



Radxa CM3

Schematic

V1.32A

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

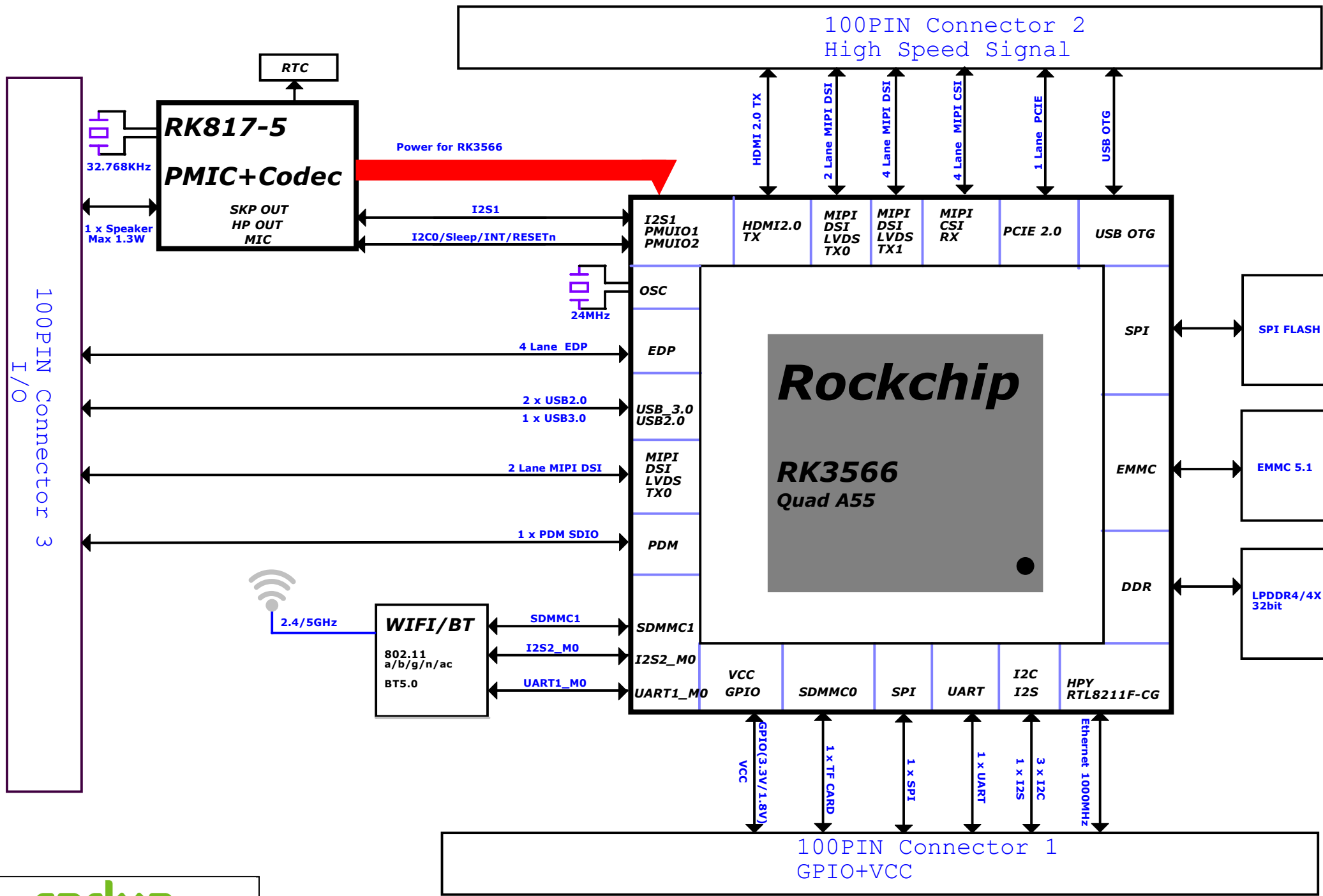


Size	Title: ROCK3 Compute Module	REV
A4	Page Name: Index	V1.32A
Date:	Thursday, November 03, 2022	Sheet 01 of 23

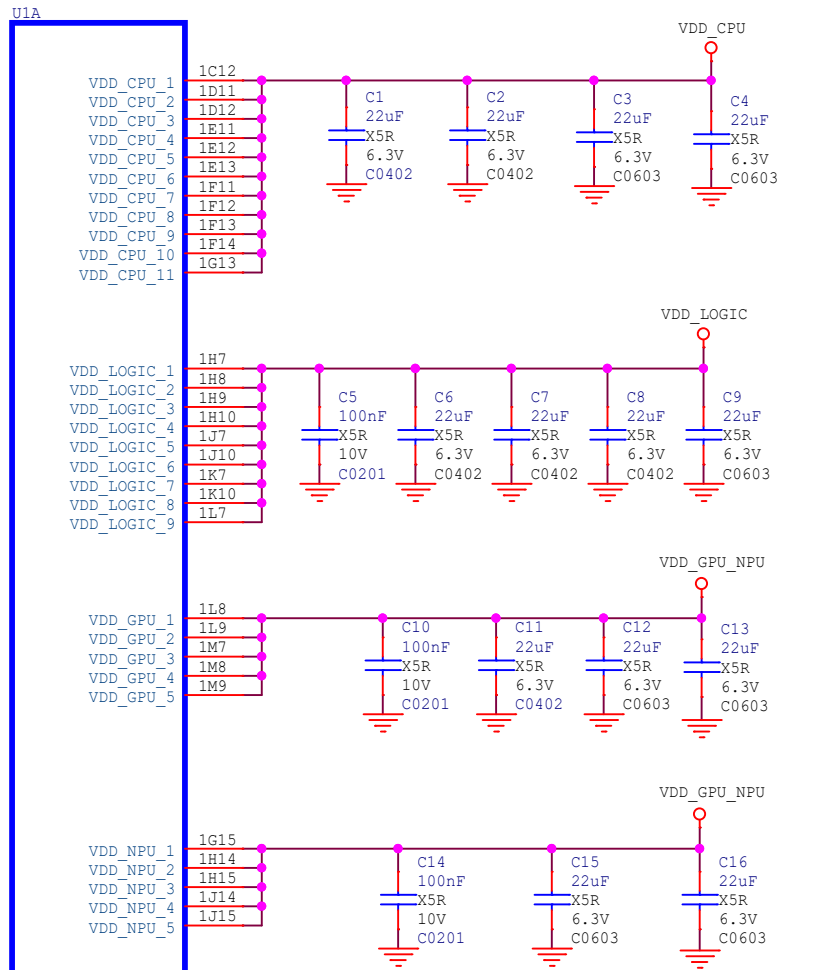
Revision History

Version	Date	Author	Change Note	Approved
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	



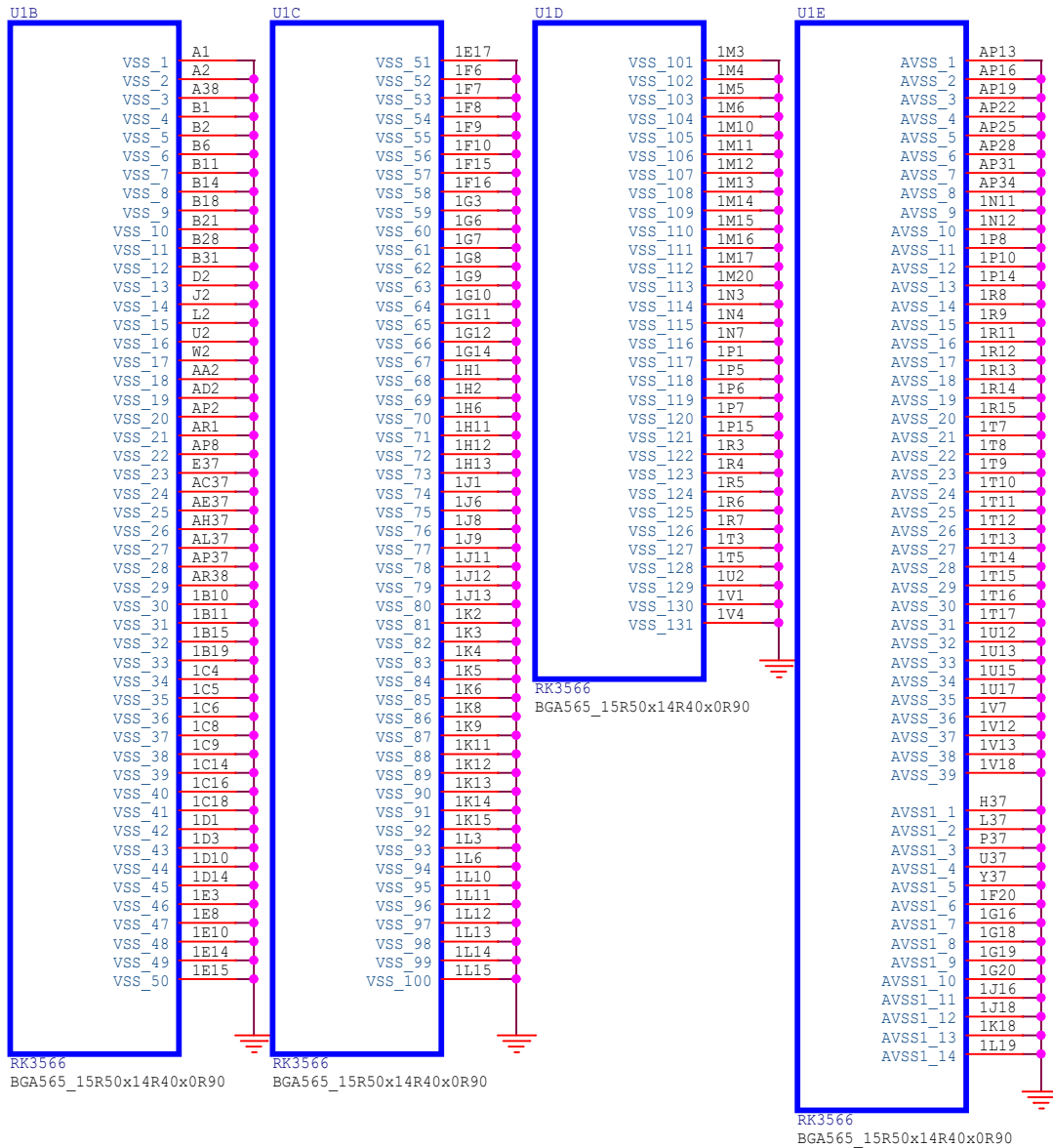


RK3566_ABCDE (Power&GND)



Caps should be placed close to the U1000 package

RK3566
BGA565_15R50x14R40x0R90



RK3566
BGA565_15R50x14R40x0R90

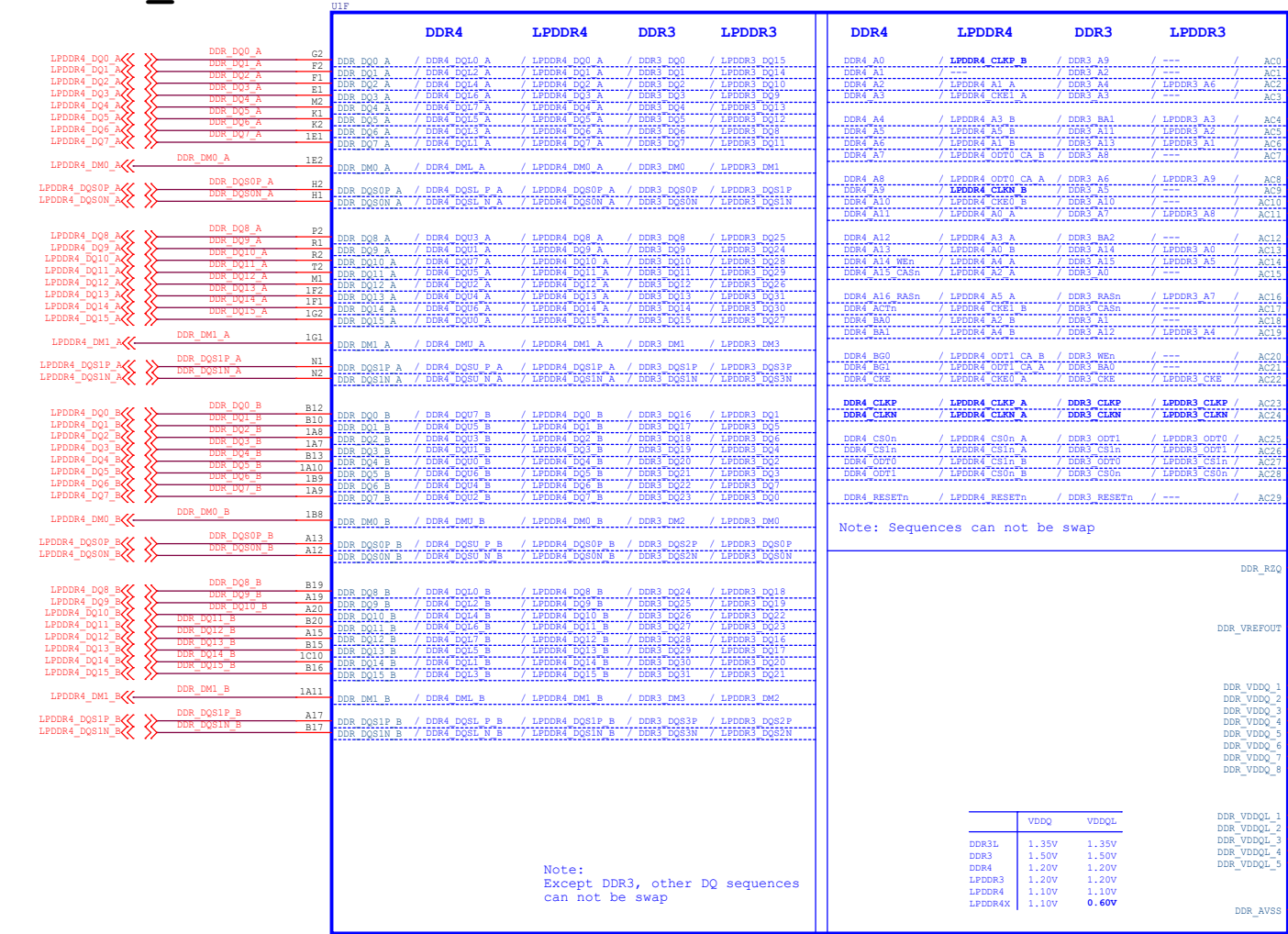
RK3566
BGA565_15R50x14R40x0R90

RK3566
BGA565_15R50x14R40x0R90



Size	Title: ROCK3 Compute Module	REV
A4	Page Name: RK3566_Power/GND	V1.32A
Date: Thursday, November 03, 2022	Sheet 04	of 23

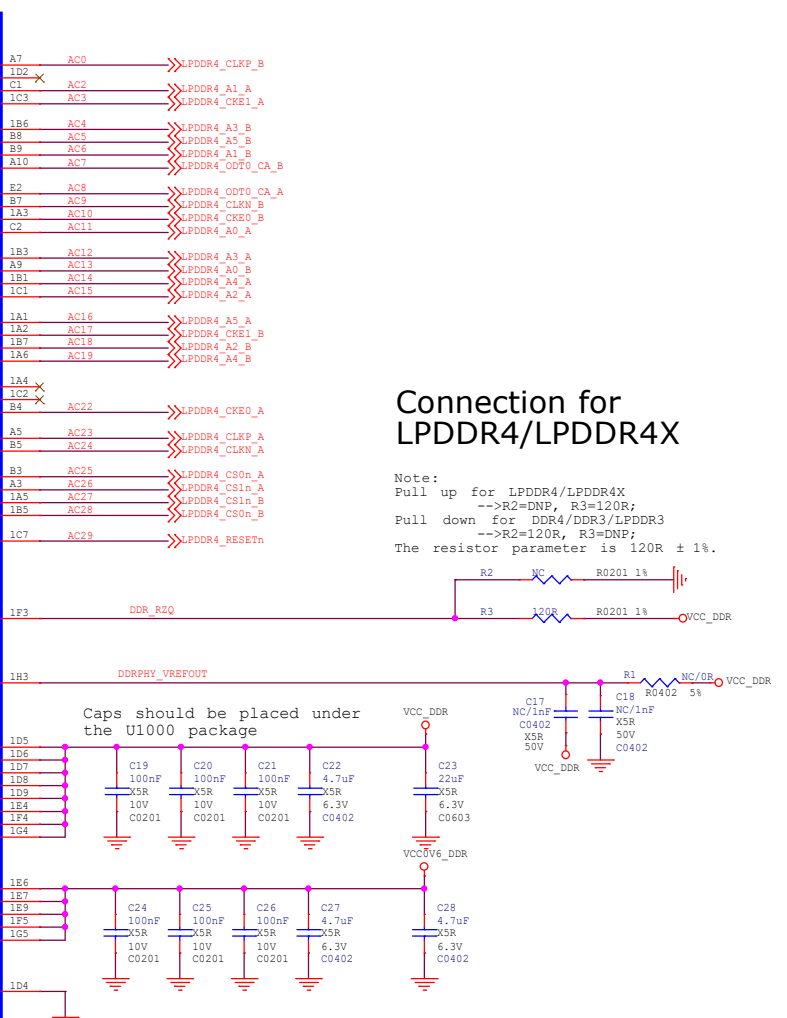
RK3566_F (DDR PHY)



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



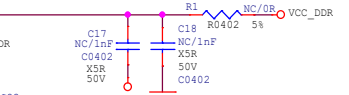
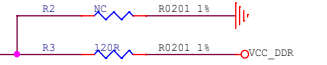
Caps should be placed under the U1000 package

Attention!

For LPDDR4X DDR_VDDQL = 0.6V,
For LPDDR3 ultra low power mode,
DDR_VDDQ&DDR_VDDQL connect to VCC_DDRC

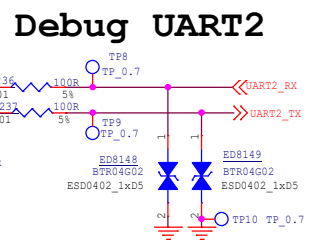
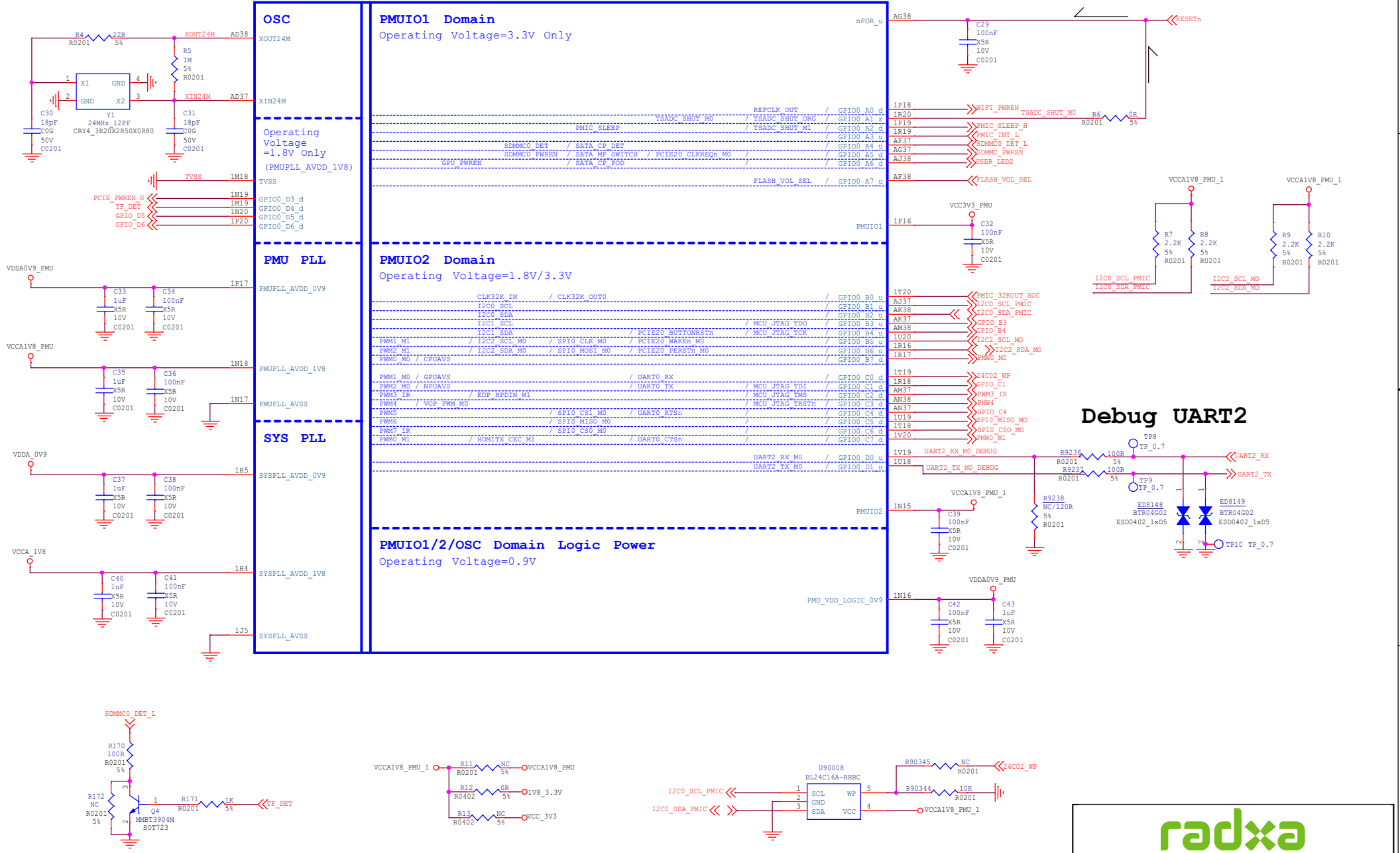
Connection for LPDDR4/LPDDR4X


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%.



RK3566_G (OSC/PLL/PMUIO1/2)

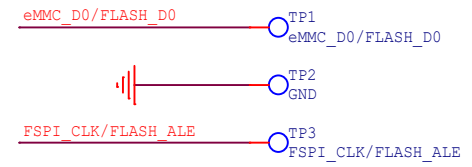
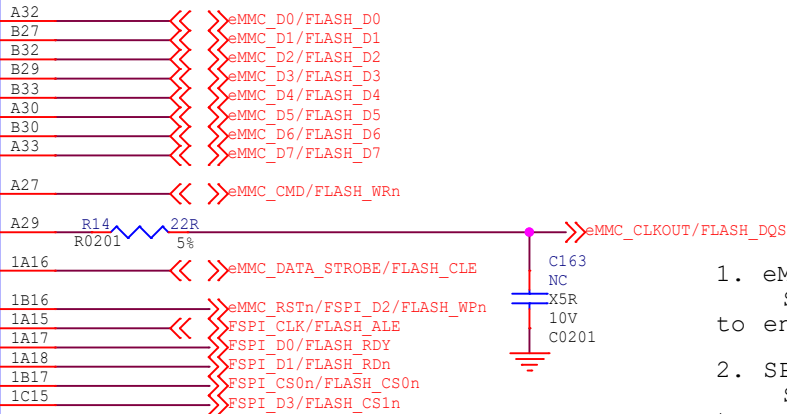
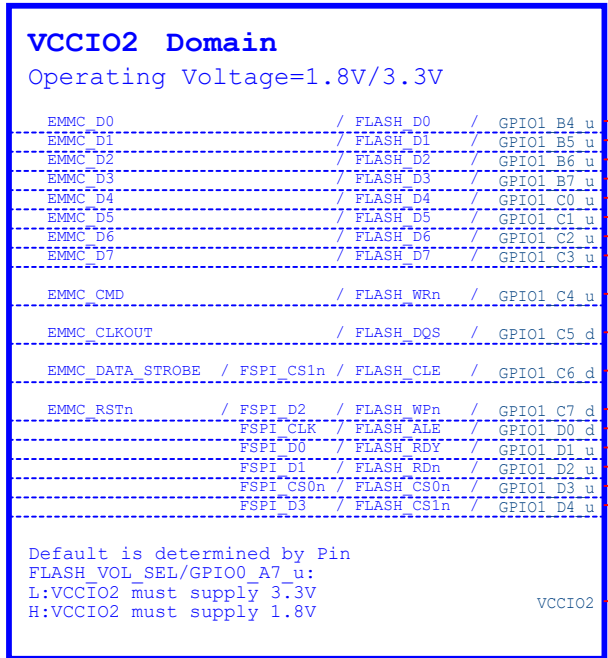
U1G
RK3566
BGA565_15R50x14R40x0R90





Size	Title: ROCK3 Compute Module	REV
A3	Page Name: RK3566_OSC/PLL/PMUIO	V1.32A
Date: Thursday, November 03, 2022 Sheet 06 of 23		

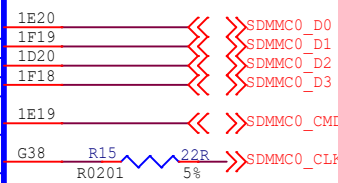
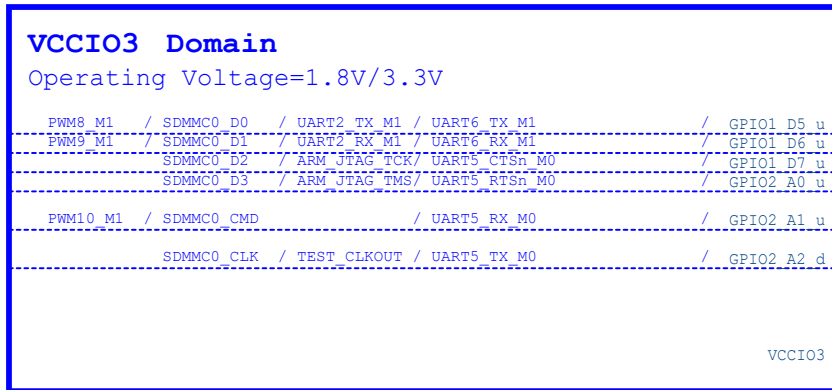
RK3566_I (VCCIO2 Domain)



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)



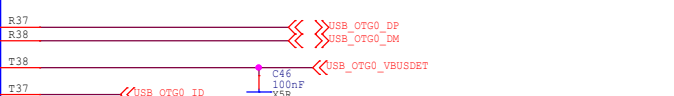
U1J
RK3566
BGA565_15R50x14R40x0R90



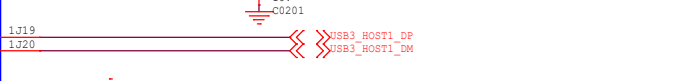
Size	Title: ROCK3 Compute Module	REV
A4	Page Name: RK3566_Flash/SD	V1.32A
Date: Thursday, November 03, 2022	Sheet 07 of 23	

RK3566_U (USB3.0/PCIe2.0x1/SATA)

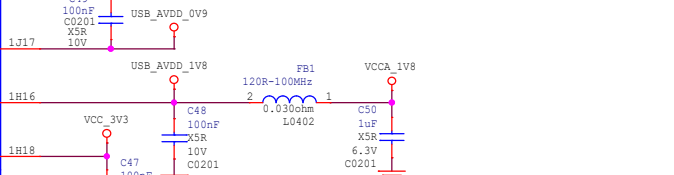
USB2.0 OTG_0 (Download Port)



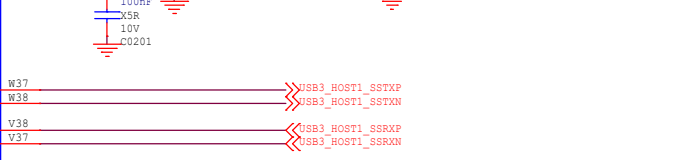
USB2.0 HOST_1 (DP/DM for USB3.0 HOST)



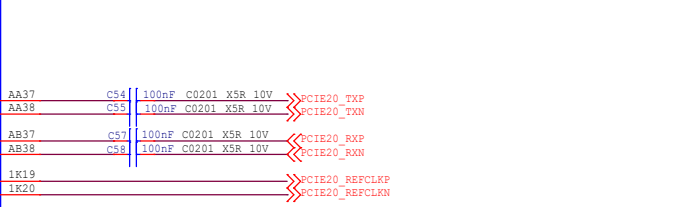
USB2.0 Power (for OTG_0 and HOST_1)



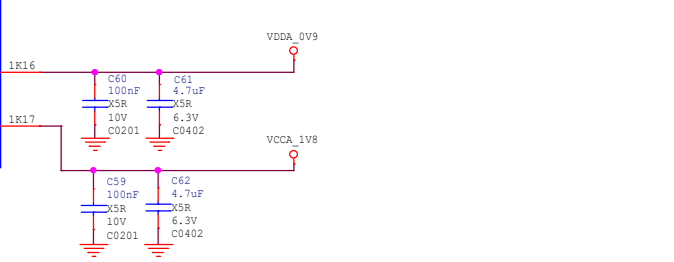
MULTI PHY U_S (SS for USB3.0 HOST or SATA3_1)



MULTI PHY P_S (PCIe2.0 or SATA3_2)



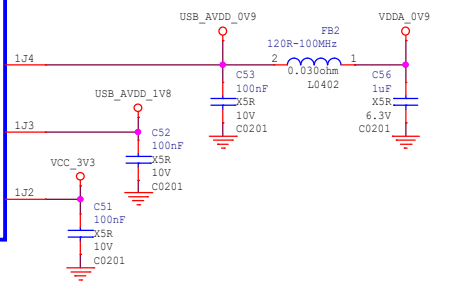
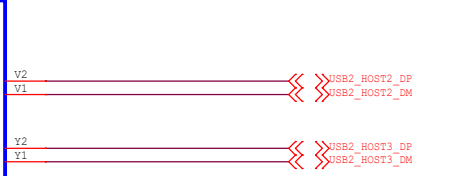
MULTI PHY Power (for MULTI PHY U_S and P_S)



U1U
RK3566
BGA565_15R50x14R40x0R90

RK3566_V (USB2.0 HOST)

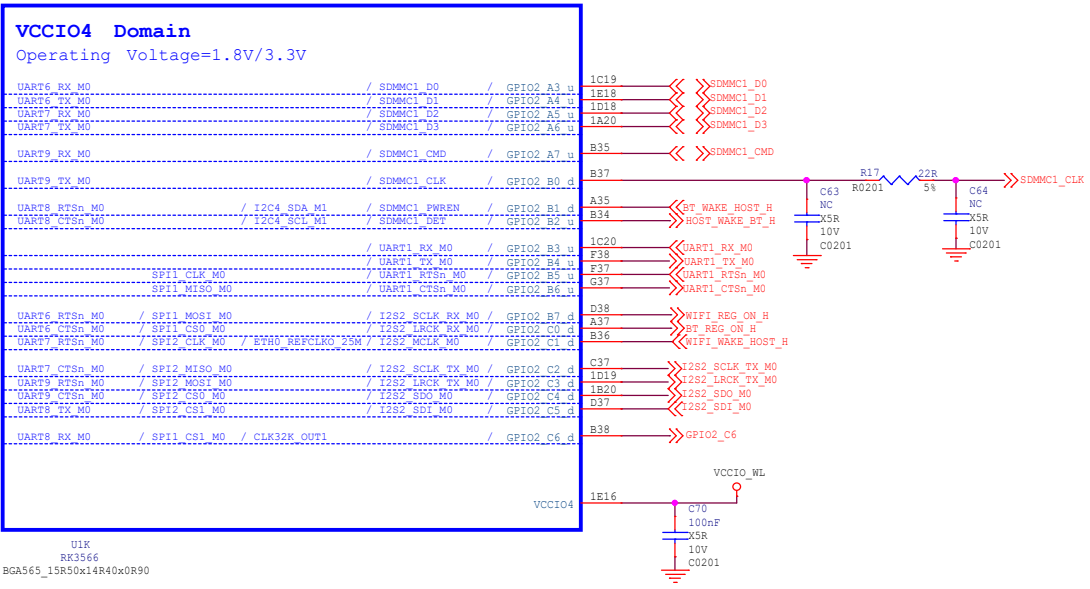
USB2.0 (for HOST_2 and HOST_3)



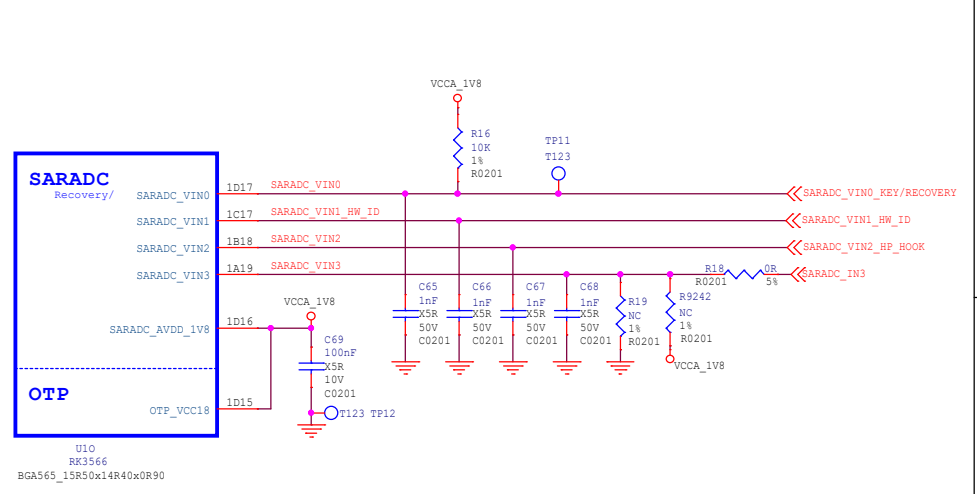
U1V
RK3566
BGA565_15R50x14R40x0R90



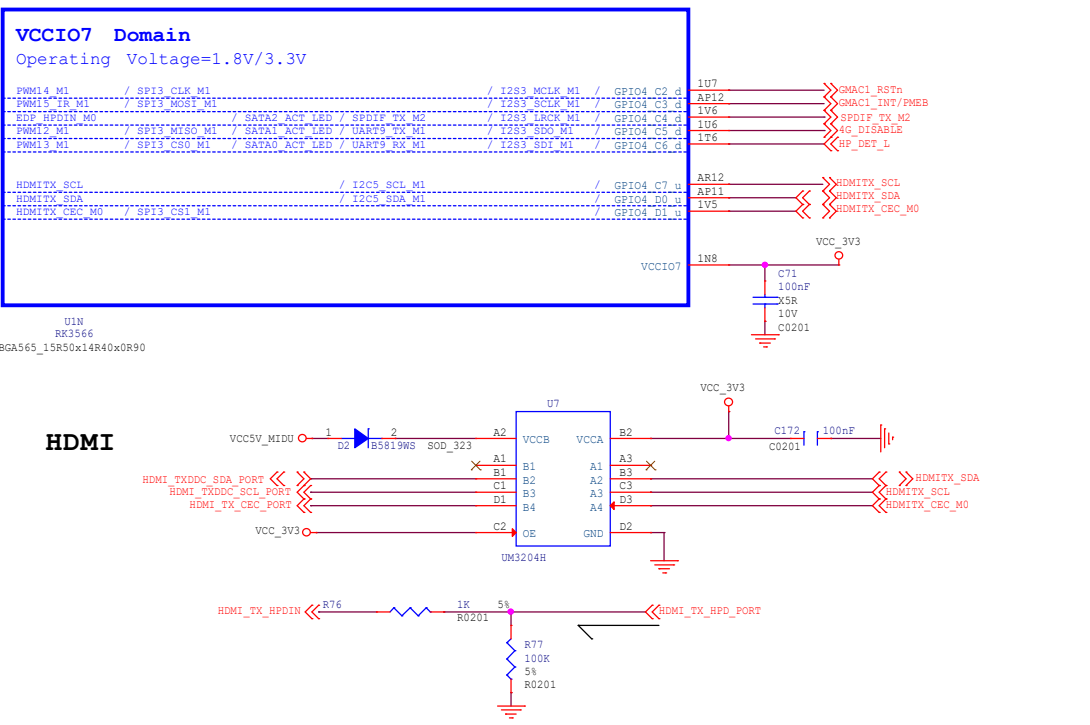
RK3566_K (VCCIO4 Domain)



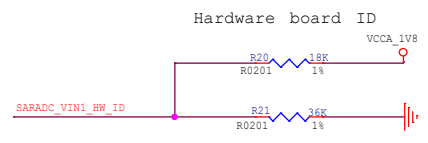
RK3566_O (SARADC/OTP)



RK3566_N (VCCIO7 Domain)

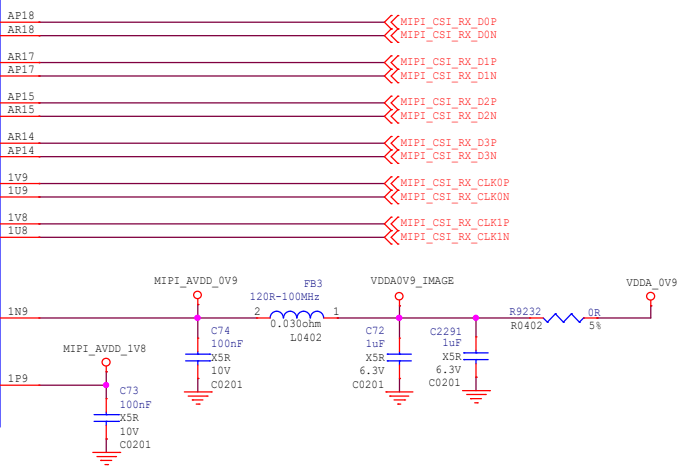
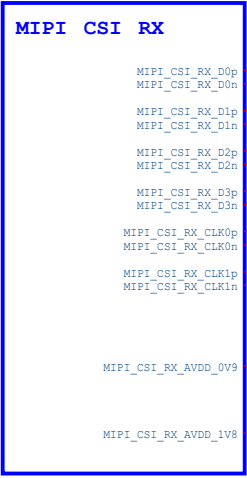


SARADC_VIN1_HW_ID	Rup	Rdown	ADC
G	10K	DNP	
Version 1.2	20K	100K	
Version 1.3	18K	36K	
A	DNP	100K	
B	100K	20K	
C	100K	51K	
D	100K	100K	
E			
F			
NC	DNP	DNP	



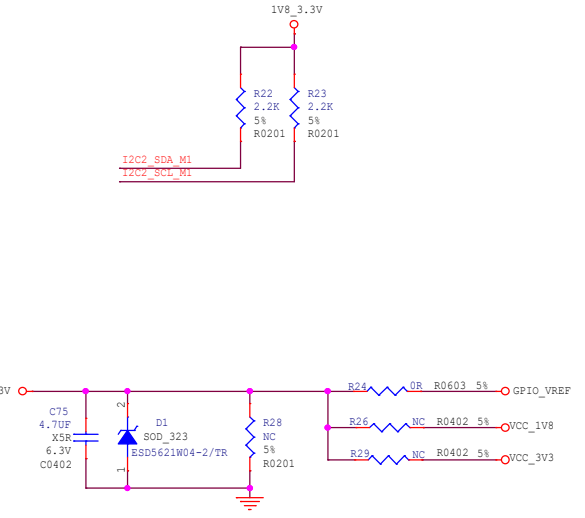
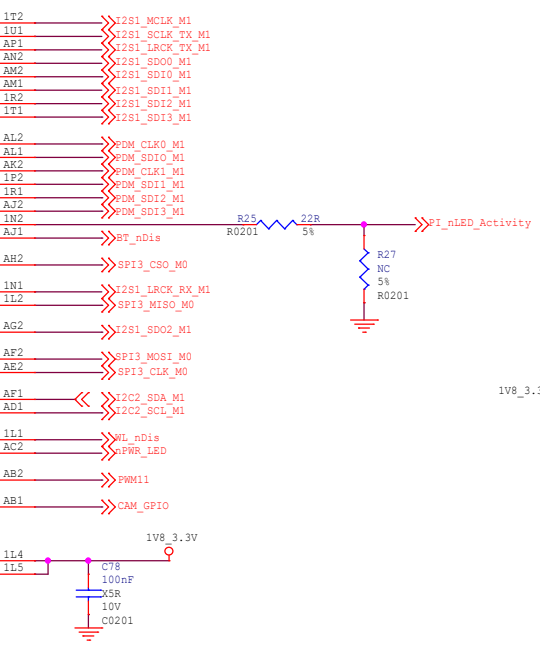
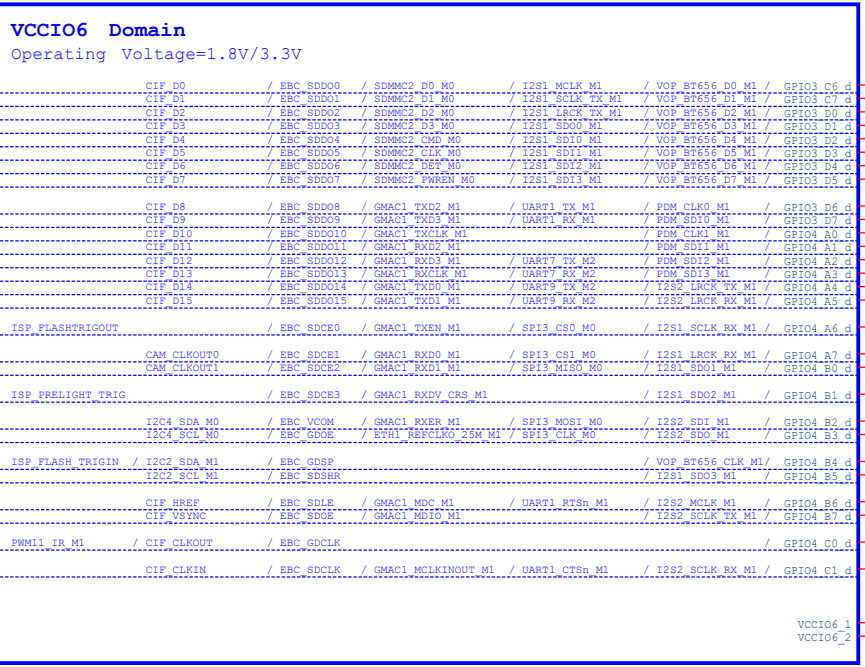
Size	Title: ROCK3 Compute Module	REV
A3	Page Name: RK3566_SARADC/GPIO	V1.32A
Date: Thursday, November 03, 2022	Sheet 09	of 23

RK3566_P (MIPI_CSI_RX)



U1P
RK3566
BGA565_15R50x14R40x0R90

RK3566_M (VCCIO6 Domain)



U1M
RK3566
BGA565_15R50x14R40x0R90



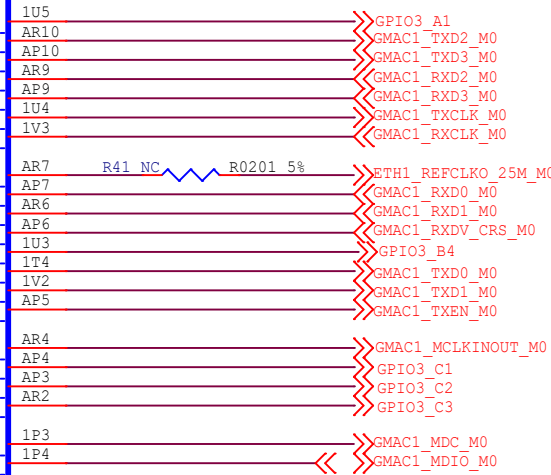
Size	Title: ROCK3 Compute Module	REV
A3	Page Name: RK3566_VI_Interface	V1.32A
Date: Thursday, November 03, 2022	Sheet 10 of 23	

RK3566_L (VCCIO5 Domain)

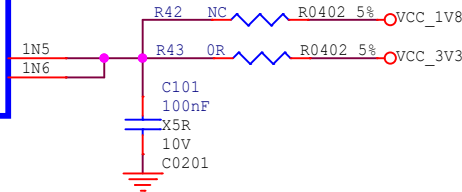
VCCIO5 Domain

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



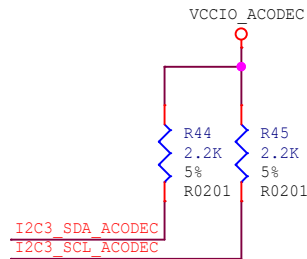
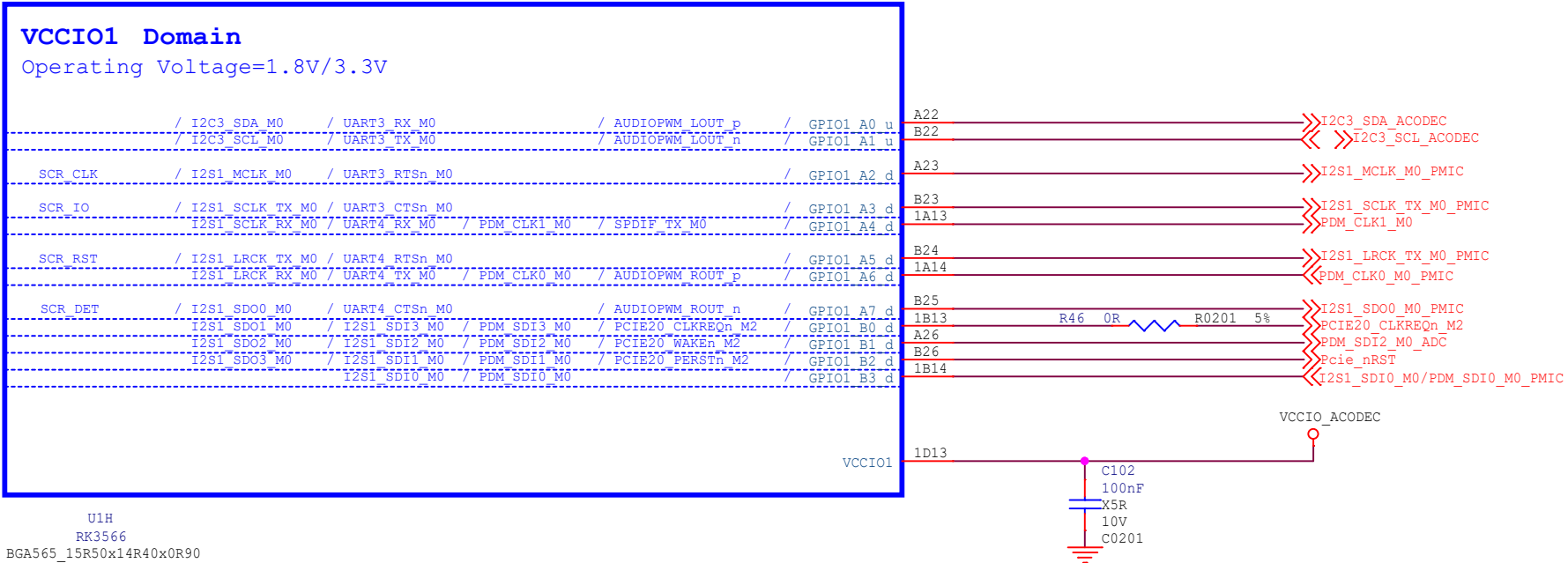
VCCIO5_1
VCCIO5_2

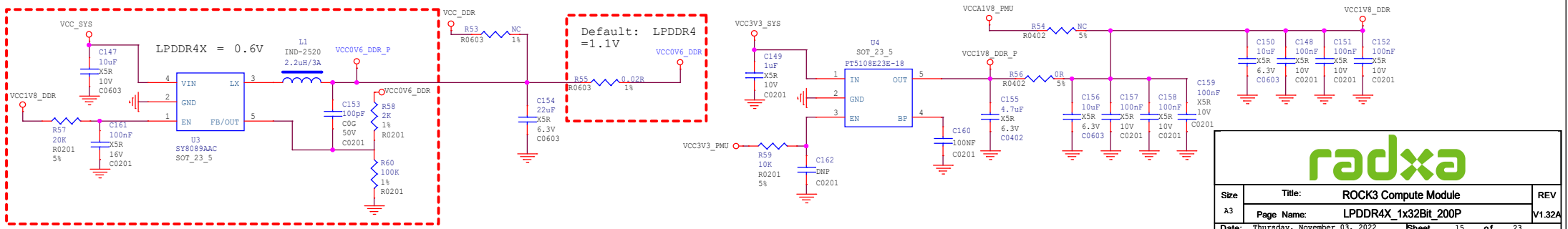
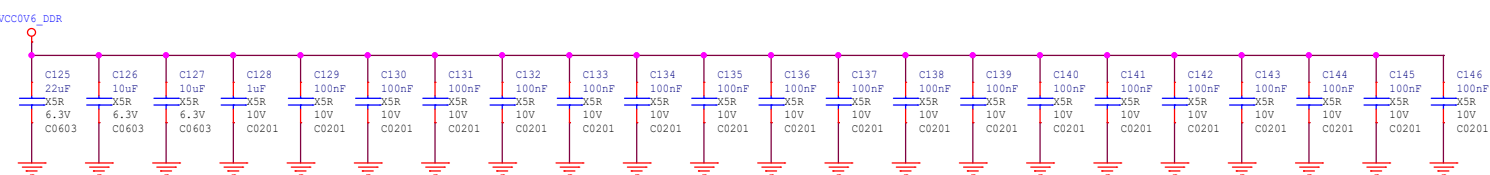
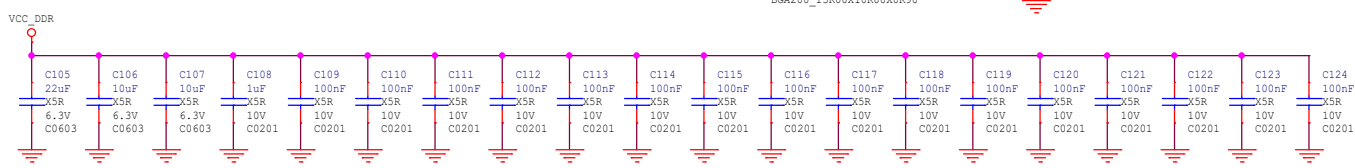
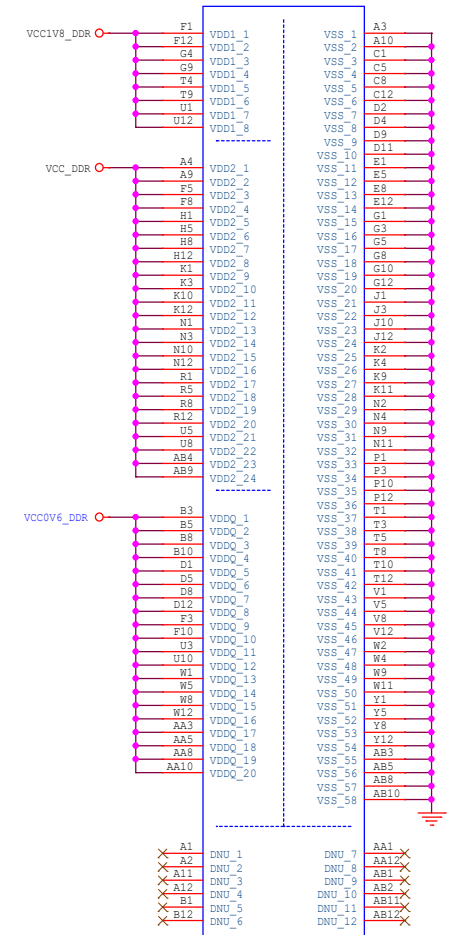
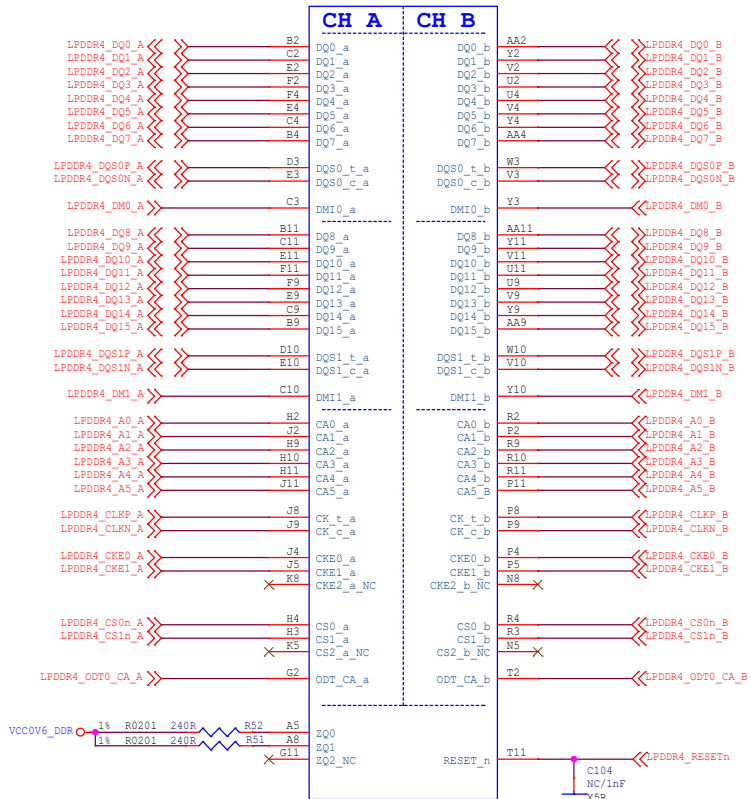


U1L
RK3566
BGA565_15R50x14R40x0R90



RK3566_H (VCCIO1 Domain)

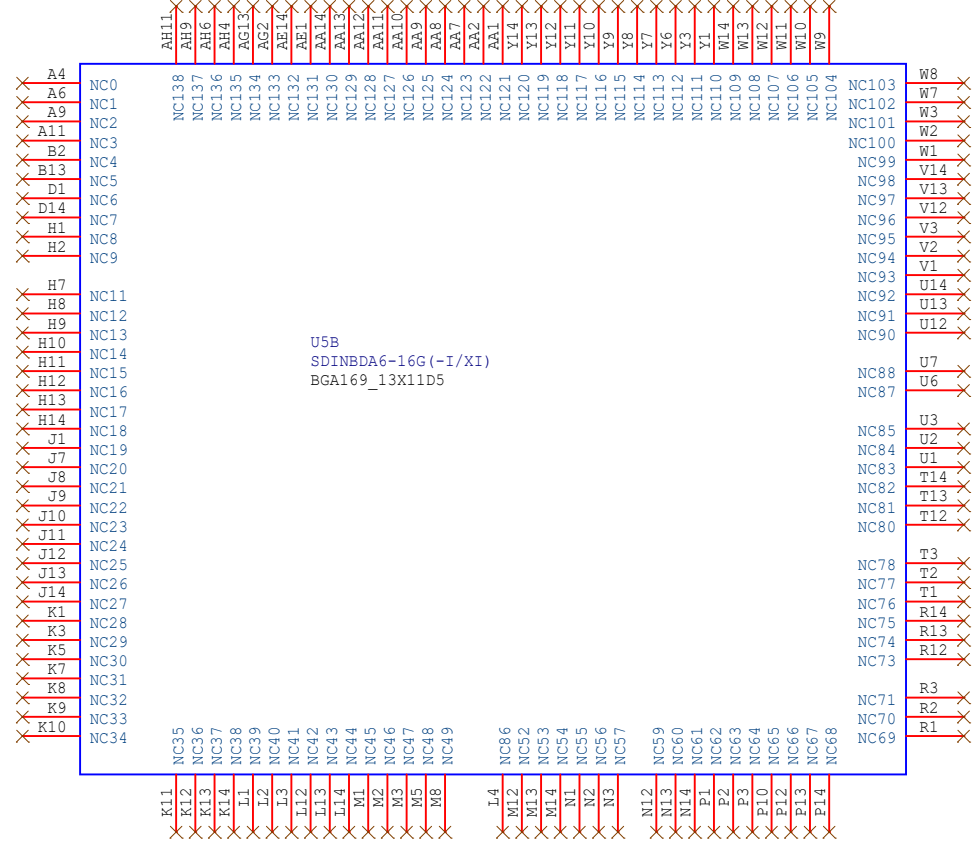
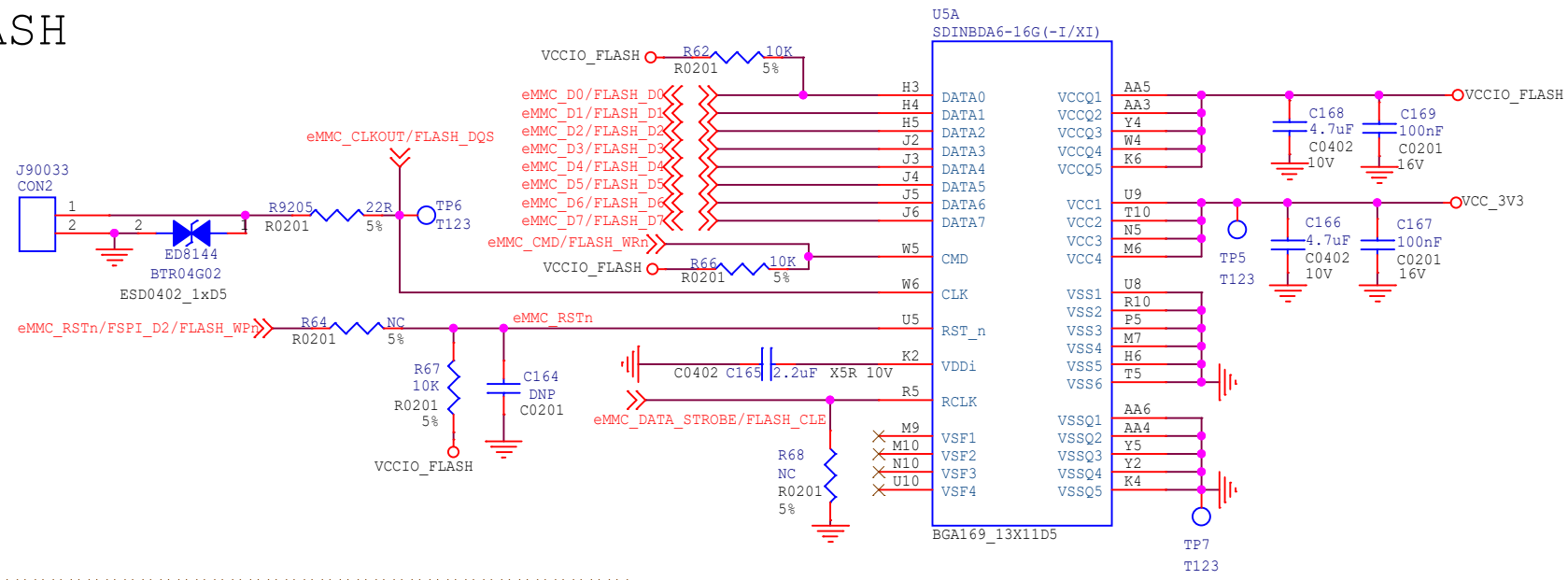




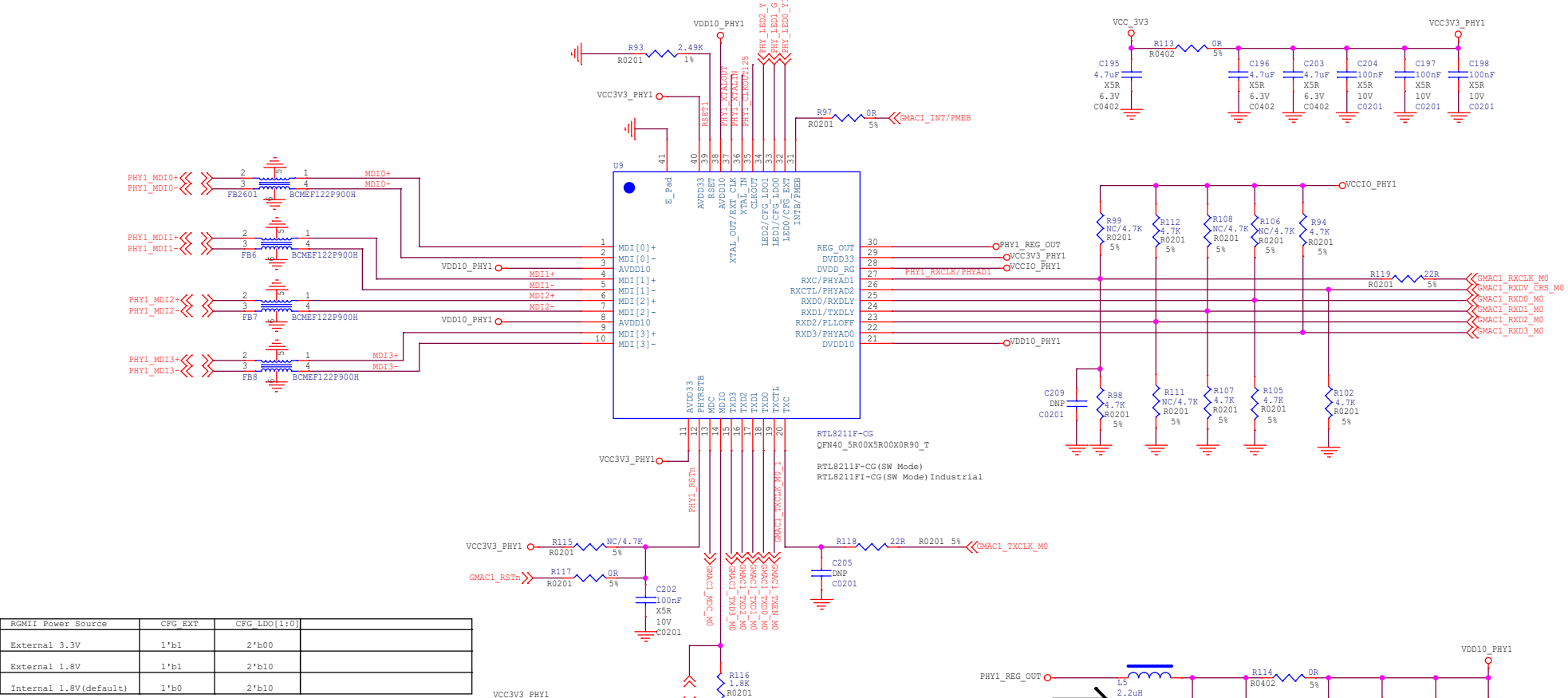
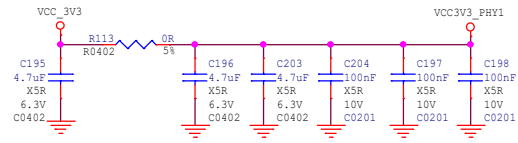
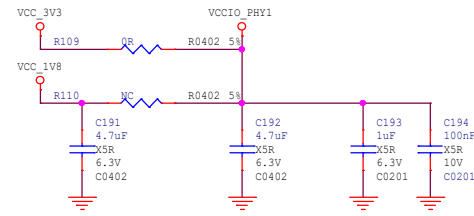
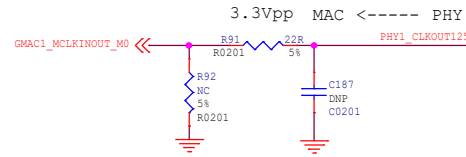
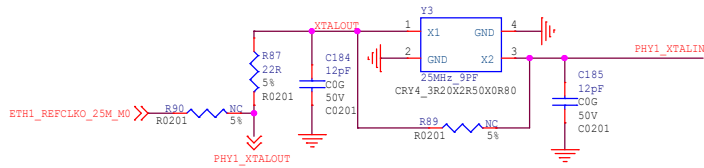
radxa

Size	Title: ROCK3 Compute Module	REV
A3	Page Name: LPDDR4X_1x32Bit_200P	V1.32A
Date: Thursday, November 03, 2022	Sheet	15 of 23

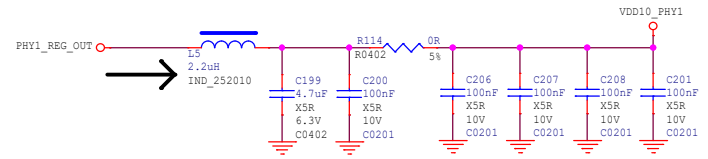
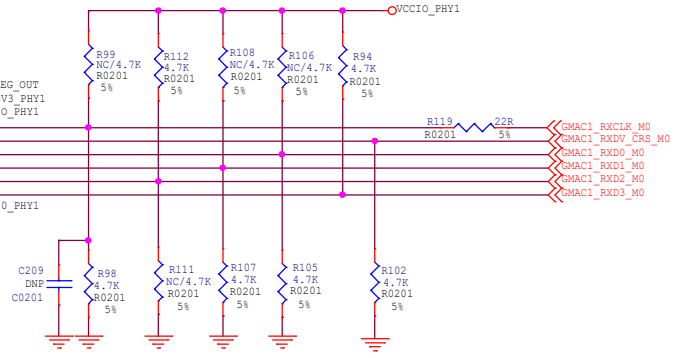
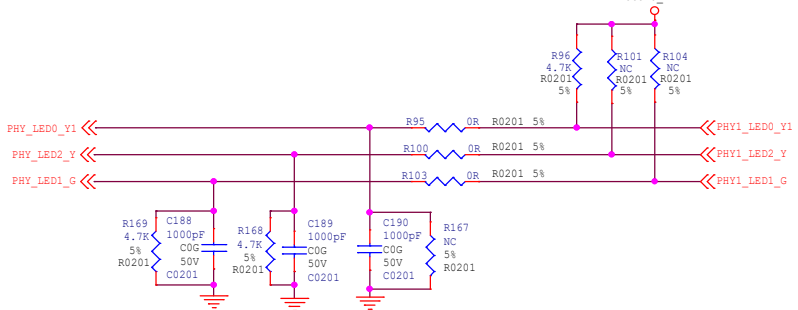
eMMC FLASH



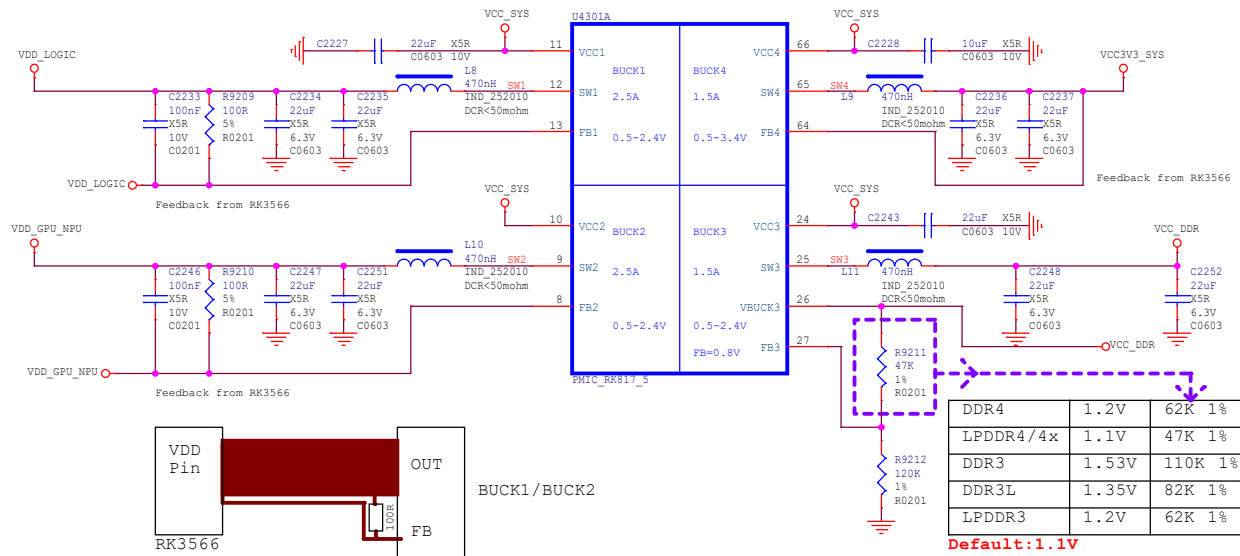
Size	Title: ROCK3 Compute Module	REV
A4	Page Name: Memory-eMMC	V1.32A
Date: Thursday, November 03, 2022 Sheet 16 of 23		



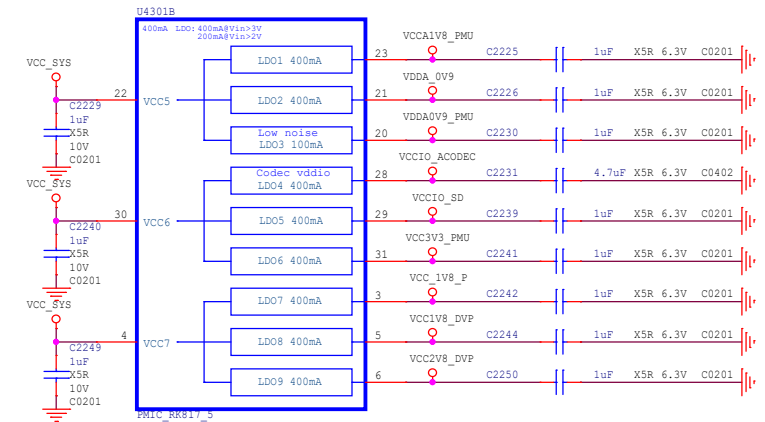
RGMI Power Source	CFG EXT	CFG LDO[1:0]
External 3.3V	1'b1	2'b00
External 1.8V	1'b1	2'b10
Internal 1.8V(default)	1'b0	2'b10



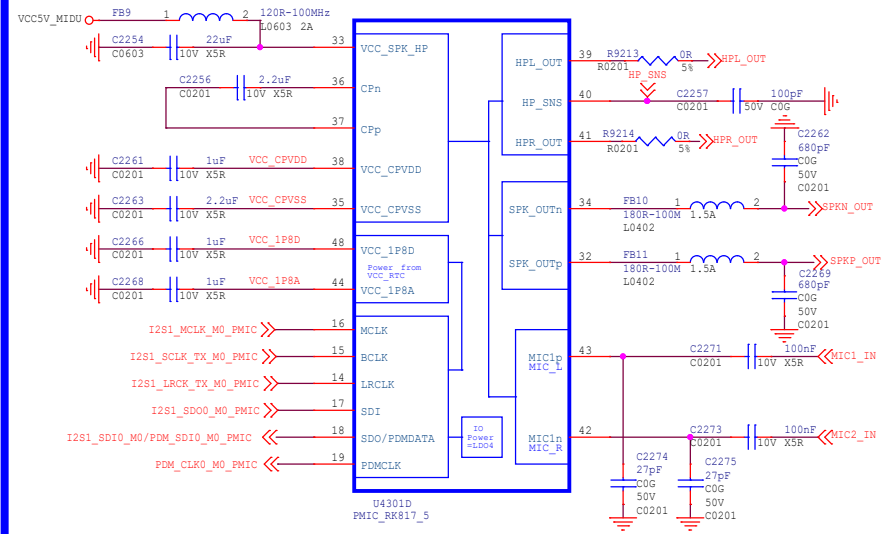
PMIC RK817 DCDC



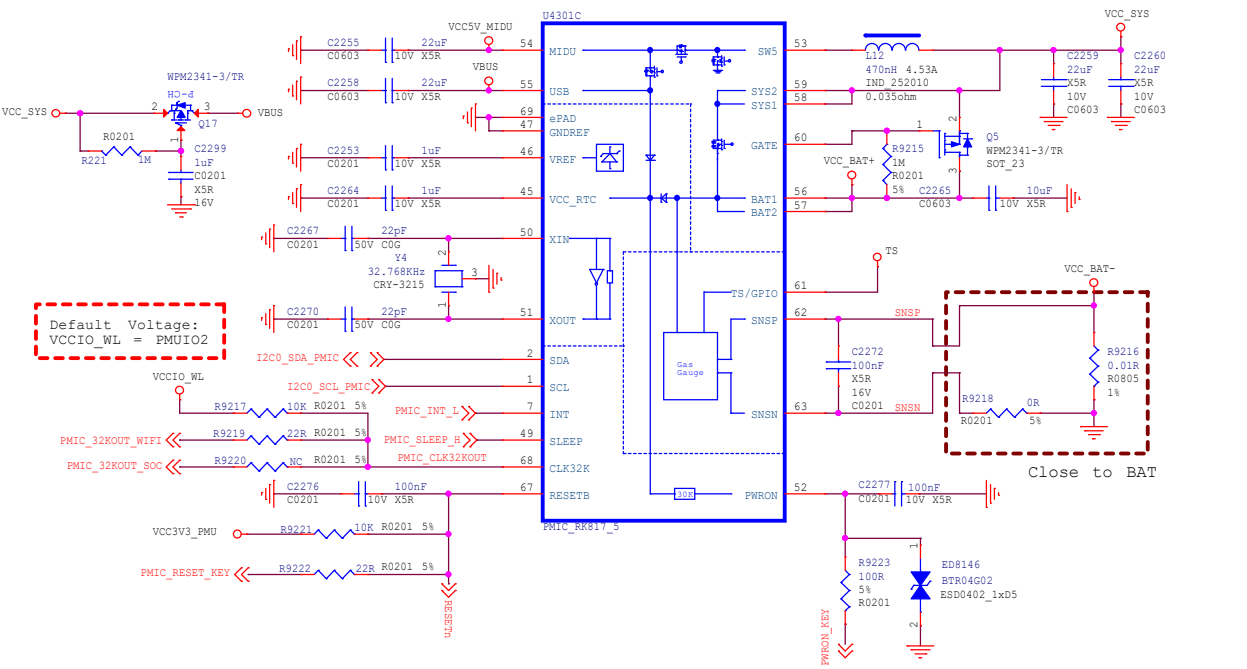
PMIC RK817 LDO



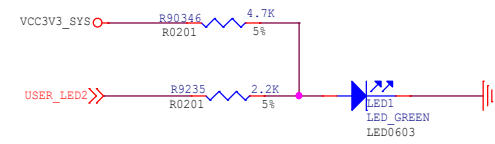
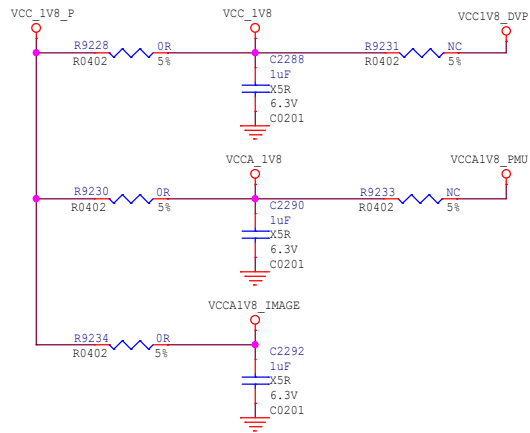
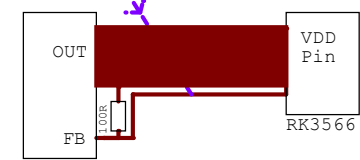
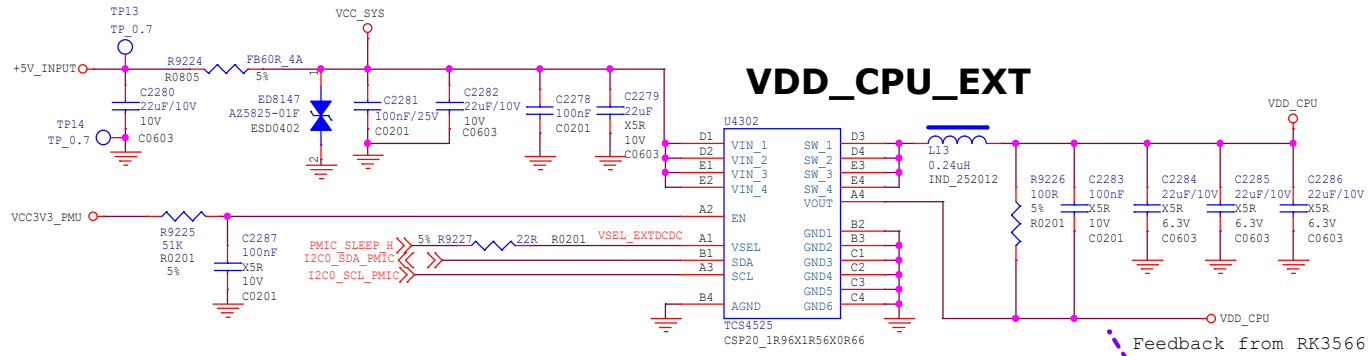
PMIC RK817 CODEC



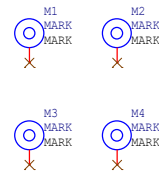
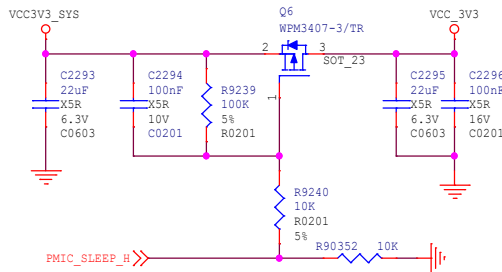
PMIC RK817 Management



Size	Title:	ROCK3 Compute Module	REV
A3	Page Name:	Power PMIC	V1.32A
Date:	Thursday, November 03, 2022	Sheet	19 of 23



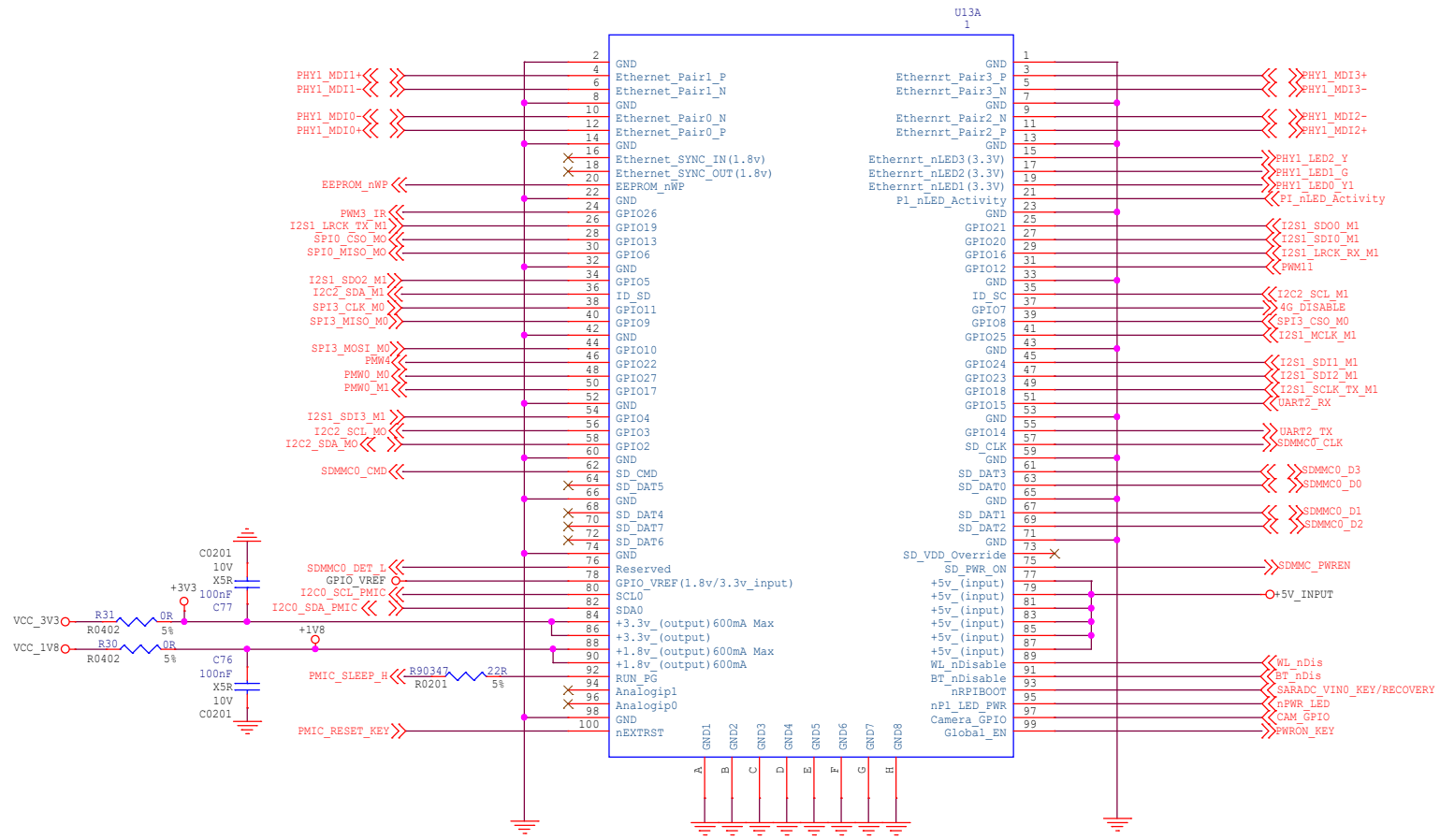
VCC_3V3 (Power OFF under SLEEP)

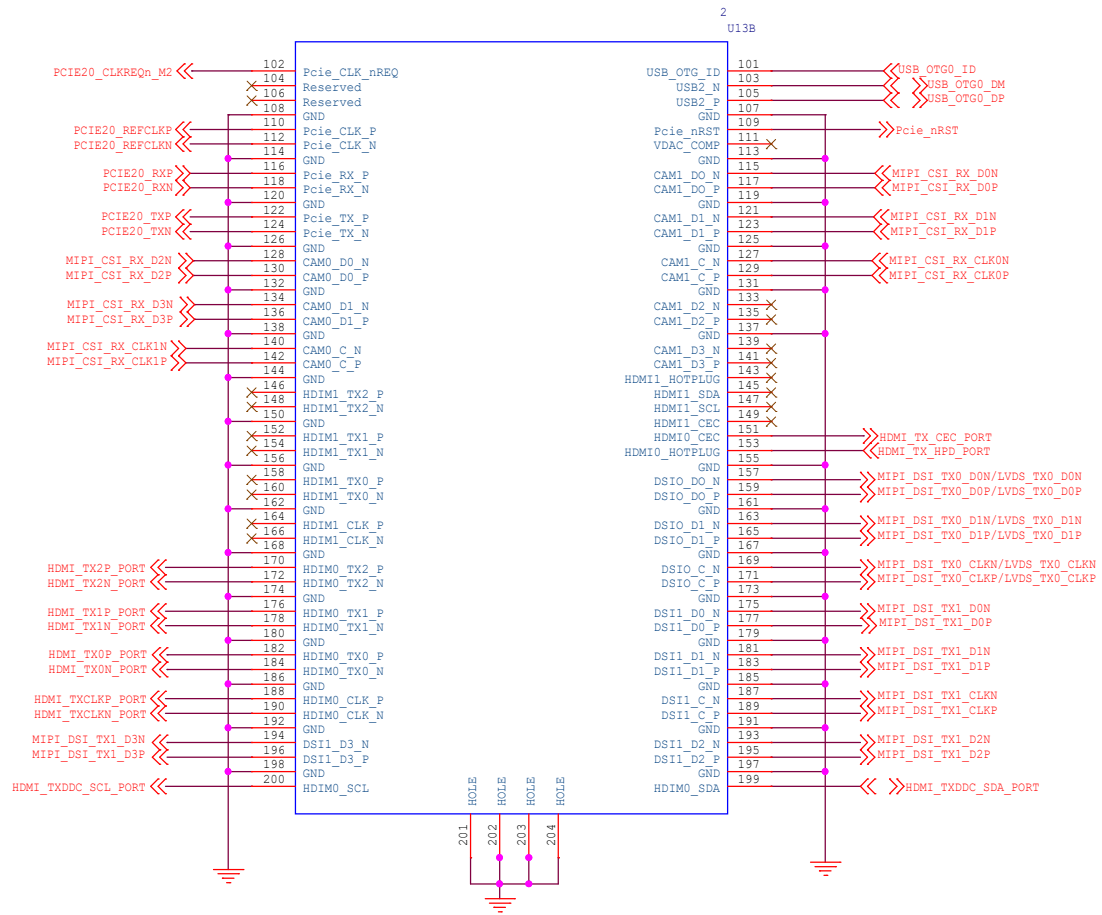


radxa		
Size	Title: ROCK3 Compute Module	REV
B	Page Name: Power IN	V1.32A
Date: Thursday, November 03, 2022	Sheet 20	of 23



Size	Title: ROCK3 Compute Module	REV
B	Page Name: GPIO+VCC_Connector	V1.32A
Date: Thursday, November 03, 2022	Sheet 21	of 23





Size	Title: ROCK3 Compute Module	REV
B	Page Name: High Speed Serial Connector	V1.32A
Date: Thursday, November 03, 2022	Sheet 22	of 23

