

Version	Date	Change Note	Approved
V1.0	20170302	First edictor	
v1.0	20190102	NOTE: 1. 去掉SATA, HD接口 2. 去掉D接口	
v1.0	20190308	NOTE: 1. Page21, 新增LCD接口, 原4针定义变更使之兼容并新增吸CMA自动充电电路 2. Page25, 原4PIN PCI插针改为侧插(2ZI变更封装); 删除了USB连接;	
v1.0	20190311	NOTE: 1. Page25, PCIE座恢复接口连接;	
v1.0	20190312	NOTE: 1. Page25, PCIE座删除接口连接; 2. I2C1上拉电阻改为容跳选电阻; 3. PCIE座为立式24IN;	
v1.0	20190313	NOTE: 1. Page25, PCIE座删除接口连接; 2. I2C1上拉电阻删除容跳选电阻; 3. Page21, 增加3.3V及18V脚删除由PMU输出的VCC3V3及VCC18V脚 4. Page21, I2C2电阻改为PMU输出的VCCV0_TOUCH及VCCMIPIL脚 5. Page24, Type-C删除脚删除控制脚 6. Page13, 增加温度检测ADC 7. Page24, FUSB302的2Q1脚上拉电阻 8. Page21, 删除脚, 使VC_SYS与VCC059脚同一脚;	
v1.1	20190708	1. Page23, AP6256 41 引脚CTS调整; 2. Page9, LPDDR4数据网络VCC1V@DR接到V1V8网络 3. Page8, CPU缓存部分: C6, C9删除, 改为0Ω C16, C17, C24, C25, C26, C40, C41, C42, C43, C44, C32, C33改为100nF C8, C10, C11, C12, C16, C17, C18, C19, C23, C24, C25, C26, C27, C28, C31, C32, C33, C34, C35, C39, C40, C41, C42, C43, C44, C45, C46改为0Ω	
	20190717	4. Page13, 增加按键电路: R8D2、SW107、Q55、ES5; 5. Page15, 删除BOR_ADD电路74R5、R59; 6. Page15, TOUCH_RST_L改用GPIO4; 7. Page21, 删除LCD识别电路Q65033\Q65034\Q3\R90380\R903890 384, 改用IC FSA457P6X(U919);	
	20190719	8. Page21, 删除电平切换电路U919, R06; 9. Page15, I2C电压改为VCC1V8; 10. Page23, 37.4MH晶振匹配电容9016 C10改为5pF; 11. Page15, 删除网络WL-MAKE-AP与的连接 同时删除436, GND脚 CTP1_INT网络; 12. Page15, VCC5V0 TYPEC E脚连接由GPIO_D2改为GPIO_B4, GPIO_D2改接CSIEN_CTP_RST;	
	20190725	13. Page23, 删除电阻R134、R3优化晶路线; 14. Page25, GPIO座PI脚接改GPIO4_C6;	
	20190726	15. Page21, CAN座子J4定位信号CSI_RST_脚共用, 改为独立脚RST_C; 16. Page21, CAN座子J4改为与J701共用; 17. Page21, 删除R9080、R9051; 18. Page21, J4701 EDP_CABC_E脚接GPIO05	
	20190822	19. Page23, 增加电容: 21. Page23, C9016 C1改为0.02, 1μ 22. Page05, U9001改为焊盘P50284、50285 23. Page25, 请串口串接90406、R907K电阻; 24. Page23, 线匹配C0171、0016 C41改为0封装;	
	20190822	25. Page25, 增加PE接口GPIO2、C440 C44, C44, C45, C902, Q2	
	20191030	26. Page25, 增加电阻R0408、R0409 EIE座子新增0 DM连接	



Xunlong Co., Limited			
Design Name		ORANGEPI-RK3399-Lite	
Size	Page Name	Rev	
A3	VERSION HISTORY	12	
Date:	Thursday, October 31, 2019	Sheet	1 of 26

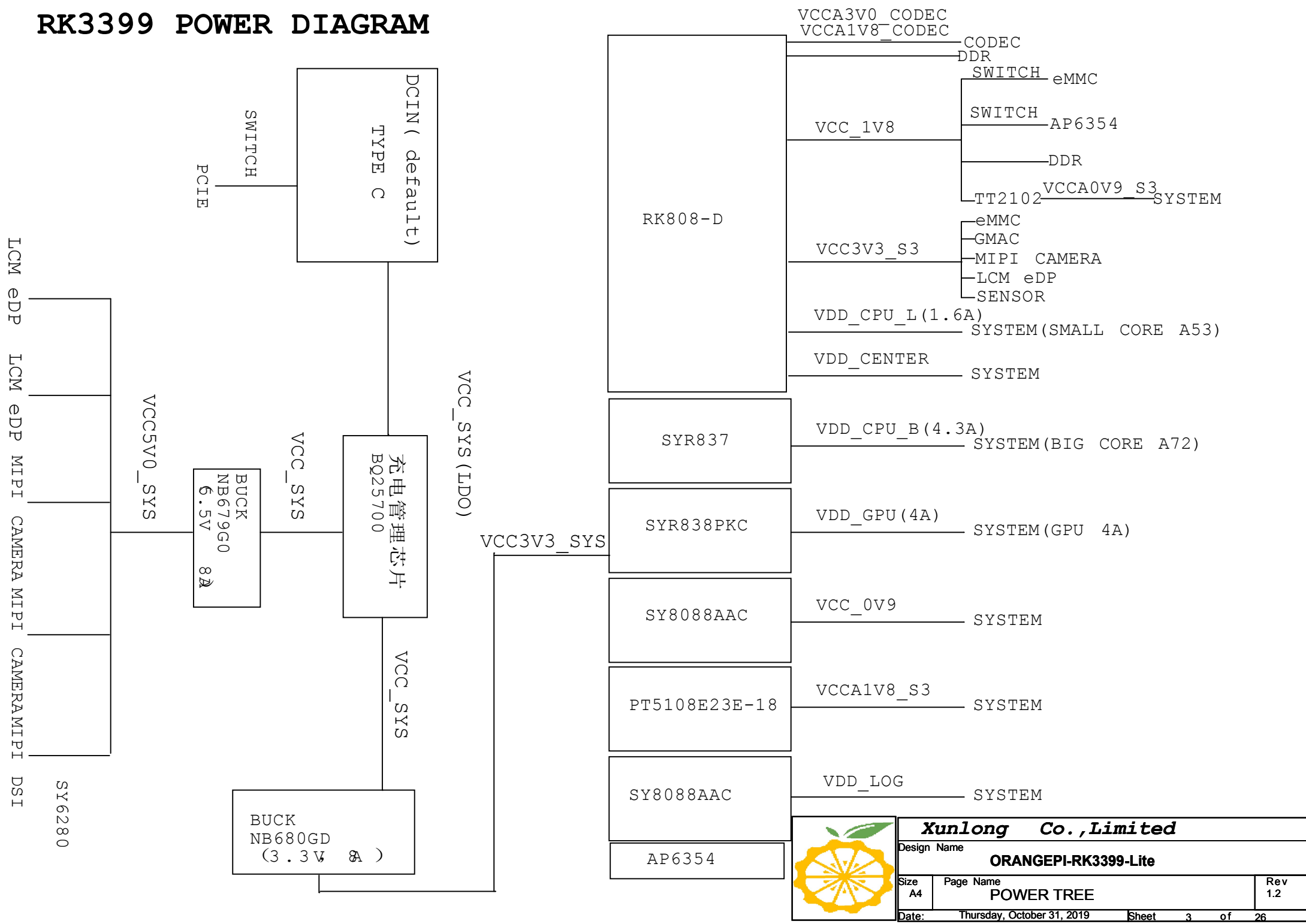
RK3399 I2C MAP

Port	Pin name	Domain	Bus name	Pull-up voltage	Slave Device	Slave Addr (MS 7Bits)	Note	Slave Bus Capability
I2C0	GPIO1_B7/SPI3_RXD/I2C0_SDA GPIO1_C0/SPI3_TXD/I2C0_SCL	PMUIO2 VCC1V8_PMU	I2C_SDA_PMIC I2C_SCL_PMIC	VCC1V8_PMU	TI LP8752-Q1	0x60	DC regulator	100kHz,400kHz,1MHz fast mode+ 3.4MHz high-speed mode
					Rockchip RK808	0x1b	PMIC	
					Fairchild FUSB302B	0x44,0x46	USB-TypeC Mux	100kHz,400kHz,1MHz fast mode+
I2C1	GPIO4_A1/I2C1_SDA GPIO4_A2/I2C1_SCL	APIO5 VCC1V8_IO	I2C_SDA_AUDIO I2C_SCL_AUDIO	VCCA1V8_CODEC	Everest ES8316	0x10	Audio codec	
			I2C_SDA_CAM I2C_SCL_CAM	VCCA1V8_CODEC	Omnivision OV8858	0x6c,0x20	MIPI Camera	
I2C2	GPIO2_A0/VOP_D0/CIF_D0/I2C2_SDA GPIO2_A1/VOP_D1/CIF_D1/I2C2_SCL	APIO2 VCC1V8_IO	Other pin function					
I2C3	GPIO4_C0/I2C3_SDA/UART2B_RX GPIO4_C1/I2C3_SCL/UART2B_TX	APIO4 VCC3V0_IO	I2C_SDA_HDMI I2C_SCL_HDMI	VCC3V0_IO				
I2C4	GPIO1_B3/I2C4_SDA GPIO1_B4/I2C4_SCL	PMUIO2 VCC1V8_IO	I2C_SDA_MEMS I2C_SCL_MEMS	VCC1V8_PMU	Capellamicro CM3218	0x10,0x0c	ALS Sensor	
					AsahiKasei AK8963C		Compass	
					InverSense MPU6500	0x34	Accer+Gyro	
			I2C_SDA_TOUCH I2C_SCL_TOUCH	VCC1V8_TOUCH	Silead GSL3680	0x40	Touch panel	
I2C5	GPIO3_B2/MAC_RXER/I2C5_SDA GPIO3_B3/MAC_CLK/I2C5_SCL	APIO1 VCC3V3_LAN	I2C_SDA_PCIE I2C_SCL_PCIE	VCC3V3_IO				
I2C6	GPIO2_B1/SPI2_RXD/CIF_HREF/I2C6_SDA GPIO2_B2/SPI2_TXD/CIF_CLKIN/I2C6_SCL	APIO2 VCC1V8_IO	I2C_SDA_BAT I2C_SCL_BAT	VCC1V8_DVP	Chrome Battery	0x19	Battery	100kHz
					TI BQ25700	0x6a (I2C) 0x09 (SMBus)	Charger	
					Fairchild FUSB302B	0x44,0x46	USB-TypeC Mux	100kHz,400kHz,1MHz fast mode+
I2C7	GPIO2_A7/VOP_D7/CIF_D7/I2C7_SDA GPIO2_B0/VOP_CLK/CIF_VSYNC/I2C7_SCL	APIO2 VCC1V8_IO	Other pin function					

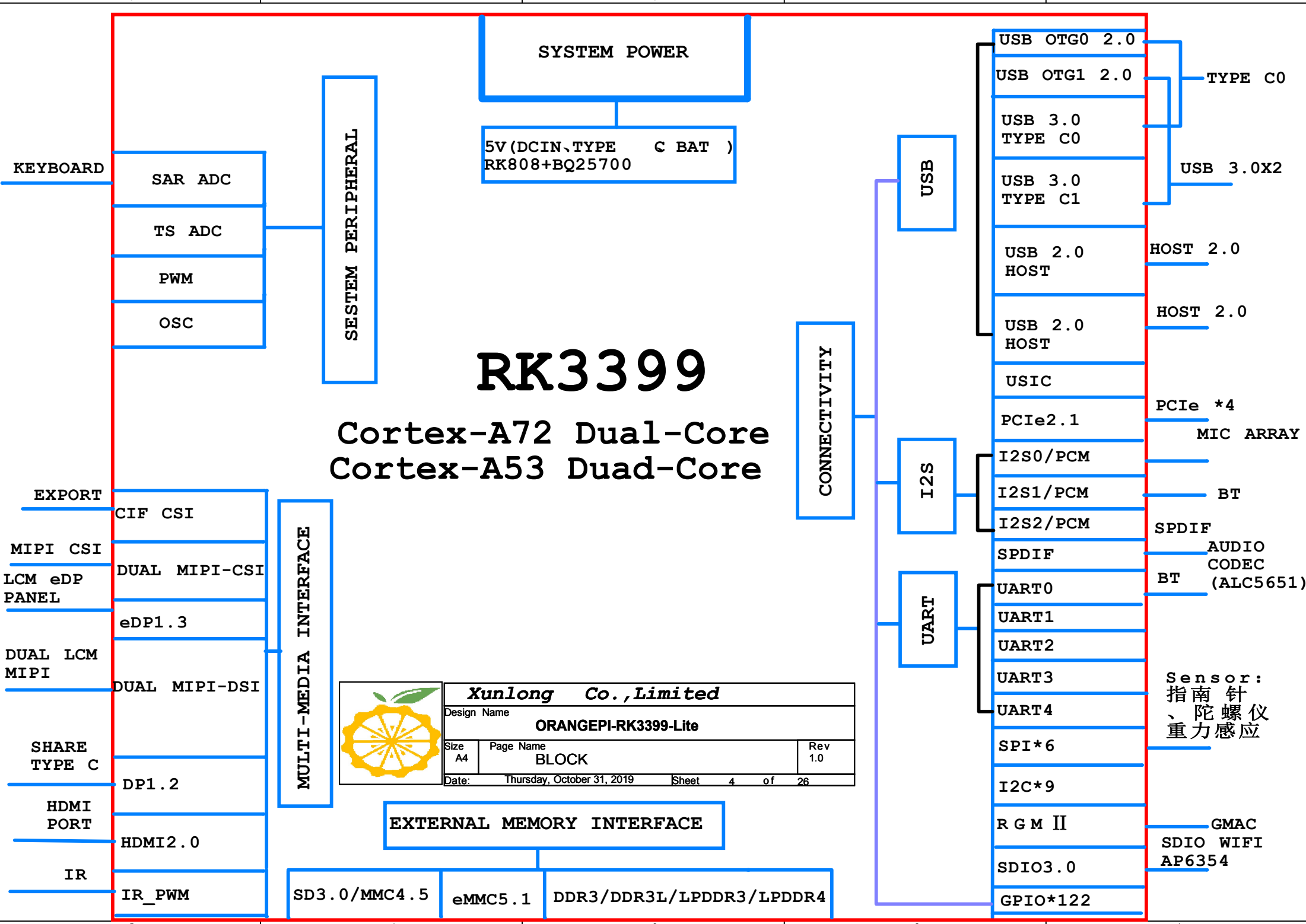


Xunlong Co., Limited			
Design Name		ORANGEPI-RK3399-Lite	
Size A4	Page Name I2C MAP		Rev 1.2
Date:	Thursday, October 31, 2019		Sheet 2 of 26

RK3399 POWER DIAGRAM



Xunlong Co., Limited		
Design Name: ORANGEPI-RK3399-Lite		
Size: A4	Page Name: POWER TREE	Rev: 1.2
Date: Thursday, October 31, 2019	Sheet: 3	of 26

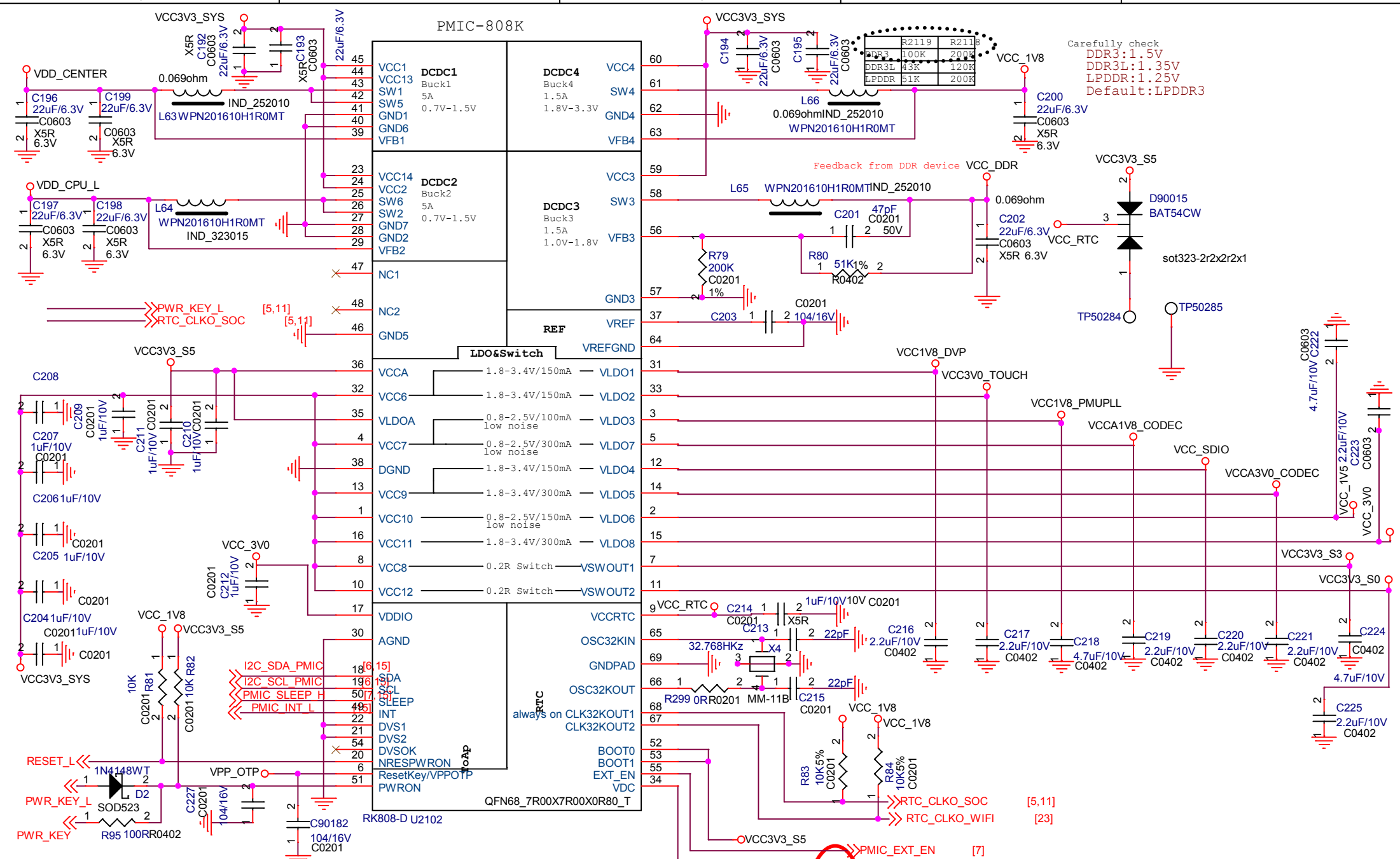


RK3399

Cortex-A72 Dual-Core
Cortex-A53 Duad-Core



Xunlong Co., Limited		
Design Name		
ORANGEPI-RK3399-Lite		
Size A4	Page Name BLOCK	Rev 1.0
Date: Thursday, October 31, 2019 Sheet 4 of 26		

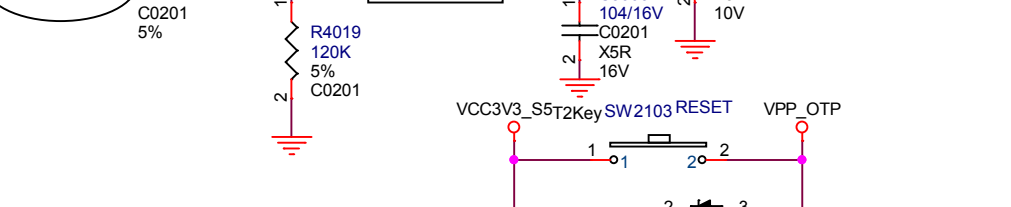
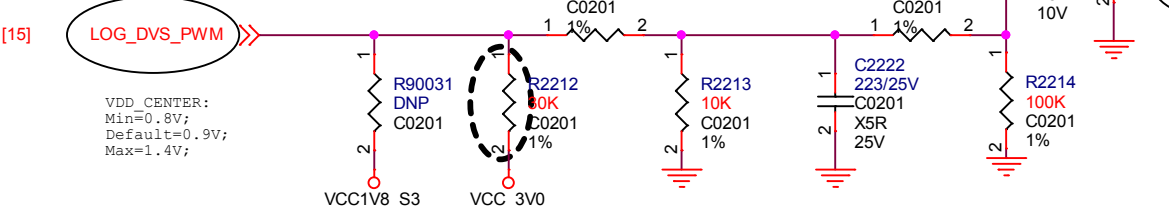
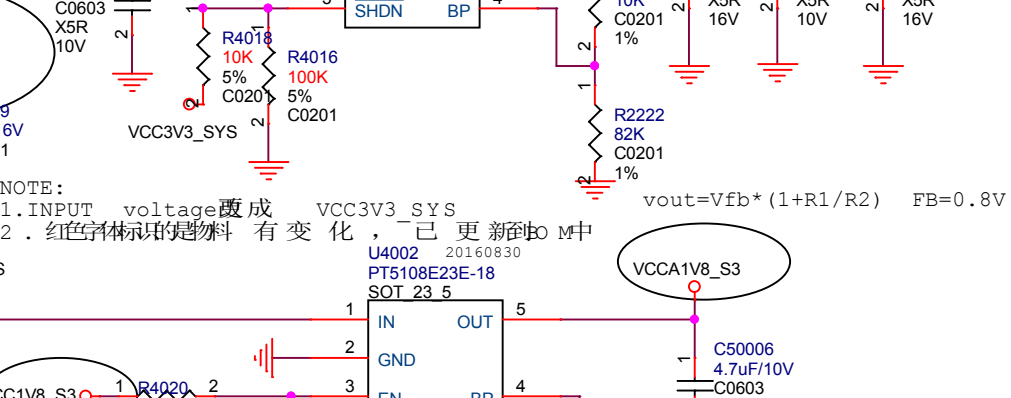
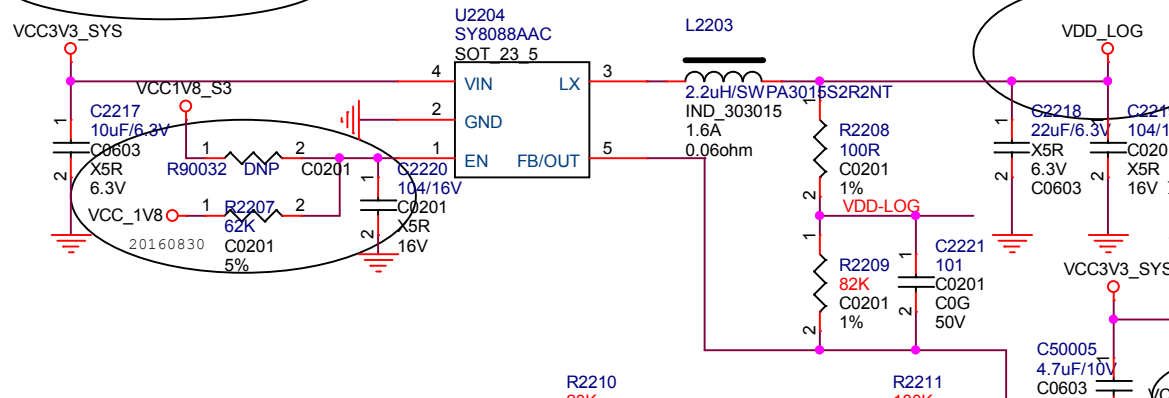
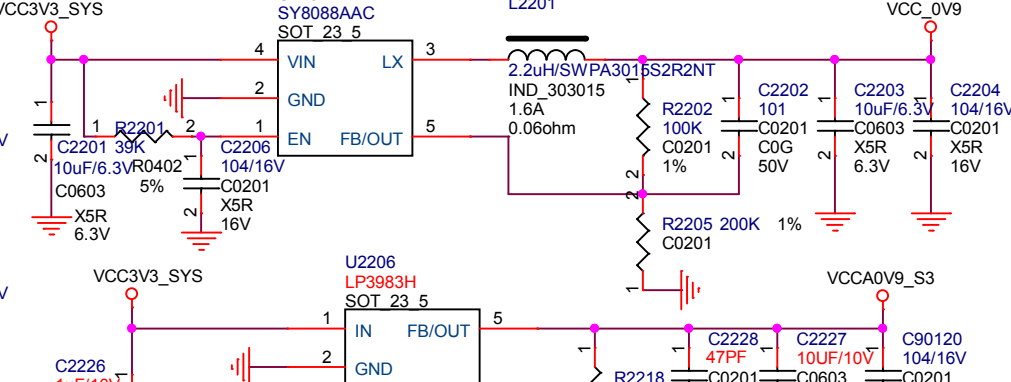
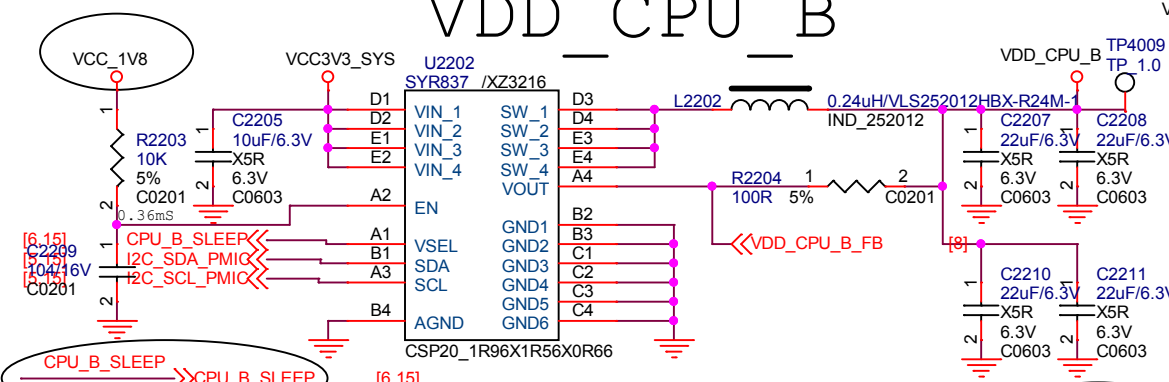


Carefully check
 DDR3:1.5V
 DDR3L:1.35V
 LPDDR:1.25V
 Default:LPDDR3

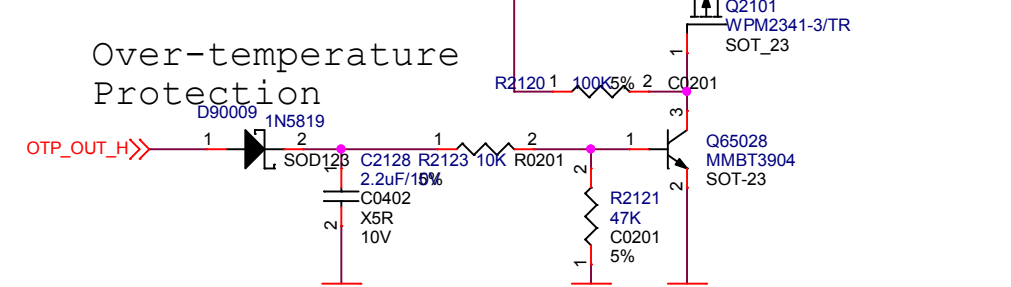
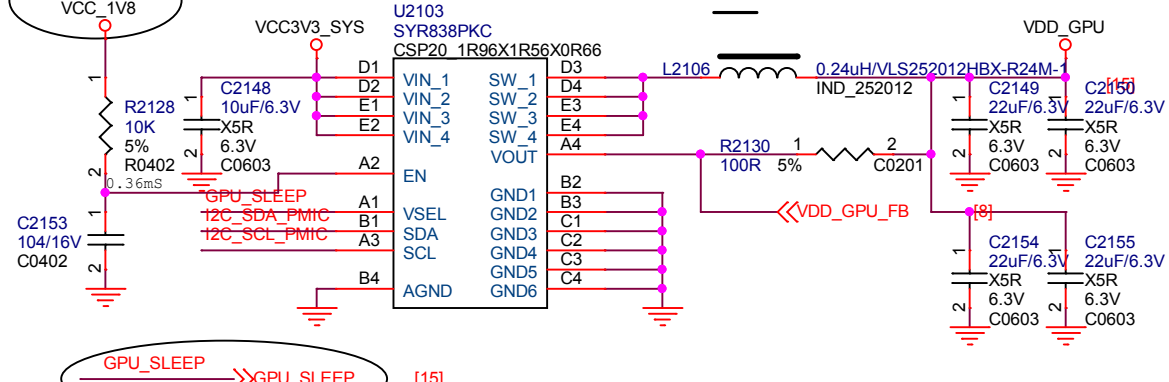


Xunlong Co., Limited		
Design Name		
ORANGEPI-RK3399-Lite		
Size	Page Name	Rev
A4	POWER1-RK808-D	1.0
Date:	Thursday, October 31, 2019	Sheet 5 of 26

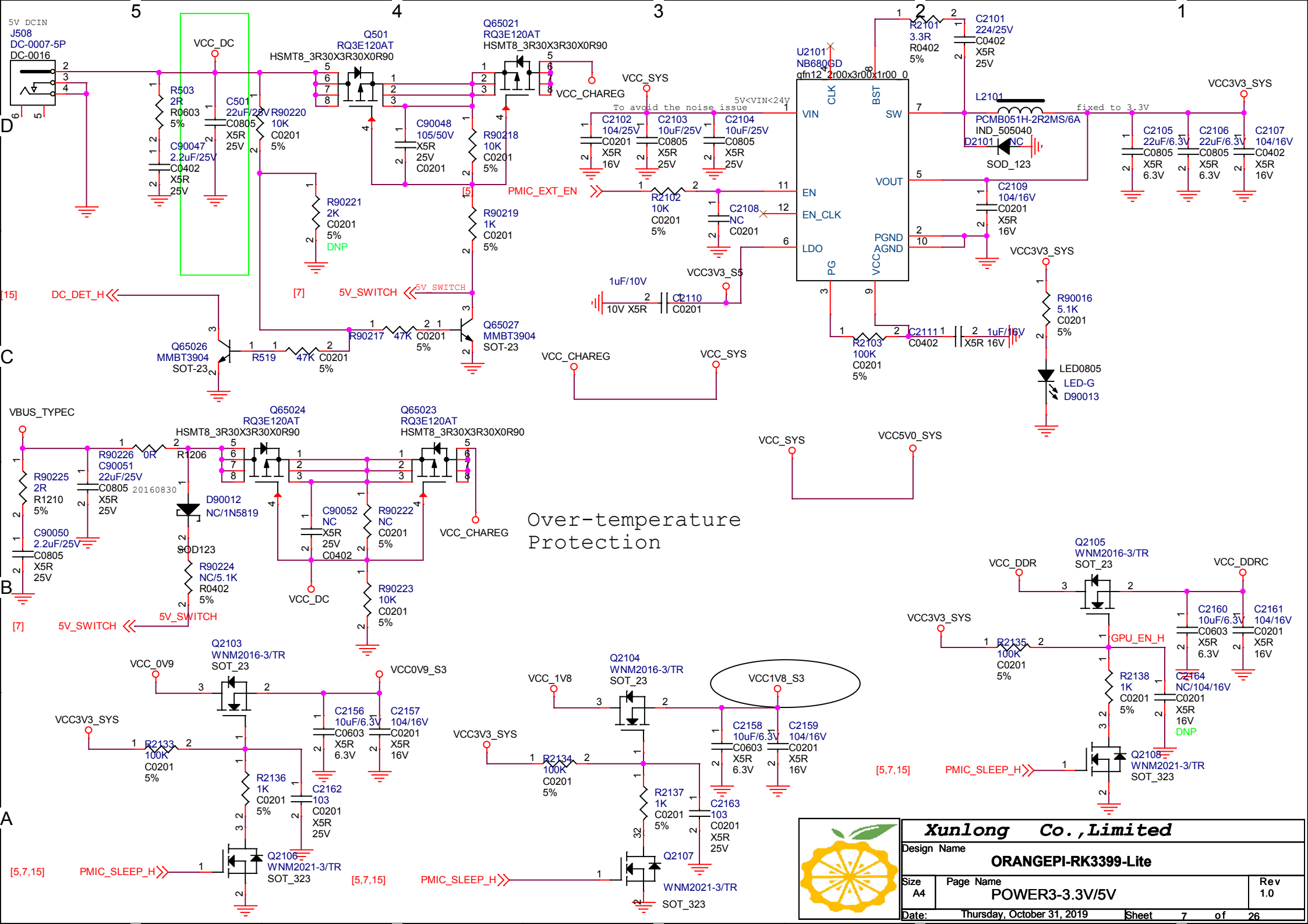
VDD CPU B



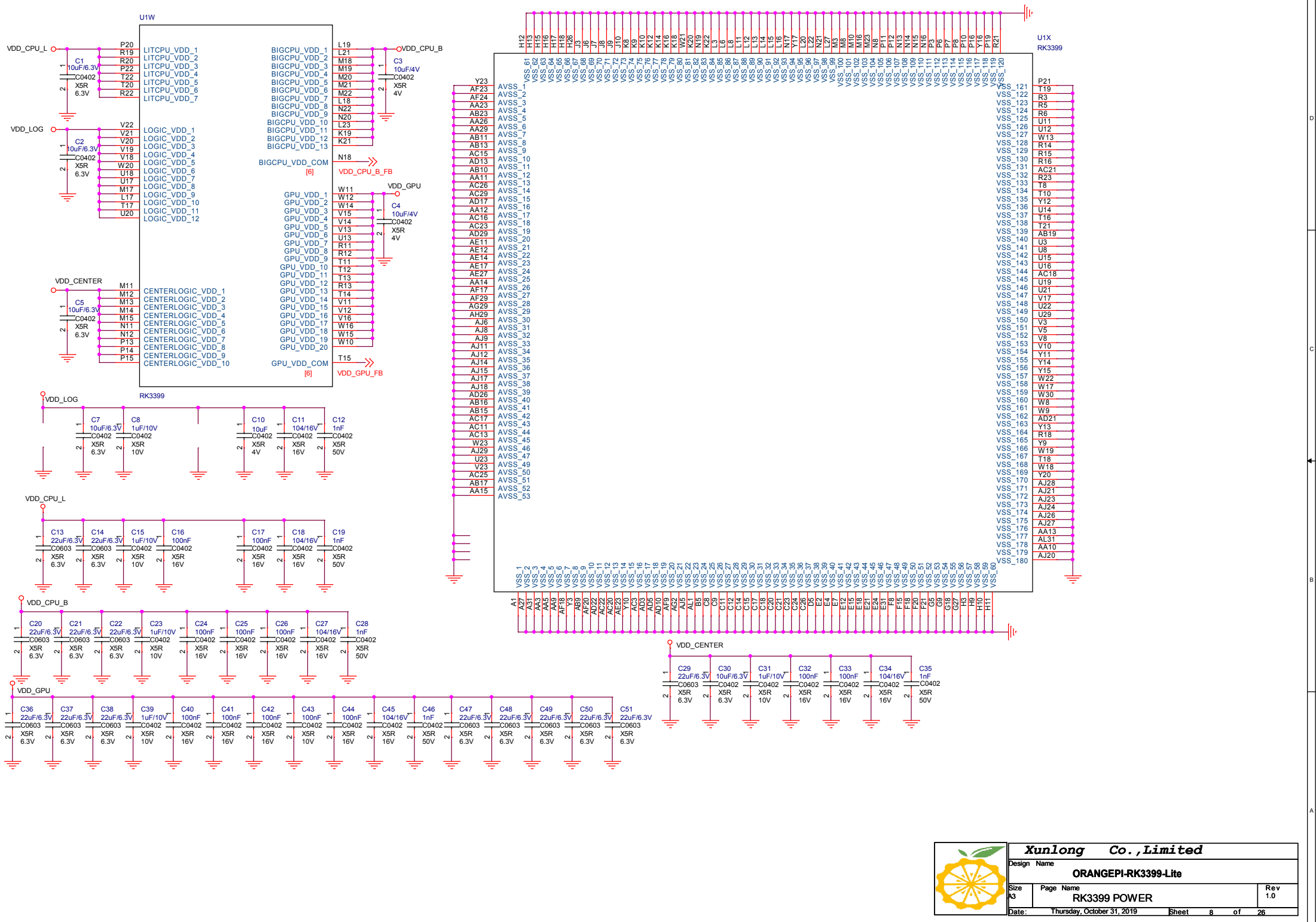
VDD GPU

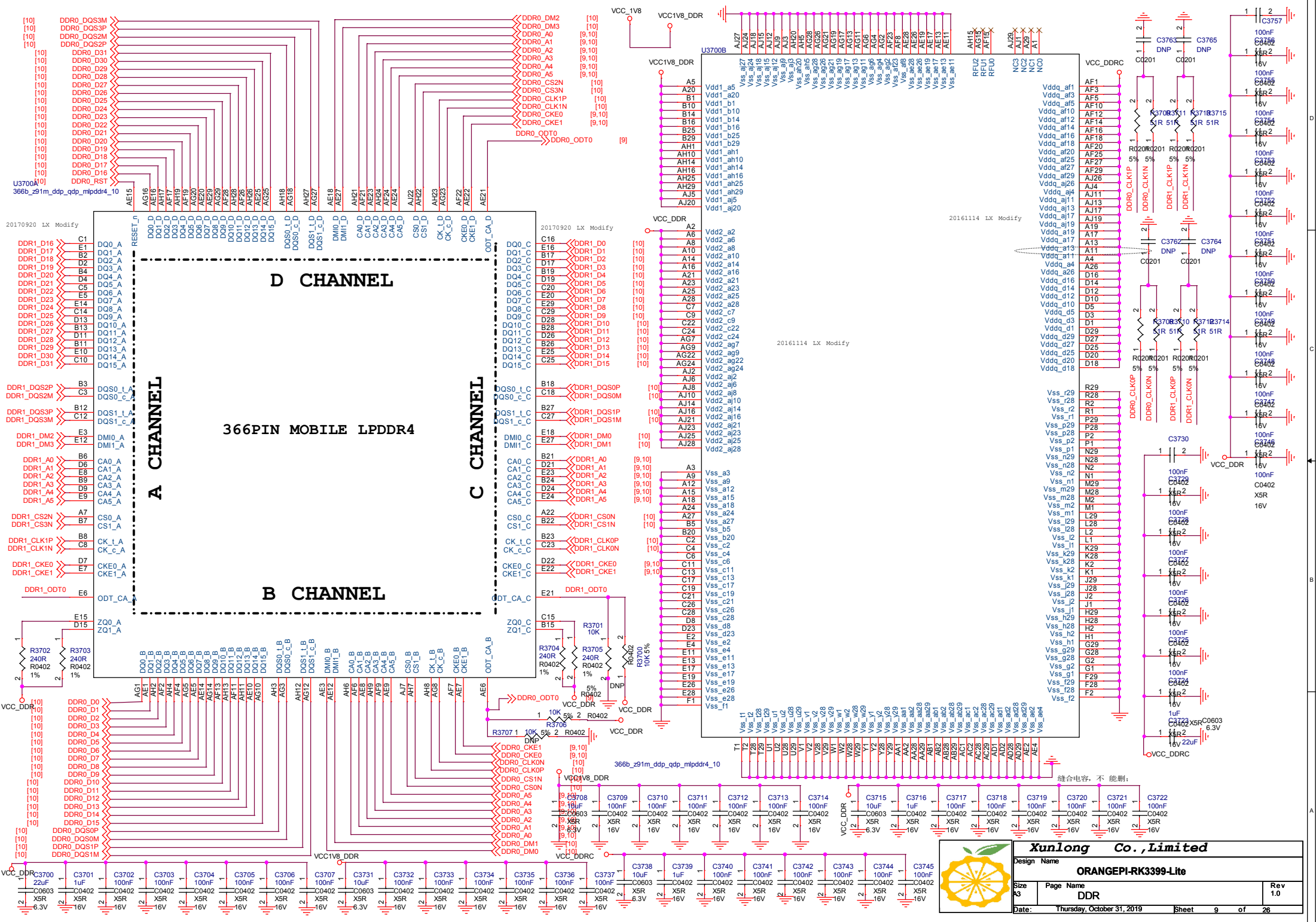


Xunlong Co., Limited		
Design Name ORANGEPI-RK3399-Lite		
Size A4	Page Name POERER2-CPU/GPU/ETC	Rev 1.0
Date:	Thursday, October 31, 2019	Sheet 6 of 26



Xunlong Co., Limited		
Design Name		
ORANGEPI-RK3399-Lite		
Size	Page Name	Rev
A4	POWER3-3.3V/5V	1.0
Date:	Thursday, October 31, 2019	Sheet 7 of 26





Xunlong Co., Limited

ORANGEPI-RK3399-Lite

Design Name: **DDR**

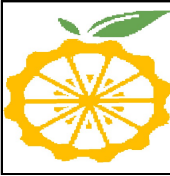
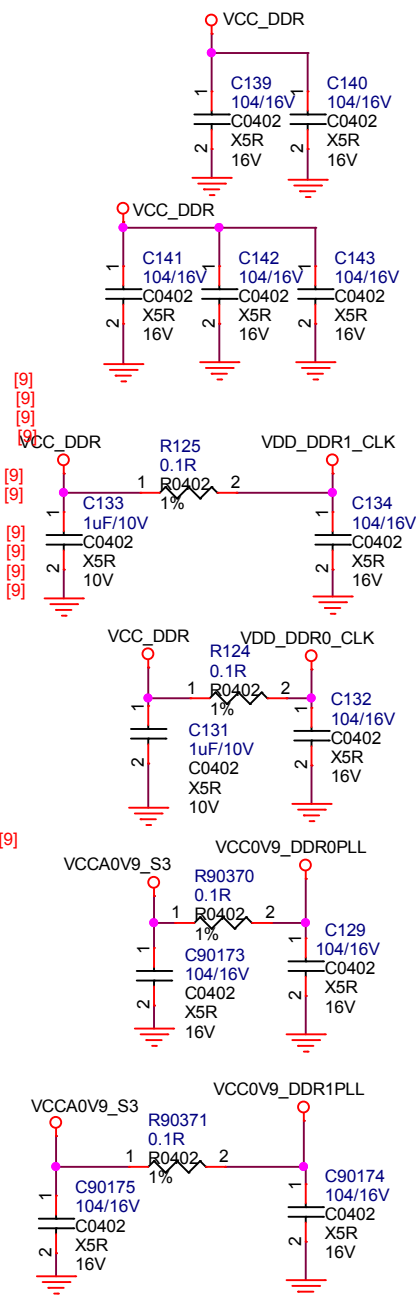
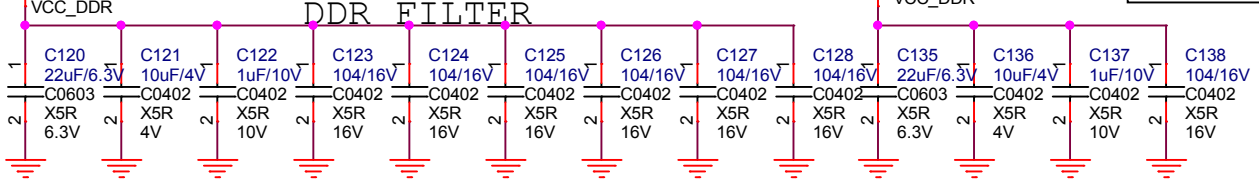
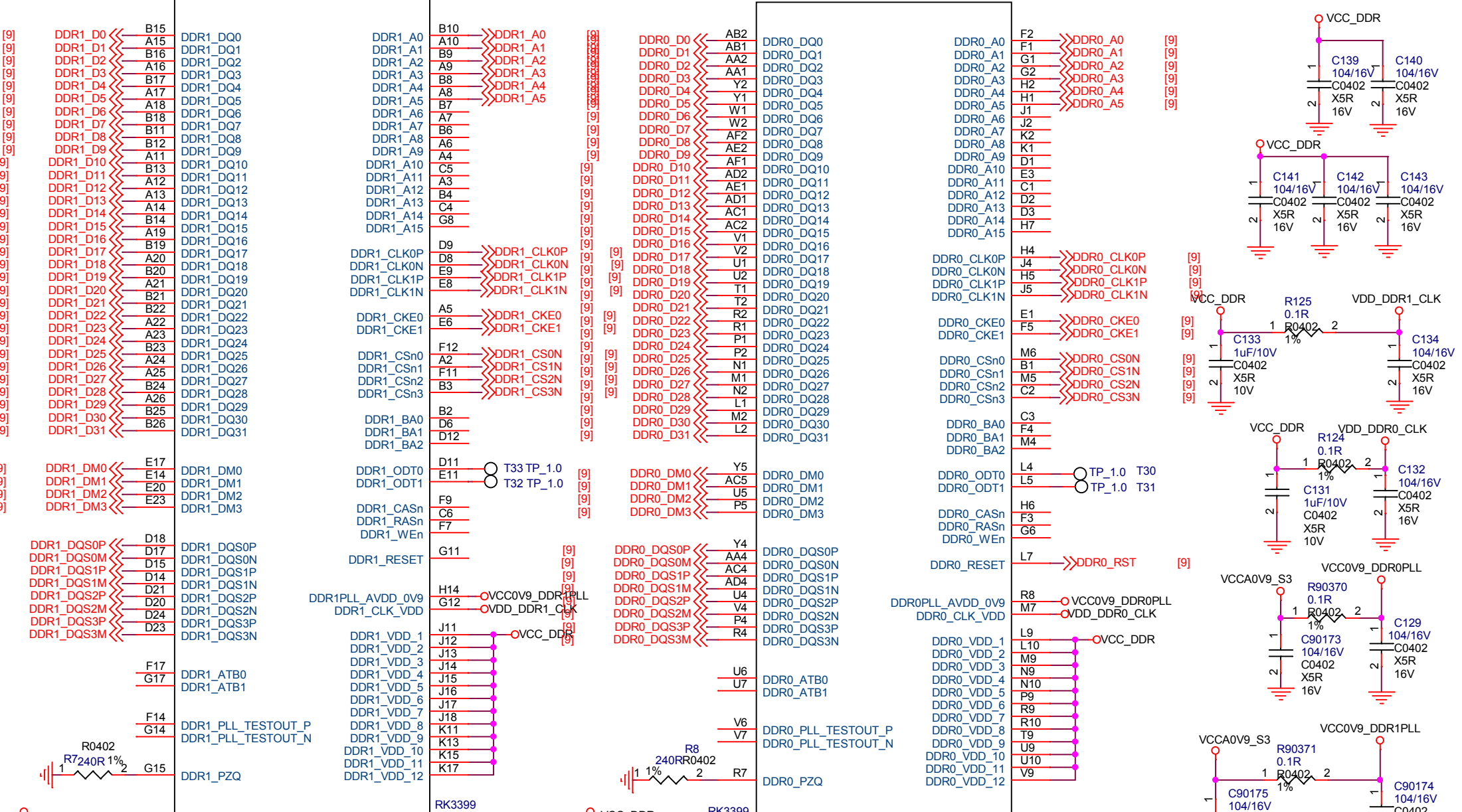
Size: **A3** Page Name: **DDR** Rev: **1.0**

Date: **Thursday, October 31, 2019** Sheet: **9** of **26**

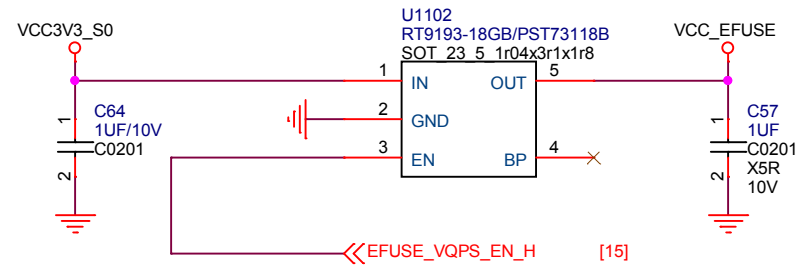
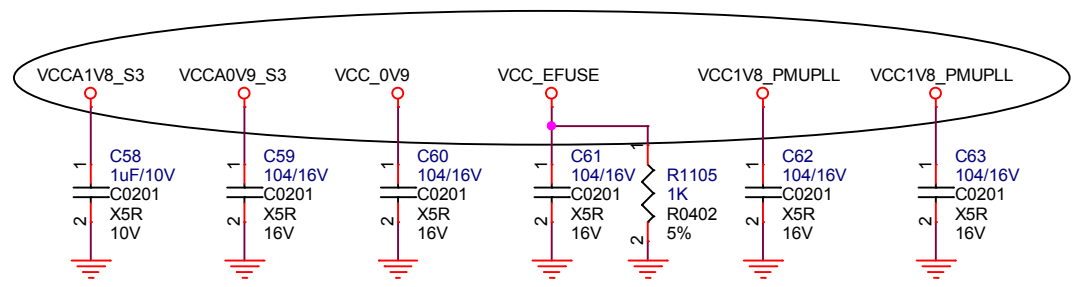
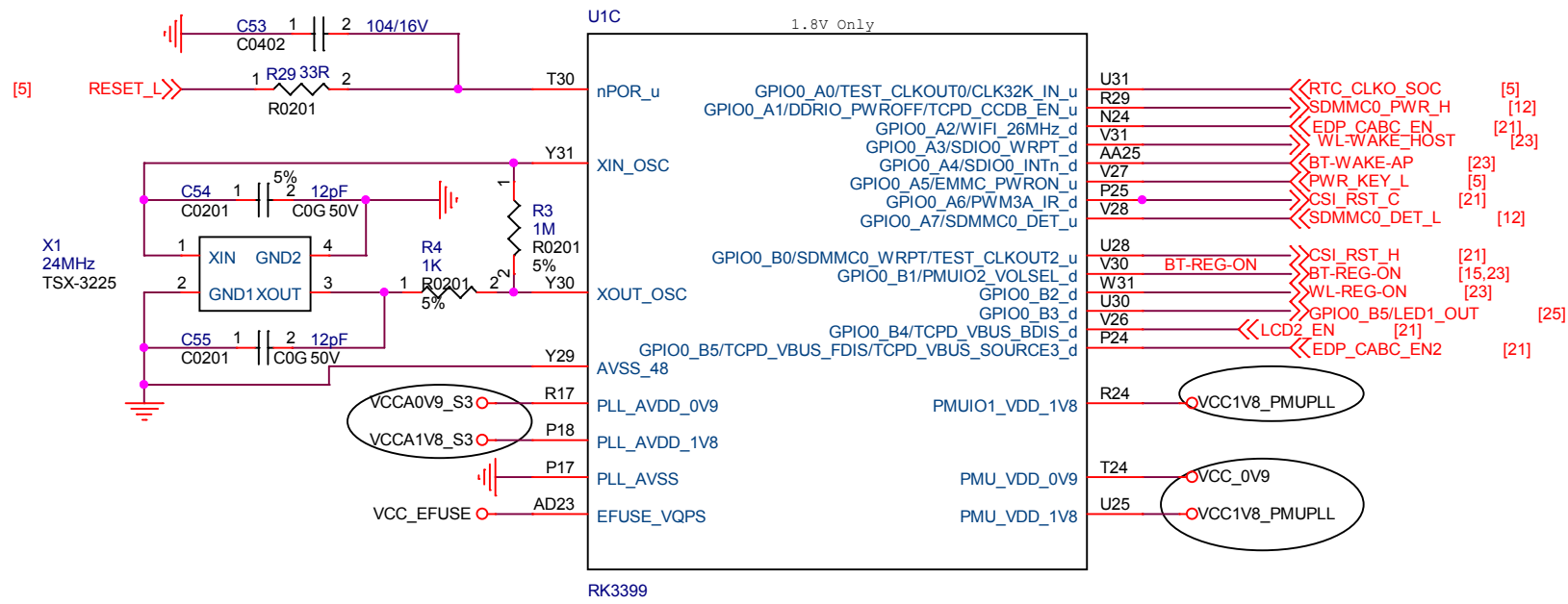


U1A

U1B

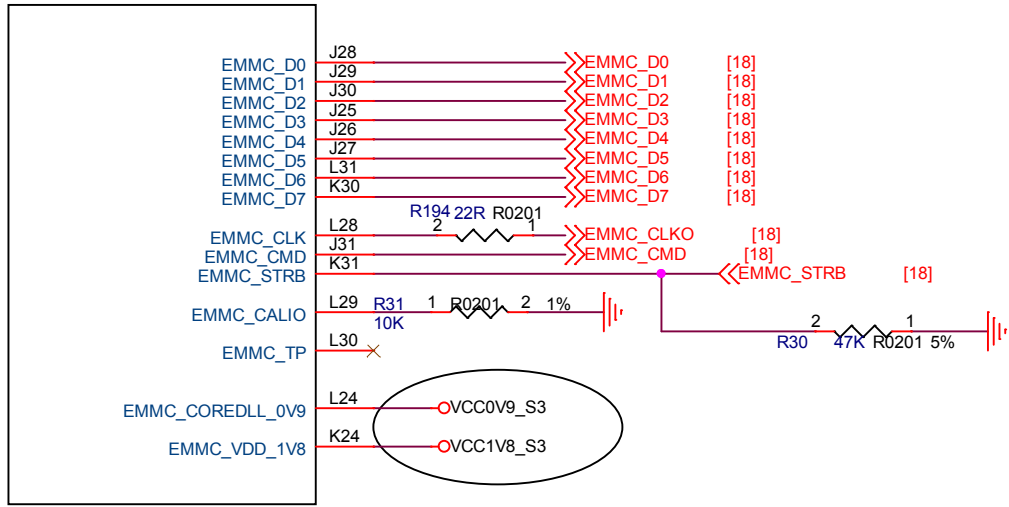


Xunlong Co., Limited		
Design Name		
ORANGEPI-RK3399-Lite		
Size	Page Name	Rev
A4	RK3399 DDR	1.0
Date:	Thursday, October 31, 2019	Sheet 10 of 26

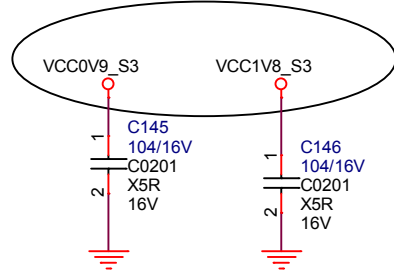


Xunlong Co., Limited		
Design Name		
ORANGEPI-RK3399-Lite		
Size	Page Name	Rev
A4	RK3399 PMU	1.0
Date:	Thursday, October 31, 2019	Sheet 11 of 26

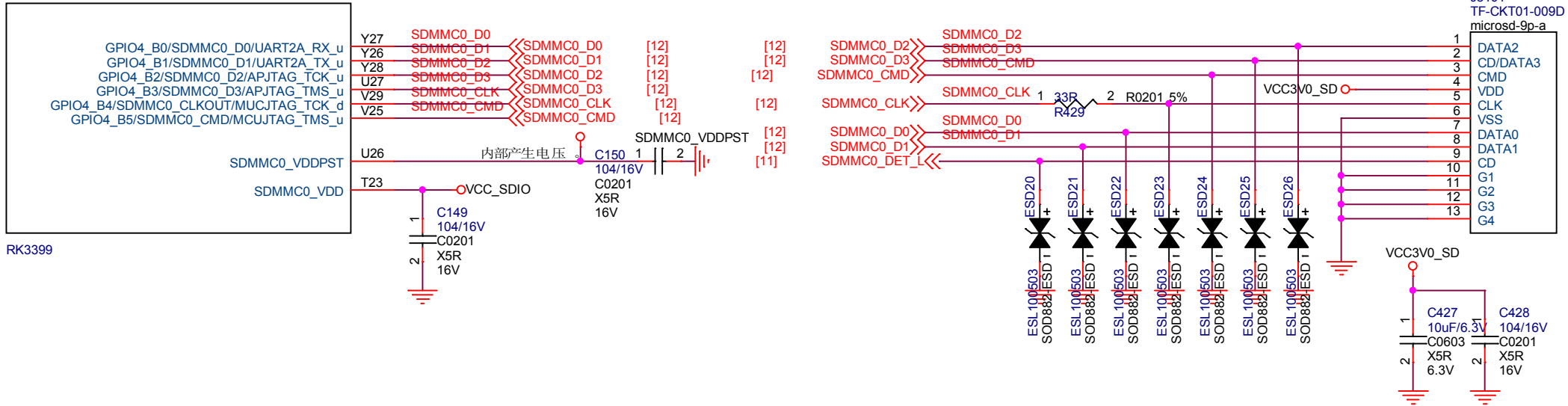
U1H



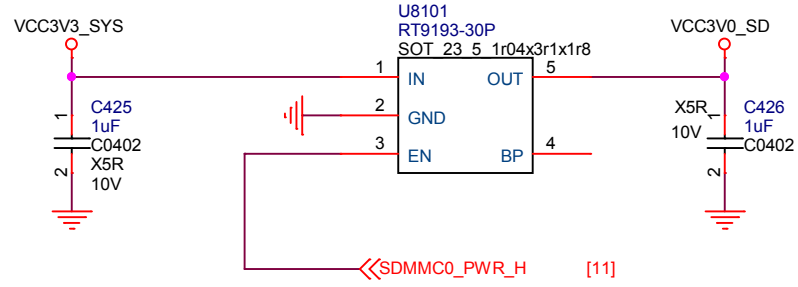
RK3399



U1F



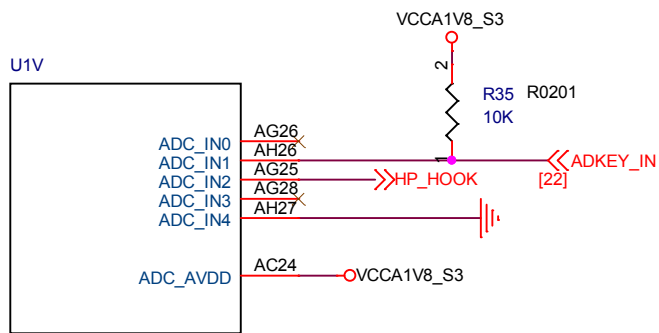
RK3399



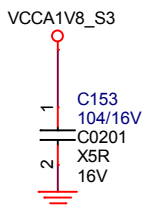
TF CARD



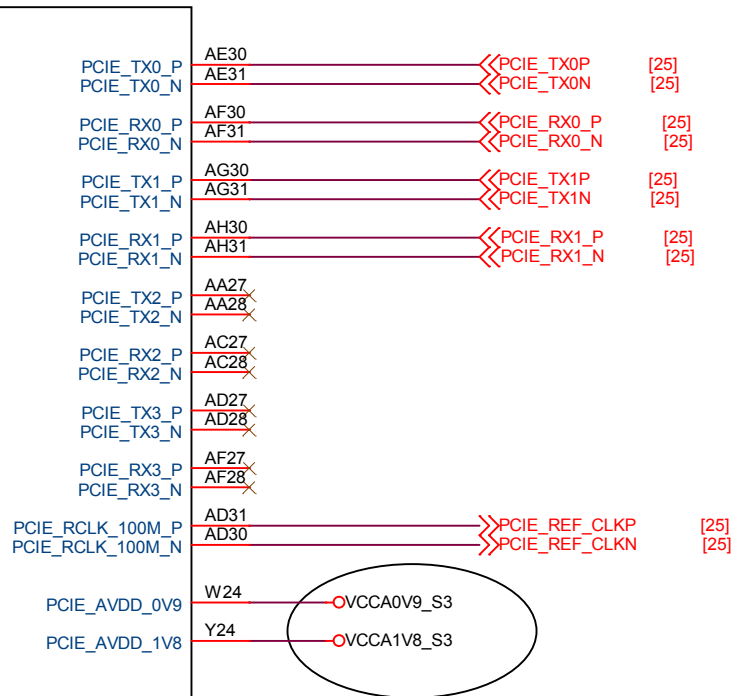
Xunlong Co., Limited		
Design Name		
ORANGEPI-RK3399-Lite		
Size	Page Name	Rev
A4	RK3399 eMMC TF	1.0
Date:	Thursday, October 31, 2019	Sheet 12 of 26



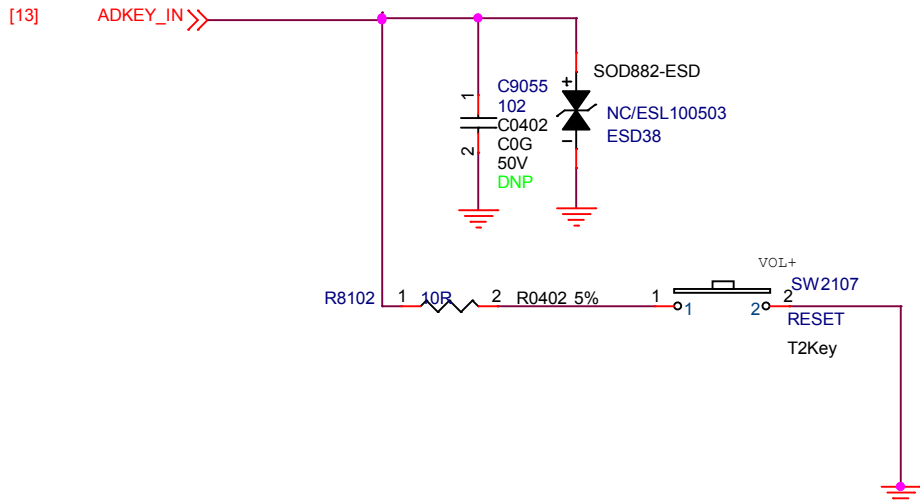
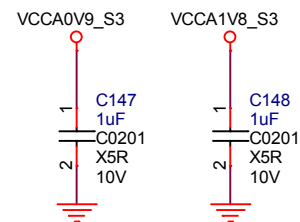
RK3399



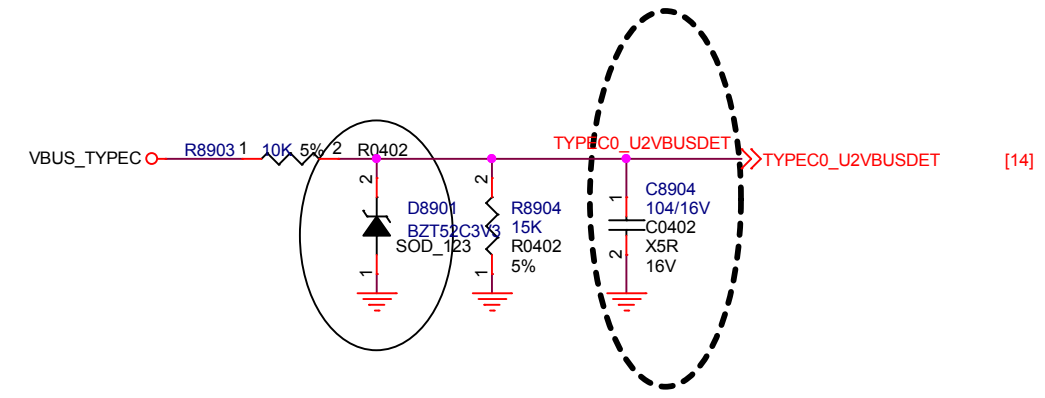
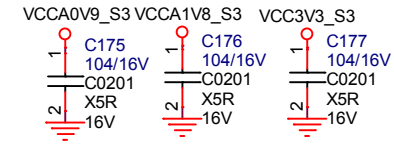
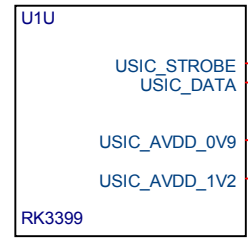
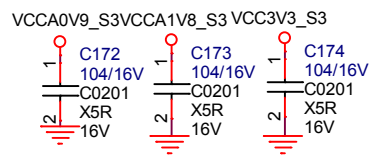
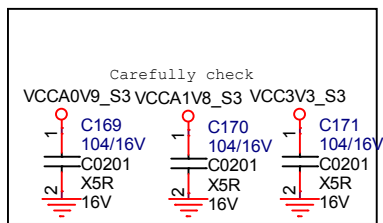
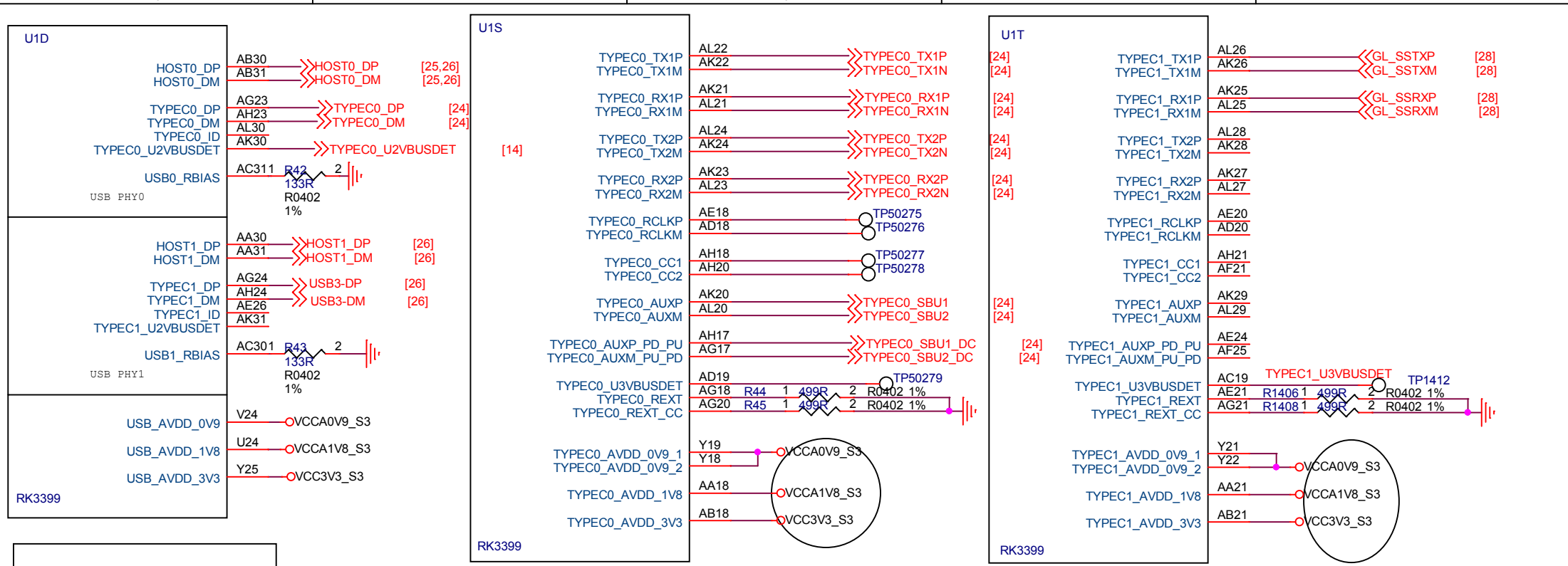
U10



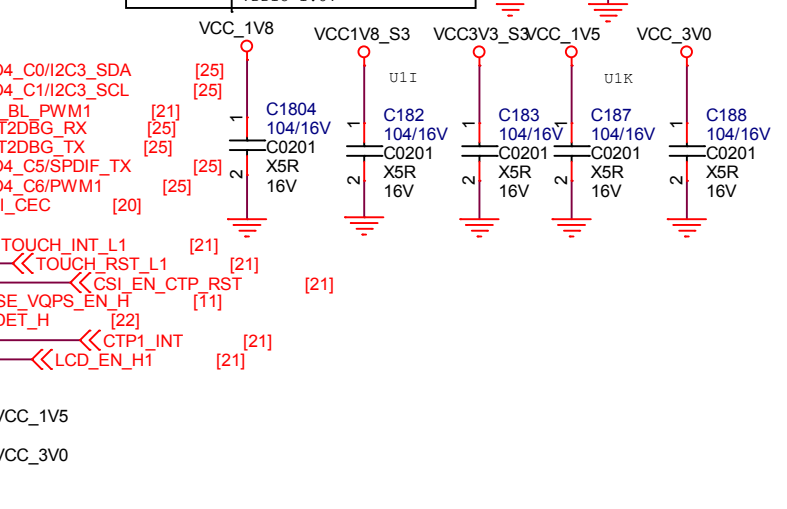
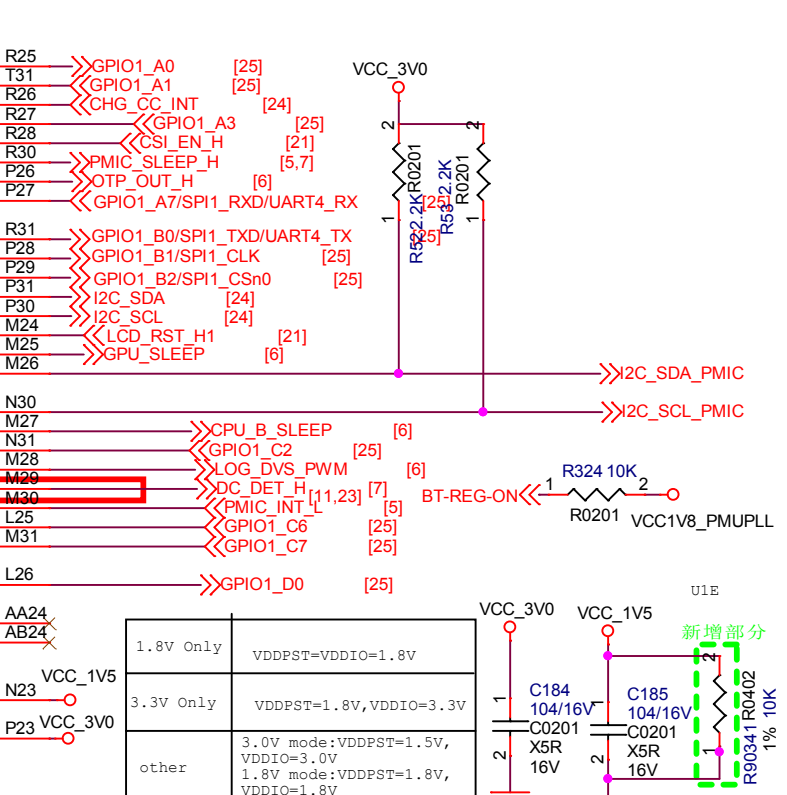
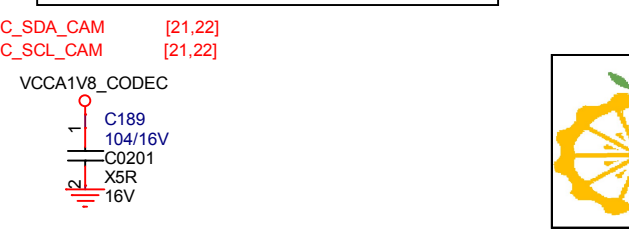
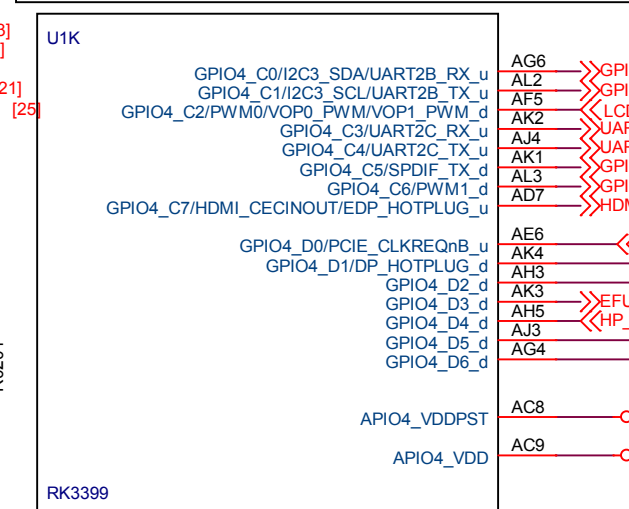
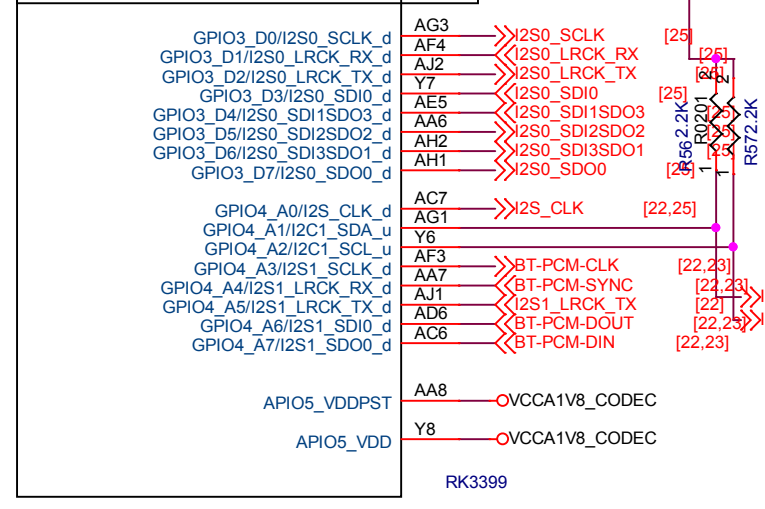
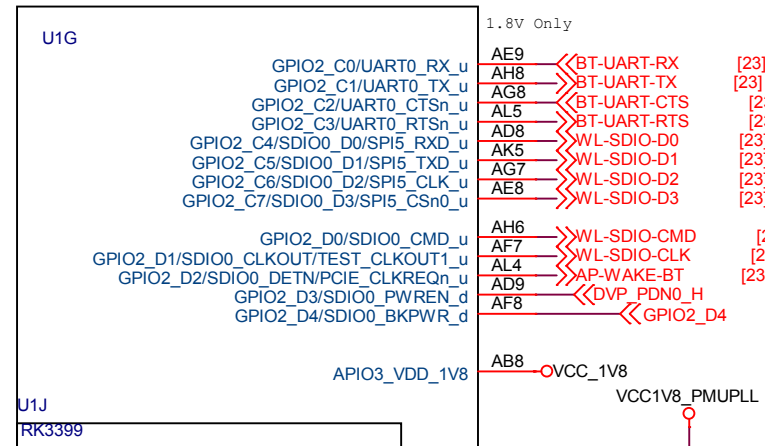
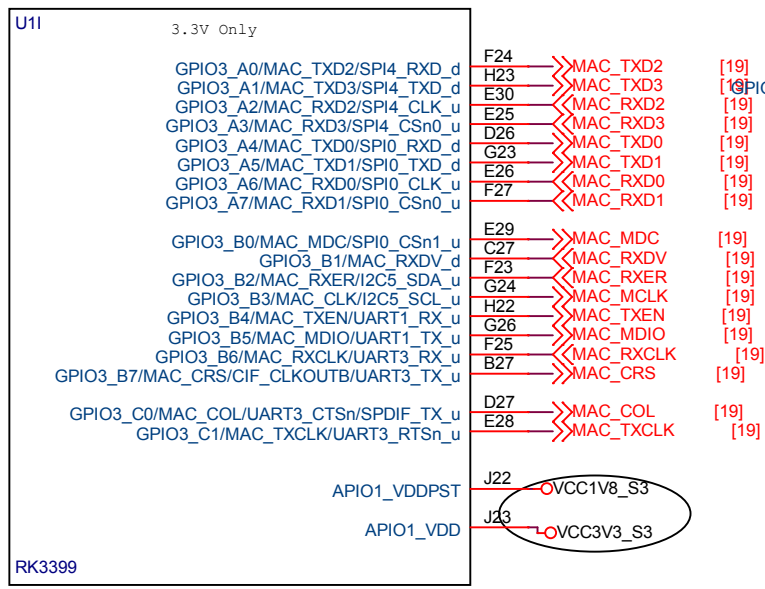
RK3399



Xunlong Co., Limited		
Design Name		
ORANGEPI-RK3399-Lite		
Size	Page Name	Rev
A4	HOST	1.0
Date:	Thursday, October 31, 2019	Sheet 13 of 26

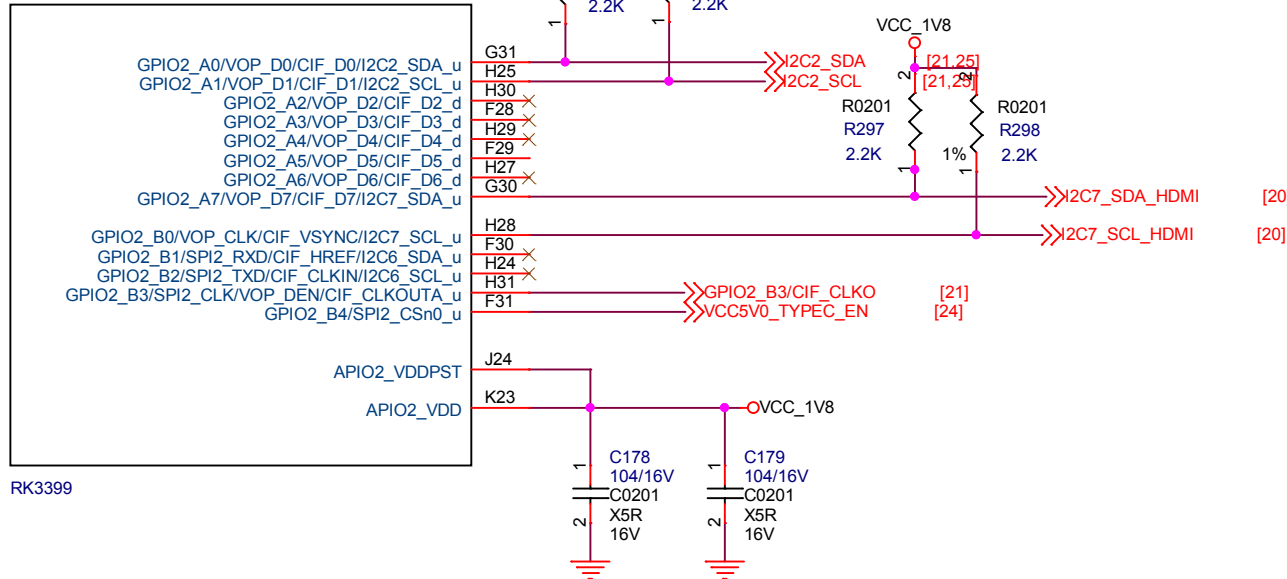


Xunlong Co., Limited			
Design Name			
ORANGEPI-RK3399-Lite			
Size A4	Page Name		Rev 1.0
Date: Thursday, October 31, 2019		Sheet	14 of 26



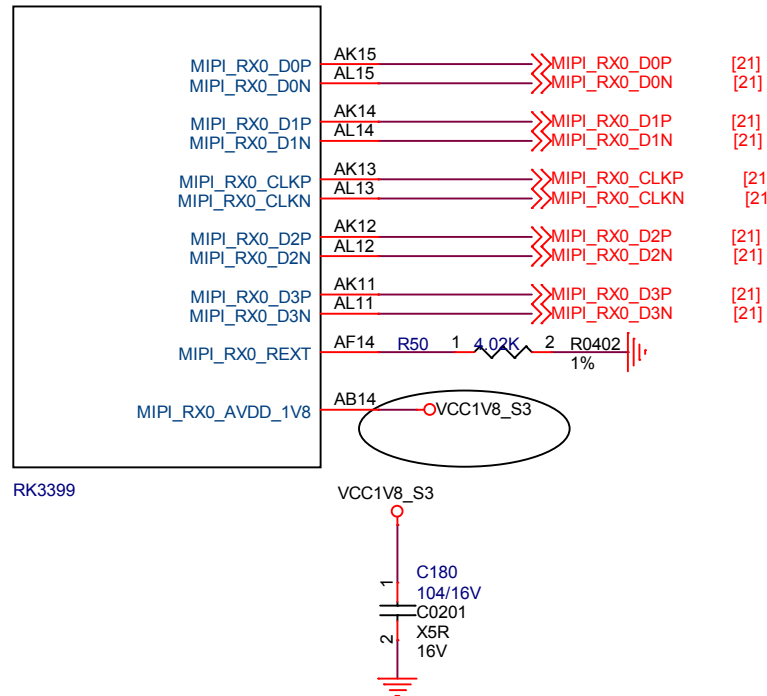
Xunlong Co., Limited			
Design Name			
ORANGEPI-RK3399-Lite			
Size	Page Name	Rev	
A4	RK3399 GPIO	1.0	
Date:	Thursday, October 31, 2019	Sheet	15 of 26

U1L

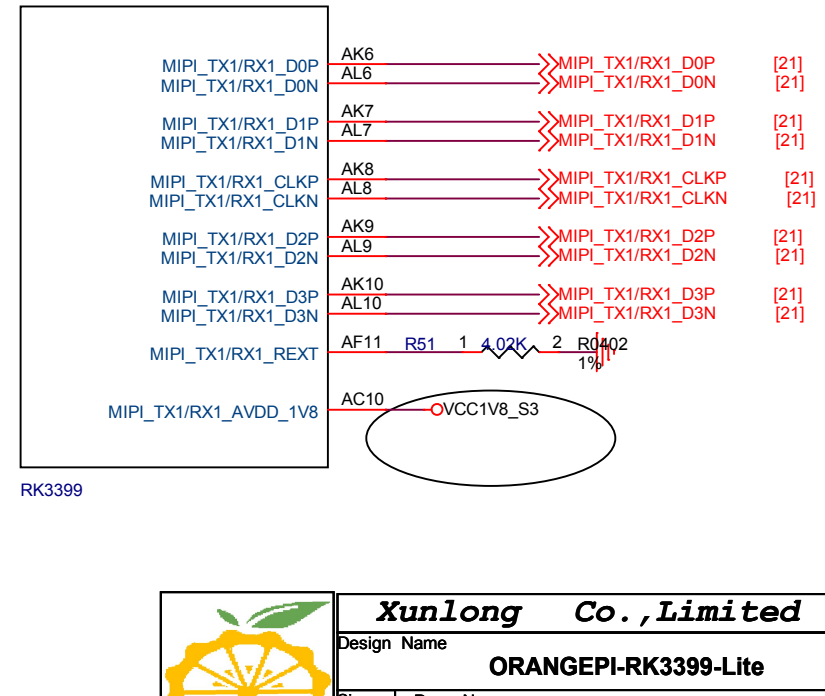


func1	func2	func3
GPIO2 A0/CIF D0		I2C2 SDA
GPIO2 A1/CIF D1		I2C2 SCL
GPIO2 A7/CIF D7		I2C7 SDA
GPIO2 B0/CIF VSYNC		I2C7 SCL
GPIO2 B1/CIF HREF	SPI2 RXD	I2C6 SDA
GPIO2 B2/CIF CLKI	SPI2 TXD	I2C6 SCL
GPIO2 B3/CIF CLKO	SPI2 CLK	
GPIO2 B4/DVP PDN0 H	SPI2 CSN	

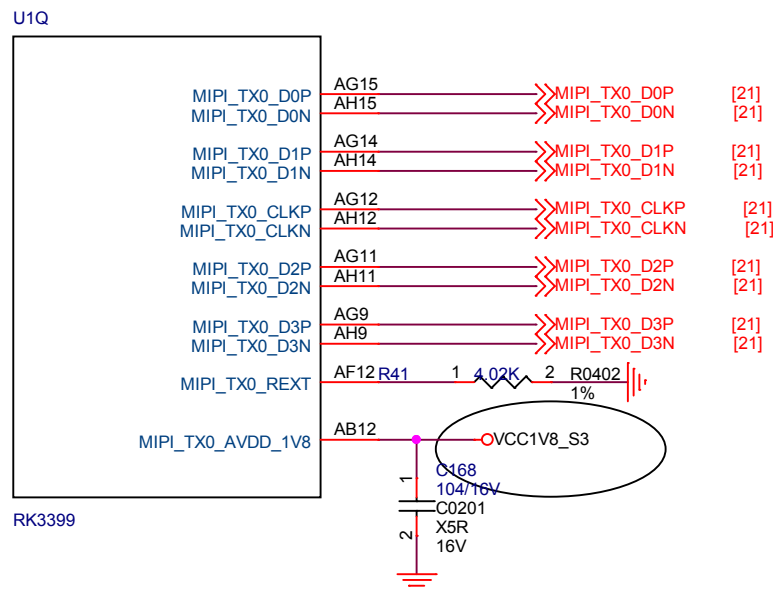
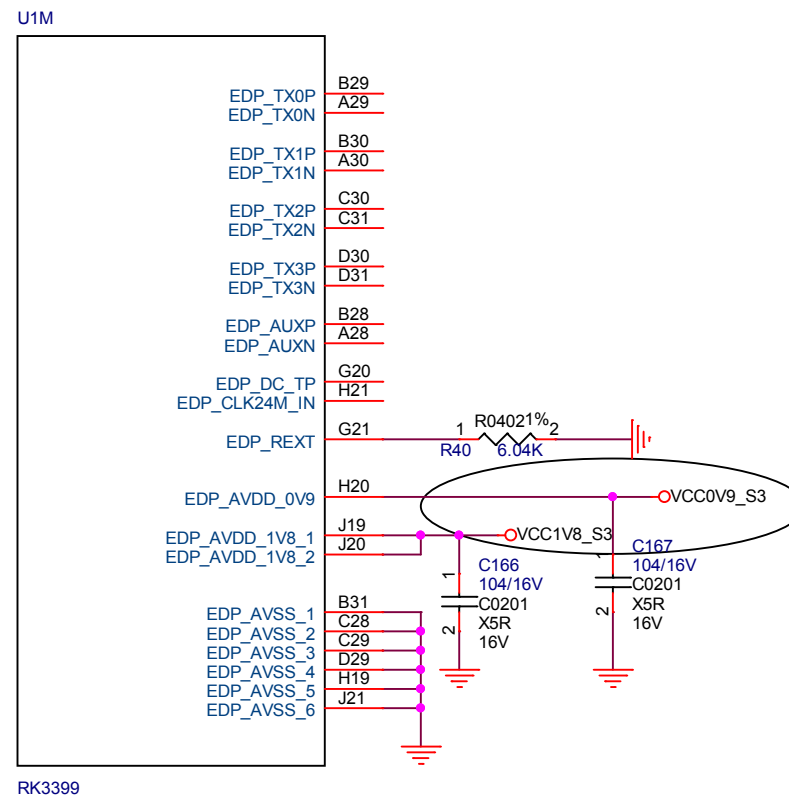
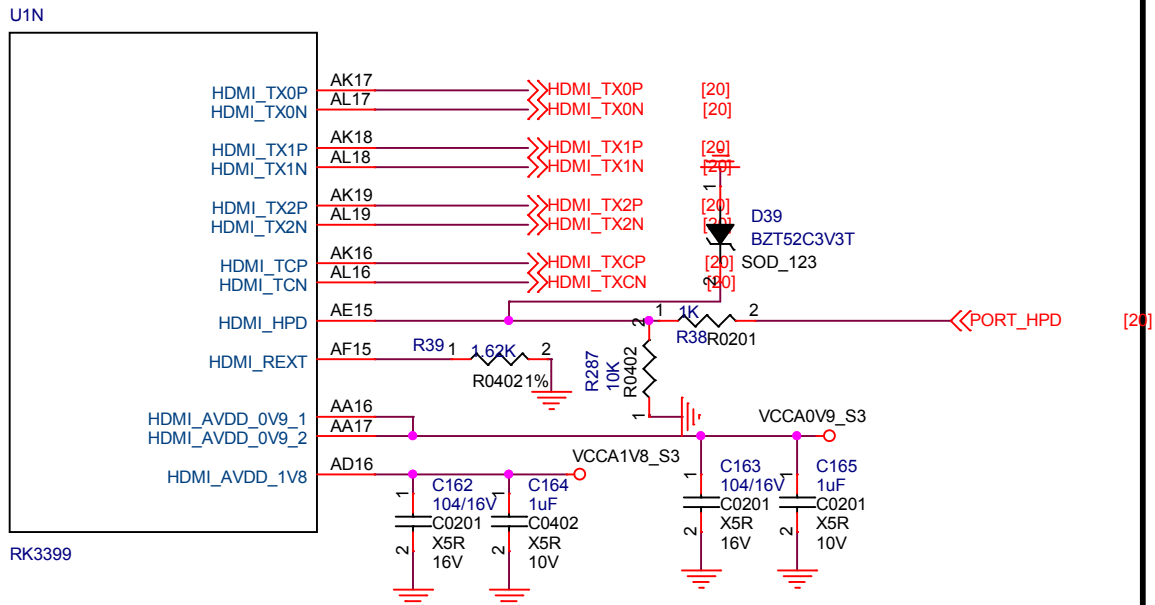
U1R



U1P



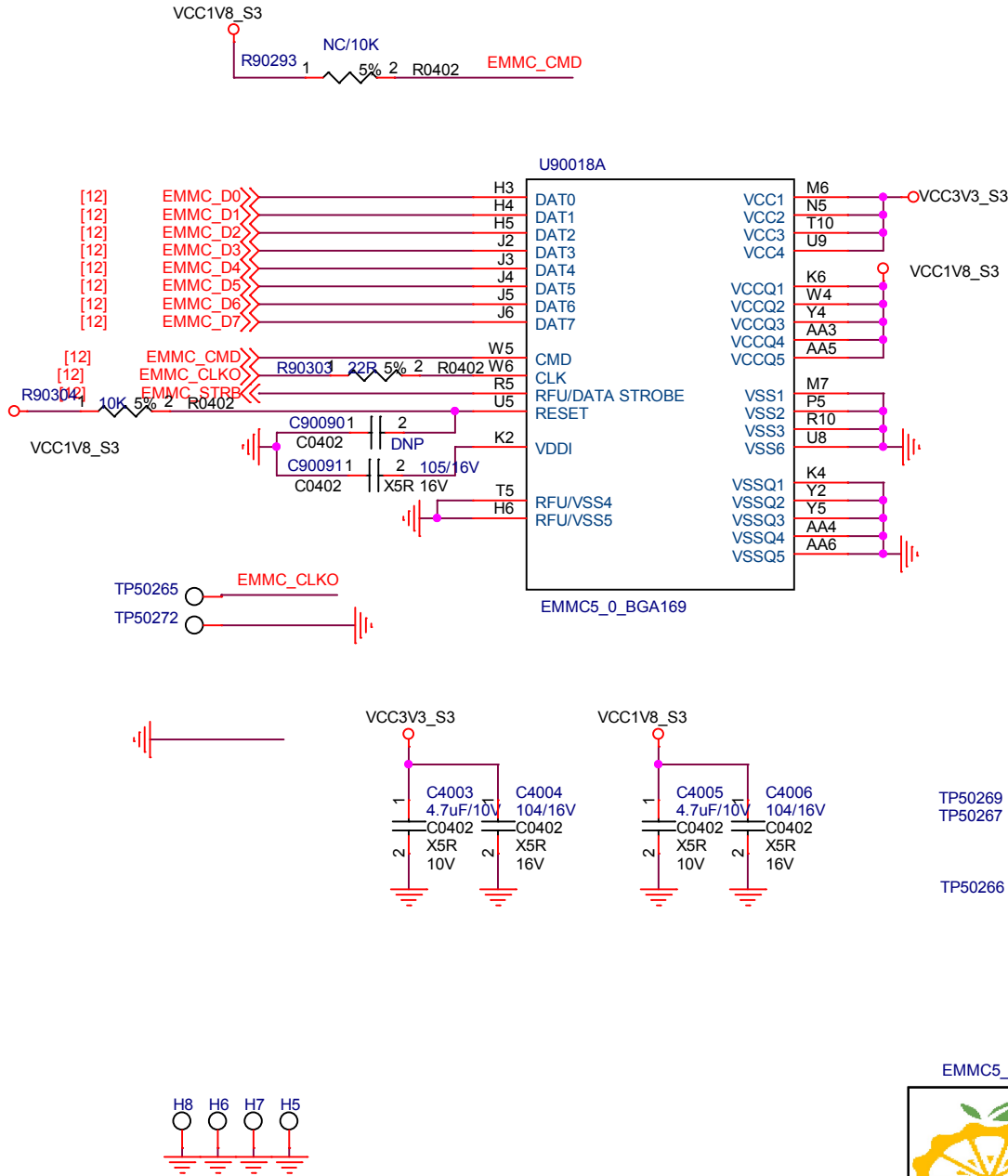
Xunlong Co., Limited		
Design Name		
ORANGEPI-RK3399-Lite		
Size	Page Name	Rev
A4	RK3399 DVP	1.0
Date:	Thursday, October 31, 2019	Sheet 16 of 26



Xunlong Co., Limited

Design Name		
ORANGEPI-RK3399-Lite		
Size	Page Name	Rev
A4	RK3399 display	1.0
Date:	Thursday, October 31, 2019	Sheet 17 of 26

eMMC FLASH



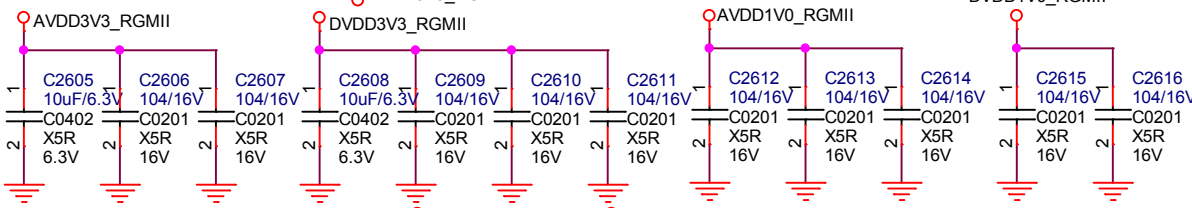
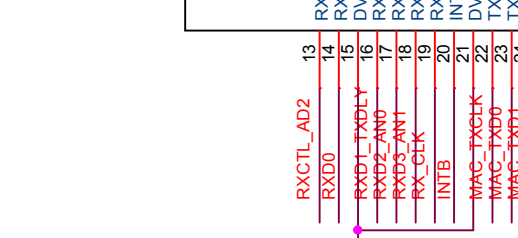
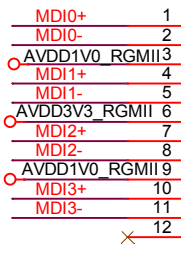
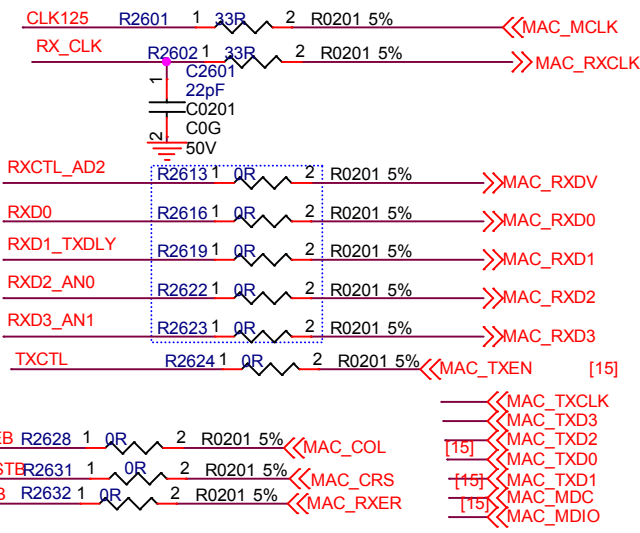
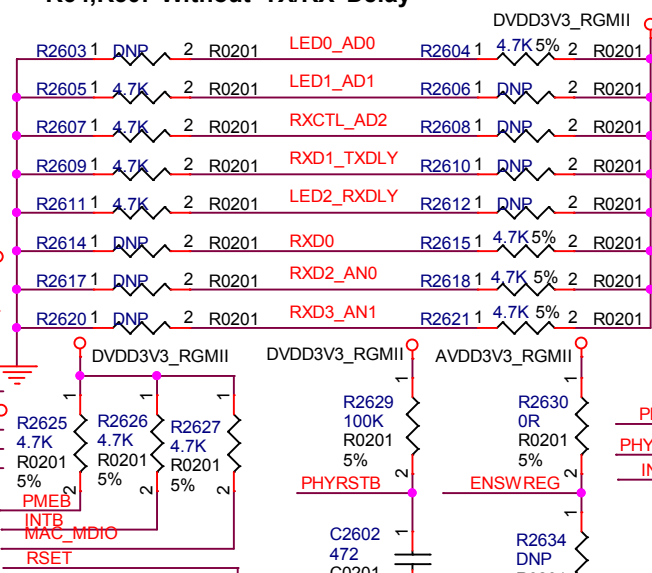
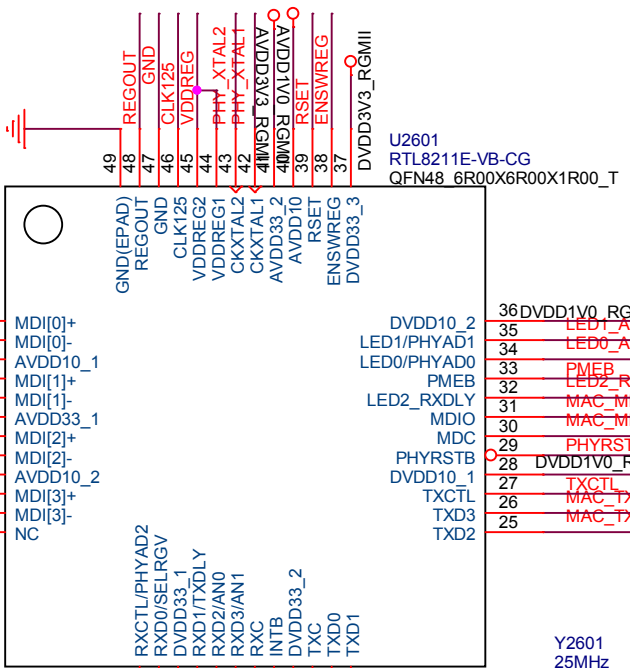
U90018B			
X A4	NC1	NC68	X P13
X A6	NC2	NC69	X P14
X A9	NC3	NC70	X R1
X A11	NC4	NC71	X R2
X B2	NC5	NC72	X R3
X B13	NC6	NC73	X R12
X D1	NC7	NC74	X R13
X D14	NC8	NC74	X R14
X H1		NC75	X T1
X H2		NC76	X T2
X H7		NC77	X T3
X H8		NC78	X T12
X H9	NC12	NC79	X T13
X H10	NC13	NC80	X T14
X H11	NC14	NC81	X U1
X H12	NC15	NC82	X U2
X H13	NC16	NC83	X U3
X H14	NC17	NC84	X U6
X J1	NC18	NC84	X U7
X J7	NC19	RFU10(NC85)	X U8
X J8	NC20	RFU11(NC86)	X U10
X J9	NC21	RFU12(NC87)	X U12
X J10	NC22		NC88
X J11	NC23	NC89	X U13
X J12	NC24	NC90	X U14
X J13	NC25	NC91	X V1
X J14	NC26	NC92	X V2
X K1	NC27	NC93	X V3
X K3		NC94	X V12
X K5		NC95	X V13
X K7		NC96	X V14
X K8	NC31	NC97	X W1
X K9	NC32	NC98	X W2
X K10	NC33	NC99	X W3
X K11	NC34	NC100	X W7
X K12	NC35	NC101	X W8
X K13	NC36	NC102	X W9
X K14	NC37	NC103	X W10
X L1	NC38	NC104	X W11
X L2	NC39	NC105	X W12
X L3	NC40	NC106	X W13
X L4	NC41	NC107	X W14
X M1			Y1
X M2			Y3
X M3			Y6
X M12	NC43	NC109	X Y7
X M13	NC44	NC110	X Y8
X M14	NC45	NC111	X Y9
X M5	NC46	NC112	X Y10
X M8	NC47	NC113	X Y11
X M9	NC48	NC114	X Y12
X N1	NC49	NC115	X Y13
X N2	NC50	NC116	X Y14
X N3	NC51	NC117	X Y14
X N10	NC52	NC118	X Y14
X N12	RFU3(NC52)	NC119	X AA1
X N13	RFU4(NC53)	NC120	X AA2
X N14	RFU5(NC54)	NC121	X AA7
X P1	RFU6(NC55)	RFU13(NC121)	X AA8
X P2	NC56	NC122	X AA9
X P3	NC57	NC123	X AA10
X P10	NC58	RFU14(NC124)	X AA11
X P12	NC59	NC125	X AA12
		NC126	X AA13
		NC127	X AA14
		NC128	X AE1
		NC129	X AE14
		NC130	X AG2
		NC131	X AG13
		RFU8(NC65)	X AH4
		RFU9(NC66)	X AH6
		NC132	X AH9
		NC133	X AH11
		NC134	X AH11
		NC135	X AH11
		NC136	X AH11

Xunlong Co., Limited

Design Name		ORANGEPI-RK3399-Lite
Size	Page Name	Rev
A4	EMMC Flash	1.0
Date:	Thursday, October 31, 2019	Sheet 18 of 26

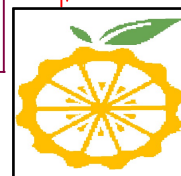
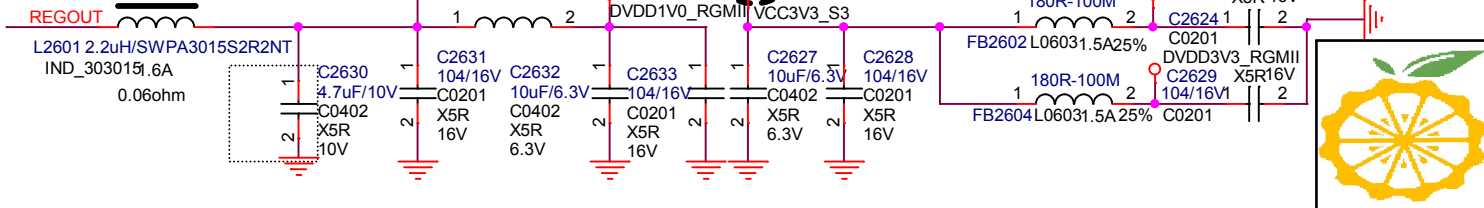
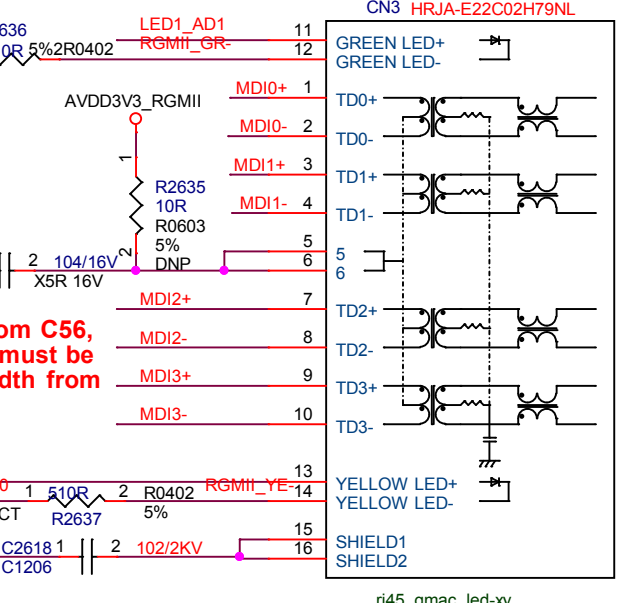
R61,R62: Config for all capability
R51,R54,R148: PHY Address=001(RTL8211E)
R64,R50: Without TX/RX Delay

Place filter network close to RX_CLK.
Reserved for EMI



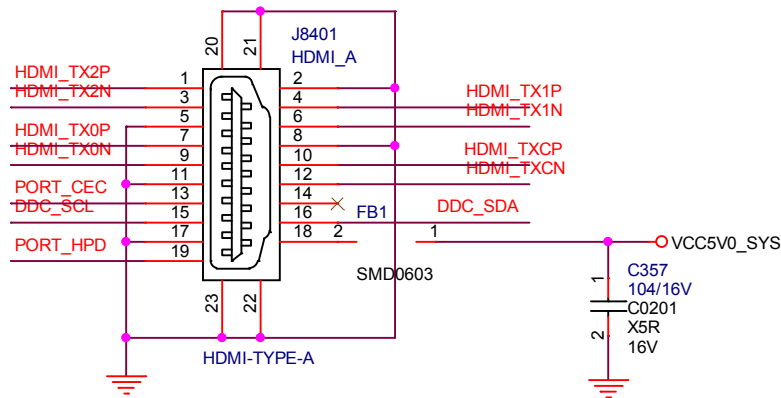
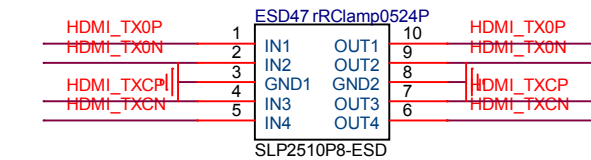
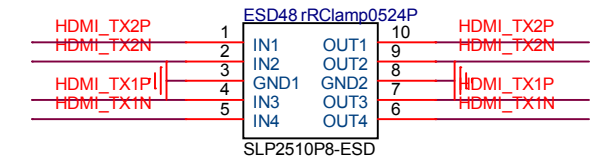
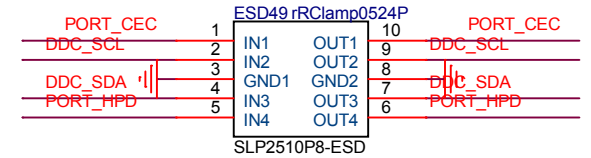
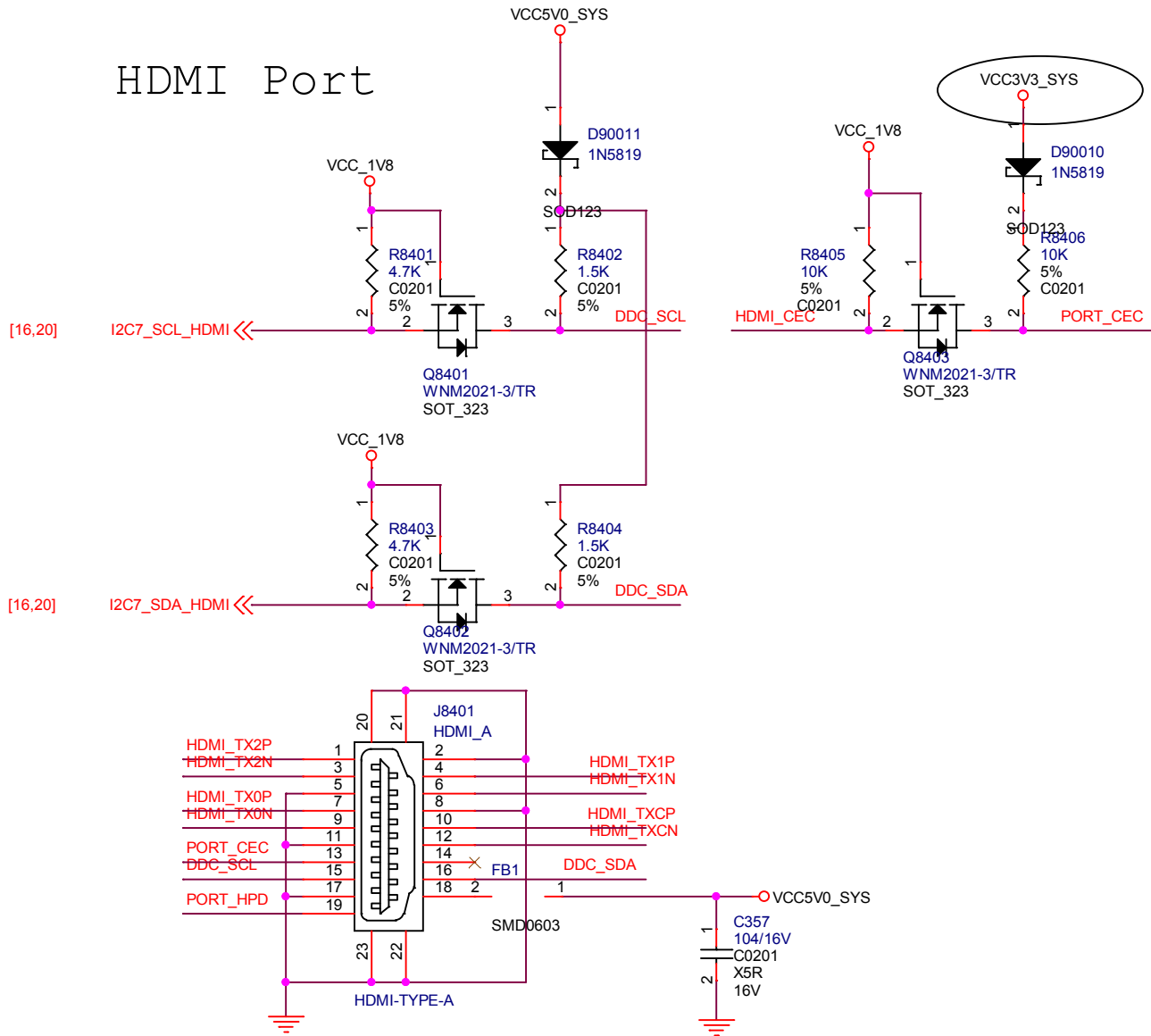
Note 1: The Trace length between L1 and PHY's Pin48 must be within 0.5 cm. C35 and C36 to L1 must be within 0.5cm. Any inductance or bead except for L1 is not allowed on the path from REGOUT to DVDD10/AVDD10.

Note 2: The Trace length from C56, C57 to Pin 44,45(VDDREG) must be within 0.5 cm. The trace width from AVDD33 to Pin 44,45 should >40mils



Xunlong Co., Limited		
Design Name		
ORANGEPI-RK3399-Lite		
Size	Page Name	
A4	GMAC	
Date:	Thursday, October 31, 2019	Sheet 19 of 26
		Rev 1.0

HDMI Port

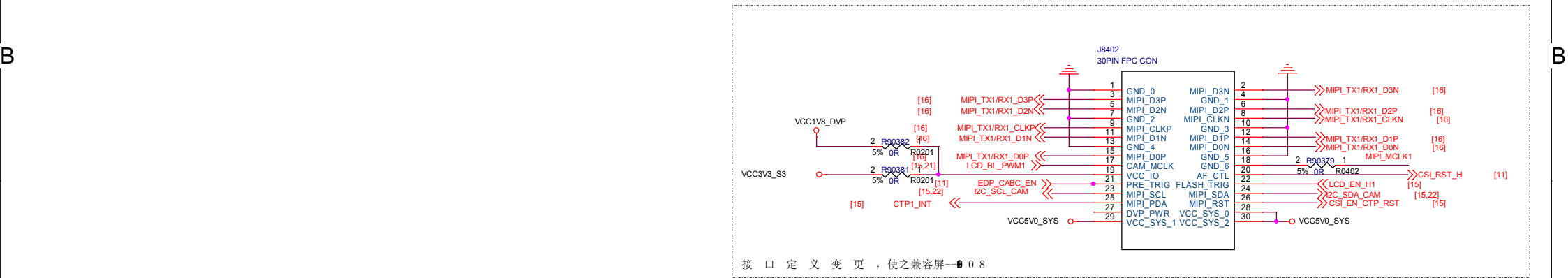
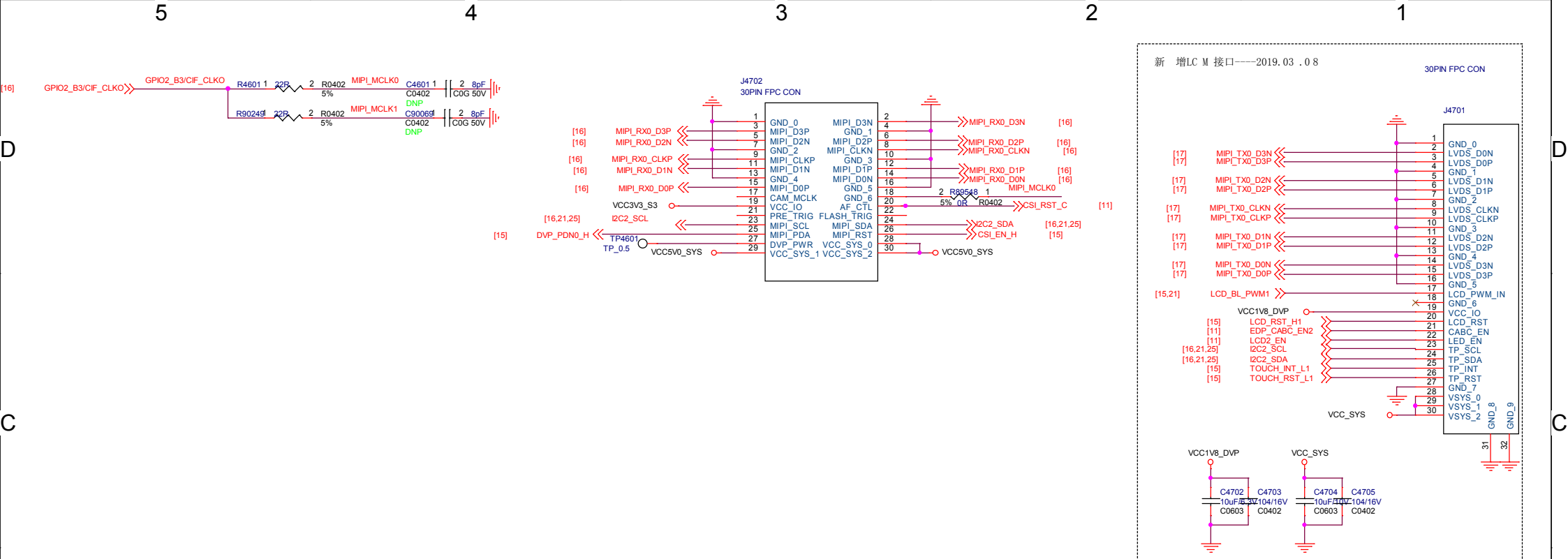


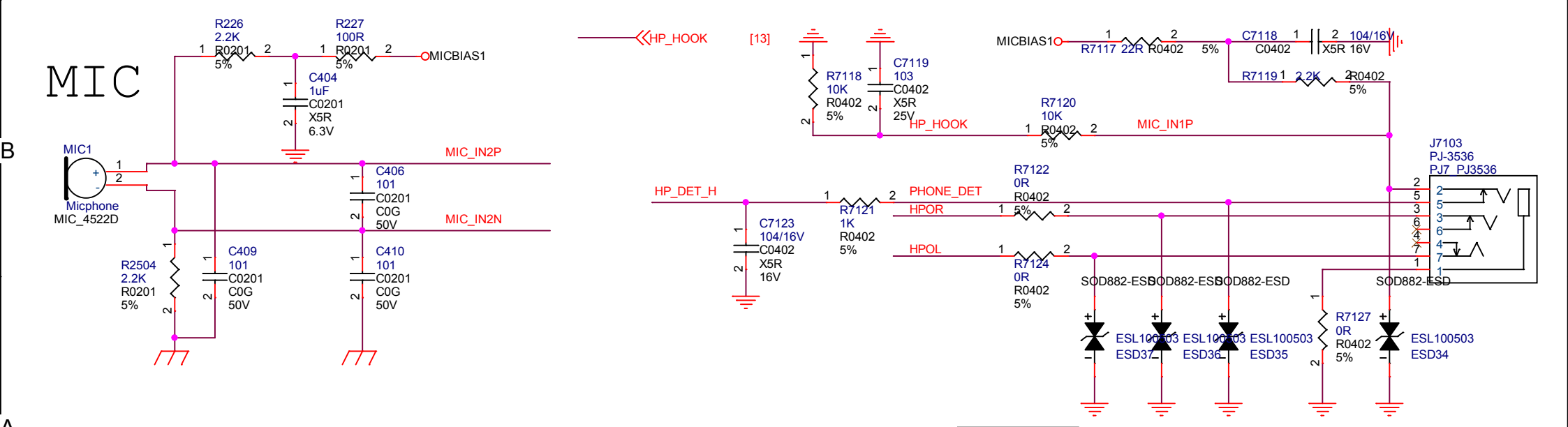
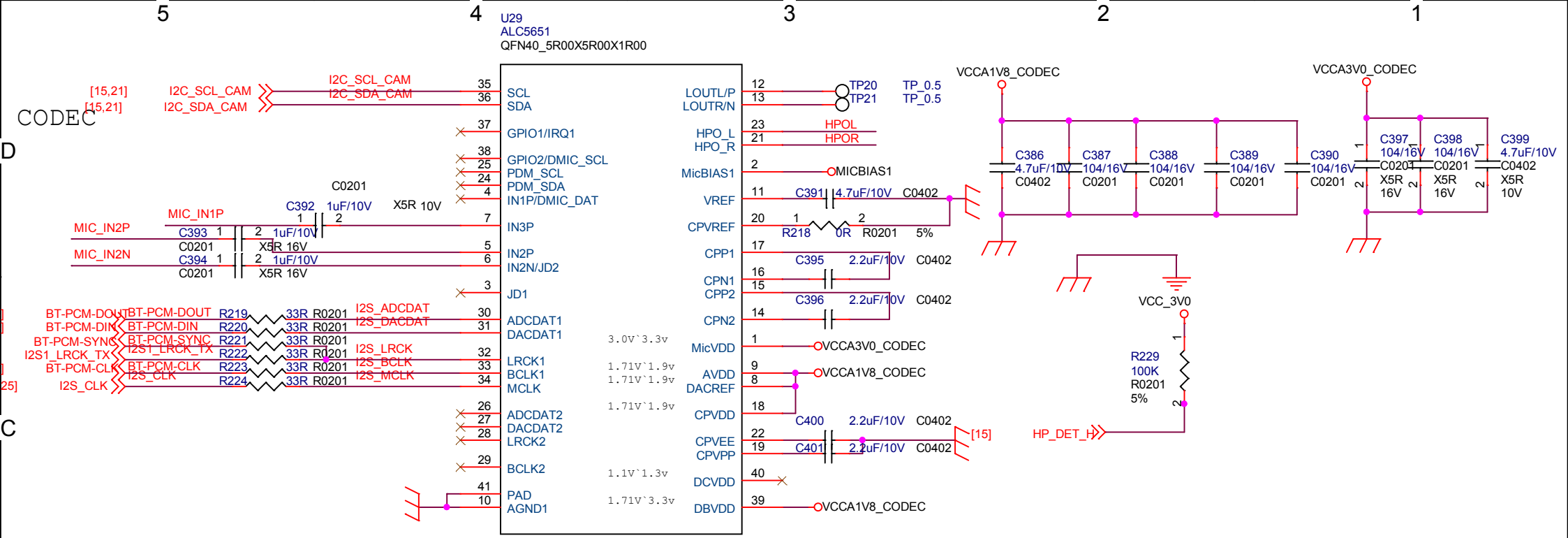
- >> HDMI_TX0P [17]
- >> HDMI_TX0N [17]
- >> HDMI_TX1P [17]
- >> HDMI_TX1N [17]
- >> HDMI_TX2P [17]
- >> HDMI_TX2N [17]
- >> HDMI_TXCP [17]
- >> HDMI_TXCN [17]
- >> HDMI_CEC [15]
- >> PORT_HPDP [17]
- >> I2C7_SCL_HDMI [16,20]
- >> I2C7_SDA_HDMI [16,20]



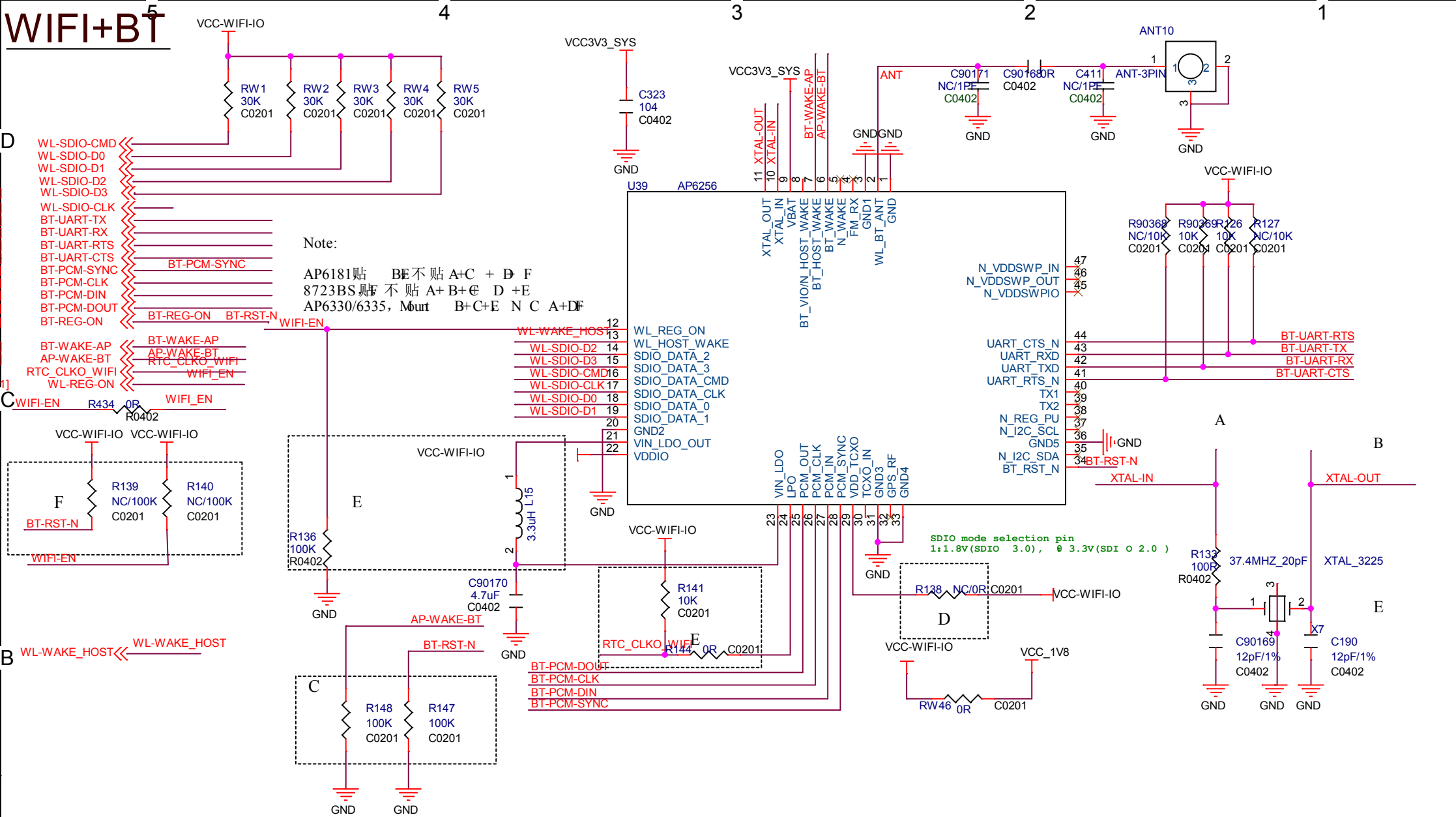
Xunlong Co., Limited

Design Name		
ORANGEPI-RK3399-Lite		
Size	Page Name	Rev
A4	HDMI	1.0
Date:	Thursday, October 31, 2019	Sheet 20 of 26





WIFI+BT



RW51 RW45 RW46 RW50 RW52 RW53

不带蓝牙遥控	IO为1.8V	NC	NC	NC	0R	NC	0R
	IO为3.3V	NC	NC	NC	0R	0R	NC
带蓝牙遥控	IO为1.8V	0R	NC	NC	NC	NC	NC
	IO为3.3V	0R	0R	0R	NC	NC	NC

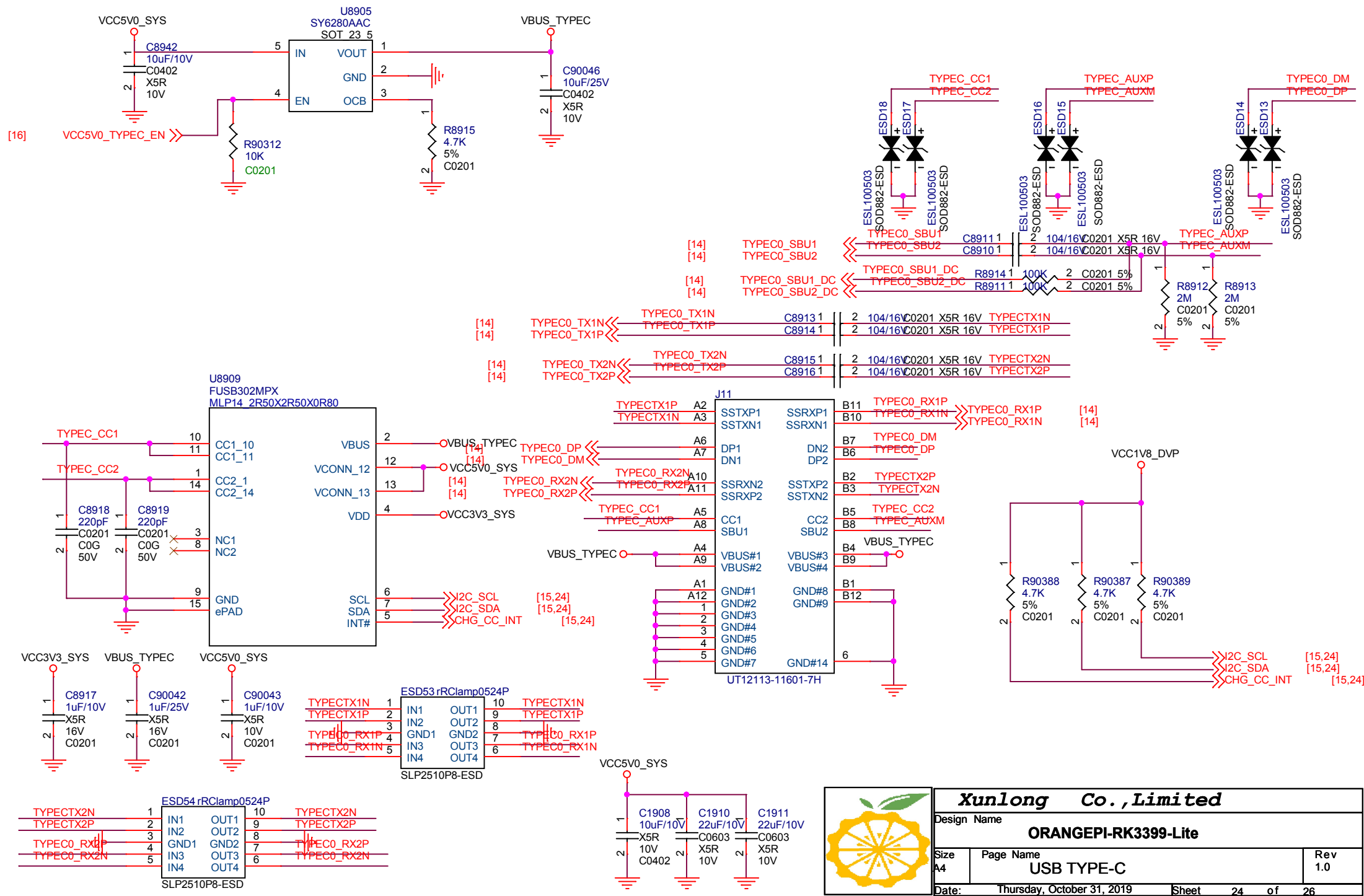


Xunlong Co., Limited

Design Name: **ORANGEPI-RK3399-Lite**

Size A4 | Page Name: **WIFI-BT 2T2R** | Rev 1_0

Date: Thursday, October 31, 2019 | Sheet 23 of 26



Xunlong Co., Limited		
Design Name		
ORANGEPI-RK3399-Lite		
Size	Page Name	Rev
A4	USB TYPE-C	1.0
Date:	Thursday, October 31, 2019	Sheet 24 of 26

5

4

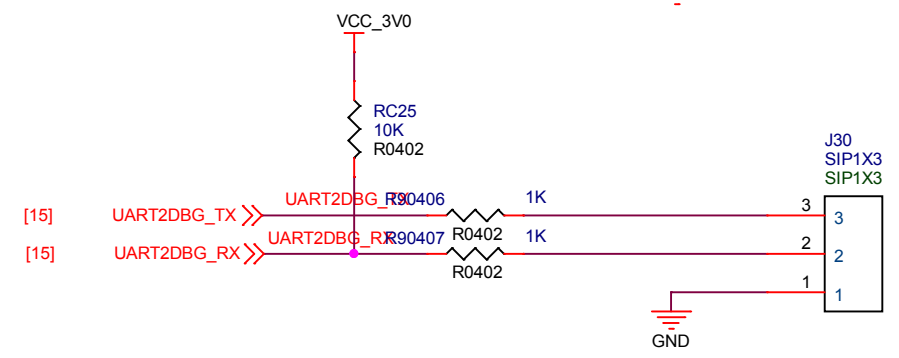
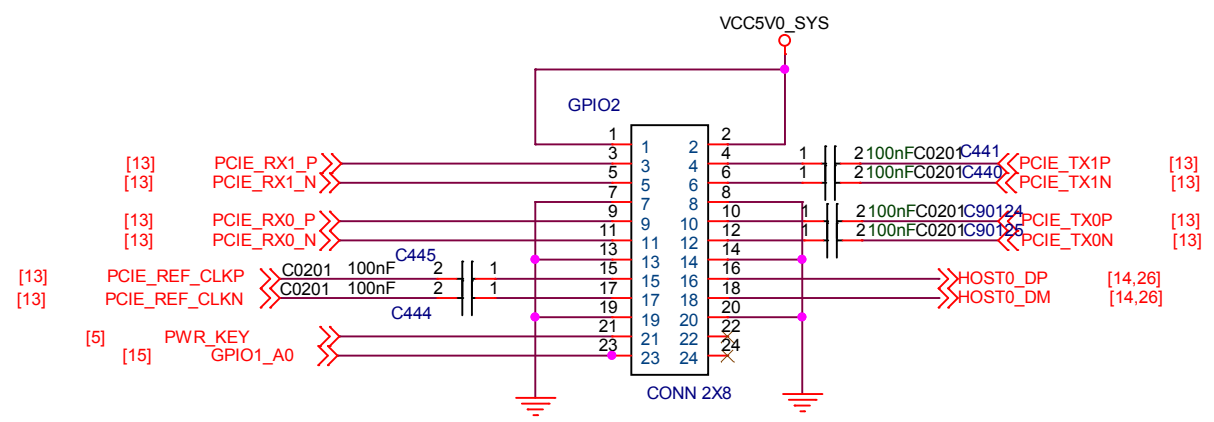
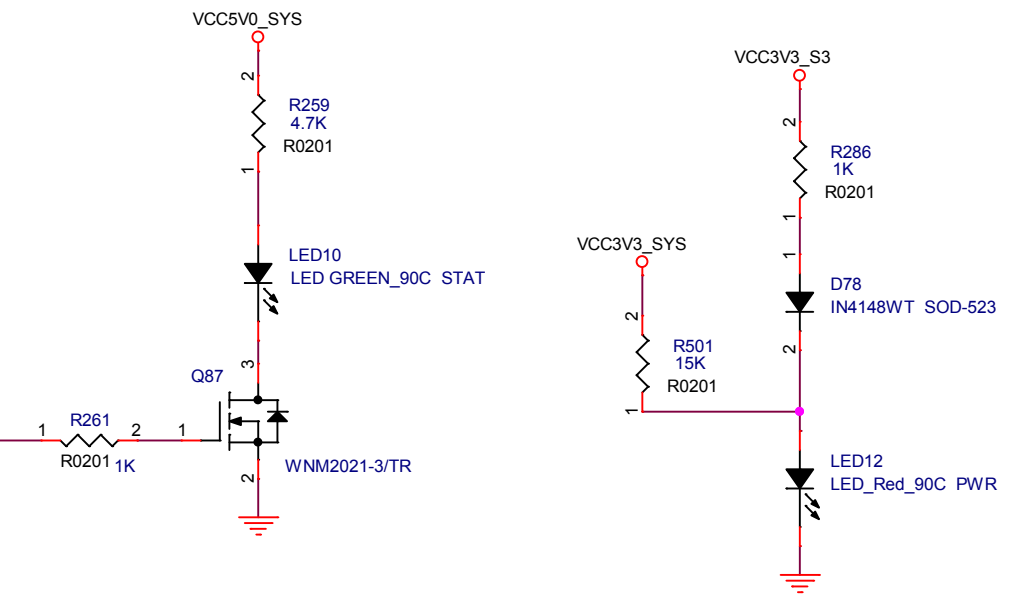
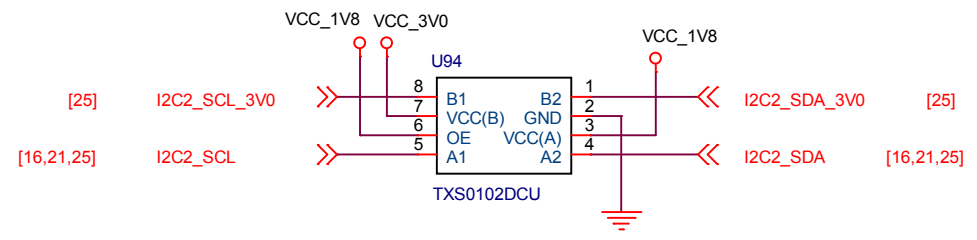
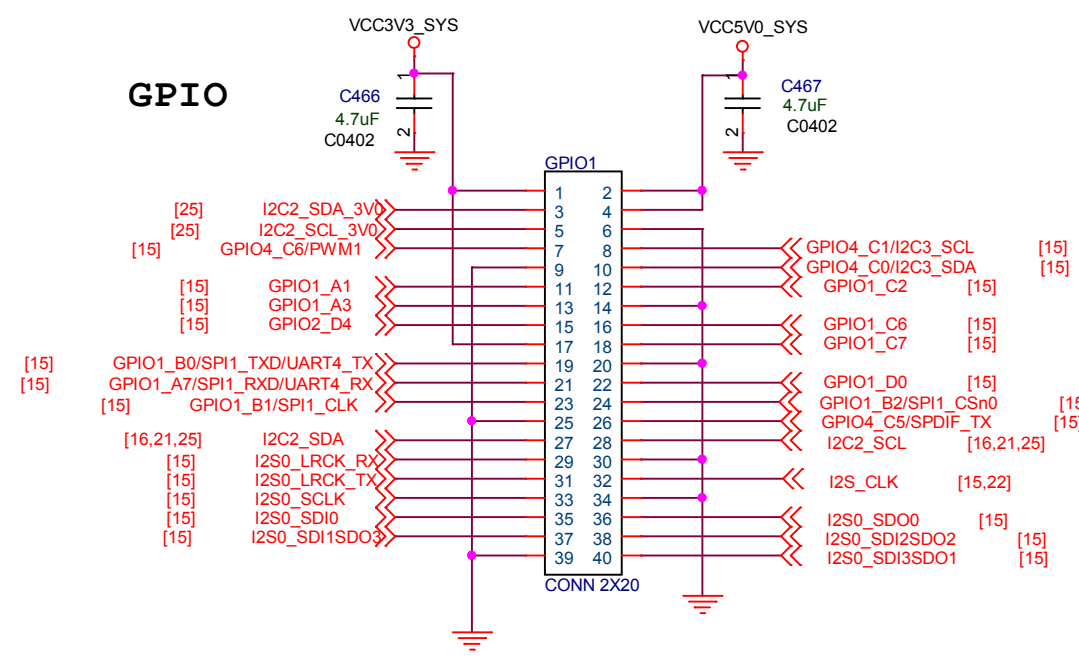
3

2

1

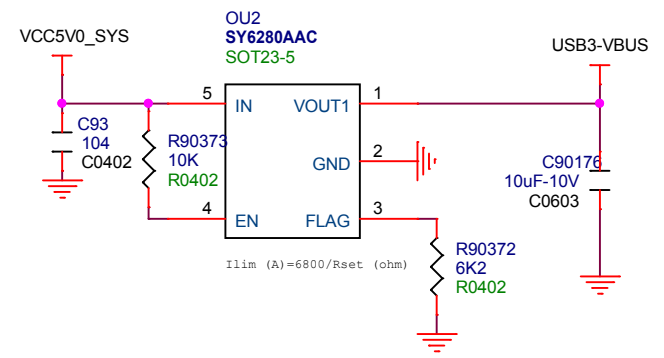
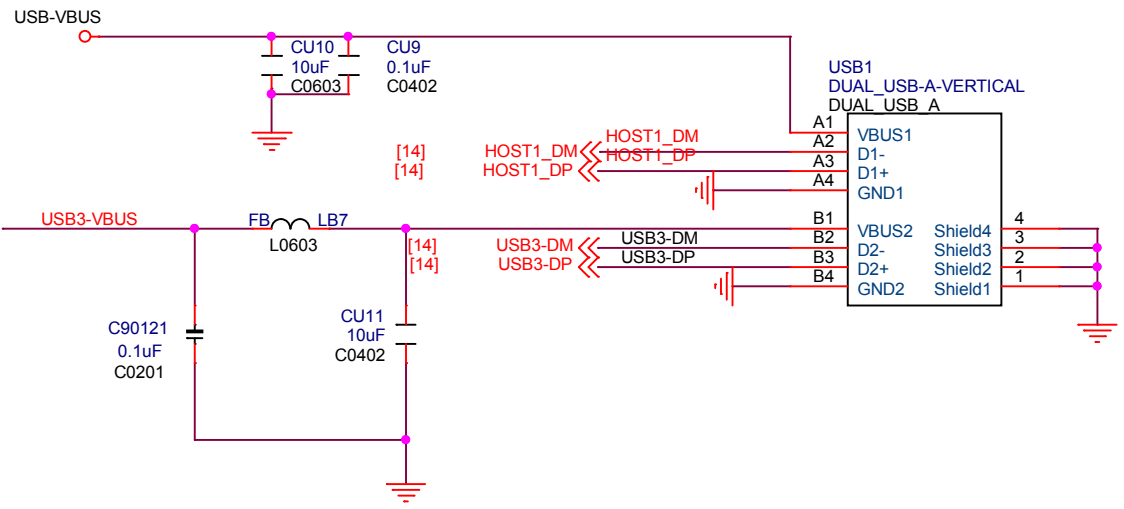
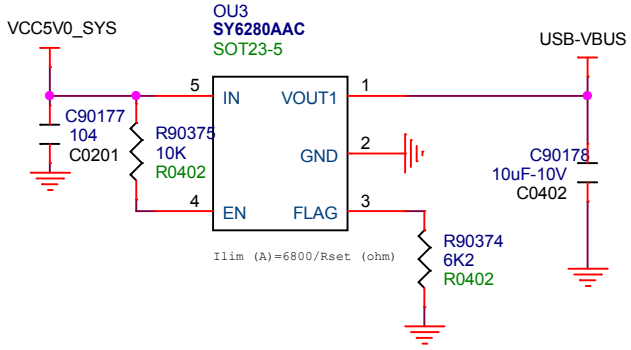
PCIE , USB

GPIO

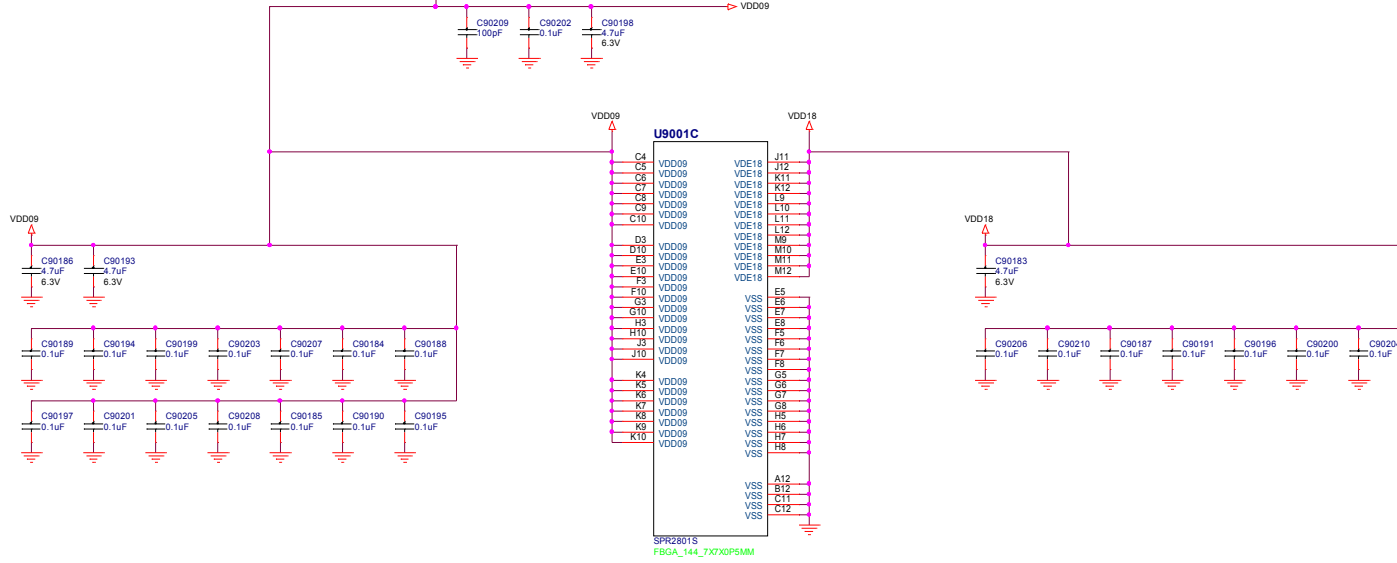
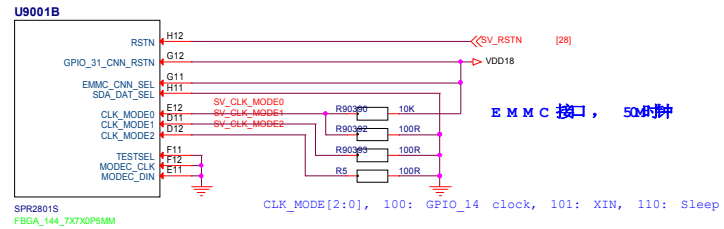
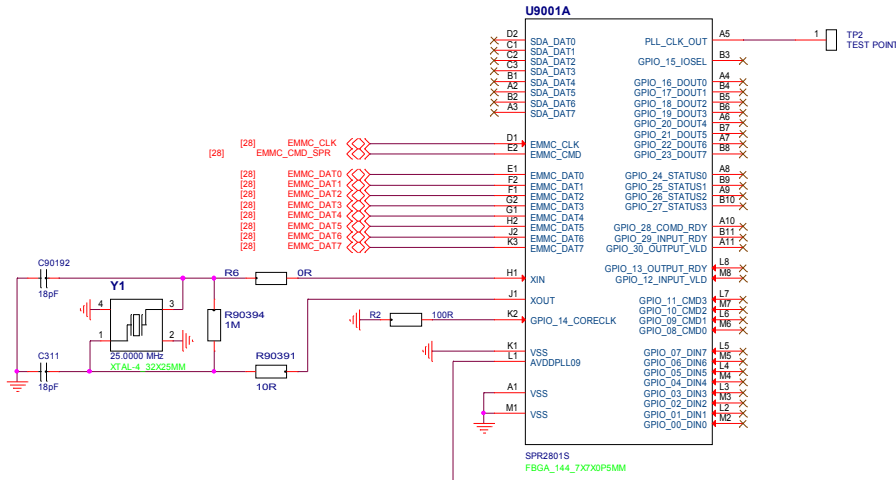


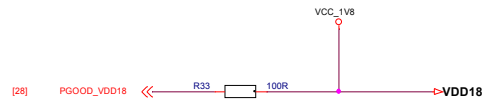
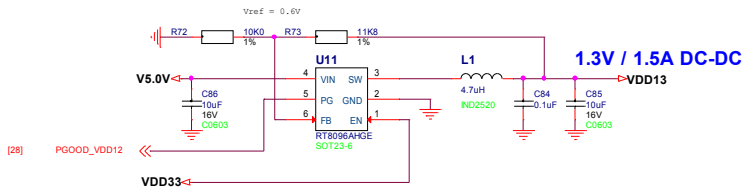
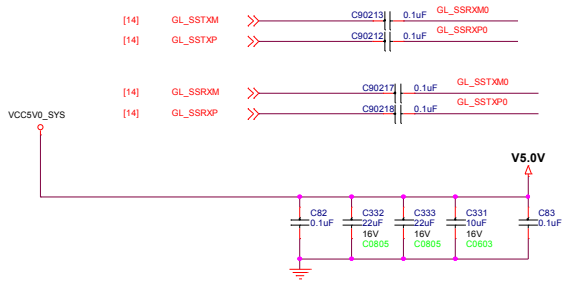
Xunlong Co., Limited

Design Name		
ORANGEPI-RK3399-Lite		
Size	Page Name	Rev
A4	GPIO-MINI PCIe-UART	1.0
Date:	Thursday, October 31, 2019	Sheet 25 of 26

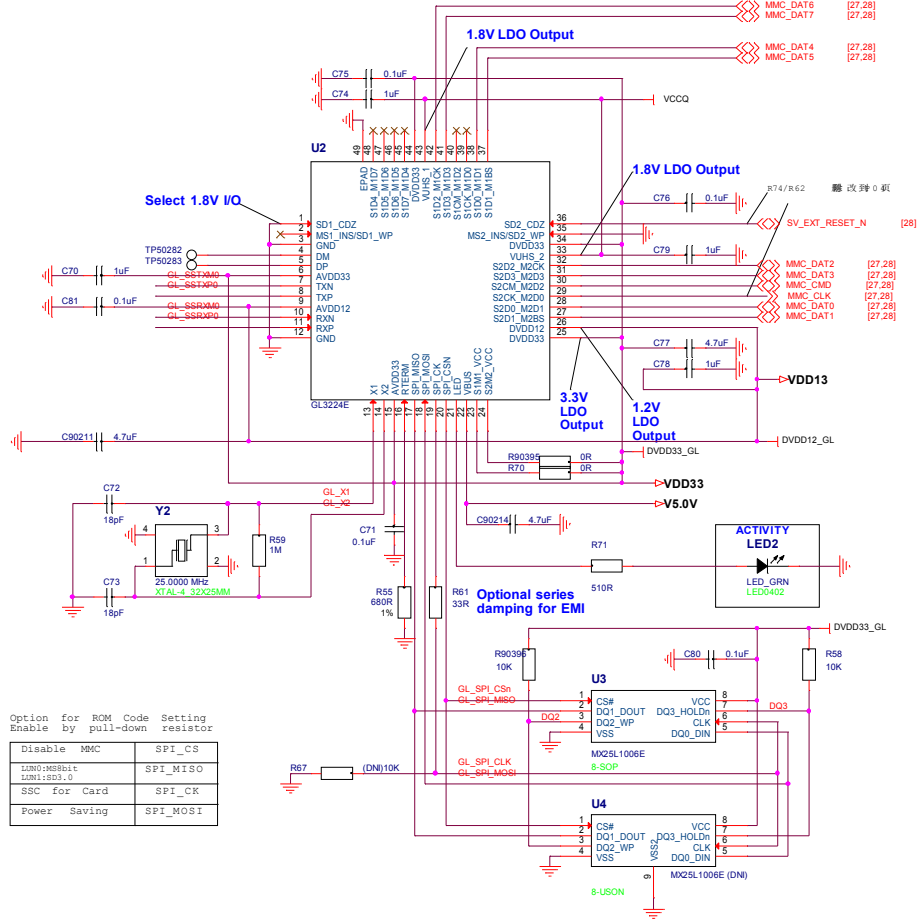
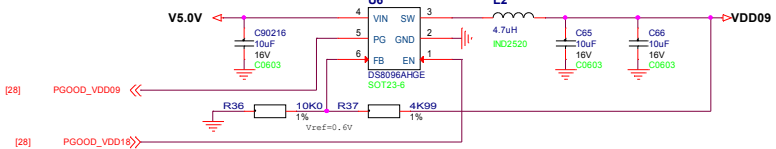
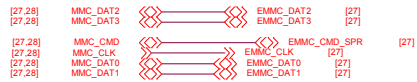


Xunlong Co., Limited		
Design Name		
ORANGEPI-RK3399-Lite		
Size	Page Name	Rev
A4	USB Ports	1_0
Date:	Thursday, October 31, 2019	Sheet 26 of 26





**Level Shifter for MMC Compliance
(MMC always starts up at 3.3V)**



Option for ROM Code Setting
Enable by pull-down resistor

Disable MMC	SPI_CS
LUN0:M88bit	SPI_MISO
LUN1:S83.0	SPI_MISO
SSC for Card	SPI_CLK
Power Saving	SPI_MOSI

