GPIO ASSIGNMENT

PIN	Define	CFG	Function
PA0	UART0_TX	5	DEBUG
PA1	UART0_RX	5	
PA2	DVP-RESET	1	DVP
PA3	DVP-PWDN	1	
PA4	PA_SHDN	1	
PA5	CAMERA_KEY	1	
PA8	RTP-XP-SCL	2/4	RTP/CTP
PA9	RTP-YP-SDA	2/4	
PA10	RTP-XN-RST	2/1	
PA11	RTP-YN-INT	2/1	

PIN	Define	CFG	Function
PB0	SPI0-WP	2	NOR/ NAND
PB1	SPI0-MISO	2	
PB2	SPI0-CS	2	
PB3	SPI0-HOLD	2	
PB4	SPI0-CLK	2	
PB5	SPI0-MOSI	2	
PB6	SDC0-CMD	2	WIFI
PB7	SDC0-CLK	2	
PB8	SDC0-D3	2	
PB9	SDC0-D0	2	
PB10	SDC0-D1	2	
PB11	SDC0-D2	2	

PIN	Define	CFG	Function
PC0	SDC1-D1	2	TF CARD
PC1	SDC1-D0	2	
PC2	SDC1-CLK	2	
PC3	SDC1-CMD	2	
PC4	SDC1-D3	2	
PC5	SDC1-D2	2	
PC6	SDC1-DET	2	

PIN	Define	Define	CFG	Function
PD0		I2C0_SCL	4	DVP
PD1		I2C0_SDA	4	
PD2		UART1-TX	5	RS485
PD3		UART1-RX	5	
PD4		**UART2_TX**	5	232/TTL
PD5		**UART2_RX**	5	
PD6		USB_ID	1	USB
PD7		WIFI_ON	1	WIFI
PD8	LCD0-B3		2	RGB565
PD9	LCD0-B4		2	
PD10	LCD0-B5		2	
PD11	LCD0-B6		2	
PD12	LCD0-B7		2	
PD13	LCD0-G2		2	
PD14	LCD0-G3		2	
PD15	LCD0-G4		2	
PD16	LCD0-G5		5	
PD17	LCD0-G6		5	
PD18	LCD0-G7	LVDS_D0N	2/3	/RGB565 /LVDS
PD19	LCD0-R3	LVDS_D0P	2/3	
PD20	LCD0-R4	LVDS_D1N	2/3	
PD21	LCD0-R5	LVDS_D1P	2/3	
PD22	LCD0-R6	LVDS_D2N	2/3	
PD23	LCD0-R7	LVDS_D2P	2/3	
PD24	LCD0-DCLK	LVDS_CKN	2/3	
PD25	LCD0-HS	LVDS_DKP	2/3	
PD26	LCD0-VS	LVDS_D3N	2/3	
PD27	LCD0-DE	LVDS_D3P	2/3	

PIN	Define	CFG	Function
PE0	DVP-D0	3	DVP
PE1	DVP-D1	3	
PE2	DVP-D2	3	
PE3	DVP-D3	3	
PE4	DVP-D4	3	
PE5	DVP-D5	3	
PE6	DVP-D6	3	
PE7	DVP-D7	3	
PE8	DVP-CK	3	
PE9	DVP-HS	3	
PE10	DVP-VS	3	
PE11	DVP-MCLK	5	
PE12	DSPK1	5	SPEAKER
PE13	LCD_PWM	3	PWM2_A

PIN	Define	CFG	Function
PU0	USB_DM	2	USB
PU1	USB_DP	2	

Ver.	Change list	Date
V1.0	Initial Version	2023.10.26

ArtInChip Technology Co.,Ltd

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U1

GPAI/RTP/I2C0~2/UART0~2/CIR/CAN0

GPA_P0/GPAI0/IR_TX/I2C0_SCL/UART0_TX/CPU_NMI
GPA_P1/GPAI1/IR_RX/I2C0_SDA/UART0_RX/DE_TE
GPA_P2/GPAI2/I2C1_SCL/UART1_TX/UART2_CTS
GPA_P3/GPAI3/I2C1_SDA/UART1_RX/UART2_RTS
GPA_P4/GPAI4/CAN0_TX/UART2_TX
GPA_P5/GPAI5/CAN0_RX/UART2_RX/RTC_32K
GPA_P8/RTP_XP/I2C2_SCL
GPA_P9/RTP_YP/I2C2_SDA
GPA_P10/RTP_XN/IR_RX/JTAG_MS
GPA_P11/RTP_YN/IR_TX/JTAG_CK

2 PA0_UART0_TX — UART0_TX_DEBUG — 71
2 PA1_UART0_RX — UART0_RX_DEBUG — 72
6 PA2_DVP_RESET — DVP_RESET — 73
6 PA3_DVP_PWDN — DVP_PWDN — 74
7 PA4_PA_SHDN — PA_SHDN — 75
6 PA5_KEY — CAMERA_KEY — 76
4 PA8_XP_SCL2 — RTP_XP_SCL2 — 77
4 PA9_YP_SDA2 — RTP_YP_SDA2 — 78
4 PA10_XN_RST — RTP_XN_RST — 79
4 PA11_YN_INT — RTP_YN_INT — 80

RTP/CTP

NAND/NOR

SDC1/I2C1~2/UART0&3

GPC_P0/SDC1_D1/I2C2_SCL/UART3_RTS/JTAG_MS
GPC_P1/SDC1_D0
GPC_P2/SDC1_CLK/UART0_TX
GPC_P3/SDC1_CMD
GPC_P4/SDC1_D3/I2C1_SCL/UART3_TX/UART0_RX
GPC_P5/SDC1_D2/I2C1_SDA/UART3_RX/JTAG_CK
GPC_P6/SDC1_DET/I2C2_SDA/UART3_CTS/DE_TE/CLK_OUT3

TF-CARD

1 — SDC1_D1 — SDC1_D1 5
2 — SDC1_D0 — SDC1_D0 5
3 — R0402 22R R2 — SDC1_CLK — SDC1_CLK 5
4 — SDC1_CMD — SDC1_CMD 5
5 — SDC1_D3 — SDC1_D3 5
6 — SDC1_D2 — SDC1_D2 5
7 — SDC1_DET — SDC1_DET 5

SPI0~2/SDC0/UART4~7

GPB_P0/SPI0_WP/SPI1_WP/UART4_TX
GPB_P1/SPI0_MISO/SPI1_MISO/UART6_TX
GPB_P2/SPI0_CS0/SPI1_CS/UART6_RX
GPB_P3/SPI0_HOLD/SPI1_HOLD/UART4_RX
GPB_P4/SPI0_CLK/SPI1_CLK/UART6_RTS
GPB_P5/SPI0_MOSI/SPI1_MOSI/UART4_RTS/UART6_CTS
GPB_P6/SDC0_CMD/SPI2_CS/UART5_TX/FLASH_CS
GPB_P7/SDC0_CLK/SPI2_MISO/UART5_RX/FLASH_MISO
GPB_P8/SDC0_D3/SPI2_MOSI/UART5_RTS/UART7_CTS/FLASH_MOSI
GPB_P9/SDC0_D0/SPI2_CLK/UART7_RTS/FLASH_CLK
GPB_P10/SDC0_D1/SPI2_HOLD/UART7_TX
GPB_P11/SDC0_D2/SPI2_WP/SPI0_CS1/UART7_RX

5 PB0_SPI0_WP — SPI0_WP — 55
5 PB1_SPI0_MISO — SPI0_MISO — 56
5 PB2_SPI0_CS — SPI0_CS — 57
5 PB3_SPI0_HOLD — SPI0_HOLD — 58
5 PB4_SPI0_CLK — SPI0_CLK — 59
5 PB5_SPI0_MOSI — SPI0_MOSI — 60

7 PB6_WIFI_CMD — SDC0_CMD — 61
7 PB7_WIFI_CLK — SDC0_CLK R0402 22R R18 — 62
7 PB8_WIFI_D3 — SDC0_D3 — 63
7 PB9_WIFI_D0 — SDC0_D0 — 64
7 PB10_WIFI_D1 — SDC0_D1 — 65
7 PB11_WIFI_D2 — SDC0_D2 — 66

WIFI

EMAC/DVP/I2S/UART3~7/DMIC/DSPK

GPE_P0/EMAC_RXD1/DVP_D0/PWM0_A/UART3_TX
GPE_P1/EMAC_RXD0/DVP_D1/PWM0_B/UART3_RX
GPE_P2/EMAC_RXCTL/DVP_D2/UART4_TX
GPE_P3/EMAC_CLKIN/DVP_D3/I2S_MCLK/UART4_RX
GPE_P4/EMAC_TXD1/DVP_D4/UART5_TX
GPE_P5/EMAC_TXD0/DVP_D5/UART5_RX
GPE_P6/EMAC_TXCK/DVP_D6/UART6_TX
GPE_P7/EMAC_TXCTL/DVP_D7/UART6_RX
GPE_P8/EMAC_MDC/DVP_CK/UART7_TX
GPE_P9/EMAC_MDIO/DVP_HS/UART7_RX
GPE_P10/CLK_OUT2/DVP_VS/I2S_DIN/DMIC_CLK
GPE_P11/CLK_OUT1/PWM1_A/I2S_LRCK/DMIC_D0
GPE_P12/SPI2_CLK/PWM1_B/I2S_BCLK/DSPK1
GPE_P13/SPI2_CS/PWM2_A/I2S_DOUT/DSPK0

DVP

41 — DVP_D0 — PE0 6
42 — DVP_D1 — PE1 6
43 — DVP_D2 — PE2 6
44 — DVP_D3 — PE3 6
45 — DVP_D4 — PE4 6
46 — DVP_D5 — PE5 6
47 — DVP_D6 — PE6 6
48 — DVP_D7 — PE7 6
49 — DVP_CK — PE8 6
50 — DVP_HS — PE9 6
51 — DVP_VS — PE10 6
52 — DVP_MCLK — PE11 6
53 — SPK1 — PE12 7
54 — LCD_PWM — PE13 4

LCD/LVDS/MIPI-DSI/SPI1&3/I2S/UART0~2

GPD_P0/LCD_D0/SPI3_CLK/I2C0_SCL/UART0_TX/PBUS_AD0
GPD_P1/LCD_D1/SPI3_CS/I2C0_SDA/UART0_RX/PBUS_AD1
GPD_P2/LCD_D2/SPI3_MOSI/I2C1_SCL/UART1_TX/PBUS_AD2
GPD_P3/LCD_D3/SPI3_MISO/I2C1_SDA/UART1_RX/PBUS_AD3
GPD_P4/LCD_D4/SPI1_CS/I2C2_SCL/UART2_TX/PBUS_AD4
GPD_P5/LCD_D5/SPI1_MISO/I2C2_SDA/UART2_RX/PBUS_AD5
GPD_P6/LCD_D6/SPI1_MOSI/PWM0_A/DSPK0/PBUS_AD6
GPD_P7/LCD_D7/SPI1_CLK/PWM0_B/DSPK1/PBUS_AD7
GPD_P8/LCD_D8/SPI1_HOLD/PWM1_A/PBUS_CLK
GPD_P9/LCD_D9/SPI1_WP/PBUS_NCS
GPD_P10/LCD_D10/PBUS_NADV
GPD_P11/LCD_D11/I2S_DIN/PBUS_NWE
GPD_P12/LCD_D12/I2S_DOUT/PBUS_NOE
GPD_P13/LCD_D13/I2S_LRCK/CLK_OUT0
GPD_P14/LCD_D14/I2S_BCLK/PBUS_AD8
GPD_P15/LCD_D15/I2S_MCLK/PBUS_AD9
GPD_P16/LCD_D16/PWM1_B/DMIC_CLK/UART2_TX/PBUS_AD10
GPD_P17/LCD_D17/PWM2_A/DMIC_D0/UART2_RX/PBUS_AD11
GPD_P18/LCD_D18/LVDS_D0N/DSI_D0N/PBUS_AD12
GPD_P19/LCD_D19/LVDS_D0P/DSI_D0P/PBUS_AD13
GPD_P20/LCD_D20/LVDS_D1N/DSI_D1N/PBUS_AD14
GPD_P21/LCD_D21/LVDS_D1P/DSI_D1P/PBUS_AD15
GPD_P22/LCD_D22/LVDS_D2N/DSI_CKN
GPD_P23/LCD_D23/LVDS_D2P/DSI_CKP
GPD_P24/LCD_DCLK/LVDS_CKN/DSI_D2N
GPD_P25/LCD_HS/LVDS_CKP/DSI_D2P/PWM2_B
GPD_P26/LCD_VS/LVDS_D3N/DSI_D3N/PWM3_A
GPD_P27/LCD_DE/LVDS_D3P/DSI_D3P/PWM3_B

6 PD0_I2C0_SCL — DVP_I2C0_SCL — 40
6 PD1_I2C0_SDA — DVP_I2C0_SDA — 39
6 PD2_UART1_TX — UART1_TX — 38
6 PD3_UART1_RX — UART1_RX — 37
6 PD4_UART2_TX — UART2_TX — 35
6 PD5_UART2_RX — UART2_RX — 34
3 PD6_USB_ID — USB_ID — 33
7 PD7_WIFI_ON — WIFI_ON — 32
4 PD8 — LCD_B3 — 29
4 PD9 — LCD_B4 — 28
4 PD10 — LCD_B5 — 27
4 PD11 — LCD_B6 — 26
4 PD12 — LCD_B7 — 25
4 PD13 — LCD_G2 — 24
4 PD14 — LCD_G3 — 23
4 PD15 — LCD_G4 — 22
4 PD16 — LCD_G5 — 21
4 PD17 — LCD_G6 — 20
4 PD18 — LCD_G7 — LVDS0_D0N — 19
4 PD19 — LCD_R3 — LVDS0_D0P — 18
4 PD20 — LCD_R4 — LVDS0_D1N — 17
4 PD21 — LCD_R5 — LVDS0_D1P — 16
4 PD22 — LCD_R6 — LVDS0_D2N — 14
4 PD23 — LCD_R7 — LVDS0_D2P — 13
4 PD24 — LCD_DCLK — LVDS0_CKN — 12
4 PD25 — LCD_HS — LVDS0_CKP — 11
4 PD26 — LCD_VS — LVDS0_D3N — 10
4 PD27 — LCD_DE — LVDS0_D3P — 9

RGB565

USB/UART0

PU0/USB_DM/UART0_RX/UART1_RX
PU1/USB_DP/UART0_TX/UART1_TX

87 — USB_DM — USB_DM 3
88 — USB_DP — USB_DP 3

RTC

RTC_IO
VCOIN_RTC
RTC_XO
RTC_XI

83 — RTC_32K — RTC_32K 7
84 — RTC_VCOIN
85 — RTC_XO — RTC_XO 2
86 — RTC_XI — RTC_XI 2

SYS

SYS_RSTN
PLL_XO
PLL_XI

67 — RESET — RESET 2
81 — X24MOUT — X24MOUT 2
82 — X24MIN — X24MIN 2

POWER

VCC33_IO0
VCC33_IO1
VCC33_IO2
VDD11_SYS1
VDD11_SYS2
VDD11_SYS3
LDO18
LDO25
GND

15, 36, 69 — VCC_3V3
8, 30, 68 — VCC_1V1
VCC_PSRAM
31
70 — LDO25
89 — GND

CPU底部GND焊盘
加强散热

D133CBS

PLL

2 X24MIN — X24MIN — C1 18pF C0402 — Y1 (XIN GND1 GND2 XOUT) 24M-20pF-10ppm cry-tsx3225 — C11 18pF C0402 — X24MOUT — X24MOUT 2

RESET

2 RESET — RESET — K1 KEY-04P-SMD-02 — GND

CPU decouple cap

VCC_1V1: C3 10uF C0603, C4 0.1uF C0402, C5 0.1uF C0402, C6 0.1uF C0402 — CPU CORE 1.1V
VCC_3V3: C7 10uF C0603, C8 0.1uF C0402, C9 0.1uF C0402, C10 0.1uF C0402 — VCC-IO 3.3V
LDO25: C16 1uF C0402
VCC_PSRAM: C15 10uF C0603, C14 0.1uF C0402

DEBUG

调试打印UART0

VCC_3V3 — R4 4.7k R0402 — 2 PA0_UART0_TX — UART0_TX_DEBUG
VCC_3V3 — R6 4.7k R0402 — 2 PA1_UART0_RX — UART0_RX_DEBUG
J4 CON1X3-2.54-M

UBOOT

K2 KEY-04P-SMD-02 — UART0_TX_DEBUG

UBOOT按键下降沿检测进入烧录

RTC

使用CPU内置RTC功能，外置晶振

2 RTC_XI — C2 12pF C0402 — Y2 32.768K-12.5pF-20ppm crystal-2p-3215-h0_85a — C12 12pF C0402 — 2 RTC_XO
R5 10M R0402

<Variant Name>

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Design Name	D133CBS-QFN88-HMI	
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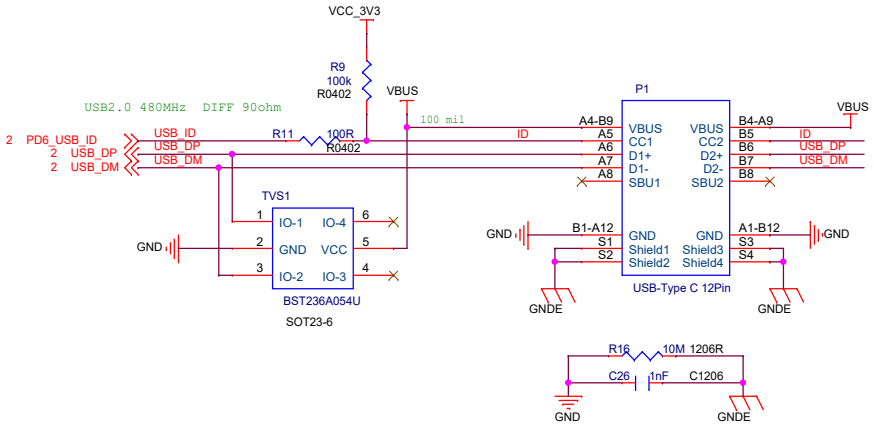
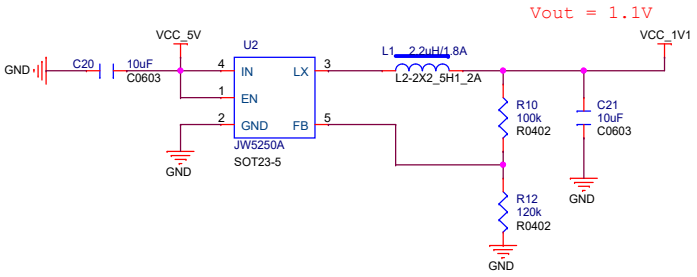
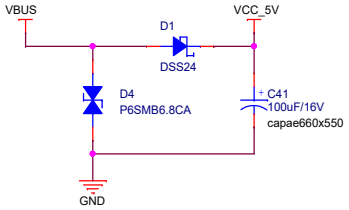
USB OTG

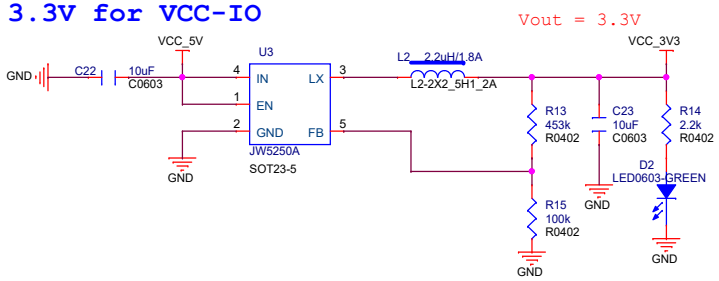


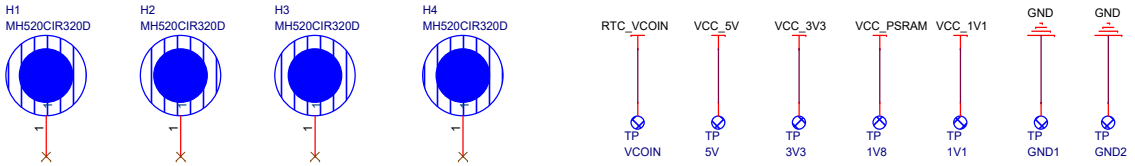
1.1V for VDD-SYS





3.3V for VCC-IO





<Variant Name>

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Design Name: D133CBS-QFN88-HMI		
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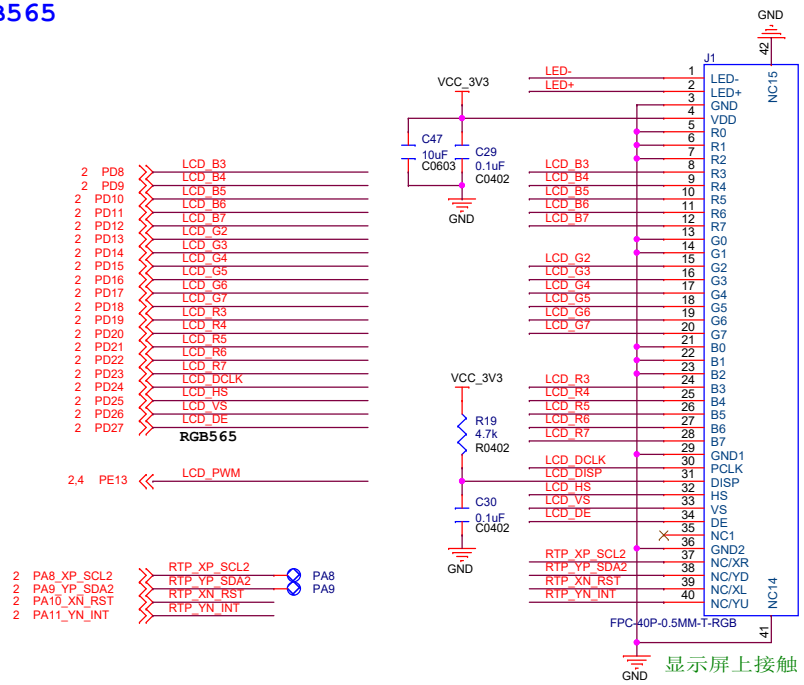
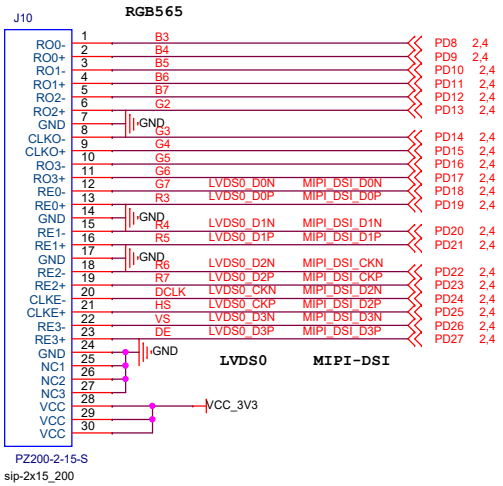
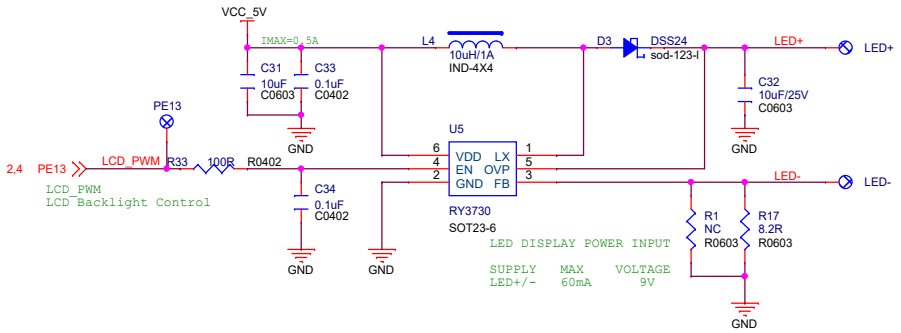
4.3" RGB565

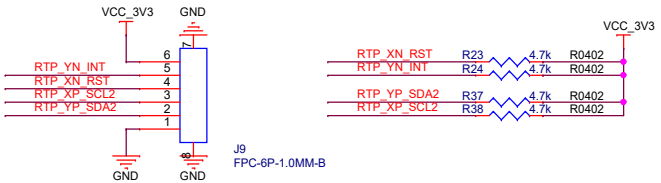




BACKLIGHT



CTP



<Variant Name>

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Design Name: D133CBS-QFN88-HMI		
Size: A3	Page Name: RGB/TP	Rev: V1.0
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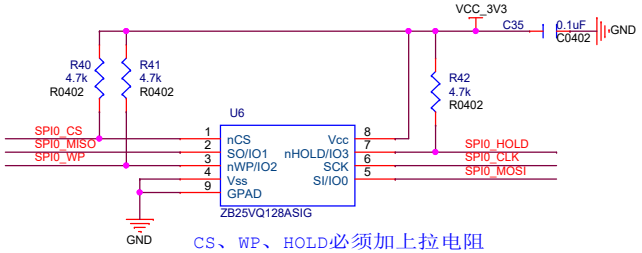
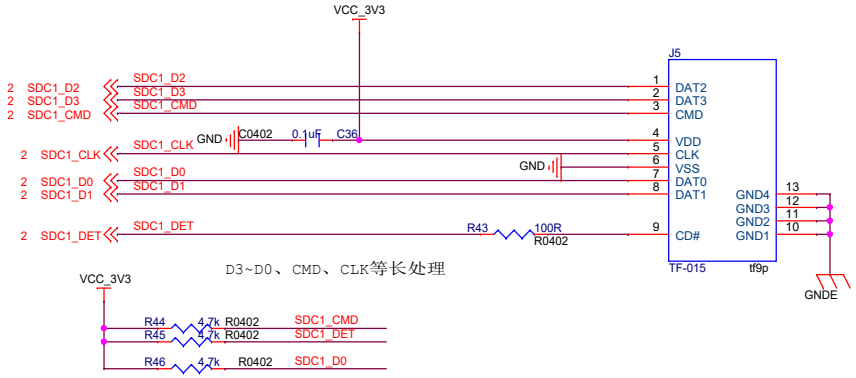
QSPI NOR/NAND



CS、WP、HOLD必须加上拉电阻

TF-CARD



D3~D0、CMD、CLK等长处理

<Variant Name>

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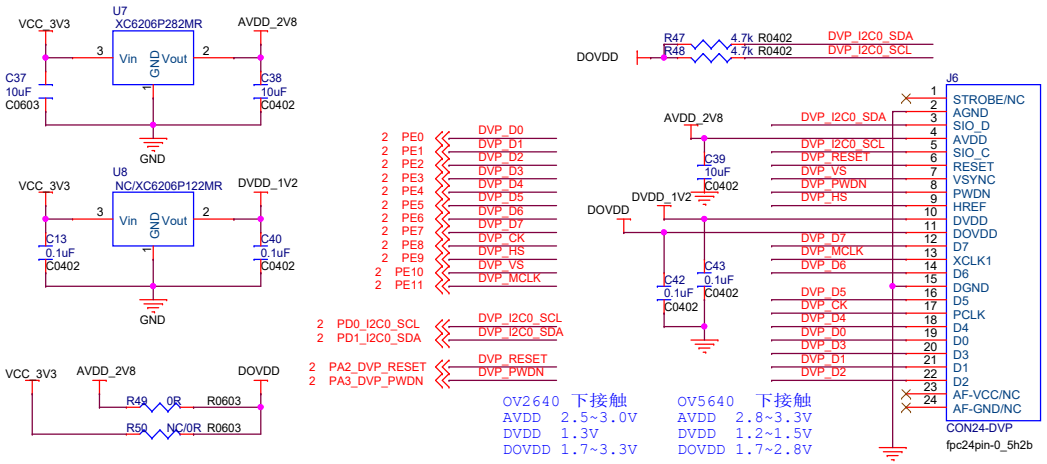
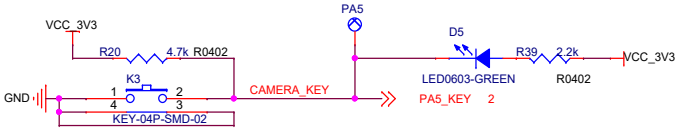
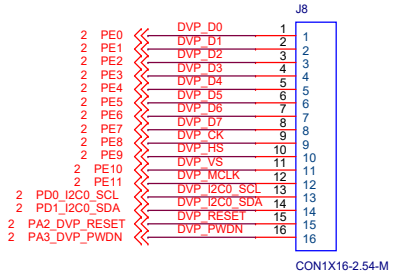
Design Name: D133CBS-QFN88-HMI		
Size: A3	Page Name: NAND/CARD	Rev: V1.0
Date: 2023-11-23	Sheet 5 of 7	

DVP CAMERA

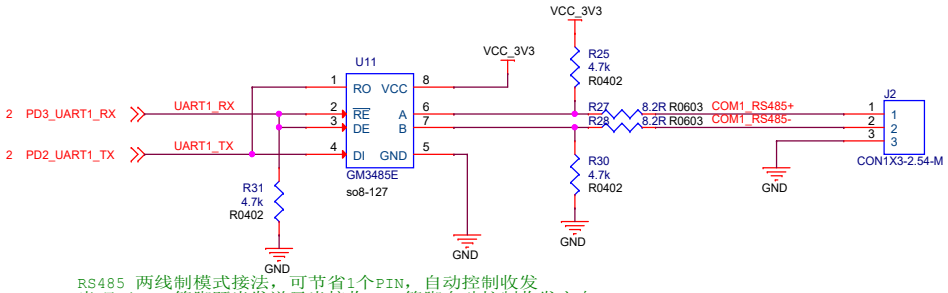




按键下降沿检测进入拍照

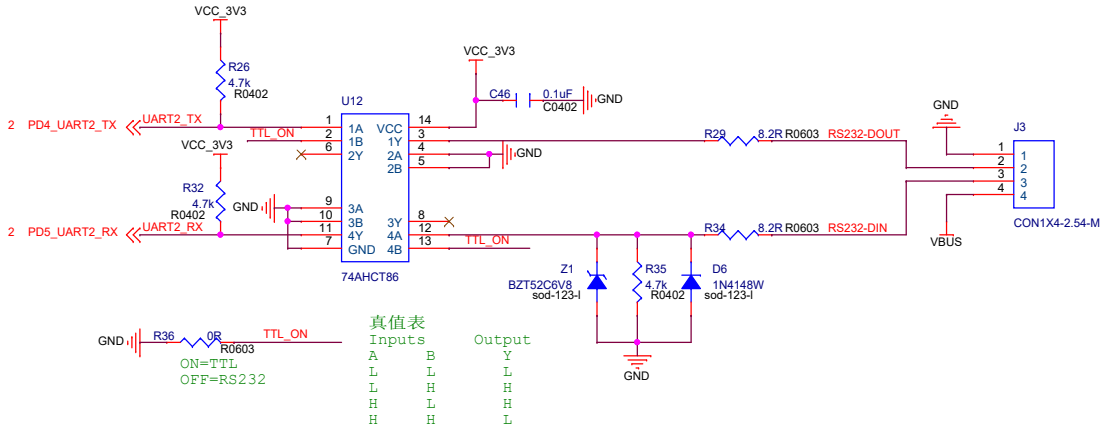


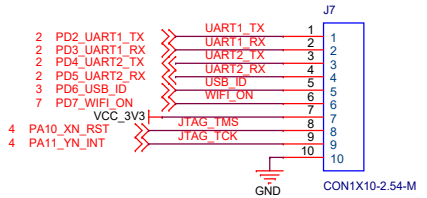
RS485 UART1



RS485 两线制模式接法，可节省1个PIN，自动控制收发
半双工：TX管脚既当发送又当接收；RX管脚自动控制收发方向

RS232/TTL UART2





<Variant Name>

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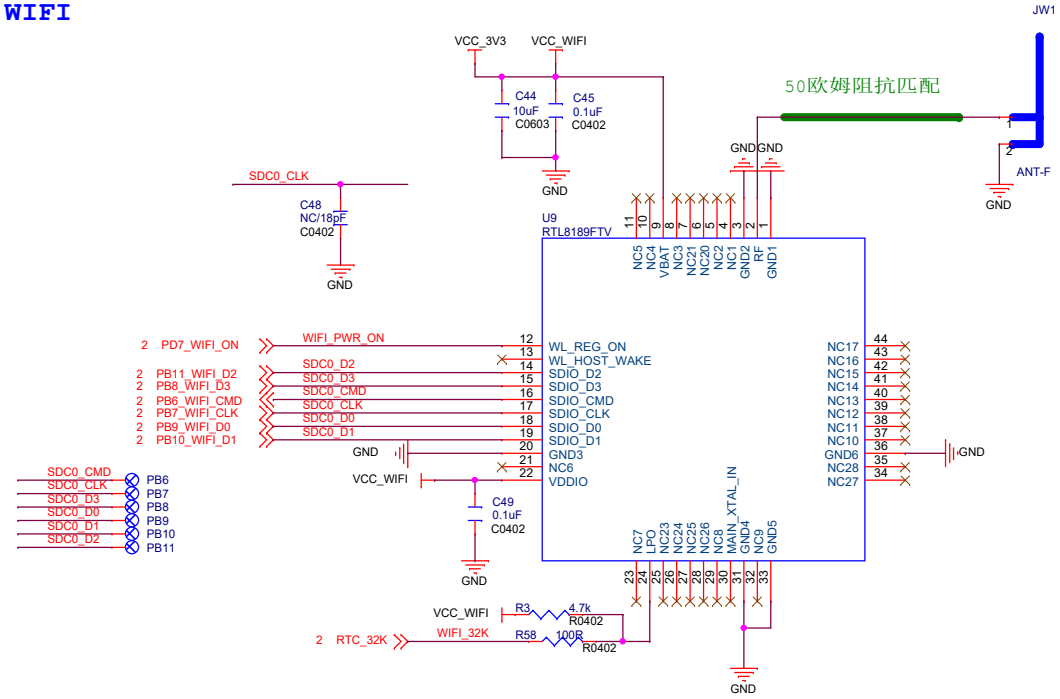
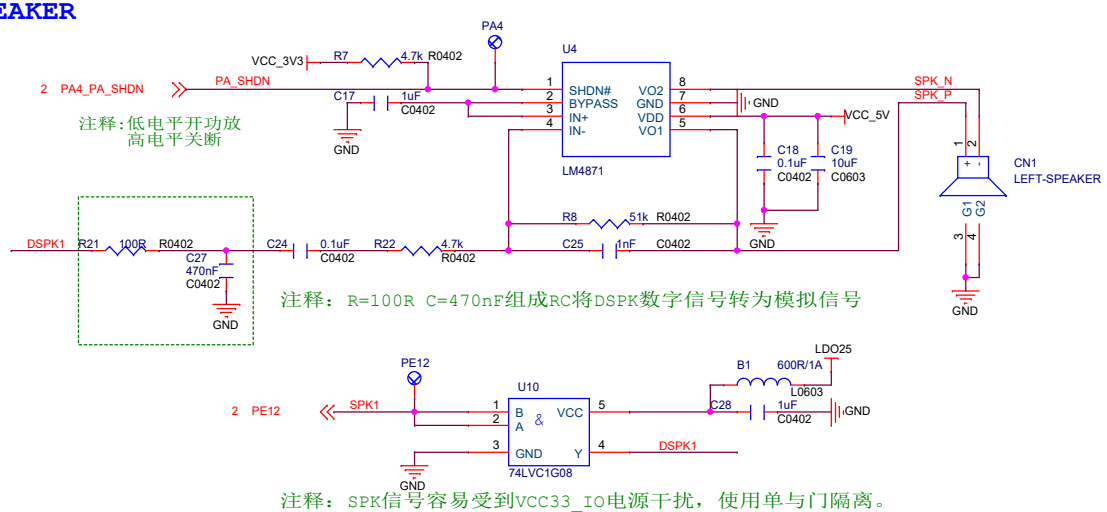
WIFI



SPEAKER



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