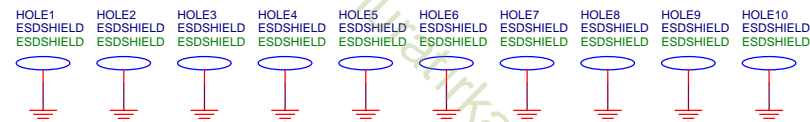


Content Indexing

PDF
Number of pages

01.Index	-----1
02.Change List	-----2
03.Block Diagram	-----3
05.Power tree-RK805-1	-----4
07.System Power-PMIC RK805-1	-----5
08.RK3328 Power	-----6
09.RK3328 OSC/PLL/OTP/SARADC	-----7
10.RK3328 DDR Controler	-----8
11.RK3328 eMMC Controler/TF	-----9
12.RK3328 USB2 PHY/USB3 PHY	-----10
13.RK3328 SDIO/UART/I2C/I2S/IR	-----11
14.RK3328 HDMI PHY	-----12
15.RK3328 AV Interface	-----13
16.RK3328 FEPHY	-----14
17.RAM DDR3 2x16bit	-----15
18.RAM DDR3 4x16bit-option	-----16
20.RAM DDR4 4x8bit-support-4GB-option	-----17
21.TF/SD Card	-----18
23.Flash-eMMC	-----19
25.USB Port	-----20
26.HDMI OUT Port	-----21
28.S/PDIF Port	-----22
29.AV OUT Port	-----23
30.10/100M-Embed PHY	-----24
32.10/100/1000M-ExternalPHY-option	-----25
35.Debug UART2	-----26
37.WIFI+BT_1T1R	-----27
38.WIFI+BT_2T2R-option	-----28
39.WIFI+BT_USB_2T2R-option	-----29

RK3328 BOX Ref



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

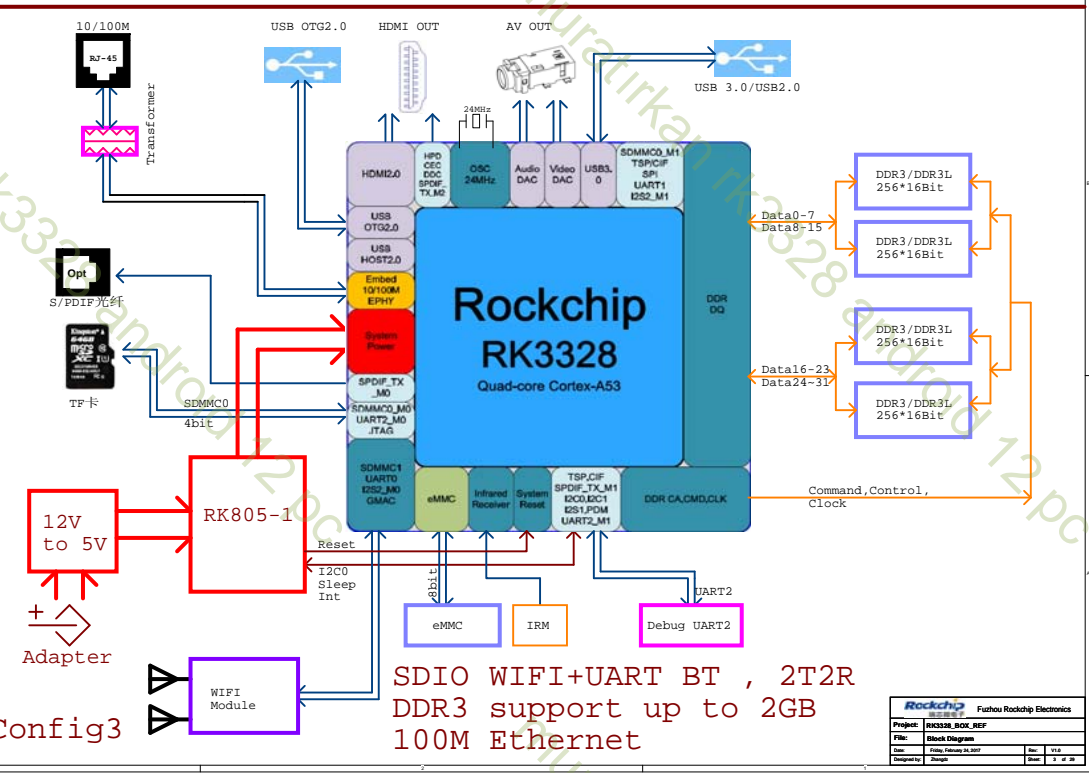
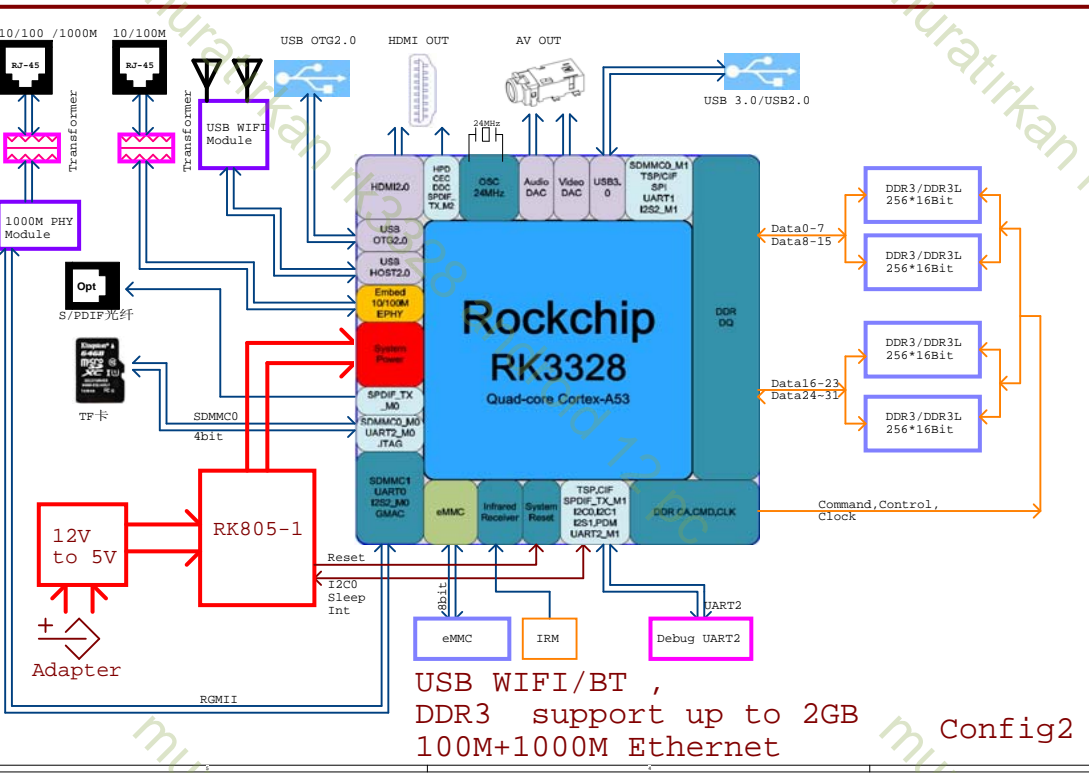
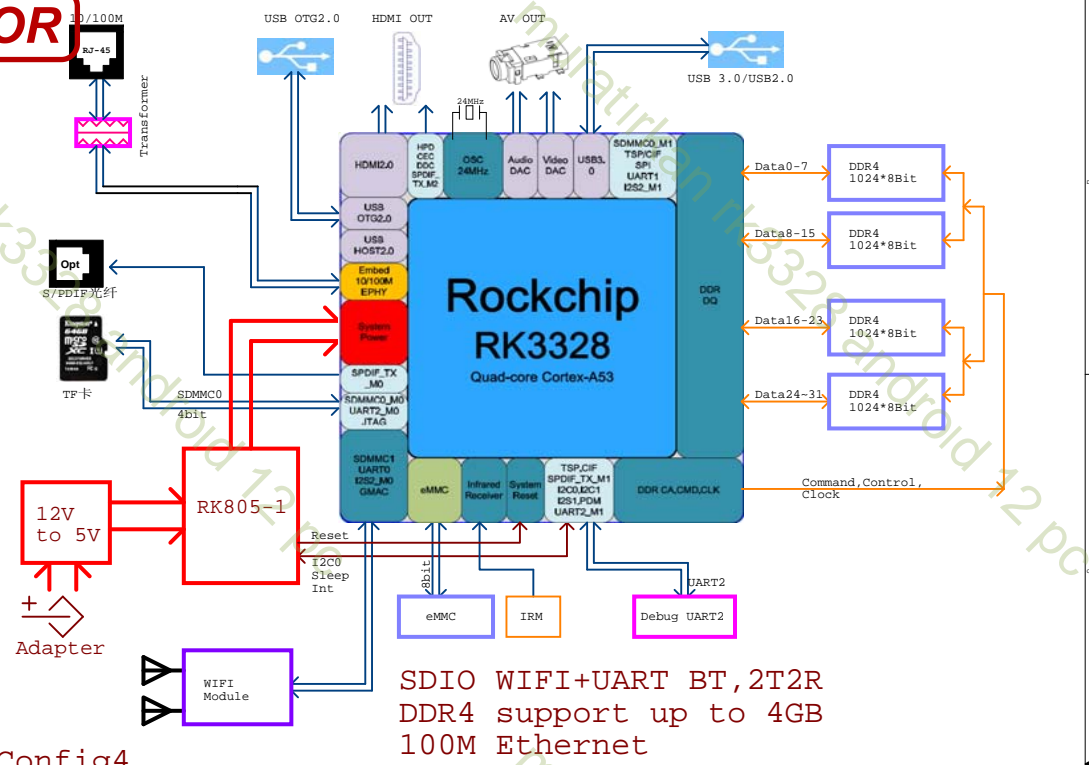
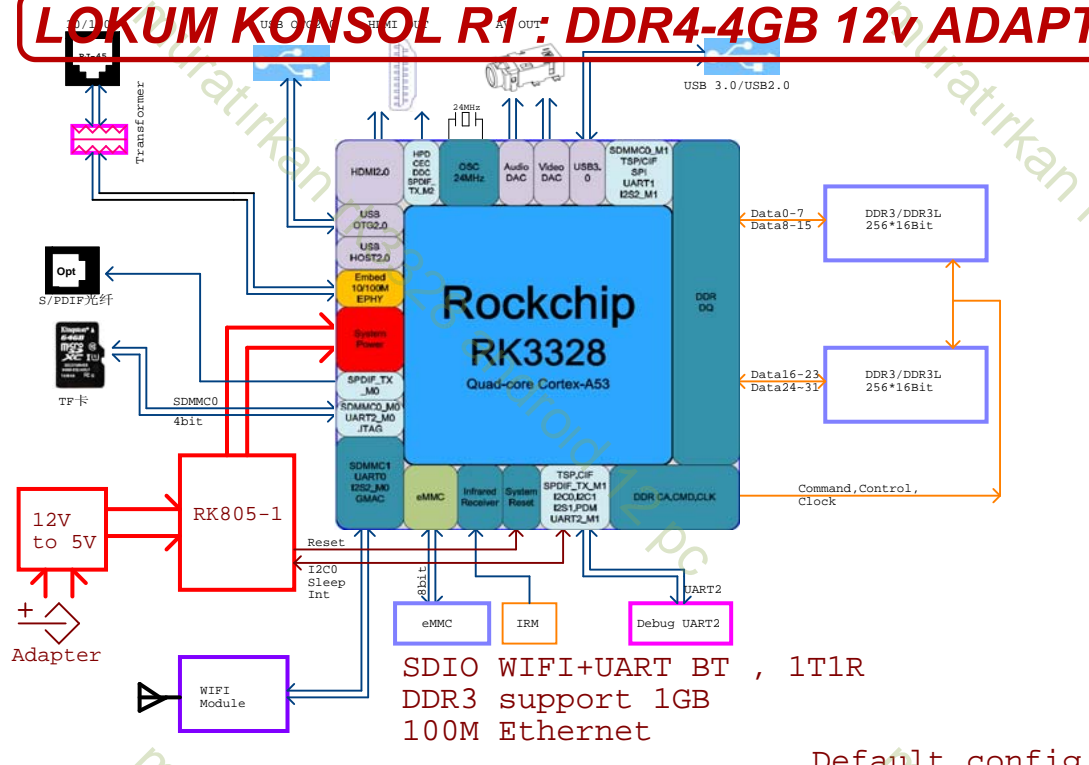
Rockchip
瑞芯微电子

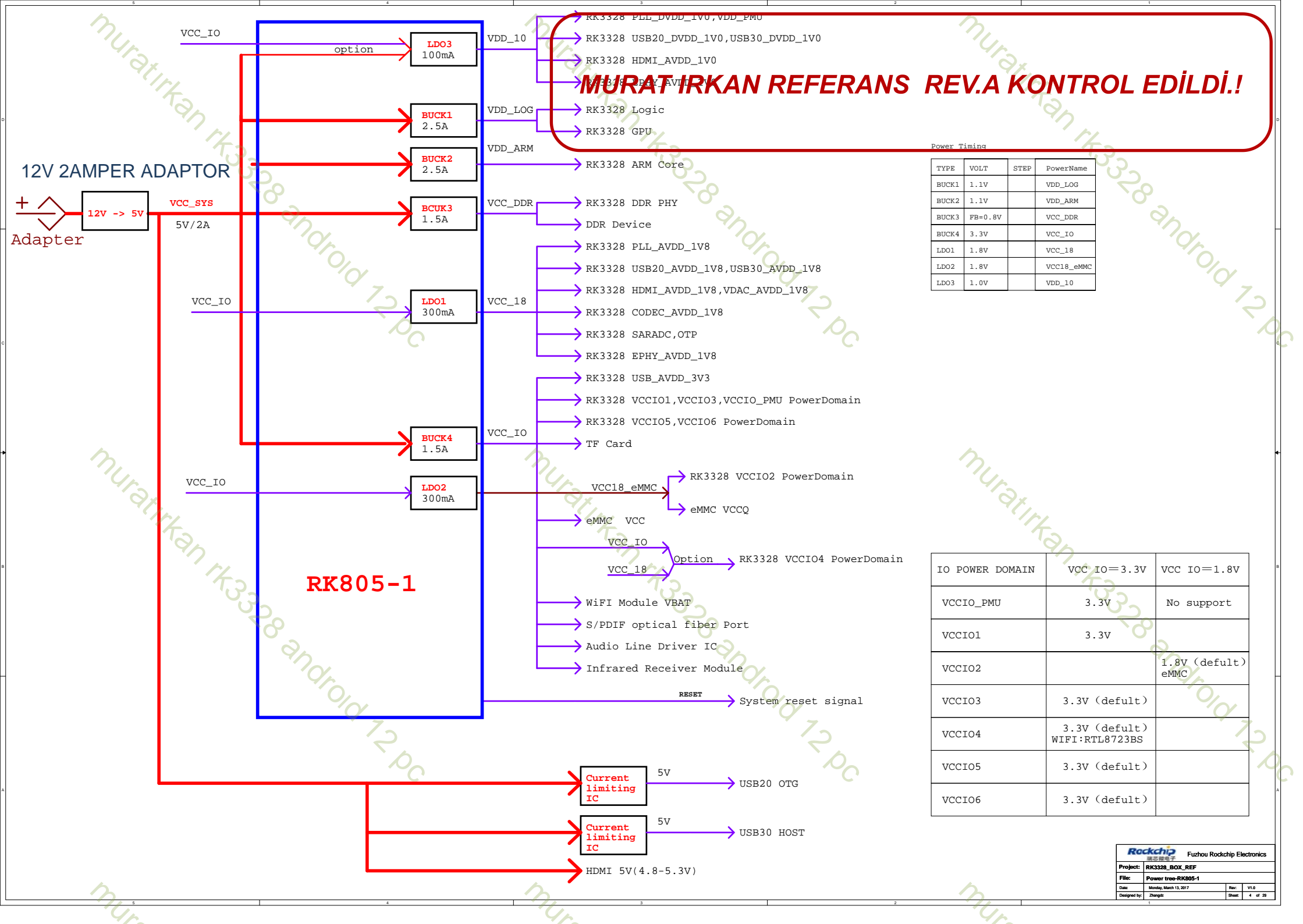
Fuzhou Rockchip Electronics

Project:	RK3328_BOX_REF		
File:	Index		
Date:	Friday, February 24, 2017	Rev:	V1.0
Designed by:	Zhangdz	Sheet:	1 of 29

Version	Date	Author	Change Note	Approved
v1.0	20170224	ZDZ	First edictor	

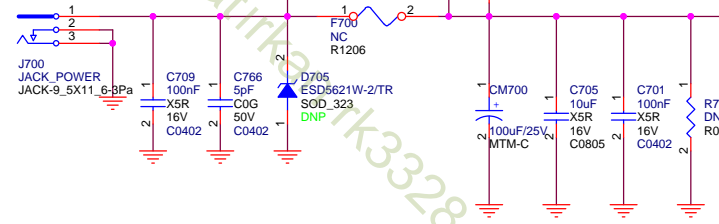
LOKUM KONSOL R1: DDR4-4GB 12v ADAPTOR



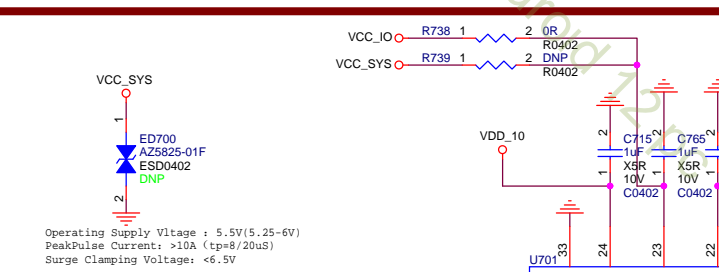


PC GÜÇ ANAHTAR/ON/OFF

ADAPTOR JACK



DC12V



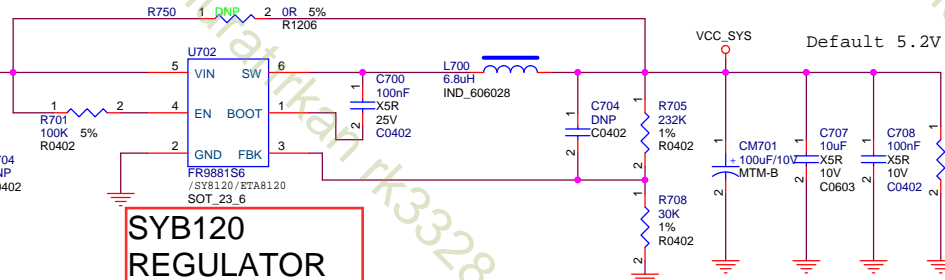
VCC_DDR

Default:DDR3=1.5V

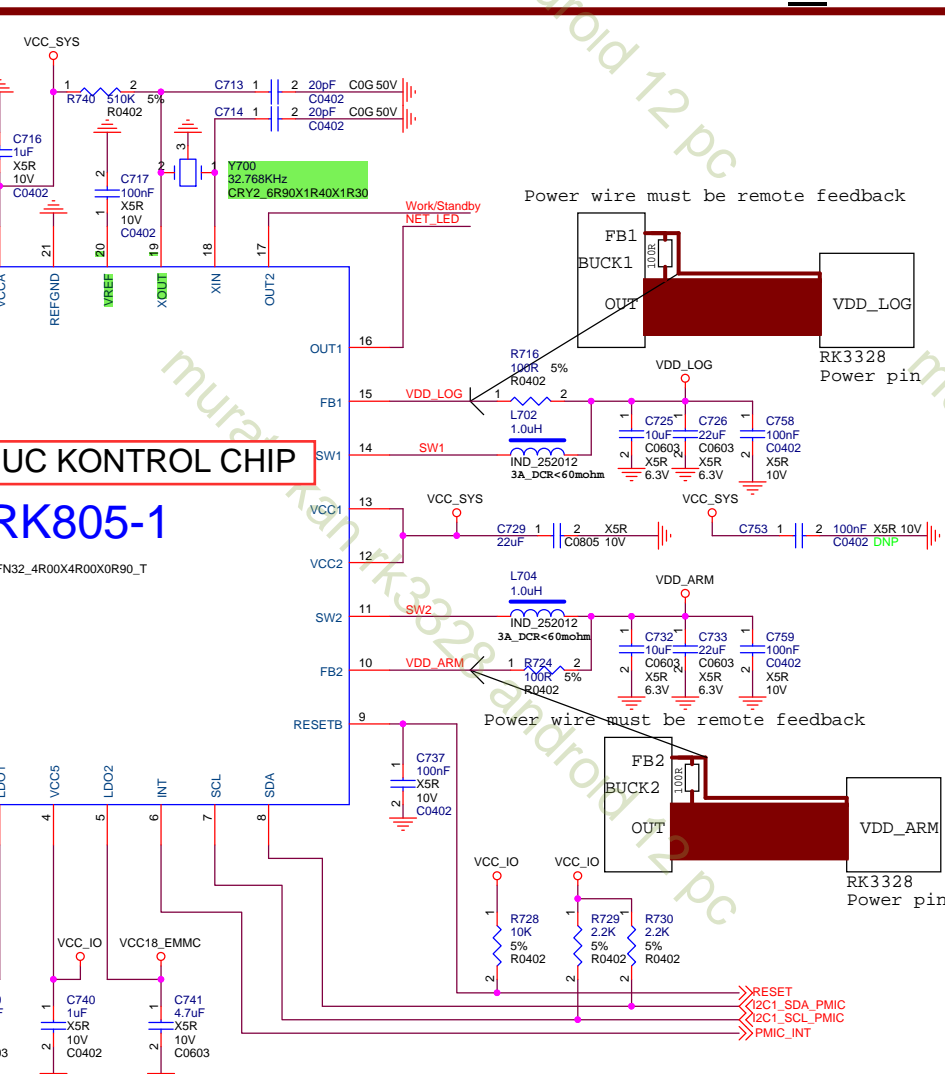
	DDR3	DDR3L	DDR4
VCC_DDR	1.527V	1.353V	1.2V
R725	100K 1%	47K 1%	51K 1%
R726	110K 1%	68K 1%	100K 1%

DDR3 VE DDR VOLTAJ DEGERLER

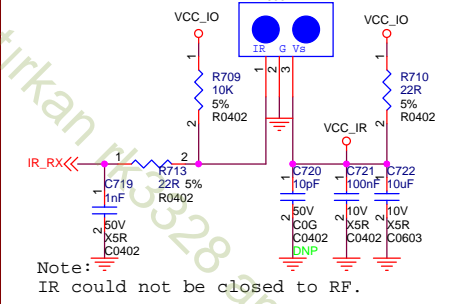
SYB120 REGULATOR 5.2VOLT CIKIS



VCC_SYS

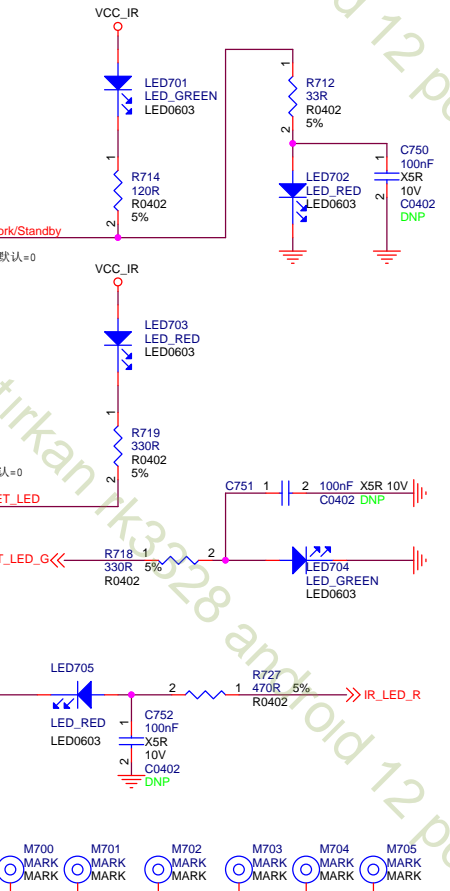


IR Receiver



Note: IR could not be closed to RF.

LED DISPLAY



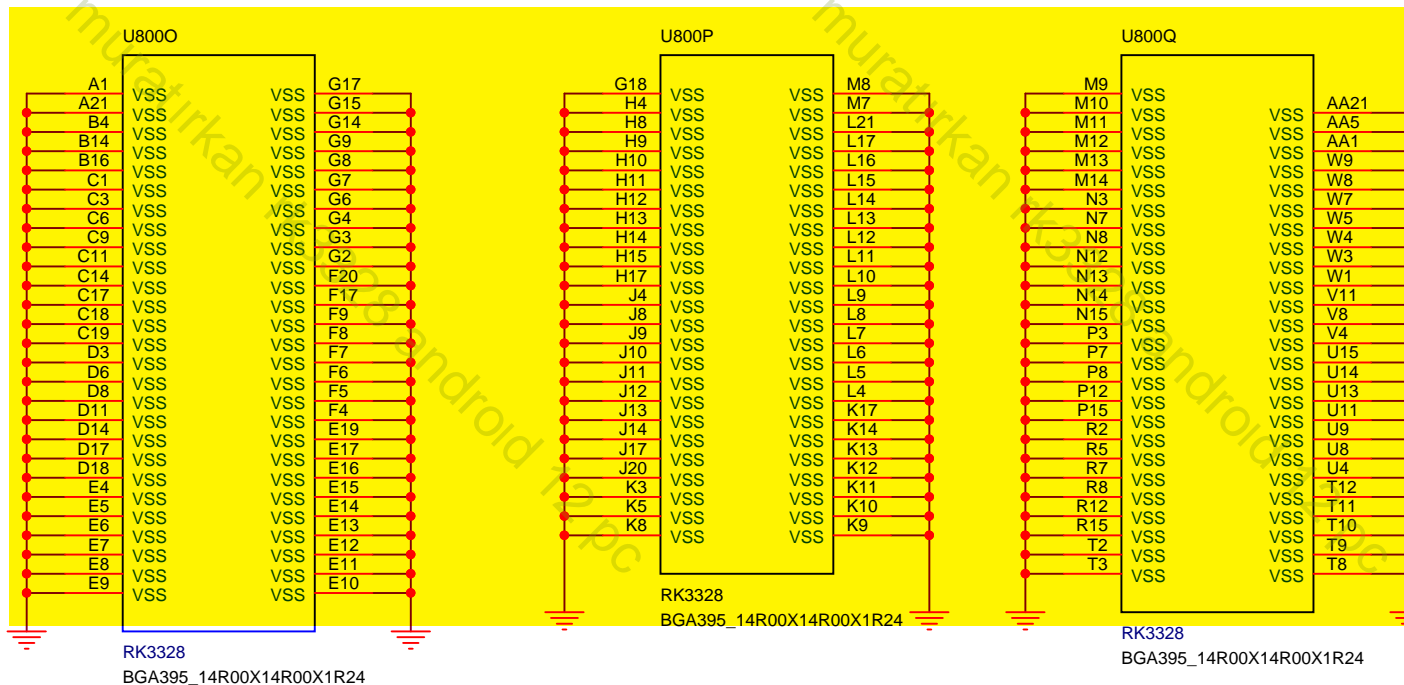
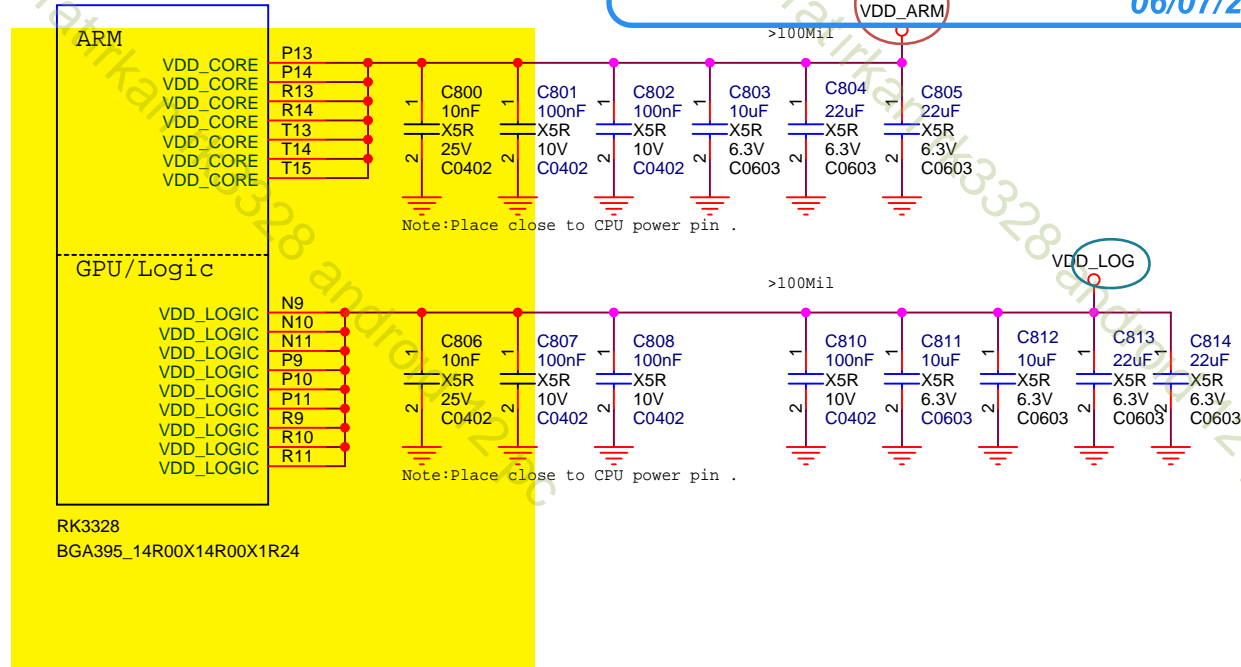
Fuzhou Rockchip Electronics

Project:	RK3328_BOX_REF		
File:	System Power-PMIC RK805-1		
Date:	Tuesday, March 07, 2017	Rev:	V1.0
Designed by:	Zhangdz	Sheet	5 of 29

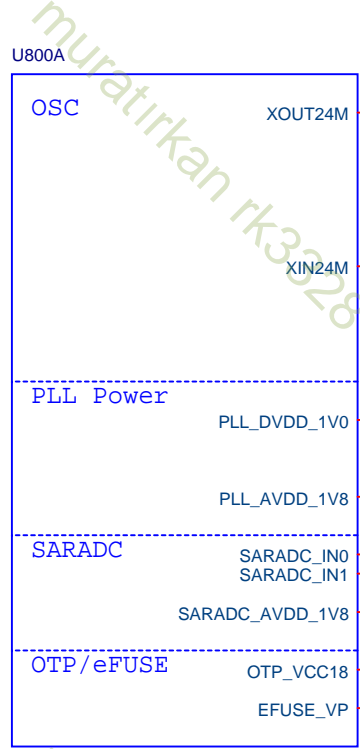
RK3328 ARM CPU GUC VE GRAFİK KART GUC BAGLANTILARI VE SASE

LOKUM R2 ARM CPU RK3328 SASE VE GÜÇ KONTROL-1

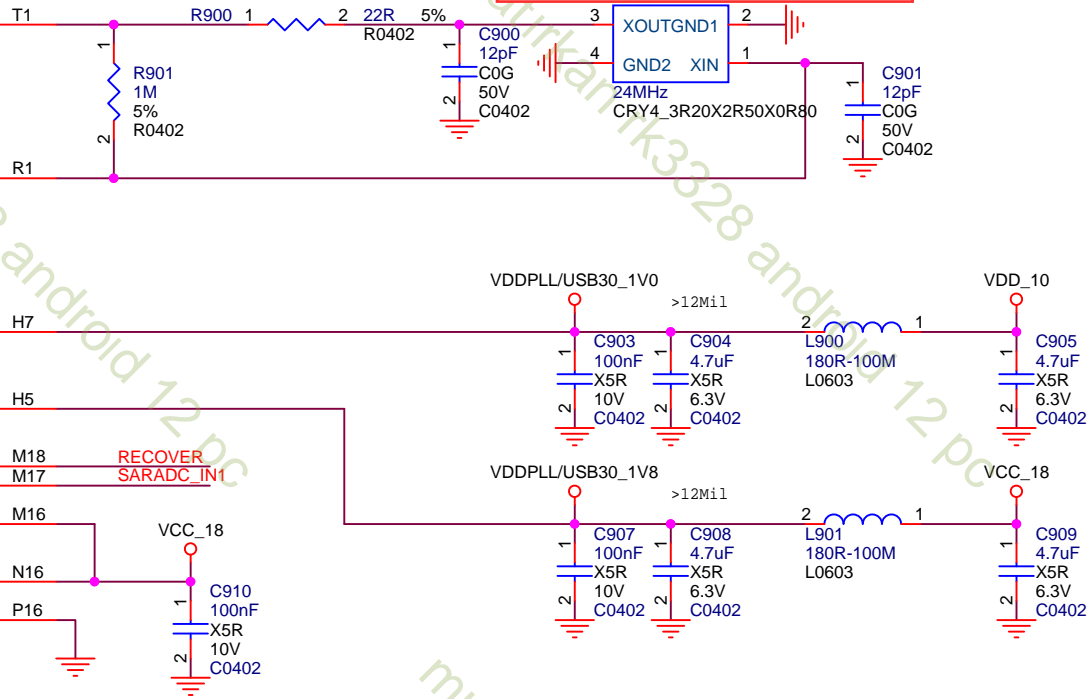
06/07/2024 11:04 AM



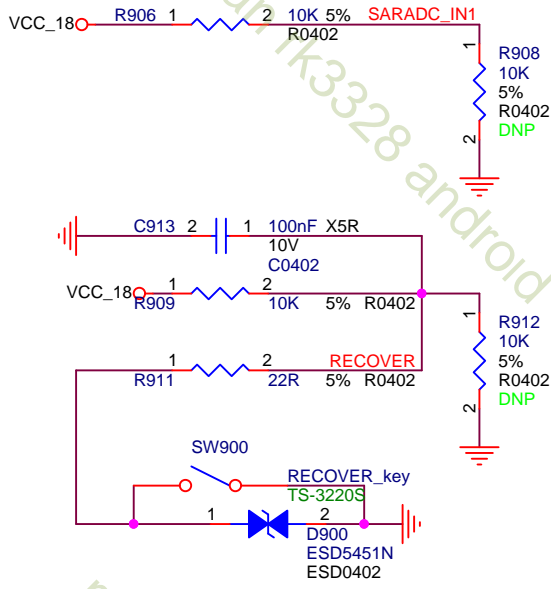
MURAT IRKAN RK3328 ROCKCHIP
PC S STEM



KR STAL: 24MHz



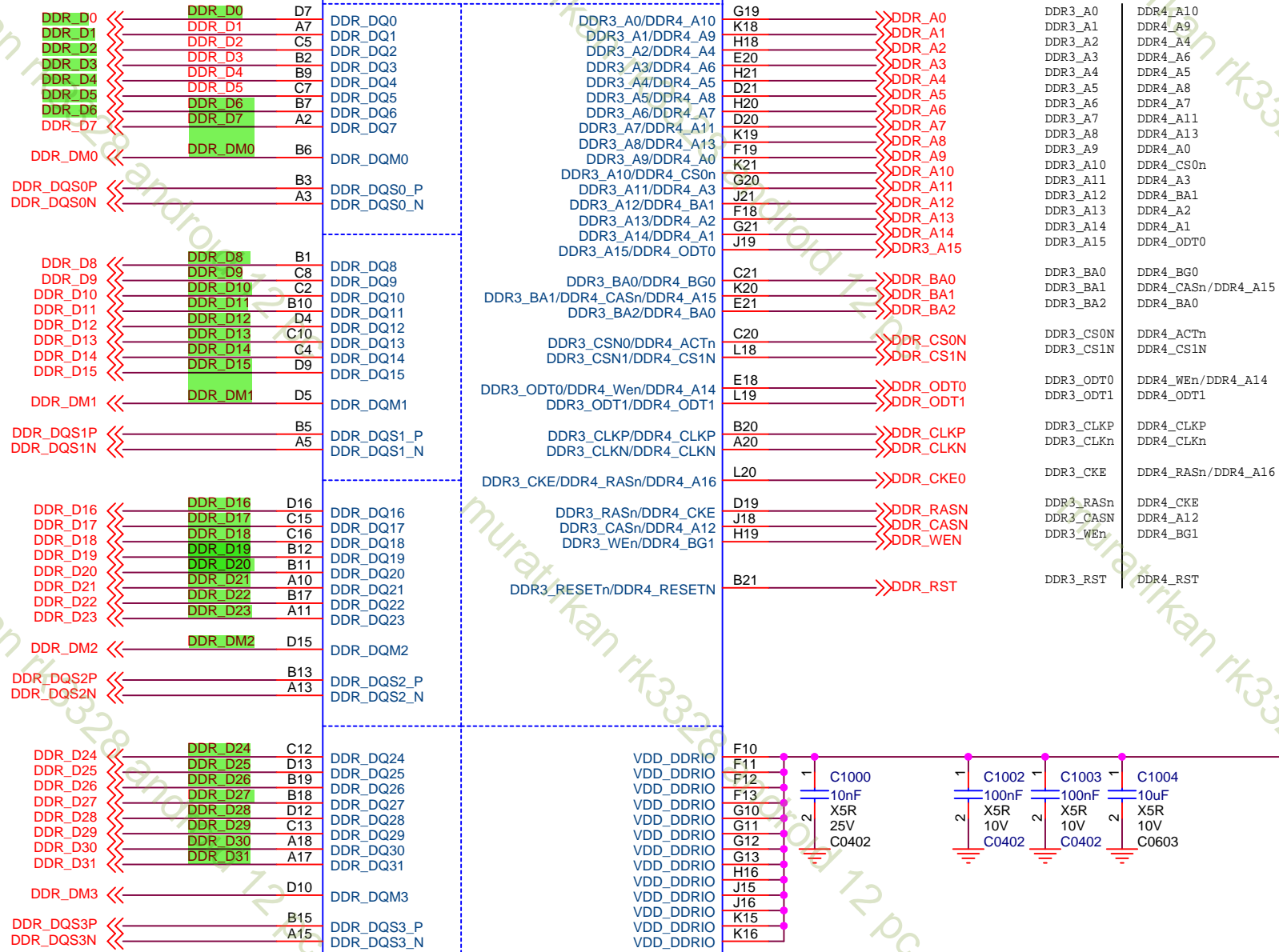
RK3328
BGA395_14R00X14R00X1R24



SARADC_IN0 BOM Ver...	SARADC_IN1 PCB Ver...	Pull up	Pull down	
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	

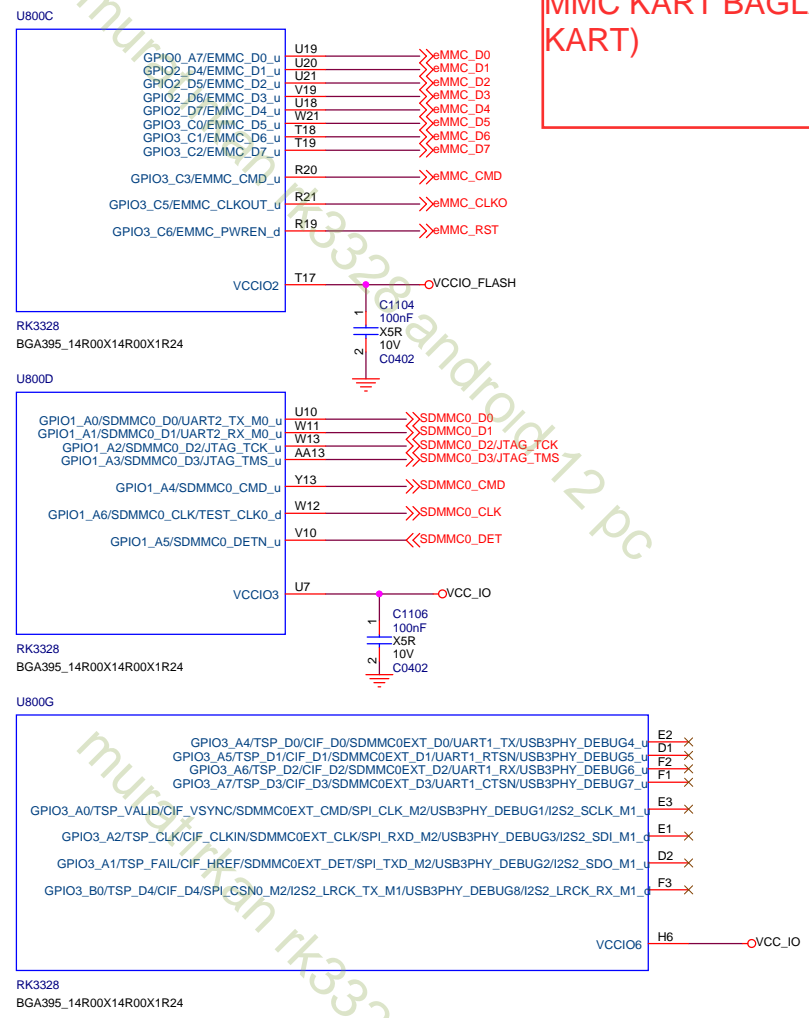
KR STAL S GORTA V.S

LOKUM R2 ANDROID 10 KONSOL DDR4 3600 MHZ BELLEKLER :KONTROL-1

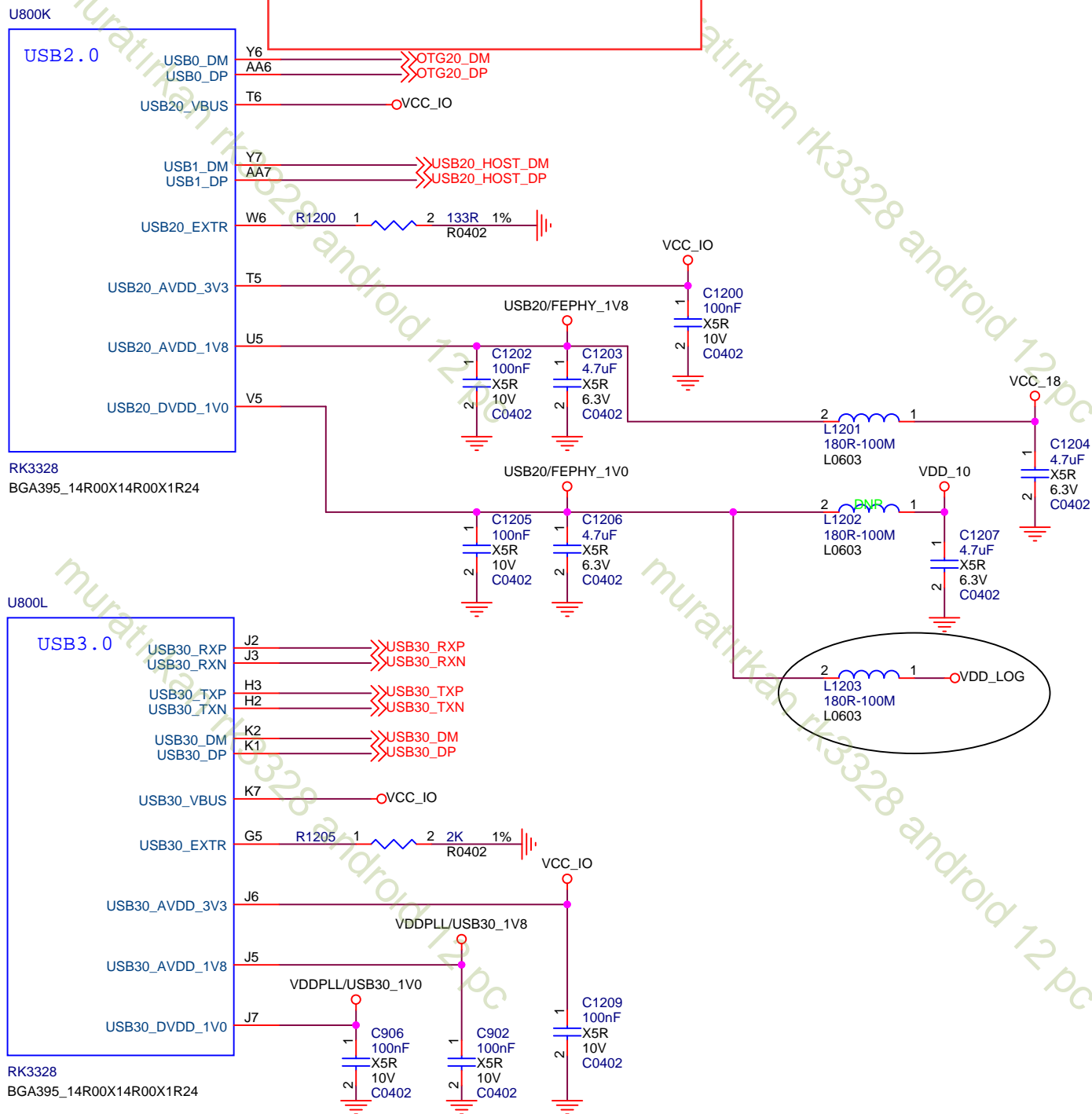



RK3328
BGA395_14R00X14R00X1R24

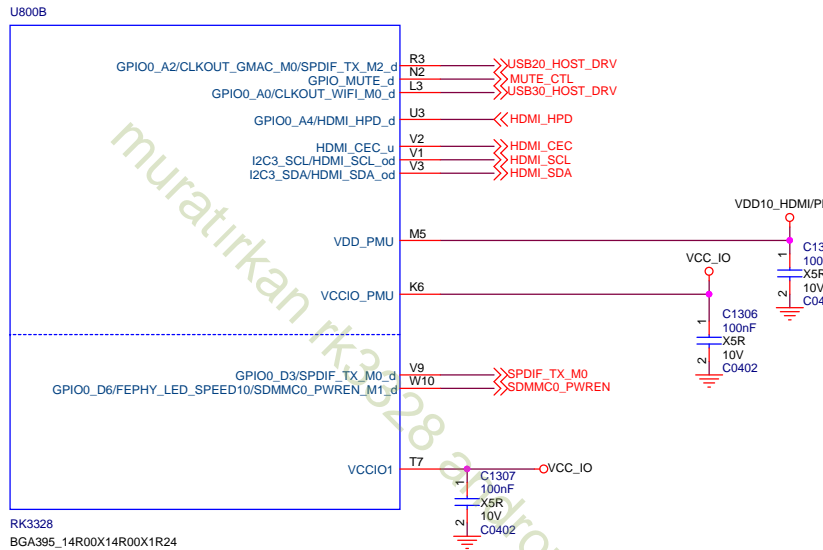
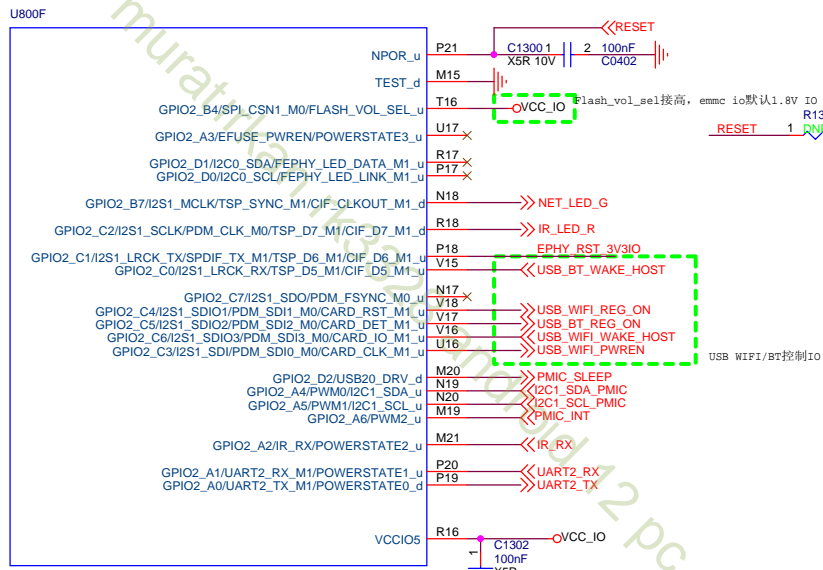
MMC KART BAGLANTISI (MULT MEDYA KART)



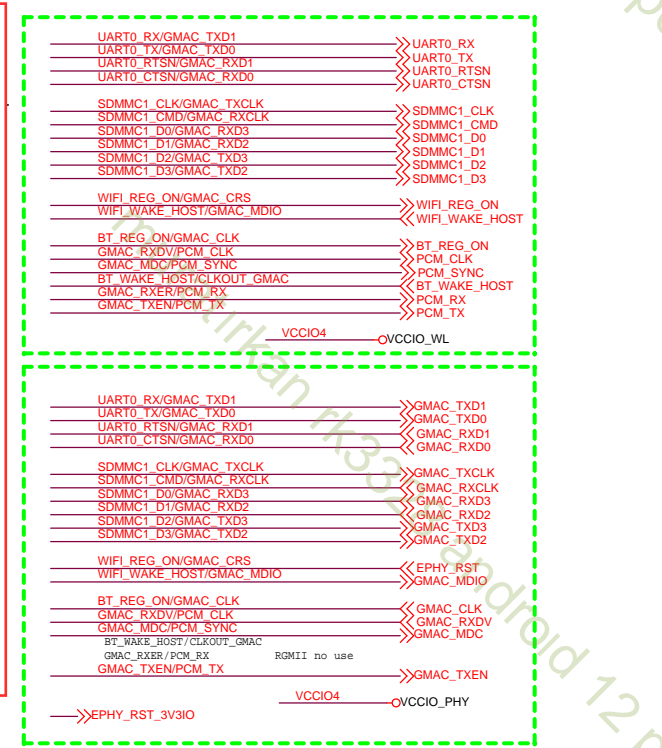
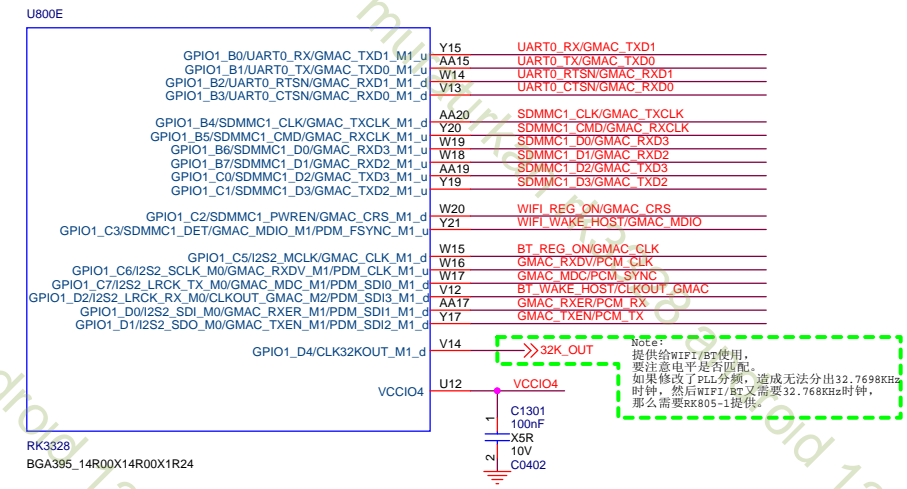
USB 2 VE USB 3



 瑞芯微电子		Fuzhou Rockchip Electronics	
Project:	RK3328_BOX_REF		
File:	RK3328 USB2 PHY/USB3 PHY		
Date:	Friday, February 24, 2017	Rev:	V1.0
Designed by:	Zhangdz	Sheet:	10 of 29

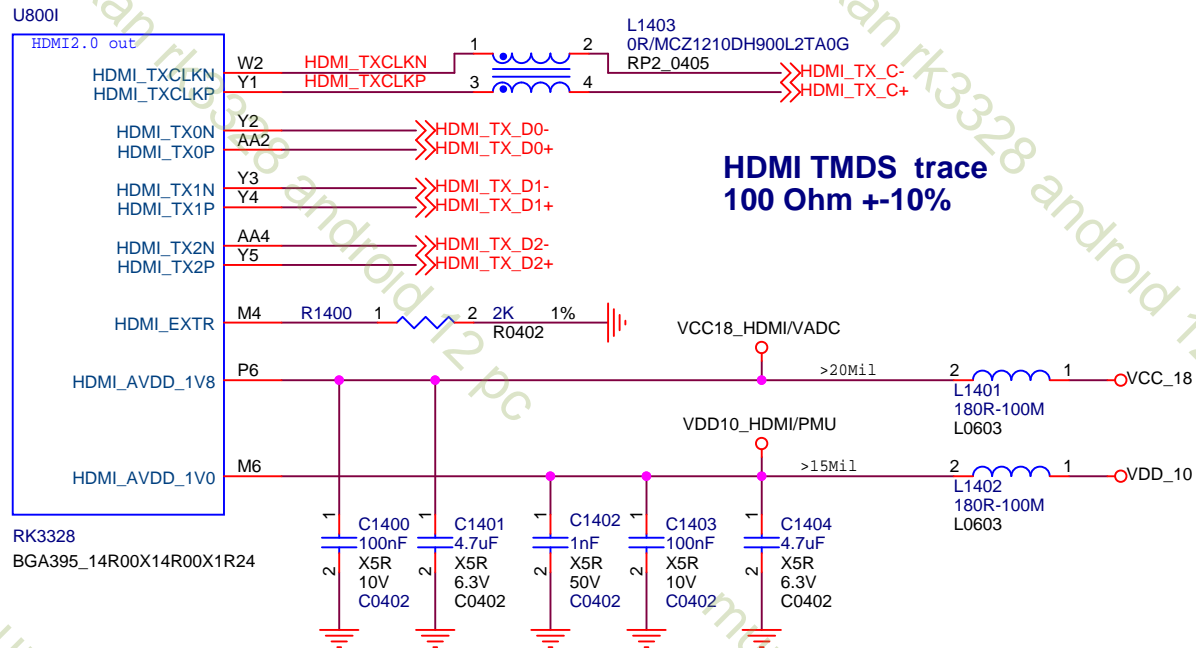


USB BLUETOOTH VE WI*FI



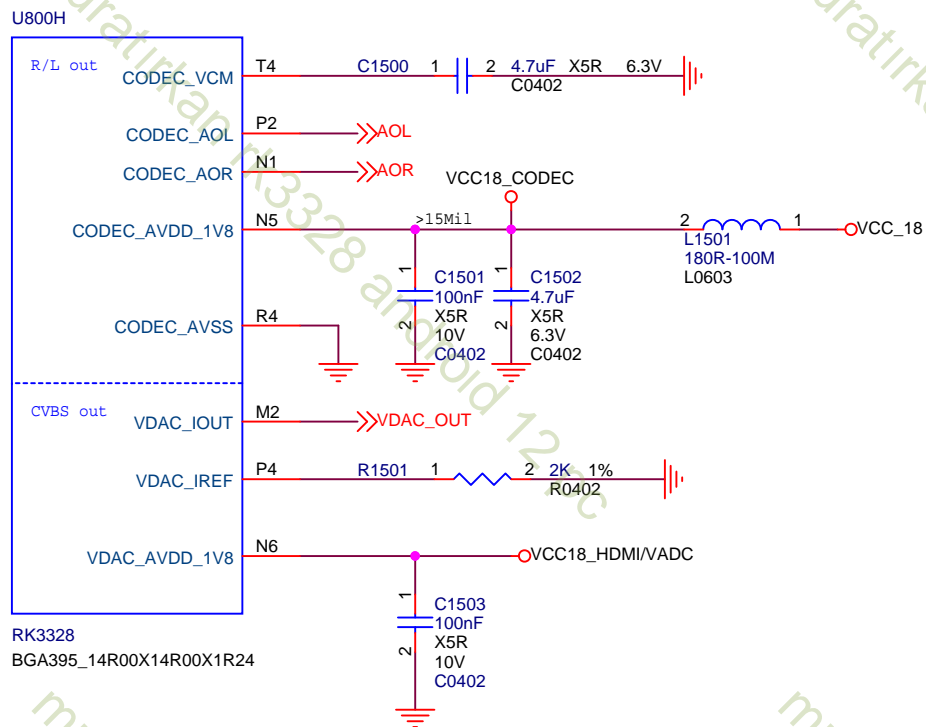
Note:
SDIO1+UART0和GMAC的IO是复用的.
二选一


RK3328 HDMI 4K VIDEO CIKIS



Fuzhou Rockchip Electronics

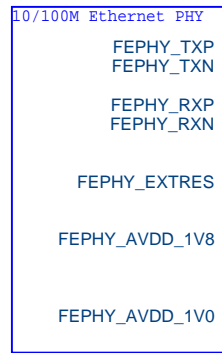
Project:	RK3328_BOX_REF		
File:	RK3328 HDMI PHY		
Date:	Friday, February 24, 2017	Rev:	V1.0
Designed by:	Zhangdz	Sheet:	12 of 29



 瑞芯微电子		Fuzhou Rockchip Electronics	
Project:	RK3328_BOX_REF		
File:	RK3328 AV Interface		
Date:	Friday, February 24, 2017	Rev:	V1.0
Designed by:	Zhangdz	Sheet:	13 of 29

10/100 NETWORK

U800J



RK3328
BGA395_14R00X14R00X1R24

Y9
AA9

TD+
TD-

Y8
AA8

RD+
RD-

V7 R1600 1 2 6.49K 1% R0402

USB20/FEPHY_1V8

1
C1600
100nF
X5R
10V
C0402

U6

V6

USB20/FEPHY_1V0

1
C1602
100nF
X5R
10V
C0402

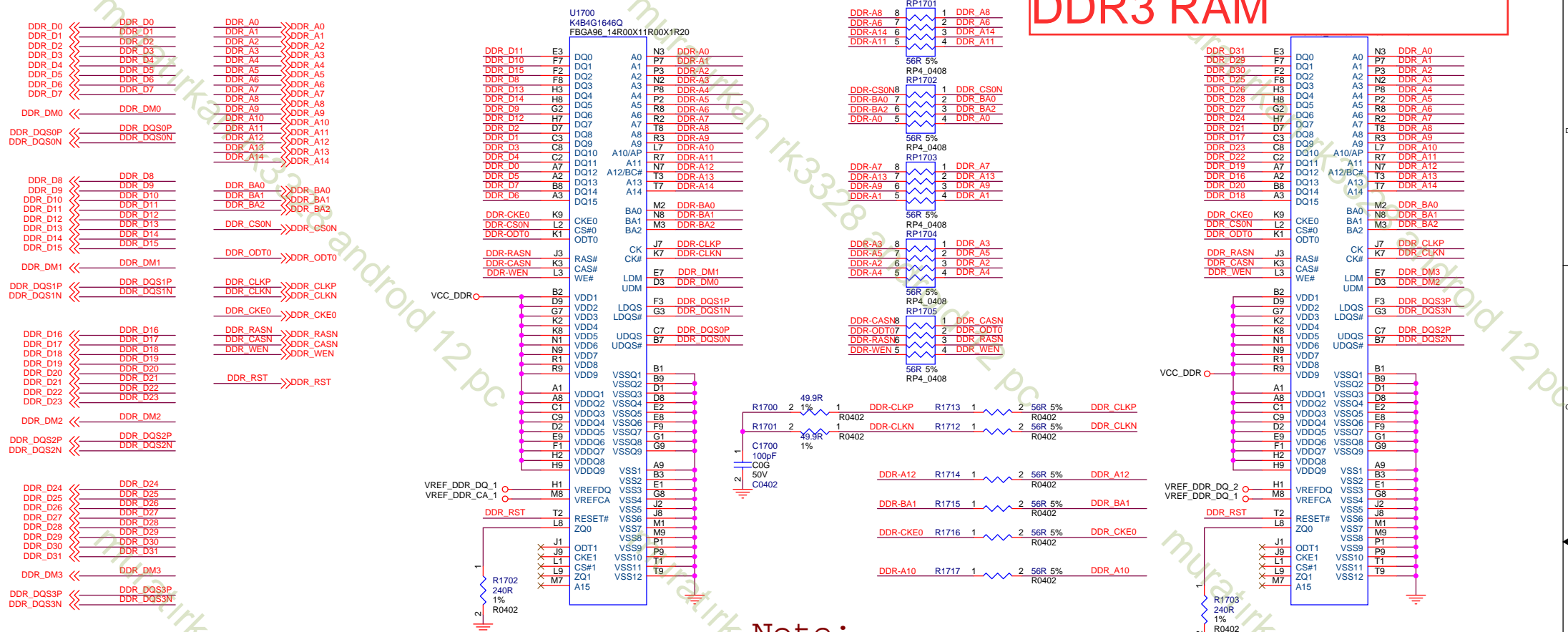
Embed FEPHY



Fuzhou Rockchip Electronics

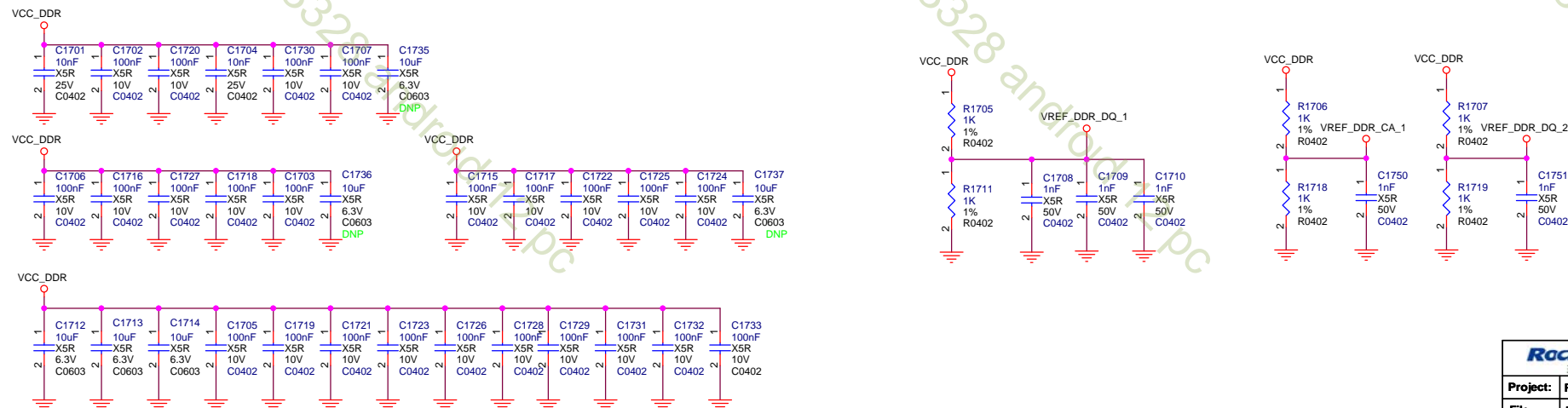
Project:	RK3328_BOX_REF		
File:	RK3328 FEPHY		
Date:	Friday, February 24, 2017	Rev:	V1.0
Designed by:	Zhangdz	Sheet:	14 of 29

DDR3 RAM



Note: $\text{DDR data rate} \geq 1600\text{Mb/s}$

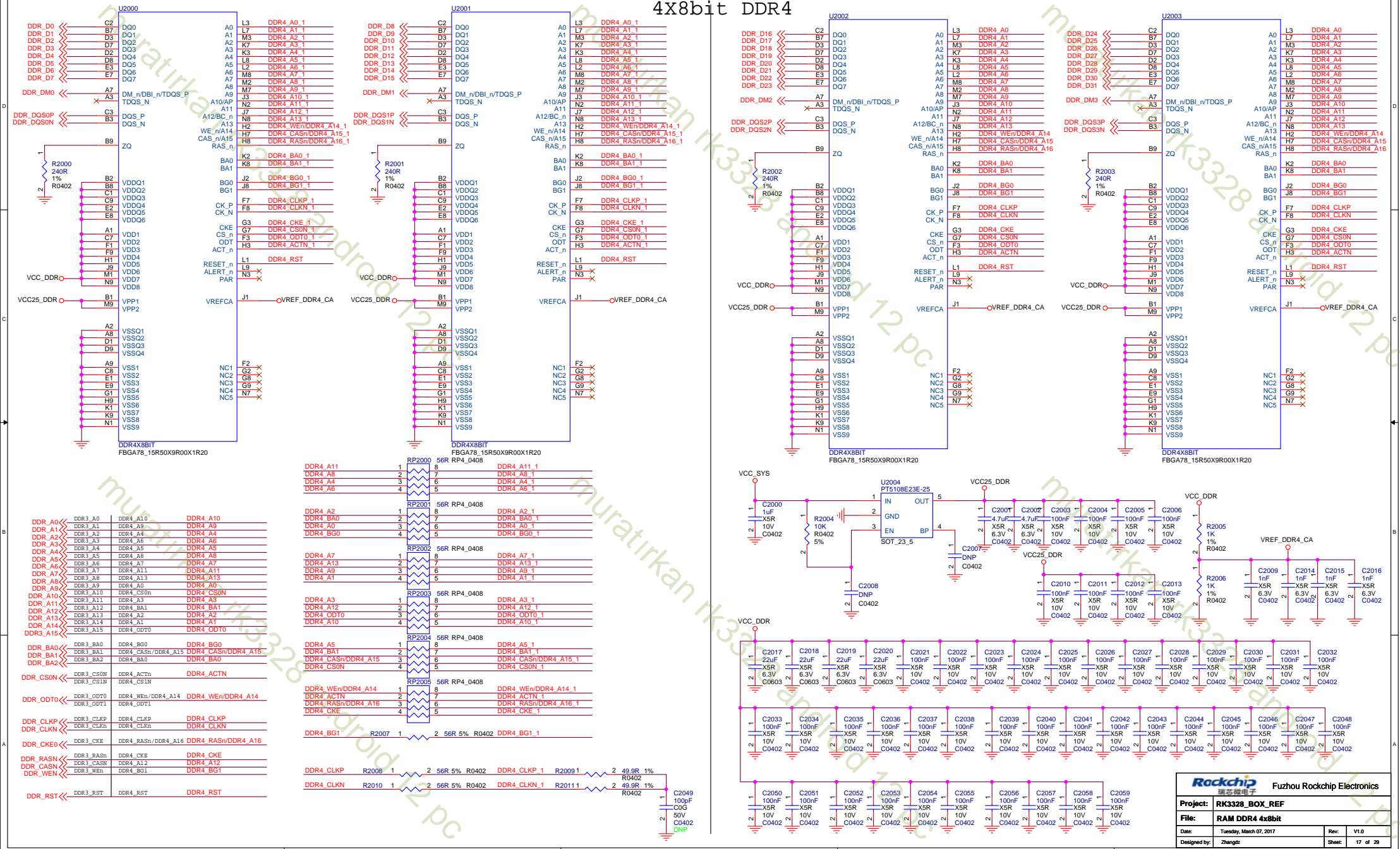
2X16bit DDR3



Note:
DDR data rate \geq 1600Mb/s

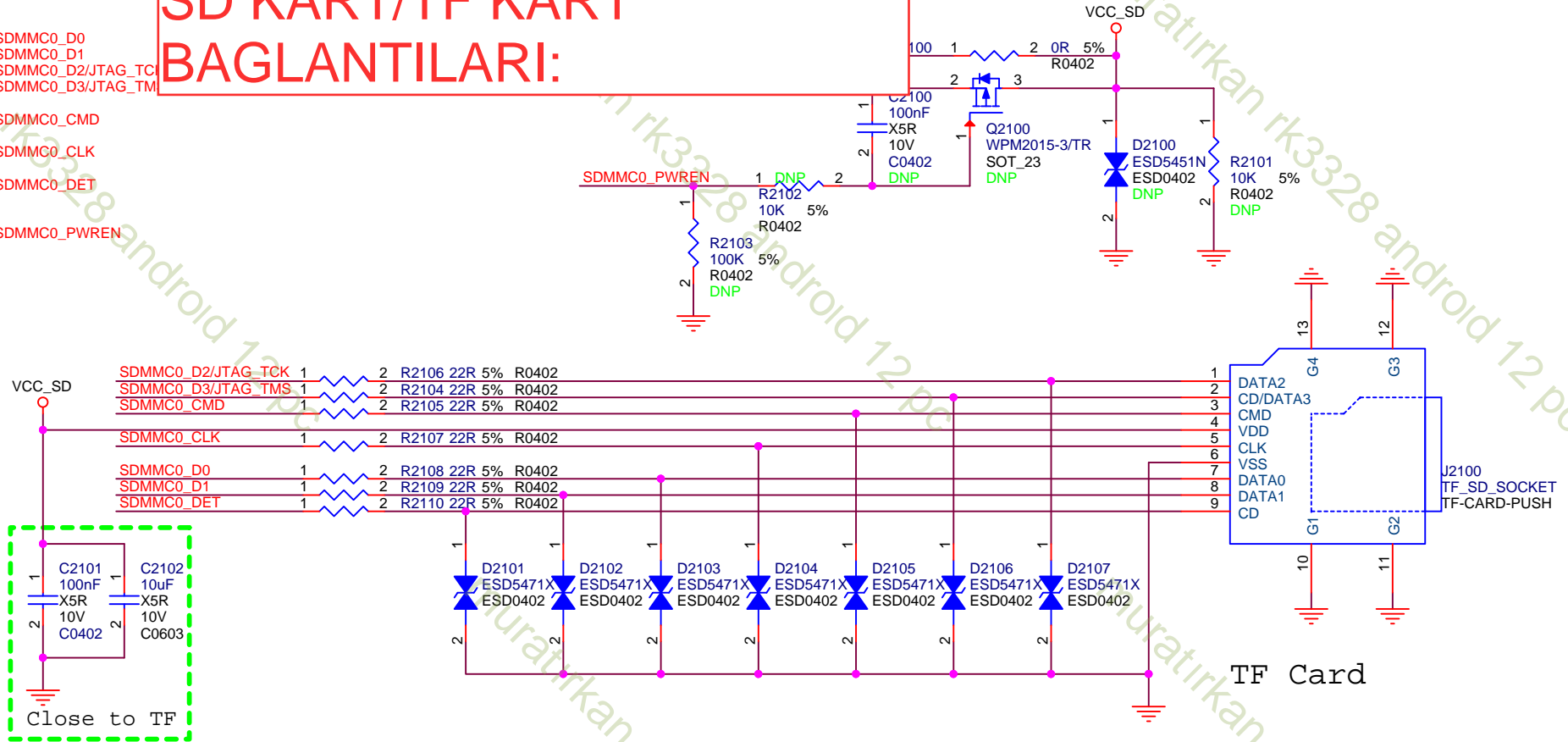



4x8bit DDR4

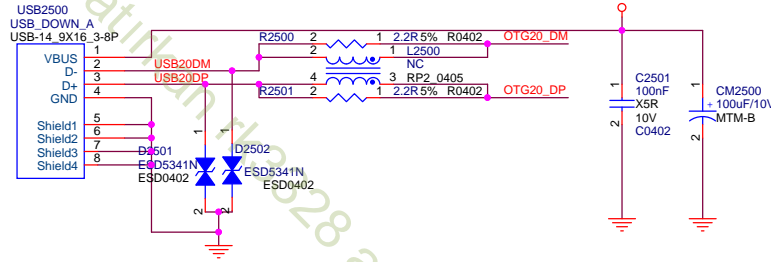
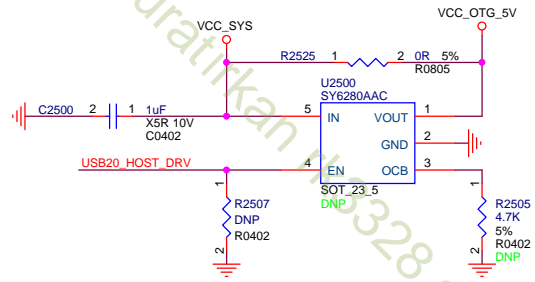


SD KART/TF KART BAGLANTILARI:

>>SDMMC0_D0
 >>SDMMC0_D1
 >>SDMMC0_D2/JTAG_TCK
 >>SDMMC0_D3/JTAG_TMS
 >>SDMMC0_CMD
 >>SDMMC0_CLK
 <<SDMMC0_DET
 >>SDMMC0_PWREN

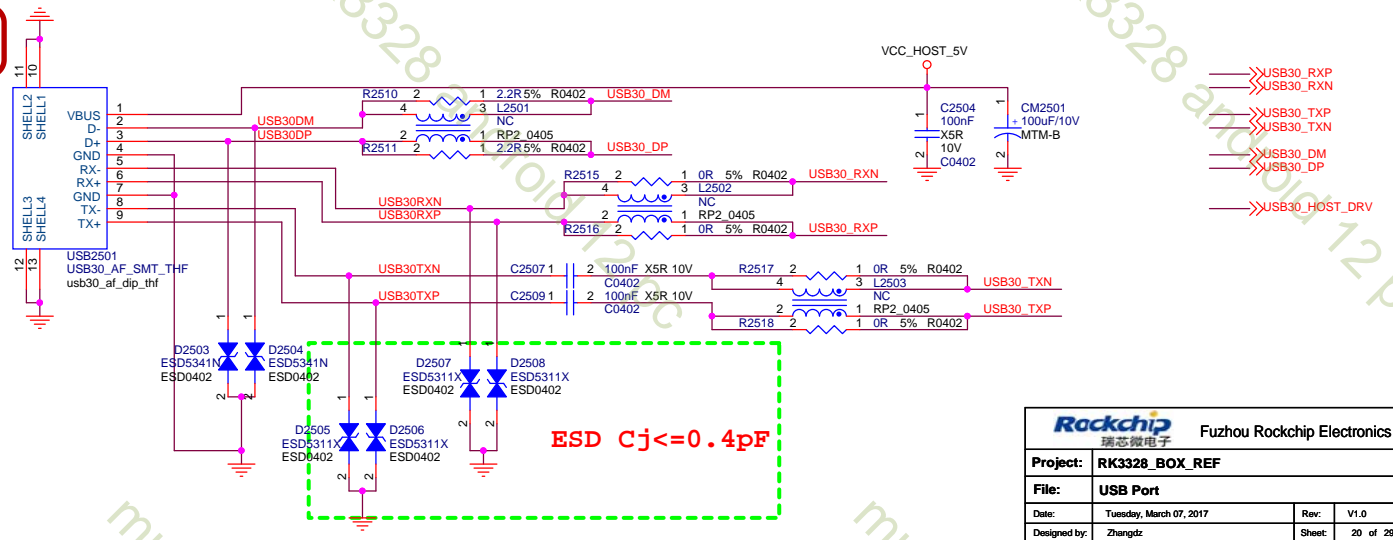
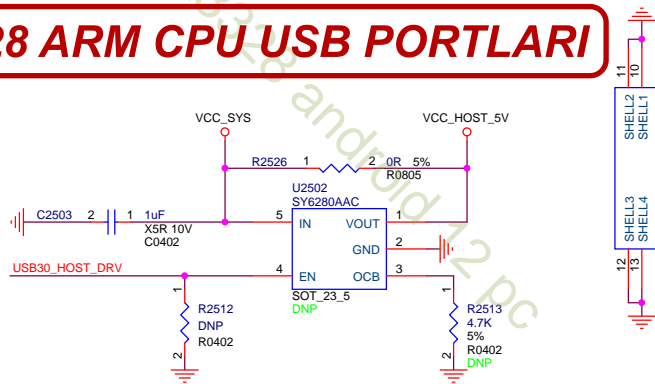


 瑞芯微电子		Fuzhou Rockchip Electronics	
Project:	RK3328_BOX_REF		
File:	TF/SD Card		
Date:	Friday, February 24, 2017	Rev:	V1.0
Designed by:	Zhangdz	Sheet:	18 of 29



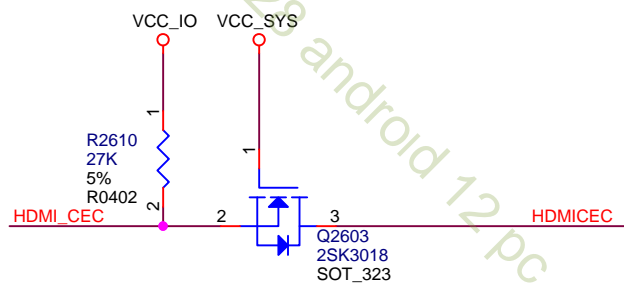
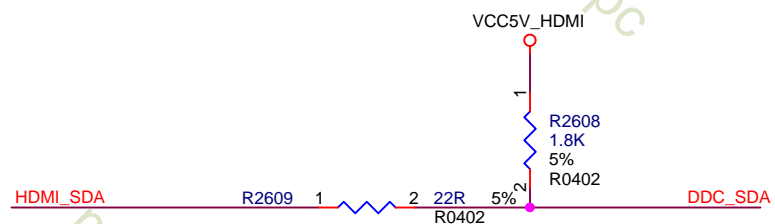
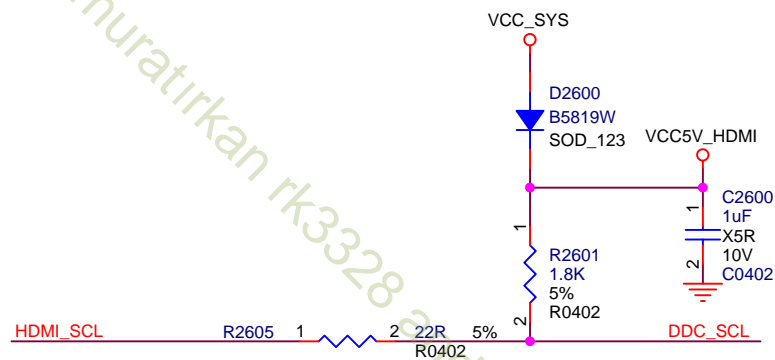
>>>OTG20_DM
 >>>OTG20_DP
 >>>USB20_HOST_DRV

RK3328 ARM CPU USB PORTLARI

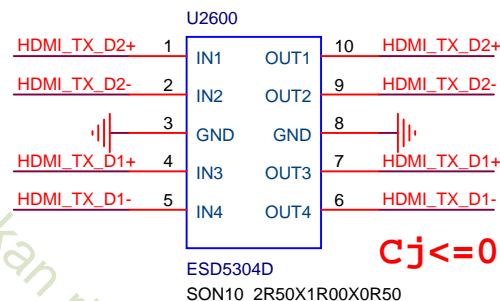
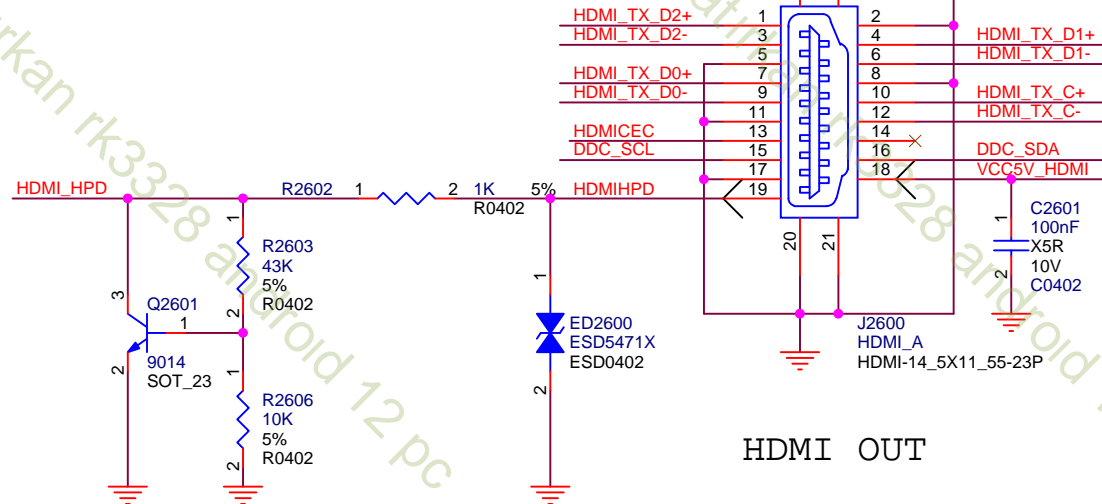


>>>USB30_RXN
 >>>USB30_TXP
 >>>USB30_TXN
 >>>USB30_DM
 >>>USB30_DP
 >>>USB30_HOST_DRV

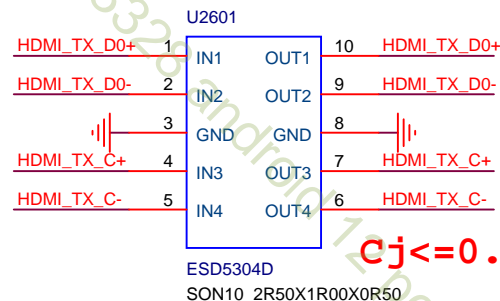
 瑞芯微电子		Fuzhou Rockchip Electronics	
Project:	RK3328_BOX_REF		
File:	USB Port		
Date:	Tuesday, March 07, 2017	Rev:	V1.0
Designed by:	Zhangdz	Sheet:	20 of 29



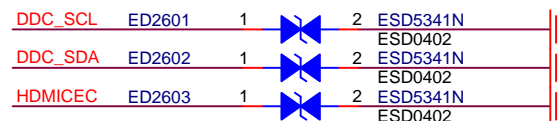
HDMI CIKISI




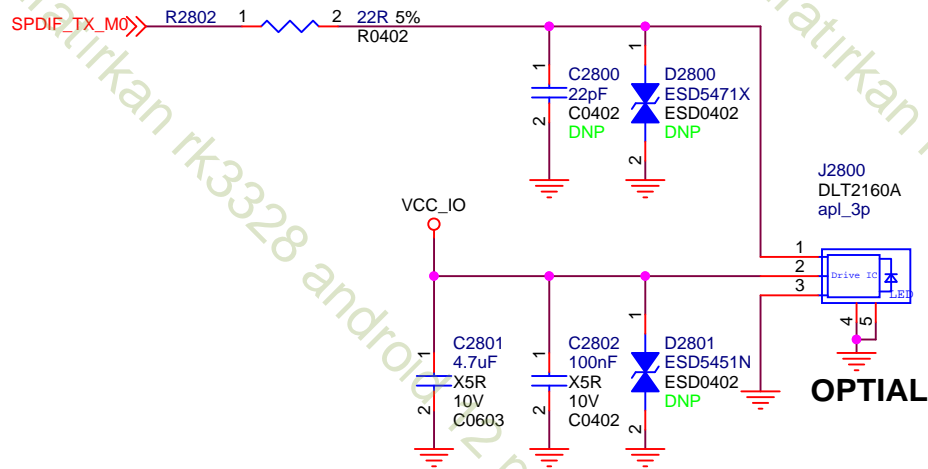
$C_j \leq 0.4 \text{ pF}$



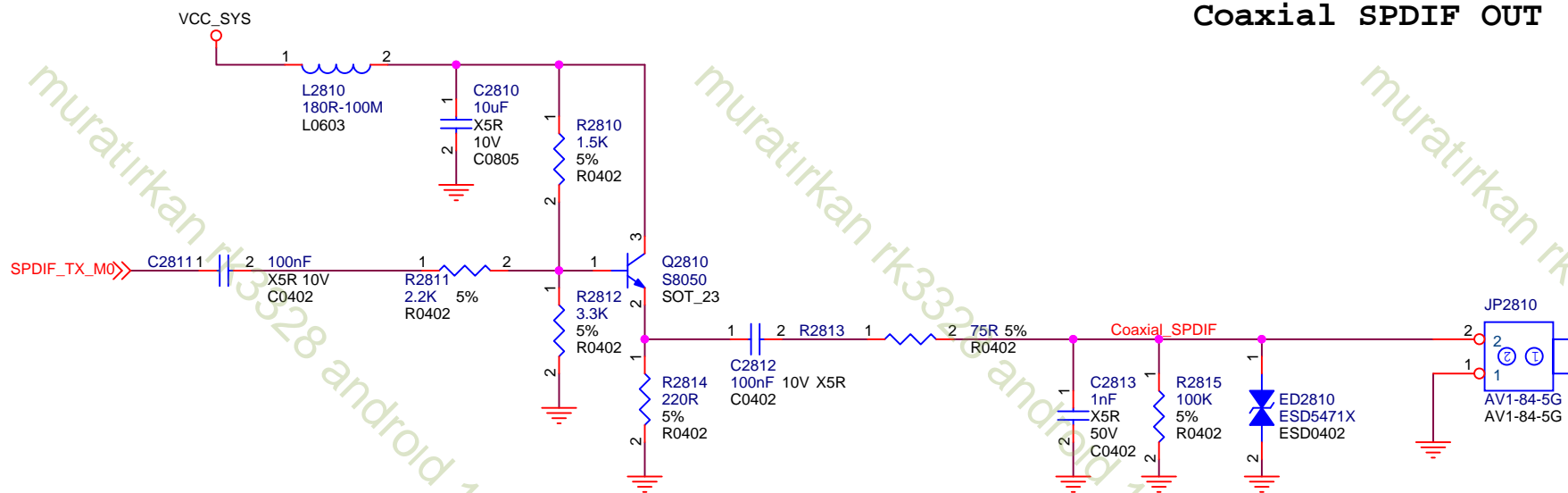
$C_j \leq 0.4 \text{ pF}$




 瑞芯微电子		Fuzhou Rockchip Electronics	
Project:	RK3328_BOX_REF		
File:	HDMI OUT Port		
Date:	Friday, February 24, 2017	Rev:	V1.0
Designed by:	Zhangdz	Sheet:	21 of 29



Optical SPDIF OUT



Coaxial SPDIF OUT

 瑞芯微电子		Fuzhou Rockchip Electronics	
Project:	RK3328_BOX_REF		
File:	S/PDIF Port		
Date:	Friday, February 24, 2017	Rev:	V1.0
Designed by:	Zhangdz	Sheet:	22 of 29

VDAC_OUT

VCC_IO

D2900
BAT54S
SOT_23

CVBS_OUT

CVBS_OUT

ROUT
LOUT

J2900

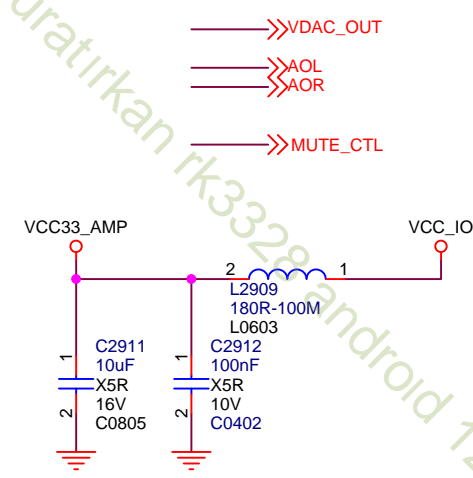
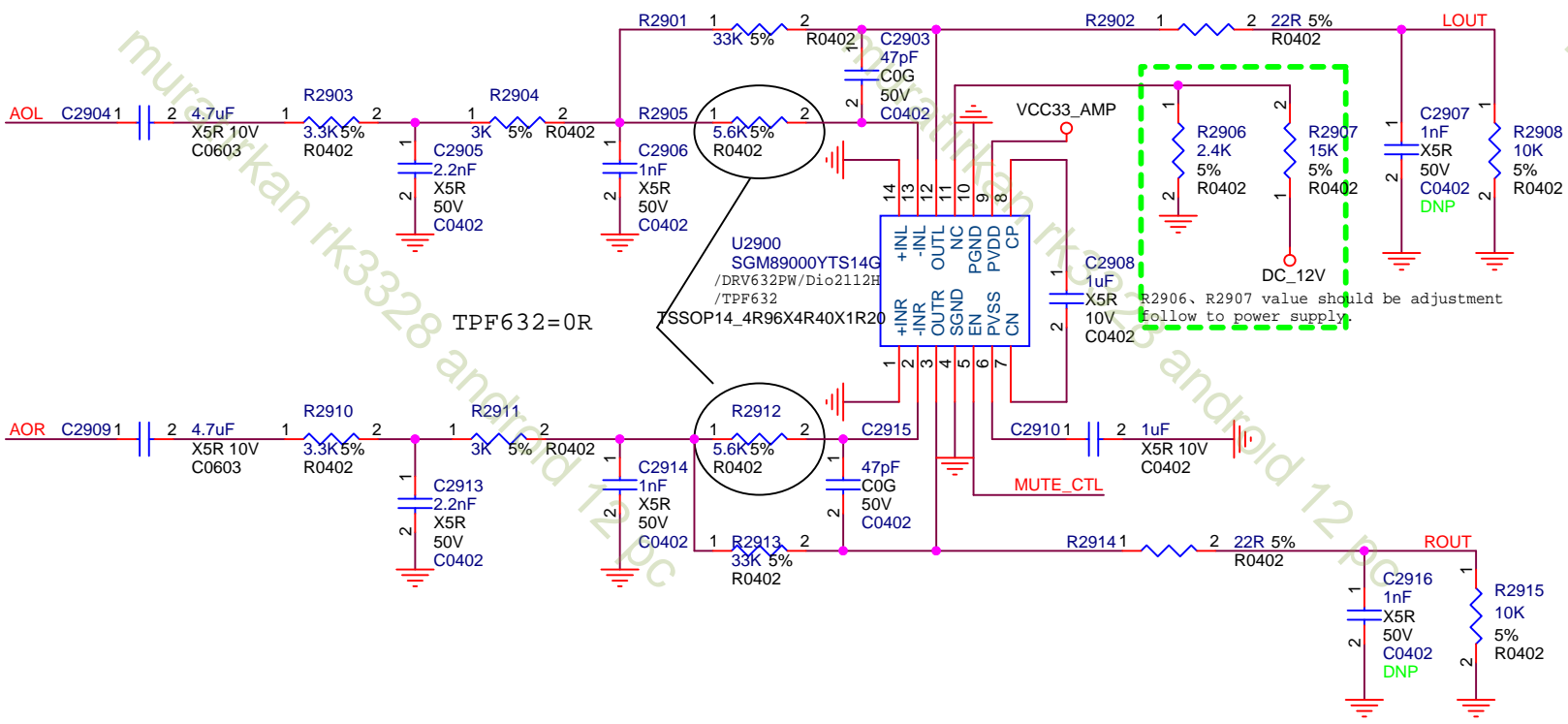
SMT-PJ
PJ-320D-5-SMTa

D2901
DNP
ESD5451N
ESD0402


D2902
DNP
ESD5451N
ESD0402

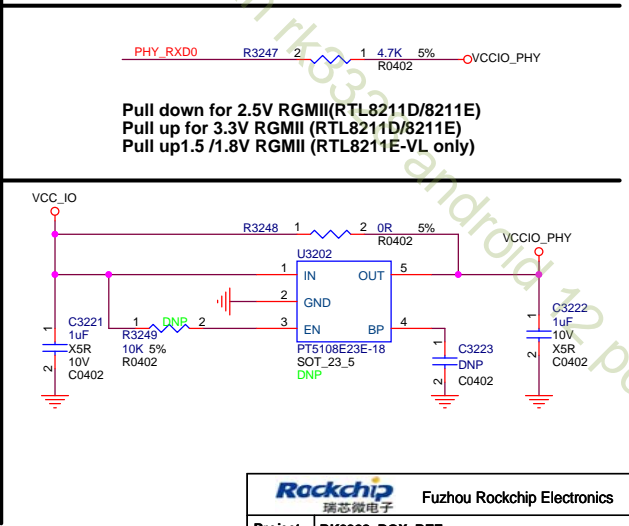
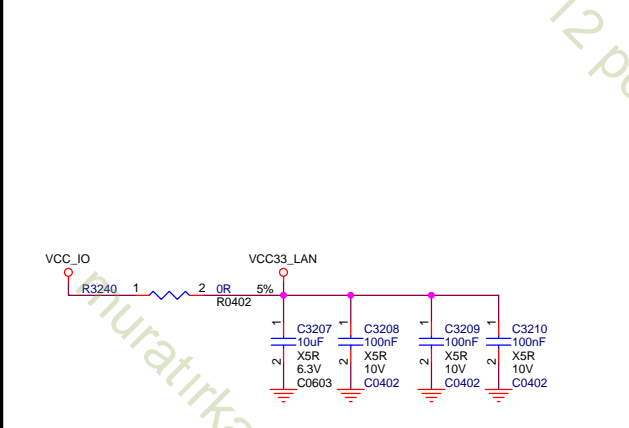
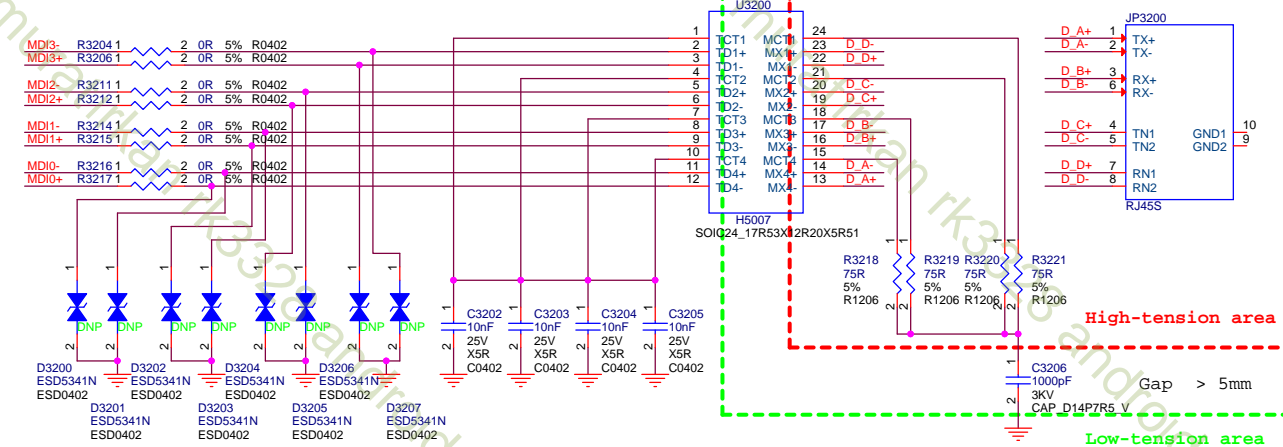
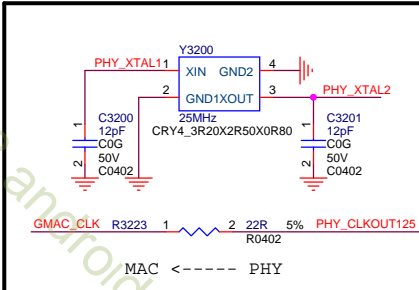
D2903
DNP
ESD5451N
ESD0402

AV OUT

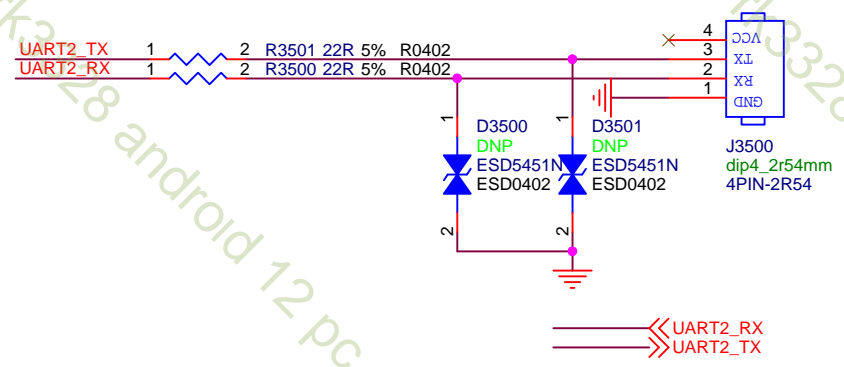



2-Vrms Audio Line Driver

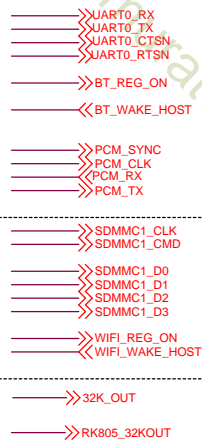
 瑞芯微电子		Fuzhou Rockchip Electronics	
Project:	RK3328_BOX_REF		
File:	AV OUT Port		
Date:	Tuesday, March 07, 2017	Rev:	V1.0
Designed by:	Zhangdz	Sheet:	23 of 29



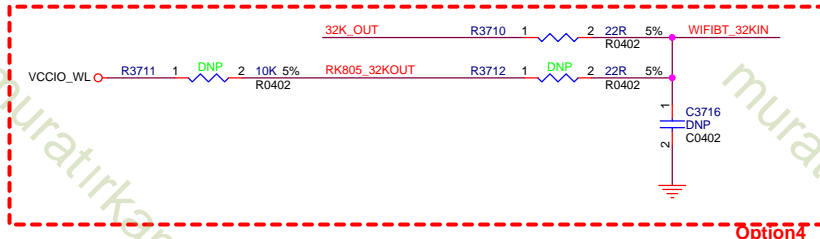
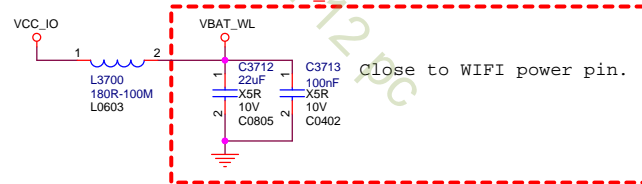
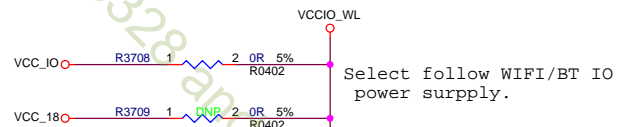
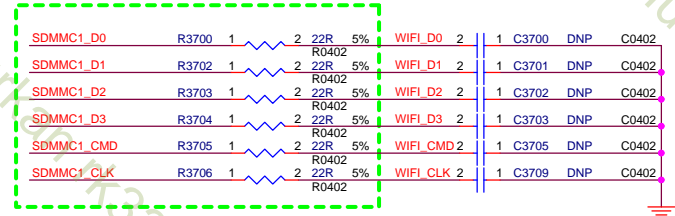
Debug UART2



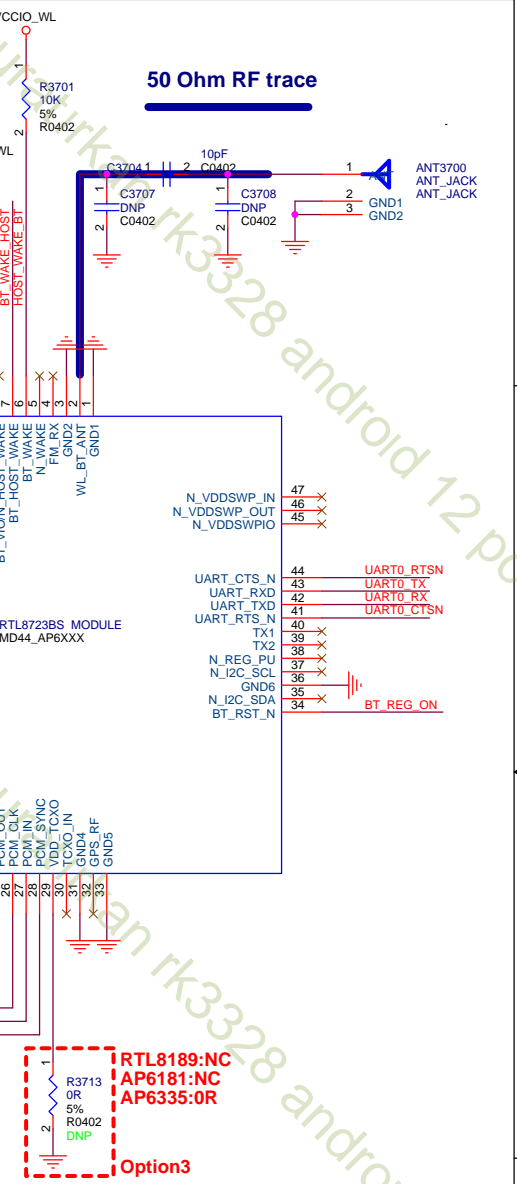
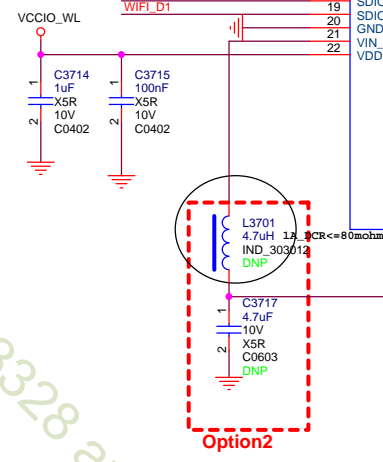
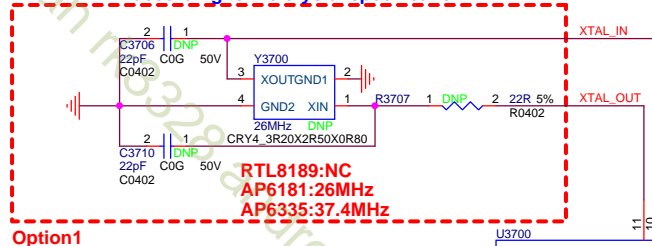
 瑞芯微电子		Fuzhou Rockchip Electronics	
Project:	RK3328_BOX_REF		
File:	Debug UART2/JTAG		
Date:	Friday, February 24, 2017	Rev:	V1.0
Designed by:	<designer>	Sheet:	26 of 29



请靠近CPU放置。



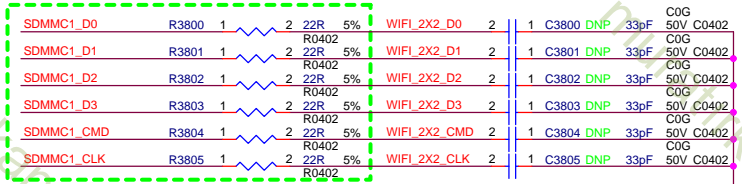
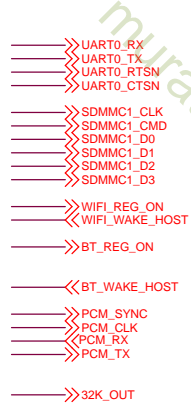
Note:
Adjusted the load capacitance according to the crystal specification.



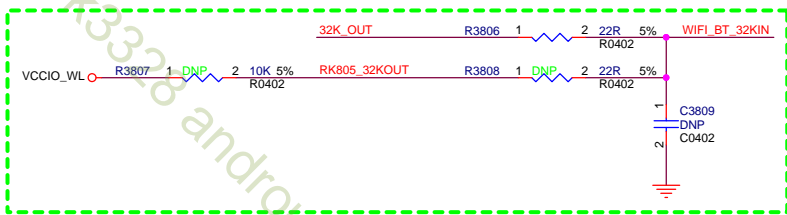
1X1 WIFI
AP6181/AP6212/AP6330/AP6335/RTL8189FTV
RTL8723BS/XZ3538/XZ3660

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

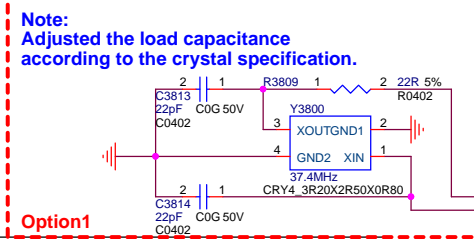
OPTION	1	2	3	4	5
AP6181	Yes	Yes	No	Yes	
AP6212	Yes	Yes	No	Yes	
AP6330	Yes	Yes	No	Yes	
AP6335	Yes	Yes	Yes	Yes	
RTL8189FTV	No	No	No	No	
RTL8723BS	No	No	No	Yes	



请靠近CPU放置。



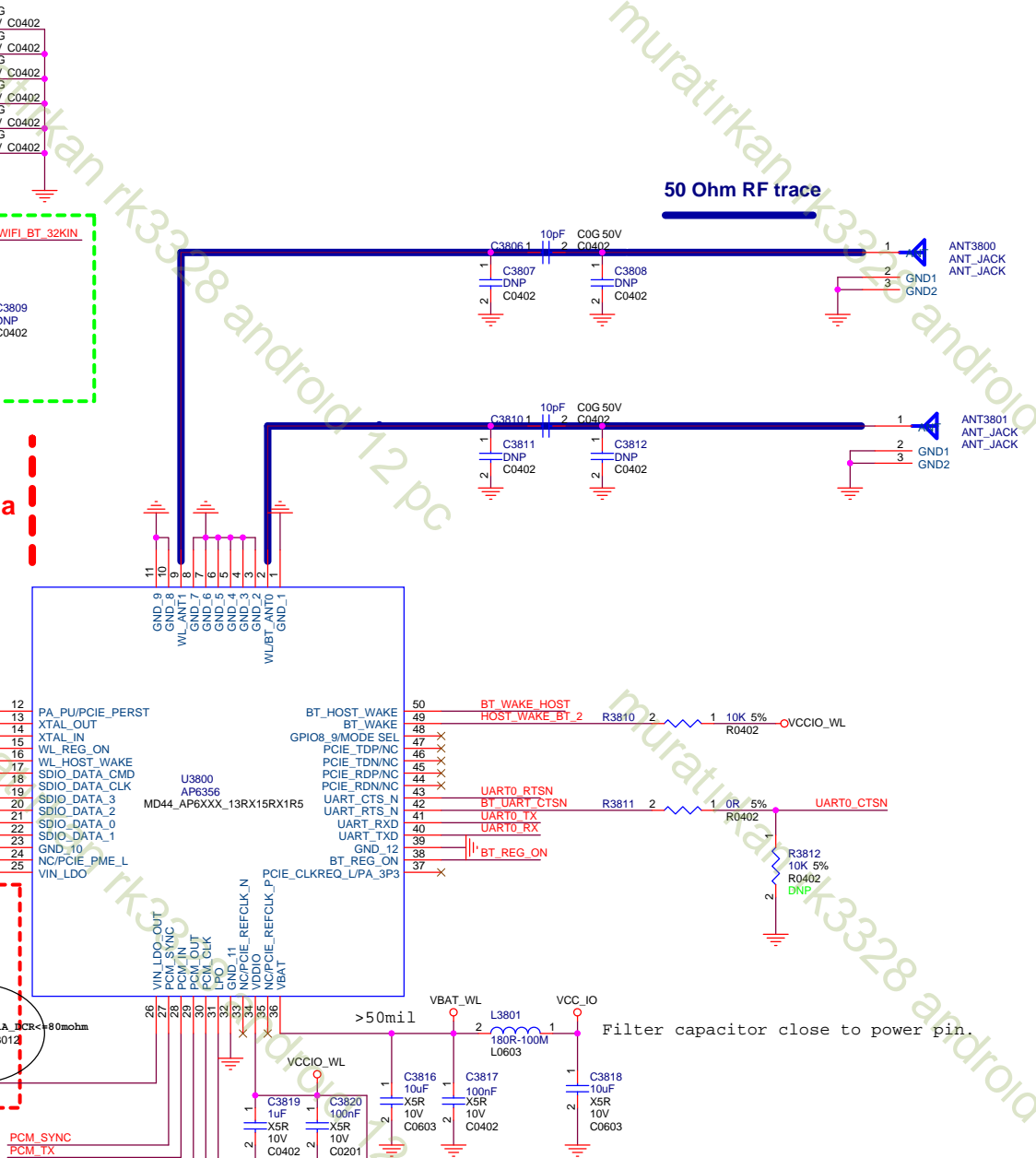
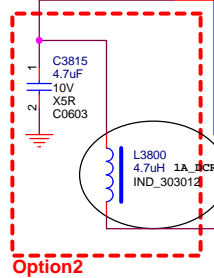
Layout Note:
Crystal away from antenna



2T2R

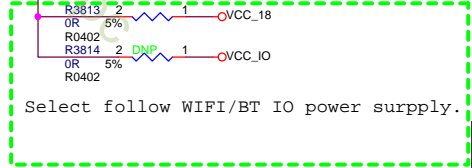
OPTION	WIFI				BT	Crystals	VDDIO
	a	b/g/n	ac	5GHz			
AP6356S	Yes	Yes	Yes	Yes	Yes	37.4MHz	1.7-3.6V
QCA6174	Yes	Yes	Yes	Yes	Yes		1.7-3.6V
RTL8822	Yes	Yes	Yes	Yes	Yes		1.7-3.6V
RTL8192	No	Yes	No	No	No		1.7-3.6V

OPTION	1	2	3
AP6356S	Paste	Paste	
QCA6174	DNP	DNP	
RTL8822	DNP	DNP	
RTL8192	DNP	DNP	



50 Ohm RF trace

Filter capacitor close to power pin.



Select follow WIFI/BT IO power surpplly.