RA8D1 Microcontroller

File: RA8D1 Microcontroller.kicad_sch

ART-Link

File: ART-Link.kicad_sch

SDcard&Flash

File: SDcard.kicad_sch

RA8D1 MCU - Power and Clocks

File: RA8D1 MCU - Power and Clocks.kicad_sch

Power

File: power.kicad_sch

Camera Interface

File: Camera Interface.kicad_sch

USB INTERFACE

File: USB INTERFACE.kicad_sch

MIPI LCD DISPLAY INTERFACE

File: MIPI LCD DISPLAY INTERFACE.kicad_sch

SDRAM

File: SDRAM.kicad_sch

WIFI-RW007

File: WIFI-AP6212.kicad_sch

BTB&RPI

File: BTB&RPI.kicad_sch

Vision Board

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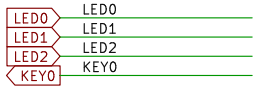
Sheet: /
File: RA8_main.kicad_sch

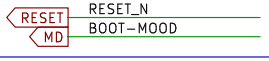
Title:

Size: A4	Date:2024-2-26	**Rev:HW:V1.2**
KiCad E.D.A. kicad 7.0.5		Id: 1/12

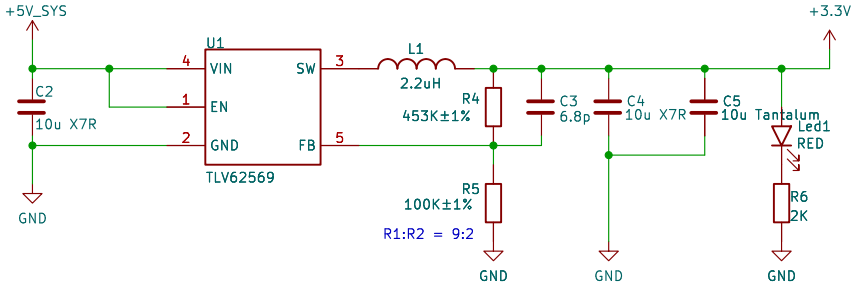
LED&KEY

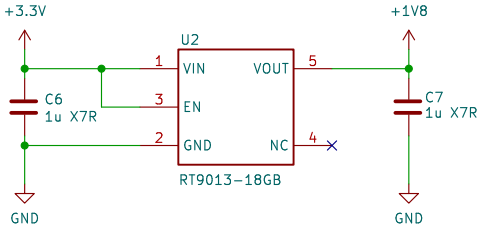


MCU_RESET

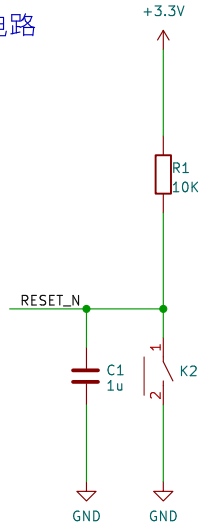


电源供电

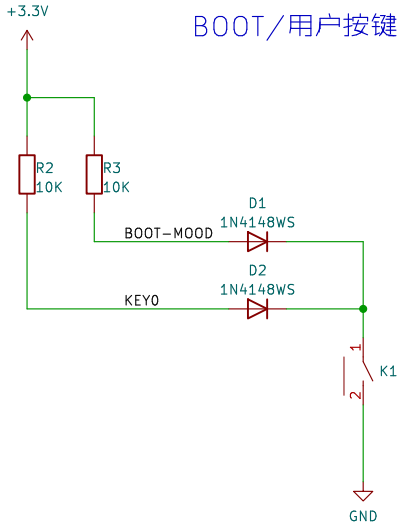




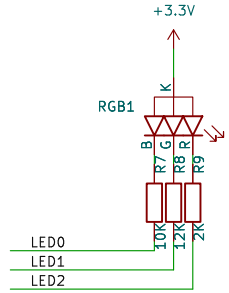
复位电路



BOOT/用户按键



RGB



Vision Board

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Sheet: /Power/
File: power.kicad_sch

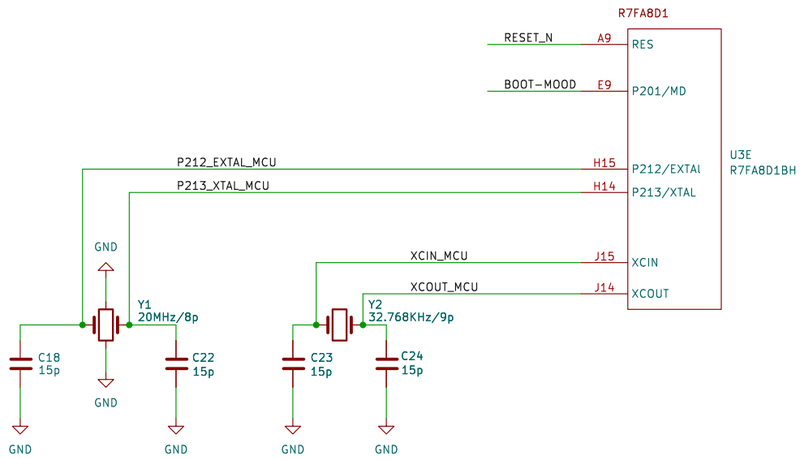
Title:

Size: A4	Date:2024-2-26	**Rev:HW:V1.2**
KiCad E.D.A. kicad 7.0.5		Id: 2/12

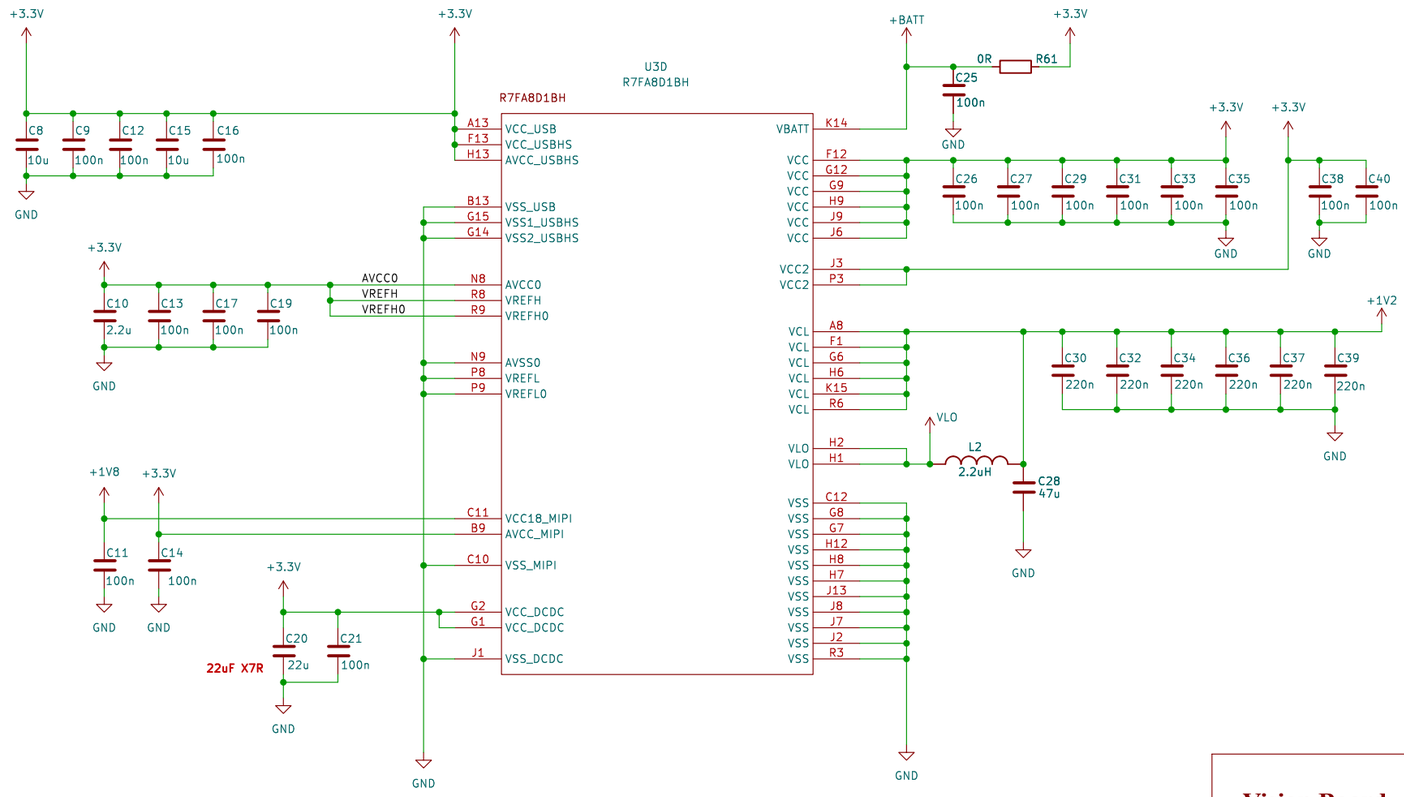
MCU_RESET

RESET RESET_N
MD BOOT-MOOD
DEBUG_NRST RESET_N

晶振电路



MCU供电电路



Vision Board

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Sheet: /RA8D1 MCU - Power and Clocks/
File: RA8D1 MCU - Power and Clocks.kicad_sch

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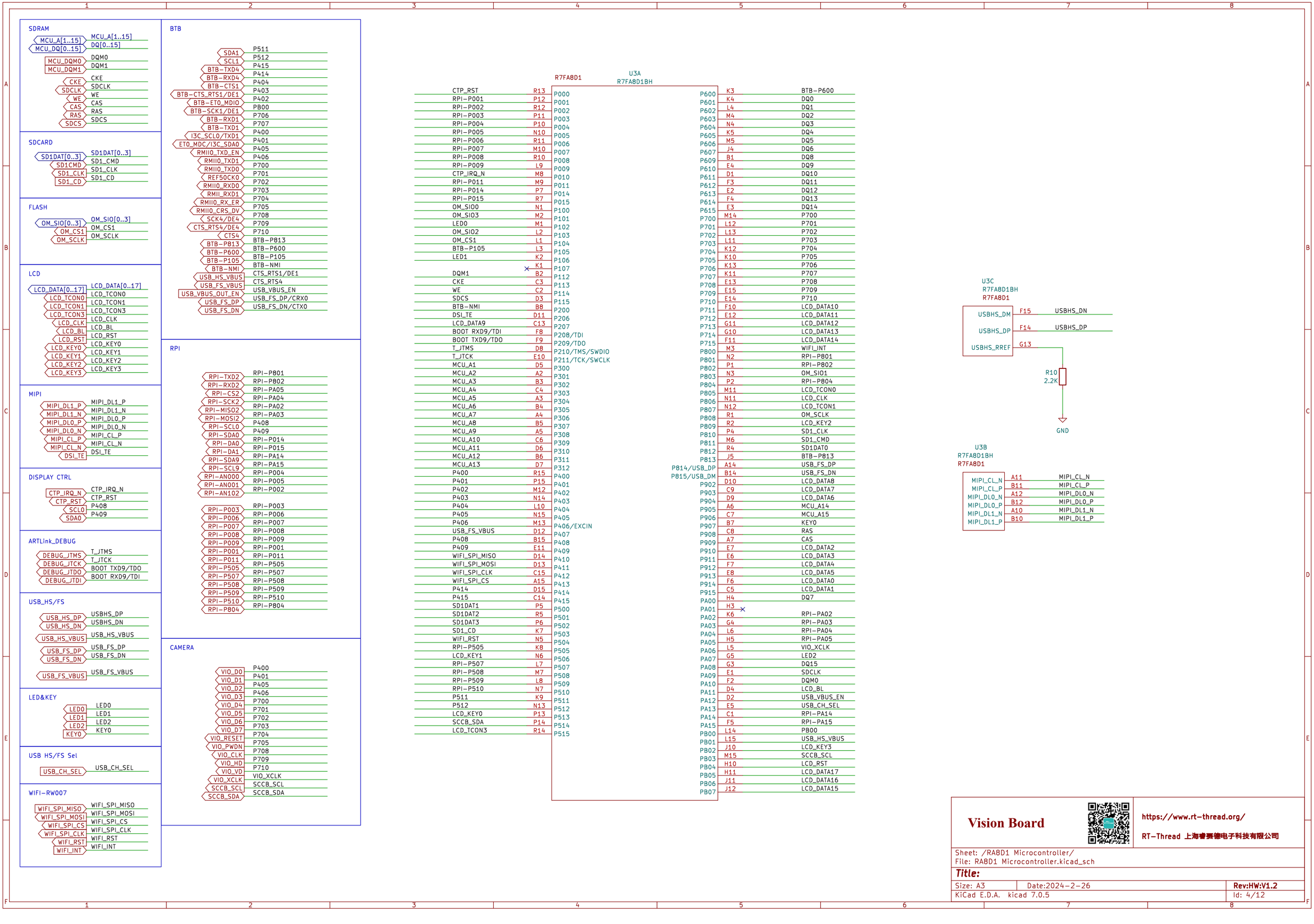
Size: A3	Date:2024-2-26	**Rev:HW:V1.2**
KiCad E.D.A. kicad 7.0.5		Id: 3/12


SDRAM
MCU_A[1..15]
MCU_DQ[0..15]
MCU_A[1..15]
DQ[0..15]
MCU_DQM0
MCU_DQM1
DQM0
DQM1
CKE
SDCLK
WE
CAS
RAS
SDCS
SDCARD
SD1DAT[0..3]
SD1CMD
SD1_CLK
SD1_CD
SD1DAT[0..3]
SD1_CMD
SD1_CLK
SD1_CD
FLASH
OM_SIO[0..3]
OM_CS1
OM_SCLK
OM_SIO[0..3]
OM_CS1
OM_SCLK
LCD
LCD_DATA[0..17]
LCD_TCON0
LCD_TCON1
LCD_TCON3
LCD_CLK
LCD_BL
LCD_RST
LCD_KEY0
LCD_KEY1
LCD_KEY2
LCD_KEY3
LCD_DATA[0..17]
LCD_TCON0
LCD_TCON1
LCD_TCON3
LCD_CLK
LCD_BL
LCD_RST
LCD_KEY0
LCD_KEY1
LCD_KEY2
LCD_KEY3
MIPI
MIPI_DL1_P
MIPI_DL1_N
MIPI_DL0_P
MIPI_DL0_N
MIPI_CL_P
MIPI_CL_N
DSI_TE
MIPI_DL1_P
MIPI_DL1_N
MIPI_DL0_P
MIPI_DL0_N
MIPI_CL_P
MIPI_CL_N
DSI_TE
DISPLAY CTRL
CTP_IRQ_N
CTP_RST
SCL0
SDA0
CTP_IRQ_N
CTP_RST
P408
P409
ARTLink_DEBUG
DEBUG_JTMS
DEBUG_JTCK
DEBUG_JTDO
DEBUG_JTDI
T_JTMS
T_JTCK
BOOT TXD9/TDO
BOOT RXD9/TDI
USB_HS/FS
USB_HS_DP
USB_HS_DN
USB_HS_VBUS
USB_FS_DP
USB_FS_DN
USB_FS_VBUS
USBHS_DP
USBHS_DN
USB_HS_VBUS
USB_FS_DP
USB_FS_DN
USB_FS_VBUS
LED&KEY
LED0
LED1
LED2
KEY0
LED0
LED1
LED2
KEY0
USB HS/FS Sel
USB_CH_SEL
USB_CH_SEL
WIFI-RW007
WIFI_SPI_MISO
WIFI_SPI_MOSI
WIFI_SPI_CS
WIFI_SPI_CLK
WIFI_RST
WIFI_INT
WIFI_SPI_MISO
WIFI_SPI_MOSI
WIFI_SPI_CS
WIFI_SPI_CLK
WIFI_RST
WIFI_INT
BTB
SDA1
SCL1
BTB-TXD4
BTB-RXD4
BTB-CTS1
BTB-CTS_RTS1/DE1
BTB-ET0_MDIO
BTB-SCK1/DE1
BTB-RXD1
BTB-TXD1
I3C_SCL0/TXD1
ET0_MDC/I3C_SDA0
RMII0_TXD_EN
RMII0_TXD1
RMII0_TXD0
REF50CK0
RMII0_RXD0
RMII_RXD1
RMII0_RX_ER
RMII0_CRS_DV
SCK4/DE4
CTS_RTS4/DE4
CTS4
BTB-P813
BTB-P600
BTB-P105
BTB-NMI
USB_HS_VBUS
USB_FS_VBUS
USB_VBUS_EN
USB_FS_DP
USB_FS_DN
P511
P512
P415
P414
P404
P403
P402
PB00
P706
P707
P400
P401
P405
P406
P700
P701
P702
P703
P704
P705
P708
P709
P710
BTB-P813
BTB-P600
BTB-P105
BTB-NMI
CTS_RTS1/DE1
CTS_RTS4
USB_VBUS_EN
USB_FS_DP/CRX0
USB_FS_DN/CTX0
RPI
RPI-TXD2
RPI-RXD2
RPI-CS2
RPI-SCK2
RPI-MISO2
RPI-MOSI2
RPI-SCL0
RPI-SDA0
RPI-DA0
RPI-DA1
RPI-SDA9
RPI-SCL9
RPI-AN000
RPI-AN001
RPI-AN102
RPI-P003
RPI-P006
RPI-P007
RPI-P008
RPI-P009
RPI-P001
RPI-P011
RPI-P505
RPI-P507
RPI-P508
RPI-P509
RPI-P510
RPI-P804
RPI-P801
RPI-P802
RPI-PA05
RPI-PA04
RPI-PA02
RPI-PA03
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P409
RPI-P014
RPI-P015
RPI-PA14
RPI-PA15
RPI-P004
RPI-P005
RPI-P002
RPI-P003
RPI-P006
RPI-P007
RPI-P008
RPI-P009
RPI-P001
RPI-P011
RPI-P505
RPI-P507
RPI-P508
RPI-P509
RPI-P510
RPI-P804
CAMERA
VIO_D0
VIO_D1
VIO_D2
VIO_D3
VIO_D4
VIO_D5
VIO_D6
VIO_D7
VIO_RESET
VIO_PWDN
VIO_CLK
VIO_HD
VIO_VD
VIO_XCLK
SCCB_SCL
SCCB_SDA
P400
P401
P405
P406
P700
P701
P702
P703
P704
P705
P708
P709
P710
VIO_XCLK
SCCB_SCL
SCCB_SDA
R7FA8D1
U3A
R7FA8D1BH
CTP_RST
RPI-P001
RPI-P002
RPI-P003
RPI-P004
RPI-P005
RPI-P006
RPI-P007
RPI-P008
RPI-P009
CTP_IRQ_N
RPI-P011
RPI-P014
RPI-P015
OM_SIO0
OM_SIO3
LED0
OM_SIO2
OM_CS1
BTB-P105
LED1
DQM1
CKE
WE
SDCS
BTB-NMI
DSI_TE
LCD_DATA9
BOOT RXD9/TDI
BOOT TXD9/TDO
T_JTMS
T_JTCK
MCU_A1
MCU_A2
MCU_A3
MCU_A4
MCU_A5
MCU_A6
MCU_A7
MCU_A8
MCU_A9
MCU_A10
MCU_A11
MCU_A12
MCU_A13
P400
P401
P402
P403
P404
P405
P406
USB_FS_VBUS
P408
P409
WIFI_SPI_MISO
WIFI_SPI_MOSI
WIFI_SPI_CLK
WIFI_SPI_CS
P414
P415
SD1DAT1
SD1DAT2
SD1DAT3
SD1_CD
WIFI_RST
RPI-P505
LCD_KEY1
RPI-P507
RPI-P508
RPI-P509
RPI-P510
P511
P512
LCD_KEY0
SCCB_SDA
LCD_TCON3
R13
P12
R12
P11
P10
N10
R11
M10
R10
L9
M8
M9
P7
R7
N1
M2
M1
L2
L1
L3
K2
K1
B2
C3
C2
D3
B8
D11
C13
F8
F9
D8
E10
D5
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B3
C4
A3
B4
A4
B5
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D13
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D15
C14
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N6
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L8
N7
K9
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P13
P14
R14
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P001
P002
P003
P004
P005
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P010
P011
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P015
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P101
P102
P103
P104
P105
P106
P107
P112
P113
P114
P115
P200
P206
P207
P208/TDI
P209/TDO
P210/TMS/SWDIO
P211/TCK/SWCLK
P300
P301
P302
P303
P304
P305
P306
P307
P308
P309
P310
P311
P312
P400
P401
P402
P403
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P406/EXCIN
P407
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P512
P513
P514
P515
P814/USB_DP
P815/USB_DM
P902
P903
P904
P905
P906
P907
P908
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P910
P911
P912
P913
P914
P915
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PA04
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PA07
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PA12
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PA14
PA15
PB00
PB01
PB02
PB03
PB04
PB05
PB06
PB07
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K4
L4
M4
N4
K5
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P1
N3
P2
M11
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R2
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R4
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D9
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B7
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A7
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E6
F7
E8
F6
C5
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H3
K6
G4
L6
H5
L5
G5
G3
E1
F2
D4
D2
E5
C1
F5
L14
L15
J10
M15
H10
H11
J11
J12
P600
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DQ1
DQ2
DQ3
DQ4
DQ5
DQ6
DQ8
DQ9
DQ10
DQ11
DQ12
DQ13
DQ14
P700
P701
P702
P703
P704
P705
P706
P707
P708
P709
P710
LCD_DATA10
LCD_DATA11
LCD_DATA12
LCD_DATA13
LCD_DATA14
WIFI_INT
RPI-P801
RPI-P802
OM_SIO1
RPI-P804
LCD_TCON0
LCD_CLK
LCD_TCON1
OM_SCLK
LCD_KEY2
SD1_CLK
SD1_CMD
SD1DAT0
BTB-P813
USB_FS_DP
USB_FS_DN
LCD_DATA8
LCD_DATA7
LCD_DATA6
MCU_A14
MCU_A15
KEY0
RAS
CAS
LCD_DATA2
LCD_DATA3
LCD_DATA4
LCD_DATA5
LCD_DATA0
LCD_DATA1
DQ7
RPI-PA02
RPI-PA03
RPI-PA04
RPI-PA05
VIO_XCLK
LED2
DQ15
SDCLK
DQM0
LCD_BL
USB_VBUS_EN
USB_CH_SEL
RPI-PA14
RPI-PA15
PB00
USB_HS_VBUS
LCD_KEY3
SCCB_SCL
LCD_RST
LCD_DATA17
LCD_DATA16
LCD_DATA15
U3C
R7FA8D1BH
R7FA8D1
USBHS_DM
USBHS_DP
USBHS_RREF
F15
F14
G13
USBHS_DN
USBHS_DP
R10
2.2K
GND
U3B
R7FA8D1BH
R7FA8D1
MIPI_CL_N
MIPI_CL_P
MIPI_DL0_N
MIPI_DL0_P
MIPI_DL1_N
MIPI_DL1_P
A11
B11
A12
B12
A10
B10
MIPI_CL_N
MIPI_CL_P
MIPI_DL0_N
MIPI_DL0_P
MIPI_DL1_N
MIPI_DL1_P
Vision Board
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RT-Thread 上海睿赛德电子科技有限公司
Sheet: /RA8D1 Microcontroller/
File: RA8D1 Microcontroller.kicad_sch
Title:
Size: A3
Date:2024-2-26
Rev:HW:V1.2
KiCad E.D.A. kicad 7.0.5
Id: 4/12

USB_HS/FS

USB_HS_DP
USB_HS_DN
USB_HS_VBUS
USB_FS_DP
USB_FS_DN
USB_FS_VBUS

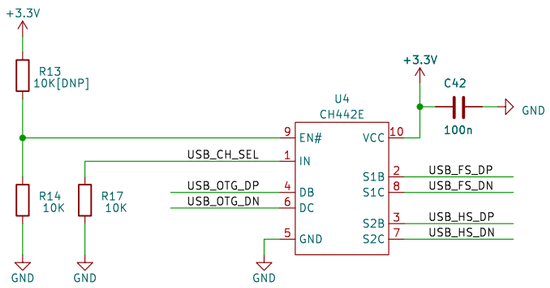
USB HS/FS Sel

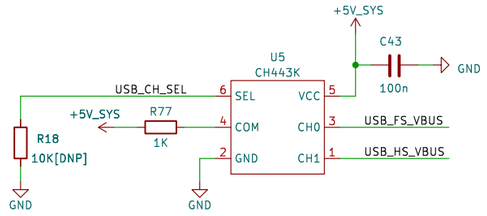
USB_CH_SEL

ART_USB

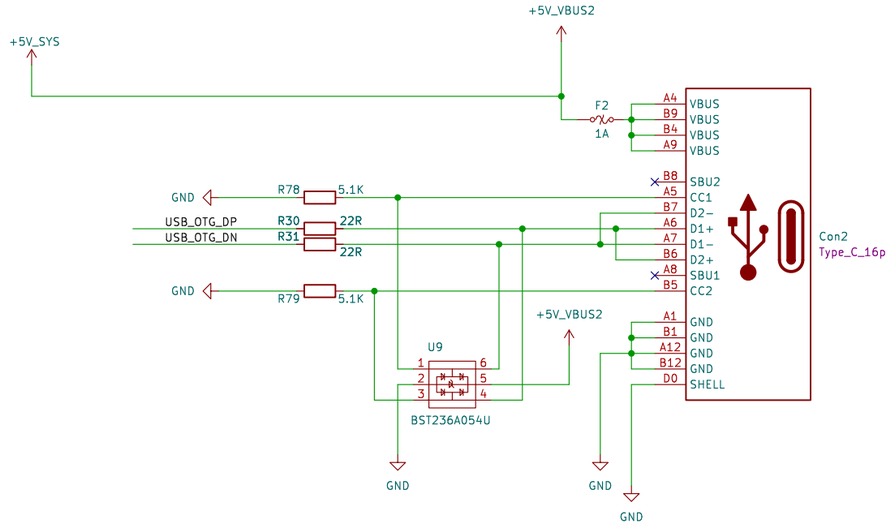
ART_USB_DP
ART_USB_DN

USB HS/FS切换电路

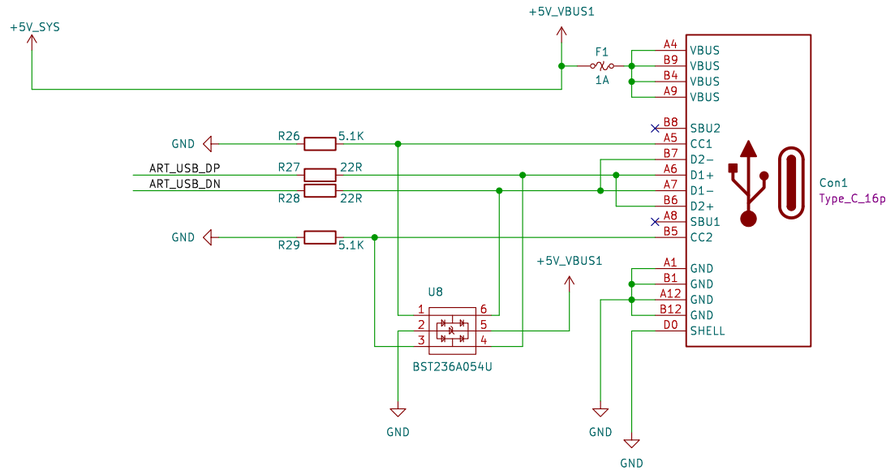




USB-HS/FS



USB-DEBUG



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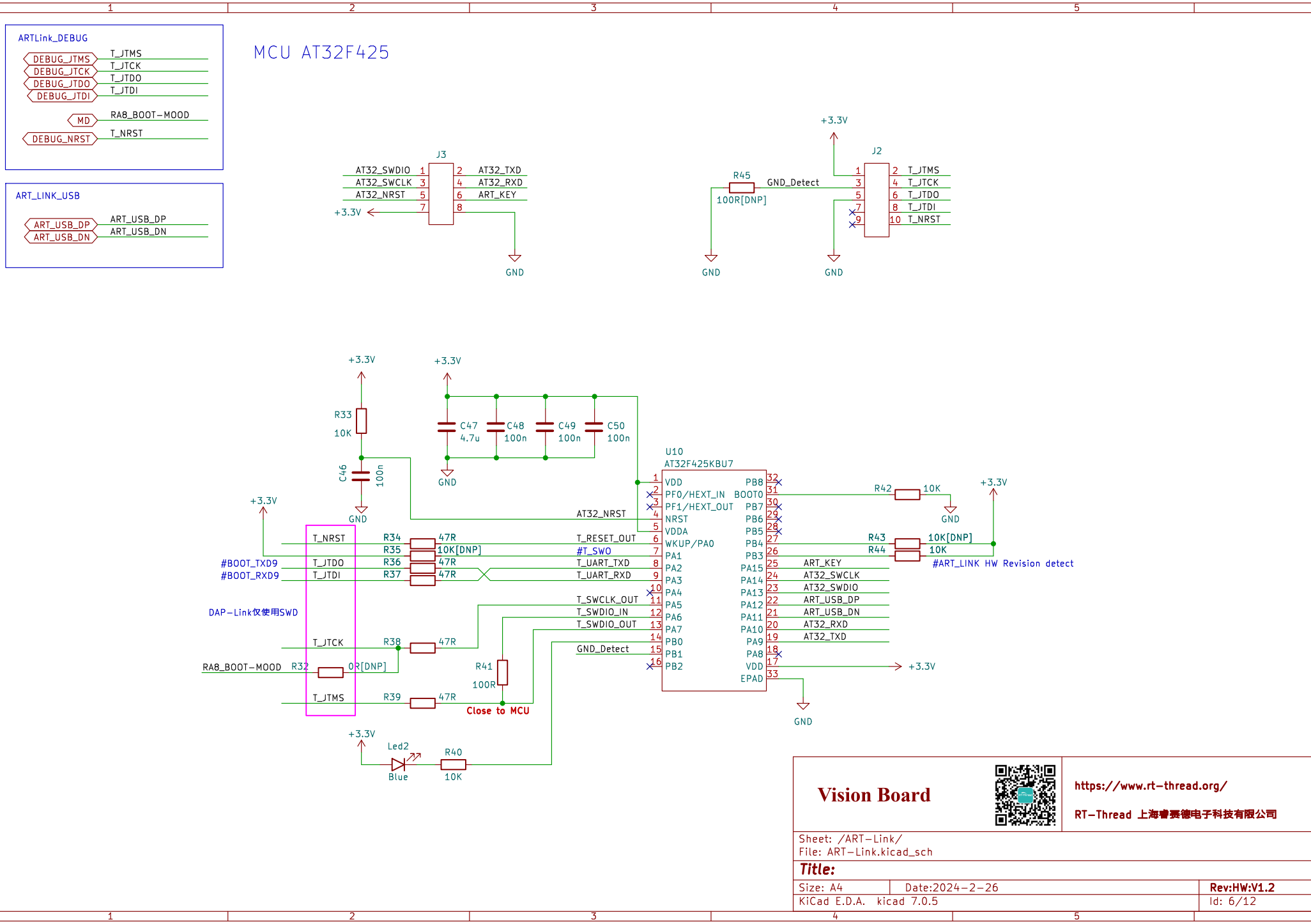
Sheet: /USB INTERFACE/
File: USB INTERFACE.kicad_sch

Title:

Size: A3	Date:2024-2-26	**Rev:HW:V1.2**
KiCad E.D.A. kicad 7.0.5		Id: 5/12


ARTLink_DEBUG
DEBUG_JTMS
T_JTMS
DEBUG_JTCK
T_JTCK
DEBUG_JTDO
T_JTDO
DEBUG_JTDI
T_JTDI
MD
RA8_BOOT-MOOD
DEBUG_NRST
T_NRST
ART_LINK_USB
ART_USB_DP
ART_USB_DN
MCU AT32F425
J3
AT32_SWDIO
AT32_SWCLK
AT32_NRST
+3.3V
AT32_TXD
AT32_RXD
ART_KEY
GND
J2
R45
GND_Detect
100R[DNP]
T_JTMS
T_JTCK
T_JTDO
T_JTDI
T_NRST
R33
10K
C46
100n
C47
4.7u
C48
C49
C50
U10
AT32F425KBU7
VDD
PF0/HEXT_IN
PF1/HEXT_OUT
NRST
VDDA
WKUP/PA0
PA1
PA2
PA3
PA4
PA5
PA6
PA7
PB0
PB1
PB2
BOOT0
PB8
PB7
PB6
PB5
PB4
PB3
PA15
PA14
PA13
PA12
PA11
PA10
PA9
PA8
VDD
EPAD
R42
R43
10K[DNP]
R44
#ART_LINK HW Revision detect
AT32_NRST
T_NRST
R34
47R
R35
10K[DNP]
R36
R37
#BOOT_TXD9
#BOOT_RXD9
T_JTDO
T_JTDI
T_RESET_OUT
#T_SWO
T_UART_TXD
T_UART_RXD
DAP-Link仅使用SWD
T_SWCLK_OUT
T_SWDIO_IN
T_SWDIO_OUT
GND_Detect
T_JTCK
R38
RA8_BOOT-MOOD
R32
0R[DNP]
T_JTMS
R39
R41
100R
Close to MCU
Led2
Blue
R40
Vision Board
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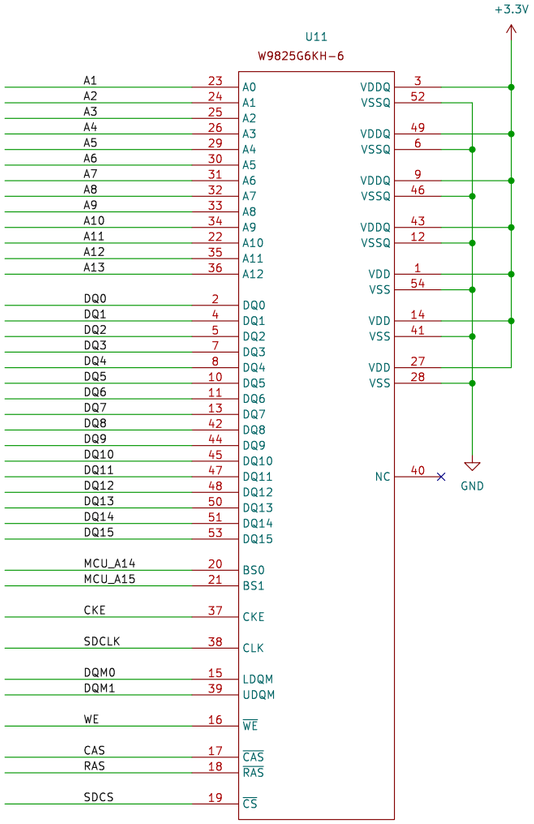
RT-Thread 上海睿赛德电子科技有限公司
Sheet: /ART-Link/
File: ART-Link.kicad_sch
Title:
Size: A4
Date:2024-2-26
Rev:HW:V1.2
KiCad E.D.A. kicad 7.0.5
Id: 6/12

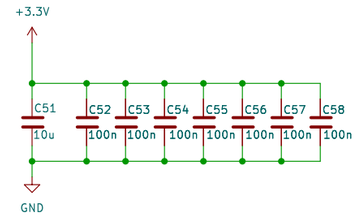
SDRAM

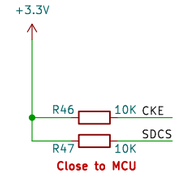
MCU_A[1..15] A[1..15]
MCU_DQ[0..15] DQ[0..15]

MCU_DQM0 DQM0
MCU_DQM1 DQM1

CKE CKE
SDCLK SDCLK
WE WE
CAS CAS
RAS RAS
SDCS SDCS







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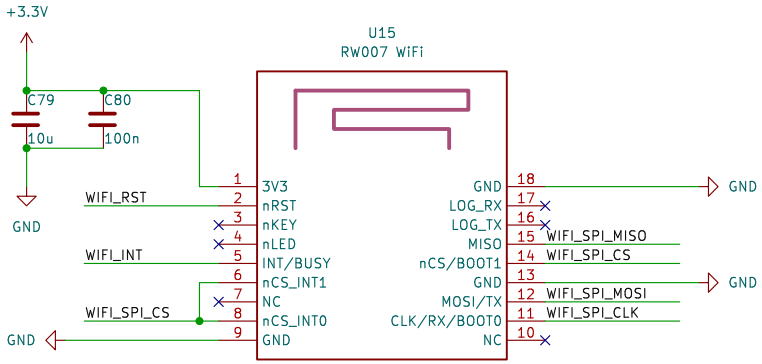
Sheet: /SDRAM/
File: SDRAM.kicad_sch

Title:

Size: A3	Date:2024-2-26	Rev:HW:V1.2
KiCad E.D.A. kicad 7.0.5		Id: 7/12

WIFI-RW007

WIFI_RST
WIFI_SPI_MISO
WIFI_SPI_MOSI
WIFI_SPI_CS
WIFI_SPI_CLK
WIFI_INT



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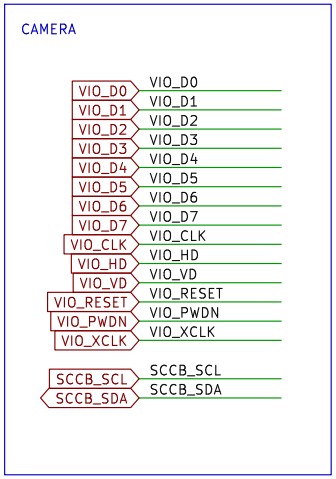
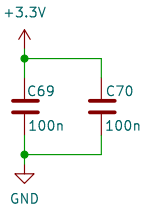
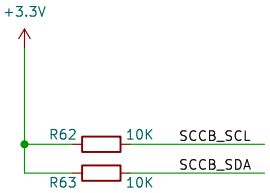
Sheet: /WIFI-RW007/
File: WIFI-AP6212.kicad_sch

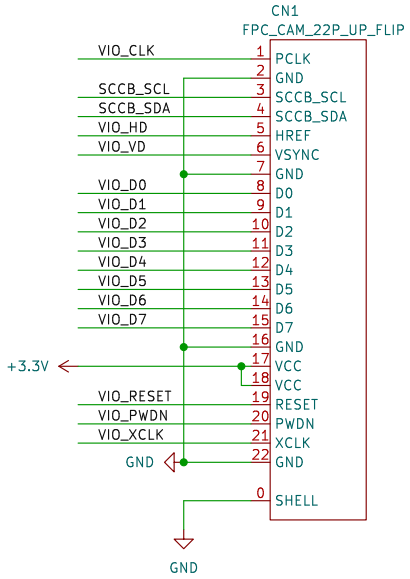
Title:

Size: A4	Date:2024-2-26	**Rev:HW:V1.2**
KiCad E.D.A. kicad 7.0.5		Id: 8/12









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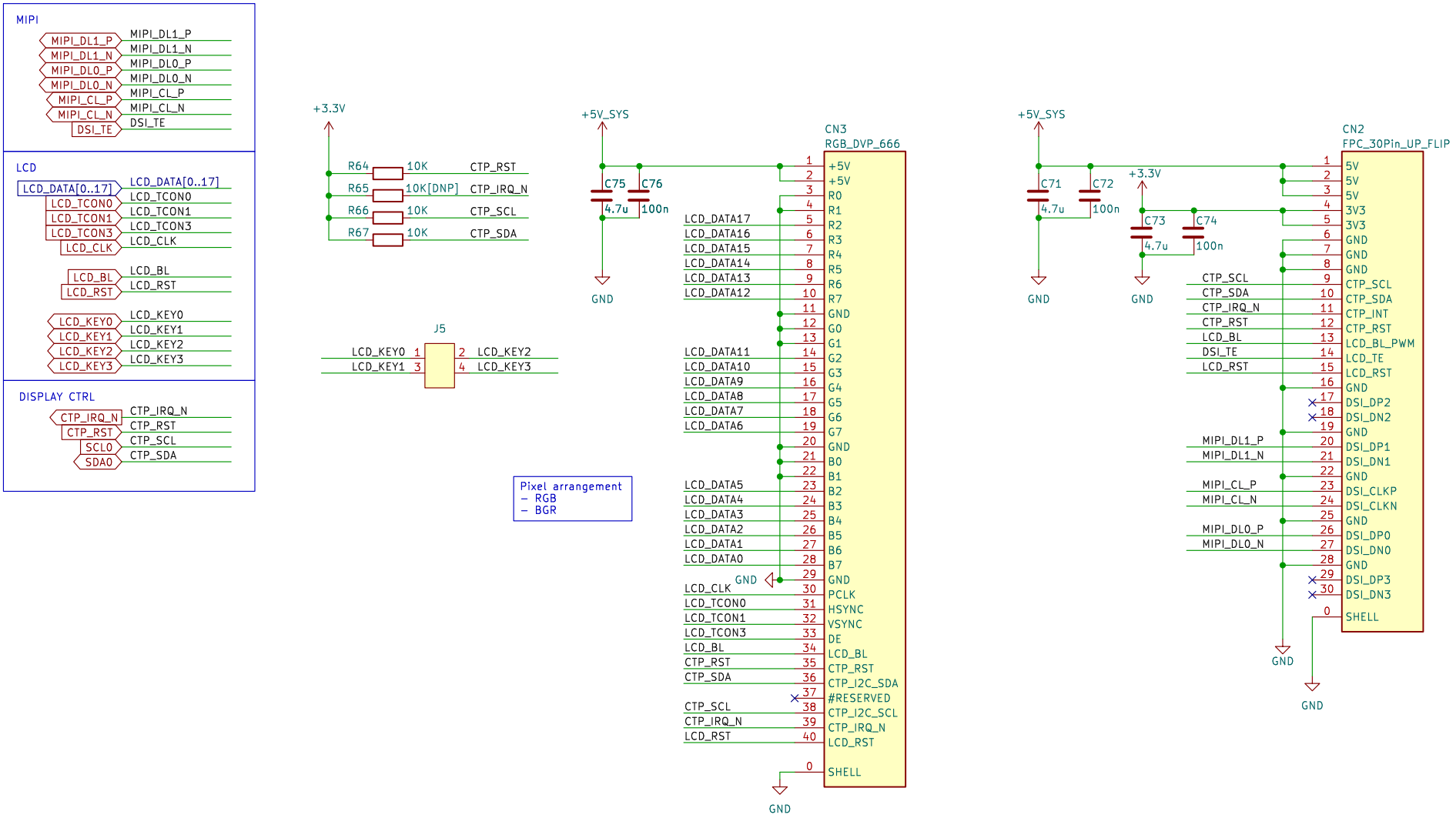
Sheet: /Camera Interface/
File: Camera Interface.kicad_sch

Title:

Size: A4	Date:2024-2-26	**Rev:HW:V1.2**
KiCad E.D.A. kicad 7.0.5		Id: 9/12



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Sheet: /MIPI LCD DISPLAY INTERFACE/
File: MIPI LCD DISPLAY INTERFACE.kicad_sch

Title:

Size: A4	Date:2024-2-26	**Rev:HW:V1.2**
KiCad E.D.A. kicad 7.0.5		Id: 10/12

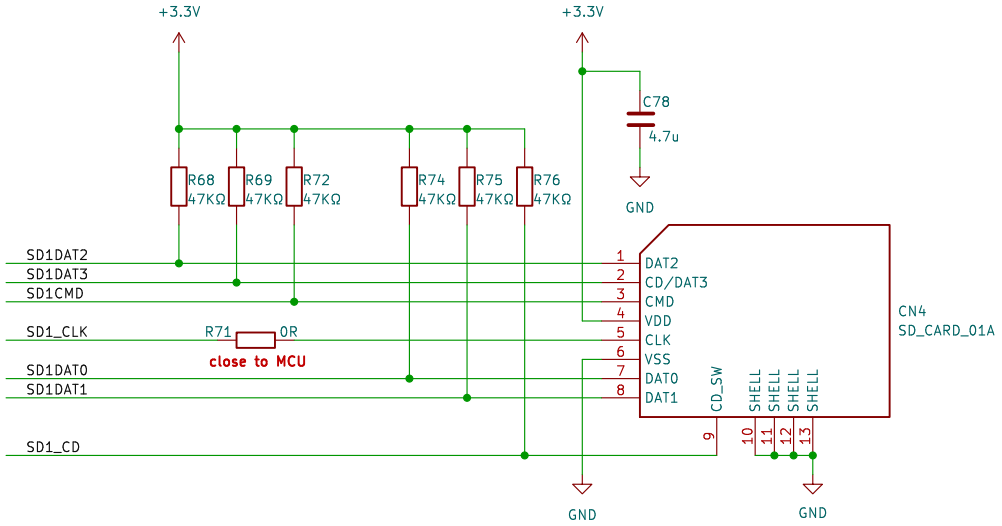
SDCARD

SD1DAT[0..3] SD1DAT[0..3]
SD1CMD SD1CMD
SD1_CLK SD1_CLK
SD1_CD SD1_CD

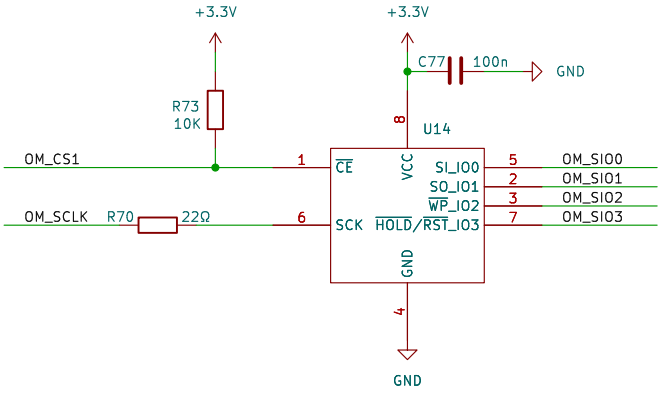
FLASH

OM_SIO[0..3] OM_SIO[0..3]
OM_CS1 OM_CS1
OM_SCLK OM_SCLK

SD-CARD



FLASH



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Sheet: /SDcard&Flash/
File: SDcard.kicad_sch

Title:

Size: A4	Date:2024-2-26	**Rev:HW:V1.2**
KiCad E.D.A. kicad 7.0.5		Id: 11/12

RPI

RPI-TXD2
RPI-RXD2
RPI-SCK2
RPI-MISO2
RPI-MOSI2
RPI-CS2
RPI-SCL0
RPI-SDA0
RPI-DA0
RPI-DA1
RPI-SDA9
RPI-SCL9
RPI-AN000
RPI-AN001
RPI-AN102

RPI-P003
RPI-P006
RPI-P007
RPI-P008
RPI-P009
RPI-P001
RPI-P011
RPI-P505
RPI-P507
RPI-P508
RPI-P509
RPI-P510
RPI-P804

BTB

SDA1
SCL1
BTB-TXD4
BTB-RXD4
BTB-CTS1
BTB-CTS_RTS1/DE1
BTB-ET0_MDIO
BTB-NMI
BTB-SCK1/DE1
BTB-RXD1
BTB-TXD1
USB_HS_VBUS
USB_FS_DP
USB_FS_DN
USB_FS_VBUS
USB_VBUS_OUT_EN
BTB-P813
BTB-P600
BTB-P105
I3C_SCL0/TXD1
ET0_MDC/I3C_SDA0
RMII0_TXD_EN
RMII0_TXD1
RMII0_TXD0
REF50CK0
RMII0_RXD0
RMII_RXD1
RMII0_RX_ER
RMII0_CRS_DV
SCK4/DE4
CTS_RTS4/DE4
CTS4

BTB

+3.3V

R80 10K BTB-NMI

CN5

SCL1	1	2	RMII0_CRS_DV
BTB-ET0_MDIO	3	4	RMII0_RX_ER
BTB-CTS_RTS1/DE1	5	6	RMII_RXD1
BTB-CTS1	7	8	RMII0_RXD0
BTB-TXD1	9	10	REF50CK0
CTS_RTS1/DE1	11	12	RMII0_TXD1
BTB-SCK1/DE1	13	14	RMII0_TXD0
BTB-RXD1	15	16	RMII0_TXD_EN
SDA1	17	18	ET0_MDC/I3C_SDA0
BTB-NMI	19	20	I3C_SCL0/TXD1
CTS_RTS4	21	22	CTS4
BTB-RXD4	23	24	CTS_RTS4/DE4
BTB-TXD4	25	26	SCK4/DE4
BTB-P813	27	28	USB_FS_DN/CTX0
BTB-P600	29	30	USB_FS_DP/CRX0
BTB-P105	31	32	
USB_VBUS_EN	33	34	
	35	36	
	37	38	
	39	40	

GND GND

+3.3V +5V_SYS+BATT

树莓派接口

+3.3V +5V_SYS

J4

	1	2	
RPI-SDA0	3	4	
RPI-SCL0	5	6	
RPI-P804	7	8	RPI-TXD2
	9	10	RPI-RXD2
RPI-P006	11	12	RPI-AN102
RPI-P003	13	14	
RPI-P008	15	16	RPI-P007
	17	18	RPI-AN000
RPI-MOSI2	19	20	
RPI-MISO2	21	22	RPI-AN001
RPI-SCK2	23	24	RPI-P011
	25	26	RPI-CS2
RPI-SDA9	27	28	RPI-SCL9
RPI-DA0	29	30	
RPI-P507	31	32	RPI-DA1
RPI-P510	33	34	
RPI-P509	35	36	RPI-P009
RPI-P508	37	38	RPI-P505
	39	40	RPI-P001

GND GND

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Sheet: /BTB&RPI/
File: BTB&RPI.kicad_sch

Title:

Size: A4	Date:2024-2-26	**Rev:HW:V1.2**
KiCad E.D.A. kicad 7.0.5		Id: 12/12