

Compal Confidential

Model Name : ELZE1

File Name : LA-G611P

Compal Confidential

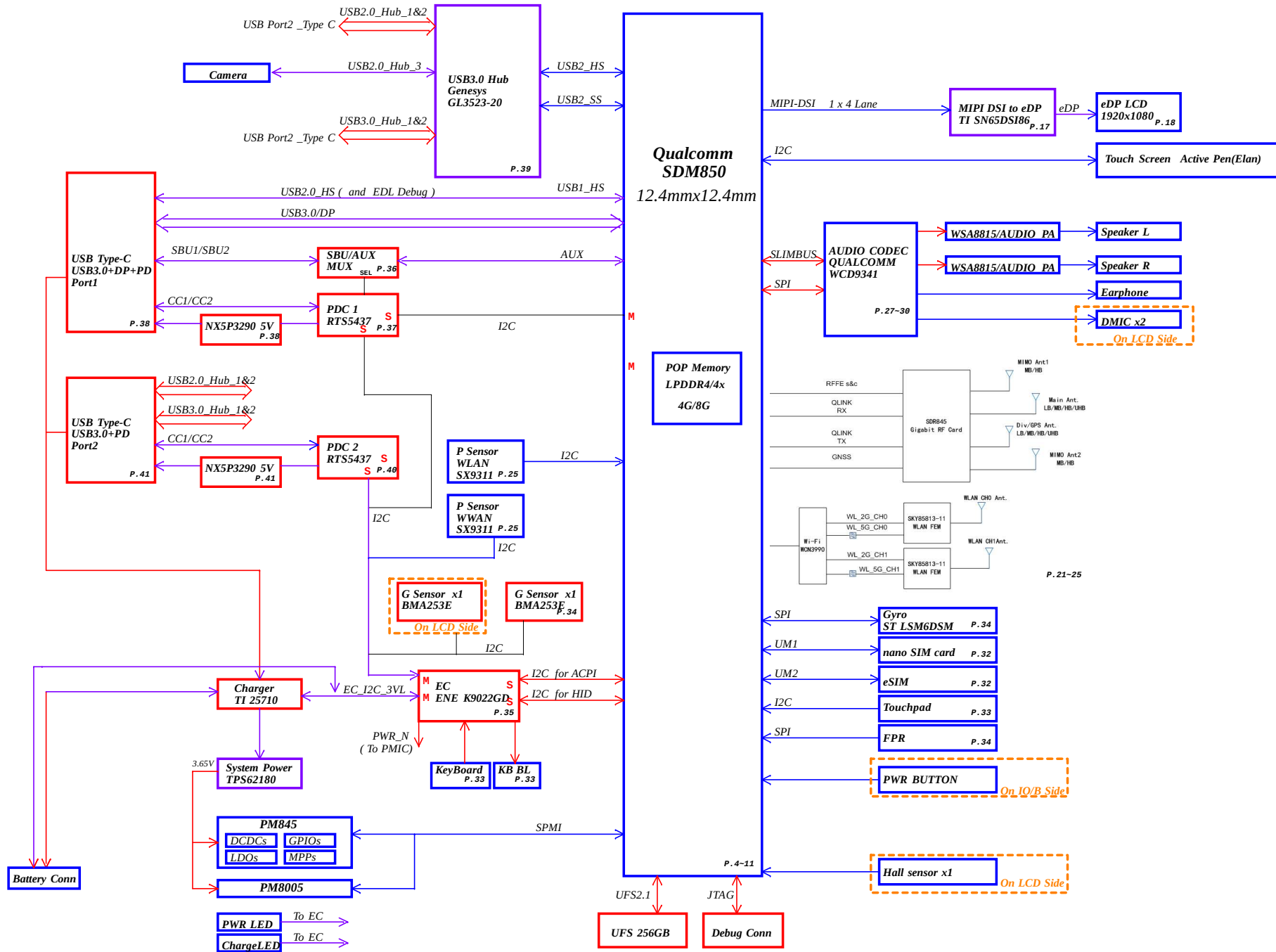
WOS M/B Schematics Document

Qualcomm SDM850 with LPDDR4

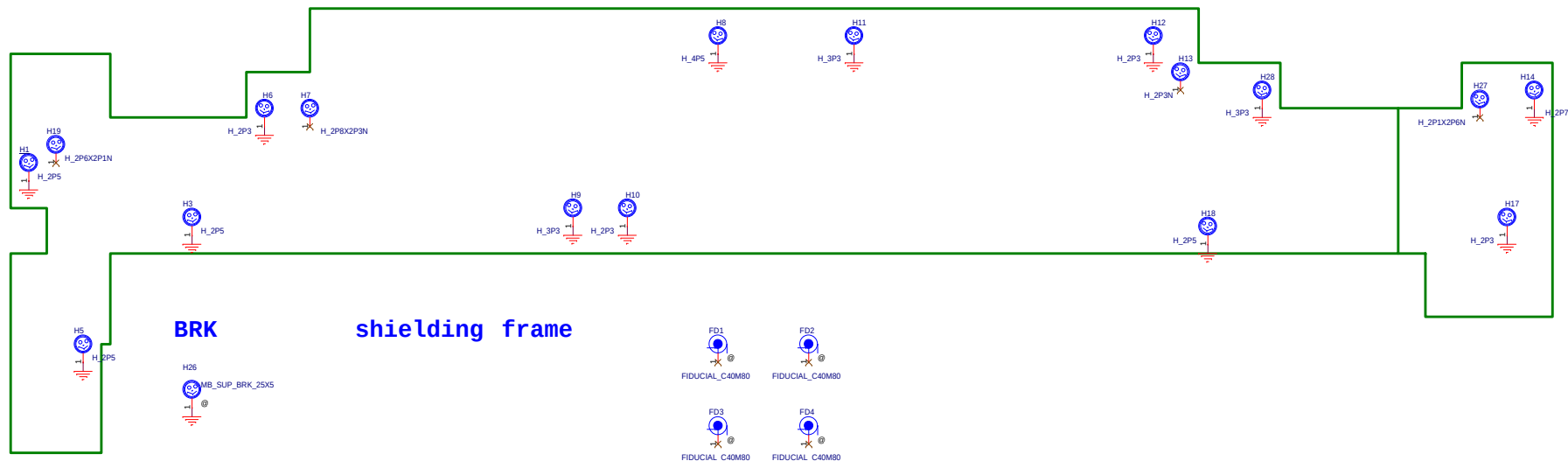
Rev. 1.0

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YOGA WoS Qualcomm SDM850(Compal) Block Diagram



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CPU (U1)

U1 CPU1@
SA0000BWD00
SDM850-0-AC 2.85G

UFS (U1501)

U1501 U128G@
SA0000BWP10
UFS_128G

POP

POP01 R4G@
SA0000BC000
RAM_4G

Samsung SA0000BWP10, S IC FL 128G KLUG6U1EA-B0C1 FBGA 153P C38 !
Hynix SA0000BWM10, S IC FL 128G H28S9Q302CMR FBGA 153P C38 !
Sandisk SA0000BZZ10, S IC FL 128G SDINDDH4-128-1001V VFBGA 153P UFS C38 !

Samsung SA0000BC010, S IC D4 32G/3733 K3UH5H50MM-AGCJ FBGA 556P C38 !
Hynix SA0000BS10, S IC D4 32G/4266 H9HKNNCRMVAVAR-NEN FBGA 556P C38 !
Micron SA0000C0Q10, S IC D4 512M64 MT53D512M64D4RQ-053 WT:E WFBGA 556P C38 !

PCB

ZZZ
DAZ2CU00100

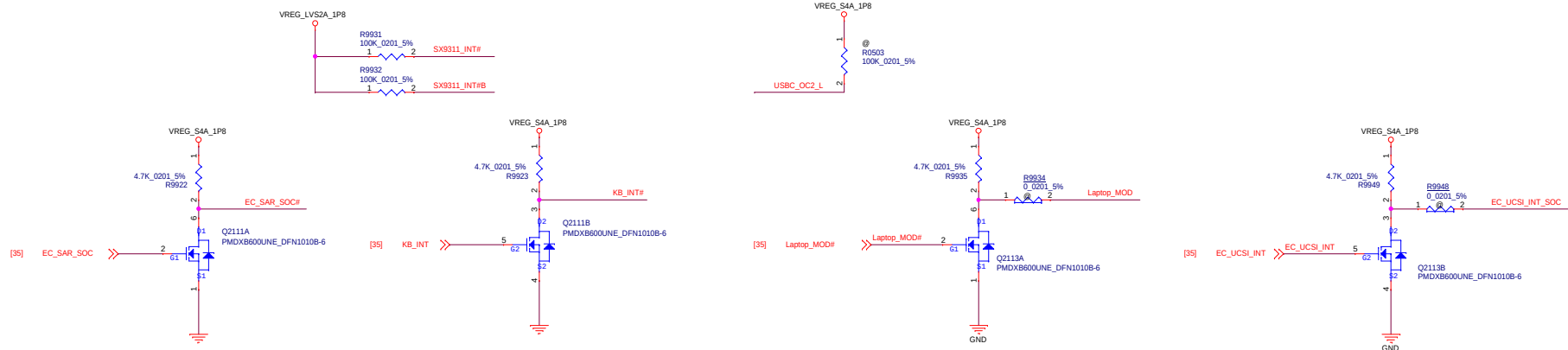
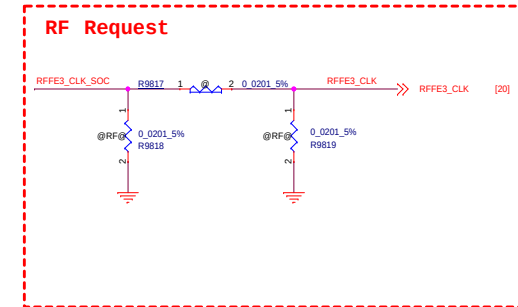
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UFS_256G

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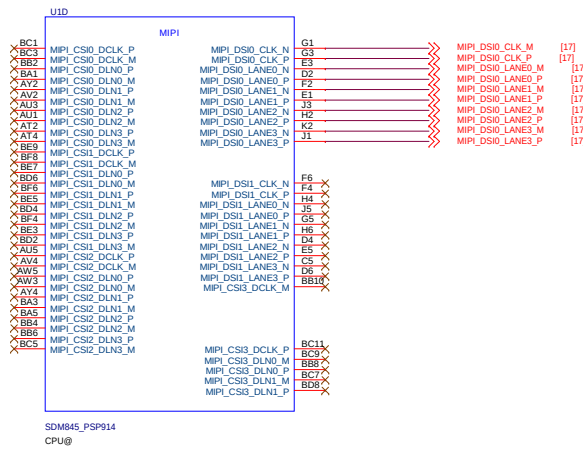
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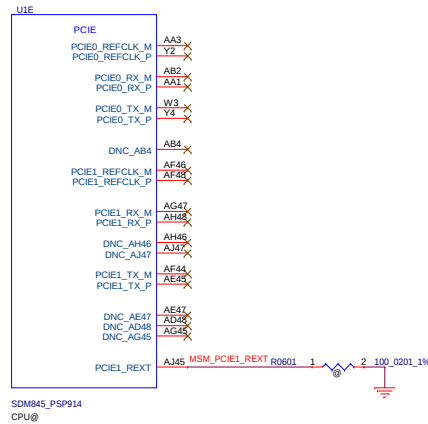
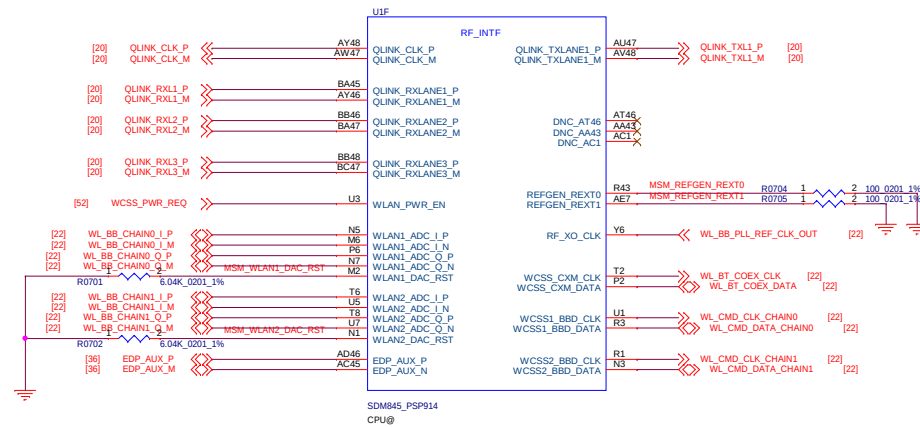
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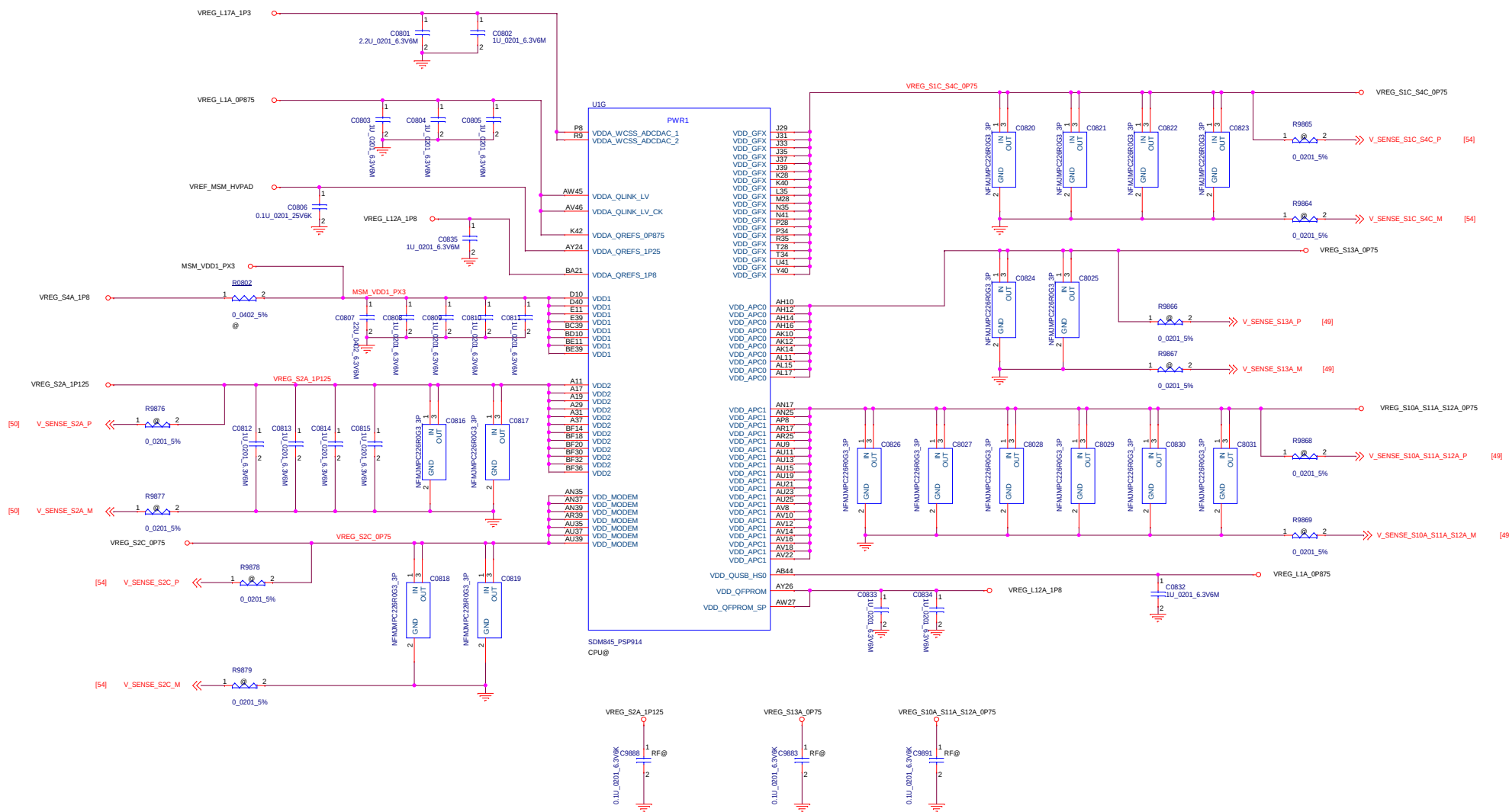
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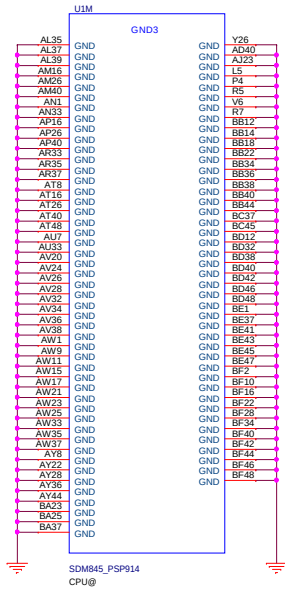
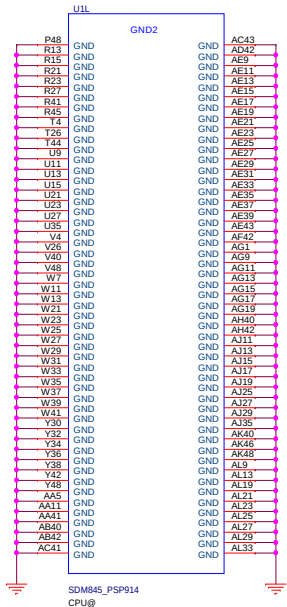
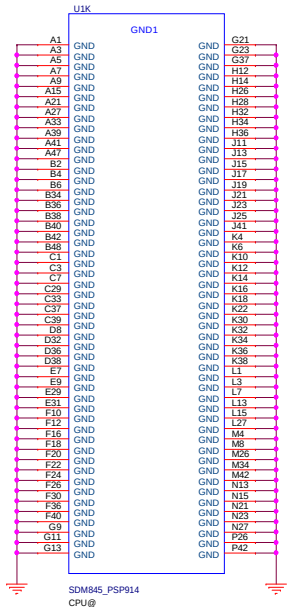


DISPLAY



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SoC_I2C

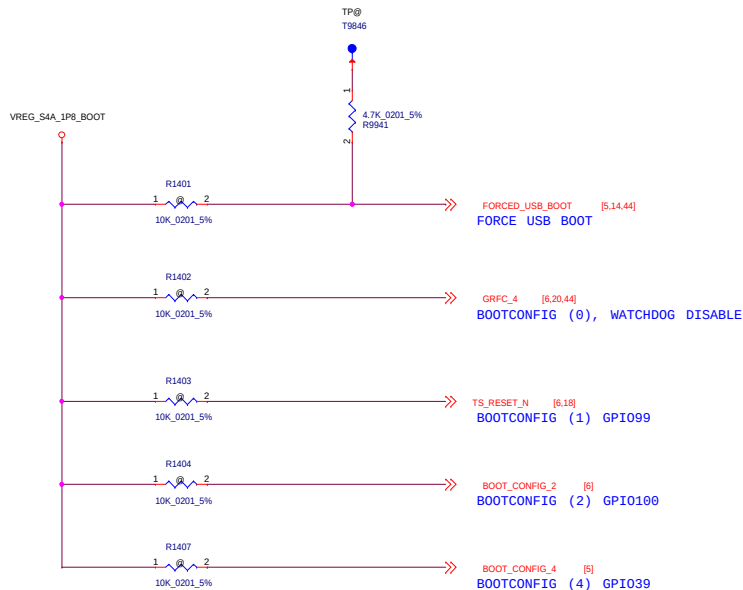
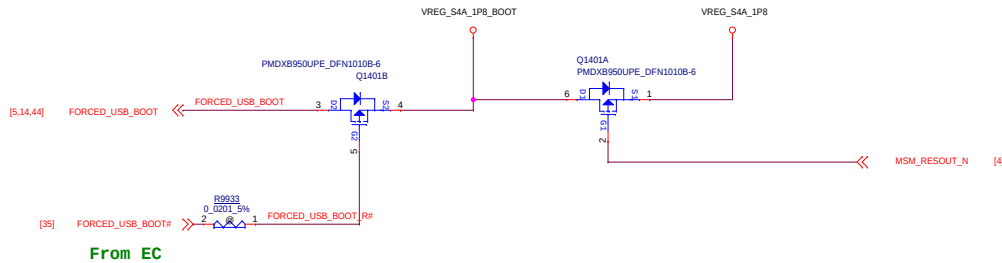
Channel	Dev.	Address	Level
GPIO_17/18	EC ACPI	0x60	3.3(L/S)
GPIO_31/32	EC HID		3.3(L/S)
GPIO_41/42	Click pad	0X2C (Synaptics) 0X15 (ELAN)	3.3(L/S)
GPIO_85/86	Touch screen	0x10	3.3(L/S)
SSC_0/1	Sar-1_Wlan	0x28	1.8
GPIO_53/54	eDP Bridge	0x2C	1.8
	PDC1_5437	0xBC	3.3(L/S)

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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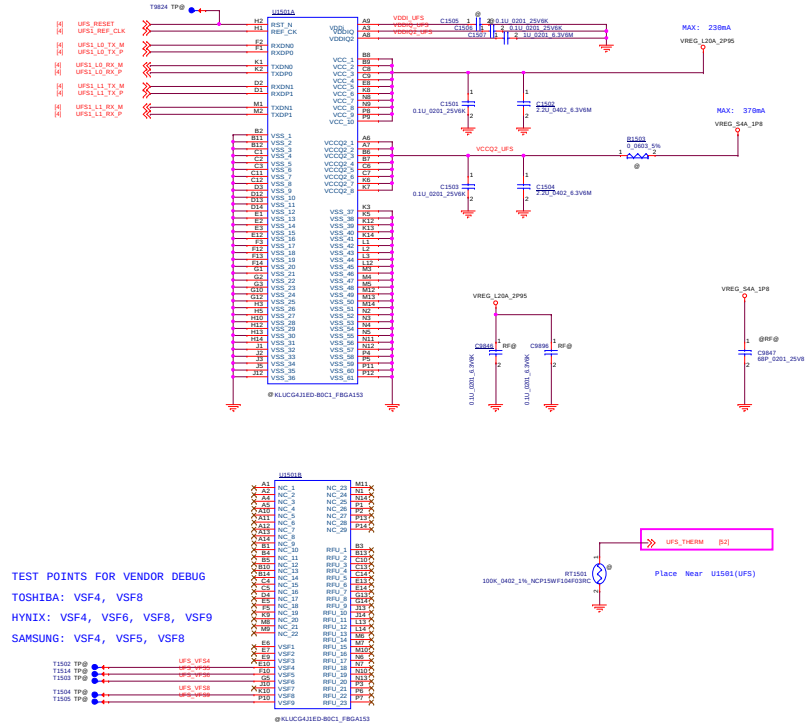


Boot Pin Do not use for PU/PD

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	0	0	0	0	UFS (1)
						Then SD card on SDC2 (2)
						Then SS/HS/FS USB on USB 3.1 (3)
	0001	0	0	0	1	SD card on SDC2 (1)
						Then UFS (2)
						Then SS/HS/FS USB on USB 3.1 (3)
	0010	0	0	1	0	SD card on SDC2 (1)
						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	0	1	0	0	Quad SPI (1)
Then SS/HS/FS USB on USB 3.1 (2)						
0101	0	1	0	1	Single SPI (1)	
					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

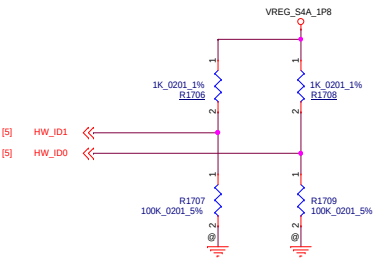
[Table 17] Power Consumption

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

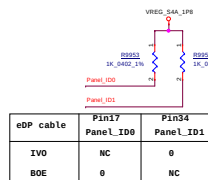
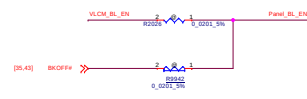
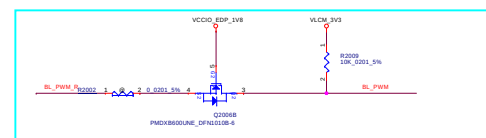
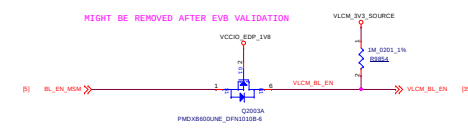
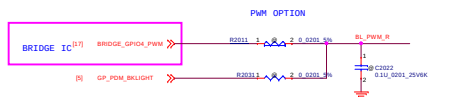
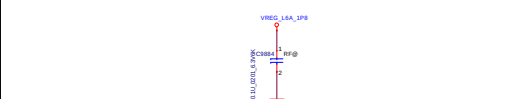
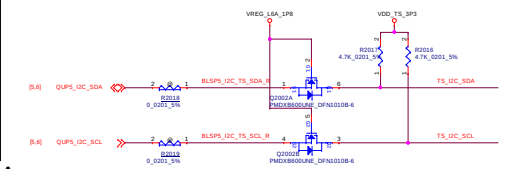
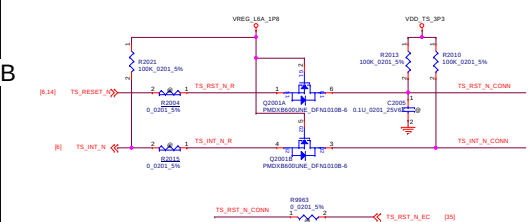
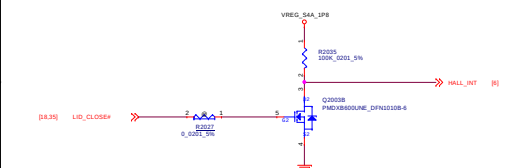
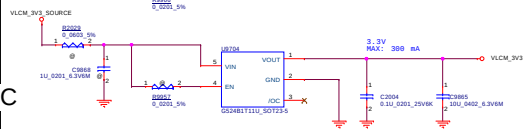
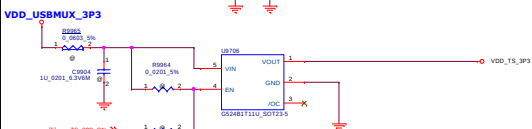
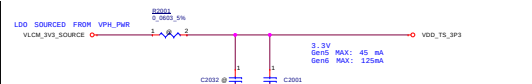
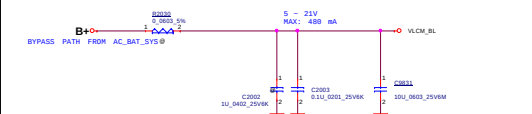
Name	Type	Description
VCC	Supply	Supply voltage for the memory devices
VCCQ2	Supply	Supply voltage used typically for the PHY interface and the memory controller and any other internal low voltage block
VDDIQ	Input	Input terminal to provided bypass capacitor for VCCQ internal regulator typically related 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 UFS device from the host
RXDN0 / RXDN1	Input	Downstream data lane(1st and 2nd lane) : differential input signals into 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

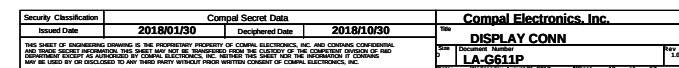
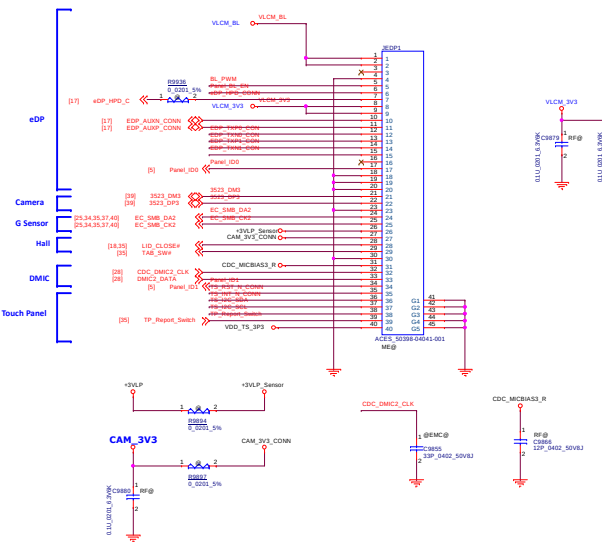


PCB ID (1,0)

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



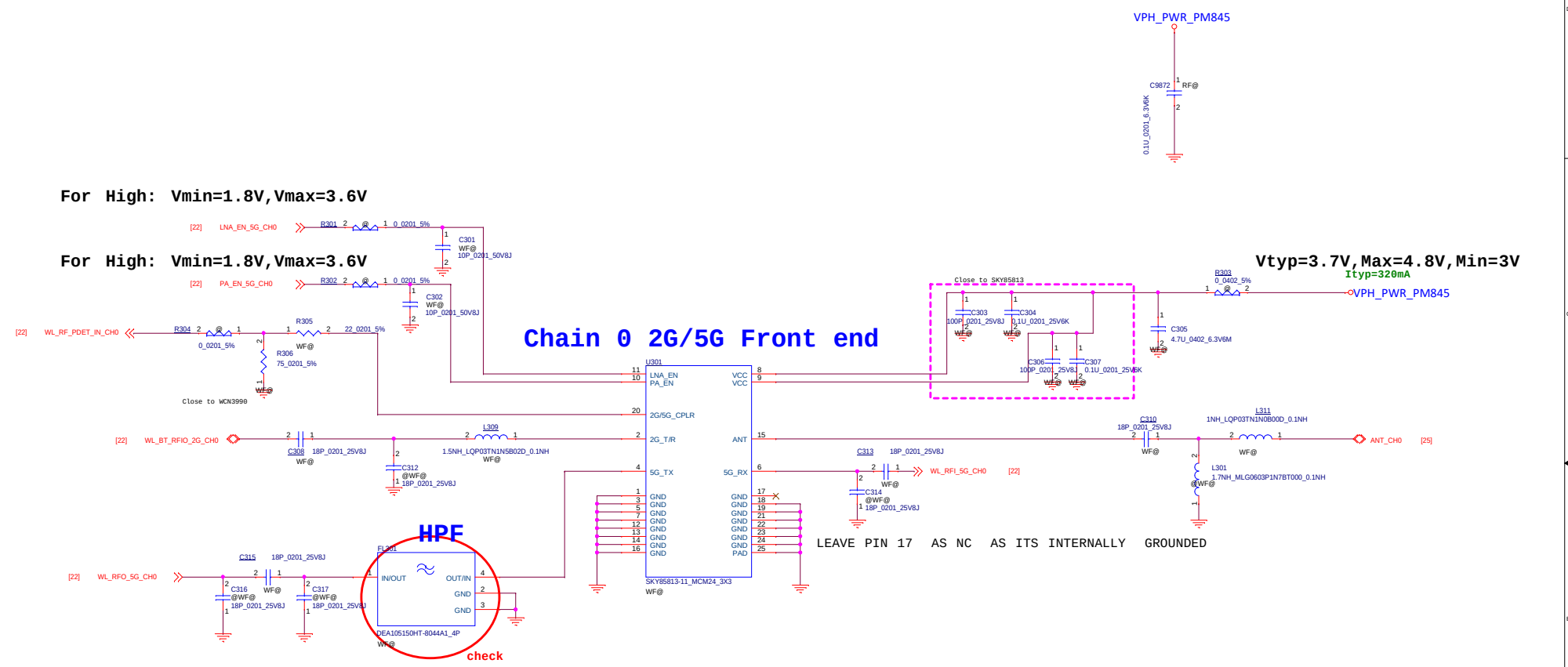
No.	Name
1	VDD(3.3V)
2	N.C.
3	Report Switch
4	GND
5	I2C_SCL(3.3V)
6	I2C_SDA(3.3V)
7	GND
8	RESET (3.3V)
9	I2C_IRQ (3.3V)
10	N.C



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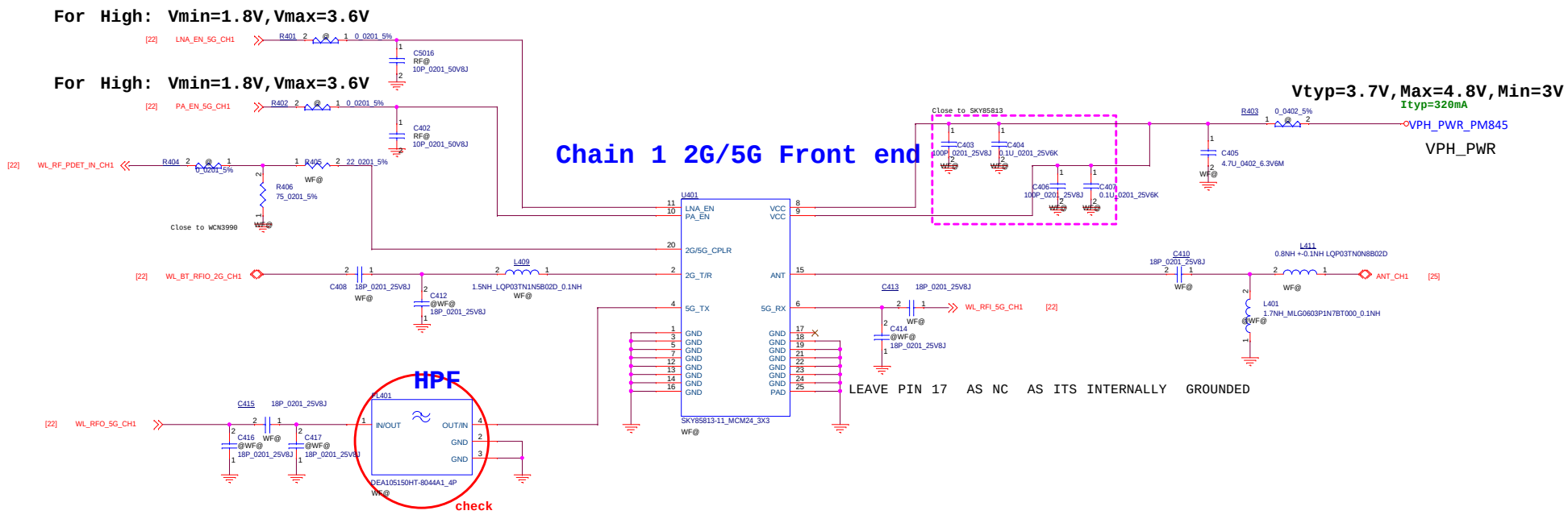
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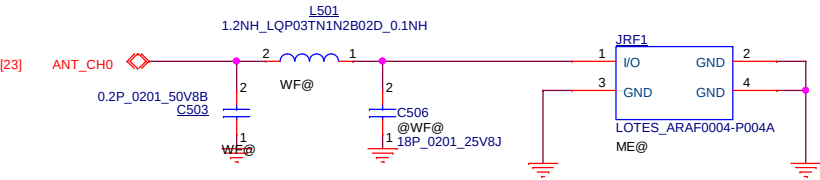
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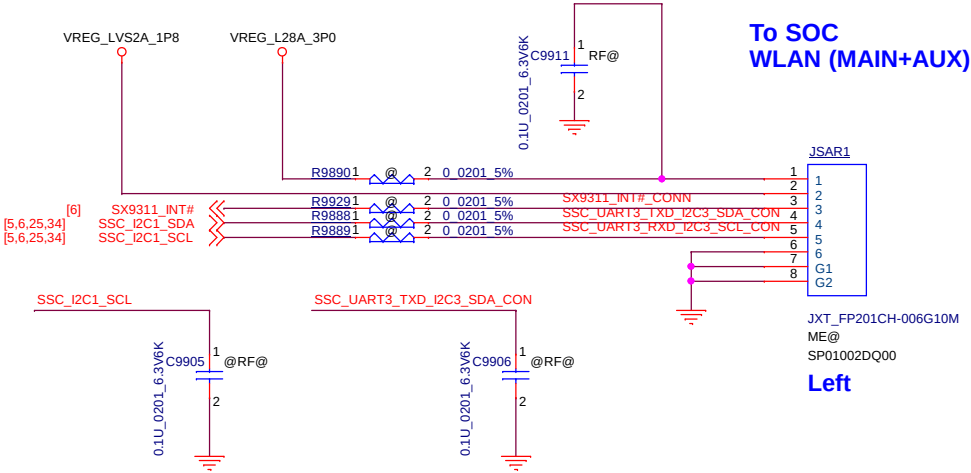


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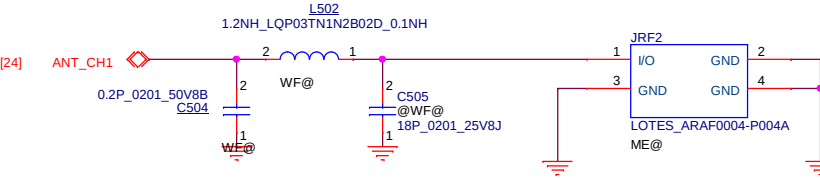
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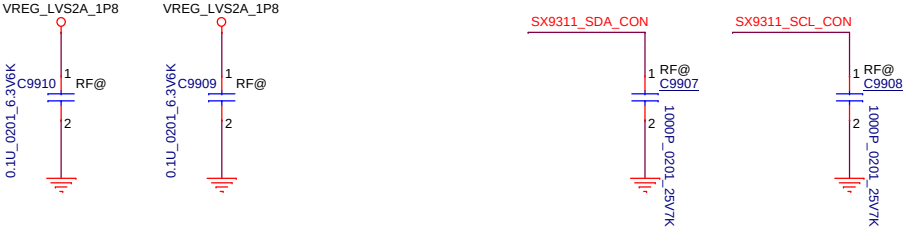
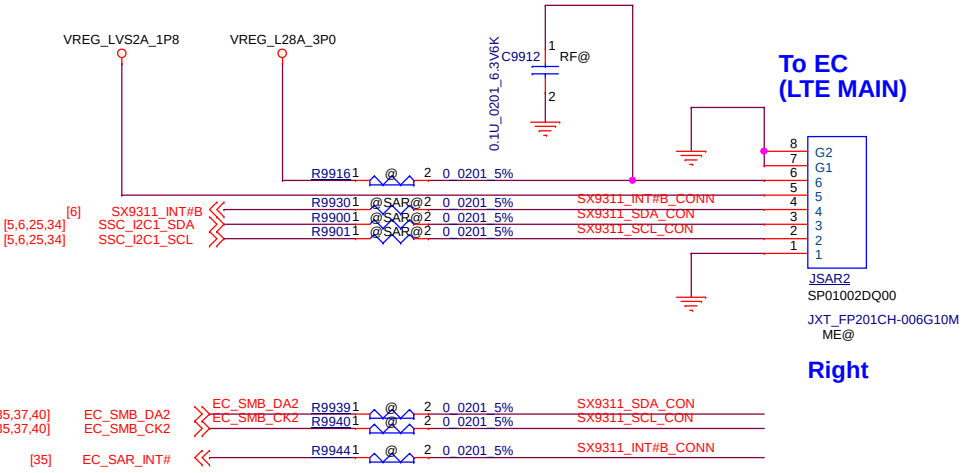
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SSC_0
SSC_1



Chain 1 RF Connector



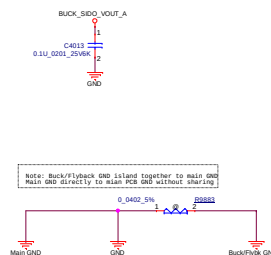
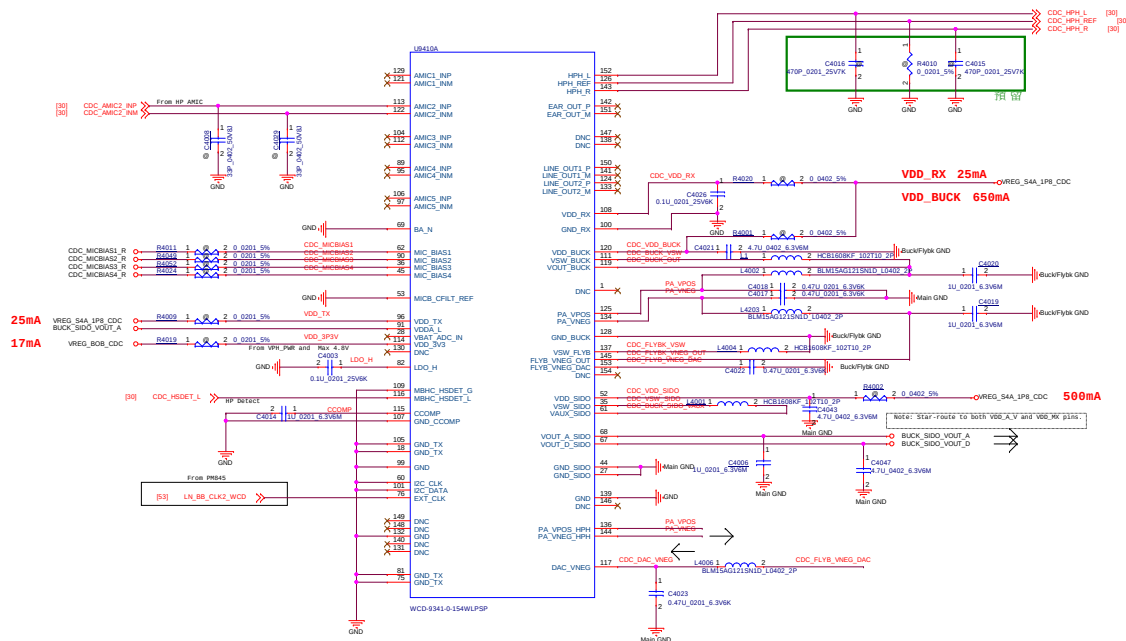
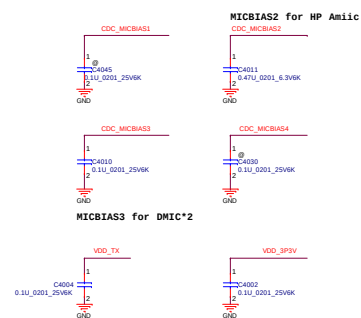
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SSC_1
(Reserve)



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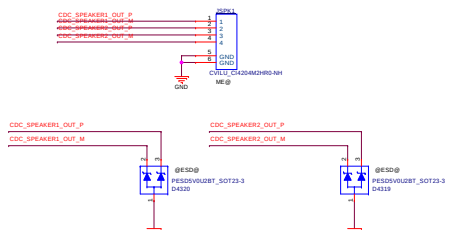
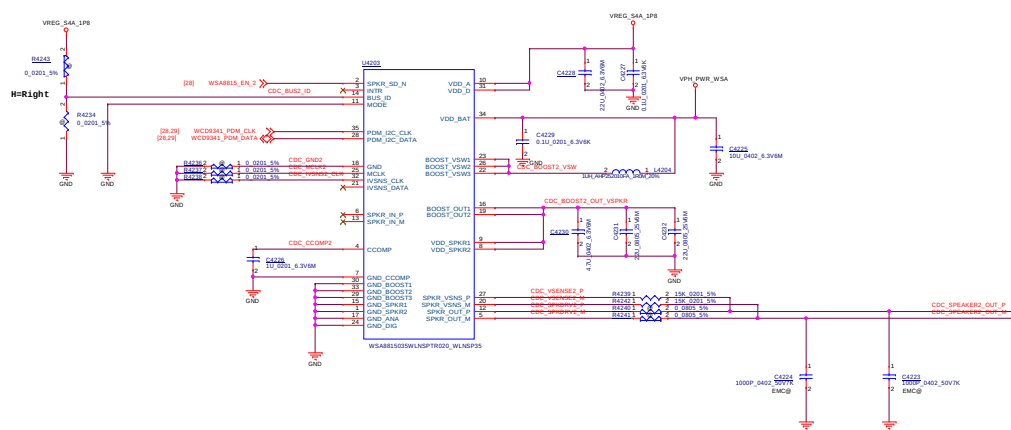
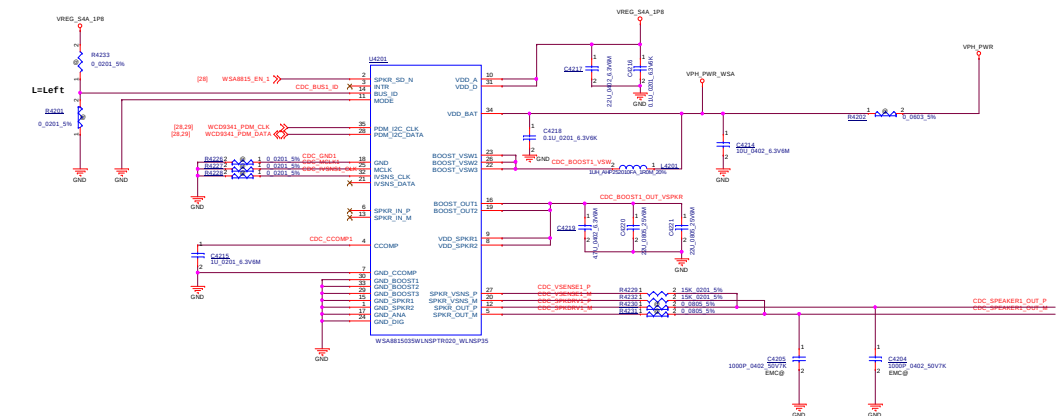
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				Date: Wednesday, August 01, 2018	Rev 1.0
				Sheet 26 of 57	

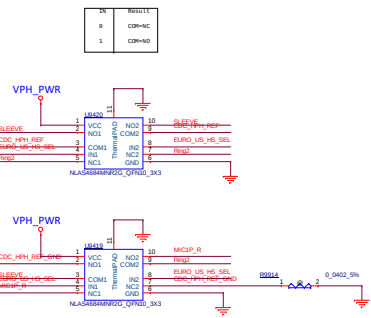
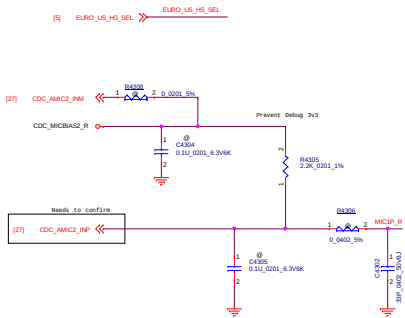
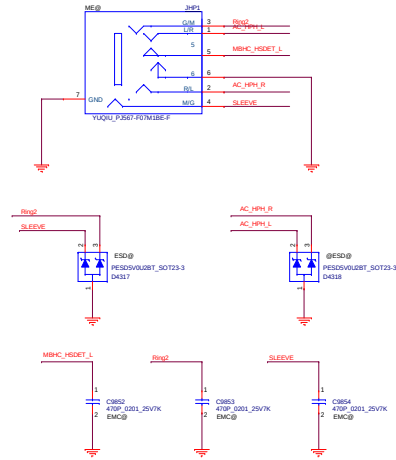
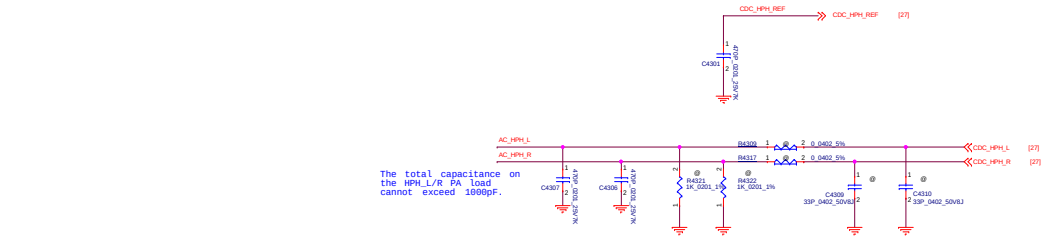


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Author	JL		Drawn	Rev 1.0
Checker	LA		Checked	1.0
Appr	G611P		Appr	
Date: 01/30/2018			Sheet	37 of 43

WSA8815 Digital interface AMP x 2



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			Issue	20
			2018/06/19/01	57



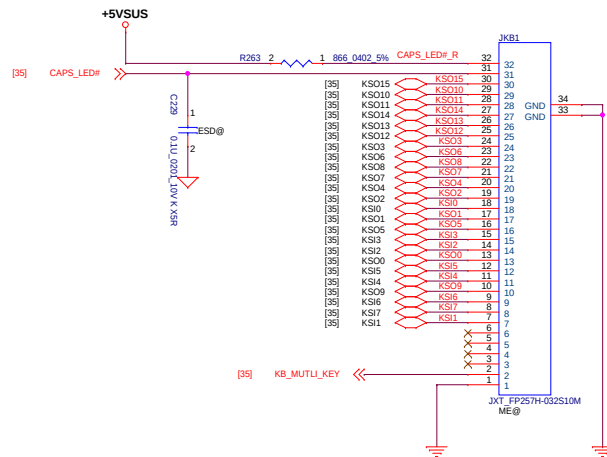
EURO_US_HS_SEL
0 : SLEEVE=MIC (CTIA)
1 : Ring2=MIC (OMTP)

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				LA-G611P	1.0
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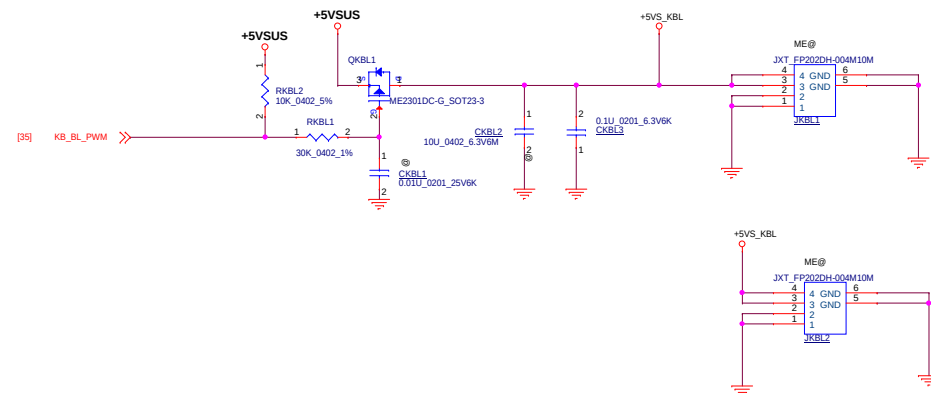
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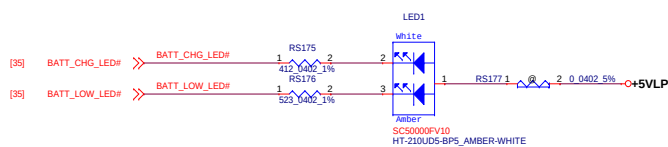
Keyboard



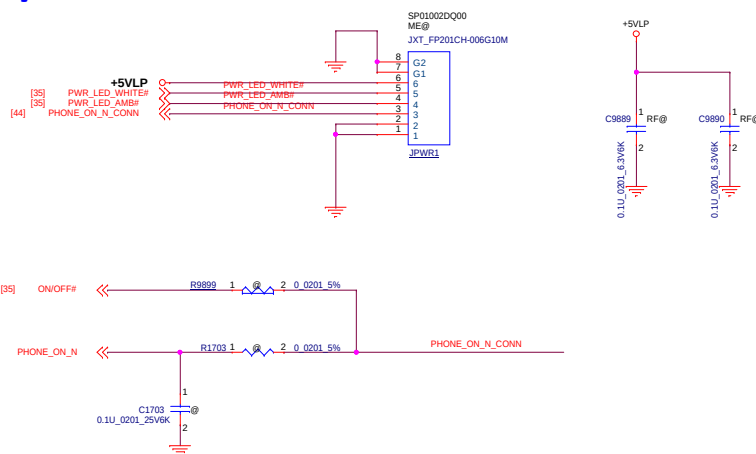
Keyboard Backlight



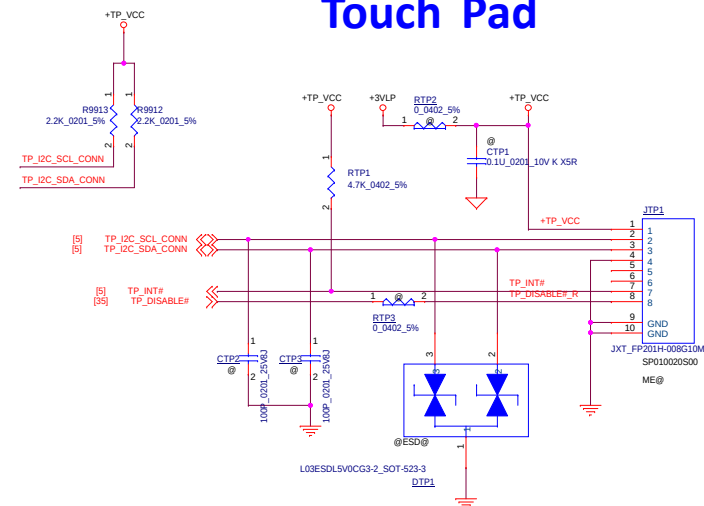
BATT LED



PWR/B

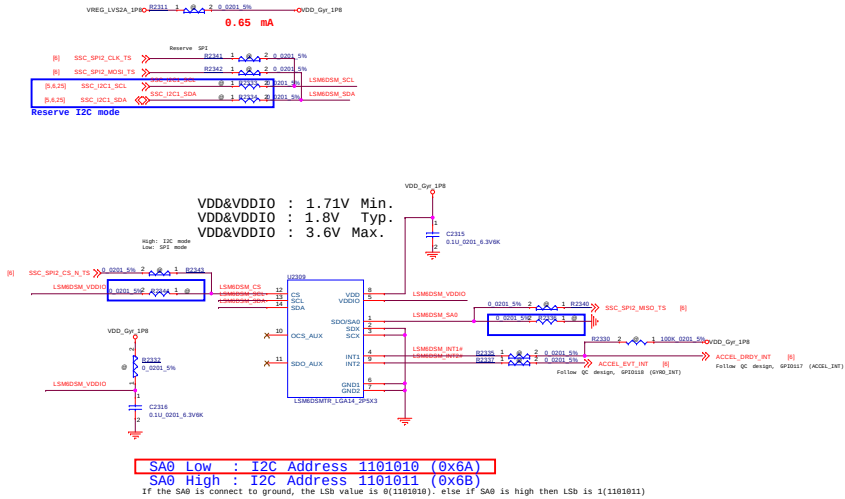


Touch Pad



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				C	LA-G611P	1.0
				Date	Monday, August 13, 2018	Sheet 33 of 57

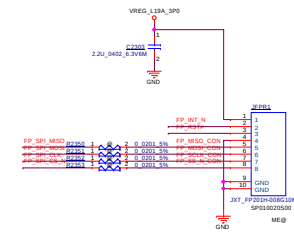
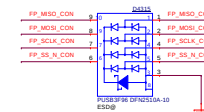
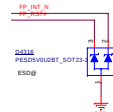
Gyroscope and Accelerometer
ST LSM6DSM



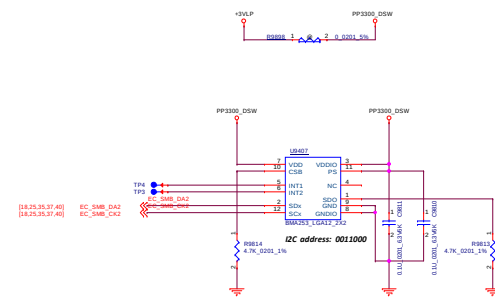
Finger Print

- [N] FP_SPI_CS_N >> FP_SPI_CS_N
- [N] FP_SPI_CLK >> FP_SPI_CLK
- [N] FP_SPI_MISO >> FP_SPI_MISO
- [N] FP_SPI_MOSI >> FP_SPI_MOSI
- [N] FP_INT_N >> FP_INT_N
- [N] FP_RSTN >> FP_RSTN

FP_RSTN - I/O status default is low, wake up is high
FP_RSTN - I/O status default is low, wake up is high
FP_RSTN - I/O status default is low, wake up is high
FP_RSTN - I/O status default is low, wake up is high

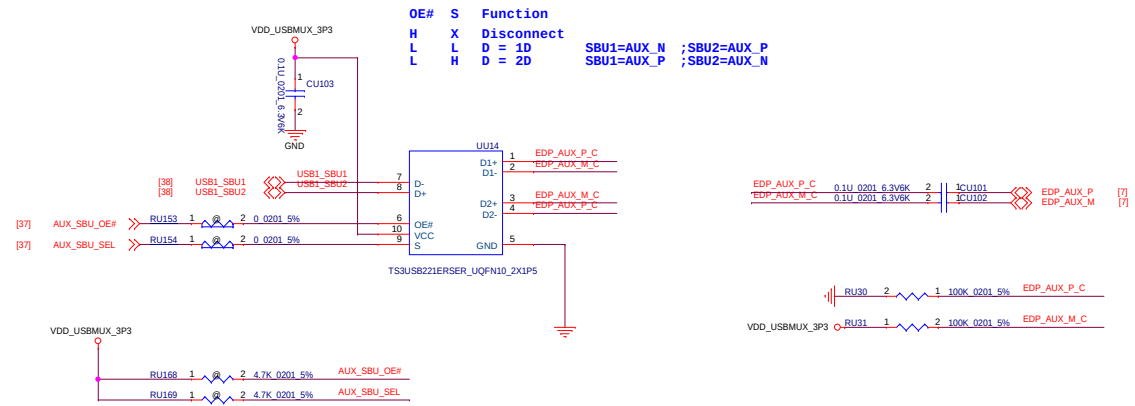


G-SENSOR

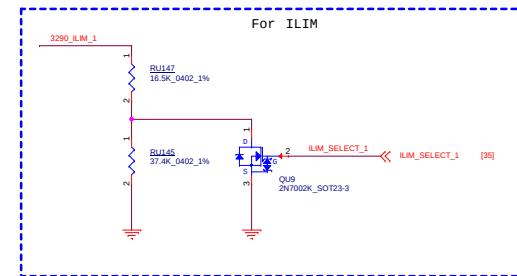
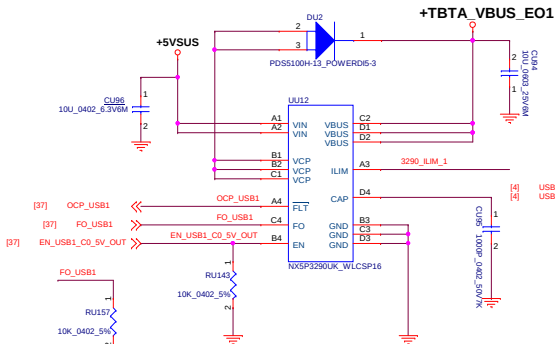


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				LA-G611P	
				Rev 1.0	

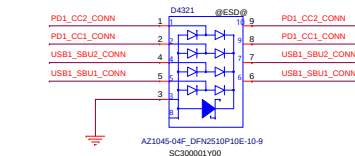
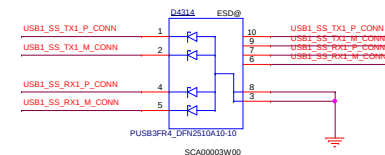
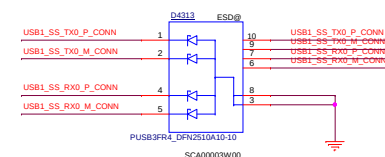
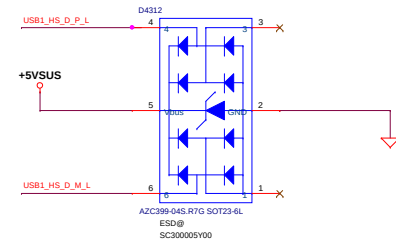
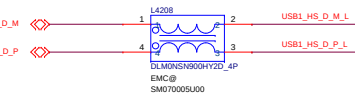
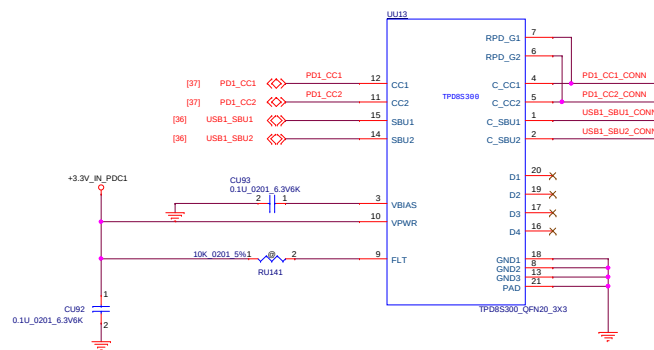
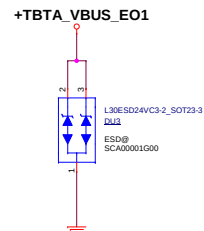
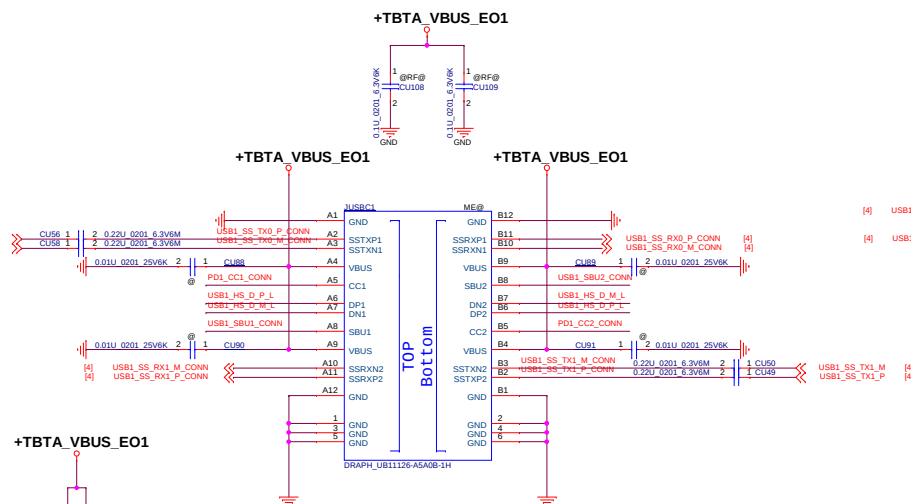
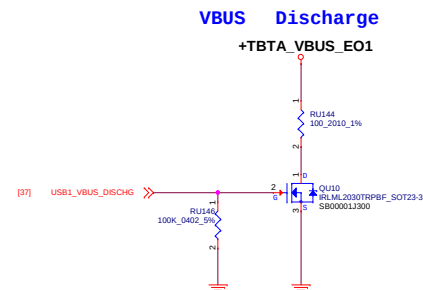
AUX/SBU for port 1



Type C port 1

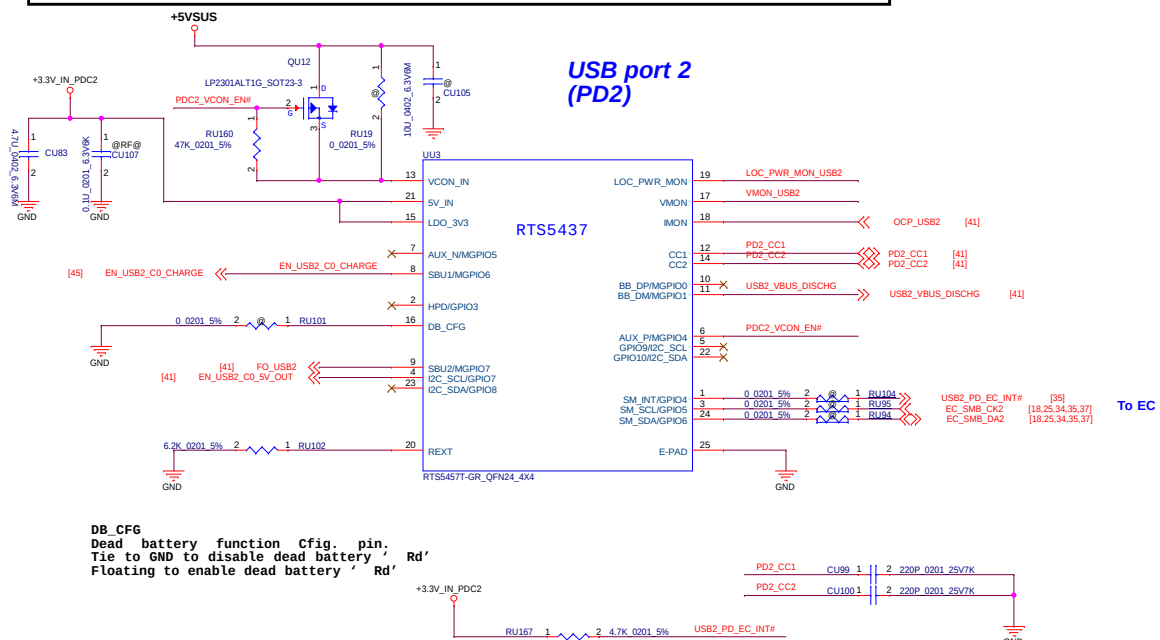
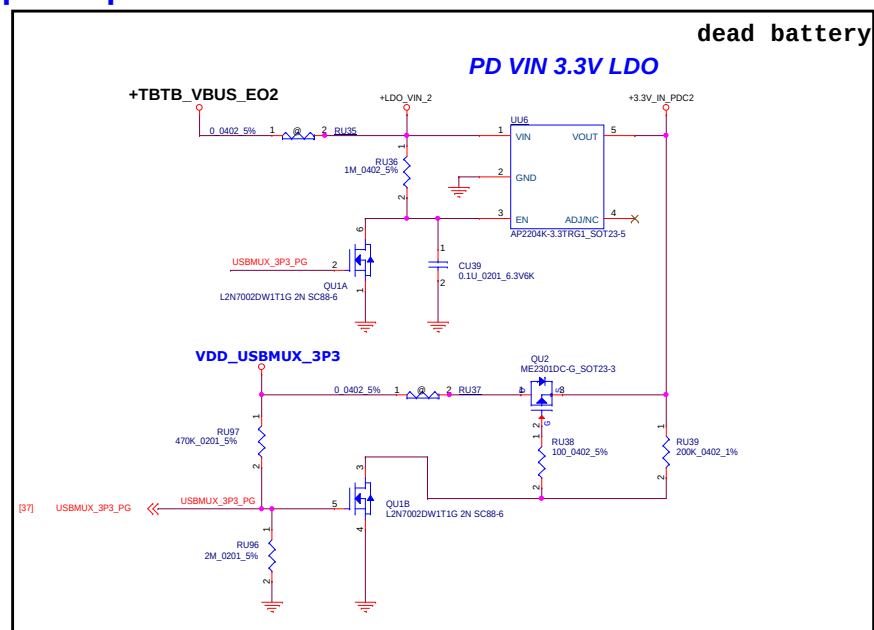


```
ILIM_SELECT
H : RILIM = 16.5 k ; 3A
L : RILIM = 33 k ; 1.65A ; RU145=16.5K (SD034165280) (option)
L : RILIM = 54 k ; 1A ; RU145=37.4K (SD034374280)
```

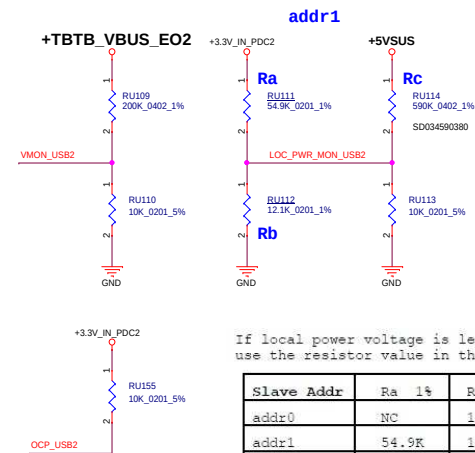


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Type C port 2



```
DB_CFG
Dead battery function Cfig. pin.
Tie to GND to disable dead battery '
Floating to enable dead battery ' Rd'
```



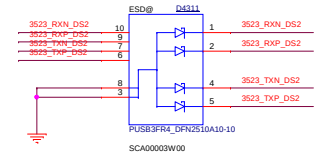
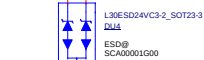
If local power voltage is less than or equal to 6V,
use the resistor value in the table below.

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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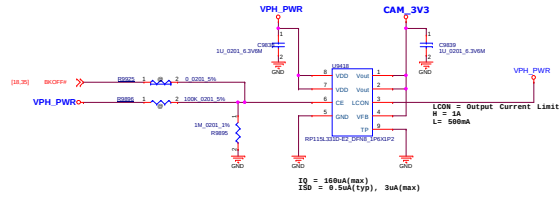
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				C	LA-G611P	1.0
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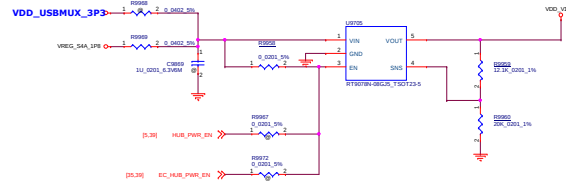
3V3_Camera

VIN = 1.8V
VIL = 0.4V

Vout=3.3V Iq max=1000 mA

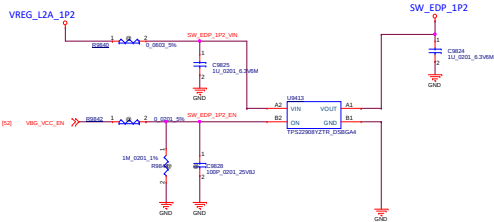
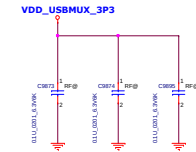
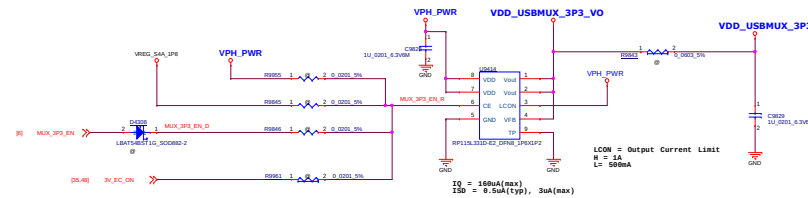


VDD_1P2



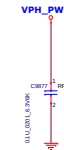
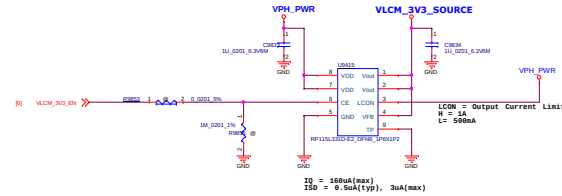
VDD_USBMUX_3P3

Vout=3.3V Iq max=1000 mA

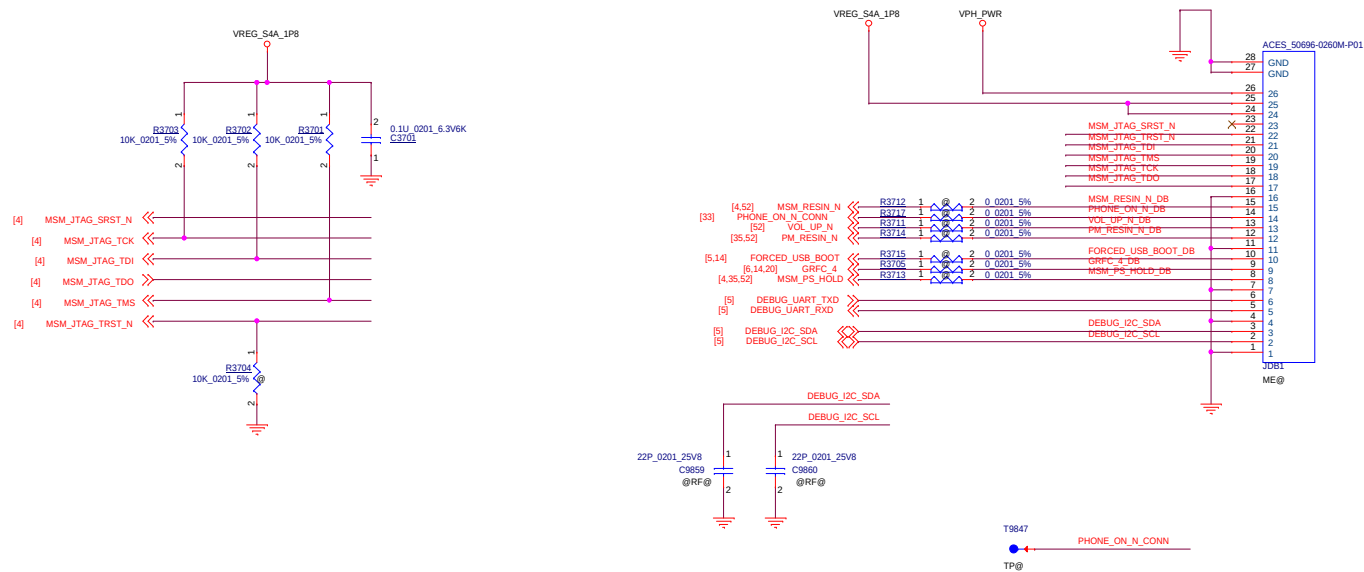


VLCM_3V3

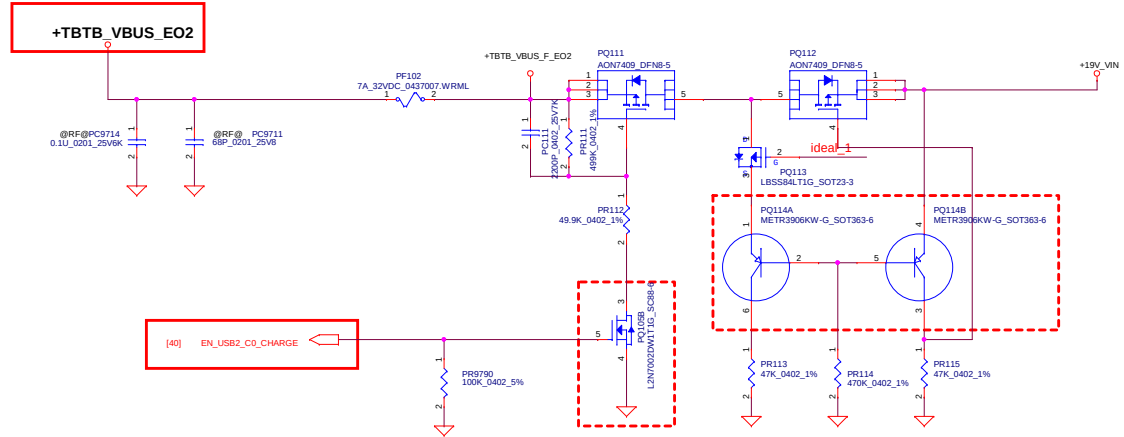
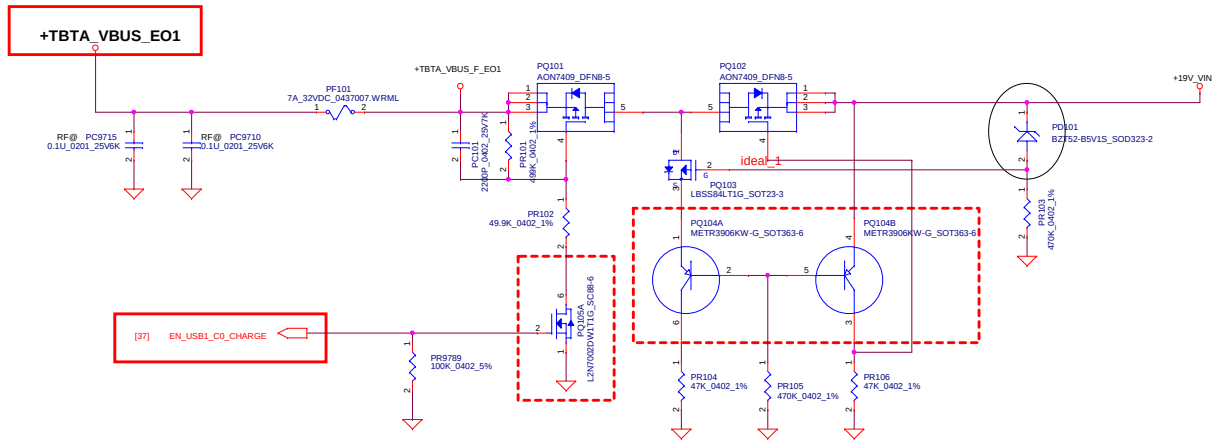
Vout=3.3V Iq max=1000 mA



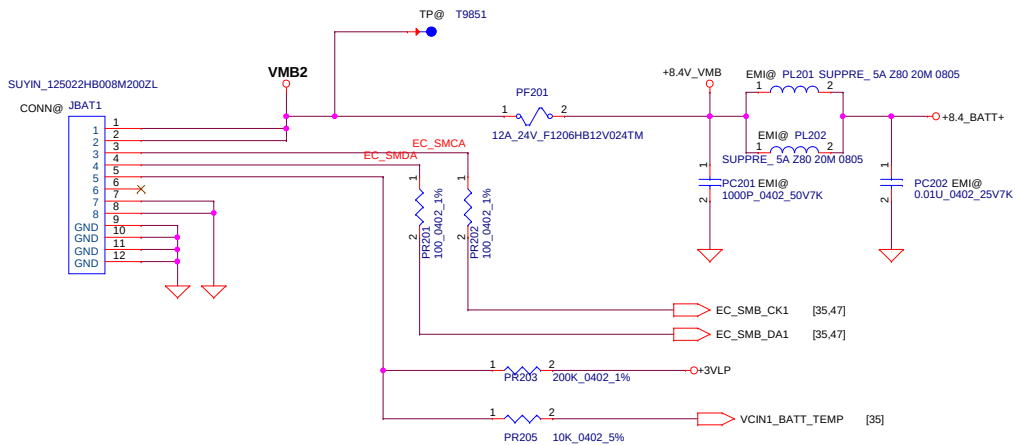
DEBUG CONNECTOR



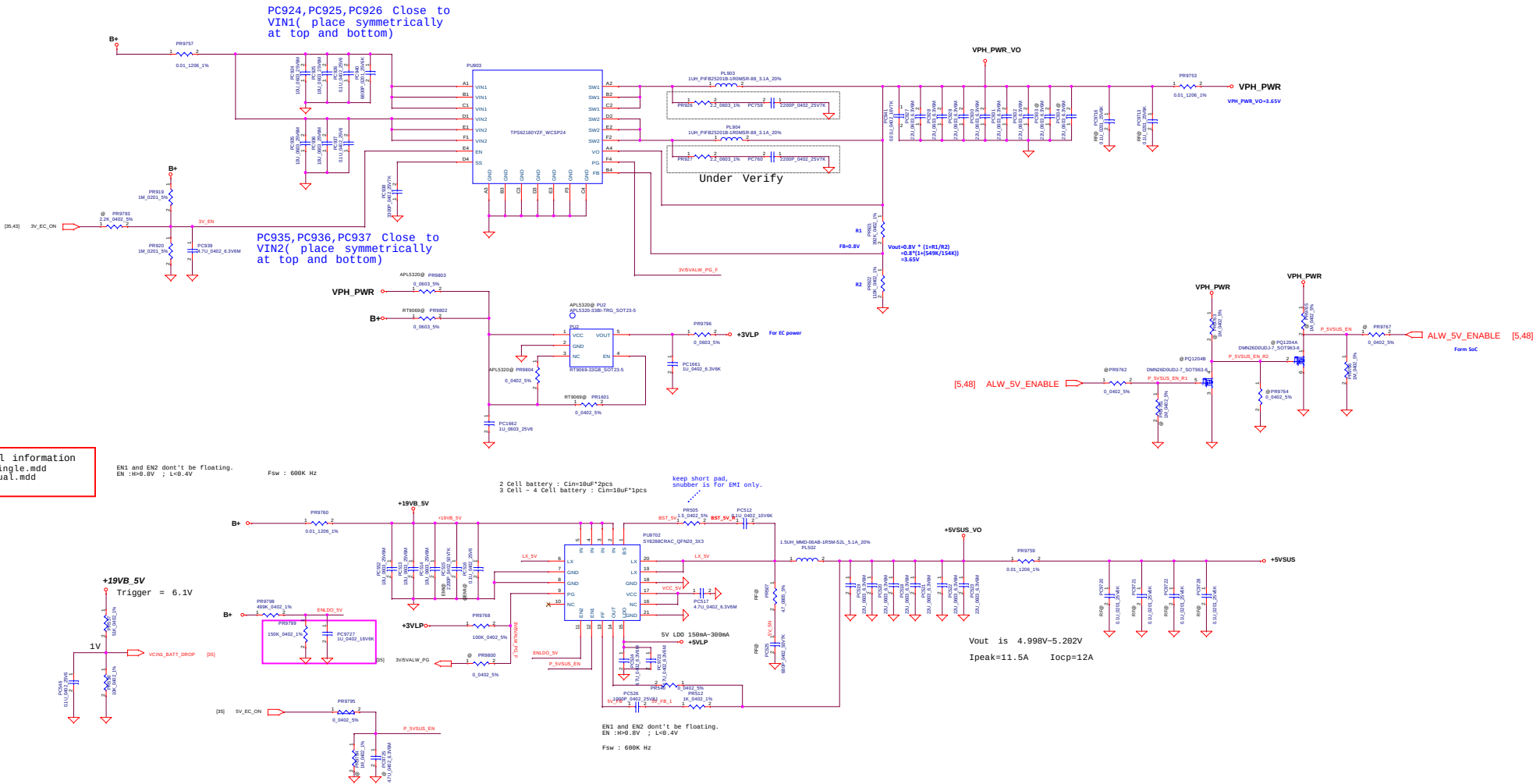
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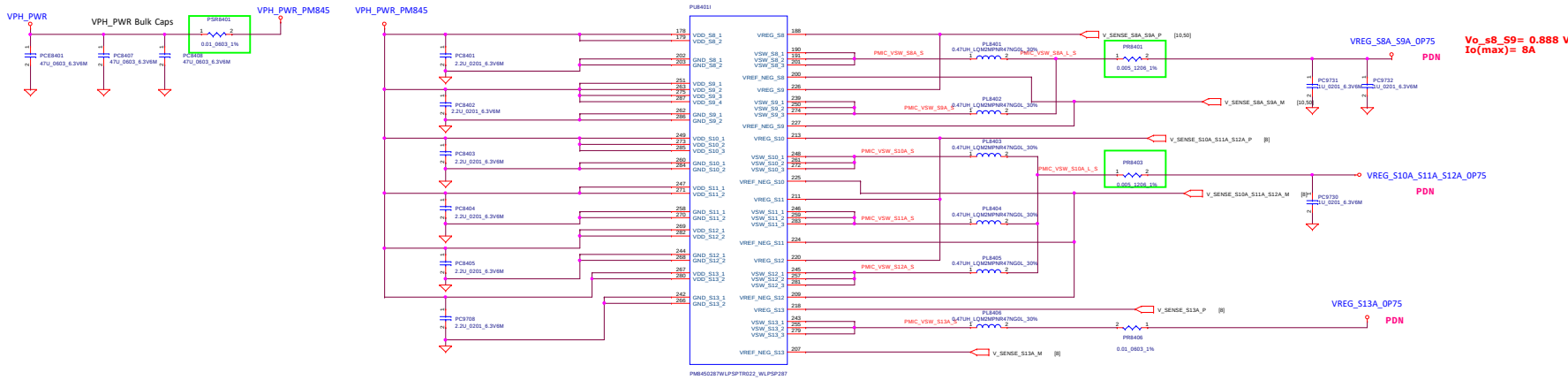
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Issued Date	2018/01/30	Designed Date	2018/10/30
Ver	+3VALW+SVALW		Rev
Size	LA-G611P		Rev
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84_PMIC_PM845_BUCK1

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
			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_5P)	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



85_PMIC_PM845_BUCK2

PM845 Regulator

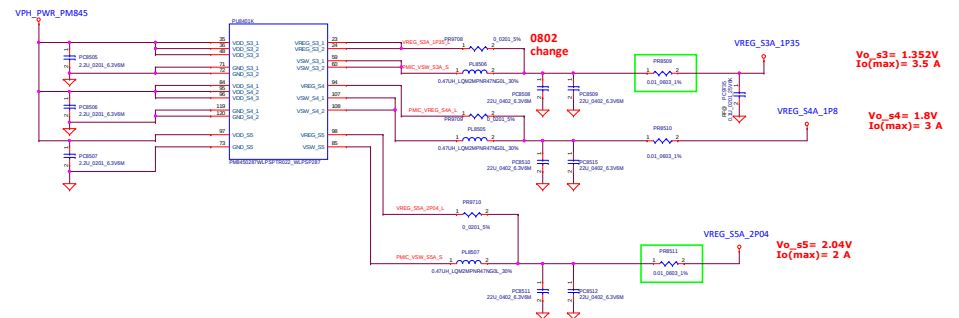
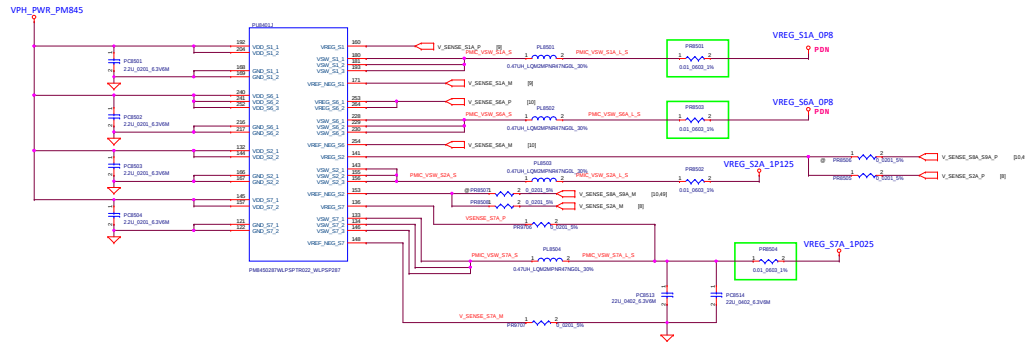
Regulator	I _{rated} (mA)	Voltage(V)
S1	2000	0.8
S2	2500	1.128
S3	2500	1.352
S4	2850	1.8
S5	1100	2.04
S6	4000	0.8
S7	3500	1.028
S8	4000	0.752
S9	4000	0.752
S10	4000	0.756
S11	4000	0.752
S12	4000	0.752
S13	4000	0.752

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	50	1.904
LV1	300	1.8
LV2	100	1.8

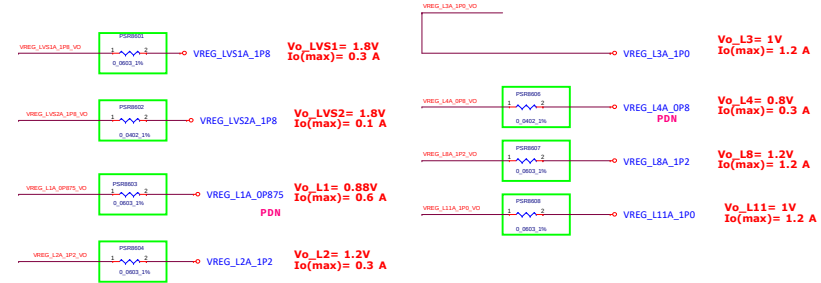
PM8005 Regulator

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



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86_PMIC_PM845_LDO



PM845 Regulator

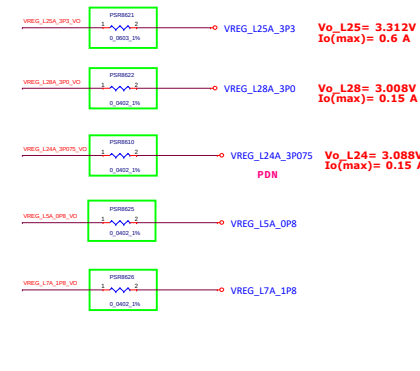
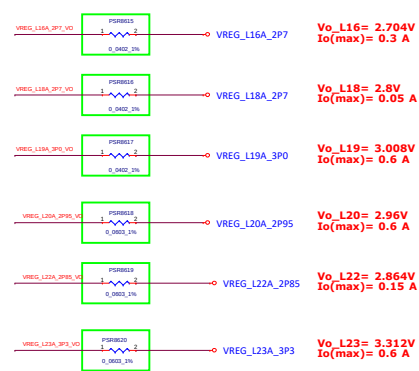
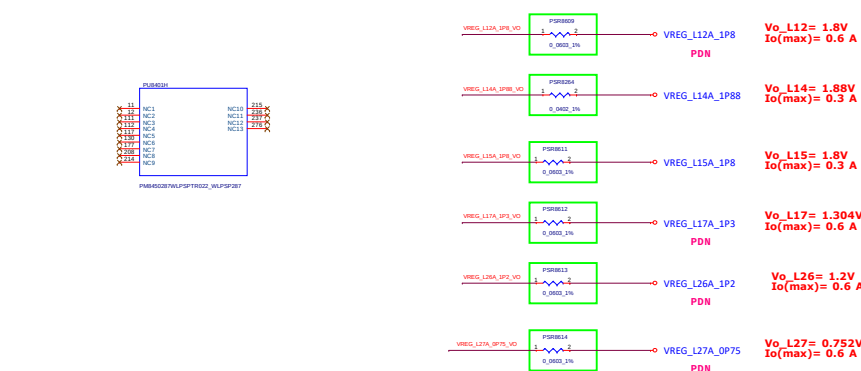
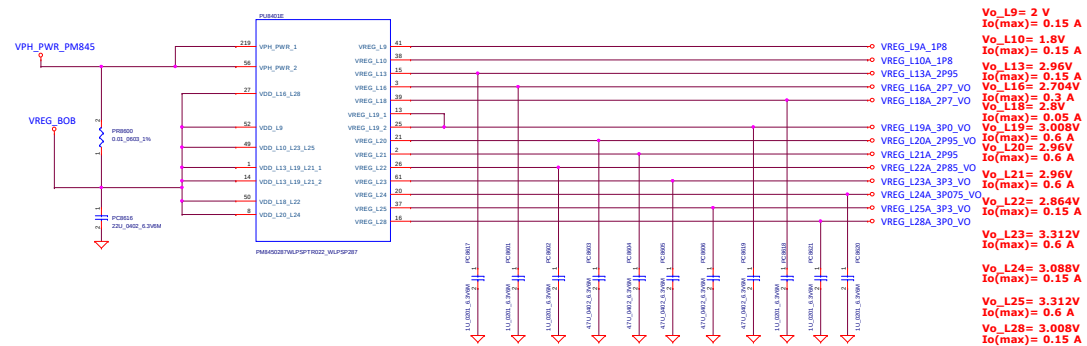
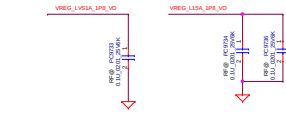
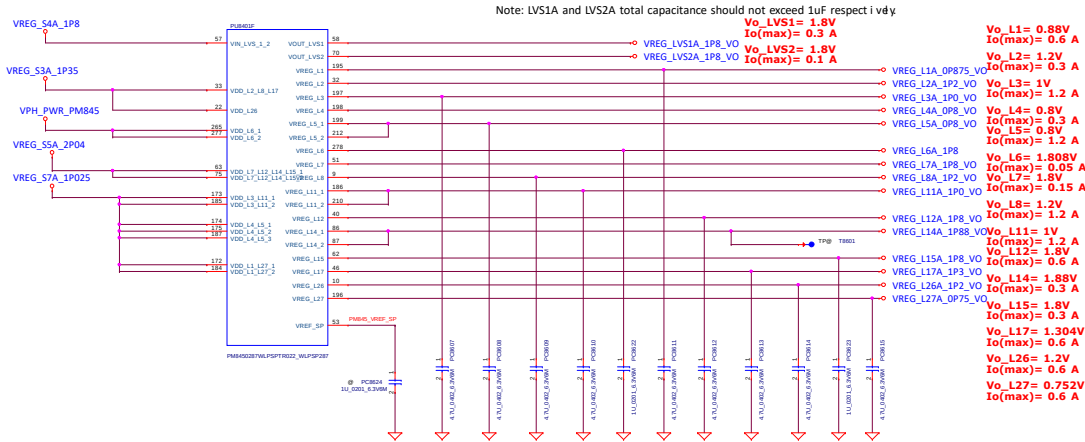
Regulator	I _{rated} (mA)	Voltage(V)
S1	2000	0.8
S2	2500	1.128
S3	2500	1.352
S4	2850	1.8
S5	1100	2.04
S6	4000	0.8
S7	3600	1.028
S8	4000	0.752
S9	4000	0.752
S10	4000	0.756
S11	4000	0.752
S12	4000	0.752
S13	4000	0.752

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	2.704
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)	50	1.904
LVS1	300	1.8
LVS2	100	1.8

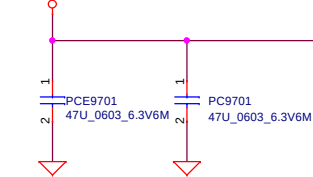
PM8005 Regulator

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

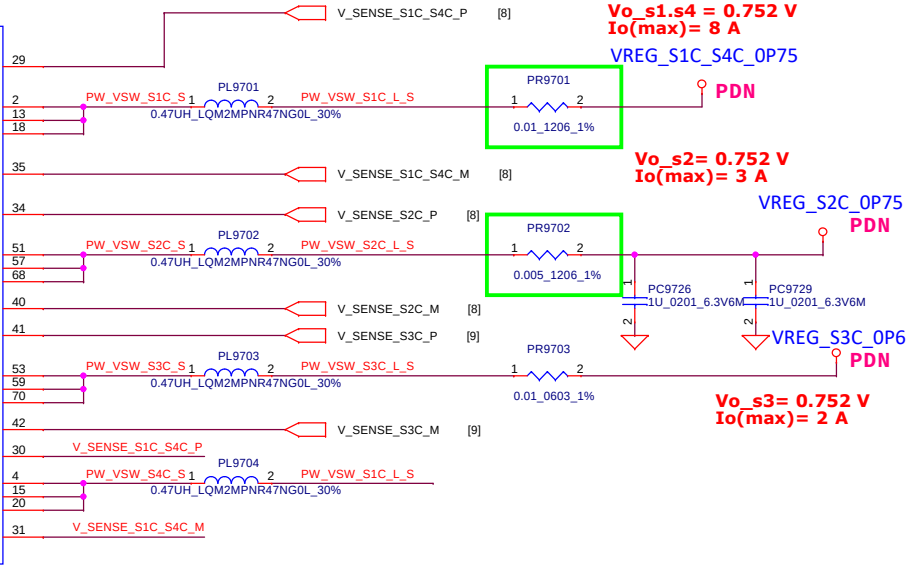
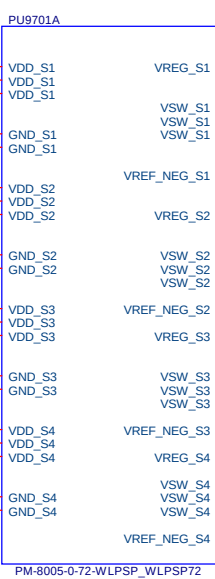
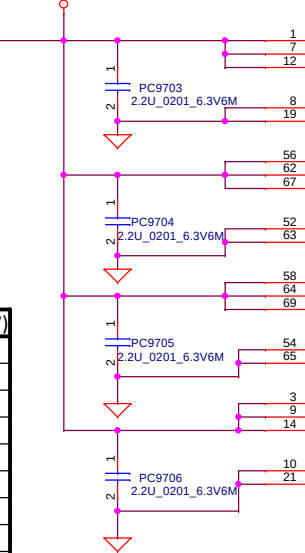


97_PMIC_PM8005_BUCK

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

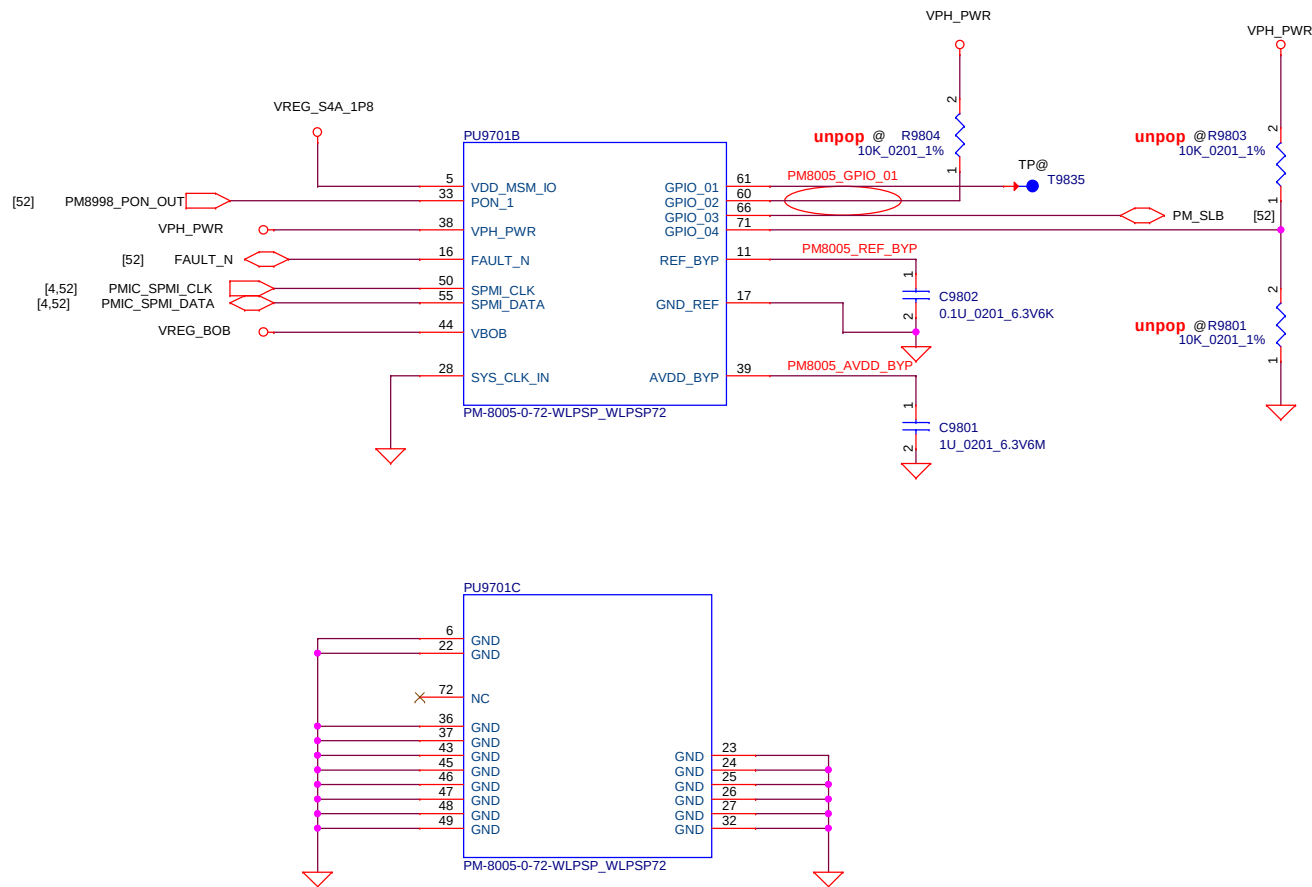
PM845 Regulator

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

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				Date:	Wednesday, August 01, 2018	Sheet 56 of 57

