Reference Schematics For RK3588S

RK3588S_Tablet_Demo_SCH

Main Functions Introduction

1) Charger: 1Cell Battery_QC
2) PMIC: 1 x RK806-1+DiscretePower
3) RAM: 2 x 32bits LPDDR4/4x
4) ROM: eMMC5.1(Default)
5) Support: 1 x Type-C 3.0(with DP function)
6) Support: 1 x 4Lanes MIPI D/CPHY RX Camera
7) Support: 1 x 2Lanes MIPI DPHY RX Camera
8) Support: 1 x 4Lanes MIPI D/CPHY TX
9) Support: a/b/g/n/ac/ax 2T2R WIFI(PCIE) + BT5.0
11) Support: 1 x Headphone + 2 x Speaker out + 1 x Analog MIC
12) Support: 2 x PDM MIC Array
13) Support: Gyroscope+G-sensor+Ambient Light+Proximity

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Table of Content

Note

The power suffix S0 or S3 means:

S3: Keep power On during sleeping

S0:Power off during sleeping

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}

Description

Note

Option

Notes

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.

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Revision History

Version	Date	By	Change Dsecription	Approved
V1.0	2022-01-05	Joseph.Wei	1:Revision preliminary version	
V1.1	2022-02-18	Joseph.Wei	1.C1604,C1612的电容改成1uF/4V。 2.为了减少待机功耗，将PMUIO2电源域改成1.8V，此IO域对应外设IO电压相应修改 3.把L2203，L2205，L2207，L2300，L2301，L2302电感由0.22uH(TDK)改为0.24uH(Sunlord); L2201的电感由0.22uH(TDK)改为0.22uH (Sunlord)，封装IND_404020。	

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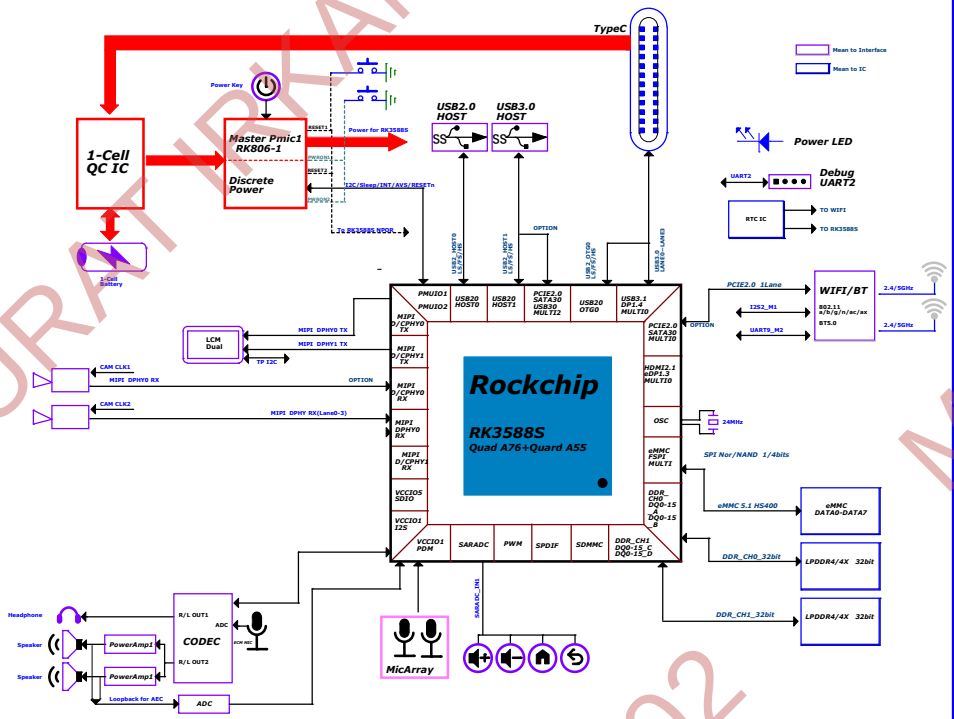
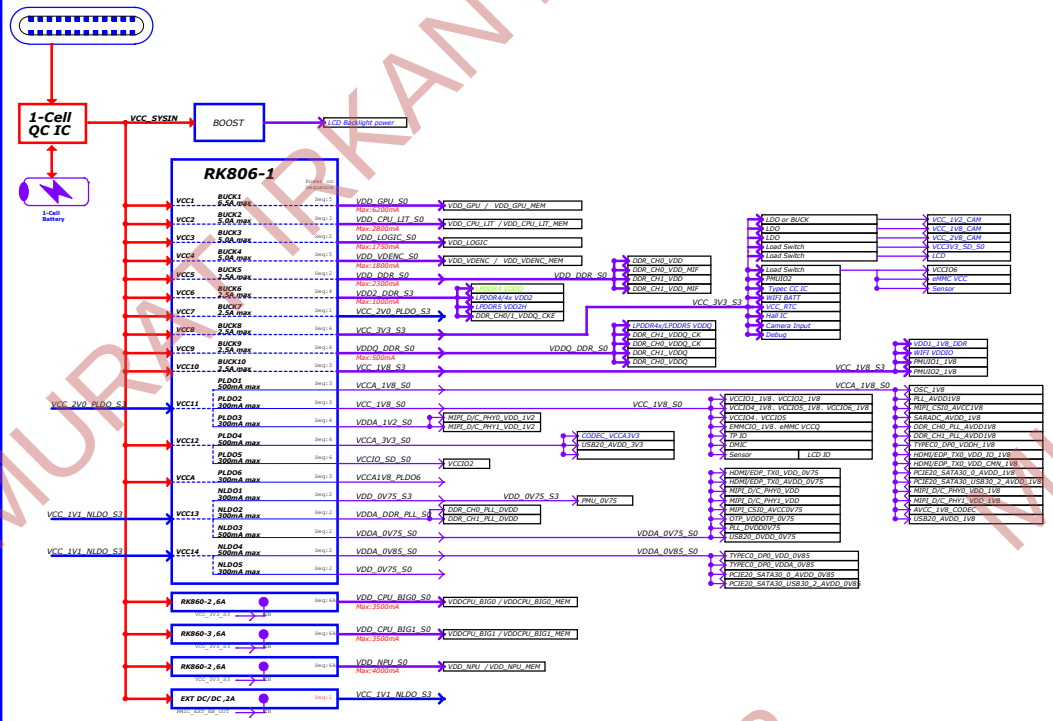
RK3588S Tablet Demo Block Diagram for 1-Cell Charger



Power tree for 1-Cell Charger



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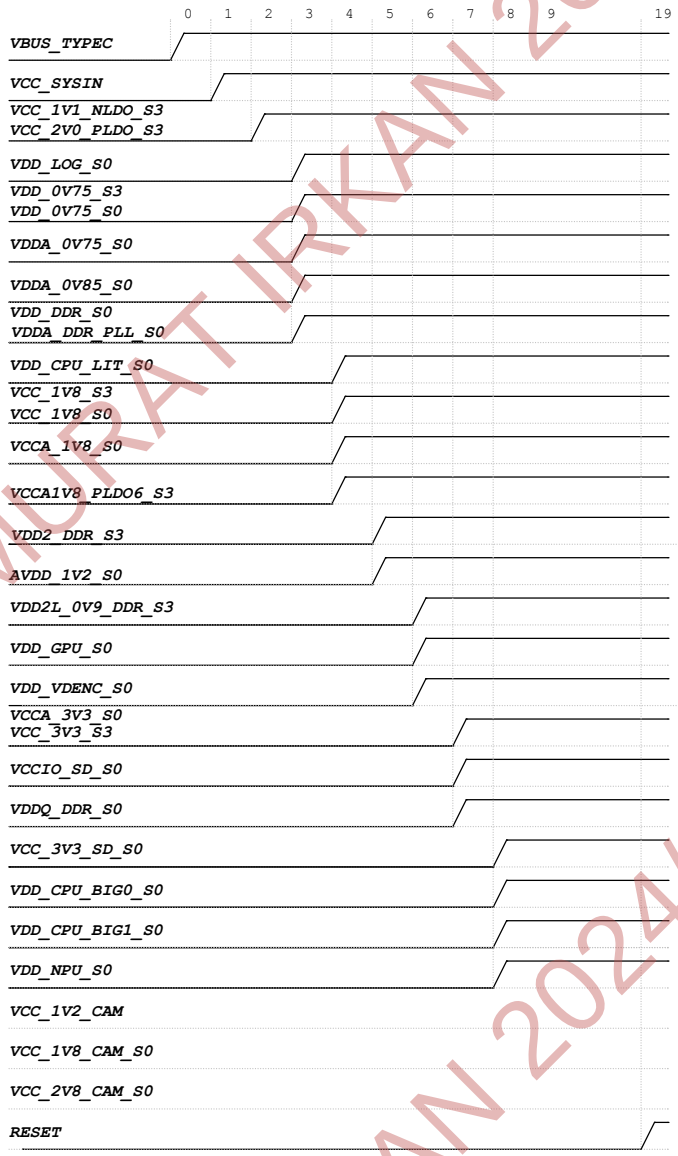
Power Sequence



Power Supply	PMIC Channel	Supply Limit	Power Name	Time Slot	Default Voltage	Default ON/OFF	Sleep ON/OFF	Peak Current	Sleep Current
VCC_SYSIN	RK806-1_BUCK1	6.5A	VDD_GPU_S0	Slot:5	0.75V	ON	OFF	TBD	TBD
VCC_SYSIN	RK806-1_BUCK2	5A	VDD_CPU_LIT_S0	Slot:3	0.75V	ON	OFF	TBD	TBD
VCC_SYSIN	RK806-1_BUCK3	5A	VDD_LOG_S0	Slot:2	0.75V	ON	OFF	TBD	TBD
VCC_SYSIN	RK806-1_BUCK4	3A	VDD_VDENC_S0	Slot:5	0.75V	ON	OFF	TBD	TBD
VCC_SYSIN	RK806-1_BUCK5	2.5A	VDD_DDR_S0	Slot:2	0.85V	ON	OFF	TBD	TBD
VCC_SYSIN	RK806-1_BUCK6	2.5A	VDD2_DDR_S3	Slot:4	ADJ FB=0.5V	ON	ON	TBD	TBD
VCC_SYSIN	RK806-1_BUCK7	2.5A	VCC_2V0_PLDO_S3	Slot:1	2.0V	ON	ON	TBD	TBD
VCC_SYSIN	RK806-1_BUCK8	2.5A	VCC_3V3_S3	Slot:6	3.3V	ON	ON	TBD	TBD
VCC_SYSIN	RK806-1_BUCK9	2.5A	VDDQ_DDR_S0	Slot:6	ADJ FB=0.5V	ON	OFF	TBD	TBD
VCC_SYSIN	RK806-1_BUCK10	2.5A	VCC_1V8_S3	Slot:3	1.8V	ON	ON	TBD	TBD
VCC_2V0_PLDO_S3	RK806-1_PLDO1	0.5A	VCC_1V8_S0	Slot:3	1.8V	ON	OFF	TBD	TBD
	RK806-1_PLDO2	0.3A	VCCA_1V8_S0	Slot:3	1.8V	ON	OFF	TBD	TBD
	RK806-1_PLDO3	0.3A	VDDA_1V2_S0	Slot:4	1.2V	ON	OFF	TBD	TBD
VCC_SYSIN	RK806-1_PLDO4	0.5A	VCCA_3V3_S0	Slot:6	3.3V	ON	OFF	TBD	TBD
	RK806-1_PLDO5	0.3A	VCCIO_SD_S0	Slot:6	3.3V	ON	OFF	TBD	TBD
	RK806-1_PLDO6	0.3A	VCCA1V8_PLDO6_S3	Slot:3	1.8V	ON	ON	TBD	TBD
VCC_1V1_NLDO_S3	RK806-1_NLDO1	0.3A	VDD_0V75_S3	Slot:2	0.75V	ON	ON	TBD	TBD
	RK806-1_NLDO2	0.3A	VDDA_DDR_PLL_S0	Slot:2	0.85V	ON	OFF	TBD	TBD
	RK806-1_NLDO3	0.5A	VDDA_0V75_S0	Slot:2	0.75V	ON	OFF	TBD	TBD
VCC_1V1_NLDO_S3	RK806-1_NLDO4	0.5A	VDDA_0V85_S0	Slot:2	0.85V	ON	OFF	TBD	TBD
	RK806-1_NLDO5	0.3A	VDD_0V75_S0	Slot:2	0.75V	ON	OFF	TBD	TBD
VCC_SYSIN	BUCK_RK860-2	6A	VDD_CPU_BIG0_S0	Slot:6A	0.75V	ON	OFF	TBD	TBD
VCC_SYSIN	BUCK_RK860-3	6A	VDD_CPU_BIG1_S0	Slot:6A	0.75V	ON	OFF	TBD	TBD
VCC_SYSIN	BUCK_RK860-2	6A	VDD_NPU_S0	Slot:6A	0.75V	ON	OFF	TBD	TBD
VCC_SYSIN	EXT BUCK	2A	VCC_1V1_NLDO_S3	Slot:1	1.1V	ON	ON	TBD	TBD
VCC_SYSIN	EXT BUCK	2A	VDD2L_0V9_DDR_S3	Slot:5	0.9V	ON	ON	TBD	TBD
VCC_SYSIN	EXT BUCK	2.5A	VCC_3V3_SD_S0	Slot:6A	3.3V	ON	OFF	TBD	TBD
VCC_SYSIN	EXT_BUCK or LDO	2A	VCC_1V2_CAM_S0	OFF	1.2V	OFF	OFF	TBD	TBD
VCC_SYSIN	LDO	0.5A	VCC_1V8_CAM_S0	OFF	1.8V	OFF	OFF	TBD	TBD
VCC_SYSIN	LDO	0.5A	VCC_2V8_CAM_S0	OFF	2.8V	OFF	OFF	TBD	TBD

IO Power Domain Map

IO Domain	Pin Num	Support IO Voltage	Supply Power Pin Name	Power Source	Operating Voltage
PMUIO1	Pin N36 N37	1.8V Only	PMUIO1_1V8	VCC_1V8_S3	1.8V
PMUIO2	Pin V37 Y37 Pin V35 V36	1.8V or 3.3V	PMUIO2_1V8 PMUIO2_	VCC_1V8_S3 VCC_1V8_S3	1.8V 1.8V
EMMCIO	Pin AC35 Pin AC36	1.8V Only	EMMCIO_1V8	VCC_1V8_S0	1.8V
VCCIO1	Pin H31	1.8V Only	VCCIO1_1V8	VCC_1V8_S0	1.8V
VCCIO2	Pin AK11 Pin AK10	1.8V or 3.3V	VCCIO2_1V8 VCCIO2_	VCC_1V8_S0 VCC_IO_SD	1.8V 1.8V/3.3V
VCCIO4	Pin G27 G28 Pin G31	1.8V or 3.3V	VCCIO4_1V8 VCCIO4_	VCC_1V8_S0 VCC_3V3_S0	1.8V 1.8V
VCCIO5	Pin AF35 AF36 Pin AC33 AC34	1.8V or 3.3V	VCCIO5_1V8 VCCIO5_	VCC_1V8_S0 VCC_1V8_S0	1.8V 1.8V
VCCIO6	Pin AJ34 Pin AL33 AM33	1.8V or 3.3V	VCCIO6_1V8 VCCIO6_	VCC_1V8_S0 VCC_3V3_S0	1.8V 3.3V

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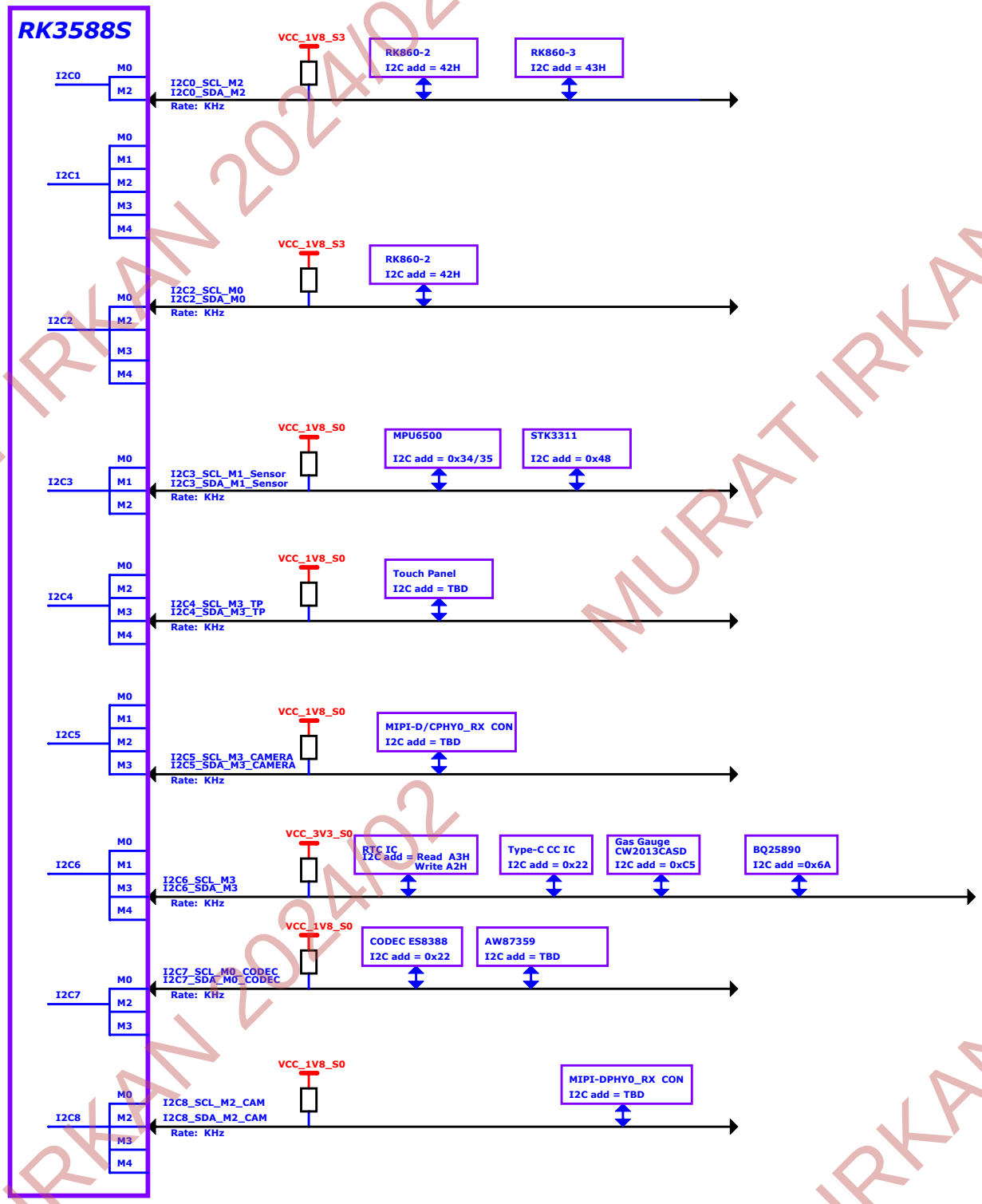
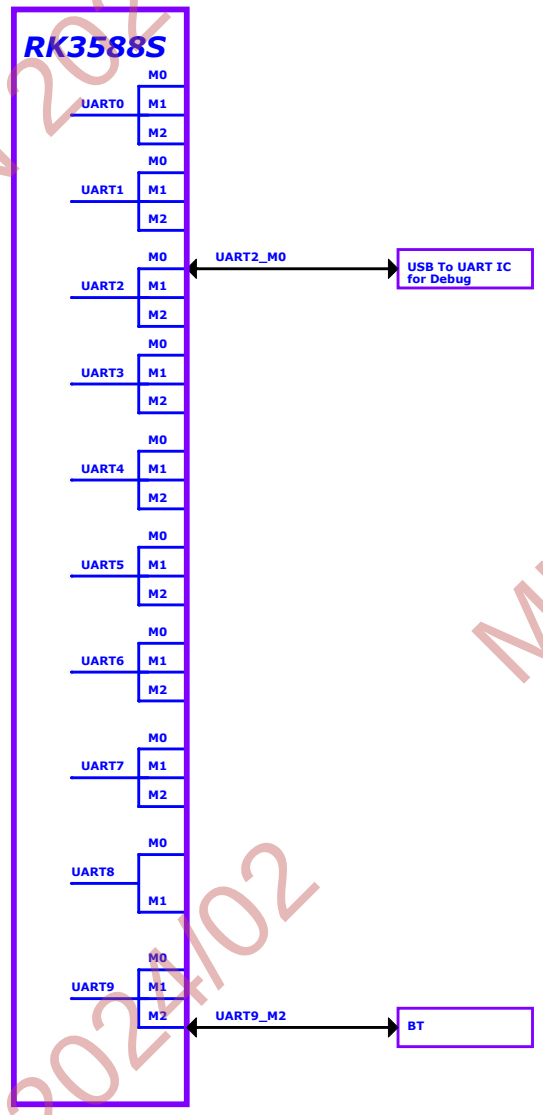
I2C MAP



UART MAP



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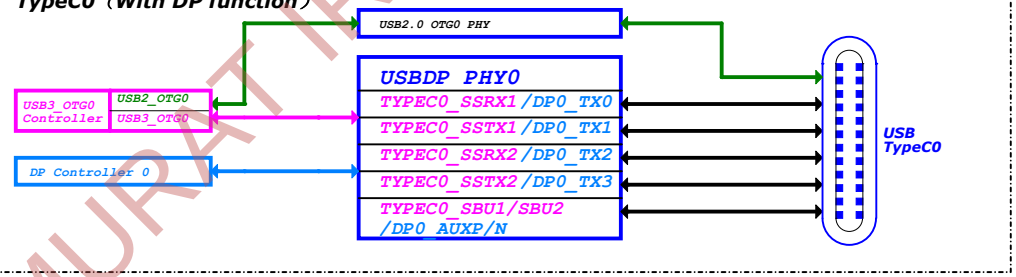
USB Controller Configure Table

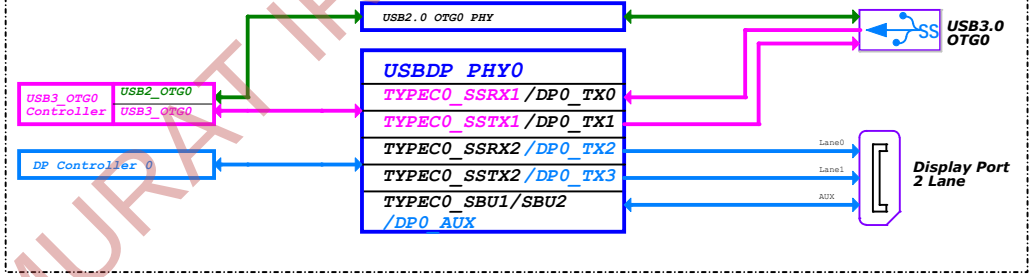
Controller Name	Pin Name	Type-C Function	DPx4Lane+USB2.0 OTG		USB30 OTG+DPx2Lane Function		USB20 OTG+DPx2Lane Function		USB20 OTG+DPx4Lane Function	
			OPTION1	OPTION2	OPTION1	OPTION2	OPTION1	OPTION2	OPTION1	OPTION2
USB30 OTG0 Device or Host	TYPEC0_SBU1/DP0_AUXP TYPEC0_SBU2/DP0_AUXN	TYPEC0_SBU1 TYPEC0_SBU2	DP0_AUXP DP0_AUXN	DP0_AUXP DP0_AUXN	DP0_AUXP DP0_AUXN	DP0_AUXP DP0_AUXN	DP0_AUXP DP0_AUXN	DP0_AUXP DP0_AUXN	DP0_AUXP DP0_AUXN	DP0_AUXP DP0_AUXN
	TYPEC0_SSRX1P/DP0_TX0P TYPEC0_SSRX1N/DP0_TX0N	TYPEC0_SSRX1P TYPEC0_SSRX1N	DP0_TX0P DP0_TX0N	DP0_TX2P DP0_TX2N	TYPEC0_SSRX1P TYPEC0_SSRX1N	DP0_TX0P DP0_TX0N	DP0_TX0P DP0_TX0N		DP0_TX0P DP0_TX0N	DP0_TX2P DP0_TX2N
	TYPEC0_SSTX1P/DP0_TX1P TYPEC0_SSTX1N/DP0_TX1N	TYPEC0_SSTX1P TYPEC0_SSTX1N	DP0_TX1P DP0_TX1N	DP0_TX3P DP0_TX3N	TYPEC0_SSTX1P TYPEC0_SSTX1N	DP0_TX1P DP0_TX1N	DP0_TX1P DP0_TX1N		DP0_TX1P DP0_TX1N	DP0_TX3P DP0_TX3N
	TYPEC0_SSRX2P/DP0_TX2P TYPEC0_SSRX2N/DP0_TX2N	TYPEC0_SSRX2P TYPEC0_SSRX2N	DP0_TX2P DP0_TX2N	DP0_TX0P DP0_TX0N	DP0_TX2P DP0_TX2N	DP0_TX2P DP0_TX2N		DP0_TX2P DP0_TX2N	DP0_TX2P DP0_TX2N	DP0_TX0P DP0_TX0N
	TYPEC0_SSTX2P/DP0_TX3P TYPEC0_SSTX2N/DP0_TX3N	TYPEC0_SSTX2P TYPEC0_SSTX2N	DP0_TX3P DP0_TX3N	DP0_TX1P DP0_TX1N	DP0_TX3P DP0_TX3N	DP0_TX3P DP0_TX3N		DP0_TX3P DP0_TX3N	DP0_TX3P DP0_TX3N	DP0_TX1P DP0_TX1N
USB20 OTG0 Device or Host	TYPEC0_USB20_OTG_DP TYPEC0_USB20_OTG_DM	TYPEC0_USB20_OTG_DP TYPEC0_USB20_OTG_DM	TYPEC0_USB20_OTG_DP TYPEC0_USB20_OTG_DM		TYPEC0_USB20_OTG_DP TYPEC0_USB20_OTG_DM		TYPEC0_USB20_OTG_DP TYPEC0_USB20_OTG_DM	TYPEC0_USB20_OTG_DP TYPEC0_USB20_OTG_DM	TYPEC0_USB20_OTG_DP TYPEC0_USB20_OTG_DM	TYPEC0_USB20_OTG_DP TYPEC0_USB20_OTG_DM
			OPTION1 USB30 HOST		OPTION2 USB30 HOST					
USB30 OTG2 Device or Host	PCIE20_2_TXP/SATA30_2_TXP/USB30_2_SSTXP PCIE20_2_TXN/SATA30_2_TXN/USB30_2_SSTXN		USB30_2_SSTXP USB30_2_SSTXN		USB30_2_SSTXP USB30_2_SSTXN					
	PCIE20_2_RXP/SATA30_2_RXP/USB30_2_SSRXP PCIE20_2_RXN/SATA30_2_RXN/USB30_2_SSRXN		USB30_2_SSRXP USB30_2_SSRXN		USB30_2_SSRXP USB30_2_SSRXN					
USB20 HOST0	USB20_HOST0_DP USB20_HOST0_DM		USB20_HOST0_DP USB20_HOST0_DM							
USB20 HOST1	USB20_HOST1_DP USB20_HOST1_DM				USB20_HOST1_DP USB20_HOST1_DM					

Note:
DP Lane swap enable
0:Lane0/1/2/3 TxData mapping to Lane0/1/2/3_TXDP/N
1:Lane0/1/2/3 TxData mapping to Lane2/3/0/1_TXDP/N

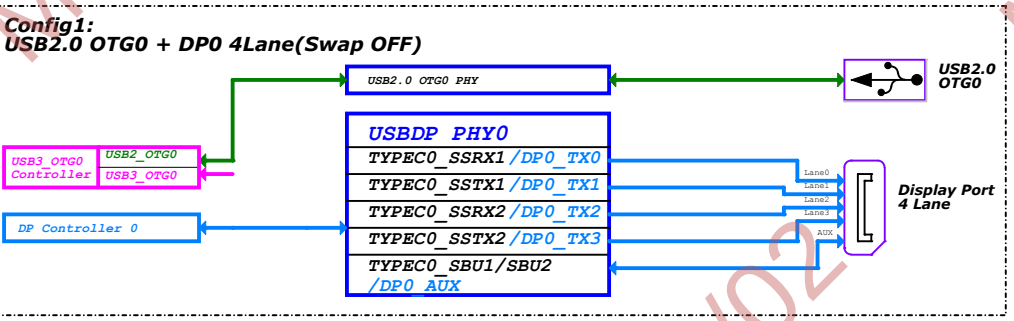
Config0:
TypeC0（With DP function）



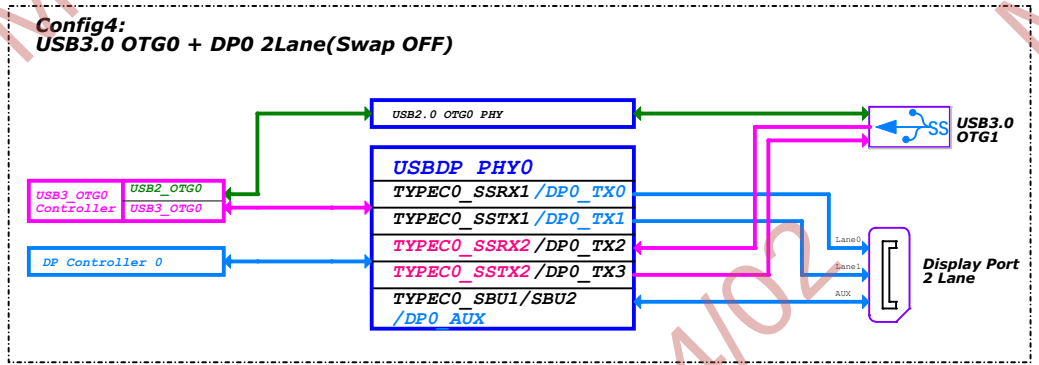
Config3:(Default)
USB3.0 OTG0 + DP0 2Lane(Swap ON)



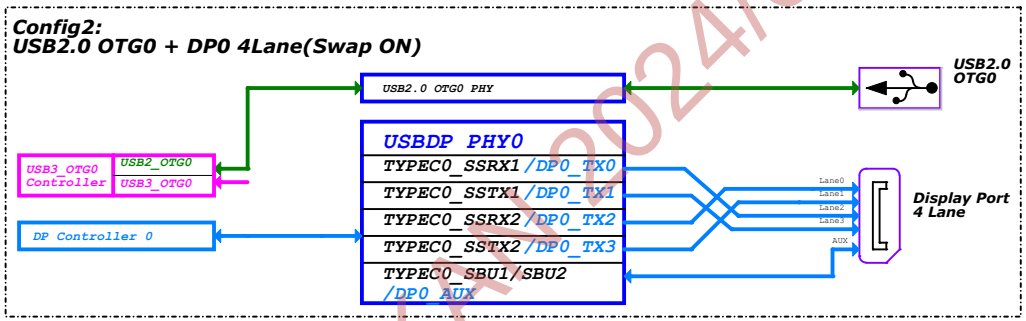
Config1:
USB2.0 OTG0 + DP0 4Lane(Swap OFF)



Config4:
USB3.0 OTG0 + DP0 2Lane(Swap OFF)



Config2:
USB2.0 OTG0 + DP0 4Lane(Swap ON)



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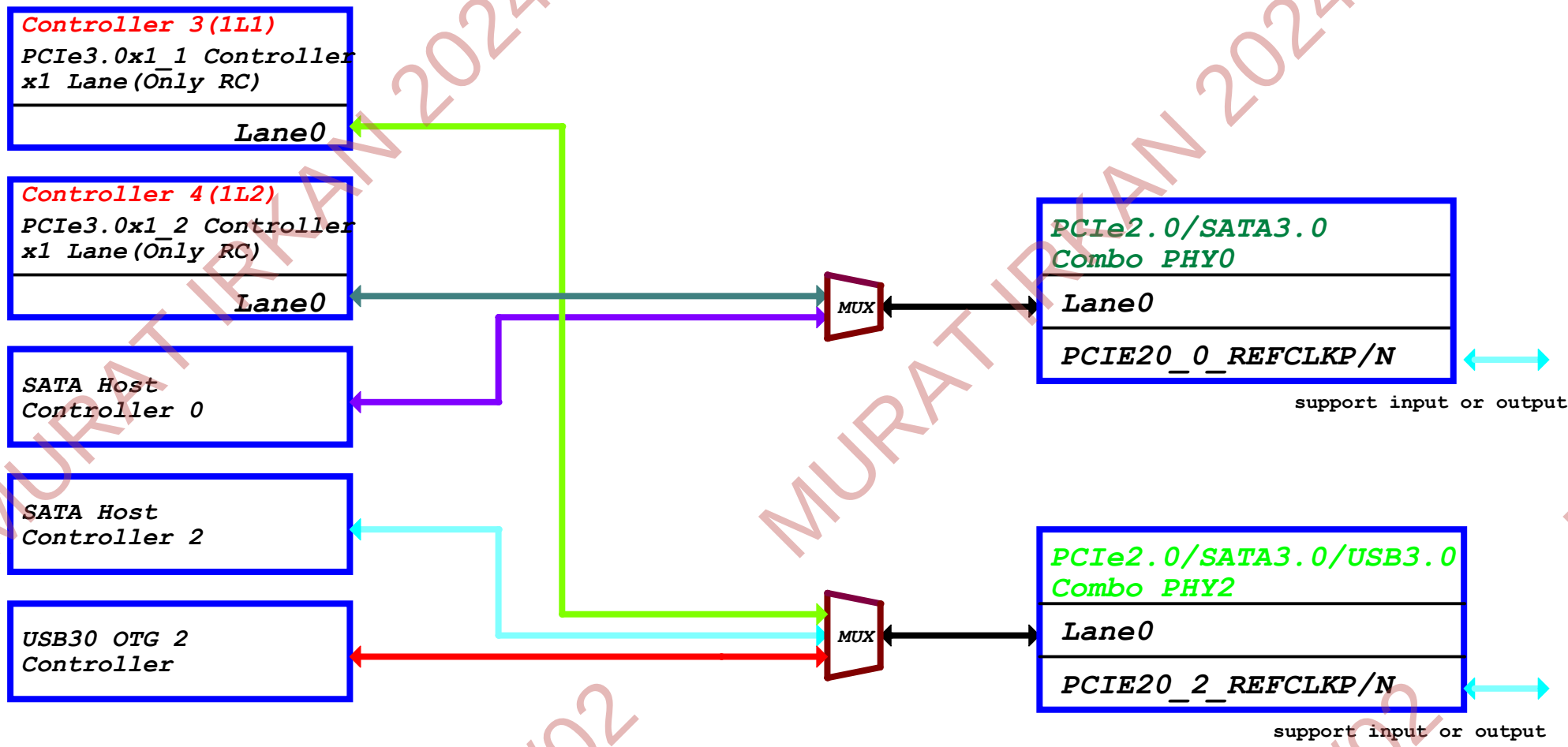
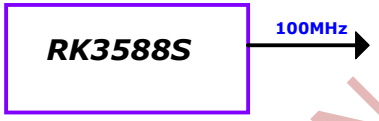
PCIe/SATA Connecter Diagram



PCIe Controller Configure Table

Controller Name	Data & Clk Lane Configure		Control GPIO
	CLK LANE	DATA LANE	
PCIE20X1_1 RC	PCIE20_2_REFCLKP PCIE20_2_REFCLKN	PCIE20_2_TX PCIE20_2_RX	PCIE20X1_1_CLKREQ_M* PCIE20X1_1_WAKEN_M* PCIE20X1_1_PERSTN_M* PCIE20X1_1_BUTTON_RSTN
PCIE20X1_2 RC	PCIE20_0_REFCLKP PCIE20_0_REFCLKN	PCIE20_0_TX PCIE20_0_RX	PCIE20X1_2_CLKREQ_M* PCIE20X1_2_WAKEN_M* PCIE20X1_2_PERSTN_M* PCIE20X1_2_BUTTON_RSTN

PCIe2.0 REFCLK



Note:

PCIE20_*_REFCLKP/N is output or input gpio

M*=Mean to M0 or M1 or M2,It's the same source,Just multiplex to M0 or M1 or M2,Only use one at the same time.

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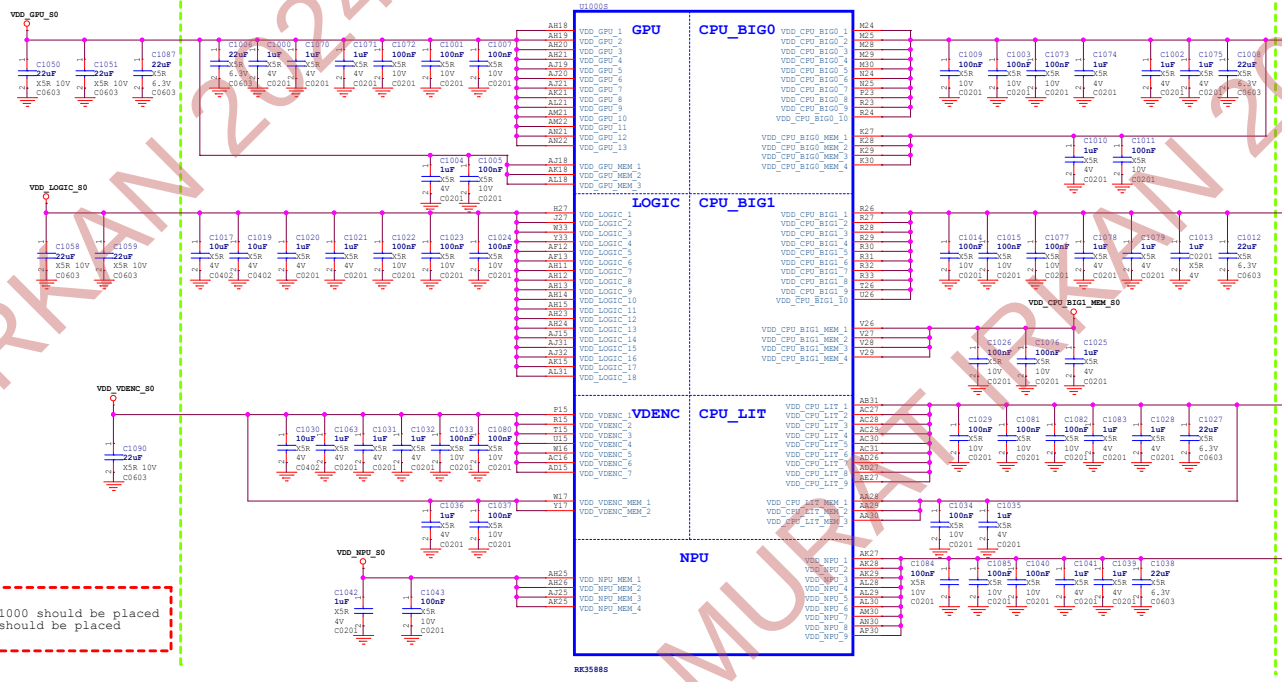
YAPAY ZEKA TEK KART PC - ROCKCHIP RK3588S

RK3588S(Power&Gnd)



Note:
The Caps between green line and VDD_GPU_S0 should be placed under the U1000 package.Other caps should be placed close to the U1000 package

RK3588S ARM ŞASE KONTROL-1

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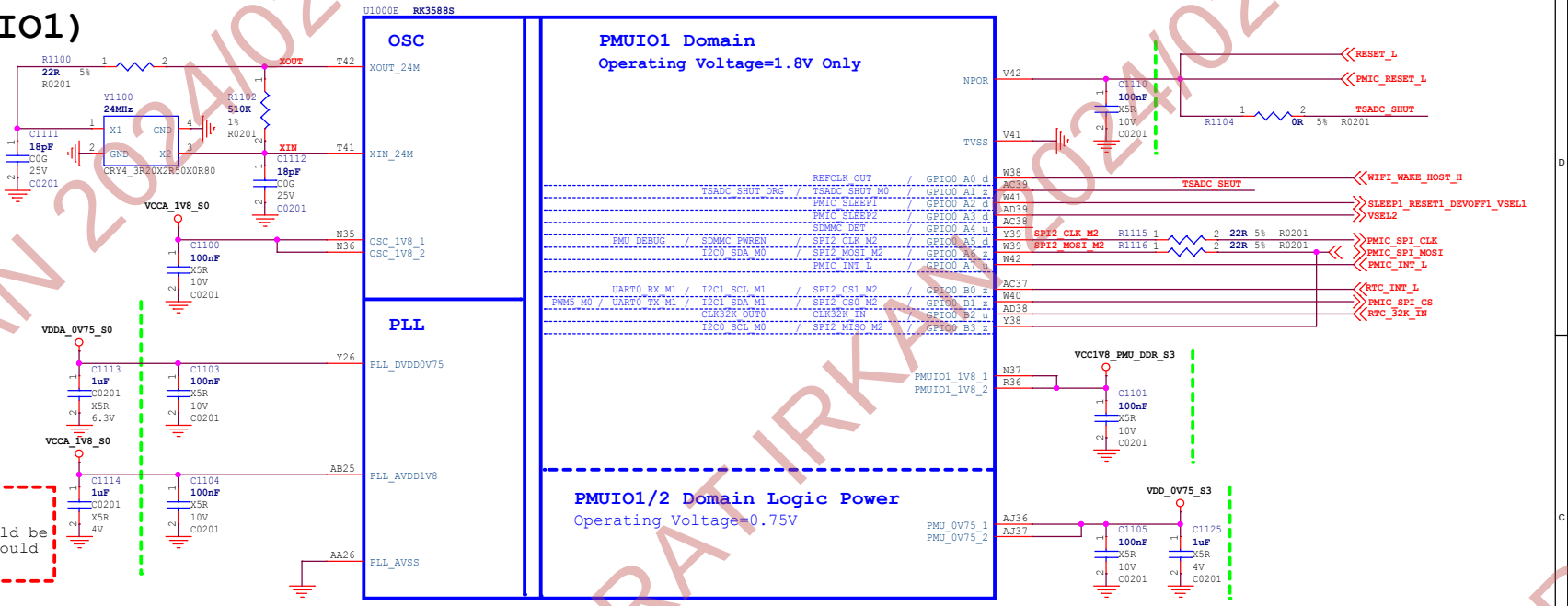
RK3588S(OSC/PLL/PMUIO1)

Note:
Adjusted the load capacitance according to the crystal specification

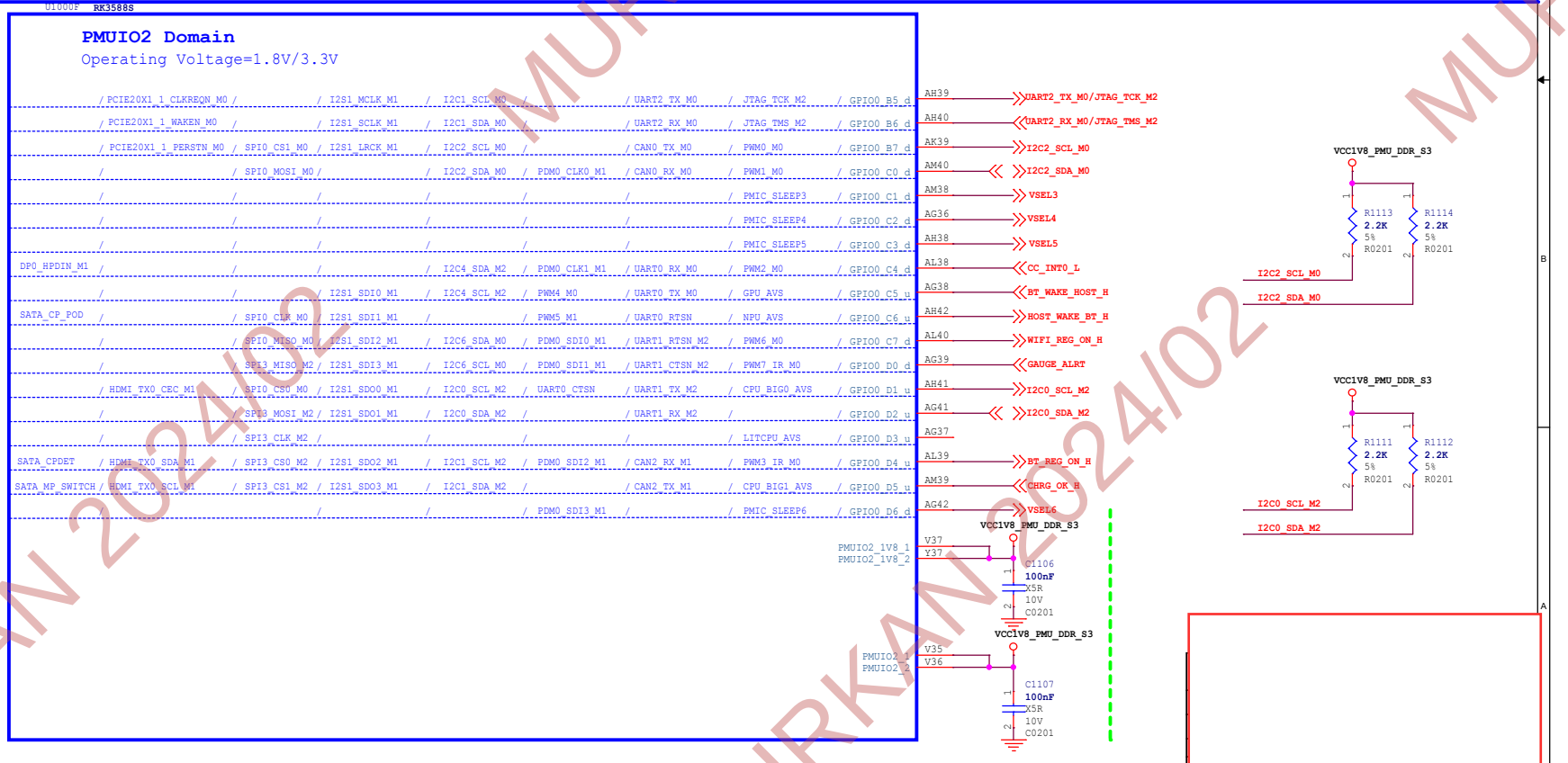
The CL is the load capacitance of the crystal that is recommended by the crystal vendors to obtain target clock frequency.

CL={CL1*CL2/(CL1+CL2))}+PCB strays
Total CL<=12pF

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



RK3588S(PMUIO2)



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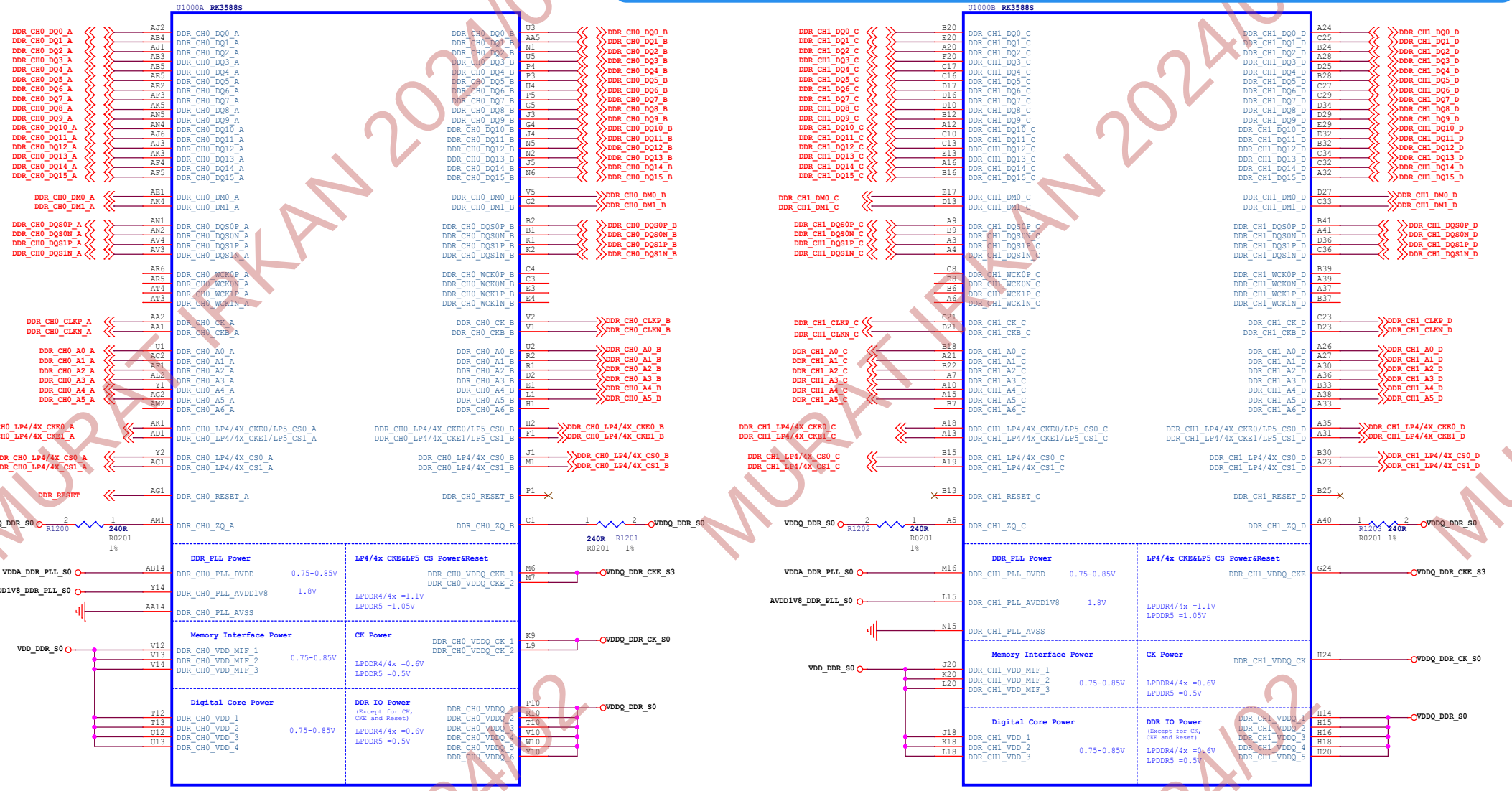
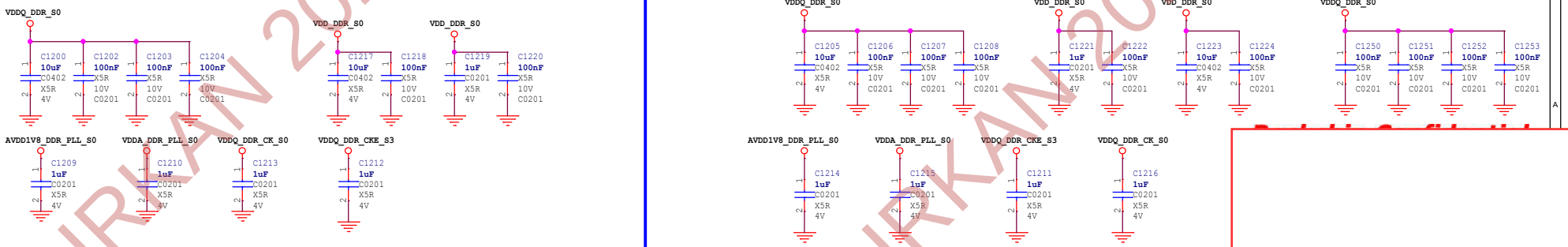
RK3588S(DDR PHY)

LPDDR4-MICRON 32GB



DDR FILTER



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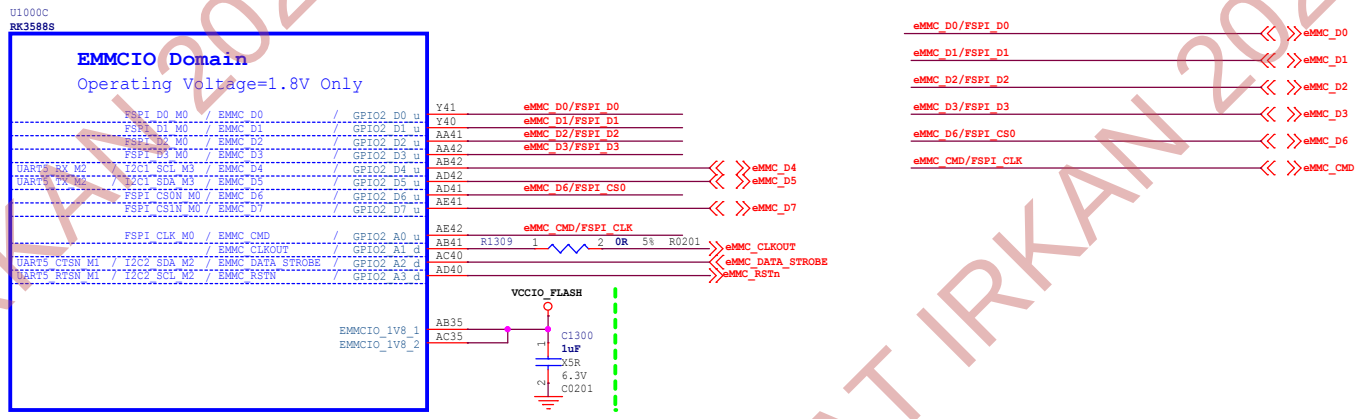
RK3588S(EMMCIO Domain)



RK3588S(VCCIO2 Domain)

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

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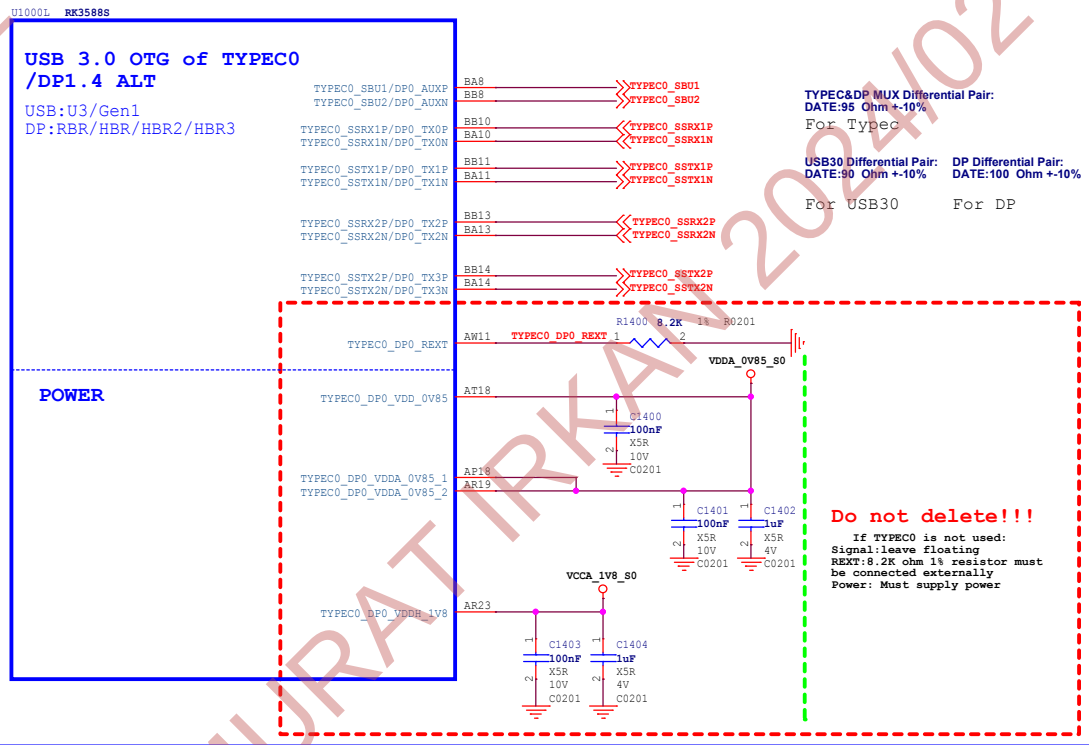
RK3588S(USB3.0/DP1.4)

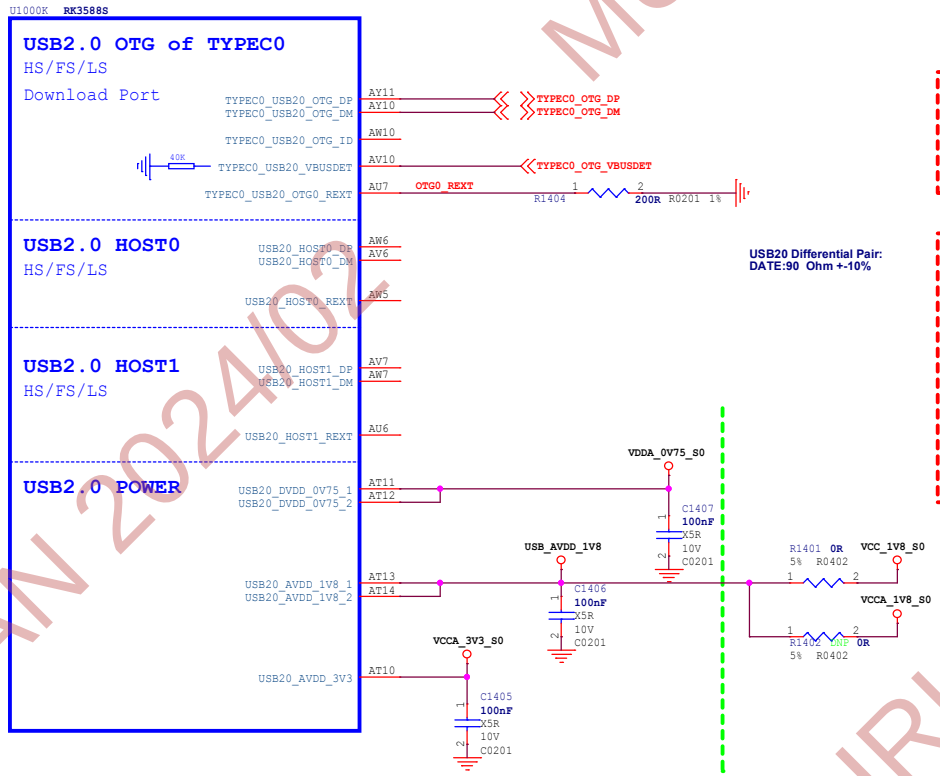


USB30/DP1.4 Alt Mode Configuration

Option1	*DP x4Lane*	*DP_TX_Lane0-3*
Option2	*TYPEC x4Lane*	*SSTX 1P/1N SSTX 2P/2N SSRX 1P/1N SSRX 2P/2N*
Option3	*USB30X2Lane+DPX2Lane*	*USB30:SSTX 1P/1N SSRX 1P/1N DP:Lane2 Lane3*
Option4	*USB30X2Lane+DPX2Lane*	*USB30:SSTX 2P/2N SSRX 2P/2N DP:Lane0 Lane1*

DP Lane
Swap Off:
Lane0/1/2/3_TXdata mapping to Lane0/1/2/3_TXDP/N
Swap On:
Lane0/1/2/3_TXdata mapping to Lane2/3/0/1_TXDP/N

RK3588S(USB2.0)



Note:
The USB20_VBUSDET pin internal has a pull-down resistance(40K ohm) to ground,The resistance creates a voltage with the external series 24K ohm resistor.The VBUSDETpin voltage range <=3.3V.

Note:
TYPEC0_USB20_OTG:

DP/DM:Must used for download
ID:According to demand,if not used,Leave floating
VBUSDET:Must provide
REXT:200ohm 1% resistor must be connected externally
Power: Must supply power

USB20_HOST0/USB20_HOST1:

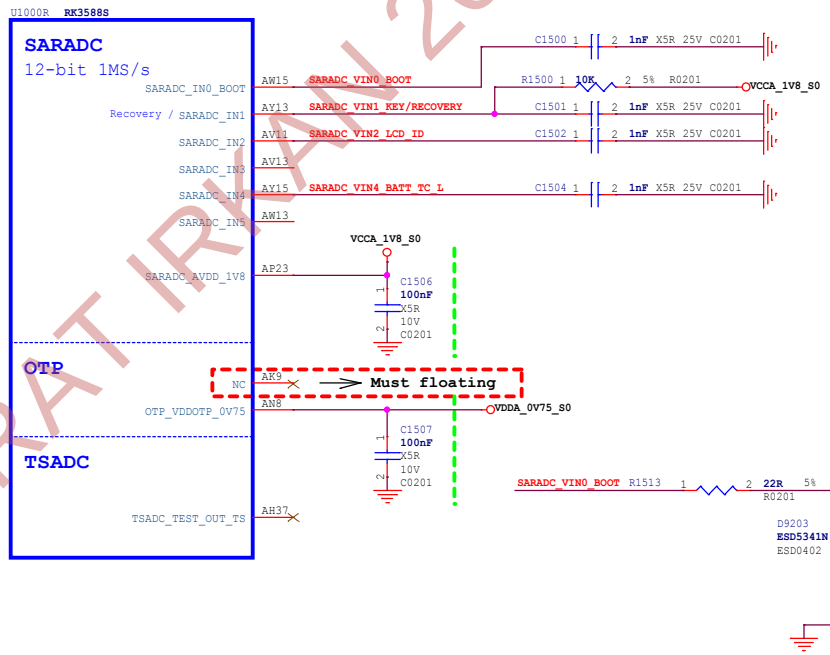
If not used:
DP/DM:Leave floating
REXT:Leave floating

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

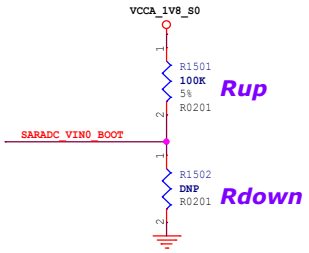
MURAT IRKAN 2024/02

RK3588S(SARADC/OTP/TSADC)

SARADC_VIN1_KEY/RECOVERY
SARADC_VIN2_LCD_ID
SARADC_VIN4_BATT_TC_L

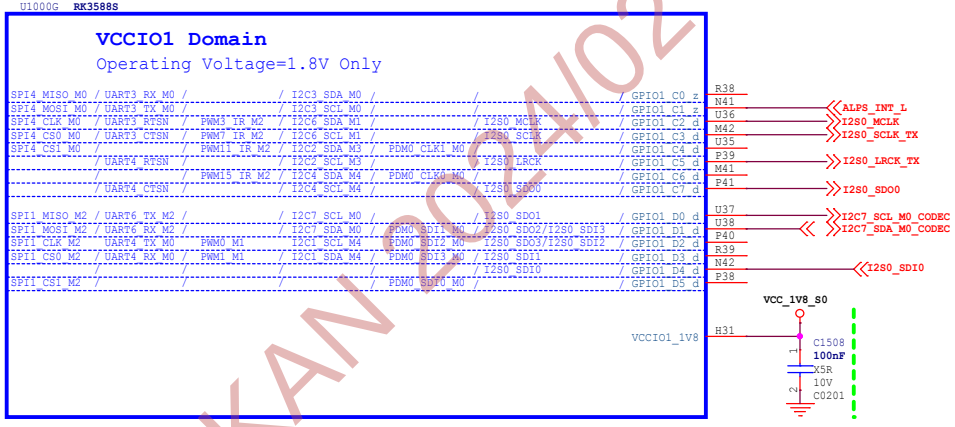


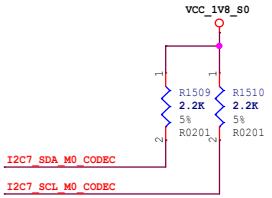
BOOT MODE CONFIG



Item	Rup	Rdown	ADC	BOOT MODE(saradc_in5)
LEVEL1	DNP	100K	0	USB (Maskrom mode)
LEVEL2	100K	20K	682	SD Card-USB
LEVEL3	100K	51K	1365	EMMC-USB
LEVEL4	100K	100K	2047	FSPI M0-USB
LEVEL5	100K	200K	2730	FSPI M1-USB
LEVEL6	100K	499K	3412	FSPI M2-USB
LEVEL7	100K	DNP	4095	FSPI_M2-FSPI_M0-EMMC -SD Card-USB

RK3588S(VCCIO1 Domain)

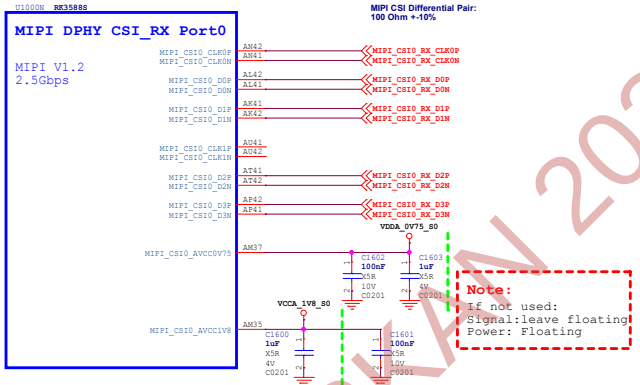




Note:
Caps of between dashed green lines and U1000 should be placed under the U1000 package

MURAT IRKAN 2024/02

RK3588S(MIPI_DPHY CSI0 RX)

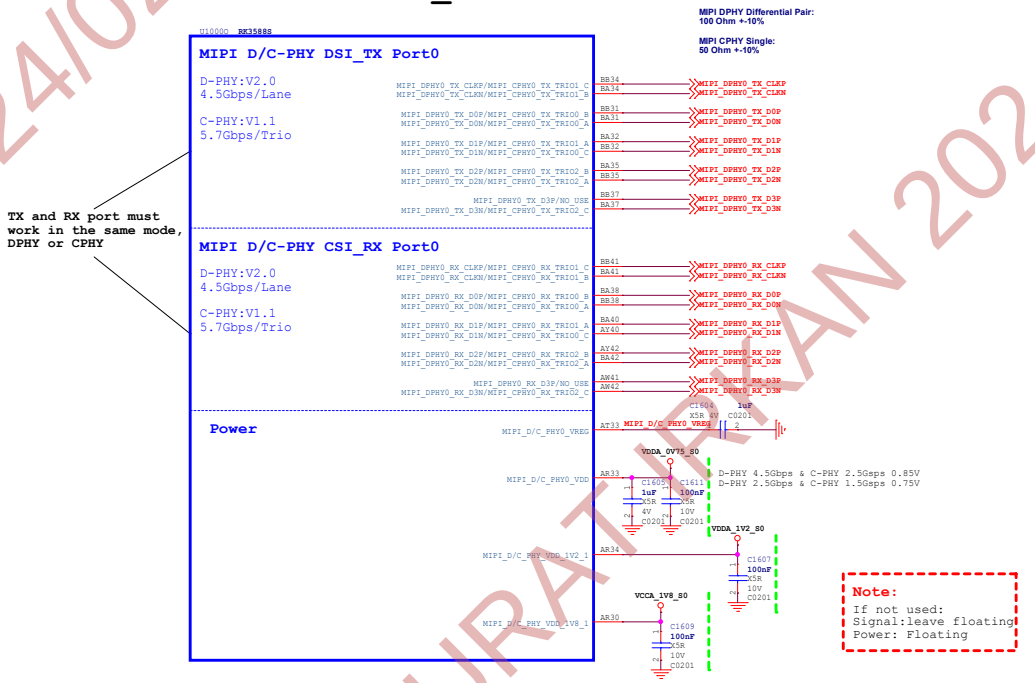


Option1	Sensor1 x4Lane	MIPI_CSI_RX_D0-3 MIPI_CSI_RX_CLK0
Option2	Sensor1 x2Lane + Sensor2 x2Lane	MIPI_CSI_RX_D0-1 MIPI_CSI_RX_CLK0 MIPI_CSI_RX_D2-3 MIPI_CSI_RX_CLK1

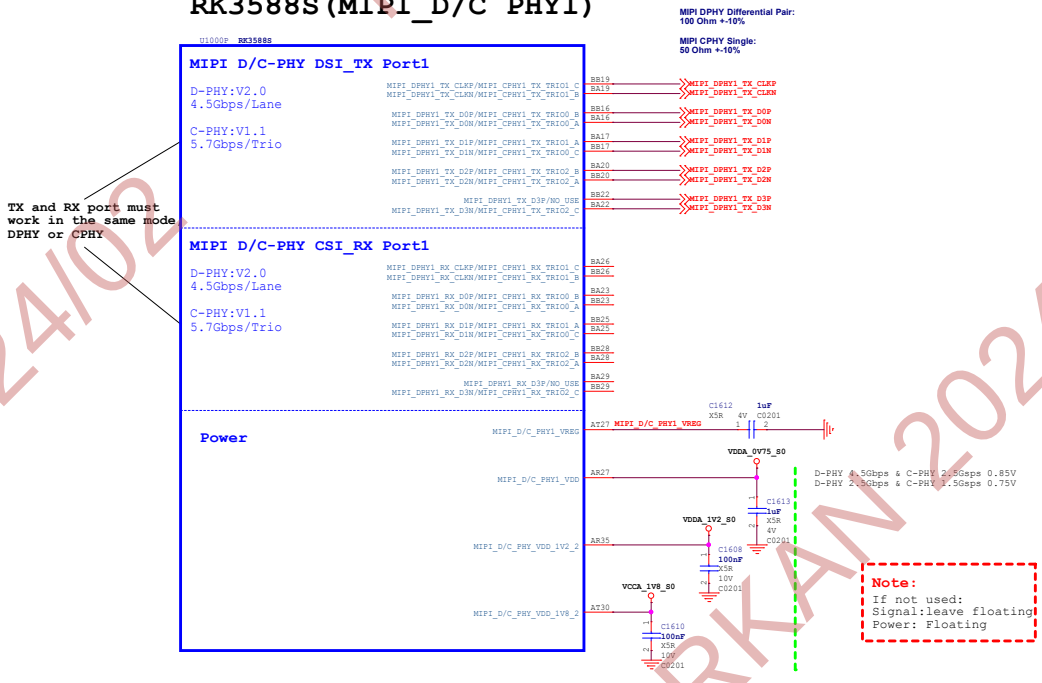
Note:
When in single clock lane mode, CLK0P/0N is the clock lane from Data lane0 to Data lane3,but clock lane1 is invalid; In dual clock lanes mode,CLK0P/0N is the clock lane of Data lane0 and Data lane1,while CLK1P/1N is the clock lane of Data lane2 and Data lane3.

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

RK3588S(MIPI_D/C PHY0)



RK3588S(MIPI_D/C PHY1)



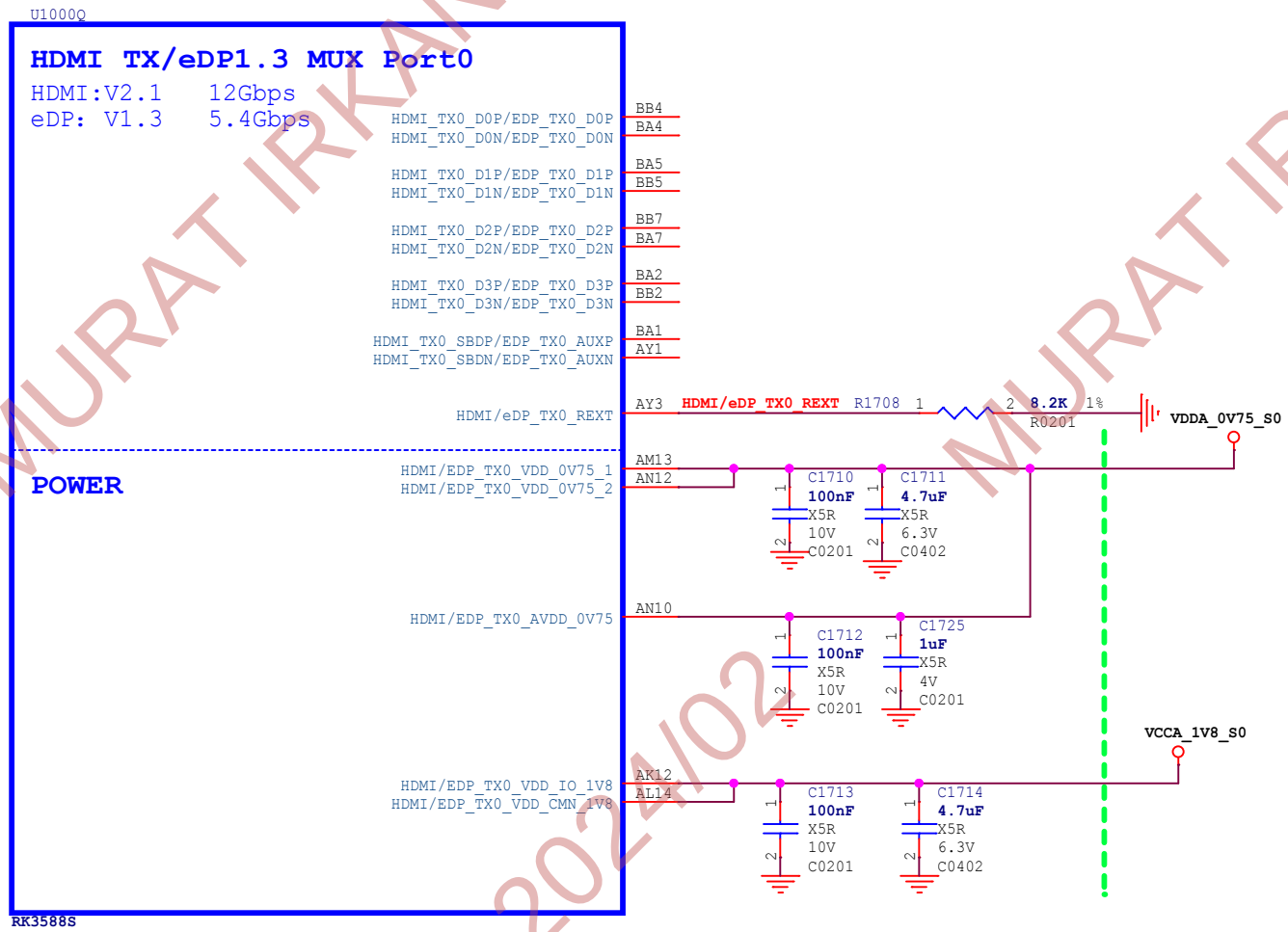
MURAT IRKAN 2024/02

RK3588S(HDMI2.1 TX/eDP1.3 TX)

Note:
The HDMI2.1 trace length is less than 100mm.
The HDMI2.1 differential trace impedance is 100 OHM.

eDP TX
100 Ohm ±10%

HDMI TX
100 Ohm ±10%

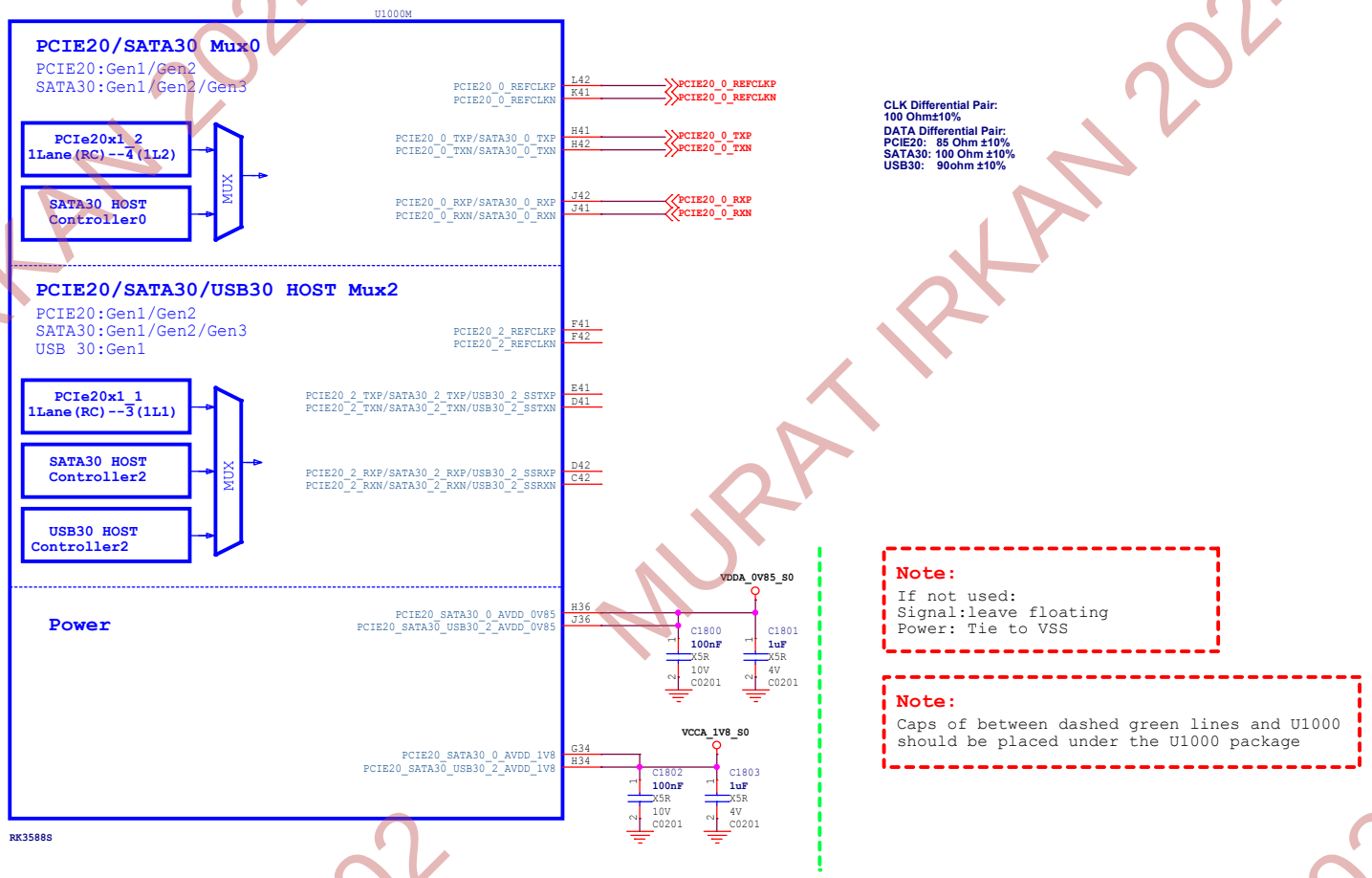


Note:
If not used:
Signal:leave floating
Power: Floating or tie to VSS

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

MURAT IRKAN 2024/02

RK3588S(PCIE20/SATA30/USB30)



CLK Differential Pair:
100 Ohm±10%
DATA Differential Pair:
PCIE20: 85 Ohm ±10%
SATA30: 100 Ohm ±10%
USB30: 90ohm ±10%

Note:
If not used:
Signal:leave floating
Power: Tie to VSS

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

PCIe2.0 PHY

Controller Name	Data & Clk Lane Configure		Control GPIO
	CLK LANE	DATA LANE	
PCIE20X1_1 RC	PCIE20_2_REFCLKP PCIE20_2_REFCLKN	PCIE20_2_TX PCIE20_2_RX	PCIE20X1_1_CLKREQ_M* PCIE20X1_1_WAKEN_M* PCIE20X1_1_PERSTN_M* PCIE20X1_1_BUTTON_RSTN
PCIE20X1_2 RC	PCIE20_0_REFCLKP PCIE20_0_REFCLKN	PCIE20_0_TX PCIE20_0_RX	PCIE20X1_2_CLKREQ_M* PCIE20X1_2_WAKEN_M* PCIE20X1_2_PERSTN_M* PCIE20X1_2_BUTTON_RSTN

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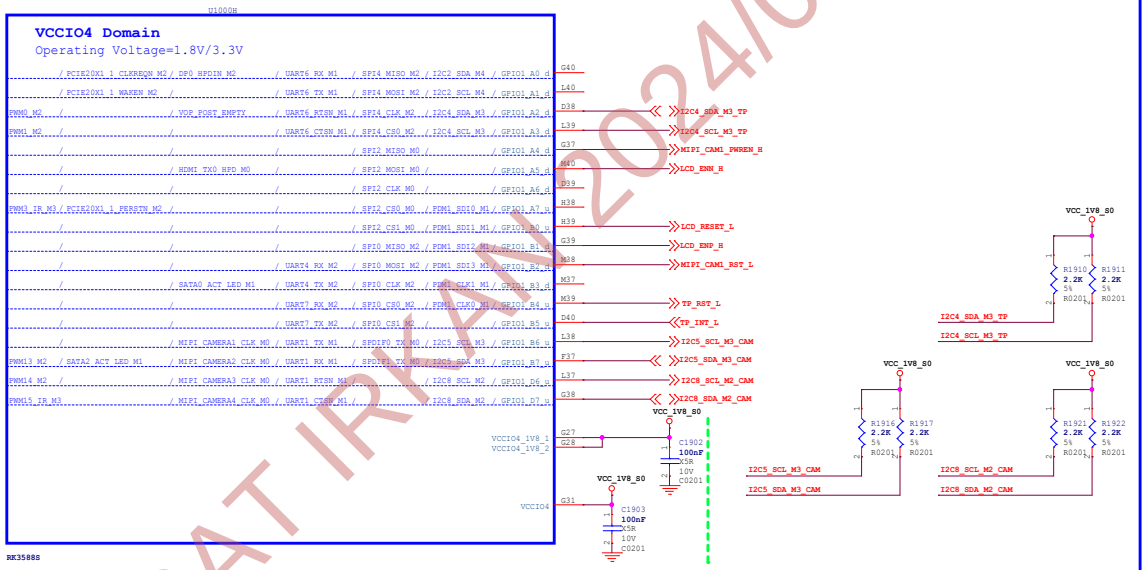
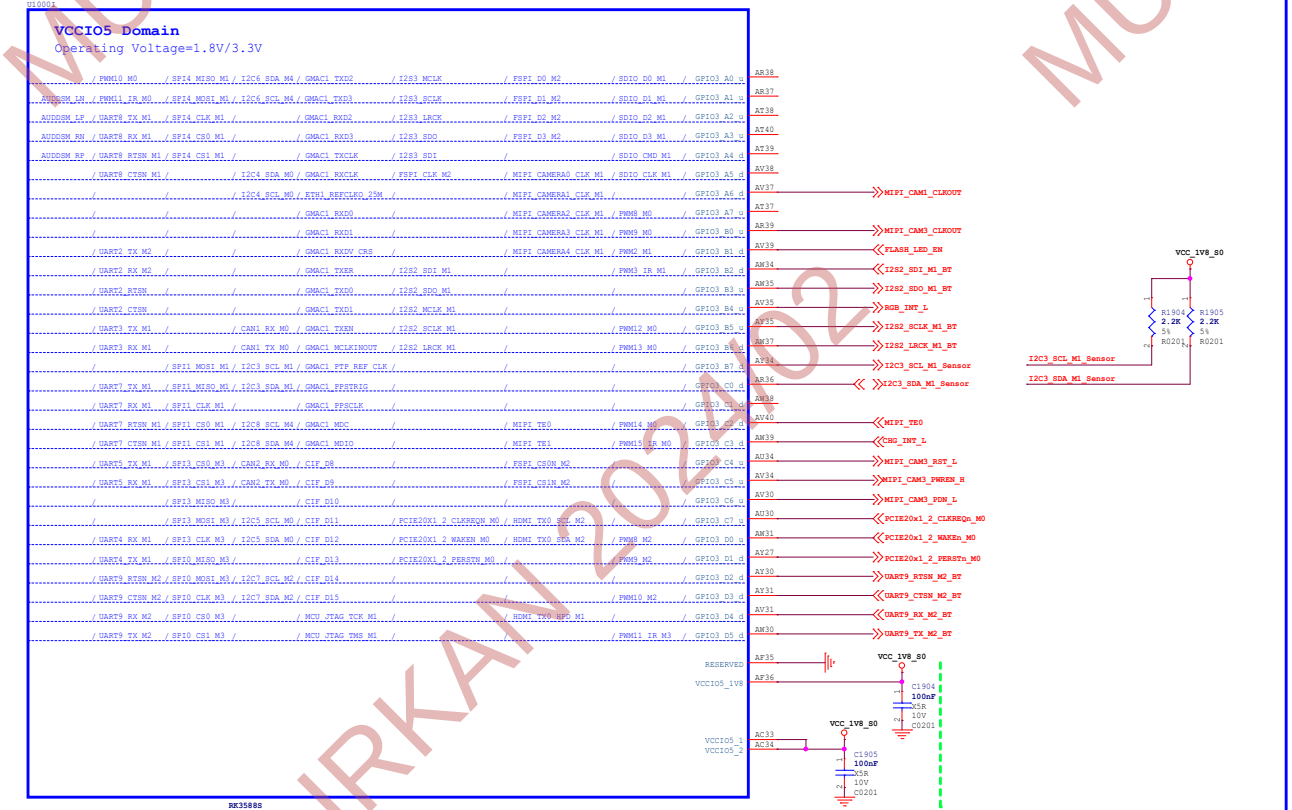
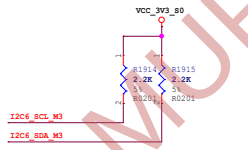
RK3588S(VCCIO4 Domain)



RK3588S(VCCIO6 Domain)

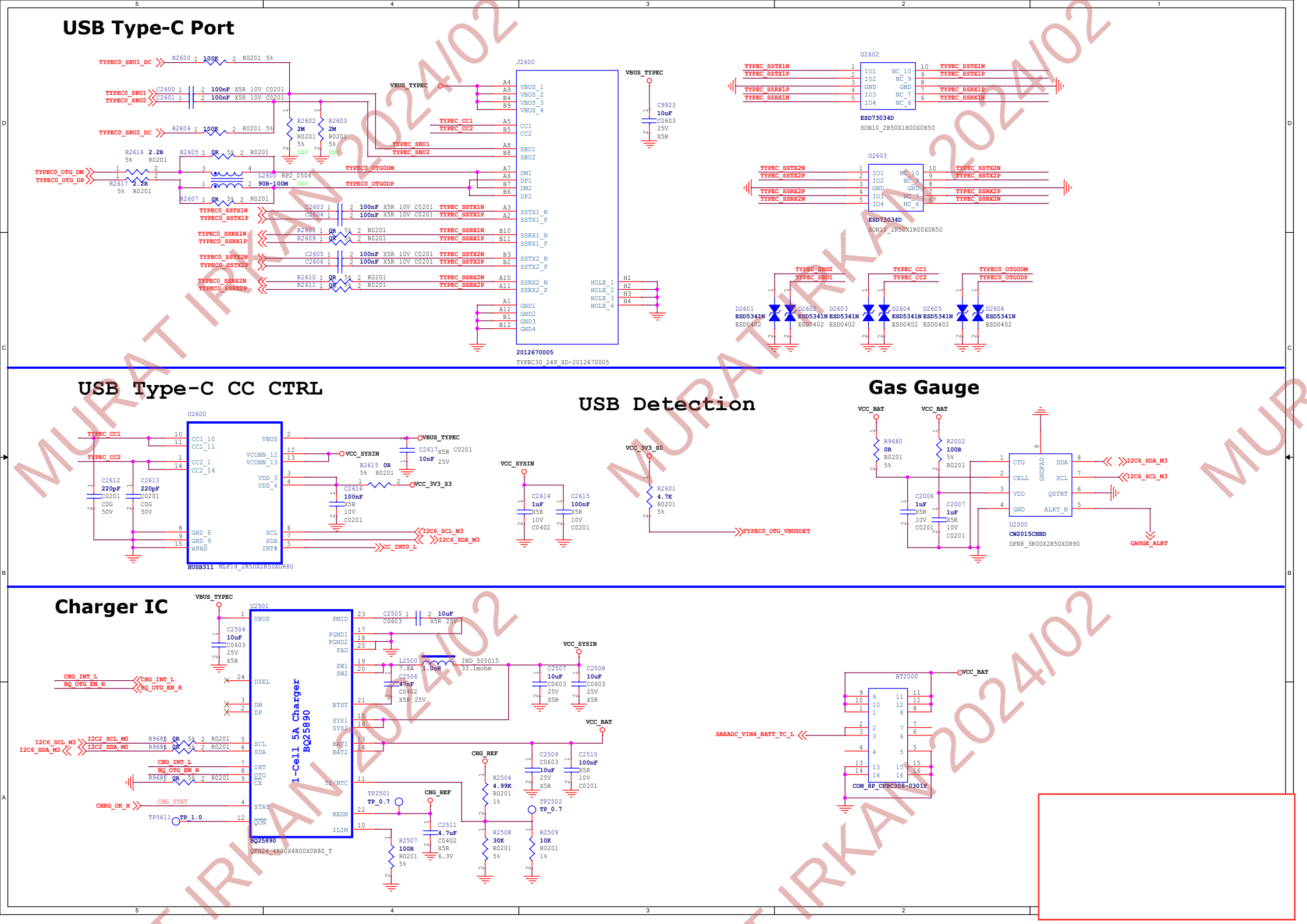
RK3588S(VCCIO5 Domain)





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

MURAT IRKAN 2024/02


USB Type-C Port
TYPEC0_SBU1_DC
TYPEC0_SBU2_DC
TYPEC0_SBU1
TYPEC0_SBU2
TYPEC0_OTG_DM
TYPEC0_OTG_DP
TYPEC0_SSTX1N
TYPEC0_SSTX1P
TYPEC0_SSRX1N
TYPEC0_SSRX1P
TYPEC0_SSTX2N
TYPEC0_SSTX2P
TYPEC0_SSRX2N
TYPEC0_SSRX2P
VBUS_TYPEC
J2600
2012670005
TYPEC30_24P_SD-2012670005
U2602
ESD73034D
SON10_2R50X1R00X0R50
U2603
D2601
D2602
D2603
D2604
D2605
D2606
ESD5341N
ESD0402
USB Type-C CC CTRL
U2600
HUSB311
MLP14_2R50X2R50X0R80
VCC_SYSIN
VCC_3V3_S3
I2C6_SCL_M3
I2C6_SDA_M3
CC_INT0_L
USB Detection
VCC_3V3_S0
TYPEC0_OTG_VBUSDET
Gas Gauge
VCC_BAT
U2000
CW2015CHBD
DFN8_3R00X2R50X0R90
GAUGE_ALRT
Charger IC
U2501
BQ25890
1-Cell 5A Charger
QFN24_4R00X4R00X0R80_T
CHG_INT_L
BQ_OTG_EN_H
I2C6_SCL_M0
I2C6_SDA_M0
CHG_STAT
CHRG_OK_H
CHG_REF
VCC_SYSIN
VCC_BAT
BT2000
CON_8P_CPBC308-0301F
SARADC_VIN4_BATT_TC_L

PMIC1 RK806-1

SLEEP1_RESET1_DEVOFF1_VSEL1
VSEL4
VSEL5
PMIC_INT_L
PWRON_L
PMIC_RESET_L
PMIC_EXT_EN_OUT
PMIC_SPI_CLK
PMIC_SPI_CS
PMIC_SPI_MOSI

VCC_SYSIN
ED2200 AZ5825-01F ESD0402

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!

VSEL5 — R2242 0R — R0201 5% — PMIC_PWR_CTRL2
R2244 DNP 120K R0201

VSEL4 — R2290 0R — R0201 5% — PMIC_PWR_CTRL3
R2291 DNP 120K R0201

PMIC RK806-1 BUCK

Default:0.85V
Low frequency:
0.85V-->0.75V

VDD_DDR_S0 — Feedback from RK3588S
C2200 22uF X5R 10V C0603 — C2202 22uF X5R 10V C0603 — C2203 22uF X5R 10V C0603
R2200 100R 5% R0201 — C9922 1uF X5R 6.3V C0201
L2200 0.47uH IND_201610 — PMIC_SW5

BUCK5 2.5A — VOUT5 — FB5 (FB=0.5V)

VDD2_DDR_S3
C2214 22uF X5R 10V C0603 — C2215 22uF X5R 10V C0603 — C2216 100pF X5R 25V C0201
R2218 120K 1% R0201 — R2227 100K 1% R0201
L2202 0.47uH IND_201610 — PMIC_SW6 — PMIC_VOUT6 — PMIC_FB6

LPDDR4/4x=1.1V	120K
LPDDR5=1.05V	110K

BUCK6 2.5A — VOUT6 — FB6 (FB=0.5V)

VDDQ_DDR_S0
C2228 22uF X5R 10V C0603 — C2227 22uF X5R 10V C0603 — C2229 100pF X5R 25V C0201
R2236 20K 1% R0201 — R2241 100K 1% R0201
L2204 0.47uH IND_201610 — PMIC_SW9 — PMIC_VOUT9 — PMIC_FB9

LPDDR4/4x=0.6V	20K	100K
LPDDR5=0.5V	0R	DNP

BUCK9 2.5A — VOUT9 — FB9 (FB=0.5V)

VCC_3V3_S3
C2238 22uF X5R 10V C0603 — C2239 22uF X5R 10V C0603
L2206 0.47uH IND_201610 — PMIC_SW8 — PMIC_VOUT8

BUCK8 2.5A — VOUT8

VCC1V8_PMU_DDR_S3 — VCC_1V8_S3_PLDO6
R2210 0R R0402 5% DNP — R2211 0R R0402 5%
VCC_1V8_S3 — Default:1.8V
C2242 22uF X5R 10V C0603 — C2243 22uF X5R 10V C0603
L2208 0.47uH IND_201610 — PMIC_SW10 — PMIC_VOUT10

BUCK10 2.5A — VOUT10

BUCK1 6.5A — VOUT1 — FB1 (FB=0.5V)

VCC_SYSIN
C2201 22uF 10V X5R C0603
L2201 0.22uH IND_404020 — PMIC_SW1 — PMIC_VOUT1 — VDD_GPU_S0
C2209 1uF X5R 6.3V C0201 — R2208 100R 5% R0201 — C2210 22uF X5R 10V C0603 — C2205 22uF X5R 10V C0603 — C2280 22uF X5R 10V C0603
Feedback from RK3588S

BUCK2 5A — VOUT2 — FB2 (FB=0.5V)

C2213 22uF 10V X5R C0603
L2203 0.24uH IND_252012 — PMIC_SW2 — PMIC_VOUT2 — VDD_CPU_LIT_S0
C2221 1uF X5R 6.3V C0201 — R2219 100R 5% R0201 — C2217 22uF X5R 10V C0603 — C2218 22uF X5R 10V C0603 — C2281 22uF X5R 10V C0603
Feedback from RK3588S

BUCK3 5A — VOUT3

C2226 22uF 10V X5R C0603
L2205 0.24uH IND_252012 — PMIC_SW3 — VDD_LOGIC_S0
C2230 1uF X5R 6.3V C0201 — R2238 100R 5% R0201 — C2231 22uF X5R 10V C0603 — C2232 22uF X5R 10V C0603 — C2282 22uF X5R 10V C0603
Feedback from RK3588S

BUCK4 5A — VOUT4

C2236 22uF 10V X5R C0603
L2207 0.24uH IND_252012 — PMIC_SW4 — VDD_VDENC_S0
C2291 1uF X5R 6.3V C0201 — R2209 100R 5% R0201 — C2240 22uF X5R 10V C0603 — C2237 22uF X5R 10V C0603 — C2283 22uF X5R 10V C0603
Feedback from RK3588

BUCK7 2.5A — VOUT7

VCC_2V0_PLDO_S3
L2209 0.47uH IND_201610 — PMIC_SW7 — PMIC_VOUT7
C2244 22uF X5R 10V C0603 — C2245 22uF X5R 10V C0603

RK806-1

PMIC RK806-1 Managerment

VCC_1V8_S3_PLDO6
C2248 1uF 6.3V X5R C0201
U2200C
VCCIO — (IIC/SPI)CS — (SDA)MOSI — (SCL)CLK — (PWRCTRL3)SO — PWRCTRL2 — PWRCTRL1
PMIC_SPI_CS — PMIC_SPI_MOSI — PMIC_SPI_CLK — PMIC_PWR_CTRL3 — PMIC_PWR_CTRL2 — SLEEP1_RESET1_DEVOFF1_VSEL1
R2258 100K 5% R0201 — VCC_1V8_S3
VCC_SYSIN
C2254 1uF X5R 10V C0402
VCCA — SYNC_CLK — SYNC — VDC — PWRON — (M/S)EXT_EN — INT — RESETB — ePAD
PMIC_EXT_EN_OUT — PMIC_INT_L — PMIC_RESET_L
R2261 10K 5% R0201 — R2263 10K 5% R0201
C2262 100nF X5R 10V C0201
RK806-1

VBUS_TYPEC
R2264 39K R0201 1%
PMIC_VDC
R2265 10K R0201 1%
D2600 DNP BAT752C3V0 SOD_123
C2260 1nF C0201 X5R 25V
PWRON_L
C2261 100nF X5R 10V C0201

RK3588S nPOR
TSADC_SHUT
RK806-1 RESETB
Reset Key

Note:
- Reset Key Control Path
- TSADC_SHUT Control Path
- RK806-1 Control Path

PMIC RK806-1 LDO

VCC_2V0_PLDO_S3 — C2247 1uF X5R 6.3V C0201
VCC_SYSIN — C2252 1uF X5R 10V C0402
VCC_1V1_NLDO_S3 — C2257 1uF X5R 6.3V C0201
VCC_1V1_NLDO_S3 — C2264 1uF X5R 6.3V C0201
U2200B

PLDO
- VCC11 — PLDO1 0.5A — VCC_1V8_S0 — C2246 1uF 6.3VC0201 X5R — Default:1.8V
- PLDO2 0.3A — VCCA_1V8_S0 — C2249 1uF 6.3VC0201 X5R — Default:1.8V
- PLDO3 0.3A — VDDA_1V2_S0 — C2250 1uF 6.3VC0201 X5R — Default:1.2V
- VCC12 — PLDO4 0.5A — VCCA_3V3_S0 — C2251 1uF 6.3VC0201 X5R — Default:3.3V
- PLDO5 0.3A — VCCIO_SD_S0 — C2253 1uF 6.3VC0201 X5R — Default:3.3V

NLDO
- VCC13 — NLDO1 0.3A — VDD_0V75_S3 — C2255 2.2uF 6.3VC0402 X5R — Default:0.75V
- NLDO2 0.3A — VDDA_DDR_PLL_S0 — C2258 2.2uF 6.3VC0402 X5R — Default:0.85V; Low frequency:0.85V-->0.75V
- NLDO3 0.5A — VDDA_0V75_S0 — C2259 2.2uF 6.3VC0402 X5R — Default:0.75V
- VCC14 — NLDO4 0.5A — VDDA_0V85_S0 — C2263 2.2uF 6.3VC0402 X5R — Default:0.85V
- NLDO5 0.3A — C2265 2.2uF 6.3VC0402 X5R — Default:0.75V Reserved

VCCA_1V8_S0 — AVDD1V8_DDR_PLL_S0
C2290 1uF X5R 6.3V C0201

RK806-1

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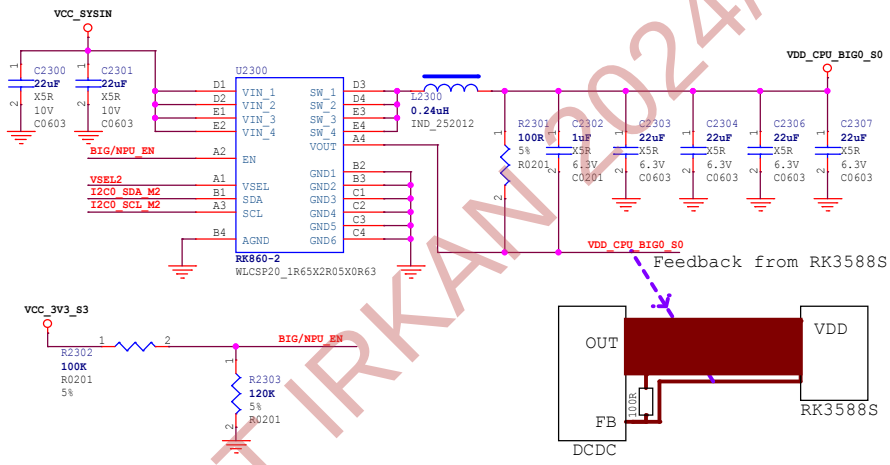
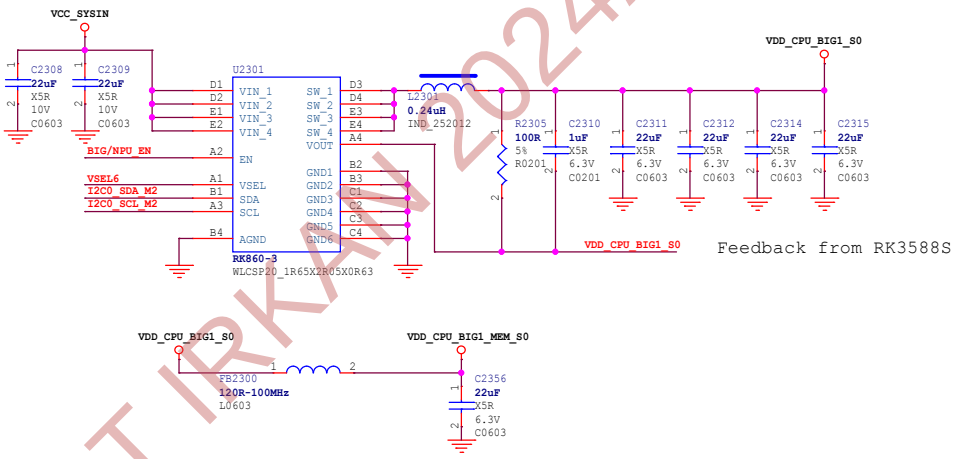
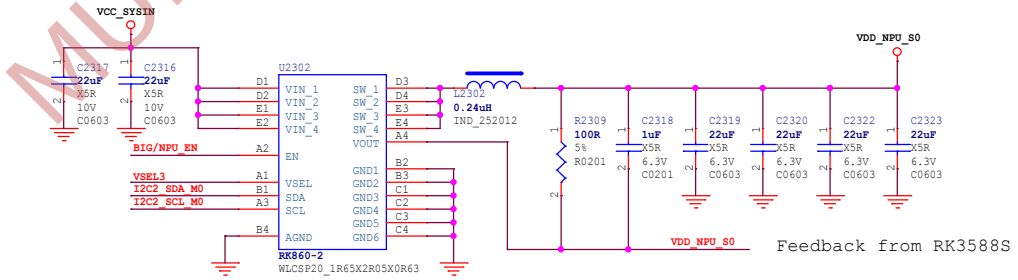
VDD_CPU_BIG0



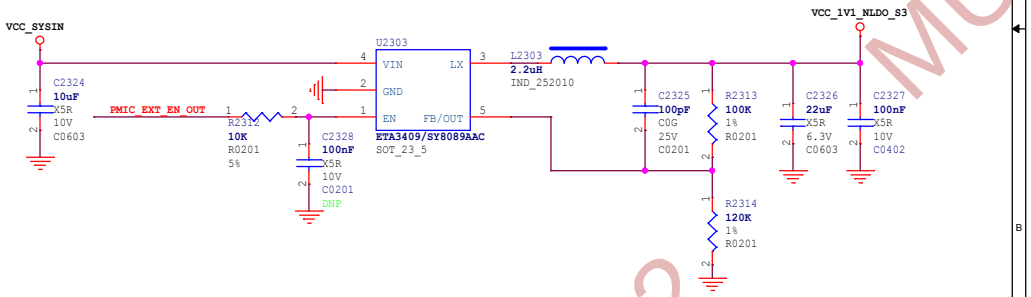
VDD_CPU_BIG1



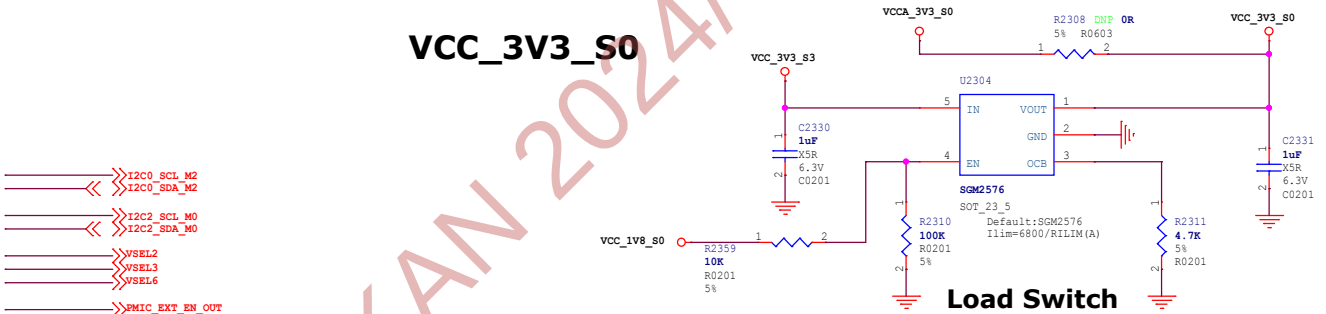
VDD_NPU



VCC_1V1_NLDO

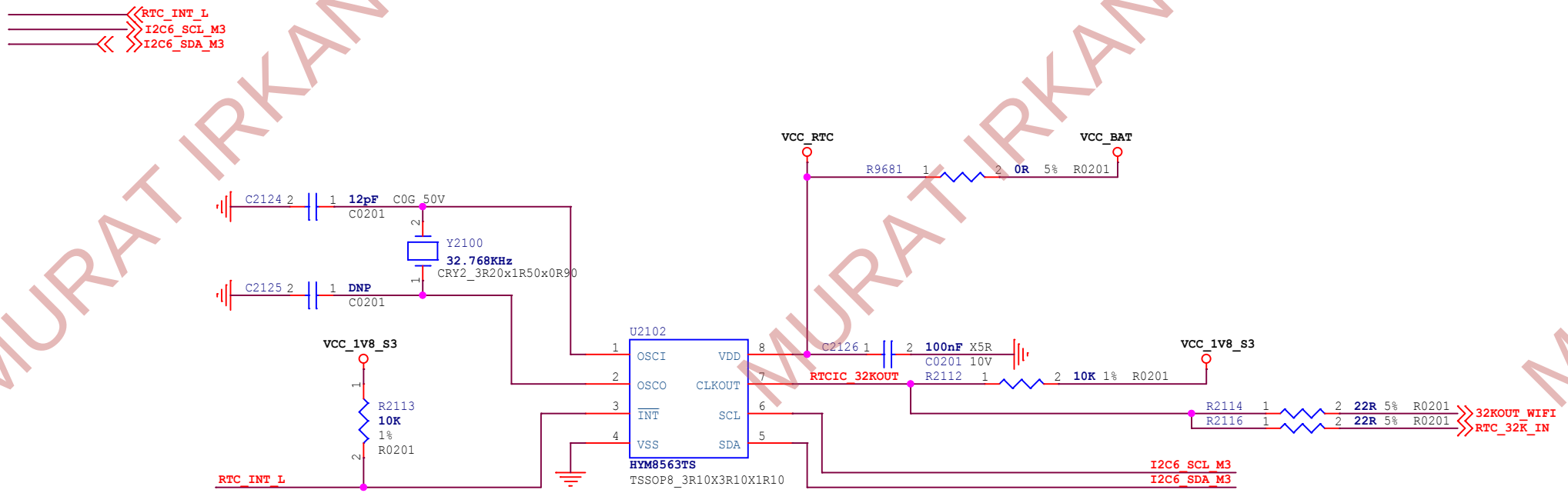


VCC_3V3_S0



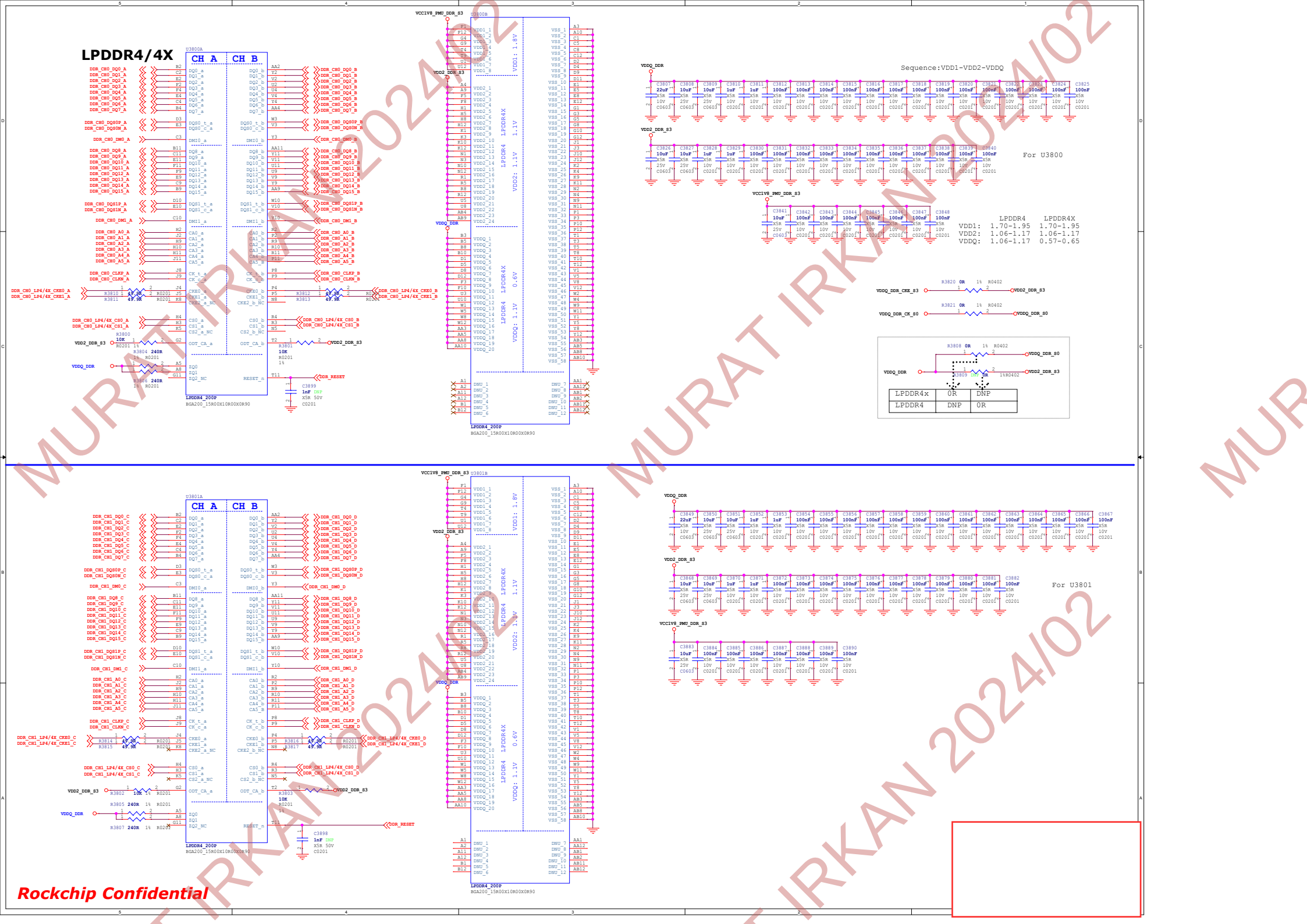
MURAT IRKAN 2024/02

RTC IC

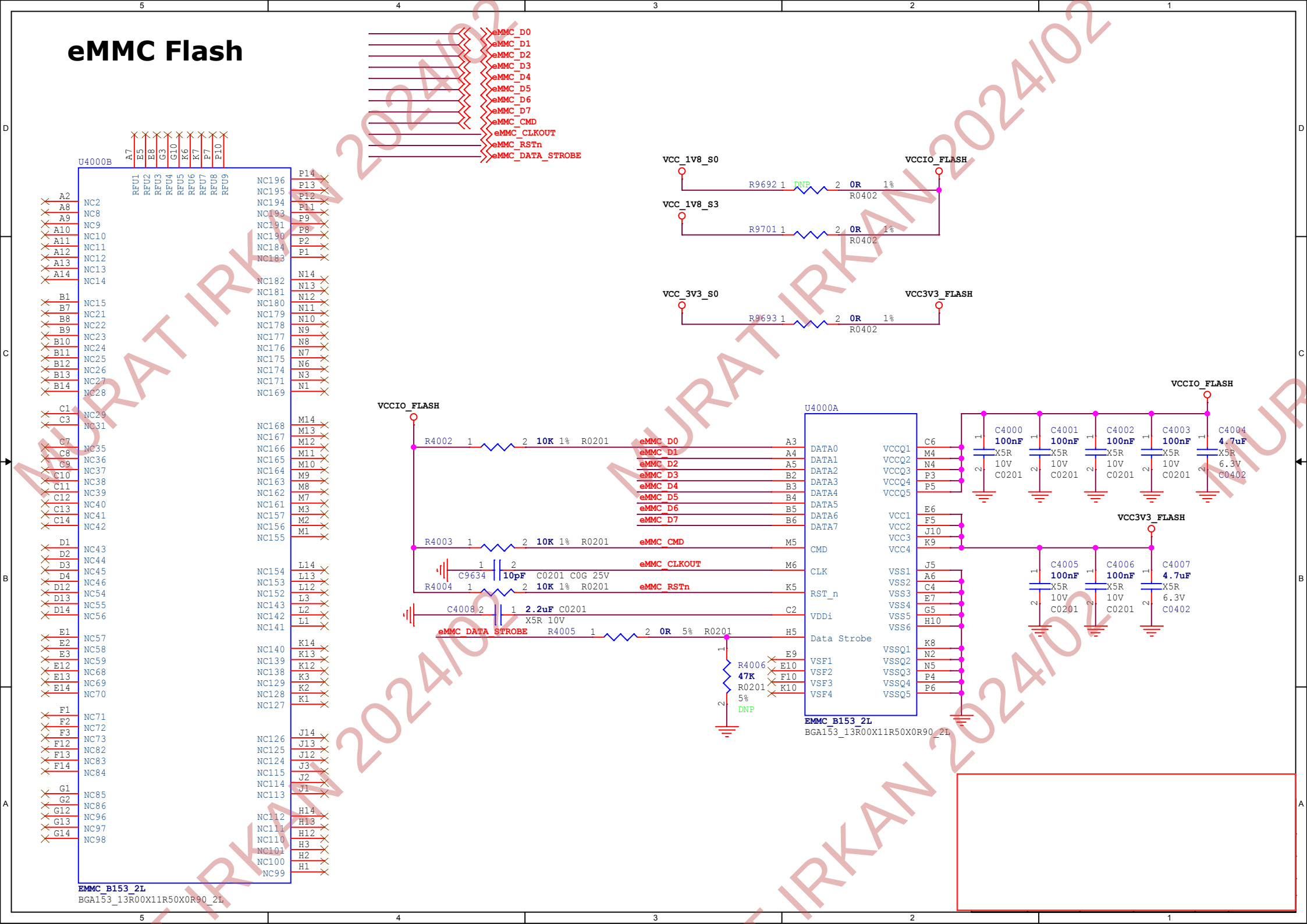


Address:Read A3H,Write A2H

MURAT IRKAN 2024/02


LPDDR4/4X
CH A
CH B
U3800A
U3800B
LPDDR4_200P
BGA200_15R00X10R00X0R90
VCC1V8_PMU_DDR_S3
VDD2_DDR_S3
VDDQ_DDR
VDD1: 1.8V
VDD2: 1.1V
VDDQ: 0.6V
LPDDR4X
LPDDR4
Sequence:VDD1-VDD2-VDDQ
For U3800
For U3801
VDDQ_DDR_CKE_S3
VDDQ_DDR_CK_S0
VDDQ_DDR_S0
DDR_RESET
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
LPDDR4x 0R DNP
LPDDR4 DNP 0R
Rockchip Confidential

eMMC Flash



MURAT IRKAN 2024/02

MIPI-CSI0_RX

MIPI_CSI0_RX_D0P
MIPI_CSI0_RX_D0N
MIPI_CSI0_RX_D1P
MIPI_CSI0_RX_D1N
MIPI_CSI0_RX_D2P
MIPI_CSI0_RX_D2N
MIPI_CSI0_RX_D3P
MIPI_CSI0_RX_D3N
MIPI_CSI0_RX_CLK0P
MIPI_CSI0_RX_CLK0N
MIPI_CAM3_CLKOUT
MIPI_CAM3_RST_L
MIPI_CAM3_PWREN_H
MIPI_CAM3_PDN_L
I2C8_SCL_M2_CAM
I2C8_SDA_M2_CAM

前摄：OV16A10-GA5A-Z

J4600
BM28B0.6-30DS/2-0.35V
CON_SMD_BM28B0_6_30DS_2_0_35V_30

MIPI_CSI0_RX_D3P
MIPI_CSI0_RX_D3N
MIPI_CSI0_RX_D2P
MIPI_CSI0_RX_D2N
MIPI_CSI0_RX_CLK0P
MIPI_CSI0_RX_CLK0N
MIPI_CSI0_RX_D1P
MIPI_CSI0_RX_D1N
MIPI_CSI0_RX_D0P
MIPI_CSI0_RX_D0N
VCC_2V8_CAM1
I2C8_SCL_M2_CAM
I2C8_SDA_M2_CAM
VCC_1V2_CAM1
VCC_1V2_CAM1
MIPI_CAM3_RST_L
MIPI_CAM3_PDN_L
MIPI_CAM3_CLKOUT
VCC_1V2_CAM1
VCC_1V8_CAM1

VCC_1V2_CAM1
VCC_1V8_CAM1
VCC_2V8_CAM1

C4600 10uF X5R 25V C0603
C4601 100nF X5R 10V C0201
C4602 4.7uF X5R 6.3V C0402
C4603 100nF X5R 10V C0201
C4604 10uF X5R 25V C0603
C4605 100nF X5R 10V C0201

VCC_3V3_S3
U4600
VIN VOUT EP SHDN GND
UM1560DB_28
C4618 1uF X5R 10V C0201
MIPI_CAM3_PWREN_H
R4636 10K 1% R0201
R9668 100K R0201 5%
C4626 100nF X5R 10V C0201 DNP
VCC_2V8_CAM1
C4619 4.7uF X5R 6.3V C0402

VCC_3V3_S3
U4601
VIN VOUT EP SHDN GND
UM1560DB_18
C4620 1uF X5R 10V C0201
MIPI_CAM3_PWREN_H
R4634 10K 1% R0201
C4627 100nF X5R 10V C0201
VCC_1V8_CAM1
C4623 4.7uF X5R 6.3V C0402

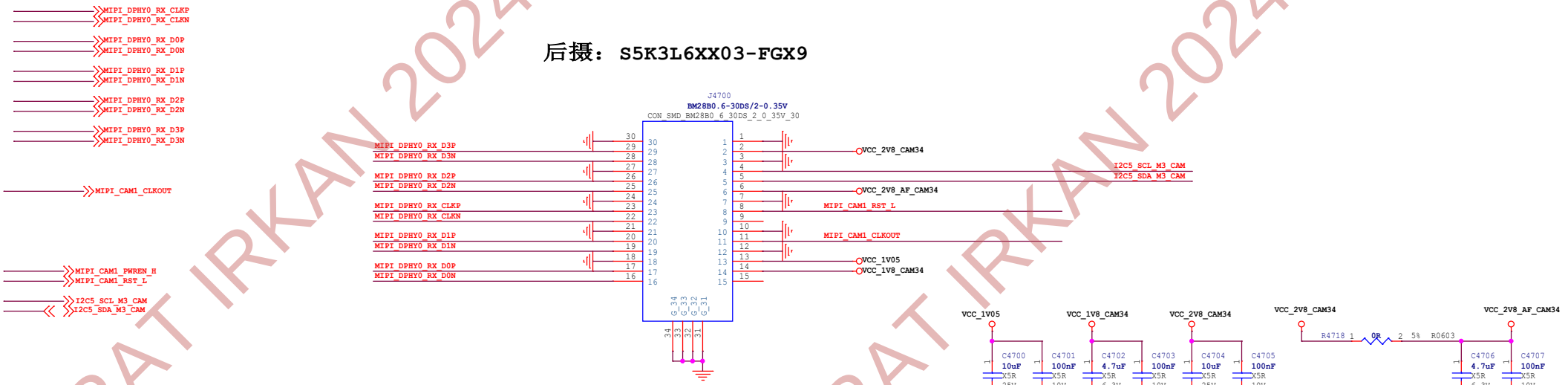
VCC_3V3_S3
U4602
IN OUT GND EN ADJ
LP3983S SOT_23_5
C4628 1uF X5R 10V C0201
MIPI_CAM3_PWREN_H
R4644 33K 5% R0201
C4631 100nF X5R 10V C0201
R4645 200K 1% R0201
C4629 22pF C0G 50V C0201
R4651 390K 1% R0201
VCC_1V2_CAM1
C4630 4.7uF X5R 6.3V C0402

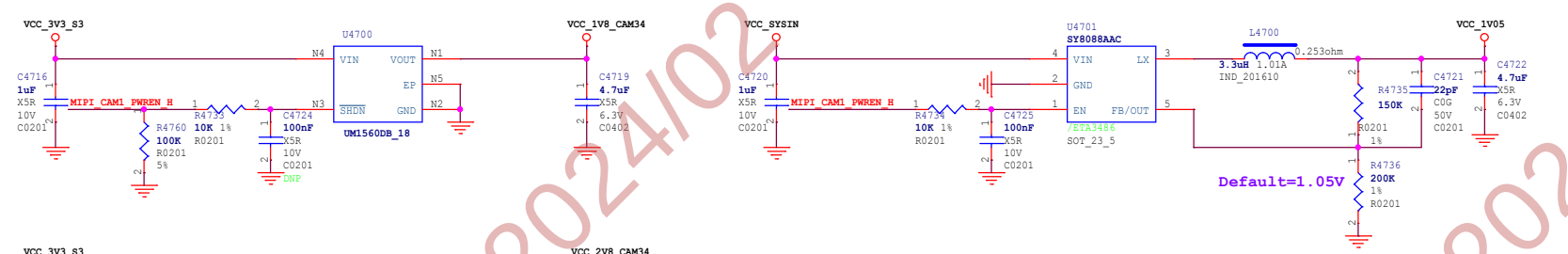
Default=1.2V

MURAT IRKAN 2024/02

VI-Camera DPHY_RX

后摄： S5K3L6XX03-FGX9

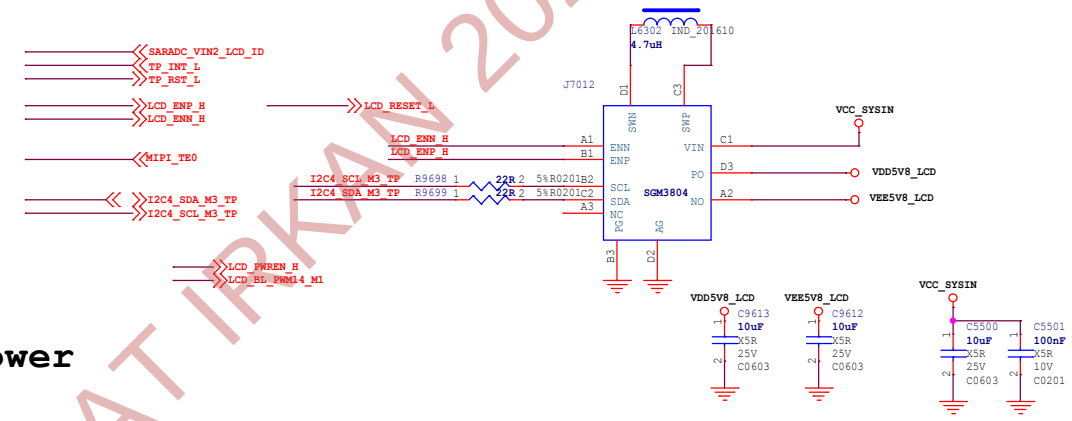


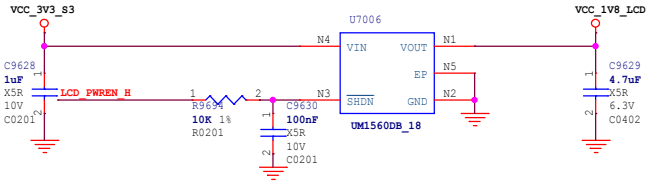


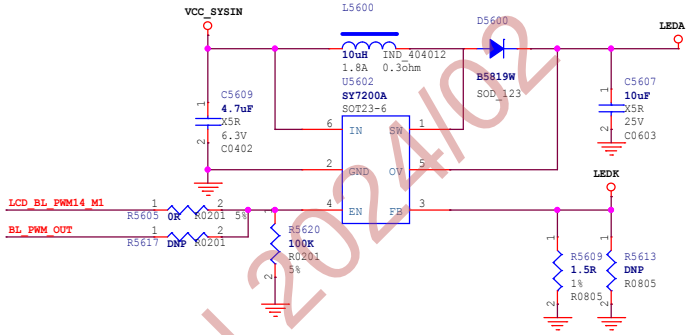
MURAT IRKAN 2024/02

MIPI DPHY TX

Power







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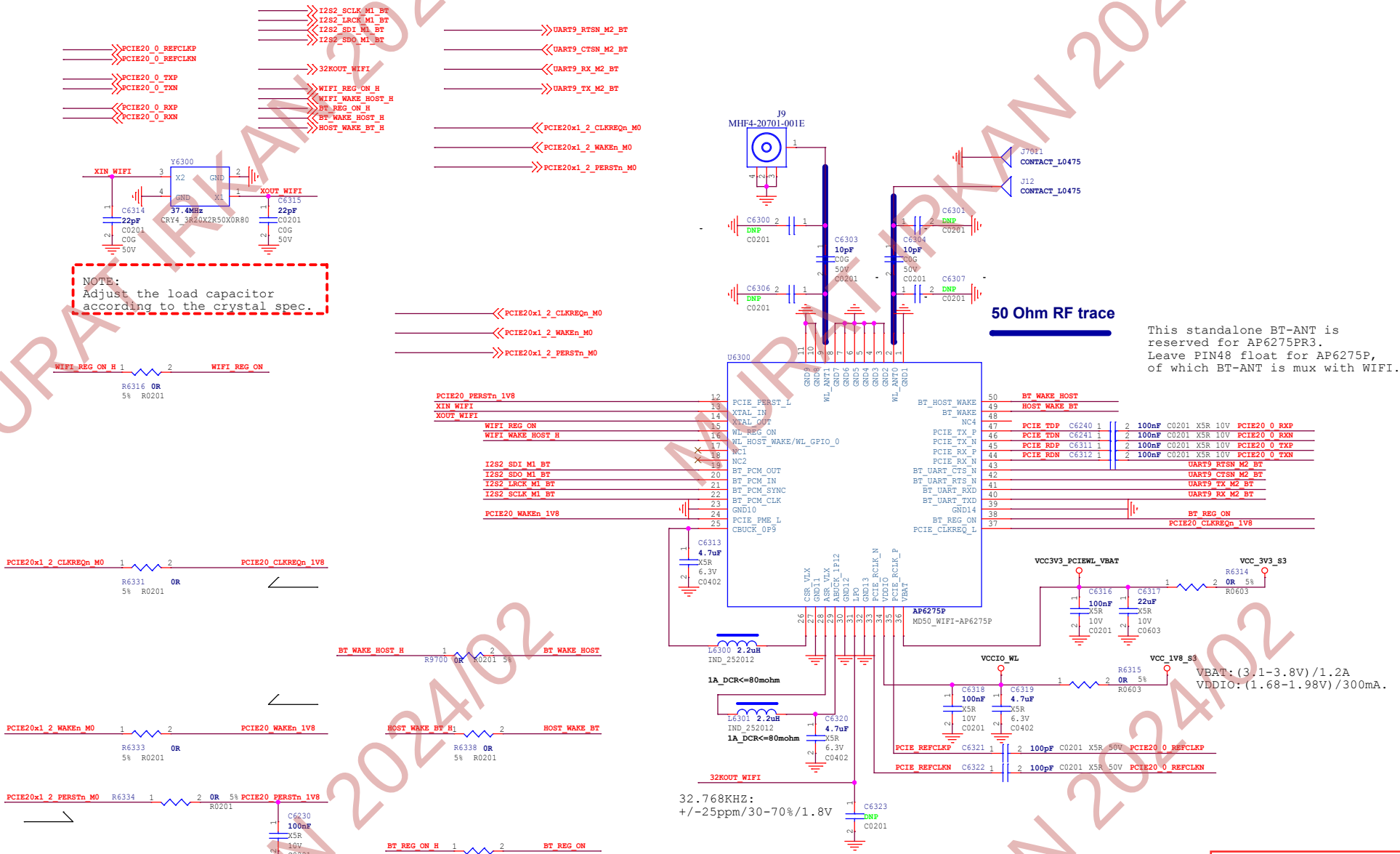
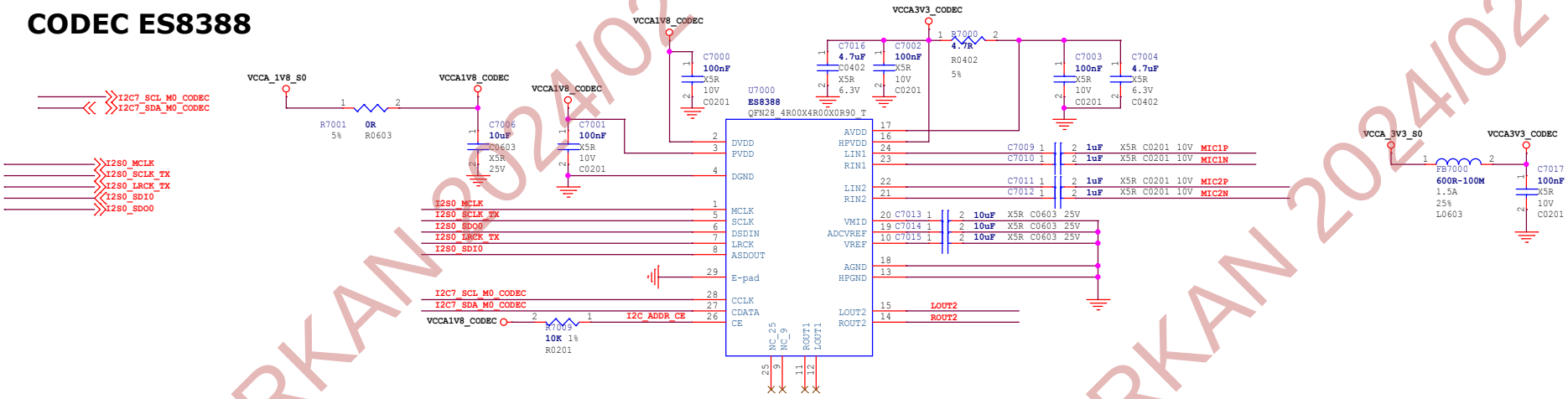
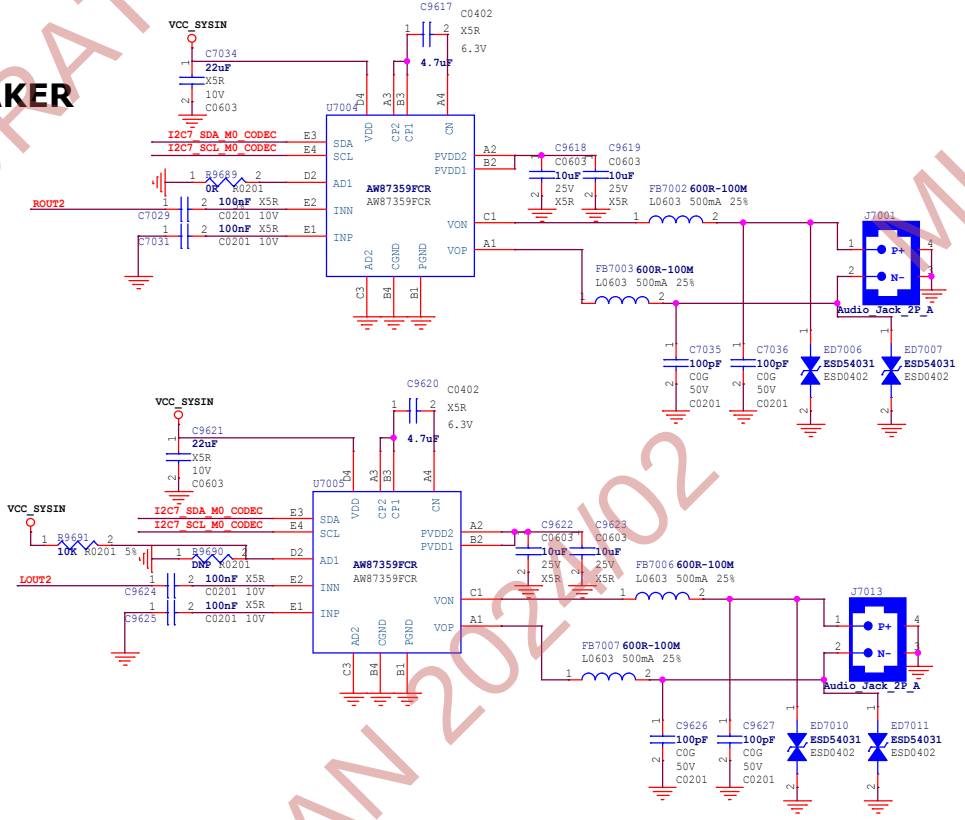
PCIe WIFI6/BT Module-2T2R



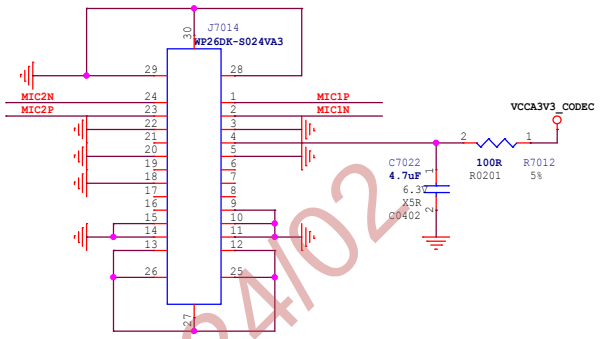
CODEC ES8388



SPEAKER



Analog MIC



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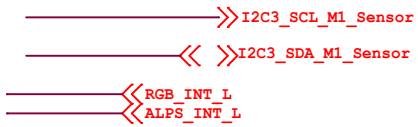
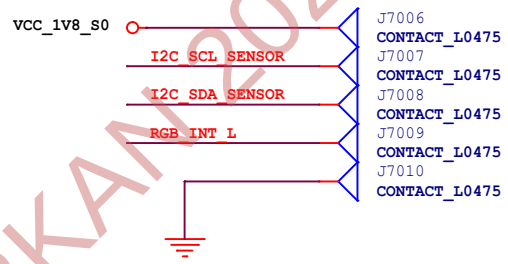
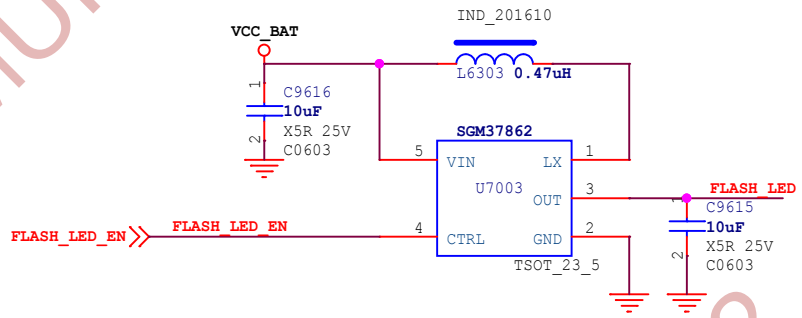


Sensor

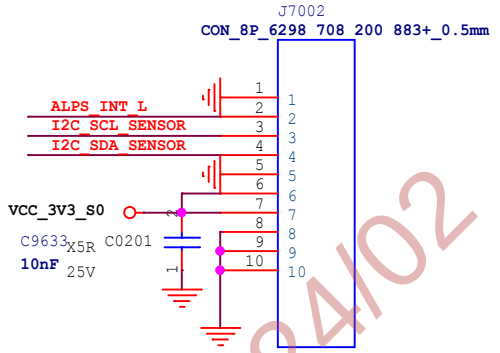




MAX:1.5A

Flashlight

PLS+ALS



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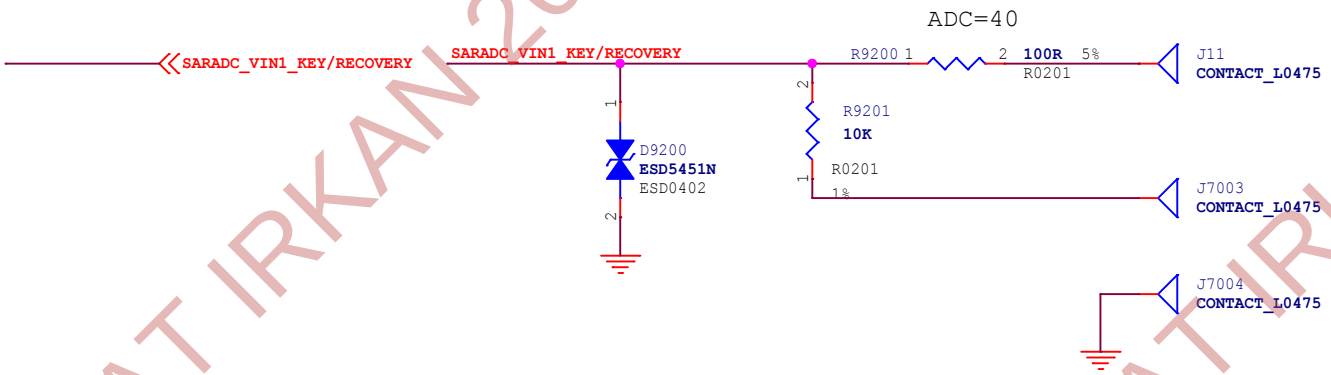
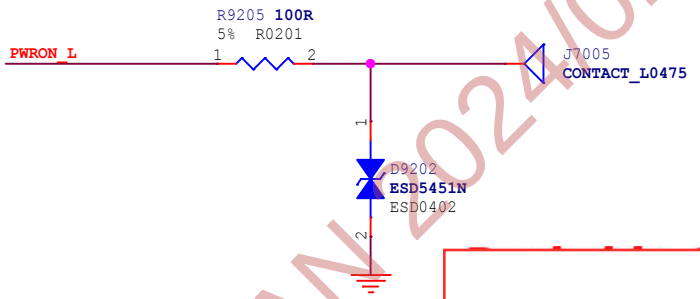
KEY Array



Reset_Key

PWR_Key



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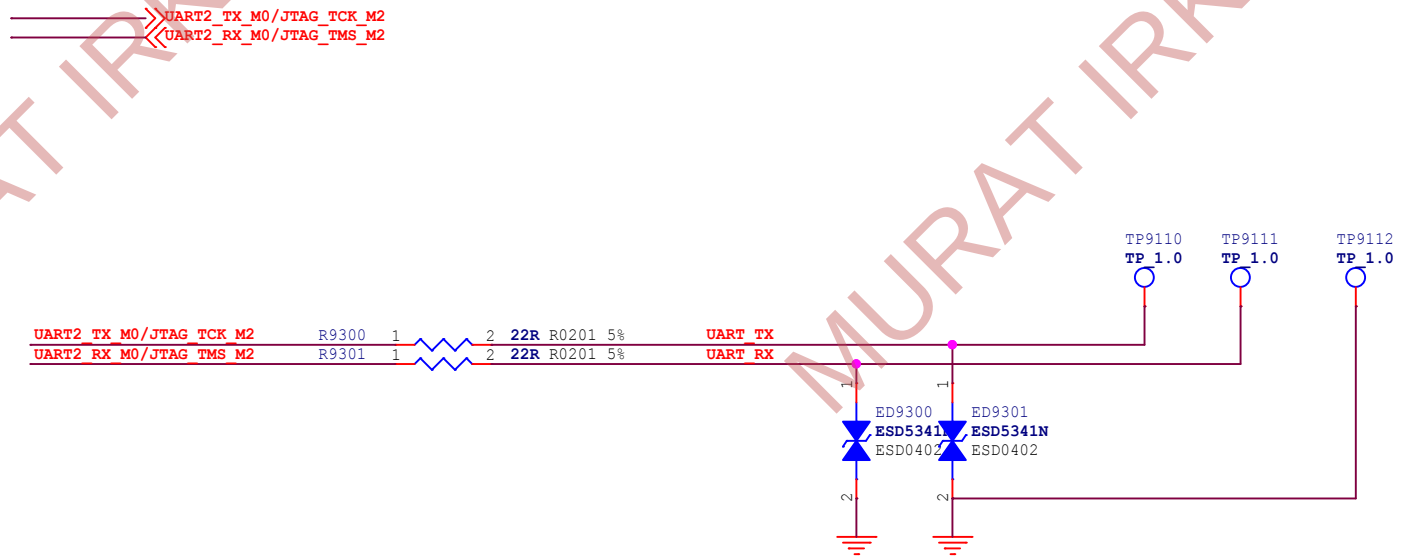
UART Debug

JTAG Debug



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