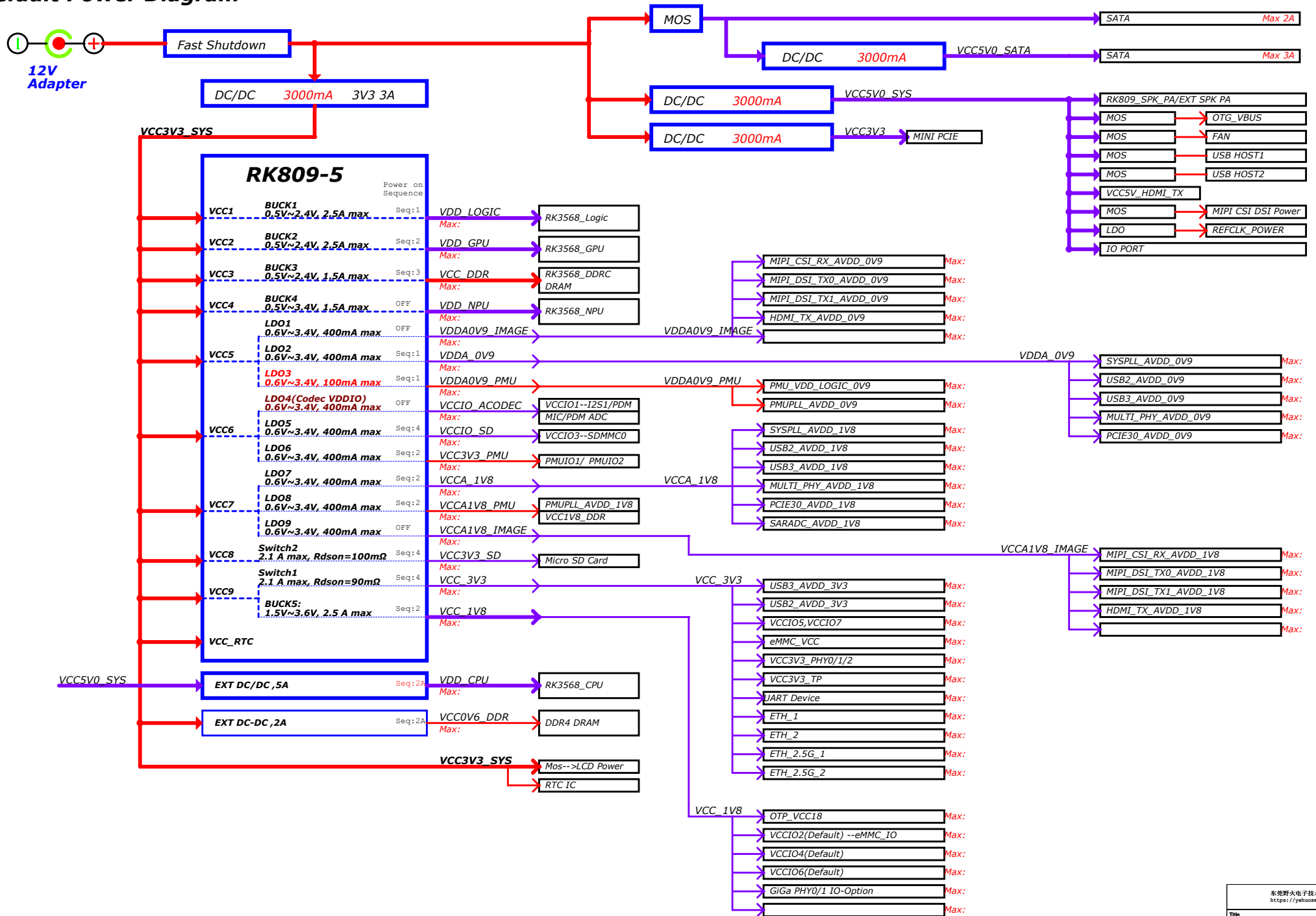


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Title 野火_RK3568 LubanCat 2 N_原理图			
Size A3	Document Number Content		Rev V3R0
Date:	Wednesday, February 26, 2025	Sheet 1 of	29

历史版本

版本号	日期	设计	描述
V0.1	2022-05-05	ghs	初始版本
V1.0	2022-09-09	ghs	修正U27开启信号接反的问题，解决调试接口漏电的问题
V1.1	2022-09-09	ghs	修正BOARD ID的ID识别电阻的电源域，修正PHY芯片的复位引脚电压不匹配问题
V1.2	2022-12-13	ghs	增加网卡上拉电阻，更新mini pcie的固定螺丝柱
V1.3	2023-07-13	ghs	新增一个MIPI CSI，一个MIPI DSI
V3R0	2024-03-22	ghs	将U3，U4，U10，32电源芯片更换为ASP9135ZC-R。将U26的PCIE时钟发生器更新为RS2CG5705BLE 将U14，U15网卡芯片更新为RTL8211F 由于PMIC内置RTC电路功耗大，由此停用内置的RTC电路，增加外挂RTC模块电路 添加RTC_INT唤醒电路，调整SATA_PWR的I/O引脚 更新BOARD ID为0x0502，用于区分新旧版本

### ***Default Power Diagram***



[illegible]

VDD\_12V

C17 100uF C0603 25V

C18 10uF C0603 25V

C19 0.1uF C0402 50V

U4 ASP91352C-R

VIN BOOT

GND SW

EN FB

C12 0.1uF C0402

L4 3.3uH

1 2

5.2V 3A

C14 10uF C0603 25V

C15 10uF C0603 25V

C16 0.1uF C0402 50V

VCC5V0\_sys

VDD\_12V

R15 140K R0402

R309 NC R0402

EN:1.3V (TYP)

UVLO:10.5V

R312 20K R0402

R12 115K R0402

R14 20K R0402

C13 NC C0402

[6] EXT\_EN

U5  
LFW5209AB5F

IN 5  
OUT 1  
EN 4  
GND 2  
ISET 3

VCCSV0\_SYS  
OTG\_VBUS  
OTG\_VBUS\_PWR\_EN  
GPIO\_A5

R19 1K R0402  
C21 0.1uF 50V C0402  
R21 3.4K R0402  
C22 10uF 25V C0603  
C23 0.1uF 50V C0402

2A 熔断

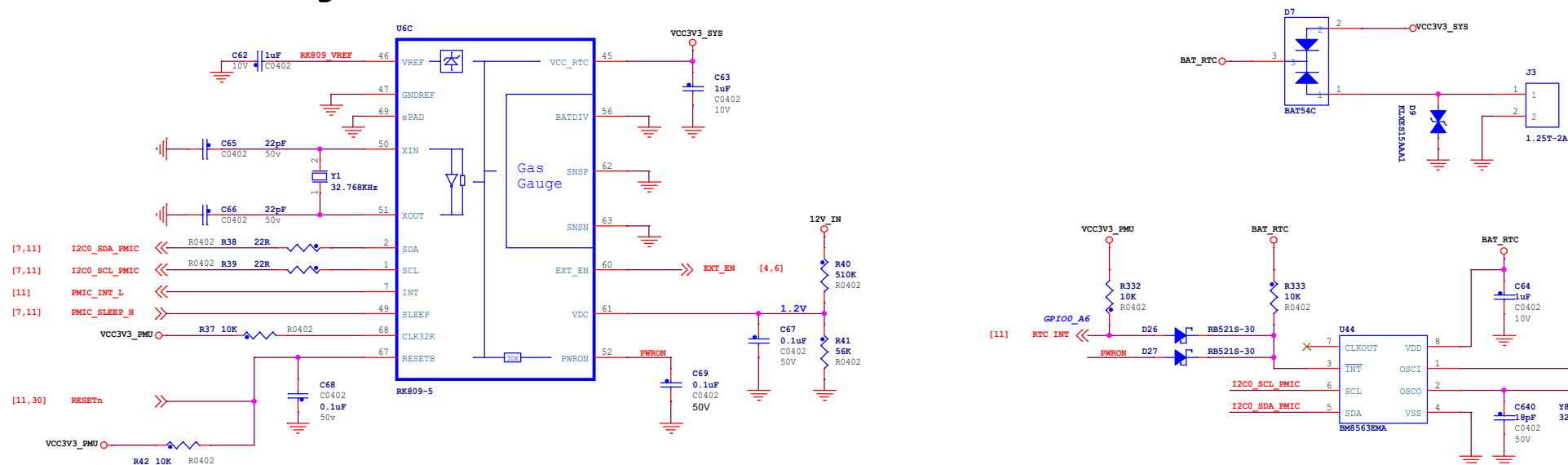
[illegible][illegible][illegible]

Diagram illustrating four separate SS1, SS2, SS3, and SS4 nodes, each with an NPTH\_M3 connection.

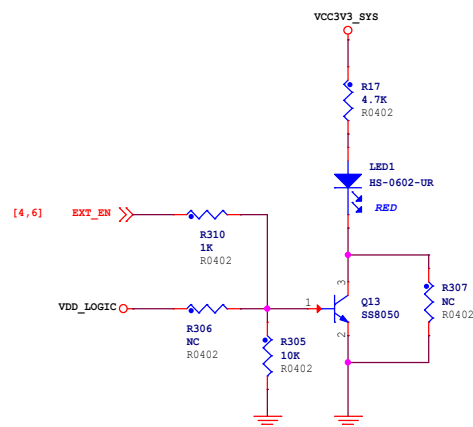
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野火_RK3568 LubanCat 2 N_原理图		
Size	Document Number	Revision
A3	DC_IN/OTG_Download	V3R0
Date:	Wednesday, February 26, 2025	
	Sheet 4	of 29



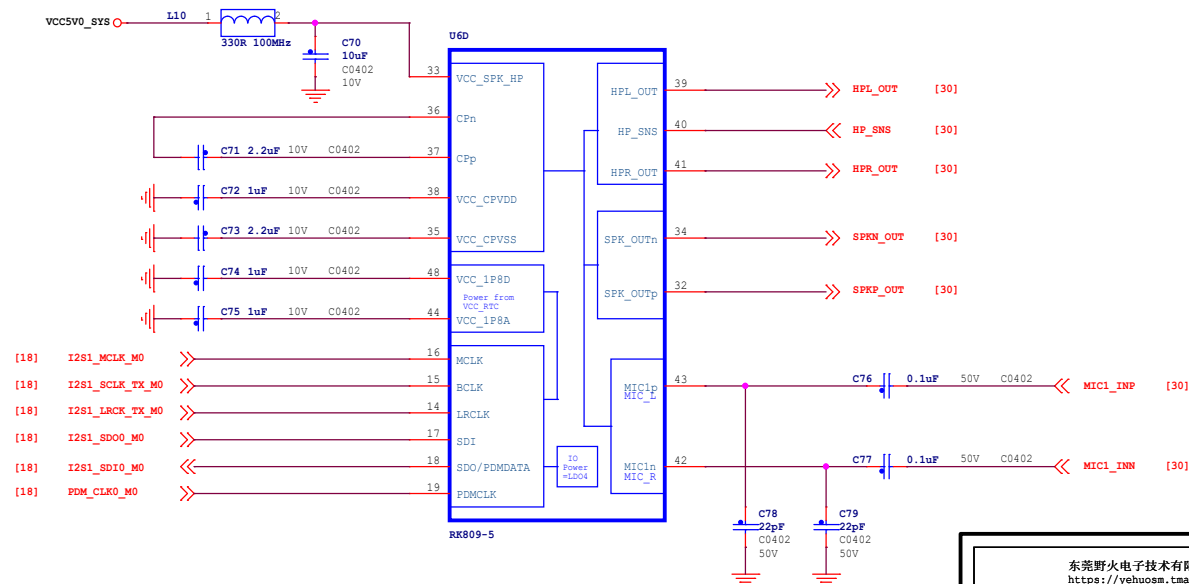
# PMIC RK809 Managerment



# PWR\_LED

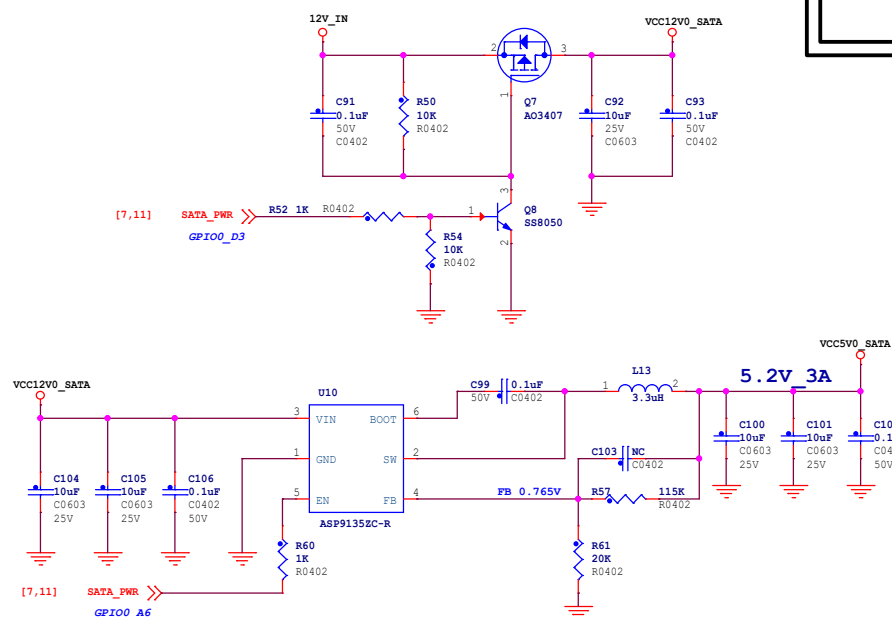
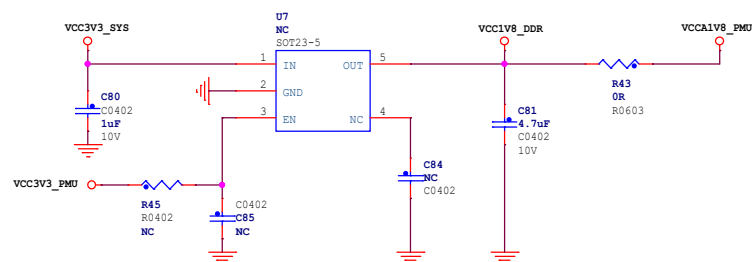


# PMIC RK809 CODEC

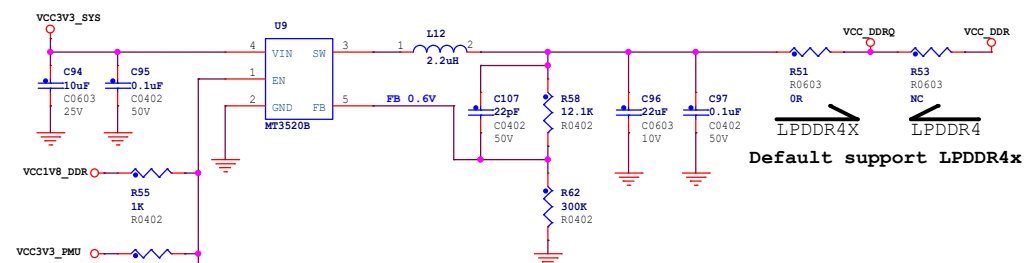


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Title	野火_RK3568 LubanCat 2 N_原理图	
Size	Document Number	Rev
A3	PMIC_Managerment/CODE	V3R0
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**LPDDR4\_VCC1V8\_DDR**

[illegible]

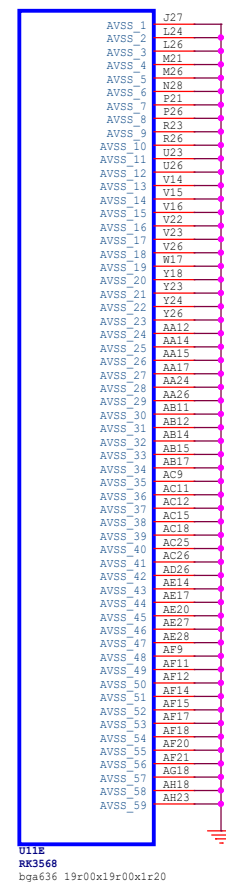
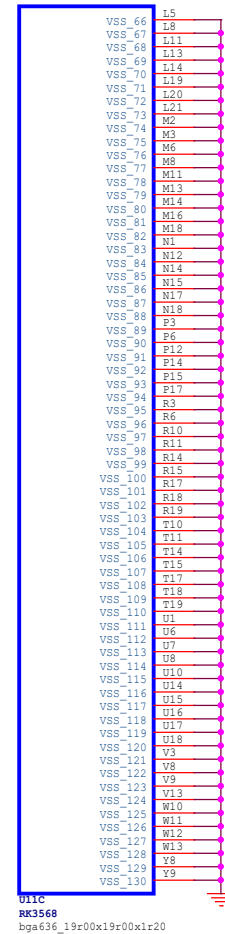
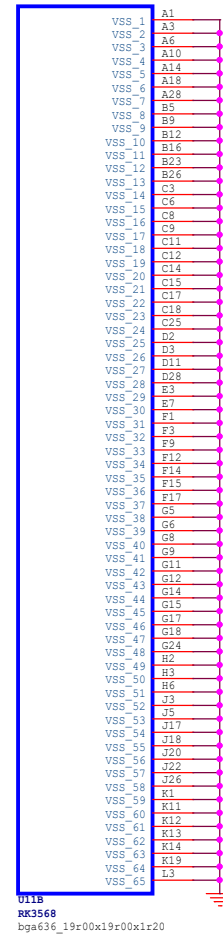
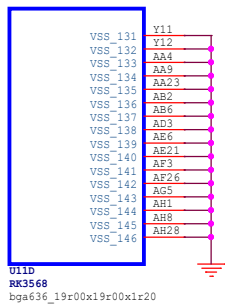
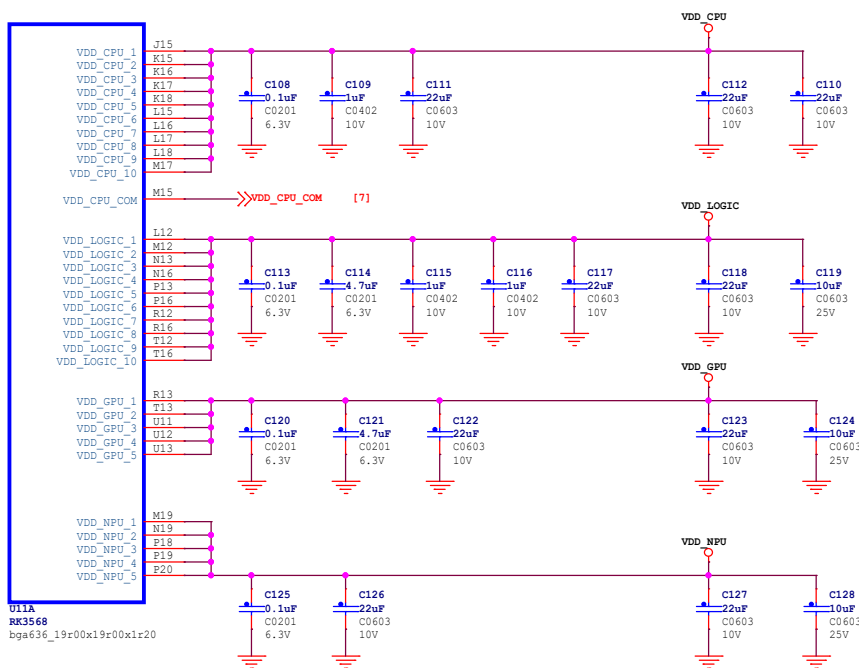
**output: 0.6V**



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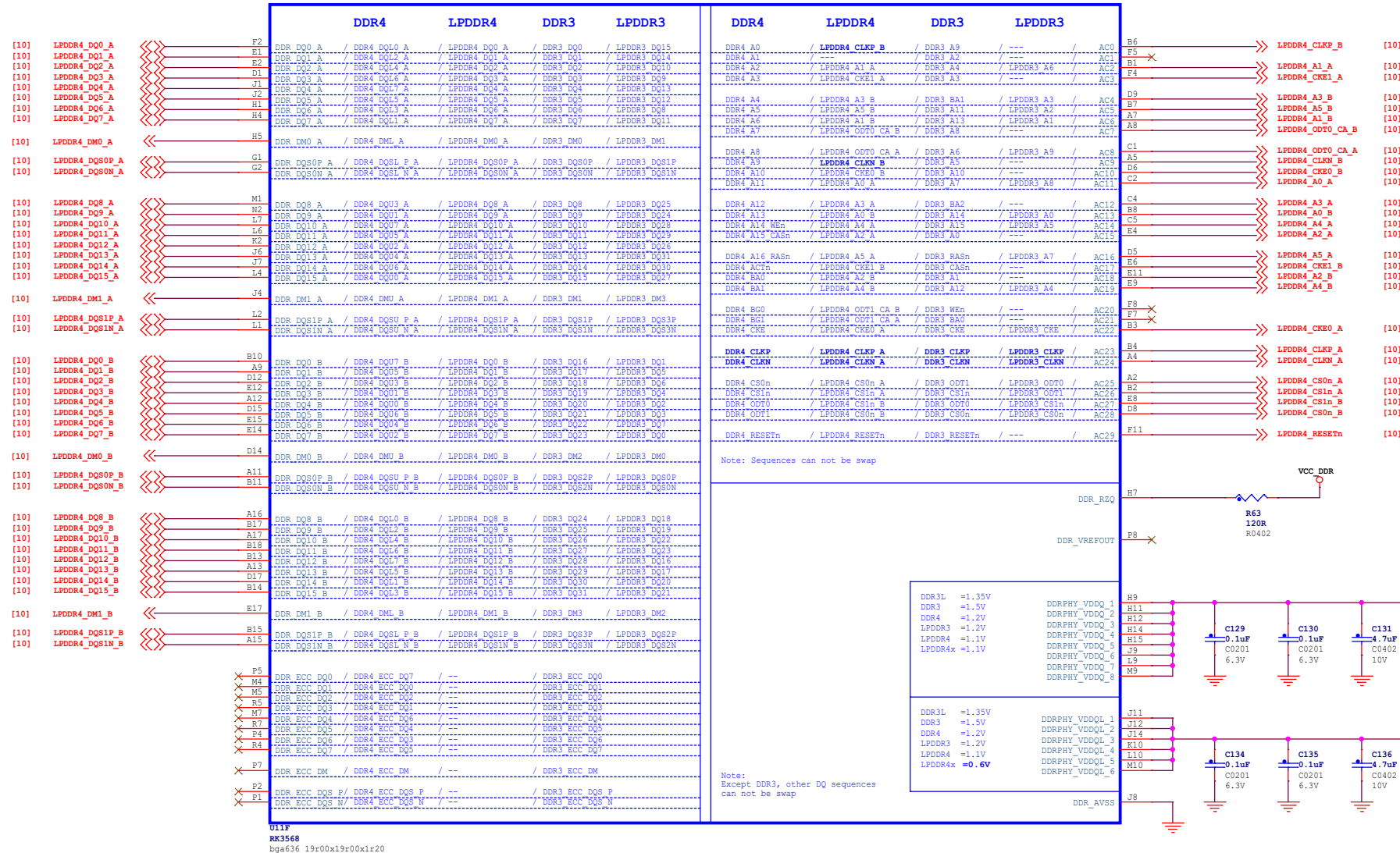
Title		
野火_RK3568 LubanCat 2 N_原理图		
Size A3	Document Number Power_other	Rev V3R0
Date: Wednesday, February 26, 2025 Sheet 7 of 29		

## RK3568 Power/GND



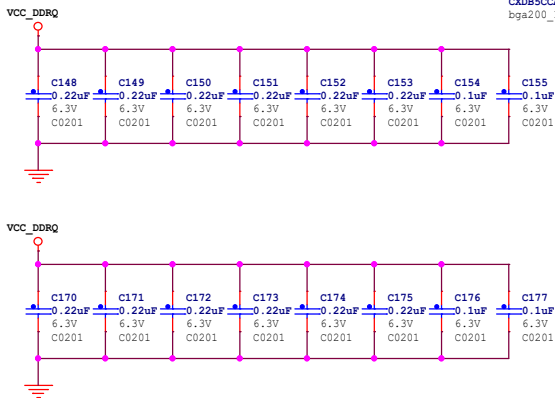
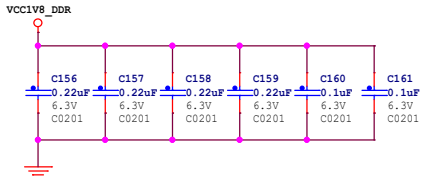
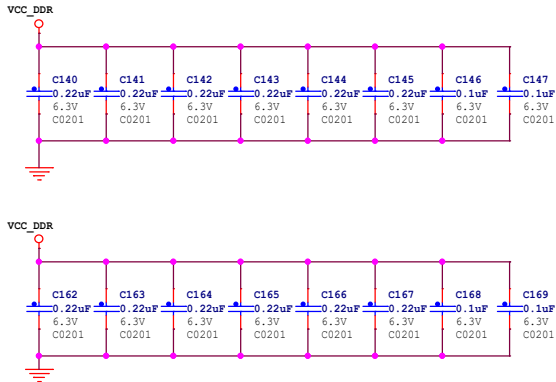
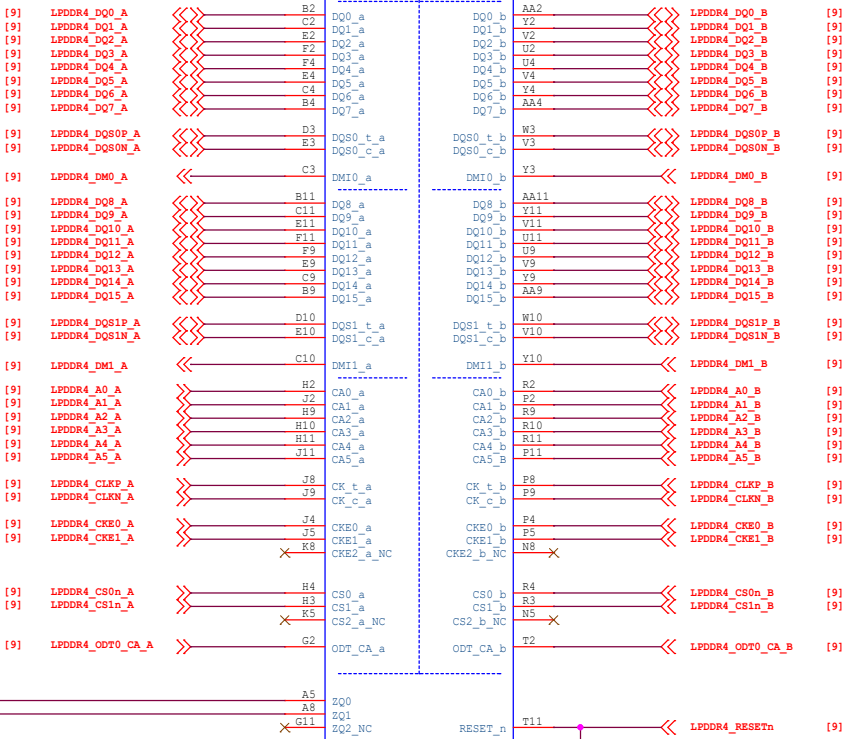


# RK3568 DDR PHY

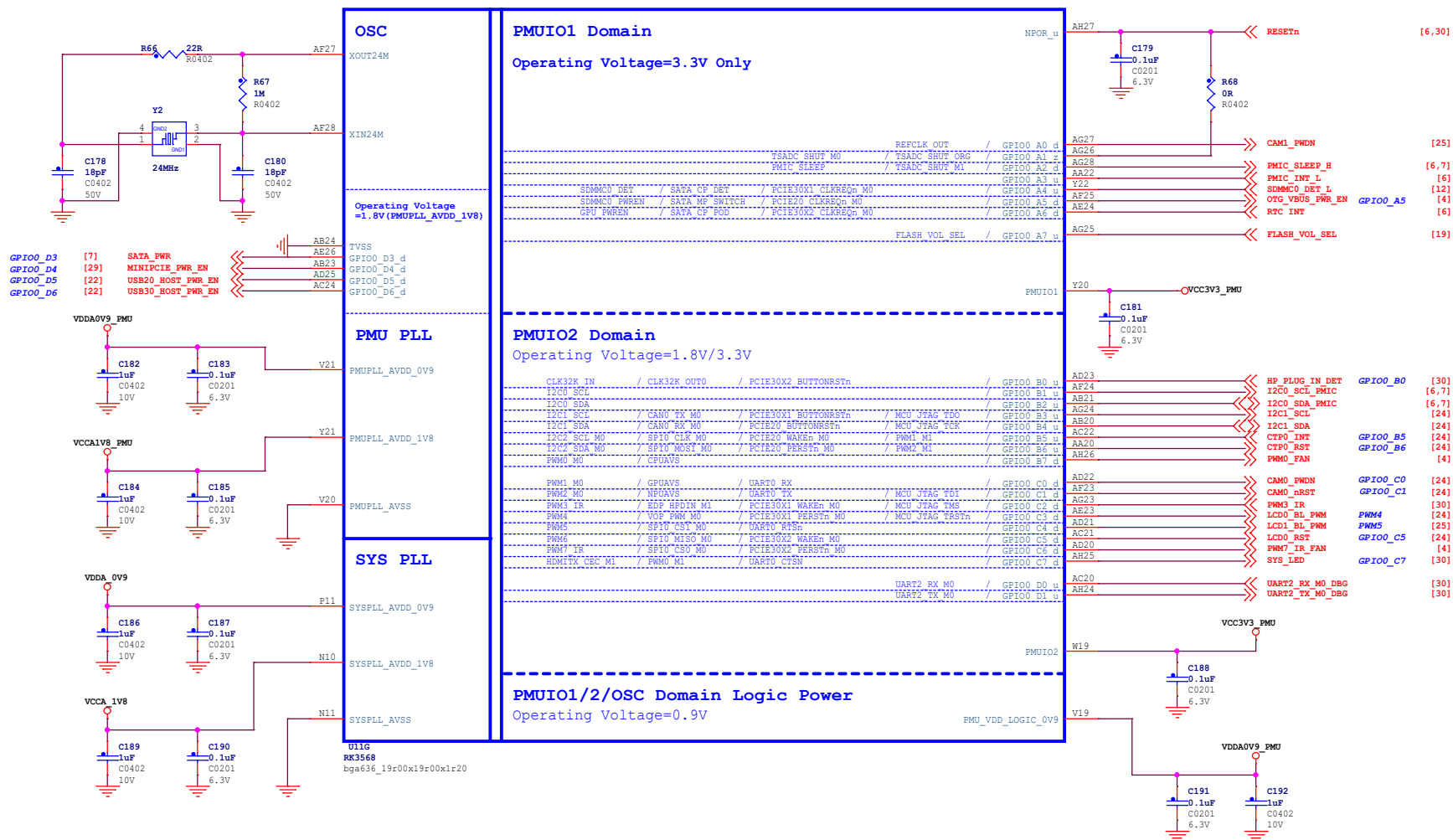


LPDDR4/4x

CH A CH B



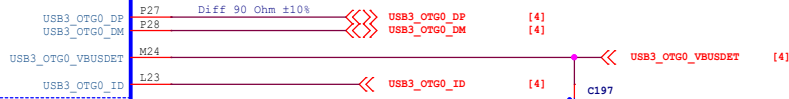
# RK3568 OSC/PLL/PMUIO





# RK3568 USB3.0/SATA/QSGMII/PCIe2.0 x1

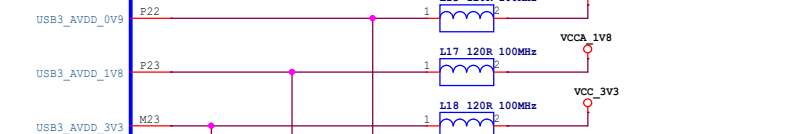
## USB3.0 OTG0\_HS/FS/LS (USB Download)



## USB3.0 HOST1\_HS/FS/LS



## USB3.0 OTG0/HOST1\_ HS/FS/LS Power



## MULTI\_PHY0/1/2

### USB3.0 OTG0\_SS and SATA0 Mux



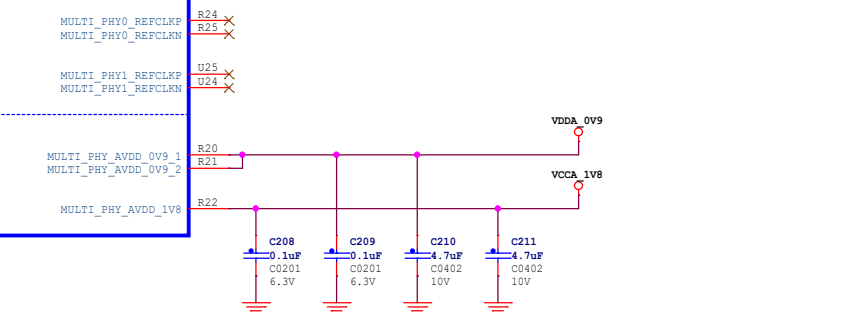
### USB3.0 HOST1\_SS and SATA1 and QSGMII\_M0 Mux



### PCIe2.0 and SATA2 and QSGMII\_M1 Mux



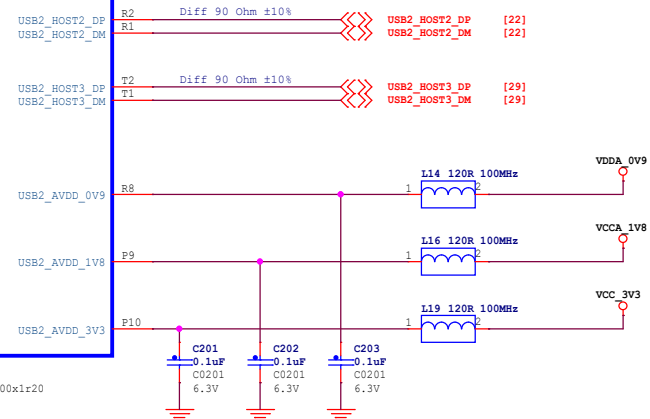
### MULTI\_PHY REFCLK



U110  
RK3568  
bga636\_19r00x19r00x1r20

# RK3568 USB2.0 HOST

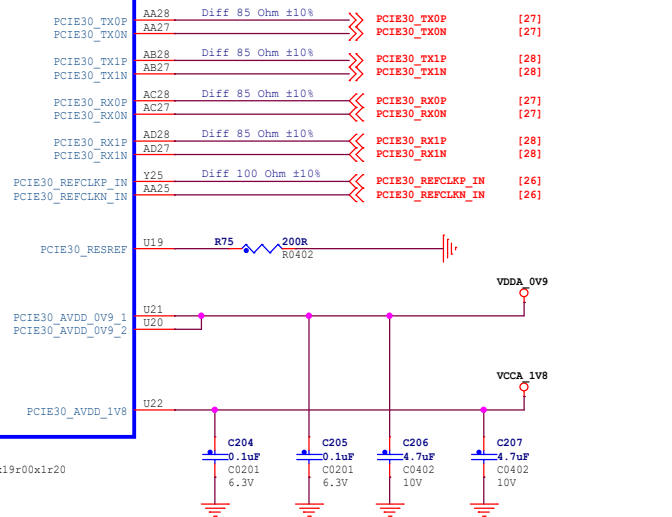
## USB2.0 HOST



U11V  
RK3568  
bga636\_19r00x19r00x1r20

# RK3568 PCIe3.0 x2

## PCIe3.0 x 2



U11W  
RK3568  
bga636\_19r00x19r00x1r20

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Title 野火\_RK3568 LubanCat 2 N\_原理图

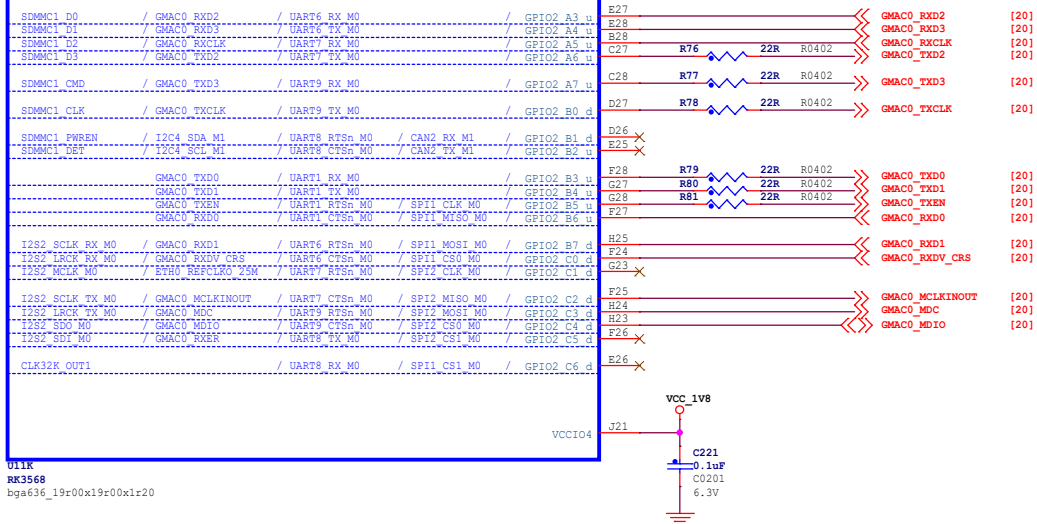
Size A3 Document Number USB/PCIe/STAT PHY Rev V3R0

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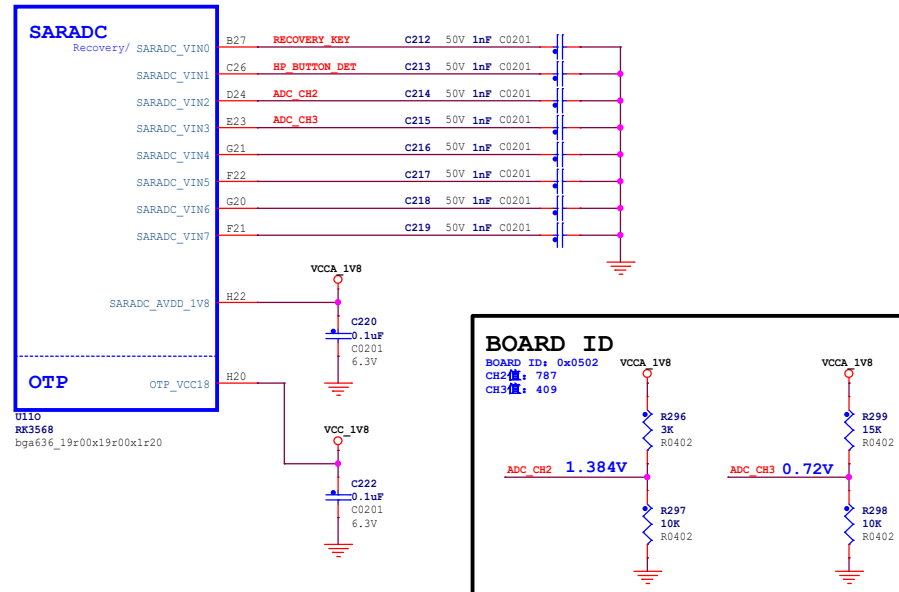
## RK3568 VCCIO4 Domain



Operating Voltage=1.8V/3.3V



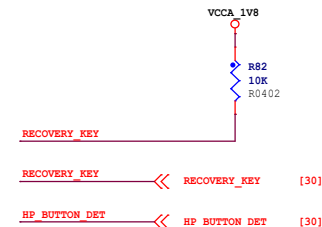
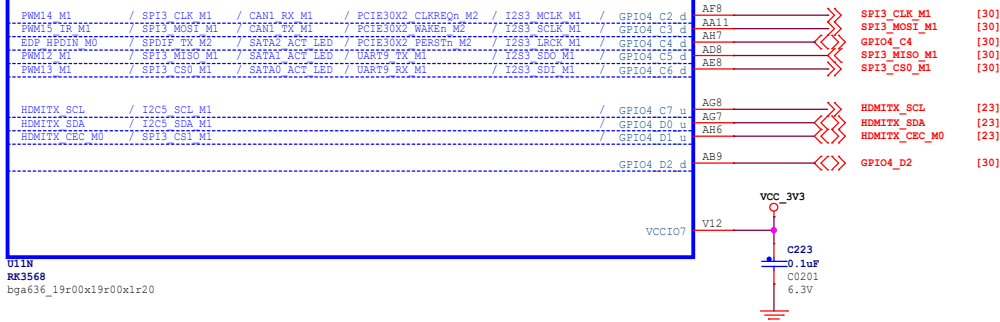
**RK3568 SARADC/OTP**



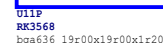
## RK3568 VCCI07 Domain



Operating Voltage=1.8V/3.3V



## MIPI CSI RX



Option1

Sensor1 x4Lane

MIPI\_CSI\_RX\_D0-3  
MIPI CSI RX CLK0

Option2

Sensor1 x2Lane

```

MIPI_CSI_RX_D0-1
MIPI CSI RX CLK0

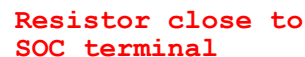
```

Sensor2 x2Lane

MIPI\_CSI\_RX\_D2-3  
MIPI CSI RX CLK1

## VCCI06 Domain

Operating Voltage=1.8V/3.3V



```
U11M
RK3568
bqa636 19r00x19r00x1r20
```

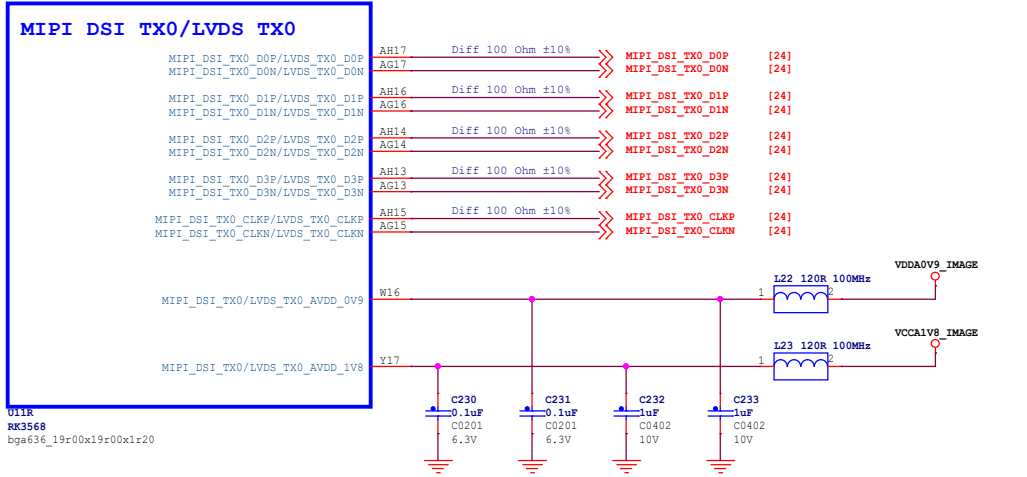
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Title	野火_RK3568_LubanCat 2 N_原理图
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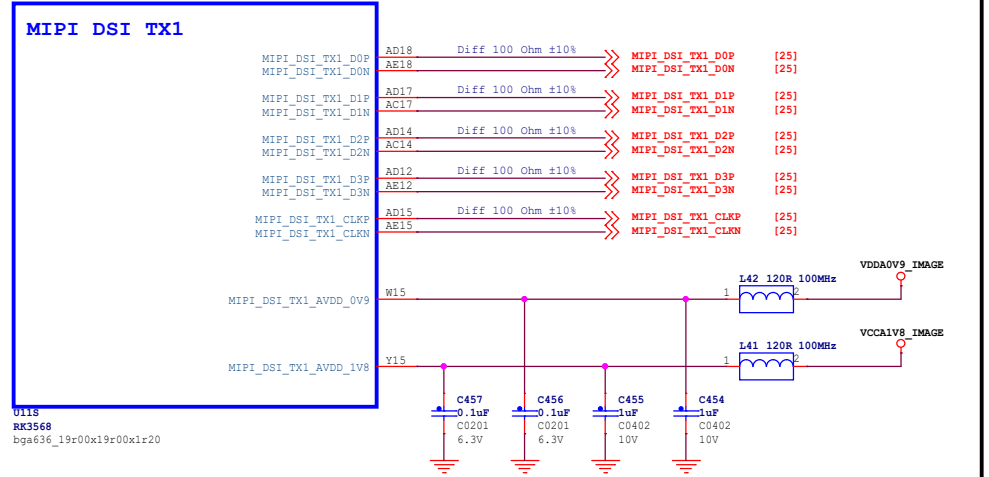
Size A3	Document Number VI Interface	Rev V3R0
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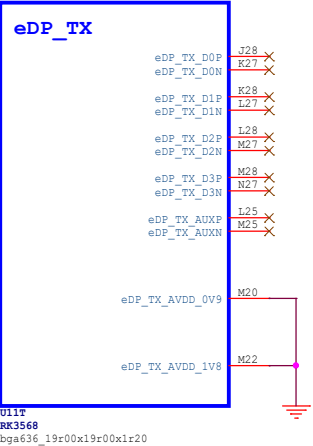
# RK3568 MIPI\_DSI\_TX0/LVDS\_TX0



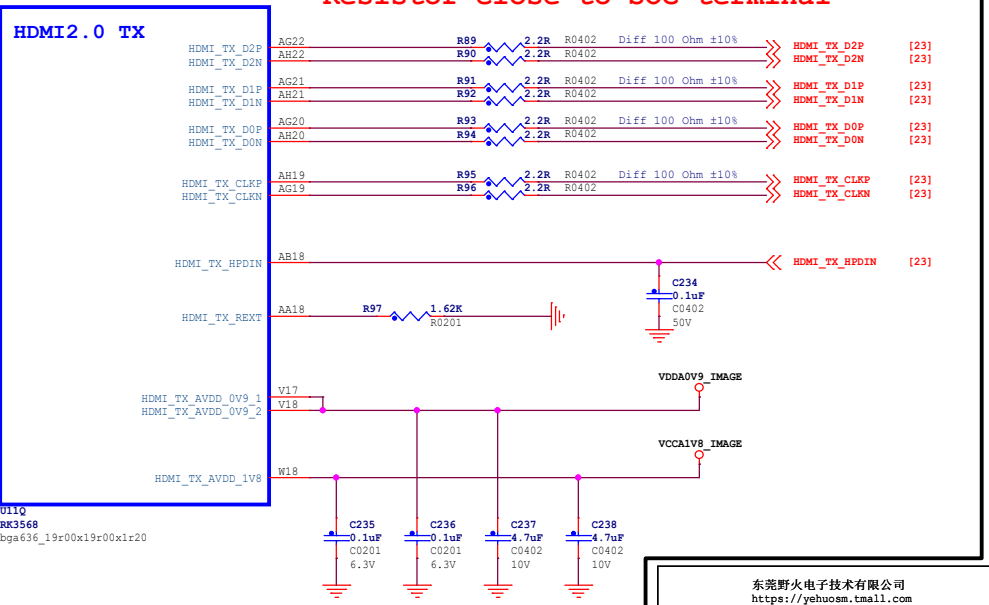
# RK3568 MIPI\_DSI\_TX1



# RK3568 eDP TX



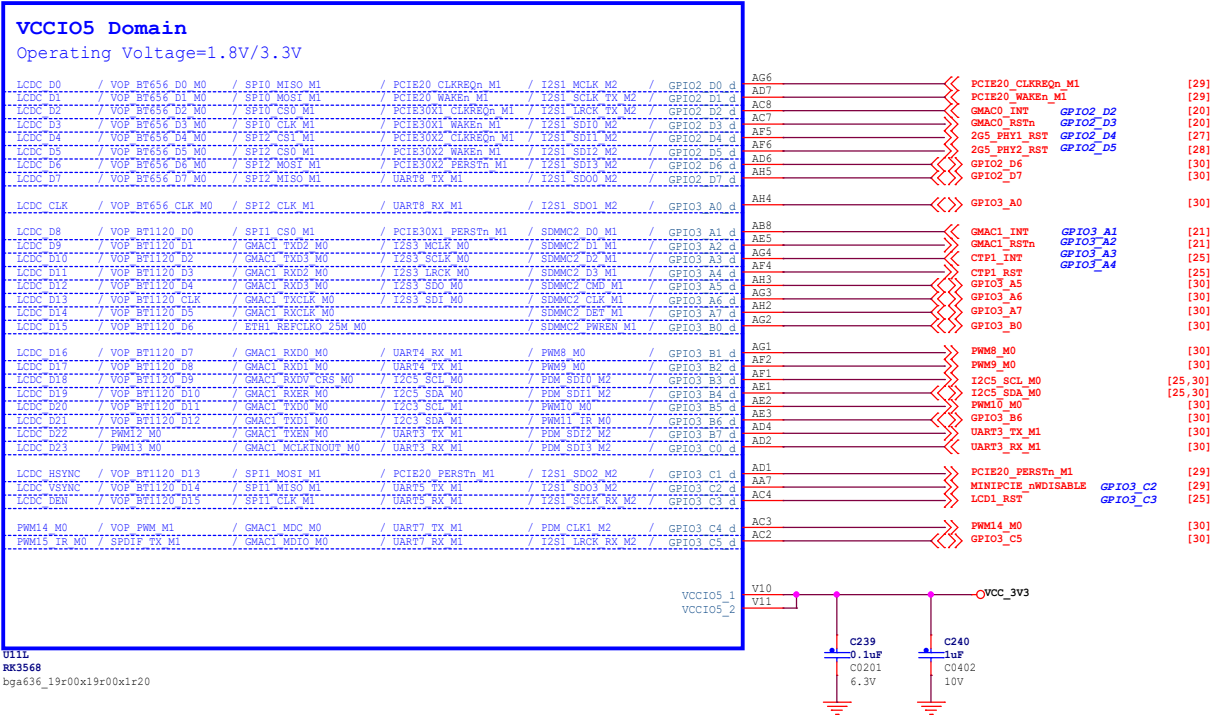
# RK3568 HDMI2.0 TX



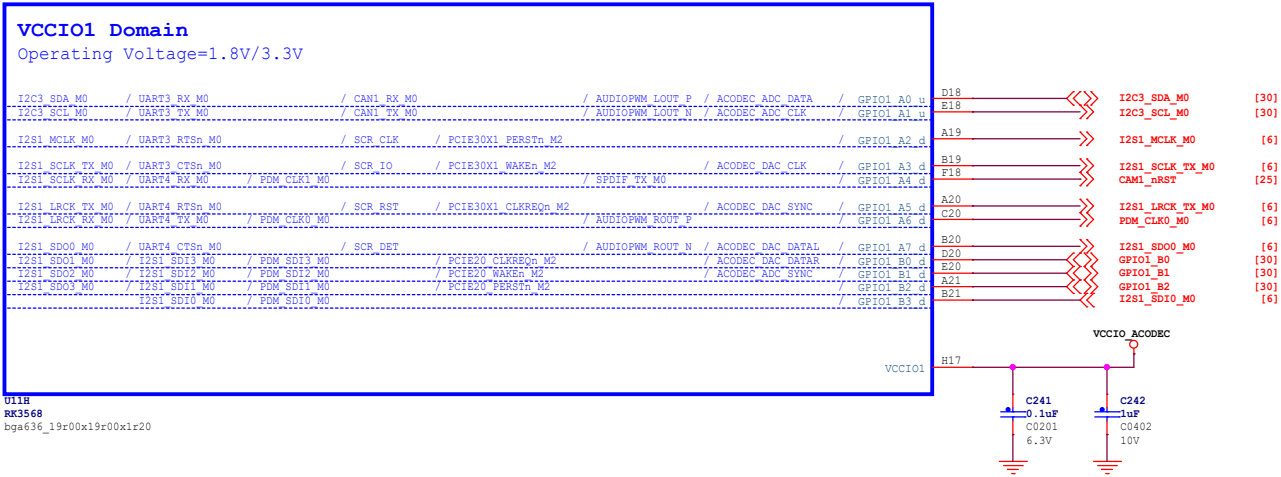
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Title 野火_RK3568 LubanCat 2 N_原理图		
Size A3	Document Number VO Interface_1	Rev V3R0
Date: Wednesday, February 26, 2023 Sheet 16 of 29		



RK3568 VCCIO5 Domain



RK3568 VCCIO1 Domain



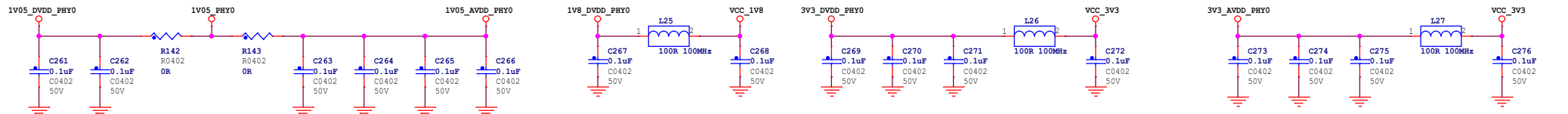
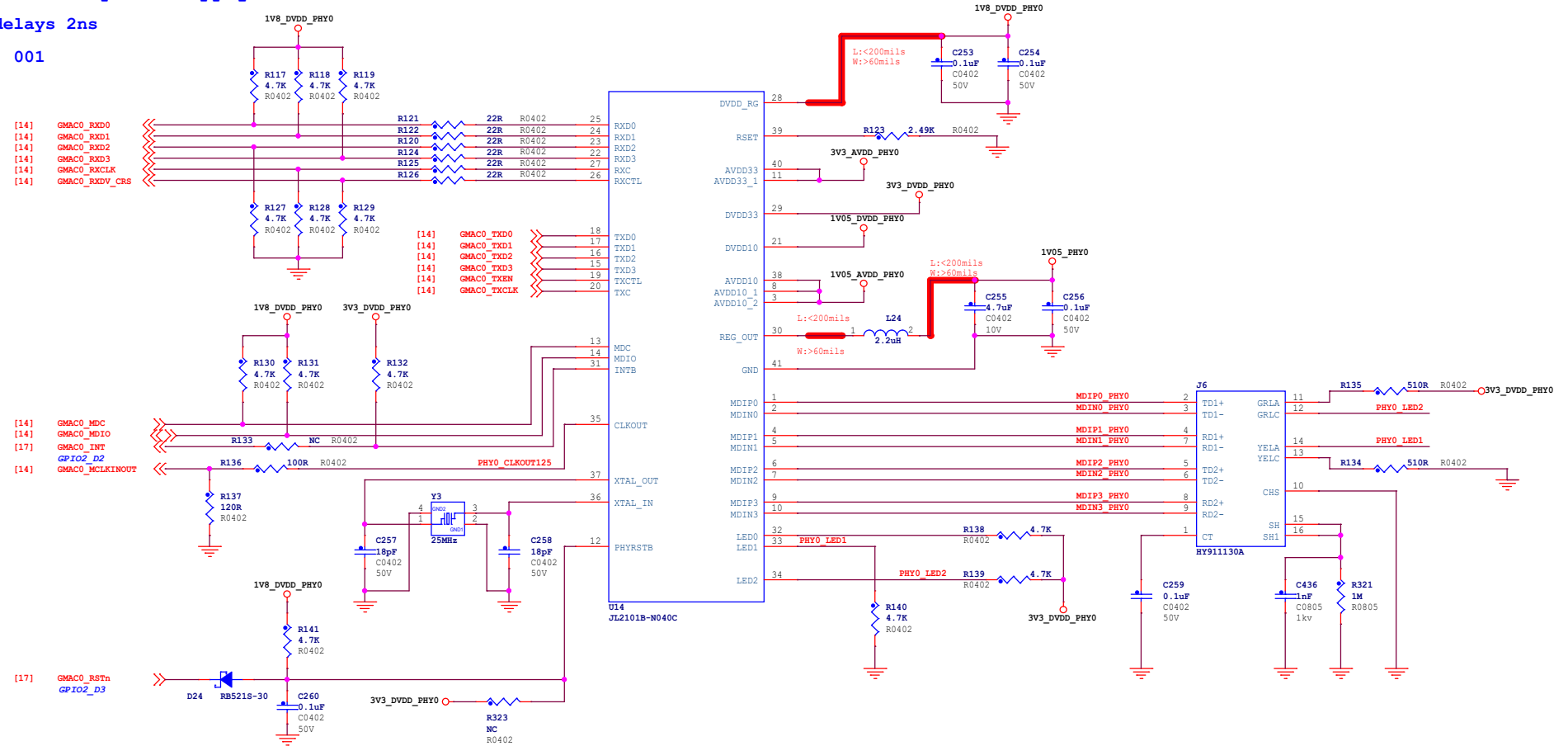


# ETH\_1

IO Use an external power supply: 1.8V

TXC / RXC : delays 2ns

PHY Address : 001



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Title 野火\_RK3568 LubanCat 2 N\_原理图

Size A3 Document Number ETH\_1 Rev V3R0

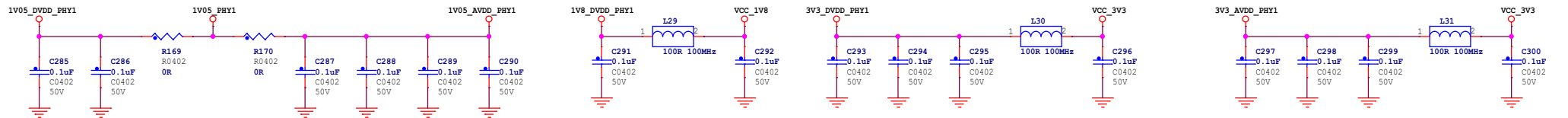
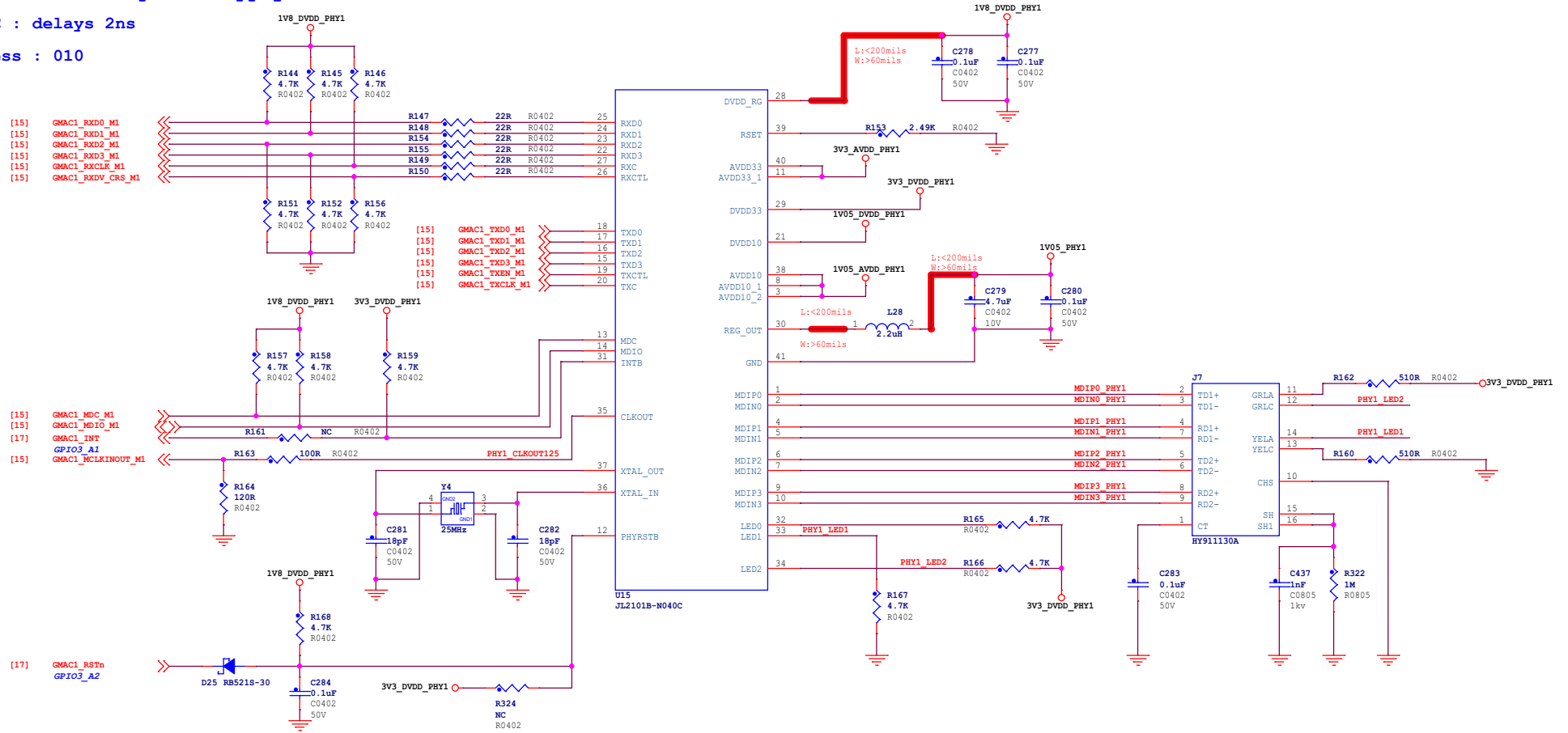
Date: Wednesday, February 26, 2025 Sheet 20 of 29

# ETH\_2

IO Use an external power supply: 1.8V

TXC / RXC : delays 2ns

PHY Address : 010



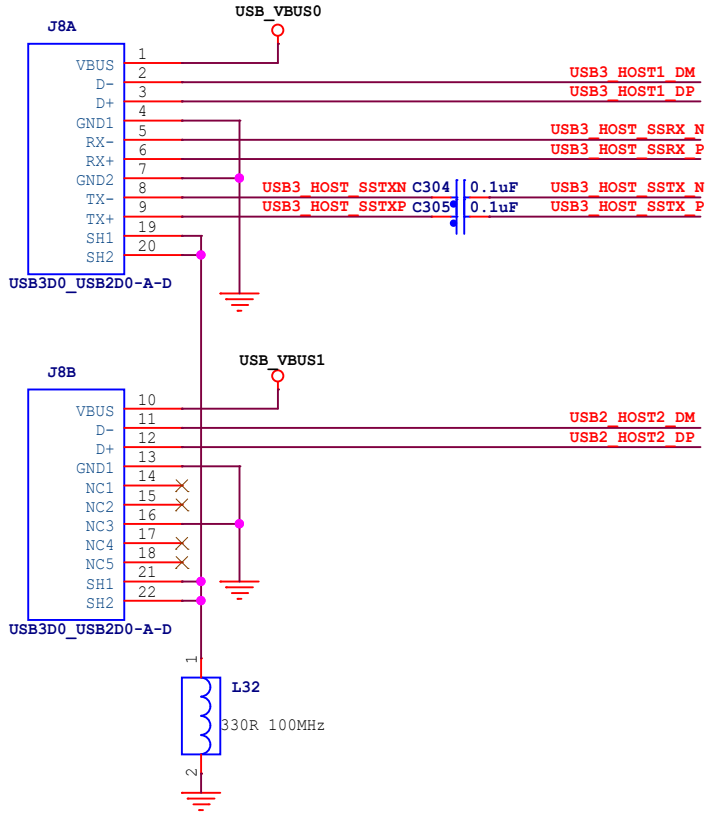
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Title 野火\_RK3568 LubanCat 2 N\_原理图

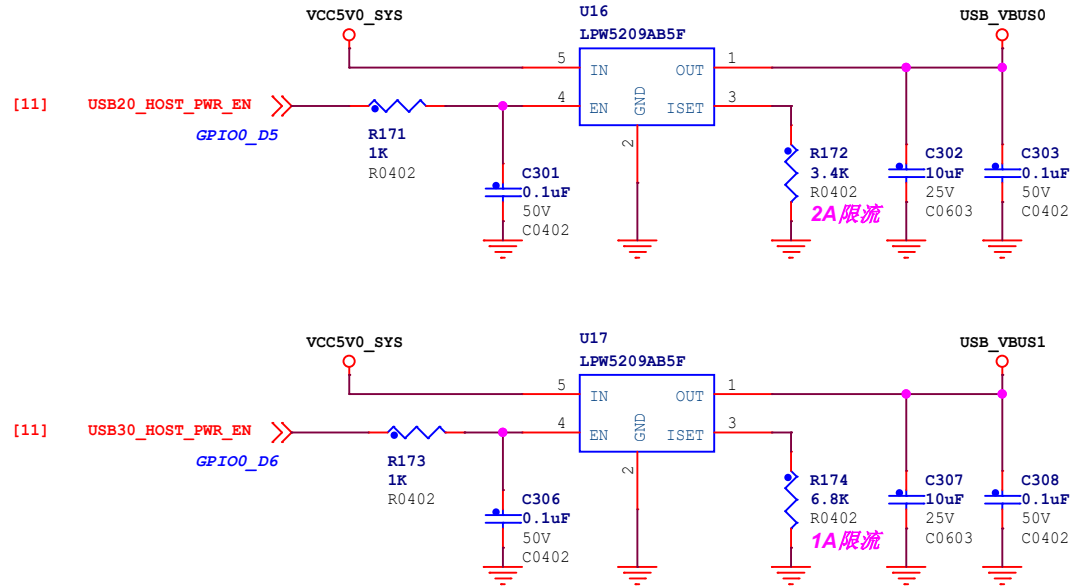
Size	Document Number	Rev
A3	ETH_2	V3R0

Date: Wednesday, February 26, 2025 Sheet 21 of 29

USB 3.0 HOST x1  
USB 2.0 HOST x1

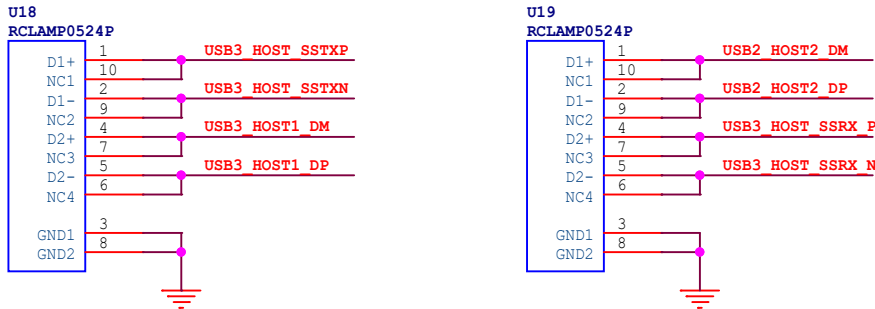


USB POWER



USB3_HOST1_DM	>>	USB3_HOST1_DM	[13]
USB3_HOST1_DP	>>	USB3_HOST1_DP	[13]
USB2_HOST2_DM	>>	USB2_HOST2_DM	[13]
USB2_HOST2_DP	>>	USB2_HOST2_DP	[13]
USB3_HOST_SSRX_N	>>	USB3_HOST_SSRX_N	[13]
USB3_HOST_SSRX_P	>>	USB3_HOST_SSRX_P	[13]
USB3_HOST_SSTX_N	>>	USB3_HOST_SSTX_N	[13]
USB3_HOST_SSTX_P	>>	USB3_HOST_SSTX_P	[13]

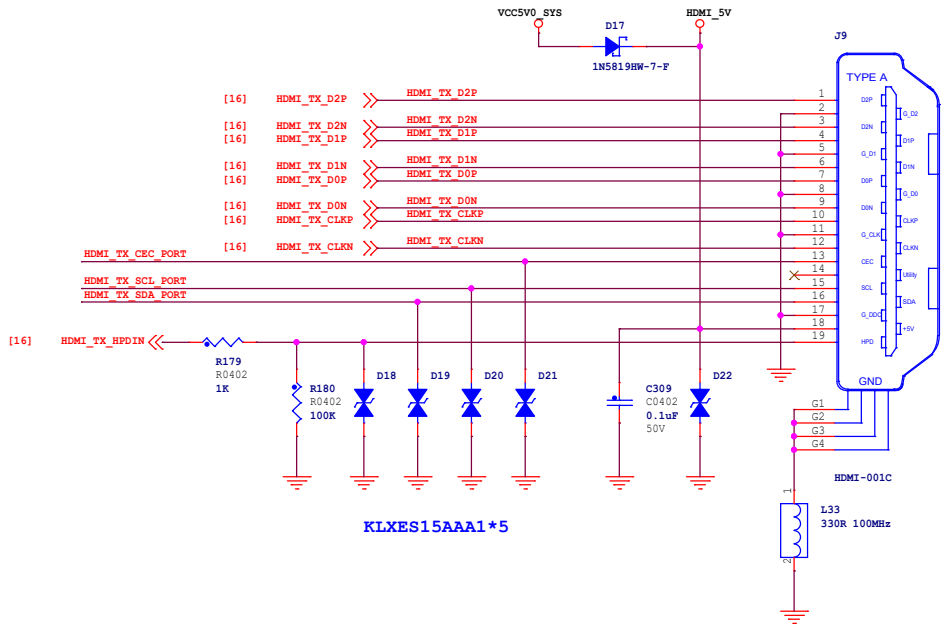
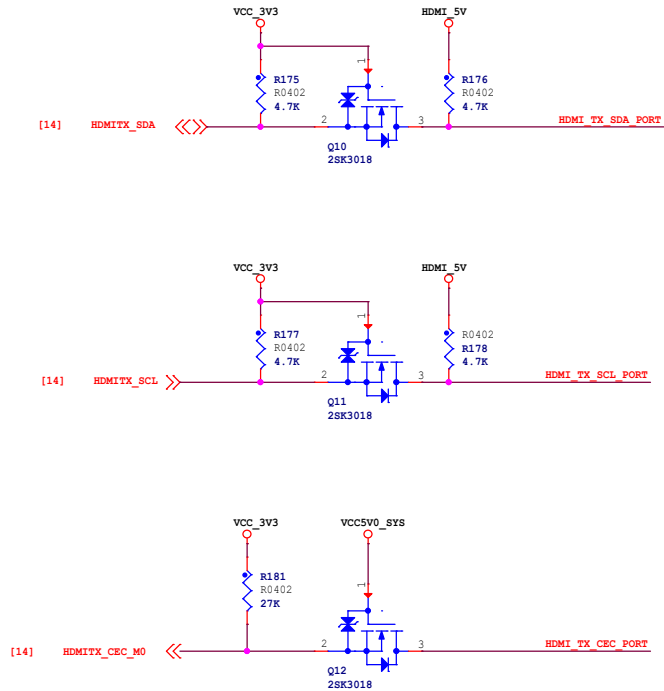
ESD



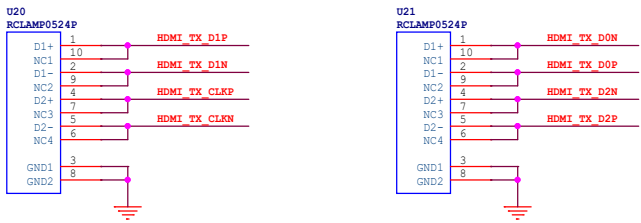
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<https://yehuosm.tmall.com>

Title 野火_RK3568 LubanCat 2 N_原理图		
Size A4	Document Number USB_PORT	Rev V3R0
Date: Wednesday, February 26, 2025 Sheet 22 of 29		

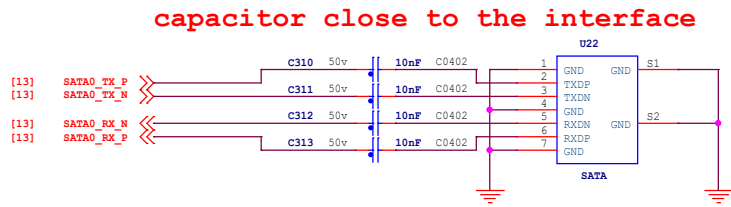
HDMI\_PORT



HDMI\_ESD

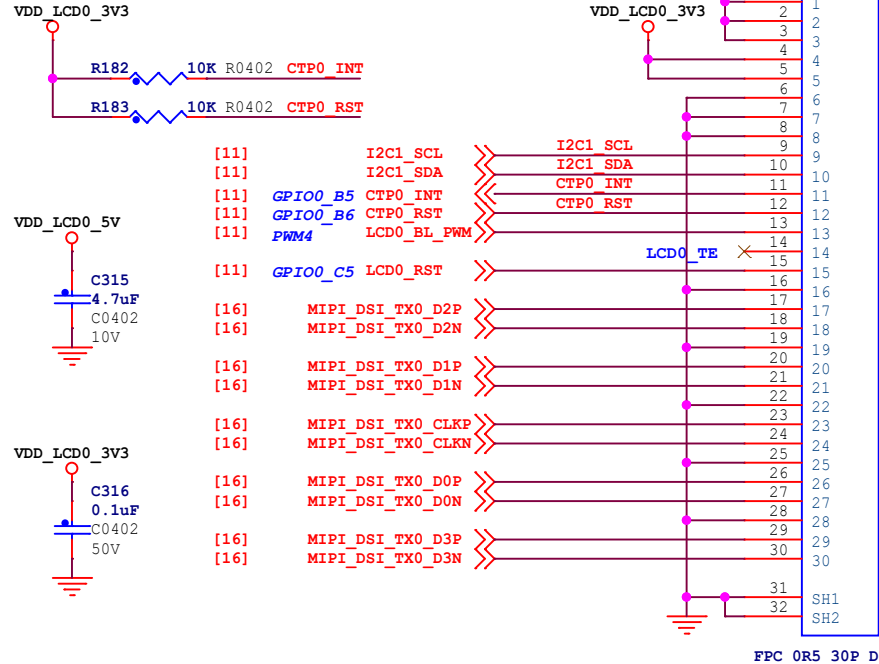


SATA\_PORT

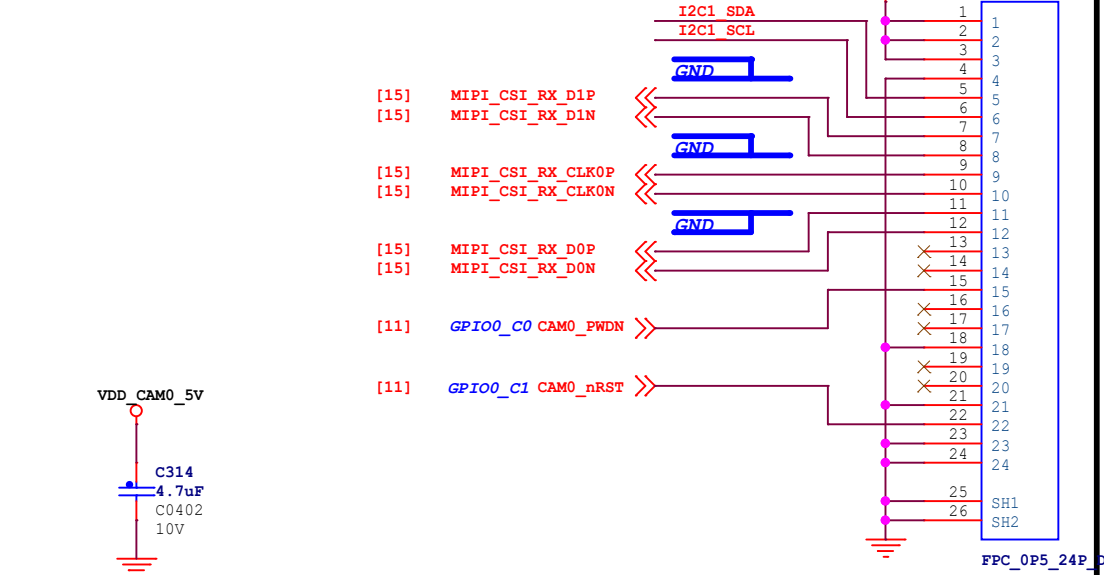


Title		
野火_RK3568 LubanCat 2 N_原理图		
Size	Document Number	Rev
A3	HDMI_PORT/SATA_PORT	V3R0
Date: Wednesday, February 26, 2023		
Sheet 23 of 29		

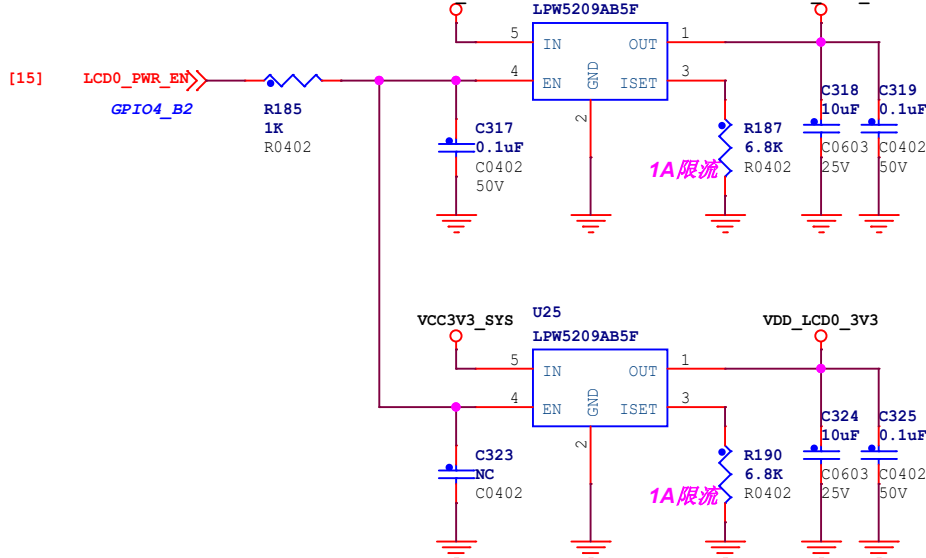
## MIPI DSI LCD PORT 0



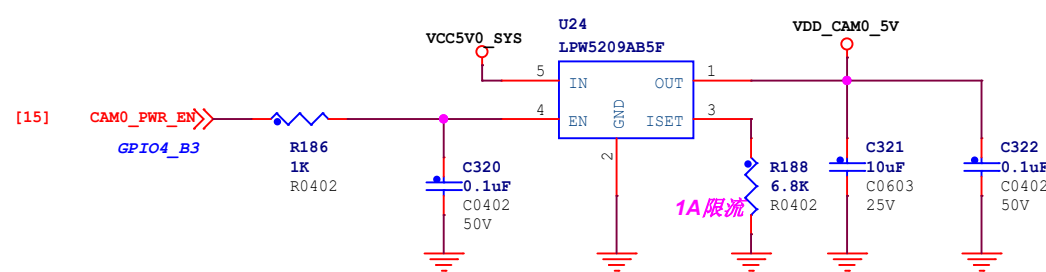
## MIPI CSI PORT 0



## LCD Power



## MIPI CSI Power



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Title  
野火\_RK3568 LubanCat 2 N\_原理图

Size  
A4

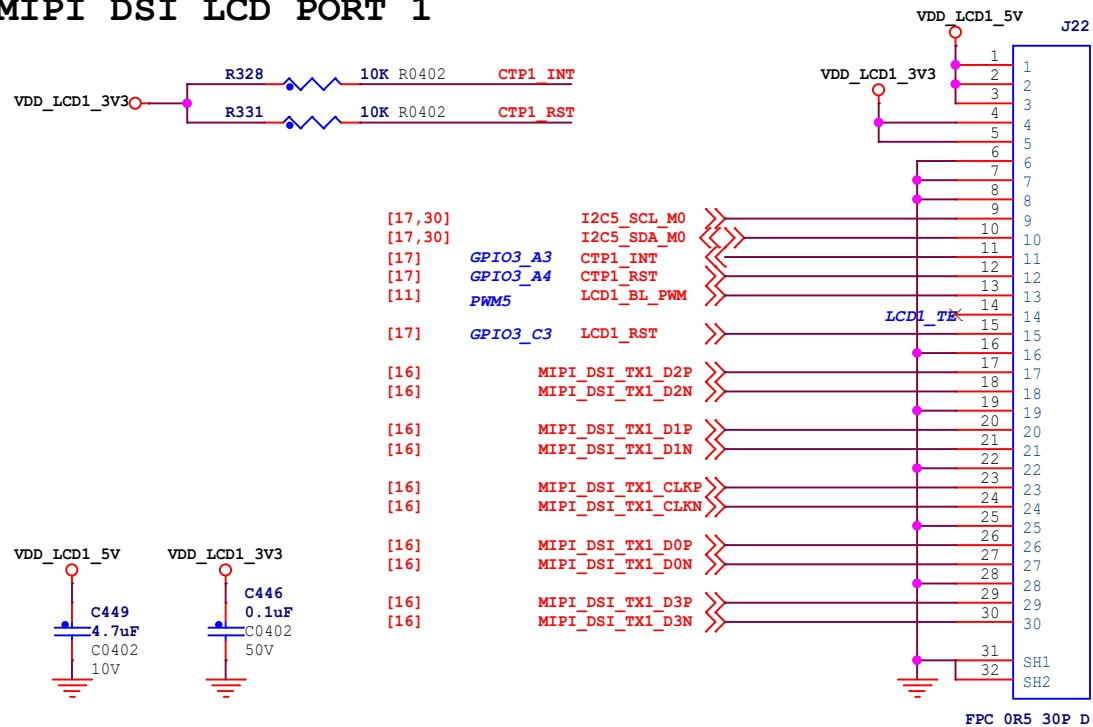
Document Number  
MIPI DSI/MIPI CSI\_PORT

Rev  
V3R0

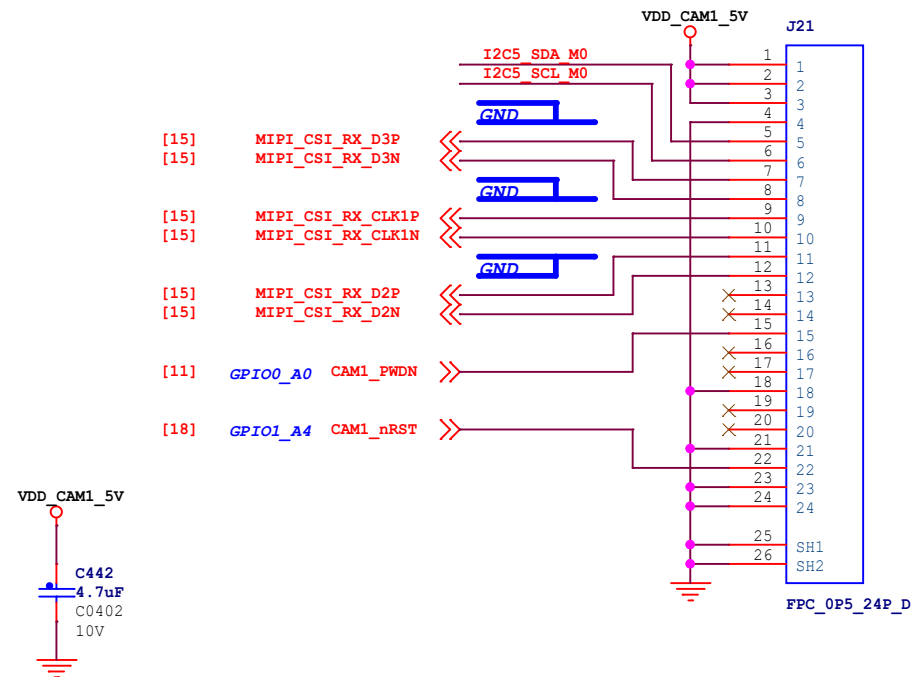
Date: Wednesday, February 26, 2025 Sheet 24 of 29



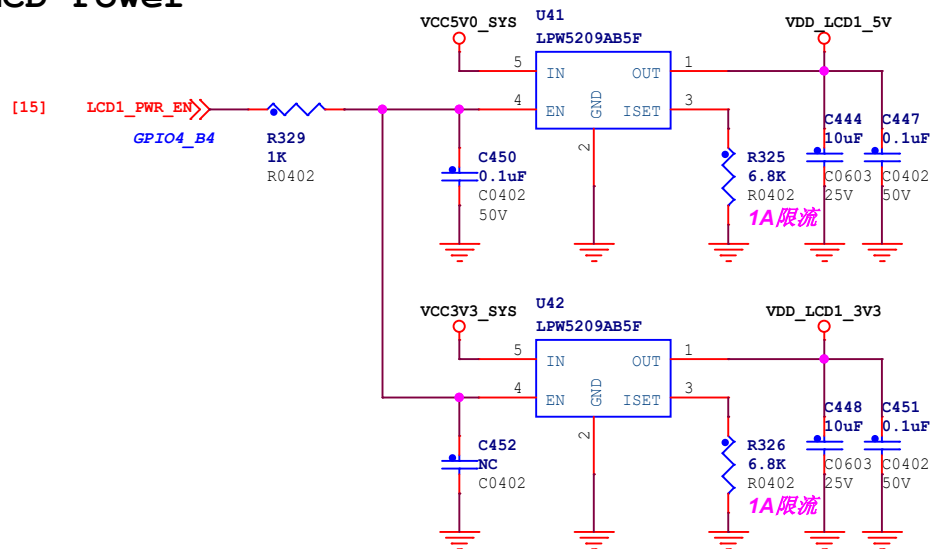
## MIPI DSI LCD PORT 1



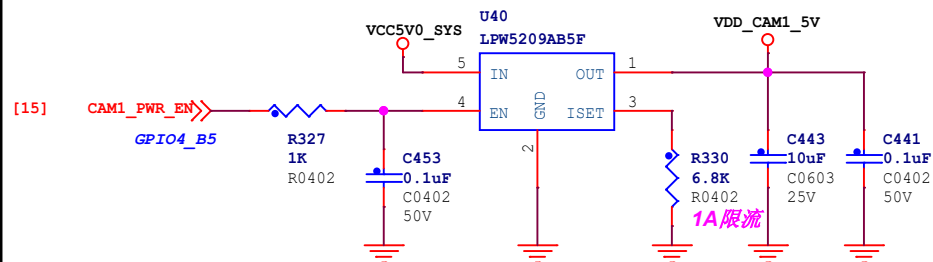
## MIPI CSI PORT 1



## LCD Power



## MIPI CSI Power



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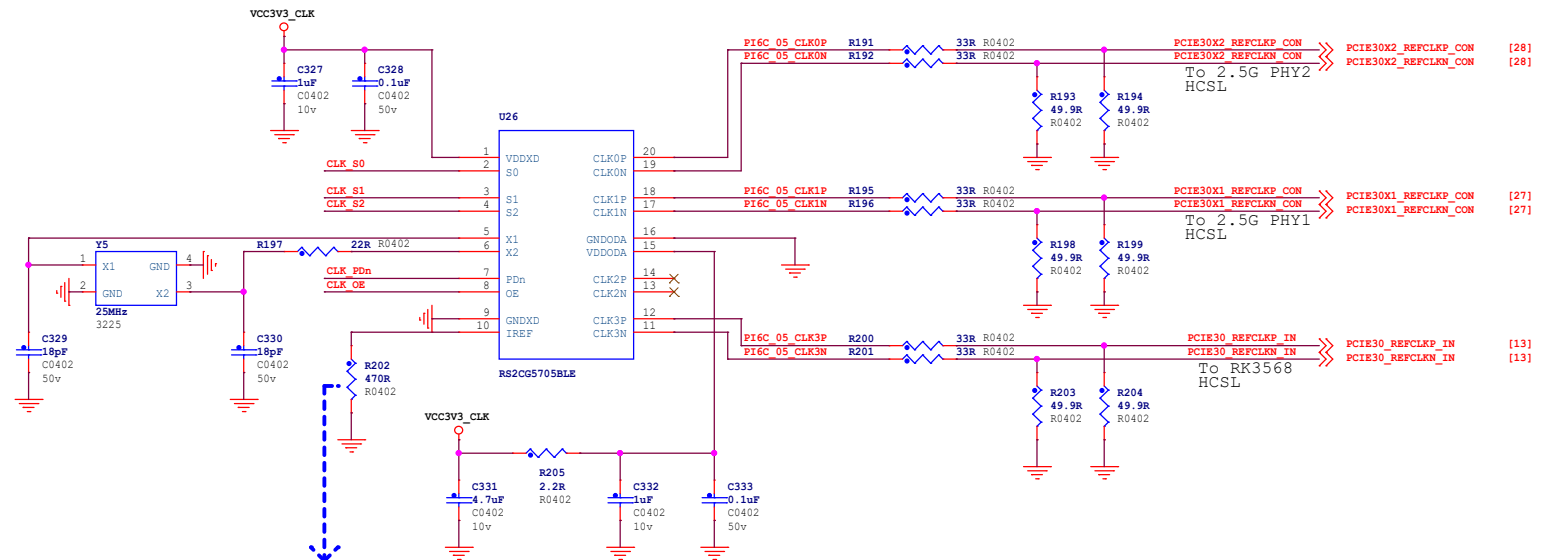
Title 野火\_RK3568 LubanCat 2 N\_原理图

Size A4 Document Number MIPI DSI/MIPI CSI\_PORT Rev V3R0

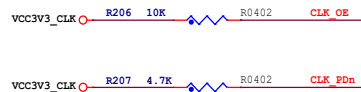
Date: Wednesday, February 26, 2025 Sheet 25 of 30

# PCIE3.0\_ REFCLK

CLK\*3 @100MHz



If board target trace impedance is 50ohm  
then  $R = 475\text{ohm}$  providing an IREF of 2.32 mA . The output current ( IOH ) is  $6 * \text{IREF}$  .  
 $6 \times 2.32 \times 50 = 696\text{mV}$

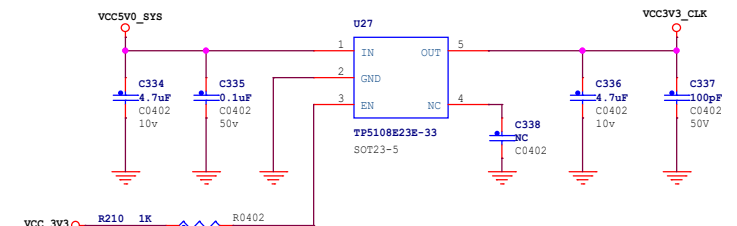


## SPEED\_MODE\_SET

Default: No Spread

CLK_S0	CLK_S1	CLK_S2	Spread %	Out Freq
0	0	0	-0.5	100MHz
1	0	0	-1.0	100MHz
0	1	0	-1.5	100MHz
1	1	0	No Spread	100MHz

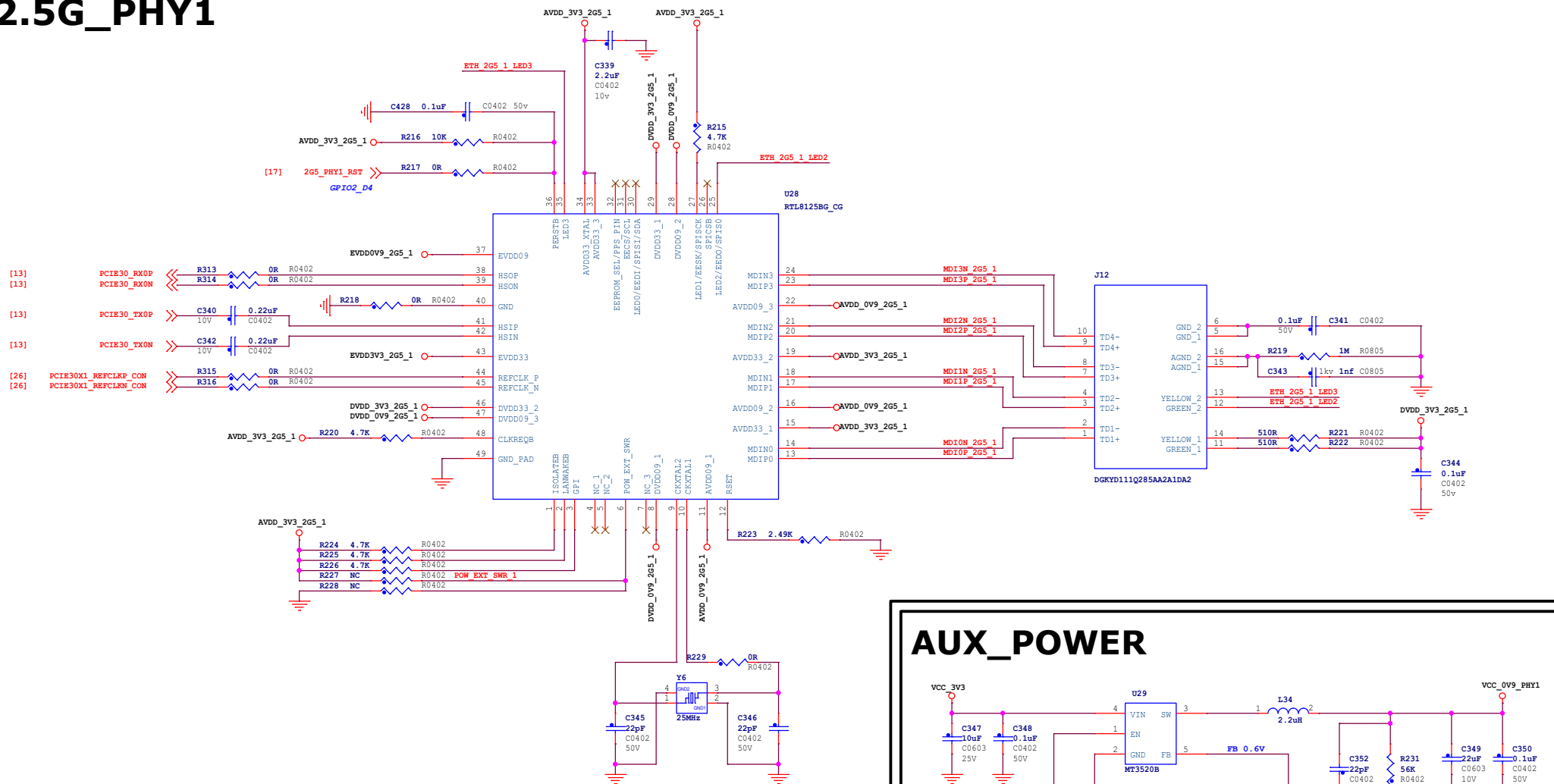
## SPLIT\_CLK\_POWER



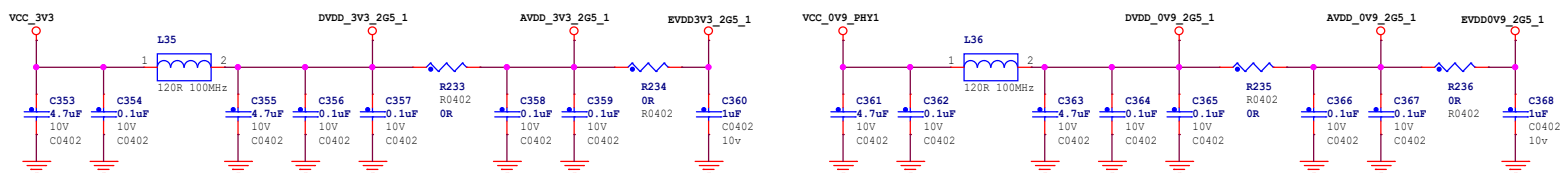
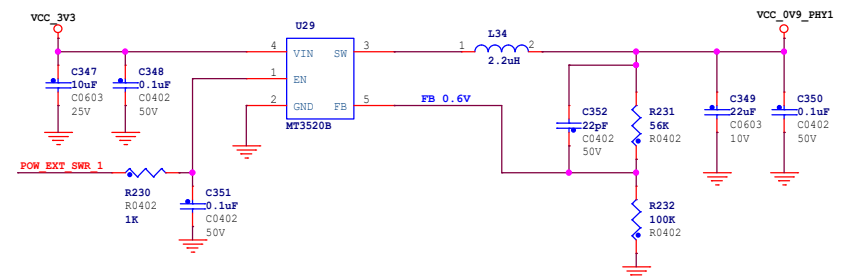
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Title 野火_RK3568 LubanCat 2 N_原理图		
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## 2.5G\_PHY1



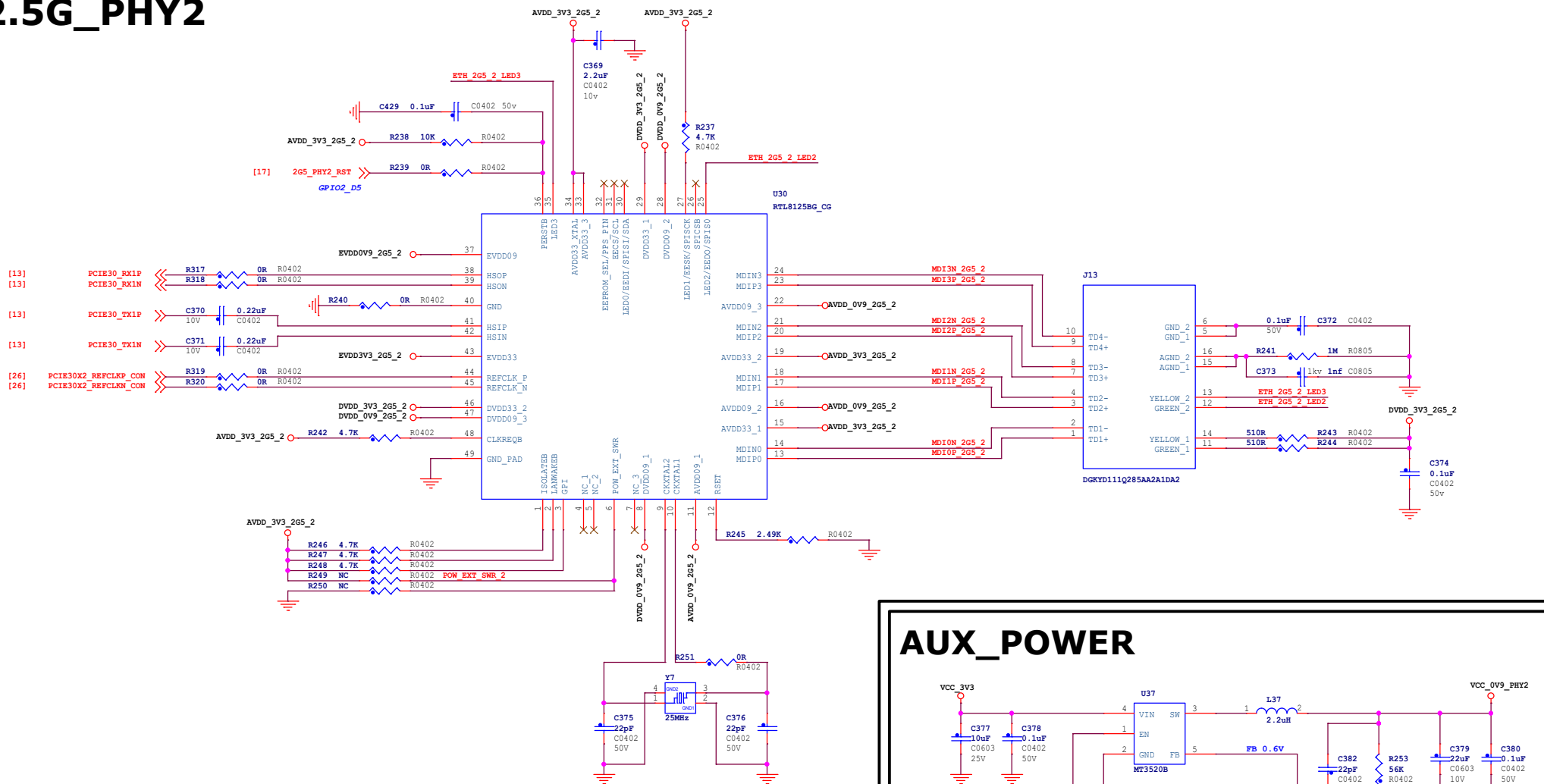
## AUX\_POWER



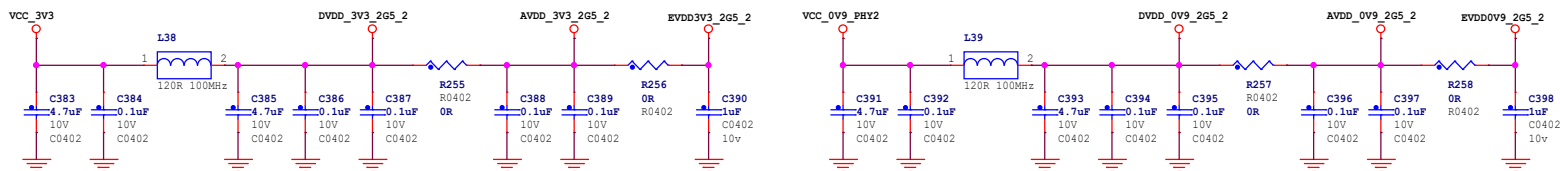
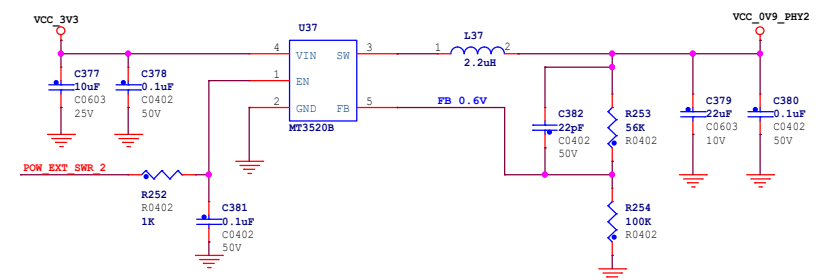
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Title		
野火_RK3568 LubanCat 2 N_原理图		
Size A3	Document Number 2.5G_PHY1	Rev V3R0
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## 2.5G\_PHY2



## AUX\_POWER

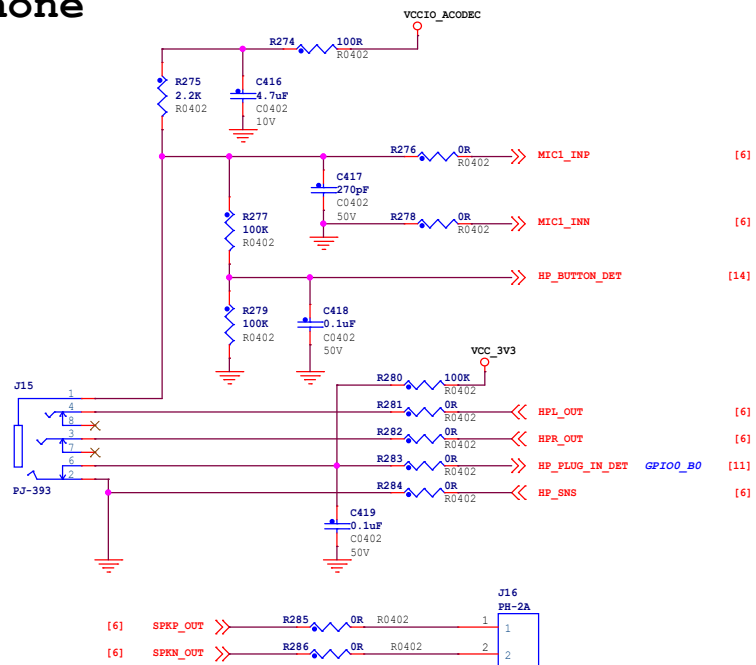


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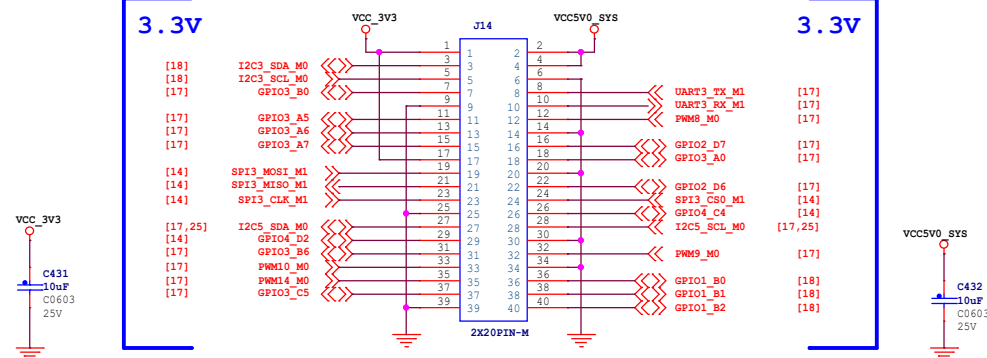
Title		
野火_RK3568 LubanCat 2 N_原理图		
Size A3	Document Number 2.5G_PHY2	Rev V3R0
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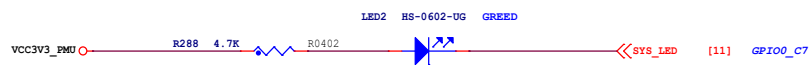
## Earphone



## IO PORT

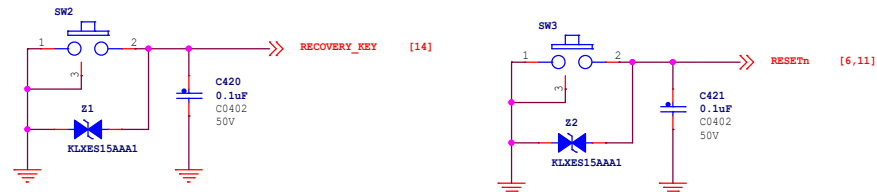


## LED

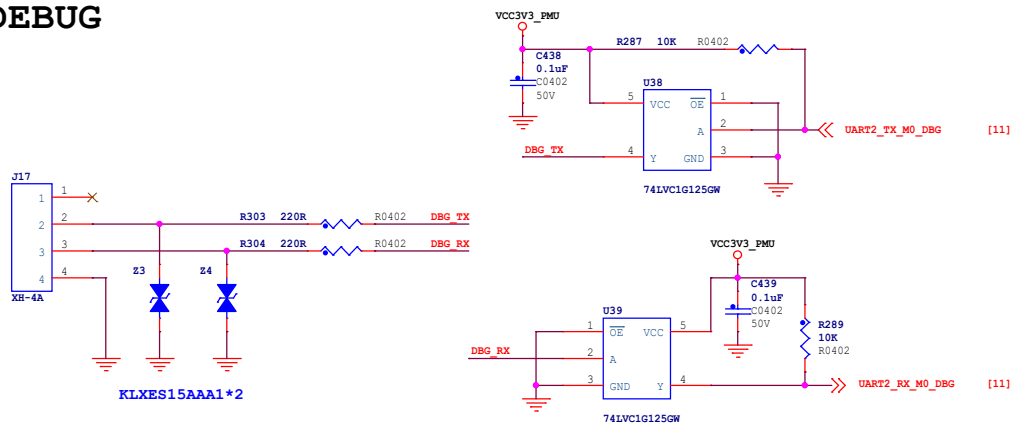


## RECOVERY KEY

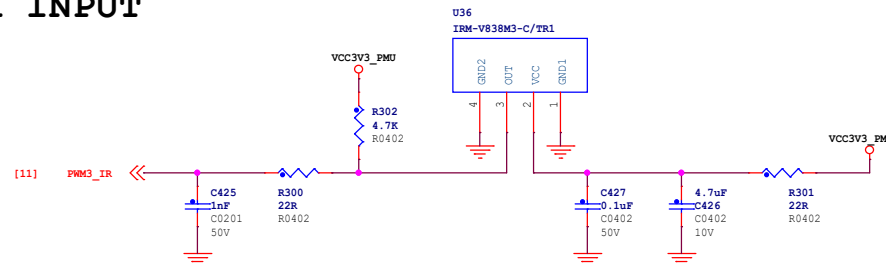
### RESET KEY



## DEBUG



## IR INPUT



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Title		
野火_RK3568 LubanCat 2 N_原理图		
Size	Document Number	Rev
A3	Earphone/DEBUG/IO_PORT/LED	V3R0
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