Demo Board For RV1106G

RV1106G_UVC_DEMO_V1.1

Reference Design Main Functions Introduction	
Power	3 DCDC + 4 LDO (default)
RAM	SPI FLASH
Interface	MIPI_CSI/USB/AUDIO

Rockchip	Rockchip Electronics Co., Ltd				
Project:	**RV1106G UVC DEMO**				
File:	**00.Cover Page**				
Date:	Saturday, July 15, 2023			Rev:	V1.1
Designed by:	whb	Reviewed by:	Default	Sheet:	1 of 15

Index and Notes

Catalogue

Note

NOTE 1:
Component parameter description
1. DNP stands for component not mounted temporarily
2. If Value or option is DNP, which means the area is reserved without being mounted

NOTE 2:
Please use our recommended components to avoid too many changes.
For more informations about the second source,please refer to our AVL.

Generate Bill of Materials

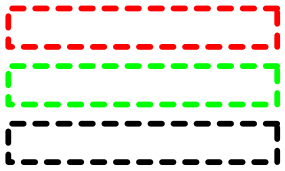
Header:

Item\tPart\tDescription\tPCB Footprint\tReference\tQuantity\tOption

Combined property string:

{Item}\t{Value}\t{Description}\t{PCB Footprint}\t{Reference}\t{Quantity}\t{Option}

Graphic Description



Note

Option

Description

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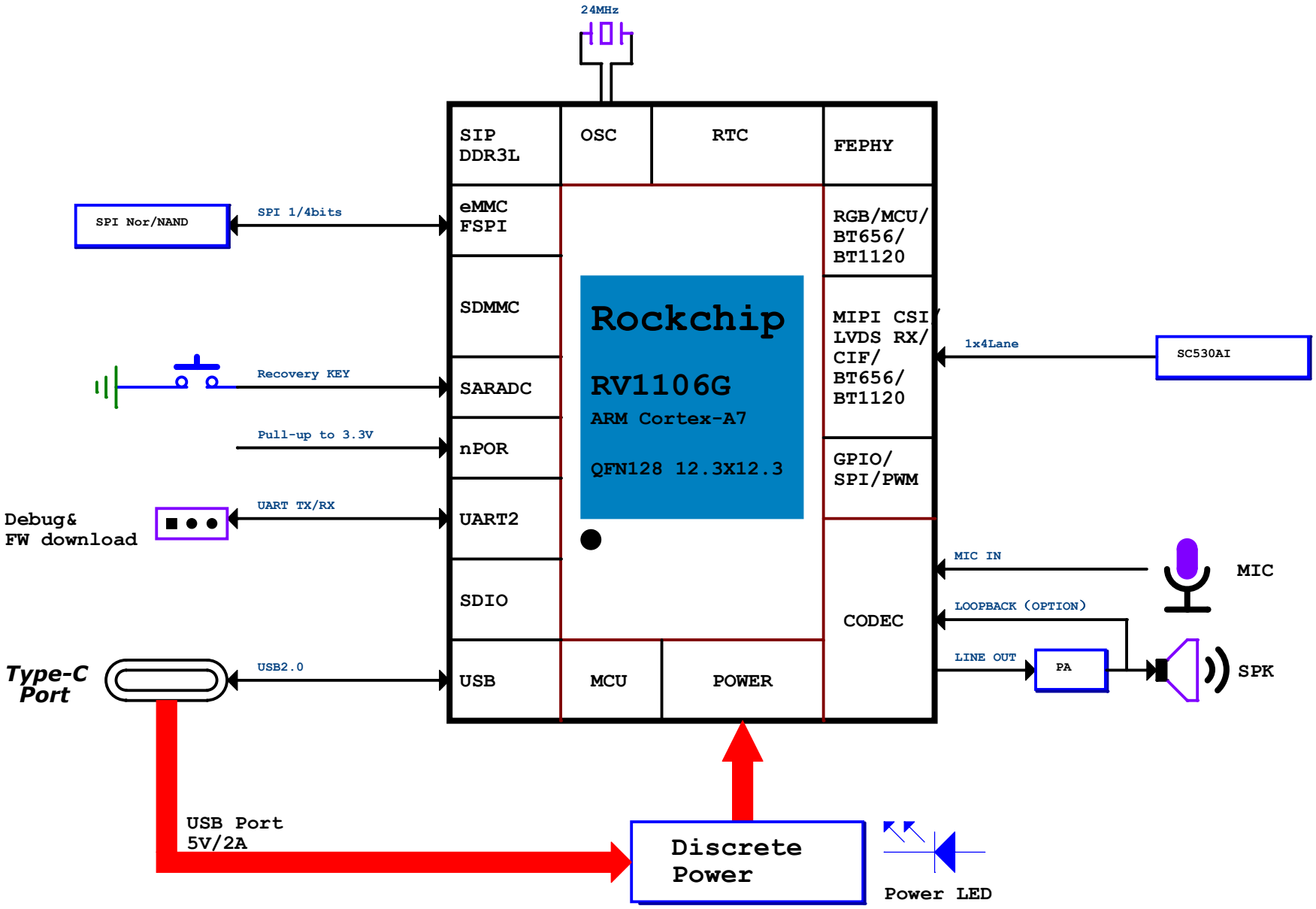
Rockchip	Rockchip Electronics Co., Ltd				
Project:	RV1106G UVC DEMO				
File:	01.Index and Notes				
Date:	Saturday, July 15, 2023			Rev:	V1.1
Designed by:	whb	Reviewed by:	Default	Sheet:	2 of 15

Revision History

Version	Date	Author	Change Note	Approved
V1.0	2022.05.09	whb	First edition.	
V1.1	2023.07.15	whb	1.Modify the RC parameters of the nPOR. 2.Modify the default voltage of VDD_0V9 to 0.88V 3.Modify the voltage regulator circuit parameters for VDD_ARM.	

Block Diagram



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Project:	RV1106G UVC DEMO				
File:	03.Block Diagram				
Date:	Saturday, July 15, 2023			Rev:	V1.1
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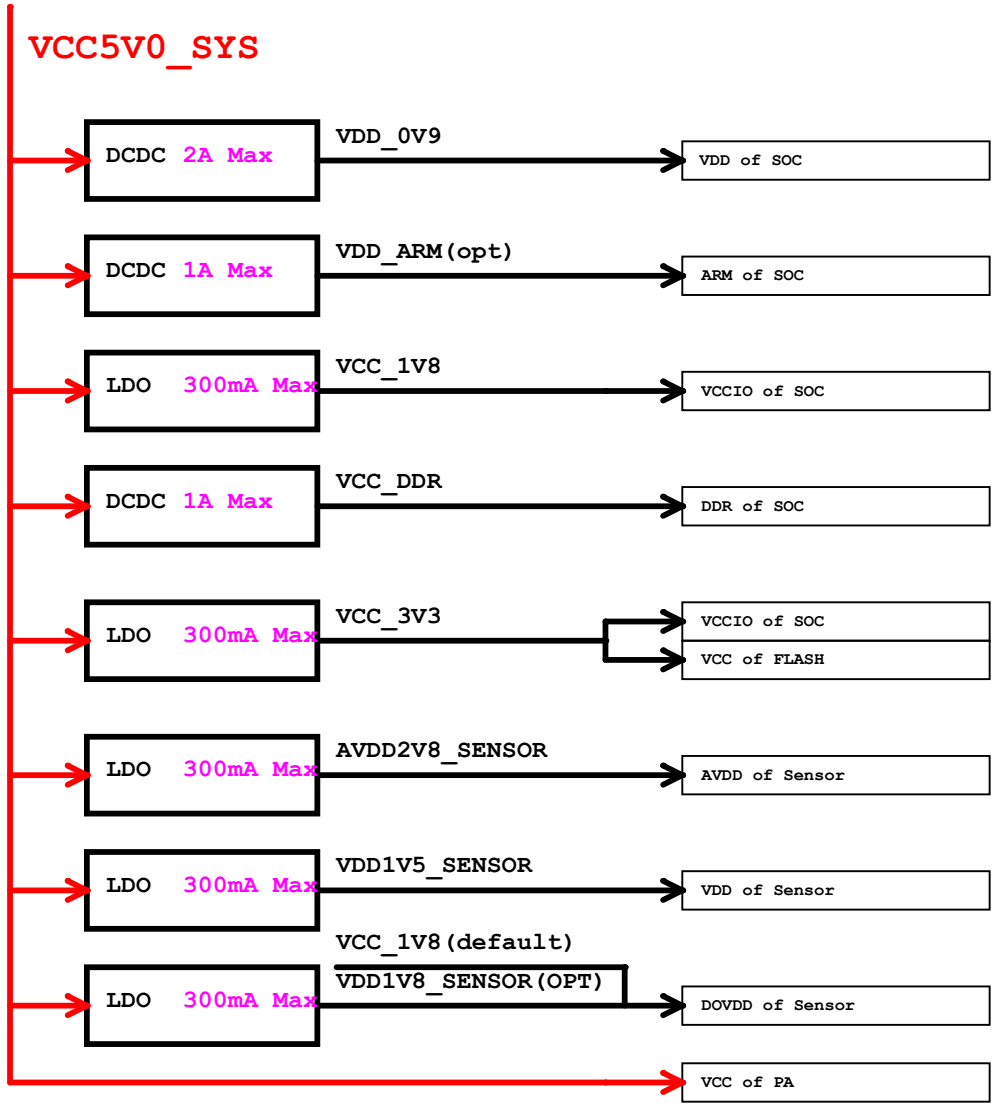
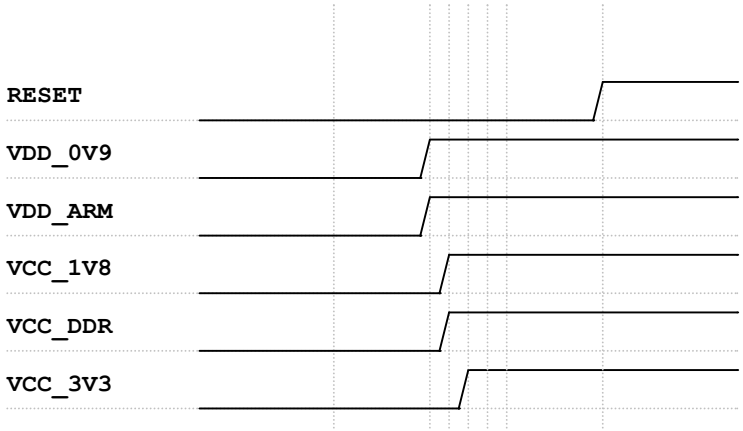
Power Diagram and Sequence

TYPE-C
5V/2A



RV1106G Power-on Sequence

Power Name	PMIC Channel	Time Slot	Default voltage	Peak Current
VDD_0V9	DC-DC BUCK	Slot: 1	0.93V	1.6A
VDD_ARM	DC-DC BUCK	Slot: 1	0.93V	0.5A
VCC_1V8	LDO	Slot: 2	1.8V	0.1A
VCC_DDR	DC-DC BUCK	Slot: 2	1.35V	0.5A
VCC_3V3	LDO	Slot: 3	3.3V	0.2A
RESET	Finally , nPOR RESET 10ms after VCC_3V3 is ready			



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File:	04.Power Diagram and Sequence				
Date:	Saturday, July 15, 2023			Rev:	V1.1
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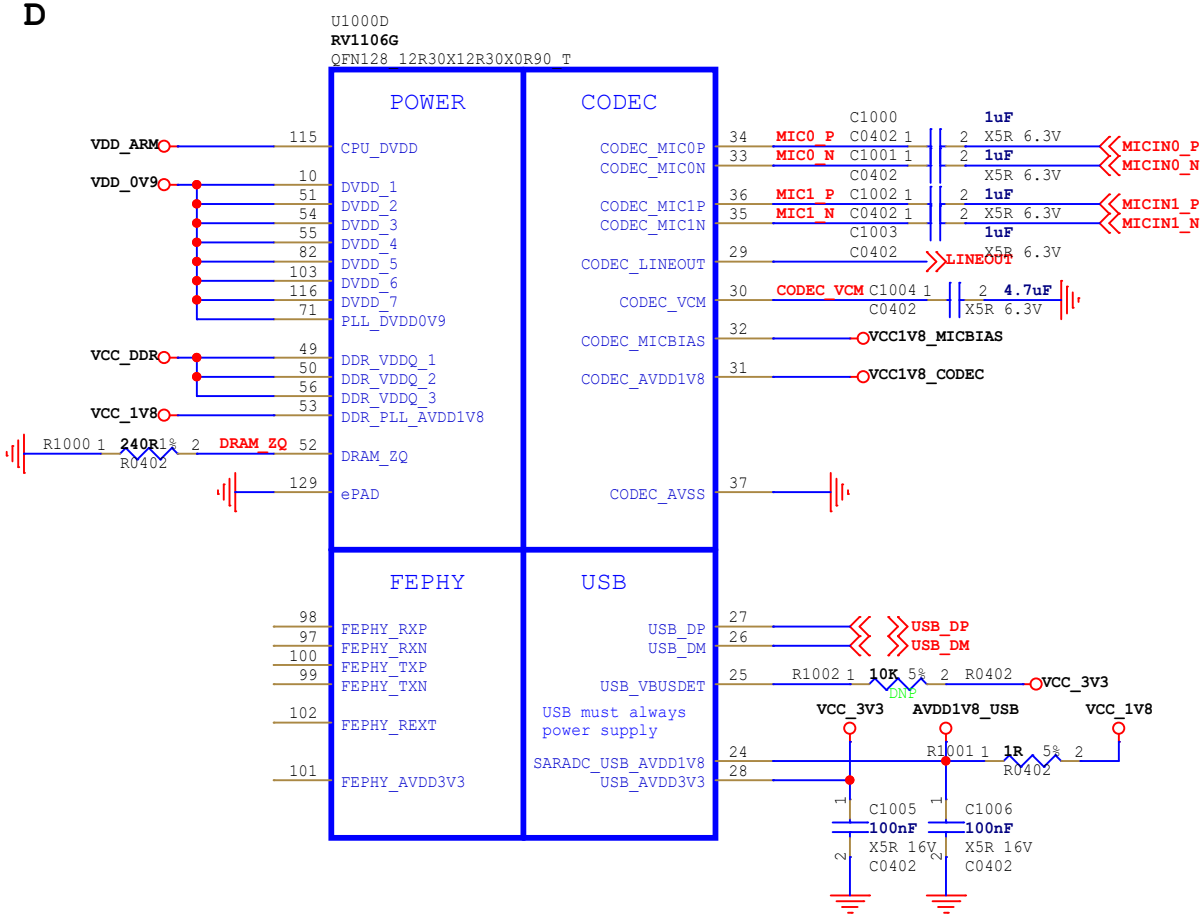
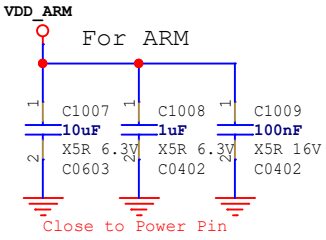
IO Power Domain Map

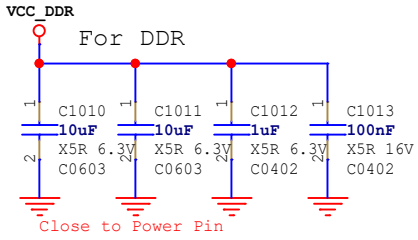
IO Domain	IO Group	Support of IO Voltage		Default Actual assigned IO Domain Voltage			Remark
		1.8V	3.3V	Net Name of Power Supply	Power Source	Voltage	
PMU	Group GPIO0_A		✓	VCC_3V3		3.3V	
VCCIO1	Group GPIO1_AB		✓	VCC_3V3		3.3V	
VCCIO2	Group GPIO4_C	✓		VCC_1V8		1.8V	
VCCIO3	Group GPIO4_AB	✓	✓	VCCIO_FLASH		1.8/3.3V	
VCCIO4	Group GPIO3_A	✓	✓	VCCIO_SD		1.8/3.3V	
VCCIO5	Group GPIO2_AB	✓	✓				
VCCIO6	Group GPIO1_CD	✓	✓				
VCCIO7	Group GPIO3_BCD	✓		VCC_1V8		1.8V	

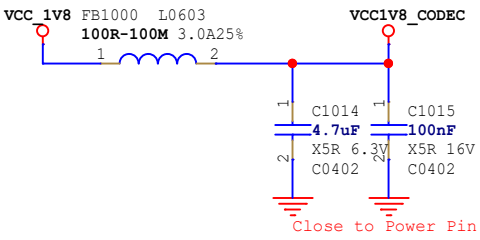
PART D

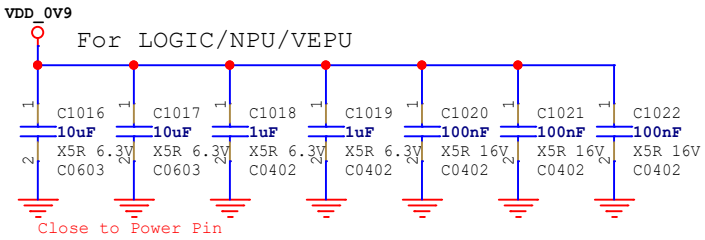


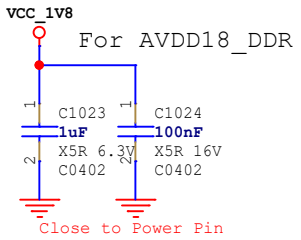
POWER











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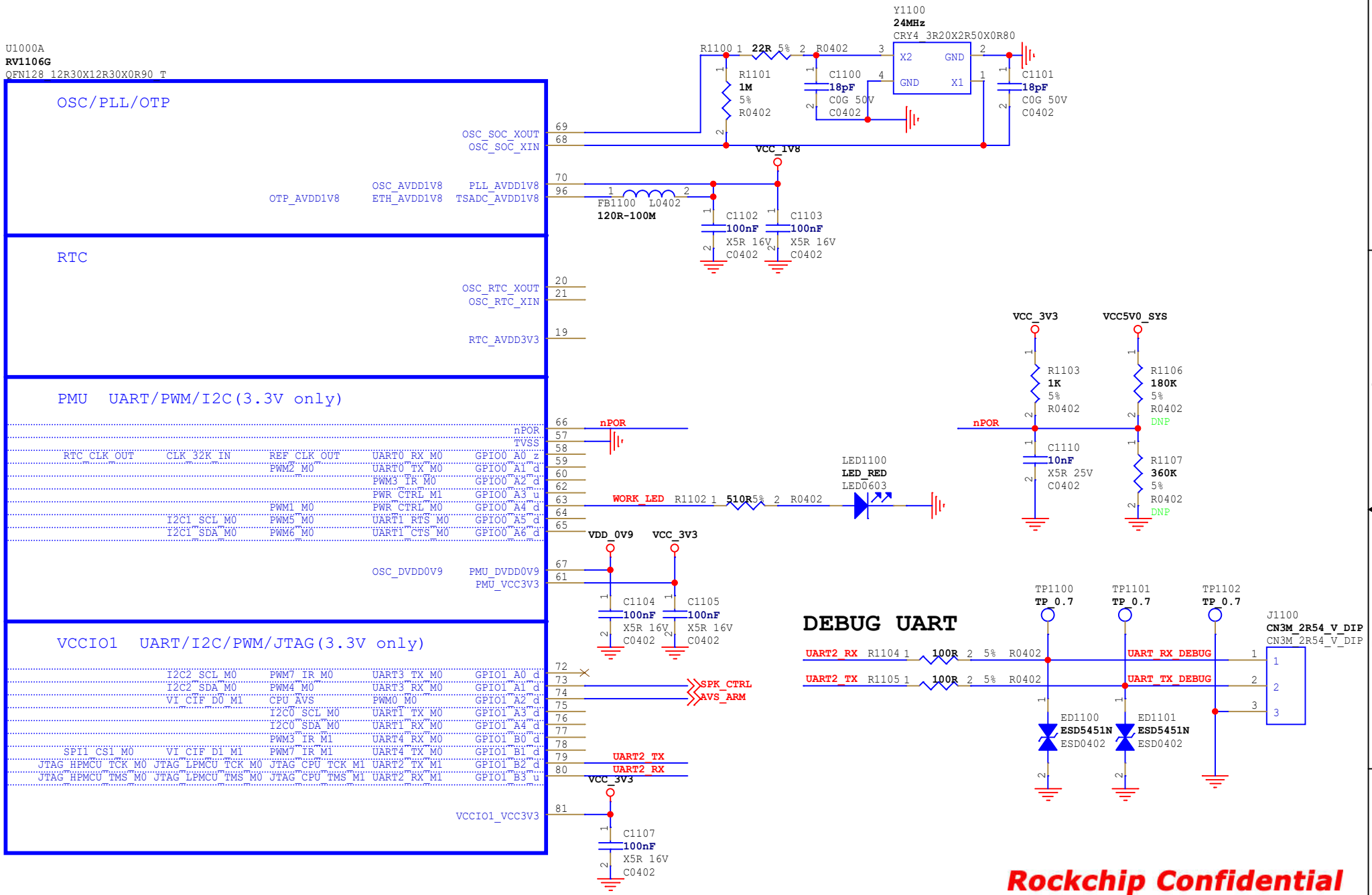
Project:	RV1106G UVC DEMO				
File:	10.RV1106G Power/Codec/ETH/USB				
Date:	Saturday, July 15, 2023			Rev:	V1.1
Designed by:	whb	Reviewed by:	Default	Sheet:	7 of 15

PART A



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Rockchip	Rockchip Electronics Co., Ltd				
Project:	RV1106G UVC DEMO				
File:	11.RV1106G OSC/RTC/PMU/VCCIO				
Date:	Thursday, July 27, 2023			Rev:	V1.1
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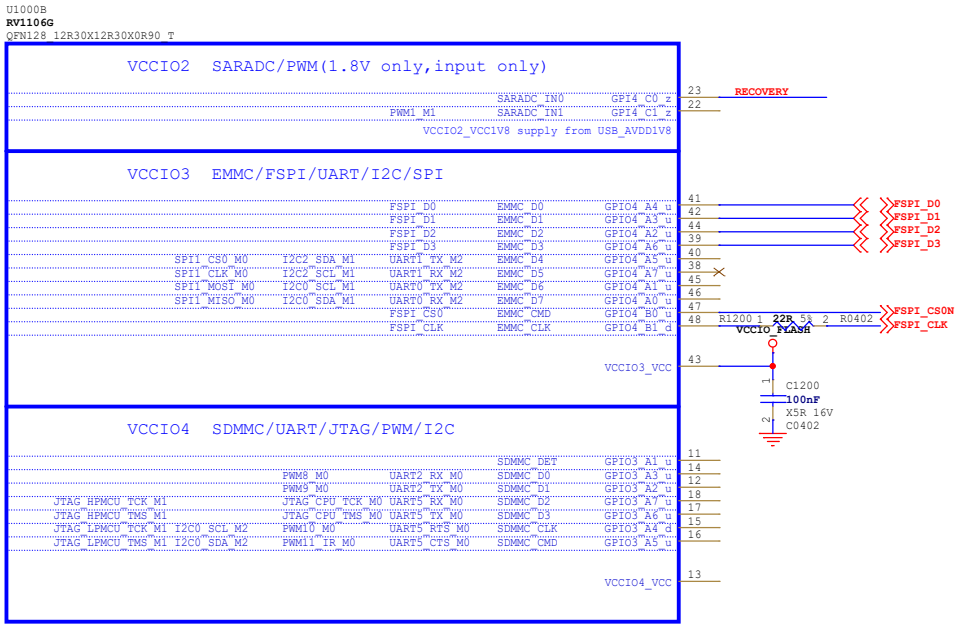
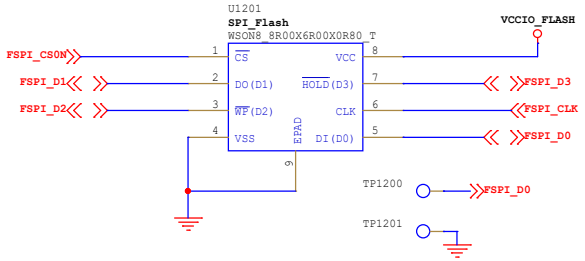
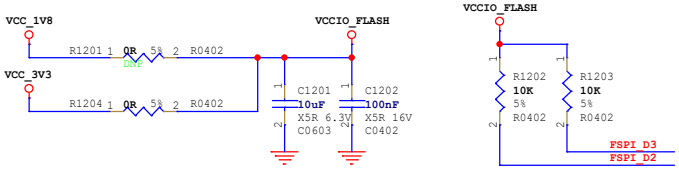
PART B



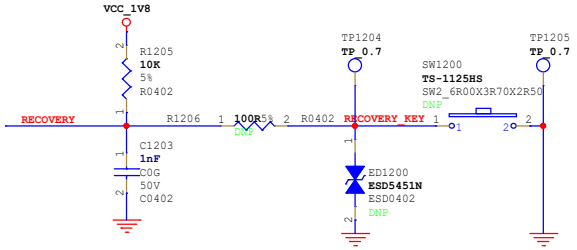
SPI Flash

NOTE:
Refer to the latest AVL for parts selection.





RECOVERY Key



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Project:	RV1106G UVC DEMO				
File:	12.RV1106G ADC/FLASH/SDMMC				
Date:	Thursday, July 27, 2023			Rev:	V1.1
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PART C

U1000C
RV1106G
QFN128_12R30X12R30X0R90_T

VCCIO5 SDIO/I2S/VO_LCDC/UART/PWM/I2C

		I2C4_SCL_M0	UART1_RTS_M1	VO_LCDC_D9	I2S0_LRCK	SDIO_D0_M0	GPIO2_A1_d	110
		I2C4_SDA_M0	UART1_CTS_M1	VO_LCDC_D8	I2S0_SCLK	SDIO_D1_M0	GPIO2_A0_d	109
			UART1_RX_M1	VO_LCDC_D13	I2S0_SDI0	SDIO_D2_M0	GPIO2_A5_d	114
			UART1_TX_M1	VO_LCDC_D12	I2S0_SDO0	SDIO_D3_M0	GPIO2_A4_d	113
				VO_LCDC_D10	I2S0_MCLK	SDIO_CLK_M0	GPIO2_A2_d	111
				VO_LCDC_D11	I2S0_SDO3_SDI1	SDIO_CMD_M0	GPIO2_A3_d	112
	FLASH_TRIGOUT	I2C3_SCL_M0	PWM2_M1	VO_LCDC_D14	I2S0_SDO2_SDI2	UART0_RTS_M1	GPIO2_A6_d	107
	PRELIGHT_TRIGOUT	I2C3_SDA_M0	PWM4_M1	VO_LCDC_D15	I2S0_SDO1_SDI3	UART0_CTS_M1	GPIO2_A7_d	106
			PWM5_M1	VO_LCDC_D16	I2C1_SCL_M1	UART0_RX_M1	GPIO2_B0_d	105
			PWM6_M1	VO_LCDC_D17	I2C1_SDA_M1	UART0_TX_M1	GPIO2_B1_d	104
							VCCIO5_VCC	108

VCCIO6 VO_LCDC/VI_CIF/PWM/UART/I2C/SDIO/SPI/AUD_DSM/VI_BT656

VI_BT656_D0_M1		SDIO_D1_M1	SPI0_CS0_M0	PWM2_M2	VI_CIF_D2_M1	VO_LCDC_D7	GPIO1_C0_d	95
VI_BT656_D1_M1		SDIO_D0_M1	SPI0_CLK_M0	PWM4_M2	VI_CIF_D3_M1	VO_LCDC_D6	GPIO1_C1_d	94
VI_BT656_D2_M1	I2C4_SCL_M1	SDIO_CLK_M1	SPI0_MOSI_M0	PWM5_M2	VI_CIF_D4_M1	VO_LCDC_D5	GPIO1_C2_d	93
VI_BT656_D3_M1	I2C4_SDA_M1	SDIO_CMD_M1	SPI0_MISO_M0	PWM6_M2	VI_CIF_D5_M1	VO_LCDC_D4	GPIO1_C3_d	92
VI_BT656_D4_M1		SDIO_D3_M1	UART4_RX_M1	PWM8_M1	VI_CIF_D6_M1	VO_LCDC_D3	GPIO1_C4_d	91
VI_BT656_D5_M1		SDIO_D2_M1	UART4_TX_M1	PWM9_M1	VI_CIF_D7_M1	VO_LCDC_D2	GPIO1_C5_d	90
VI_BT656_D6_M1			UART4_RTS_M1	PWM10_M1	VI_CIF_D8_M1	VO_LCDC_D1	GPIO1_C6_d	83
VI_BT656_D7_M1			UART4_CTS_M1	PWM11_IR_M1	VI_CIF_D9_M1	VO_LCDC_D0	GPIO1_C7_d	84
VI_BT656_CLK_M1		UART3_TX_M1	UART5_RTS_M1	PWM3_IR_M2	VI_CIF_CLKI_M1	VO_LCDC_DEN	GPIO1_D0_d	89
		UART3_RX_M1	UART5_CTS_M1	PWM10_M2	VI_CIF_HREF_M1	VO_LCDC_HSYNC	GPIO1_D1_d	87
SPI0_CS1_M0	I2C3_SDA_M1	AUD_DSM_P	UART5_RX_M1	PWM0_M1	VI_CIF_VSYNC_M1	VO_LCDC_VSYNC	GPIO1_D2_d	86
	I2C3_SCL_M1	AUD_DSM_N	UART5_TX_M1	PWM11_IR_M2	VI_CIF_CLKO_M1	VO_LCDC_CLK	GPIO1_D3_d	85
							VCCIO6_VCC	88

VCCIO7 VI_CIF/MIPI_CSI/LVDS_RX/UART/I2C/VI_BT1120/VI_BT656 (1.8V only,some for input only)

			VI_BT1120_D0	LVDS_RX_D3N	MIPI_CSI_RX_D3N	VI_CIF_D0_M0	GPI3_B0_d	117
			VI_BT1120_D1	LVDS_RX_D3P	MIPI_CSI_RX_D3P	VI_CIF_D1_M0	GPI3_B1_d	118
			VI_BT1120_D2	LVDS_RX_CLK1N	MIPI_CSI_RX_CLK1N	VI_CIF_D2_M0	GPI3_B2_d	119
			VI_BT1120_D3	LVDS_RX_CLK1P	MIPI_CSI_RX_CLK1P	VI_CIF_D3_M0	GPI3_B3_d	120
			VI_BT1120_D4	LVDS_RX_D2N	MIPI_CSI_RX_D2N	VI_CIF_D4_M0	GPI3_B4_d	121
			VI_BT1120_D5	LVDS_RX_D2P	MIPI_CSI_RX_D2P	VI_CIF_D5_M0	GPI3_B5_d	122
			VI_BT1120_D6	LVDS_RX_D1N	MIPI_CSI_RX_D1N	VI_CIF_D6_M0	GPI3_B6_d	123
			VI_BT1120_D7	LVDS_RX_D1P	MIPI_CSI_RX_D1P	VI_CIF_D7_M0	GPI3_B7_d	124
		VI_BT656_D0_M0	VI_BT1120_D8	LVDS_RX_CLK0N	MIPI_CSI_RX_CLK0N	VI_CIF_D8_M0	GPI3_C0_d	125
		VI_BT656_D1_M0	VI_BT1120_D9	LVDS_RX_CLK0P	MIPI_CSI_RX_CLK0P	VI_CIF_D9_M0	GPI3_C1_d	126
		VI_BT656_CLK_M0	VI_BT1120_CLK	LVDS_RX_D0N	MIPI_CSI_RX_D0N	VI_CIF_CLKI_M0	GPI3_C2_d	127
				LVDS_RX_D0P	MIPI_CSI_RX_D0P	VI_CIF_HREF_M0	GPI3_C3_d	128
				MIPI_CLK0_OUT		VI_CIF_CLKO_M0	GPIO3_C4_d	2
						VI_CIF_VSYNC_M0	GPIO3_C5_d	3
		VI_BT656_D2_M0	VI_BT1120_D10	PWM7_IR_M2	MIPI_CLK1_OUT	VI_CIF_D10	GPIO3_C6_d	4
		VI_BT656_D3_M0	VI_BT1120_D11	UART5_TX_M2	I2C4_SCL_M2	VI_CIF_D11	GPIO3_C7_d	5
		VI_BT656_D4_M0	VI_BT1120_D12	UART5_RX_M2	I2C4_SDA_M2	VI_CIF_D12	GPIO3_D0_d	7
		VI_BT656_D5_M0	VI_BT1120_D13	UART5_RTS_M2	I2C3_SCL_M2	VI_CIF_D13	GPIO3_D1_d	6
		VI_BT656_D6_M0	VI_BT1120_D14	UART5_CTS_M2	I2C3_SDA_M2	VI_CIF_D14	GPIO3_D2_d	8
		VI_BT656_D7_M0	VI_BT1120_D15		PWM1_M2	VI_CIF_D15	GPIO3_D3_d	9
						MIPI_AVDD1V8_VCCIO7_VCC1V8		1

MIPI_CLK R1302 1 22R 5% 2 R0402

MIPI_CSI_AVDD_1V8 R1303 1 1R 5% 2 R0402 VCC_1V8

C1300 100nF X5R 16V C0402

MIPI/LVDS_D3N
MIPI/LVDS_D3P
MIPI/LVDS_D2N
MIPI/LVDS_D2P
MIPI/LVDS_D1N
MIPI/LVDS_D1P
MIPI/LVDS_CLKN
MIPI/LVDS_CLKP
MIPI/LVDS_D0N
MIPI/LVDS_D0P
MIPI/LVDS_MCLK0
MIPI/LVDS_RST
MIPI/LVDS_PDN
MIPI_I2C_SCL
MIPI_I2C_SDA

VCC_1V8

R1300 4.7K 5% R0402
R1301 4.7K 5% R0402

MIPI_I2C_SCL
MIPI_I2C_SDA

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Project:	RV1106G UVC DEMO			
File:	13.RV1106G SDIO/LCD/VICAP/MIPI			
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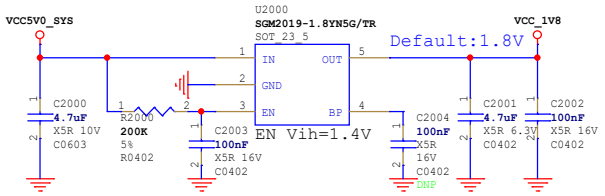
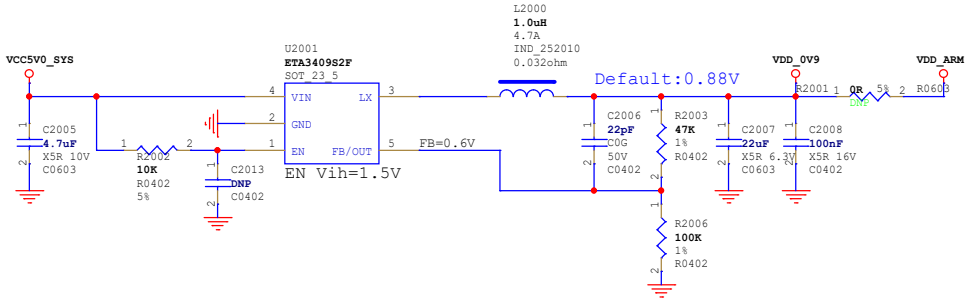
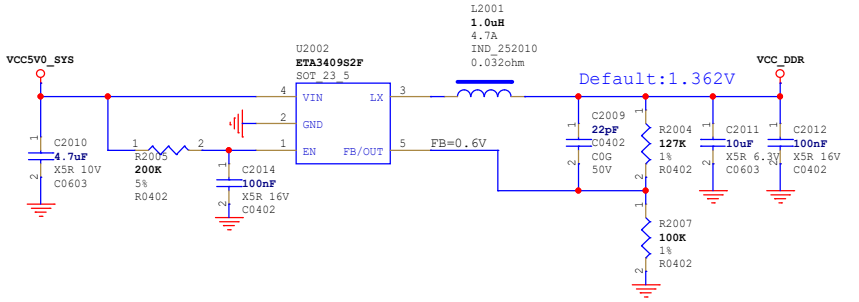
VCC5V0_SYS--->VCC_1V8
Setp 2



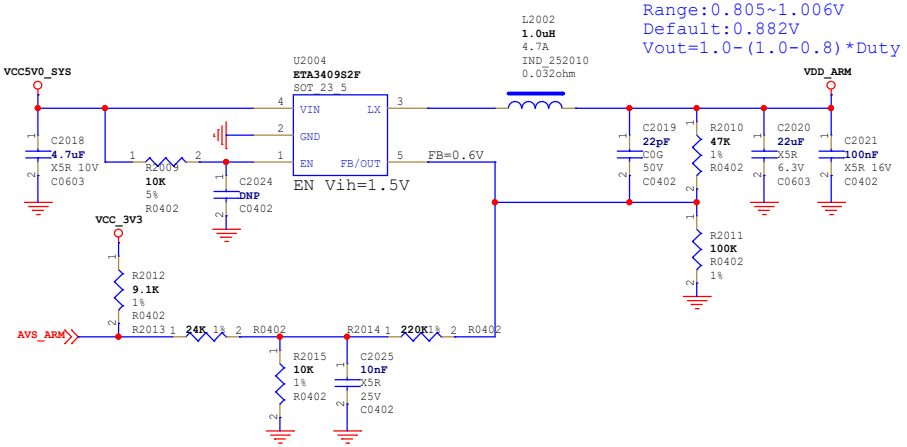
VCC5V0_SYS--->VDD_0V9
Setp 1



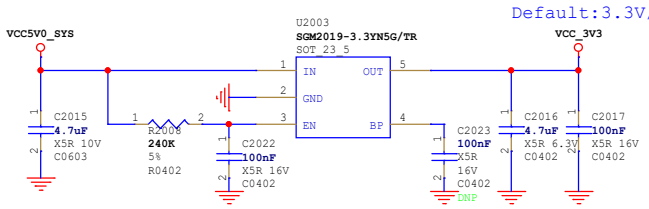
VCC5V0_SYS--->VCC_DDR
Setp 2



VCC5V0_SYS--->VDD_ARM
Setp 1



VCC5V0_SYS--->VCC_3V3
Setp 3



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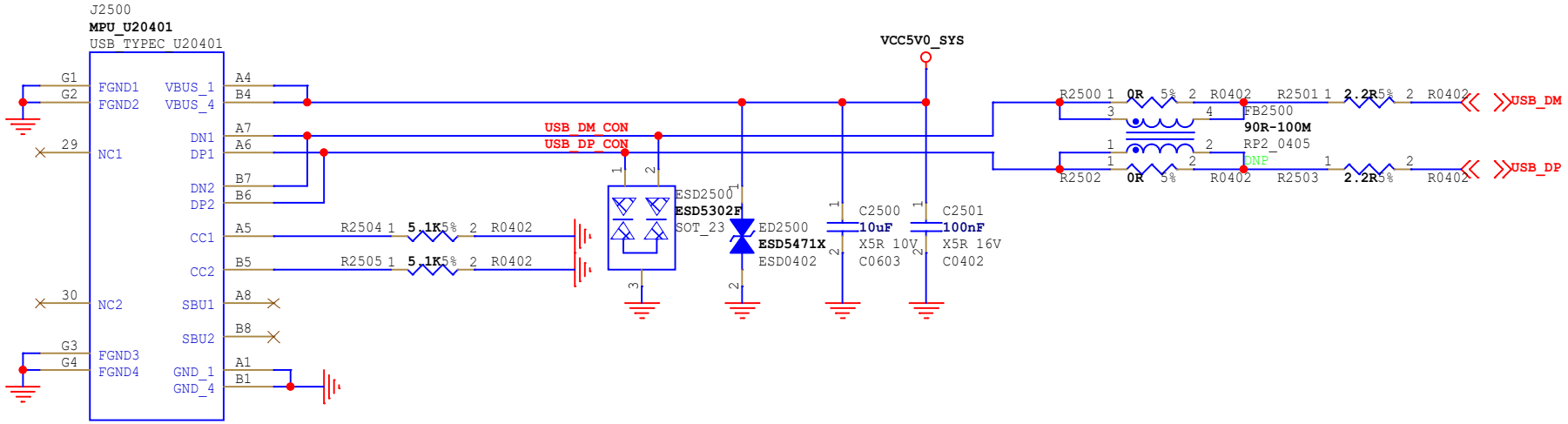
Rockchip	Rockchip Electronics Co., Ltd				
Project:	RV1106G UVC DEMO				
File:	20.Power-System				
Date:	Saturday, July 15, 2023			Rev:	V1.1
Designed by:	whb	Reviewed by:	Default	Sheet:	11 of 15

USB Port



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Project:	RV1106G UVC DEMO				
File:	25.USB Port				
Date:	Saturday, July 15, 2023			Rev:	V1.1
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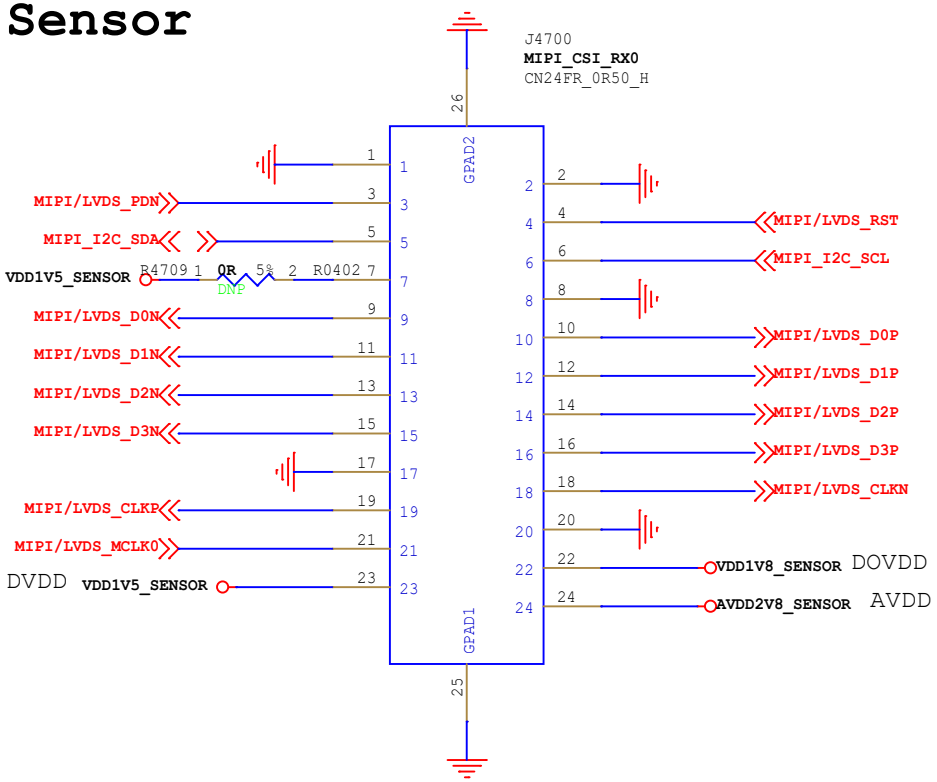
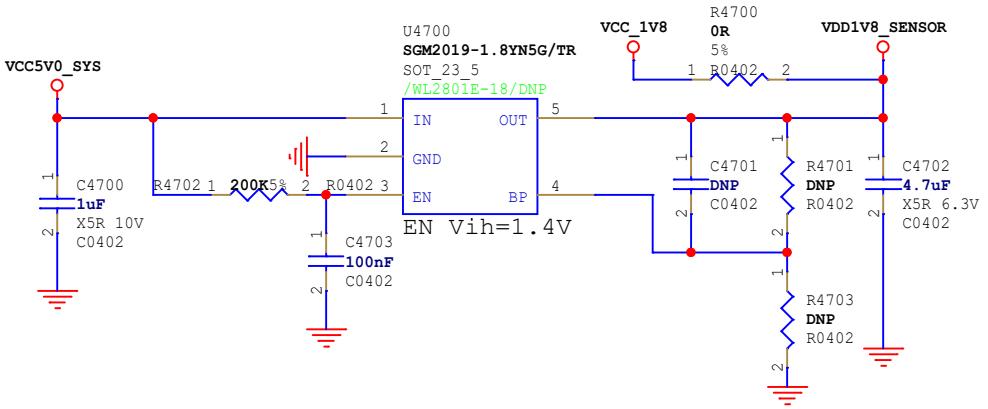
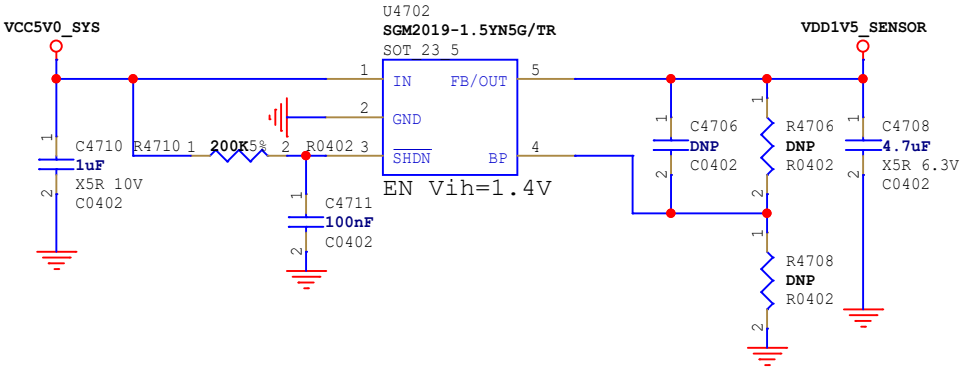
Sensor



VCC5V0_SYS--->VDD1V8_SENSOR

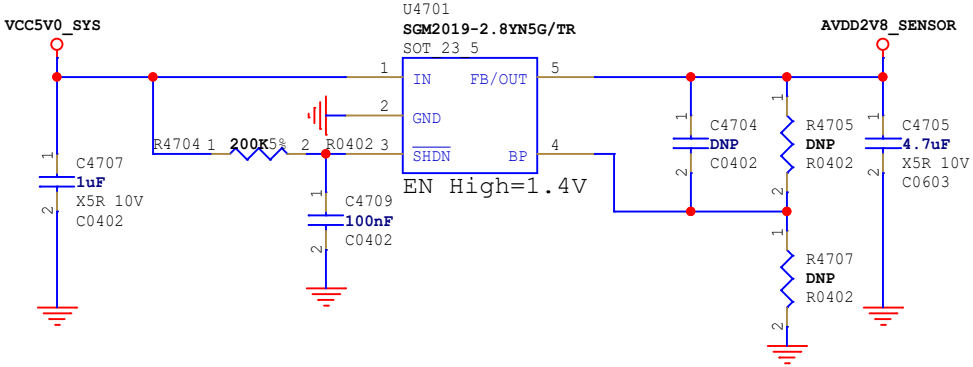


VCC5V0_SYS--->VDD1V5_SENSOR



Note:
Default power-on timing:
All three power on at the same time.
Or DOVDD(VCC_1V8)-->DVDD(VCC_1V5)-->AVDD(VCC_2V8)

VCC5V0_SYS--->AVDD2V8_SENSOR



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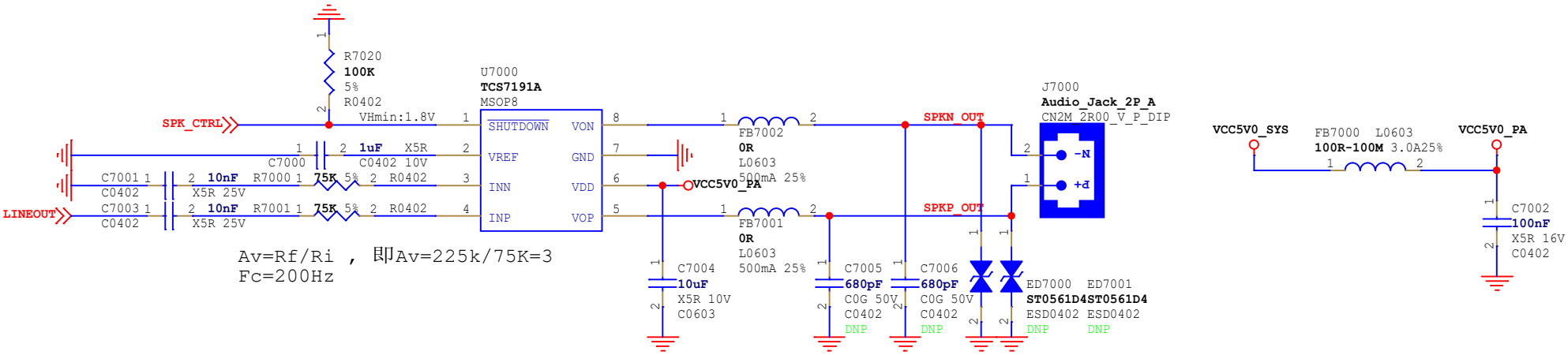
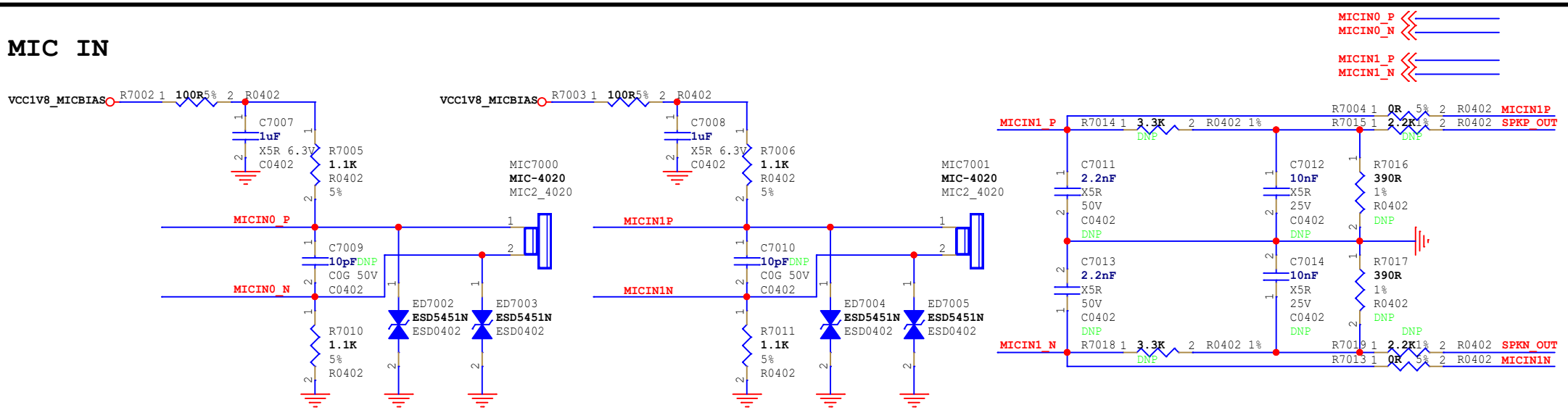
Rockchip	Rockchip Electronics Co., Ltd				
Project:	RV1106G UVC DEMO				
File:	47.VI-Camera				
Date:	Thursday, July 27, 2023			Rev:	V1.1
Designed by:	whb	Reviewed by:	Default	Sheet:	13 of 15

Speaker Out

NOTE:If there is no EMI problem, the ferrite beads can be replaced by 0ohm resistors;



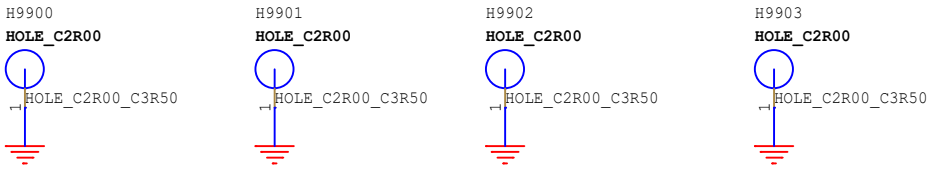
MIC IN

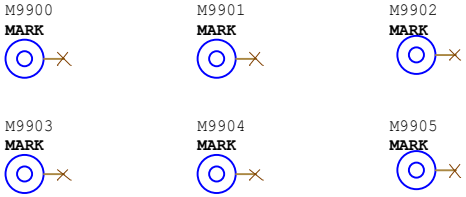


Rockchip Confidential

Rockchip	Rockchip Electronics Co., Ltd				
Project:	RV1106G UVC DEMO				
File:	70.Audio Port				
Date:	Thursday, July 27, 2023			Rev:	V1.1
Designed by:	whb	Reviewed by:	Default	Sheet:	14 of 15

HOLE





Rockchip Confidential

Rockchip	Rockchip Electronics Co., Ltd				
Project:	RV1106G UVC DEMO				
File:	99.MARK/HOLE				
Date:	Saturday, July 15, 2023			Rev:	V1.1
Designed by:	whb	Reviewed by:	Default	Sheet:	15 of 15