



Compal Confidential

Nvdia(T30L) + DDRIHL

V0JET (A210)_ LA8981P

2012-06-11 REV: 1.0

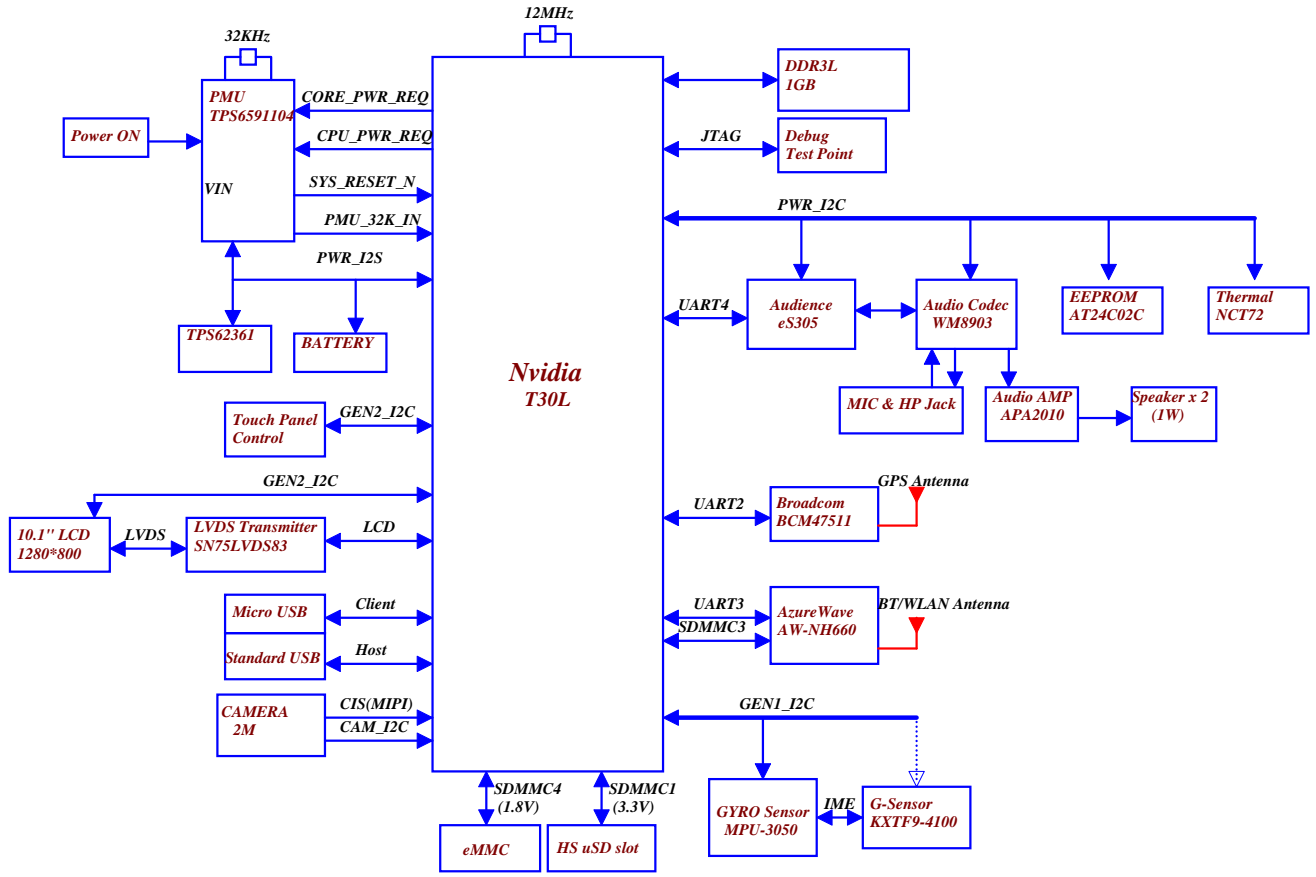
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Model Name : NVIDIA T30L System Block Diagram



Security Classification	Compal Secret Data		Title	
Issued Date	2012/05/20	Deciphered Date	2012/01/09	SYSTEM BLOCK
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V0JET (A210)

Voltage Rails

Power Plane		ACIN	DCIN	IDLE	Standby
VIN	Adapter power supply (12V)	ON	ON	ON	ON
B+	AC or battery power rail for power circuit.	ON	ON	ON	ON
VDD_SV0_SBY	Power for always-on	ON	ON	ON	ON
VBD_1V8_PMU_VRYC	Power for RTC and always-on core logic	ON	ON	ON	ON
VDD_1V2_MEM					
VDD_1V35_DDR3_MEM	DDR RX power rail	OFF	OFF	ON	
VDD_1V0_GEN	T30 VDD_CPU Power	OFF	OFF	ON	
VDD_1V2_SOC	T30 VDD_CORE Power	OFF	OFF	ON	
VDD_1V35_DDR3_MEM	DDR power rail	OFF	OFF	ON	
VDD_PMU_LDO1		OFF	OFF	ON	
VDD_PMU_LDO2		OFF	OFF	ON	
VDD_PMU_LDO3		OFF	OFF	ON	
VDD_PMU_LDO4 (VDD_1V2_RTC_TEGRA)	T30 VDD_RTC power rail	OFF	OFF	ON	
VDD_PMU_LDO5 (+VDD_3V3_SDMC1_TEGRA)	T30 VDDIO_SDMC1 power rail	OFF	OFF	ON	
VDD_PMU_LDO6 (+AVDD_1V2_DSI_CSI_TEGRA)	T30 AVDD_DSI power rail	OFF	OFF		
VDD_PMU_LDO7 (+AVDD_1V1_PLL_TEGRA)	T30 AVDD_PLL power rail	OFF	OFF		
VDD_PMU_LDO8 (+VDD_1V0_DDR_HS_TEGRA)	T30 VDD_DDR_HS power rail	OFF	OFF		
+5VS	5V System power rail	OFF	OFF		
+3VALW	3.3V System power rail	OFF	OFF		
+3VS	3.3V power rail for standby mode	OFF	OFF		
VDD_1V8_GEN	1.8V System power rail	OFF	OFF		
+VDD_1V8_USB_PLL_TEGRA	T30 USB power rail	OFF	OFF		
+T30S_USB1	USB power rail	OFF	OFF		
+VDD_2V85_EMMC	Core voltage for EMMC	OFF	OFF		
+LEBVDD	LCD power rail	OFF	OFF		
+LCDVDD	LCD power rail	OFF	OFF		
+VDD_1V8_AUDIO_LDO	Audio power rail	OFF	OFF		
+2.8V_2M_AVDD_R	CAMERA power rail	OFF	OFF		
+VDD_3V3_SDCARD	Micro SD power rail	OFF	OFF		
+VDD_CAM_1V8	CAMERA power rail	OFF	OFF		
+VDD_3V3_FUSE_TEGRA	T30 VPP_Fuse power rail	OFF	OFF		
+VDD_1V8_SENSOR	3.3V Sensor power rail	OFF	OFF		
+VDD_3V3_SENSOR	3.3V Sensor power rail	OFF	OFF		

V0JET	EVT	DVT	PVT	MP		
PCB_ID0	H	H	H		L: A211	H: A210
PCB_ID1	H	H	H		L:	H: NH660
PCB_ID2	H	H	H		L:	H: A210/A211
PCB_ID3	H	H	H		L:	H: A210/A211

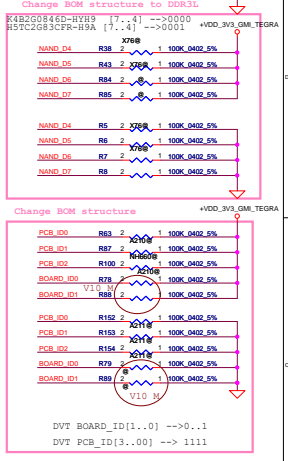
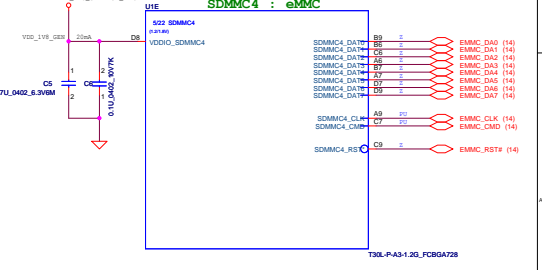
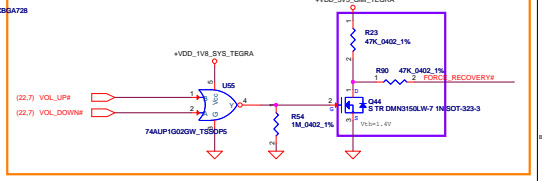
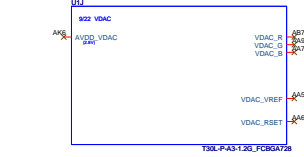
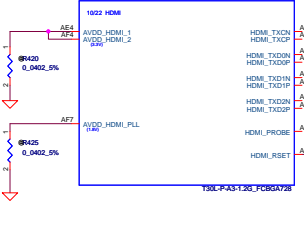
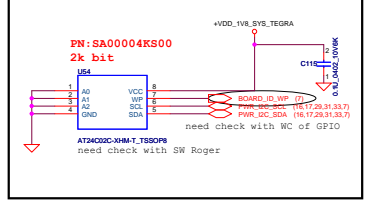
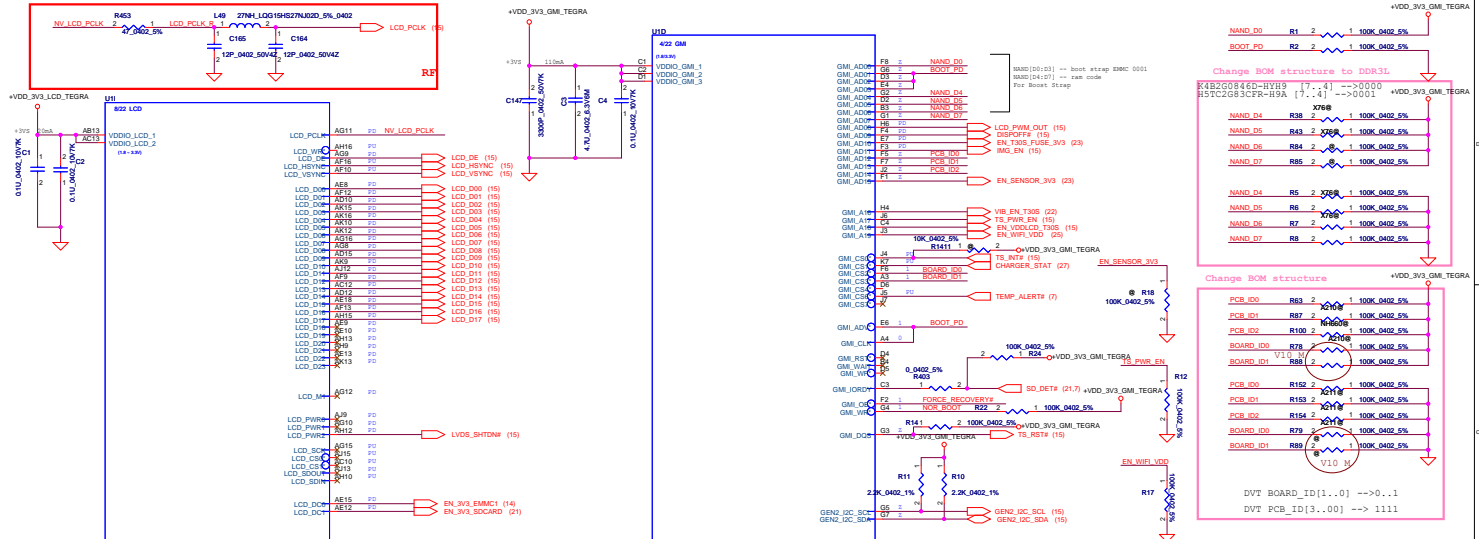
V0JET	Vendor PN	Acser PN	NAND_D4	NAND_D5
DDR3L	K4B2G0846D-RYH9 (Samsung)	KN.2GB08.038	0	0
	H5FC2G83CFR-H9A (Hynix)	KN.2GB0G.003	1	0
	FD3J1088D8C-DJ-FE1 (Elpida)	KN.2GB09.001	0	1

V0JET	EVT	DVT	PVT	MP
Board ID0	0	1	0	1
Board ID1	0	0	1	1

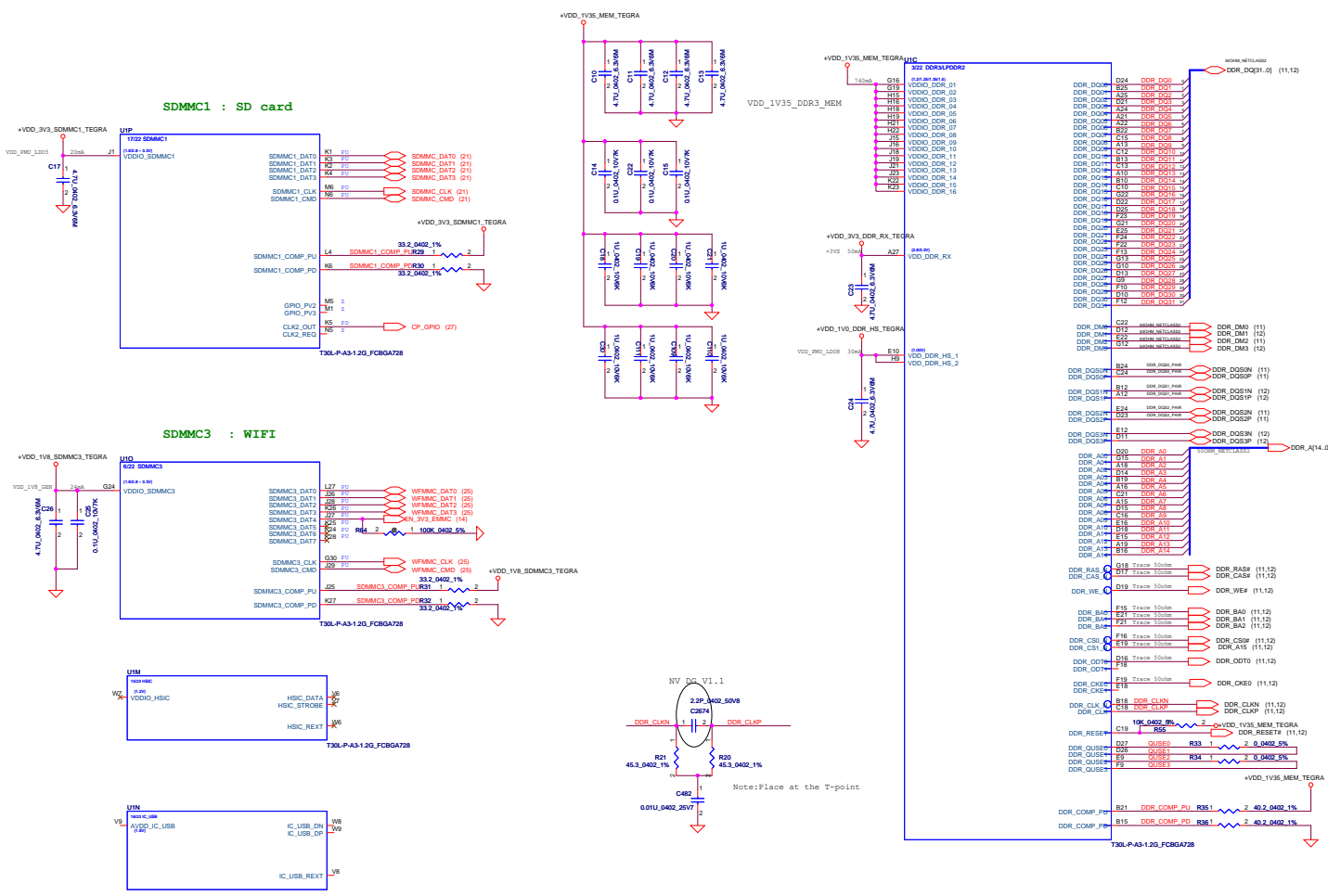
Bom Structure	01 BOM
A210@	V
A211@	NU
GPS@	V
GS@	NU
LDO@	V
ME@	V
NH660@	V
NONLDO@	NU
SD16GB@	NU
SD8GB@	NU
SS16GB@	NU
SS8GB@	V
WIFI@	V
X76@	V
X76-H@	V
X76-S@	NU

GEN1_I2C (+VDD_1V8_SENSOR)				PWR_I2C (+VDD_1V8_SYS_TEGRA)			
Device	8bit	7bit		Device	8bit	7bit	
E-compass (reserved only)	Write	0x18	0x0C	Thermal Sensor	Write	0x98	0x4C
	Read	0x19			Read	0x99	
GYRO	Write	0xD0	0x68	Codec	Write	0x34	0x1A
	Read	0xD1			Read	0x35	
G-Sensor	Write	0x1E	0x0F	Battery	Write	0xA4	0x55
	Read	0x1F			Read	0xAB	
GEN2_I2C (+VDD_3V3_GMI_TEGRA)				EEPROM			
Device	8bit	7bit		low level	0xA0, 0xA1	0x50	
	Write	0x9A	0x4D	high level	0xA2, 0xA3	0x51	
Touch Screen (Atmel)	Write	0x9A	0x4D	Audio Processor	0x7C, 0x7D	0x0E	
	Read	0x9B		PMIC	0x5A, 0x5B	0x2D	
Touch Screen (Focalsch)	Write	0x70	0x38	Processor Core Supply	0x00, 0x01	0x60	
	Read	0x71					
				CAM_I2C (+VDD_1V8_CAM_TEGRA)			
Device	8bit	7bit					
	Write	0x78	0x3C				
2M Camera	Write	0x78	0x3C				
	Read	0x79					

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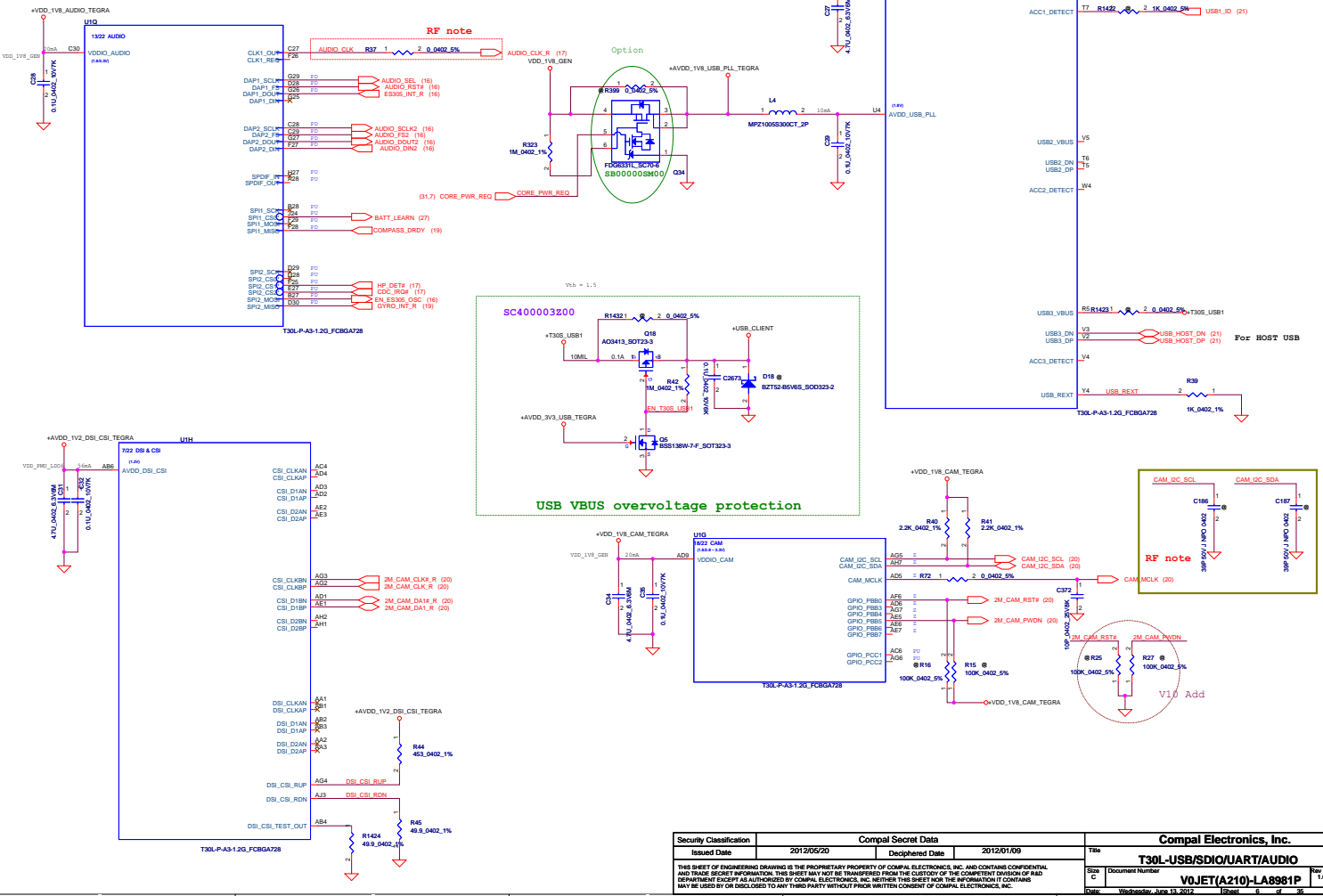


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Compal Electronics, Inc. T30L-LCD/CR7/HDMI/NAND			
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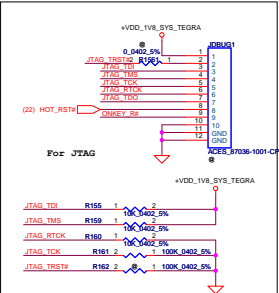
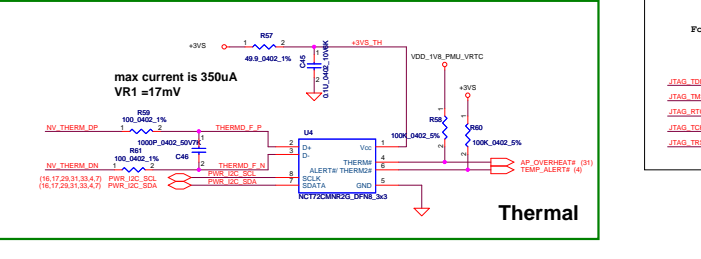
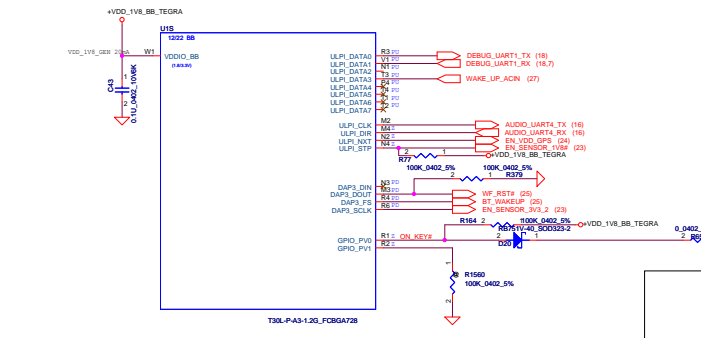
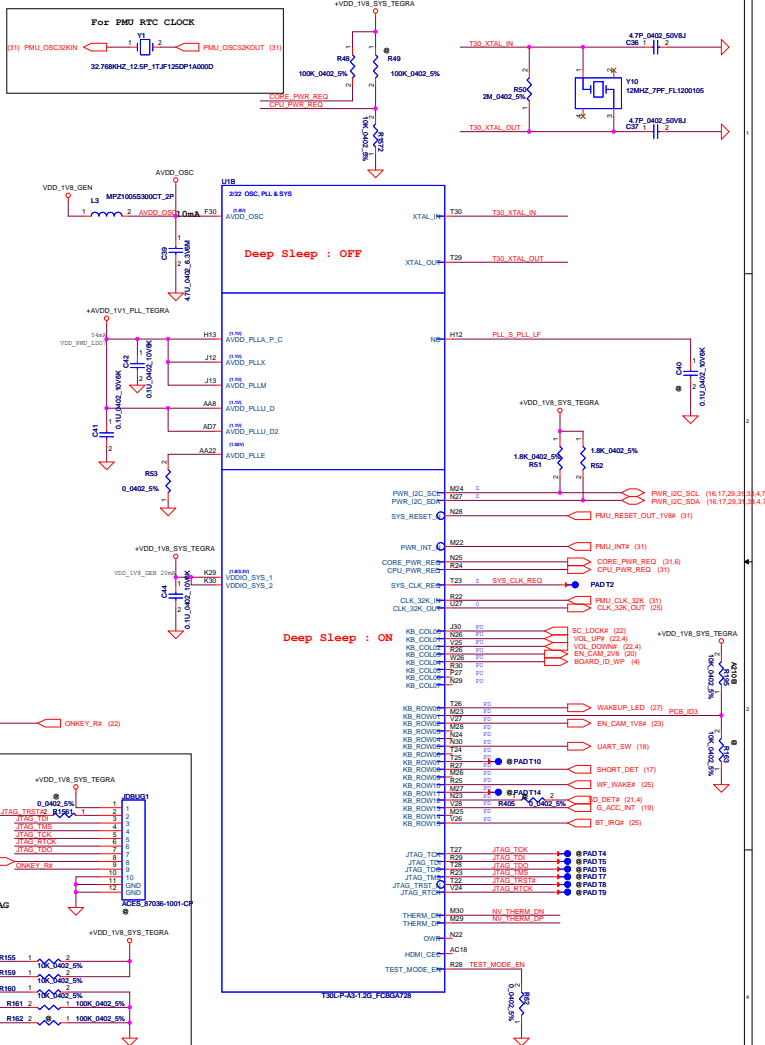
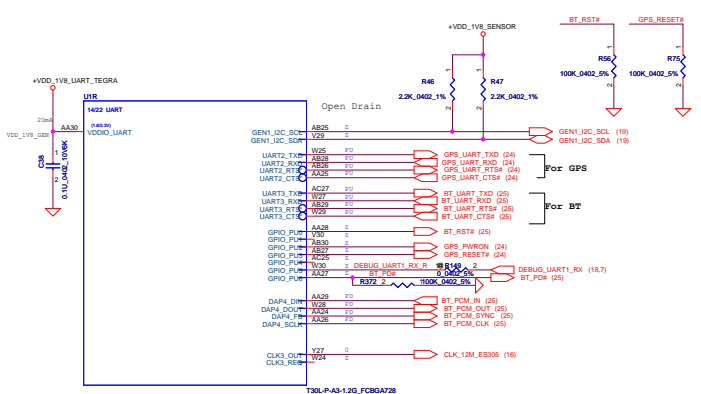


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UIQ is not place on grid, need check connection

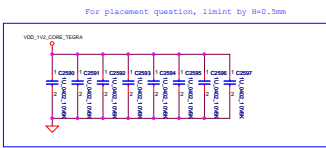
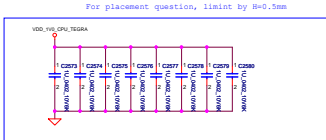
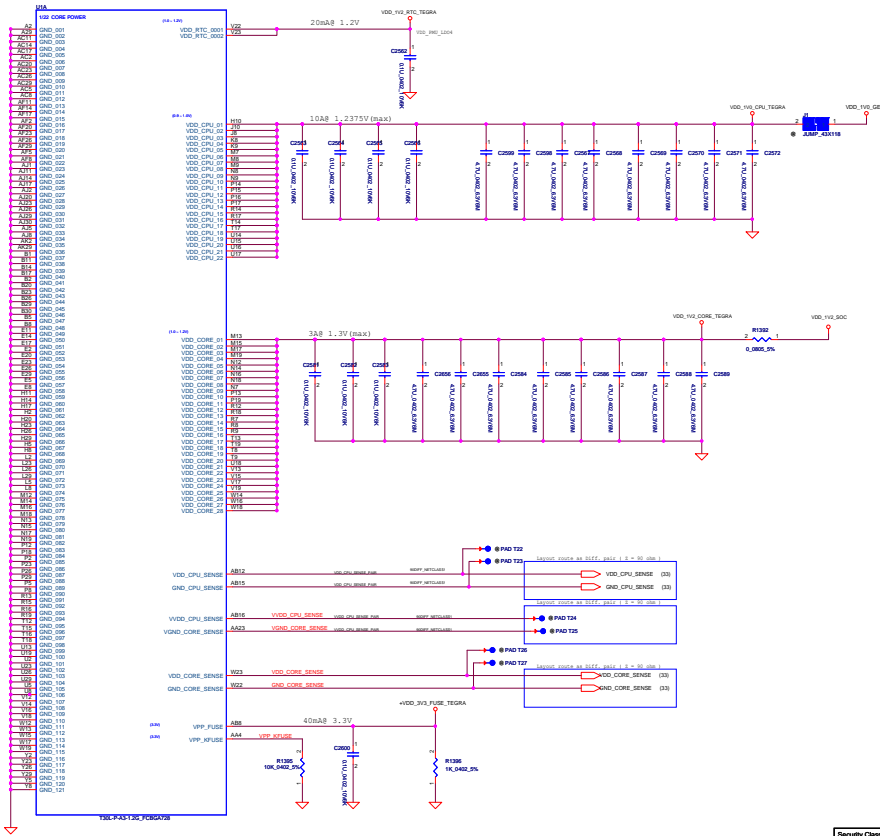


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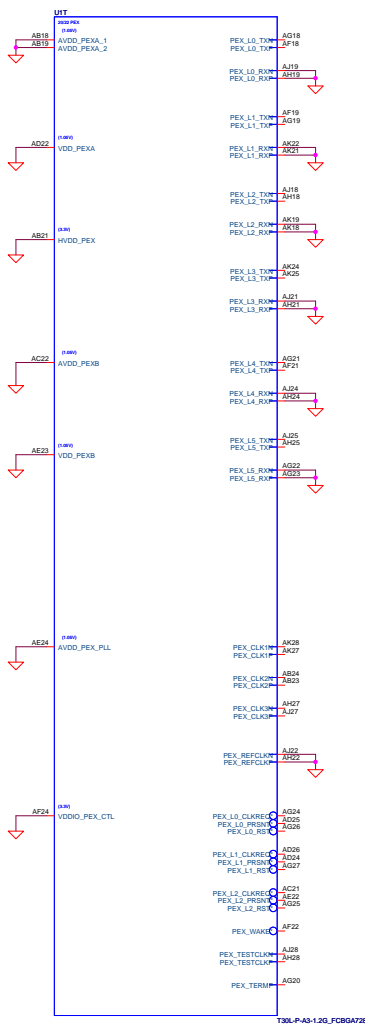
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T30 Core Power

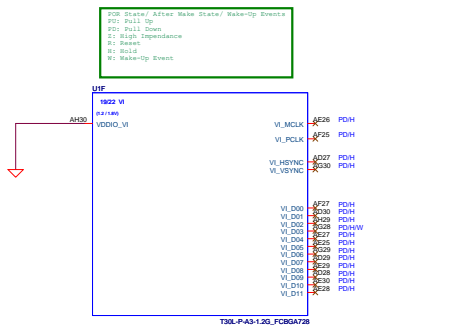


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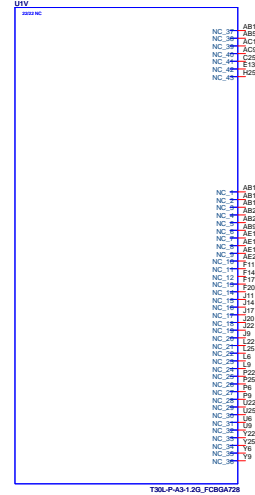
T30 PEX Interface



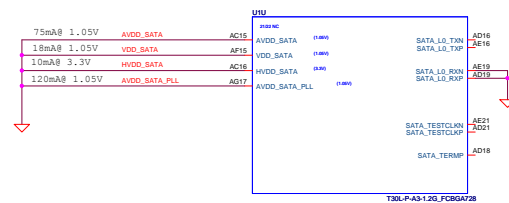
T30 VI Interface



T30 SPARE Pins

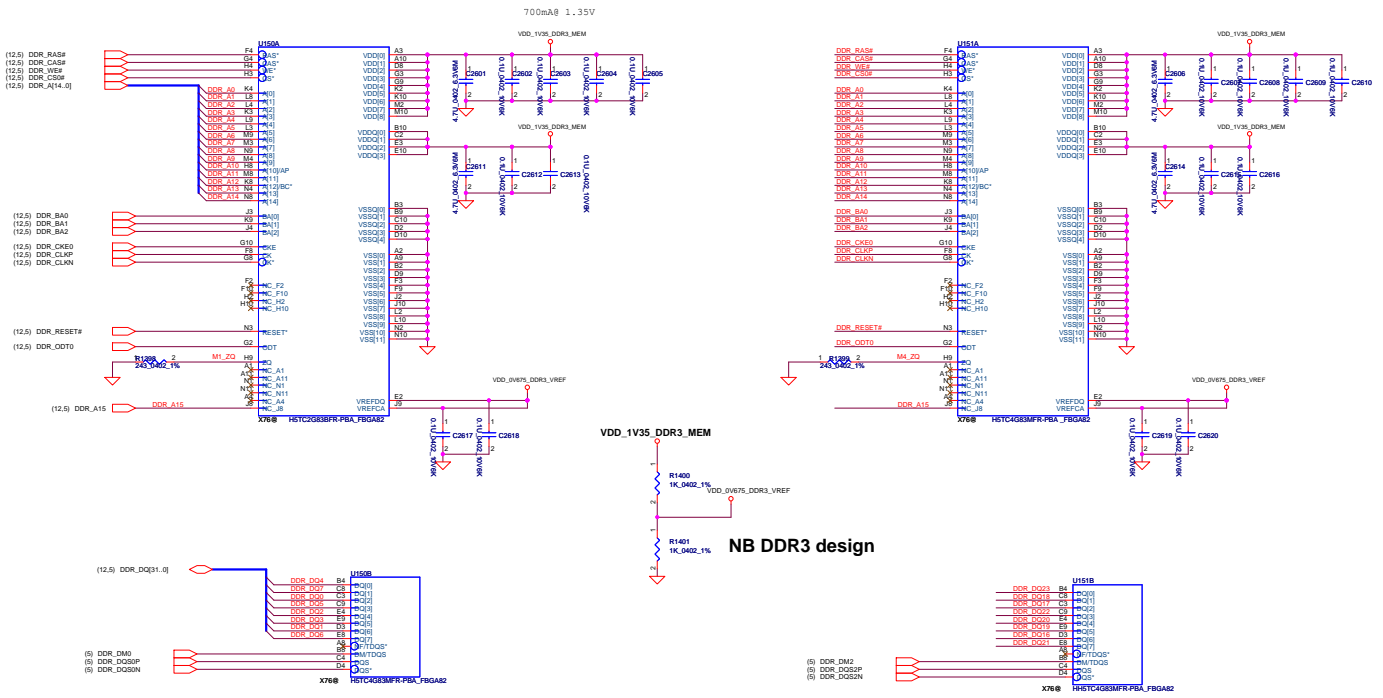


T30 SATA Interface



T30L-PEX/SATA/VI		
File	T30L-PEX/SATA/VI	
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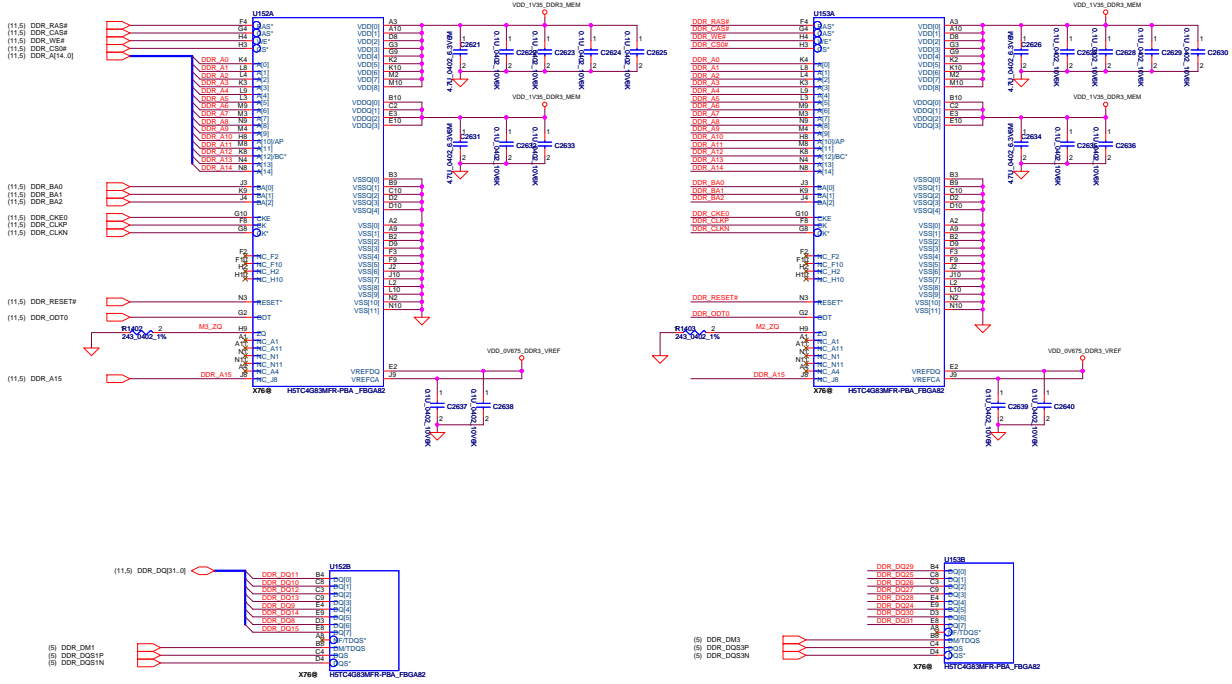
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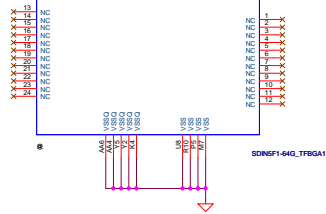
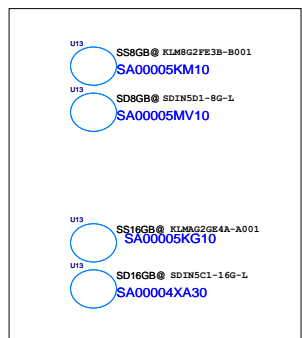
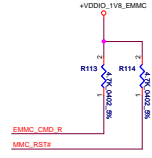
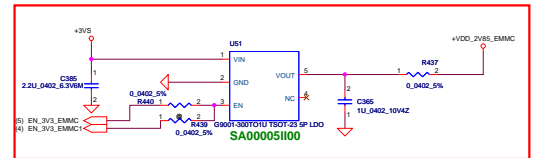
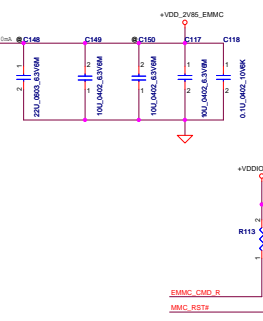
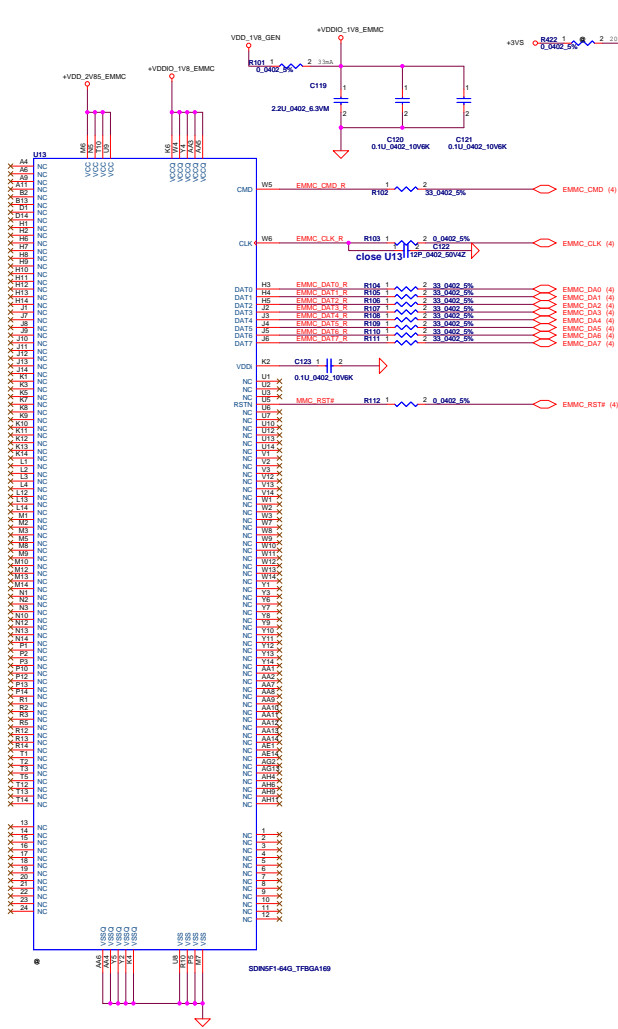
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DDR3/DDR3L(page 2/2): 4pcs, 2Gbx4 memory chips: RANK 0: HIGH 16 BITS

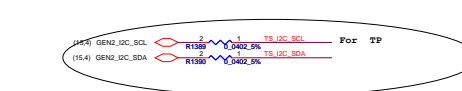
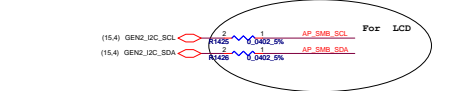
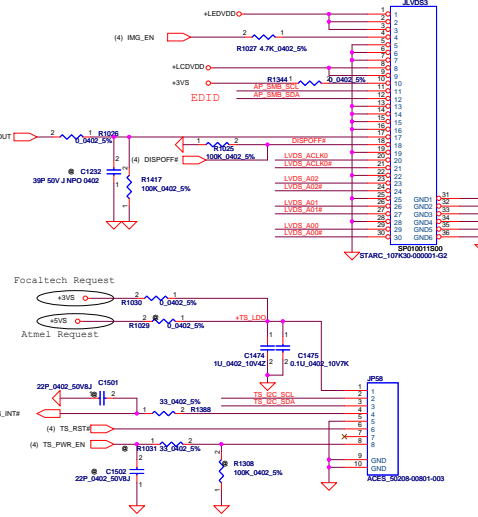
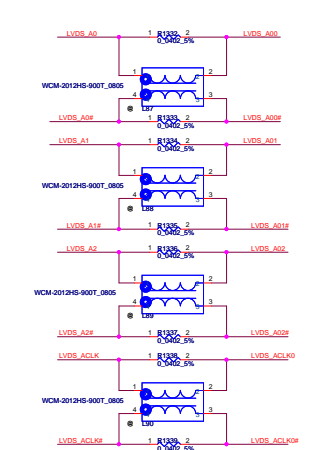
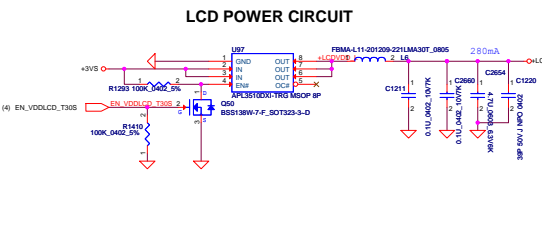
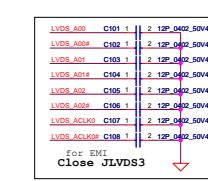
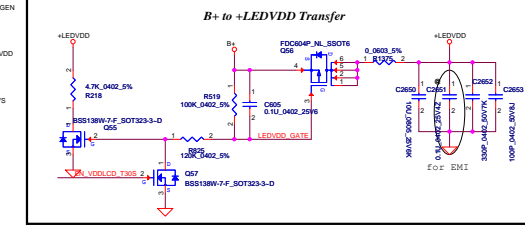
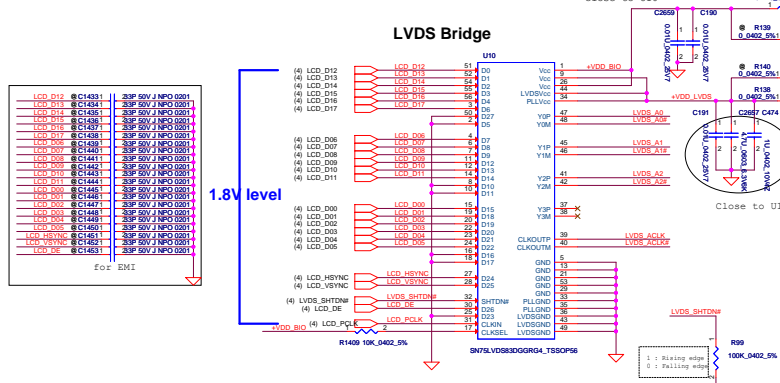


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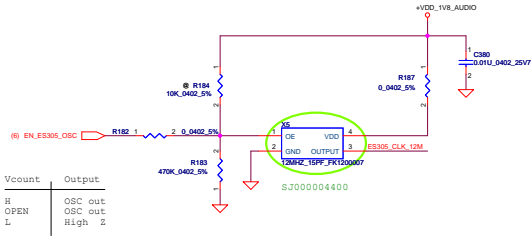
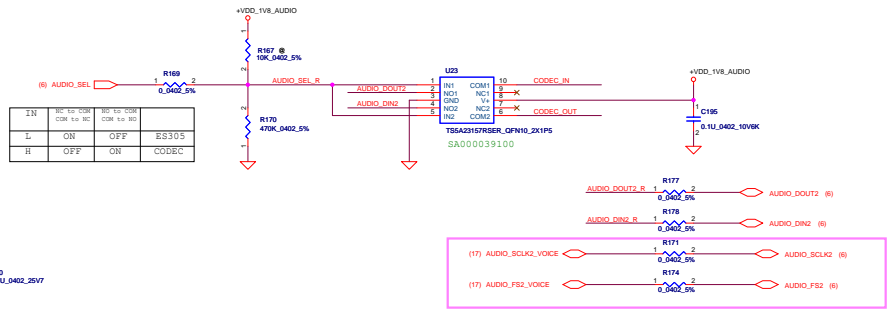
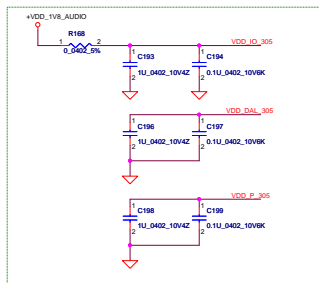
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Issued Date	2012/05/20	Deciphered Date	2012/01/09	Title
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Size	Document Number	V0JET(A210)-LA8981P		Rev
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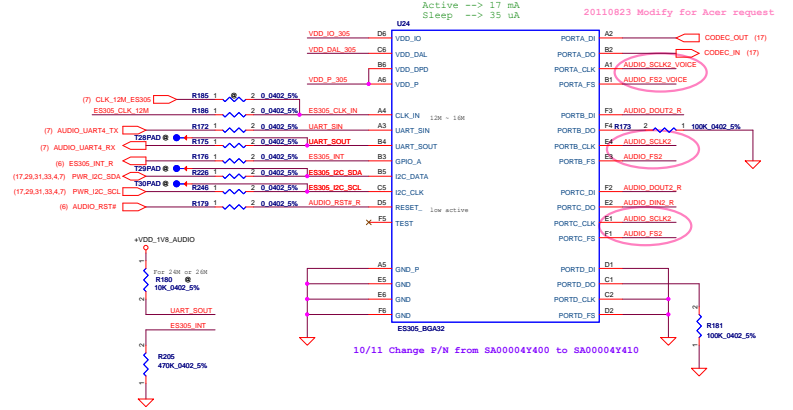
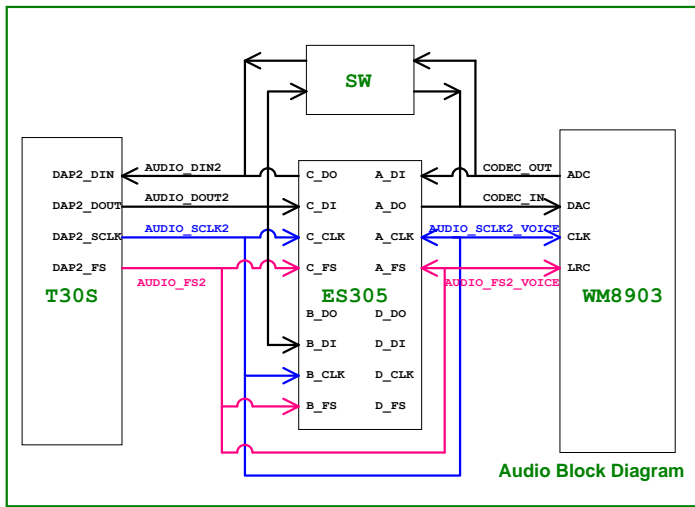
Security Classification	Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2012/05/20	Deciphered Date	2012/01/09	Title
				eMMC
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				Document Number V0JET(A210)-LA8981P
				Rev 1.0
				Date: Wednesday, June 13, 2012
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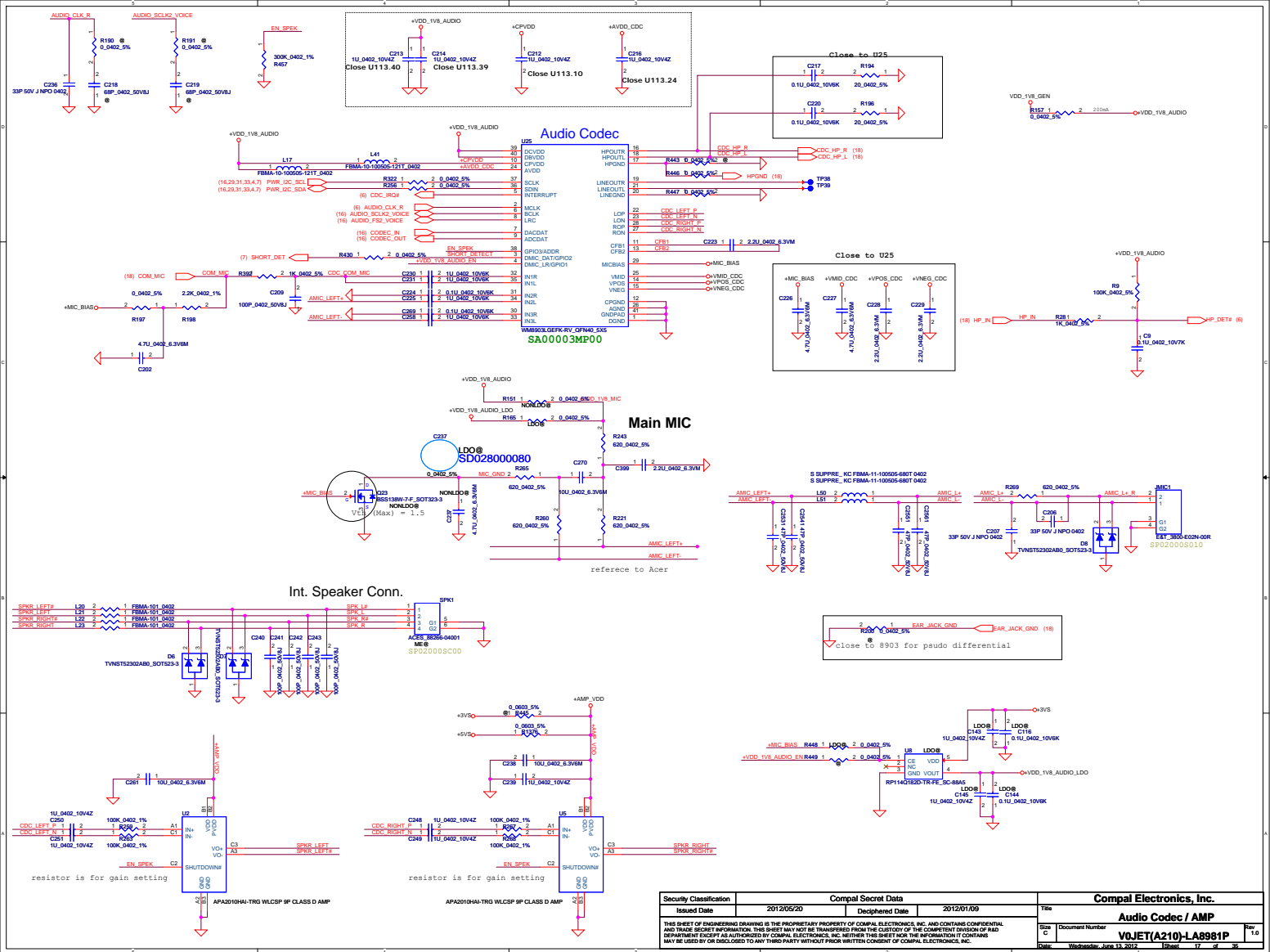


Modify for Acer request
 AUDIO_FS2_VOICE connect to portB and CODEC;
 AUDIO_FS2 connect to portB, portC and CPU;
 AUDIO_SCLK2_VOICE connect to portA and CODEC;
 AUDIO_SCLK2 connect to portB, portC and CPU.



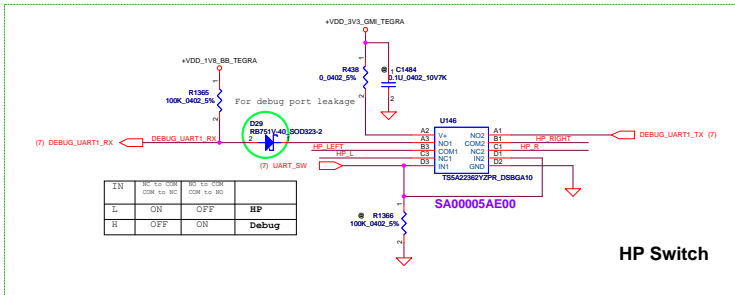
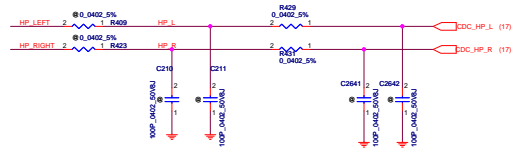
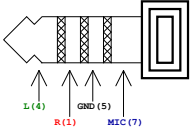
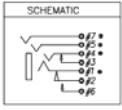
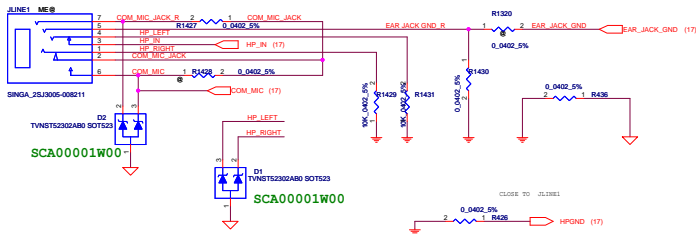
Support for input clock frequencies of 24 MHz and 26 MHz requires a 10kΩ pull-up resistor on the UART_SOUT pin.

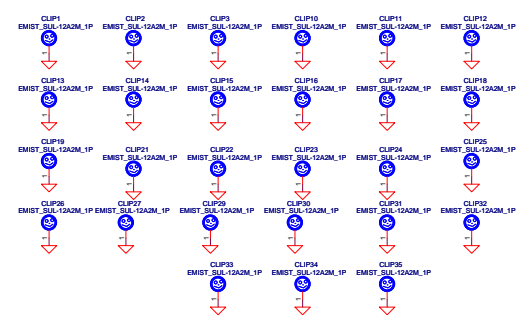
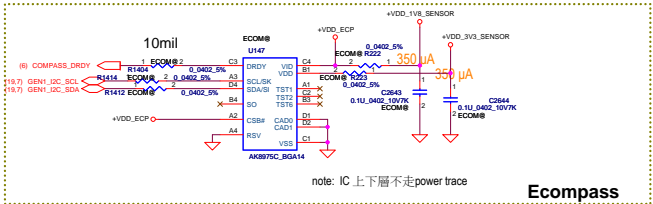
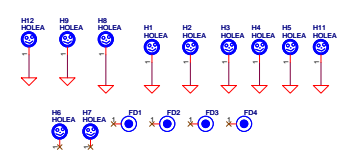
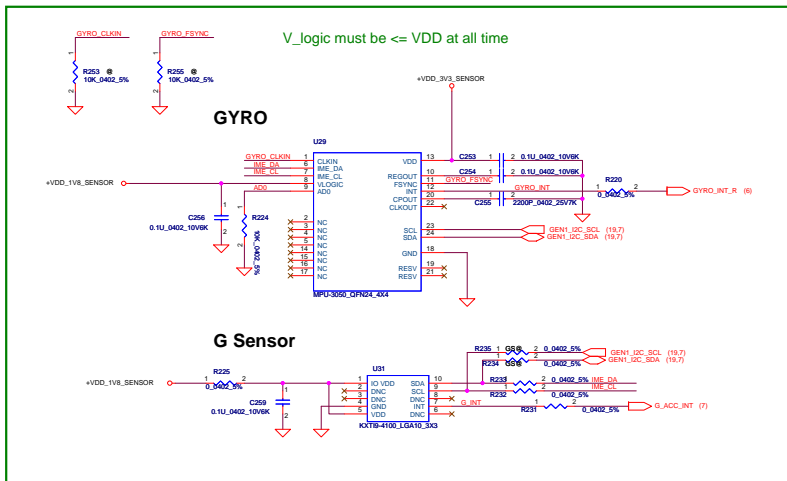
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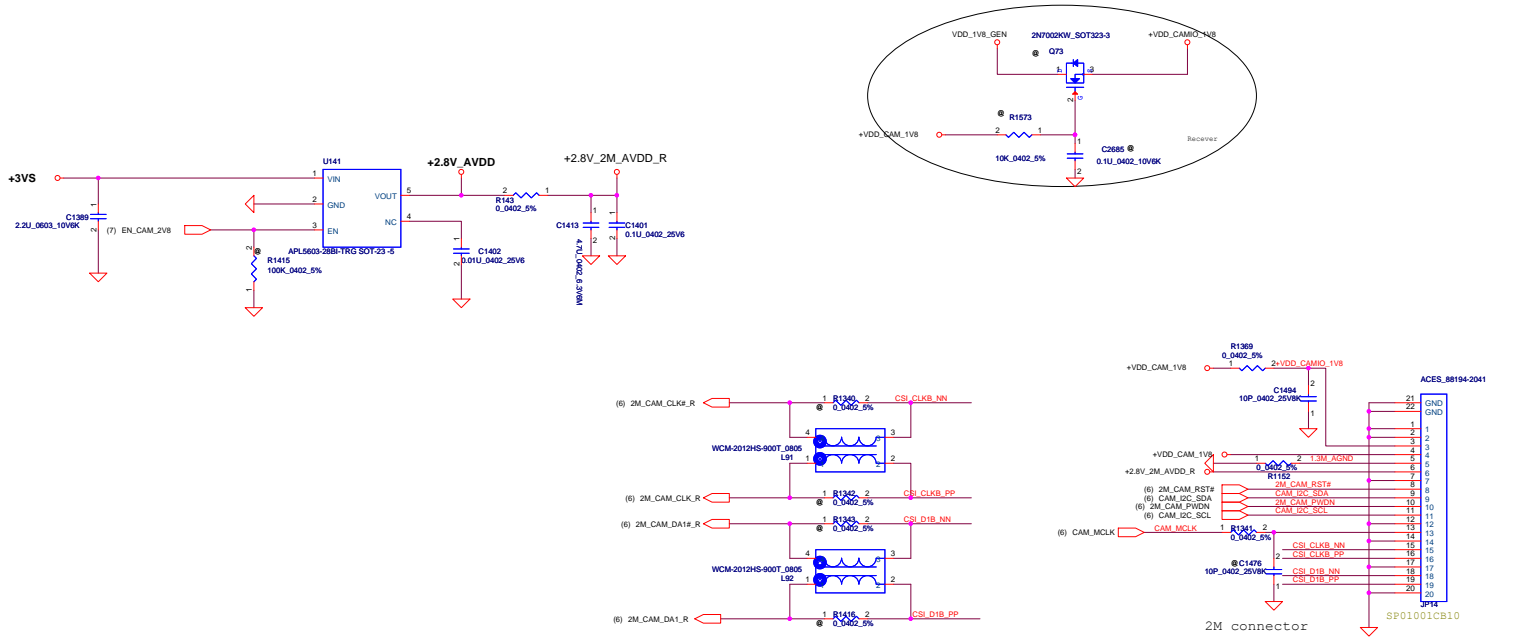
Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2012/05/20	Deciphered Date	2012/01/09	Title	
				Audio Codec / AMP	
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSMITTED 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.					
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Audio Jack

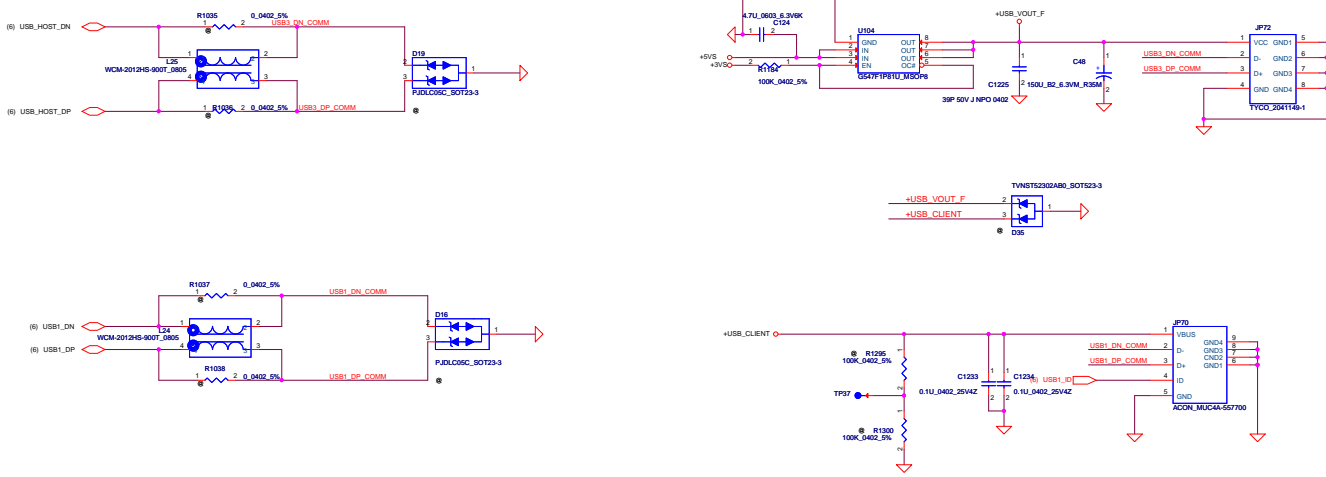




Security Classification	Compal Secret Data		Company	Compal Electronics, Inc.
Issued Date	2012/05/20	Deciphered Date	2012/01/09	Title
				GYRO/G-Sen/E-Compass/Clip
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				VOJET(A210)-LA8981P
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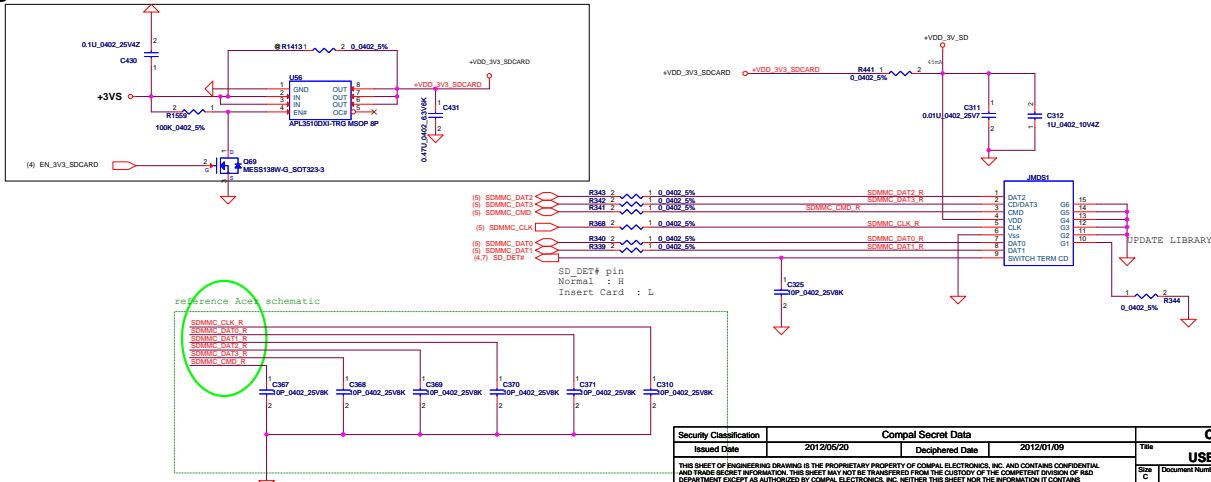


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				Common
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				1.0
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				Sheet 20 of 35

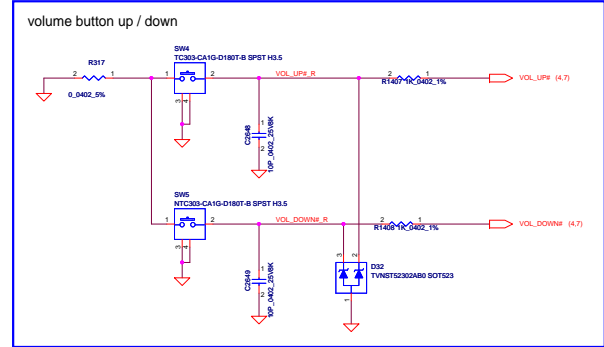
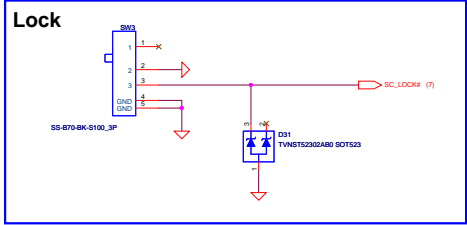
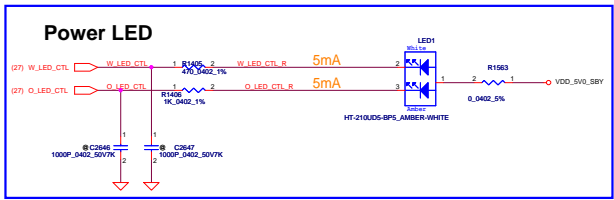
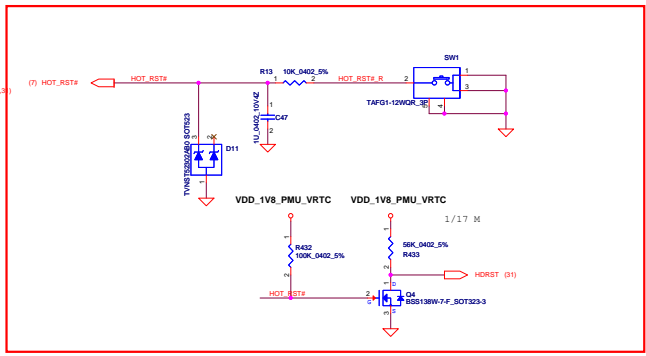
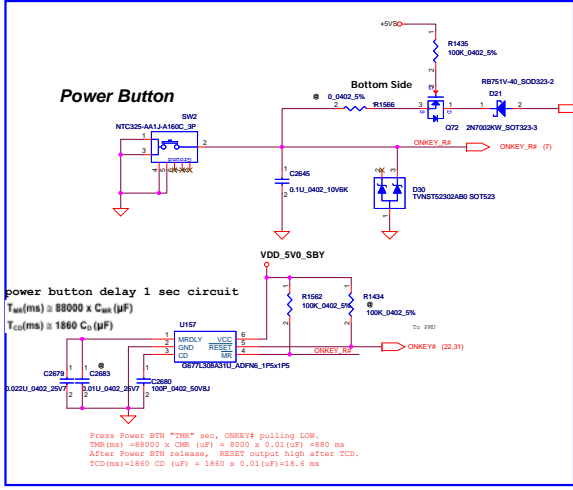


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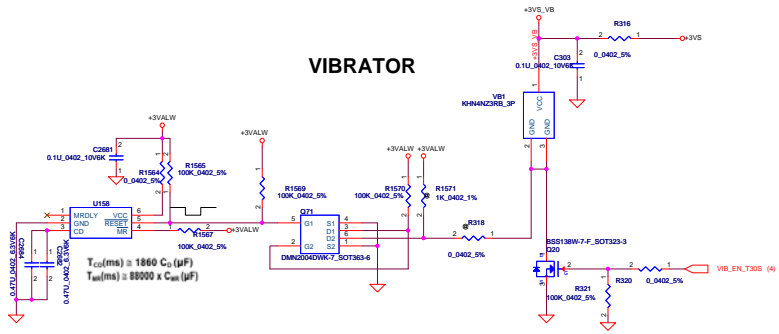
Micro SD



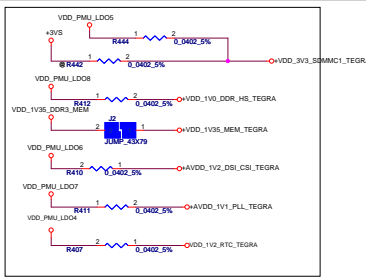
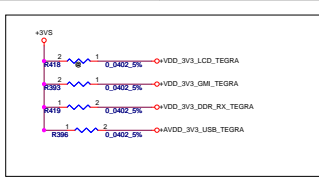
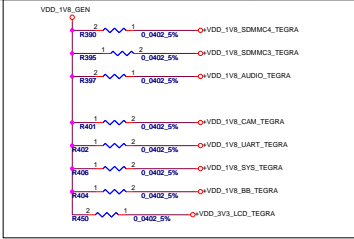
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Issued Date	2012/05/20	Deciphered Date	2012/01/09	Title	USB / Micro SD
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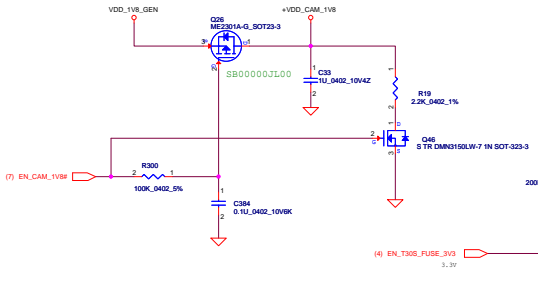
VIBRATOR



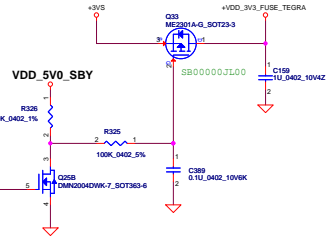
Security Classification	Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2012/05/20	Deciphered Date	2012/01/09	Title
				Power LED/Lock LED/Ecompass
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				Date: Wednesday, June 13, 2012 Sheet 22 of 35



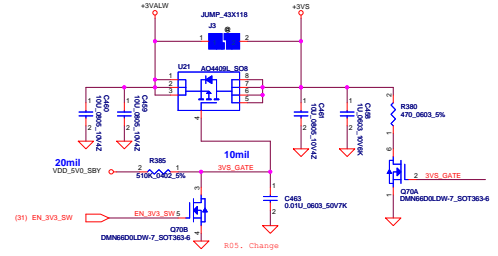
Q26 close to Camera Conn.



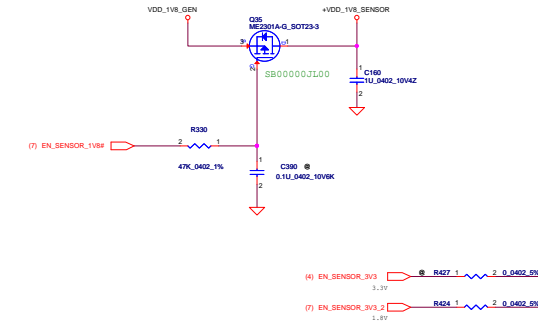
Q33 close to T30S



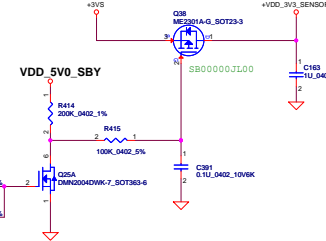
+3VALW TO +3VS



Q28 close to Sensor

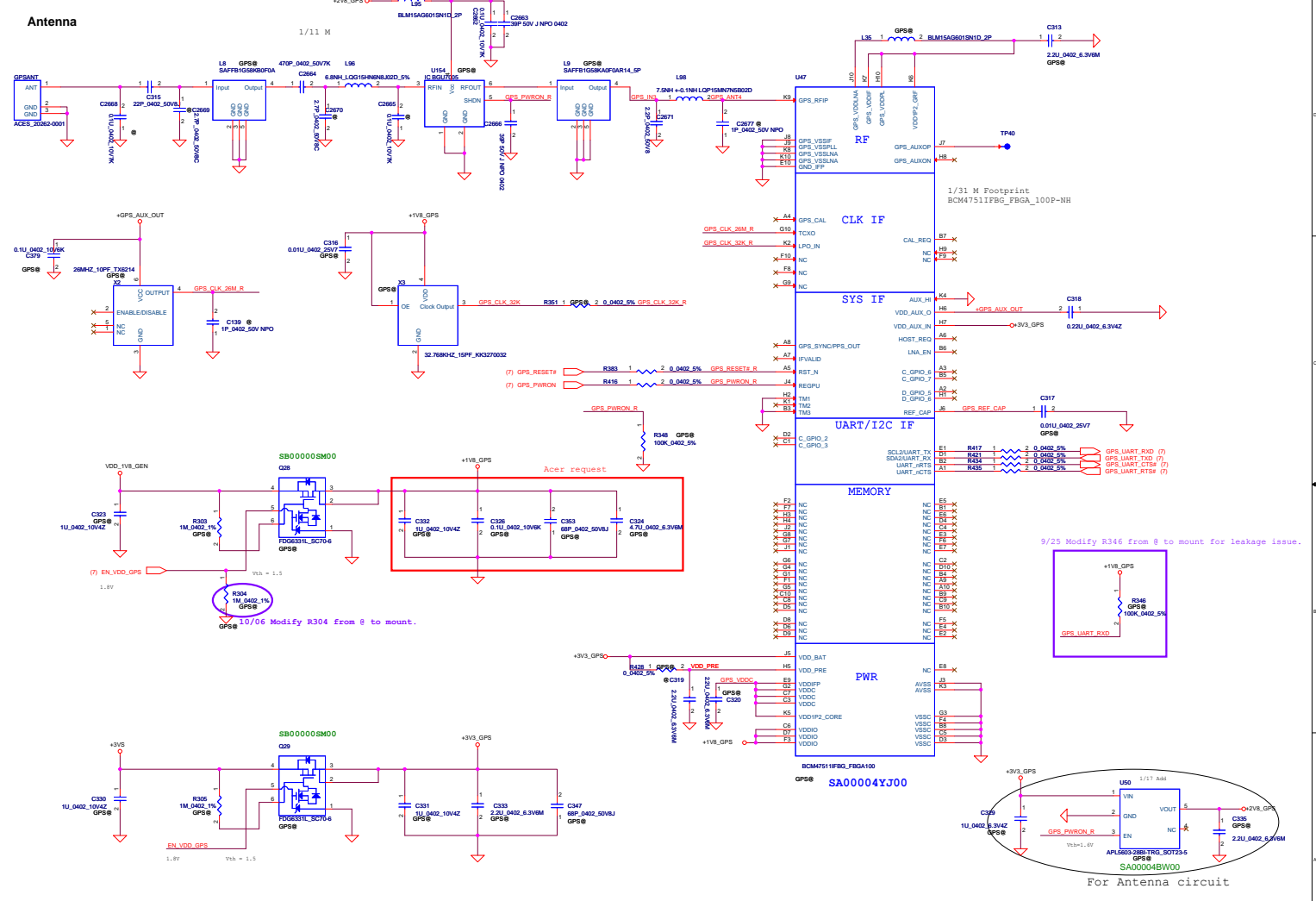


Q38 close to Sensor



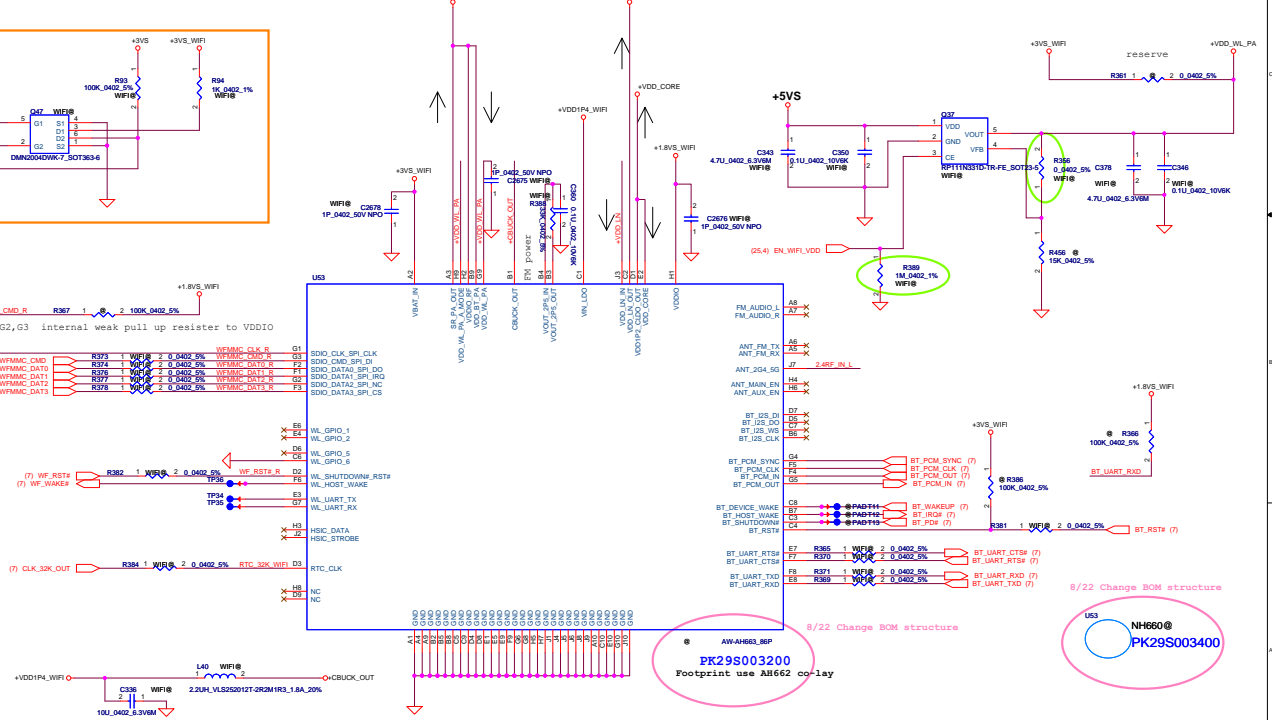
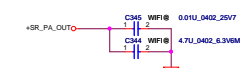
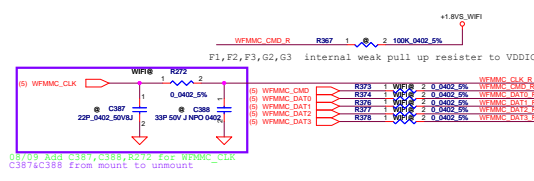
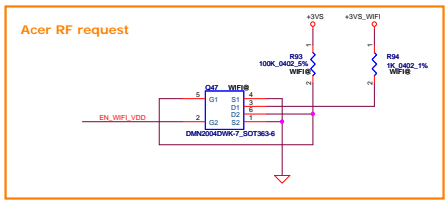
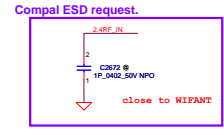
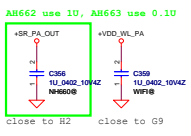
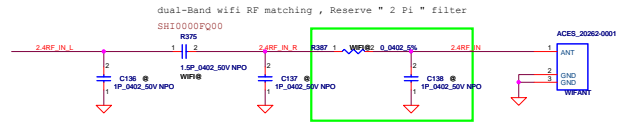
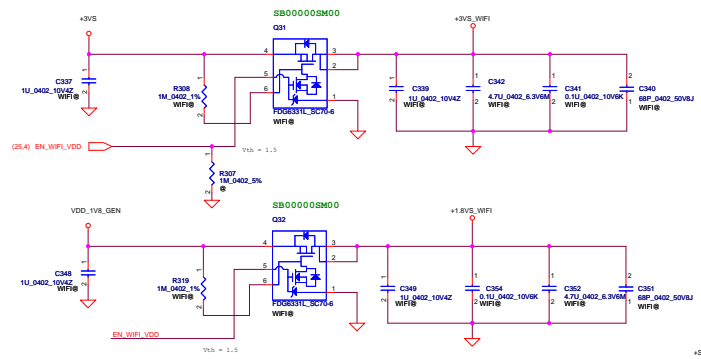
Security Classification		Compal Secret Data		Title	
Issued Date	2012/05/20	Deciphered Date	2012/01/09	DC Interface/Power Button	
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				Rev	1.0
				Date	Wednesday, June 13, 2012
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Antenna

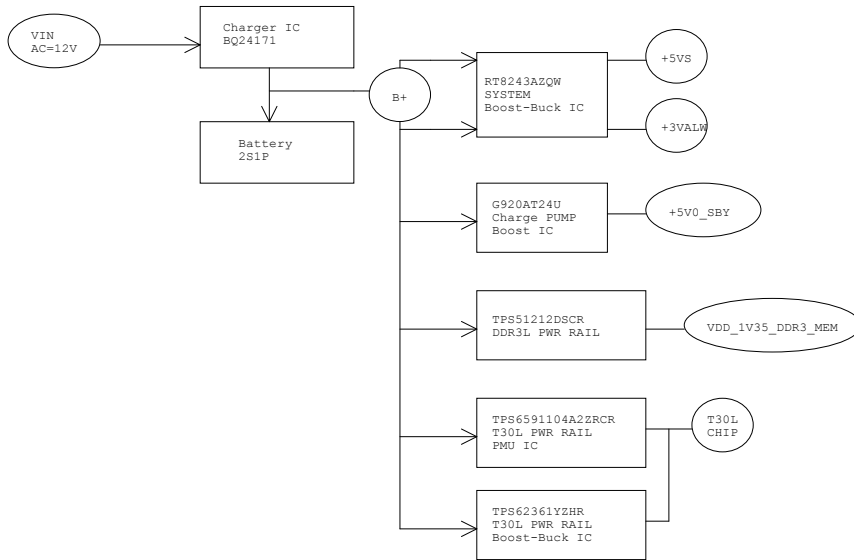


GPS POWER SOURCE

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Issued Date	2012/05/20	Deciphered Date	2012/01/09	Title
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Size	C	Document Number	VJJET(A210)-LA8981P		Rev
Date	Wednesday, June 13, 2012	Issue	25	of	35

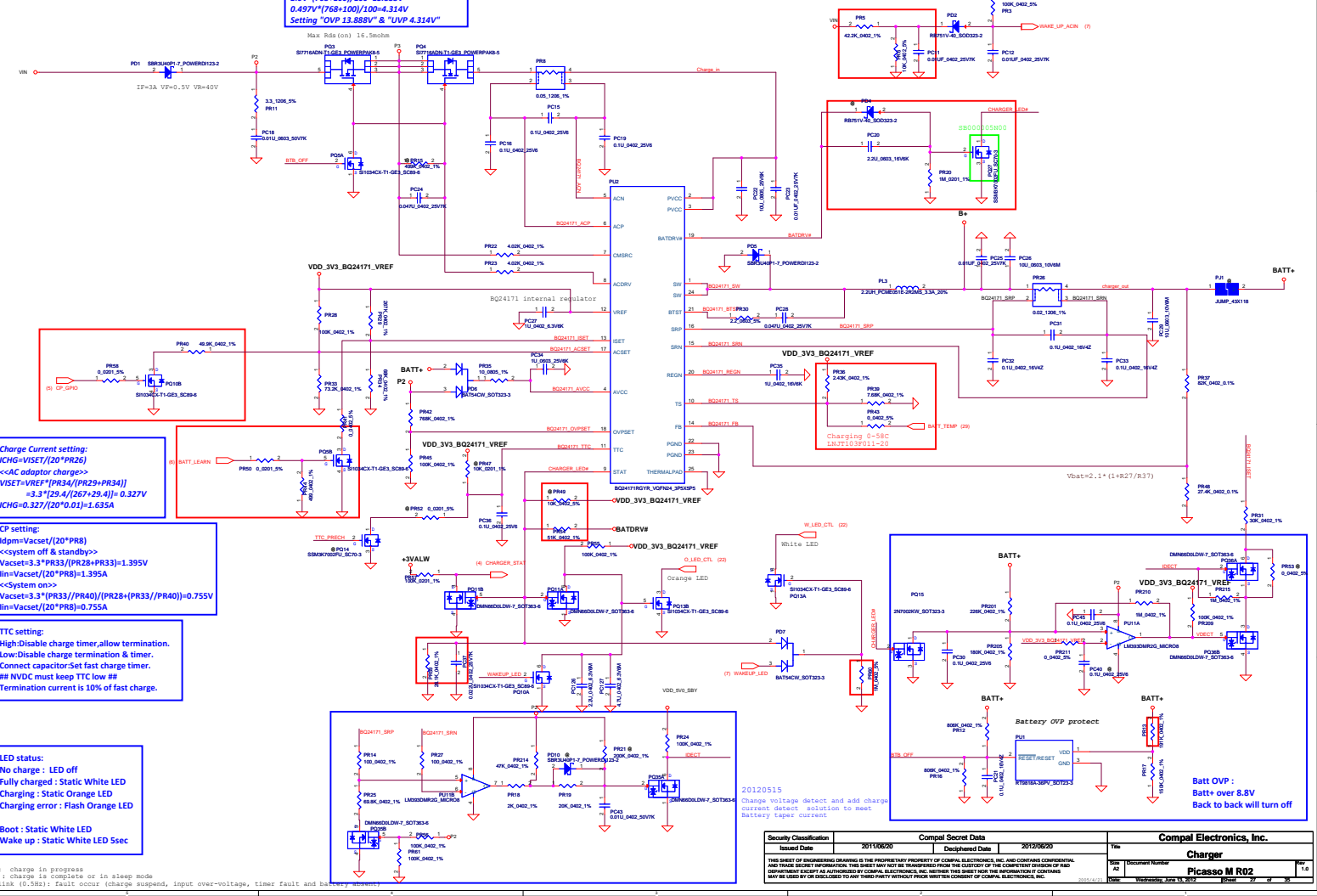


Security Classification	Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2012/05/20	Deciphered Date	2012/01/09	Title
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CHARGER BQ24171

OVP UVP Range setting:
#HOVPSET voltage is between 0.497-1.6V ##
1.6V*(768+100)/100=13.888V
0.497V*(768+100)/100=4.314V
Setting "OVP 13.888V" & "UVP 4.314V"

AC Insert or remove --> Wake up T305
 USB Insert or remove --> Wake up T308
 SW to check if Aken USB --> Change charge current to 1A



Charge Current setting:
ICHG=VISET/(20*PR26)
<<AC adaptor charge>>
VISET=VREF*(PR34/(PR28+PR33))
=3.3*(29.4/(267+29.4))=0.327V
ICHG=0.327/(20*0.01)=1.635A

CP setting:
Idgm=Vaccet/(20*PR8)
<<system off & standby>>
Vaccet=3.3*PR33/(PR28+PR33)=1.395V
lin=Vaccet/(20*PR8)=1.395A
<<System on>>
Vaccet=3.3*(PR33/(PR40/(PR28+PR33+PR40)))=0.755V
lin=Vaccet/(20*PR8)=0.755A

TTC setting:
 High:Disable charge timer,allow termination.
 Low:Disable charge termination & timer.
 Connect capacitor-Set fast charge timer.
 ## NVDC must keep TTC low ##
 Termination current is 10% of fast charge.

LED status:
 No charge : LED off
 Fully charged : Static White LED
 Charging : Static Orange LED
 Charging error : Flash Orange LED

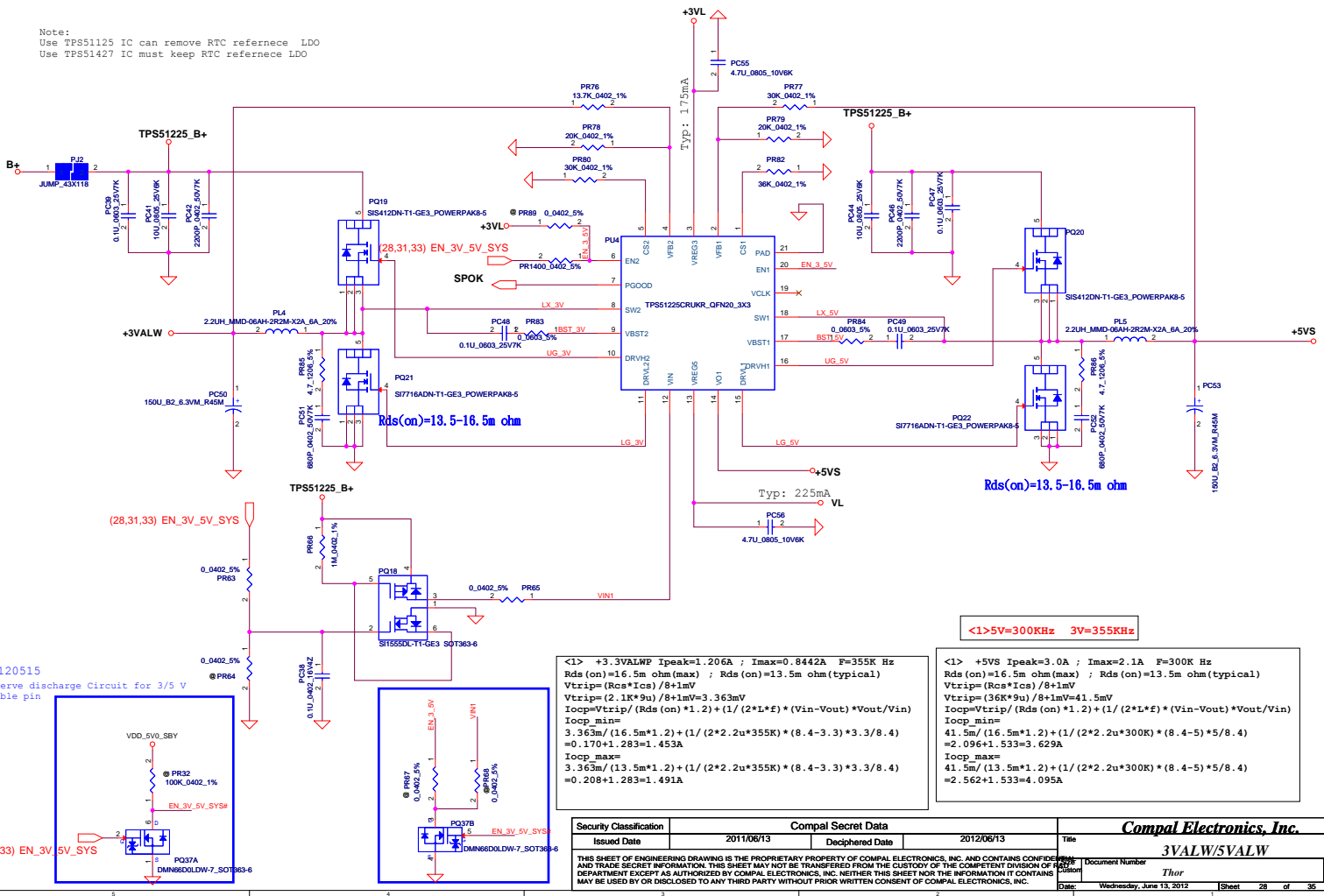
Boot : Static White LED
Wake up : Static White LED Ssec

20120515
 Change voltage detect and add charge current detect solution to meet Battery taper current

Batt OVP :
Batt+ over 8.8V
Back to back will turn off

Security Classification	2011/06/20	Compal Secret Data	Disclosed Date	2012/06/20	Rev	Compal Electronics, Inc.
Issued Date	2011/06/20	Disclosed Date	2012/06/20		1.0	Charger
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Note:
 Use TPSS1125 IC can remove RTC reference LDO
 Use TPSS1427 IC must keep RTC reference LDO



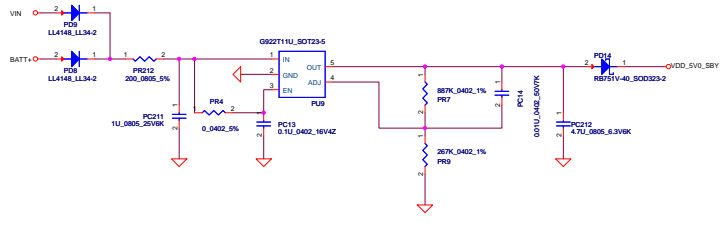
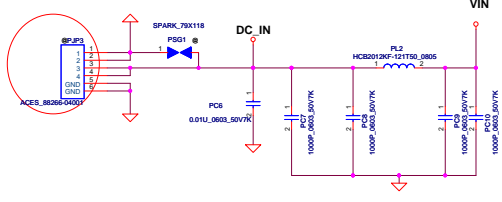
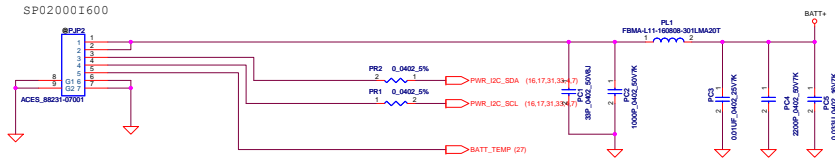
20120515
 Reserve discharge Circuit for 3/5 V
 Enable pin

<I> +3.3VALWP Ipeak=1.206A ; Imax=0.8442A F=355K Hz
 Rds(on)=16.5m ohm(max) ; Rds(on)=13.5m ohm(typical)
 Vtrip=(Rcs*Ics)/8+1mV=3.363mV
 Iocp=Vtrip/(Rds(on)*1.2)+(1/(2*L*E))*(Vin-Vout)*Vout/Vin
 Iocp_min=3.363m/(16.5m*1.2)+(1/(2*2.2u*355K))*(8.4-3.3)*3.3/8.4
 =0.170+1.283=1.453A
 Iocp_max=3.363m/(13.5m*1.2)+(1/(2*2.2u*355K))*(8.4-3.3)*3.3/8.4
 =0.208+1.283=1.491A

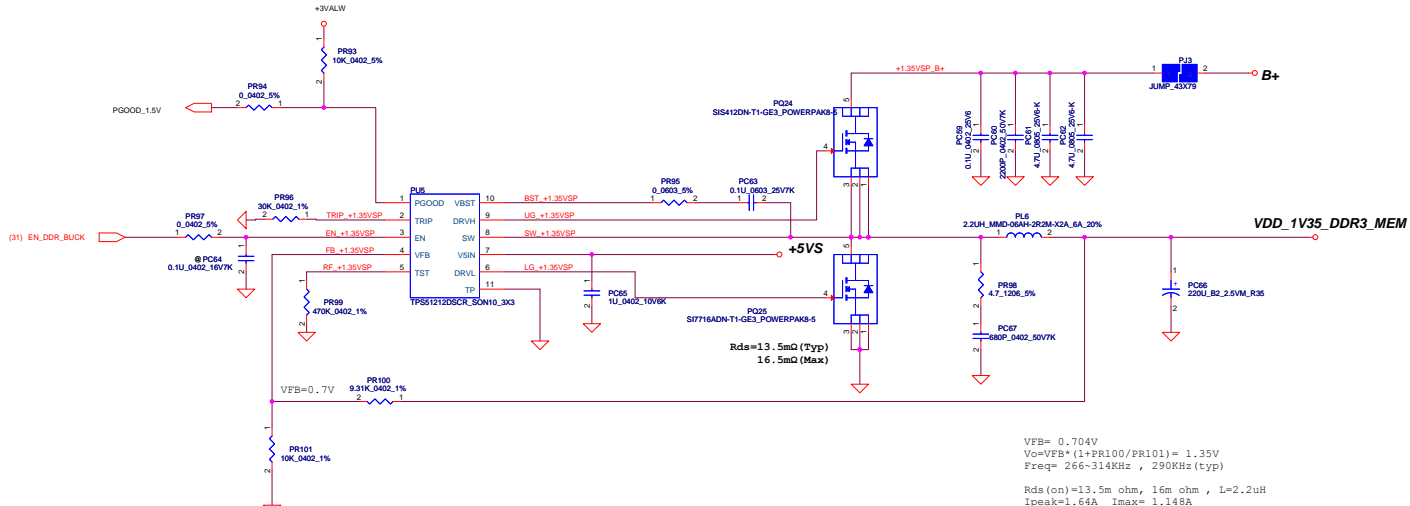
<I> +5VS Ipeak=3.0A ; Imax=2.1A F=300K Hz
 Rds(on)=16.5m ohm(max) ; Rds(on)=13.5m ohm(typical)
 Vtrip=(Rcs*Ics)/8+1mV=41.5mV
 Iocp=Vtrip/(Rds(on)*1.2)+(1/(2*L*E))*(Vin-Vout)*Vout/Vin
 Iocp_min=41.5m/(16.5m*1.2)+(1/(2*2.2u*300K))*(8.4-5)*5/8.4
 =2.096+1.533=3.629A
 Iocp_max=41.5m/(13.5m*1.2)+(1/(2*2.2u*300K))*(8.4-5)*5/8.4
 =2.562+1.533=4.095A

<I>5V=300KHz 3V=355KHz

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VFB= 0.704V
 $V_o = VFB * (1 + PR100 / PR101) = 1.35V$
 Freq= 266~314KHz , 290KHz (typ)

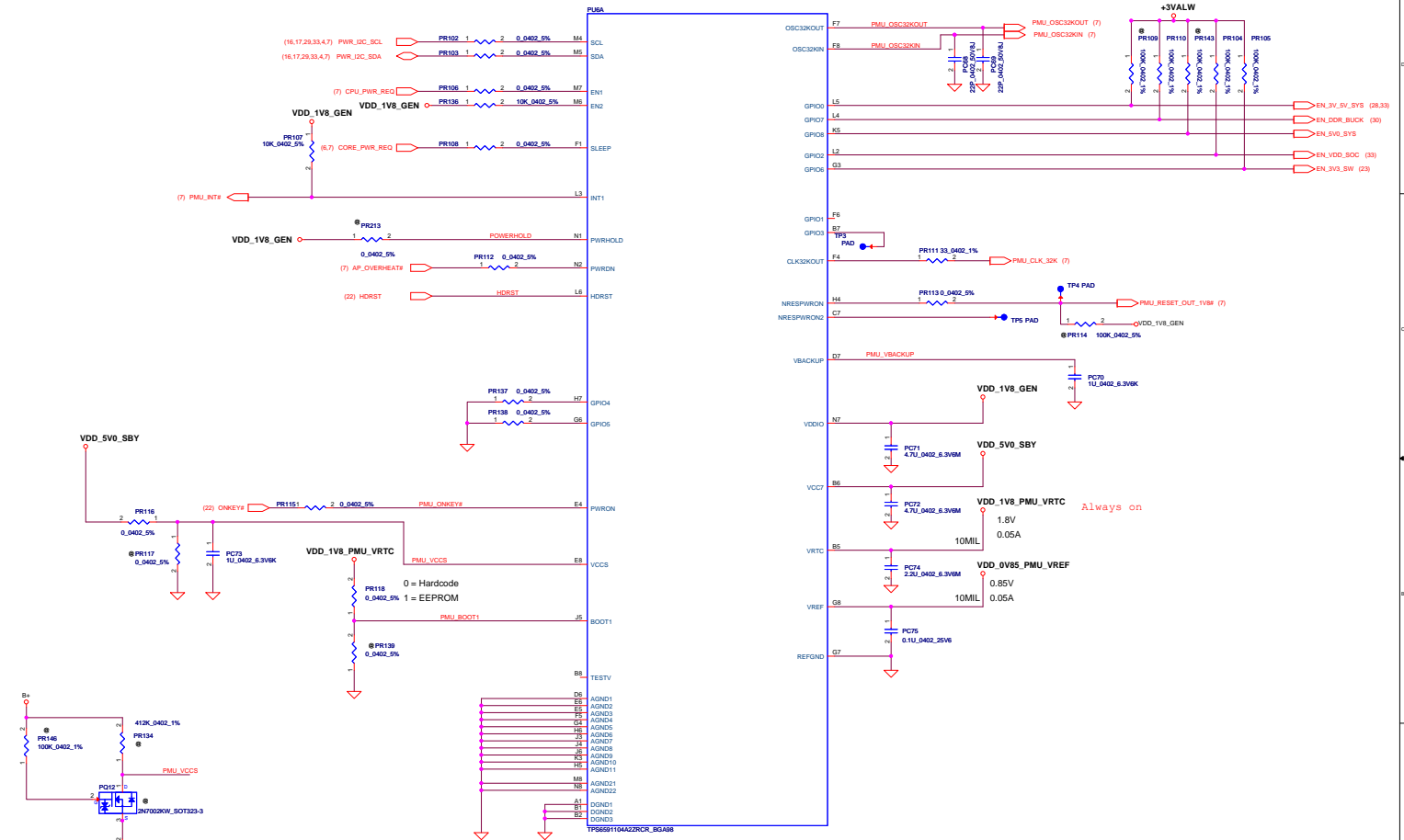
$R_{ds(on)} = 13.5m\ \Omega$, $16m\ \Omega$, $L = 2.2\ \mu H$
 $I_{peak} = 1.64A$, $I_{max} = 1.148A$
 $R_{cs} = 20K\ \Omega$, $I_{cs} = 9\ \mu A$
 $V_{trip} = R_{cs} * I_{cs} = 20K * 9\ \mu = 0.18V$
 $I_{ocp} = V_{trip} / (8 * R_{ds(on)}) * (1 / (2 * L * f)) * ((V_{in} - V_o) * V_o / V_{in})$
 $I_{ocp_min} = 180m / (8 * 16.5m * 1.2) + (1 / (2 * 2.2\ \mu * 290K)) * ((8.4 - 1.35) * 1.35 / 8.4)$
 $= 1.136 + 0.888 = 2.024\ A$
 $I_{ocp_max} = 180m / (8 * 13.5m * 1.2) + (1 / (2 * 2.2\ \mu * 290K)) * ((8.4 - 1.35) * 1.35 / 8.4)$
 $= 1.388 + 0.888 = 2.276A$

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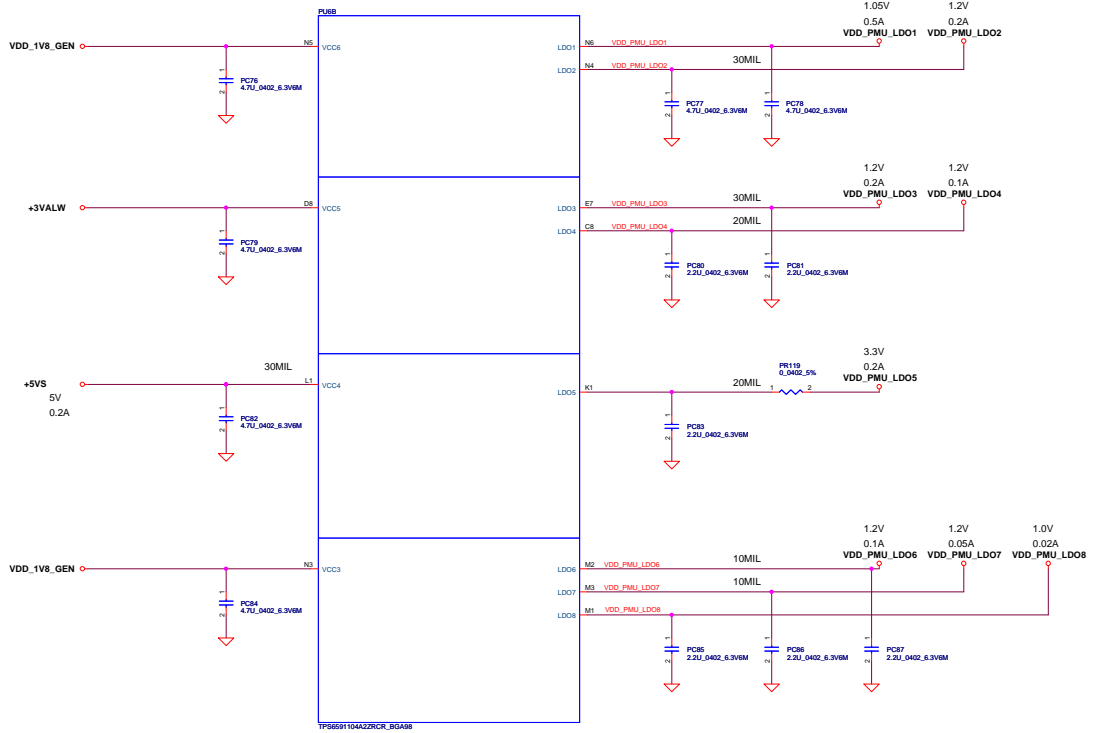
a. GP01: EN_SV_CP
 b. GP02: EN_SV_CP
 c. GP03: EN_SV_SYS
 d. GP04: EN_SV_SYS
 e. GP05: EN_SV_SYS (Optional on Camlin 5 since we are using VDD for memory)
 f. GP06: EN_SV_SYS



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Note: LDO1 & LDO2 need 4.7uF cap according to TI on July 6th

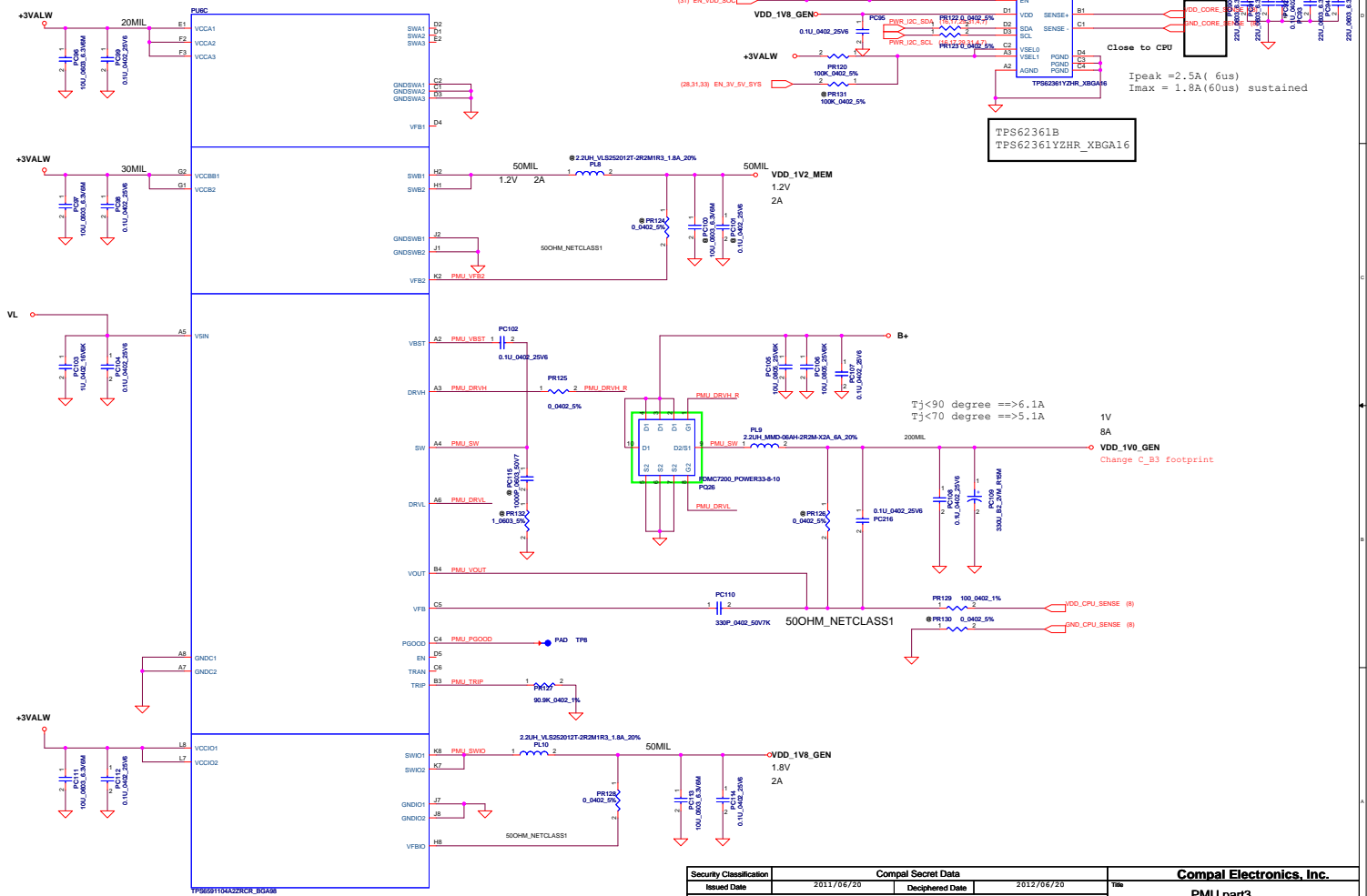
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