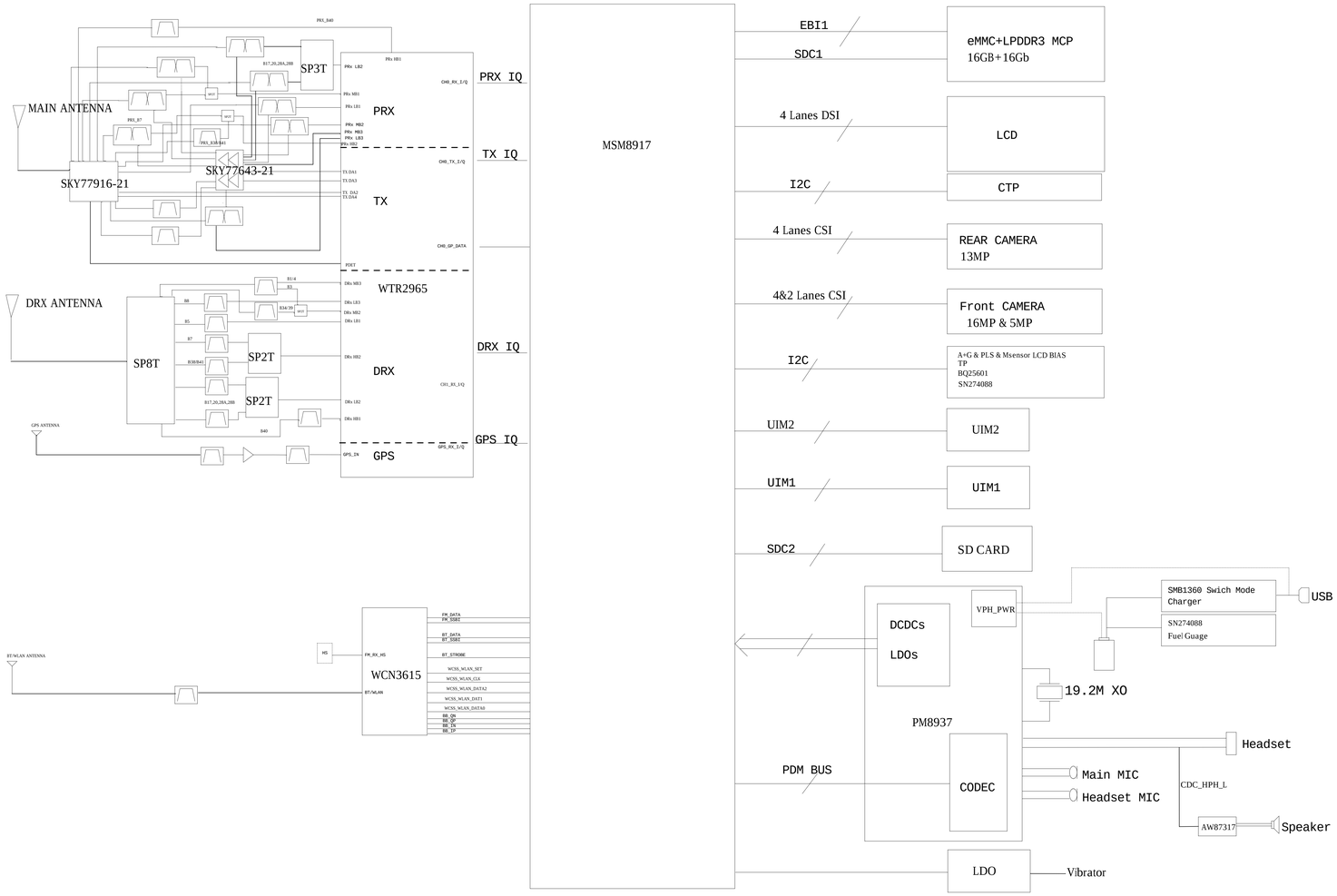
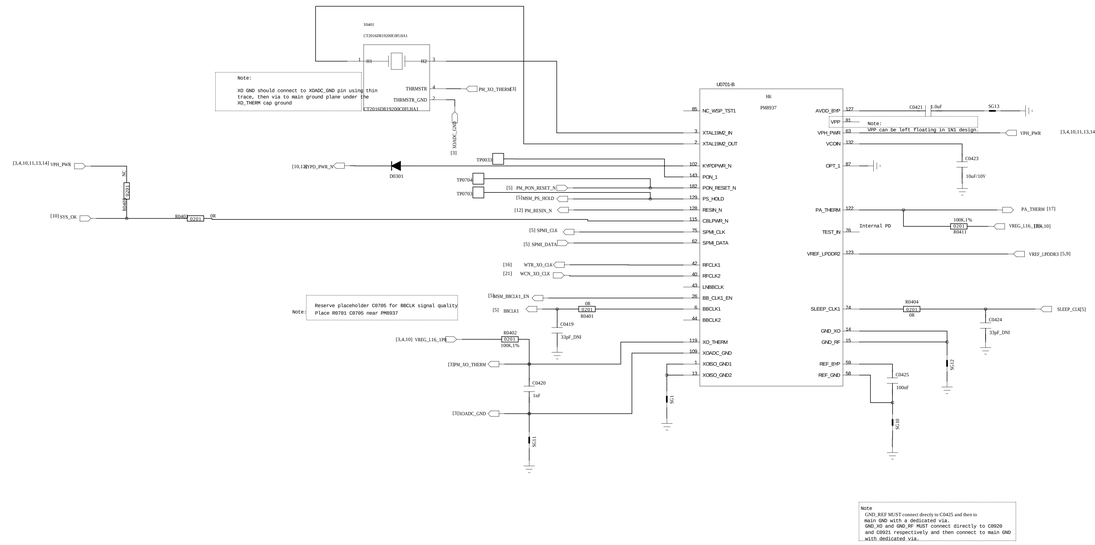
| NOTES:MSM8917 GPIO Please refer to the soft to hardware document | | | | | |
|---|---|---|---|---|---|
| GPIO_0 | IR_PDM_A0 | GPIO_41 | DBB2HALL_SEL | GPIO_82 | WCSS_FM_DATA |
| GPIO_1 | EXT_AUDIO_PA_RST | GPIO_42 | ACCL_INT1_N | GPIO_83 | WCSS_BT_CTRL |
| GPIO_2 | LCM_PWM | GPIO_43 | ALSP_INT_N | GPIO_84 | WCSS_BT_DATA |
| GPIO_3 | NC | GPIO_44 | MAG_DRDY_INT | GPIO_85 | BLSP7_SPI_MO |
| GPIO_4 | UART_MSM_TX | GPIO_45 | GYRO_INT_N | GPIO_86 | BLSP7_SPI_MI |
| GPIO_5 | UART_MSM_RX | GPIO_46 | ANT_CHECK | GPIO_87 | BLSP7_SPI_CSB |
| GPIO_6 | CHARGE_I2C_SDA | GPIO_47 | CTP_3V1_EN | GPIO_88 | BLSP7_SPI_CK |
| GPIO_7 | CHARGE_I2C_SCL | GPIO_48 | GPIO_CHAGER_CE | GPIO_89 | NC |
| GPIO_8 | MOSI_IR_PDM_A0 | GPIO_49 | UIM_BATT_ALM | GPIO_90 | NC |
| GPIO_9 | VIB_EN | GPIO_50 | FLASH_FRONT_EN | GPIO_91 | KEY_VOL_UP_N |
| GPIO_10 | TP_I2C_SDA | GPIO_51 | UIM1_DATA | GPIO_92 | NC |
| GPIO_11 | TP_I2C_SCL | GPIO_52 | UIM1_CLK | GPIO_93 | GPIO_LCM_LED_EN |
| GPIO_12 | LCM_ENP | GPIO_53 | UIM1_RESET | GPIO_94 | BOARD_ID0 |
| GPIO_13 | LCM_ENN | GPIO_54 | SIM/TF_DET_N | GPIO_95 | BOARD_ID1 |
| GPIO_14 | SENSOR_I2C_SDA | GPIO_55 | UIM2_DATA | GPIO_96 | NC |
| GPIO_15 | SENSOR_I2C_SCL | GPIO_56 | UIM2_CLK | GPIO_97 | NC |
| GPIO_16 | GPIO_KEY_LED_EN | GPIO_57 | UIM2_RESET | GPIO_98 | SCAM_DVDD_EN |
| GPIO_17 | TP_ID | GPIO_58 | SIM/TF_DET_N | GPIO_99 | SCAM_AVDD_EN |
| GPIO_18 | LED_I2C_SDA | GPIO_59 | LCM_ID0 | GPIO_100 | RFFE1_CLK |
| GPIO_19 | LED_I2C_SCL | GPIO_60 | LCD_RST_N | GPIO_101 | RFFE1_DATA |
| GPIO_20 | BOARD_ID2 | GPIO_61 | SMB_INT | GPIO_102 | RFFE2_CLK |
| GPIO_21 | BOARD_ID3 | GPIO_62 | GAUGE_INT | GPIO_103 | RFFE2_DATA |
| GPIO_22 | LCDBIAS_I2C_SDA | GPIO_63 | NC | GPIO_104 | DRX_B3_B39_SW |
| GPIO_23 | LCDBIAS_I2C_SCL | GPIO_64 | TP_RST_N | GPIO_105 | PRX_B1_B4_SW |
| GPIO_24 | LCD_TE0 | GPIO_65 | TP_INT_N | GPIO_106 | PRX_MB2_B3_B34_B39_SW1 |
| GPIO_25 | DPDT_SWITCH_EN | GPIO_66 | LCM_ID1 | GPIO_107 | PRX_MB2_B3_B34_B39_SW2 |
| GPIO_26 | CAM_MCLK0 | GPIO_67 | SIM/TF_DET_N | GPIO_108 | PRX_B7_B38_B41_SW |
| GPIO_27 | CAM_MCLK1 | GPIO_68 | NC | GPIO_109 | DRX_ANT_SW1 |
| GPIO_28 | NC | GPIO_69 | CDC_PDM_CLK | GPIO_110 | DRX_ANT_SW2 |
| GPIO_29 | CAM_I2C_SDA0 | GPIO_70 | CDC_PDM_SYNC | GPIO_111 | FBRX_SEL |
| GPIO_30 | CAM_I2C_SCL0 | GPIO_71 | CDC_PDM_TX | GPIO_112 | DRX_HB2_B7_B38_B41 |
| GPIO_31 | CAM_I2C_SDA1 | GPIO_72 | CDC_PDM_RX0 | GPIO_113 | NC |
| GPIO_32 | CAM_I2C_SCL1 | GPIO_73 | CDC_PDM_RX1 | GPIO_114 | DBB2RF_TUNER_VC7 |
| GPIO_33 | GPIO_FLASH_EN | GPIO_74 | CDC_PDM_RX2 | GPIO_115 | DBB2RF_TUNER_VC6 |
| GPIO_34 | GPIO_FLASH_STROBE | GPIO_75 | WCSS_BT_SSBI | GPIO_116 | NC |
| GPIO_35 | NC(MCAM_PWDN) | GPIO_76 | WCSS_WLAN_DATA_2 | GPIO_117 | NC |
| GPIO_36 | MCAM_RST_N | GPIO_77 | WCSS_WLAN_DATA_1 | GPIO_118 | EXT_GPS_LNA_EN |
| GPIO_37 | FORCE_USB_BOOT | GPIO_78 | WCSS_WLAN_DATA_0 | GPIO_119 | CH0_GSM_TX_PHASE_D0 |
| GPIO_38 | HALL2DBB_INT | GPIO_79 | WCSS_WLAN_SET | GPIO_120 | RFFE5_CLK |
| GPIO_39 | NC(SCAM_PWDN) | GPIO_80 | WCSS_WLAN_CLK | GPIO_121 | RFFE5_DATA |
| GPIO_40 | SCAM_RST_N | GPIO_81 | WCSS_FM_SSBI | GPIO_125 | NC |
| GPIO_123 | NC | GPIO_124 | EINT_FTP | GPIO_122 | NC |
| GPIO_126 | NC | GPIO_127 | NC | GPIO_128 | GPIO_FP_LDO_EN |
| GPIO_129 | GPIO_WHITE_EN | GPIO_130 | NC | GPIO_131 | NC |
| GPIO_132 | GPIO_FP_RST | GPIO_133 | | | |

| | | | | | |
|---|---|---|---|---|---|
| COMPANY: Shanghai Longcheer Technology Co., Ltd | | | | | |
| TITLE: 04_GPIO MAP | | | | | |
| DRAWN: LiWeihua | DATED: 2016/9/28 | CODE: XX | SIZE: A0 | DRAWING NO: XXXX | REV: A |
| CHECKED: YaoGang | DATED: 2016/9/28 | SCALE: <Scale> | | SHEET: 1of 21 | |

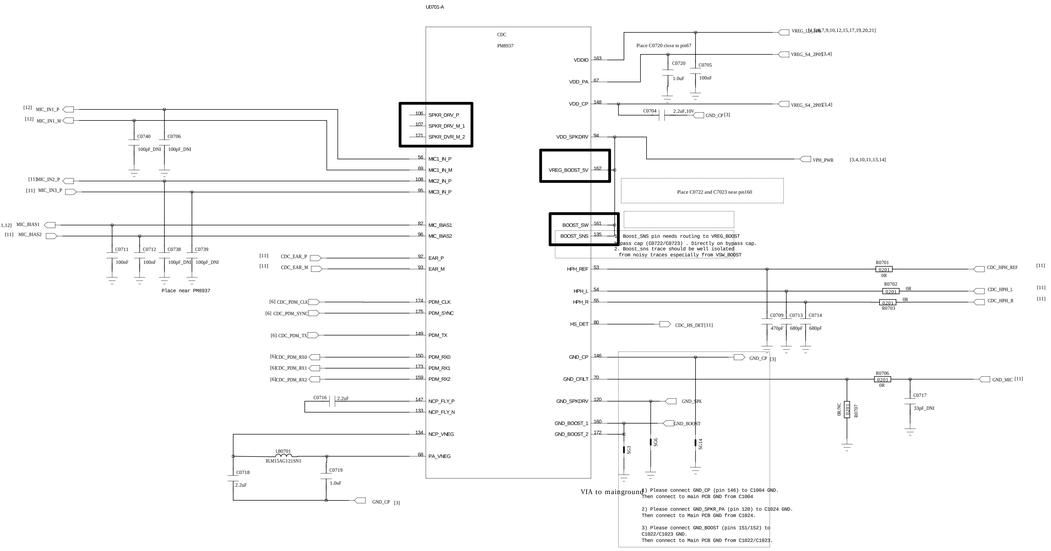



| | | | | | |
|---|---|---|---|---|---|
| COMPANY: Shanghai Longcheer Technology Co., Ltd | | | | | |
| TITLE: 03_Block Diagram | | | | | |
| DRAWN: LiWeihua | DATE: 2016/9/28 | CODE: XX | SIZE: A0 | DRAWING NO: XXXX | REV: A |
| CHECKED: YaoGang | DATE: 2016/9/28 | SCALE: <Scale> | | SHEET: 2of 21 | |

# PM8937 CONTROL

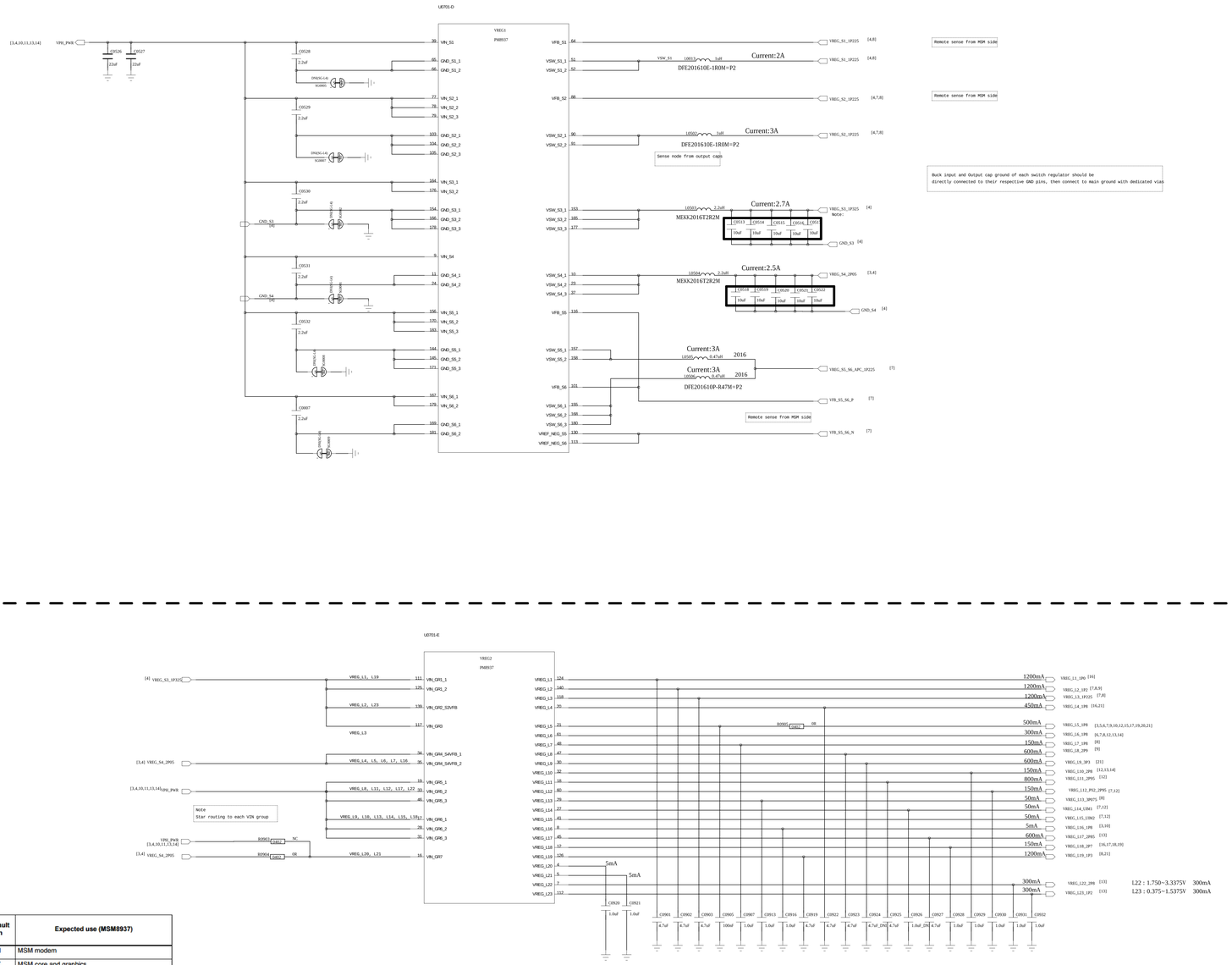



# PM8937 CODEC




| | | | | |
|---|---|---|---|---|
| COMPANY: Shanghai Longcheer Technology Co., Ltd | | | | |
| TITLE: 05_PM8937_CONTROL_CODEC | | | | |
| DRAWN: LiWeihua | DATED: 2016/9/28 | CODE: XX | SIZE: A0 | DRAWING NO: XXXX — REV: A |
| CHECKED: YaoGang | DATED: 2016/9/28 | SCALE: <Scale> | | SHEET: 3or 21 |

# BUCK







# LDO

**Table 3-6 PM8937/PM8940 regulators and their intended uses**

| Function | Circuit type | Default V (V) [1] | Specified range (V) [2] (MSM8937) | Programmable range (V) | Rated current (mA) | Default on | Expected use (MSM8937) |
|---|---|---|---|---|---|---|---|
| S1 | ULT-SMPS | 1.225 | 0.900–1.350 | 0.375–1.5625 | 2000 [3] | N | MSM modem |
| S2 | ULT-SMPS | 1.225 | 0.550–1.350 | 0.375–1.5625 | 3000 | Y | MSM core and graphics |
| S3 | HF-SMPS | 1.288 | 1.200–1.4125 | 0.375–1.5625 | 2700 | Y | Low-voltage LDOs (1, 2, 3, 19, and 23) |
| S4 | ULT-SMPS | 2.050 | 1.800–2.050 | 1.550–3.125 | 2500 | Y | High-voltage LDOs (4, 5, 6, 7, 16, RFCLK, and XO) |
| S5 | FT-SMPS | 1.225 | 1.050–1.350 | 0.350–1.355 | 3000 | Y | MSM applications processor |
| S6 | FT-SMPS | 1.225 | 1.050–1.350 | 0.350–1.355 | 3000 | N | MSM applications processor |
| L1 | NMOS LDO | 1.000 | 1.000 | 0.375–1.5375 | 1200 | N | RFICs |
| L2 | NMOS LDO | 1.200 | 1.200 | 0.375–1.5375 | 1200 | Y | LPDDR2/LPDDR3, MIPI CSI, and DSI |
| L3 | NMOS LDO | 1.225 | 0.750–1.350 | 0.375–1.5375 | 1200 | Y | VDDMX |
| L4 | PMOS LDO | 1.800 | 1.800 | 1.750–3.3375 | 450 | N | RFICs and GPS eLNA |
| L5 [4] | PMOS LDO | 1.800 | 1.800 | 1.750–3.3375 | 500 | Y | Most digital I/Os, MSM pad groups 3 and 7, LPDDR, and eMMC |
| L6 | PMOS LDO | 1.800 | 1.800 | 1.750–3.3375 | 300 | N | MSM DSI PLL and OTP, camera, touchscreen, display, and sensors |
| L7 | PMOS LDO | 1.800 | 1.800 | 1.750–3.3375 | 150 | Y | MSM analog and PLLs, WCN XO, and PM baseband clock driver |
| L8 | PMOS LDO | 2.900 | 2.900 | 1.750–3.3375 | 600 | Y | eMMC |
| L9 | PMOS LDO | $V_{out}$ = 3.3 V for VBAT > 3.575 V; $V_{out}$ = 3 V for VBAT < 3.575 V | 3.000–3.300 | 1.750–3.3375 | 600 | N | WCN |
| L10 | PMOS LDO | 2.8 | 2.800 | 1.750–3.3375 | 150 | N | Sensors |
| L11 [5] | PMOS LDO | 2.950 | 2.950 | 1.750–3.3375 | 800 | Y | Micro SD |
| L12 [4] | PMOS LDO | 2.950 | 1.800/2.950 | 1.750–3.3375 | 150 | Y | MSM pad group 2 and SDC2 |
| L13 | PMOS LDO | 3.075 | 3.075 | 1.750–3.3375 | 50 | Y | MSM USB and audio |

PSEUDO CAPLESS LDOs

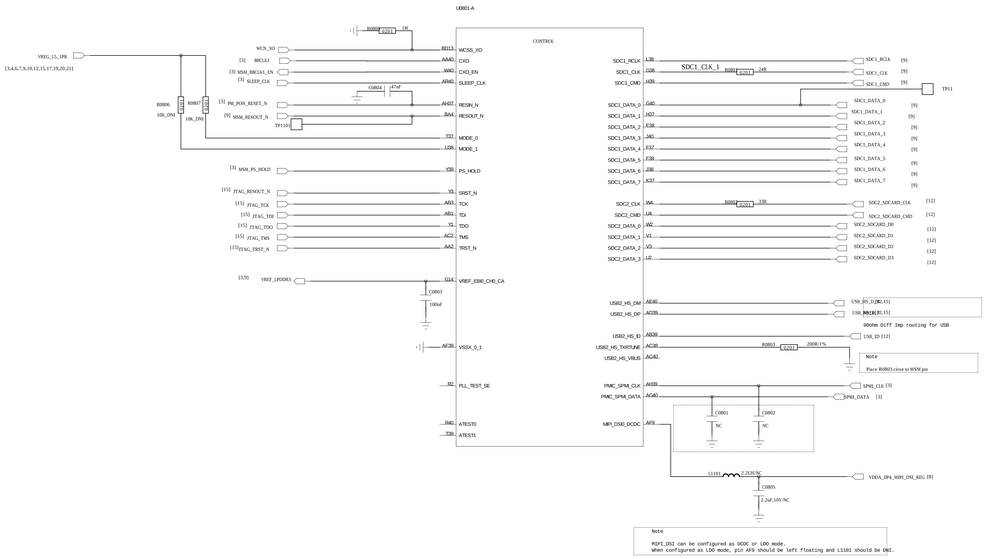
L4*, L6, L8*, L9*, L10, L11*, L12, L14, L15, L17*, L18, L22, L23

L4*, L8*, L9*, L11*, L17*, still need validation as Pseudo-capless

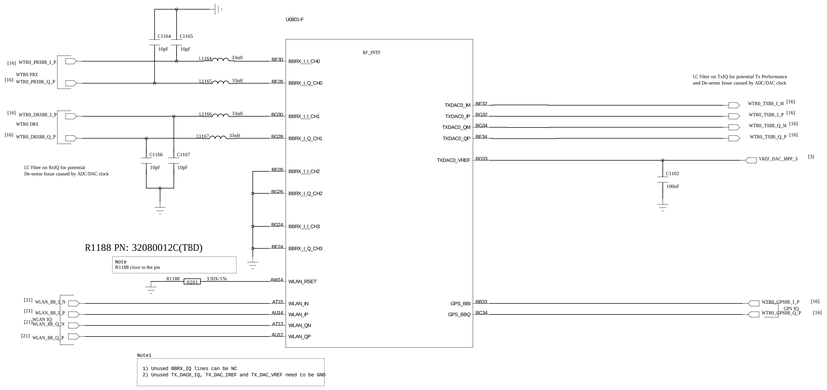
L5, L7, L13, L16 have internal PMIC Loads and require local CAPs.

| | | | |
|---|---|---|---|
| COMPANY: Shanghai Longcheer Technology Co., Ltd | | | |
| TITLE: 06_PM8937_BUCK_LDO | | | |
| CODE: XX | SIZE: A0 | DRAWING NO: XXXX | REV: A |
| DRAWN: LiWeihua | DATED: 2016/9/28 | | |
| CHECKED: YaoGang | DATED: 2016/9/28 | SCALE: <Scale> | SHEET: 4 OF 21 |

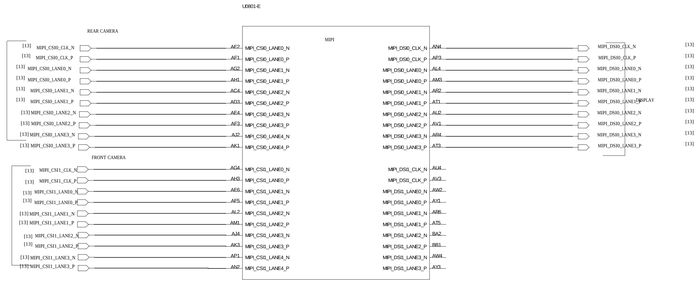
# MSM8937_CONTROL




# RF_CONTROL

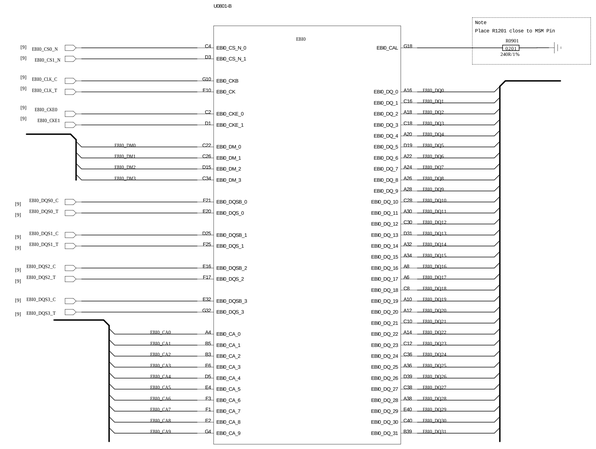



# MSM8937_MIPI




Note: If best EMI practices are followed for MIPI CSI/DSI signals, there is no need for common mode choke filters. You may choose to have placeholders for common mode depending upon your design constraints.
Extreme care must be taken that no stubs are created by doing so.

# MSM8937_EBI




| | | | | | |
|---|---|---|---|---|---|
| COMPANY: Shanghai Longcheer Technology Co., Ltd | | | | | |
| TITLE: 07_MSM8937_CONTROL_EBI_MIPI | | | | | |
| DRAWN: LiWeihua | DATED: 2016/9/28 | CODE: XX | SIZE: A0 | DRAWING NO: XXXX | REV: A |
| CHECKED: YaoGang | DATED: 2016/9/28 | SCALE: <Scale> | | SHEET: 5 OF 21 | |