


VERSION HISTORY

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- P16 WIFI+BT
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- P08 DDR4-16X2
- P08 LPDDR3-32X1
- P08 LPDDR4-32X1

Revision			Description	Date	Drawn	Checked	Approved
Ver 1.0	Release	version		20200528			
Ver 1.1	Release	version		20200714			
Ver 1.2	Release	version		20201203			
Ver 1.3	Release	version		20210126			
Ver 1.4	Release	version		20210913			
Ver 1.5	Release	version		20220209			
Ver 1.6	Release	version		20220719			
Ver 1.7	Release	version		20220729			

				AllWinner Technology Co.,Ltd			
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Size	Page	Name			Rev		
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BLOCK

AC Line → AC Adapter → DCDC → 5V → Power Management (PMIC AXP305B)

Power Management (PMIC AXP305B) → INTERRUPT → R818 BGA 346

R818 BGA 346 → 1080P/720P

R818 BGA 346 → Front camera

R818 BGA 346 → Rear camera

R818 BGA 346 → NAND/EMMC

R818 BGA 346 → SD/MMC CARD

R818 BGA 346 → SENSOR

R818 BGA 346 → Capacitive Touch Screen Controller

R818 BGA 346 → DRAMC

R818 BGA 346 → STORAGE

R818 BGA 346 → SD/MMC0

R818 BGA 346 → TWI1

R818 BGA 346 → TWI0

R818 BGA 346 → RGB

R818 BGA 346 → EINK

R818 BGA 346 → LVDS

R818 BGA 346 → MIPI-DSI

R818 BGA 346 → MIPI-CSI

R818 BGA 346 → NMI

R818 BGA 346 → TWI

R818 BGA 346 → DCDC

R818 BGA 346 → OSC 32K

R818 BGA 346 → LRADC

R818 BGA 346 → KEY

R818 BGA 346 → USB0

R818 BGA 346 → USB1

R818 BGA 346 → AUDIO

R818 BGA 346 → MIC PHONE

R818 BGA 346 → HEAD PHONE

R818 BGA 346 → PCM0

R818 BGA 346 → PCM1

R818 BGA 346 → SDC1

R818 BGA 346 → UART1

R818 BGA 346 → SPI1

R818 BGA 346 → SDIO WIFI +BT

R818 BGA 346 → USB2.0 OTG

R818 BGA 346 → USB2.0 host

R818 BGA 346 → Class D/AB AMP

R818 BGA 346 → MICRO USB

R818 BGA 346 → USB2.0 PORT

R818 BGA 346 → 24MHz

R818 BGA 346 → 32768Hz

MaCo_Yao

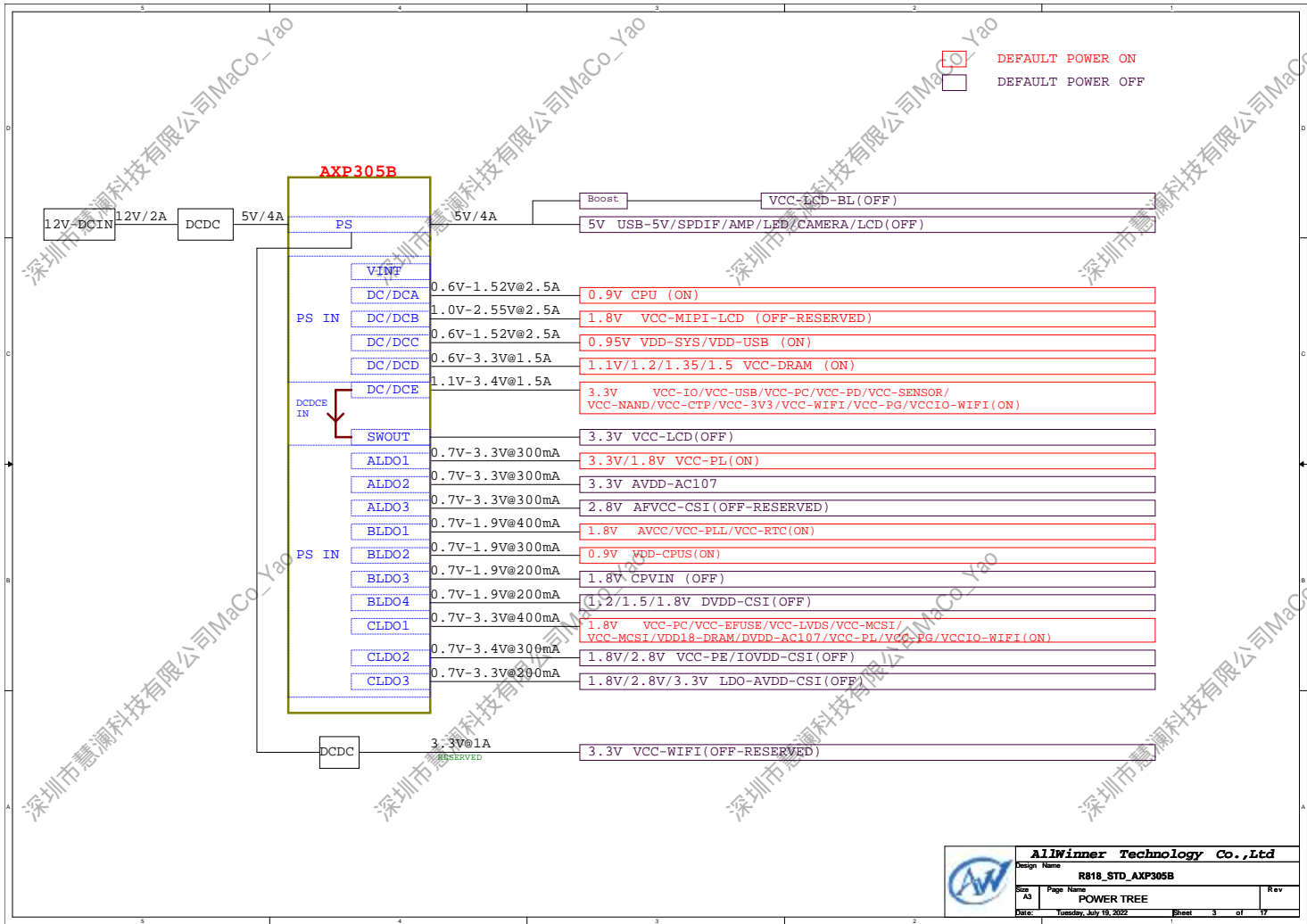
AllWinner Technology Co., Ltd

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GPIO ASSIGNMENT

PIN	Define	CFG	Function
PB0	UART2_TX	2	UART
PB1	UART2_RX	2	
PB2	CPUX_TDO	2	
PB3	CPUX_TDI	2	
PB4	I2S0_MCLK	3	I2S
PB5	I2S0_BCLK	3	
PB6	I2S0_LRCK	3	
PB7	I2S0_DOUT	3	
PB8	I2S0_DIN	3	DEBUG
PB9	CPUX_TX	2	
PB10	CPUX_RX	2	

PIN	Define	CFG	Function
PE0	MCSI_MCLK0	2	CSI
PE1	MCSI_SCK0	2	
PE2	MCSI_SDA0	2	
PE3	MCSI_SCK1	2	
PE4	MCSI_SDA1	2	
PE5	MCSI_MCLK1	2	
PE6	MCSIB_STBY_F	1	
PE7	MCSIB_RST_F	1	
PE8	MCSIA_STBY_R	1	
PE9	MCSIA_RST_R	1	

PIN	Define	CFG	Function
PH0	TWI0_SCK	2	TWI
PH1	TWI0_SDA	2	
PH2	TWI1_SCK	2	
PH3	TWI1_SDA	2	UART
PH4	UART3_TX	2	
PH5	UART3_RX	2	
PH6	UART3_RTX	2	
PH7	UART3_CTX	2	DMIC
PH8	DMIC_CLK	2	
PH9	DMIC-DATA0	2	
PH10	DMIC-DATA1	2	
PH11	DMIC-DATA2	2	I2S
PH12	DMIC-DATA3/USB0-DRVVBUS	2	
PH13	I2S3-MCLK	4	
PH14	I2S3-BCLK	4	
PH15	I2S3-LRCK	4	CIR
PH16	I2S3-DOUT0	3	
PH17	I2S3-DIN0	4	
PH18	IR-OUT	2	LEDC
PH19	LEDC	5	

PIN	Define	CFG	Function
PC0	NAND_WB/SDC2_DS	2/3	NAND / eMMC
PC1	NAND_ALE/SDC2_RST	2/3	
PC2	NAND_CLE	2	
PC3	NAND_CE1	2	
PC4	NAND_CE0	2	
PC5	NAND_RE/SDC2_CLK	2/3	
PC6	NAND_RB0/SDC2_CMD	2/3	
PC7	NAND_RB1	2	
PC8	NAND_DQ7/SDC2_D3	2/3	
PC9	NAND_DQ6/SDC2_D4	2/3	
PC10	NAND_DQ5/SDC2_D0	2/3	
PC11	NAND_DQ4/SDC2_D5	2/3	
PC12	NAND_DQS	2	
PC13	NAND_DQ3/SDC2_D1	2/3	
PC14	NAND_DQ2/SDC2_D6	2/3	
PC15	NAND_DQ1/SDC2_D2	2/3	
PC16	NAND_DQ0/SDC2_D7	2/3	

PIN	Define	CFG	Function
PF0	USB0-ID	0	GPIO
PF1	CTP-RST	1	
PF2	PA-CTR	1	
PF3	GS-INT	6	
PF4	USB1-DRVVBUS	1	
PF5	LS-INT	6	
PF6	CTP-INT	6	

PIN	Define	CFG	Function
PL0	PMU_SCK	2	CPUS
PL1	PMU_SDA	2	
PL2	BT_RST_N	1	
PL3	BT_WAKE_AP	0	
PL4	AP_WAKE_BT	1	
PL5	WD_PMU_EN	1	
PL6	WD_WAKE_AP	0	
PL7	LCD-BL-EN	1	
PL8	S_TWI_SCK	2	
PL9	S_TWI_SDA	2	
PL10	S_PWM	2	
PL11	IR_IN	3	

PIN	Define	CFG	Function
PD0	LCD_D2	2	LCD
PD1	LCD_D3	2	
PD2	LCD_D4	2	
PD3	LCD_D5	2	
PD4	LCD_D6	2	
PD5	LCD_D7	2	
PD6	LCD_D10	2	
PD7	LCD_D11	2	
PD8	LCD_D12	2	
PD9	LCD_D13	2	
PD10	LCD_D14	2	
PD11	LCD_D15	2	
PD12	LCD_D18	2	
PD13	LCD_D19	2	
PD14	LCD_D20	2	
PD15	LCD_D21	2	
PD16	LCD_D22	2	
PD17	LCD_D23	2	
PD18	LCD_CLK	2	
PD19	LCD_DE	2	
PD20	LCD_HSYNC	2	
PD21	LCD_VSYNC	2	
PD22	LCD_RST	1	
PD23	LCD_PWM	3	

PIN	Define	CFG	Function
PG0	WL_SDIO_CLK	2	WIFI/BT
PG1	WL_SDIO_CMD	2	
PG2	WL_SDIO_D0	2	
PG3	WL_SDIO_D1	2	
PG4	WL_SDIO_D2	2	
PG5	WL_SDIO_D3	2	
PG6	BT_UART_RX	2	
PG7	BT_UART_TX	2	
PG8	BT_UART_CTS	2	
PG9	BT_UART_RTS	2	
PG10	BT_PCM_CLK	3	
PG11	BT_PCM_SYNC	3	
PG12	BT_PCM_DIN	3	
PG13	BT_PCM_DOUT	3	

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2V VBUS

DC IN

OVP

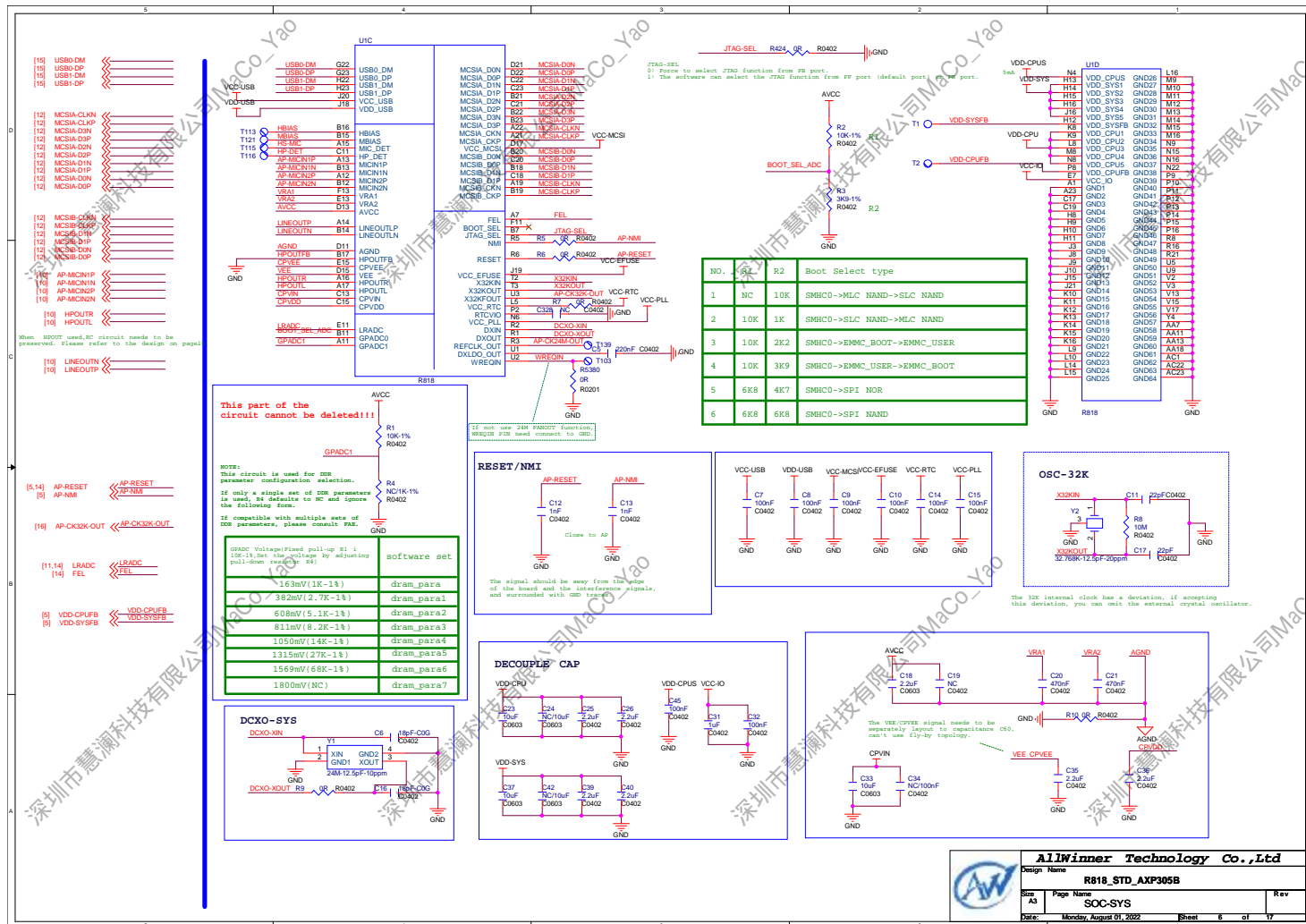
PMIC

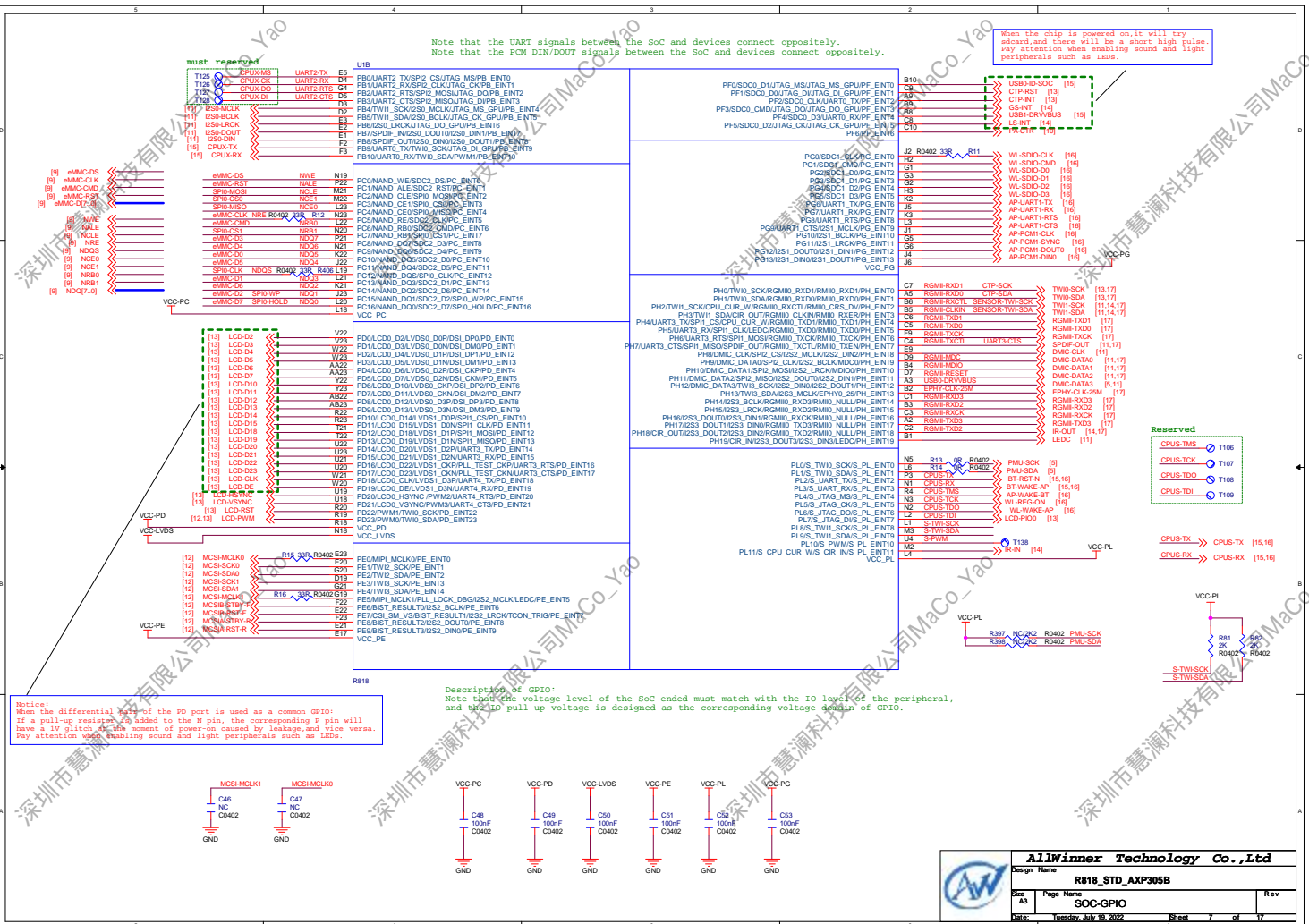
VBUS

Table 1: Component Values

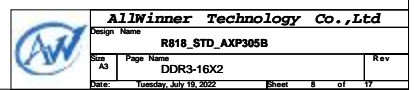
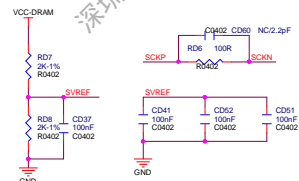
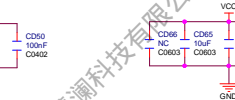
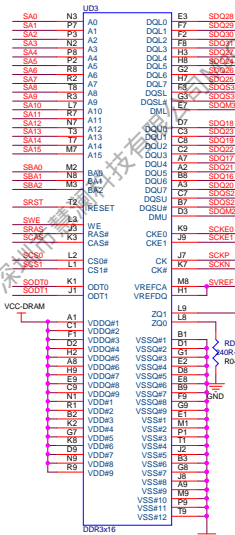
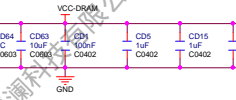
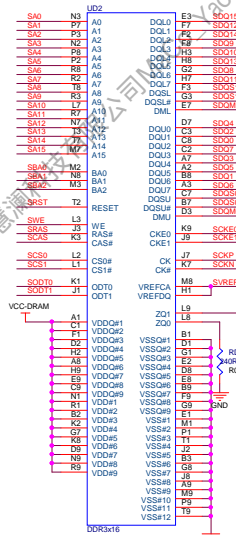
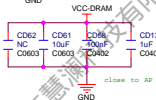
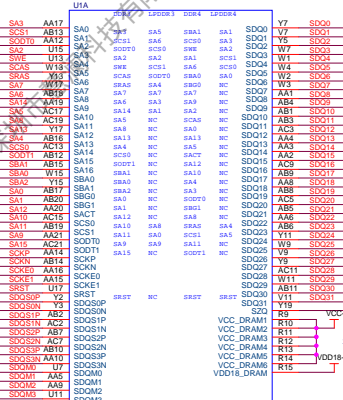
Component	Value	Footprint
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R2	10K	R0402
R3	10K	R0402
R4	10K	R0402
R5	10K	R0402
R6	10K	R0402
R7	10K	R0402
R8	10K	R0402
R9	10K	R0402
R10	10K	R0402
R11	10K	R0402
R12	10K	R0402
R13	10K	R0402
R14	10K	R0402
R15	10K	R0402
R16	10K	R0402
R17	10K	R0402
R18	10K	R0402
R19	10K	R0402
R20	10K	R0402
R21	10K	R0402
R22	10K	R0402
R23	10K	R0402
R24	10K	R0402
R25	10K	R0402
R26	10K	R0402
R27	10K	R0402
R28	10K	R0402
R29	10K	R0402
R30	10K	R0402
R31	10K	R0402
R32	10K	R0402
R33	10K	R0402
R34	10K	R0402
R35	10K	R0402
R36	10K	R0402
R37	10K	R0402
R38	10K	R0402
R39	10K	R0402
R40	10K	R0402
R41	10K	R0402
R42	10K	R0402
R43	10K	R0402
R44	10K	R0402
R45	10K	R0402
R46	10K	R0402
R47	10K	R0402
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R62	10K	R0402
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R75	10K	R0402
R76	10K	R0402
R77	10K	R0402
R78	10K	R0402
R79	10K	R0402
R80	10K	R0402
R81	10K	R0402
R82	10K	R0402
R83	10K	R0402
R84	10K	R0402
R85	10K	R0402
R86	10K	R0402
R87	10K	R0402
R88	10K	R0402
R89	10K	R0402
R90	10K	R0402
R91	10K	R0402
R92	10K	R0402
R93	10K	R0402
R94	10K	R0402
R95	10K	R0402
R96	10K	R04

[illegible][illegible][illegible][illegible]





DDR3 16x2



DDR4

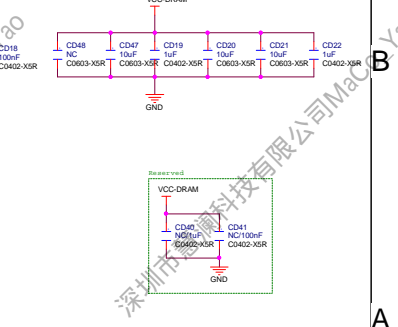
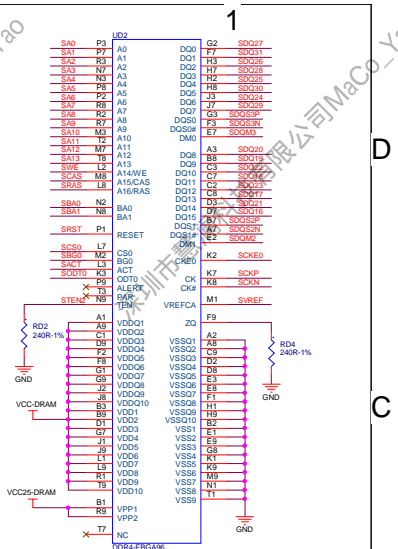
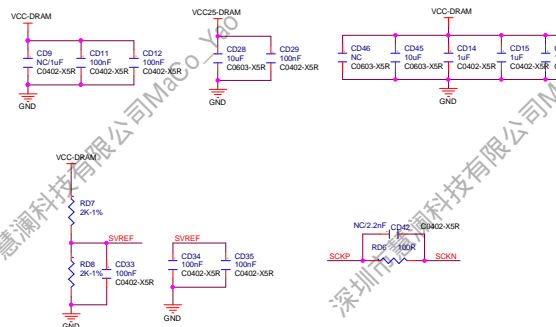
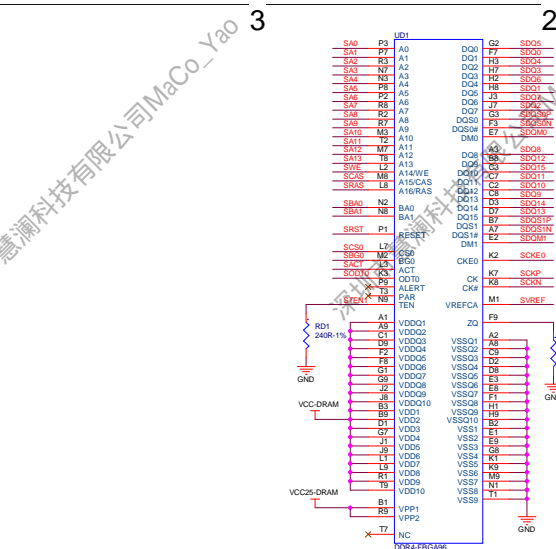
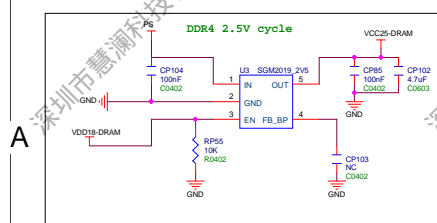
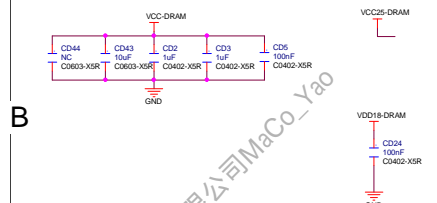
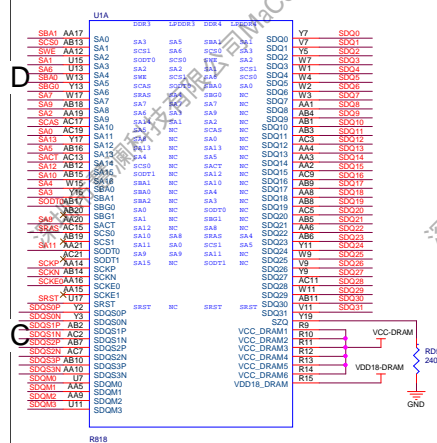
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3

2

1



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LPDDR3

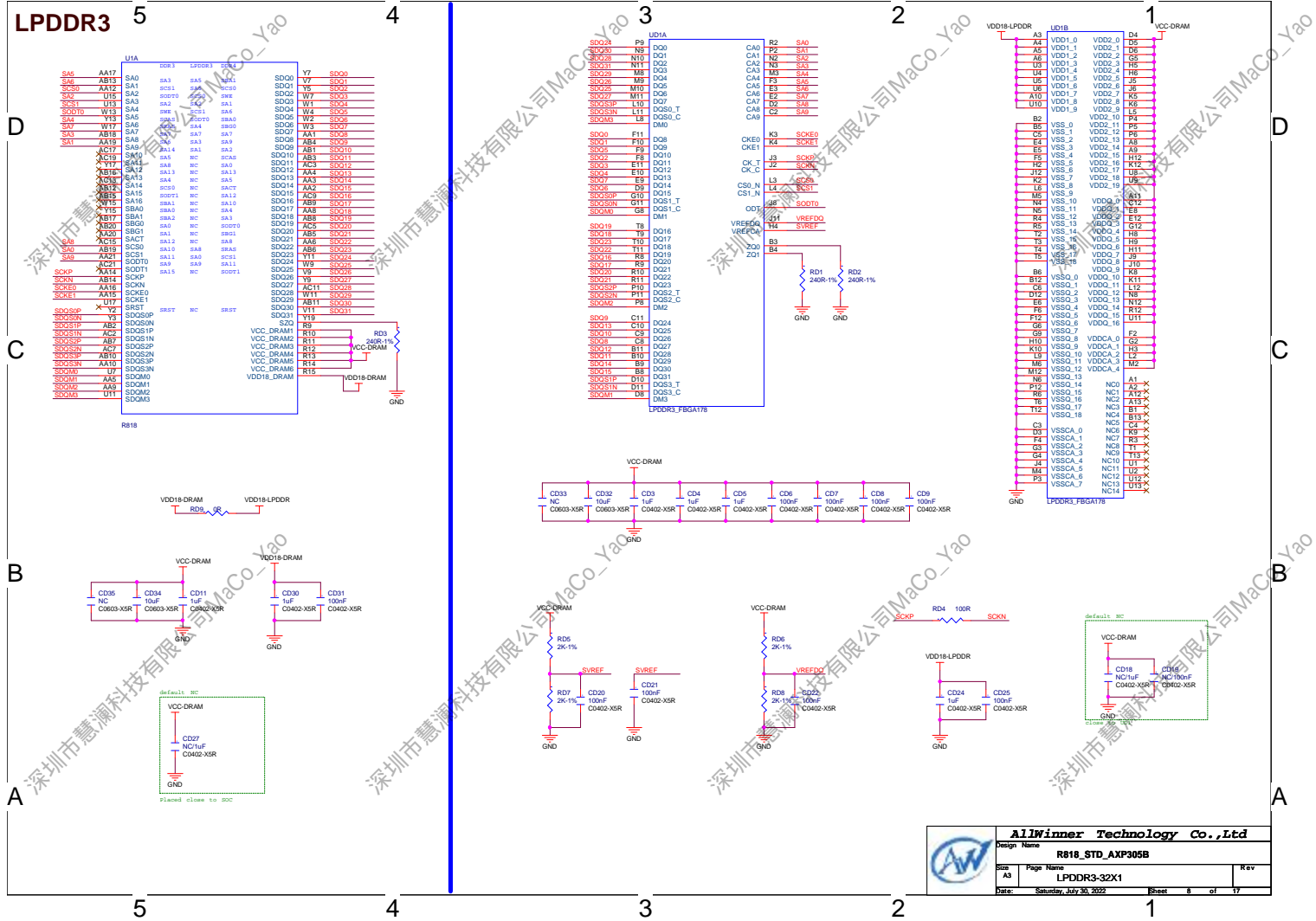
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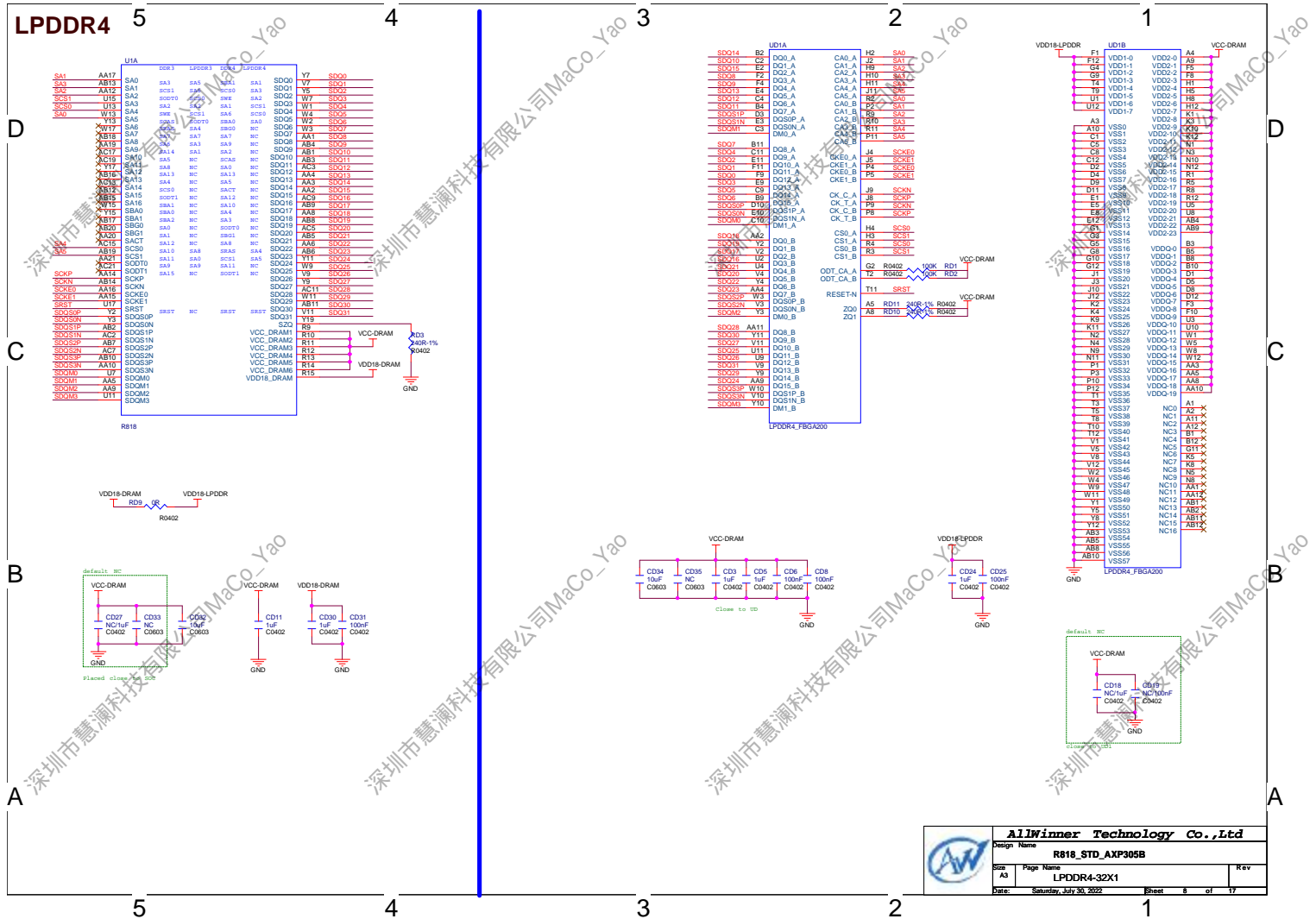
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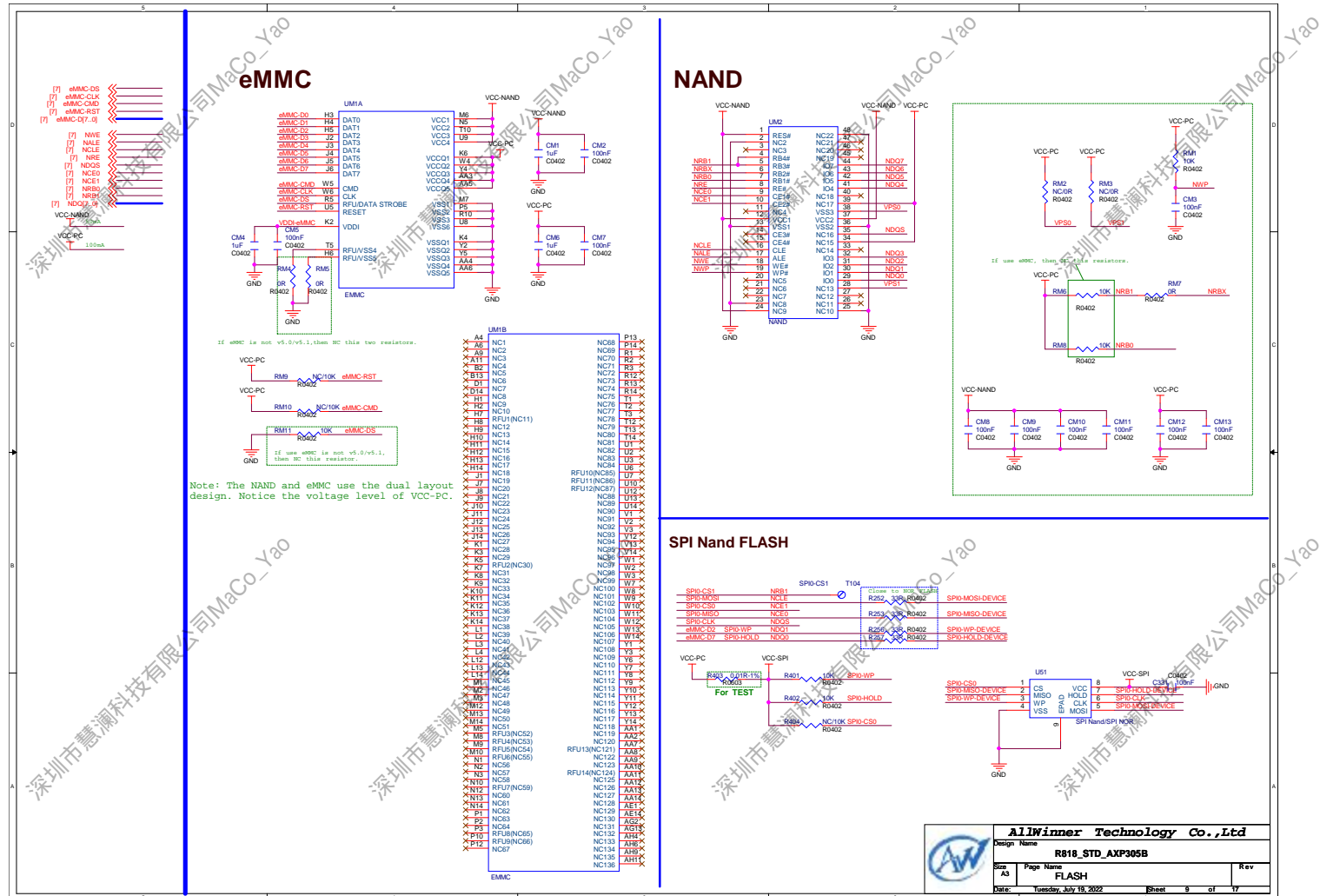
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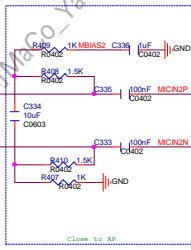
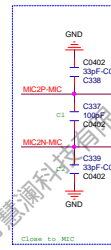
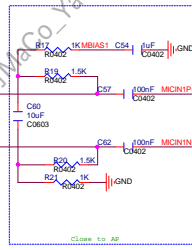
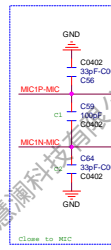
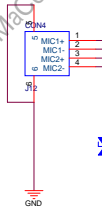
LPDDR4





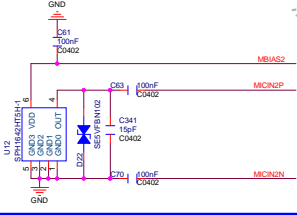
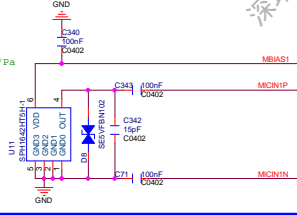
ECM MIC

[11] CODEC0.MICINP
[11] CODEC0.MICINN
[11] CODEC0.MICN2P
[11] CODEC0.MICN2N
[11] CODEC0.MICBIAS
[11] CODEC0.MICBIAS2



MEMS AMIC

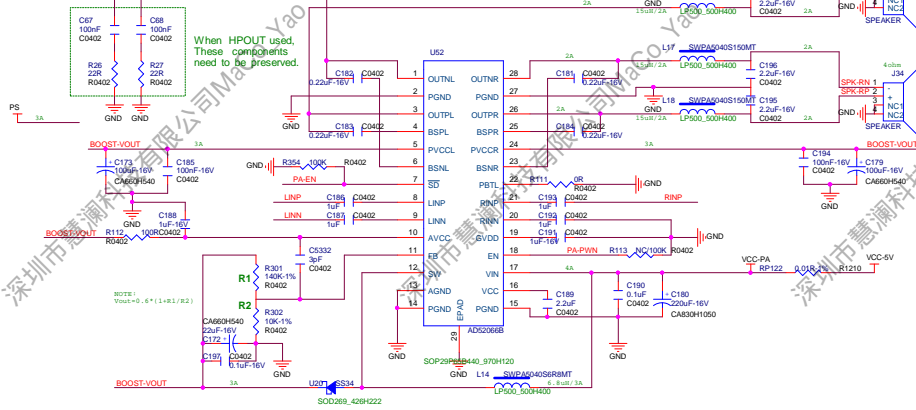
SNR: 65dB(A)
Sensitivity: -38±1dBV/Pa



SPEAKER

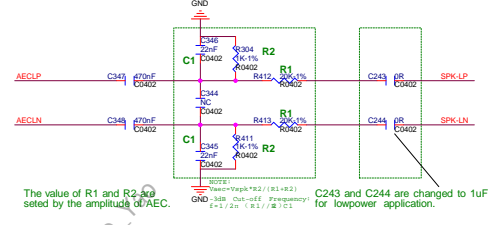
Use Lineout for the mono power amplifier, and the R426, R427, and R431 need to be mounted.
Use HPOUT for the stereo power amplifier, and the R428, R429, and R430 need to be mounted.

[7] PA-CTR <- PA-EN PA-PWN
[6] LINEOUTN
[6] LINEOUTP
[6] HPOUTL
[6] HPOUTR

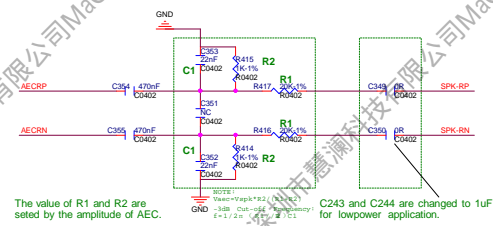


12V PA input For AEC

[6] AP-MICINP <- AECLP
[6] AP-MICINN <- AECLN
[6] AP-MICN2P <- AECLP
[6] AP-MICN2N <- AECLN



The value of R1 and R2 are set by the amplitude of AEC. C243 and C244 are changed to 1uF for lowpower application.



The value of R1 and R2 are set by the amplitude of AEC. C243 and C244 are changed to 1uF for lowpower application.



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AUDIO2

The diagram illustrates the AUDIO2 interface connections. On the left, six signal lines are listed, each with a red wavy line indicating a connection to a component: CODEC-MICINP, CODEC-MICNIN, CODEC-MICRNP, CODEC-MICRIN, CODEC-MICMAS, and CODEC-MICBAS. Below these, a VCC-5V line is shown. To the left of the main circuit, a 3.3V supply is connected to RP118, which is also connected to R0803. A VCC-DIG line is connected to the same node. To the right, CODEC0_AVDD is connected to the same node. Below this, a DVDD-AC100T line is connected to RP118, which is also connected to R0803. A DVDD line is connected to the same node. A 1.8V supply is connected to the bottom of the circuit. A watermark 'MaCo_Yao' is visible across the diagram.



3.3V AVDD-AC107 USE LE

1.8V

AEC

Diagram illustrating the I2C interface circuit for the MaCo I2C-SDA module. The module is connected to a microcontroller (MCIN) and a microcontroller (MCIN) via I2C signals.

Pin Connections:

- VCC-DIO:** Connected to the module's VCC pin (pin 10) and the microcontroller's VCC pin (pin 10).
- GND:** Connected to the module's GND pin (pin 11) and the microcontroller's GND pin (pin 11).
- I2C Address:** The module's I2C address is set to 0x36, indicated by the label "I2C ADDR=0x36".
- I2C Signals:** The module's I2C signals are connected to the microcontroller's I2C signals (pins 15, 16, 17, 18).

Component Values:

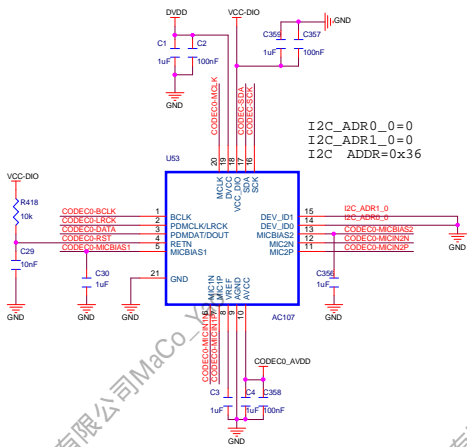
- Resistors:** R418 (10k), C29 (100nF), C30 (1uF), C358 (100nF).
- Capacitors:** C1 (1uF), C2 (100nF), C357 (100nF), C359 (100nF).

Module Pinout:

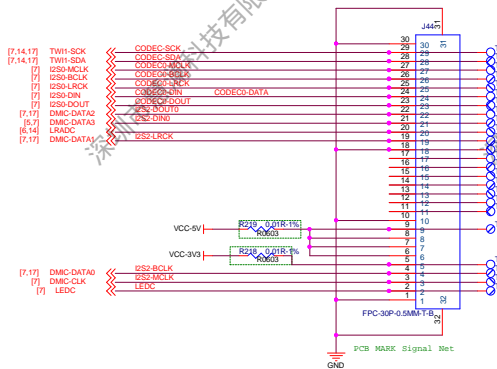
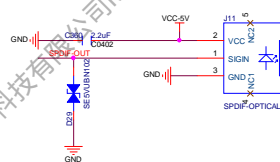
- Pin 1: BCLK
- Pin 2: PDMCLK/LRCK
- Pin 3: PMDATA/OUT
- Pin 4: RETN
- Pin 5: MICBIAS1
- Pin 6: MICIN
- Pin 7: VREF
- Pin 8: AVCC
- Pin 9: I2C-SDA
- Pin 10: VCC-DIO
- Pin 11: GND
- Pin 12: I2C-SDA
- Pin 13: I2C-SDA
- Pin 14: I2C-SDA
- Pin 15: DEV_ID1
- Pin 16: DEV_ID0
- Pin 17: MICBIAS2
- Pin 18: MICIN
- Pin 19: MICIN
- Pin 20: I2C-SDA

Microcontroller Pinout:

- Pin 15: I2C-ADR1_0
- Pin 16: I2C-ADR1_1
- Pin 17: I2C-ADR1_2
- Pin 18: I2C-ADR1_3
- Pin 19: I2C-ADR1_4
- Pin 20: I2C-ADR1_5



Pin	Signal	Connection
[7,14,17]	TW11-SCK	CODEC-SCK
[7,14,17]	TW11-SDA	CODEC-SDA
[7]	I2S0-MCLK	CODEC-MCLK
[7]	I2S0-BCLK	CODEC-BCLK
[7]	I2S0-LRCK	CODEC-LRCK
[7]	I2S0-DIN	CODEC-DIN
[7]	I2S0-DOUT	CODEC-DOUT
[7,17]	I2S0-DATA2	CODEC-DATA2
[6,7]	I2S0-DATA3	CODEC-DATA3
[6,14]	I2S0-DATA1	CODEC-DATA1

[illegible]

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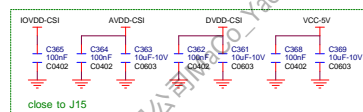
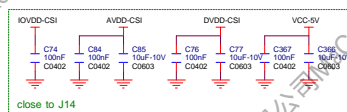
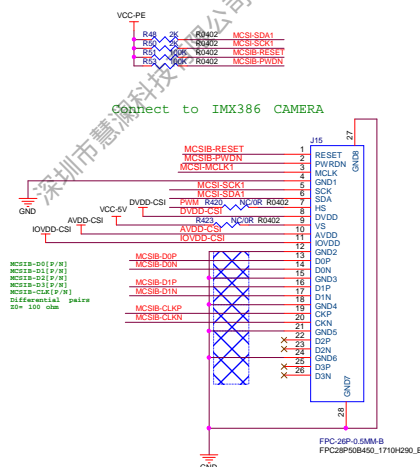
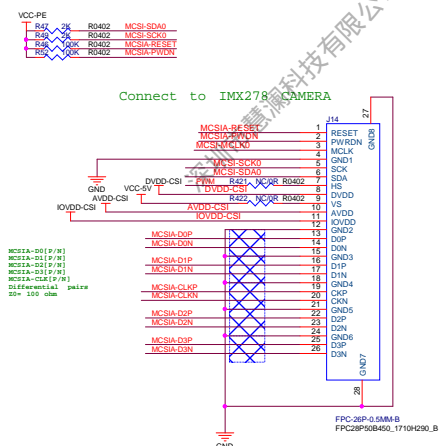
Design Name: **2010 QWB - 11/00/05**

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Pin configuration diagram for the M1000 module. The diagram shows two rows of pins. The top row (pins 1-16) includes: MCS1-CLKIN, MCS1-CLKP, MCS1A-DIN, MCS1A-DQP, MCS1A-D2P, MCS1A-D1N, MCS1A-D1P, MCS1A-D0P, MCS1B-CLKIN, MCS1B-CLKP, MCS1B-D1N, MCS1B-D1P, MCS1B-D0P, MCS1C-CLKIN, MCS1C-CLKP, MCS1C-D1N, MCS1C-D1P, MCS1C-D0P, MCS1B-STRB-R, MCS1B-STRB-R, MCS1B-STRB-R. The bottom row (pins 17-24) includes: MCS1-CLKIN, MCS1-CLKP, MCS1A-DIN, MCS1A-DQP, MCS1A-D2P, MCS1A-D1N, MCS1A-D1P, MCS1A-D0P, MCS1B-CLKIN, MCS1B-CLKP, MCS1B-D1N, MCS1B-D1P, MCS1B-D0P, MCS1C-CLKIN, MCS1C-CLKP, MCS1C-D1N, MCS1C-D1P, MCS1C-D0P, MCS1B-STRB-R, MCS1B-STRB-R, MCS1B-STRB-R. A legend at the bottom indicates: 7.13 LCD-PWM, PWM, AVID-CDS, IVOVD-CDS, DVO-D-CDS, and a 10mA current source.



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KEY

[5,6] AP-RESET
[5] PWRON
[6,11] LRADC
[6] FEL
AVCC

[7,11,17] TWI1-SCK
[7,11,17] TWI1-SDA
[7] GS-INT
[7] LS-INT

VCC-SENSOR

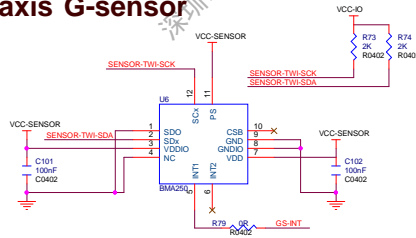
VCC-IO

VCC-PL

VCC-3V3

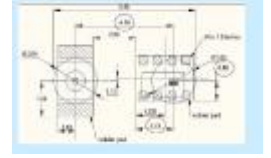
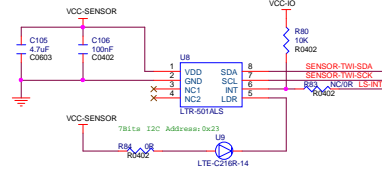
VCC-5V

3axis G-sensor

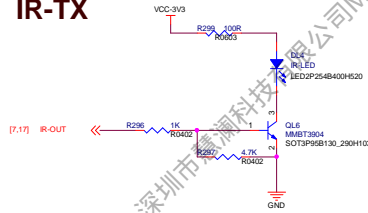


7bits I2C Address:0x18
place PIN1 in the top right,parallel to the screen,
and put on the top left of the screen.

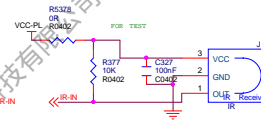
LIGHT SENSOR



IR-TX

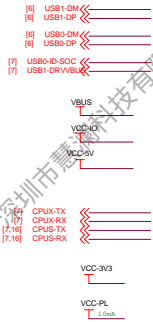


IR-RX



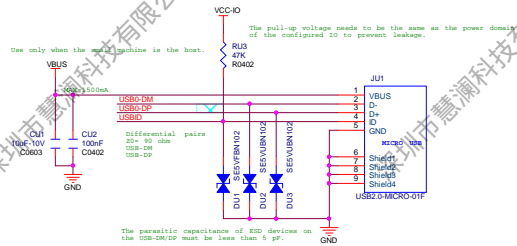
Allwinner Technology Co.,Ltd			
Design Name	R818_STD_AXP305B		
Page Name	SENSOR/MT/KEY		
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USB



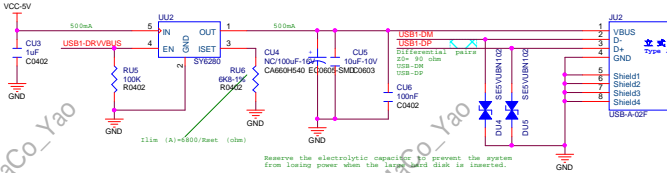
USB0-ID-SOC R14 1K

Use the SOC GPIO to detect by default.



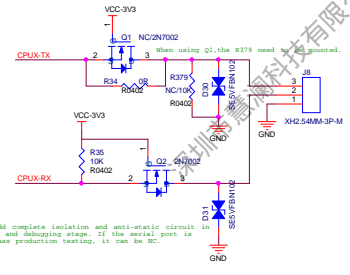
note: Make sure the routing between the ESD and the USB connectors should be on the same PCB side.

portAUSB



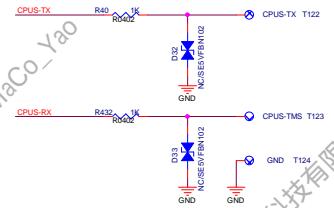
Reserve the electrolytic capacitor to prevent the system from losing power when the large hard disk is inserted.

CPUX_DEBUG



Suggest that add complete isolation and anti-static circuit in the development and debugging stage. If the serial port is not used for mass production testing, it can be omitted.

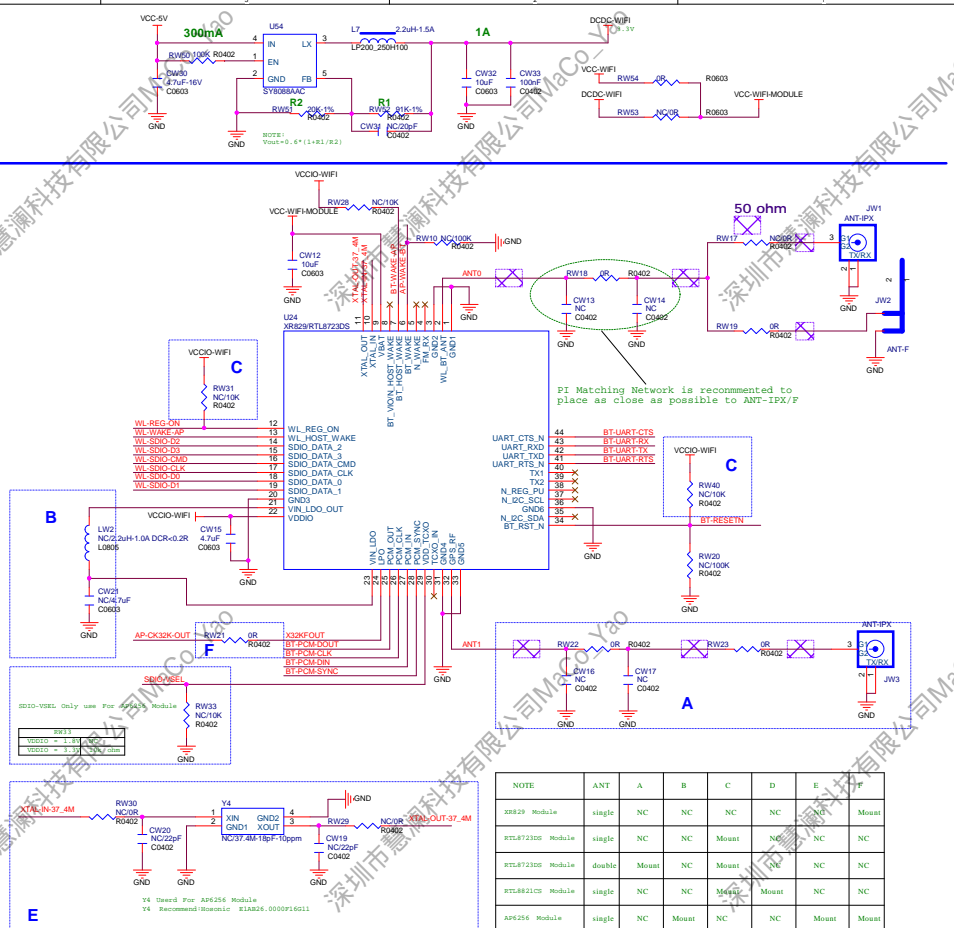
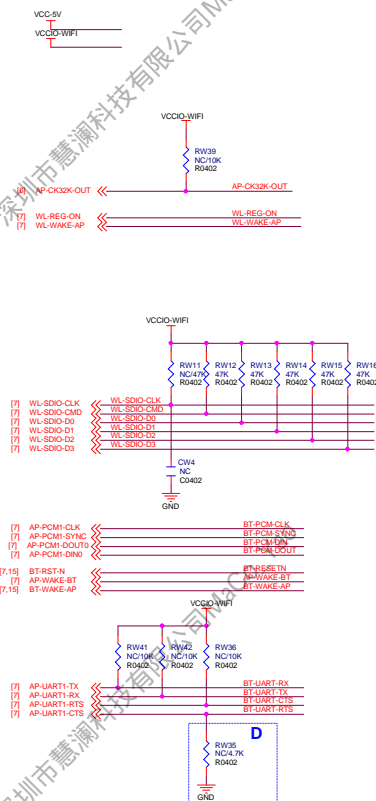
CPUS DEBUG



The UART of the CPUS domain needs to be connected to resistors in series or added ESD for anti-static design.

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WIFI



NOTE	ANT	A	B	C	D	E	F
XB29 Module	single	NC	NC	NC	NC	NC	Mount
RTL6721D6 Module	single	NC	NC	Mount	NC	NC	NC
RTL6721D6 Module	double	Mount	NC	Mount	NC	NC	NC
RTL8821C Module	single	NC	NC	Mount	Mount	NC	NC
AP4256 Module	single	NC	Mount	NC	NC	Mount	Mount

