

Demo Board For RV1126&RV1109

RV1126&1109 _IPC38_DEMO_MB_V1.21

RV1126_RV1109 Main difference		
	RV1126	RV1109
CPU	Quad A7	Dual A7
NPU	2.0Tops	1.2Tops
ISP	14M Pixel	5M Pixel

Reference Design Main Functions Introduction	
Power	4DCDC+3LDO
RAM	SPI FLASH
ROM	DDR3L/DDR3
Interface	SDMMC0/SDIO/MAC/MIPI_DSI/MIPI_CSI0/ I2S/USB/ADC

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Project:	RV1126&1109 IPC38 MB		
File:	00.Cover Page		
Date:	Friday, February 05, 2021		Rev: V1.2
Designed by:	Linus.Lin	Reviewed by:	<Checker> Sheet: 1 of 27

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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

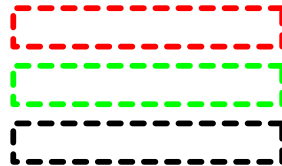
Header:

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

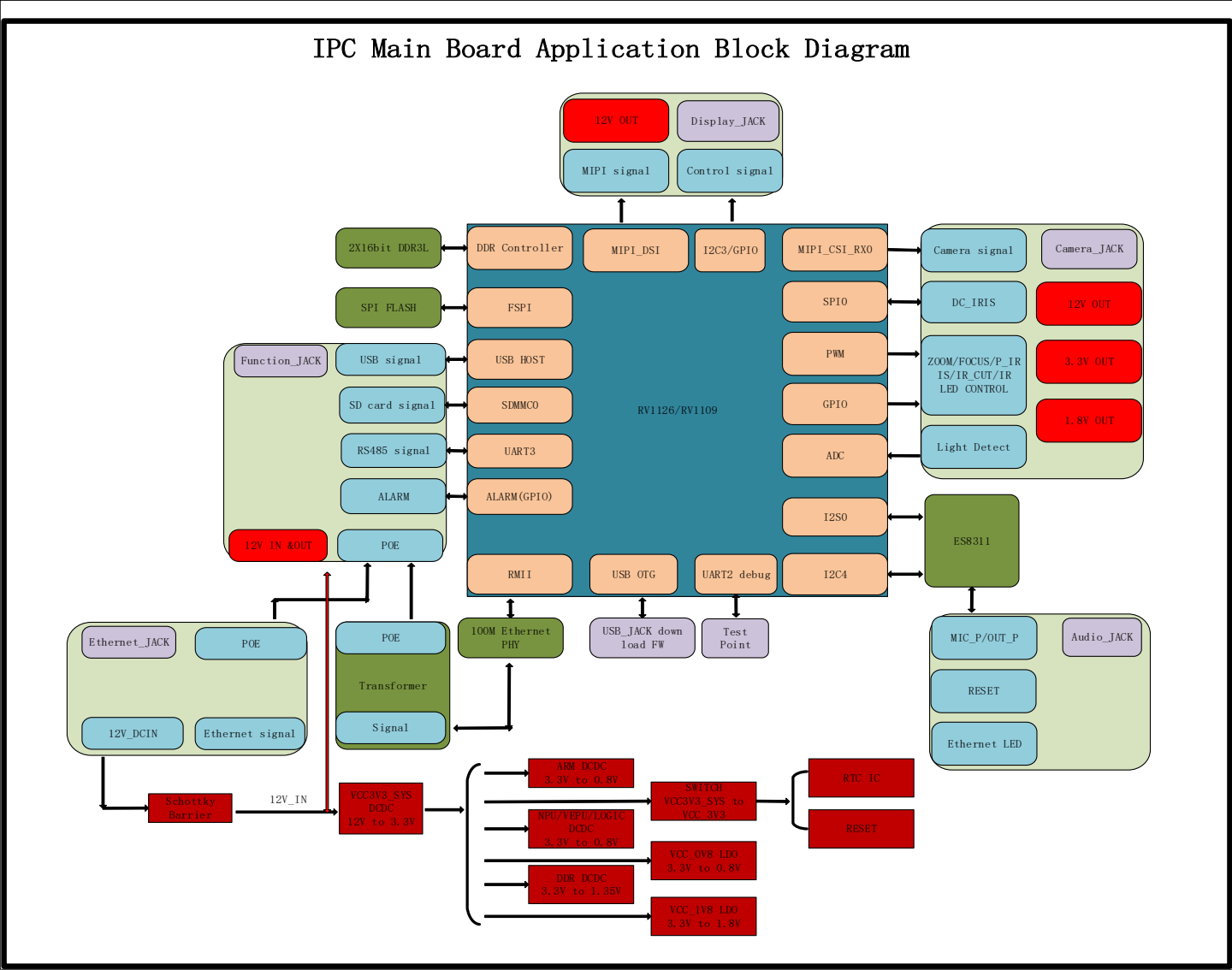
Revision History

Version	Date	Author	Change Note	Approved
V1.0	2020.05.11	Liyh	First edition	
V1.1	2020.06.18	LinXu		
V1.11	2020.07.24	LinXu	1.Change PCB decal of J6800; 2.R1103 is mount;	
V1.12	2020.08.31	LinXu	1.Add I2C0 pull-up resistor R1105/R1106; 2.Add R1000; 3.Add R1602/R1603/R1604; 4.Change U2002 to TCS9819-CM263 5.Add description of RESET; 6.Delete ED4200/ED4201; 7.R7000 connect to VCC3V3_MICBIAS; 8.Delete R7006; 9.Add R7008 and connection of Factory; 10.R7000 pin1 connect to VCC_3V3;	
V1.2	2020.11.13	LinXu	1.Increase R1107/C1107, modify the value of R1000/C1000; 2.Modify D2000 as a diode and increase current limiting resistor R2007; 3.Modify J4200 to 30pin, and adjust the signal sequence; 4.Delete J7000 and merge the audio signal with J4200; 5.Modify J6800 to 8pin; 6.Add ADCIN2 to KEY_SET connection; 7.Modify R1700/R1701 to 1k; 8.Remove resistor R6800;	
V1.21	2021.02.05	LinXu	1.Change U2002 from TCS9819-CM263 to TCS9819-CM293; 2.Change R2114 from 750K to 510K; 3.Change R2127 from 510K to 750K; 4.Change R2131 from 36K to 180K; 5.Change C4300 from 4.7uF to 10uF; 6.Modify part value of U2000/U2103; 6.Modify description of "Power Diagram and Sequence";	

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Block Diagram



Power Diagram and Sequence

ETA3446
3A,<0.1uA shutdown

VDD_LOG/NPU/VEPU

VDD of LOG

VDD of NPU

VDD of VEPU

SY8089AAC
2A,<1uA shutdown

VDD_ARM

VDD of ARM

SY8089AAC
2A,<1uA shutdown

VCC_DDR

VDD of DDR-Ctrl

VDD/VDDQ of DDR3 Device

LP3983SAB5F
ADJ/400mA
<1uA shutdown

VCC_0V8

VDD of PMUIO

AVDD of OSC/PLL

AVDD of USB PHY

AVDD of MIPI PHY

PT5108E23E-18
1.8V/500mA
<0.1uA shutdown

VCC_1V8

VCC of PMUIO/VCCIO1~7

VCCIO of VCCIO4

AVDD of OSC/PLL

AVDD of USB PHY

AVDD of SARADC

AVDD of MIPI PHY

TCS9163

VCC_3V3

VCCIO of PMUIO

VCCIO of VCCIO2/VCCIO5/VCCIO6/VCCIO7

VCCIO of FLASH Ctrl

VCC of SPI FLASH

AVDD of USB PHY

VCC of RTC

VCC of Ethernet PHY

VCC of CODEC

ETA8120
2A,<5uA shutdown

VCC3V3_SYS

Adapter
12V/2A

RV1126/RV1109 Power-on Sequence

Power Name	PMIC Channel	Time Slot	Default voltage	Supply Limit	Peak Current
VCC 0V8	LDO	Slot: 1	0.8V	0.4A	
VDD LOGIC/NPU/VEPU	DC-DC BUCK	Slot: 2	0.825V	3A	2922mA
VDD ARM	DC-DC BUCK	Slot: 2	0.824V	2A	542mA
VCC 1V8	LDO	Slot: 3	1.8V	0.5A	
VCC DDR	DC-DC BUCK	Slot: 4	1.35V	2A	665mA
VCC 3V3	LDO	Slot: 5	3.3V	0.5A	
RESET	Finally send out the reset signal, depending on RESET IC				

RESET

VCC3V3_SYS

VCC_0V8

VDD_LOGIC/NPU/VEPU

VDD_ARM

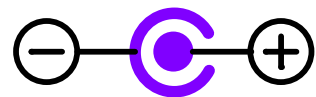
VCC_1V8


VCC_DDR

VCC_3V3

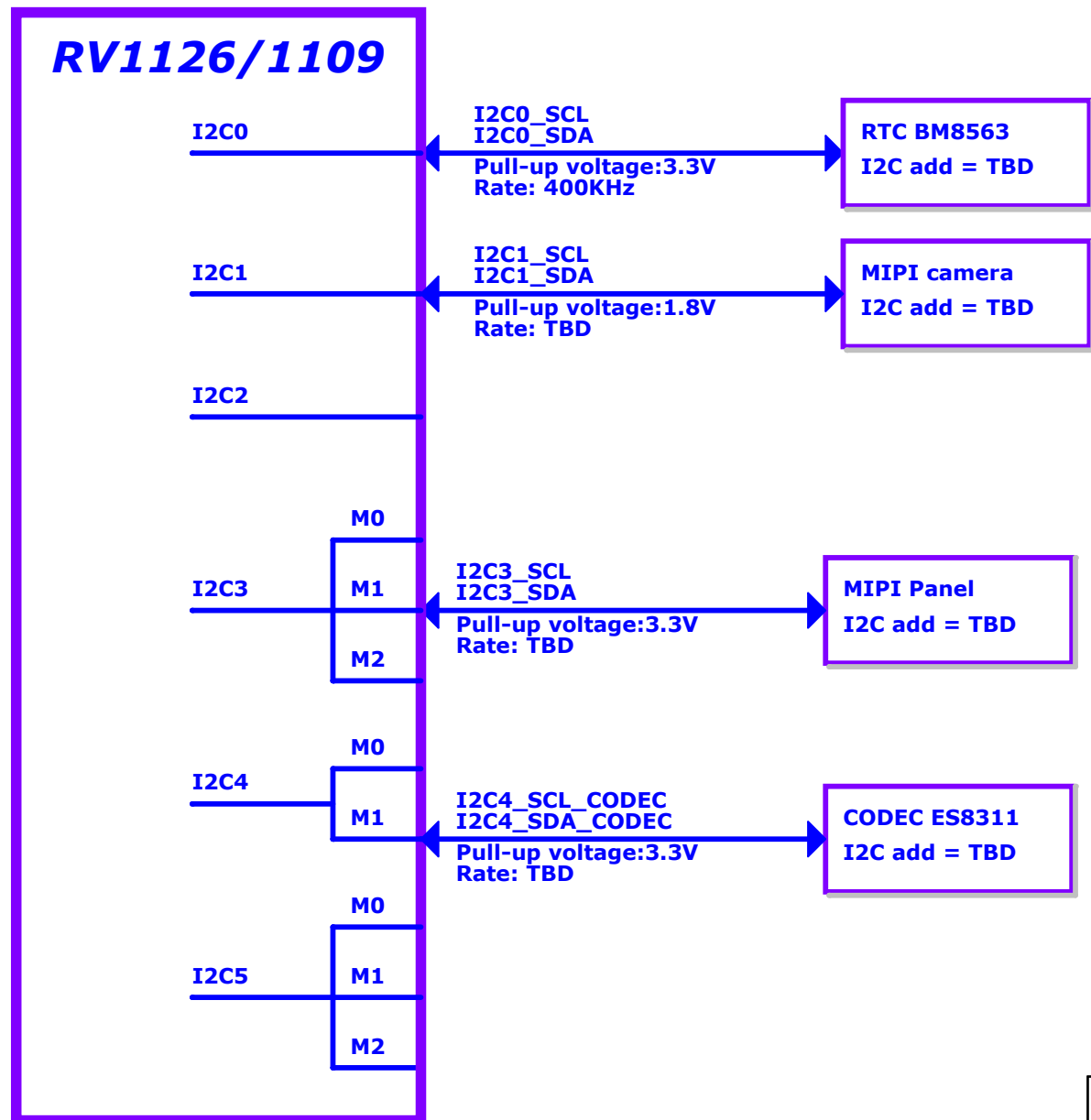
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File:	04.Power Diagram and Sequence				
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Designed by:	LinXu	Reviewed by:	<Checker>	Sheet:	5 of 27

Timing diagram showing the sequence of power-up events for the i.MX6UL. The signals are: RESET, VCC3V3_SYS, VCC_0V8, VDD_LOGIC/NPU/VEPU, VDD_ARM, VCC_1V8, VCC_DDR, and VCC_3V3. The diagram shows that VCC3V3_SYS and VCC_0V8 rise first, followed by VDD_LOGIC/NPU/VEPU, VDD_ARM, VCC_1V8, VCC_DDR, and finally VCC_3V3. The RESET signal is active low and transitions from high to low at the beginning of the sequence.



 <div style="display: inline-block; vertical-align: middle; margin-left: 10px;"> Fuzhou Rockchip Electronics 瑞芯微电子 </div>	
Project:	RV1126&1109 IPC38 MB
File:	04.Power Diagram and Sequence
Date:	Friday, February 05, 2021
Rev:	V1.21
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I2C MAP



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 part voltage domain after power-on reset.It is pull-up for 1.8V</i>
VCCIO2	<i>GPIO1AB</i>	✓	✓	VCC_3V3		3.3V	
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>	✓	✓	VCC_3V3		3.3V	
VCCIO7	<i>GPIO3D/GPIO4A</i>	✓	✓	VCC_3V3		3.3V	

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File:	06.IO Power Domain Map		
Date:	Friday, February 05, 2021		Rev: V1.2
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Power

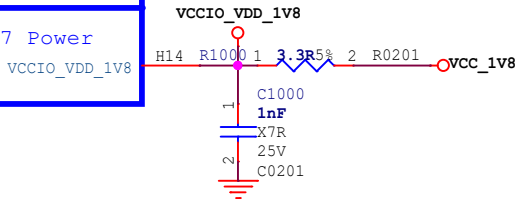
GND

U1000N
RV1126&RV1109
BGA409 14R00X14R00X0R90

NPU/LOGIC/VEPU/ARM Power

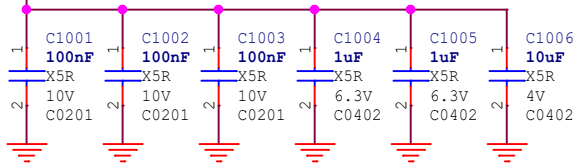


Supply for VCCIO1~7 Power



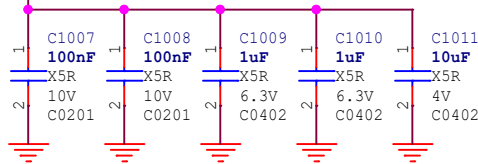
VDD_NPU_VEPU_LOGIC

For NPU



VDD_NPU_VEPU_LOGIC

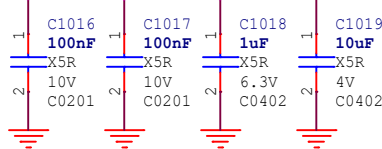
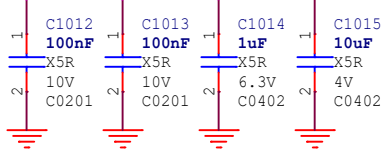
For LOGIC



VDD_ARM

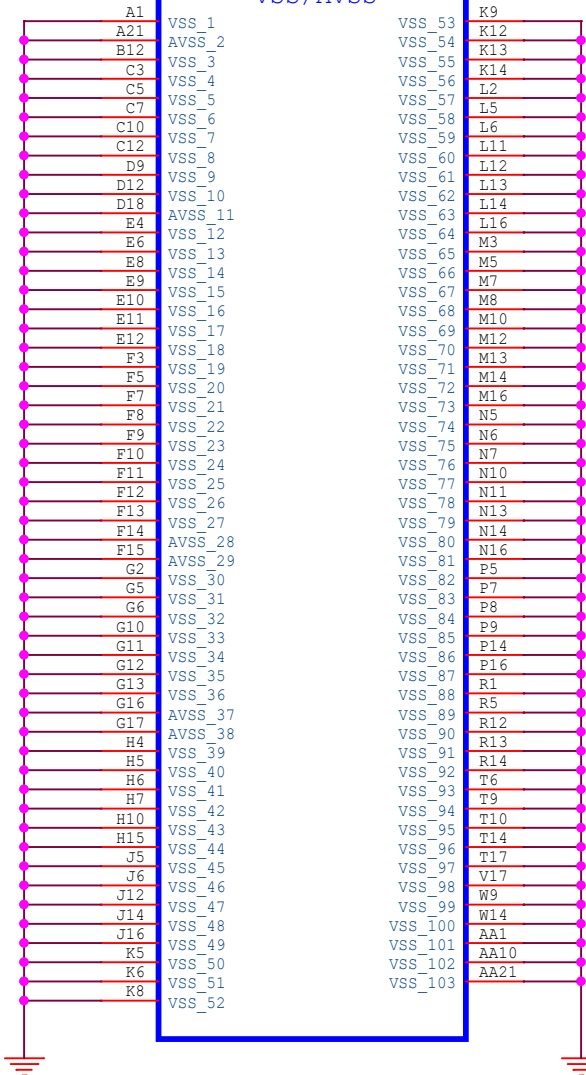
VDD_NPU_VEPU_LOGIC


For VEPU



U10000
RV1126&RV1109
BGA409 14R00X14R00X0R90

VSS/AVSS



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File:	10.RV1126&RV1109_Power/GND					
Date:	Friday, February 05, 2021				Rev:	V1.2
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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	GPIO0_B0_d	GPIO0_B0_d
GPIO0_A0_d	GPIO0_A0_d	GPIO0_A0_d
CLK REF	GPIO0_A1_z	GPIO0_A1_z
TSADC SHUT M0	GPIO0_A2_z	GPIO0_A2_z
TSADC SHUTORG	GPIO0_A3_u	GPIO0_A3_u
CLKI CLK0 32K	GPIO0_A4_u	GPIO0_A4_u
SDMMC0_DET	GPIO0_A5_u	GPIO0_A5_u
SPI0_CS1n M0	GPIO0_A6_d	GPIO0_A6_d
SPI0_CS0n M0	GPIO0_A7_d	GPIO0_A7_d
SPI0_MOSI M0	GPIO0_B0_d	GPIO0_B0_d
SPI0_MISO M0	GPIO0_B0_d	GPIO0_B0_d
SPI0_CLK M0	GPIO0_B0_d	GPIO0_B0_d

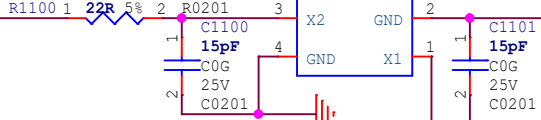
PMUIO0_VDD

PMUIO1 Domain

PMIC INT	PWM7_IR M0	GPIO0_B1_d	GPIO0_B1_d
TSADC SHUT MI	PWM6 M0	GPIO0_B2_d	GPIO0_B2_d
FLASH_VOL_SEL		GPIO0_B3_d	GPIO0_B3_d
I2C0_SCL		GPIO0_B4_u	GPIO0_B4_u
I2C0_SDA		GPIO0_B5_u	GPIO0_B5_u
UART1_TX M0	PWM0 M0	GPIO0_B6_d	GPIO0_B6_d
UART1_RX M0	PWM1 M0	GPIO0_B7_d	GPIO0_B7_d
SDMMC0_PWR	UART1_RTSN M0	GPIO0_C0_d	GPIO0_C0_d
USB_CTRL	PM0_DEBUG	GPIO0_C1_d	GPIO0_C1_d
I2C2_SCL	UART1_CTSN M0	GPIO0_C2_d	GPIO0_C2_d
I2C2_SDA	PWM4 M0	GPIO0_C3_d	GPIO0_C3_d
	PWM5 M0	GPIO0_C3_d	GPIO0_C3_d

PMUIO1_VDD

Y1100
24MHz
CRY4 3R20X2R50X0R80



VCC_0V8

VCC_1V8


PMUIO_VDD_1V8

VCC_1V8

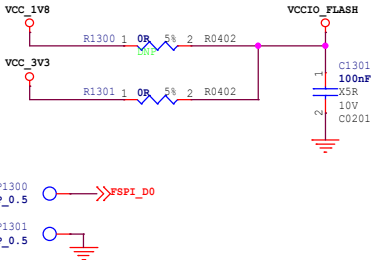
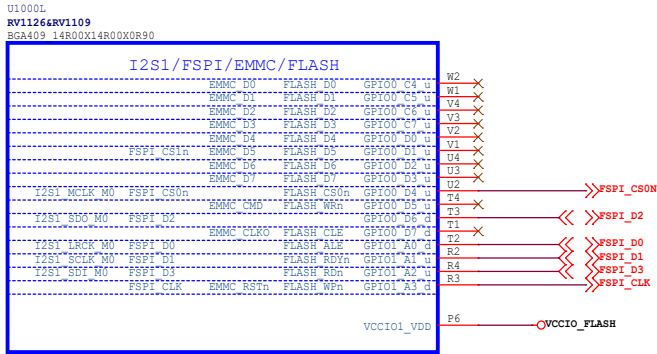
VCC_3V3

VCC_3V3

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

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File:	11.RV1126&RV1109_OSC/PLL/PMUIO		
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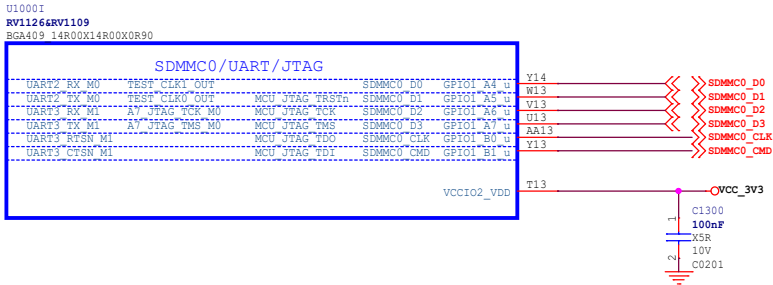
EMMC/FLASH



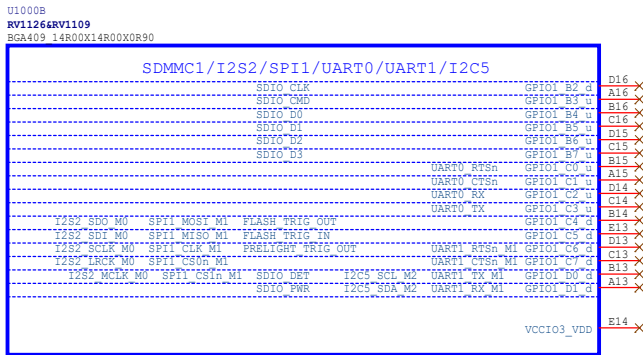
NOTE:
FLASH(VCCIO1) power domain IO supply configuration pin:

Condition	VCCIO1 (VCCIO_FLASH)
FLASH_VOL_SEL=0	3.3V Default
FLASH_VOL_SEL=1	1.8V

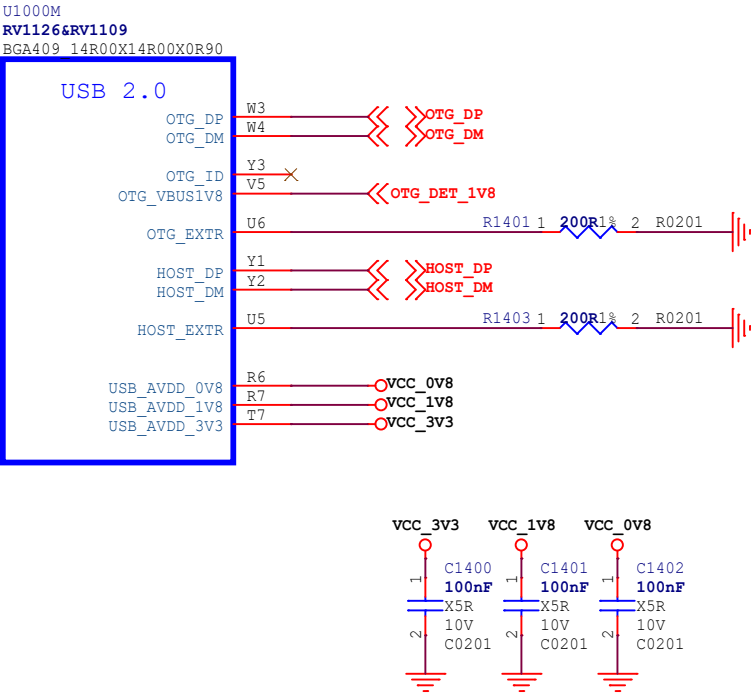
SDMMC0/JTAG




SDMMC1/UART/I2S2

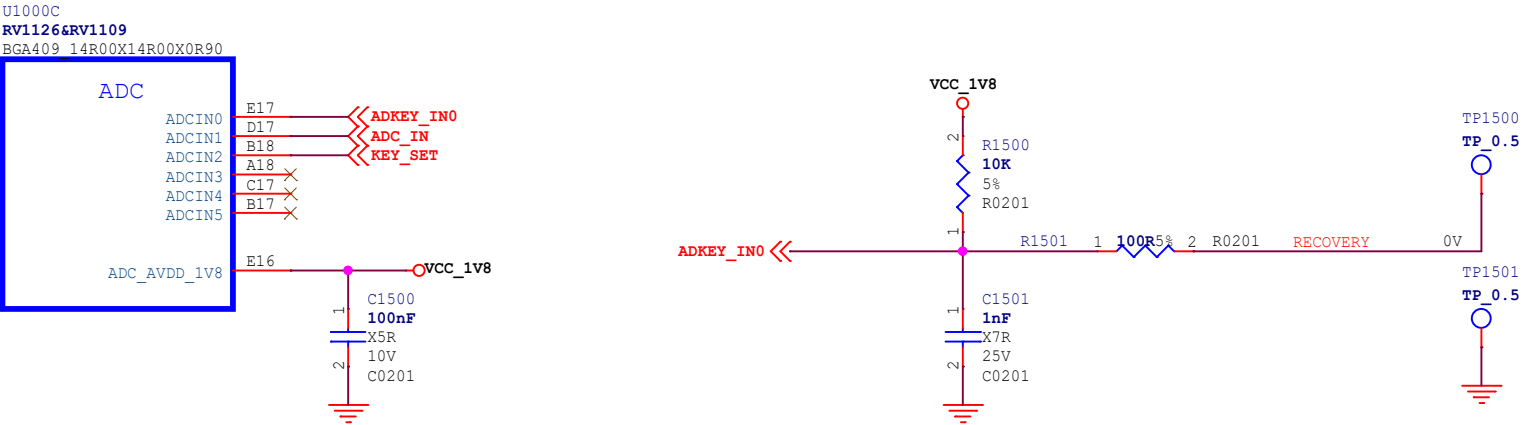



USB Controller



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File:	14.RV1126&RV1109_USB Controller		
Date:	Friday, February 05, 2021		Rev: V1.2
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SARADC



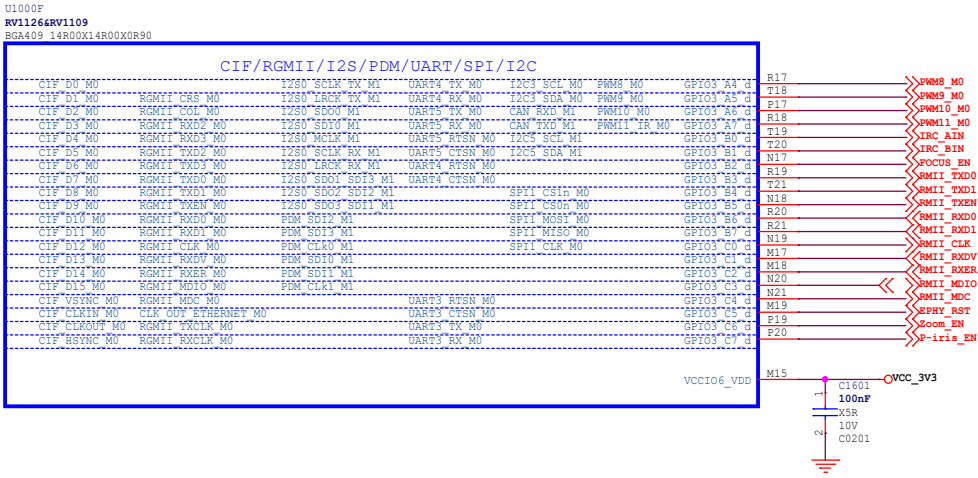


瑞芯微电子

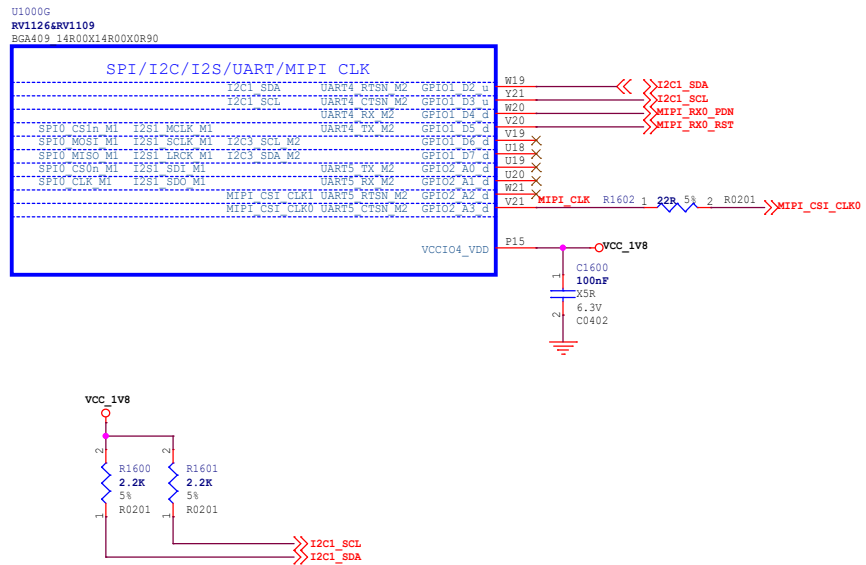
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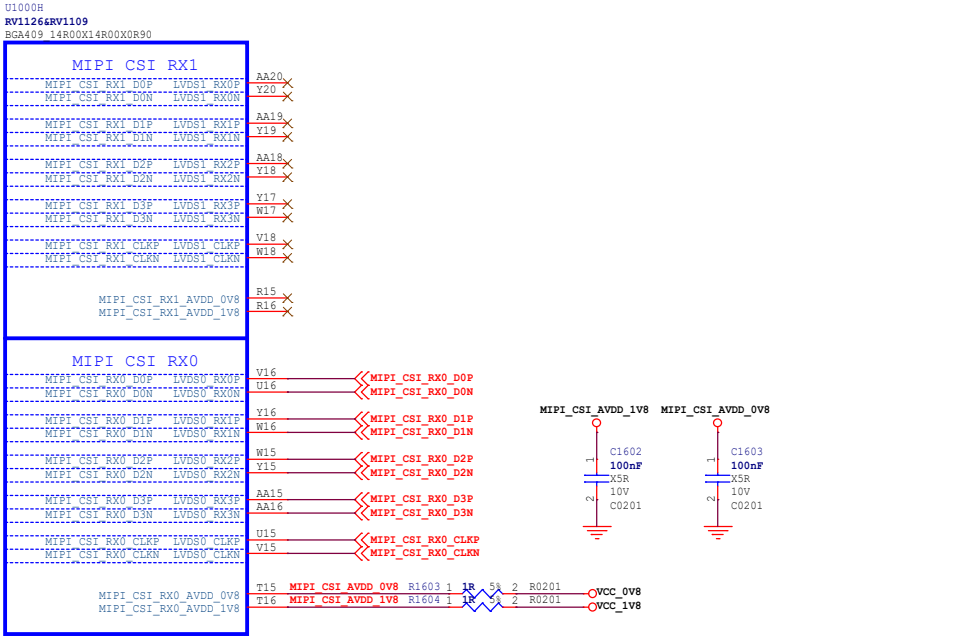
RGMII Interface



I2C/SPI/MIPI-CLK

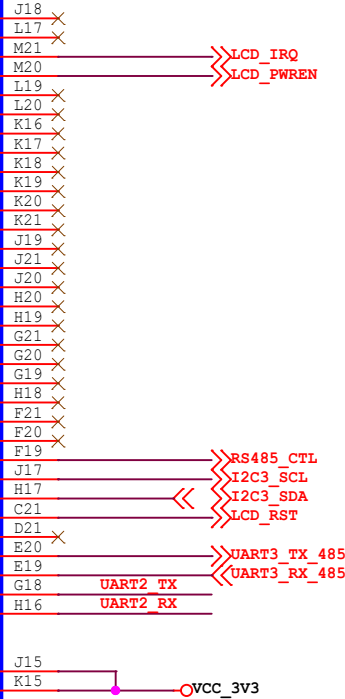
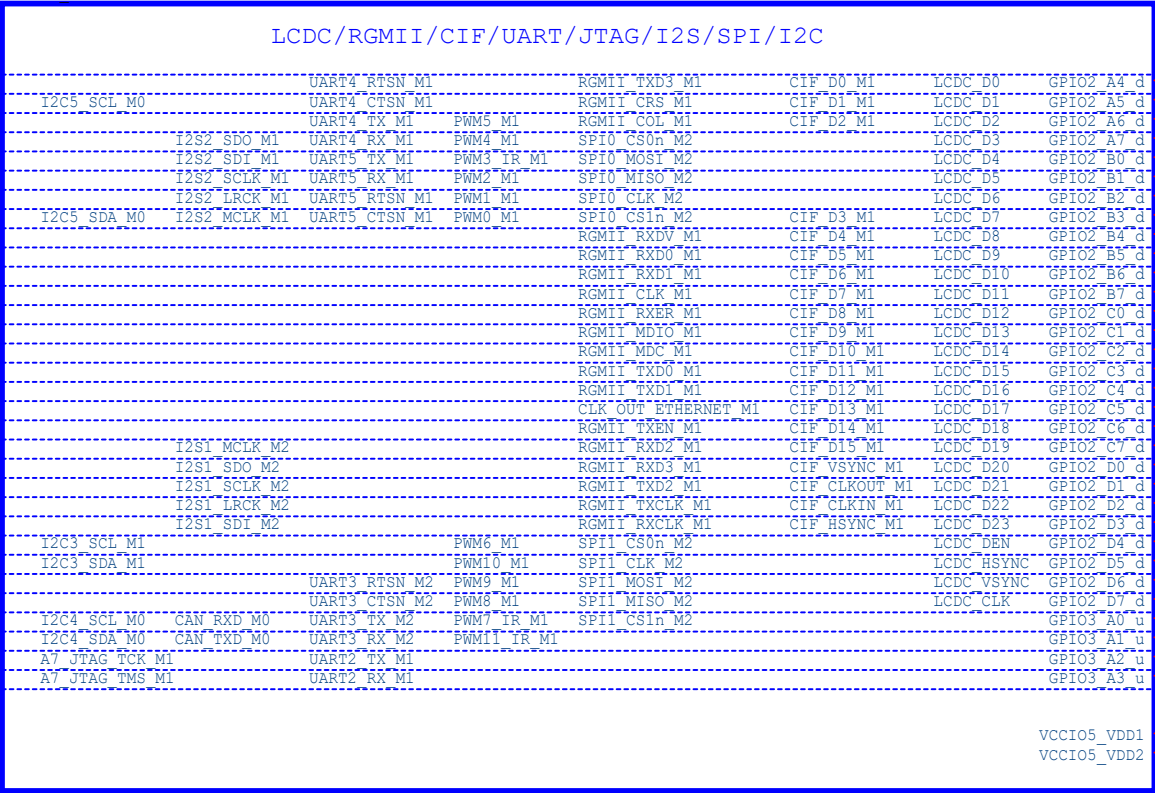


MIPI-CSI Interface



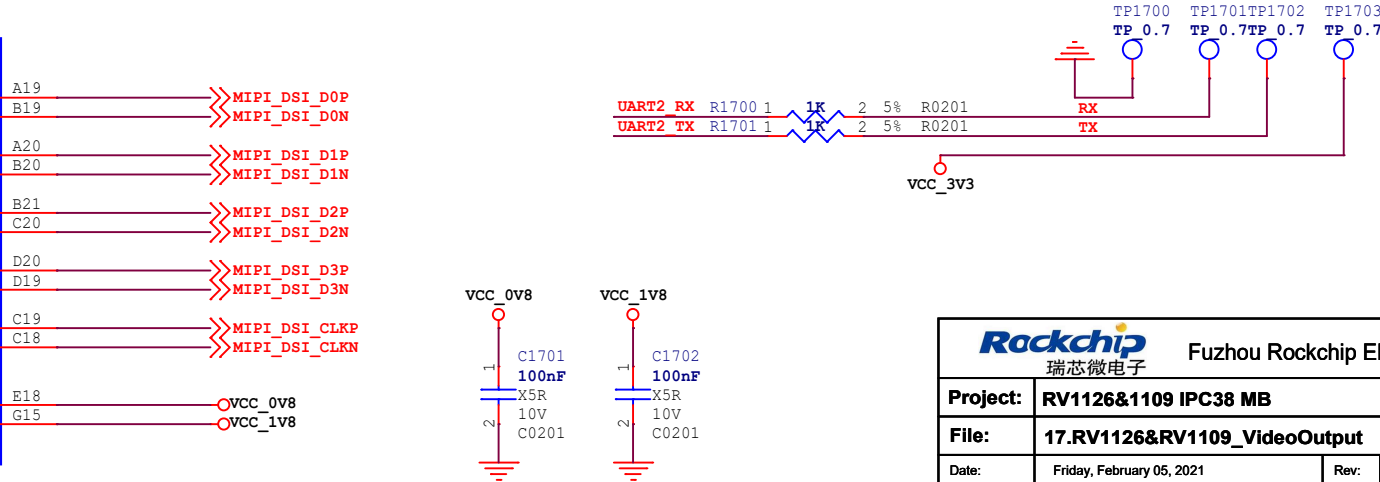
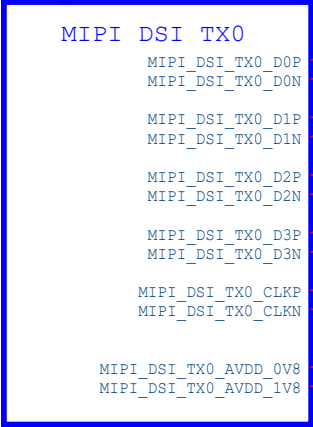
LCDC/RGMII/PWM

U1000D
RV1126&RV1109
BGA409 14R00X14R00X0R90



MIPI-DSI Interface

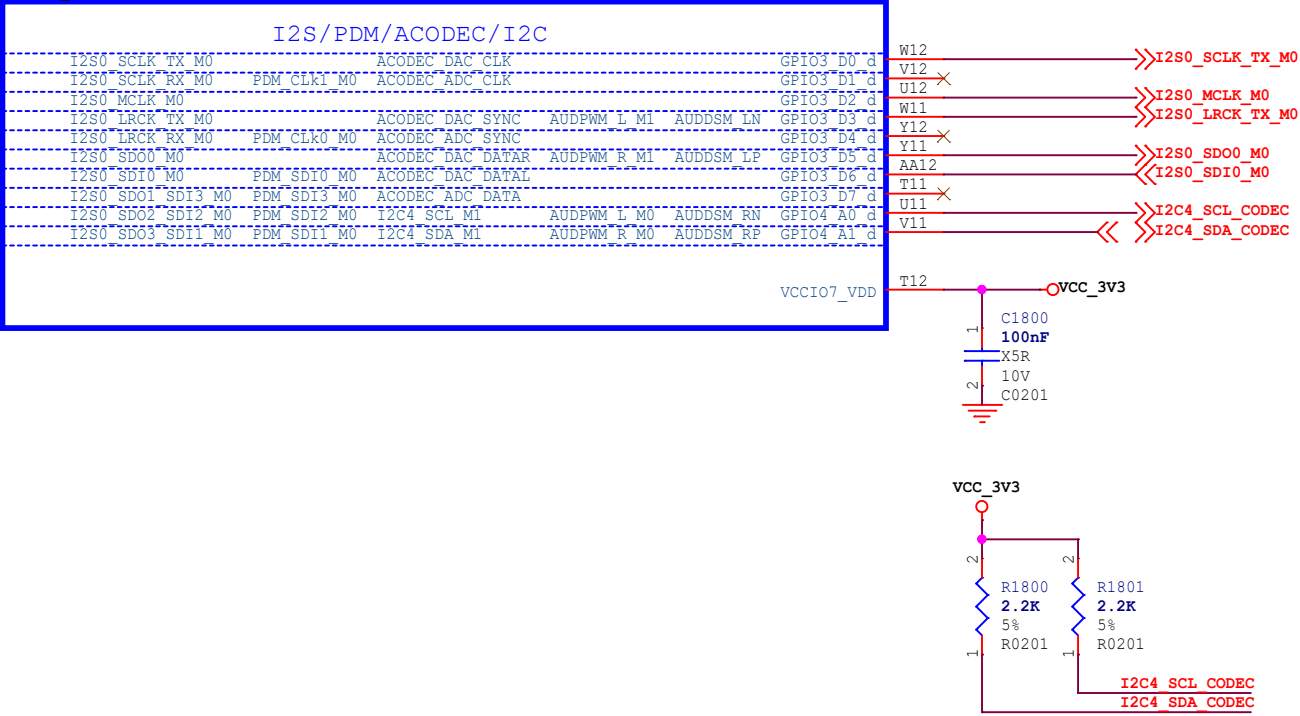
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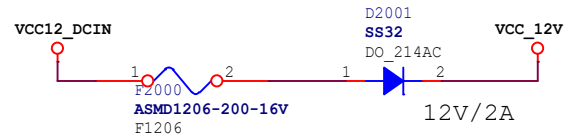
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Audio Interface

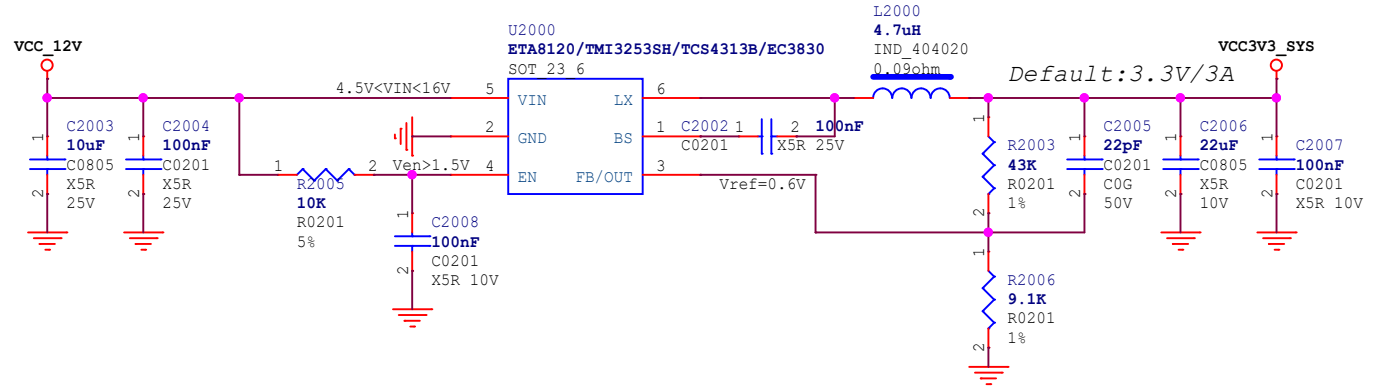
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RV1126&RV1109
BGA409 14R00X14R00X0R90



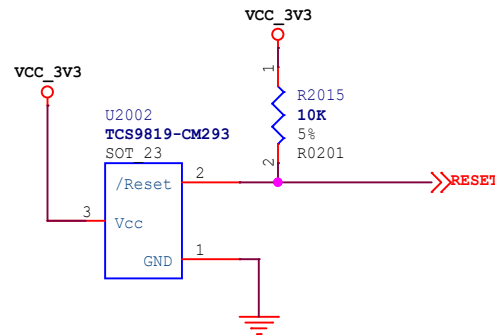
DC IN



VCC3V3_SYS

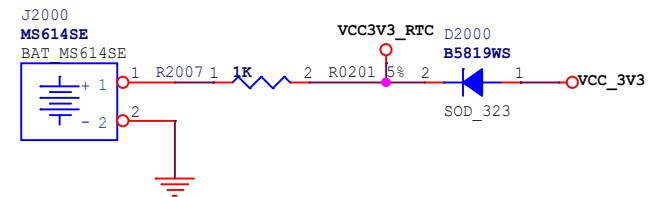
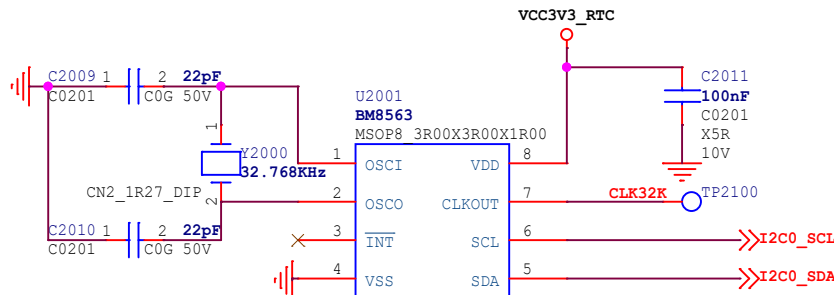



RESET



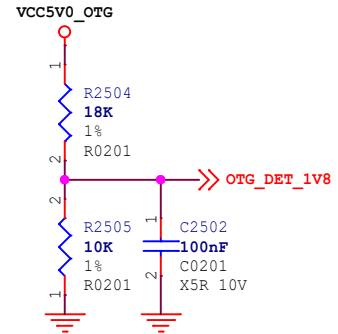
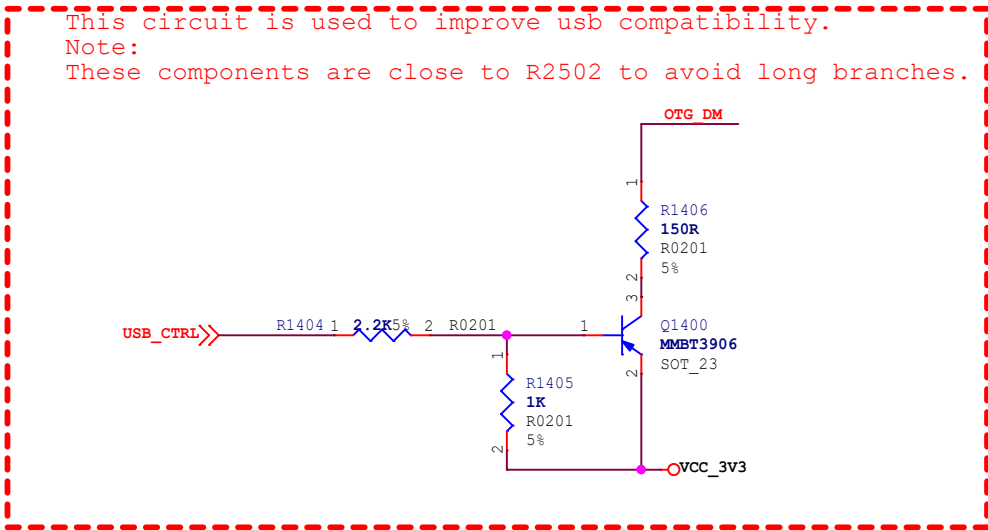
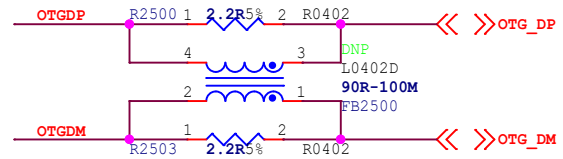
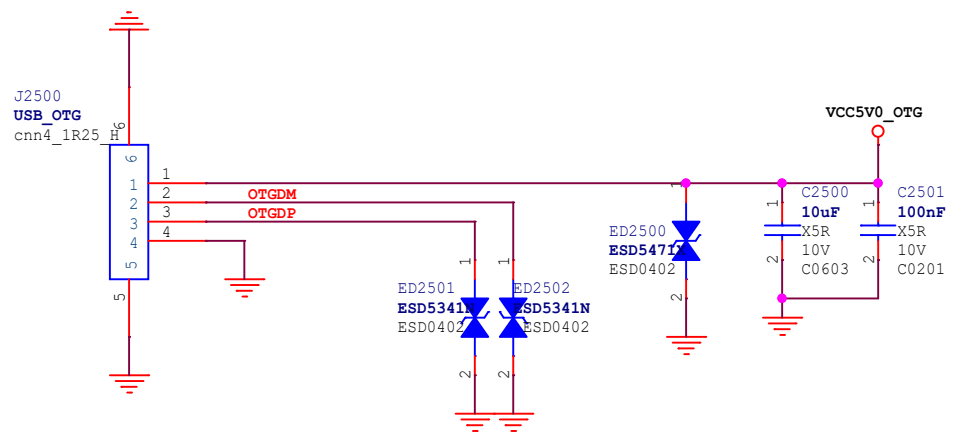
NOTE:
The Reset IC must select OD output,
otherwise the over-temperature protection
function cannot be enabled


RTC CLOCK



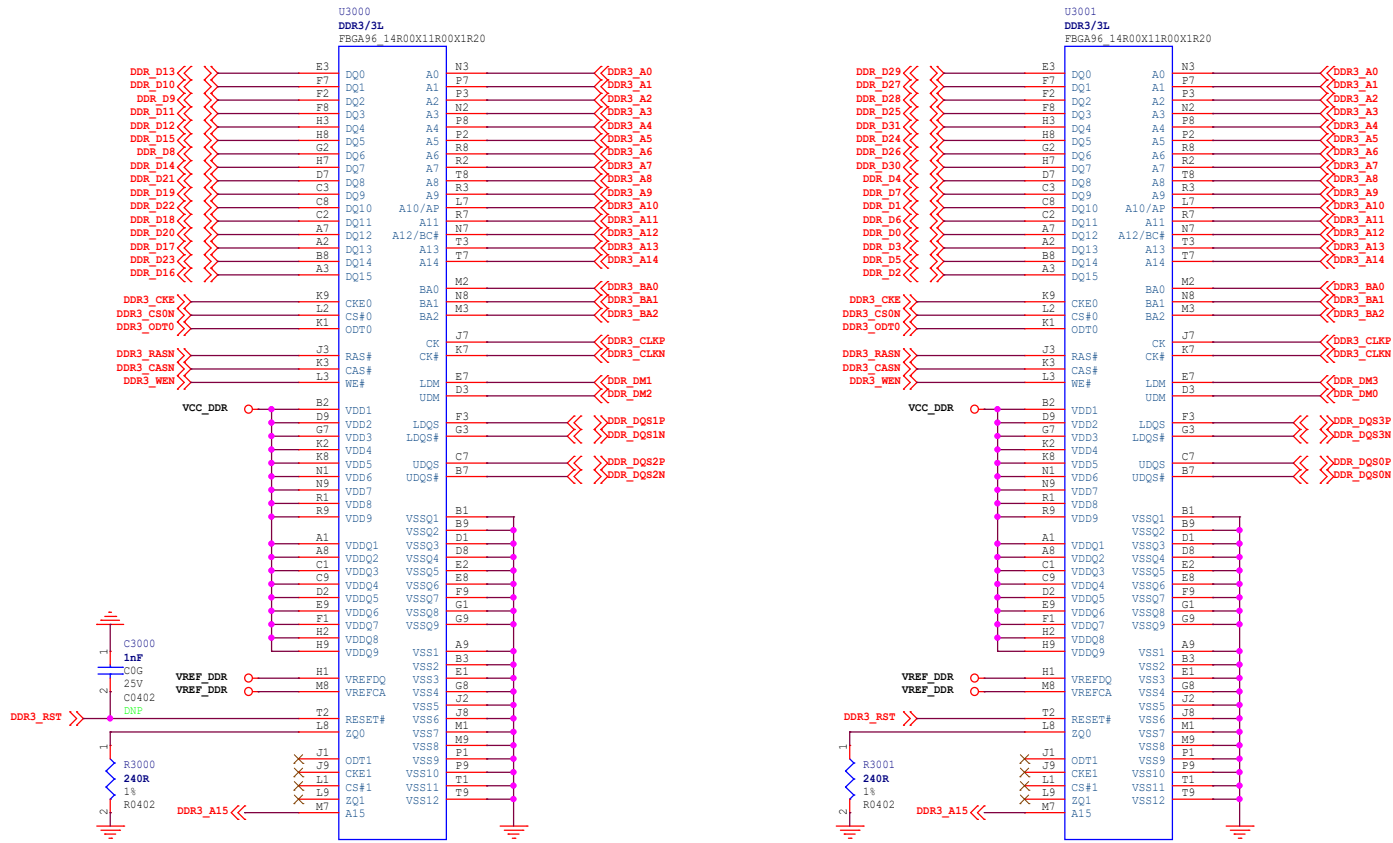
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File:	20.Power_DC IN		
Date:	Friday, February 05, 2021		Rev: V1.21
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USB OTG

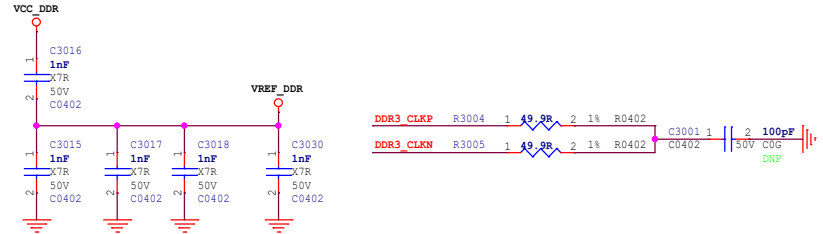
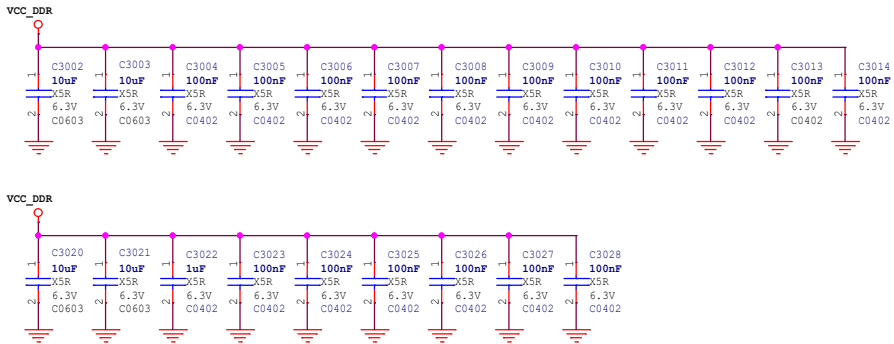


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Project:	RV1126&1109 IPC38 MB		
File:	25.USB OTG		
Date:	Friday, February 05, 2021		Rev: V1.2
Designed by:	Linus.Lin	Reviewed by:	<Checker>
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DDR3/DDR3L 2x16bit

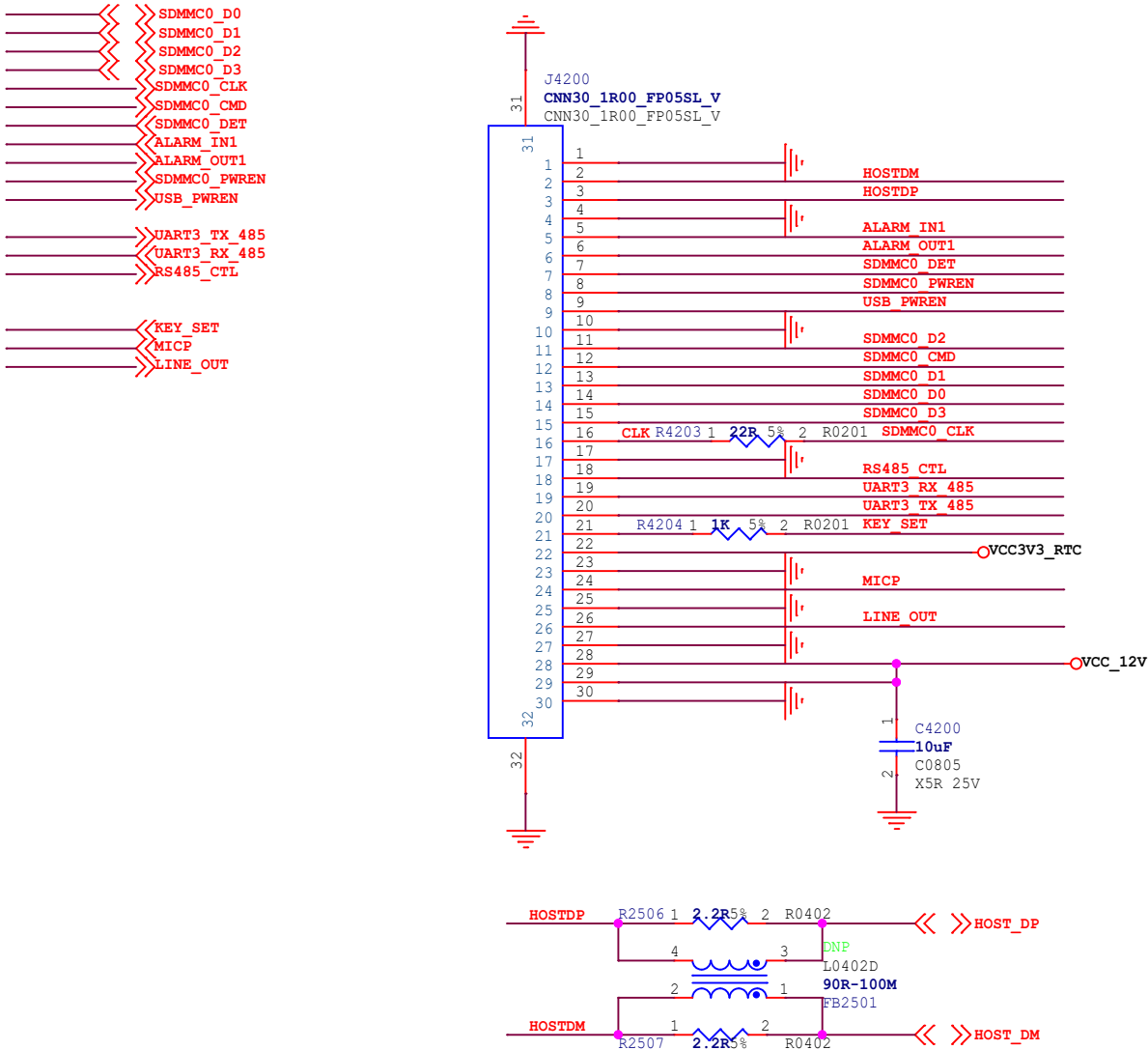


Note:All the Power filter capacitors should be placed close to the power pins of DDR3

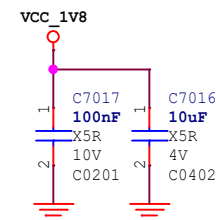
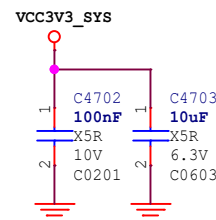
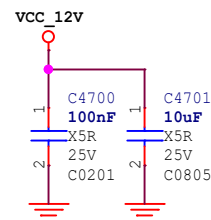
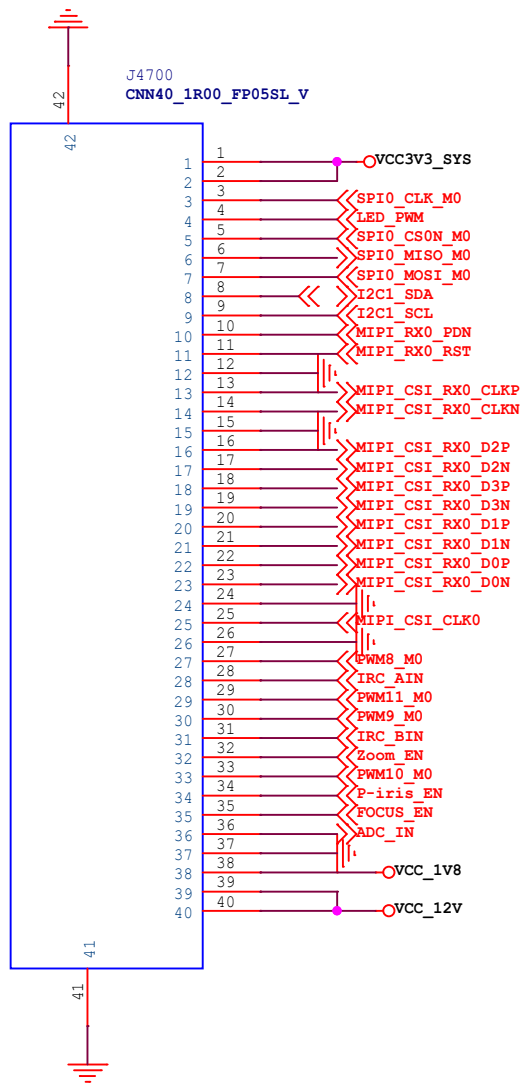


Close to DDR

Extension port

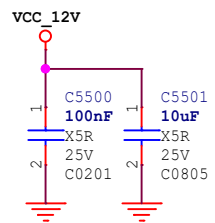
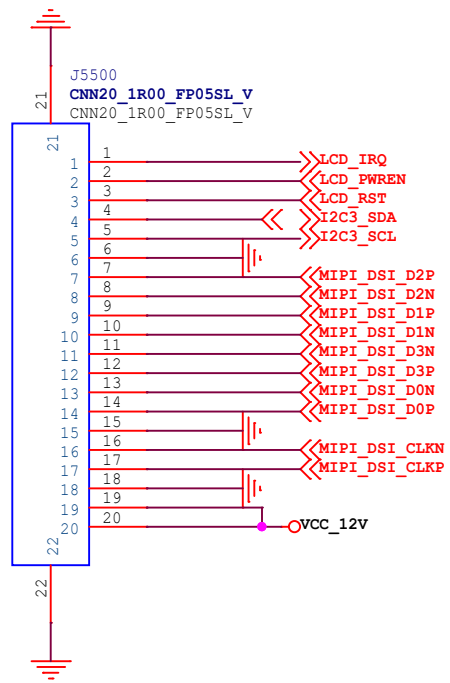



MIPI CSI Interfae



 瑞芯微电子			Fuzhou Rockchip Electronics		
Project:	RV1126&1109 IPC38 MB				
File:	47.VI-Camera_MIPI-CSI				
Date:	Friday, February 05, 2021			Rev:	V1.2
Designed by:	Linus.Lin	Reviewed by:	<Checker>	Sheet:	23 of 27

MIPI DSI Interfae

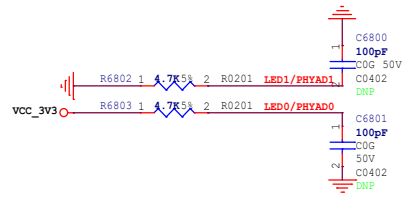


 瑞芯微电子		Fuzhou Rockchip Electronics	
Project:	RV1126&1109 IPC38 MB		
File:	55.Vedio OUT		
Date:	Friday, February 05, 2021		Rev: V1.2
Designed by:	Linus.Lin	Reviewed by:	<Checker>
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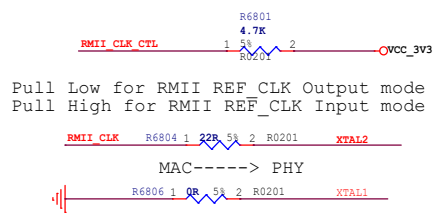
PHY



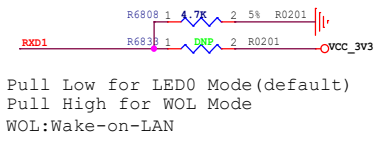
PHY Address/LED



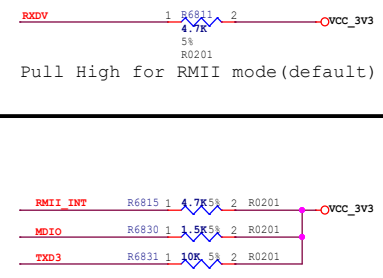
RMII REF_CLK direction



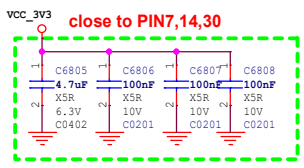
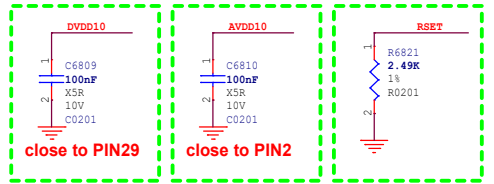
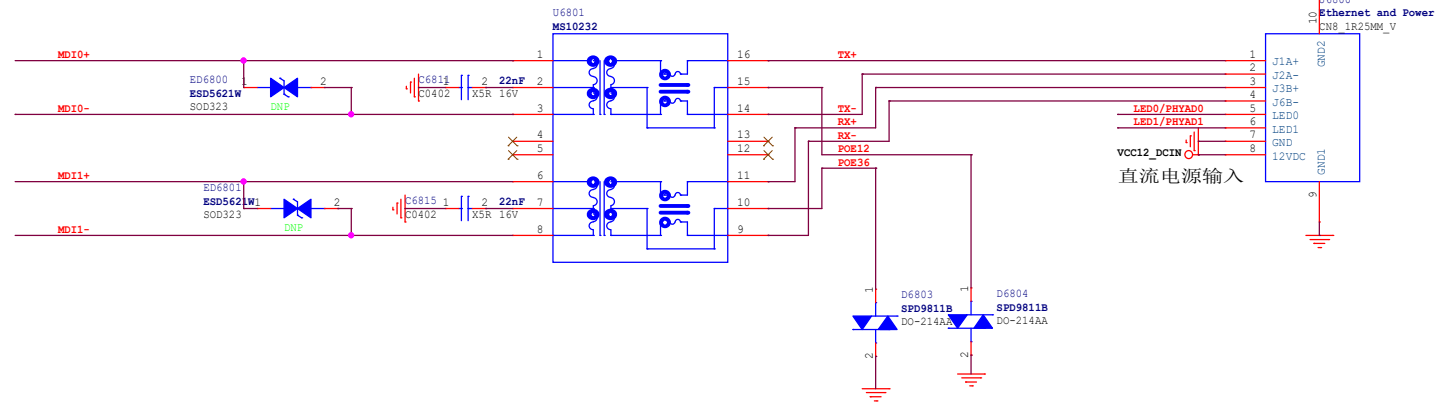
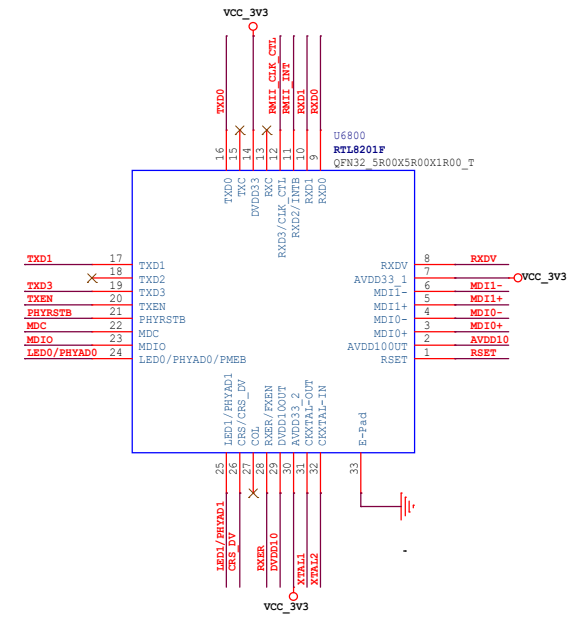
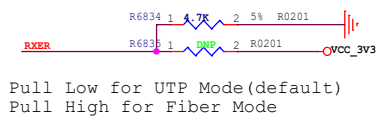
WOL/LED0 Selection

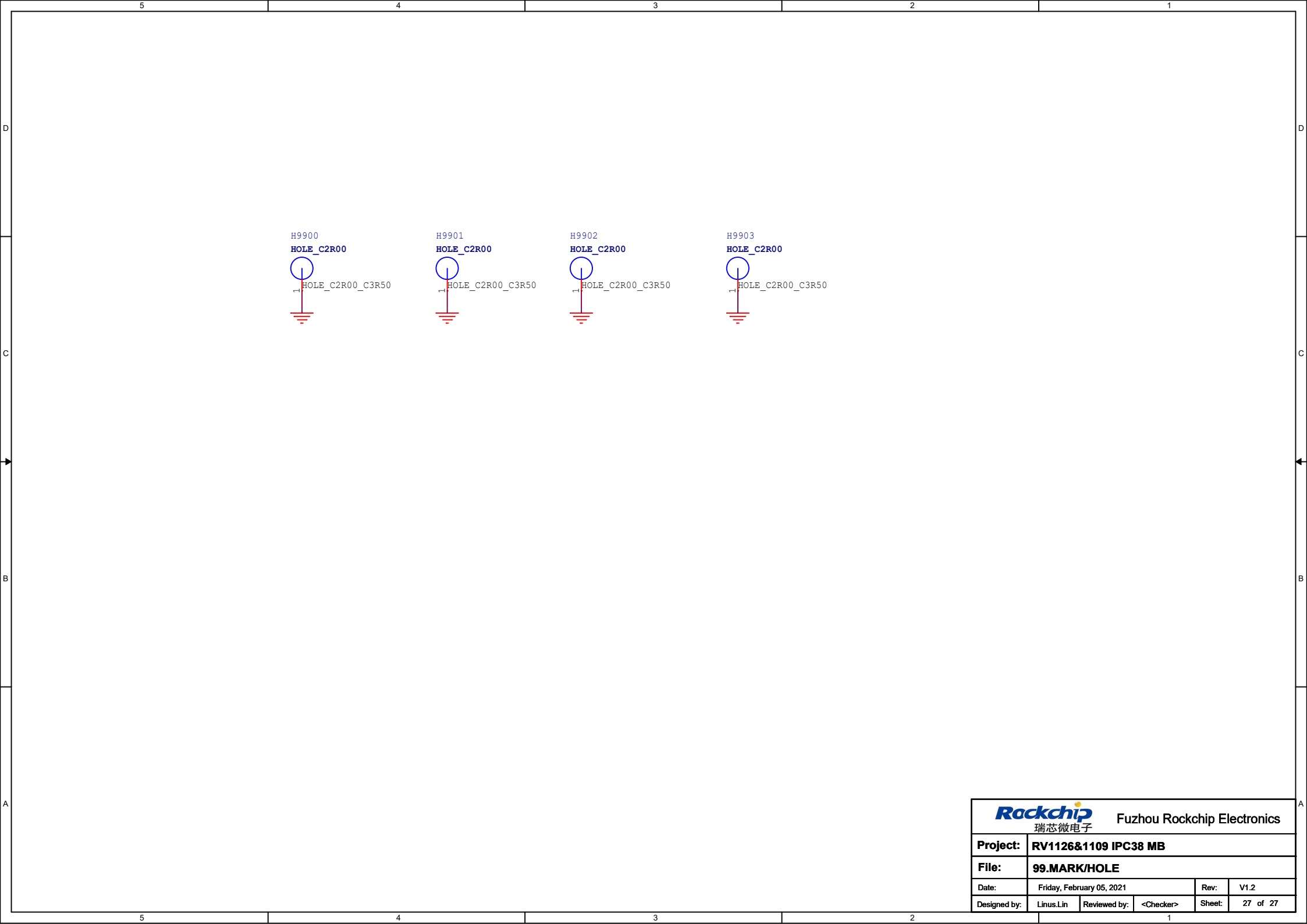



MII/RMII Selection



UTP / Fiber Selection







瑞芯微电子

Fuzhou Rockchip Electronics

Project:	RV1126&1109 IPC38 MB				
File:	99.MARK/HOLE				
Date:	Friday, February 05, 2021			Rev:	V1.2
Designed by:	Linus.Lin	Reviewed by:	<Checker>	Sheet:	27 of 27