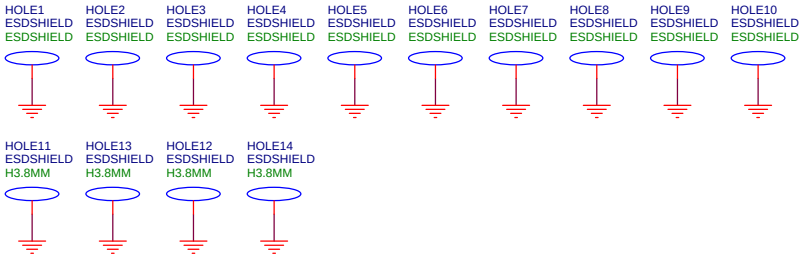
RK3328

Content Indexing



Bill of Materials

Header:

Item\tPart\tDescription\tPCB Footprint\tReference\tQuantity\tOption

Combined property string:

{Item}\t{Value}\t{Description}\t{PCB Footprint}\t{Reference}\t{Quantity}\t{Option}

Note：
Component parameter description
1. DNP stands for component not mounted temporarily
2. If Value or option is DNP, which means the area is reserved without being mounted

Rockchip 瑞芯微电子	Fuzhou Rockchip Electronics		
Project:	RK3328_BOX_Demo1		
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Version	Date	Author	Change Note	Approved
V1.0	20170223	ZDZ	First edictor	
V1.1	20170718	ZDZ	1：修改记录请见：RK3328_BOX_DEMO1_RK805-1_DDR3P216SD4_V11_SCH_Modify_Notes	

Rockchip 瑞芯微电子	Fuzhou Rockchip Electronics		
Project:	RK3328_BOX_Demo1		
File:	Change List		
Date:	Wednesday, July 19, 2017	Rev:	V1.1
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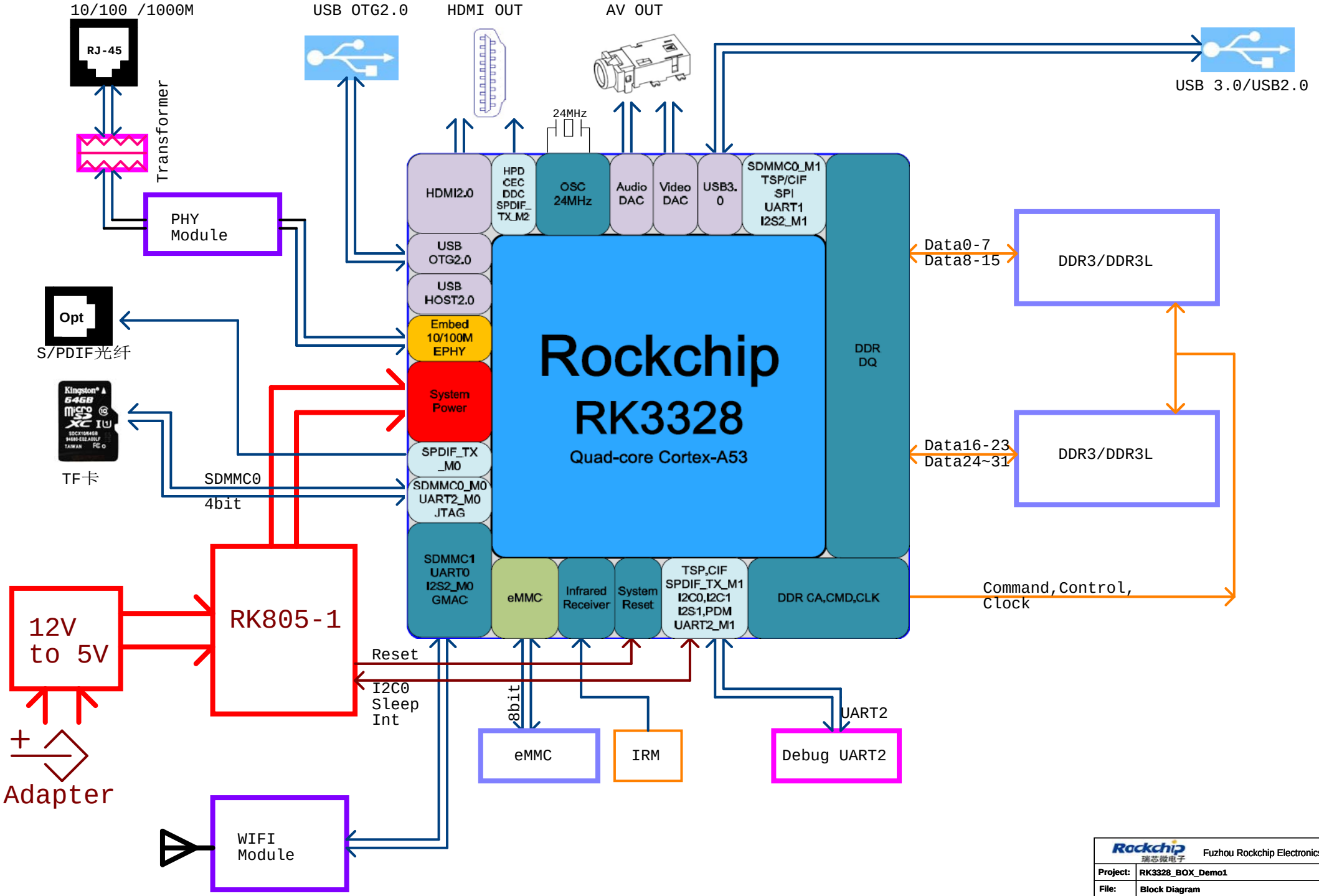

Rockchip 瑞芯微电子	Fuzhou Rockchip Electronics		
Project:	RK3328_BOX_Demo1		
File:	Block Diagram		
Date:	Tuesday, July 18, 2017	Rev:	V1.1
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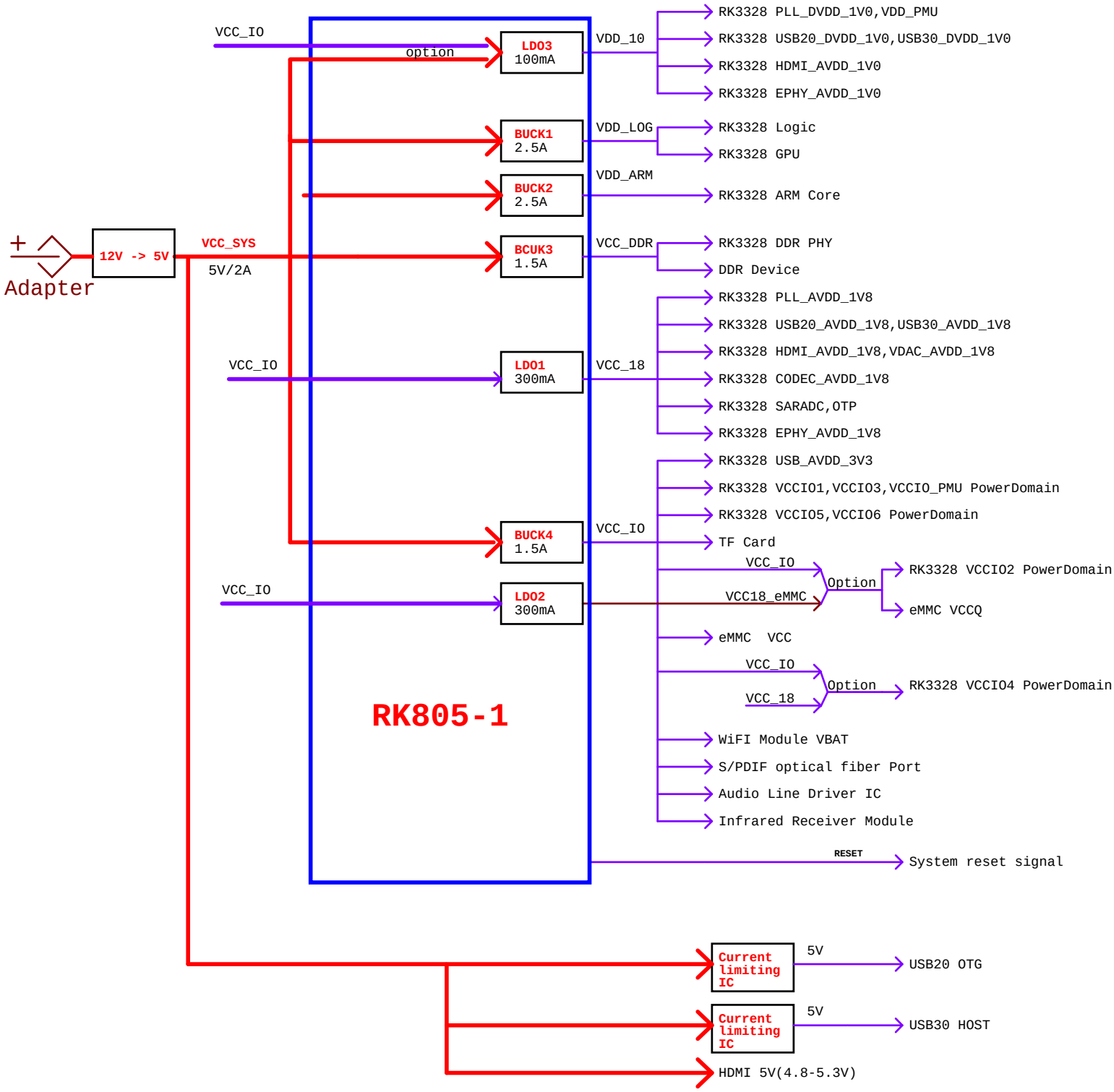

Power Timing

TYPE	VOLT	STEP	PowerName
BUCK1	1.1V		VDD_LOG
BUCK2	1.1V		VDD_ARM
BUCK3	FB=0.8V		VCC_DDR
BUCK4	3.3V		VCC_IO
LDO1	1.8V		VCC_18
LDO2	1.8V		VCC18_eMMC
LDO3	1.0V		VDD_10

IO电源域电压	IO电压＝3.3V	IO电压＝1.8V
VCCIO_PMU	3.3V	不支持
VCCIO1	3.3V	不支持
VCCIO2		1.8V（默认） eMMC
VCCIO3	3.3V（默认）	
VCCIO4	3.3V（默认） WIFI:RTL8723BS	
VCCIO5	3.3V（默认）	
VCCIO6	3.3V（默认）	

Rockchip 瑞芯微电子	Fuzhou Rockchip Electronics
Project:	RK3328_BOX_Demo1
File:	Power tree-RK805-1
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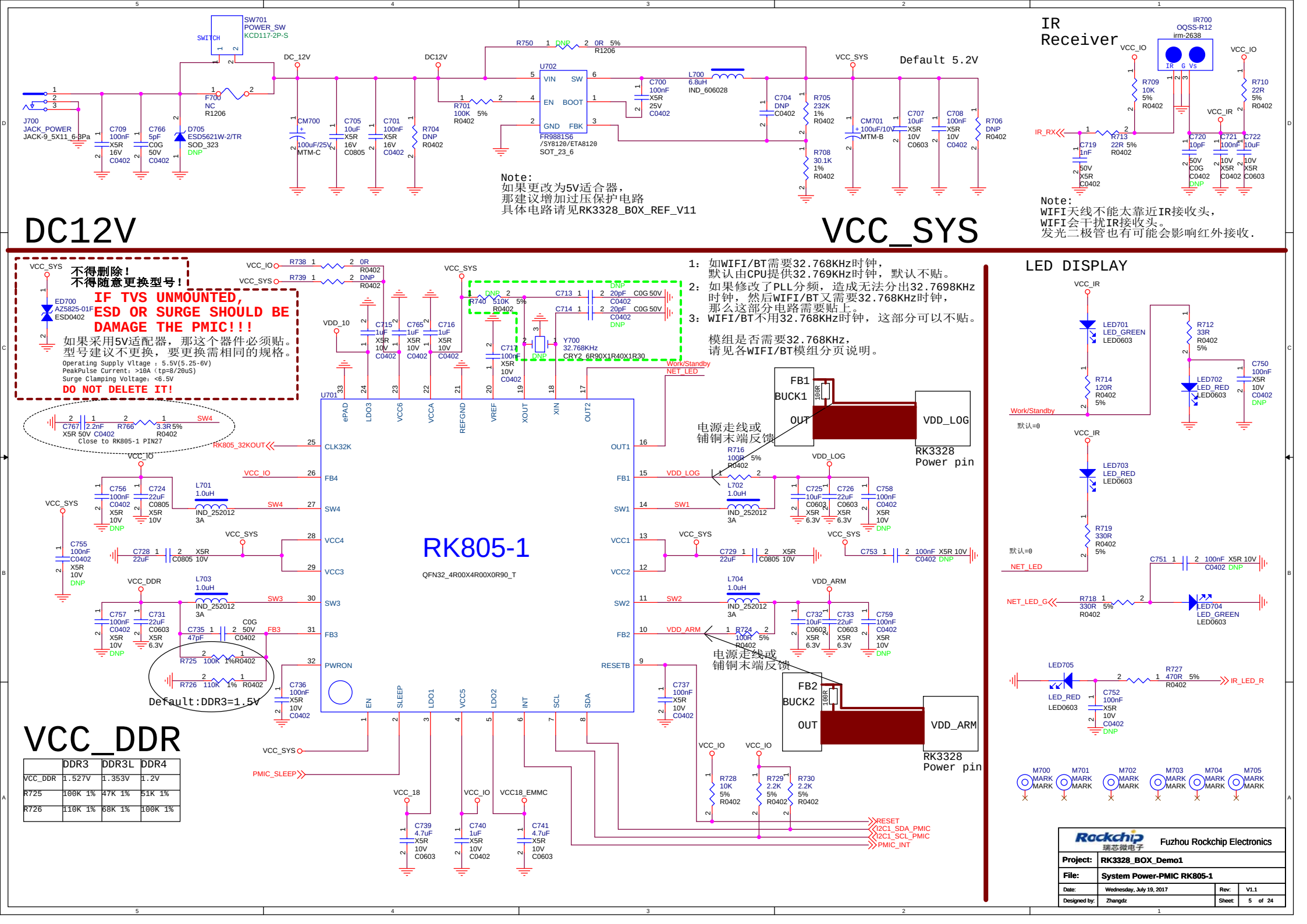
DC12V
VCC_SYS
Default 5.2V
Note:
如果更改为5V适合器，
那建议增加过压保护电路
具体电路请见RK3328_BOX_REF_V11
IR Receiver
Note:
WIFI天线不能太靠近IR接收头，
WIFI会干扰IR接收头。
发光二极管也有可能会影响红外接收.
不得删除！
不得随意更换型号！
IF TVS UNMOUNTED,
ESD OR SURGE SHOULD BE
DAMAGE THE PMIC!!!
如果采用5V适配器，那这个器件必须贴。
型号建议不更换，要更换需相同的规格。
Operating Supply Vltage : 5.5V(5.25-6V)
PeakPulse Current: >10A (tp=8/20uS)
Surge Clamping Voltage: <6.5V
DO NOT DELETE IT!
1：如WIFI/BT需要32.768KHz时钟，
默认由CPU提供32.769KHz时钟，默认不贴。
2：如果修改了PLL分频，造成无法分出32.7698KHz
时钟，然后WIFI/BT又需要32.768KHz时钟，
那么这部分电路需要贴上。
3：WIFI/BT不用32.768KHz时钟，这部分可以不贴。
模组是否需要32.768KHz，
请见各WIFI/BT模组分页说明。
RK805-1
QFN32_4R00X4R00X0R90_T
电源走线或
铺铜末端反馈
RK3328
Power pin
Default:DDR3=1.5V
LED DISPLAY
VCC_DDR
DDR3 DDR3L DDR4
VCC_DDR 1.527V 1.353V 1.2V
R725 100K 1% 47K 1% 51K 1%
R726 110K 1% 68K 1% 100K 1%
Rockchip 瑞芯微电子 Fuzhou Rockchip Electronics
Project: RK3328_BOX_Demo1
File: System Power-PMIC RK805-1
Date: Wednesday, July 19, 2017
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Designed by: Zhangdz
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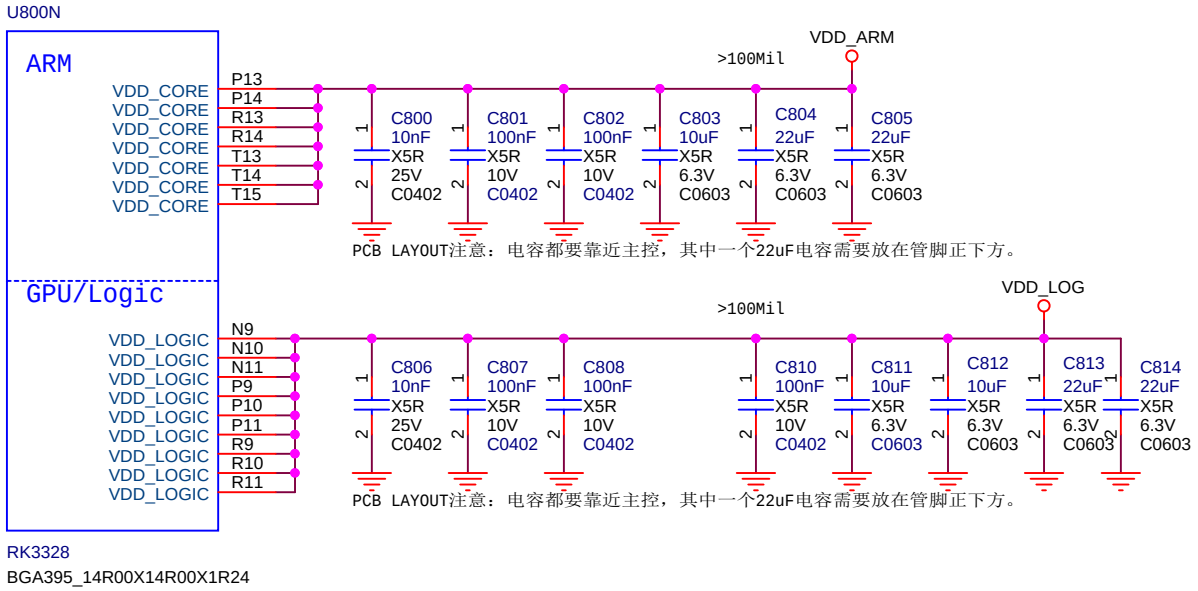

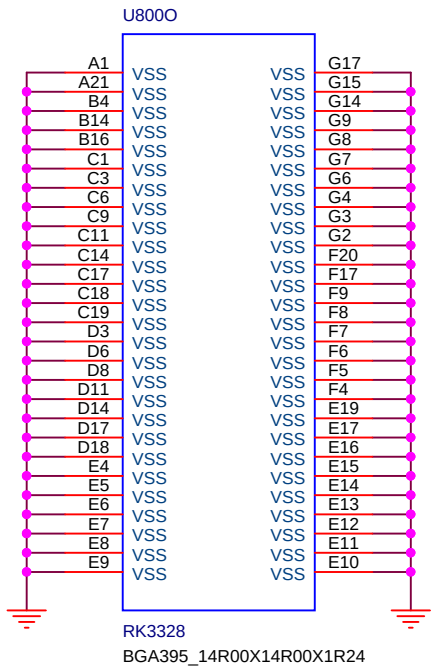

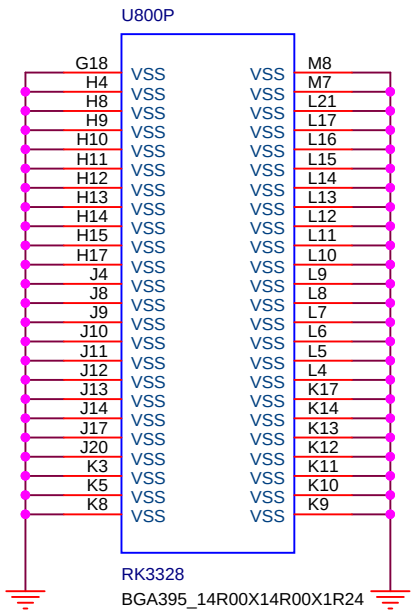

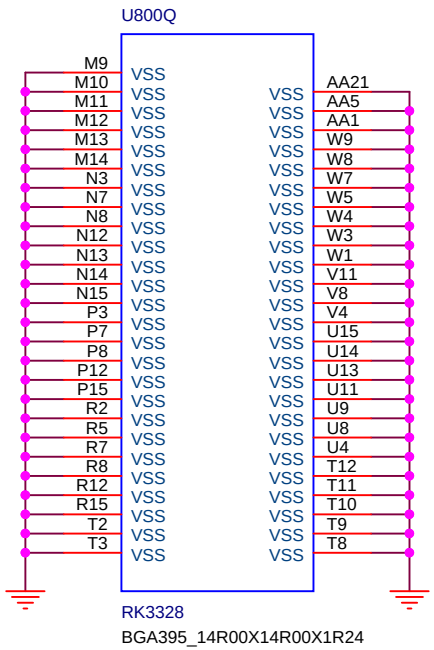

Rockchip 瑞芯微电子	Fuzhou Rockchip Electronics		
Project:	RK3328_BOX_Demo1		
File:	RK3328 Power		
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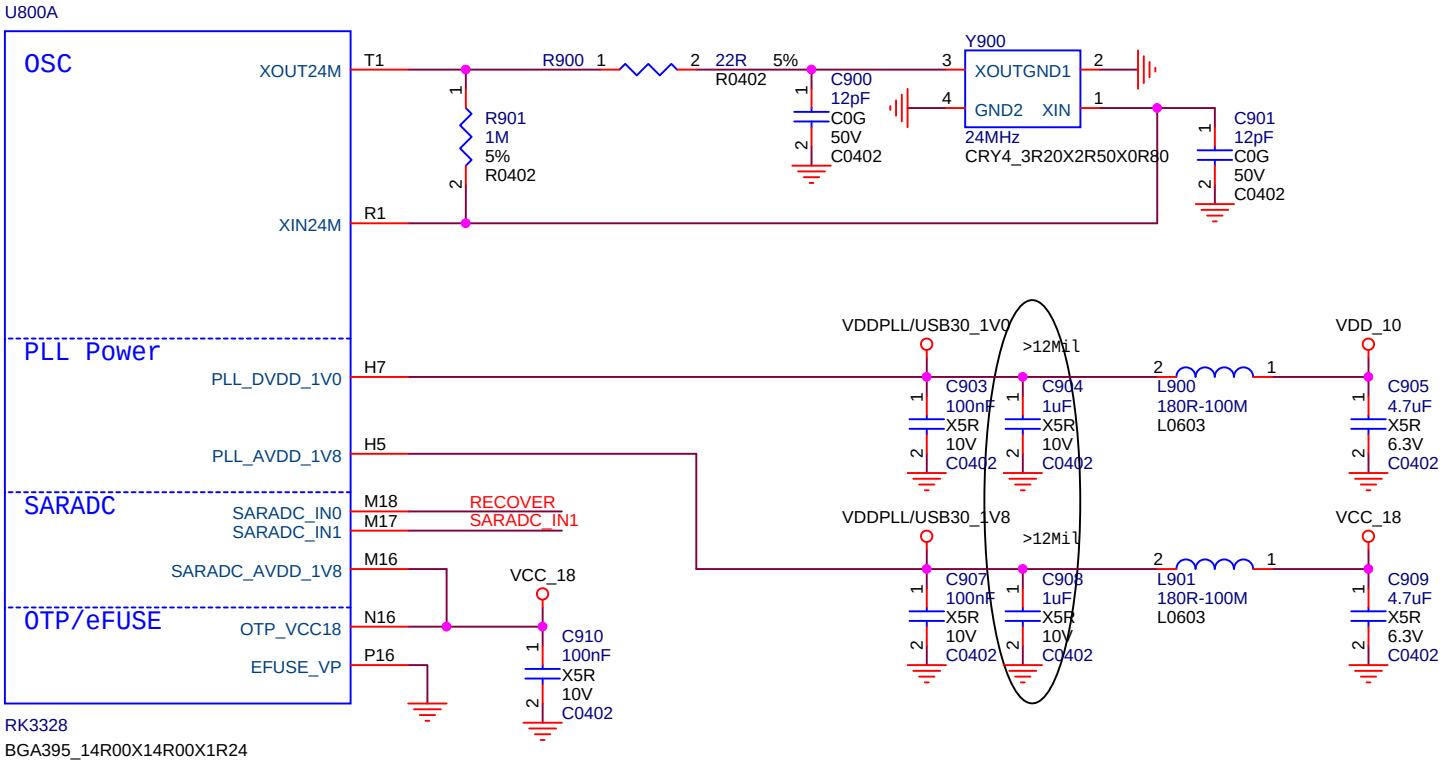

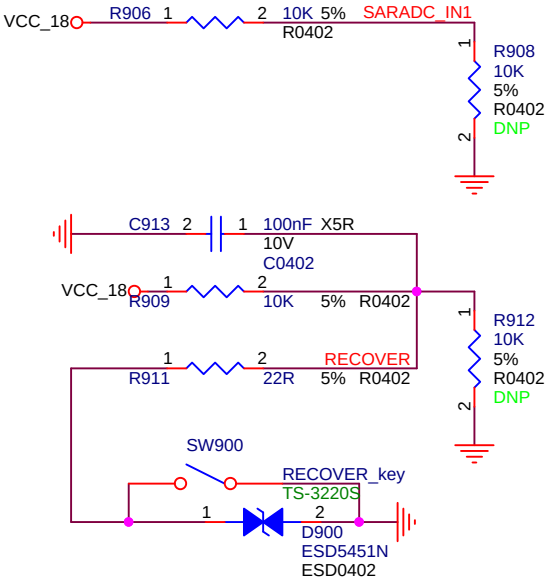

SARADC_IN0 BOM版本	SARADC_IN1 PCB版本	Up阻值	Down阻值	
Recover		DNP	10K	
BOM1		110K	10K	
BOM2		100K	20K	
BOM3		100K	33K	
BOM4		36K	18K	
BOM5		51K	36K	
BOM6		51K	51K	
BOM7		36K	51K	
BOM8		18K	36K	
BOM9		33K	100K	
BOM10		20K	100K	
BOM11		10K	110K	
BOM12		10K	DNP	

Rockchip 瑞芯微电子	Fuzhou Rockchip Electronics		
Project:	RK3328_BOX_Demo1		
File:	RK3328 OSC/PLL/OTP/SARADC		
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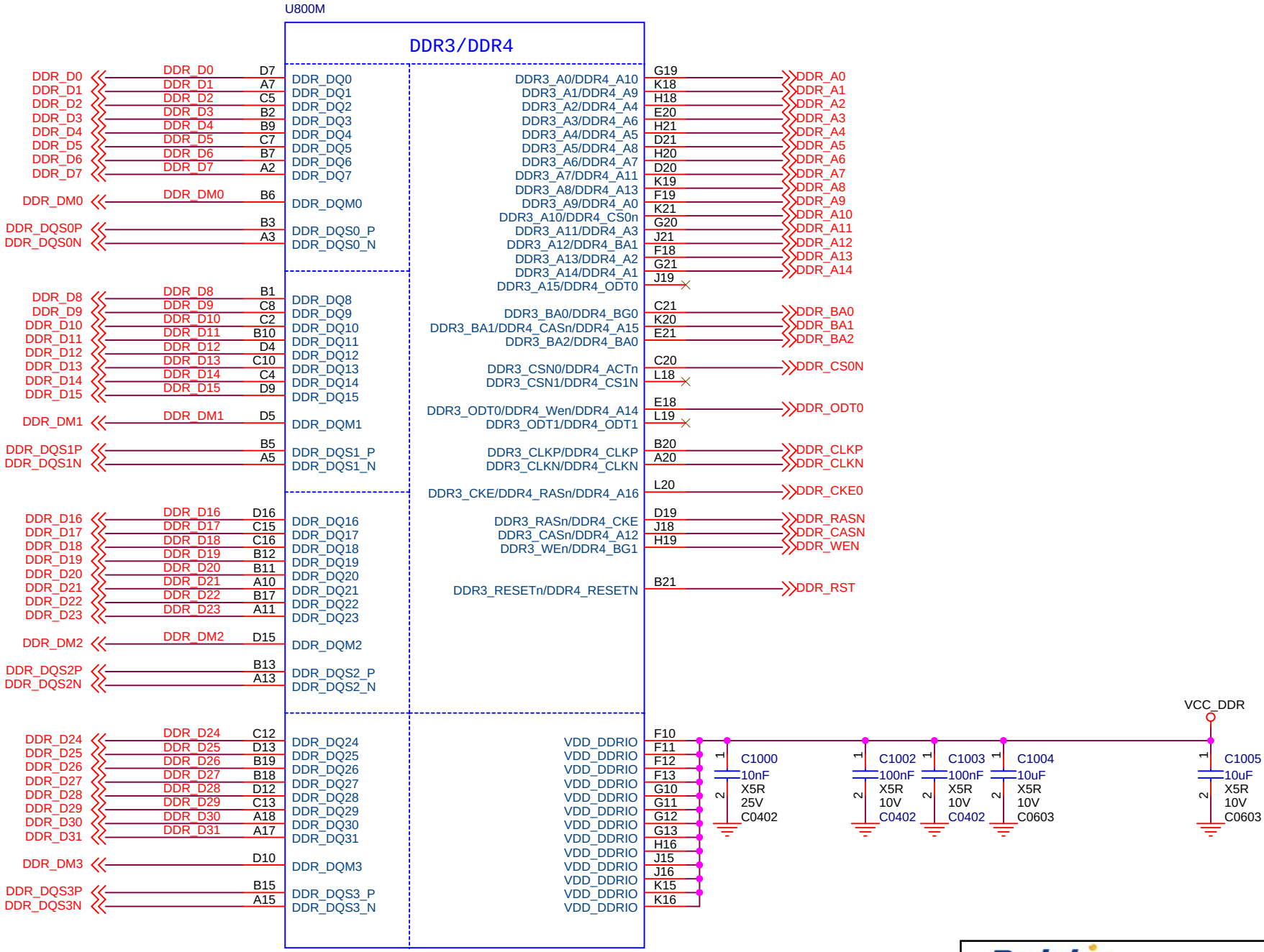

Fuzhou Rockchip Electronics			
Project:	RK3328_BOX_Demo1		
File:	RK3328 DDR Controler		
Date:	Tuesday, July 18, 2017	Rev:	V1.1
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Rockchip 瑞芯微电子	Fuzhou Rockchip Electronics		
Project:	RK3328_BOX_Demo1		
File:	RK3328 FLASH Controler/TF		
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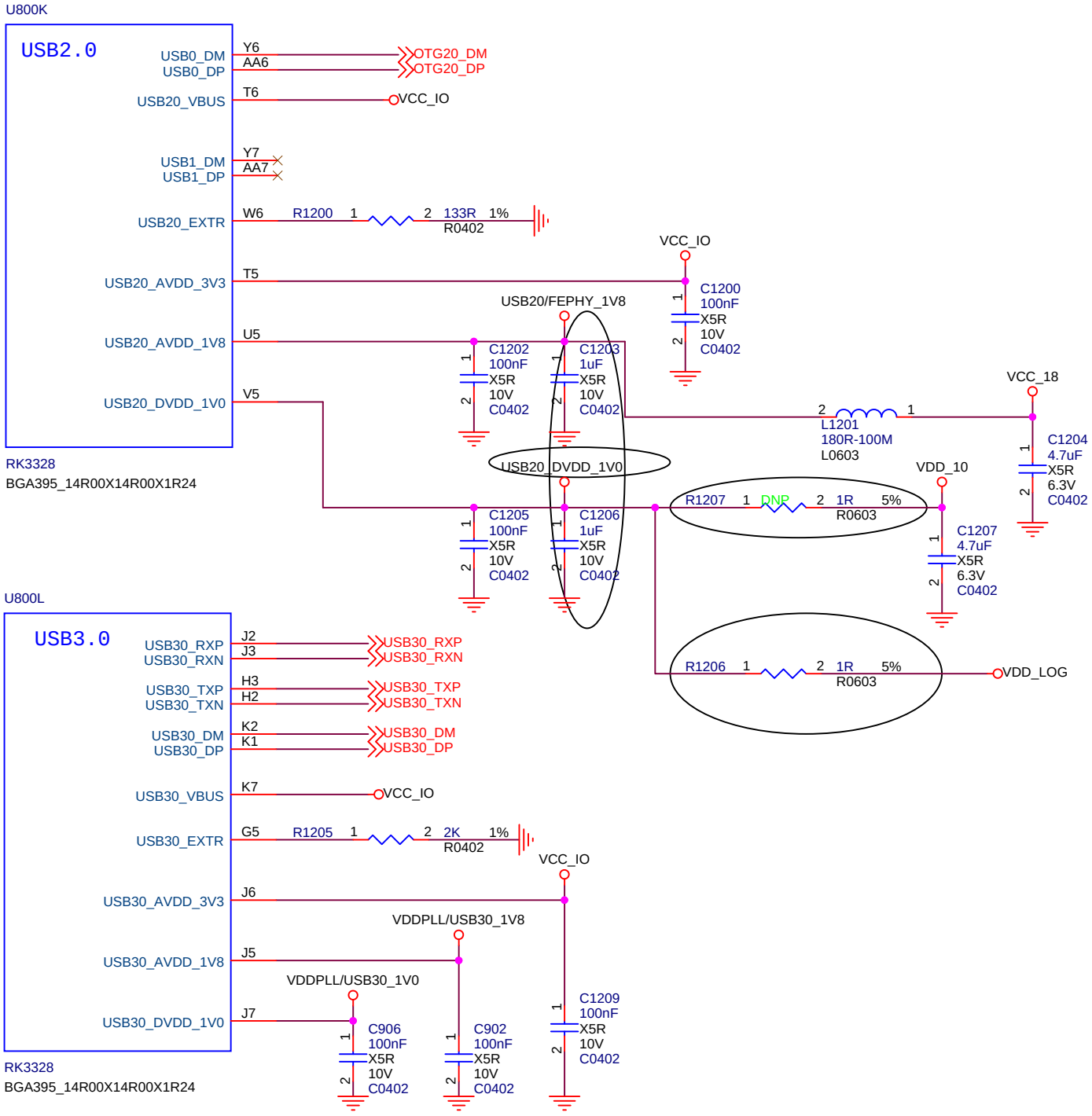

Rockchip 瑞芯微电子	Fuzhou Rockchip Electronics		
Project:	RK3328_BOX_Demo1		
File:	RK3328 USB2 PHY/USB3 PHY		
Date:	Tuesday, July 18, 2017	Rev:	V1.1
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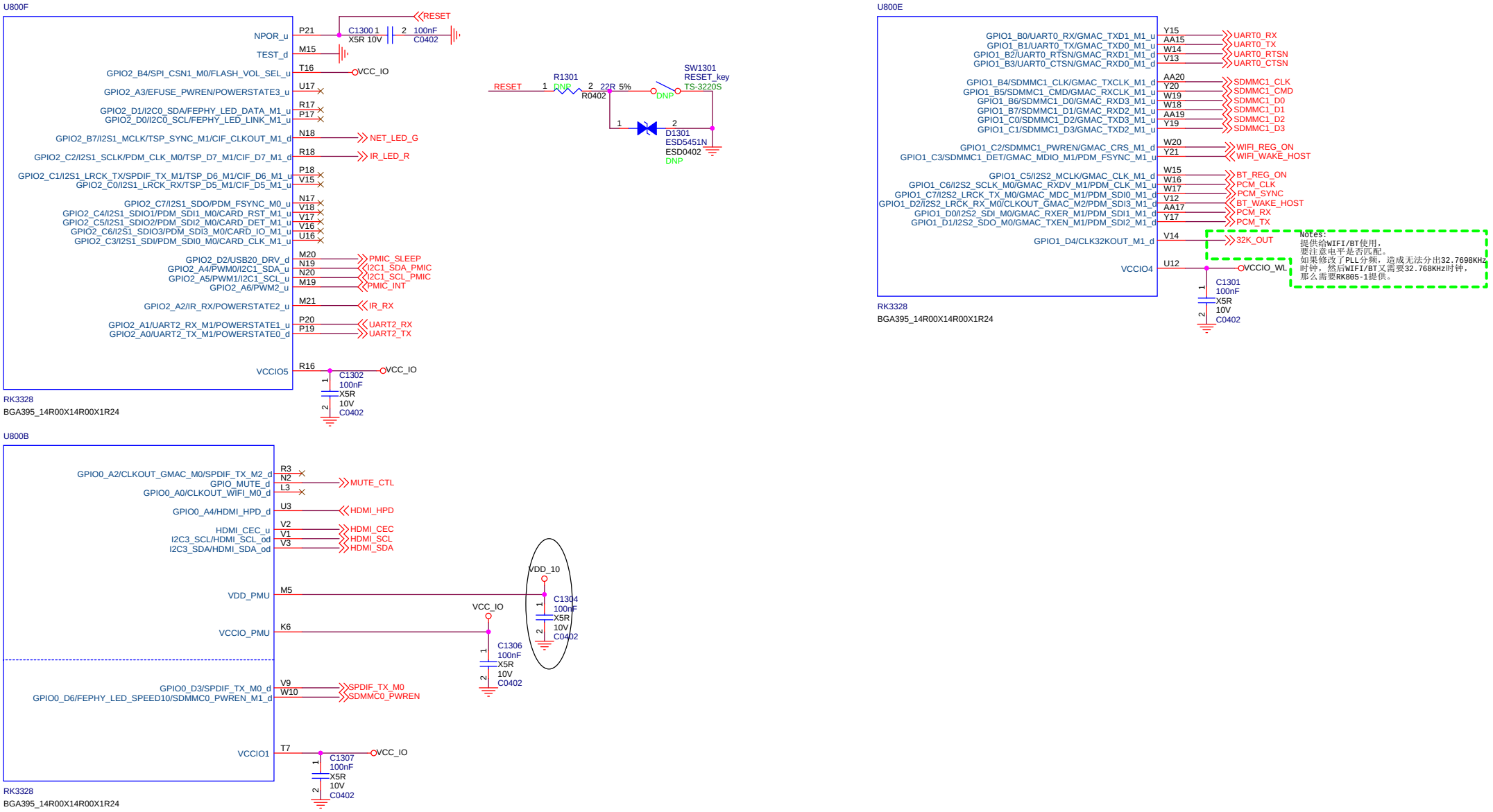

Rockchip 瑞芯微电子	Fuzhou Rockchip Electronics		
Project:	RK3328_BOX_Demo1		
File:	RK3328 SDIO/UART/I2C/I2S/IR		
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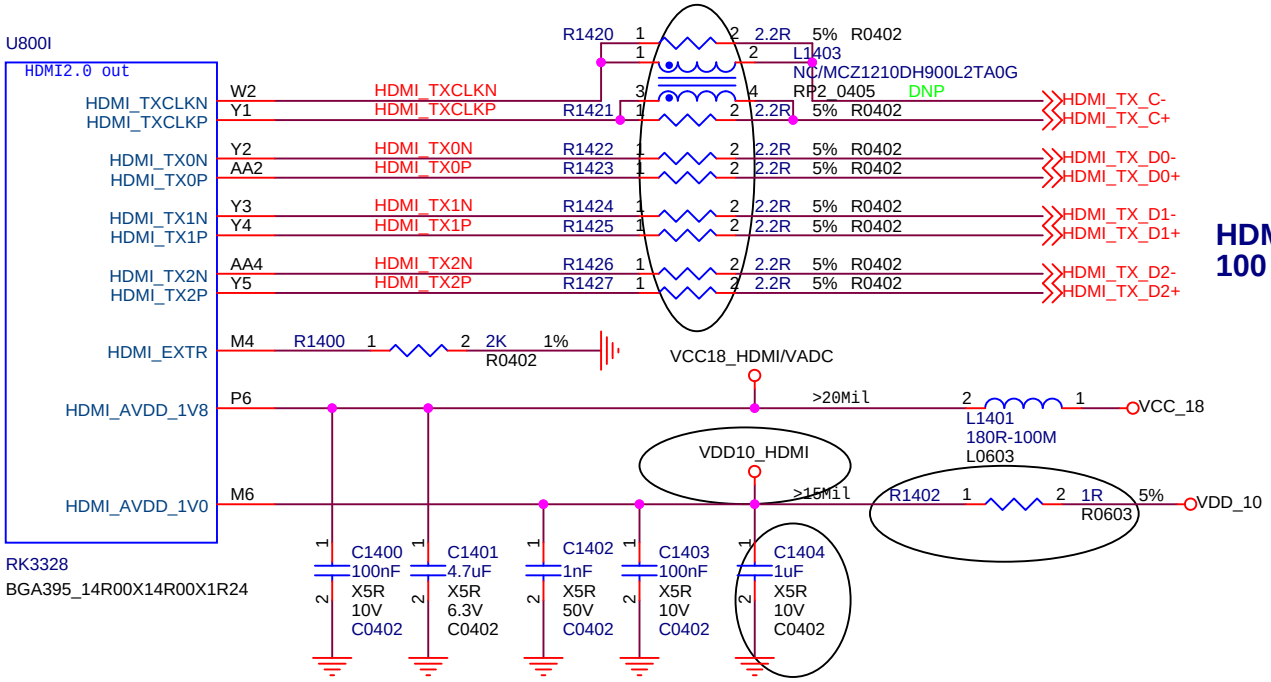

HDMI TMDS trace
100 Ohm +-10%

Rockchip 瑞芯微电子	Fuzhou Rockchip Electronics		
Project:	RK3328_BOX_Demo1		
File:	RK3328 HDMI PHY		
Date:	Tuesday, July 18, 2017	Rev:	V1.1
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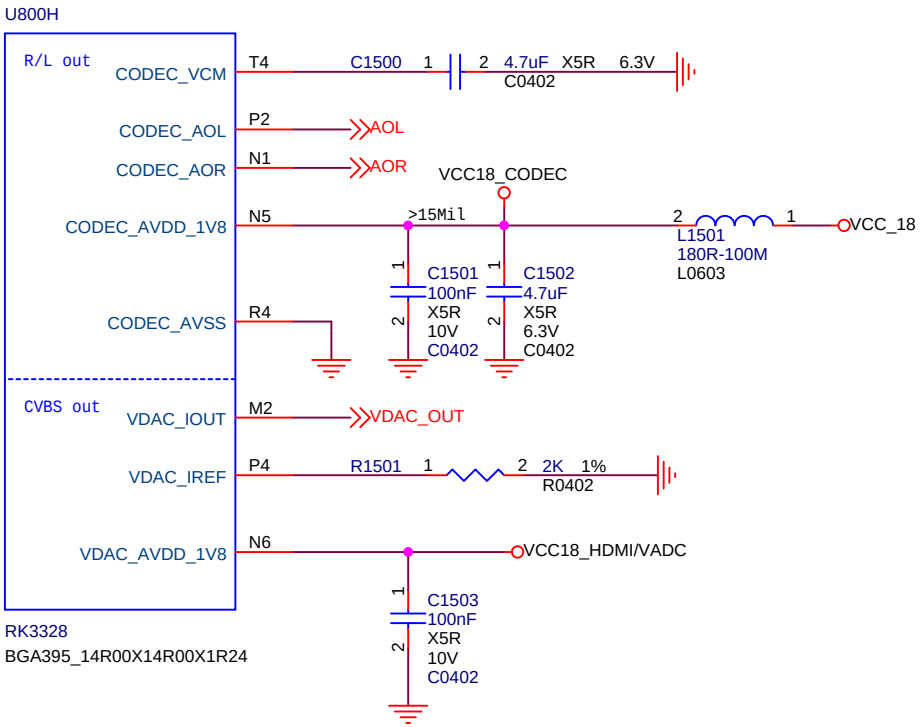

Rockchip 瑞芯微电子	Fuzhou Rockchip Electronics		
Project:	RK3328_BOX_Demo1		
File:	RK3328 AV Interface		
Date:	Tuesday, July 18, 2017	Rev:	V1.1
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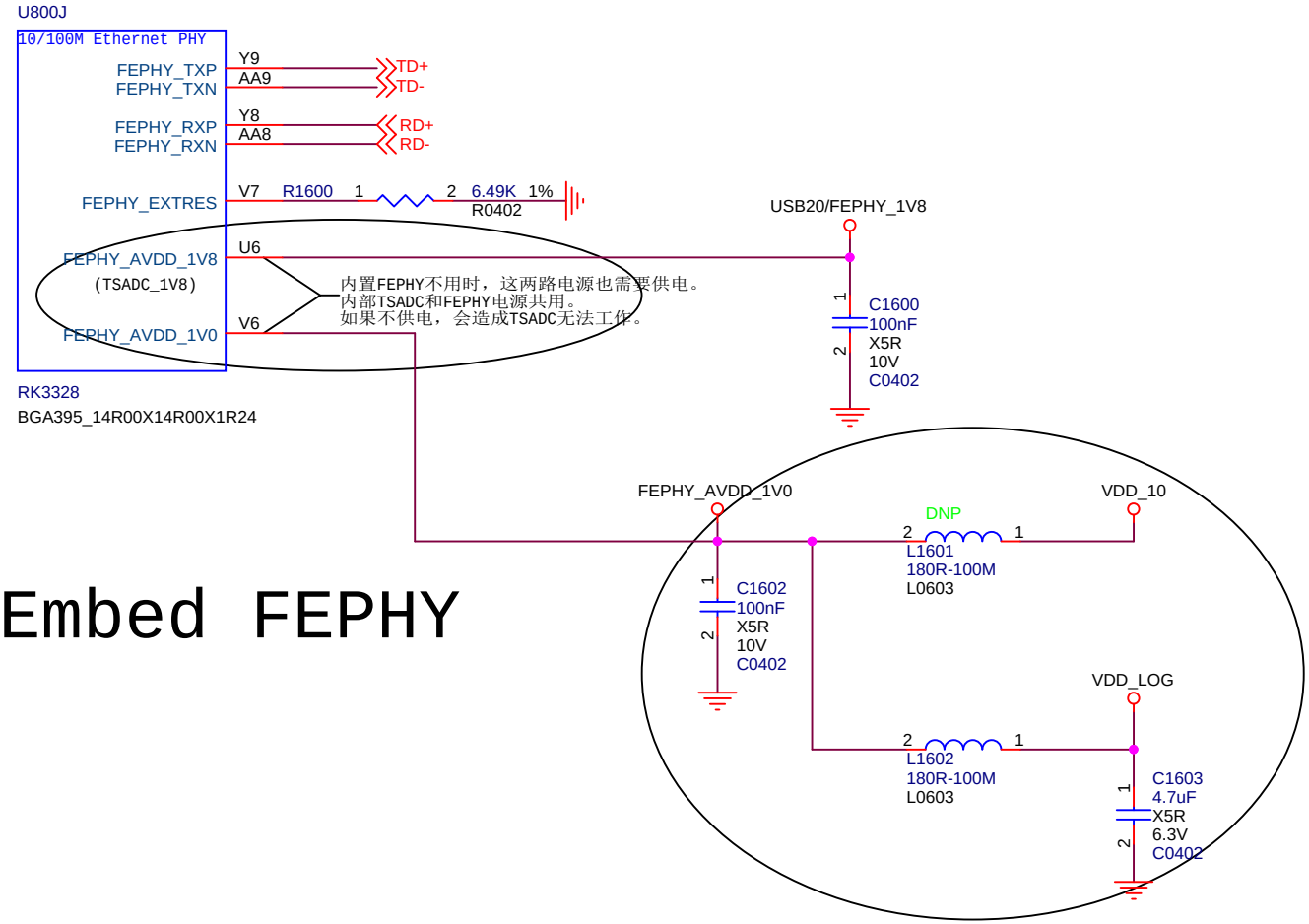

Embed FEPHY

Rockchip 瑞芯微电子	Fuzhou Rockchip Electronics		
Project:	RK3328_BOX_Demo1		
File:	RK3328 FEPHY		
Date:	Tuesday, July 18, 2017	Rev:	V1.1
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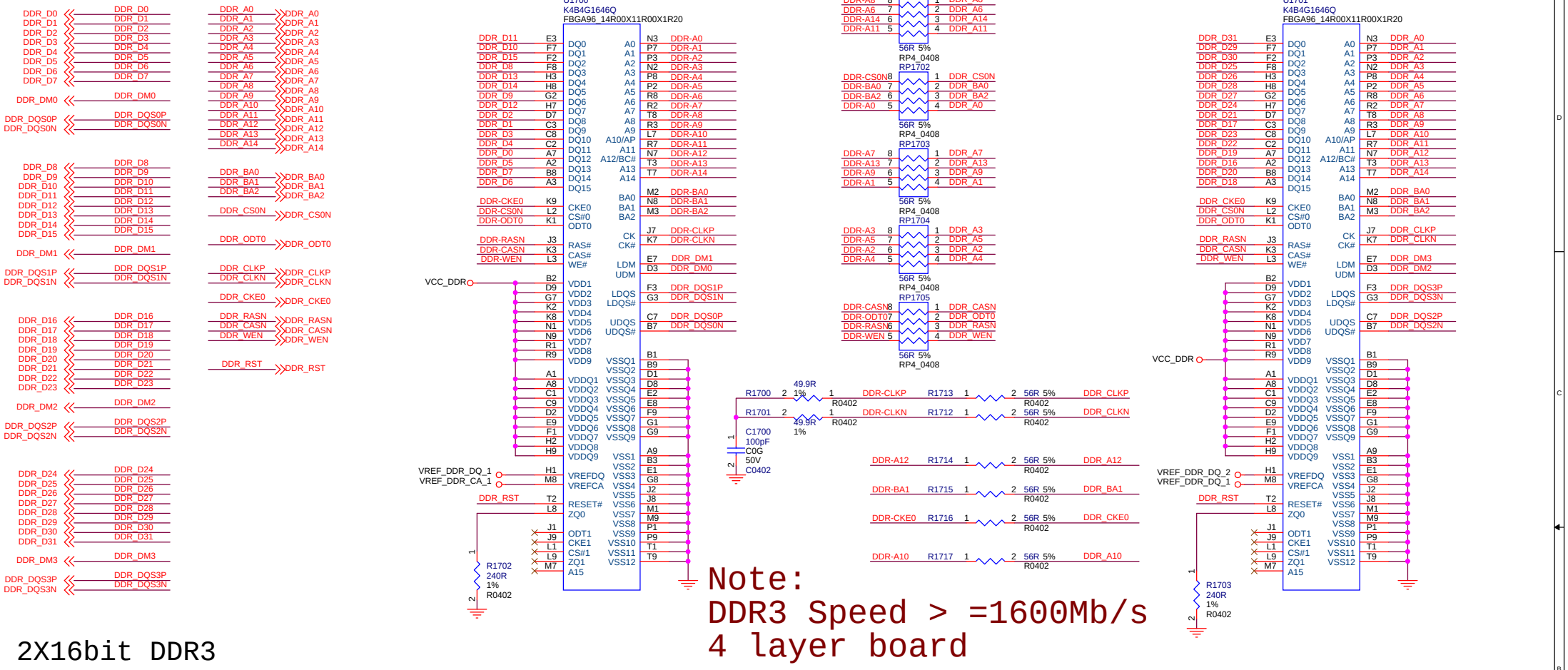

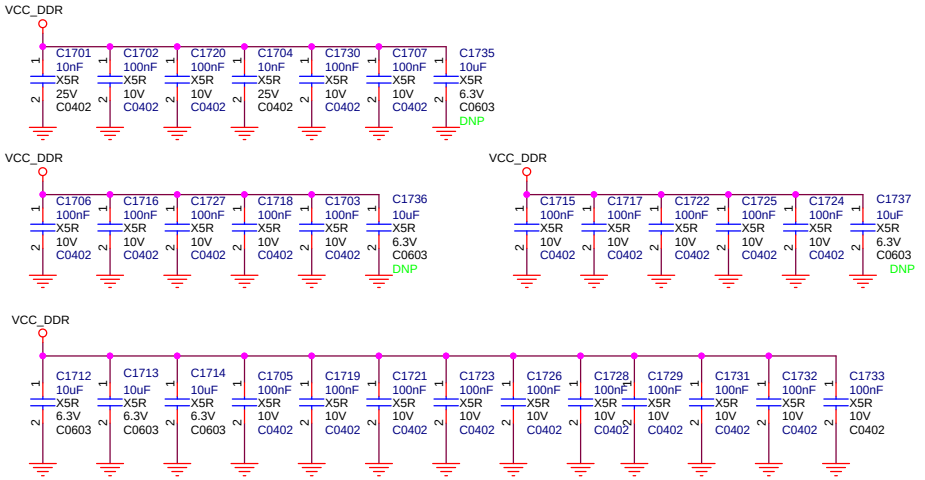

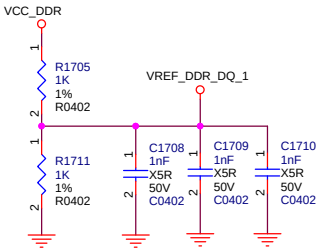

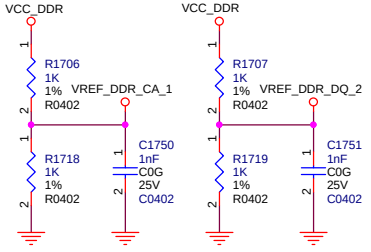

Rockchip 瑞芯微电子	Fuzhou Rockchip Electronics		
Project:	RK3328_BOX_Demo1		
File:	RAM DDR3 2x16bit		
Date:	Tuesday, August 01, 2017	Rev:	V1.1
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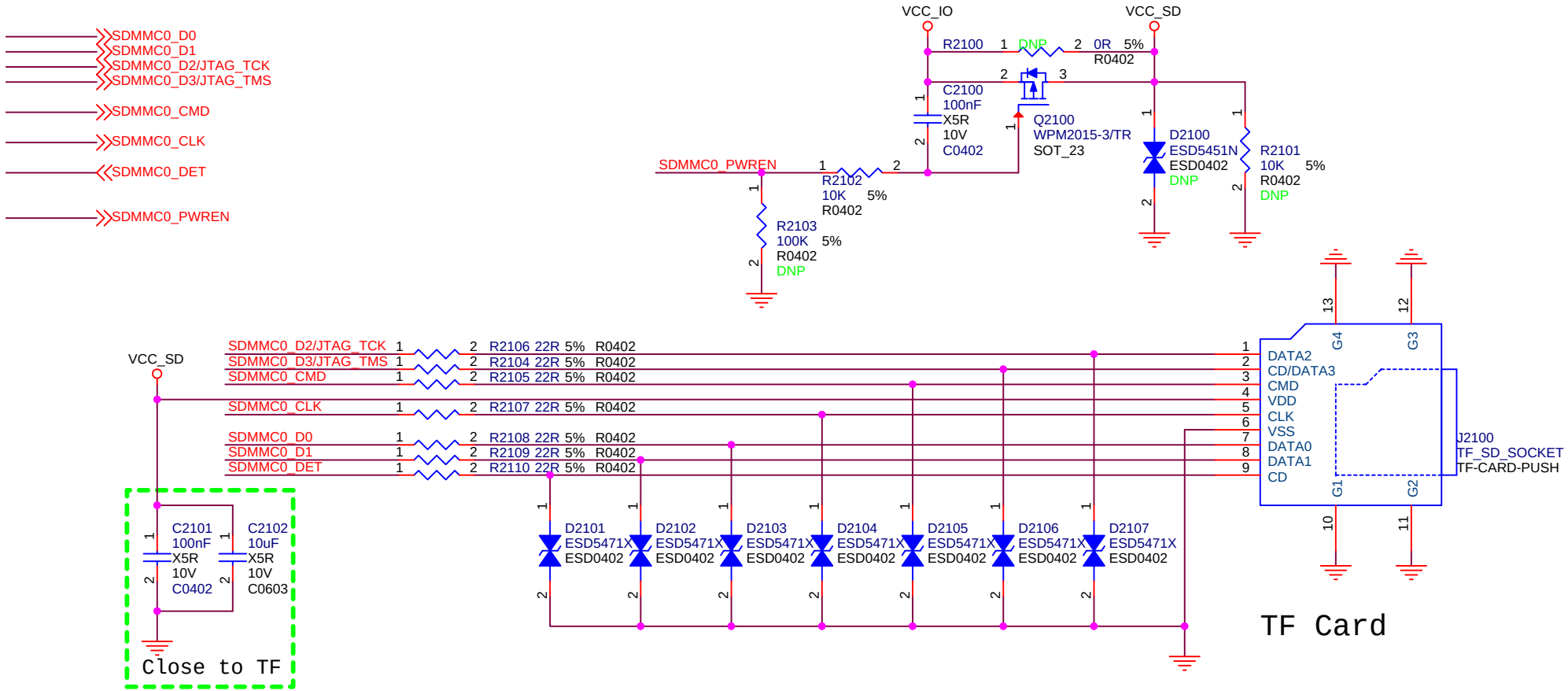

Rockchip 瑞芯微电子	Fuzhou Rockchip Electronics		
Project:	RK3328_BOX_Demo1		
File:	TF/SD Card		
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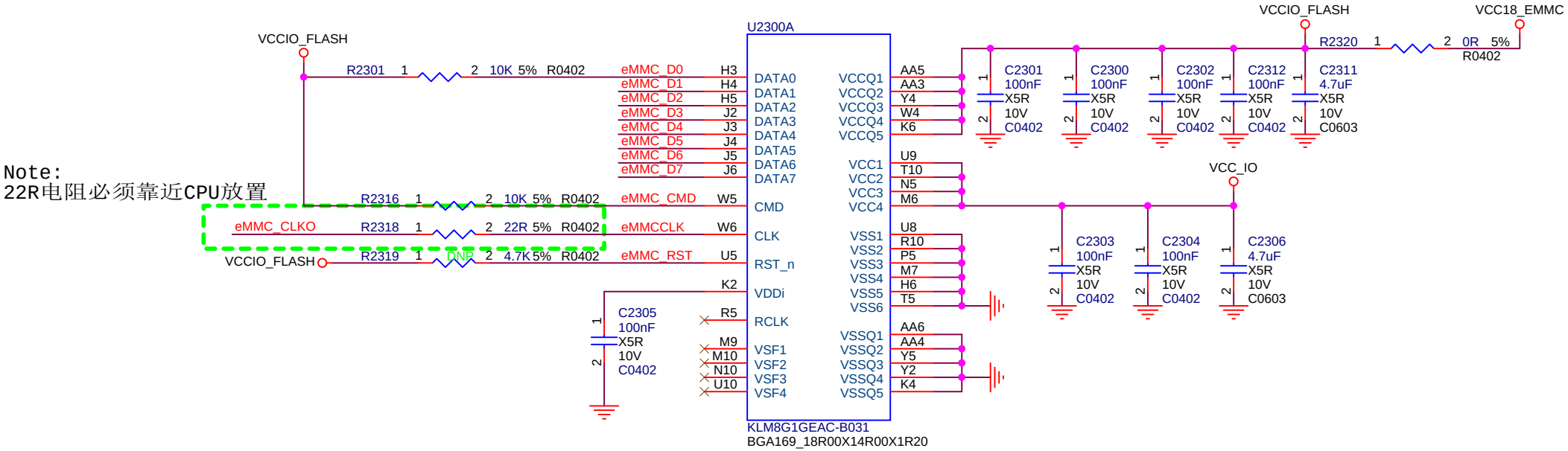
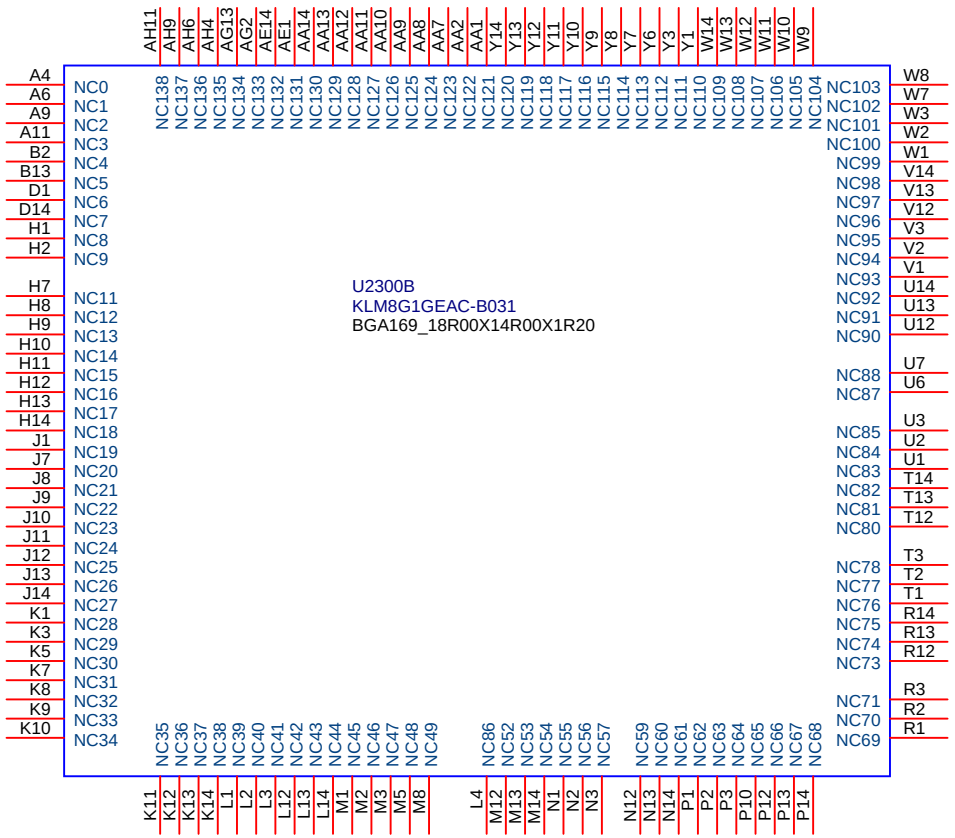
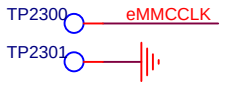
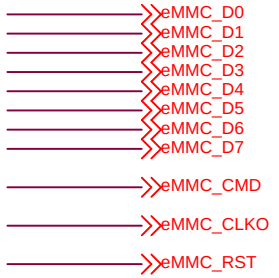






Note:
eMMC Update.



Rockchip 瑞芯微电子	Fuzhou Rockchip Electronics		
Project:	RK3328_BOX_Demo1		
File:	Flash-eMMC		
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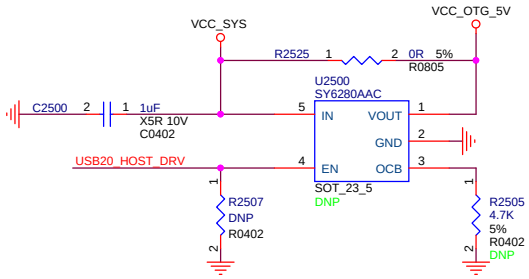

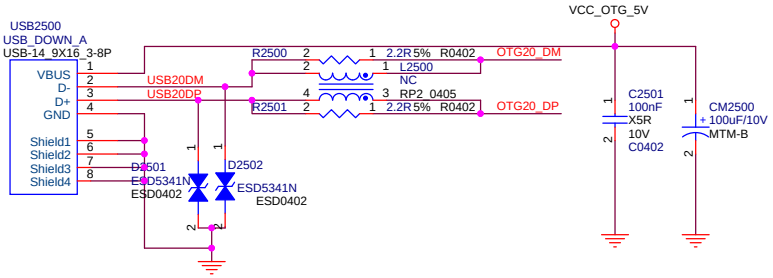

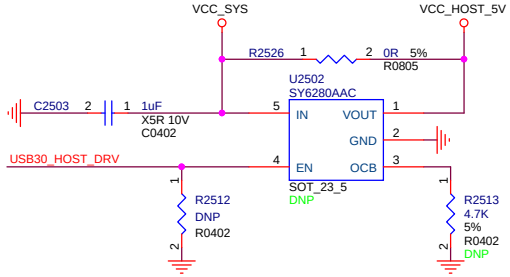

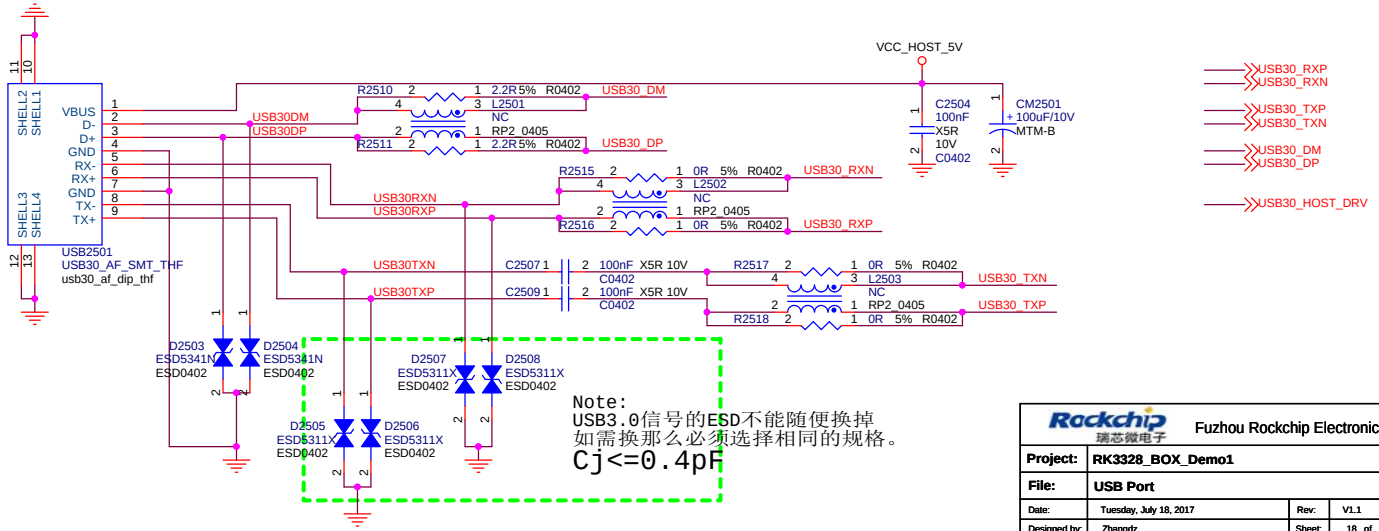

Rockchip 瑞芯微电子	Fuzhou Rockchip Electronics		
Project:	RK3328_BOX_Demo1		
File:	USB Port		
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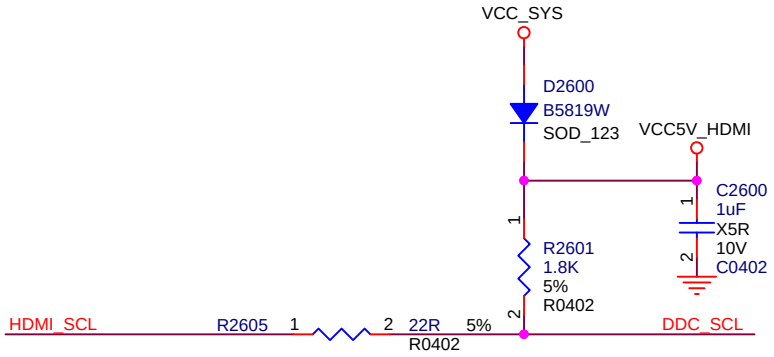
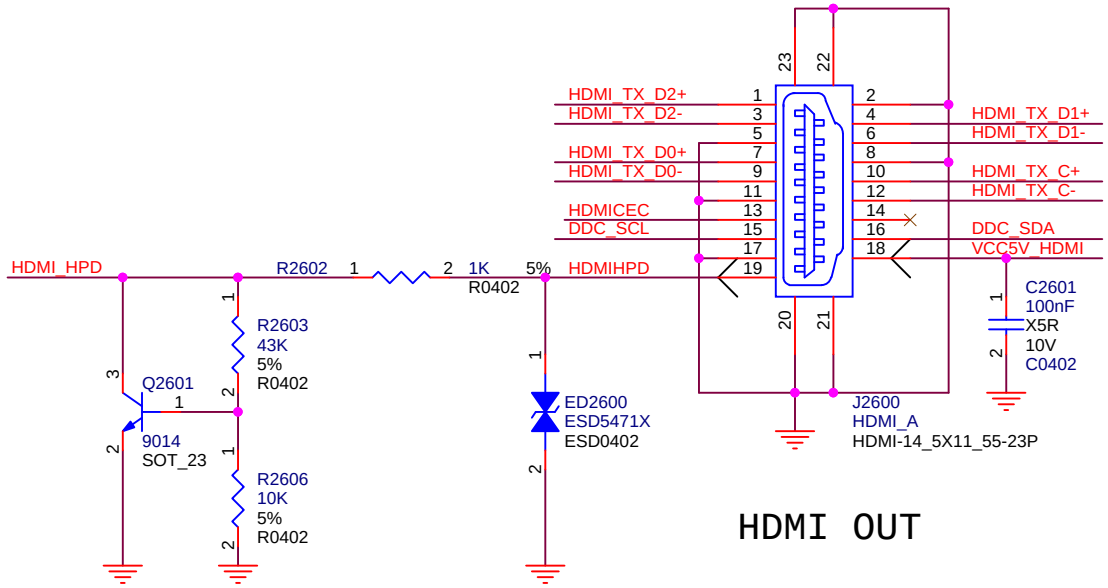
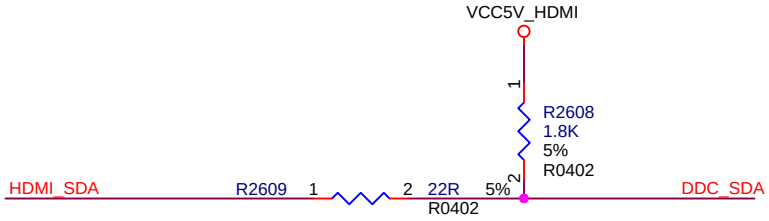
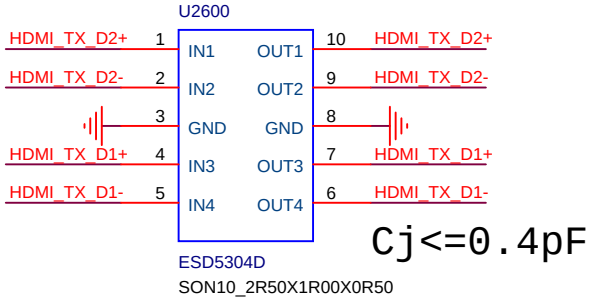




HDMI OUT





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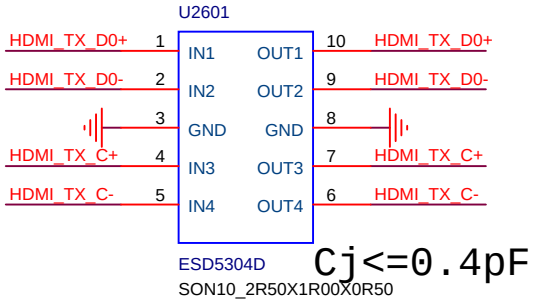

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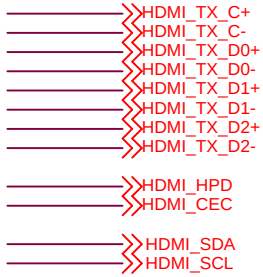

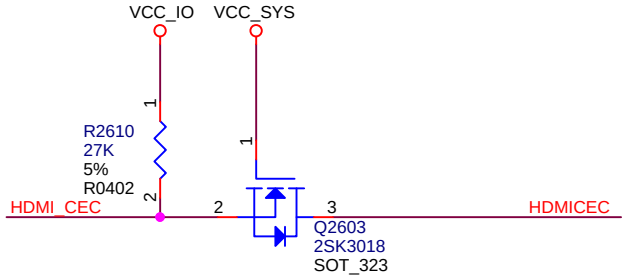

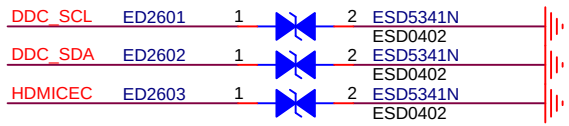

Rockchip 瑞芯微电子	Fuzhou Rockchip Electronics		
Project:	RK3328_BOX_Demo1		
File:	HDMI OUT Port		
Date:	Tuesday, July 18, 2017	Rev:	V1.1
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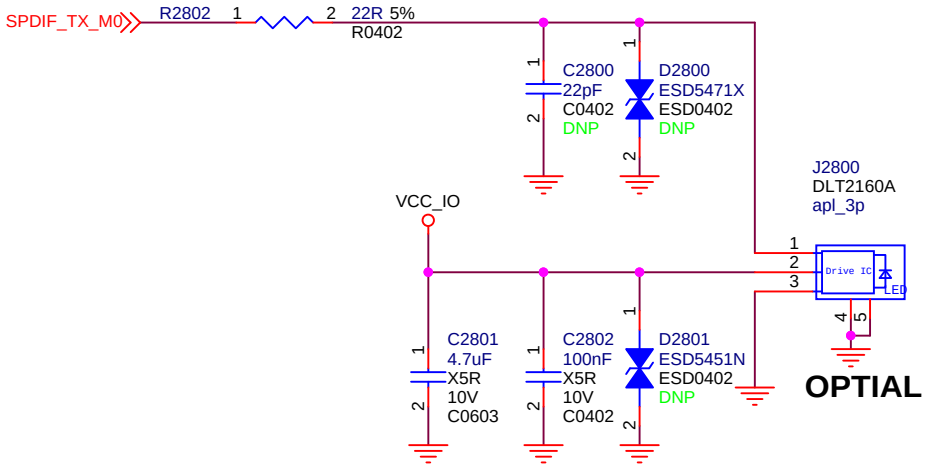

Rockchip 瑞芯微电子	Fuzhou Rockchip Electronics		
Project:	**RK3328_BOX_Demo1**		
File:	**S/PDIF Port**		
Date:	Tuesday, July 18, 2017	Rev:	V1.1
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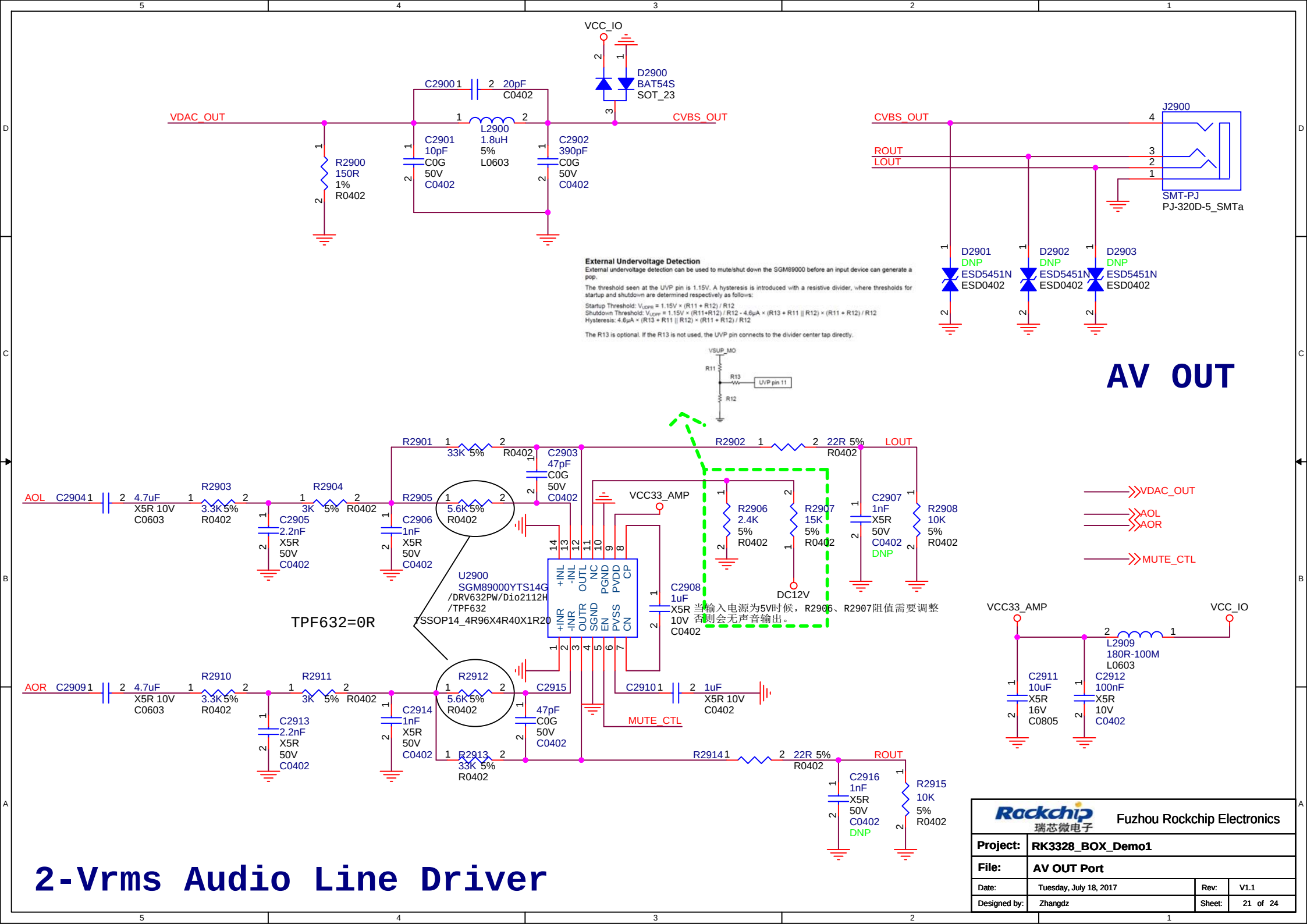
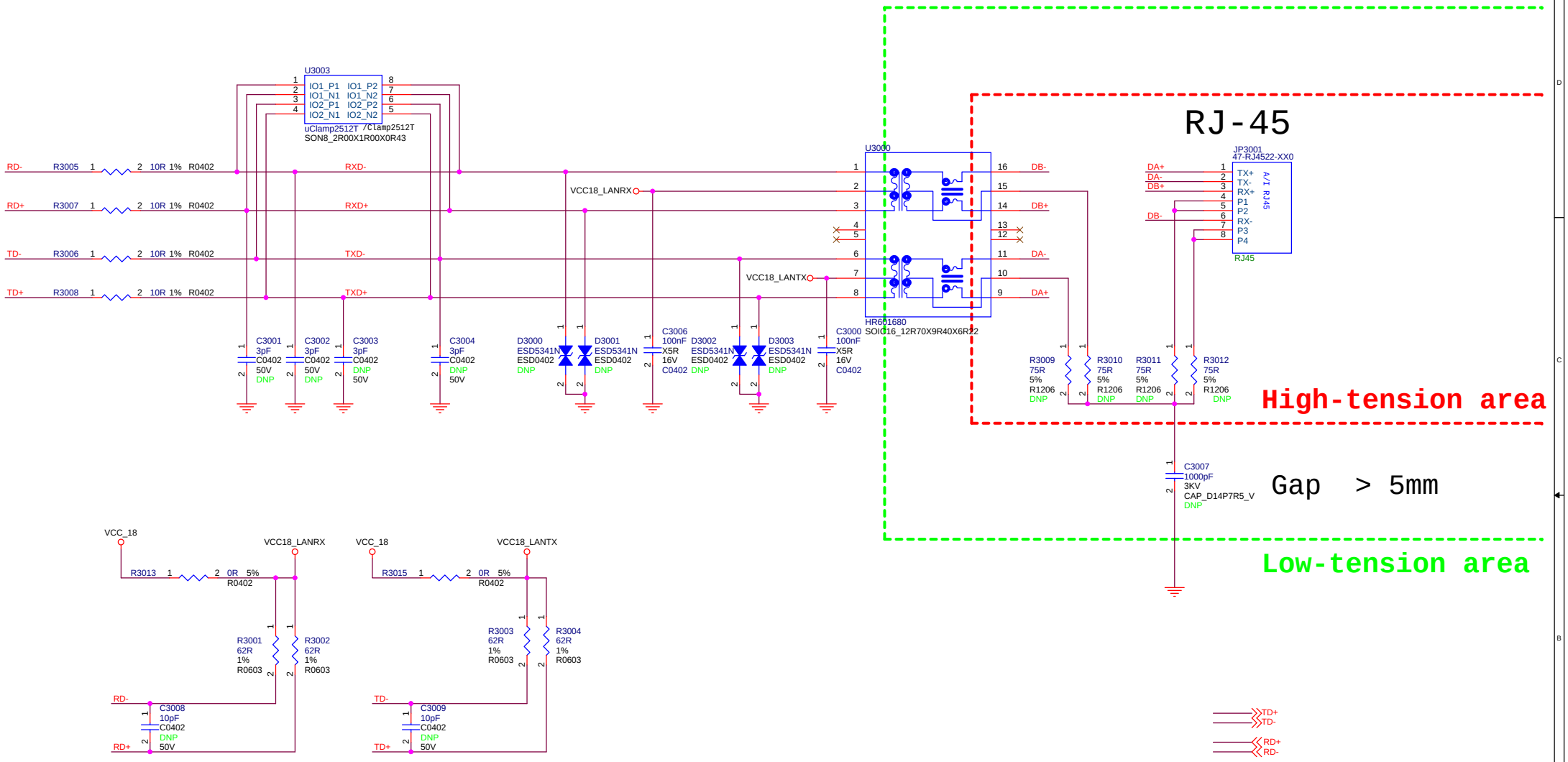
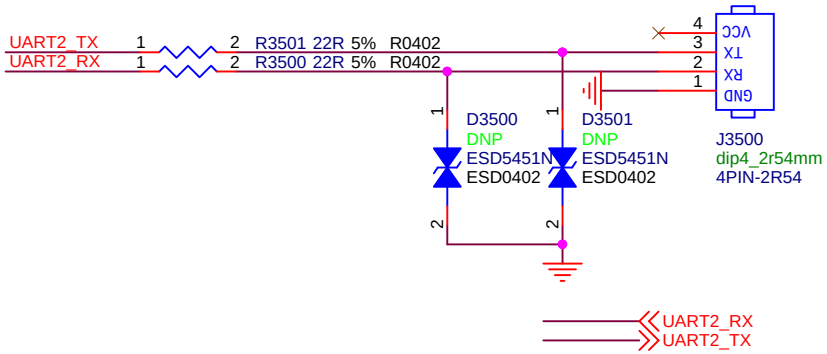

VCC_IO
D2900
BAT54S
SOT_23
C2900 20pF C0402
VDAC_OUT
CVBS_OUT
L2900
1.8uH
5%
L0603
R2900
150R
1%
R0402
C2901
10pF
C0G
50V
C0402
C2902
390pF
C0G
50V
C0402
J2900
CVBS_OUT
ROUT
LOUT
SMT-PJ
PJ-320D-5_SMTa
D2901
DNP
ESD5451N
ESD0402
D2902
DNP
ESD5451N
ESD0402
D2903
DNP
ESD5451N
ESD0402
External Undervoltage Detection
External undervoltage detection can be used to mute/shut down the SGM89000 before an input device can generate a pop.
The threshold seen at the UVP pin is 1.15V. A hysteresis is introduced with a resistive divider, where thresholds for startup and shutdown are determined respectively as follows:
Startup Threshold: V_UDRR = 1.15V × (R11 + R12) / R12
Shutdown Threshold: V_UDF = 1.15V × (R11+R12) / R12 - 4.6μA × (R13 + R11 || R12) × (R11 + R12) / R12
Hysteresis: 4.6μA × (R13 + R11 || R12) × (R11 + R12) / R12
The R13 is optional. If the R13 is not used, the UVP pin connects to the divider center tap directly.
VSUP_MO
R11
R13
UVP pin 11
R12
AV OUT
R2901 33K 5% R0402
R2902 22R 5% R0402
LOUT
AOL
C2904 4.7uF X5R 10V C0603
R2903 3.3K 5% R0402
R2904 3K 5% R0402
R2905 5.6K 5% R0402
C2903 47pF C0G 50V C0402
C2905 2.2nF X5R 50V C0402
C2906 1nF X5R 50V C0402
VCC33_AMP
R2906 2.4K 5% R0402
R2907 15K 5% R0402
C2907 1nF X5R 50V C0402 DNP
R2908 10K 5% R0402
DC12V
U2900
SGM89000YTS14G
/DRV632PW/Dio2112H
/TPF632
TSSOP14_4R96X4R40X1R20
+INL -INL OUTL NC PGND PVDD CP
+INR -INR OUTR SGND EN PVSS CN
C2908 1uF X5R 10V C0402
TPF632=0R
当输入电源为5V时候，R2906、R2907阻值需要调整
否则会无声音输出。
VDAC_OUT
AOL
AOR
MUTE_CTL
VCC33_AMP
VCC_IO
L2909
180R-100M
L0603
C2911 10uF X5R 16V C0805
C2912 100nF X5R 10V C0402
AOR
C2909 4.7uF X5R 10V C0603
R2910 3.3K 5% R0402
R2911 3K 5% R0402
R2912 5.6K 5% R0402
C2915 47pF C0G 50V C0402
C2913 2.2nF X5R 50V C0402
C2914 1nF X5R 50V C0402
R2913 33K 5% R0402
C2910 1uF X5R 10V C0402
MUTE_CTL
R2914 22R 5% R0402
ROUT
C2916 1nF X5R 50V C0402 DNP
R2915 10K 5% R0402
2-Vrms Audio Line Driver
Rockchip 瑞芯微电子
Fuzhou Rockchip Electronics
Project: RK3328_BOX_Demo1
File: AV OUT Port
Date: Tuesday, July 18, 2017
Rev: V1.1
Designed by: Zhangdz
Sheet: 21 of 24

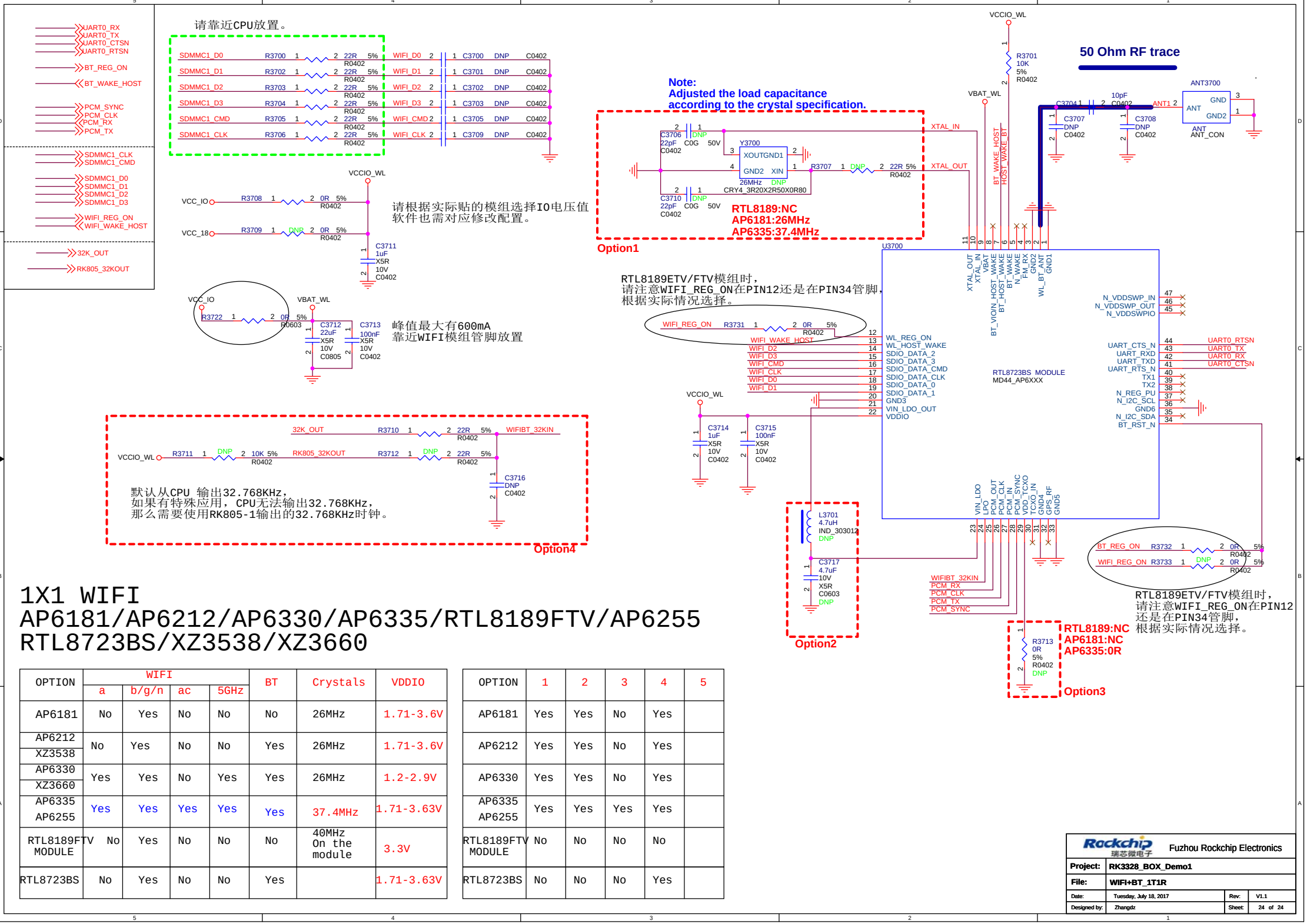


Rockchip 瑞芯微电子	Fuzhou Rockchip Electronics		
Project:	RK3328_BOX_Demo1		
File:	10/100M-Embed PHY		
Date:	Tuesday, July 18, 2017	Rev:	V1.1
Designed by:	Zhangdz	Sheet:	22 of 24



Debug UART2

Rockchip 瑞芯微电子	Fuzhou Rockchip Electronics		
Project:	RK3328_BOX_Demo1		
File:	Debug UART2/JTAG		
Date:	Tuesday, July 18, 2017	Rev:	V1.1
Designed by:	<designer>	Sheet:	23 of 24



1X1 WIFI
AP6181/AP6212/AP6330/AP6335/RTL8189FTV/AP6255
RTL8723BS/XZ3538/XZ3660

OPTION	WIFI				BT	Crystals	VDDIO
	a	b/g/n	ac	5GHz			
AP6181	No	Yes	No	No	No	26MHz	1.71-3.6V
AP6212 XZ3538	No	Yes	No	No	Yes	26MHz	1.71-3.6V
AP6330 XZ3660	Yes	Yes	No	Yes	Yes	26MHz	1.2-2.9V
AP6335 AP6255	Yes	Yes	Yes	Yes	Yes	37.4MHz	1.71-3.63V
RTL8189FTV MODULE	No	Yes	No	No	No	40MHz On the module	3.3V
RTL8723BS	No	Yes	No	No	Yes		1.71-3.63V

OPTION	1	2	3	4	5
AP6181	Yes	Yes	No	Yes	
AP6212	Yes	Yes	No	Yes	
AP6330	Yes	Yes	No	Yes	
AP6335 AP6255	Yes	Yes	Yes	Yes	
RTL8189FTV MODULE	No	No	No	No	
RTL8723BS	No	No	No	Yes	

Rockchip 瑞芯微电子	Fuzhou Rockchip Electronics
Project:	RK3328_BOX_Demo1
File:	WIFI+BT_1T1R
Date:	Tuesday, July 18, 2017
Rev:	V1.1
Designed by:	Zhangdz
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