

Compal Confidential

ZKU10 UMA M/B LA-B241P Schematics Document

Intel Shark Bay Haswell U

2014-01-10

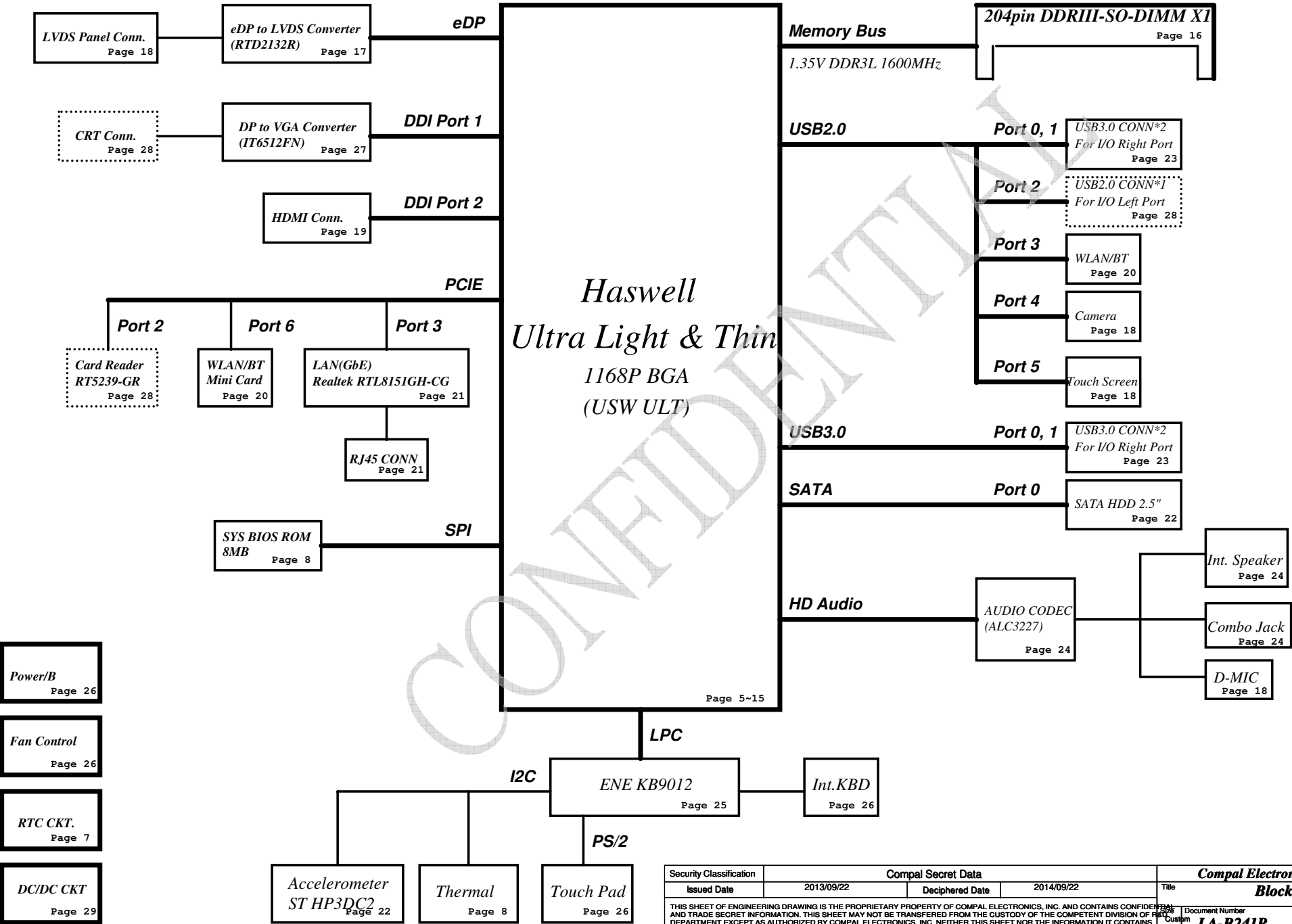
REV:1.0

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Compal Confidential

Model Name :

Project Name :



Power Rails

Power Plane	Description	S0	S3	S4/S5
VIN	19V Adapter power supply	ON	ON	ON
BATT+	12V Battery power supply	ON	ON	ON
B+	AC or battery power rail for power circuit. (19V/12V)	ON	ON	ON
+RTCVCC	RTC Battery Power	ON	ON	ON
+3VL		ON	ON	ON
+VL		ON	ON	ON
+3VALW	+3.3v Always power rail	ON	ON	ON
+5VALW	+5.0v Always power rail	ON	ON	ON
+3V_PCH	+3.3v Always power rail for CPU	ON	ON	ON
+1.35V_VDDQ	+1.35V power rail for DDR3L	ON	ON	OFF
+0.6V_0.675VS	+0.675V power rail for DDR3L Terminator	ON	OFF	OFF
+3VS	+3.3v system power rail	ON	OFF	OFF
+5VS	+5.0v system power rail	ON	OFF	OFF
+1.05V/+1.05VS	+1.05v system power rail	ON	OFF	OFF
+1.5VS	+1.5v system power rail	ON	OFF	OFF
+VCC_CORE	Core voltage for CPU	ON	OFF	OFF

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

Board ID / SKU ID Table for AD channel

Vcc	3.3V +/- 5%			
Ra	100K +/- 1%			
Board ID	Rb	VAD_BID min	VAD_BID typ	VAD_BID max
0	0	0 V	0 V	0 .300V
1	12K +/- 1%	0.347 V	0.354 V	0.360 V
2	15K +/- 1%	0.423 V	0.430 V	0.438 V
3	20K +/- 1%	0.541 V	0.550 V	0.559 V
4	27K +/- 1%	0.691 V	0.702 V	0.713 V
5	33K +/- 1%	0.807 V	0.819 V	0.831 V
6	43K +/- 1%	0.978 V	0.992 V	1.006 V
7	56K +/- 1%	1.169 V	1.185 V	1.200 V

BOARD ID Table

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

BOM Option Table

BTO Item	BOM Structure
Unpop	@
Connector	CONN@
EMI requirement	EMI@
ESD requirement	ESD@
EMI requirement unpop	@EMI@
ESD requirement unpop	@ESD@
For Debug	DB@
ESD requirement	RF@
For SLB9635	9635@
For SLB9656	9656@
For short-pad	Short@

EC SM Bus1 address

Device	Address
Accelerometer	25 00101001 U25
Battery	
Charger	

EC SM Bus2 address

Device	Address
Thermal Sensor	4C 01001100 EMC1402-1 UC3
	4D 01001101 EMC1402-2

PCH SM Bus address

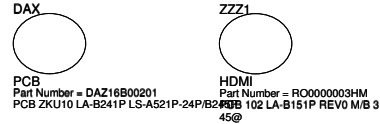
Device	Address
DDR3L	
EC	
eDP to LVDS IC	

BOM config

PCB P/N
Pre SI BOM config

43 level BOM table

43 Level	Description	BOM Structure

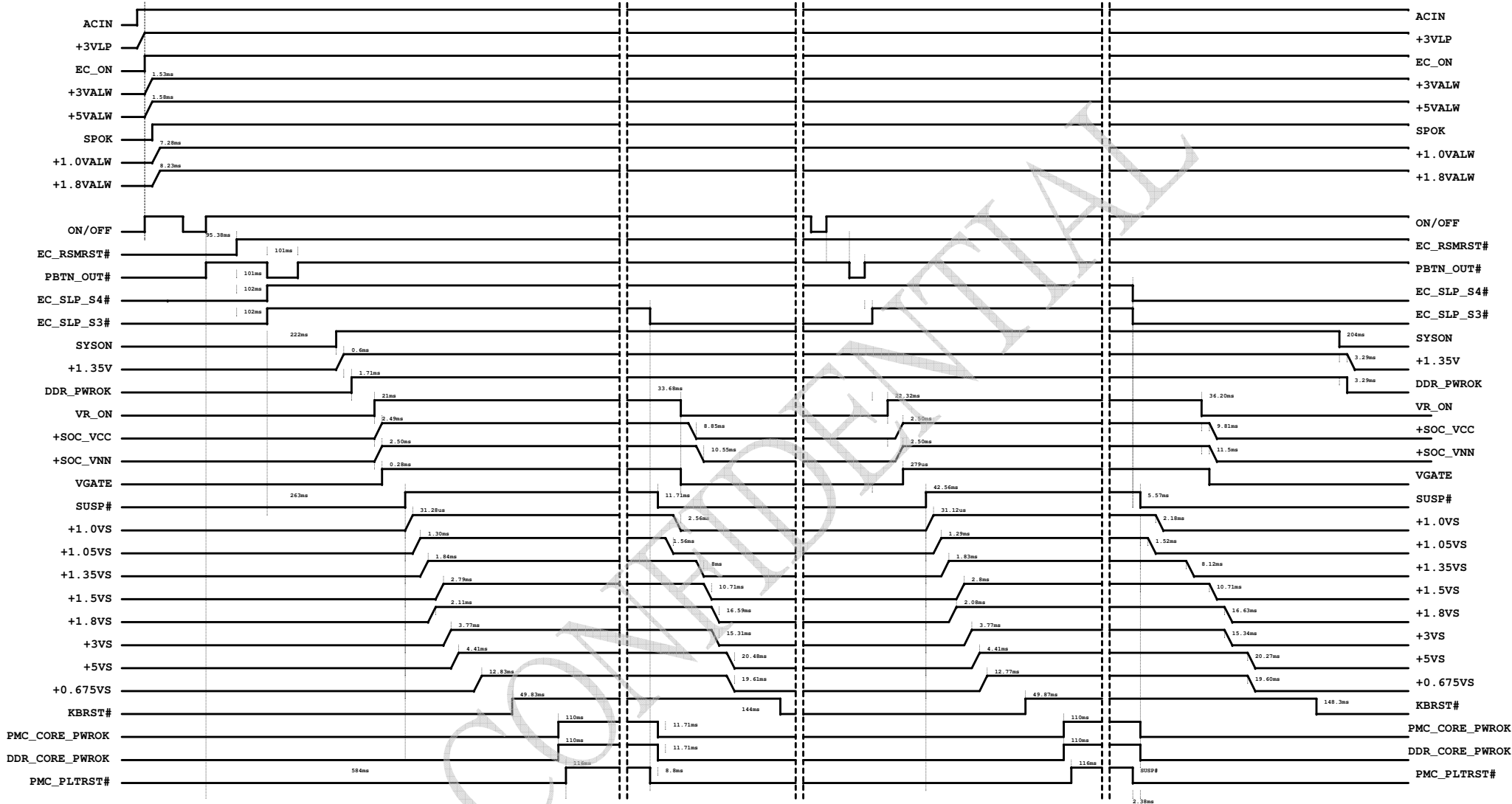


G3->S0

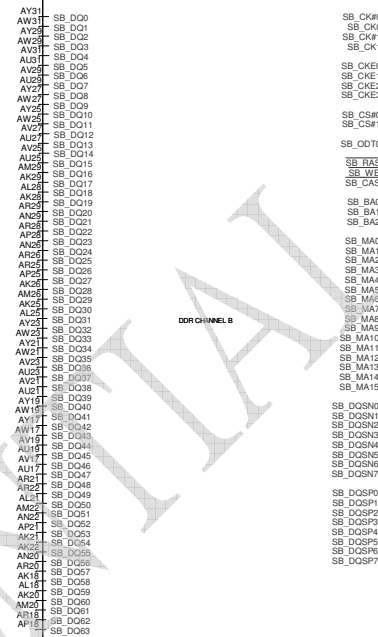
S0->S3

S3->S0

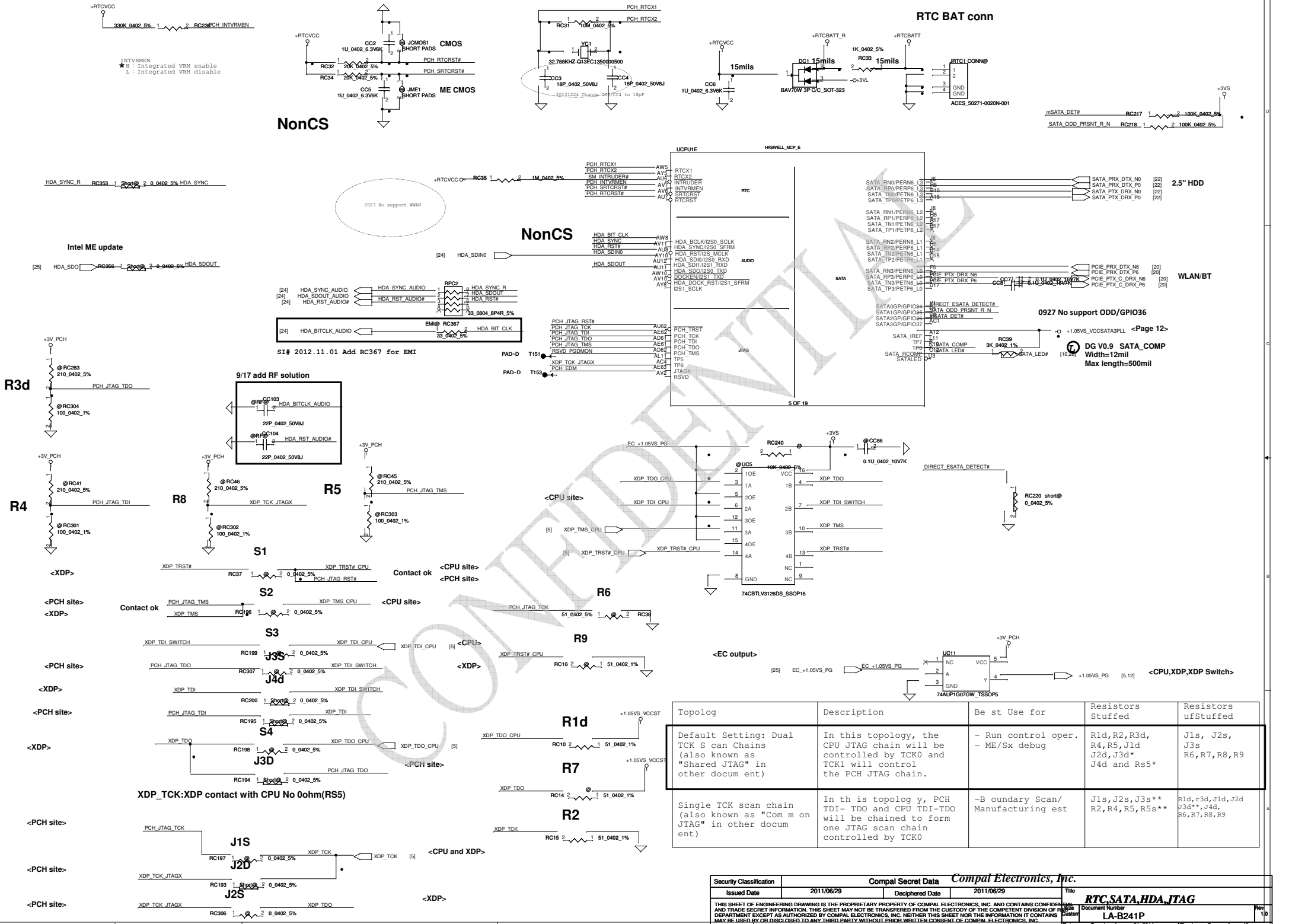
S0->S5



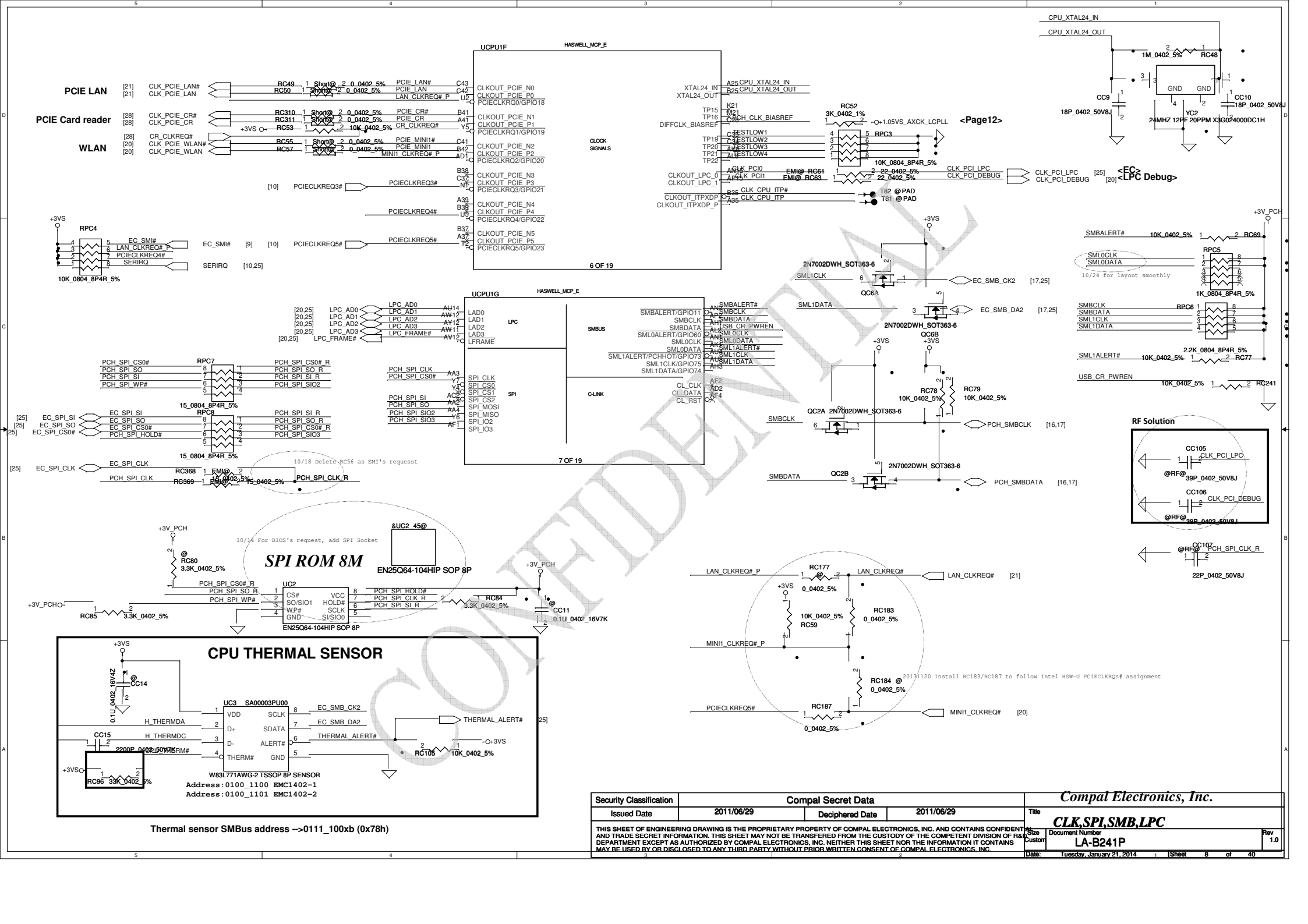
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Topolog	Description	Be st Use for	Resistors Stuffed	Resistors ufStuffed
Default Setting: Dual TCK S can Chains (also known as "Shared JTAG" in other docum ent)	In this topology, the CPU JTAG chain will be controlled by TCK0 and TCK1 will control the PCH JTAG chain.	- Run control oper. - ME/Sx debug	R1d,R2,R3d, R4,R5,J1d J2d,J3d* J4d and Rs5*	J1s, J2s, J3s R6, R7, R8, R9
Single TCK scan chain (also known as "Com m on JTAG" in other docum ent)	In th is topology y, PCH TDI- TDO and CPU TDI-TDO will be chained to form one JTAG scan chain controlled by TCK0	-B oundary Scan/ Manufacturing est	J1s,J2s,J3s** R2,R4,R5,R5s**	R1d,r3d,J1d,J2d J3d** ,J4d, R6, R7, R8, R9



Non Deep S3 RC91-->SMT
Deep S3 RC93-->SMT

Deep S3

PANEL_BKEN_CPU PD 100K on Page20

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Title

PM,GPIO,DDI

Size

Customer

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10/100/1G LAN

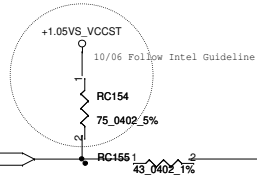
PCI-E Card reader

<Page12>

DG V0.9 PCIE_RCOMP
Width=12mil,spacing=12mil
Max length=500mil

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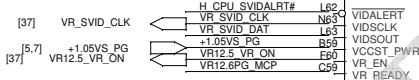
SVID ALERT



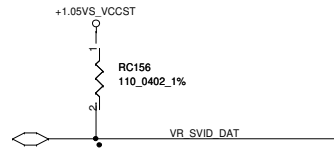
DG V0.5 H_CPU_SVIDALRT#
RC154 close to CPU<300mil
Max length=1000~2000mil

VCC_SENSE

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<VR IV and CPU>
<EDP_COMP power rail>



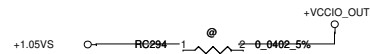
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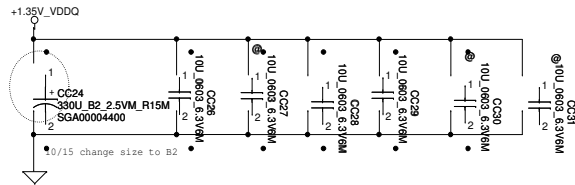
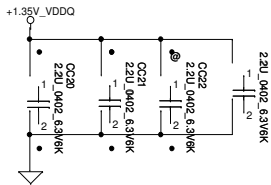
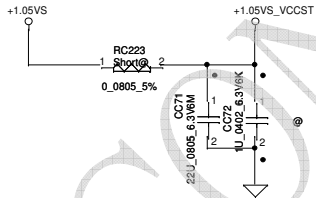
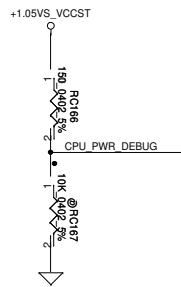
<PWR VR12.6>

[37] VR_SVID_CLK

<CPU>



DG V0.5 VIDSOUT
RC156 close to CPU<500mil
Max length=1000~2000mil

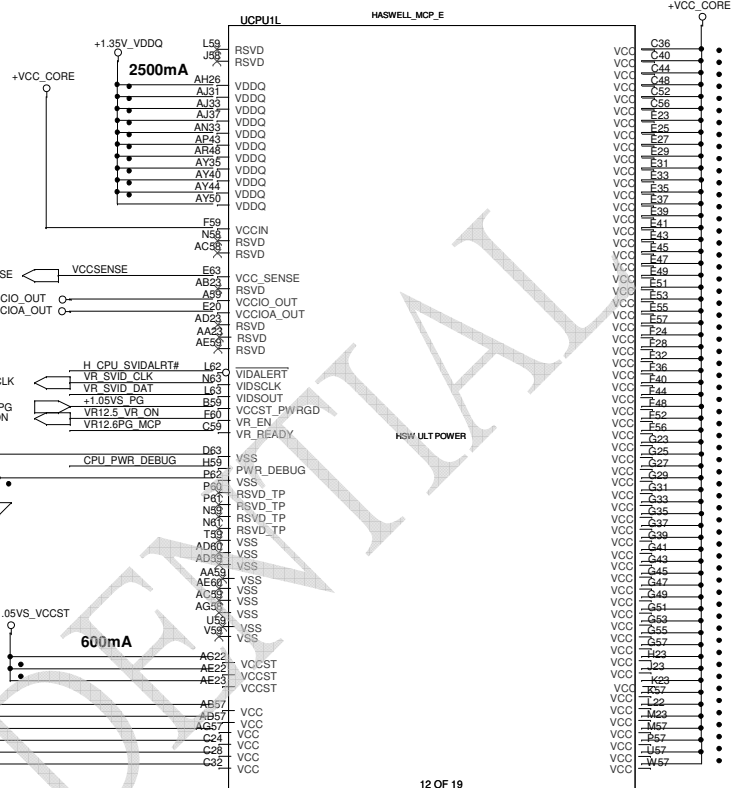


20131120 Delete UC8

[37] VR12.6PG_MCP

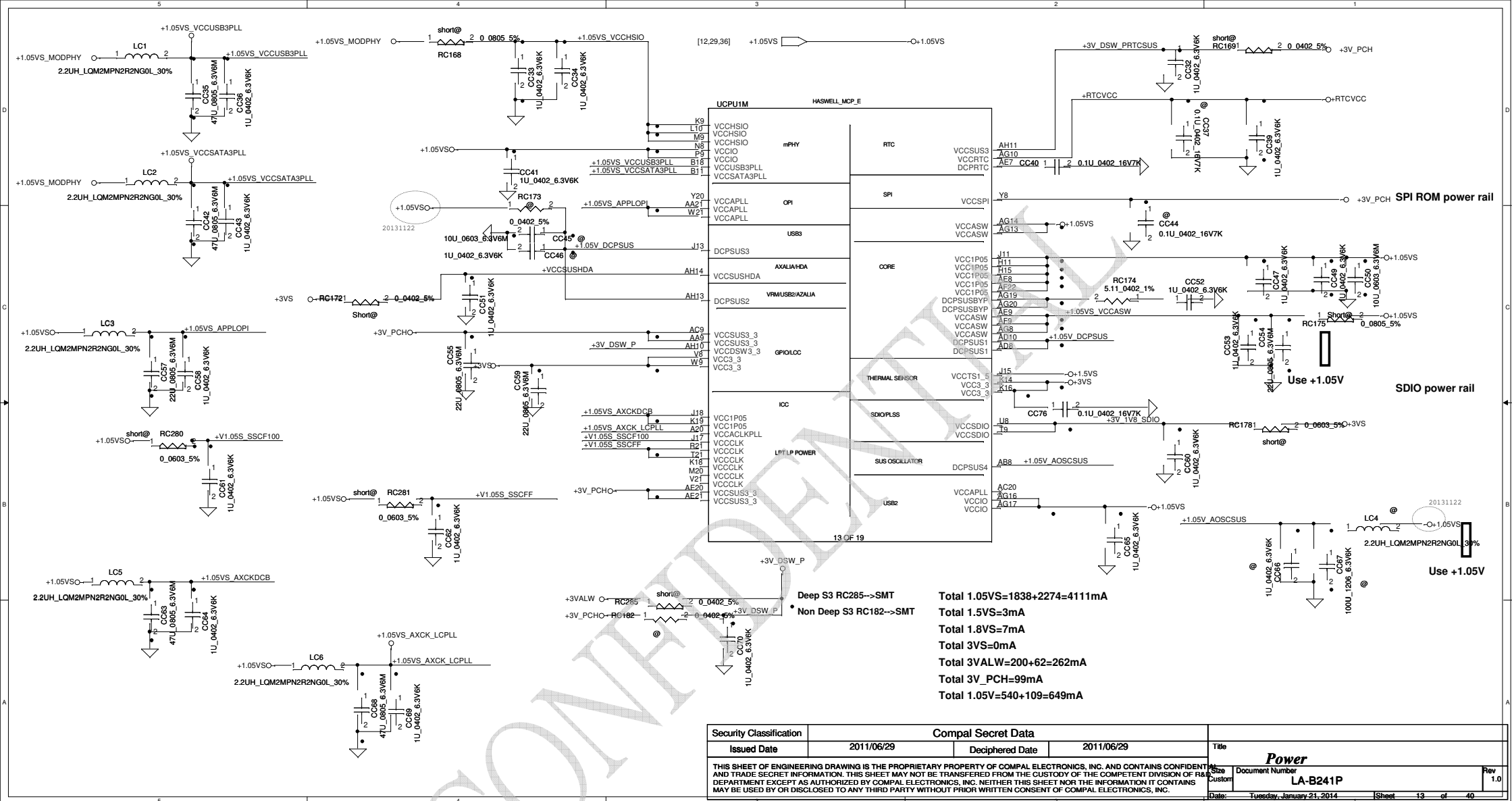
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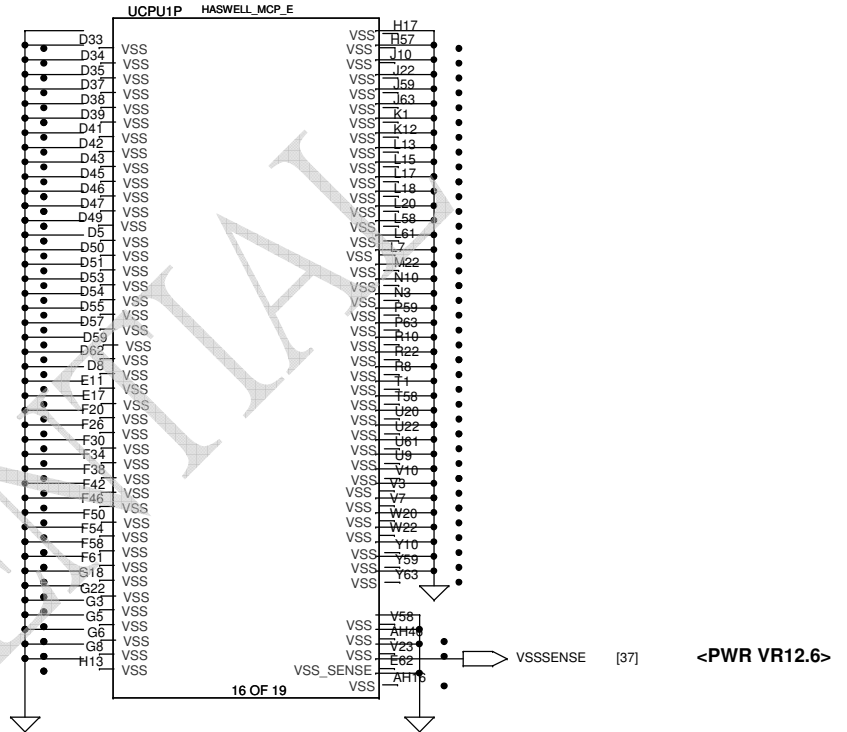
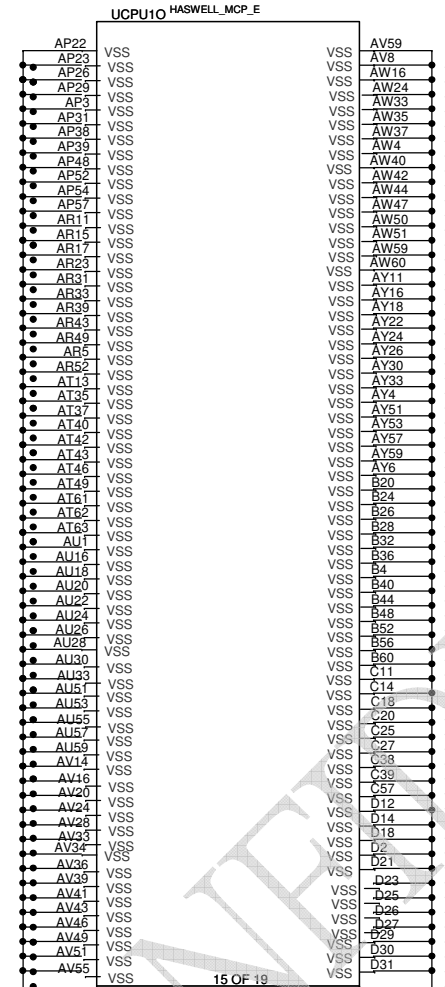
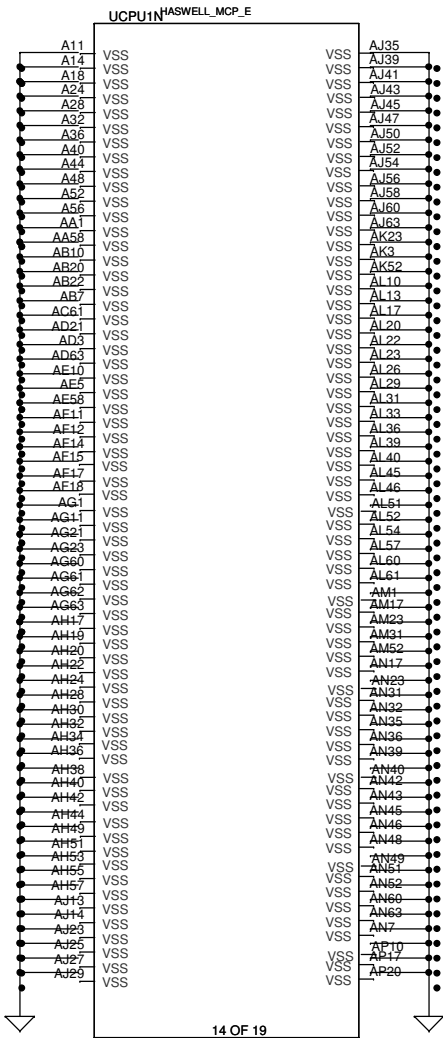
+VCC_CORE@10000mA



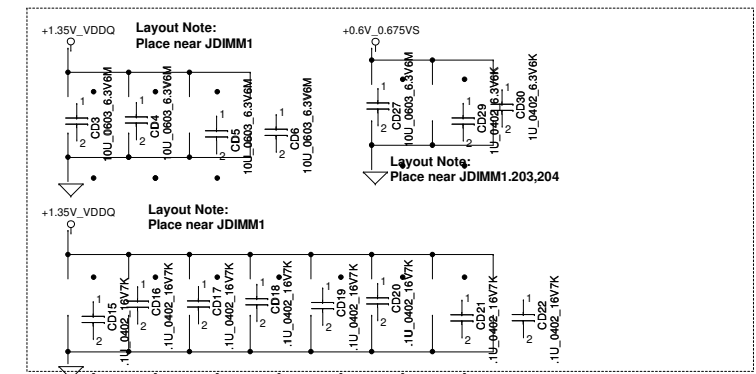
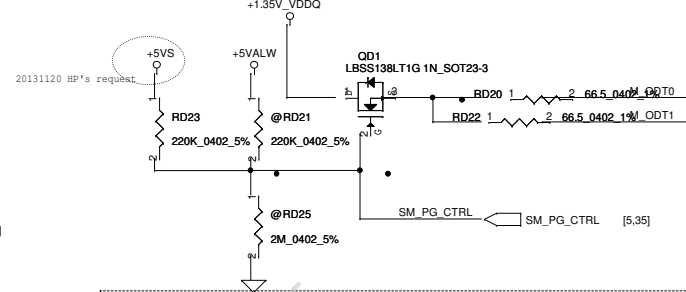
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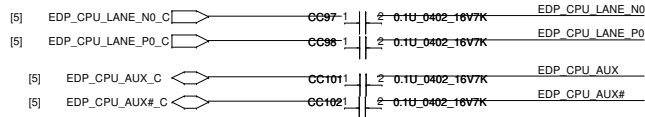
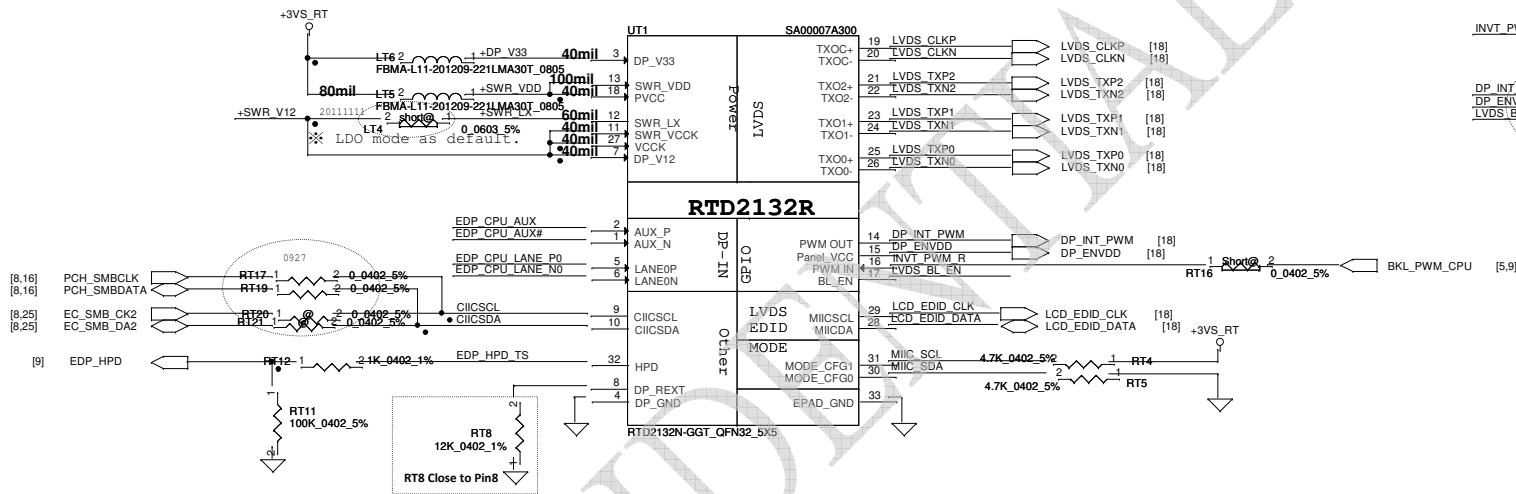
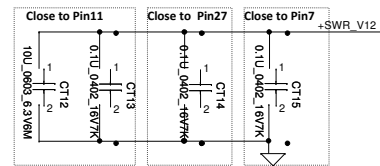
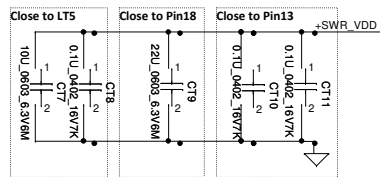
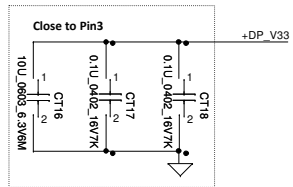
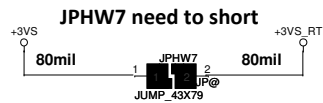




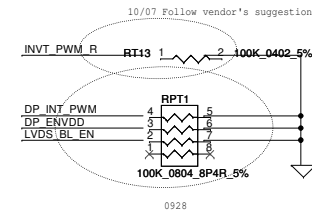
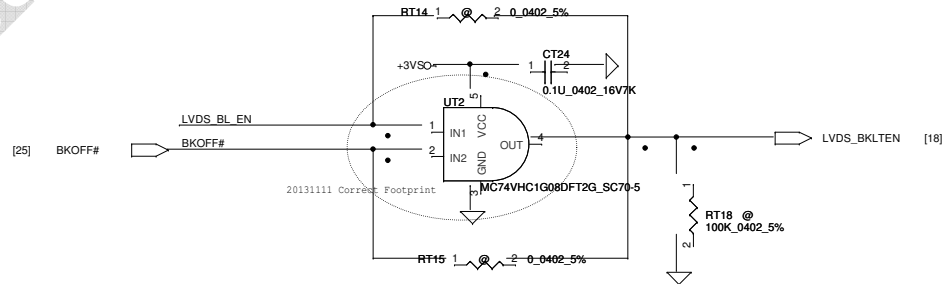
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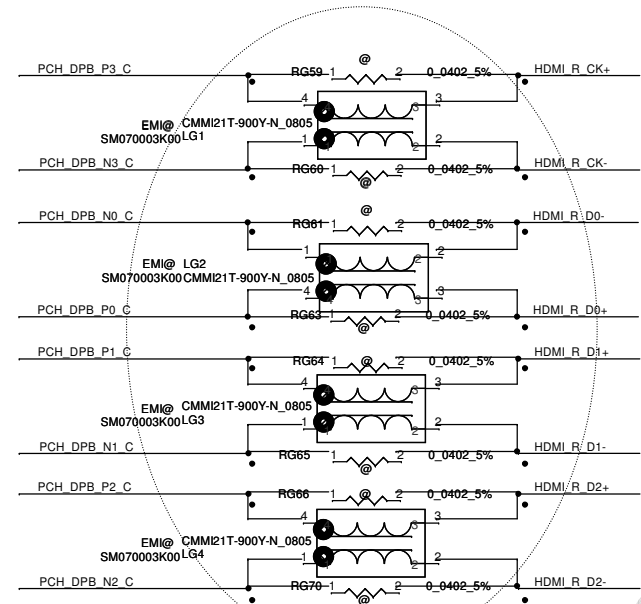
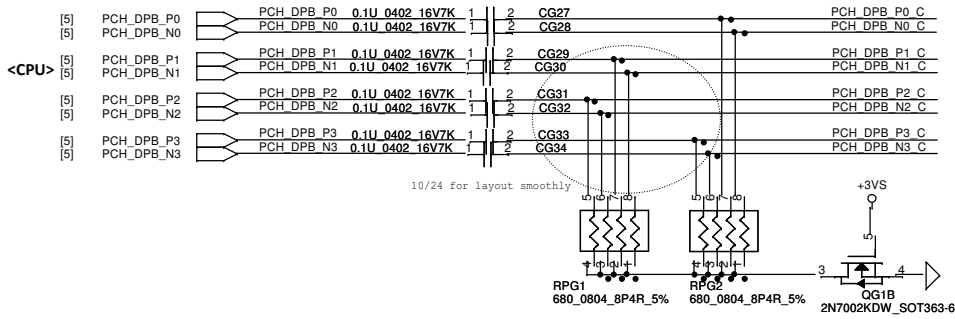
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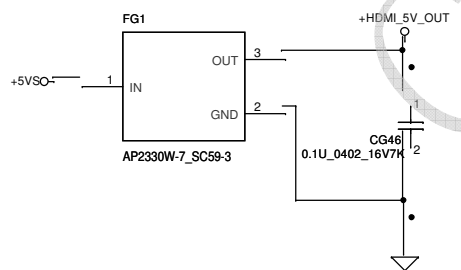
0923 No support eDP/LVDS co-layout



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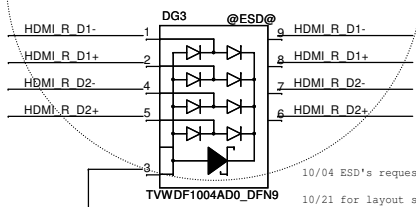
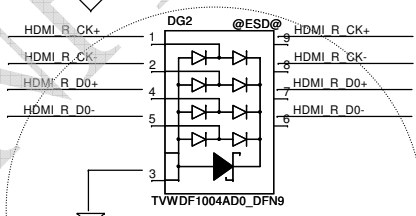
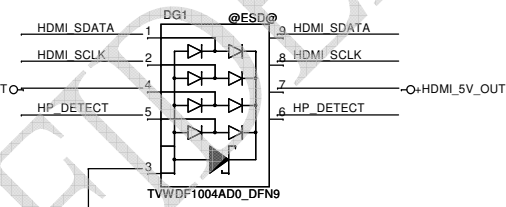
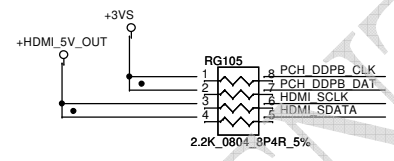


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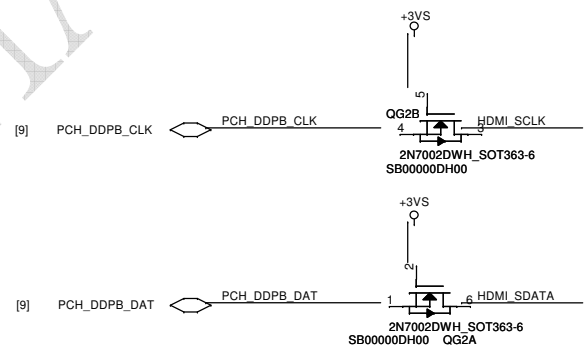
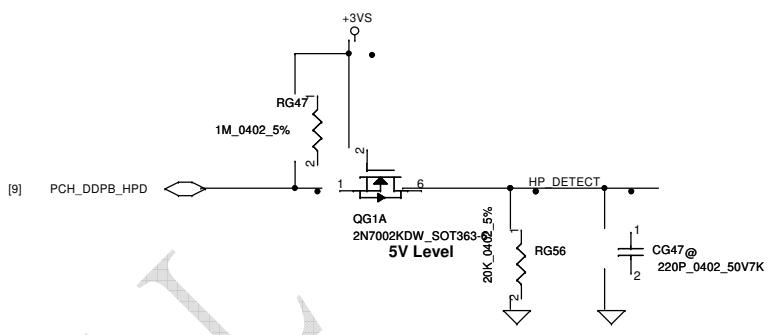
10/21 for layout smoothly

10/23 Change FN to SM070003K00



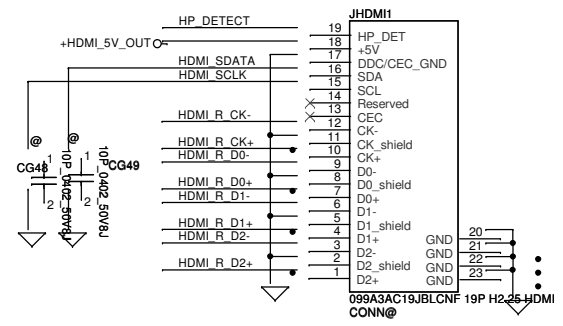
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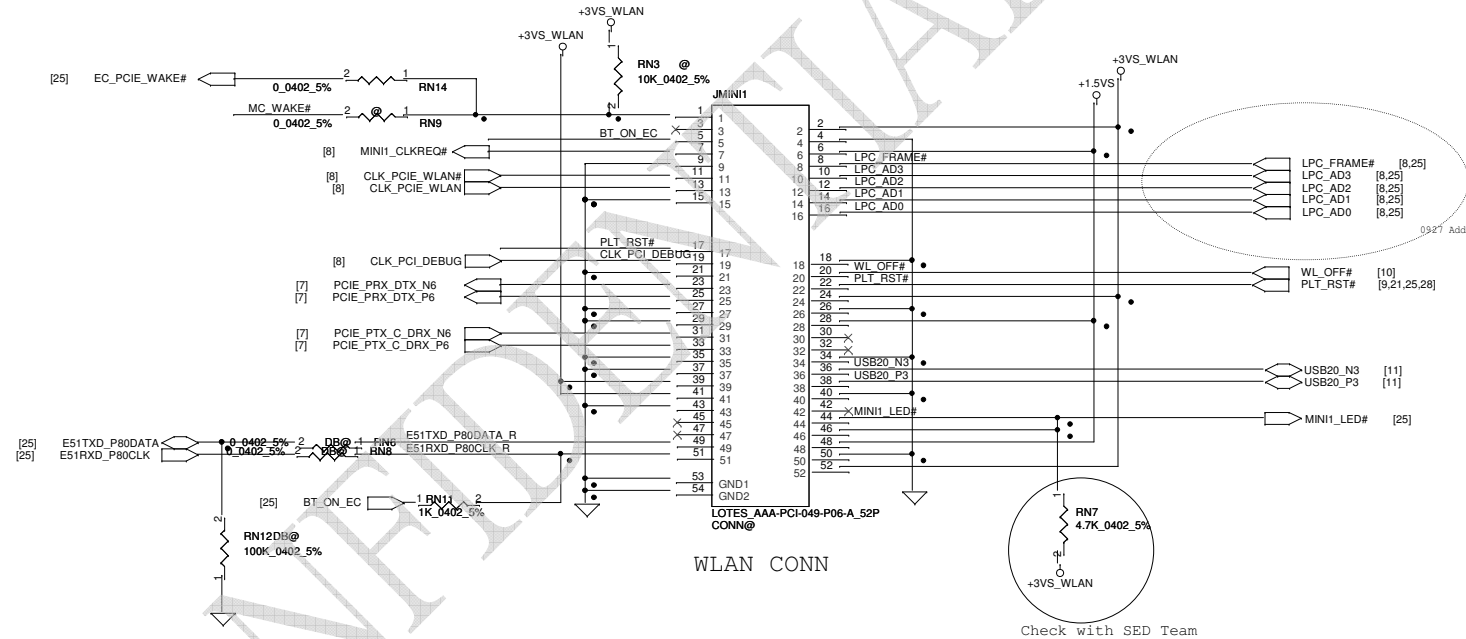
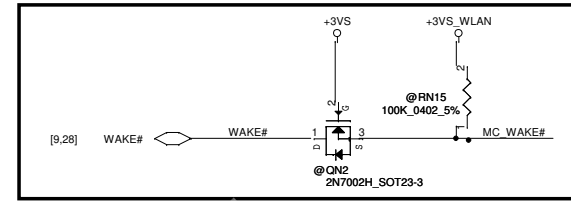
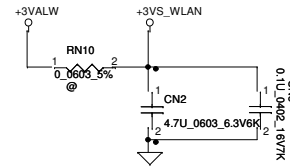
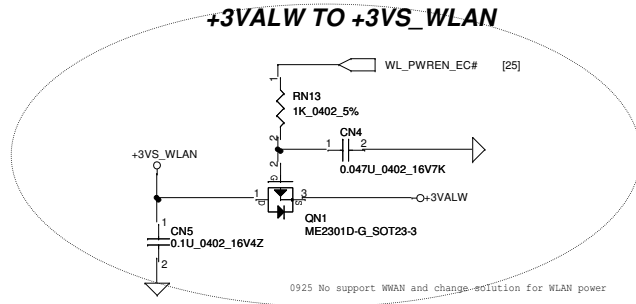


5V PULL UP IN CONNECTER SIDE

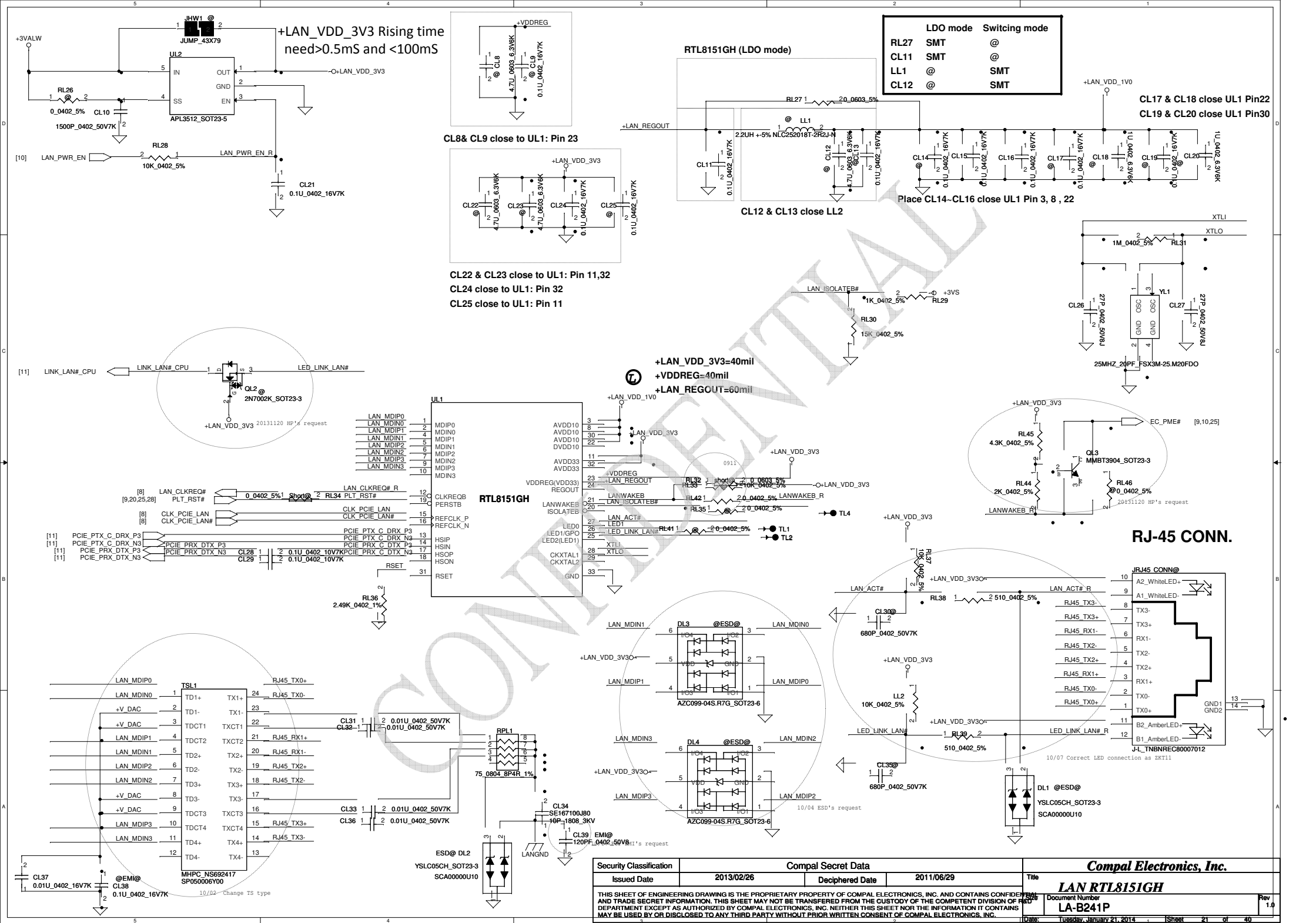
HDMI Conn.



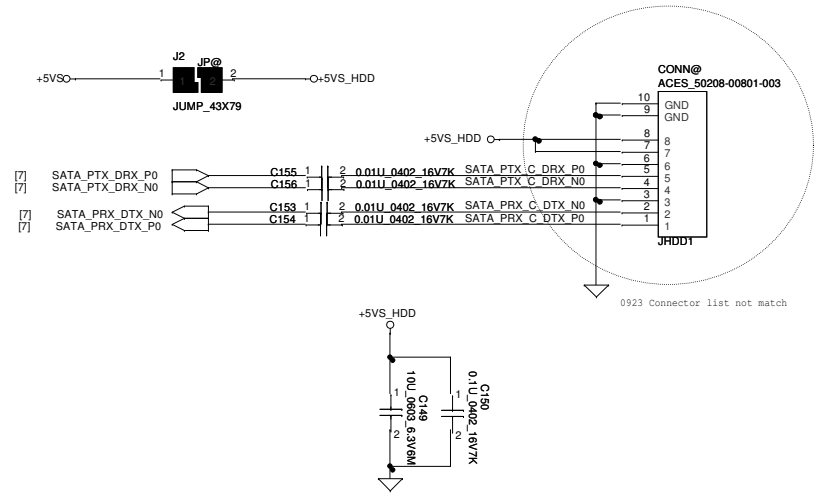
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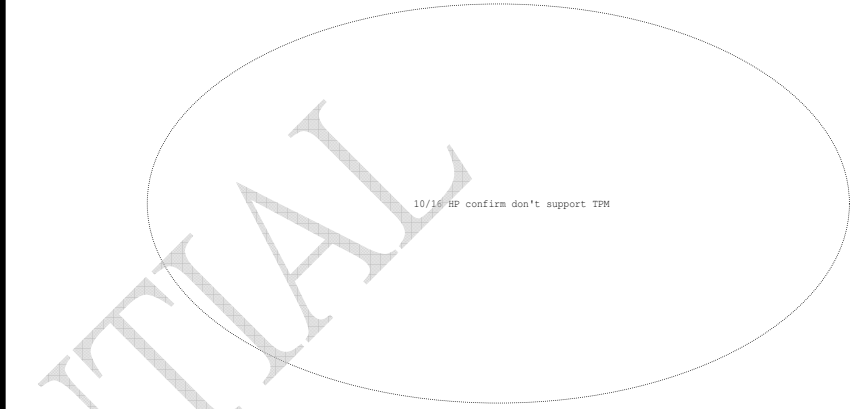
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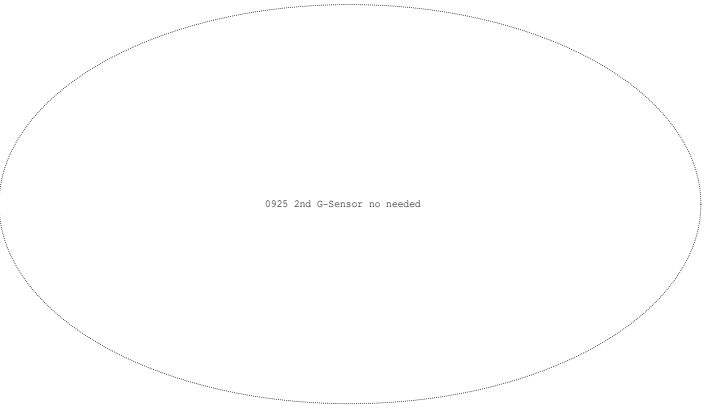
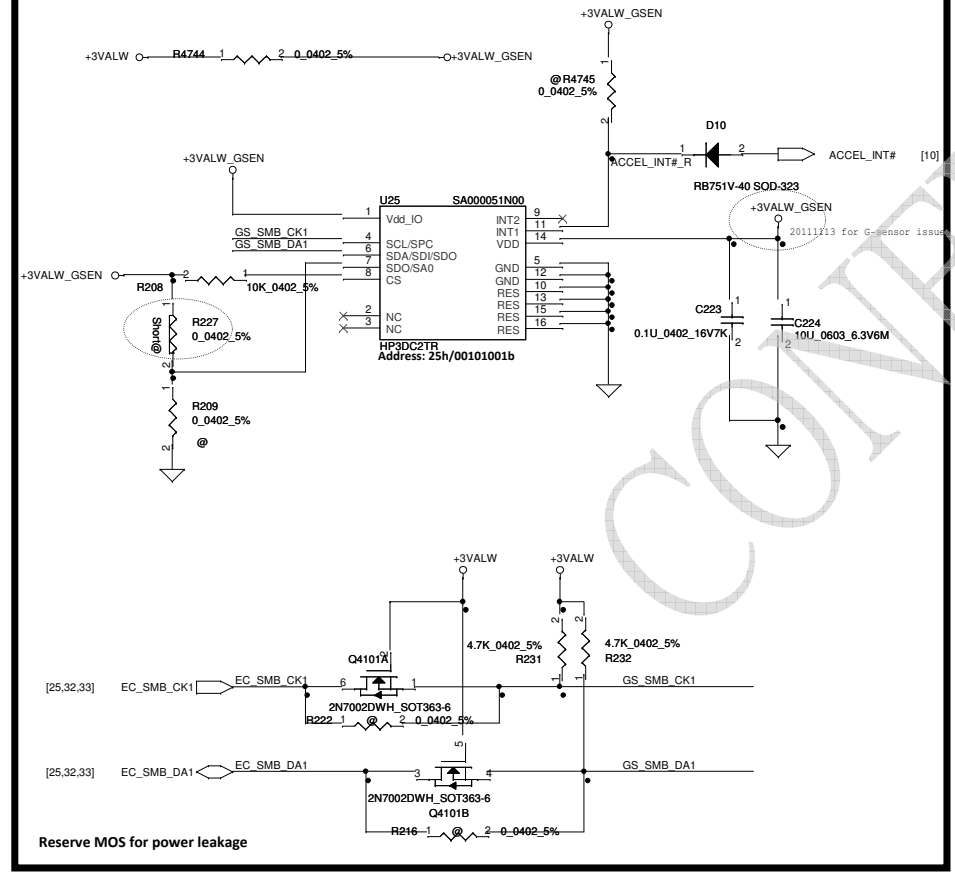
2.5" SATA HDD connector



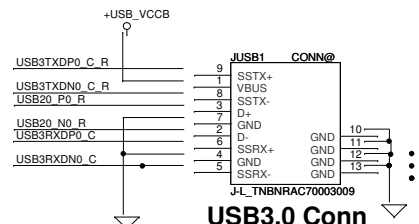
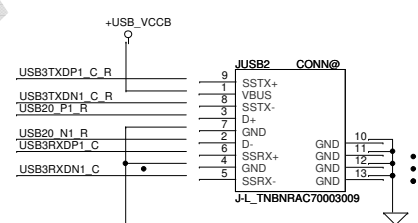
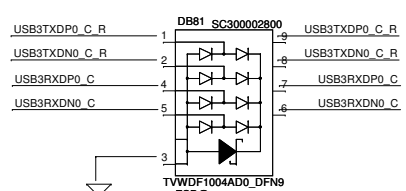
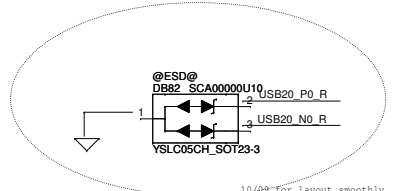
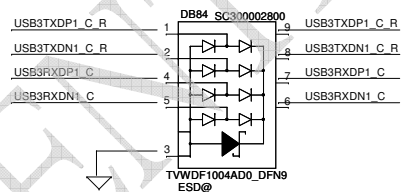
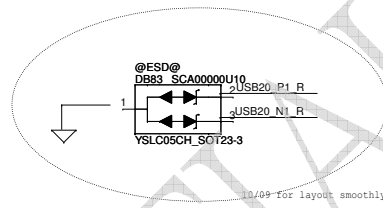
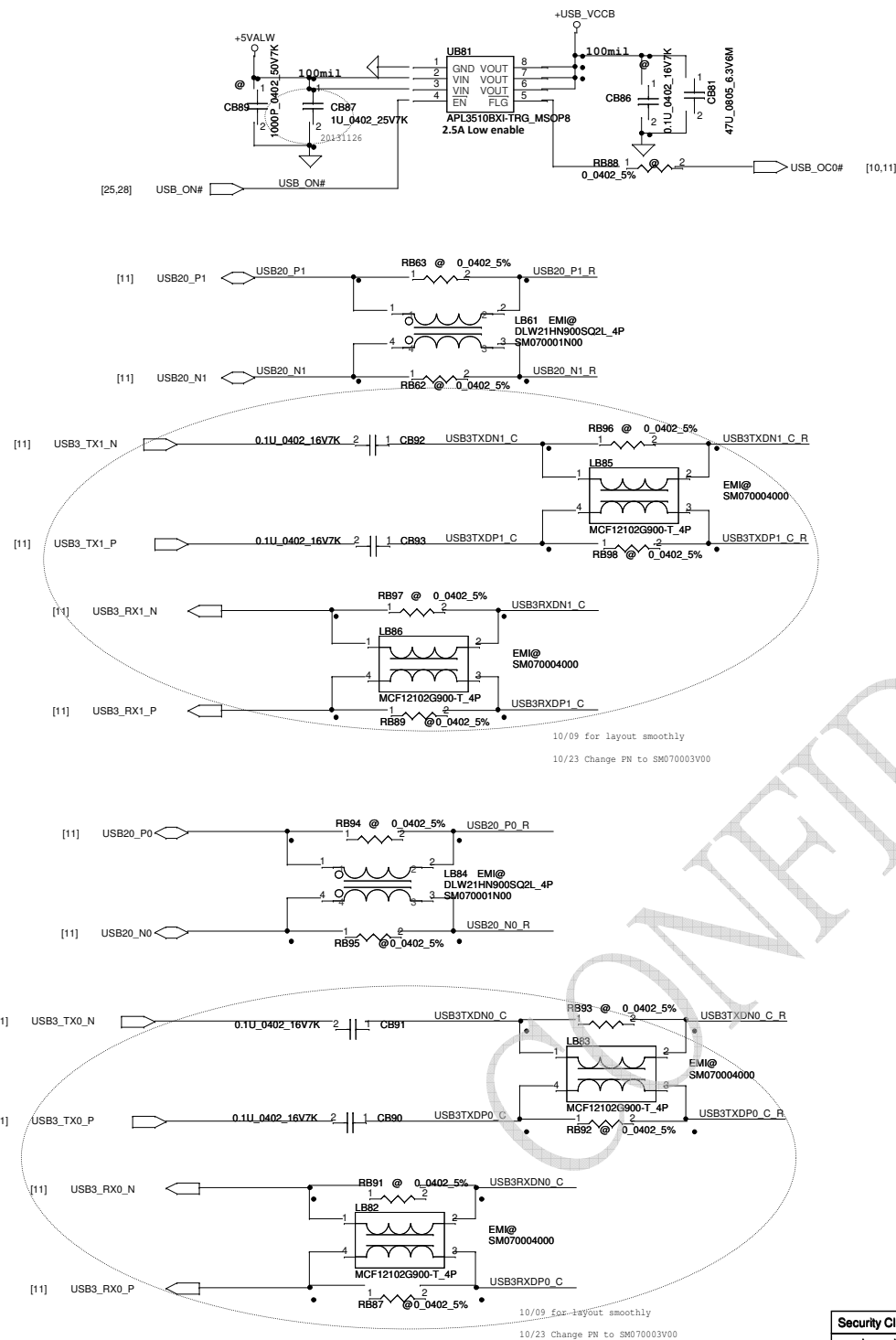
TPM1.2



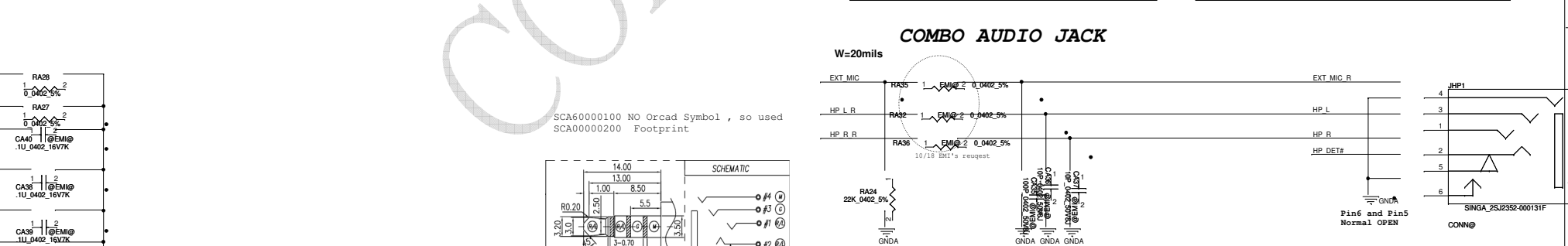
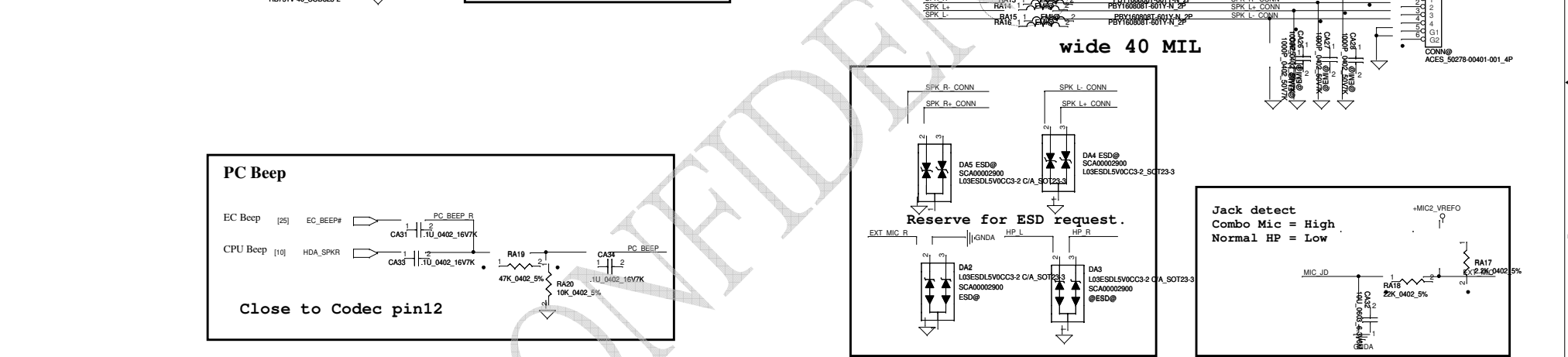
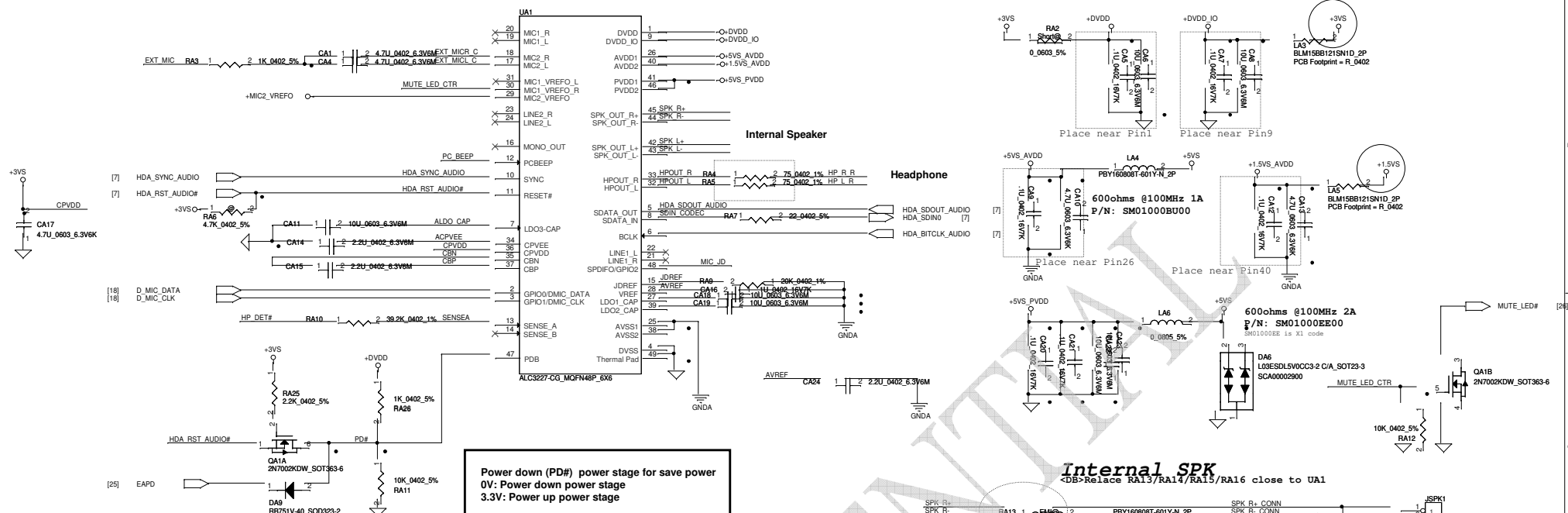
ACCELEROMETER for HDD Protect



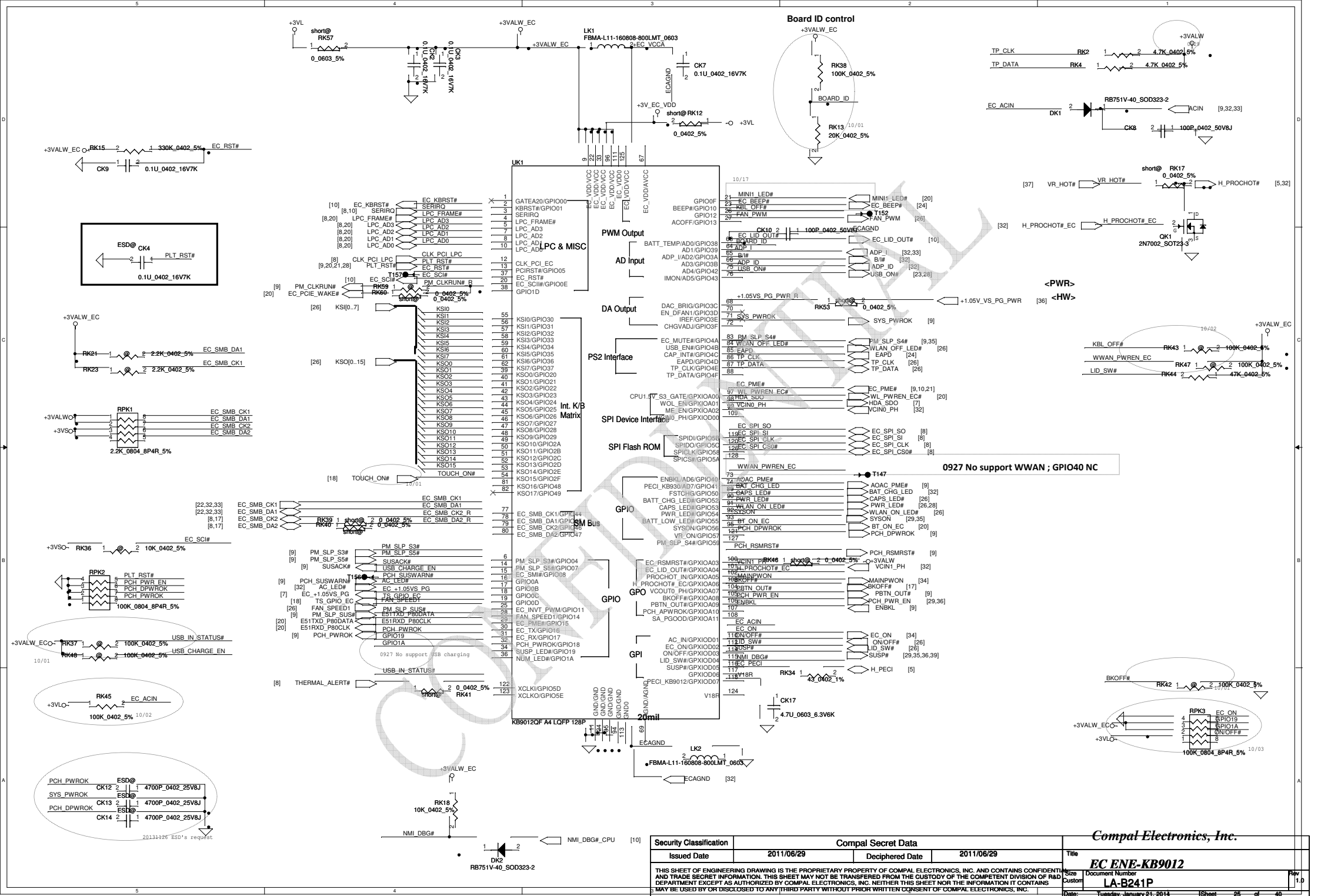
Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2013/09/22	Deciphered Date	2014/09/22	Title	
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				Document Number	
				Customer LA-B241P	
				Rev 1.0	
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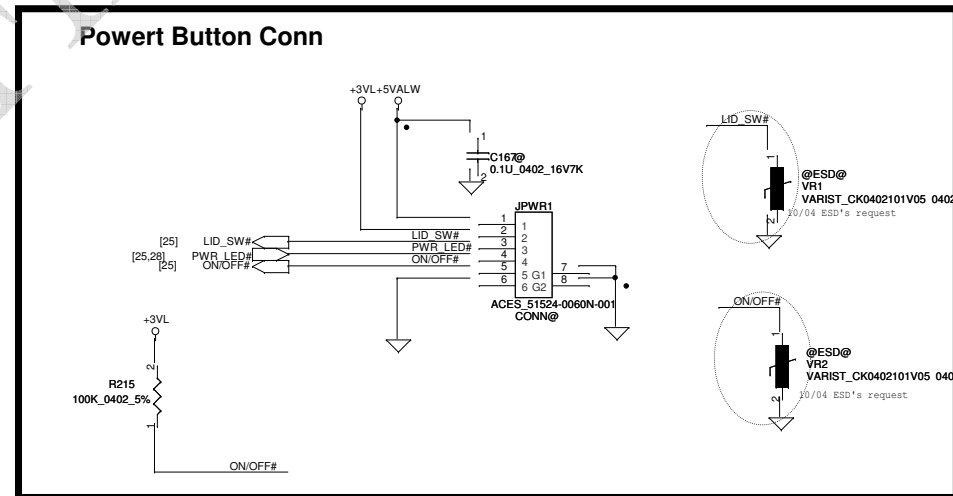
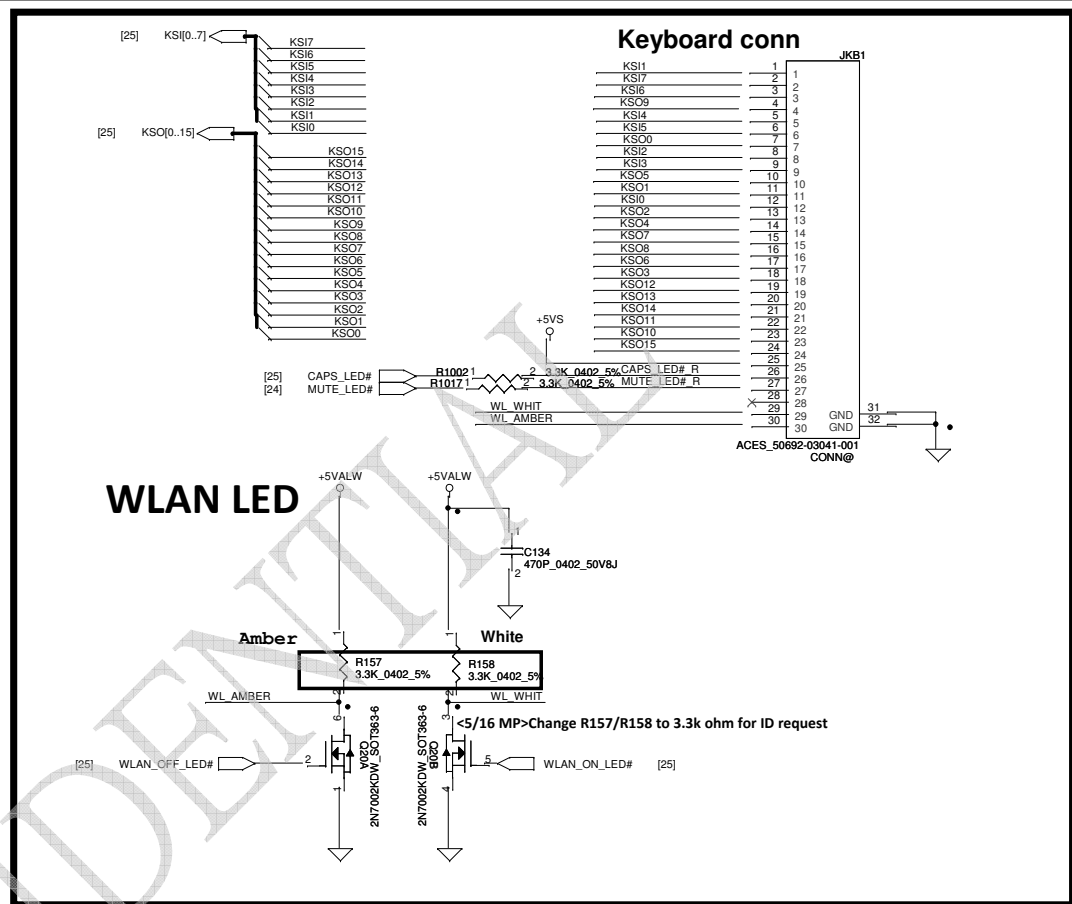
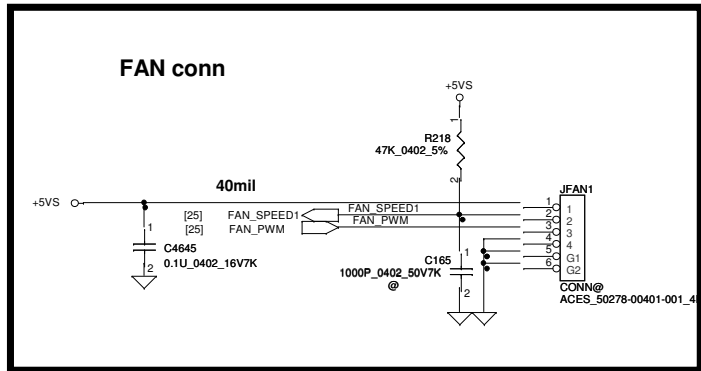
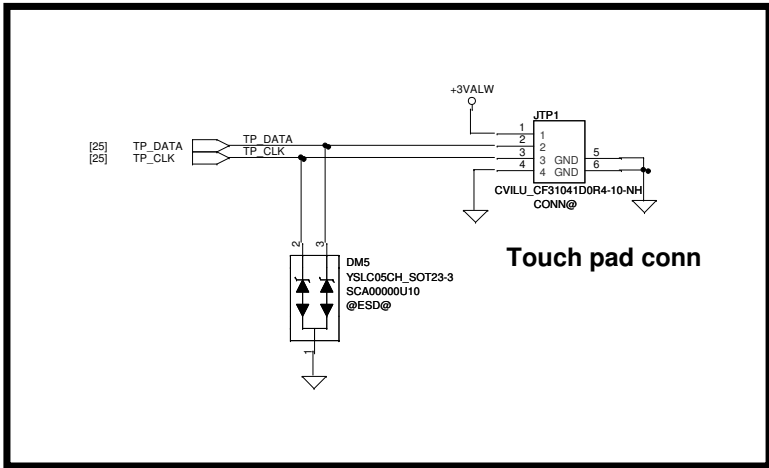
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Issued Date	2013/09/22	Deciphered Date	2014/09/22	Title	USB3/USB2 Port	
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Issued Date	2013/01/04	Deciphered Date	2015/01/04	Title	Realtek ALC3227
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				Date	Tuesday, January 21, 2014
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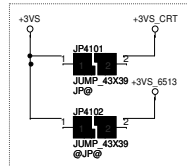


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Issued Date		Deciphered Date		Document Number	
2011/06/29		2011/06/29		EC ENE-KB9012	
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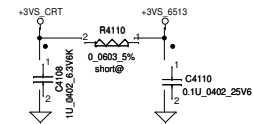


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Issued Date	2013/09/22	Deciphered Date	2014/09/22	Title
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Date: Tuesday, January 21, 2014				Rev 1.0

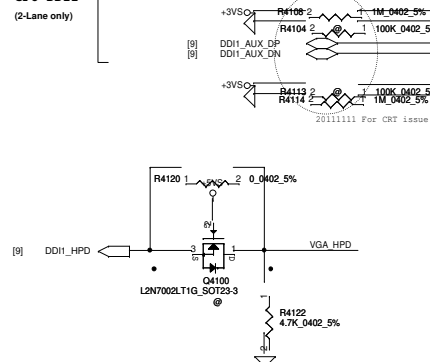
For Power consumption Measurement



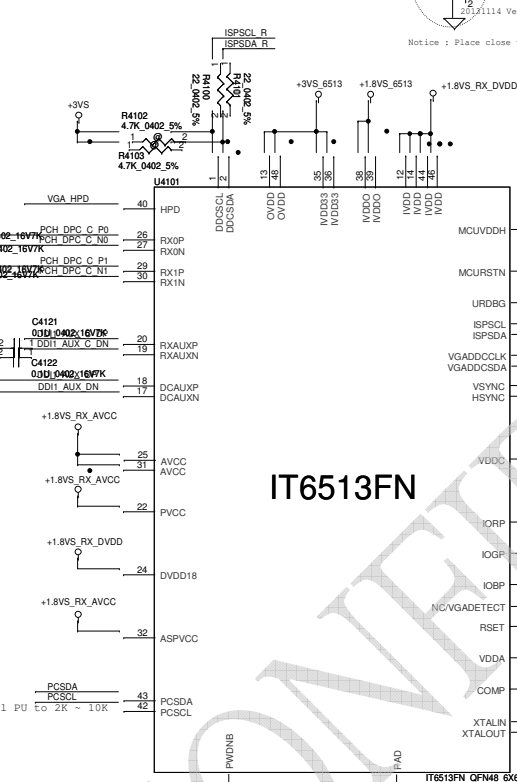
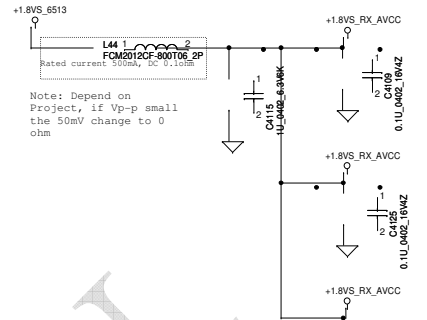
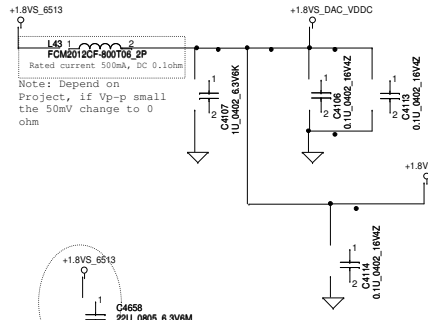
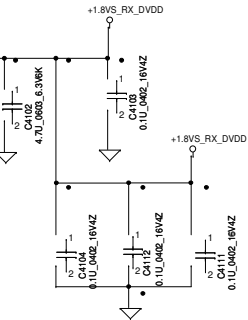
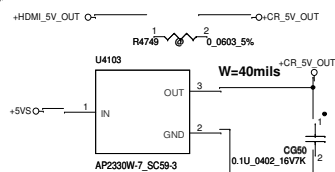
+3VS TO +3VS_6513



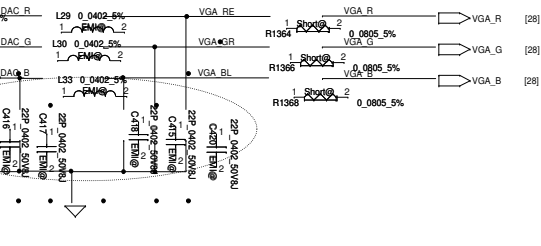
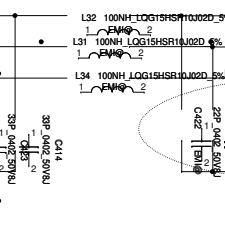
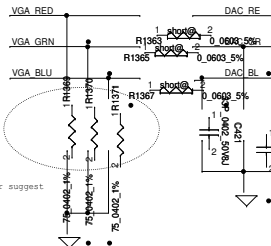
CPU DDI1
(2-Lane only)



Note: need external PU to 2K - 10K

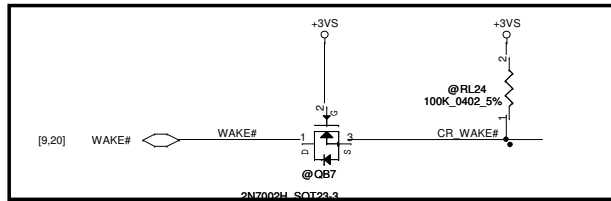
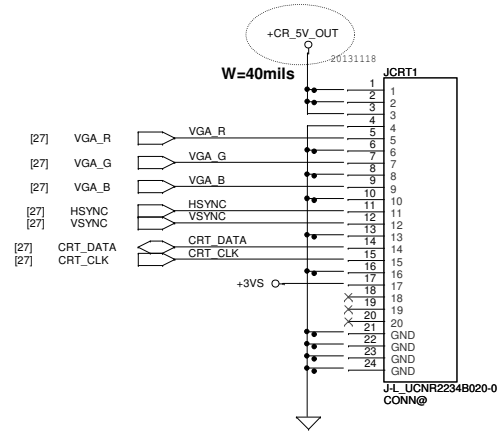
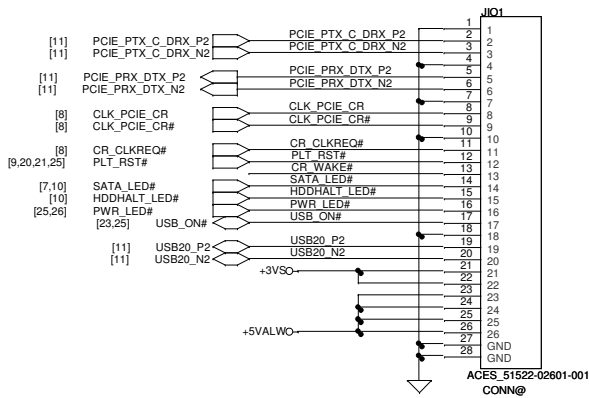


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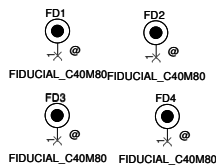
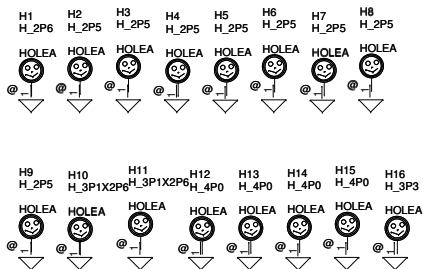


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Card reader/USB IO Connector

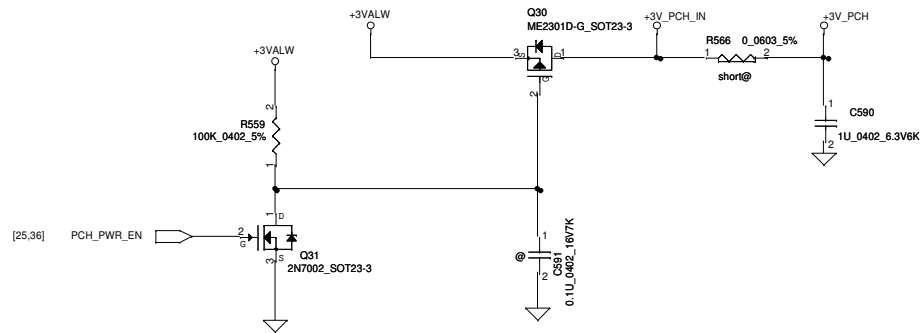


0927 for support OBFF

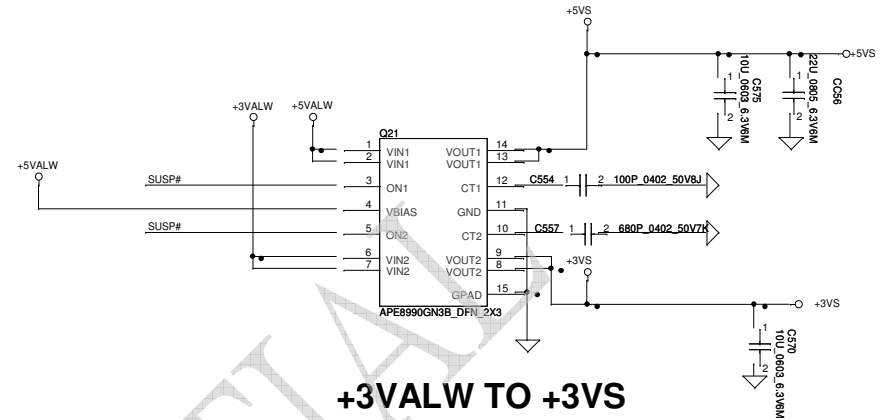


Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2013/09/22	Deciphered Date	2014/09/22	Title	TPM/Screw hole
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+3VALW TO +3V_PCH



+5VALW TO +5VS



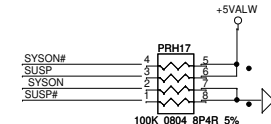
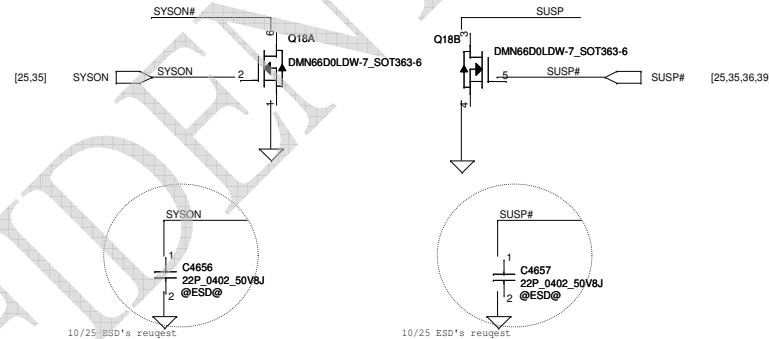
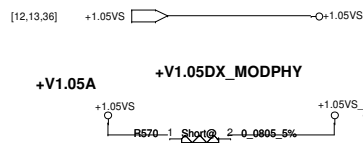
+3VALW TO +3VS

AO4430L
VGS Max=+/- 20V
VGS(Th) max=2.5V
Rds Max=5.5m @VGS=10V
Rds Max=7.5m @VGS=4.5V

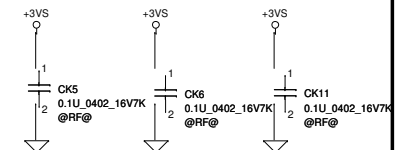


CPU +V1.05DX_MODPHY
Max Rdson <6m ohm
1840mA

AO4430L
VGS Max=+/- 20V
VGS(Th) max=2.5V
Rds Max=5.5m @VGS=10V
Rds Max=7.5m @VGS=4.5V



PV# 2013.02.07 Reserve 0.1u x 3 for RF

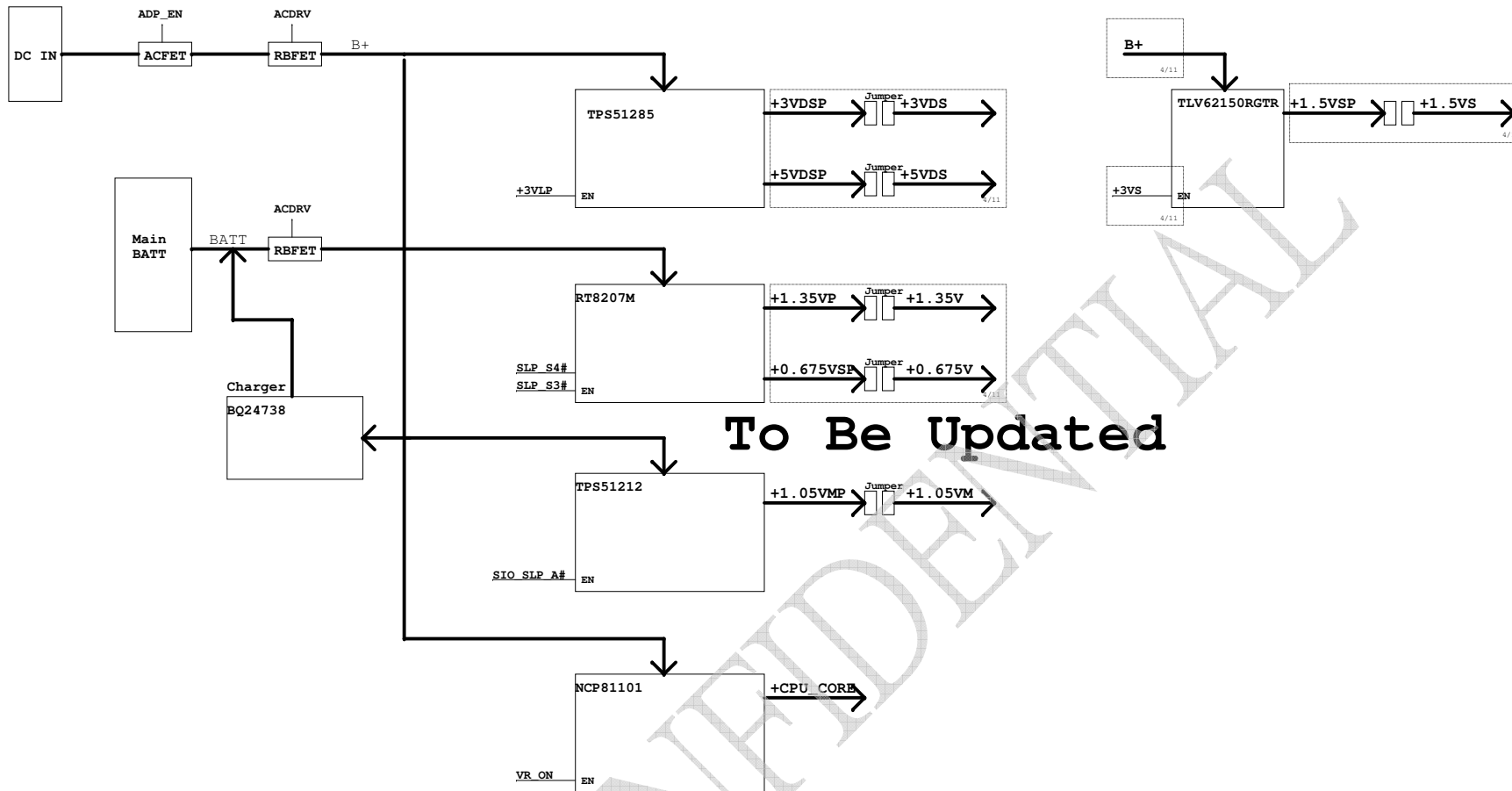


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Version Change List (P. I. R. List) for HW Circuit

[illegible]

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Issued Date	2013/09/22	Deciphered Date	2014/09/22	Title		
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				Document Number	Rev	
				Custom	LA-B241P	1.0
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Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2012/04/03	Deciphered Date	2014/12/31	Title	Power Block Diagram
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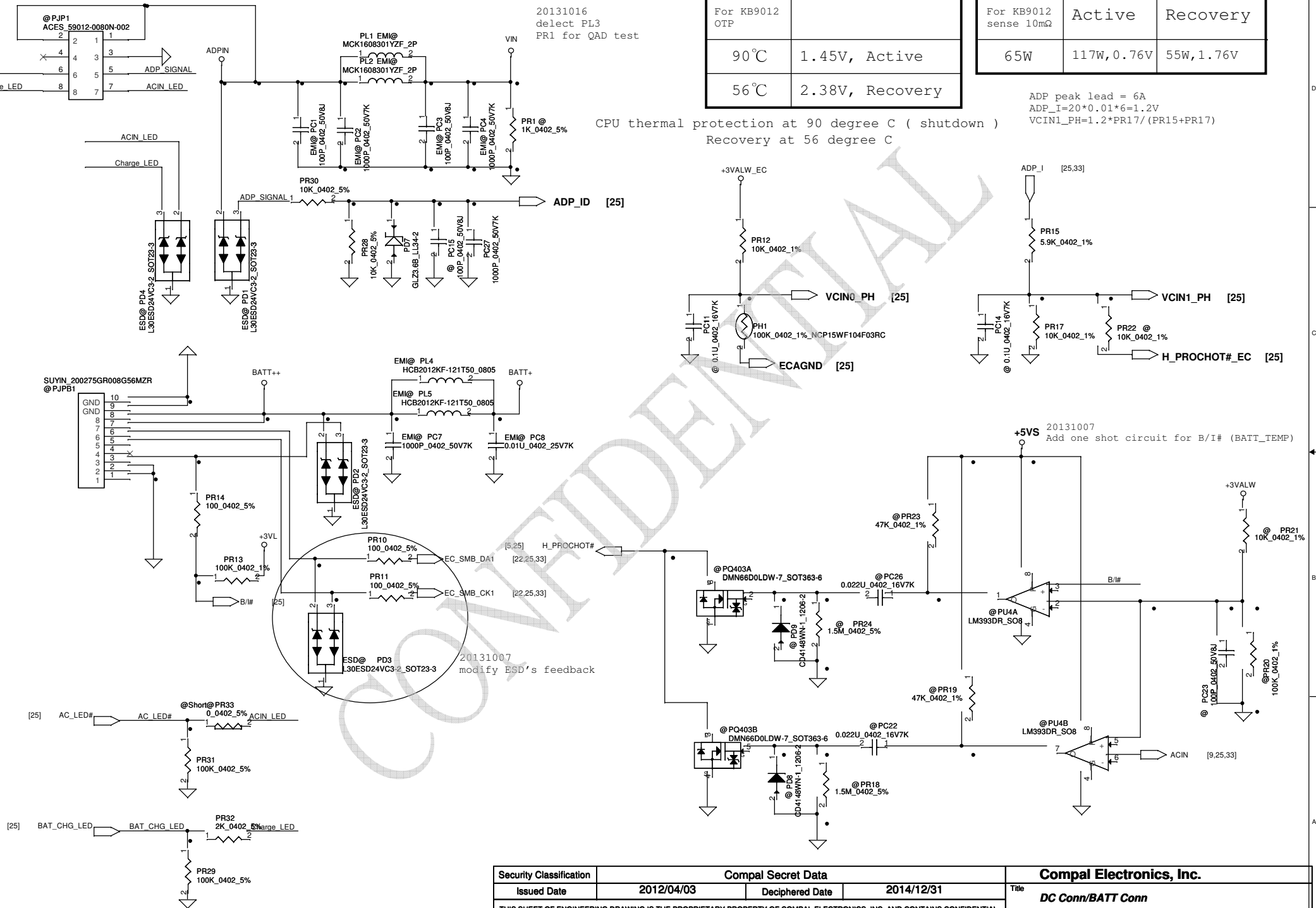
20131016
delect PL3
PR1 for QAD test

For KB9012 OTP	
90°C	1.45V, Active
56°C	2.38V, Recovery

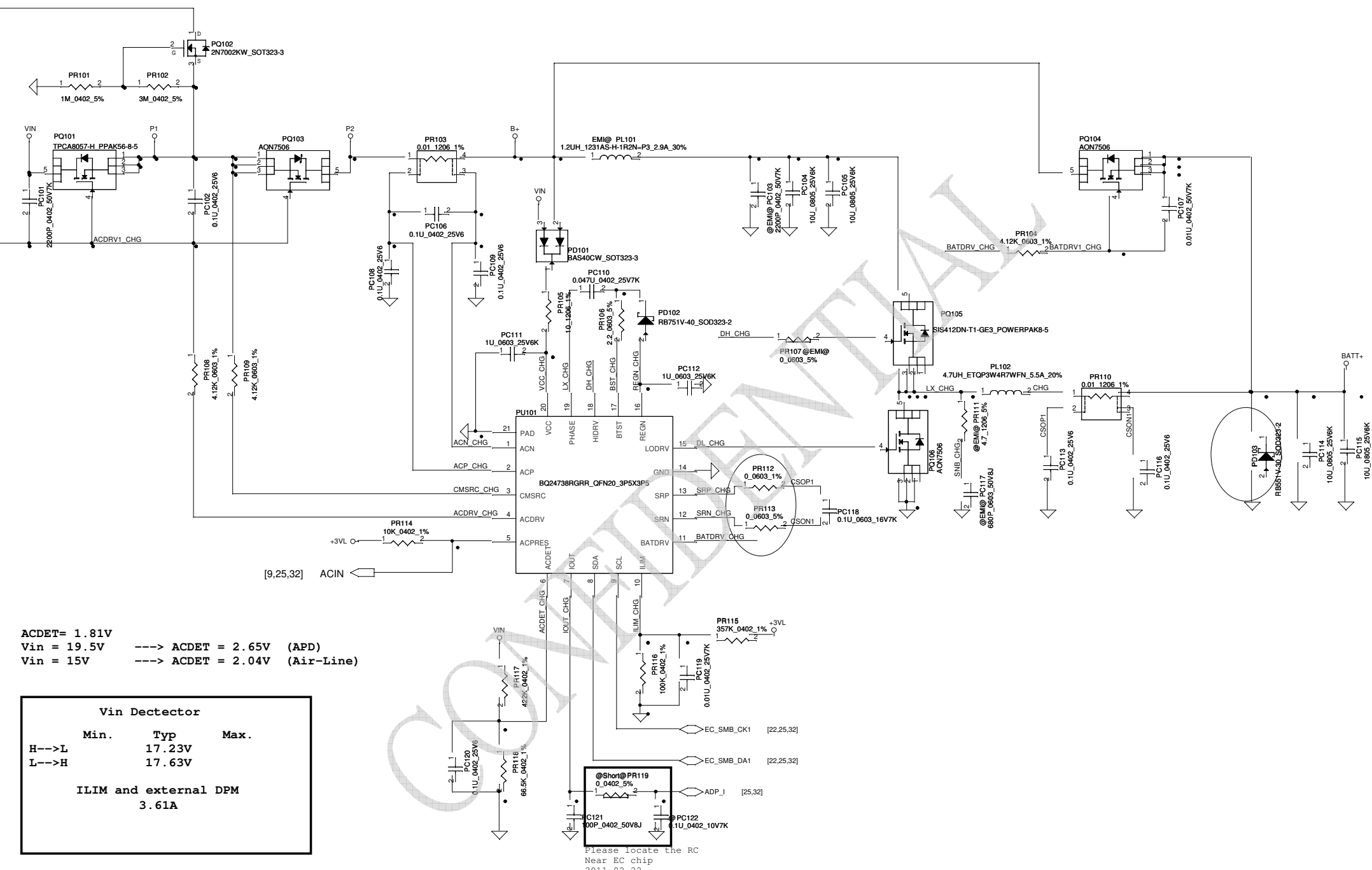
For KB9012 sense 10mΩ	Active	Recovery
65W	117W, 0.76V	55W, 1.76V

ADP peak lead = 6A
ADP_I=20*0.01*6=1.2V
VCIN1_PH=1.2*PR17/(PR15+PR17)

CPU thermal protection at 90 degree C (shutdown)
Recovery at 56 degree C



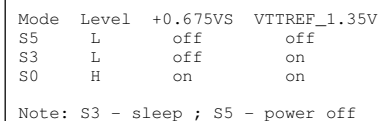
Security Classification	Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2012/04/03	Deciphered Date	2014/12/31	Title
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ACDET= 1.81V
Vin = 19.5V ----> ACDET = 2.65V (APD)
Vin = 15V ----> ACDET = 2.04V (Air-Line)

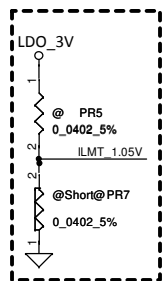
Vin Dectector			
	Min.	Typ	Max.
H-->L		17.23V	
L-->H		17.63V	
ILIM and external DPM			
3.61A			

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Choke: 2.2uH, DCR=15.5mohm, L/2 over 18A

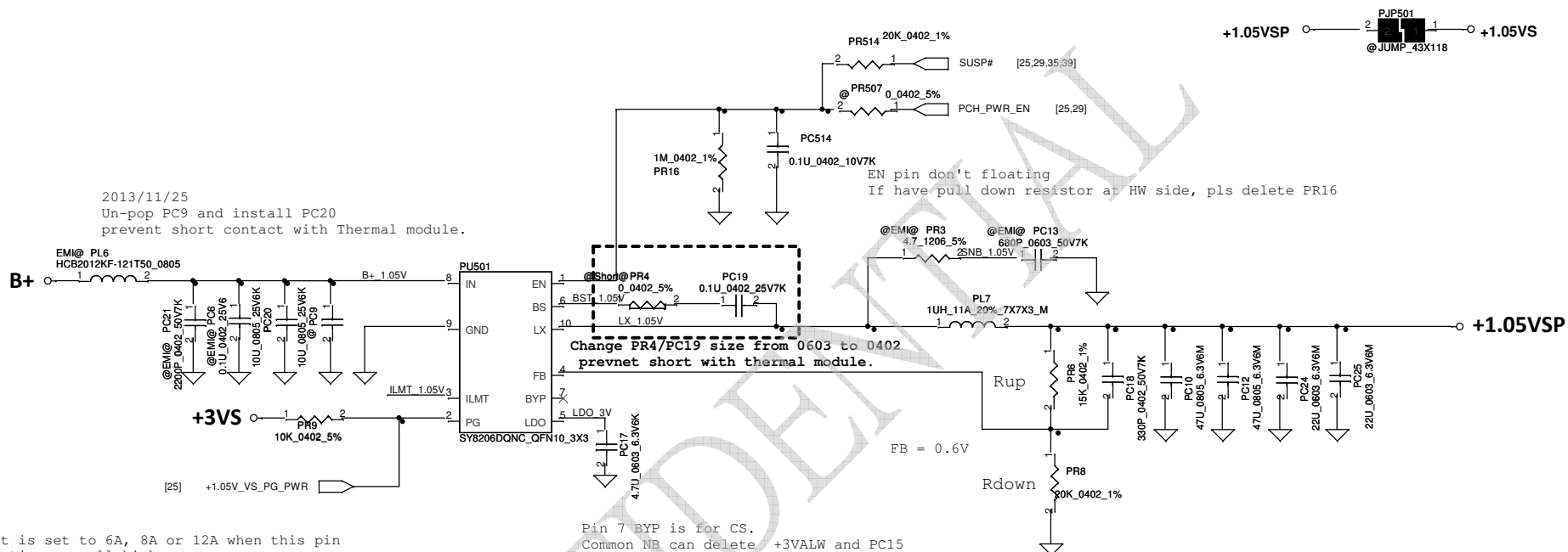
Security Classification		Compal Secret Data		Compal Electronics, Inc.		
Issued Date	2012/04/03	Deciphered Date	2014/12/31	Title	DDR Power	
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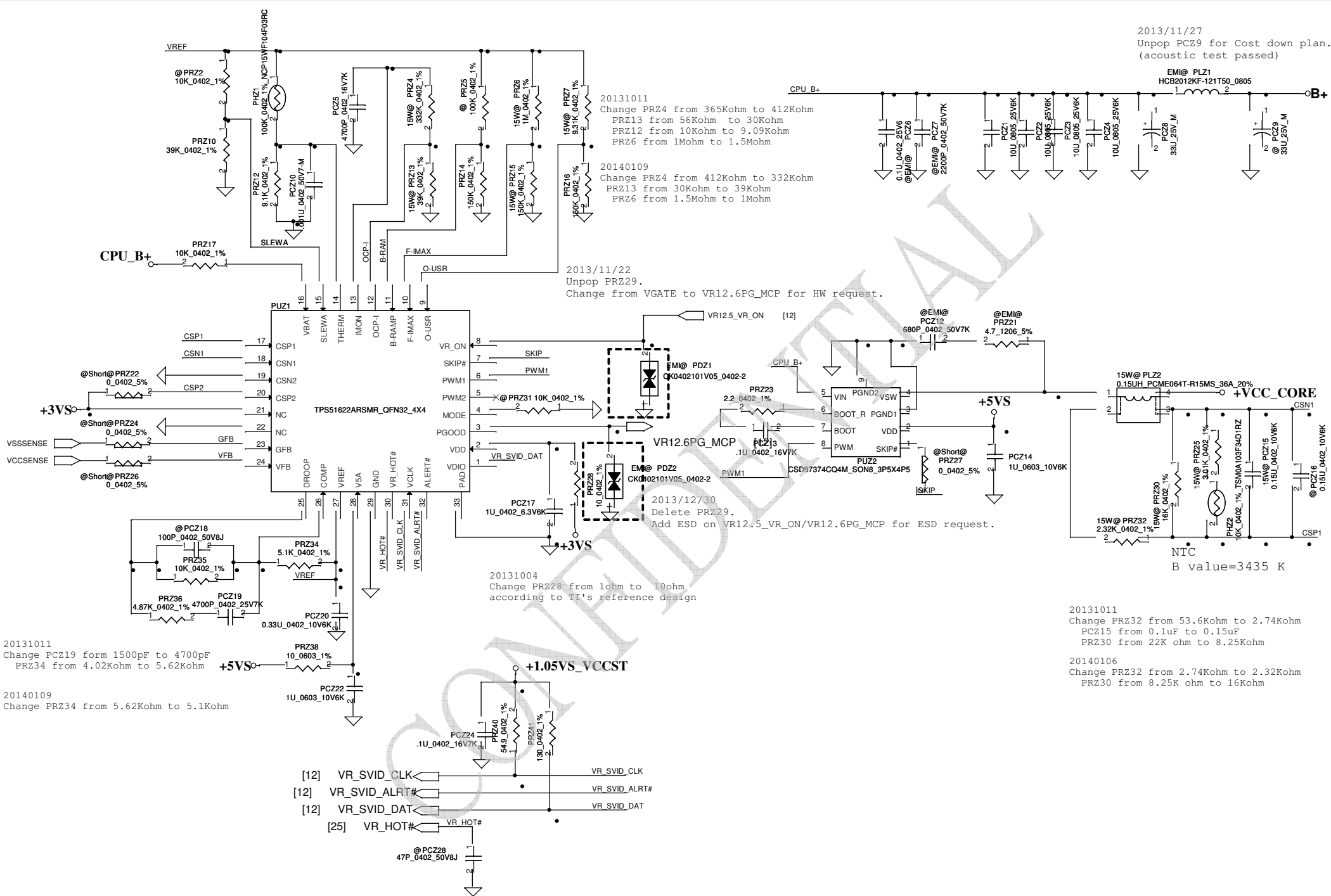
The current limit is set to 6A, 8A or 12A when this pin is pull low, floating or pull high

Ipeak = 4.85A, Imax = 3.6A

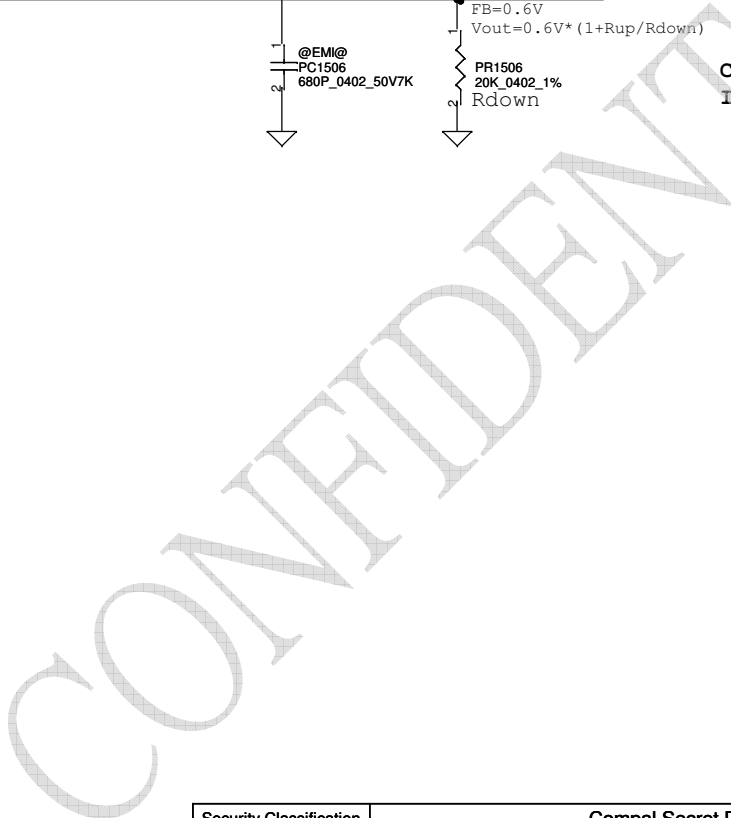
2013/11/25
Un-pop PC9 and install PC20
prevent short contact with Thermal module.



2013/11/27
Unpop PCZ9 for Cost down plan.
(acoustic test passed)



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

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for PWR

Item	Fixed Issue	Reason for change	Rev.	PG#	Modify List	Date	Phase
1	Add PC315 4.7U_0603_6.3V6K	Prevent ENE9012 EC_ON Issue.	1.0	34	Add PC315 4.7U_0603_6.3V6K	2013/11/20	PV
2		Unpop PRZ29 and change Netname from VGATE to VR12.6PG_MCP for HP request.	1.0	37	Unpop PRZ29 and change Netname from VGATE to VR12.6PG_MCP for HP request.	2013/11/22	PV
3		Change Power rail from +1.05VP to +1.05VSP for HW request.	1.0	36	Change Power rail from +1.05VP to +1.05VSP for HW request.	2013/11/22	PV
4		Un-pop PC9 and install PC20 prevent short contact with Thermal module.	1.0	36	Un-pop PC9 and install PC20 prevent short contact with Thermal module.	2013/11/25	PV
5		Unpop PCZ9 for Cost down plan. (acoustic test passed)	1.0	37	Unpop PCZ9 for Cost down plan. (acoustic test passed)	2013/11/25	PV
6		Change PR4/PC19 size from 0603 to 0402 prevent short with thermal module.	1.0	36	Change PR4/PC19 size from 0603 to 0402 prevent short with thermal module.	2013/12/20	MV
7		Change PRZ4 from 412Kohm to 475Kohm.	1.0	37	Change PRZ4 from 412Kohm to 475Kohm.	2013/12/20	MV
8		Delete reserve symbol PRZ29. Add ESD on VR12.5_VR_ON/VR12.6PG_MCP for ESD request.	1.0	37	Delete reserve symbol PRZ29. Add ESD on VR12.5_VR_ON/VR12.6PG_MCP for ESD request.	2013/12/30	MV
9		Change PR33 from 0 ohm to Short PAD.	1.0	32	Change PR33 from 0 ohm to Short PAD.	2013/12/31	MV
10		Change PR4/PR7 from 0 ohm to Short PAD.	1.0	36	Change PR4/PR7 from 0 ohm to Short PAD.	2013/12/31	MV
11		Change PRZ22 from 0 ohm to Short PAD.	1.0	37	Change PRZ22 from 0 ohm to Short PAD.	2013/12/31	MV
12		Change PR1502 from 0 ohm to Short PAD.	1.0	39	Change PR1502 from 0 ohm to Short PAD.	2013/12/31	MV
13		Change PRZ32 from 2.74Kohm to 2.32Kohm. Change PRZ30 from 8.25K ohm to 16Kohm.	1.0	37	Change PRZ32 from 2.74Kohm to 2.32Kohm. Change PRZ30 from 8.25K ohm to 16Kohm.	2014/01/06	MV
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15							
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