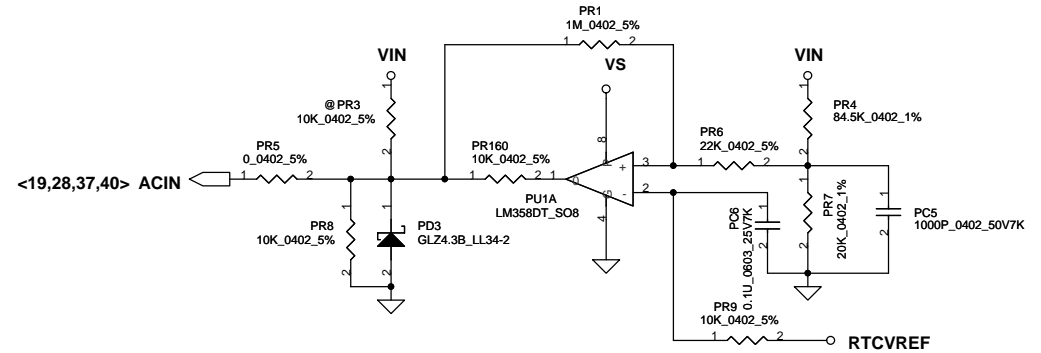
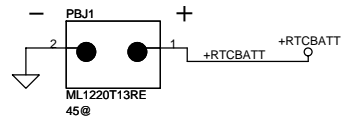
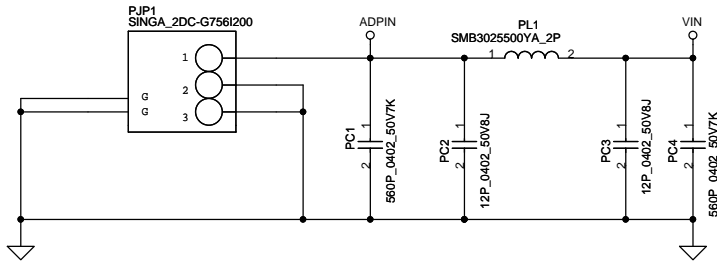


Security Classification		Compal Secret Data				Compal Electronics, Inc.									
Issued Date		2009/09/11		Deciphered Date		2010/03/12		Title							
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET 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.								SCHEMATIC,MB A5991							
								Rev B		Document Number		401830		Rev A	
								Date:		Thursday, October 15, 2009		Sheet		35 of 47	



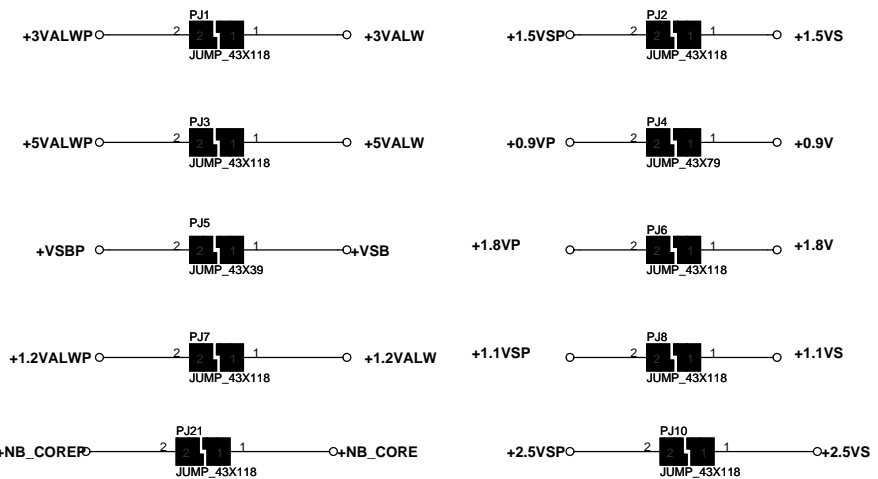
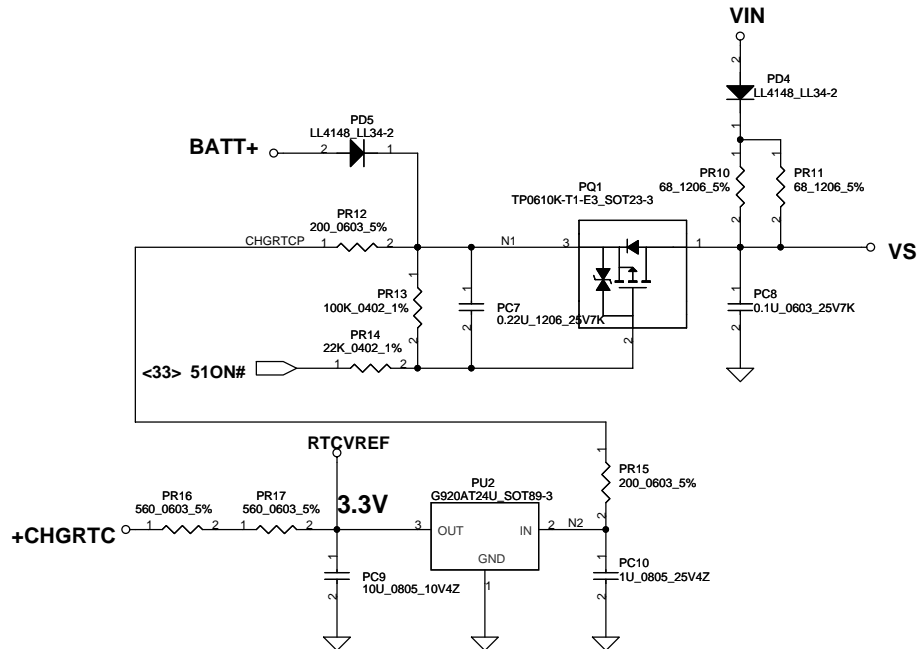


# DC231000500

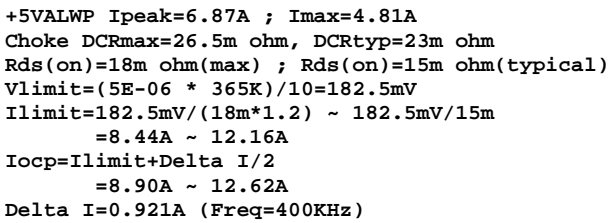


## Vin Detector

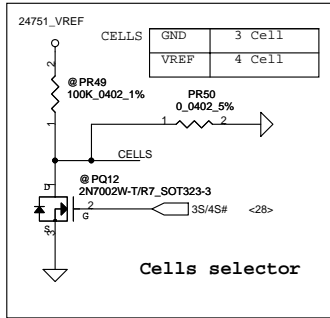
	Min.	Typ	Max.
H-->L	16.976V	17.525V	17.728V
L-->H	17.430V	17.901V	18.384V



Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2008/06/11	Deciphered Date	2010/03/12	Title	SCHEMATIC,MB A5991
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.				Document Number	401830
				Date:	Monday, October 19, 2009
				Sheet	38 of 47



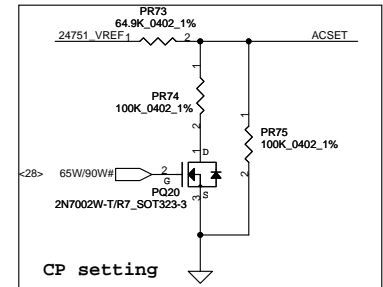
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS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



Input OVP : 22.3V  
Input UVP : 17.26V  
Fsw : 300KHz

LI-4S : 18.0V----BATT-OVP=2.001V  
BATT-OVP=0.1112\*VMB  
LI-3S : 13.5V----BATT-OVP=1.5012V  
BATT-OVP=0.1112\*VMB  
Per cell=3.5V

CP Point Setting  
CP point=ladapter\*85%  
65W adapter R=(100K\*100K)/(100K+100K)=50K  
Vacset=3.3\*(50K/(50K+64.9K))=1.436V  
CP POINT=(1.436V/3.3V)\*(0.1/0.015)=2.901A



Charger ADI	Calibrate#
4.0V	L=0
4.2V	1.8755V
4.3V	2.8132V
4.35V	H=3.3V

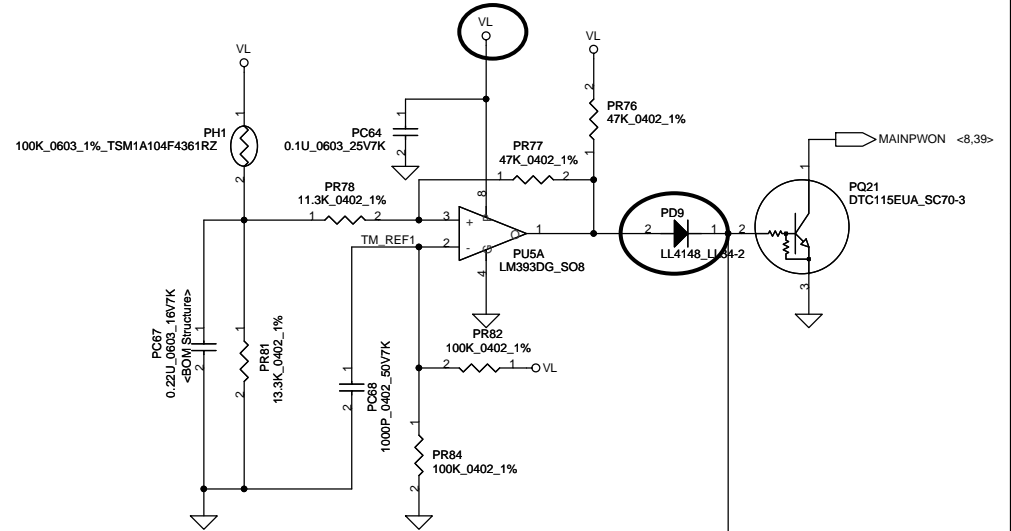
Security Classification	Compal Secret Data	
Issued Date	2008/06/11	Deciphered Date
		2010/03/12

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 BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.

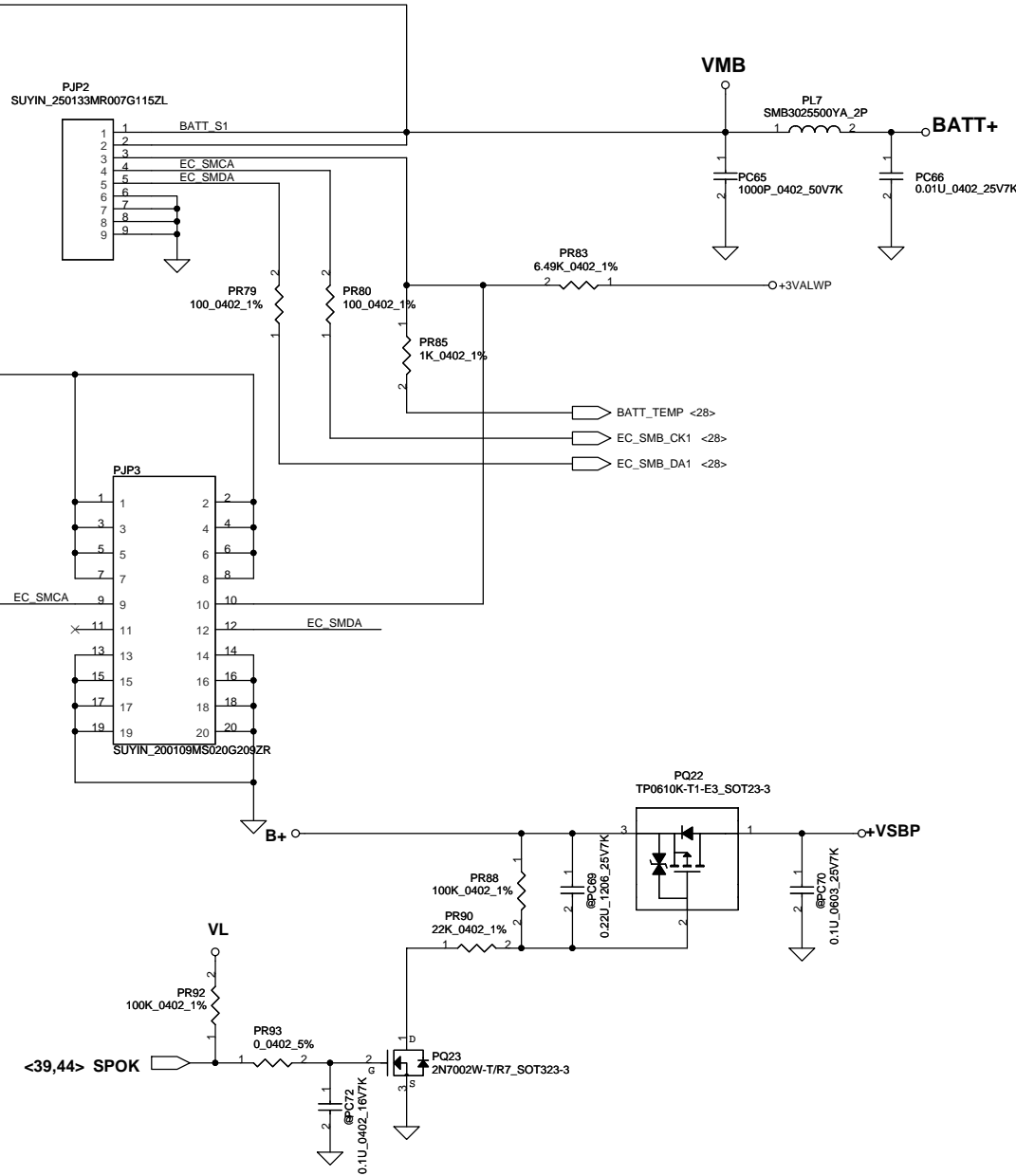
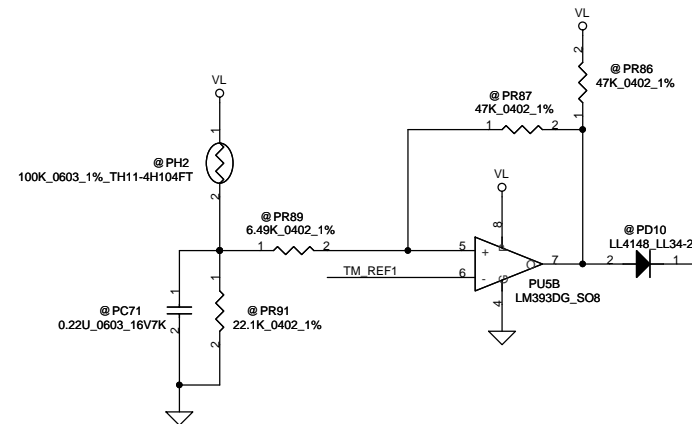
Compal Electronics, Inc.		
Title		Rev
SCHEMATIC, MB A5991		A
Document Number		
401830		
Date:	Monday, October 19, 2009	
Sheet	40	of 47



PH1 under CPU botten side :  
CPU thermal protection at 92 degree C

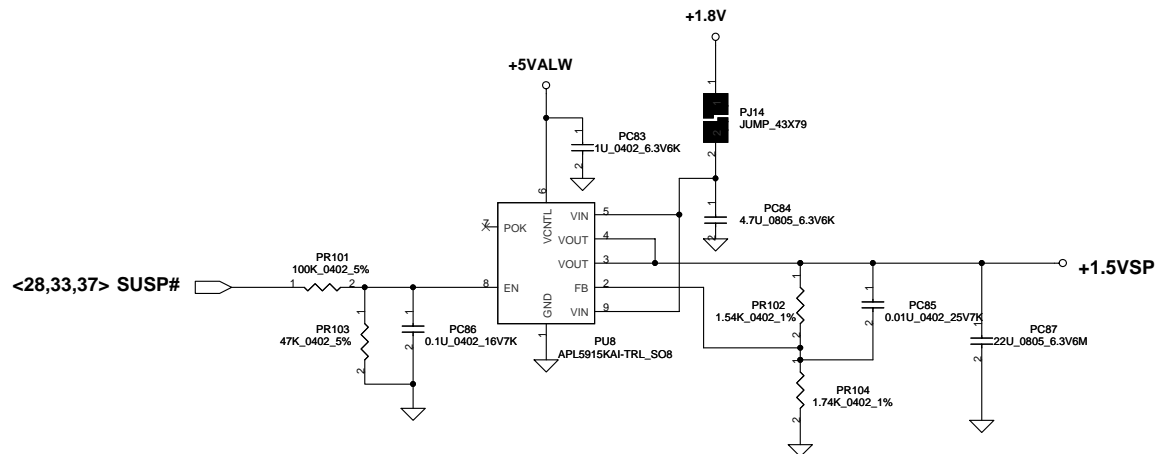
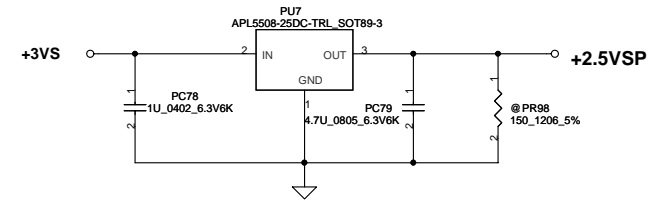
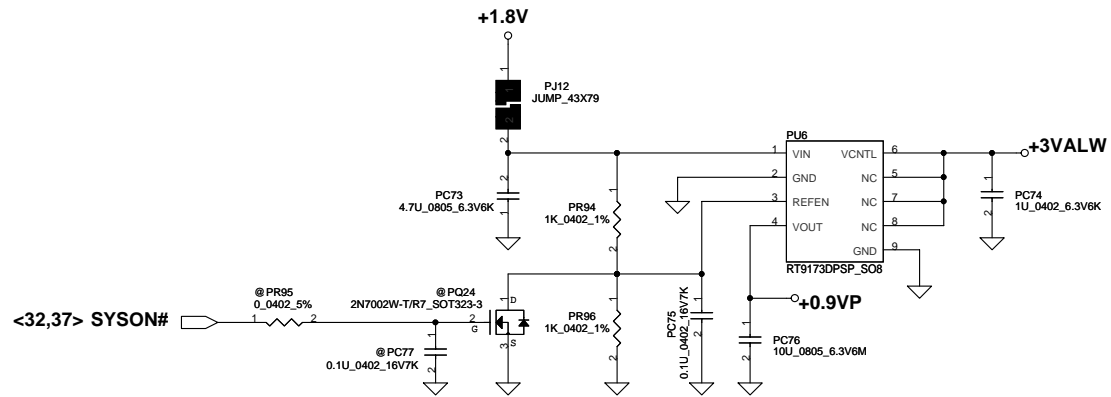


PH2 near main Battery CONN :  
BAT. thermal protection at 75 degree C

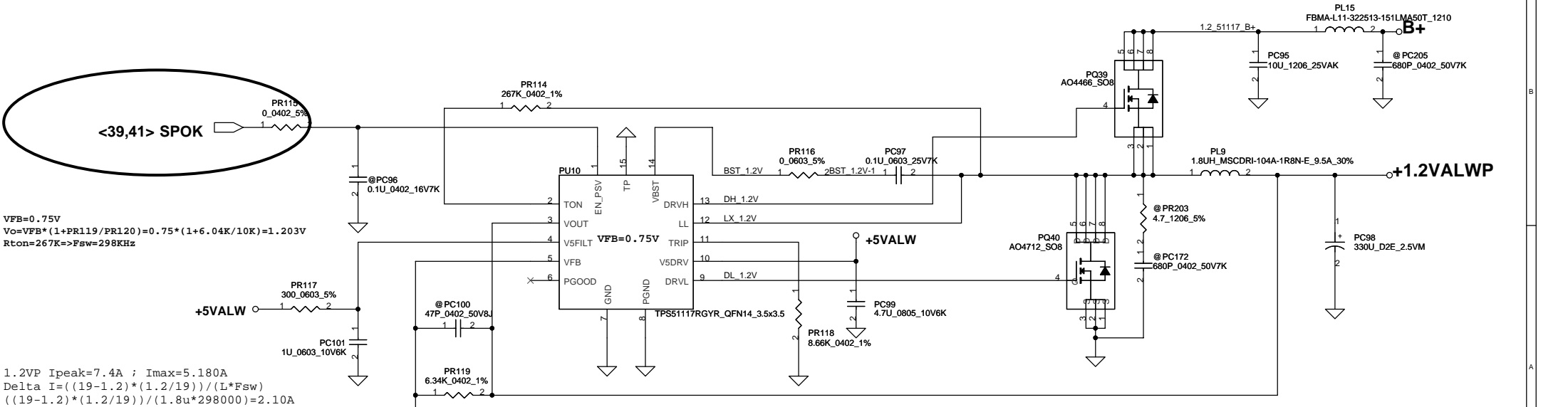
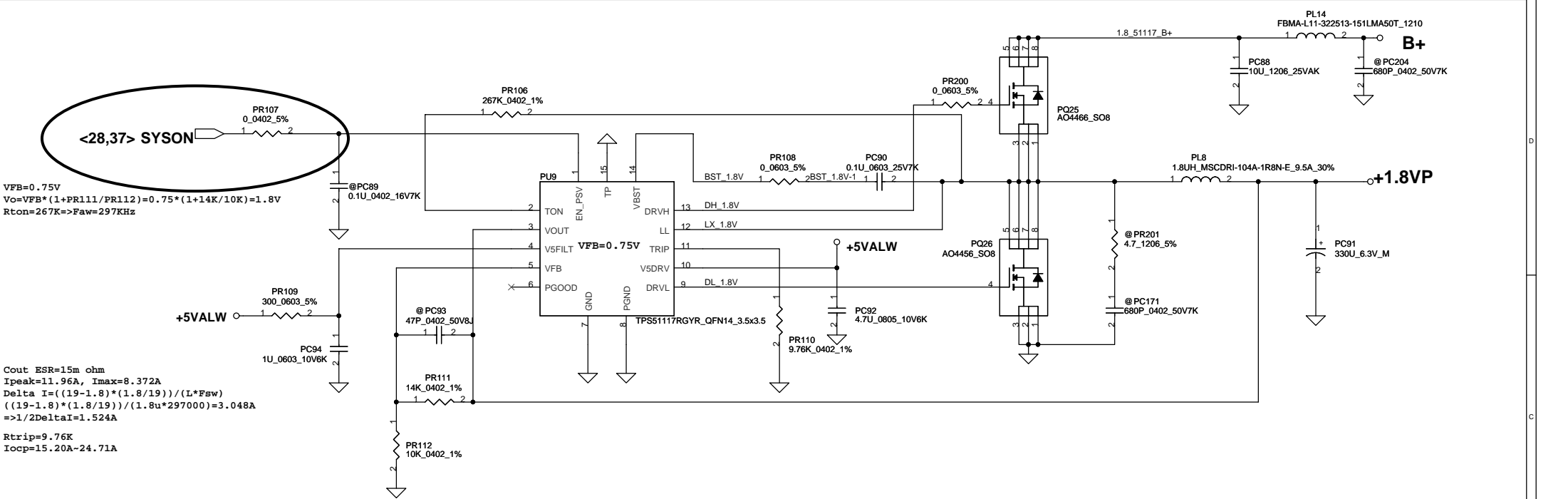


Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2009/09/11	Deciphered Date	2010/03/12	Title	SCHEMATIC,MB A5991
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET 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.					
401830	Size B	Document Number	401830	Rev A	
Date:	Monday, October 19, 2009	Sheet	41	of	47



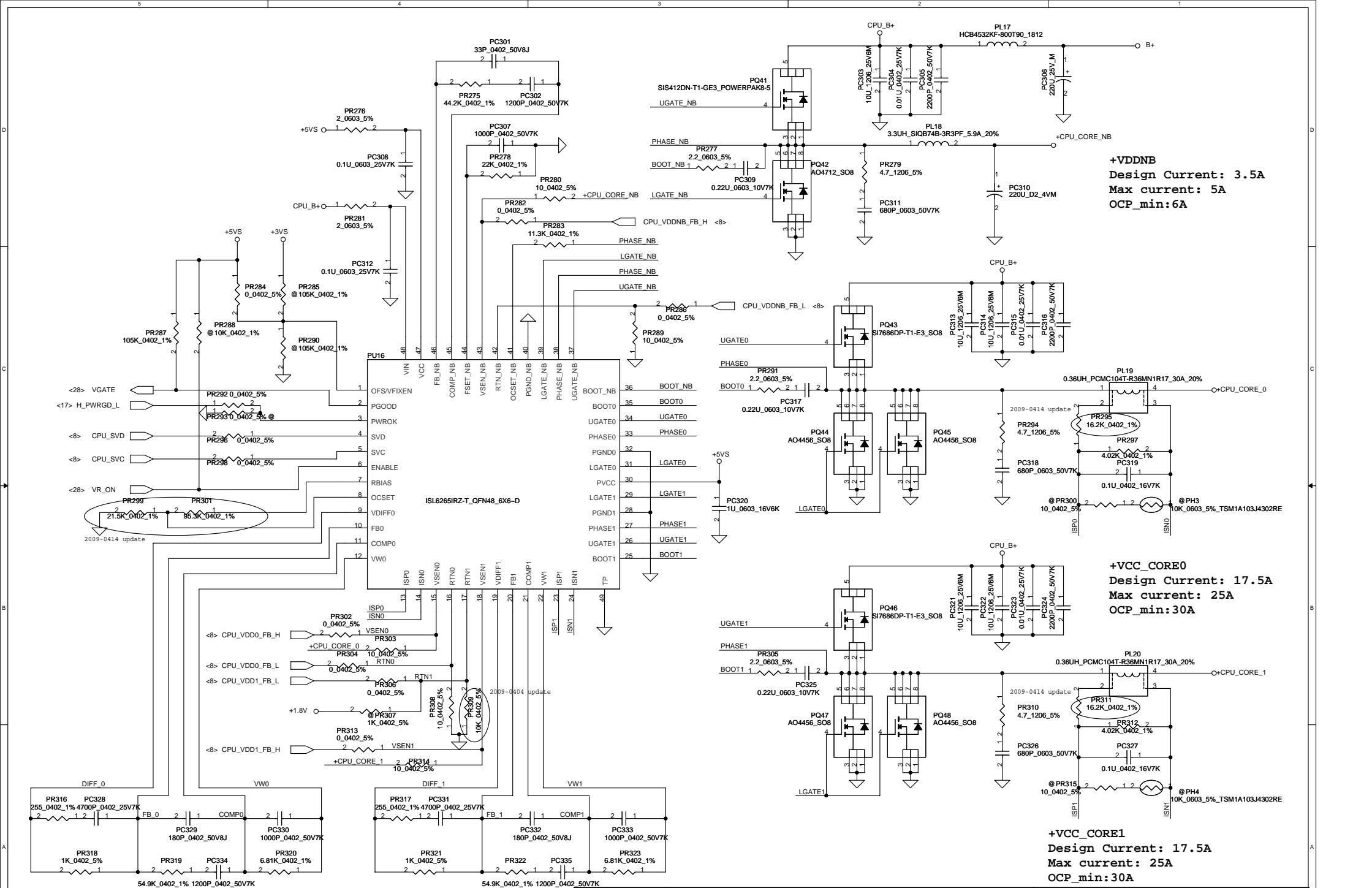


Security Classification		Compal Secret Data				Compal Electronics, Inc.					
Issued Date		2008/06/11		Deciphered Date		2010/03/12		Title		SCHEMATIC,MB A5991	
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. 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.								Document Number		Rev	
								401830		A	
								Date: Monday, October 19, 2009		Sheet 43 of 47	



Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2008/06/11	Deciphered Date	2010/03/12	Title	SCHEMATIC, MB A5991
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.				Document Number	401830
				Date	Monday, October 19, 2009
				Sheet	44 of 47

WWW.AliSaler.Com



Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2008/11/03	Deciphered Date	2009/11/03	Title	SCHEMATIC, MB A5991
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.				Rev	A
				Document Number	401830
				Date	Monday, October 19, 2009
				Sheet	45 of 47

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

Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2009/09/11	Deciphered Date	2010/03/12	Title	SCHEMATIC,MB A5991
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.				Document Number	401830
Date:	Monday, October 19, 2009			Sheet	46 of 47

[illegible][illegible][illegible]