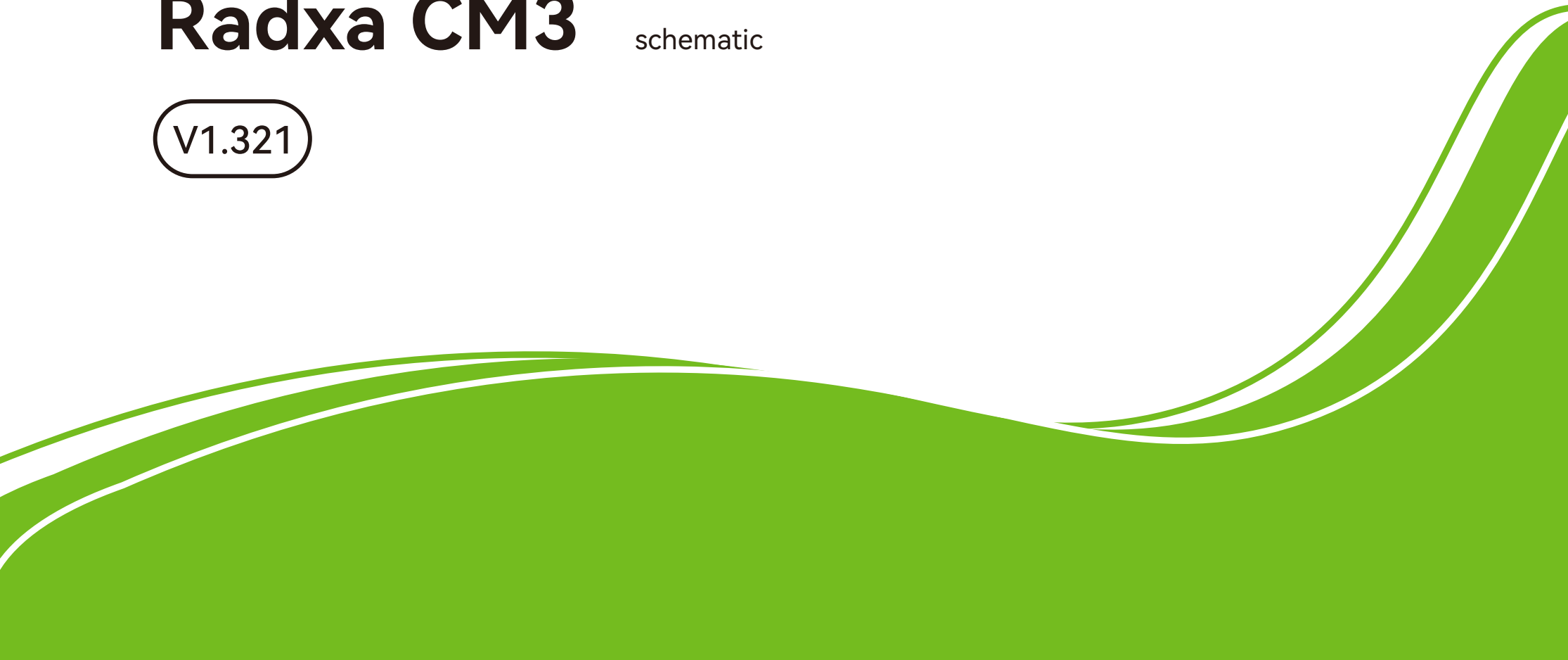




# Radxa CM3

schematic

V1.321



## Table of Content

Page 1	01.Index
Page 2	02.Revision History
Page 3	03.Block Diagram
Page 4	04.RK3566_Power/GND
Page 5	05.RK3566_DDR_PHY
Page 6	06.RK3566_OSC/PLL/PMUIO
Page 7	07.RK3566_Flash/SD
Page 8	08.RK3566_USB/PCIe/SATA/PHY
Page 9	09.RK3566_SARADC/GPIO
Page 10	10.RK3566_VI_Interface
Page 11	11.RK3566_VO_Interface_1
Page 12	12.RK3566_VO_Interface_2
Page 13	13.RK3566_Audio_Interface
Page 14	14.SPI Flash
Page 15	15.LPDDR4X_1x32Bit_200P
Page 16	16.Memory-eMMC
Page 17	17.WIFI/BT-SDIO
Page 18	18.Ethernet-1000MHz
Page 19	19.Power PMIC
Page 20	20.Power IN
Page 21	21.GPIO+VCC_Connector
Page 22	22.High Speed Serial_Connector
Page 23	23.IO_Connector

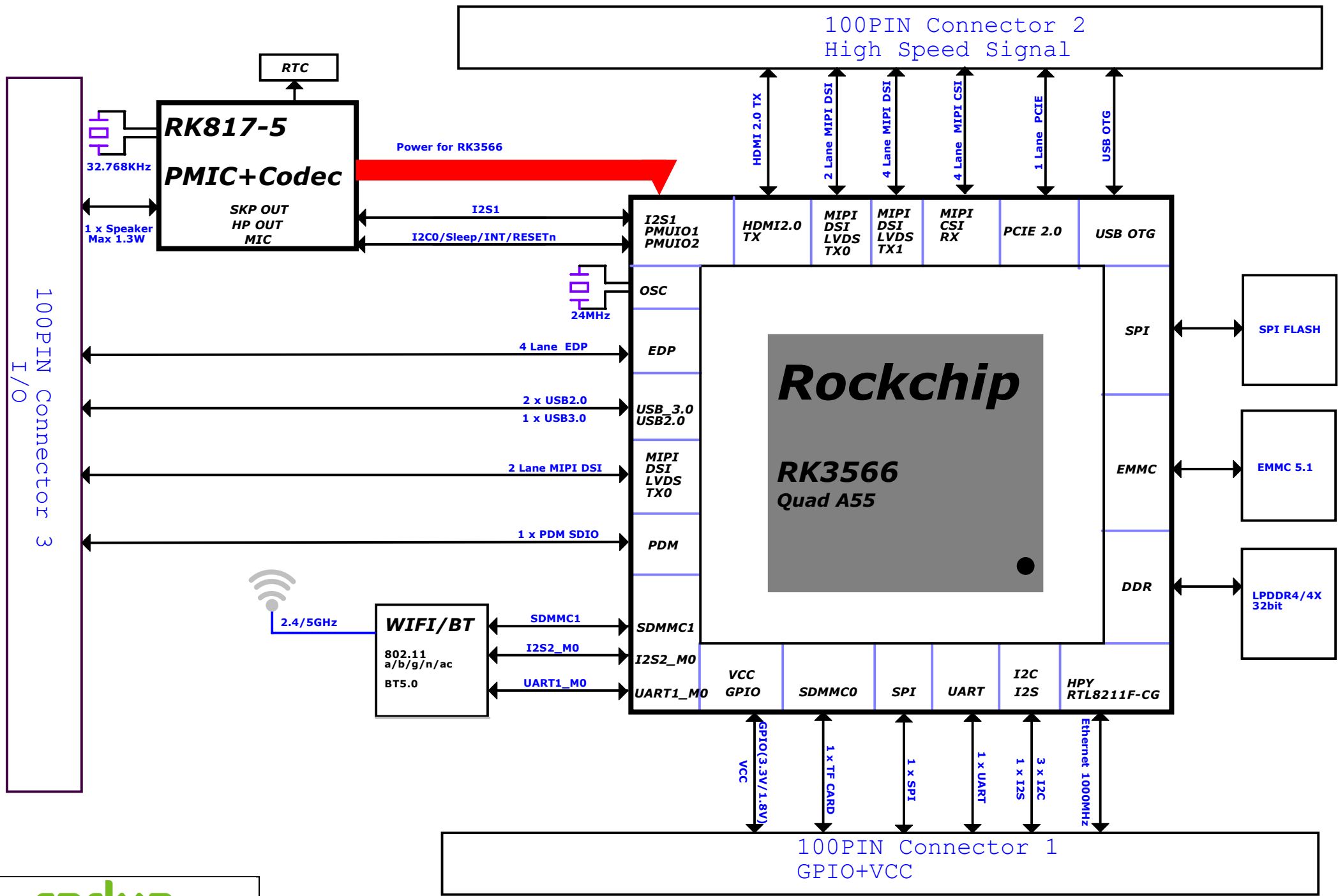


Size	Title: ROCK3 Compute Module	REV
A4	Page Name: Index	1.321A
Date:	Thursday, February 16, 2023	Sheet 01 of 23

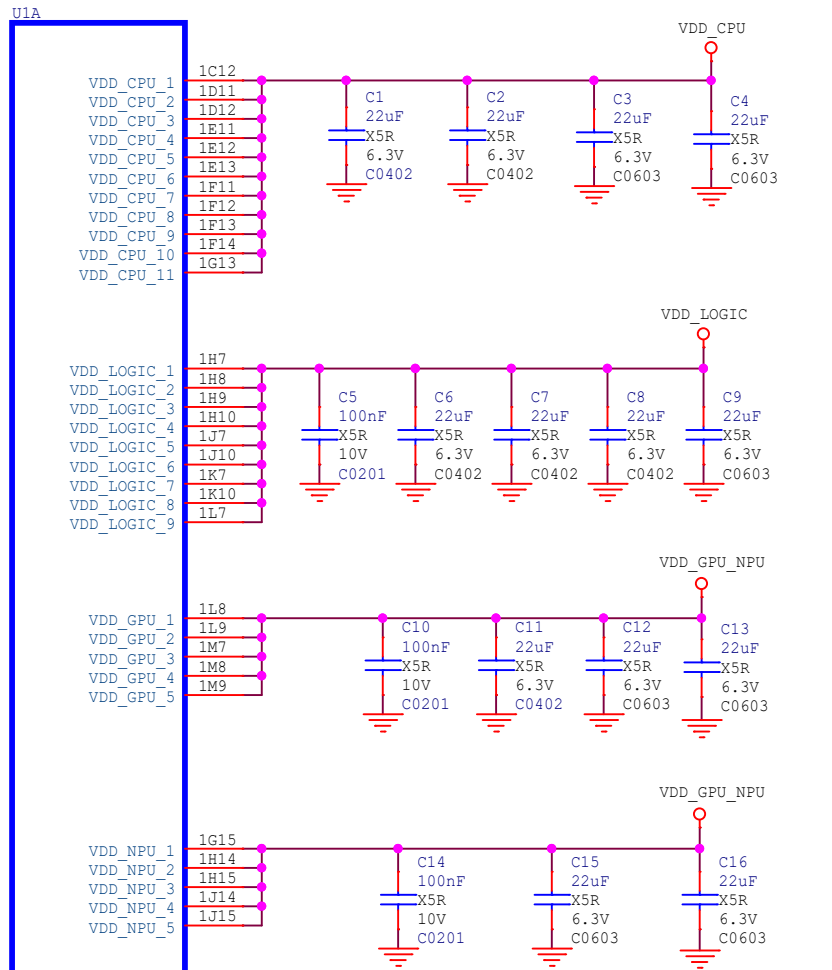
# Revision History

<b>Version</b>	<b>Date</b>	<b>Author</b>	<b>Change Note</b>	<b>Approved</b>
V1.0	20210421	Huang	First edition	
V1.1	20210706	Huang	Replacing the PMU IC	
V1.2	20220107	Huang	Add a power-on automatic working circuit	
V1.3	20220325	Huang	Optimize connector pin definition	
V1.31A	20220527	Huang	Optimize connector pin definition	
V1.32A	20221103	Huang	Increase SMT resistance	
V1.321A	20230216	Huang	Increase SMT resistance	

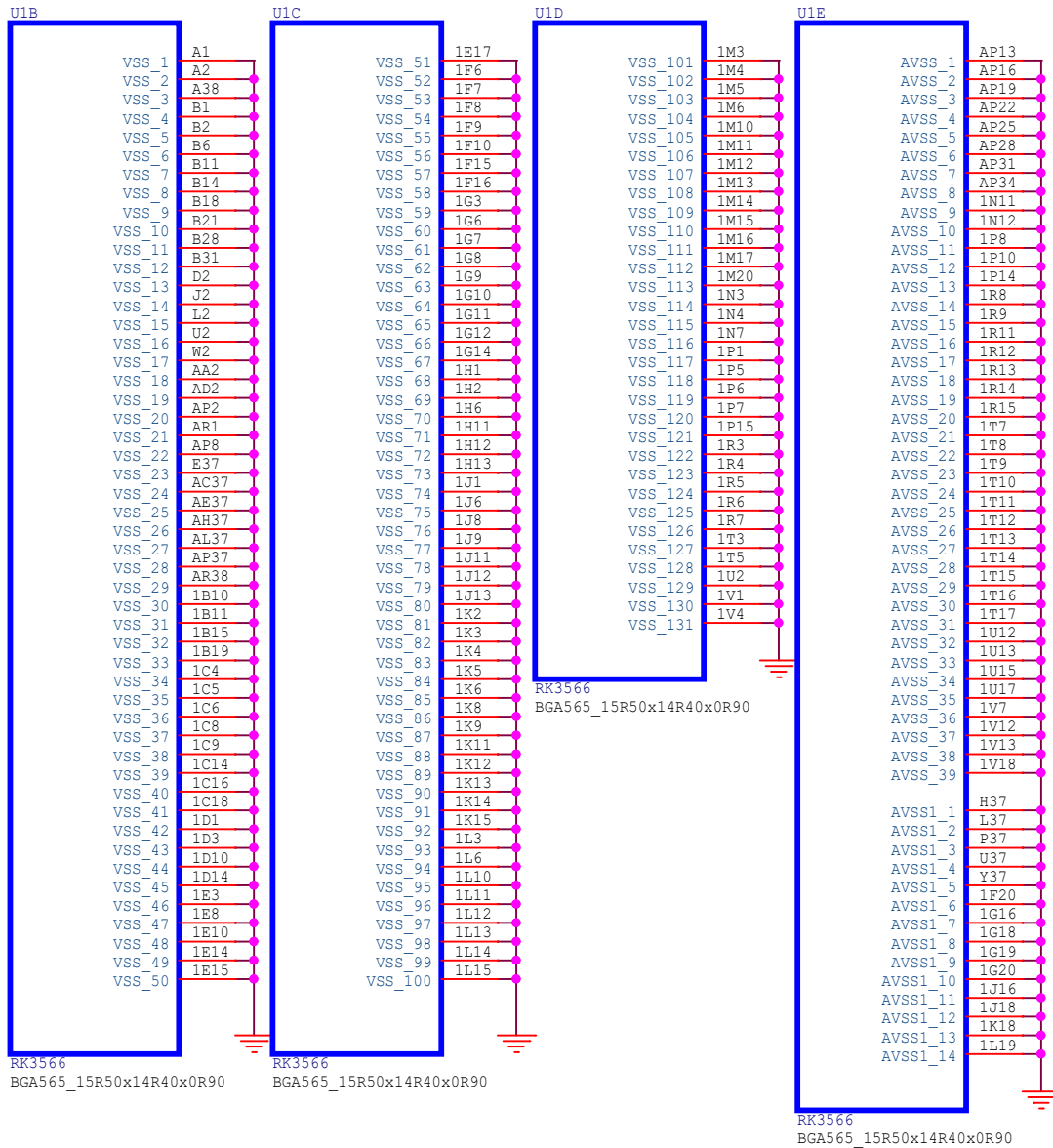




# RK3566\_ABCDE (Power&GND)

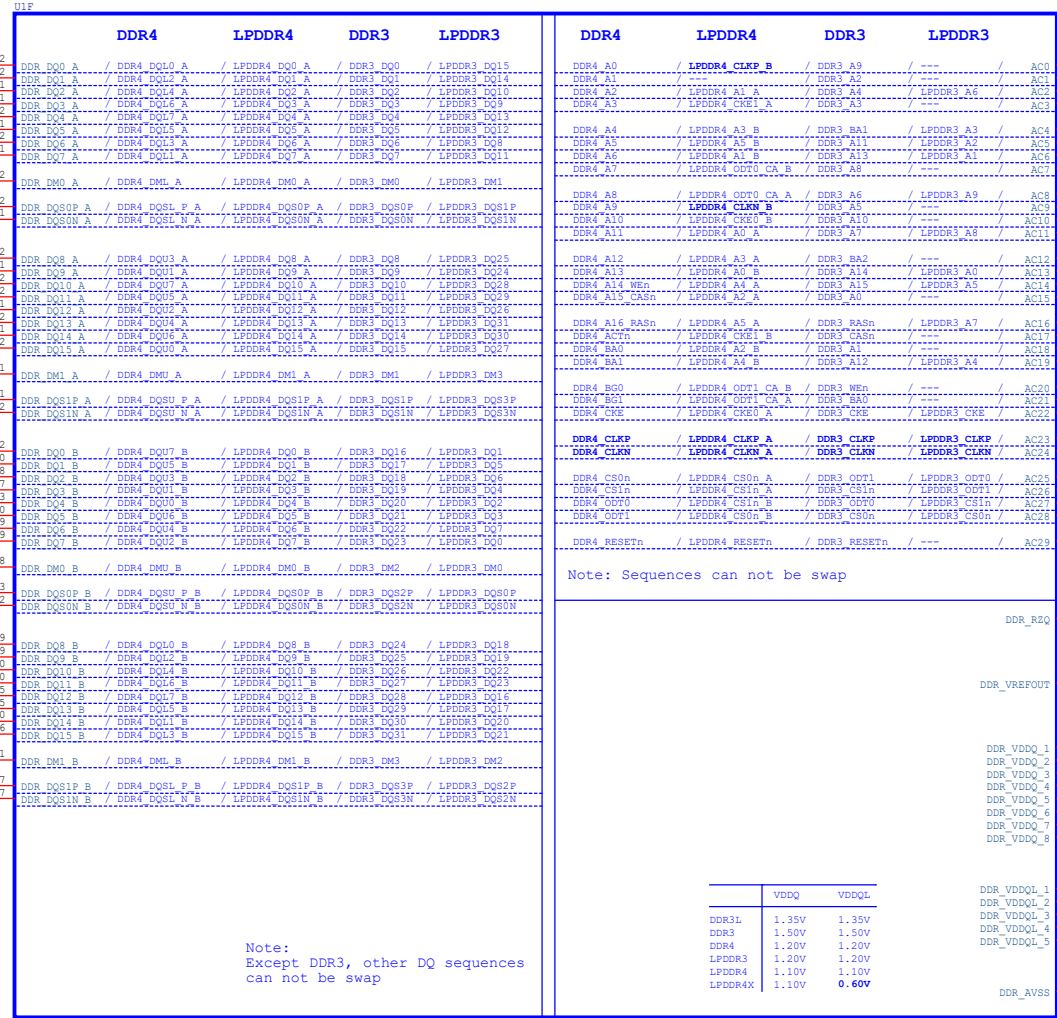


Caps should be placed close to the U1000 package



Size	Title: ROCK3 Compute Module	REV
A4	Page Name: RK3566_Power/GND	1.321A
Date: Thursday, February 16, 2023	Sheet 04 of 23	

# RK3566\_F (DDR PHY)



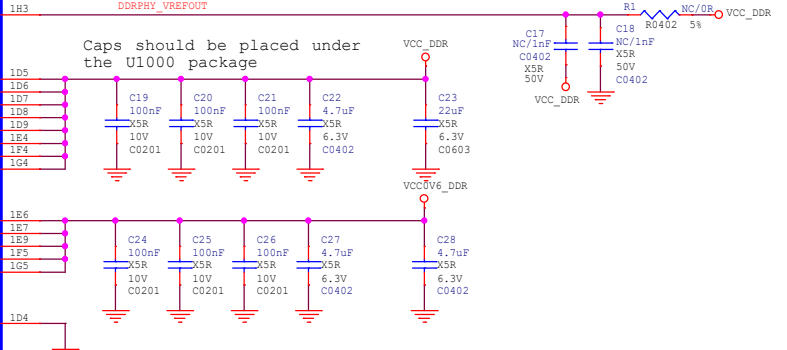
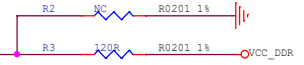
Note: Sequences can not be swap

	VDDQ	VDDQL
DDR3L	1.35V	1.35V
DDR3	1.50V	1.50V
DDR4	1.20V	1.20V
LPDDR3	1.20V	1.20V
LPDDR4	1.10V	1.10V
LPDDR4X	1.10V	0.60V

Note:  
Except DDR3, other DQ sequences  
can not be swap

## Connection for LPDDR4/LPDDR4X

Note:  
Pull up for LPDDR4/LPDDR4X  
-->R2=DNF, R3=120R;  
Pull down for DDR4/DDR3/LPDDR3  
-->R2=120R, R3=DNF;  
The resistor parameter is 120R ± 1%.



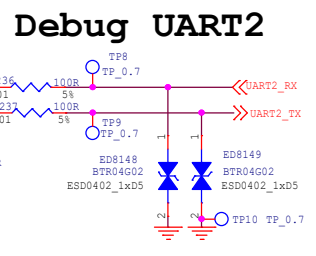
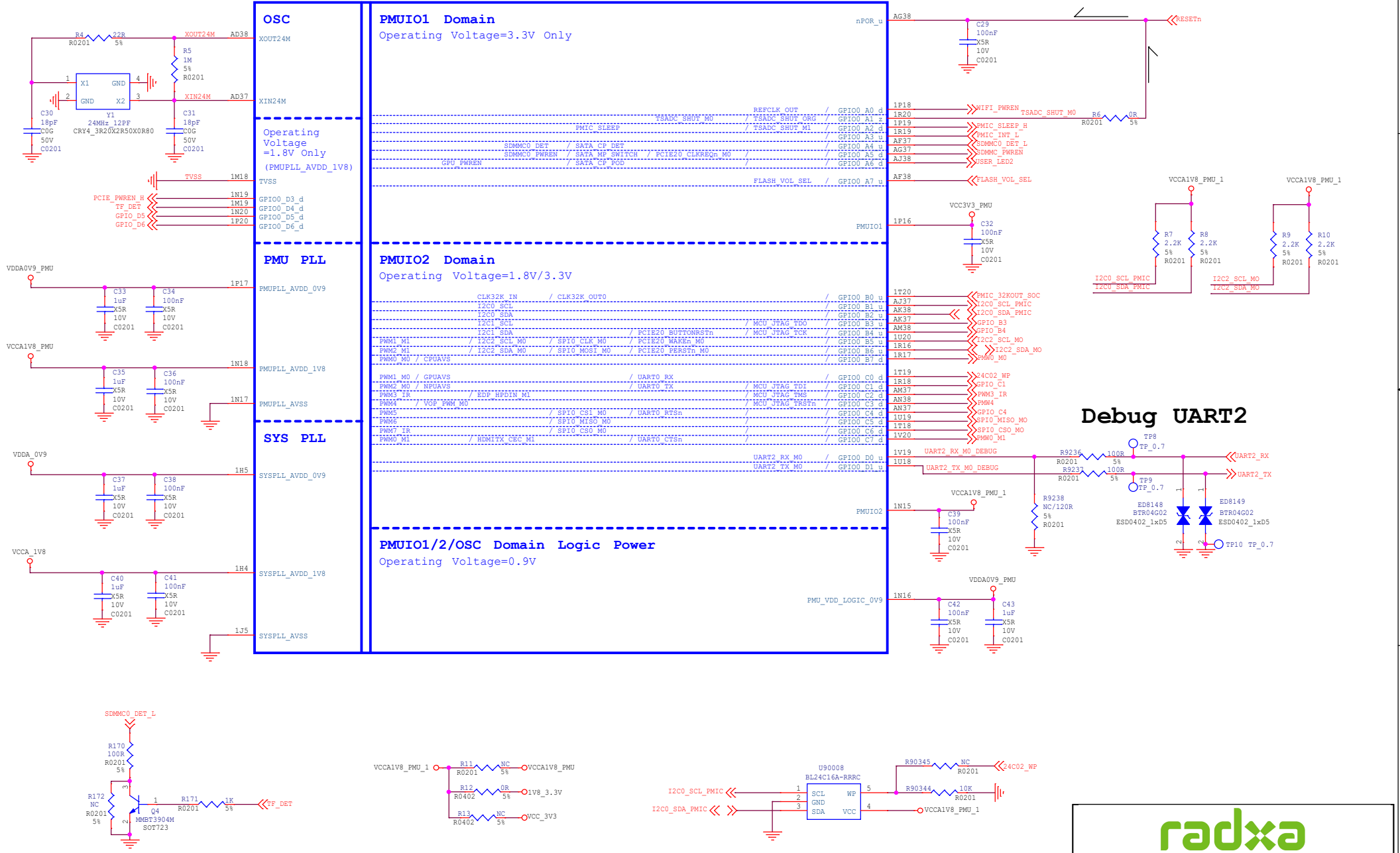
### Attention!

For LPDDR4X DDR\_VDDQL = 0.6V,  
For LPDDR3 ultra low power mode,  
DDR\_VDDQ&DDR\_VDDQL connect to VCC\_DDRC



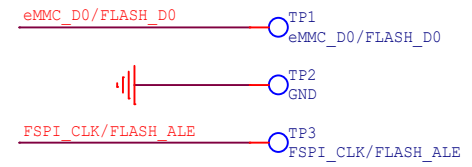
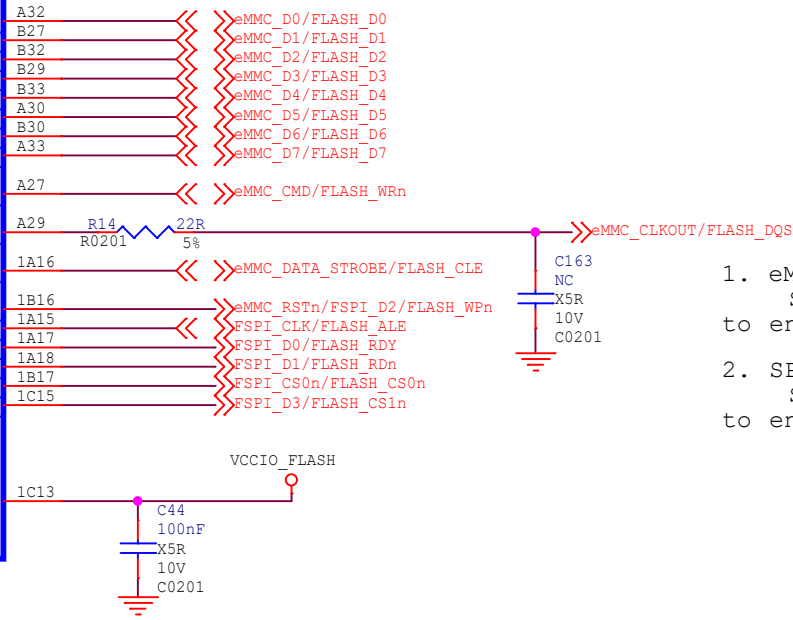
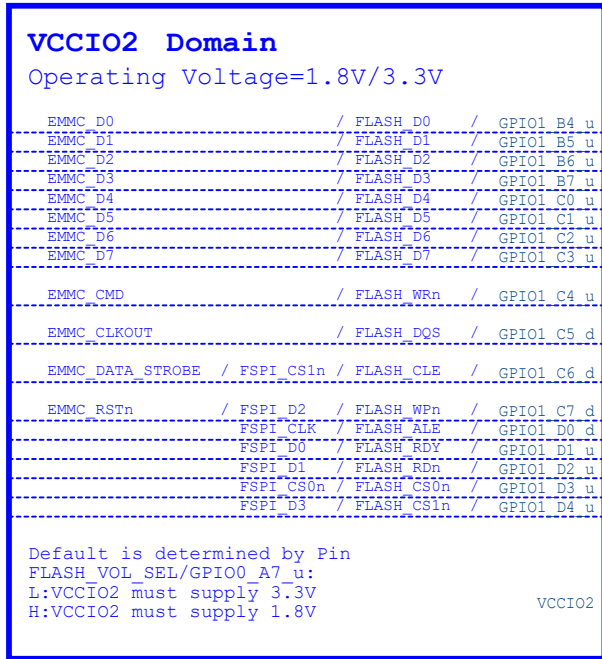
# RK3566\_G (OSC/PLL/PMUIO1/2)

U1G  
RK3566  
BGA565\_15R50x14R40x0R90



Size	Title: <b>ROCK3 Compute Module</b>	REV
A3	Page Name: <b>RK3566_OSC/PLL/PMUIO</b>	1.321A
Date: Thursday, February 16, 2023	Sheet 06 of 23	

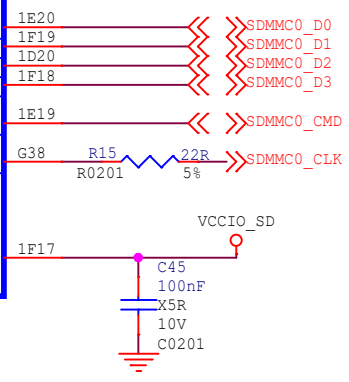
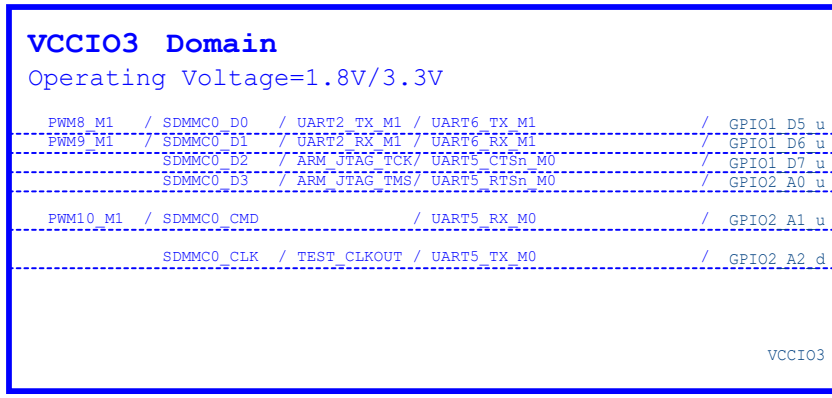
# RK3566\_I (VCCIO2 Domain)



1. eMMC or Nand Flash:  
Short 'eMMC\_D0/FLASH\_D0' and GND to enter Maskrom Mode.
2. SPI Flash:  
Short 'FSPI\_CLK/FLASH\_ALE' and GND to enter Maskrom Mode.

U1I  
RK3566  
BGA565\_15R50x14R40x0R90

# RK3566\_J (VCCIO3 Domain)



U1J  
RK3566  
BGA565\_15R50x14R40x0R90



Size	Title: ROCK3 Compute Module	REV
A4	Page Name: RK3566_Flash/SD	1.321A
Date: Thursday, February 16, 2023	Sheet 07 of 23	



# RK3566\_U (USB3.0/PCIe2.0x1/SATA)

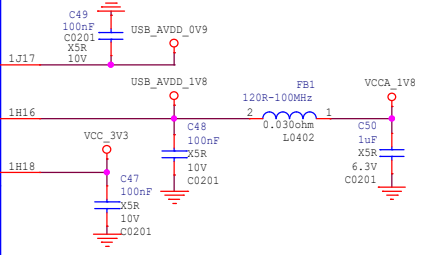
## USB2.0 OTG\_0 (Download Port)



## USB2.0 HOST\_1 (DP/DM for USB3.0 HOST)



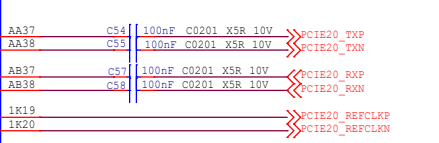
## USB2.0 Power (for OTG\_0 and HOST\_1)



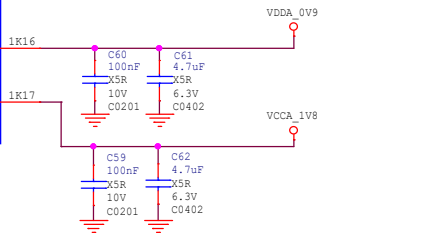
## MULTI PHY U\_S (SS for USB3.0 HOST or SATA3\_1)



## MULTI PHY P\_S (PCIe2.0 or SATA3\_2)



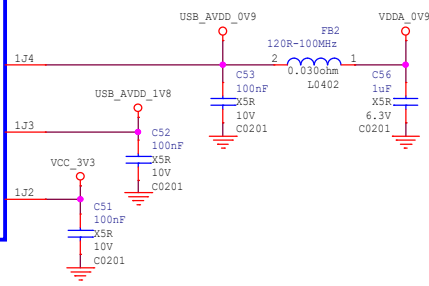
## MULTI PHY Power (for MULTI PHY U\_S and P\_S)



U10  
RK3566  
BGA565\_15R50x14R40x0R90

# RK3566\_V (USB2.0 HOST)

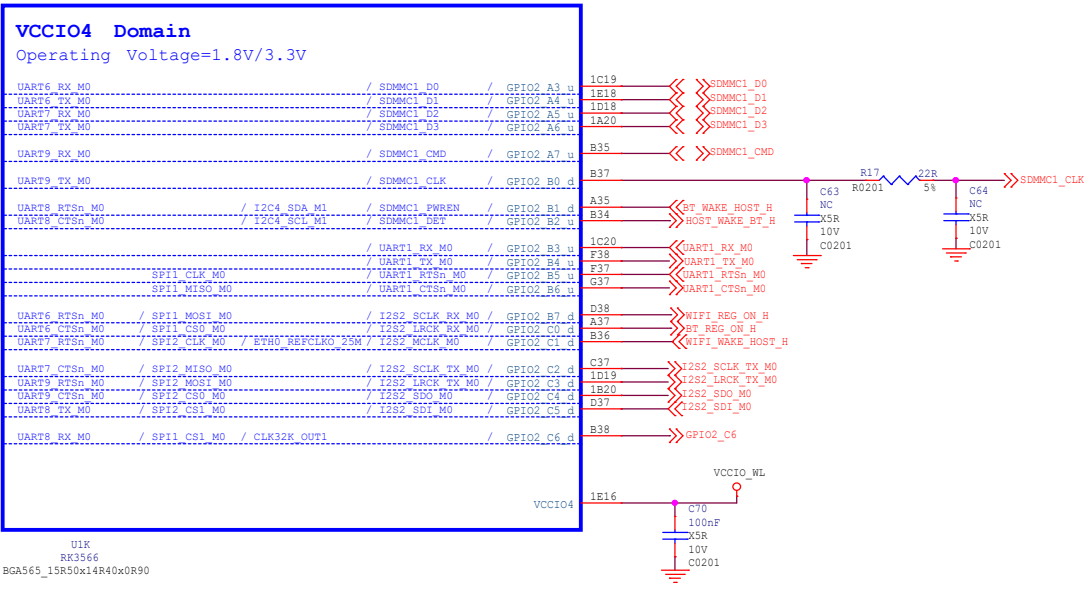
## USB2.0 (for HOST\_2 and HOST\_3)



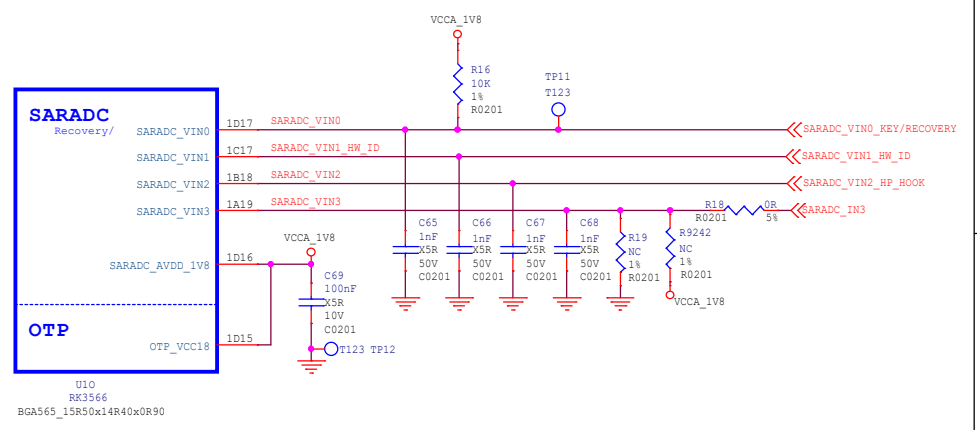
U1V  
RK3566  
BGA565\_15R50x14R40x0R90



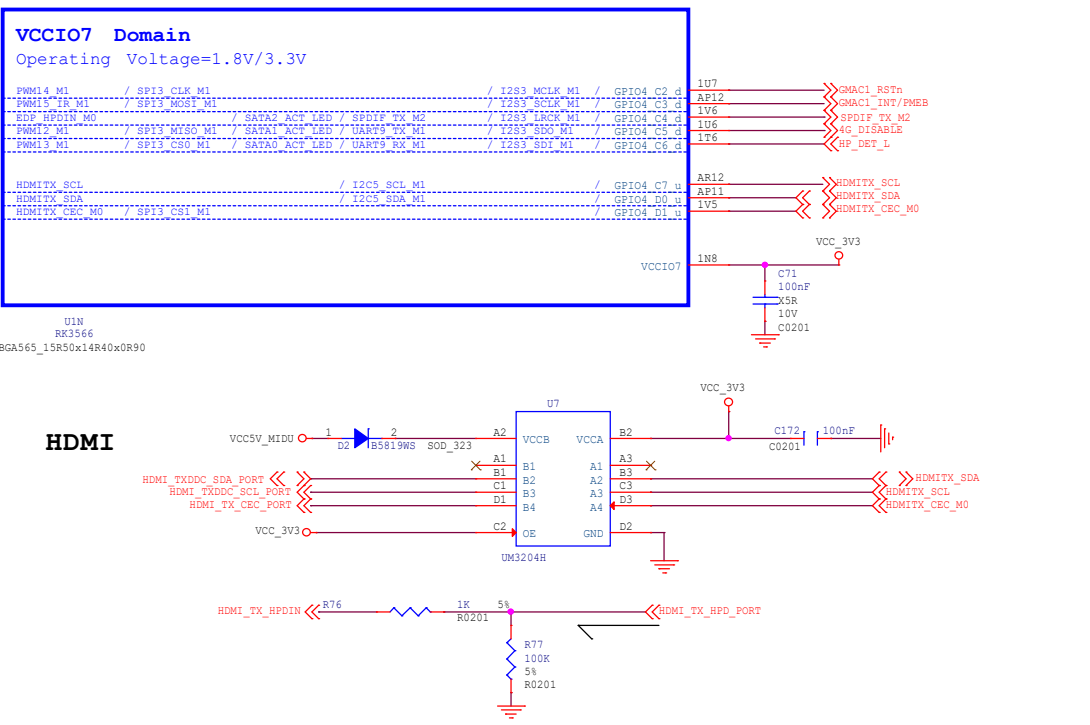
# RK3566\_K (VCCIO4 Domain)



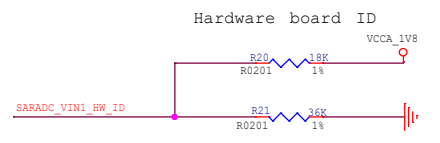
# RK3566\_O (SARADC/OTP)



# RK3566\_N (VCCIO7 Domain)

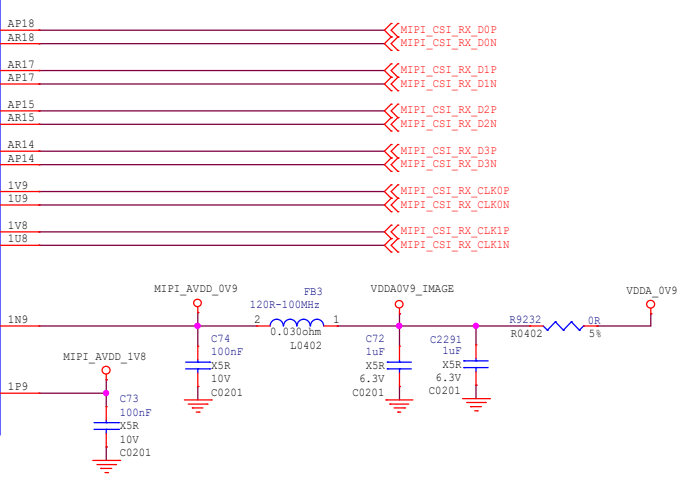
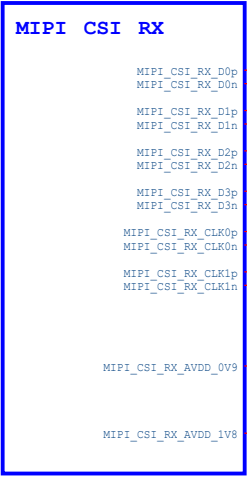


SARADC_VIN1_HW_ID	Rup	Rdown	ADC
G	10K	DNP	
Version 1.2	20K	100K	
Version 1.3	18K	36K	
A	DNP	100K	
B	100K	20K	
C	100K	51K	
D	100K	100K	
E			
F			
NC	DNP	DNP	



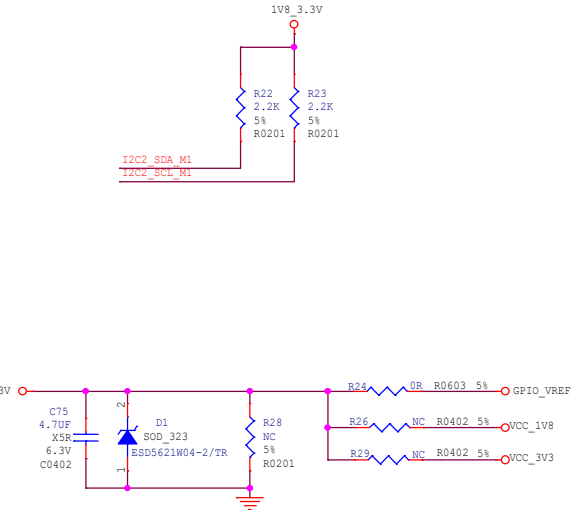
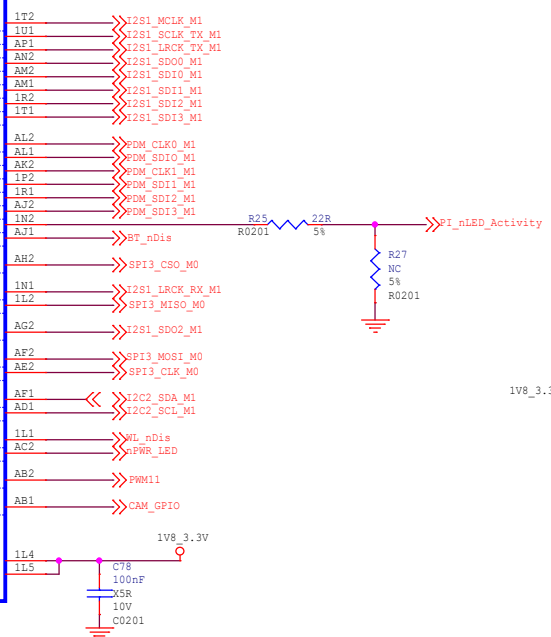
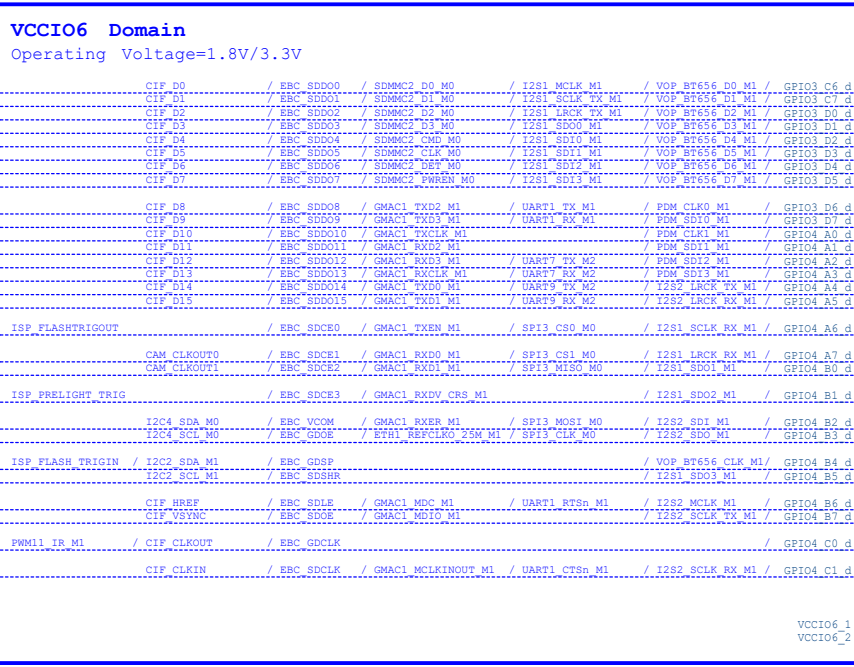
Size	Title: ROCK3 Compute Module	REV
A3	Page Name: RK3566_SARADC/GPIO	1.321A
Date: Thursday, February 16, 2023	Sheet 09	of 23

# RK3566\_P (MIPI\_CSI\_RX)



U1P  
RK3566  
BGA565\_15R50x14R40x0R90

# RK3566\_M (VCCIO6 Domain)



U1M  
RK3566  
BGA565\_15R50x14R40x0R90

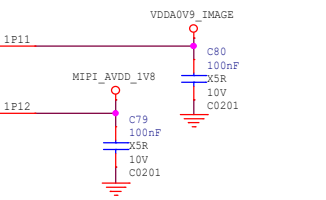


Size	Title:	ROCK3 Compute Module	REV
A3	Page Name:	RK3566_VI_Interface	1.321A
Date:	Thursday, February 16, 2023	Sheet	10 of 23

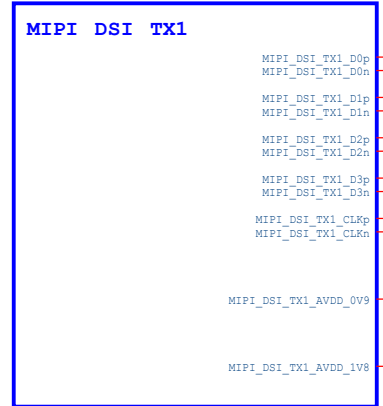
# RK3566\_R (MIPI\_DSI\_TX0/LVDS\_TX0)



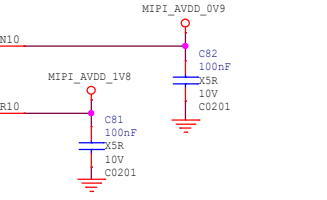
U1R  
 RK3566  
 BGA565\_15R50x14R40x0R90



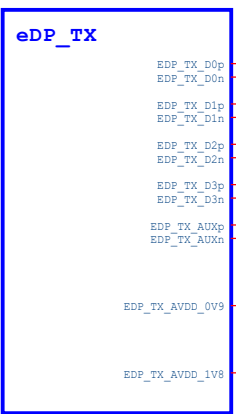
# RK3566\_S (MIPI\_DSI\_TX1)



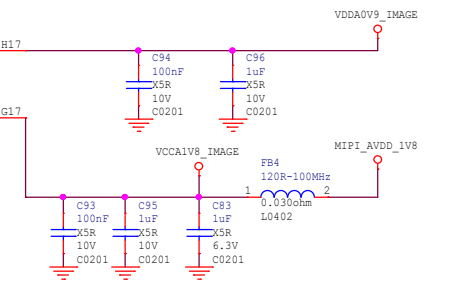
U1S  
 RK3566  
 BGA565\_15R50x14R40x0R90



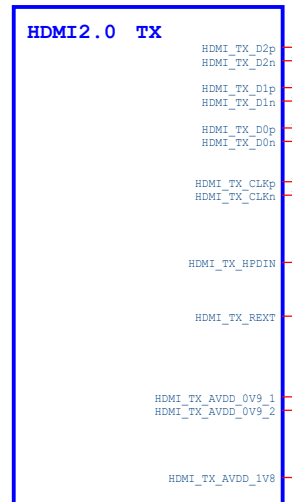
# RK3566\_T (eDP TX)



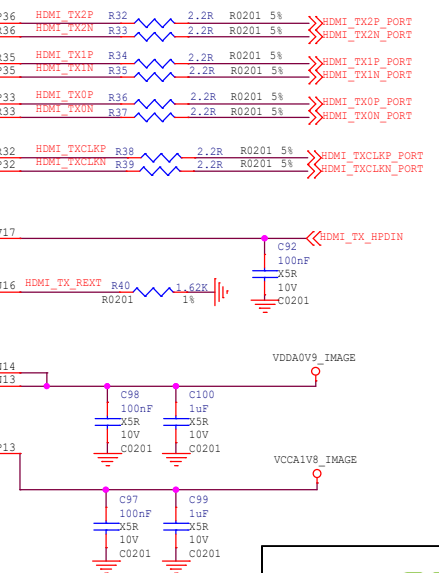
U1T  
 RK3566  
 BGA565\_15R50x14R40x0R90



# RK3566\_Q (HDMI2.0 TX)



U1Q  
 RK3566  
 BGA565\_15R50x14R40x0R90

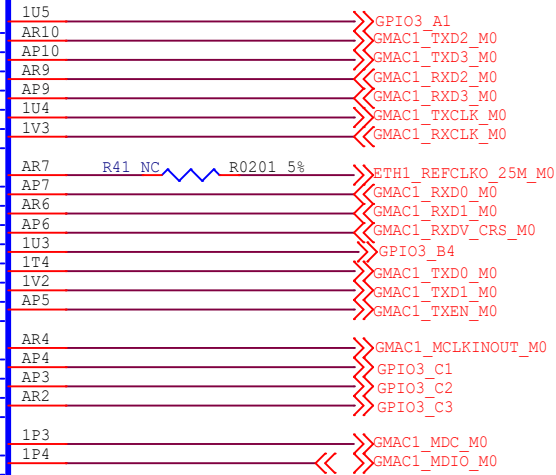


# RK3566\_L (VCCIO5 Domain)

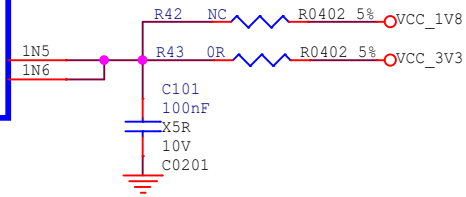
## VCCIO5 Domain

Operating Voltage=1.8V/3.3V

VOP_BT1120_D0	/ SPI1_CS0_M1			/ SDMMC2_D0_M1	/ GPIO3_A1_d
VOP_BT1120_D1		/ GMAC1_TXD2_M0	/ I2S3_MCLK_M0	/ SDMMC2_D1_M1	/ GPIO3_A2_d
VOP_BT1120_D2		/ GMAC1_TXD3_M0	/ I2S3_SCLK_M0	/ SDMMC2_D2_M1	/ GPIO3_A3_d
VOP_BT1120_D3		/ GMAC1_RXD2_M0	/ I2S3_LRCK_M0	/ SDMMC2_D3_M1	/ GPIO3_A4_d
VOP_BT1120_D4		/ GMAC1_RXD3_M0	/ I2S3_SDO_M0	/ SDMMC2_CMD_M1	/ GPIO3_A5_d
VOP_BT1120_CLK		/ GMAC1_TXCLK_M0	/ I2S3_SBI_M0	/ SDMMC2_CLK_M1	/ GPIO3_A6_d
VOP_BT1120_D5		/ GMAC1_RXCLK_M0		/ SDMMC2_DET_M1	/ GPIO3_A7_d
VOP_BT1120_D6		/ ETH1_REFCLK0_25M_M0		/ SDMMC2_PWREN_M1	/ GPIO3_B0_d
PWM8_M0	/ VOP_BT1120_D7	/ GMAC1_RXD0_M0	/ UART4_RX_M1		/ GPIO3_B1_d
PWM9_M0	/ VOP_BT1120_D8	/ GMAC1_RXD1_M0	/ UART4_TX_M1		/ GPIO3_B2_d
VOP_BT1120_D9	/ I2C5_SCL_M0	/ GMAC1_RXDV_CRS_M0		/ PDM_SDI0_M2	/ GPIO3_B3_d
VOP_BT1120_D10	/ I2C5_SDA_M0	/ GMAC1_RXER_M0		/ PDM_SDI1_M2	/ GPIO3_B4_d
PWM10_M0	/ VOP_BT1120_D11	/ I2C3_SCL_M1	/ GMAC1_TXD0_M0		/ GPIO3_B5_d
PWM11_IR_M0	/ VOP_BT1120_D12	/ I2C3_SDA_M1	/ GMAC1_TXD1_M0		/ GPIO3_B6_d
PWM12_M0		/ GMAC1_TXEN_M0	/ UART3_TX_M1	/ PDM_SDI2_M2	/ GPIO3_B7_d
PWM13_M0		/ GMAC1_MCLKINOUT_M0	/ UART3_RX_M1	/ PDM_SDI3_M2	/ GPIO3_C0_d
VOP_BT1120_D13	/ SPI1_MOSI_M1		/ PCIE20_PERSn_M1	/ I2S1_SDO2_M2	/ GPIO3_C1_d
VOP_BT1120_D14	/ SPI1_MISO_M1		/ UART5_TX_M1	/ I2S1_SDO3_M2	/ GPIO3_C2_d
VOP_BT1120_D15	/ SPI1_CLK_M1		/ UART5_RX_M1	/ I2S1_SCLK_RX_M2	/ GPIO3_C3_d
PWM14_M0	/ VOP_PWM_M1	/ GMAC1_MDC_M0	/ UART7_TX_M1	/ PDM_CLK1_M2	/ GPIO3_C4_d
PWM15_IR_M0	/ SPDIF_TX_M1	/ GMAC1_MDIO_M0	/ UART7_RX_M1	/ I2S1_LRCK_RX_M2	/ GPIO3_C5_d



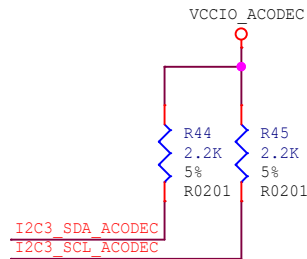
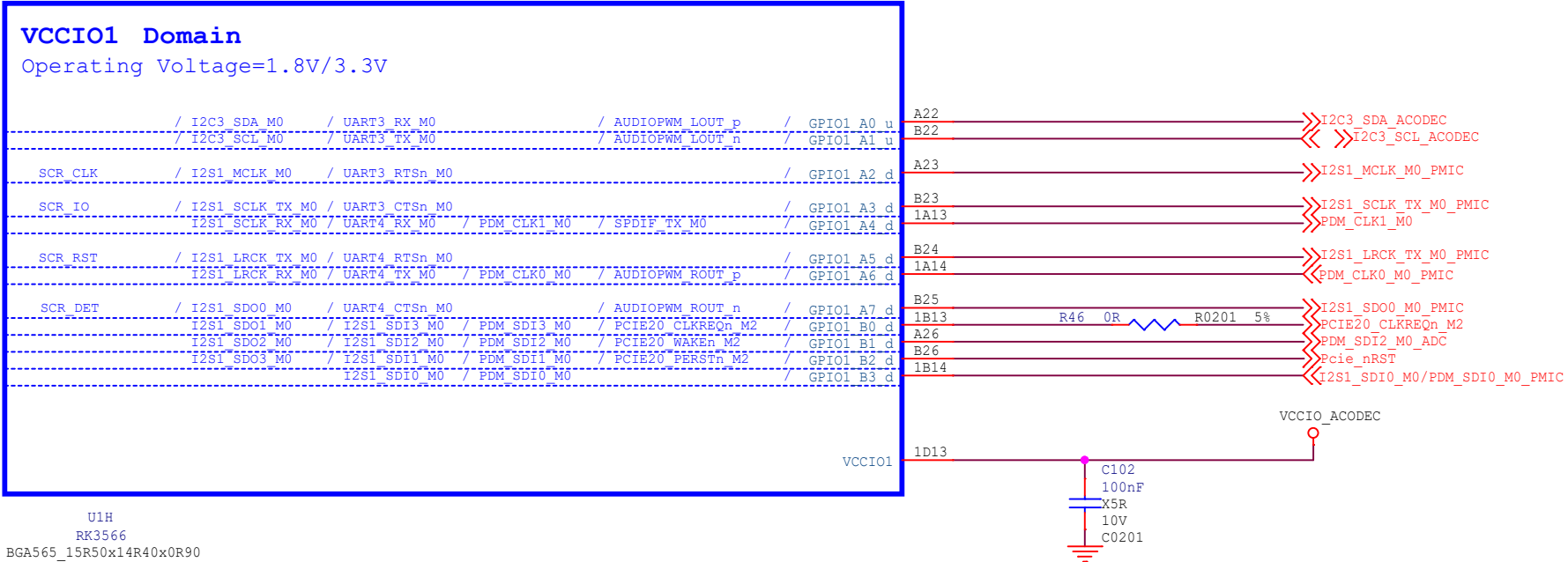
VCCIO5\_1  
VCCIO5\_2



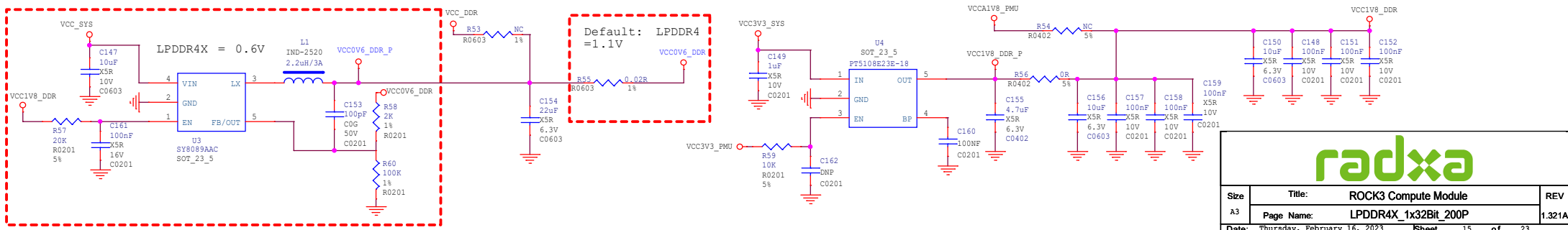
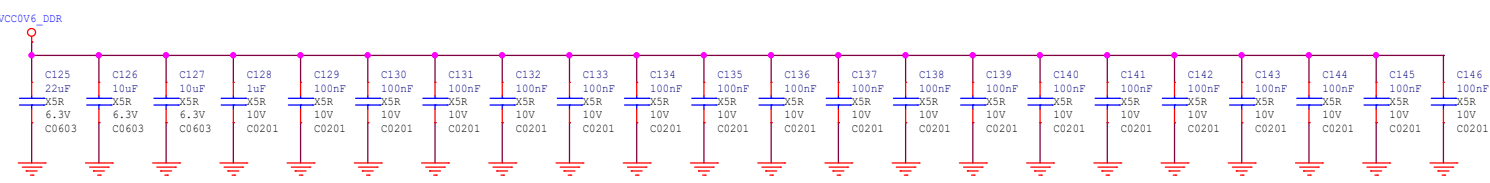
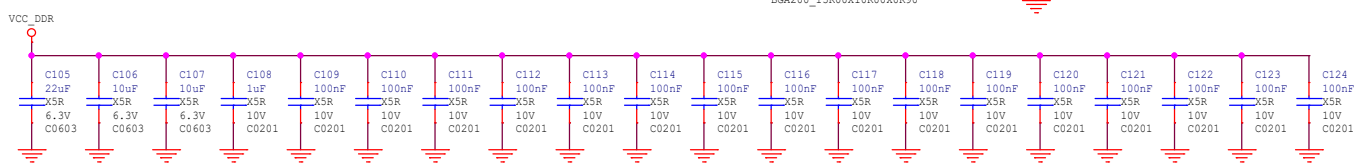
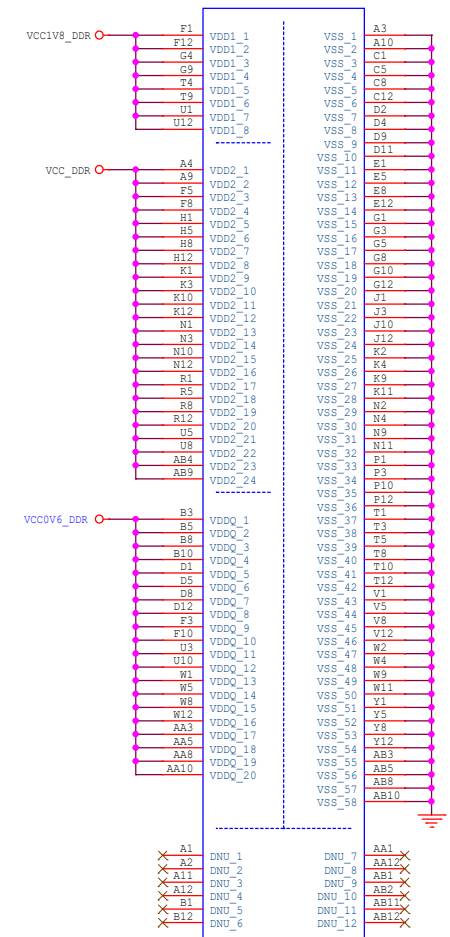
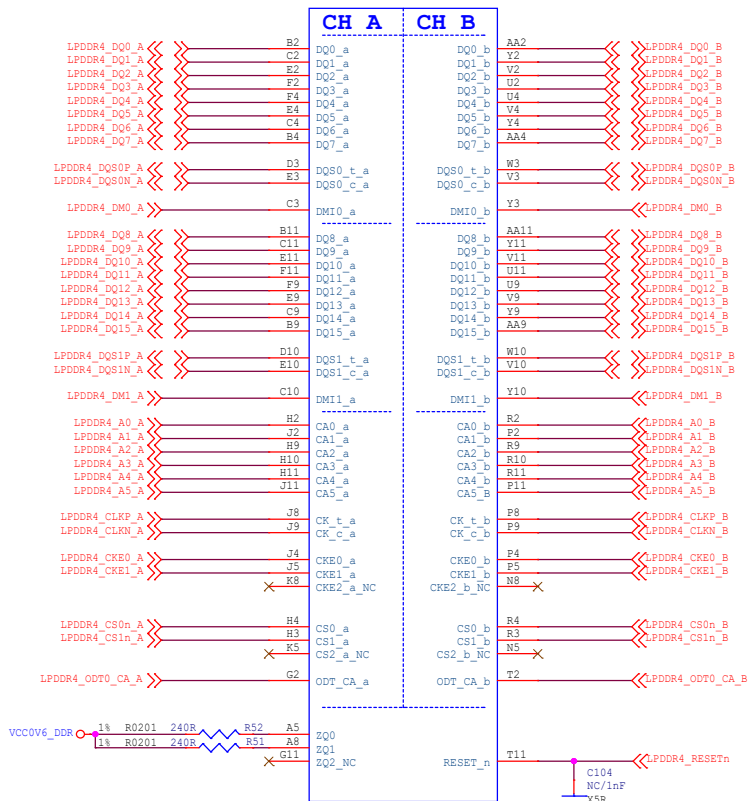
U1L  
RK3566  
BGA565\_15R50x14R40x0R90

Size	Title: ROCK3 Compute Module	REV
A4	Page Name: RK3566_VO_Interface_2	1.321A
Date: Thursday, February 16, 2023 Sheet 12 of 23		

# RK3566\_H (VCCIO1 Domain)







radxa

Size: A3

Title: ROCK3 Compute Module

Page Name: LPDDR4X\_1x32Bit\_200P

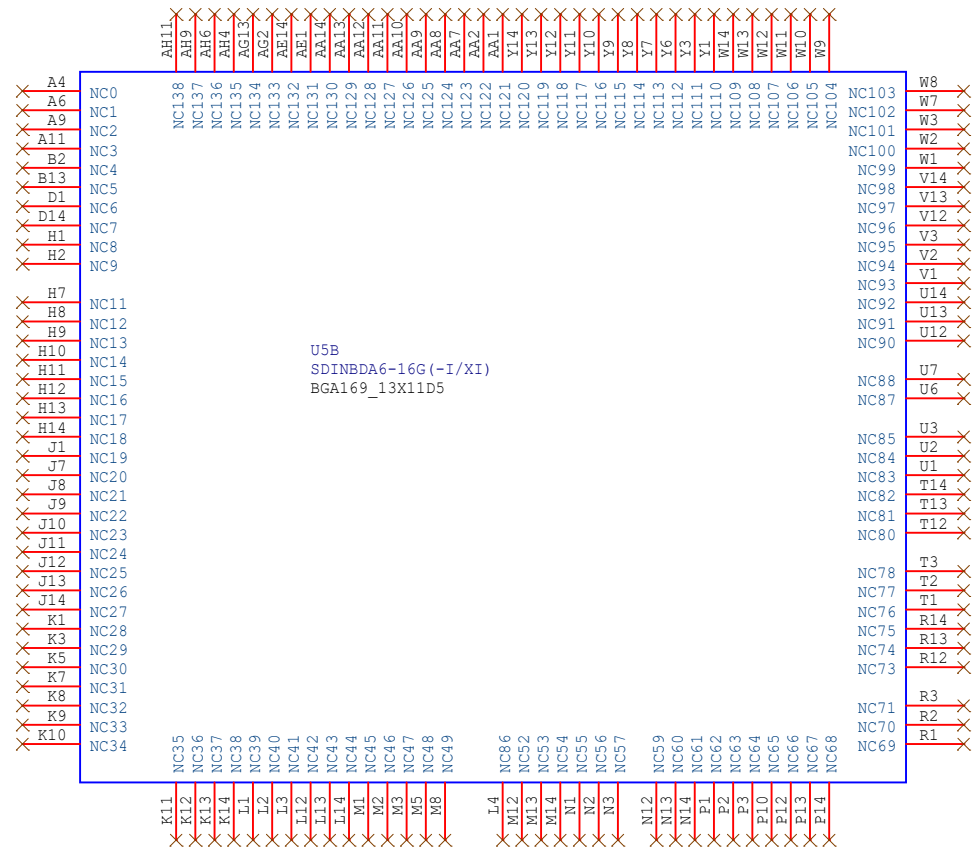
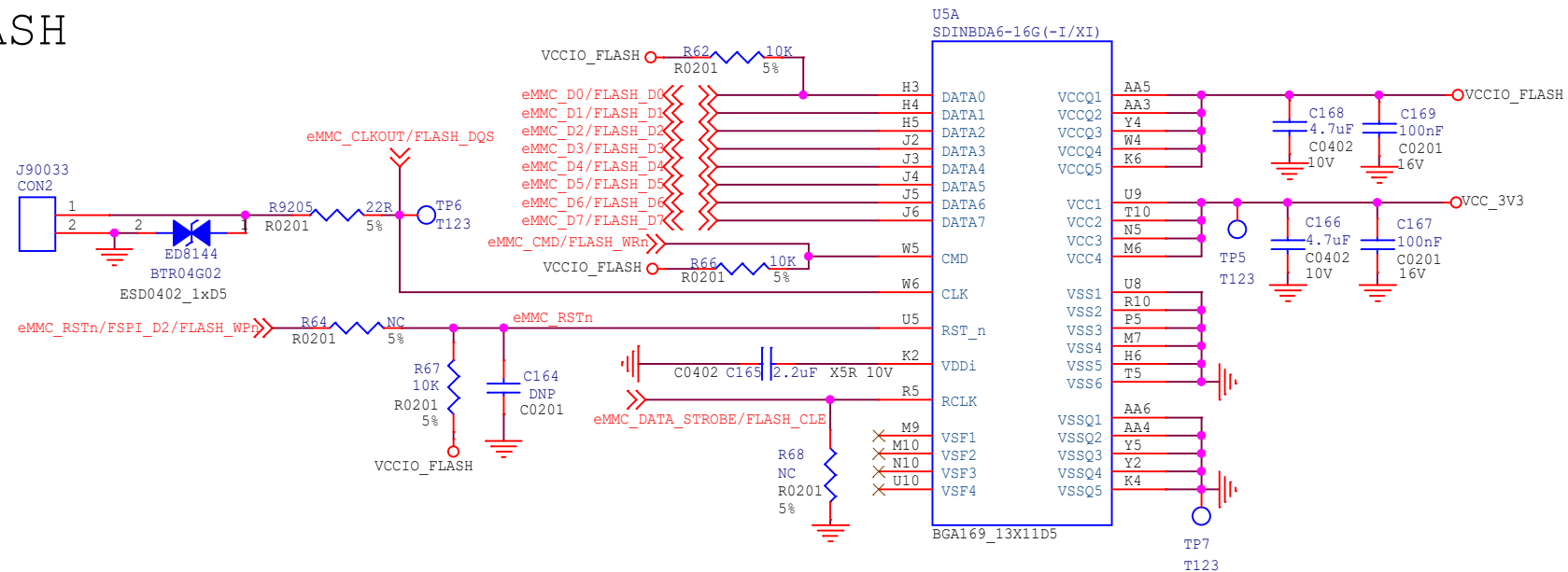
Date: Thursday, February 16, 2023

Sheet: 15 of 23

REV: 1.321A



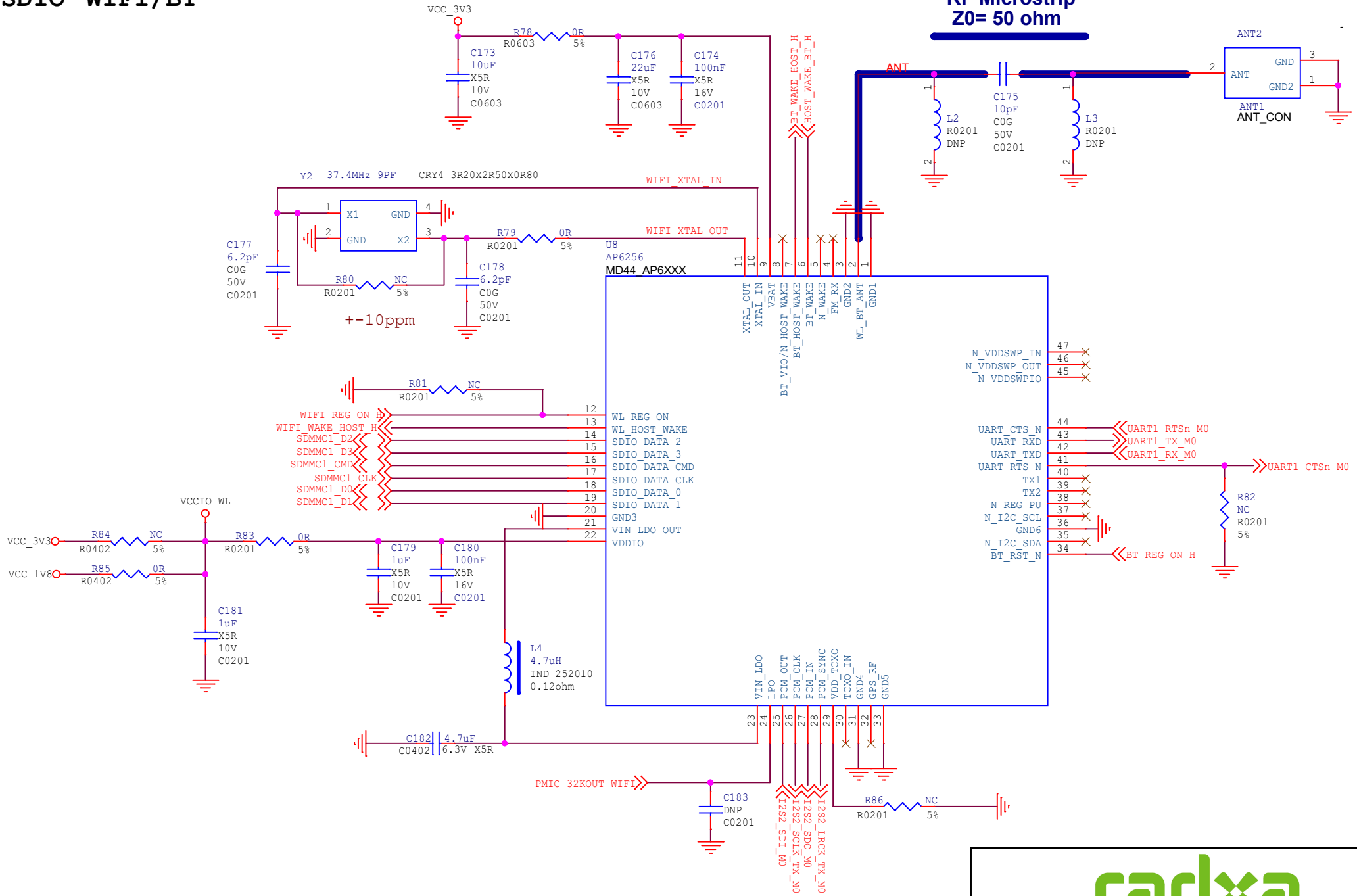
# eMMC FLASH



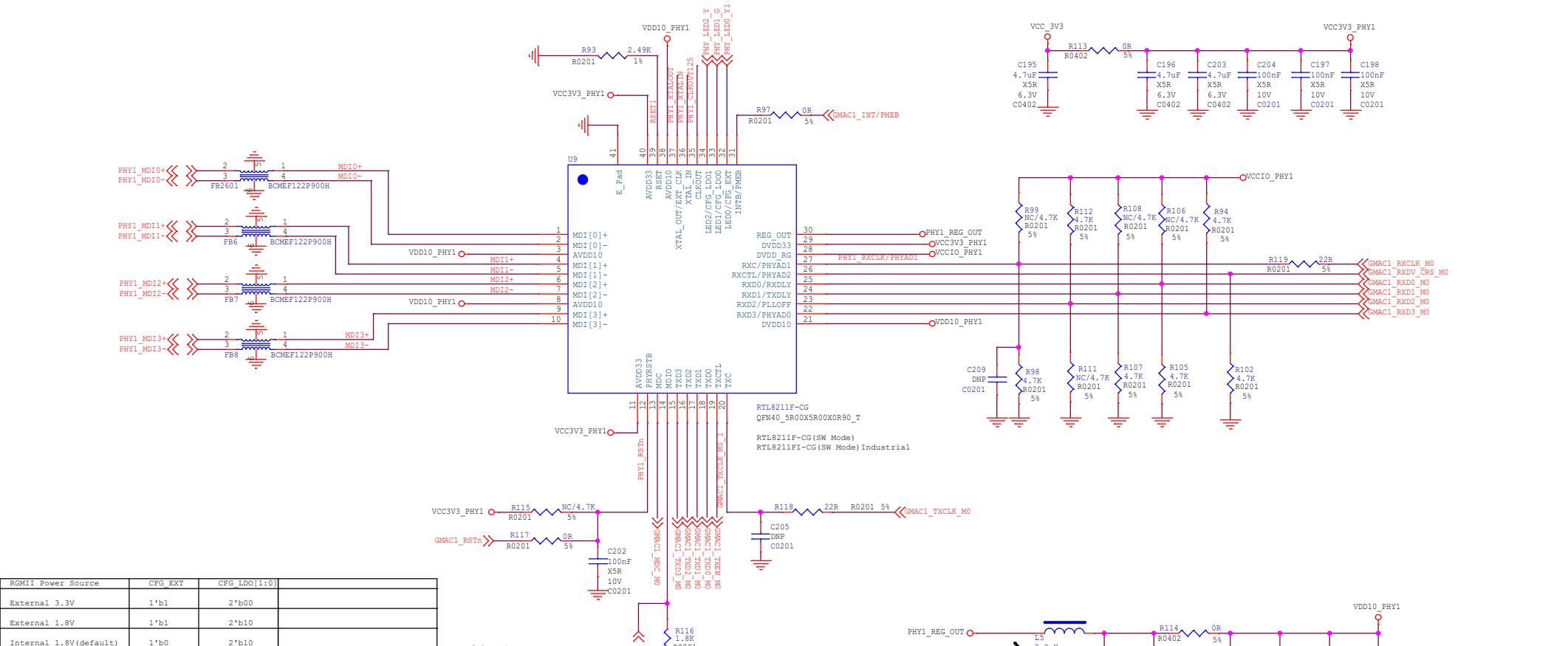
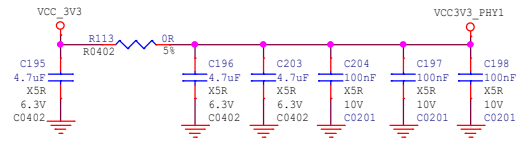
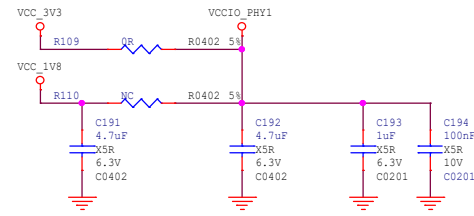
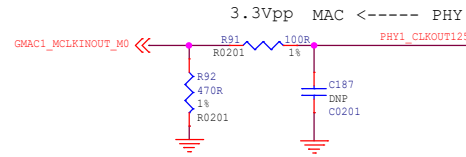
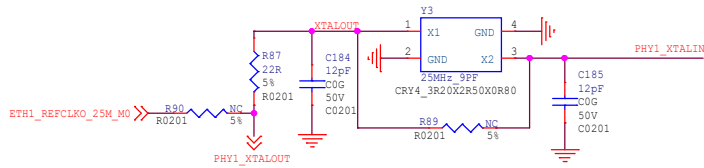
Size	Title: ROCK3 Compute Module	REV
A4	Page Name: Memory-eMMC	1.321A
Date: Thursday, February 16, 2023 Sheet 16 of 23		

# SDIO WIFI/BT

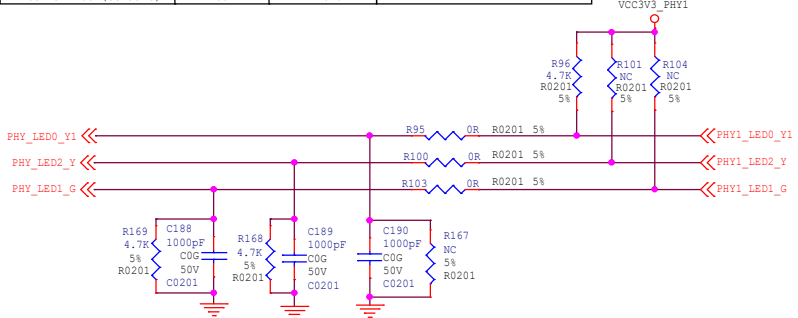
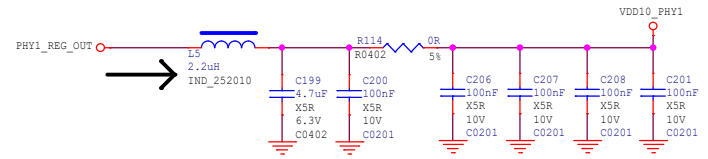
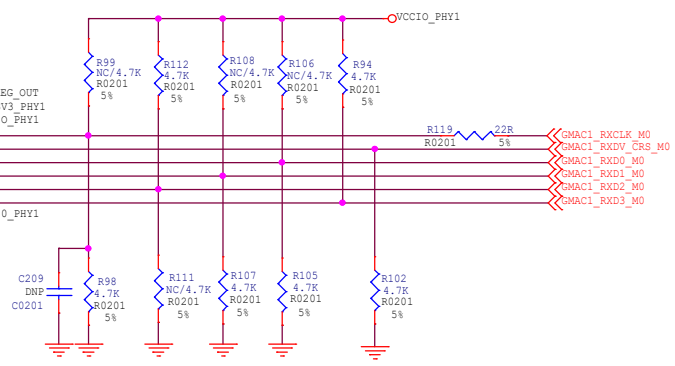
**RF Microstrip**  
Z0= 50 ohm



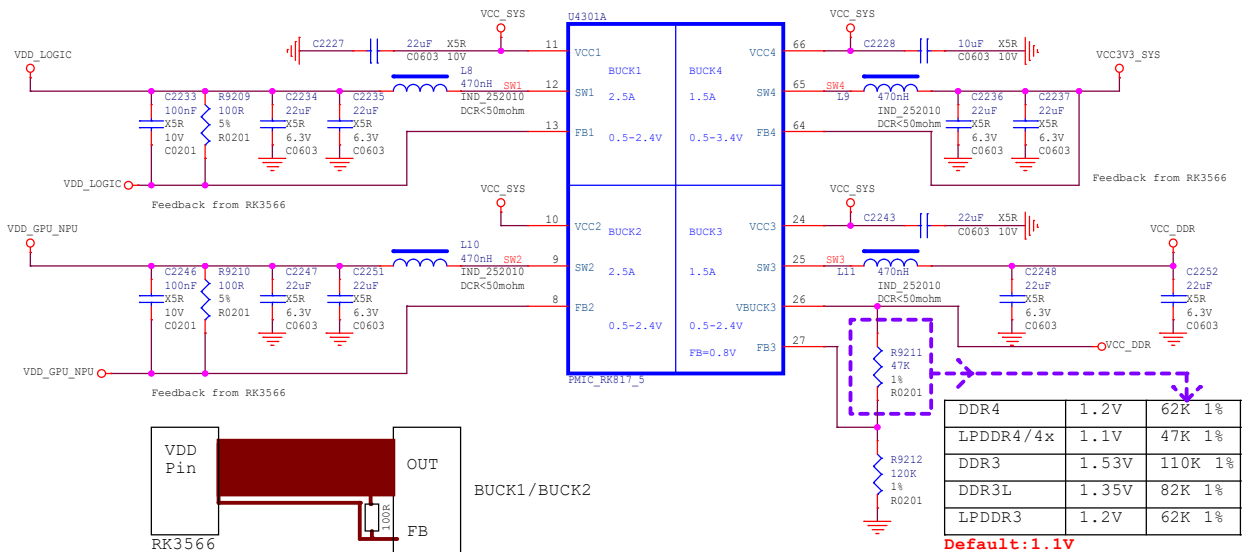
Size	Title: ROCK3 Compute Module	REV
A4	Page Name: WIFI/BT-SDIO	1.321A
Date: Thursday, February 16, 2023	Sheet	17 of 23



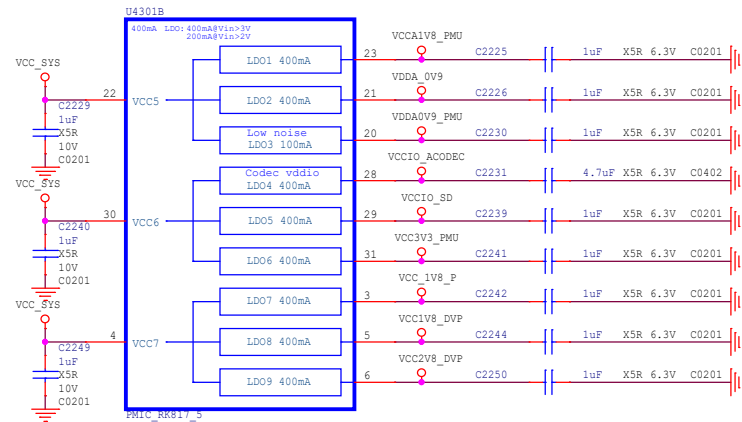
RGMI Power Source	CFG EXT	CFG LDO[1:0]
External 3.3V	1'b1	2'b00
External 1.8V	1'b1	2'b10
Internal 1.8V(default)	1'b0	2'b10



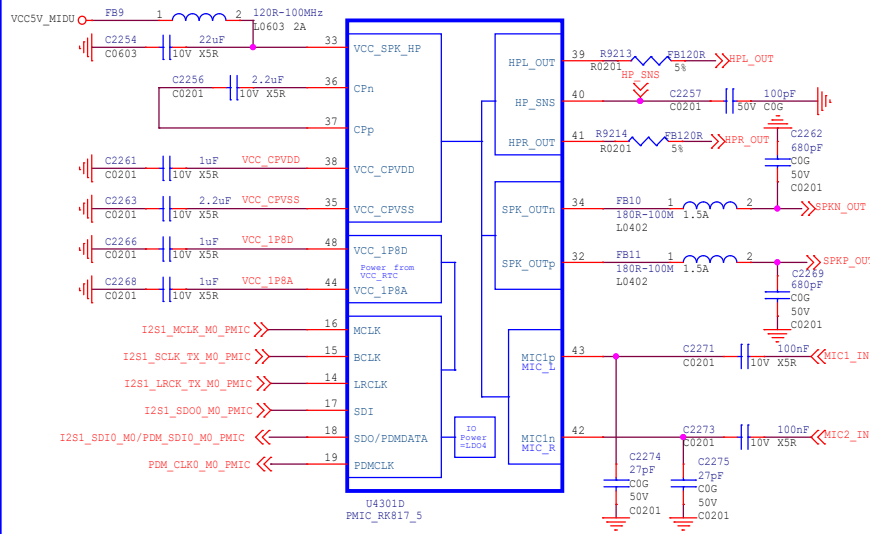
# PMIC RK817 DCDC



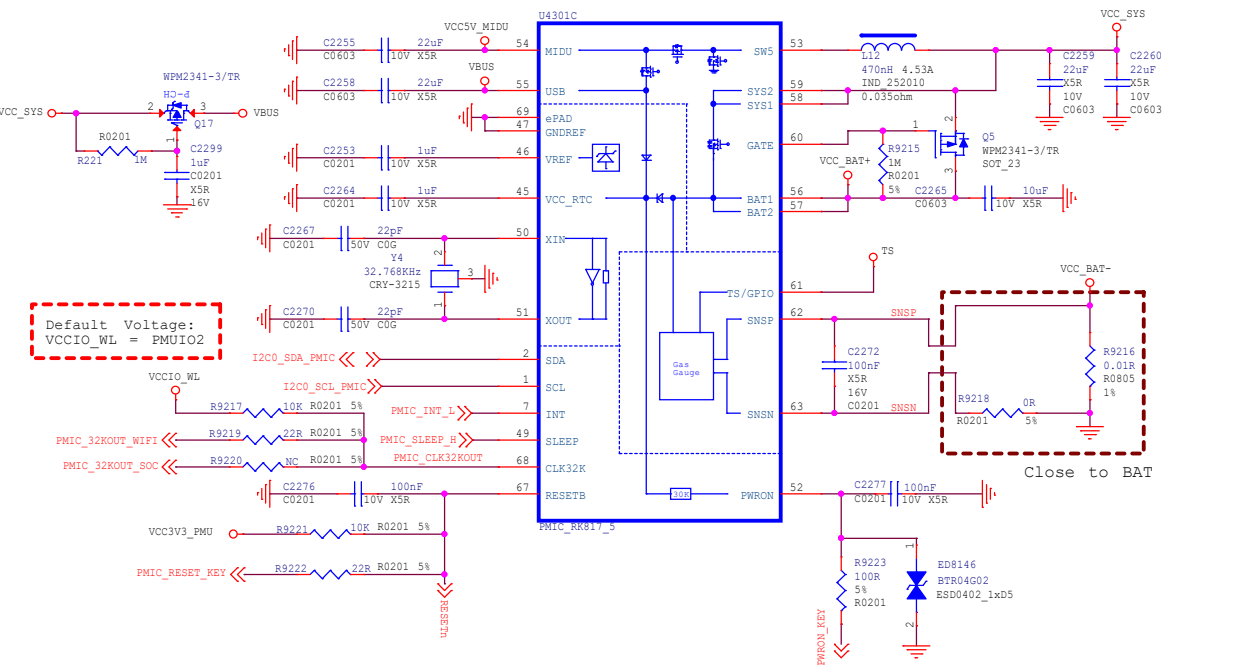
# PMIC RK817 LDO



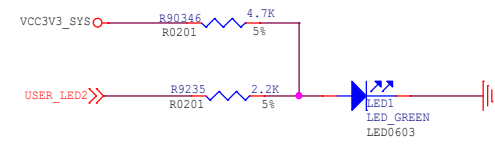
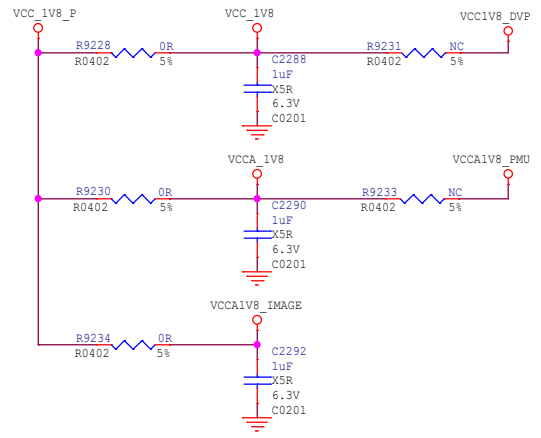
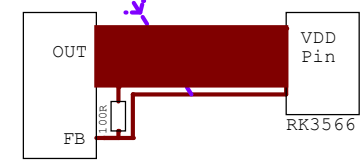
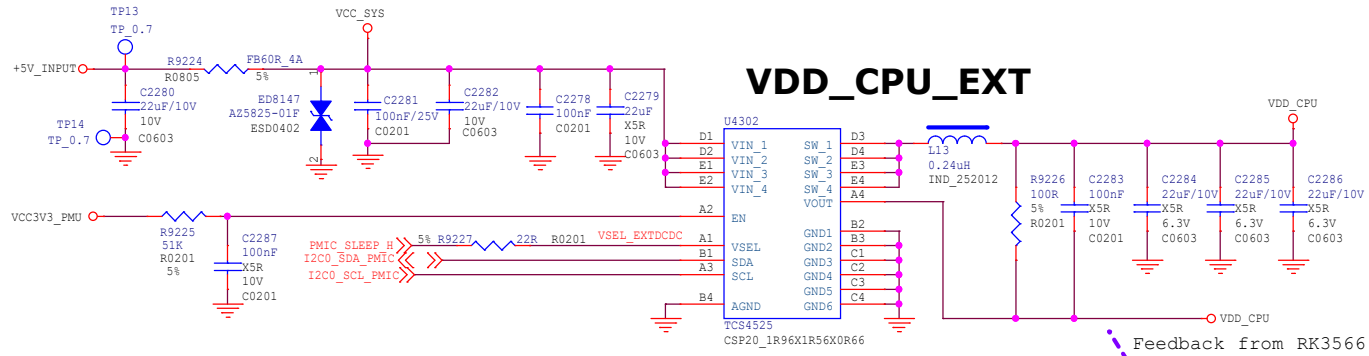
# PMIC RK817 CODEC



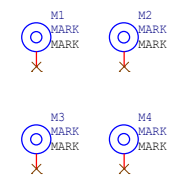
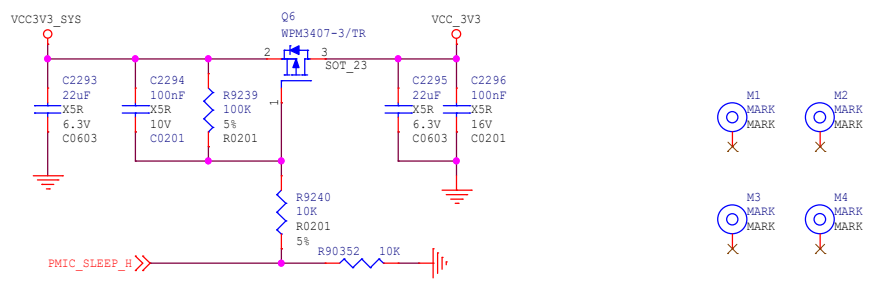
# PMIC RK817 Management




Size	Title: ROCK3 Compute Module	REV
A3	Page Name: Power PMIC	1.321A
Date: Thursday, February 16, 2023	Sheet 19 of 23	



### VCC\_3V3 (Power OFF under SLEEP)

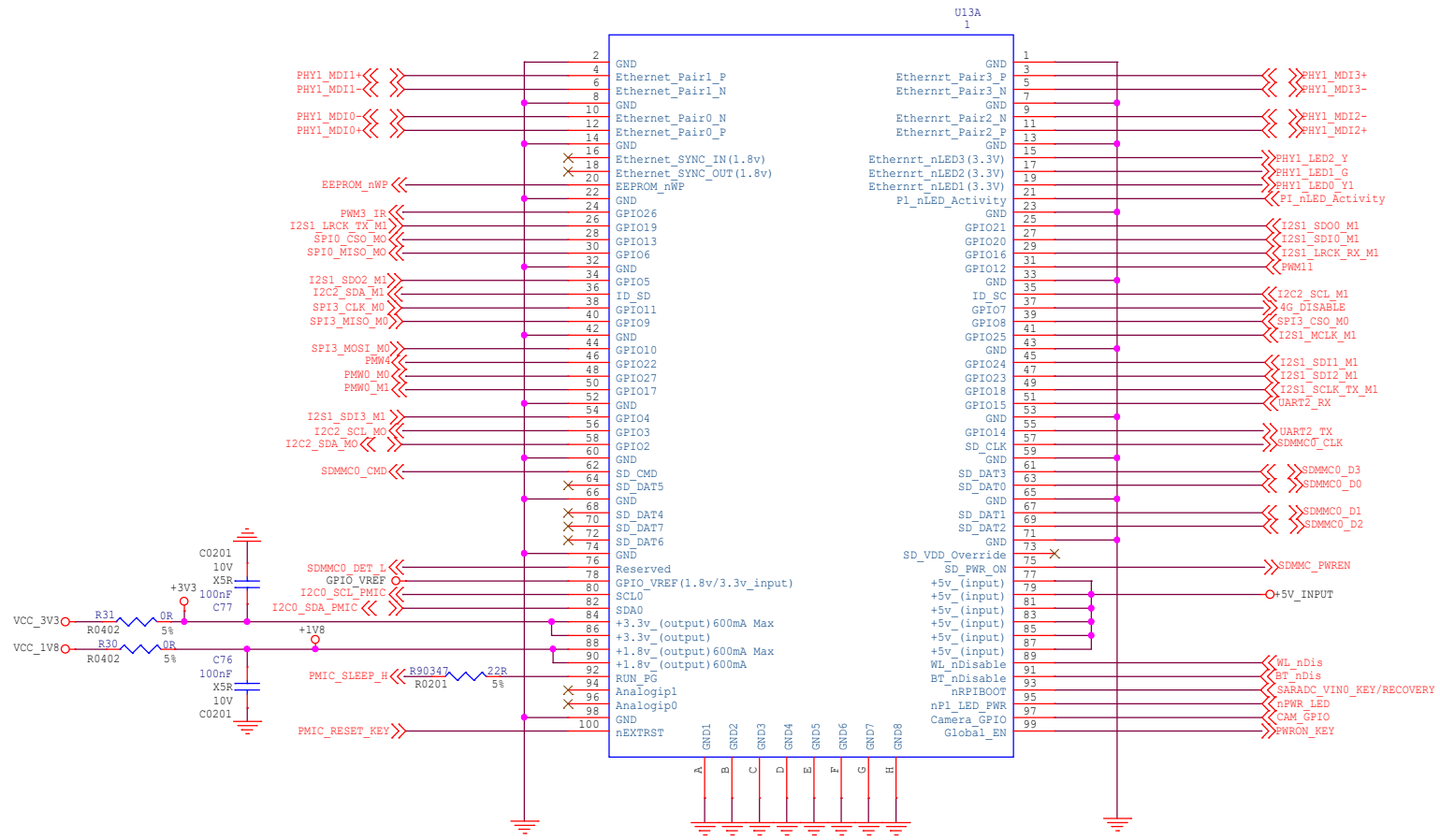


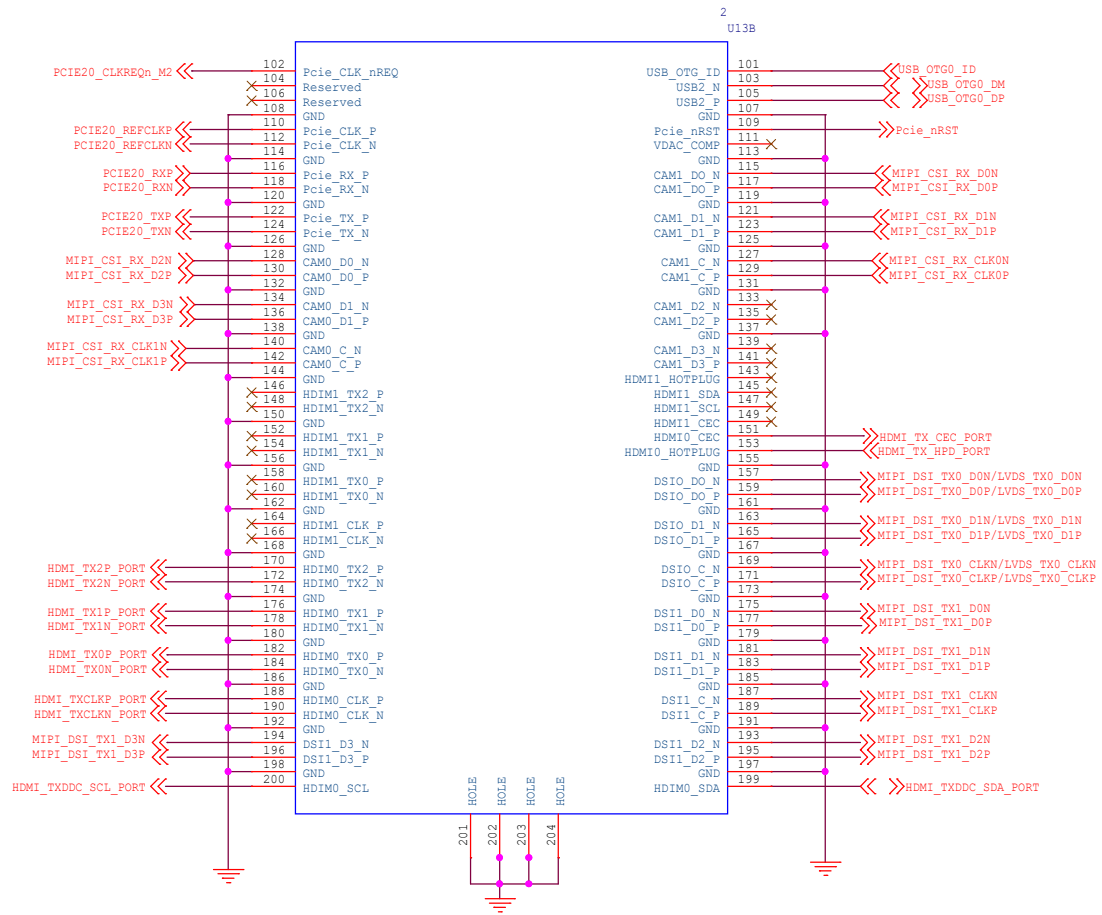


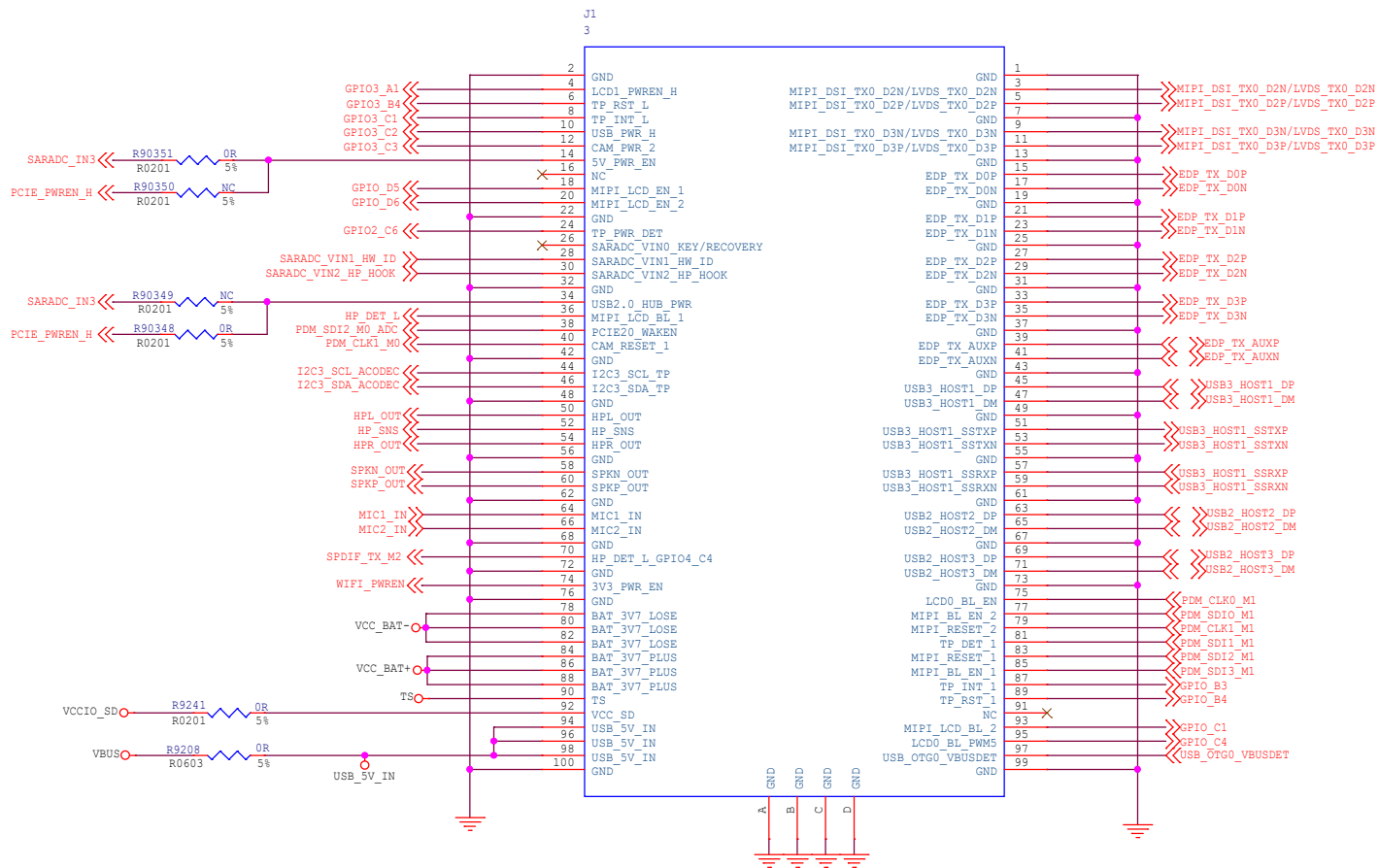
<b>Size</b>	<b>Title:</b> ROCK3 Compute Module	<b>REV</b>
<b>B</b>	<b>Page Name:</b> Power IN	<b>1.321A</b>
<b>Date:</b> Thursday, February 16, 2023 <b>Sheet</b> 20 <b>of</b> 23		



Size	Title: ROCK3 Compute Module	REV
B	Page Name: GPIO+VCC_Connector	1.321A
Date: Thursday, February 16, 2023	Sheet 21 of 23	







**radxa**

<b>Size</b>	<b>Title:</b> ROCK3 Compute Module	<b>REV</b>
<b>B</b>	<b>Page Name:</b> IO_Connector	1.321A
<b>Date:</b> Thursday, February 16, 2023 <b>Sheet</b> 23 <b>of</b> 23		