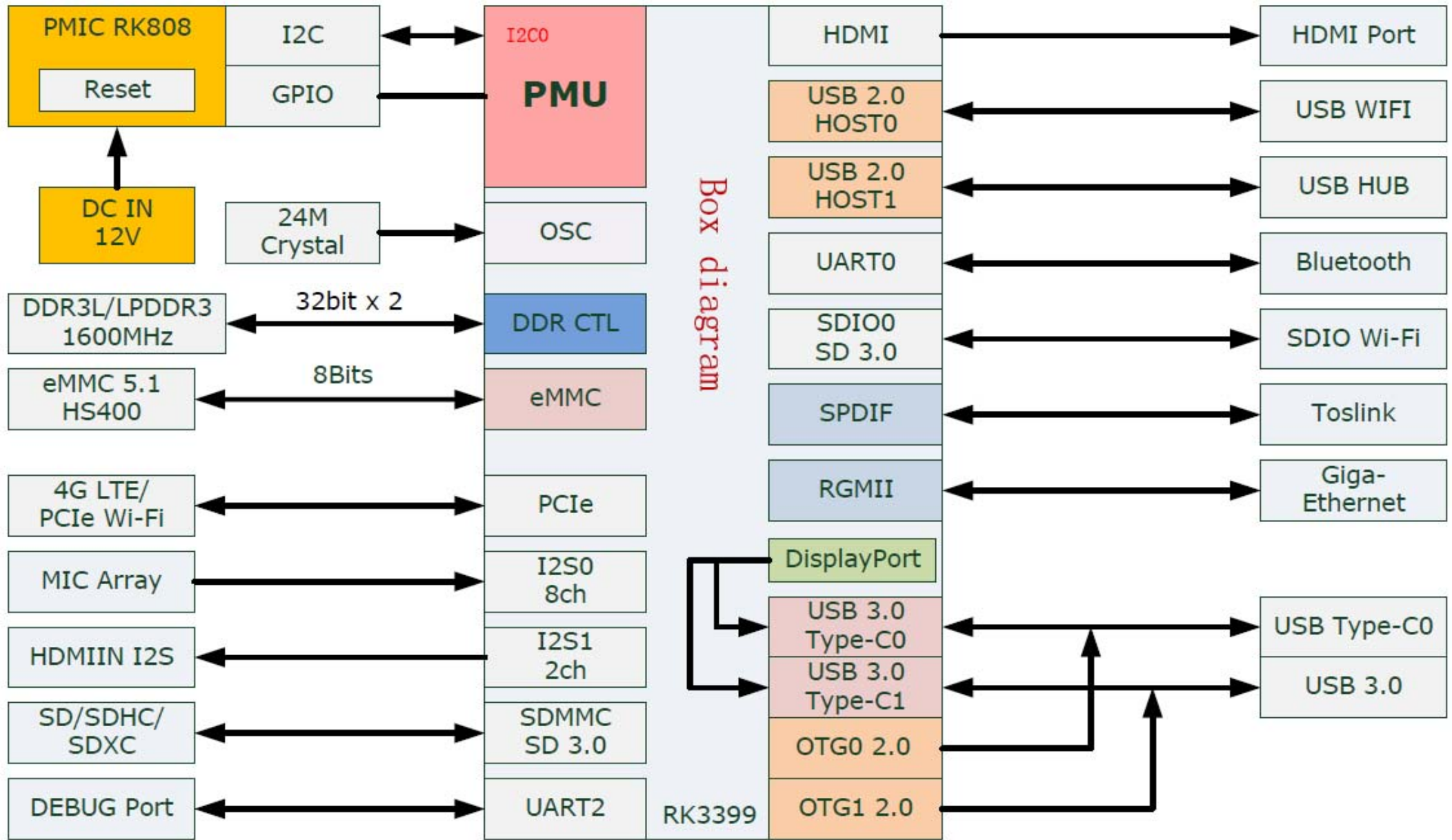


Block Diagram



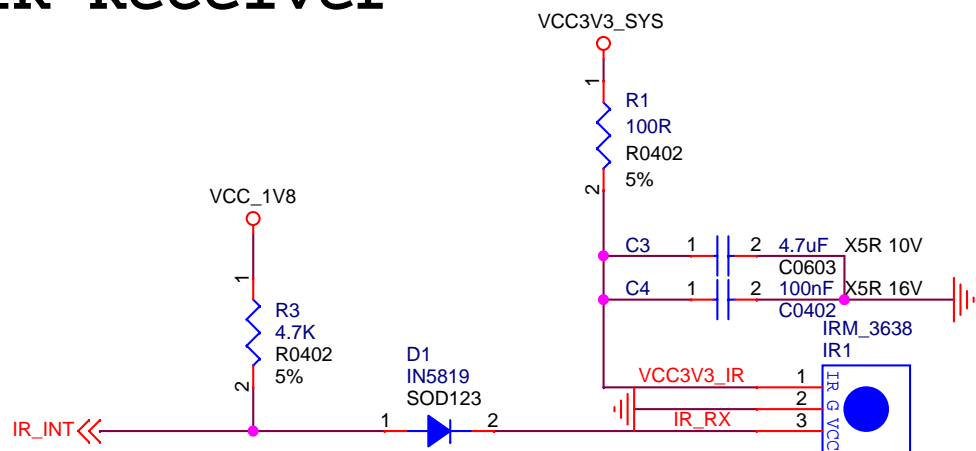
PINE64		
Title: RockPro64_RK3399		
Size: A4	Document Number: Block Diagram	Rev: V2.0
Date: Tuesday, MAR 6, 2018	Sheet: 2	of 33

RK3399 Power Domain Map

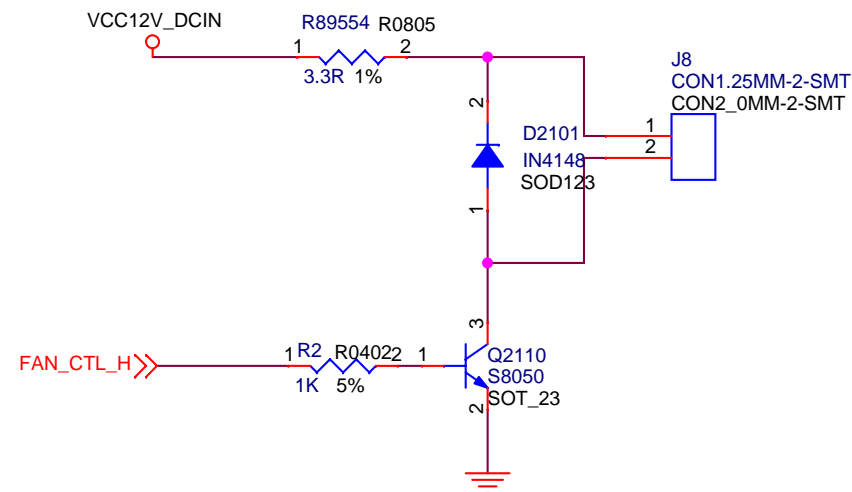
Part Port	Domain	Pin name in datasheet	I/O type	Power supply	Power source
Part C	PMUI01	pmui01_gpio0ab	1.8V only	VCC1V8_PMU	RK808 VLD03
Part E	PMUI02	pmu1830_gpio1abcd	1.8V(Default) 3.0V	VCC1V8_PMU	RK808 VLD03
Part I	API01	gmac_gpio3abc	3.3V only	VCC1V8_IO VCC3V3_IO	RK808 Buck4 RK808 VSW2
Part L	API02	bt656_gpio2ab	1.8V(Default) 3.0V	VCC1V8_DVP	RK808 VLD01
Part G	API03	wifi/bt_gpio2cd	1.8V only	VCC1V8_WIFI	RK808 Buck4
Part K	API04	gpio1830_gpio4cd	1.8V 3.0V(Default)	VCC_1V5 VCC3V0_IO	RK808 VLD06 RK808 VLD08
Part J	API05	audio_gpio3d_gpio4a	1.8V(Default) 3.0V	VCCA1V8_CODEC	RK808 VLD07
Part F	SDMMC0	sdmmc_gpio4b	1.8V 3.0V(Default)	VCC_SDIO	RK808 VLD04

PINE64		
Title		
RockPro64_RK3399		
Size	Document Number	Rev
A4	Power Domain Map	V2.0
Date:	Tuesday, MAR 6, 2018	Sheet 4 of 33

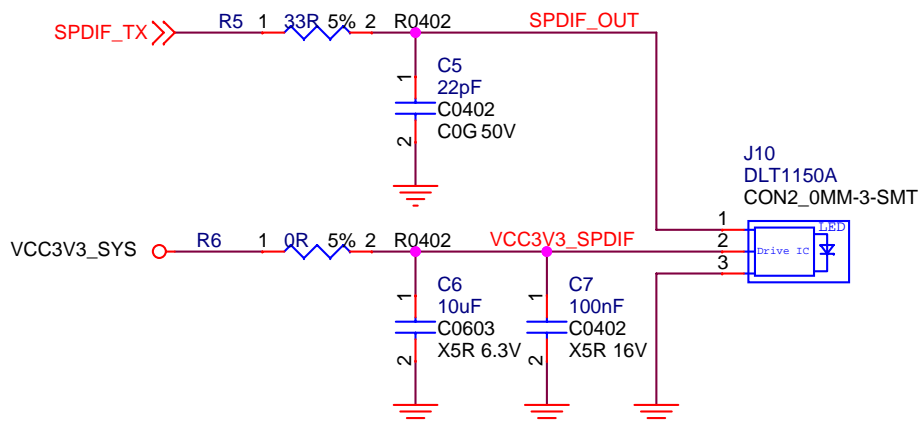
IR Receiver



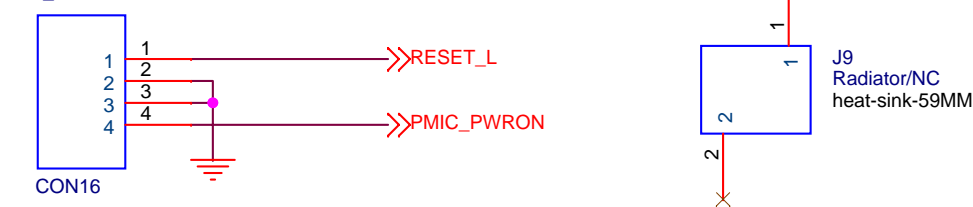
HEATSINK/FAN (option)



SPDIF OUT

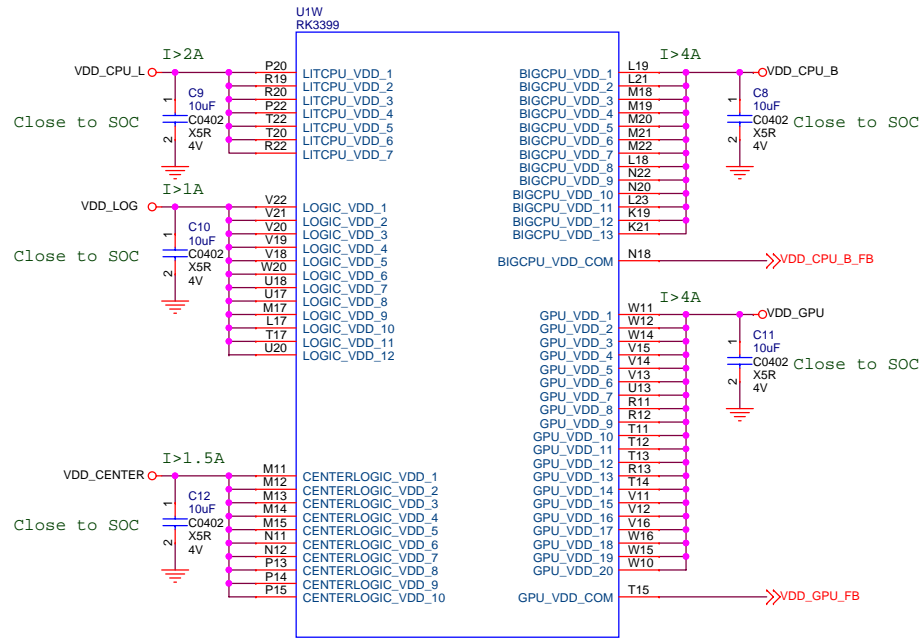


预留复位，开机键扩展连接座
XH_2.5mm/NC

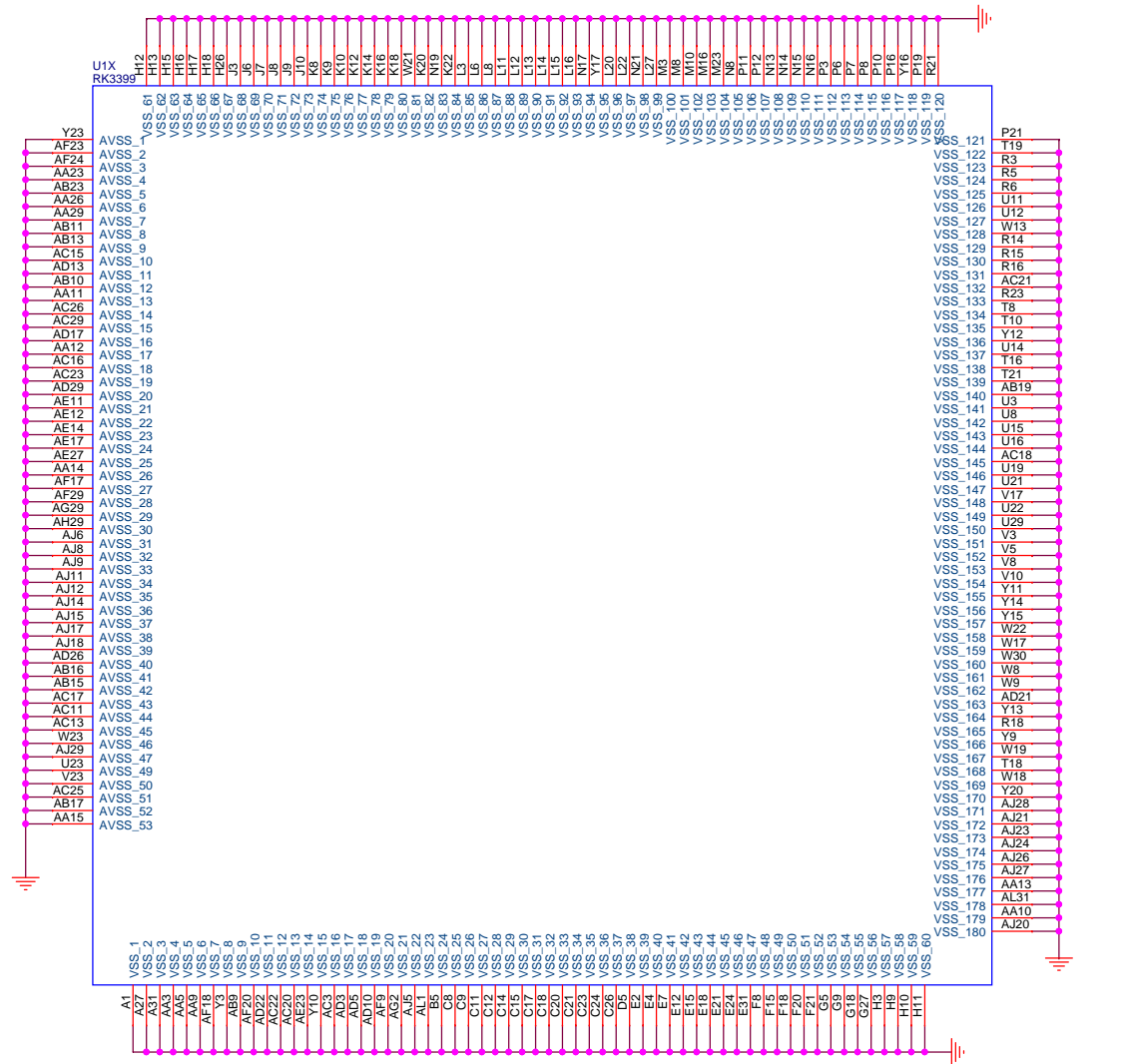
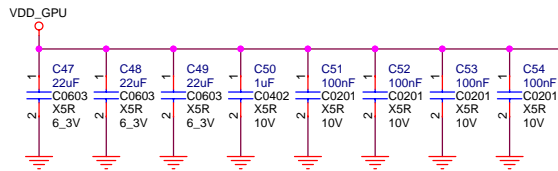
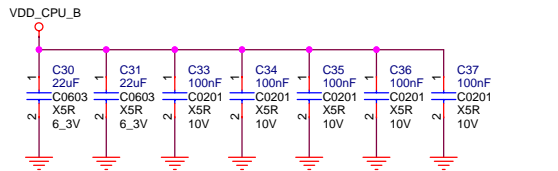
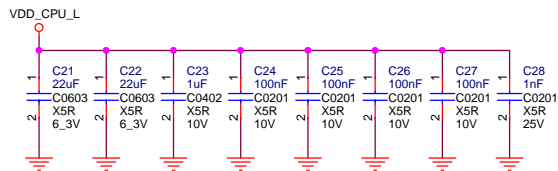
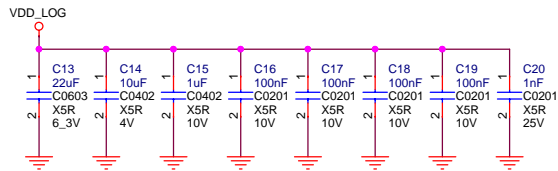


PINE64

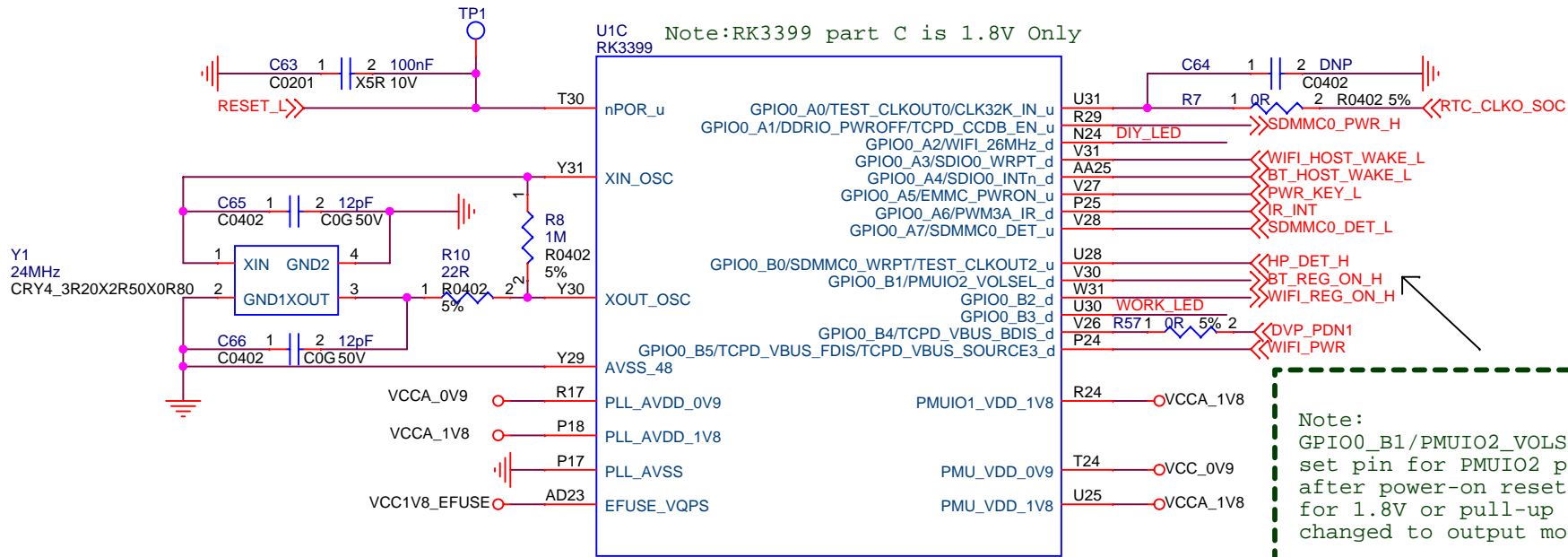
Title		
RockPro64_RK3399		
Size	Document Number	Rev
Custom	IR SPDIF	V2.0
Date:	Tuesday, MAR 6, 2018	Sheet 6 of 33



Note: Power filter CAP please place back of SOC or close to SOC



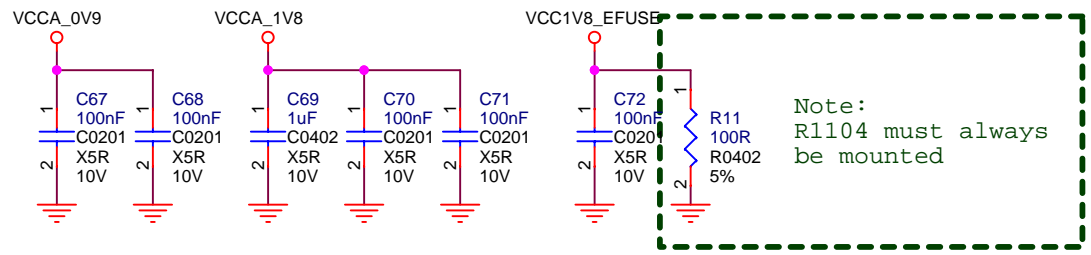
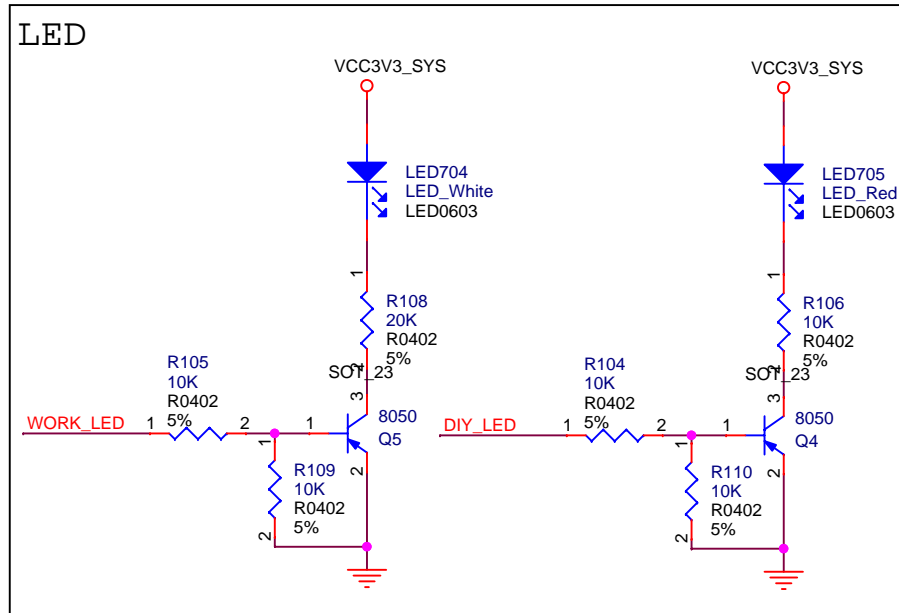
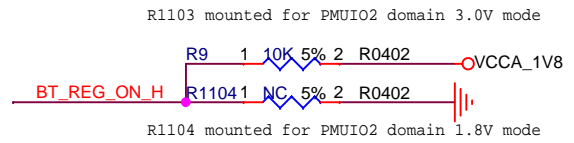
PINE64		
Title	RockPro64_RK3399	
Size	Document Number	Rev
A3	RK3399 Power	V2.0
Date:	Tuesday, MAR 6, 2018	Sheet 7 of 33



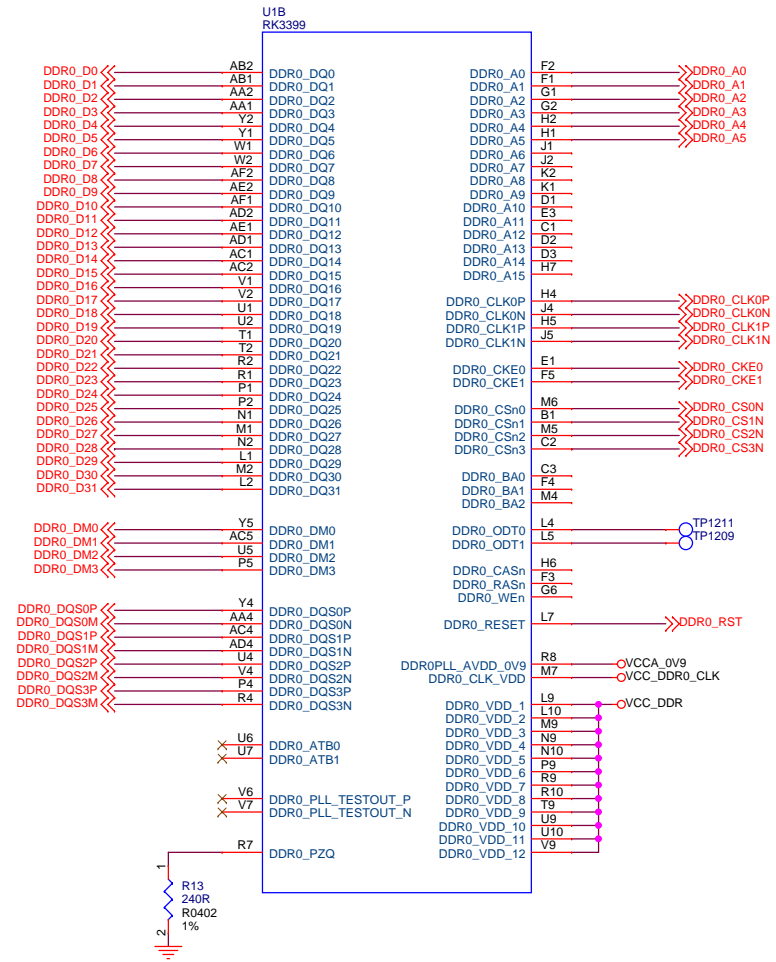
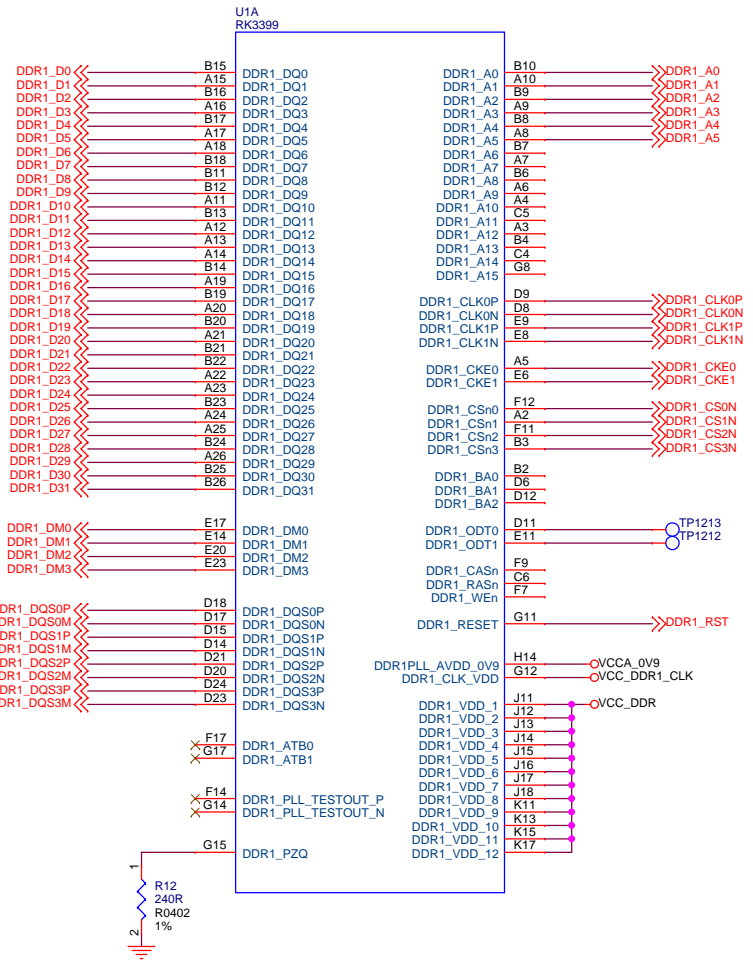
U1C Note:RK3399 part C is 1.8V Only
RK3399

Note:
GPIO0_B1/PMUIO2_VOLSEL defined as a set pin for PMUIO2 part voltage domain after power-on reset. It is pull-down for 1.8V or pull-up for 3.0V, and later changed to output mode by software

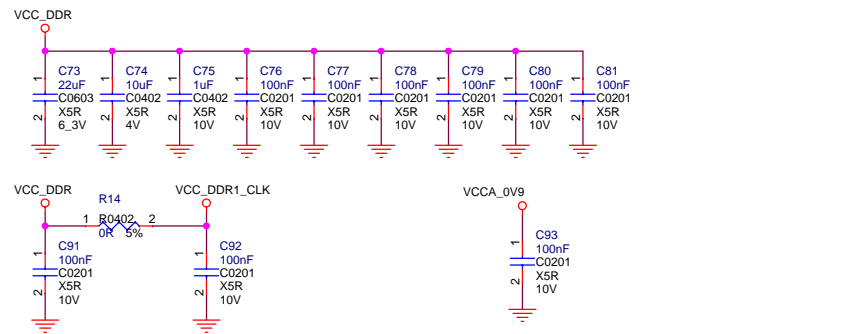
- Cristal selection requirements:
- 1.Nominal Frequency is 24MHz;
 - 2.Frequency tolerance is +/-20ppm;
 - 3.Operating Temperature range is -20~70°C;
 - 4.Equivalent resistance < 60ohm;



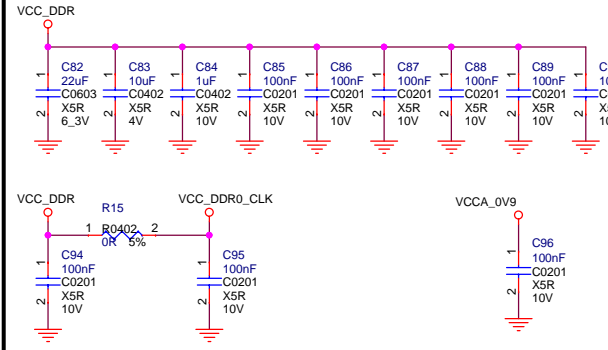
PINE64		
Title RockPro64_RK3399		
Size A4	Document Number RK3399 PMU Controller	Rev V2.0
Date: Tuesday, MAR 6, 2018	Sheet 8	of 33



DDR FILTER Note:R1202 cannot be deleted

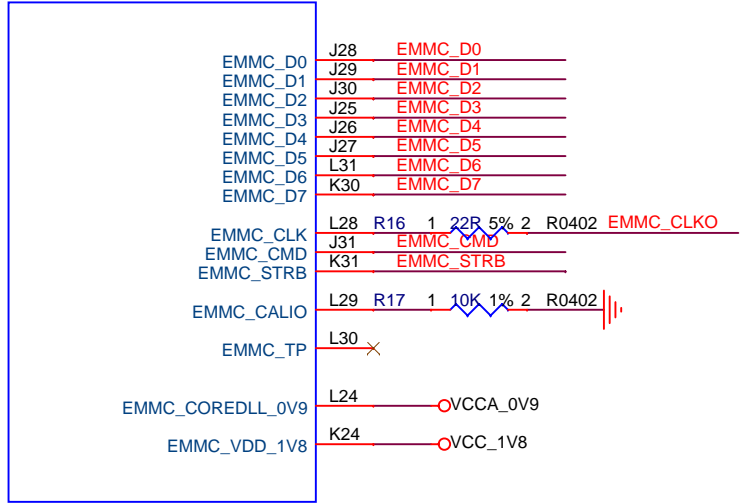


DDR FILTER Note:R1203 cannot be deleted

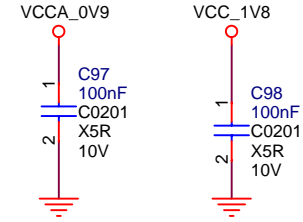
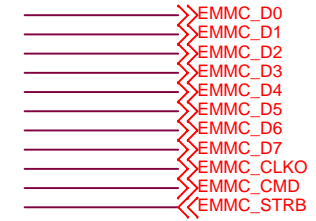


PINE64		
File	RockPro64_RK3399	
Size	Document Number	Rev
A3	RK3399 DDR Controller	V2.0
Date:	Tuesday, MAR 6, 2018	Sheet 9 of 33

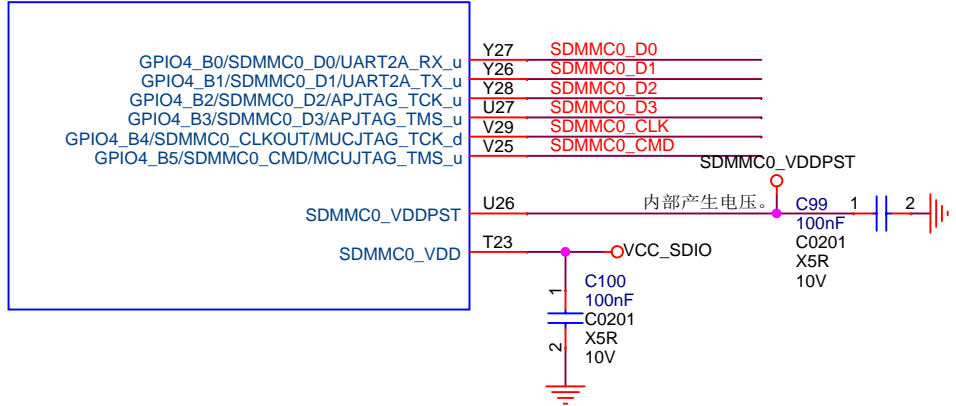
U1H
RK3399



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+/-100mil;
 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+/-10%;
 5.与其他信号间距遵循3w原则;
 6.R1300靠近SOC放置;



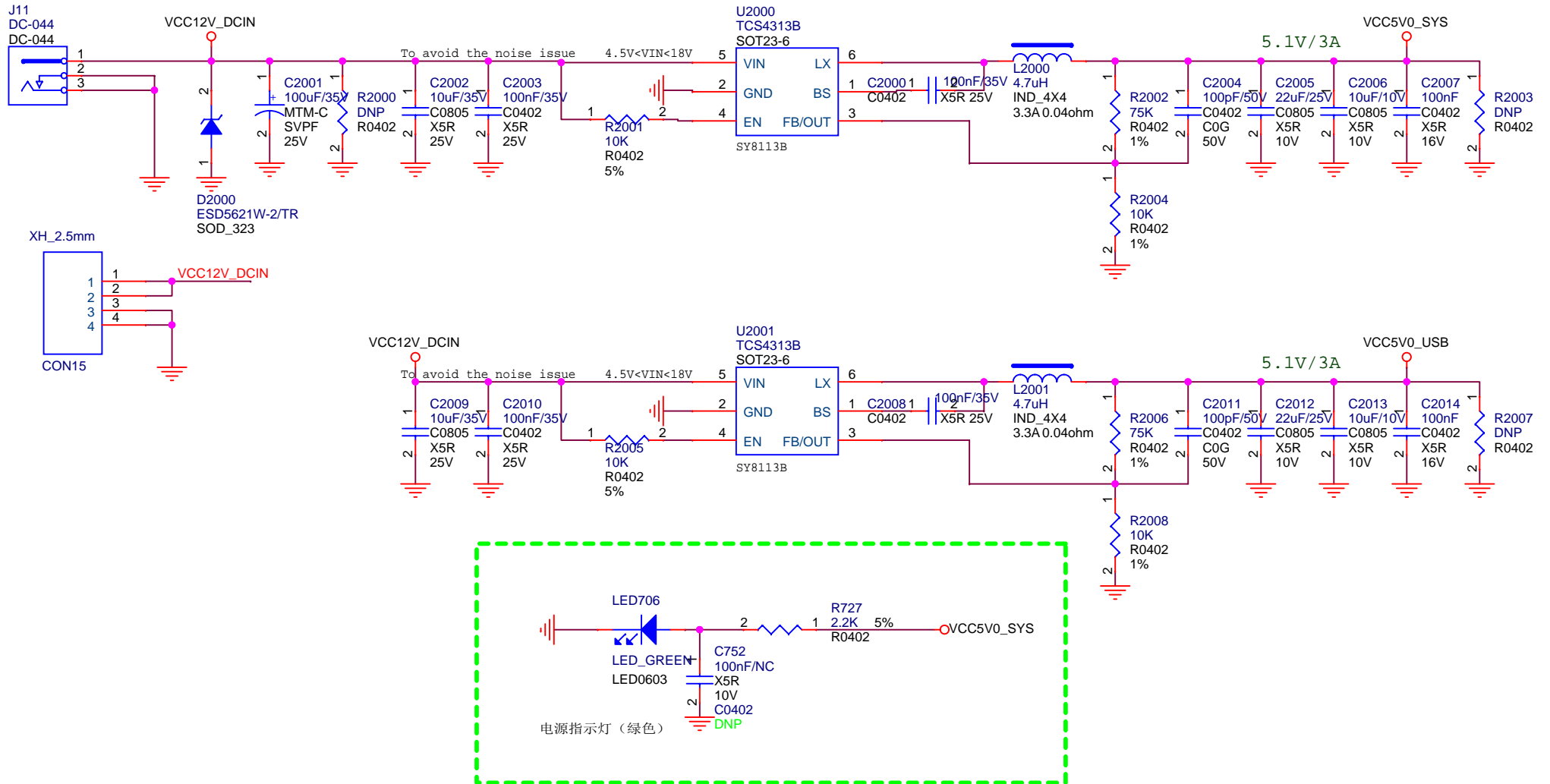
U1F
RK3399



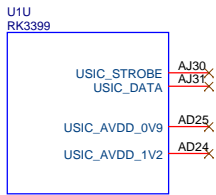
SDMMC design rule:
 1.Data[0:3]、cmd走线做为一组，并行走线并整组包地，组内等长要求为+/-100mil;
 2.Clk需要单独走线并包地处理，与data间的延时小于20ps; ;
 4.Max trace length < 3.93 inches;
 5.Trace impedance 50ohm+/-10%;
 6.与其他信号间距遵循3w原则;

PINE64		
Title RockPro64_RK3399		
Size A4	Document Number RK3399 FLASH&SDMMC	Rev V2.0
Date: Tuesday, MAR 6, 2018	Sheet 10	of 33

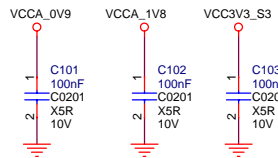
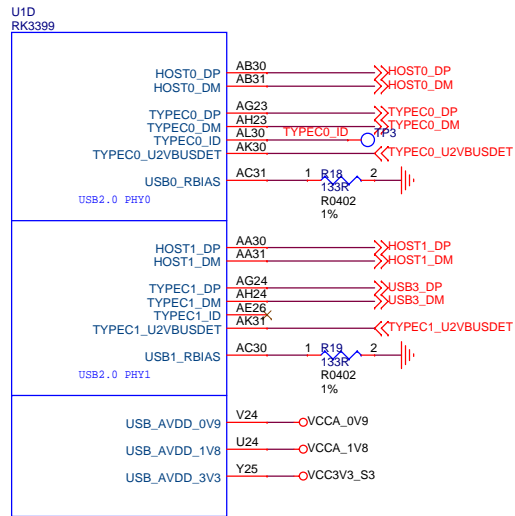
DC IN&SYSTEM Power



PINE64		
Title		
RockPro64_RK3399		
Size	Document Number	Rev
A4	RK3399 USB/USIC Controller	V2.0
Date:	Tuesday, MAR 6, 2018	Sheet 11 of 33

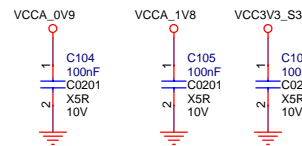
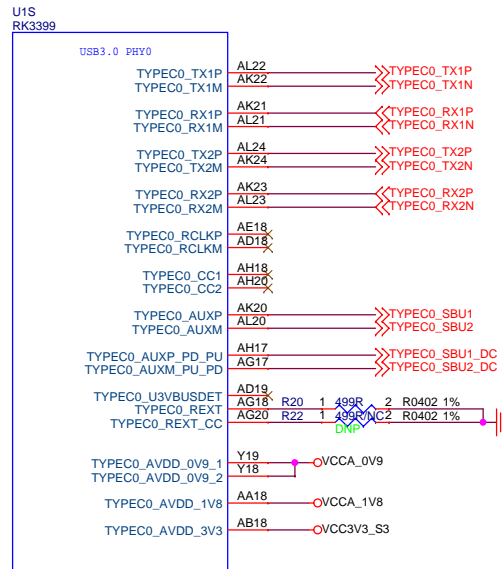


USB2.0

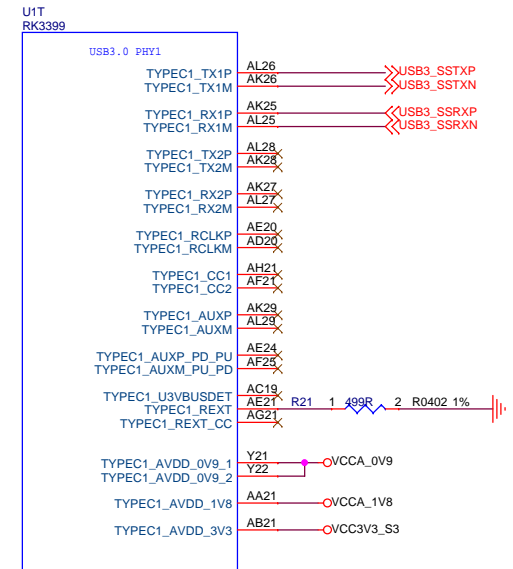


USB2.0 design rule:
 1. Max intra-pair skew < 4 ps;
 2. Max trace length < 6 inchs;
 3. Max allowed via < 6;
 4. Trace impedance 90ohm+/-10%;
 5. 与其他信号间距遵循3W原则;

USB3.0

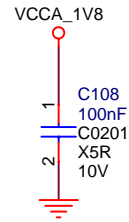
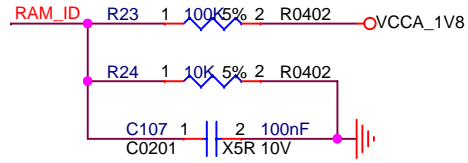
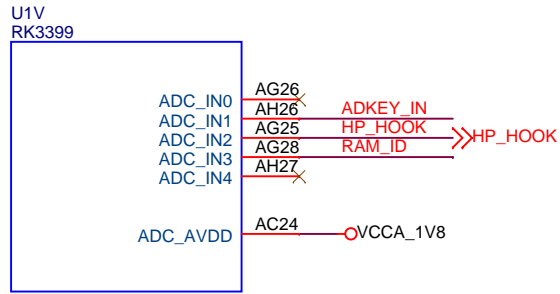


USB3.0 design rule:
 1. Max intra-pair skew < 4 ps;
 2. Max length skew between TX and RX < 1.6 ns;
 3. Max trace length < 6 inchs;
 4. Max allowed via < 4;
 5. Trace impedance 90ohm+/-10%;
 6. 与其他信号间距遵循3W原则;



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

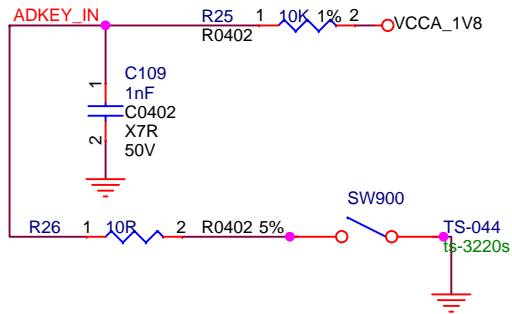
PINE64		
Title: RockPro64_RK3399		
Size: A3	Document Number: RK3399 USB/USIC Controler	Rev: v2.0
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	RAM ID	R1501 PU	R1502 PD
DDR3/DDR3L	0.6V	200K	100K
LPDDR3	0.112V	150K	10K
LPDDR4	1.5V	100K	499K

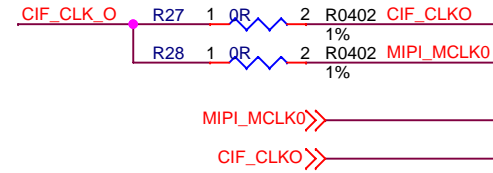
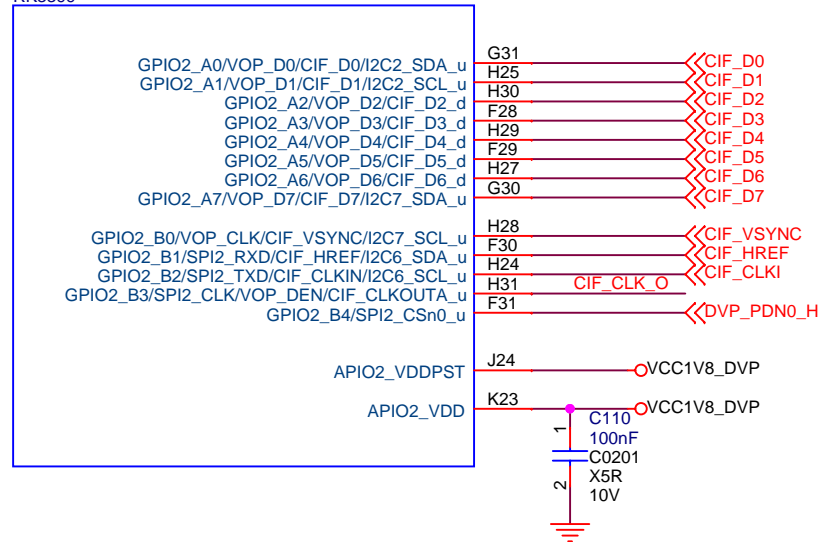
调试升级按键

Note:
系统上电时，如果ADKEY_IN电平为0V，
则RK3399进入Recovery模式；

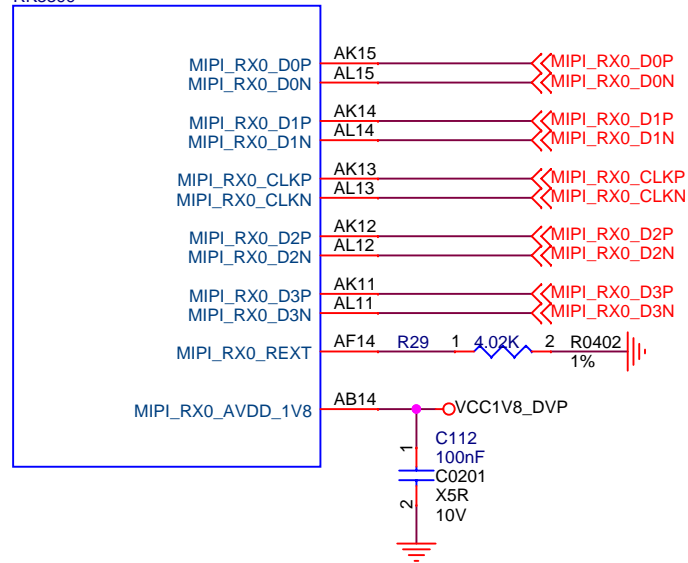


PINE64		
Title		
RockPro64_RK3399		
Size	Document Number	Rev
A4	RK3399 SARADC/KEY	V2.0
Date:	Tuesday, MAR 6, 2018	Sheet 12 of 33

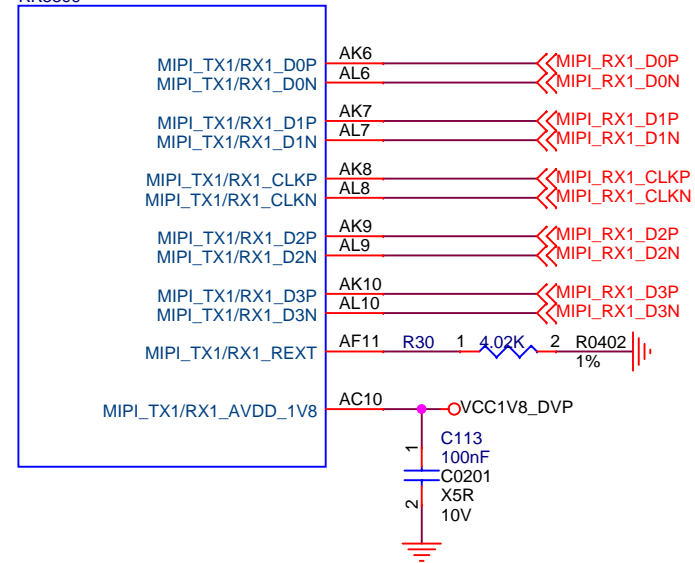
U1L
RK3399



U1R
RK3399



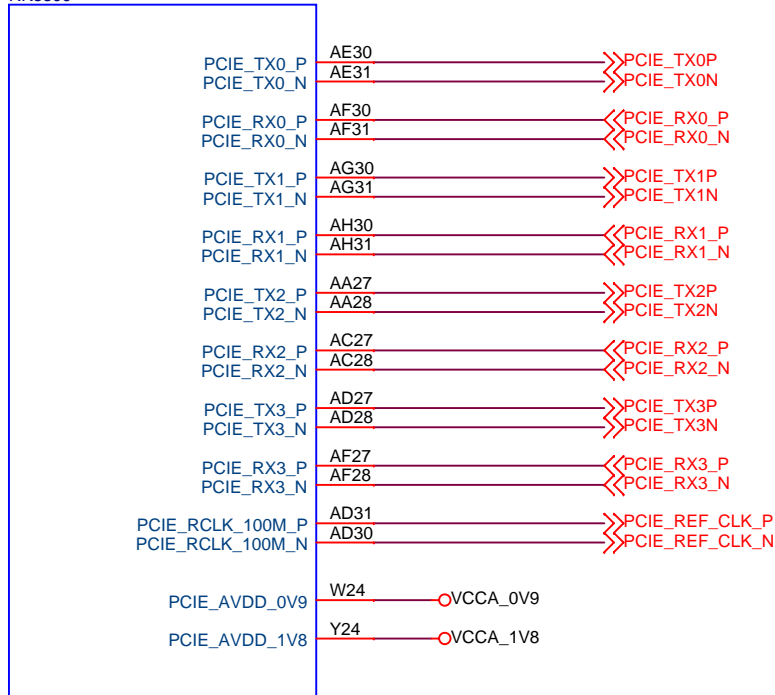
U1P
RK3399



PINE64

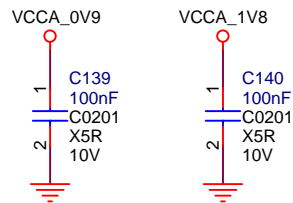
Title		
RockPro64_RK3399		
Size	Document Number	Rev
A4	RK3399 DVP Interface	V2.0
Date:	Tuesday, MAR 6, 2018	Sheet 13 of 33

U10
RK3399



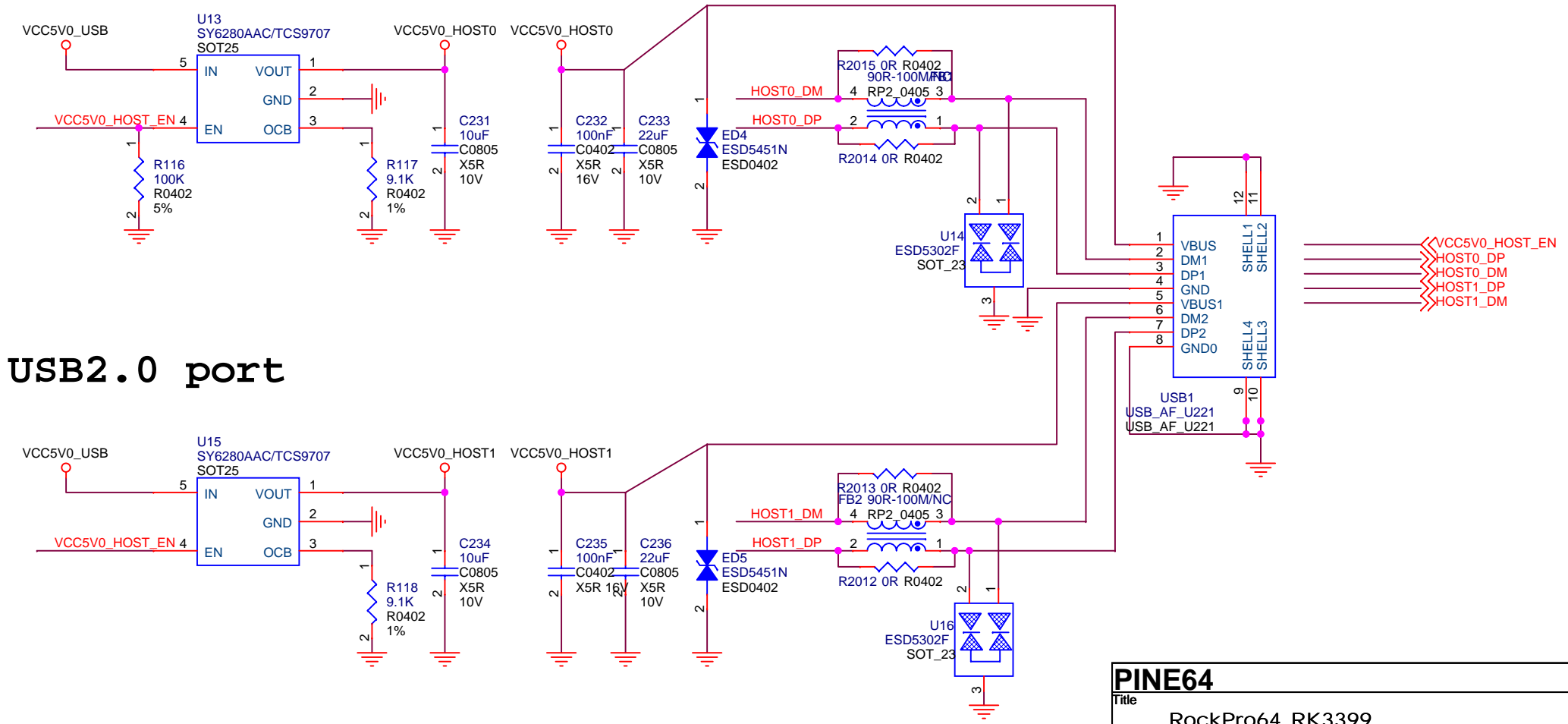
PCIE design rule:

1. Max intra-pair skew < 4ps;
2. Max inter-pair skew < 1.6 ns;
3. Max trace length < 14 inches;
4. Max allowed via < 4;
5. Trace impedance 100ohm+/-10%;
6. 与其他信号间距遵循3W原则;



PINE64

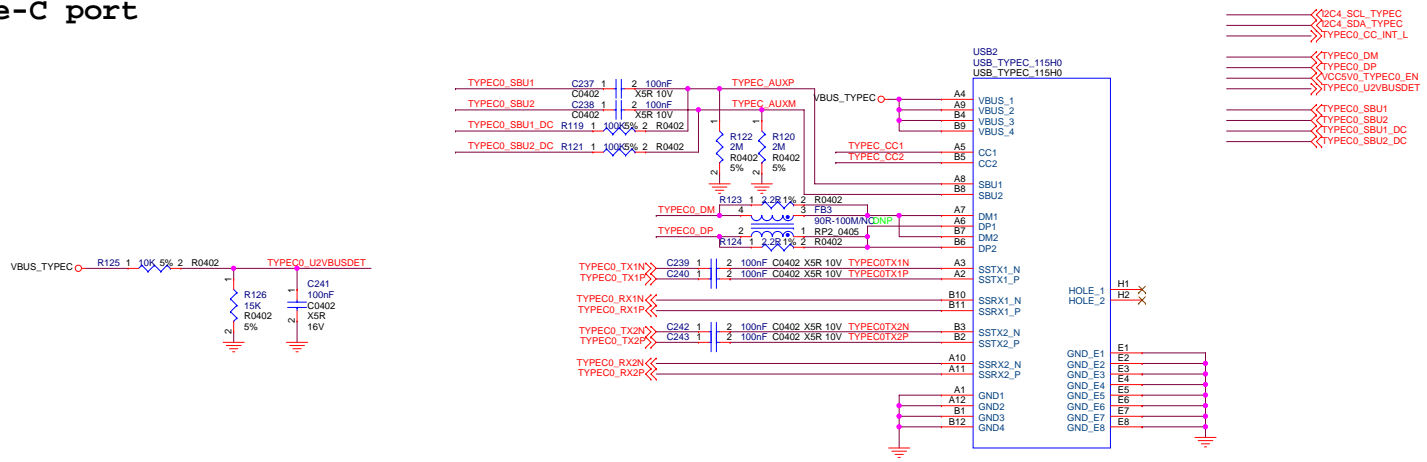
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RockPro64_RK3399		
Size	Document Number	Rev
A4	RK3399 PCIE	V2.0
Date:	Tuesday, MAR 6, 2018	Sheet 16 of 33



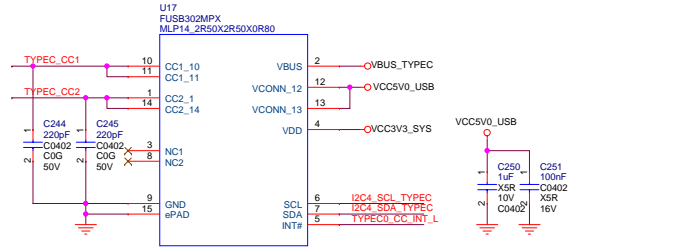
USB2.0 port

PINE64		
Title		
RockPro64_RK3399		
Size	Document Number	Rev
Custom	USB HOST 2.0	V2.0
Date:	Tuesday, MAR 6, 2018	Sheet 19 of 33

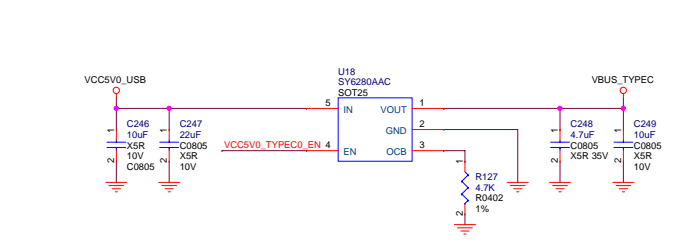
USB Type-C port



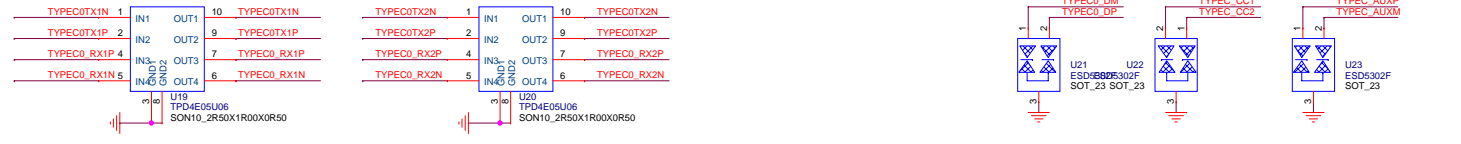
CC CTRL



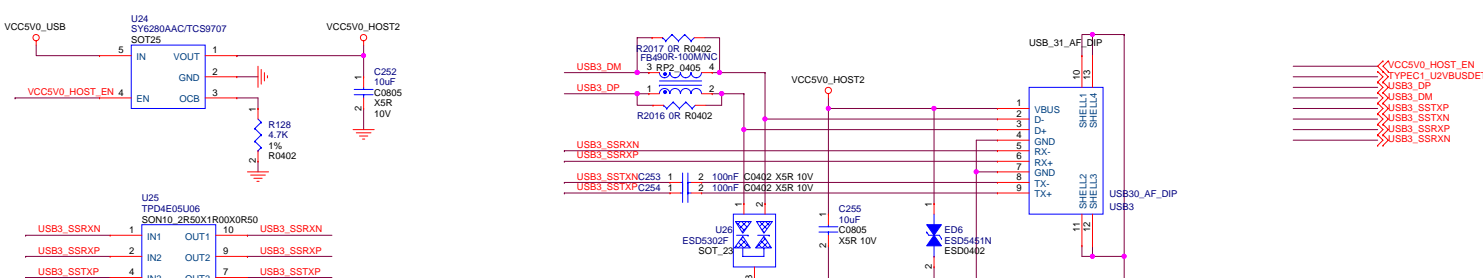
Limit switch



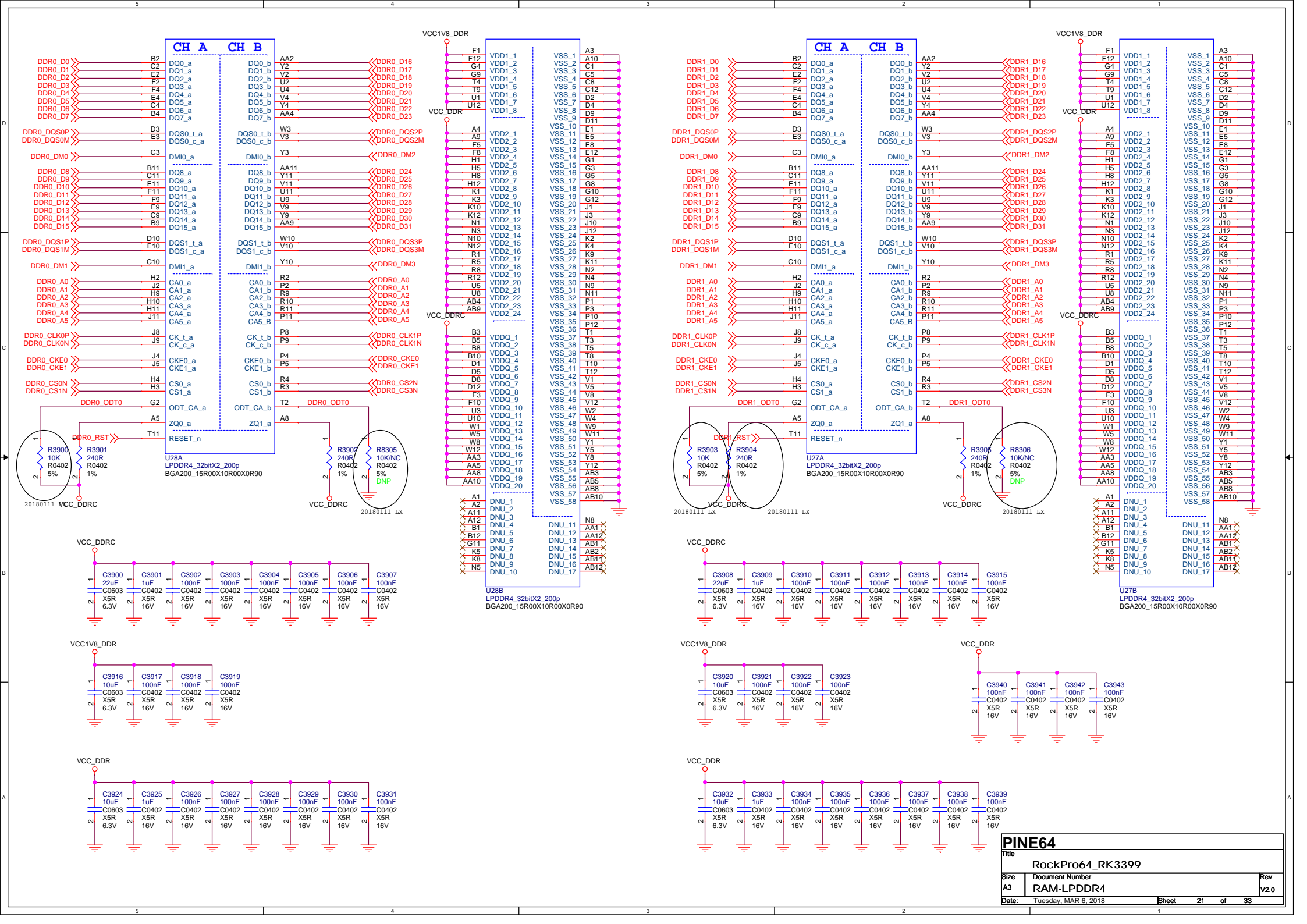
ESD



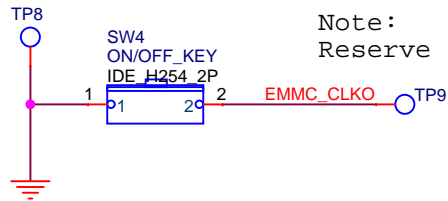
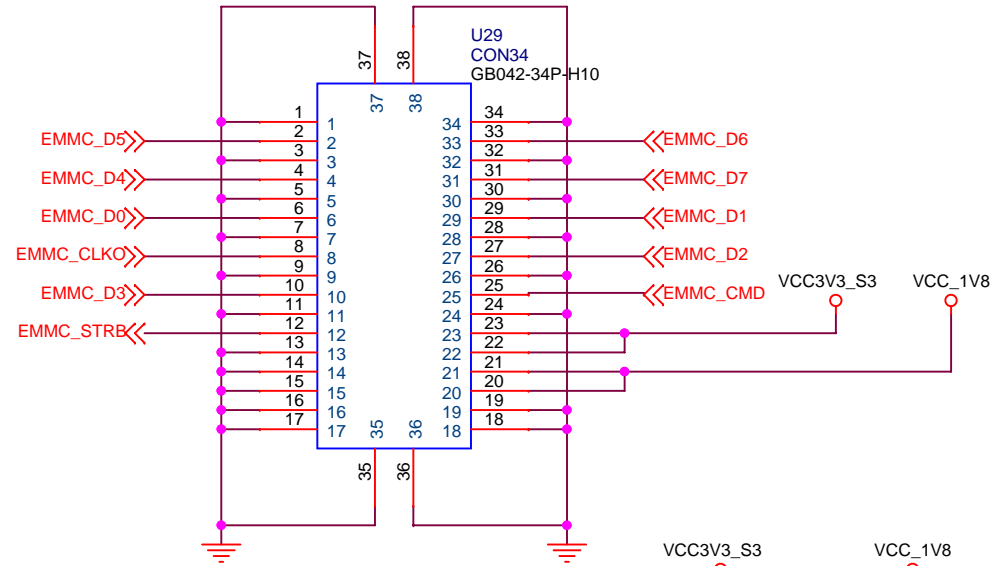
USB3.0 port



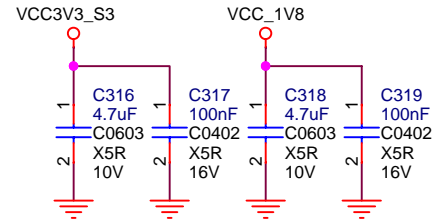
PINE64		
Title: RockPro64_RK3399		
Size: Custom	Document Number: USB 3.0	Rev: V2.0
Date: Tuesday, MAR 6, 2018	Sheet: 20	of 33



eMMC Port

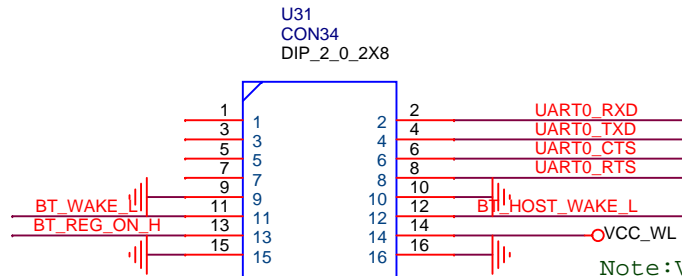
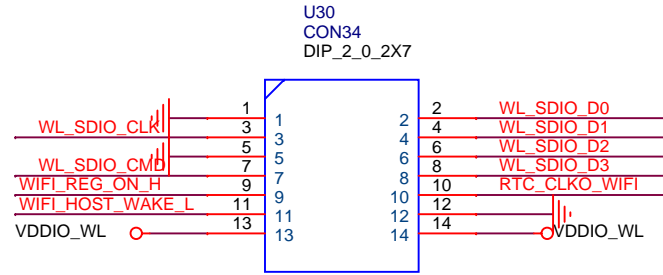


Note:
Reserve PAD for Update.

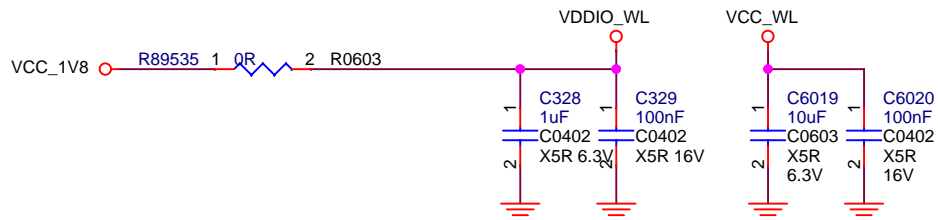
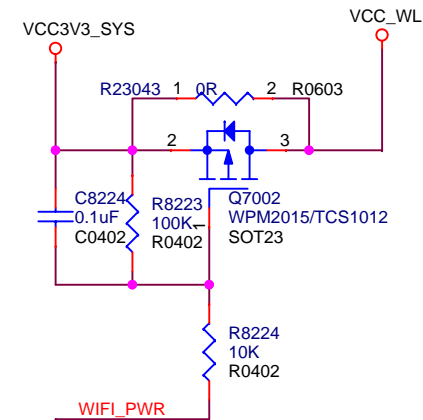
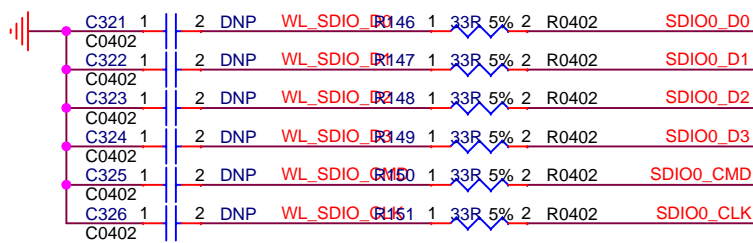
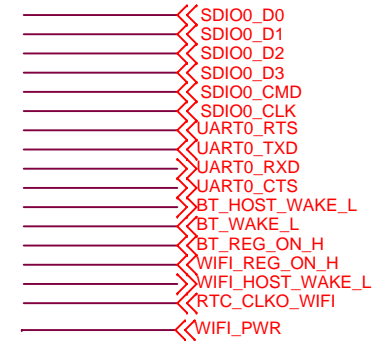


PINE64		
Title RockPro64_RK3399		
Size A4	Document Number eMMC COM	Rev V2.0
Date: Tuesday, MAR 6, 2018	Sheet 22	of 33

SDIO WIFI/BT MODULE-MIMO

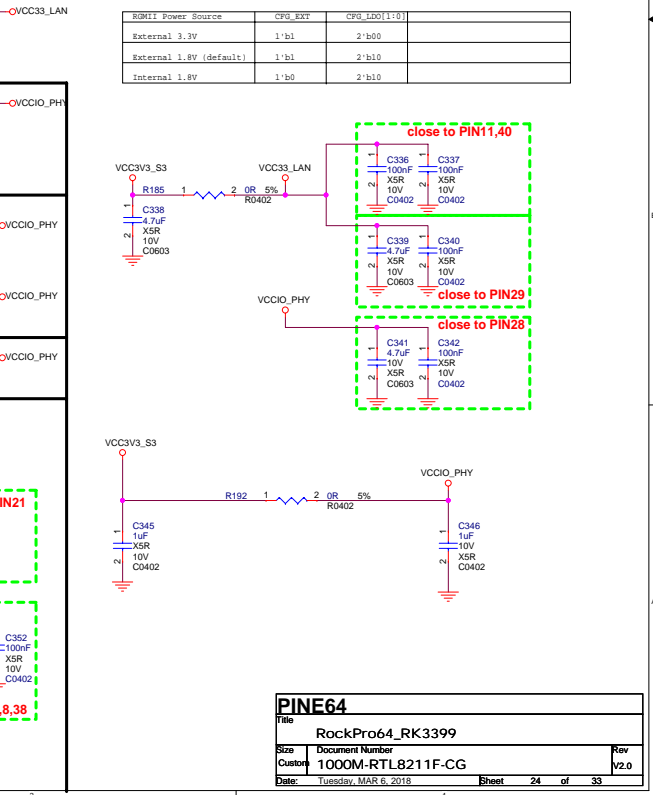
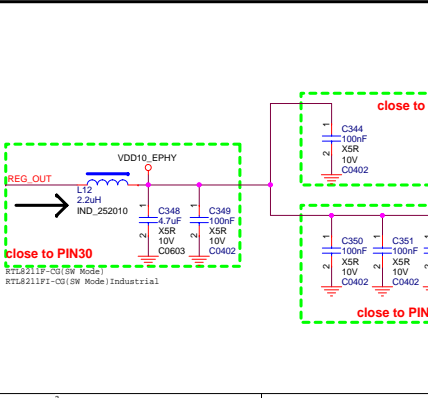
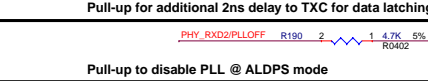
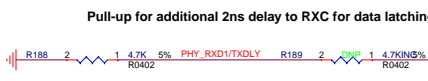
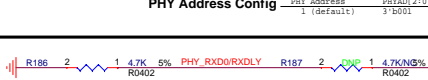
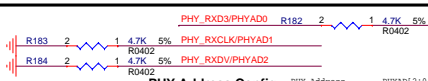
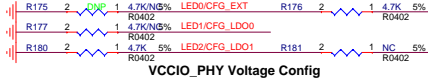
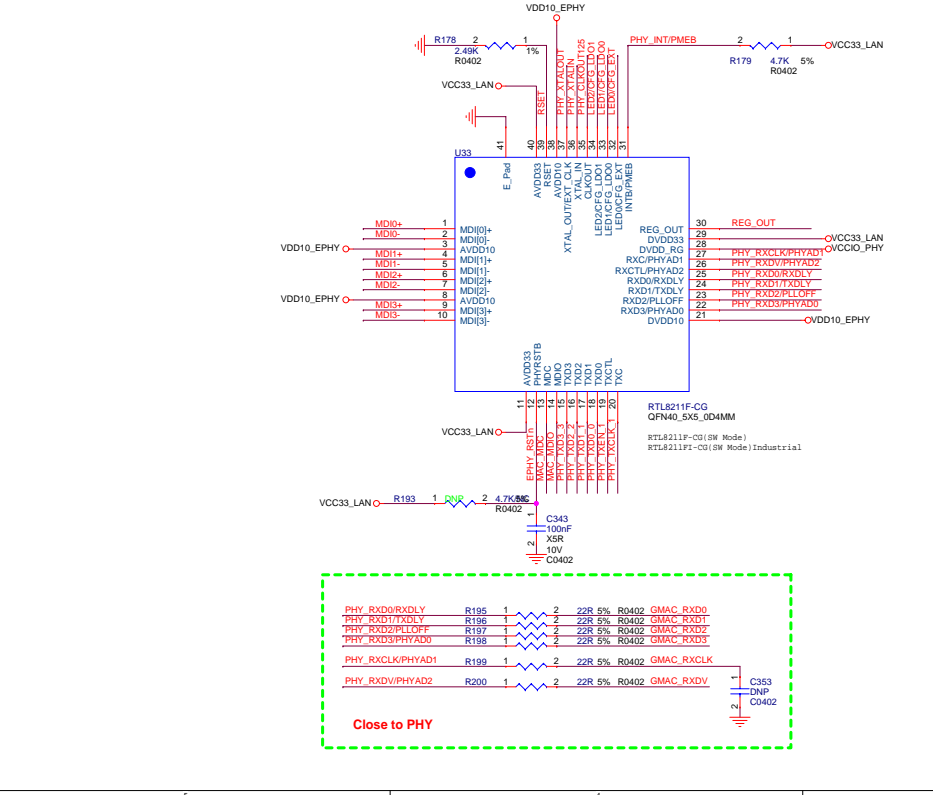
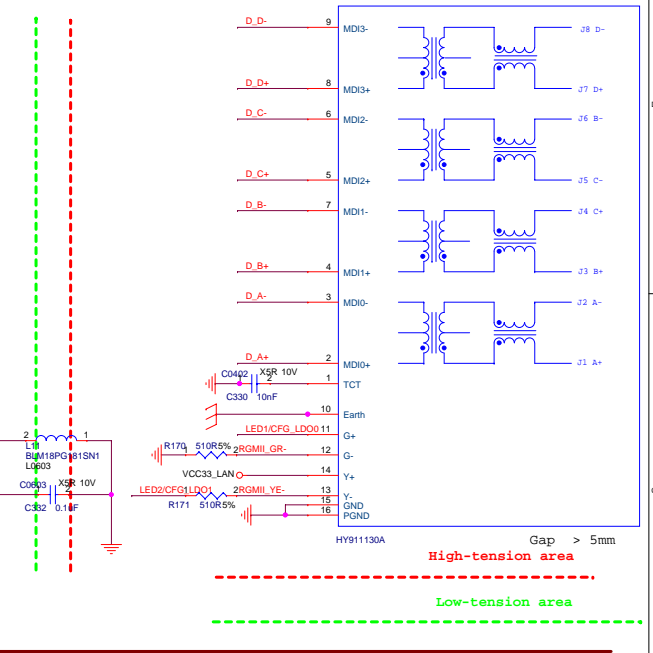
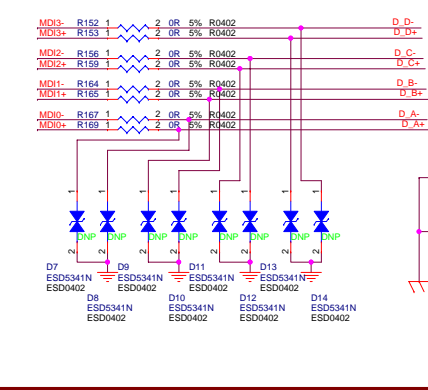
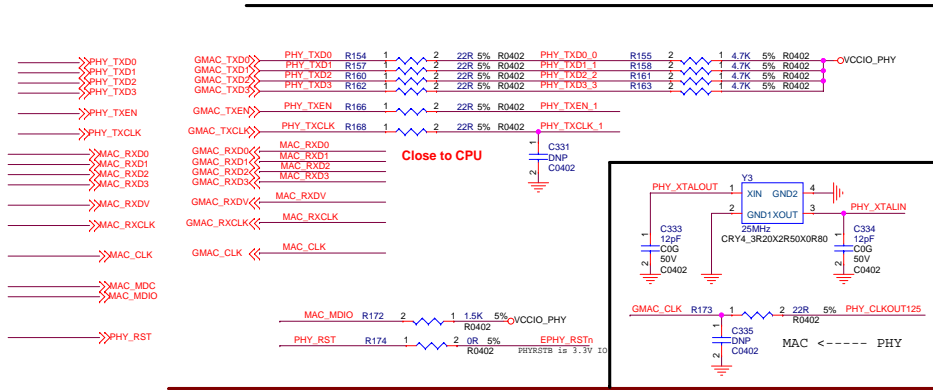


Note: VBAT电压范围3.0V~4.8V, 供电电流至少400mA



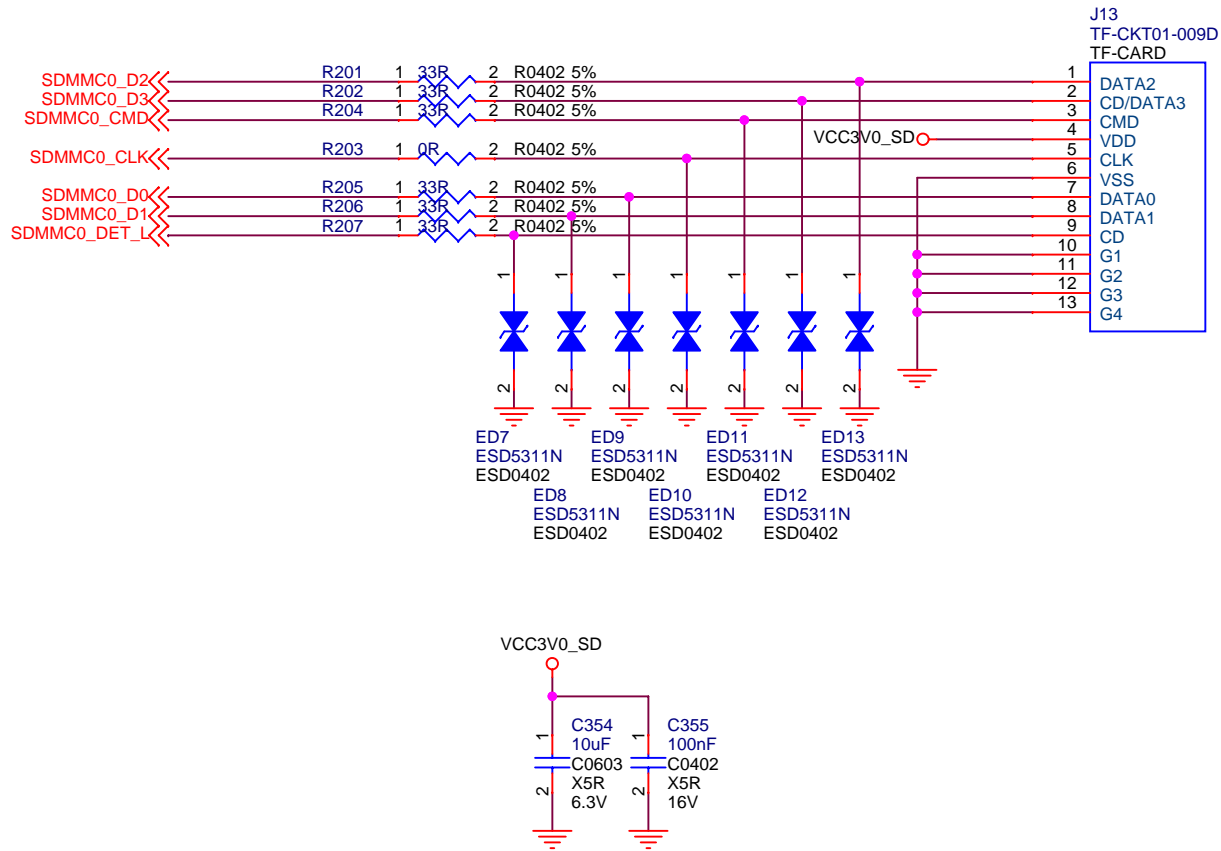
PINE64		
Title		
RockPro64_RK3399		
Size	Document Number	Rev
A4	WIFI COM	V2.0
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RJ45 & Transformer



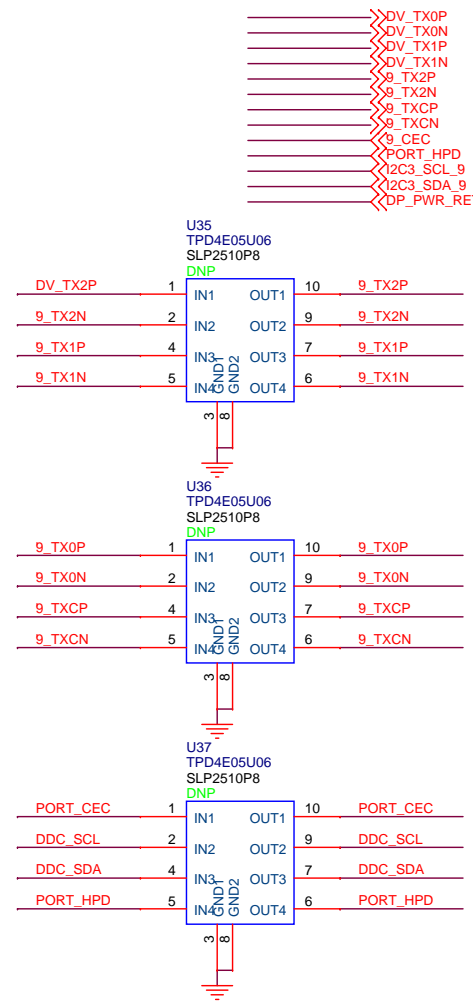
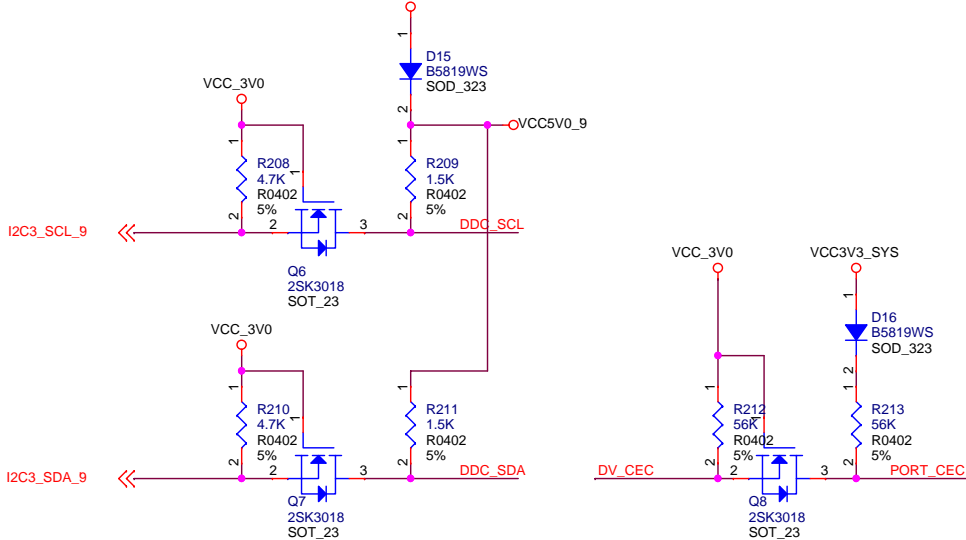
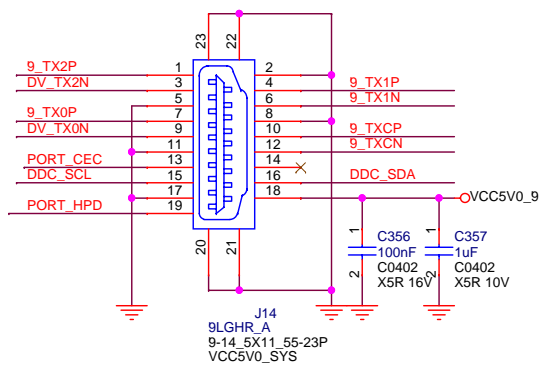
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Size: Custom	Document Number: 1000M-RTL8211F-CG
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TF CARD



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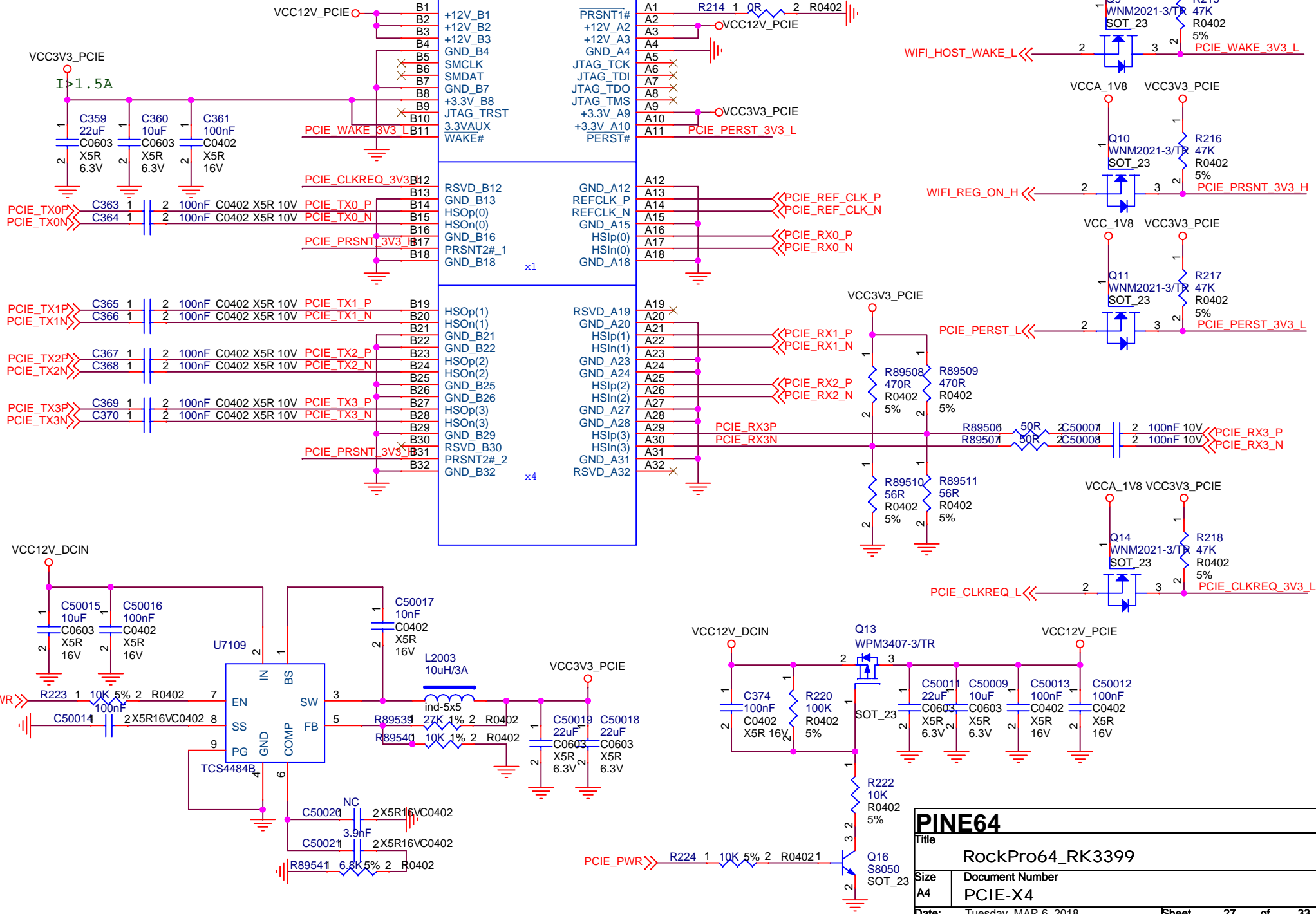
LJLWDO9LGHR Output



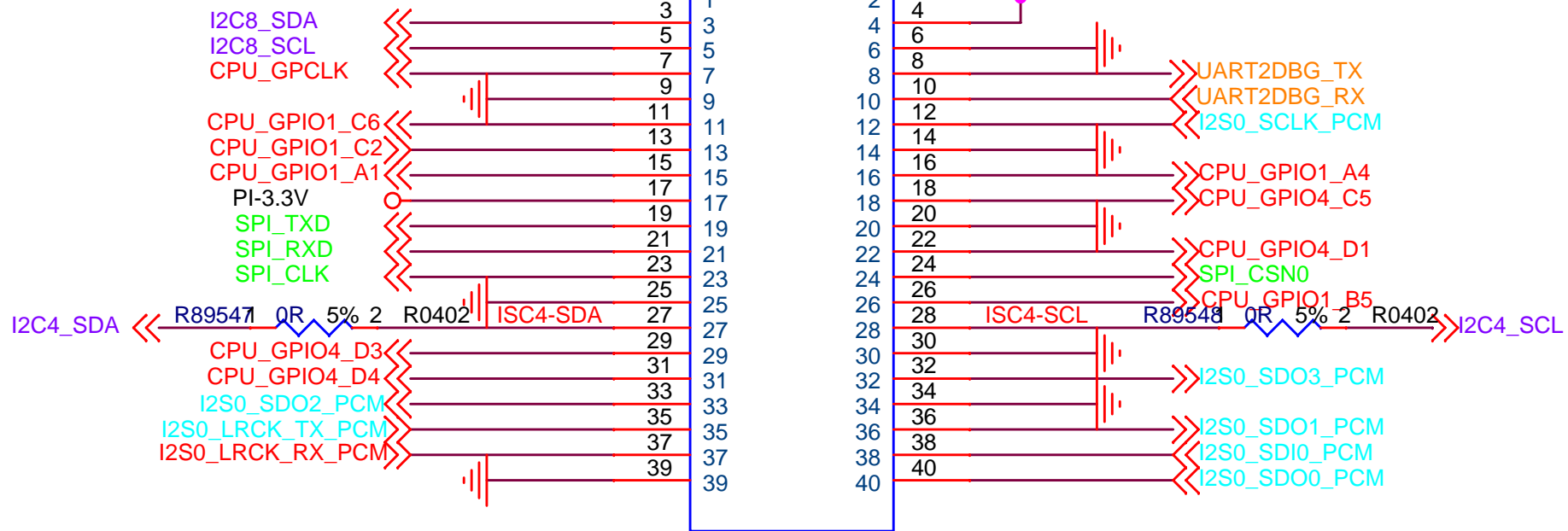
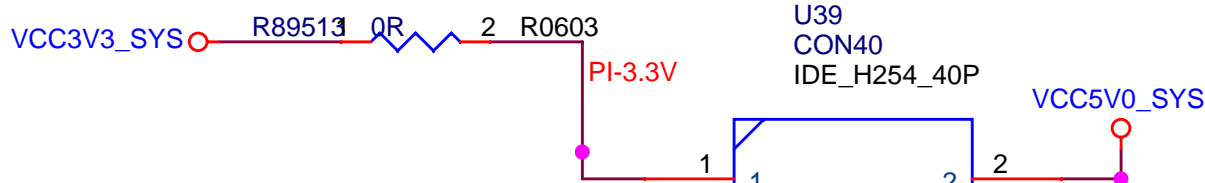
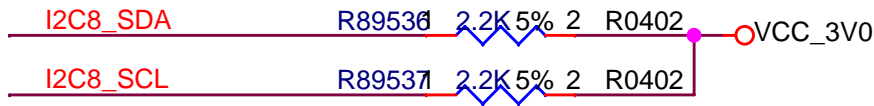
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PCIe x4

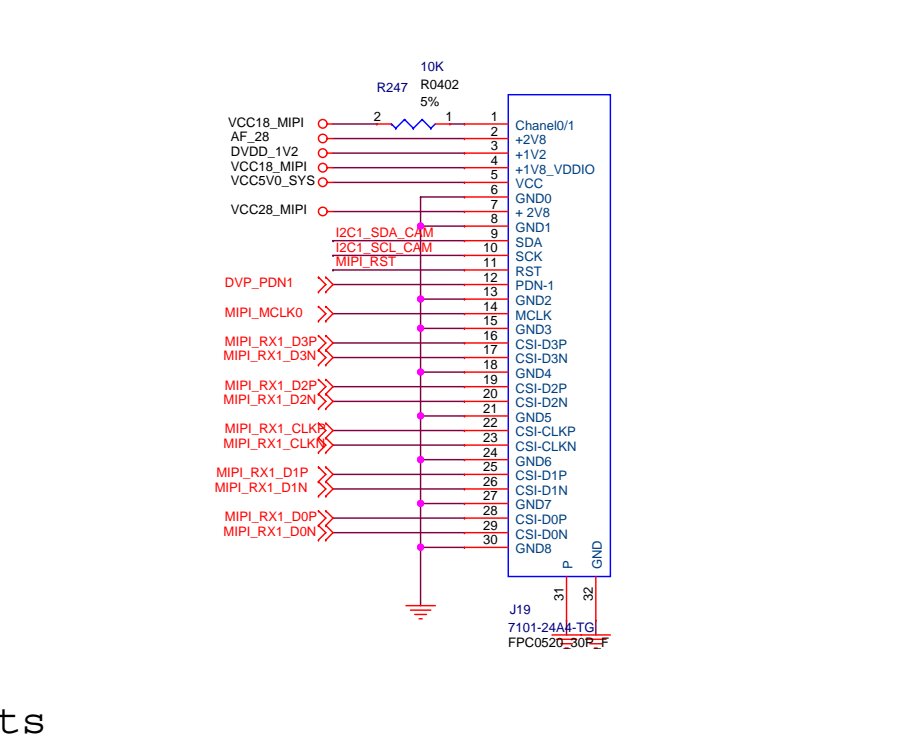
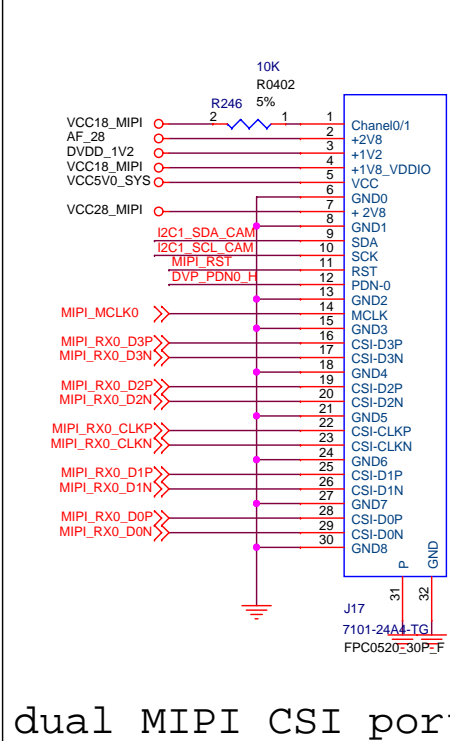
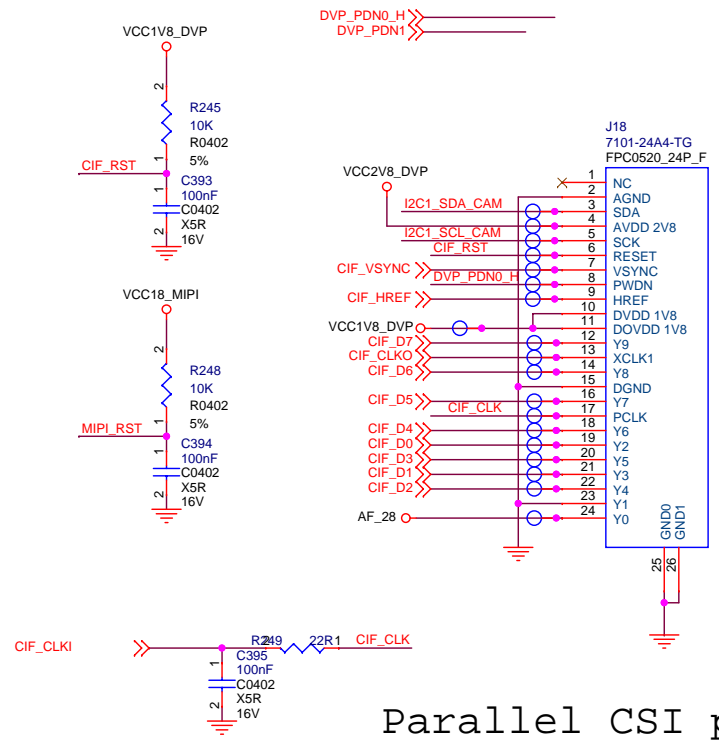
J15
PCIe-64PINX4
PCIe64_DIP



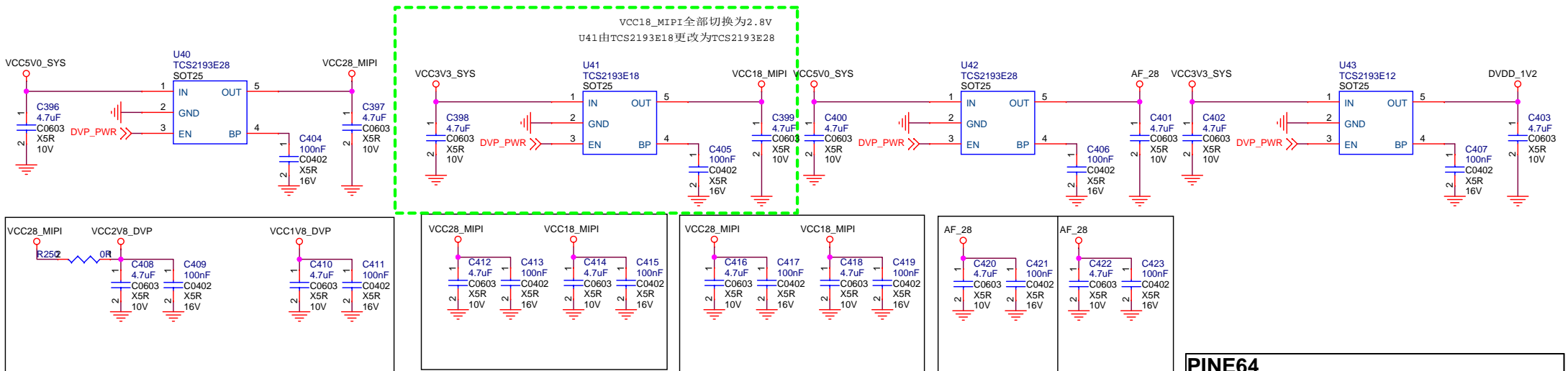
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RockPro64_RK3399		
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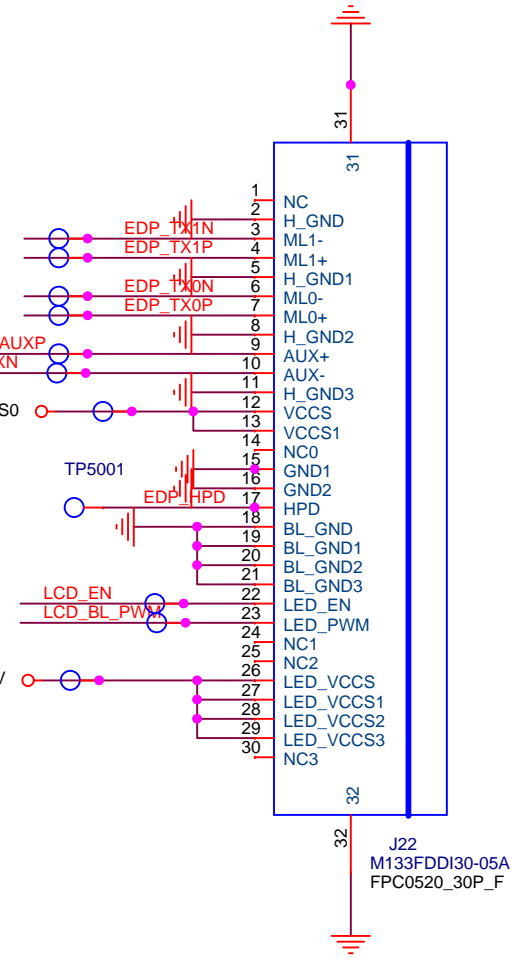
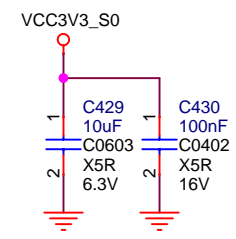
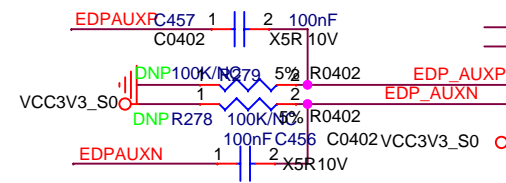
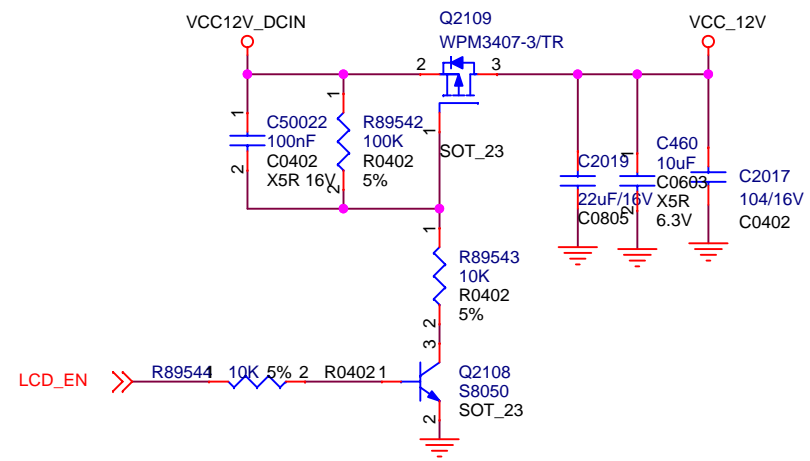
Parallel CSI port dual MIPI CSI ports



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eDP Panel

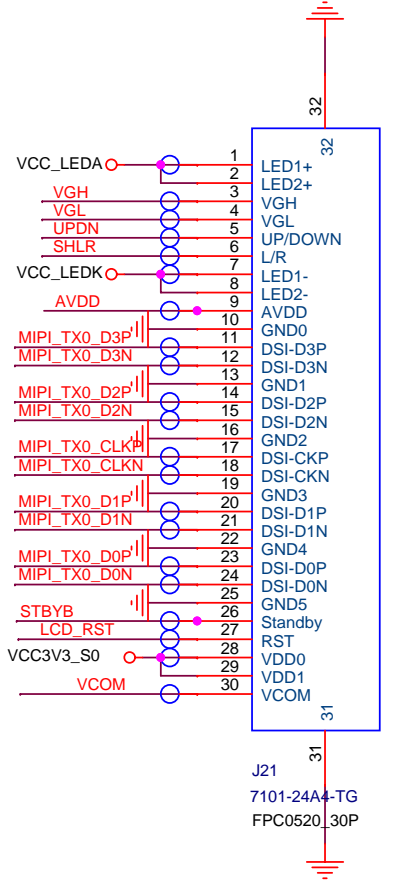
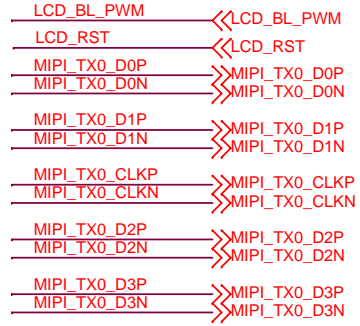
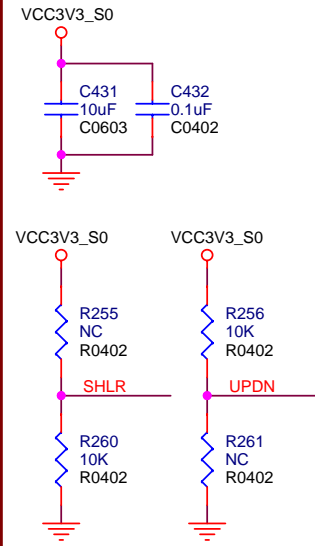
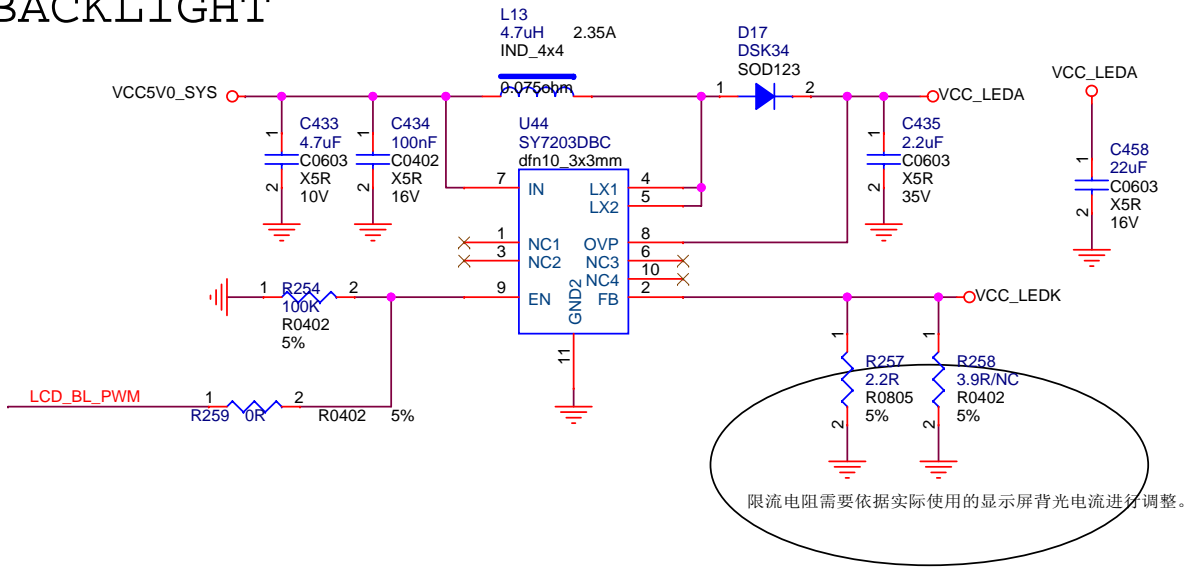
- EDP_TX0N
- EDP_TX0P
- EDP_TX1N
- EDP_TX1P
- EDPAUXN
- EDPAUXP
- LCD_BL_PWM
- LCD_EN
- LCD_RST



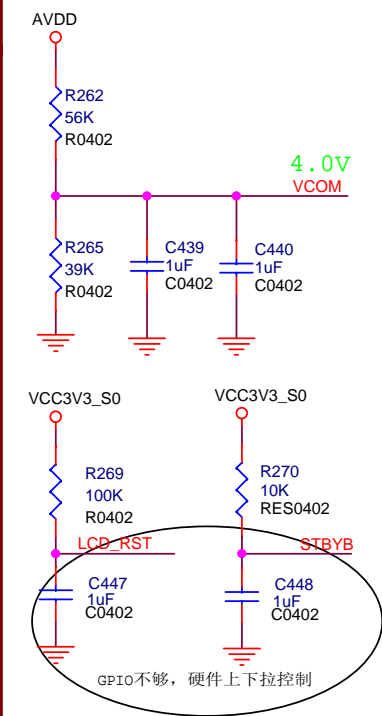
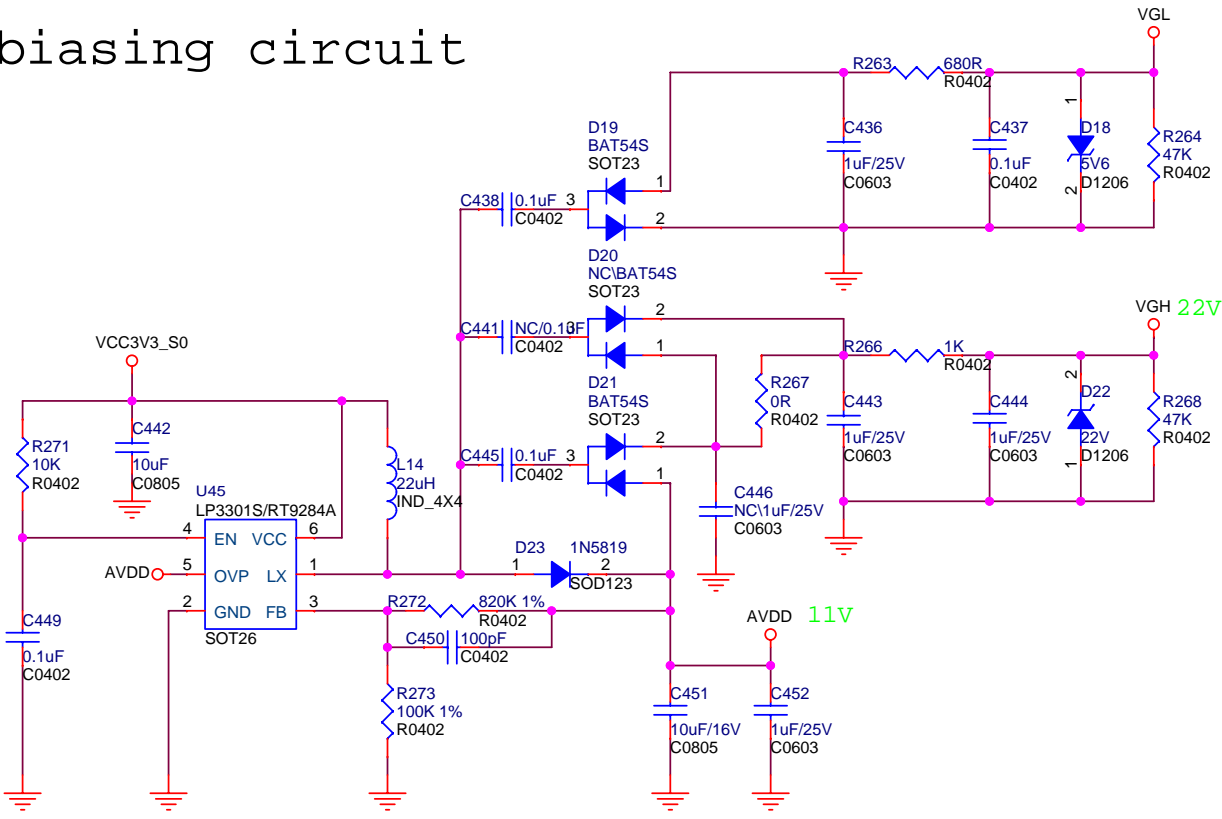
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MIPI Panel

BACKLIGHT

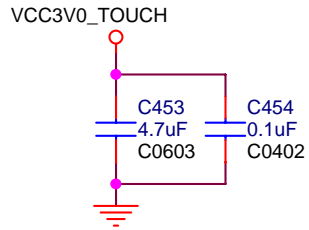
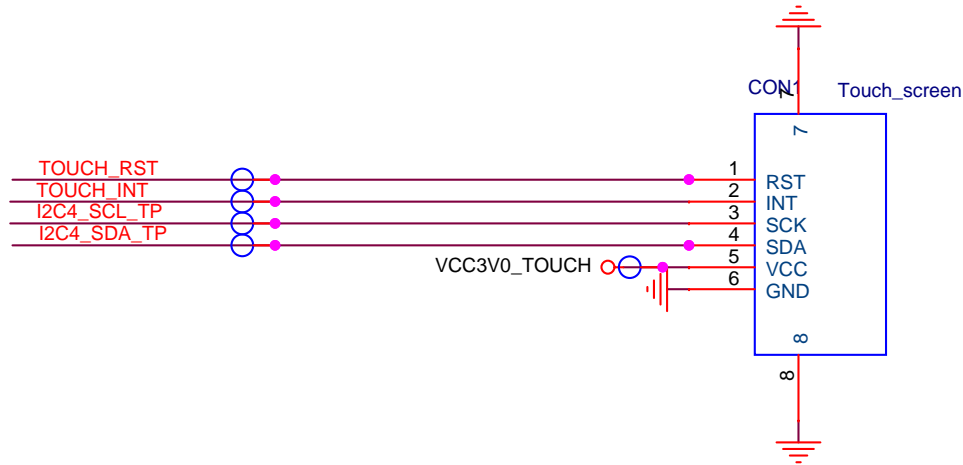
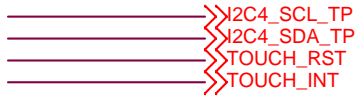


biasing circuit



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Touch Panel connector



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