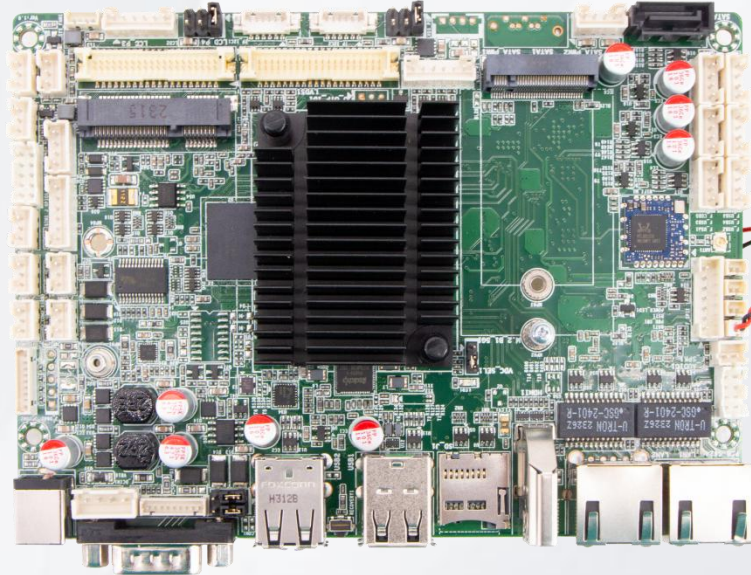




QY-MB-RK3568-ARM

- SOC: ARM Rockchip RK3568, up to 2.00GHz
- 2 * Realtek GBE LAN, 9*USB 2.0, 1*USB 3.0
6*COM
- 1*HDMI, 1*eDP/LVDS, 1*LVDS/MIPI
(Support triple display simultaneously)
- 1*Mini PCIe slot (4G/3G+WIFI)
- DC 12V power input
- 146*105mm



1.Specification:

Model	QY-MB-RK3568-ARM		
SOC	ARM Rockchip RK3568, Quad-core Cortex-A55, Clock speed up to 2.0GHz		
Display	1 * HDMI (TYPE-A): max resolution up to 4096x2304@60Hz 1 * eDP/LVDS (Header): eDP max resolution up to 2560x1600@60Hz or LVDS max resolution up to 1920x1200@60Hz 1 * LVDS/MIPI (Header): LVDS max resolution up to 1024x768@60Hz MIPI max resolution up to 1920*1080@60Hz		
Memory	SDRAM LPDDR4X-3200MHz, Optional 2GB	SDRAM LPDDR4X-3200MHz, Optional 4GB	SDRAM LPDDR4X-3200MHz, Optional 8GB
Storage	eMMC 5.1, 16 GB	eMMC 5.1, 32 GB	eMMC 5.1, 64 GB
	2 * SATA3.0 7P Connector [2] (with 2 * SATA Power Header) 1 * TF Card Slot		
Wireless Module	Realtek Wireless module on board 1 * Micro RF Connector Support Wi-Fi 2.4/5GHz Frequencies (2.4GHz Module optional) Support Bluetooth 4.2 (support BLE) optional		
Expansion	1 * Mini PCIe Slot (4G/3G+WIFI, with 1 * SIM Card Header / 1 * Nano SIM Card Slot) 1 * M.2 (NGFF) Key-B Slot (PCIE 3.0/PCIE2.0/USB3.0/SATA, 2242/3052) [2]		
Ethernet	2 * Realtek GBE LAN Chip (RJ45, 10/100/1000 Mbps)		
USB	1 * USB3.0/OTG (TYPE-A, Rear IO) [4] 3 * USB2.0 (TYPE-A, Rear IO) 6 * USB2.0 (Header, Internal)		
COM	1 * RS232/485 (COM1, DB9M/Header) 1 * RS232/485 (COM2, Header) 4 * RS232 (COM3/4/5/6, Header)		
Audio	1 * Front Audio Header (Line-Out + MIC) 1 * Amplifier Header		

Other Ports	8 * GPIO 1 * Recovery Button 1 * Power Button Header 1 * System Reset Header 1 * Power LED Header 1 * SPI Header 2 * TP I2C Header 1 * System FAN Header 2 * Debug Header 1 * Can Header 1 * Cash Header 1 * AT or ATX Select Jumper
System	Android 11 / Linux
Temperature	Storage: -20°C ~ 75°C Operating: 0°C ~ 60°C
Power Input	DC 12V 1 * DC 12V Power Input Φ2.5mm Jack [5] 1 * DC 12V Power Input Header
Boot Selection	EMMC

Notes:

[1]: The maximum resolution is theoretical value.

[2]: SATA3.0 7P Connector colay with M.2 (NGFF) Key-B Slot, there are four specifications:

①M.2(PCIE2.0+USB3.0), no SATA; ②M.2(PCIE2.0+PCIE3.0)+SATA1; ③M.2(USB3.0)+SATA2;

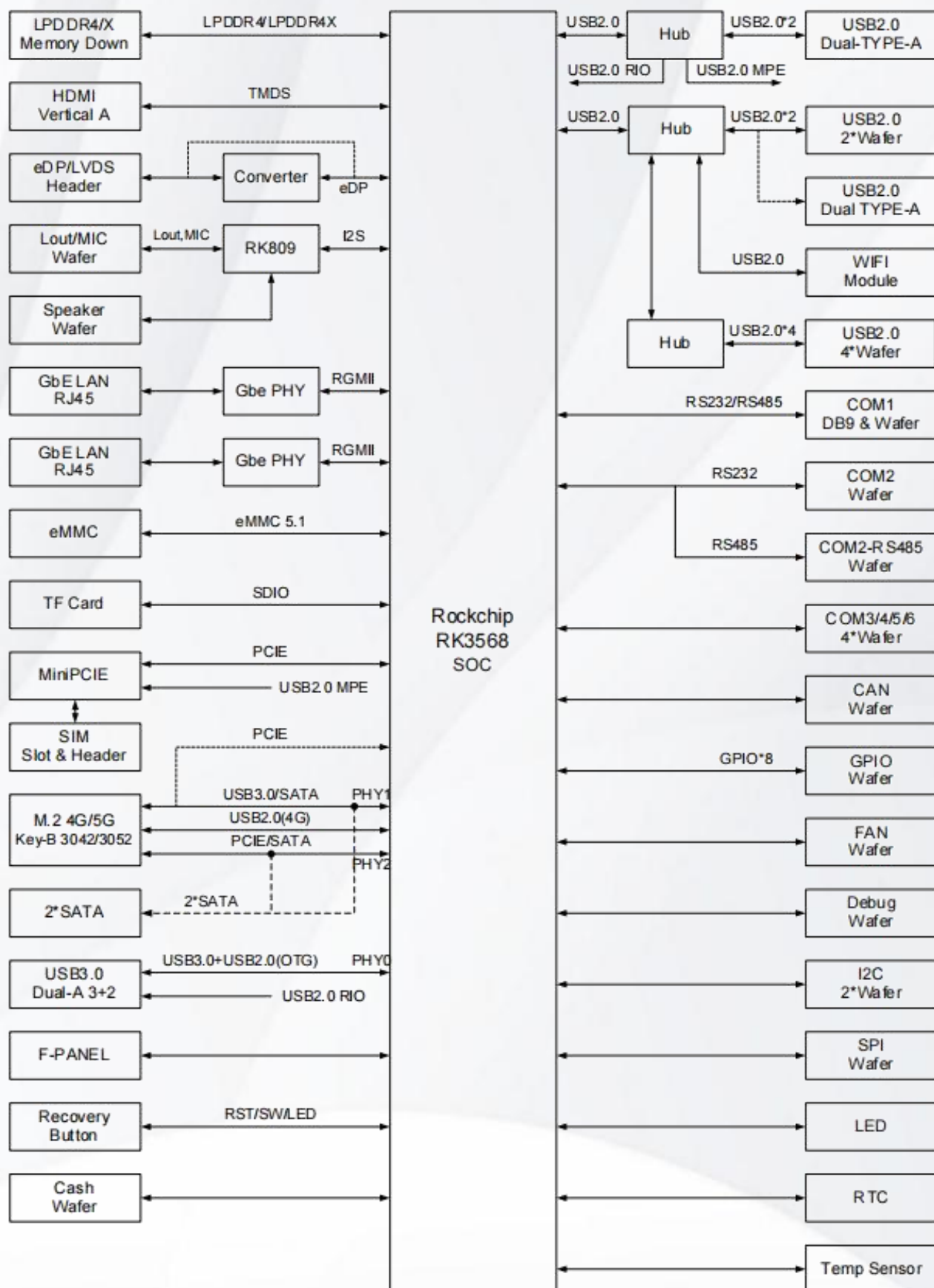
④M.2(PCIE3.0)+SATA1+SATA2.

[3]: LAN RJ45 Connector colay with Dual USB2.0 TYPE-A Connector on the same position, and Dual USB2.0 TYPE-A Connector colay USB signal with Front USB2.0 Header.

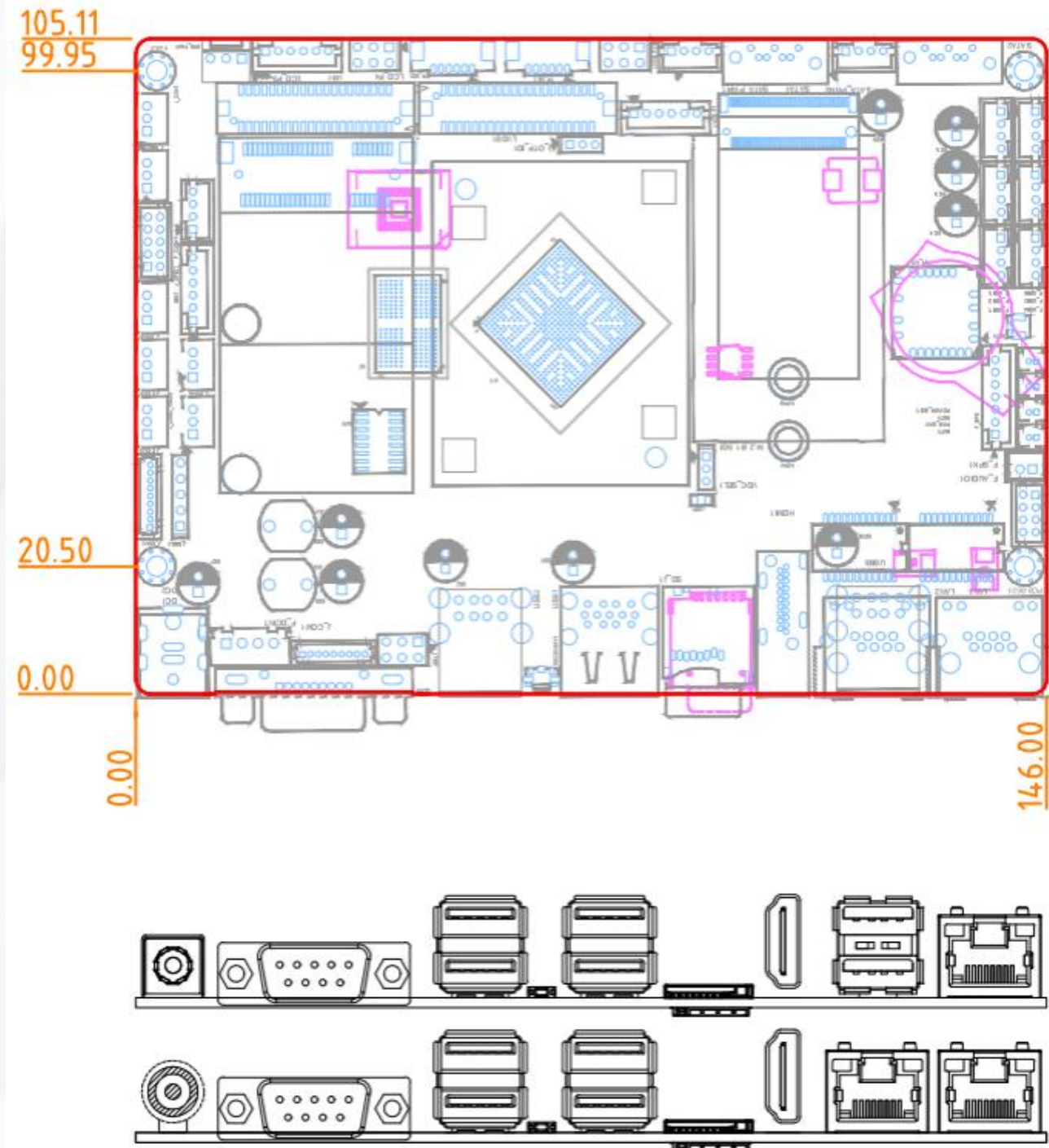
[4]: Default is HOST mode, OTG function requires the system to enable OTG debug mode.

[5]: DC 12V Power Input Thread Connector Optional.

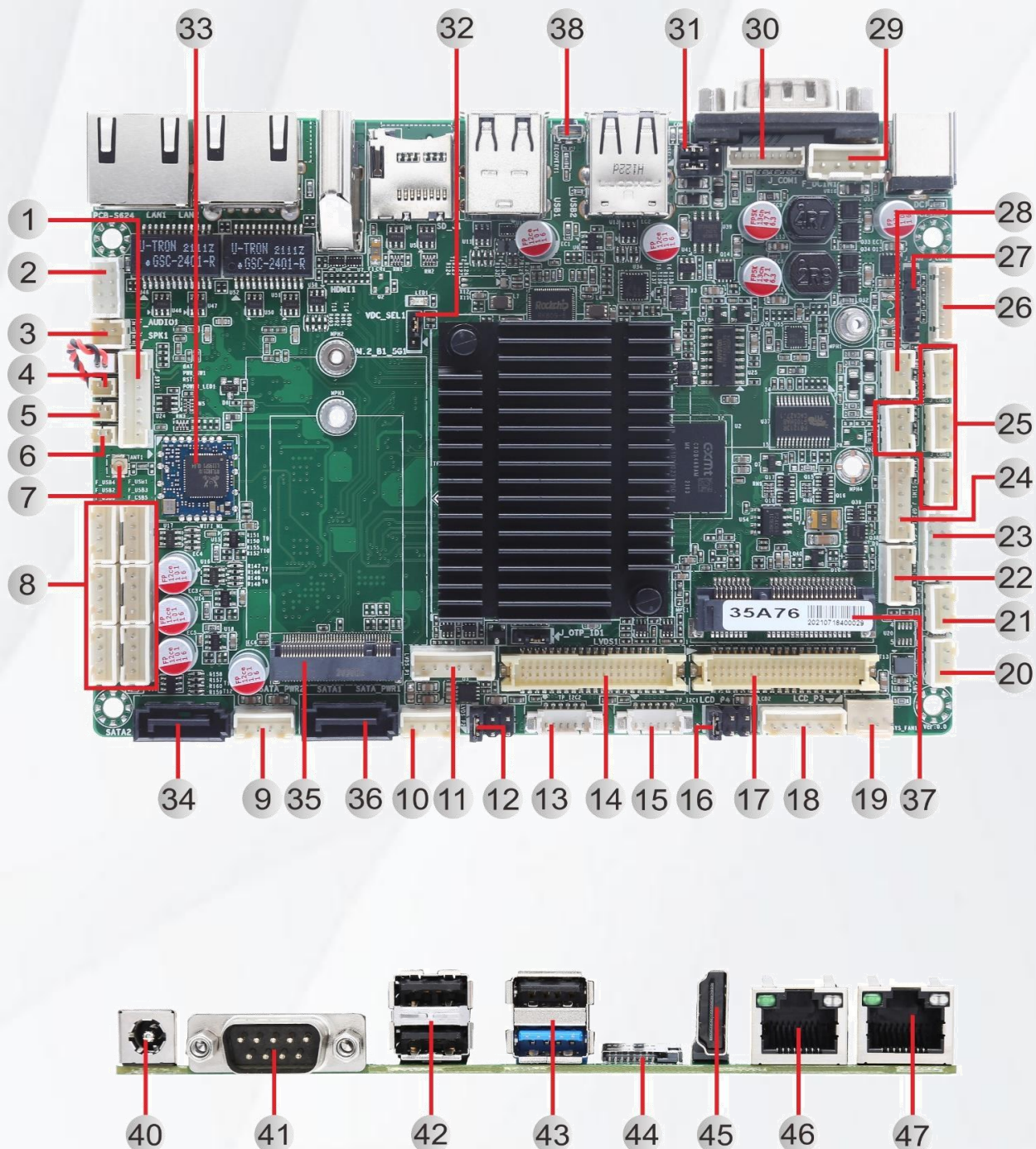
2.Functional Block Diagram

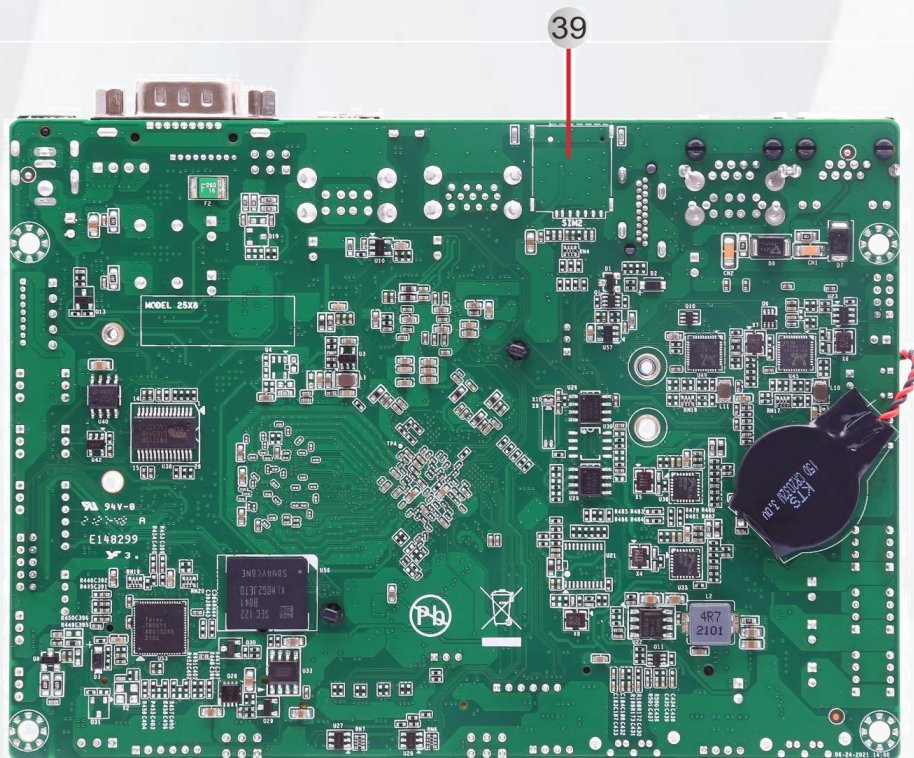


3.Mechanical Drawing



4. Jumpers/Headers and Connectors





Jumpers / Headers and Connectors

1	F-SPI1	SPI Header
2	F-AUDIO1	Front Audio Header (Line-Out + MIC)
3	F-SPK1	Amplifier Header
4	PWR-SW1	Power Button Header
5	RST1	System Reset Header
6	POWER-LED1	Power LED Header
7	ANT1	Micro RF Connector
8	F-USB1/2/3/4/5/6	Front USB2.0 Header1/2/3/4/5/6
9	SATA-PWR2	SATA Power Header2
10	SATA-PWR1	SATA Power Header1
11	LVDS-P1	LVDS1/MIPI Backlight Control Header
12	LVDS-P2	LVDS1/MIPI VDD Select Jumper
13	TP-I2C2	TP I2C Header2
14	LVDS1	LVDS1/MIPI Signal Header
15	TP-I2C1	TP I2C Header1
16	LCD-P4	eDP/LVDS2 VDD Select Jumper
17	LCD2	eDP/LVDS2 Signal Header
18	LCD-P3	eDP/LVDS2 Backlight Control Header
19	SYS-FAN1	System FAN Header

20	J-CAN1	CAN Header
21	J-DBG1	Debug Header1
22	F-CASH1	Cash Header
23	J-GPIO1	GPIO Header
24	SIM1	SIM Card Header
25	J-COM3/4/5/6	COM3/4/5/6 Header
26	J-COM2	COM2 RS232 Header
27	J-DBG2	Debug Header2
28	J-COM2-RS485	COM2 RS485 Header
29	F-DCIN1	DC 12V Power Input Header
30	J-COM1	COM1 Header
31	JSEL1	COM1 RS232/485 Select Jumper
32	VDC-SEL1	AT or ATX Select Jumper
33	WIFI-M1	WIFI+BT Module
34	SATA2	SATA2.0 7P Connector2
35	M.2-B1-5G1	M.2 (NGFF) Key-B Slot (PCI-E 3.0/PCI-E2.0/USB3.0/SATA, 2242/3052)
36	SATA1	SATA2.0 7P Connector1
37	MPE1	Mini PCI-E Slot (WIFI+4G/3G)
38	RECOVERY1	Recovery Button
39	SIM2	Nano SIM Card Slot
40	DC1 (DC2)	DC 12V Power Input Φ 2.5mm Jack (DC 12V Power Input Thread Connector Optional)
41	COM1	COM1 DB9/M Connector
42	USB2	Dual USB2.0 TYPE-A Connector
43	USB1	Dual USB3.0+USB2.0 TYPE-A Connector
44	SD-J1	TF Card Slot
45	HDMI1	HDMI Upright TYPE-A Connector
46	LAN2 (USB3)	GBE LAN RJ45 Connector2 (USB2.0 TYPE-A Connector Optional)
47	LAN1	GBE LAN RJ45 Connector1

5. Definition

(1) F-SPI1 (SPI Header 7*1 Pin 2.00mm)

Graphic	Pin	Definition	Pin	Definition
	1	GND	5	SPI0-CS0-M1
	2	SPI0-MOSI-M1	6	SPI0-MISO-M1
	3	SPI0-WP-GPIO2-D4	7	+ 3.3V
	4	SPI0-CLK-M1		

(2) F-AUDIO1 (Front Audio Header (Line-Out + MIC) 4*2 Pin 2.00mm)

Graphic	Pin	Definition	Pin	Definition
	2	LINE-OUT-R	1	MIC1-IN-R
	4	GND	3	GND
	6	GND	5	GND
	8	LINE-OUT-L	7	MIC1-IN-L

(3) F-SPK1 (Amplifier Header 2*1 Pin 2.00mm)

Graphic	Pin	Definition	Pin	Definition
	1	SPK-OUT-	2	SPK-OUT+

(4) PWR-SW1 (Power Button Header 2*1 Pin 1.25mm)

Graphic	Pin	Definition	Pin	Definition
	1	POWER+	2	POWER-

(5) RST1 (System Reset Header 2*1 Pin 1.25mm)

Graphic	Pin	Definition	Pin	Definition
	1	RESET+	2	RESET-

(6)POWER-LED1 (Power LED Header 2*1 Pin 1.25mm)

Graphic	Pin	Definition	Pin	Definition
	1	POWER 3.3V LED+	2	POWER 3.3V LED-

(8)F-USB1 (Front USB2.0 Header1 4*1 Pin 2.00mm)

Graphic	Pin	Definition	Pin	Definition
	1	+ 5V	3	USB2 6+
	2	USB2-6-	4	GND

F-USB2 (Front USB2.0 Header2 4*1 Pin 2.00mm)

Graphic	Pin	Definition	Pin	Definition
	1	+ 5V	3	USB2 4+
	2	USB2-4-	4	GND

F-USB3 (Front USB2.0 Header2 4*1 Pin 2.00mm)

Graphic	Pin	Definition	Pin	Definition
	1	+ 5V	3	USB2 5+
	2	USB2-5-	4	GND

F-USB4 (Front USB2.0 Header2 4*1 Pin 2.00mm)

Graphic	Pin	Definition	Pin	Definition
	1	+ 5V	3	USB2 7+
	2	USB2-7-	4	GND

F-USB5 (Front USB2.0 Header2 4*1 Pin 2.00mm)

Graphic	Pin	Definition	Pin	Definition
	1	+ 5V	3	USB2 8+
	2	USB2-8-	4	GND

F-USB6 (Front USB2.0 Header2 4*1 Pin 2.00mm)

Graphic	Pin	Definition	Pin	Definition
	1	+ 5V	3	USB2 9+
	2	USB2-9-	4	GND

(9)SATA-PWR2 (SATA Power Header2 4*1 Pin 2.00mm)

Graphic	Pin	Definition	Pin	Definition
	1	+ 12V	3	GND
	2	GND	4	+ 5V

(10)SATA-PWR1 (SATA Power Header2 4*1 Pin 2.00mm)

Graphic	Pin	Definition	Pin	Definition
	1	+ 12V	3	GND
	2	GND	4	+ 5V

(11) LVDS-P1 (LVDS1/MIPI Backlight Control Header 6*1 Pin 2.00mm)

Graphic	Pin	Definition	Pin	Definition
	1	GND	4	LVDS/MIPI-BKLT-EN
	2	GND	5	+ 12V
	3	LVDS/MIPI-BKLT-CTL	6	+ 12V

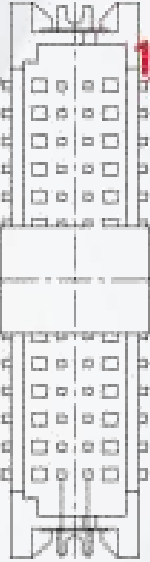
(12) LVDS-P2 (LVDS1/MIPI Backlight Control Header 6*1 Pin 2.00mm)

Graphic	Setting	Function
	1-2(Default)	+ 3.3V
	3-4	+ 5V
	5-6	+ 12V

(13) TP-I2C2 (TP I2C Header2 6*1 Pin 1.25mm)

Graphic	Pin	Definition	Pin	Definition
	1	+ 3.3V	4	TP2-RST-L-GPIO0-A6
	2	I2C2-SCL-M0-TP	5	TP2-INT-L-GPIO0-A5
	3	I2C2-SDA-M0-TP	6	GND

(14) LVDS1 (LVDS1/MIPI Signal Header 20*2 Pin 1.25mm)

Graphic	Pin	Definition	Pin	Definition
	2	VDD-PANEL1	1	VDD_PANEL1
	4	GND	3	GND
	6	VDD-PANEL1	5	VDD-PANEL1
	8	MIPI-DSI-TX1-D0-	7	LVDS-TX0-
	10	MIPI-DSI-TX1-D0+	9	LVDS-TX0+
	12	GND	11	GND
	14	MIPI-DSI-TX1-D1-	13	LVDS-TX1-
	16	MIPI-DSI-TX1-D1+	15	LVDS-TX1+
	18	GND	17	GND
	20	MIPI-DSI-TX1-D2-	19	LVDS-TX2-
	22	MIPI-DSI-TX1-D2+	21	LVDS-TX2+
	24	GND	23	GND
	26	MIPI-DSI-TX1-CLK-	25	LVDS-CLK-
	28	MIPI-DSI-TX1-CLK+	27	LVDS-CLK+
	30	GND	29	GND
	32	I2C3-SCL-M1	31	DDC-DAT
	34	GND	33	GND
	36	MIPI-DSI-TX1-D3-	35	LVDS-TX3-
	38	MIPI-DSI-TX1-D3+	37	LVDS-TX3+
	40	GND	39	N/C

Notes:

[1]: Panel Power VDD is 3.3V by default, 5V/12V is selectable by " LVDS1/MIPI VDD Select Jumper" (LVDS-P2, Table 12).

(15) TP-I2C1 (TP I2C Header1 6*1 Pin 1.25mm)

Graphic	Pin	Definition	Pin	Definition
	1	+ 3.3V	4	TP1-RST-L-GPIO0-B0
	2	I2C1-SCL-TP	5	TP1-INT-L-GPIO0-B7
	3	I2C1-SDA-TP	6	GND

(16) LCD-P4 (eDP/LVDS2 VDD Select Jumper 3*2 Pin 2.54 mm)

Graphic	Setting	Function
	1-2(Default)	+ 3.3V
	3-4	+ 5V
	5-6	+ 12V

(17) LCD2 (eDP/LVDS2 Signal Header 20*2 Pin 1.25mm)

Graphic	Pin	Definition	Pin	Definition
	2	VDD-PANEL2 [1]	1	VDD-PANEL2 [1]
	4	GND	3	LVDS-PRSNT#/ N/C [2]
	6	VDD-PANEL2	5	VDD-PANEL2
	8	LVDS2-B-DATA0-/ EDP-0-[2]	7	LVDS2-A-DATA0-/ N/C [2]
	10	LVDS2-B-DATA0+/ EDP-0+ [2]	9	LVDS2-A-DATA0+/ N/C [2]
	12	GND	11	GND
	14	LVDS2-B-DATA1-/ EDP-1-[2]	13	LVDS2-A-DATA1-/ N/C [2]
	16	LVDS2-B-DATA1+/ EDP-1+ [2]	15	LVDS2-A-DATA1+/ N/C [2]
	18	GND	17	GND
	20	LVDS2-B-DATA2-/ EDP-2-[2]	19	LVDS2-A-DATA2-/ N/C [2]
	22	LVDS2-B-DATA2+/ EDP-2+ [2]	21	LVDS2-A-DATA2+/ N/C [2]
	24	GND	23	GND

26	LVDS2-B-CLK-/ EDP-3- [2]	25	LVDS2-A-CLK-/ N/C [2]
28	LVDS2-B-CLK+/ EDP-3+ [2]	27	LVDS2-A-CLK+/ N/C [2]
30	GND	29	GND
32	N/C	31	N/C
34	GND	33	GND
36	LVDS2-B-DATA3-/ EDP-AUX- [2]	35	LVDS2-A-DATA3-/ N/C [2]
38	LVDS2-B-DATA3+/ EDP-AUX+ [2]	37	LVDS2-A-DATA3+/ N/C [2]
40	GND	39	N/C

Notes:

[1]: Panel Power VDD is 3.3V by default, 5V/12V is selectable by “ eDP/LVDS2 Backlight Control Header” (LCD-P3, Table 18).

[2]: It supports LVDS by default and can supports eDP if specified. (resistor selectable)

(18) LCD-P3 (eDP/LVDS2 Backlight Control Header 6*1 Pin 2.00mm)

Graphic	Pin	Definition	Pin	Definition
	1	GND	4	LCD2 BKLT EN
	2	GND	5	+ 12V
	3	LCD2 BKLT CTL	6	+ 12V

(19) SYS-FAN1 (System FAN Header 3*1 Pin 2.54mm)

Graphic	Pin	Definition	Pin	Definition
	1	GND	3	N/C
	2	+ 12V		

(20) J-CAN1 (CAN Header 3*1 Pin 2.00mm)

Graphic	Pin	Definition	Pin	Definition
	1	GND	3	CAN-H
	2	CAN-L		

(21) J-DBG1 (Debug Header1 3*1 Pin 2.00mm)

Graphic	Pin	Definition	Pin	Definition
	1	UART2 RX M0 DEBUG	3	GND
	2	UART2 TX M0 DEBUG		

(22) F-CASH1 (Cash Header 4*1 Pin 2.00mm)

Graphic	Pin	Definition	Pin	Definition
	1	+ 12V	3	CASH1-DEC
	2	CASH1-P	4	GND

(23) J-GPIO1 (GPIO Header 5*2 Pin 2.00mm)

Graphic	Pin	Definition	Pin	Definition
	2	GPIO3-D2	1	GPIO3-D3
	4	GPIO3-D4	3	GPIO3-D5
	6	GPIO3-C6	5	GPIO3-C7
	8	GPIO3-D0	7	GPIO3-D1
	10	+ 3.3V [1]	9	GND

Notes:

[1]: Power on this Pin is 3.3V by default, 5V is available if specified. (resistor selectable)

(24) SIM1 (SIM Card Header 6*1 Pin 2.00mm)

Graphic	Pin	Definition	Pin	Definition
	1	PWR-UIM1	4	CLK-UIM1
	2	GND	5	RST-UIM1
	3	DAT-UIM1	6	VPP-UIM1

(25) J-COM3 (COM3 Header 3*1 Pin 2.00mm)

Graphic	Pin	Definition	Pin	Definition
	1	COM3-RXD	3	GND
	2	COM3-TXD		

J-COM4 (COM4 Header 3*1 Pin 2.00mm)

Graphic	Pin	Definition	Pin	Definition
	1	COM4-RXD	3	GND
	2	COM4-TXD		

J-COM5 (COM5 Header 3*1 Pin 2.00mm)

Graphic	Pin	Definition	Pin	Definition
	1	COM5-RXD	3	GND
	2	COM5-TXD		

J-COM6 (COM6 Header 3*1 Pin 2.00mm)

Graphic	Pin	Definition	Pin	Definition
	1	COM6-RXD	3	GND
	2	COM6-TXD		

(26) J-COM2 (COM2 RS232 Header 9*1 Pin 1.25mm)

Graphic	Pin	Definition	Pin	Definition
	1	COM2-PIN1 [1]	6	COM2-CTS#
	2	N/C	7	N/C
	3	COM2-RXD	8	COM2-PIN9 [2]
	4	COM2-RTS#	9	GND
	5	COM2-TXD		

Notes:

[1]: PIN1 of COM2 can be DCD/5V/12V, selectable by resistor.

[2]: PIN9 of COM2 can be RI/5V, selectable by resistor.

(27) J-DBG2 (Debug Header2 5*1 Pin 2.54mm)

Graphic	Pin	Definition	Pin	Definition
	1	MCU-RST#	4	ICPDATA
	2	ICPCLK-ICP	5	GND
	3	+ 3.3V		

(28) J-COM2-RS485 (COM2 RS485 Header 3*1 Pin 2.00mm)

Graphic	Pin	Definition	Pin	Definition
	1	COM2-RS485+	3	GND
	2	COM2-RS485-		

(29) F-DCIN1 (DC 12V Power Input Header 4*1 Pin 2.54mm)

Graphic	Pin	Definition	Pin	Definition
	1	+12V-IN	3	GND
	2	+12V-IN	4	GND

(30) J-COM1 (COM1 Header 9*1 Pin 1.25mm)

Graphic	Pin	Definition	Pin	Definition
	1	COM1-PIN1 [1]	6	COM1-CTS#
	2	N/C	7	N/C
	3	COM1-RXD	8	COM1-PIN9 [2]
	4	COM1-RTS#	9	GND
	5	COM1-TXD		

Notes:

[1]: PIN1 of COM1 can be DCD/5V/12V, selectable by resistor.

[2]: PIN9 of COM1 can be RI/5V, selectable by resistor.

(31) JSEL1 (COM1 RS232/485 Select Jumper 3*2 Pin 2.54 mm)

Graphic	Setting	Function
	1-3, 2-4(Default)	COM1: RS232 (COM1-PIN1: DCD COM1-PIN2: RXD)
	3-5, 4-6	COM1: RS485 (COM1-PIN1: RS485- COM1-PIN2: RS485+)

(32) VDC-SEL1 (AT or ATX Select Jumper 3*1 Pin 2.00mm)

Graphic	Setting	Function
	1-2(Default)	AT Mode
	2-3	ATX Mode

(41) COM1 (COM1 DB9/M Connector)

Graphic	Pin	Definition	Pin	Definition
	1	COM1-PIN1 [1] [2]	6	N/C
	2	COM1-PIN2 [1]	7	COM1-RTS#
	3	COM1-TXD	8	COM1-CTS#
	4	N/C	9	COM1-PIN9 [3]
	5	GND		

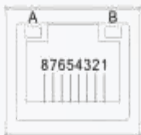
Notes:

[1]: COM1 can be RS232 (default) / RS485 by selecting JSEL1 Jumper, check Table 31 for detail.

[2]: PIN1 of COM1 can be DCD/5V/12V, selectable by resistor.

[3]: PIN9 of COM1 can be RI/5V, selectable by resistor.

(46) LAN2 (GBE LAN RJ45 Connector2 8Pin)

Graphic	Pin	Definition		Pin	Definition	
	1	MDX0-2+		5	MDX2-2-	
	2	MDX0-2-		6	MDX1-2-	
	3	MDX1-2+		7	MDX3-2+	
	4	MDX2-2+		8	MDX3-2-	
	A	Active LED	ACT: Twinkling Green	B	Speed LED	1000M: Turn Yellow
			Only LINK: Lights Off			100M: Turn Green
			Stop: Lights Off			10M: Lights Off

(47) LAN1 (GBE LAN RJ45 Connector1 8Pin)

Graphic	Pin	Definition		Pin	Definition	
	1	MDX0-1+		5	MDX2-1-	
	2	MDX0-1-		6	MDX1-1-	
	3	MDX1-1+		7	MDX3-1+	
	4	MDX2-1+		8	MDX3-1-	
	A	Active LED	ACT: Twinkling Green Only LINK: Lights Off Stop: Lights Off	B	Speed LED	1000M: Turn Yellow 100M: Turn Green 10M: Lights Off

[END]