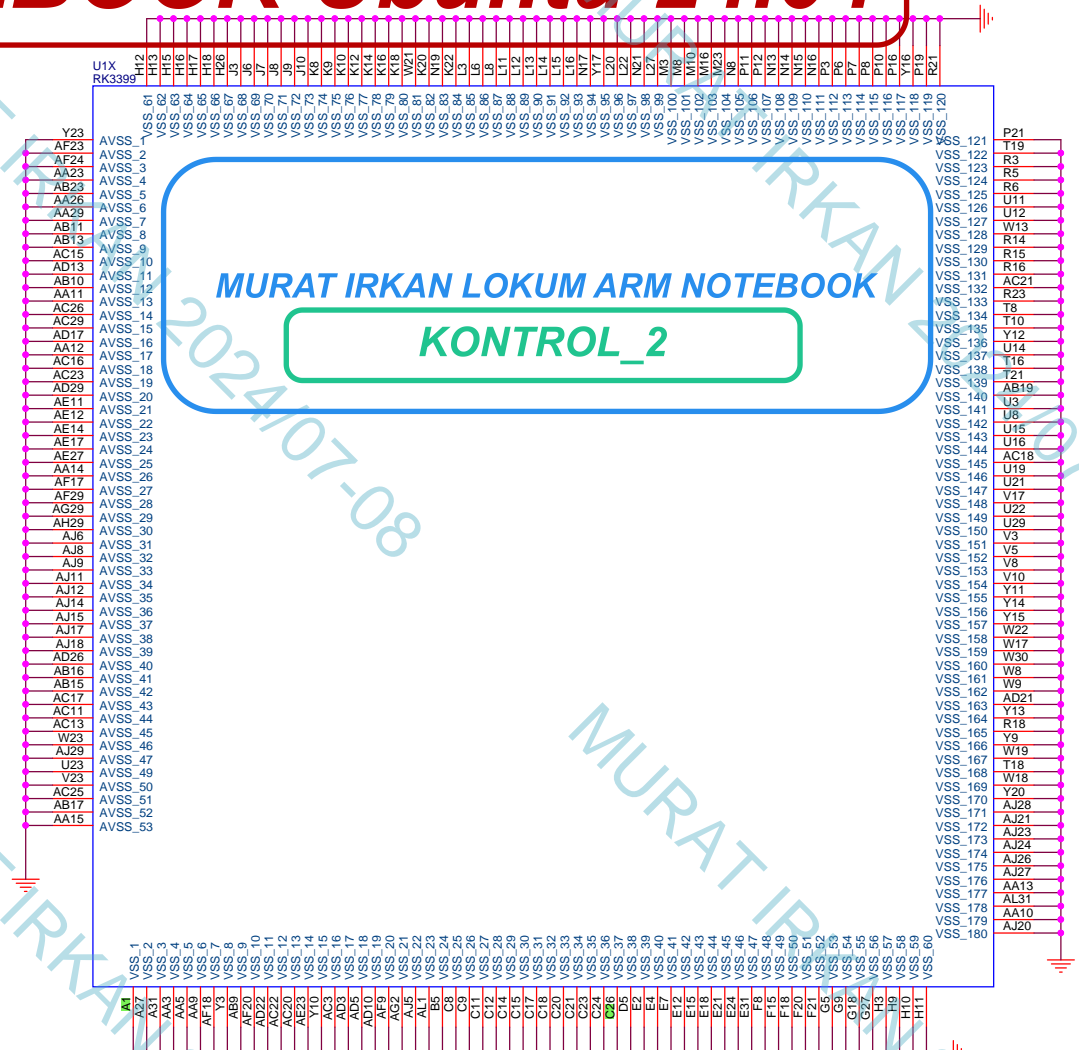


Version	Date	Author	Change Note	Approved
V21	20180708	XieXiaoMin	见附件：PinebookPro_V21项目修改评审记录.docx 充电电流参数更改，PD充电电路优化 键盘控制IO加密功能修改：初始化为高阻，启用时为低电平 1.增加Q15，R151 实现高电平通，低电平断。控制麦克风的电源 2.增加D13.实现高电平不干扰WIFI功能，低电平使WIFI无法打开 3.增加D14.实现高电平不干扰USB摄像头的工作，低电平使摄像头的电源打不开 增加U7005 EEPROM 保存键盘状态 增加工作状态灯IO使能控制，Standby LED：GPIO0_A2，Work LED：GPIO0_B3 LCD电源增加MOS管控制，控制IO口为GPIO1_C6，初始化状态为高，休眠时拉低	WenXue
V21	20181107	XieXiaoMin	低电闪屏现象，增加钽电容，位号CP1，规格TAJB226K020RNJ，详细见18页 针对辐射认证，摄像头USB差分信号兼容共模电感，位号FB3，规格SDCW2012-2-900TF	
V21	20211207	XieXiaoMin	由LPDDR4-366球更改为LPDDR4-200球 13页 USB HUB芯片由SSOP28更改为QFN28封装 22页 EMMC进MASKROM由7脚波动开关更改为2脚拨码开关 14页	

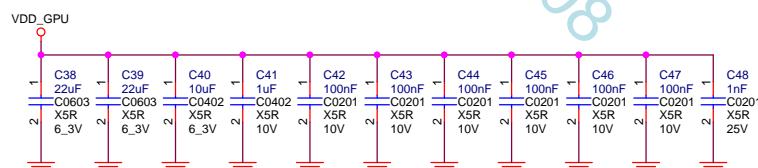
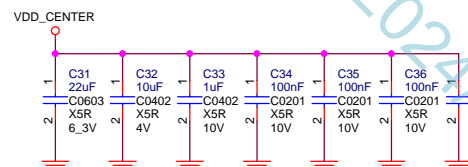
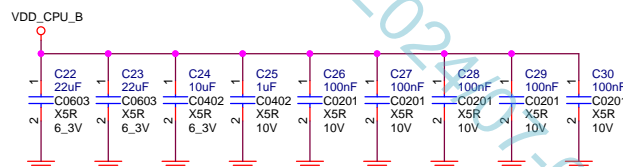
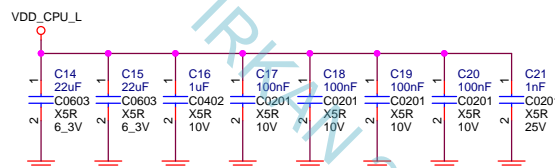
KONTROL_2

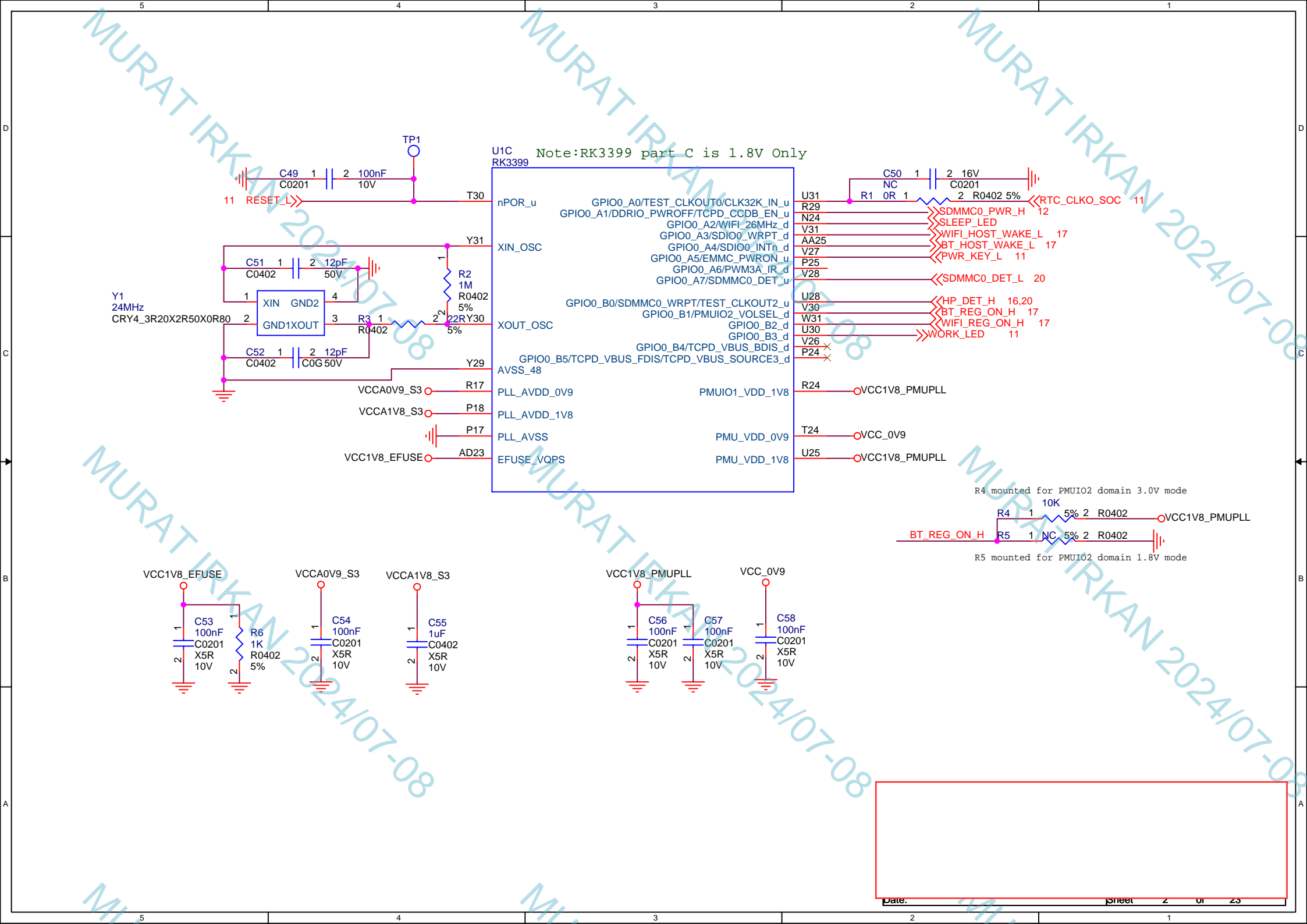


The diagram shows a VDD LOG signal line starting from a red circle labeled 'VDD LOG'. The line passes through a series of decoupling capacitors connected to ground. The components are labeled as follows:

- C6: 0.063X5R 6.3V
- C7: 1uF X5R 4V
- C8: 100nF X5R 10V
- C9: 100nF C0201 X5R 10V
- C10: 100nF C0201 X5R 10V
- C11: 100nF C0201 X5R 10V
- C12: 100nF C0201 X5R 10V
- C13: 100nF C0201 X5R 25V

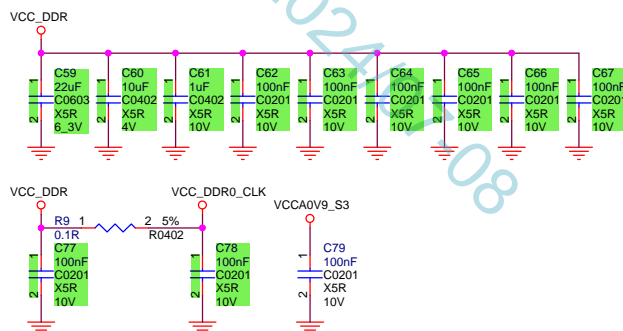
The capacitors are connected to ground at various points along the signal line, with the final connection being a 25V capacitor (C13).



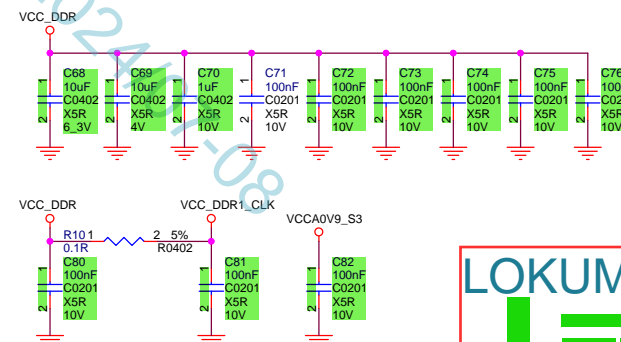




DDR FILTER

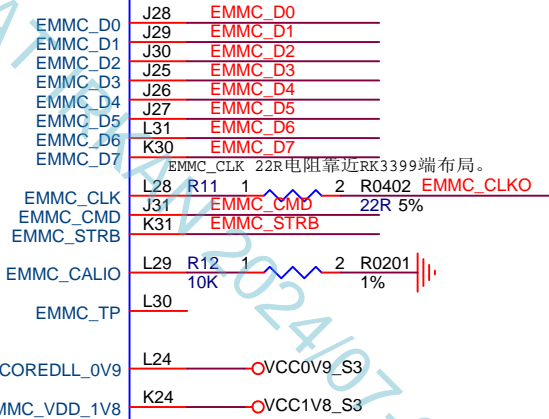


DDR FILTER



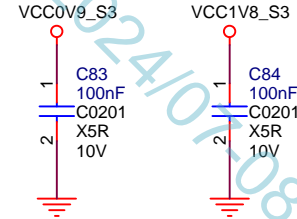
LOKUM NOTEBOOK R3

U1H
RK3399



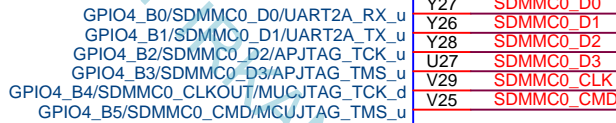
EMMC design rule:

- 1.Data[0:7]、cmd、strobe走线做为一组，并行走线并整组包地，组内等长要求为 $\pm 100\text{mil}$;
- 2.Clk需要单独走线并包地处理，与data间的延时小于20ps;
- 3.Max trace length < 3.93 inches;
- 4.Trace impedance 50ohm $\pm 10\%$;
- 5.与其他信号间距遵循3W原则;
- 6.R1300靠近SOC放置;



EMMC_D0 14
EMMC_D1 14
EMMC_D2 14
EMMC_D3 14
EMMC_D4 14
EMMC_D5 14
EMMC_D6 14
EMMC_D7 14
EMMC_CLKO 14
EMMC_CMD 14
EMMC_STRB 14

U1F
RK3399

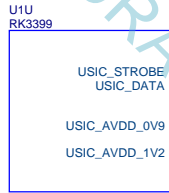


SDMMC design rule:

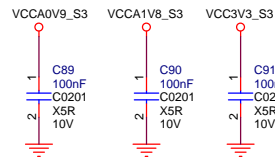
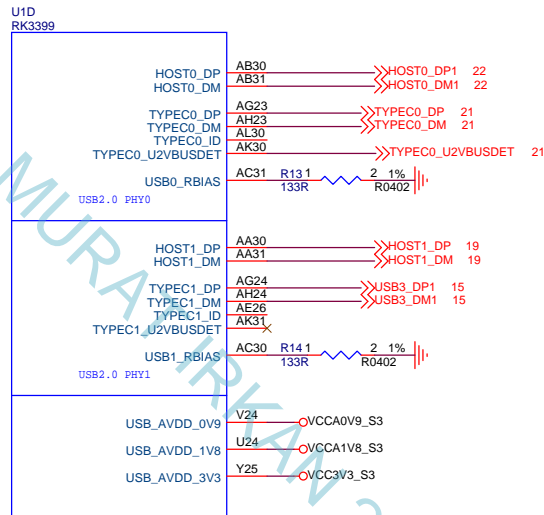
- 1.Data[0:3]、cmd走线做为一组，并行走线并整组包地，组内等长要求为 $\pm 100\text{mil}$;
- 2.Clk需要单独走线并包地处理，与data间的延时小于20ps; ;
- 4.Max trace length < 3.93 inches;
- 5.Trace impedance 50ohm $\pm 10\%$;
- 6.与其他信号间距遵循3W原则;

SDMMC0_D0 20
SDMMC0_D1 20
SDMMC0_D2 20
SDMMC0_D3 20
SDMMC0_CMD 20
SDMMC0_CLK 20

PINE64		
Title		
Pinebook Pro		
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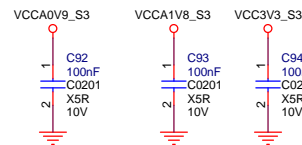
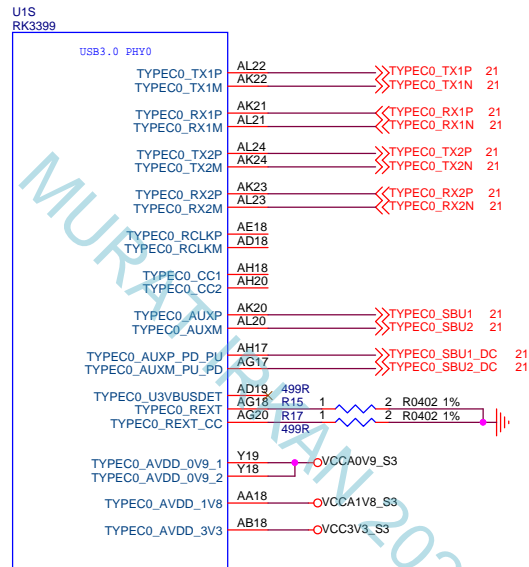
USB2.0



USB2.0 design rule:

- 1.Max intra-pair skew < 4 ps;
- 2.Max trace length < 6 inches;
- 3.Max allowed via < 6;
- 4.Trace impedance 90ohm+/-10%;
- 5.与其他信号间距遵循3W原则;

USB3.0

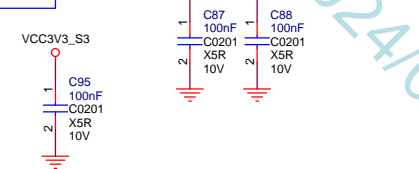
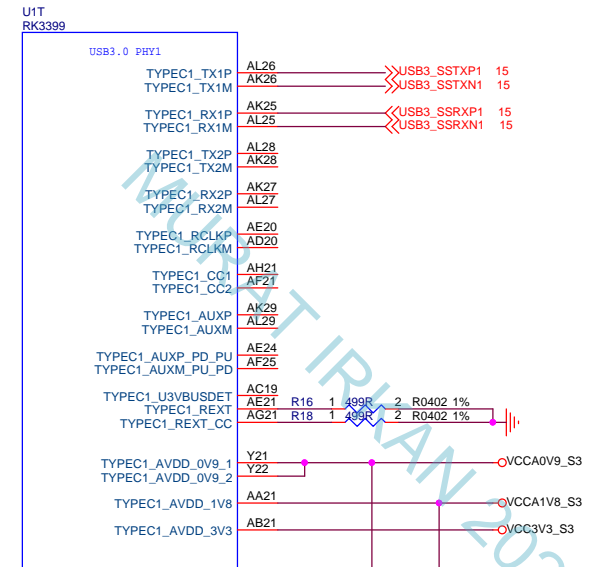


USB3.0 design rule:

- 1.Max intra-pair skew < 4 ps;
- 2.Max length skew between TX and RX < 1.6 ns;
- 3.Max trace length < 6 inches;
- 4.Max allowed via < 4;
- 5.Trace impedance 90ohm+/-10%;
- 6.与其他信号间距遵循3W原则;

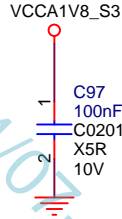
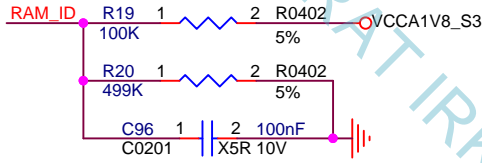
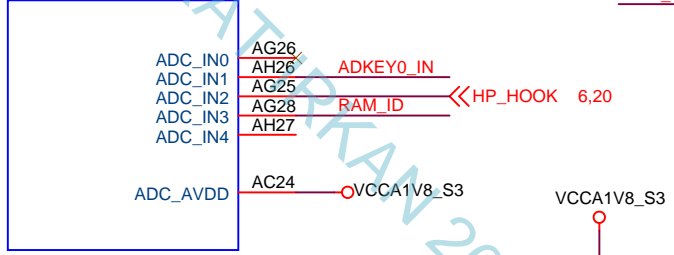
DP design rule:

- 1.Max intra-pair skew < 4 ps;
- 2.Max trace length < 6 inches;
- 3.Max allowed via < 4;
- 4.Trace impedance 90ohm+/-10%;
- 5.与其他信号间距遵循3W原则;



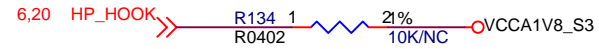
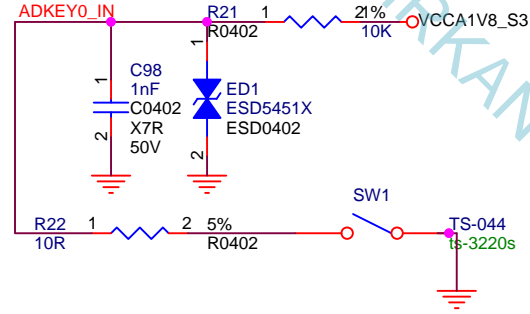
PINE64		
Pinebook Pro		
Size	Document Number	Rev
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U1V
RK3399

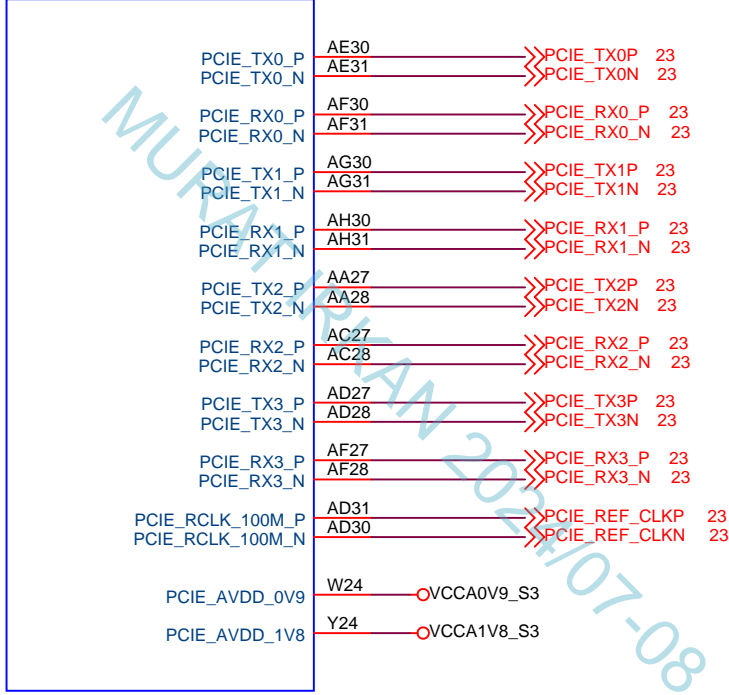


	RAM ID	R23 PU	R24 PD
DDR3 /DDR3L	0.6V	200K	100K
LPDDR3	0.112V	150K	10K
LPDDR4	1.5V	100K	499K

Note:
系统上电时，如果ADKEY_IN电平为0V，
则RK3399进入Recovery模式；
量产时R1503,SW1500,ED1500可以不用贴片。



U1O
RK3399



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Pinebook Pro		
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U1L
RK3399

GPIO2_A0/VOP_D0/CIF_D0/I2C2_SDA_u G31
GPIO2_A1/VOP_D1/CIF_D1/I2C2_SCL_u H25
GPIO2_A2/VOP_D2/CIF_D2_d H30
GPIO2_A3/VOP_D3/CIF_D3_d F28
GPIO2_A4/VOP_D4/CIF_D4_d H29
GPIO2_A5/VOP_D5/CIF_D5_d F29
GPIO2_A6/VOP_D6/CIF_D6_d H27
GPIO2_A7/VOP_D7/CIF_D7/I2C7_SDA_u G30

GPIO2_B0/VOP_CLK/CIF_VSYNC/I2C7_SCL_u H28
GPIO2_B1/SPI2_RXD/CIF_HREF/I2C6_SDA_u F30
GPIO2_B2/SPI2_TXD/CIF_CLKIN/I2C6_SCL_u H24
GPIO2_B3/SPI2_CLK/VOP_DEN/CIF_CLKOUTA_u H31
GPIO2_B4/SPI2_CS_n0_u F31

APIO2_VDDPST J24
APIO2_VDD K23

U1R
RK3399

MIPI_RX0_D0P AK15
MIPI_RX0_D0N AL15

MIPI_RX0_D1P AK14
MIPI_RX0_D1N AL14

MIPI_RX0_CLKP AK13
MIPI_RX0_CLKN AL13

MIPI_RX0_D2P AK12
MIPI_RX0_D2N AL12

MIPI_RX0_D3P AK11
MIPI_RX0_D3N AL11

MIPI_RX0_REXT AF14

MIPI_RX0_AVDD_1V8 AB14

U1P
RK3399

MIPI_TX1/RX1_D0P AK6
MIPI_TX1/RX1_D0N AL6

MIPI_TX1/RX1_D1P AK7
MIPI_TX1/RX1_D1N AL7


MIPI_TX1/RX1_CLKP AK8
MIPI_TX1/RX1_CLKN AL8

MIPI_TX1/RX1_D2P AK9
MIPI_TX1/RX1_D2N AL9

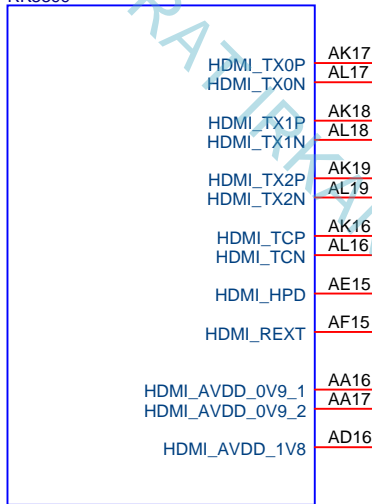
MIPI_TX1/RX1_D3P AK10
MIPI_TX1/RX1_D3N AL10

MIPI_TX1/RX1_REXT AF11

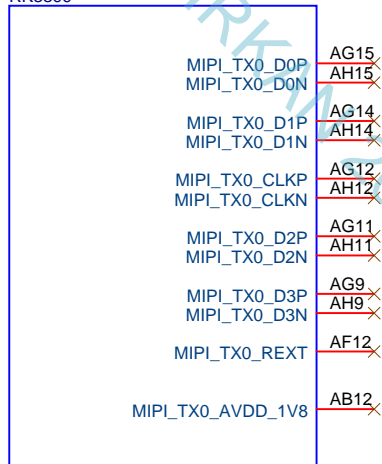
MIPI_TX1/RX1_AVDD_1V8 AC10

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Title			
Pinebook Pro			
Size	Document Number		Rev
A4	DVP interface		V2.1
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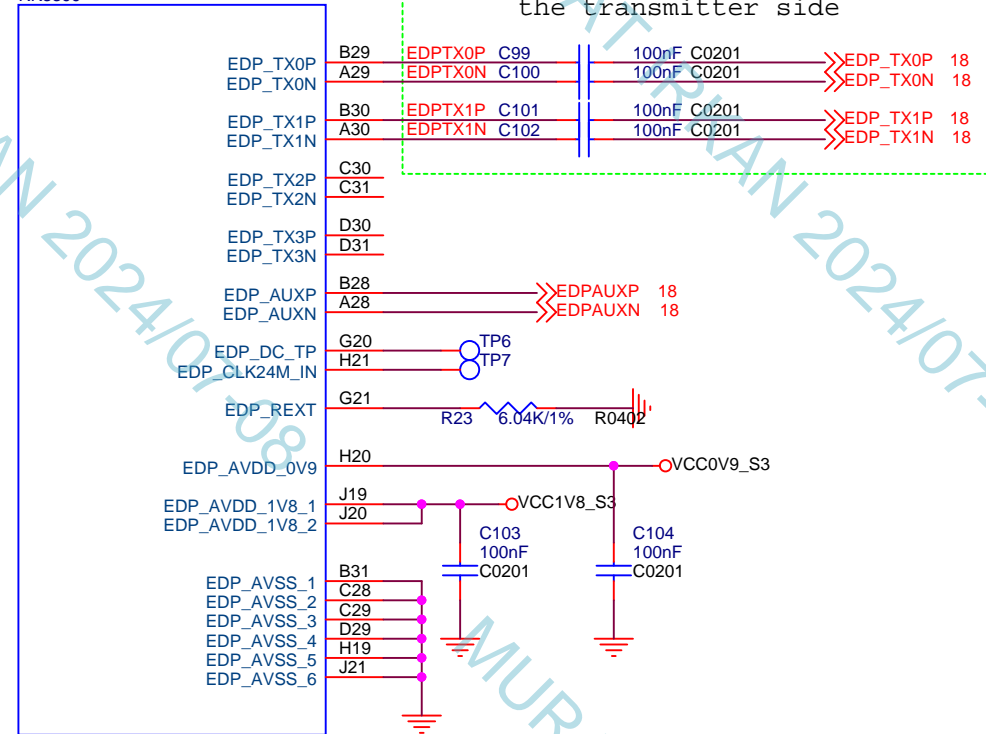
U1N
RK3399



U1Q
RK3399



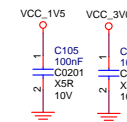
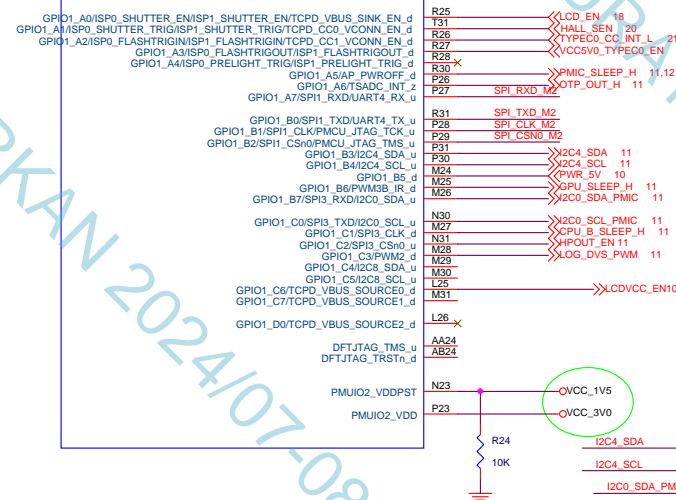
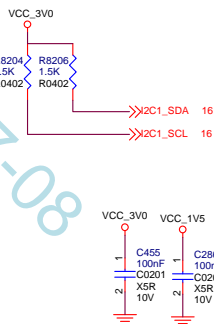
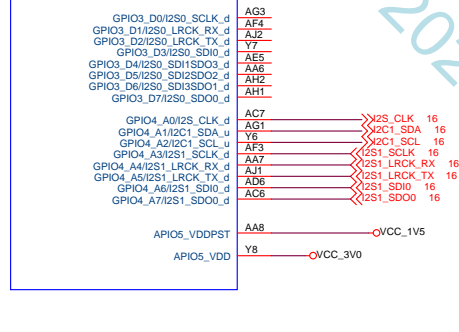
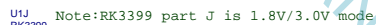
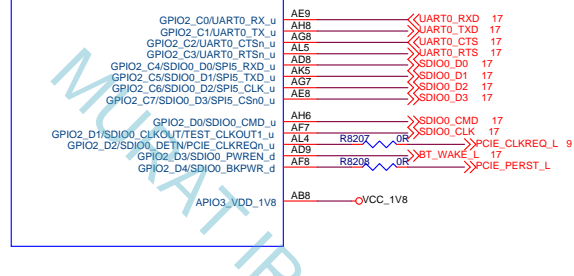
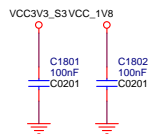
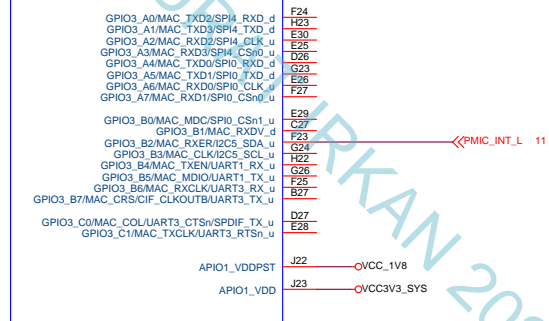
U1M
RK3399



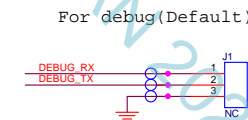
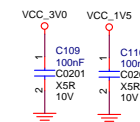
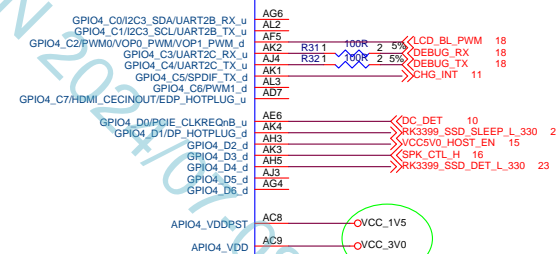
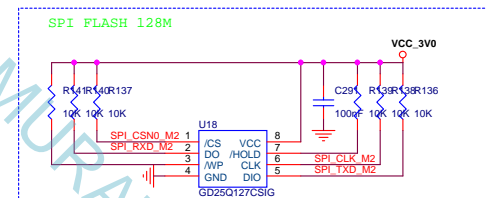
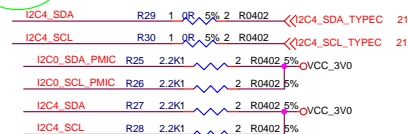
eDP design rule:

- 1.Max intra-pair skew < 4 ps;
- 2.Max trace length < 6 inches;
- 3.Max allowed via < 4;
- 4.Trace impedance 90ohm+/-10%;
- 5.与其他信号间距遵循3W原则;

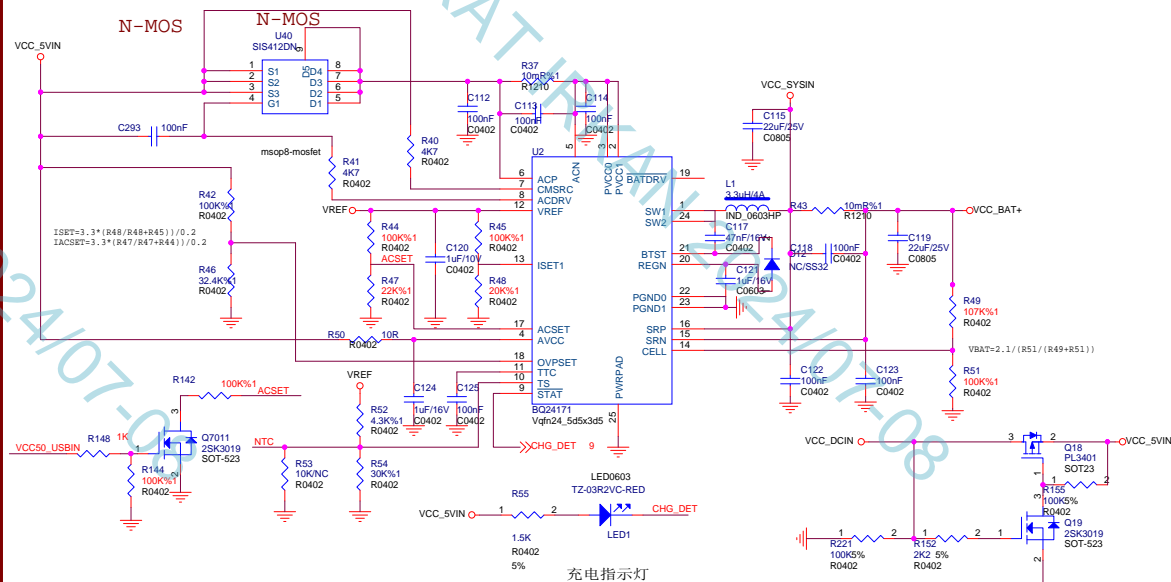
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Size	Document Number	Rev	
A4	Display interface	V2.1	
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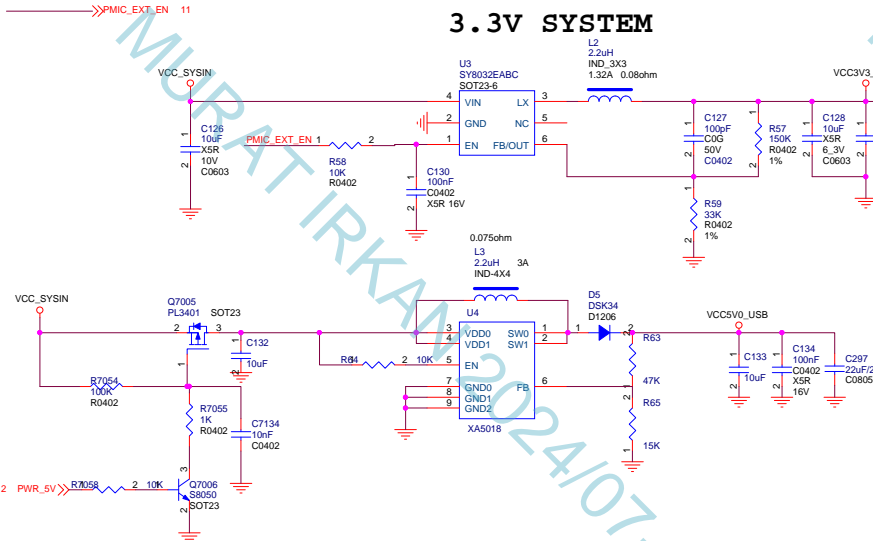
1.8V Only	VDDPST=VDDIO=1.8V
3.3V Only	VDDPST=1.8V, VDDIO=3.3V
other	3.0V mode: VDDPST=1.5V, VDDIO=3.0V 1.8V mode: VDDPST=1.8V, VDDIO=1.8V



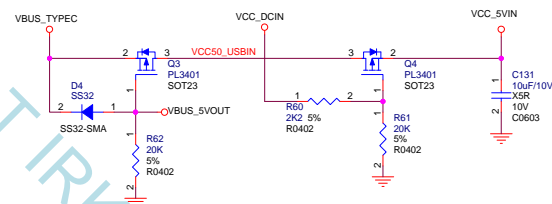
CHARGE and Power Path



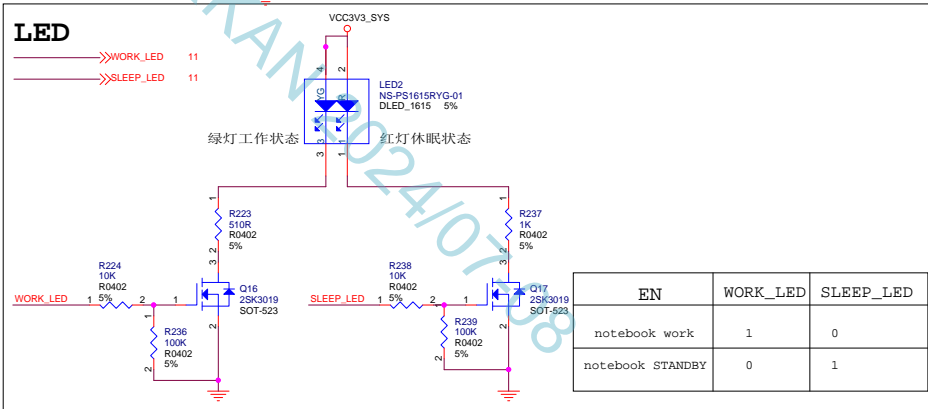
3.3V SYSTEM



Power Path Managment

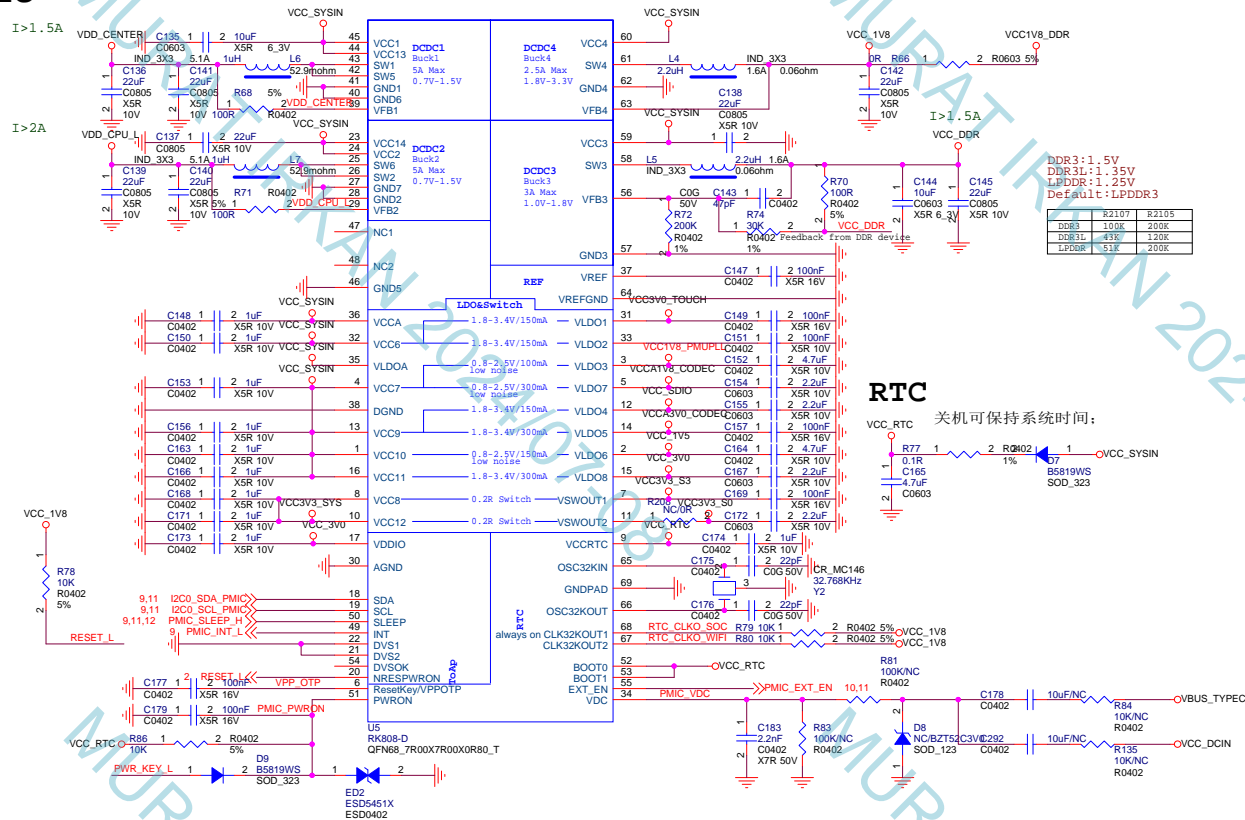


LED

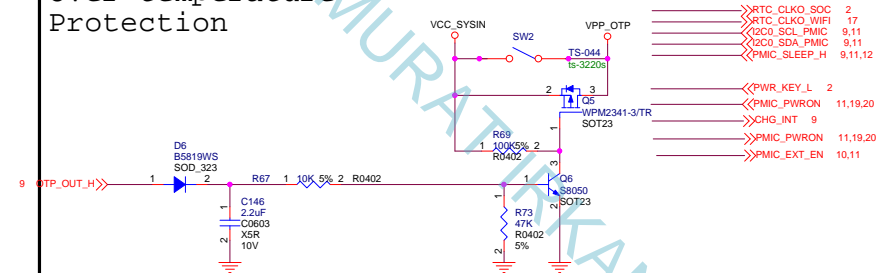


EN	WORK_LED	SLEEP_LED
notebook work	1	0
notebook STANDBY	0	1

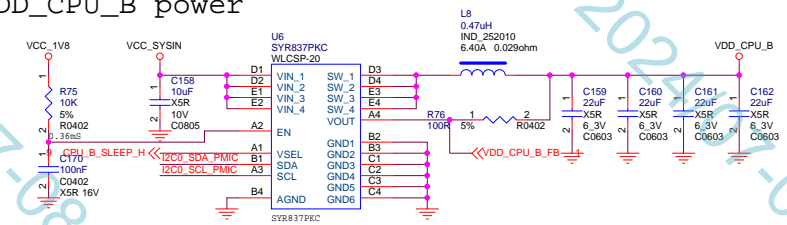
PMIC



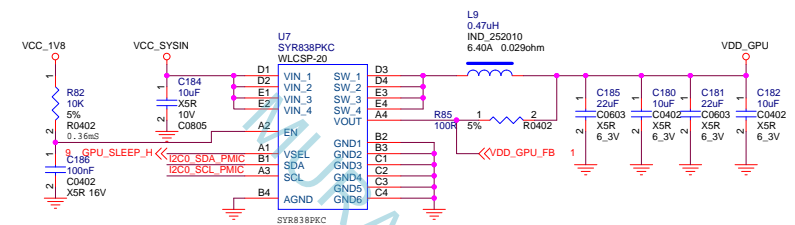
Over-temperature Protection



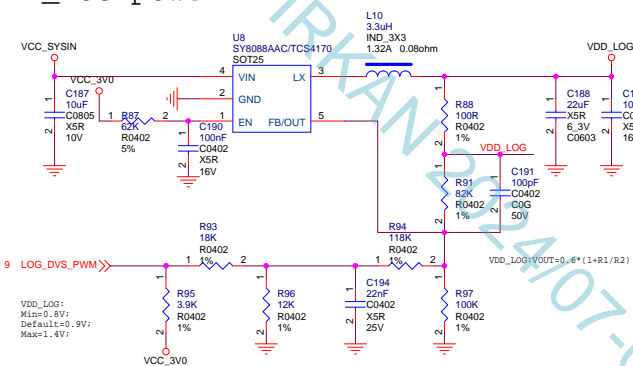
VDD_CPU_B power



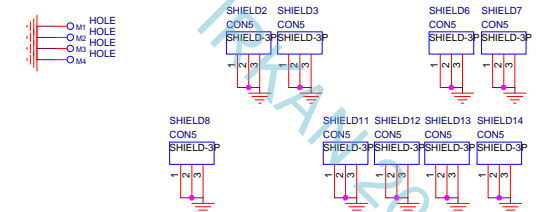
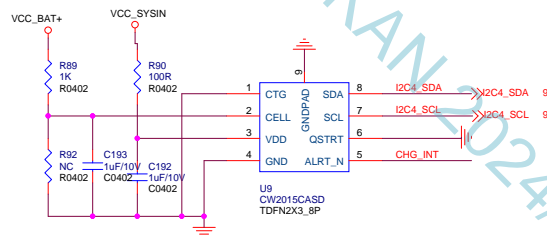
VDD_GPU power



VDD_LOG power

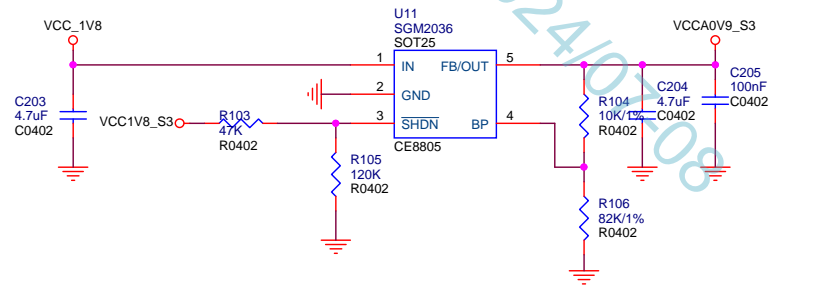
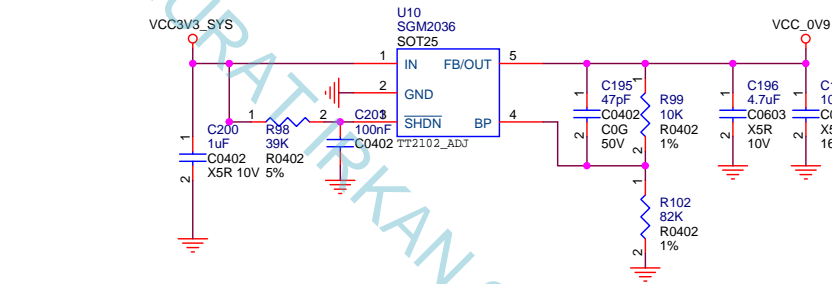


Gas Gauge

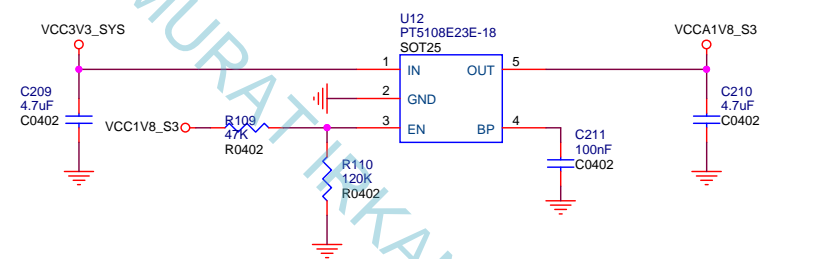


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Size Custom	Document Number RK808-D 1		Rev V2.1
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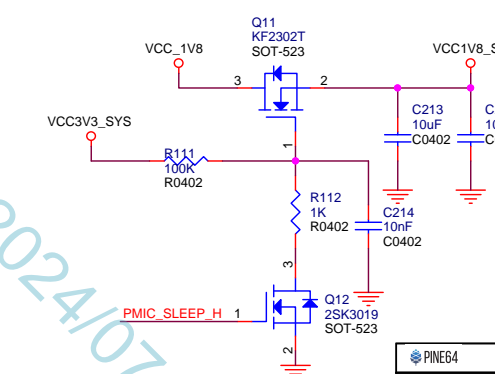
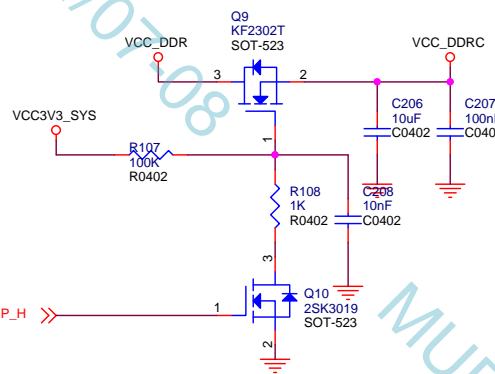
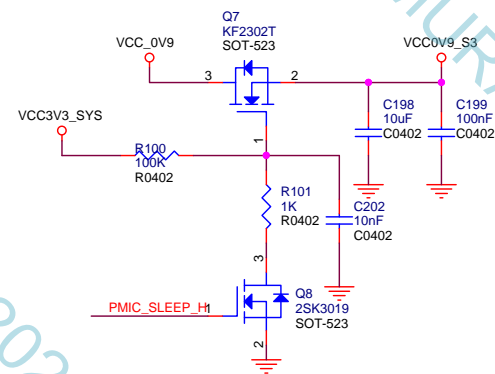
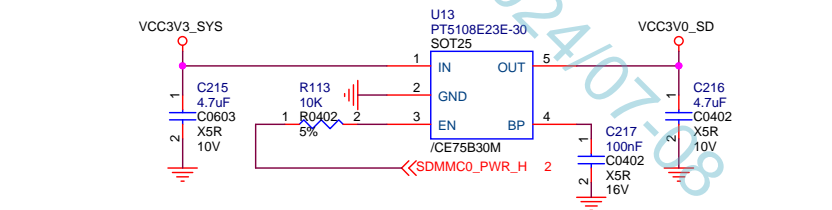
VCC_0V9 power



VCCA1V8_S3 power

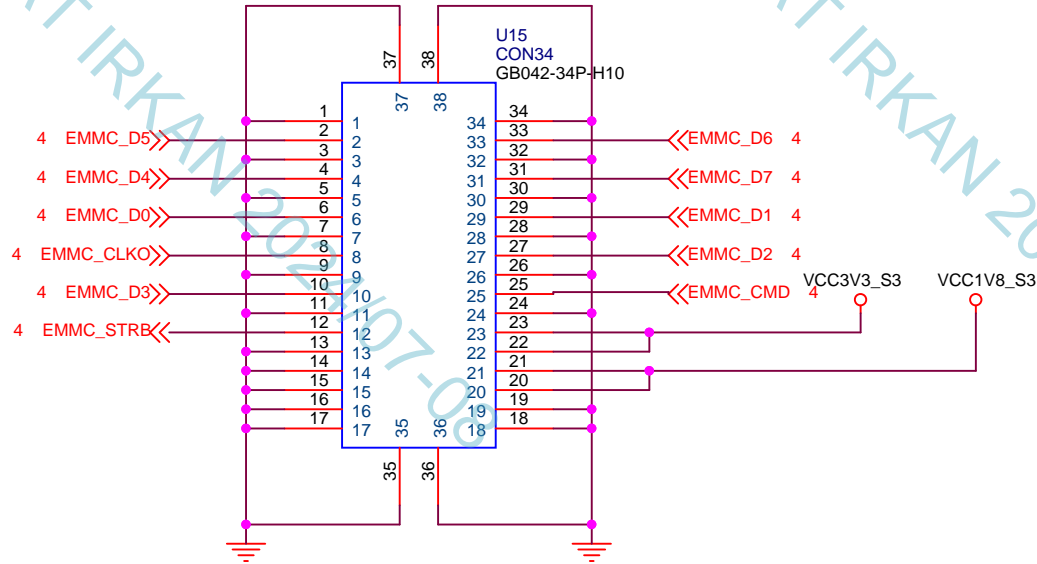


VCC3V0_SD power



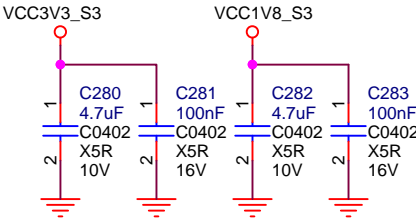
PINE64		PINE64	
Title		Pinebook Pro	
Size	Document Number	Rev	
B	RK808-D 2	V2.1	
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eMMC Port

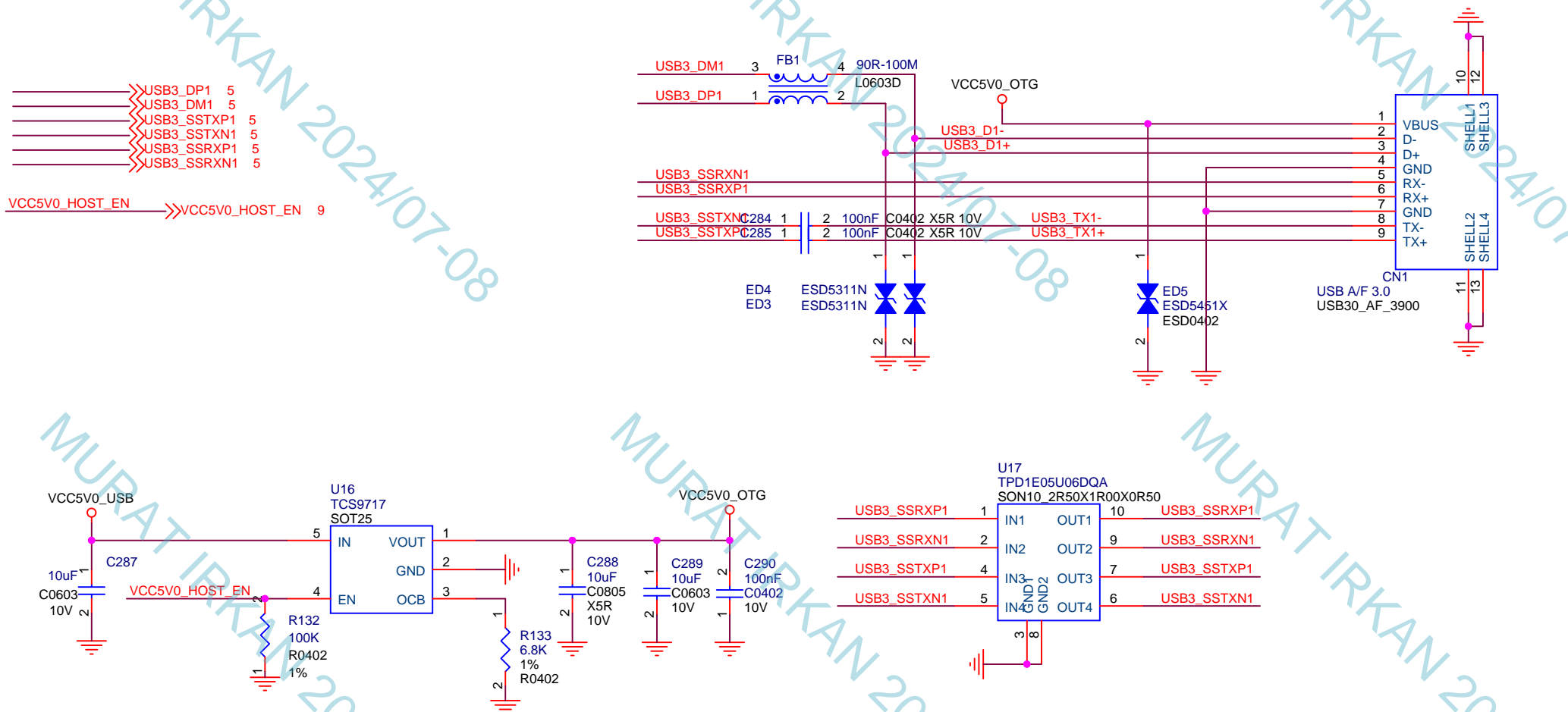



Note:
Reserve SW for Update.

	SEL	Shunt Status	Function
	1	OFF	eMMC
	ON	ON	MASKROM

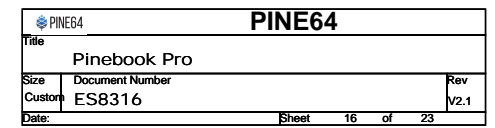
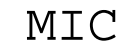


USB3.0 OTG port

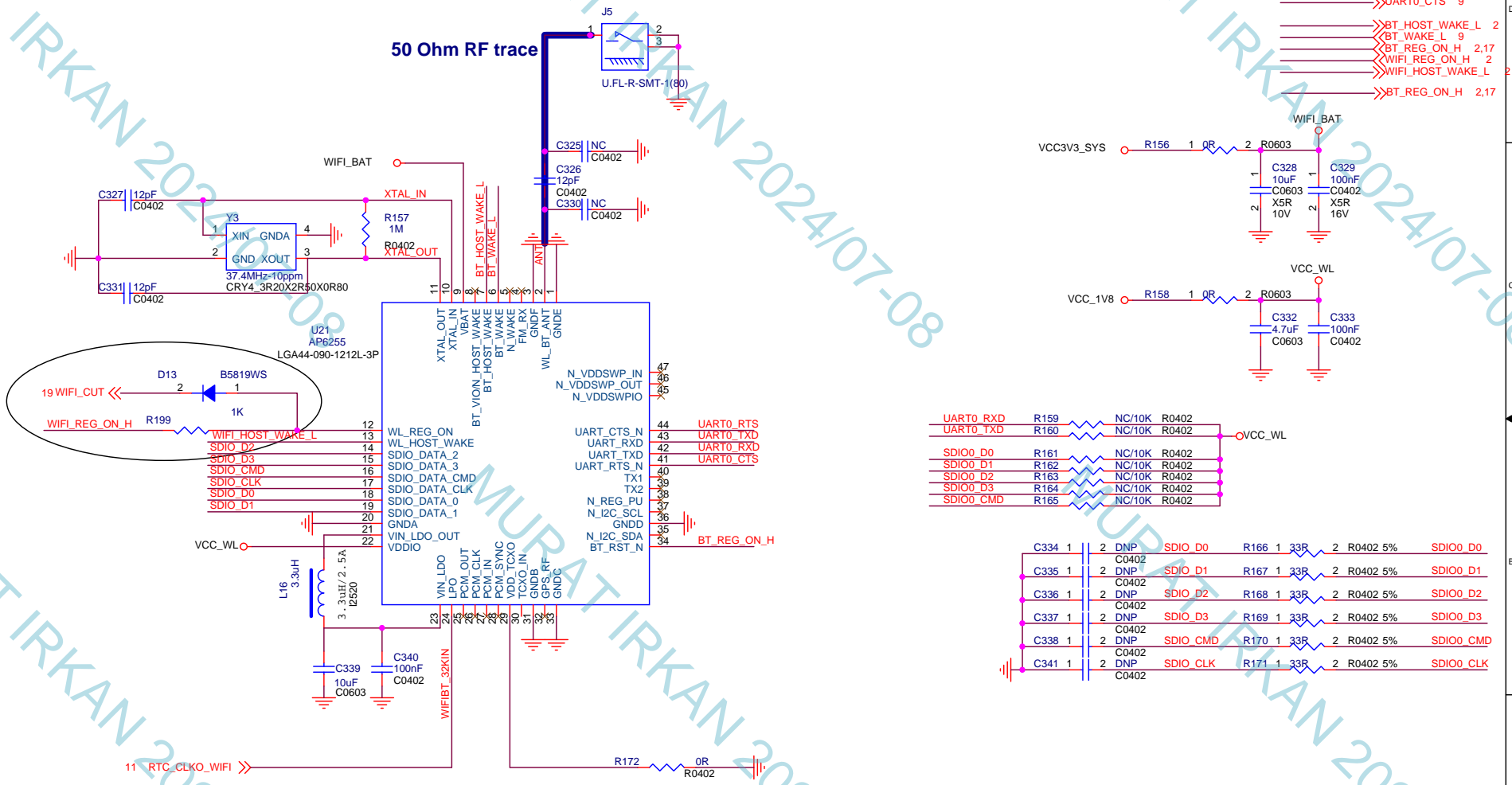


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Pinebook Pro			
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SPEAKER

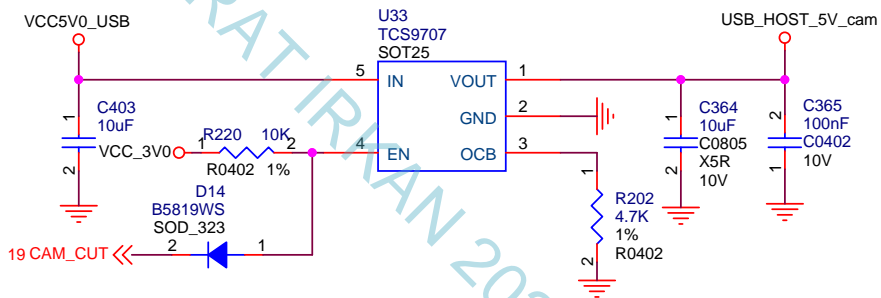


WIFI/BT MODULE

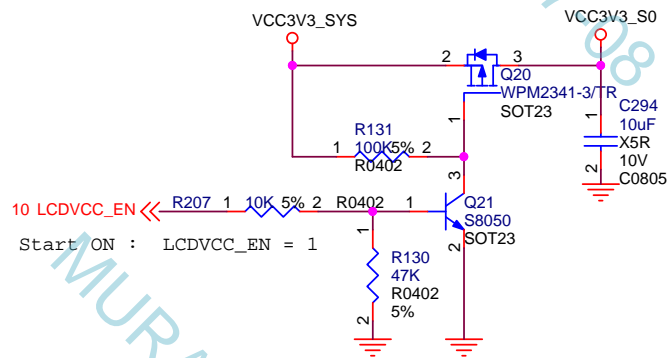


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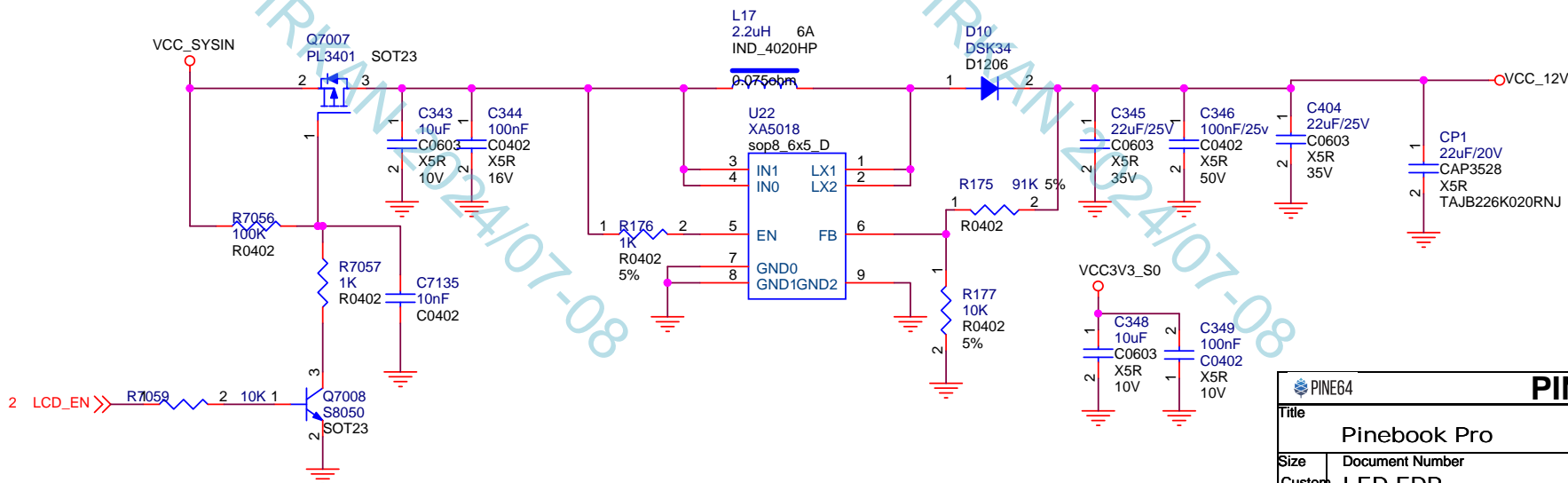
CAM POWER



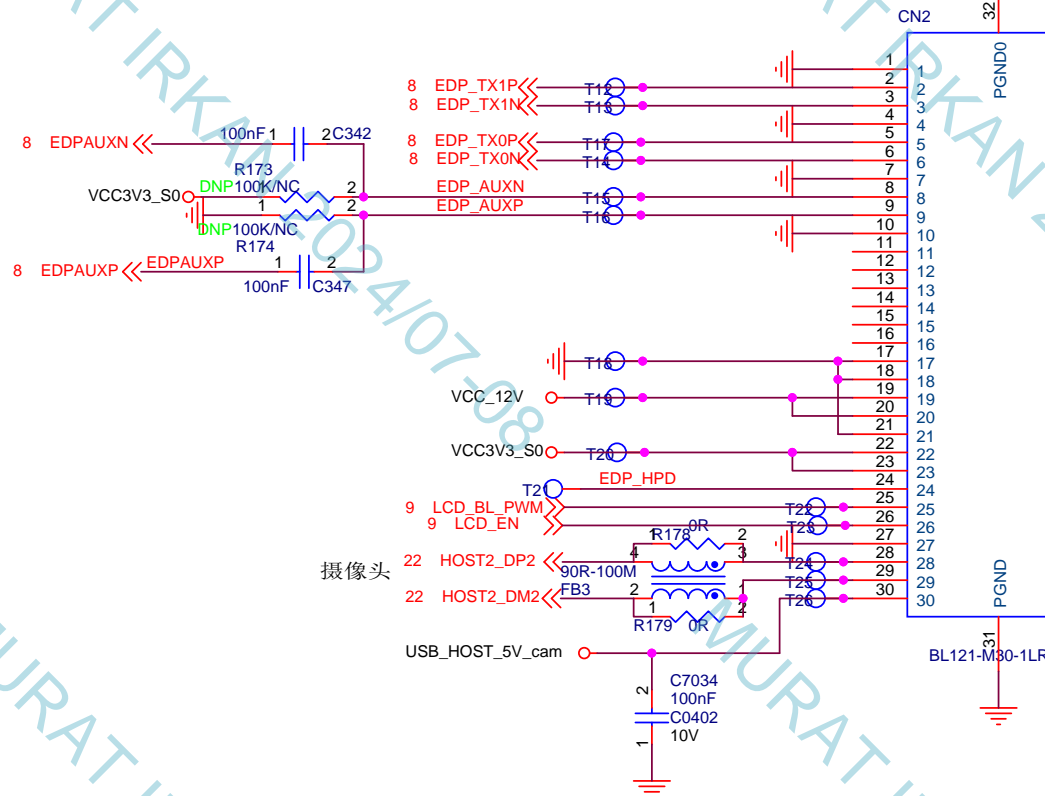
LCD DRIVER



BACKLIGHT

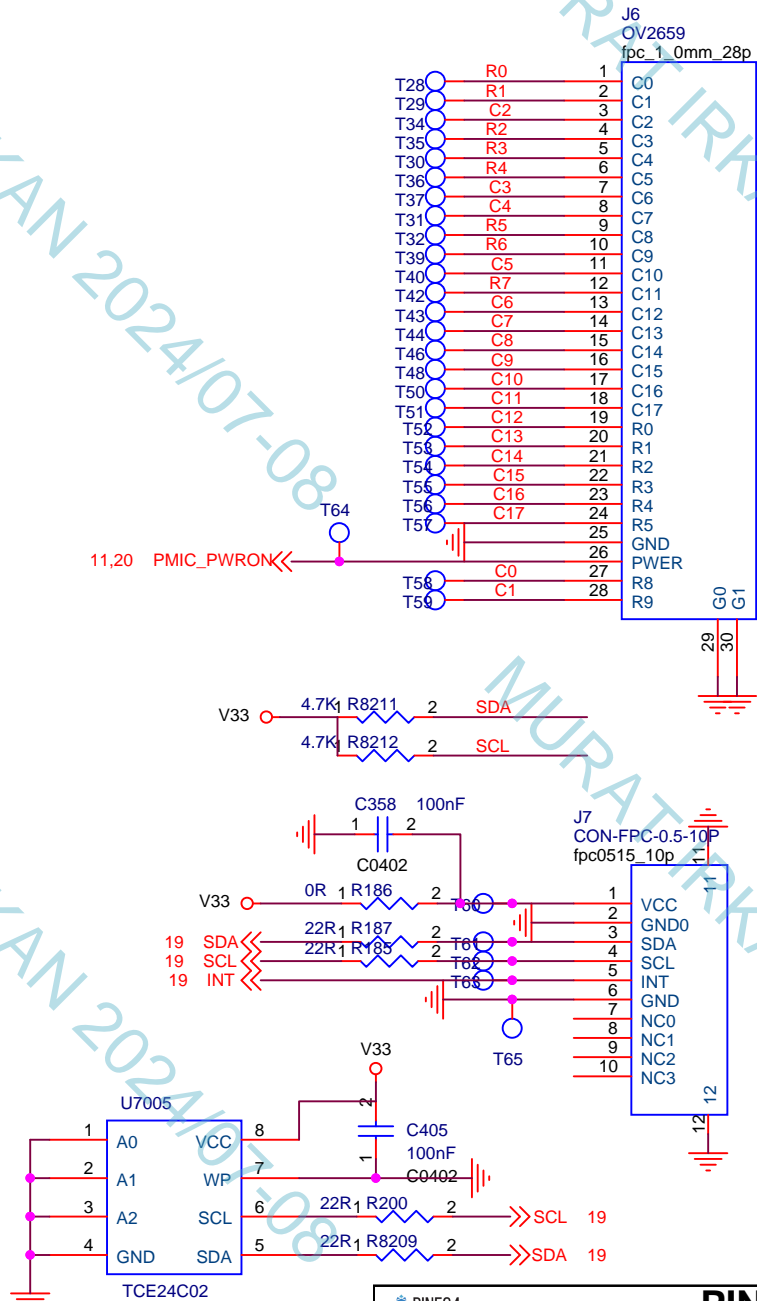
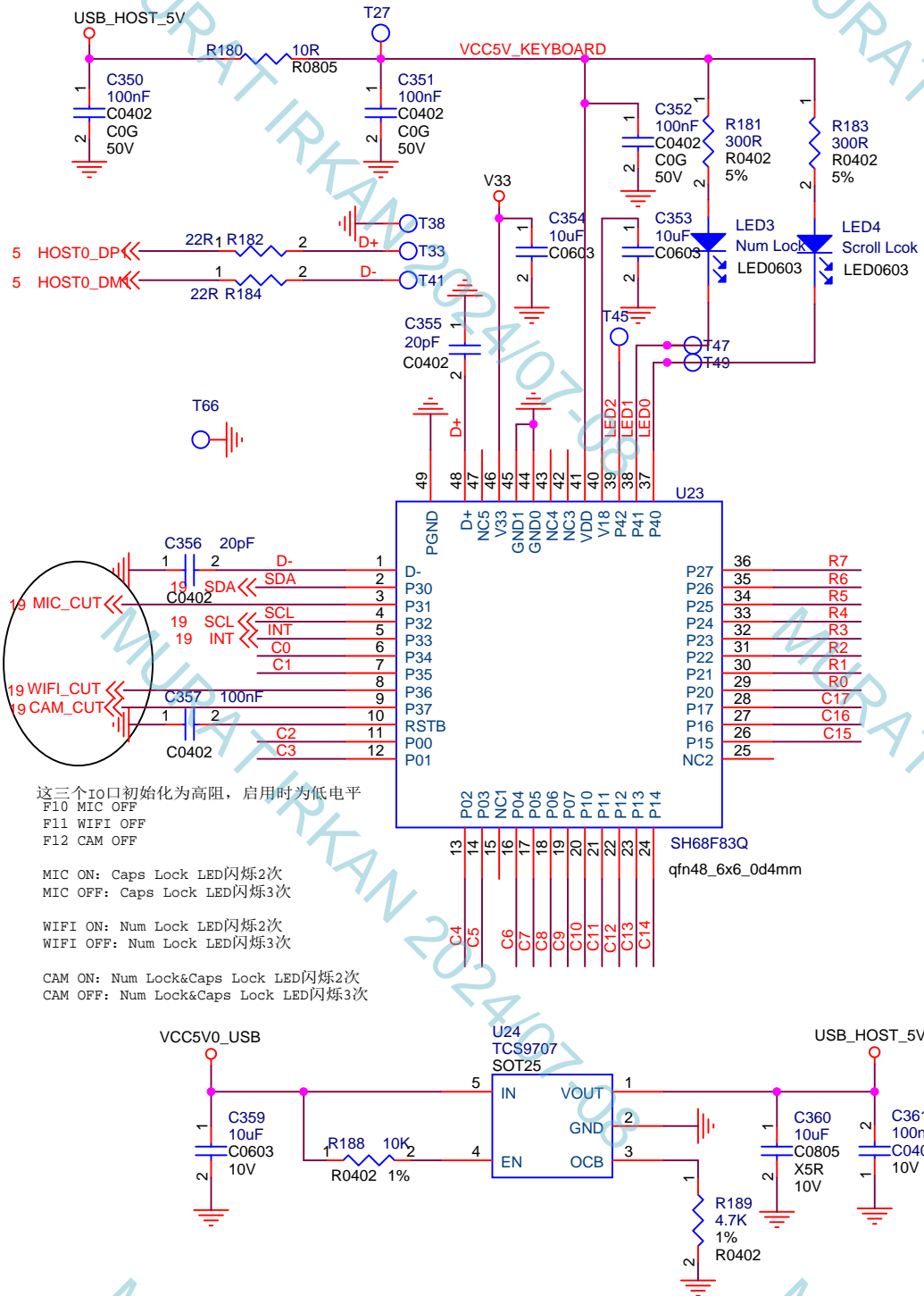


eDP Panel

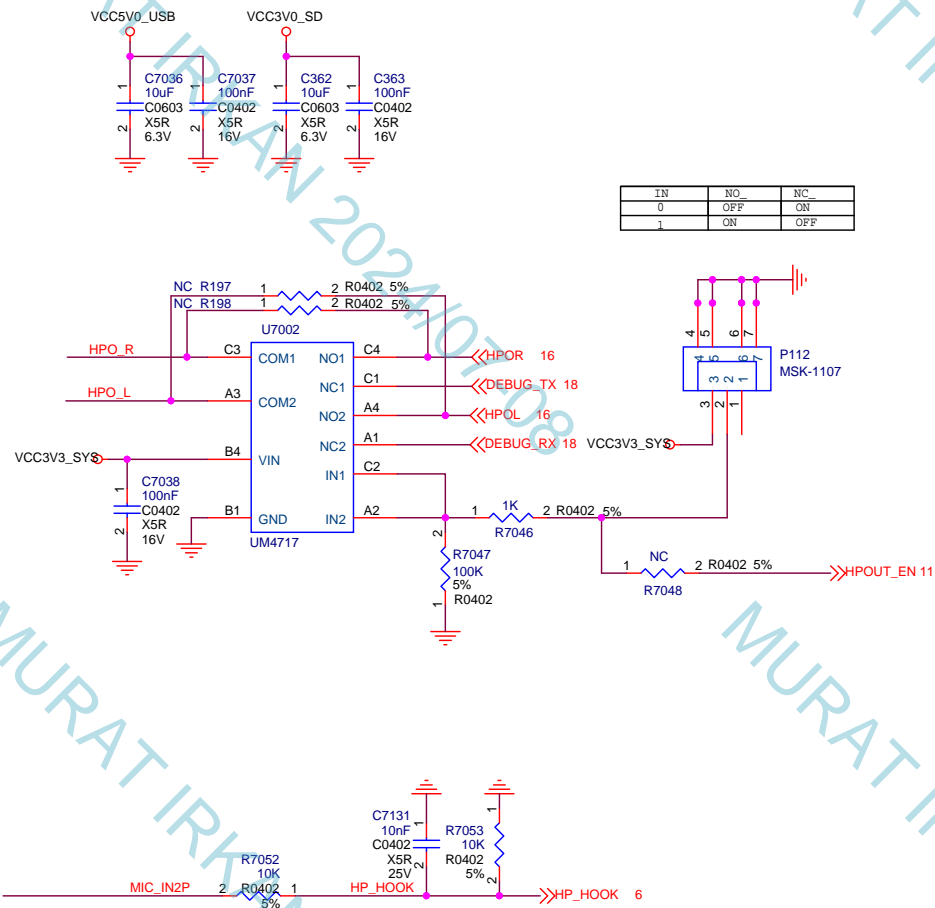
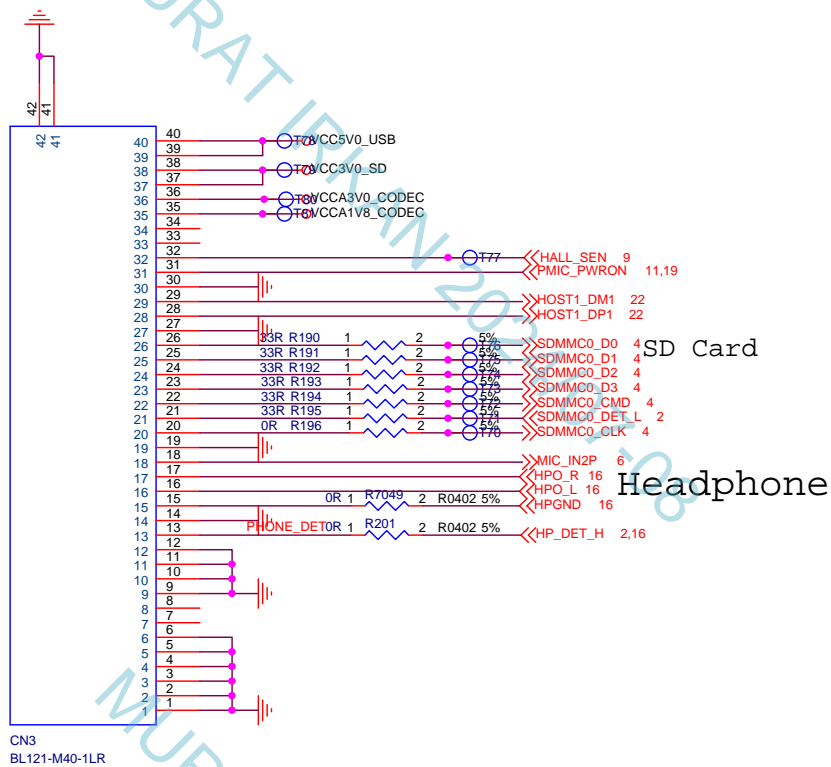


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KEY Board Click Pad



小板连接器：耳机、SD卡、USB



IN	NO_	NC_
0	OFF	ON
1	ON	OFF

USB HUB

VCC3V3_S0

VCC-3V0

DVDD AVDD

VCC-3V0

C7137
100nF
C0402
X5R
10V

VCC-3V0

C385 100nF C0402 X5R 10V
C386 100nF C0402 X5R 10V
C387 100nF C0402 X5R 10V

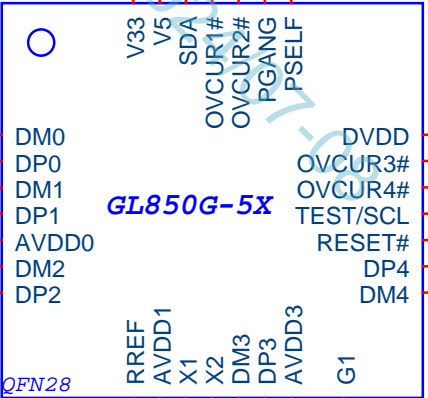
HOST1_DP 5
HOST1_DM 5
HOST1_DP1 20
HOST1_DM1 20
HOST2_DM2 18
HOST2_DP2 18

GL850G-5X

U32

QFN28

HOST1_DM 1
HOST1_DP 2
HOST2_DM2 3
HOST2_DP2 4
AVDD 5
HOST1_DM1 6
HOST1_DP1 7



DVDD

RESET

680R 1%
R212

VCC-3V0 R216 10K 5% RESET

C384 100nF C0402 X5R 10V

VCC-3V0

PGANG R8213 10K 5% R0402
OVCUR1 R213 10K 5% R0402
PSELF R215 10K 5% R0402

C382 20pF C0402 X5R 10V



12MHz Y4 CRY4_3R20X2R50X0R80

C383 20pF C0402 X5R 10V

PINE64

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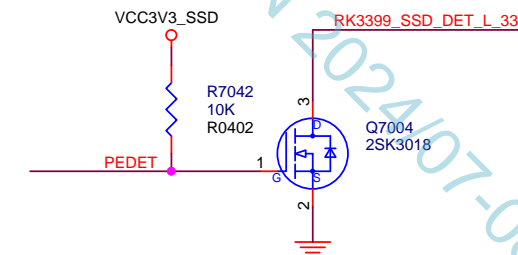
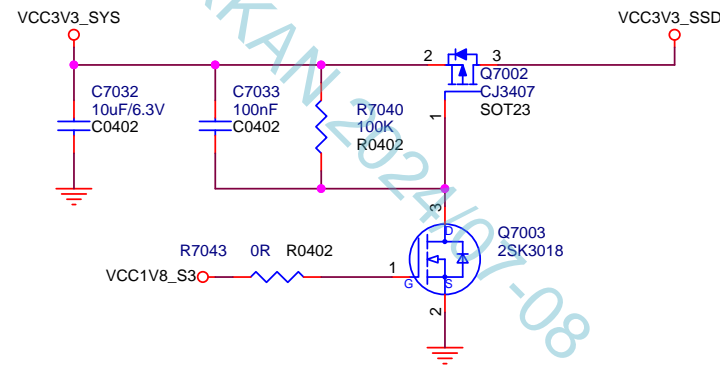
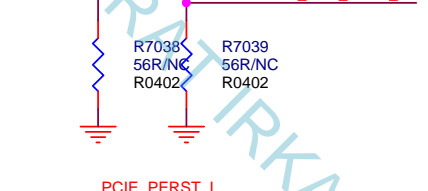
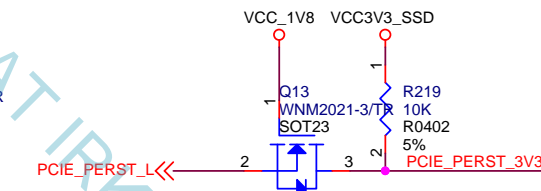
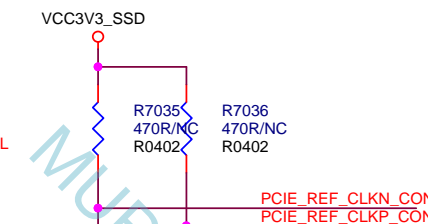
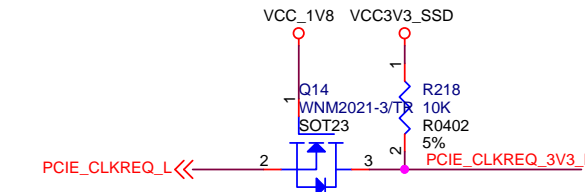
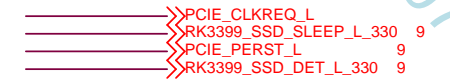
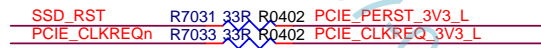
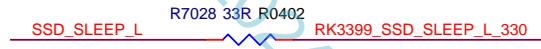
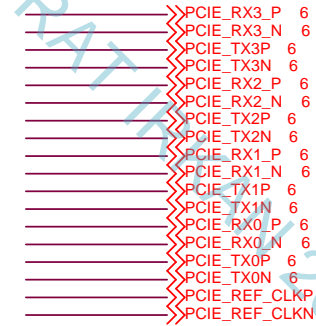
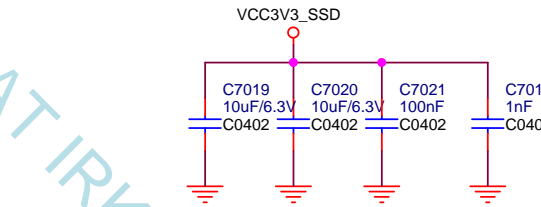
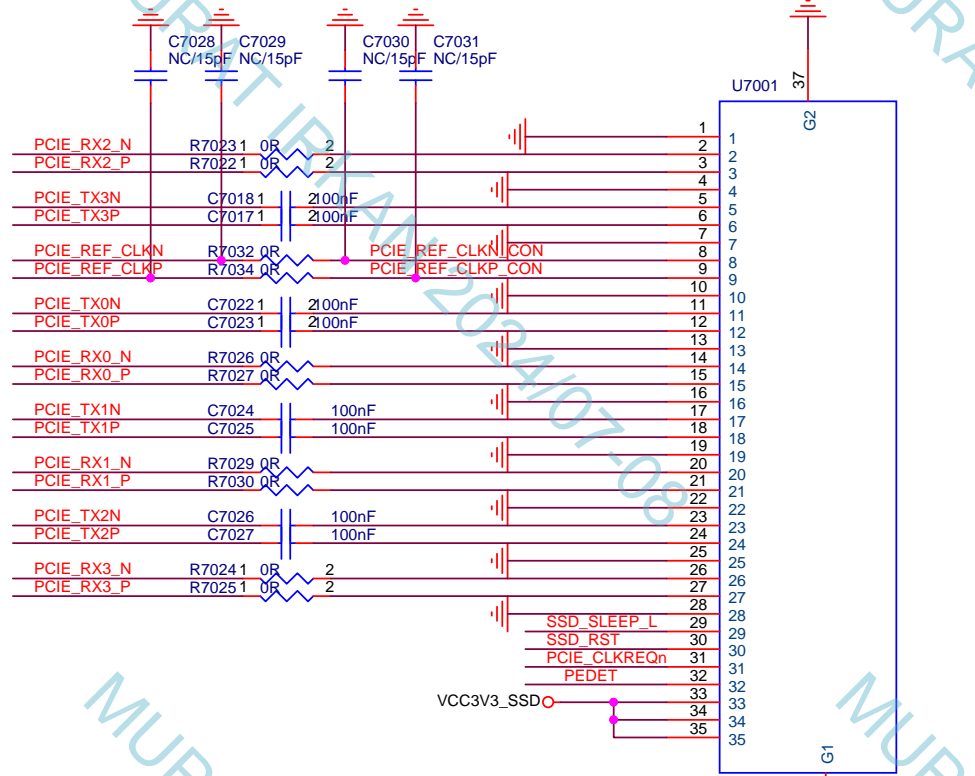
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NGFF M.2 FPC



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