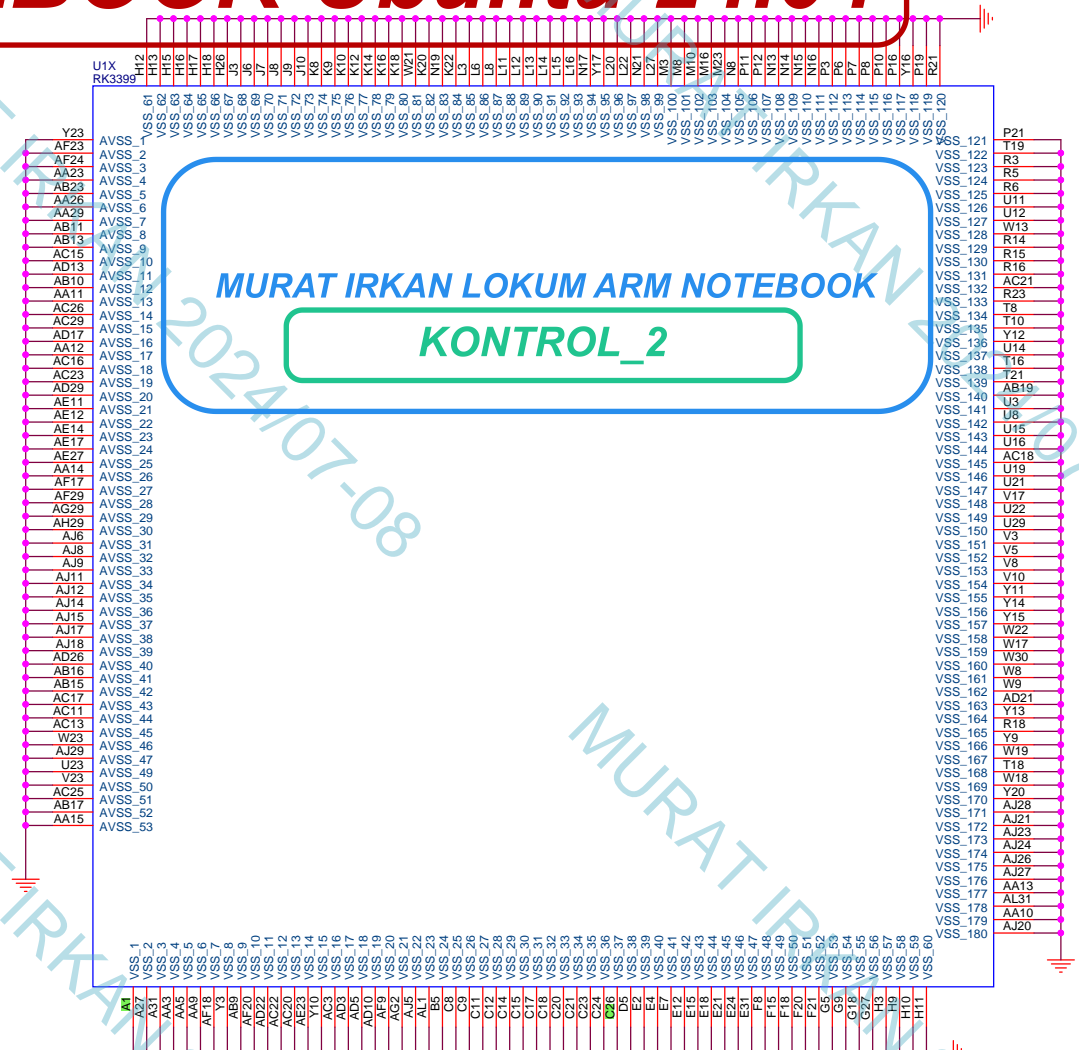


Version	Date	Author	Change Note	Approved
V21	20180708	XieXiaoMin	见附件：PinebookPro_V21项目修改评审记录.docx 充电电流参数更改，PD充电电路优化 键盘控制IO加密功能修改：初始化为高阻，启用时为低电平 1.增加Q15，R151 实现高电平通，低电平断。控制麦克风的电源 2.增加D13.实现高电平不干扰WIFI功能，低电平使WIFI无法打开 3.增加D14.实现高电平不干扰USB摄像头的工作，低电平使摄像头的电源打不开 增加U7005 EEPROM 保存键盘状态 增加工作状态灯IO使能控制，Standby LED：GPIO0_A2，Work 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	

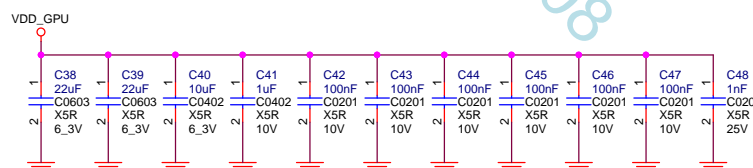
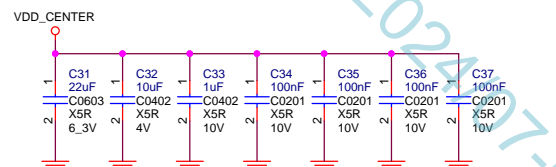
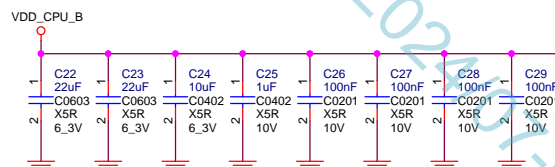
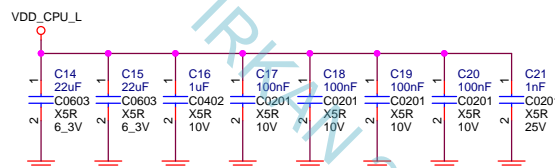
KONTROL_2

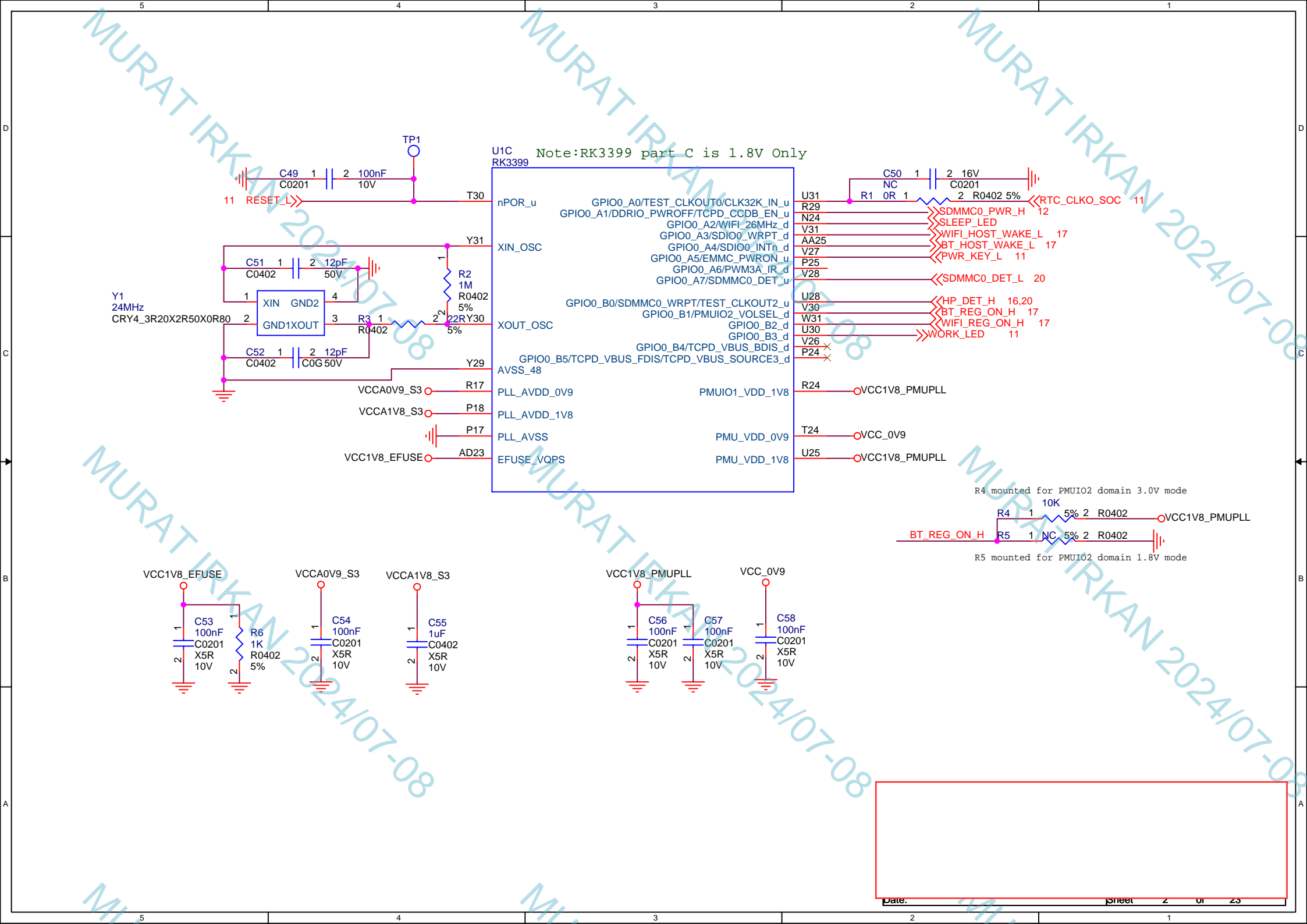


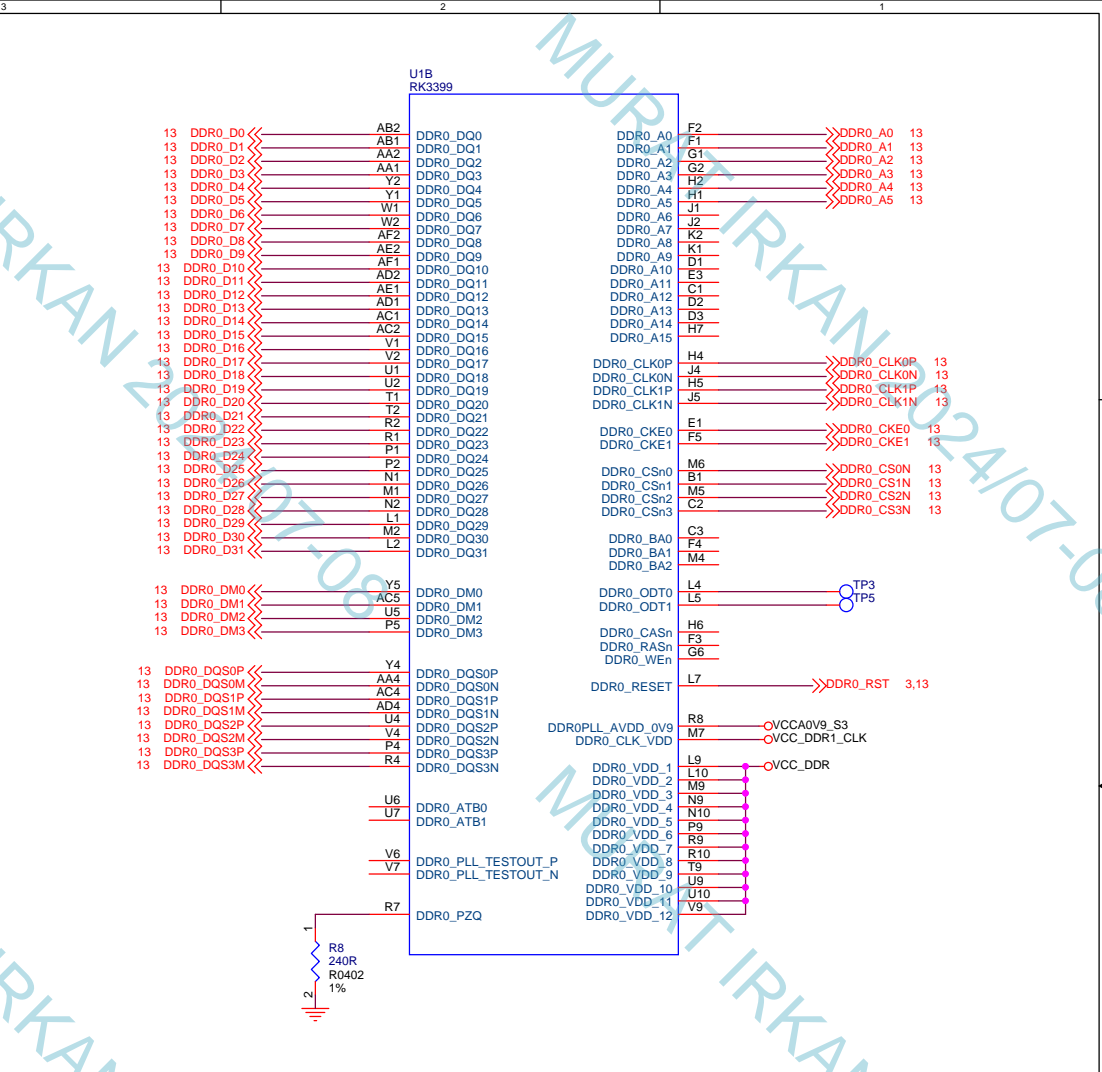
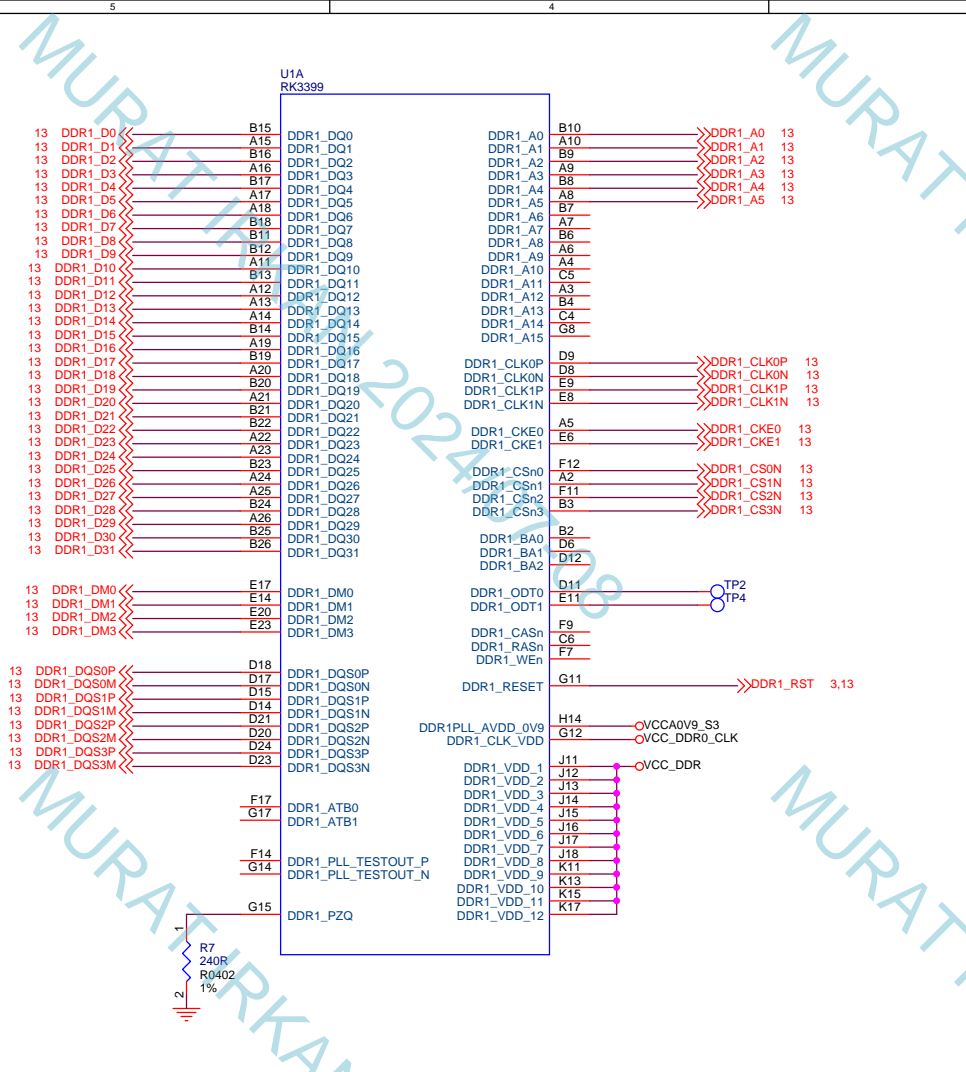
The diagram shows a VDD LOG signal line starting from a red circle labeled 'VDD LOG'. The line passes through a series of decoupling capacitors connected to ground. The components are labeled as follows:

- 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

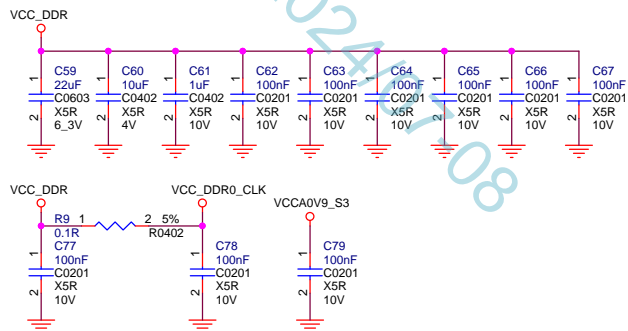
The signal line is shown as a horizontal wire with vertical connections to ground for each capacitor. The capacitors are represented by two parallel lines of varying lengths, with the value and part number written below them.



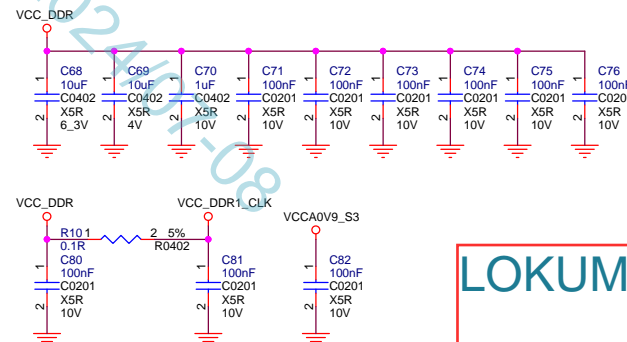




DDR FILTER

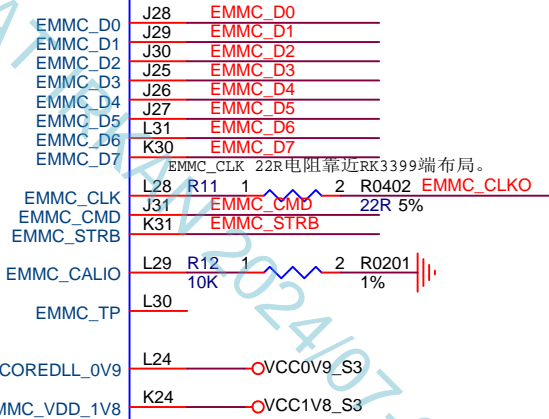


DDR FILTER



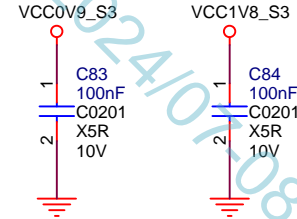
LOKUM NOTEBOOK R3

U1H
RK3399



EMMC design rule:

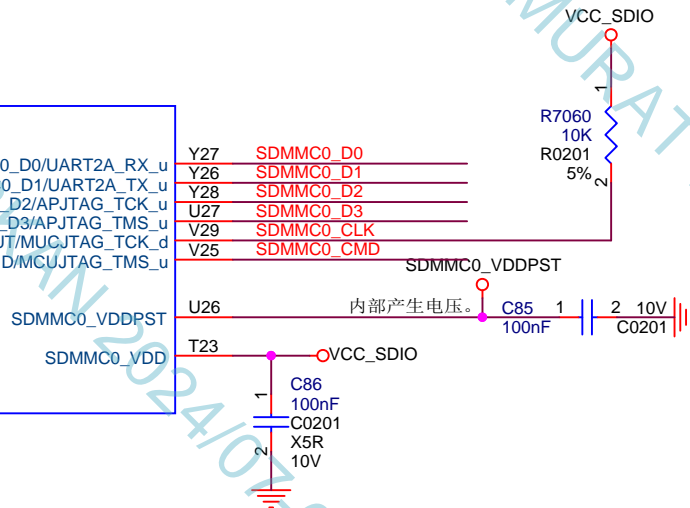
- 1.Data[0:7]、cmd、strobe走线做为一组，并行走线并整组包地，组内等长要求为 $\pm 100\text{mil}$;
- 2.Clk需要单独走线并包地处理，与data间的延时小于 20ps ;
- 3.Max trace length < 3.93 inches;
- 4.Trace impedance $50\text{ohm} \pm 10\%$;
- 5.与其他信号间距遵循3W原则;
- 6.R1300靠近SOC放置;



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

GPIO4_B0/SDMMC0_D0/UART2A_RX_u
GPIO4_B1/SDMMC0_D1/UART2A_TX_u
GPIO4_B2/SDMMC0_D2/APJTAG_TCK_u
GPIO4_B3/SDMMC0_D3/APJTAG_TMS_u
GPIO4_B4/SDMMC0_CLKOUT/MUCJTAG_TCK_d
GPIO4_B5/SDMMC0_CMD/MUCJTAG_TMS_u

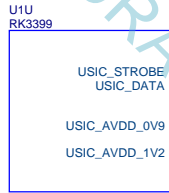


SDMMC design rule:

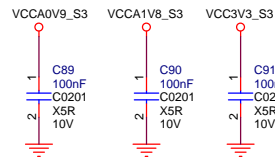
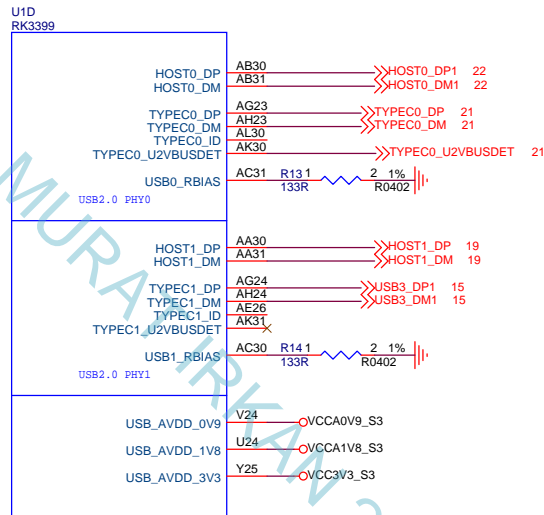
- 1.Data[0:3]、cmd走线做为一组，并行走线并整组包地，组内等长要求为 $\pm 100\text{mil}$;
- 2.Clk需要单独走线并包地处理，与data间的延时小于 20ps ;
- 4.Max trace length < 3.93 inches;
- 5.Trace impedance $50\text{ohm} \pm 10\%$;
- 6.与其他信号间距遵循3W原则;

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

PINE64		
Title		
Pinebook Pro		
Size	Document Number	Rev
A4	FLASH&SDMMC controller	V2.1
Date:	Sheet	4 of 23



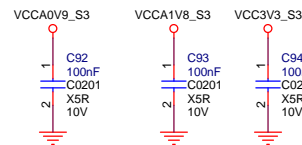
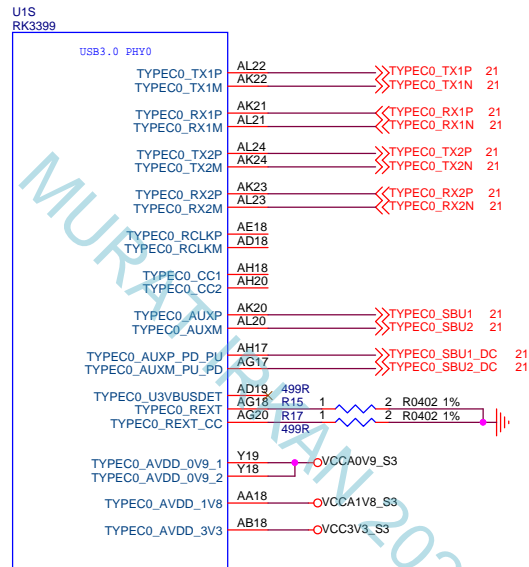
USB2.0



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

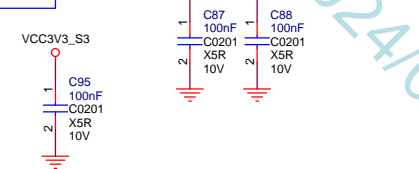
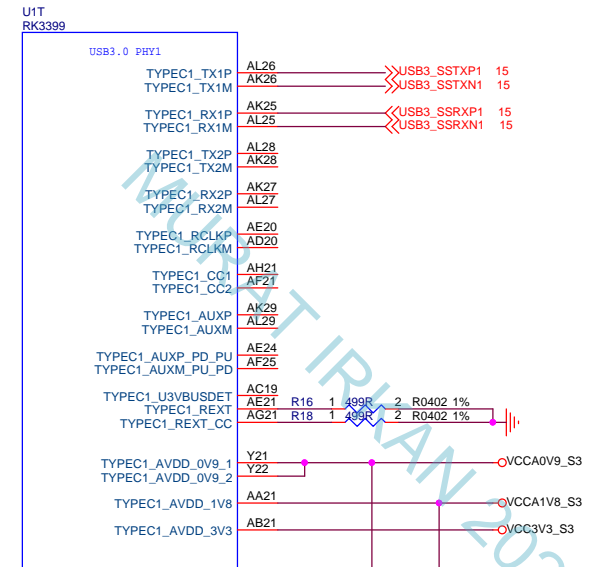


USB3.0 design rule:

- 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;

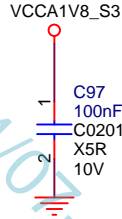
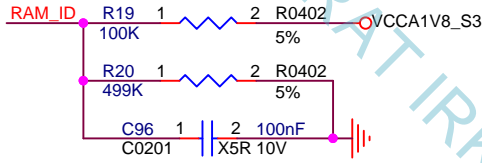
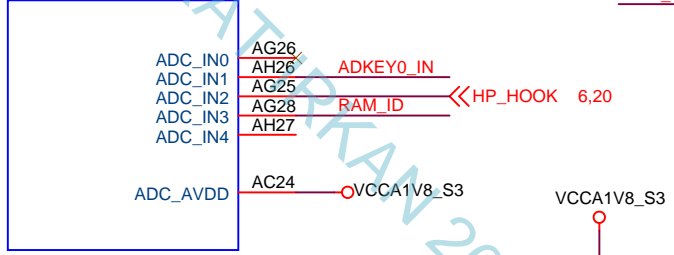
DP design rule:

- 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;



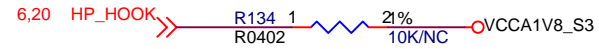
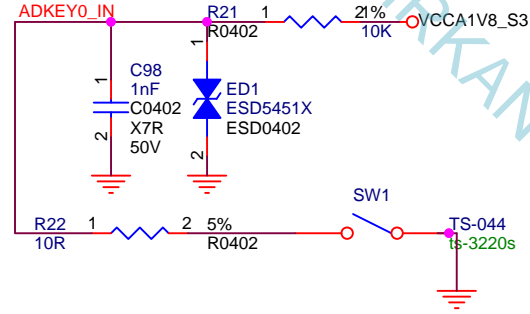
PINE64		
Pinebook Pro		
Size	Document Number	Rev
A3	USB CONTROLLER	V2.1
Date:	Sheet	5 of 23

U1V
RK3399

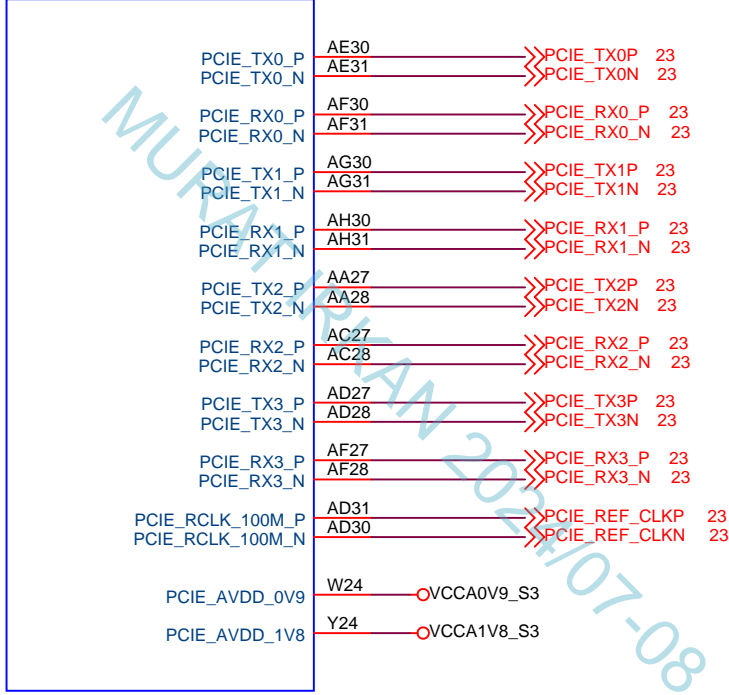


	RAM ID	R23 PU	R24 PD
DDR3 /DDR3L	0.6V	200K	100K
LPDDR3	0.112V	150K	10K
LPDDR4	1.5V	100K	499K

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



PINE64		
Pinebook Pro		
Size A4	Document Number SARADC/KEY	Rev V2.1
Date:	Sheet	6 of 23

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

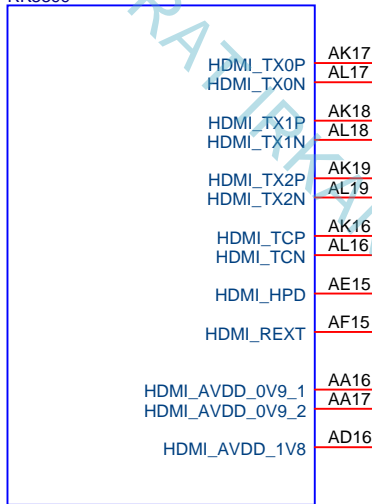
MIPI_TX1/RX1_D3P AK10
MIPI_TX1/RX1_D3N AL10

MIPI_TX1/RX1_REXT AF11

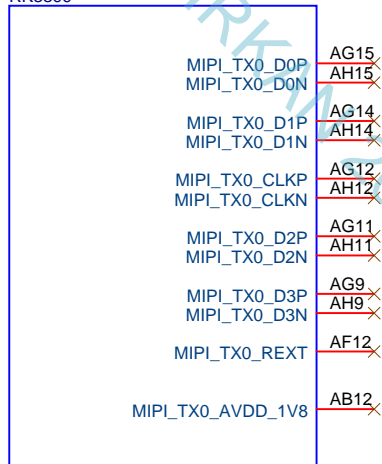
MIPI_TX1/RX1_AVDD_1V8 AC10

 PINE64		PINE64	
Title			
Pinebook Pro			
Size	Document Number		Rev
A4	DVP interface		V2.1
Date:		Sheet	7 of 23

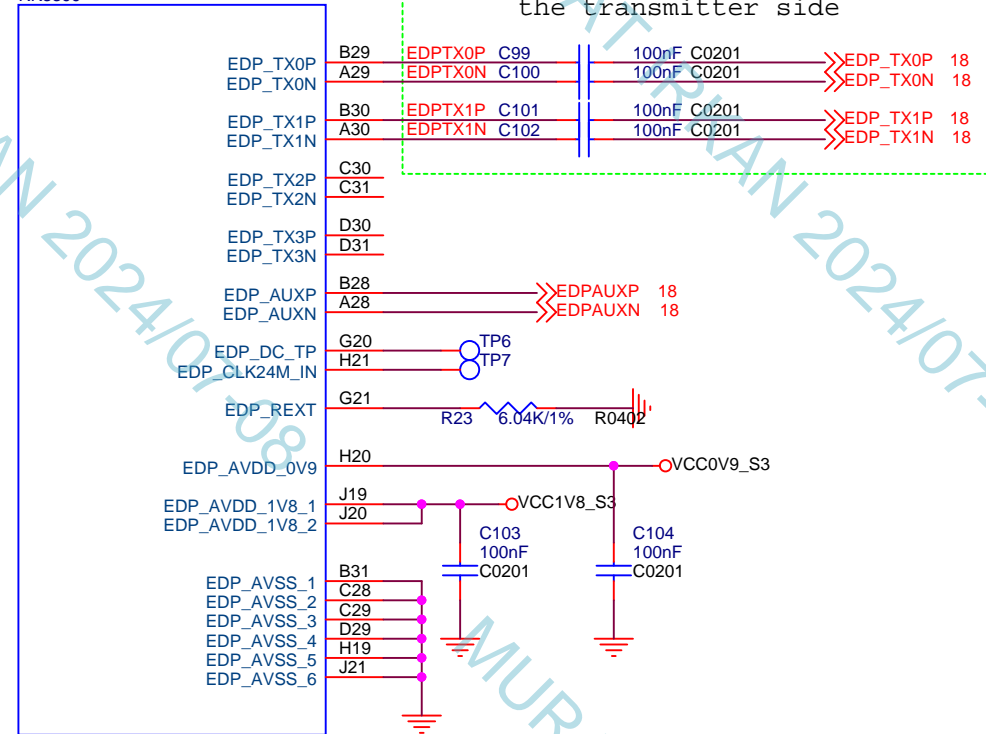
U1N
RK3399



U1Q
RK3399



U1M
RK3399

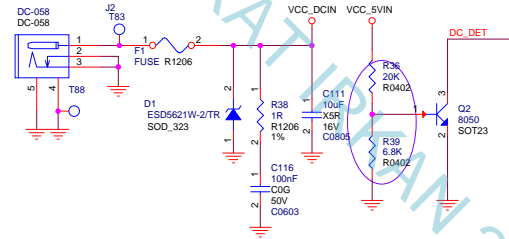


eDP design rule:

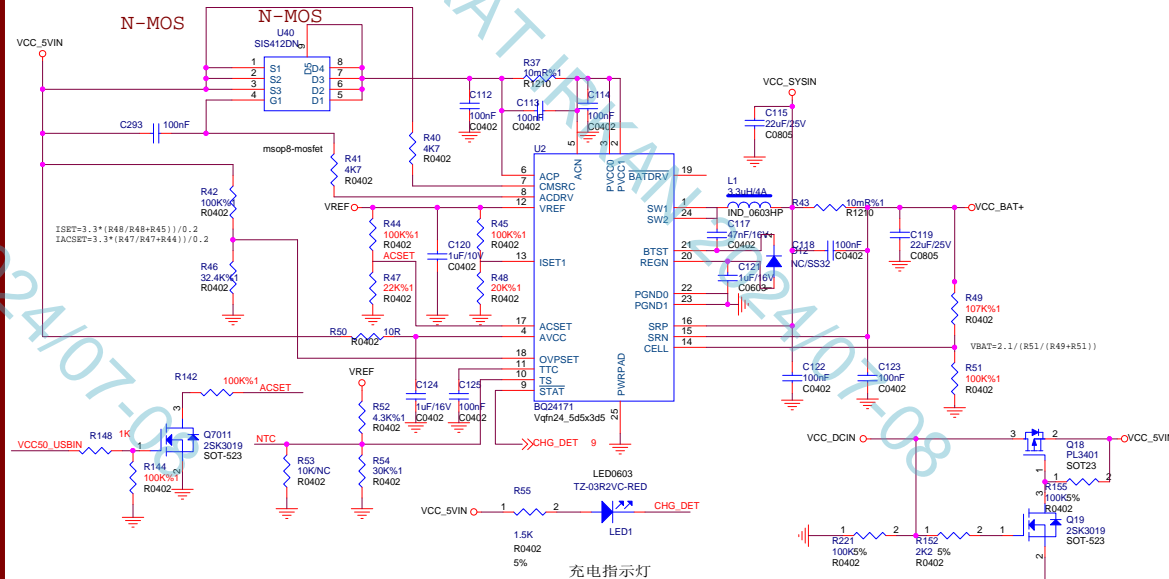
- 1.Max intra-pair skew < 4 ps;
- 2.Max trace length < 6 inches;
- 3.Max allowed via < 4;
- 4.Trace impedance 90ohm+/-10%;
- 5.与其他信号间距遵循3W原则;

PINE64		PINE64	
Title		Pinebook Pro	
Size	Document Number	Rev	
A4	Display interface	V2.1	
Date:	Sheet	8	of 23

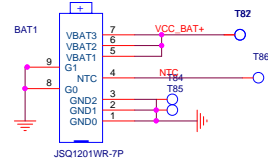
DC IN 5V 3A



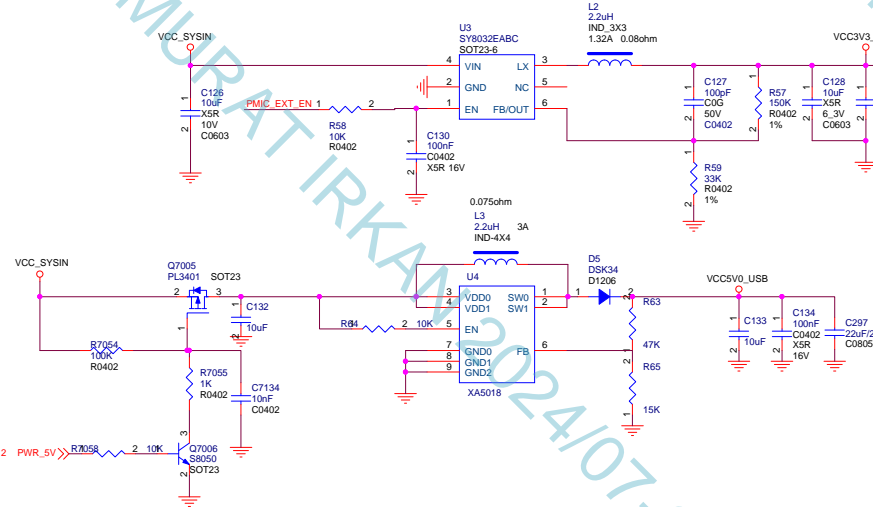
CHARGE and Power Path



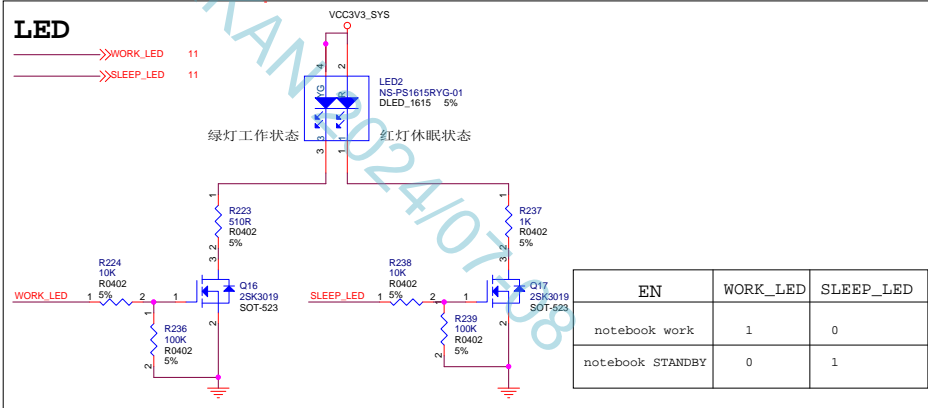
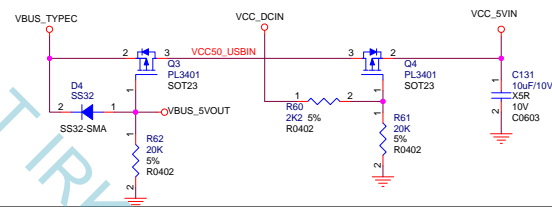
BATTAR 单节3.8V 9000mA



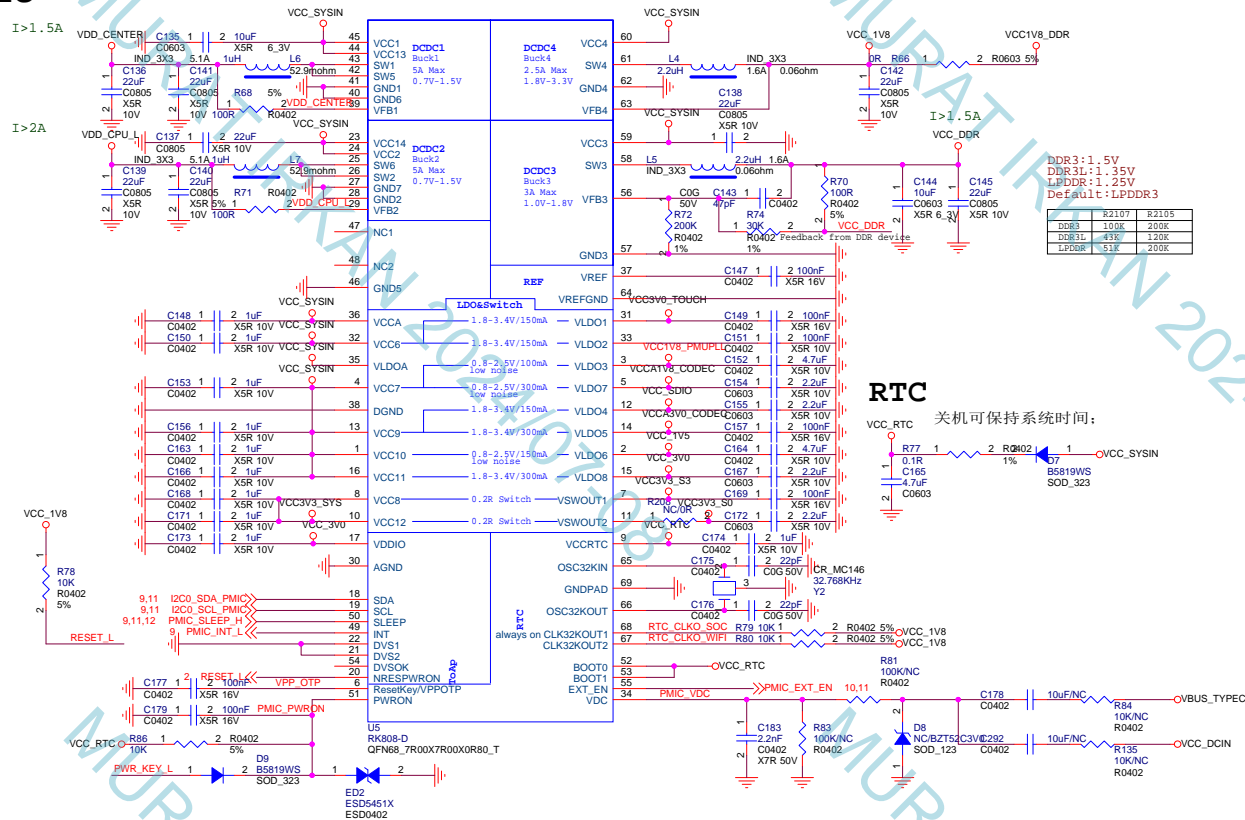
3.3V SYSTEM



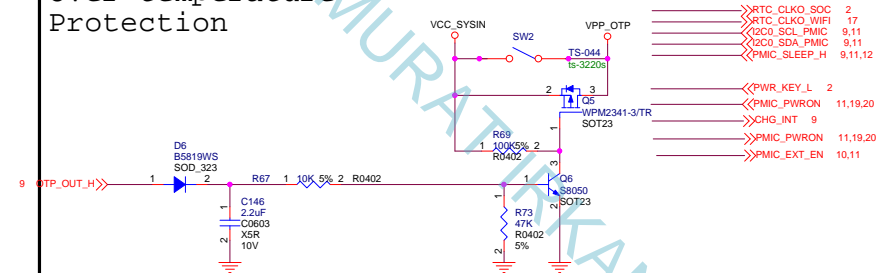
Power Path Management



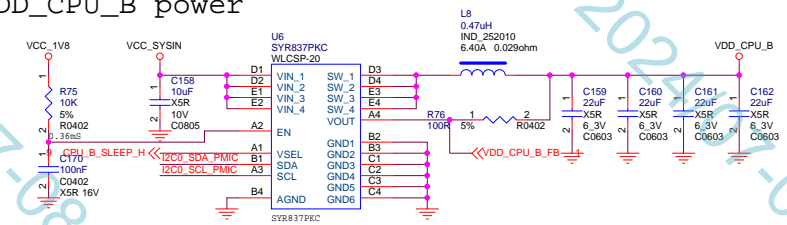
PMIC



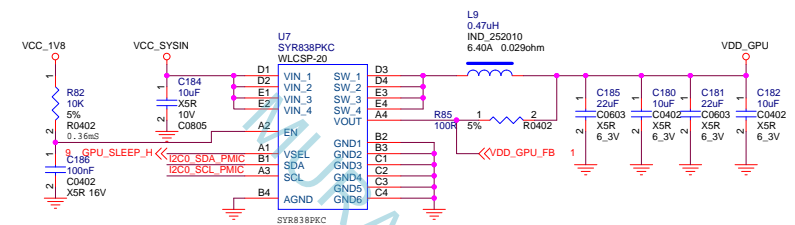
Over-temperature Protection



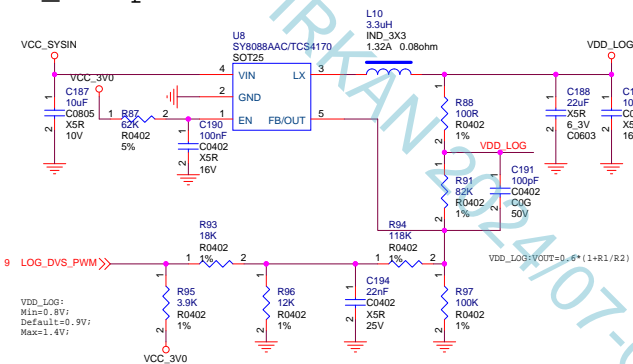
VDD_CPU_B power



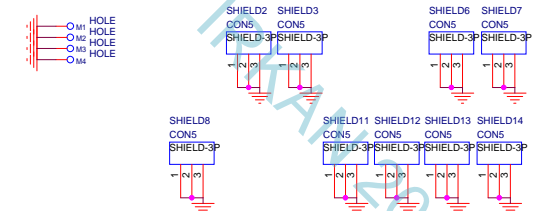
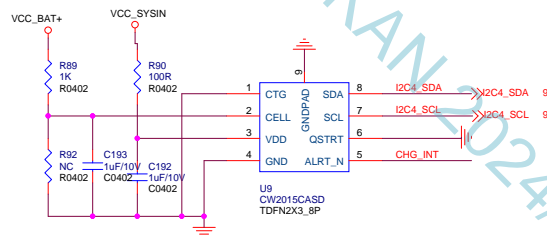
VDD_GPU power



VDD_LOG power

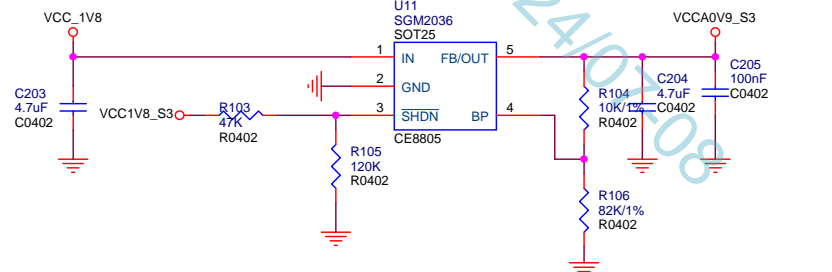
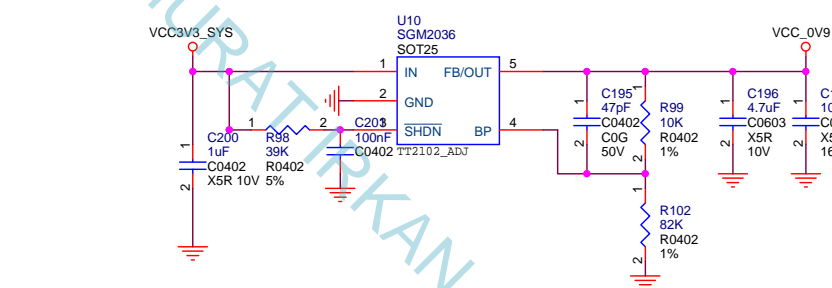


Gas Gauge

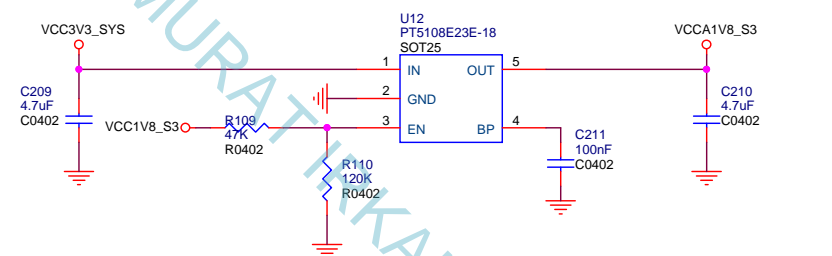


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Title Pinebook Pro			
Size Custom	Document Number RK808-D 1		Rev V2.1
Date:	Sheet	11	of 23

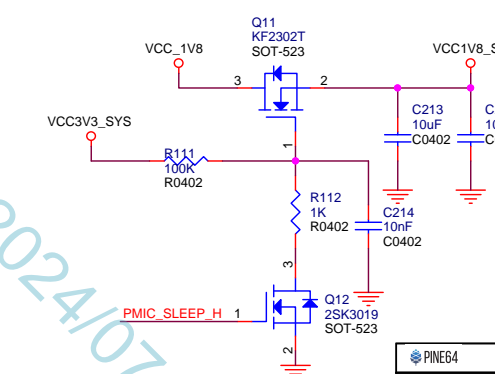
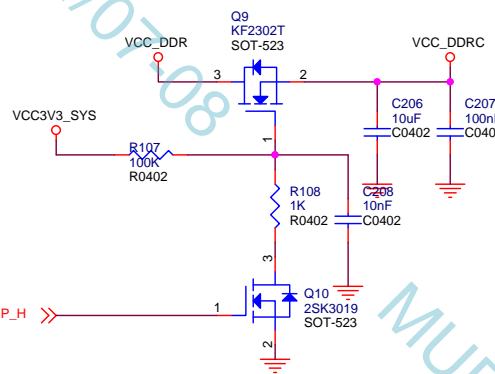
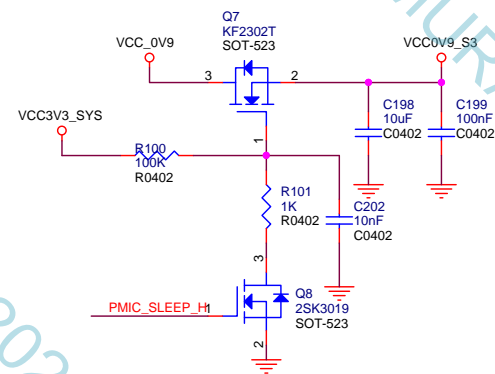
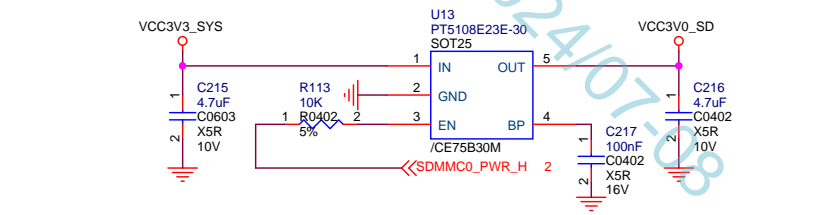
VCC_0V9 power



VCCA1V8_S3 power

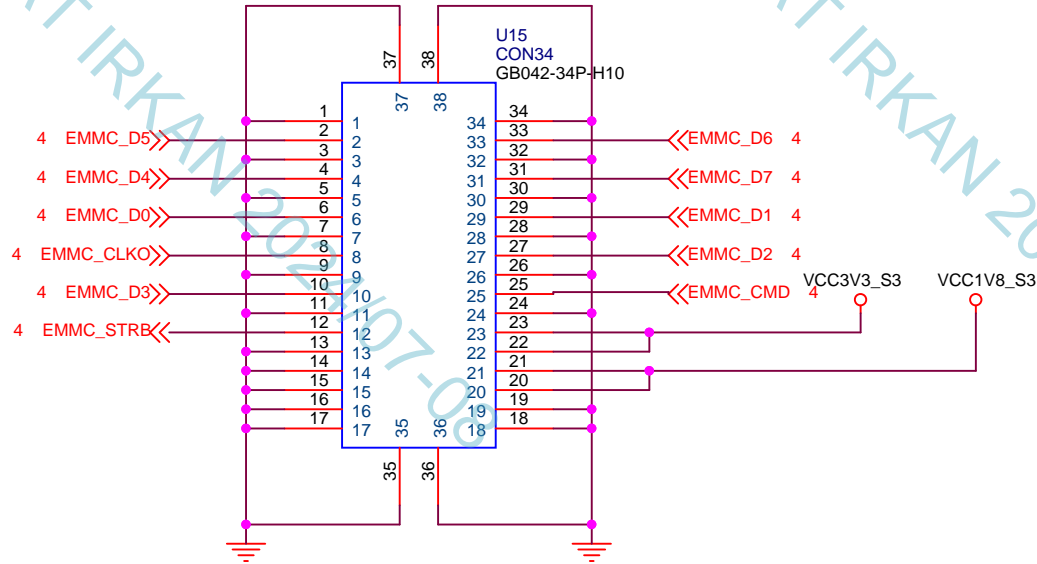


VCC3V0_SD power



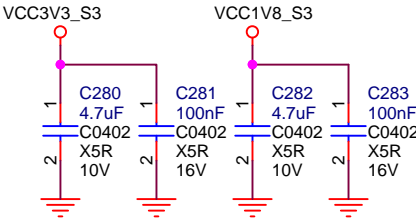
PINE64		PINE64	
Title		Pinebook Pro	
Size		Document Number	
B		RK808-D 2	
Date:		Sheet 12 of 23	
		Rev V2.1	

eMMC Port

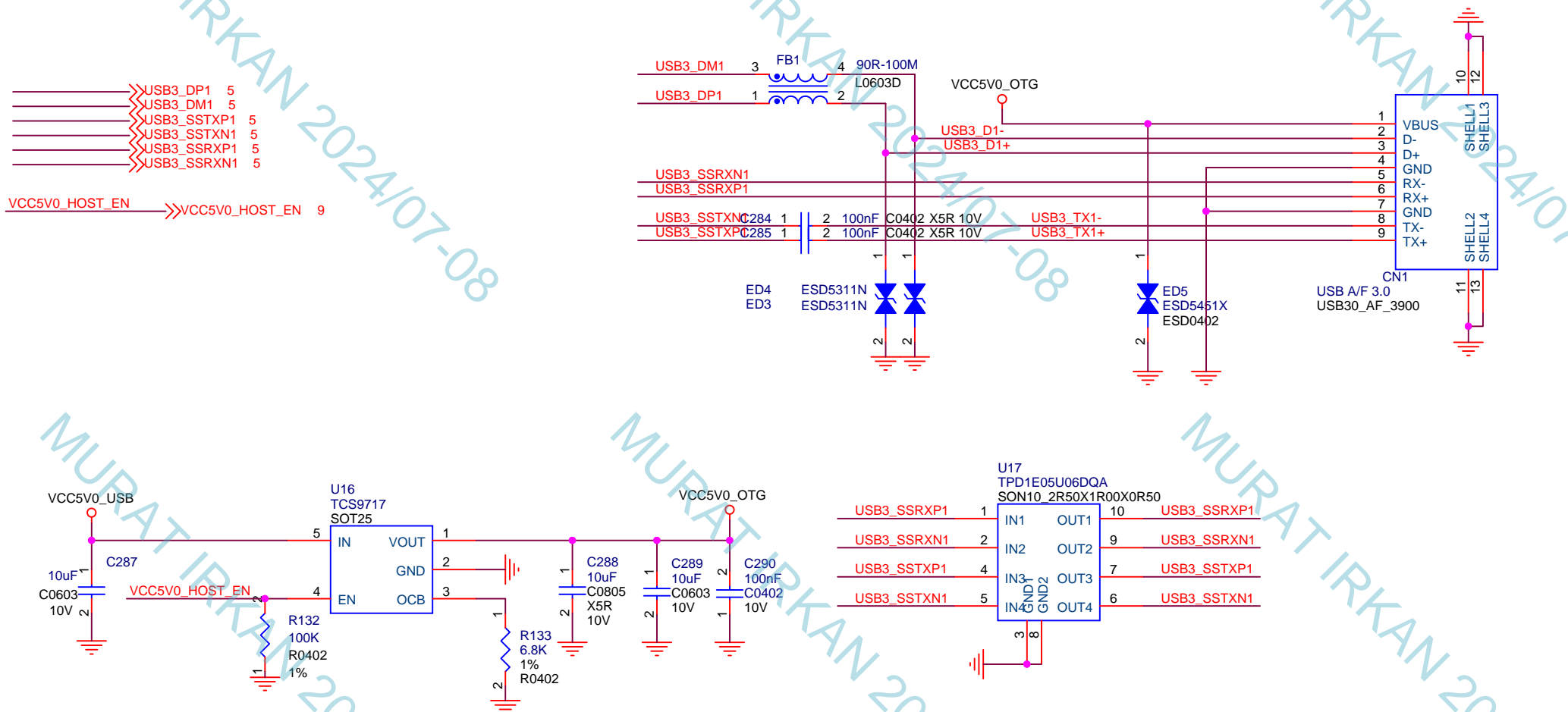


Note:
Reserve SW for Update.

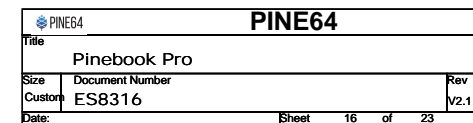
	SEL	Shunt Status	Function
	1	OFF	eMMC
	ON	ON	MASKROM



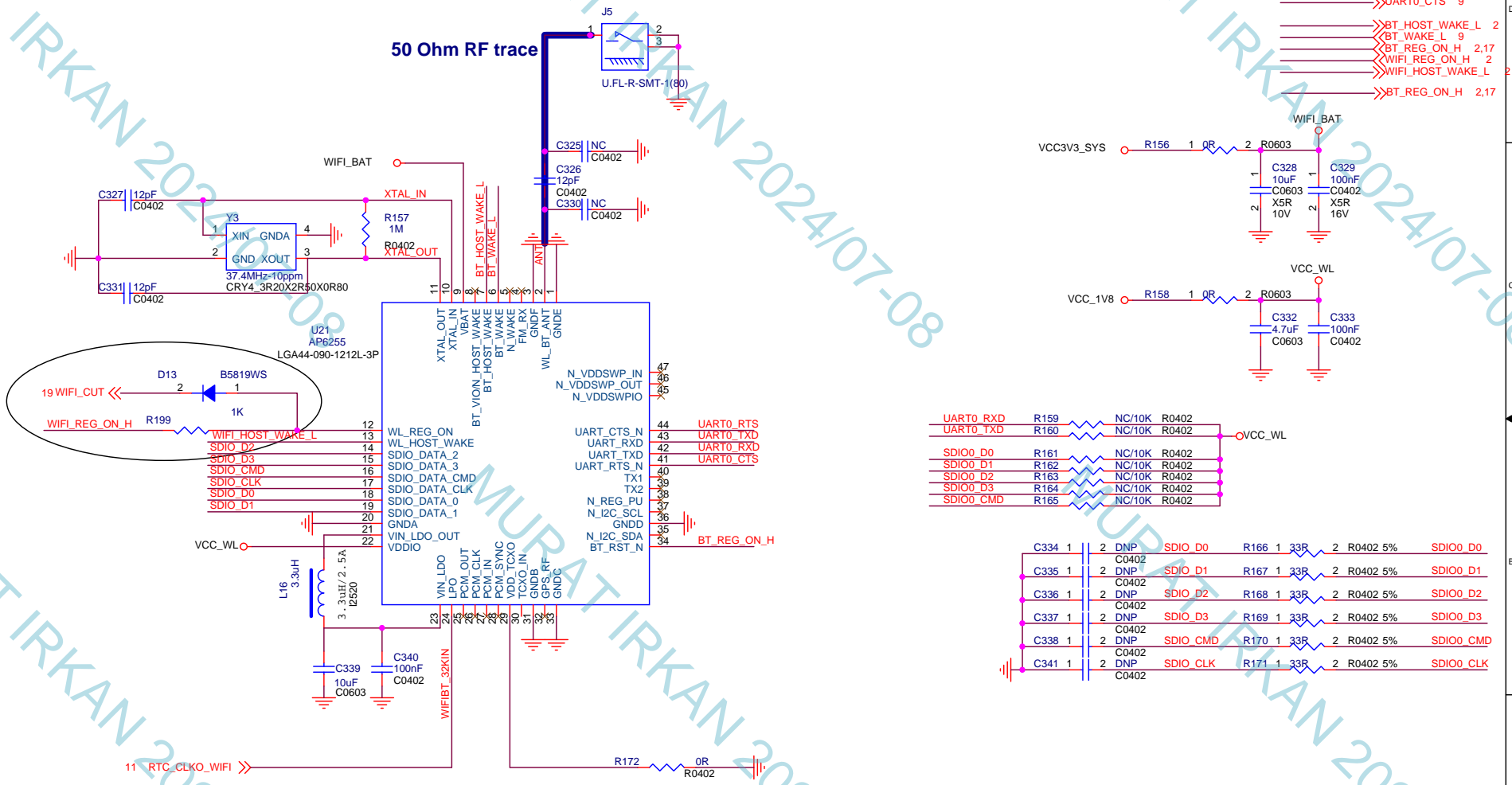
USB3.0 OTG port



SPEAKER

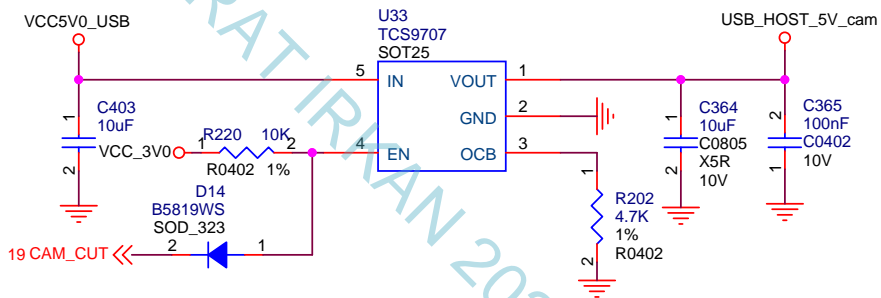


WIFI/BT MODULE

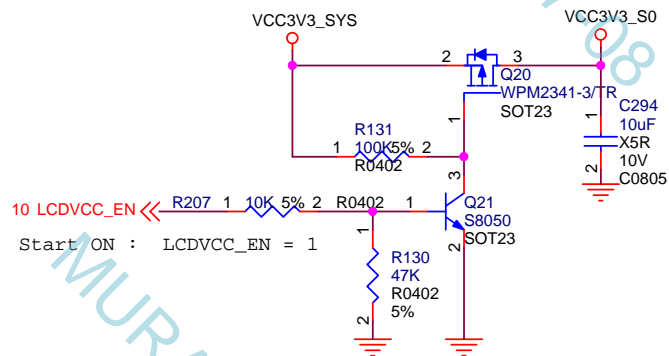


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Title		Pinebook Pro	
Size	Document Number	Rev	
B	WIFI	V2.1	
Date:		Sheet	17 of 23

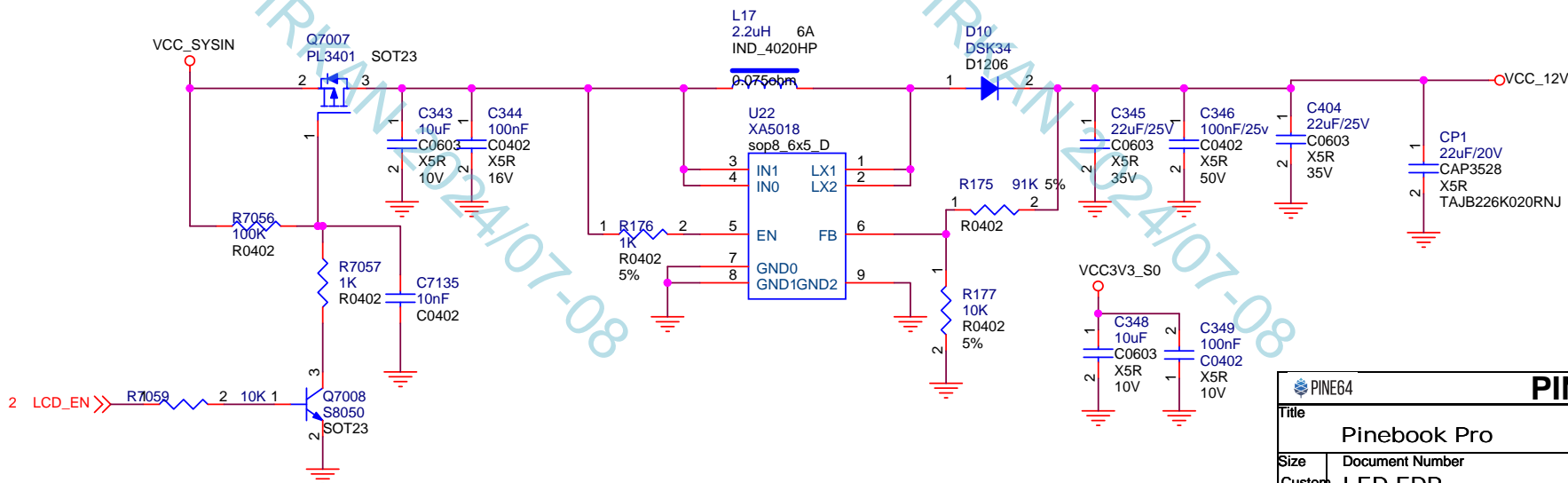
CAM POWER



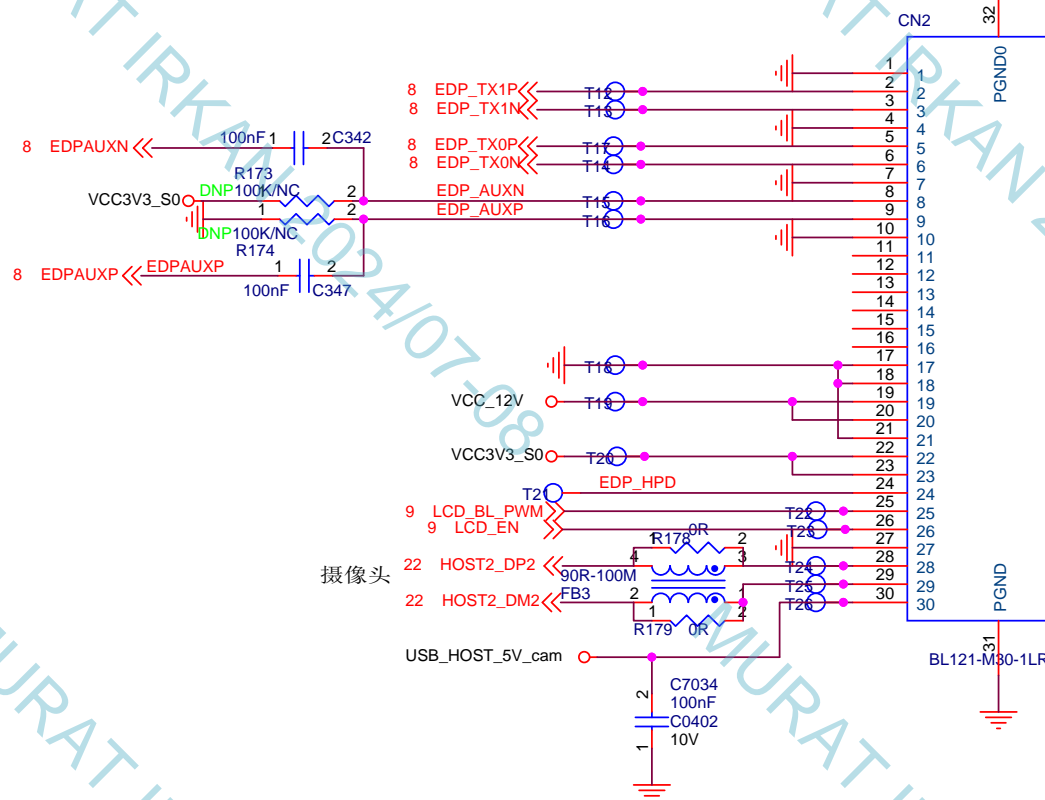
LCD DRIVER



BACKLIGHT

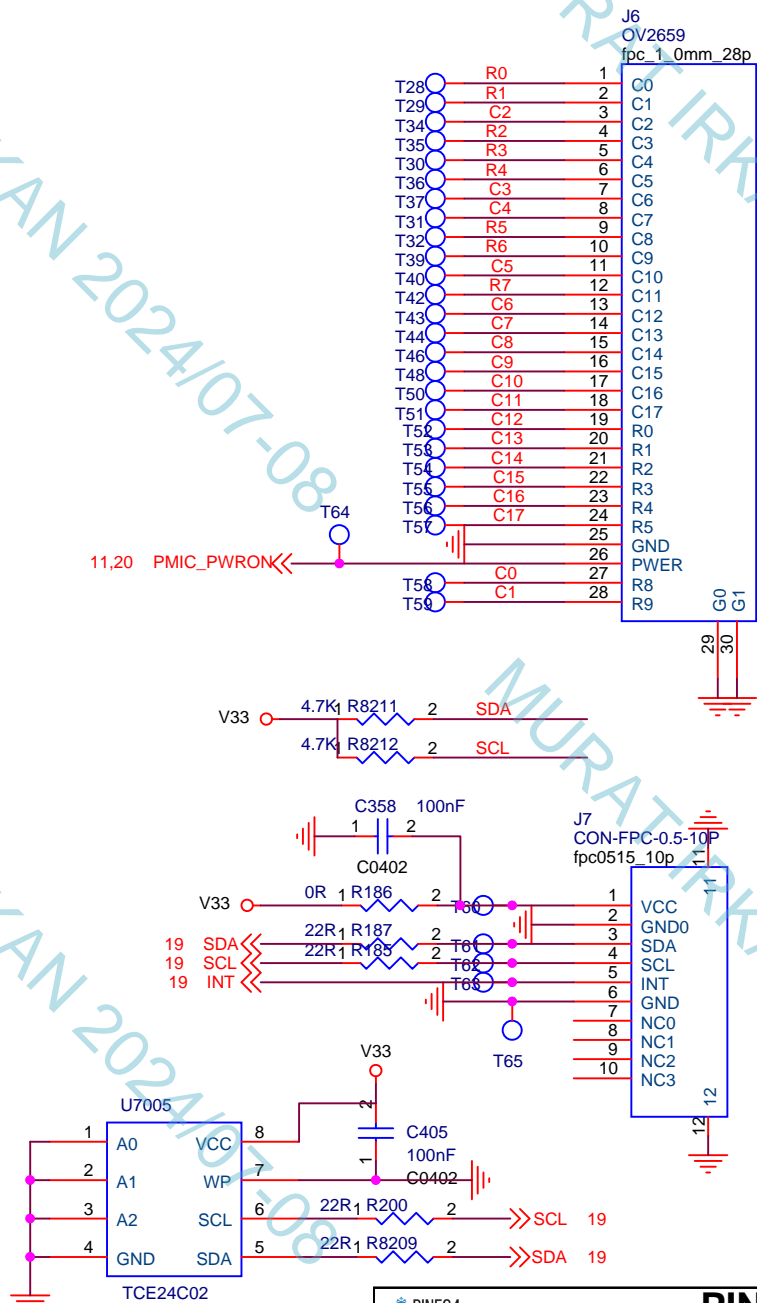
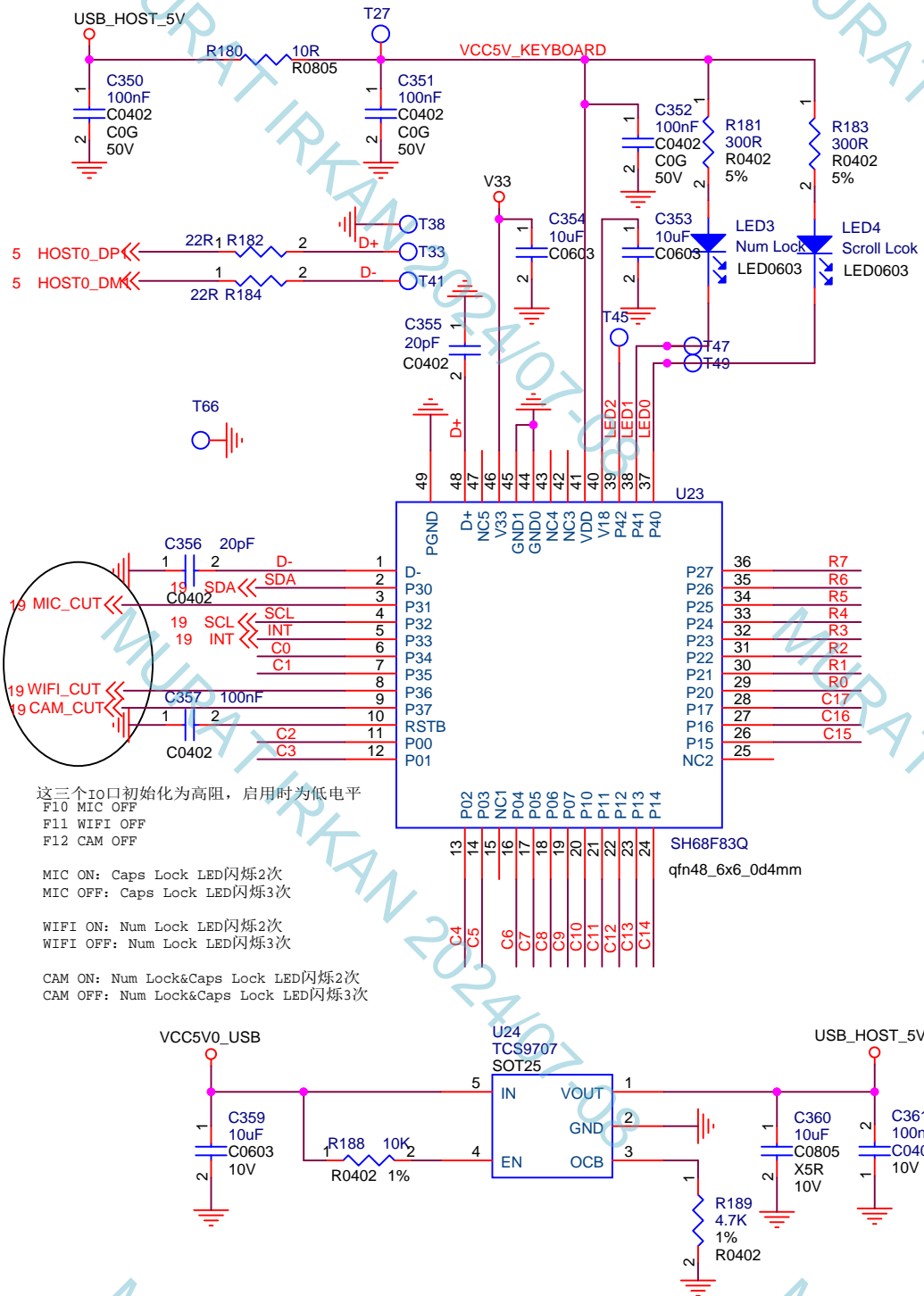


eDP Panel

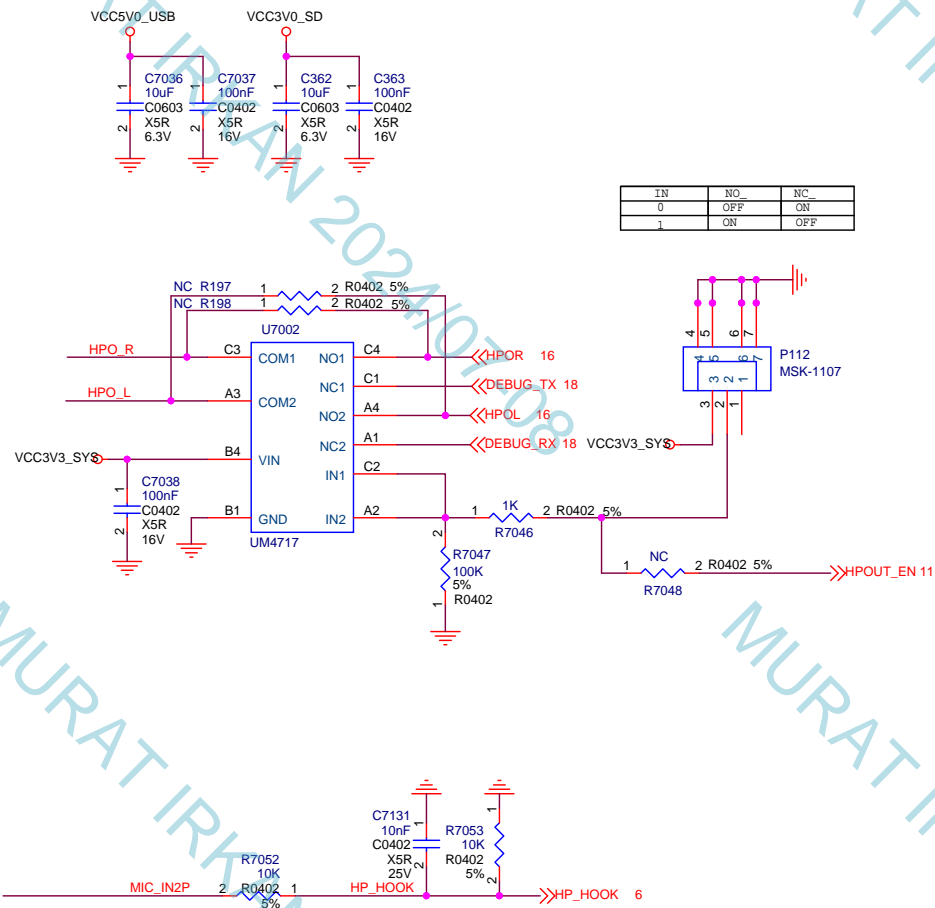
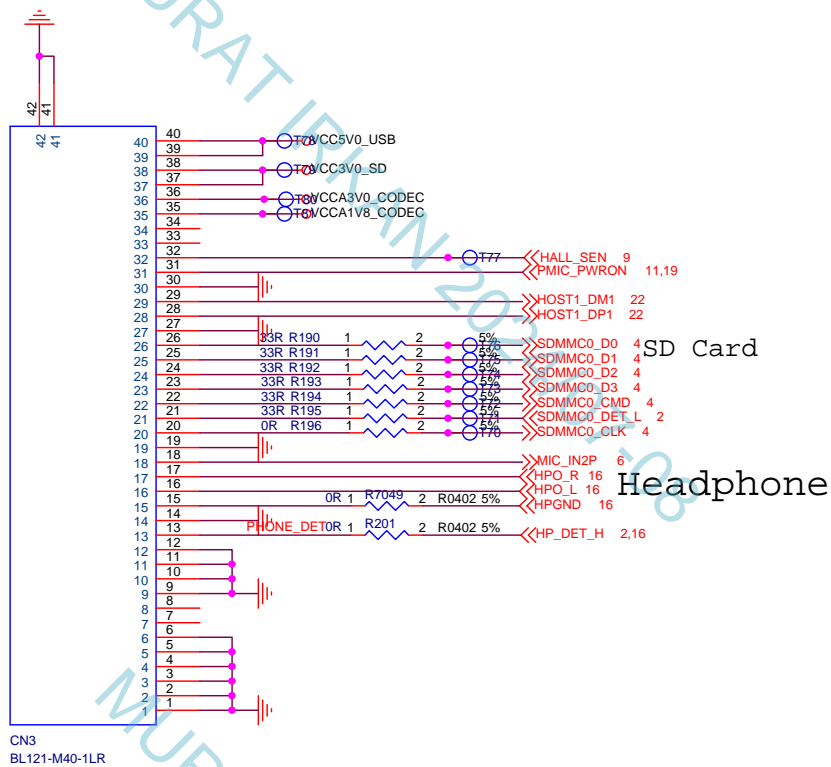


PINE64		
Title		
Pinebook Pro		
Size	Document Number	Rev
Custom	LED EDP	V2.1
Date:	Sheet	18 of 23

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

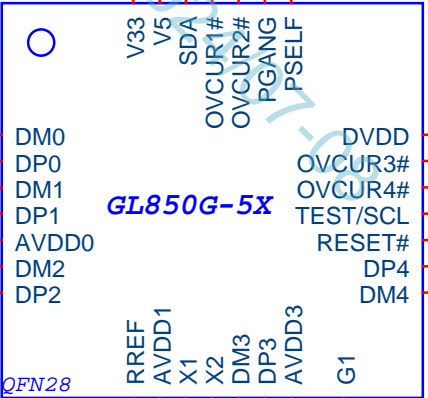
HOST1_DP 5
HOST1_DM 5
HOST1_DP1 20
HOST1_DM1 20
HOST2_DM2 18
HOST2_DP2 18

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 1 10K 5% 2 RESET

C384 100nF C0402 X5R 10V



VCC-3V0

PGANG R8213 1 10K 5% 2 R0402
OVCUR1 R213 1 10K 5% 2 R0402
PSELF R215 1 10K 5% 2 R0402

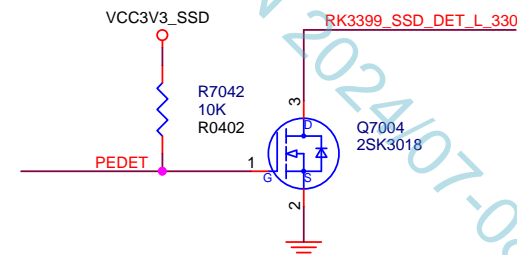
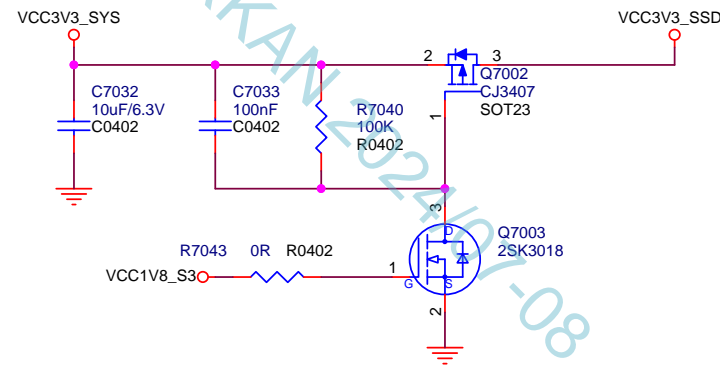
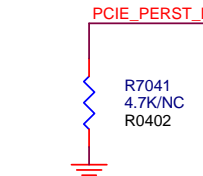
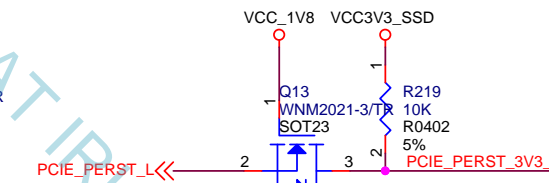
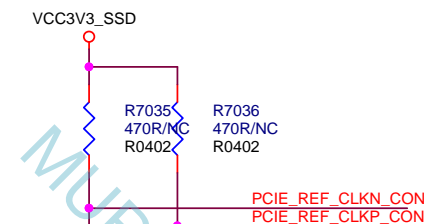
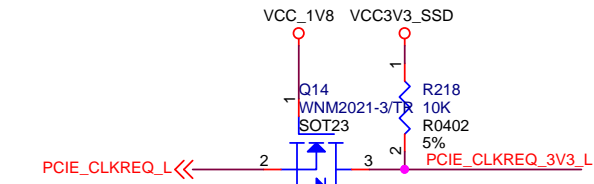
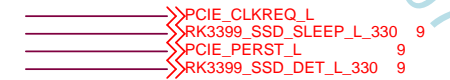
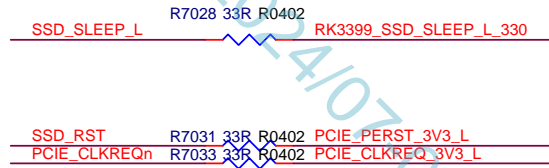
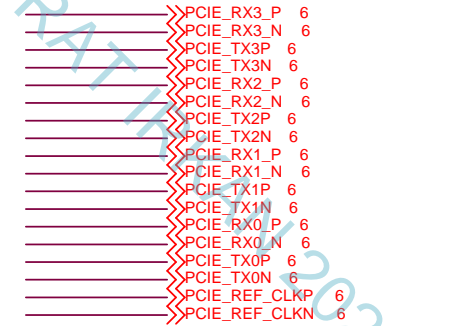
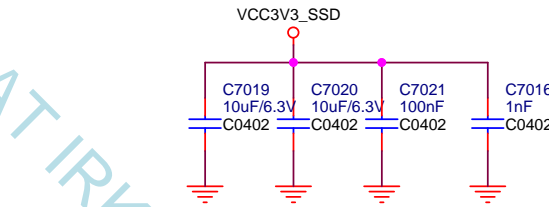
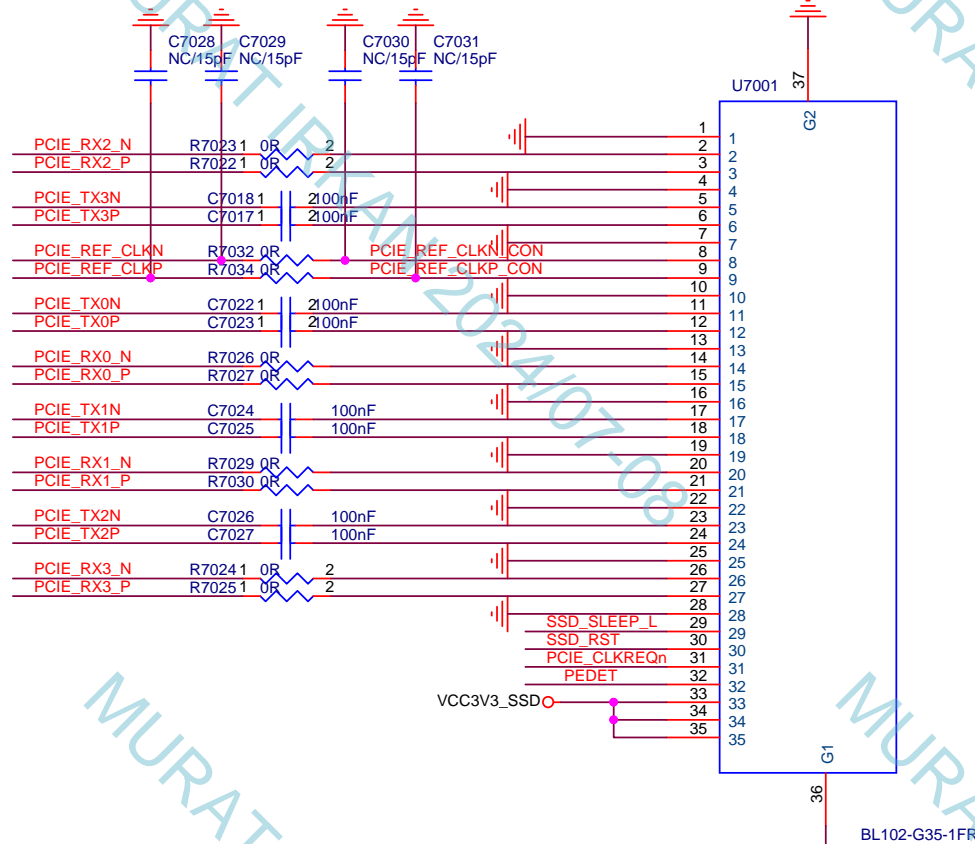
C382 20pF C0402 X5R 10V



C383 20pF C0402 X5R 10V

 PINE64		 PINE64	
Title			
Pinebook Pro			
Size	Document Number		Rev
Custom	USB HUB		V2.1
Date:	Sheet	22	of 23

NGFF M.2 FPC



PINE64		PINE64	
Title		Pinebook Pro	
Size	Document Number	Rev	
Custom	SSD	V2.1	
Date:		Sheet 23 of 23	