

Compal Confidential

Z5WAE Schematics Document

AMD "Beema" Platform

AMD 25W APU With Puma+ Core

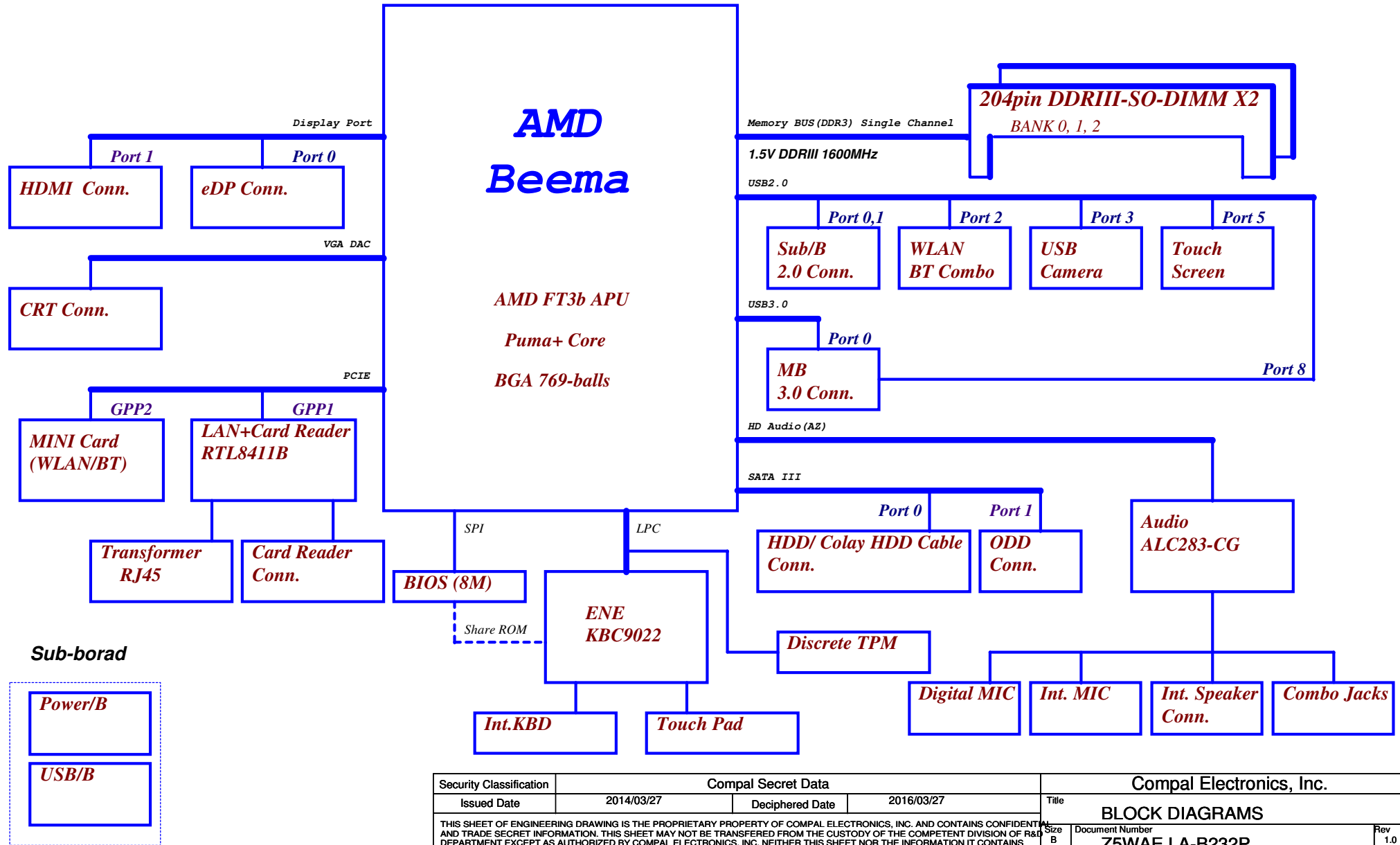
LA-B232P REV: 1.0

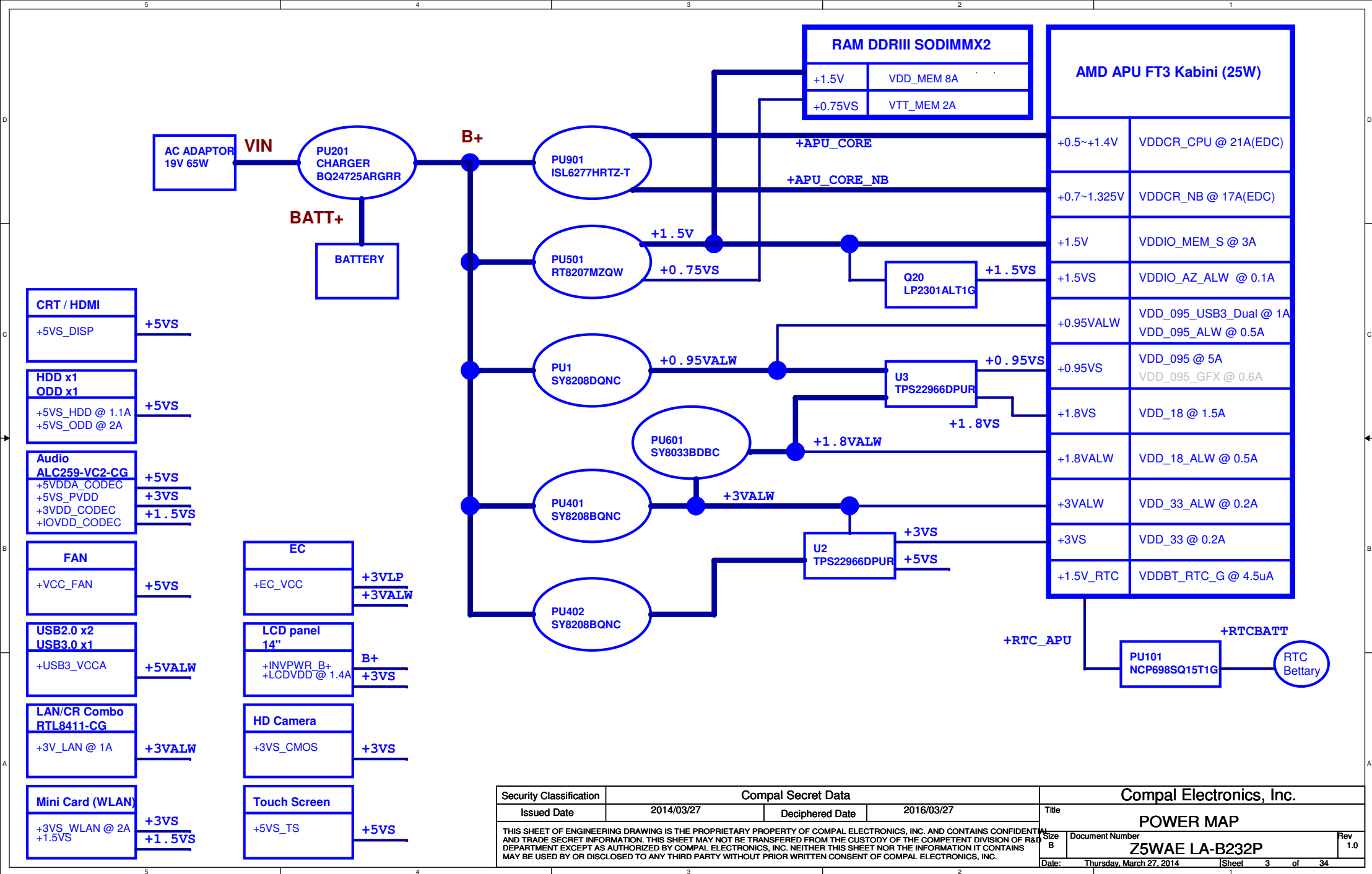
2014-03-27

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-B232P	Rev 1.0
				Date	Thursday, March 27, 2014	Sheet 1 of 34

Compal Confidential

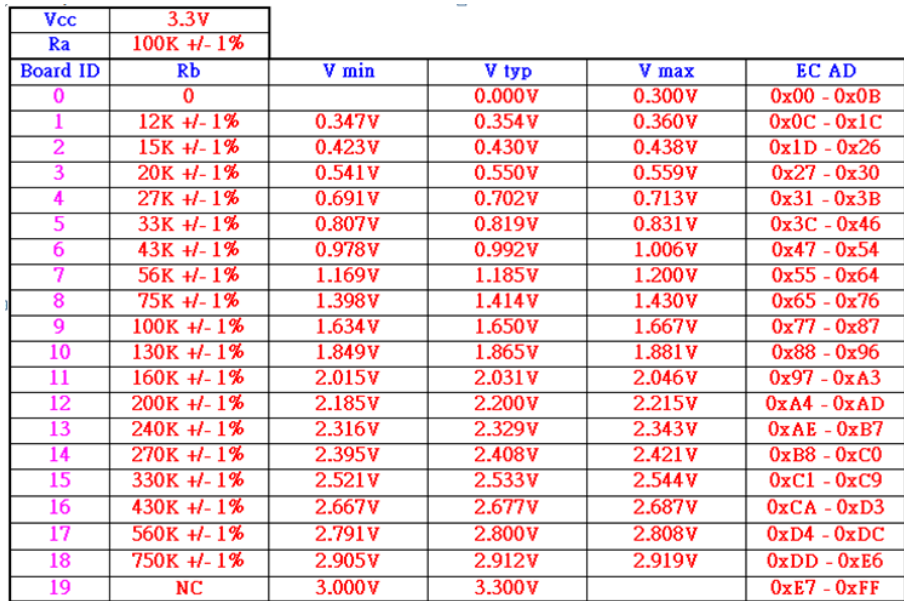
Model Name : Z5WAE





[illegible]

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

[illegible]

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

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

G-A +RTC

EC_ON

G-B +3VALW/+5VALW

+1.8VALW

+0.95VALW

SYSON

G-C +1.5V

SUSP#

G-D +3VS

+1.8VS

+1.5VS

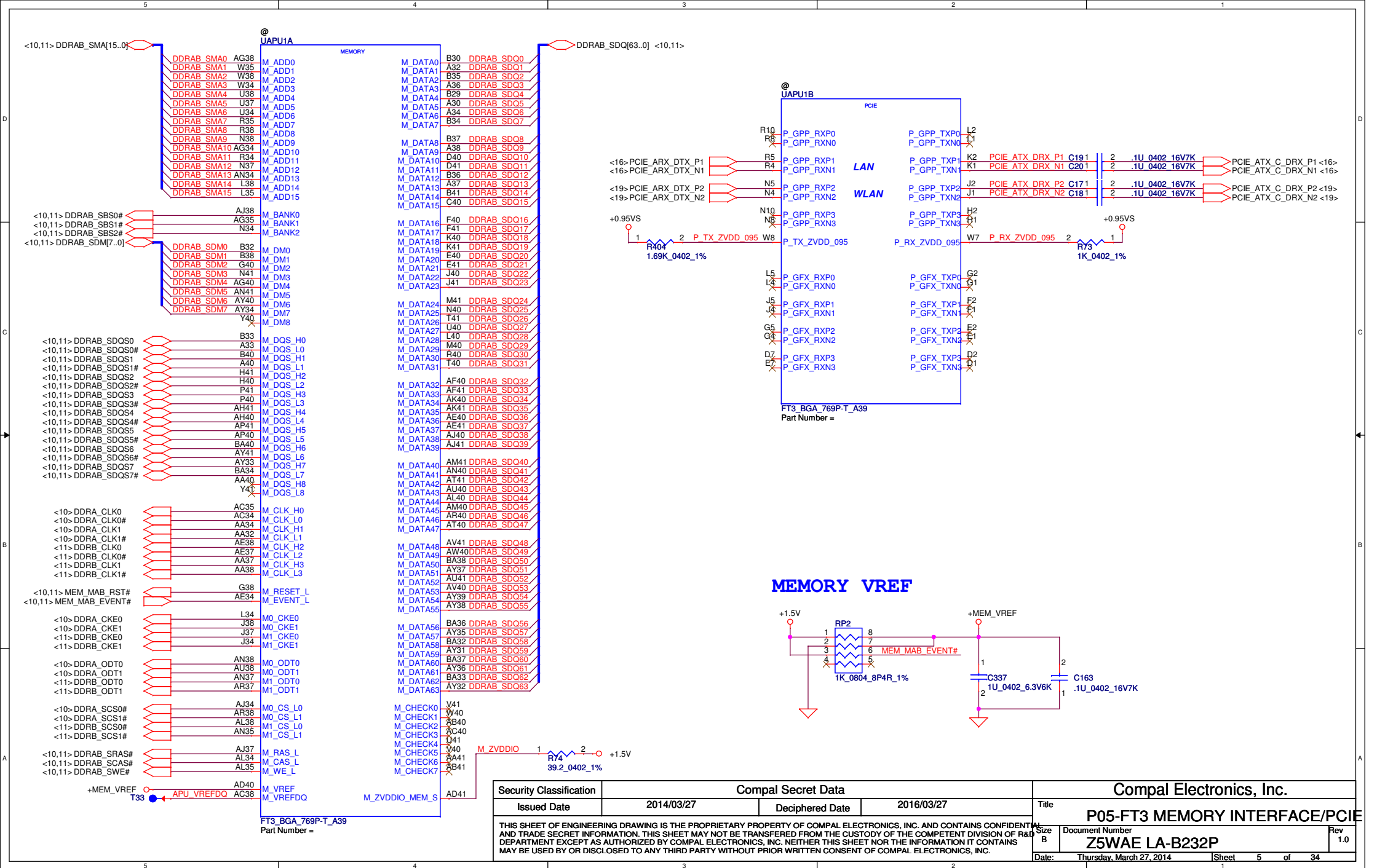
+0.95VS

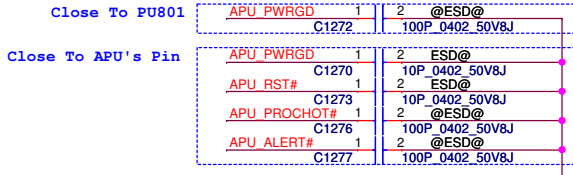
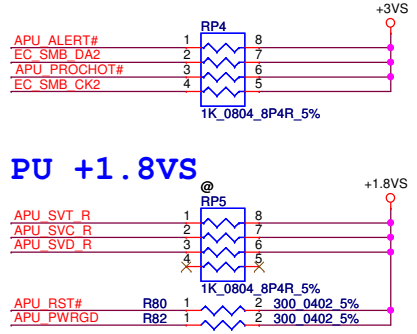
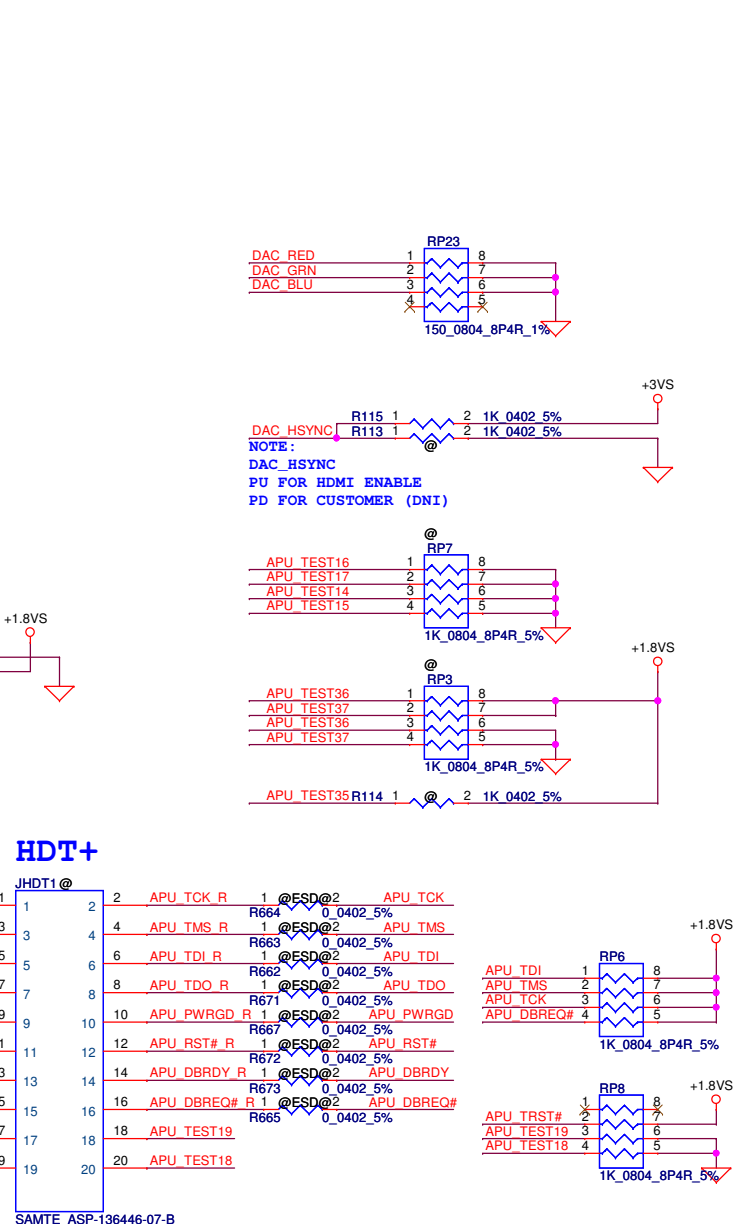
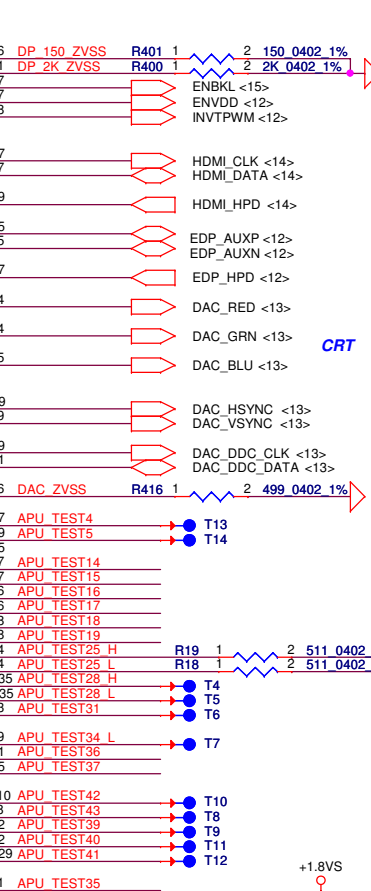
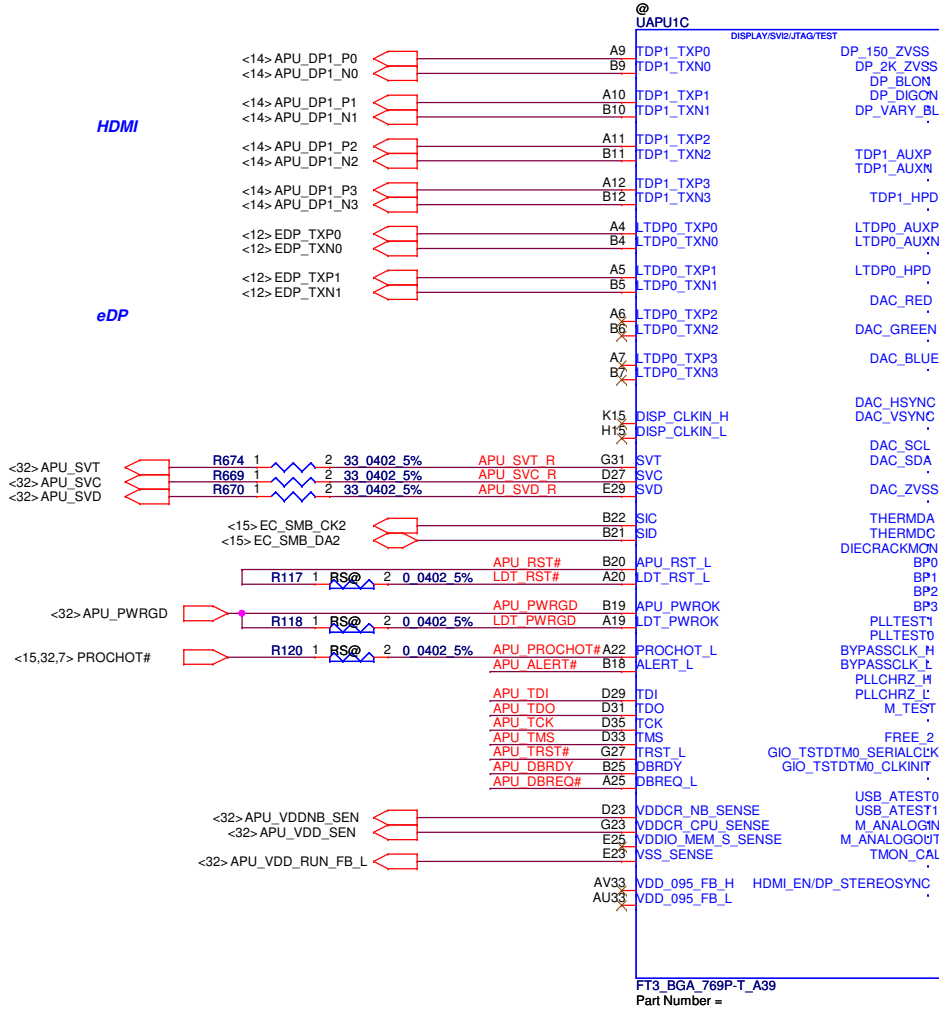
VR_ON

G-E +APU_CORE

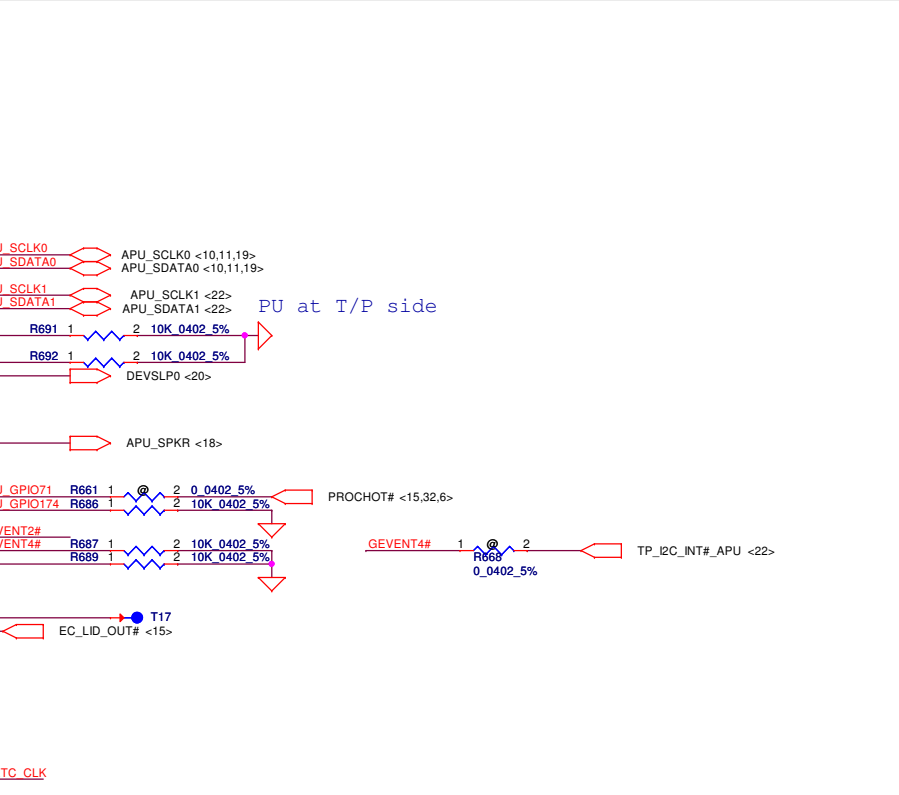
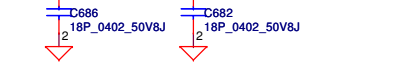
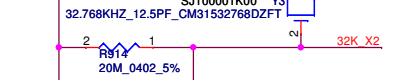
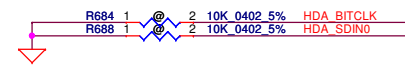
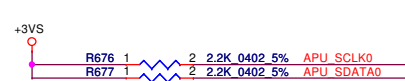
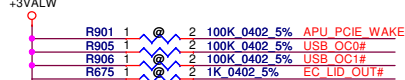
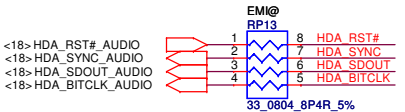
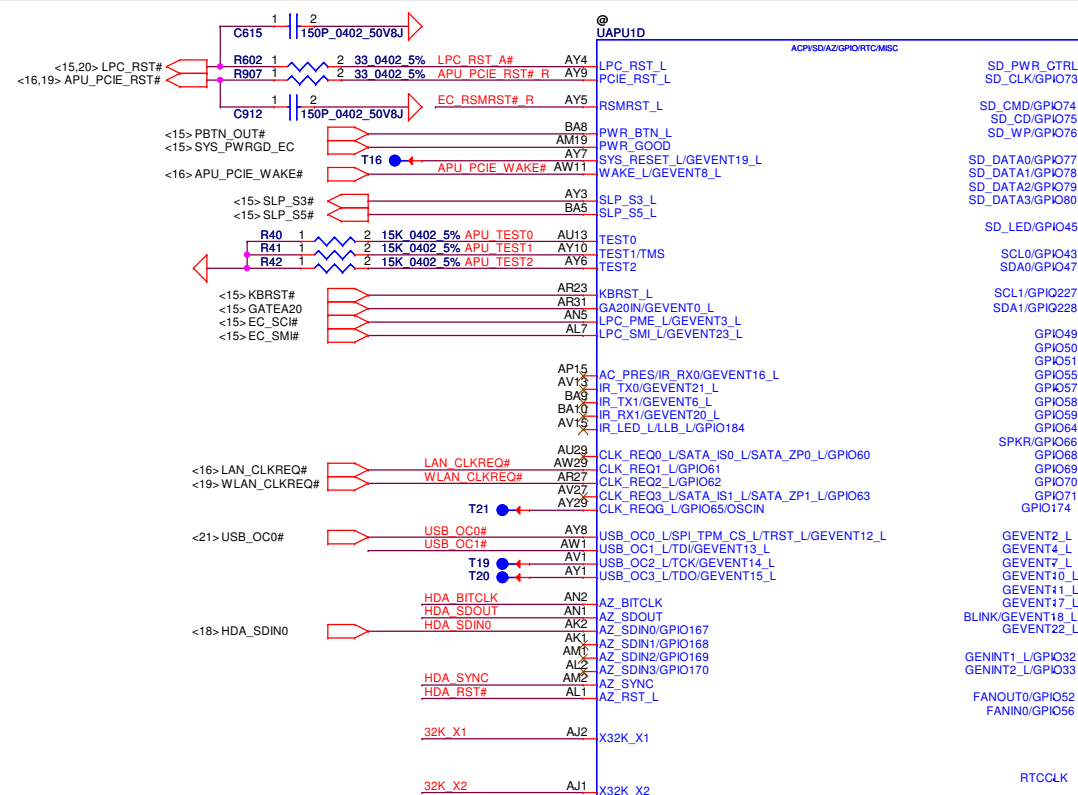
+APU_CORE_NB

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 COMPAL ELECTRONICS, INC. WITHOUT THE WRITTEN CONSENT 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	
				Z5WAE LA-B232P	
Date:				Friday, March 28, 2014	
Sheet				4 of 34	



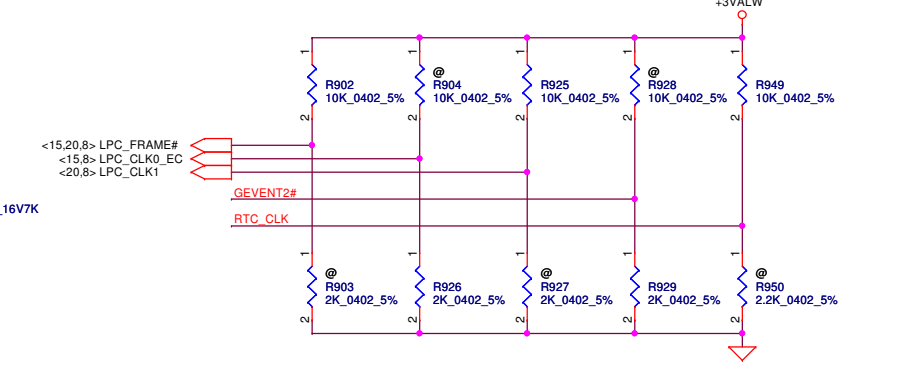


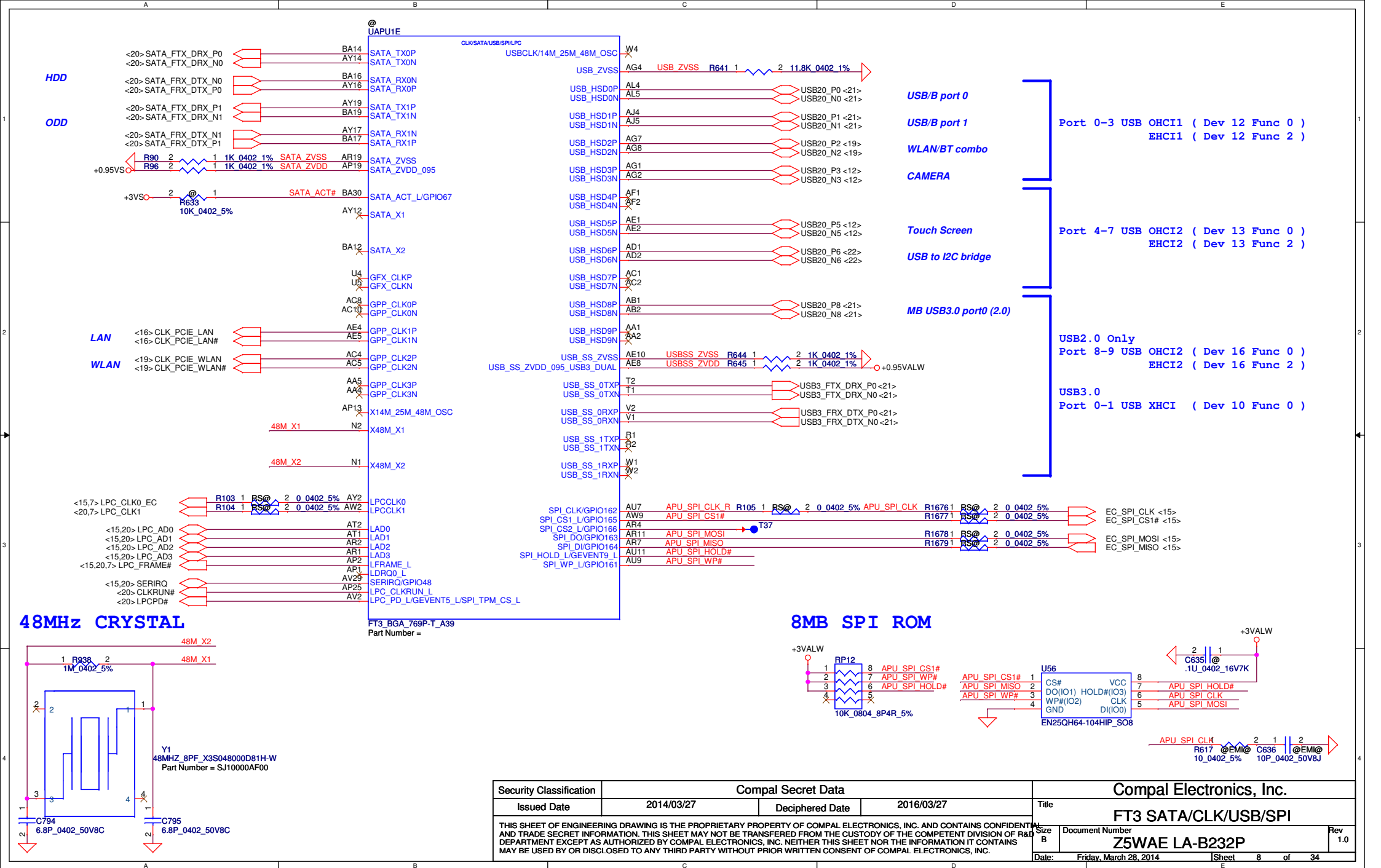
Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2014/03/27	Deciphered Date	2016/03/27	Title	FT3 DISP/MISC/HDT
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET 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-B232P
Date: Thursday, March 27, 2014		Sheet 6 of 34		Rev 1.0	



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





+APU CORE



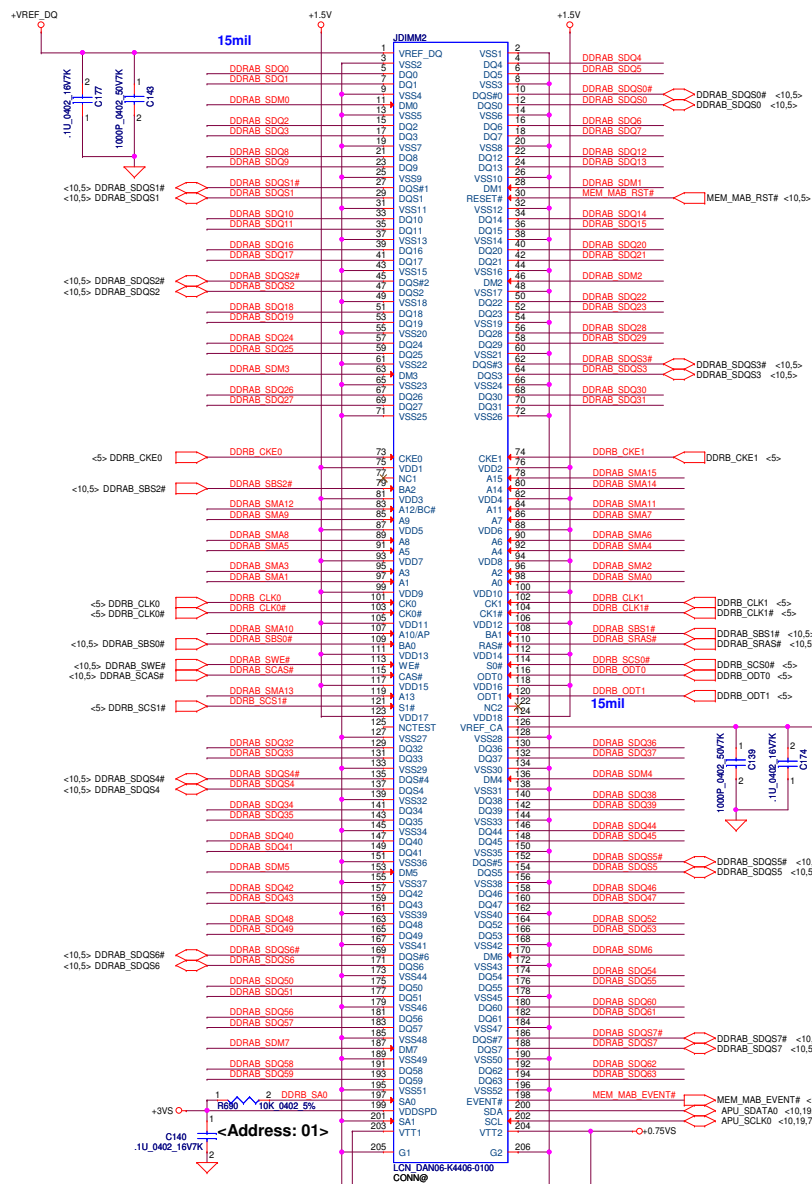
1.0 V/C



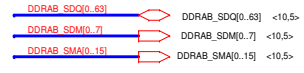
RTC OF APU



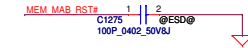
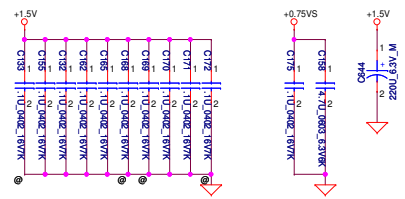
Security Classification		Compal Secret Data		Compal Electronics, Inc.		
Issued Date	2014/03/27	Deciphered Date	2016/03/27	Title	FT3 PWR/GND	
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF 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 C	Document Number	Rev 1.0
				Z5WAE LA-B232P		
Date:		Thursday, March 27, 2014		Sheet	9	of 34



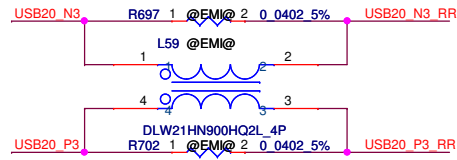
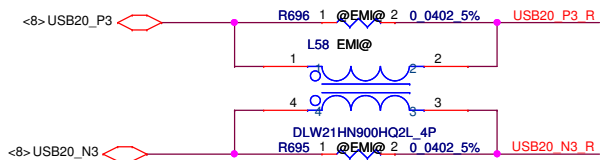
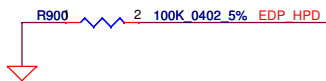
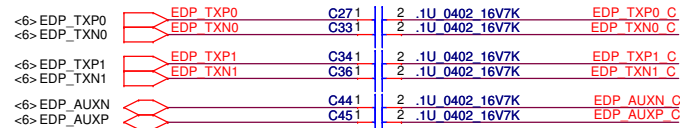
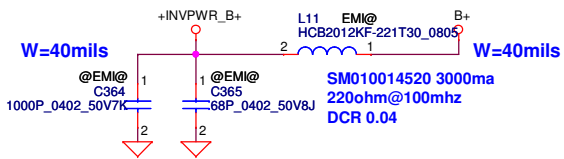
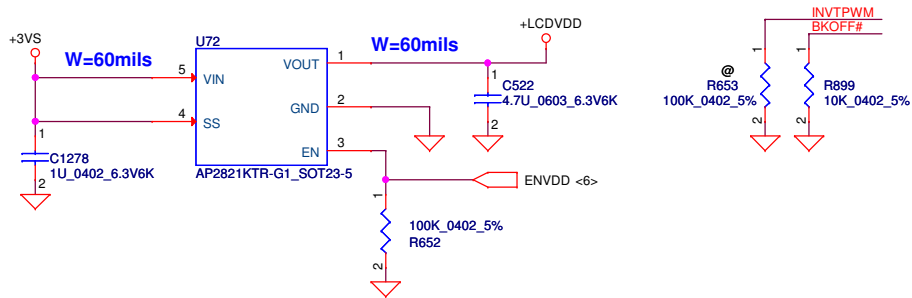
DIMM_B H:4mm STD



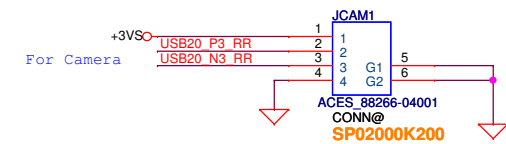
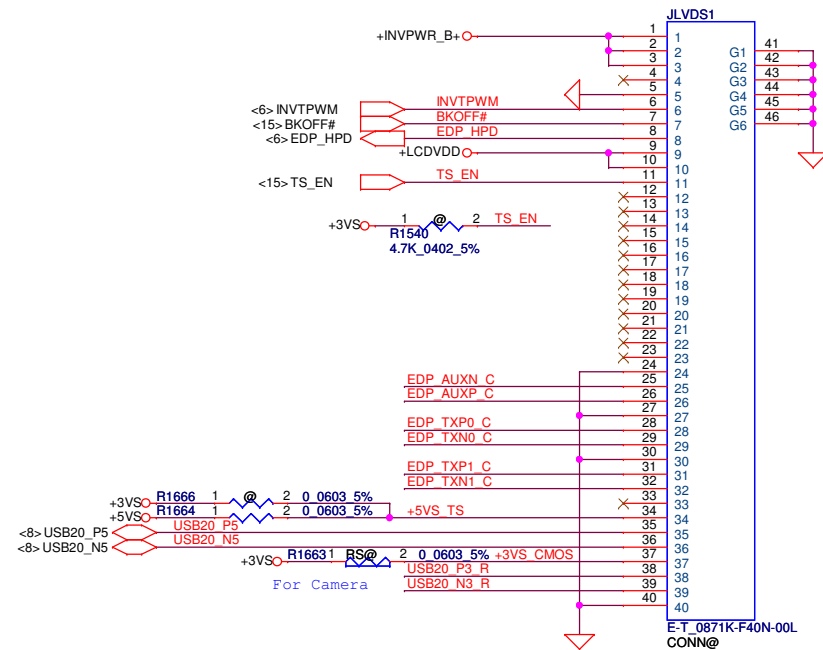
+1.5V/+0.75VS OF DIMM2



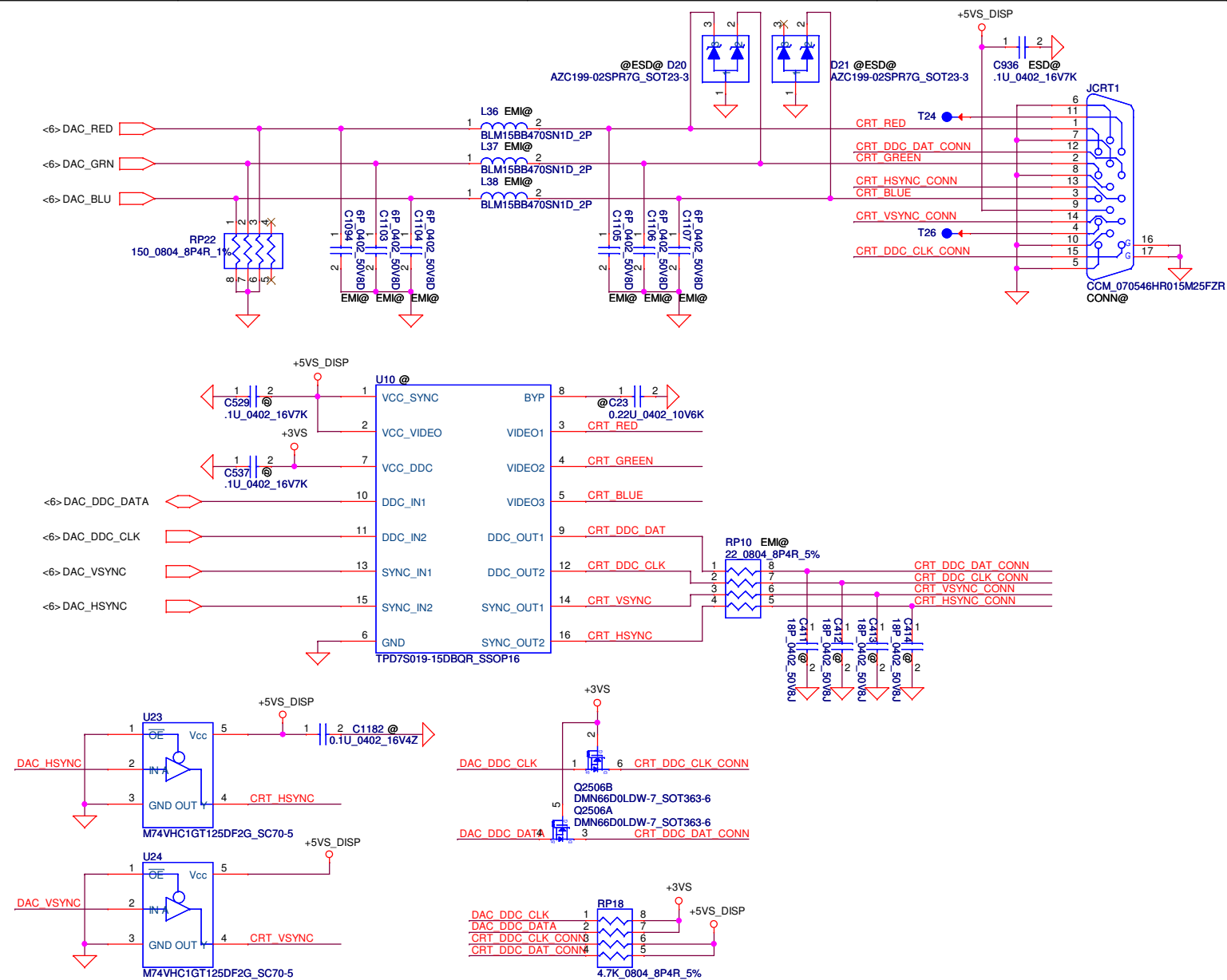
LCD POWER CIRCUIT



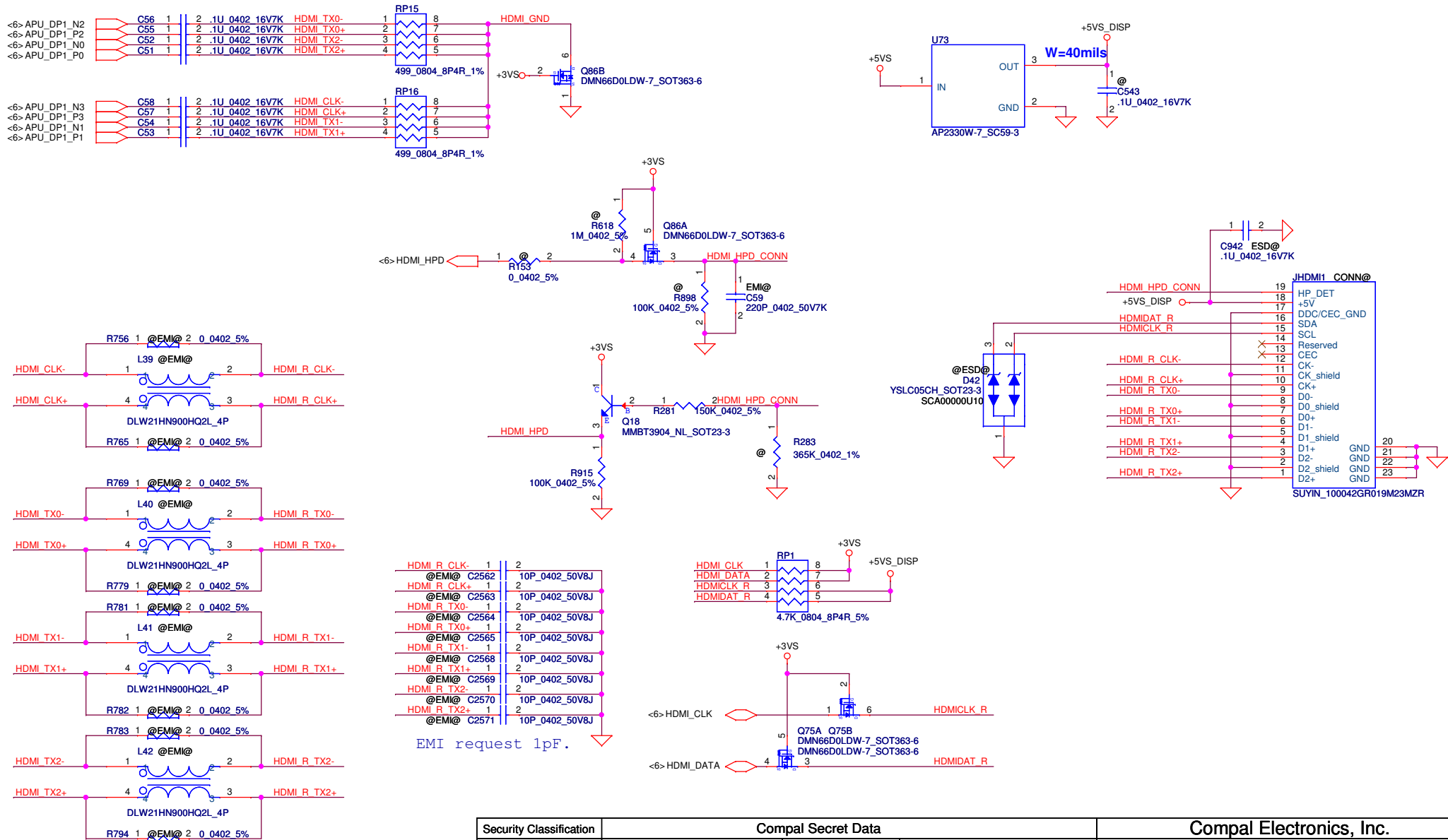
eDP PANEL Conn.



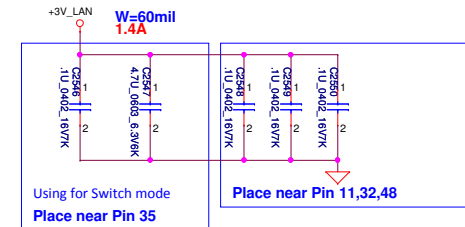
Security Classification	Compal Secret Data			Compal Electronics, Inc.	
Issued Date	2014/03/27	Deciphered Date	2016/03/27	Title	
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED 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
				B	1.0
				Document Number	
				Z5WAE LA-B232P	
				Date:	Thursday, March 27, 2014
				Sheet	12 of 34



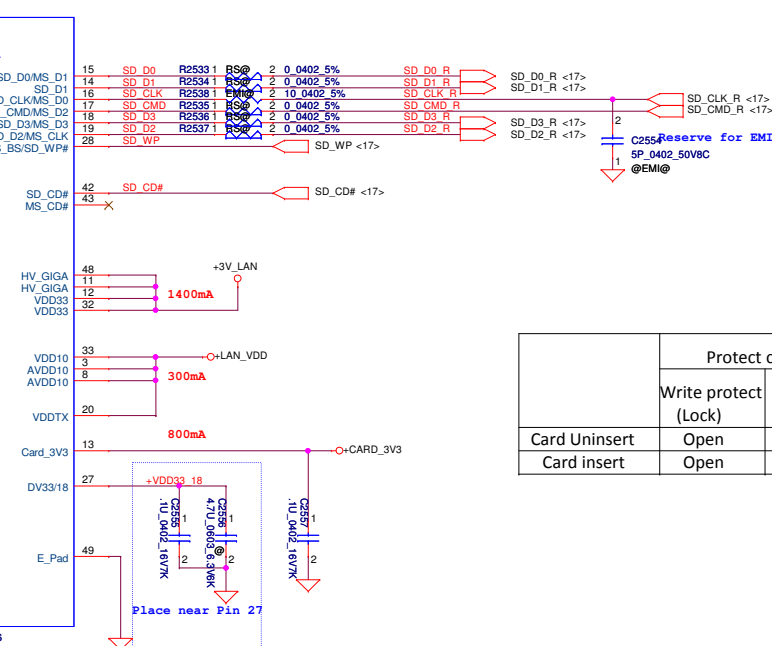
Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2014/03/27	Deciphered Date	2016/03/27	Title	
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED 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
				Z5WAE LA-B232P	1.0
Date: Thursday, March 27, 2014				Sheet	13 of 34



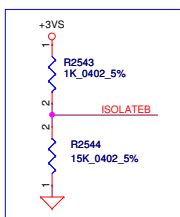
Security Classification	Compal Secret Data			Compal Electronics, Inc.	
Issued Date	2014/03/27	Deciphered Date	2016/03/27	Title	
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED 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.				HDMI CONN	
				Size B	Rev 1.0
				Document Number	
				Z5WAE LA-B232P	
				Date:	Thursday, March 27, 2014
				Sheet	14 of 34



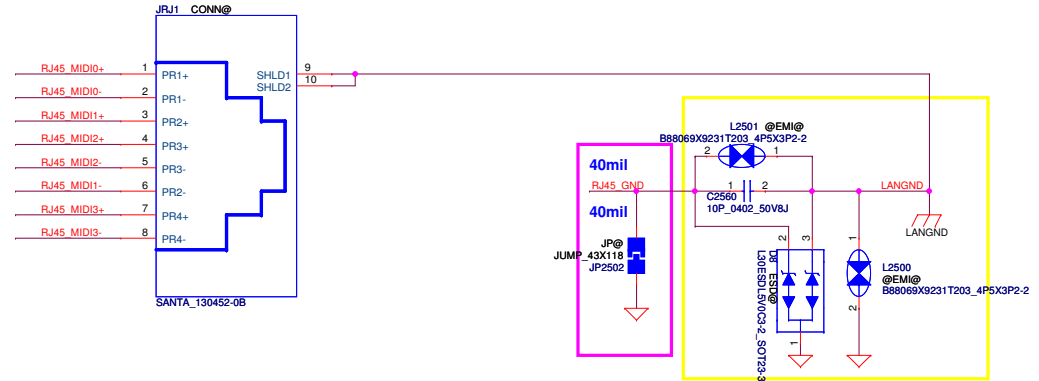
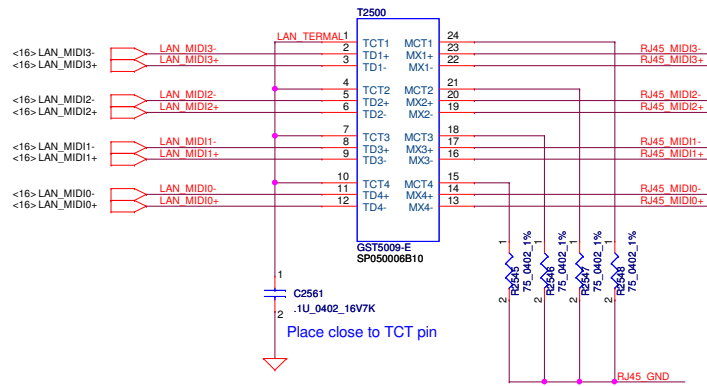
+3V_LAN Rising time must >0.5ms and <100ms



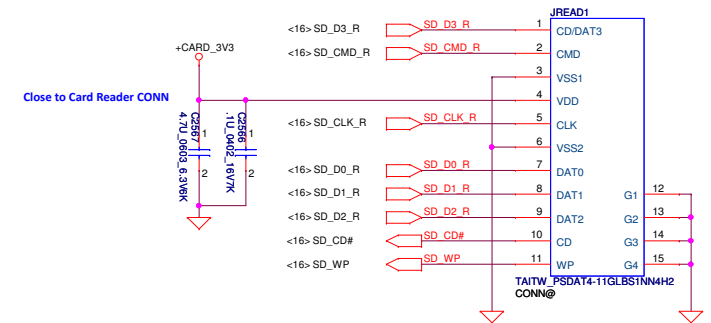
	Protect cotact		Card contac
	Write protect (Lock)	Write Enable (Unlock)	
Card Uninsert	Open	Open	Open
Card insert	Open	Close	Close



LAN Connector

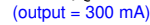
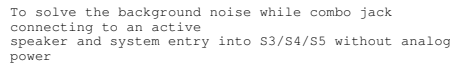


Card Reader Connector



Security Classification	Compal Secret Data			Compal Electronics, Inc.		
Issued Date	2014/03/27	Deciphered Date	2016/03/27	Title	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	Rev
				Custom	Z5WAE LA-B232P	1.0
				Date:	Thursday, March 27, 2014	Sheet 17 of 34

SM01000EJ00 3000ma 220ohm@100mhz DCR 0.04



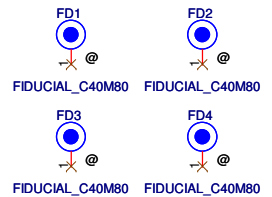
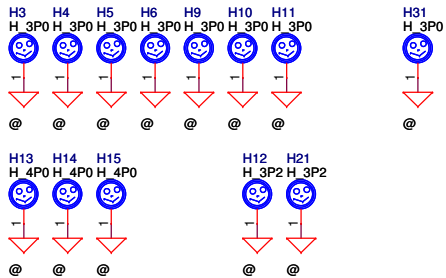
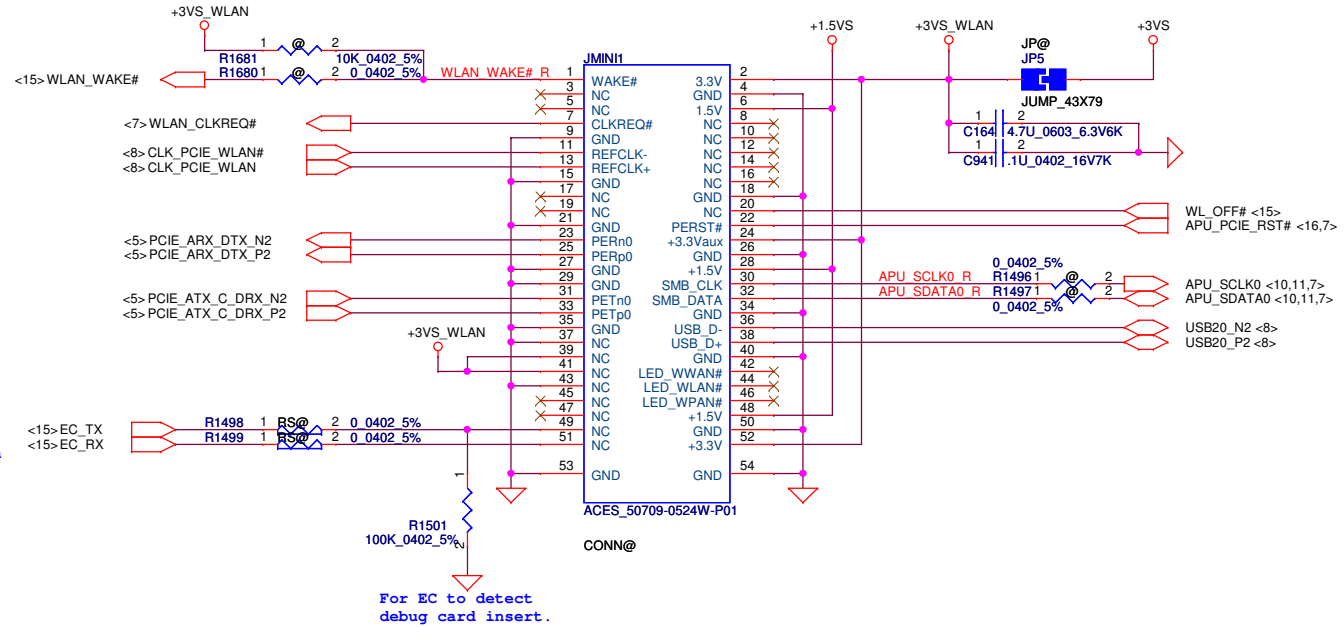
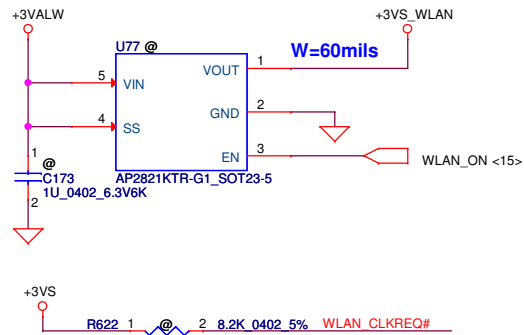
Compal Electronics, Inc.

HD Audio Codec ALC283

Size	Document Number
Custom	Z5WAE LA-B232P

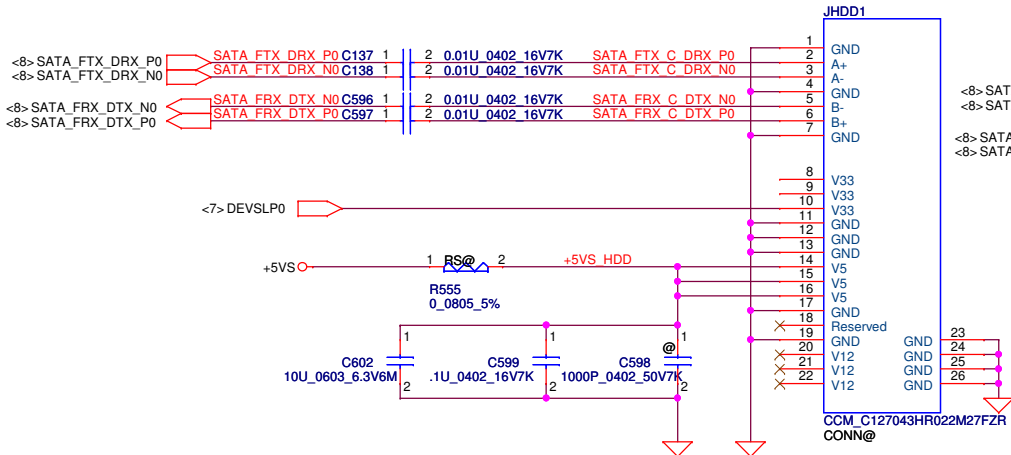
Date: Thursday, March 27, 2014 Sheet 18 of 34

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

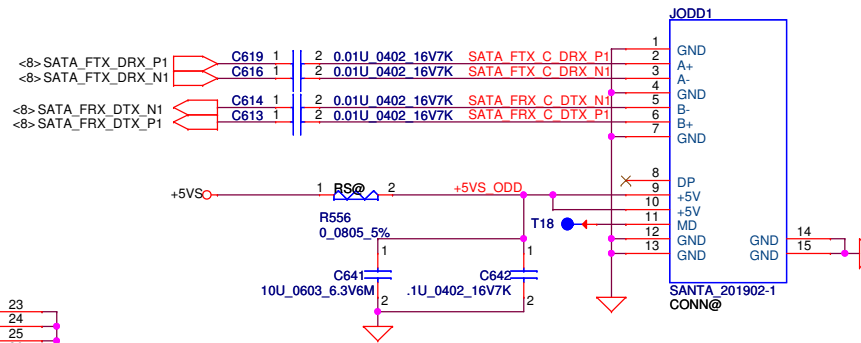


Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2014/03/27	Deciphered Date	2016/03/27	Title	
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED 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-B232P	
				Date: Thursday, March 27, 2014	Sheet 19 of 34
				Rev 1.0	

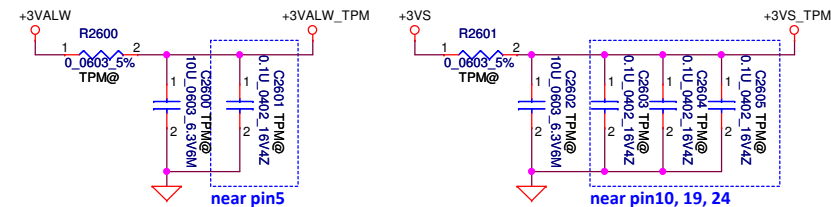
SATA HDD Conn.



SATA ODD Conn.



TPM



BADD	SELECTION
0	EEh - EFh
* 1	7Eh - 7Fh

GPIO3/BADD with Internal PH (default)

AMD CLKRUN# no need PH (DG1.1)

LPCPD# had internal PH <8> LPCPD#

SERIRQ no need PH

+3VS TPM

CLKRUN#

10K_0402_5%
R2604

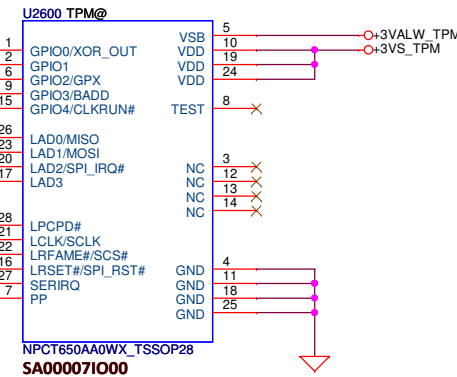
CLKRUN# PH request by TPM chip DG 1/22

LPC_CLK1 R2603 1 2 33 0402 5% C2606 1 2 22P 0402 50V8J

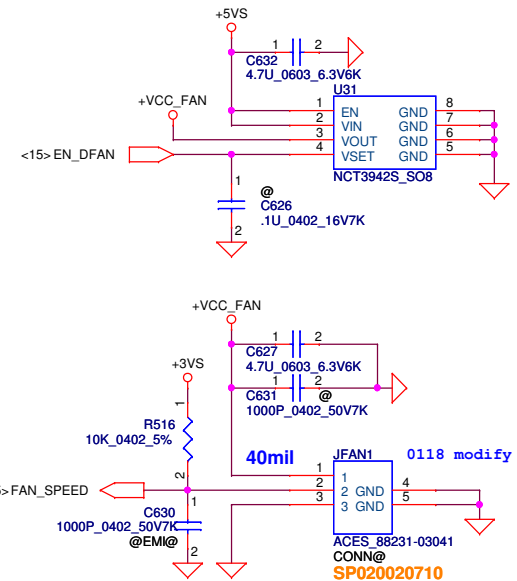
@EMI@ @EMI@

close to EC

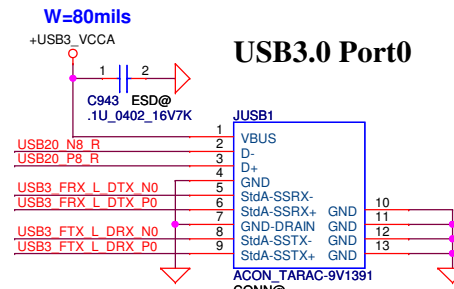
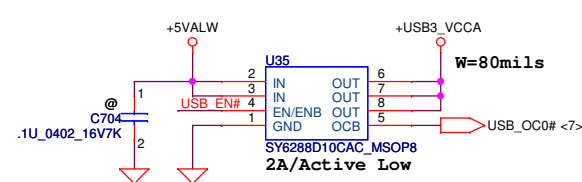
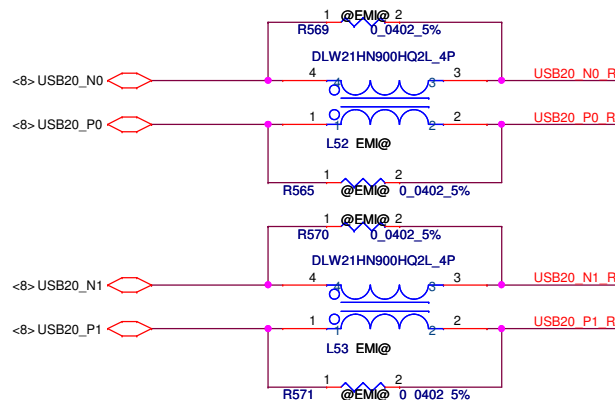
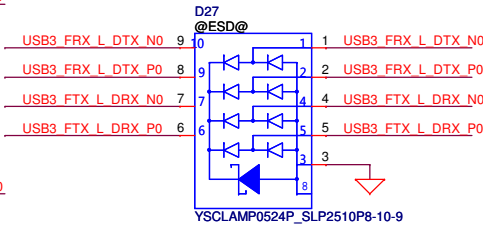
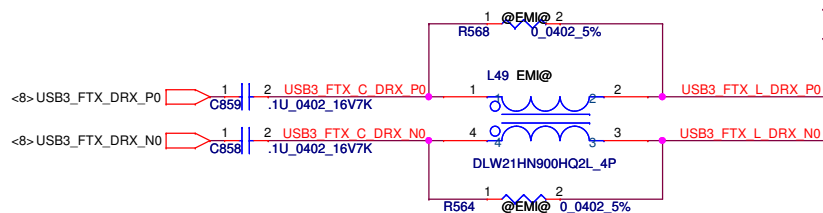
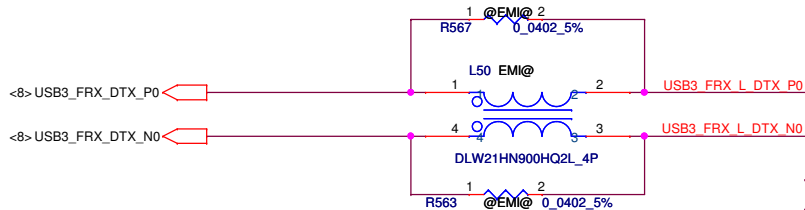
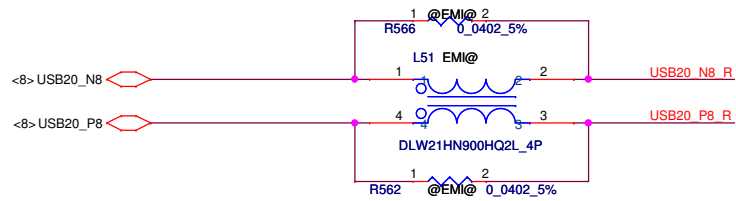
LPC_AD3_R R1684 1 TPM@ 2 0.0402 5% LPC_AD3
 LPC_AD2_R R1685 1 TPM@ 2 0.0402 5% LPC_AD2
 LPC_FRAME# R1686 1 TPM@ 2 0.0402 5% LPC_FRAME#
 LPC_AD1_R R1687 1 TPM@ 2 0.0402 5% LPC_AD1
 LPC_AD0_R R1688 1 TPM@ 2 0.0402 5% LPC_AD0
 SERIRQ_R R1689 1 TPM@ 2 0.0402 5% SERIRQ



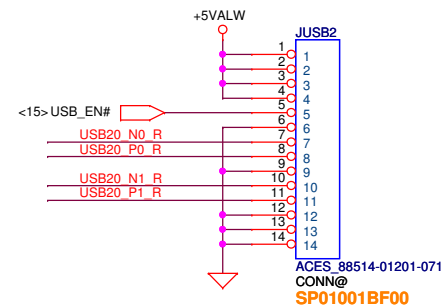
FAN Conn



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.				HDD/ODD/FAN/TPM
Size	Document Number	Z5WAE LA-B232P		Rev
B				1.0
Date:	Thursday, March 27, 2014	Sheet	20	of 34



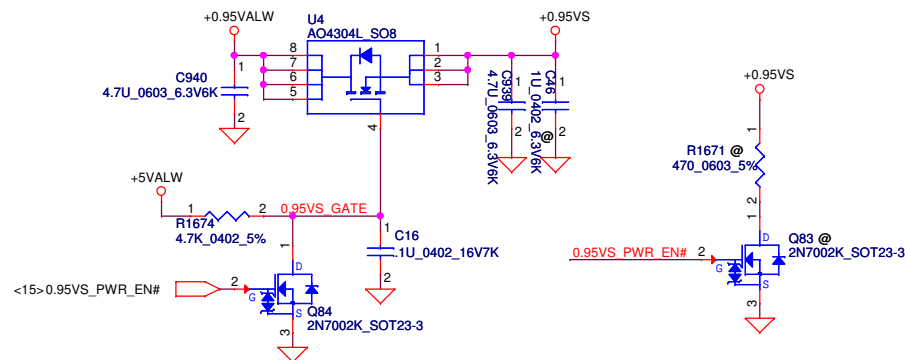
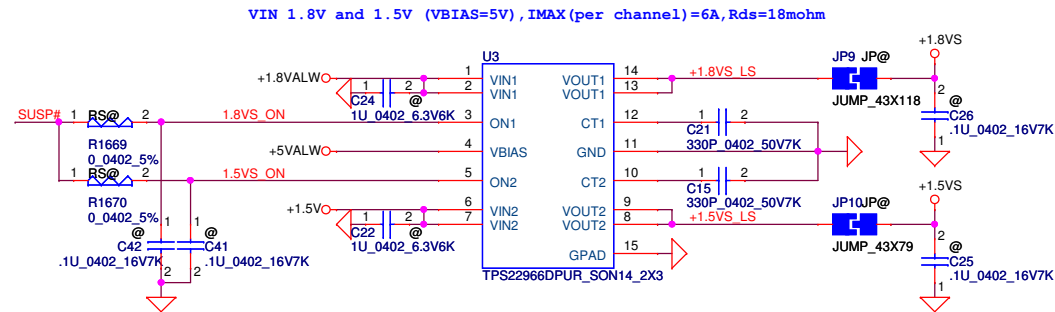
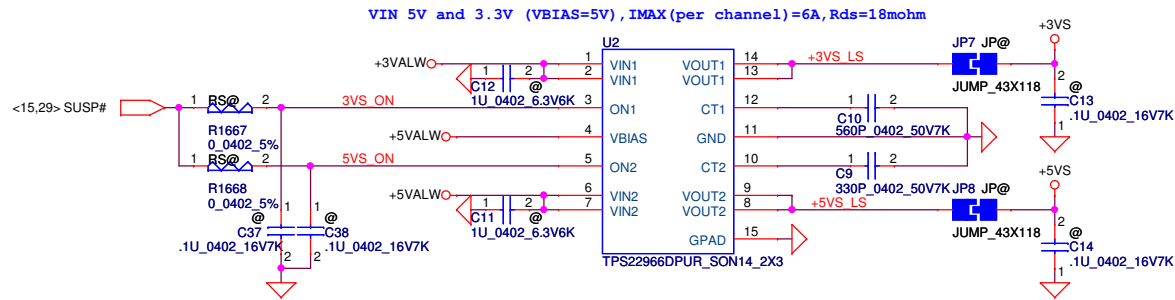
USB/B(USB Port 0, Port1)



Security Classification				Compal Secret Data				Compal Electronics, Inc.			
Issued Date				2014/03/27				Deciphered Date			
2014/03/27				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				Document Number			
				B				Z5WAE LA-B232P			
				Date:				Thursday, March 27, 2014			
				Sheet				21 of 34			

+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-B232P Date: Thursday, March 27, 2014 Sheet 23 of 34		

0.1

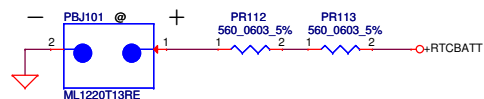
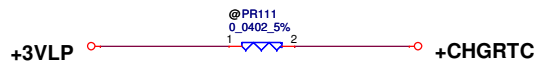
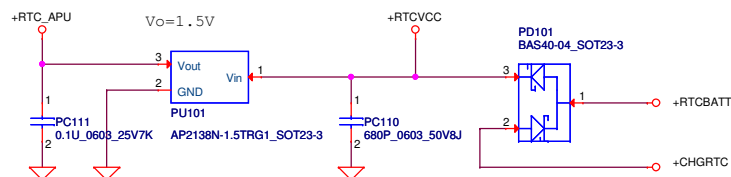
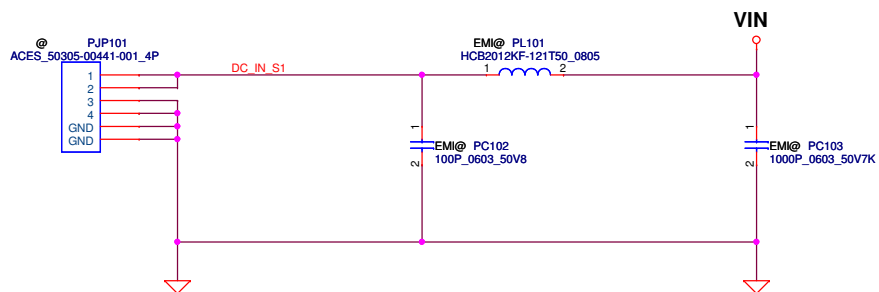
- 1. Add R139 for colay CY7C65211 and MA723C
- 2. Change Y3 to SJ100001K00
- 3. Change Q9 to MESS138
- 4. Reserve C607 pad for ESD request
- 5. Swap D10.2, D10.3 and change D10.3 to RING2
- 6. Delete L22, C950, C203
- 7. Change R404, R73 connect to +0.95VS
- 8. Connect R139 to U69.2
- 9. Change R452 to 10K
- 10. Change C43 to 4.7U
- 11. Change C43 to 1U
- 12. Add T18, T24, T25
- 13. Chagne U2 and U3 P/N to SA00006FD00
- 14. Change U2 and U3 P/N to SA00004MM00
- 15. Unpop Q2505,Q87, RP24; Pop R122,R123,R134,R1683

0.2

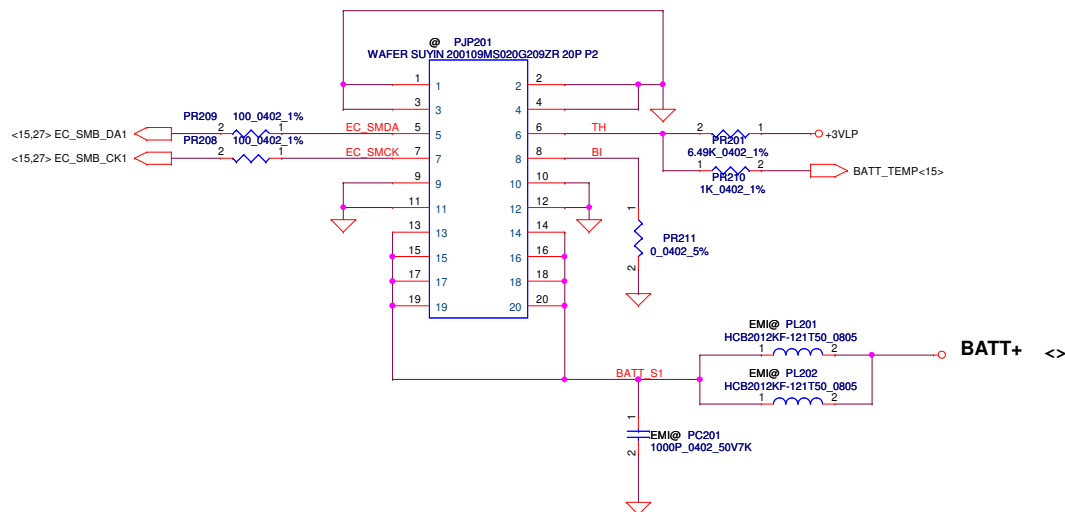
- 1. Change R119 to Rshort
- 2. Add U23,U24,Q2506,D20 and D21 for D-sub
- 3. Change U69 power to +3VALW and +5VALW; modify Q2505 body diode issue.
- 4. Add L52,L53,R565,R569,R570 and R571 for EMI request.
- 5. Add R127,R128,R140,R141,R142,R143 for reserve USB TP
- 6. Add R209 to prevent EC out of control
- 7. Change LAN_WAKE# PU to +3V_LAN
- 8. Change BID to 1 for DVT
- 9. Change C99,C100 to 10p for crystal test
- 10. Change R238 and R237 to 59ohm
- 11. Add L76,L77,C2142 and C2140 for ESD request
- 12. Change R756,R765,R769,R779,R781,R782,R783 and R794 to Rshort for EMI request
- 13. Pop Q89, unpop R1690
- 14. Change D10 to SCA00001B00
- 15. Add C609 for ESD request
- 16. Change L11 to SM01000EJ00
- 17. Add C668 and C832 for vendor request
- 18. Remove APU_ALERT#_R
- 19. Add H12,remove H30,swap H21 and H31

0.3

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



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 25 of 34



---Battery_pin define---

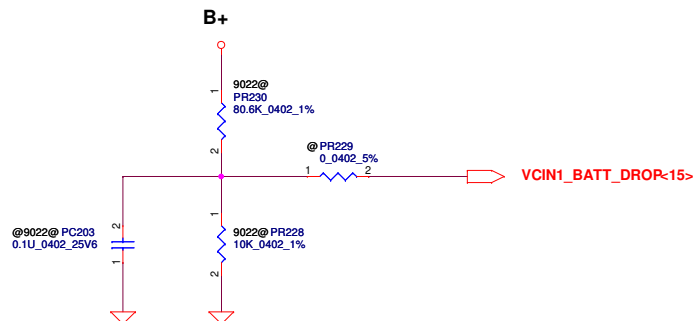
PIN1 GND
PIN2 GND
PIN3 SMD
PIN4 SMC
PIN5 TS
PIN6 B/I
PIN7 Batt+
PIN8 Batt+

---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.

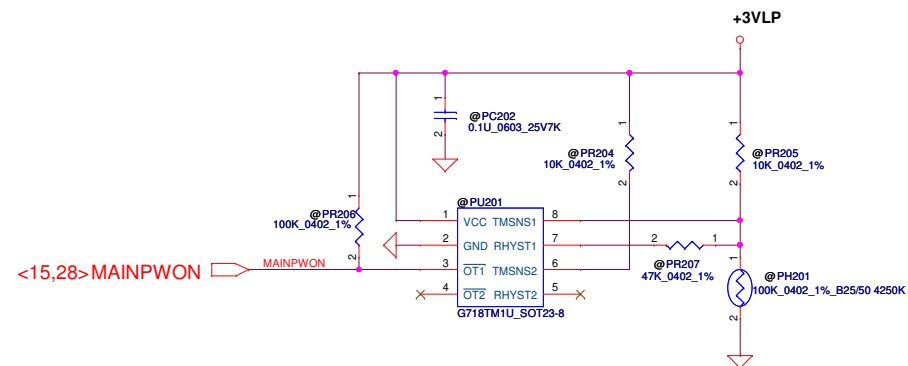
Battery is 3-cell design.
B+=9V



PH201 under CPU botten 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 40W adapter==>action 43W , Recovery 34.4W



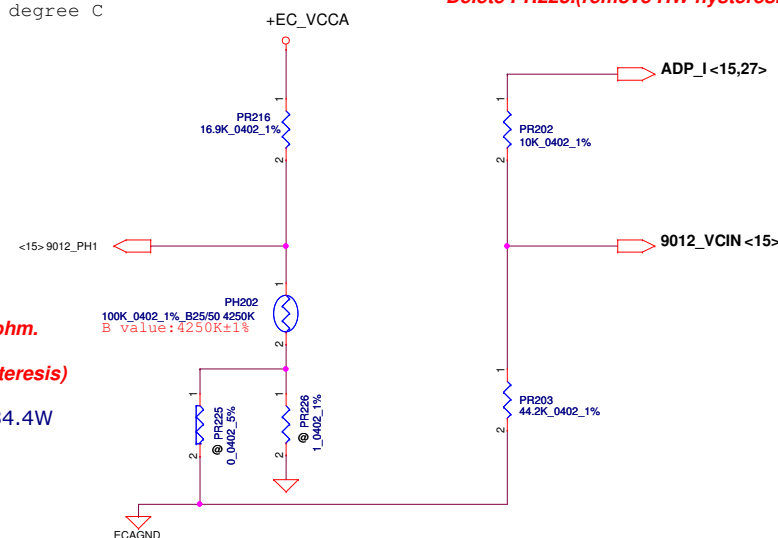
	For KB9012 OTP	For KB9022 OTP
92°C		1.0V
56°C		2.0V
PR216		16.9K ohm

2014/01/02 update

For KB9022 sense 20mΩ	Active	Recovery
40W	43W, 0.73V	34.4W, 0.59V

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

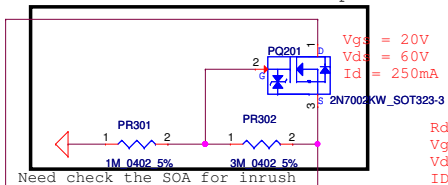
2013/12/16 Modify
Delete PR223.(remove HW hysteresis)



Compal Secret Data				Compal Electronics, Inc.		
Security Classification	Issued Date	Deciphered Date	2016/03/27	Title	Document Number	Rev
	2014/03/27					1.0
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.				Date:	Thursday, March 27, 2014	Sheet 26 of 34

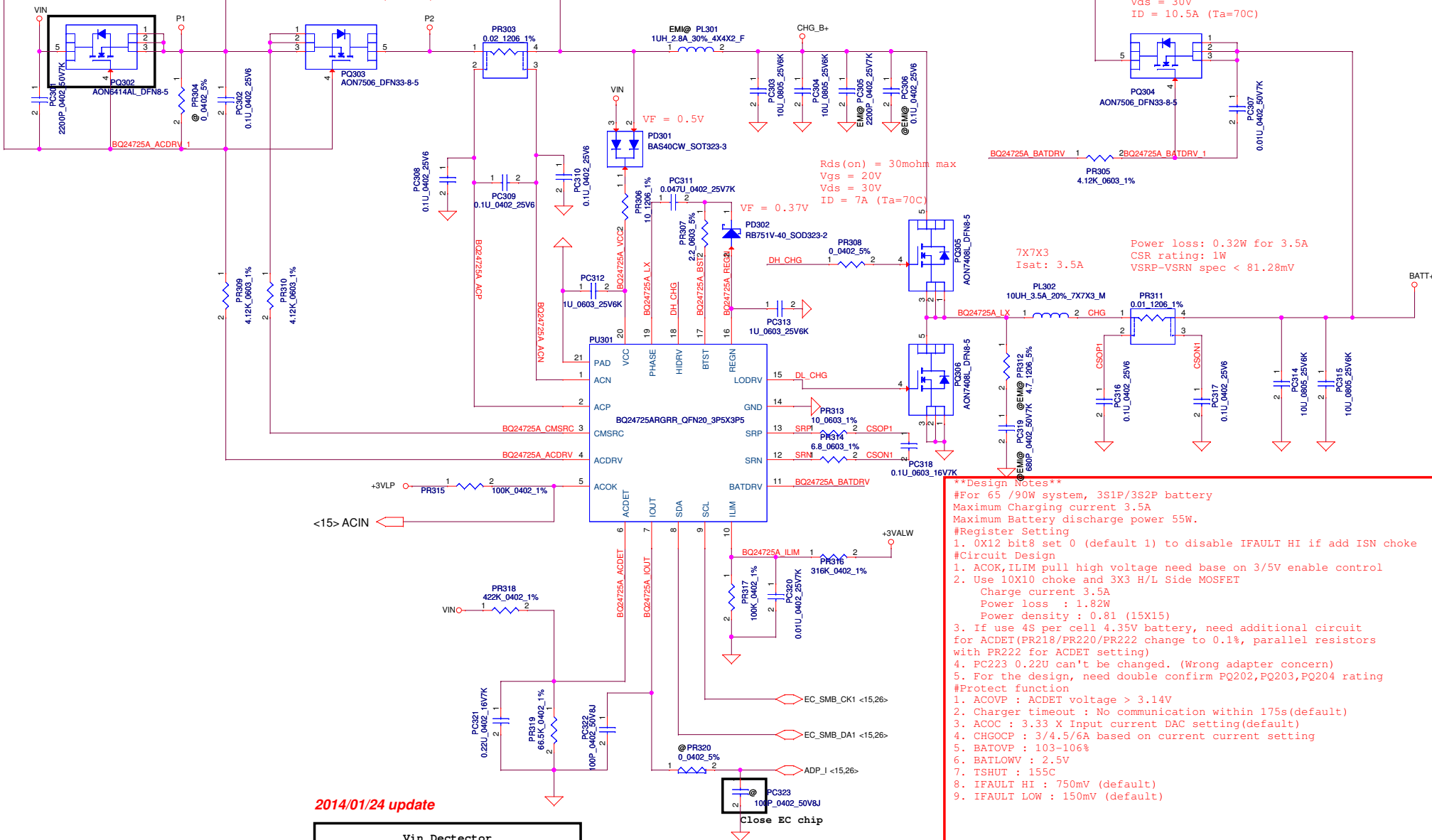
BATTERY CONN / OTP

Protection for reverse input



2013/10/14
PR303 10m ohm chang -->20m ohm
SD00000S120

$R_{ds(on)} = 15.8\text{mohm max}$
 $V_{gs} = 20\text{V}$
 $V_{ds} = 30\text{V}$
 $I_D = 10.5\text{A}$ ($T_a = 70^\circ\text{C}$)



2013/10/16 Modify
PQ305, PQ306 change to AON7408L.
2013/10/22 Modify
PL302 change to common part.
2013/11/29 Modify
PL301 change to common part.

$R_{ds(on)} = 15.8\text{mohm max}$
 $V_{gs} = 20\text{V}$
 $V_{ds} = 30\text{V}$
 $I_D = 10.5\text{A}$ ($T_a = 70^\circ\text{C}$)

Power loss: 0.32W for 3.5A
CSR rating: 1W
VSRP-VSRN spec < 81.28mV

****Design Notes****
#For 65 /90W system, 3S1P/3S2P battery
Maximum Charging current 3.5A
Maximum Battery discharge power 55W.
#Register Setting
1. 0X12 bit8 set 0 (default 1) to disable IFAULT HI if add ISN choke
#Circuit Design
1. ACOK, ILIM pull high voltage need base on 3/5V enable control
2. Use 10X10 choke and 3X3 H/L Side MOSFET
Charge current 3.5A
Power loss : 1.82W
Power density : 0.81 (15X15)
3. If use 4S per cell 4.35V battery, need additional circuit for ACDET (PR218/PR220/PR222 change to 0.1%, parallel resistors with PR222 for ACDET setting)
4. PC223 0.22u can't be changed. (Wrong adapter concern)
5. For the design, need double confirm PQ202, PQ203, PQ204 rating
#Protect function
1. ACOPP : ACDET voltage > 3.14V
2. Charger timeout : No communication within 175s (default)
3. ACOC : 3.33 X Input current DAC setting (default)
4. CHGOC : 3/4.5/6A based on current current setting
5. BATOV : 103-106%
6. BATLOW : 2.5V
7. TSHUT : 155C
8. IFAULT HI : 750mV (default)
9. IFAULT LOW : 150mV (default)

2014/01/24 update

Vin Detector			
	Min.	Typ	Max.
L-->H	17.16V	17.63V	18.12V
H-->L	16.76V	17.22V	17.70V

VILIM = 20*ILIM*Rsr
ILIM = 3.3*100/(100+316)/20/0.01
= 3.966 A

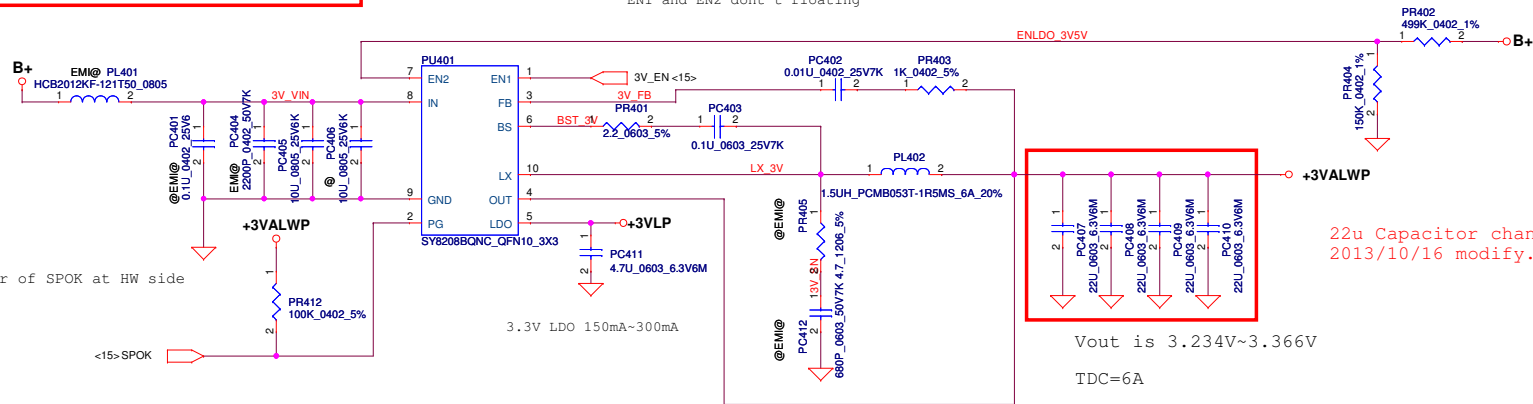
Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2014/03/27	Deciphered Date	2016/03/27	Title	CHARGER
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE 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	Thursday, March 27, 2014
				Sheet	27 of 34
				Rev	1.0

Module model information

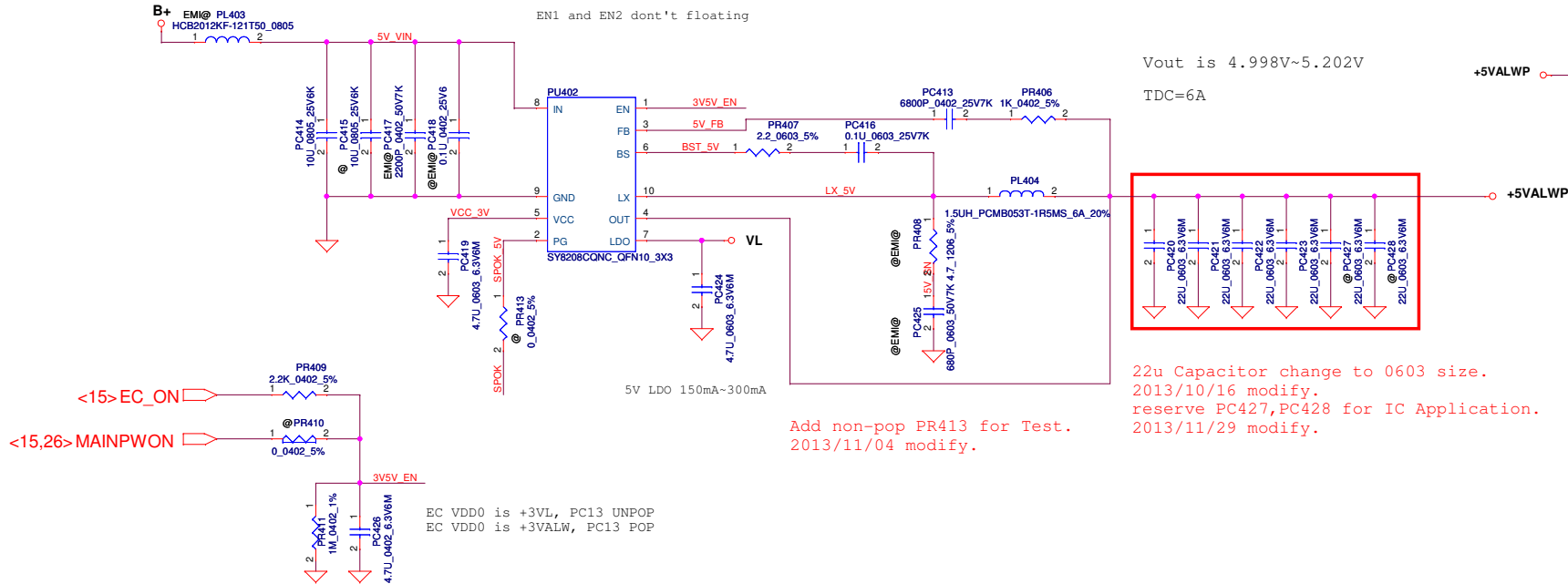
SY8208B_V2.mdd

SY8208C_V2.mdd

EN1 and EN2 don't floating



EN1 and EN2 don't floating

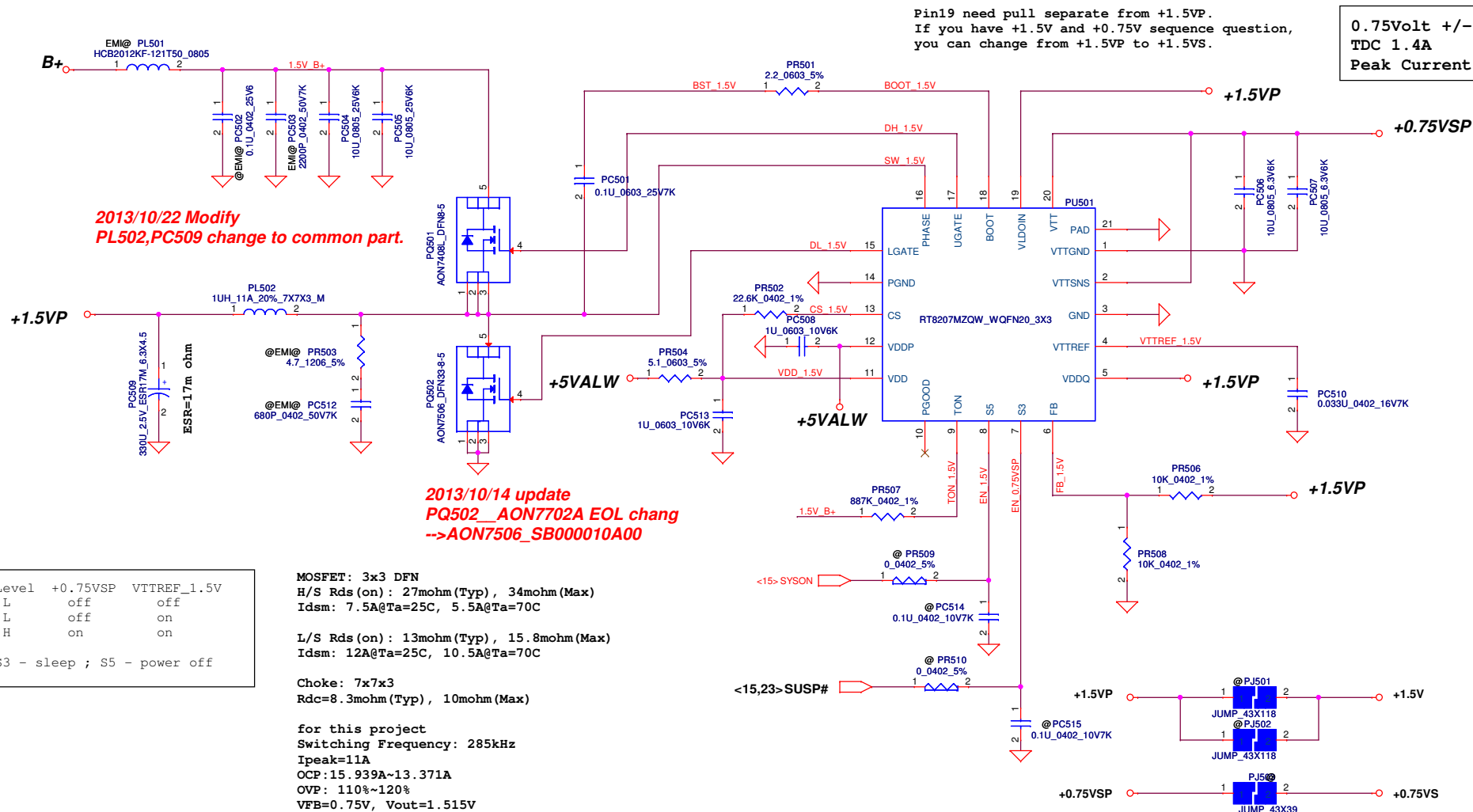


Add non-pop PR413 for Test.
2013/11/04 modify.

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 PRODUCT DEVELOPMENT 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	28 of 34

Module model information

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

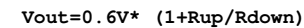


Security Classification		Compal Secret Data				Compal Electronics, Inc.					
Issued Date		2014/03/27		Deciphered Date		2016/03/27		Title		+1.5VP/+0.75VSP	
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. 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 1.0	
Size		Document Number		Date		Thursday, March 27, 2014		Sheet 29 of 34			
Custom											

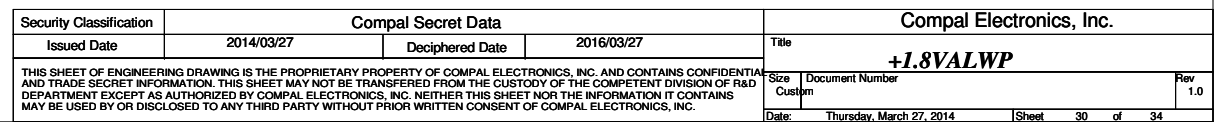
SY8033_V1.mdd

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

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



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

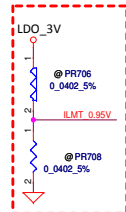


Module model information

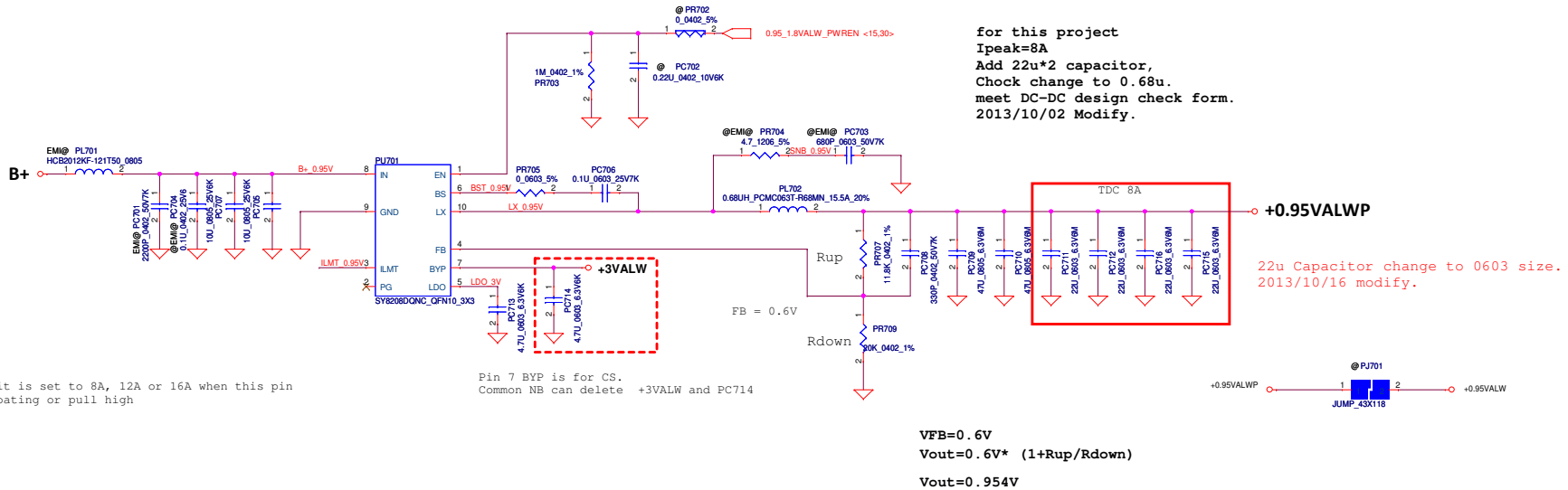
SY8208D_V1.mdd

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.

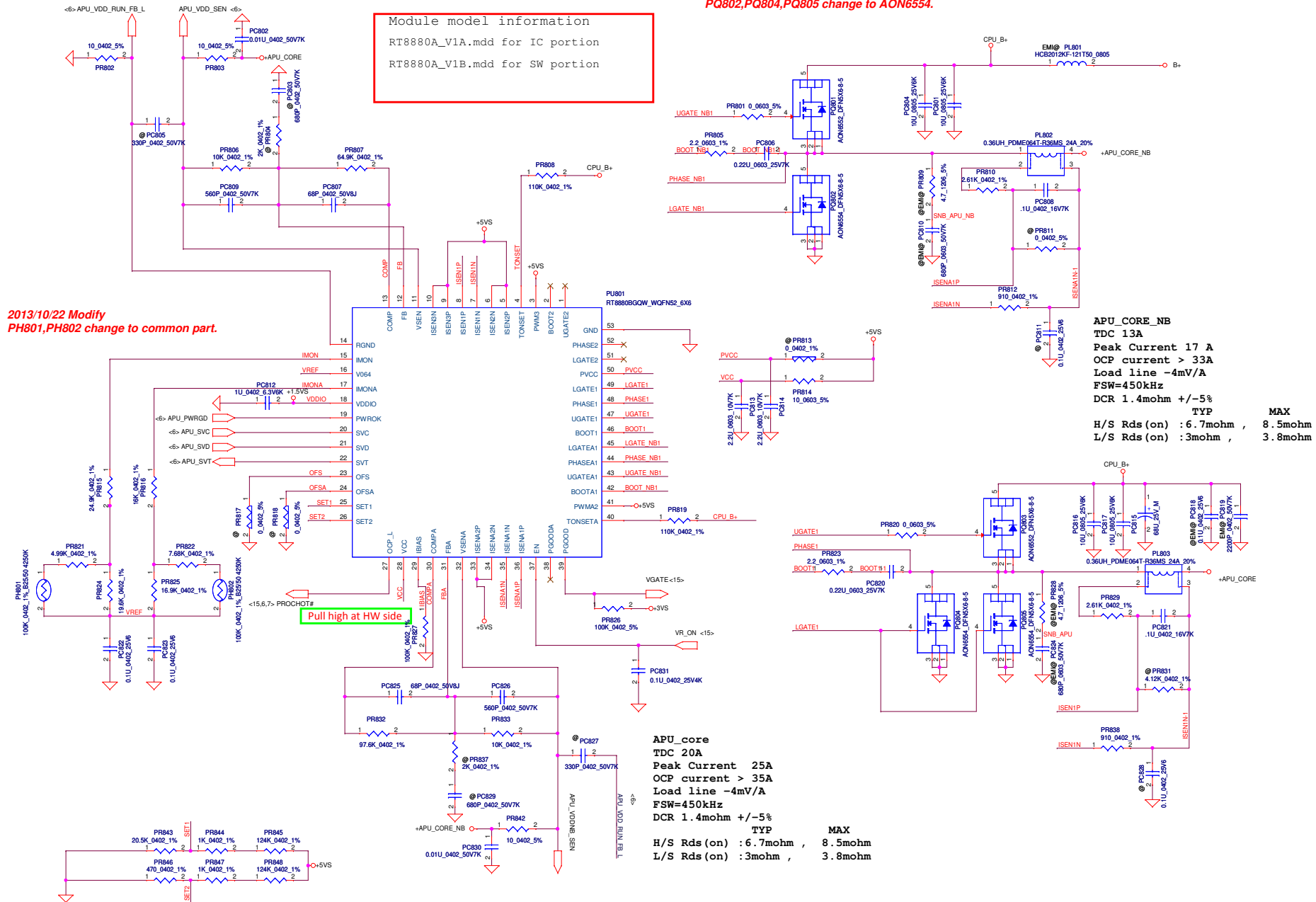


The current limit is set to 8A, 12A or 16A when this pin is pull low, floating or pull high



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	Document Number	Rev
						1.0
				Date:	Thursday, March 27, 2014	Sheet 31 of 34

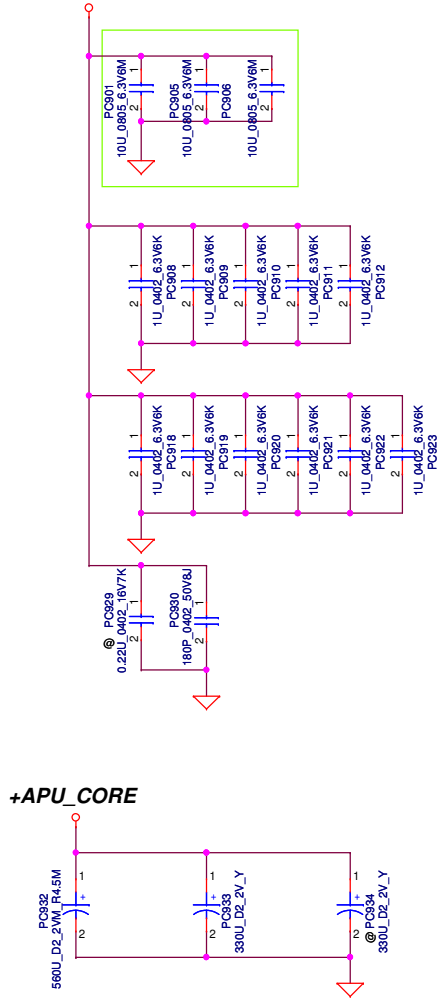
2013/10/16 Modify
PQ801,PQ803 change to AON6552.
PQ802,PQ804,PQ805 change to AON6554.



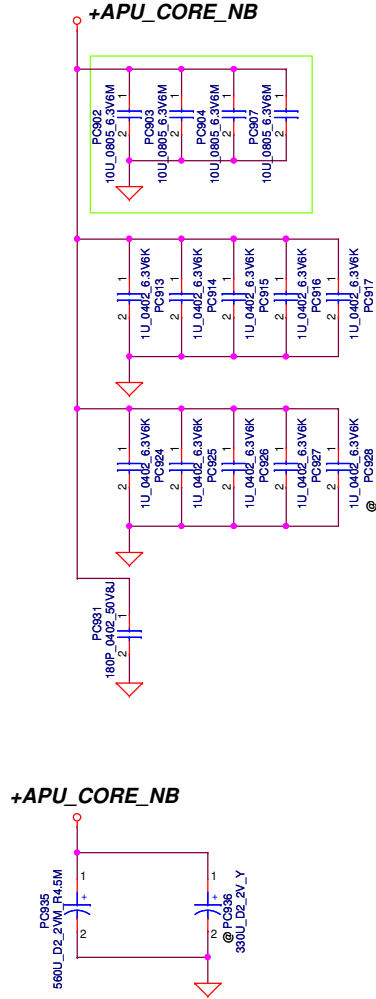
Delete PR834.PR835.PR836.PR839.PR840.PR841,
follow vender FAE suggest.
2013/11/29 modify.

Security Classification	Compal Secret Data			Compal Electronics, Inc.		
Issued Date	2014/03/27	Deciphered Date	2016/03/27	Title	APU CORE/APU CORE NB	
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 1.0
				Date:	Thursday, March 27, 2014	Sheet 32 of 34

+APU_CORE (36.4)



+APU_CORE_NB (36.5)



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

Page 1 of 1
for PWR

Item	Fixed Issue	Reason for change	Rev.	PG#	Modify List	Date	Phase
1	Design Change.	Design Change of Diode Application.	0.2	25	Change PD101 to SCSS4004010(S SCH DIO BAS40-04 SOT23).	2013/11/29	DVT
2	Design Change.	Design Change of IC Application.	0.2	28	Add non-pop component PC427,PC428.	2013/11/29	DVT
3	Design Change.	reduce part count.	0.2	30	Delete PR605 PD resister.	2013/11/29	DVT
4	Design Change.	reduce part count.	0.2	32	Delete @PR834.@PR835.@PR836.@PR839.@PR840.@PR841.	2013/11/29	DVT
5	Design Change.	Design Change of common part.	0.2	27	Change PL301 to SH00000YG00 (S COIL 1UH +-30% 2.8A 4X4X2 FERRITE).	2013/11/29	DVT
6	Design Change.	Design Change of EC Type Application.	0.2	28	Add PD401 SCS00000Z00(S SCH DIO RB751V-40 SOD-323)	2013/11/29	DVT
7	Design Change.	Design Change of Circuit Application.	0.2	26	Delete PR223.(remove HW hysteresis)	2013/12/16	DVT
8	Design Change.	Design Change of Circuit Application.	0.2	27	Change PQ303,PQ304 to SB000010A00(S TR AON7506 1N DFN).	2013/12/19	DVT
9	Design Change.	Design Change of Circuit Application.	0.2	26	Add PL202 SM01000C000 (S SUPPRE_ TAI-TECH HCB2012KF-121T50 0805)	2013/12/19	DVT
10	Design Change.	Design Change of Circuit Application.	0.2	26	Change PR211 to SD028000080(S RES 1/16W 0 +-5% 0402).	2013/12/25	DVT
11	Design Change.	Design Change of Circuit Application.	0.2	28	Change PC426 to pop.	2013/12/25	DVT
12	Design Change.	Design Change of Circuit Application.	0.2	26	Change PR216 to SD034162280(S RES 1/16W 16.2K +1% 0402).	2013/12/25	DVT
13	Design Change.	Design Change of Circuit Application.	0.2	26	Change PR216 to SD034169280(S RES 1/16W 16.9K +-1% 0402).	2014/01/02	DVT
14	Design Change.	Design Change of Circuit Application.	0.2	26	Change PR202 to SD034100280(S RES 1/16W 10K +-1% 0402).	2014/01/02	DVT
15	Design Change.	Design Change of Circuit Application.	0.2	26	Change PR203 to SD034442280(S RES 1/16W 44.2K +-1% 0402).	2014/01/02	DVT
16	Design Change.	Design Change of Circuit Application.	0.3	30.31.32	Change PR813,PR601,PR706,PR702, to 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	PWR PIR	
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	Custom	Rev 1.0
				Date:	Thursday, March 27, 2014	Sheet 34 of 34