RK3328

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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

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Version	Date	Author	Change Note	Approved
V1.0	20170309	ZDZ	First edictor	

JETWAY Tech.On The Move	JETWAY INFORMATION CO.,LTD.		
	Title: Change List		
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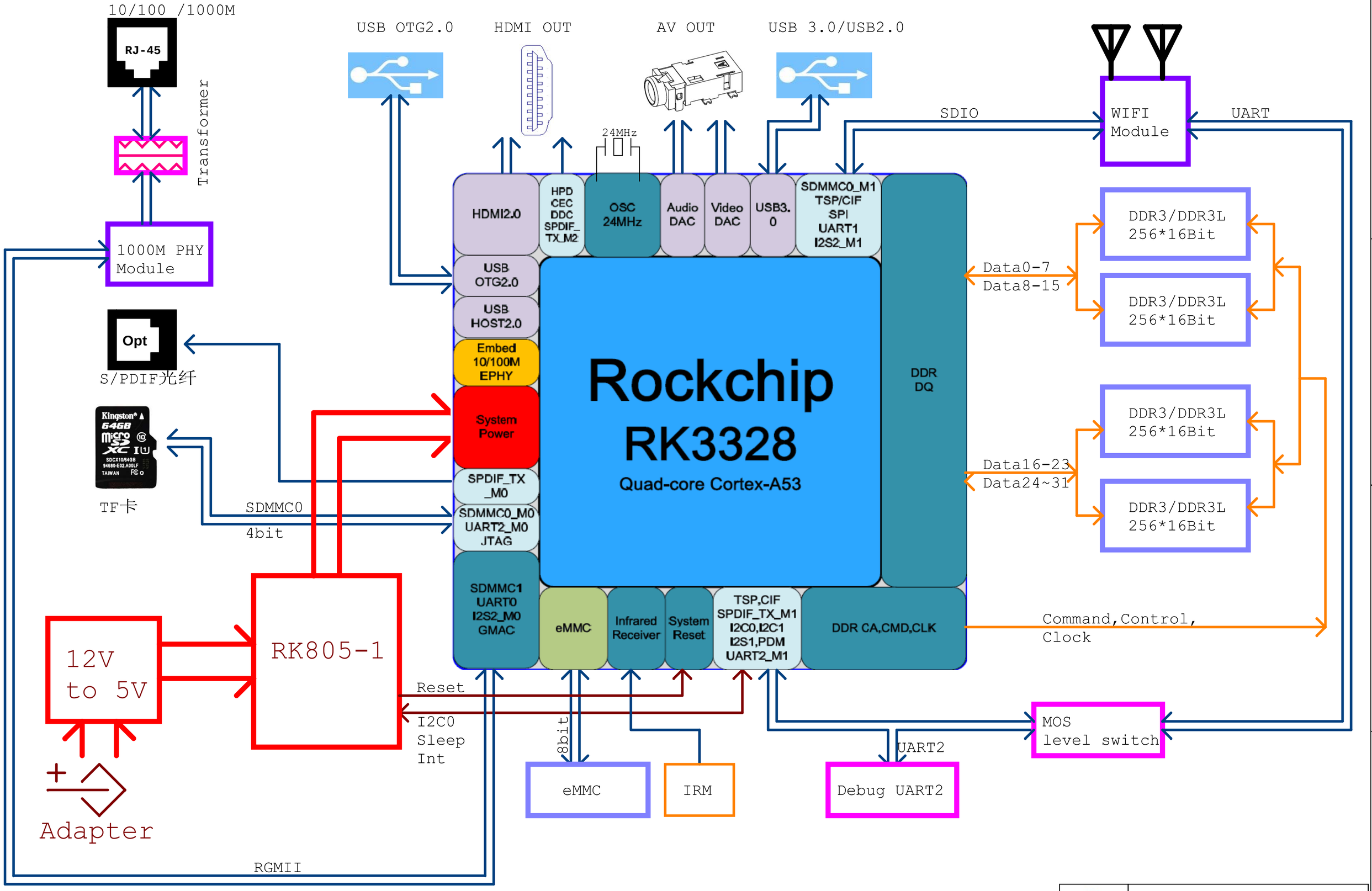

JETWAY INFORMATION CO.,LTD.			
Title: Block Diagram			
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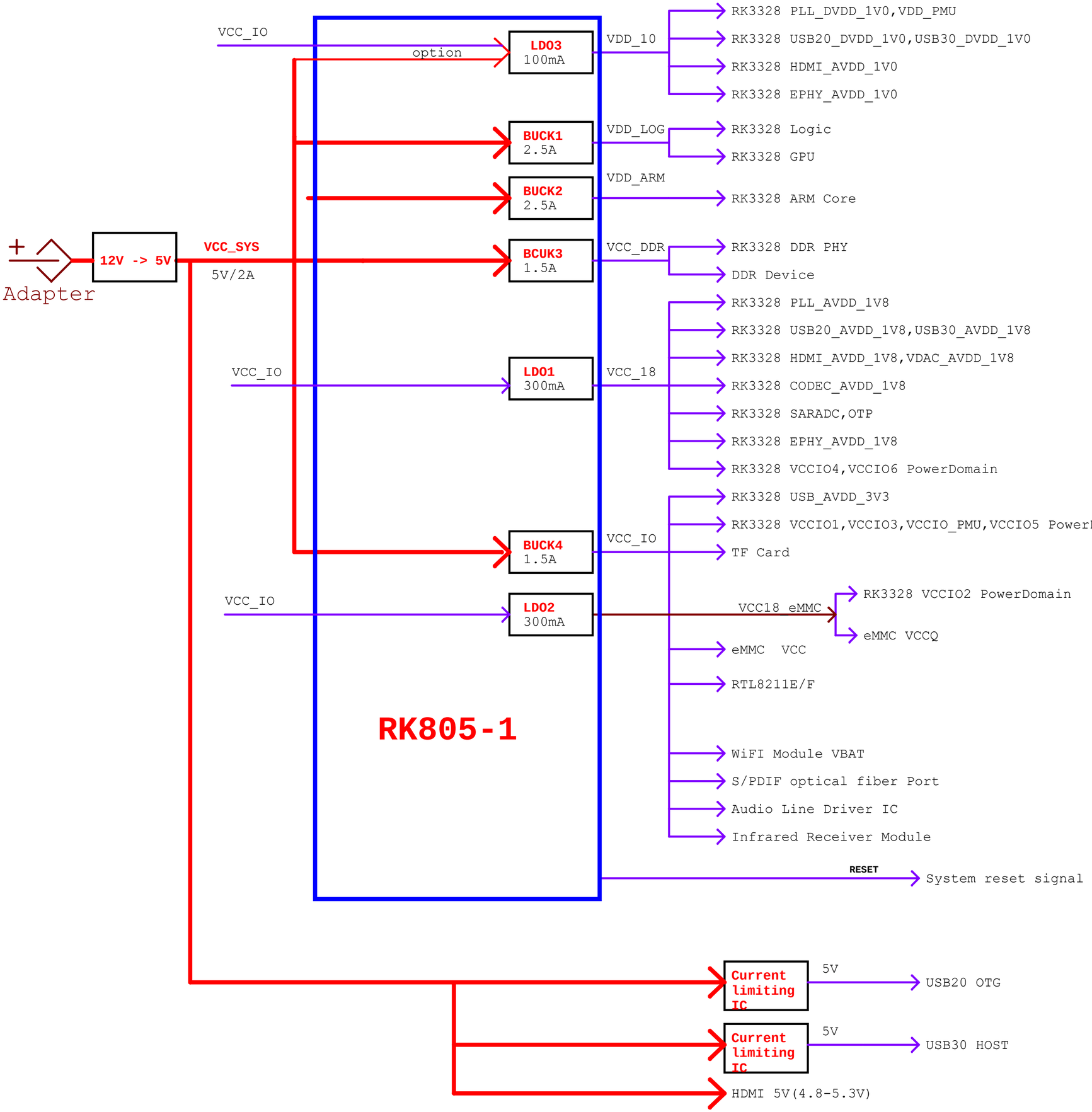

Power Timing

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 eMMC
VCCIO3	3.3V（默认）	
VCCIO4		1.8V
VCCIO5	3.3V（默认）	
VCCIO6		1.8V

RK3328 VCCIO4,VCCIO6 在这个应用里，必须电平是一样的。

JETWAY Tech.Be The Move	JETWAY INFORMATION CO.,LTD.	
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DC12V

CON28
DC+ 1
DET 3
GND 2
POWERIN12V

F700 SMD1210-200 R1210
F11 SMD1210-200 R1210
2017-05-17
DC_12V

C709 100nF X5R 16V C0402
C766 5pF C0G 50V C0402
D705 ESD5621W-2/TR SOD_323 DNP
CM700 100uF/25V MTM-C
C705 10uF X5R 16V C0805
C701 100nF X5R 16V C0402
R704 DNP R0402

R750 1 DNP 2 0R 5% R1206
R701 100K 5% R0402

U702
VIN SW
EN BOOT
GND FBK
FR9881S6
/SY8120/ETA8120
SOT_23_6

C700 100nF X5R 25V C0402
L700 6.8uH IND_606028
C704 DNP C0402
R705 232K 1% R0402
R708 30K 1% R0402

VCC_SYS
Default 5.2V
CM701 100uF/10V MTM-C
C707 10uF X5R 10V C0603
C708 100nF X5R 10V C0402
R706 DNP R0402

VCC_SYS

VCC_SYS
ED700 AZ5825-01F ESD0402 DNP

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

VCC_IO R738 1 2 0R R0402
VCC_SYS R739 1 2 DNP R0402
VDD_10

C715 1uF X5R 10V C0402
C765 1uF X5R 10V C0402
C716 1uF X5R 10V C0402
C717 100nF X5R 10V C0402
Y700 32.768KHz CRY2_6R90X1R40X1R30
R740 DNP 510K 5% R0402
C713 DNP 20pF C0G 50V C0402
C714 DNP 20pF C0G 50V C0402

U701
ePAD LDO3 VCC6 VCCA REFGND VREF XOUT XIN OUT2
33 24 23 22 21 20 19 18 17

Work/Standby
NET_LED

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_32KOUT 25 CLK32K
VCC_IO 26 FB4
SW4 27 SW4
28 VCC4
29 VCC3
SW3 30 SW3
FB3 31 FB3
32 PWRON

OUT1 16
FB1 15
SW1 14
VCC1 13
VCC2 12
SW2 11
FB2 10
RESETB 9

VCC_IO
C756 100nF X5R 10V C0402
C724 22uF X5R 10V C0805
L701 1.0uH IND_252012 2A_DCR<60mohm
VCC_SYS
C755 100nF X5R 10V C0402 DNP
C728 22uF C0805 X5R 10V
VCC_DDR
C757 100nF X5R 10V C0402
C731 22uF X5R 6.3V C0603
L703 1.0uH IND_252012 2A_DCR<60mohm
C735 47pF C0G 50V C0402
R725 100K 1% R0402
R726 110K 1% R0402
R731 10K 1% R0402
PMIC_PWRON
C736 100nF X5R 10V C0402
R657 5% 0 2017-05-26
PMIC_SLEEP
MCU_PWR_EN R656 5% DNP 270K 2017-05-25

EN SLEEP LDO1 VCC5 LDO2 INT SCL SDA
1 2 3 4 5 6 7 8

VCC_18
C739 4.7uF X5R 10V C0603
VCC_IO
C740 1uF X5R 10V C0402
VCC18_EMMC
C741 4.7uF X5R 10V C0603

RK805-1

QFN32_4R00X4R00X0R90_T

VDD_LOG
R716 100R 5% R0402
L702 1.0uH IND_252012 3A_DCR<60mohm
C725 10uF C0603 X5R 6.3V
C726 22uF C0603 X5R 6.3V
C758 100nF C0402 X5R 10V
C729 22uF C0805 X5R
C753 100nF X5R 10V C0402 DNP
VDD_ARM
L704 1.0uH IND_252012 3A_DCR<60mohm
C732 10uF C0603 X5R 6.3V
C733 22uF C0603 X5R 6.3V
C759 100nF C0402 X5R 10V
R724 100R 5% R0402
C737 100nF X5R 10V C0402

FB1 BUCK1 OUT 100R VDD_LOG
电源走线或
铺铜末端反馈
RK3328 Power pin

FB2 BUCK2 OUT 100R VDD_ARM
电源走线或
铺铜末端反馈
RK3328 Power pin

VCC_IO VCC_IO
R728 10K 5% R0402
R729 2.2K 5% R0402
R730 2.2K 5% R0402

RESET
I2C1_SDA_PMIC
I2C1_SCL_PMIC
PMIC_INT

M700 MARK MARK
M701 MARK MARK
M702 MARK MARK

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%

请根据实际选用的DDR颗粒
对应调整电压值.

VCC_DDR

LED DISPLAY

VCC_IR
LED701 LED_GREEN LED0603
R714 120R R0402 5%
Work/Standby
默认=0
R712 33R R0402 5%
LED702 LED_RED LED0603
C750 100nF X5R 10V C0402 DNP

VCC_IR
LED703 LED_RED LED0603
R719 330R R0402 5%
默认=0
NET_LED
C751 100nF X5R 10V C0402 DNP
NET_LED_G
R718 330R 5% R0402
LED704 LED_GREEN LED0603

LED705 LED_RED LED0603
R727 470R 5% R0402
IR_LED_R
C752 100nF X5R 10V C0402 DNP
M703 MARK MARK
M704 MARK MARK
M705 MARK MARK

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Title: System Power-PMIC RK805-1
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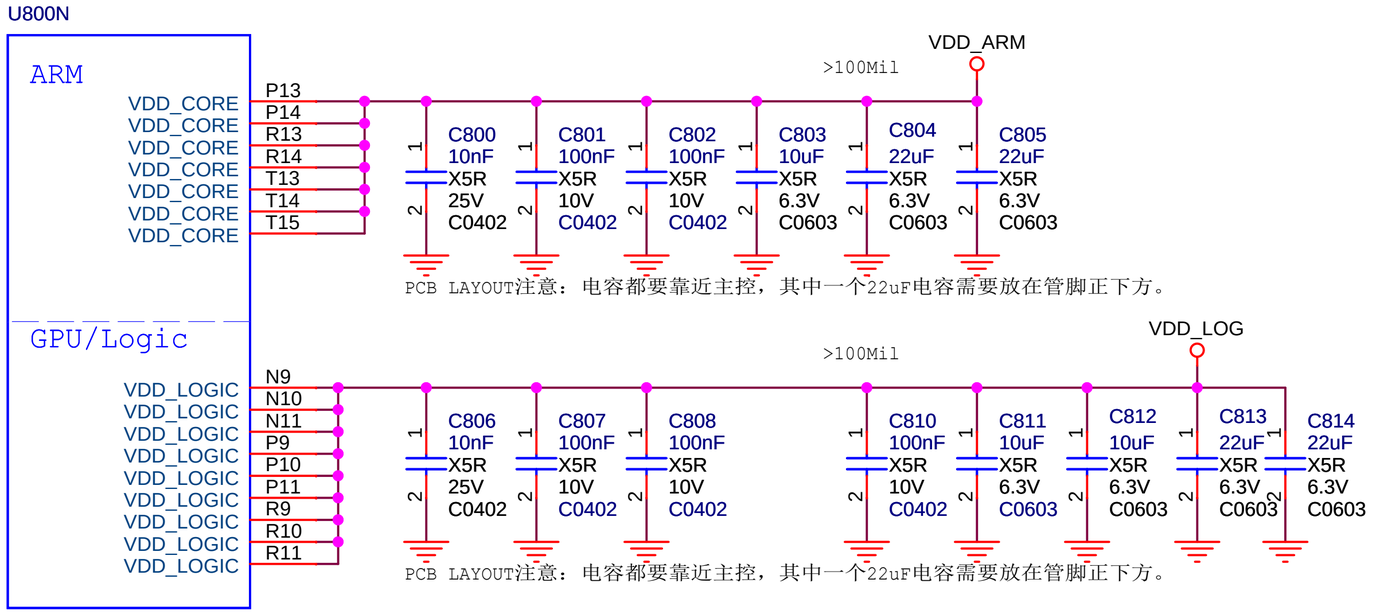

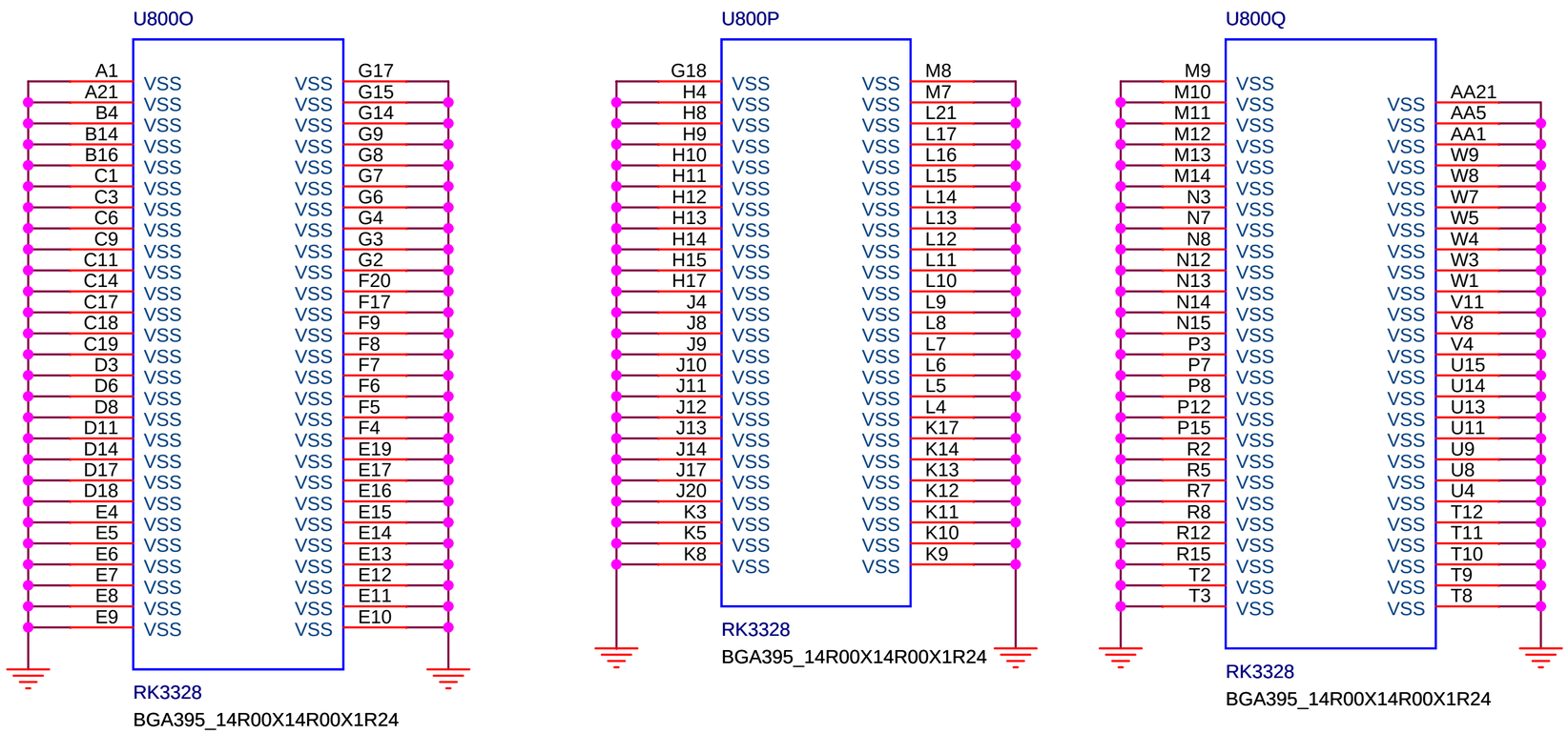

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Title: RK3328 Power

Size	Document Number	Rev
A4	RK3328_BOX_Demo3	1.0

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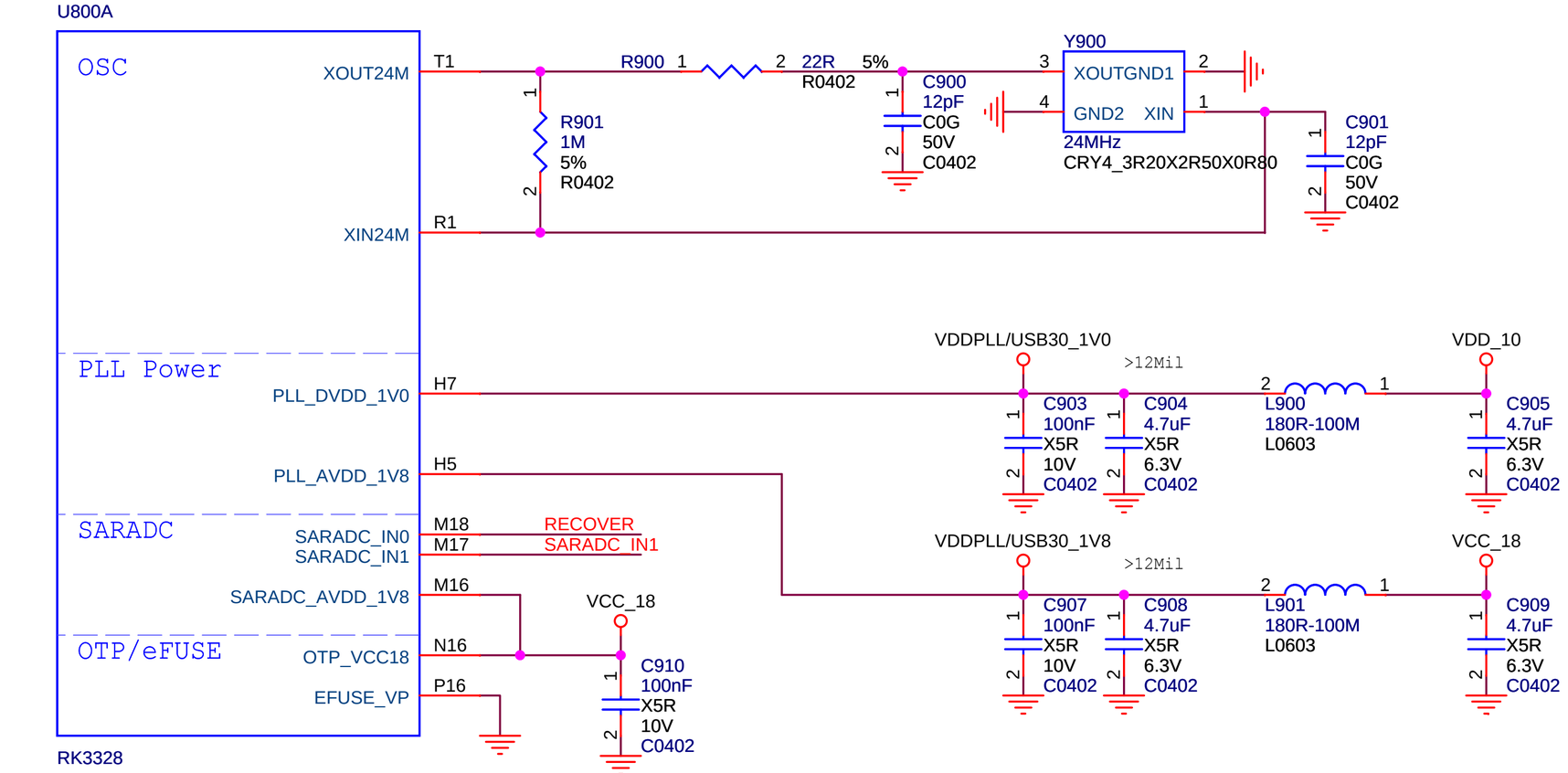

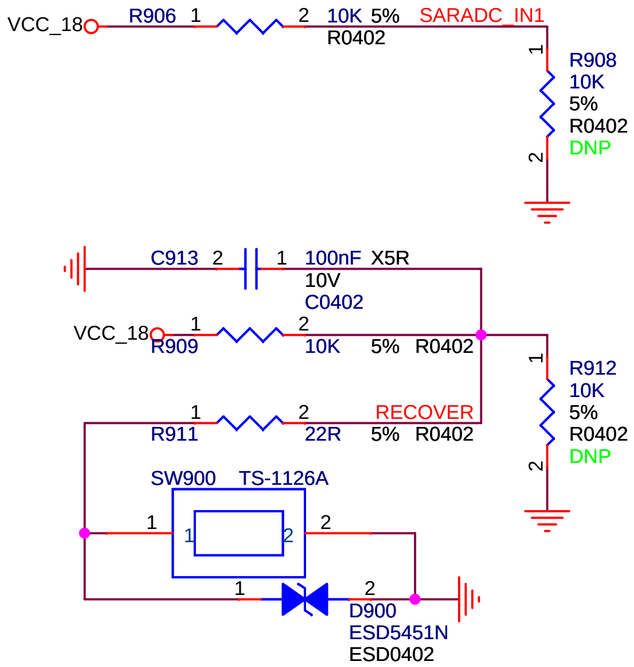

SARADC_IN0 BOM版本	SARADC_IN1 PCB版本	Up阻值	Down阻值	
Recover		DNP	10K	
BOM1		110K	10K	
BOM2		100K	20K	
BOM3		100K	33K	
BOM4		36K	18K	
BOM5		51K	36K	
BOM6		51K	51K	
BOM7		36K	51K	
BOM8		18K	36K	
BOM9		33K	100K	
BOM10		20K	100K	
BOM11		10K	110K	
BOM12		10K	DNP	

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Title: RK3328 OSC/PLL/OTP/SARADC

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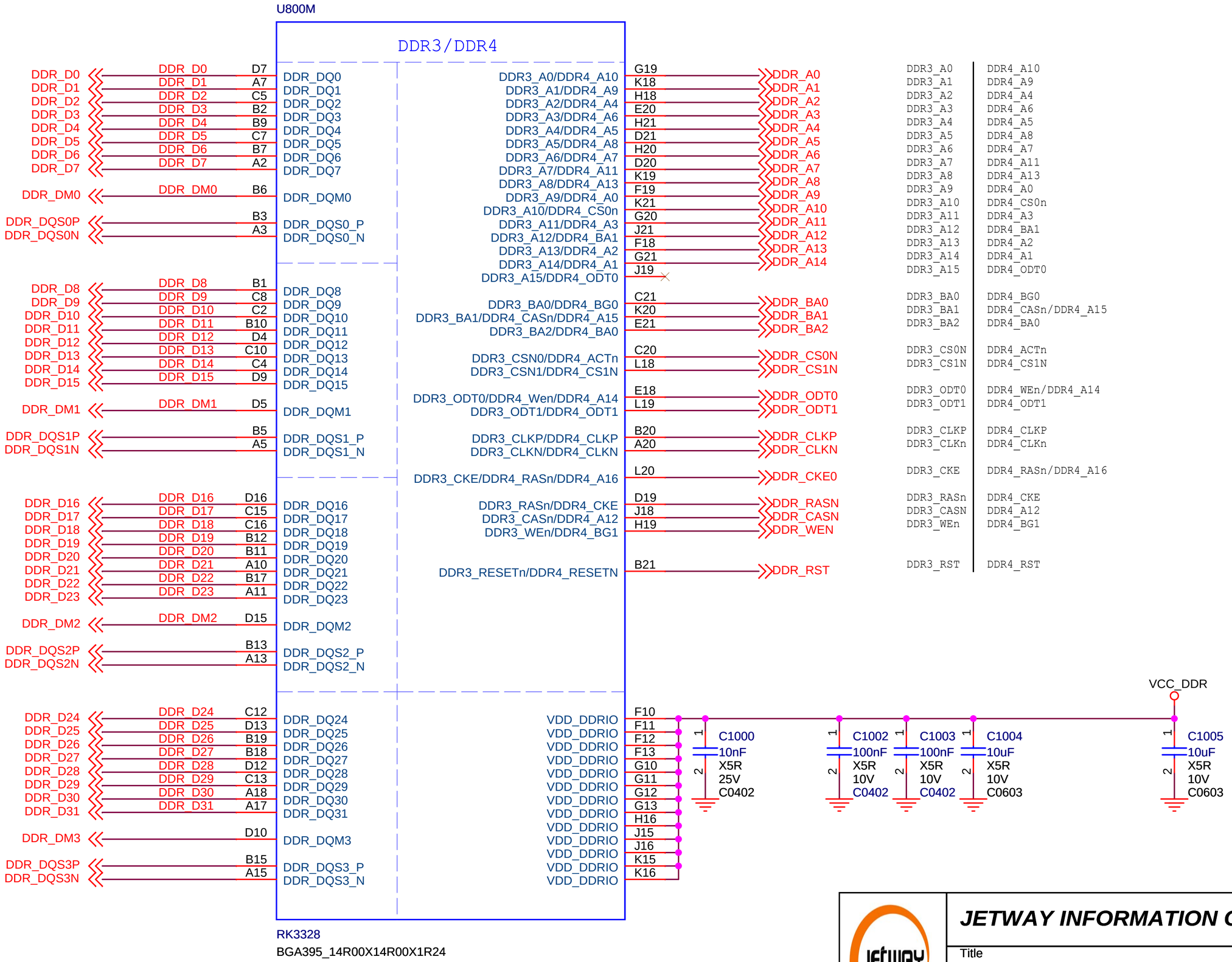

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Title: RK3328 DDR Controler

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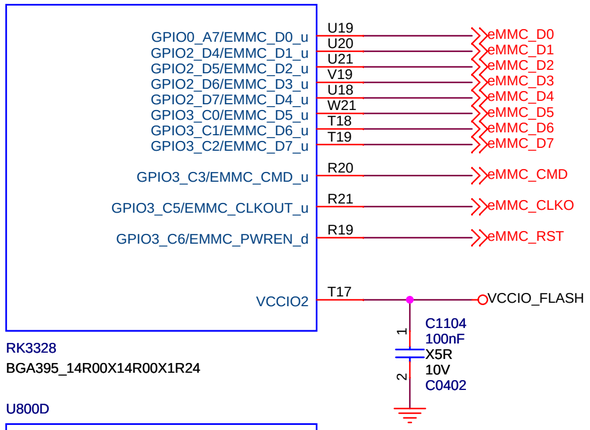
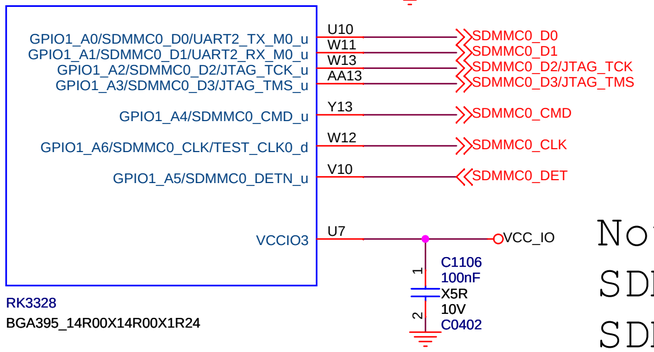
U800C



RK3328

BGA395_14R00X14R00X1R24

U800D



RK3328

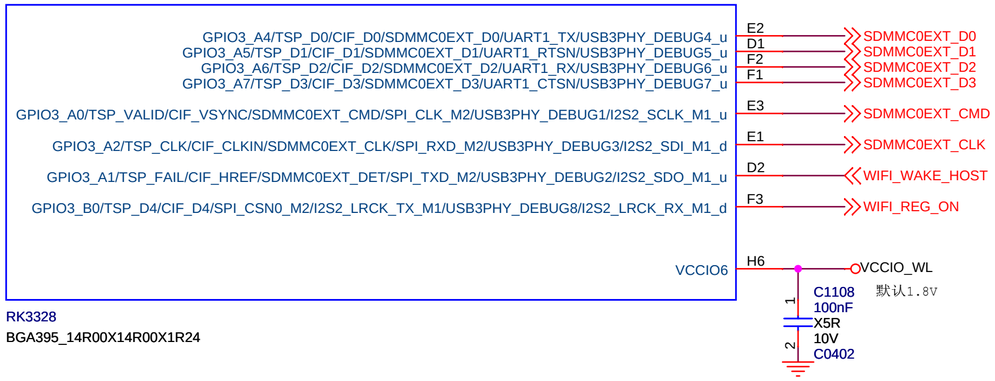
BGA395_14R00X14R00X1R24

Note:

SDMMC0支持SD Boot

SDMMC0EXT不支持SD Boot

U800G



RK3328

BGA395_14R00X14R00X1R24

Note:

布局时，要优先考虑SDMM0EXT走线尽量短

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U800K

USB2.0

USB0_DM Y6 — OTG20_DM
USB0_DP AA6 — OTG20_DP
USB20_VBUS T6 — VCC_IO
USB1_DM Y7 — HUB0_DM1
USB1_DP AA7 — HUB0_DP1
USB20_EXTR W6 — R1200 1 2 133R 1% R0402
USB20_AVDD_3V3 T5
USB20_AVDD_1V8 U5
USB20_DVDD_1V0 V5

VCC_IO
C1200 100nF X5R 10V C0402

USB20/FEPHY_1V8
C1202 100nF X5R 10V C0402
C1203 4.7uF X5R 6.3V C0402

L1201 180R-100M L0603
VCC_18
C1204 4.7uF X5R 6.3V C0402

USB20/FEPHY_1V0
C1205 100nF X5R 10V C0402
C1206 4.7uF X5R 6.3V C0402

L1202 180R-100M L0603
VDD_10
C1207 4.7uF X5R 6.3V C0402

RK3328
BGA395_14R00X14R00X1R24

U800L

USB3.0

USB30_RXP J2 — USB30_RXP
USB30_RXN J3 — USB30_RXN
USB30_TXP H3 — USB30_TXP
USB30_TXN H2 — USB30_TXN
USB30_DM K2 — USB30_DM
USB30_DP K1 — USB30_DP
USB30_VBUS K7 — VCC_IO
USB30_EXTR G5 — R1205 1 2 2K 1% R0402
USB30_AVDD_3V3 J6
USB30_AVDD_1V8 J5
USB30_DVDD_1V0 J7

VCC_IO
C1209 100nF X5R 10V C0402

VDDPLL/USB30_1V8
C902 100nF X5R 10V C0402

VDDPLL/USB30_1V0
C906 100nF X5R 10V C0402

L1203 180R-100M L0603
VDD_LOG

RK3328
BGA395_14R00X14R00X1R24

JETWAY INFORMATION CO.,LTD.

Title: RK3328 USB2 PHY/USB3 PHY

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U800F

NPOR_u — P21 — RESET
C1300 1 — 2 100nF X5R 10V C0402

TEST_d — M15

GPIO2_B4/SPI_CSN1_M0/FLASH_VOL_SEL_u — T16 — VCC_IO
Flash_vol_sel接高，emmc io默认1.8V IO

GPIO2_A3/EFUSE_PWREN/POWERSTATE3_u — U17 — DC5V_EN
2017-05-17

GPIO2_D1/I2C0_SDA/FEPHY_LED_DATA_M1_u — R17
GPIO2_D0/I2C0_SCL/FEPHY_LED_LINK_M1_u — P17 — PWR_KEY
2017-05-25

GPIO2_B7/I2S1_MCLK/TSP_SYNC_M1/CIF_CLKOUT_M1_d — N18 — NET_LED_G

GPIO2_C2/I2S1_SCLK/PDM_CLK_M0/TSP_D7_M1/CIF_D7_M1_d — R18 — IR_LED_R

GPIO2_C1/I2S1_LRCK_TX/SPDIF_TX_M1/TSP_D6_M1/CIF_D6_M1_u — P18 — EPHY_RST_3V3IO
GPIO2_C0/I2S1_LRCK_RX/TSP_D5_M1/CIF_D5_M1_u — V15

GPIO2_C7/I2S1_SDO/PDM_FSYNC_M0_u — N17
GPIO2_C4/I2S1_SDIO1/PDM_SDI1_M0/CARD_RST_M1_u — V18 — GPIO2_C4
GPIO2_C5/I2S1_SDIO2/PDM_SDI2_M0/CARD_DET_M1_u — V17 — GPIO2_C5
GPIO2_C6/I2S1_SDIO3/PDM_SDI3_M0/CARD_IO_M1_u — V16 — GPIO2_C6
GPIO2_C3/I2S1_SDI/PDM_SDI0_M0/CARD_CLK_M1_u — U16 — GPIO2_C3

GPIO2_D2/USB20_DRV_d — M20 — PMIC_SLEEP
GPIO2_A4/PWM0/I2C1_SDA_u — N19 — I2C1_SDA_PMIC
GPIO2_A5/PWM1/I2C1_SCL_u — N20 — I2C1_SCL_PMIC
GPIO2_A6/PWM2_u — M19 — PMIC_INT

GPIO2_A2/IR_RX/POWERSTATE2_u — M21 — IR_RX

GPIO2_A1/UART2_RX_M1/POWERSTATE1_u — P20 — UART2_RX
GPIO2_A0/UART2_TX_M1/POWERSTATE0_d — P19 — UART2_TX

VCCIO5 — R16 — VCC_IO
C1302 100nF X5R 10V C0402

RK3328
BGA395_14R00X14R00X1R24

RESET — R1301 DNP — 2 22R 5% — R0402 — SW1301 RESET_key — D1301 ESD5451N ESD0402 DNP

U800E

GPIO1_B0/UART0_RX/GMAC_TXD1_M1_u — Y15 — GMAC_TXD1
GPIO1_B1/UART0_TX/GMAC_TXD0_M1_u — AA15 — GMAC_TXD0
GPIO1_B2/UART0_RTSN/GMAC_RXD1_M1_d — W14 — GMAC_RXD1
GPIO1_B3/UART0_CTSN/GMAC_RXD0_M1_d — V13 — GMAC_RXD0

GPIO1_B4/SDMMC1_CLK/GMAC_TXCLK_M1_d — AA20 — GMAC_TXCLK
GPIO1_B5/SDMMC1_CMD/GMAC_RXCLK_M1_u — Y20 — GMAC_RXCLK
GPIO1_B6/SDMMC1_D0/GMAC_RXD3_M1_u — W19 — GMAC_RXD3
GPIO1_B7/SDMMC1_D1/GMAC_RXD2_M1_u — W18 — GMAC_RXD2
GPIO1_C0/SDMMC1_D2/GMAC_TXD3_M1_u — AA19 — GMAC_TXD3
GPIO1_C1/SDMMC1_D3/GMAC_TXD2_M1_u — Y19 — GMAC_TXD2

GPIO1_C2/SDMMC1_PWREN/GMAC_CRS_M1_d — W20 — STANDBY_MCU
GPIO1_C3/SDMMC1_DET/GMAC_MDIO_M1/PDM_FSYNC_M1_u — Y21 — GMAC_MDIO

GPIO1_C5/I2S2_MCLK/GMAC_CLK_M1_d — W15 — GMAC_CLK
GPIO1_C6/I2S2_SCLK_M0/GMAC_RXDV_M1/PDM_CLK_M1_u — W16 — GMAC_RXDV
GPIO1_C7/I2S2_LRCK_TX_M0/GMAC_MDC_M1/PDM_SDI0_M1_d — W17 — GMAC_MDC
GPIO1_D2/I2S2_LRCK_RX_M0/CLKOUT_GMAC_M2/PDM_SDI3_M1_d — V12 — BT_WAKE_HOST
GPIO1_D0/I2S2_SDI_M0/GMAC_RXER_M1/PDM_SDI1_M1_d — AA17 — BT_REG_ON
GPIO1_D1/I2S2_SDO_M0/GMAC_TXEN_M1/PDM_SDI2_M1_d — Y17 — GMAC_TXEN

GPIO1_D4/CLK32KOUT_M1_d — V14 — 32K_OUT

VCCIO4 — U12 — VCCIO_PHY
C1301 默认1.8V 100nF X5R 10V C0402

Note:
提供给WIFI/BT使用，
要注意电平是否匹配。
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，那么需要RK805-1提供。

RK3328
BGA395_14R00X14R00X1R24

U800B

GPIO0_A2/CLKOUT_GMAC_M0/SPDIF_TX_M2_d — R3 — USB20_HOST_DRV
GPIO_MUTE_d — N2 — MUTE_CTL
GPIO0_A0/CLKOUT_WIFI_M0_d — L3 — USB30_HOST_DRV

GPIO0_A4/HDMI_HPD_d — U3 — HDMI_HPD

HDMI_CEC_u — V2 — HDMI_CEC
I2C3_SCL/HDMI_SCL_od — V1 — HDMI_SCL
I2C3_SDA/HDMI_SDA_od — V3 — HDMI_SDA

VDD10_HDMI/PMU
VDD_PMU — M5
C1304 100nF X5R 10V C0402

VCC_IO
VCCIO_PMU — K6
C1306 100nF X5R 10V C0402

GPIO0_D3/SPDIF_TX_M0_d — V9 — SPDIF_TX_M0
GPIO0_D6/FEPHY_LED_SPEED10/SDMMC0_PWREN_M1_d — W10 — SDMMC0_PWREN

VCCIO1 — T7 — VCC_IO
C1307 100nF X5R 10V C0402

RK3328
BGA395_14R00X14R00X1R24

PMIC_PWRON — RESET — JP1 — 1 LED1+ — 2 GND — 3 LED2+ — WTB20-03-01

ED47 AVLC5302050 E0402S

VCC_IO — JP2 — 1 3.3V — 2 GPIO7_B4 — 3 GPIO7_B5 — 4 GND — 5 GPIO7_B3 — 6 GPIO7_B6 — JT200-D180-205-002

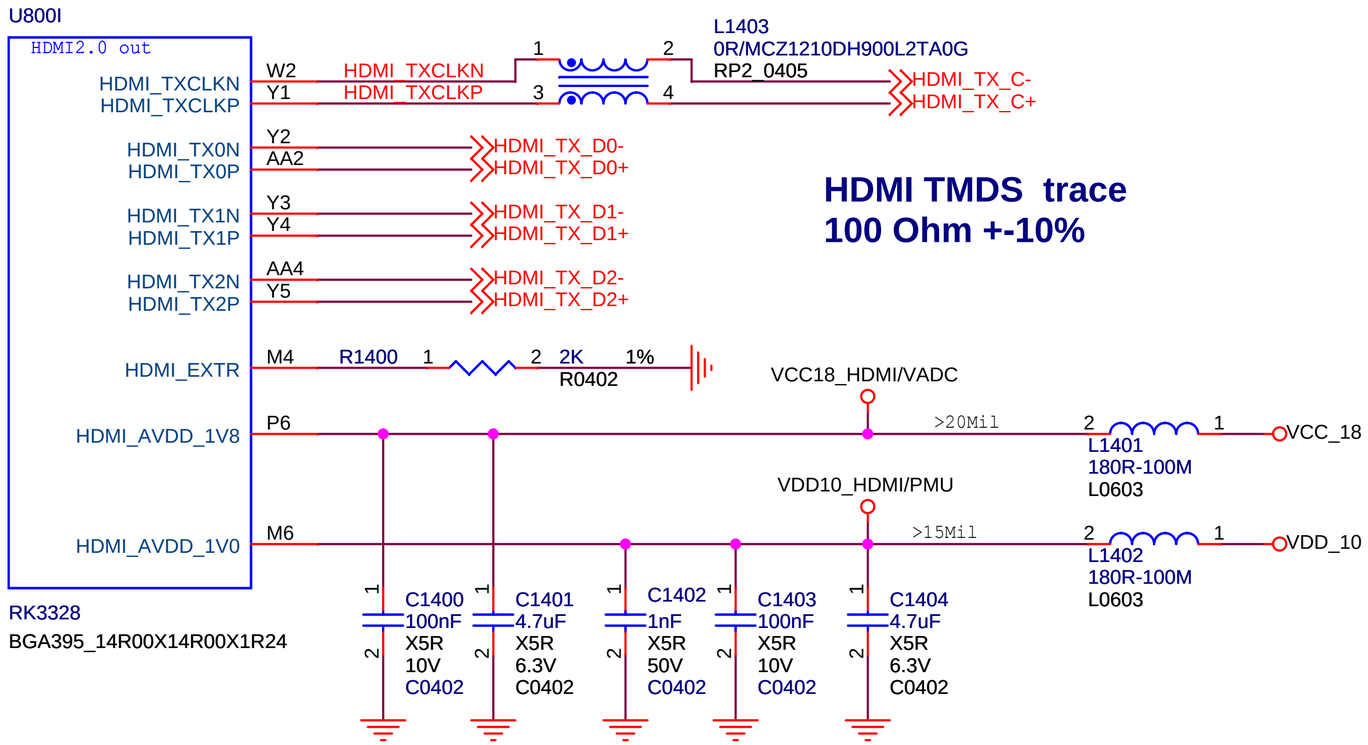
GPIO2_C4 — ED61 AVLC5302050 E0402S
GPIO2_C5 — ED62 AVLC5302050 E0402S
GPIO2_C6 — ED63 AVLC5302050 E0402S
GPIO2_C3 — ED64 AVLC5302050 E0402S

JETWAY INFORMATION CO.,LTD.

Title: RK3328 SDIO/UART/I2C/I2S/IR

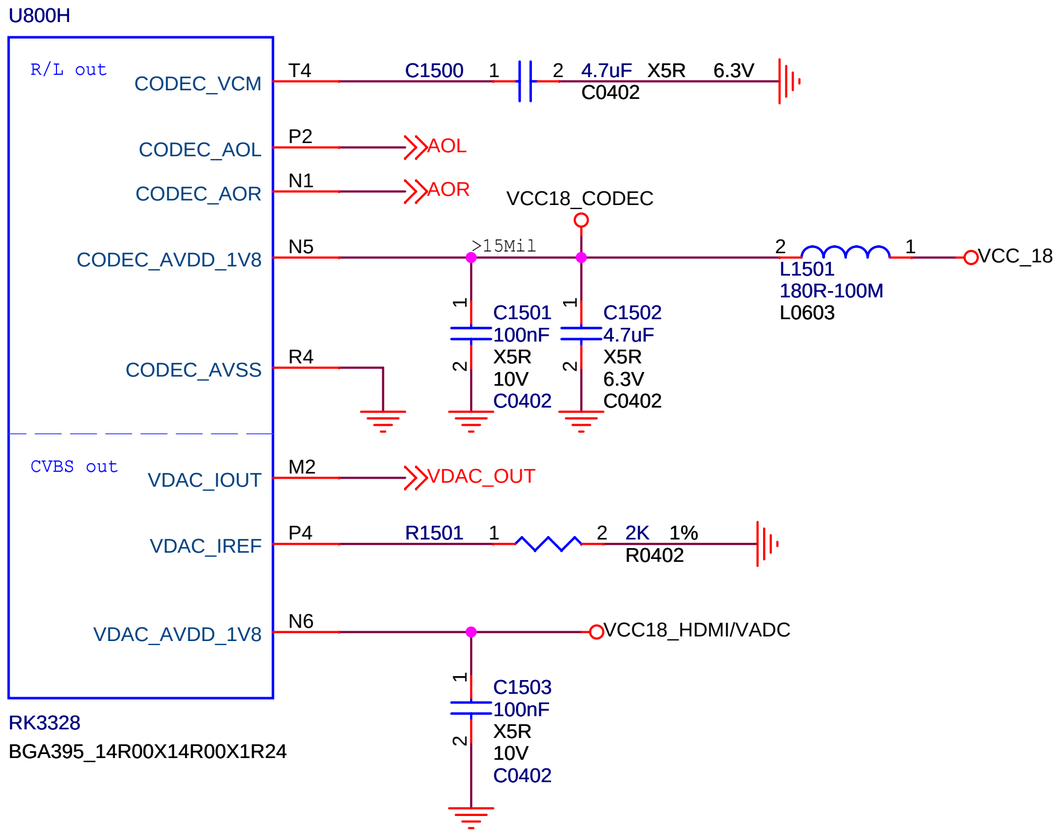
Size: A3 | Document Number: RK3328_BOX_Demo3 | Rev: 1.0

Date: Friday, May 26, 2017 | Sheet 11 of 28



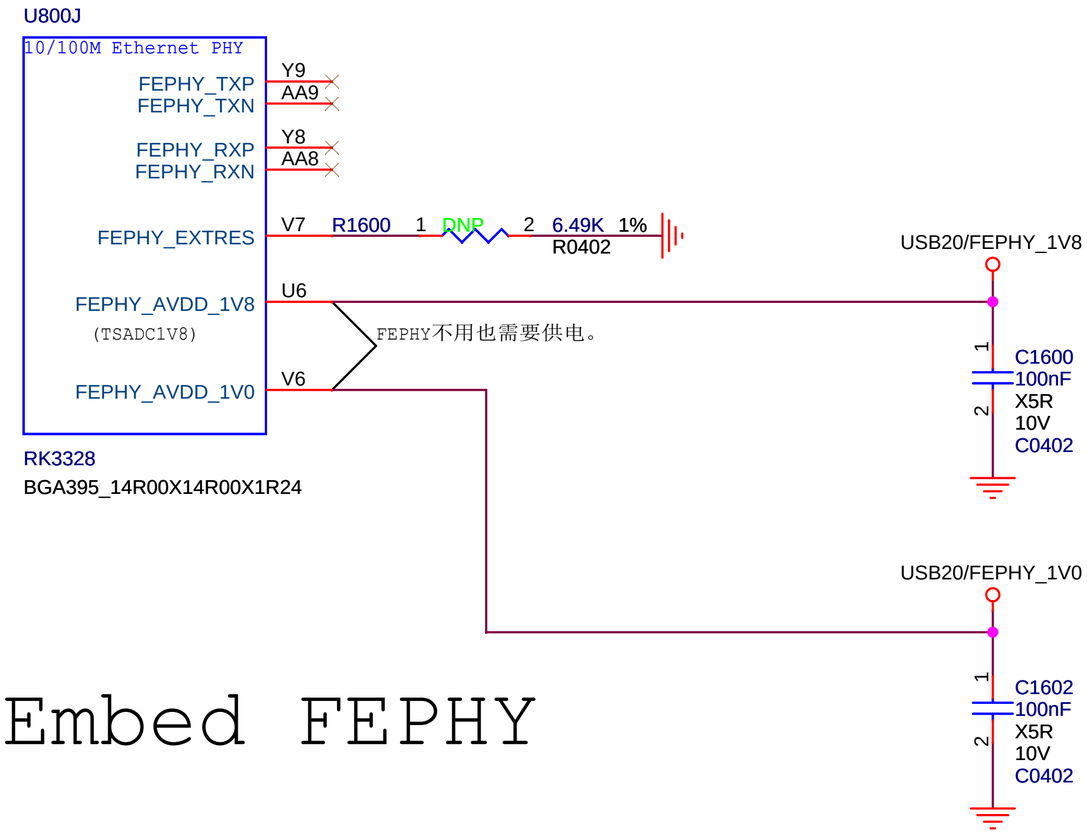
HDMI TMDS trace
100 Ohm +-10%

JETWAY Tech.On The Move	***JETWAY INFORMATION CO.,LTD.***		
	Title: ***RK3328 HDMI PHY***		
	Size: A4	Document Number: ***RK3328_BOX_Demo3***	Rev: 1.0
	Date: Friday, May 26, 2017	Sheet 12 of 28	



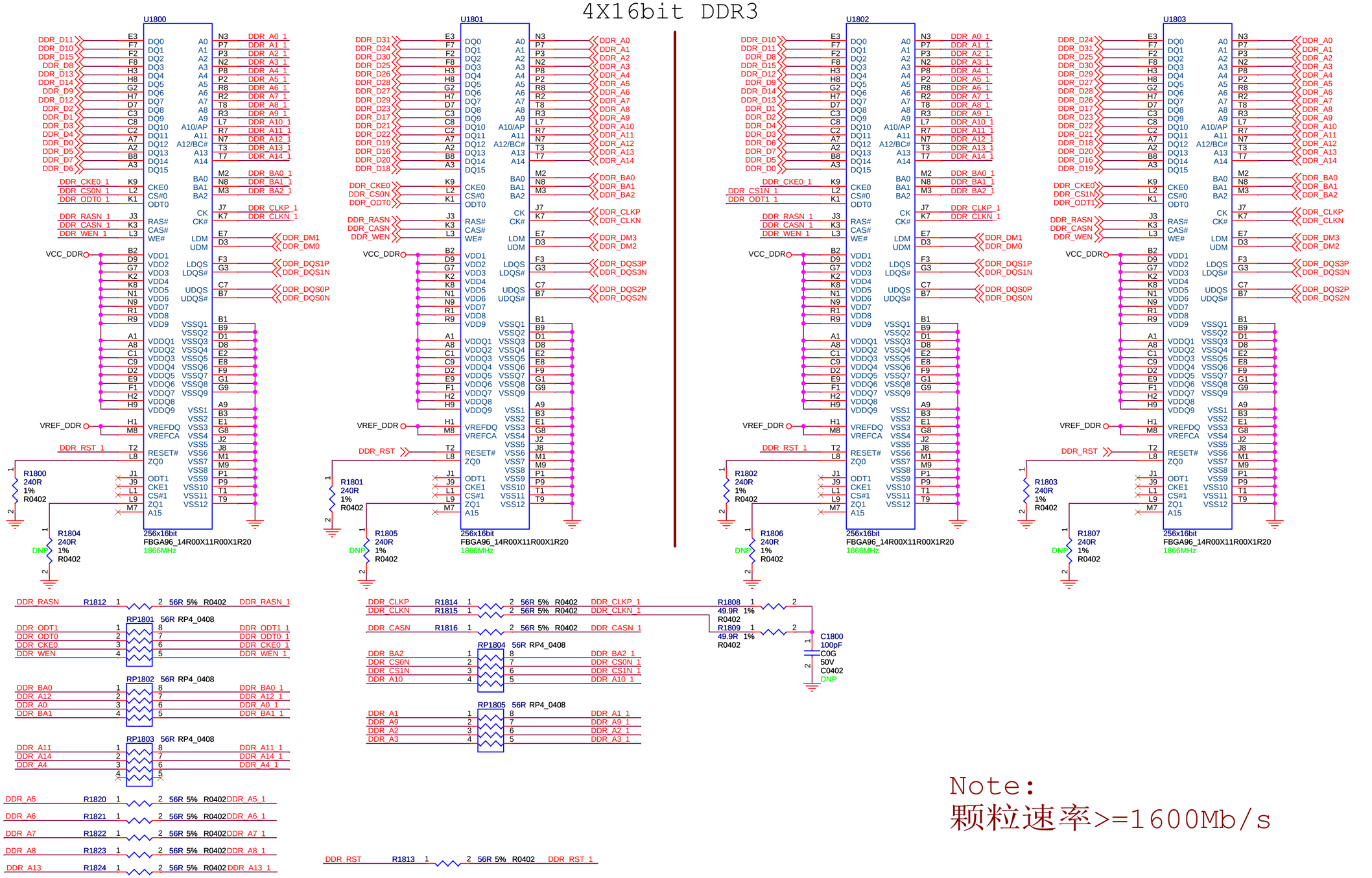
JETWAY Tech.On The Move	JETWAY INFORMATION CO.,LTD.		
	Title: RK3328 AV Interface		
	Size: A4	Document Number: RK3328_BOX_Demo3	Rev: 1.0
	Date: Friday, May 26, 2017	Sheet 13 of 28	

Embed FEPHY



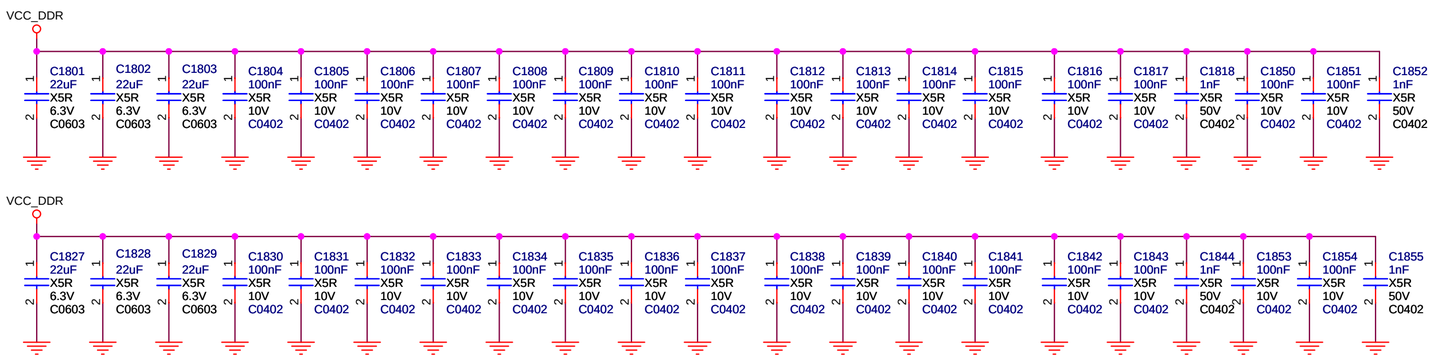
JETWAY INFORMATION CO.,LTD.			
Title: RK3328 FEPHY			
Size: A4	Document Number: RK3328_BOX_Demo3		Rev: 1.0
Date: Friday, May 26, 2017		Sheet 14 of 28	

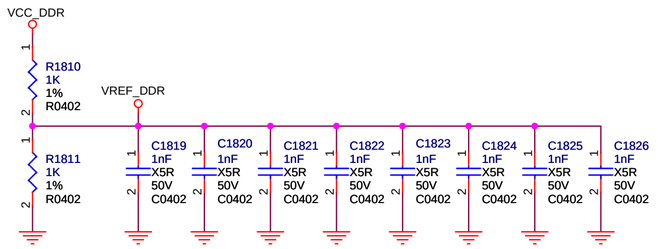
4X16bit DDR3



Note:
颗粒速率>=1600Mb/s

DDR3 FILTER





JETWAY Tech.On The Move	JETWAY INFORMATION CO.,LTD.	
	Title: RAM DDR3 4x16bit	
	Size: Custom	Document Number: RK3328_BOX_Demo3
	Date: Friday, May 26, 2017	Sheet 15 of 28

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

VCC_IO
VCC_SD
R2100 1 2 0R 5% R0402
C2100 100nF X5R 10V C0402 DNP
Q2100 WPM2015-3/TR SOT_23 DNP
D2100 ESD5451N ESD0402 DNP
R2101 10K 5% R0402 DNP
SDMMC0_PWREN 1 DNP 2 R2102 10K 5% R0402
R2103 100K 5% R0402 DNP

VCC_SD
SDMMC0_D2/JTAG_TCK 1 2 R2106 22R 5% R0402
SDMMC0_D3/JTAG_TMS 1 2 R2104 22R 5% R0402
SDMMC0_CMD 1 2 R2105 22R 5% R0402
SDMMC0_CLK 1 2 R2107 22R 5% R0402
SDMMC0_D0 1 2 R2108 22R 5% R0402
SDMMC0_D1 1 2 R2109 22R 5% R0402
SDMMC0_DET 1 2 R2110 22R 5% R0402

C2101 100nF X5R 10V C0402
C2102 10uF X5R 10V C0603
Close to TF

D2101 ESD5471X ESD0402
D2102 ESD5471X ESD0402
D2103 ESD5471X ESD0402
D2104 ESD5471X ESD0402
D2105 ESD5471X ESD0402
D2106 ESD5471X ESD0402
D2107 ESD5471X ESD0402

J2100 TF_SD_SOCKET TF-CARD-PUSH
1 DATA2
2 CD/DATA3
3 CMD
4 VDD
5 CLK
6 VSS
7 DATA0
8 DATA1
9 CD
G1 G2 G3 G4 10 11 12 13

TF Card

JETWAY INFORMATION CO.,LTD.		
Title: TF/SD Card		
Size: A4	Document Number: RK3328_BOX_Demo3	Rev: 1.0
Date: Friday, May 26, 2017	Sheet 16 of 28	

Note:
22R电阻必须靠近CPU放置

VCCIO_FLASH

R2301 10K 1 2 5% R0402 eMMC_D0 H3
R2321 1 DNP 2 10K 5% R0402 eMMC_D1 H4
R2322 1 DNP 2 10K 5% R0402 eMMC_D2 H5
R2323 1 DNP 2 10K 5% R0402 eMMC_D3 J2
R2324 1 DNP 2 10K 5% R0402 eMMC_D4 J3
R2325 1 DNP 2 10K 5% R0402 eMMC_D5 J4
R2326 1 DNP 2 10K 5% R0402 eMMC_D6 J5
R2327 1 DNP 2 10K 5% R0402 eMMC_D7 J6
R2316 1 2 10K 5% R0402 eMMC_CMD W5
eMMC_CLKO R2318 1 2 22R 5% R0402 eMMCCLK W6
VCCIO_FLASH R2319 1 DNP 2 4.7K 5% R0402 eMMC_RST U5

U2300A

DATA0 DATA1 DATA2 DATA3 DATA4 DATA5 DATA6 DATA7
CMD
CLK
RST_n
VDDi
RCLK
VSF1 VSF2 VSF3 VSF4

VCCQ1 VCCQ2 VCCQ3 VCCQ4 VCCQ5 ← AA5 AA3 Y4 W4 K6
VCC1 VCC2 VCC3 VCC4 ← U9 T10 N5 M6
VSS1 VSS2 VSS3 VSS4 VSS5 VSS6 ← U8 R10 P5 M7 H6 T5
VSSQ1 VSSQ2 VSSQ3 VSSQ4 VSSQ5 ← AA6 AA4 Y5 Y2 K4

K2 R5 M9 M10 N10 U10

KLM8G1GEAC-B031
BGA169_18R00X14R00X1R20

C2305 100nF X5R 10V C0402

VCCIO_FLASH
C2301 100nF X5R 10V C0402
C2300 100nF X5R 10V C0402
C2302 100nF X5R 10V C0402
C2312 100nF X5R 10V C0402
R2320 1 2 0R 5% R0402
C2311 4.7uF X5R 10V C0603
VCC18_EMMC

VCC_IO
C2303 100nF X5R 10V C0402
C2304 100nF X5R 10V C0402
C2306 4.7uF X5R 10V C0603

BOOT
SW1
eMMCCLK 1 1 2 2
TS-1126A
TP2300 eMMCCLK
TP2301

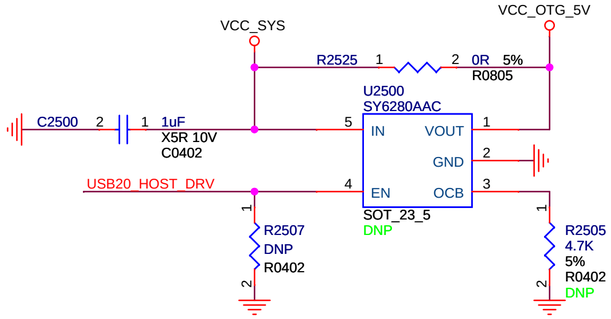
Note:
eMMC Update.

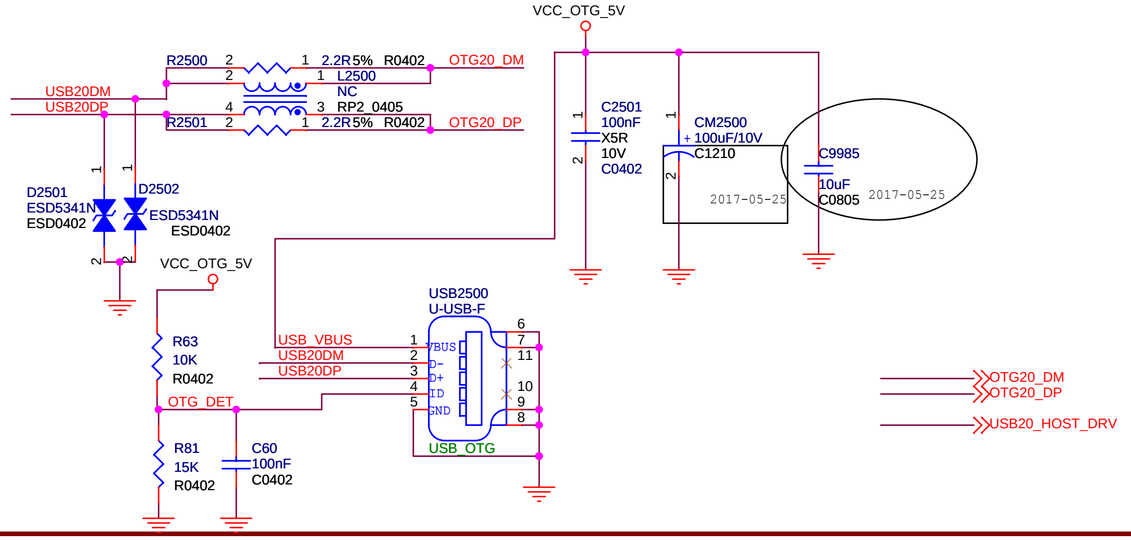
U2300B
KLM8G1GEAC-B031
BGA169_18R00X14R00X1R20

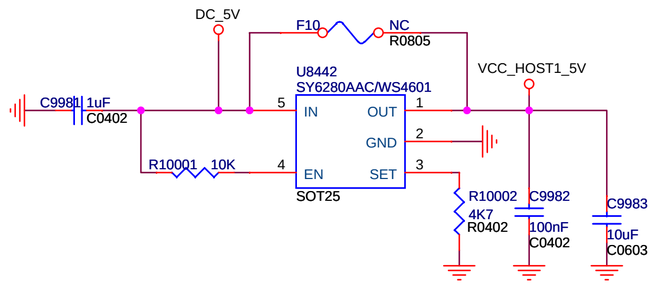
A4 A6 A9 A11 B2 B13 D1 D14 H1 H2 NC0 NC1 NC2 NC3 NC4 NC5 NC6 NC7 NC8 NC9
H7 H8 H9 H10 H11 H12 H13 H14 J1 J7 J8 J9 J10 J11 J12 J13 J14 K1 K3 K5 K7 K8 K9 K10
NC11 NC12 NC13 NC14 NC15 NC16 NC17 NC18 NC19 NC20 NC21 NC22 NC23 NC24 NC25 NC26 NC27 NC28 NC29 NC30 NC31 NC32 NC33 NC34
AH11 AH9 AH6 AH4 AG13 AG2 AE14 AE1 AA14 AA13 AA12 AA11 AA10 AA9 AA8 AA7 AA2 AA1 Y14 Y13 Y12 Y11 Y10 Y9 Y8 Y7 Y6 Y3 Y1 W14 W13 W12 W11 W10 W9
NC138 NC137 NC136 NC135 NC134 NC133 NC132 NC131 NC130 NC129 NC128 NC127 NC126 NC125 NC124 NC123 NC122 NC121 NC120 NC119 NC118 NC117 NC116 NC115 NC114 NC113 NC112 NC111 NC110 NC109 NC108 NC107 NC106 NC105 NC104
NC103 NC102 NC101 NC100 NC99 NC98 NC97 NC96 NC95 NC94 NC93 NC92 NC91 NC90 NC88 NC87 NC85 NC84 NC83 NC82 NC81 NC80 NC78 NC77 NC76 NC75 NC74 NC73 NC71 NC70 NC69
W8 W7 W3 W2 W1 V14 V13 V12 V3 V2 V1 U14 U13 U12 U7 U6 U3 U2 U1 T14 T13 T12 T3 T2 T1 R14 R13 R12 R3 R2 R1
K11 K12 K13 K14 L1 L2 L3 L12 L13 L14 M1 M2 M3 M5 M8 L4 M12 M13 M14 N1 N2 N3 N12 N13 N14 P1 P2 P3 P10 P12 P13 P14
NC35 NC36 NC37 NC38 NC39 NC40 NC41 NC42 NC43 NC44 NC45 NC46 NC47 NC48 NC49 NC86 NC52 NC53 NC54 NC55 NC56 NC57 NC59 NC60 NC61 NC62 NC63 NC64 NC65 NC66 NC67 NC68

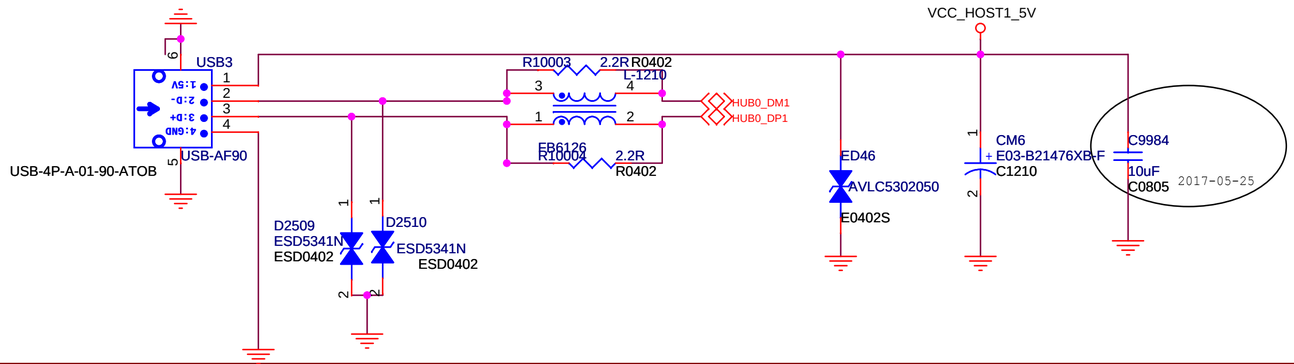
eMMC_D0
eMMC_D1
eMMC_D2
eMMC_D3
eMMC_D4
eMMC_D5
eMMC_D6
eMMC_D7
eMMC_CMD
eMMC_CLKO
eMMC_RST

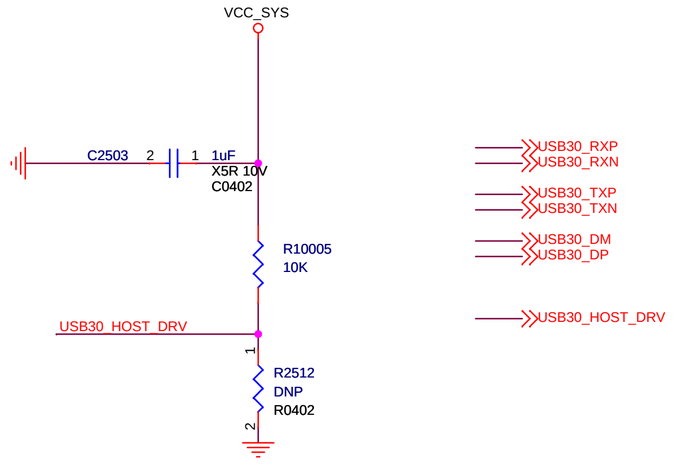
JETWAY Tech.On The Move	JETWAY INFORMATION CO.,LTD.	
	Title: Flash-eMMC	
	Size: A4	Document Number: RK3328_BOX_Demo3 Rev: 1.0
	Date: Friday, May 26, 2017	Sheet 17 of 28



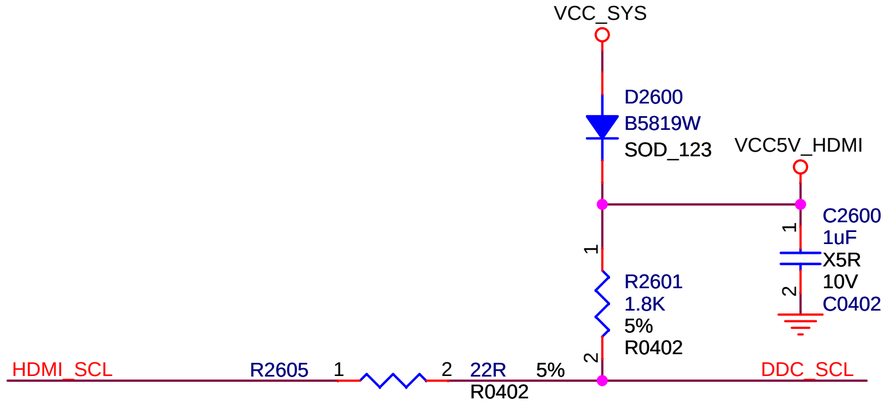


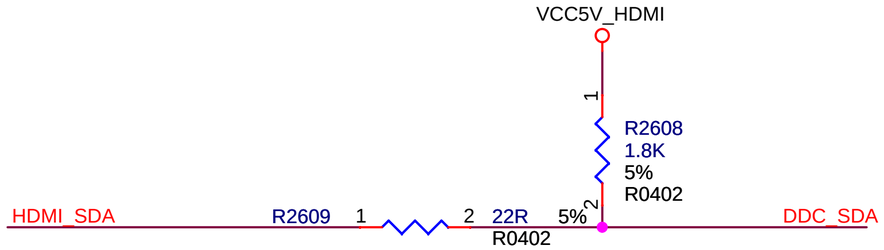


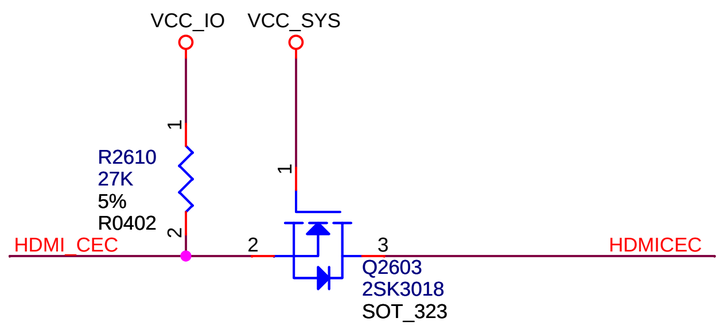


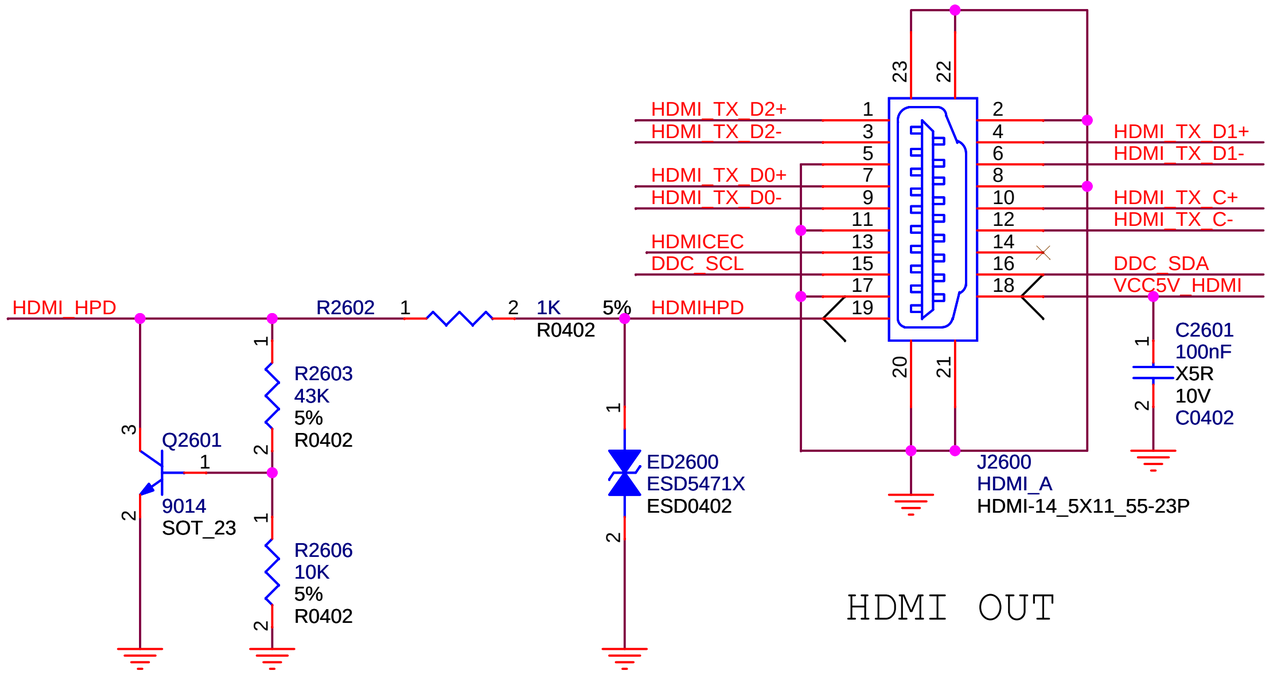


JETWAY INFORMATION CO.,LTD.			
Title: USB Port			
Size: A3	Document Number: RK3328_BOX_Demo3		Rev: 1.0
Date: Friday, May 26, 2017		Sheet 18 of 28	

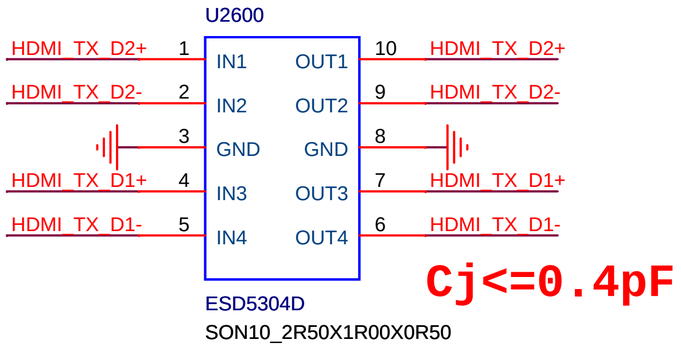








HDMI OUT



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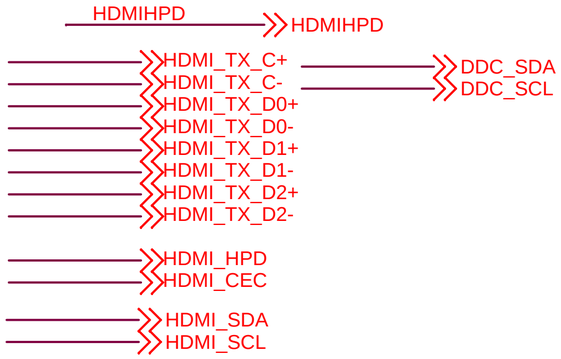

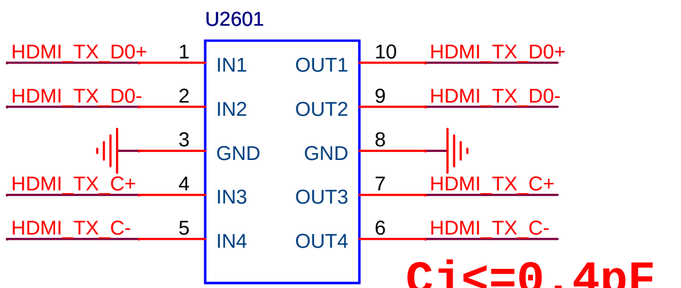

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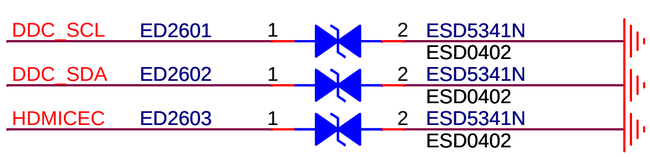
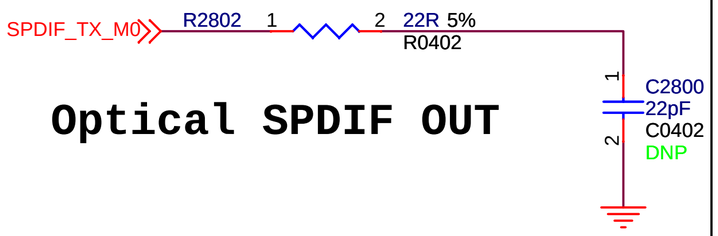


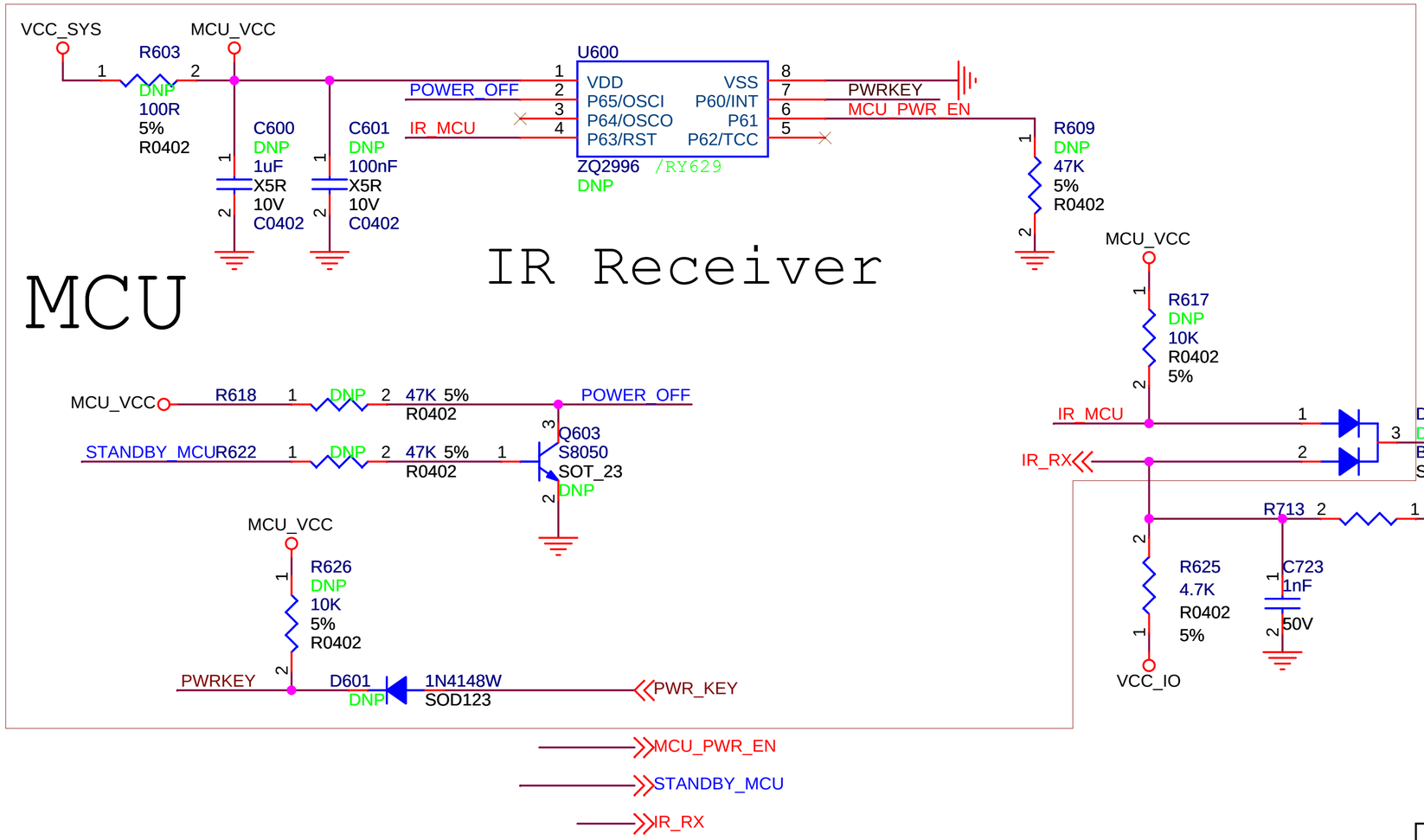
JETWAY Tech.On The Move	**JETWAY INFORMATION CO.,LTD.**	
	Title: **HDMI OUT Port**	
Size: A4	Document Number: **RK3328_BOX_Demo3**	Rev: 1.0
Date: Friday, May 26, 2017	Sheet 19 of 28	



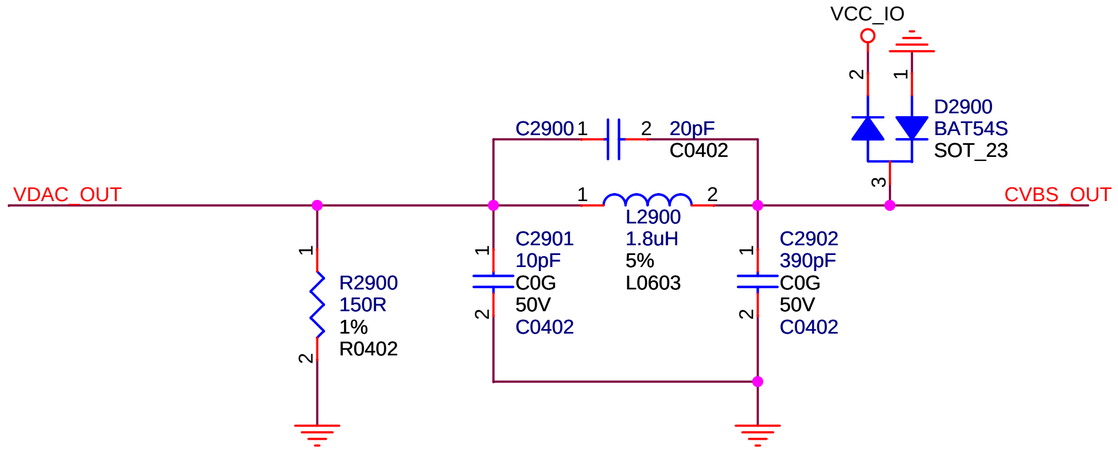
Optical SPDIF OUT

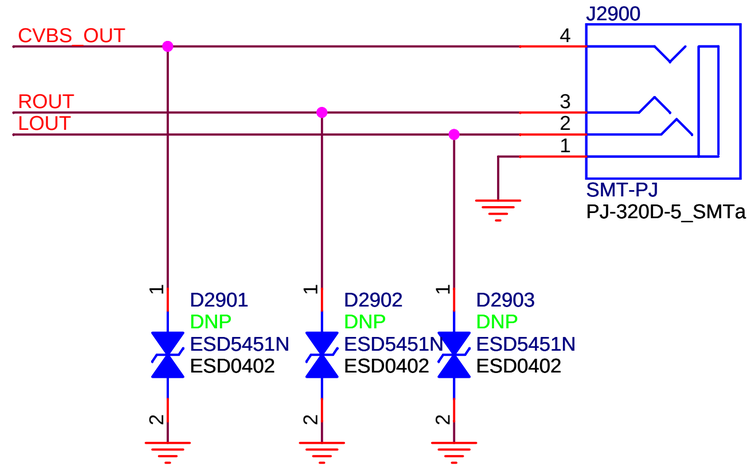
IR Receiver

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.



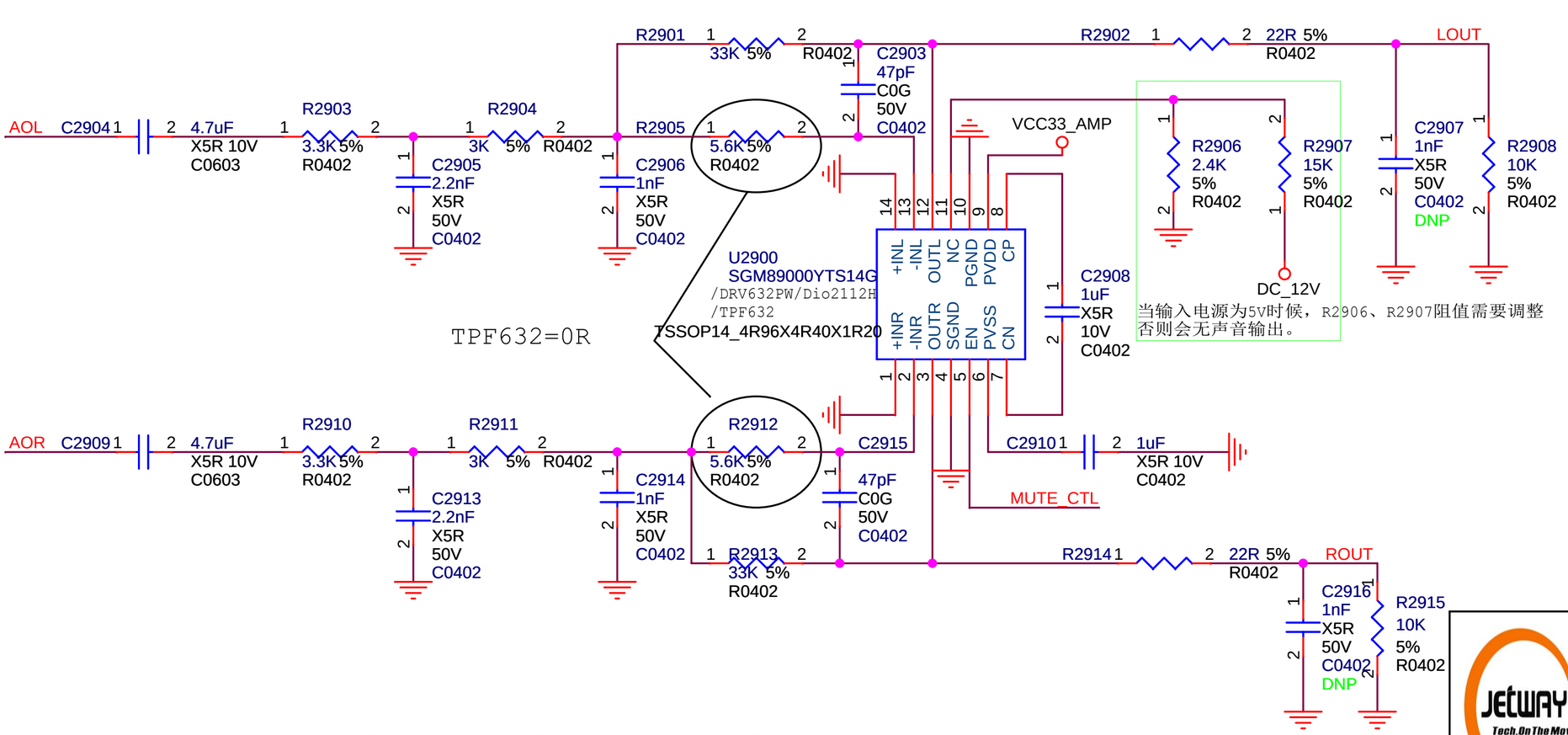
	JETWAY INFORMATION CO.,LTD.	
	Title: S/PDIF Port	
	Size: A4 / Document Number: RK3328_BOX_Demo3	Rev: 1.0
	Date: Friday, May 26, 2017	Sheet 20 of 28





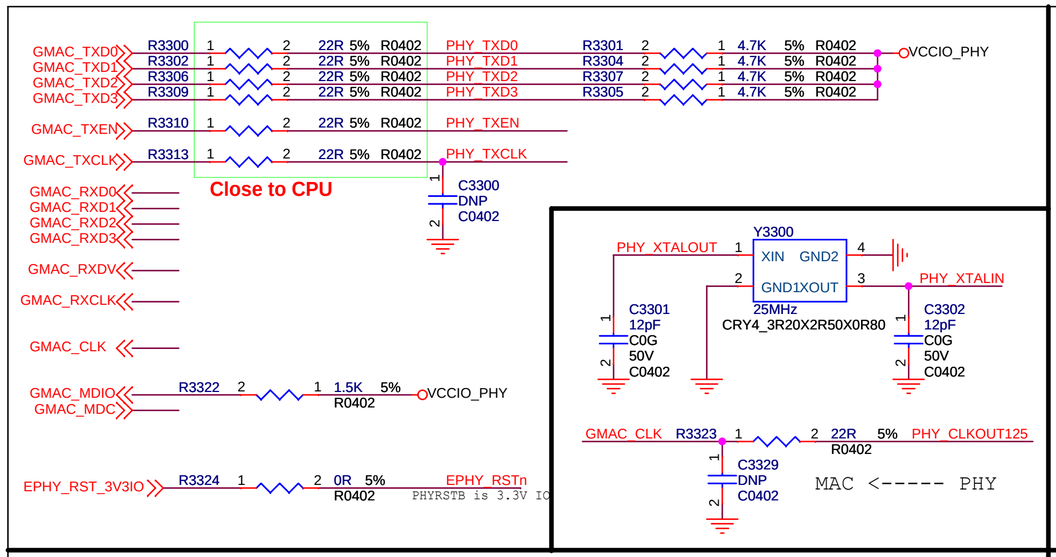
JETWAY INFORMATION CO.,LTD.			
Title: AV OUT Port			
Size: A4	Document Number: RK3328_BOX_Demo3		Rev: 1.0
Date: Friday, May 26, 2017		Sheet 21 of 42	

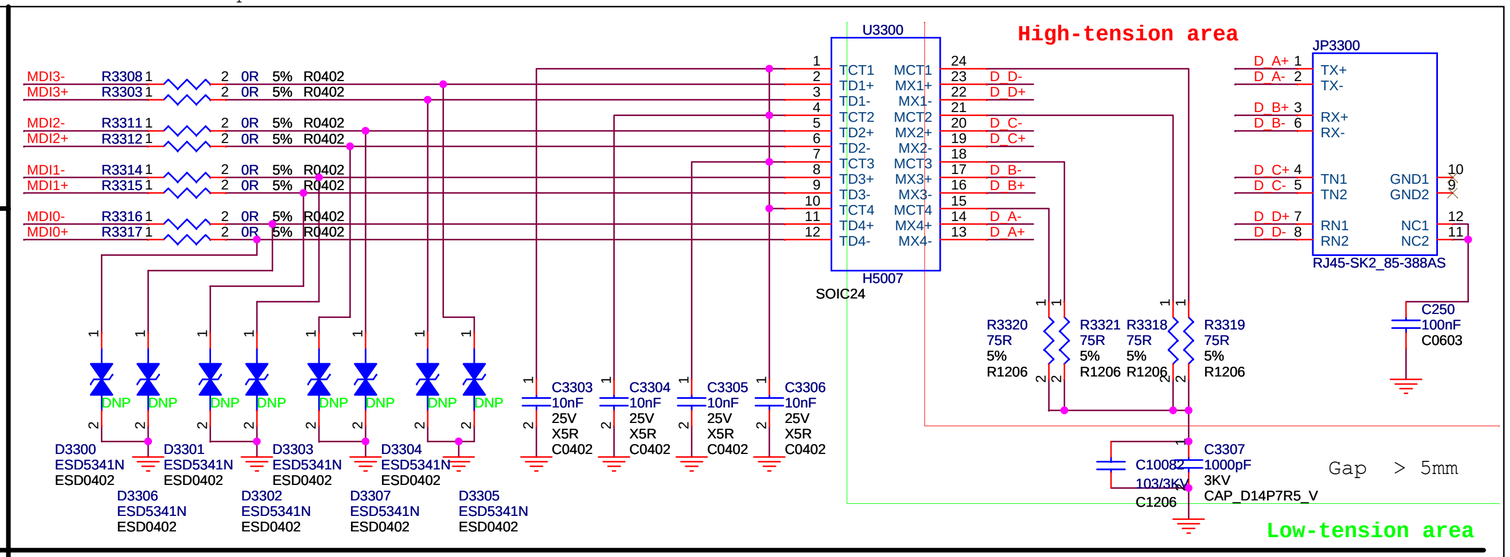
AV OUT

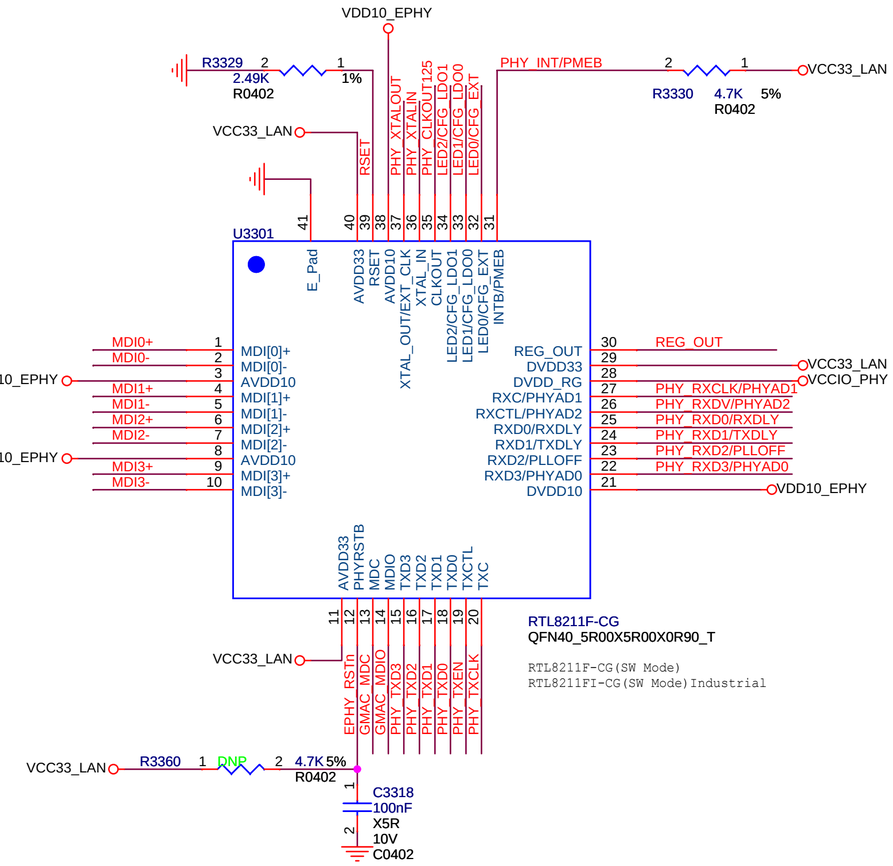


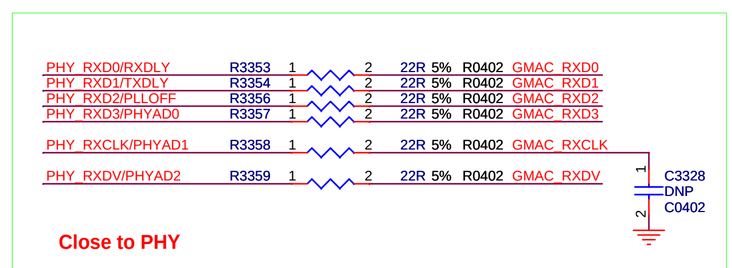
2-Vrms Audio Line Driver

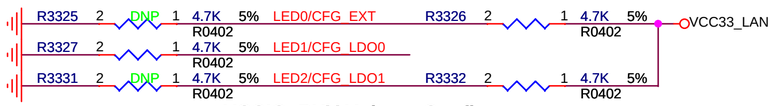
JETWAY INFORMATION CO.,LTD.			
Title: AV OUT Port			
Size: A4	Document Number: RK3328_BOX_Demo3		Rev: 1.0
Date: Friday, May 26, 2017		Sheet 21 of 28	

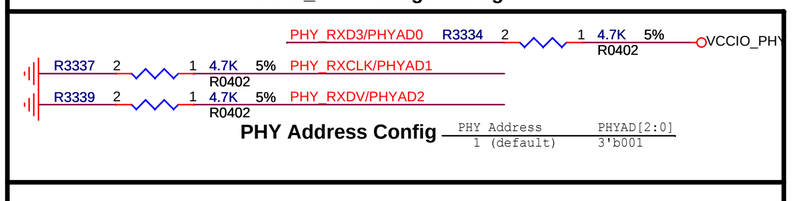


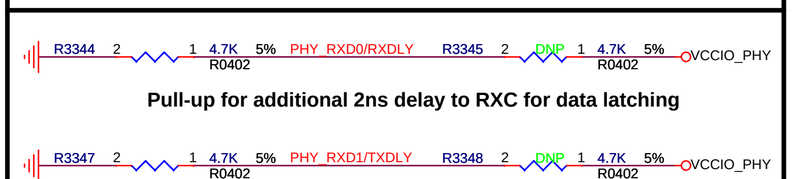


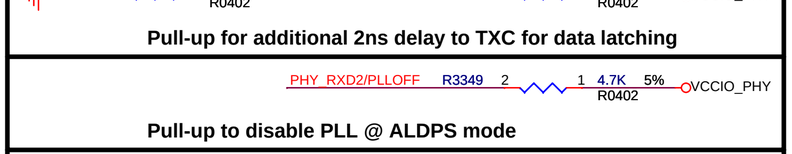


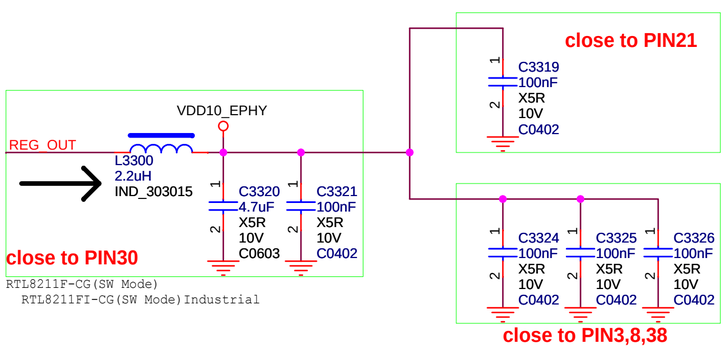




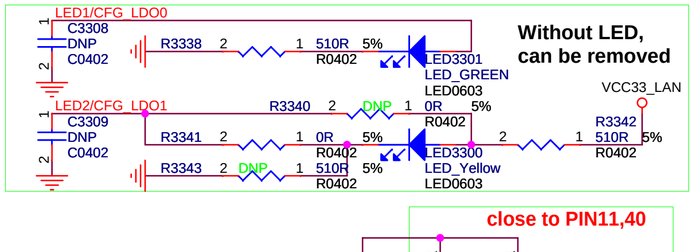


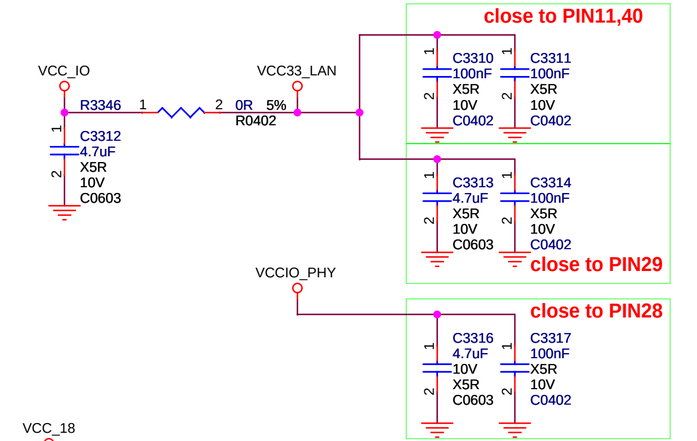


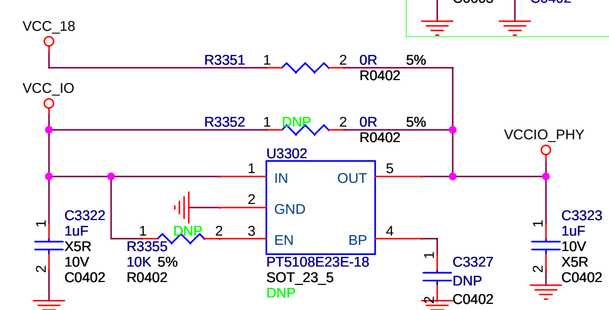




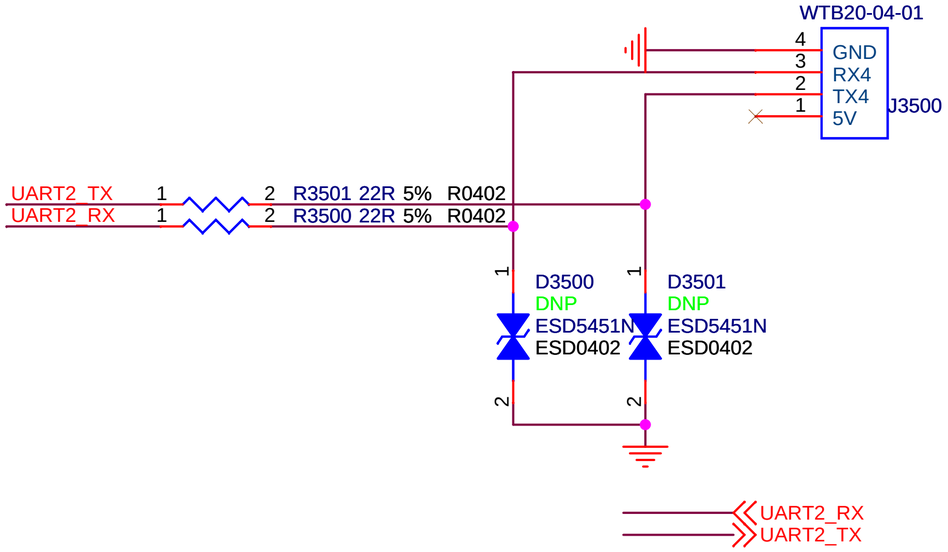
RGMII Power Source	CFG_EXT	CFG_LDO[1:0]	
External 3.3V	1'b1	2'b00	
External 1.8V (default)	1'b1	2'b10	
Internal 1.8V	1'b0	2'b10	



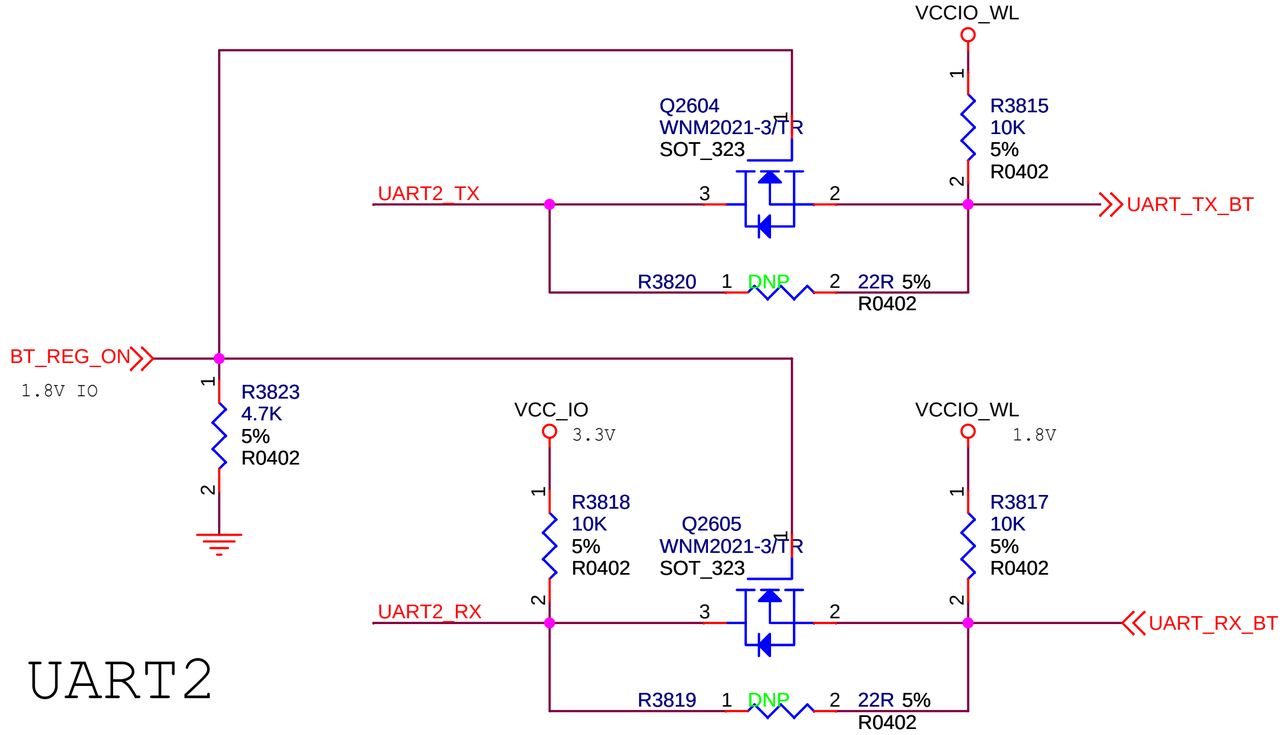




JETWAY Tech.On The Move	JETWAY INFORMATION CO.,LTD.		
	Title: RJ45 Port-10/100/1000M(Ext PHY)		
	Size: A3	Document Number: RK3328_BOX_Demo3	Rev: 1.0
	Date: Friday, May 26, 2017	Sheet 22 of 28	



Debug UART2



BT UART2

BT ON: BT UART,需移除Debug uart小板

BT OFF: Debug UART2，可接debug uart小板

JETWAY Tech.On The Move	JETWAY INFORMATION CO.,LTD.		
	Title: Debug UART2/JTAG		
	Size: A4	Document Number: RK3328_BOX_Demo3	Rev: 1.0
	Date: Friday, May 26, 2017	Sheet 23 of 28	

UART_RX_BT
UART_TX_BT

SDMMC0EXT_D0
SDMMC0EXT_D1
SDMMC0EXT_D2
SDMMC0EXT_D3
SDMMC0EXT_CMD
SDMMC0EXT_CLK

WIFI_REG_ON
WIFI_WAKE_HOST

BT_REG_ON

BT_WAKE_HOST

32K_OUT

RK805_32KOUT

SDMMC0EXT_D0 — R3800 1 2 22R 5% R0402 — WIFI_2X2_D0 — 2 1 C3800 DNP 33pF C0G 50V C0402
SDMMC0EXT_D1 — R3801 1 2 22R 5% R0402 — WIFI_2X2_D1 — 2 1 C3801 DNP 33pF C0G 50V C0402
SDMMC0EXT_D2 — R3802 1 2 22R 5% R0402 — WIFI_2X2_D2 — 2 1 C3802 DNP 33pF C0G 50V C0402
SDMMC0EXT_D3 — R3803 1 2 22R 5% R0402 — WIFI_2X2_D3 — 2 1 C3803 DNP 33pF C0G 50V C0402
SDMMC0EXT_CMD — R3804 1 2 22R 5% R0402 — WIFI_2X2_CMD — 2 1 C3804 DNP 33pF C0G 50V C0402
SDMMC0EXT_CLK — R3805 1 2 22R 5% R0402 — WIFI_2X2_CLK — 2 1 C3805 DNP 33pF C0G 50V C0402

Close to CPU

32K_OUT — R3806 1 2 22R 5% R0402 — WIFI_BT_32KIN

VCCIO_WL — R3807 1 DNP 2 10K 5% R0402 — RK805_32KOUT — R3808 1 DNP 2 22R 5% R0402

C3809 DNP C0402

32.768KHz default from CPU,

If there is a special application,
CPU cannot output 32.768KHz,
Then you need to
use the RK805-1 output 32.768KHz clock.

Layout Note:
Crystal away from antenna

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

C3813 22pF C0G 50V C0402 DNP — R3809 1 DNP 2 22R 5% R0402 — Y3800 XOUTGND1 GND2 XIN 37.4MHz DNP CRY4_3R20X2R50X0R80 — C3814 22pF C0G 50V C0402 DNP

Option1

Option2

C3815 4.7uF 10V X5R C0603 DNP — L3800 4.7uH 1A_DCR<=80mohm IND_303012 DNP

U3800 RTL8822BS

12	PA_PU/PCIE_PERST		
13	XTAL_OUT		
14	XTAL_IN		
15	WL_REG_ON	WIFI_REG_ON	
16	WL_HOST_WAKE	WIFI_WAKE_HOST	
17	SDIO_DATA_CMD	WIFI_2X2_CMD	
18	SDIO_DATA_CLK	WIFI_2X2_CLK	
19	SDIO_DATA_3	WIFI_2X2_D3	
20	SDIO_DATA_2	WIFI_2X2_D2	
21	SDIO_DATA_0	WIFI_2X2_D0	
22	SDIO_DATA_1	WIFI_2X2_D1	
23	GND_10		
24	NC/PCIE_PME_L		
25	VIN_LDO		
26	VIN_LDO_OUT		
27	PCM_SYNC		
28	PCM_IN		
29	PCM_OUT		
30	PCM_CLK		
31	LPO		
32	GND_11		
33	NC/PCIE_REFCLK_N		
34	VDDIO		
35	NC/PCIE_REFCLK_P		
36	VBAT		
1	GND_1		
2	GND_2		
3	GND_3		
4	GND_4		
5	GND_5		
6	GND_6		
7	GND_7		
8	WL_ANT1		
9	GND_8		
10	GND_9		
11	WL/BT_ANT0		
50	BT_HOST_WAKE	BT_WAKE_HOST	
49	BT_WAKE	HOST_WAKE_BT_2	R3810 2 1 10K 5% R0402 VCCIO_WL
48	GPIO8_9/MODE SEL		
47	PCIE_TDP/NC		
46	PCIE_TDN/NC		
45	PCIE_RDP/NC		
44	PCIE_RDN/NC		
43	UART_CTS_N		
42	UART_RTS_N		
41	UART_RXD	UART_TX_BT	
40	UART_TXD	UART_RX_BT	
39	GND_12		
38	BT_REG_ON	BT_REG_ON	
37	PCIE_CLKREQ_L/PA_3P3		

R3812 0R 5% R0402 DNP — R3822 0R 5% R0402

Note:
目前只验证RTL8822BS可不用流控
RTL8822BS的CTS要接地处理.

50 Ohm RF trace

C3806 10pF C0G 50V C0402 — C3807 DNP C0402 — C3808 DNP C0402 — 1 — GND GND GND — SIGNAL — ANT3800 ANT_JACK

C3810 10pF C0G 50V C0402 — C3811 DNP C0402 — C3812 DNP C0402 — 1 — GND GND GND — SIGNAL — ANT3801 ANT_JACK

VBAT_WL — >50mil — L3801 180R-100M L0603 — VCC_IO

峰值最大有600mA
靠近WIFI模组管脚放置

VCCIO_WL

C3819 1uF X5R 10V C0402
C3820 100nF X5R 10V C0402
C3816 10uF X5R 10V C0603
C3817 100nF X5R 10V C0402
C3818 10uF X5R 10V C0603

WIFI_BT_32KIN

R3813 0R 5% R0402 2 1 VCC_18
R3814 0R 5% R0402 DNP 2 1 VCC_IO

请根据实际贴的模组选择IO电压值
软件也需对应修改配置。

2T2R

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

OPTION	1	2	3		
RTL8822 模组	No	No			
RTL8192 模组	No	No			

Note:
Yes:框内要贴
No:框内不贴

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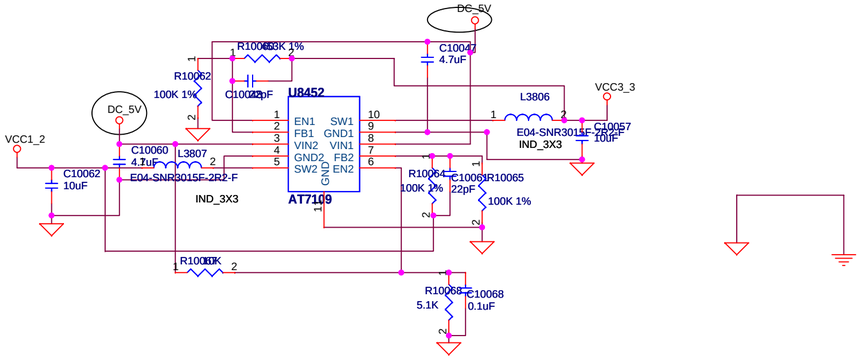
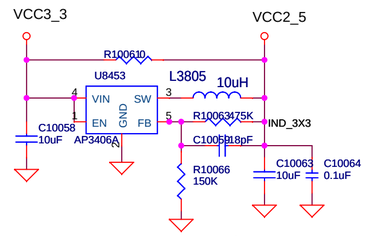
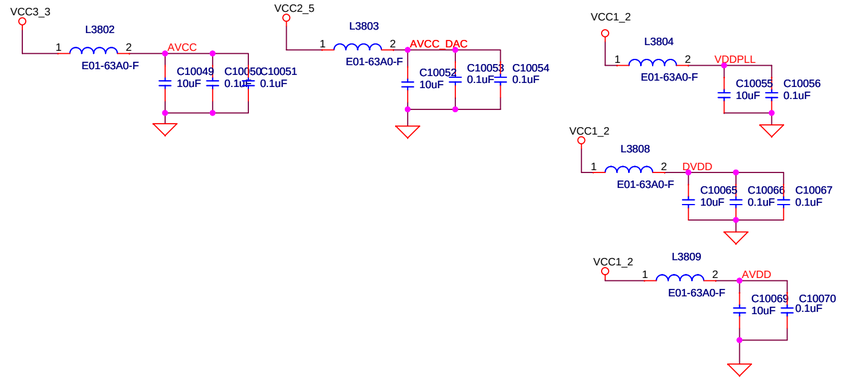
	Title: WIFI+BT_2T2R		
	Size: A3	Document Number: RK3328_BOX_Demo3	Rev: 1.0
	Date: Friday, May 26, 2017	Sheet 24 of 28	

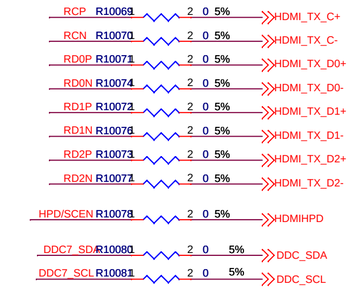


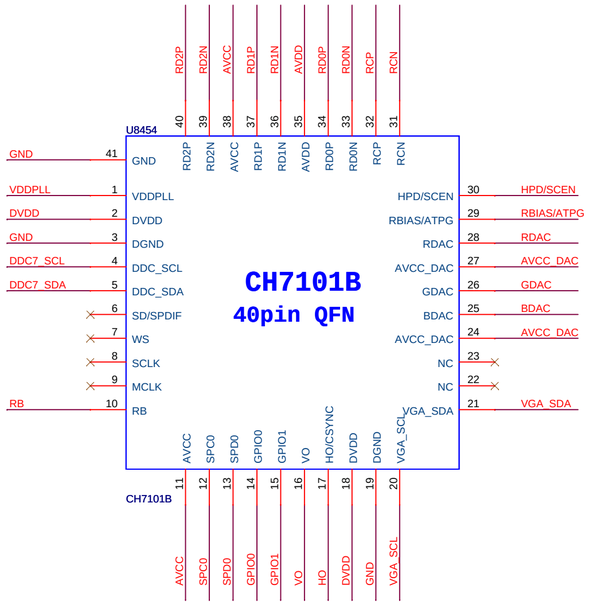


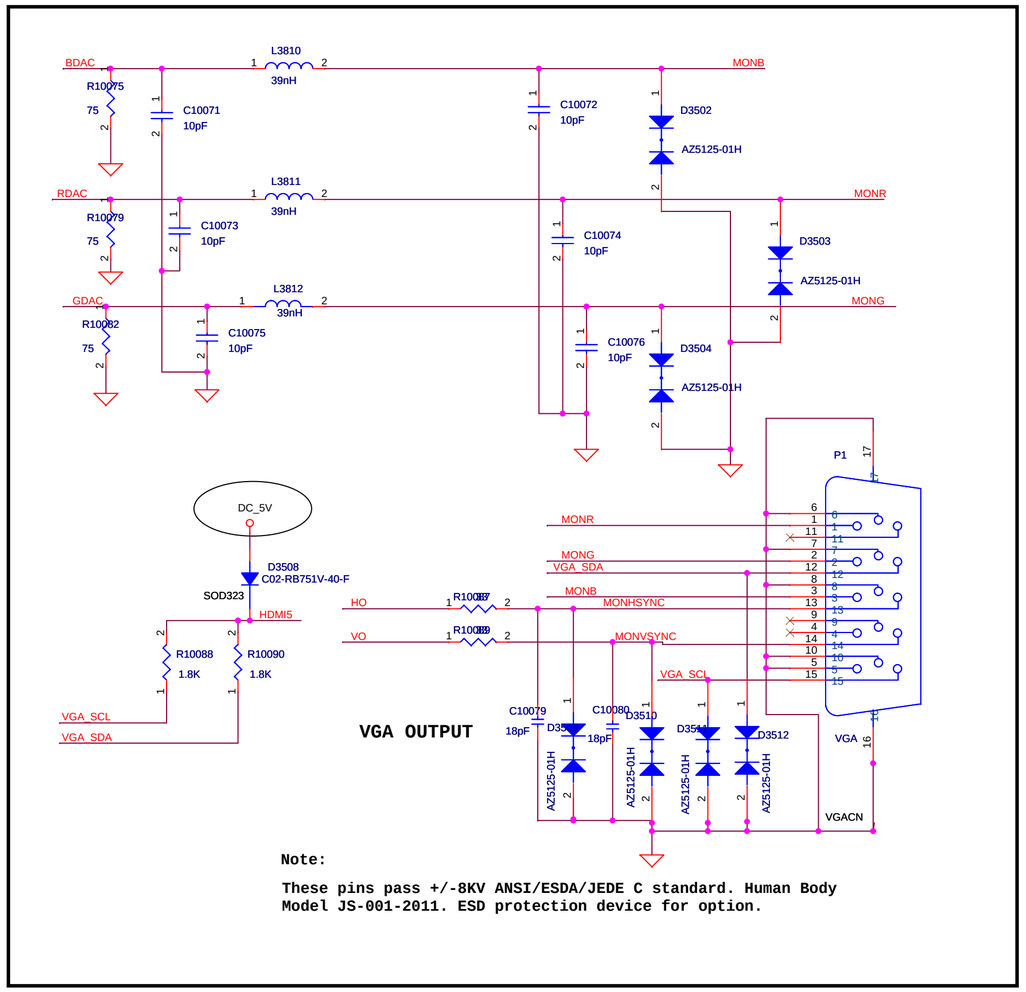
Lower power consumption,
recommend 2.5V for AVCC_DAC

Power of CH7101B







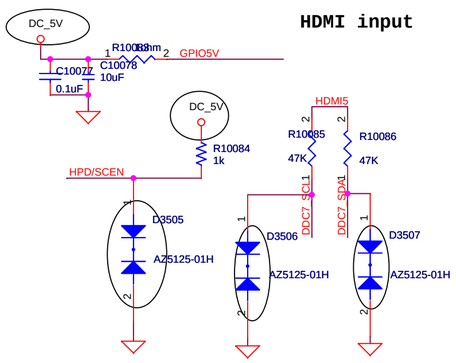


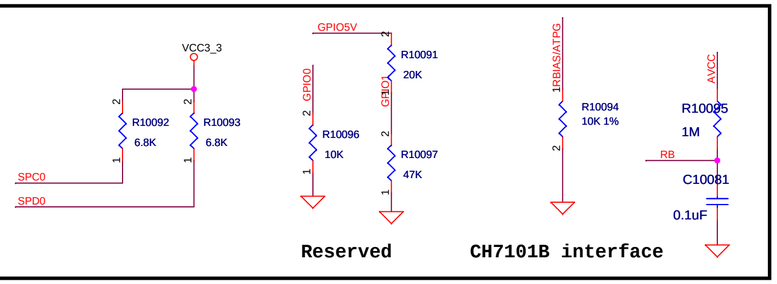
VGA OUTPUT

Note:

These pins pass +/-8KV ANSI/ESDA/JEDE C standard. Human Body Model JS-001-2011. ESD protection device for option.

HDMI input





Reserved **CH7101B interface**

Audio

I2S to L, R CHANNEL

JETWAY Tech On The Move	JETWAY INFORMATION CO.,LTD.	
	Title: CH7101B HDMI TO VGA	
Size: Custom	Document Number: RK3328_BOX_Demo3	Rev: 1.0
Date: Friday, May 26, 2017	Sheet 25 of 28	

Connect V5_1(Pin43) to V33 while using external 3.3V power input

USB30_DM
USB30_DP
USB30_TXP
USB30_TXN
USB30_RXP
USB30_RXN
C3 0.1uF
C2 0.1uF
C1 0.1uF
C4 0.1uF
RXN_UP
RXP_UP
TXN_UP
TXP_UP
DM0
DP0
DM1
DP1
RXP_DS1
RXN_DS1
TXP_DS1
TXN_DS1
VP12_05
VP12_06

U14
GL3523-QFN76

1	PAMBER4	X1	57
2	PGREEN3	X2	56
3	PAMBER3	DVDD33_1	55
4	VP12_1	VBUS	54
5	TXN_DS4	PGANG	53
6	TXP_DS4	P_SPI_CZ	52
7	VP12_2	P_SPI_DI	51
8	RXN_DS4	P_SPI_CK	50
9	RXP_DS4	P_SPI_DO	49
10	DP4	RESET#	48
11	DM4	DVDD12_2	47
12	AVDD_1	RTERM	46
13	DP3	CHIPENABLE	45
14	DM3	V33_1	44
15	TXN_DS3	5V_1	43
16	TXP_DS3	5V_2	42
17	VP12_3	SW	41
18	RXN_DS3	GND1	40
19	RXP_DS3	FB	39
20	TXN_DS2	G1	G1

V33_1
C26 10uF
V33
DVDD33_1 C23 0.1uF
DVDD33_1 C71 100P/NC
AVDD_1 C64 0.1uF
AVDD_1 C77 33P/NC
AVDD_2 C73 0.1uF
AVDD_2 C74 33P/NC
AVDD_3 C80 0.1uF
AVDD_4 C100 0.1uF

V33
P_SPI_CZ
P_SPI_DI
R40 10K
U5
PM25LD512
CS VCC
SO HOLD
WP SCK
VSS SI
R39 10K
P_SPI_CK
P_SPI_DO
V33
C54 0.1u

VCC
C102 0.1uF
C81 10uF
GND_CHIP
C82 22nF

DV12
DVDD12_1 C5 0.1uF
DVDD12_2 C6 0.1uF

AV12
VP12_01 C70 0.1uF
VP12_02 C19 0.1uF
VP12_03 C15 0.1uF
VP12_04 C11 0.1uF
VP12_05 C12 0.1uF
VP12_06 C13 0.1uF

I(Max)≠ 1.5A
DV12
AV12
FB
LB5
FB
C20 10uF
C21 10uF

C20 close to pin28,
C21 close to pin4,

C24 20pF C0402
C25 20pF C0402
Y1
X1
X2
25MHz
R1 1M

Option: R2 for Normal Hub Function

VBUS
R2 10K/NC
RESET#
R8 39K
C39 1uF

Option: When DCP is enabled, connect RESET to Vcc

VCC
R3 10K

1.2v CIRCUIT

SW
LB14
IND_3X3
E04-SNR3015F-2R2-F
FB
C58 10uF
C53 0.1u

Option: SMBus

V33 V33
R18 10K/NC
R5 10K/NC
OVCUR4#
OVCUR3#

VBUS
R13 51K
VBUS_IN
R7 10K

VCC
V33
10K/NC R14
R98 10K
CHIPENABLE
R97 NC/30K

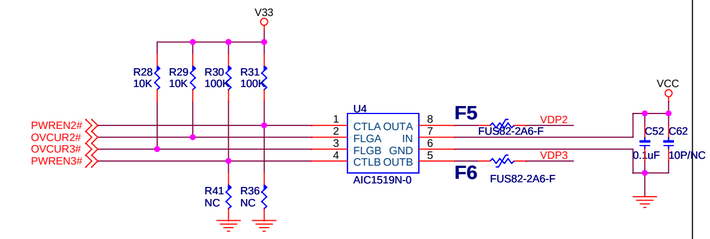
PGANG
R9 100K
Individual Mode

RTERM
R6 20K 1%

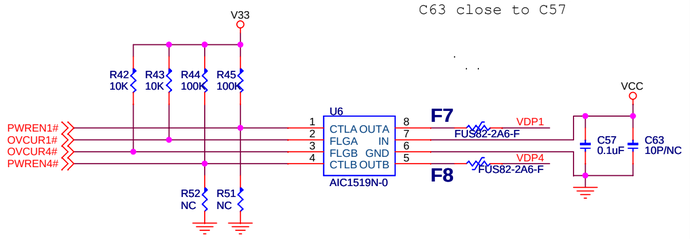
JETWAY INFORMATION CO.,LTD.
Tech.On The Move

Title: GL3523 QFN76 Schematic
Size: Custom
Document Number: RK3328_BOX_Demo3
Rev: 1.0
Date: Friday, May 26, 2017
Sheet 26 of 28

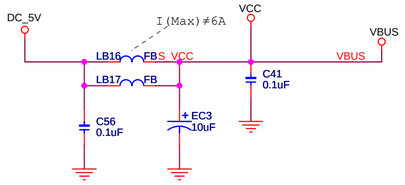
Option: Power Switch CIRCUIT



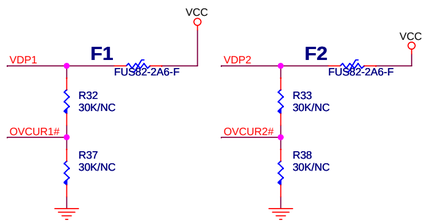
C62 close to C52,
C63 close to C57

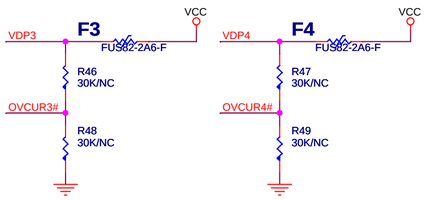


OVCUR1~4# has to be pulled high by 10K

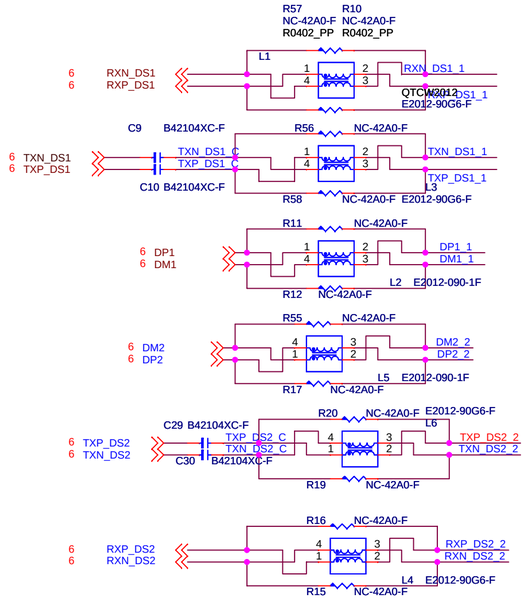


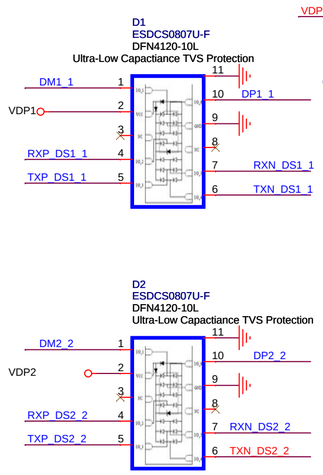
Option: POLY-FUSE CIRCUIT

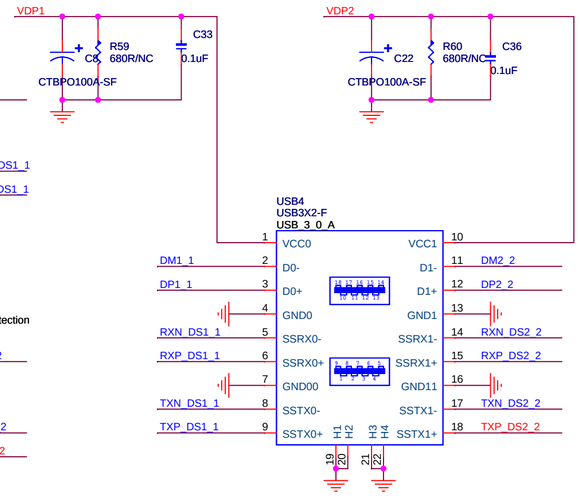


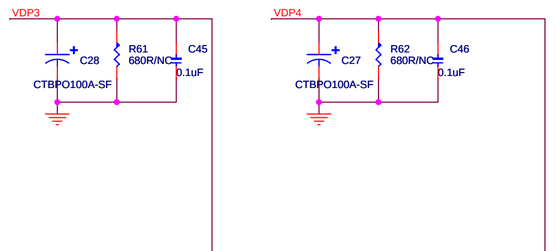


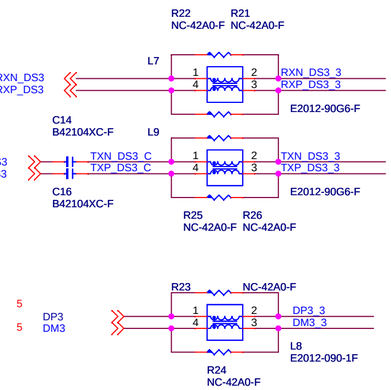
OVCUR1~4# has to be pulled high by 10K

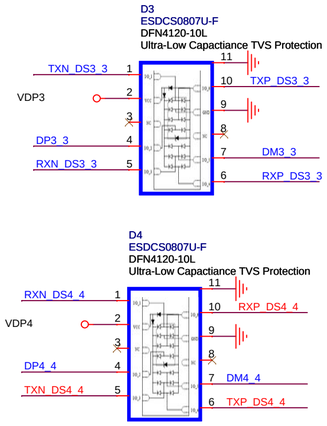


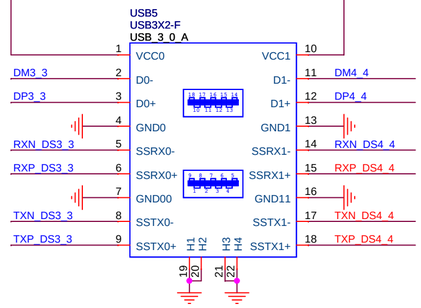




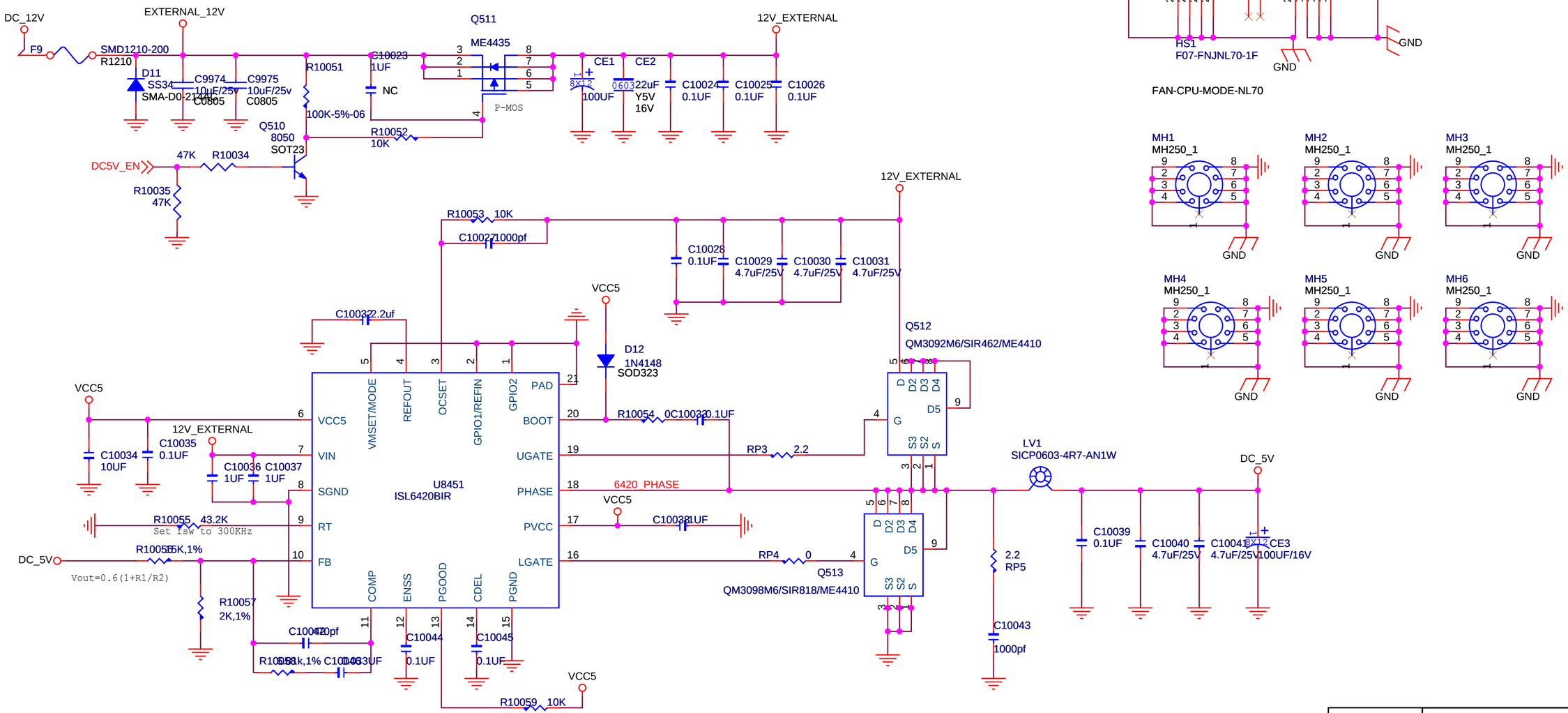








JETWAY Tech.Be the Move	JETWAY INFORMATION CO.,LTD.		
	Title: USB7-8		
	Size: C	Document Number: RK3328_BOX_Demo3	Rev: 1.0
	Date: Friday, May 26, 2017	Sheet 27 of 28	



JETWAY Tech.On The Move	JETWAY INFORMATION CO.,LTD.		
	Title: POWER-HV		
	Size: B	Document Number: RK3328_BOX_Demo3	Rev: 1.0
	Date: Friday, May 26, 2017	Sheet 28 of 28	