

RV1126_RV1109_USB_AI_Camera_DEMO_DDR3P216DD6_V13_20201030

Main Functions Introduction

- 01) Power: Discrete power supply
- 02) DRAM: DDR3 4Gb x 2
- 03) ROM: eMMC 8GB/SPI nand 512MB
- 04) Support USB2.0 OTG
- 05) Support MIPI CSI RX
- 06) Support Motor Dricer Control
- 07) Support Option MIC Array
- 08) Support Debug


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Project:	RV1126_RV1109 AI Camera		
File:	00.Cover Page		
Date:	Thursday, November 05, 2020		Rev: V1.3
Designed by:	whb	Reviewed by:	Sheet: 1 of 28

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Index and Notes

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

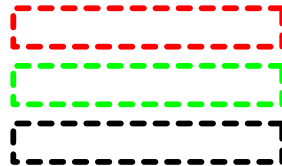
Header:

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



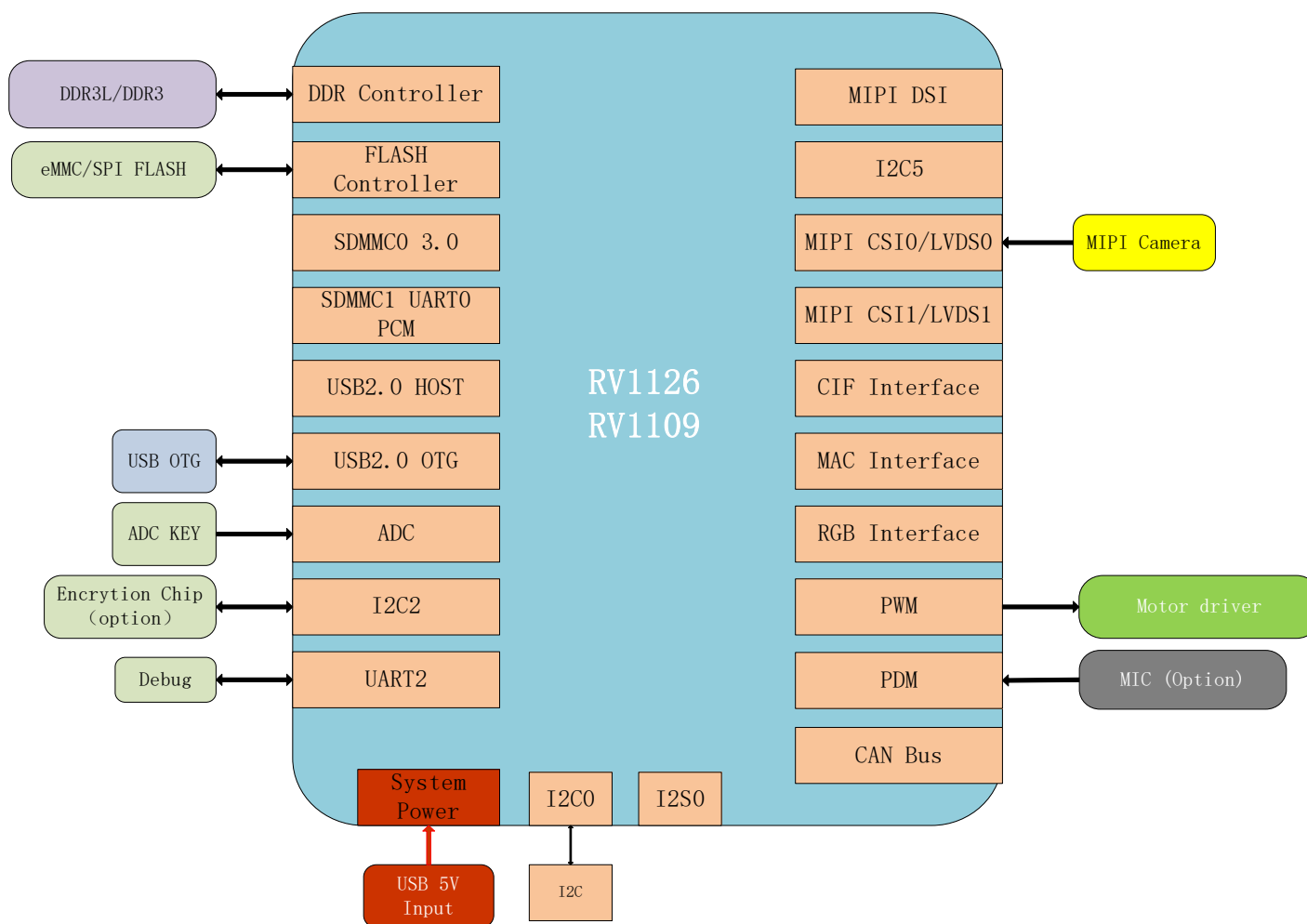
Note

Option

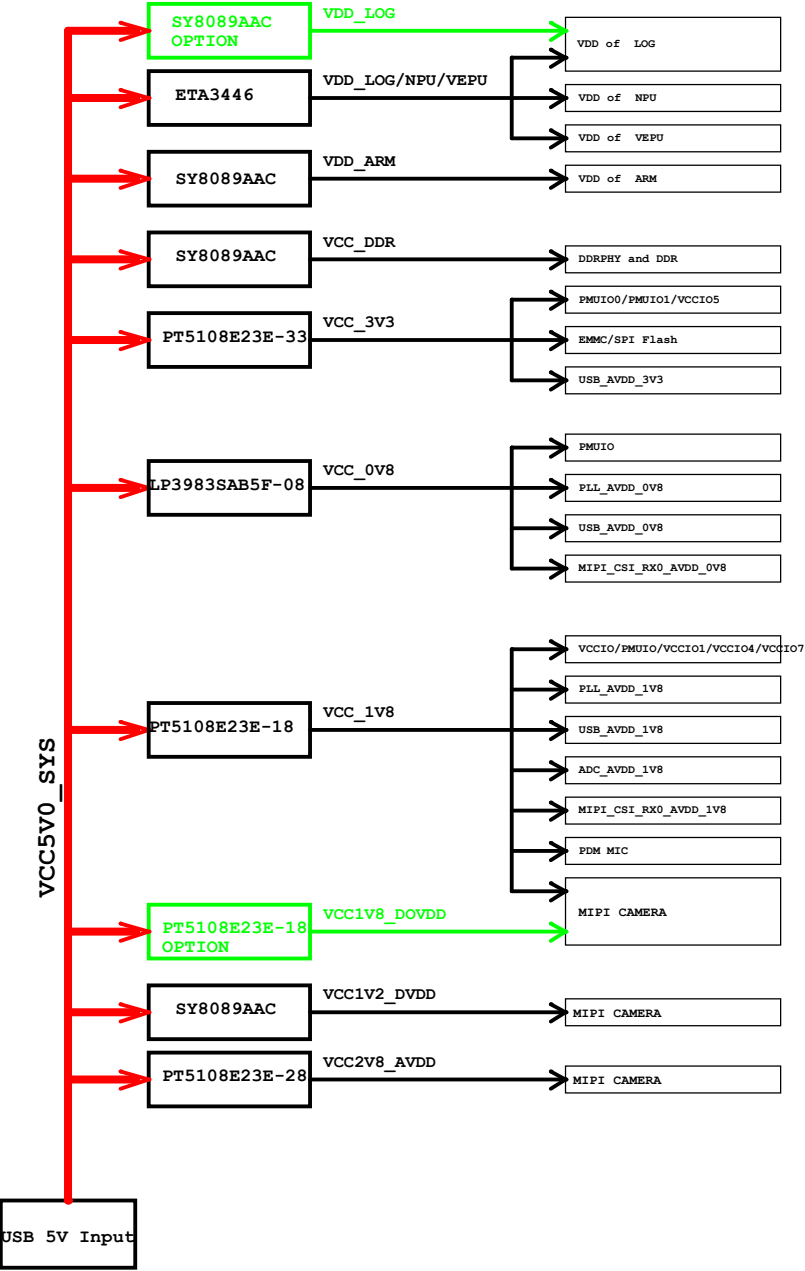
Description

[illegible][illegible]

RV1126_RV1109 Block Diagram

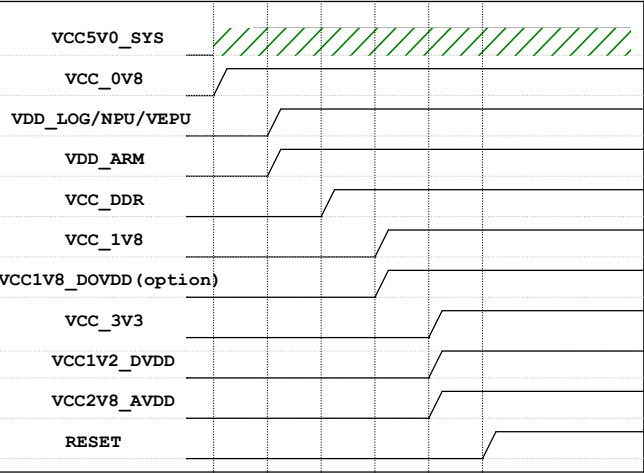


Power Diagram



Power-on Sequence

Power Name	PMIC Channel	Time Slot (step 6ms)	Default voltage	Supply Limit	Default ON/OFF	Sleep ON/OFF	Peak Current	Sleep Current
VCC_0V8	LDO	Slot: 1	0.8V	0.4A	ON	ON		
VDD_LOG/NPU/VEPU	BUCK	Slot: 2	0.825V	3.0A	ON	ON		
VDD_ARM	BUCK	Slot: 2	0.824V	2.0A	ON	ON		
VCC_DDR	BUCK	Slot: 3	1.35V	1.0A	ON	ON		
VCC_1V8	LDO	Slot: 4	1.8V	0.5A	ON	ON		
VCC1V8_D0VDD(option)	LDO	Slot: 4	1.8V	0.5A	ON	ON		
VCC_3V3	LDO	Slot: 5	3.3V	0.5A	ON	ON		
VCC1V2_DVDD	BUCK	Slot: 5	1.2V	1.0A	ON	ON		
VCC2V8_AVDD	LDO	Slot: 5	2.8V	0.5A	ON	ON		



I2C MAP

RV1126
RV1109

I2C0

I2C1

I2C1_SCL
I2C1_SDA

Pull-up voltage:1.8V
Rate: TBD

MIPI camera
I2C add = TBD

I2C2

I2C2_SCL
I2C2_SDA

Pull-up voltage:3.3V
Rate: TBD

Encrytion Chip
I2C add = TBD

M0

I2C3

M1

M2

M0

I2C4

M1

M0

I2C5_SCL_M0
I2C5_SDA_M0

Pull-up voltage:3.3V
Rate: TBD

MIC Array(Optional)
I2C add = TBD

I2C5

M1

M2

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Project:	RV1126_RV1109 AI Camera						
File:	05.I2C MAP						
Date:	Thursday, October 29, 2020				Rev:	V1.3	
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IO Power Domain Map

IO Domain	IO Group	Support of IO Voltage		Default Actual assigned IO Domain Voltage			Notes
		1.8V	3.3V	Net Name of Power Supply	Power Source	Voltage	
PMUIO0	<i>GPIO0A</i>	✓	✓	VCC_3V3		3.3V	
PMUIO1	<i>GPIO0BC</i>	✓	✓	VCC_3V3		3.3V	
VCCIO1	<i>GPIO0CD/GPIO1A</i>	✓	✓	VCCIO_FLASH		1.8/3.3V	<i>GPIO0_B3/FLASH_VOL_SEL pin defined as a set pin for VCCIO1 voltage domain after power-on reset.It is pull-up for 1.8V</i>
VCCIO2	<i>GPIO1AB</i>	✓	✓	NC			
VCCIO3	<i>GPIO1BCD</i>	✓	✓	NC			
VCCIO4	<i>GPIO1D/GPIO2A</i>	✓	✓	VCC_1V8		1.8V	
VCCIO5	<i>GPIO2ABCD/GPIO3A</i>	✓	✓	VCC_3V3		3.3V	
VCCIO6	<i>GPIO3ABC</i>	✓	✓	NC			
VCCIO7	<i>GPIO3D/GPIO4A</i>	✓	✓	VCC_1V8		1.8V	

Power

U1000N
RV1126_RV1109
BGA409_14R00X14R00X0R90

NPU/LOGIC/VEPU/ARM Power

NPU_VDD_1 H11
NPU_VDD_2 H12
NPU_VDD_3 J10
NPU_VDD_4 J11
NPU_VDD_5 K10
NPU_VDD_6 K11

LOGIC_VDD_1 H9
LOGIC_VDD_2 J9
LOGIC_VDD_3 L10
LOGIC_VDD_4 M11
LOGIC_VDD_5 H13
LOGIC_VDD_6 J13

VEPU_VDD_1 L9
VEPU_VDD_2 M9
VEPU_VDD_3 N8
VEPU_VDD_4 N9

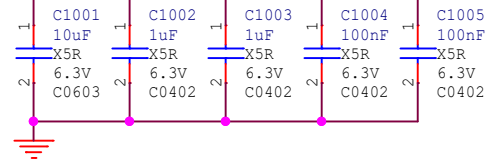
ARM_VDD_1 N12
ARM_VDD_2 P12
ARM_VDD_3 P13

Supply for VCCIO1~7 Power

VCCIO_VDD_1V8

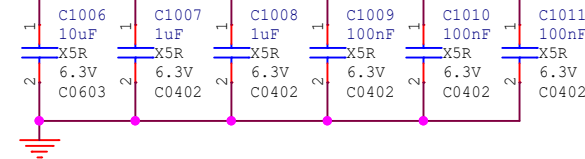
VDD_LOG

Close to VDD_LOG



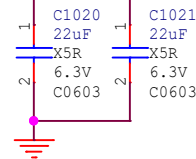
VDD_NPU/VEPU

Close to VDD_NPU



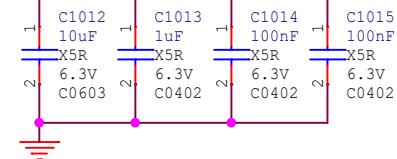
VDD_NPU/VEPU

Close to SOC



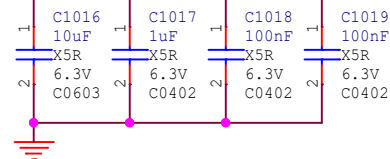
VDD_ARM

Close to VDD_ARM



VDD_NPU/VEPU

Close to VDD_VEPU



R1000
3.3R
R0402
5%

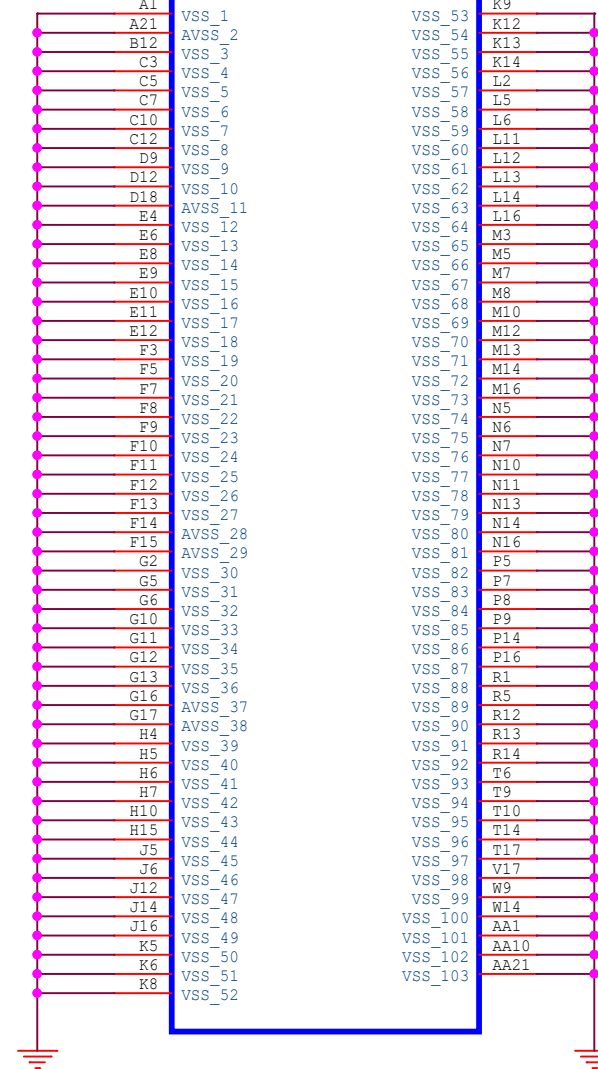
C1022
1nF
X5R
50V
C0402

C1000
100nF
X5R
6.3V
C0402

GND

U10000
RV1126_RV1109
BGA409_14R00X14R00X0R90

VSS/AVSS



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Project:	RV1126_RV1109 AI Camera		
File:	10.RV1126/1109_Power/GND		
Date:	Friday, October 30, 2020	Rev:	V1.3
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OSC/PLL/PMUIO

U1000K
RV1126_RV1109
BGA409_14R00X14R00X0R90

OSC/PLL

XOUT24M

XIN24M

PLL_AVDD_0V8

PLL_AVDD_1V8

Digital Power of PMUIO0&PMUIO1

PMUIO_VDD_0V8

PMUIO_VDD_1V8

PMUIO0 Domain

TVSS

REFOR u

GPIO0_A0 d

GPIO0_A1 z

CLKI CLK0 32K

SDMMC0_DET

SPI0_CSIn M0

SPI0_CS0n M0

SPI0_MOSI M0

SPI0_MISO M0

SPI0_CLK M0

GPIO0_A2 z

GPIO0_A3 u

GPIO0_A4 u

GPIO0_A5 u

GPIO0_A6 d

GPIO0_A7 d

GPIO0_B0 d

PMUIO0_VDD

PMUIO1 Domain

PMIC INT

PMIC_SLEEP

FLASH_VOL_SEL

I2C0_SCL

I2C0_SDA

UART1_TX M0

UART1_RX M0

SDMMC0_PWR

USB_CTRL

PMU_DEBUG

UART1_RTSN M0

UART1_CTSN M0

I2C2_SCL

I2C2_SDA

PWM0 M0

PWM1 M0

PWM2 M0

PWM3 IR M0

PWM4 M0

PWM5 M0

GPIO0_B1 d

GPIO0_B2 d

GPIO0_B3 d

GPIO0_B4 d

GPIO0_B5 d

GPIO0_B6 d

GPIO0_B7 d

GPIO0_C0 d

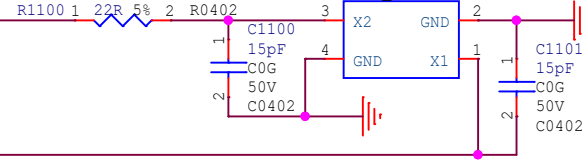
GPIO0_C1 d

GPIO0_C2 d

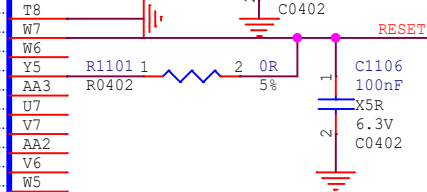
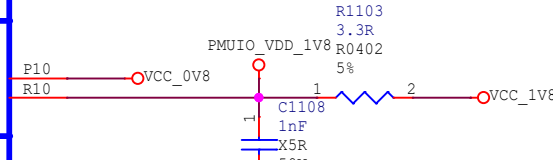
GPIO0_C3 d

PMUIO1_VDD

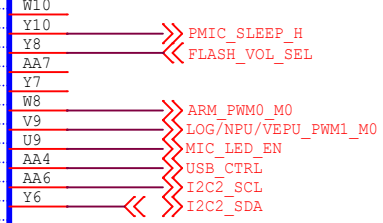
Y1100
24MHz
CRY4 3R20X2R50X0R80



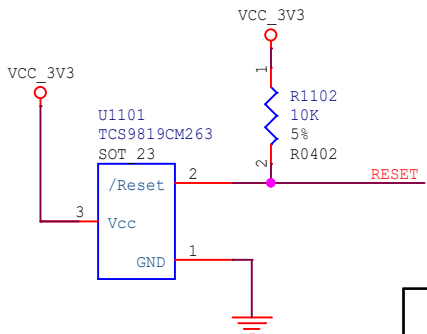
P11 VCC_0V8
R11 VCC_1V8




R9 VCC_3V3



NOTE:
GPIO0_B3/FLASH_VOL_SEL pin
defined as a set pin for VCCIO1 voltage
domain after power-on reset. It is pull-up for 1.8V.
It is float for 3.3V.



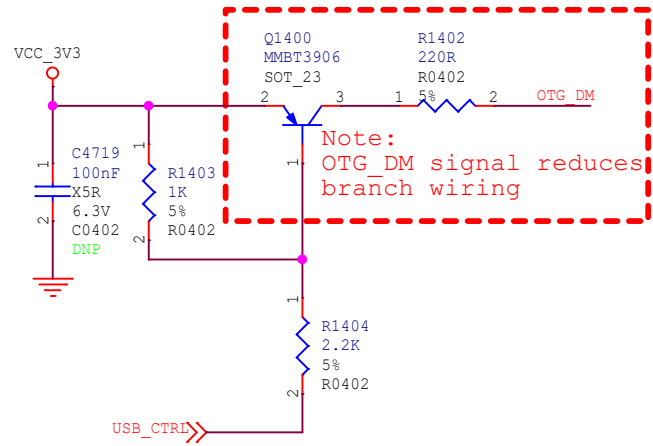
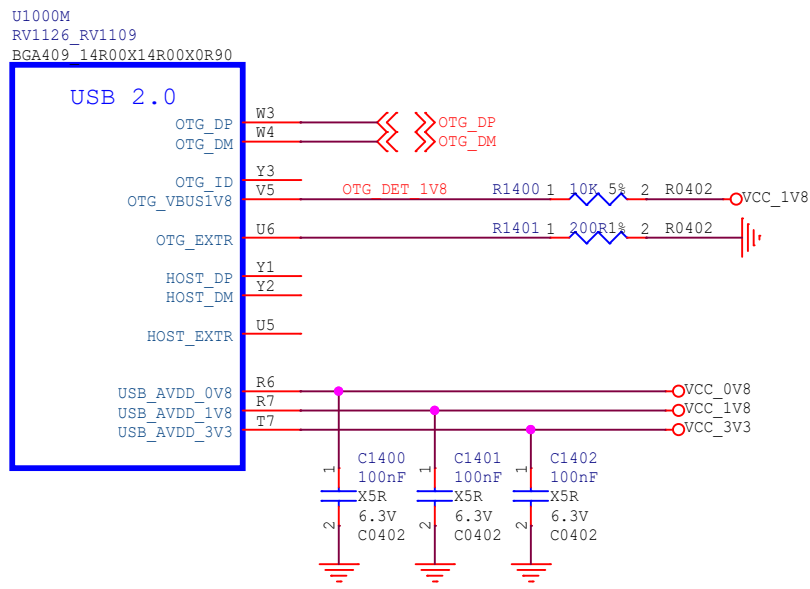
RESET IC


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Project:	RV1126_RV1109 AI Camera		
File:	11.RV1126/1109_OSC/PLL/PMUIO		
Date:	Thursday, October 29, 2020		Rev: V1.3
Designed by:	whb	Reviewed by:	Sheet: 9 of 28

U1000A
RV1126_RV1109
BGA409_14R00X14R00X0R90



USB Controller





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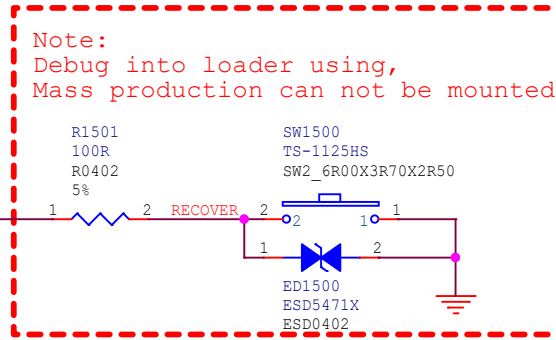
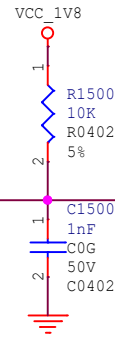
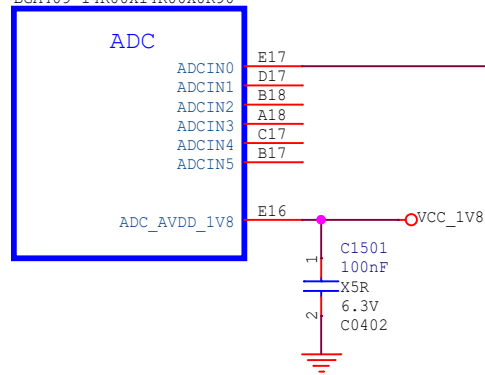
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Project:	RV1126_RV1109 AI Camera		
File:	14.RV1126/1109_USB Controller		
Date:	Thursday, October 29, 2020		Rev: V1.3
Designed by:	whb	Reviewed by:	Sheet: 12 of 28

SARADC

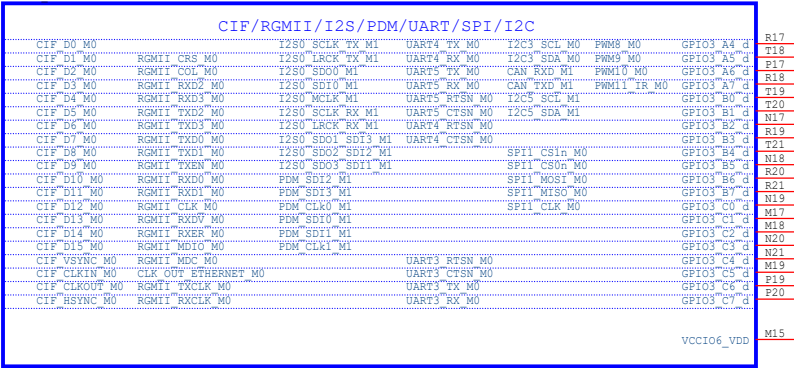
U1000C
RV1126_RV1109
BGA409_14R00X14R00X0R90



 瑞芯微电子		Rockchip Electronics Co., Ltd	
Project:	RV1126_RV1109 AI Camera		
File:	15.RV1126/1109_SARADC		
Date:	Thursday, October 29, 2020		Rev: V1.3
Designed by:	whb	Reviewed by:	Sheet: 13 of 28

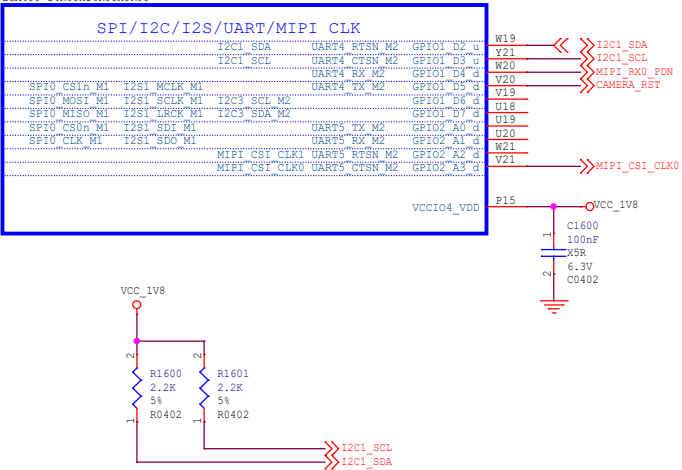
CIF Interface

U1000F
RV1126_RV1109
BGA409_14R00X14R00X0R90



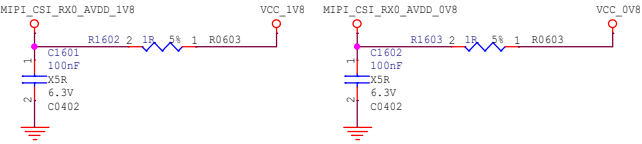
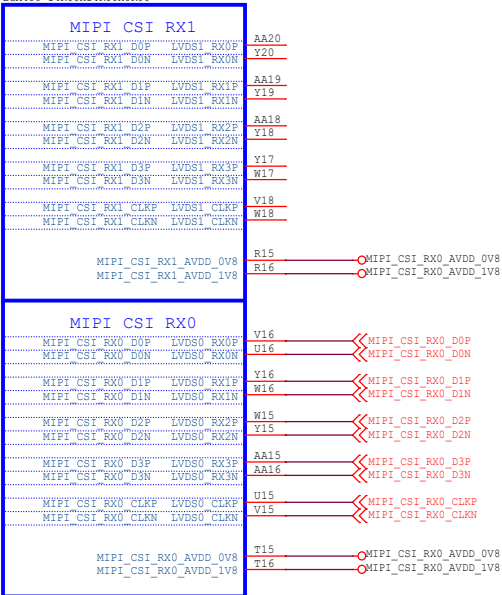
I2C/SPI/MIPI-CLK

U1000G
RV1126_RV1109
BGA409_14R00X14R00X0R90



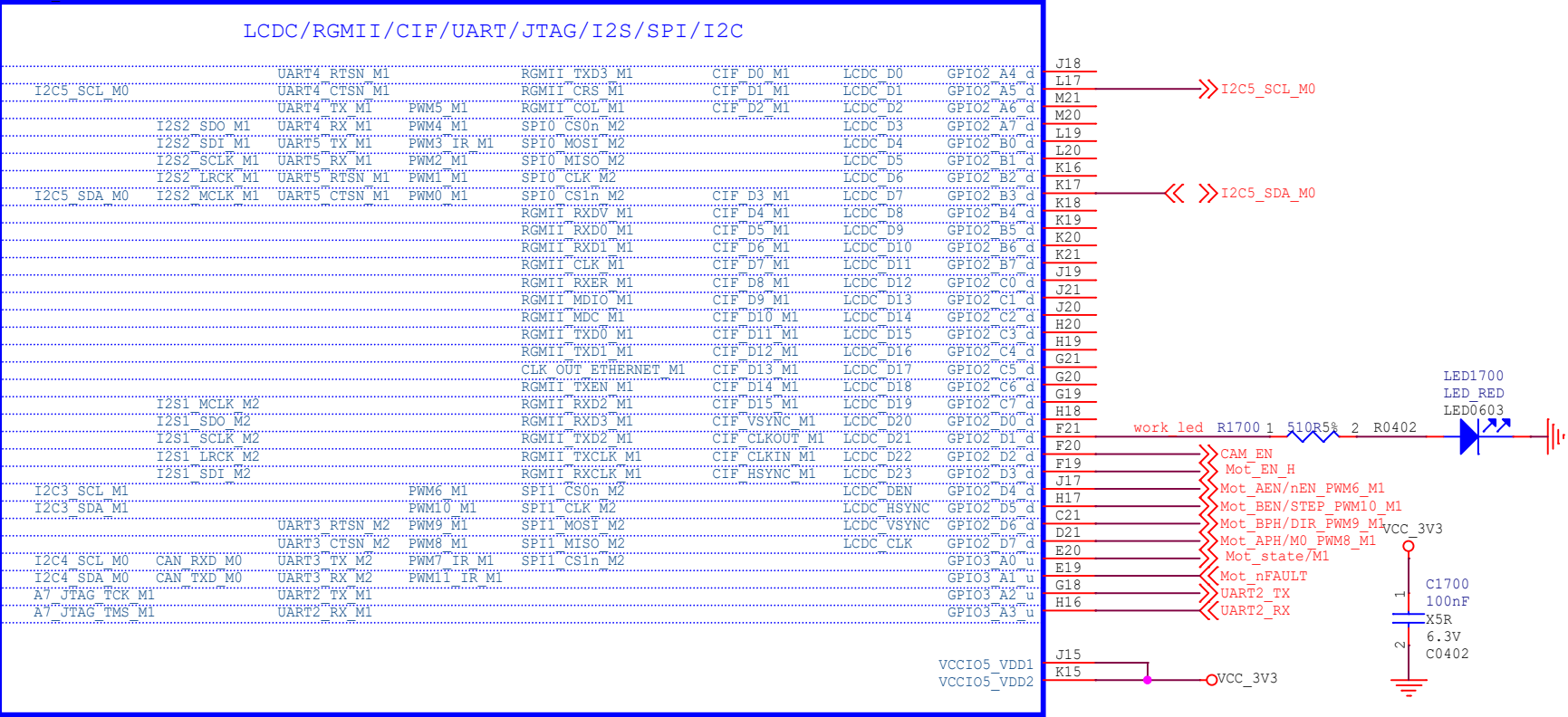
MIPI-CSI Interface

U1000H
RV1126_RV1109
BGA409_14R00X14R00X0R90



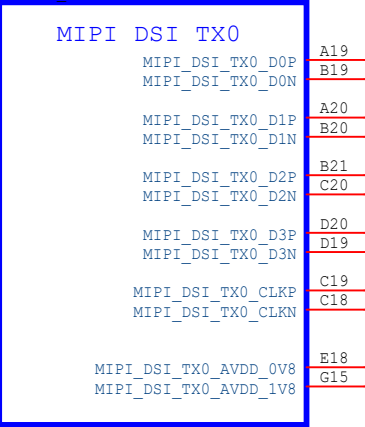
LCDC/RGMII/PWM

U1000E
RV1126_RV1109
BGA409 14R00X14R00X0R90



MIPI-DSI Interface

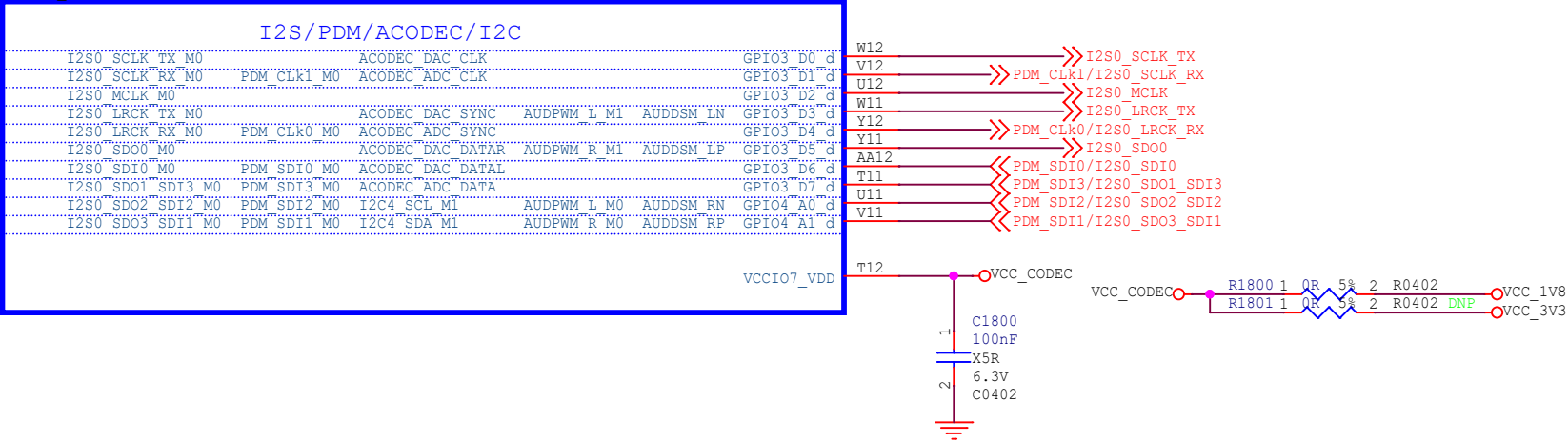
U1000D
RV1126_RV1109
BGA409 14R00X14R00X0R90



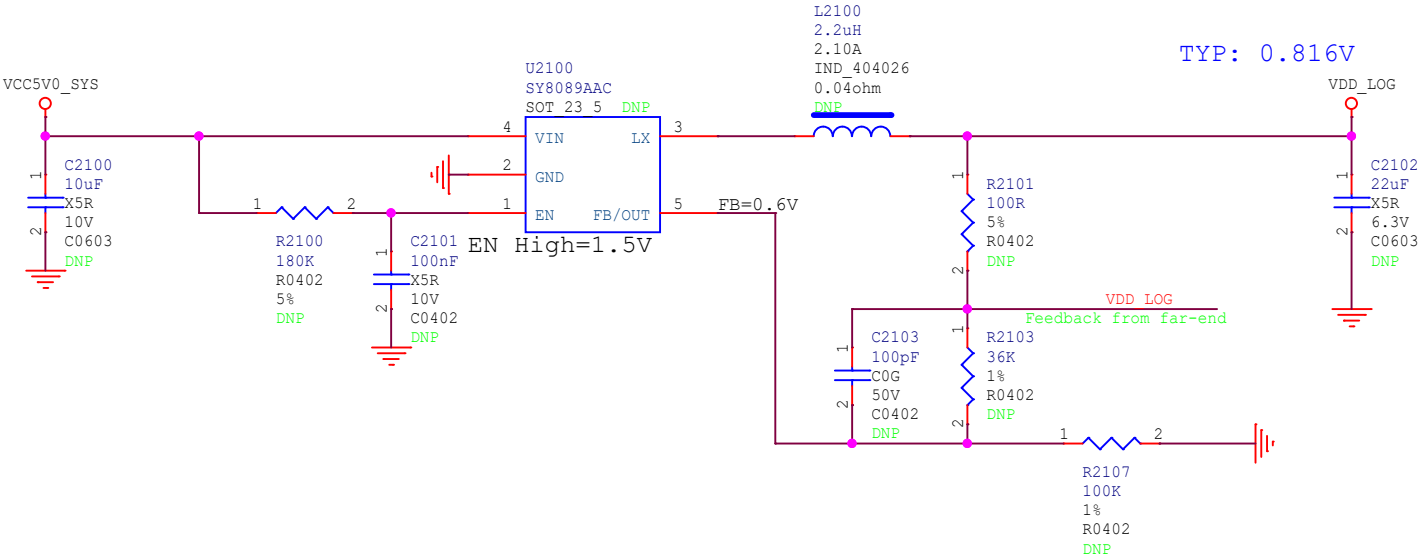
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Project:	RV1126_RV1109 AI Camera		
File:	17.RV1126/1109_VideoOutput		
Date:	Thursday, October 29, 2020	Rev:	V1.3
Designed by:	whb	Reviewed by:	
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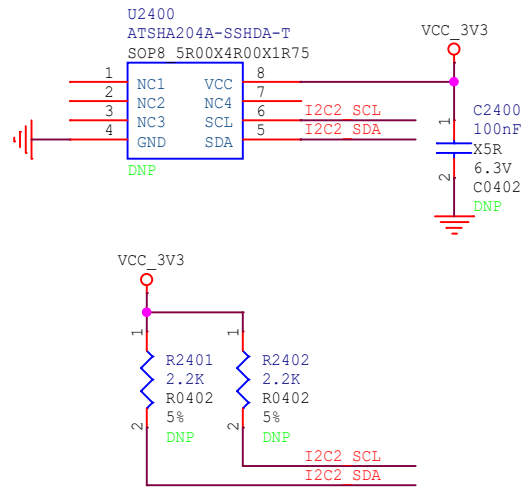
Audio Interface

U1000J
RV1126 RV1109
BGA409_14R00X14R00X0R90



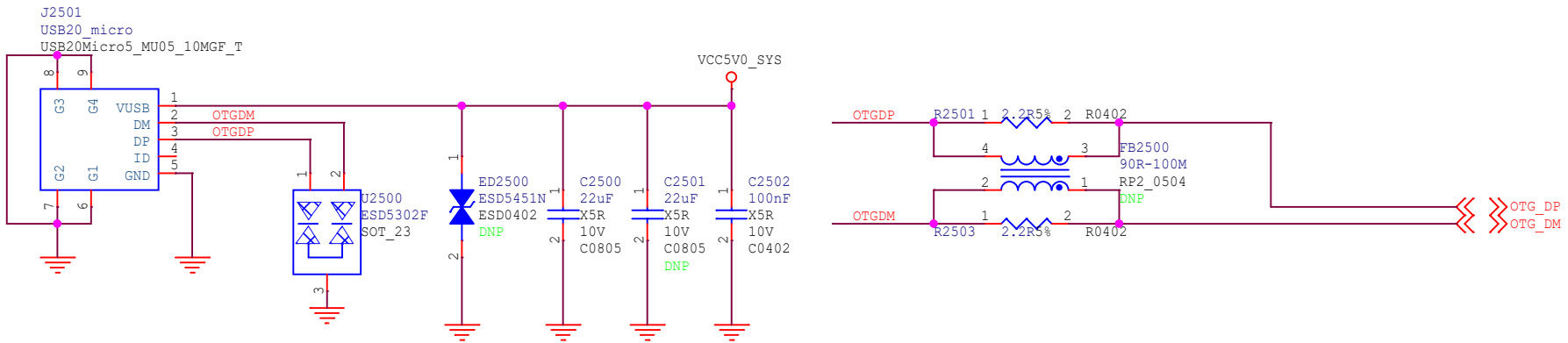
VDD_LOG



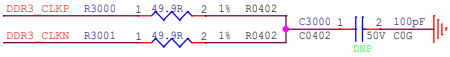
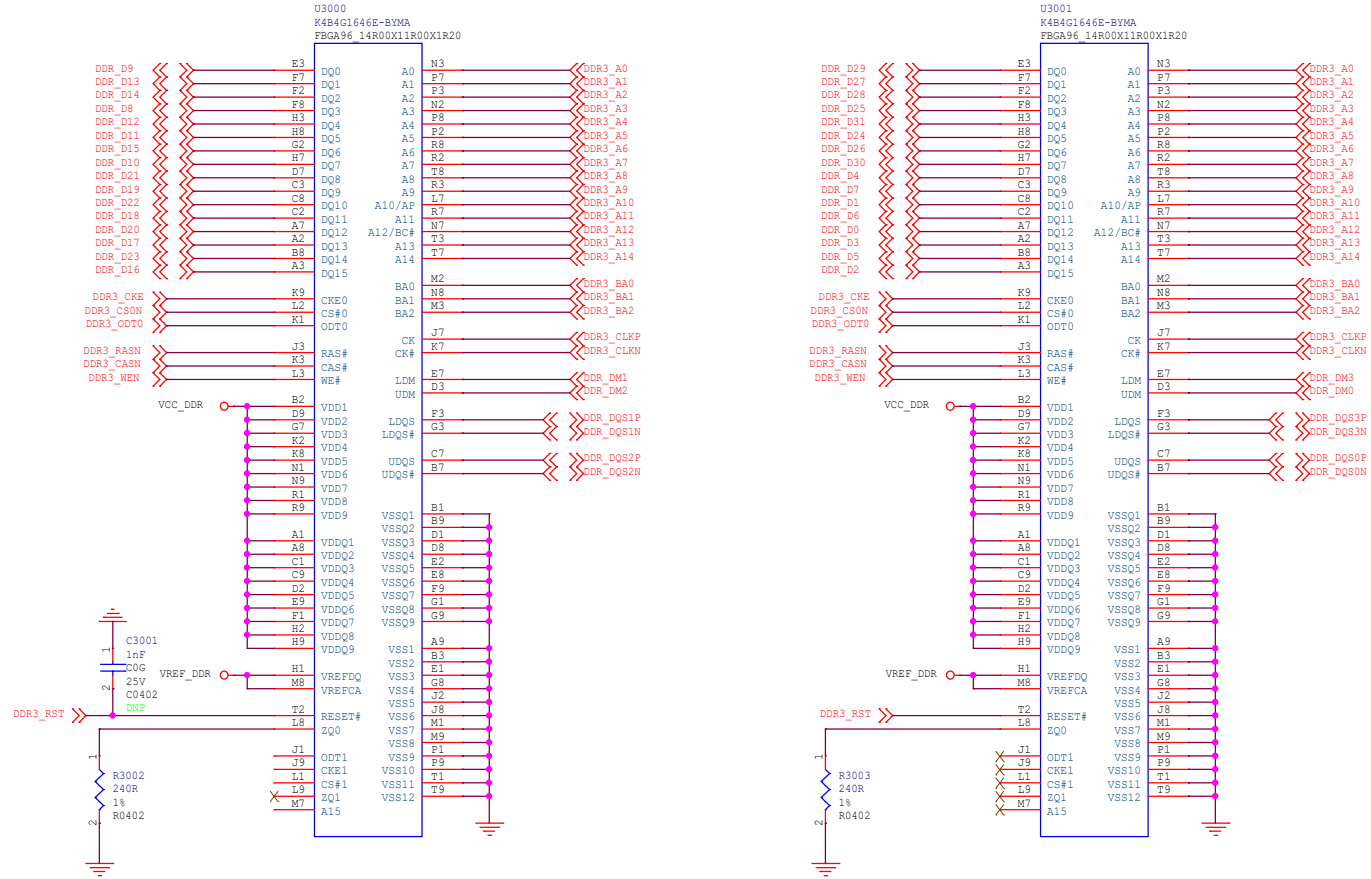


I2C2_SDA << >>
I2C2_SCL << >>

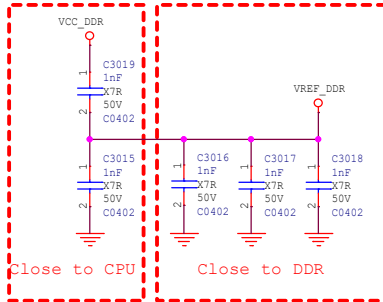
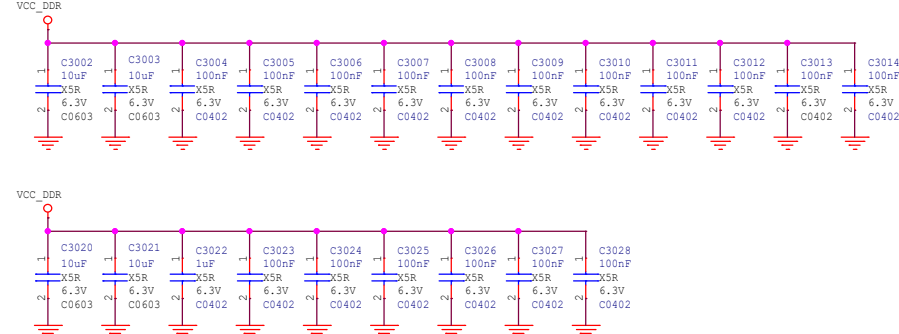
J2501
USB20_micro
USB20Micro5_MU05_10MGF_T



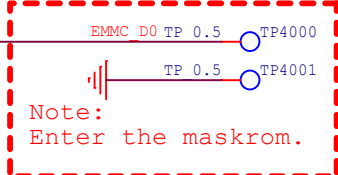
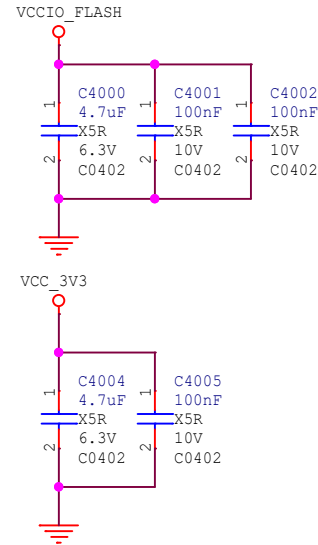
DDR3/DDR3L 2x16bit



Note: All the Power filter capacitors should be placed close to the power pins of DDR3



A



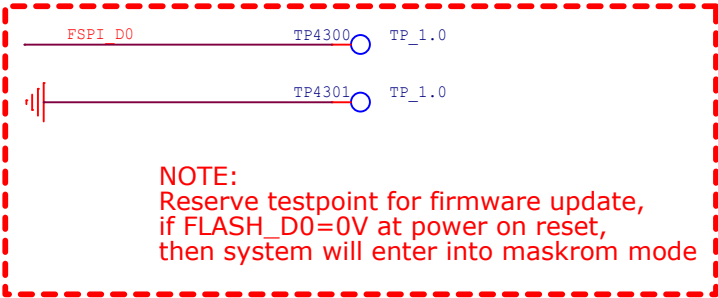
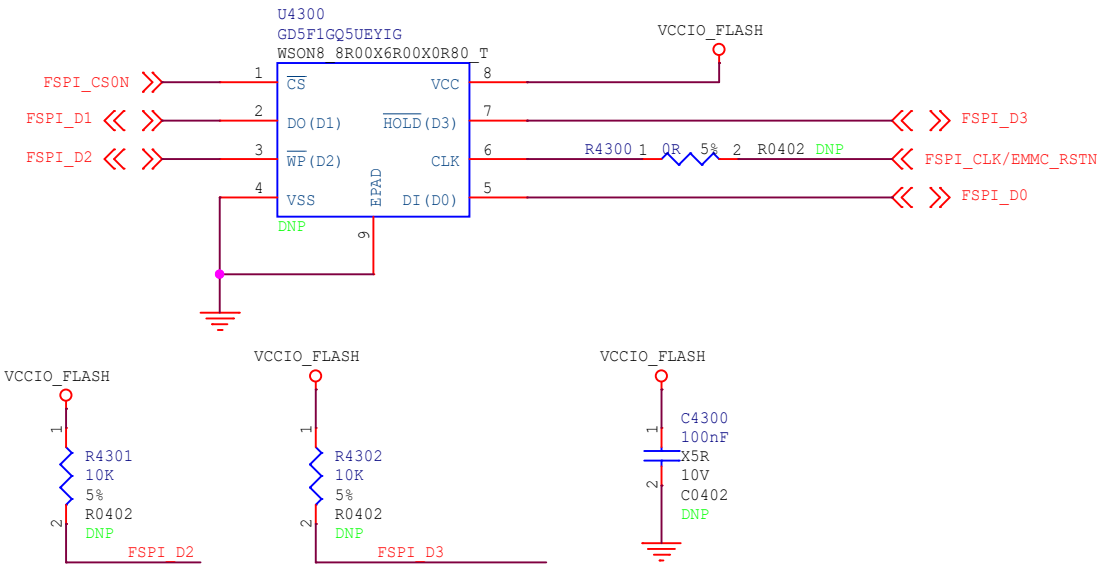
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Project:	RV1126_RV1109 AI Camera		
File:	40.Flash-eMMC Flash		
Date:	Thursday, October 29, 2020	Rev:	V1.3
Designed by:	whb	Reviewed by:	Sheet: 22 of 28

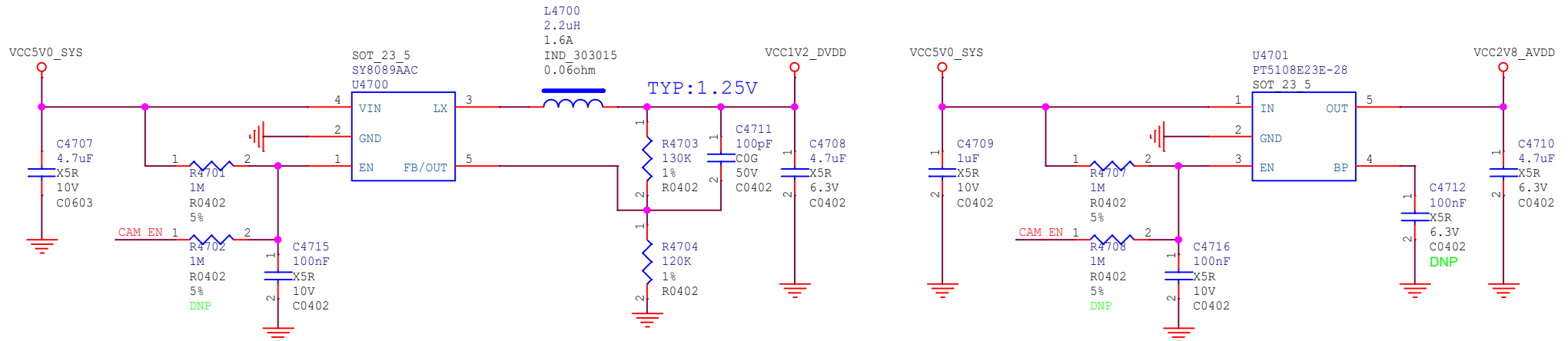
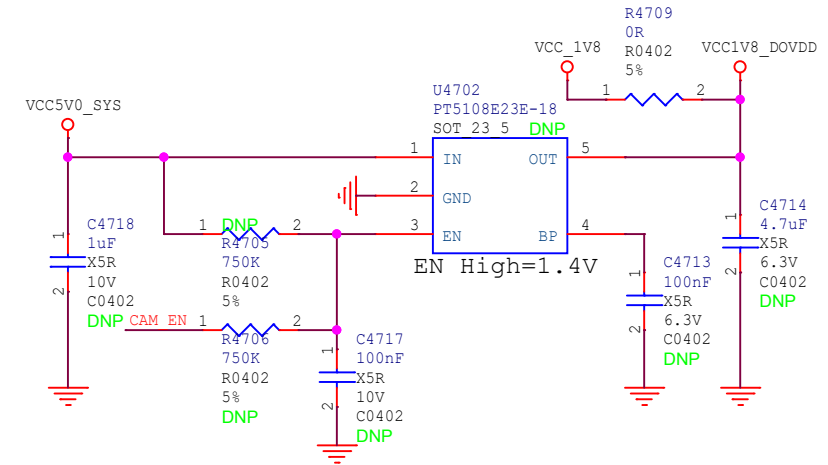
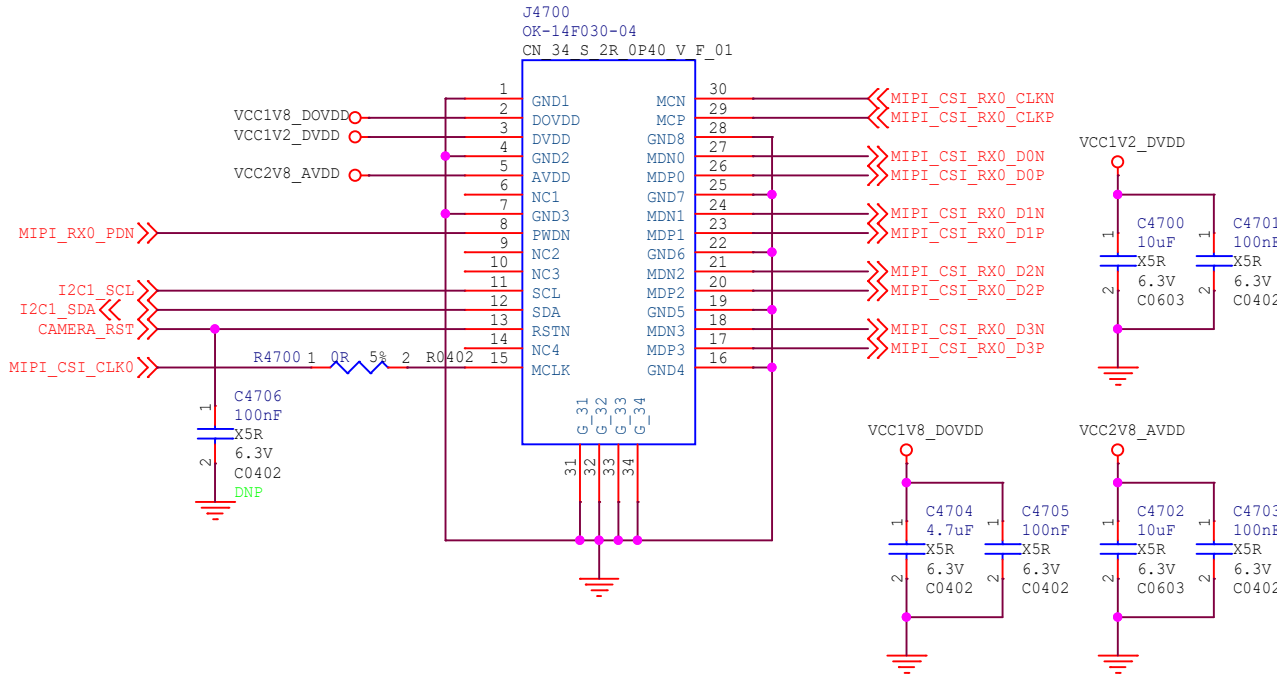
SPI Flash

NOTE:
Refer to the latest AVL for parts selection.




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Project:	RV1126_RV1109 AI Camera		
File:	43.Flash-SPI Flash(option)		
Date:	Friday, October 30, 2020		Rev: V1.3
Designed by:	whb	Reviewed by:	Sheet: 23 of 28

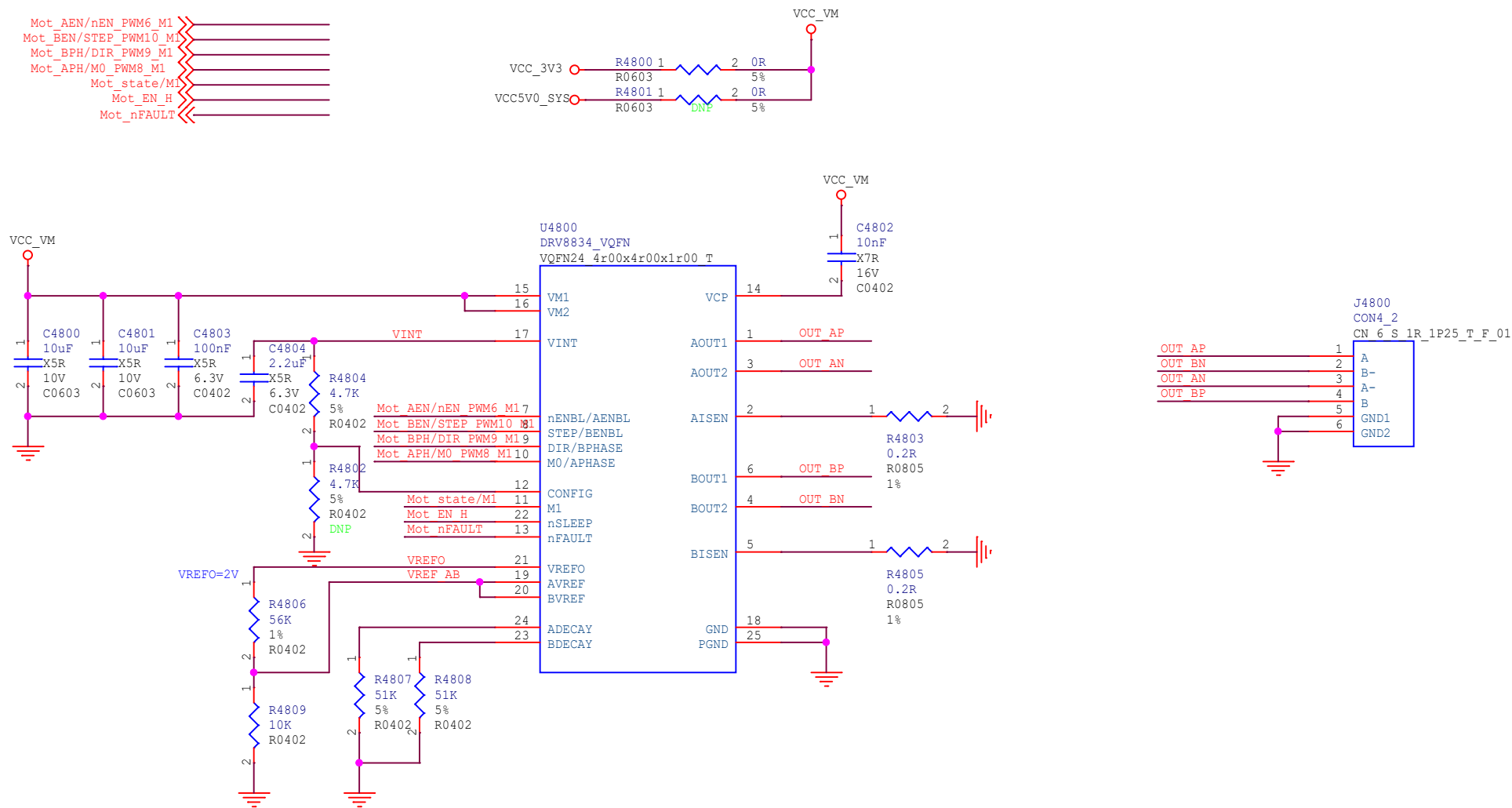
MIPI-CSI_RX0 Interface

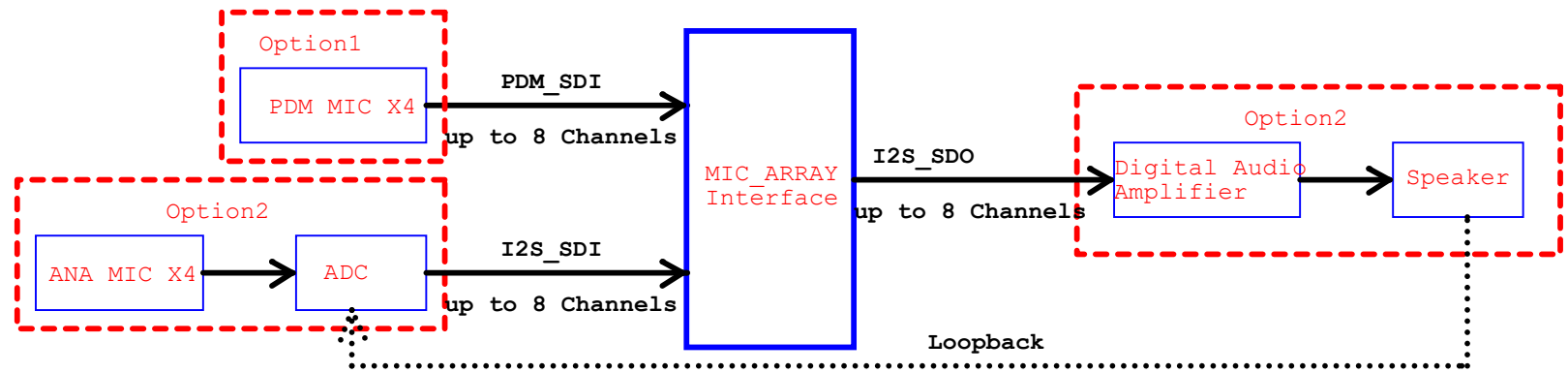
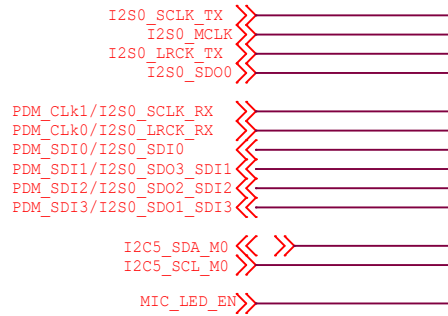


Note:
The power-on timing needs to be adjusted according to the actual camera module used
Default power-on timing:
VCC1V8_D0VDD-->VCC1V2_DVDD/VCC2V8_AVDD

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Project:	RV1126_RV1109 AI Camera		
File:	47.VI-Camera_MIPI-CSI		
Date:	Thursday, November 05, 2020		Rev: V1.3
Designed by:	whb	Reviewed by:	Sheet: 24 of 28

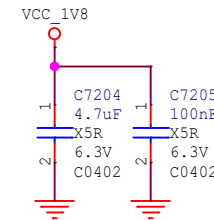
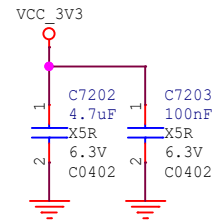
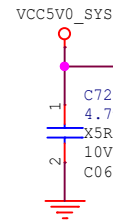
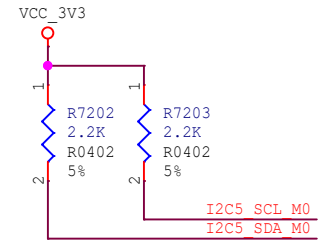
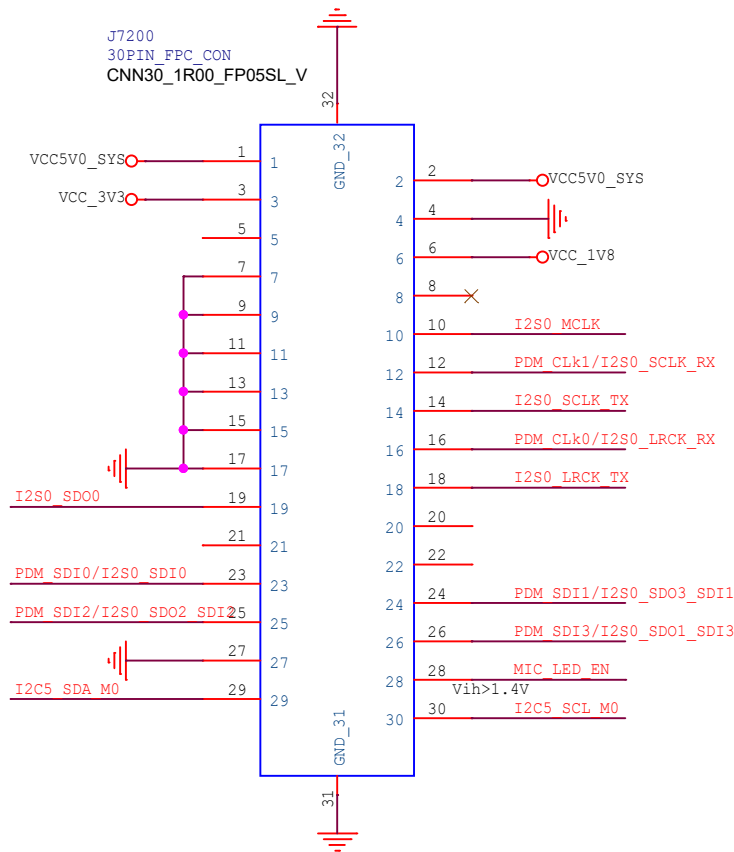
Iris Zoom Focus driver






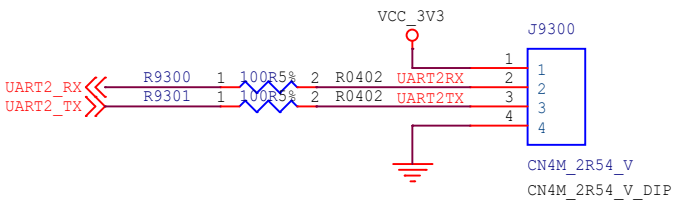
NOTE:
MIC support mode PDM or I2S

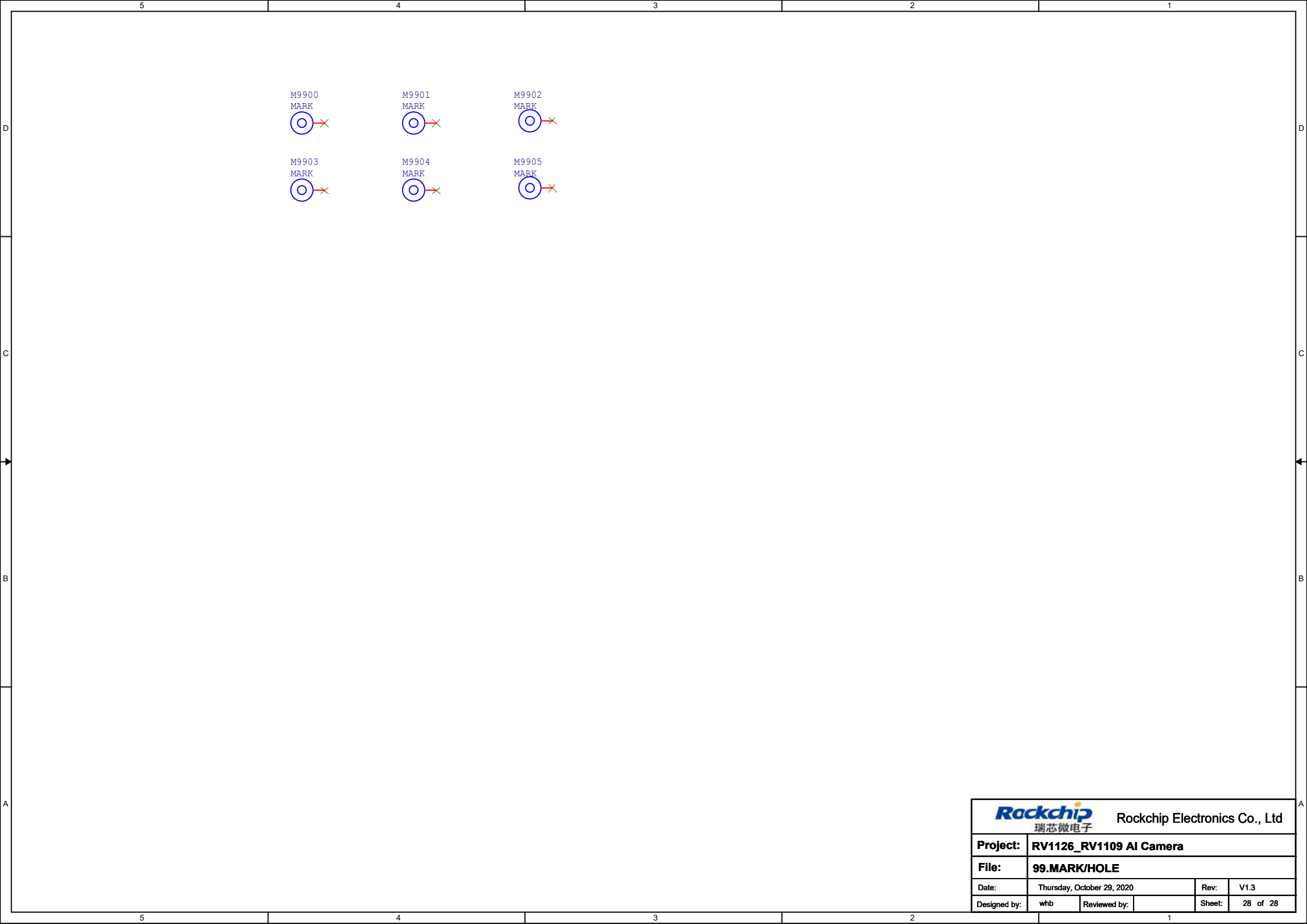
MIC_ARRAY Interface




 瑞芯微电子		Rockchip Electronics Co., Ltd	
Project:	RV1126_RV1109 AI Camera		
File:	72.MIC Array Interface(option)		
Date:	Thursday, October 29, 2020		Rev: V1.3
Designed by:	whb	Reviewed by:	
		Sheet:	26 of 28

Debug UART2





 瑞芯微电子		Rockchip Electronics Co., Ltd	
Project:	RV1126_RV1109 AI Camera		
File:	99.MARK/HOLE		
Date:	Thursday, October 29, 2020		Rev: V1.3
Designed by:	whb	Reviewed by:	Sheet: 28 of 28