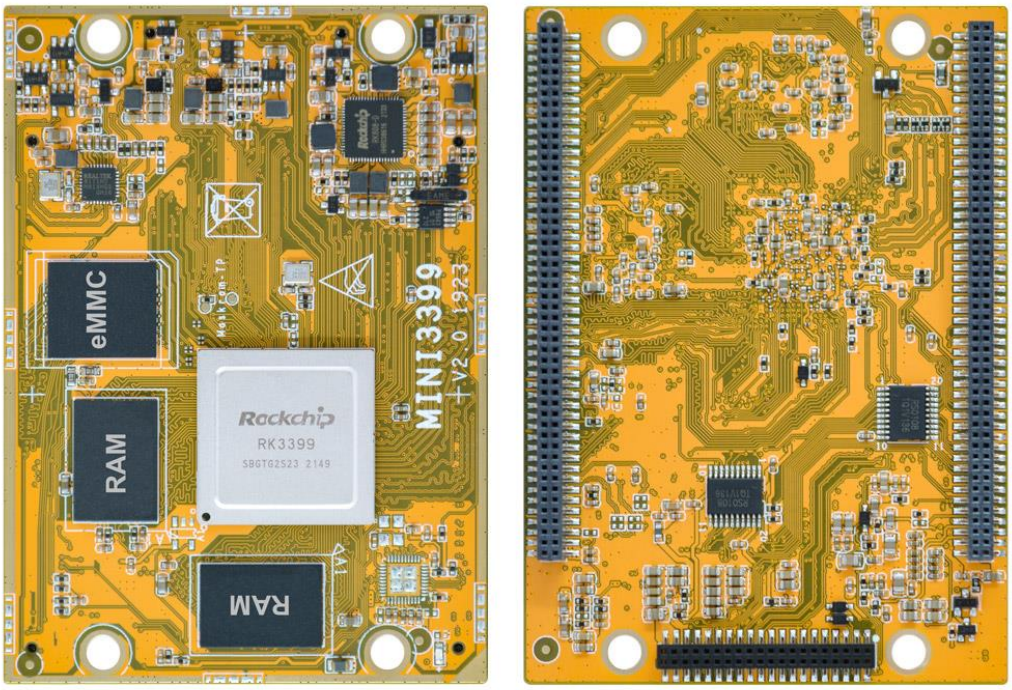
MINI3399 Reference User Manual

V2.202610



Boardcon Embedded Design

www.armdesigner.com

1. Introduction

1.1. About this Manual

This manual is intended to provide the user with an overview of the board and benefits, complete features specifications, and set up procedures. It contains important safety information as well.

1.2. Feedback and Update to this Manual

To help our customers make the most of our products, we are continually making additional and updated resources available on the Boardcon website (www.boardcon.com , www.armdesigner.com).

These include manuals, application notes, programming examples, and updated software and hardware. Check in periodically to see what's new!

When we are prioritizing work on these updated resources, feedback from customers is the number one influence, If you have questions, comments, or concerns about your product or project, please no hesitate to contact us at support@armdesigner.com.

1.3. Limited Warranty

Boardcon warrants this product to be free of defects in material and workmanship for a period of one year from date of buy. During this warranty period Boardcon will repair or replace the defective unit in accordance with the following process:

A copy of the original invoice must be included when returning the defective unit to Boardcon. This limited warranty does not cover damages resulting from lighting or other power surges, misuse, abuse, abnormal conditions of operation, or attempts to alter or modify the function of the product.

This warranty is limited to the repair or replacement of the defective unit. In no event shall Boardcon be liable or responsible for any loss or damages, including but not limited to any lost profits, incidental or consequential damages, loss of business, or anticipatory profits arising from the use or inability to use this product.

Repairs make after the expiration of the warranty period are subject to a repair charge and the cost of return shipping. Please contact Boardcon to arrange for any repair service and to obtain repair charge information.

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1 MINI3399 Introduction

1.1 Summary

The MINI3399 system-on-module is equipped with Rockchip's RK3399. It has dual-core Cortex-A72, quad

core Cortex-A53, and Mali-T860 GPU.

It is designed specifically for industrial controller, IoT devices, intelligent interactive devices, personal computers and robots. The high performance and low power solution can help customers to introduce new technologies more quickly and enhance the overall solution efficiency.

In especial the MINI3399 GPIOs almost is 3/3.3V TTL level used easy for industrial product, except DVP and WIFI interface.

1.2 Features

- **Microprocessor**
  - Dual-core Cortex-A72 up to 1.8GHz
  - Quad-core Cortex-A53 up to 1.4GHz
  - 1MB unified L2 cache for big cluster and 512KB unified L2 cache for litter cluster
  - Mali-T860 MP4

  Memory Organization
  - LPDDR4 RAM up to 4GB
  - EMMC up to 128GB
- **Boot ROM**
  - Supports system code download through USB OTG or SD
- **Trust Execution Environment system**
  - Supports secure OTP and multiple cipher engine
- **Video Decoder/Encoder**
  - Supports video decoding up to 4K@60fps
  - Supports H.264 encode
  - H.264 HP encoding up to 1080p@30fps
  - Picture size up t0 8176x8176
- **Display Subsystem**
  - **Video Output**

  Supports HDMI 2.0 transmitter with HDCP 1.4/2.2, up to 4K@60fps

  Supports 8/4 lanes MIPI DSI up to 2560x1600@60fps

  Or LVDS interface up to 1080p@60fps

  Supports ePD1.3 interface up to 2560x1600@60fps

  Supports PD1.2 interface up to 4K@60fps

  Support dual display with different source
  - **Image Input**

  Supports 2ch MIPI CSI 4lanes interface

  Supports 1-ch 8-bit DVP interface

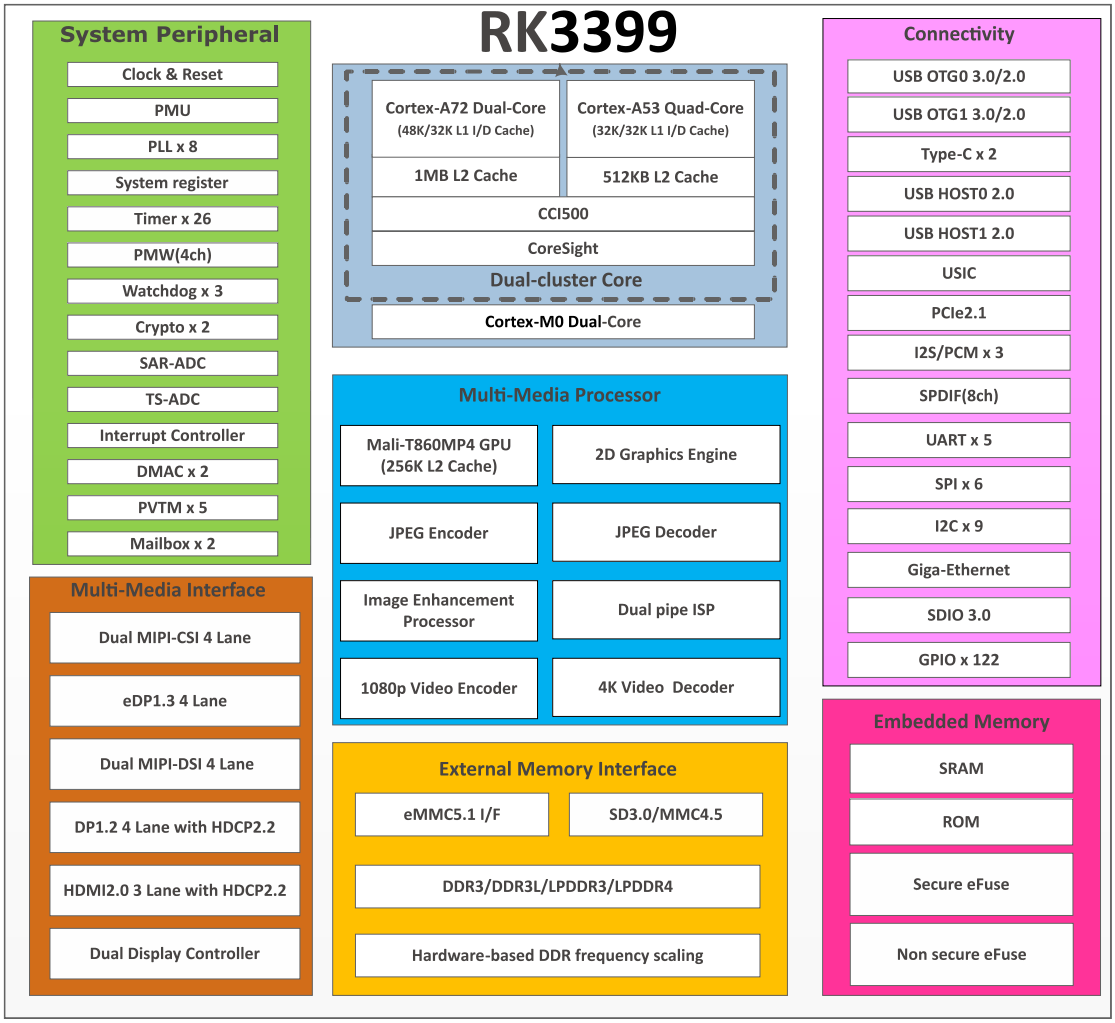
  Max input resolution up to 13M pixels
- **I2S/PCM**
  - Two I2S/PCM interfaces
  - One SPDIF output
- **USB and PCIE**
  - Four 2.0 USB interfaces
  - One USB 2.0 OTG or type C

- One USB 3.0 host + Two USB2.0
- One PCIe x2 option (RTL8111H used on board for Ethernet)

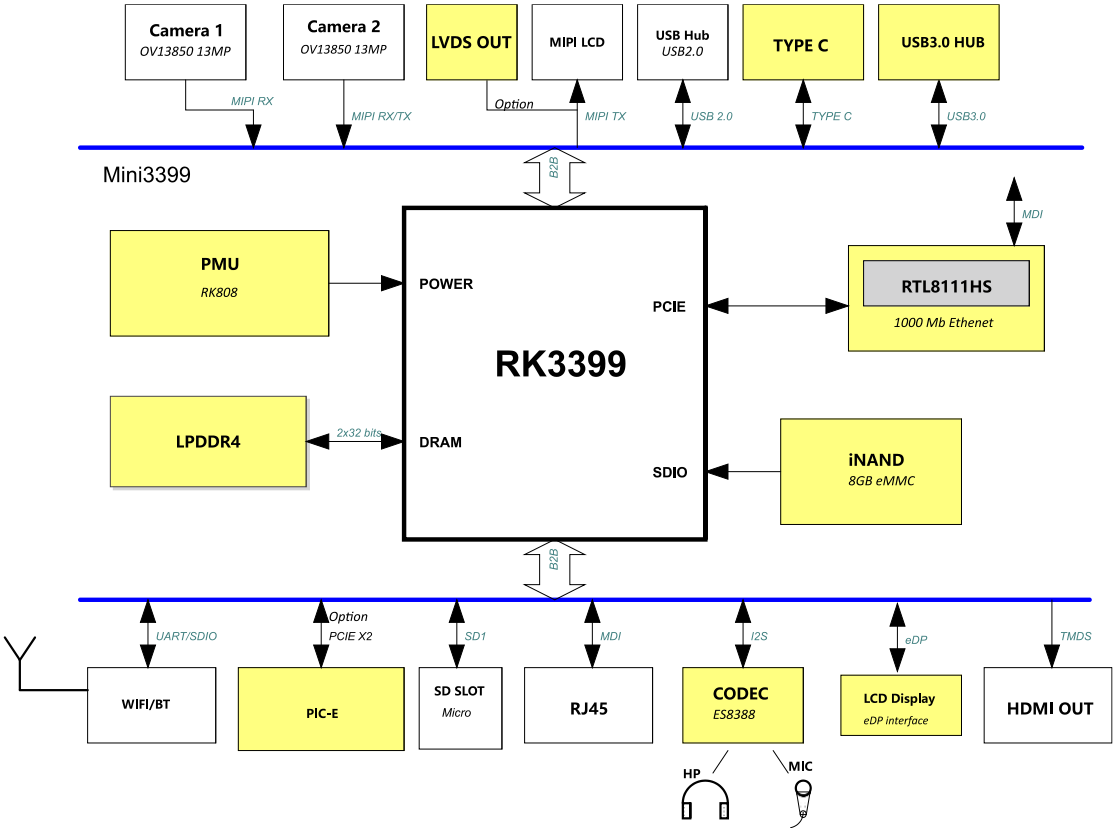
- **Ethernet**
  - RTL8111H on board
  - Support RMII/RGMII PHY interface
  - Support dual 1000Mbit/s Ethernet requirement
- **I2C**
  - Up to 7ch I2C
  - Support standard mode and fast mode(up to 400kbit/s)
- **SDIO**
  - Support SDIO 3.0 protocol
- **SPI**
  - Up to 5ch SPI controllers,
  - Full-duplex synchronous serial interface
- **UART**
  - Support up to 5 UARTs
  - UART2 with 2 wires for debug tools
  - Embedded two 64byte FIFO
- **ADC**
  - Up to Three ADC channels
  - 10-bit resolution
  - Voltage input range between 0V to 1.8V
  - Support up to 50KS/s sampling rate
- **PWM**
  - 3 on-chip PWMs with interrupt-based operation
  - Support 32bit time/counter facility
  - IR option on PWM3
- **Power unit**
  - PMU RK808 on board
  - 5 ~ 3.4V input
  - 3.3V max 500mA output
  - 3.3 ~ 1.8V max 300mA VLDO5 output for audio codec
  - 3.3V max 500mA output for SD card
  - 3.3 ~ 1.8V max 150mA VLDO2 output for touch panel
  - 1.8V max 100mA VLDO1 output for camera IO
  - Very low RTC consume current, less 5uA at 3V button Cell.

1.3 MINI3399 Block Diagram

1.3.1 RK3399 Block Diagram



1.3.2 Development board (SBC3399) Block Diagram

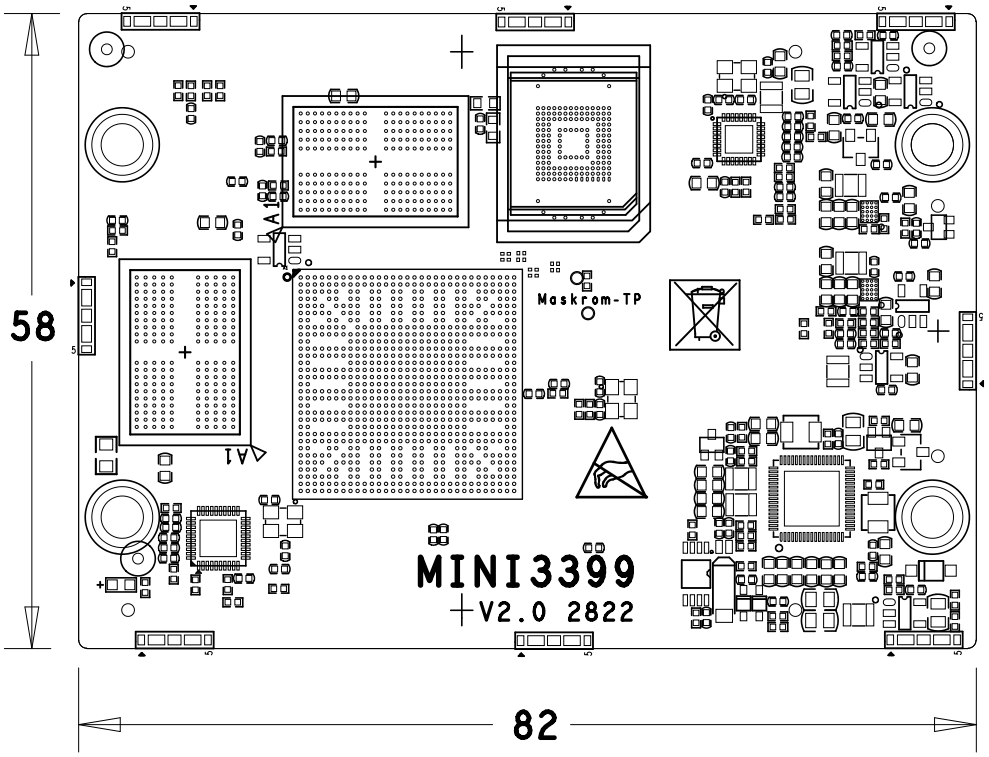


1.4 MINI3399 Specifications

Feature	Specifications
CPU	Dual-core Cortex-A72 and Quad-core Cortex-A55
DDR	2GB LPDDR4 (up to 4GB)
eMMC FLASH	8GB (up to 128GB)
Power	DC 5 ~3.4V
LVDS/MIPI DSI	1-CH LVDS or MIPI, 2-CH MIPI DSI
I2S	2-CH
MIPI CSI	1-CH DVP and 2-CH 4-Lane CSI
PCIe	1-CH(option)
HDMI out	1-CH
USB	2-CH (USB HOST2.0), 1-CH(Type-C) and 1-CH(USB 3.0)
Ethernet	1-ch GMAC interface 1GB PHY (RTL8111H) on core board.
SDMMC/SDIO	2-CH
SPDIF TX	1-CH
I2C	7-CH

SPI	6-CH
UART	5-CH, 1-CH(DEBUG)
PWM	3-CH
ADC IN	3-CH
Board Dimension	82 x 58 mm

1.5 MINI3399 PCB Dimension



1.6 MINI3399 Pin Definition

J1	Signal	Description or functions	GPIO serial	IO Voltage
1	HDMI_TXCN			0.5V
2	HDMI_TX0N			0.5V
3	HDMI_TXCP			0.5V
4	HDMI_TX0P			0.5V
5	GND	Ground		0V
6	GND	Ground		0V
7	HDMI_TX1N			0.5V
8	HDMI_TX2N			0.5V
9	HDMI_TX1P			0.5V
10	HDMI_TX2P			0.5V
11	HDMI_HPD	HDMI HPD input		3.3V

J1	Signal	Description or functions	GPIO serial	IO Voltage
12	HDMI_CEC	HDMI_CEC/EDP_HPD	GPIO4_C7_u	3.0V
13	I2C_SDA_HDMI	I2C3_SDA	GPIO4_C0_u	3.0V
14	I2C_SCL_HDMI	I2C3_SCL	GPIO4_C1_u	3.0V
15	GND	Ground		0V
16	3V3_PWM3		GPIO0_A6_d	3.3V
17	3V3_GPIO1_A1		GPIO1_A1_d	3.3V
18	3V3_GPIO1_A3		GPIO1_A3_d	3.3V
19	3V3_GPIO1_A2		GPIO1_A2_d	3.3V
20	LVDS_MIPI_TX_D0P	LVDS or MIPI0 DSI D0P TX	Note(3)	0.5V
21	LVDS_MIPI_TX_D0N	LVDS or MIPI0 DSI D0N TX	Note(3)	0.5V
22	LVDS_MIPI_TX_D1P	LVDS or MIPI0 DSI D1P TX	Note(3)	0.5V
23	LVDS_MIPI_TX_D1N	LVDS or MIPI0 DSI D1N TX	Note(3)	0.5V
24	LVDS_MIPI_TX_D2P	LVDS or MIPI0 DSI D2P TX	Note(3)	0.5V
25	LVDS_MIPI_TX_D2N	LVDS or MIPI0 DSI D2N TX	Note(3)	0.5V
26	LVDS_MIPI_TX_D3P	LVDS or MIPI0 DSI D3P TX	Note(3)	0.5V
27	LVDS_MIPI_TX_D3N	LVDS or MIPI0 DSI D3N TX	Note(3)	0.5V
28	GPIO0_A2_d_1V8		GPIO0_A2_d	1.8V
29	GND	Ground		0V
30	LVDS_MIPI_TX_CLKP	LVDS or MIPI DSI CLKP TX	Note(3)	0.5V
31	LVDS_MIPI_TX_CLKN	LVDS or MIPI DSI CLKN TX	Note(3)	0.5V
32	eDP_TX0P			0.5V
33	eDP_TX0N			0.5V
34	eDP_TX1P			0.5V
35	eDP_TX1N			0.5V
36	eDP_TX2P			0.5V
37	eDP_TX2N			0.5V
38	eDP_TX3P			0.5V
39	eDP_TX3N			0.5V
40	GPIO0_B3_d_1V8		GPIO0_B3_d	1.8V
41	N.C			
42	eDP_AUXP			0.5V
43	eDP_AUXN			0.5V
44	GND	Ground		0V
45	MIPI_TX/RX_CLKN	MIPI1 DSI or CSI CLKN		0.5V
46	MIPI_TX/RX_D0P	MIPI1 DSI or CSI D0P		0.5V
47	MIPI_TX/RX_CLKP	MIPI1 DSI or CSI CLKP		0.5V
48	MIPI_TX/RX_D0N	MIPI1 DSI or CSI D0N		0.5V
49	MIPI_TX/RX_D2N	MIPI1 DSI or CSI D2N		0.5V
50	MIPI_TX/RX_D1N	MIPI1 DSI or CSI D1N		0.5V
51	MIPI_TX/RX_D2P	MIPI1 DSI or CSI D2P		0.5V
52	MIPI_TX/RX_D1P	MIPI1 DSI or CSI D1P		0.5V

J1	Signal	Description or functions	GPIO serial	IO Voltage
53	MIPI_TX/RX_D3P	MIPI1 DSI or CSI D3P		0.5V
54	GND	Ground		0V
55	MIPI_TX/RX_D3N	MIPI1 DSI or CSI D3N		0.5V
56	3V_GPIO4_D5		GPIO4_D5_d	3.0V
57	RTC_CLKO_WIFI	RTC 32.768KHz CLK output		1.8V
58	GPIO1_C7_d_1V8		GPIO1_C7_d	1.8V
59	GND	Ground		0V
60	MIPI_RX_CLKN	MIPI0 CSI CLKN		0.5V
61	MIPI_RX_D0P	MIPI0 CSI D0P		0.5V
62	MIPI_RX_CLKP	MIPI0 CSI CLKP		0.5V
63	MIPI_RX_D0N	MIPI0 CSI D0N		0.5V
64	MIPI_RX_D2N	MIPI0 CSI D2N		0.5V
65	MIPI_RX_D1N	MIPI0 CSI D1N		0.5V
66	MIPI_RX_D2P	MIPI0 CSI D2P		0.5V
67	MIPI_RX_D1P	MIPI0 CSI D1P		0.5V
68	MIPI_RX_D3P	MIPI0 CSI D3P		0.5V
69	MIPI_RX_D3N	MIPI0 CSI D3N		0.5V
70	GPIO2_B4_u_1V8	SPI2_CSn0	GPIO2_B4_u	1.8V
71	GPIO2_D4_d_1V8		GPIO2_D4_d	1.8V
72	CIF_HSYNC	SPI2_RXD/I2C6_SDA	GPIO2_B1_u	1.8V
73	CIF_VSYNC	VOP_CLK/I2C7_SCL	GPIO2_B0_u	1.8V
74	CIF_CLKO	SPI2_CLK/VOP_DEN	GPIO2_B3_u	1.8V
75	CIF_CLKIN	SPI2_TXD/I2C6_SCL	GPIO2_B2_u	1.8V
76	I2C4_SCL_1V8		GPIO1_B4_u (Pull up 2.2K onboard)	1.8V
77	I2C4_SDA_1V8		GPIO1_B3_u (Pull up 2.2K onboard)	1.8V
78	GND	Ground		0V
79	3V3_GPIO1_B5		GPIO1_B5_d	3.3V
80	3V3_GPIO1_A4		GPIO1_A4_d	3.3V
81	3V3_GPIO1_C6		GPIO1_C6_d	3.3V
82	3V3_GPIO1_C2		GPIO1_C2_u	3.3V
83	LED1/GPO	LINK LED+ or PCIE_CLKREQ(W/O NET)	GPIO4_D0_u Note(2)	3.3V
84	LED2/LED1	SPEED LED-		3.3V
85	VCC3V0_TOUCH	VLDO2 output for CTP (3V)	Max 150mA	1.8-3.3V
86	3V3_GPIO0_B0		GPIO0_B0_u	3.3V
87	3V3_GPIO0_B5		GPIO0_B5_d	3.3V
88	ADC_IN3_1V8			1.8V
89	3V3_GPIO1_D0		GPIO1_D0_d	3.3V
90	ADC_IN1_1V8	Recover Key input	(Pull up10K onboard)	1.8V
91	VCCIO_SD	3.3V output for SD Card	Max 500mA	3.3V

J1	Signal	Description or functions	GPIO serial	IO Voltage
92	ADC_IN2_1V8			1.8V
93	VCC1V8_DVP	VLDO1 output for Camera IO	Max 100mA	1.8V
94	VCCA3V0_CODEC	VLDO5 output for Codec (3V)	Max 300mA	1.8-3.3V
95	VCC_EFUSE	VCC_EFUSE Power input		1.8V
96	VCC_RTC	VCC_RTC Power input		1.8-3.3V
97	VCC3V3_SYS	3V3 IO output for Carry board	Max 500mA	3.3V
98	GND	Ground		0V
99	VCC3V3_SYS	3V3 IO output for Carry board		3.3V
100	GND	Ground		0V

J2	Signal	Description or functions	GPIO serial	IO Voltage
1	VCC_SYS	3.3-5V Main Power input		3.4-5V
2	GND	Ground		0V
3	VCC_SYS	3.3-5V Main Power input		3.4-5V
4	GND	Ground		0V
5	AC_DET	Power On detection signal	Note(1)	3.4-5V
6	PHY_MDI0+	Or PCIE_2_RXP	Note(2)	0.5V
7	PHY_MDI1+	Or REFCLKP_100M	Note(2)	0.5V
8	PHY_MDI0-	Or PCIE_2_RXN	Note(2)	0.5V
9	PHY_MDI1-	Or REFCLKN_100M	Note(2)	0.5V
10	3V_PWM0		GPIO4_C2_d	3.0V
11	PHY_MDI2+			0.5V
12	PHY_MDI3+	Or PCIE20_2_TXP	Note(2)	0.5V
13	PHY_MDI2-			0.5V
14	PHY_MDI3-	Or PCIE20_2_TXN	Note(2)	0.5V
15	GND	Ground		0V
16	Reset_KEY	Reset Key input		3.4-5V
17	SDIO0_CMD		GPIO2_D0_u	1.8V
18	SDIO0_D0	Or SPI5_RXD	GPIO2_C4_u	1.8V
19	SDIO0_D1	Or SPI5_TXD	GPIO2_C5_u	1.8V
20	SDIO0_D2	Or SPI5_CLK	GPIO2_C6_u	1.8V
21	SDIO0_D3	Or SPI5_CSn0	GPIO2_C7_u	1.8V
22	SDIO0_CLK		GPIO2_D1_u	1.8V
23	BT_WAKE_L	PCIe_CLKREQ/SDIO0_DET	GPIO2_D2_u	1.8V
24	SDIO0_PWR		GPIO2_D3_d	1.8V
25	WIFI_REG_ON_H		GPIO0_B2_d	1.8V
26	BT_HOST_WAKE_L	Or SDIO0_INTn	GPIO0_A4_d	1.8V
27	WIFI_HOST_WAKE_L	Or SDIO0_WRPT	GPIO0_A3_d	1.8V
28	BT_REG_ON_H		GPIO0_B1_d	1.8V
29	SPI0_CLK/MAC_RXD0		GPIO3_A6_u	3.3V

J2	Signal	Description or functions	GPIO serial	IO Voltage
30	SPI0CSn0/MAC_RXD1		GPIO3_A7_u	3.3V
31	SPI0_RXD/MAC_TXD0		GPIO3_A4_d	3.3V
32	SPI0_TXD/MAC_TXD1		GPIO3_A5_d	3.3V
33	SPI0_CSn1/MAC_MDC		GPIO3_B0_u	3.3V
34	SPI4CSn0/MAC_RXD3		GPIO3_A3_u	3.3V
35	UART0_RXD		GPIO2_C0_u	1.8V
36	UART0_TXD		GPIO2_C1_u	1.8V
37	GND	Ground		0V
38	UART0_CTS		GPIO2_C2_u	1.8V
39	TYPEC0_DM	Or ADB/debug USB port		0.5V
40	UART0_RTS		GPIO2_C3_u	1.8V
41	TYPEC0_DP	Or ADB/debug USB port		0.5V
42	TYPEC0_ID			1.8V
43	HOST0_DM			0.5V
44	TYPEC0_U2VBUSDET	Type C VBUS DET input		3.3V
45	HOST0_DP			0.5V
46	HOST1_DM			0.5V
47	3V3_SPI1_CSn0		GPIO1_B2_u	3.3V
48	HOST1_DP			0.5V
49	3V3_SPI1_CLK		GPIO1_B1_u	3.3V
50	GND	Ground		0V
51	3V3_SPI1_UART4_RXD	SPI1_MISO/UART4_RXD	GPIO1_A7_u	3.3V
52	3V3_SPI1_UART4_TXD	SPI1_MOSI/UART4_RXD	GPIO1_B0_u	3.3V
53	GND	Ground		0V
54	SPI4_CLK/MAC_RXD2		GPIO3_A2_u	3.3V
55	SPI4_TXD/MAC_TXD3		GPIO3_A1_d	3.3V
56	SPI4_RXD/MAC_TXD2		GPIO3_A0_d	3.3V
57	UART1RX/MAC_TXEN		GPIO3_B4_u	3.3V
58	UART1TX/MAC_MDIO		GPIO3_B5_u	3.3V
59	3V3_GPIO3_B1/MAC_RXDV		GPIO3_B1_d	3.3V
60	3V_GPIO4_D4		GPIO4_D4_d	3.0V
61	I2S1_LRCK_RX		GPIO4_A4_d	1.8V
62	I2S1_LRCK_TX		GPIO4_A5_d	1.8V
63	SDMMC_CLK	Or MCU_JTAG_TCK	GPIO4_B4_d	3.3V
64	GND	Ground		0V
65	SDMMC_D0	Or UART2A_RX	GPIO4_B0_u	3.3V
66	SDMMC_CMD	Or MCU_JTAG_TMS	GPIO4_B5_u	3.3V
67	SDMMC_D2	Or AP_JTAG_TCK	GPIO4_B2_u	3.3V
68	SDMMC_D1	Or UART2A_TX	GPIO4_B1_u	3.3V

J2	Signal	Description or functions	GPIO serial	IO Voltage
69	SDMMC_DET		GPIO0_A7_u	1.8V
70	SDMMC_D3	Or AP_JTAG_TMS	GPIO4_B3_u	3.3V
71	I2S1_SDI0		GPIO4_A6_d	1.8V
72	I2S1_SCLK		GPIO4_A3_d	1.8V
73	GND	Ground		0V
74	I2S1_SDO0		GPIO4_A7_d	1.8V
75	I2S0_SDI0		GPIO3_D3_d	1.8V
76	I2S_MCLK		GPIO4_A0_d	1.8V
77	I2S0_SCLK		GPIO3_D0_d	1.8V
78	I2S0_LRCK_RX		GPIO3_D1_d	1.8V
79	I2S0_LRCK_TX		GPIO3_D2_d	1.8V
80	I2S0_SDO0		GPIO3_D7_d	1.8V
81	I2S0_SDO1		GPIO3_D6_d	1.8V
82	I2S0_SDO2		GPIO3_D5_d	1.8V
83	I2S0_SDO3		GPIO3_D4_d	1.8V
84	3V_SPDIF_TX		GPIO4_C5_d	3.0V
85	I2C5_SDA/MAC_RXER		GPIO3_B2_u	3.3V
86	GND	Ground		0V
87	I2C1_SDA		GPIO4_A1_u	1.8V
88	I2C5_SCL/MAC_CLK		GPIO3_B3_u	3.3V
89	3V_GPIO4_D2	Pull up 2.2K	GPIO4_D2_d	3.0V
90	I2C1_SCL		GPIO4_A2_u	1.8V
91	UART2DBG_RX		GPIO4_C3_u	3.0V
92	3V_GPIO4_D1	Pull up 2.2K	GPIO4_D1_d	3.0V
93	UART3_RX/MAC_RXCLK		GPIO3_B6_u	3.3V
94	UART2DBG_TX		GPIO4_C4_u	3.0V
95	UART3_RTS/MAC_TXCLK		GPIO3_C1_u	3.3V
96	UART3_TX	MAC_CRS/CIF_CLKOUTB	GPIO3_B7_u	3.3V
97	3V_PWM1		GPIO4_C6_d	3.0V
98	UART3_CTS/SPDIFO	Or MAC_COL	GPIO3_C0_u	3.3V
99	POWER_KEY			3.4-5V
100	3V_GPIO4_D3		GPIO4_D3_d	3.0V

J3	Signal	Description or functions	GPIO serial	IO Voltage
1	TYPEC0_AUXP			0.5V
2	GND	Ground		0V
3	TYPEC0_AUXM			0.5V
4	3V3_GPIO1_A0		GPIO1_A0_d	3.3V
5	GND	Ground		0V
6	TYPEC0_RX1P			0.5V

J3	Signal	Description or functions	GPIO serial	IO Voltage
7	TYPEC0_TX1P			0.5V
8	TYPEC0_RX1N			0.5V
9	TYPEC0_TX1N			0.5V
10	TYPEC0_RX2P			0.5V
11	TYPEC0_TX2P			0.5V
12	TYPEC0_RX2N			0.5V
13	TYPEC0_TX2N			0.5V
14	GND	Ground		0V
15	TYPEC1_RX1P			0.5V
16	TYPEC1_TX1P			0.5V
17	TYPEC1_RX1N			0.5V
18	TYPEC1_TX1N			0.5V
19	TYPEC1_DM			0.5V
20	N.C.			
21	TYPEC1_DP			0.5V
22	CIF_D0	Or I2C2_SDA/VOP_D0	GPIO2_A0_u	1.8V
23	CIF_D1	Or I2C2_SCL/VOP_D1	GPIO2_A1_u	1.8V
24	GND	Ground		0V
25	CIF_D2	Or VOP_D2	GPIO2_A2_d	1.8V
26	CIF_D3	Or VOP_D3	GPIO2_A3_d	1.8V
27	CIF_D4	Or VOP_D4	GPIO2_A4_d	1.8V
28	CIF_D5	Or VOP_D5	GPIO2_A5_d	1.8V
29	CIF_D6	Or VOP_D2	GPIO2_A6_d	1.8V
30	CIF_D7	Or I2C7_SDA/VOP_D7	GPIO2_A7_u	1.8V
31	GND	Ground		0V
32	PMIC_EXT_EN	Ext-DC/DC power on control		3.4-5V
33	PCIE_TX1N			0.5V
34	PCIE_RX1_N			0.5V
35	PCIE_TX1P			0.5V
36	PCIE_RX1_P			0.5V
37	VCC_SYS	3.3-5V Main Power input		3.4-5V
38	GND	Ground		0V
39	VCC_SYS	3.3-5V Main Power input		3.4-5V
40	GND	Ground		0V

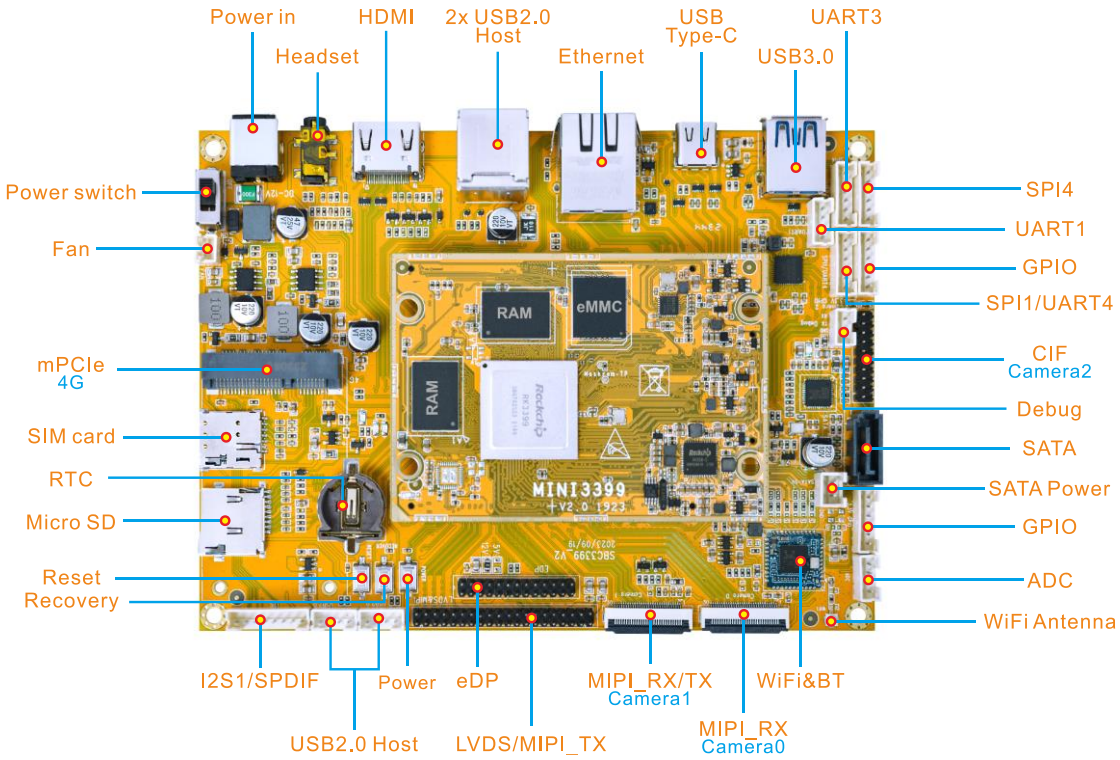
Note:

1. Default N.C this Pin. Used for power on control for AC input detection if need.

2. Can change to PCIe if do not need core board ethernet.

3. Default MIPI DSI output. But can change to LVDS output by hardware.

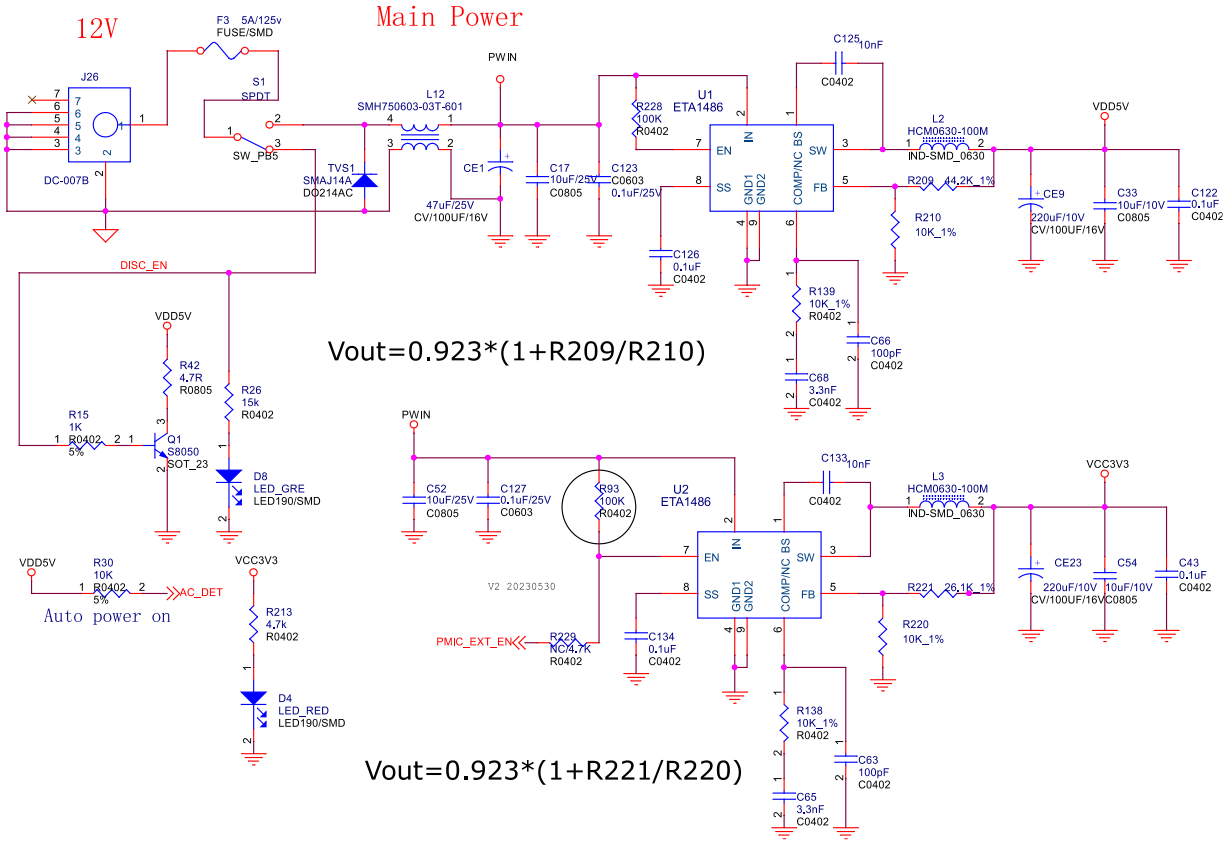
1.7 Development Kit (SBC3399)



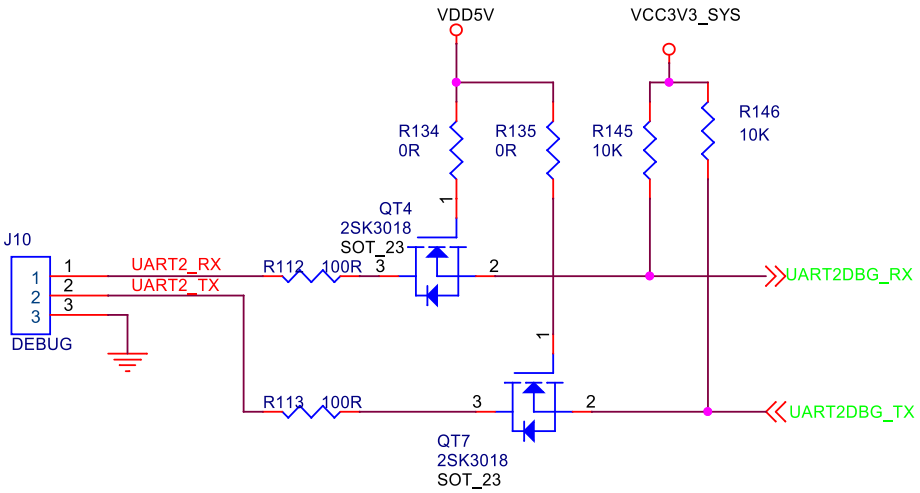
2 Hardware Design Guide

2.1 Peripheral Circuit Reference

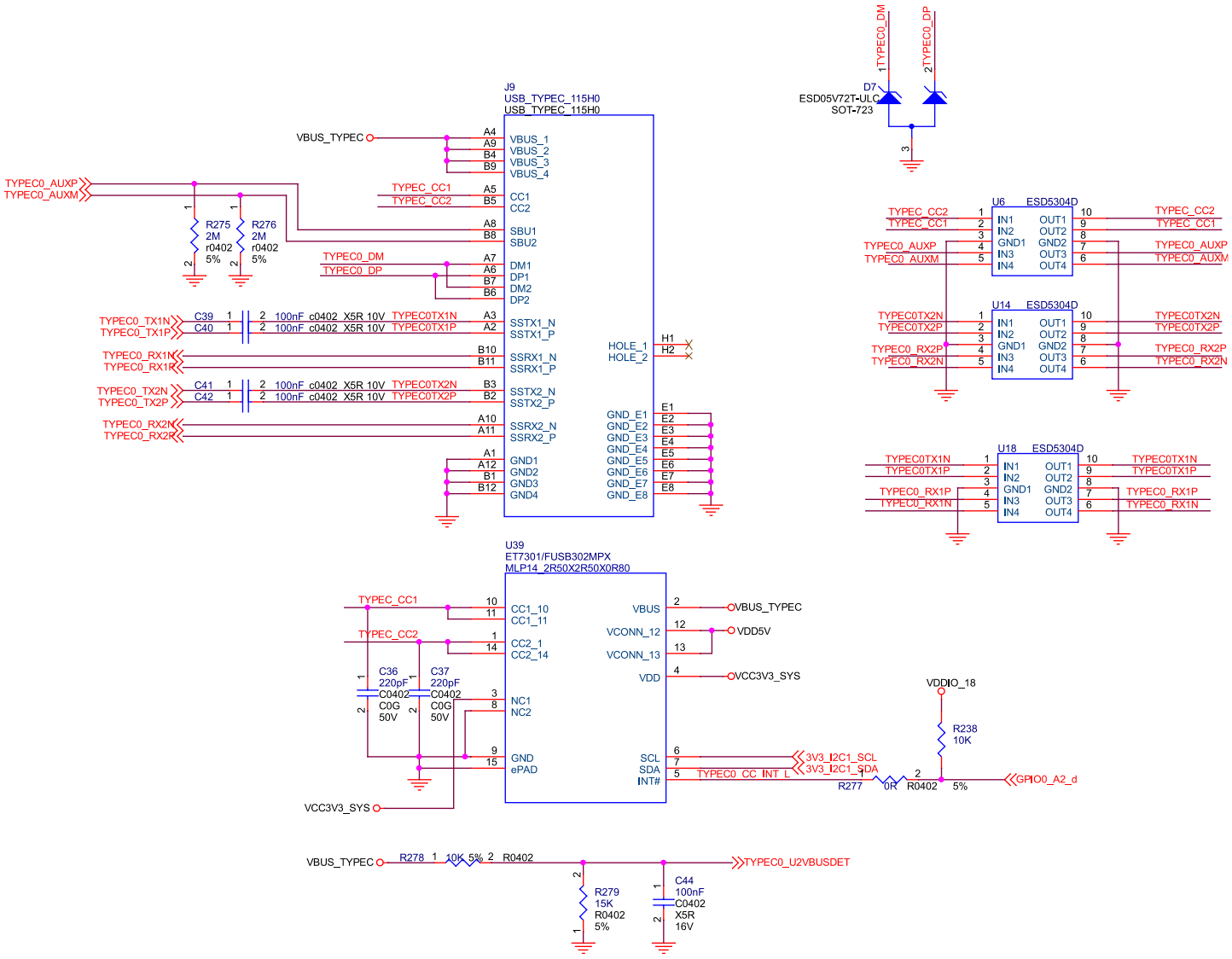
2.1.1 External Power



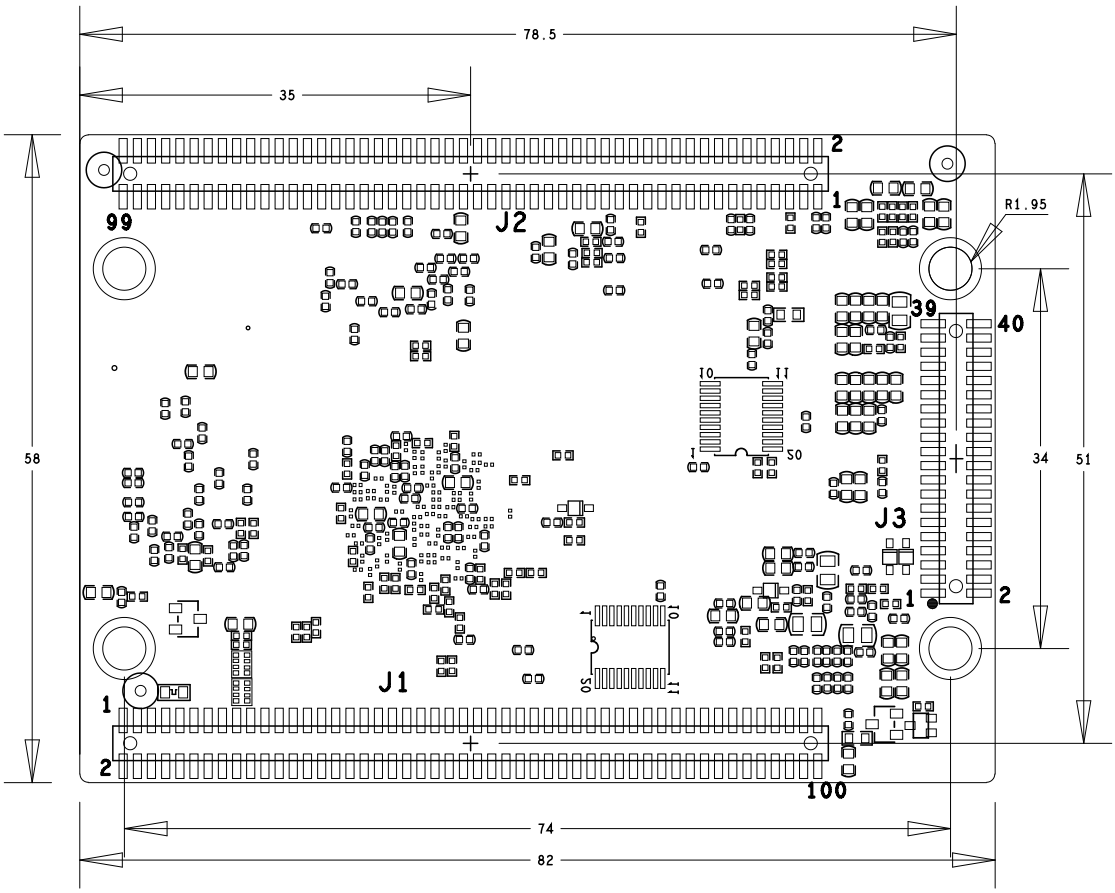
2.1.2 Debug Circuit



2.1.3 USB Type C Interface Circuit

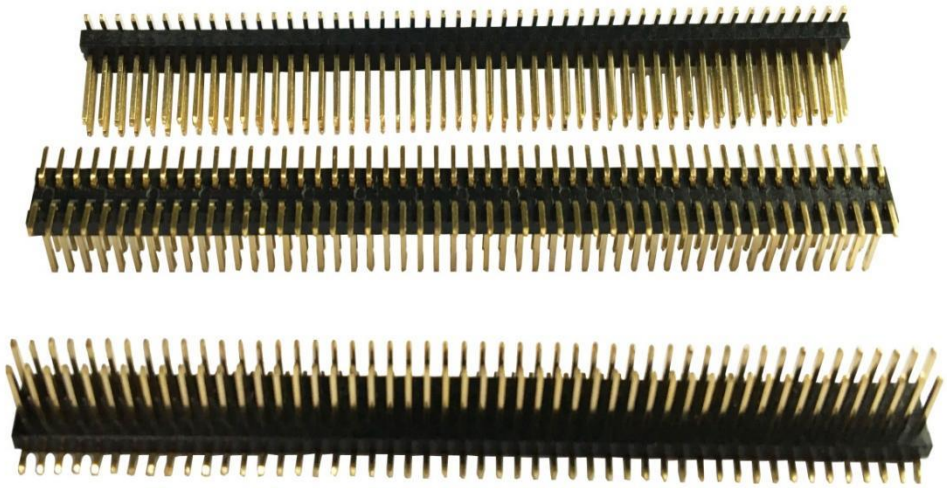


2.2 PCB Footprint



Top View

◆ ***The picture of the carry board connectors (Pitch 1.27mm)***



3 Product Electrical Characteristics

3.1 Dissipation and Temperature

Symbol	Parameter		Min	Typ	Max	Unit
VCC_SYS	System IO Voltage		3.3V	5	5.5	V
Isys_in	VCC_SYS input Current			1500	2200	mA
VCC_RTC	RTC Voltage		1.8	3	3.4	V
Iirtc	RTC input Current			5	8	uA
VCC3V3_SYS	3V3 IO Voltage			3.3		V
I3v3_out	VCC_3V3 output Current				500	mA
VCC1V8_DVP	1V8 IO Voltage			1.8		V
I1v8_out	VCC_3V3 output Current				100	mA
Ta	Operating Temperature	Commercial	0	NA	70	°C
		Extended Commercial	-20	NA	85	°C
Tstg	Storage Temperature		-40		85	°C