Index

Note

NOTE 1：
Component parameter description

1. DNP stands for component not mounted temporarily
2. If Value or option is DNP, which means the area is reserved without being mounted
3. If Flash is compatible, please notice when eMMC is used, the option is that @eMMC is mounted, @Nand is not mounted when Nand is used, the option is that @Nand is mounted, @eMMC is not 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.

Note

Option

Description

Remind

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}
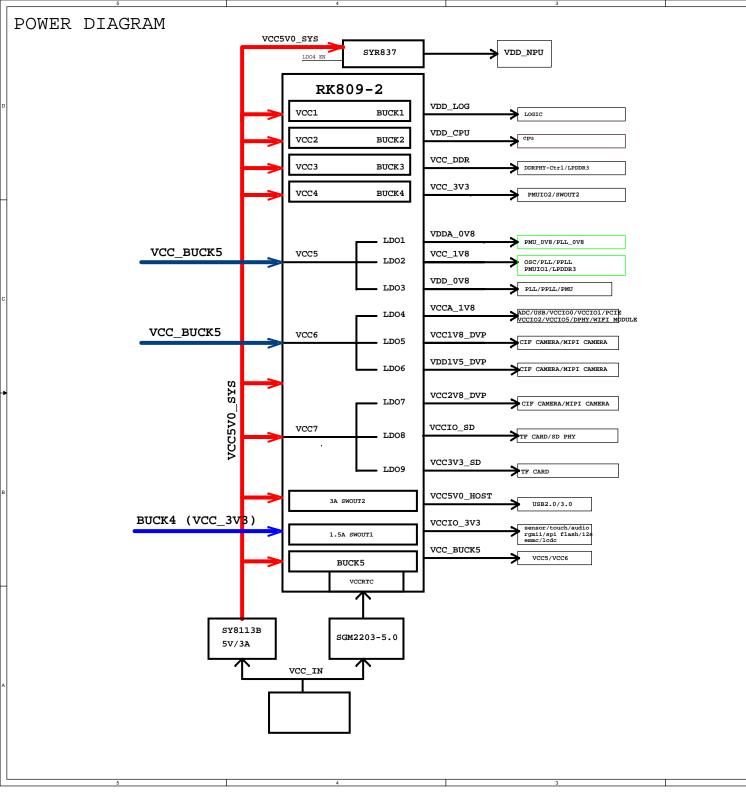
Version	Date	Author	Change List	Approved
V1.0	20181025		First edition for RK1808 ddr4	RZF
V2.0	20190919		SOEdge Schematic Released	

PINE64

PINE64

I2C MAP
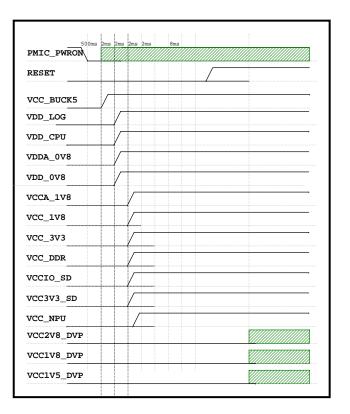
Port	Pin name	Domain	Bus name	Pull-up voltage	Slave Device	Slave Addr (MS 7Bits)	Note	Slave Bus Capability
I2C0	I2C0_SCL/GPIO0_B0_u I2C0_SDA/GPIO0_B1_u	PMUIO2	I2C0_SCL_PMIC I2C0_SDA_PMIC	VCC_3V3	Rockchip RK809	0x20	PMIC	100kHz,400kHz
					SY837		BUCK	100kHz,400kHz
I2C1	I2C1_SCL/GPIO0_C0_u I2C1_SDA/GPIO0_C1_u	PMUIO2	I2C1_SCL I2C1_SDA	VCC_3V3	GSL1680		Touch IC	100kHz,400kHz
								100kHz,400kHz
I2C2	I2C1_SCL/GPIO1_B4_U I2C1_SDA/GPIO1_B5_U	VCCIO_3V3			NC			100kHz,400kHz
I2C3	GPIO2_D0/I2C3_SCL_U GPIO2_D1/I2C3_SDA_U	VCCA_1V8		VCCA_1V8	MIPI CAMERA			
					CIF CAMERA			
					BT1120			
I2C4	GPIO3_C2/I2C4_SCL_U GPIO3_C3/I2C4_SDA_U	VCCIO_3V3		VCCIO_3V3	DIGITAL MIC			
					RGB LCD			
					PCIEX4			
					SENSOR			

POWER DIAGRAM

RK809-2 Power-on Sequence

PowerName	PMIC Channel	Time Slot (step 2mS)	Default voltage	Supply Limit	Default ON/OFF	Sleep ON/OFF	Peak Current
VDD_NPU	EXTERNAL(SY837)	Slot:3A	1V	6A	ON	OFF	4A
VDD_LOG	BUCK1	Slot:2	0.85V	2.5A	ON	OFF	1.25A
VDD_CPU	BUCK2	Slot:2	0.85V	2.5A	ON	OFF	750mA
VCC_DDR	BUCK3	Slot:3	FB=0.6V	1.5A	ON	ON	
VCC_3V3	BUCK4	Slot:4	3.3V	1.5A	ON	ON	
VCC_BUCK5	BUCK5	Slot:1	2.5V	2.5A	ON	ON	
VDDA_0V8	LDO1	Slot:2	0.8V	400mA	ON	OFF	
VCC_1V8	LDO2	Slot:3	1.8V	400mA	ON	ON	
VDD_0V8	LDO3	Slot:2	0.8V	100mA	ON	ON	
VCCA_1V8	LDO4	Slot:3	1.8V	400mA	ON	OFF	
VCC1V8_DVP	LDO5		1.8V	400mA	OFF	OFF	
VDD1V5_DVP	LDO6		1.5V	400mA	OFF	OFF	
VCC2V8_DVP	LDO7		2.8V	400mA	OFF	OFF	
VCCIO_SD	LDO8	Slot:4	3.3V	400mA	ON	OFF	
VCC3V3_SD	LDO9	Slot:4	3.3V	400mA	ON	OFF	
VCCIO_3V3	SWOUT2	Slot:4	3.3V	3A	ON	OFF	
VCC5V0_HOST	SWOUT1		5V	1.5A	OFF	OFF	
RESET	RESETB	Slot:10	OD				

RK1808 Power

RK1808 YAPAY ZEKA STICK
02/22/2024 03:11 AM

YAPAY ZEKA -USB STICK GÜÇ SİSTEMİ

MURAT IRKAN 2024-03 KONTROL -1

PINE64

Project: SOEdge Schematic 20190919 ver 2.0
File: 10.RK1808 Power
Date: Thursday, September 19, 2019
Designed by: Rzf
Rev:
Sheet: 10 of 99

PMUIO1/OSC

U1000C

RK1808

Signal	Pin
NPOR	AW23
OSC_24M_IN	AV6
OSC_24M_OUT	AW7
OSC_VDD_1V8	AJ15
OSC_VSS	AG15
OSC_BPASS_z	AV24
PLL_AVDD_0V8	AC15
PPLL_AVDD_0V8	AG11
PLL_AVDD_1V8	AA15
PPLL_AVDD_1V8	AJ11
PLL_AVSS	AA13

Signal	Pin
REF_CLKO/GPIO0_A0_d	AV22
TSADC_SHUT_M1/GPIO0_A1_z	AU21
PCIE_BUTTONRST/GPIO0_A2_d	AN19
SDMMC0_DETN/PCIE_CLKREQN_M0/GPIO0_A3_u	AV20
PMIC_SLEEP/TSADC_SHUT_M2/GPIO0_A4_d	AW17
PCIE_PERST_M0/GPIO0_A5_u	AL17
OSC_BPASS_z TSADC_SHUT_M0/TSADC_SHUTORG/GPIO0_A6_z	AW21
PCIE_WAKE_M0/GPIO0_A7_u	AR21
PMU_VDD_0V8	AJ17
PMUIO1_VDD_1V8	AJ19

RESET_L → AW23

PMIC_INT_L
SDMMC0_DET_L
PMIC_SLEEP_H
NPU_SLEEP_H
TSADC_SHUT_L

OSC_BPASS

Y1100
24MHz
CRY4_3R20X2R50X0R80
X1 GND
GND X2
<20ppm

C1101 22pF C0402 C0G 50V
C1103 22pF C0402 C0G 50V

R1101 1M 1% R0402
R1102 33R 5% R0402
R1103 0R 5% R0201

VCC_1V8 AJ15

VDDA_0V8 AC15
VDD_0V8 AG11
VCCA_1V8 AA15
VCC_1V8 AJ11

OSC_BPASS=0：接24M晶振．
OSC_BPASS=1：外面接24M的CLK进来．

VDD_0V8
VCC_1V8

C1104 100nF X5R 16V C0201
C1102 100nF X5R 16V C0201

VCC_1V8 — C1105 100nF X5R 16V C0201
VDDA_0V8 — C1106 100nF X5R 16V C0201
VDD_0V8 — C1107 100nF X5R 16V C0201
VCCA_1V8 — C1108 100nF X5R 16V C0201

PMUIO2

U1000D

RK1808

Signal	Pin
I2C0_SCL/GPIO0_B0_u	AW19
I2C0_SDA/GPIO0_B1_u	AU13
UART0_TX/GPIO0_B2_d	AU15
UART0_RX/GPIO0_B3_d	AW9
UART0_CTS/GPIO0_B4_u	AR15
UART0_RTS/TEST_CLK1/GPIO0_B5_u	AV10
PCIE_PERST_M1/GPIO0_B6_u	AU9
PWM0/OTG_DRV/GPIO0_B7_d	AV14
I2C1_SCL/GPIO0_C0_d	AN13
I2C1_SDA/GPIO0_C1_d	AV12
CLKIO_32K/GPIO0_C2_z	AW13
PWM1/UART3_TX/GPIO0_C3_d	AV18
PWM3/UART3_RX/GPIO0_C4_d	AW11
PCIE_WAKE_M1/PWM2/GPIO0_C5_d	AV16
PCIE_CLKREQN_M1/UART3_CTS/GPIO0_C6_d	AN15
UART3_RTS/GPIO0_C7_d	AR13
DFTJTAG_TRSTN	AW15
DFTJTAG_TMS	AR9
PMUIO2_VDD	AL15

I2C0_SCL
I2C0_SDA
P0B2_EPHY_RST_3V3IO
PHONE_DET_H
P0B4-UART0_CTS/TP_RTS_L
P0B5-UART0-RTS/TP_INT_L
PCIE_PERST
P0B7_PWM0
I2C1_SCL
I2C1_SDA
CLKOUT_32K
DFTJTAG_TCK/PWM1_LCD_BL
NPU_PWREN_H
P0C5-PCIE_WAKE
P0C6-PCIE_CLKREQN
MIPICAM_PDN

I2C0_SCL_PMIC
I2C0_SDA_PMIC
I2C1_SCL_TP
I2C1_SDA_TP

VCC_3V3

C1110 100nF X5R 16V C0201

VCC_3V3
R1110 2.2K 5% R0201
R1111 2.2K 5% R0201

I2C1_SCL_TP
I2C1_SDA_TP

DDR Controller

U1000A

RK1808

Left side signals (DQ bus):

Net	Pin	Label
DDR_D0	A5	DDR_DQ0
DDR_D1	F6	DDR_DQ1
DDR_D2	B6	DDR_DQ2
DDR_D3	E7	DDR_DQ3
DDR_D4	B8	DDR_DQ4
DDR_D5	A7	DDR_DQ5
DDR_D6	B10	DDR_DQ6
DDR_D7	A9	DDR_DQ7
DDR_D8	G1	DDR_DQ8
DDR_D9	L5	DDR_DQ9
DDR_D10	F2	DDR_DQ10
DDR_D11	E1	DDR_DQ11
DDR_D12	D2	DDR_DQ12
DDR_D13	C1	DDR_DQ13
DDR_D14	B4	DDR_DQ14
DDR_D15	A3	DDR_DQ15
DDR_D16	B12	DDR_DQ16
DDR_D17	A11	DDR_DQ17
DDR_D18	A13	DDR_DQ18
DDR_D19	G19	DDR_DQ19
DDR_D20	A15	DDR_DQ20
DDR_D21	B14	DDR_DQ21
DDR_D22	A17	DDR_DQ22
DDR_D23	B16	DDR_DQ23
DDR_D24	A19	DDR_DQ24
DDR_D25	B18	DDR_DQ25
DDR_D26	B20	DDR_DQ26
DDR_D27	A21	DDR_DQ27
DDR_D28	A23	DDR_DQ28
DDR_D29	B22	DDR_DQ29
DDR_D30	A25	DDR_DQ30
DDR_D31	B24	DDR_DQ31

DQS / DM signals:

Net	Pin	Label
DDR_DQS0P	G9	DDR_DQS0P
DDR_DQS0N	E9	DDR_DQS0N
DDR_DQS1P	J7	DDR_DQS1P
DDR_DQS1N	J5	DDR_DQS1N
DDR_DQS2P	G15	DDR_DQS2P
DDR_DQS2N	E15	DDR_DQS2N
DDR_DQS3P	G21	DDR_DQS3P
DDR_DQS3N	E21	DDR_DQS3N
DDR_DM0	E5	DDR_DM0
DDR_DM1	H2	DDR_DM1
DDR_DM2	E13	DDR_DM2
DDR_DM3	E19	DDR_DM3

Right side address/control signals:

Pin	Label	Net
R1	LPDDR3_A0/DDR3_A9	DDR4_A0
U1	LPDDR3_A1/DDR3_A14	DDR4_A1
U7	LPDDR3_A2/DDR3_A13	DDR4_A2
V2	LPDDR3_A3/DDR3_A11	DDR4_A3
AA5	LPDDR3_A4/DDR3_A2	DDR4_A4
U5	LPDDR3_A5/DDR3_A4	DDR4_A5
T2	LPDDR3_A6/DDR3_A3	DDR4_A6
W1	LPDDR3_A7/DDR3_A6	DDR4_A7
P2	LPDDR3_A8/DDR3_A5	DDR4_A8
AC7	LPDDR3_A9/DDR3_A1	DDR4_A9
AD2	DDR3_A0	DDR4_A10
R7	DDR3_A7	DDR4_A11
AB2	DDR3_CASB	DDR4_A12
AH2	DDR3_A8	DDR4_A13
AG5	DDR3_ODT0	DDR4_A14
AE1	DDR3_BA1	DDR4_A15
AF2	DDR3_RASB	DDR4_A16
AG7	NC	
R5	DDR3_BA2	DDR4_BA0
Y2	DDR3_A12	DDR4_BA1
AC1	LPDDR3_CSB0/DDR3_A10	DDR4_CS0
AJ5	LPDDR3_CSB1/DDR3_CSB1	
L1	LPDDR3_CK/DDR3_CK	DDR4_CLKP
M2	LPDDR3_CKB/DDR3_CKB	DDR4_CLKN
AA1	LPDDR3_ODT0/DDR3_A15	
AG1	LPDDR3_ODT1/DDR3_ODT1	
J1	DDR3_RESETN	DDR4_RESET
K2	DDR3_BA0	DDR4_BG0
AA7	DDR3_WEB	
N1	DDR3_CSB0	DDR4_ACTN
AC5	LPDDR3_CKE/DDR3_CKE	DDR4_CKE
J23	DDR_VERFO PHY out VCC_DDR/2	VREFO_DDR
AA9	DDR_RZQ	

R12011 0R 5% R0201 → DDR4_ODT0
TP1201 TP_0.5

R1200 240R 1% R0201

Power pins:
Pin	Label
W11	DDR_VDD_1
R11	DDR_VDD_2
U11	DDR_VDD_3
N13	DDR_VDD_4
N15	DDR_VDD_5
N17	DDR_VDD_6
N19	DDR_VDD_7
N21	DDR_VDD_8
N11	DDR_AVSS

VCC_DDR

LPDDR3/LPDDR2 ↔ DDR3 Mapping

LPDDR3/LPDDR2	DDR3
A0	A9
A1	A14
A2	A13
A3	A11
A4	A2
A5	A4
A6	A3
A7	A6
A8	A5
A9	A1
	A0
	A7
	CASB
	A8
	ODT0
	BA1
	RASB
	CSB0
	BA2
	A12
	BA0
	WEB
CK	CK
CKB	CKB
CKE	CKE
CSB0	A10
CSB1	CSB1
ODT0	A15
ODT1	ODT1
	RESETN

Decoupling Capacitors (VCC_DDR)

Ref	Value	Dielectric	Voltage	Package
C1200	4.7uF	X5R	6.3V	C0402
C1201	1uF	X5R	6.3V	C0402
C1202	100nF	X5R	16V	C0201
C1203	100nF	X5R	16V	C0201
C1204	100nF	X5R	16V	C0201
C1205	100nF	X5R	16V	C0201
C1206	100nF	X5R	16V	C0201
C1207	100nF	X5R	16V	C0201
C1208	100nF	X5R	16V	C0201
C1209	100nF	X5R	16V	C0201

EMMC/SFC Controller

U1000B

Pin	Signal
E27	EMMC_D0/SFC_SIO0/GPIO1_A0_u
B28	EMMC_D1/SFC_SIO1/GPIO1_A1_u
A29	EMMC_D2/SFC_SIO2/GPIO1_A2_u
B30	EMMC_D3/SFC_SIO3/GPIO1_A3_u
A31	EMMC_D4/SFC_CSN0/GPIO1_A4_u
C31	EMMC_D5/SFC_CLK/GPIO1_A5_u
B32	EMMC_D6/SPI2_MISO_M0/GPIO1_A6_u
A33	EMMC_D7/SPI2_CLK_M0/GPIO1_A7_u

EMMC_D0/SFC_SIO0
EMMC_D1/SFC_SIO1
EMMC_D2/SFC_SIO2
EMMC_D3/SFC_SIO3
EMMC_D4/SFC_CSN0
EMMC_D5/SFC_CLK   SFC_CLK 33R
EMMC_D6
EMMC_D7

Pin	Signal
G31	EMMC_PWREN/SPI2_MOSI_M0/GPIO1_B0_u
E31	EMMC_CLKOUT/SPI2_CSN_M0/GPIO1_B1_u
B34	EMMC_CMD/GPIO1_B2_u
A35	EMMC_RSTN/GPIO1_B3_d

P1B0
EMMCCLK   R1302 1 ___ 2 33R 5% R0201   EMMC_CLK
EMMCCMD   R1305 1 ___ 2 33R 5% R0201   EMMC_CMD
EMMC_RST

L27 VCCIO0 — VCCIO_EMMC

C1300
100nF
X5R
16V
C0201

RK1808

RK1808 Only Support EMMC, Not Support NAND FLASH.

VCCIO_EMMC

R1300 1 ___ 2 0R 1% R0402   VCCA_1V8
R1301 1 ___ 2 NC/0R 1% R0402 DNP   VCCIO_3V3

VCCIO0=3.3V, If stuff SPI NOR FLASH,
VCCIO0=1.8V, If stuff EMMC

SPI0 Controller

R1308 NC
R1309 2NC   SPI0_MOSI_S   SPI0_MOSI_S
R1310 1% 2NC SPI0_MISO_S   SPI0_MISO_S
R1311 1% 2NC SPI0_CSN_S   SPI0_CSN_S
1   1% 2   SPI0_CLK_S   SPI0_CLK_S
1%

U1000G

Pin	Signal
C27	SPI0_MOSI/I2C2_SCL_M1/UART1_RX_M1/GPIO1_B4_u
A27	SPI0_MISO/I2C2_SDA_M1/UART1_TX_M1/GPIO1_B5_u
G25	SPI0_CSN/PWM4/GPIO1_B6_u
E25	SPI0_CLK/PWM5/GPIO1_B7_d

SPI0_MOSI_M   R1303 0R
SPI0_MISO_M   R1304 2R   SPI0_MOSI
SPI0_CSN_M   R1306 2R   SPI0_MISO
SPI0_CLK_M   R1307 1% 2R   SPI0_CSN
1   1% 2   SPI0_CLK
1%

L25 VCCIO5 — VCCIO_3V3

C1301
100nF
X5R
16V
C0201

RK1808

SPI FLASH 128M

R61 R60 R57
10K 10K 10K

C135 R59 R58 R56
0.1uF 10K 10K 10K

VCCIO_3V3

U3
Pin	Name	Name	Pin
1	/CS	VCC	8
2	DO	/HOLD	7
3	/WP	CLK	6
4	GND	DIO	5

SPI0_CSN
SPI0_MISO
SPI0_CLK
SPI0_MOSI

GD25Q127CSIG

U29
CON34
GB042-34P-H10

EMMC_D5/SFC_CLK — 1
EMMC_D4/SFC_CSN — ...
EMMC_D0/SFC_SIO0 — ...
EMMC_CLK — ...
EMMC_D3/SFC_SIO3 — ...
EMMC_STRB

TP9712 TP_0.7

EMMC_D6
EMMC_D7
EMMC_D1/SFC_SIO1
EMMC_D2/SFC_SIO2
EMMC_CMD

VCCIO_3V3
VCCIO_EMMC

USB Controller

U1000E

RK1808

Pin	Signal	Net
AL1	USB_OTG_DP	OTG_DP
AK2	USB_OTG_DM	OTG_DM
AJ9	USB_OTG_ID	OTG_ID_L
AL9	USB_OTG_VBUS	OTG_DET_H
AN1	USB_HOST_DP	USB_HOST_DP
AM2	USB_HOST_DM	USB_HOST_DM
AE11	USB_AVDD_0V8	VDDA_0V8
AC11	USB_AVDD_1V8	VCCA_1V8
AE9	USB_AVDD_3V3	VCCIO_3V3

R1406 1R 5% R0402

R1407 1R 5% R0402

C1400 100nF X5R 16V C0201
C1401 100nF X5R 16V C0201
C1402 100nF X5R 16V C0201

PCIE Controller

U1000M

RK1808

Pin	Signal	Net
AR1	PCIE_RX0P/USB3_SSRXP	USB3_SSRXP
AP2	PCIE_RX0N/USB3_SSRXN	USB3_SSRXN
AW3	PCIE_RX1P	PCIE_RX1P
AV4	PCIE_RX1N	PCIE_RX1N
AU1	PCIE_TX0P/USB3_SSTXP	USB3_SSTXP
AT2	PCIE_TX0N/USB3_SSTXN	USB3_SSTXN
AR5	PCIE_TX1P	PCIE_TX1P
AR7	PCIE_TX1N	PCIE_TX1N
AN5	PCIE_REFCLKP	PCIE_REFCLKP
AN7	PCIE_REFCLKN	PCIE_REFCLKN
AN9	PCIE_RBIAS	
AE15	PICE_VCCA_0V8	VDDA_0V8
AE13	PICE_VCCD_0V8	
AJ13	PICE_VDDREF_0V8	
AL13	PICE_VCCA_1V8	VCCA_1V8

R1403 2K_1% 0.5% R0201

C1403 100nF X5R 16V C0201
C1404 1uF X5R 6.3V C0201
C1405 100nF X5R 16V C0201

SARADC/KEY

U1000F

RK1808

Pin	Signal	Net
ADC_IN0	W31	ADC2_HW_ID1
ADC_IN1	U31	ADC_IN1
ADC_IN2	W33	ADC0_KEY_IN
ADC_IN3	U33	ADC3_HP_HOOK
ADC_AVDD_1V8	N31	VCC_1V8

ADC0_KEY_IN — R1500 1 10K 1% 2 — VCC_1V8
R0201

C1500
1nF
X7R
50V
C0201

C1501
100nF
X5R
16V
C0201

ADC_IN1 — R1501 1 10K 1% 2 — VCC_1V8
R0201

ADC3_HP_HOOK — R1502 1 10K 1% 2 — VCC_1V8
R0201

VCC_1V8

R1505
10K
1%
R0201

ADC2_HW_ID1

R1508
DNP
R0201

Key Name	SARADC
VOL+/RECOVERY	10
VOL-	170

PINE64

PINE64

Project:	SOEdge Schematic 20190919 ver 2.0
File:	**15.RK1808 SARADC/KEY**

Date:	Thursday, September 19, 2019	Rev:	
Designed by:	Rzf	Sheet:	15 of 99

SDMMC0 Controller

SDMMC0_D2/JTAG_TCK TP9706 TP_0.7
SDMMC0_D3/JTAG_TMS TP9707 TP_0.7

U1000H

RK1808

Pin	Signal
AJ39	SDMMC0_CMD/TEST_CLK0/GPIO4_A0_u
AH38	SDMMC0_CLK/GPIO4_A1_d
AG39	SDMMC0_D0/UART2_TX_M0/GPIO4_A2_u
AE35	SDMMC0_D1/UART2_RX_M0/GPIO4_A3_u
AF38	SDMMC0_D2/JTAG_TCK/GPIO4_A4_u
AE33	SDMMC0_D3/JTAG_TMS/GPIO4_A5_u

SDMMC0_CMD
SDMMC0_CLK
SDMMC0_D0/UART2_TX
SDMMC0_D1/UART2_RX
SDMMC0_D2/JTAG_TCK
SDMMC0_D3/JTAG_TMS

VCCIO6 AE31 VCCIO_SD

C1600
100nF
X5R
16V
C0201

SDMMC1 Controller

U1000R

RK1808

Pin	Signal	Net
AR31	SDMMC1_CMD/GPIO4_A6_u	SDMMC1CMD
AR35	SDMMC1_CLK/GPIO4_A7_d	SDMMC1CLK
AN31	SDMMC1_D0/UART1_RX_M0/GPIO4_B0_u	SDMMC1D0
AP34	SDMMC1_D1/UART1_TX_M0/GPIO4_B1_u	SDMMC1D1
AT38	SDMMC1_D2/UART1_CTS/GPIO4_B2_u	SDMMC1D2
AP38	SDMMC1_D3/UART1_RTS/GPIO4_B3_u	SDMMC1D3
AN33	UART4_RX/SPI1_CLK_M0/GPIO4_B4_u	
AJ29	UART4_TX/SPI1_MOSI_M0/GPIO4_B5_u	
AU39	UART4_CTS/SPI1_CSN0_M0/GPIO4_B6_u	
AR33	UART4_RTS/SPI1_MISO_M0/GPIO4_B7_u	

SDMMC1_CMD
SDMMC1_CLK
SDMMC1_D0
SDMMC1_D1
SDMMC1_D2
SDMMC1_D3

UART4_RX
UART4_TX
UART4_CTS
UART4_RTS

For WIFI/BT

Pin	Signal
AL33	SPI1_CSN1_M0/GPIO4_C0_u
AR39	I2C5_SCL/GPIO4_C1_u
AL29	I2C5_SDA/GPIO4_C2_u
AL27	GPIO4_C3_u
AL31	GPIO4_C4_u

WIFI_REG_ON
WIFI_WAKE_HOST
BT_WAKE_HOST
BT_REG_ON
HOST_WAKE_BT

VCCIO1 AJ31 VCCA_1V8

C1601
100nF
X5R
16V
C0201

MIPI CSI Controller

U1000N

RK1808

Pin	Signal		Net
N35	DPHY_RX_D0P		MIPI_CSI_D0P
L35	DPHY_RX_D0N		MIPI_CSI_D0N
K38	DPHY_RX_D1P		MIPI_CSI_D1P
J39	DPHY_RX_D1N		MIPI_CSI_D1N
P38	DPHY_RX_D2P		MIPI_CSI_D2P
N39	DPHY_RX_D2N		MIPI_CSI_D2N
T38	DPHY_RX_D3P		MIPI_CSI_D3P
R39	DPHY_RX_D3N		MIPI_CSI_D3N
M38	DPHY_RX_CLKP		MIPI_CSI_CLKP
L39	DPHY_RX_CLKN		MIPI_CSI_CLKN
U27	DPHY_RX_AVDD_0V8		VDDA_0V8
L29	DPHY_RX_AVDD_1V8		VCCA_1V8

C1700 100nF X5R 16V C0201
C1701 100nF X5R 16V C0201

MIPI DSI Controller

U1000O

RK1808

Pin	Signal		Net
A37	DPHY_TX_D0P		MIPI_DSI_D0P
B38	DPHY_TX_D0N		MIPI_DSI_D0N
D38	DPHY_TX_D1P		MIPI_DSI_D1P
C39	DPHY_TX_D1N		MIPI_DSI_D1N
F38	DPHY_TX_D2P		MIPI_DSI_D2P
E39	DPHY_TX_D2N		MIPI_DSI_D2N
H38	DPHY_TX_D3P		MIPI_DSI_D3P
G39	DPHY_TX_D3N		MIPI_DSI_D3N
G35	DPHY_TX_CLKP		MIPI_DSI_CLKP
E35	DPHY_TX_CLKN		MIPI_DSI_CLKN
N29	DPHY_TX_AVDD_0V8		VDDA_0V8
L31	DPHY_TX_AVDD_1V8		VCCA_1V8

C1702 100nF X5R 16V C0201
C1703 100nF X5R 16V C0201

I2S0 Controller

U1000K

Pin label	Net	Signal
I2S0_SDI3/PDM_SDI3/GPIO3_A5_d	AA31	I2S0_SDI3
I2S0_SDI2/PDM_SDI2/GPIO3_A6_d	W35	I2S0_SDI2
I2S0_SDI1/PDM_SDI1/GPIO3_A7_d	AC29	I2S0_SDI1
I2S0_SCLK_RX/PDM_CLK0/GPIO3_B0_d	Y38	I2S0_SCLK_RX
I2S0_LRCK_RX/PDM_CLK1/GPIO3_B1_d	AB38	I2S0_LRCK_RX
I2S0_SDO3/ISP_FLASHTRIGIN/LCDC_HSYNC_M1/GPIO3_B2_d	AC33	GPIO3_B2/I2S0_SDO3
I2S0_SDO2/I2C2_SCL_M0/LCDC_VSYNC_M1/GPIO3_B3_d	AC31	GPIO3_B3/I2S0_SDO2
I2S0_SDO1/I2C2_SDA_M0/GPIO3_B4_d	AC35	GPIO3_B4/I2S0_SDO1
I2S0_MCLK/ISP_SHUTTEREN/GPIO3_B5_d	AC39	I2S0_MCLK
I2S0_LRCK_TX/ISP_FLASHTRIGOUT/GPIO3_B6_d	AE39	I2S0_LRCK_TX
I2S0_SCLK_TX/ISP_PRELIGHTTRIG/GPIO3_B7_d	AD38	I2S0_SCLK_TX
I2S0_SDO0/ISP_SHUTTERTRIG/GPIO3_C0_d	AC37	I2S0_SDO0
I2S0_SDI0/PDM_SDI0/GPIO3_C1_d	AA39	I2S0_SDI0/PDM_SDI0
VCCIO4	AA29	VCCIO_3V3

RK1808

C1800
100nF
X5R
16V
C0201

I2S1 Controller

U1000L

Pin label	Net	Signal
I2S1_LRCK/GPIO3_A0_d	U39	I2S1_LRCK
I2S1_SCLK/PWM6/GPIO3_A1_d	V38	I2S1_SCLK
I2S1_MCLK/PWM7/GPIO3_A2_d	U35	I2S1_MCLK
I2S1_SDO/UART2_TX_M2/GPIO3_A3_d	W37	I2S1_SDO
I2S1_SDI/UART2_RX_M2/GPIO3_A4_d	W39	I2S1_SDI
VCCIO3	W29	VCCA_1V8

For Codec

RK1808

C1801
100nF
X5R
16V
C0201

CIF/RGMII/LCDC Controller

10/100M原理和接法与1000M类似，唯一不同的RGMII_CLK=50M；需要注意的是10/100M的
PHY_CRS_DV是接MAC_RXDV，而不是MAC_CRS管脚

U1000I

Pin name	Pad
CIF_D12/RGMII_CRS/LCDC_D6/GPIO2_A0_d	AW25
CIF_D13/RGMII_TXEN/LCDC_D7/GPIO2_A1_d	AR19
CIF_D14/RGMII_TXD1/LCDC_D0/GPIO2_A2_d	AL19
CIF_D15/RGMII_TXD0/LCDC_D1/GPIO2_A3_d	AJ21
CIF_D2/RGMII_RXD0/SPI2_MISO_M1/GPIO2_A4_d	AN21
CIF_D3/RGMII_RXD1/SPI2_CLK_M1/GPIO2_A5_d	AL21
CIF_D4/RGMII_RXER/SPI2_MOSI_M1/GPIO2_A6_d	AV26
CIF_D5/RGMII_RXDV/SPI2_CSN_M1/GPIO2_A7_d	AU25
CIF_D6/RGMII_MDIO/GPIO2_B0_d	AW29
CIF_D7/RGMII_COL/GPIO2_B1_d	AW27
CIF_D8/RGMII_MDC/LCDC_HSYNC_M0/GPIO2_B2_d	AW31
CIF_D9/RGMII_TXD3/LCDC_VSYNC_M0/GPIO2_B3_d	AV28
CIF_VSYNC/RGMII_TXD2/GPIO2_B4_d	AV30
CIF_HREF/RGMII_RXD2/GPIO2_B5_d	AV32
CIF_CLKIN/RGMII_RXD3/GPIO2_B6_d	AU31
CIF_CLKOUT/RGMII_CLK/GPIO2_B7_d	AR27
CIF_D0/CLKOUT_ETHERNET/GPIO2_C0_d	AR25
CIF_D1/RGMII_TXCLK/GPIO2_C1_d	AN27
CIF_D10/RGMII_RXCLK/LCDC_D2/GPIO2_C2_d	AN25
CIF_D11/LCDC_D3/CIF_D11/GPIO2_C3_d	AL23
LCDC_D4/GPIO2_C4_d	AL25
LCDC_D5/GPIO2_C5_d	AW35
LCDC_CLK/GPIO2_C6_d	AW33
LCDC_DEN/GPIO2_C7_d	AV34
I2C3_SCL/UART2_TX_M1/GPIO2_D0_u	AW37
I2C3_SDA/UART2_RX_M1/GPIO2_D1_u	AV36
VCCIO2	AJ23

GPIO2_A0/CIF_D12/RGMII_CRS/LCDC_D6
GPIO2_A1/CIF_D13/RGMII_TXEN/LCDC_D7
GPIO2_A2/CIF_D14/RGMII_TXD1/LCDC_D0
GPIO2_A3/CIF_D15/RGMII_TXD0/LCDC_D1
GPIO2_A4/CIF_D2/RGMII_RXD0/SPI2_MISO_M1
GPIO2_A5/CIF_D3/RGMII_RXD1/SPI2_CLK_M1
GPIO2_A6/CIF_D4/RGMII_RXER/SPI2_MOSI_M1
GPIO2_A7/CIF_D5/RGMII_RXDV/SPI2_CSN_M1

GPIO2_B0/CIF_D6/RGMII_MDIO
GPIO2_B1/CIF_D7/RGMII_COL
GPIO2_B2/CIF_D8/RGMII_MDC/LCDC_HSYNC
GPIO2_B3/CIF_D9/RGMII_TXD3/LCDC_VSYNC
GPIO2_B4/CIF_VSYNC/RGMII_TXD2
GPIO2_B5/CIF_HREF/RGMII_RXD2
GPIO2_B6/CIF_CLKIN/RGMII_RXD3
GPIO2_B7/CIF_CLKOUT/RGMII_CLK

GPIO2_C0/CIF_D0/CLKOUT_ETHERNET
GPIO2_C1/CIF_D1/RGMII_TXCLK
GPIO2_C2/CIF_D10/RGMII_RXCLK/LCDC_D2
GPIO2_C3/CIF_D11/LCDC_D3
GPIO2_C4/LCDC_D4
GPIO2_C5/LCDC_D5
GPIO2_C6/LCDC_CLK
GPIO2_C7/LCDC_DEN

I2C3_SCL   GPIO2_D0/I2C3_SCL/UART2_TX_M1
I2C3_SDA   GPIO2_D1/I2C3_SDA/UART2_RX_M1

VCCIO_3V3

RK1808

VCCIO_3V3

R1900 2.2K 5% R0402
R1901 2.2K 5% R0402

I2C3_SCL
I2C3_SDA

VCCIO_3V3

C1900
100nF
X5R
16V
C0201

3.3V for lcdc

LCDC Controller

VCCIO_3V3

U1000J

Pin name	Pad
LCDC_D8/UART5_TX/I2C4_SCL/GPIO3_C2_d	AN37
LCDC_D9/UART5_RX/I2C4_SDA/GPIO3_C3_d	AM38
LCDC_D10/UART6_TX/GPIO3_C4_d	AL39
LCDC_D11/UART6_RX/GPIO3_C5_d	AJ33
LCDC_D12/UART7_TX/GPIO3_C6_d	AN39
LCDC_D13/UART7_RX/SPI1_CLK_M1/GPIO3_C7_d	AL35
LCDC_D14/PWM8/SPI1_MOSI_M1/GPIO3_D0_d	AJ35
LCDC_D15/PWM9/SPI1_CSN0_M1/GPIO3_D1_d	AG31
LCDC_D16/PWM10/SPI1_MISO_M1/GPIO3_D2_d	AK38
LCDC_D17/PWM11/SPI1_CSN1_M1/GPIO3_D3_d	AJ37
VCCIO7	AE29

GPIO3_C2/LCDC_D8/UART5_TX/I2C4_SCL
GPIO3_C3/LCDC_D9/UART5_RX/I2C4_SDA
GPIO3_C4/LCDC_D10/UART6_TX
GPIO3_C5/LCDC_D11/UART6_RX
GPIO3_C6/LCDC_D12/UART7_TX
GPIO3_C7/LCDC_D13/UART7_RX/SPI1_CLK_M1

GPIO3_D0/LCDC_D14/PWM8/SPI1_MOSI_M1
GPIO3_D1/LCDC_D15/PWM9/SPI1_CSN0_M1
GPIO3_D2/LCDC_D16/PWM10/SPI1_MISO_M1
GPIO3_D3/LCDC_D17/PWM11/SPI1_CSN1_M1

VCCIO_3V3

R1904 2.2K 5% R0201
R1905 2.2K 5% R0201

GPIO3_C2/LCDC_D8/UART5_TX/I2C4_SCL
GPIO3_C3/LCDC_D9/UART5_RX/I2C4_SDA

C1901
100nF
X5R
16V
C0201

RK1808

PMIC RK809-1 DCDC

PMIC RK809-1 LDO

PMIC RK809-1 Managerment

PMIC RK809-1 CODEC

U2100A — RK809-2
U2100B — RK809-2
U2100C — RK809-2
U2100D — RK809-2

DDR Type	VCC_DDR Voltage	R2115
DDR4	1.25V	68K
LPDDR3	1.25V	68K
DDR3L	1.35V	82K
DDR3	1.53V	110K

Default: lpddr3
Default:3.3V

Feedback from far-end
Feedback from far-end
Feedback from RK1808

Decoupling capacitor closed to pins of of SNSP/SNSN.
SNSP/SNSN follow rules of difference line.

400mA LDO: 400mAm#Vin>3V
200mAm#Vin>2V

Gas Gauge

VCC_RTC PowerDomain

LDO1 POWERED PORT

U2003 TCS4525
wlcsp20_2r00x1r60x0r66
Addr:0X1C

Y2100 CRY2_6R90X1R40X1R30 32.768KHz

LED2000 LED_RED LED0603

FB OUT — DCDC
NPU_COM — NPU RK1808

2X16bit DDR4

For Daisy Chain Scheduling

U3800 DDR4X16 FBGA96_14R00X11R00X1R20
K4A8G165WB-BCPB
DDR4-2133(15-15-15)
512MX16

U3801 DDR4X16 FBGA96_14R00X11R00X1R20

Date can be switched in group.

VDD(1.25V):Supply Voltage
VDDQ(1.25V):Supply Voltage for output
VPP(2.5V): Peak to Peak Voltage

VPP must be equal or greater than
VDD/VDDQ at all times.

R3800 240R 1% R0201
R3801 240R 1% R0201

R3802 2 49.9R 1 R0201 1% DDR4_CLKP
R3803 2 49.9R 1 R0201 1% DDR4_CLKN
C3800 100pF C0G 50V C0201

VREF_DDR4_CA

Note:
Place these decoupling capacitances
close to the memory power supply balls

C3804 C3805 C3806 C3807 C3808 C3809 C3810 C3811 C3812 C3813 C3814 C3815 C3816 C3817 C3818 C3819
100nF 100nF 100nF 100nF 100nF 100nF 100nF 100nF 100nF 100nF 1nF 100nF 100nF 100nF 100nF 100nF
X5R 16V C0402

C3827 22uF X5R 6.3V C0603
C3828 22uF X5R 6.3V C0603
C3830 C3831 C3824 C3832 C3833 100nF X5R 16V C0402/C0201
C3825 100nF X5R 16V C0402
C3826 100nF X5R 16V C0402

VCC_DDR
VCC2V5_DDR
VCC_BUCK5

R3804 10K R0201 1%
C3801 100nF X5R 16V C0201
R3806 10K R0201 1%
C3820 100nF X5R 16V C0201
R3850 0R 5% R0201
C3821 1nF X5R 6.3V
R3805 0R 5% R0201 DNP
VREF_DDR4_CA
VREFO_DDR

C3802 100nF X5R 16V C0402
C3803 100nF X5R 16V C0402
C3822 100nF X5R 16V C0402
C3823 100nF X5R 16V C0402

U3802 PT5108E23E-25
IN OUT GND EN BP
SOT_23_5
R3808 10K R0402 5%
R3807 0.05R 1% R0402
C3840 1uF 6.3V C0402 X5R
C3841 DNP C0402
C3842 DNP C0408
C3843 4.7uF X5R 6.3V C0402

Remind: Refer to the latest AVL for parts selection.

eMMC

U57A
KLM8G1GEAC-B031
BGA169-20-1414

VCCIO_EMMC

10	EMMC_D0/SFC_SIO0	H3	DATA0	VCCQ1	AA5
10	EMMC_D1/SFC_SIO1	H4	DATA1	VCCQ2	AA3
10	EMMC_D2/SFC_SIO2	H5	DATA2	VCCQ3	Y4
10	EMMC_D3/SFC_SIO3	J2	DATA3	VCCQ4	W4
10	EMMC_D4/SFC_CSN	J3	DATA4	VCCQ5	K6
10	EMMC_D5/SFC_CLK	J4	DATA5		
10	EMMC_D6	J5	DATA6		U9
10	EMMC_D7	J6	DATA7	VCC1	T10

VCCIO_3V3

CMD — W5 — VCC2 — N5
VCC3 — M6
VCC4

EMMC_CMD — W5 — CMD

EMMC_CLK — W6 — CLK

EMMC_RST — U5 — RST_n

C4100 1uF K2 — VDDi
C0402 10V

R5 — RCLK

VCCIO_EMMC

C4101	C4102	C4103
4.7uF	100nF	100nF
X5R	X5R	X5R
6.3V	16V	16V
C0402	C0201	C0201

VCCIO_3V3

C4104	C4105
4.7uF	100nF
X5R	X5R
6.3V	16V
C0402	C0201

SW1

EMMC_D0/SFC_SIO0 — TS-044
ts-3220s

PINE64

Project: SOEdge Schematic 20190919 ver 2.0

File: 41.EMMC

| Date: | Thursday, September 19, 2019 | Rev: | |
| Designed by: | Rzf | Sheet: | 41 of 99 |

J4201
Socket_DDR3 SO DIMM_0
connecting_finger_ddr3_so

ADC3_HP_HOOK
HPR
HPL
MIC2_IN
MIC1_IN
ADC_IN1
I2C0_SCL_PMIC
I2C0_SDA_PMIC
WIFI_REG_ON
WIFI_WAKE_HOST
SDMMC0_CLK
UART2_RX_M0
GPIO3_C4/LCDC_D10/UART6_TX
GPIO3_C3/LCDC_D9/UART5_RX/I2C4_SDA
I2C1_SCL_TP
GPIO2_C5/LCDC_D5
GPIO2_A1/CIF_D13/RGMII_TXEN/LCDC_D7
GPIO3_C7/LCDC_D13/UART7_RX/SPI1_CLK_M1
GPIO2_A5/CIF_D3/RGMII_RXD1/SPI2_CLK_M1
GPIO2_B2/CIF_D8/RGMII_MDC/LCDC_HSYNC
GPIO3_D0/LCDC_D14/PWM8/SPI1_MOSI_M1
MIPI_CSI_D2N
GPIO3_D2/LCDC_D16/PWM10/SPI1_MISO_M1
SDMMC1_D0
MIPI_CSI_D1N
P0B4-UART0_CTS/TP_RTS_L
GPIO3_C6/LCDC_D12/UART7_TX
GPIO2_B6/CIF_CLKIN/RGMII_RXD3
GPIO3_C5/LCDC_D11/UART6_RX
GPIO2_A0/CIF_D12/RGMII_CRS/LCDC_D6
GPIO2_C1/CIF_D1/RGMII_TXCLK
GPIO2_B5/CIF_HREF/RGMII_RXD2
GPIO2_A3/CIF_D15/RGMII_TXD0/LCDC_D1
GPIO2_A6/CIF_D4/RGMII_RXER/SPI2_MOSI_M1
GPIO2_A7/CIF_D5/RGMII_RXDV/SPI2_CSN_M1
GPIO2_C2/CIF_D10/RGMII_RXCLK/LCDC_D2
MIPI_CSI_D0P
I2S0_SDI0/PDM_SDI0
I2S0_LRCK_TX
MIPI_CSI_CLKN
MIPI_CSI_D2P
MIPI_CSI_D3P
MIPICAM_PDN
MIPI_CSI_D3N
GPIO2_D1/I2C3_SDA/UART2_RX_M1
UART4_RTS
UART4_TX
MIPI_DSI_D0P
MIPI_DSI_D0N
MIPI_DSI_CLKP
MIPI_DSI_CLKN
I2S0_SDI3
GPIO3_B4/I2S0_SDO1
USB3_SSTXN
USB3_SSTXP
PCIE_RX1P
PCIE_RX1N
PCIE_REFCLKN
PCIE_REFCLKP
SDMMC0_D1
I2S0_SDI2
I2S0_SDI1
PCIE_TX1P
PCIE_TX1N
SDMMC0_D3/JTAG_TMS
P0C5-PCIE_WAKE
OTG_DP
OTG_DM
OTG_ID_L
RESET_L
VCC1V8_DVP
VCC2V8_DVP
VCC-WIFI
VCCIO_3V3
VCC3V3_SD
VCCIO_SD
VCC-WIFI-IO
VDD1V5_DVP
VCC_RTC
VCC5V0_SYS
VCC5V0_SYS
VCC5V0_SYS

SPKP_OUT
SPKN_OUT
ADC2_HW_ID1
HP_SNS
ADC0_KEY_IN
BT_REG_ON
HOST_WAKE_BT
BT_WAKE_HOST
PHONE_DET_H
PCIE_PERST
UART2_TX_M0
GPIO2_C3/CIF_D11/LCDC_D3
GPIO2_C4/LCDC_D4
GPIO2_C6/LCDC_CLK
GPIO2_C7/LCDC_DEN
I2C1_SDA_TP
GPIO2_A4/CIF_D2/RGMII_RXD0/SPI2_MISO_M1
GPIO3_B2/I2S0_SDO3
P0B7_PWM0
MIPI_CSI_D0N
GPIO3_D3/LCDC_D17/PWM11/SPI1_CSN1_M1
GPIO3_D1/LCDC_D15/PWM9/SPI1_CSN0_M1
GPIO3_C2/LCDC_D8/UART5_TX/I2C4_SCL
P0B5-UART0-RTS/TP_INT_L
GPIO2_C0/CIF_D0/CLKOUT_ETHERNET
P0B2_EPHY_RST_3V3IO
SDMMC1_CLK
GPIO2_B7/CIF_CLKOUT/RGMII_CLK
GPIO2_B0/CIF_D6/RGMII_MDIO
GPIO2_A2/CIF_D14/RGMII_TXD1/LCDC_D0
GPIO2_B3/CIF_D9/RGMII_TXD3/LCDC_VSYNC
GPIO2_B4/CIF_VSYNC/RGMII_TXD2
I2S0_SCLK_TX
UART4_CTS
UART4_RX
GPIO2_B1/CIF_D7/RGMII_COL
MIPI_CSI_D1P
GPIO2_D0/I2C3_SCL/UART2_TX_M1
MIPI_CSI_CLKP
I2S0_MCLK
SDMMC1_D2
SDMMC1_CMD
SDMMC1_D1
SDMMC1_D3
MIPI_DSI_D1P
MIPI_DSI_D1N
I2S0_SDO0
MIPI_DSI_D3P
MIPI_DSI_D3N
MIPI_DSI_D2P
MIPI_DSI_D2N
SDMMC0_D0
GPIO3_B3/I2S0_SDO2
SPI0_MOSI_S
USB3_SSRXP
USB3_SSRXN
SPI0_CLK_S
I2S0_LRCK_RX
I2S0_SCLK_RX
SPI0_CSN_S
SPI0_MISO_S
SDMMC0_CMD
SDMMC0_D2/JTAG_TCK
USB_HOST_DP
USB_HOST_DM
P0C6-PCIE_CLKREQN
DFTJTAG_TCK/PWM1_LCD_BL
PWRON
SDMMC0_DET_L
VCC_3V3
VCC2V8_TP
VCC2V8_AF
DCIN
DCIN
DCIN
VCC5V0_OTG
VCC5V0_OTG
VCC5V0_OTG

VCC5V0_OTG
R2505 10K 5% R0201
R2507 18K 5% R0201
C2504 100nF 16V C0201
OTG_DET_H

D2000
D1206
DCIN
C4603 1uF X5R 6.3V C0402
SS32
C2129 10uF
VCC5V0_SYS

VCCIO_3V3
U4600
PT5108E23E-28
SOT_23_5
IN   OUT
GND
EN   BP
DNP
VCC2V8_TP
C4600 100nF X5R 16V C0402
C4601 1uF X5R 6.3V C0402
C4602 DNP C0402

EMMC_D3/SFC_SIO3

SDMMC0_D0/UART2_TX
SDMMC0_D1/UART2_RX
SDMMC0_DET_L
Vih=1.3V
U9702
D+   HSD1+
D-   HSD2+
      HSD1-
      HSD2-
S   VCC
/OE   GND
FSUSB30MUX
MSOP10_3R00X3R00X1R10
UART2_TX_M0
UART2_RX_M0
SDMMC0_DET_L
SDMMC0_D0
SDMMC0_D1
VCC_3V3
C0705 100nF C0402 X5R 16V