

# Compal Confidential

Model Name : V5WE2/T2 (EA/EG50\_HW)

File Name : LA-9531P

# Compal Confidential

## EA50\_HW M/B Schematics Document

Intel Shark Bay ULT (Hasswell + Lynx Point-LP)

AMD SUN

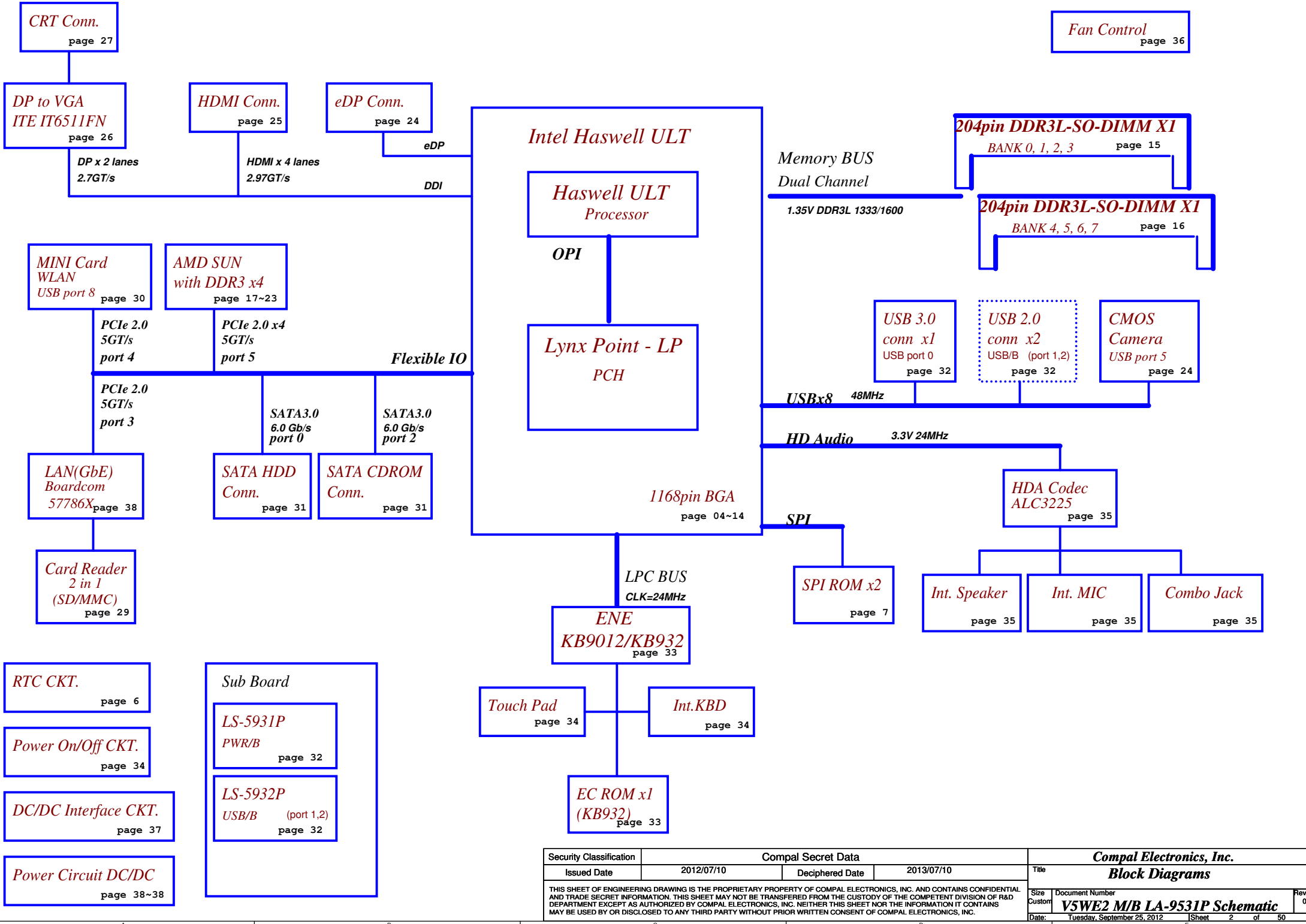
2012-09-24

REV: 0.1

ZZZ

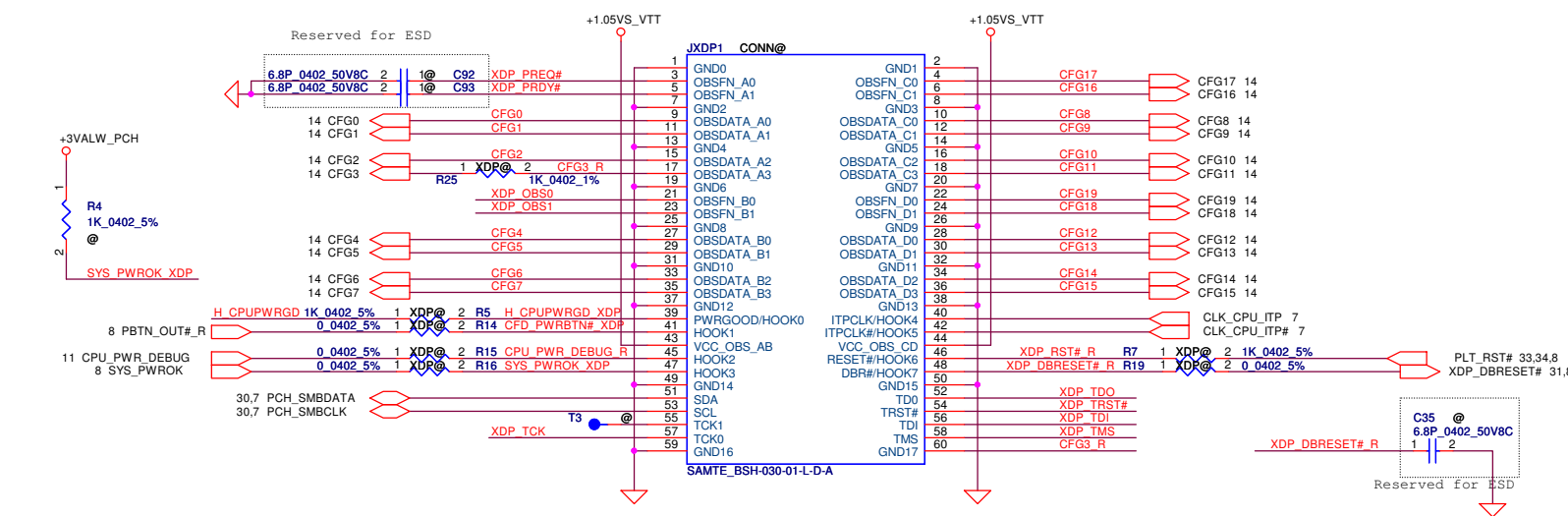
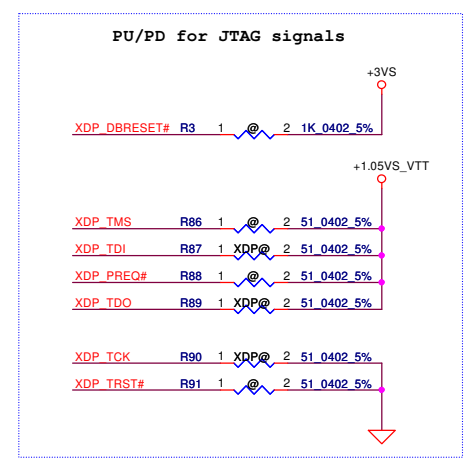
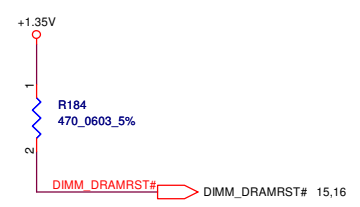
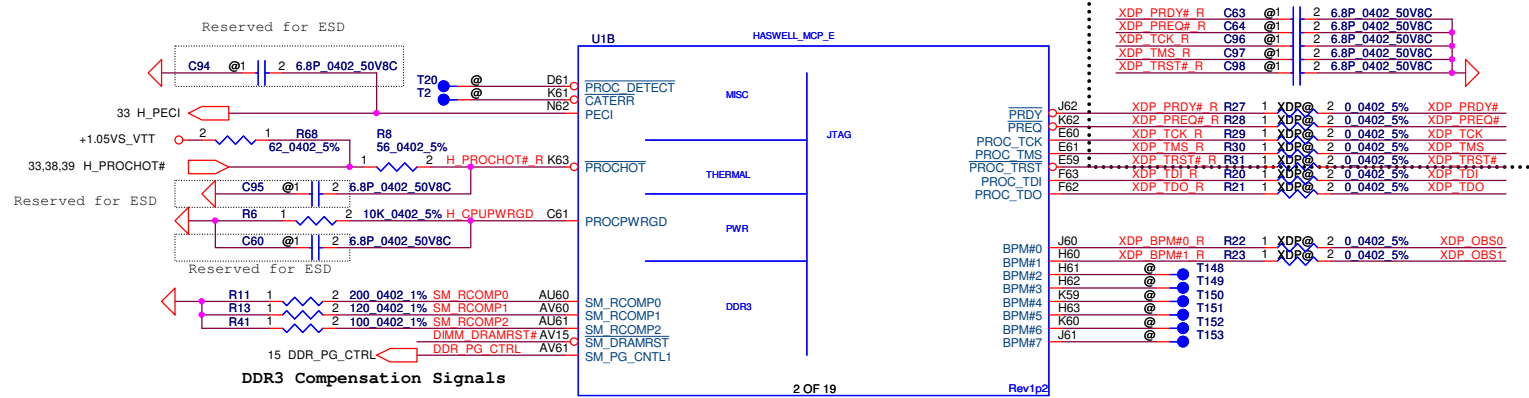
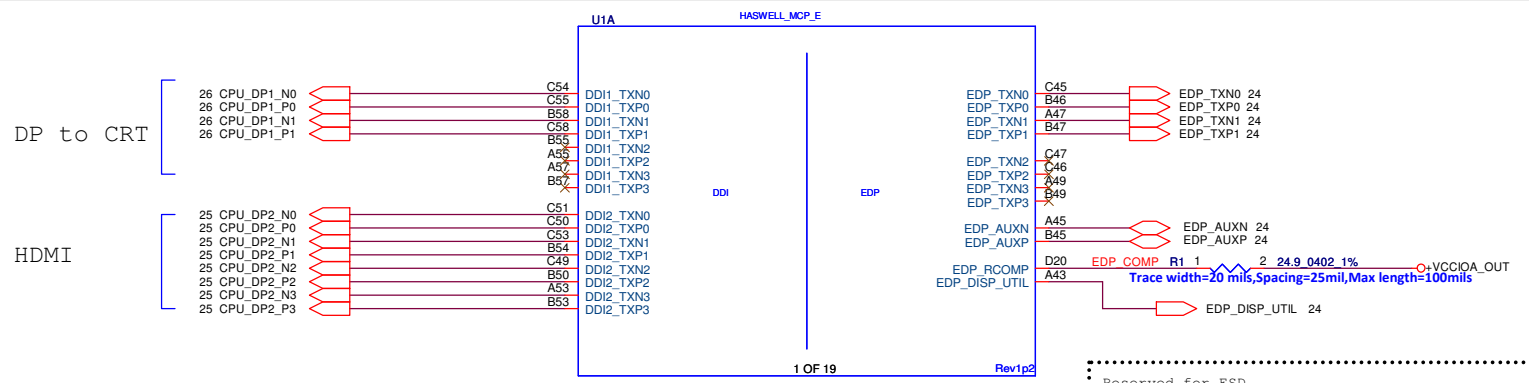
Part Number	Description
DA60000XL00 V5WE2_PCB	PCB 0VR LA-9531P REV0 M/B

Security Classification	Compal Secret Data		Compal Electronics, Inc.		
Issued Date	2012/07/10	Deciphered Date	2013/07/10	Title	Cover Page
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 FIELD 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
				V5WE2 M/B LA-9531P Schematic	0.1
				Date: Tuesday, September 25, 2012	Sheet 1 of 50



Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2012/07/10	Deciphered Date	2013/07/10	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.				Size Custom	Document Number
				V5WE2 M/B LA-9531P Schematic	
				Date:	Tuesday, September 25, 2012
				Sheet	2 of 50
				Rev	0.1

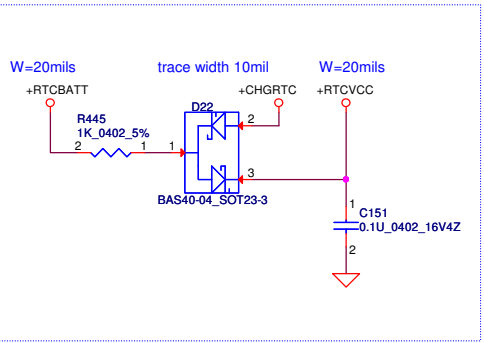
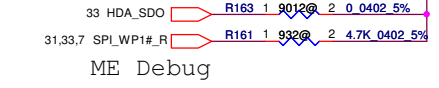
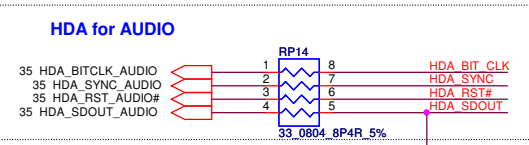
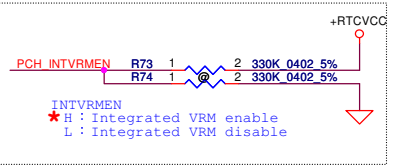
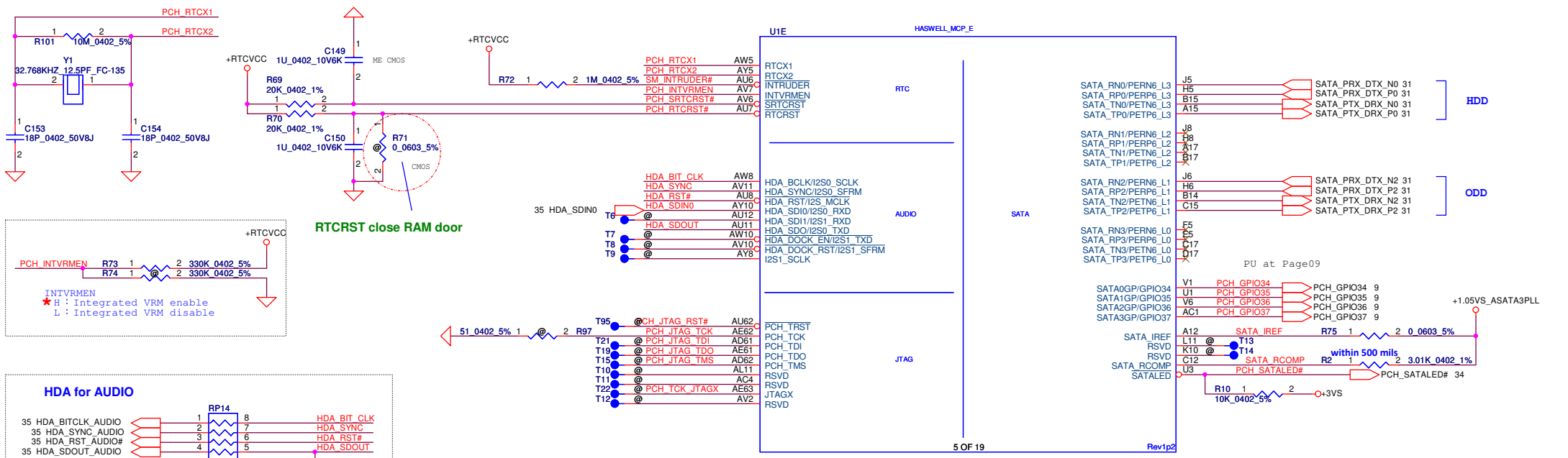




U1  
CPU\_QDA7  
SA000067H00

Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date		Deciphered Date		Title	
2012/07/10		2013/07/10		HSW MCP(1/11) DDI,MSIC,XDP	
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	V5WE2 M/B LA-9531P Schematic			0.1	
Date:	Tuesday, September 25, 2012	Sheet	4	of	50



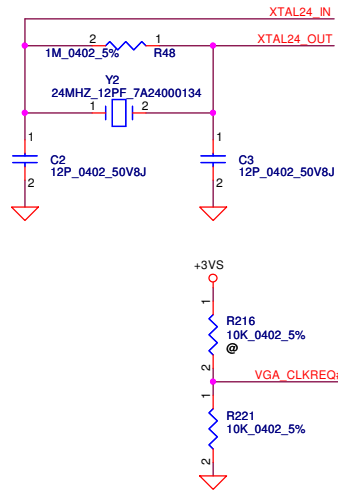


RTC RST close RAM door

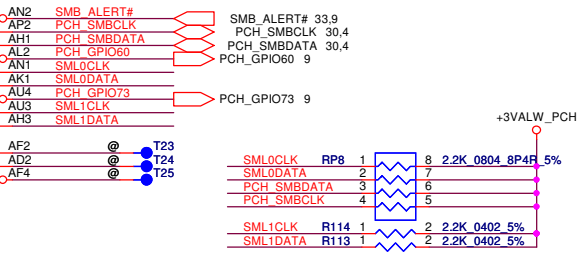
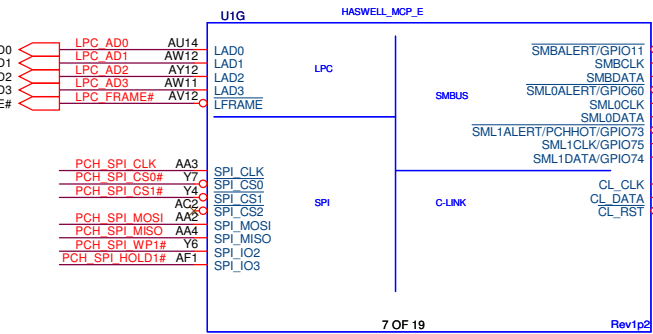
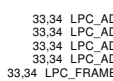
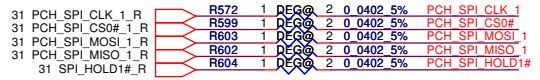
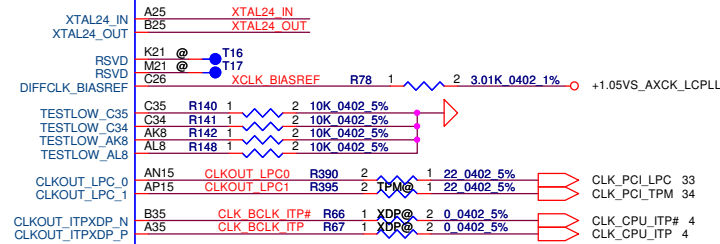
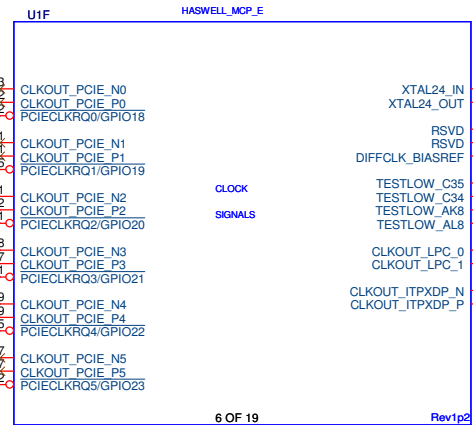
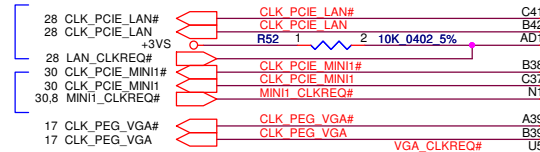
HDD

ODD

Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2012/07/10	Deciphered Date	2013/07/10	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.				Size	Document Number
				Custom	V5WE2 M/B LA-9531P Schematic
				Date:	Tuesday, September 25, 2012
				Sheet	6 of 50

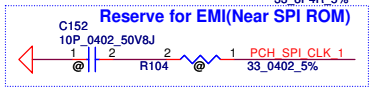
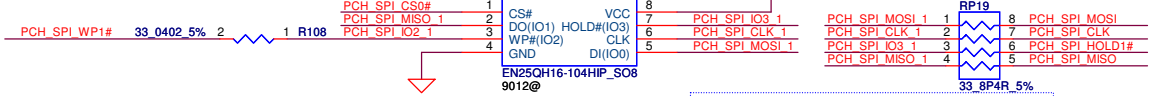
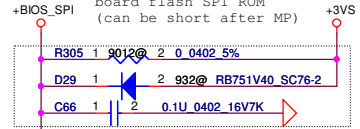


PCIE LAN  
WLAN

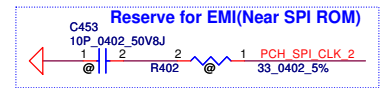
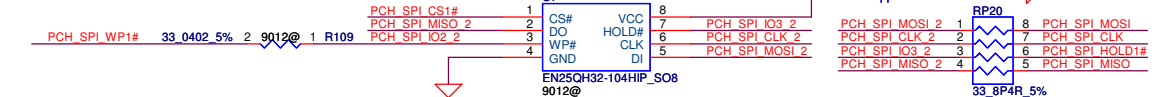
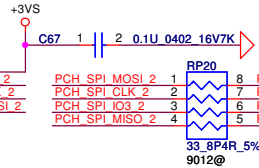


D29 design for Debug board flash SPI ROM (can be short after MP)

SPI ROM ( 2MByte )



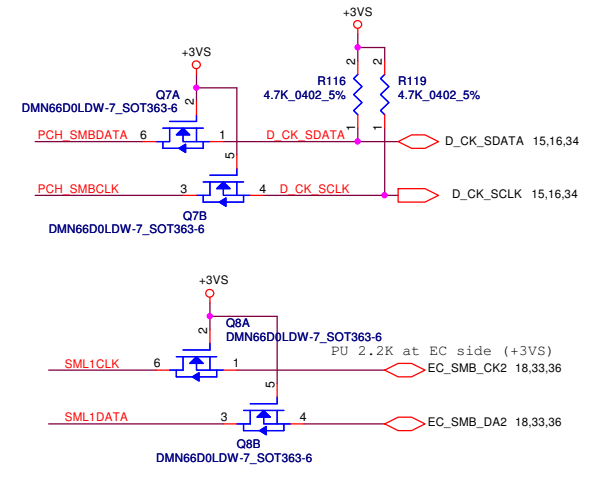
SPI ROM ( 4MByte )



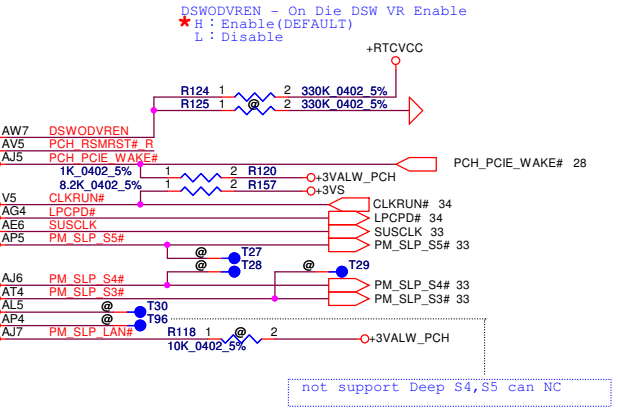
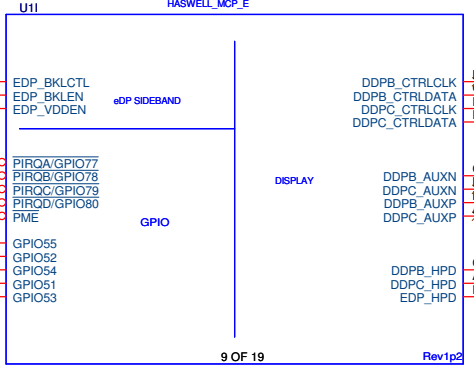
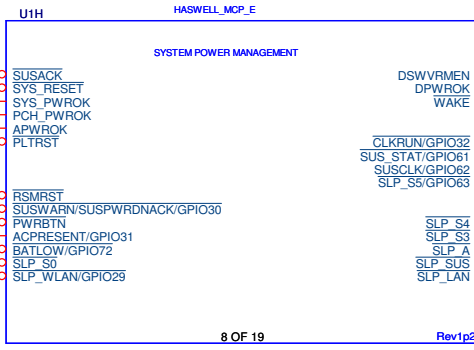
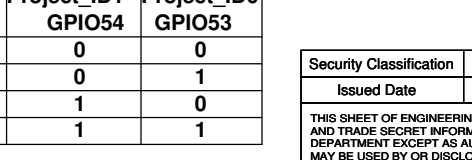
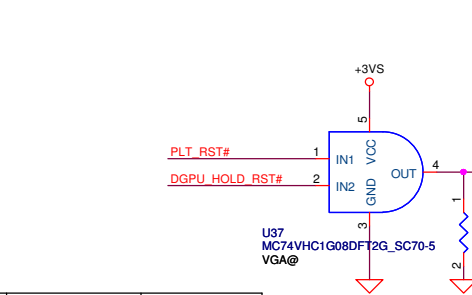
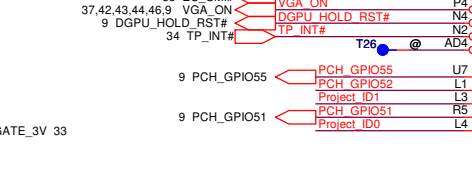
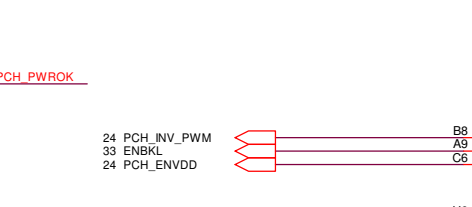
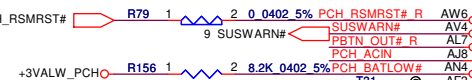
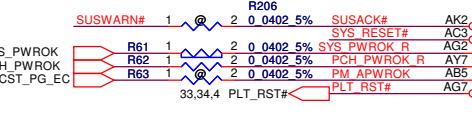
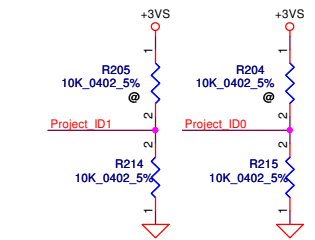
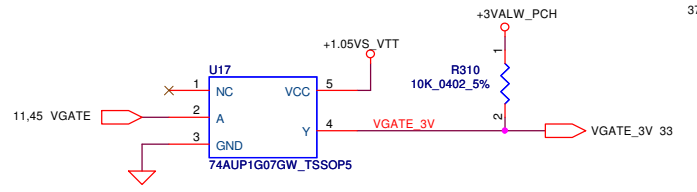
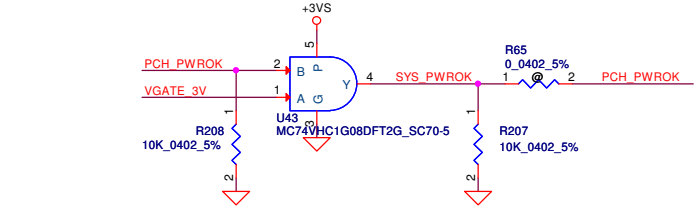
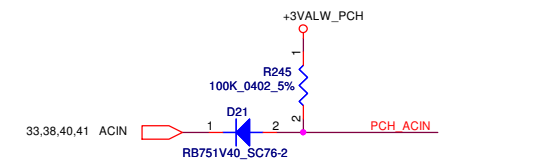
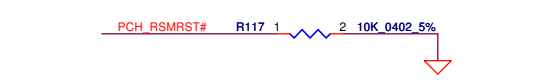
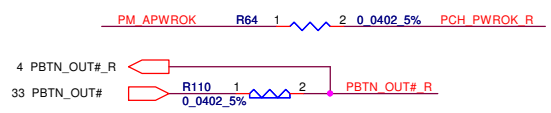
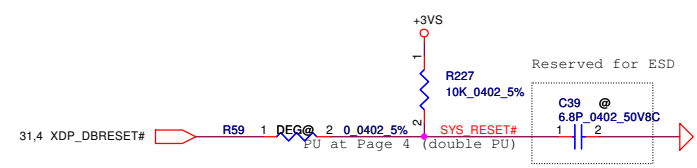
SPI ROM ( 8MByte for Chrome )



MX25L6406EM2I-12G\_SO8  
932@  
SA00004G600



Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date		Deciphered Date		Title	
2012/07/10		2013/07/10		HSW MCP(4/11) CLK,SPI,SMBUS	
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	Date		Sheet	Rev
Custom	V5WE2 M/B LA-9531P Schematic	Tuesday, September 25, 2012		7	0.1
				of	50



DDPB\_CTRLDATA: Port B Detected  
 DDPC\_CTRLDATA: Port C Detected

\* 1: Port B or C is detected  
 0: Port B or C is not detected  
 (Have internal PD)

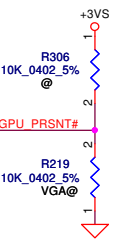
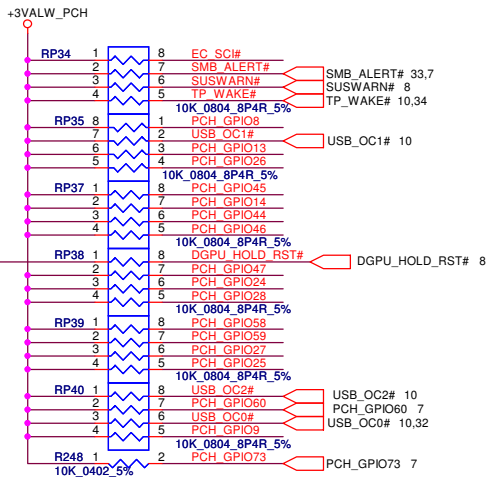
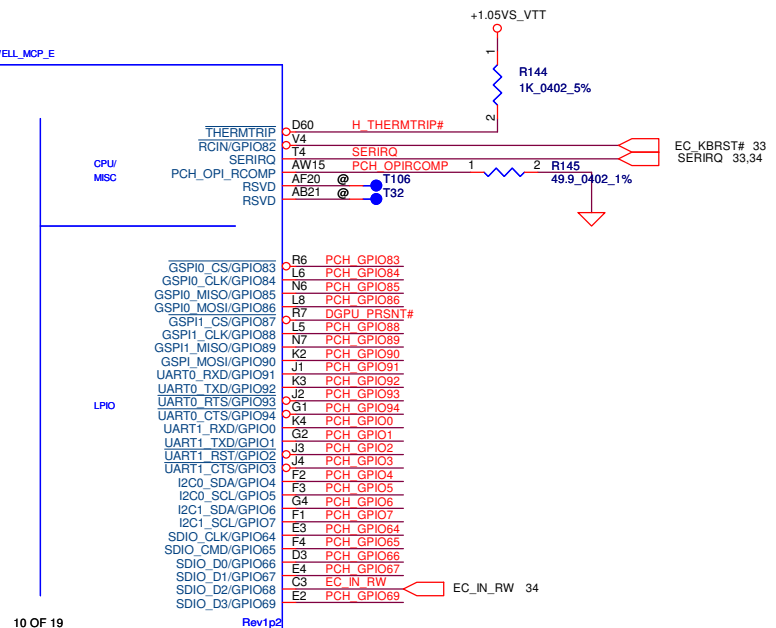
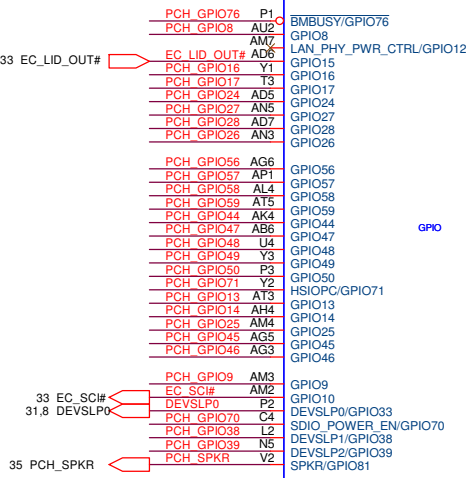
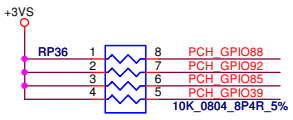
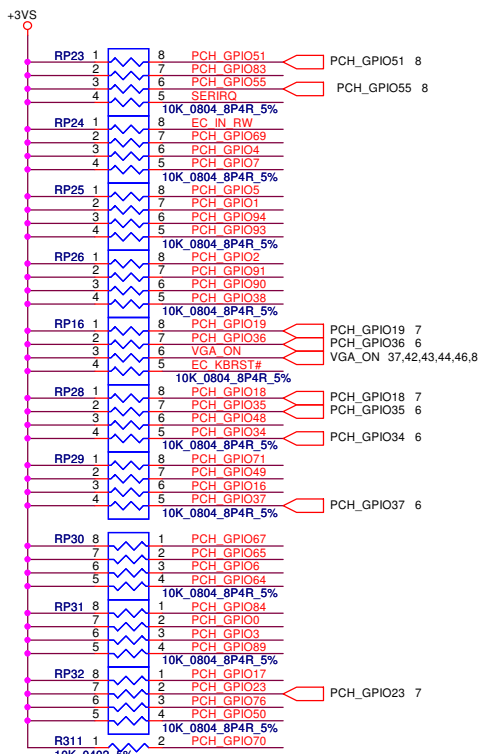
Project ID	Project_ID1 GPIO54	Project_ID0 GPIO53
V5WE2/T2 UMA	0	0
*V5WE2/T2 DIS	0	1
V5WV2	1	0
X	1	1

Security Classification		Compal Secret Data	
Issued Date	2012/07/10	Deciphered Date	2013/07/10

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 <b>HSW MCP(5/11) PM,GPIO,DDI</b>			
Size Custom	Document Number <b>V5WE2 M/B LA-9531P Schematic</b>	Rev 0.1	
Date:	Tuesday, September 25, 2012	Sheet	8 of 50





GPIO15 : TLS Confidentiality

1: Intel ME TLS with confidentiality  
 \* 0: Intel ME TLS with no confidentiality (Have internal PD)

GSPI0\_MOSI / GPIO86 : Boot BIOS Strap

1: ENABLED  
 \* 0: SPI ROM (Have internal PD)

SPKR / GPIO81 : NO REBOOT

1: ENABLED  
 \* 0: DISABLED (Have internal PD)

SDIO\_D0 / GPIO66 : Top-Block Swap Override

\* 1: ENABLED (Have internal PU)  
 0: DISABLED

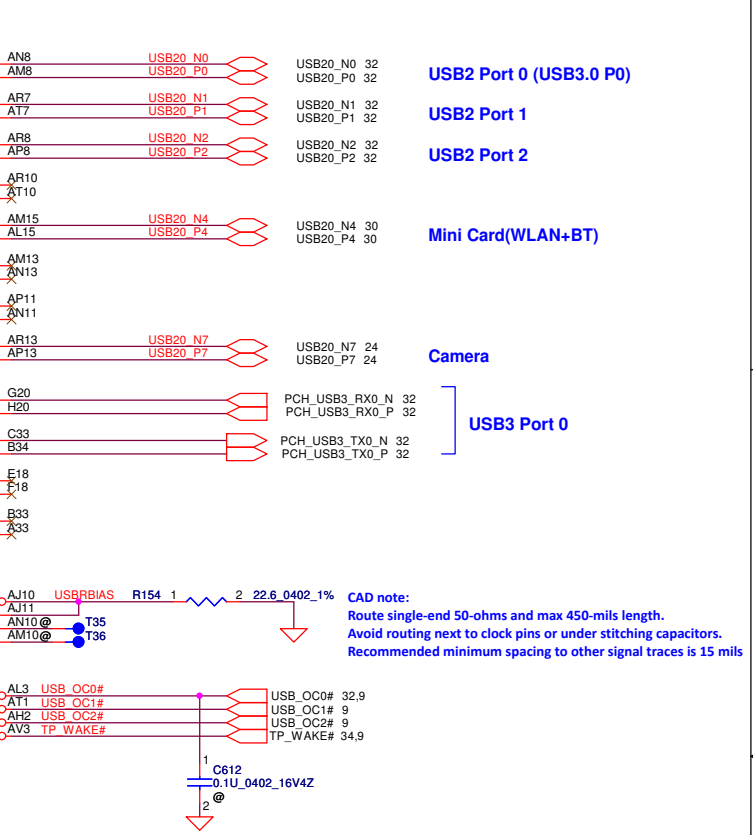
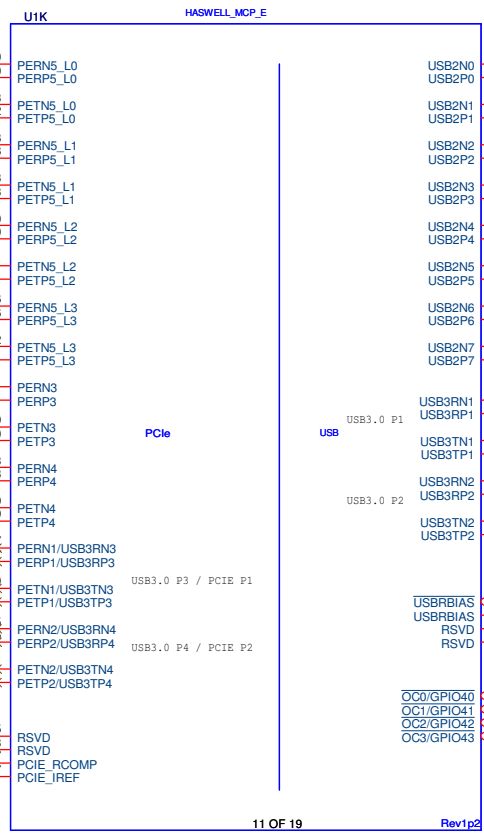
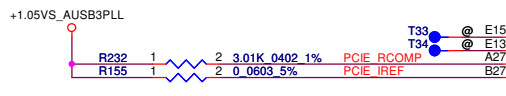
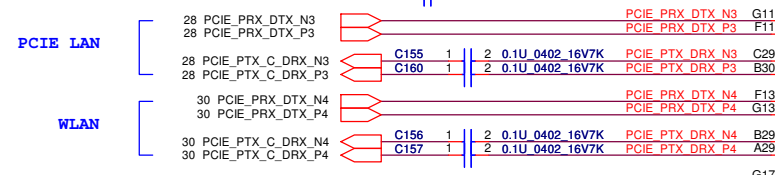
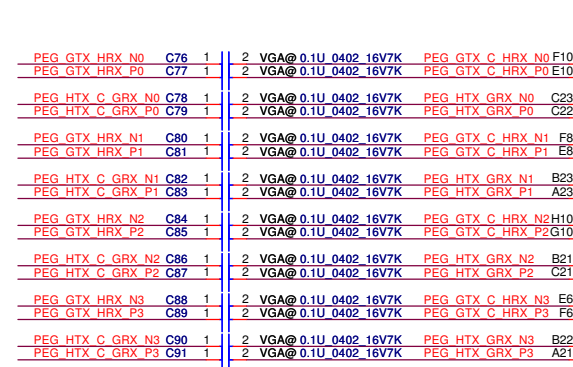
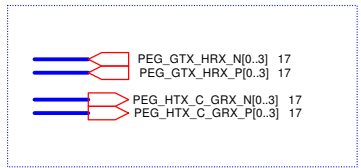
	<b>GPIO87</b>
<b>DIS, Optimus</b>	<b>0</b>
<b>UMA</b>	<b>1</b>

Security Classification		Compal Secret Data	
Issued Date	2012/07/10	Deciphered Date	2013/07/10

Title		
<b>Compal Electronics, Inc.</b>		
<b>HSW MCP(6/11) GPIO,LP10</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 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.

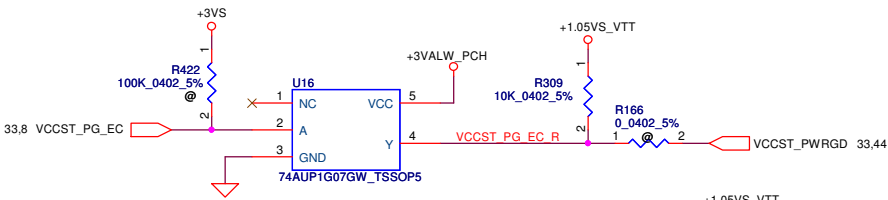
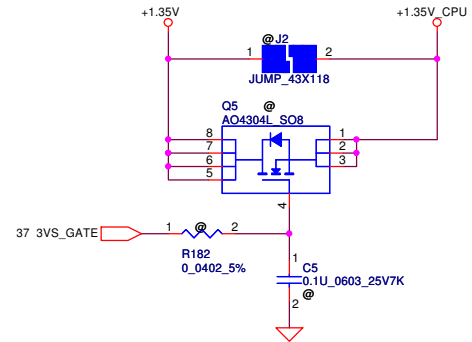
Size Custom	Document Number	Rev
	<b>V5WE2 M/B LA-9531P Schematic</b>	0.1
Date:	Tuesday, September 25, 2012	Sheet 9 of 50



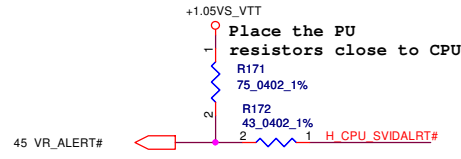
11 OF 19 Rev1p2

Security Classification		Compal Secret Data		Title		
Issued Date	2012/07/10	Deciphered Date	2013/07/10	HSW MCP(7/11) PCIE,USB		
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	Rev 0.1
Date:	Tuesday, September 25, 2012	Sheet	10 of 50	V5WE2 M/B LA-9531P Schematic		

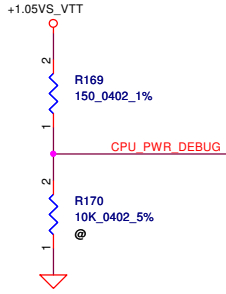
Shark Bay ULT have internal gate for VDDQ



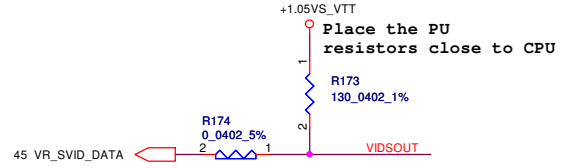
**SVID ALERT**



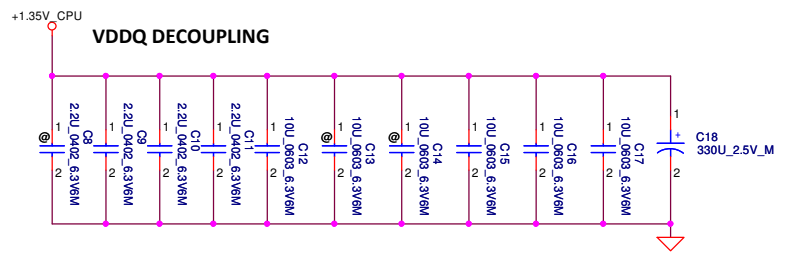
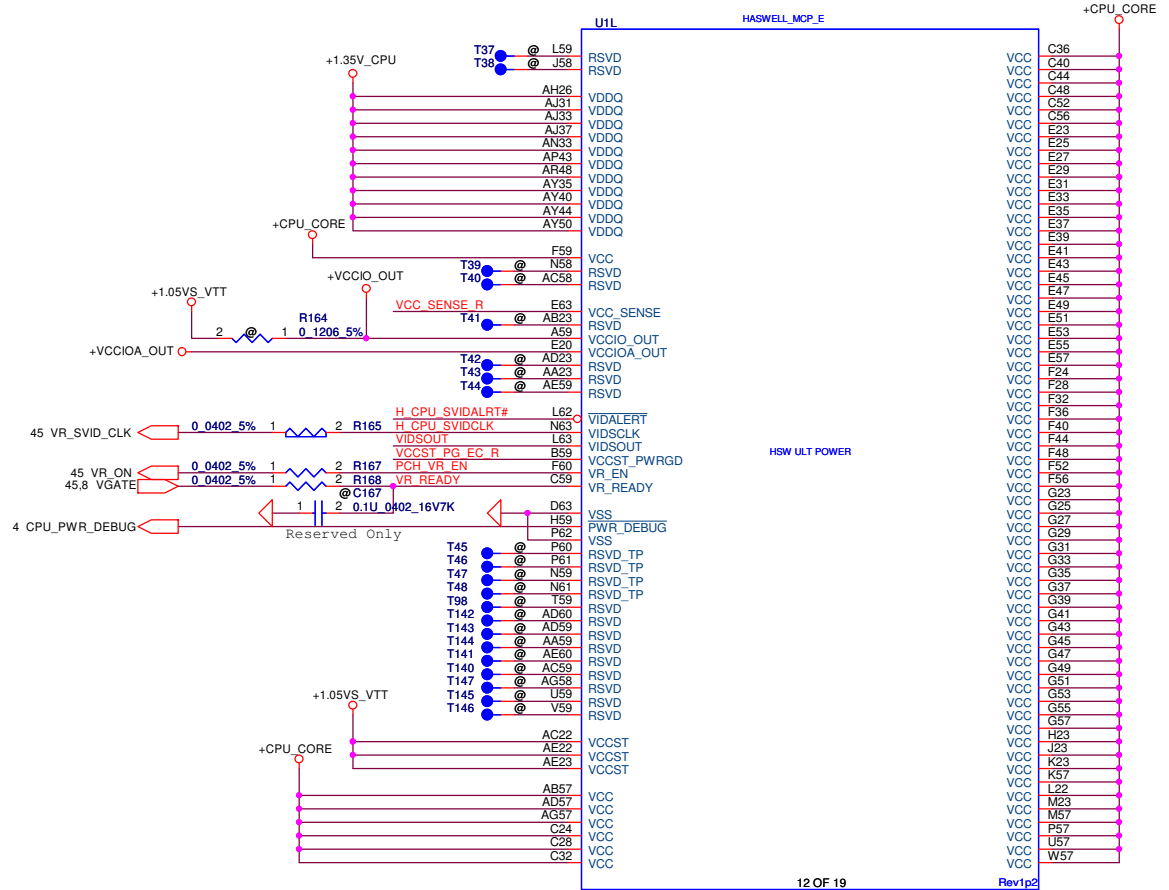
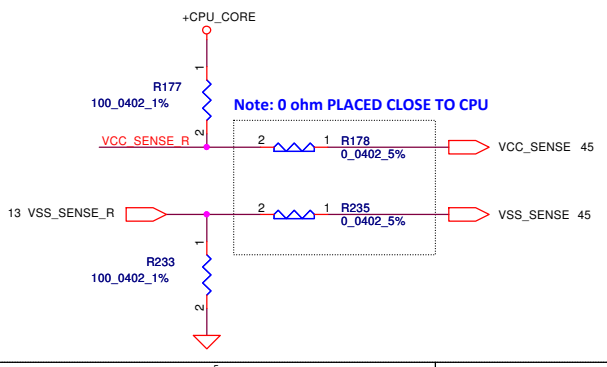
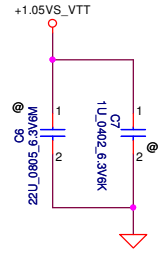
Place the PU resistors close to CPU



**SVID DATA**

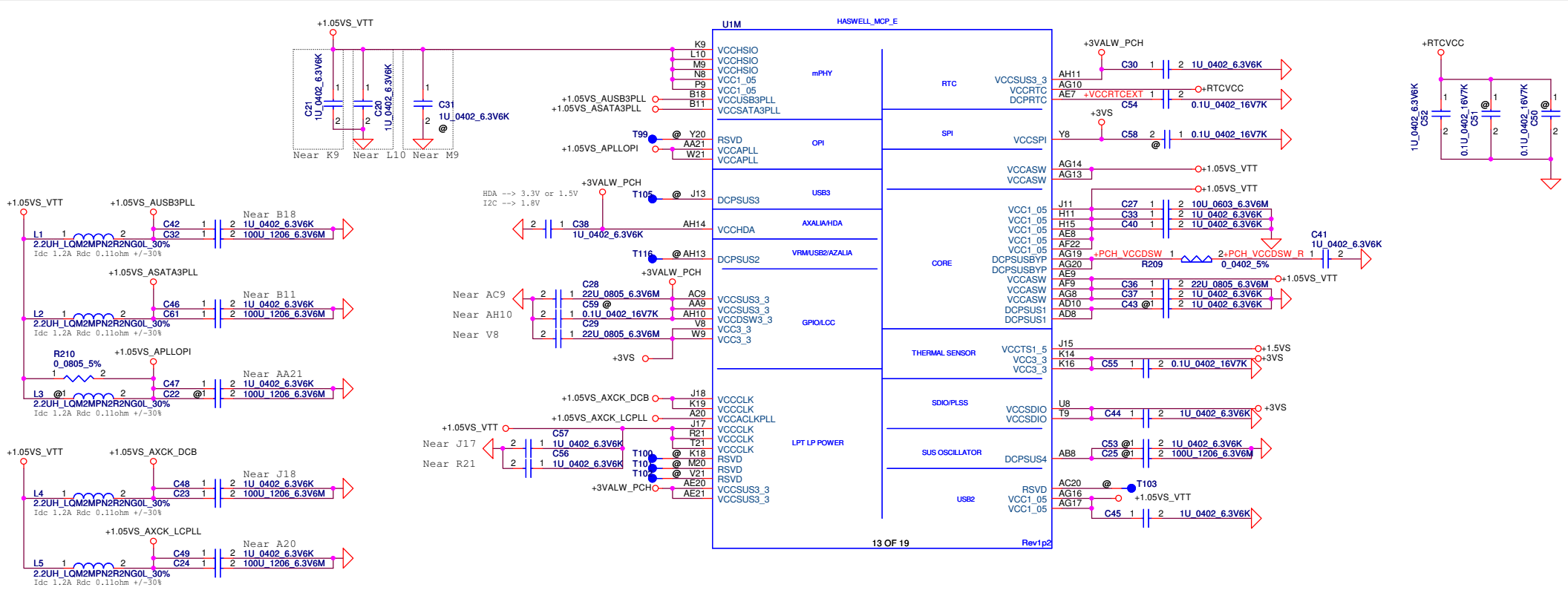


Place the PU resistors close to CPU

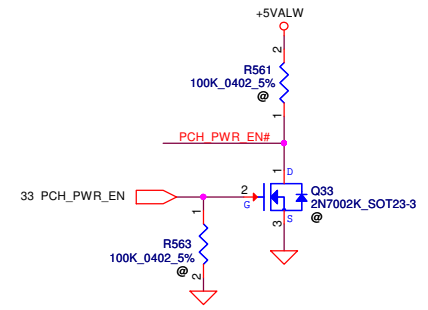
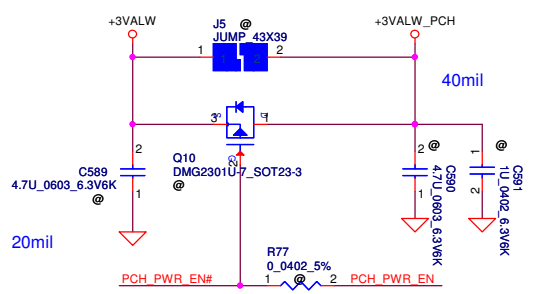


+1.35V : 470UF/2V/7343 \* 2  
 10UF/6.3V/0603 \* 6  
 2.2UF/6.3V/0402 \* 4

Security Classification		Compal Secret Data		Title	
Issued Date	2012/07/10	Deciphered Date	2013/07/10	Compal Electronics, Inc. HSW MCP(8/11) Power	
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	Date		Sheet	Rev
Custom	V5WE2 M/B LA-9531P Schematic	Tuesday, September 25, 2012		11	0.1

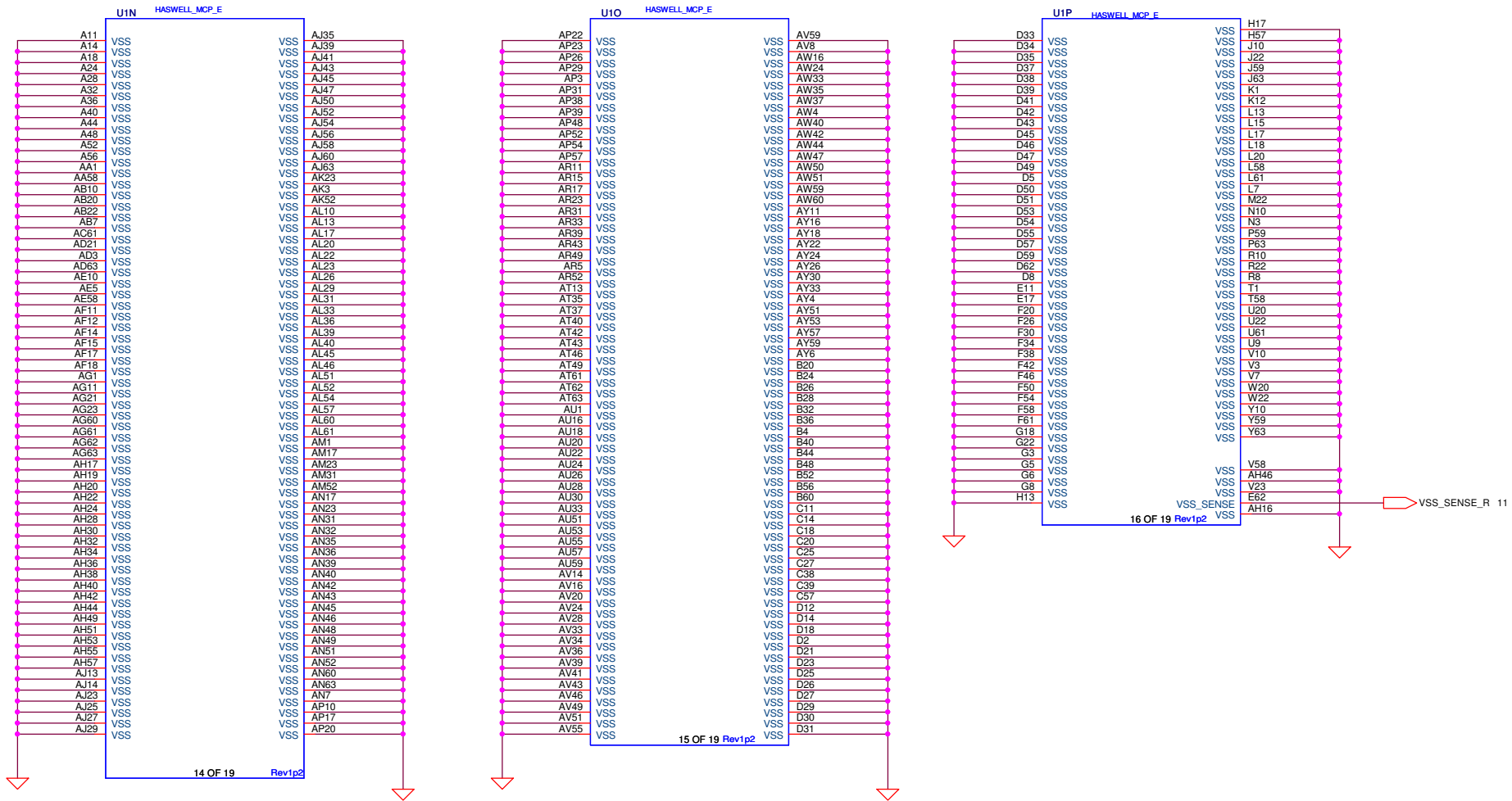


**+3VALW TO +3VALW(PCH AUX Power)**  
Short J5 for PCH VCCSUS3.3

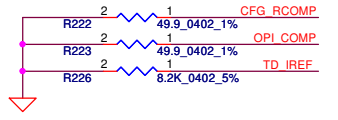
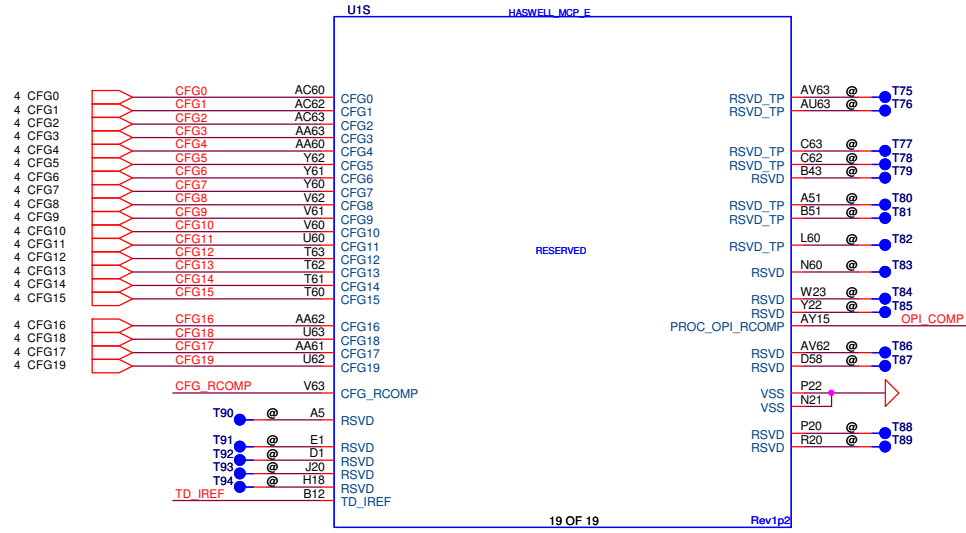
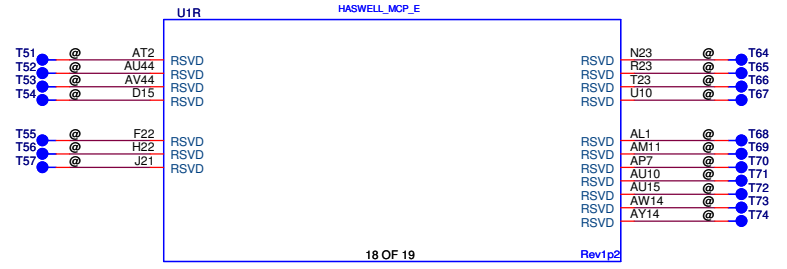
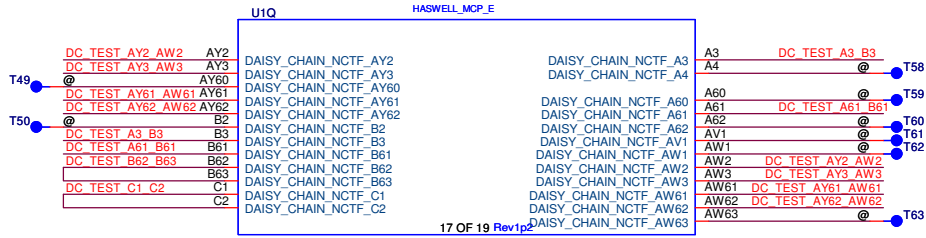


Security Classification		Compal Secret Data	
Issued Date	2012/07/10	Deciphered Date	2013/07/10
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT 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.			

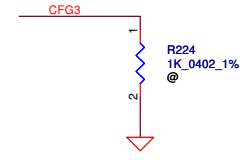
Compal Electronics, Inc.			Filev
Title			0.1
H5W MCP(9/11) Power			
Size	Document Number		
Custom	V5WE2 M/B LA-9531P Schematic		
Date:	Tuesday, September 25, 2012	Sheet	12 of 50



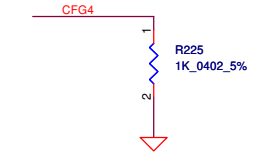
Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2012/07/10	Deciphered Date	2013/07/10	Title <b>HSW MCP(10/11) GND</b>	
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D 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 <b>V5WE2 M/B LA-9531P Schematic</b>
Date:	Tuesday, September 25, 2012	Sheet	13	of	50
				Rev	0.1



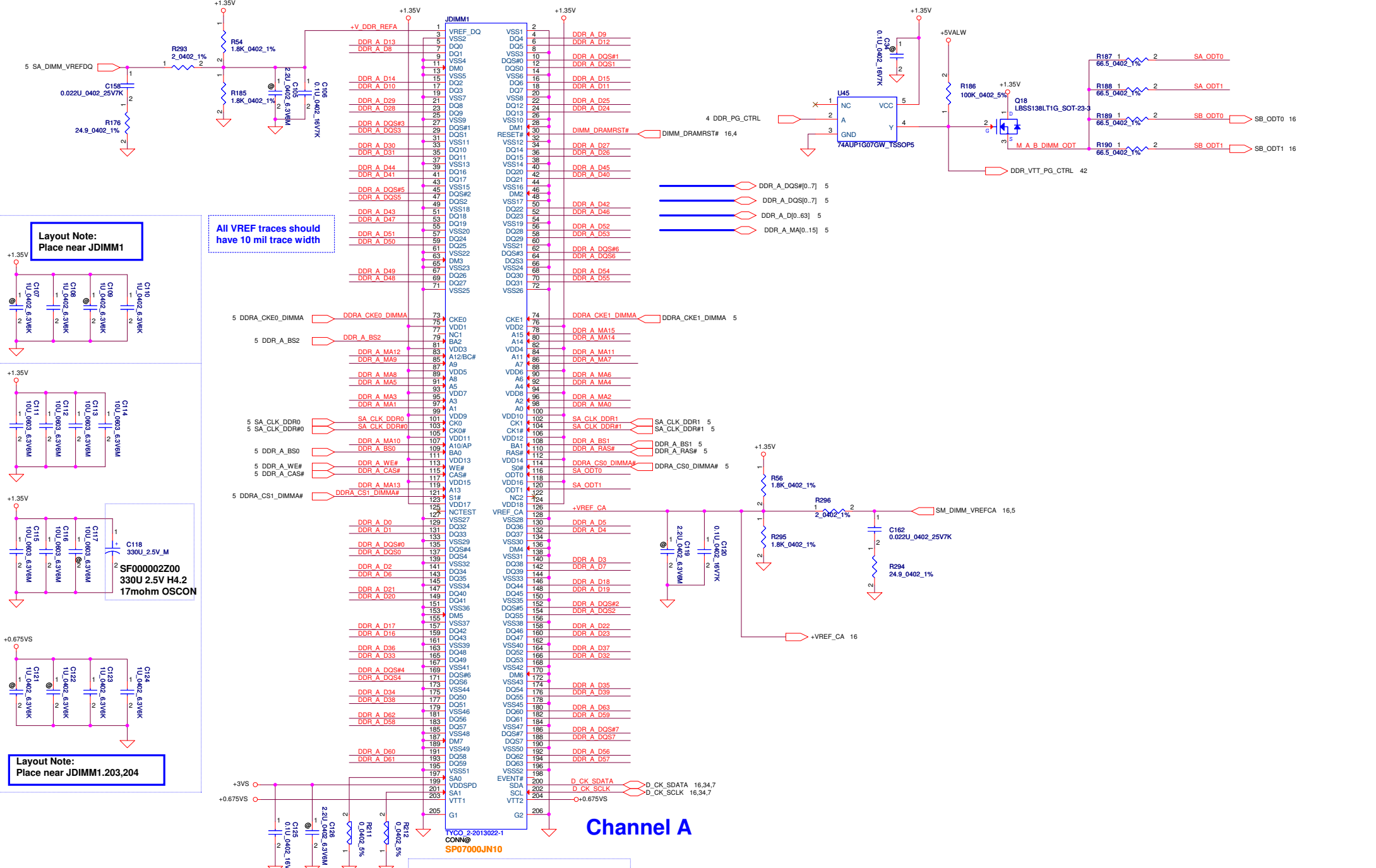
### CFG Straps for Processor



Physical Debug Enable (DFX Privacy)	
CFG3	1: DISABLED 0: ENABLED; SET DFX ENABLED BIT IN DEBUG INTERFACE MSR



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



**Layout Note:**  
Place near JDIMM1

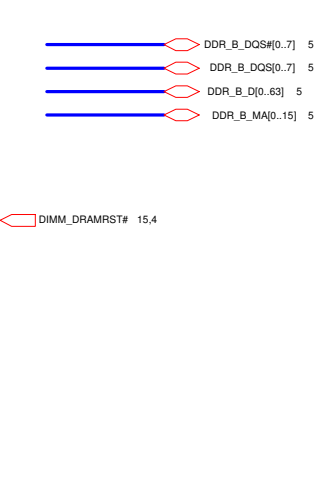
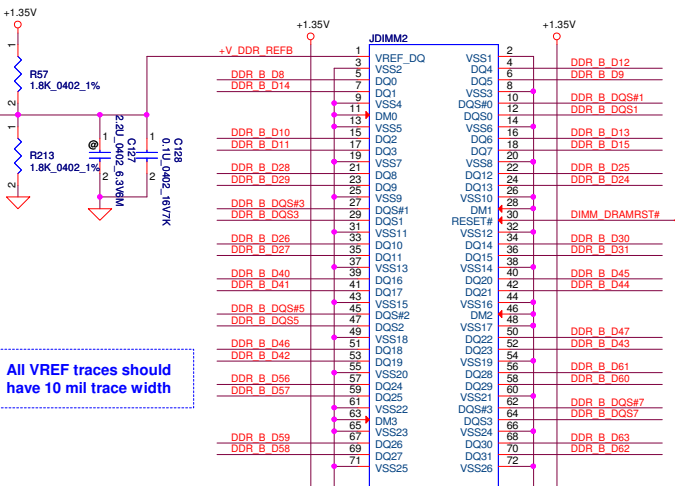
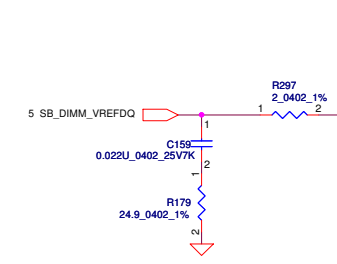
All VREF traces should have 10 mil trace width

**Layout Note:**  
Place near JDIMM1.203,204

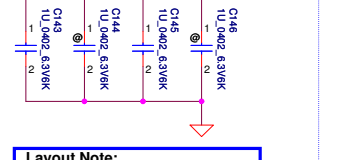
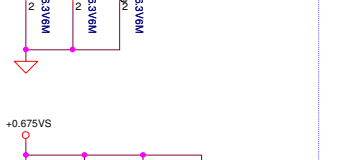
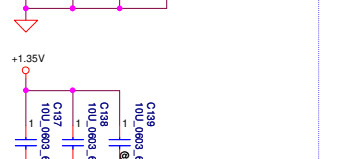
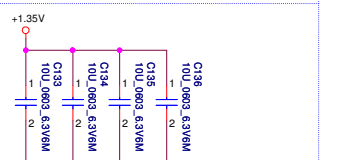
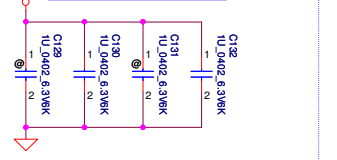
<Address: SA1:SA0=00>  
**DIMM\_1 STD H:4mm**

**Channel A**

Security Classification		Compal Secret Data		Title	
Issued Date	2012/07/10	Deciphered Date	2013/07/10	Compal Electronics, Inc. <b>DDR3 DIMM</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 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	Rev		1.01	
Date:	Tuesday, September 25, 2012	Sheet	15	of 50	

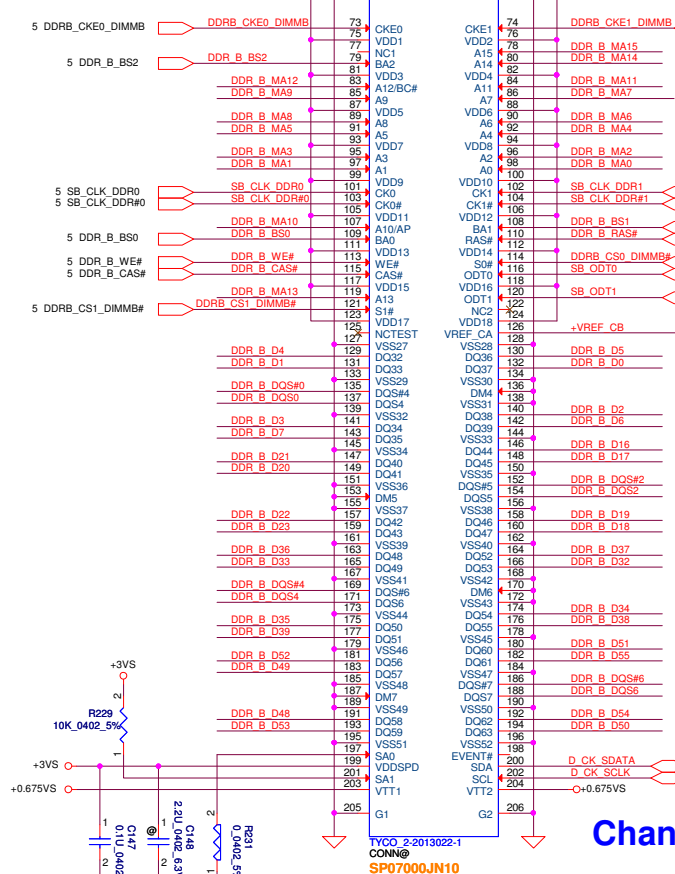


**Layout Note:**  
Place near JDIMM1



**Layout Note:**  
Place near JDIMM1.203,204

All VREF traces should have 10 mil trace width



**Channel B**

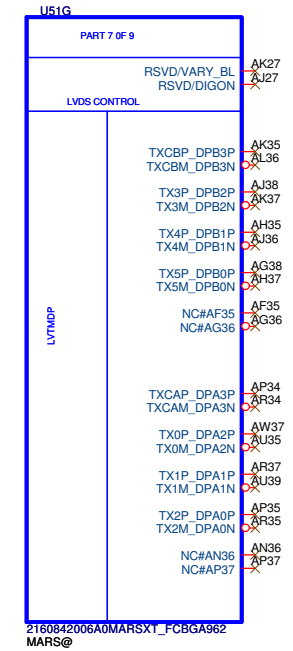
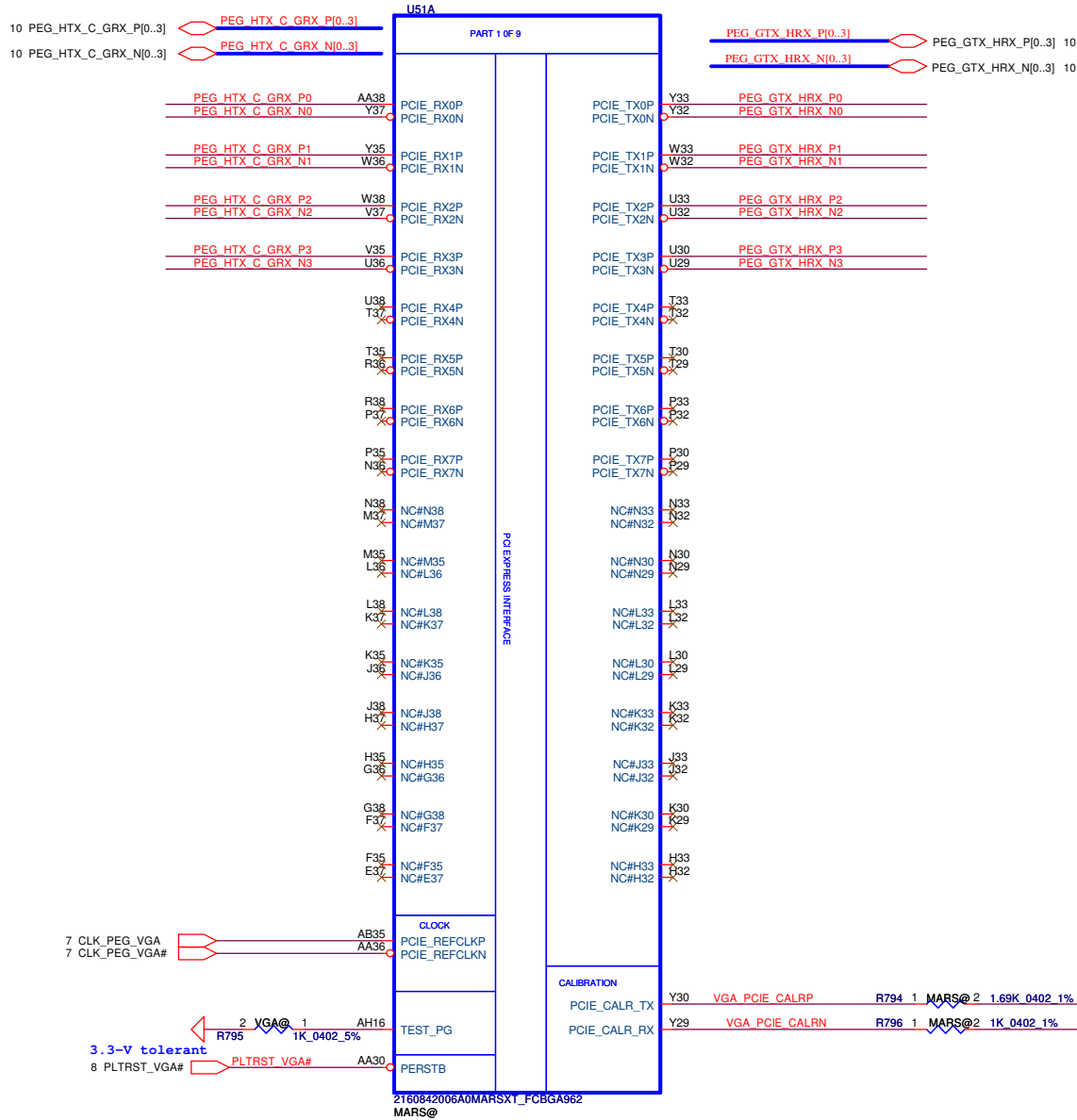
<Address: SA1:SA0=10>  
**DIMM\_2 STD H:4mm**

Security Classification	Compal Secret Data		Title
Issued Date	2012/07/10	Deciphered Date	2013/07/10
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 0.1

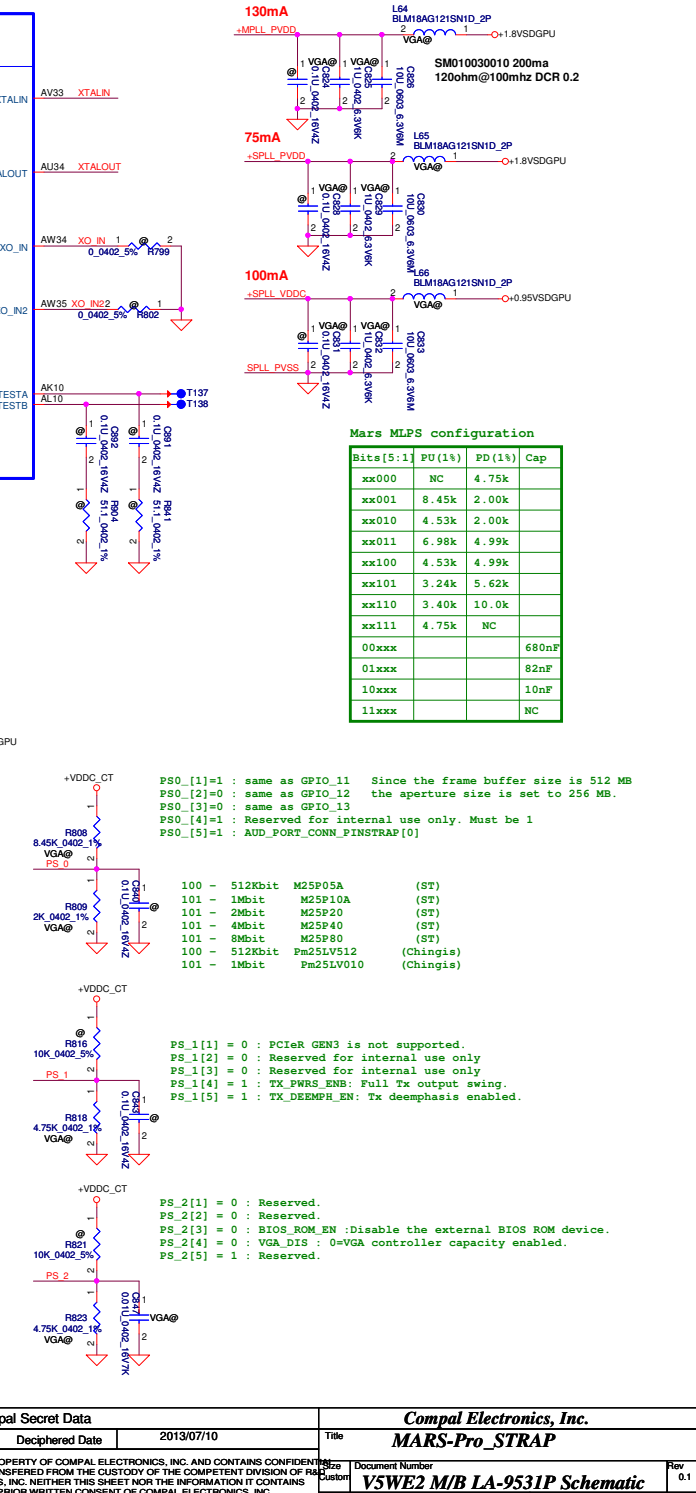
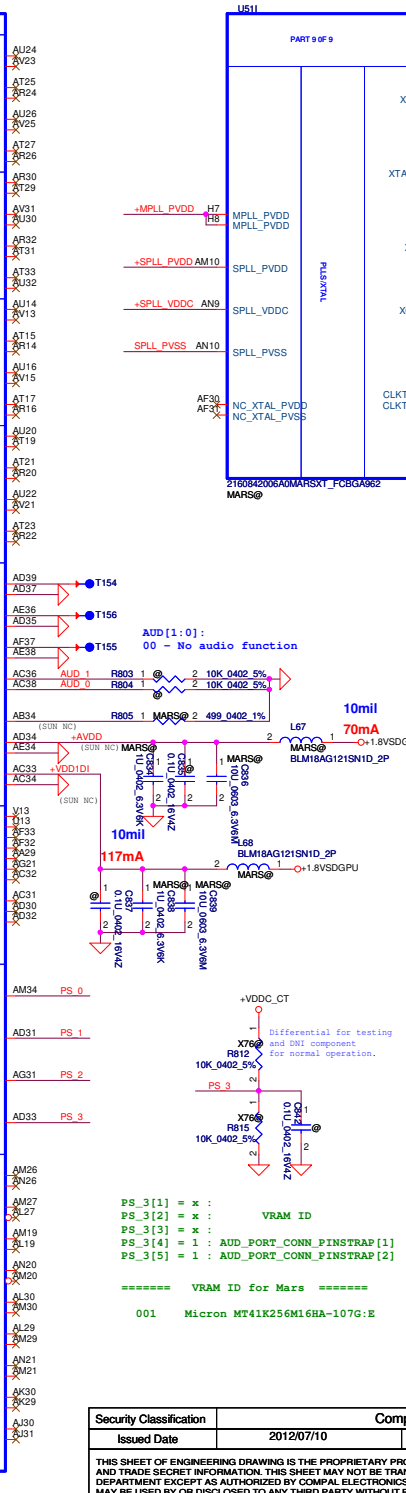
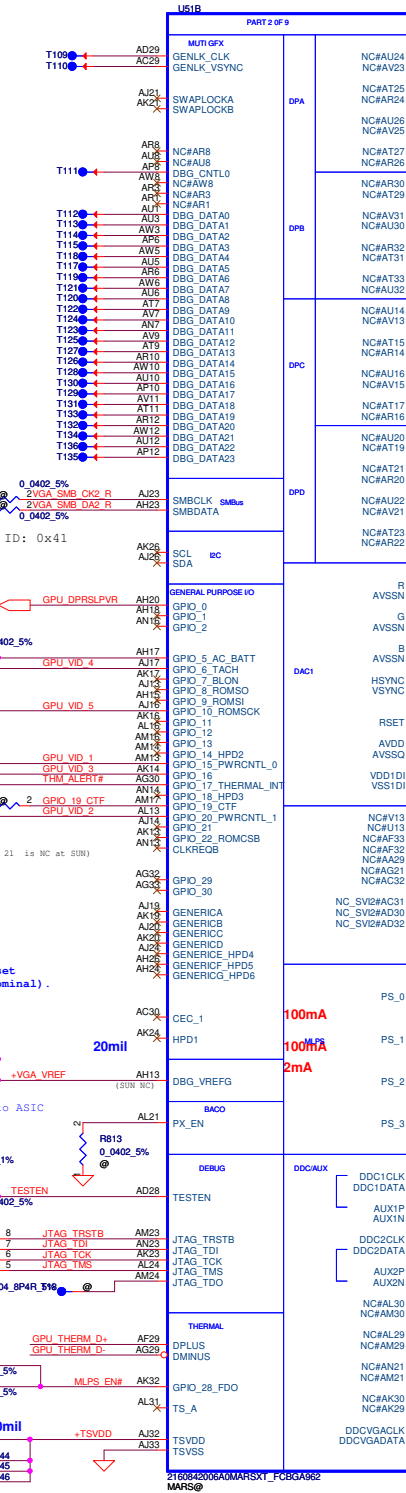
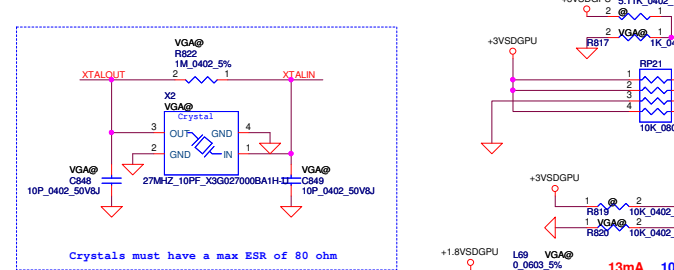
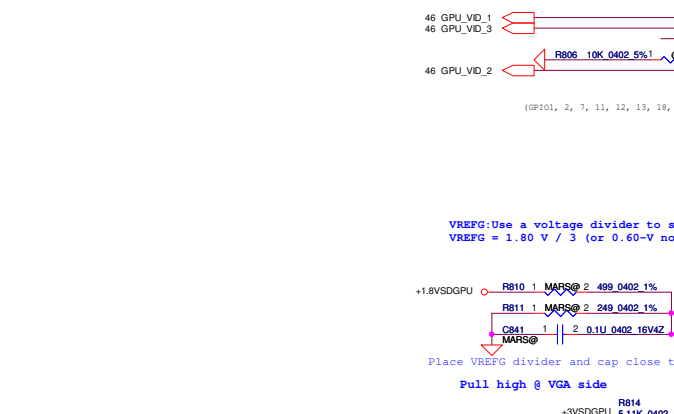
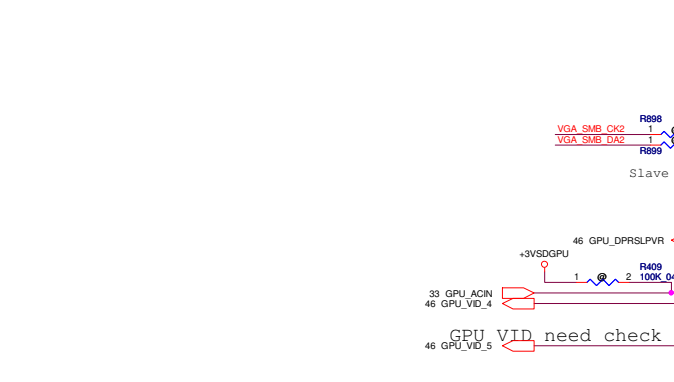
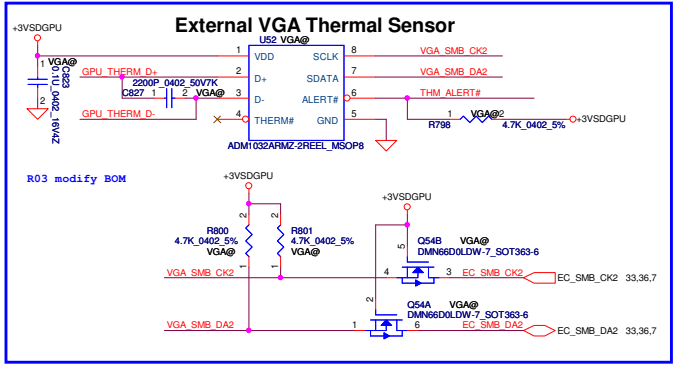
Compal Electronics, Inc.	
<b>DDR III DIMMB</b>	
Document Number	Rev
<b>VSW22 M/B LA-9531P Schematic</b>	0.1
Date: Tuesday, September 25, 2012	Sheet 16 of 50



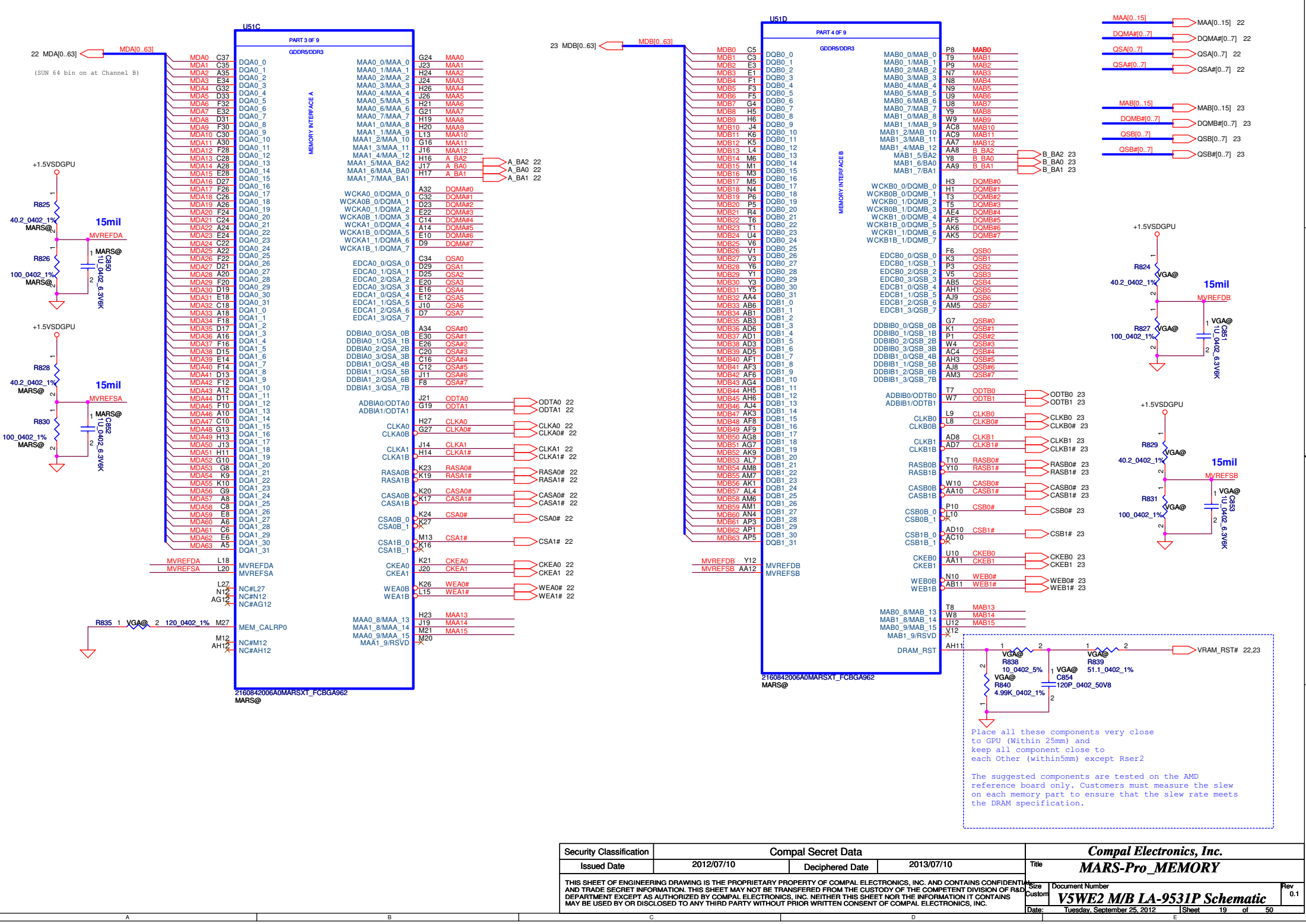
# GFX PCIE LANE REVERSAL



Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date		2012/07/10	Deciphered Date	2013/07/10	Title
					<b>MARS-Pro_PCIE</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 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	Date			Rev
	<b>V5WE2 M/B LA-9531P Schematic</b>	Tuesday, September 25, 2012			0.1
		Sheet		17	of 50



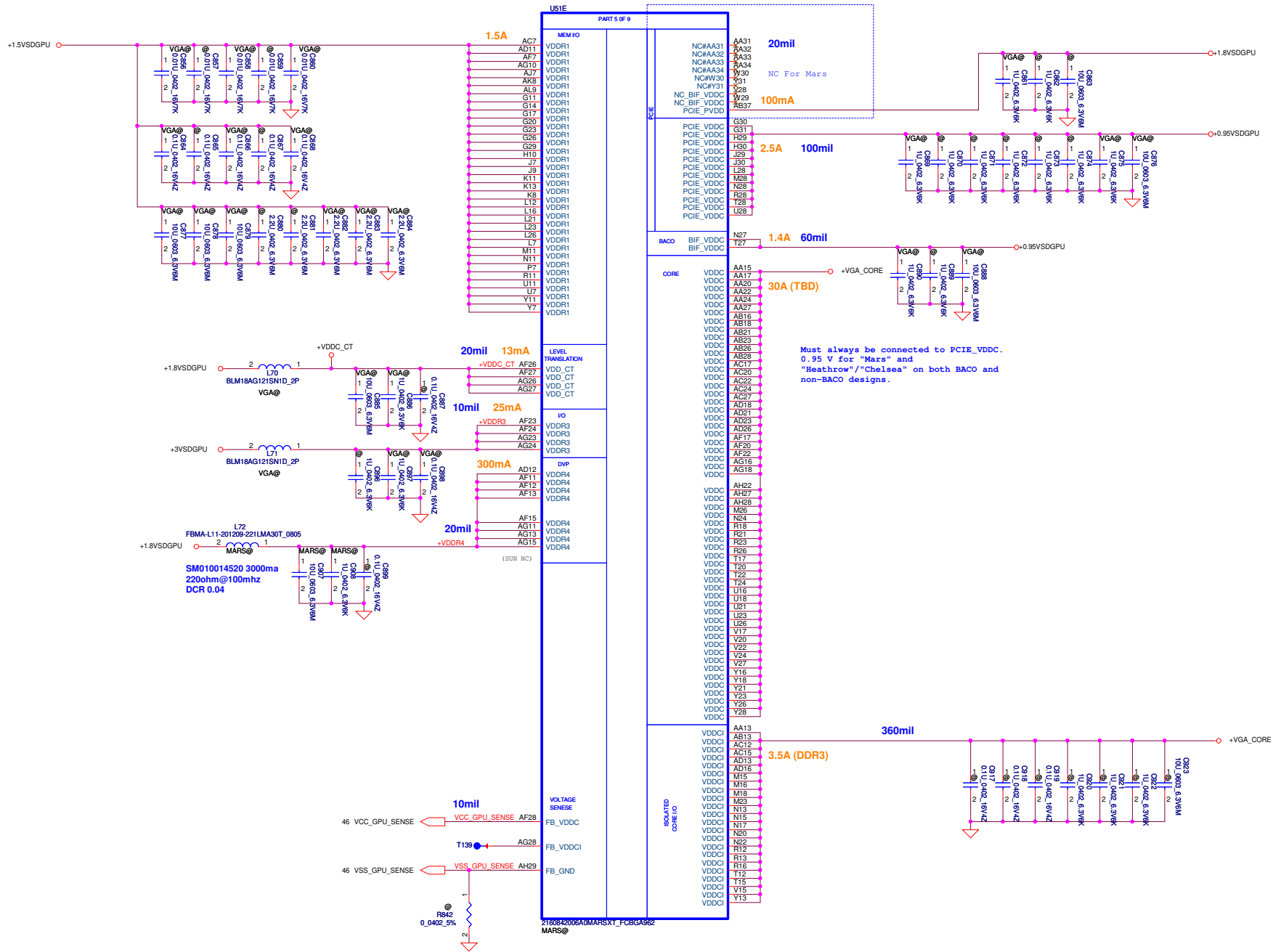
Security Classification	Compal Secret Data		Title	
Issued Date	2012/07/10	Deciphered Date	2013/07/10	
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF RAI 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.				
Customer	Document Number			Rev
	V5WE2 M/B LA-9531P Schematic			01
Date:	Tuesday, September 25, 2012			Sheet 18 of 50



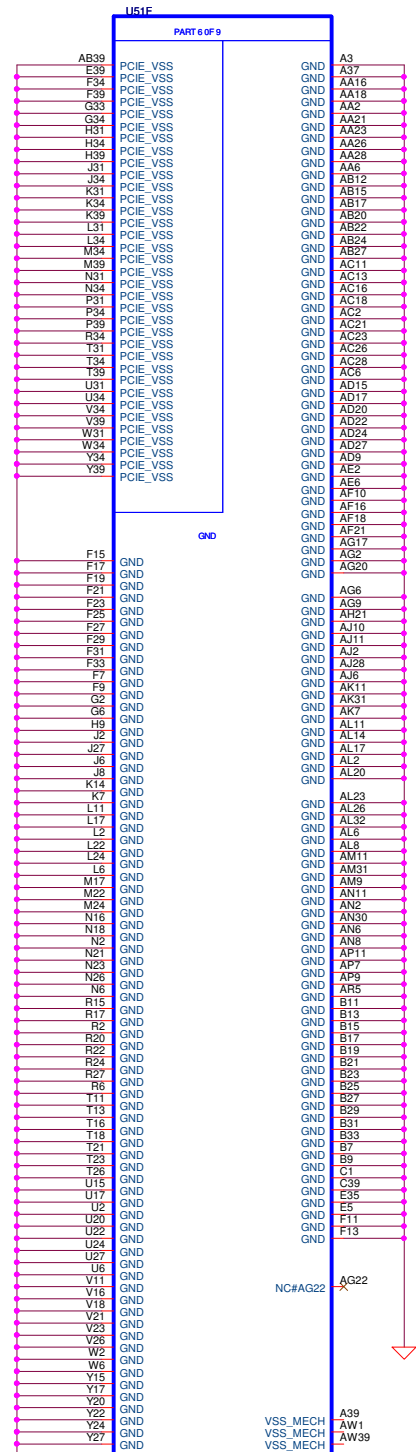
Place all these components very close to GPU (Within 25mm) and keep all component close to each other (within5mm) except Rser2

The suggested components are tested on the AMD reference board only. Customers must measure the slew on each memory part to ensure that the slew rate meets the DRAM specification.

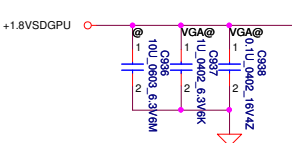
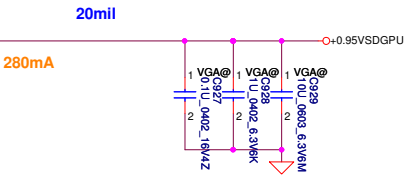
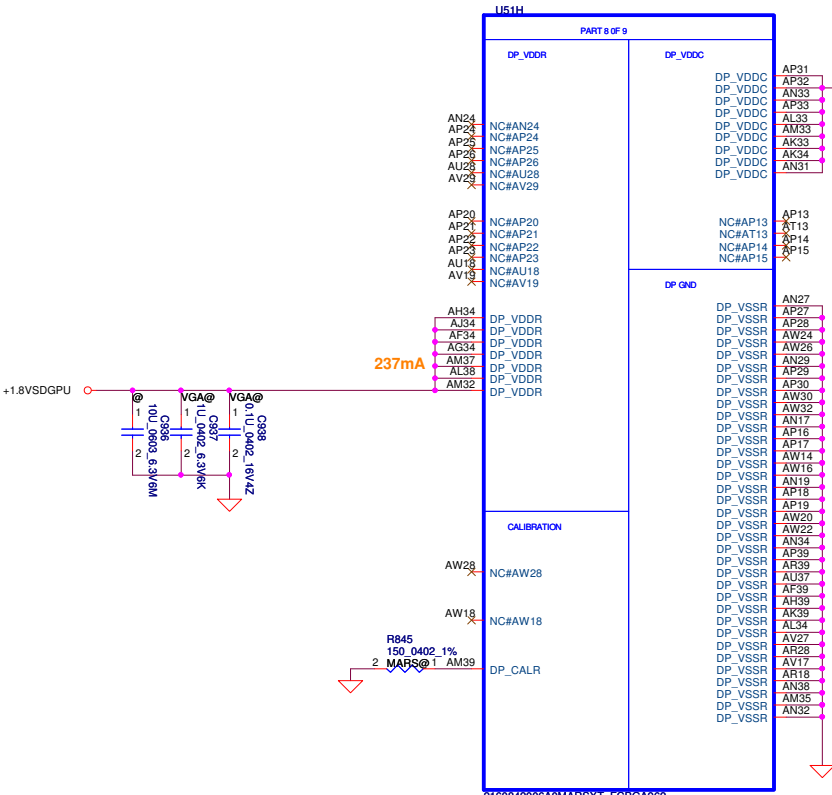
Security Classification		Compal Secret Data		Title	
Issued Date	2012/07/10	Deciphered Date	2013/07/10	Compal Electronics, Inc. <b>MARS-Pro MEMORY</b>	
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D 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 <b>V5WE2 M/B LA-9531P Schematic</b>
Date:	Tuesday, September 25, 2012	Sheet	19	of	50



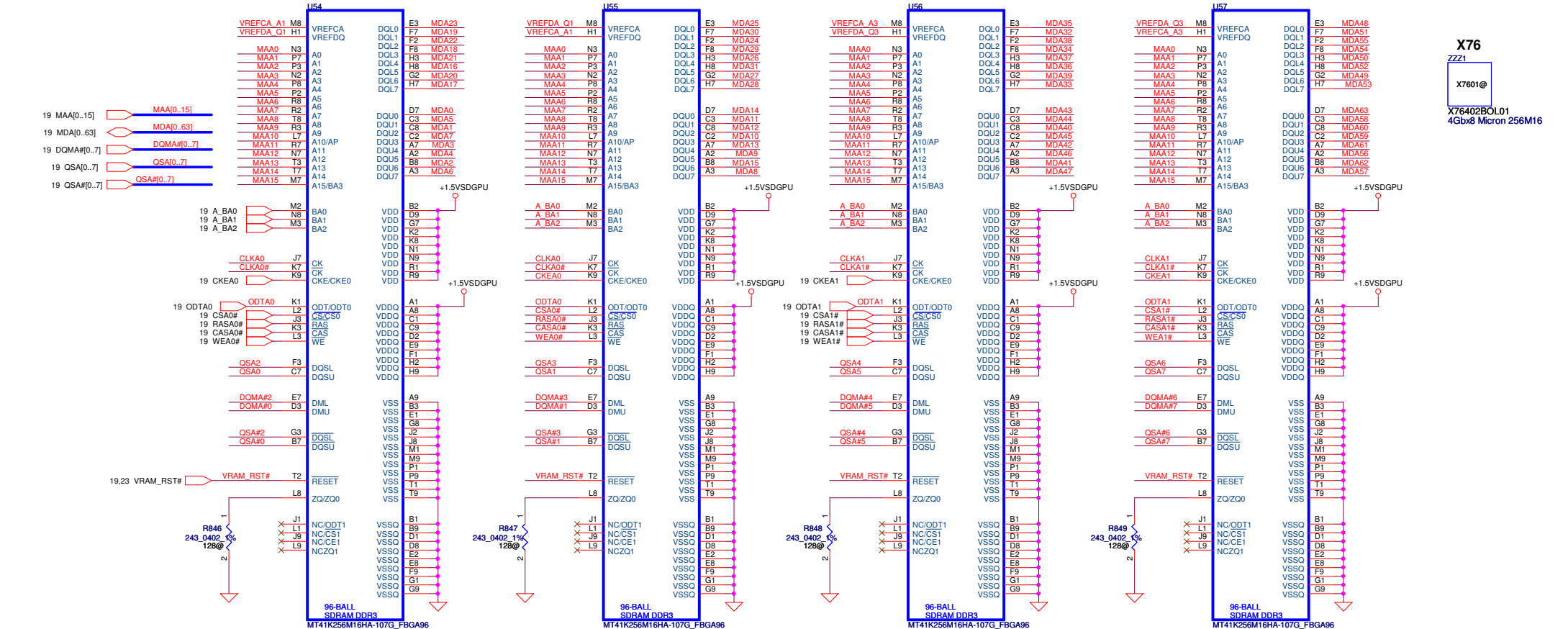
Security Classification	Compal Secret Data		Title	
Issued Date	2012/07/10	Deciphered Date	2013/07/10	<b>Compal Electronics, Inc.</b> <b>MARS-Pro_PWR/GND</b>
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D 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	Date	
Custom	<b>V5WE2 M/B LA-9531P Schematic</b>	0.1	Tuesday, September 25, 2012	
Sheet		of		
20		50		



2160942006A0MARSXT\_FCBGA962  
MARS@



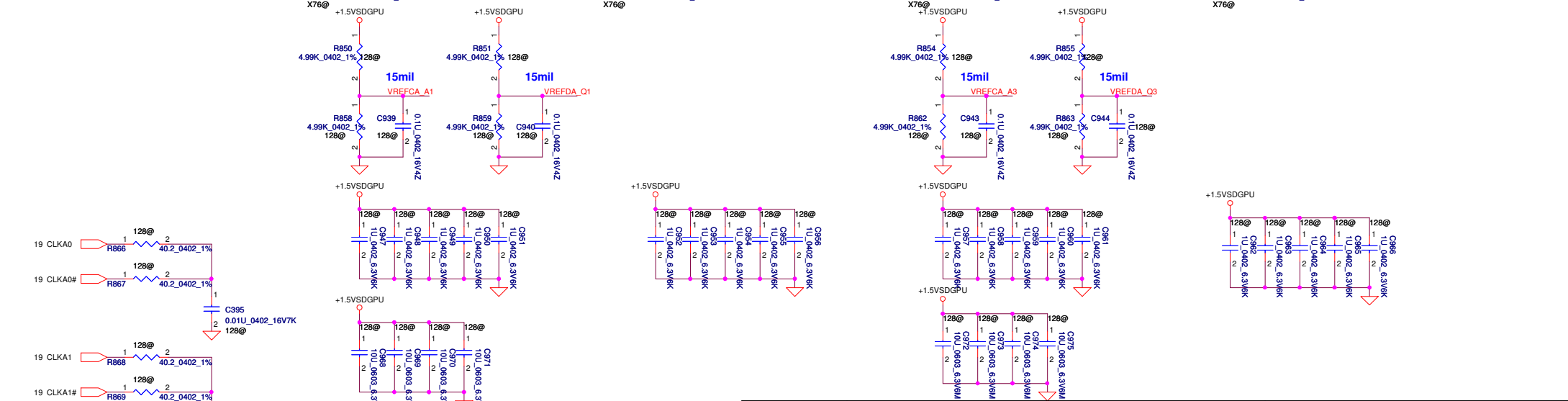
Security Classification		Compal Secret Data		Title	
Issued Date	2012/07/10	Deciphered Date	2013/07/10	2160942006A0MARSXT_FCBGA962 <b>MARS-Pro PWR/GND</b>	
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED TO ANY OTHER PERSON OR ENTITY OUTSIDE OF COMPAL ELECTRONICS, INC. WITHOUT THE WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.				Document Number	Rev
				<b>V5WE2 M/B LA-9531P Schematic</b>	0.1
				Date: Tuesday, September 25, 2012	Sheet 21 of 50



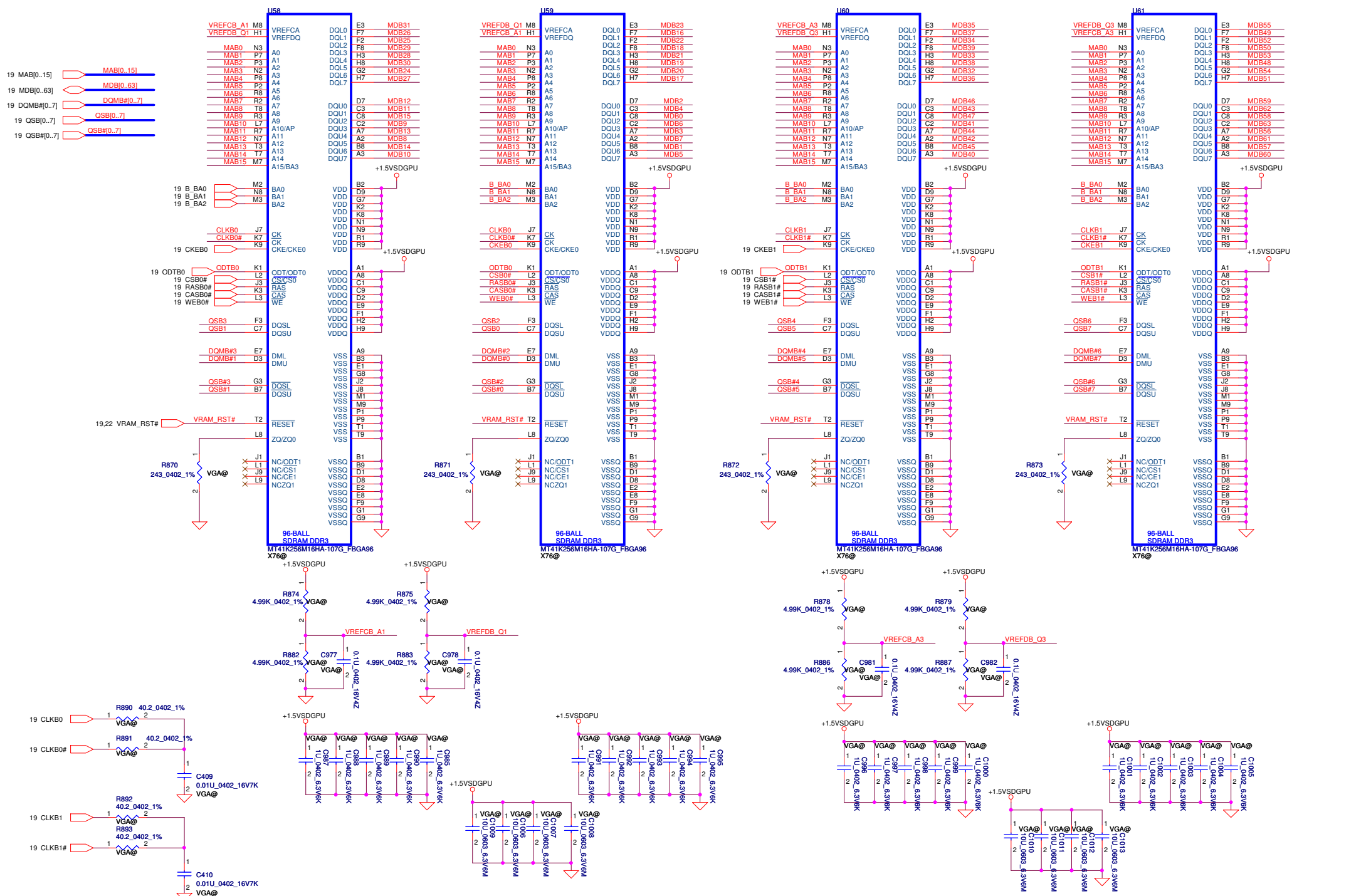
**X76**  
ZZZ1

X7601@

X76402BOL1  
4Gb x 8 Micron 256M16

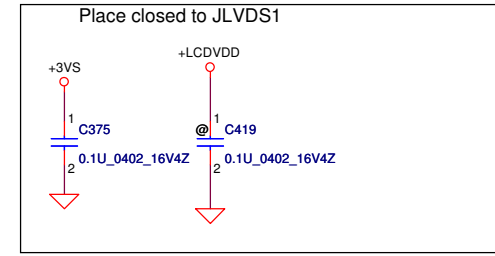
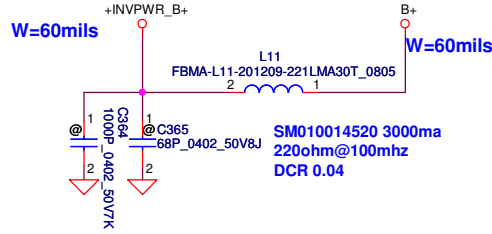
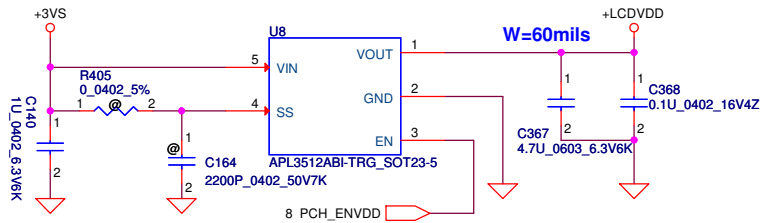


Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2012/07/10	Deciphered Date	2013/07/10	Title	
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF THE 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.				VRAM DDR3 / Channel A	
				Document Number <b>V5WE2 M/B LA-9531P Schematic</b>	
				Date: Tuesday, September 25, 2012	Sheet 22 of 50

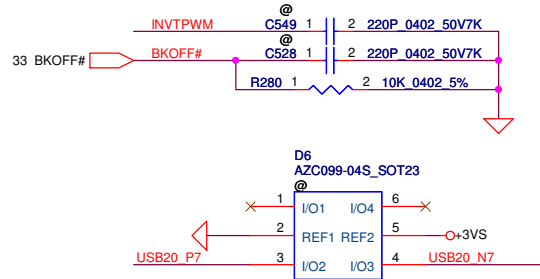
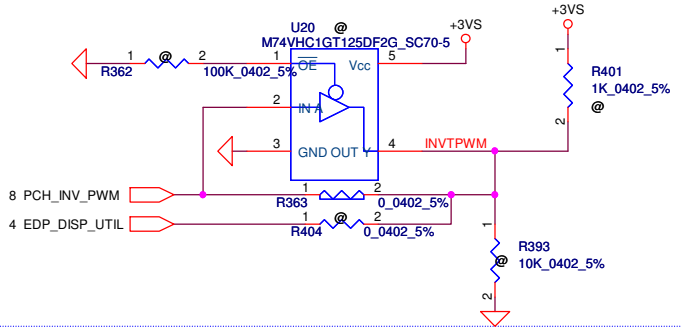
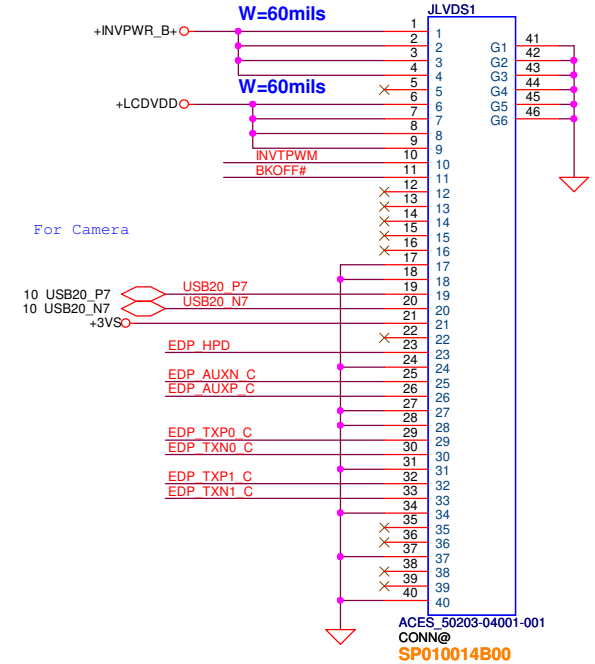


Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2012/07/10	Deciphered Date	2013/07/10	Title	VRAM DDR3 / Channel B
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF COMPAL ELECTRONICS, INC. WITHOUT THE WRITTEN PERMISSION OF THE COMPETENT DIVISION OF 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, September 25, 2012 Sheet: 23 of 50	Document Number: V5WE2 M/B LA-9531P Schematic Rev: 0.1

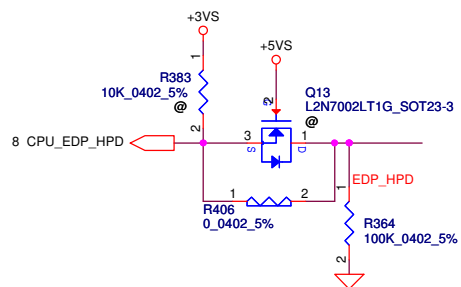
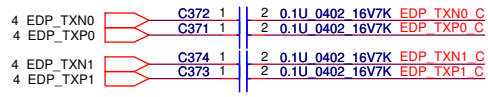
# LCD POWER CIRCUIT



## LCD/ LED PANEL Conn.

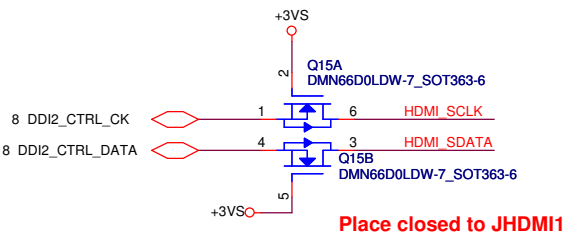
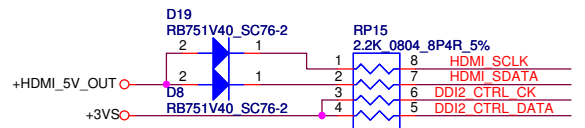
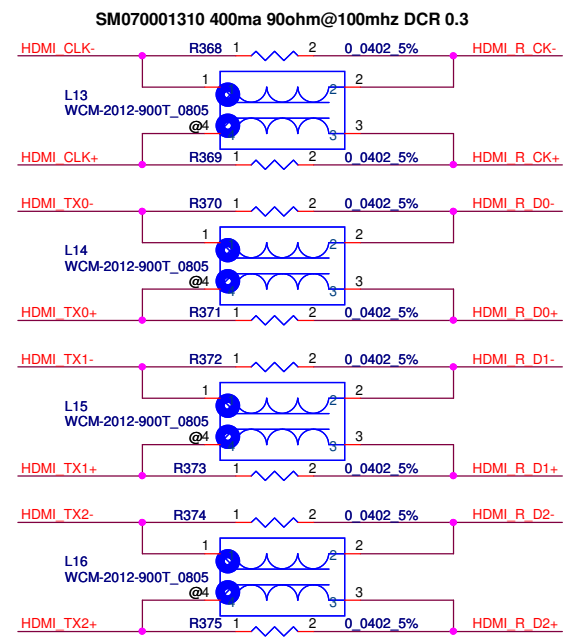
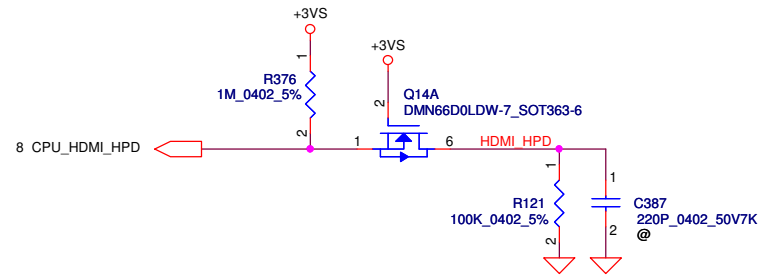
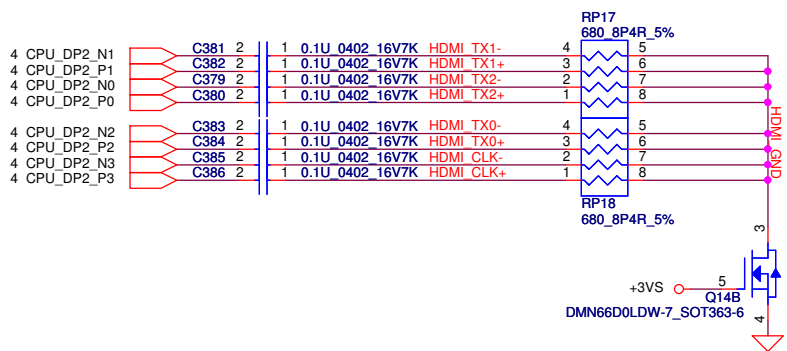
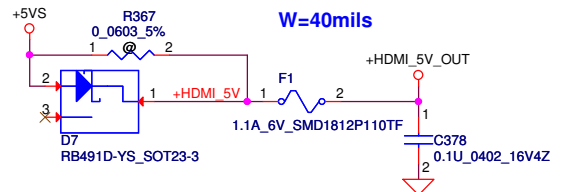


## eDP

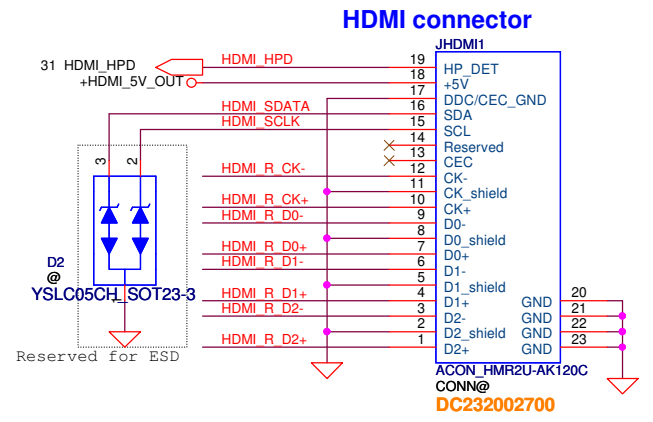


Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2012/07/10	Deciphered Date	2013/07/10	Title	
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED 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.				Size	Document Number
				Custom	V5WE2 M/B LA-9531P Schematic
				Date:	Tuesday, September 25, 2012
				Sheet	24 of 50
				Rev	0.1



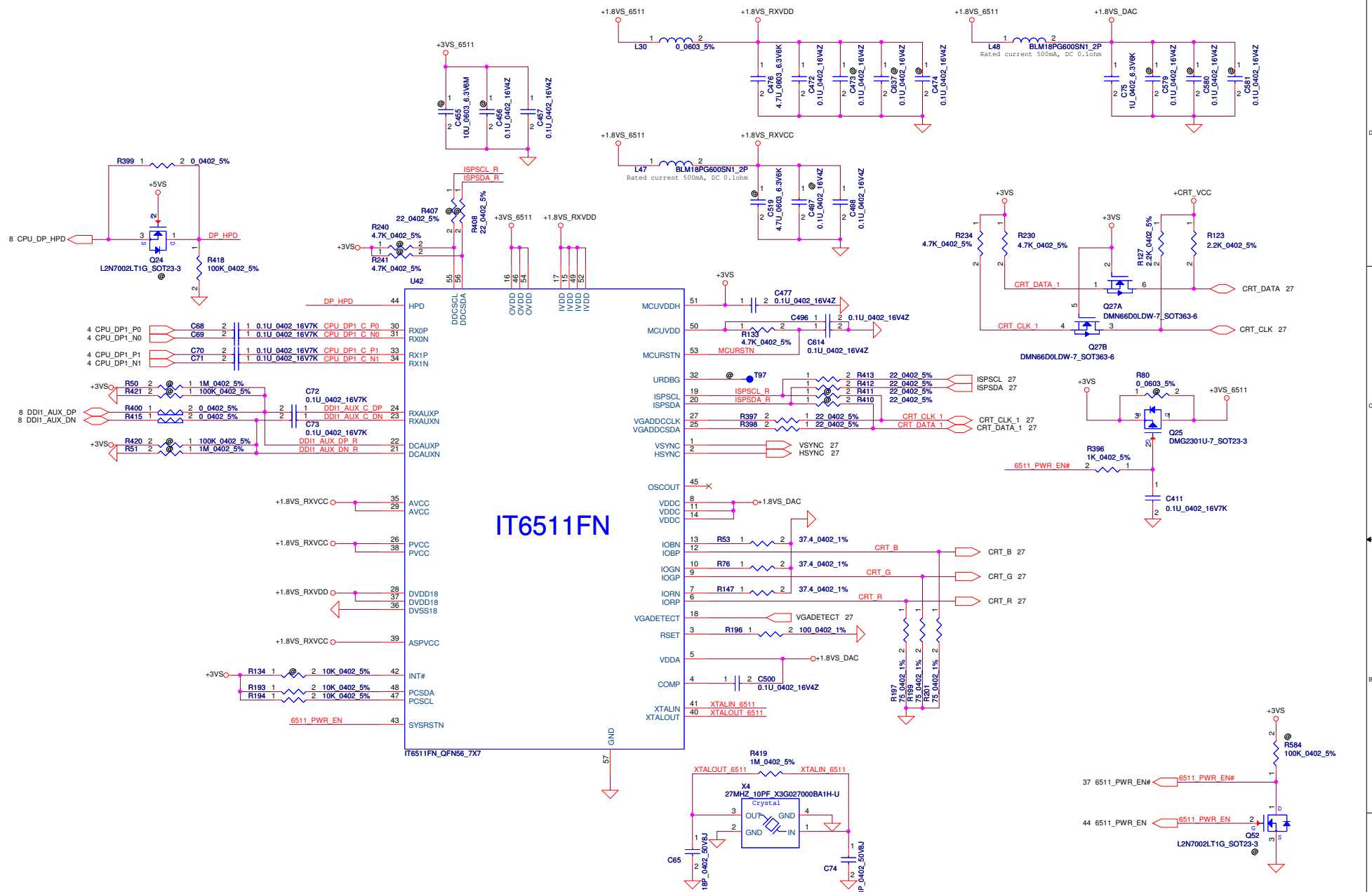


Place closed to JHDMI1

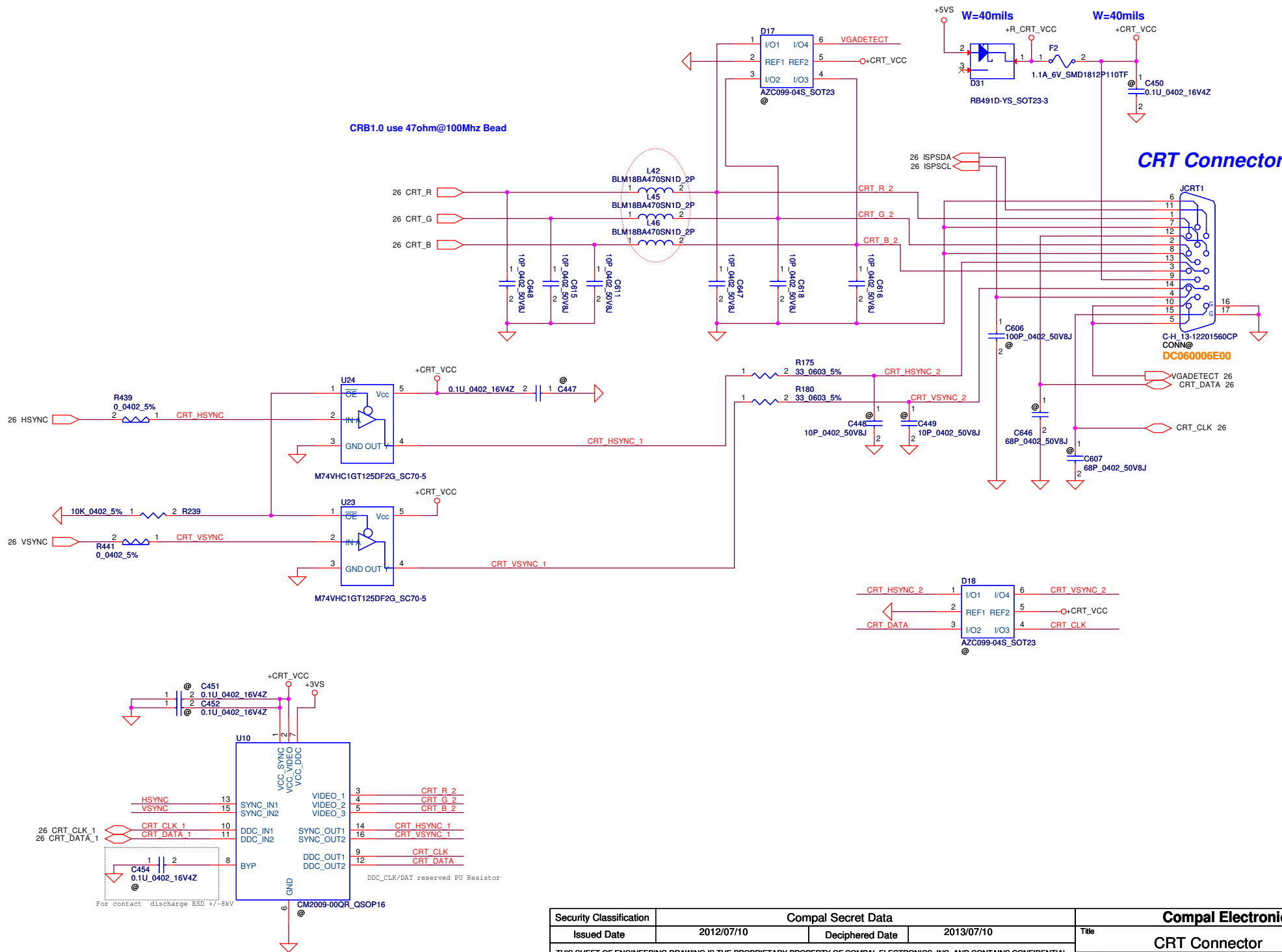


ZZZ  
HDMI ROYALTY  
ROYALTY HDMI W/LOGO+HDCP  
RQ0000003HM  
45@

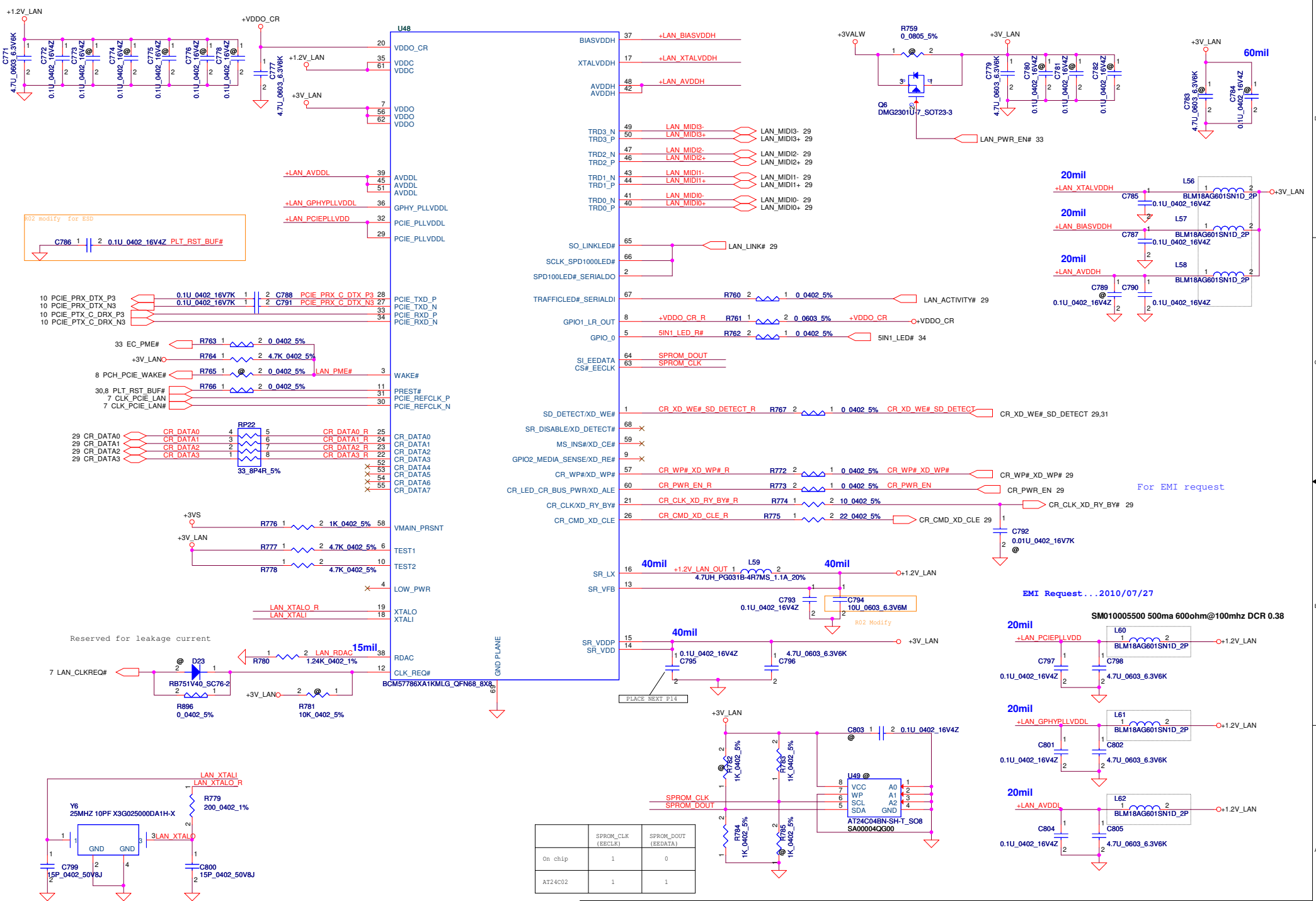
Security Classification		Compal Secret Data		Title	
Issued Date	2012/07/10	Deciphered Date	2013/07/10	HDMI Conn	
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE 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	Rev
				Custom	0.1
				Date:	Tuesday, September 25, 2012
				Sheet	25 of 50



Security Classification		Compal Secret Data		Title	
Issued Date	2012/07/10	Deciphered Date	2013/07/10	ITE IT6511FN	
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	Customer		Rev	
	V5WE2	M/B LA-9531P Schematic		0.1	
Date:	Tuesday, September 25, 2012	Sheet	26	of 50	



Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2012/07/10	Deciphered Date	2013/07/10	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.				CRT Connector	
Size	Document Number	Date:		Rev	
Custom	V5WE2 M/B LA-9531P Schematic	Tuesday, September 25, 2012		0.1	
				Sheet	27 of 50

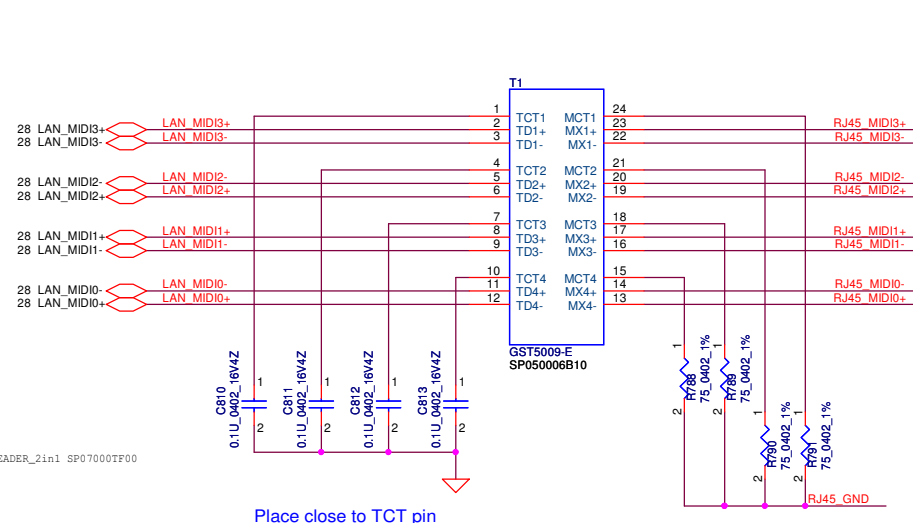


	SPROM_CLK (EECLK)	SPROM_DOUT (EEDATA)
On chip	1	0
AT24C02	1	1

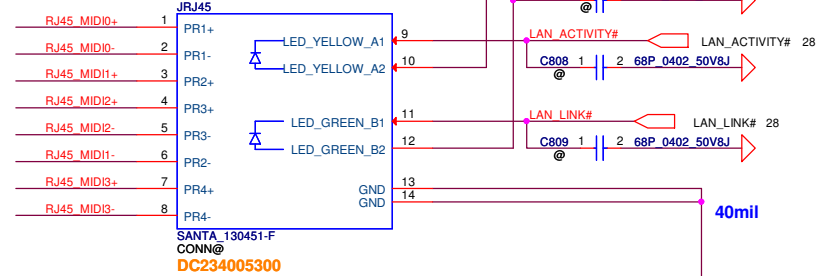
Security Classification	Compal Secret Data	
Issued Date	2012/07/10	Deciphered Date
		2013/07/10

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 PRODUCT 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.

Compal Electronics, Inc.	
Title	Broadcom BCM57786X
Document Number	V5WE2 M/B LA-9531P Schematic
Date	Tuesday, September 25, 2012
Sheet	26 of 50
Rev	0.1



### LAN Connector

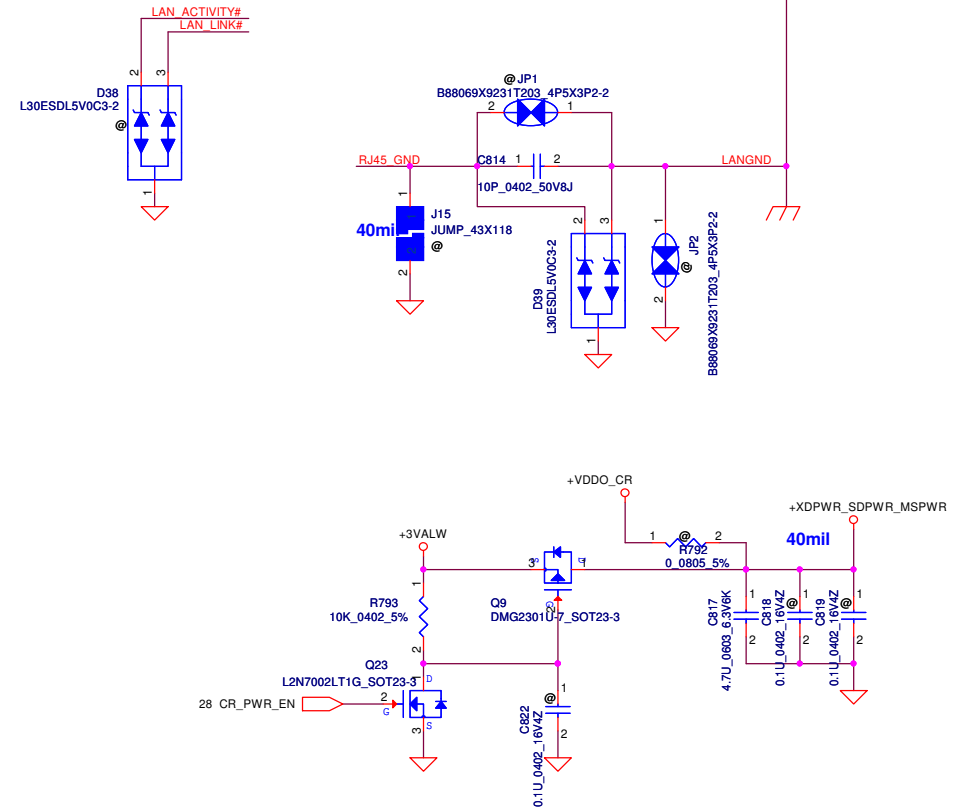
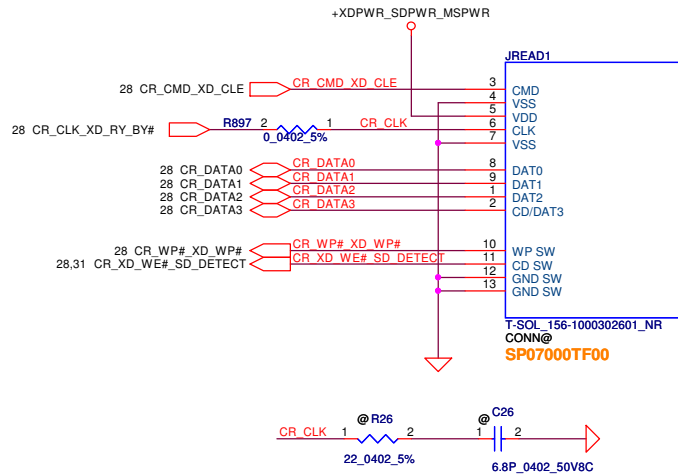


CARD READER\_zin1 SP07000TF00

Place close to TCT pin

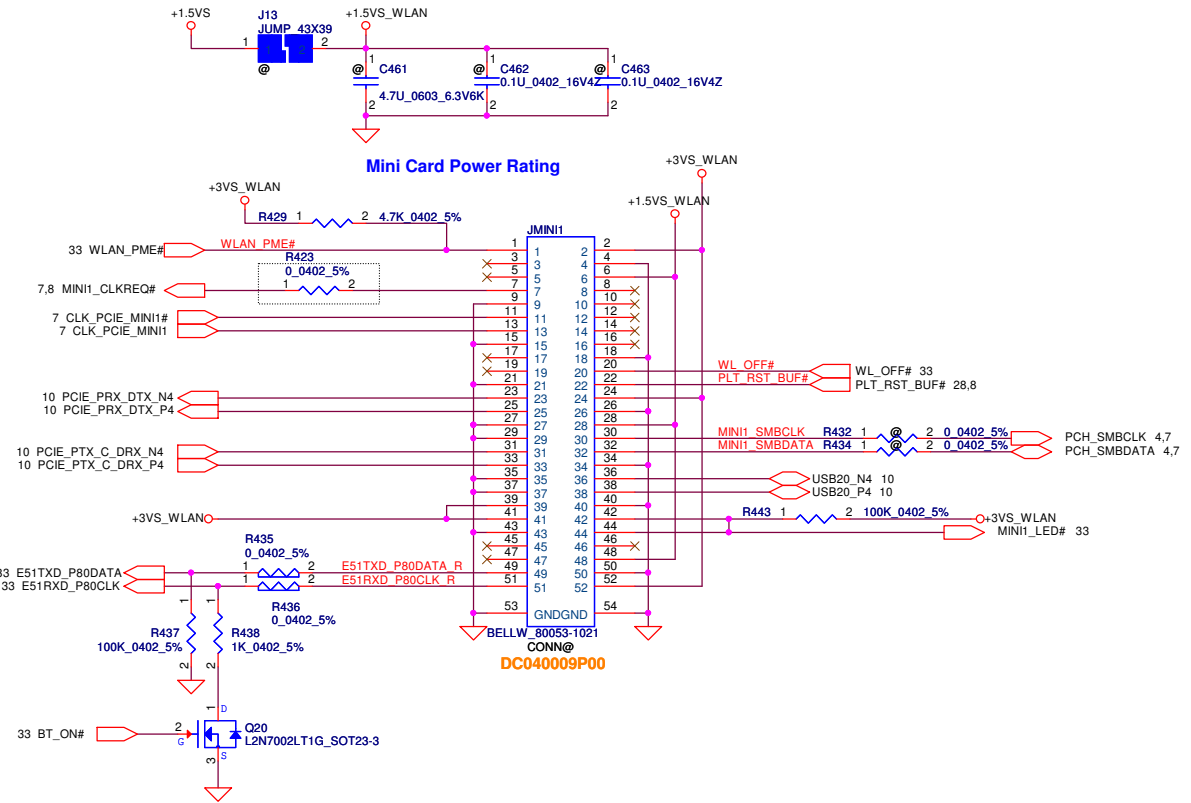
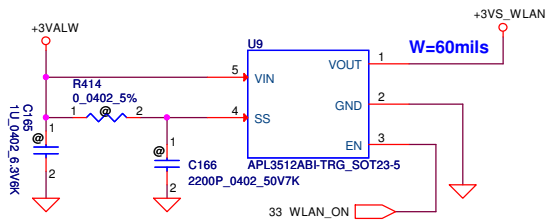
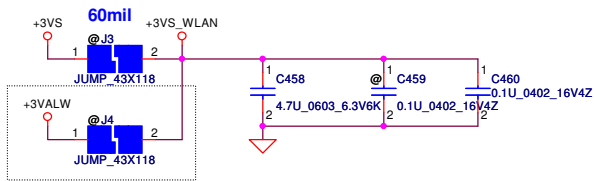
BOTHHAND: S X'FORM\_ GST5009-E LF LAN, SP050006B10  
TIMAG:S X'FORM\_IH-160 LAN , SP050006F00

### Card Reader Connector



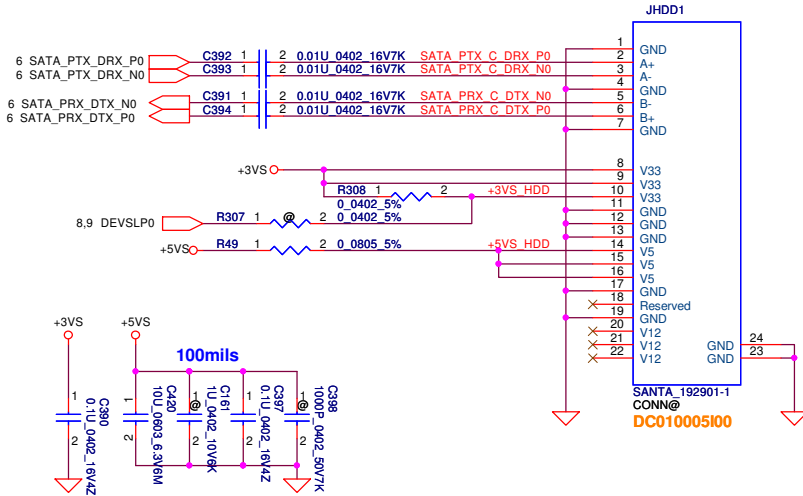
Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2012/07/10	Deciphered Date	2013/07/10	Title	
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED 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.				Size	Document Number
				Custom	V5WE2 M/B LA-9531P Schematic
				Date:	Tuesday, September 25, 2012
				Sheet	29 of 50
				Rev	0.1

# For Wireless LAN

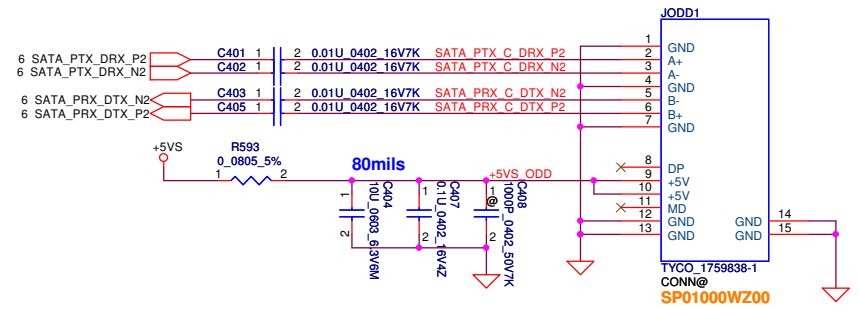


Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2012/07/10	Deciphered Date	2013/07/10	Title	
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED 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.				MINI CARD (WLAN)	
Size	Document Number	Date:		Sheet	Rev
Custom	V5WE2 M/B LA-9531P Schematic	Tuesday, September 25, 2012		30	0.1
				of	50

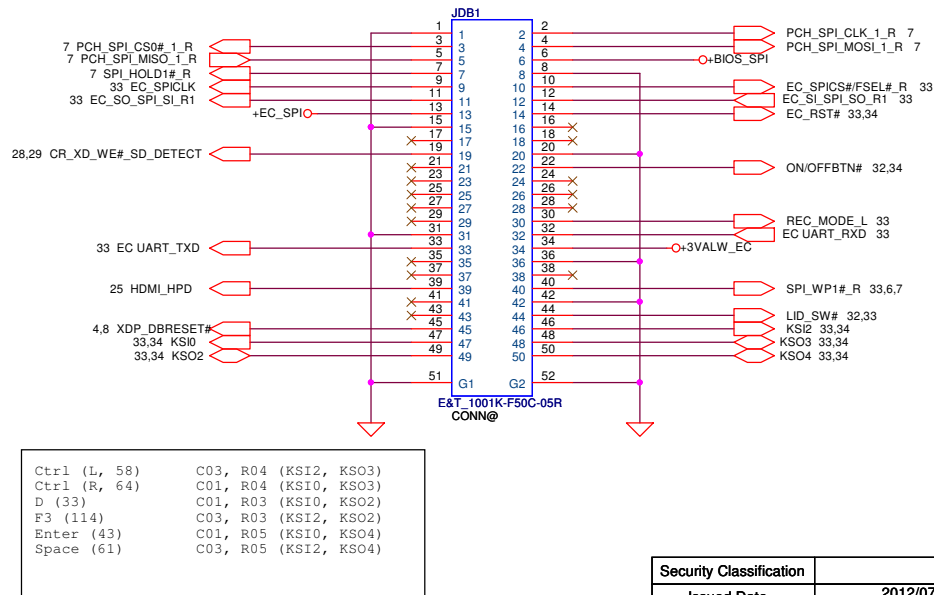
### SATA HDD1 Conn.



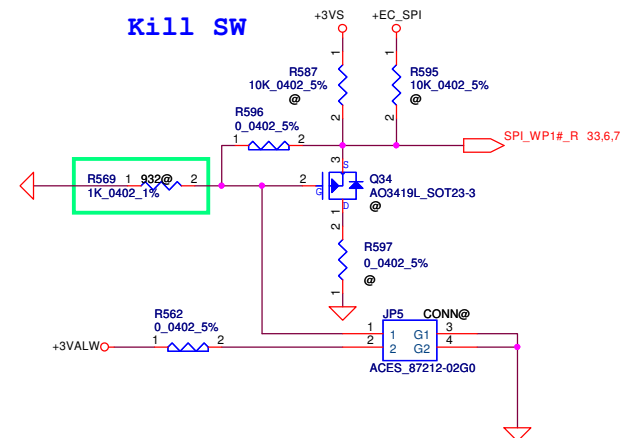
### SATA ODD Conn.



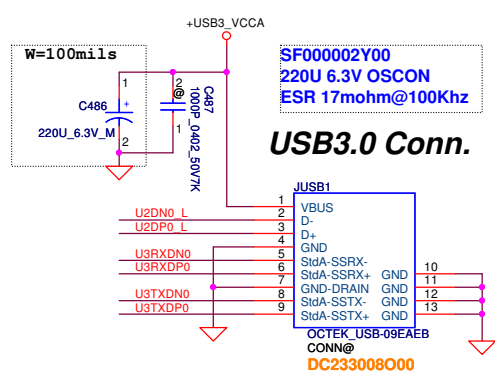
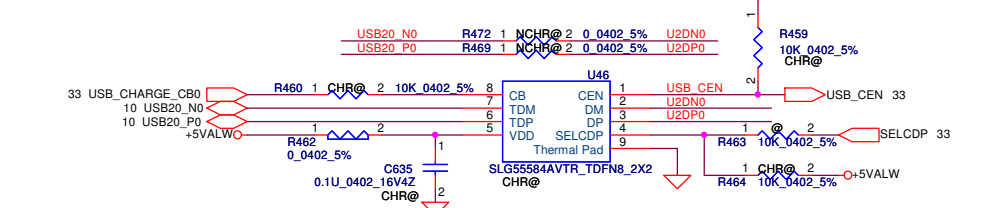
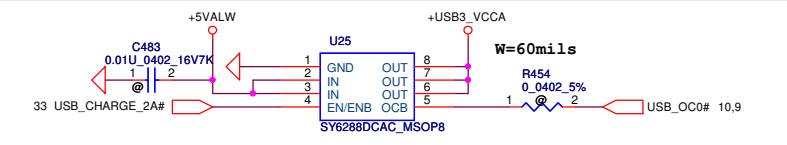
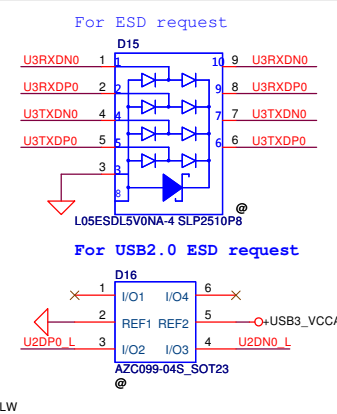
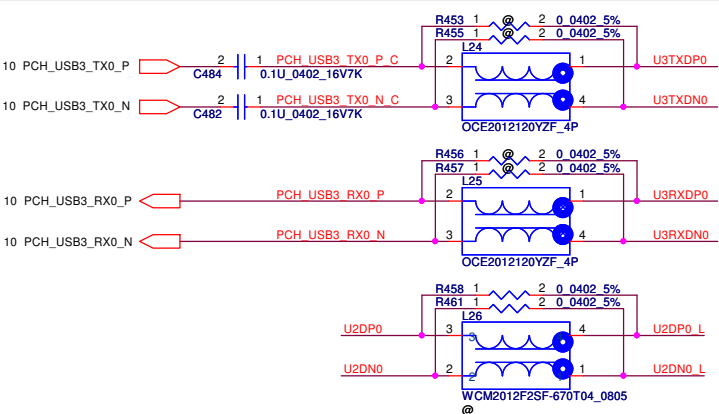
### Debug Board



### Kill SW



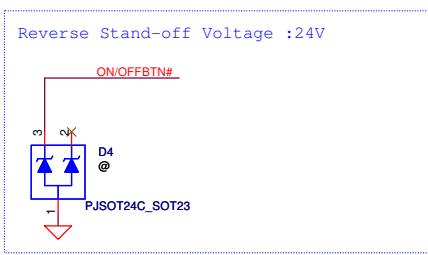
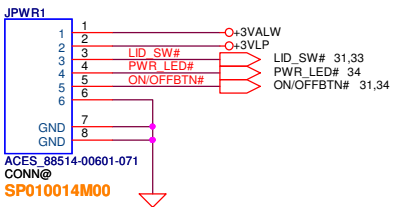
Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2012/07/10	Deciphered Date	2013/07/10	Title	
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED 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.				HDD/ODD/Debug Board	
Size	Document Number	Date:		Rev	
Custom	V5WE2 M/B LA-9531P Schematic	Tuesday, September 25, 2012		0.1	
				Sheet 31 of 50	



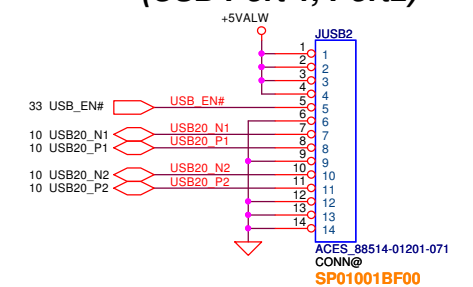
### USB Host Charger

CB	SELCDP	
0	X	DCP(Dedicated Charging Port) autodetect with mouse/keyboard wakeup
1	0	S0 charging with SDP(Standard Downstream Port) only
1	1	S0 charging with CDP(Charging Downstream Port) or SDP only

### PWR/B

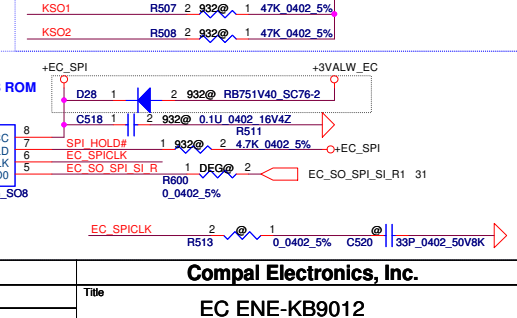
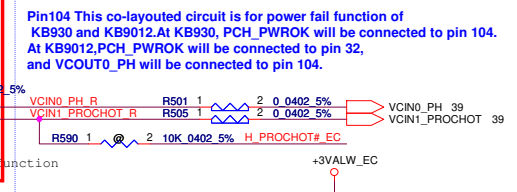
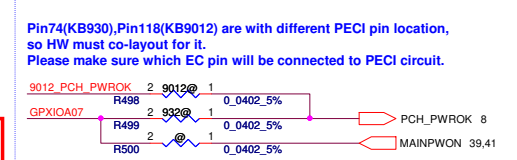
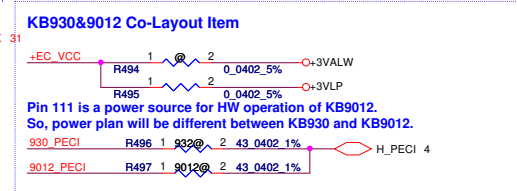
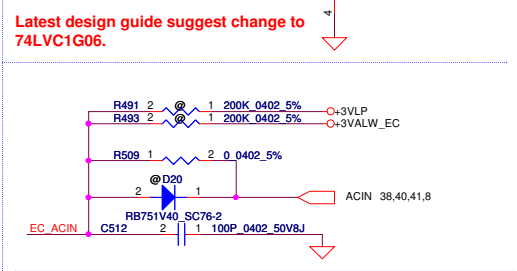
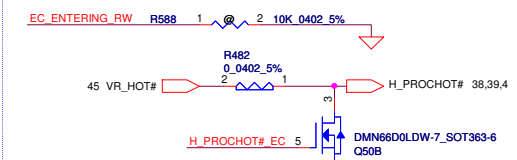
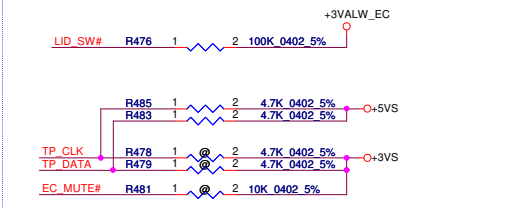
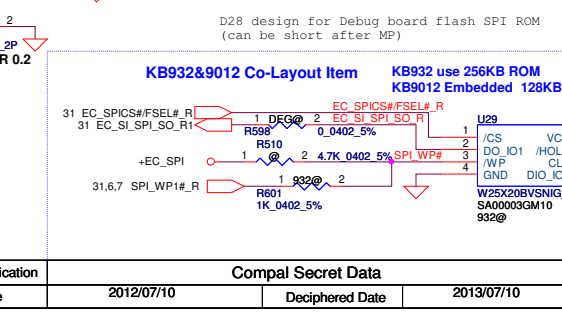
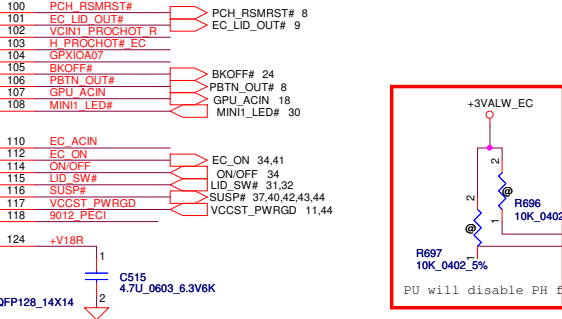
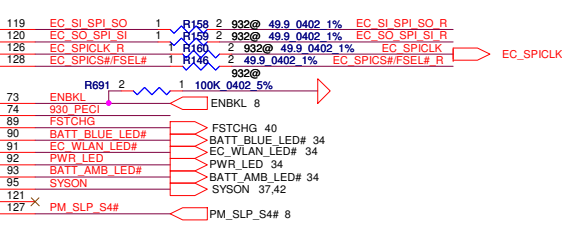
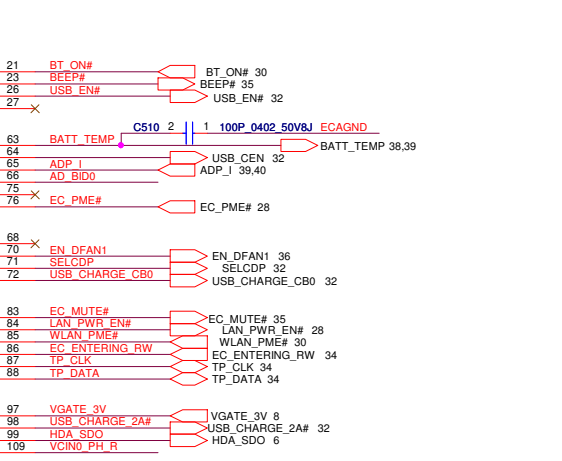
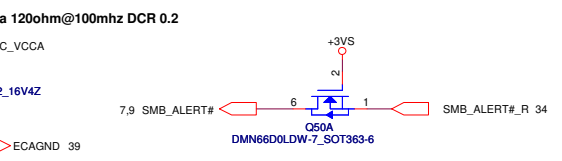
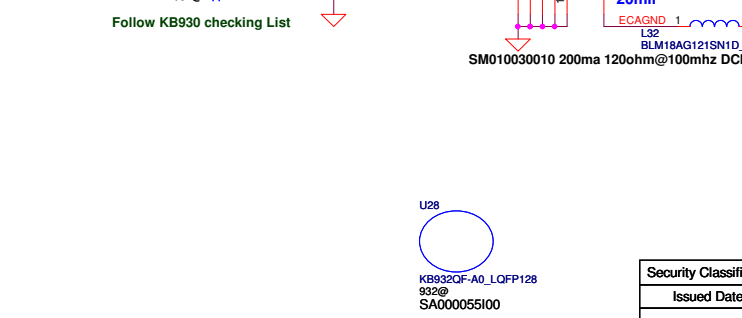
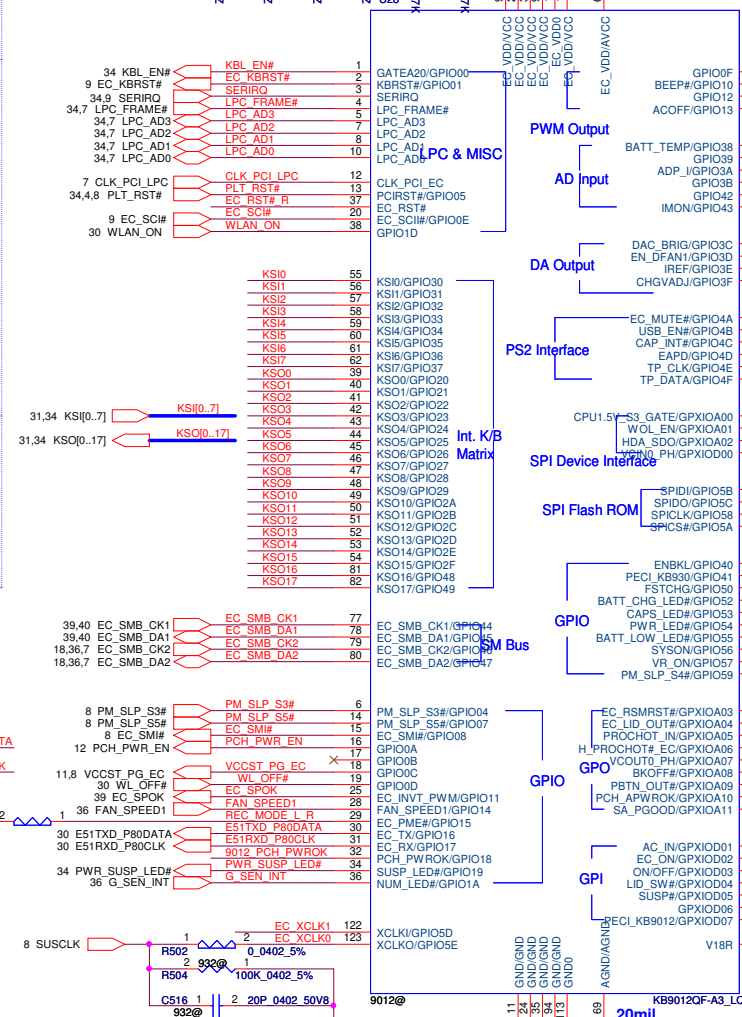
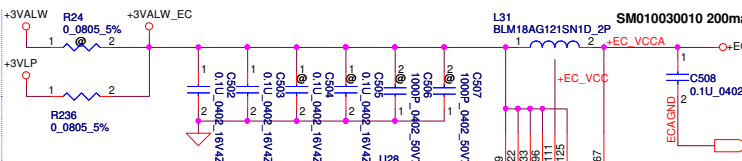
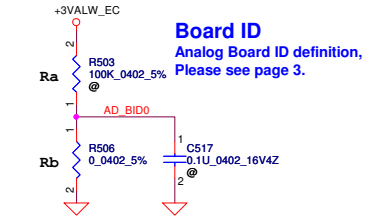
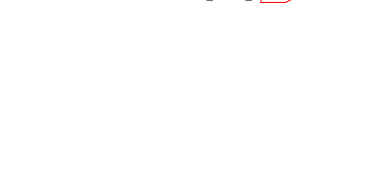
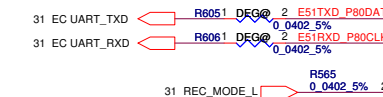
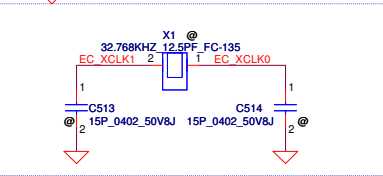
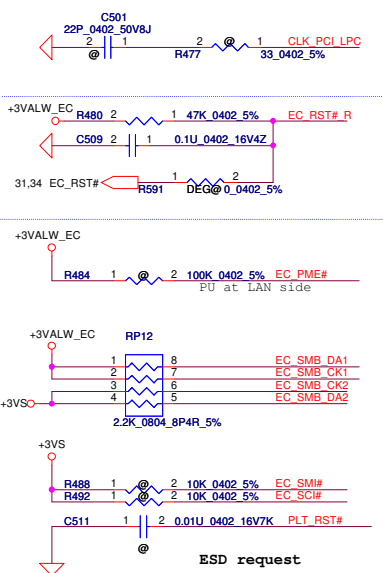


### USB/B (USB Port 1, Port2)



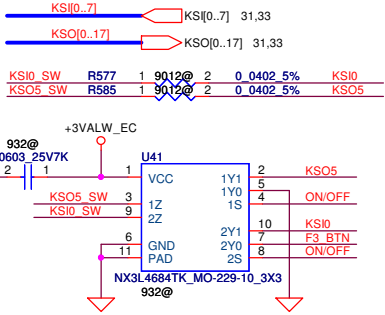
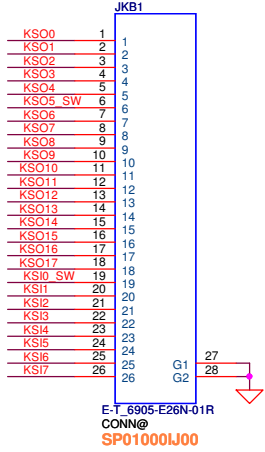
Security Classification		Compal Secret Data		Compal Electronics, Inc.		
Issued Date	2012/07/10	Deciphered Date	2013/07/10	Title		
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED 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.				Size Custom	Document Number	Rev
Date:	Tuesday, September 25, 2012	Sheet	32 of 50	V5WE2 M/B LA-9531P Schematic		
					0.1	



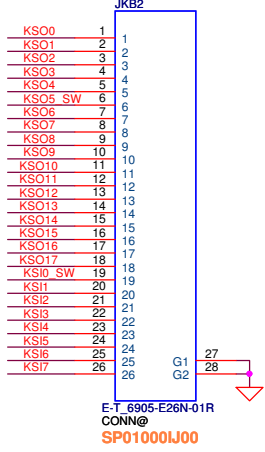


Security Classification	2012/07/10	Deciphered Date	2013/07/10	Title
Compal Secret Data				EC ENE-KB9012
Issued Date	2012/07/10	Deciphered Date	2013/07/10	EC ENE-KB9012
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET 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	Date		Sheet
Custom	V5WE2 M/B LA-9531P Schematic	Tuesday, September 25, 2012		33 of 50

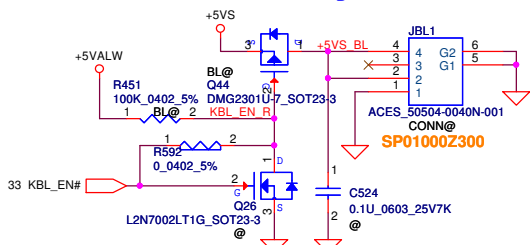
### KB Conn.



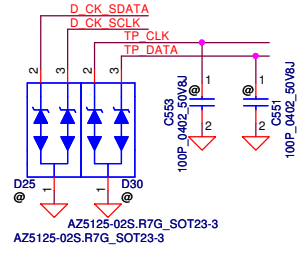
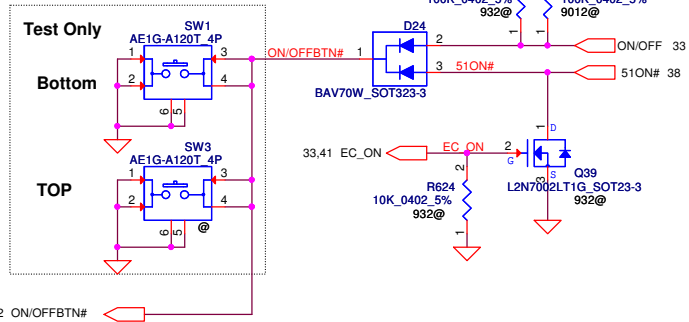
### KB Conn.



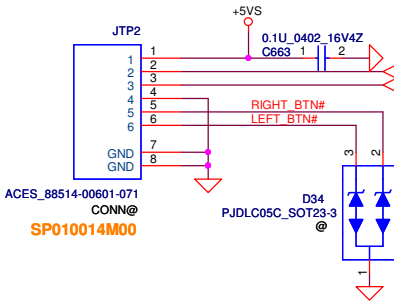
### KB BackLight Conn.



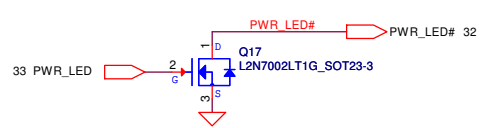
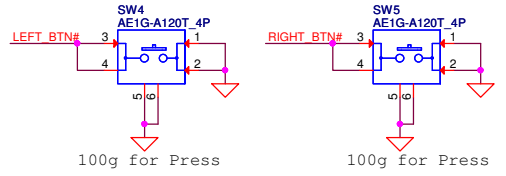
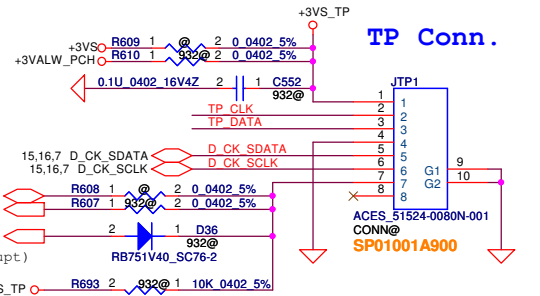
### ON/OFF BTN



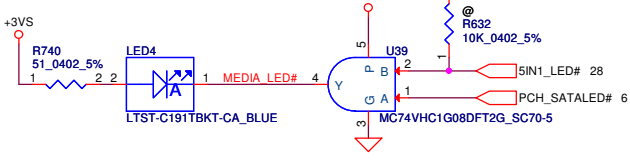
### To TP/B Conn.



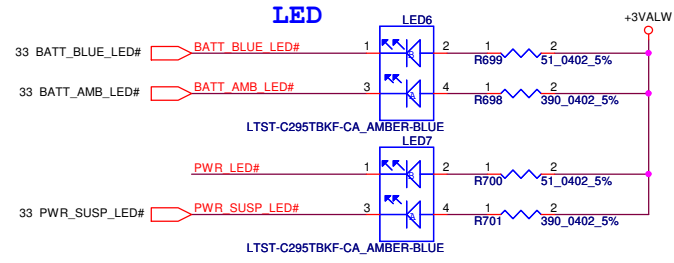
### TP Conn.



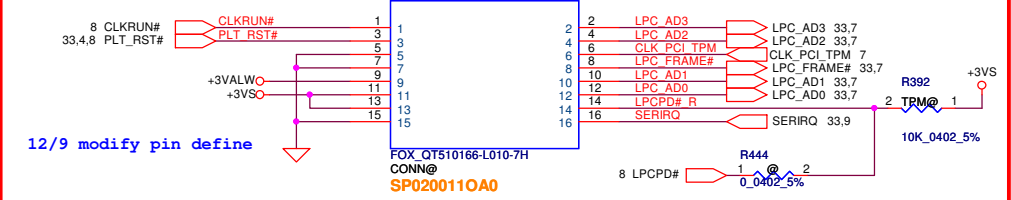
### HDD LED



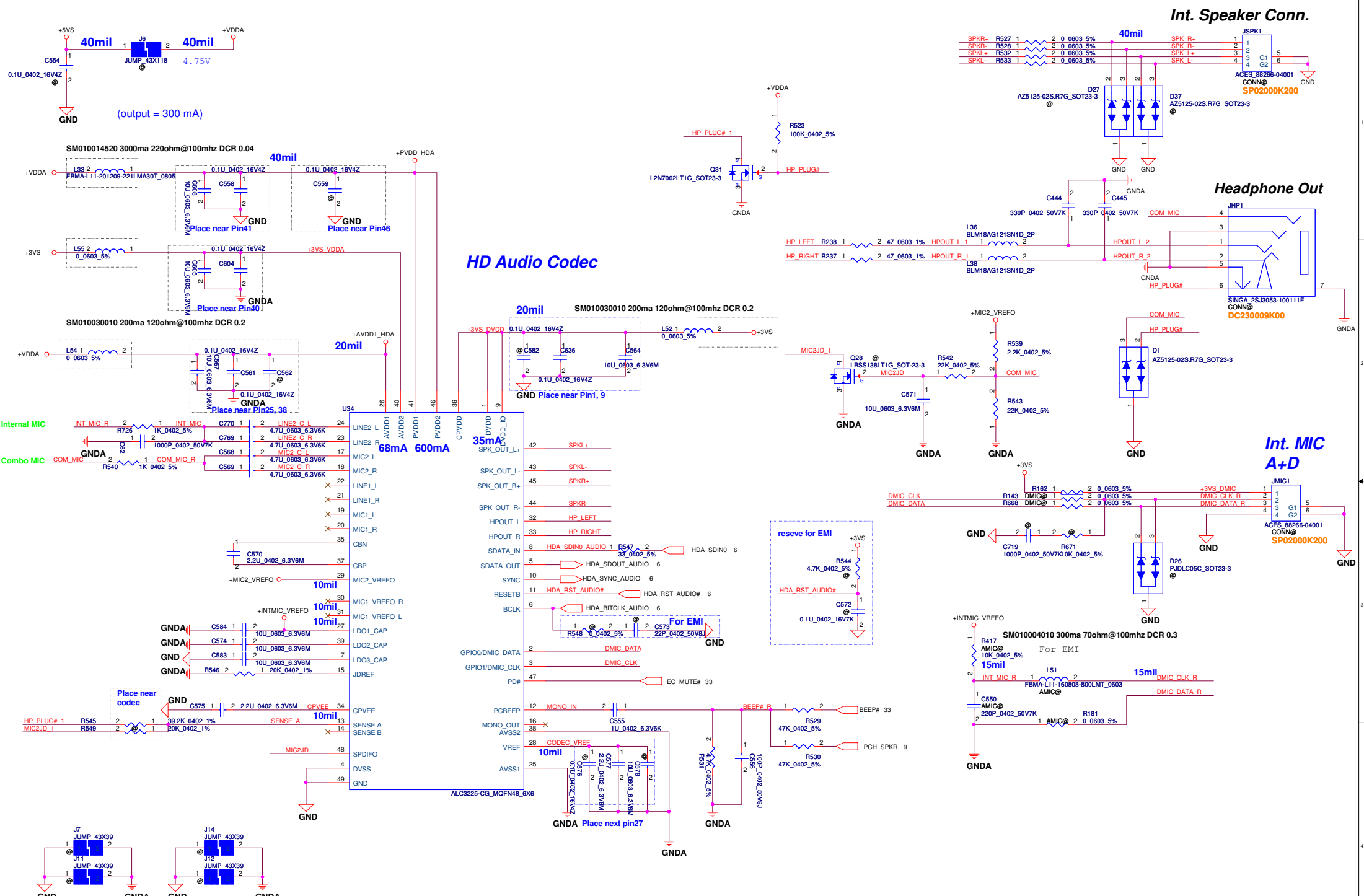
### LED



### TPM Board

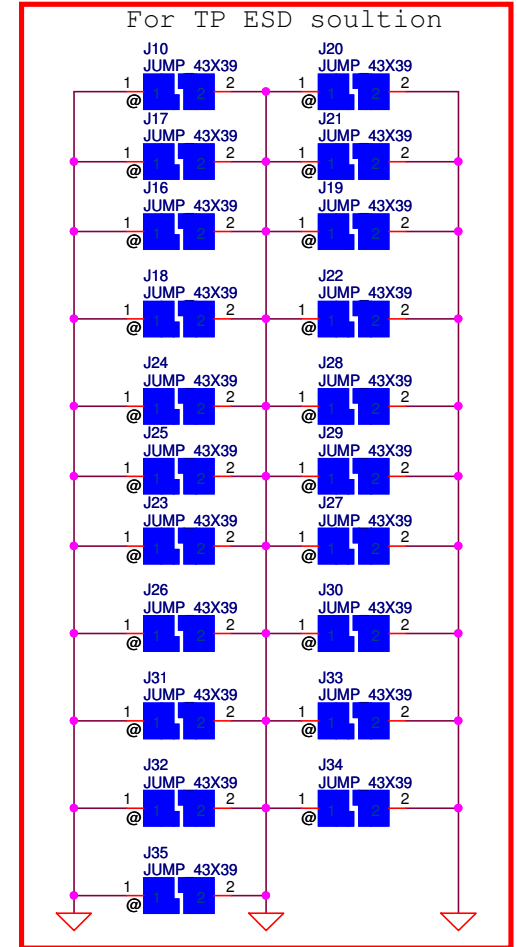
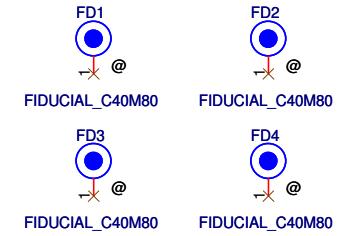
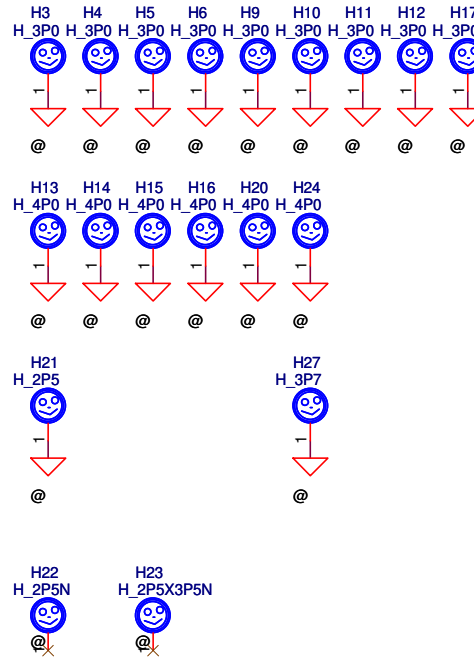
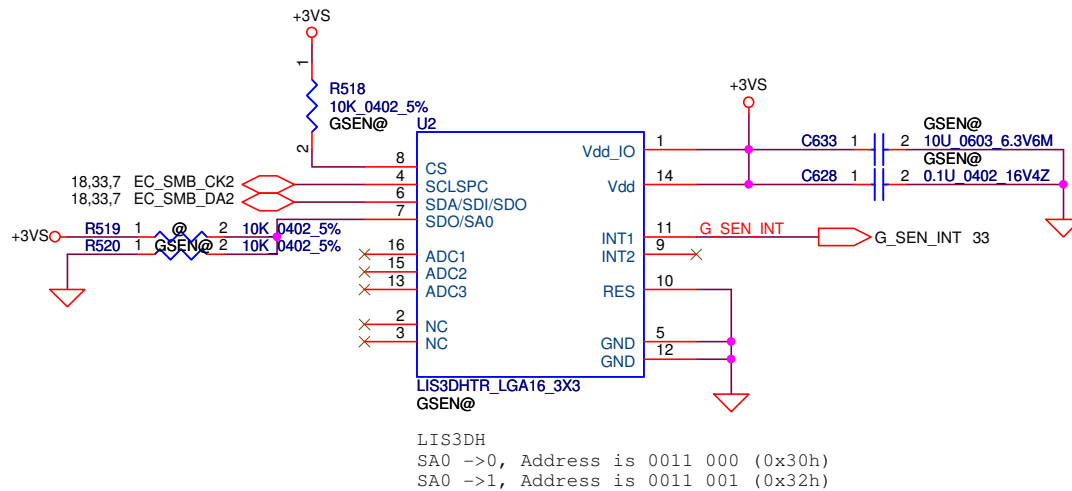
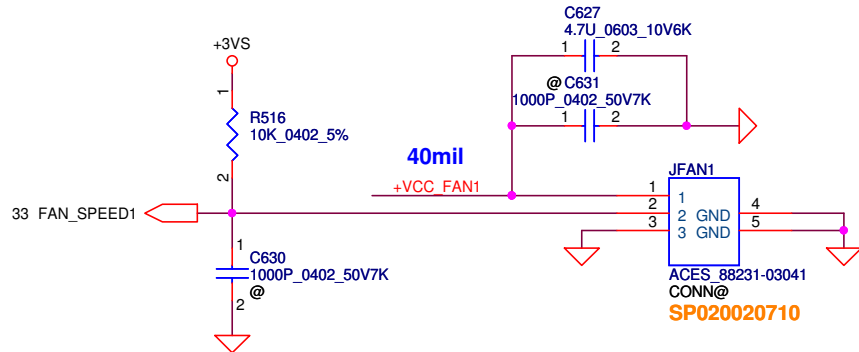
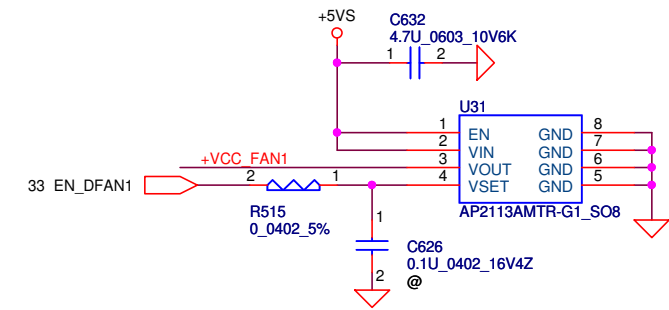


Security Classification	Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2012/07/10	Deciphered Date	2013/07/10	Title
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED 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.				KB & TP & TPM Connector & LED
Size	Document Number	Customer	Rev	
	V5WE2 M/B LA-9531P Schematic		0.1	
Date:	Tuesday, September 25, 2012	Sheet	34	of 50



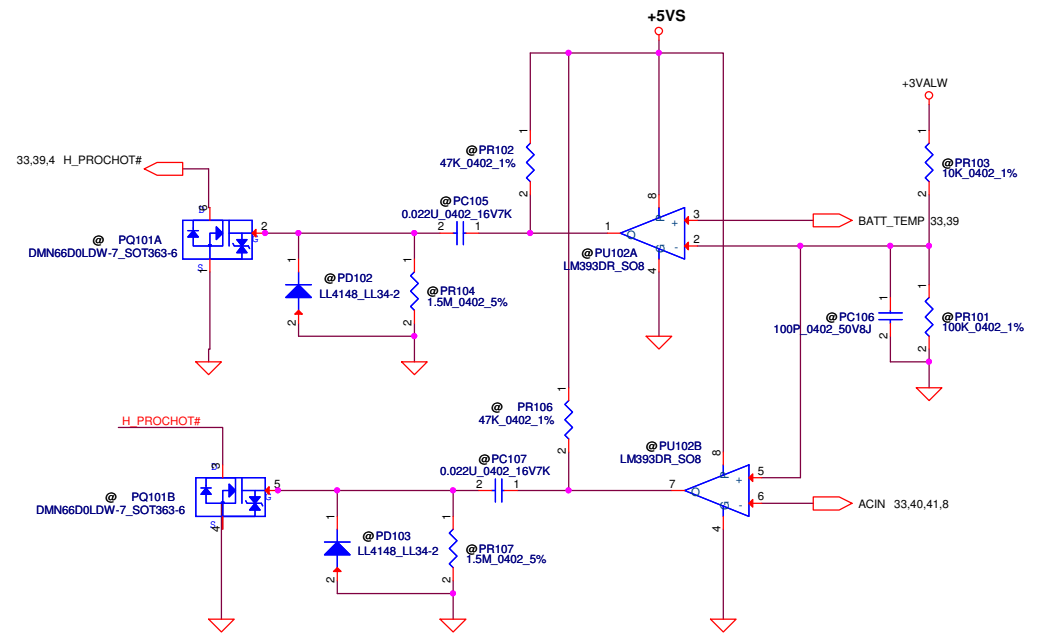
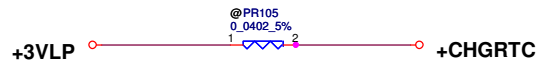
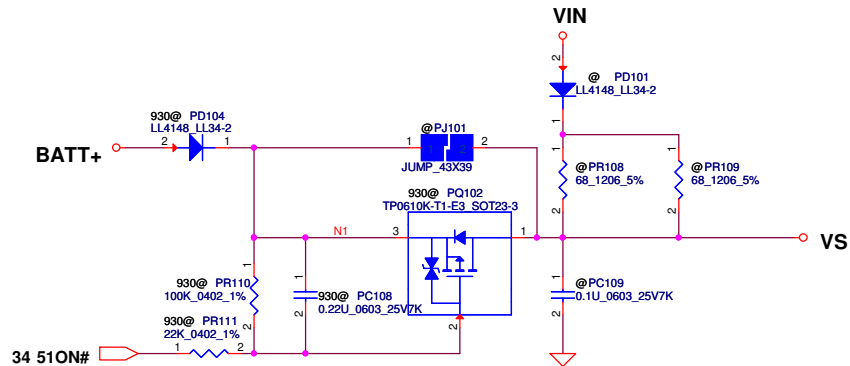
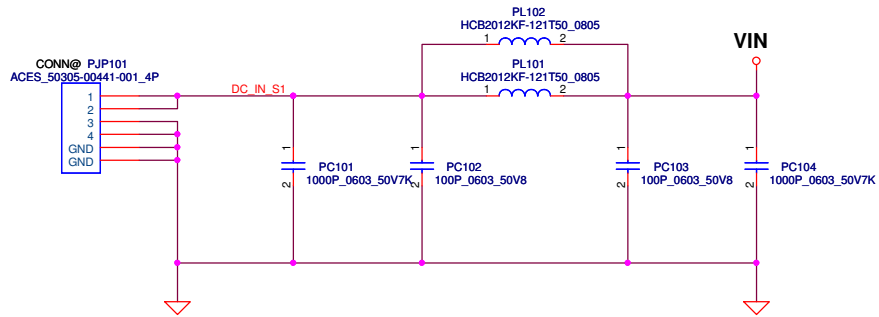
Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2012/07/10	Deciphered Date	2013/07/10	Title	
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED 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.				HD Audio Codec ALC3225	
Size	Document Number	Customer		Rev	
V5WE2	M/B LA-9531P Schematic			0.1	
Date:	Tuesday, September 25, 2012	Sheet	35	of 50	

# FAN1 Conn

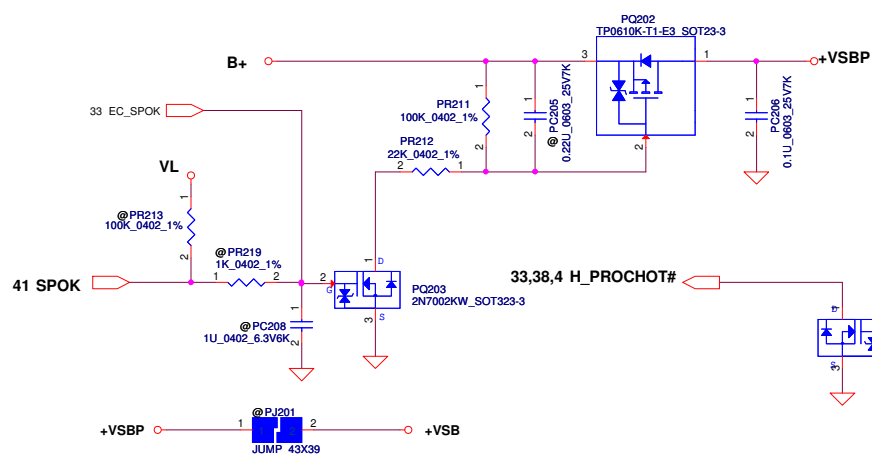
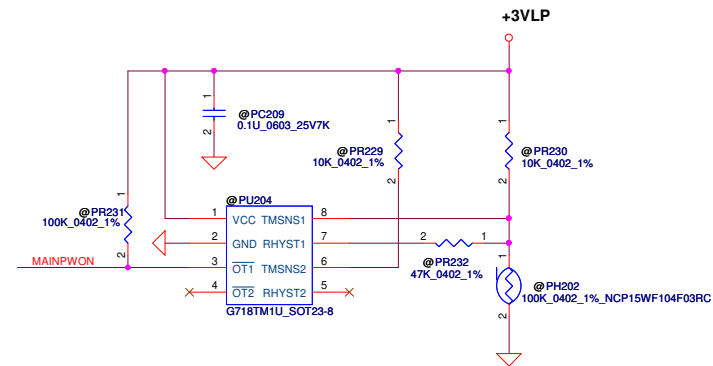
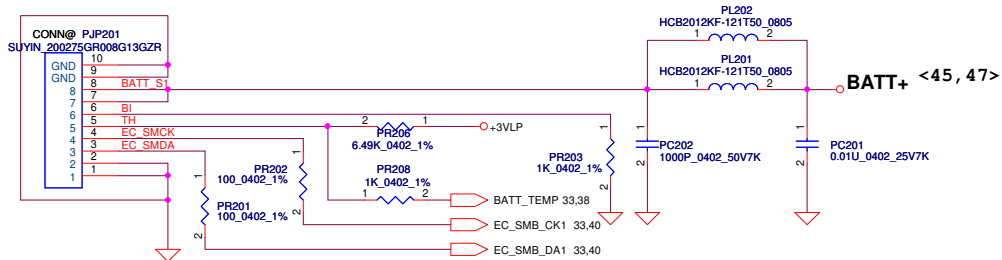


Security Classification	Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2012/07/10	Deciphered Date	2013/07/10	Title
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED 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.				FAN & Screw Hole & G-Sensor Size Document Number Custom V5WE2 M/B LA-9531P Schematic Rev 0.1 Date: Tuesday, September 25, 2012 Sheet 36 of 50

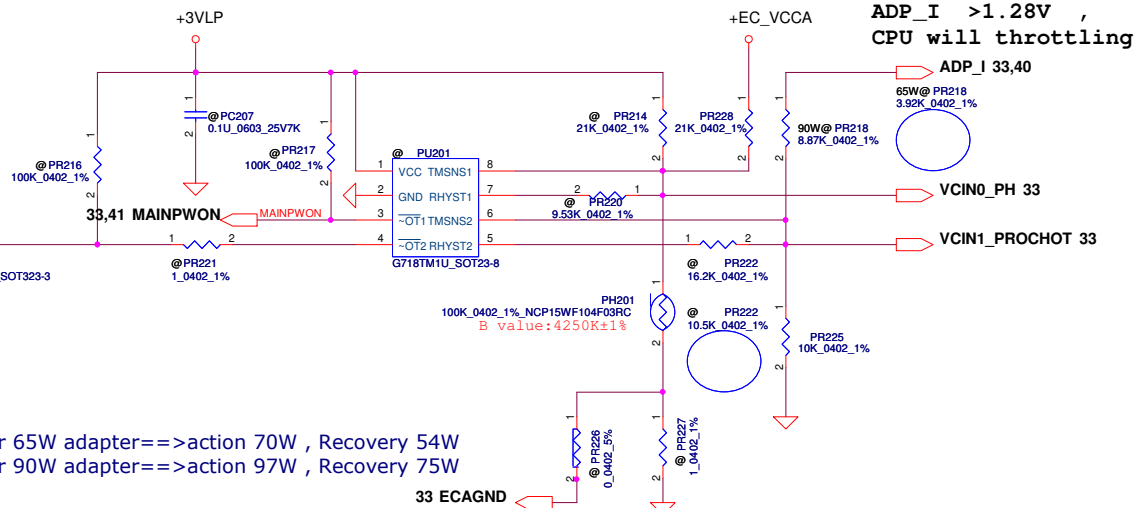




Security Classification	Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2012/07/10	Deciphered Date	2013/07/10	Title
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF THE 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.				DCIN
Document Number			Rev	
V5WE2 M/B LA-9531P Schematic			0.1	
Date:	Tuesday, September 25, 2012	Sheet	38	of 50



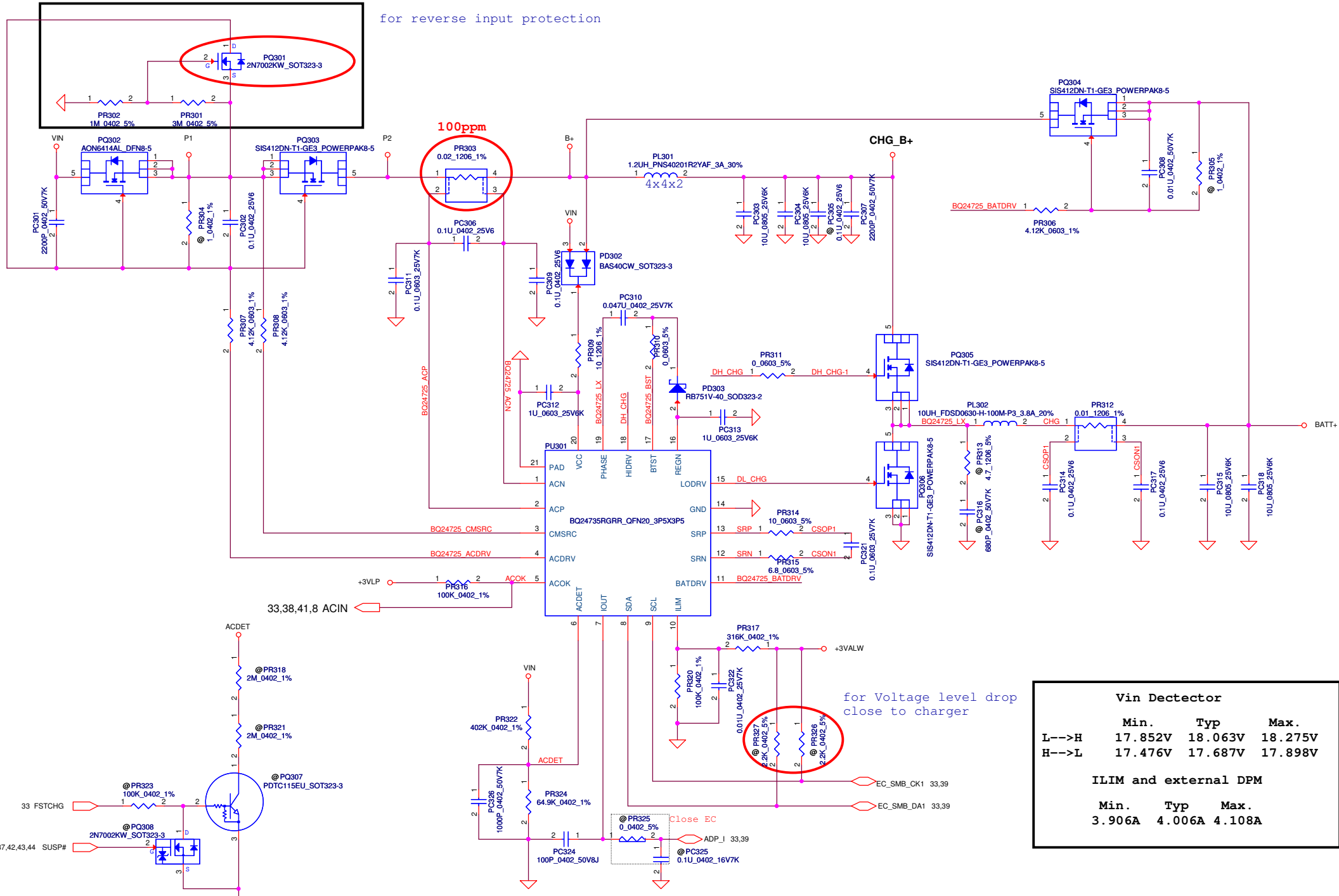
PH201 under CPU bottom side :  
 CPU thermal protection at 90 degree C ( shutdown )  
 Recovery at 56 degree C



For 65W adapter ==> action 70W , Recovery 54W  
 For 90W adapter ==> action 97W , Recovery 75W

Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2012/07/10	Deciphered Date	2013/07/10	Title	
				BATTERY CONN / OTP	
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	Rev
				Custom	0.1
				Date:	Tuesday, September 25, 2012
				Sheet	39 of 50
				Document Number	V5WE2 M/B LA-9531P Schematic

for reverse input protection



Vin Detector			
	Min.	Typ	Max.
L-->H	17.852V	18.063V	18.275V
H-->L	17.476V	17.687V	17.898V

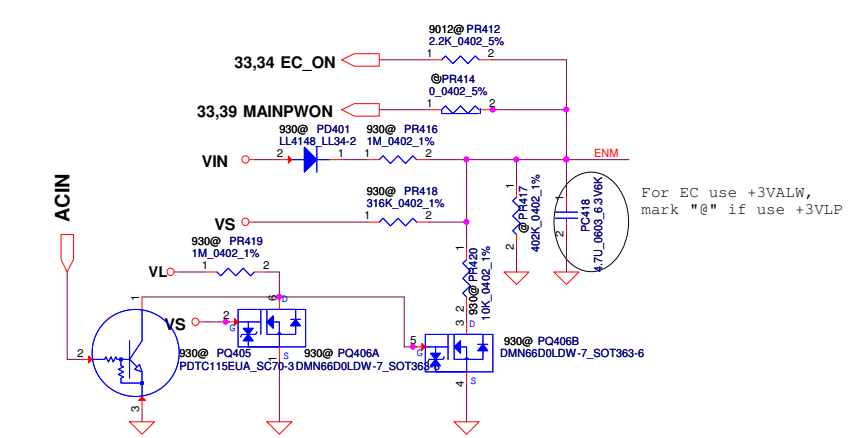
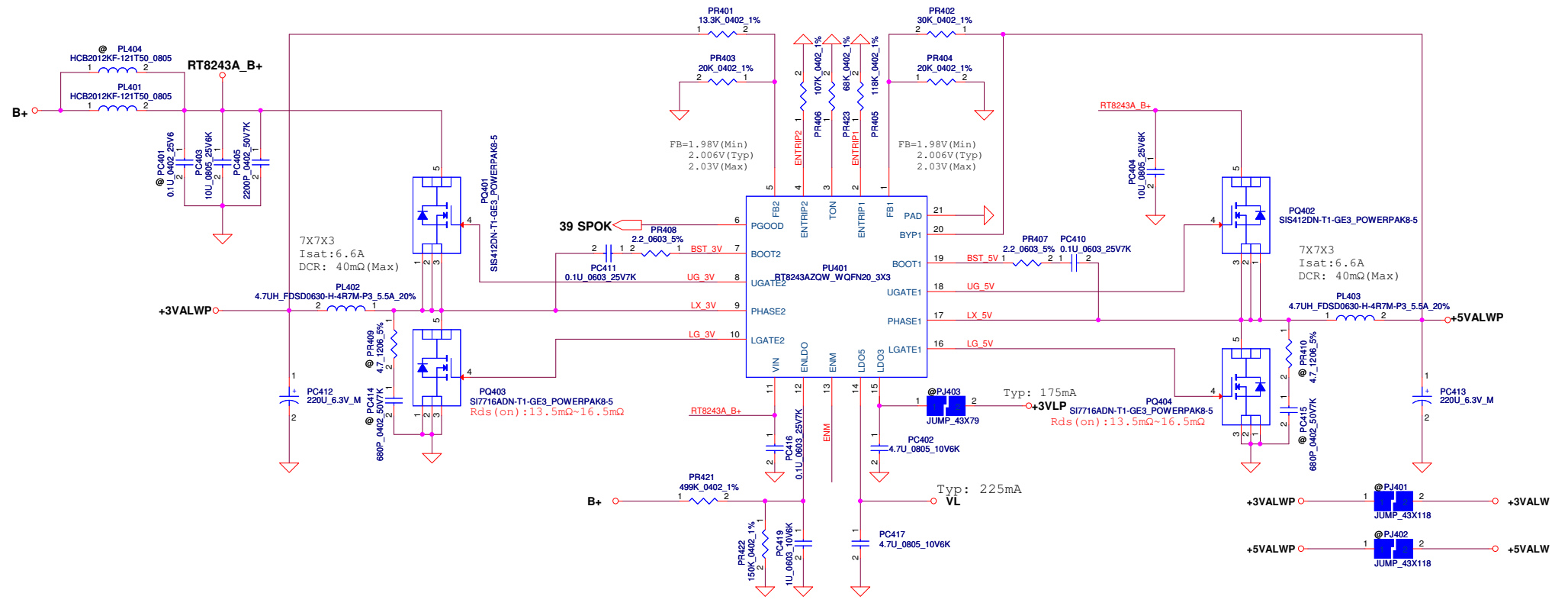
IILIM and external DPM			
	Min.	Typ	Max.
	3.906A	4.006A	4.108A

Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2012/07/10	Deciphered Date	2013/07/10	Title	
				CHARGER	
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	Date	Tuesday, September 25, 2012	Sheet	40 of 50
Custom	V5WE2 M/B LA-9531P Schematic	Rev	0.1		



ENLDO (V)	ENM (V)	ENTRIP1 (V)	ENTRIP2 (V)	LDO5	LDO3	+5VALW	+3VALW
Low	Low	X	X	Off	Off	Off	Off
">1.6V" =>High	Low	X	X	On	On	Off	Off
">1.6V" =>High	">2.3V" =>High	Off	Off	On	On	Off	Off
">1.6V" =>High	">2.3V" =>High	Off	On	On	On	Off	On
">1.6V" =>High	">2.3V" =>High	On	On	On	On	On	On
">1.6V" =>High	">2.3V" =>High	On	Off	On	On	On	Off

ENTRIPx adjustment range: 0.5V~3V,  
floating or over 4.5V will shutdown channel.



**ENLDO threshold ON: 1.2min 1.6typ 2max**  
**OFF: 0.9min 0.95typ 1max**

**5V=321KHz 3V=375KHz (Vin=12 ~ 25v)**  
**(By Rton= 68K ohm)**

+3.3VALWP Ipeak=6.16A ; Imax=4.31A  
Delta I=1.578=>1/2Delta I=0.789A (F=375K Hz)  
Rds(on)=16.5m ohm(max) ; Rds(on)=13.5m ohm(typical)  
Ilimit\_min=(107K\*10uA) / (10\*16.5m\*1.2)=6.6049A  
Ilimit\_max=(107K\*10uA) / (10\*13.5m)=7.0712A  
Iocp=Ilimit+1/2Delta I=7.3939~7.8602A

TDC:4.31A Fsw:375KHz  
H-MOS PD:0.3736W AT:12°C  
L-MOS PD:0.2713W AT:7.9°C  
Choke PD:1.5158W AT:24°C  
OVP margin for Vos:8%

+5VALWP Ipeak=7A ; Imax=4.9A  
Delta I=2.516=>1/2Delta I=1.2583A (F=321K Hz)  
Rds(on)=16.5m ohm(max) ; Rds(on)=13.5m ohm(typical)  
Ilimit\_min=(118K\*10uA) / (10\*16.5m\*1.2)=7.284A  
Ilimit\_max=(118K\*10uA) / (10\*13.5m)=7.7982A  
Iocp=Ilimit+1/2Delta I=8.5423~9.0565 A

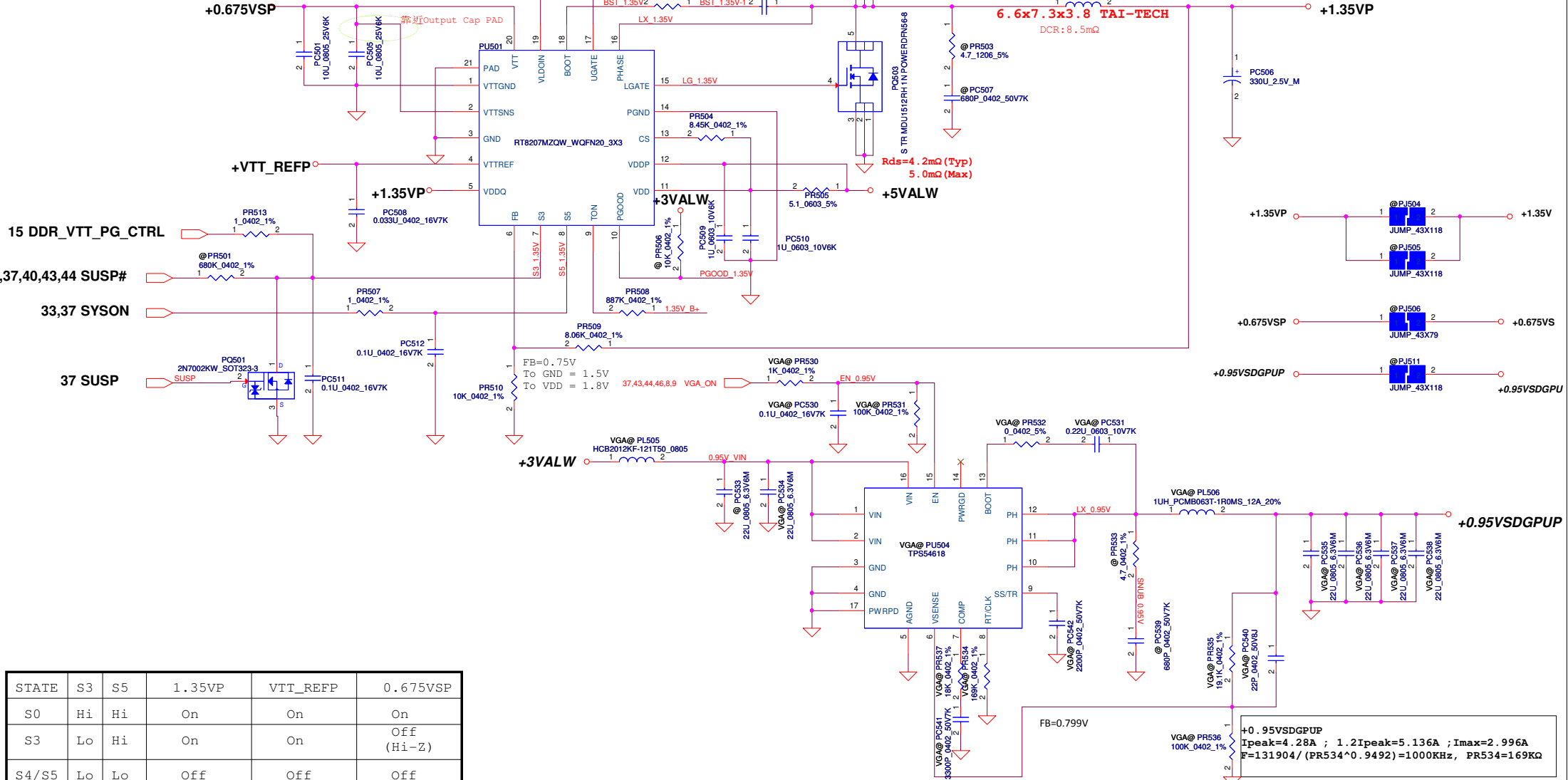
TDC:4.9A Fsw:321KHz  
H-MOS PD:0.4173W AT:13.4°C  
L-MOS PD:0.3442W AT:10°C  
Choke PD:1.9613W AT:30°C  
OVP margin for Vos:9%

```

+1.35VP
Ipeak = max( 0.7*Ibudget, 1st +2nd max loading)
Ipeak = max( 12.34*0.7 , 4.2+8.14 )
Ipeak=12.34A ; 1.2Ipeak=14.808A ; Imax=8.638A
1/2Delta I=0.7353A (F=300K Hz)
PR504=(1.2Ipeak-1/2Delta I) *Rds(on) (max)*1.2/9uA=8.45Kohm
choose PR504=8.45Kohm (for safety >1.2Ipeak)
Rds(on)=5.0m ohm(max) ; Rds(on)=4.2m ohm(typical)
Ilimit_min=(8.366K*9uA)/(5.0m*1.2)=15.058A
Ilimit_max=(8.535K*11uA)/(4.2m*1.2)=22.352A
Iocp=Ilimit+1/2Delta I=15.79A~23.09A
Iocp (min) > 1.2Ipeak
    
```

2012/9/6

OVP=110% 115% 120%



STATE	S3	S5	1.35VP	VTT_REFP	0.675VSP
S0	Hi	Hi	On	On	On
S3	Lo	Hi	On	On	Off (Hi-Z)
S4/S5	Lo	Lo	Off (Discharge)	Off (Discharge)	Off (Discharge)

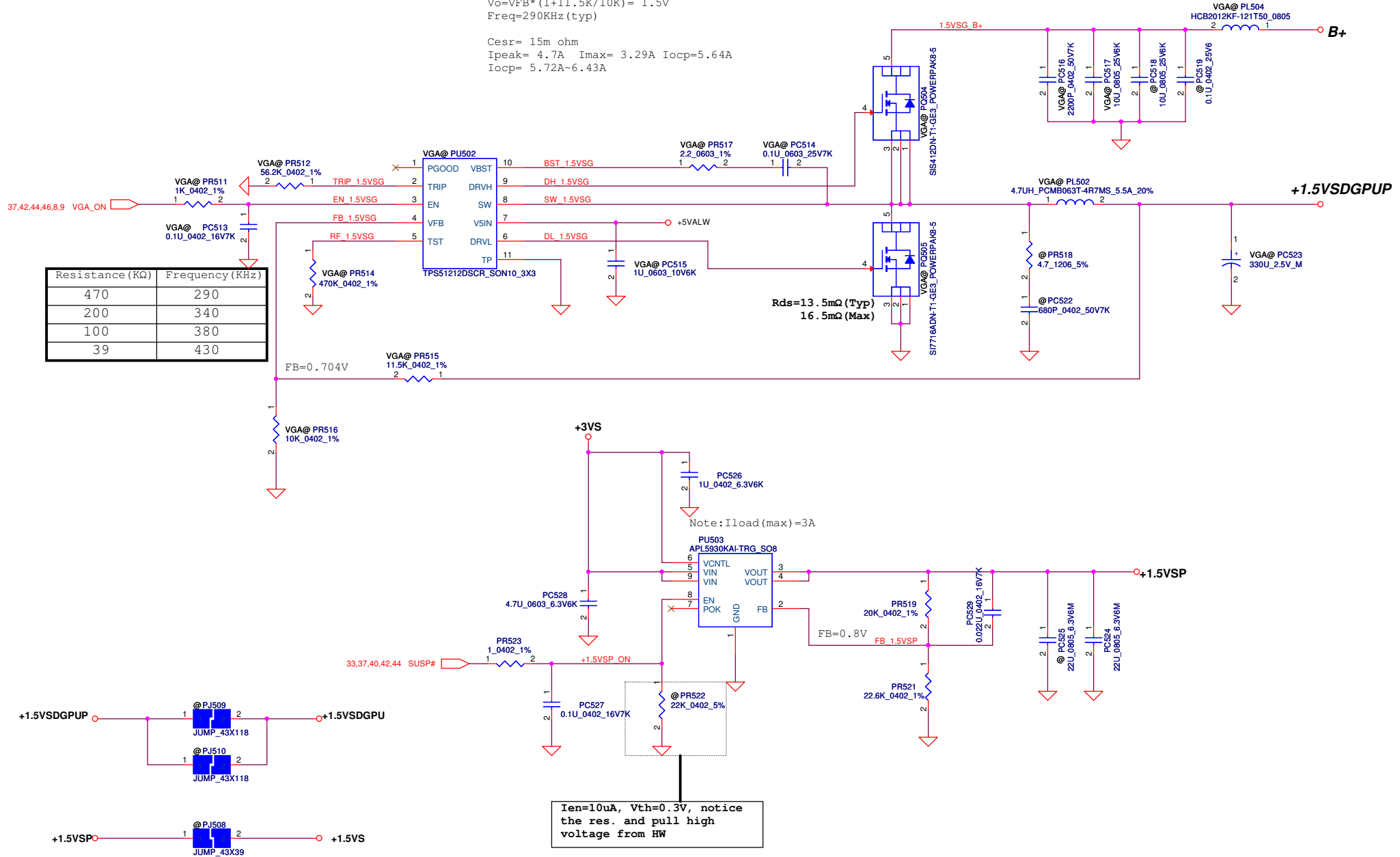
Note: S3 - sleep ; S5 - power off

+0.95VSDGPUP  
 Ipeak=4.28A ; 1.2Ipeak=5.136A ; Imax=2.996A  
 F=131904/(PR534\*0.9492)=1000KHz, PR534=169KΩ

Security Classification		Compal Secret Data		Title	
Issued Date	2012/07/10	Deciphered Date	2013/07/10	1.35VP/0.675VSP/0.95VSDGPUP	
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
Date:	Tuesday, September 25, 2012	Sheet	42	V5WE2 M/B LA-9531P Schematic	
			of	50	

Note: Use VCCSA\_SEI to switch High & Low Level for VTD[1]

VFB= 0.704V  
 $V_o = V_{FB} * (1 + 11.5K/10K) = 1.5V$   
 Freq=290KHz (typ)  
 Cesr= 15m ohm  
 $I_{peak} = 4.7A$   $I_{max} = 3.29A$   $I_{ocp} = 5.64A$   
 $I_{ocp} = 5.72A \sim 6.43A$

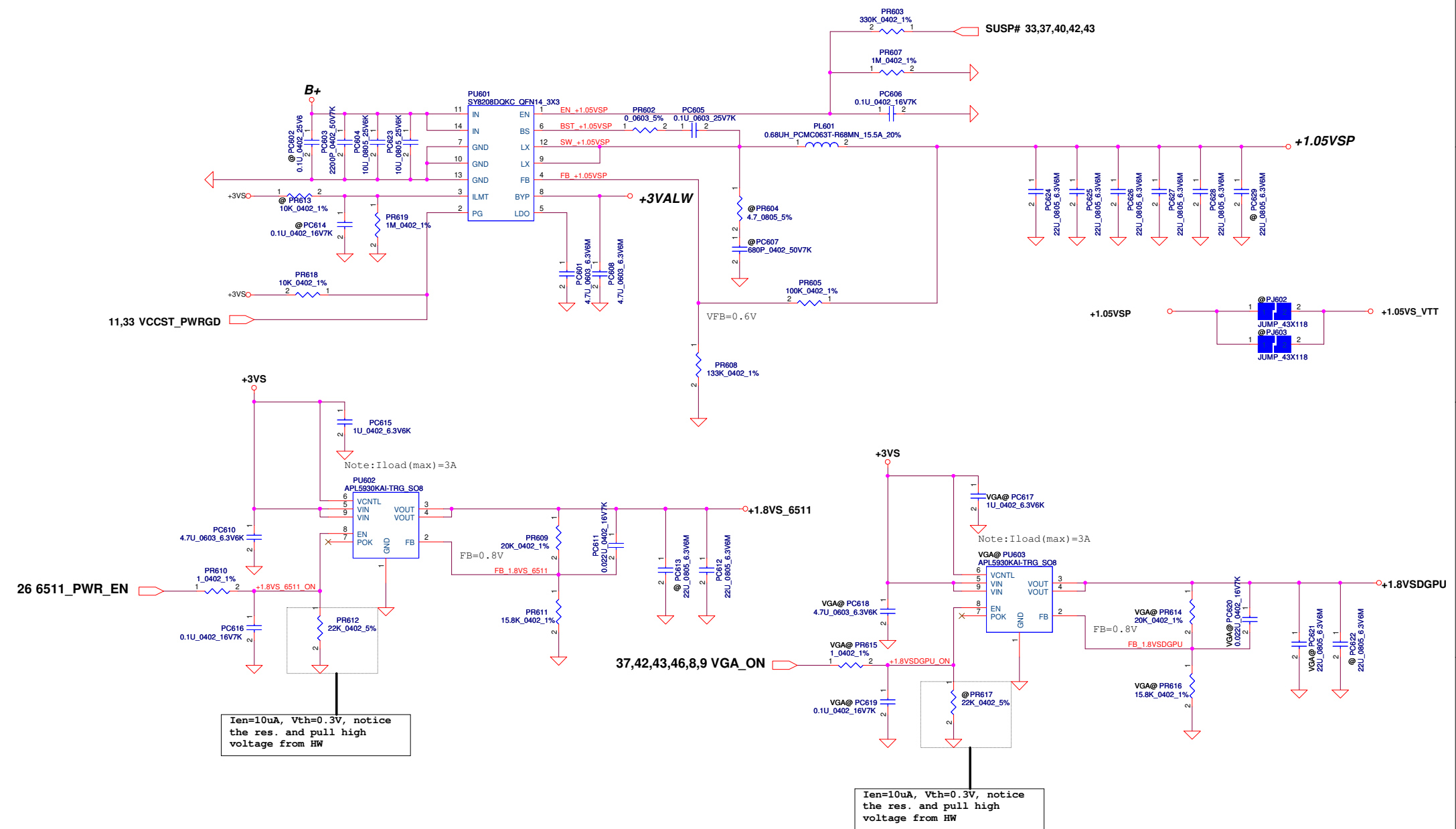


Resistance (KΩ)	Frequency (KHz)
470	290
200	340
100	380
39	430

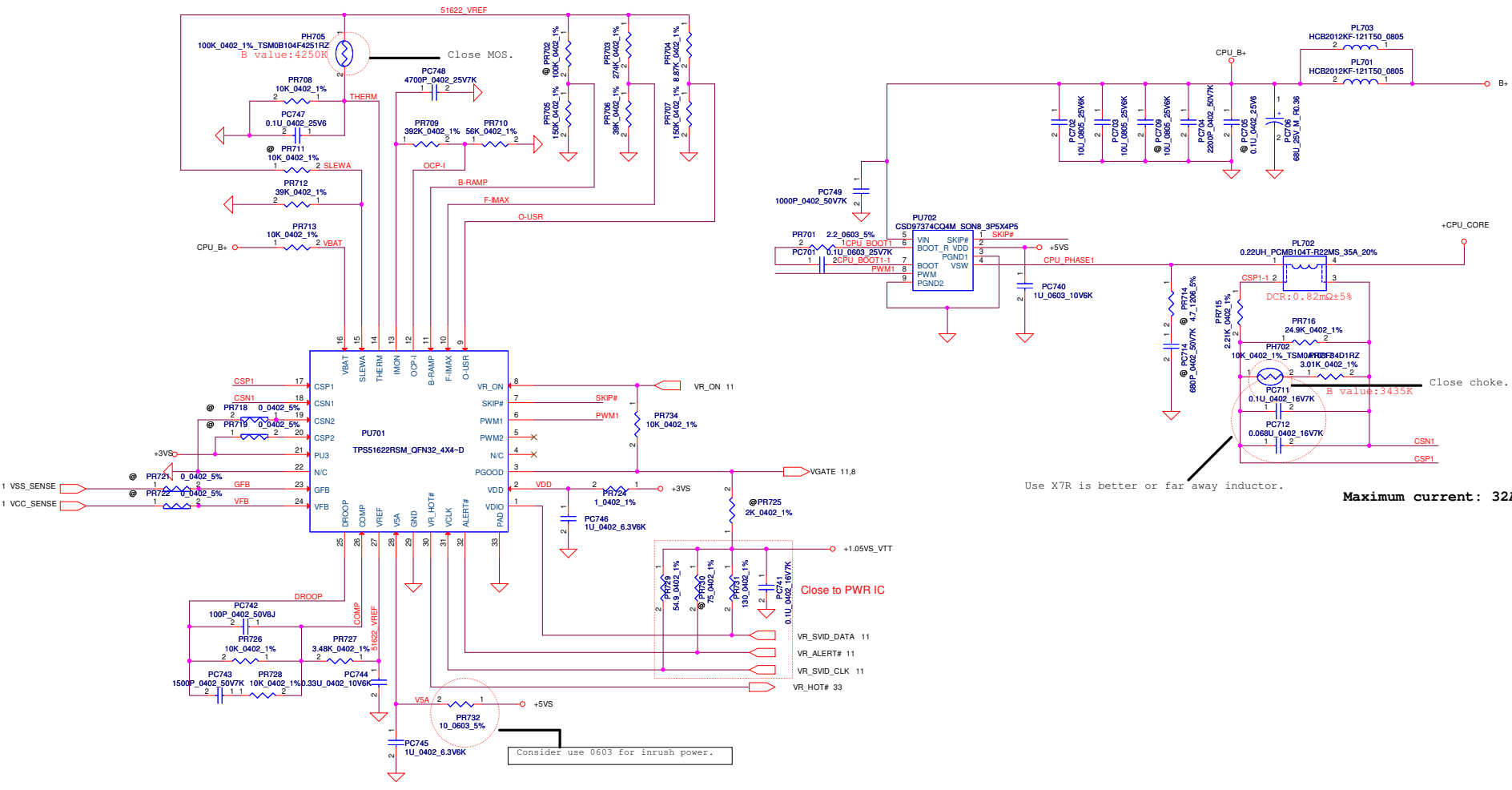
$I_{en} = 10\mu A$ ,  $V_{th} = 0.3V$ , notice the res. and pull high voltage from HW

Security Classification	Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2012/07/10	Deciphered Date	2013/07/10	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.				+1.5VSP/+1.5VSDGPUP Size Custom Document Number <b>V5WE2 M/B LA-9531P Schematic</b> Date: Tuesday, September 25, 2012 Sheet 43 of 50

+1.05VSP Ipeak=5.36A ; I<sub>max</sub>=3.752A ; 1.2I<sub>peak</sub>=6.432  
 Delta I=0.xxxxA>1/2Delta I=0.xxxxA, F= 800K Hz (typ)



Security Classification	Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2012/07/10	Deciphered Date	2013/07/10	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.				+1.05VSP/+1.8VSDGPU/+1.8VS_6511 V5WE2 M/B LA-9531P Schematic Rev 0.1
Date	Tuesday, September 25, 2012	Sheet	44	of 50

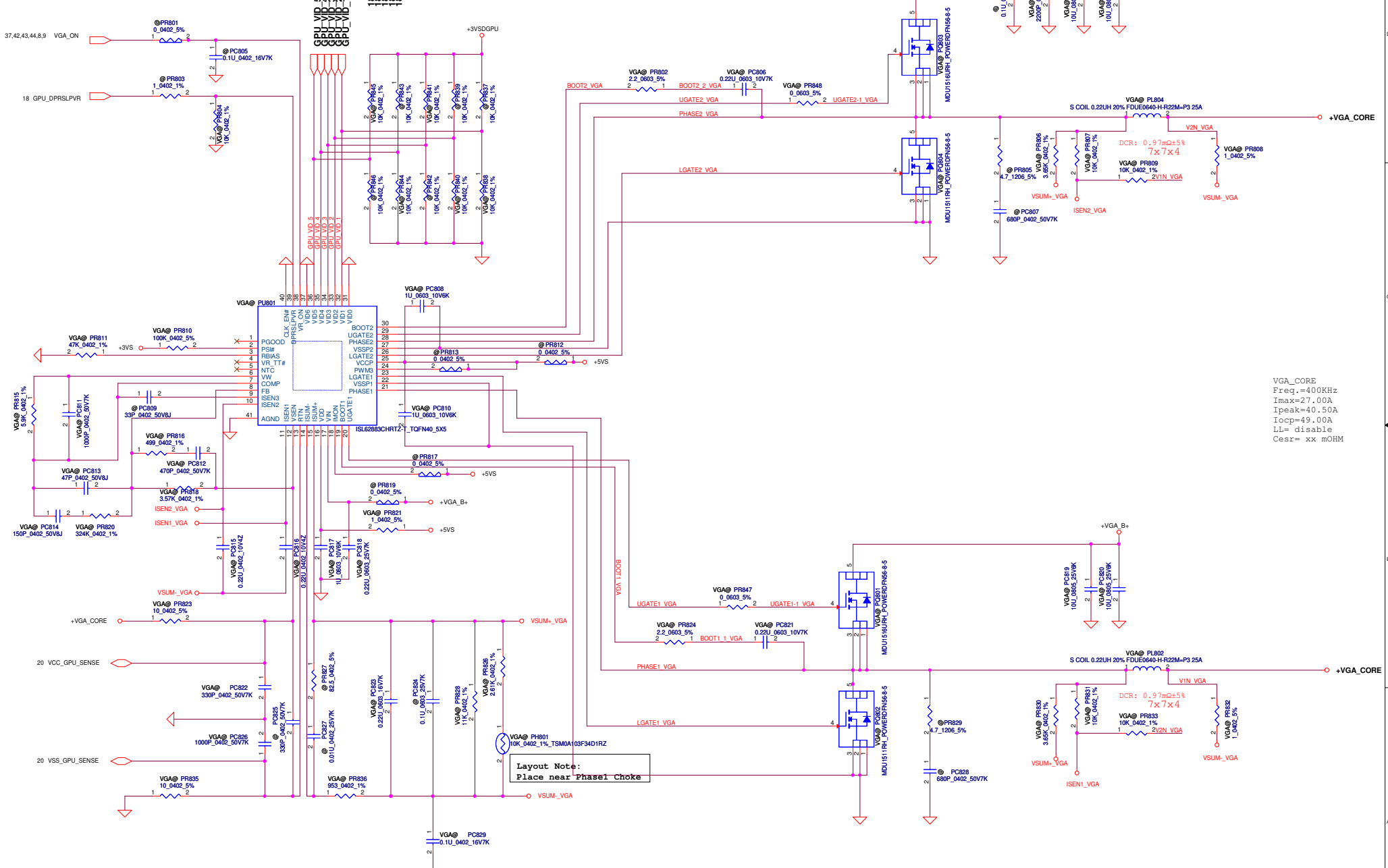


Use X7R is better or far away inductor.

Maximum current: 32A

VIN	12V-20V
MAX current	32A
Thermal current	10A
Dynamic current	27A
Over current level	45A
Switching frequency	600KHz
Boot voltage	1.7V
DC Load- line	2m Ohm

VGA Chipset	Default Voltage	VID6	VID5	VID4	VID3	VID2	VID1	VID0
AMD MARS XT	1.0V	0	1	0	1	0	0	0

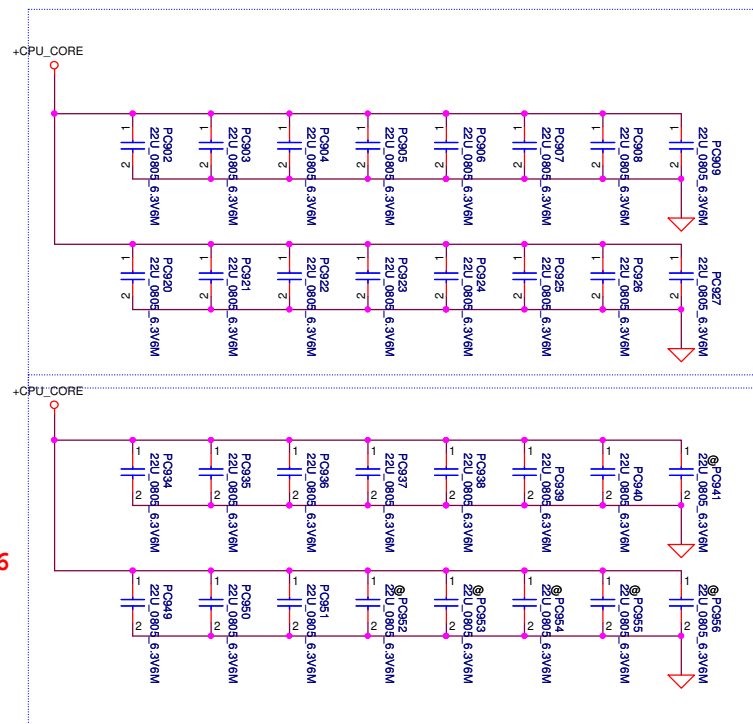


VGA\_CORE  
 Freq.=400KHz  
 I<sub>max</sub>=27.00A  
 I<sub>peak</sub>=40.50A  
 I<sub>ocp</sub>=49.00A  
 LI= disable  
 C<sub>esr</sub>= xx mOHM

Layout Note:  
 Place near Phase1 Choke

Security Classification	Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2012/07/10	Deciphered Date	2013/07/10	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.				Document Number
				V5WE2 M/B LA-9531P Schematic
				Rev 0.1
				Date: Tuesday, September 25, 2012   Sheet 46 of 50

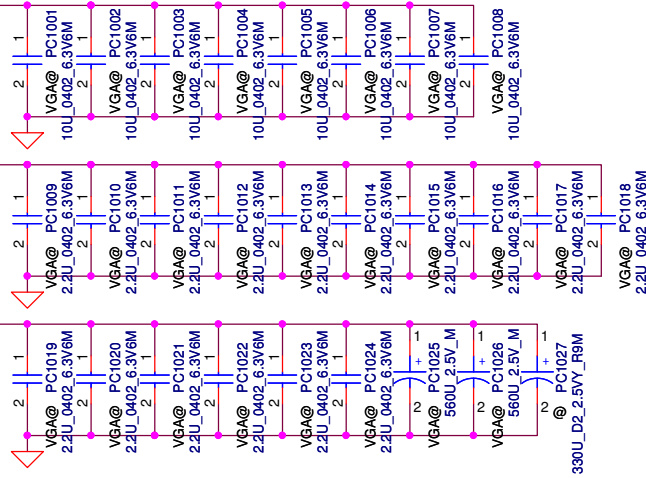
PWR Rule  
 CPU DCLL=1.5m ohm dedign 330uF/9m \*0, 22uF \*30



22u \*26, @\*6

Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2012/07/10	Deciphered Date	2013/07/10	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.				CPU_CORE_CAP	
Size		Document Number		Rev	
Customer		V5WE2 M/B LA-9531P Schematic		0.1	
Date		Tuesday, September 25, 2012		Sheet 47 of 50	

+VGA\_CORE

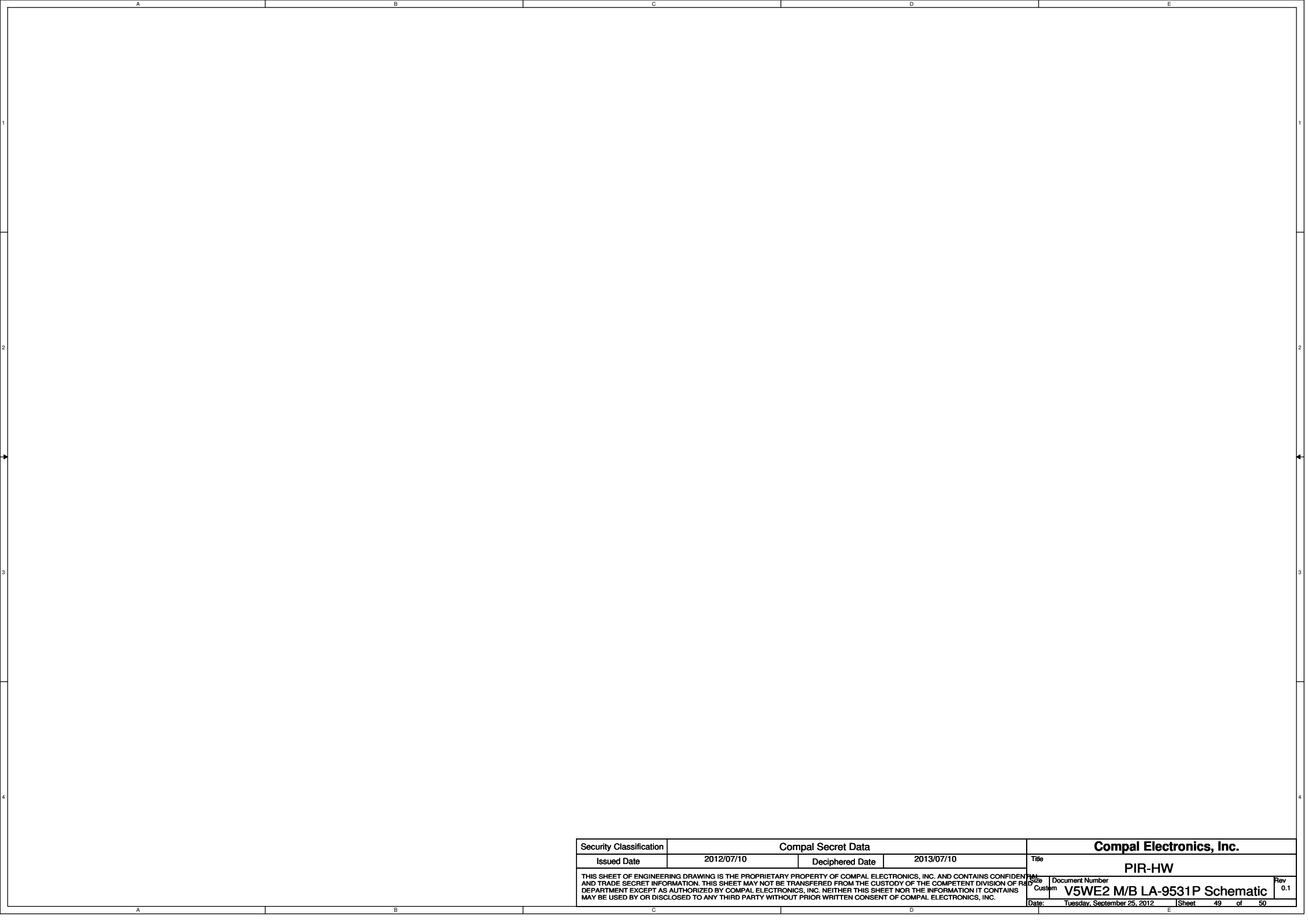


AMD MARS  
 GPU\_CORE  
 560uF\*2+330uF\*2  
 10uF\*8+2.2uF\*16

AMD MARS  
 VDDCI  
 330uF\*1+2.2uF\*1

Security Classification	Compal Secret Data			Compal Electronics, Inc.		
Issued Date	2012/07/10	Deciphered Date	2013/07/10	Title VGA_CORE CAP		
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 V5WE2 M/B LA-9531P Schematic	Rev 0.1
Date:	Tuesday, September 25, 2012	Sheet	48	of	50	





Security Classification	Compal Secret Data			Compal Electronics, Inc.		
Issued Date	2012/07/10	Deciphered Date	2013/07/10	Title	PIR-HW	
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 RADIO FREQUENCY 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	V5WE2 M/B LA-9531P Schematic	
				Date:	Tuesday, September 25, 2012	Sheet
				Rev	0.1	

Version change list (P.I.R. List)

Item	Fixed Issue	Reason for change	Rev.	PG#	Modify List	Date	Phase
1	VGA boot voltage	Vboot Voltage can not allow to boot to 1.1V		VGA	take off the PR212	11/22	EVT2
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							

Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2012/07/10	Deciphered Date	2013/07/10	Title	PIR (PWR)
<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 FIRST CUSTOMER 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.</small>				Document Number	V5WE2 M/B LA-9531P Schematic
				Date	Tuesday, September 25, 2012
				Rev	0.1
				Sheet	50 of 50

[www.s-manuals.com](http://www.s-manuals.com)