

Compal Confidential

Model Name : ELZE1

File Name : LA-G611P

Compal Confidential

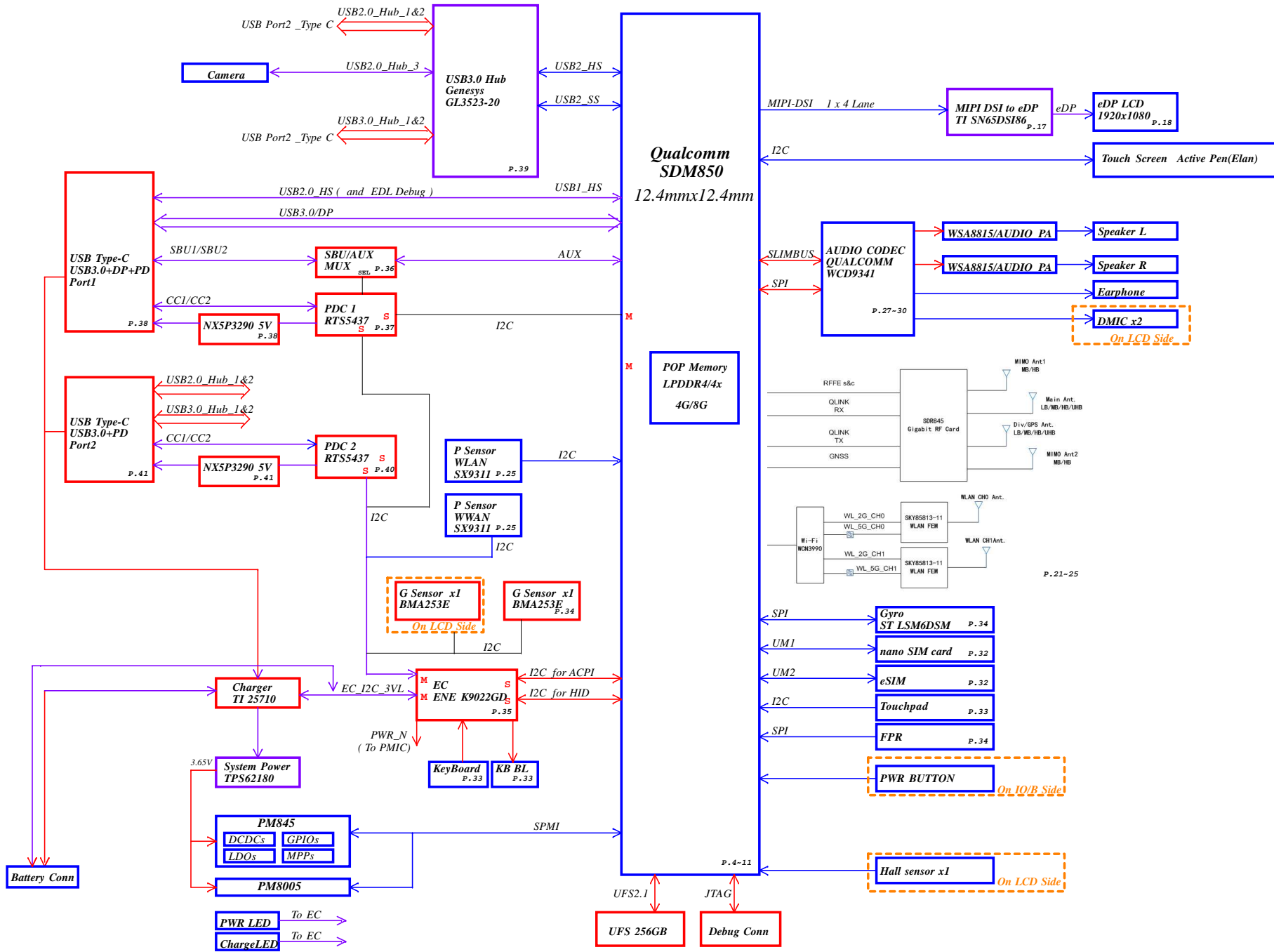
WOS M/B Schematics Document

Qualcomm SDM850 with LPDDR4

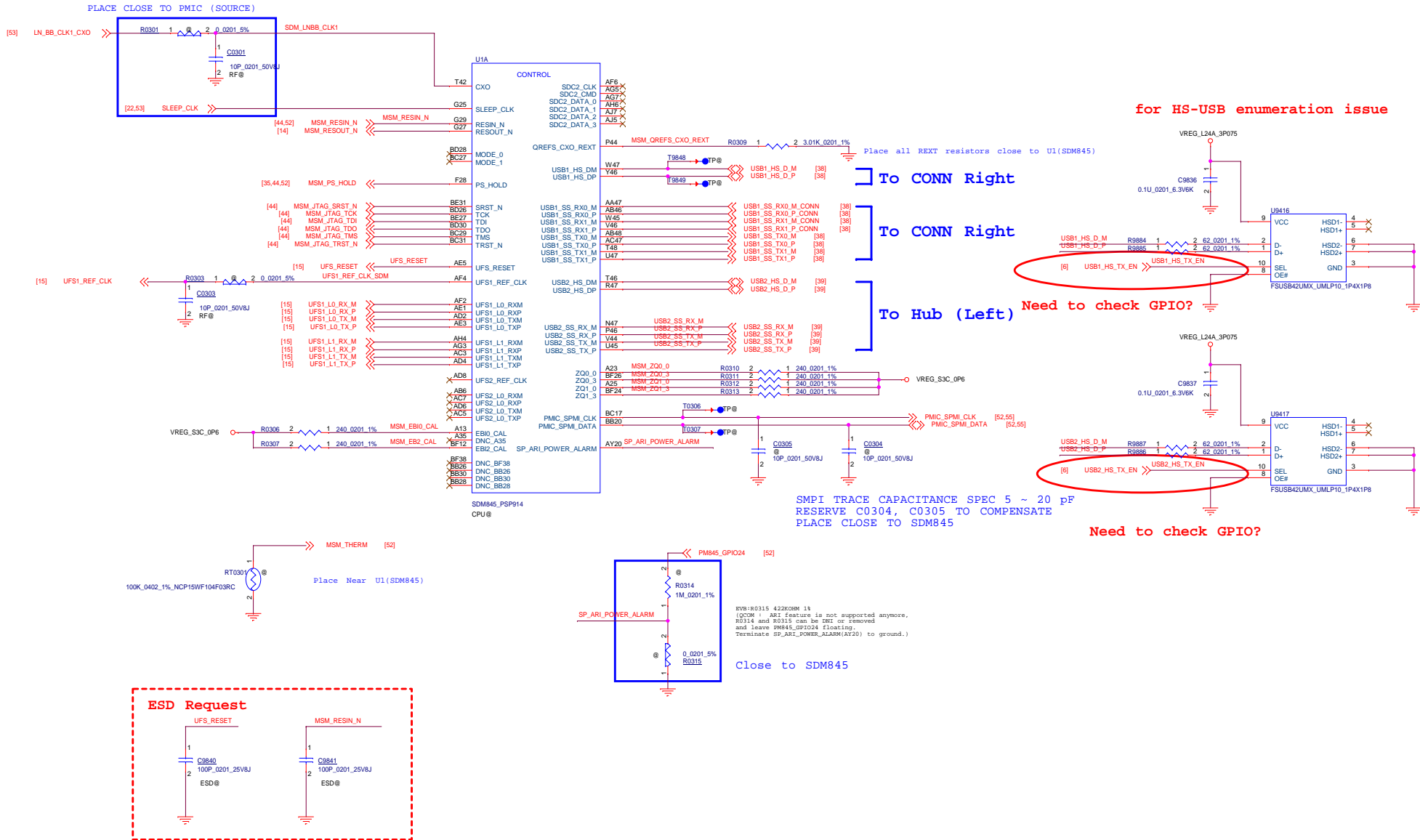
Rev. 1.0

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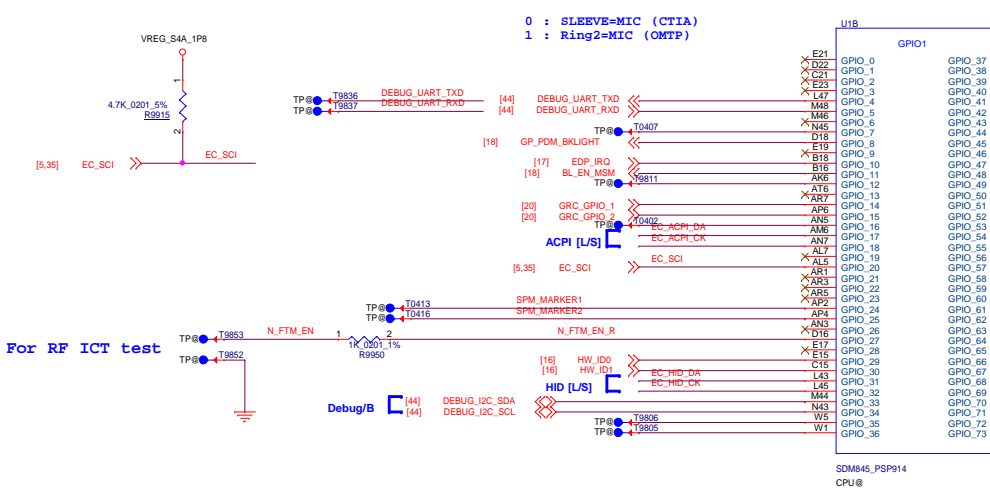
YOGA WoS Qualcomm SDM850(Compal) Block Diagram



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			Revision LA-651P-001	



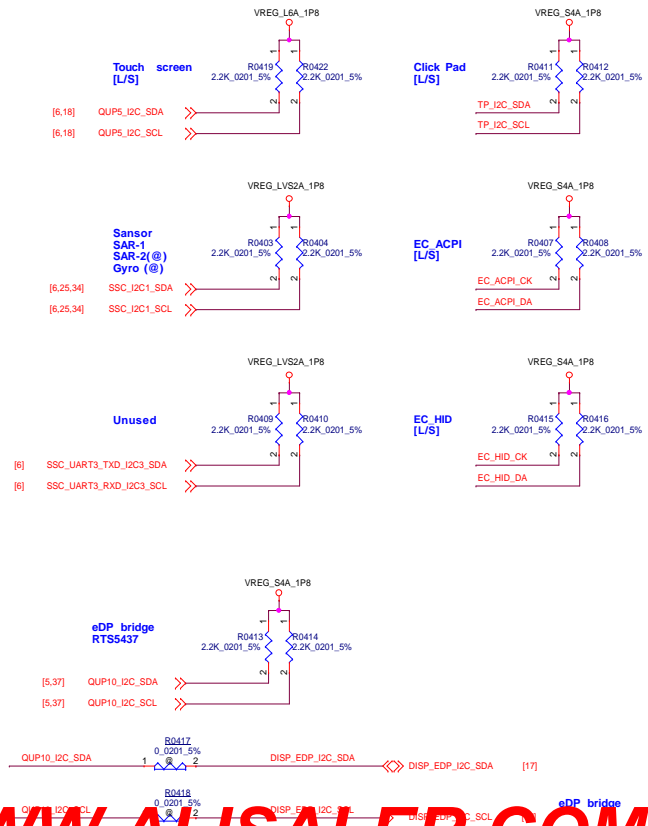
EURO_US_HS_SEL
0 : SLEEVE=MIC (CTIA)
1 : Ring2=MIC (OMTP)



EE Check
R0422 need to be near by PU8201

eDP cable	Panel_ID0	Panel_ID1
IVO	1	0
BOE	0	1

I2C PU NETWORK



SOC 1.8V

SOC 1.8V

SOC 1.8V

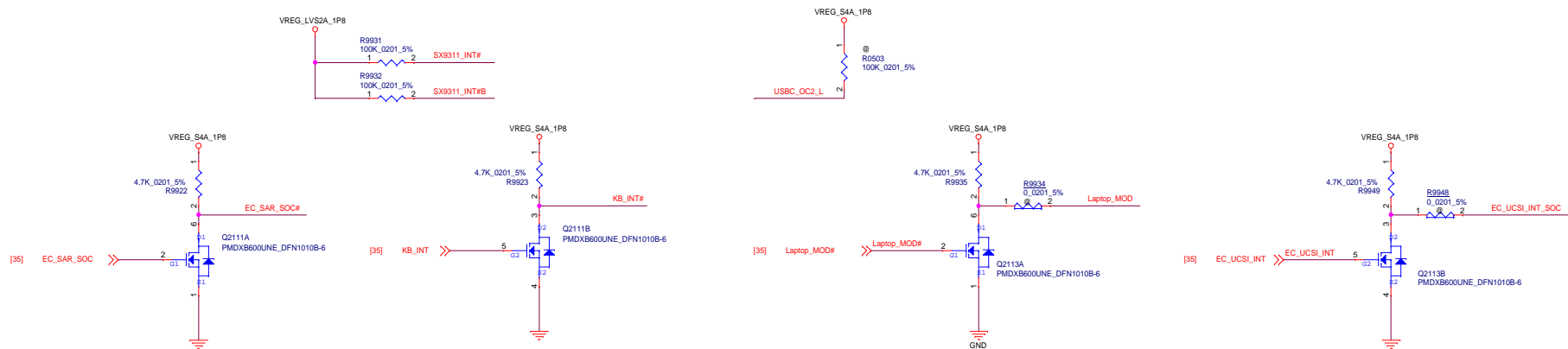
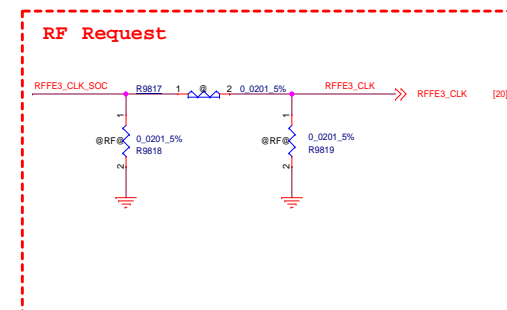
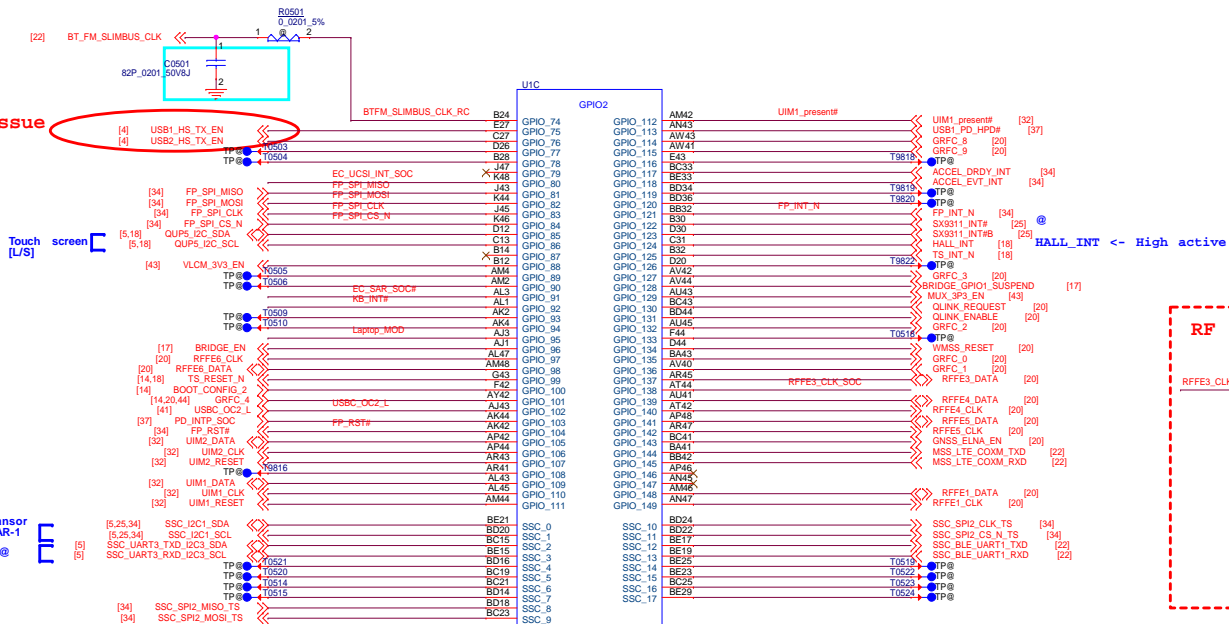
Click pad 3.3V

EC 3.3V

EC 3.3V

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Issued Date	2018/01/30	Deciphered Date
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SoC_I2C

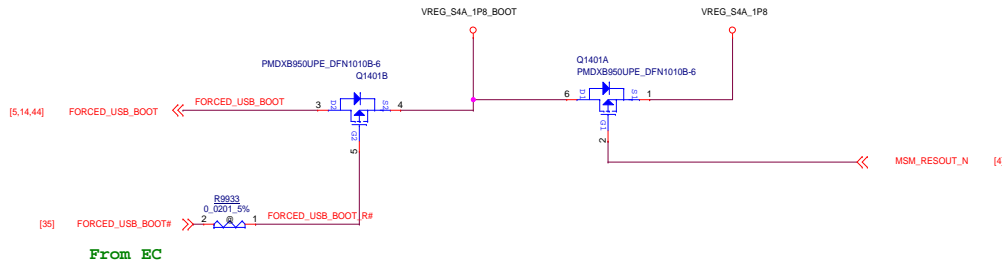
Channel	Dev.	Address	Level
GPIO_17/18	EC_ACPI	0x60	3.3(L/S)
GPIO_31/32	EC_HID		3.3(L/S)
GPIO_41/42	Click pad	0X2C (Synaptics) 0X15 (ELAN)	3.3(L/S)
GPIO_85/86	Touch screen	0x10	3.3(L/S)
SSC_0/1	Sar-1_Wlan	0x28	1.8
GPIO_53/54	eDP Bridge	0x2C	1.8
	PDC1_5437	0xBC	3.3(L/S)

EC_I2C

Channel	Dev.	Address	Level
EC_SMB_2	PDC1_5437	0xBC	3.3
	PDC2_5437	0xBE	3.3
	G-Sensor(MB)	0011000b(0x18)	3.3
	G-Sensor(Panel)	0011001b(0x19)	3.3
	Sar-2_LTE	0x28	3.3

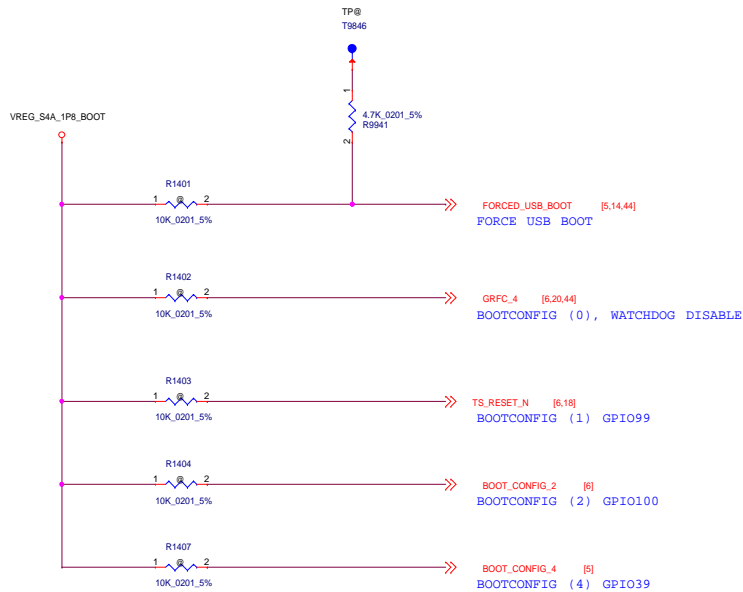
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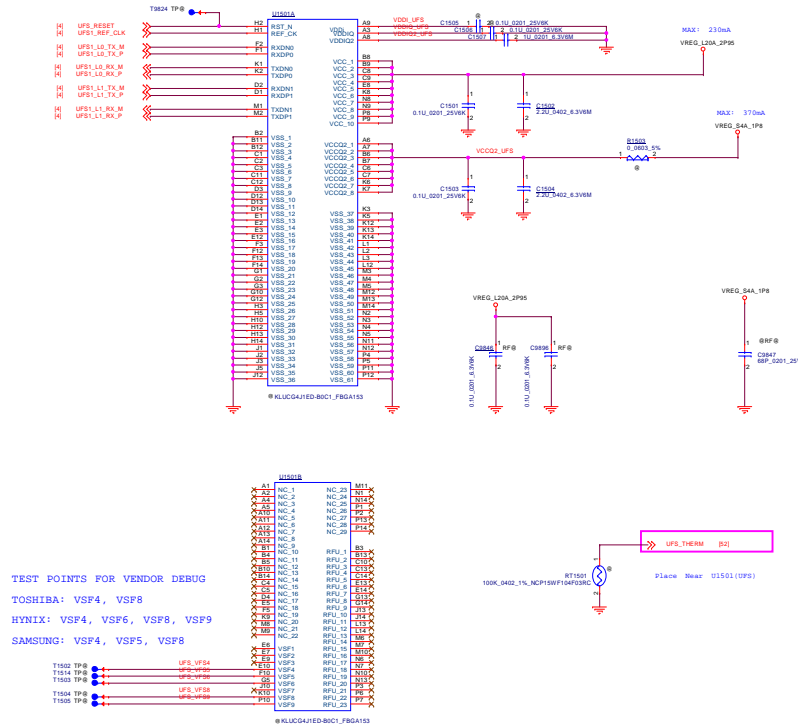
Boot Pin Do not use for PU/PD

Boot configuration #	GPIO #	Function	Bit values
BOOT_CONFIG_0	GPIO_101	WDOG disable	1 – Disables WDOG 0 – Enables WDOG
BOOT_CONFIG_1	GPIO_99	Fast boot bit 0	Selects external boot device.
BOOT_CONFIG_2	GPIO_100	Fast boot bit 1	
BOOT_CONFIG_3	GPIO_133	Fast boot bit 2	
BOOT_CONFIG_4	GPIO_39	Fast boot bit 3	
BOOT_CONFIG_10	GPIO_148	Use serial number	0 – Serial number is not used for authentication. 1 – All segments of serial number used for authentication.
BOOT_CONFIG_11	GPIO_146	MSA PK hash in fuse	0 – Hash of MSA root is in the apps boot ROM. 1 – Hash of MSA root is in the OEM PK hash.
BOOT_CONFIG_12	GPIO_141	MSA authentication enable	0 – Disables MSA authentication. 1 – Enables MSA authentication.
BOOT_CONFIG_13	GPIO_136	Apps PK hash in fuse	0 – Hash of apps root is in the apps boot ROM. 1 – Hash of apps root is in the OEM PK hash.
BOOT_CONFIG_14	GPIO_132	Apps authentication enable	0 – Disables apps authentication. 1 – Enables apps authentication.
BOOT_CONFIG_15	GPIO_116	Force MSA authentication enable	0 – Disables force MSA authentication. 1 – Enables force MSA authentication.
FORCE_USB_BOOT	GPIO_57	Force USB download	0 – Releases USB download mode. 1 – Enables USB download mode.



		GPIO				
FAST_BOOT		39	133	100	99	Boot device/comments
Default	0000					UFS (1)
		0	0	0	0	Then SD card on SDC2 (2)
						Then SS/HS/FS USB on USB 3.1 (3)
	0001					SD card on SDC2 (1)
		0	0	0	1	Then UFS (2)
						Then SS/HS/FS USB on USB 3.1 (3)
	0010			1	0	SD card on SDC2 (1)
		0	0			Then SS/HS/FS USB on USB 3.1 (2)
	0011	0	0	1	1	SS/HS/FS USB on USB 3.1 (1)
	0100		1	0	0	Quad SPI (1)
		0				Then SS/HS/FS USB on USB 3.1 (2)
	0101		1	0	1	Single SPI (1)
		0				Then SS/HS/FS USB on USB 3.1 (2)

UFS MEMORY (SR)



[Table 7] Power mode and MIPI UniPro and M-PHY power state

UFS power mode	UniPro Power Mode	M-PHY Power Mode	VCC Power	Description
ACTIVE	FAST_STATE	HS-BURST	On	-
IDLE	SLEEP_STATE	STALL	On	-
IDLE2 ¹⁾	HIBERNATE_STATE	Hibern8	On	See the Chapter 2.4.1
SLEEP	HIBERNATE_STATE	Hibern8	Off	-
POWER DOWN	OFF_STATE	UNPOWERED	Off	-

NOTE :

1) Samsung specific power mode for saving the IDLE power. Host shall issue 'enter hibern8' for this power mode.

[Table 3] Supply voltage for operating

Parameter	Symbol	Min	Typ.	Max	Unit
Supply Voltage	VCC	2.7	3.3	3.6	V
Supply Voltage	VCCQ2	1.7	1.8	1.95	V

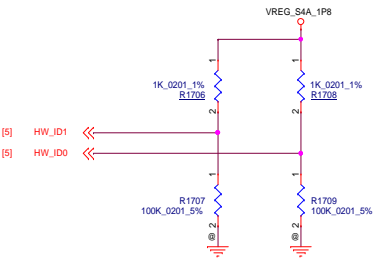
[Table 17] Power Consumption

Power	Density	NAND Type	HS Gear3 x 1Lane		HS Gear3 x 2Lane		Unit
			VCCQ2(1.8V)	VCC(3.3V)	VCCQ2(1.8V)	VCC(3.3V)	
Active	64 GB	128Gb MLC x 4	320	230	370	230	mA
IDLE2			450	70	450	70	uA
Sleep			0 ¹⁾	0 ¹⁾	0 ¹⁾	0 ¹⁾	uA

[Table 2] 153 FBGA Ball Information

Name	Type	Description
VCC	Supply	Supply voltage for the memory devices
VCCQ2	Supply	Supply voltage used typically for the PHY interface and the memory controller and any other internal low voltage block
VDDIQ	Input	Input terminal to provide bypass capacitor for VCCQ internal regulator typically related to the memory controller
VDDi	Input	Input terminal to provide bypass capacitor for VCCQ2 internal regulator, typically related to memory IF
VDDi	Input	Input terminal to provide bypass capacitor for VCC internal regulator
VSS	Supply	Ground
RST_n	Input	Input hardware reset signal. This is an active low signal
REF_CLK	Input	Input reference clock. When not active, this signal shall be pull-down or driven low by the host SoC.
RXDP0 / RXDP1	Input	Downstream data lane(1st and 2nd lane) : differential input signals into the UFS device from the host
RXDN0 / RXDN1	Input	Downstream data lane(1st and 2nd lane) : differential input signals into the UFS device from the host
TXDP0 / TXDP1	Output	Upstream data lane(1st and 2nd lane) : differential output signals from the UFS device to the host
TXDN0 / TXDN1	Output	Upstream data lane(1st and 2nd lane) : differential output signals from the UFS device to the host
NC	-	Not Connected. NC pins can be connected to ground or left floating
RFU	-	Reserved for Future Use. RFU pins must be left floating.
VSFn	-	Vendor Specific Function. VSFn(n=1-9) pins must be left floating. Each vendor is able to use these pins during manufacturing

PCB ID



PCB ID (1,0)

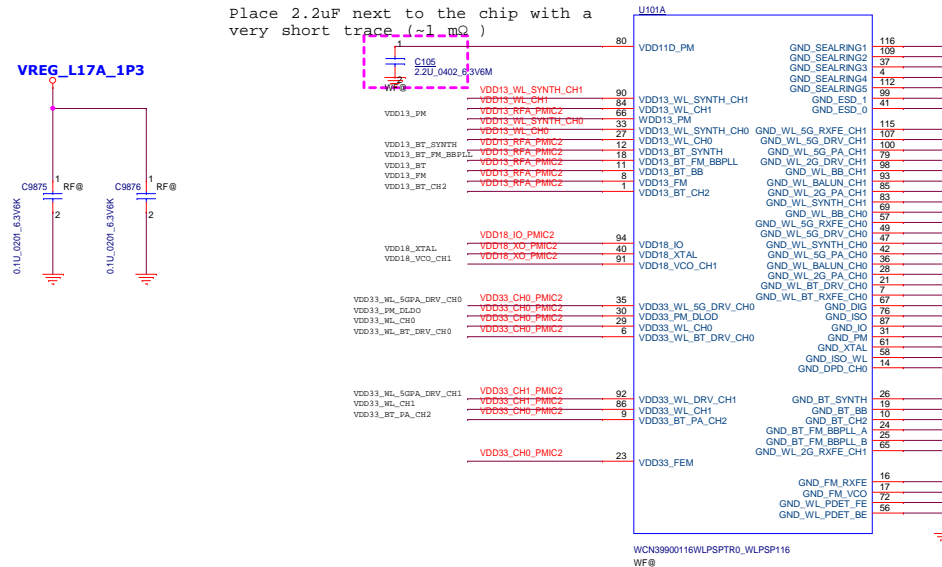
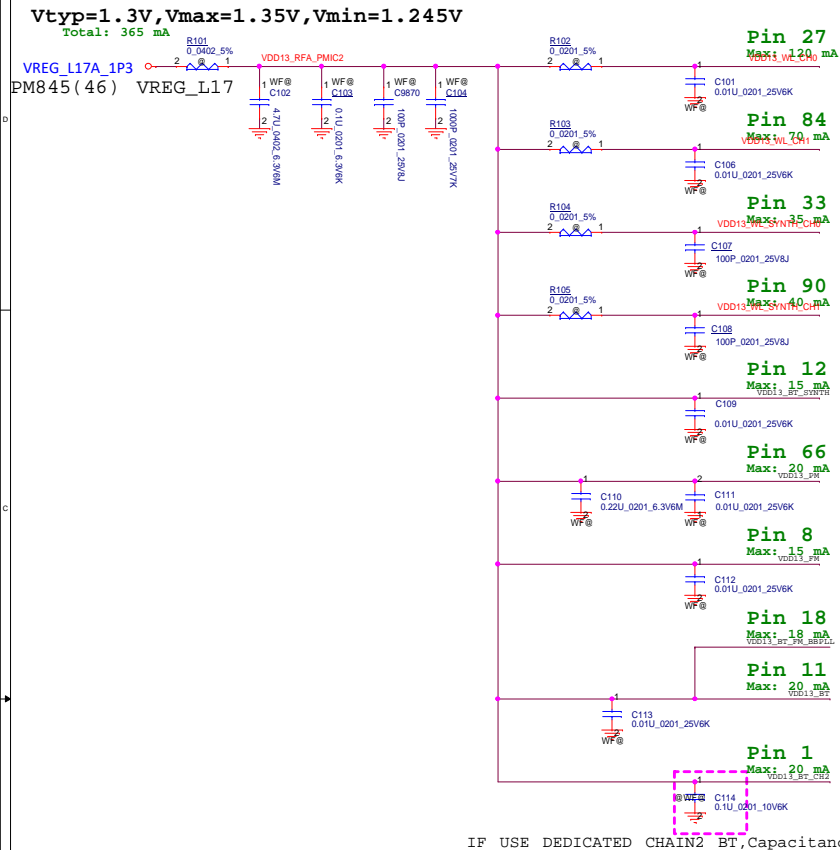
PCB Ver.	Value	Phase
0.1	00	SDV
0.2	01	FVT
0.3	10	SIT
1.0	11	SVT

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01_POWER_GROUND

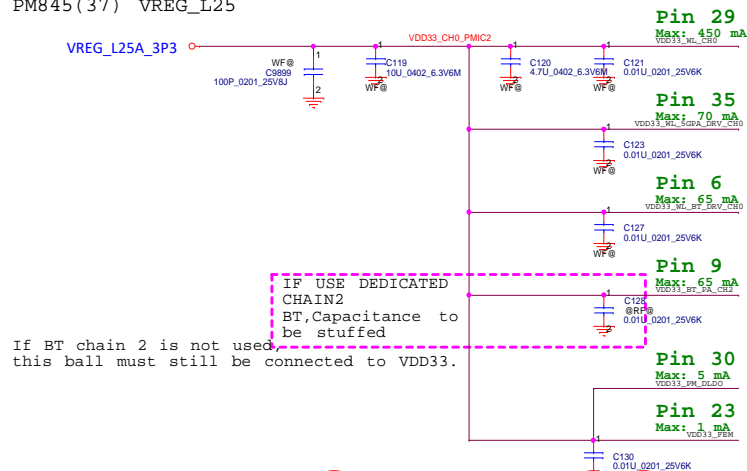
WCN3990 POWER/GROUND



Vtvp=3.3V, Vmax=3.4V, Vmin=3.2V

Total: 656 mA

PM845(37) VREG_L25



Vtvp=1.8V, Vmax=1.9V, Vmin=1.7V

Total: 15 mA

VREG_S4A_1P8

PM845(233) VDD MSM IO

Vtvp=1.8V, Vmax=1.9V, Vmin=1.7V

Total: 60 mA

VREG_L7A_1P8

PM845(51) VREG_L7

Vtvp=3.3V, Vmax=3.4V, Vmin=3.2V

Total: 520 mA

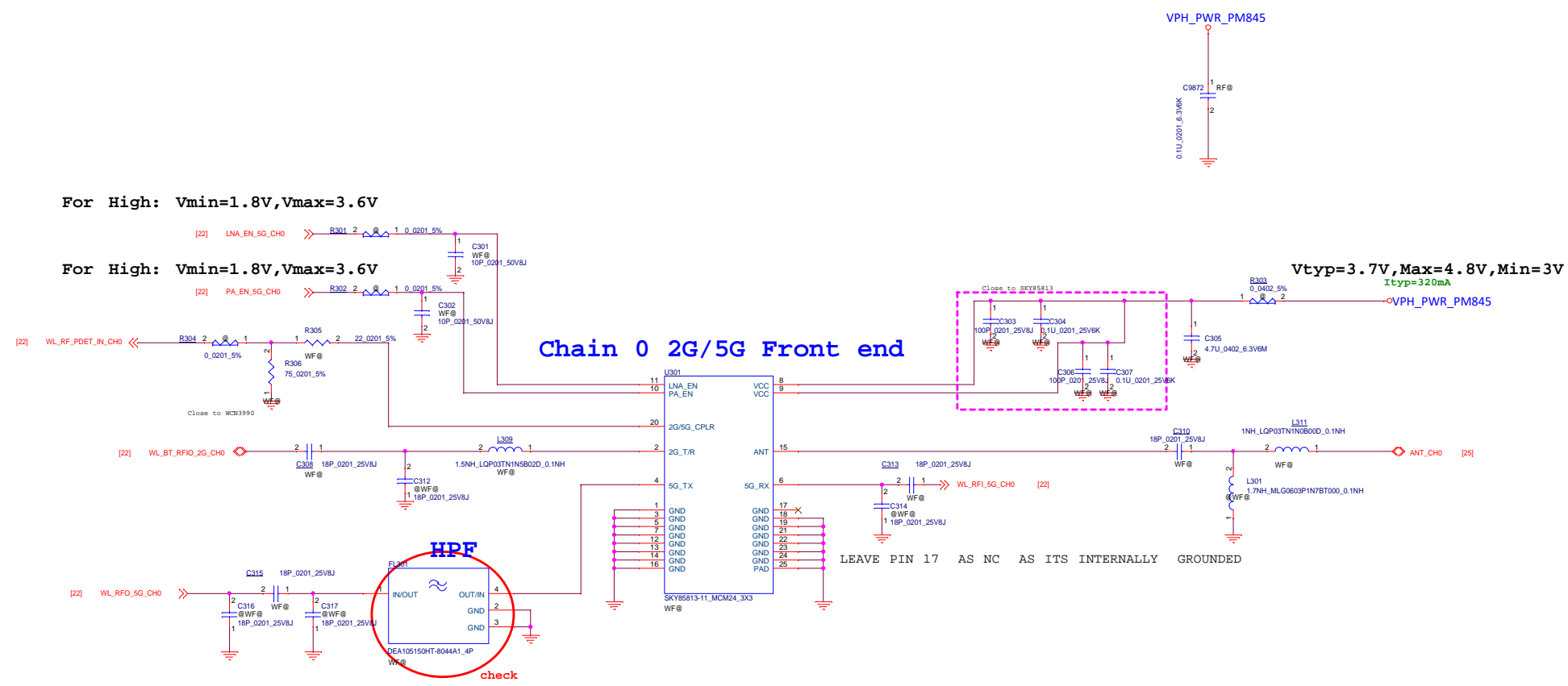
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PM845(61) VREG_L23

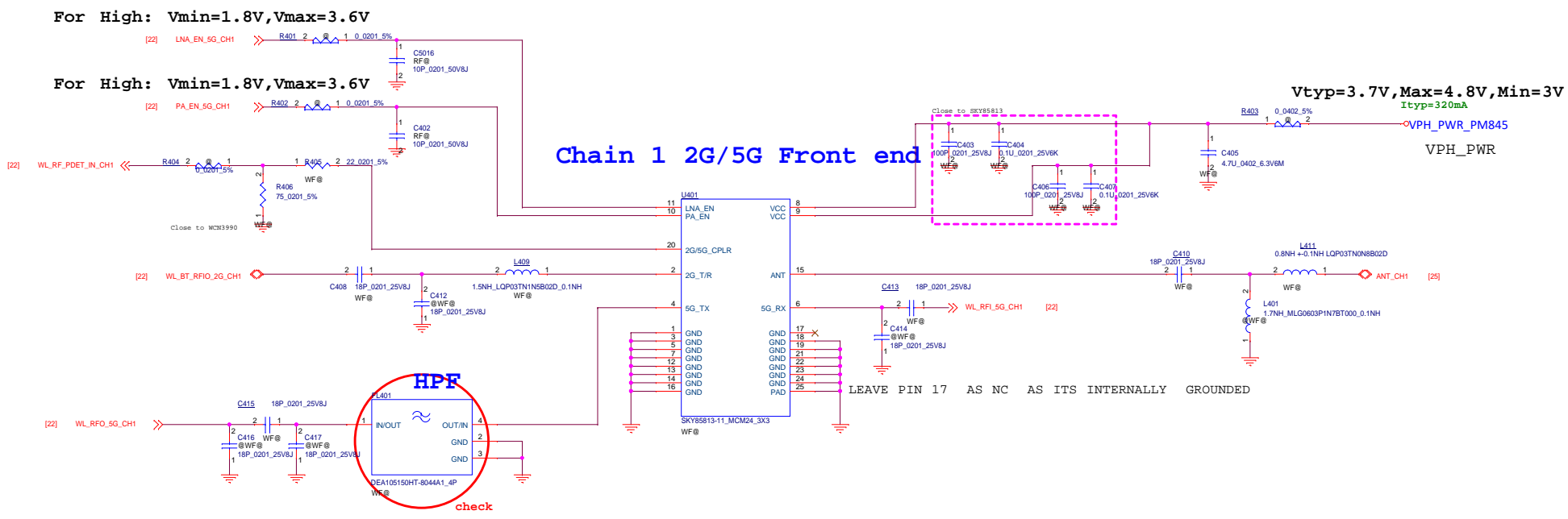
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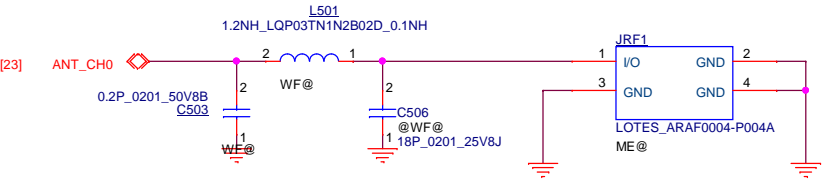


04_RFFE_CHAIN1_2G_IPA_5G_FEM_NON_ANTENNA_SHARING

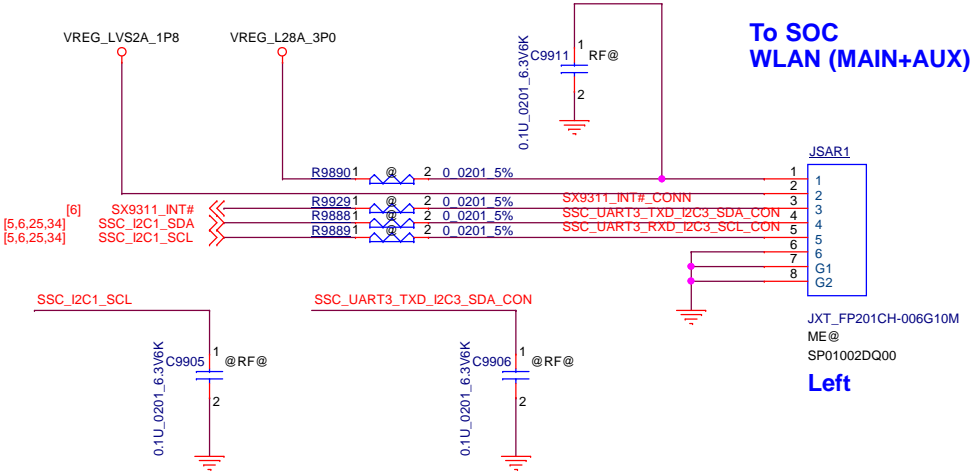


05_ANT_PORT

Chain 0 RF Connector

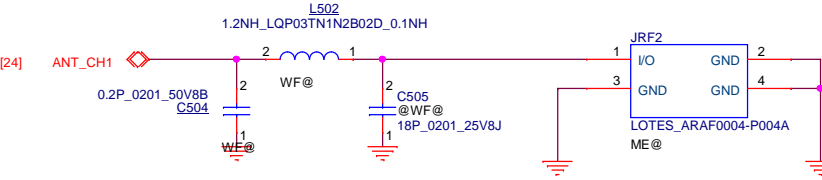


To SOC
SSC_0
SSC_1

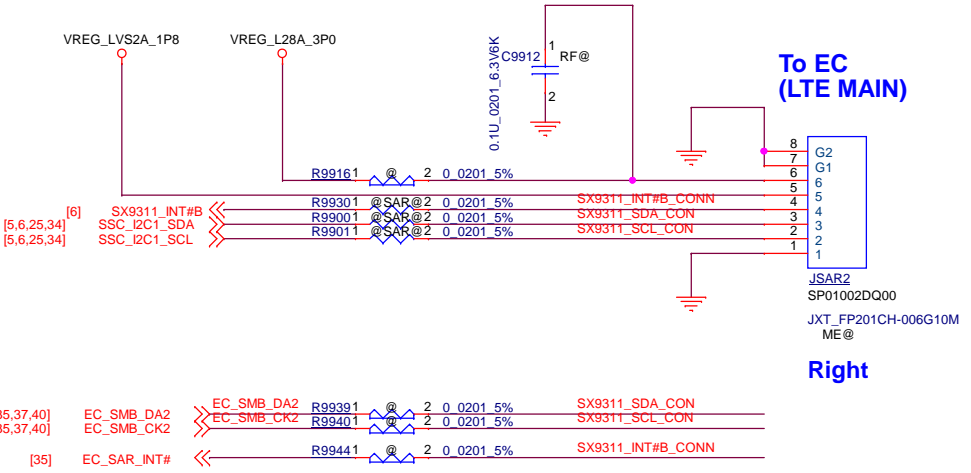


To SOC
WLAN (MAIN+UX)

Chain 1 RF Connector

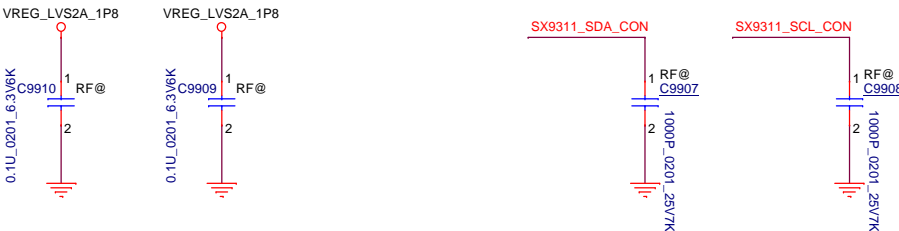


To SOC
SSC_0
SSC_1
(Reserve)



To EC
(LTE MAIN)

Right

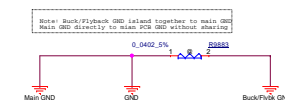
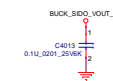


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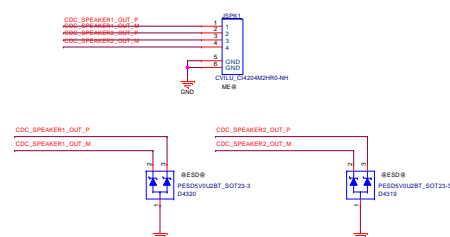
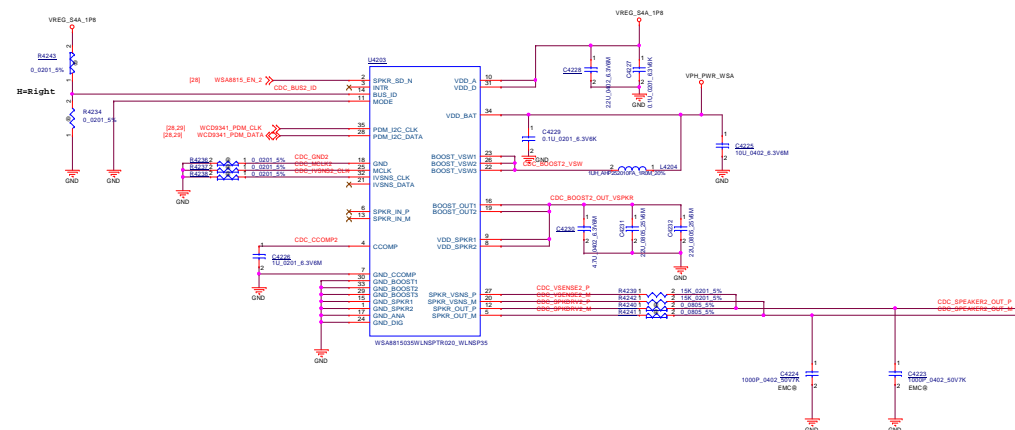
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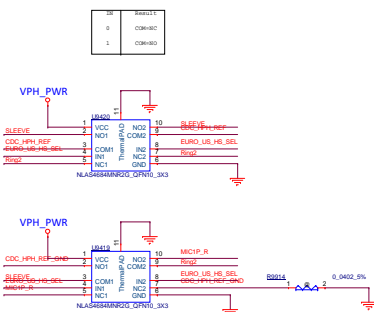
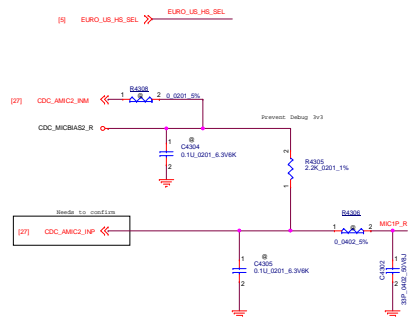
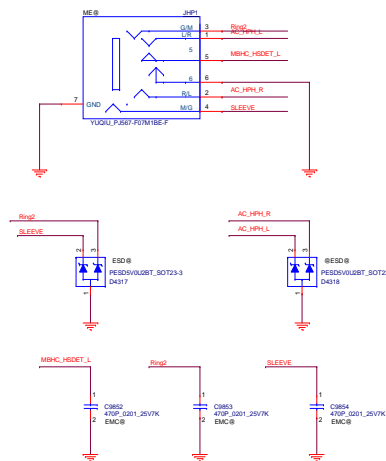
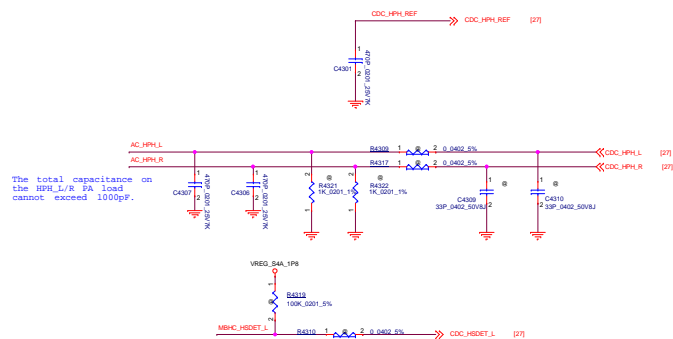
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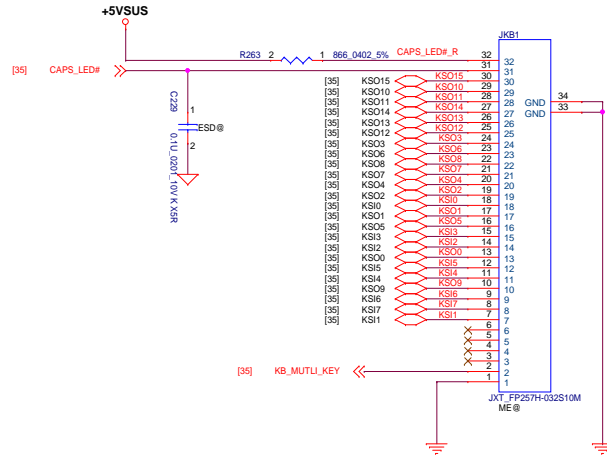
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1 : Ring2=MIC (OMTP)

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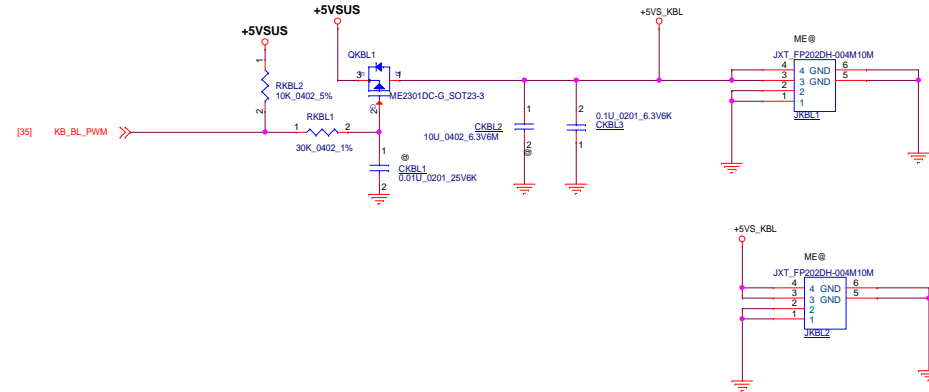
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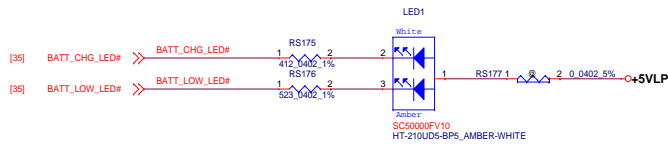
Keyboard



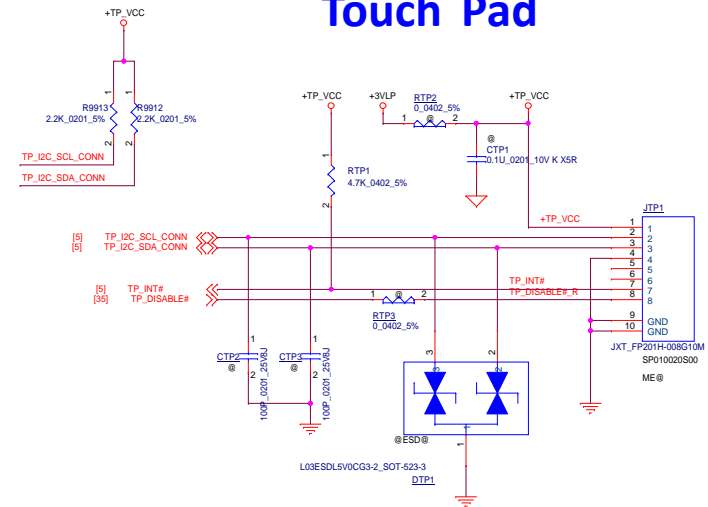
Keyboard Backlight



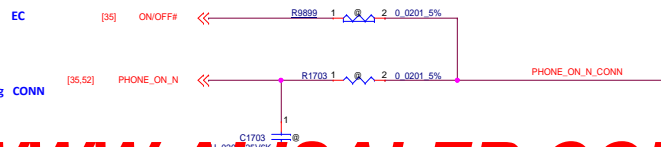
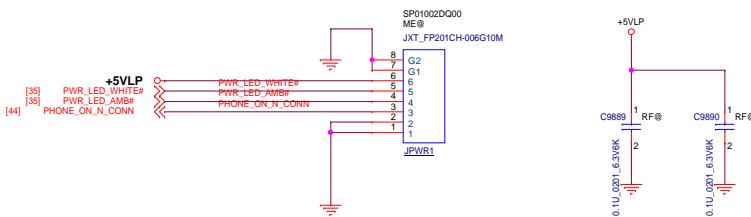
BATT LED



Touch Pad



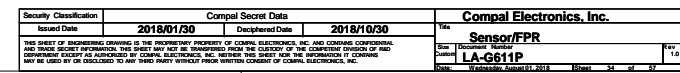
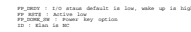
PWR/B



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Size	Document Number	Rev	LA-G611P	
Date:	Monday, August 13, 2018	Sheet	33	of 57

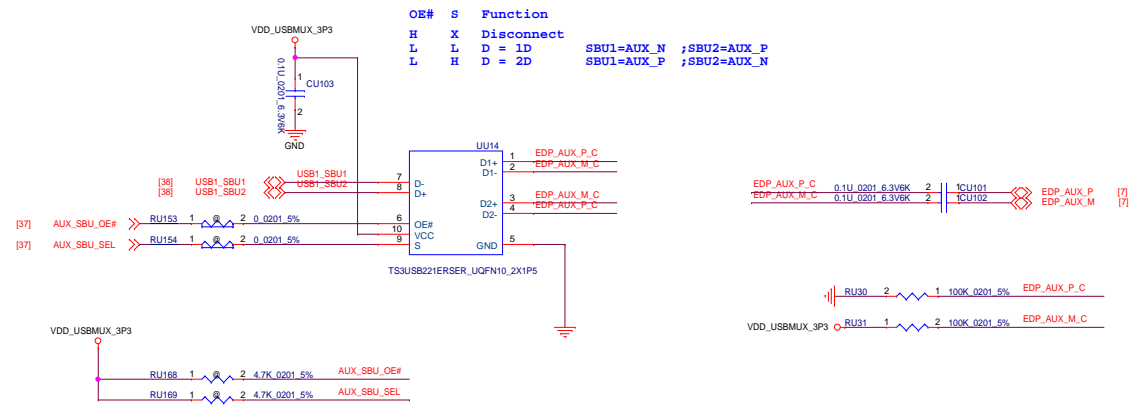
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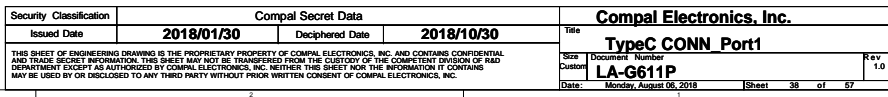


Compal Electronics, Inc.			
Title			
EC ENE-KB9022GD			
Size Custom	Document Number		Rev 1.0
	LA-G611P		
Date:	Wednesday, August 15, 2018	Sheet	35 of 57

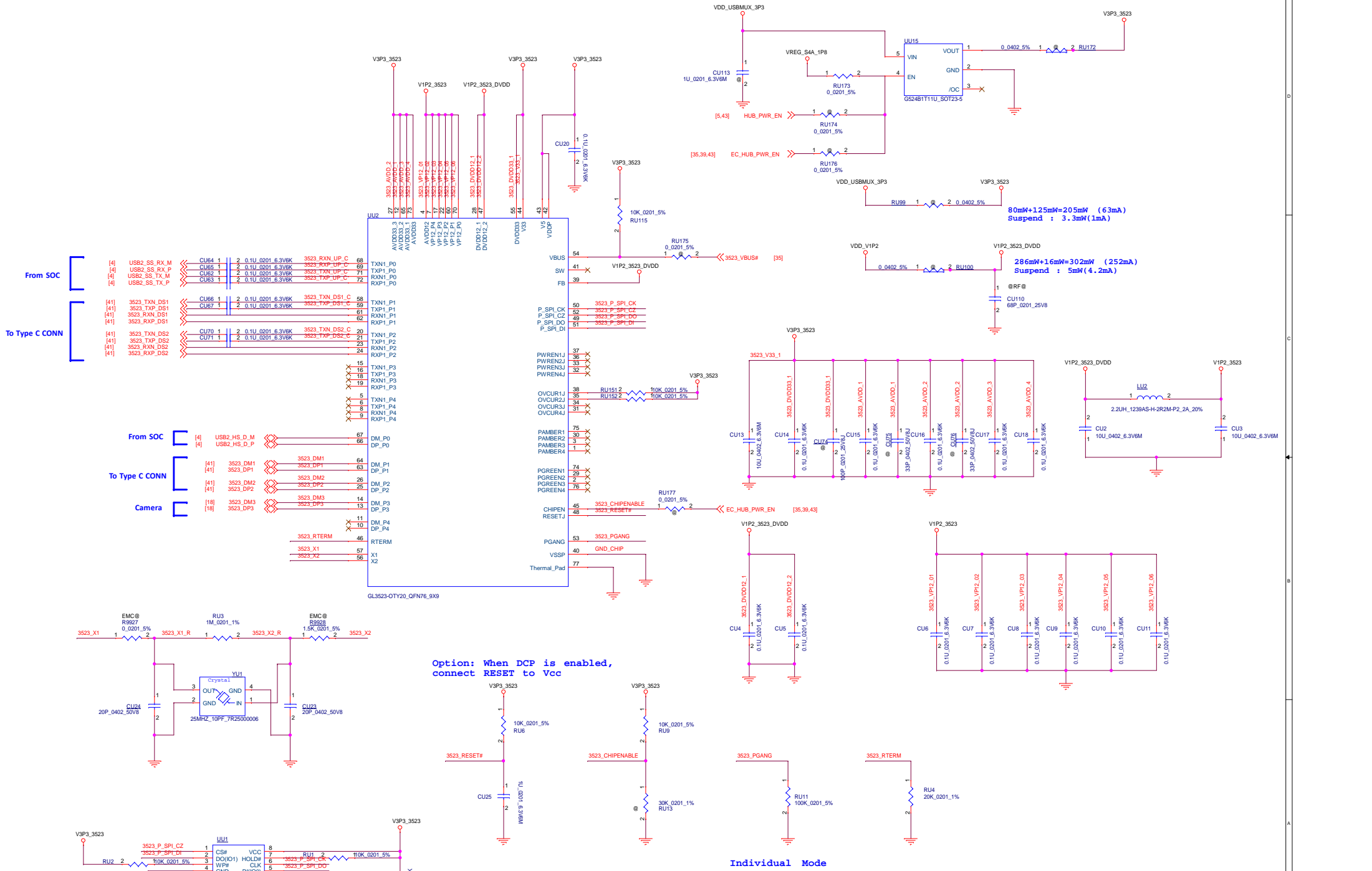
AUX/SBU for port 1



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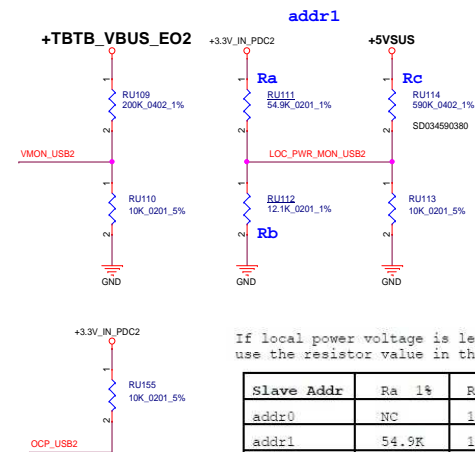
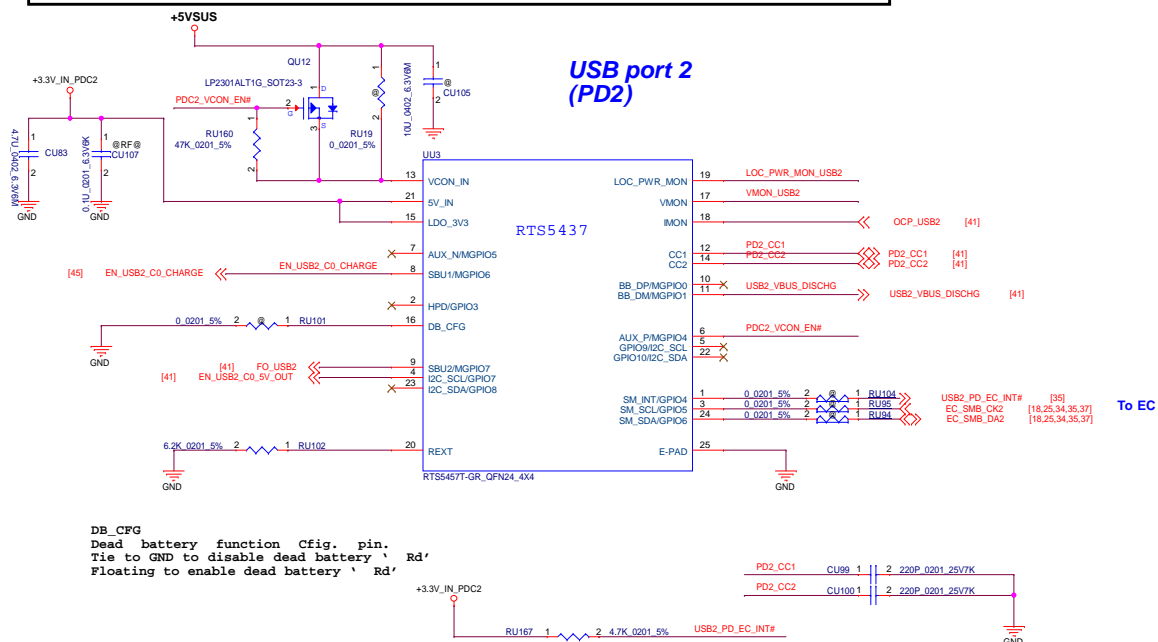
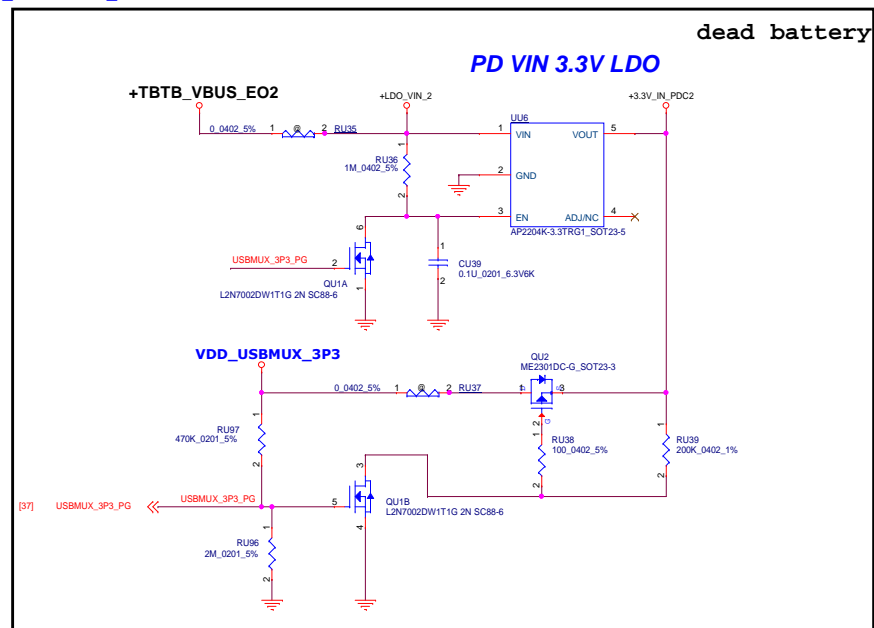
USB 3.0 HUB



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				USB3 HUB	
				LA-G611P	
				Rev 1.0	
				Date: Wednesday, August 01, 2018	
				Sheet 39 of 57	

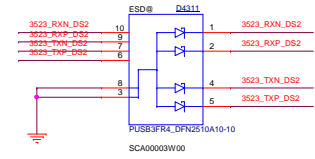
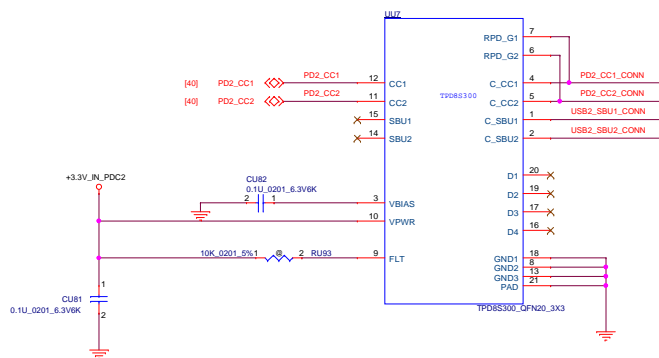
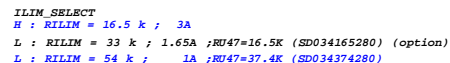
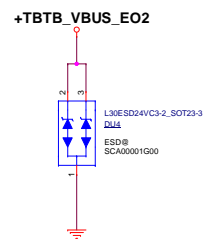
Type C port 2



If local power voltage is less than or equal to 6V,
use the resistor value in the table below.

Slave Addr	Ra 1%	Rb 1%	Rc 1%
addr0	NC	10K	590P
addr1	54.9K	12.1K	
addr2	27.4K	15.8K	
addr3	18.2K	22.1K	

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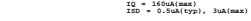


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			Drawn	Document Number
			Issue	LA-6611P
Date	Wednesday, August 01, 2018		Sheet	41 of 57

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				C	LA-G611P	1.0
Date: Wednesday, August 01, 2018				Sheet 42 of 57		

V_{IH} = 1.0V
V_{IL} = 0.4V

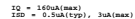


VDD_USBMUX_3P3

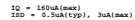


$V_{out}=3.3V$ $I_Q \text{ max}=1000 \text{ mA}$

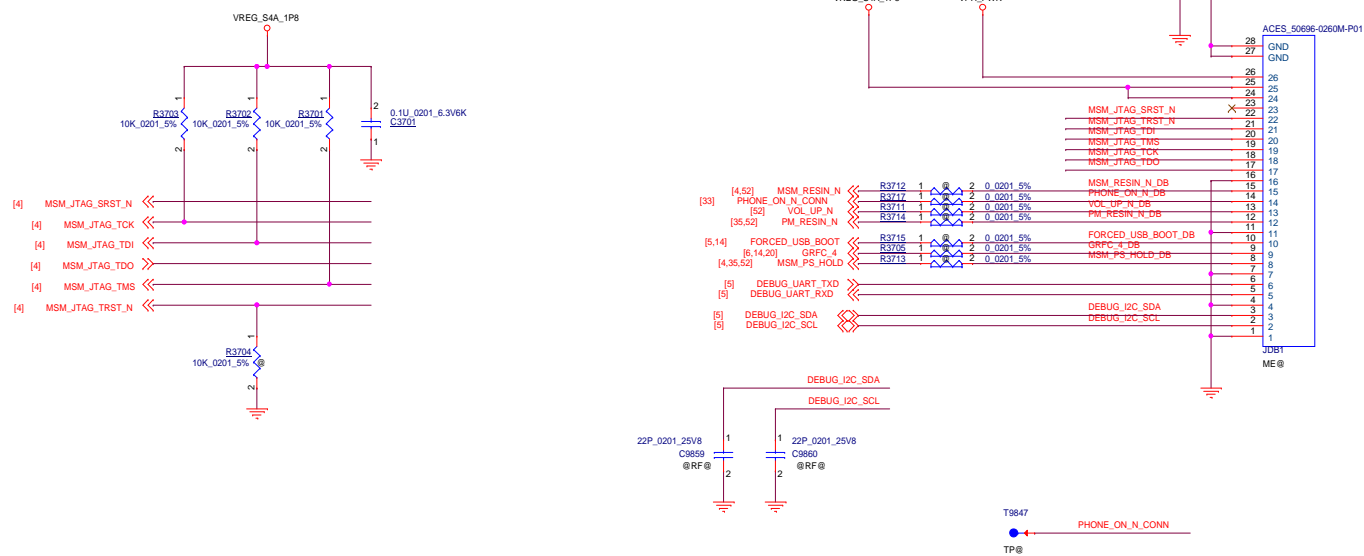
[52] VBG_VCC_EN   1  2



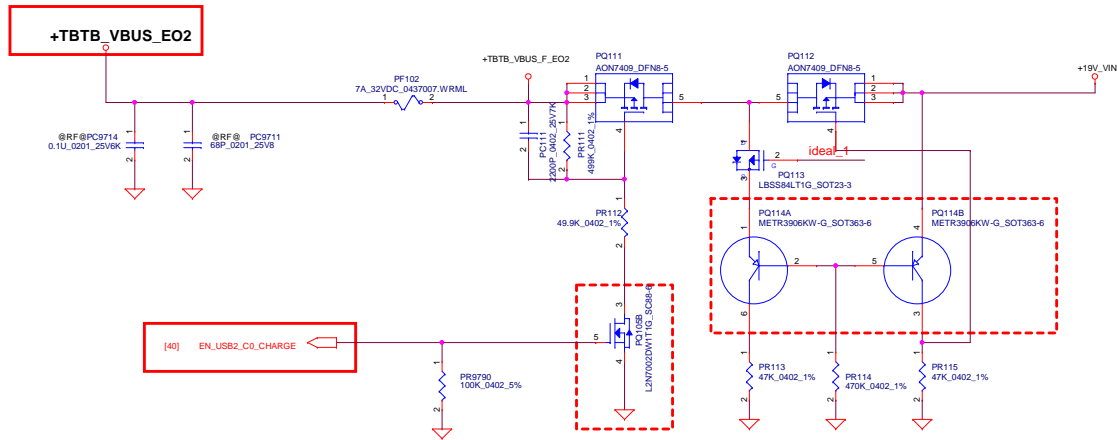
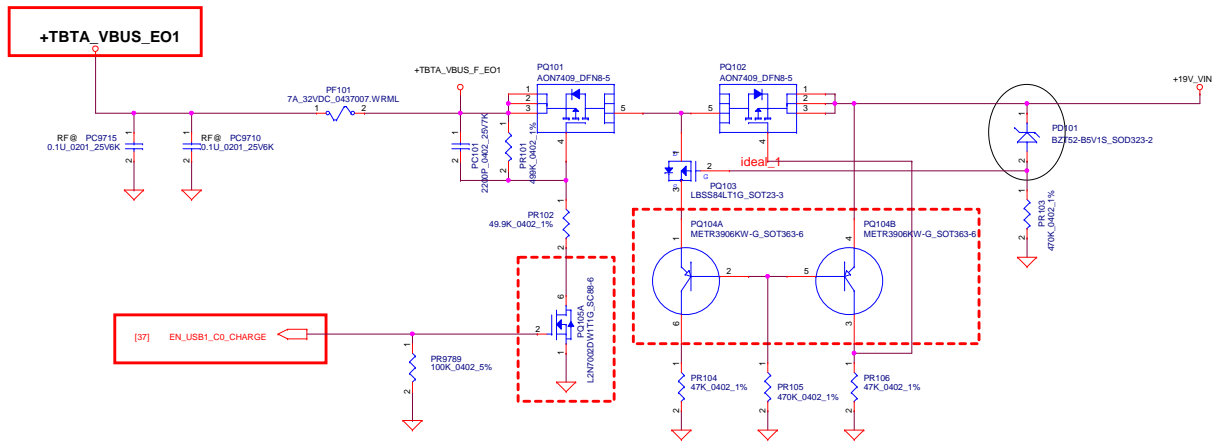
V_{IN} = 1.0V
V_{IL} = 0.4V



DEBUG CONNECTOR

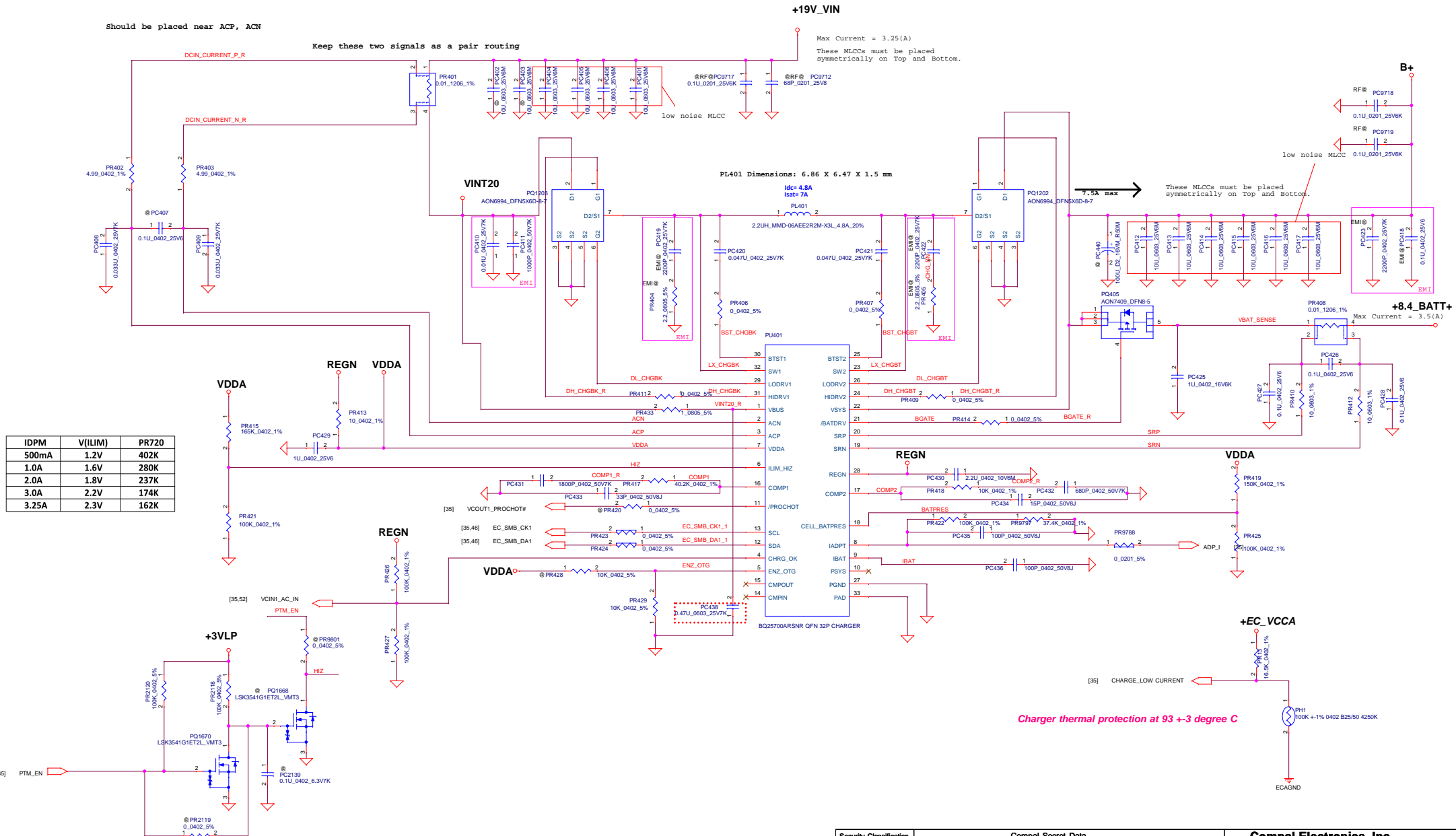


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				Rev 1.0	

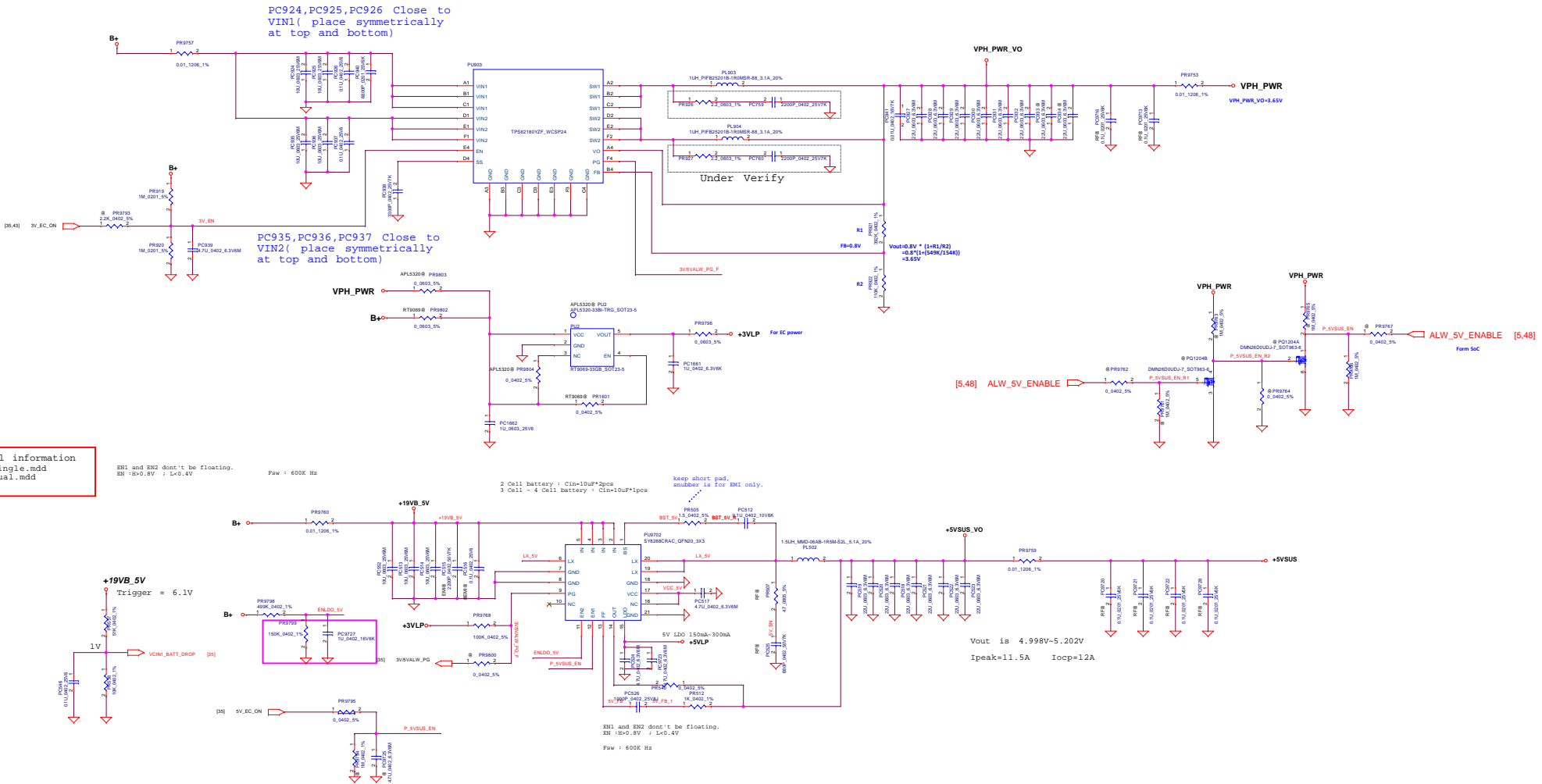


IDPM	V(I/LIM)	PR720
500mA	1.2V	402K
1.0A	1.6V	280K
2.0A	1.8V	237K
3.0A	2.2V	174K
3.25A	2.3V	162K

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Size	Document Number	Customer	Rev 1.0
Date	Wednesday, August 01, 2018	Sheet	47 of 57



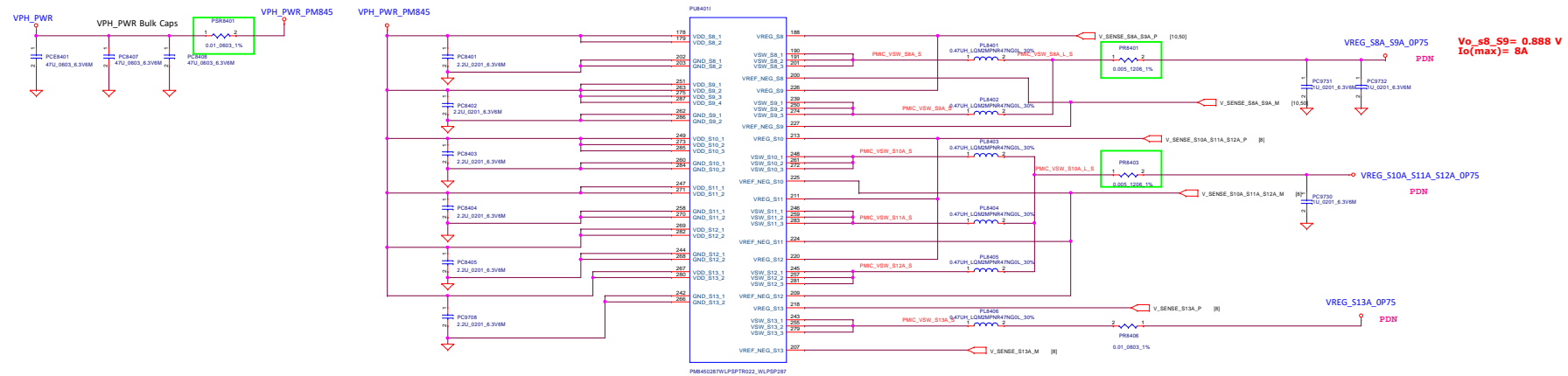
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				Check	1.4

84_PMIC_PM845_BUCK1

PM845 Regulator			PM845 Regulator		
Regulator	rated(mA)	Voltage(V)	Regulator	rated(mA)	Voltage(V)
S1	2500	0.5	L1	600	0.88
S2	2500	1.128	L2	300	1.2
S3	2500	1.352	L3	1200	1
S4	2850	1.8	L4	300	0.8
S5	1100	2.04	L5	1200	0.8
S6	4000	0.8	L6	50	1.856
S7	3600	1.028	L7	150	1.8
S8	4000	0.752	L8	1200	1.2
S9	4000	0.752	L9	150	1.808
S10	4000	0.756	L10	150	1.8
S11	4000	0.752	L11	1200	1
S12	4000	0.752	L12	300	1.8
S13	4000	0.752	L13	150	2.96

PM8005 Regulator		
Regulator	I rated (mA)	Voltage (V)
S1	4000	0.752
S2	3000	0.752
S3	2000	0.6
S4	4000	0.752

L16	300	2.704
L17	600	1.304
L18	50	2.704
L19	600	3.008
L20	800	2.96
L21	800	2.96
L22	150	2.864
L23	600	3.312
L24	150	3.088
L25	600	3.312
L26	600	1.2
L27	600	0.752
L28	150	3.008
L29(VREF SP)	50	1.904
LV1	300	1.8
LV2	100	1.8



85_PMIC_PM845_BUCK2

PM845 Regulator

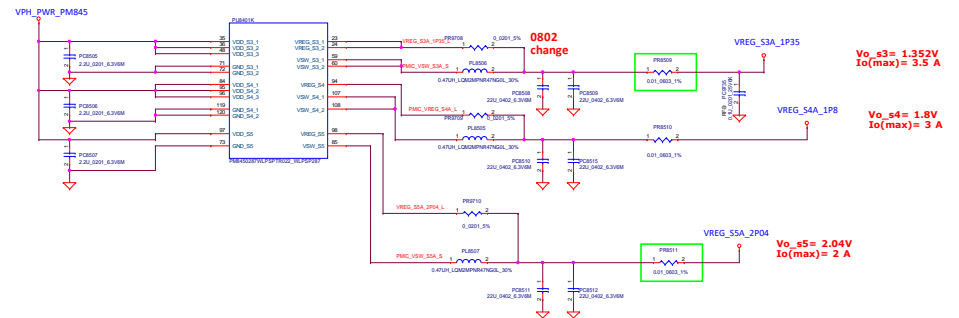
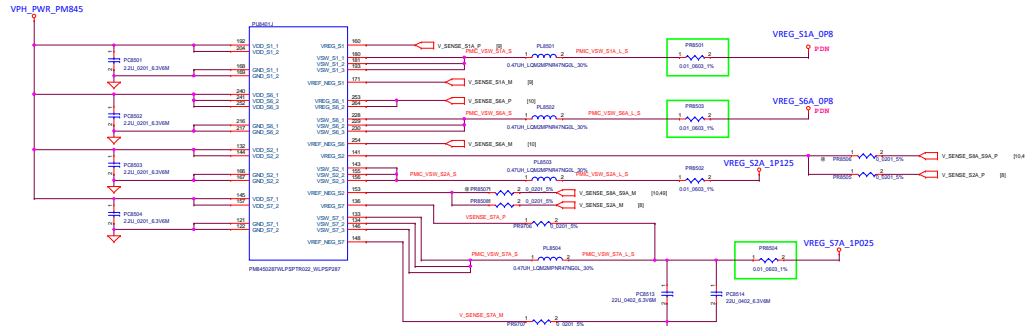
Regulator	I _{rated} (mA)	Voltage(V)
S1	2000	0.8
S2	2500	1.128
S3	2500	1.352
S4	2850	1.8
S5	1100	2.04
S6	4000	0.8
S7	3600	1.028
S8	4000	0.752
S9	4000	0.752
S10	4000	0.756
S11	4000	0.752
S12	4000	0.752
S13	4000	0.752

PM845 Regulator

Regulator	I _{rated} (mA)	Voltage(V)
L1	600	0.88
L2	300	1.2
L3	1200	1
L4	300	0.8
L5	1200	0.8
L6	50	1.856
L7	150	1.8
L8	1200	1.2
L9	150	1.808
L10	150	1.8
L11	1200	1
L12	300	1.8
L13	150	2.96
L14	300	1.8
L15	300	1.8
L16	300	2.704
L17	600	1.304
L18	50	2.704
L19	600	3.008
L20	800	2.96
L21	800	2.96
L22	150	2.864
L23	600	3.312
L24	150	3.088
L25	600	3.312
L26	600	1.2
L27	600	0.752
L28	150	3.008
L29(VREF SP)	50	1.904
LV51	300	1.8
LV52	100	1.8

PM8005 Regulator

Regulator	I _{rated} (mA)	Voltage(V)
S1	4000	0.752
S2	3000	0.752
S3	2000	0.6
S4	4000	0.752



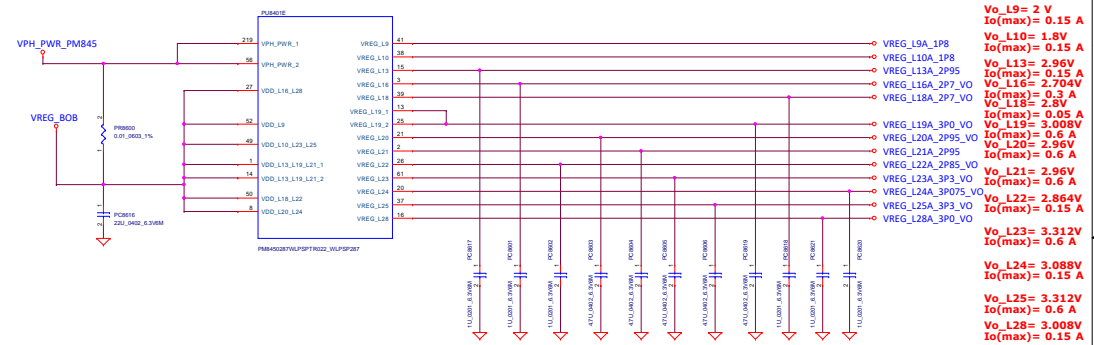
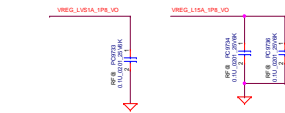
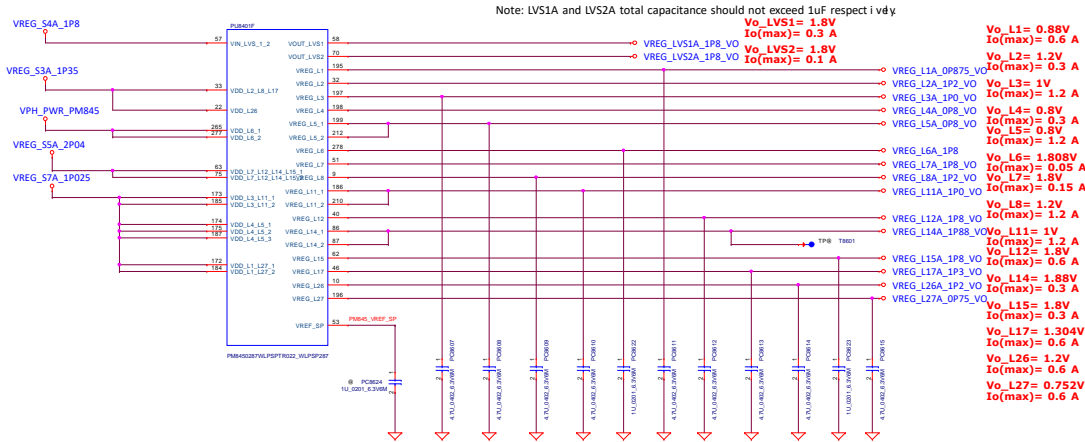
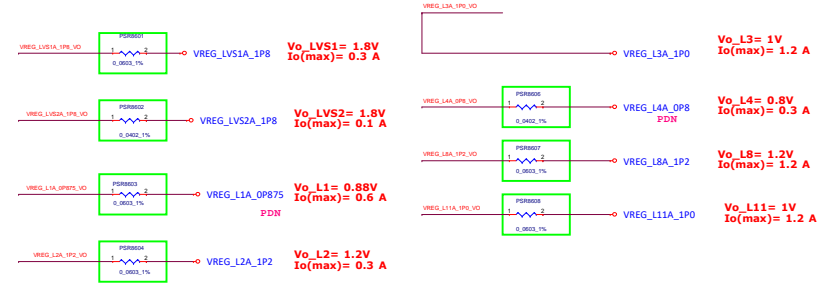
Vo_s3= 1.352V
Io(max)= 3.5 A

Vo_s4= 1.8V
Io(max)= 3 A

Vo_s5= 2.04V
Io(max)= 2 A

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86_PMIC_PM845_LDO

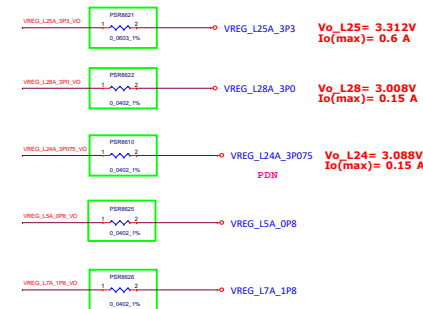
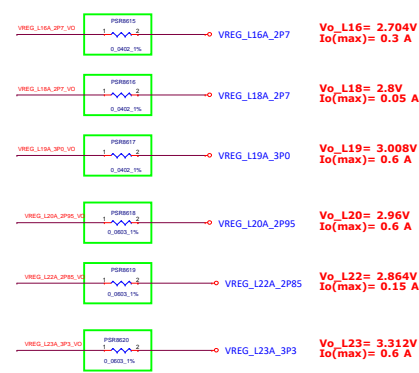
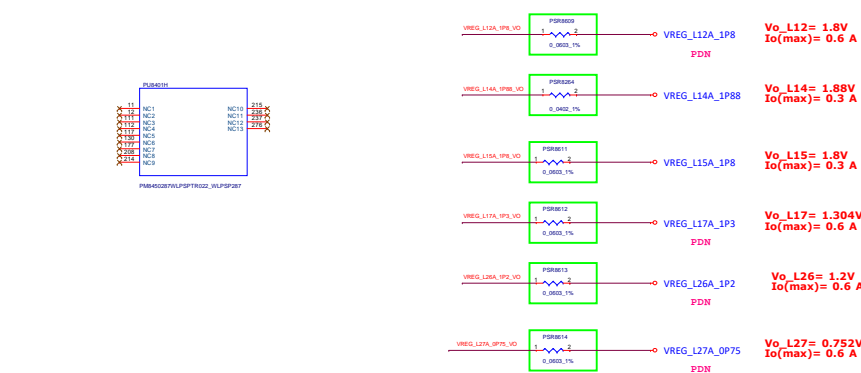


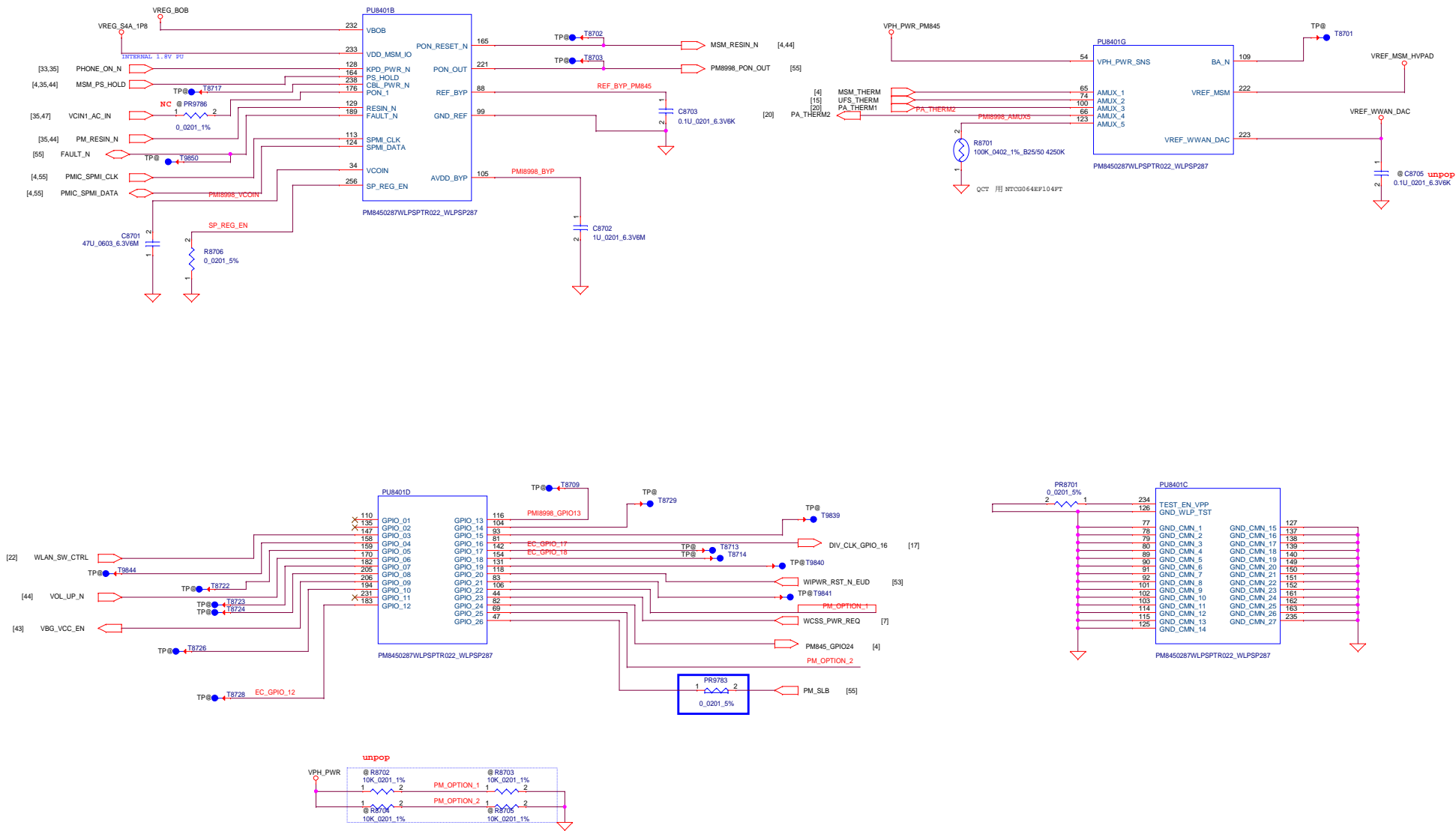
PM845 Regulator			PM845 Regulator		
Regulator	I _{rated} (mA)	Voltage(V)	Regulator	I _{rated} (mA)	Voltage(V)
S1	2000	0.8	L1	600	0.88
S2	2500	1.128	L2	300	1.2
S3	2500	1.352	L3	1200	1
S4	2850	1.8	L4	300	0.8
S5	1100	2.04	L5	1200	0.8
S6	4000	0.8	L6	50	1.856
S7	3600	1.028	L7	150	1.8
S8	4000	0.752	L8	1200	1.2
S9	4000	0.752	L9	150	1.808
S10	4000	0.756	L10	150	1.8
S11	4000	0.752	L11	1200	1
S12	4000	0.752	L12	300	1.8
S13	4000	0.752	L13	150	2.96

PM8005 Regulator

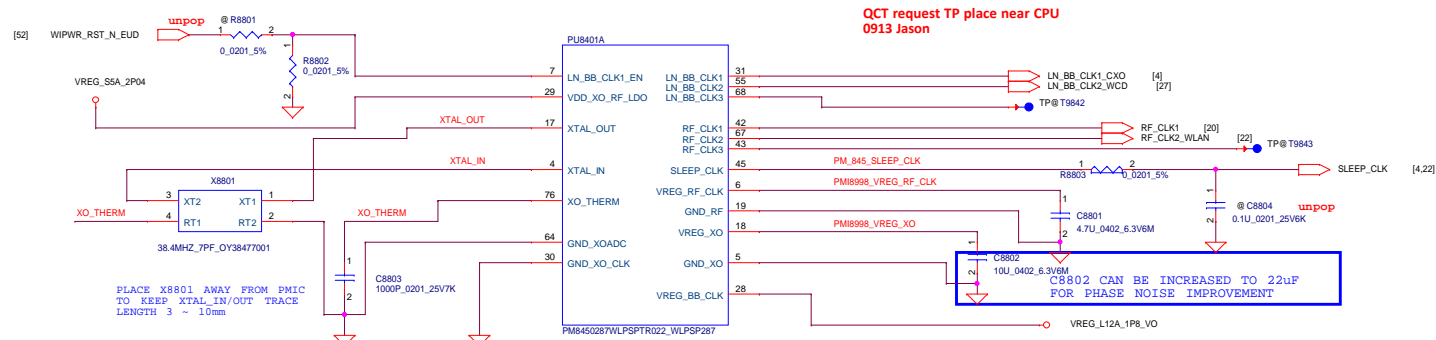
Regulator	I _{rated} (mA)	Voltage(V)
S1	4000	0.752
S2	3000	0.752
S3	2000	0.6
S4	4000	0.752

Regulator	I _{rated} (mA)	V _{regulator} (V)
L1	600	0.88
L2	300	1.2
L3	1200	1
L4	300	0.8
L5	1200	0.8
L6	50	1.856
L7	150	1.8
L8	1200	1.2
L9	150	1.808
L10	150	1.8
L11	1200	1
L12	300	1.8
L13	150	2.96
L14	300	1.8
L15	300	1.8
L16	300	2.704
L17	600	1.304
L18	50	2.704
L19	600	3.008
L20	800	2.96
L21	800	2.96
L22	150	2.864
L23	600	3.312
L24	150	3.088
L25	600	3.312
L26	600	1.2
L27	600	0.752
L28	150	3.008
V29(VREF SP)	50	1.904
LV51	300	1.8
LV52	100	1.8





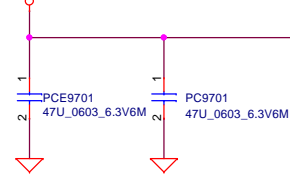
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Issued Date		2018/01/30		Deciphered Date		2018/10/30		Title					
								PWR PMIC PM845 CTL & GPIO					
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								LA-G611P		1.0			
						Date		Wednesday, August 01, 2018		Sheet		52 of 57	



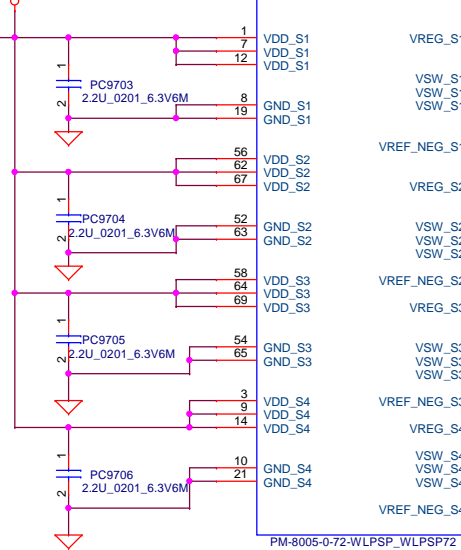
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				Rev 1.0
				Date: Wednesday, August 01, 2018
				Sheet 53 of 57

97_PMIC_PM8005_BUCK

VPH_PWR Bulk Caps
VPH_PWR



VPH_PWR_PM8005



PM845 Regulator

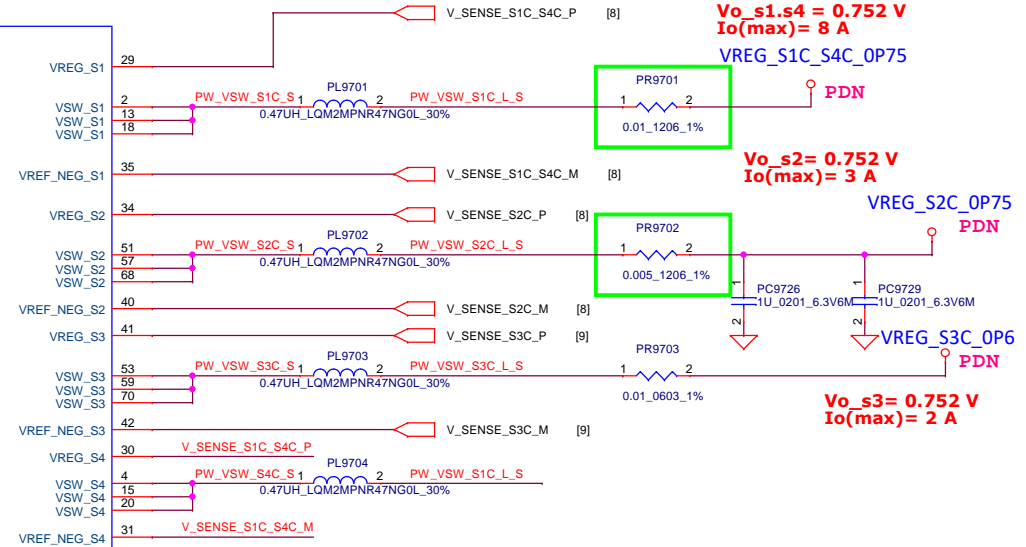
Regulator	I _{rated} (mA)	Voltage(V)
S1	2000	0.8
S2	2500	1.128
S3	2500	1.352
S4	2850	1.8
S5	1100	2.04
S6	4000	0.8
S7	3600	1.028
S8	4000	0.752
S9	4000	0.752
S10	4000	0.756
S11	4000	0.752
S12	4000	0.752
S13	4000	0.752

PM845 Regulator

Regulator	I _{rated} (mA)	Voltage(V)
L1	600	0.88
L2	300	1.2
L3	1200	1
L4	300	0.8
L5	1200	0.8
L6	50	1.856
L7	150	1.8
L8	1200	1.2
L9	150	1.808
L10	150	1.8
L11	1200	1
L12	300	1.8
L13	150	2.96
L14	300	1.8
L15	300	1.8
L16	300	2.704
L17	600	1.304
L18	50	2.704
L19	600	3.008
L20	800	2.96
L21	800	2.96
L22	150	2.864
L23	600	3.312
L24	150	3.088
L25	600	3.312
L26	600	1.2
L27	600	0.752
L28	150	3.008
L29(VREF_SP)	50	1.904
LVS1	300	1.8
LVS2	100	1.8

PM8005 Regulator

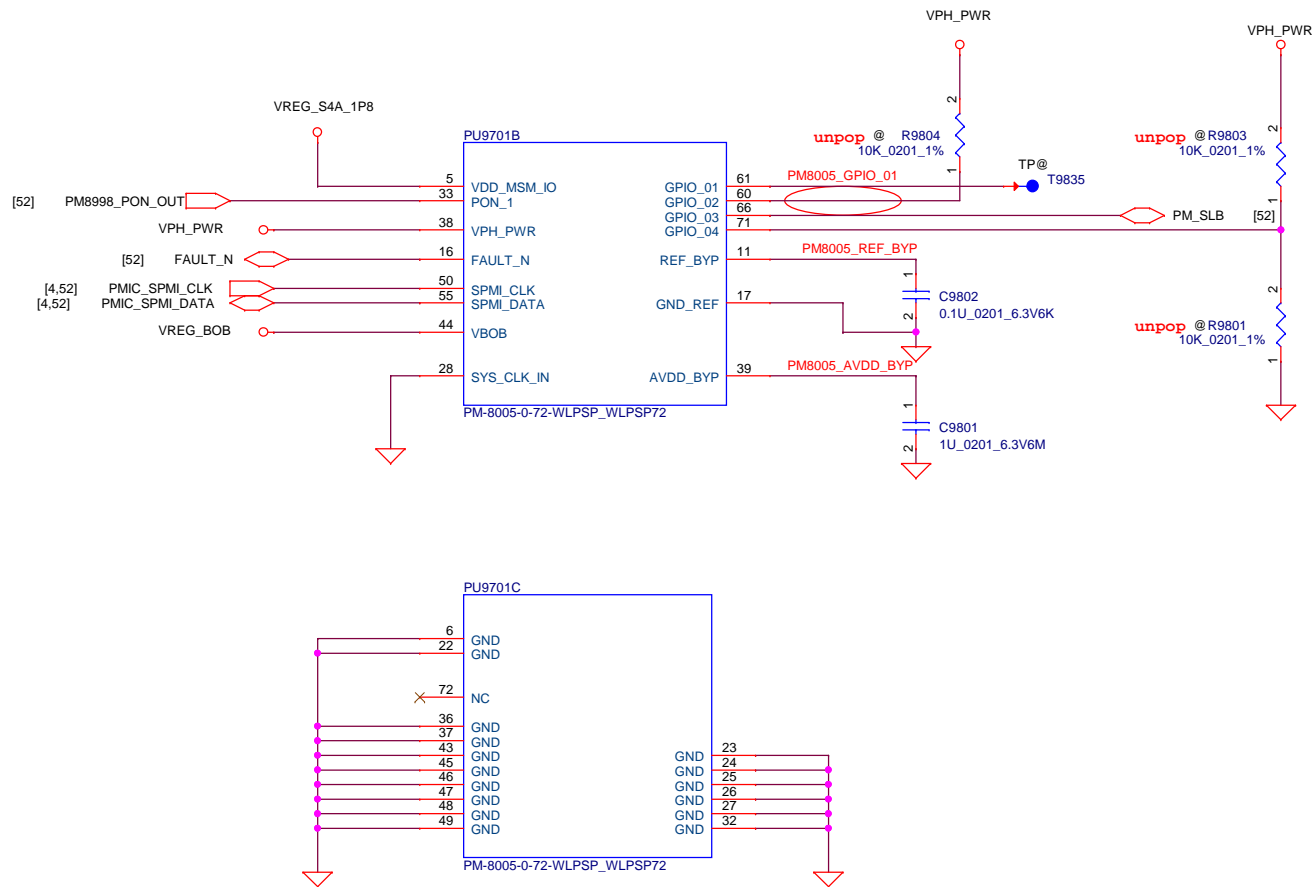
Regulator	I _{rated} (mA)	Voltage(V)
S1	4000	0.752
S2	3000	0.752
S3	2000	0.6
S4	4000	0.752



Vo_{s1,s4} = 0.752 V
Io(max) = 8 A
VREG_S1C_S4C_OP75

Vo_{s2} = 0.752 V
Io(max) = 3 A
VREG_S2C_OP75

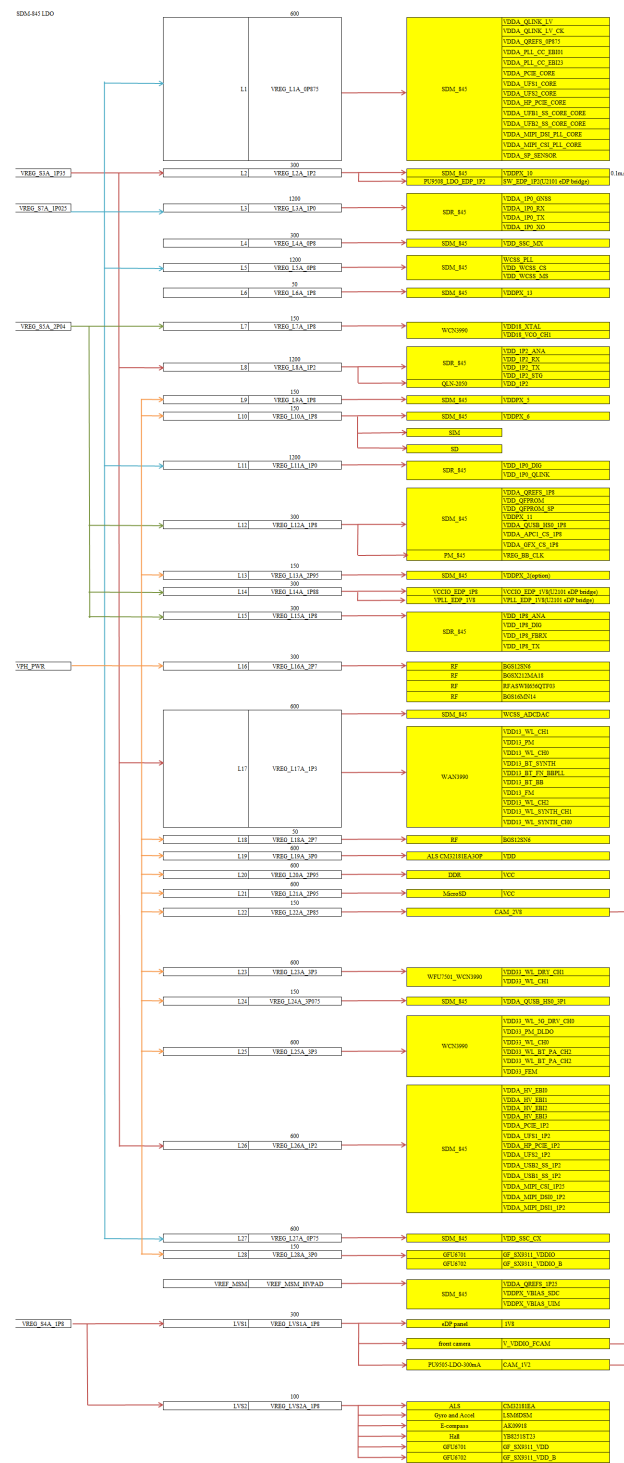
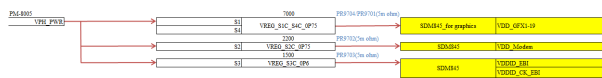
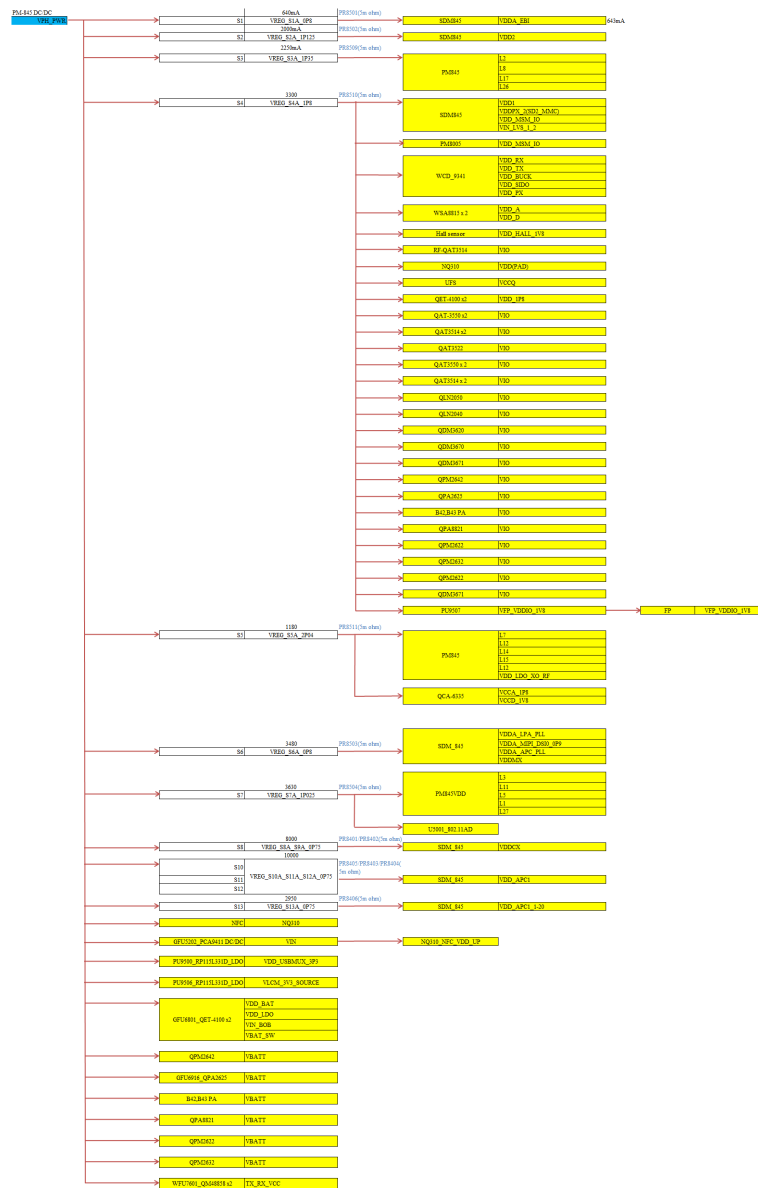
Vo_{s3} = 0.752 V
Io(max) = 2 A
VREG_S3C_OP6



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0V1001 1.2VDCDC
0V1002 1.2VDCDC
0V1003 1.2VDCDC

0V1001 1.2VDCDC
0V1002 1.2VDCDC
0V1003 1.2VDCDC