



Compal Confidential

PICASSO M Schematics Document

Nvdia(T30S) + LPDDRII

QAJA0-LA-8511P

2012-01-18 REV: 1.0

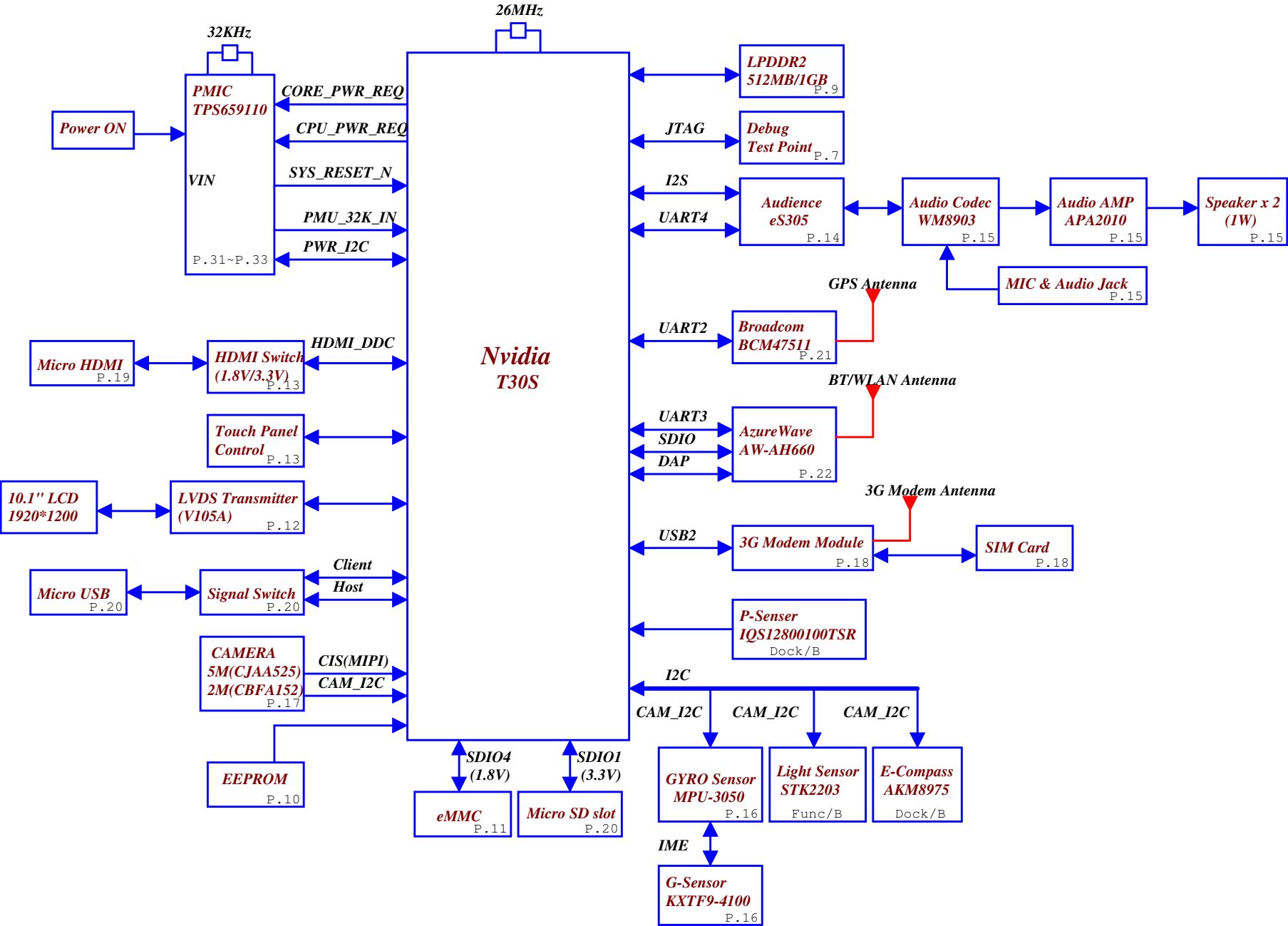
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Model Name : NVIDIA T30S System Block Diagram



Voltage Rails

Power Plane	Description
VIN	Adapter power supply (19V)
B+	AC or battery power rail for power circuit.
+VDD_1V2_RTC_TEGRA	Power for RTC and always-on core logic.
VDD_1V2_SOC	Power for remainder of core logic
+AVDD_1V1_PLL_TEGRA	AVDD_PLL power rail
+VDD_1V8_PMU_VRTC	RTC power rail
+VDD_1V8_SYS_TEGRA	System power rail
+AVDD_3V3_USB_TEGRA	USB power rail
+VDD_2V85_EMMC	Core voltage for EMMC
+VDD_1V8_CAM_TEGRA	Core voltage for CAMERA
+AVDD_3V3_HDMI_S	HDMI power rail
VDD_1V8_GEN	1.8V switched power rail for standby mode
+VDD_3V3_DDR_RX_TEGRA	DDR RX power rail
+3VS	3.3V switched power rail for standby mode
+5VS	5V switched power rail for standby mode
+VDD_LED_BL	LED power rail
+VDD_3V3_SDMMC1_TEGRA	Micro SD power rail
+VDD_VCM_3V3	CAMERA power rail
+VDD_1V2_DDR_MEM	DDR power rail

GEN1_I2C <+VDD_1V8_SENSOR >

Device	Address<Write,Read>
Gyro	0xD0 , 0xD1
E Compass	0x18 , 0x19
Light Sensor	0x38 , 0x39

GEN2_I2C / TS_I2C < +VDD_3V3_GMI_TEGRA >

Device	Address<Write,Read>
Touch Screen	0x98 , 0x99

CAM_I2C < +VDD_1V8_CAM_TEGRA >

Device	Address<Write,Read>
Camera 5M	0x78 , 0x79
Camera 2M	0x20 , 0x21
Flash LED	0x66 , 0x67

PWR_I2C < +VDD_1V8_SYS_TEGRA>

Device	Address<Write,Read>
Thermal Sensor	0x98 , 0x99
ES305	0x3E
Codec	0x34 , 0x35
PMU	0x2D
TPS62361	0x60
BATT Conn	0xAA , 0xAB
EEPROM (Low level)	0xA0 , 0xA1
EEPROM (High level)	0xA2 , 0xA3

Board ID

PICASSO 2

EVT	QA150(2-6-2)		QA170(3-4-3)			
SKU	SKU1(3G only)	SKU1-1(WIFI&3G)	SKU2(3G only)	SKU2-1(WIFI&3G)		
WIFI/BT	NH660	AH662	NH660	AH662		
PCB_ID0	L	L	H	H	L : 262	H : 343
PCB_ID1	L	H	L	H	L : AH663	H : NH660
PCB_ID2	L	L	L	L	L: NON LTE	H: LTE
BOARD_ID0	L	L	L	L		
BOARD_ID1	L	L	L	L	00:EVT	

DVT1	QA150(2-6-2)		QA170(3-4-3)			
SKU	SKU1(WIFI only)	SKU2(WIFI only)	SKU3((WIFI&3G))	SKU4(WIFI&3G)	SKU5(WIFI& LTE)	
WIFI/BT	A W-AH663	A W-NH660	A W-NH660	A W-AH663	A W-AH663	
PCB_ID0	L	L	H	H	H	L : 262
PCB_ID1	L	H	H	L	L	L : AH663
PCB_ID2	L	L	L	L	H	L: NON LTE
BOARD_ID0	H	H	H	H	H	
BOARD_ID1	L	L	L	L	L	01:DVT1

DVT2	QA150(2-6-2)									
SKU	SKU1(WIFI only)	SKU2(WIFI only)	SKU3(WIFI only)	SKU4(WIFI only)	SKU5(WIFI only)	SKU6(WIFI only)	SKU7(WIFI only)	SKU8(WIFI only)		
WIFI/BT	A W-AH663	A W-AH663	A W-AH663	A W-AH663	A W-AH663	A W-AH663	A W-AH663	A W-AH663		
PCB_ID0	L	L	L	L	L	L	L	L	L : 262	H : 343
PCB_ID1	L	L	L	L	L	L	L	L	L : AH663	H : NH660
PCB_ID2	L	L	L	L	L	L	L	L	L: NON LTE	H: LTE
U1_I37	L	L	L	L	L	L	L	L	L: Picasso 2	H: Picasso M
BOARD_ID0	L	L	L	L	L	L	L	L		
BOARD_ID1	H	H	H	H	H	H	H	H	10:DVT2	
DVT2	QA170(3-4-3)									
SKU	SKU9(WIFI&3G)	SKU10(WIFI&3G)	SKU11(WIFI&3G)	SKU12(WIFI&3G)	SKU13(WIFI& LTE)	SKU14(WIFI& LTE)				
WIFI/BT	A W-AH663	A W-AH663	A W-AH663	A W-AH663	A W-AH663	A W-AH663				
PCB_ID0	H	H	H	H	H	H	L : 262	H : 343		
PCB_ID1	L	L	L	L	L	L	L : AH663	H : NH660		
PCB_ID2	L	L	L	L	H	H	L: NON LTE	H: LTE		
U1_R37	L	L	L	L	L	L	L: Picasso 2	H: Picasso M		
BOARD_ID0	L	L	L	L	L	L				
BOARD_ID1	H	H	H	H	H	H	10:DVT2			

PICASSO M

EVT	QA1A0(2-6-2)		
SKU	SKU1(Wifi only)		
PCB_ID0	L	L : 262	H : 343
PCB_ID1	H	L : AH663	H : NH660
PCB_ID2	L	L: NON LTE	H: LTE
U1_I37	H	L: Picasso 2	H: Picasso M
BOARD_ID0	L		
BOARD_ID1	L	00:EVT	

DVT1	QA1A0(2-6-2)		
SKU	SKU1(Wifi only)		
PCB_ID0	L	L : 262	H : 343
PCB_ID1	H	L : AH663	H : NH660
PCB_ID2	L	L: NON LTE	H: LTE
U1_I37	H	L: Picasso 2	H: Picasso M
BOARD_ID0	L		
BOARD_ID1	L	00:EVT(R01)	

DVT2	QA1A0(2-6-2)		
SKU	SKU1(Wifi only)		
PCB_ID0	L	L : 262	H : 343
PCB_ID1	H	L : AH663	H : NH660
PCB_ID2	L	L: NON LTE	H: LTE
U1_I37	H	L: Picasso 2	H: Picasso M
BOARD_ID0	1		
BOARD_ID1	L	01:DVT(R02)	

LPDDR2

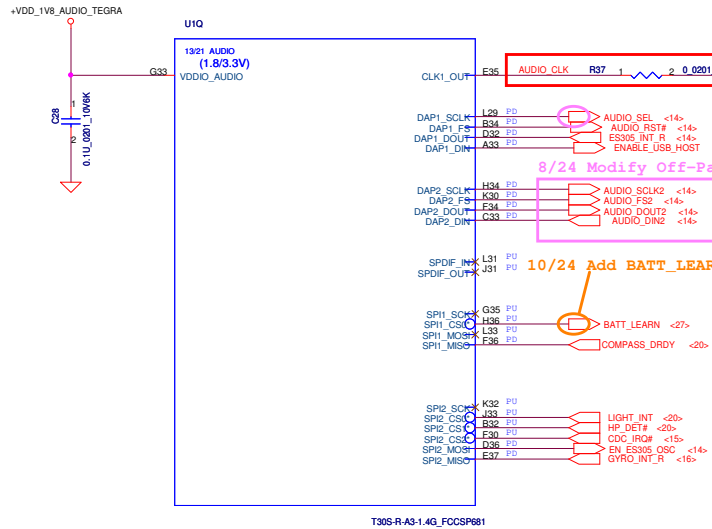
	Vendor PN	Acer PN	Compel PN	Assign Bit	NAND_D4	NAND_D5	
LPDDR2	EDB8132B2MA-1D-F	IC.0080E.002	SA000050Z10	00	0	0	ELP_1GB@
	K4P8G304EB-R9C2	IC.00809.002	SA00004TY20	01	1	0	SAM_1GB@

LVDS strap pin

	LVDS_CTRL2	LVDS_CTRL1	LVDS_CTRL0	LVDS_MAP	LCD_PCLK	LVDS_ACLK
PicassoM	L	H	H	H	70.34Mhz	71.56Mhz
Picasso2	L	H	L	L	152.28Mhz	76.14Mhz

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U1Q is not place on grid , need check connection



RF note

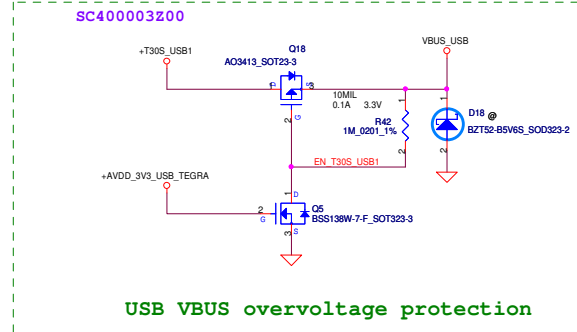
8/24 Modify Off-Page type.

10/24 Add BATT_LEARN GPIO to Power request.

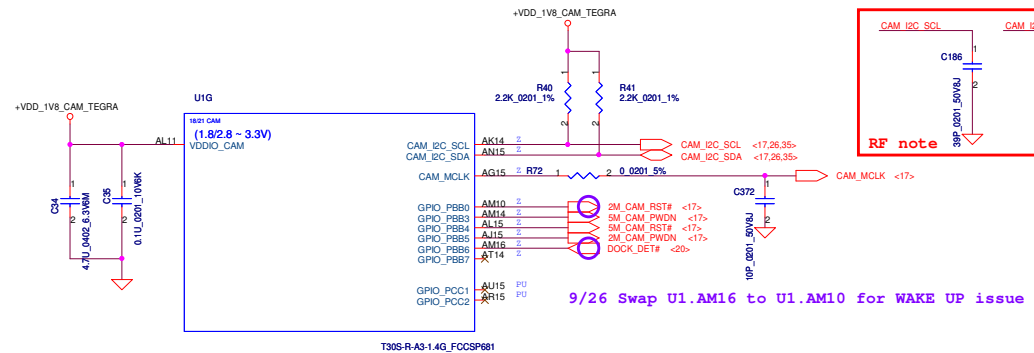
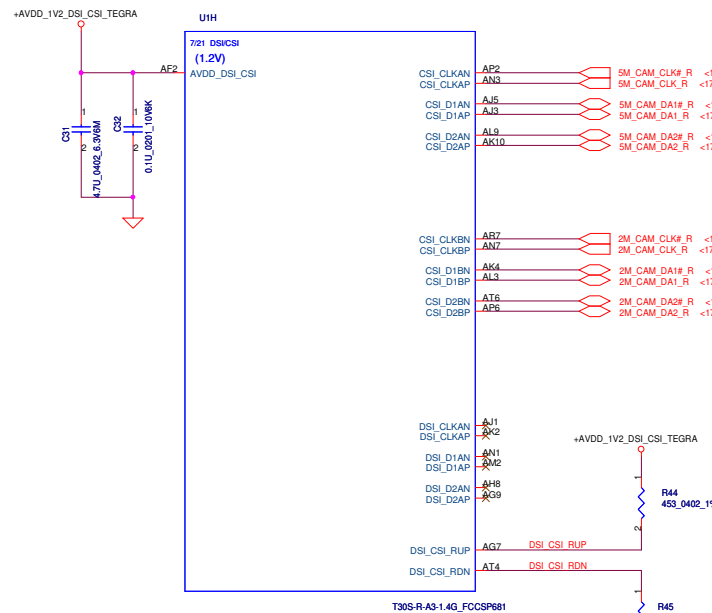
10/03 Add D18 on +T30S_USB1 to protect CPU.

10/19 Modify D18 from +T30S_USB1 to VBUS_USB

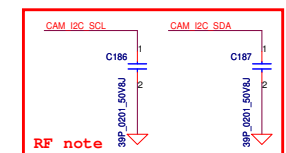
12/2 Modify D18 from moun to @,Add Zener on samll board.



USB VBUS overvoltage protection

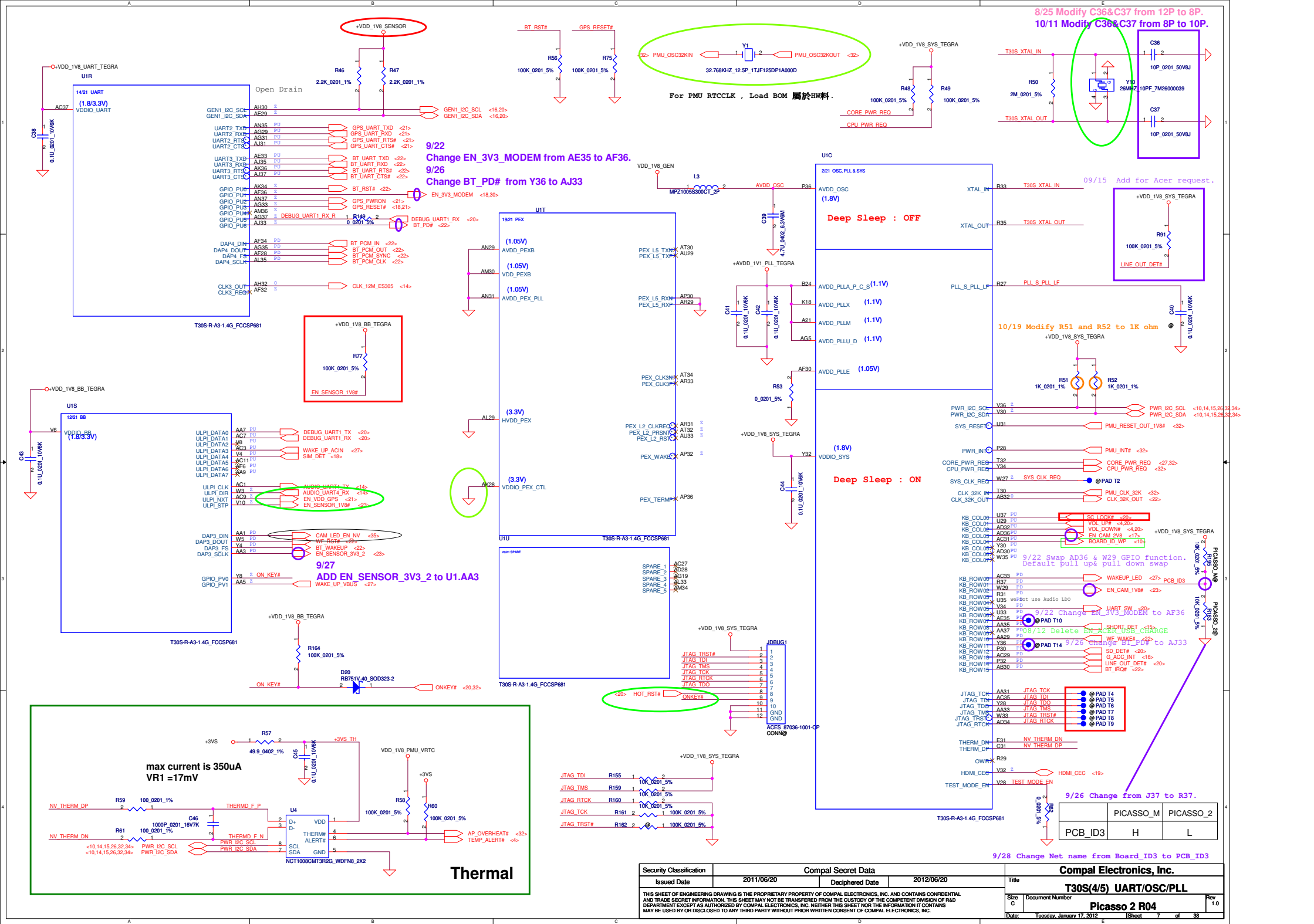


9/26 Swap U1.AM16 to U1.AM10 for WAKE UP issue

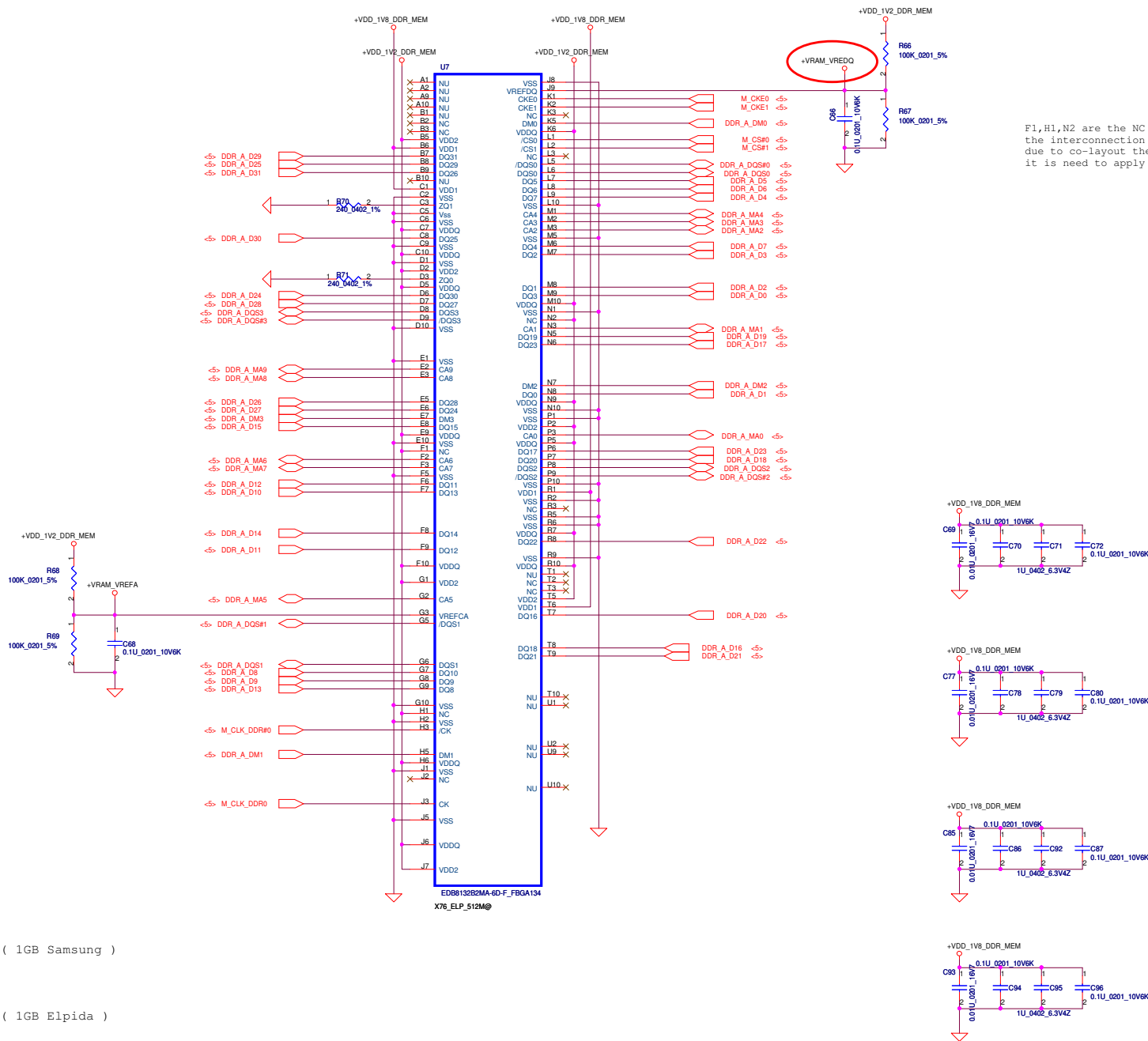


RF m

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U7 X76_ELP_1GB@ (1GB Elpida)
SA000050Z10

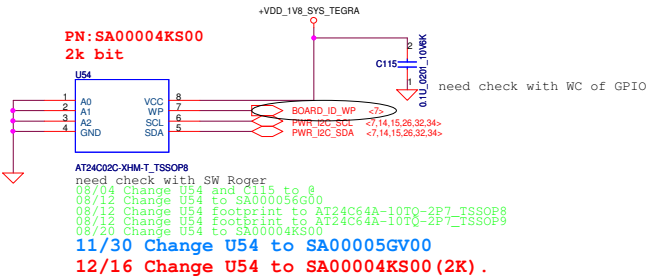


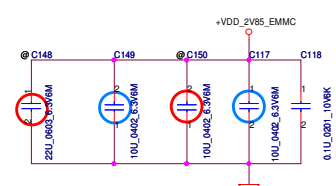
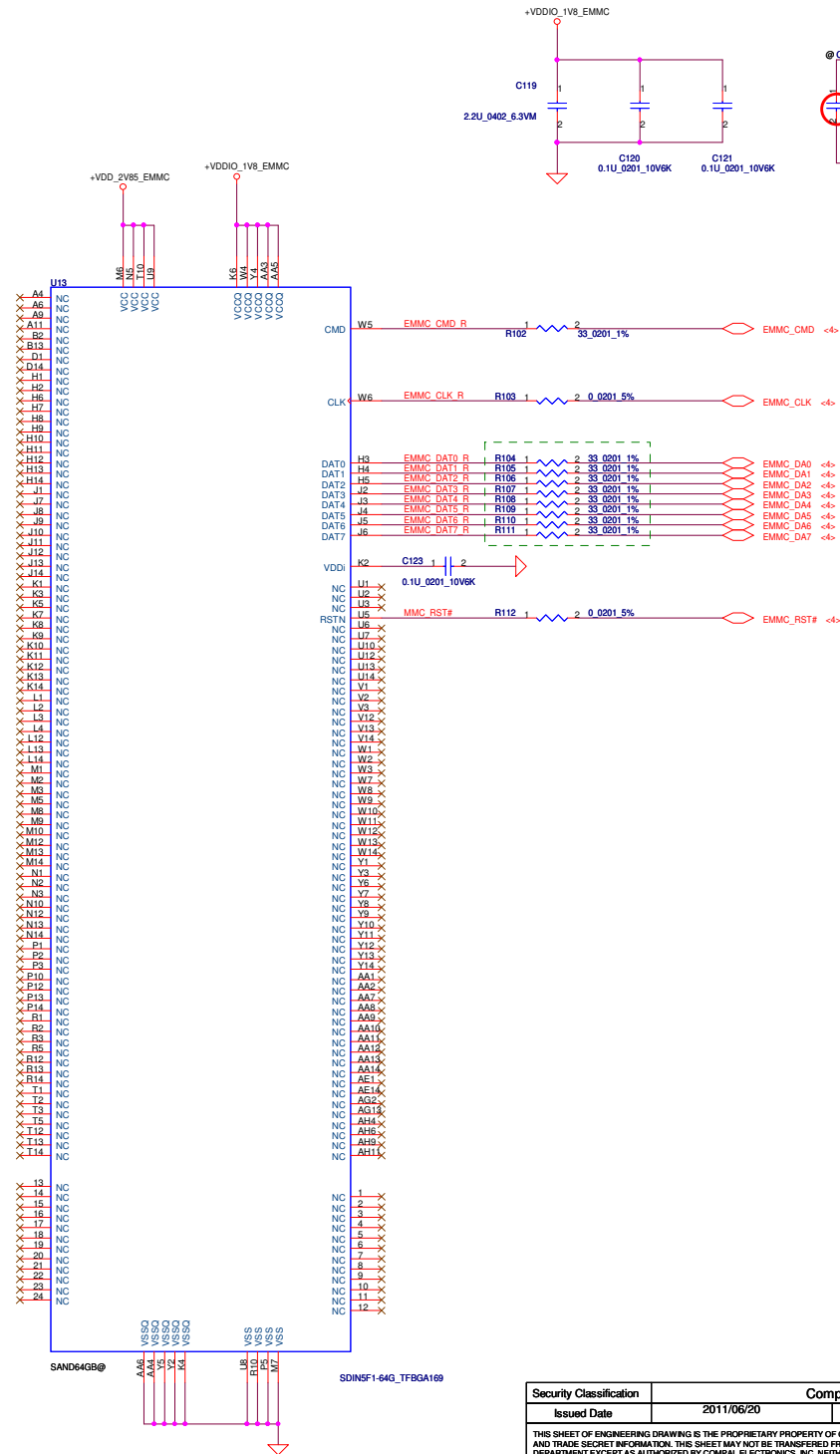
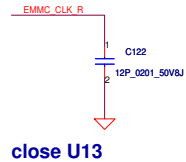
F1,H1,N2 are the NC pins which assembled/embedded the interconnection into ELP Vdd sources already. due to co-layout the LPDDR2, it is need to apply 1.2 volt on F1, H1 and N2 pins.

Acer request

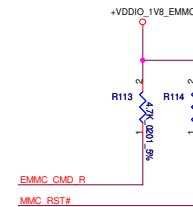
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Remove EC





11/23 Reserver C148,C149 and C150 for Acer HW request.
11/23 Modify C117 from 2.2U 0402 to 10U 0402.
12/7 Modify C148,C149,C150 from @ to mount
12/16 Modify C148 and c150 from mount to @ for LDO solution.



U13 KING16GB@
SA00004O610

U13 SAND16GB@
SA00004XA00

U13 SAM16GB@
SA00004FN20

U13 KING32GB@
SA00004TD00

U13 SAM32GB@
SA00004FO40

U13 SAND32GB@
SA000052910

U13 SAND432GB@
SA00004X20

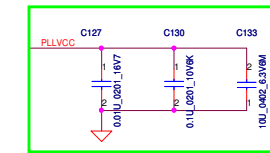
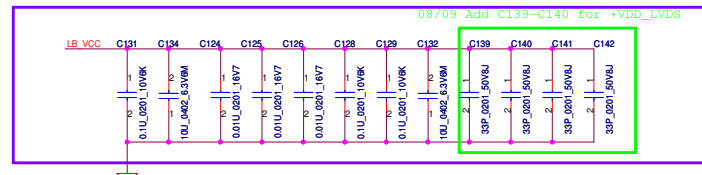
U13 SAND64GB@
SA00004XQ10

8/26 ADD for SKU control.

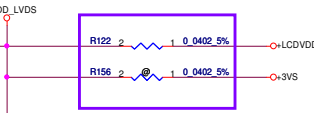
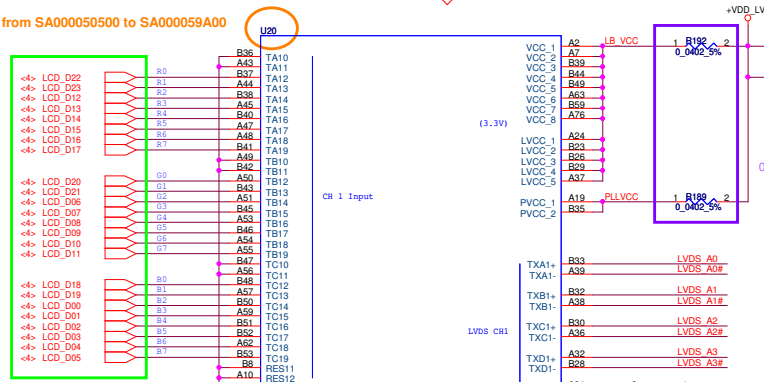
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10/03 Modify C125,C126,C128,C129,C132,C139,C140,C141 and C142 from +VDD_LVDS to LB_VCC power domain.

08/09 Add C139-C140 for +VDD_LVDS



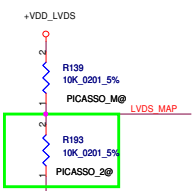
10/19 Modify U20 PN from SA000050500 to SA000059A00



09/26 Change R122 & R156 package from 0201 to 0402

09/21 Isolated LB_VCC and PLLVCC.

09/21 swap LCD_D00-LCD_D23 for colay.

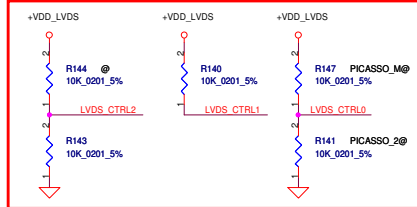


09/21 Add R165 select pin for Picasso M.

LVDS_MAP configuration:
High: Picasso M
Low: Picasso 2

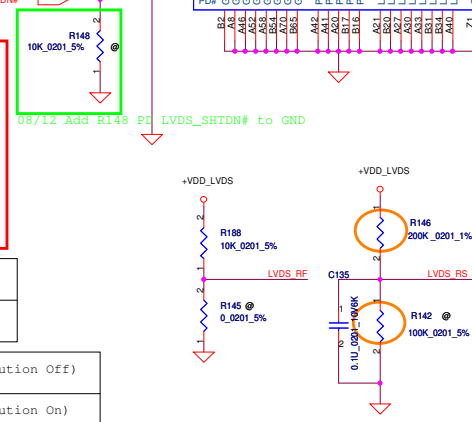
<> LCD_VSYNC
<> LCD_HSYNC
<> LCD_DE
<> LCD_PCLK

need check for single in single out

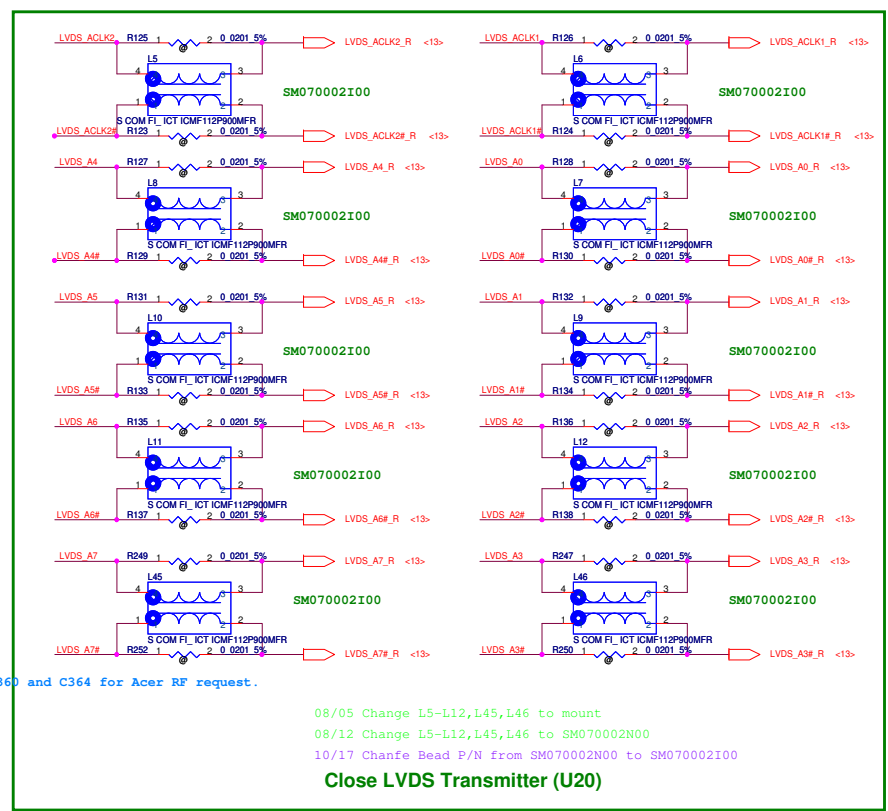


CTRL[2:0] = LHL	Single-In, Dual-Out (DDR Off)
CTRL[2:0] = HHL	Single-In, Dual-Out (DDR On)
CTRL[2:0] = LHH	Single-In, Single-Out (Distribution Off)
CTRL[2:0] = HHH	Single-In, Single-Out (Distribution On)

08/12 Add R148 PF LVDS_SHTDN# to GND



11/11 Add C328,C338,C360 and C364 for Acer RF request.



08/05 Change L5-L12,L45,L46 to mount
08/12 Change L5-L12,L45,L46 to SM070002N00
10/17 Chanfe Bead P/N from SM070002N00 to SM070002I00
Close LVDS Transmitter (U20)

RS Input Voltage	LVDS Output Swing	CMOS/TTL Input Configuration (Input Voltage Swing
VCC	350 mV	Standard Input and Output Configuration
0.6 ~ 1.4 V	350 mV	Small Input Swing, Standard Output Swing Configuration
GND	200 mV	Standard Input Swing, Reduced Output Swing Configuration

10/14 Modify LVDS_RS from pull up to pull down to reduce power consumption.

11/1 Modify LVDS_RS from pull down to pull up to meet SPEC

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								LVDS Transmitter							
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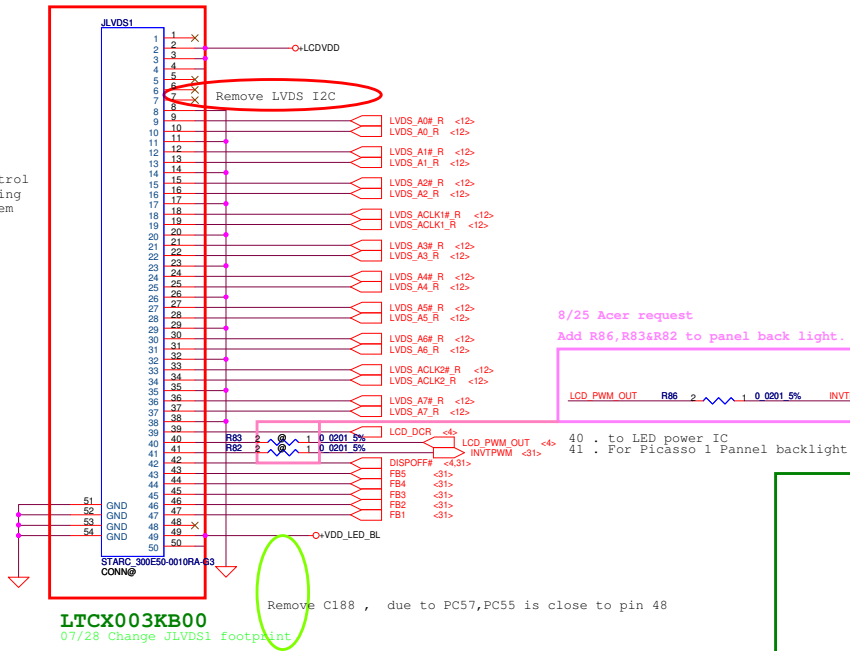
Panel SPEC

2 VDD Power Supply +3.3V
3 VDD Power Supply +3.3V
4 VDEDED EDID +3.3V

38 DCR_EN (CABC_EN) Dynamic backlight control
39 PWM_IN System PWM signal input for dimming
40 PWM_OUT Panel PWM signal output to system

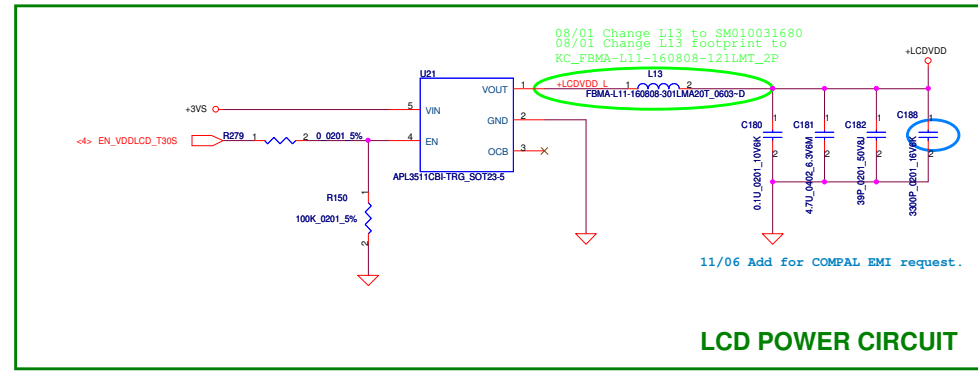
43 LED_CA5 LED Cathode 5
44 LED_CA4 LED Cathode 4
45 LED_CA3 LED Cathode 3
46 LED_CA2 LED Cathode 2
47 LED_CA1 LED Cathode 1

49 VLED Output LED Backlight power
50 VLED Output LED Backlight power

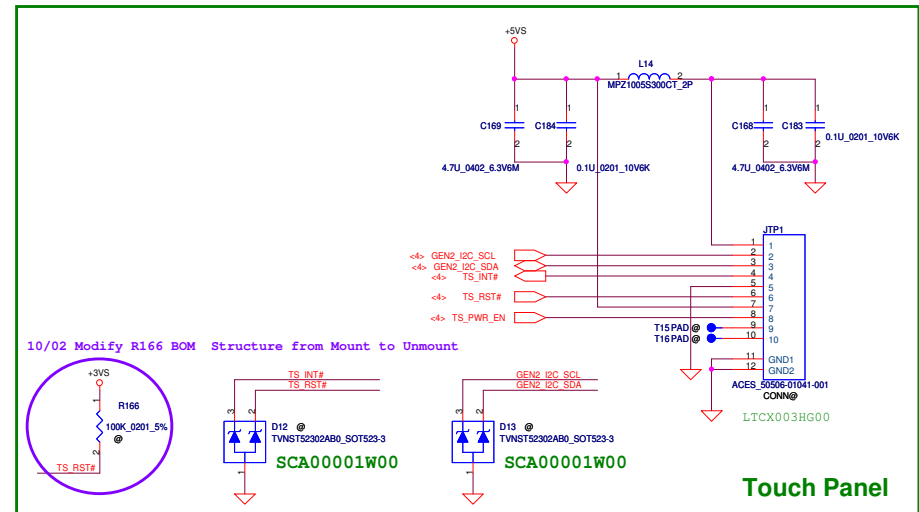
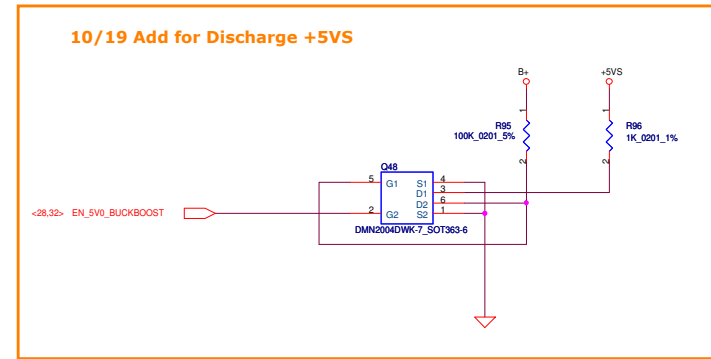


LTCX003KB00

07/28 Change JLVDS1 footprint

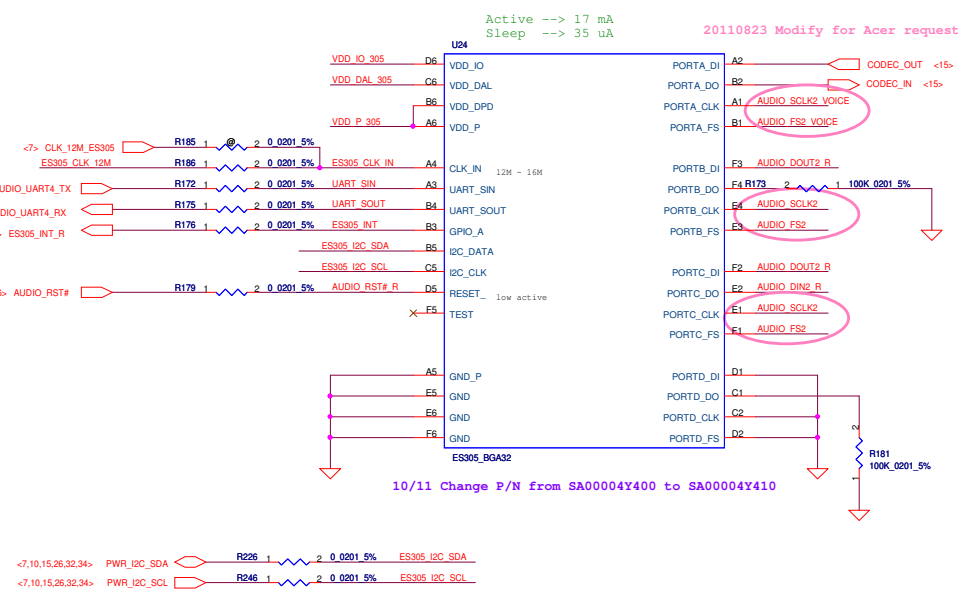
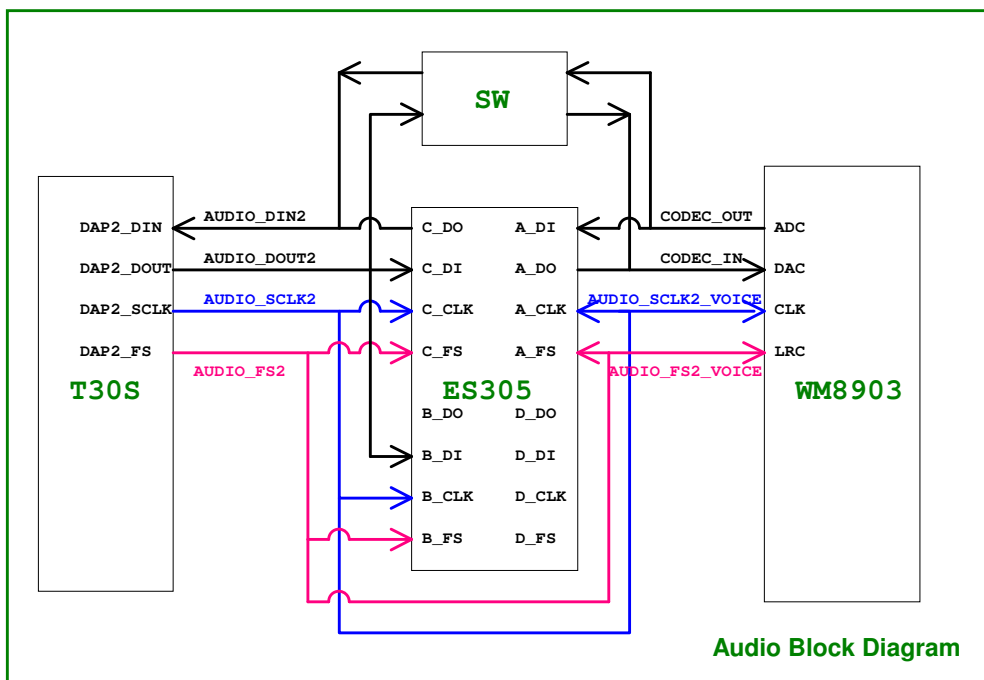
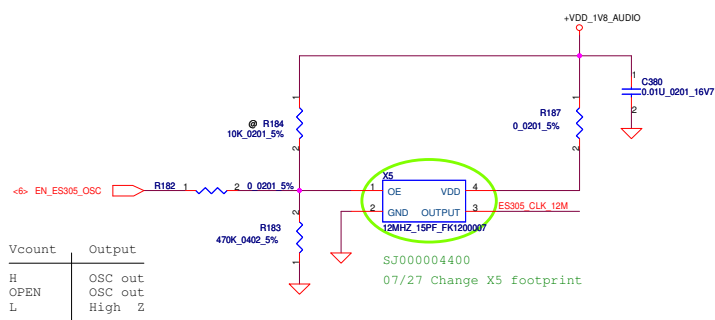


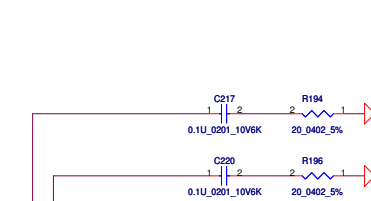
LCD POWER CIRCUIT

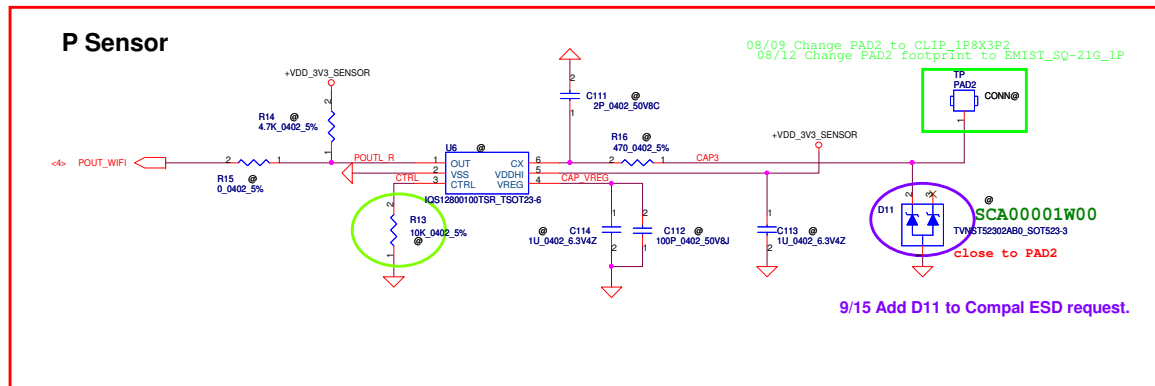
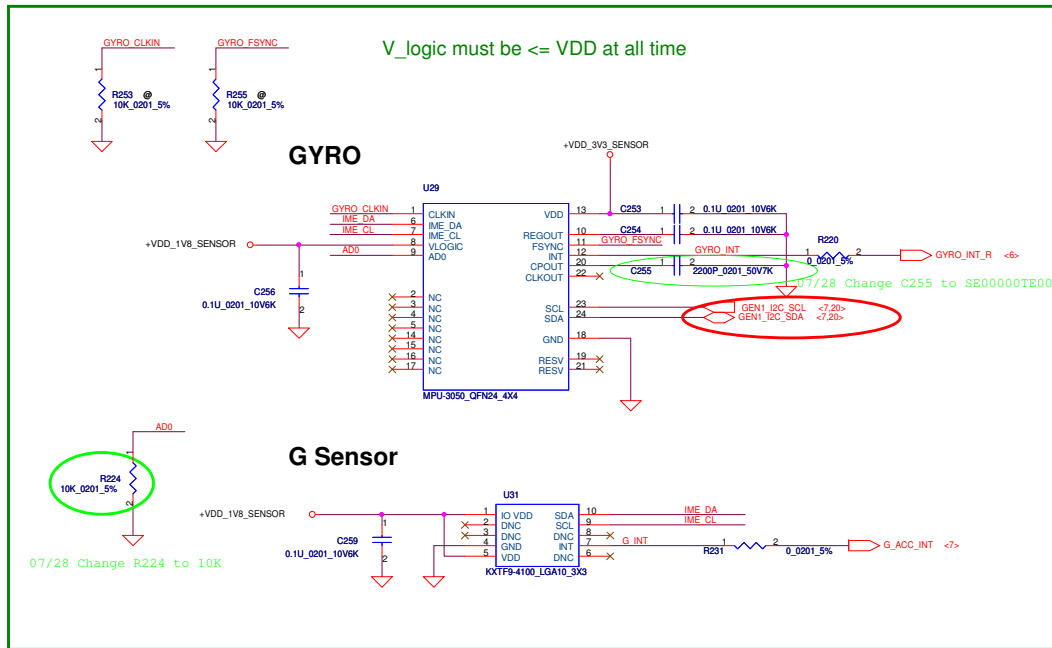


Touch Panel

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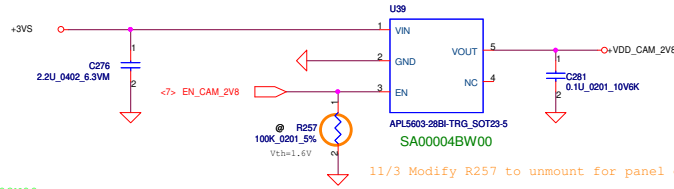
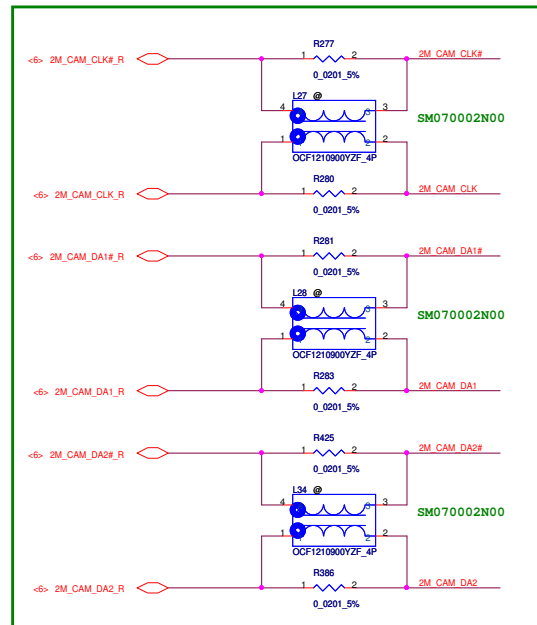
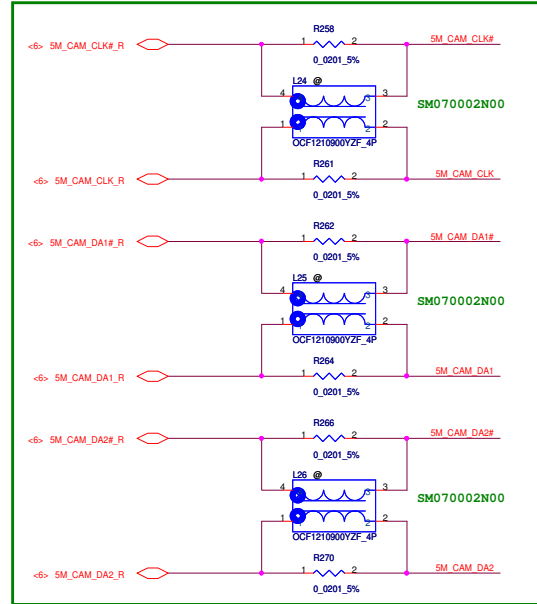




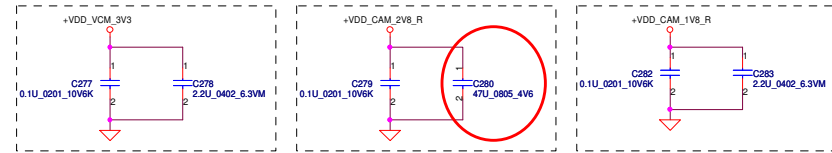
10/13 Modify R14,U6,C111,R16,D11,C113,C112 and C114 from WIFI @ to @ .

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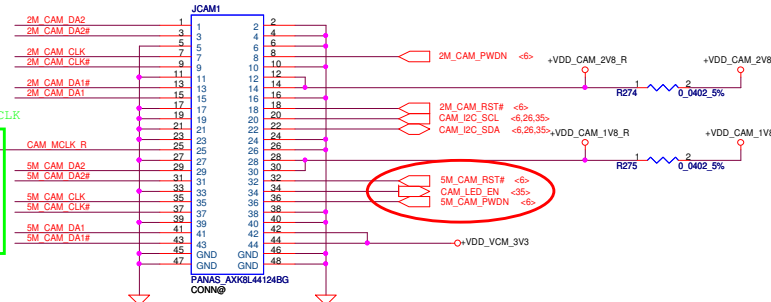
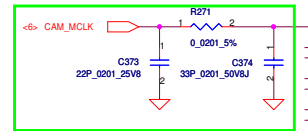
10/17 Change L24-L28,L34 to 0 ohm
08/05 Change L24-L28,L34 to mount
08/05 Change L24-L28,L34 to SM070002N00



11/3 Modify R257 to unmount for panel garbage issue.

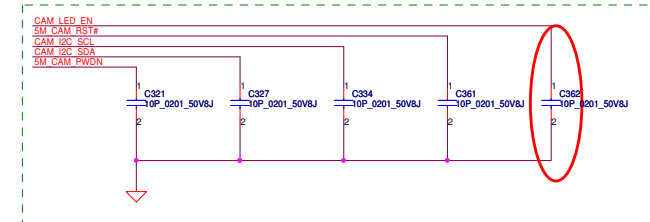


08/09 Add C373,C374,R271 for CAM_MCLK

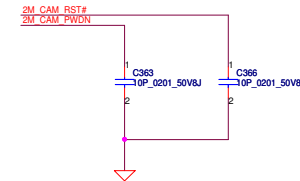


Camera Board

reference Acer schematic

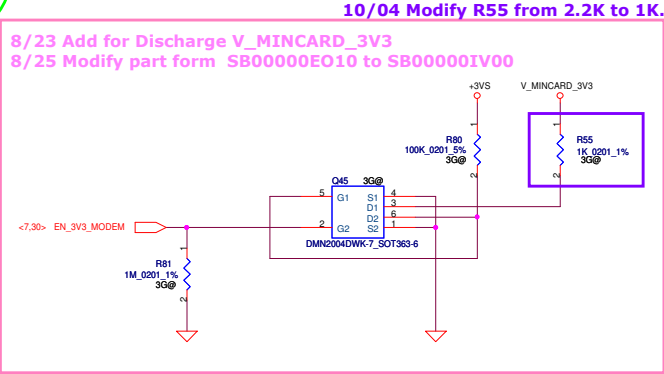
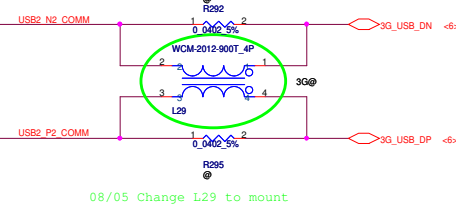
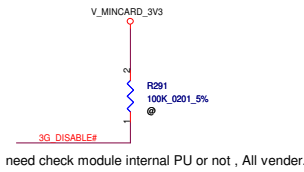
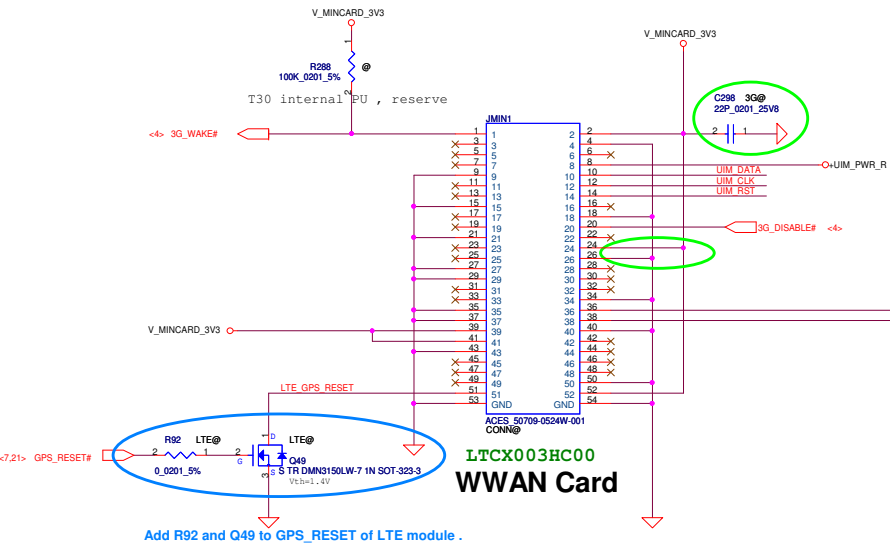
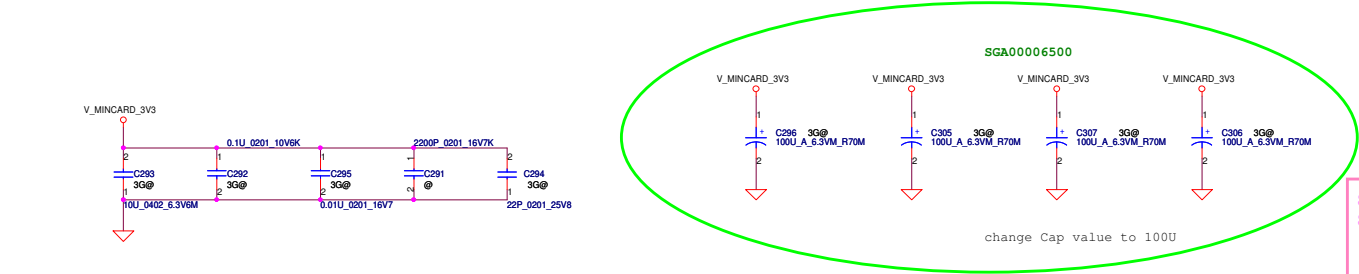
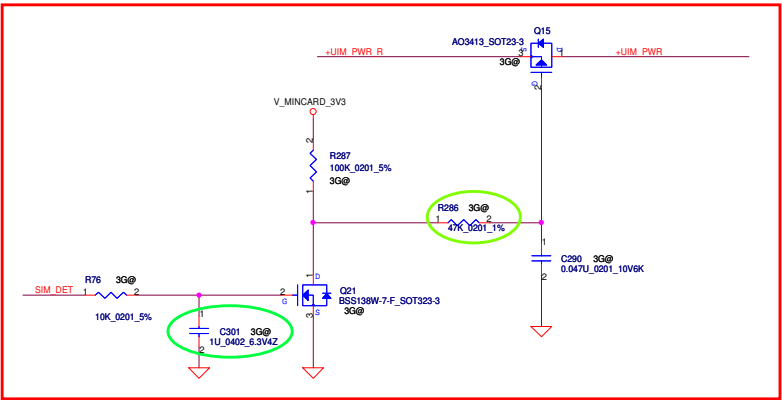
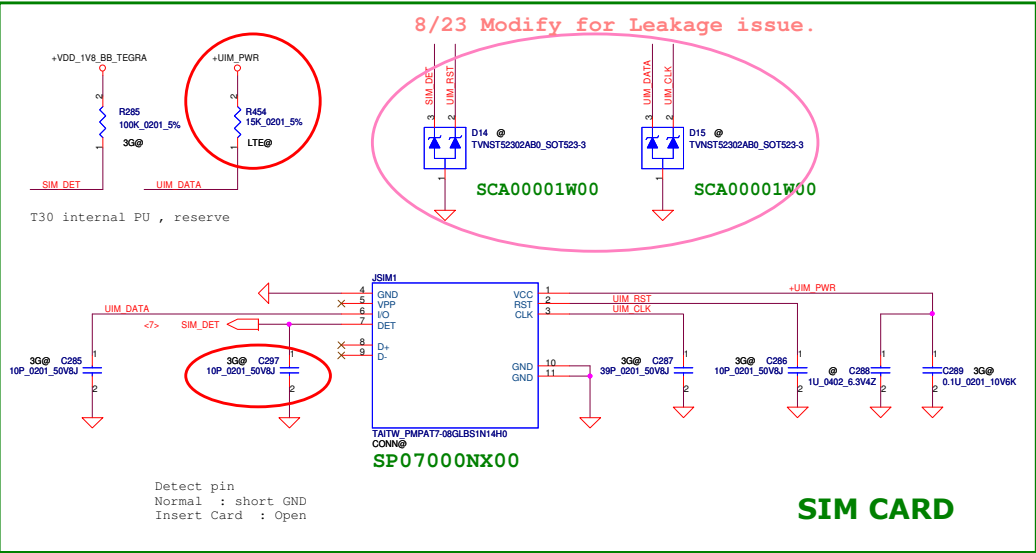


reference Acer schematic



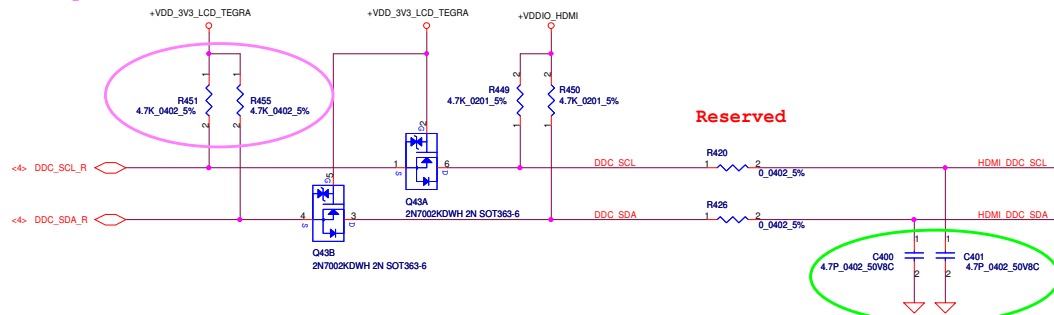
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12/16 Modify R454 from 3G@ to LTE@ to meet SPEC.

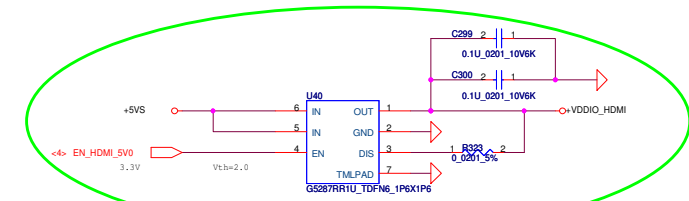


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2012/06/20		
Title		3G card
Size	Document Number	Picasso 2 R04
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8/25 Modify R451&R455 from 47K 1% to 4.7K 5%

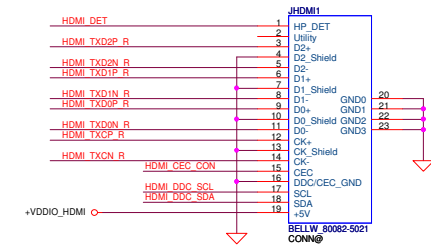
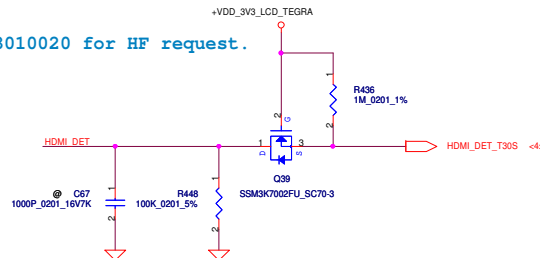
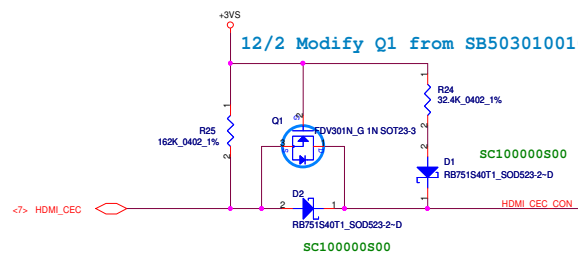


07/28 Change C400,C401 to SE07147AC80



08/04 Change U40 to SA000055200 (TDFN6)

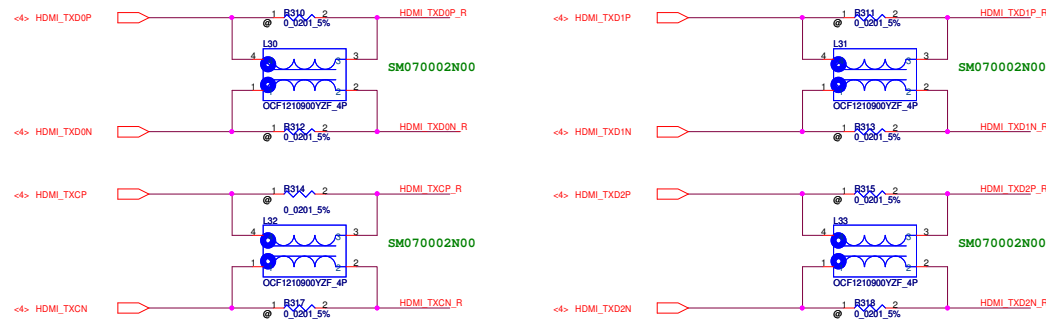
12/2 Modify Q1 from SB503010010 to SB503010020 for HF request.



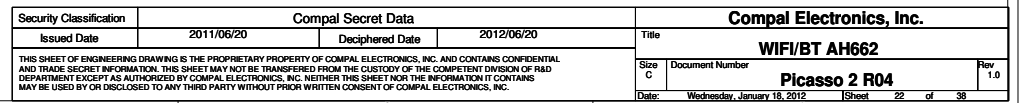
DC232001M10

HDMI Type D Connector

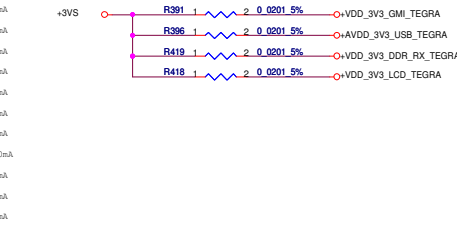
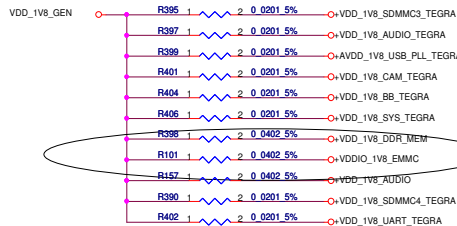
08/05 Change L30-L33 to SM070002N00



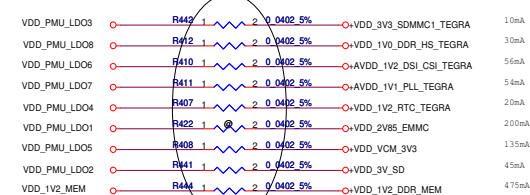
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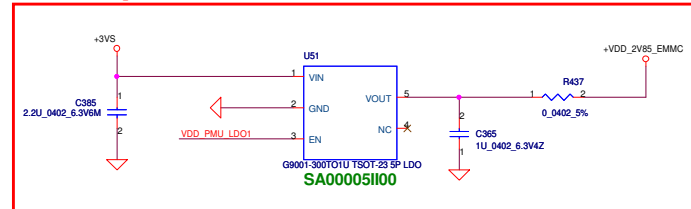
From PMU



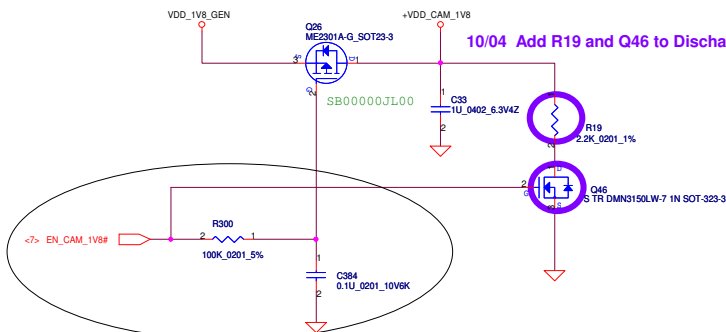
From PMU



12/08 Add U51, C365, C385 and R437 for EMMC drop issue.
12/16 Modify U51, C365, C385 and R437 from @ to mount.

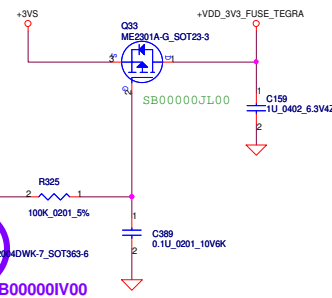


Q26 close to Camera Conn.



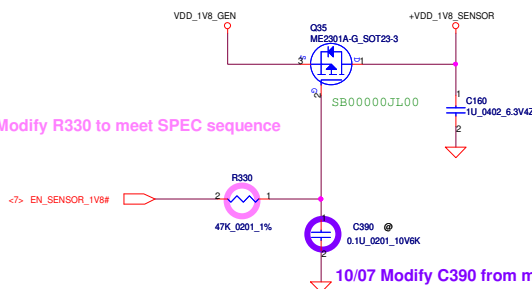
10/04 Add R19 and Q46 to Discharge +VDD_CAM_1V8.

Q33 close to T30S

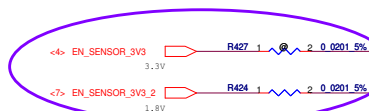


9/29 Modify Q25 from 2N7002KDW to DMN2004DWK-7

9/2 Modify R330 to meet SPEC sequence



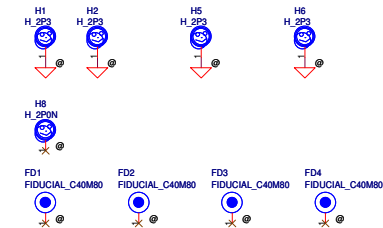
10/07 Modify C390 from mount to @.



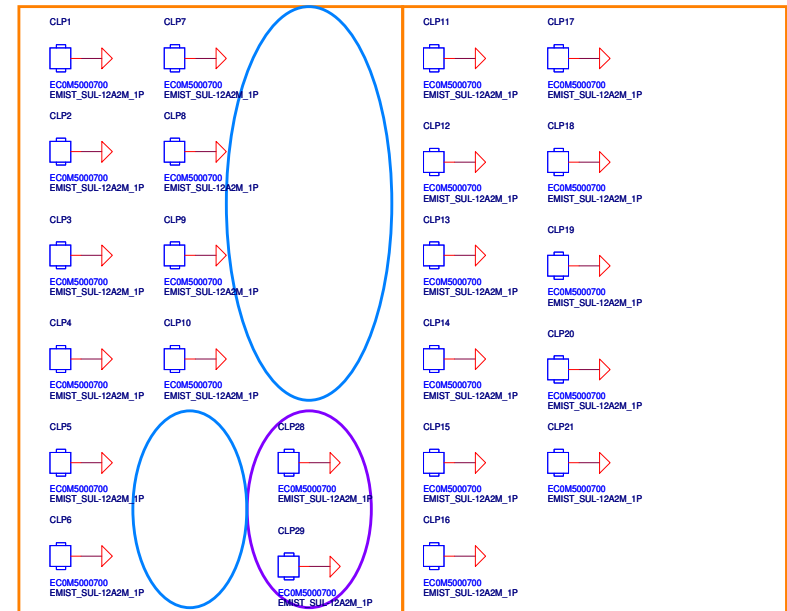
9/27 Add EN_SENSOR_3V3_2 from U1.AA3
9/29 Modify R424 from unmount to mount
9/29 Modify R427 from mout to unmount

H_2P3 *6

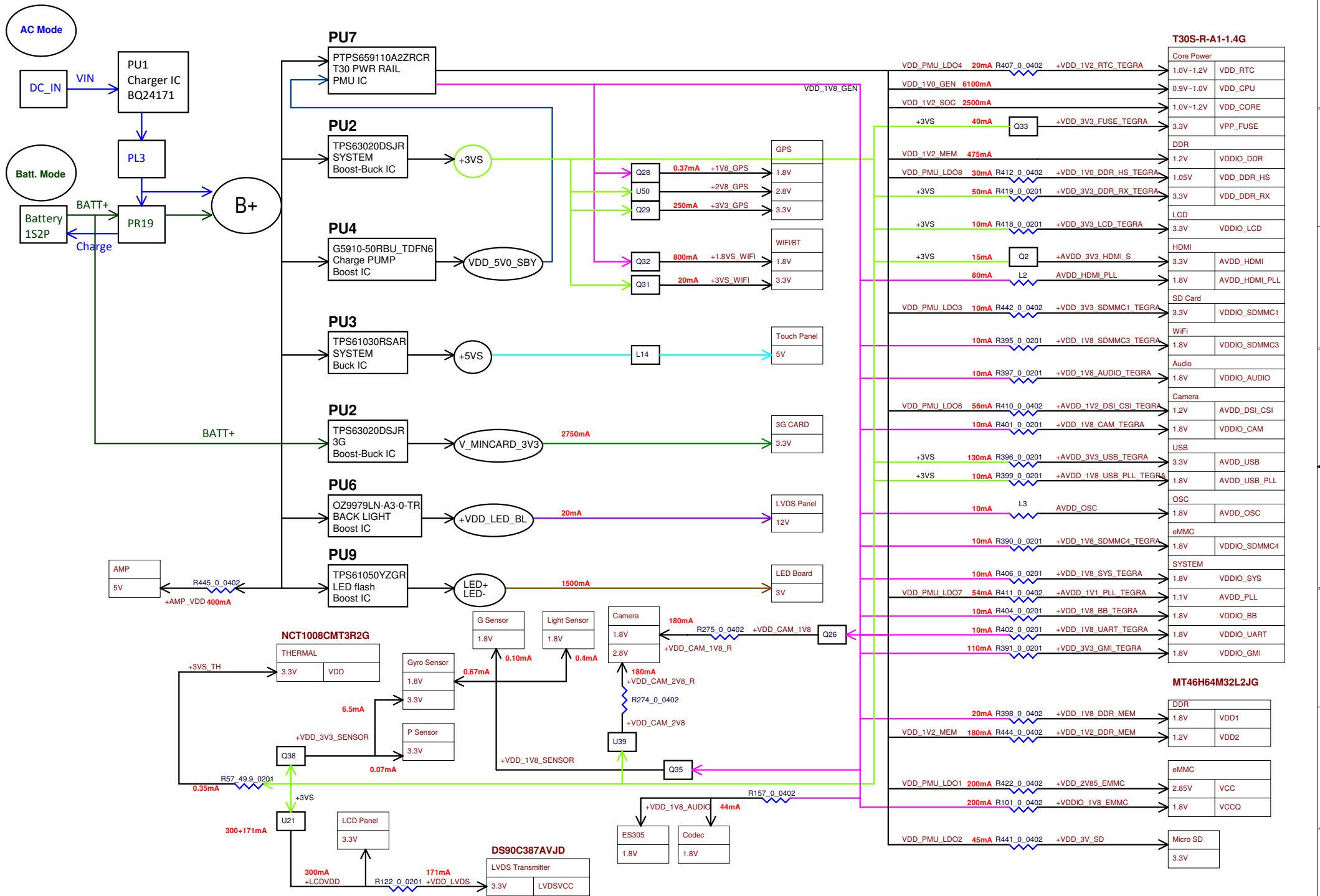
H_2P0N *1

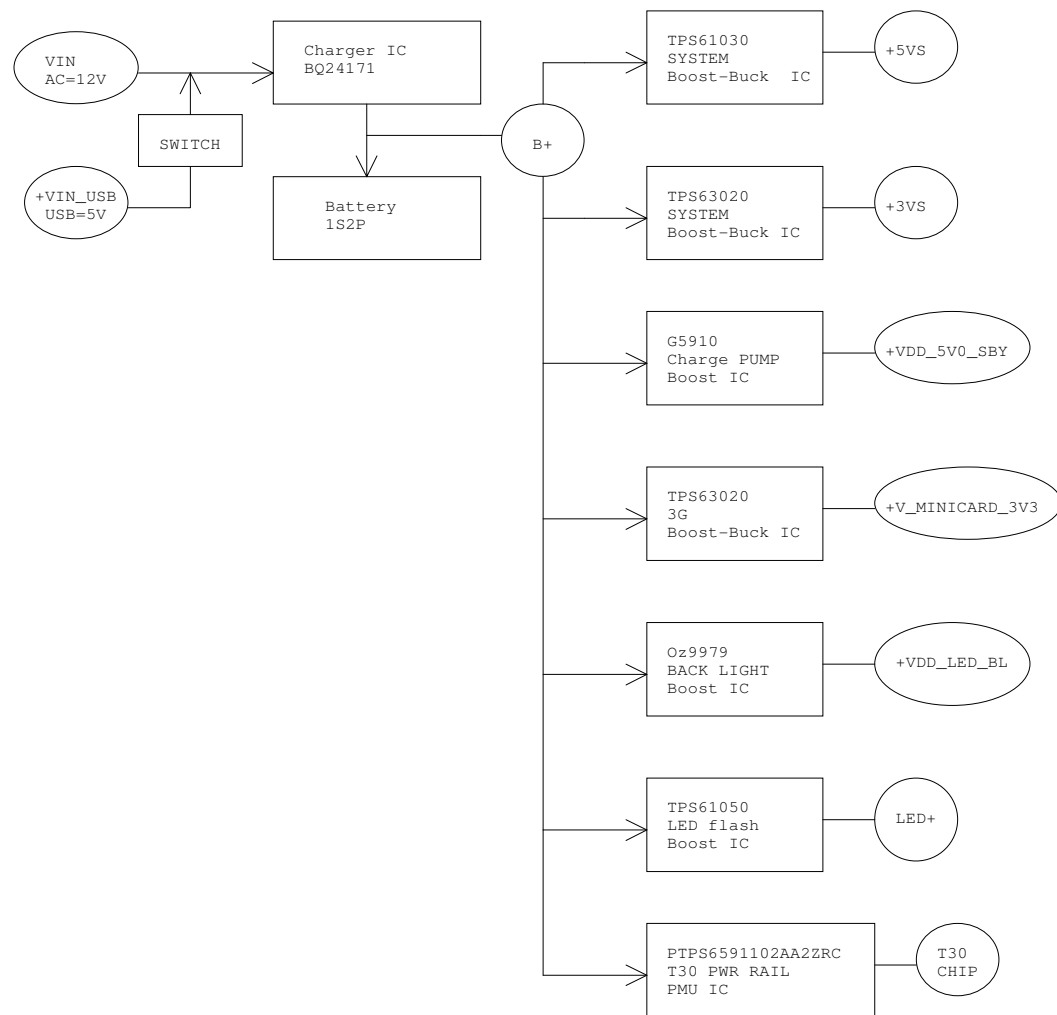


9/2 Add CLP22~CLP27
9/2 Add CLP28, CLP29
11/8 Del CLP22~CLP27 for ME request
Clip type conn



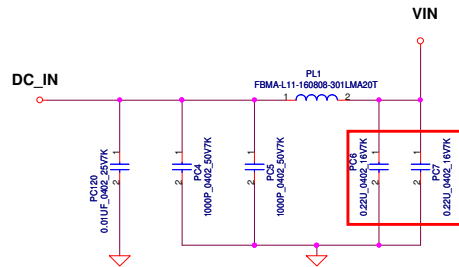
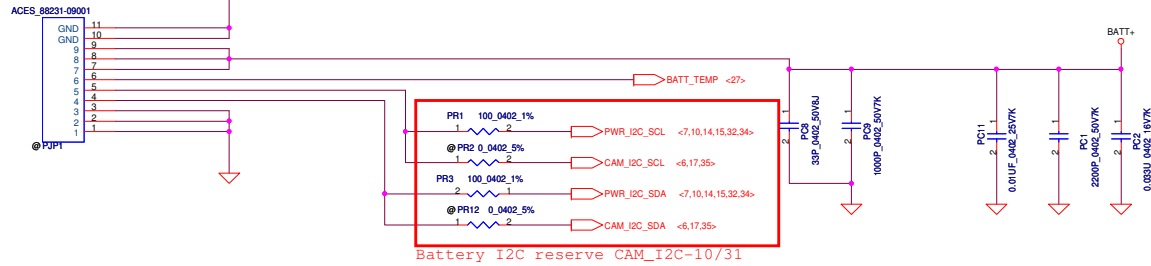
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Issued Date	2011/06/20	Deciphered Date	2012/06/20	DC Interface/Power Button	
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SP02000V310

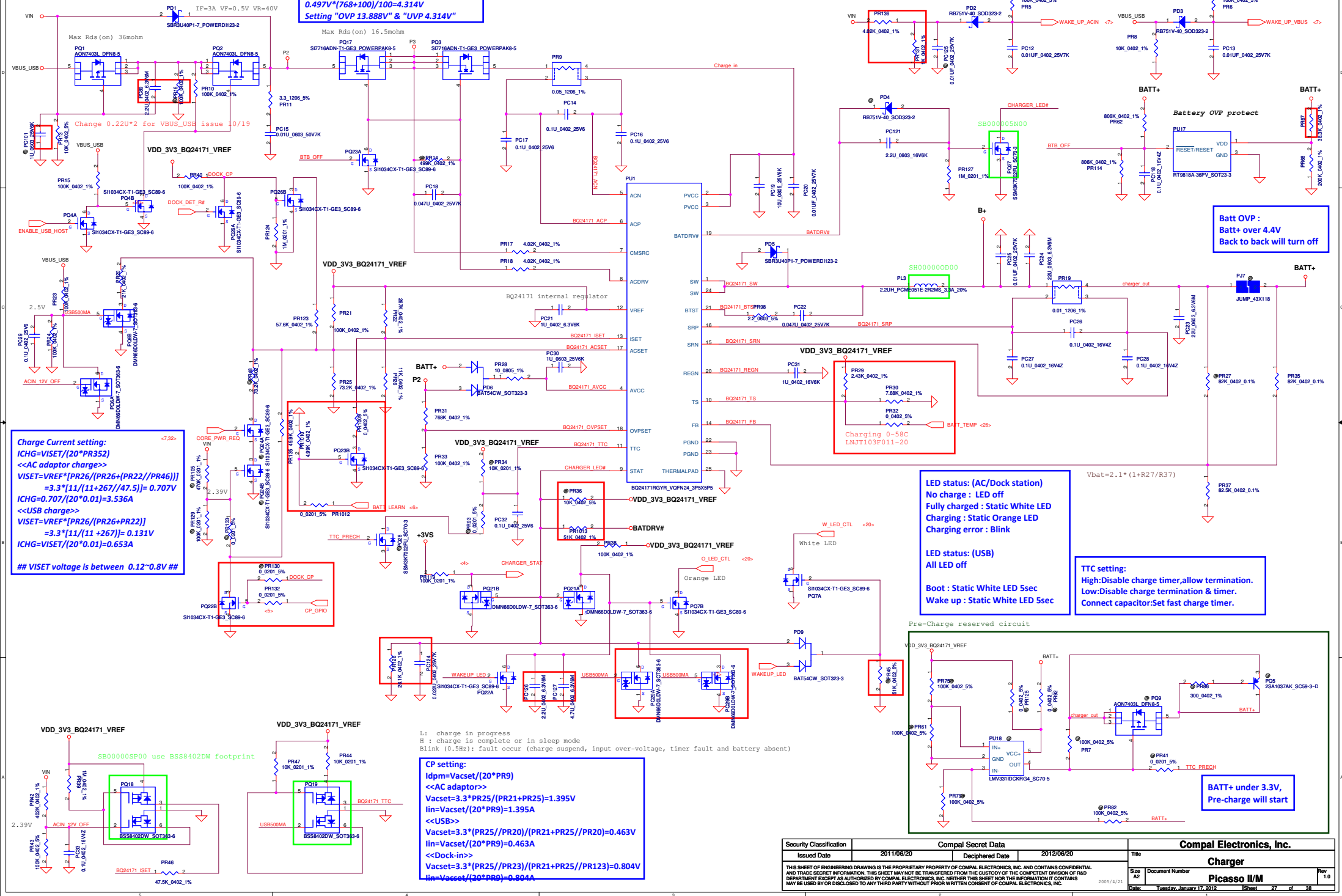


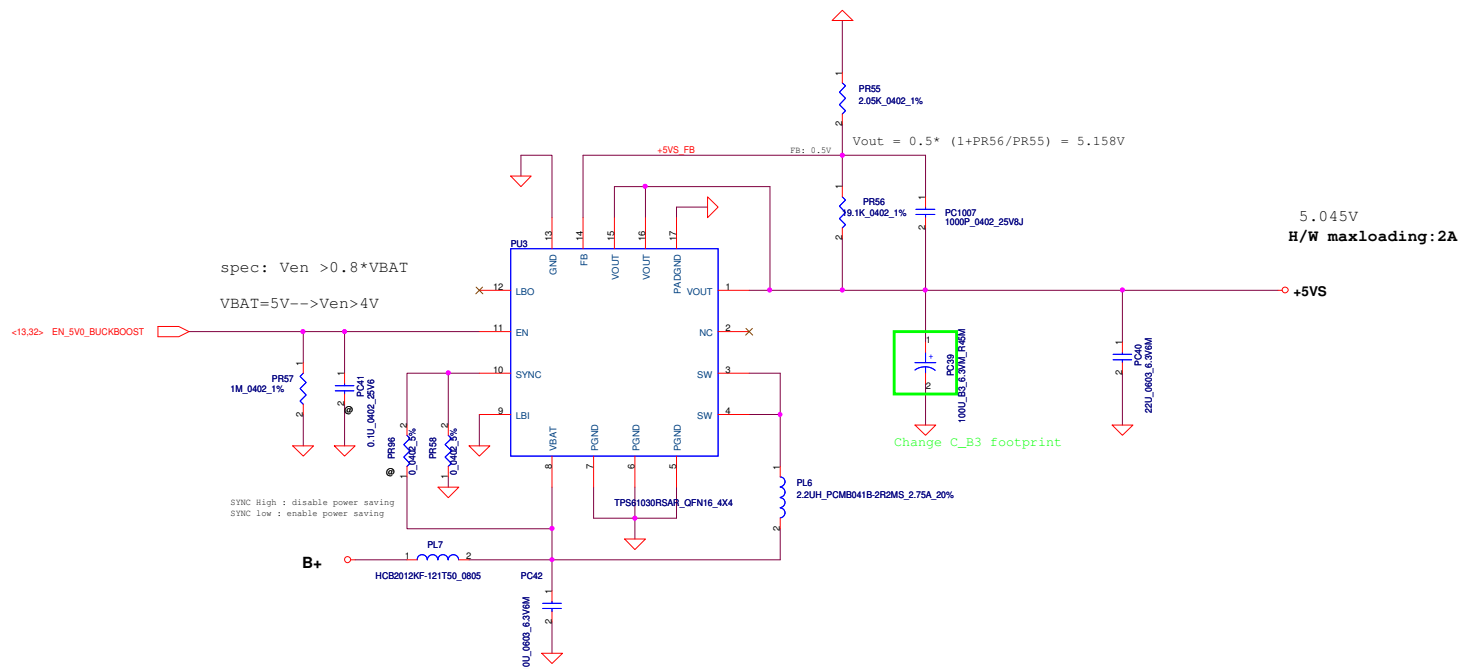
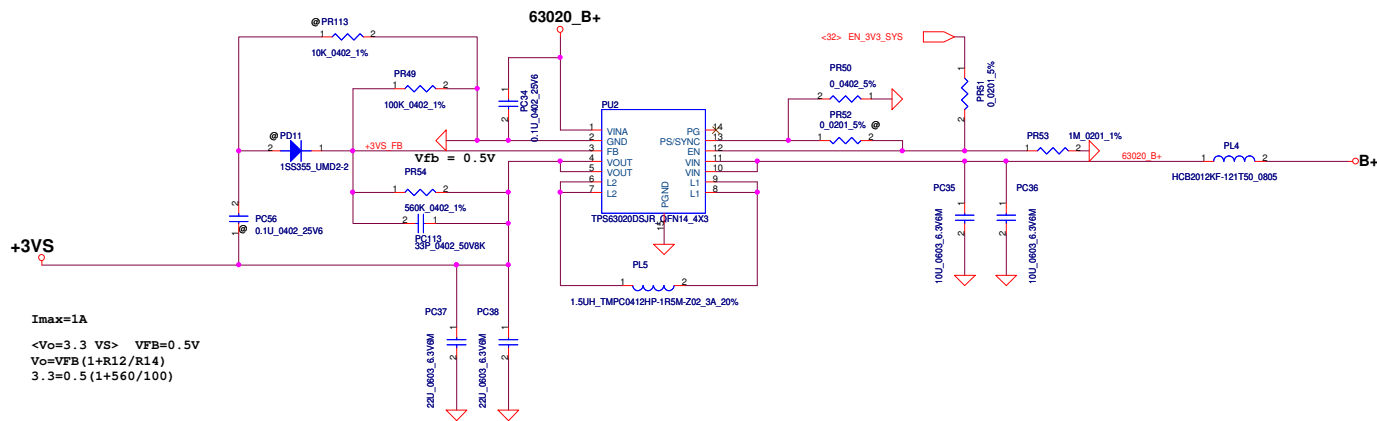
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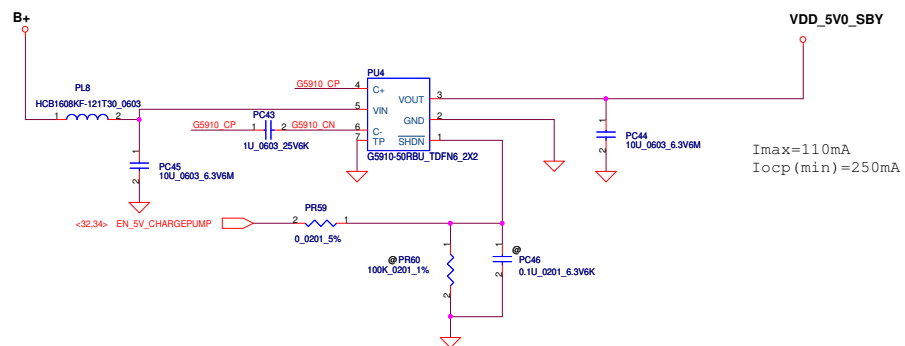
CHARGER BQ24171

AC Insert or remove --> Wake up T30S
USB Insert or remove --> Wake up T30S
SW to check if Acer USB --> Change charge current to 1A

OVP UVP Range setting:
##OVPSET voltage is between 0.497~1.6V ##
 $1.6V \times (768+100)/100 = 13.888V$
 $0.497V \times (768+100)/100 = 4.314V$
Setting "OVP 13.888V" & "UVP 4.314V"

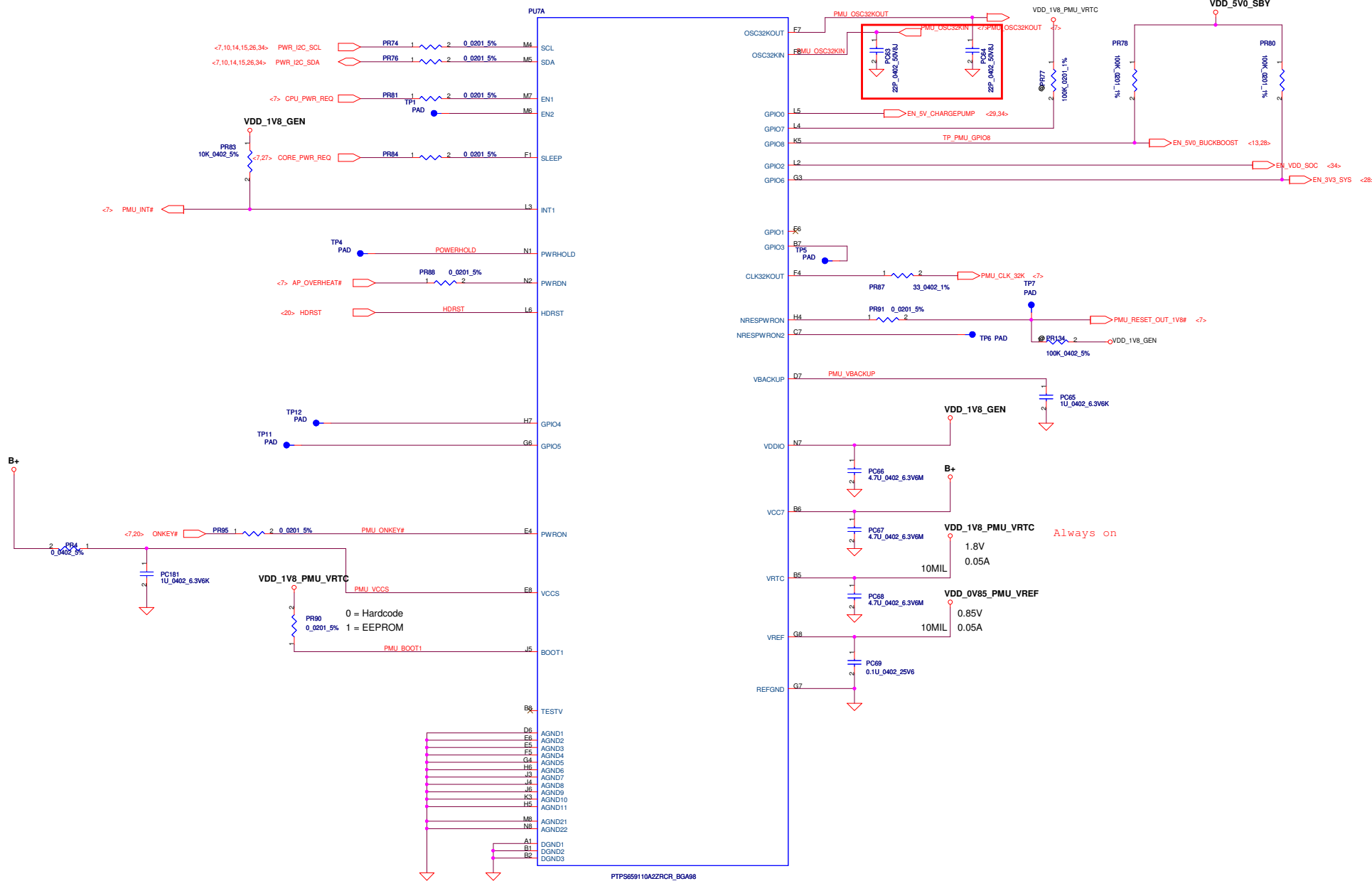
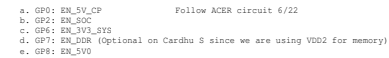






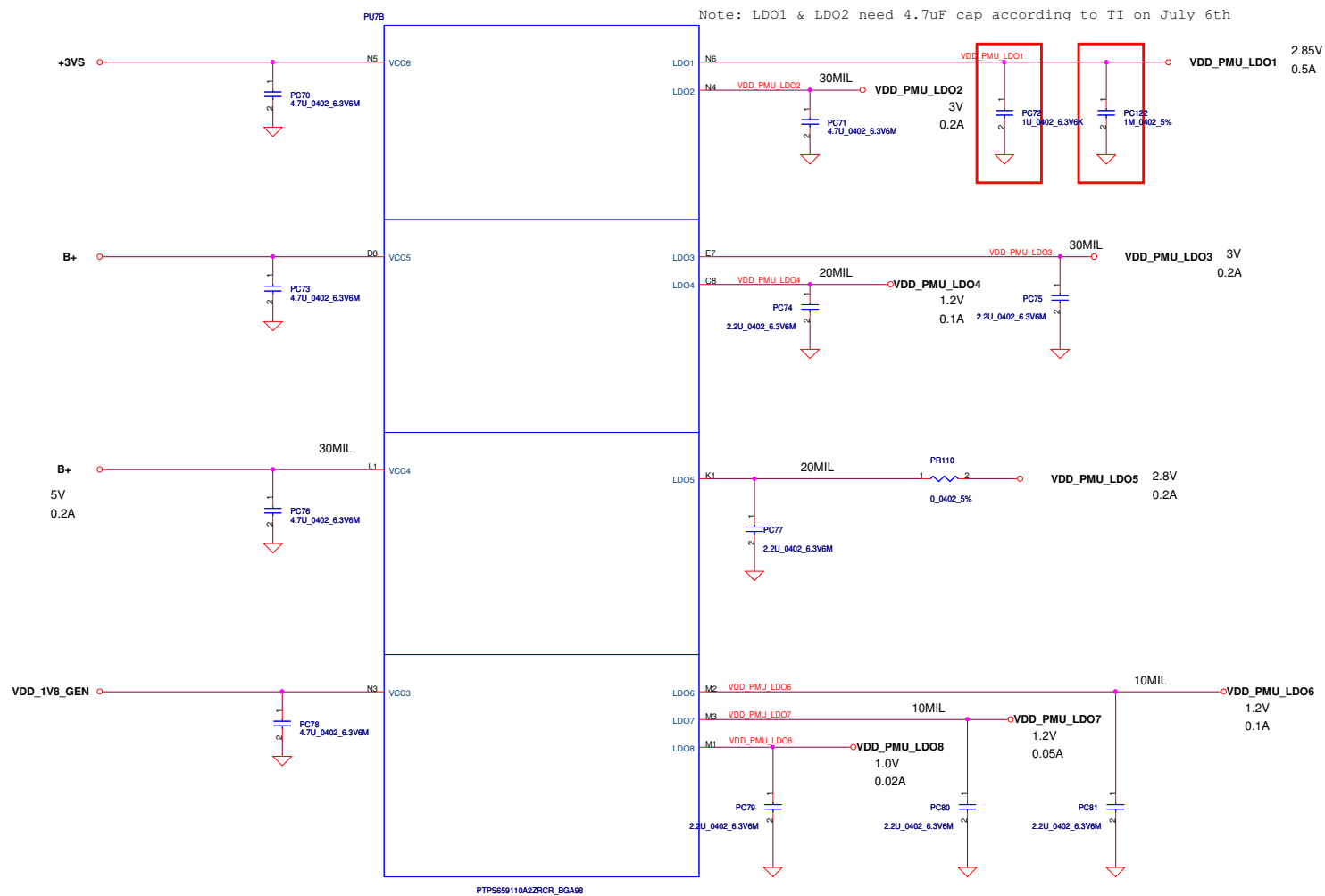
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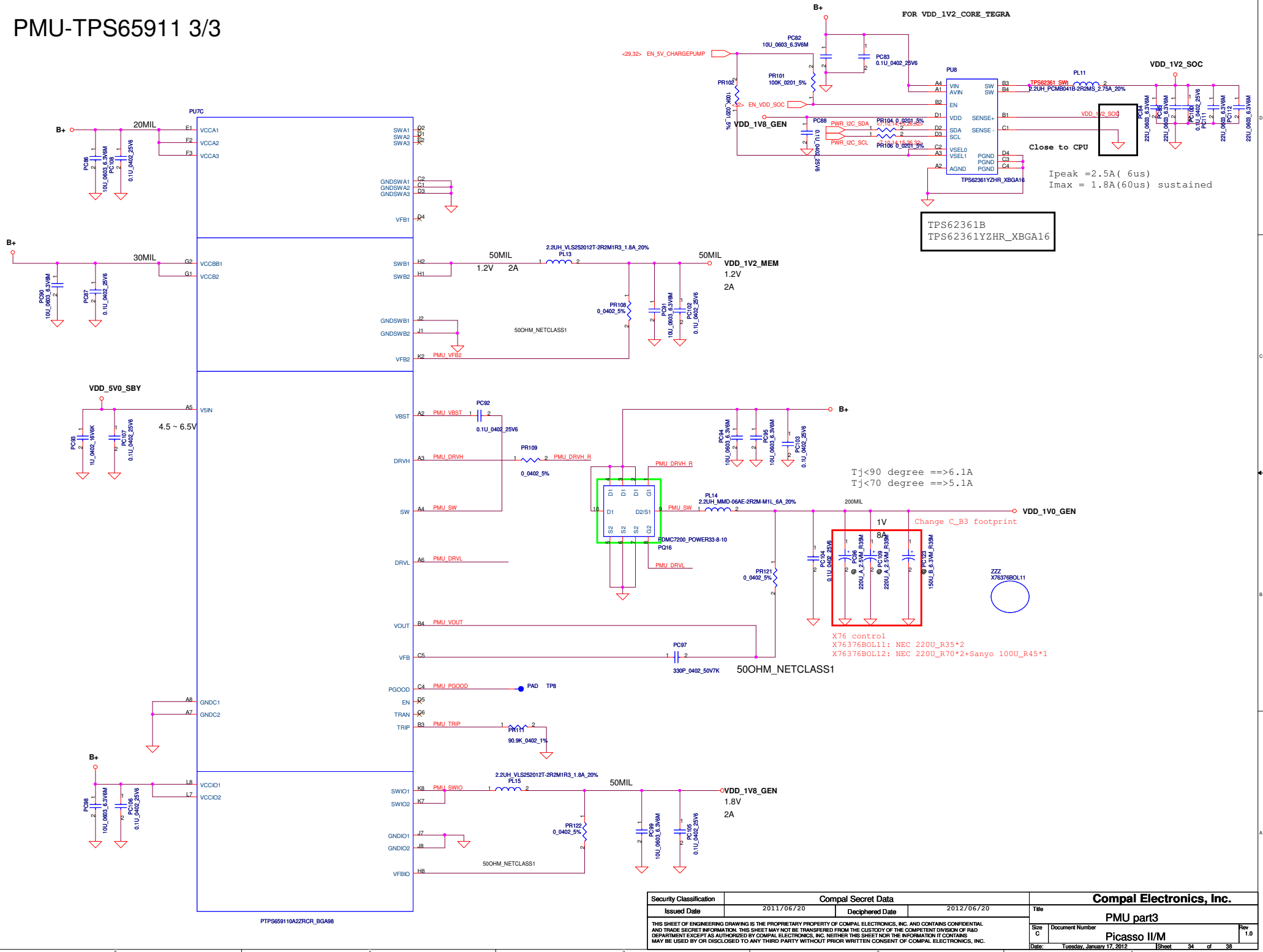


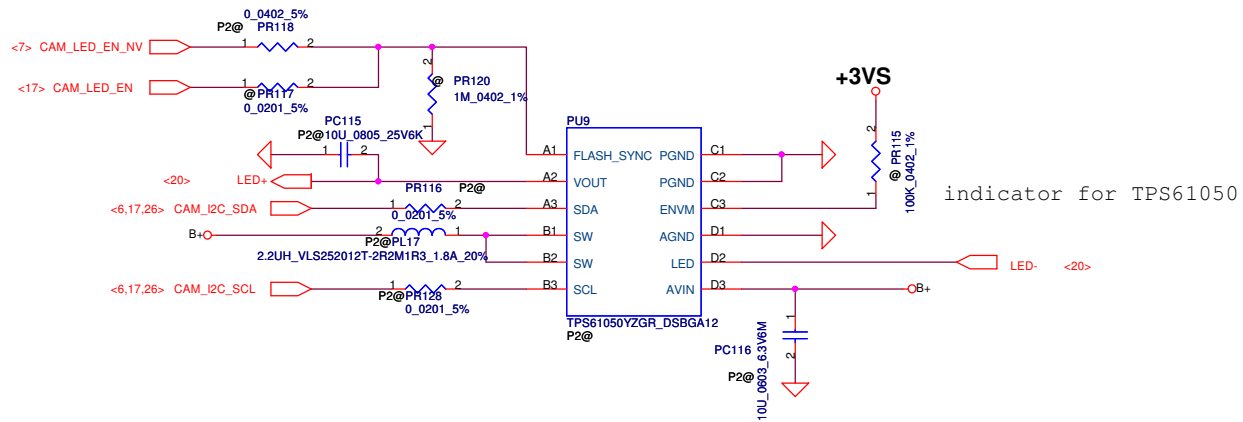
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Size	A3	Document Number	Picasso II/M		Rev
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Version change list (P.I.R. List)

Item	Fixed Issue	Reason for change	Rev.	PG#	Modify List	Date	Phase
1	Ripple un-stable	Loop stable for TPS63020	01	28 30	change PL5, PL9 from PCMB041B-2R2MS 2.75A to PCMB041B-1R5MS 3A,	20110806	EVT (QAJ70)
2		charger CP setting for adaptor protect	02	26	change PR9 form 0.01_1206_1% to 0.05_1206_1% change PR25 form 10K to 73.2K change PR20 form 3.83K to 21K Remove ACER USB setting circuit	20110809	DVT (QAJ50)
3		Net name error	02	35	change net name from VDD_1V8_SYS to VDD_1V8_GEN	20110809	DVT (QAJ50)
4		Material version change	02	35	change PQ16 from FDMC7200 2N POWER33-8 to FDMC7200S 2N POWER33-8	20110809	DVT (QAJ50)
5	GPIO only support 1.8V	Use low Vth dual N TR	02	26	change PQ4,PQ6,PQ7,PQ21,PQ21 from DMN66D0LDW-7_SOT363 to SI1034CX	20110809	DVT (QAJ50)
6		material change for common use	02	26	change PQ18 from BSS8402DW 1P/1N SOT363-6 to SI1553CDL-T1-GE3 1P/1N SC70-6	20110809	DVT (QAJ50)
7		No support Acer USB, delete related control circuit	02	26	Delete PQ19, PR40, PR44, PR47, PR41.	20110809	DVT (QAJ50)
8	Back-to-back MOS can't fully turn on	The BATDRV# pull low 1K will cause ACDRV abnormal	02	26	Change PR16, PR12, PD4 to reserve	20110809	DVT (QAJ50)
9	Charger will terminate	The TTC pull high 100K will cause wrong voltage level	02	26	Change PR34 from 100K to 10K	20110809	DVT (QAJ50)
10	Orange LED can't turn off	STAT pull high 100K can't drive TR	02	26	Change PR36 from 100K to 10Kohm	20110809	DVT (QAJ50)
11		Modify Battery OVP circuit to avoid AC turn off when Battery over discharge	02	26	Add PC118, PR144,PQ23. Delete PD7	20110809	DVT (QAJ50)
12	Pre-charge circuit can't work normally	Modify Pre-charge circuit	02	26	Change PR86,PR92,PR93 to PNP 2SA1037K	20110816	DVT (QAJ50)
13	Sub/B +5VS will drop to under 4.75V	Modify +5VS voltage setting to 5.15V	02	28	Change PU3 to TPS61030, PR56 to 19.1K, PR55 to 2.05K	20110824	DVT (QAJ50)
14		TPS63020 add 33P on feedback resistor for loop stable	02	28 30	Add PC113, PC114 33P	20110824	DVT (QAJ50)
15		V_MINCARD_3V3 sequence	02	30	Change PR65 from 1M_0402_1% to 100K_0402_1% Add PC1006 1U_0402_6.3V6K	20110824	DVT (QAJ70)
16		modify crystal cap	02	32	Change PC63, PC64 from 12P_0402_50V8J to 22P_0402_50V8J	20110825	DVT (QAJ70)
17		Add LED control circuit for wake up/boot define	02	26	Add PQ22 to turn off O_LED	20110825	DVT (QAJ70)

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				Size	Document Number
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Version change list (P.I.R. List)

Item	Fixed Issue	Reason for change	Rev.	PG#	Modify List	Date	Phase
1		Add for pre-charge and fast charge timeout	02	27	Add PQ19 ,PR44,PR47	20110826	DVT (QAJ70)
2		BOM control	02	27,31	Modify PD1, PD5, PD8 from SS3P4-M3-84A_SMP2 to SBR3U40P1	20110826	DVT (QAJ70)
3		footprint control	02	34,35	Modify PL13, PL15, PL17 footprint to TOKO_1239AS-H-2R2N-P2_2P	20110826	DVT (QAJ70)
4		Change CP setting for adaptor protect	02	27	Add PQ23	20110826	DVT (QAJ70)
5		Add VDD_1V0_GEN and VDD_1V8_GEN Fb resistor for test request	02	34	Add PR121, PR122	20110826	DVT (QAJ70)
6		EMI request	03	27	Change PL1 to 300ohm bead, add PC120, PR11, PC15, PC20, PR98, PC1,PC2 for EMI request	20110920	DVT2 (QAJ50)
7		Cancel the function	03	27	Delete PR12, PR16, PD4	20110920	DVT2 (QAJ50)
8		Reserve the CP control for thermal improve	03	27	Add PR48, PQ24 for reserve	20110920	DVT2 (QAJ50)
9		Dock in CP setting	03	27	Add PQ26 PR93 PR96 PR124 PR123 PR40	20110920	DVT2 (QAJ50)
10		Solve White LED flash issue when AC plug in	03	27	Add PD4,PC121,PR126,PR127,PQ27	20110920	DVT2 (QAJ50)
11		Battery OTP change to 55C	03	27	Change PR29 to 2.74K, PR30 to 8.87K	20110920	DVT2 (QAJ50)
12		remove pre-charge function	03		Reserved PU18, PQ9, PR7, PR61, PR79, PR86, PR41	20111006	DVT2 (QAJ50)
13		solve leakage current	03	27,31	Change PD1,PD5,PD8 from SBR3U40 to SS3P4; PR62, PR114 to 806K	20111006	DVT2 (QAJ50)
14		Thermal over temperature	04	28	Change PC39 to 100U_B3_6.3VM_R45	20111027	DVT2 (QAJ70)
15	VBUS leakage	PQ1 will turn on when AC plug out	04	26,27	Change PC6, PC7 to 0.22U. Add PC89 2.2U	20111027	PVT (QAJ50)
16		OTP change to 58C	04	27	Change PR29 to 2.43K, PR30 to 7.68K	20111027	PVT (QAJ50)
17		Modify battery OVP to 4.4V	04	27	Change PR67 to 38.3K	20111105	PVT (QAJ50)

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

Item	Fixed Issue	Reason for change	Rev.	PG#	Modify List	Date	Phase
1		Turn off charge LED when USB in	04	27	Add PQ29, PC126, PC127	20111210	PVT (QAJ50)
2	White LED can't light when power on	Don't need the component	04	27	Change PR45 to reserve	20111210	PVT (QAJ50)
3		Adjust CP setting when power on for thermal issue	04	27	Add PQ22, PR132, PR135	20111210	PVT (QAJ50)
4	Battery can't be charged when dock in	Modify the battery capacity control for EN_USB_HOST to BATT_LEARN	04	27	Add PR1012, change P135 to 4.99K	20111210	PVT (QAJ50)
5	T30S WAKE_UP_ACIN damage	Avoid WAKE_UP_ACIN in-rush voltage	04	27	Add PR136, PR131	20111210	PVT (QAJ50)
6		Modify charge output voltage to improve battery capacity	04	27	Change PR35 to 82K and PR31 to 82.5K	20111210	PVT (QAJ50)
7		Avoid white LED will flash 1s when AC/USB plug in/out	04	27	Change PD4 to reserve, Add PR1013, PR126, PC124	20111210	PVT (QAJ50)
8		Modify crystal cap value	04	32	Change PC63, PC64 to 22P	20111210	PVT (QAJ50)
9	EMMC voltage drop	PMIC LDO1 compensation	04	33	Change PC72 to 1U	20111210	PVT (QAJ50)
10		Avoid EMMC external LDO floating	04	33	Add PC122 1M	20111219	PVT (QAJ50)
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