

Compal Confidential

Z5WAE Schematics Document

AMD "Beema" Platform

AMD 25W APU With Puma+ Core and 25W DGPU with Jet

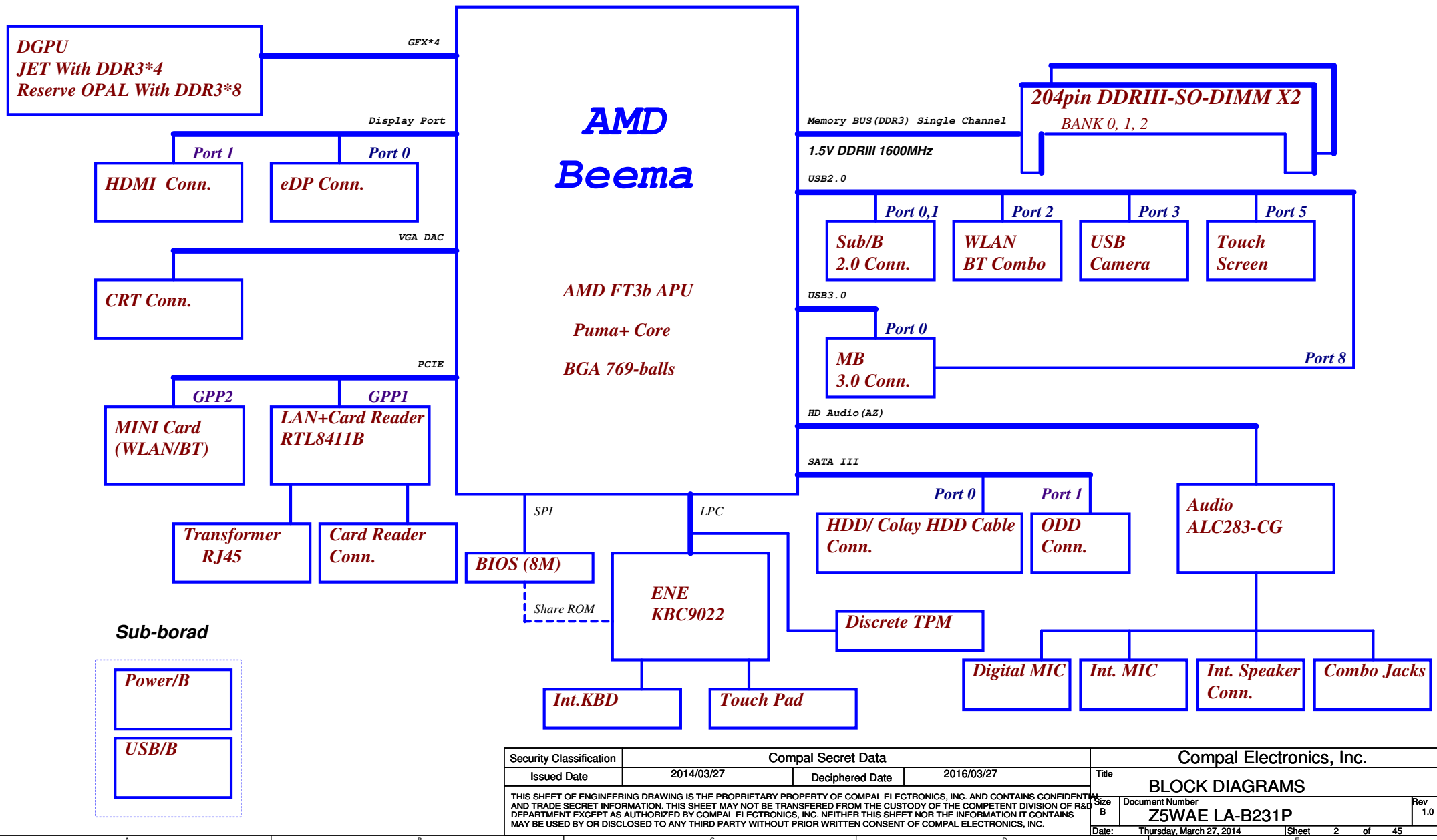
LA-B231P REV: 1.0

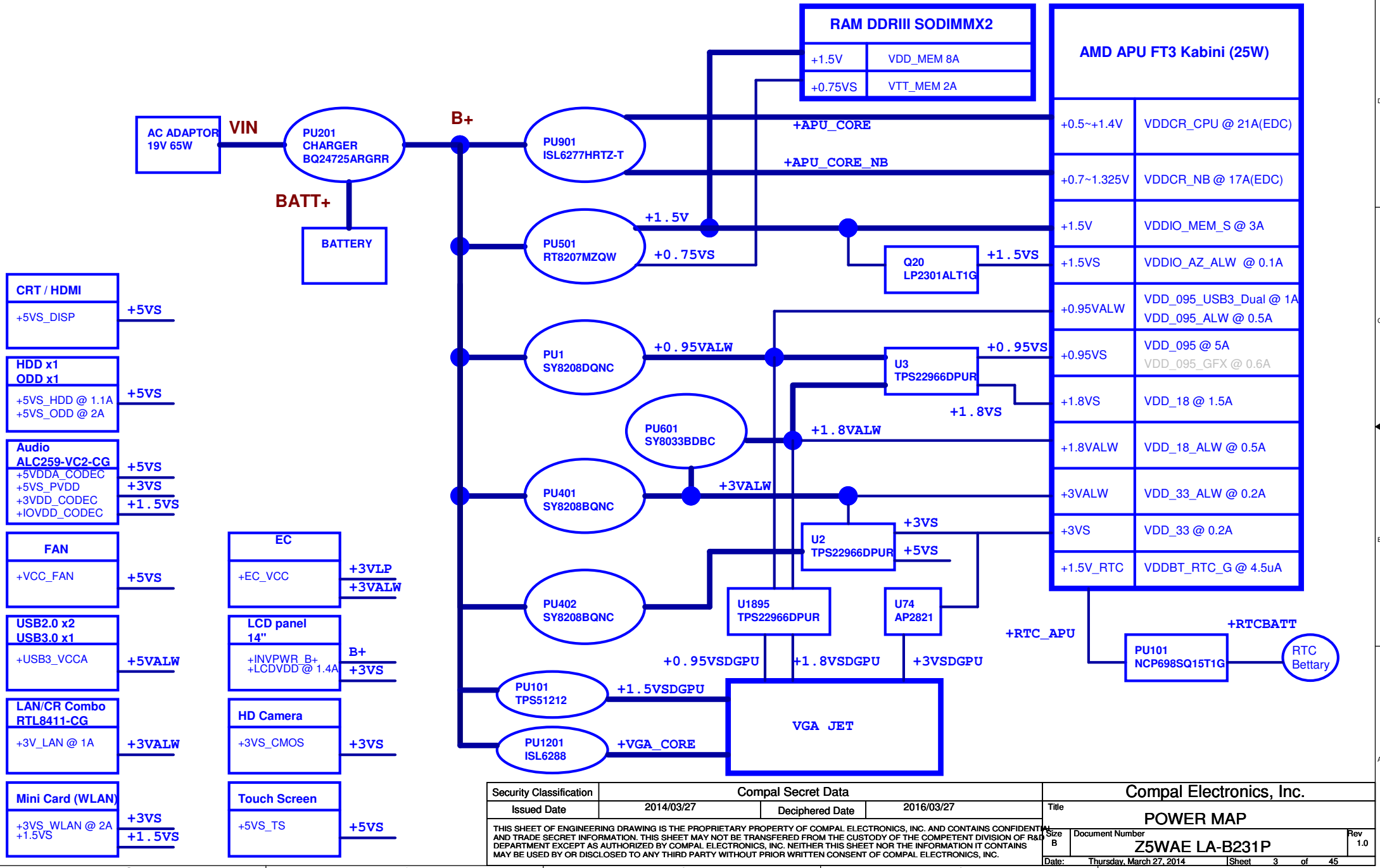
2014-03-27

Security Classification	Compal Secret Data			Compal Electronics, Inc.		
Issued Date	2014/03/27	Deciphered Date	2016/03/27	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 FIRST 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	Z5WAE LA-B231P	Rev 1.0
				Date	Thursday, March 27, 2014	Sheet 1 of 45

Compal Confidential

Model Name : Z5WAE

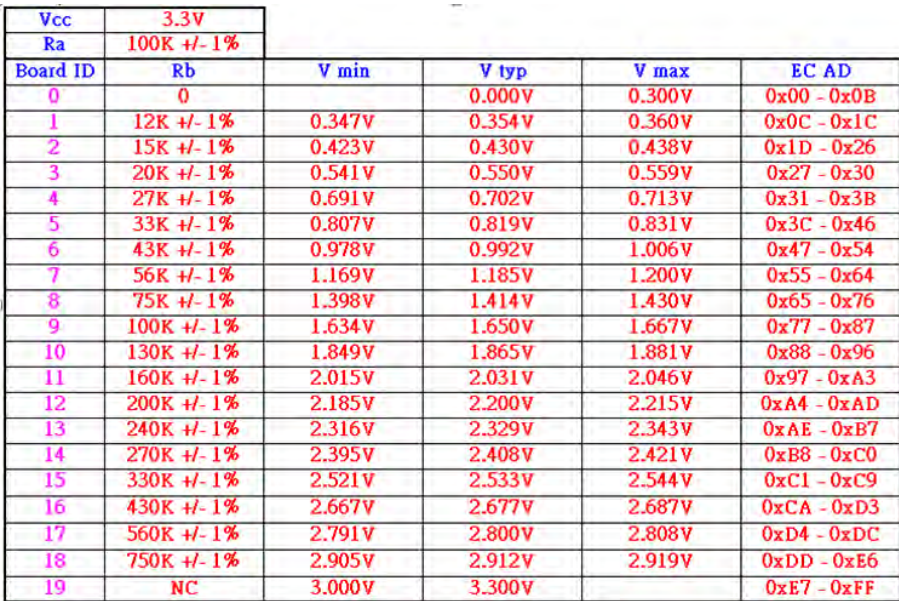




Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2014/03/27	Deciphered Date	2016/03/27	Title	
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED 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 B	Document Number
				Z5WAE LA-B231P	
				Date: Thursday, March 27, 2014	Sheet 3 of 45
				Rev 1.0	

Power Plane	Description	S0	S3	S5
VIN	Adapter power supply (19V)	ON	ON	ON
B+	AC or battery power rail for power circuit.	ON	ON	ON
+APU_CORE	Core voltage for APU	ON	OFF	OFF
+APU_CORE_NB	Voltage for On-die VGA of APU	ON	OFF	OFF
+0.95VALW	0.95V always on power rail	ON	ON	ON
+0.95VS	0.95V switched power rail	ON	OFF	OFF
+1.8VALW	1.8V always on power rail	ON	ON	ON
+1.8VS	1.8V switched power rail	ON	OFF	OFF
+1.5V	1.5V power rail for APU and DDR	ON	ON	OFF
+1.5VS	1.5V switched power rail	ON	OFF	OFF
+0.75VS	0.75V switched power rail for DDR terminator	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
+RTC_APU	RTC power	ON	OFF	OFF
+3VSDGPU	VGA power	ON	OFF	OFF
+1.8VSDGPU	VGA power	ON	OFF	OFF
+1.5VSDGPU	VGA power	ON	OFF	OFF
+0.95VSDGPU	VGA power	ON	OFF	OFF
+VGA_CORE	VGA power	ON	OFF	OFF

EC SMBus Port1 (+3VALW)			EC SMBus Port2 (+3VS)		
Device	Address	HEX	Device	Address	HEX
Smart Battery	0001 011X b	16H	SB-TSI (APU)	1001 100X b	98H
			VGA Temp.		41H



BOM Structure	BTO Item
@	Unpop
CONN@	Connector part control by ME
EMI@	EMI pop component
@EMI@	EMI unpop component
ESD@	ESD pop component
@ESD@	ESD unpop component
AL@	Auto Load EC ROM
RS@	R-short
JP@	Jump
TP@	Test point
SP@	Short pad for clear CMOS
1DMIC@	Use 1 DMIC
2DMIC@	Use 2 DMIC
45@	HDMI royalty
9012@	Use KBC9012
9022@	Use KBC9022
A6@	Use A6 APU
E1@	Use E1 APU
BL@	Keyboard backlight
TPM@	Use discrete TPM module
TPUSB@	Use USB to I2C IC for T/P
TPSM@	Use APU SMBus for T/P
VGA@	Have discrete graphic
MARS@	Use Opal
JET@	Use Jet
128@	Dual channel VRAM,pop with MARS@
X76@	VRAM type select,control by X76XX@
X76XX@	VRAM type select, control level X76

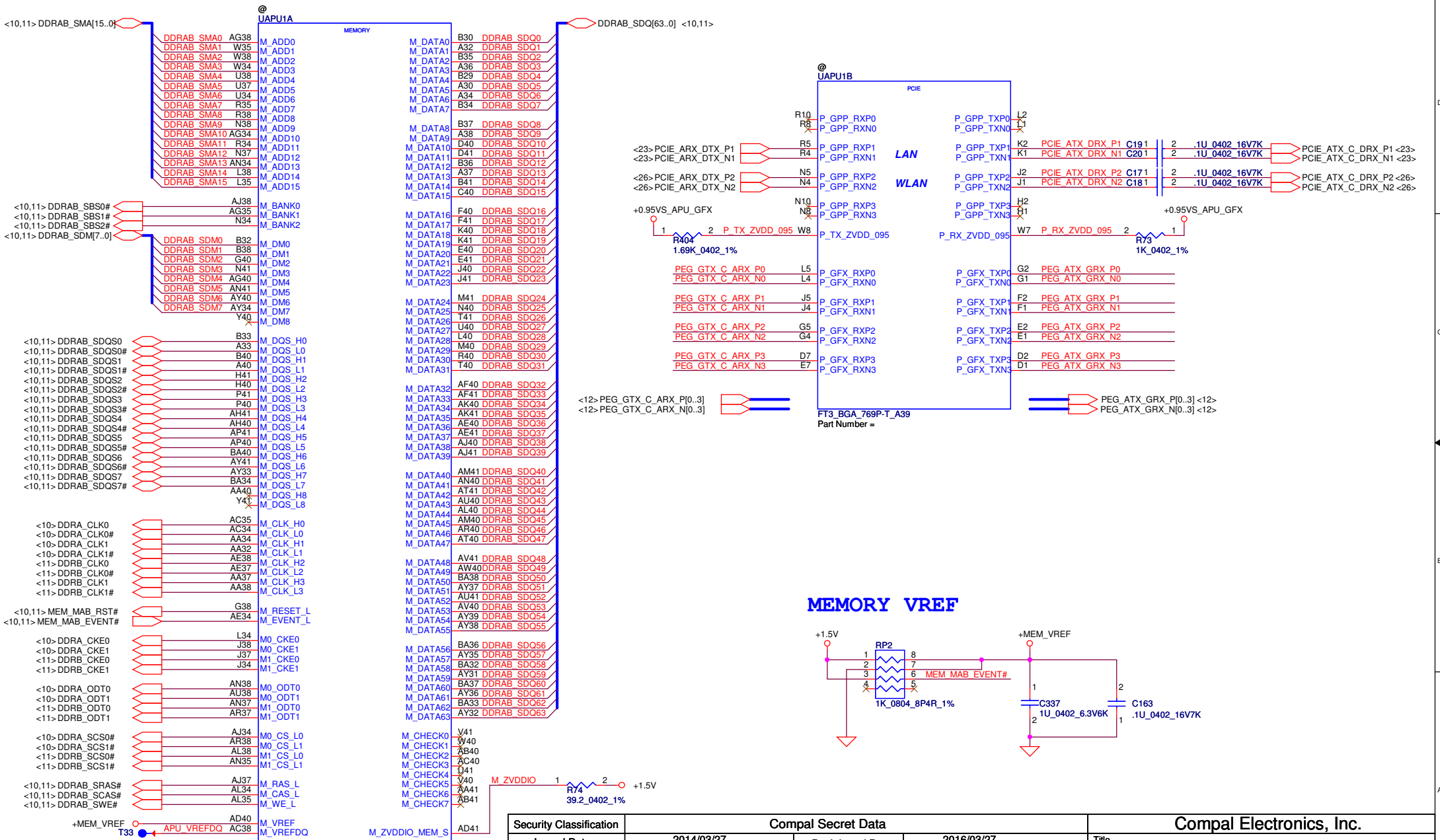
Board ID	PCB Revision
0	EVT
1	DVT
2	PVT
3	
4	
5	
6	
7	

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

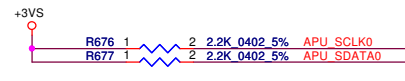
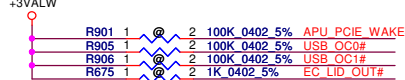
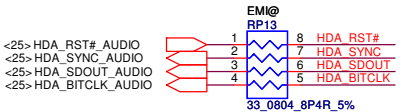
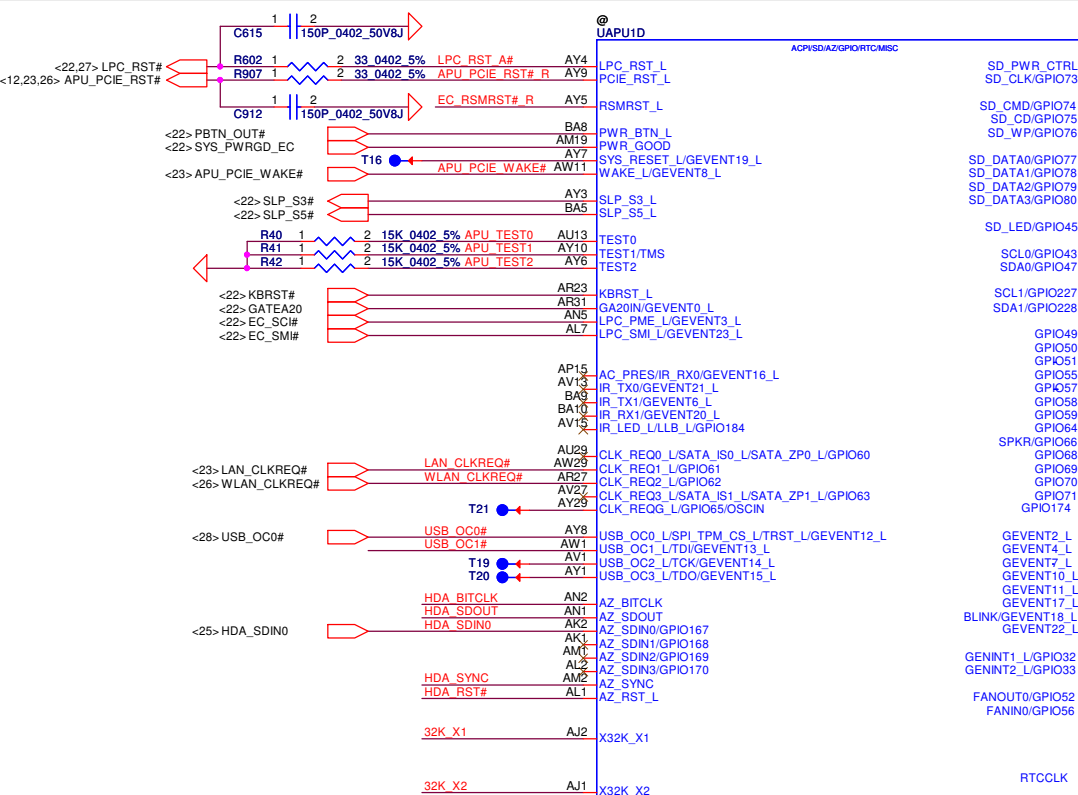
The diagram shows the timing of several signals relative to a common time axis. The signals are:

- G-A**: +RTC (low), EC_ON (low to high transition).
- G-B**: +3VALW/+5VALW (low to high transition), +1.8VALW (low to high transition), +0.95VALW (low to high transition), **SYSON** (low to high transition).
- G-C**: +1.5V (low to high transition), **SUSP#** (low to high transition).
- G-D**: +3VS (low to high transition), +1.8VS (low to high transition), +1.5VS (low to high transition), +0.95VS (low to high transition), **VR_ON** (low to high transition).
- G-E**: +APU_CORE (low to high transition), +APU_CORE_NB (low to high transition).

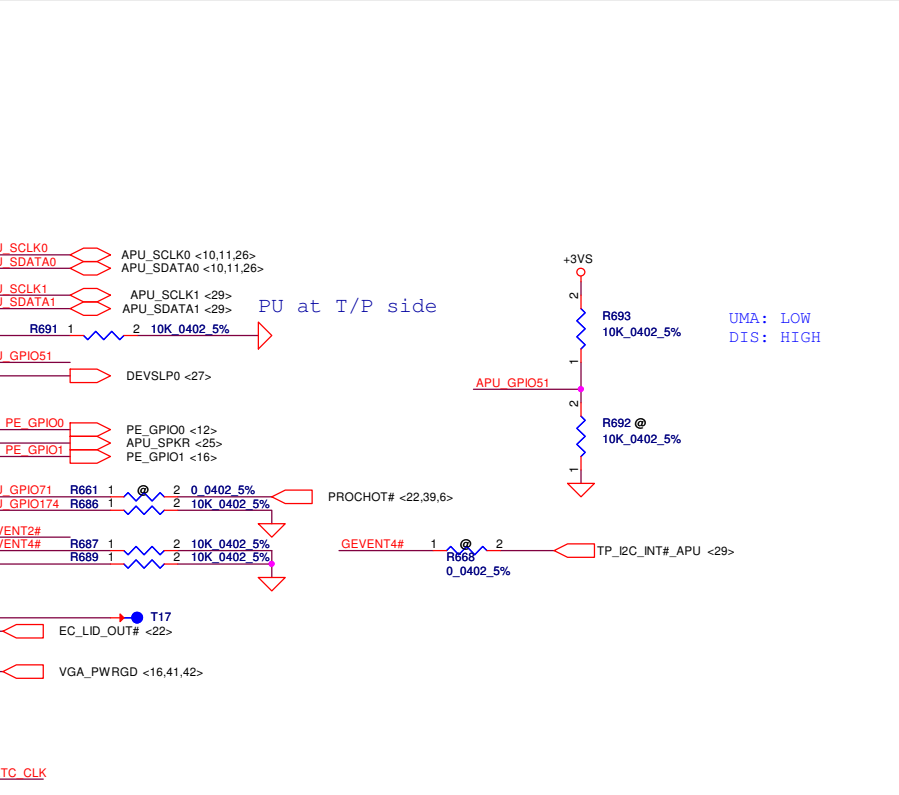
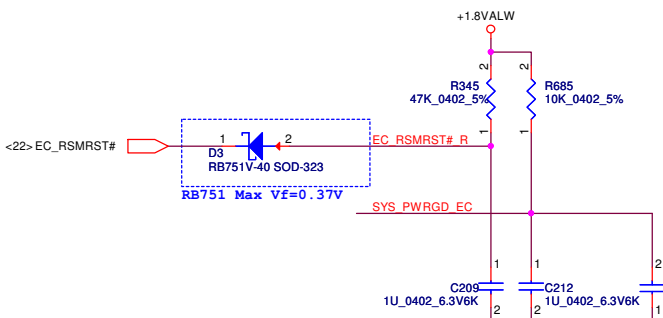
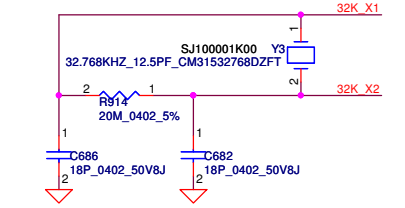
Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2014/03/27	Deciphered Date	2016/03/27	Title	NOTES LIST
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF FIRST COMPAL ELECTRONICS, INC. TO ANY OTHER 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.				Document Number	Rev
				Z5WAE LA-B231P	1.0
Date				Thursday, March 27, 2014	Sheet 4 of 45



Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2014/03/27	Deciphered Date	2016/03/27	Title	P05-FT3 MEMORY INTERFACE/PCIE
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 B	Document Number Z5WAE LA-B231P
				Date: Thursday, March 27, 2014	Sheet 5 of 45

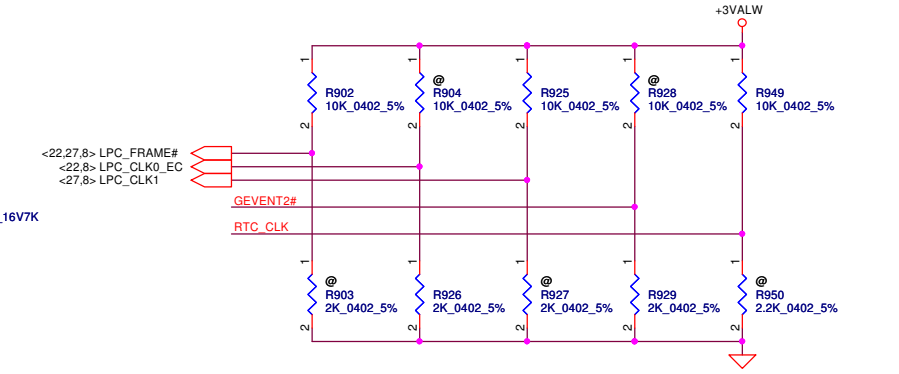


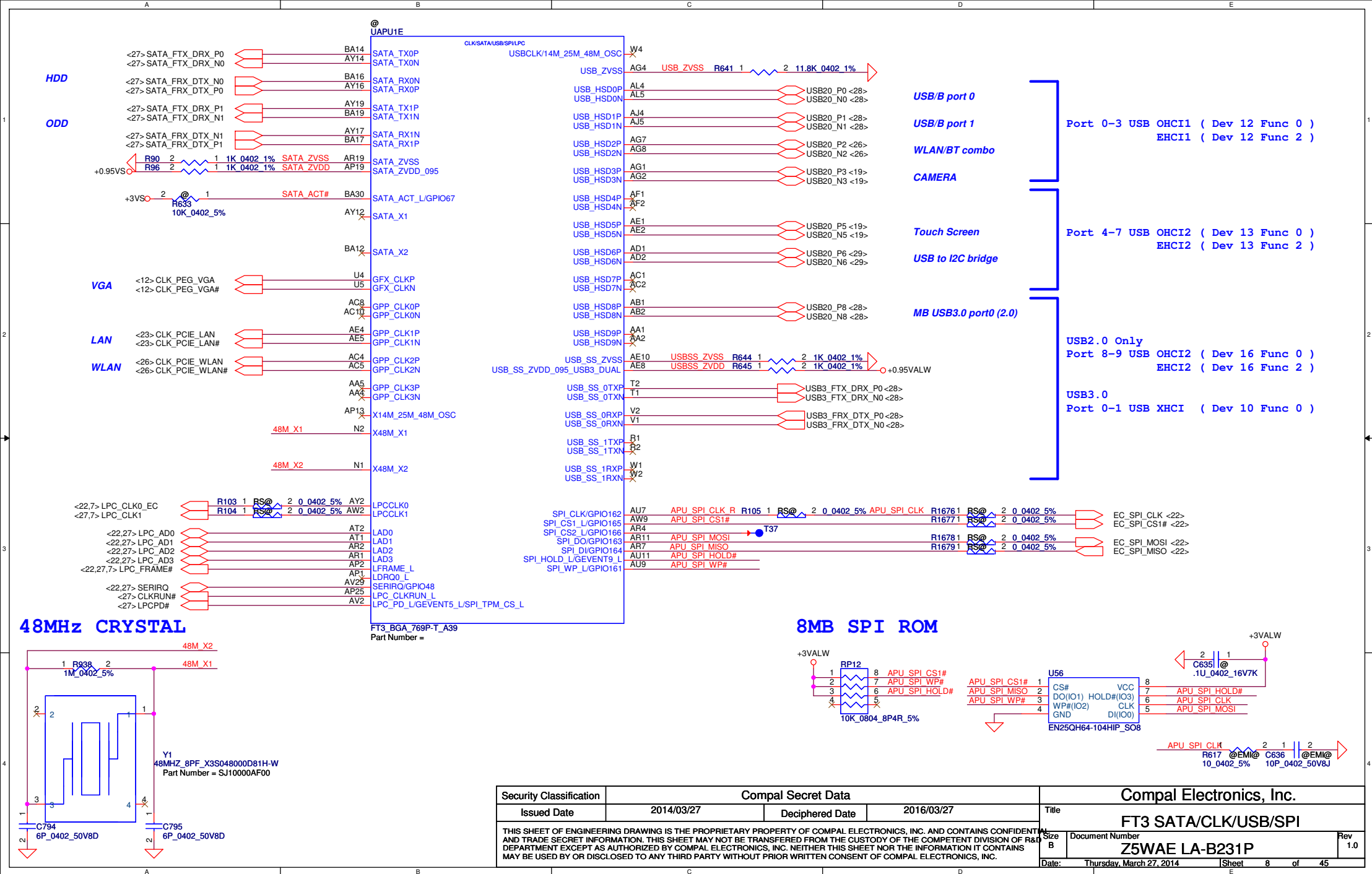
32.768KMHZ CRYSTAL



STRAPS OF APU

	LPC_FRAME#	LPC_CLK0_EC	LPC_CLK1	GEVENT2_L	RTC_CLK
H	SPI ROM (DEFAULT)	BOOT FAIL TIMER ENABLED	CLKGEN ENABLE (DEFAULT)	1.8V SPI ROM	NORMAL POWER UP/RESET TIMING (DEFAULT)
L	LPC ROM	BOOT FAIL TIMER DISABLED (DEFAULT)	CLKGEN DISABLED	3.3V SPI ROM (DEFAULT)	FAST POWER UP/RESET TIMING FOR SIMULATION





+RTC_APU R

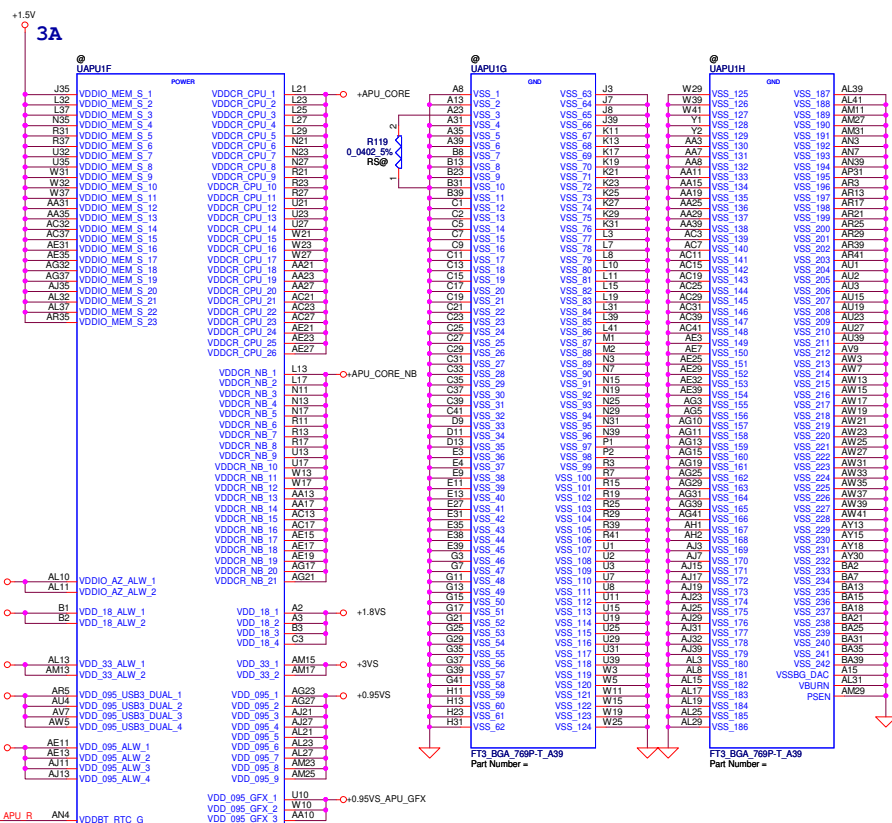
W=20mils

R93 1 2 10K 0402 5%

0.22u C166

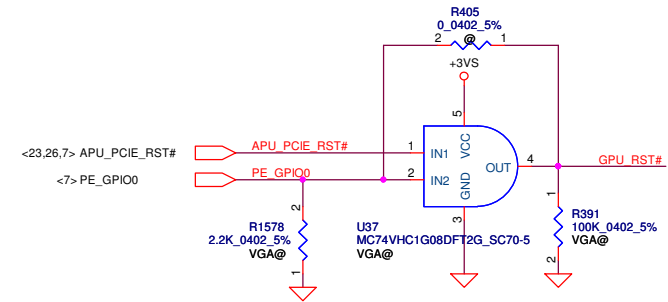
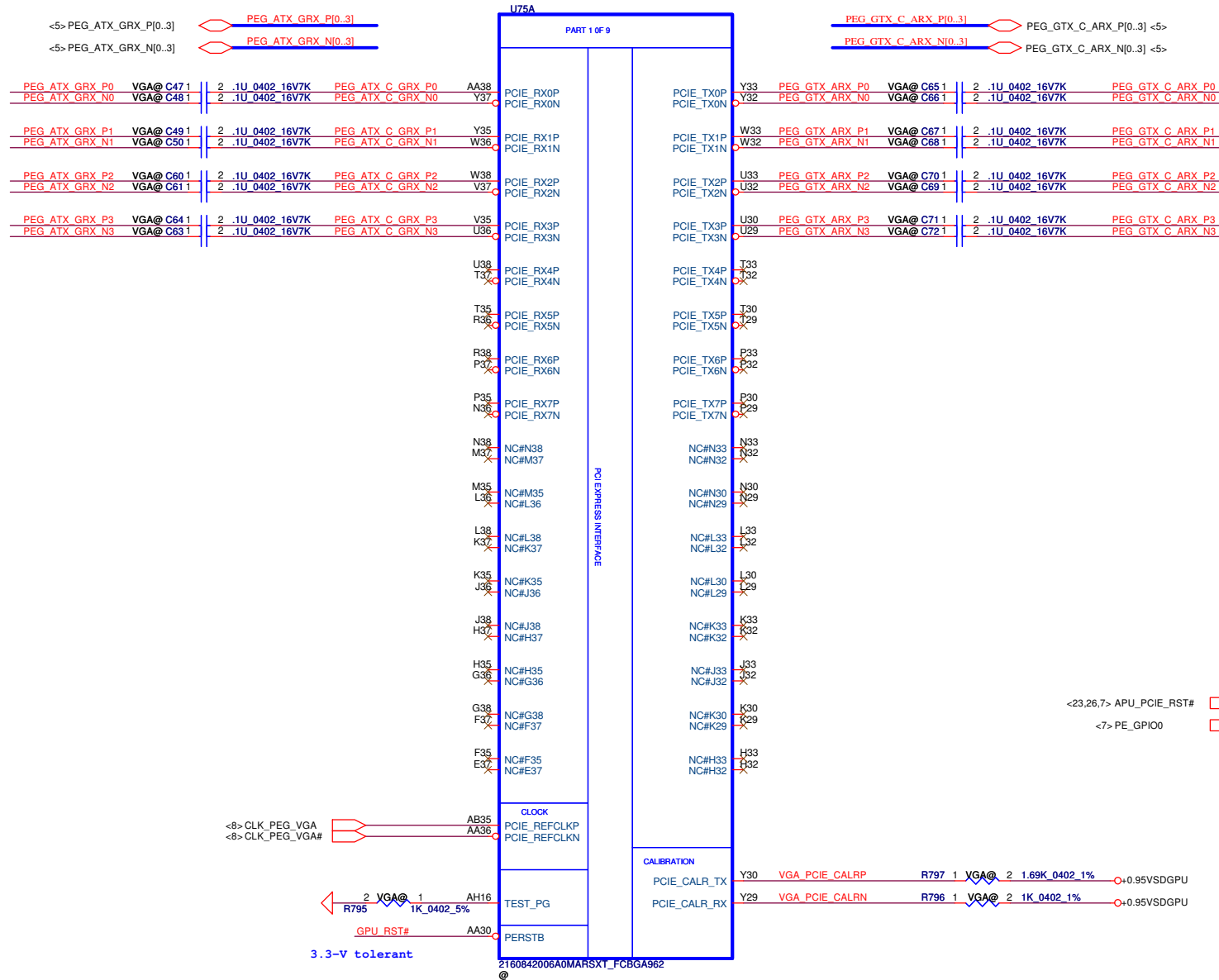
CLRP1 SPⓈ
SHORT PADS

Need OPEN
for Clear CMOS

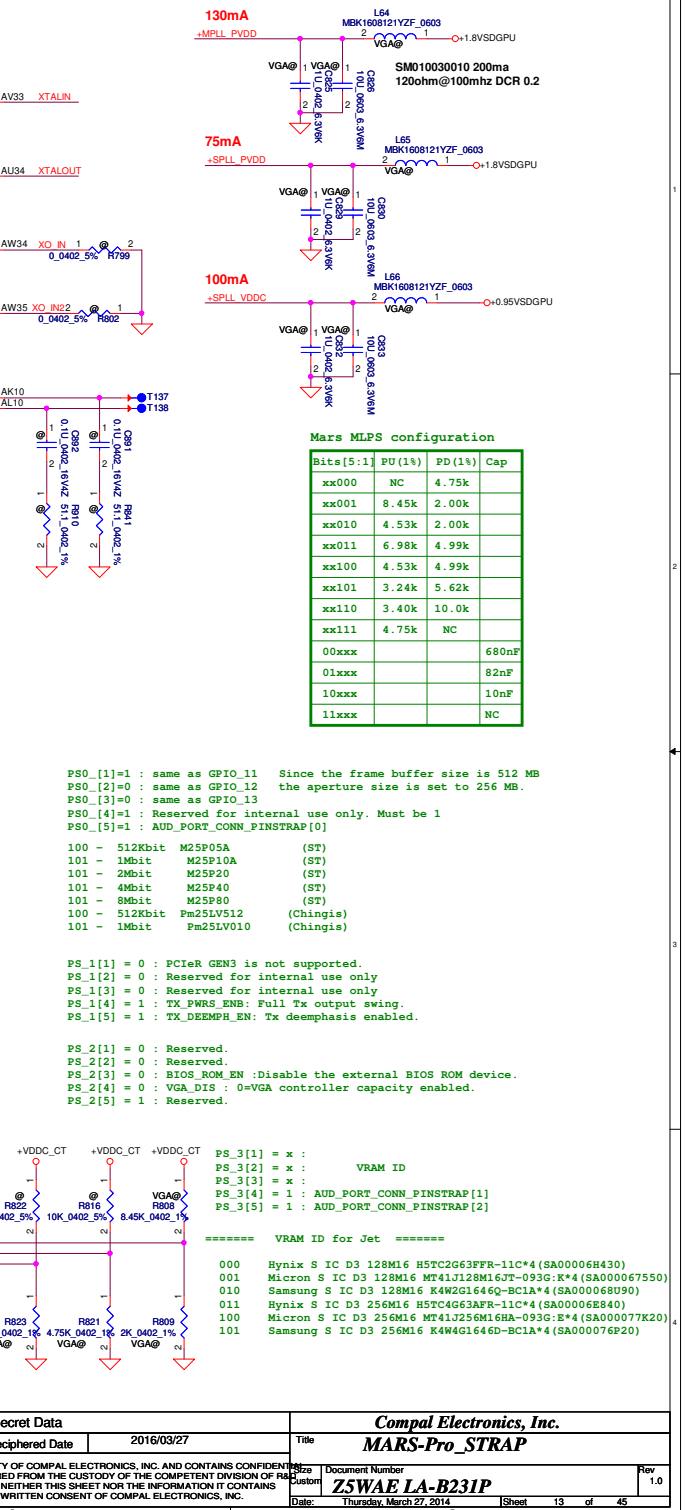
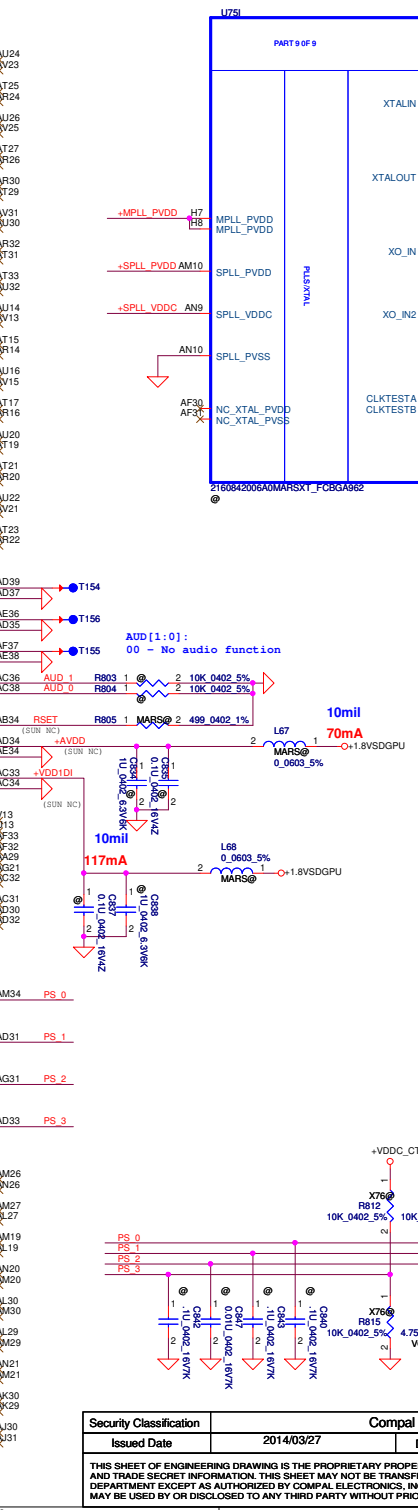
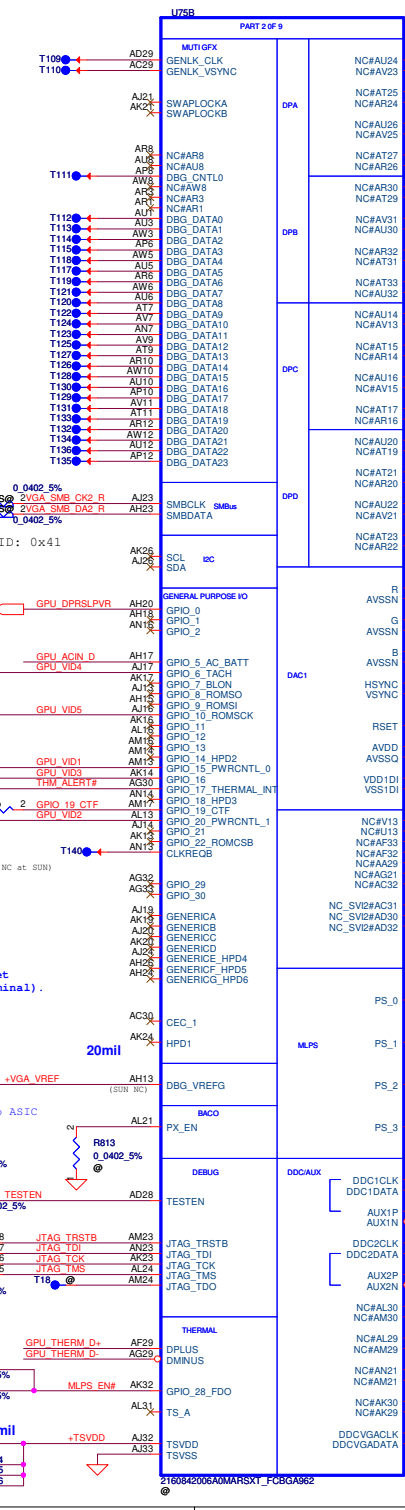
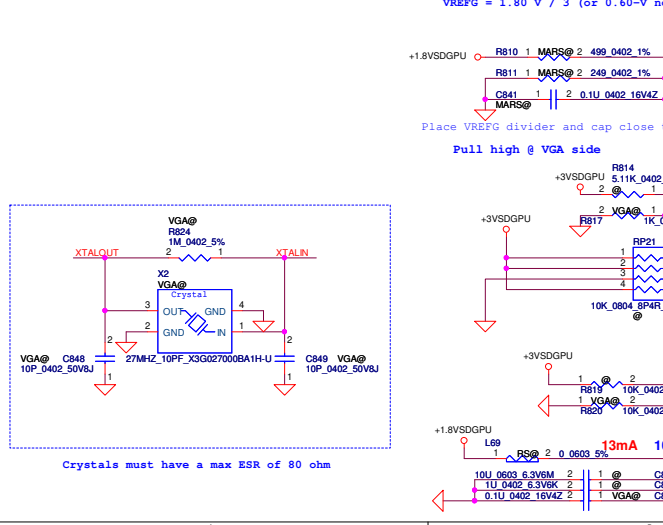
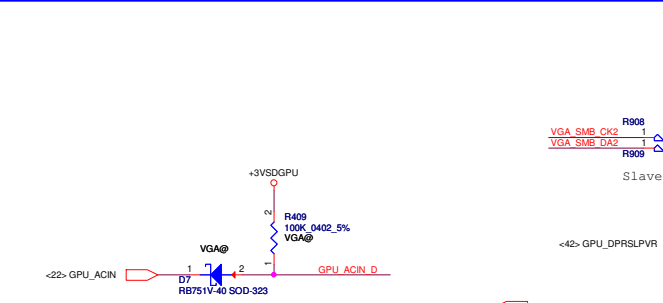
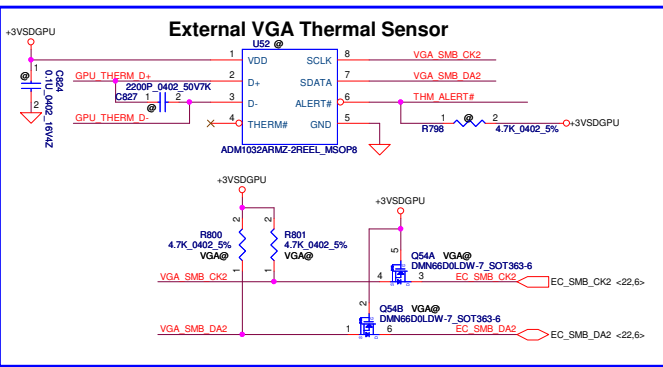


Date:	Thursday, March 27, 2014	Sheet	9	of	45
-------	--------------------------	-------	---	----	----

GFX PCIE LANE REVERSAL



Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date		2014/03/27	Deciphered Date	2016/03/27	
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.				Title	
				MARS-Pro_PCIE	
Size	Custom	Document Number			Rev
		Z5WAE LA-B231P			1.0
Date:	Thursday, March 27, 2014	Sheet	12	of	45



Mars MLPS configuration			
Bits[5:1]	PU(1%)	PD(1%)	Cap
xx000	NC	4.75k	
xx001	8.45k	2.00k	
xx010	4.53k	2.00k	
xx011	6.98k	4.99k	
xx100	4.53k	4.99k	
xx101	3.24k	5.62k	
xx110	3.40k	10.0k	
xx111	4.75k	NC	
00xxx			680nF
01xxx			82nF
10xxx			10nF
11xxx			NC

PS0[1]=1 : same as GPIO_11 Since the frame buffer size is 512 MB
PS0[2]=0 : same as GPIO_12 the aperture size is set to 256 MB.
PS0[3]=0 : same as GPIO_13
PS0[4]=1 : Reserved for internal use only. Must be 1
PS0[5]=1 : AUD_PORT_CONN_PINSTRAP[0]

100 - 512Kbit M25P05A (ST)
101 - 1Mbit M25P10A (ST)
101 - 2Mbit M25P20 (ST)
101 - 4Mbit M25P40 (ST)
101 - 8Mbit M25P80 (Chingis)
100 - 512Kbit Pm25LV512 (Chingis)
101 - 1Mbit Pm25LV010 (Chingis)

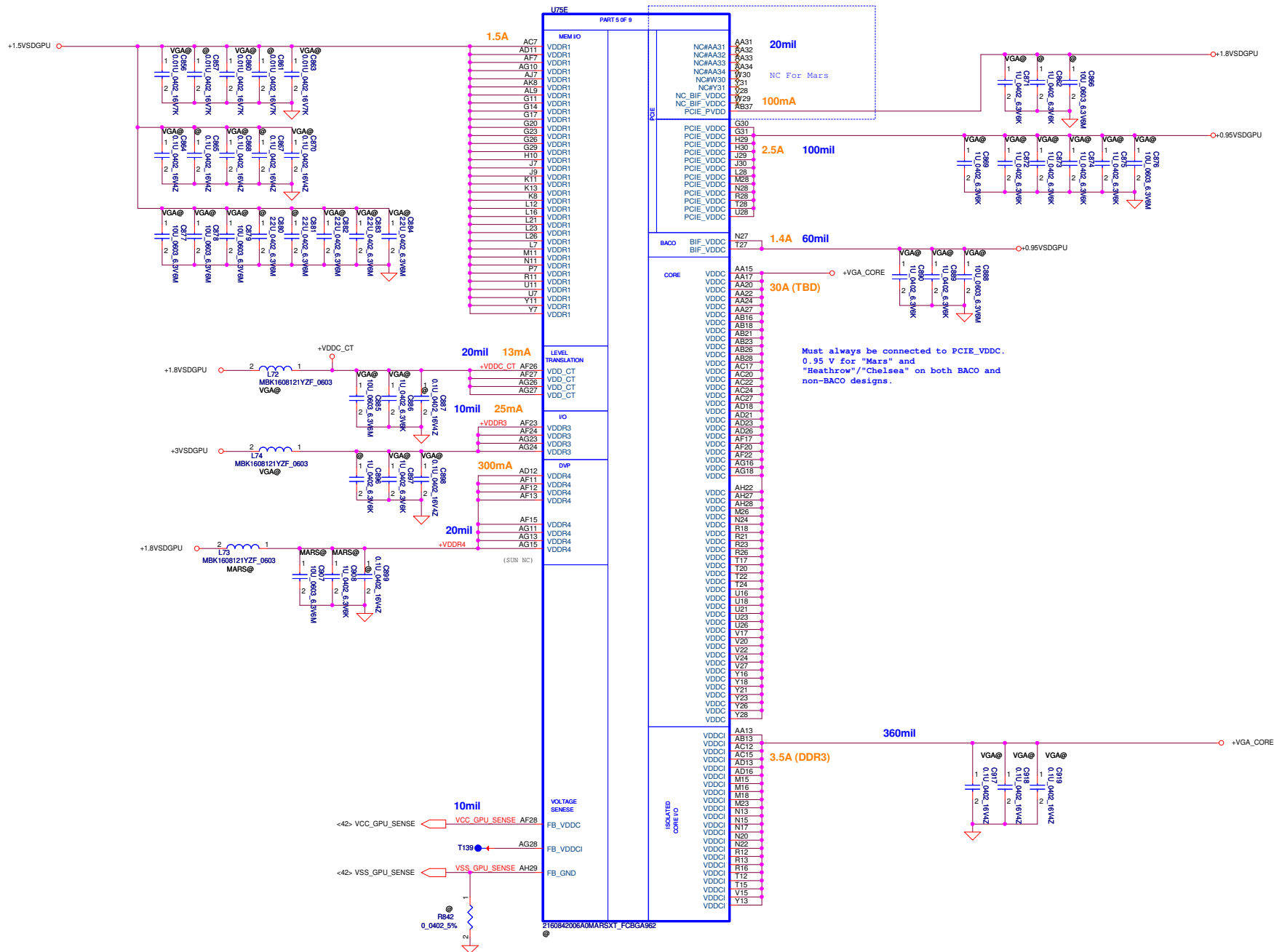
PS_1[1] = 0 : PCIeR GEN3 is not supported.
PS_1[2] = 0 : Reserved for internal use only
PS_1[3] = 0 : Reserved for internal use only
PS_1[4] = 1 : TX_PWRS_ENB: Full Tx output swing.
PS_1[5] = 1 : TX_DEEMPH_EN: Tx deemphasis enabled.

PS_2[1] = 0 : Reserved.
PS_2[2] = 0 : Reserved.
PS_2[3] = 0 : BIOS_ROM_EN :Disable the external BIOS ROM device.
PS_2[4] = 0 : VGA_DIS = 0=VGA controller capacity enabled.
PS_2[5] = 1 : Reserved.

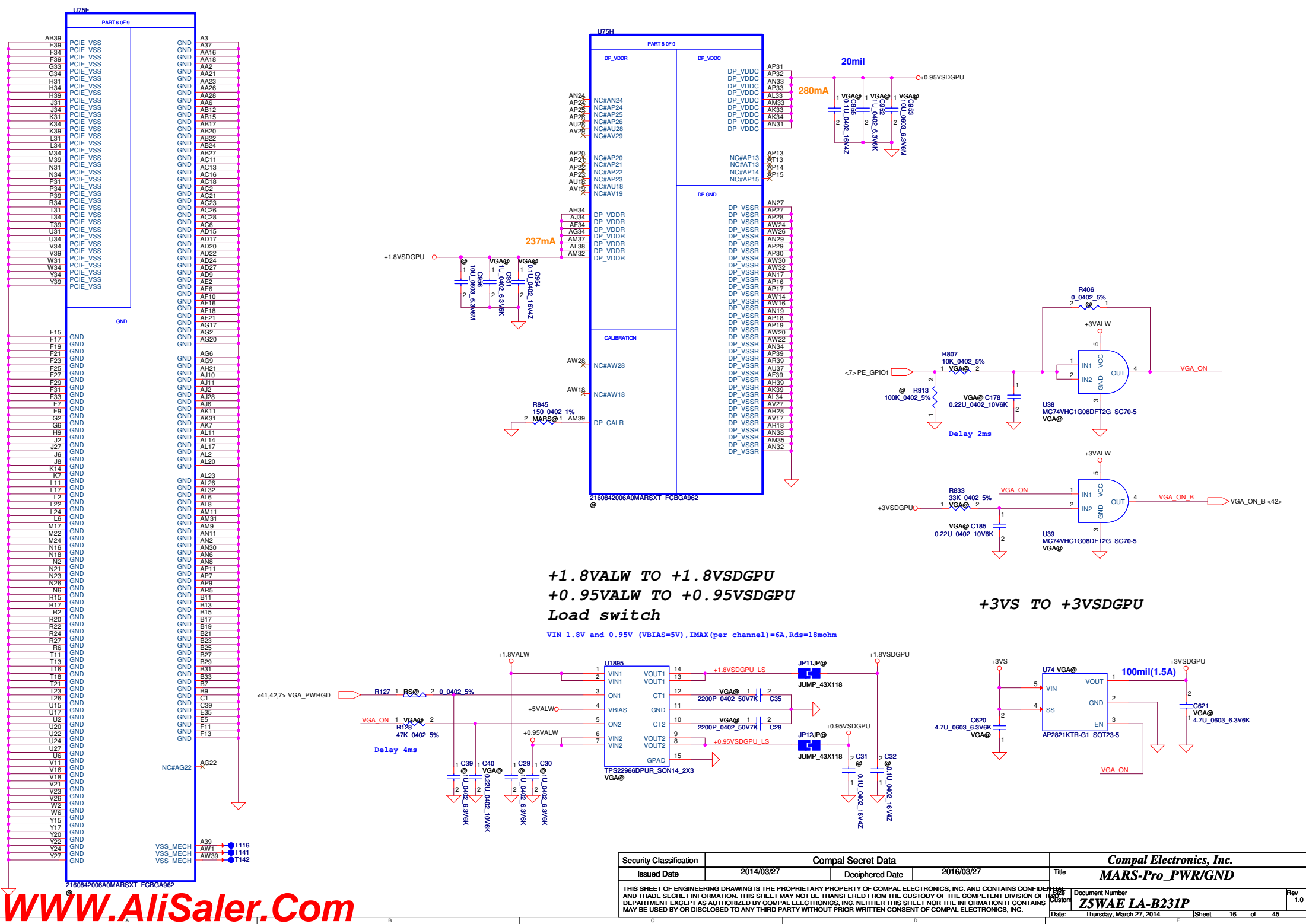
PS_3[1] = x :
PS_3[2] = x : VRAM ID
PS_3[3] = x :
PS_3[4] = 1 : AUD_PORT_CONN_PINSTRAP[1]
PS_3[5] = 1 : AUD_PORT_CONN_PINSTRAP[2]

===== VRAM ID for Jet =====

000 Hynix S IC D3 128M16 H5TC2G63FFR-11C*4(SA00006H430)
001 Micron S IC D3 128M16 MT41J128M16JT-093G:K*4(SA000067550)
010 Samsung S IC D3 128M16 K4W2G16460-BC1A*4(SA000068090)
011 Hynix S IC D3 256M16 H5PC4G63APR-11C*4(SA000068840)
100 Micron S IC D3 256M16 MT41J256M16HA-093G:E*4(SA000077K20)
101 Samsung S IC D3 256M16 K4W4G16460-BC1A*4(SA000077P20)

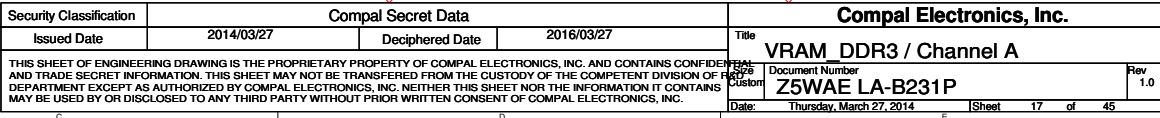


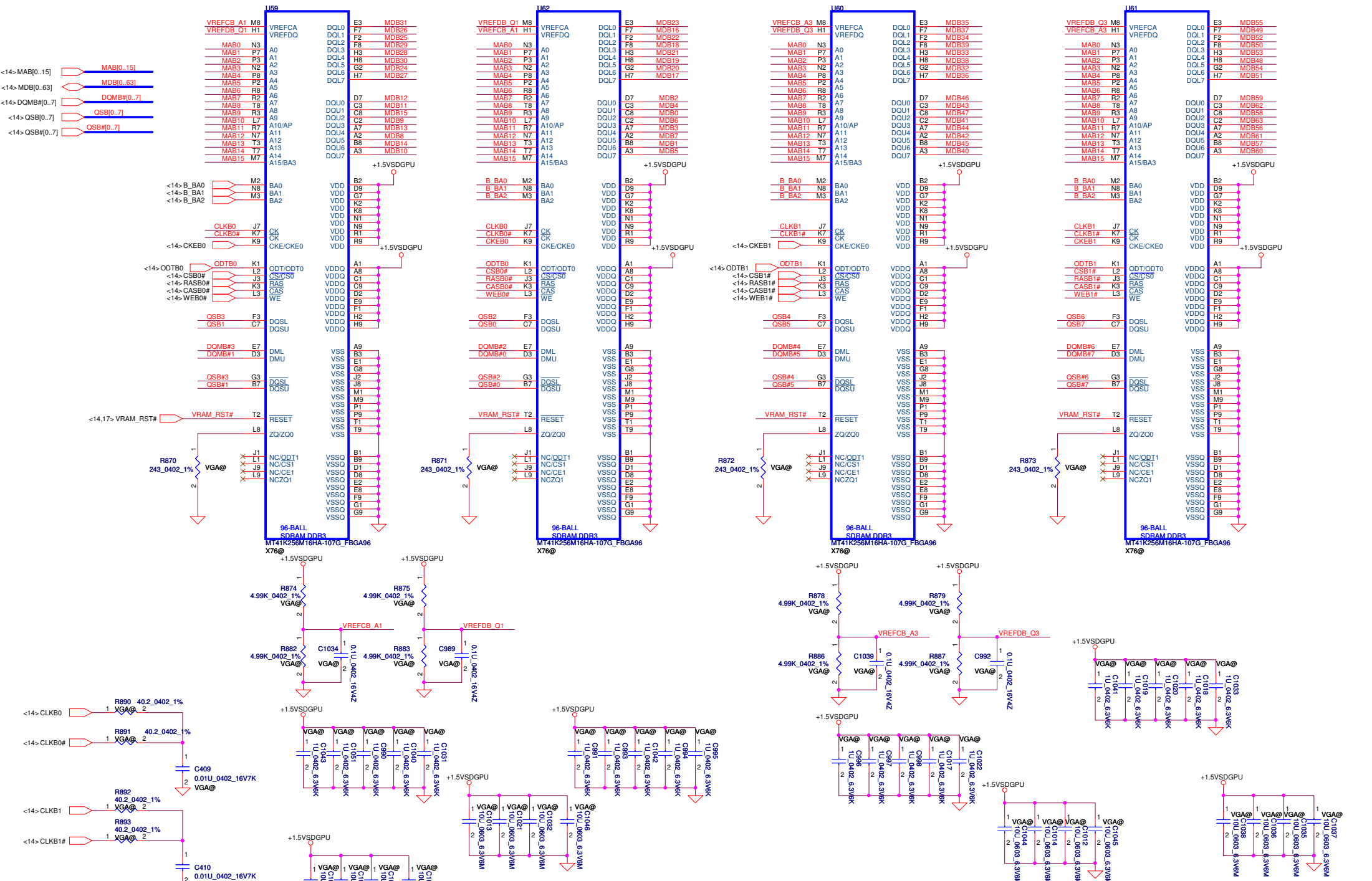
Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2014/03/27	Deciphered Date	2016/03/27	Title	
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED 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		Rev	
ZSWAE LA-B231P		1.0		Date	
Thursday, March 27, 2014		Sheet		15 of 45	



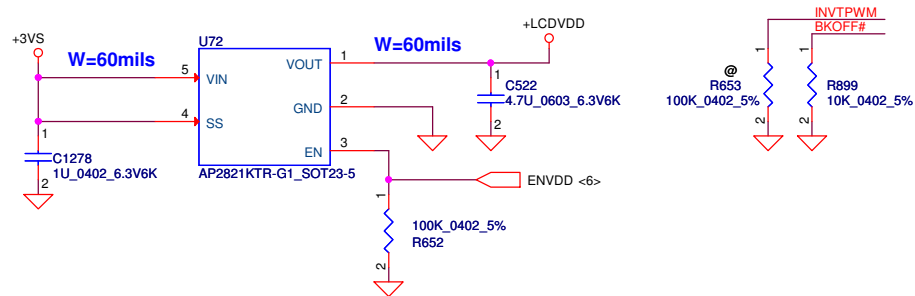
WWW.AliSaler.Com

Security Classification		Compal Secret Data		Compal Electronics, Inc.		
Issued Date	2014/03/27	Deciphered Date	2016/03/27	Title	MARS-Pro_PWR/GND	
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 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.				Docu- ment Number	Rev	
				Z5WAE LA-B231P		1.0
				Date:	Thursday, March 27, 2014	Sheet

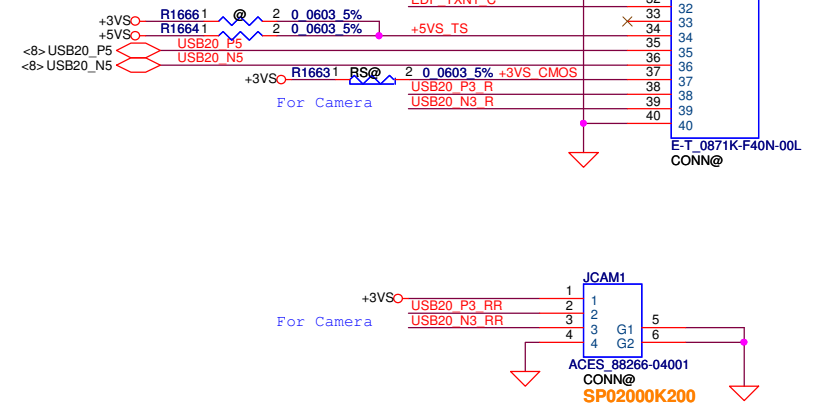
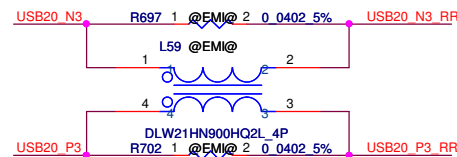
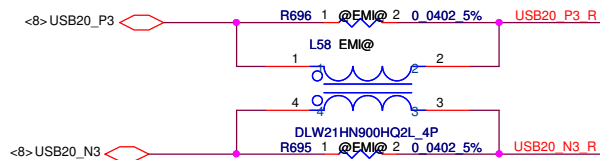
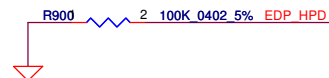
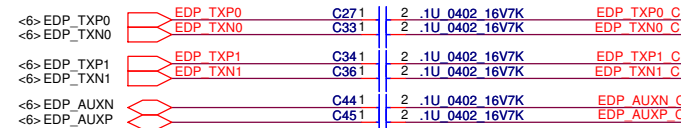
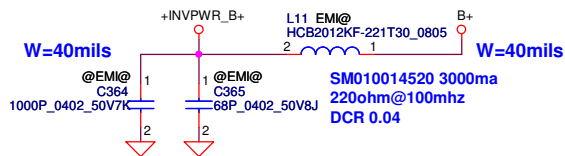
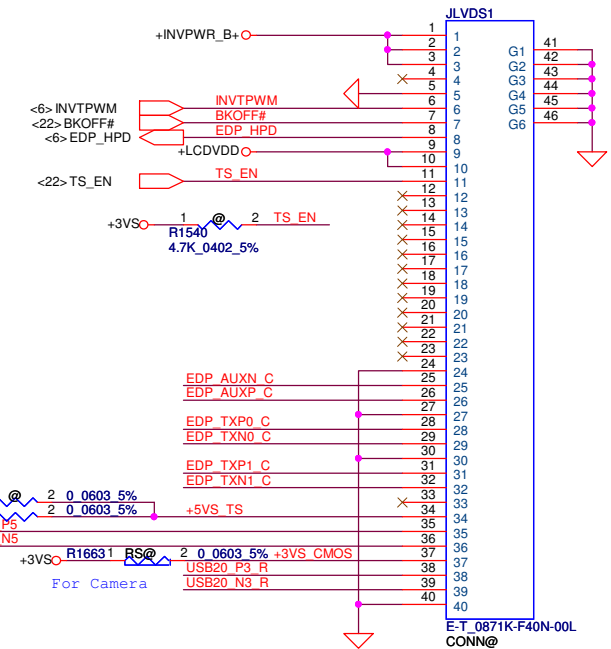




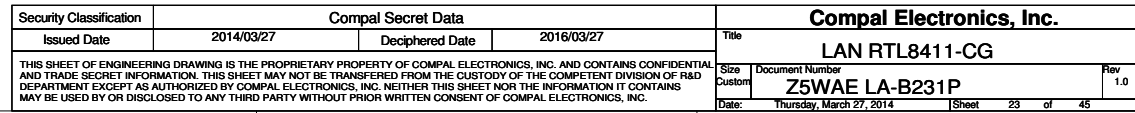
LCD POWER CIRCUIT



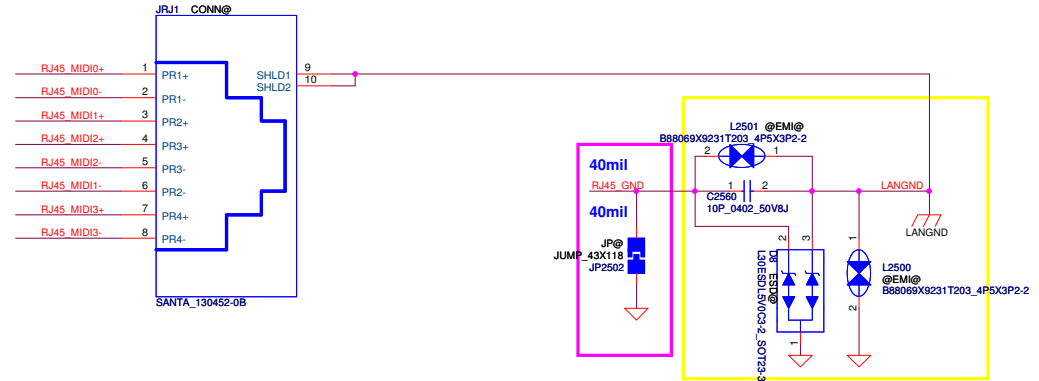
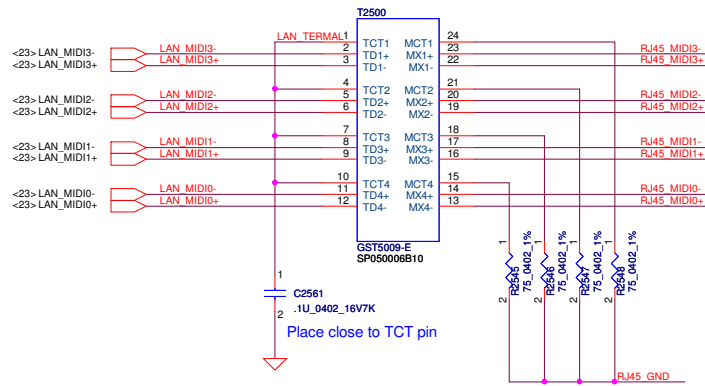
eDP PANEL Conn.



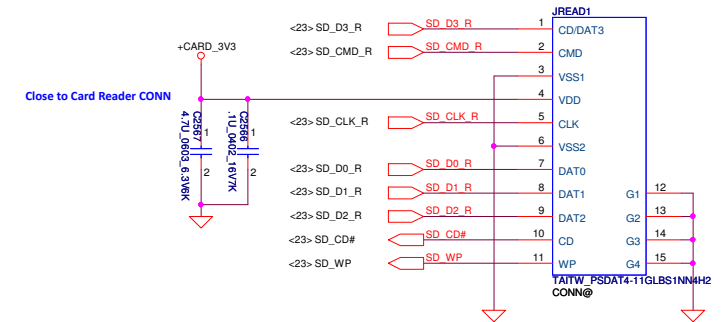
Security Classification		Compal Secret Data		Compal Electronics, Inc.				
Issued Date	2014/03/27	Deciphered Date	2016/03/27	Title	eDP/Camera/TS			
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET 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			Z5WAE LA-B231P	1.0
				Date	Thursday, March 27, 2014	Sheet	19	of



LAN Connector

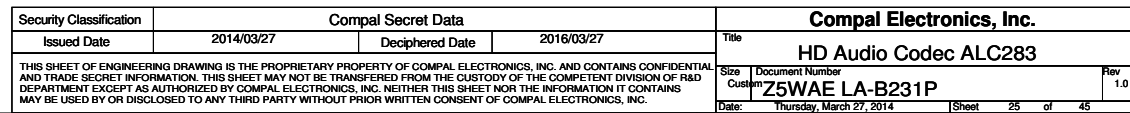
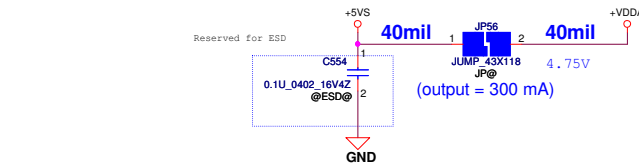


Card Reader Connector

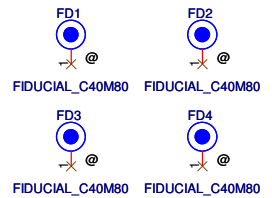
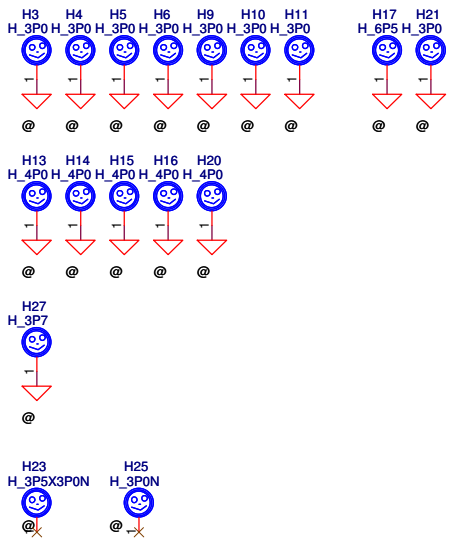
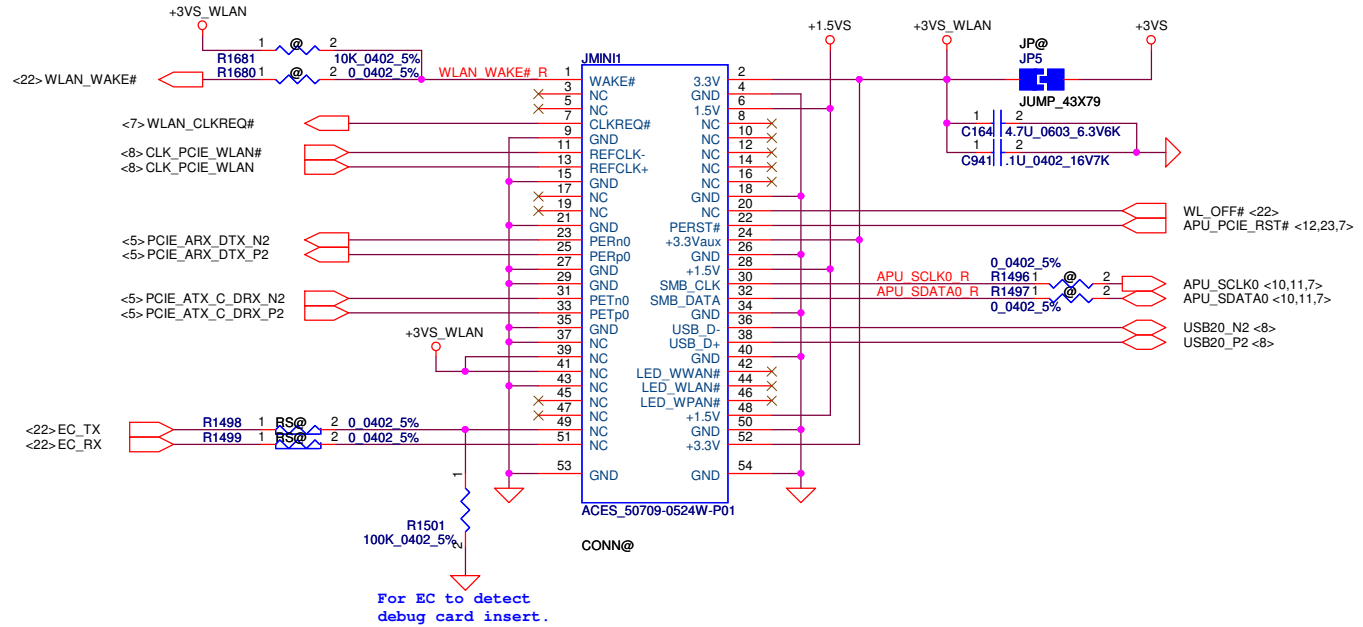
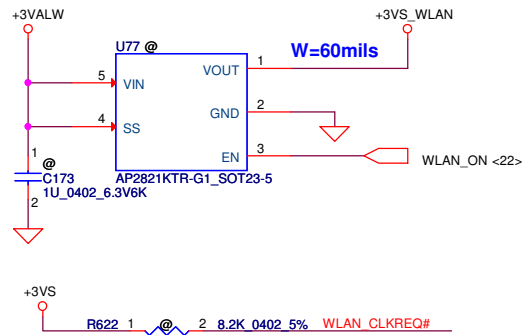


Security Classification		Compal Secret Data		Title	
Issued Date	2014/03/27	Deciphered Date	2016/03/27	LAN RJ45/CR SD Connector	
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED 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	Z5WAE LA-B231P
				Date:	Thursday, March 27, 2014
				Sheet	24 of 45
				Rev	1.0

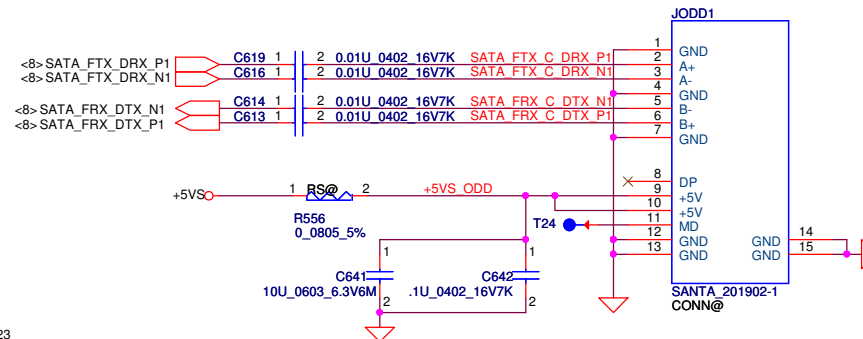
SM01000EJ00 3000ma 220ohm@100mhz DCR 0.04



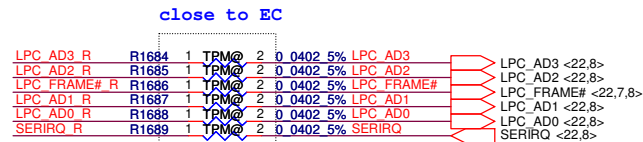
Mini-Express Card(WLAN/WiMAX) H=4mm



Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2014/03/27	Deciphered Date	2016/03/27	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 B	Document Number
				Z5WAE LA-B231P	
				Date: Thursday, March 27, 2014	Rev 1.0
				Sheet 26 of 45	

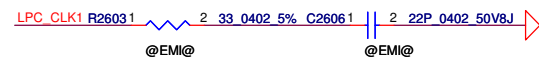
SATA ODD Conn.

TPM

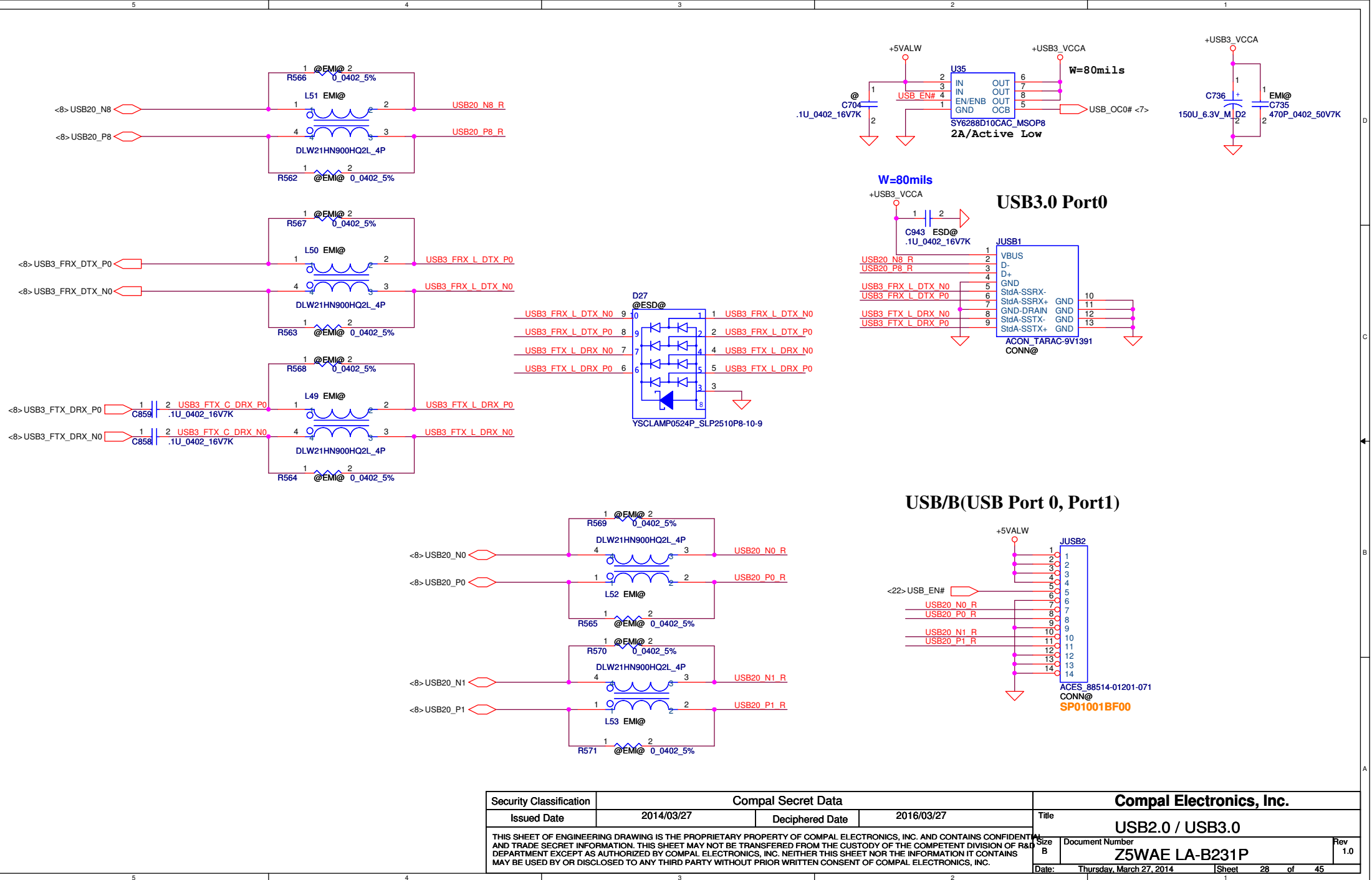


The schematic diagram illustrates a fan speed sensor interface circuit. Key components and connections include:

- Power Supplies:** +VCC_FAN and +3VS.
- Capacitors:** C627 (4.7uF, 0603, 6.3V6K), C631 (1000pF, 0402, 50V7K), and C630 (1000pF, 0402, 50V7K).
- Resistor:** R516 (10K, 0402, 5%).
- Traces:** A 40mil trace is shown.
- Components:** JFAN1 (ACES 88231-03041 CONN@) and 0118 modify.
- Output:** <22> FAN_SPEED.



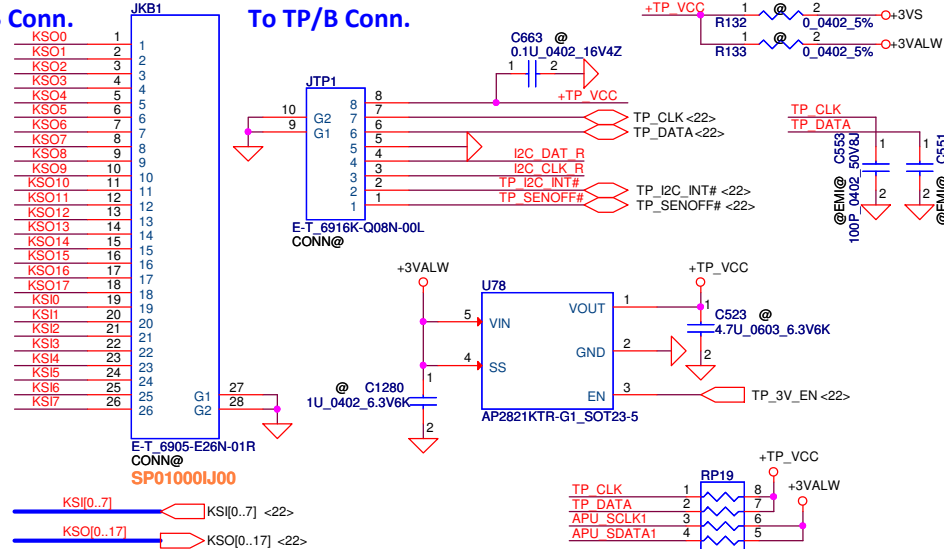
Security Classification		Compal Secret Data		Compal Electronics, Inc.		
Issued Date	2014/03/27	Deciphered Date	2016/03/27	Title	HDD/ODD/FAN/TPM	
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET 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	Z5WAE LA-B231P	1.0
				Date	Thursday, March 27, 2014	Sheet 27 of 45



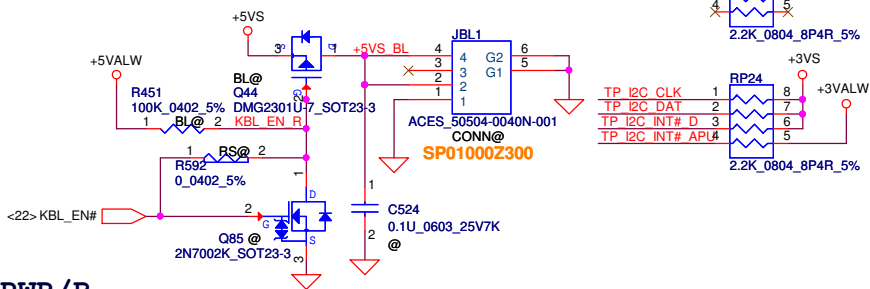
Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2014/03/27	Deciphered Date	2016/03/27	Title	
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED 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 B	Document Number
				Z5WAE LA-B231P	
				Date: Thursday, March 27, 2014	Rev 1.0
				Sheet 28 of 45	

KB Conn.

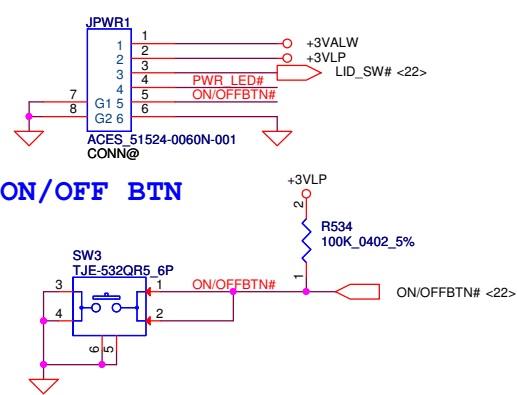
To TP/B Conn.



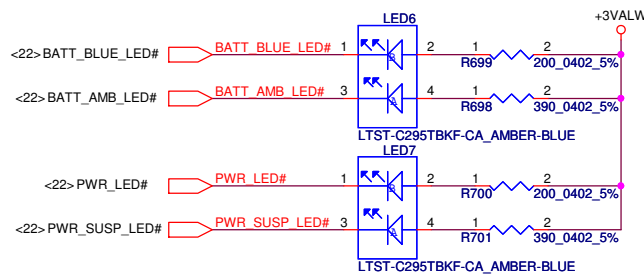
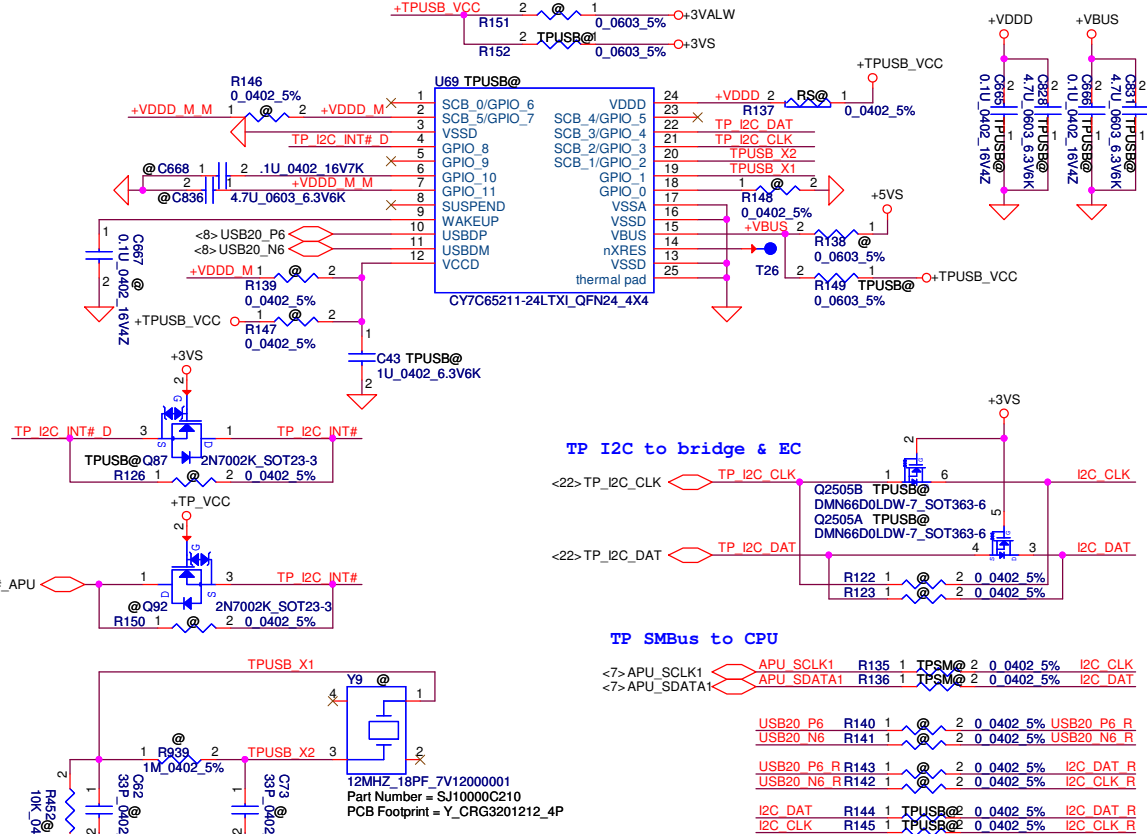
KB BackLight Conn. Reserve



PWR/B



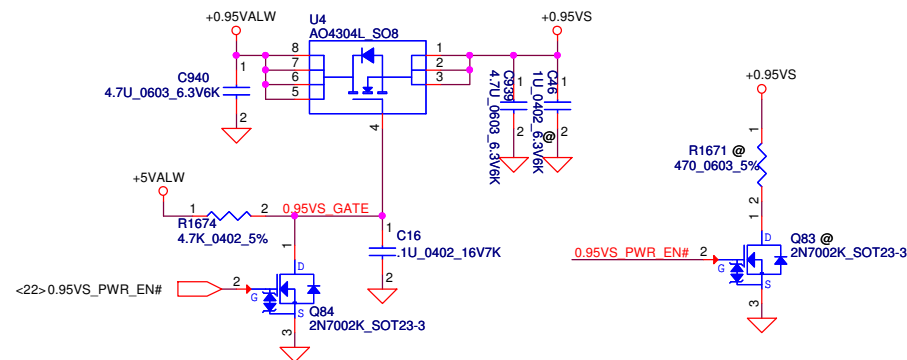
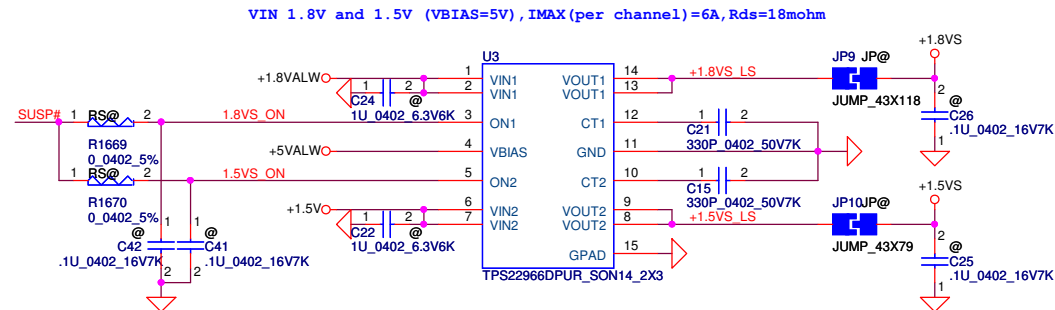
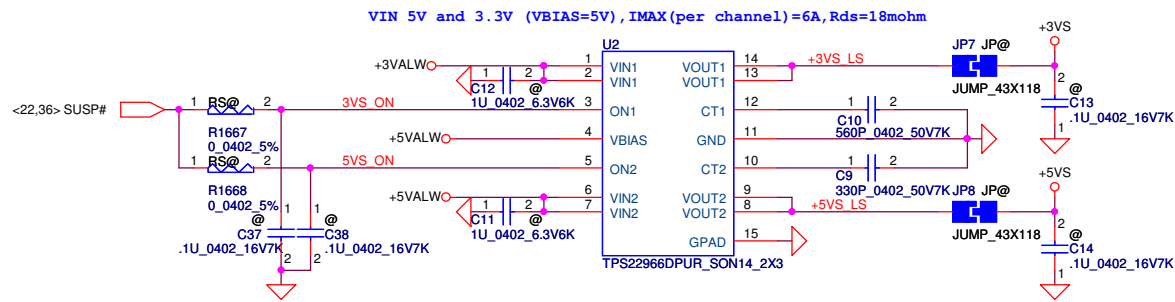
ON/OFF BTN



Security Classification			Compal Secret Data			Compal Electronics, Inc.		
Issued Date			Deciphered Date			Title		
2014/03/27			2016/03/27			P21-PBTN/LIDSW/LED/KB/TP		
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.			Part Number = SJ10000C210 PCB Footprint = Y_ORG3201212_4P			Document Number		
Size B			Z5WAE LA-B231P			Rev 1.0		
Date: Thursday, March 27, 2014			Sheet 29 of 45					

+1.8VALW TO +1.8VS
+1.5V TO +1.5VS
Load switch

+0.95VALW to +0.95VS



Security Classification		Compal Secret Data		Compal Electronics, Inc.		
Issued Date	2014/03/27	Deciphered Date	2016/03/27	Title	P22-DC INTERFACE	
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT 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 B	Document Number	Rev 1.0
				Z5WAE LA-B231P		
				Date: Thursday, March 27, 2014 Sheet 30 of 45		

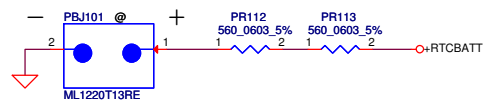
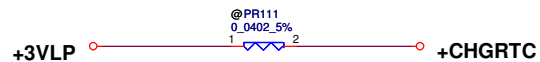
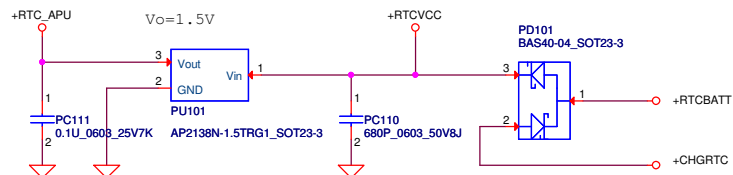
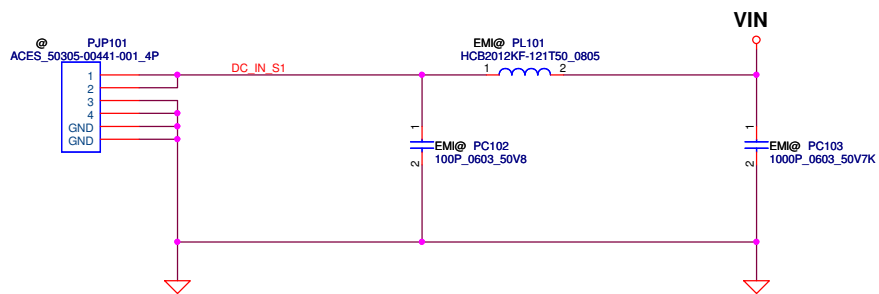
0.2

- 1. Add R693 for UMA/DIS select
- 2. Change R756,R765,R769,R779,R781,R782,R783 and R794 to Rshort for EMI request
- 3. Change BID to 1 for DVT
- 4. Change LAN_WAKE# PU to +3V_LAN
- 5. Add L76,L77,C2142 and C2140 for ESD request
- 6. Change R238 and R237 to 59ohm
- 7. Add L52,L53,R565,R569,R570 and R571 for EMI request.
- 8. Add R140,R141,R142,R143,R144 and R145 for reserve USB TP
- 9. Pop Q89, unpop R1690
- 10. Change D10 to SCA00001B00
- 11. Change L11 to SM01000EJ00
- 12. Add U39,R833,C185,R1578 for VGA power sequence issue
- 13. Remove APU_ALERT#_R
- 14. Add C668 and C836 for vendor request

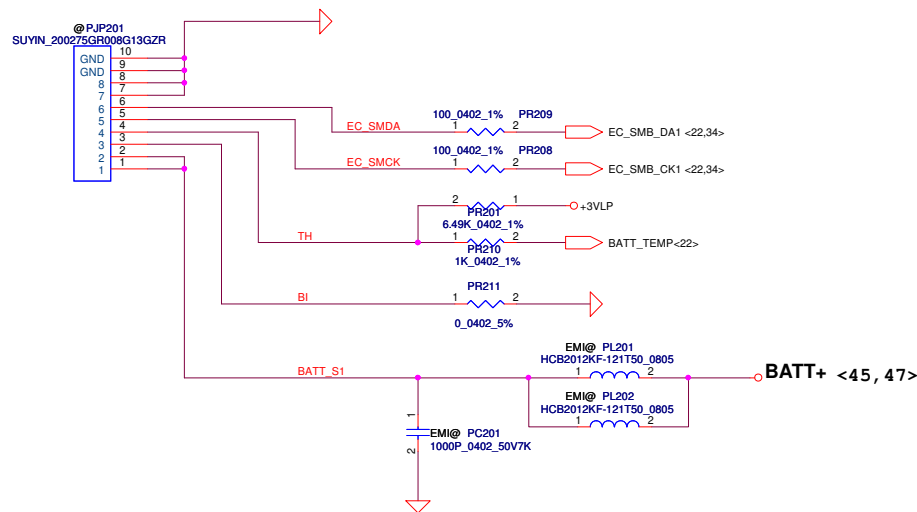
0.3

- 1. Change JTP1
- 2. Add U78 for TP +3V power plane
- 3. Change C849, C849 to 10p
- 4. Change C736 to 150u D2 type.
- 5. Change R699, R700 to 330ohm; R698, R701 to 560ohm
- 6. Change U69 +3VALW to +3VS
- 7. Add C366, C367, C368, C369 for EMI request
- 8. Add on board TPM
- 9. Add R619

Security Classification		Compal Secret Data			Compal Electronics, Inc.				
Issued Date		2014/03/27	Deciphered Date		2016/03/27		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.					HW-PIR				
					Size	Document Number		Rev	
					Z5WAE LA-B231P		1.0		
		Date:	Thursday, March 27, 2014	Sheet	31	of	45		



Security Classification	Compal Secret Data			Compal Electronics, Inc.		
Issued Date	2014/03/27	Deciphered Date	2016/03/27	Title	DCIN	
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.				Size	Document Number	Rev
				Custom		1.0
				Date:	Thursday, March 27, 2014	Sheet 32 of 45



---Battery_pin define---

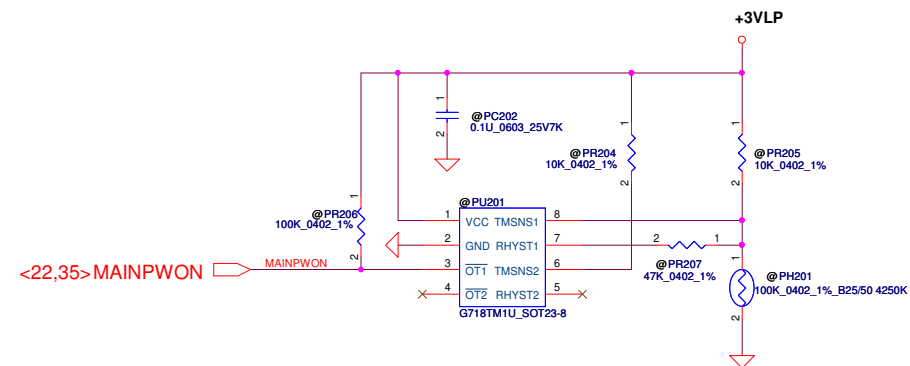
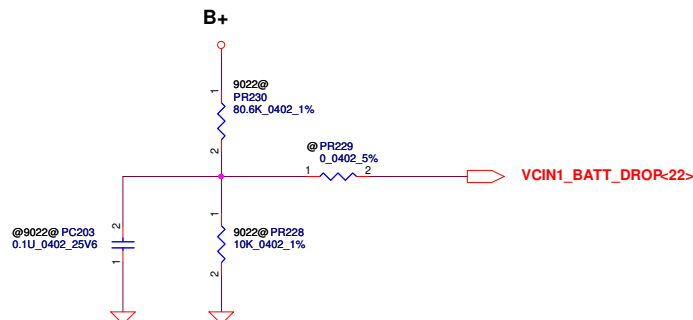
PIN1 GND
PIN2 GND
PIN3 SMD
PIN4 SMC
PIN5 TS
PIN6 B/I
PIN7 Batt+
PIN8 Batt+

---Battery Con_pin define---

PIN8 GND
PIN7 GND
PIN6 SMD
PIN5 SMC
PIN4 TS
PIN3 B/I
PIN2 Batt+
PIN1 Batt+

2013/10/02
Add for ENE9022 Battery Voltage drop detection.
Connect to ENE9022 pin64 AD1.

Battery is 3-cell design.
B+=9V



	For KB9012 OTP	For KB9022 OTP
92°C		1.0V
56°C		2.0V
PR216		16.9K ohm

2014/01/02 update

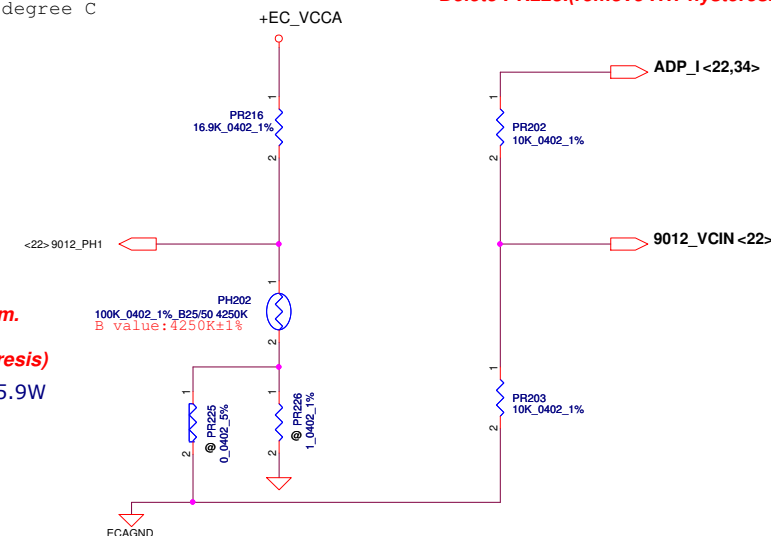
For KB9022 sense 20mΩ	Active	Recovery
65W	70W, 0.73V	55.9W, 0.59V

2013/10/22 Modify
PH201, PH202 change to common part.

2013/12/16 Modify
Delete PR223.(remove HW hysteresis)

PH201 under CPU bottom side :
CPU thermal protection at 92 degree C (shutdown)
Recovery at 56 degree C

2013/10/25 Modify
PR227(9012@) change to 26.1K ohm.
2014/02/07 Modify
Delete @PR227.(remove HW hysteresis)
For 65W adapter==>action 70W , Recovery 55.9W



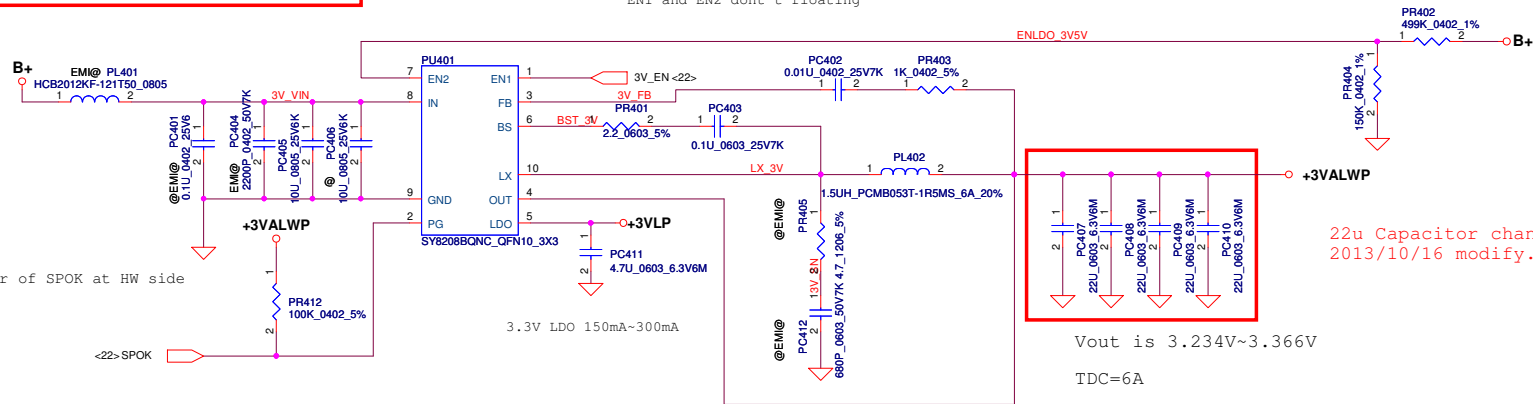
ECAGND										
Security Classification		Compal Secret Data				Compal Electronics, Inc.				
Issued Date		2014/03/27		Deciphered Date		2016/03/27		Title		
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. 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.								BATTERY CONN / OTP		
								Size	Document Number	Rev
								Date:	Thursday, March 27, 2014	Sheet

Module model information

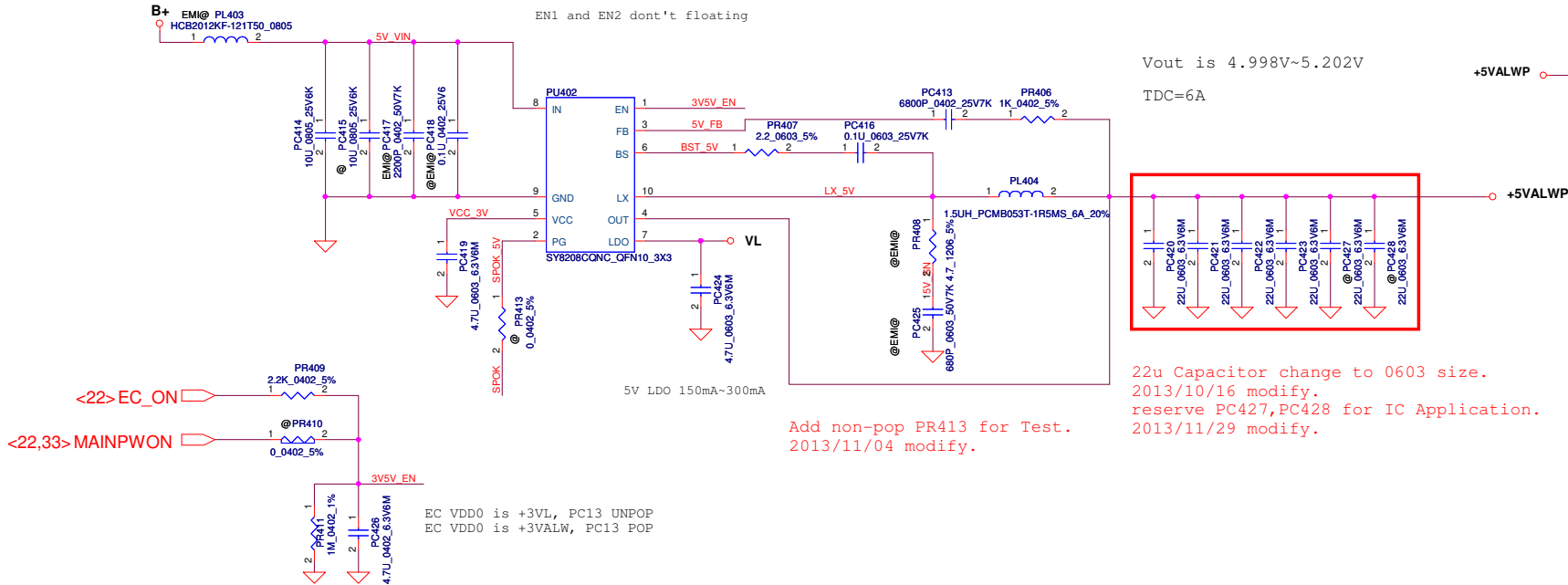
SY8208B_V2.mdd

SY8208C_V2.mdd

EN1 and EN2 don't floating

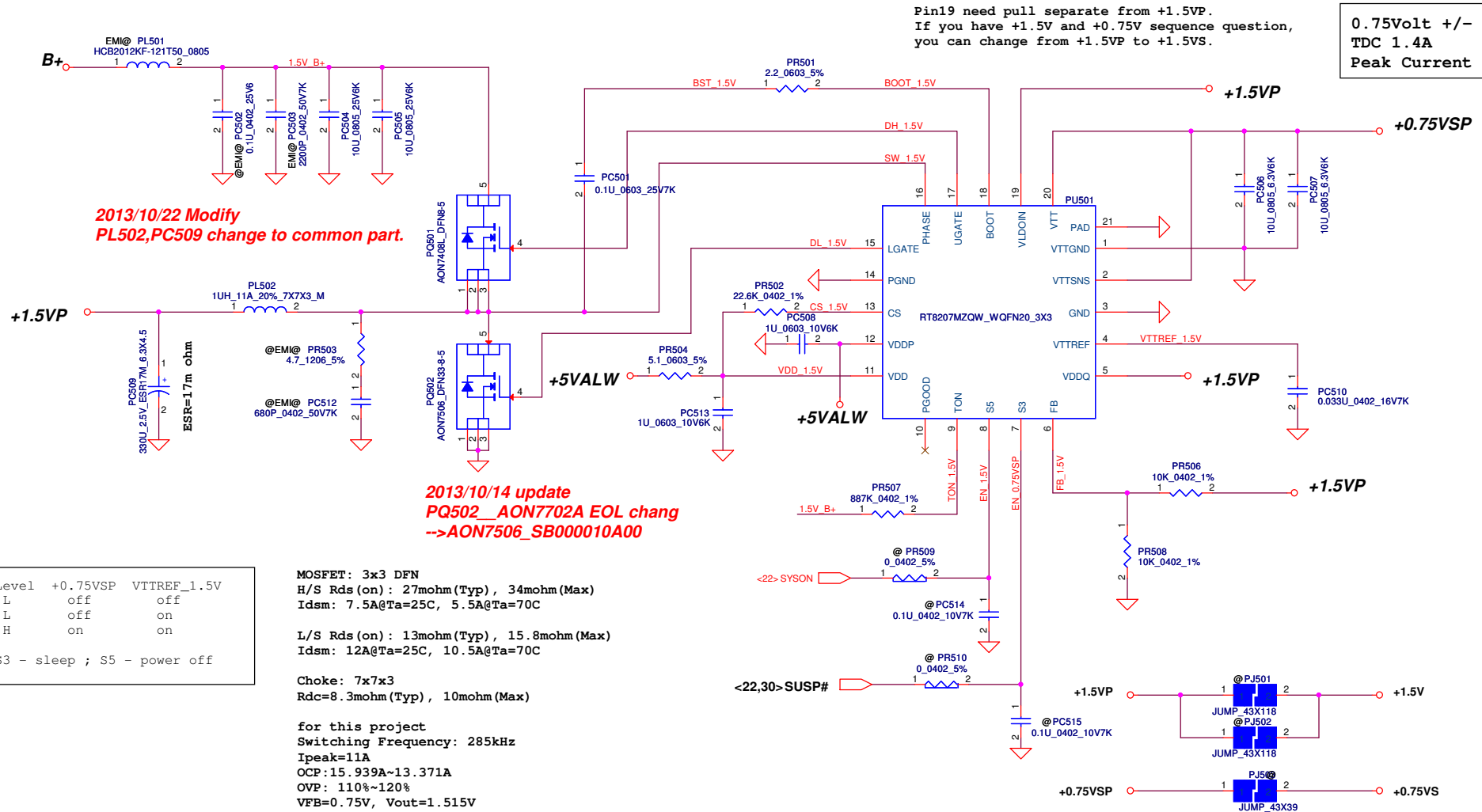


EN1 and EN2 don't floating



Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2014/03/27	Deciphered Date	2016/03/27	Title	+3VALW/+5VALW
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 FACTORY 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 1.0
				Date	Thursday, March 27, 2014
				Sheet	35 of 45

RT8207M_V1.mdd	For Single layer
RT8207M_V2.mdd	For Dual layer



Mode	Level	+0.75VSP	VTTREF_1.5V
S5	L	off	off
S3	L	off	on
S0	H	on	on

Note: S3 - sleep ; S5 - power off

MOSFET: 3x3 DFN

H/S Rds(on): 27mohm(Typ), 34mohm(Max)
Idsm: 7.5A@Ta=25C, 5.5A@Ta=70C

L/S Rds(on): 13mohm(Typ), 15.8mohm(Max)
Idsm: 12A@Ta=25C, 10.5A@Ta=70C

Choke: 7x7x3
Rdc=8.3mohm (Typ) , 10mohm (Max)

for this project
Switching Frequency: 285kHz
Ipeak=11A
OCP:15.939A~13.371A
OVP: 110%~120%
VFB=0.75V, Vout=1.515V

Security Classification	Compal Secret Data			<i>Compal Electronics, Inc.</i>		
Issued Date	2014/03/27	Deciphered Date	2016/03/27	<i>+1.5VP/+0.75VSP</i>		
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.				Title		
				Size	Document Number	Rev
				Custom		1.0
				Date:	Thursday, March 27, 2014	
				Sheet	36	of 45

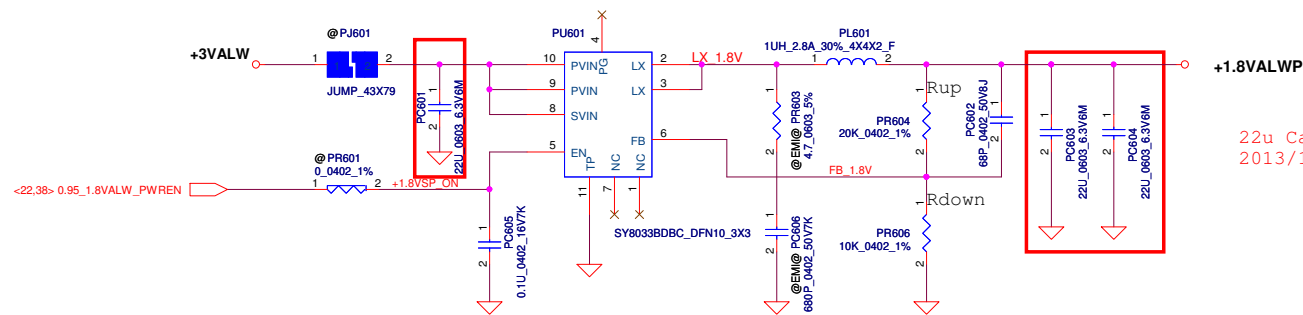
Module model information

SY8033_V1.mdd

22u Capacitor change to 0603 size.
2013/10/16 modify.

2013/10/22 Modify
PL601 change to common part.

FB=0.6V
Note: Iload (max)=3.5A



22u Capacitor change to 0603 size.
2013/10/16 modify.

Note:
When design Vin=5V, please stuff snubber
to prevent Vin damage

$$V_{out} = 0.6V * (1 + R_{up}/R_{down})$$

Delete PR605, because same net name have two PD resister in circuit.
2013/11/29 modify.



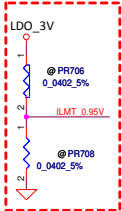
Security Classification	Compal Secret Data			Compal Electronics, Inc.		
Issued Date	2014/03/27	Deciphered Date	2016/03/27	Title		
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED 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.				+1.8VALWP		
				Size	Document Number	Rev
				Custom		1.0
				Date:	Thursday, March 27, 2014	Sheet 37 of 45

Module model information

SY8208D_V1.mdd

EN pin don't floating
If have pull down resistor at HW side, pls delete PR2

for this project
Ipeak=8A
Add 22u*2 capacitor,
Chock change to 0.68u.
meet DC-DC design check form.
2013/10/02 Modify.



The current limit is set to 8A, 12A or 16A when this pin is pull low, floating or pull high

Pin 7 BYP is for CS.
Common NB can delete +3VALW and PC714

$$V_{FB} = 0.6V$$
$$V_{out} = 0.6V * (1 + R_{up}/R_{down})$$
$$V_{out} = 0.954V$$

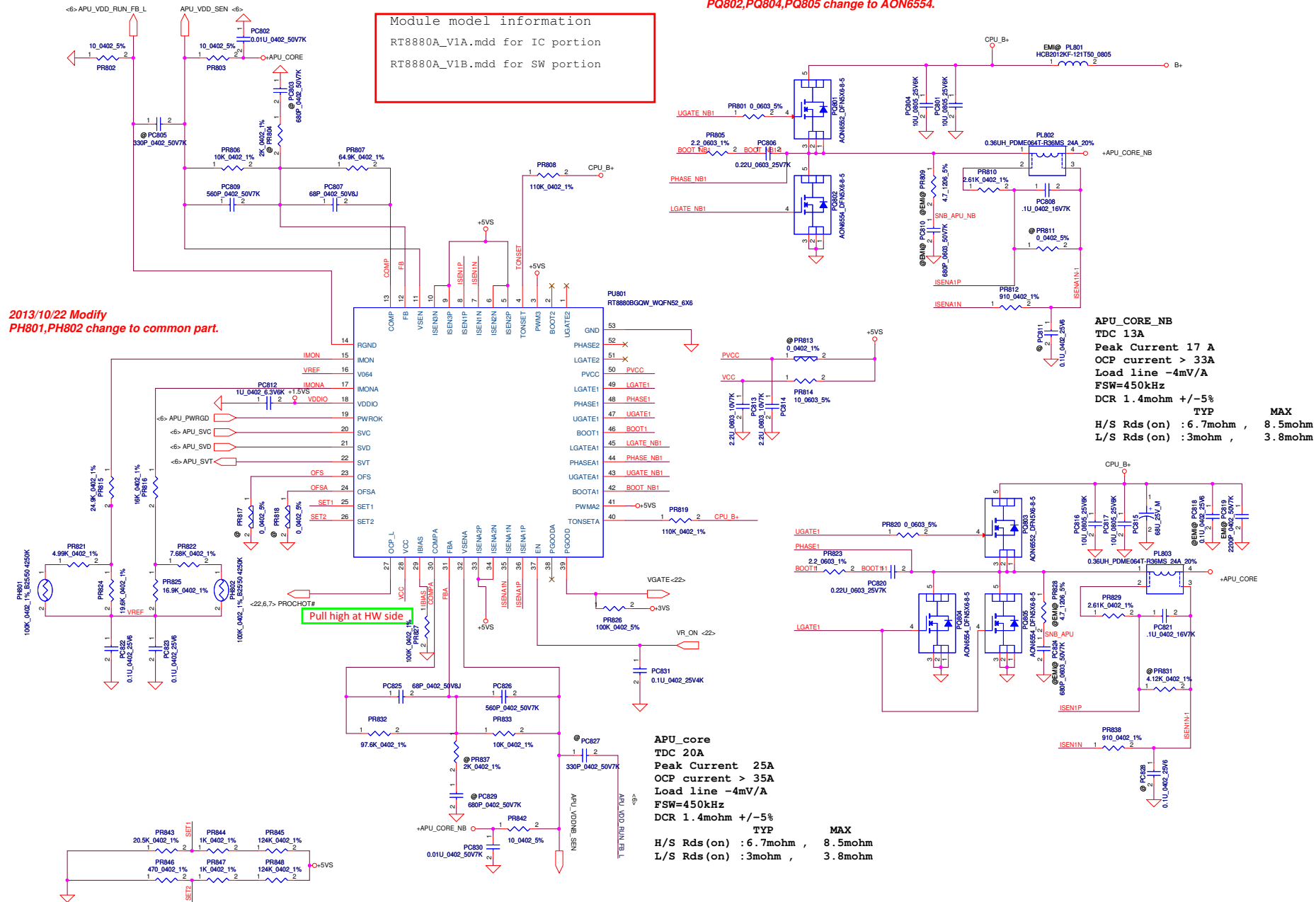
22u Capacitor change to 0603 size.
2013/10/16 modify.

WWW.AliSaler.Com

2013/10/16 Modify
 PQ801,PQ803 change to AON6552.
 PQ802,PQ804,PQ805 change to AON6554.

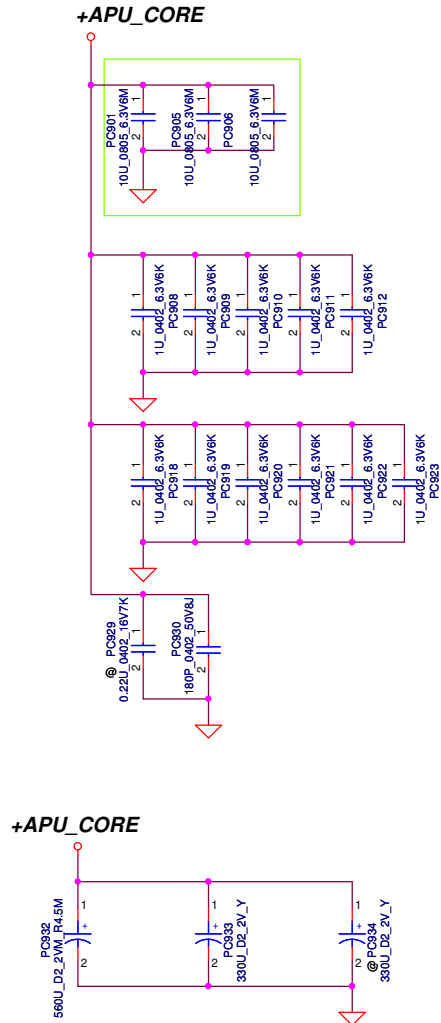
Module model information
 RT8880A_V1A.mdd for IC portion
 RT8880A_V1B.mdd for SW portion

2013/10/22 Modify
 PH801,PH802 change to common part.

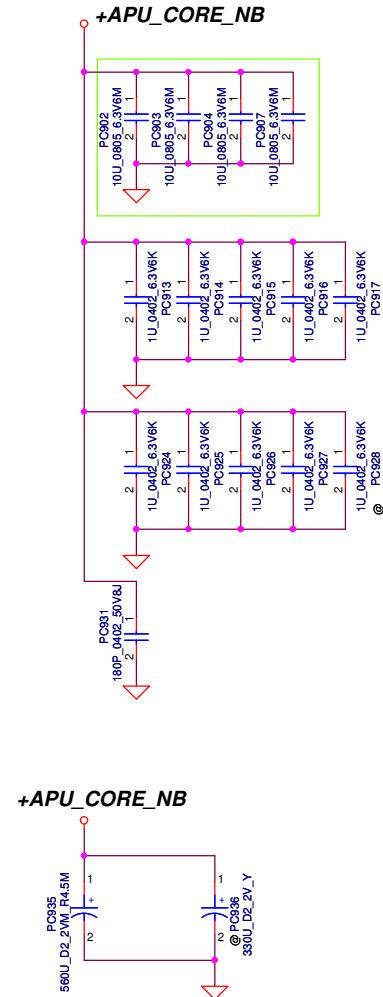


Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date		Deciphered Date		Title	
2014/03/27		2016/03/27		APU CORE/APU CORE NB	
Size		Document Number		Rev	
D0100		1.0		Date	
Thursday, March 27, 2014		Sheet		39 of 45	

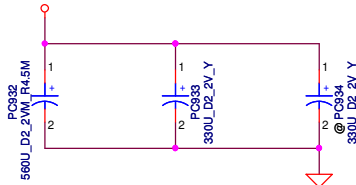
+APU_CORE (36.4)



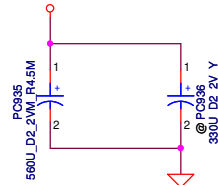
+APU_CORE_NB (36.5)



+APU_CORE



+APU_CORE_NB



Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2014/03/27	Deciphered Date	2016/03/27	Title	APU CORE/APU CORE capacitor
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
				Date	Thursday, March 27, 2014
				Sheet	40 of 45
				Rev	1.0

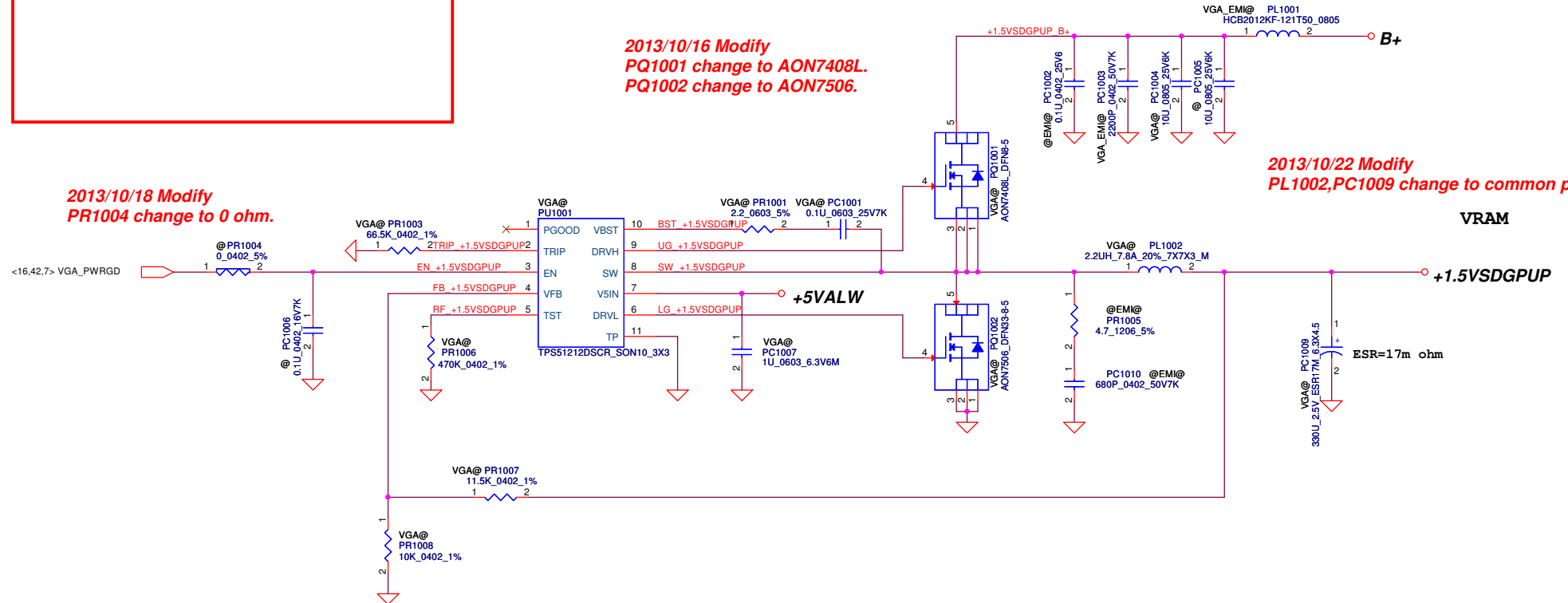
Module model information

TPS51212_V1.mdd for Single layer
TPS51212_V2.mdd for Dual layer

2013/10/16 Modify
PQ1001 change to AON7408L.
PQ1002 change to AON7506.

2013/10/18 Modify
PR1004 change to 0 ohm.

2013/10/22 Modify
PL1002,PC1009 change to common part.



MOSFET: 3x3 DFN
H/S Rds (on): 27mohm(Typ), 34mohm(Max)
Idsm: 7.5A@Ta=25C, 5.5A@Ta=70C

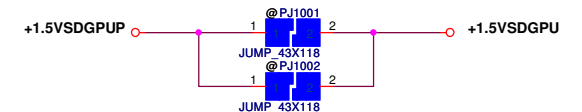
L/S Rds (on): 13mohm(Typ), 15.8mohm(Max)
Idsm: 12A@Ta=25C, 10.5A@Ta=70C

Choke: 7x7x3
Rdc=15.5mohm +/-15%

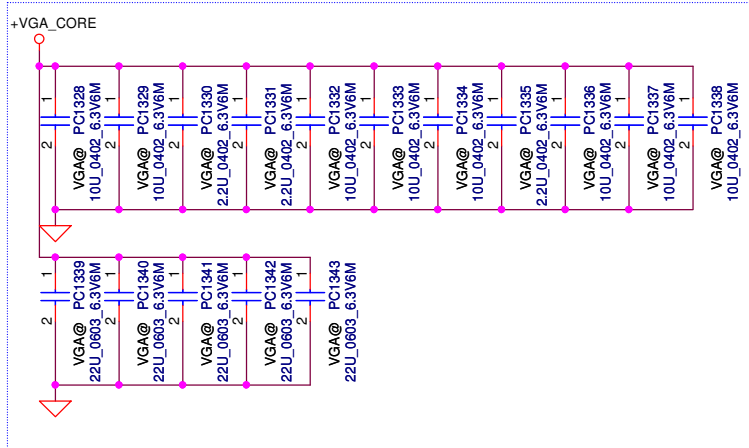
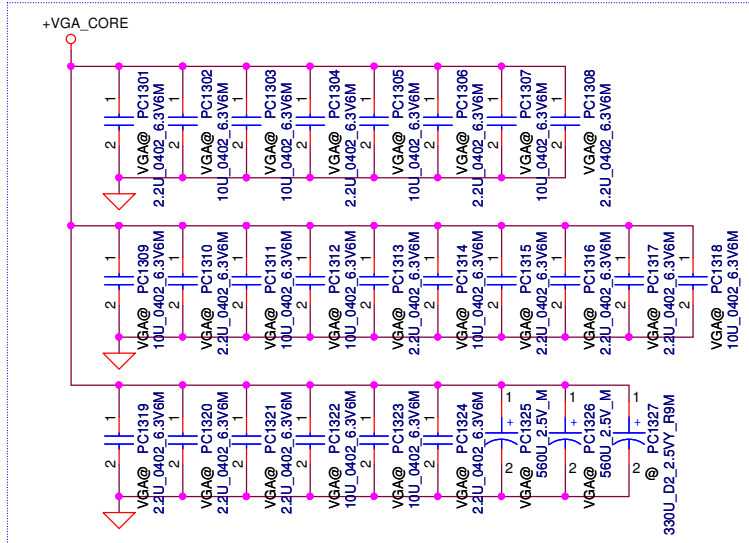
Vout	PR1007	PR1008	PR1003
+1.2V	7.15K	10k	105K
+1.05V	4.99k	10k	93.1k
+1.5V	11.5K	10k	105K

+1.5V(for this project)

Switching Frequency: 290kHz
Ipeak=4.7A
OCP: 6.884A~5.751A
OVP: 120%~130%
VFB=0.704V, Vout=1.514V
PR1003=66.5K Ohm



Security Classification	Compal Secret Data			Compal Electronics, Inc.	
Issued Date	2014/03/27	Deciphered Date		Title	1.5VSDGPUP
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	Thursday, March 27, 2014
				Sheet	41 of 45
				Rev	1.0



Security Classification	Compal Secret Data			Compal Electronics, Inc.		
Issued Date	2014/03/27	Deciphered Date	2016/03/27	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	Rev 1.0
Date: Thursday, March 27, 2014				Sheet	43 of 45	

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

Page 1 of 2
for PWR

Item	Fixed Issue	Reason for change	Rev.	PG#	Modify List	Date	Phase
1	Design Change.	Design Change of Diode Application.	0.2	32	Change PD101 to SCSS4004010(S SCH DIO BAS40-04 SOT23).	2013/11/29	DVT
2	Design Change.	Design Change of IC Application.	0.2	35	Add non-pop component PC427,PC428.	2013/11/29	DVT
3	Design Change.	reduce part count.	0.2	37	Delete PR605 PD resister.	2013/11/29	DVT
4	Design Change.	reduce part count.	0.2	39	Delete @PR834.@PR835.@PR836.@PR839.@PR840.@PR841.	2013/11/29	DVT
5	Design Change.	Design Change of VGA Type Application.	0.2	42	PR1205 change to non-pop. PR1211 change to pop.	2013/11/29	DVT
6	Design Change.	Design Change of common part.	0.2	34	Change PL301 to SH00000YG00 (S COIL 1UH +-30% 2.8A 4X4X2 FERRITE).	2013/11/29	DVT
7	Design Change.	Design Change of common part.	0.2	42	Change PL1202.PL1203 to SH000011H00 (S COIL .22UH +-20% 24A 7X7X4 MOLDING).	2013/11/29	DVT
8	Design Change.	Design Change of Delay Time.	0.2	42	Change PR1201 to SD028000080(S RES 1/16W 0 +-5% 0402). Change PC1201 to non-pop.	2013/11/29	DVT
9	Design Change.	Design Change of EC Type Application.	0.2	35	Add PD401 SCS00000Z00(S SCH DIO RB751V-40 SOD-323).	2013/11/29	DVT
10	Design Change.	Design Change of Circuit Application.	0.2	42	Add PR1250 SD034100480(S RES 1/16W 1M +-1% 0402).	2013/11/29	DVT
11	Design Change.	Design Change of Delay Time.	0.2	42	Change PR1201 to SD028000080(S RES 1/16W 0 +-5% 0402). Change PC1201 to SE071330J80(S CER CAP 33P 50V J NPO 0402)	2013/12/16	DVT
12	Design Change.	Design Change of Circuit Application.	0.2	33	Delete PR223.(remove HW hysteresis)	2013/12/16	DVT
13	Design Change.	Design Change of Circuit Application.	0.2	42	Change PR1250 to non-pop.	2013/12/16	DVT
14	Design Change.	Design Change of Circuit Application.	0.2	34	Change PQ303,PQ304 to SB000010A00(S TR AON7506 1N DFN).	2013/12/19	DVT
15	Design Change.	Design Change of Circuit Application.	0.2	33	Add PL202 SM01000C000 (S SUPPRE_ TAI-TECH HCB2012KF-121T50 0805)	2013/12/19	DVT

Security Classification	Compal Secret Data			Compal Electronics, Inc.		
Issued Date	2014/03/27	Deciphered Date	2016/03/27	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	Rev	1.0
				Date:	Thursday, March 27, 2014	Sheet 44 of 45

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

Item	Fixed Issue	Reason for change	Rev.	PG#	Modify List	Date	Phase
16	Design Change.	Design Change of Circuit Application.	0.2	33	Change PR211 to SD028000080(S RES 1/16W 0 +-5% 0402).	2013/12/25	DVT
17	Design Change.	Design Change of Circuit Application.	0.2	35	Change PC426 to pop.	2013/12/25	DVT
18	Design Change.	Design Change of Circuit Application.	0.2	33	Change PR216 to SD034162280(S RES 1/16W 16.2K +1% 0402).	2013/12/25	DVT
19	Design Change.	Design Change of Circuit Application.	0.2	33	Change PR216 to SD034169280(S RES 1/16W 16.9K +-1% 0402).	2014/01/02	DVT
20	Design Change.	Design Change of Circuit Application.	0.2	33	Change PR202 to SD034100280(S RES 1/16W 10K +-1% 0402).	2014/01/02	DVT
21	Design Change.	Design Change of Circuit Application.	0.3	37.38. 39.41.	Change PR813,PR601,PR706,PR702,PR1004 to SD028000080(S RES 1/16W 0 +-5% 0402).	2014/02/07	PVT
22	Design Change.	Design Change of Circuit Application.	0.3	35	Remove PD401. Add @PR410 SD028000080(S RES 1/16W 0 +-5% 0402).	2014/02/07	PVT

Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2014/03/27	Deciphered Date	2016/03/27	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.				PWR PIR	
				Rev 1.0	
Date: Thursday, March 27, 2014				Sheet	45 of 45