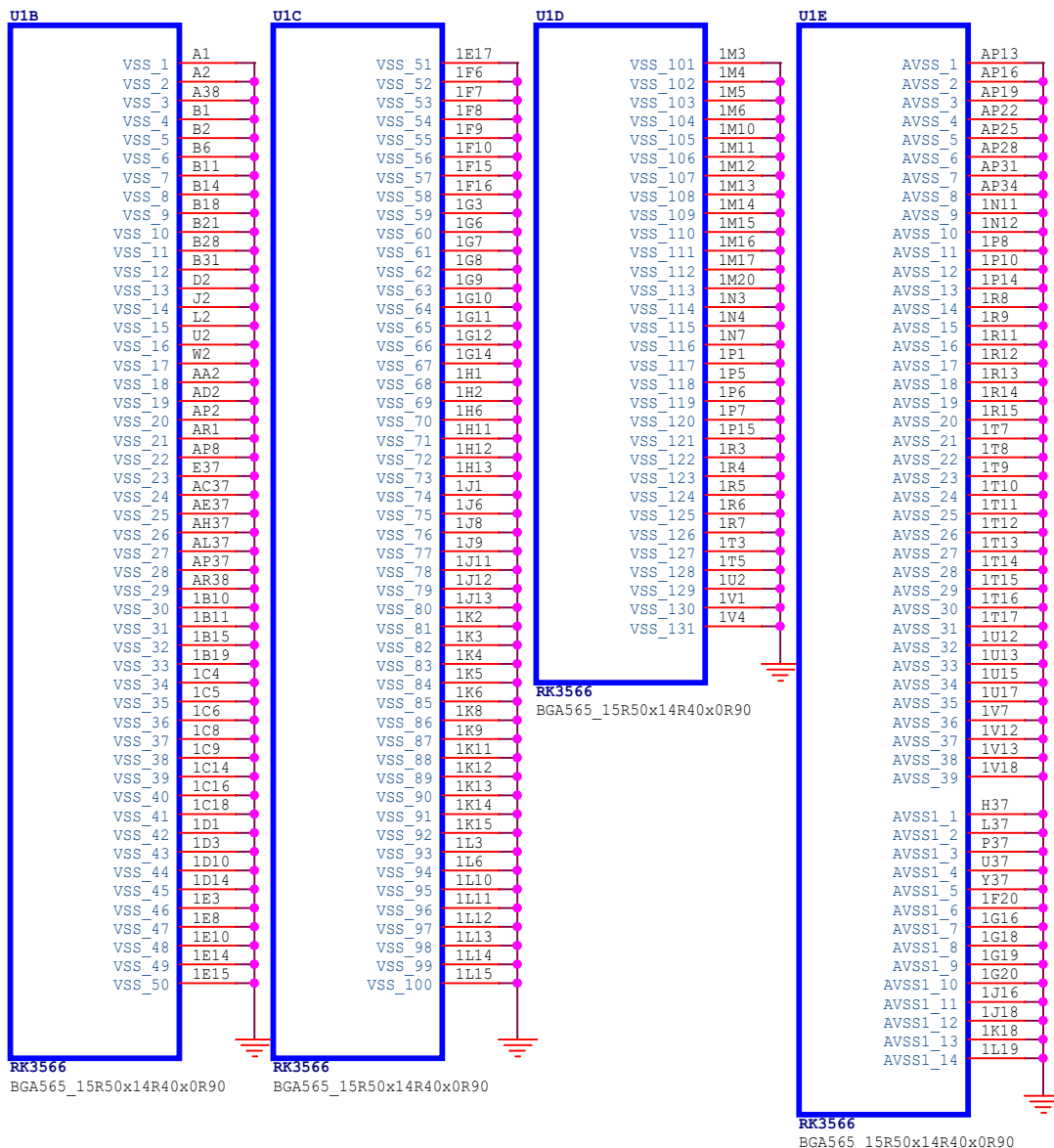
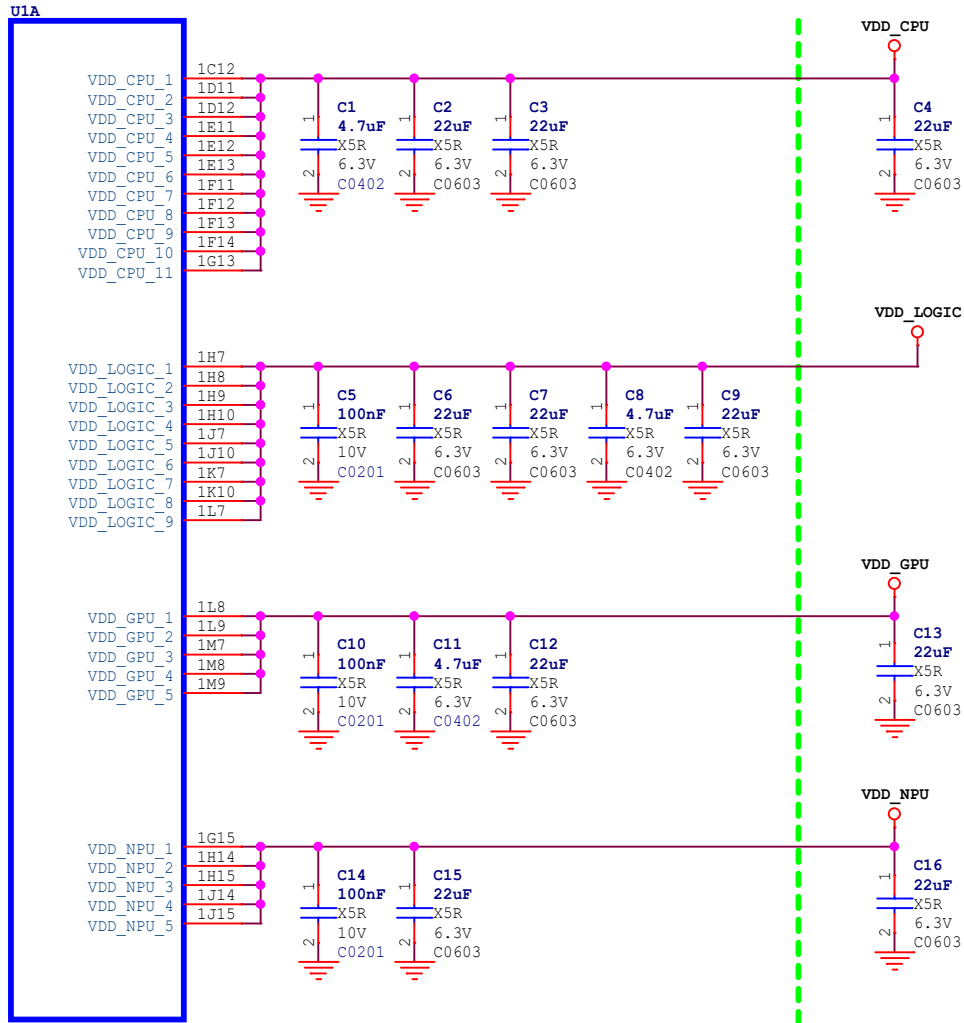
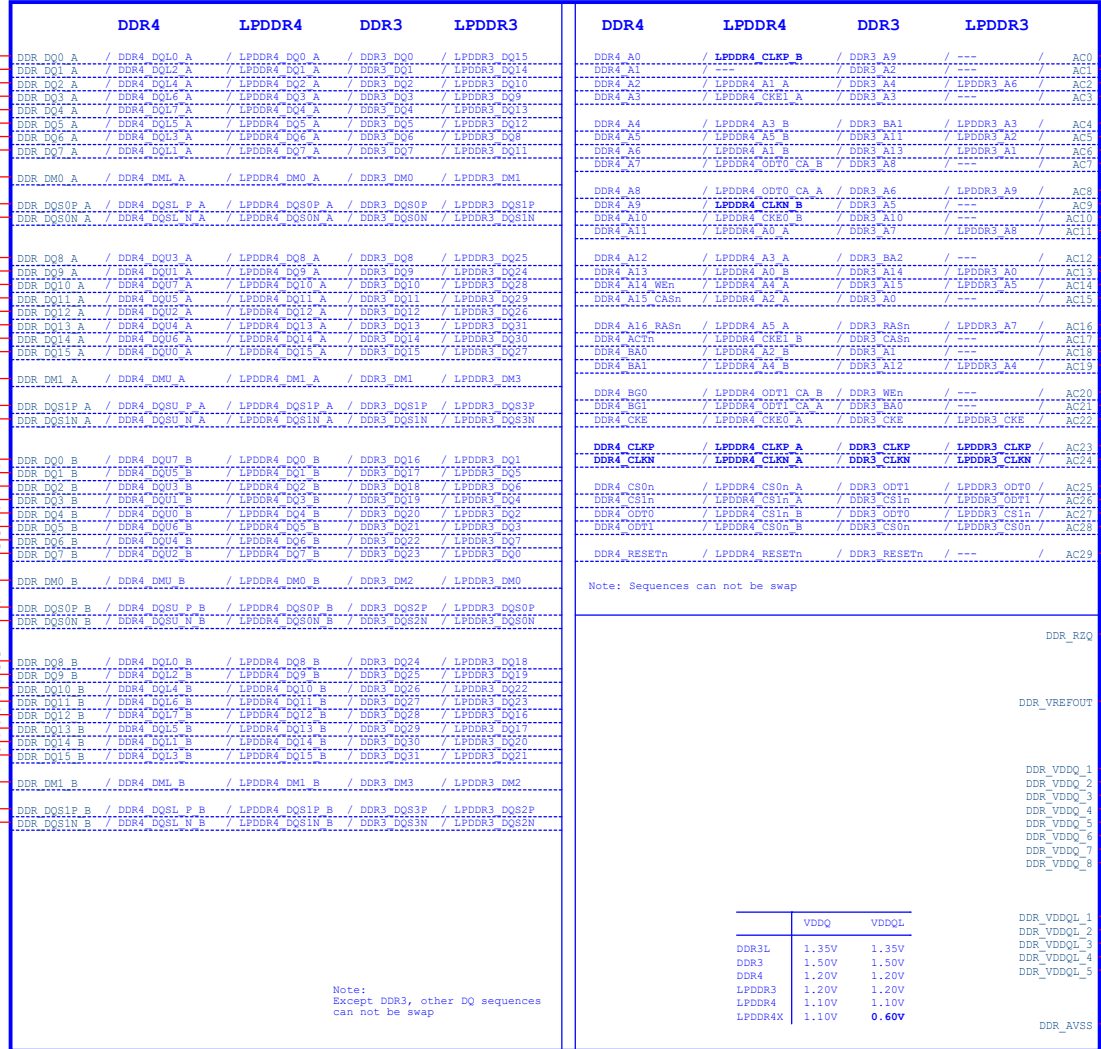


RK3566_ABCDE (Power&GND)



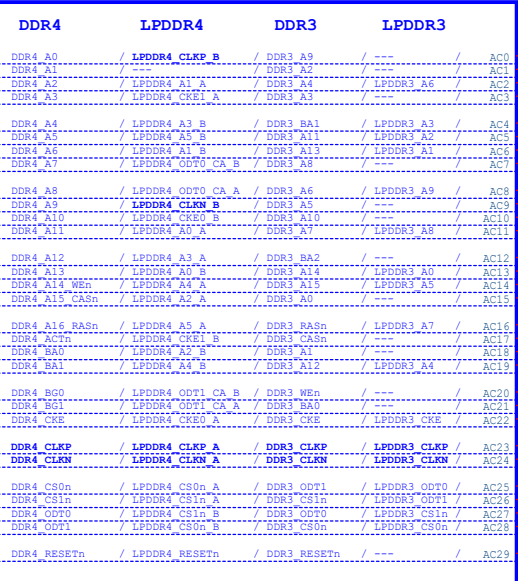
RK3566_F (DDR PHY)

U1F

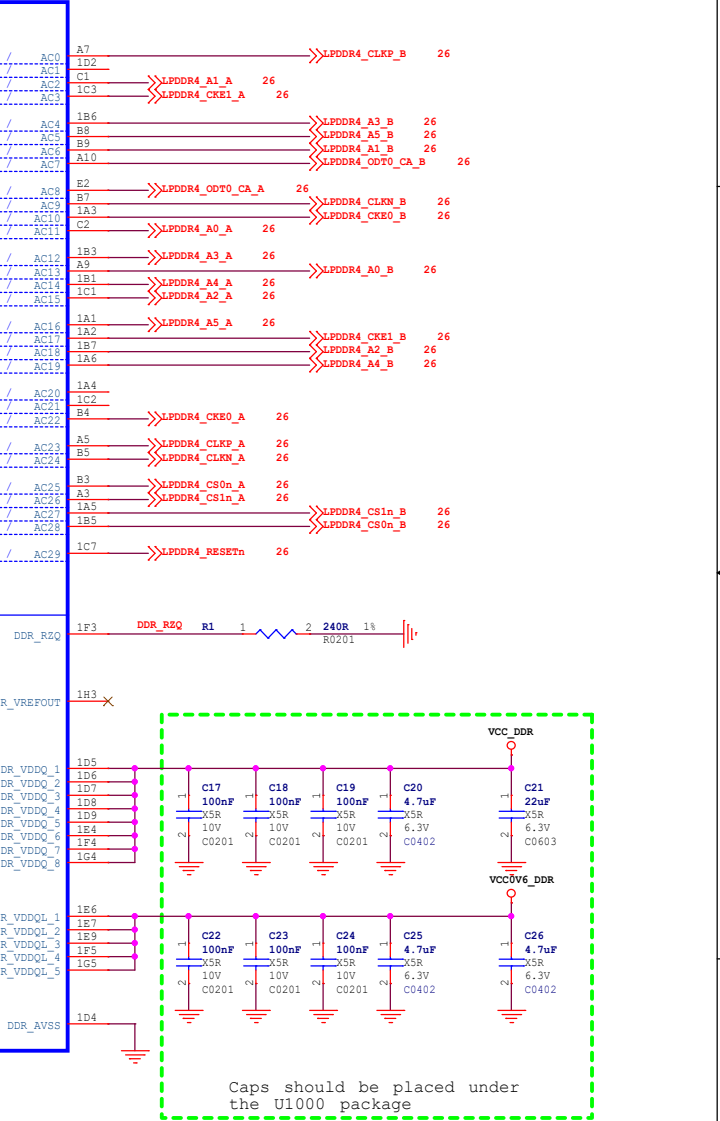


Note:
Except DDR3, other DQ sequences
can not be swap

| | 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: Sequences can not be swap

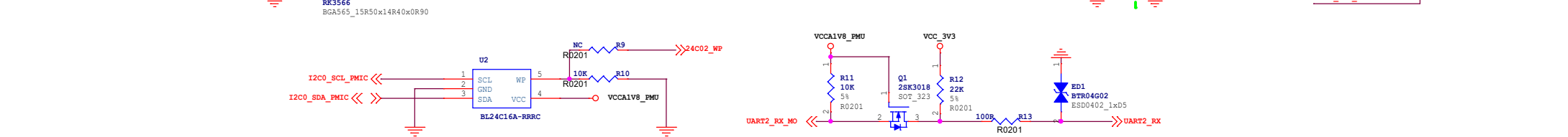
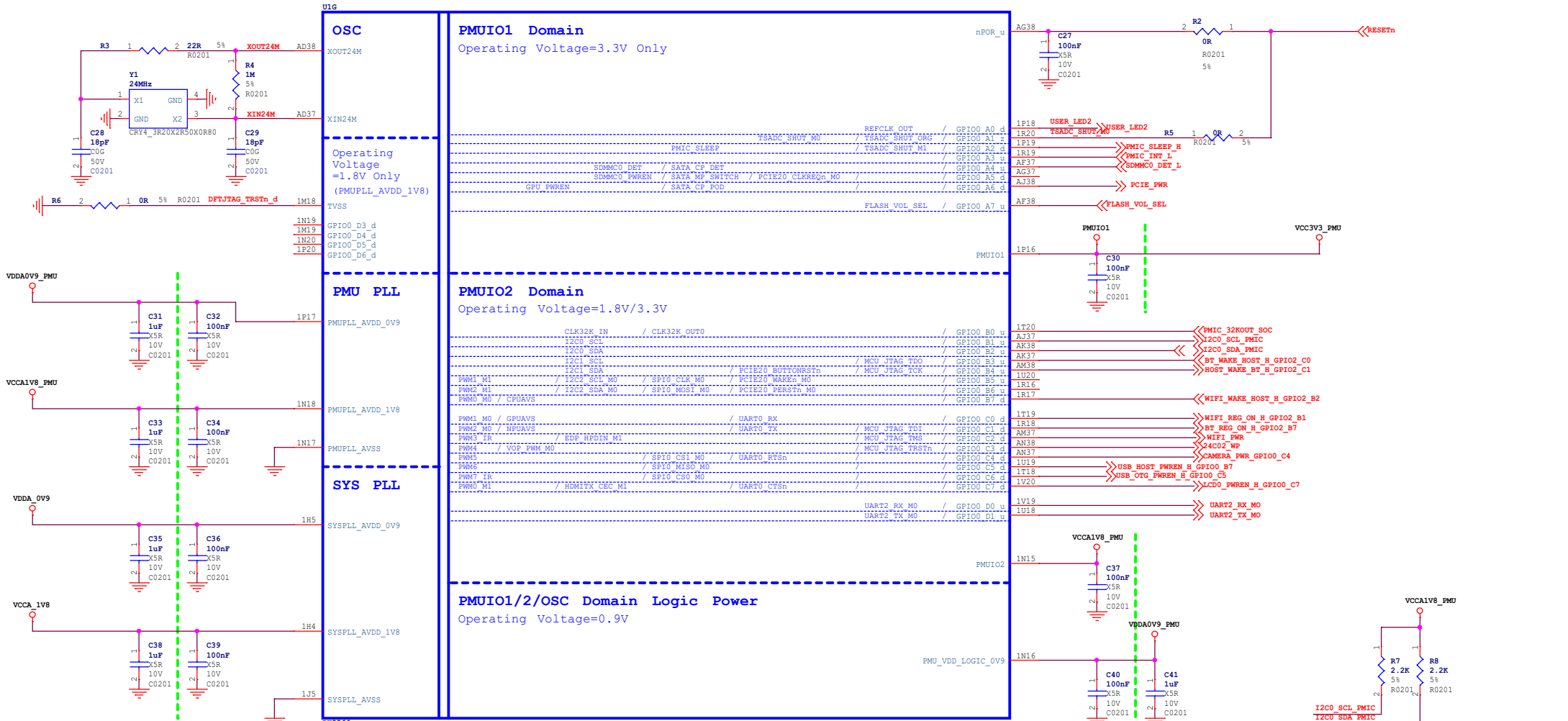


RK3566
BGA565_15R50x14R40x0R90


PINE64

| | | |
|--------------------------------|--|------|
| Size | Title: Quartz64 Model-B Schematic-20220124 | REV |
| A3 | Page Name: RK3566_DDR PHY | V1.3 |
| Date: Monday, January 24, 2022 | Sheet 02 of 26 | |

RK3566_G (OSC/PLL/PMUIO1/2)

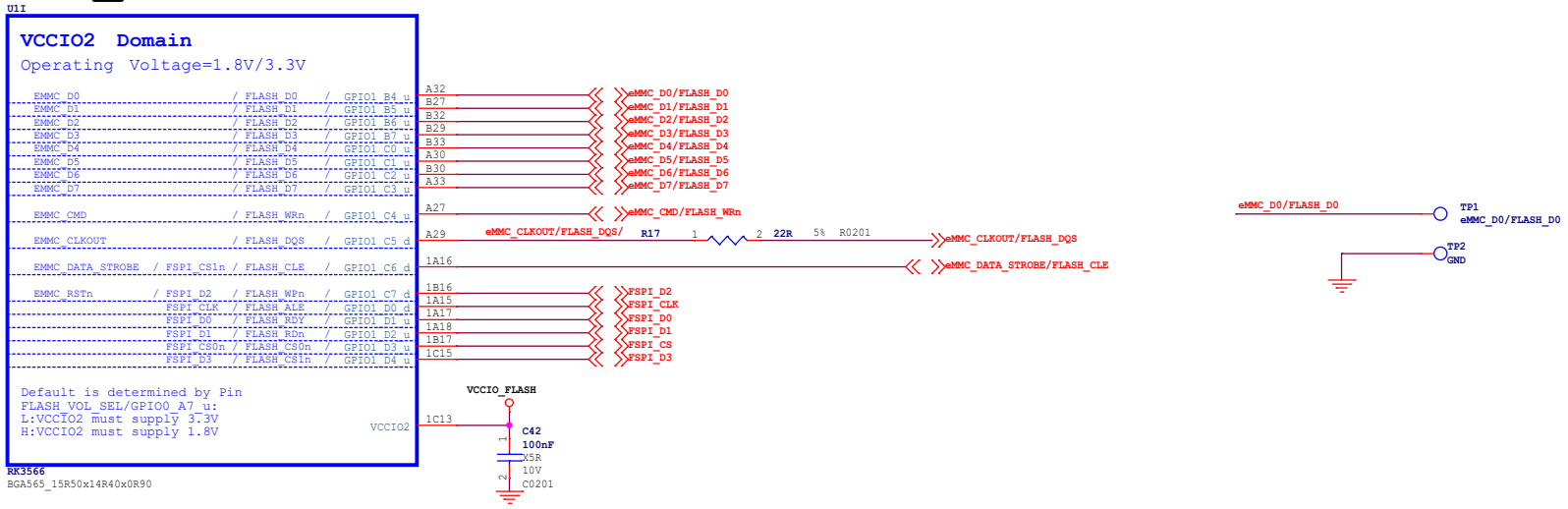


Note:
Caps between dashed green lines and U1000 should be placed under the U1000 package.
Other caps should be placed close to the U1000 package

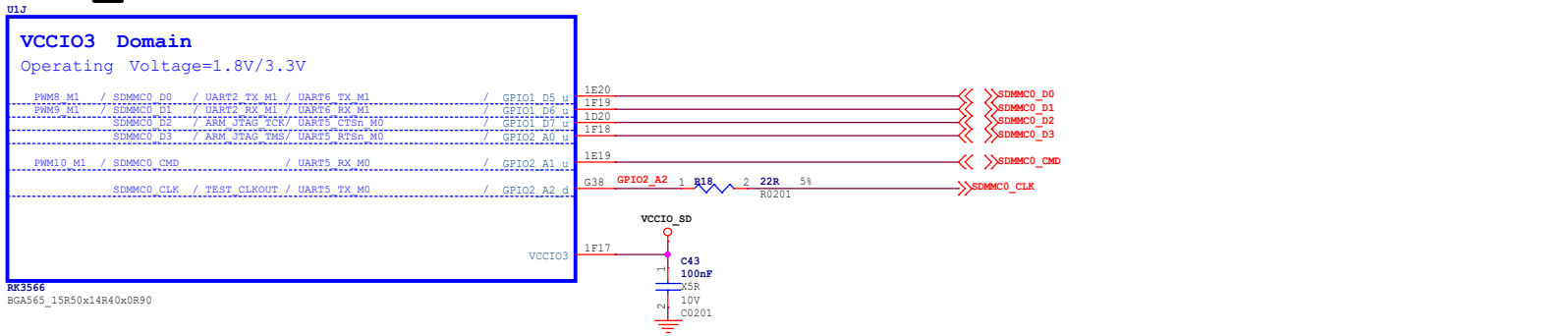


| | | |
|-------|--|----------------|
| Size | Title: Quartz64 Model-B Schematic-20220124 | REV |
| A3 | Page Name: RK3566_OSC/PLL/PMUIO | V1.3 |
| Date: | Monday, January 24, 2022 | Sheet 03 of 26 |

RK3566_I (VCCIO2 Domain)

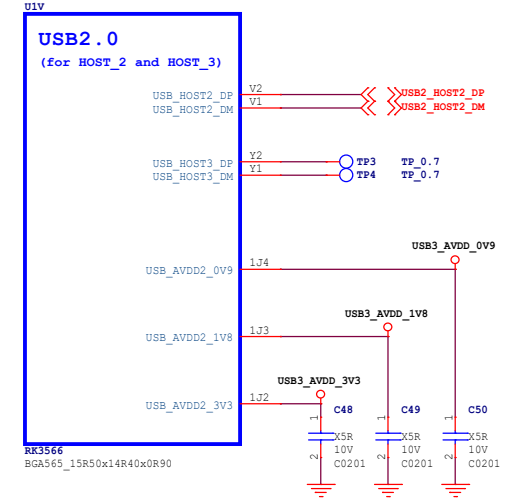
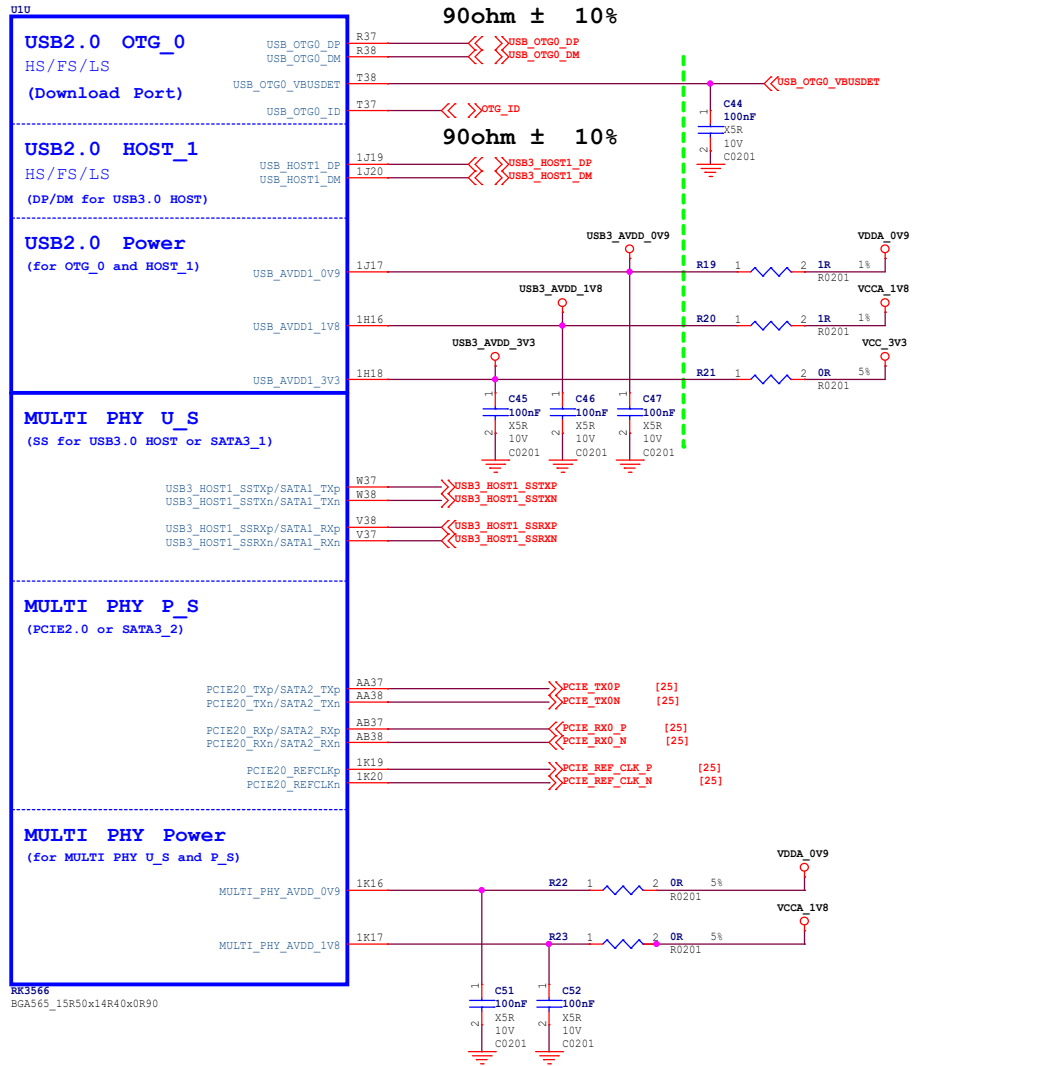


RK3566_J (VCCIO3 Domain)




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

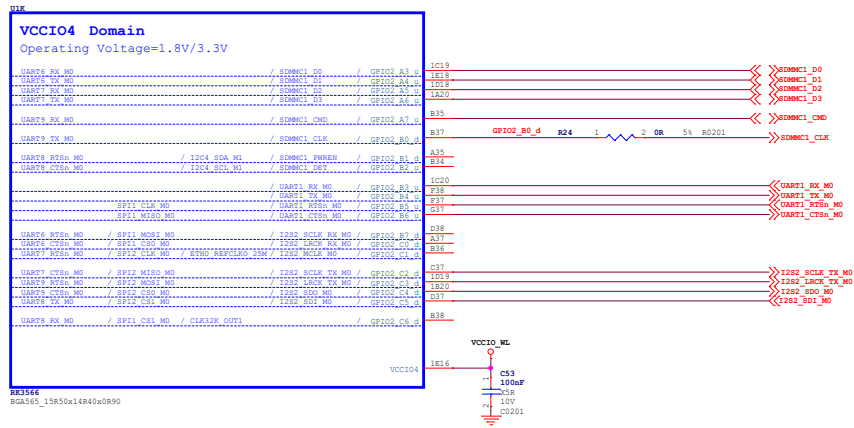
RK3566_V (USB2.0 HOST)



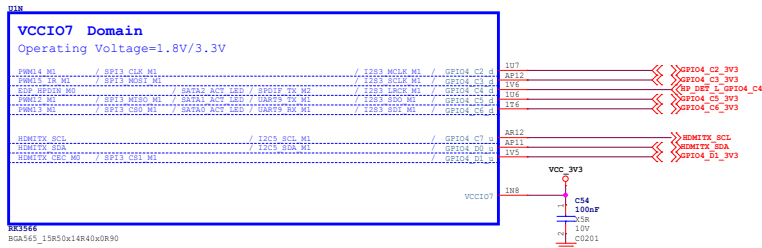
Note:
 Caps of between dashed green lines and U1000 should be placed under the U1000 package.
 Other caps should be placed close to the U1000 package.

| | | | | |
|---|--------------------------|-------|--|-------|
| PINE64  | | Size | Title: Quartz64 Model-B Schematic-20220124 | REV |
| | | A3 | Page Name: RK3566_USB/PCIe/SATA PHY | V1.3 |
| Date: | Monday, January 24, 2022 | Sheet | 05 | of 26 |

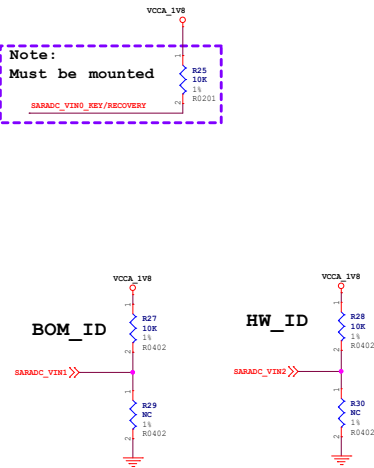
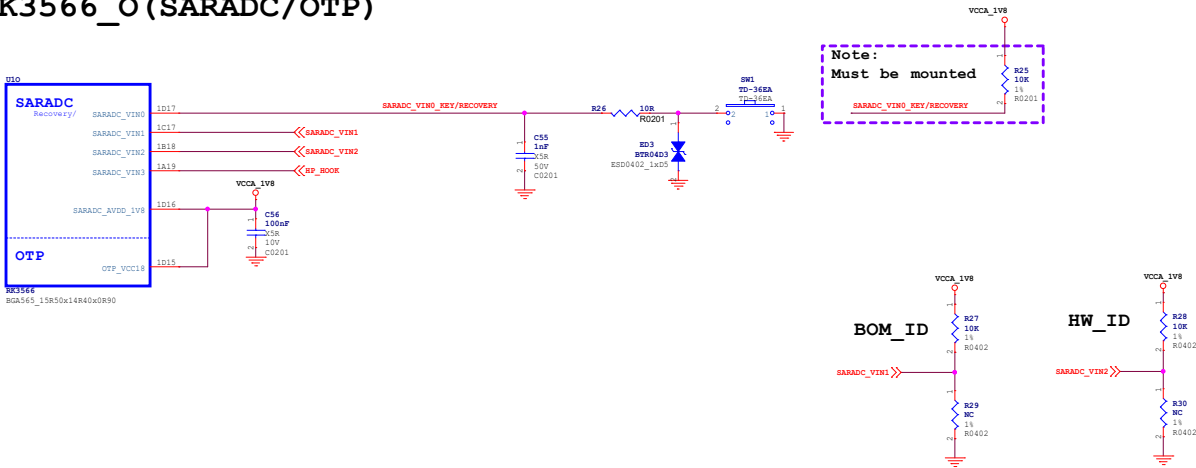
RK3566_K (VCCIO4 Domain)



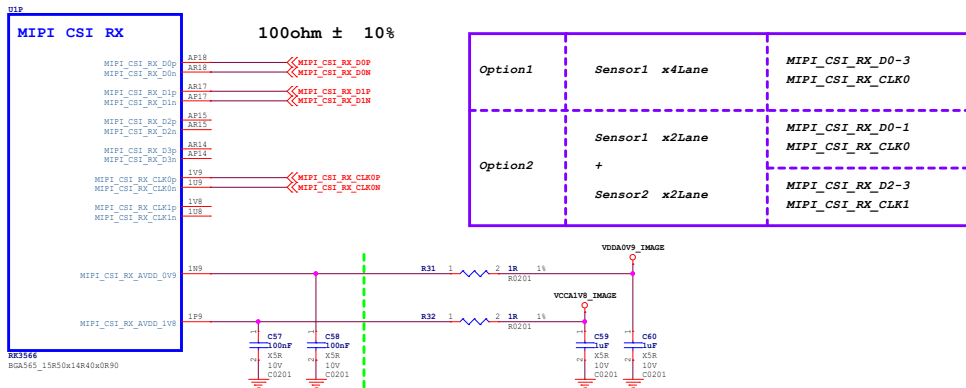
RK3566_N (VCCIO7 Domain)



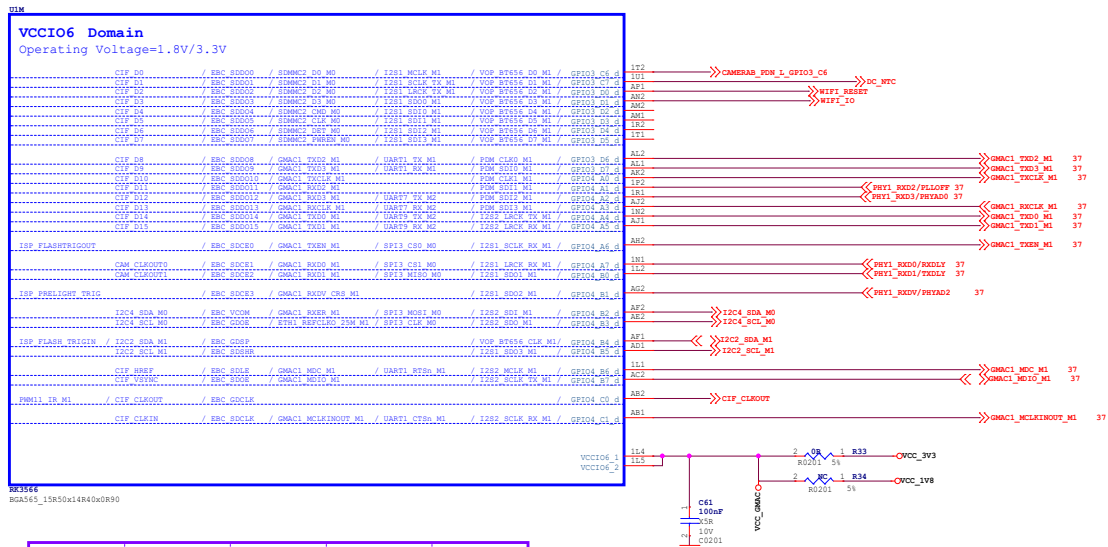
RK3566_O (SARADC/OTP)



RK3566_P (MIPI_CSI_RX)



RK3566_M (VCCIO6 Domain)

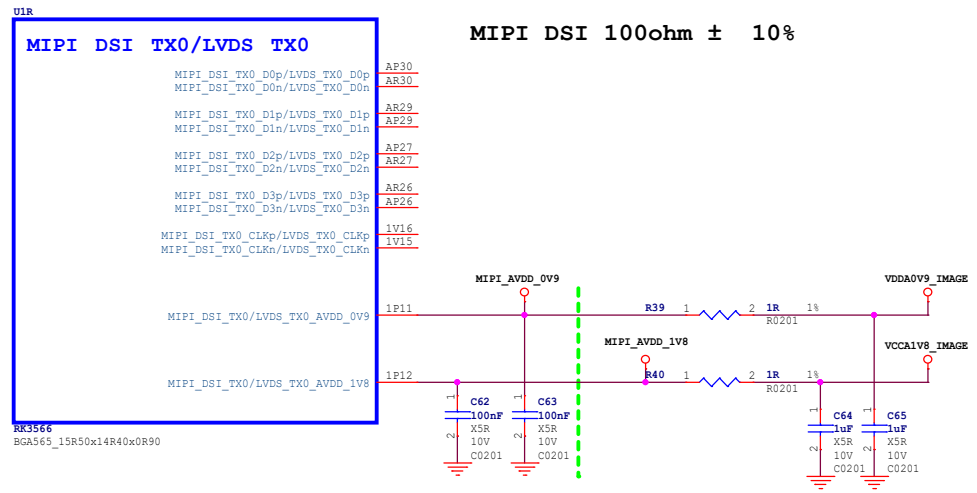


| Mode | 16bit | 12bit | 10bit | 8bit |
|---------|-------|-------|-------|------|
| CIF_D0 | D0 | -- | -- | -- |
| CIF_D1 | D1 | -- | -- | -- |
| CIF_D2 | D2 | -- | -- | -- |
| CIF_D3 | D3 | -- | -- | -- |
| CIF_D4 | D4 | D0 | -- | -- |
| CIF_D5 | D5 | D1 | -- | -- |
| CIF_D6 | D6 | D2 | D0 | -- |
| CIF_D7 | D7 | D3 | D1 | -- |
| CIF_D8 | D8 | D4 | D2 | D0 |
| CIF_D9 | D9 | D5 | D3 | D1 |
| CIF_D10 | D10 | D6 | D4 | D2 |
| CIF_D11 | D11 | D7 | D5 | D3 |
| CIF_D12 | D12 | D8 | D6 | D4 |
| CIF_D13 | D13 | D9 | D7 | D5 |
| CIF_D14 | D14 | D10 | D8 | D6 |
| CIF_D15 | D15 | D11 | D9 | D7 |

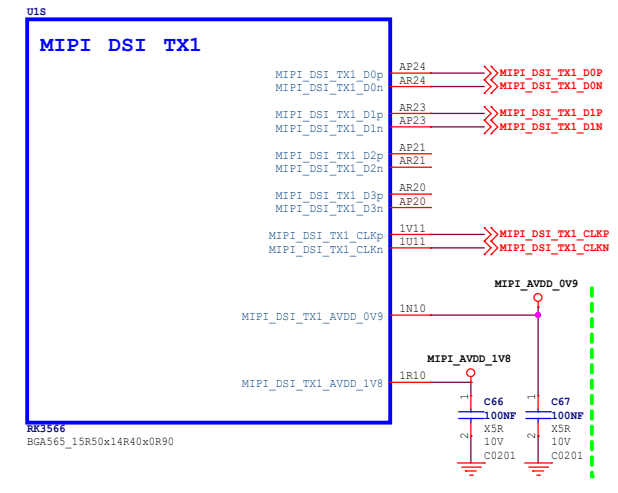
Support BT601 YCbCr 422 8bit input
 Support BT656 YCbCr 422 8bit input
 Support RAW 8/10/12bit input
 Support BT1120 YCbCr 422 8/10/12/16bit input, single/dual-edge sampling
 Support 2/4 mixed BT656/BT1120 YCbCr 422 8bit input

Note:
 Caps of between dashed green lines and U1000
 should be placed under the U1000 package.
 Other caps should be placed close to the U1000 package

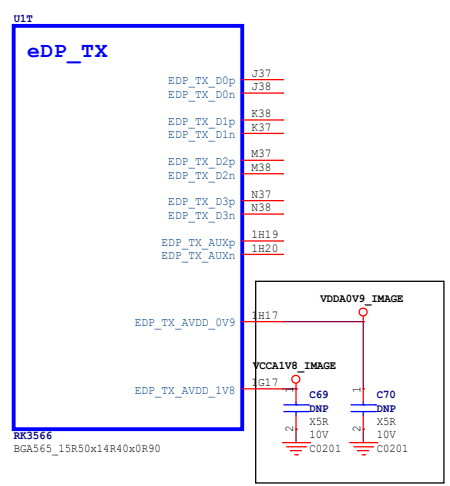
RK3566_R (MIPI_DSI_TX0/LVDS_TX0)



RK3566_S (MIPI_DSI_TX1/LVDS_TX1)



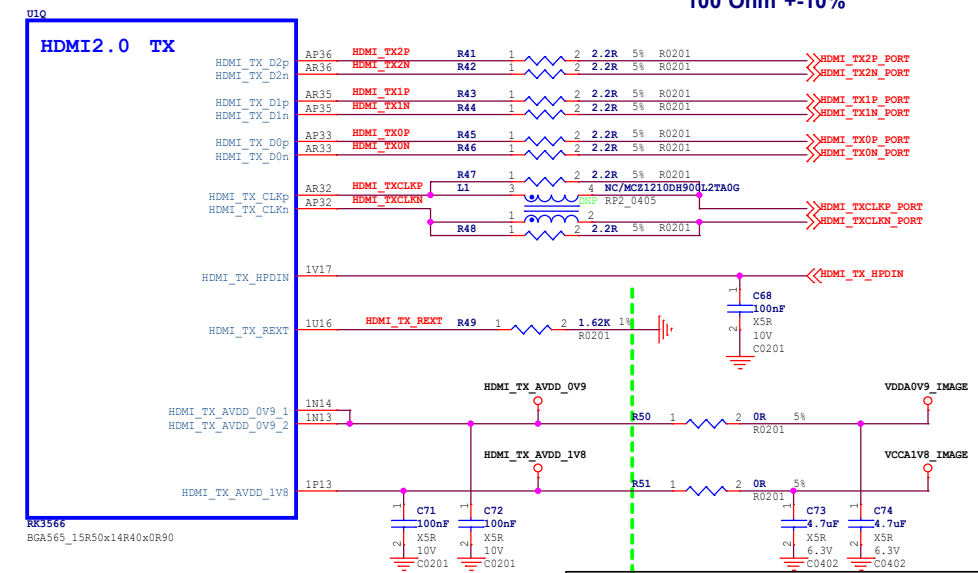
RK3566_T (eDP/DP TX)



Boxed capacitors should be placed under the U1000 package.
 Other caps should be placed close to the U1000 package

Note:
 Caps of between dashed green lines and U1000 should be placed under the U1000 package.
 Other caps should be placed close to the U1000 package

RK3566_Q (HDMI2.0 TX)



HDMI TMSD trace
 100 Ohm +10%

PINE64

| | | |
|-------|--|----------------|
| Size | Title: Quartz64 Model-B Schematic-20220124 | REV |
| A3 | Page Name: RK3566_VO Interface_1 | V1.3 |
| Date: | Monday, January 24, 2022 | Sheet 08 of 26 |

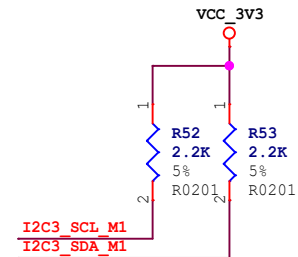
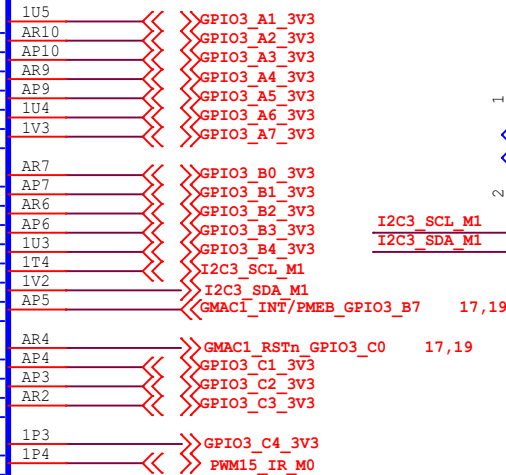
RK3566_L (VCCIO5 Domain)

U1L

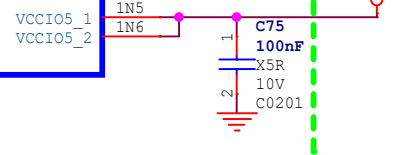
VCCIO5 Domain

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_SDI 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_PERStn 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 |



RK3566
BGA565_15R50x14R40x0R90



Note:

Caps of between dashed green lines and U1000 should be placed under the U1000 package

PINE64



| | | |
|--------------------------------|--|------|
| Size | Title: Quartz64 Model-B Schematic-20220124 | REV |
| A4 | Page Name: RK3566_VO Interface_2 | V1.3 |
| Date: Monday, January 24, 2022 | Sheet 09 of 26 | |

RK3566_H (VCCIO1 Domain)

U1H

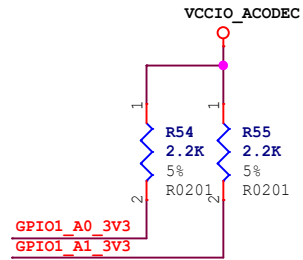
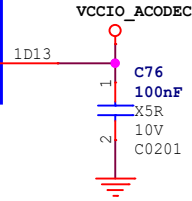
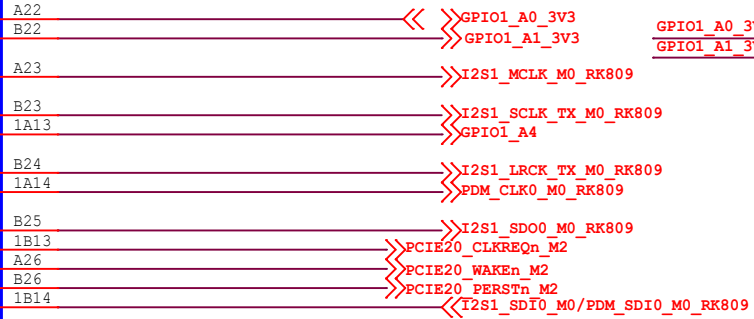
VCCIO1 Domain

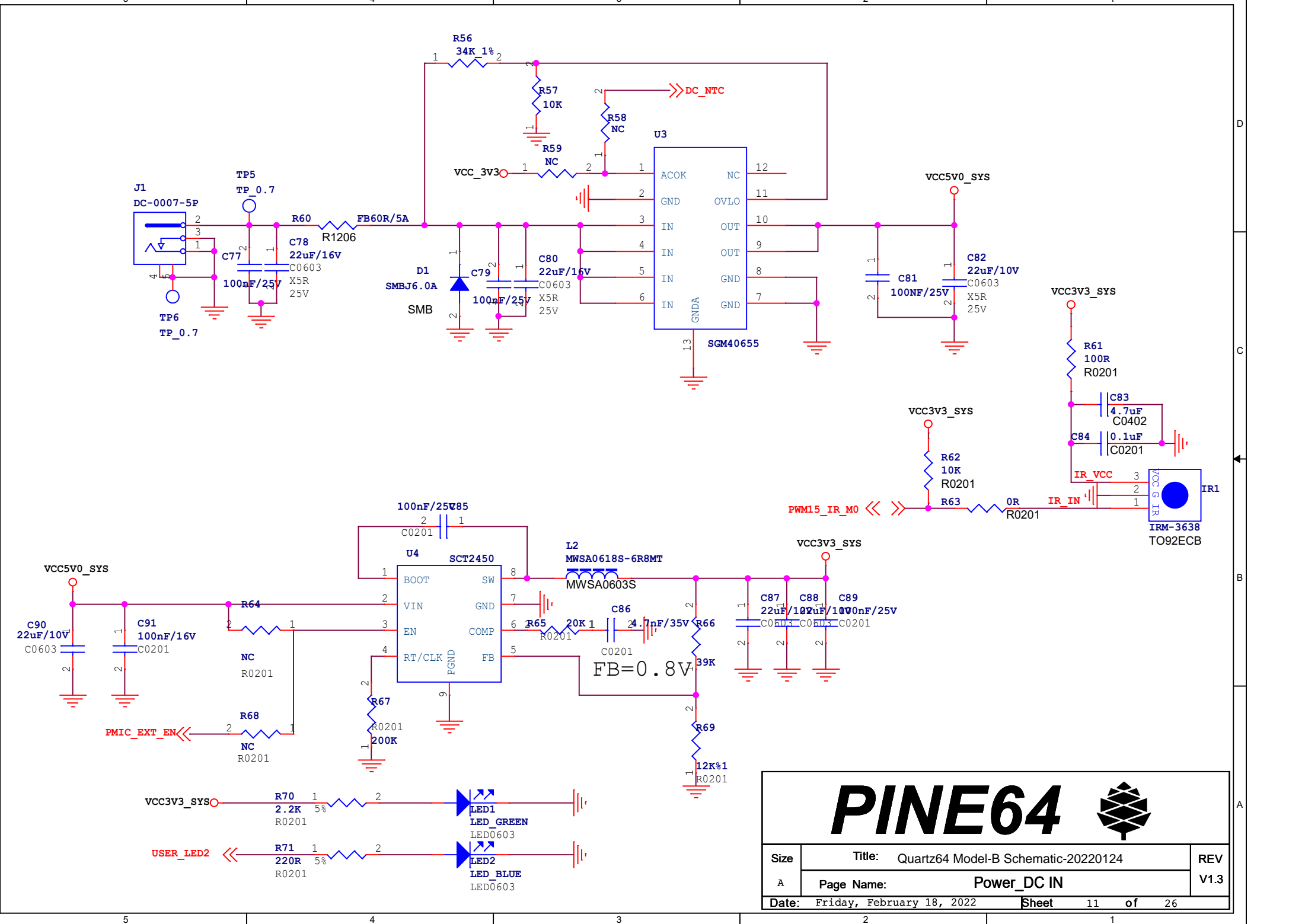
Operating Voltage=1.8V/3.3V

| | | | |
|---------------|-------------------|---------------------|-------------------|
| / I2C3 SDA M0 | / UART3 RX M0 | / AUDIOPWM LOUT p | / GPIO1 A0 u |
| / I2C3 SCL M0 | / UART3 TX M0 | / AUDIOPWM LOUT r | / GPIO1 A1 u |
| SCR CLK | / I2S1 MCLK M0 | / UART3 RTSn M0 | / GPIO1 A2 d |
| SCR IO | / I2S1 SCLK TX M0 | / UART3 CTSn M0 | / GPIO1 A3 d |
| | I2S1 SCLK RX M0 | / UART4 RX M0 | / PDM CLR1 M0 |
| | | / SPDIF TX M0 | / GPIO1 A4 d |
| SCR RST | / I2S1 LRCK TX M0 | / UART4 RTSn M0 | / GPIO1 A5 d |
| | I2S1 LRCK RX M0 | / UART4 TX M0 | / PDM CLR0 M0 |
| | | / AUDIOPWM ROUT p | / GPIO1 A6 d |
| SCR DET | / I2S1 SDO0 M0 | / UART4 CTSn M0 | / AUDIOPWM ROUT n |
| | I2S1 SDO1 M0 | / I2S1 SDI3 M0 | / PDM SDI3 M0 |
| | | / PCIE20 CLKREQn M2 | / GPIO1 B0 d |
| | I2S1 SDO2 M0 | / I2S1 SDI2 M0 | / PDM SDI2 M0 |
| | | / PCIE20 WAKEn M2 | / GPIO1 B1 d |
| | I2S1 SDO3 M0 | / I2S1 SDI1 M0 | / PDM SDI1 M0 |
| | | / PCIE20 PERSTn M2 | / GPIO1 B2 d |
| | | / I2S1 SDI0 M0 | / PDM SDI0 M0 |
| | | | / GPIO1 B3 d |

RK3566
BGA565_15R50x14R40x0R90

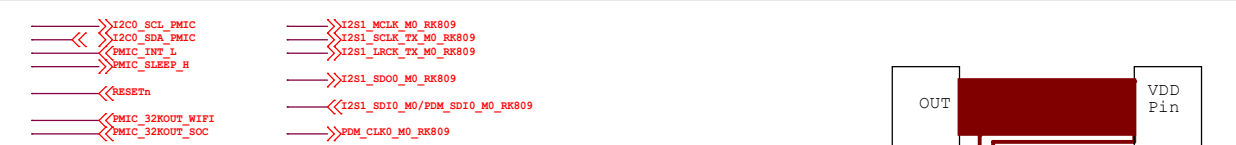
VCCIO1



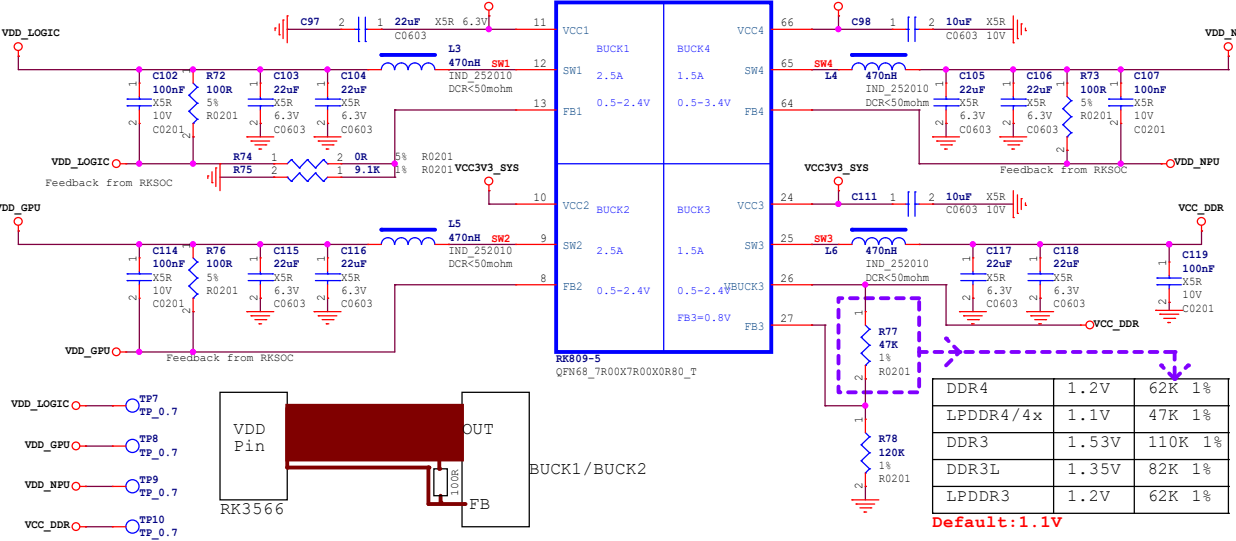


PINE64

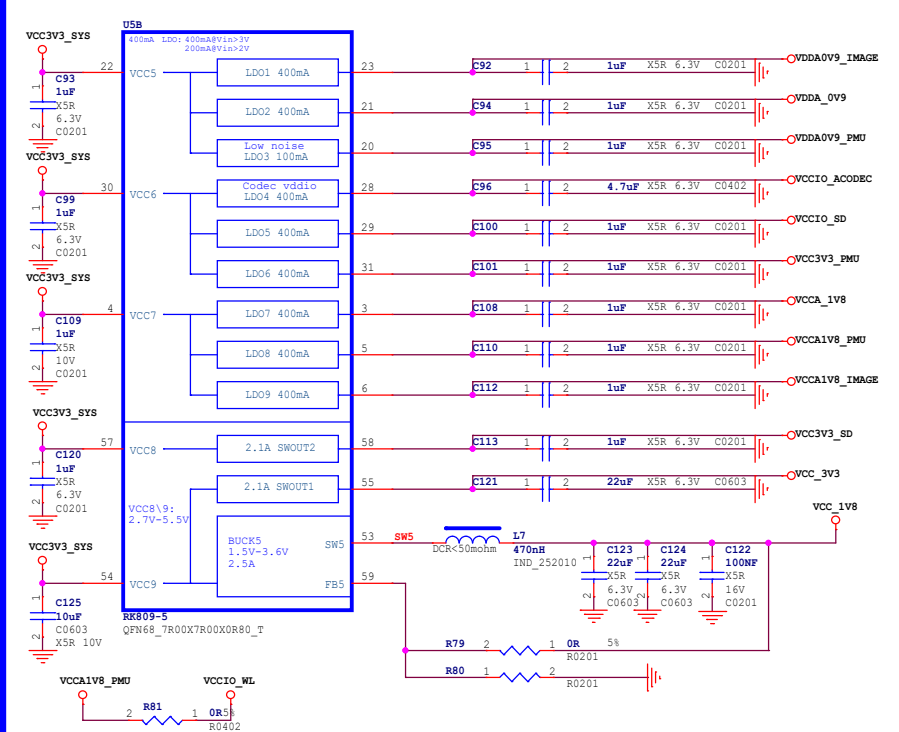
| | | |
|--|--|------------|
| Size | Title: Quartz64 Model-B Schematic-20220124 | REV |
| A | Page Name: Power_DC IN | V1.3 |
| Date: Friday, February 18, 2022 | Sheet 11 of 26 | |



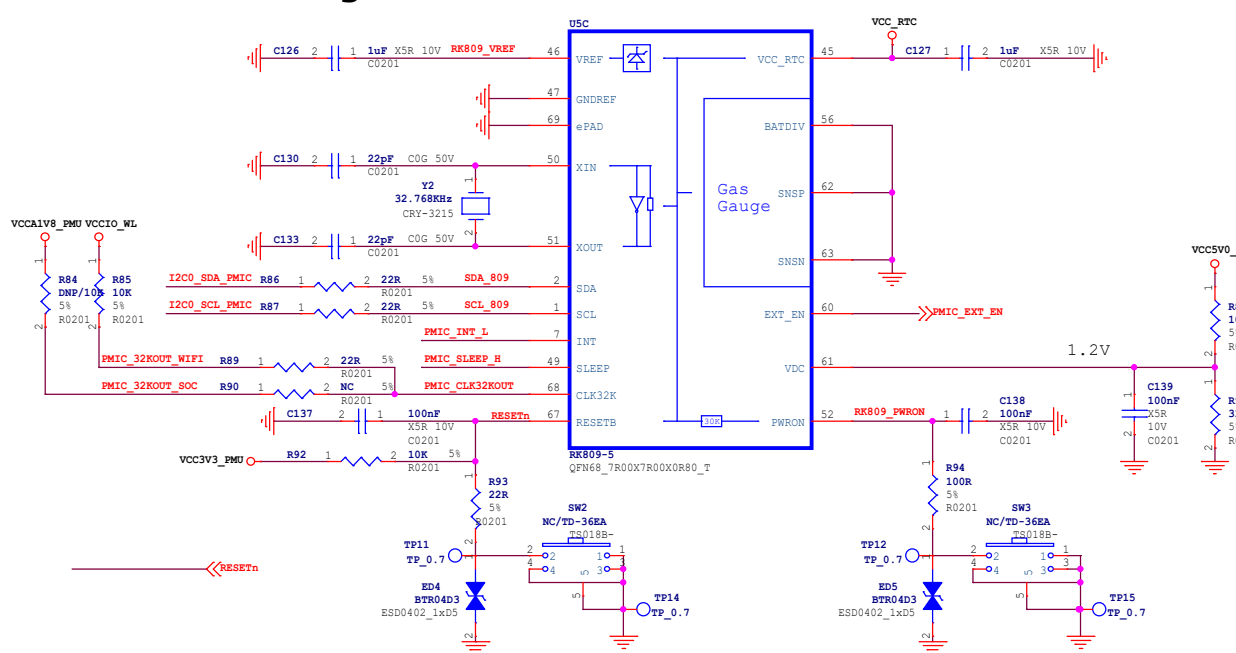
PMIC RK809 DCDC



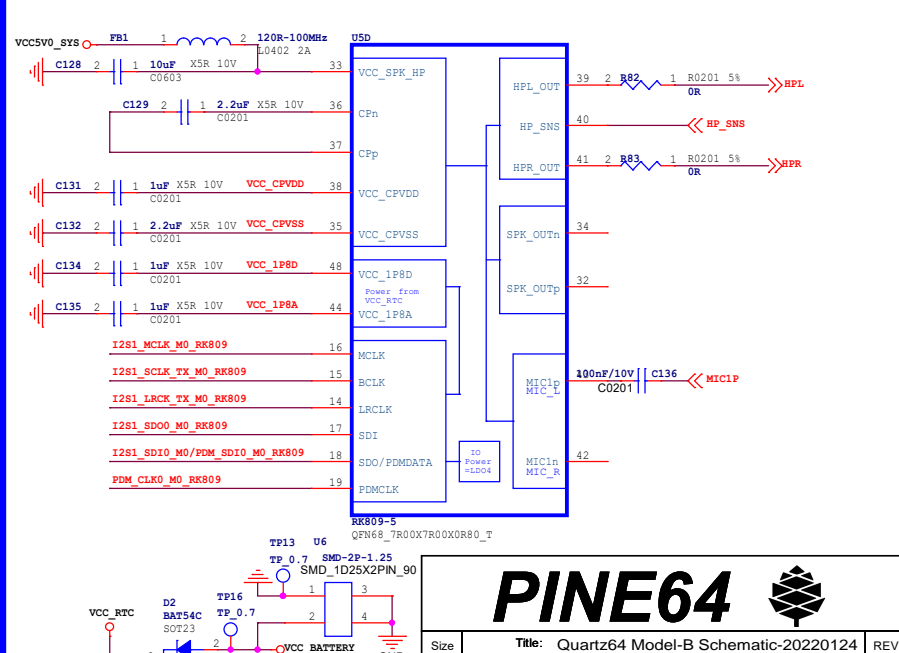
PMIC RK809 LDO



PMIC RK809 Management



PMIC RK809 CODEC



PINE64

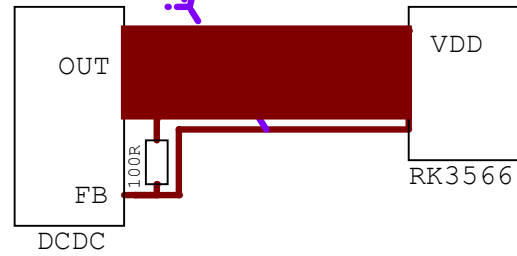
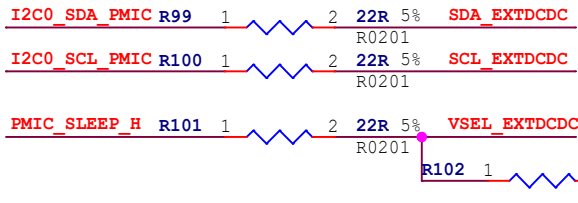
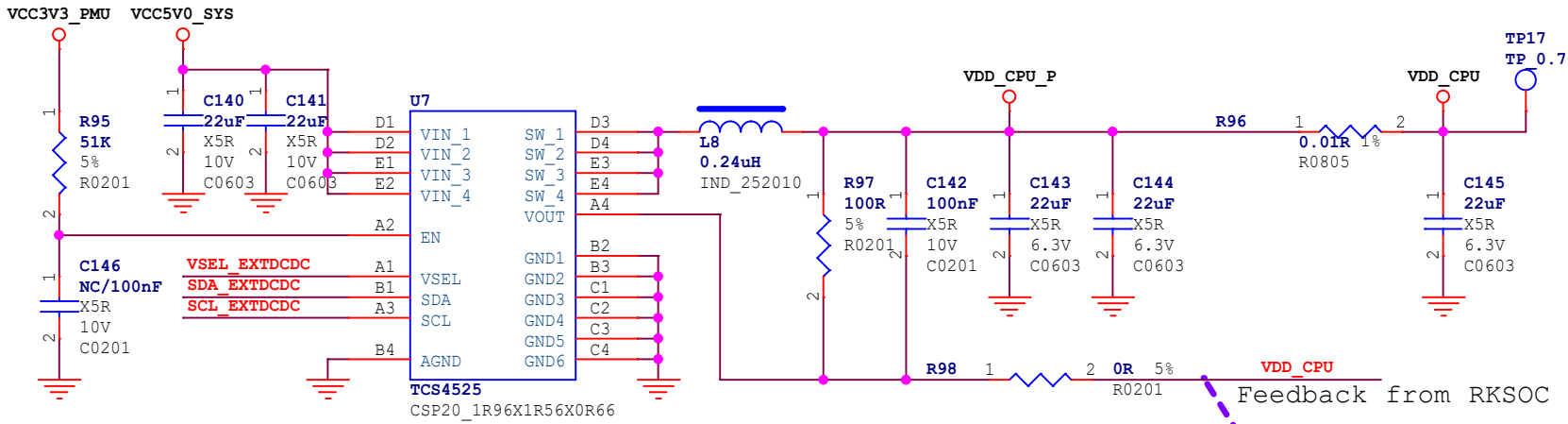
Size: Title: Quartz64 Model-B Schematic-20220124 REV: V1.3

A3 Page Name: Power PMIC

Date: Monday, January 24, 2022 Sheet 12 of 26

>>>I2C0_SCL_PMIC
 >>>I2C0_SDA_PMIC
 >>>PMIC_SLEEP_H

VDD_CPU_EXT



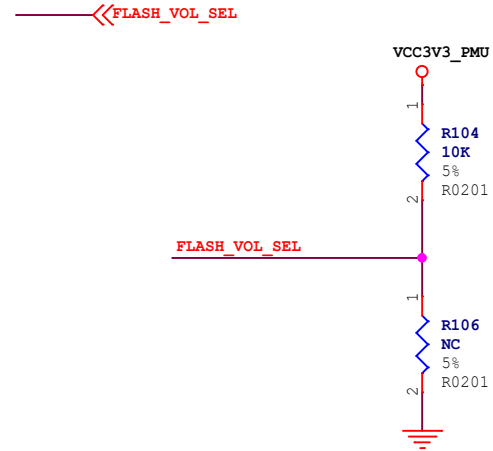
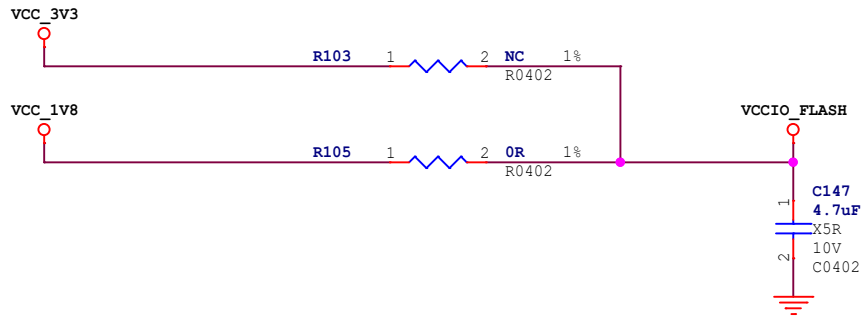
PINE64




| | | |
|--------------------------------|--|------|
| Size | Title: Quartz64 Model-B Schematic-20220124 | REV |
| A | Page Name: Power_other | V1.3 |
| Date: Monday, January 24, 2022 | Sheet 13 of 26 | |

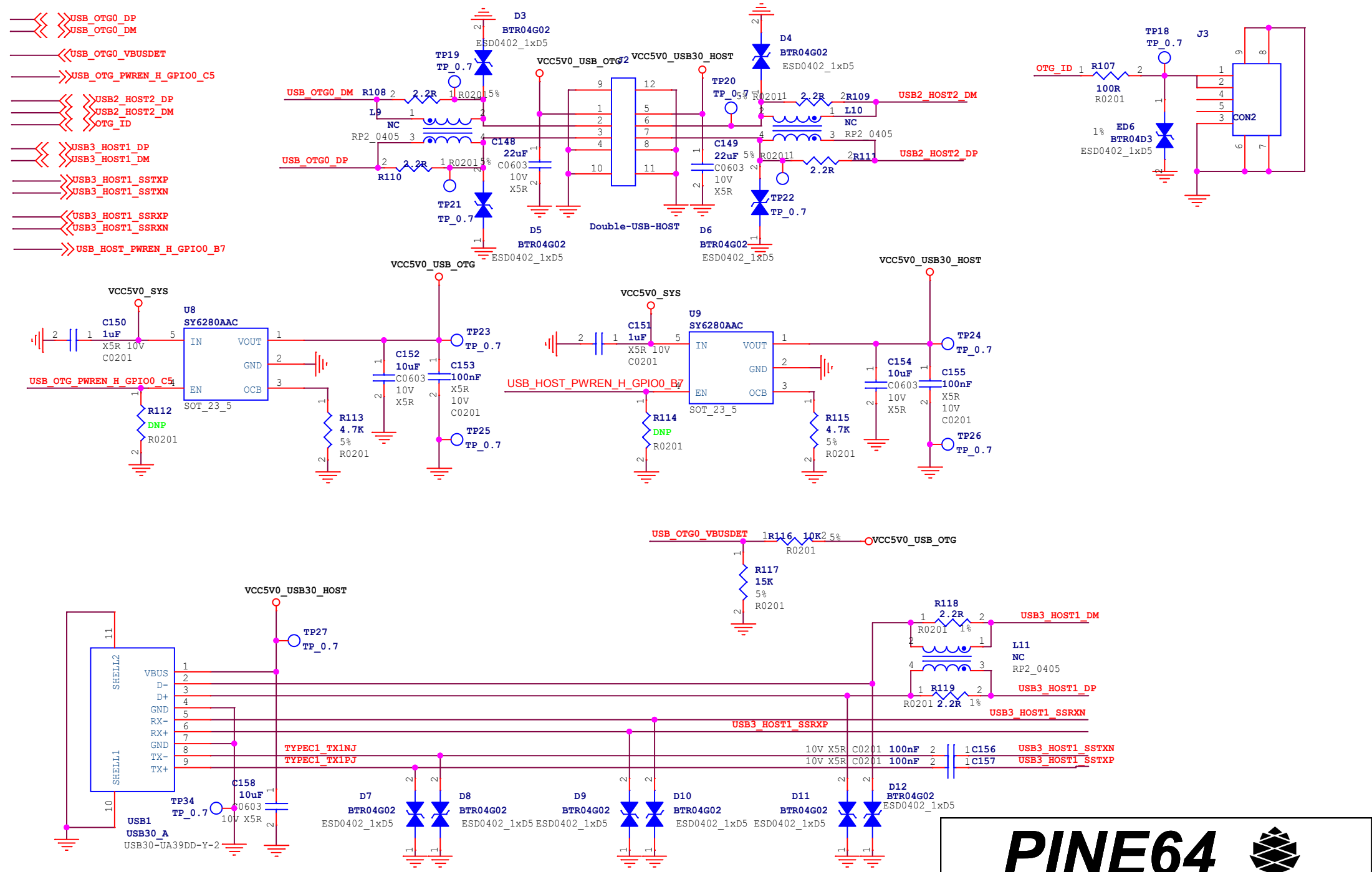
Flash Power Manage


| | | |
|------------|--|---|
| | VCCIO2 domain voltage: Recommend voltage value (VCCIO_FLASH) | FLASH_VOL_SEL state decided to VCCIO2 domain IO driven by default |
| eMMC | 1.8V | FLASH_VOL_SEL --> Logic=H |
| Nand flash | Default 3.3V, Adjust according to demand 1.8V | FLASH_VOL_SEL --> Logic=L(Default) |
| SPI flash | Default 3.3V, Adjust according to demand 1.8V | FLASH_VOL_SEL --> Logic=L(Default) |



Note:
 FLASH VOL_SEL state decided
 to VCCIO2 domain IO driven by default
 Logic=L:3.3V IO driven
 Logic=H:1.8V IO driven

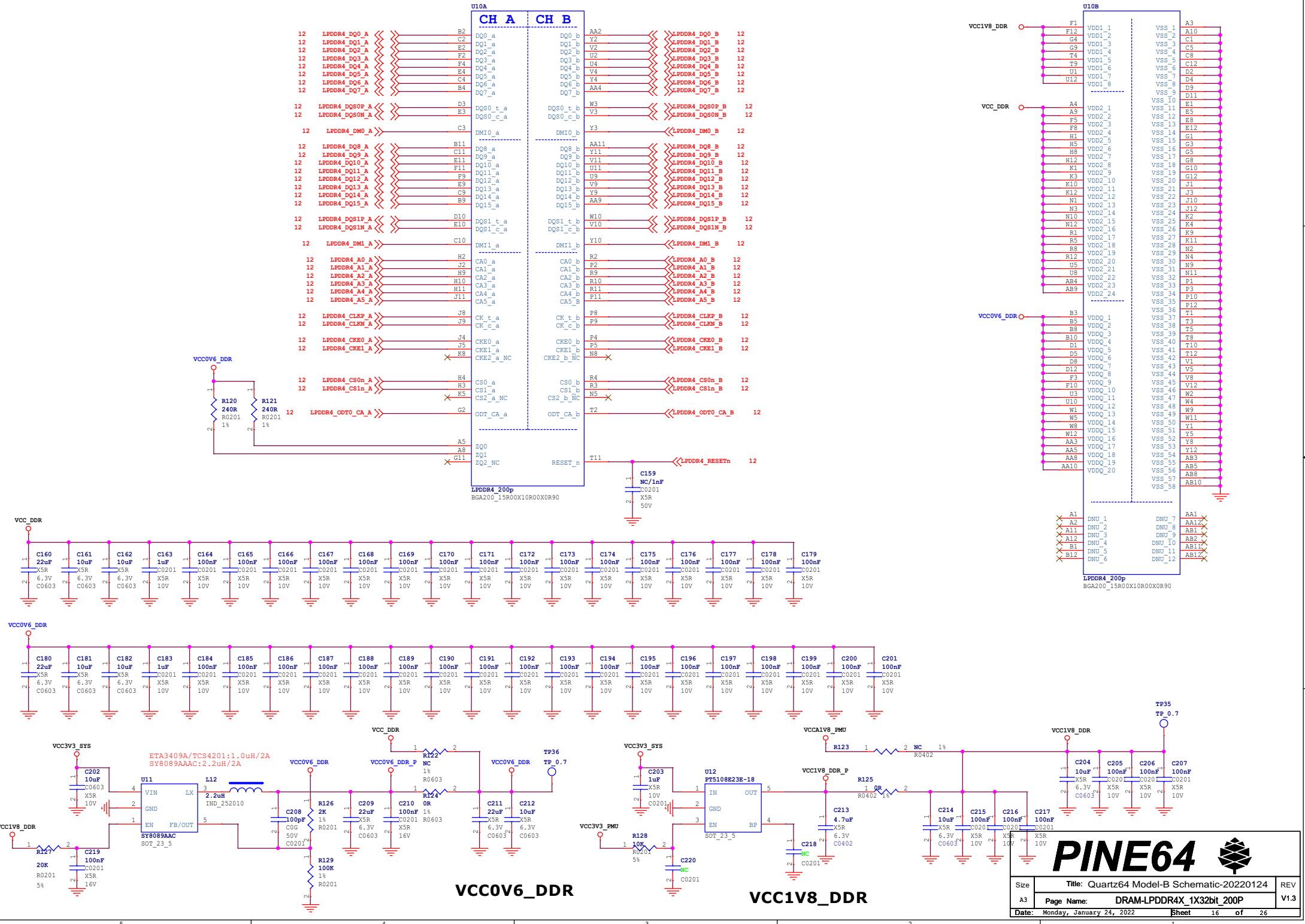
| | | |
|---|--|------|
| PINE64  | | |
| Size | Title: Quartz64 Model-B Schematic-20220124 | REV |
| A4 | Page Name: Power_Flash Power Manage | V1.3 |
| Date: Monday, January 24, 2022 | Sheet 14 of 26 | |





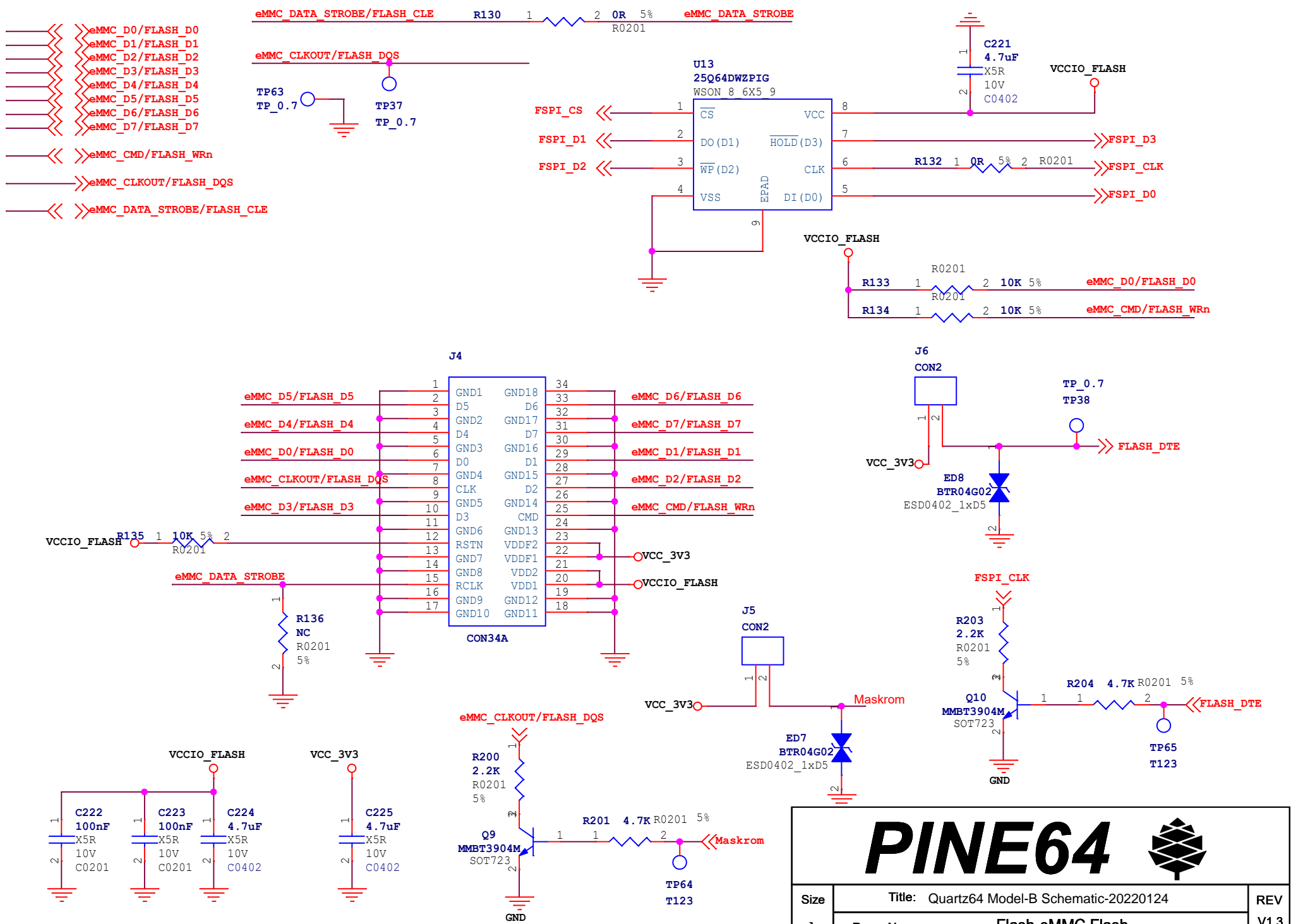
PINE64

| | | |
|--------------------------------|--|----------------|
| Size | Title: Quartz64 Model-B Schematic-20220124 | REV |
| A4 | Page Name: USB Port | V1.3 |
| Date: Monday, January 24, 2022 | | Sheet 15 of 26 |

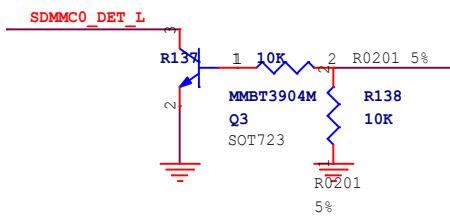
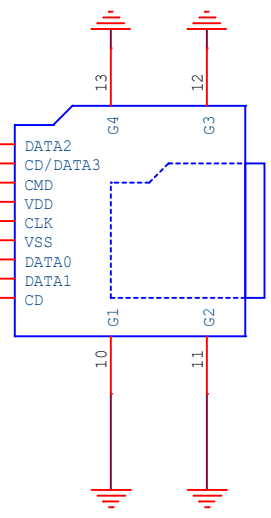
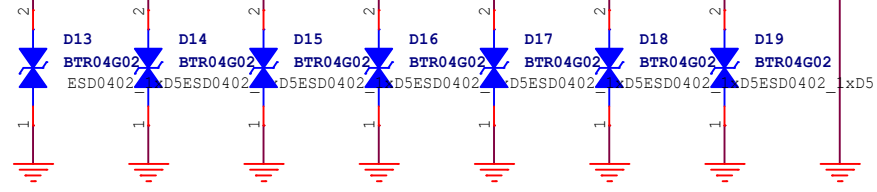
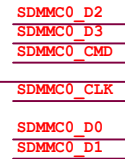
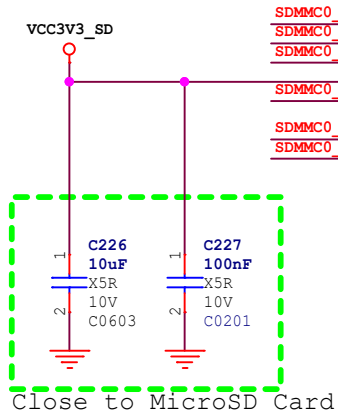
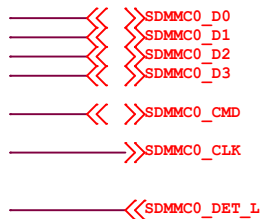


PINE64

| | | |
|--------------------------------|--|-------|
| Size | Title: Quartz64 Model-B Schematic-20220124 | REV |
| A3 | Page Name: DRAM-LPDDR4X 1X32bit 200P | V1.3 |
| Date: Monday, January 24, 2022 | Sheet 16 | of 26 |



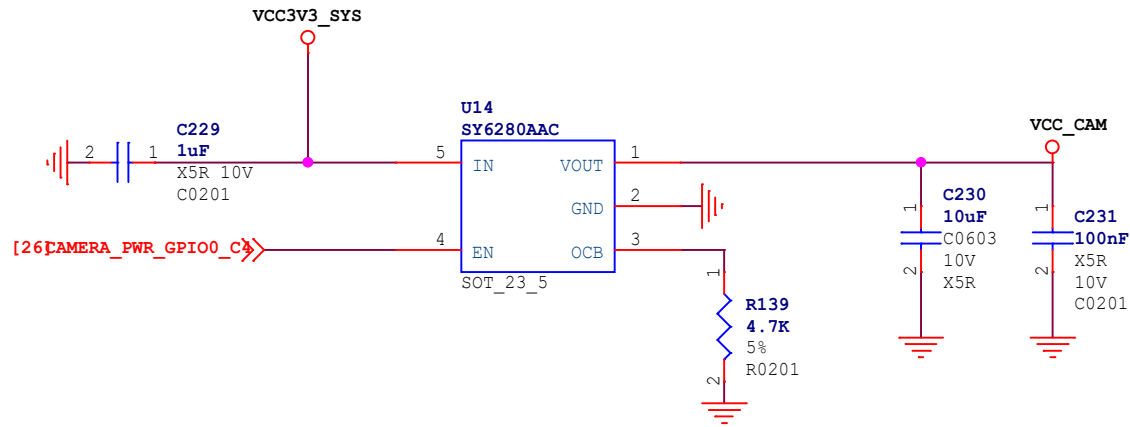
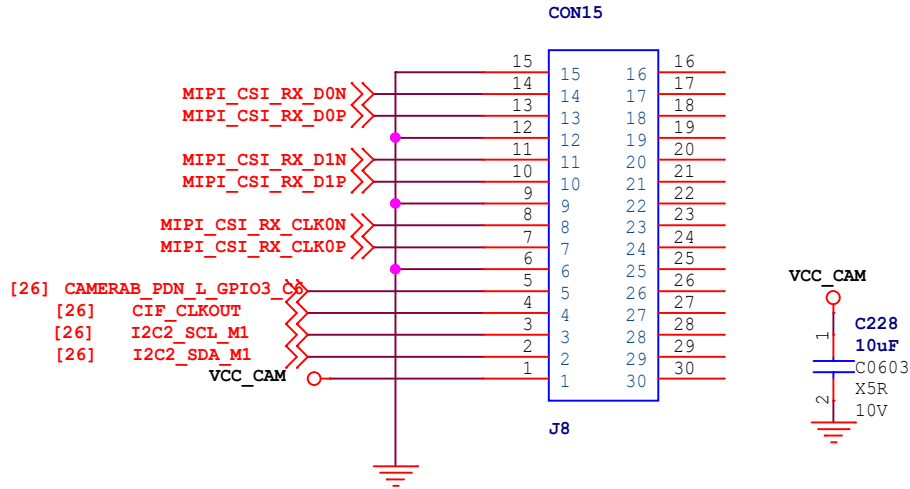
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|---------------------------------|--|------|
| <h1>PINE64</h1> | | |
| Size | Title: Quartz64 Model-B Schematic-20220124 | REV |
| A | Page Name: Flash-eMMC Flash | V1.3 |
| Date: Monday, February 21, 2022 | Sheet 17 of 26 | |



MicroSD Card

PINE64

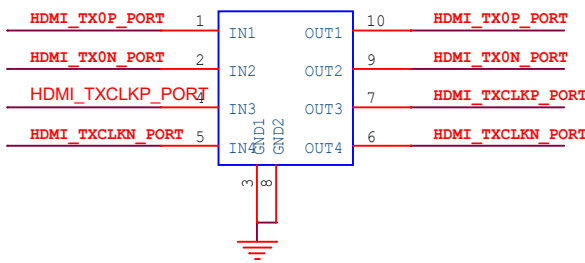
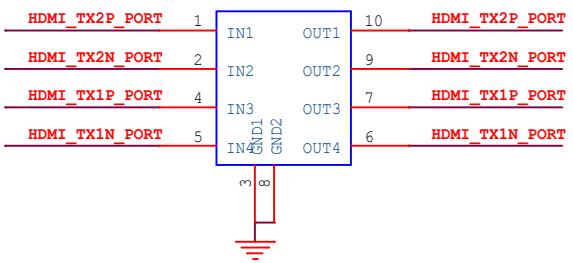
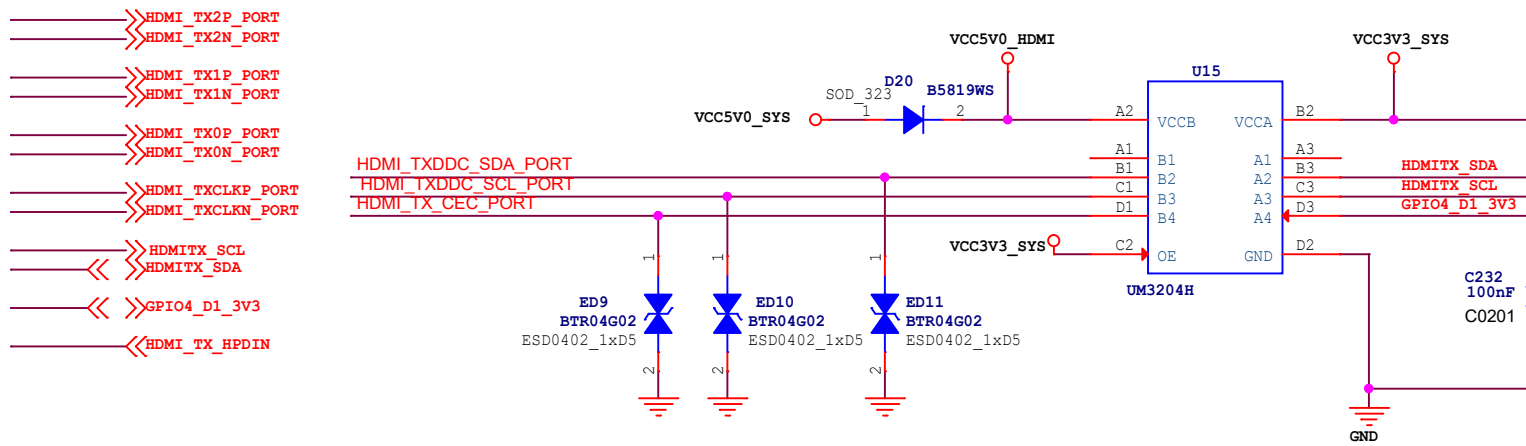
| | | |
|--------------------------------|--|----------------|
| Size | Title: Quartz64 Model-B Schematic-20220124 | REV |
| A4 | Page Name: Flash-MicroSD Card | V1.3 |
| Date: Monday, January 24, 2022 | | Sheet 18 of 26 |



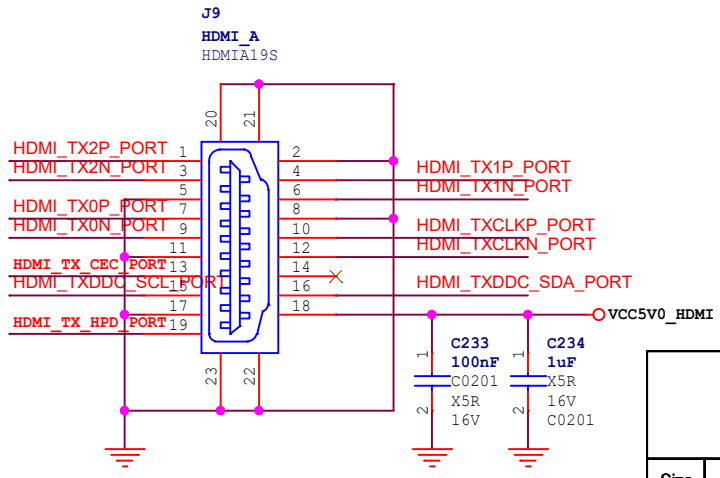
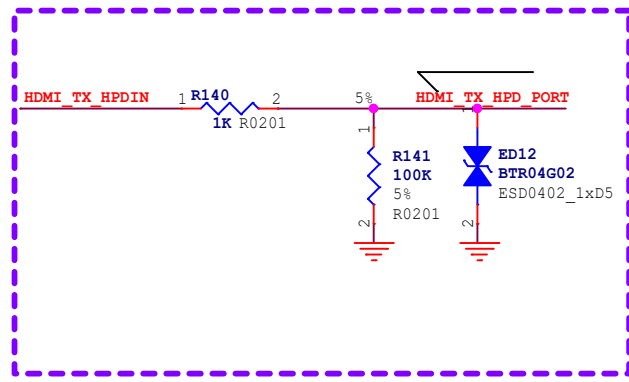
PINE64




| | | |
|--------------------------------|--|----------|
| Size | Title: Quartz64 Model-B Schematic-20220124 | REV |
| A | Page Name: VI-Camera_MIPI-CSI | V1.3 |
| Date: Monday, January 24, 2022 | Sheet | 19 of 26 |



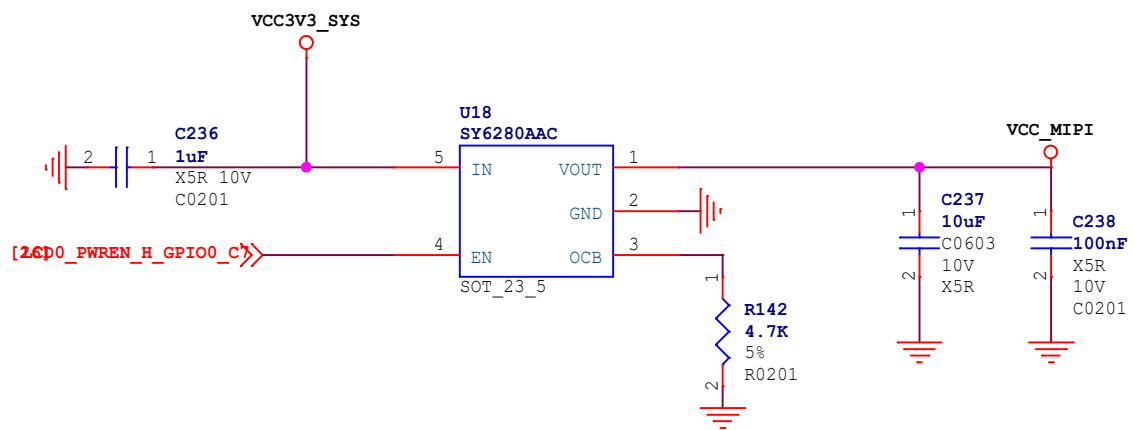
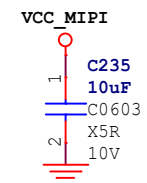
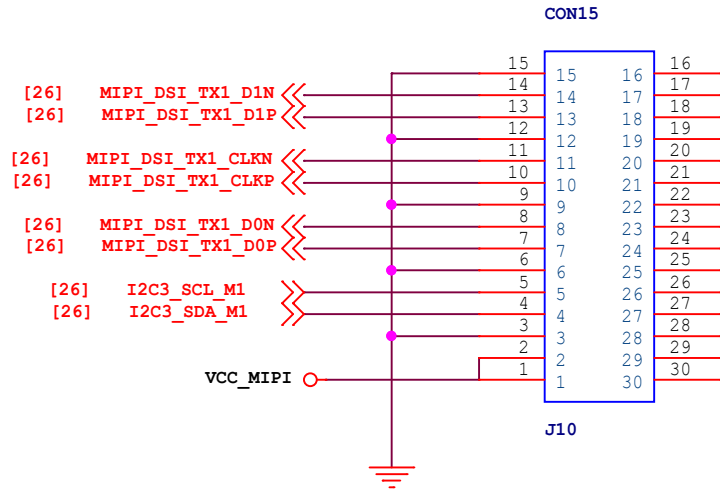
HDMI TX HPD





| | | |
|--------------------------------|--|----------------|
| Size | Title: Quartz64 Model-B Schematic-20220124 | REV |
| A4 | Page Name: VO-HDMI2.0 TX | V1.3 |
| Date: Monday, January 24, 2022 | | Sheet 20 of 26 |

>>MIPI_DSI_TX1_D0P
 >>MIPI_DSI_TX1_D0N
 >>MIPI_DSI_TX1_D1P
 >>MIPI_DSI_TX1_D1N
 >>MIPI_DSI_TX1_CLKP
 >>MIPI_DSI_TX1_CLKN
 >>LCD0_PWREN_H_GPIO0_C7



PINE64

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|--------------|--|------------------------------|
| Size | Title: Quartz64 Model-B Schematic-20220124 | REV |
| A | Page Name: VO-LCM_MIPI-DSI | V1.3 |
| Date: | Monday, January 24, 2022 | Sheet 21 of 26 |

SDIO WIFI/BT Module-1T1R

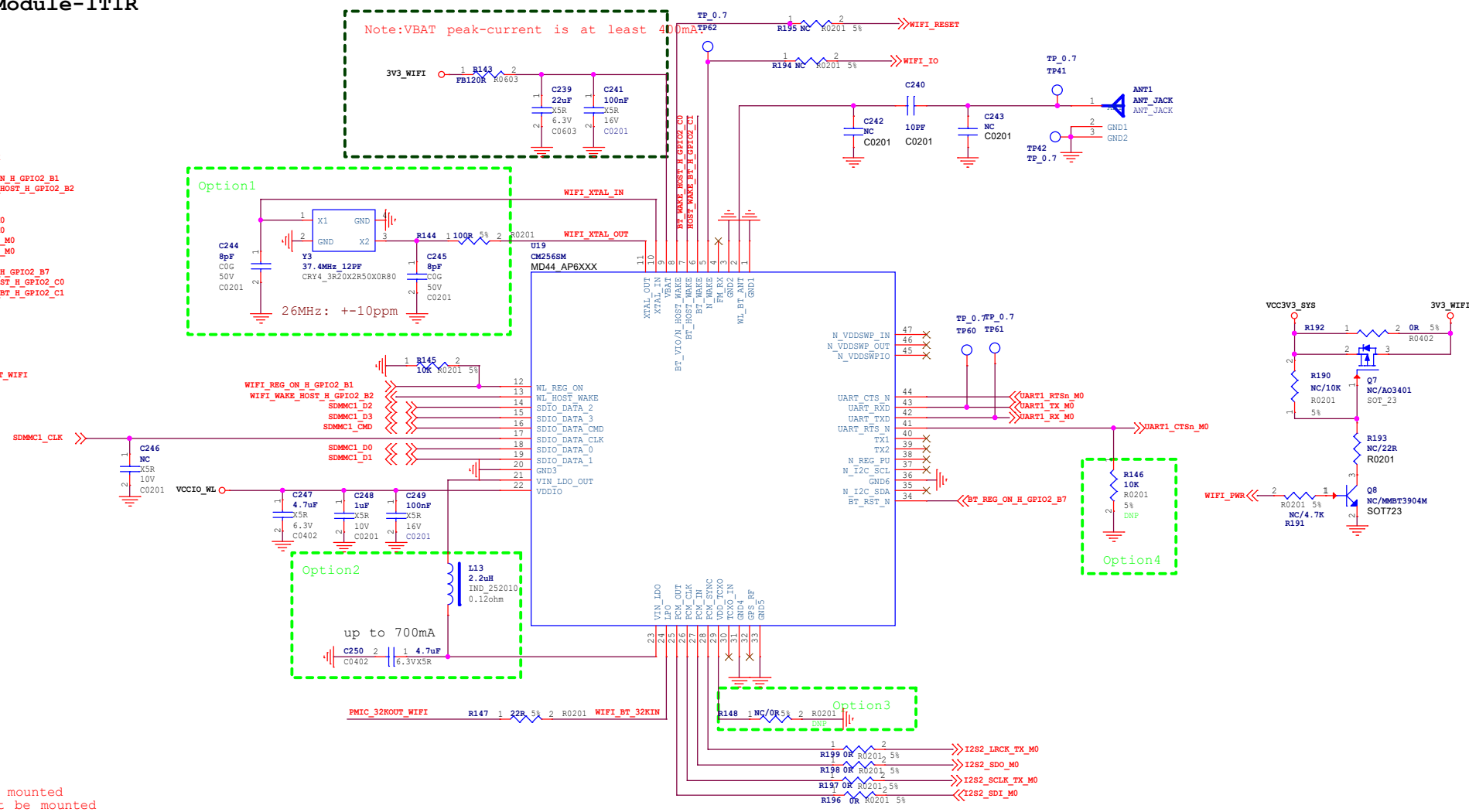
- >>>SDMMC1_D0
- >>>SDMMC1_D1
- >>>SDMMC1_D2
- >>>SDMMC1_D3
- >>>SDMMC1_CMD
- >>>SDMMC1_CLK

- >>>WIFI_REG_ON_H_GPIO2_B1
- >>>WIFI_WAKE_HOST_H_GPIO2_B2

- >>>UART1_RX_M0
- >>>UART1_TX_M0
- >>>UART1_RTSn_M0
- >>>UART1_CTSn_M0

- >>>BT_REG_ON_H_GPIO2_B7
- >>>BT_WAKE_HOST_H_GPIO2_C0
- >>>HOST_WAKE_BT_H_GPIO2_C1

- >>>PMIC_32KOUT_WIFI



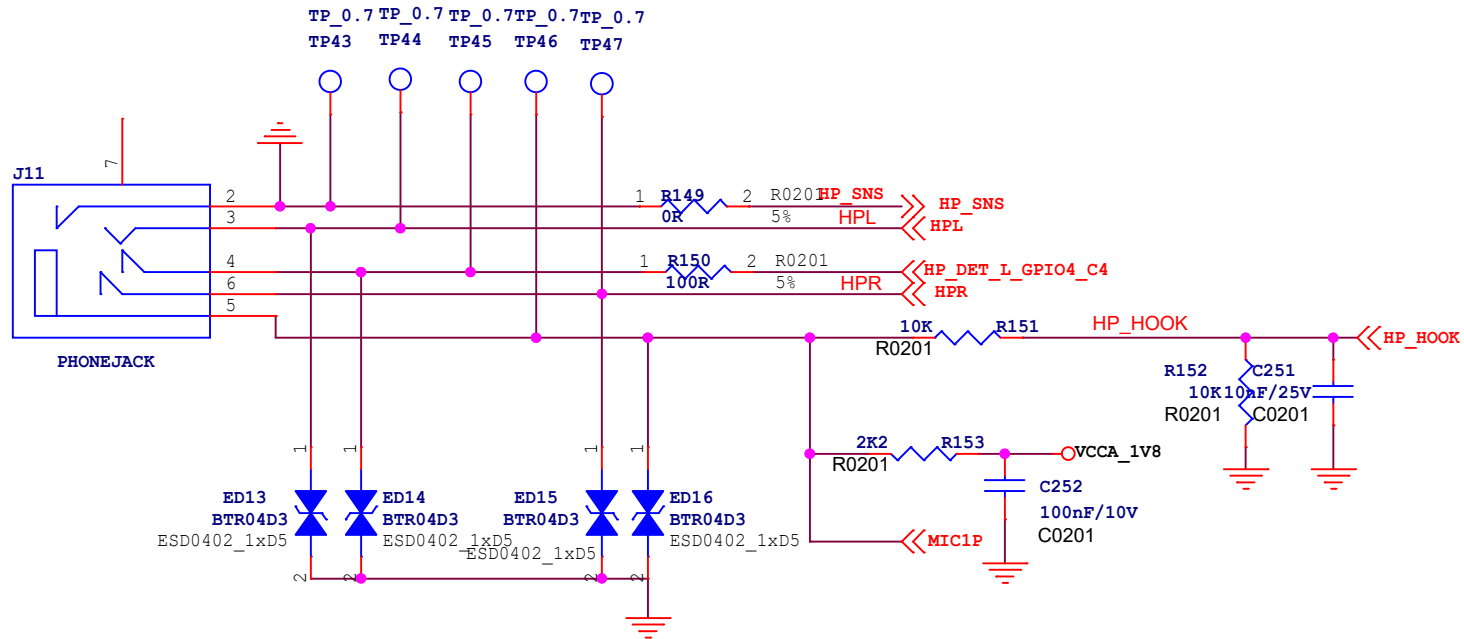
Note:
 Yes: option circuit be mounted
 No: option circuit not be mounted

| OPTION | WIFI | | | | BT | Crystals | VCCIO_SDIO | OPTION1 | OPTION2 | OPTION3 | OPTION4 |
|-----------------------------------|------|-------|-----|------|---------|----------------------|------------|---------|---------|---------------------------|---------|
| | a | b/g/n | ac | 5GHz | | | | | | | |
| AW-CM256SM | Yes | Yes | Yes | Yes | 4.2 | 37.4MHz | 1.71-3.6V | Yes | Yes | Yes@SDIO2.0 No@SDIO3.0 | No |
| AP6236/AP6212 | No | Yes | No | No | 4.2/4.0 | 26MHz | 1.71-3.6V | Yes | Yes | No | No |
| AP6256/AP6255 | Yes | Yes | Yes | Yes | 5.0/4.2 | 37.4MHz | 1.71-3.6V | Yes | Yes | Yes@SDIO2.0 No@SDIO3.0 | No |
| RTL8189ETV Module F89FTSM12-W3 | No | Yes | No | No | No | Module Integrated | 1.8-3.3V | No | No | No | No |
| RTL8723BS Module F23BDSM23-W2 | No | Yes | No | No | 4.0 | Module Integrated | 1.62-3.6V | No | No | No | No |
| RTL8723DS Module 6223A-SRD | No | Yes | No | No | 4.2 | Module Integrated | 1.62-3.6V | No | No | No | Yes |
| QCA9377 Module 8223A-SR | Yes | Yes | Yes | Yes | 4.2 | Module Integrated | 1.7-3.45V | No | No | No | No |
| RTL8821CS Module 6221A-SRC | Yes | Yes | Yes | Yes | 4.2 | Module Integrated | 1.7-3.45V | No | No | No | No |

PINE64

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| Size | Title: Quartz64 Model-B Schematic-20220124 | REV |
| A3 | Page Name: WIFI/BT-SDIO_1T1R | V1.3 |
| Date: Monday, January 24, 2022 | Sheet 22 of 26 | |

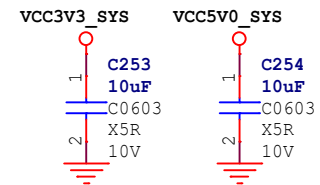
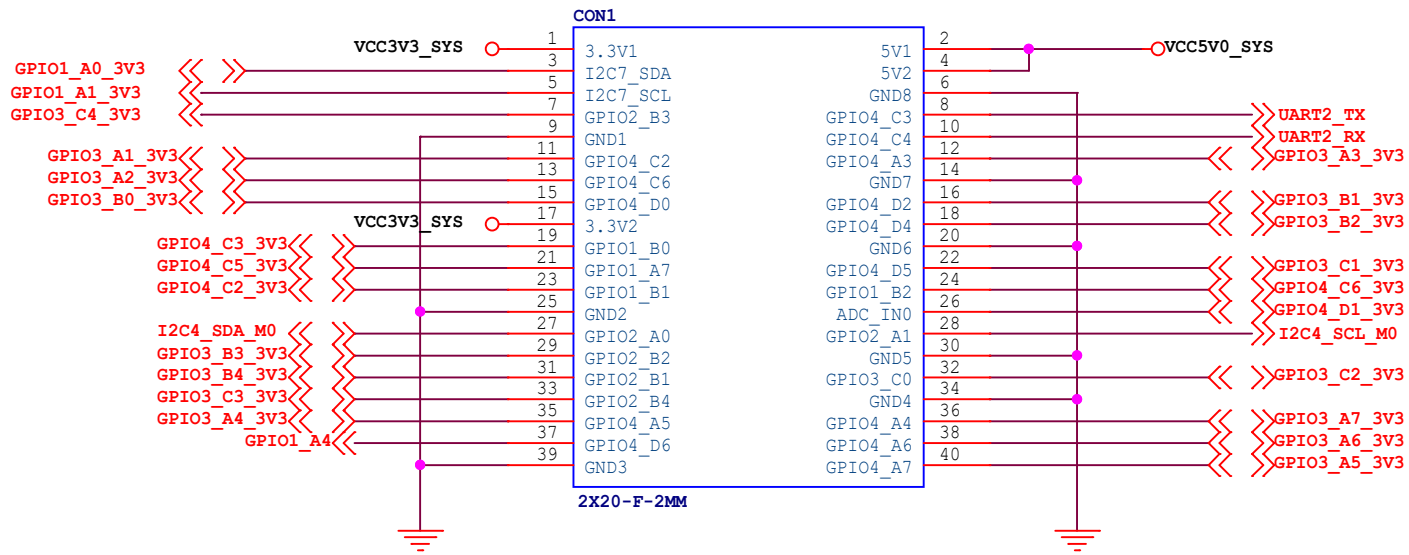
Headphone (Reserved)



PINE64



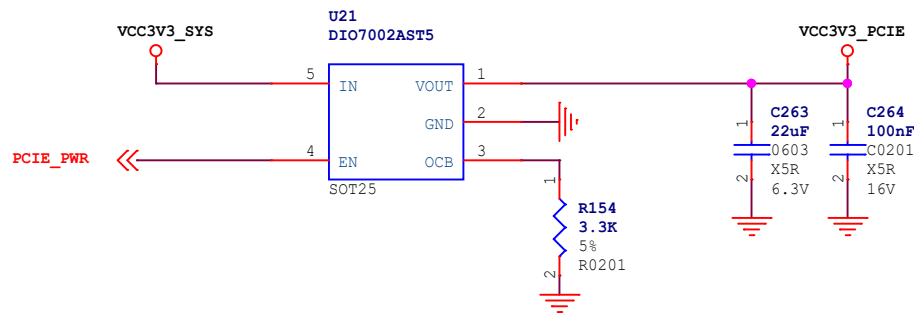
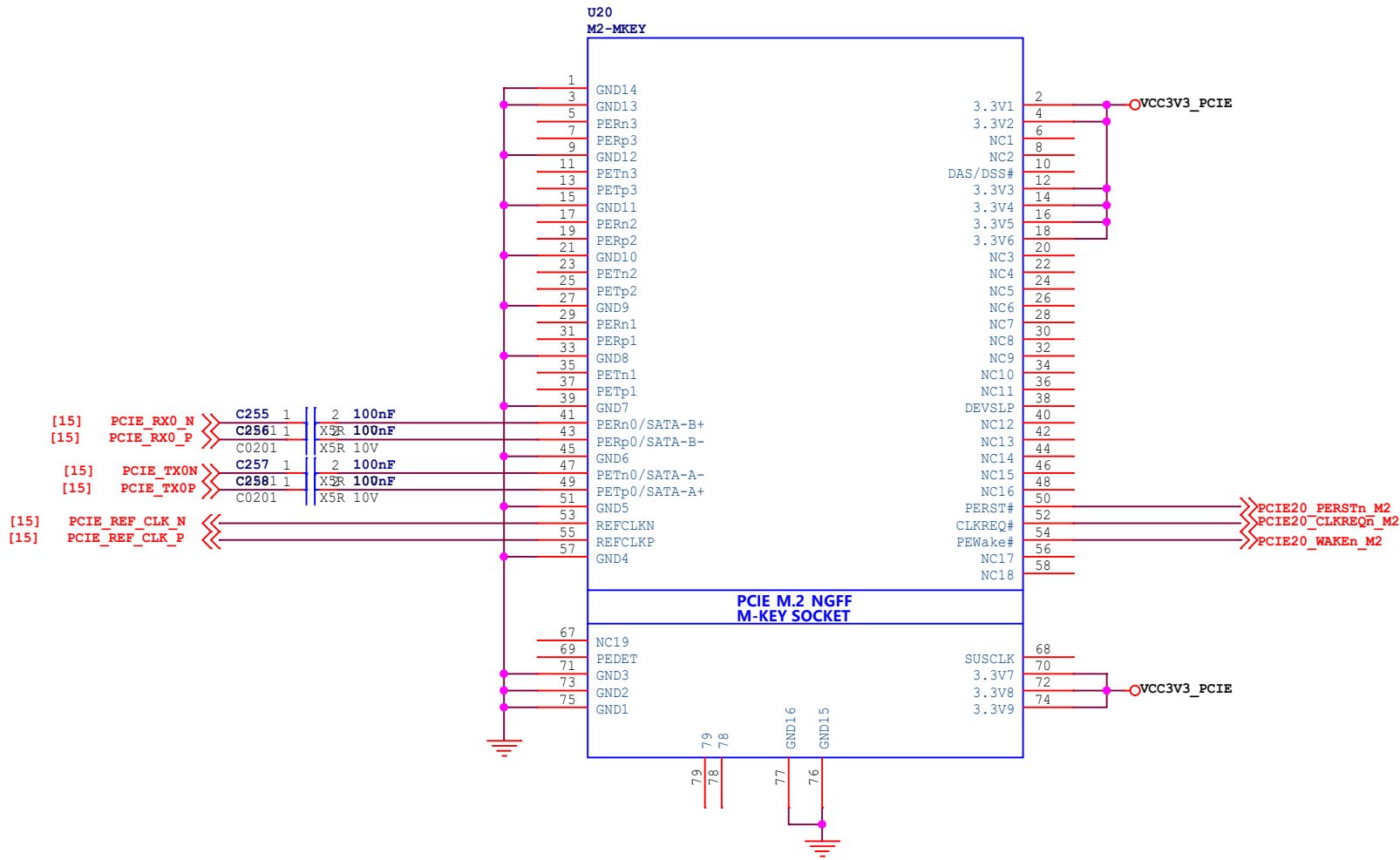
| | | |
|--------------------------------|--|------|
| Size | Title: Quartz64 Model-B Schematic-20220124 | REV |
| A | Page Name: AUDIO-HPOUT | V1.3 |
| Date: Monday, January 24, 2022 | Sheet 23 of 26 | |



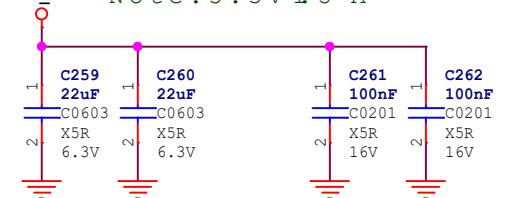
PINE64

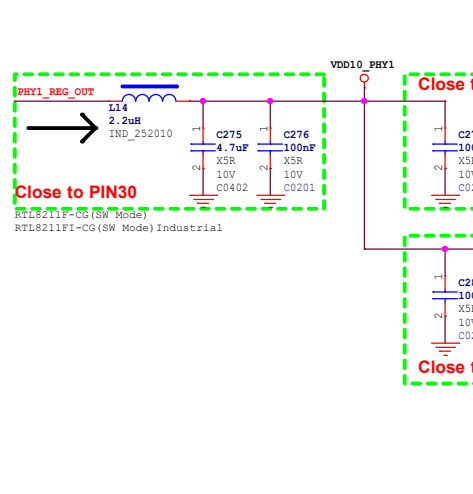
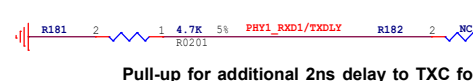
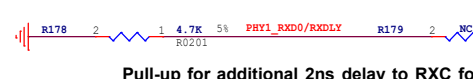
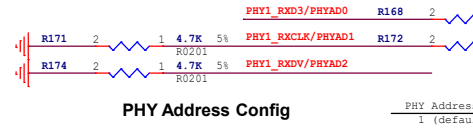
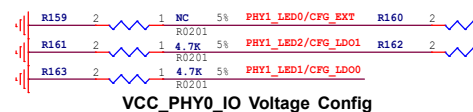
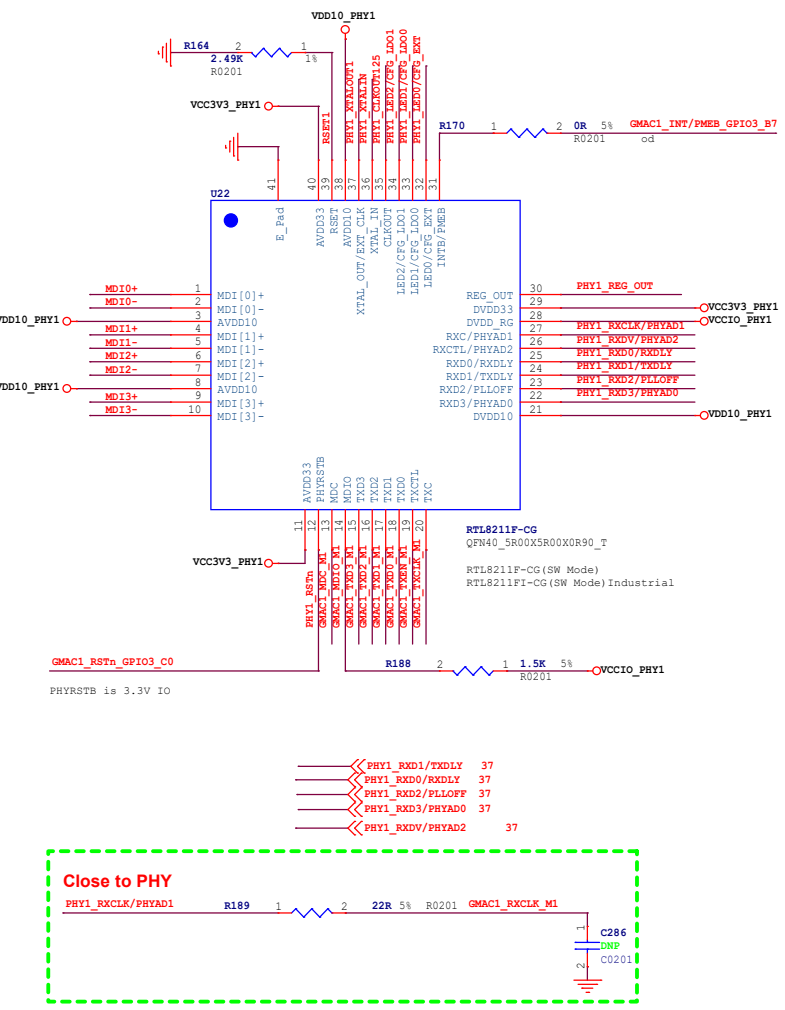
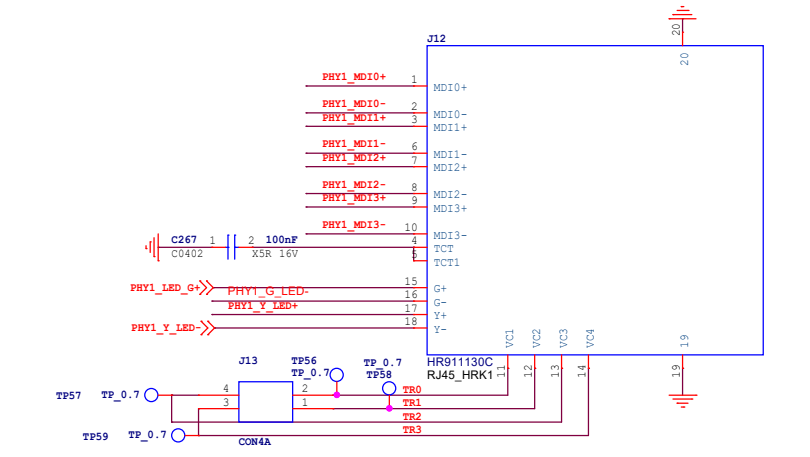
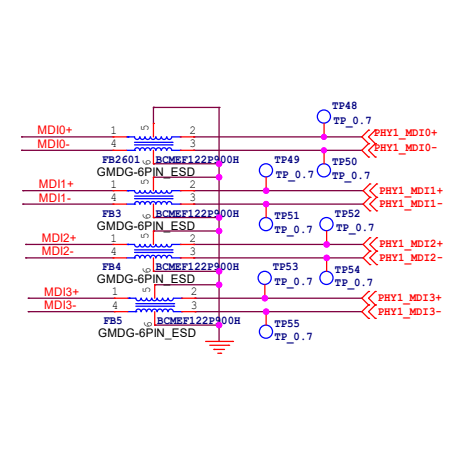
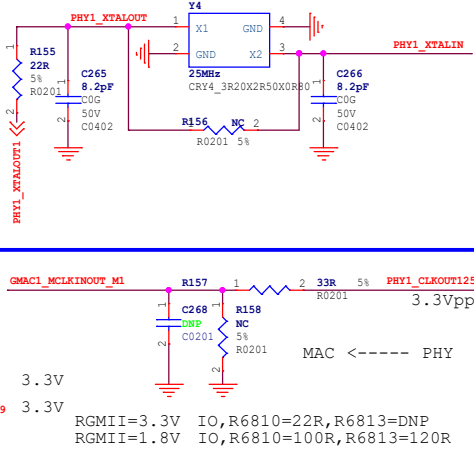
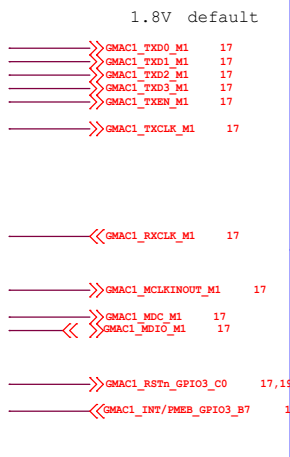


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| Size | Title: Quartz64 Model-B Schematic-20220124 | REV |
| A | Page Name: CONNECTOR | V1.3 |
| Date: Monday, January 24, 2022 | Sheet 24 of 26 | |



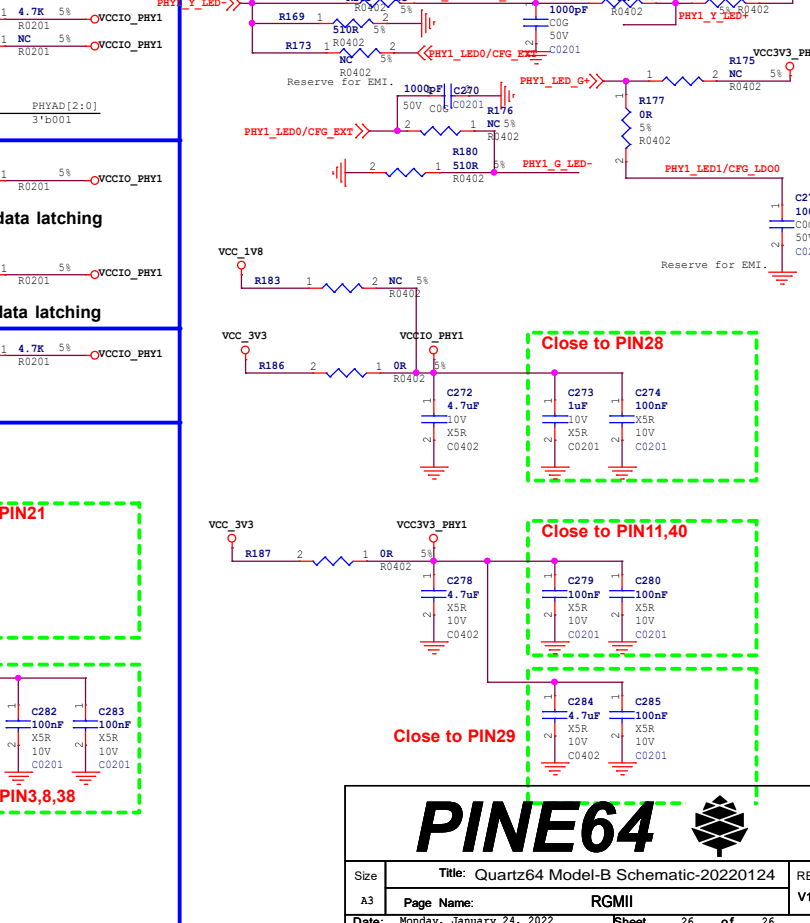
VCC3V3_PCIE Note: 3.3V 1.5 A





RGMII Power Source

| 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 |



PINE64

Size: Title: Quartz64 Model-B Schematic-20220124 REV V1.3

A3 Page Name: RGMII

Date: Monday, January 24, 2022 Sheet 26 of 26