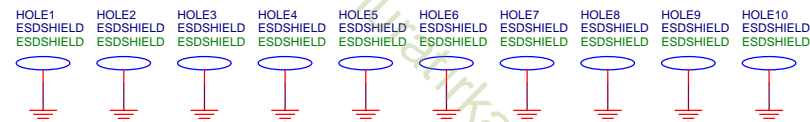


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RK3328 BOX Ref



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

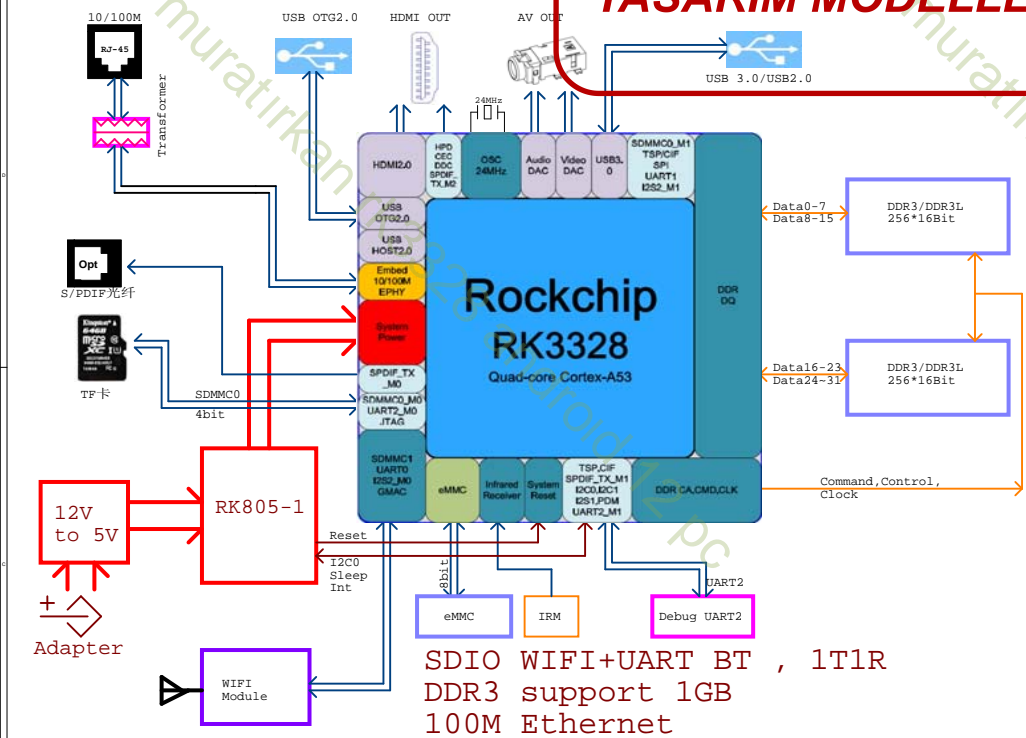
2. If Value or option is DNP, which means the area is reserved without being mounted

Rockchip
瑞芯微电子 Fuzhou Rockchip Electronics

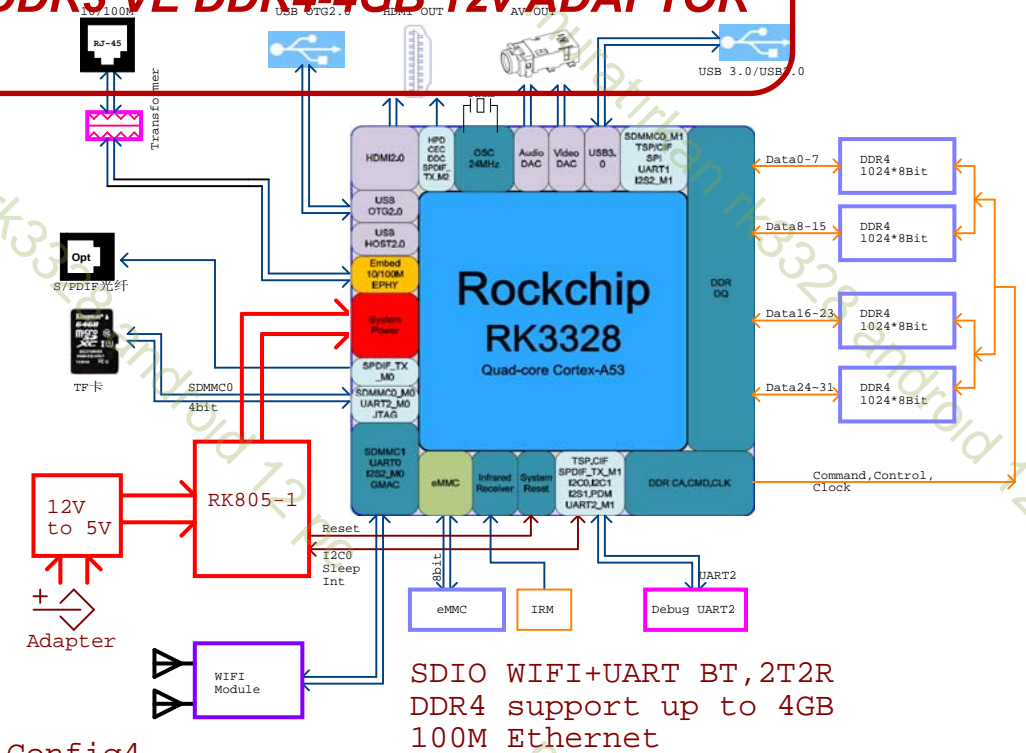
Project:	RK3328_BOX_REF		
File:	Index		
Date:	Friday, February 24, 2017	Rev:	V1.0
Designed by:	Zhangdz	Sheet:	1 of 29

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

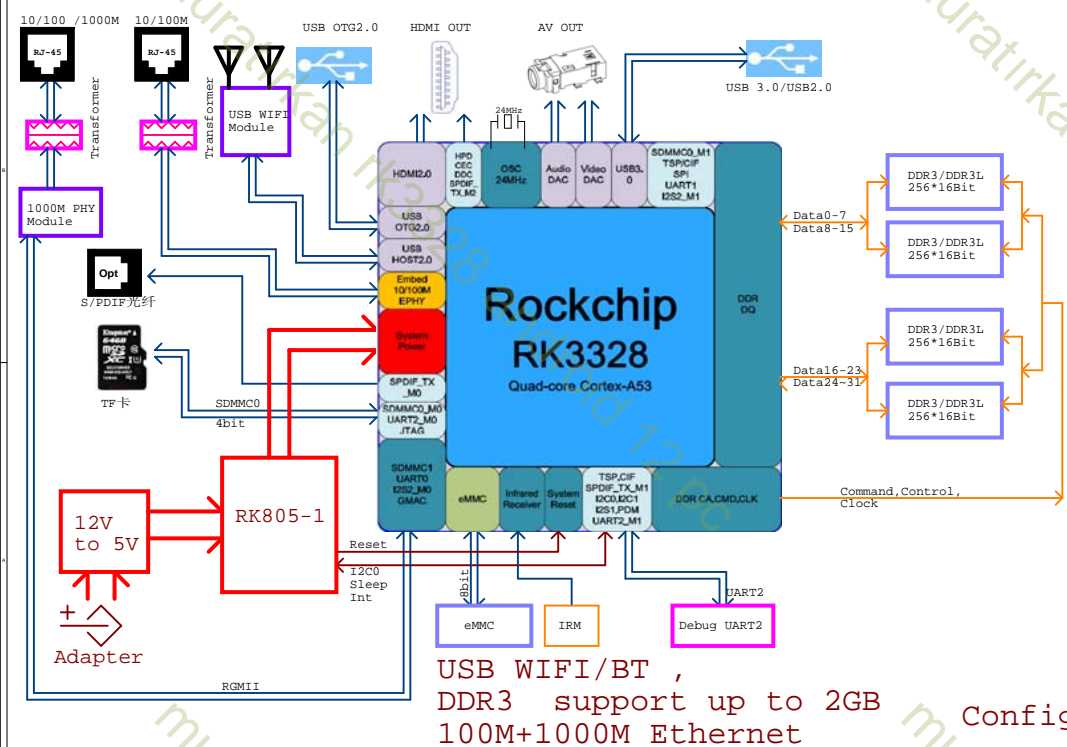
TASARIM MODELLERİ: DDR3 VE DDR4-4GB 12v ADAPTOR



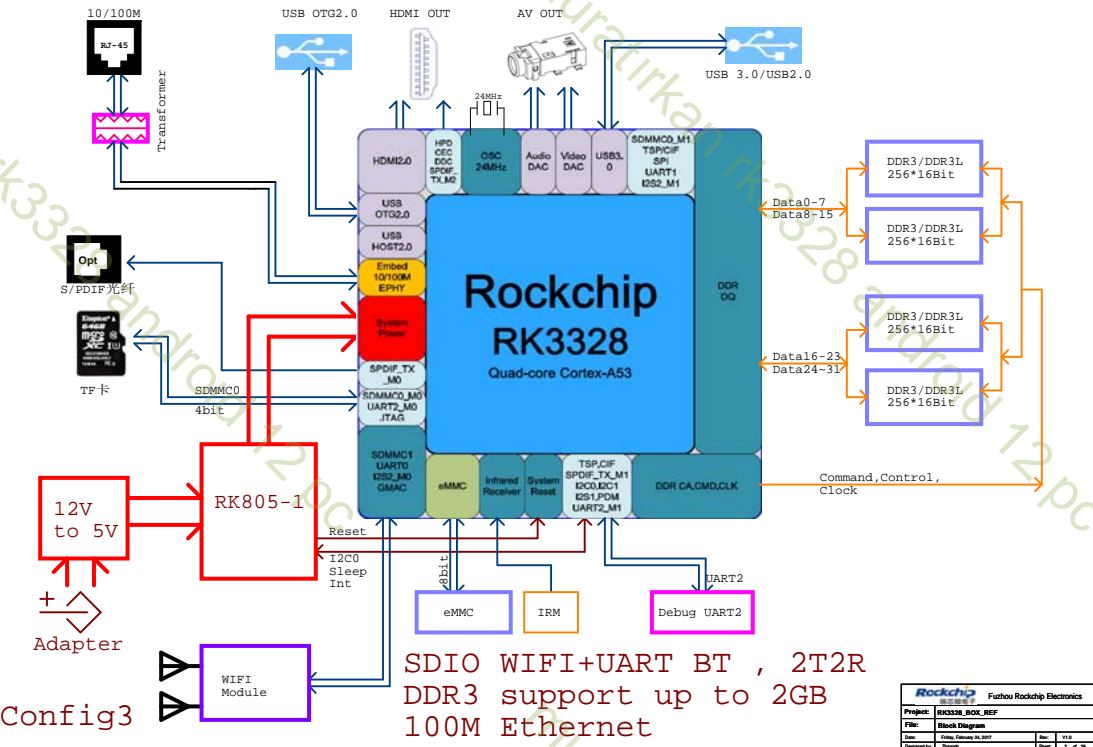
Default config



Config4



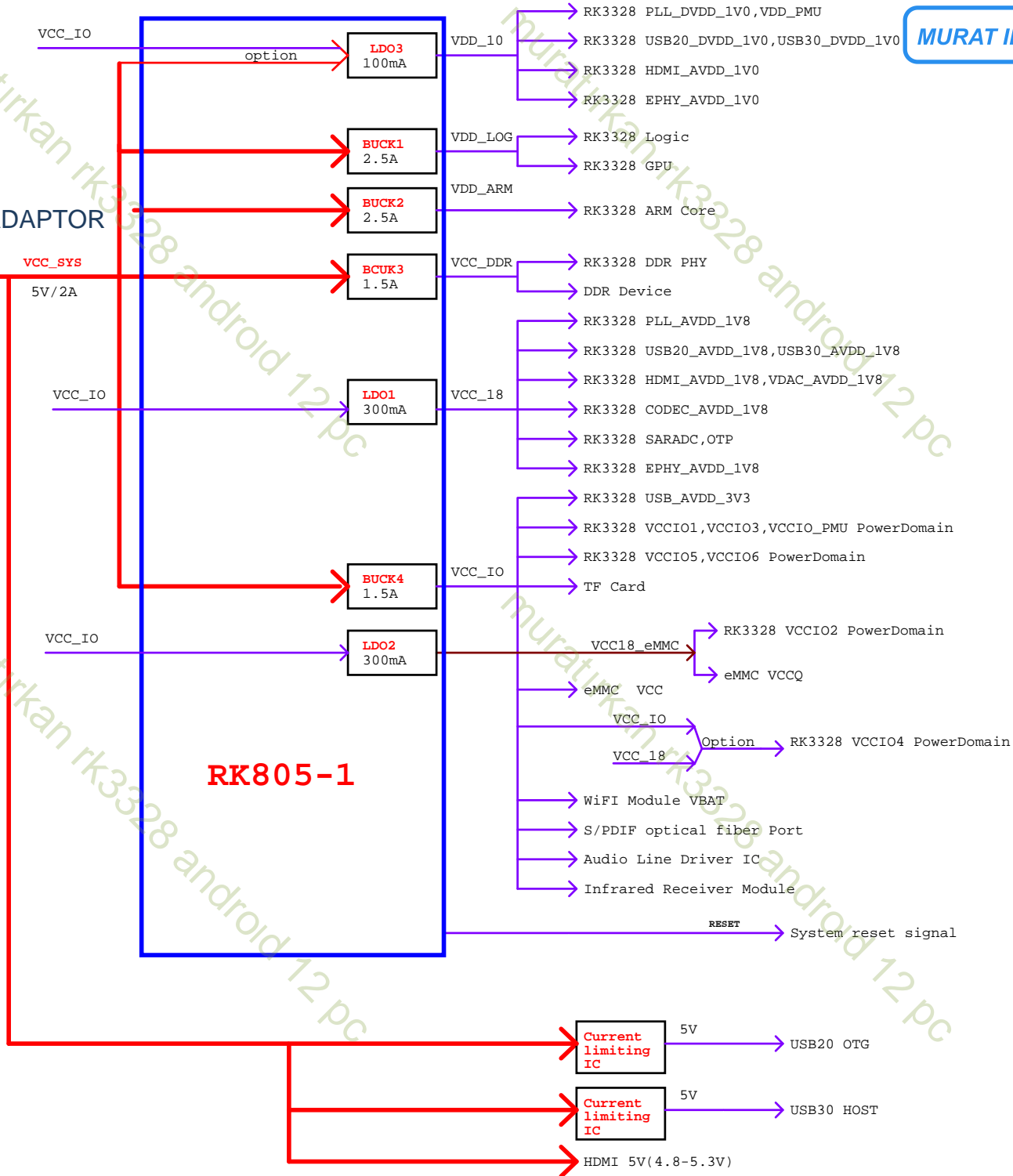
Config2



Config3

12V 2AMPER ADAPTOR

Adapter



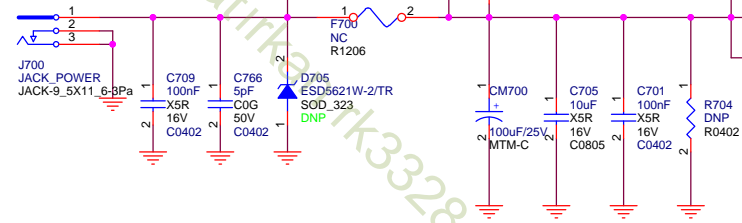
Power Timing

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

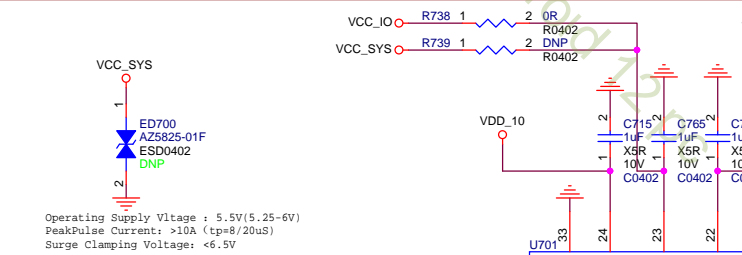
IO POWER DOMAIN	VCC_IO=3.3V	VCC_IO=1.8V
VCCIO_PMU	3.3V	No support
VCCIO1	3.3V	
VCCIO2		1.8V (default) eMMC
VCCIO3	3.3V (default)	
VCCIO4	3.3V (default) WIFI:RTL8723BS	
VCCIO5	3.3V (default)	
VCCIO6	3.3V (default)	

PC GÜÇ ANAHTAR/ON/OFF

ADAPTOR JACK



DC12V



Operating Supply Voltage : 5.5V(5.25-6V)
PeakPulse Current: >10A (tp=8/20uS)
Surge Clamping Voltage: <6.5V

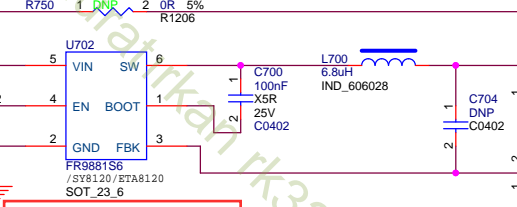
VCC_DDR

Default:DDR3=1.5V

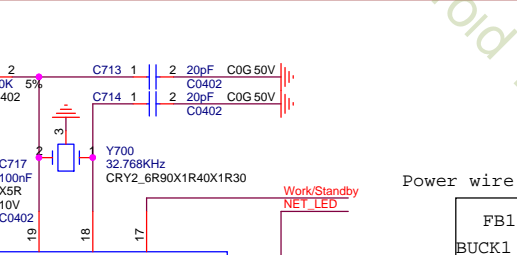
	DDR3	DDR3L	DDR4
VCC_DDR	1.527V	1.353V	1.2V
R725	100K 1%	47K 1%	51K 1%
R726	110K 1%	68K 1%	100K 1%

DDR3 VE DDR VOLTAJ DEGERLER

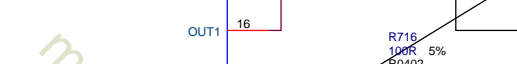
SYB120 REGULATOR 5.2VOLT CIKIS



VCC_SYS



Power wire must be remote feedback



Power wire must be remote feedback



Power wire must be remote feedback



Power wire must be remote feedback



Power wire must be remote feedback



Power wire must be remote feedback



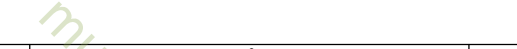
Power wire must be remote feedback



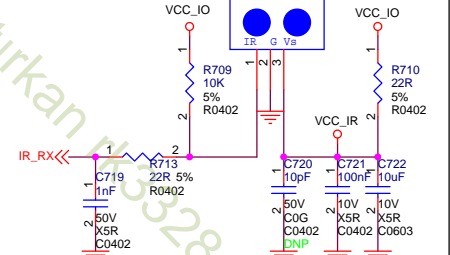
Power wire must be remote feedback



Power wire must be remote feedback

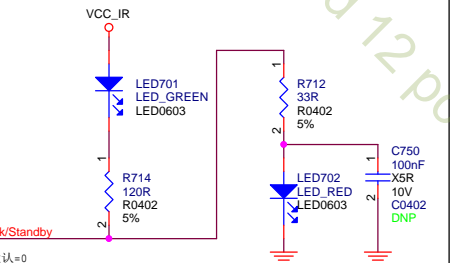


IR Receiver



Note: IR could not be closed to RF.

LED DISPLAY



默认=0



默认=0



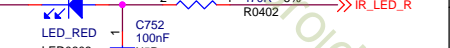
默认=0



默认=0



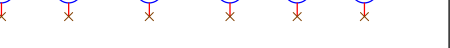
默认=0



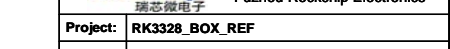
默认=0



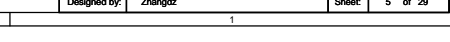
默认=0



默认=0

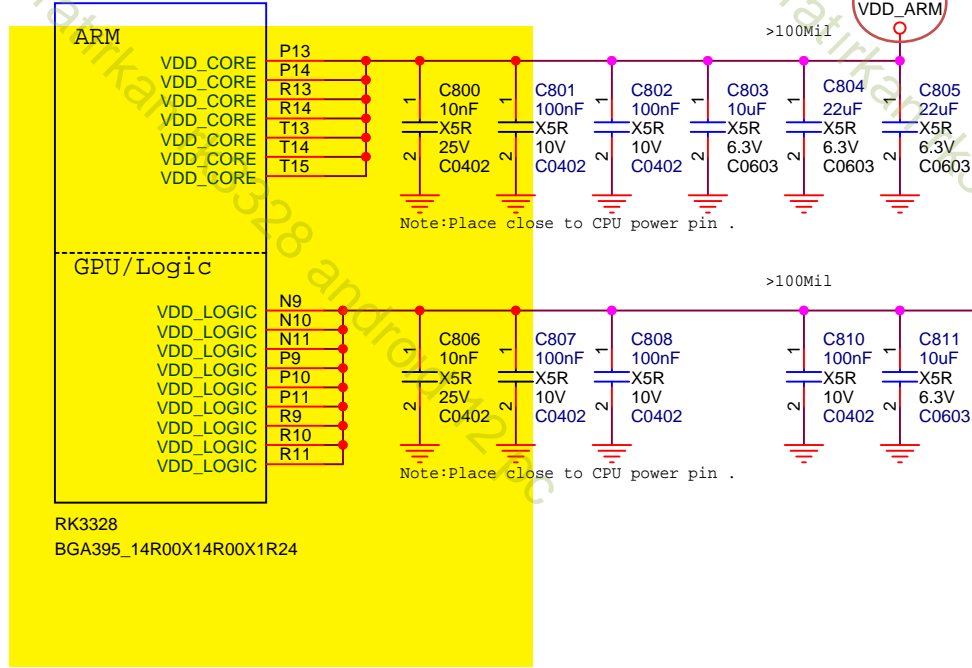


默认=0



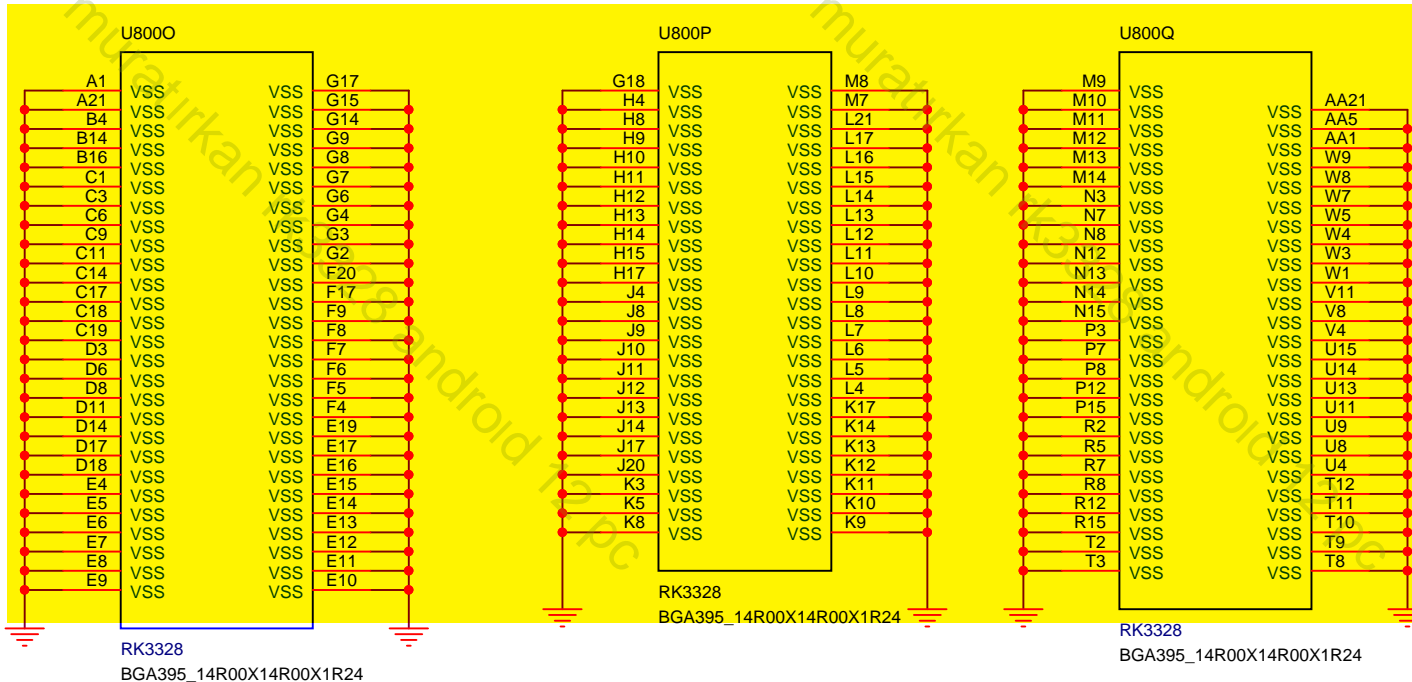
Rockchip 瑞芯微电子	
Project:	RK3328_BOX_REF
File:	System Power-PMIC RK805-1
Date:	Tuesday, March 07, 2017
Designed by:	Zhangdz
Rev:	V1.0
Sheet:	5 of 29

RK3328 ARM CPU GUC VE GRAFIK KART GUC BAGLANTILARI VE SASE

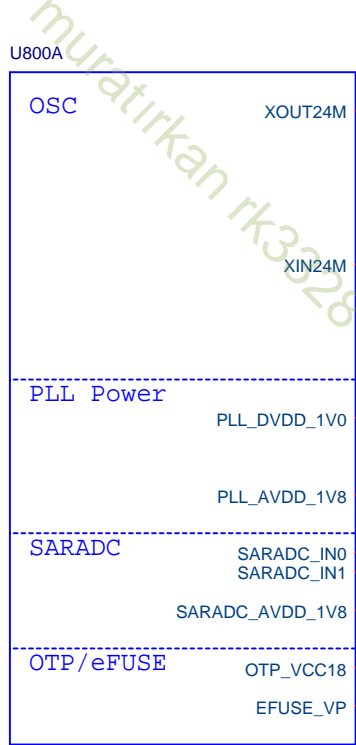


ARM CPU RK3328 SASE VE GÜÇ KONTROL-1

06/07/2024 11:04 AM



MURAT IRKAN RK3328 ROCKCHIP
PC S STEM



KR STAL: 24MHz

VDDPLL/USB30_1V0

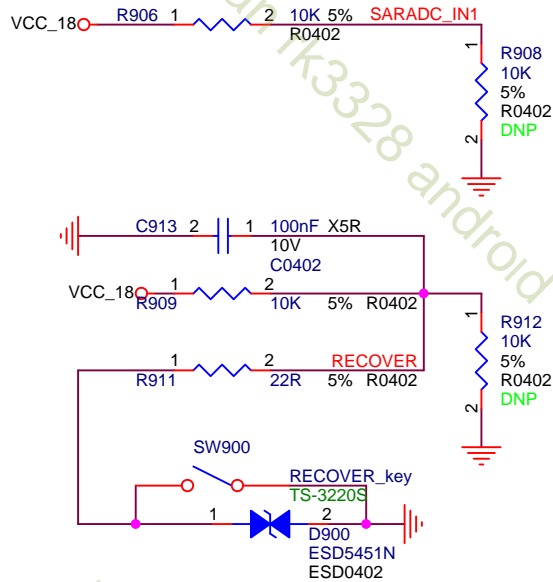
VDD_10

VDDPLL/USB30_1V8

VCC_18

RK3328

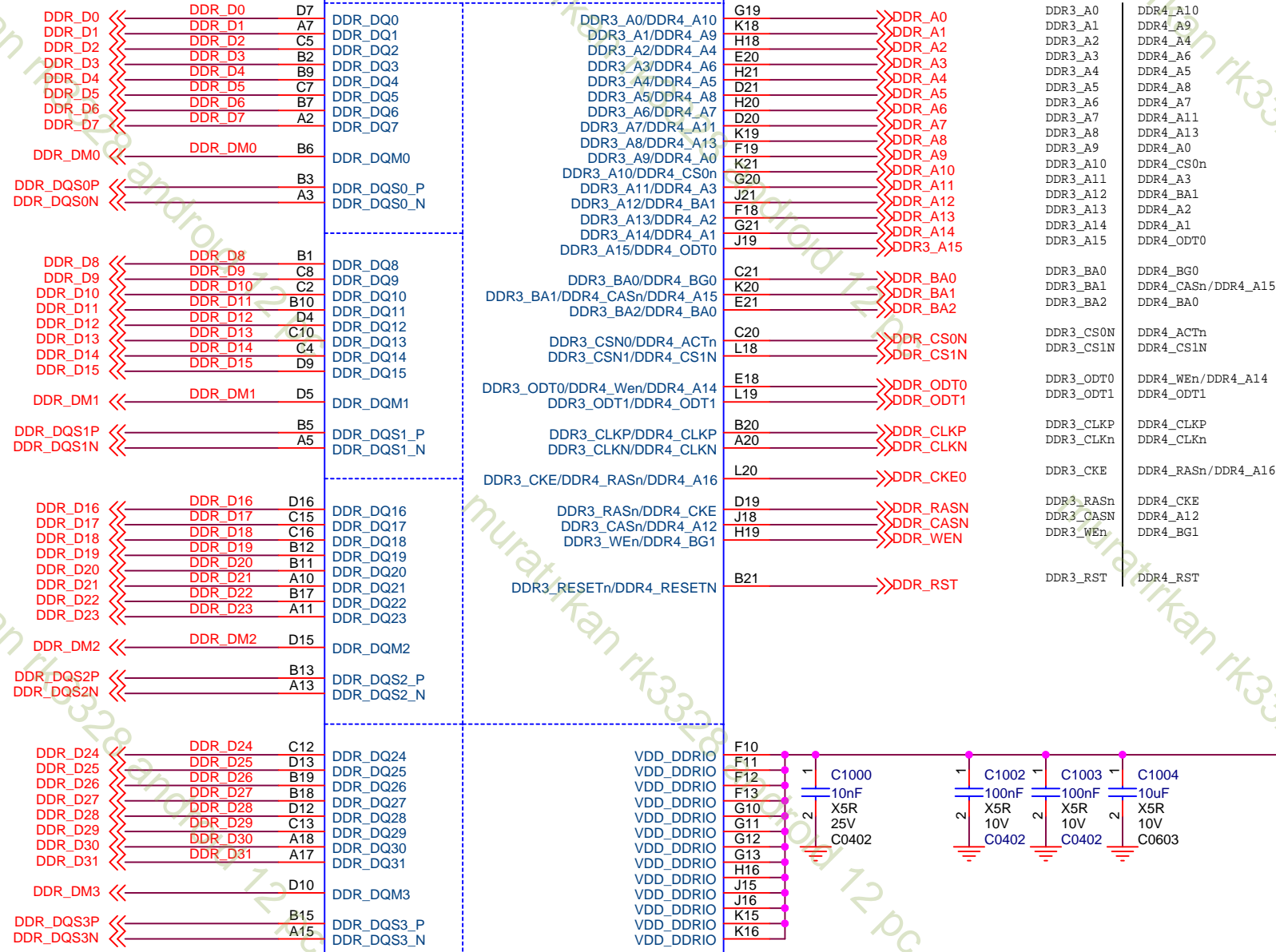
BGA395_14R00X14R00X1R24




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

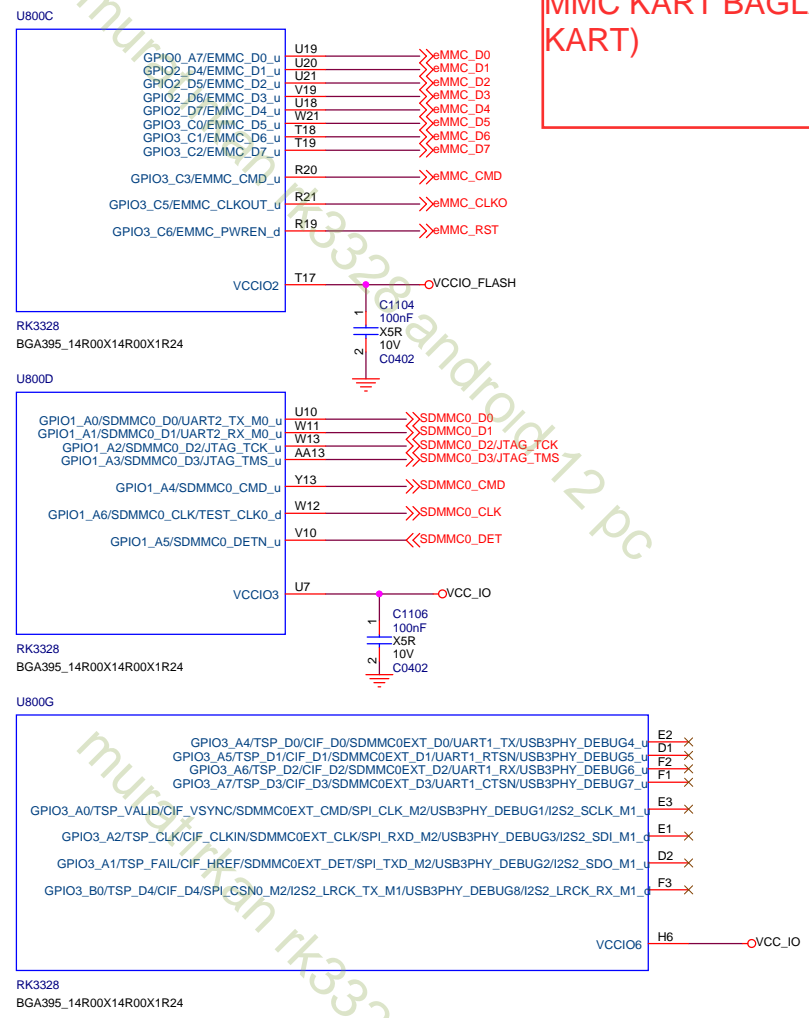
DDR3 VE DDR4 BELLEKLER :KONTROL-1



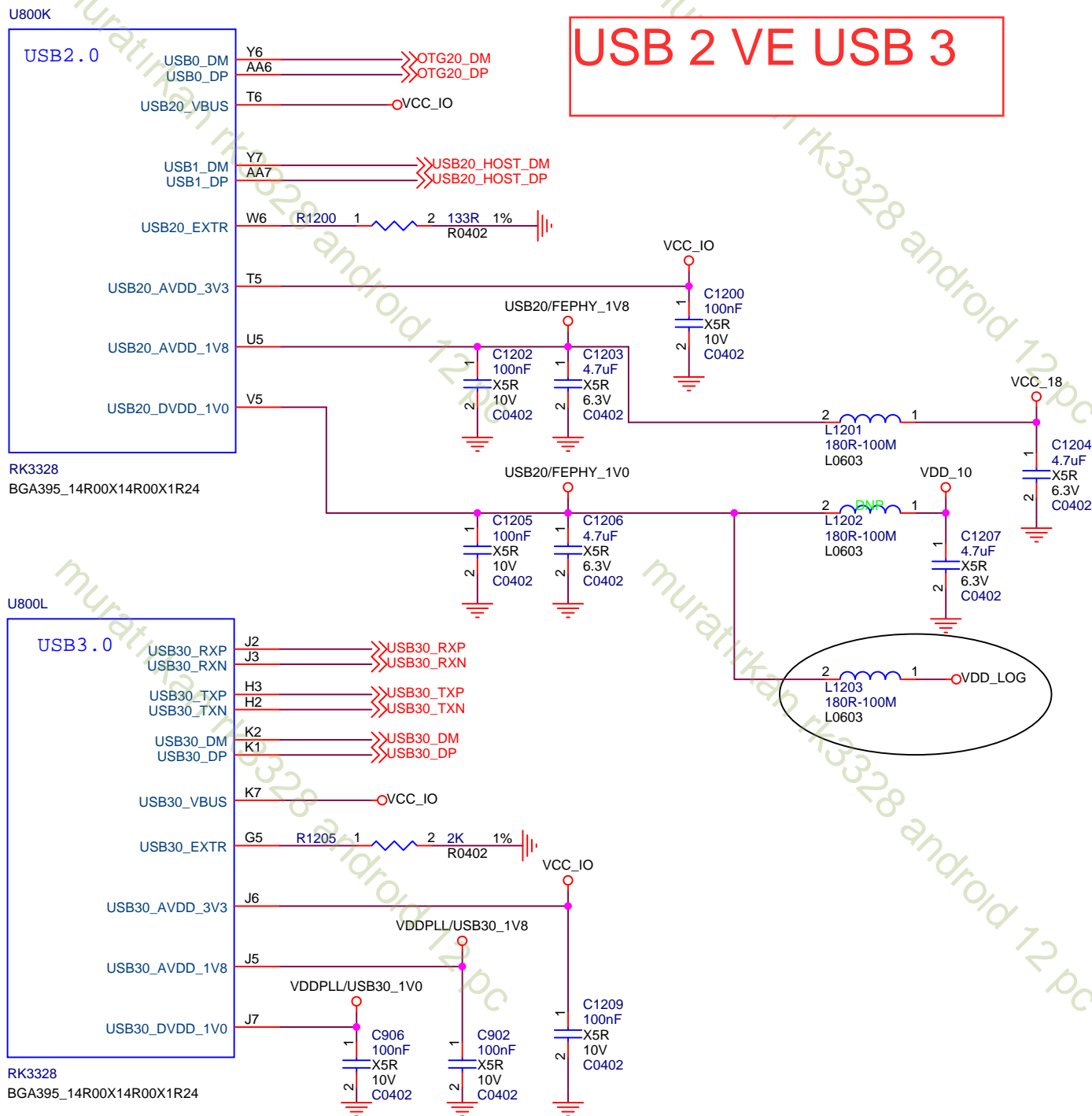
RK3328
BGA395_14R00X14R00X1R24


 瑞芯微电子		Fuzhou Rockchip Electronics	
Project:	RK3328_BOX_REF		
File:	RK3328 DDR Controller		
Date:	Friday, February 24, 2017	Rev:	V1.0
Designed by:	Zhangdz	Sheet:	8 of 29

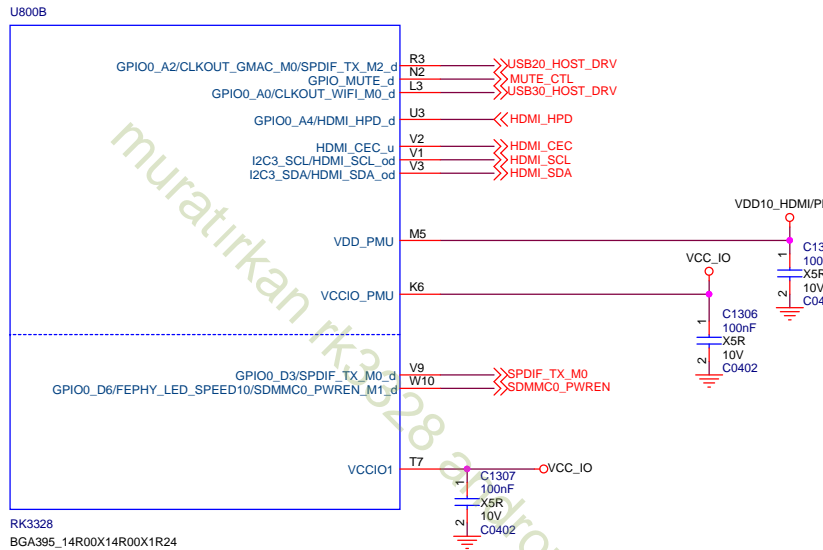
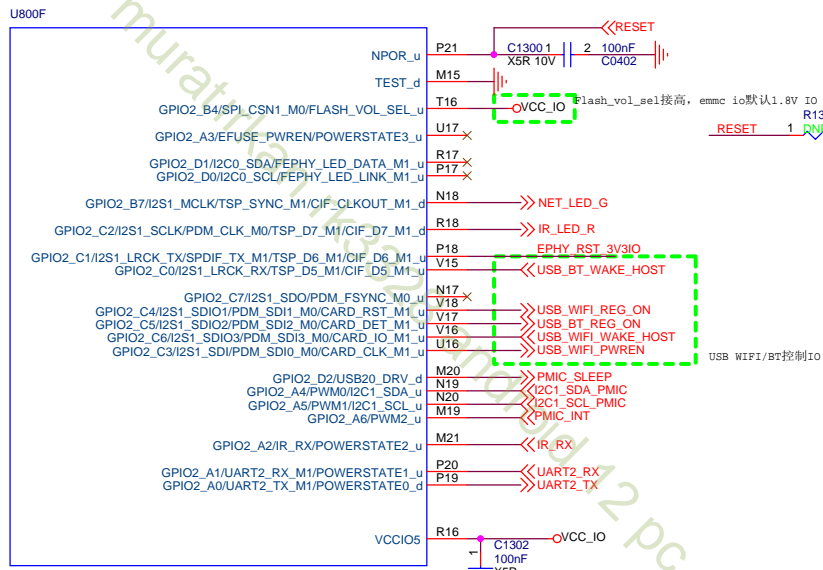
MMC KART BAGLANTISI (MULT MEDYA KART)



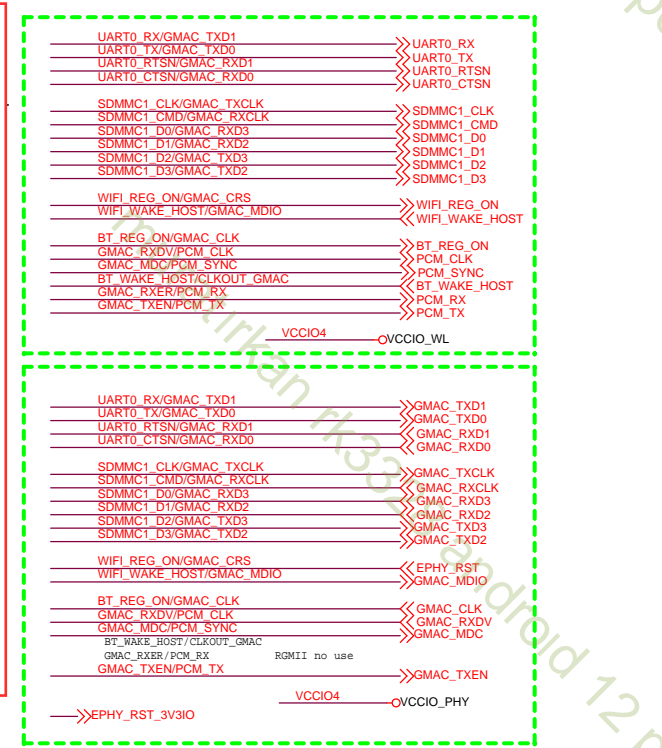
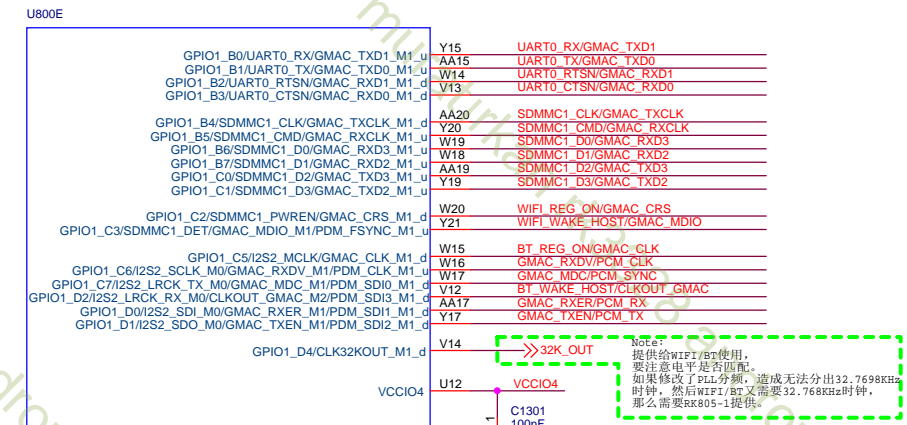
USB 2 VE USB 3



 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

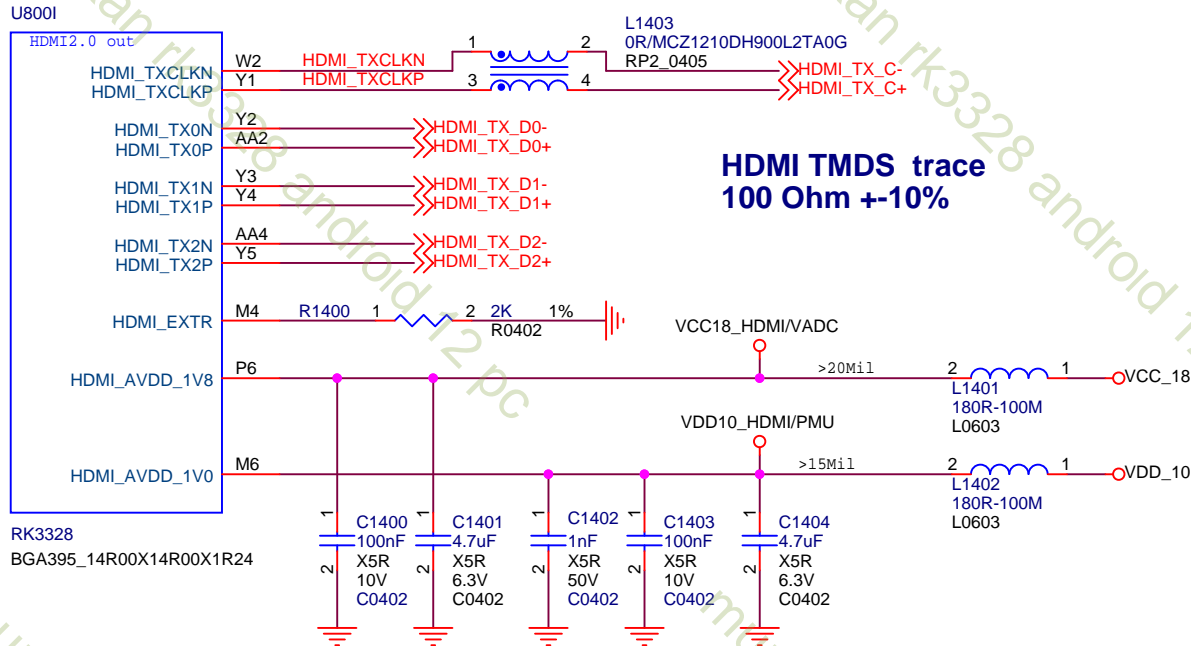



USB BLUETOOTH VE WI*FI

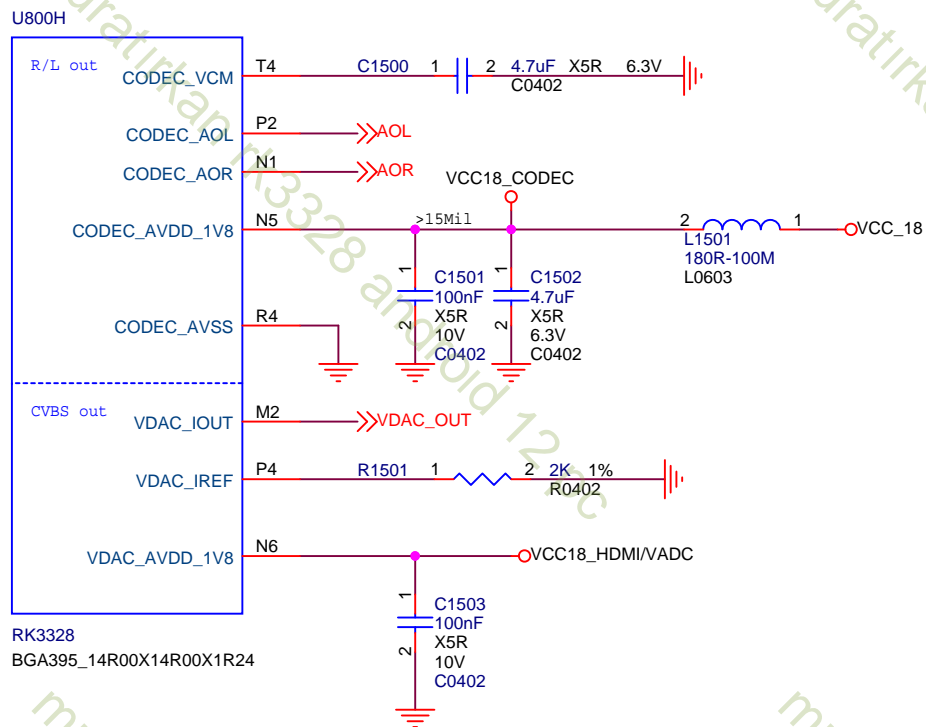



Note:
SDIO1+UART0和GMAC的IO是复用的。
二选一

RK3328 HDMI 4K VIDEO CIKIS



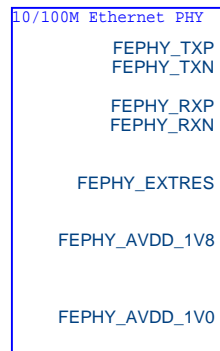
 瑞芯微电子		Fuzhou Rockchip Electronics	
Project:	RK3328_BOX_REF		
File:	RK3328 HDMI PHY		
Date:	Friday, February 24, 2017	Rev:	V1.0
Designed by:	Zhangdz	Sheet:	12 of 29



 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

Y8
AA8

TD+
TD-

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

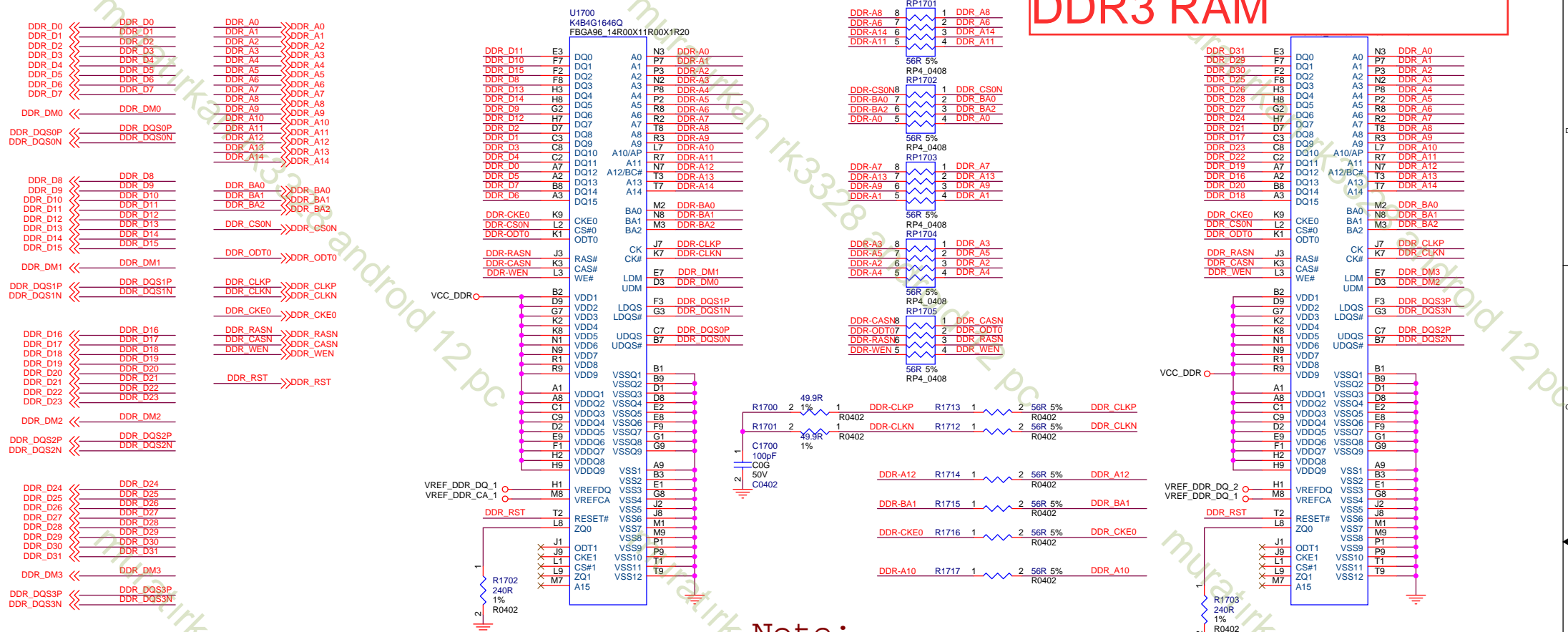
Embed FEPHY



Fuzhou Rockchip Electronics

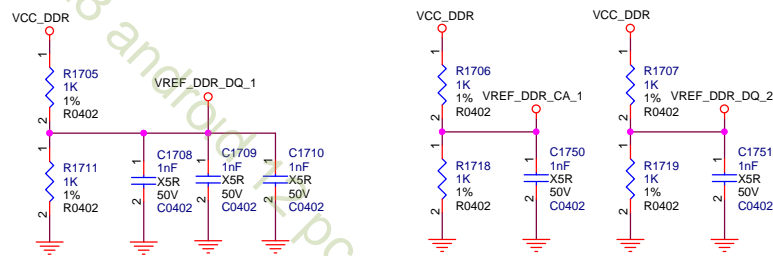
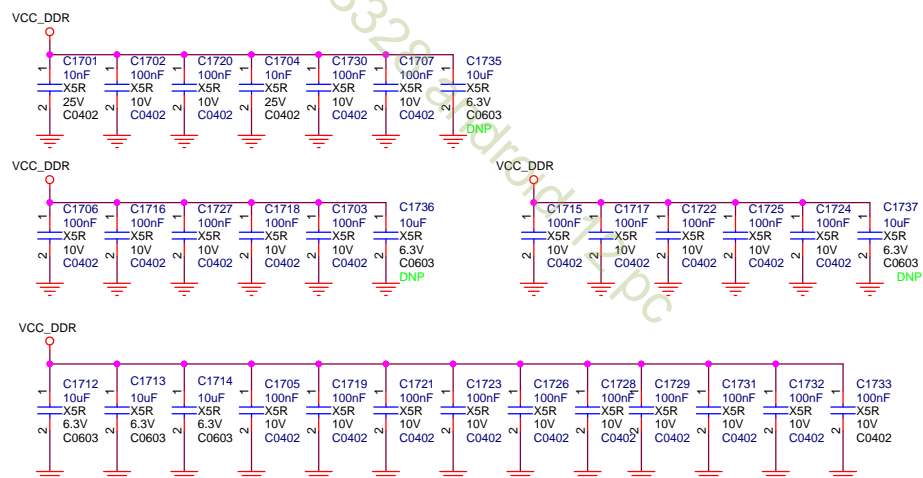
Project:	RK3328_BOX_REF		
File:	RK3328 FEPHY		
Date:	Friday, February 24, 2017	Rev:	V1.0
Designed by:	Zhangdz	Sheet:	14 of 29

DDR3 RAM

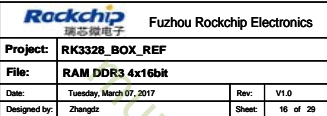


Note: $\text{DDR data rate} \geq 1600\text{Mb/s}$

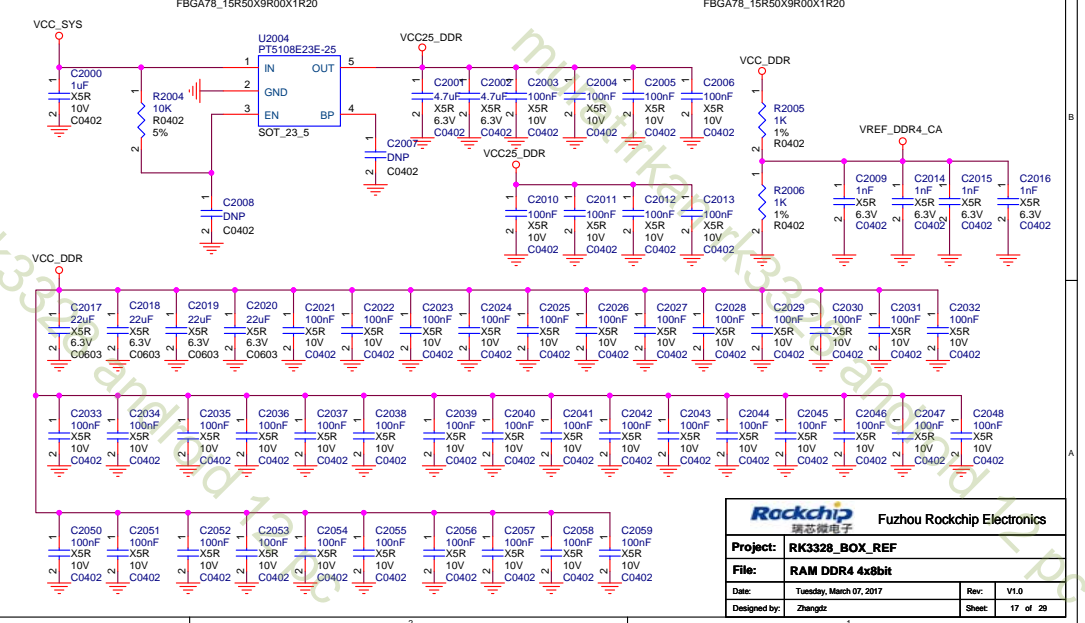
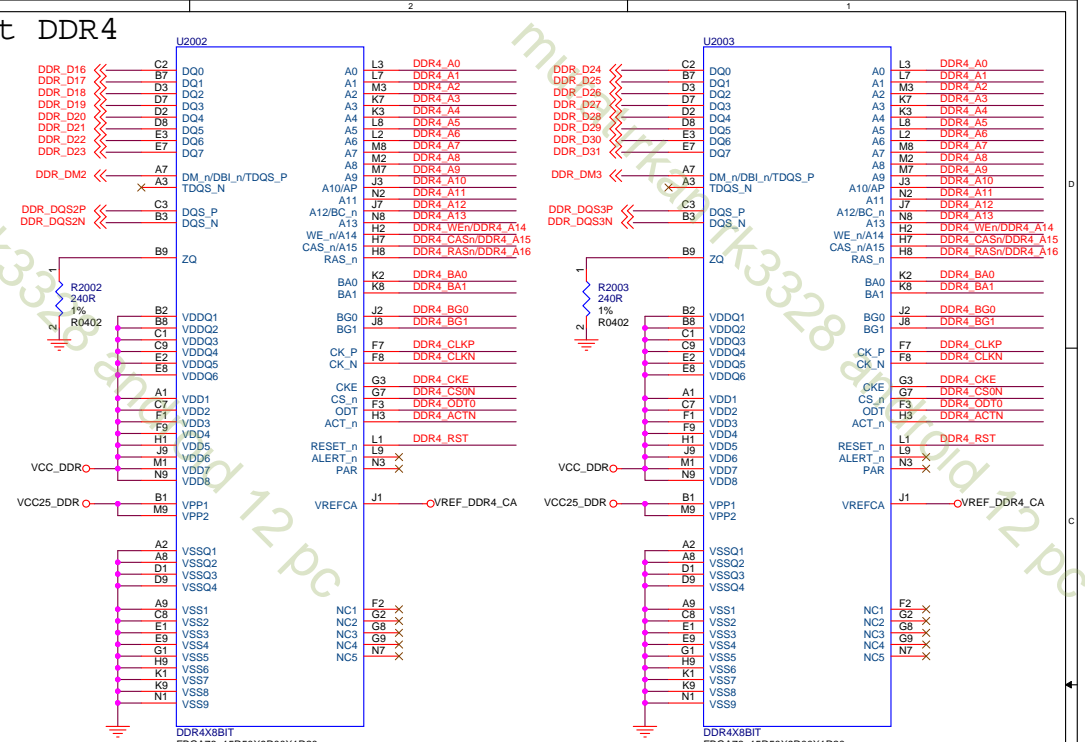
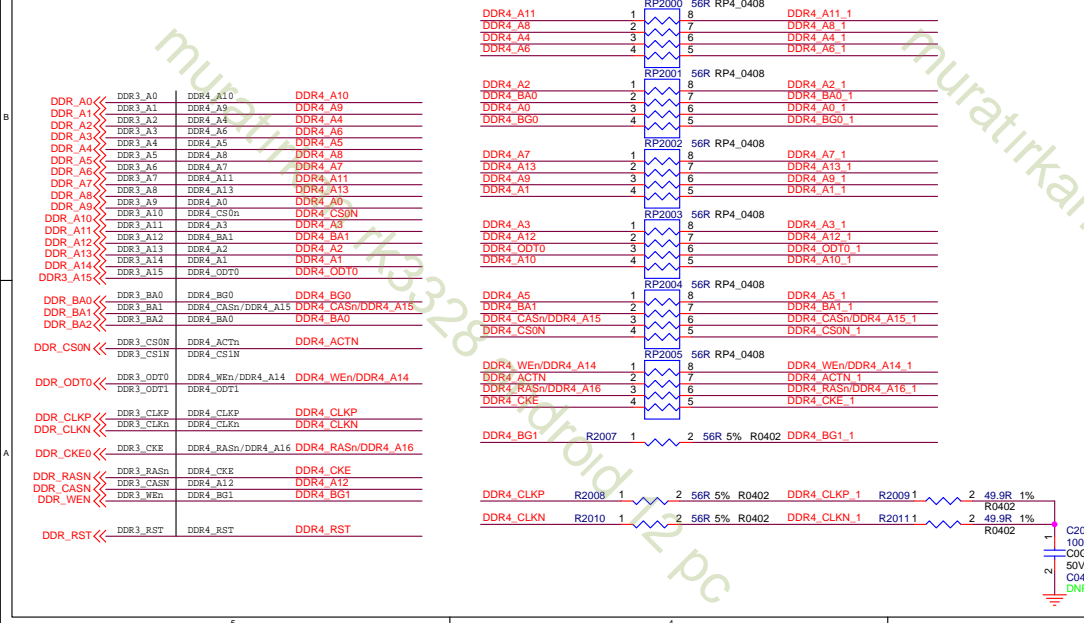
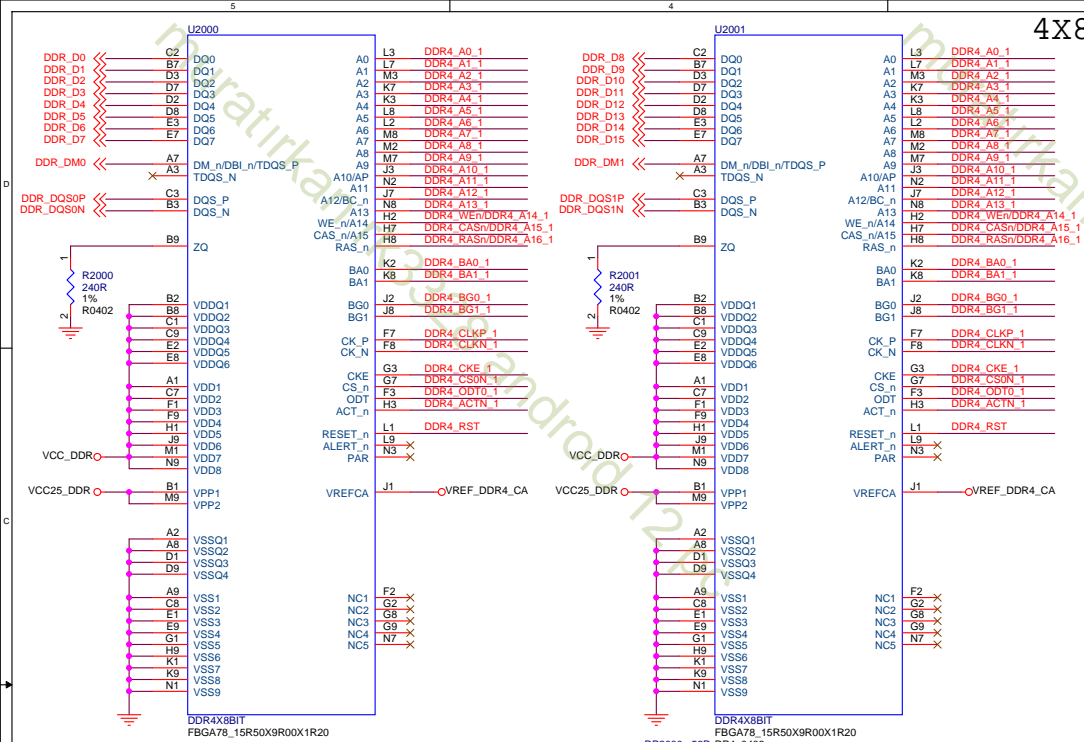
2X16bit DDR3



Note:
DDR data rate>=1600Mb/s

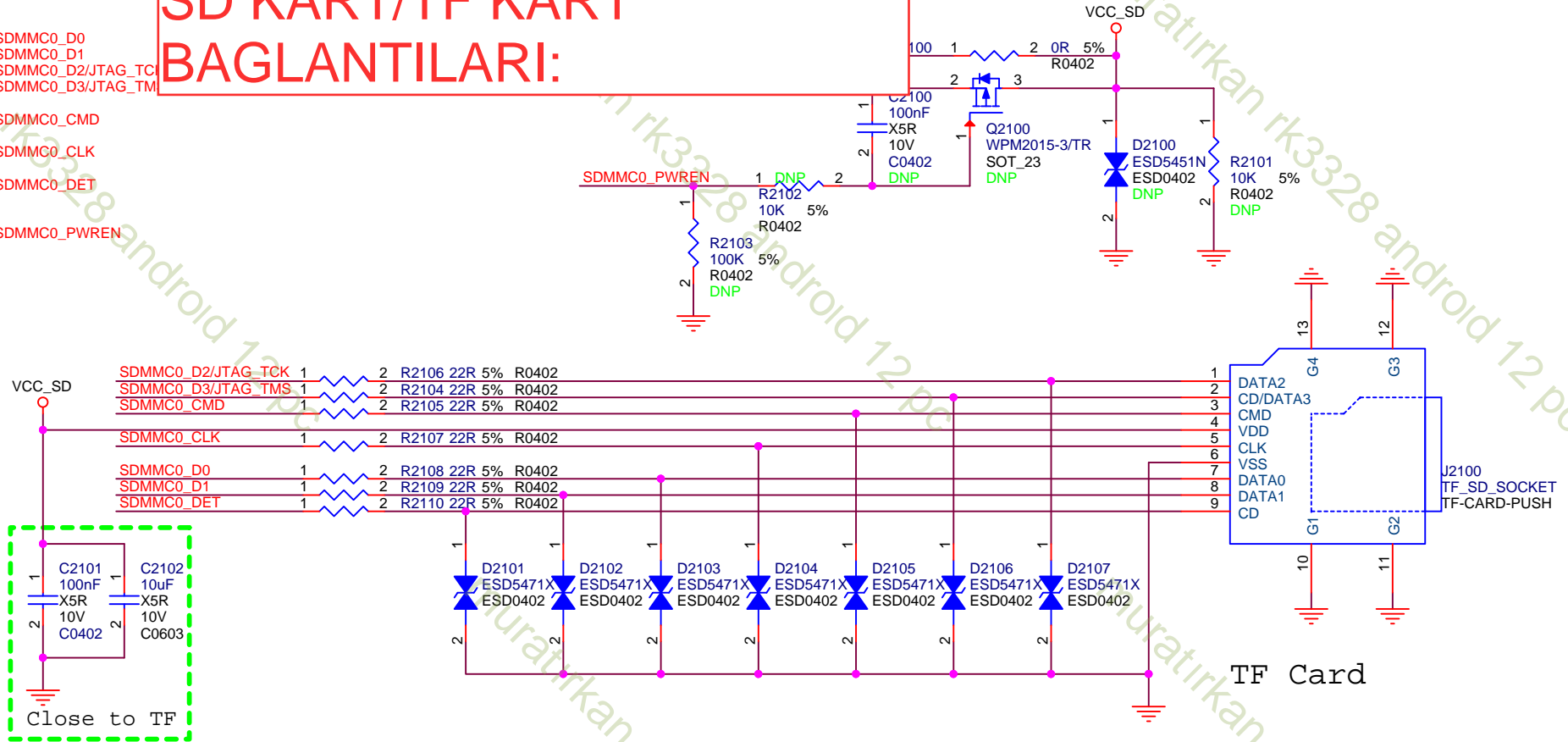


4X8bit DDR4




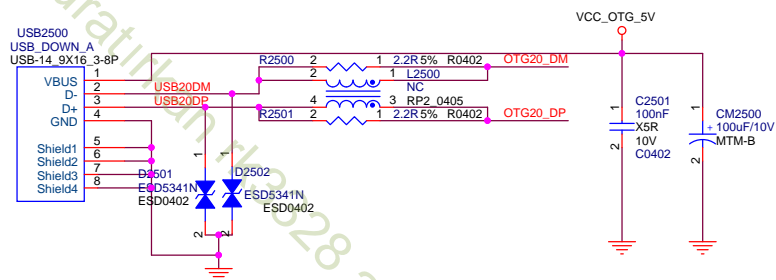
SD KART/TF KART BAGLANTILARI:

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



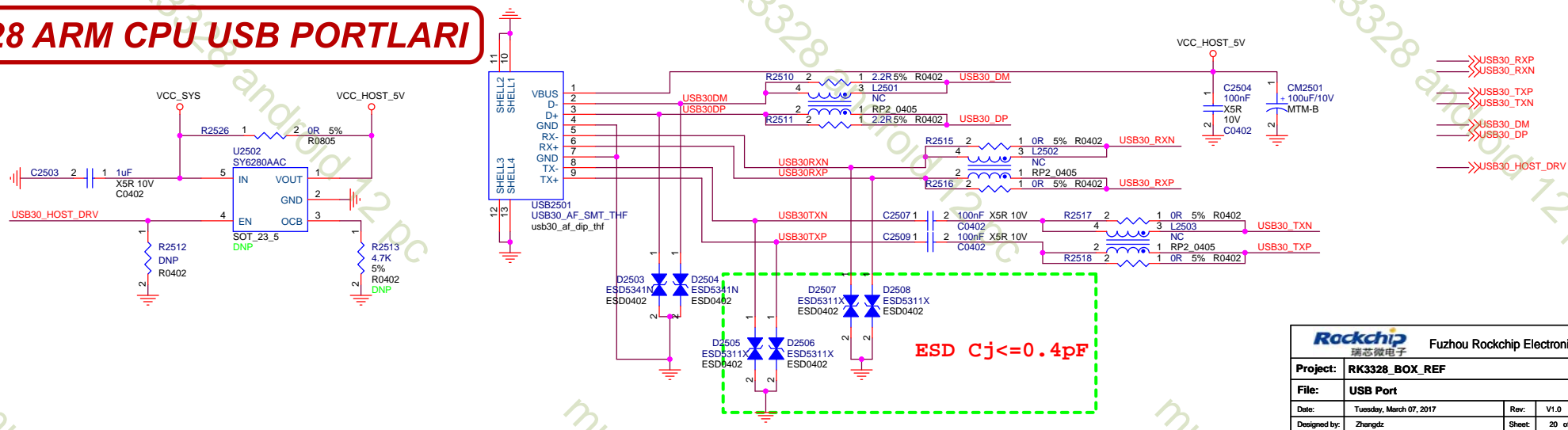
TF Card

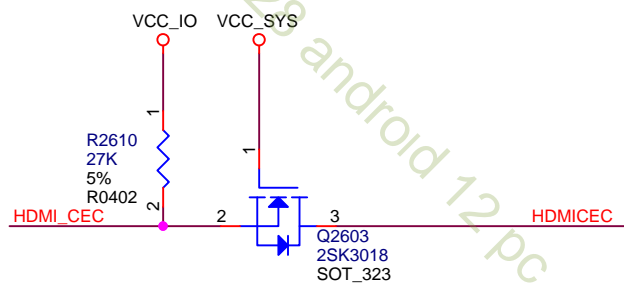
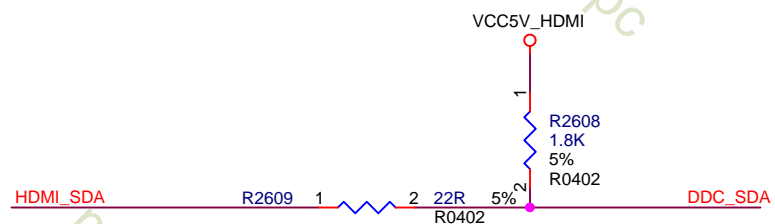
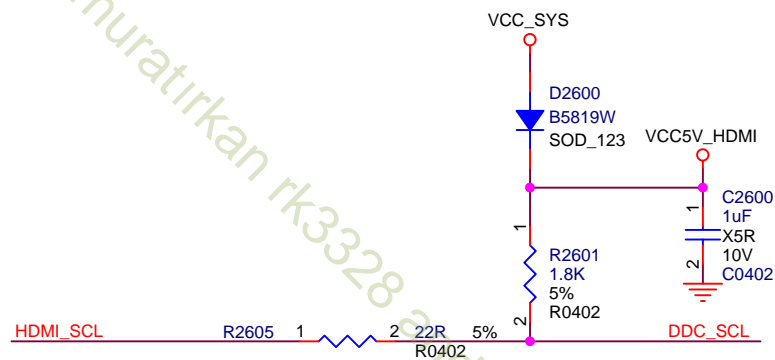
 瑞芯微电子		Fuzhou Rockchip Electronics	
Project:	RK3328_BOX_REF		
File:	TF/SD Card		
Date:	Friday, February 24, 2017	Rev:	V1.0
Designed by:	Zhangdz	Sheet:	18 of 29



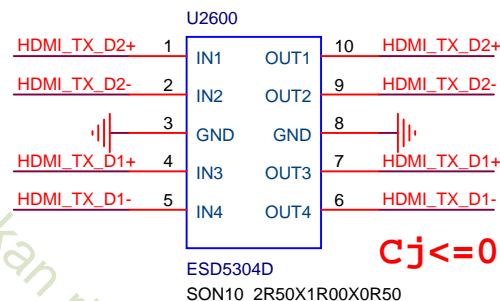
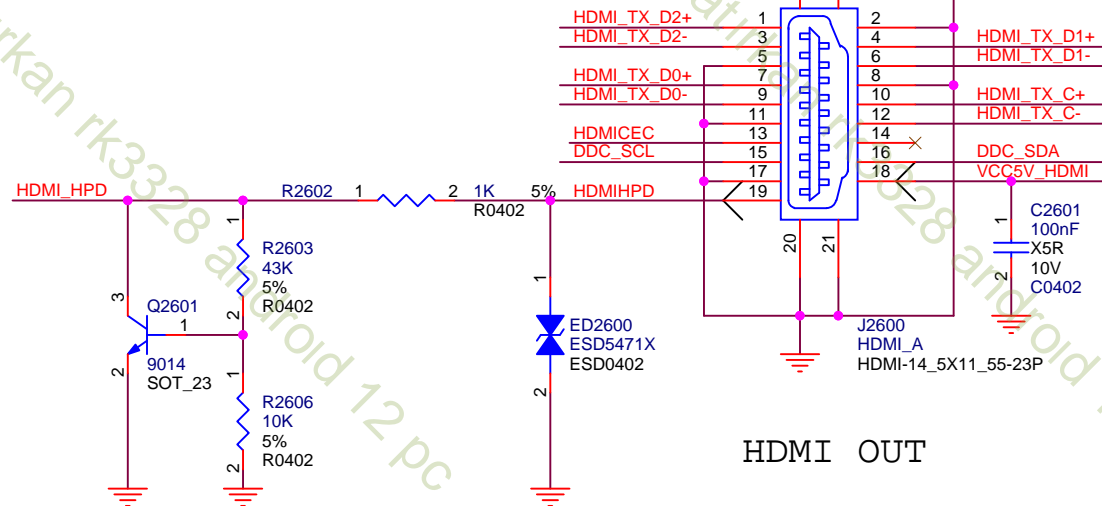
Pin 19: USB20_HOST_DRV

RK3328 ARM CPU USB PORTLARI

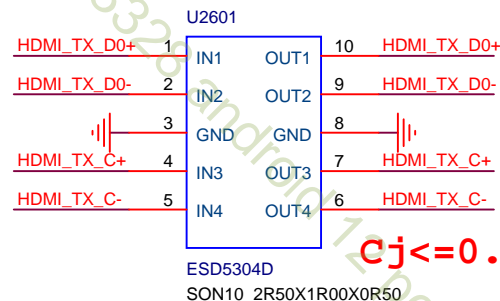




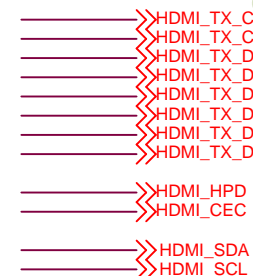
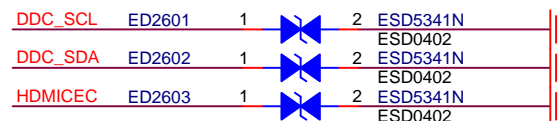
HDMI CIKISI




$C_j \leq 0.4 \text{ pF}$



$C_j \leq 0.4 \text{ pF}$



 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

VDAC_OUT

VCC_IO
D2900
BAT54S
SOT_23

CVBS_OUT

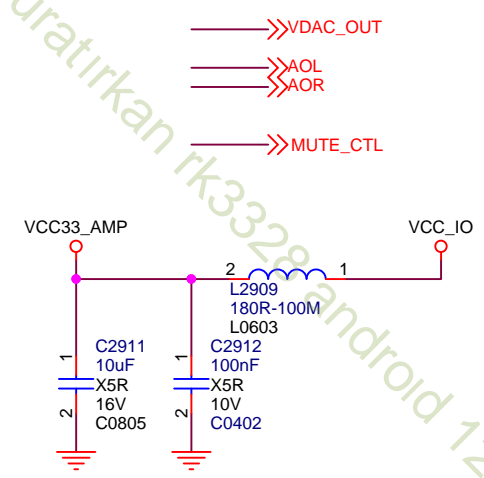
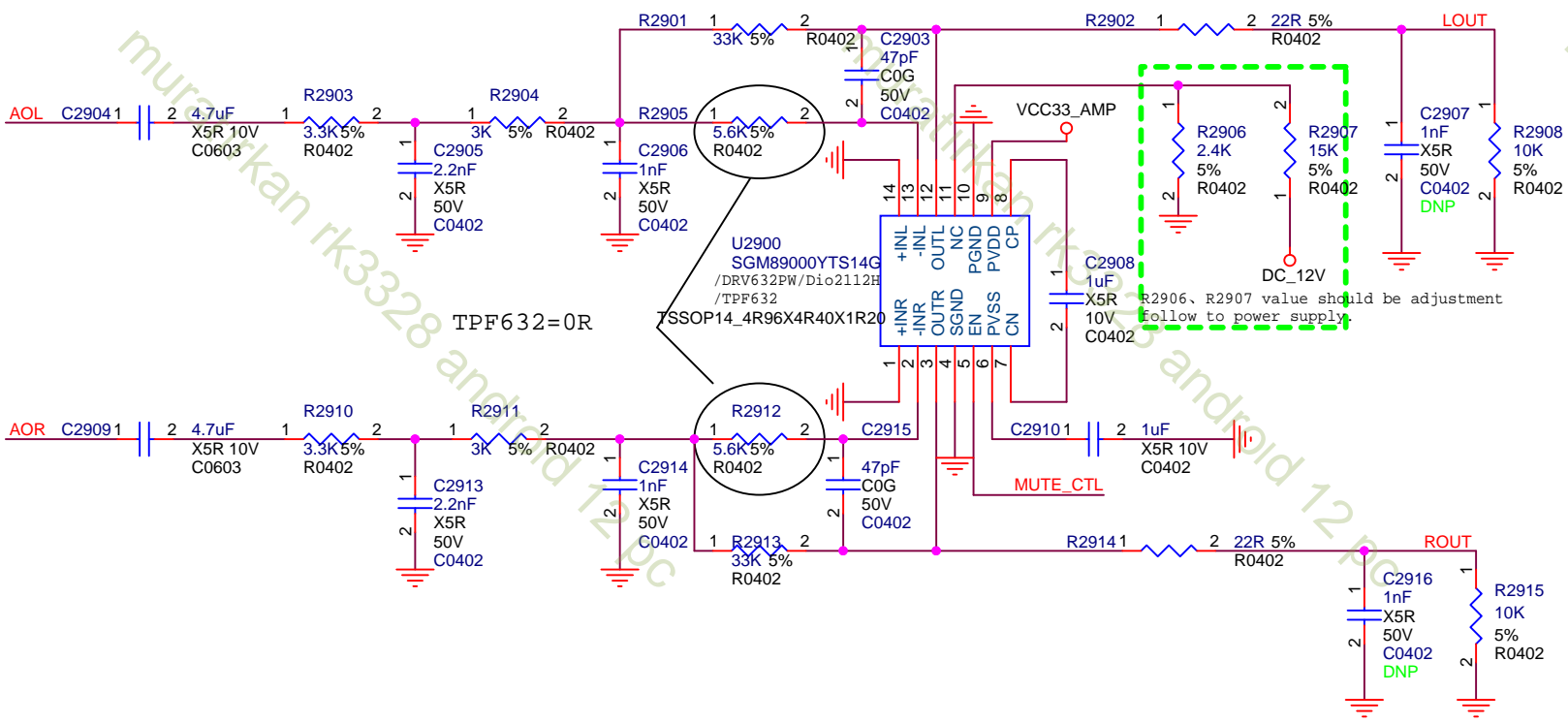
CVBS_OUT

ROUT
LOUT


J2900
SMT-PJ
PJ-320D-5-SMTa

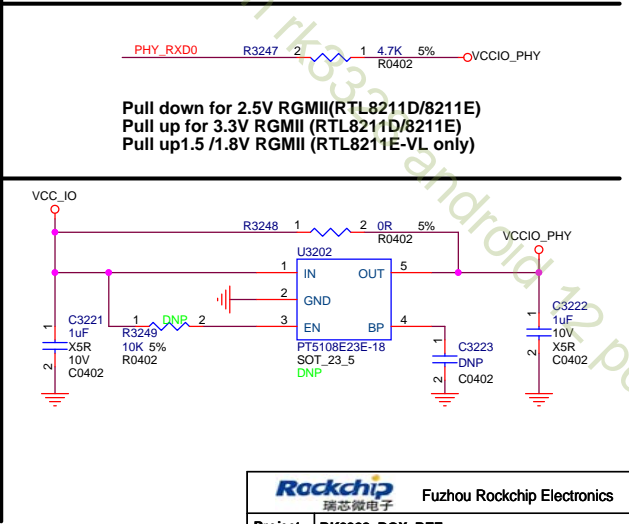
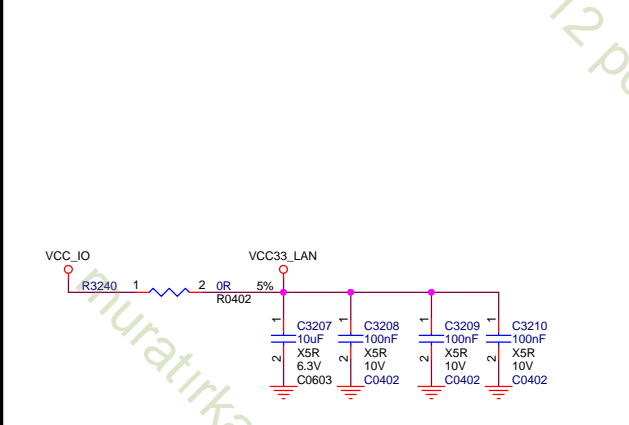
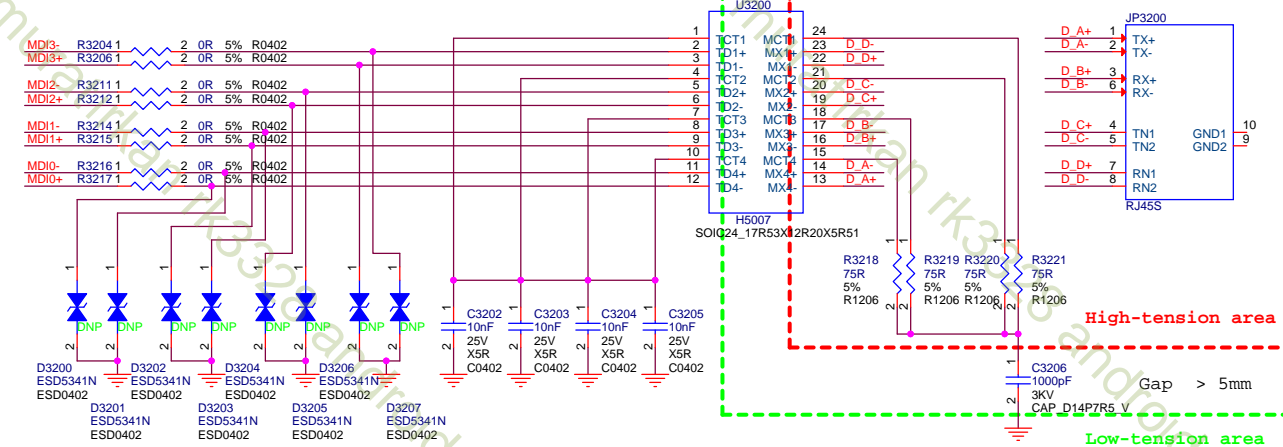
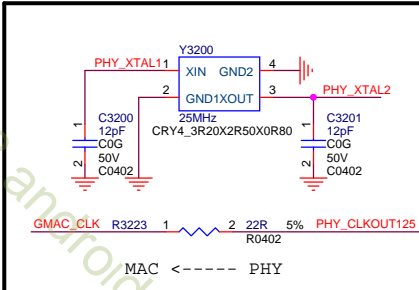
D2901 DNP
ESD5451N
ESD0402
D2902 DNP
ESD5451N
ESD0402
D2903 DNP
ESD5451N
ESD0402

AV OUT

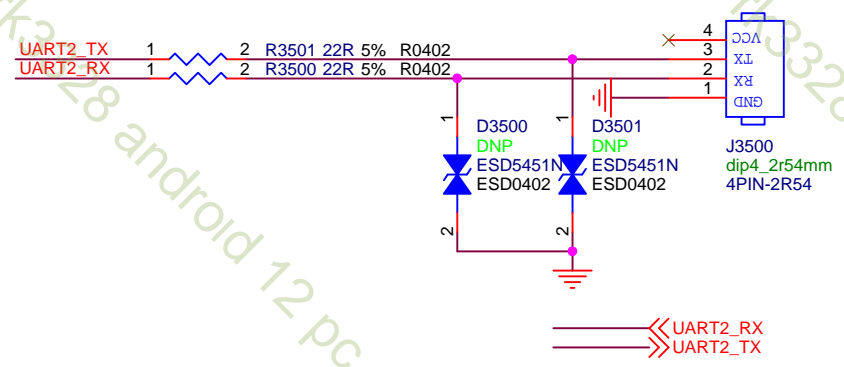



2-Vrms Audio Line Driver

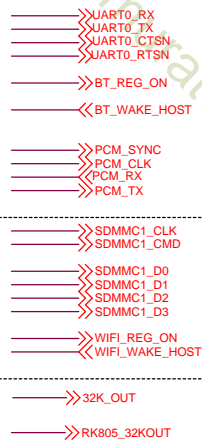
 瑞芯微电子		Fuzhou Rockchip Electronics	
Project:	RK3328_BOX_REF		
File:	AV OUT Port		
Date:	Tuesday, March 07, 2017	Rev:	V1.0
Designed by:	Zhangdz	Sheet:	23 of 29



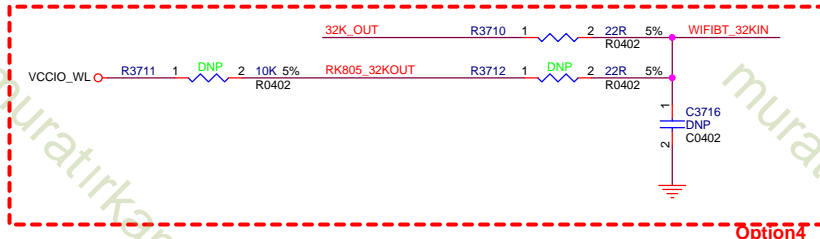
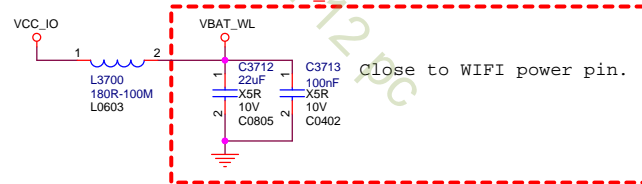
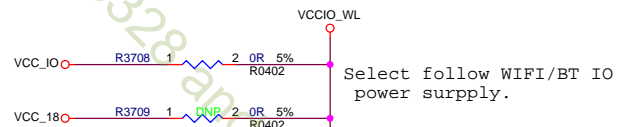
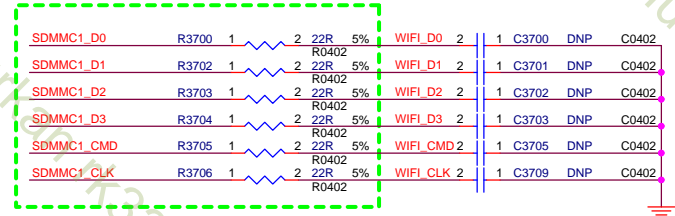
Debug UART2



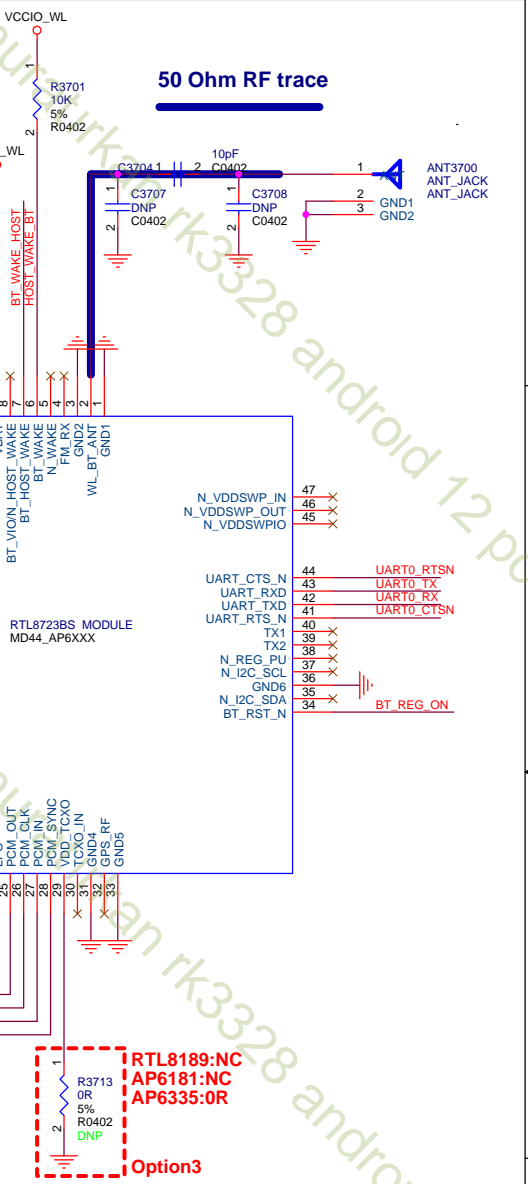
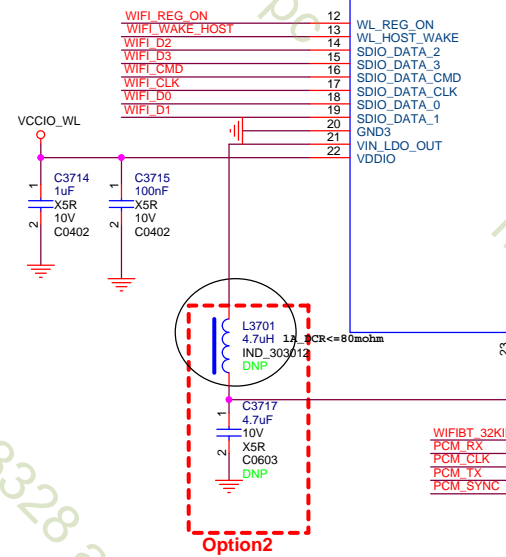
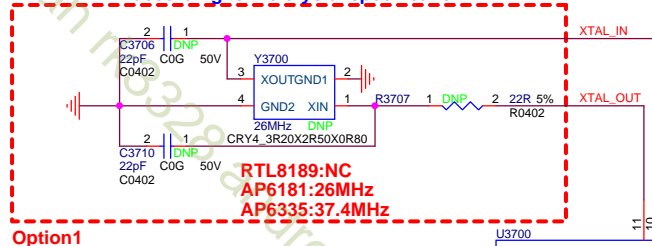
 瑞芯微电子		Fuzhou Rockchip Electronics	
Project:	RK3328_BOX_REF		
File:	Debug UART2/JTAG		
Date:	Friday, February 24, 2017	Rev:	V1.0
Designed by:	<designer>	Sheet:	26 of 29



请靠近CPU放置。



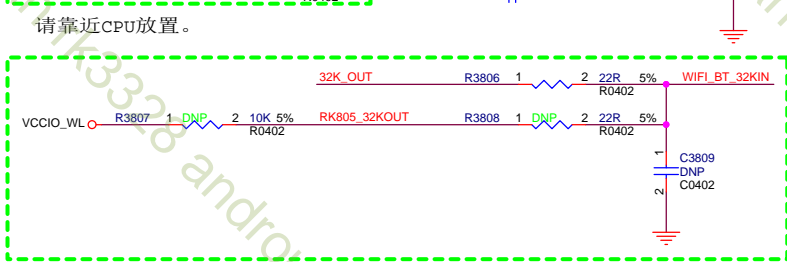
Note:
Adjusted the load capacitance according to the crystal specification.



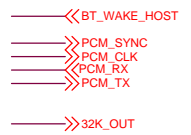
1X1 WIFI
 AP6181/AP6212/AP6330/AP6335/RTL8189FTV
 RTL8723BS/XZ3538/XZ3660

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 MODULE	No	Yes	No	No	No	40MHz On the module	3.3V
RTL8723BS	No	Yes	No	No	Yes		1.71-3.63V

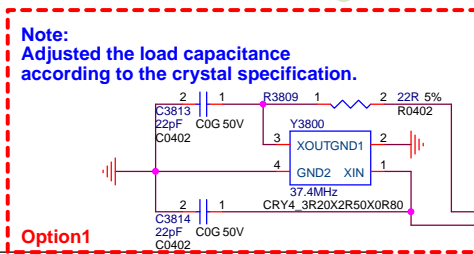
OPTION	1	2	3	4	5
AP6181	Yes	Yes	No	Yes	
AP6212	Yes	Yes	No	Yes	
AP6330	Yes	Yes	No	Yes	
AP6335	Yes	Yes	Yes	Yes	
RTL8189FTV MODULE	No	No	No	No	
RTL8723BS	No	No	No	Yes	



请靠近CPU放置。



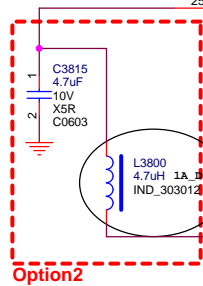
Layout Note:
Crystal away from antenna



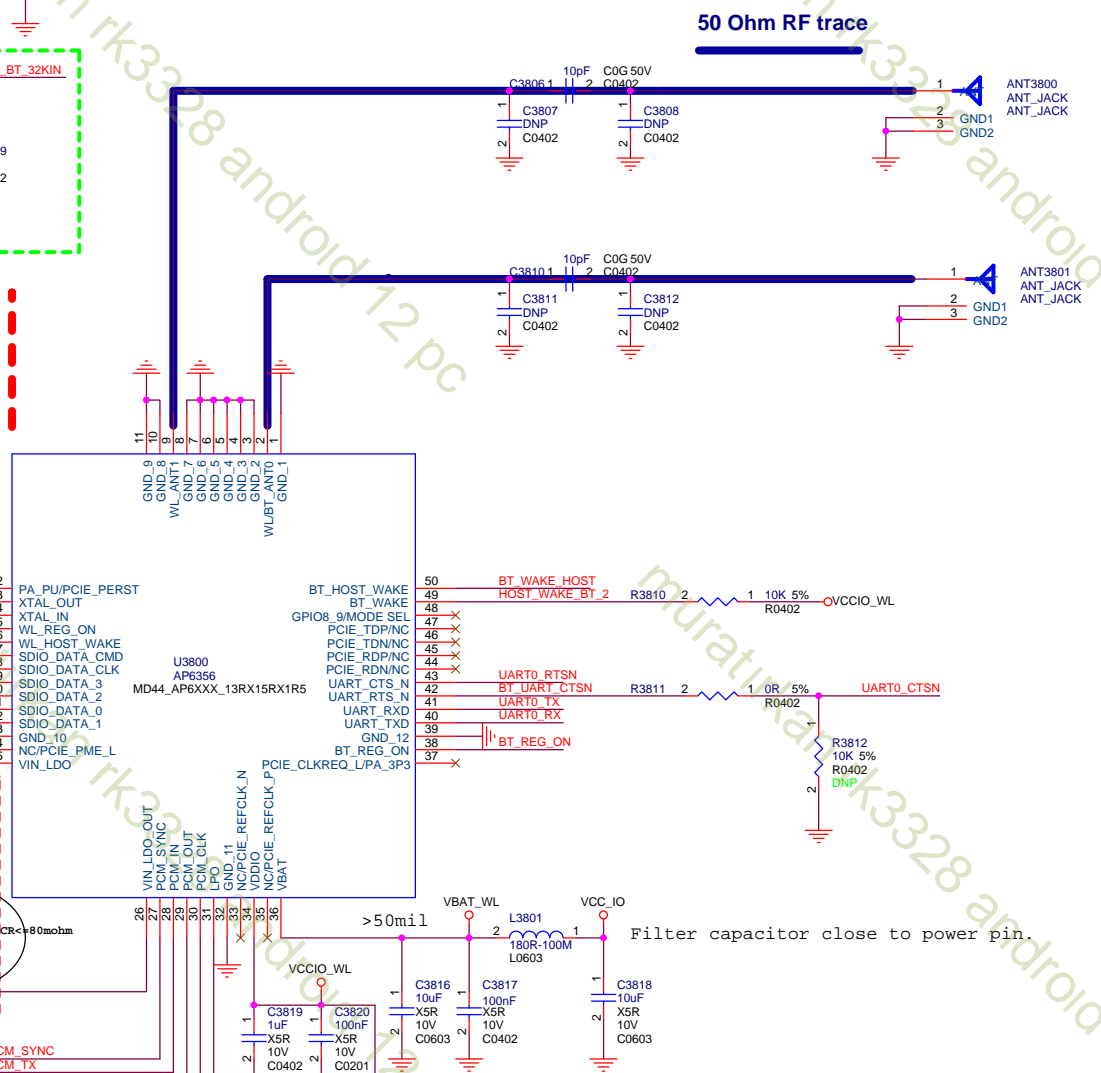
! Option1

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

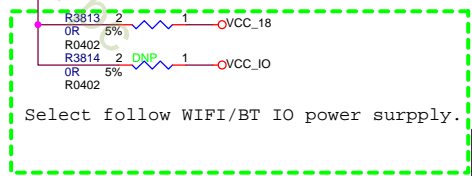


Option2



50 Ohm RF trace

Filter capacitor close to power pin.



```
| Select follow WIFI/BT IO power surpply.
```

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