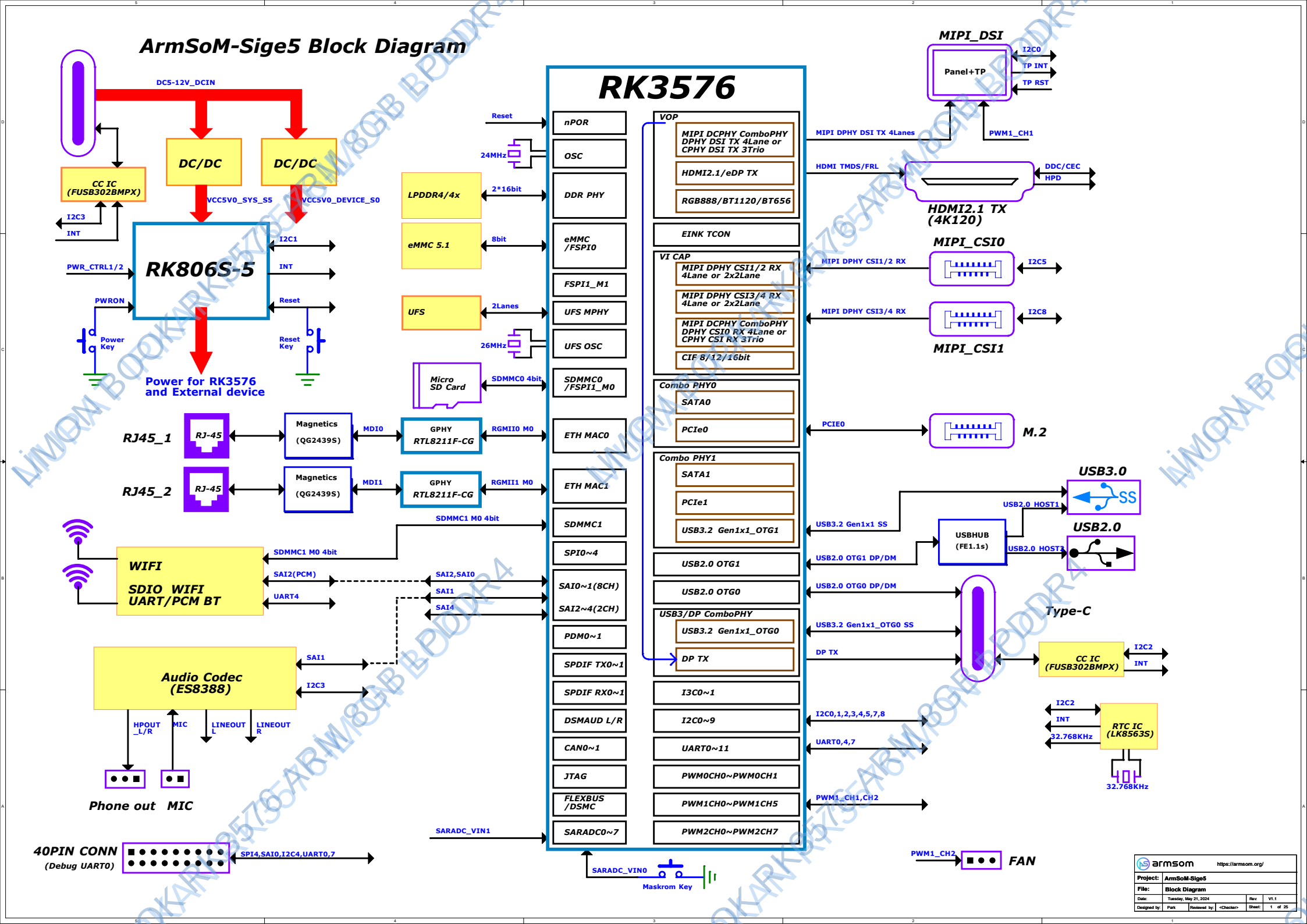
ArmSoM-Sige5 Block Diagram



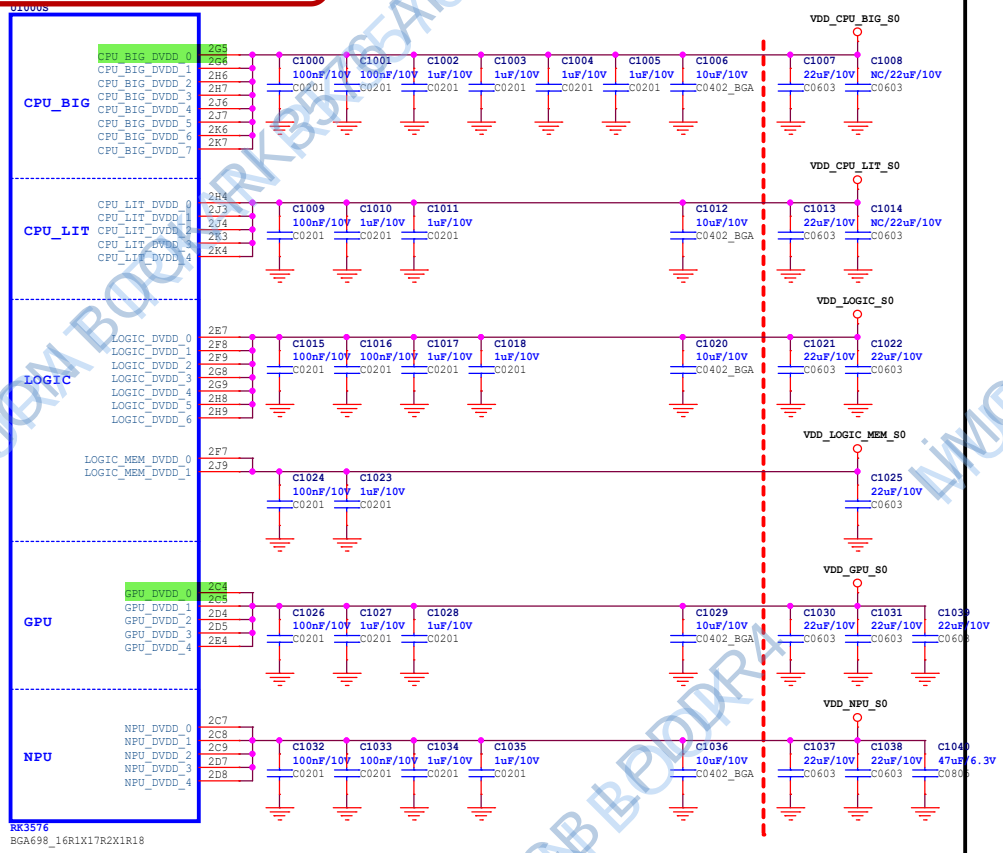
armsom	https://armsom.org/
Project:	ArmSoM-Sige5
File:	Block Diagram
Date:	Tuesday, May 21, 2024
Rev:	V1.1
Designed by:	Park
Reviewed by:	<Checker>
Sheet:	1 of 25

RK3576_S (Power)

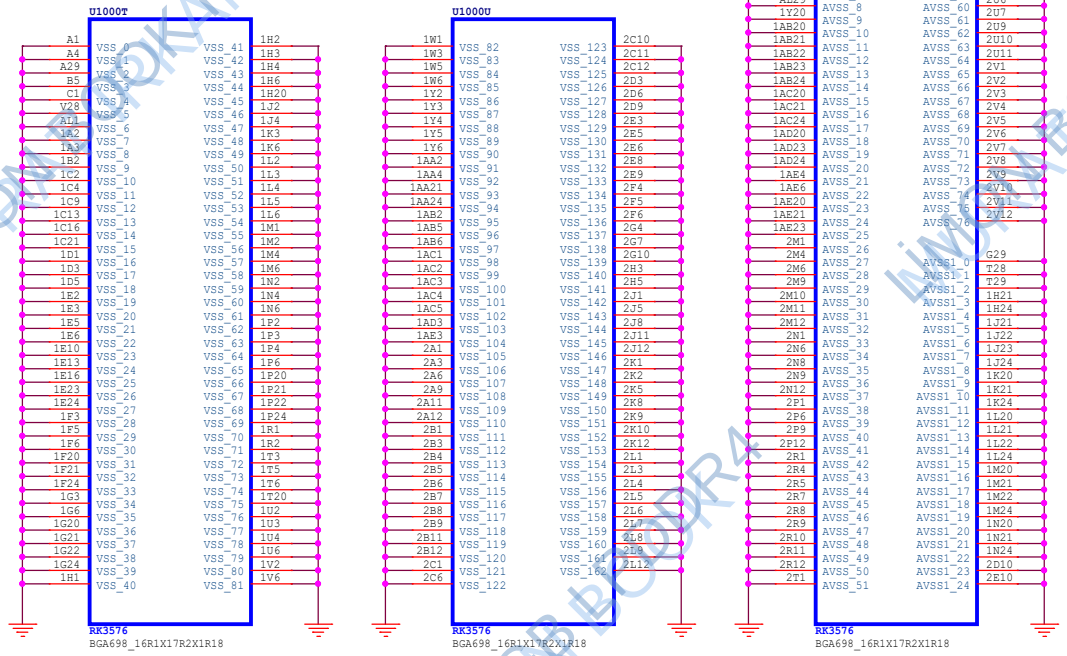
RK3576_T/U/V (GND)

LOKUM-RK3576 ARM LINUX NOTEBOOK

RK3576 ARM CPU

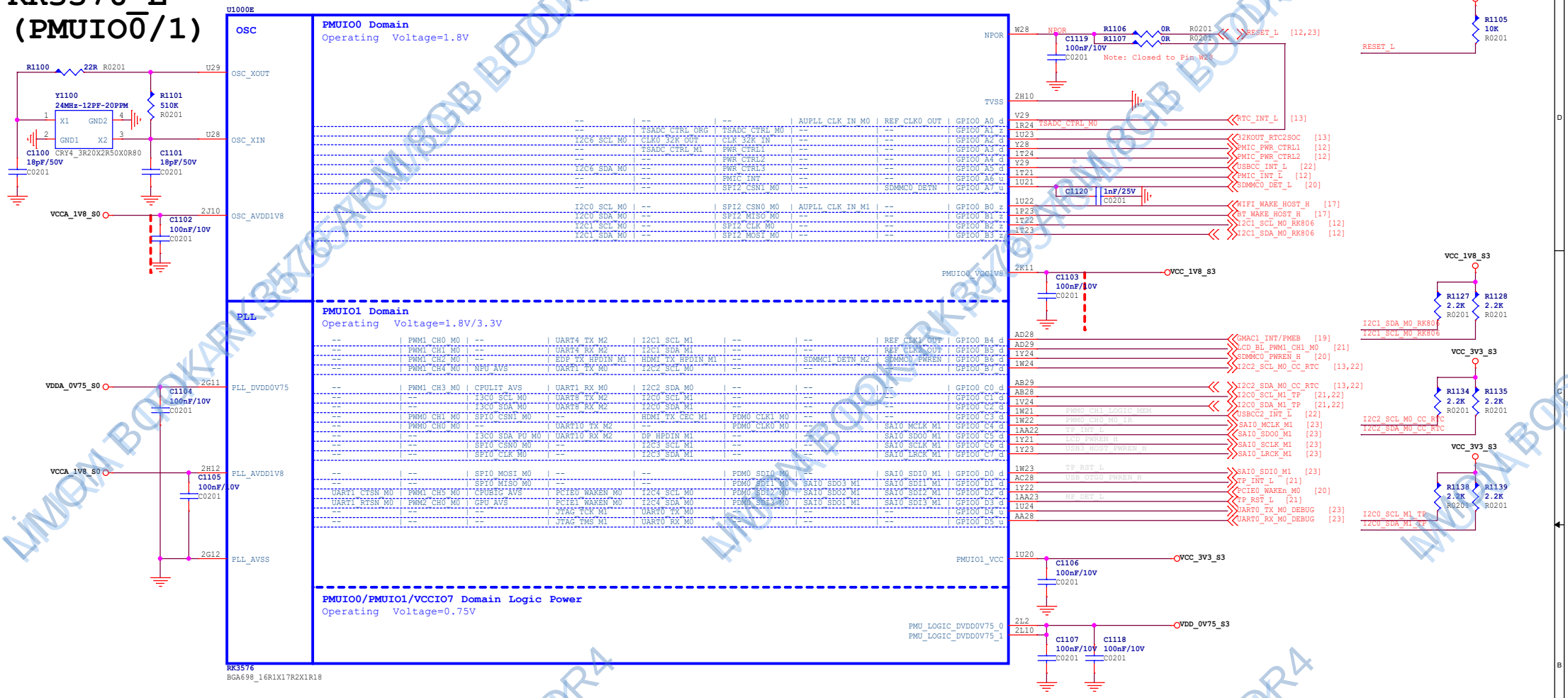


Note:
Caps of between dashed red lines and U1000 should be placed under the U1000 package.
Other caps should be placed close to the U1000 package

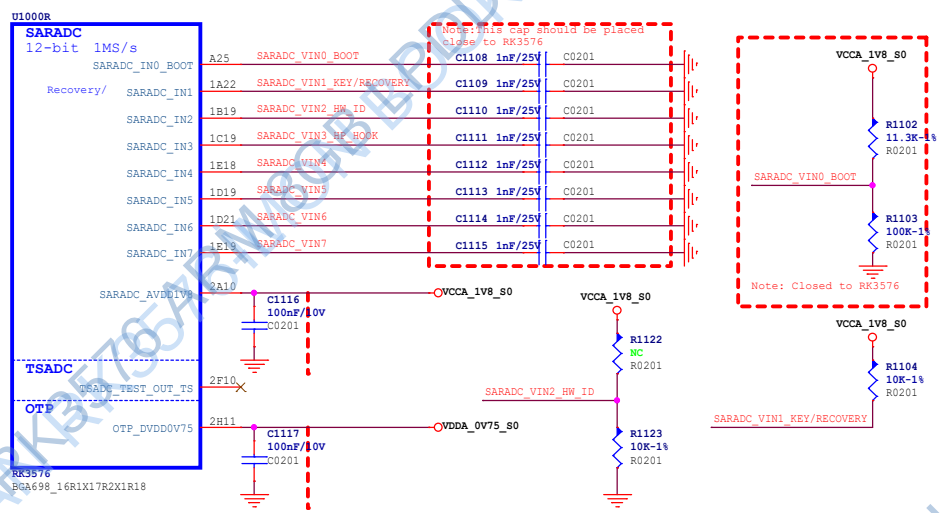


armsom	https://armsom.org/			
Project:	ArmSoM-Sige5			
File:	RK3576-Power/GND			
Date:	Tuesday, May 21, 2024		Rev:	V1.1
Designed by:	Park	Reviewed by: <Checker>	Sheet:	2 of 25

RK3576_E (PMUIO0/1)



RK3576_R (SARADC)



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

BOOT MODE CONFIG

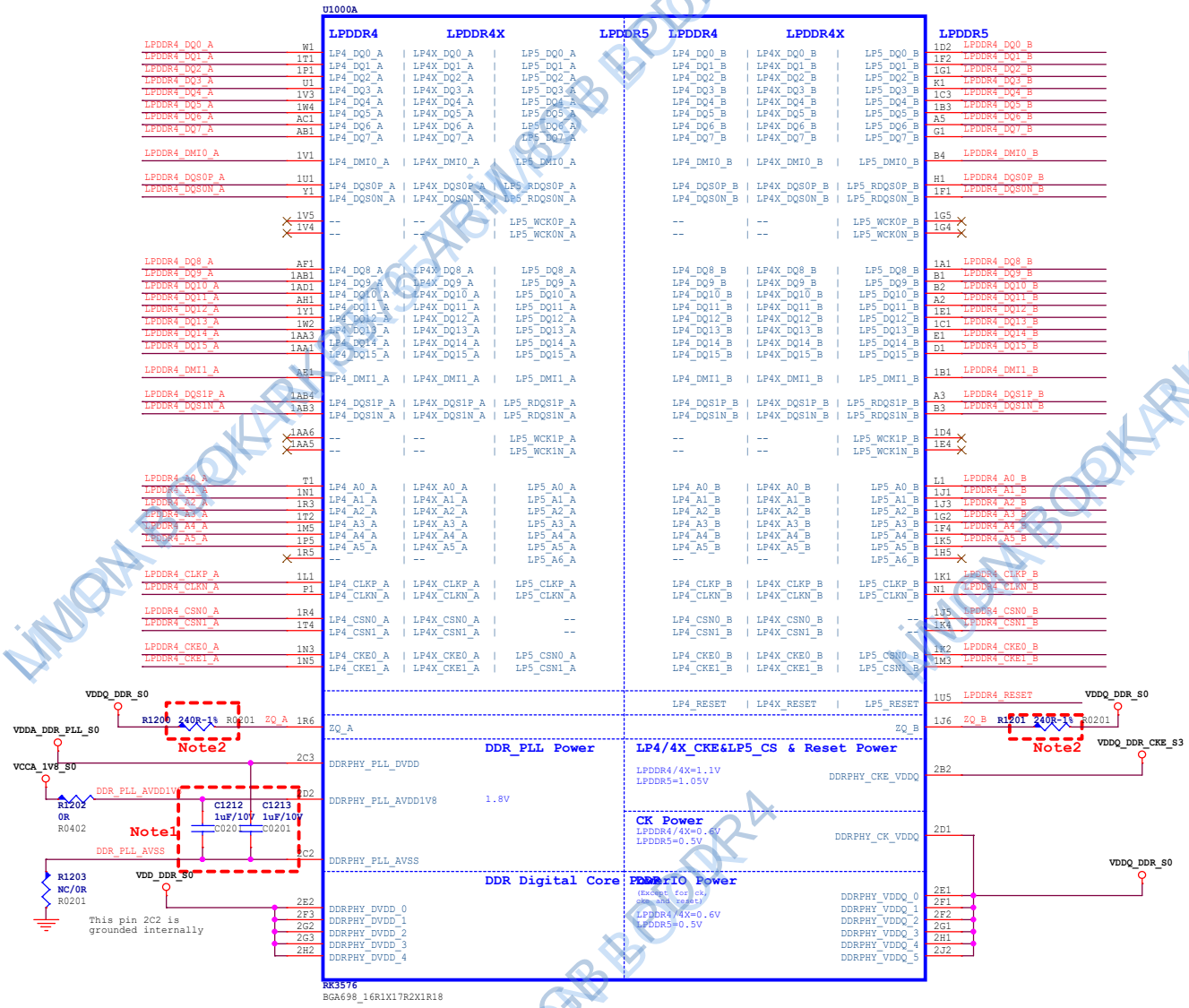
Config Table for SARADC_VIN0_BOOT

Item	Rup	Rdown	ADC Value	Boot Mode
Config1	NC	10K	0	USB (Maskrom mode)
Config2	100K	11.3K	416	FSPI0->USB
Config3	100K	24.9K	816	FSPI1_M0->EMMC->USB
Config4	100K	43K	1231	FSPI1_M1->EMMC->USB
Config5	100K	68K	1658	FSPI0->UFS->USB
Config6	100K	100K	2048	FSPI1_M0->UFS->USB
Config7	68K	100K	2438	UFS->USB
Config8	43K	100K	2864	UFS->SDMMC0->USB
Config9	24.9K	100K	3279	RFU
Config10	11.3K	100K	3679	EMMC->SDMMC0->USB
Config11	10K	NC	4095	EMMC->USB

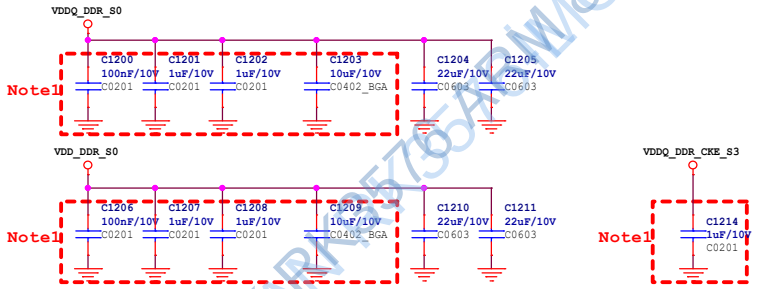
armsom https://armsom.org/

Project:	ArmSoM-Sige5				
File:	RK3576-OSC/PLL/PMUIO/SARADC				
Date:	Tuesday, May 21, 2024			Rev.	V1.1
Designed by:	Park	Reviewed by:	<Checker>	Sheet:	3 of 25

RK3576_A(DDRPHY)



DDR FILTER

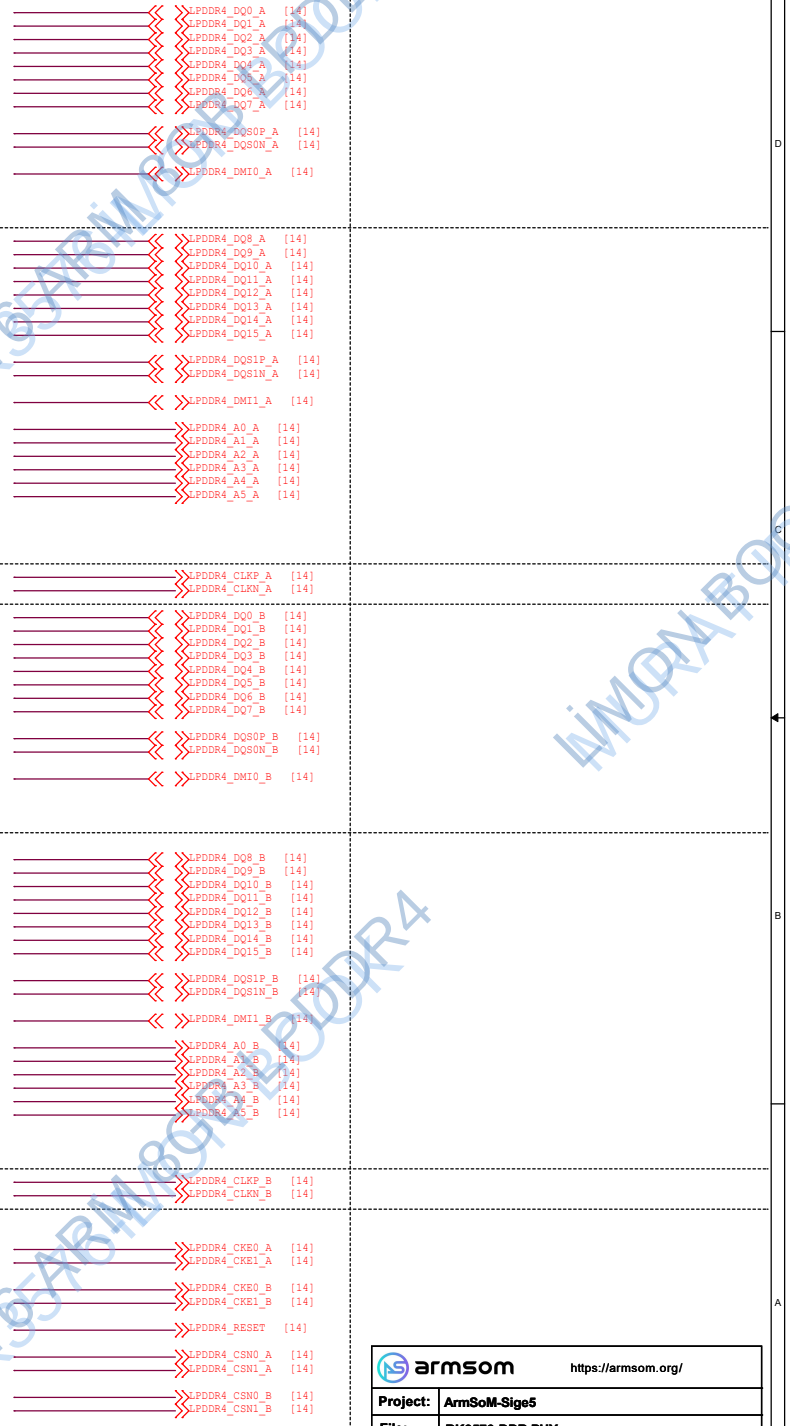


Note:
(1) Power Sequence: VDD-VDDQ_CKE-VDDQ
(2) Hold power of DDRPHY_CKE_VDDQ during retention times.

Note1:
Caps in the red line dotted box should be placed under the U1000 package

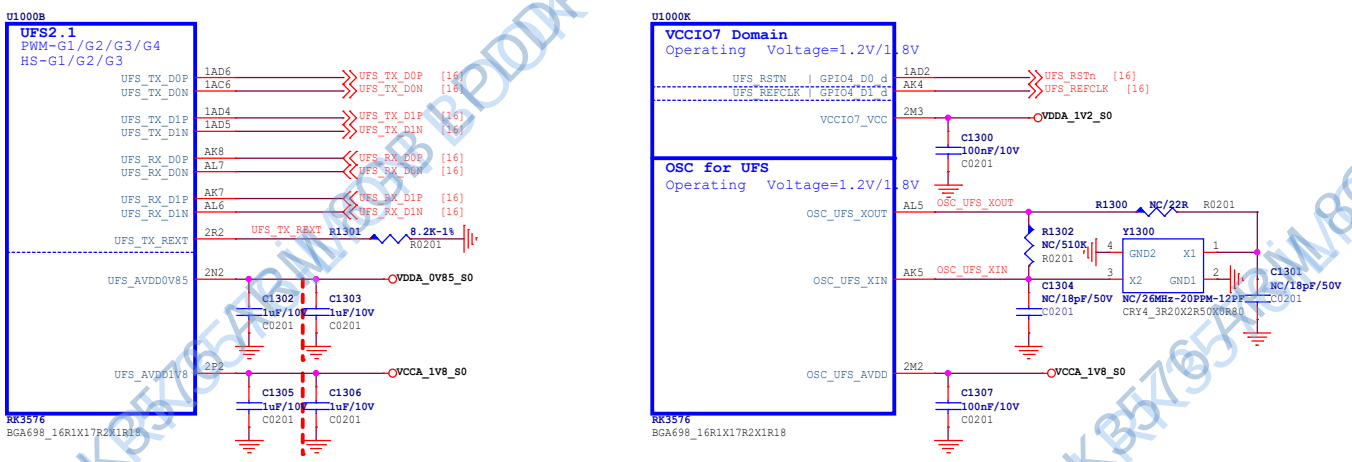
Note2:
Resistors in the red line dotted box should be placed under the U1000 package

LPDDR4 Signal

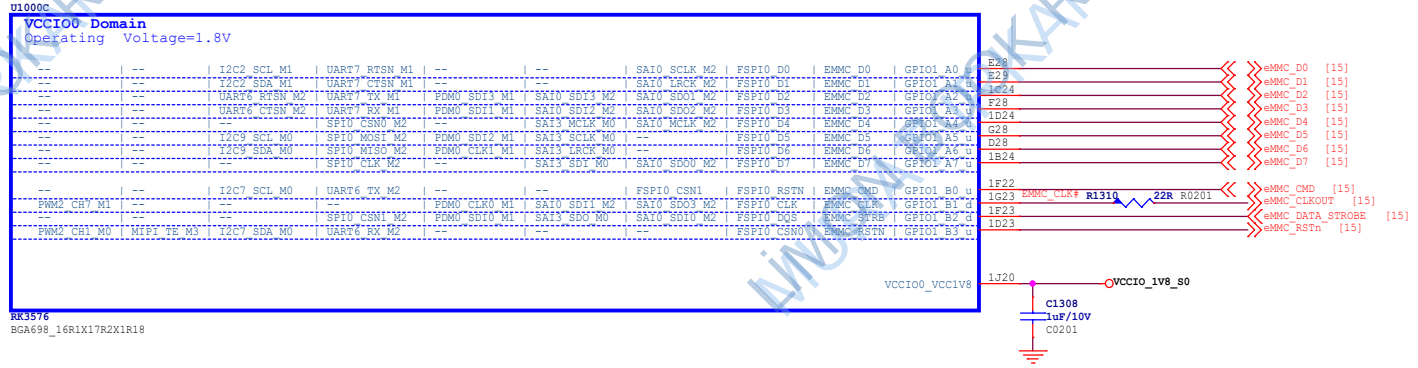


armsom	https://armsom.org/		
Project:	ArmSoM-Sige5		
File:	RK3576-DDR PHY		
Date:	Tuesday, May 21, 2024	Rev:	V1.1
Designed by:	Park	Reviewed by: <Checker>	Sheet: 4 of 25

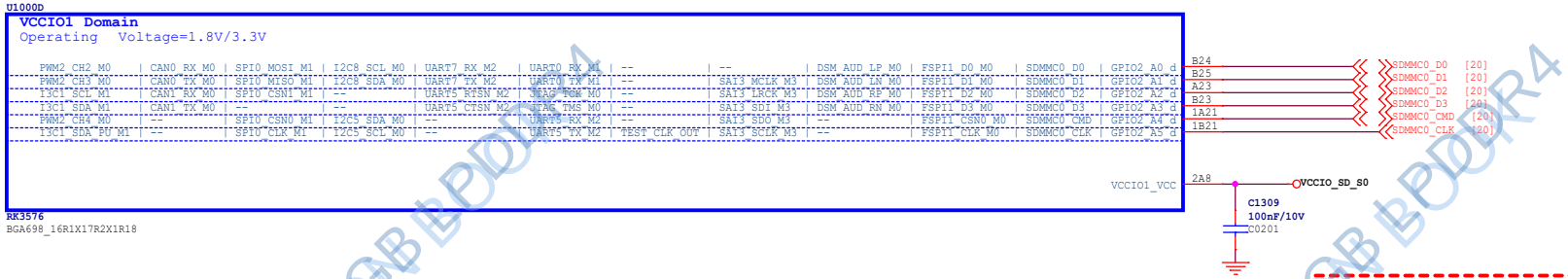
RK3576_B (UFS2.1)



RK3576_C (VCCIO0)



RK3576_D (VCCIO1)



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

armsom	https://armsom.org/				
Project:	ArmSoM-Sige5				
File:	RK3576-eMMC/UFS/SD				
Date:	Wednesday, May 22, 2024			Rev:	V1.1
Designed by:	Park	Reviewed by:	<Checker>	Sheet:	5 of 25

RK3576_L (USB3/DP)

U1000L

USB3 OTG0/DP1.4 Alt
USB:USB3.2 Gen1x1 OTG0
DP :RBR/HBR/HBR2/HBR3

--	DP_TX_AUXP
--	DP_TX_AUXN
USB3_OTG0_SSRX1P	DP_TX_D0P
USB3_OTG0_SSRX1N	DP_TX_D0N
USB3_OTG0_SSTX1P	DP_TX_D1P
USB3_OTG0_SSTX1N	DP_TX_D1N
USB3_OTG0_SSRX2P	DP_TX_D2P
USB3_OTG0_SSRX2N	DP_TX_D2N
USB3_OTG0_SSTX2P	DP_TX_D3P
USB3_OTG0_SSTX2N	DP_TX_D3N
USB3_OTG0_REXT	DP_TX_REXT
USB3_OTG0_DP_TX_AVDD0V85	
USB3_OTG0_DP_TX_DVDD0V85	
USB3_OTG0_DP_TX_AVDD1V8	

RK3576
BGA698_16R1X17R2X1R18

Support:
Type-C With Displayport Alternate Mode

2T2 DP_TX_AUXP [22]
2T3 DP_TX_AUXN [22]
AK10 USB3_OTG0_SSRX1P/DP_TX_D0P [22]
AL10 USB3_OTG0_SSRX1N/DP_TX_D0N [22]
AL11 USB3_OTG0_SSTX1P/DP_TX_D1P [22]
AK11 USB3_OTG0_SSTX1N/DP_TX_D1N [22]
AK12 USB3_OTG0_SSRX2P/DP_TX_D2P [22]
AL12 USB3_OTG0_SSRX2N/DP_TX_D2N [22]
AL13 USB3_OTG0_SSTX2P/DP_TX_D3P [22]
AK13 USB3_OTG0_SSTX2N/DP_TX_D3N [22]
2T7 USB3_OTG0_DP_TX_REXT R1400 8.2K-1% R0201
2M5, 2N5 VDDA_0V85_S0
C1400 1uF/10V C0201
C1401 NC/1uF/10V C0201
2N4 VCCA_1V8_S0
C1402 1uF/10V C0201
C1403 NC/1uF/10V C0201

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

RK3576_M (USB2)

U1000M

USB2 OTG0
OTG/HOST/DEVICE
HS/FS/LS
Download Port

USB2_OTG0_DP	
USB2_OTG0_DM	
USB2_OTG0_ID	
USB2_OTG0_VBUSDET	
USB2_OTG0_REXT	

USB2 OTG1
OTG/HOST/DEVICE
HS/FS/LS

USB2_OTG1_DP	
USB2_OTG1_DM	
USB2_OTG1_ID	
USB2_OTG1_VBUSDET	
USB2_OTG1_REXT	
USB2_OTG_DVDD0V75	
USB2_OTG_AVDD1V8	
USB2_OTG_AVDD3V3	

RK3576
BGA698_16R1X17R2X1R18

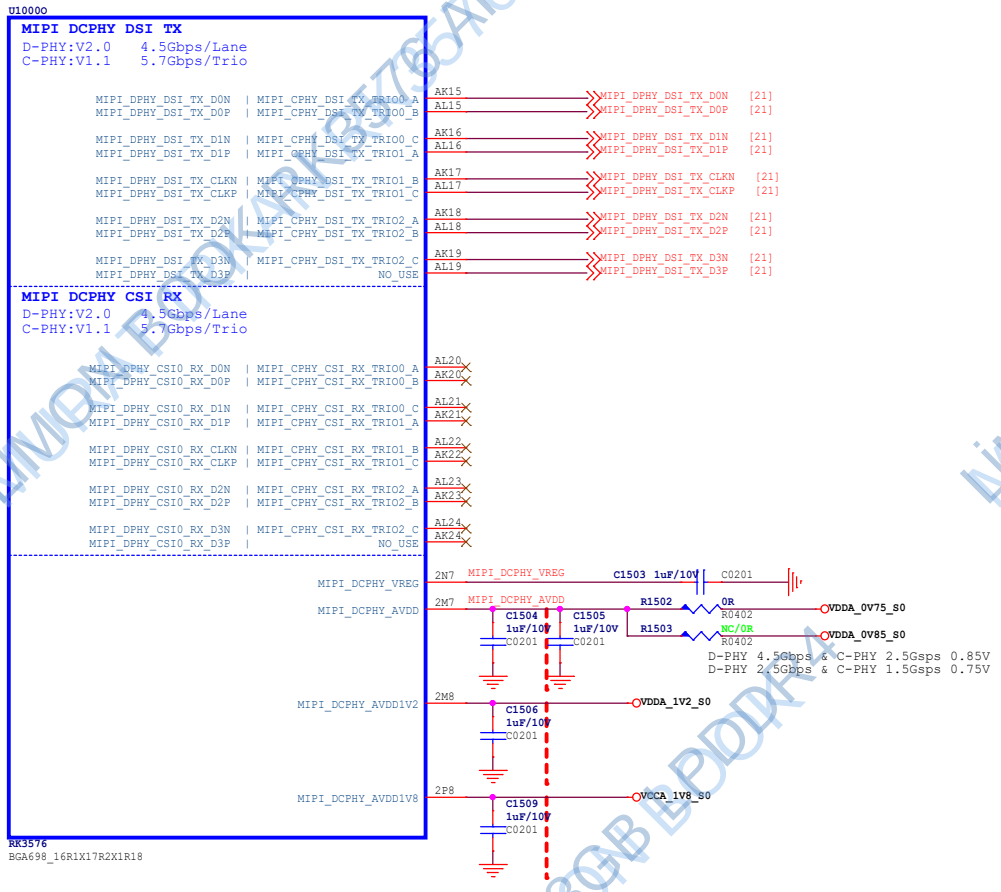
AK9 USB2_OTG0_DP [22]
AL9 USB2_OTG0_DM [22]
2R6 USB2_OTG0_ID Note: There is an internal pull-up resistor connected to 1.8V TP18 TP_0R7
2P3 USB2_OTG0_VBUSDET [22]
2R3 USB2_OTG0_REXT R1401 200R-1% R0201
C1404 100nF/10V C0201
2T4 USB2_HOST1_DP [22]
2T5 USB2_HOST1_DM [22]
2T9 USB2_OTG1_ID TP19 TP_0R7
2T10 USB2_OTG1_VBUSDET
2U8 USB2_OTG1_REXT R1402 200R-1% R0201
VCC_3V3_S0
C1409 NC/100nF/10V C0201
R1406 NC/20K R0201
R1405 NC/4.7K R0201

The USB2 OTG1 function cannot be used, if the PCIe1 or SATA1 function of Combo PHY1 is selected

2P5 VDDA_0V75_S0
C1405 100nF/10V C0201
2P4 VCCA_1V8_S0
C1406 100nF/10V C0201
C1407 NC/1uF/10V C0201
2P7 VCC_3V3_S0
C1408 100nF/10V C0201

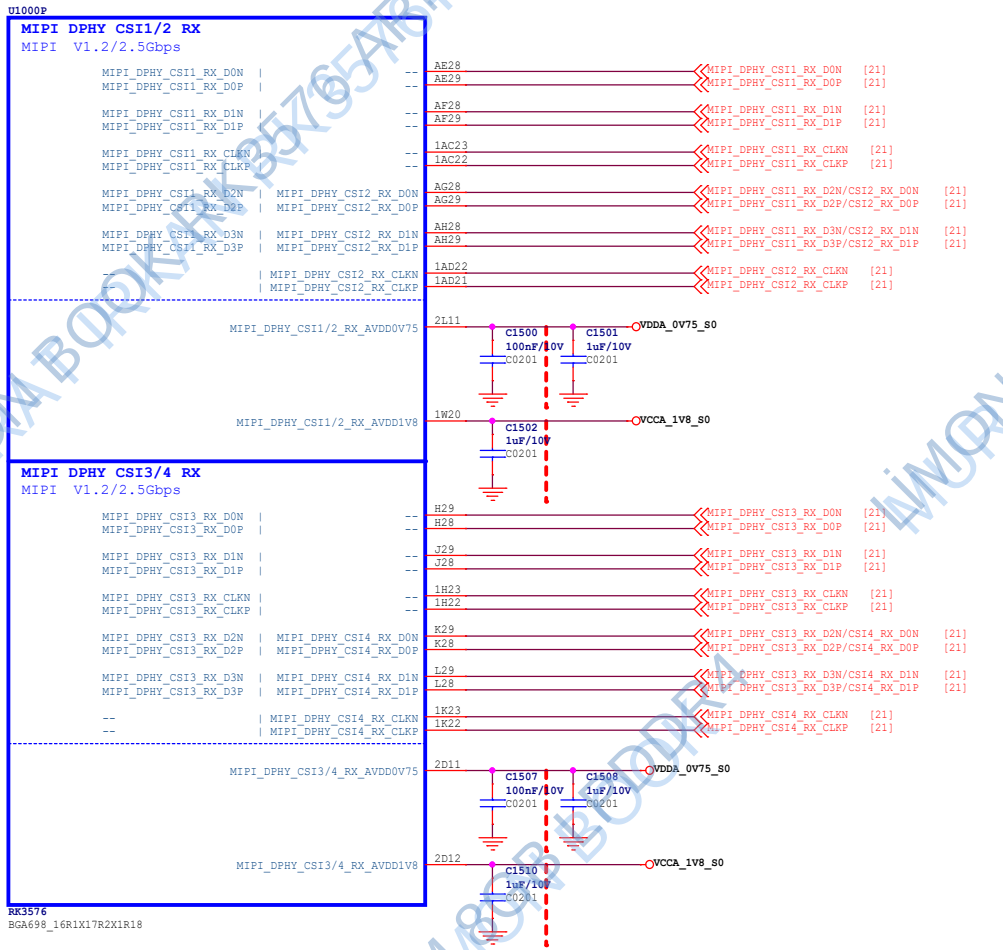
armsom https://armsom.org/					
Project:	ArmSoM-Sige5				
File:	RK3576-TypeC/USB				
Date:	Wednesday, May 22, 2024			Rev:	V1.1
Designed by:	Park	Reviewed by:	<Checker>	Sheet:	6 of 25

RK3576_O(MIPI DCPHY)



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

RK3576_P(MIPI DPHY CSI RX)

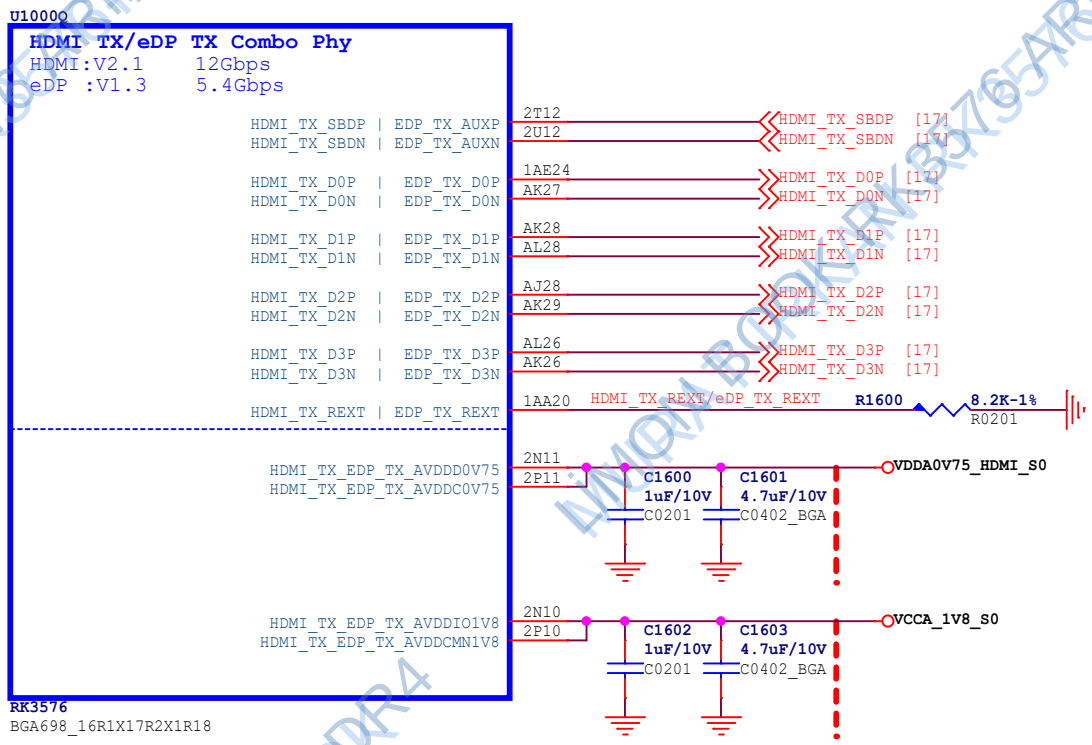


Note:
Caps of between dashed red lines and U1000 should be placed under the U1000 package. Other caps should be placed close to the U1000 package

armsom	https://armsom.org/				
Project:	ArmSoM-Sige5				
File:	RK3576-MIPI DSI/CSI				
Date:	Tuesday, May 21, 2024			Rev:	V1.1
Designed by:	Park	Reviewed by:	<Checker>	Sheet:	7 of 25

RK3576_Q(HDMI/eDP)

Note:
HDMI 2.1 supports up to 4Kx2K@120Hz



Note:
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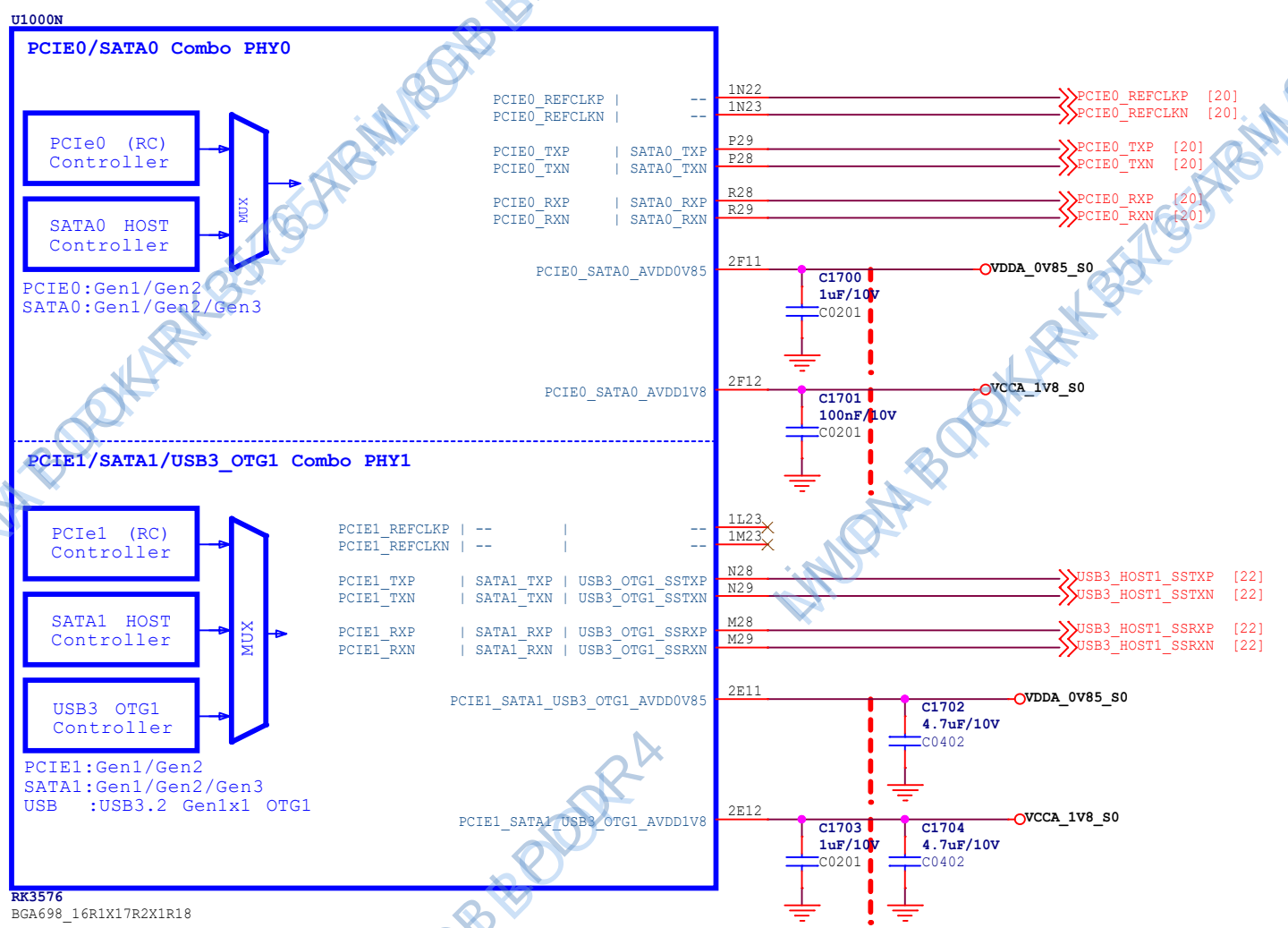
armsom https://armsom.org/					
Project:	ArmSoM-Sige5				
File:	RK3576-MIPI DSI/CSI				
Date:	Wednesday, May 22, 2024			Rev:	V1.1
Designed by:	Park	Reviewed by:	<Checker>	Sheet:	8 of 25

RK3576_N(PCIe/SATA/USB3)



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

armsom	https://armsom.org/				
Project:	ArmSoM-Sige5				
File:	RK3576-PCIe/SATA/USB3				
Date:	Tuesday, May 21, 2024			Rev:	V1.1
Designed by:	Park	Reviewed by:	<Checker>	Sheet:	9 of 25

RK3576_F(VCCIO2)

U1000F

VCCIO2 Domain
Operating Voltage=1.8V/3.3V

PWM2_CH5_M0	--	--	--	--	AUPLL_CLK_IN_M2	SAI4_MCLK_M0	SAI1_MCLK_M0	GPIO4_A2_d
PWM2_CH4_M1	PCIE1_WAKEN_M2	I2C2_SCL_M2	UART5_RTSN_M1	SPI3_CSN0_M2	FLEXBUS1_CSN_M4	--	SAI1_SCLK_M0	GPIO4_A3_d
CAN0_TX_M2	--	I2C4_SCL_M1	UART6_TX_M0	SPI3_MOSI_M2	FLEXBUS1_D13_M1	PDM1_SDI3_M1	SAI4_SCLK_M0	GPIO4_A4_d
--	PCIE1_CLKREQN_M2	I2C2_SDA_M2	UART5_CTSN_M1	SPI4_CSN1_M2	FLEXBUS1_D12_M1	--	SAI1_LRCK_M0	GPIO4_A5_d
CAN0_RX_M2	--	I2C4_SDA_M1	UART6_RX_M0	SPI3_MISO_M2	FLEXBUS0_D14_M1	PDM1_CLK0_M1	SAI4_LRCK_M0	GPIO4_A6_d
PWM2_CH6_M0	--	--	--	SPI3_CLK_M2	--	--	SAI4_SDI_M0	SAI1_SDO0_M0	GPIO4_A7_d
--	UART2_RTSN_M1	UART6_RTSN_M0	UART5_TX_M1	SPI4_CLK_M2	FLEXBUS1_D13_M1	PDM1_CLK1_M1	SAI1_SDI3_M0	SAI1_SDO1_M0	GPIO4_B0_d
--	UART2_CTSN_M1	UART6_CTSN_M0	UART5_RX_M1	SPI4_MOSI_M2	FLEXBUS1_D14_M1	PDM1_SDI2_M1	SAI1_SDI2_M0	SAI1_SDO2_M0	GPIO4_B1_d
--	--	MIPI_TE_M0	--	SPI4_MISO_M2	FLEXBUS1_D15_M1	PDM1_SDI1_M1	SAI1_SDI1_M0	SAI1_SDO3_M0	GPIO4_B2_d
PWM2_CH7_M0	--	--	SPI3_CSN1_M2	SPI4_CSN0_M2	--	PDM1_SDI0_M1	SAI4_SDO_M0	SAI1_SDI0_M0	GPIO4_B3_d
CAN1_RX_M2	PCIE0_WAKEN_M2	I2C3_SDA_M0	UART2_RX_M1	--	FLEXBUS0_CSN_M4	--	--	SPDIF_RX0_M0	GPIO4_B4_d
CAN1_TX_M2	PCIE0_CLKREQN_M2	I2C3_SCL_M0	UART2_TX_M1	--	FLEXBUS0_D15_M1	--	--	SPDIF_TX0_M0	GPIO4_B5_d

RK3576
BGA698_16R1X17R2X1R18

1D6 SAI1_MCLK_M0 [23]
1C6 SAI1_SCLK_M0 [23]
1C5 USB3_HOST_PWREN_H [22]
1B6 SAI1_LRCK_M0 [23]
1B5 USB_OTG0_PWREN_H [22]
A7 SAI1_SDO0_M0 [23]

1A5 HP_DET_L [23]
B7 LED_RED_EN [23]
B6 LED_GREEN_EN [23]
1A6 SAI1_SDI0_M0 [23]
B8 I2C3_SDA_M0_Audio [23]
1A4 I2C3_SCL_M0_Audio [23]

VCCIO2_VCC 2A2 C1800 100nF/10V C0201 VCCIO_AUDIO

VCCIO_AUDIO
R1800 2.2K R0201
R1801 2.2K R0201
I2C3_SDA_M0_Audio
I2C3_SCL_M0_Audio

RK3576_G(VCCIO3)

U1000G

VCCIO3 Domain
Operating Voltage=1.8V/3.3V

PWM1_CH0_M1	PCIE1_CLKREQN_M1	SPI1_CLK_M0	I2C9_SDA_M1	--	--	--	SAI3_SCLK_M1	--	SDMMC1_D0_M0	ETH1_RXD2_M1	GPIO1_B4_d
PWM1_CH1_M1	PCIE1_WAKEN_M1	SPI1_MOSI_M0	I2C9_SCL_M1	--	--	--	SAI3_LRCK_M1	--	SDMMC1_D1_M0	ETH1_RXD3_M1	GPIO1_B5_d
--	PCIE0_CLKREQN_M1	SPI1_MISO_M0	--	UART3_CTSN_M2	--	--	SAI3_SDO_M1	--	SDMMC1_D2_M0	ETH1_RXCLK_M1	GPIO1_B6_d
--	PCIE0_WAKEN_M1	SPI1_CSN0_M0	--	UART3_RTSN_M2	--	--	SAI3_SDI_M1	--	SDMMC1_D3_M0	ETH1_TXD2_M1	GPIO1_B7_d
PWM0_CH0_M1	--	SPI1_CSN1_M0	--	UART3_TX_M2	--	PDM0_SDI2_M2	--	--	SDMMC1_CMD_M0	ETH1_TXD3_M1	GPIO1_C0_d
PWM0_CH1_M1	--	--	--	UART3_RX_M2	--	PDM0_CLK0_M2	SAI4_MCLK_M1	--	SDMMC1_CLK_M0	ETH1_TXCLK_M1	GPIO1_C1_d
--	--	SPI2_CSN1_M1	I2C8_SCL_M1	UART4_RTSN_M1	--	--	FSPI1_CSN1_M1	FSPI1_RSTN_M1	SDMMC1_CLKEN_M0	ETH1_PPSCLK_M1	GPIO1_C2_d
--	--	SPI2_CSN0_M1	I2C8_SDA_M1	UART4_CTSN_M1	--	--	--	FSPI1_CSN0_M1	SDMMC1_DETN_M0	ETH1_PPSTRIG_M1	GPIO1_C3_d
--	PCIE0_BUTTONRSTN	SPI2_MOSI_M1	UART2_RTSN_M0	UART4_TX_M1	--	--	--	FSPI1_D0_M1	--	ETH1_RXD0_M1	GPIO1_C4_d
--	PCIE1_BUTTONRSTN	SPI2_MISO_M1	UART2_CTSN_M0	UART4_RX_M1	--	--	--	FSPI1_D1_M1	--	ETH1_TXD1_M1	GPIO1_C5_d
--	SATA_CPPOD	--	I2C8_SCL_M1	UART2_TX_M0	--	PDM0_SDI0_M2	--	FSPI1_D2_M1	--	ETH1_TXCTL_M1	GPIO1_C6_d
--	SATA_CPDET	--	I2C8_SDA_M1	UART2_RX_M0	--	PDM0_SDI1_M2	--	FSPI1_D3_M1	--	ETH1_RXD0_M1	GPIO1_C7_d
--	--	--	--	UART10_TX_M1	--	--	SAI2_SDO_M0	FSPI1_D4_M1	--	ETH1_RXD1_M1	GPIO1_D0_d
--	--	--	I3C0_SDA_PU_M1	UART10_RX_M1	--	--	SAI2_SCLK_M0	FSPI1_D5_M1	--	ETH1_RXCTL_M1	GPIO1_D1_d
PWM1_CH3_M1	--	--	I3C0_SCL_M1	--	--	--	SAI2_LRCK_M0	FSPI1_D6_M1	--	ETH1_MDC_M1	GPIO1_D2_d
PWM1_CH4_M1	--	--	I3C0_SDA_M1	--	--	--	SAI2_SDI_M0	FSPI1_D7_M1	--	ETH1_MDIO_M1	GPIO1_D3_d
--	--	--	I2C5_SCL_M1	UART10_RTSN_M1	SPDIF_RX1_M2	PDM0_SDI3_M2	SAI2_MCLK_M0	FSPI1_DQS_M1	--	ETH1_MCLK_M1	GPIO1_D4_d
CLK1_32K_OUT	SATA_MPSWIT	SPI2_CLK_M1	I2C5_SDA_M1	UART10_CTSN_M1	SPDIF_TX1_M2	PDM0_CLK1_M2	--	FSPI1_CLK_M1	--	ETH_CLK1_25M_OUT_M1	GPIO1_D5_d

RK3576
BGA698_16R1X17R2X1R18

A28 SDMMC1_D0_M0 [17]
B27 SDMMC1_D1_M0 [17]
1A23 SDMMC1_D2_M0 [17]
A27 SDMMC1_D3_M0 [17]

B26 SDMMC1_CMD_M0 [17]
1B22 SDMMC1_CLK_M0 [17]
B29 UART4_RTSN_M1 [17]
1C23 UART4_CTSN_M1 [17]
1B23 UART4_TX_M1 [17] For BT
B28 UART4_RX_M1 [17]
A26 WIFI_REG_ON_H [17]
1C22 BT_REG_ON_H [17]

C29 SAI2_SDO_M0 [17]
1D22 SAI2_SCLK_M0 [17]
1A24 SAI2_LRCK_M0 [17] For BT
C28 SAI2_SDI_M0 [17]
1E21 HOST_WAKE_BT_H [17]
1E22 LCD_PWREN_H [21]

VCCIO3_VCC 2B10 C1801 100nF/10V C0201 VCCIO_WL

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

RK3576_J(VCCIO6)

U1000J

VCCIO6 Domain
Operating Voltage=1.8V/3.3V

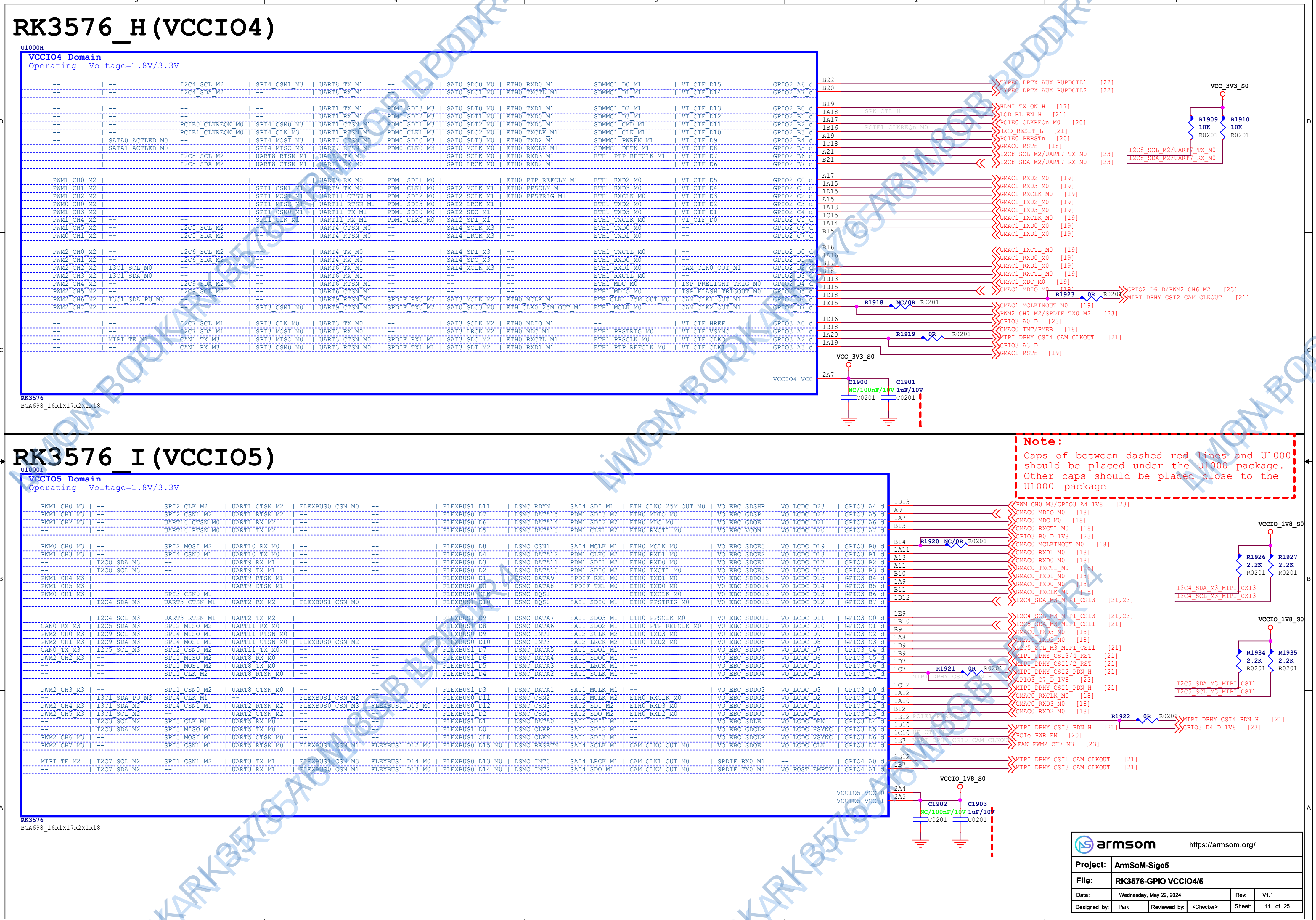
PWM1_CH5_M1	UART11_TX_M2	SPI4_CSN1_M0	I2C7_SCL_M3	PCIE1_WAKEN_M3	HDMI_TX_CEC_M0	--	SAI4_MCLK_M2	DSM_AUD_LP_M1	GPIO4_C0_d
PWM0_CH1_M1	UART11_RX_M2	EDP_TX_HPDIN_M0	I2C7_SDA_M3	PCIE1_CLKREQN_M3	HDMI_TX_HPDIN_M0	--	--	DSM_AUD_LN_M1	GPIO4_C1_d
PWM2_CH0_M1	UART9_TX_M2	CAN0_TX_M1	I2C2_SCL_M3	--	HDMI_TX_SCL	--	--	DSM_AUD_RP_M1	GPIO4_C2_d
PWM2_CH1_M1	UART9_RX_M2	CAN0_RX_M1	I2C2_SDA_M3	--	HDMI_TX_SDA	--	--	DSM_AUD_RN_M1	GPIO4_C3_d
PWM2_CH6_M1	UART6_TX_M3	SPI4_CSN0_M0	I2C3_SCL_M3	DP_HPDIN_M0	--	--	SAI4_LRCK_M2	ISP_PRELIGHT_TRIG_M1	GPIO4_C4_d
PWM2_CH5_M1	UART6_RX_M3	SPI4_MOSI_M0	I2C3_SDA_M3	SATA1_ACTLED_M1	PCIE0_WAKEN_M3	VP0_SYNC_OUT	SAI4_SDO_M2	ISP_FLASH_TRIGOUT_M1	GPIO4_C5_d
PWM2_CH2_M1	CAN1_TX_M1	SPI4_MISO_M0	I2C6_SCL_M3	SATA0_ACTLED_M1	PCIE0_CLKREQN_M3	VP1_SYNC_OUT	SAI4_SDI_M2	--	GPIO4_C6_d
PWM2_CH3_M1	CAN1_RX_M1	SPI4_CLK_M0	I2C6_SDA_M3	--	--	VP2_SYNC_OUT	SAI4_SCLK_M2	--	GPIO4_C7_d

RK3576
BGA698_16R1X17R2X1R18

AK3 HDMI_TX_CEC_M0 [17]
AK2 HDMI_TX_HPDIN_M0 [17]
AL2 HDMI_TX_SCL [17]
1AE2 HDMI_TX_SDA [17]
AL3 SPI4_CSN0_M0 [23]
AK1 SPI4_MOSI_M0 [23]
1AE1 SPI4_MISO_M0 [23]
AJ1 SPI4_CLK_M0 [23]

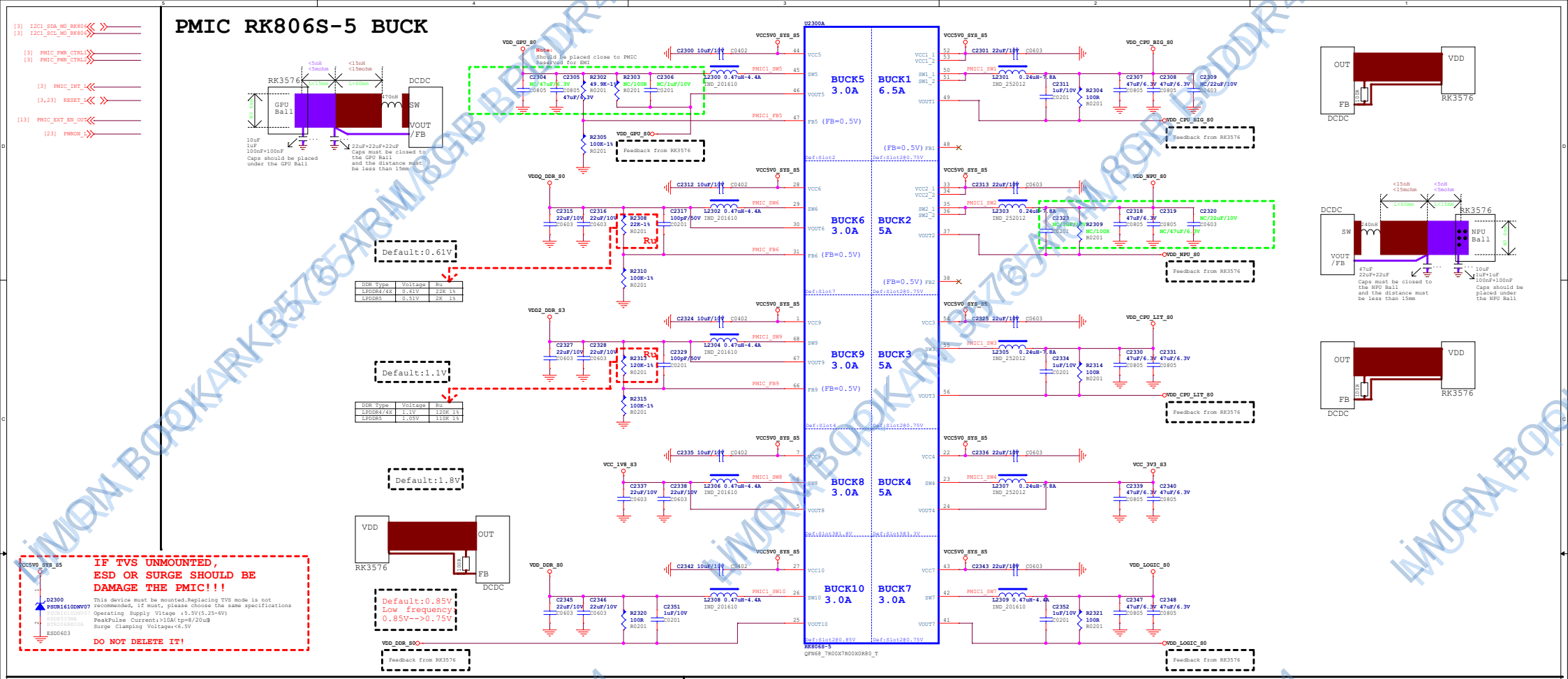
VCCIO6_VCC 2N3 C1802 100nF/10V C0201 VCC_3V3_S0

armsom	https://armsom.org/			
Project:	ArmSoM-Sige5			
File:	RK3576-GPIO VCCIO2/3/6			
Date:	Tuesday, May 21, 2024		Rev:	V1.1
Designed by:	Park	Reviewed by:	<Checker>	Sheet: 10 of 25



RK3576_H(VCCIO4)
U1000H
VCCIO4 Domain
Operating Voltage=1.8V/3.3V
RK3576
BGA698_16R1X17R2X1R18
VCC_3V3_S0
C1900
NC/100nF/10V
C1901
1uF/10V
TYPEC_DPTX_AUX_PUPDCTL1 [22]
TYPEC_DPTX_AUX_PUPDCTL2 [22]
HDMI_TX_ON_H [17]
LCD_BL_EN_H [21]
PCIE0_CLKREQn_M0 [20]
LCD_RESET_L [21]
PCIE0_PERSTn [20]
GMAC0_RSTn [18]
I2C8_SCL_M2/UART7_TX_M0 [23]
I2C8_SDA_M2/UART7_RX_M0 [23]
R1909 10K R0201
R1910 10K R0201
R1918 NC/0R R0201
R1919 0R R0201
R1923 0R R0201
GPIO2_D6_D/PWM2_CH6_M2 [23]
MIPI_DPHY_CSI2_CAM_CLKOUT [21]
RK3576_I(VCCIO5)
U1000I
VCCIO5 Domain
Operating Voltage=1.8V/3.3V
RK3576
BGA698_16R1X17R2X1R18
VCCIO_1V8_S0
C1902
NC/100nF/10V
C1903
1uF/10V
R1920 NC/0R R0201
R1921 0R R0201
R1922 0R R0201
R1926 2.2K R0201
R1927 2.2K R0201
R1934 2.2K R0201
R1935 2.2K R0201
I2C4_SDA_M3_MIPI_CSI3
I2C4_SCL_M3_MIPI_CSI3
I2C5_SDA_M3_MIPI_CSI1
I2C5_SCL_M3_MIPI_CSI1
MIPI_DPHY_CSI4_PDN_H [21]
GPIO3_D4_D_1V8 [23]
MIPI_DPHY_CSI1_CAM_CLKOUT [21]
MIPI_DPHY_CSI3_CAM_CLKOUT [21]
Note:
Caps of between dashed red lines and U1000 should be placed under the U1000 package.
Other caps should be placed close to the U1000 package
armsom
https://armsom.org/
Project: ArmSoM-Sige5
File: RK3576-GPIO VCCIO4/5
Date: Wednesday, May 22, 2024
Rev: V1.1
Designed by: Park
Reviewed by: <Checker>
Sheet: 11 of 25

PMIC RK806S-5 BUCK



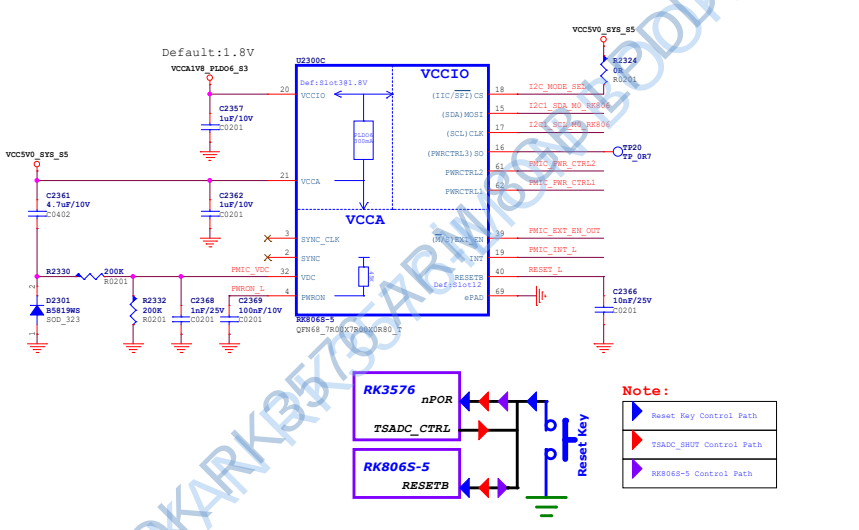
IF TVS UNMOUNTED, ESD OR SURGE SHOULD BE DAMAGE THE PMIC!!!

This device must be mounted.Replacing TVS mode is not recommended, if must, please choose the same specifications
Operating Supply Vltage :5.5V(5.25-6V)
PeakPulse Current:>10A(tp=8/20uS)
Surge Clamping Voltage:<6.5V

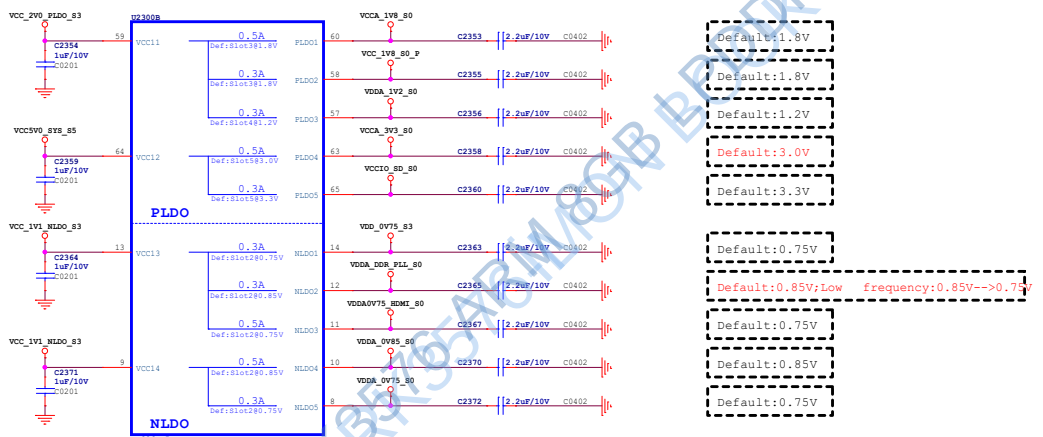
DO NOT DELETE IT!

PMIC RK806S-5 Managerment

Note:
I2C Mode:CS(pin18) connected to VCCA(pin21);
SPI Mode(Def):CS(pin18) floating or connected to GND



PMIC RK806S-5 LDO

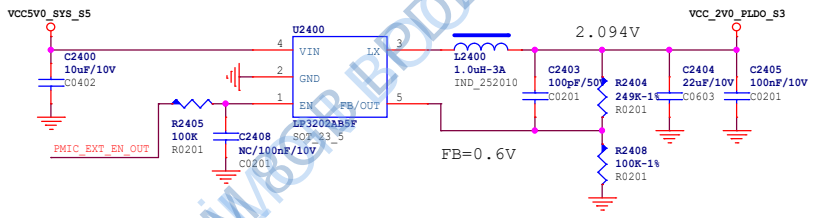


Note:
The RK806 LDO power distribution of the reference chematics is only suitable for the interface used in the reference schematics.
If other interface functions are to be added to the reference schematics, the RK806 LDO distribution needs to be re evaluated, otherwise the added functions may exceed the maximum current provided by the LDO

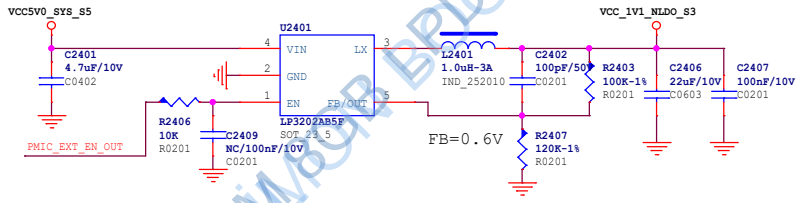
armsom	https://armsom.org/		
Project:	ArmSoM-Sige5		
File:	Power-PMIC RK806S-5		
Date:	Wednesday, May 22, 2024	Rev:	V1.1
Designed by:	Park	Reviewed by: <Checker>	Sheet: 12 of 25

[3,22] I2C2_SCL_M0_CC_RTC
[3,22] I2C2_SDA_M0_CC_RTC
[3] RTC_INT_L
[3] 32KOUT_RTC2SOC
[17] 32KOUT_RTC2WIFI
[12] PMIC_EXT_EN_OUT

VCC_2V0_PLDO_S3

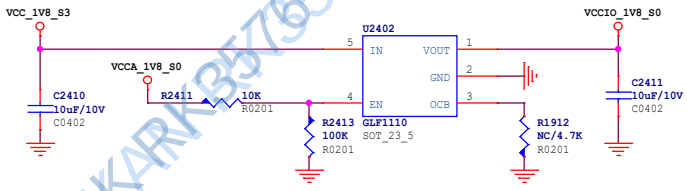


VCC_1V1_NLDO_S3



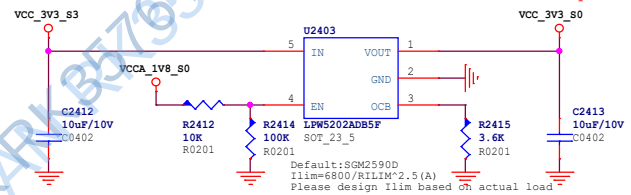
VCCIO_1V8_S0

Note: Need quick output discharge

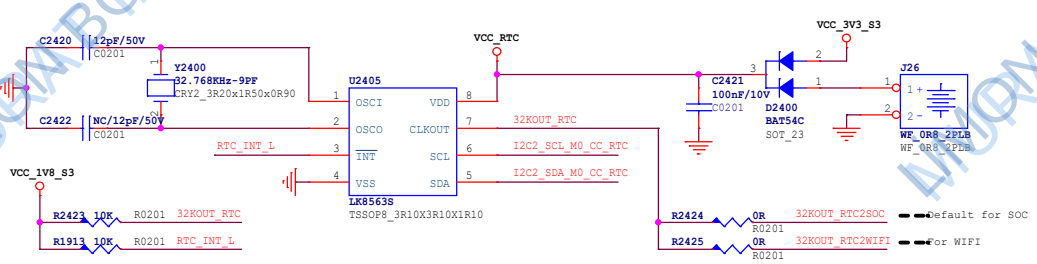


VCC_3V3_S0

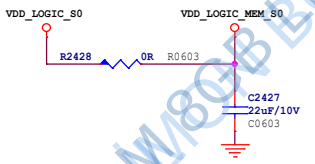
Note: Need quick output discharge



RTC

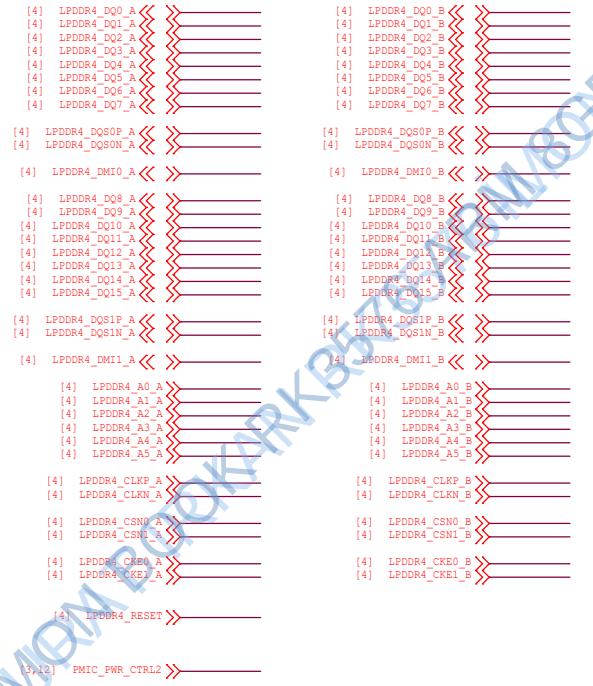


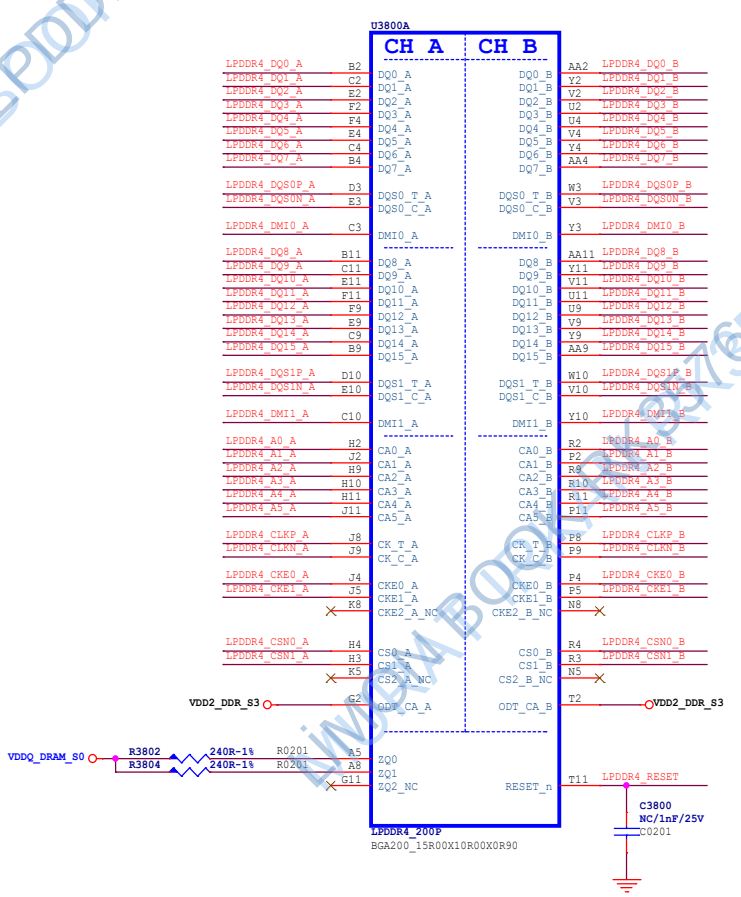
VDD_LOGIC_MEM EXT(Option for test)

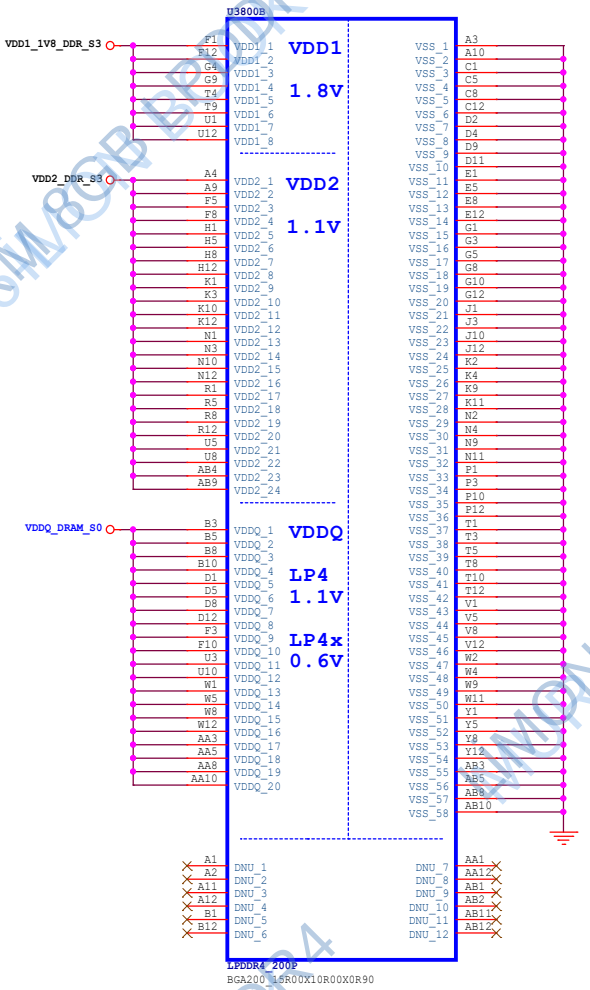


armsom https://armsom.org/					
Project:	ArmSoM-Sige5				
File:	Power-Ext Discrete/RTC				
Date:	Wednesday, May 22, 2024			Rev:	V1.1
Designed by:	Park	Reviewed by:	<Checker>	Sheet:	13 of 25

LPDDR4/4X



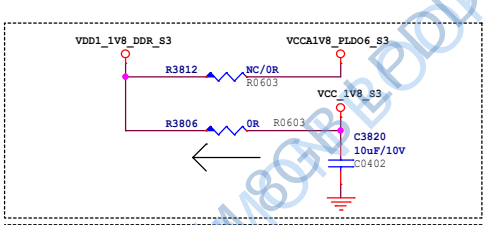


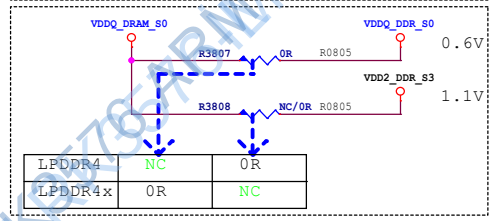


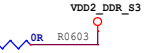
Note:

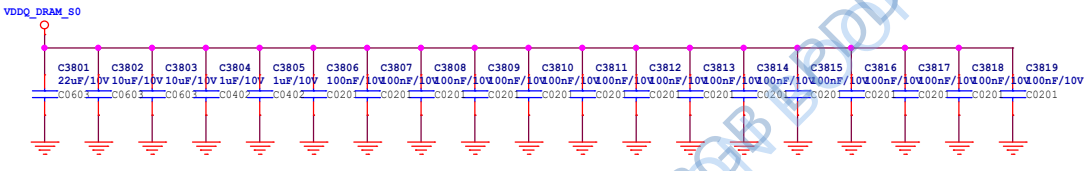
Sequence:VDD1-VDD2-VDDQ

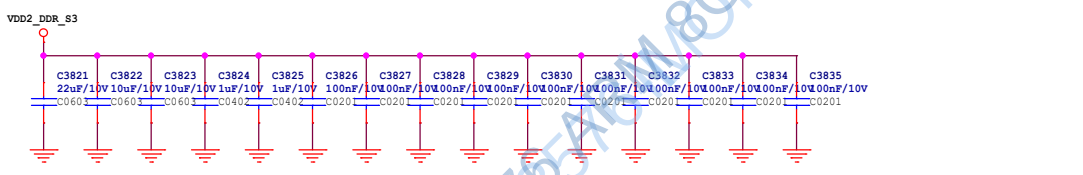
	LPDDR4	LPDDR4X
VDD1:	1.70-1.95	1.70-1.95
VDD2:	1.06-1.17	1.06-1.17
VDDQ:	1.06-1.17	0.57-0.65

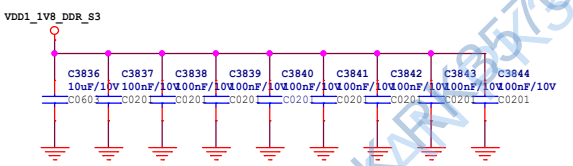








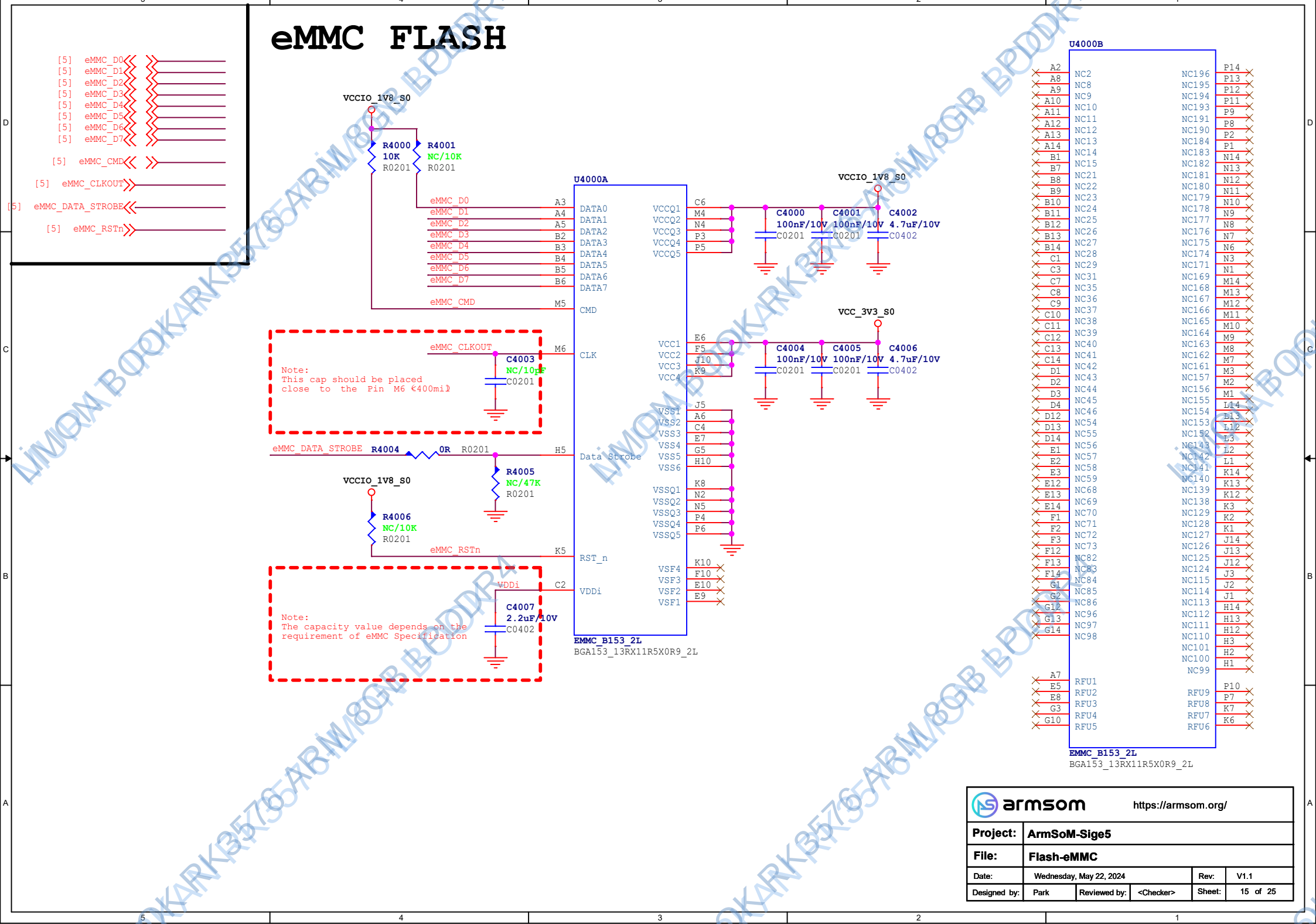




armsom https://armsom.org/

Project:	ArmSoM-Sige5				
File:	DRAM-LPDDR4X_1X32bit_200P				
Date:	Wednesday, May 22, 2024			Rev:	V1.1
Designed by:	Park	Reviewed by:	<Checker>	Sheet:	14 of 25

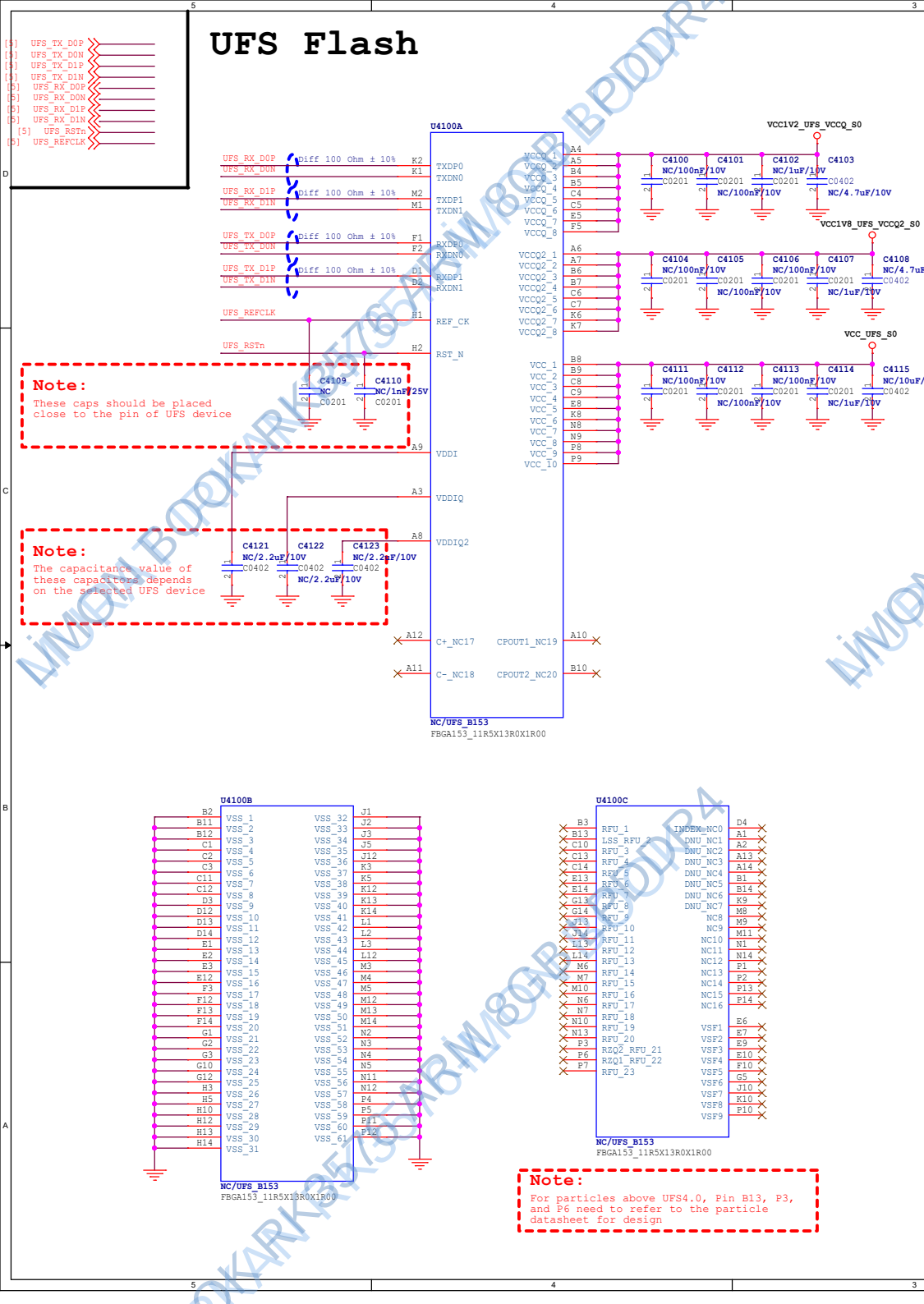
eMMC FLASH



armsom https://armsom.org/

Project:	ArmSoM-Sige5				
File:	Flash-eMMC				
Date:	Wednesday, May 22, 2024			Rev:	V1.1
Designed by:	Park	Reviewed by:	<Checker>	Sheet:	15 of 25

UFS Flash

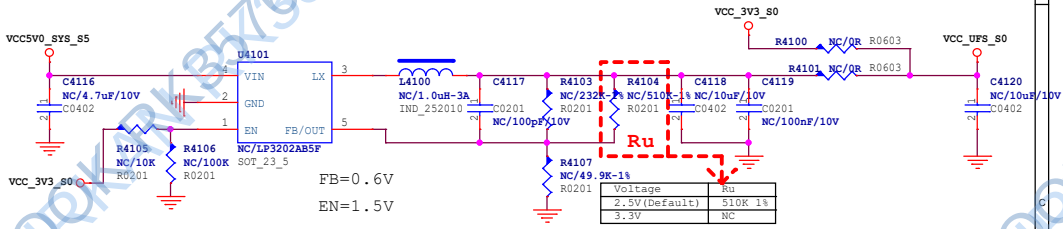


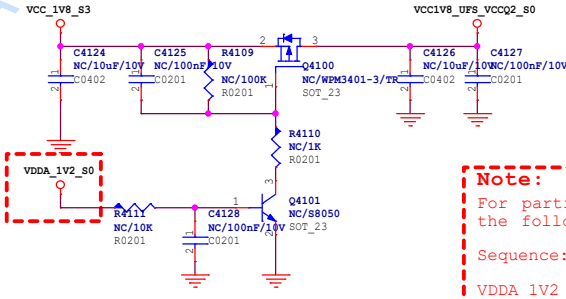
Note:
For particles above UFS4.0, Pin B13, P3, and P6 need to refer to the particle datasheet for design

UFS POWER

	VCCQ	VCCQ2	VCC	
UFS2.0	1.2V	1.8V	3.3V	Default UFS device: UFS2.2
UFS2.1	No Connect	1.8V	3.3V	
UFS2.2	No Connect	1.8V	3.3V	
UFS3.0	1.2V	No Connect	2.5V/3.3V	
UFS3.1	1.2V	No Connect	2.5V/3.3V	
UFS4.0	1.2V	No Connect	2.5V	
Sequence:VCCQ2->VCCQ, VCC is independent				

Note: Do not support UFS4.0 Device!
The power ball that is not used at the particle must be kept floating.

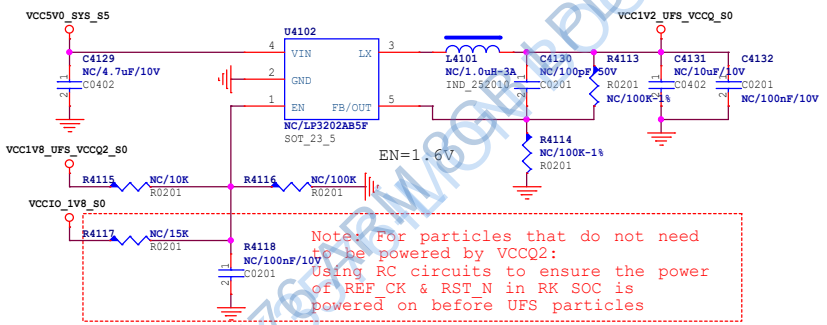




Note:
For particles that require VCCQ and VCCQ2, the following timing needs to be met:

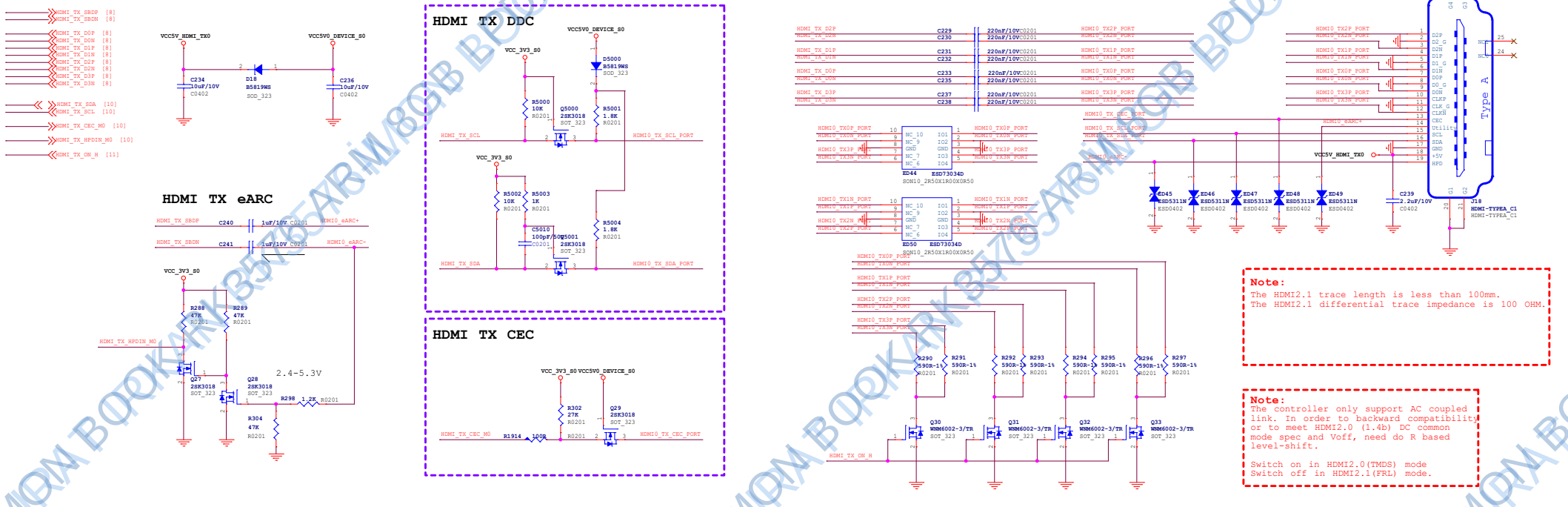
Sequence: VDDA_1V2_S0->VCCQ2->VCCQ

VDDA_1V2_S0 is the power of REF_CK & RST_N in RK SOC, which needs to be powered on before UFS particles

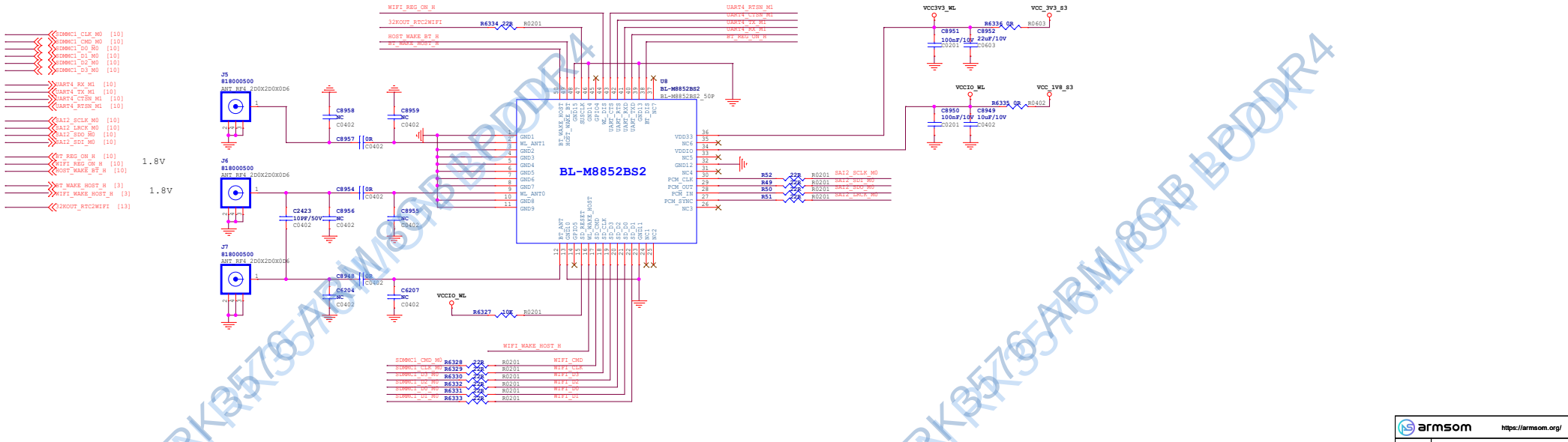


armsom	https://armsom.org/			
Project:	ArmSoM-Sige5			
File:	Flash-UFS			
Date:	Wednesday, May 22, 2024		Rev:	V1.1
Designed by:	Park	Reviewed by: <Checker>	Sheet:	16 of 25

HDMI TX0

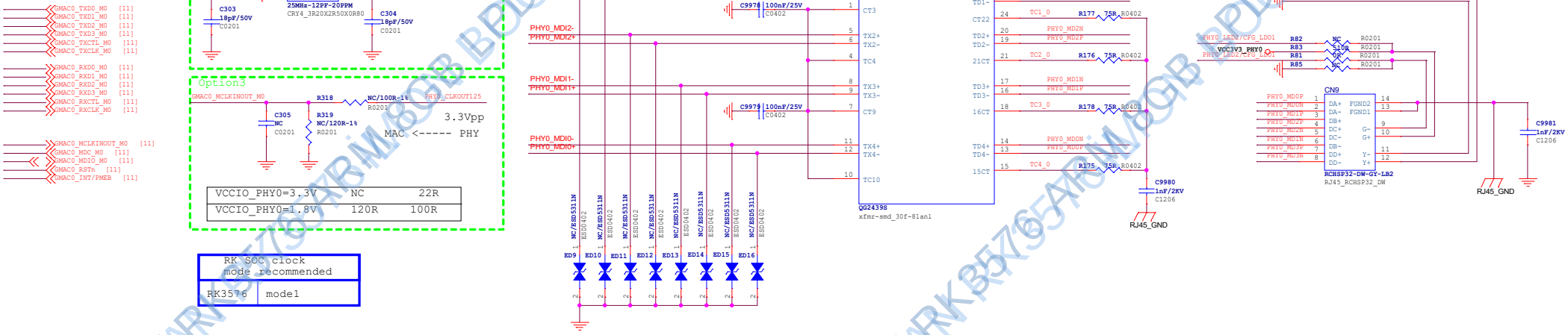


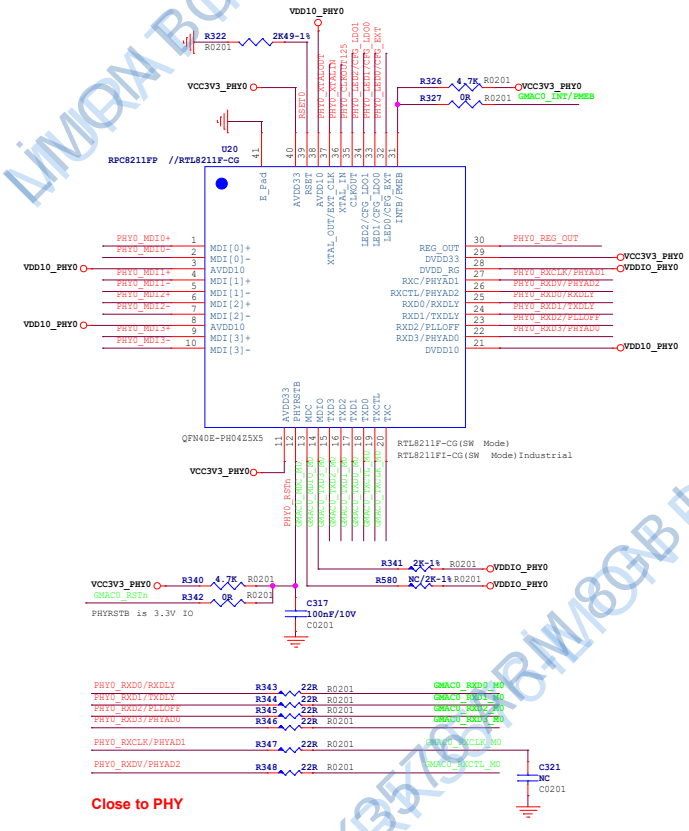
SDIO WIFI6/BT Module-2T2R

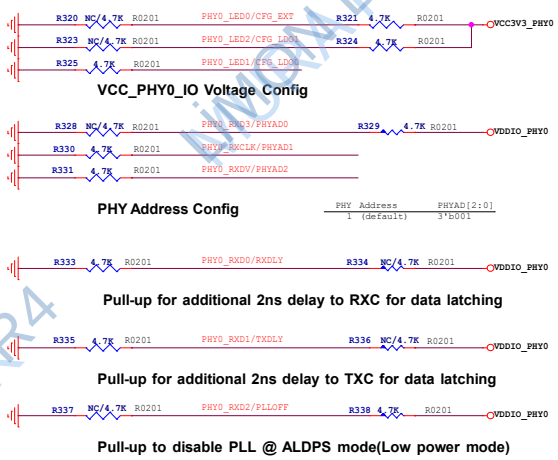


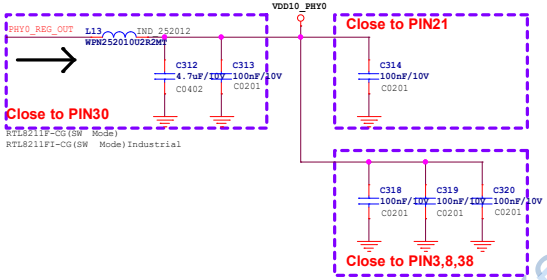
armsom	https://armsom.org/
Project:	ArmSoM-Sige5
File:	HDMI_TX0_WIFI
Date:	Wednesday, May 22, 2024
Rev:	V1.1
Designed by:	Park
Reviewed by:	<Checker>
Sheet:	17 of 25

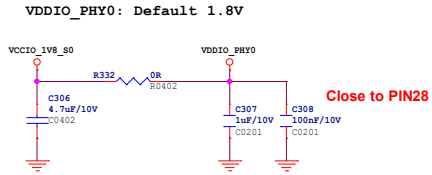
GPHY To JR45

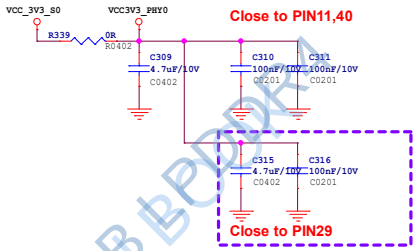








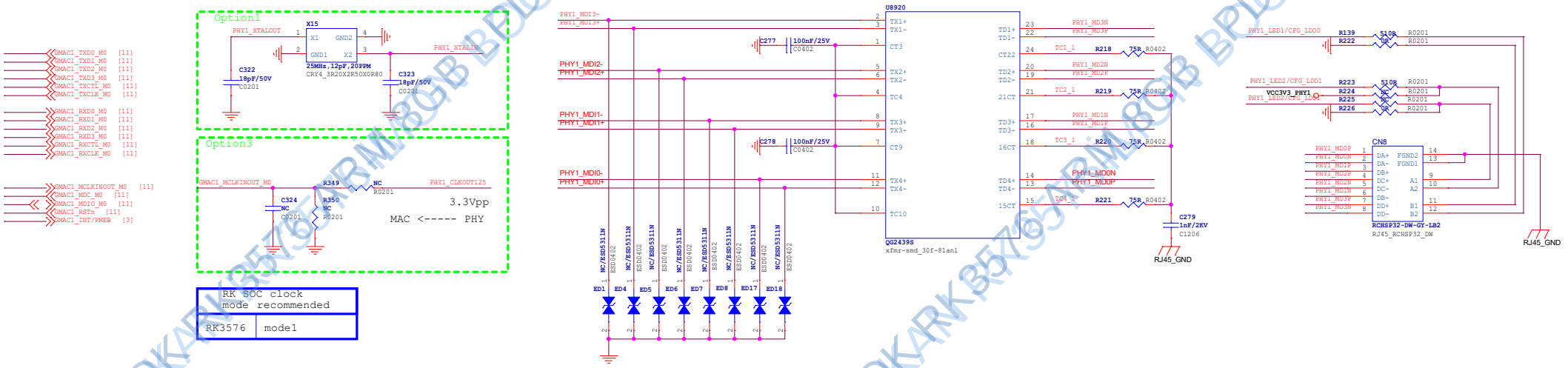


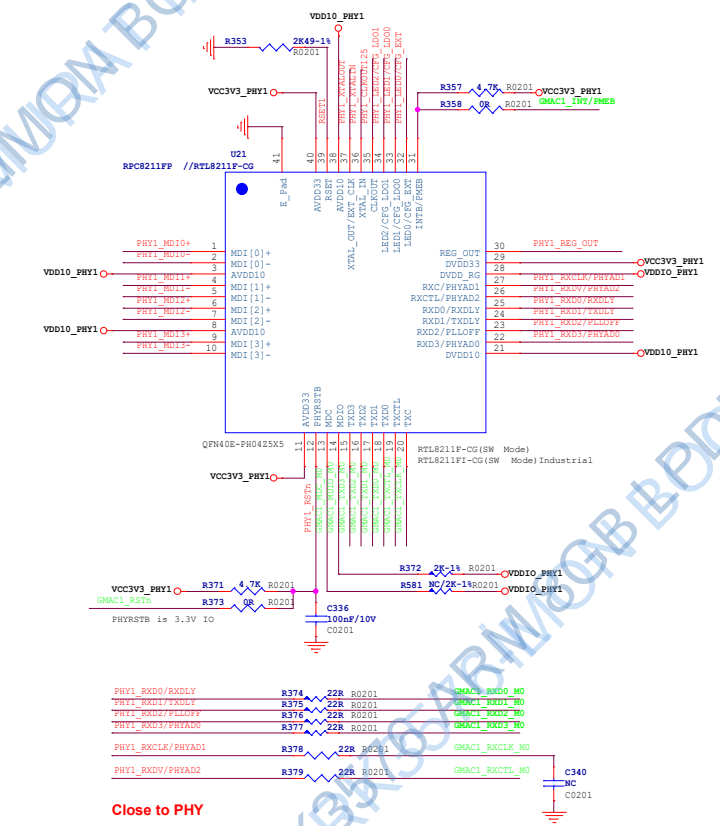


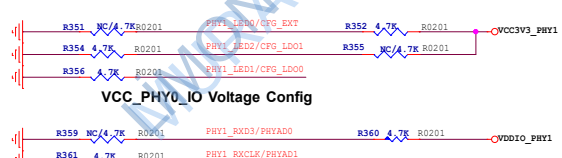
armsom https://armsom.org/

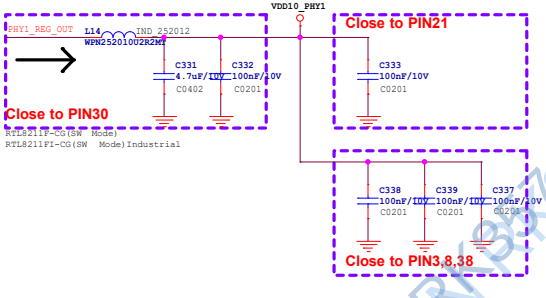
Project:	ArmSoM-Sige5		
File:	Ethernet-GPHY		
Date:	Wednesday, May 22, 2024	Rev:	V1.1
Designed by:	Park	Reviewed by: <Checker>	Sheet: 18 of 25

Giga PHY1_WAN



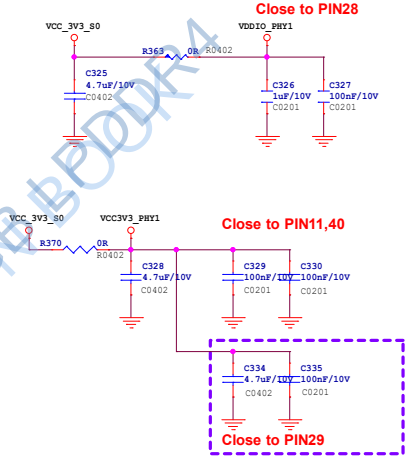






RGMII Power Source	CFG_EXT	CFG_LDO[1:0]	
External 3.3V(default)	1'b1	2'b00	CFG_EXT: 1:External Power Source for IO pad. 0:Integrated LDO for IO pad. CFG_LDO(1:0) 10:1.8V 00:3.3V
External 1.8V	1'b1	2'b10	
Internal 1.8V	1'b0	2'b10	

VCCIO6: Default 1.8V



armsom	https://armsom.org/				
Project:	ArmSoM-Sige5				
File:	Ethernet-GMAC1				
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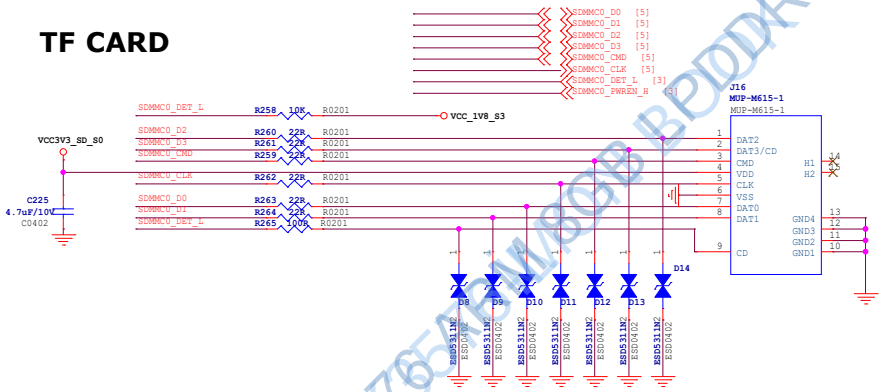
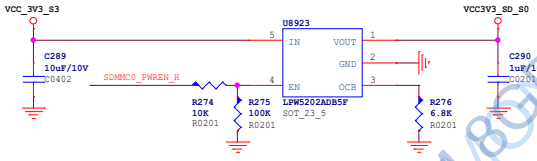
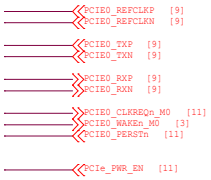
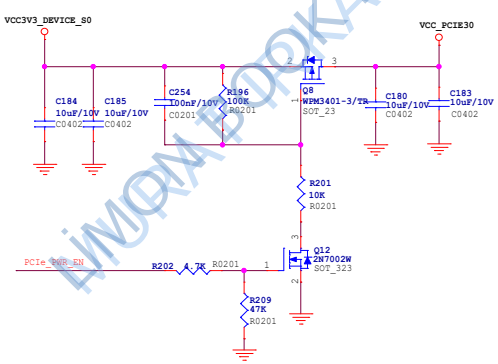
TF CARD

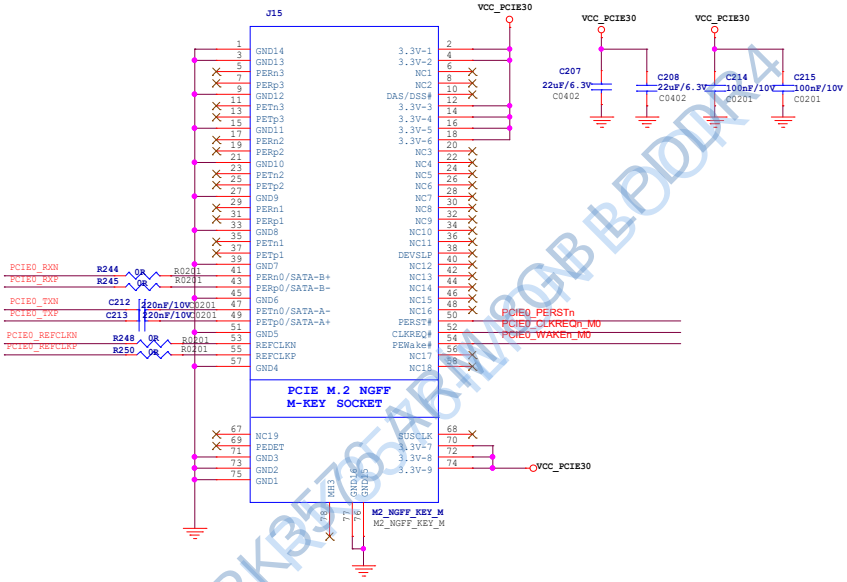




M.2_PCIE







armsom	https://armsom.org/		
Project:	ArmSoM-Sige5		
File:	M2_TF		
Date:	Wednesday, May 22, 2024	Rev:	V1.1
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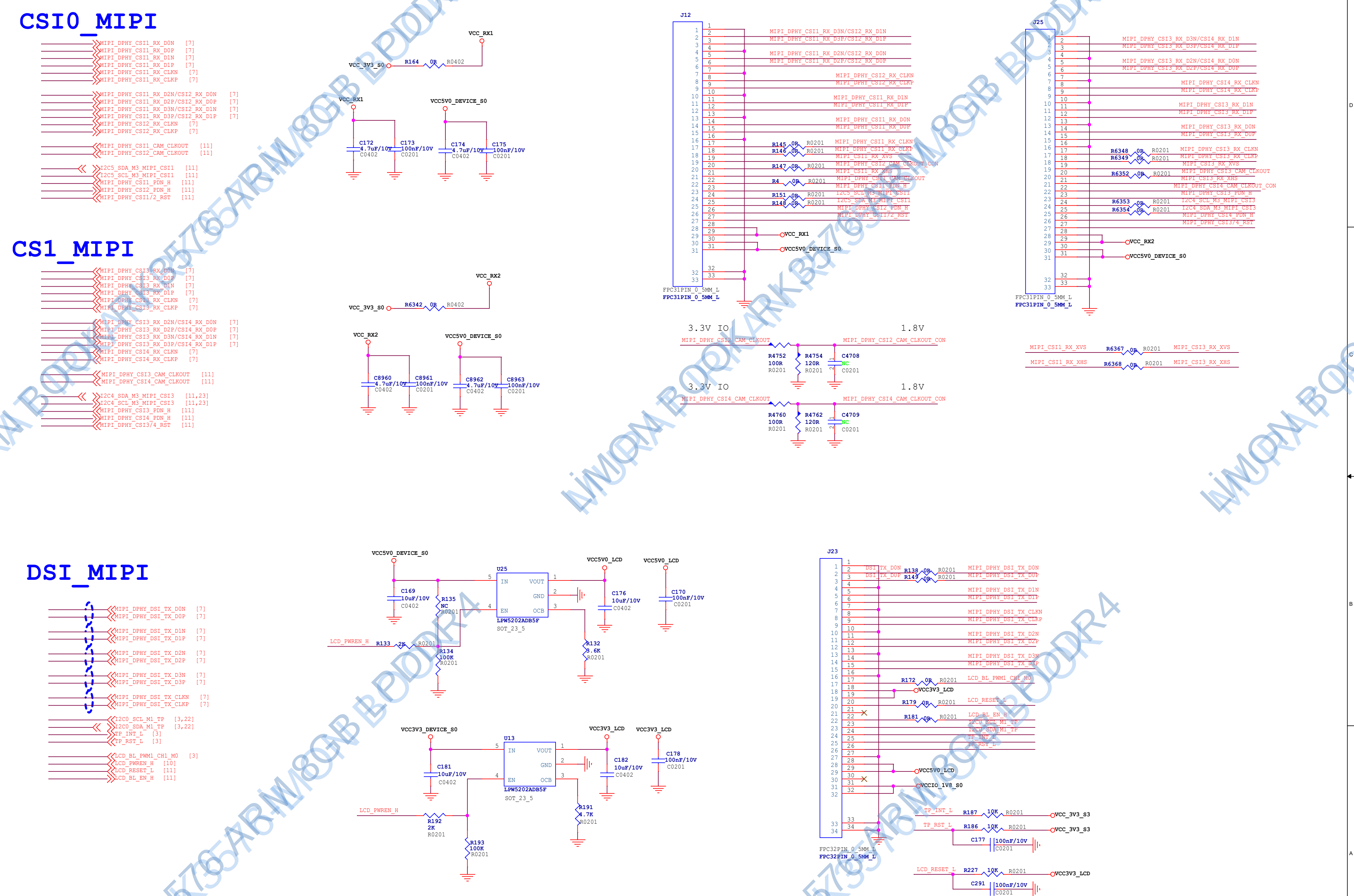

CSI0_MIPI
MIPI_DPHY_CSI1_RX_D0N [7]
MIPI_DPHY_CSI1_RX_D0P [7]
MIPI_DPHY_CSI1_RX_D1N [7]
MIPI_DPHY_CSI1_RX_D1P [7]
MIPI_DPHY_CSI1_RX_CLKN [7]
MIPI_DPHY_CSI1_RX_CLKP [7]
MIPI_DPHY_CSI1_RX_D2N/CSI2_RX_D0N [7]
MIPI_DPHY_CSI1_RX_D2P/CSI2_RX_D0P [7]
MIPI_DPHY_CSI1_RX_D3N/CSI2_RX_D1N [7]
MIPI_DPHY_CSI1_RX_D3P/CSI2_RX_D1P [7]
MIPI_DPHY_CSI2_RX_CLKN [7]
MIPI_DPHY_CSI2_RX_CLKP [7]
MIPI_DPHY_CSI1_CAM_CLKOUT [11]
MIPI_DPHY_CSI2_CAM_CLKOUT [11]
I2C5_SDA_M3_MIPI_CSI1 [11]
I2C5_SCL_M3_MIPI_CSI1 [11]
MIPI_DPHY_CSI1_PDN_H [11]
MIPI_DPHY_CSI2_PDN_H [11]
MIPI_DPHY_CSI1/2_RST [11]
CS1_MIPI
MIPI_DPHY_CSI3_RX_D0N [7]
MIPI_DPHY_CSI3_RX_D0P [7]
MIPI_DPHY_CSI3_RX_D1N [7]
MIPI_DPHY_CSI3_RX_D1P [7]
MIPI_DPHY_CSI3_RX_CLKN [7]
MIPI_DPHY_CSI3_RX_CLKP [7]
MIPI_DPHY_CSI3_RX_D2N/CSI4_RX_D0N [7]
MIPI_DPHY_CSI3_RX_D2P/CSI4_RX_D0P [7]
MIPI_DPHY_CSI3_RX_D3N/CSI4_RX_D1N [7]
MIPI_DPHY_CSI3_RX_D3P/CSI4_RX_D1P [7]
MIPI_DPHY_CSI4_RX_CLKN [7]
MIPI_DPHY_CSI4_RX_CLKP [7]
MIPI_DPHY_CSI3_CAM_CLKOUT [11]
MIPI_DPHY_CSI4_CAM_CLKOUT [11]
I2C4_SDA_M3_MIPI_CSI3 [11,23]
I2C4_SCL_M3_MIPI_CSI3 [11,23]
MIPI_DPHY_CSI3_PDN_H [11]
MIPI_DPHY_CSI4_PDN_H [11]
MIPI_DPHY_CSI3/4_RST [11]
VCC_RX1
VCC_3V3_S0
R164 0R R0402
VCC_RX1
VCC5V0_DEVICE_S0
C172 4.7uF/10V C0402
C173 100nF/10V C0201
C174 4.7uF/10V C0402
C175 100nF/10V C0201
VCC_RX2
R6342 0R R0402
C8960 4.7uF/10V C0402
C8961 100nF/10V C0201
C8962 4.7uF/10V C0402
C8963 100nF/10V C0201
J12
FPC31PIN_0_5MM_L
VCC_RX1
VCC5V0_DEVICE_S0
R145 0R R0201
R146 0R R0201
R147 0R R0201
R4 0R R0201
R151 0R R0201
R148 0R R0201
J25
FPC31PIN_0_5MM_L
VCC_RX2
VCC5V0_DEVICE_S0
R6348 0R R0201
R6349 0R R0201
R6352 0R R0201
R6353 0R R0201
R6354 0R R0201
3.3V IO
1.8V
MIPI_DPHY_CSI2_CAM_CLKOUT
MIPI_DPHY_CSI2_CAM_CLKOUT_CON
R4752 100R R0201
R4754 120R R0201
C4708 NC C0201
MIPI_DPHY_CSI4_CAM_CLKOUT
MIPI_DPHY_CSI4_CAM_CLKOUT_CON
R4760 100R R0201
R4762 120R R0201
C4709 NC C0201
MIPI_CSI1_RX_XVS
R6367 0R R0201
MIPI_CSI3_RX_XVS
MIPI_CSI1_RX_XHS
R6368 0R R0201
MIPI_CSI3_RX_XHS
DSI_MIPI
MIPI_DPHY_DSI_TX_D0N [7]
MIPI_DPHY_DSI_TX_D0P [7]
MIPI_DPHY_DSI_TX_D1N [7]
MIPI_DPHY_DSI_TX_D1P [7]
MIPI_DPHY_DSI_TX_D2N [7]
MIPI_DPHY_DSI_TX_D2P [7]
MIPI_DPHY_DSI_TX_D3N [7]
MIPI_DPHY_DSI_TX_D3P [7]
MIPI_DPHY_DSI_TX_CLKN [7]
MIPI_DPHY_DSI_TX_CLKP [7]
I2C0_SCL_M1_TP [3,22]
I2C0_SDA_M1_TP [3,22]
TP_INT_L [3]
TP_RST_L [3]
LCD_BL_PWM1_CH1_M0 [3]
LCD_PWREN_H [10]
LCD_RESET_L [11]
LCD_BL_EN_H [11]
VCC5V0_DEVICE_S0
U25
LPW5202ADB5F
SOT_23_5
VCC5V0_LCD
C169 10uF/10V C0402
R135 NC R0201
C176 10uF/10V C0402
C170 100nF/10V C0201
LCD_PWREN_H
R133 2K R0201
R134 100K R0201
R132 3.6K R0201
VCC3V3_DEVICE_S0
U13
LPW5202ADB5F
SOT_23_5
VCC3V3_LCD
C181 10uF/10V C0402
C182 10uF/10V C0402
C178 100nF/10V C0201
R192 2K R0201
R193 100K R0201
R191 4.7K R0201
J23
FPC32PIN_0_5MM_L
R138 0R R0201
R149 0R R0201
R172 0R R0201
R179 0R R0201
R181 0R R0201
VCC3V3_LCD
VCC5V0_LCD
VCCIO_1V8_S0
R187 10K R0201
R186 10K R0201
VCC_3V3_S3
C177 100nF/10V C0201
R227 10K R0201
C291 100nF/10V C0201

armsom	https://armsom.org/
Project:	ArmSoM-Sige5
File:	MIPI_RX_CSI/MIPI_DSI
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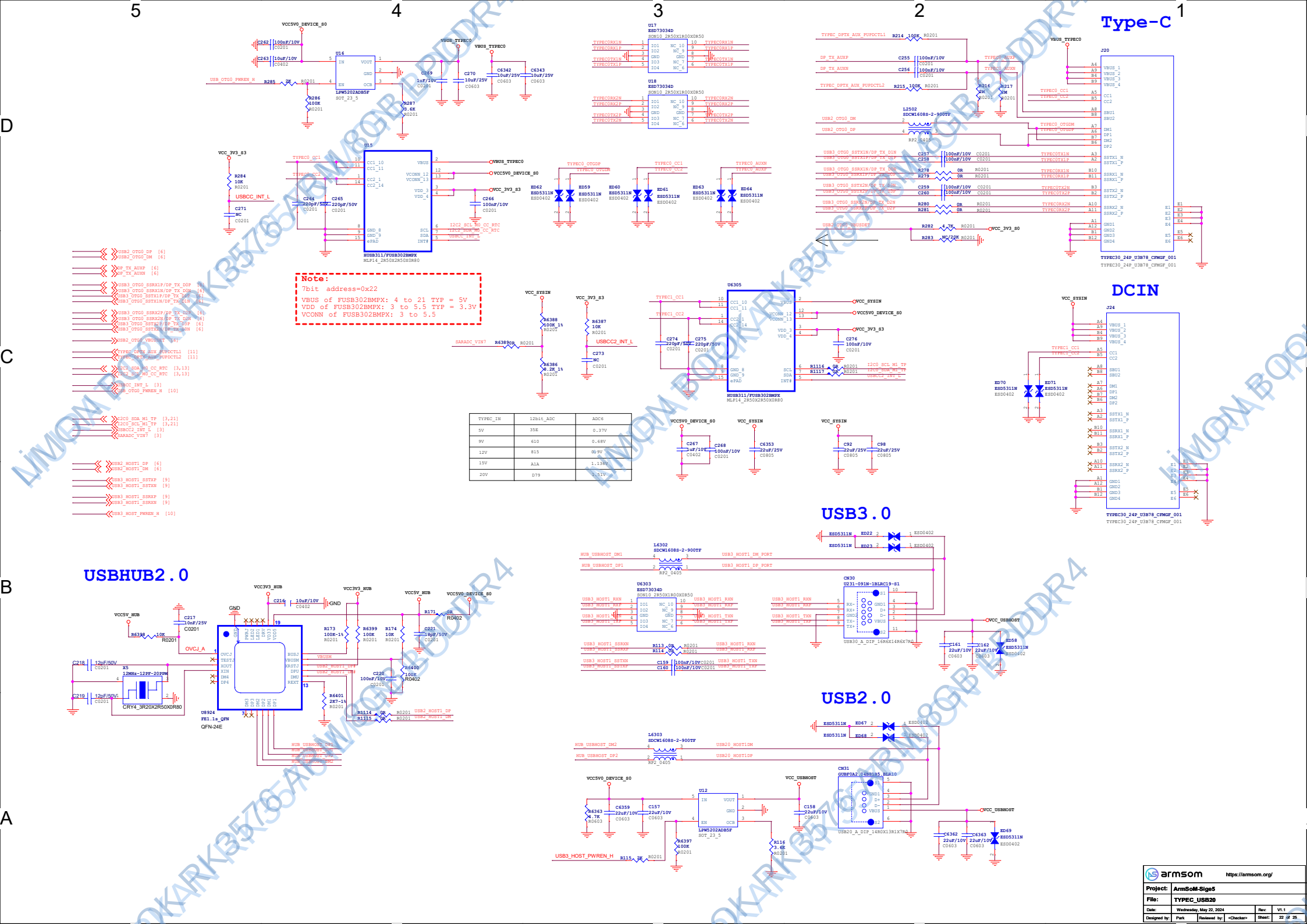
5
4
3
2
1
D
C
B
A
Type-C
DCIN
USB3.0
USB2.0
USBHUB2.0
Note:
7bit address=0x22
VBUS of FUSB302BMPX: 4 to 21 TYP = 5V
VDD of FUSB302BMPX: 3 to 5.5 TYP = 3.3V
VCONN of FUSB302BMPX: 3 to 5.5
TYPEC_IN | 12bit_ADC | ADC6
5V | 35E | 0.37V
9V | 610 | 0.68V
12V | 815 | 0.9V
15V | A1A | 1.13V
20V | D79 | 1.51V
armsom https://armsom.org/
Project: ArmSoM-Sige5
File: TYPEC_USB20
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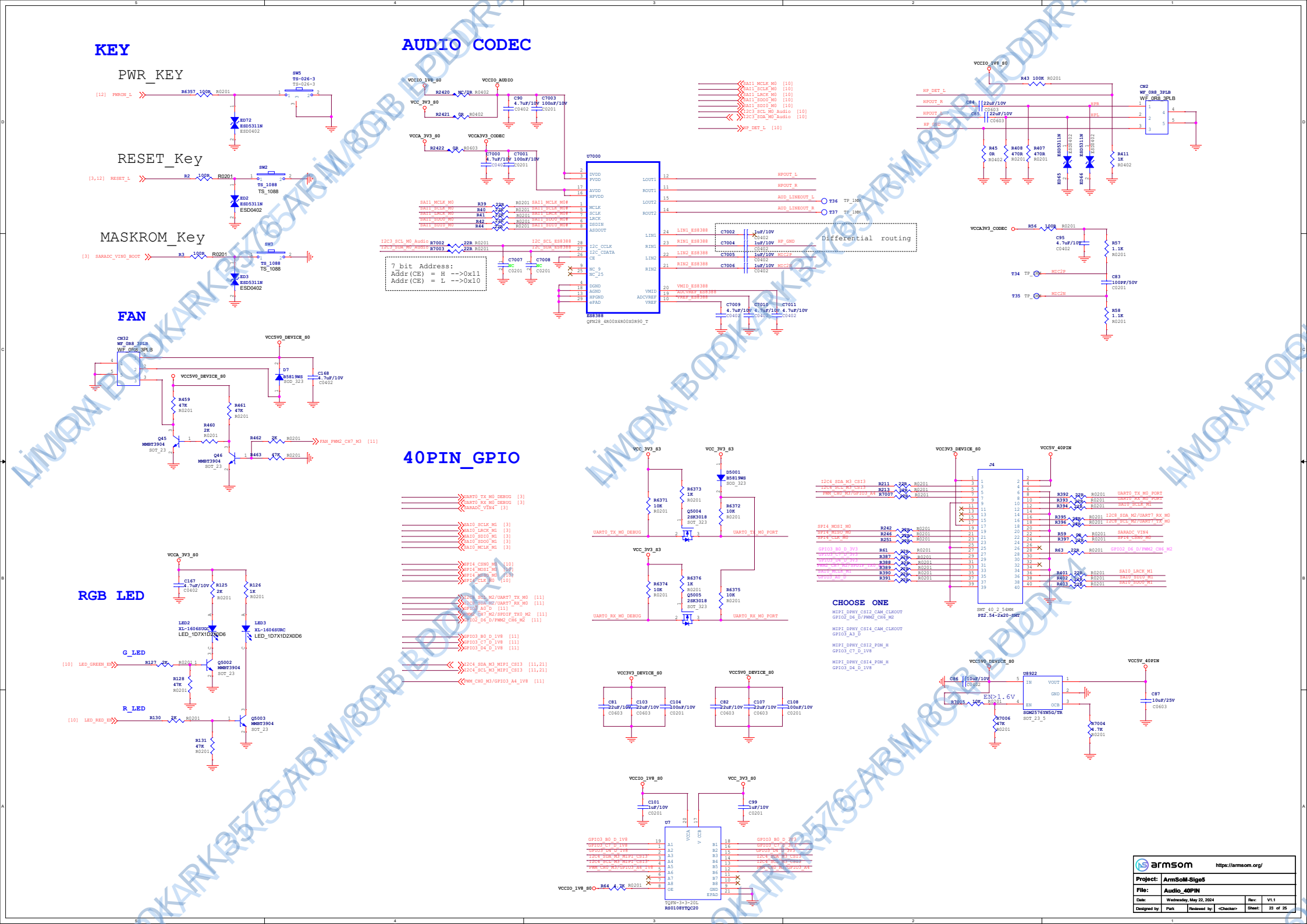
KEY
PWR_KEY
RESET_Key
MASKROM_Key
AUDIO CODEC
7_bit Address:
Addr(CE) = H -->0x11
Addr(CE) = L -->0x10
differential routing
FAN
40PIN_GPIO
RGB LED
G_LED
R_LED
CHOOSE ONE
armsom
https://armsom.org/
Project: ArmSoM-Sige5
File: Audio_40PIN
Date: Wednesday, May 22, 2024
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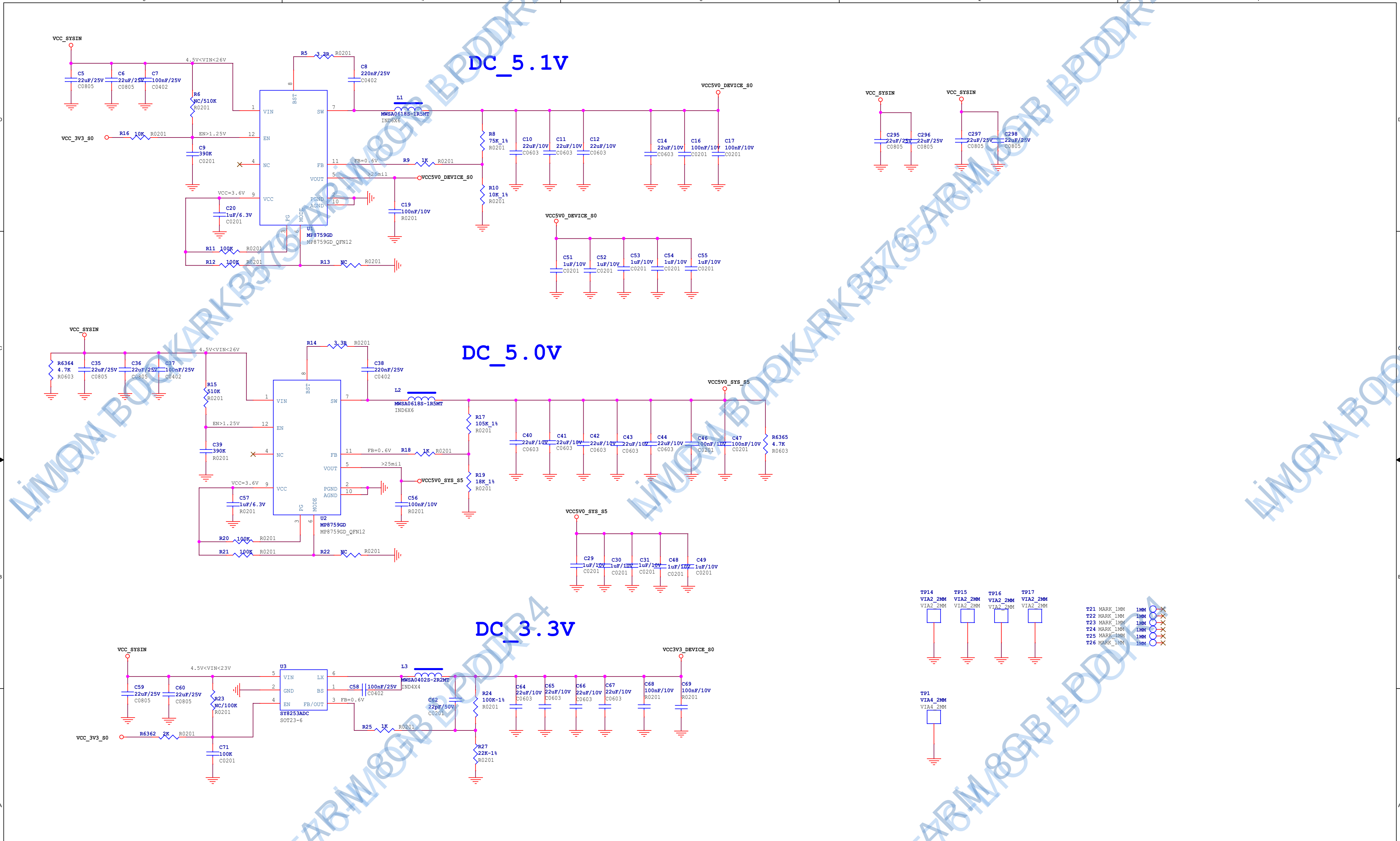
DC_5.1V
VCC_SYSIN
4.5V<VIN<26V
R5 3.3R R0201
C8 220nF/25V C0402
C5 22uF/25V C0805
C6 22uF/25V C0805
C7 100nF/25V C0402
R6 NC/510K R0201
VCC_3V3_S0
R16 10K R0201
EN>1.25V
C9 390K C0201
VCC=3.6V
C20 1uF/6.3V C0201
U1 MP8759GD MP8759GD_QFN12
VIN EN NC VCC SW FB VOUT PGND AGND BST PG MODE
L1 MWSA0618S-1R5MT IND6X6
FB=0.6V
R9 1K R0201
>25mil
VCC5V0_DEVICE_S0
C19 100nF/10V R0201
R8 75K_1% R0201
R10 10K_1% R0201
C10 22uF/10V C0603
C11 22uF/10V C0603
C12 22uF/10V C0603
C14 22uF/10V C0603
C16 100nF/10V C0201
C17 100nF/10V C0201
R11 100K R0201
R12 100K R0201
R13 NC R0201
C51 1uF/10V C0201
C52 1uF/10V C0201
C53 1uF/10V C0201
C54 1uF/10V C0201
C55 1uF/10V C0201
C295 22uF/25V C0805
C296 22uF/25V C0805
C297 22uF/25V C0805
C298 22uF/25V C0805
DC_5.0V
R6364 4.7K R0603
C35 22uF/25V C0805
C36 22uF/25V C0805
C37 100nF/25V C0402
R14 3.3R R0201
C38 220nF/25V C0402
R15 510K R0201
C39 390K R0201
C57 1uF/6.3V R0201
U2 MP8759GD MP8759GD_QFN12
L2 MWSA0618S-1R5MT IND6X6
R17 105K_1% R0201
R18 1K R0201
R19 18K_1% R0201
VCC5V0_SYS_S5
C56 100nF/10V R0201
C40 22uF/10V C0603
C41 22uF/10V C0603
C42 22uF/10V C0603
C43 22uF/10V C0603
C44 22uF/10V C0603
C46 100nF/10V C0201
C47 100nF/10V C0201
R6365 4.7K R0603
R20 100K R0201
R21 100K R0201
R22 NC R0201
C29 1uF/10V C0201
C30 1uF/10V C0201
C31 1uF/10V C0201
C48 1uF/10V C0201
C49 1uF/10V C0201
TP14 VIA2_2MM
TP15 VIA2_2MM
TP16 VIA2_2MM
TP17 VIA2_2MM
T21 MARK_1MM 1MM
T22 MARK_1MM 1MM
T23 MARK_1MM 1MM
T24 MARK_1MM 1MM
T25 MARK_1MM 1MM
T26 MARK_1MM 1MM
DC_3.3V
4.5V<VIN<23V
U3 SY8253ADC SOT23-6
VIN GND EN LX BS FB/OUT
C59 22uF/25V C0805
C60 22uF/25V C0805
R23 NC/100K R0201
R6362 2K R0201
C71 100K C0201
C58 100nF/25V C0402
L3 MWSA0402S-2R2MT IND4X4
FB=0.6V
C62 22pF/50V C0201
R25 1K R0201
R24 100K-1% R0201
R27 22K-1% R0201
VCC3V3_DEVICE_S0
C64 22uF/10V C0603
C65 22uF/10V C0603
C66 22uF/10V C0603
C67 22uF/10V C0603
C68 100nF/10V R0201
C69 100nF/10V R0201
TP1 VIA4_2MM

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Project:	ArmSoM-Sige5		
File:	Power		
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Revision History

Version	Date	By	Change Dsecription	Approved
V1.0	2024-03-27	SL Chen	First release;	
V1.1	2024-05-15	SL Chen	1.U1/U2 Pin5 connect to output; TF_DET_L connect to VCC_1V8_S3; J23 Pin2&Pin3 change position; 2.J25 MIPI_DPHY_CSI3_CAM_CLKOUT&MIPI_DPHY_CSI4_CAM_CLKOUT_CON change position;	

armsom https://armsom.org/					
Project:	ArmSoM-Sige5				
File:	Revision History				
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