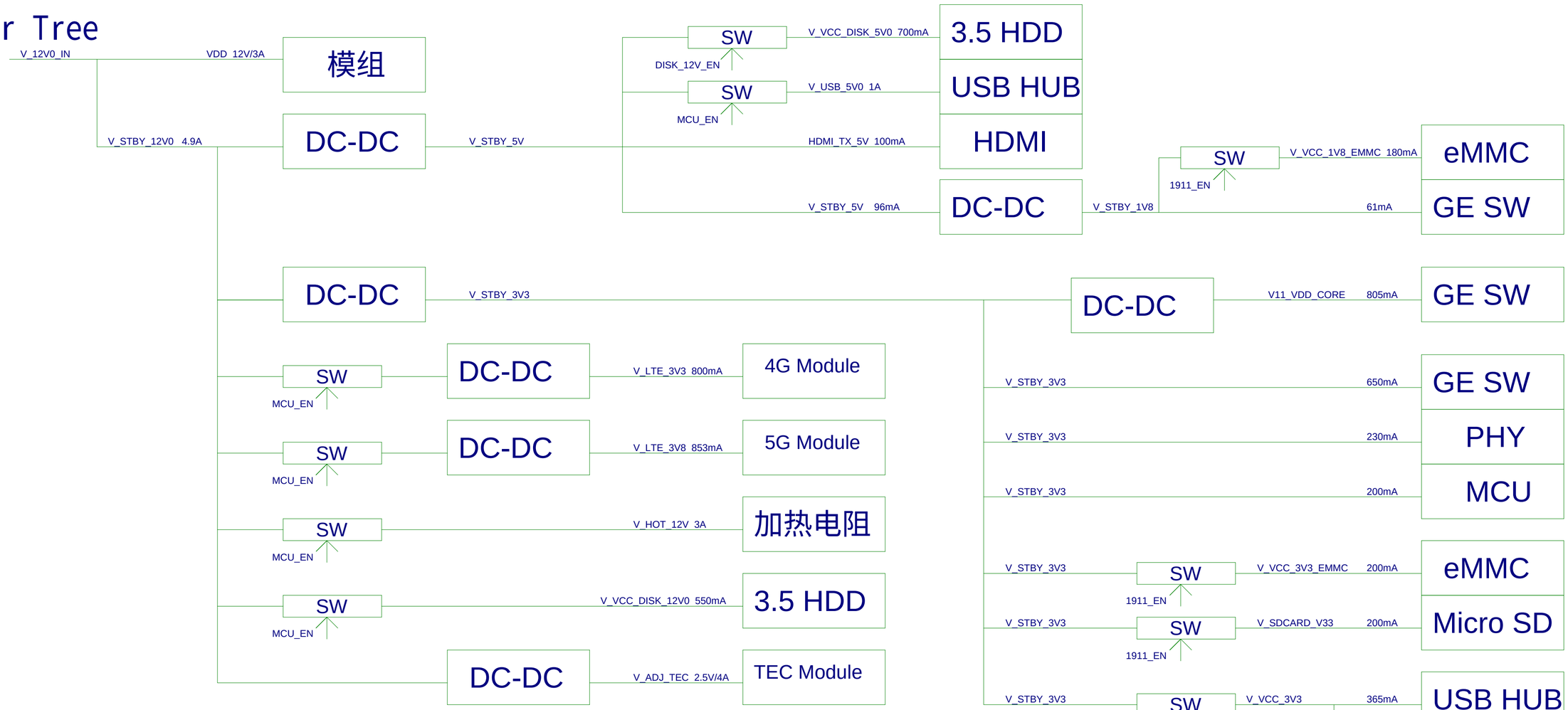
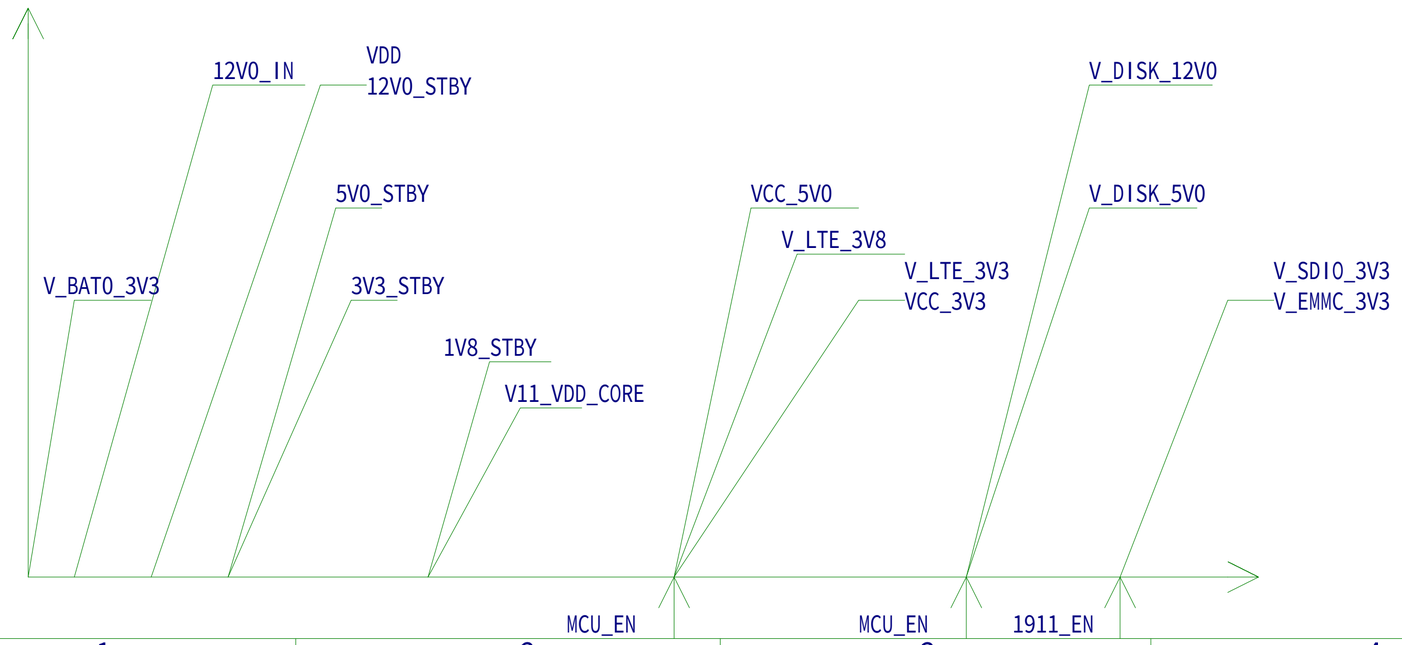
Atlas 200I A2 底板电路参考设计

Department：Ascend Computing Hardware Program

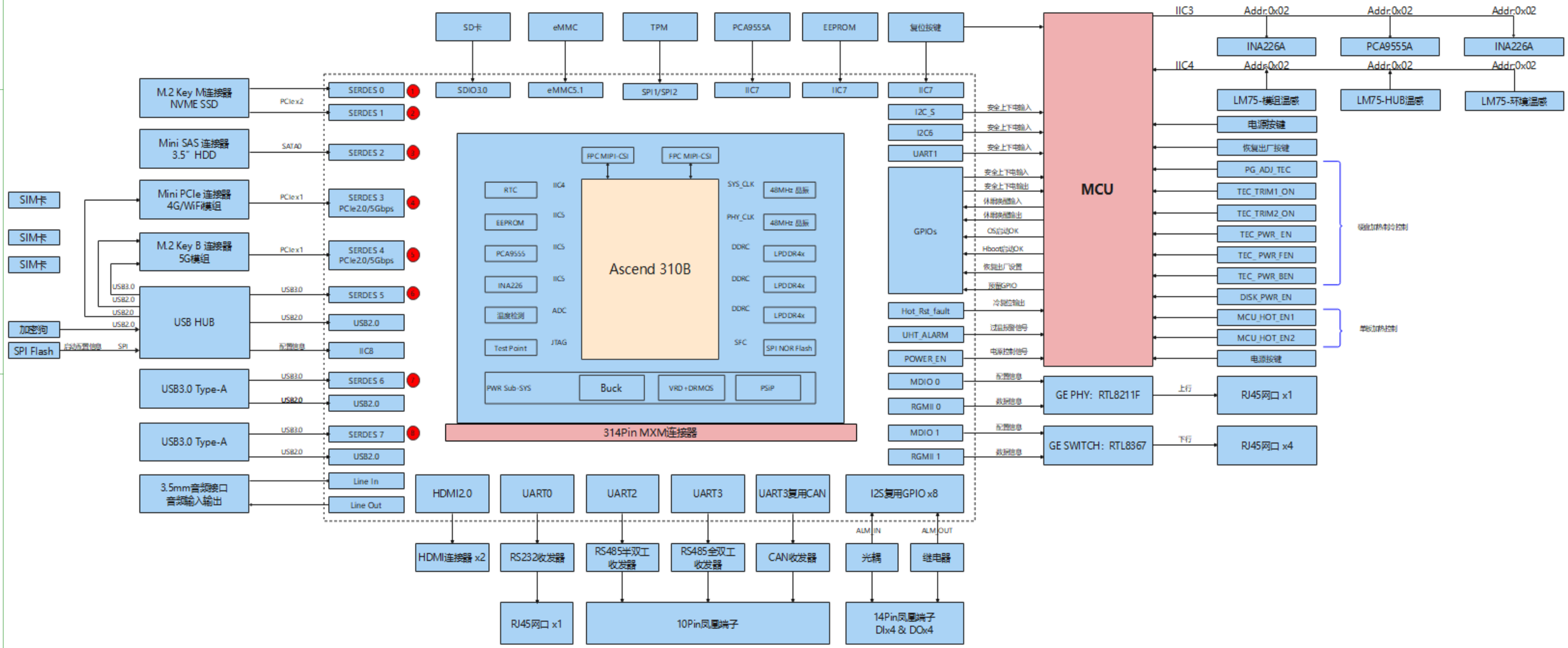
Power Tree



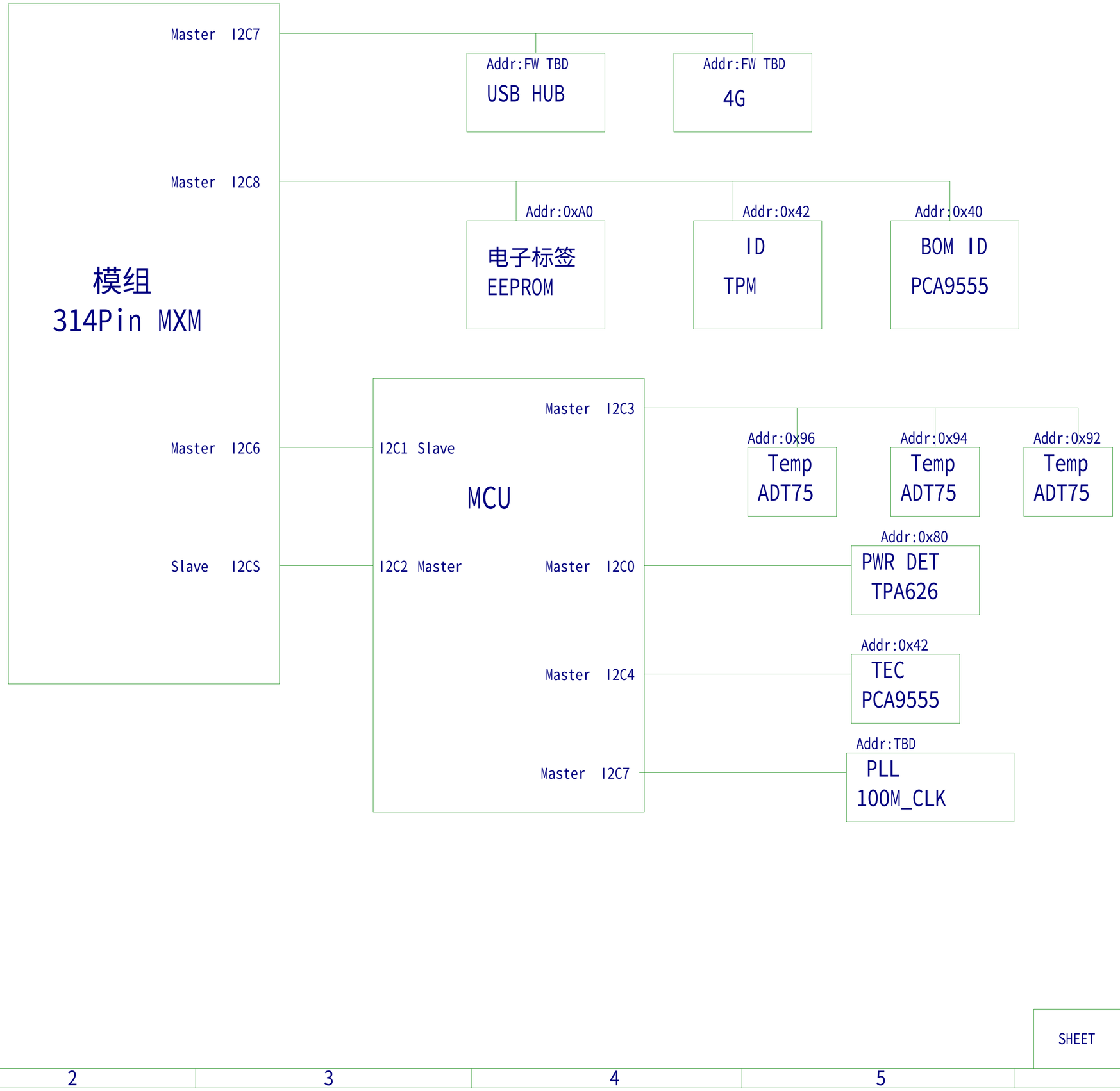
Power Sequence

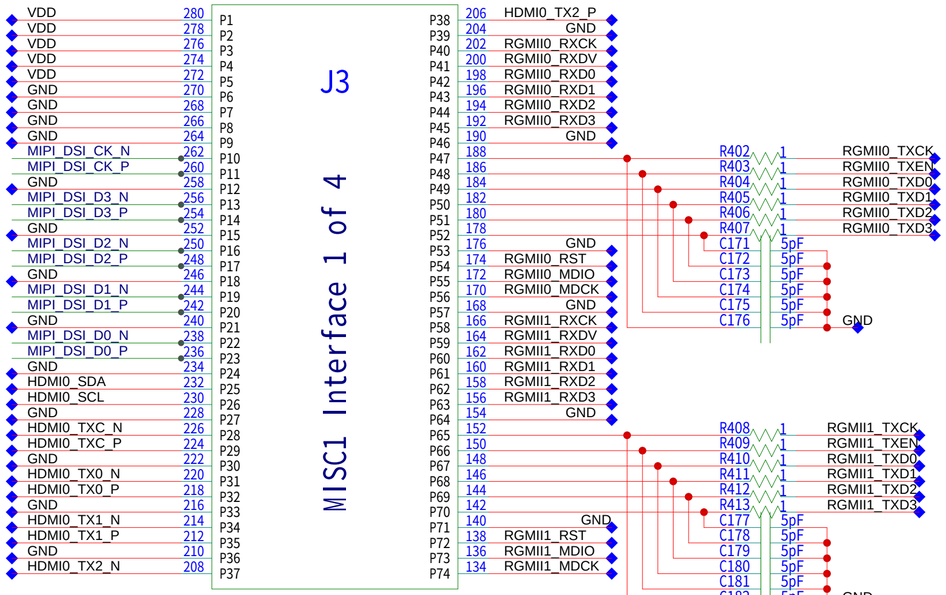


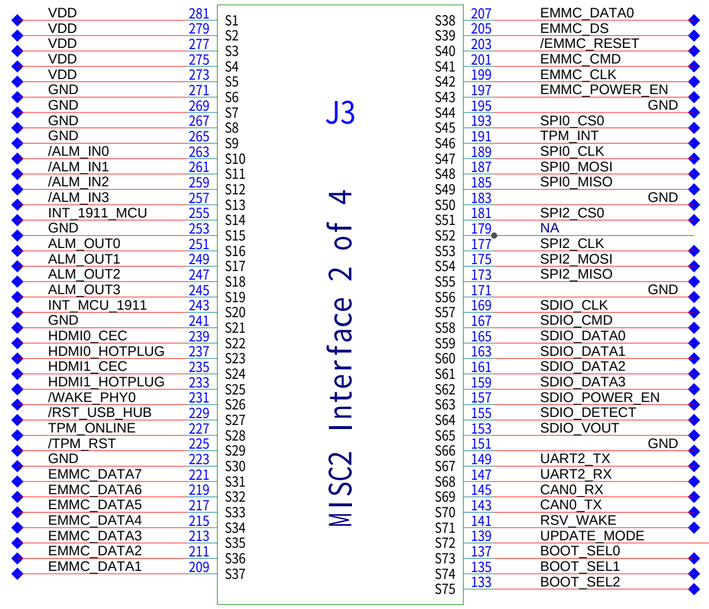
Block Diagram



I2C Block Diagram




J3
MISC1 Interface 1 of 4
VDD 280
VDD 278
VDD 276
VDD 274
VDD 272
GND 270
GND 268
GND 266
GND 264
MIPI_DSI_CK_N 262
MIPI_DSI_CK_P 260
GND 258
MIPI_DSI_D3_N 256
MIPI_DSI_D3_P 254
GND 252
MIPI_DSI_D2_N 250
MIPI_DSI_D2_P 248
GND 246
MIPI_DSI_D1_N 244
MIPI_DSI_D1_P 242
GND 240
MIPI_DSI_D0_N 238
MIPI_DSI_D0_P 236
GND 234
HDMI0_SDA 232
HDMI0_SCL 230
GND 228
HDMI0_TXC_N 226
HDMI0_TXC_P 224
GND 222
HDMI0_TX0_N 220
HDMI0_TX0_P 218
GND 216
HDMI0_TX1_N 214
HDMI0_TX1_P 212
GND 210
HDMI0_TX2_N 208
P1 P2 P3 P4 P5 P6 P7 P8 P9 P10 P11 P12 P13 P14 P15 P16 P17 P18 P19 P20 P21 P22 P23 P24 P25 P26 P27 P28 P29 P30 P31 P32 P33 P34 P35 P36 P37
P38 206 HDMI0_TX2_P
P39 204 GND
P40 202 RGMII0_RXCK
P41 200 RGMII0_RXDV
P42 198 RGMII0_RXD0
P43 196 RGMII0_RXD1
P44 194 RGMII0_RXD2
P45 192 RGMII0_RXD3
P46 190 GND
P47 188
P48 186
P49 184
P50 182
P51 180
P52 178
P53 176 GND
P54 174 RGMII0_RST
P55 172 RGMII0_MDIO
P56 170 RGMII0_MDCK
P57 168 GND
P58 166 RGMII1_RXCK
P59 164 RGMII1_RXDV
P60 162 RGMII1_RXD0
P61 160 RGMII1_RXD1
P62 158 RGMII1_RXD2
P63 156 RGMII1_RXD3
P64 154 GND
P65 152
P66 150
P67 148
P68 146
P69 144
P70 142
P71 140 GND
P72 138 RGMII1_MDIO
P73 136 RGMII1_MDCK
P74 134
R402 1 RGMII0_TXCK
R403 1 RGMII0_TXEN
R404 1 RGMII0_TXD0
R405 1 RGMII0_TXD1
R406 1 RGMII0_TXD2
R407 1 RGMII0_TXD3
C171 5pF
C172 5pF
C173 5pF
C174 5pF
C175 5pF
C176 5pF GND
R408 1 RGMII1_TXCK
R409 1 RGMII1_TXEN
R410 1 RGMII1_TXD0
R411 1 RGMII1_TXD1
R412 1 RGMII1_TXD2
R413 1 RGMII1_TXD3
C177 5pF
C178 5pF
C179 5pF
C180 5pF
C181 5pF
C182 5pF GND

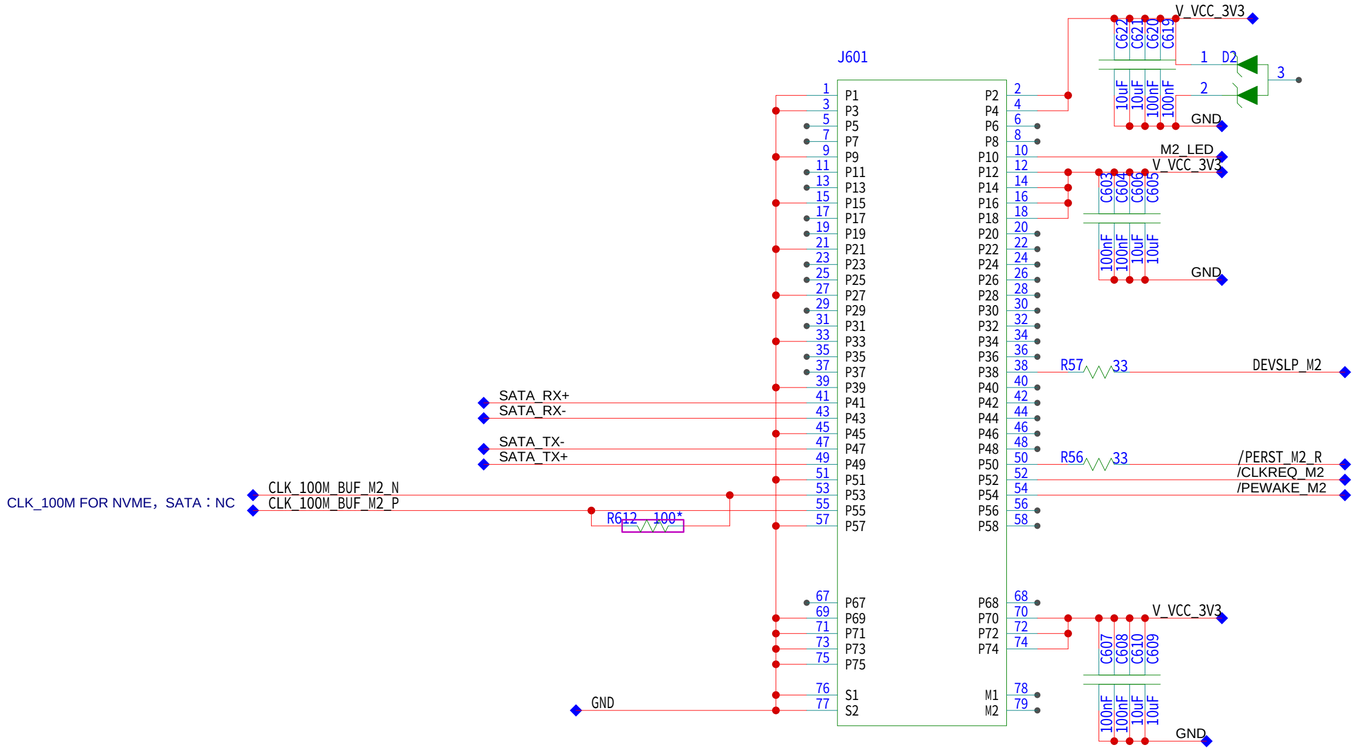

J3
MISC2 Interface 2 of 4
VDD 281
VDD 279
VDD 277
VDD 275
VDD 273
GND 271
GND 269
GND 267
GND 265
/ALM_IN0 263
/ALM_IN1 261
/ALM_IN2 259
/ALM_IN3 257
INT_1911_MCU 255
GND 253
ALM_OUT0 251
ALM_OUT1 249
ALM_OUT2 247
ALM_OUT3 245
INT_MCU_1911 243
GND 241
HDMI0_CEC 239
HDMI0_HOTPLUG 237
HDMI1_CEC 235
HDMI1_HOTPLUG 233
/WAKE_PHY0 231
/RST_USB_HUB 229
TPM_ONLINE 227
/TPM_RST 225
GND 223
EMMC_DATA7 221
EMMC_DATA6 219
EMMC_DATA5 217
EMMC_DATA4 215
EMMC_DATA3 213
EMMC_DATA2 211
EMMC_DATA1 209
S1 S2 S3 S4 S5 S6 S7 S8 S9 S10 S11 S12 S13 S14 S15 S16 S17 S18 S19 S20 S21 S22 S23 S24 S25 S26 S27 S28 S29 S30 S31 S32 S33 S34 S35 S36 S37
S38 207 EMMC_DATA0
S39 205 EMMC_DS
S40 203 /EMMC_RESET
S41 201 EMMC_CMD
S42 199 EMMC_CLK
S43 197 EMMC_POWER_EN
S44 195 GND
S45 193 SPI0_CS0
S46 191 TPM_INT
S47 189 SPI0_CLK
S48 187 SPI0_MOSI
S49 185 SPI0_MISO
S50 183 GND
S51 181 SPI2_CS0
S52 179 NA
S53 177 SPI2_CLK
S54 175 SPI2_MOSI
S55 173 SPI2_MISO
S56 171 GND
S57 169 SDIO_CLK
S58 167 SDIO_CMD
S59 165 SDIO_DATA0
S60 163 SDIO_DATA1
S61 161 SDIO_DATA2
S62 159 SDIO_DATA3
S63 157 SDIO_POWER_EN
S64 155 SDIO_DETECT
S65 153 SDIO_VOUT
S66 151 GND
S67 149 UART2_TX
S68 147 UART2_RX
S69 145 CAN0_RX
S70 143 CAN0_TX
S71 141 RSV_WAKE
S72 139 UPDATE_MODE
S73 137 BOOT_SEL0
S74 135 BOOT_SEL1
S75 133 BOOT_SEL2
R83 1k* GND

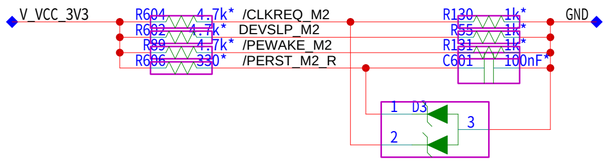
J3
MISC3 Interface 3 of 4
124
122
USB1_OVC 120
USB2_DP2 118
USB2_DN2 116
114
112
110
GND 108
USB3_0_RX_P 106
USB3_0_RX_N 104
GND 102
USB3_1_RX_P 100
USB3_1_RX_N 98
GND 96
USB3_2_RX_P 94
USB3_2_RX_N 92
GND 90
SERDES4_RX_P 88
SERDES4_RX_N 86
GND 84
RSV 82
RSV 80
GND 78
RSV 76
RSV 74
GND 72
RSV 70
RSV 68
GND 66
RSV 64
RSV 62
GND 60
SERDES3_RX_P 58
SERDES3_RX_N 56
GND 54
SERDES2_RX_P 52
SERDES2_RX_N 50
GND 48
SERDES1_RX_P 46
SERDES1_RX_N 44
P75 P76 P77 P78 P79 P80 P81 P82 P83 P84 P85 P86 P87 P88 P89 P90 P91 P92 P93 P94 P95 P96 P97 P98 P99 P100 P101 P102 P103 P104 P105 P106 P107 P108 P109 P110 P111 P112 P113 P114 P115
P116 42 GND
P117 40 SERDES0_RX_P
P118 38 SERDES0_RX_N
P119 36 GND
P120 34 SERDES_CLK0_P
P121 32 SERDES_CLK0_N
P122 30 GND
P123 28 UART3_TX
P124 26 UART3_RX
P125 24 UART6_RX
P126 22 UART6_TX
P127 20 UART1_TX
P128 18 UART1_RX
P129 16 UART0_TX
P130 14 UART0_RX
P131 12 GND
P132 10 I2CS_SCL
P133 8 I2CS_SDA
P134 6 I2C6_SCL
P135 4 I2C6_SDA
P136 2 I2C7_SCL
P137 320 I2C7_SDA
P138 318 I2C8_SCL
P139 316 I2C8_SDA
P140 314 /PEWAKE_5G_LTE
P141 312 SLOT_SEL0 R142 10k
P142 310 SLOT_SEL1 R187 10k GND
P143 308 GND
P144 306 AC_IN_L
P145 304 AC_IN_R
P146 302 AGND_AUDIO
P147 300 AC_MICBIAS0
P148 298 GND
P149 296 PERST
P150 294 /PERST_5G_LTE
P151 292 RST_5G_LTE
P152 290 /RST_4G_LTE
P153 288 FACTORYSET_1911
P154 286 1911_OS_OK
P155 284 1911_HBOOT_OK
P156 282 RSV_GPIO

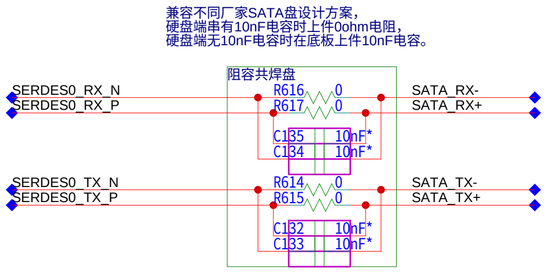
J3
MISC4 Interface 4 of 4
USB2_DP1 125
USB2_DN1 123
USB1_PEN 121
USB2_DP3 119
USB2_DN3 117
USB1_VBUS 115
113
111
GND 109
USB3_0_TX_P 107
USB3_0_TX_N 105
GND 103
USB3_1_TX_P 101
USB3_1_TX_N 99
GND 97
USB3_2_TX_P 95
USB3_2_TX_N 93
GND 91
SERDES4_TX_P 89
SERDES4_TX_N 87
GND 85
RSV 83
RSV 81
GND 79
RSV 77
RSV 75
GND 73
RSV 71
RSV 69
GND 67
RSV 65
RSV 63
GND 61
SERDES3_TX_P 59
SERDES3_TX_N 57
GND 55
SERDES2_TX_P 53
SERDES2_TX_N 51
GND 49
SERDES1_TX_P 47
SERDES1_TX_N 45
322
GND 323
S1_1
S2_1
S76 S77 S78 S79 S80 S81 S82 S83 S84 S85 S86 S87 S88 S89 S90 S91 S92 S93 S94 S95 S96 S97 S98 S99 S100 S101 S102 S103 S104 S105 S106 S107 S108 S109 S110 S111 S112 S113 S114 S115 S116
S117 43 GND
S118 41 SERDES0_TX_P
S119 39 SERDES0_TX_N
S120 37 GND
S121 35 RSV
S122 33 RSV
S123 31 GND
S124 29 HDMI1_SDA
S125 27 HDMI1_SCL
S126 25 GND
S127 23 HDMI1_TXC_N
S128 21 HDMI1_TXC_P
S129 19 GND
S130 17 HDMI1_TX0_N
S131 15 HDMI1_TX0_P
S132 13 GND
S133 11 HDMI1_TX1_N
S134 9 HDMI1_TX1_P
S135 7 GND
S136 5 HDMI1_TX2_N
S137 3 HDMI1_TX2_P
S138 1 GND
S139 321 UART_RTX_EN
S140 319
S141 317
S142 315 /CLKREQ_5G_LTE
S143 313 PCIE_EP_RC_FLAG
S144 311 GND
S145 309 AC_OUT_L
S146 307 AC_OUT_R
S147 305 AGND_AUDIO
S148 303 UHT_ALARM
S149 301 POWER_EN
S150 299 TAISHAN_POWEROFF_IN
S151 297 /SYS_RST_IN
S152 295 HOT_RST_FAULT
S153 293 SYS_RST_OUT
S154 291 TAISHAN_SLEEP_IN
S155 289 TAISHAN_SLEEP_OUT
S156 287 TAISHAN_POWEROFF_OUT
S157 285 GND
S158 283 V_BAT_3V0
M1 324
M2 325
D_A
D18 2 1
D19 2 1 SATA_LED
D_A
R208 1k GND
整板全局复位
模组挂死，通知MCU复位模组

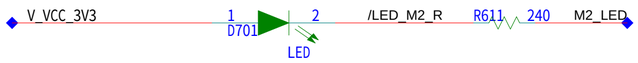
SHEET 5 OF 37

M.2 SATA SSD









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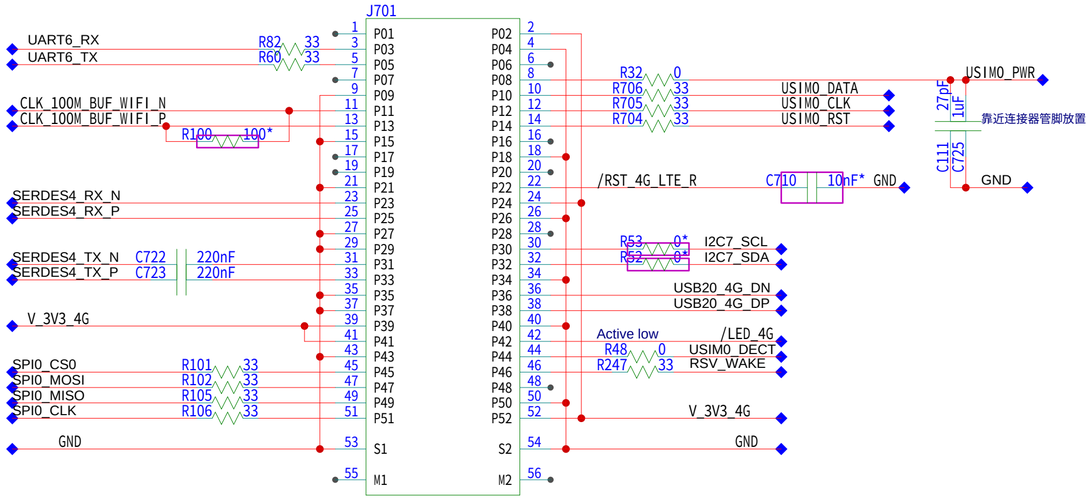
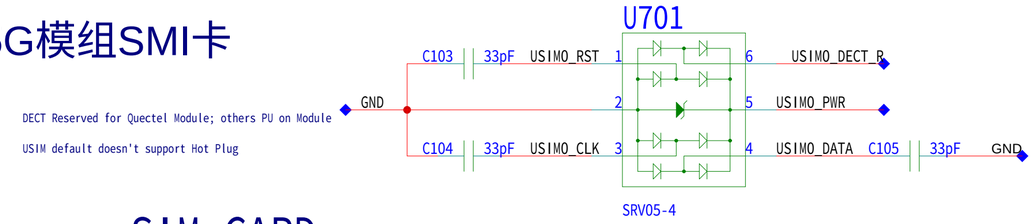
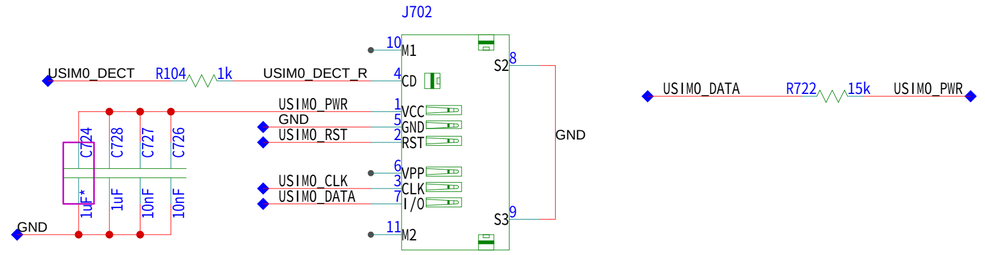
Mini WiFi/4G



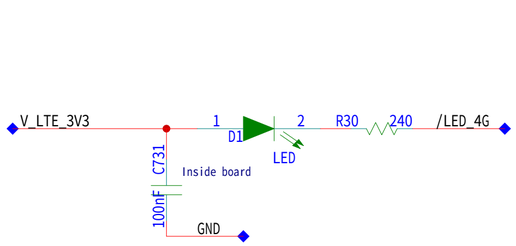
4/5G模组SMI卡

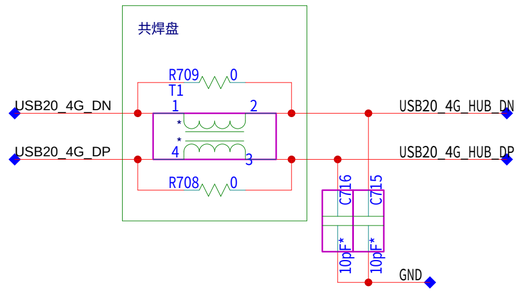


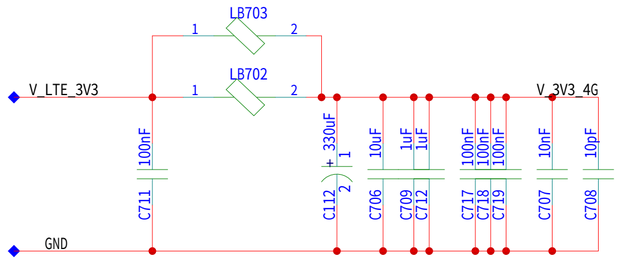
SIM CARD



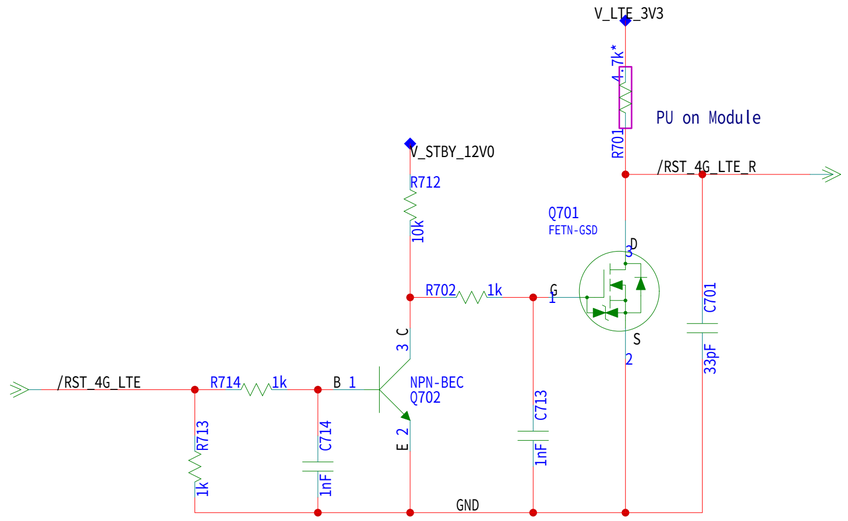
模块状态指示灯



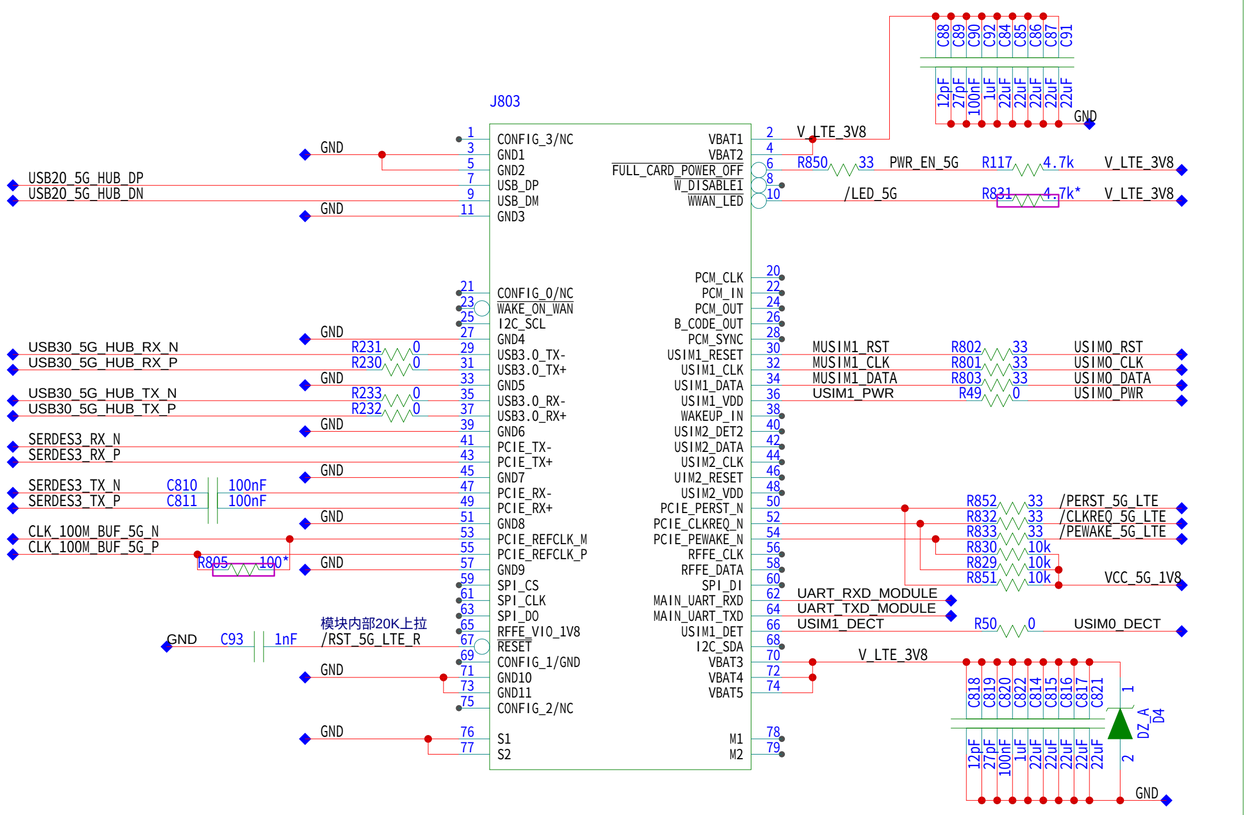


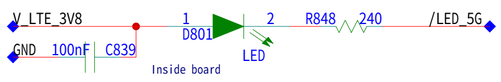


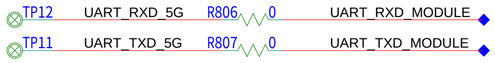
RST

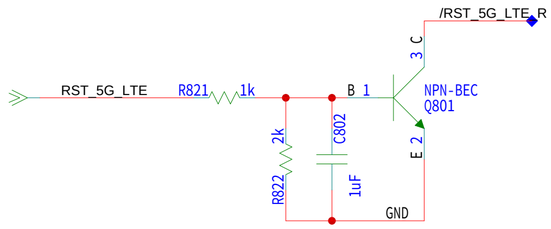


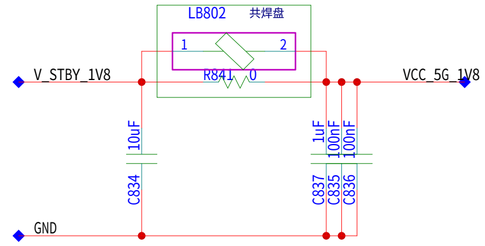
M.2-5G Module



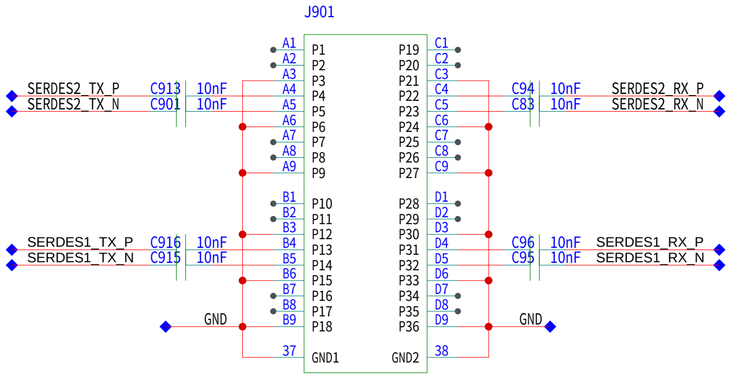




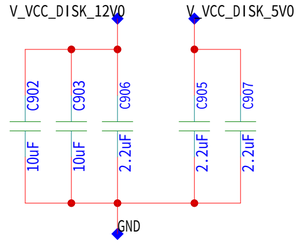


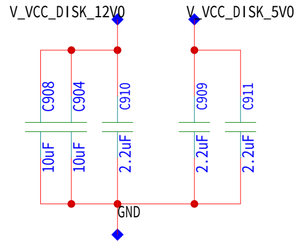


SHEET 8 OF 37

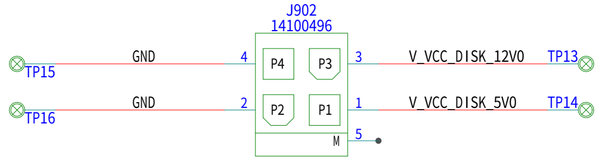


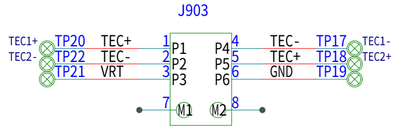
外接SATA硬盘





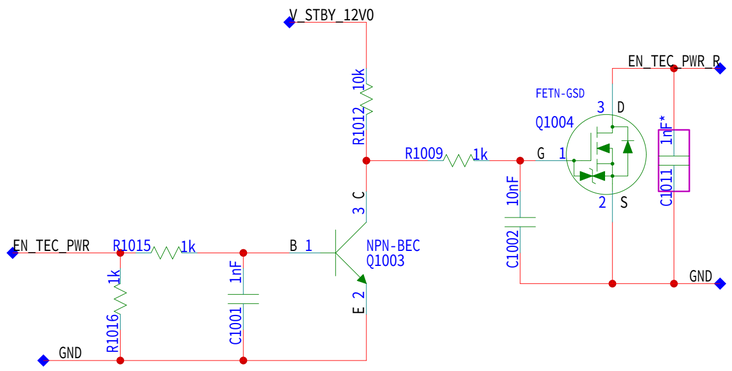
SATA硬盘供电

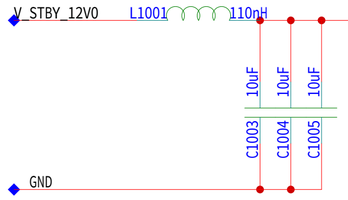


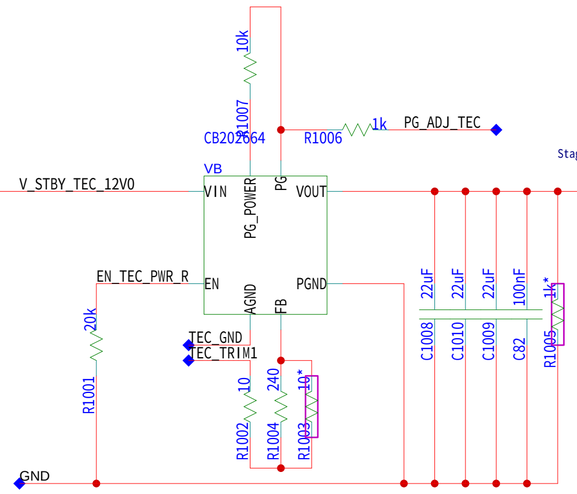


TEC为硬盘加热、降温模块

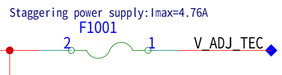
TEC_POWER

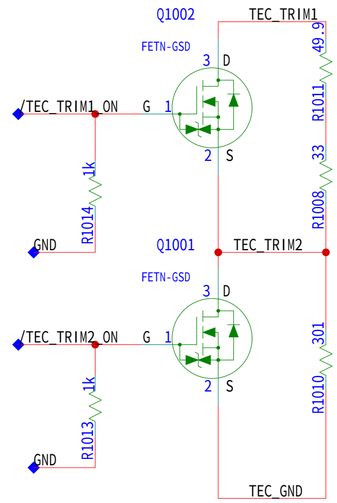






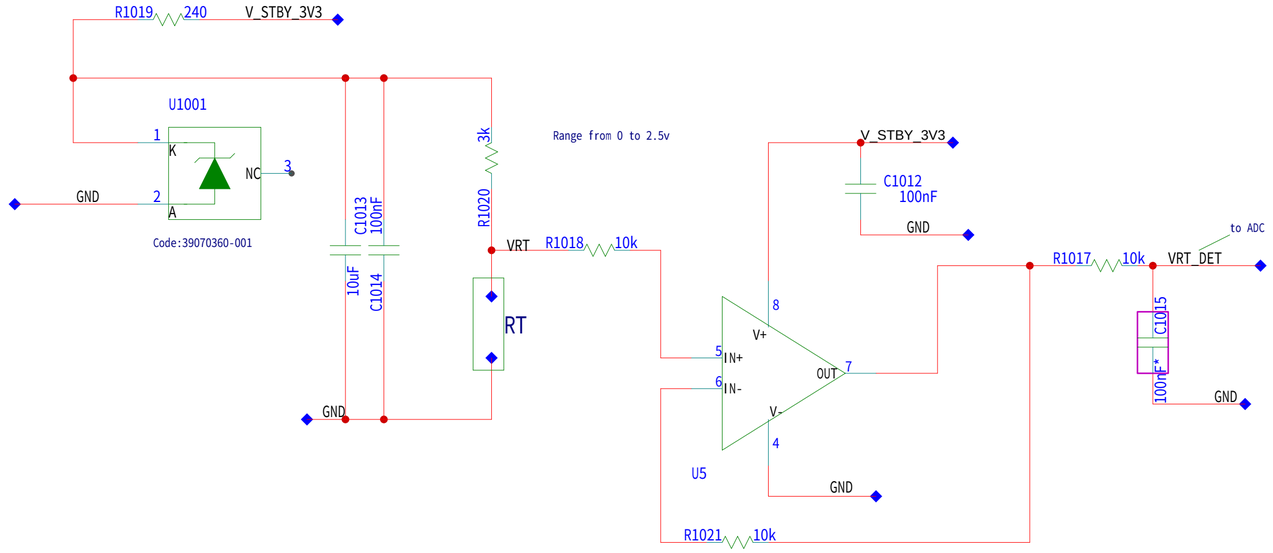
Staggering power supply:Imax=4.76A

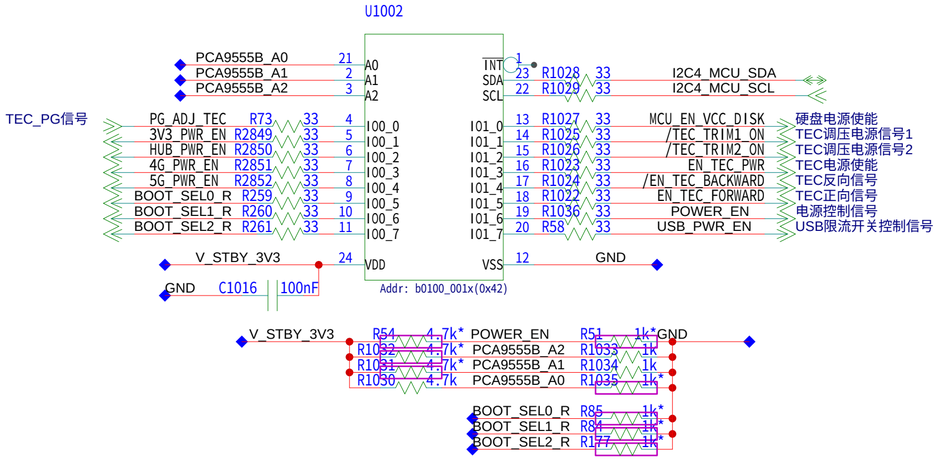




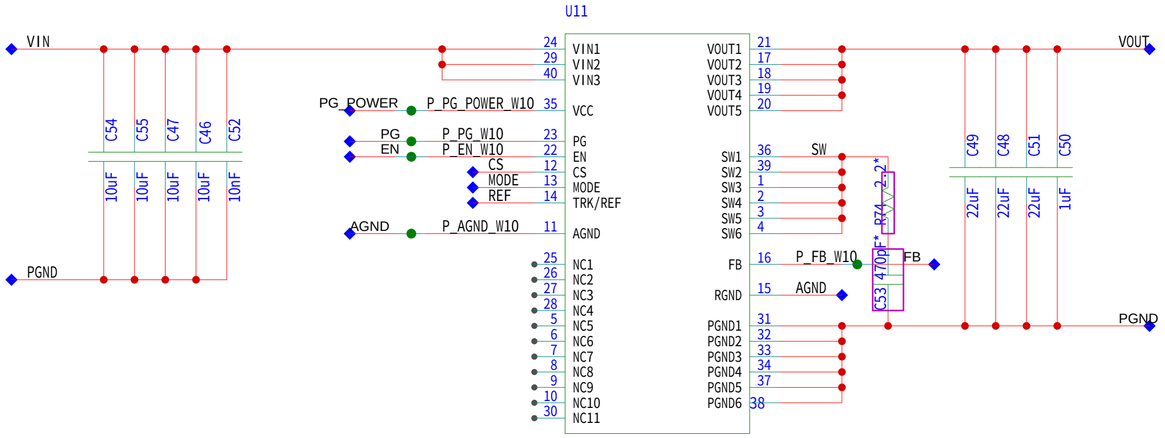
Vout = 0.6*(1+2/R)

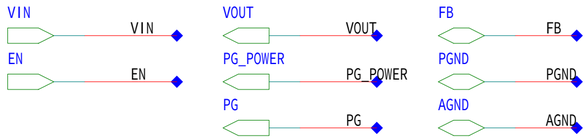
/TEC_TRIM1_ON	/TEC_TRIM2_ON	R	Vol
0	0	633.9 Ohm	2.49V
0	1	332.9 Ohm	4.20V
1	1	250 Ohm	5.4V





DC-DC CBB





NOTE:详细资料参考应用设计指导书

1、Vin：Cin最小值为20uF+10nF瓷片电容；

2、EN下拉电阻外置；在5V输出及以上场景时，CBB中EN下拉电阻R2001=17.4k（注：如要使用在5V输出以下场景，则需取R2001=20k）；该管脚不要外加电容

3、VCC:默认悬空，使用PG时必须上拉到该管脚（3V）

4、FB:输出调节，通过FB和RGND之间的电阻来调节输出电压，TRIM调节电阻R1和R2必须选择1%精度电阻。

5、PG:不使用PG时悬空，使用时上拉大于等于3K电阻至VCC（3V），且串联一个1K电阻至I/O口，不推荐外部电源（小于3.6V）上拉，外部上拉在EN使能前会有一个0.6V电平；

6、MODE:默认悬空，频率设定管脚

7、CS:默认悬空，OCP点设定管脚，过流点电阻Rcs（59K）已内置

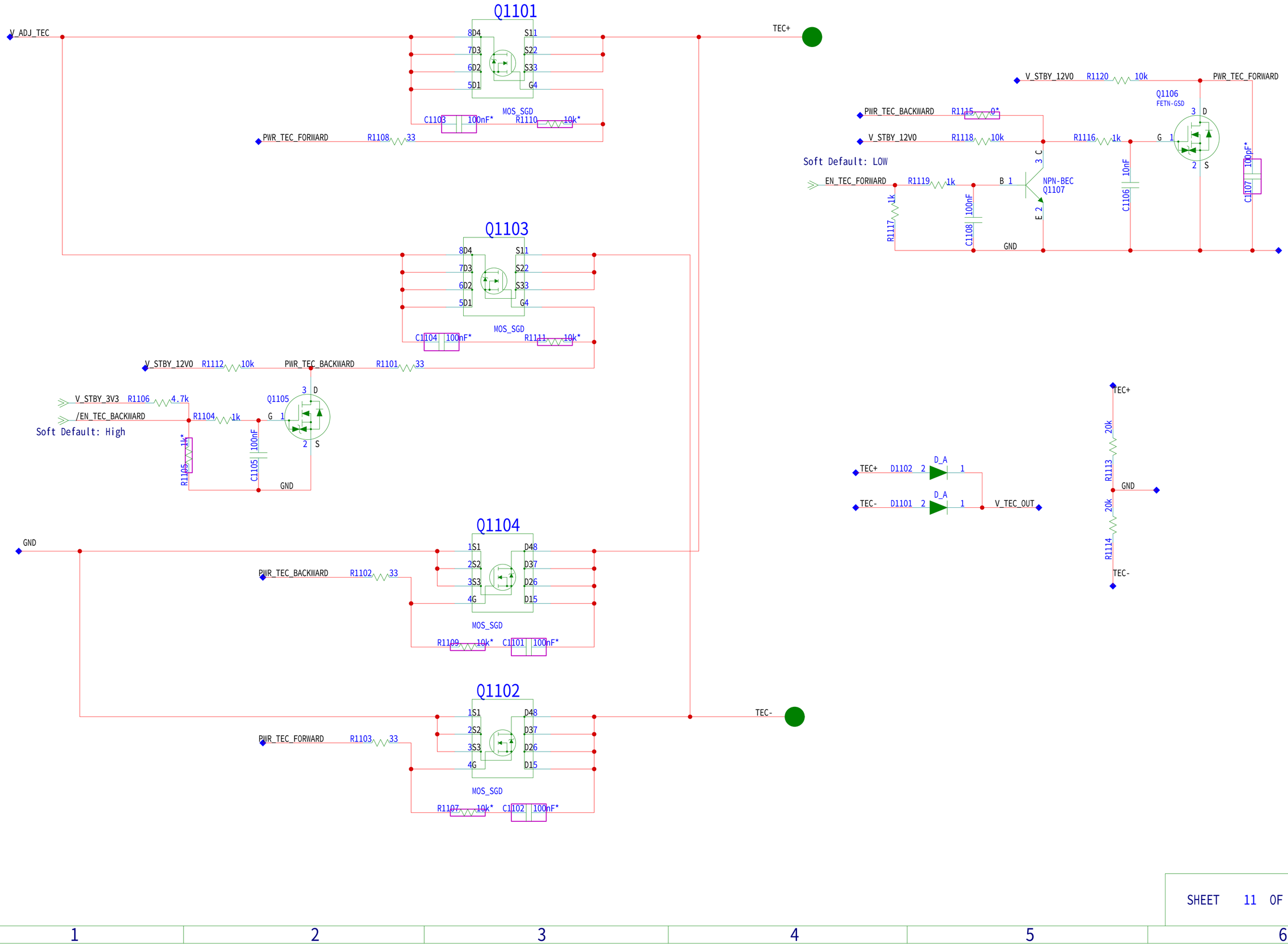
8、Vout：Cout最小值为44uF瓷片电容；

9、输出电压与输出电容配置见下表：输出电容选型，请与单板电源工程师讨论

输出电压	0.7V	1.2V	1.8V	3.3V	5.4V
输出电源	9*22UF	7*22UF	5*22UF	4*22UF	3*22UF

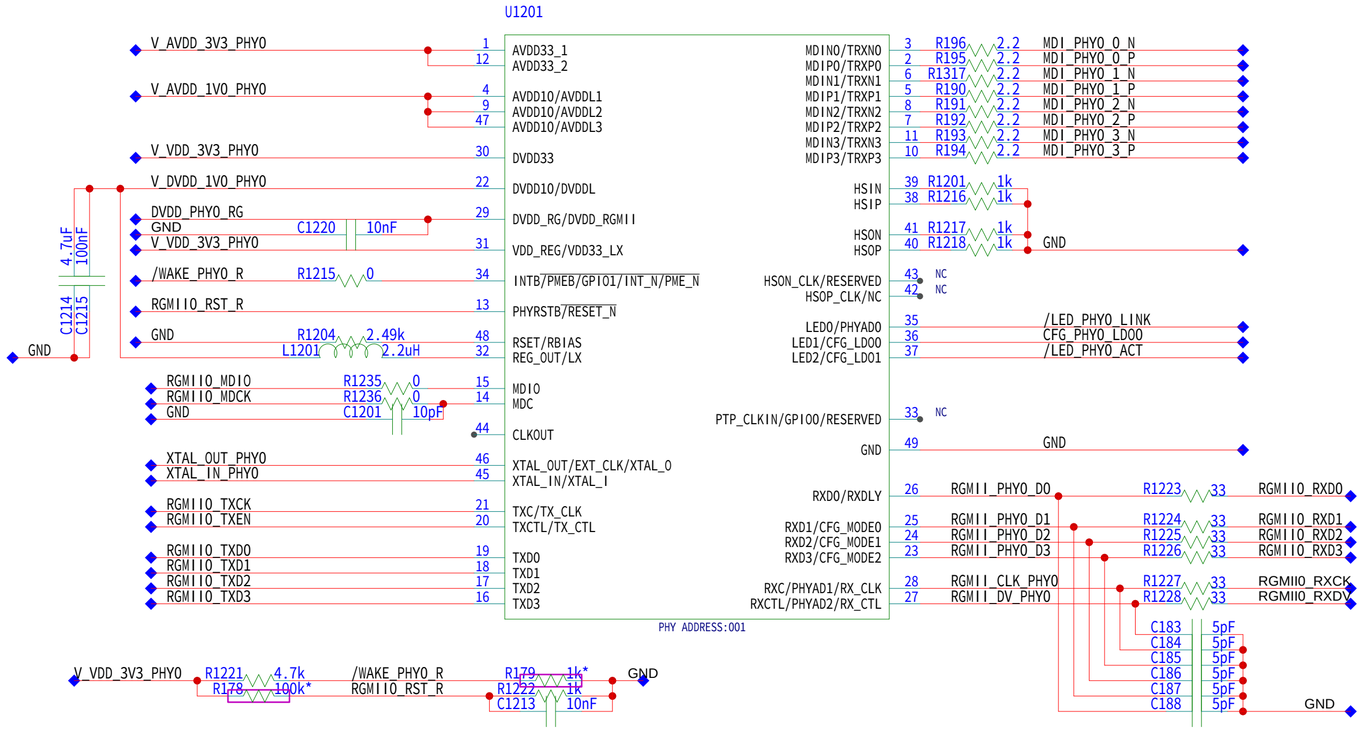
SHEET 1 OF 1

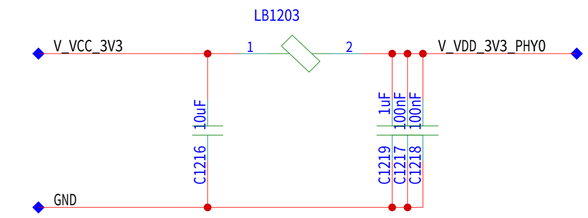
TEC_DRIVER（TEC为硬盘加热、降温模块）

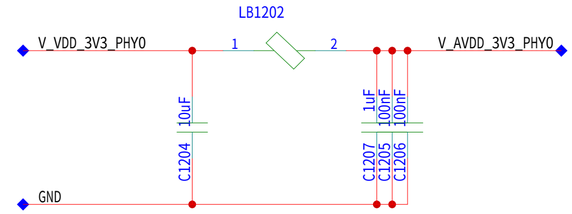


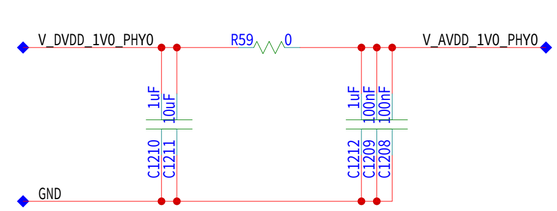
SHEET 11 OF 37

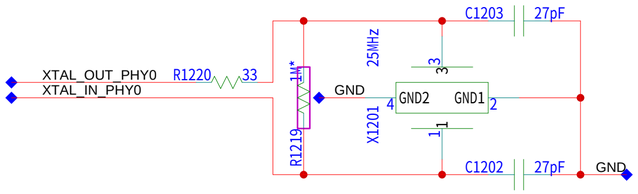
GE PHY











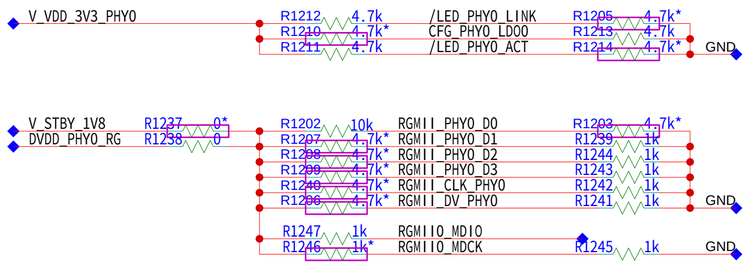
PIN	CFG		PIN	CFG
LED0	PHY_ADD0		RXD1	CFG_MODE0
RXC	PHY_ADD1		RXD2	CFG_MODE1
RXCTL	PHY_ADD2		RXD3	CFG_MODE2
RXD0	RXDLY			
LED1	CFG_LDO(0)			
LED2	CFG_LDO(1)			

10 CFG_LDO(1:0) LED2 LED1
STBY_12V0
01:2.5V
10:1.8V
11:1.5V

000 CFG_MODE[2:0] RXD3 RXD2 RXD1
000:UTP<-->RGMII
001:FIBER<-->RGMII
010:UTP/FIBER<-->RGMII
011:UTP<-->SGMII
100:SGMII(PHY)<-->RGMII(MAC)
101:SGMII(MAC)<-->RGMII(PHY)
110:UTP<-->FIBER(AUTO MODE)
111:UTP<-->FIBER(FORCE MODE)

011 PHY ADD[2:0] RXCTL RXC LED0

0* RXDLY RXD0
1: add 2ns dly to RXC for RXD 0：no delay



SHEET 12 OF 37

GE SWITCH

Boot Strap

DVDDIO
R1351 4.7k* POLED0
R1352 4.7k* POLED2
R1353 4.7k P1LED0
R1354 4.7k P1LED2
R1355 4.7k P2LED0
R1356 4.7k P2LED2
R1357 4.7k P3LED0
R1358 4.7k P3LED2
R1359 4.7k P4LED0
R1360 4.7k P4LED2
R1361 4.7k RTL8367_INT
R1370 4.7k
R1369 4.7k
R1368 4.7k*
R1367 4.7k*
R1371 4.7k*
R1366 4.7k*
R1365 4.7k*
R1363 4.7k*
R1364 4.7k*
R1362 4.7k*
R1372 1k*
GND

DVDDIO_1
R184 4.7k RGMII1_RXCK_R
R185 4.7k RGMII1_RXDV_R
R204 4.7k RGMII1_RXD0_R
R257 4.7k RGMII1_RXD1_R
R258 4.7k RGMII1_RXD2_R
R273 4.7k RGMII1_RXD3_R

POLED0/SMI_SEL
PULL UP:EEPROM SMI INTERFACE WHEN DIS_SPIS=1
**PULL DOWN:MII MANAGEMENT INTERFACE WHEN DIS_SPIS=1

POLED2/EN_PHY
**PULL UP:ENABLE EMBEDDED PHY
PULL DOWN:DISABLE EMBEDDED PHY

P1LED0/MIDO
PULL UP:MII PHY MANAGEMENT INTERFACE ID IS 29
**PULL DOWN:MII PHY MANAGEMENT INTERFACE ID IS 0

P1LED2/RESERVED
**MUST PULL HIGH OR KEEP FLOATING

P2LED0/DISAUTOLOAD
**PULL UP:DISABLE EEPROM AUTOLOAD
PULL DOWN:ENABLE EEPROM ANTULOAD

P2LED2/DIS_8051
**PULL UP:DISABLE 8051
PULL DOWN:ENABLE 8051

P3LED0/RESERVED
**MUST PULL LOW VIA 4.7K

P3LED2/EN_PWRLIGHT
**PULL UP:ENABLE POWER ON LIGHT
PULL DOWN:DISABLE POWER ON LIGHT

P4LED0/EEPROM_MOD
**PULL UP:24C32--24C256
PULL DOWN:24C02--24C16

P4LED2/DIS_SPI
**PULL UP:DISABLE SPI SLAVE
PULL DOWN:ENABLE SPI SLAVE

INTERRUPT
ACTIVE LOW BY PULL-UP TO DVDD VIA A 4.7K

LOOP DETECTION CONFIGURATION
**PULL UP:DISABLE LOOP DETECTION
PULL DOWN:ENABLE LOOP DETECTION

GND R1373 4.7k
RTL8367_INT
GND R1382 2.49k
/RTL8367_RST
GND R1374 4.7k
GND C1317 15pF RGMII1_TXCK
RGMII1_RXCK R1324 33 RGMII1_RXCK_R
GND C97 15pF
RGMII1_TXEN
RGMII1_RXDV R1323 33 RGMII1_RXDV_R
GND C189 5pF
RGMII1_TXD0
RGMII1_TXD1
RGMII1_TXD2
RGMII1_TXD3
RGMII1_RXD0 R1322 33 RGMII1_RXD0_R
GND C190 5pF
RGMII1_RXD1 R1321 33 RGMII1_RXD1_R
GND C191 5pF
RGMII1_RXD2 R1320 33 RGMII1_RXD2_R
GND C192 5pF
RGMII1_RXD3 R1318 33 RGMII1_RXD3_R
GND C193 5pF
GND R1375 4.7k
R1376 4.7k
R1377 4.7k
GND R1378 4.7k
R1379 4.7k
R1380 4.7k
R1381 4.7k

20 DIS_LPD/BUZZER
17 ATESTCK0
19 INTERRUPT
13 MDIREF
91 NRESET
15 RTT1
16 RTT2
56 E1_CRS/M1M_CRS
63 E1_DICLK/RG1_RXCLK/M1M_RXCLK
M1P_TXCLK
E1_GOCLK/RG1_TXCLK/M1M_TXCLK
M1P_RXCLK
E1_DIDV/RG1_RXCTL/M1M_RXDV
M1P_TXEN
E1_DOEN/RG1_TXCTL/M1M_TXEN
62 M1P_RXDV
64
61
65 E1_DIO/RG1_RXD0/M1M_RXD0
M1P_TXD0
66 E1_DI1/RG1_RXD1/M1M_RXD1
M1P_TXD1
67 E1_DI2/RG1_RXD2/M1M_RXD2
M1P_TXD2
68 E1_DI3/RG1_RXD3/M1M_RXD3
M1P_TXD3
60 E1_DO0/RG1_TXD0/M1M_TXD0
M1P_RXD0
59 E1_DO1/RG1_TXD1/M1M_TXD1
M1P_RXD1
58 E1_DO2/RG1_TXD2/M1M_TXD2
M1P_RXD2
57 E1_DO3/RG1_TXD3/M1M_TXD3
M1P_RXD3
47 E2_DICLK/RG2_RXCLK/M2M_RXCLK
M2P_TXCLK
46 E2_GOCLK/RG2_TXCLK/M2M_TXCLK
M2P_RXCLK
48 E2_DIDV/RG2_RXCTL/M2M_RXDV
45 M2P_TXEN
E2_DOEN/RG2_TXCTL/M2M_TXEN
M2P_RXDV
49 E2_DIO/RG2_RXD0/M2M_RXD0
M2P_TXD0
50 E2_DI1/RG2_RXD1/M2M_RXD1
M2P_TXD1
51 E2_DI2/RG2_RXD2/M2M_RXD2
M2P_TXD2
52 E2_DI3/RG2_RXD3/M2M_RXD3
M2P_TXD3
44 E2_DO0/RG2_TXD0/M2M_TXD0
M2P_RXD0
43 E2_DO1/RG2_TXD1/M2M_TXD1
M2P_RXD1
42 E2_DO2/RG2_TXD2/M2M_TXD2
M2P_RXD2
41 E2_DO3/RG2_TXD3/M2M_TXD3
M2P_RXD3

U6
MISC Interface 1 of 2

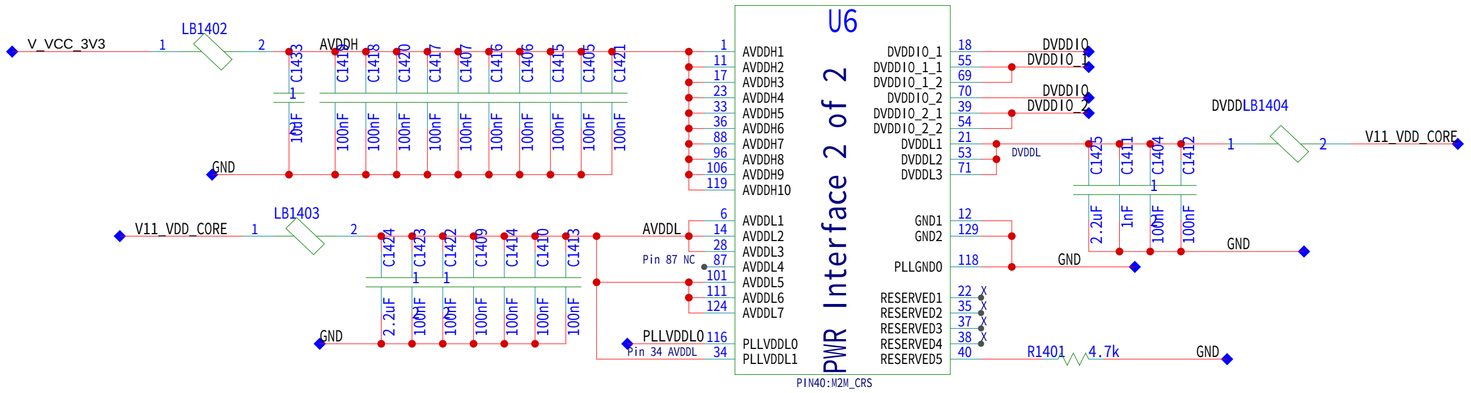
SPIS_CK/SCK/MMD_MDC 93 MDCK_V33
SPIS_CSI 92
SPIS_DI/SDA/MMD_MDIO 94 MDIO_V33
SPIS_DO 95
XTALI 90 8367_XTAL_IN
XTALO 89 8367_XTAL_OUT
C1318 27pF
C1319 27pF
X1301 25MHz
R1326 33
R1310 1M*
POLED0/LED_CK/SMI_SEL 86 POLED0
POLED1/LED_DA 85 X LED0
POLED2/EN_PHY 84 POLED2
P0MDIAN 98
P0MDIAP 97
P0MDIBN 100
P0MDIBP 99
P0MDICN 103
P0MDICP 102
P0MDIDN 105
P0MDIDP 104
P1LED0/RESERVED 82 P1LED0
P1LED1 83
P1LED2/RESERVED 81 P1LED2
P1MDIAN 108 CH1_TRXON_N R197 2.2 MDI_CH1_0_N C1316 3.9pF
P1MDIAP 107 CH1_TRXOP_PR1315 2.2 MDI_CH1_0_P C1310 3.9pF
P1MDIBN 110 CH1_TRX1N_NR1316 2.2 MDI_CH1_1_N C1311 3.9pF
P1MDIBP 109 CH1_TRX1P_PR1314 2.2 MDI_CH1_1_P C1312 3.9pF
P1MDICN 113 CH1_TRX2N_NR1313 2.2 MDI_CH1_2_N C1313 3.9pF
P1MDICP 112 CH1_TRX2P_PR1312 2.2 MDI_CH1_2_P C1314 3.9pF
P1MDIDN 115 CH1_TRX3N_NR1311 2.2 MDI_CH1_3_N C1315 3.9pF
P1MDIDP 114 CH1_TRX3P_PR1309 2.2 MDI_CH1_3_P C1309 3.9pF GND
P2LED0/DISAUTOLOAD 79 P2LED0
P2LED1 80
P2LED2/DIS_8051 78 P2LED2
P2MDIAN 121 CH2_TRXON_NR1308 2.2 MDI_CH2_0_N C1308 3.9pF
P2MDIAP 120 CH2_TRXOP_PR1307 2.2 MDI_CH2_0_P C1301 3.9pF
P2MDIBN 123 CH2_TRX1N_NR1306 2.2 MDI_CH2_1_N C1302 3.9pF
P2MDIBP 122 CH2_TRX1P_PR1305 2.2 MDI_CH2_1_P C1303 3.9pF
P2MDICN 126 CH2_TRX2N_NR1304 2.2 MDI_CH2_2_N C1304 3.9pF
P2MDICP 125 CH2_TRX2P_PR1303 2.2 MDI_CH2_2_P C1305 3.9pF
P2MDIDN 128 CH2_TRX3N_NR1302 2.2 MDI_CH2_3_N C1306 3.9pF
P2MDIDP 127 CH2_TRX3P_PR1301 2.2 MDI_CH2_3_P C1307 3.9pF GND
P3LED0/RESERVED 77 P3LED0
P3LED1 75
P3LED2/RESERVED 76 P3LED2
P3MDIAN 3 CH3_TRXONRN1335 2.2 MDI_CH3_0_N C1322 3.9pF
P3MDIAP 2 CH3_TRXOP_PR1336 2.2 MDI_CH3_0_P C1329 3.9pF
P3MDIBN 5 CH3_TRX1N_NR1337 2.2 MDI_CH3_1_N C1328 3.9pF
P3MDIBP 4 CH3_TRX1P_PR1338 2.2 MDI_CH3_1_P C1327 3.9pF
P3MDICN 8 CH3_TRX2N_NR1339 2.2 MDI_CH3_2_N C1326 3.9pF
P3MDICP 7 CH3_TRX2P_PR1340 2.2 MDI_CH3_2_P C1325 3.9pF
P3MDIDN 10 CH3_TRX3N_NR1341 2.2 MDI_CH3_3_N C1324 3.9pF
P3MDIDP 9 CH3_TRX3P_PR1342 2.2 MDI_CH3_3_P C1323 3.9pF GND
P4LED0/EEPROM_MOD 73 P4LED0
P4LED1 74
P4LED2/DIS_SPIS 72 P4LED2
P4MDIAN 25 CH4_TRXON_NR1343 2.2 MDI_CH4_0_N C1330 3.9pF
P4MDIAP 24 CH4_TRXOP_PR1344 2.2 MDI_CH4_0_P C1337 3.9pF
P4MDIBN 27 CH4_TRX1N_NR1345 2.2 MDI_CH4_1_N C1336 3.9pF
P4MDIBP 26 CH4_TRX1P_PR1346 2.2 MDI_CH4_1_P C1335 3.9pF
P4MDICN 30 CH4_TRX2N_NR1347 2.2 MDI_CH4_2_N C1334 3.9pF
P4MDICP 29 CH4_TRX2P_PR1348 2.2 MDI_CH4_2_P C1333 3.9pF
P4MDIDN 32 CH4_TRX3N_NR1349 2.2 MDI_CH4_3_N C1332 3.9pF
P4MDIDP 31 CH4_TRX3P_PR1350 2.2 MDI_CH4_3_P C1331 3.9pF GND

U1301
V_STBY_1V8 R1319 4.7k RGMII1_MDCK R1329 0
V_STBY_1V8 R1325 4.7k RGMII1_MDIO R1334 0
C1320 100nF GND
GND 1 VREF1 2 SCL1 3 SDA1 4
EN 8 VREF2 7 SCL2 6 SDA2 5
R1328 100k V_VCC_3V3
C1321 100nF GND
R1330 0 MDCK_V33
R1333 33 MDIO_V33
R1331 4.7k
R1332 4.7k
V_VCC_3V3

DVDDIO
R118 4.7k
/RTL8367_RST
tdelay=-RC*ln((E-V)/E)=9.3ms
C138 100nF
R121 1k*
GND

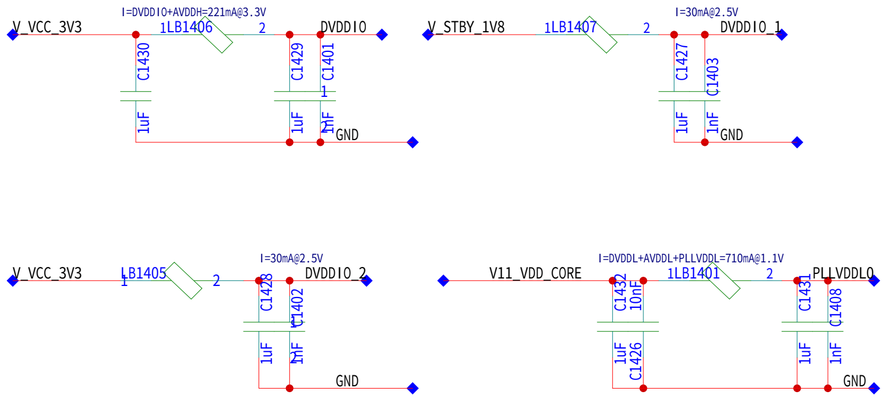
SHEET 13 OF 37

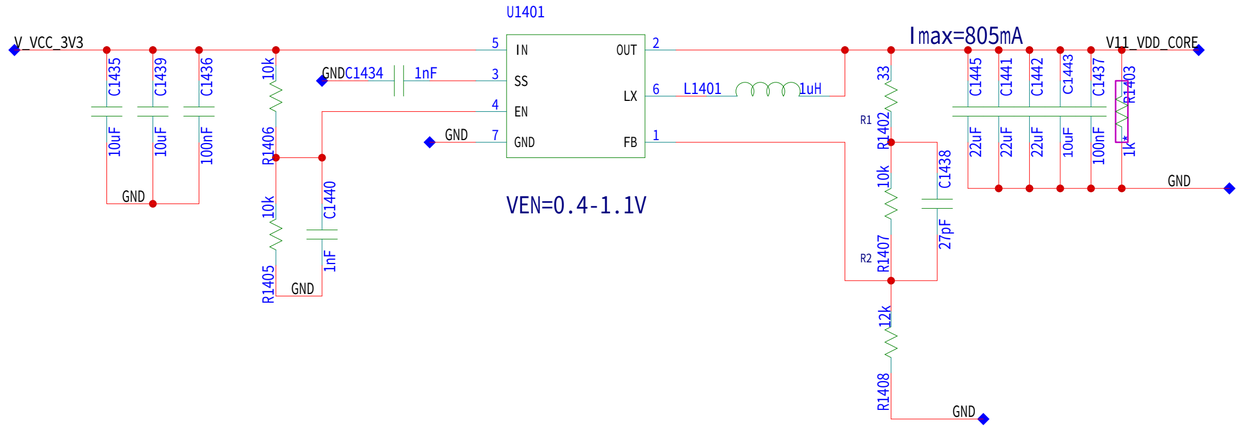
GE SWITCH PWR



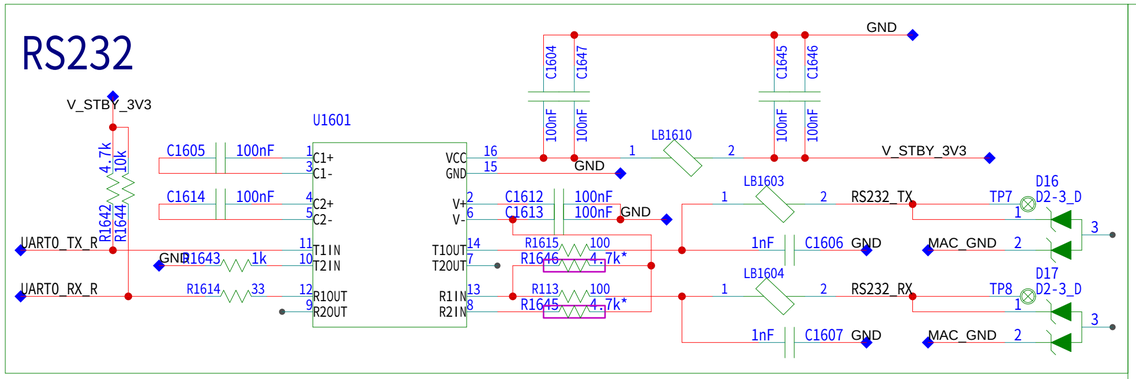
DC/DC V33->V11_VDD_CORE

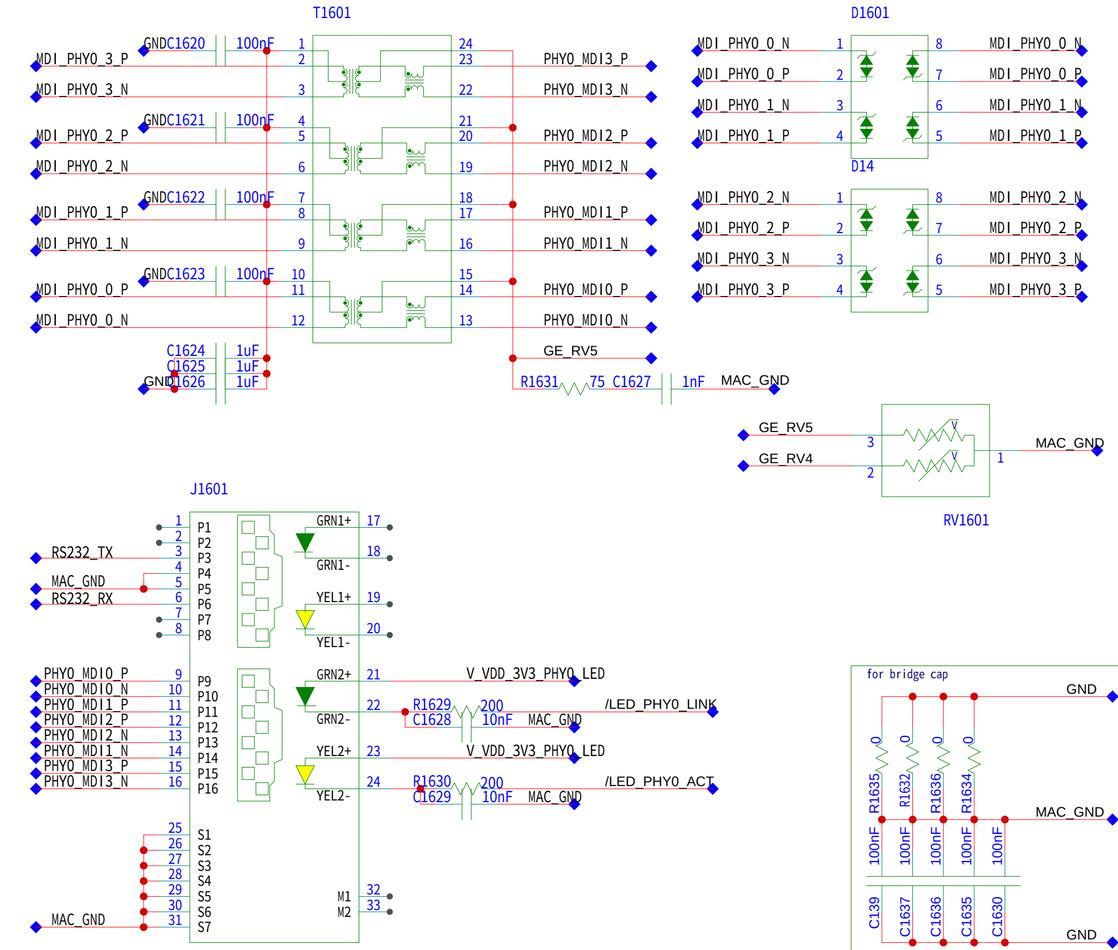
Vout=VREF*(1+R1/R2)=0.6*(1+10/12)=1.1V



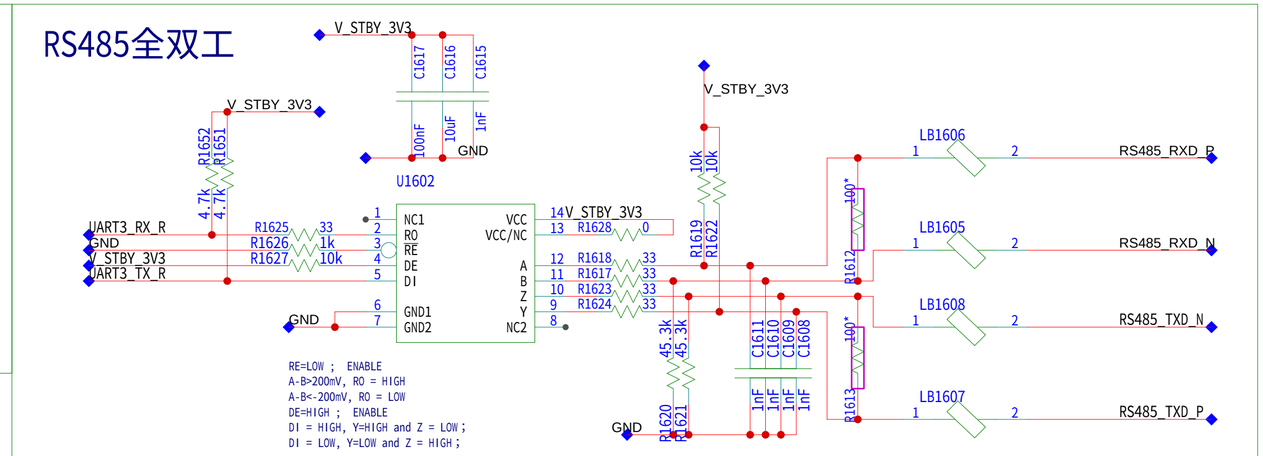


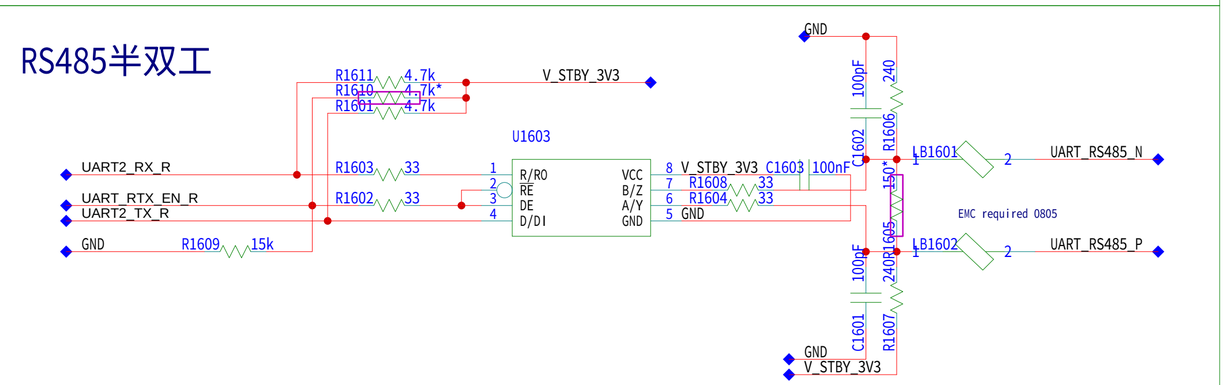

D1504
MDI_CH4_0_P 1 8 MDI_CH4_0_P
MDI_CH4_0_N 2 7 MDI_CH4_0_N
MDI_CH4_1_P 3 6 MDI_CH4_1_P
MDI_CH4_1_N 4 5 MDI_CH4_1_N
D10
MDI_CH4_2_P 1 8 MDI_CH4_2_P
MDI_CH4_2_N 2 7 MDI_CH4_2_N
MDI_CH4_3_P 3 6 MDI_CH4_3_P
MDI_CH4_3_N 4 5 MDI_CH4_3_N
D1503
MDI_CH3_0_P 1 8 MDI_CH3_0_P
MDI_CH3_0_N 2 7 MDI_CH3_0_N
MDI_CH3_1_P 3 6 MDI_CH3_1_P
MDI_CH3_1_N 4 5 MDI_CH3_1_N
D11
MDI_CH3_3_N 1 8 MDI_CH3_3_N
MDI_CH3_3_P 2 7 MDI_CH3_3_P
MDI_CH3_2_N 3 6 MDI_CH3_2_N
MDI_CH3_2_P 4 5 MDI_CH3_2_P
D1502
MDI_CH2_0_P 1 8 MDI_CH2_0_P
MDI_CH2_0_N 2 7 MDI_CH2_0_N
MDI_CH2_1_P 3 6 MDI_CH2_1_P
MDI_CH2_1_N 4 5 MDI_CH2_1_N
D12
MDI_CH2_3_N 1 8 MDI_CH2_3_N
MDI_CH2_3_P 2 7 MDI_CH2_3_P
MDI_CH2_2_N 3 6 MDI_CH2_2_N
MDI_CH2_2_P 4 5 MDI_CH2_2_P
D1501
MDI_CH1_0_P 1 8 MDI_CH1_0_P
MDI_CH1_0_N 2 7 MDI_CH1_0_N
MDI_CH1_1_P 3 6 MDI_CH1_1_P
MDI_CH1_1_N 4 5 MDI_CH1_1_N
D13
MDI_CH1_3_N 1 8 MDI_CH1_3_N
MDI_CH1_3_P 2 7 MDI_CH1_3_P
MDI_CH1_2_N 3 6 MDI_CH1_2_N
MDI_CH1_2_P 4 5 MDI_CH1_2_P
T1501
MDI_CH4_3_N GNDC1501 100nF 1 2 24 23 CH4_MDI3_N
MDI_CH4_3_P 3 22 CH4_MDI3_P
MDI_CH4_2_N GNDC1502 100nF 4 5 21 20 CH4_MDI2_N
MDI_CH4_2_P 6 19 CH4_MDI2_P
MDI_CH4_1_N GNDC1503 100nF 7 8 18 17 CH4_MDI1_N
MDI_CH4_1_P 9 16 CH4_MDI1_P
MDI_CH4_0_N GNDC1504 100nF 10 11 15 14 CH4_MDI0_N
MDI_CH4_0_P 12 13 CH4_MDI0_P
C1507 1uF
C1506 1uF
GNDC1505 1uF
GE_RV1
R1509 75 C1508 1nF MAC_GND
T1504
MDI_CH3_3_N GNDC1523 100nF 1 2 24 23 CH3_MDI3_N
MDI_CH3_3_P 3 22 CH3_MDI3_P
MDI_CH3_2_N GNDC1524 100nF 4 5 21 20 CH3_MDI2_N
MDI_CH3_2_P 6 19 CH3_MDI2_P
MDI_CH3_1_N GNDC1525 100nF 7 8 18 17 CH3_MDI1_N
MDI_CH3_1_P 9 16 CH3_MDI1_P
MDI_CH3_0_N GNDC1526 100nF 10 11 15 14 CH3_MDI0_N
MDI_CH3_0_P 12 13 CH3_MDI0_P
C1529 1uF
C1528 1uF
GNDC1527 1uF
GE_RV2
R1510 75 C1538 1nF MAC_GND
T1503
MDI_CH2_3_N GNDC1516 100nF 1 2 24 23 CH2_MDI3_N
MDI_CH2_3_P 3 22 CH2_MDI3_P
MDI_CH2_2_N GNDC1517 100nF 4 5 21 20 CH2_MDI2_N
MDI_CH2_2_P 6 19 CH2_MDI2_P
MDI_CH2_1_N GNDC1518 100nF 7 8 18 17 CH2_MDI1_N
MDI_CH2_1_P 9 16 CH2_MDI1_P
MDI_CH2_0_N GNDC1519 100nF 10 11 15 14 CH2_MDI0_N
MDI_CH2_0_P 12 13 CH2_MDI0_P
C1522 1uF
C1521 1uF
GNDC1520 1uF
GE_RV3
R1511 75 C1539 1nF MAC_GND
T1502
MDI_CH1_3_N GNDC1509 100nF 1 2 24 23 CH1_MDI3_N
MDI_CH1_3_P 3 22 CH1_MDI3_P
MDI_CH1_2_N GNDC1510 100nF 4 5 21 20 CH1_MDI2_N
MDI_CH1_2_P 6 19 CH1_MDI2_P
MDI_CH1_1_N GNDC1511 100nF 7 8 18 17 CH1_MDI1_N
MDI_CH1_1_P 9 16 CH1_MDI1_P
MDI_CH1_0_N GNDC1512 100nF 10 11 15 14 CH1_MDI0_N
MDI_CH1_0_P 12 13 CH1_MDI0_P
C1515 1uF
C1514 1uF
GNDC1513 1uF
GE_RV4
R1512 75 C1540 1nF MAC_GND
J1501
CH3_MDI0_P 1
CH3_MDI0_N 2
CH3_MDI1_P 3
CH3_MDI2_P 4
CH3_MDI2_N 5
CH3_MDI1_N 6
CH3_MDI3_P 7
CH3_MDI3_N 8
P1 P2 P3 P4 P5 P6 P7 P8
GRN1+ 17 V_VDD_3V3_PHY0_LED
GRN1- 18 R1503 200 /LED_PHY3_LINK P3LED0
C1532 10nF MAC_GND
YEL1+ 19 V_VDD_3V3_PHY0_LED
YEL1- 20 C1533 10nF MAC_GND
R1504 200 /LED_PHY3_ACT P3LED2
LB2
CH4_MDI0_P 9
CH4_MDI0_N 10
CH4_MDI1_P 11
CH4_MDI2_P 12
CH4_MDI2_N 13
CH4_MDI1_N 14
CH4_MDI3_P 15
CH4_MDI3_N 16
P9 P10 P11 P12 P13 P14 P15 P16
GRN2+ 21 V_VDD_3V3_PHY0_LED 2 1 V_VDD_3V3_PHY0
GRN2- 22 R1502 200 /LED_PHY4_LINK P4LED0
C1531 10nF MAC_GND
YEL2+ 23 V_VDD_3V3_PHY0_LED
YEL2- 24 C1530 10nF MAC_GND
R1501 200 /LED_PHY4_ACT P4LED2
S1 25
S2 26
S3 27
S4 28
S5 29
S6 30
S7 31
MAC_GND
M1 32
M2 33
J1502
CH1_MDI0_P 1
CH1_MDI0_N 2
CH1_MDI1_P 3
CH1_MDI2_P 4
CH1_MDI2_N 5
CH1_MDI1_N 6
CH1_MDI3_P 7
CH1_MDI3_N 8
P1 P2 P3 P4 P5 P6 P7 P8
GRN1+ 17 V_VDD_3V3_PHY0_LED
GRN1- 18 R1505 200 /LED_PHY1_LINK P1LED0
C1534 10nF MAC_GND
YEL1+ 19 V_VDD_3V3_PHY0_LED
YEL1- 20 C1535 10nF MAC_GND
R1506 200 /LED_PHY1_ACT P1LED2
CH2_MDI0_P 9
CH2_MDI0_N 10
CH2_MDI1_P 11
CH2_MDI2_P 12
CH2_MDI2_N 13
CH2_MDI1_N 14
CH2_MDI3_P 15
CH2_MDI3_N 16
P9 P10 P11 P12 P13 P14 P15 P16
GRN2+ 21 V_VDD_3V3_PHY0_LED
GRN2- 22 R1507 200 /LED_PHY2_LINK P2LED0
C1536 10nF MAC_GND
YEL2+ 23 V_VDD_3V3_PHY0_LED
YEL2- 24 C1537 10nF MAC_GND
R1508 200 /LED_PHY2_ACT P2LED2
S1 25
S2 26
S3 27
S4 28
S5 29
S6 30
S7 31
MAC_GND
M1 32
M2 33
GE_RV1
GE_RV2
3
2
V
V
1
MAC_GND
RV1501
GE_RV3
3
2
V
V
1
MAC_GND
RV1502
SHEET 15 OF 37

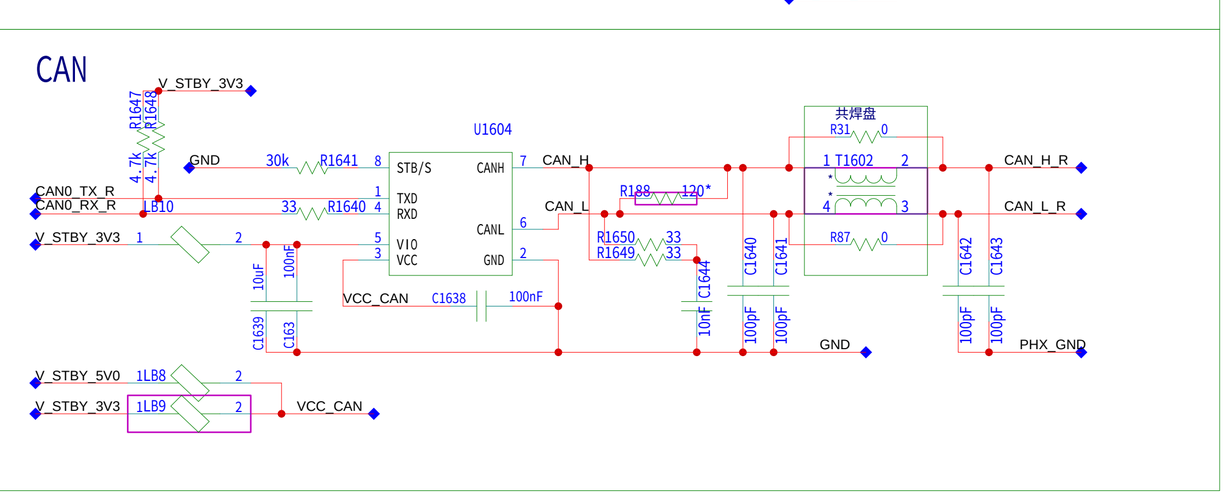

RS232
V_STBY_3V3
U1601
C1605 100nF
C1614 100nF
R1642 4.7k
R1644 10k
UART0_TX_R
UART0_RX_R
GND
R1643 1k
R1614 33
C1604 C1647 C1645 C1646
100nF
LB1610
LB1603
LB1604
RS232_TX
RS232_RX
C1612 C1613 100nF
R1615 R1646 R1645 100 4.7k*
R113 100
1nF C1606 C1607
TP7 TP8
D16 D17 D2-3_D
MAC_GND


T1601
MDI_PHY0_3_P
MDI_PHY0_3_N
MDI_PHY0_2_P
MDI_PHY0_2_N
MDI_PHY0_1_P
MDI_PHY0_1_N
MDI_PHY0_0_P
MDI_PHY0_0_N
GNDC1620 GNDC1621 GNDC1622 GNDC1623 GNDC1626
100nF
C1624 C1625 1uF
PHY0_MDI3_P
PHY0_MDI3_N
PHY0_MDI2_P
PHY0_MDI2_N
PHY0_MDI1_P
PHY0_MDI1_N
PHY0_MDI0_P
PHY0_MDI0_N
GE_RV5
R1631 75 C1627 1nF MAC_GND
D1601
D14
GE_RV5
GE_RV4
MAC_GND
RV1601
J1601
RS232_TX
MAC_GND
RS232_RX
GRN1+ GRN1- YEL1+ YEL1-
GRN2+ GRN2- YEL2+ YEL2-
V_VDD_3V3_PHY0_LED
R1629 C1628 200 10nF
R1630 C1629
/LED_PHY0_LINK
/LED_PHY0_ACT

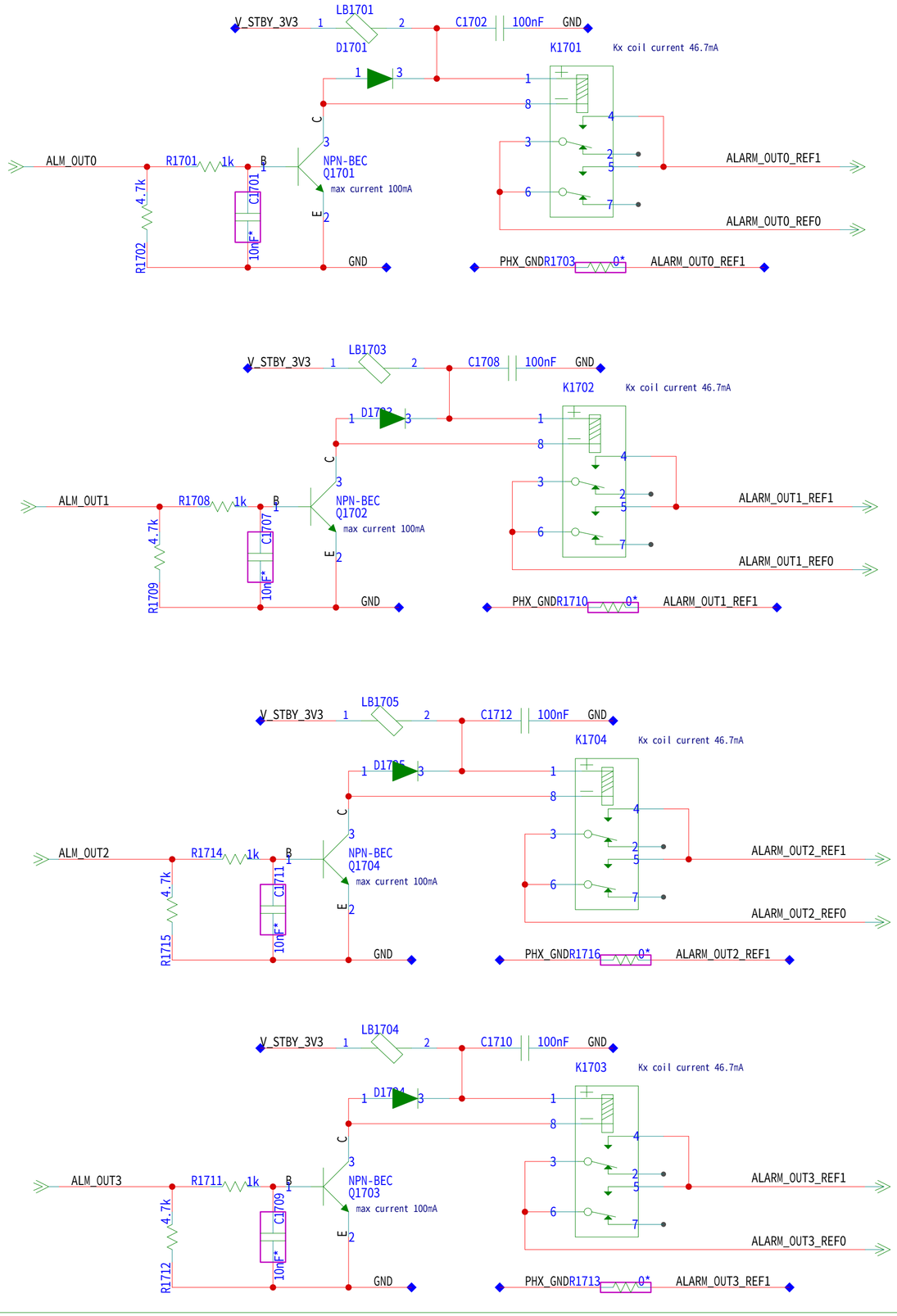
for bridge cap
for bridge res
R1635 R1632 R1636 R1634 0
100nF
C139 C1637 C1636 C1635 C1630
C1634 C1633 C1632 C1631
R1637 R1638 R1639 R1633
GND
MAC_GND
PHX_GND


RS485全双工
V_STBY_3V3
U1602
R1652 R1651 4.7k
C1617 C1616 C1615
100nF 10uF 1nF
UART3_RX_R
UART3_TX_R
R1625 R1626 R1627 33 1k 10k
NC1 RO RE DE DI GND1 GND2
VCC VCC/NC A B Z Y NC2
R1628 R1618 R1617 R1623 R1624
R1619 R1622 10k
R1612 R1613 100*
45.3k
C1611 C1610 C1609 C1608 1nF
LB1606 LB1605 LB1608 LB1607
RS485_RXD_P
RS485_RXD_N
RS485_TXD_N
RS485_TXD_P
RE=LOW ; ENABLE
A-B>200mV, RO = HIGH
A-B<-200mV, RO = LOW
DE=HIGH ; ENABLE
DI = HIGH, Y=HIGH and Z = LOW ;
DI = LOW, Y=LOW and Z = HIGH ;

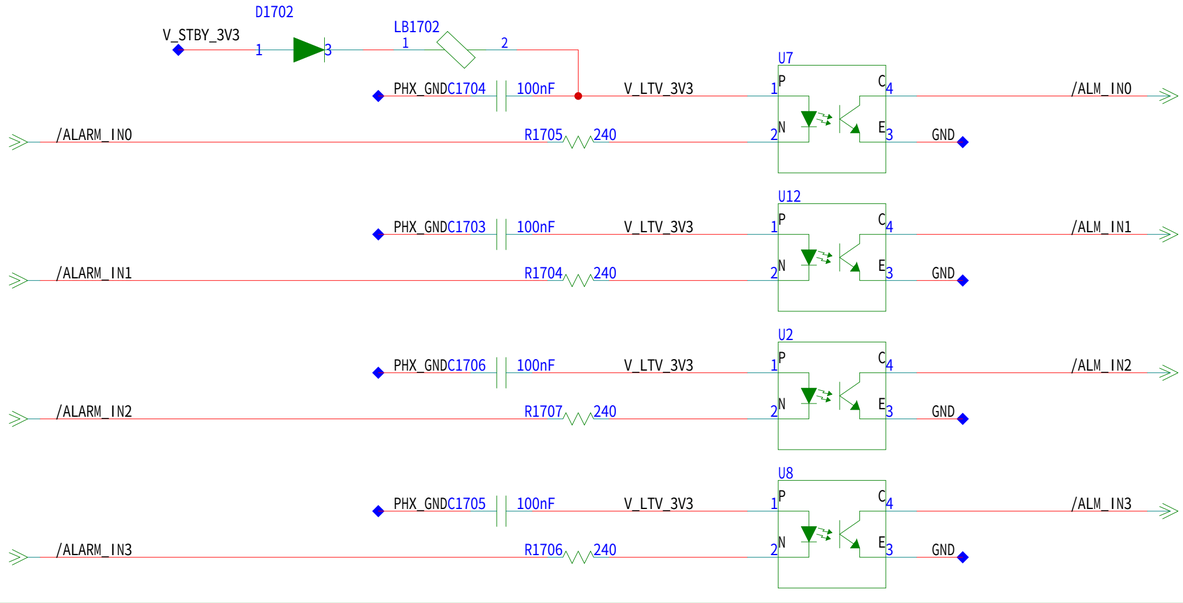

RS485半双工
R1611 R1610 R1601 4.7k 4.7k*
V_STBY_3V3
U1603
UART2_RX_R
UART_RTX_EN_R
UART2_TX_R
GND
R1609 15k
R1603 R1602 33
R/RO RE DE D/DI
VCC B/Z A/Y GND
V_STBY_3V3 C1603 100nF
R1608 R1604 33
C1602 C1601 100pF
R1606 R1605 R1607 240 150*
LB1601 LB1602
UART_RS485_N
UART_RS485_P
EMC required 0805

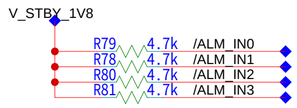

CAN
V_STBY_3V3
U1604
R1647 R1648 4.7k
GND
30k R1641
CAN0_TX_R
CAN0_RX_R
LB10 33 R1640
STB/S TXD RXD VIO VCC CANH CANL GND
CAN_H
CAN_L
R188 120*
R1650 R1649 33
共焊盘
R31 0
T1602
CAN_H_R
CAN_L_R
R87 0
C1640 C1641 100pF
C1644 10nF
C1642 C1643
PHX_GND
GND
V_STBY_5V0
1LB8
1LB9
VCC_CAN
C1638 100nF
C1639 C163 10uF 100nF

ALARM 4 OUT

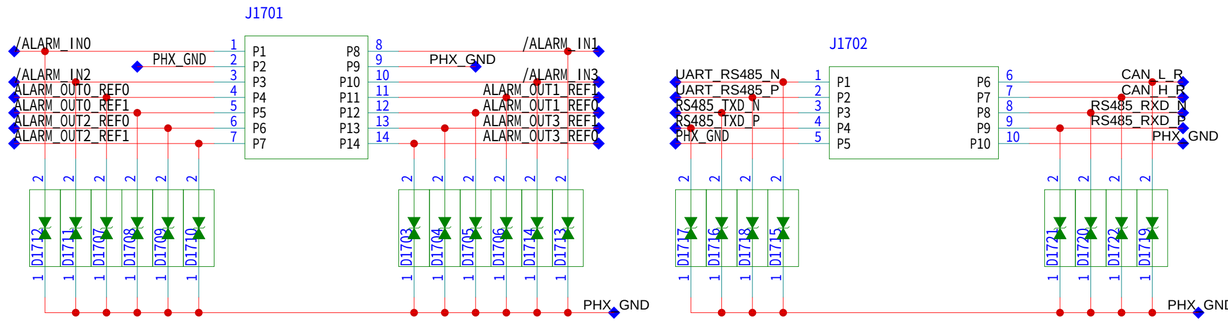


ALARM 4 IN



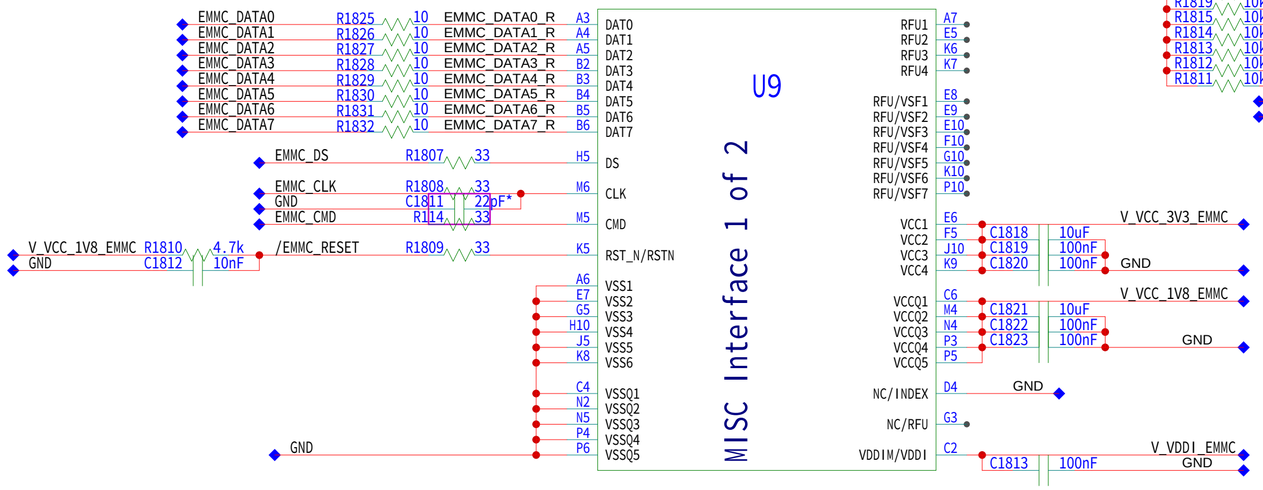


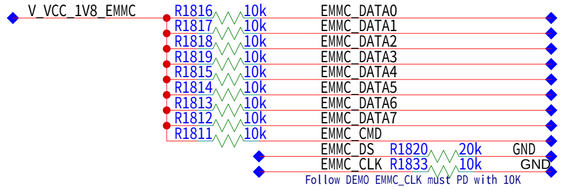
PHOENIX

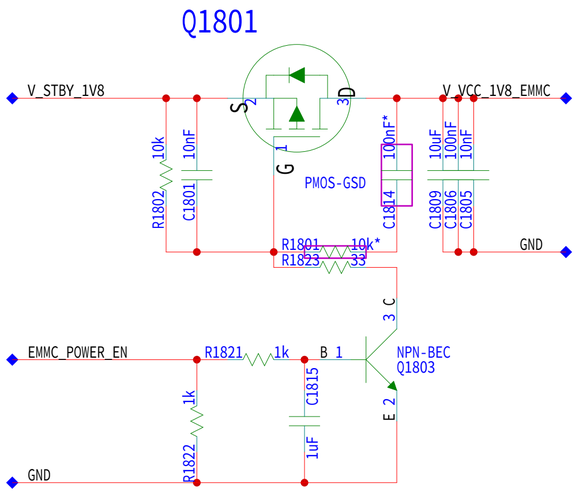


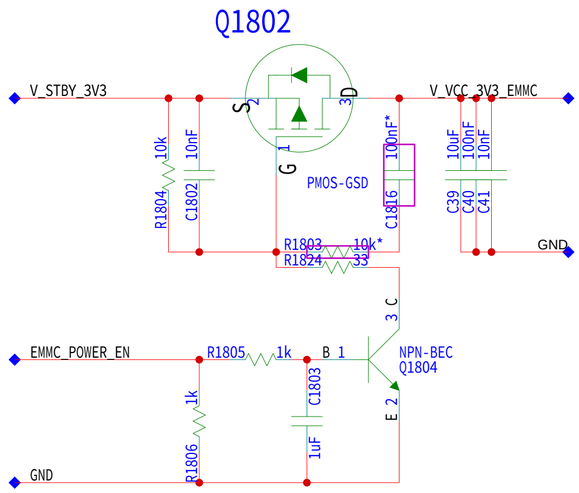
SHEET 17 OF 37

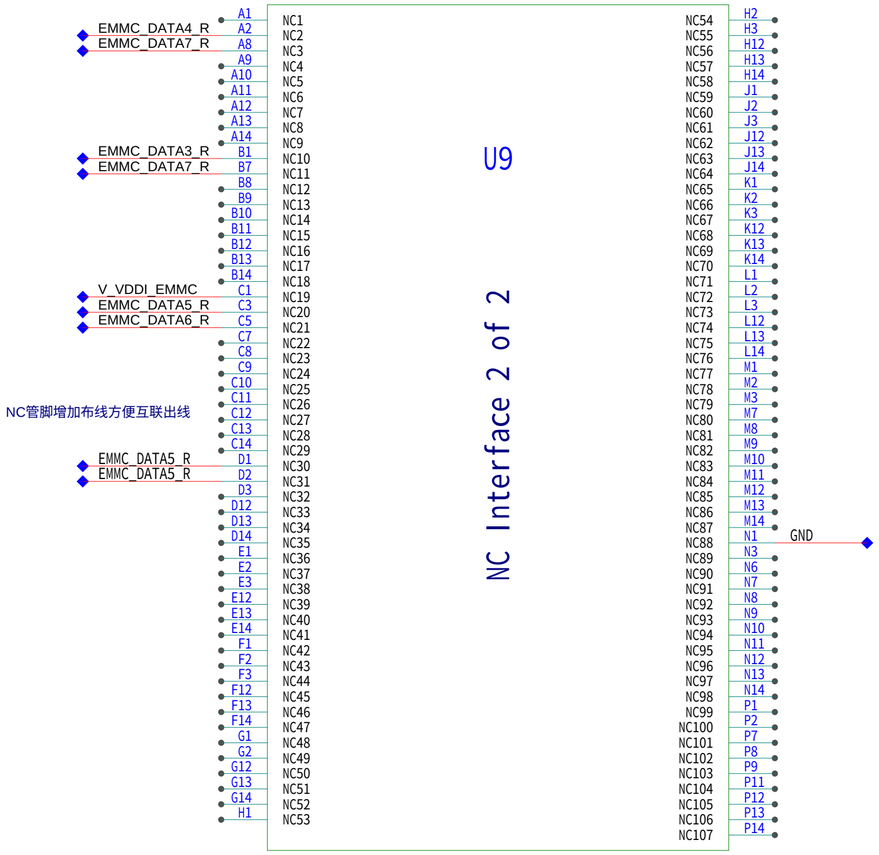
EMMC

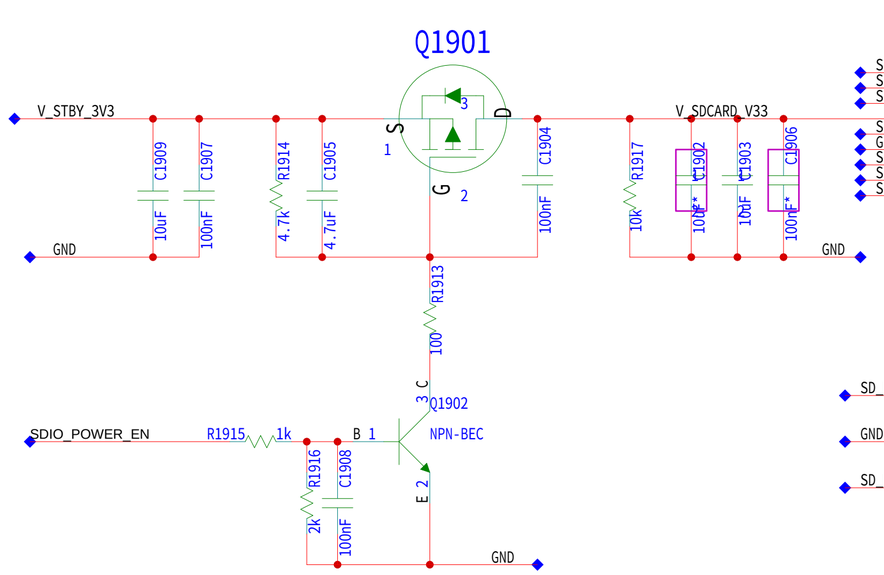

EMMC_DATA0 R1825 10 EMMC_DATA0_R A3
EMMC_DATA1 R1826 10 EMMC_DATA1_R A4
EMMC_DATA2 R1827 10 EMMC_DATA2_R A5
EMMC_DATA3 R1828 10 EMMC_DATA3_R B2
EMMC_DATA4 R1829 10 EMMC_DATA4_R B3
EMMC_DATA5 R1830 10 EMMC_DATA5_R B4
EMMC_DATA6 R1831 10 EMMC_DATA6_R B5
EMMC_DATA7 R1832 10 EMMC_DATA7_R B6
EMMC_DS R1807 33 H5
EMMC_CLK R1808 33 M6
GND C1811 22pF*
EMMC_CMD R1114 33 M5
V_VCC_1V8_EMMC R1810 4.7k
GND C1812 10nF
/EMMC_RESET R1809 33 K5
GND
DAT0
DAT1
DAT2
DAT3
DAT4
DAT5
DAT6
DAT7
DS
CLK
CMD
RST_N/RSTN
VSS1 A6
VSS2 E7
VSS3 G5
VSS4 H10
VSS5 J5
VSS6 K8
VSSQ1 C4
VSSQ2 N2
VSSQ3 N5
VSSQ4 P4
VSSQ5 P6
U9
MISC Interface 1 of 2
RFU1 A7
RFU2 E5
RFU3 K6
RFU4 K7
RFU/VSF1 E8
RFU/VSF2 E9
RFU/VSF3 E10
RFU/VSF4 F10
RFU/VSF5 G10
RFU/VSF6 K10
RFU/VSF7 P10
VCC1 E6
VCC2 F5
VCC3 J10
VCC4 K9
VCCQ1 C6
VCCQ2 M4
VCCQ3 N4
VCCQ4 P3
VCCQ5 P5
NC/INDEX D4
NC/RFU G3
VDDIM/VDDI C2
V_VCC_3V3_EMMC
C1818 10uF
C1819 100nF
C1820 100nF
GND
V_VCC_1V8_EMMC
C1821 10uF
C1822 100nF
C1823 100nF
GND
GND
C1813 100nF
V_VDDI_EMMC
GND

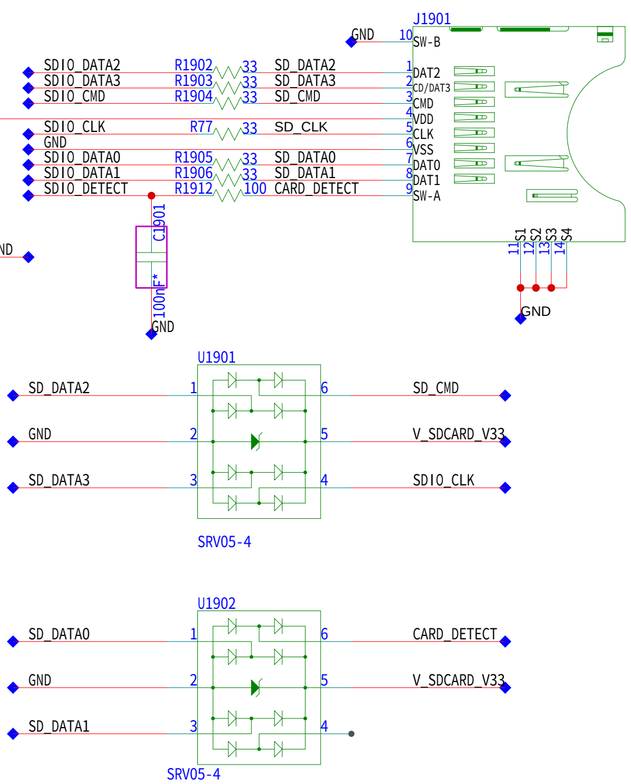

V_VCC_1V8_EMMC
R1816 10k EMMC_DATA0
R1817 10k EMMC_DATA1
R1818 10k EMMC_DATA2
R1819 10k EMMC_DATA3
R1815 10k EMMC_DATA4
R1814 10k EMMC_DATA5
R1813 10k EMMC_DATA6
R1812 10k EMMC_DATA7
R1811 10k EMMC_CMD
EMMC_DS R1820 20k GND
EMMC_CLK R1833 10k GND
Follow DEMO EMMC_CLK must PD with 10K

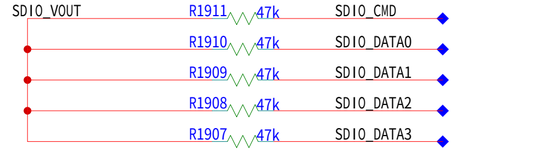

Q1801
V_STBY_1V8
V_VCC_1V8_EMMC
R1802 10k
C1801 10nF
PMOS-GSD
C1814 100nF*
C1809 10uF
C1806 100nF
C1805 10nF
R1801 10k*
R1823 33
GND
EMMC_POWER_EN
R1821 1k
NPN-BEC
Q1803
R1822 1k
C1815 1uF
GND

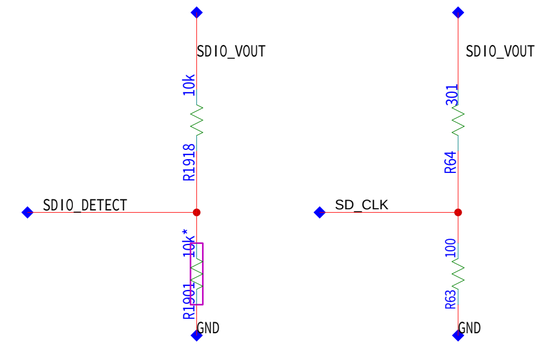

Q1802
V_STBY_3V3
V_VCC_3V3_EMMC
R1804 10k
C1802 10nF
PMOS-GSD
C1816 100nF*
C39 10uF
C40 100nF
C41 10nF
R1803 10k*
R1824 33
GND
EMMC_POWER_EN
R1805 1k
NPN-BEC
Q1804
C1803 1uF
R1806 1k
GND


EMMC_DATA4_R A1
EMMC_DATA7_R A8
EMMC_DATA3_R B1
EMMC_DATA7_R B7
V_VDDI_EMMC C1
EMMC_DATA5_R C3
EMMC_DATA6_R C5
NC管脚增加布线方便互联出线
EMMC_DATA5_R D1
EMMC_DATA5_R D2
NC1 A1
NC2 A2
NC3 A8
NC4 A9
NC5 A10
NC6 A11
NC7 A12
NC8 A13
NC9 A14
NC10 B1
NC11 B7
NC12 B8
NC13 B9
NC14 B10
NC15 B11
NC16 B12
NC17 B13
NC18 B14
NC19 C1
NC20 C3
NC21 C5
NC22 C7
NC23 C8
NC24 C9
NC25 C10
NC26 C11
NC27 C12
NC28 C13
NC29 C14
NC30 D1
NC31 D2
NC32 D3
NC33 D12
NC34 D13
NC35 D14
NC36 E1
NC37 E2
NC38 E3
NC39 E12
NC40 E13
NC41 E14
NC42 F1
NC43 F2
NC44 F3
NC45 F12
NC46 F13
NC47 F14
NC48 G1
NC49 G2
NC50 G12
NC51 G13
NC52 G14
NC53 H1
U9
NC Interface 2 of 2
NC54 H2
NC55 H3
NC56 H12
NC57 H13
NC58 H14
NC59 J1
NC60 J2
NC61 J3
NC62 J12
NC63 J13
NC64 J14
NC65 K1
NC66 K2
NC67 K3
NC68 K12
NC69 K13
NC70 K14
NC71 L1
NC72 L2
NC73 L3
NC74 L12
NC75 L13
NC76 L14
NC77 M1
NC78 M2
NC79 M3
NC80 M7
NC81 M8
NC82 M9
NC83 M10
NC84 M11
NC85 M12
NC86 M13
NC87 M14
NC88 N1
NC89 N3
NC90 N6
NC91 N7
NC92 N8
NC93 N9
NC94 N10
NC95 N11
NC96 N12
NC97 N13
NC98 N14
NC99 P1
NC100 P2
NC101 P7
NC102 P8
NC103 P9
NC104 P11
NC105 P12
NC106 P13
NC107 P14
GND



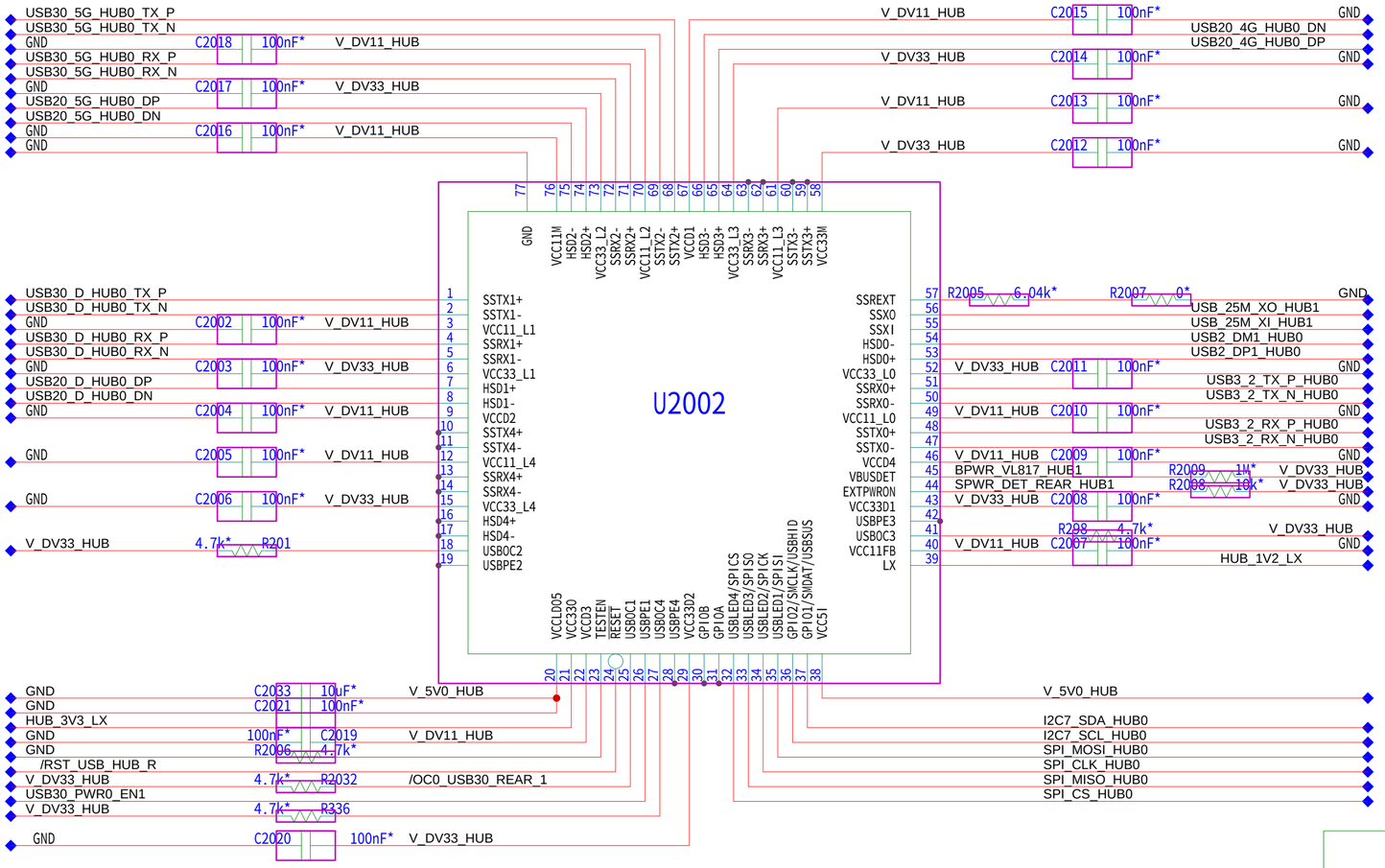


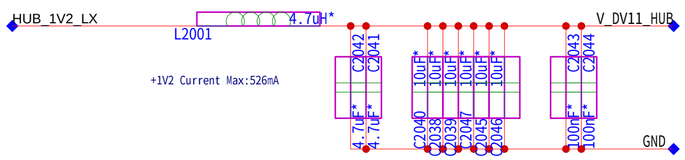


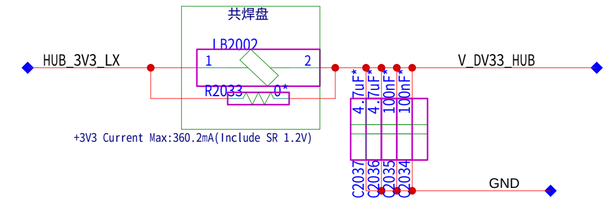


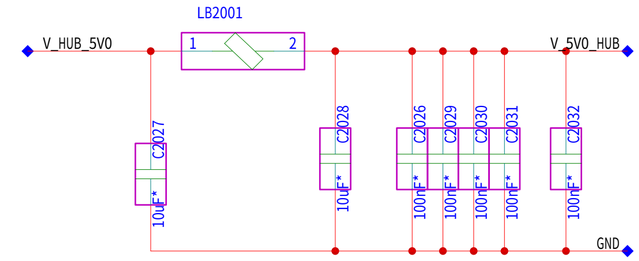
SDIO_DETECT和SD_CLK一定要按这个方案设计

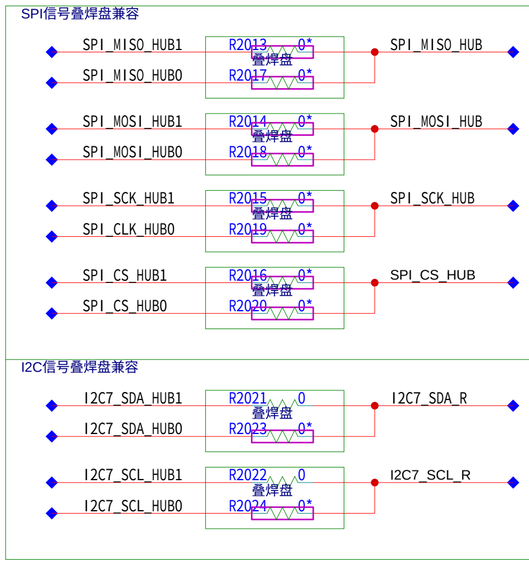
USB3.0 & USB2.0 HUB（兼容设计，此方案不上件）

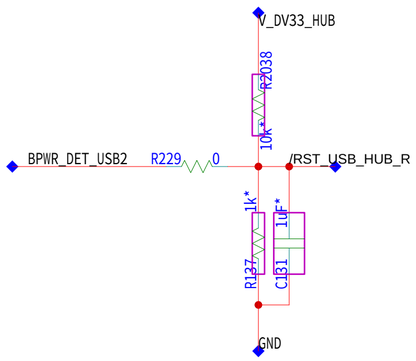


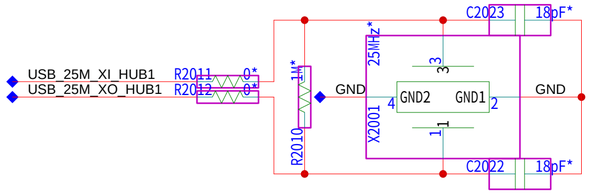


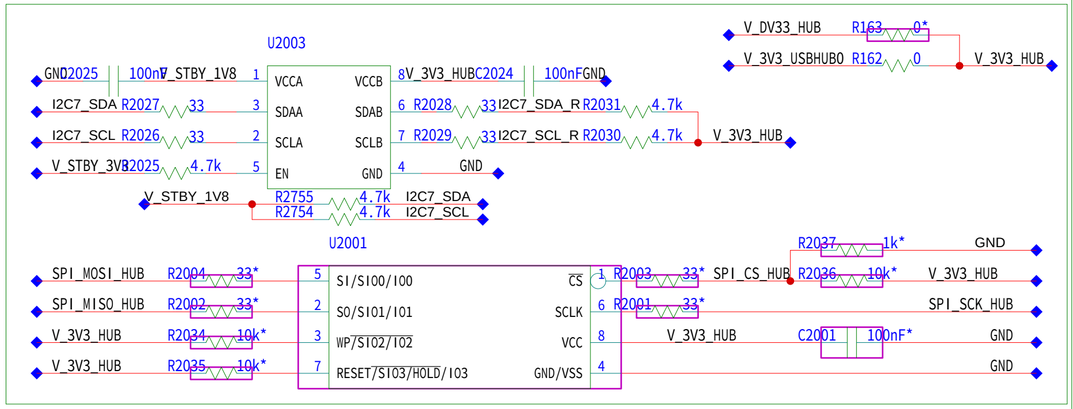




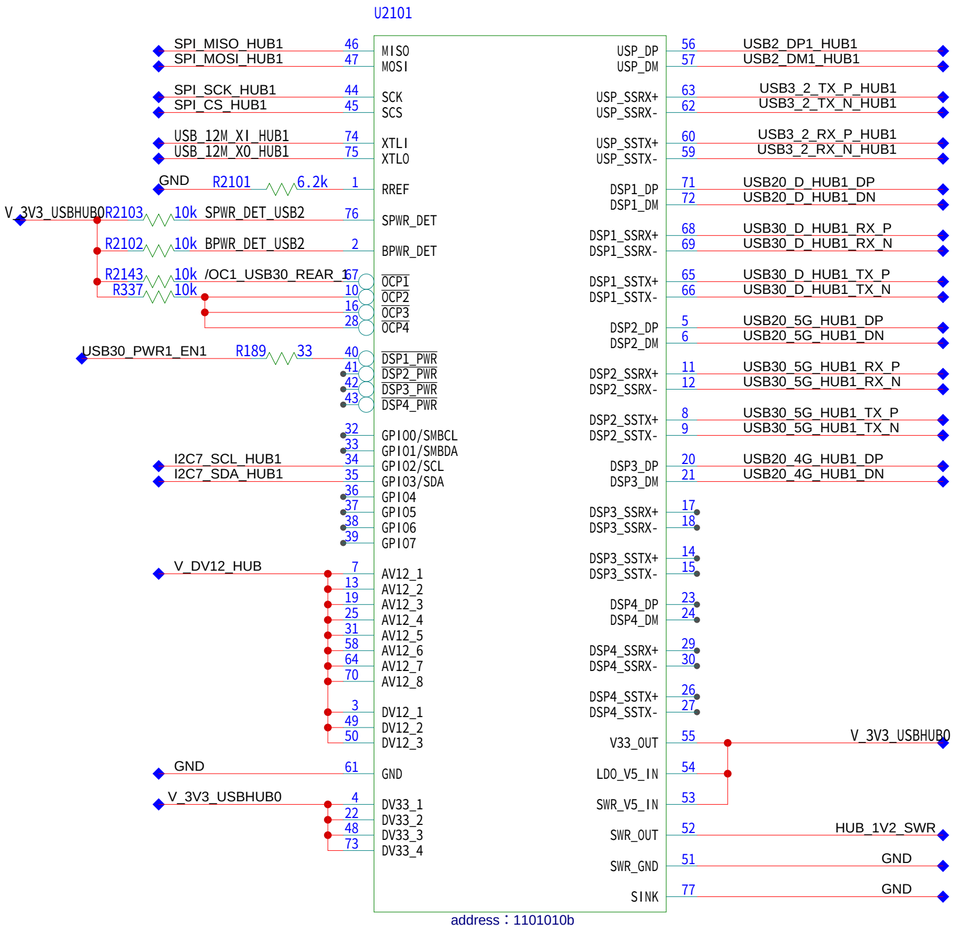




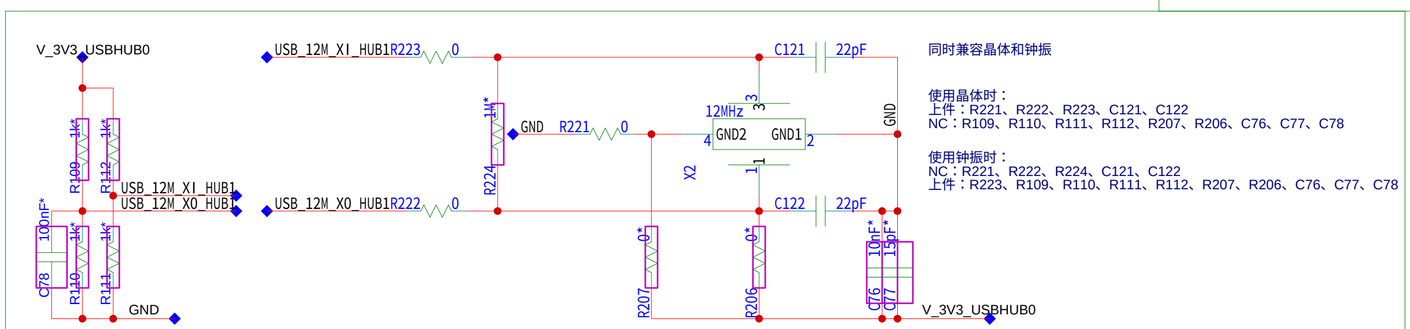


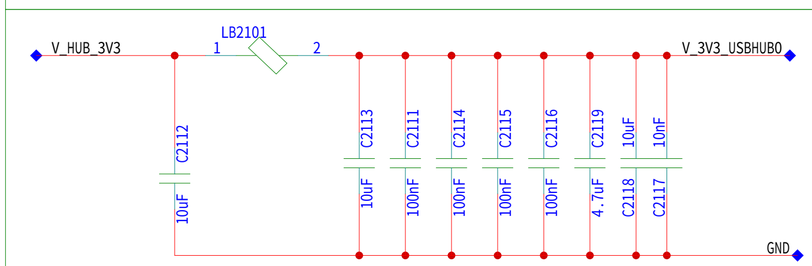


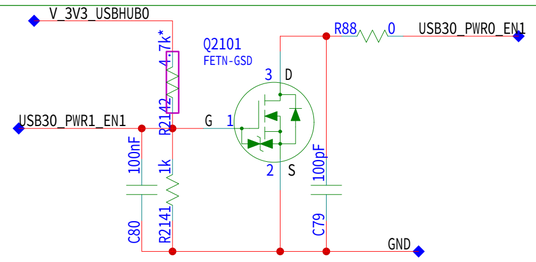
USB3.0 & USB2.0 HUB CHOSE



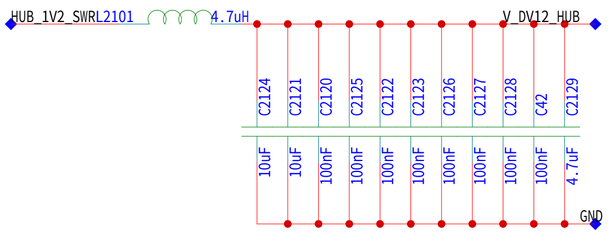
USB HUB方案兼容，做分叉叠焊盘设计







两种HUB的PWR控制逻辑相反，需要兼容两种高低电平逻辑进行设计；



SHEET 21 OF 37

USB3.0 + USB2.0 Connector + Dongle(Type-A)

共焊盘

R2212 0
R2211 0
T2202
USB3O_D_HUB_TX_N → USB3O_D_HUB_CONN_TX_N
USB3O_D_HUB_TX_P → USB3O_D_HUB_CONN_TX_P

R2209 0
R2210 0
T2201
USB3O_D_HUB_RX_N → USB3O_D_HUB_CONN_RX_N
USB3O_D_HUB_RX_P → USB3O_D_HUB_CONN_RX_P

R2218 0
R2219 0
T2203
USB2O_D_HUB_DN → USB2O_D_HUB_CONN_DN
USB2O_D_HUB_DP → USB2O_D_HUB_CONN_DP

R2220 0
R2221 0
T2204
USB2_DN2 → USB2_CONN_DN2
USB2_DP2 → USB2_CONN_DP2

R2230 0
R2231 0
T2209
USB2_DN3 → USB2_CONN_DN3
USB2_DP3 → USB2_CONN_DP3

共焊盘

R2225 0
R2224 0
T2206
USB3_1_RX_N → USB3_1_CONN_RX_N
USB3_1_RX_P → USB3_1_CONN_RX_P

R2222 0
R2223 0
T2205
USB3_1_TX_N C127 100nF → USB3_1_CONN_TX_N
USB3_1_TX_P C128 100nF → USB3_1_CONN_TX_P

R2226 0
R2227 0
T2207
USB3_0_RX_N → USB3_0_CONN_RX_N
USB3_0_RX_P → USB3_0_CONN_RX_P

R2228 0
R2229 0
T2208
USB3_0_TX_N C123 100nF → USB3_0_CONN_TX_N
USB3_0_TX_P C124 100nF → USB3_0_CONN_TX_P

D2203
USB3_1_CONN_RX_N
USB3_1_CONN_RX_P
GND
USB3_1_CONN_TX_N
USB3_1_CONN_TX_P
I/O_1 I/O_2 I/O_3 I/O_4 VSS1 VSS2 NC1 NC2 NC3 NC4

U2205
USB2_CONN_DN3 → USB2_CONN_DN2
GND
USB2_CONN_DP3 → USB2_CONN_DP2
SRV05-4

D2202
USB3_0_CONN_RX_N
USB3_0_CONN_RX_P
GND
USB3_0_CONN_TX_N
USB3_0_CONN_TX_P
I/O_1 I/O_2 I/O_3 I/O_4 VSS1 VSS2 NC1 NC2 NC3 NC4

U2206
USB20_D_HUB_CONN_DN
GND
USB20_D_HUB_CONN_DP
USB3_5V0
SRV05-4

D2201
USB3O_D_HUB_CONN_TX_P
USB3O_D_HUB_CONN_TX_N
GND
USB3O_D_HUB_CONN_RX_P
USB3O_D_HUB_CONN_RX_N
I/O_1 I/O_2 I/O_3 I/O_4 VSS1 VSS2 NC1 NC2 NC3 NC4

对外USB3.0接口

J2201
USB1_5V0 → VBUS
USB2_CONN_DN2 R251 0 → D-
USB2_CONN_DP2 R252 0 → D+
GND → PGND
USB3_1_CONN_RX_N → SSRX-
USB3_1_CONN_RX_P → SSRX+
GND
USB3_1_CONN_TX_N → SSTX-
USB3_1_CONN_TX_P → SSTX+
GND → S1 S2

J2202
USB2_5V0 → VBUS
USB2_CONN_DN3 R253 0 → D-
USB2_CONN_DP3 R254 0 → D+
GND → PGND
USB3_0_CONN_RX_N → SSRX-
USB3_0_CONN_RX_P → SSRX+
GND
USB3_0_CONN_TX_N → SSTX-
USB3_0_CONN_TX_P → SSTX+
GND → S1 S2

内部加密狗接口

J2203
USB3_5V0 → VBUS
USB20_D_HUB_CONN_DN → D-
USB20_D_HUB_CONN_DP → D+
GND → PGND
USB3O_D_HUB_CONN_RX_N → SSRX-
USB3O_D_HUB_CONN_RX_P → SSRX+
GND
USB3O_D_HUB_CONN_TX_N → SSTX-
USB3O_D_HUB_CONN_TX_P → SSTX+
GND → S1 S2

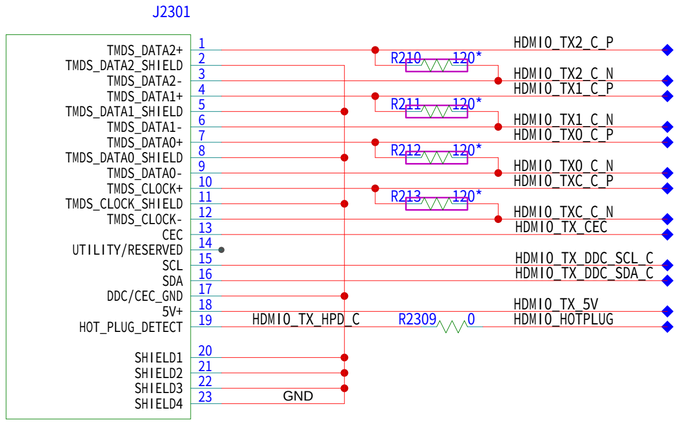
U2201
V_STBY_5V0
R2203 10k*
USB_PWR_EN
C161 10uF
GND
VIN VOUT GND ILIM EN FLG/FAULT SINK
1LB2201
R2202 11.3K
R2201 5.6k
C56 C57 C58 C59 C60 22uF
C73 100nF
C2202 10uF
R2204 10k
D9
USB1_5V0
I limit=1.5A(16.9K)

U2202
V_STBY_5V0
R2207 10k
USB_PWR_EN
C160 10uF
GND
VIN VOUT GND ILIM EN FLG/FAULT SINK
1LB2202
R2206 11.3K
R2205 5.6k
C61 C62 C63 C64 C65 22uF
C71 100nF
C2206 10uF
R2208 10k
D7
USB2_5V0
I limit=1.5A(16.9K)

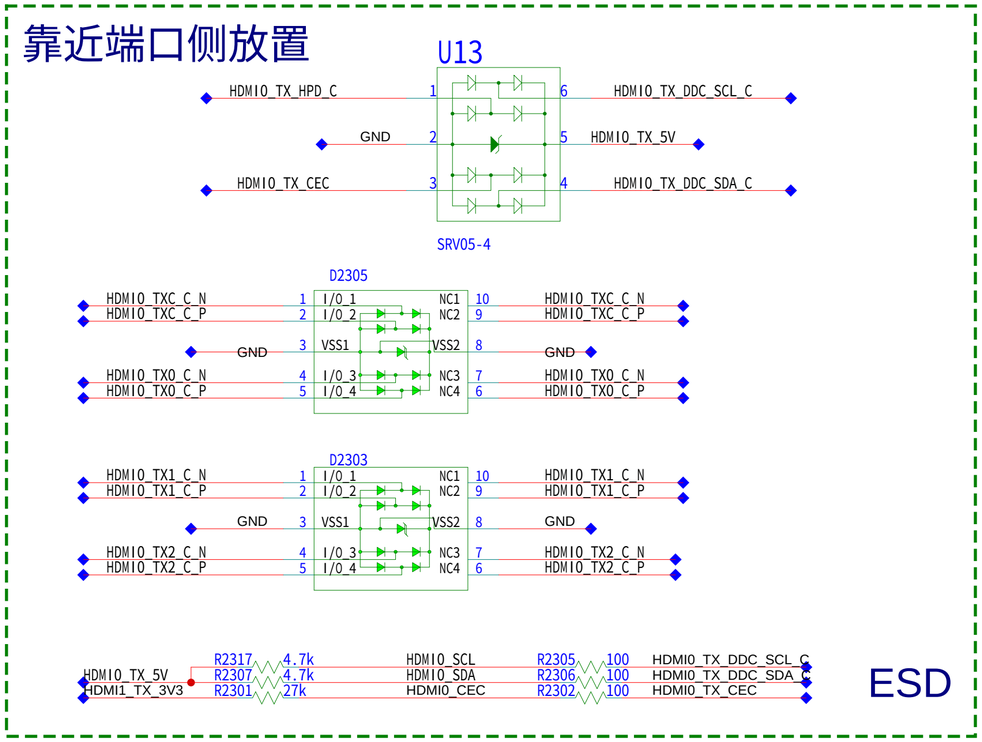
U2203
V_STBY_5V0
R238 10k
USB30_PWR0_EN1
R2217 10k*
C159 10uF
GND
VIN VOUT GND ILIM EN FLG/FAULT SINK
1LB2203
R2214 11.3K
R2213 5.6k
R2215 10k
V_STBY_3V3
/OC_USB30_REAR_1
C66 C67 C68 C69 C70 22uF
C72 100nF
C2210 10uF
R2216 10k
D8
USB3_5V0
I limit=1.5A(16.9K)

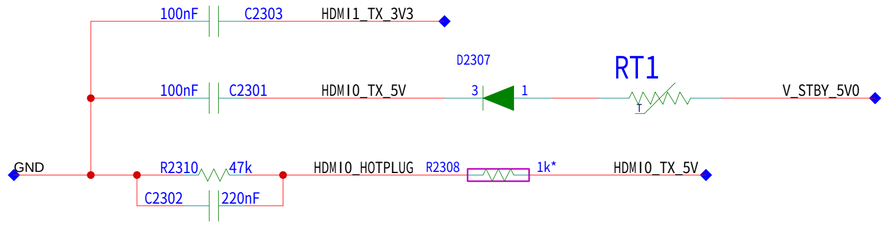
SHEET 22 OF 37

HDMI0 2.0 OUT

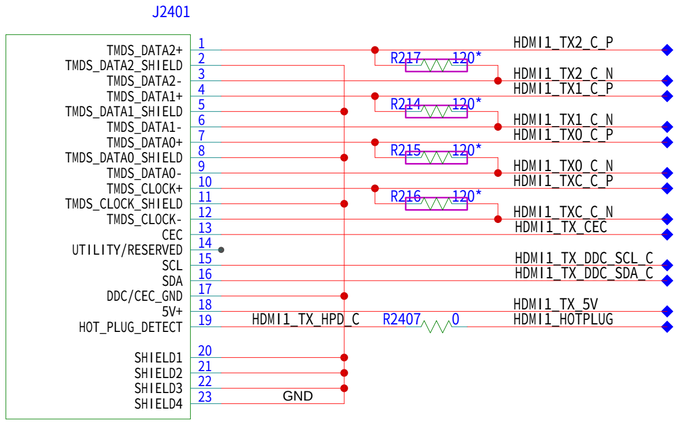

J2301
TMDS_DATA2+
TMDS_DATA2_SHIELD
TMDS_DATA2-
TMDS_DATA1+
TMDS_DATA1_SHIELD
TMDS_DATA1-
TMDS_DATA0+
TMDS_DATA0_SHIELD
TMDS_DATA0-
TMDS_CLOCK+
TMDS_CLOCK_SHIELD
TMDS_CLOCK-
CEC
UTILITY/RESERVED
SCL
SDA
DDC/CEC_GND
5V+
HOT_PLUG_DETECT
SHIELD1
SHIELD2
SHIELD3
SHIELD4
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
R210 120*
R211 120*
R212 120*
R213 120*
HDMI0_TX2_C_P
HDMI0_TX2_C_N
HDMI0_TX1_C_P
HDMI0_TX1_C_N
HDMI0_TX0_C_P
HDMI0_TX0_C_N
HDMI0_TXC_C_P
HDMI0_TXC_C_N
HDMI0_TX_CEC
HDMI0_TX_DDC_SCL_C
HDMI0_TX_DDC_SDA_C
HDMI0_TX_5V
HDMI0_HOTPLUG
HDMI0_TX_HPD_C
R2309 0
GND

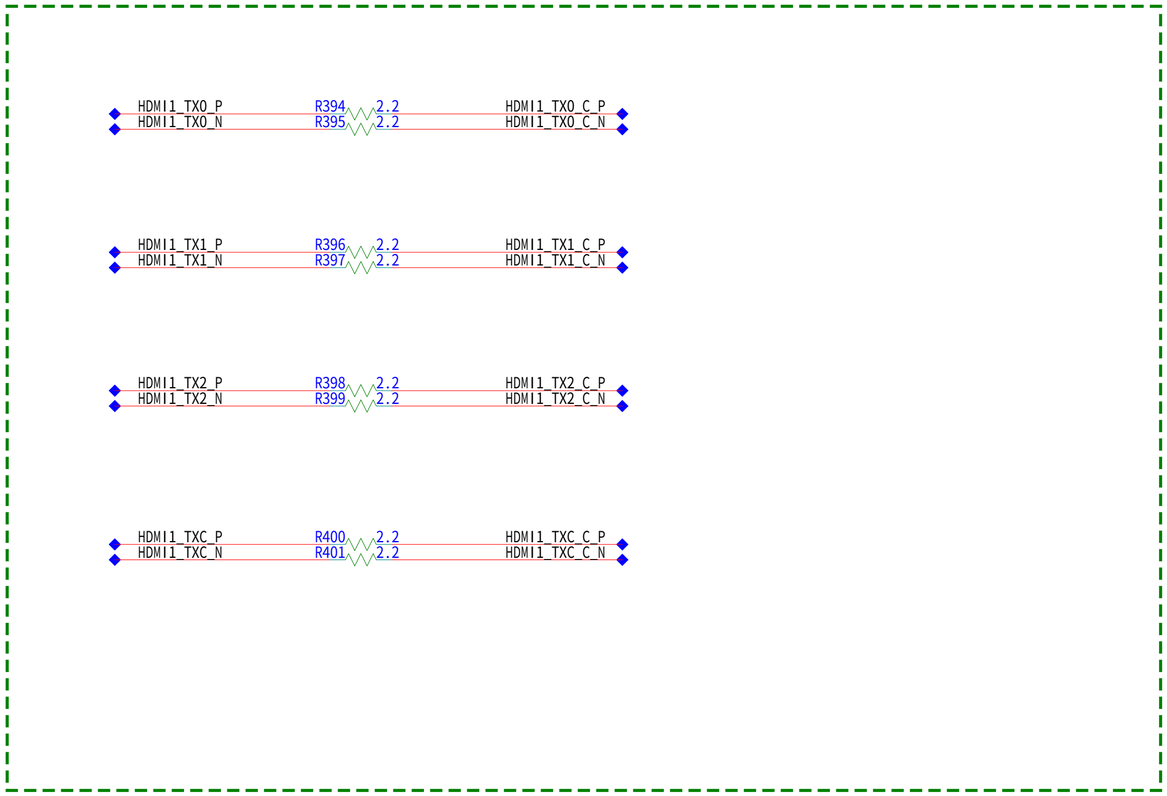
HDMI0_TX0_P
HDMI0_TX0_N
R136 2.2
R144 2.2
HDMI0_TX0_C_P
HDMI0_TX0_C_N
HDMI0_TX1_P
HDMI0_TX1_N
R299 2.2
R300 2.2
HDMI0_TX1_C_P
HDMI0_TX1_C_N
HDMI0_TX2_P
HDMI0_TX2_N
R330 2.2
R331 2.2
HDMI0_TX2_C_P
HDMI0_TX2_C_N
HDMI0_TXC_P
HDMI0_TXC_N
R392 2.2
R393 2.2
HDMI0_TXC_C_P
HDMI0_TXC_C_N


靠近端口侧放置
U13
HDMI0_TX_HPD_C
GND
HDMI0_TX_CEC
HDMI0_TX_DDC_SCL_C
HDMI0_TX_5V
HDMI0_TX_DDC_SDA_C
SRV05-4
D2305
HDMI0_TXC_C_N
HDMI0_TXC_C_P
GND
HDMI0_TX0_C_N
HDMI0_TX0_C_P
I/O_1
I/O_2
VSS1
I/O_3
I/O_4
NC1
NC2
VSS2
NC3
NC4
D2303
HDMI0_TX1_C_N
HDMI0_TX1_C_P
GND
HDMI0_TX2_C_N
HDMI0_TX2_C_P
HDMI0_TX_5V
HDMI1_TX_3V3
R2317 4.7k
R2307 4.7k
R2301 27k
HDMI0_SCL
HDMI0_SDA
HDMI0_CEC
R2305 100
R2306 100
R2302 100
HDMI0_TX_DDC_SCL_C
HDMI0_TX_DDC_SDA_C
HDMI0_TX_CEC
ESD

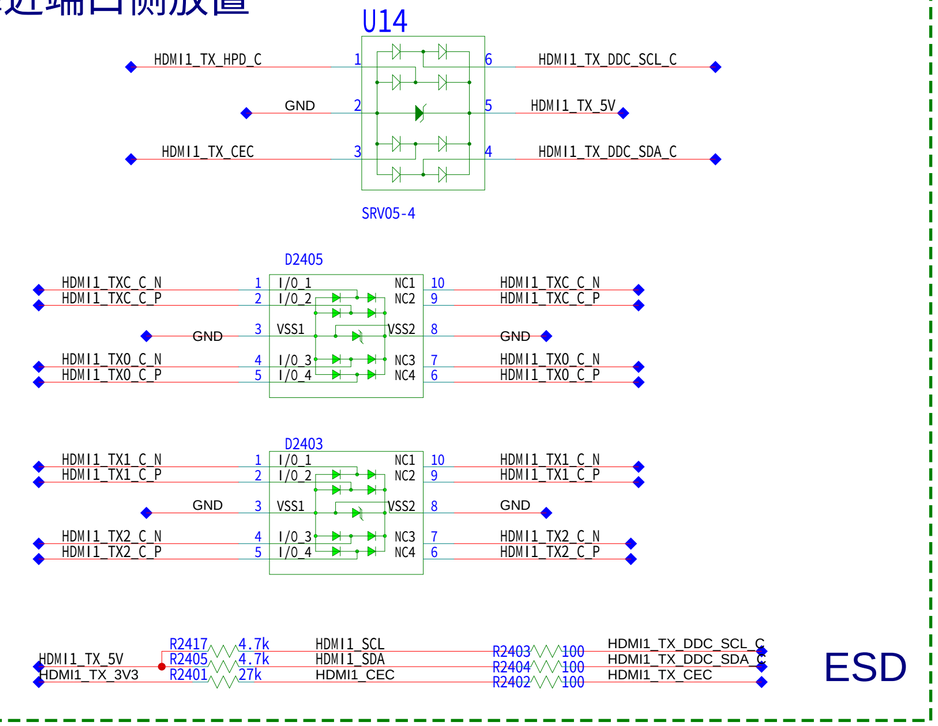

100nF
C2303
HDMI1_TX_3V3
D2307
RT1
100nF
C2301
HDMI0_TX_5V
3
1
V_STBY_5V0
GND
R2310 47k
HDMI0_HOTPLUG
R2308
1k*
HDMI0_TX_5V
C2302
220nF

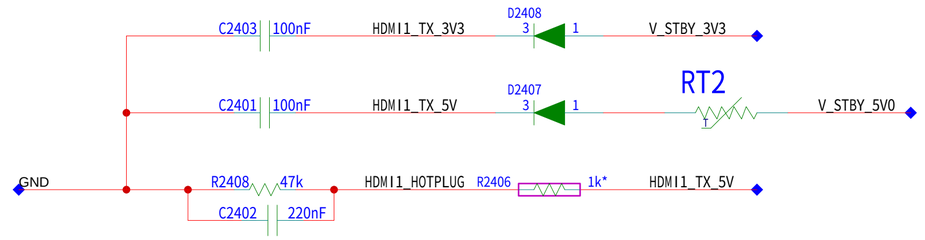
HDMI1 2.0 OUT





靠近端口侧放置



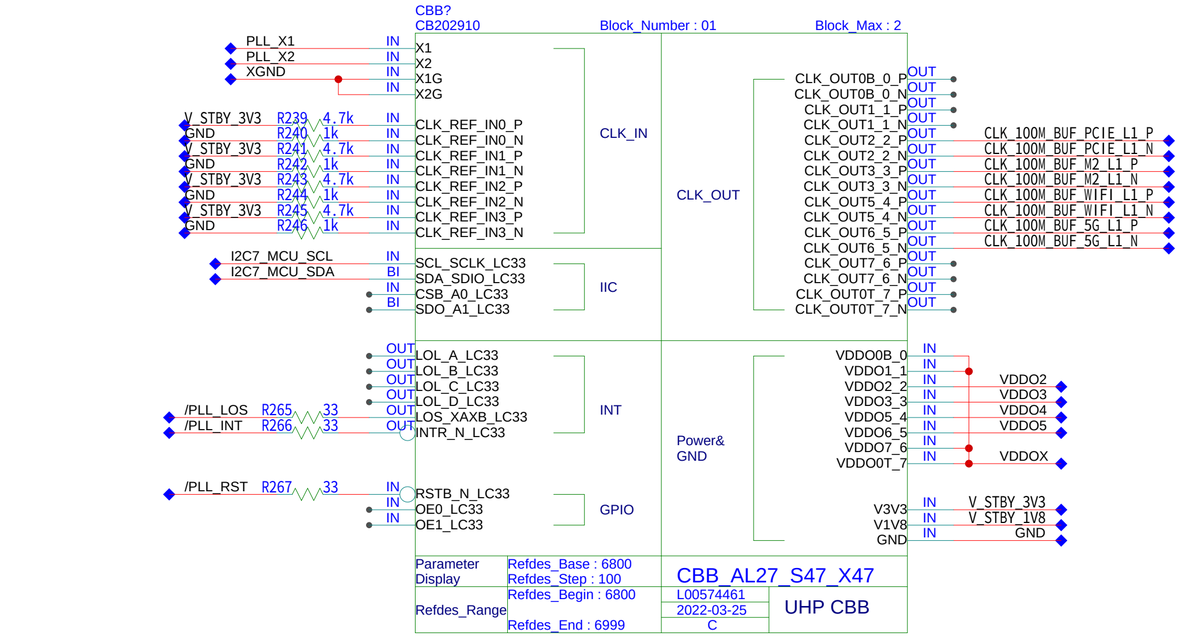


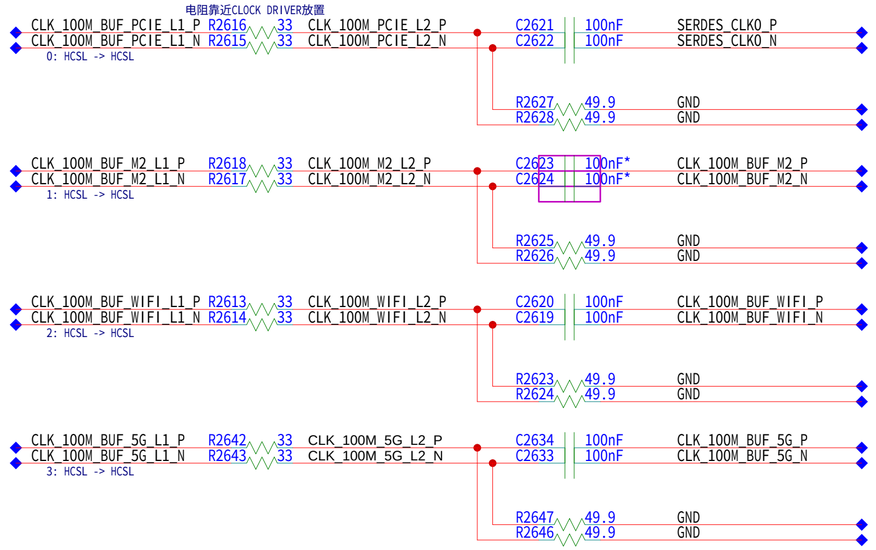
音频接口

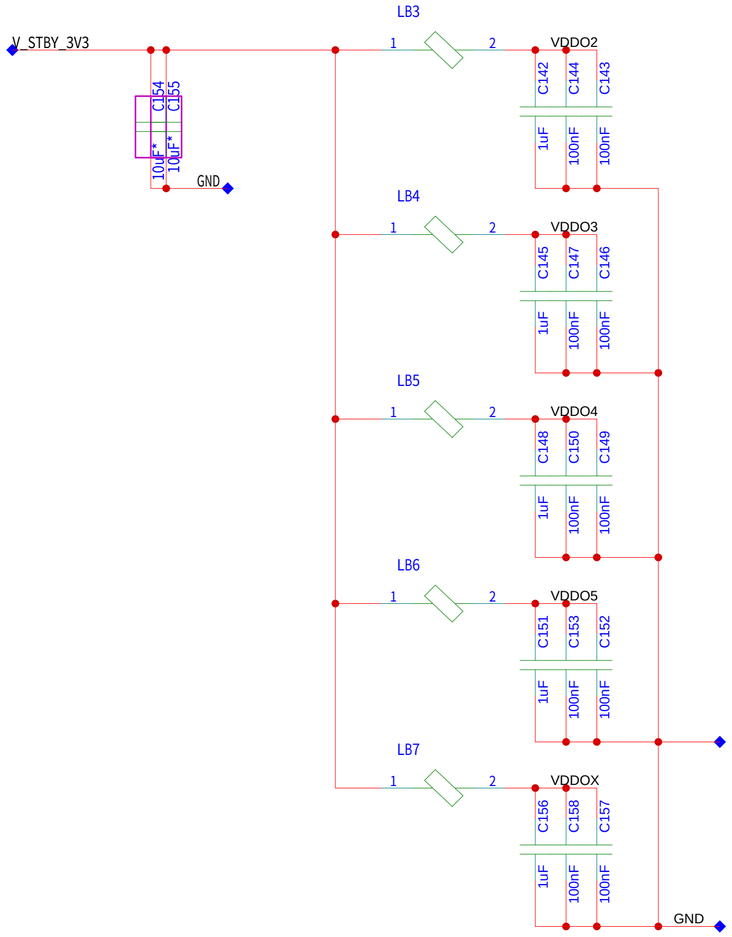
Audio in

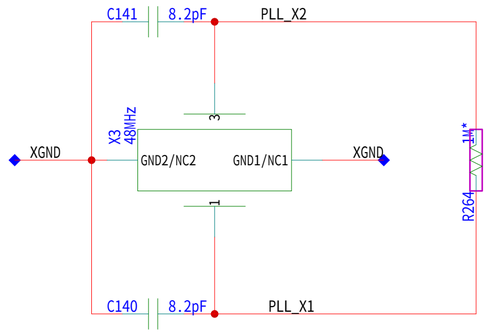
Audio out

CLOCK





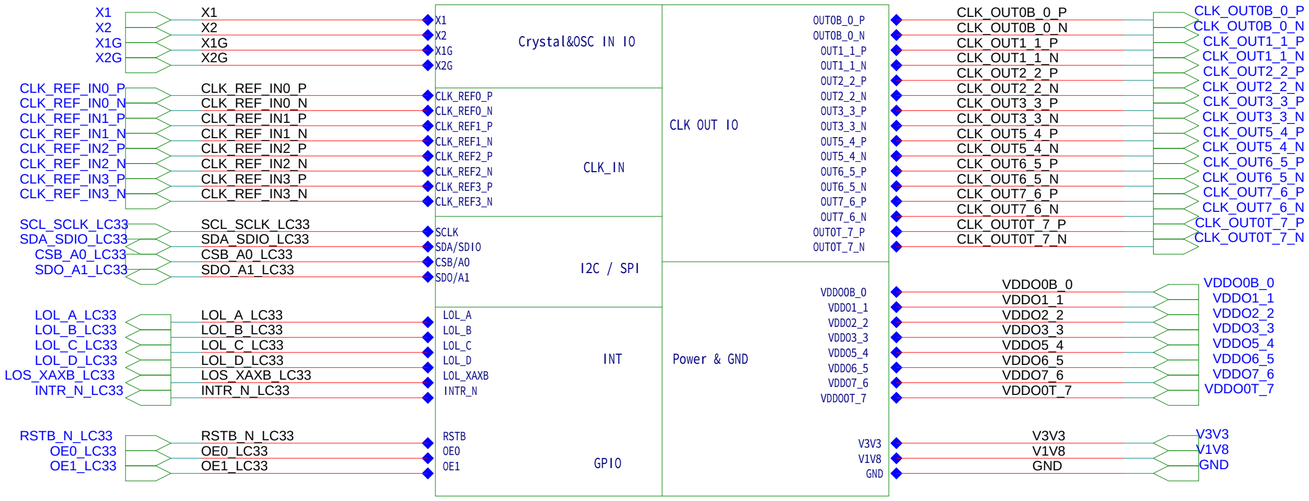




SHEET 26 OF 37

For details about the peripheral circuits of the CBB,see the white block diagram.

NOTE: Huawei internal CBB. Do not discuss with external suppliers or take screenshots. ! ! !

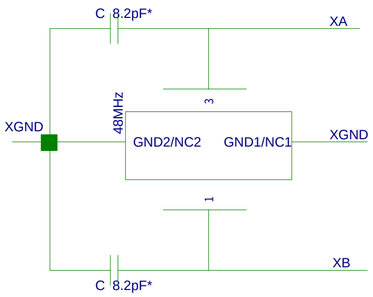


Output Note：

X47：When the OUT1 pin is used for output, if the output clock frequency ranges from 50 MHz to 90 MHz, the output clock cannot be used as a high-performance clock (HI30/HI60, RMS jitter less than 300 fs) but can be used as a common performance clock (jitter less than 1 ps). There is no restriction on other frequencies.

L27/S47/X47:
1.Generally, it is not recommended to output single-ended clock signals.If different reference sources are used or the output frequency is not multiplied, the single-ended clock output pin must be separated from the differential clock output pin by at least two channels. Otherwise, the output clock performance of the differential pin will be affected (not meeting the H30/H60 requirements). The two differential outputs corresponding to different reference source inputs must be separated by one channel.
2. Intra-frequency clocks output by the same loop or clocks with frequency multiplication relationships can be discharged without interval output pins.
3. If the same clock source is traced for the same clock output by different loops or the clock with frequency multiplication relationship, the output pins do not need to be spaced.

48 MHz crystal is recommended.

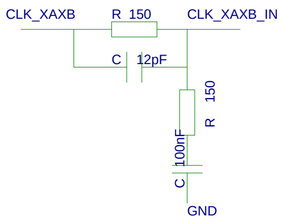


Crystal-compatible crystal oscillator circuit:

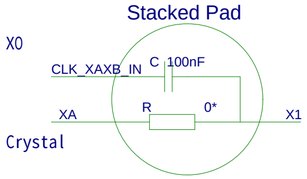
Whether the crystal oscillator circuit is reserved depends on product requirements.

Crystal-compatible crystal oscillator circuit:

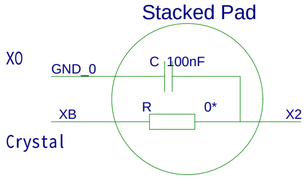
XO Input



Stacked Pad

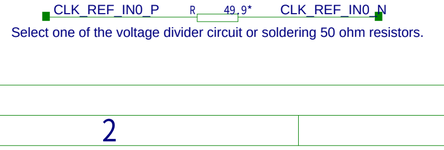


Stacked Pad

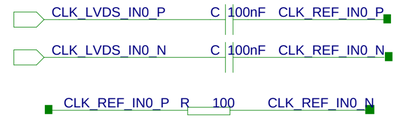


REF_IN:Reference Circuit

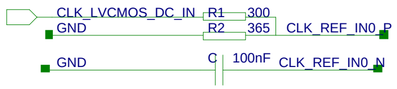
Option1：AC Coupled Differential LVPECL



Option2：AC Couple Differential LVDS/LVPECL



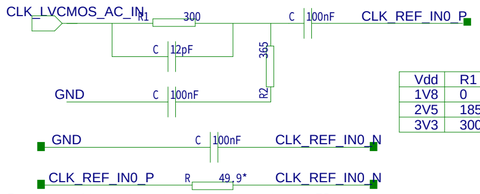
Option3：Pulsed CMOS DC Coupled Signle Ended



Vdd	R1	R2
1V8	0	Null
2V5	185	475
3V3	300	365

When LVCMOS DC Coupling,please select the appropriate resistance to be compatible with the requirements of the co-coding chip for the signle-ended DC input
AL27 LVCOMS DC Vih higher than 0.8V S47 LVCOMS DC Vih higher than 0.8V
X47 LVCOMS DC Vih higher than 0.9V

Option4：Pulsed CMOS AC Coupled Signle Ended

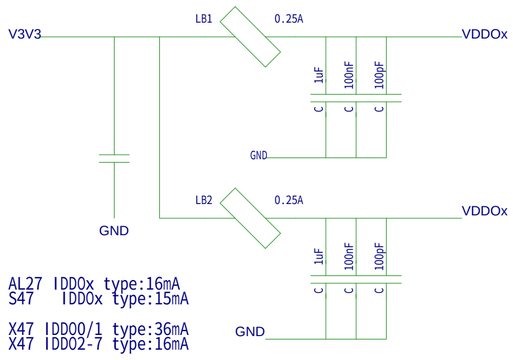


Vdd	R1	R2
1V8	0	Null
2V5	185	475
3V3	300	365

Select one of the voltage divider circuit or soldering 50 ohm resistors.

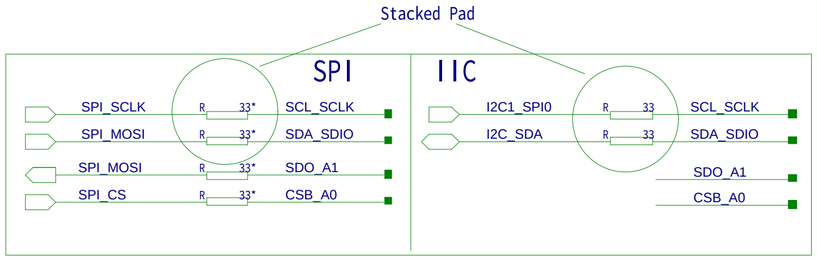
VDDOx:Reference Filter Circuit

Each product designs its own VDDOx circuiu as needed



AL27 IDDOx type:16mA
S47 IDDOx type:15mA

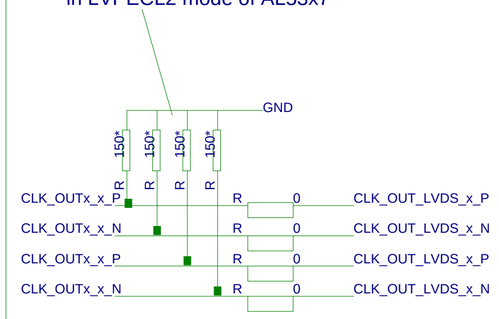
X47 IDDO0/1 type:36mA
X47 IDDO2-7 type:16mA



CLK_OUT:Reference Circuit

Option for Diff Output

The 150 ohm resistor is only used in LVPECL2 mode of AL53x7



NOTE:It is recommended to use LVDS output string 0 ohm resistor

CLOCK CBB -1

SHEET 1 OF 3

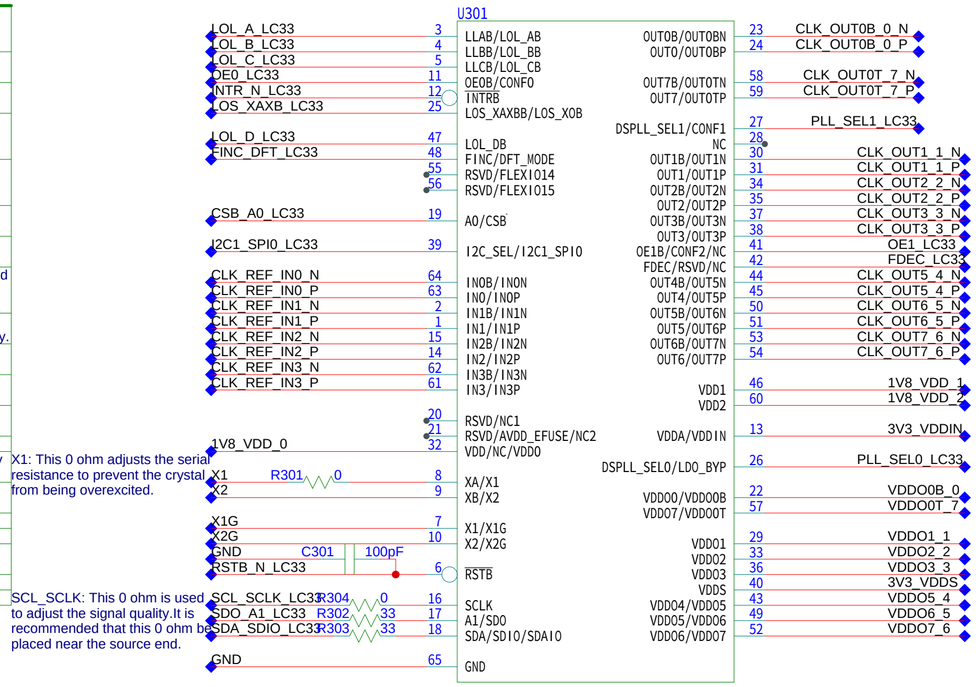
CLOCK CBB -2

NOTE: Huawei internal CBB. Do not discuss with external suppliers or take screenshots. ！ ！ ！

Compatible with S47 and AL27 and X47

PIN	S47	AL27	X47
3	LOL_A	LOL_A	LOL_A
4	LOL_B	LOL_B	LOL_B
5	LOL_C	LOL_C	LOL_C
11	OE0b	OE0b	OE0b
12	INTR	INTR	INTR
25	LOS_XAXB	LOS_XOB	LOS_XAXB
47	LOL_D	LOL_D	LOL_D
48	FINC	FINC	FINC
55	RSVD	FLEXIO14	RSVD
56	RSVD	FLEXIO15	RSVD
19	CSb/A0	CSb	CSb/A0
39	I2C_SEL	I2C1_SPI0	I2C_SEL
64	IN0b	IN0N	IN0b
63	IN0	IN0P	IN0
2	IN1b	IN1N	IN1b
1	IN1	IN1P	IN1
15	IN2b	IN2N	IN2b
14	IN2	IN2P	IN2
62	IN3b	IN3N	IN3b
61	IN3	IN3P	IN3
20	RSVD	NC	RSVD
21	RSVD	NC	RSVD
32	VDD	NC	VDD
8	XA	X1	XA
9	XB	X2	XB
7	X1	X1G	X1
10	X2	X2G	X2
6	RSTb	RSTB	RSTb
16	SCLK	SCLK	SCLK
17	SDO/A1	SDO	SDO/A1
18	SDA/SDIO	SDAIO	SDA/SDIO
65	GND	GND	GND

PIN	Pin Differences
	This pin is not used in normal applications of the three chips and requires pull-down.
11 OE0b	For S47 and L27, this pin controls the output enable of all outputs. For X47, this pin can control all output enable status only after this pin is enabled in the register.
19 CSb/A0	L27 does not support the 3-wire SPI mode.Both X47 and S47 support the 3-wire SPI mode. L27 does not support continuous reading and writing of multiple registers in SPI mode. Both X47 and S47 support this function. L27 does not support continuous writing of multiple registers in IIC mode. Both X47 and S47 support writing
	This pin is the same for the normal application of the three chips.
40 VDDS	The X47 pin has no actual function and can be connected or not. When the chip of other vendors is compatible, the 3V3 power supply must be connected. S47 This pin determines the VIH/VIL level of the FDEC and OE1b. It must be connected to the 3V3 power supply. L27: This pin determines the VIH/VIL level of the FDEC. It must be connected to the 3V3 power supply.
	This pin is not used in normal applications of the three chips and requires pull-down.
41 OE1b	S47: This pin works with OE1a to enable or disable the chip output.
NC	L27: This pin is not used. For X47, this pin can control all output enable status only after this pin is enabled in the register.
55 RSVD FLEX	This pin is not used when the three chips are normally used. The pin is pulled up or floated. For S47 and X47, this pin has no function. For L27, this pin can be used as a FLEX pin.
56 RSVD FLEX	This pin is not used when the three chips are normally used. The pin is pulled up or floated. For S47 and X47, this pin has no function. For L27, this pin can be used as a FLEX pin.



X1: This 0 ohm adjusts the serial resistance to prevent the crystal from being overexcited.

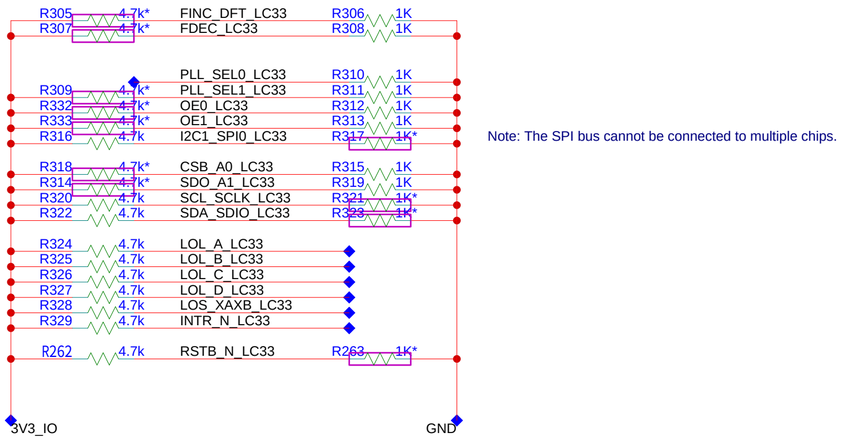
SCL_SCLK: This 0 ohm is used to adjust the signal quality.It is recommended that this 0 ohm be placed near the source end.

The VDD power pins are connected to filter circuits to obtain better phase noise.

PIN	S47	AL27	X47
23	OUT0b	OUT0BN	OUT0b
24	OUT0	OUT0BP	OUT0
58	OUT7b	OUT0TN	OUT7b
59	OUT7	OUT0TP	OUT7
27	DSPLL_SEL1	PLL_SEL1	DSPLL_SEL1
28	NC	NC	NC/RSVD
30	OUT1b	OUT1N	OUT1b
31	OUT1	OUT1P	OUT1
34	OUT2b	OUT2N	OUT2b
35	OUT2	OUT2P	OUT2
37	OUT3b	OUT3N	OUT3b
38	OUT3	OUT3P	OUT3
41	OE1b	NC	OE1b
42	FDEC	FDEC	FDEC
44	OUT4b	OUT5N	OUT4b
45	OUT4	OUT5P	OUT4
50	OUT5b	OUT6N	OUT5b
51	OUT5	OUT6P	OUT5
53	OUT6b	OUT7N	OUT6b
54	OUT6	OUT7P	OUT6
46	VDD	VDD	VDD1
60	VDD	VDD	VDD2
13	VDDA	VDDIN	VDDA
26	DSPLL_SEL_0	PLL_SEL_0	DSPLL_SEL_0
22	VDDO0	VDDOB	VDDO0
57	VDDO7	VDDOT	VDDO7
29	VDDO1	VDDO1	VDDO1
33	VDDO2	VDDO2	VDDO2
36	VDDO3	VDDO3	VDDO3
40	VDDS	VDDS	VDDS
43	VDDO4	VDDO5	VDDO4
49	VDDO5	VDDO6	VDDO5
52	VDDO6	VDDO7	VDDO6

Functions of GPIO pins:

FINC/FDEC	X47/S47/AL27:FINC，Used as frequency up step control in DCO mode X47/S47/AL27:FDEC，Used as frequency down step control in DCO mode
PLL_SEL0/1	X47/S47/AL27:PLL_SEL0 with PLL_SEL1，Loop selection signal for pin control in DCO mode
OE1/OE2	X47/S47/AL27: OE1 works with OE2 to determine all output configurations of the chip.X47/S47/AL27: Pull-down resistors must be connected to the ground. Pull-up resistors cannot be connected or floated.The pull-up resistors in the circuit must be soldered and reserved. Note that the X47 can be used only after the register is configured.
I2C1_SPI0	I2C_SEL=1：IIC mode; I2C_SEL=0 SPI mode Pull-up IIC mode and pull-down SPI mode. The IIC mode is recommended.
A0/A1	A0: used as the A0 address in IIC mode and as the chip select pin in SPI mode. Internal pull-up, floating when not in use. A1: used as the A1 address in IIC mode and as the 4-wire SPI data output pin in SPI mode;
LOL_A/B/C/D	SCLK: SCL in IIC mode and SCLK in SPI mode; SDAIO: SDA in IIC mode; bi-direction data in 3-wire SPI mode; data input in 4-wire SPI mode
SCLK/SDAIO	LOLA: PLLA loop lock status interrupt indication signal. It is recommended that this signal be connected to the logic. LOLB: PLLB loop lock status interrupt indication signal. It is recommended that this signal be connected to the logic. LOLC: PLLC loop lock status interrupt indication signal. It is recommended that this signal be connected to the logic. LOLD: PLLD loop lock status interrupt indication signal. It is recommended that this signal be connected to the logic. LOL_XAXB: LOS interrupt indication signal of the XAXB working clock. It is recommended that this signal be connected to the logic.
INTRb	INTRb: interrupt indication signal. It is recommended that this signal be connected to the logic.
RSTB	Reset signal, active low; The logic must be connected. Before the chip is initialized, reset and deassert the reset.

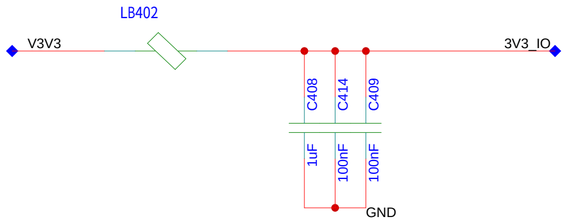


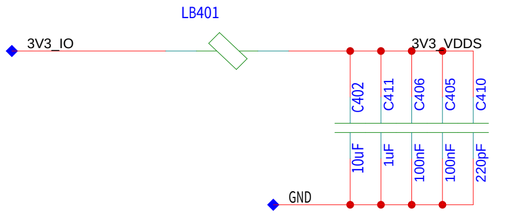
Note: The SPI bus cannot be connected to multiple chips.

CLOCK CBB -3

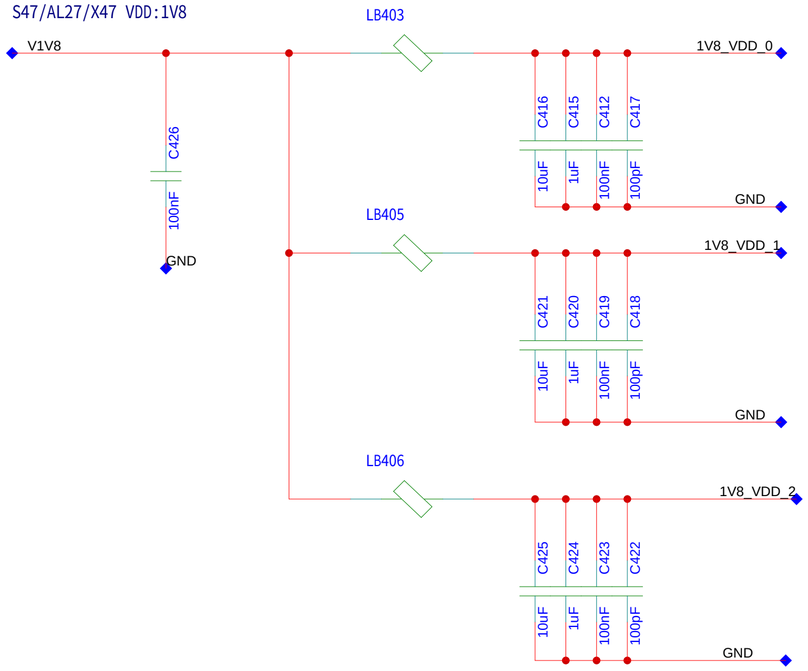
Recommended circuit for VDD:

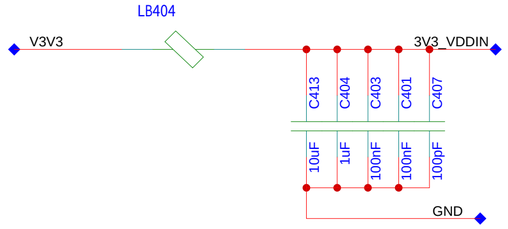
S47/AL27/X47 GPIOs use 3V3 pull-up.





S47/AL27/X47 VDD:1V8

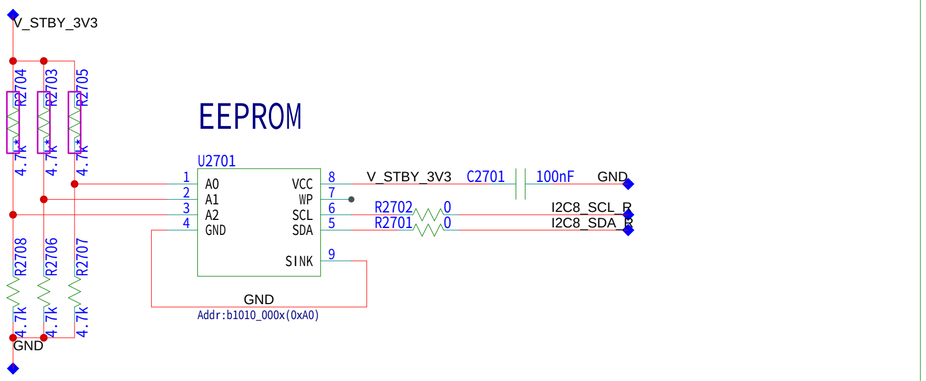


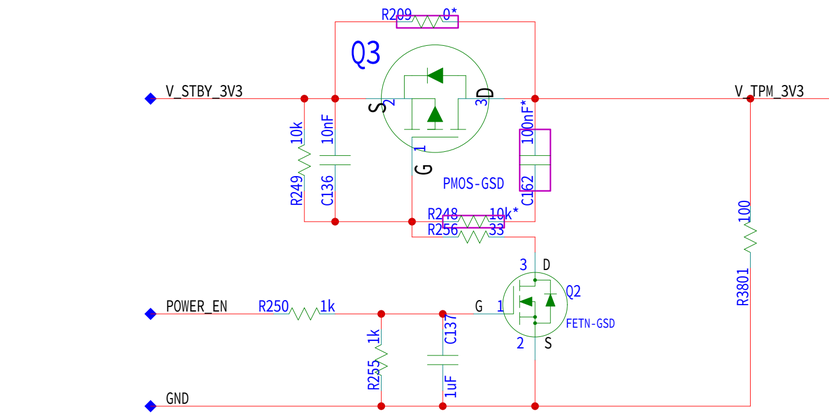


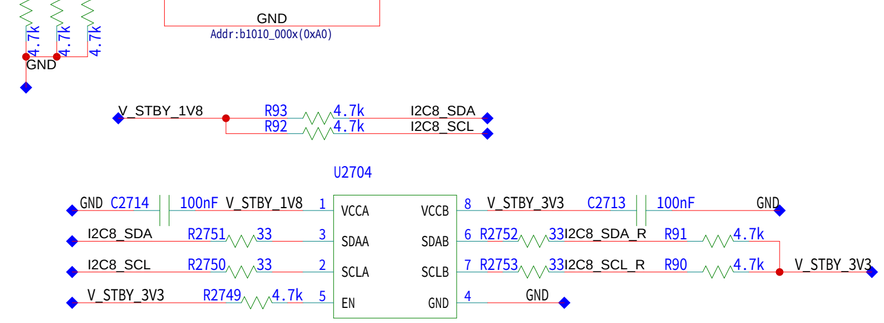
AI27IDDIN type:18mA
S47 IDDIN type:125mA
X47 IDDIN type:70mA

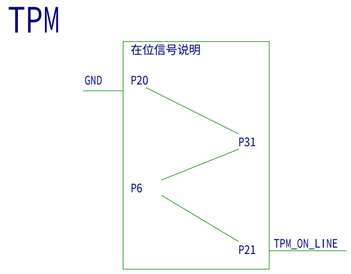
Note: Pins 32, 46, and 60 use independent filter circuits. It is recommended that 100 nF capacitors be placed close to each pin on the PCB.

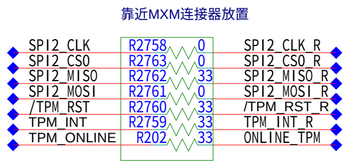
AL27 IDD type:320mA
S47 IDD type:300mA
X47 IDD type:480mA

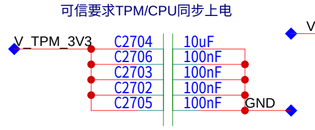


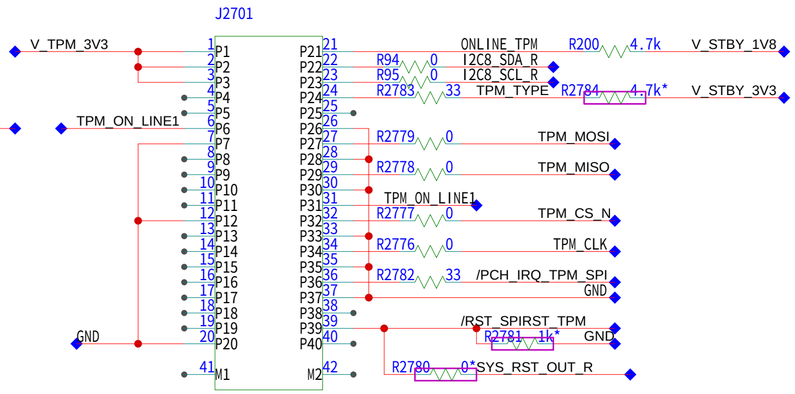


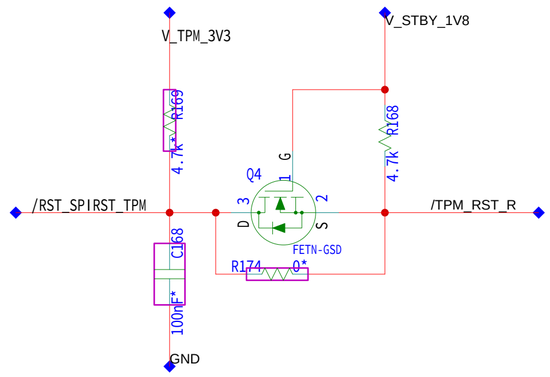


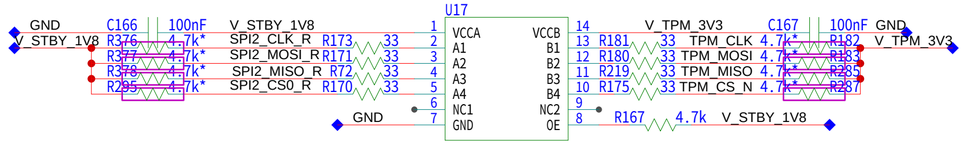


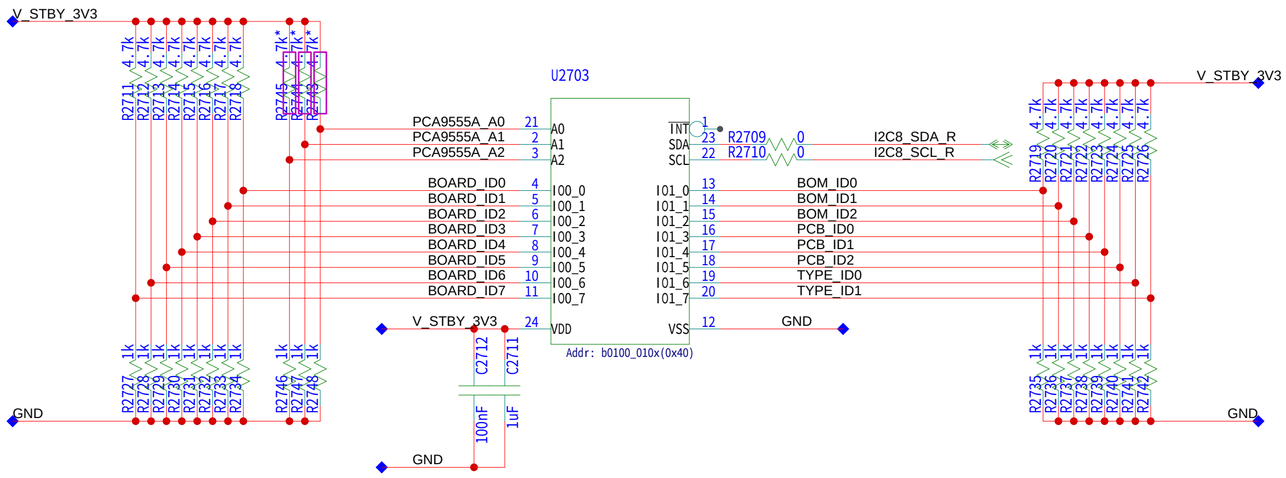












SHEET 27 OF 37

MCU

CBB

EN_MCU_HOT1 R2813 33 GPIO0 加热电阻控制-模组
EN_MCU_HOT2 R2812 33 GPIO1 加热电阻控制-HUB
HEALTHY_LED_MCU_G R2836 33 GPIO2 健康状态正常指示灯
HEALTHY_LED_MCU_R R2834 33 GPIO3 健康状态异常指示灯
POWER_LED_MCU_G R2835 33 GPIO4 电源指示灯绿色
POWER_LED_MCU_R R2832 33 GPIO5 电源指示灯红色
GPIO6
GPIO7
RSV_GPIO_R R2842 33 GPIO8 预留GPIO
/RST_MCU_1911_R R2848 33 GPIO9 MCU复位模组
TAISHAN_POROFF_IN R2846 33 GPIO10 安全上下电输入
TAISHAN_SLEEP_IN_R R2843 33 GPIO11 休眠唤醒输入
UHT_ALARM R2841 33 GPIO12 过温报警信号
FACTORYSET_1911_R R2839 33 GPIO13 恢复模组出厂设置
V_STBY_3V3 R414 4.7k GPIO14
GPIO15
GPIO16
TPM_TYPE R203 33 GPIO17
/PLL_LOS 0 R270 GPIO18
/PLL_INT 0 R268 GPIO19
/PLL_RST 0 R269 GPIO20
GPIO21
GPIO22
TYPE_ID0 0 R125 TYPE_ID0
TYPE_ID1 0 R126 TYPE_ID1
/FACTORYSET_MCU R2833 0 BREAKER_STATE0 恢复出厂设置按键
/POWER_BTN_MCU R2827 0 BREAKER_STATE1 电源按键
/RST_BTN_MCU R2831 0 BREAKER_STATE2 复位按键
SYS_RST_OUT_R R2847 0 BREAKER_STATE3 模组复位输出信号
TAISHAN_POROFF_OUT R2845 0 BREAKER_STATE4 安全上下电输出
TAISHAN_SLEEP_OUT_R R2844 0 BREAKER_STATE5 休眠唤醒输出
1911_OS_OK_R R2837 0 BREAKER_STATE6 OS启动OK
HOT_RST_FAULT_R R2838 0 BREAKER_STATE7 令复位输出
1911_HBOOT_OK_R R2840 0 BREAKER_STATE8 Hboot启动OK
/PG_24711_POWER BREAKER_STATE9
BREAKER_STATE10
BREAKER_STATE11
BREAKER_STATE13
BREAKER_STATE14
INT_MCU_1911_R R66 0 EX_INT
INT_1911_MCU_R R65 0
SENSE_VIN_12V0 AIN0
SENSE_VCC_5V0 AIN1
SENSE_VCC_3V3 AIN2
SENSE_LTE_3V8 AIN3
SENSE_LTE_3V3 AIN8
VRT_DET AIN9
SENSE_TEC_OUT AIN10
SENSE_VBAT_3V0 AIN11

BOARD_ID0 R2853 0 BOARD_ID0
BOARD_ID1 R2854 0 BOARD_ID1
BOARD_ID2 R2855 0 BOARD_ID2
BOARD_ID3 R2856 0 BOARD_ID3
BOARD_ID4 R2857 0 BOARD_ID4
BOARD_ID5 R2858 0 BOARD_ID5
BOARD_ID6 R2859 0 BOARD_ID6
BOARD_ID7 R2860 0 BOARD_ID7
PCB_ID0 R2861 0 PCB_ID0
PCB_ID1 R2862 0 PCB_ID1
PCB_ID2 R2863 0 PCB_ID2
BOM_ID0 R2864 0 BOM_ID0
BOM_ID1 R2865 0 BOM_ID1
BOM_ID2 R2866 0 BOM_ID2
SCL0 R2869 0 I2C0_MCU_SCL
SDA0 R2870 0 I2C0_MCU_SDA master slave：TPA626
SCL1 R2871 33 I2C6_SCL
SDA1 R2868 33 I2C6_SDA slave master：模组
SCL2 R2867 33 I2CS_SCL
SDA2 R2872 33 I2CS_SDA master slave：模组
SCL3 R2874 0 I2C3_MCU_SCL
SDA3 R2873 0 I2C3_MCU_SDA master slave：三路温感
SCL4 R120 0 I2C4_MCU_SCL
SDA4 R123 0 I2C4_MCU_SDA master slave：TEC_PCA9555
SCL7 R271 0 I2C7_MCU_SCL
SDA7 R272 0 I2C7_MCU_SDA master slave：CLK_PLL
UART_UPLNK_TX1 R2879 33 UART1_RX_R
UART_UPLNK_RX1 UART1_TX_R
MCU_SWDIO MCU1_SWDIO
MCU_SWCLK MCU1_SWCLK
SPI_MCU_CS R2876 33 SPI_MCU_CS
SPI_MCU_MISO SPI_MCU_MISO
SPI_MCU_MOSI R2875 33 SPI_MCU_MOSI
SPI_MCU_CLK R2878 33 SPI_MCU_CLK
DEBUG_TX MCU2_SWDIO Z型号的debug串口
DEBUG_RX MCU2_SWCLK H型号的debug/SWDIO复用管脚
UART2_TX UART_MCU_DEBUG
UART2_RX UART_DEBUG_MCU
VREF_ADC MCU_VREF
MCU_RST_N C2810 100nF GND
3V3 V_STBY_3V3
GND GND
1V8 R2826 0* V_STBY_1V8
4.7k R2828 GND
MCU_BOOT0 TP6
BOOT0 4.7k* R2829 V_STBY_3V3
C2809 C2808 C2807 C2806 C2805 10uF 10uF 10uF 10uF 10uF GND

V_STBY_3V3
R25 4.7k MCU1_SWCLK
R26 4.7k MCU1_SWDIO
R227 4.7k UART_DEBUG_MCU
R228 4.7k UART_MCU_DEBUG
R33 4.7k UART1_RX_R
R34 4.7k UART1_TX_R
R28 4.7k I2C0_MCU_SCL
R27 4.7k I2C0_MCU_SDA
R37 4.7k I2C3_MCU_SCL
R38 4.7k I2C3_MCU_SDA
R96 4.7k I2CS_SCL
R97 4.7k I2CS_SDA
R98 4.7k I2C6_SCL
R99 4.7k I2C6_SDA
R35 4.7k I2C4_MCU_SCL
R36 4.7k I2C4_MCU_SDA

U2804 Temp sensor 0
I2C3_MCU_SDA R2881 33 1 SDA
I2C3_MCU_SCL R2882 33 2 SCL
3 ALERT/OS/ALERT/INT/OS
GND 4 GND
V+/VDD/VCC 8 V_STBY_3V3 C2812 100nF GND
AO 7 LM75_INLET0_AO
A1 6 LM75_INLET0_A1
A2 5 LM75_INLET0_A2
Addr:b1001_001x(0x92)
R2894 1k* LM75_INLET0_AO R2891 4.7k V_STBY_3V3
R2896 1k LM75_INLET0_A1 R2893 4.7k*
GND R2895 1k LM75_INLET0_A2 R2892 4.7k*

U2803 Temp sensor 1
I2C3_MCU_SDA R2884 33 1 SDA
I2C3_MCU_SCL R2883 33 2 SCL
3 ALERT/OS/ALERT/INT/OS
GND 4 GND
V+/VDD/VCC 8 V_STBY_3V3 C2813 100nF GND
AO 7 LM75_INLET1_AO
A1 6 LM75_INLET1_A1
A2 5 LM75_INLET1_A2
Addr:b1001_010x(0x94)
R23 4.7k LM75_INLET1_AO R24 1k* V_STBY_3V3
R2899 1k* LM75_INLET1_A1 R21 4.7k
GND R62 1k LM75_INLET1_A2 R22 4.7k*

U2805 Temp sensor 2
I2C3_MCU_SDA R2886 33 1 SDA
I2C3_MCU_SCL R2885 33 2 SCL
3 ALERT/OS/ALERT/INT/OS
GND 4 GND
V+/VDD/VCC 8 V_STBY_3V3 C2811 100nF GND
AO 7 LM75_INLET2_AO
A1 6 LM75_INLET2_A1
A2 5 LM75_INLET2_A2
Addr:b1001_011x(0x96)
R2890 1k* LM75_INLET2_AO R2887 4.7k V_STBY_3V3
R2898 1k* LM75_INLET2_A1 R2889 4.7k
GND R2897 1k LM75_INLET2_A2 R2888 4.7k*

SPI FLASH U2801
SPI_MCU_MOSI 5 SI/SIO0/IO0
SPI_MCU_MISO 33 R2806 2 SO/SIO1/IO1
V_STBY_3V3 4.7k R2830 3 WP/SIO2/IO2
4.7k R2804 7 RESET/SIO3/HOLD/IO3
CS 1 R2805 4.7k V_STBY_3V3 SPI_MCU_CS
SCLK 6 SPI_MCU_CLK
VCC 8 V_STBY_3V3 35mA C2801 100nF
GND/VSS 4 GND

V_STBY_3V3 R2803 4.7k* SPI_MCU_MISO
R2809 4.7k* SPI_MCU_MOSI
R2810 4.7k* SPI_MCU_CLK

V_TEC_OUT R2823 20k SENSE_TEC_OUT 0.83V R2822 10k GND
V_STBY_3V3 R2818 10k SENSE_VCC_3V3 1.35V R2819 10k GND
V_STBY_5V0 R2817 20k SENSE_VCC_5V0 1.6V R2816 10k GND
V_LTE_3V8 R2820 10k SENSE_LTE_3V8 1.9V R2821 10k GND
V_STBY_12V0 R2814 150k SENSE_VIN_12V0 2V R2815 30k GND
V_LTE_3V3 R2825 10k SENSE_LTE_3V3 1.65V R2824 10k GND

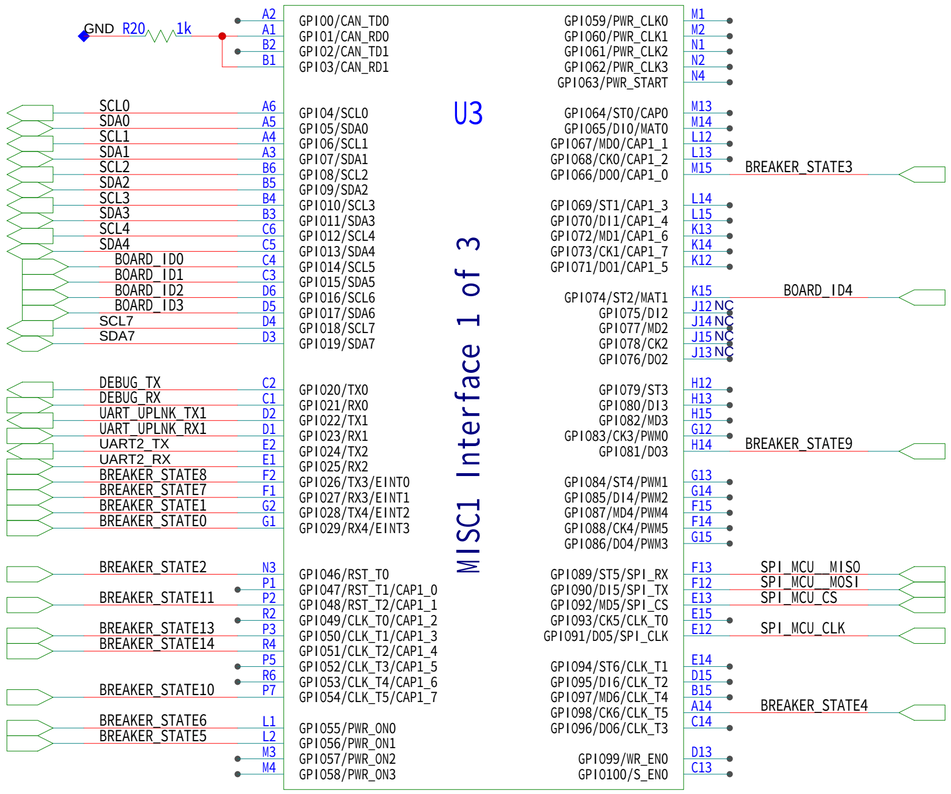
MCU_VREF 2.5v 靠近MCU放置
R2811 200
U2802
1uF 100nF C2802 C2803
K NC A
100nF C2804
LB2801 V_STBY_3V3
GND

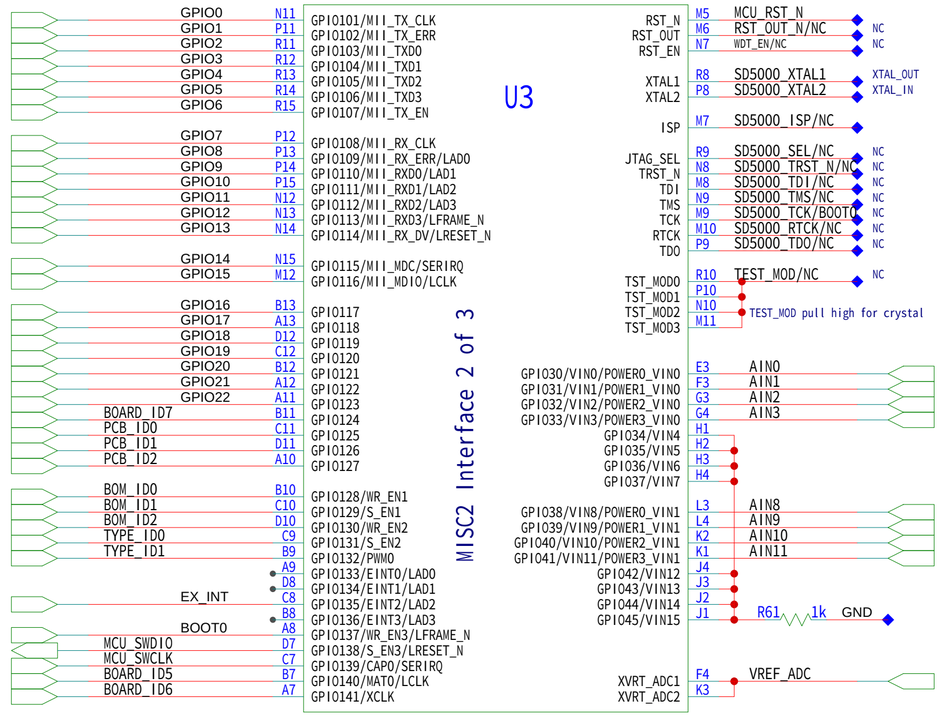
MCU1_SWDIO R2801 33 TP1
MCU1_SWCLK R2802 33 TP2
0 0 R226
MCU2_SWDIO R2808 33 TP23
MCU2_SWCLK R2807 33 TP24
GND TP4
UART_MCU_DEBUG R29 33 TP3
UART_DEBUG_MCU R76 33 TP5

MCU CBB -1

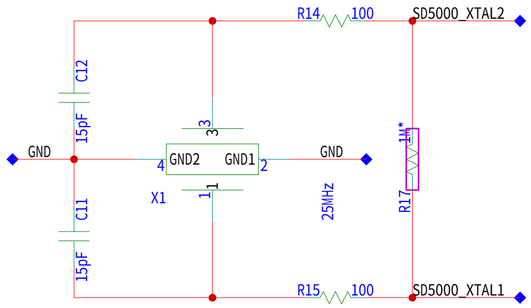
MCU CBB电路

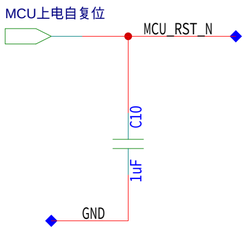
MCU CBB -2

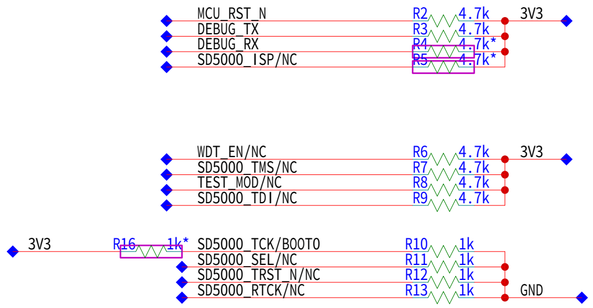




Clock: Crystal

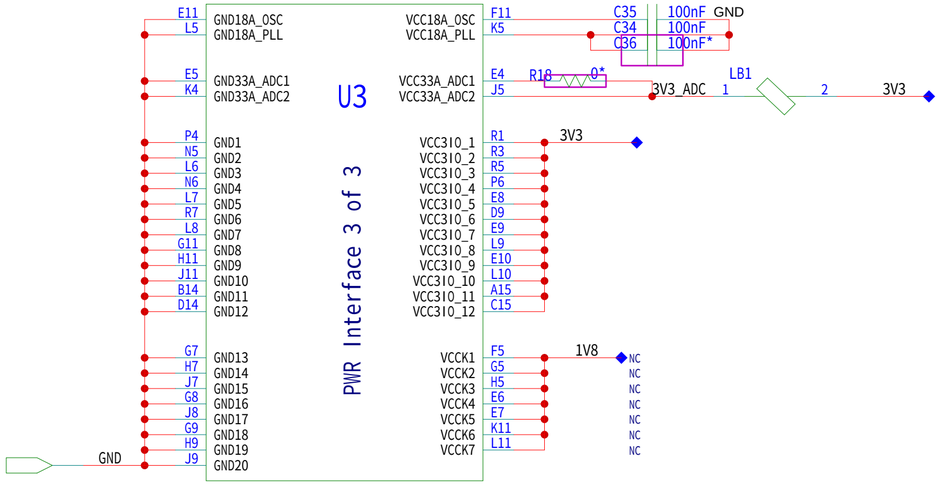


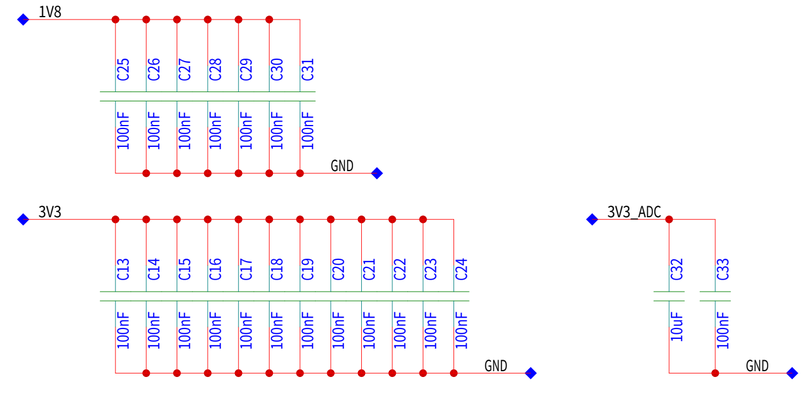




SHEET 2 OF 3

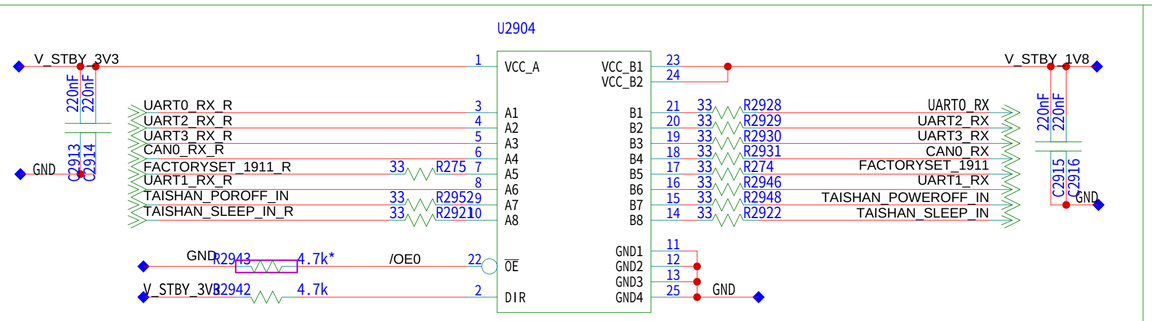
MCU CBB -3

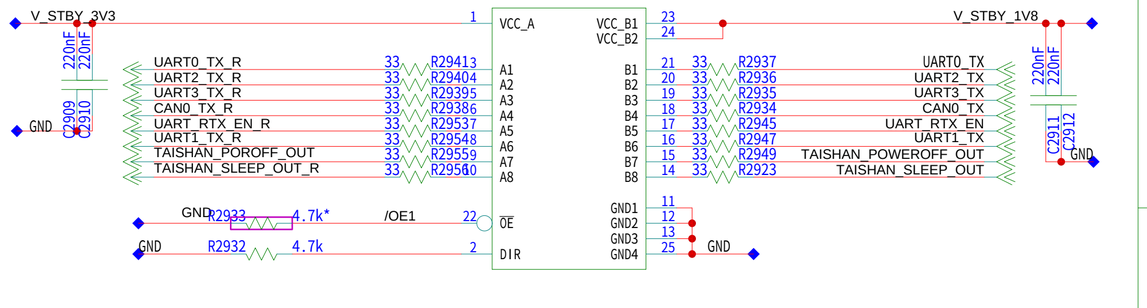


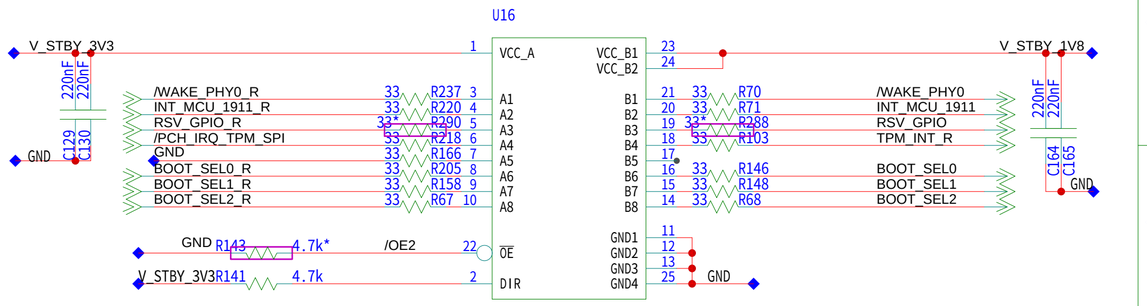


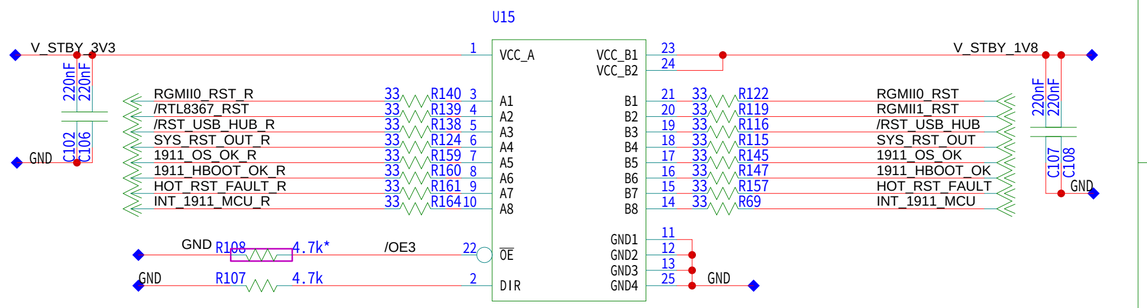
SHEET 3 OF 3

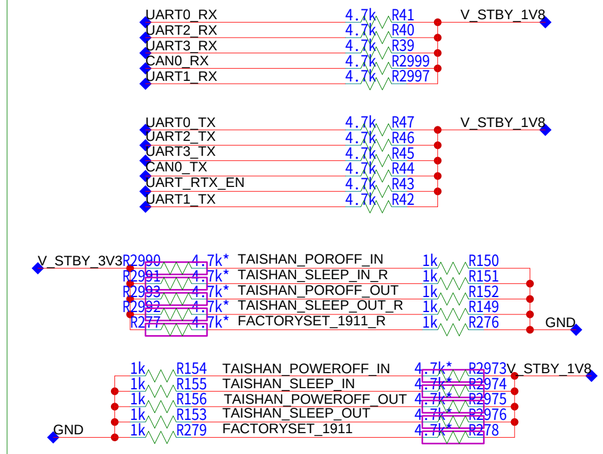
Level Shift

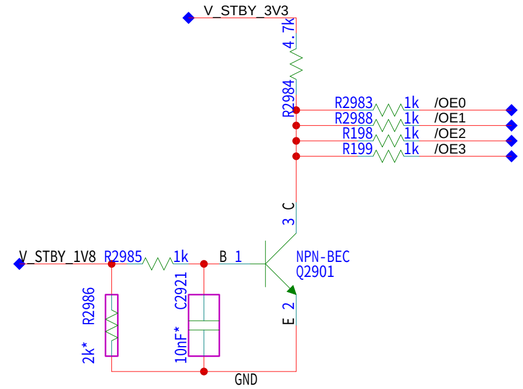

U2904
V_STBY_3V3
GND
220nF
C2913
C2914
UART0_RX_R
UART2_RX_R
UART3_RX_R
CAN0_RX_R
FACTORYSET_1911_R
UART1_RX_R
TAISHAN_POROFF_IN
TAISHAN_SLEEP_IN_R
R275
R29529
R29210
GND R2943 4.7k* /OE0
V_STBY_3V3 R2942 4.7k
VCC_A
A1
A2
A3
A4
A5
A6
A7
A8
OE
DIR
VCC_B1
VCC_B2
B1
B2
B3
B4
B5
B6
B7
B8
GND1
GND2
GND3
GND4
R2928
R2929
R2930
R2931
R274
R2946
R2948
R2922
UART0_RX
UART2_RX
UART3_RX
CAN0_RX
FACTORYSET_1911
UART1_RX
TAISHAN_POWEROFF_IN
TAISHAN_SLEEP_IN
V_STBY_1V8
220nF
C2915
C2916

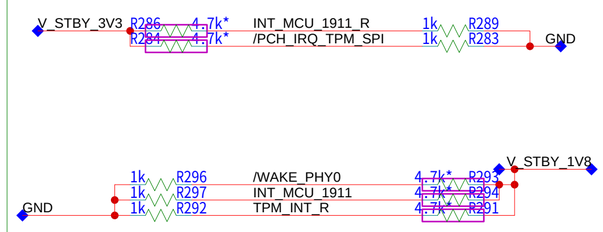

U2903
V_STBY_3V3
GND
220nF
C2909
C2910
UART0_TX_R
UART2_TX_R
UART3_TX_R
CAN0_TX_R
UART_RTX_EN_R
UART1_TX_R
TAISHAN_POROFF_OUT
TAISHAN_SLEEP_OUT_R
R29413
R29404
R29395
R29386
R29537
R29548
R29559
R29550
GND R2933 4.7k* /OE1
GND R2932 4.7k
VCC_A
A1
A2
A3
A4
A5
A6
A7
A8
OE
DIR
VCC_B1
VCC_B2
B1
B2
B3
B4
B5
B6
B7
B8
GND1
GND2
GND3
GND4
R2937
R2936
R2935
R2934
R2945
R2947
R2949
R2923
UART0_TX
UART2_TX
UART3_TX
CAN0_TX
UART_RTX_EN
UART1_TX
TAISHAN_POWEROFF_OUT
TAISHAN_SLEEP_OUT
V_STBY_1V8
220nF
C2911
C2912

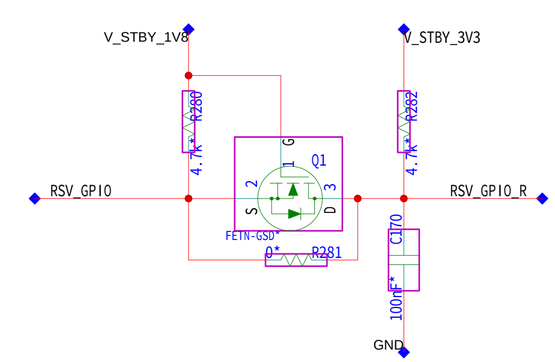

U16
V_STBY_3V3
GND
220nF
C129
C130
/WAKE_PHY0_R
INT_MCU_1911_R
RSV_GPIO_R
/PCH_IRQ_TPM_SPI
GND
BOOT_SEL0_R
BOOT_SEL1_R
BOOT_SEL2_R
R237
R220
R290
R218
R166
R205
R158
R67
GND R143 4.7k* /OE2
V_STBY_3V3 R141 4.7k
VCC_A
A1
A2
A3
A4
A5
A6
A7
A8
OE
DIR
VCC_B1
VCC_B2
B1
B2
B3
B4
B5
B6
B7
B8
GND1
GND2
GND3
GND4
R70
R71
R288
R103
R146
R148
R68
/WAKE_PHY0
INT_MCU_1911
RSV_GPIO
TPM_INT_R
BOOT_SEL0
BOOT_SEL1
BOOT_SEL2
V_STBY_1V8
220nF
C164
C165

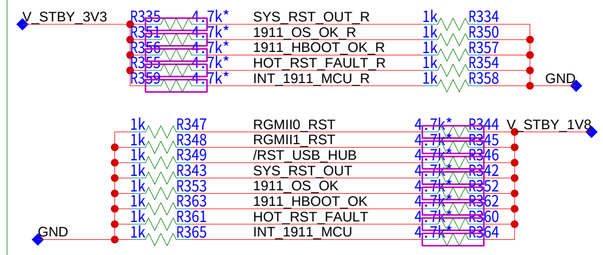

U15
V_STBY_3V3
GND
220nF
C102
C106
RGMII0_RST_R
/RTL8367_RST
/RST_USB_HUB_R
SYS_RST_OUT_R
1911_OS_OK_R
1911_HBOOT_OK_R
HOT_RST_FAULT_R
INT_1911_MCU_R
R140
R139
R138
R124
R159
R160
R161
R164
GND R108 4.7k* /OE3
GND R107 4.7k
VCC_A
A1
A2
A3
A4
A5
A6
A7
A8
OE
DIR
VCC_B1
VCC_B2
B1
B2
B3
B4
B5
B6
B7
B8
GND1
GND2
GND3
GND4
R122
R119
R116
R115
R145
R147
R157
R69
RGMII0_RST
RGMII1_RST
/RST_USB_HUB
SYS_RST_OUT
1911_OS_OK
1911_HBOOT_OK
HOT_RST_FAULT
INT_1911_MCU
V_STBY_1V8
220nF
C107
C108

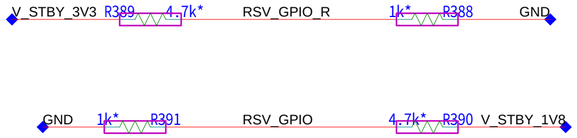

UART0_RX 4.7k R41 V_STBY_1V8
UART2_RX 4.7k R40
UART3_RX 4.7k R39
CAN0_RX 4.7k R2999
UART1_RX 4.7k R2997
UART0_TX 4.7k R47 V_STBY_1V8
UART2_TX 4.7k R46
UART3_TX 4.7k R45
CAN0_TX 4.7k R44
UART_RTX_EN 4.7k R43
UART1_TX 4.7k R42
V_STBY_3V3 R2990 4.7k* TAISHAN_POROFF_IN 1k R150
R2991 4.7k* TAISHAN_SLEEP_IN_R 1k R151
R2993 4.7k* TAISHAN_POROFF_OUT 1k R152
R2992 4.7k* TAISHAN_SLEEP_OUT_R 1k R149
R277 4.7k* FACTORYSET_1911_R 1k R276 GND
1k R154 TAISHAN_POWEROFF_IN 4.7k* R2973 V_STBY_1V8
1k R155 TAISHAN_SLEEP_IN 4.7k* R2974
1k R156 TAISHAN_POWEROFF_OUT 4.7k* R2975
1k R153 TAISHAN_SLEEP_OUT 4.7k* R2976
GND 1k R279 FACTORYSET_1911 4.7k* R278


V_STBY_3V3
4.7k
R2984
R2983 1k /OE0
R2988 1k /OE1
R198 1k /OE2
R199 1k /OE3
3 C
V_STBY_1V8 R2985 1k B 1 NPN-BEC Q2901
E 2
2k* R2986
10nF* C2921
GND

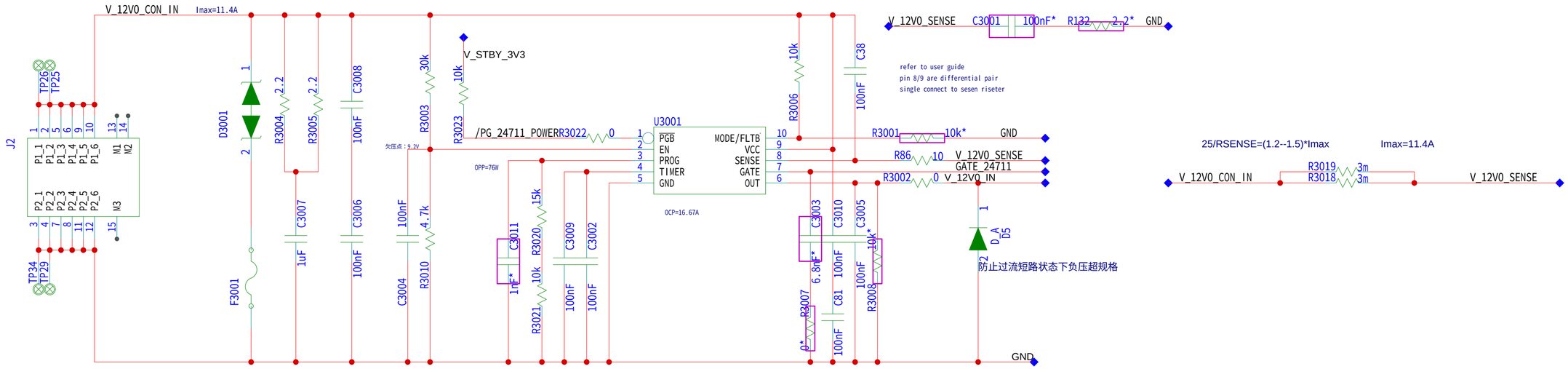

V_STBY_3V3 R286 4.7k* INT_MCU_1911_R 1k R289
R284 4.7k* /PCH_IRQ_TPM_SPI 1k R283 GND
1k R296 /WAKE_PHY0 4.7k* R293
1k R297 INT_MCU_1911 4.7k* R294
GND 1k R292 TPM_INT_R 4.7k* R291
V_STBY_1V8

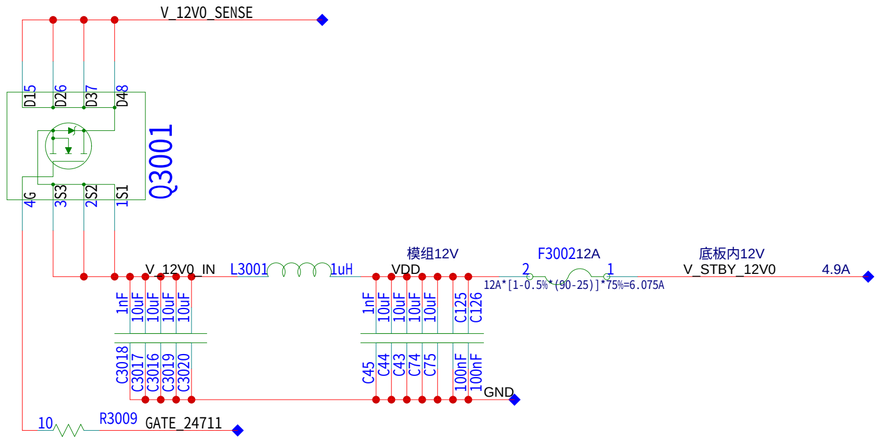

V_STBY_1V8
V_STBY_3V3
4.7k* R280
4.7k* R282
RSV_GPIO
RSV_GPIO_R
Q1
G
S 2
D 3
FETN-GSD*
0* R281
C170
100nF*
GND

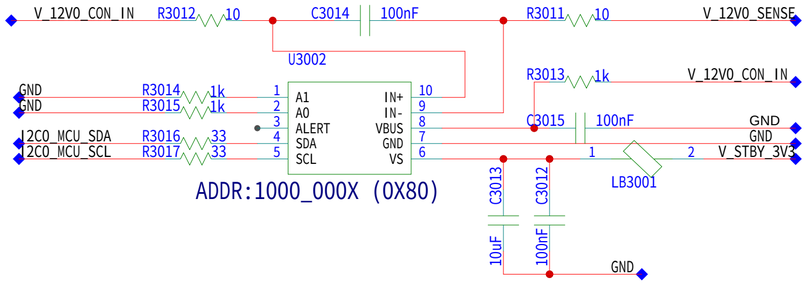

V_STBY_3V3 R335 4.7k* SYS_RST_OUT_R 1k R334
R351 4.7k* 1911_OS_OK_R 1k R350
R356 4.7k* 1911_HBOOT_OK_R 1k R357
R355 4.7k* HOT_RST_FAULT_R 1k R354
R359 4.7k* INT_1911_MCU_R 1k R358 GND
1k R347 RGMII0_RST 4.7k* R344 V_STBY_1V8
1k R348 RGMII1_RST 4.7k* R345
1k R349 /RST_USB_HUB 4.7k* R346
1k R343 SYS_RST_OUT 4.7k* R342
1k R353 1911_OS_OK 4.7k* R352
1k R363 1911_HBOOT_OK 4.7k* R362
1k R361 HOT_RST_FAULT 4.7k* R360
GND 1k R365 INT_1911_MCU 4.7k* R364

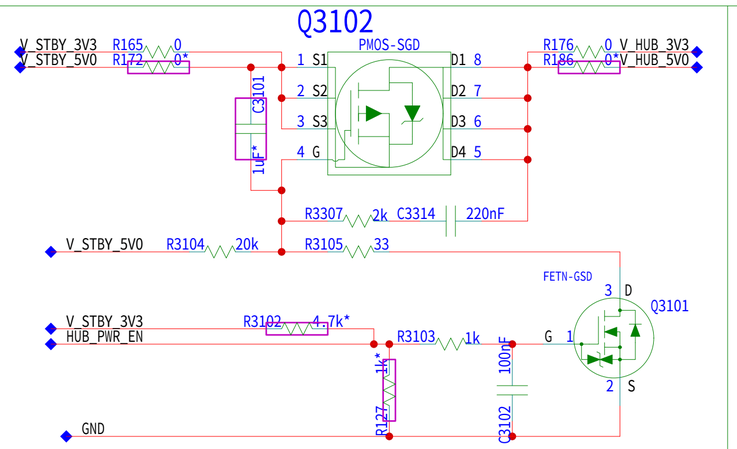

V_STBY_3V3 R389 4.7k* RSV_GPIO_R 1k* R388 GND
GND 1k* R391 RSV_GPIO 4.7k* R390 V_STBY_1V8

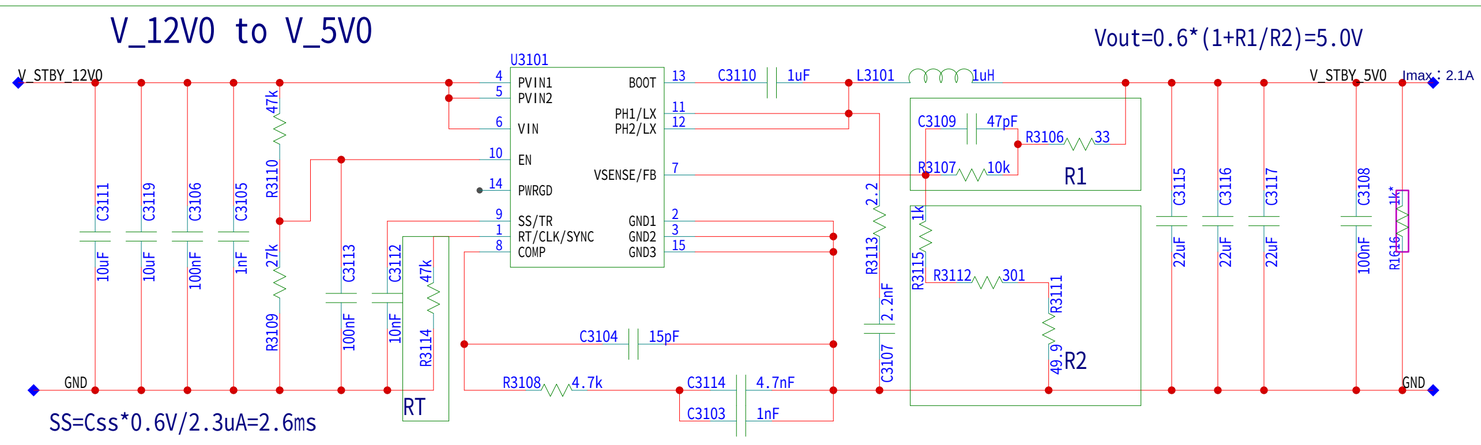
12V Input

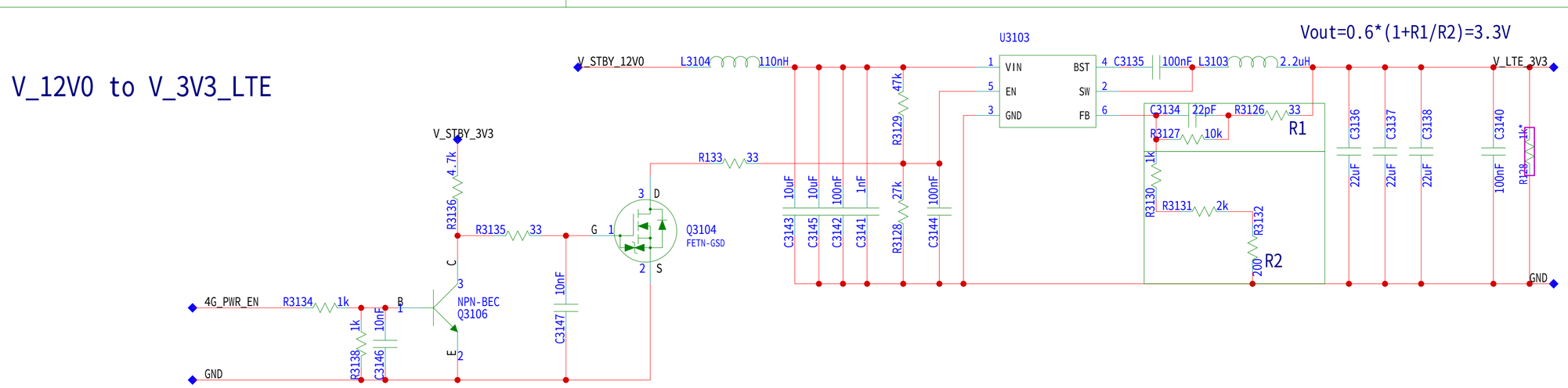

V_12V0_CON_IN
Imax=11.4A
V_STBY_3V3
/PG_24711_POWER
R3022
0
U3001
PGB
EN
PROG
TIMER
GND
MODE/FLTB
VCC
SENSE
GATE
OUT
欠压点：9.2V
OPP=76W
OCP=16.67A
V_12V0_SENSE
C3001
100nF*
R132
2.2*
GND
refer to user guide
pin 8/9 are differential pair
single connect to sesen riseter
R3001
10k*
R86
10
GATE_24711
R3002
0
V_12V0_IN
防止过流短路状态下负压超规格
25/RSENSE=(1.2--1.5)*Imax
Imax=11.4A
R3019
3m
R3018
3m
V_12V0_CON_IN
V_12V0_SENSE
J2
TP26
TP25
TP34
TP29
D3001
F3001
R3004
2.2
R3005
2.2
C3007
1uF
C3008
100nF
C3006
100nF
R3003
30k
R3023
10k
C3004
100nF
R3010
4.7k
C3011
1nF*
R3020
15k
R3021
10k
C3009
100nF
C3002
100nF
R3006
10k
C38
100nF
C3003
6.8nF*
C3010
100nF
C3005
100nF
R3007
0*
C81
100nF
R3008
10k*
D5
D_A
GND

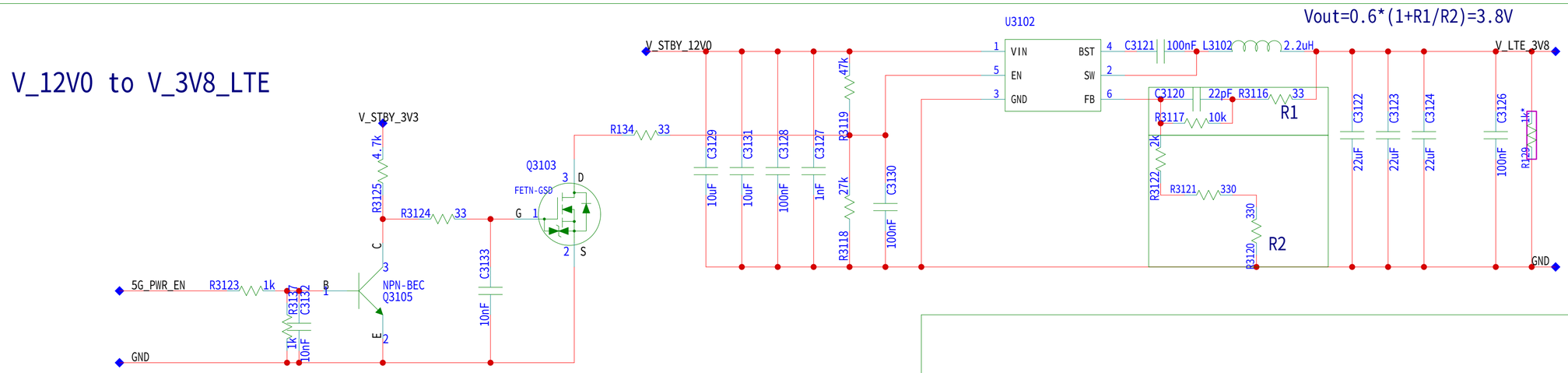

V_12V0_SENSE
D15
D26
D37
D48
Q3001
4G
3S3
2S2
1S1
V_12V0_IN
L3001
1uH
模组12V
VDD
F300212A
12A*[1-0.5%*(90-25)]*75%=6.075A
底板内12V
V_STBY_12V0
4.9A
C3018
C3017
C3016
C3019
C3020
C45
C44
C43
C74
C75
C125
C126
100nF
GND
10
R3009
GATE_24711


V_12V0_CON_IN
R3012
10
C3014
100nF
R3011
10
V_12V0_SENSE
U3002
GND
GND
R3014
1k
R3015
1k
I2C0_MCU_SDA
I2C0_MCU_SCL
R3016
33
R3017
33
A1
A0
ALERT
SDA
SCL
IN+
IN-
VBUS
GND
VS
R3013
1k
V_12V0_CON_IN
C3015
100nF
GND
GND
V_STBY_3V3
LB3001
C3013
10uF
C3012
100nF
GND
ADDR:1000_000X (0X80)

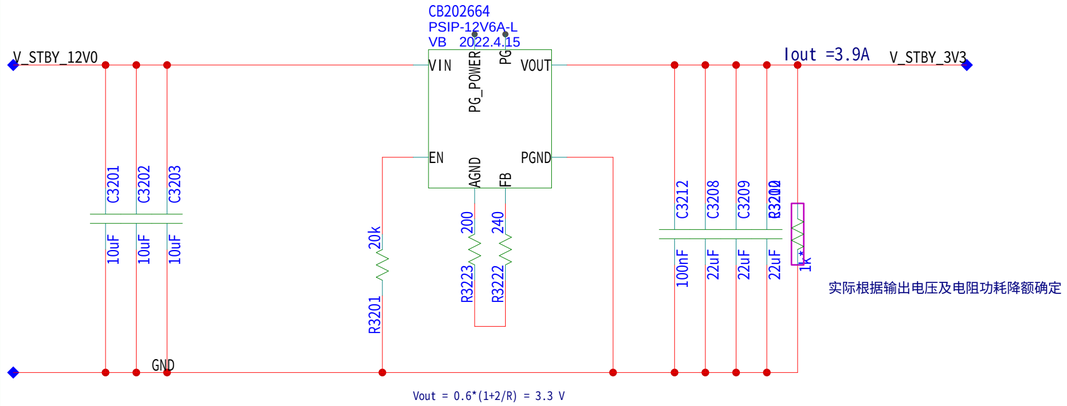

Q3102
PMOS-SGD
V_STBY_3V3
V_STBY_5V0
R165 0
R172 0*
R176 0
R186 0*
V_HUB_3V3
V_HUB_5V0
C3101 1uF*
R3307 2k
C3314 220nF
R3104 20k
R3105 33
FETN-GSD
Q3101
HUB_PWR_EN
R3102 4.7k*
R3103 1k
R127 1k*
C3102 100nF
GND


V_12V0 to V_5V0
Vout=0.6*(1+R1/R2)=5.0V
U3101
V_STBY_12V0
PVIN1
PVIN2
VIN
EN
PWRGD
SS/TR
RT/CLK/SYNC
COMP
BOOT
PH1/LX
PH2/LX
VSENSE/FB
GND1
GND2
GND3
C3110 1uF
L3101 1uH
V_STBY_5V0 Imax: 2.1A
C3109 47pF
R3106 33
R3107 10k
R1
R3115 1k
R3112 301
R3111
49.9
R2
R3113 2.2
C3107 2.2nF
C3104 15pF
R3108 4.7k
C3114 4.7nF
C3103 1nF
C3111 10uF
C3119 10uF
C3106 100nF
C3105 1nF
R3110 47k
R3109 27k
C3113 100nF
C3112 10nF
R3114 47k
RT
C3115 22uF
C3116 22uF
C3117 22uF
C3108 100nF
R116 1k*
SS=Css*0.6V/2.3uA=2.6ms

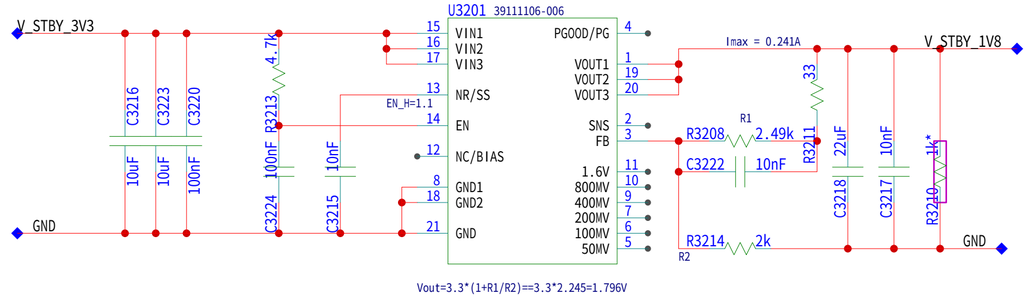

V_12V0 to V_3V3_LTE
Vout=0.6*(1+R1/R2)=3.3V
U3103
V_STBY_12V0
L3104 110nH
VIN
EN
GND
BST
SW
FB
C3135 100nF
L3103 2.2uH
V_LTE_3V3
C3134 22pF
R3126 33
R3127 10k
R1
R3130 1k
R3131 2k
R3132 200
R2
C3136 22uF
C3137 22uF
C3138 22uF
C3140 100nF
R128 1k*
GND
V_STBY_3V3
R133 33
R3129 47k
C3143 10uF
C3145 10uF
C3142 100nF
C3141 1nF
R3128 27k
C3144 100nF
R3136 4.7k
R3135 33
Q3104
FETN-GSD
4G_PWR_EN
R3134 1k
NPN-BEC
Q3106
R3138 1k
C3146 10nF
C3147 10nF


V_12V0 to V_3V8_LTE
Vout=0.6*(1+R1/R2)=3.8V
U3102
V_STBY_12V0
VIN
EN
GND
BST
SW
FB
C3121 100nF
L3102 2.2uH
V_LTE_3V8
C3120 22pF
R3116 33
R3117 10k
R1
R3122 2k
R3121 330
330
R3120
R2
C3122 22uF
C3123 22uF
C3124 22uF
C3126 100nF
R129 1k*
GND
V_STBY_3V3
R134 33
C3129 10uF
C3131 10uF
C3128 100nF
C3127 1nF
R3119 47k
R3118 27k
C3130 100nF
R3125 4.7k
R3124 33
Q3103
FETN-GSD
5G_PWR_EN
R3123 1k
NPN-BEC
Q3105
R3137 1k
C3132 10nF
C3133 10nF

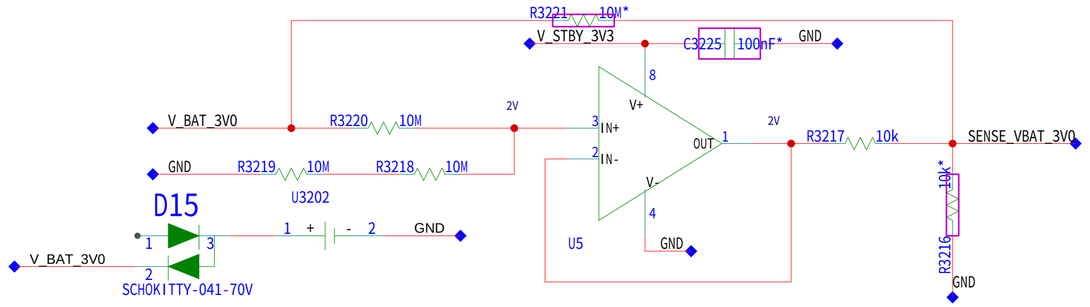
Power 12V to 3V3



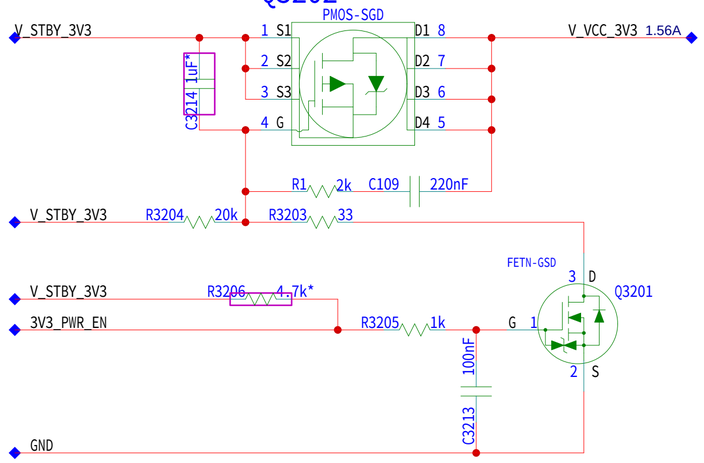
Power 3V3 to 1V8



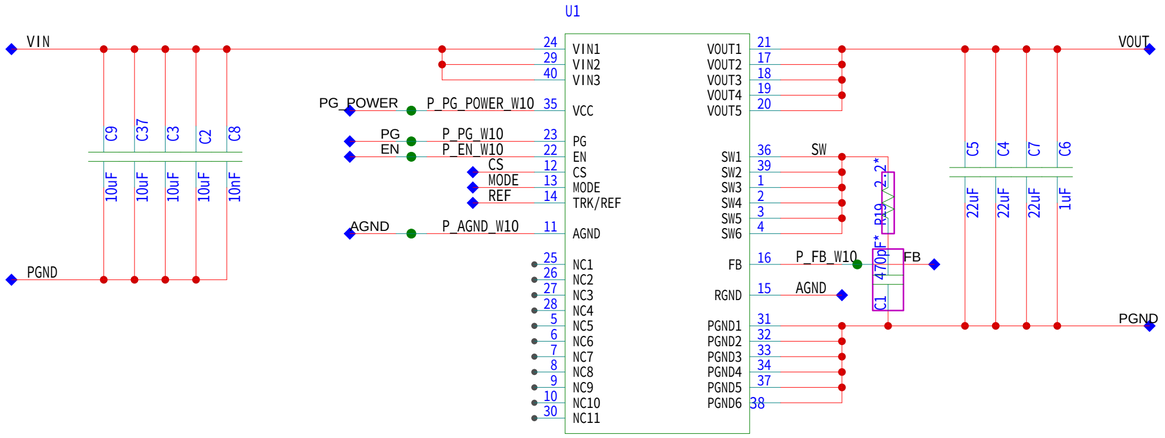
RTC电源及电压检测

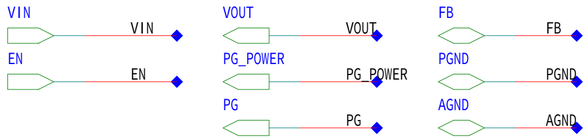


Q3202



DC-DC CBB





NOTE:详细资料参考应用设计指导书

1、Vin：Cin最小值为20uF+10nF瓷片电容；

2、EN下拉电阻外置；在5V输出及以上场景时，CBB中EN下拉电阻R2001=17.4k（注：如要使用在5V输出以下场景，则需取R2001=20k）；该管脚不要外加电容

3、VCC:默认悬空，使用PG时必须上拉到该管脚（3V）

4、FB:输出调节，通过FB和RGND之间的电阻来调节输出电压，TRIM调节电阻R1和R2必须选择1%精度电阻。

5、PG:不使用PG时悬空，使用时上拉大于等于3K电阻至VCC（3V），且串联一个1K电阻至I/O口，不推荐外部电源（小于3.6V）上拉，外部上拉在EN使能前会有一个0.6V电平；

6、MODE:默认悬空，频率设定管脚

7、CS:默认悬空，OCP点设定管脚，过流点电阻Rcs（59K）已内置

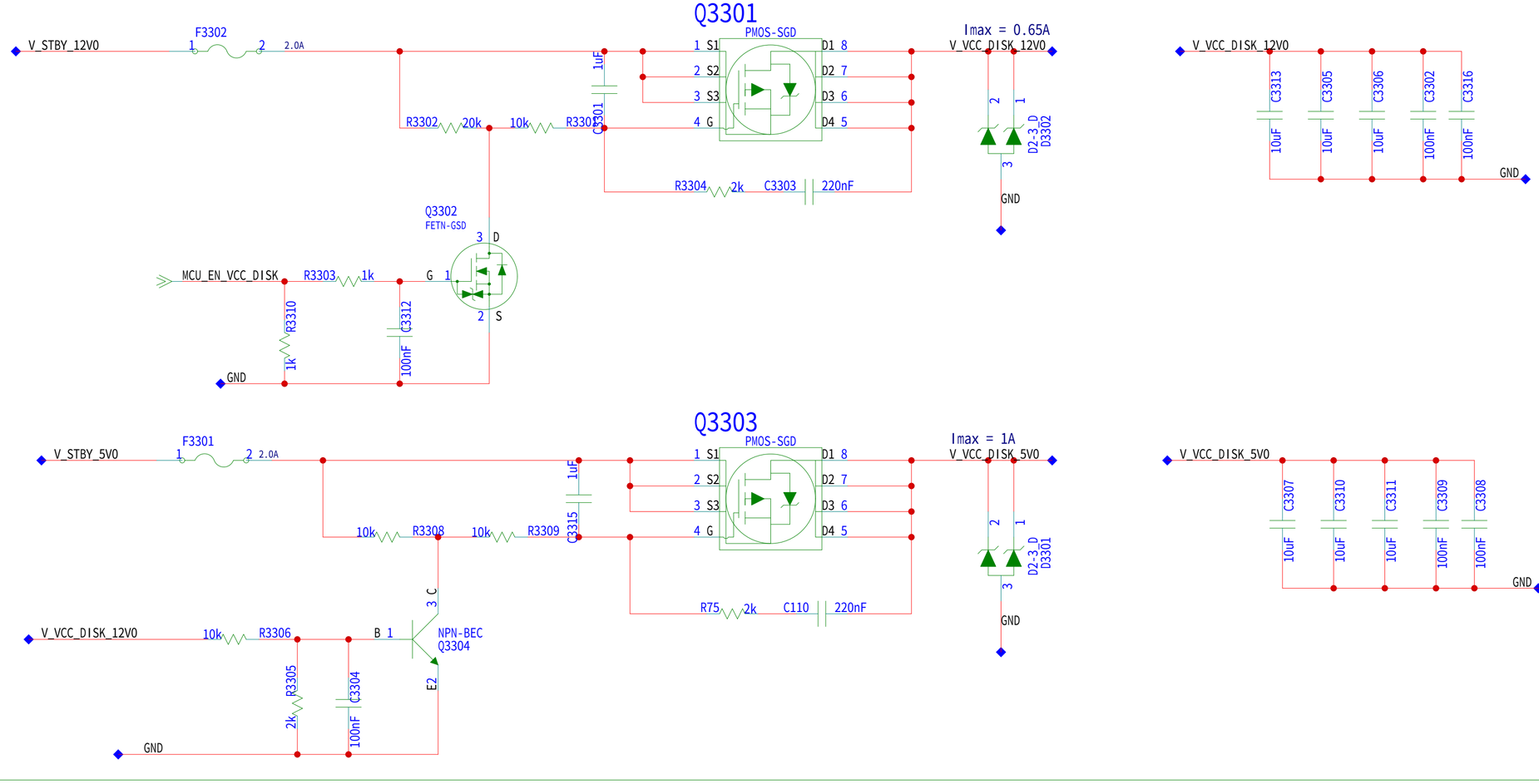
8、Vout：Cout最小值为44uF瓷片电容；

9、输出电压与输出电容配置见下表：输出电容选型，请与单板电源工程师讨论

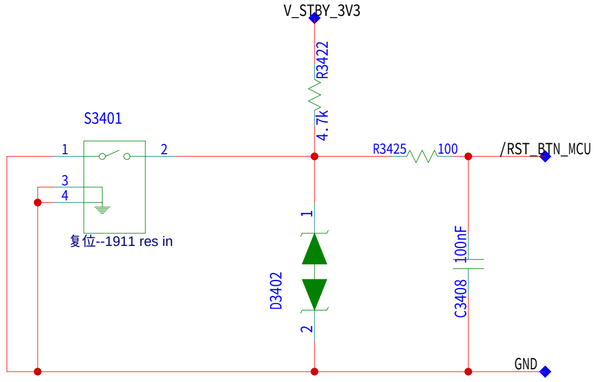
输出电压	0.7V	1.2V	1.8V	3.3V	5.4V
输出电源	9*22UF	7*22UF	5*22UF	4*22UF	3*22UF

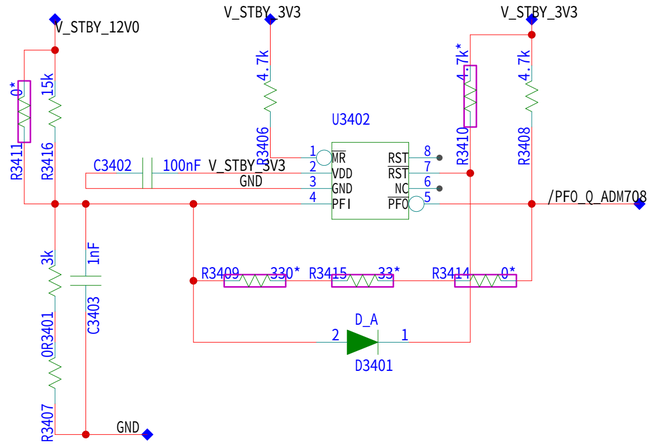
SHEET 1 OF 1

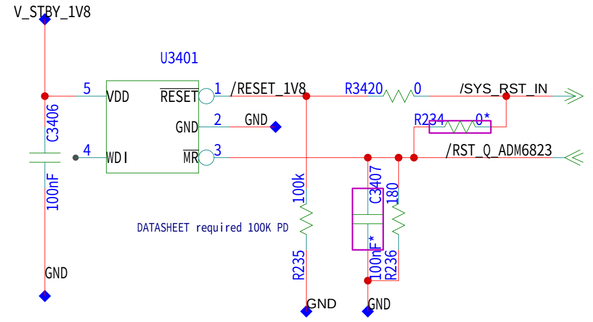
SATA Power

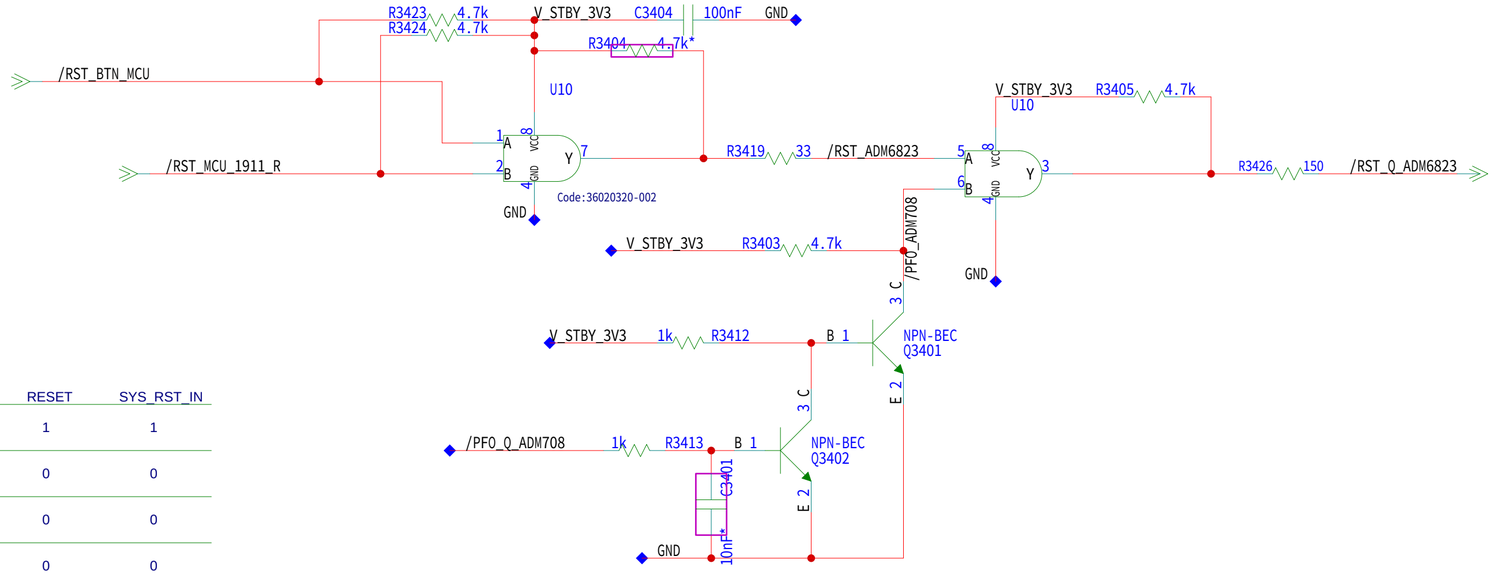

Q3301
PMOS-SGD
F3302
V_STBY_12V0
2.0A
1 S1
2 S2
3 S3
4 G
D1 8
D2 7
D3 6
D4 5
Imax = 0.65A
V_VCC_DISK_12V0
1uF
C3301
R3302 20k
10k R3307
R3304 2k
C3303 220nF
D2-3 D
D3302
GND
Q3302
FETN-GSD
MCU_EN_VCC_DISK
R3303 1k
R3310 1k
C3312 100nF
C3313 10uF
C3305 10uF
C3306 10uF
C3302 100nF
C3316 100nF
Q3303
PMOS-SGD
F3301
V_STBY_5V0
2.0A
Imax = 1A
V_VCC_DISK_5V0
C3315
R3308 10k
R3309 10k
R75 2k
C110 220nF
D3301
V_VCC_DISK_12V0
R3306 10k
NPN-BEC
Q3304
R3305 2k
C3304 100nF
C3307 10uF
C3310 10uF
C3311 10uF
C3309 100nF
C3308 100nF

RST BTN



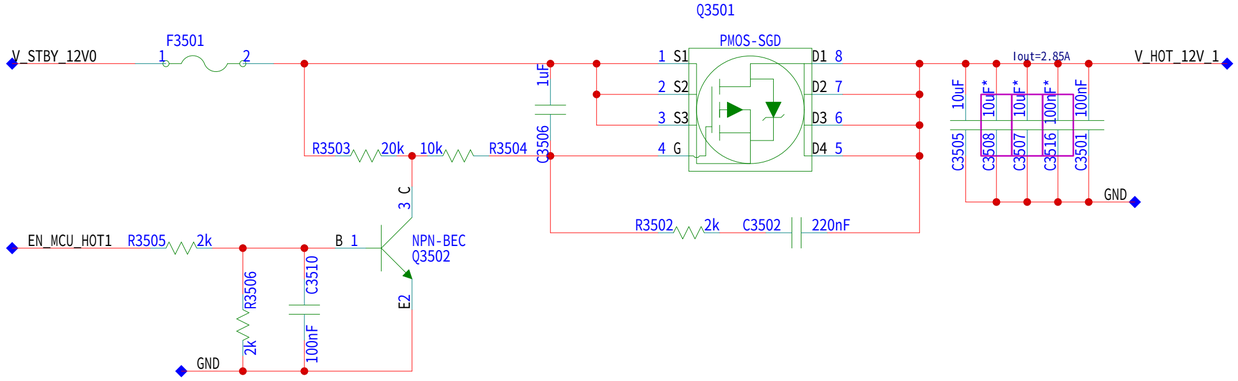




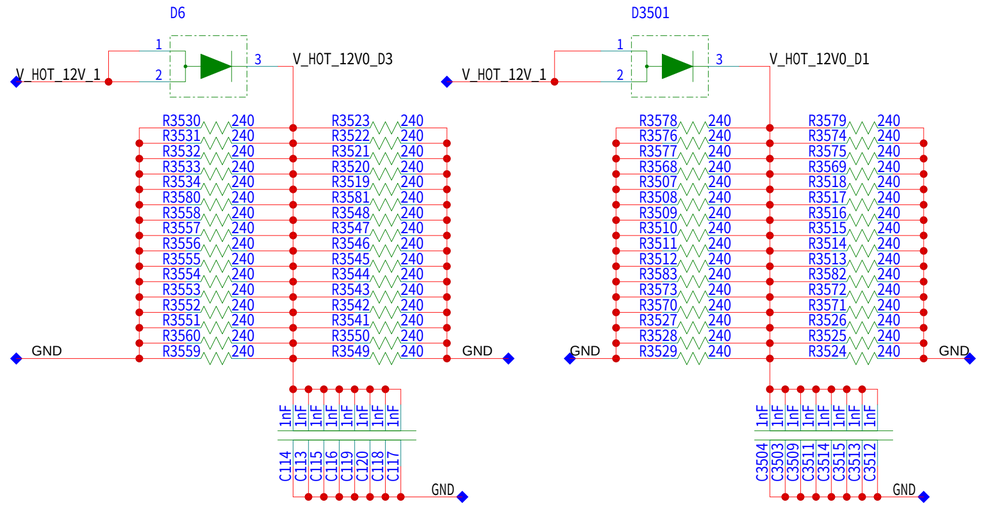


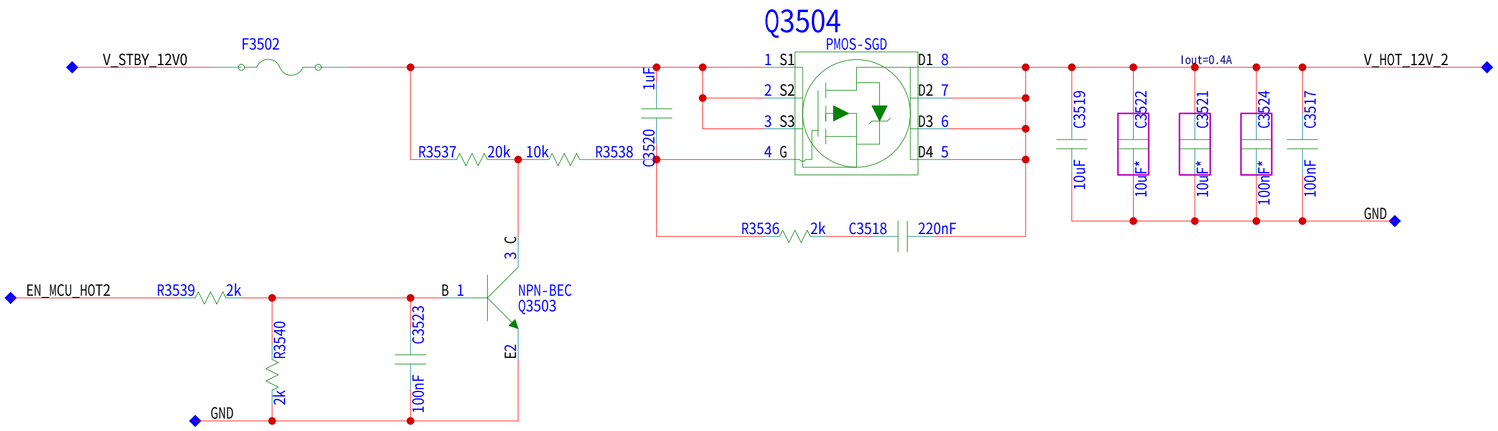
	BTN	MCU	PFO	RESET	SYS_RST_IN
Def	1	1	1	1	1
BTN	0	1	1	0	0
MCU	1	0	1	0	0
PFO	1	1	0	0	0

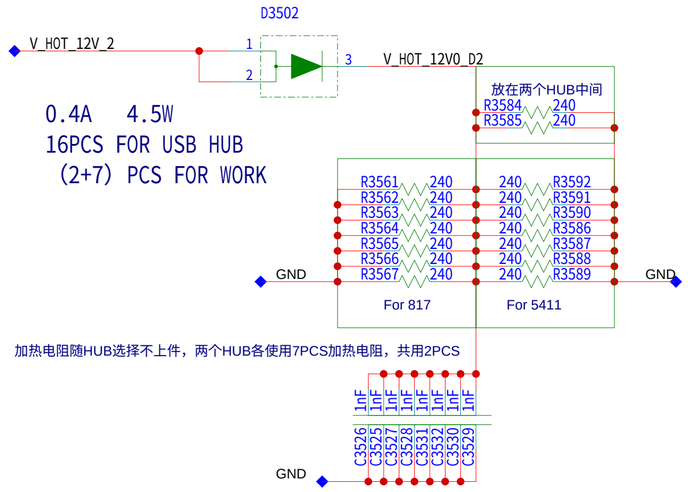
Heating Resistor



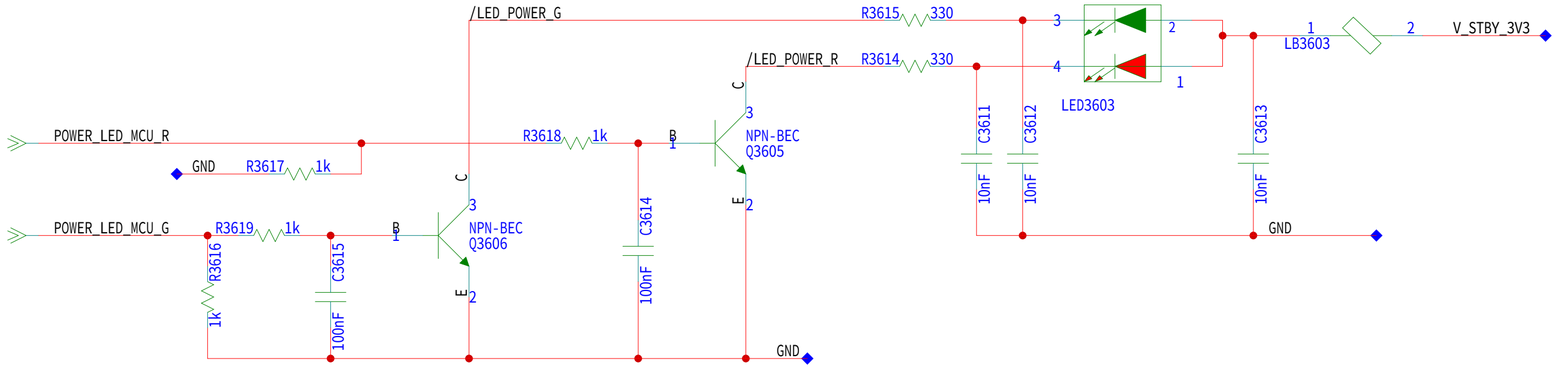
2.85A 32W
64PCS FOR Hi1911

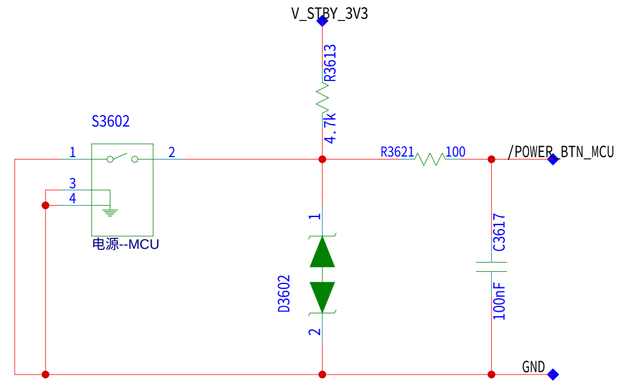


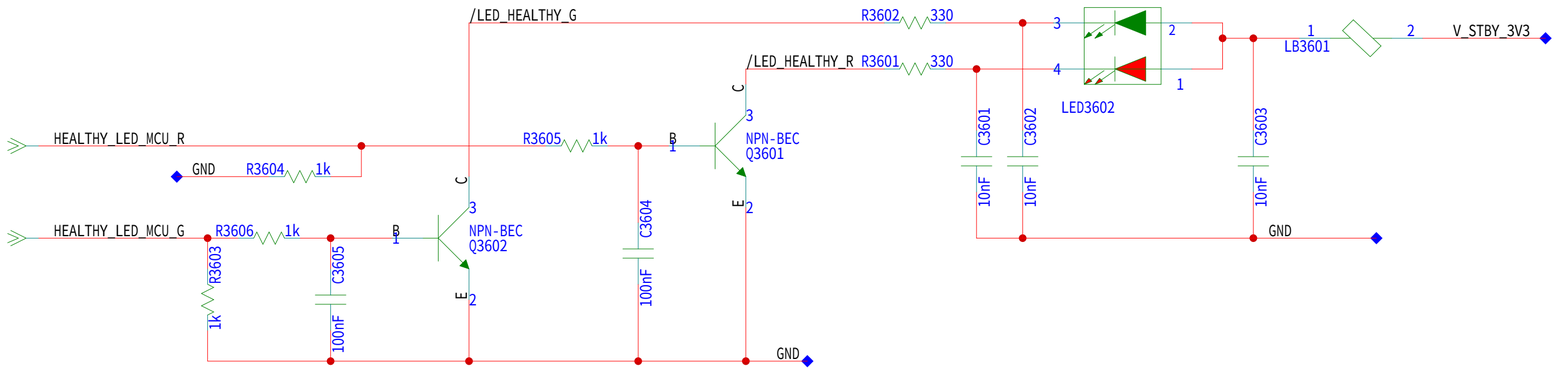


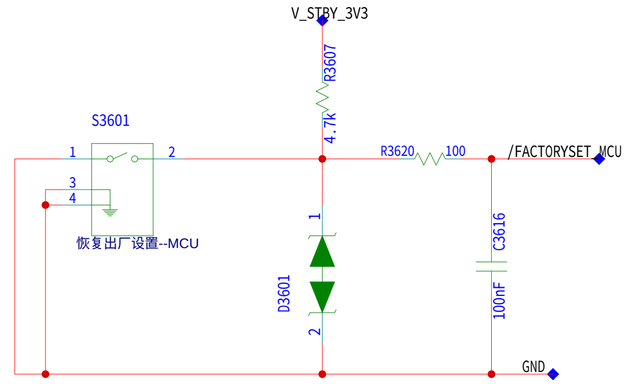


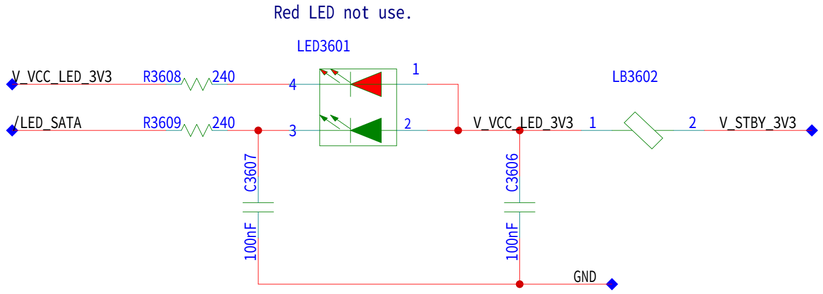
LED & Tact Switch

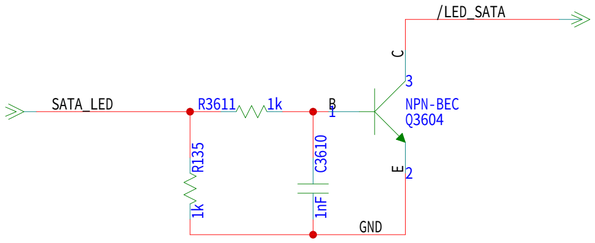




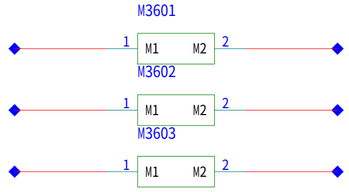




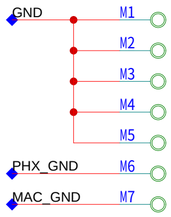




LED导光柱

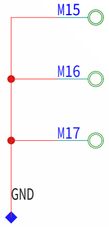


FOR BOARD

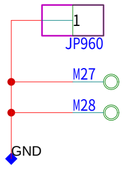


FOR GUIDE PIN

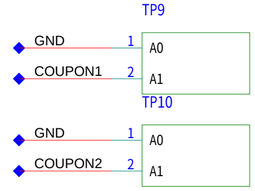
FOR 4G



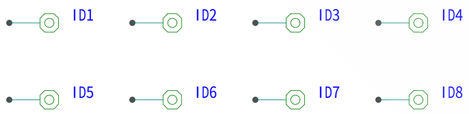
FOR 5G



TEST POINT

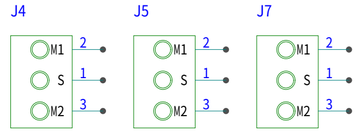


PCB MARK POINT



FOR MINI BOARD

J4 J5 J7



ICT

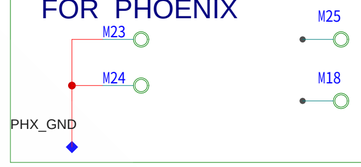
FOR TPM

FOR LTE WIRE

FOR M.2 SSD

FOR MXM

FOR PHOENIX



SHEET 37 OF 37