

3.5" SBC with NXP i.MX 8M Plus Processor, 4GB LPDDR4, 16GB eMMC Flash, HDMI, MIPI DSI, MIPI CSI, GPIO, Dual GbE, USB Type-C, RS-232/422/485, Android 12 / Yocto 3.2, 0°C ~70°C and RoHS

WAFER-IMX8MP

Quick Installation Guide

Version 1.0

August 10, 2023

Package List

WAFER-IMX8MP package includes the following items:

- 1 x WAFER-IMX8MP single board computer
- 1 x Pluggable female terminal block
- 1 x QIG



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Specifications

- Processor:
NXP i.MX 8M Plus Quad (quad-core Cortex®-A53 up to 1.8 GHz)
- GPU: GC7000UL 3D (2 shaders), GC520L
- NPU: Up to 2.3 TOPS
- RAM: 4 GB LPDDR4-3200, up to 8GB
- Flash:
16 GB eMMC NAND flash, up to 128GB
1 x microSD slot
- Audio:
1 x 3.5mm audio jack (Mic-in & Line out)
- Speaker:
2 x Speaker output (3W/8Ω)
- Display:
1 x MIPI DSI 4-lane (40-pin 0.5mm FPC 90°)
- Camera:
1 x MIPI CSI 4-lane (30-pin 0.5mm FPC)
- HDMI:
1 x HDMI output 2.0a Type A, up to 4K
- Wi-Fi: Wi-Fi 5/6 (optional board-to-board IEL module)
- Bluetooth: Support Bluetooth v5.0
- LTE: M.2 B key connector for 4G LTE
- I/O Interface:
2 x GbE RJ-45
2 x USB 5Gb/s Type-A
1 x USB Type-C
1 x Full RS-232/422/485 (DB-9 port)
1 x RS-232/RS-485 (2x3 pin header)
1 x I²C (for touch panel, 8-pin 2.0mm FPC)
GPIO 8-bit (4 in / 4 out, pin header)
- Button: Power key
- LED Indicator
1 x Power LED
1 x Reserved (programmable)
- Dimensions (LxW): 146 mm x 102 mm
- Power Input: 12 V DC
- Operating Temperature: 0°C – 70°C (with air flow)
- Storage Temperature: -20°C – 80°C
- Humidity: 10% – 99%, non-condensing

- EMC & Safety: EMC Class B
- Supported OS: Android 12 / Yocto 3.2 (Linux Kernel 5.10)

Ordering Information

- **WAFER-IMX8MP-R10:**
3.5" SBC with NXP i.MX 8M Plus Processor, 4GB LPDDR4, 16GB eMMC Flash, Dual Display via HDMI & MIPI DSI, MIPI CSI, GPIO, Dual GbE, USB Type-C, RS-232/422/485, Android 12 / Yocto 3.2, 0°C ~70°C and RoHS
- **23T00-01010AW01-RS:**
10.1" color TFT-LCD with projected capacitive touch (800x1280, 340 cd/m2, LED, RoHS)
- **7I001-COD631A5SFE-RS:**
Camera module (2592x1944, 1/4", 8.5x14.5x5.45mm, sensor type: OV5640, RoHS)
- **19800-026300-100-RS:**
Speakers with cables (Speakers: 36.6x14x10.4mm, 8 Ω , 2W*2; cable: 150mm + 350mm; RoHS)
- **32102-045100-100-RS:**
Power cable (100mm, 20AWG, DC jack 5.5*2.5+NUT; RoHS)
- **iWB-BCM43752-R10:**
Wi-Fi & Bluetooth module (AP6275S, 2T2R, 802.11 a/b/g/n/ac/ax Wi-Fi + BT 5.0, RoHS)
- **iWB-RTL8822-R10:**
Wi-Fi & Bluetooth module (2-stream 802.11ac, 2T2R, Bluetooth 5.0, RoHS)

All the drivers and utility for the WAFER-IMX8MP are available on IEI Resource Download Center. Type WAFER-IMX8MP and press Enter to find all the relevant software, utilities, and documentation.

IEI Resource Download Center

<https://download.ieiworld.com>



Jumpers Setting and Connectors

LABEL	FUNCTION
BAT_CN1	RTC battery connector
CN16	Debug port connector
SW3	Download key
JP3	GPIO connector
J6	LTE module slot
CN2	microSD slot
J1	MIPI DSI output connector
CN18	MIPI CSI connector
U117	SIM slot
CN24	Speaker connector
JP2	RS-232/485 connector
SW2	Reset button
JP1	Touch connector
CN27	Wi-Fi/Bluetooth module slot
J4	Audio earphone jack
CN26	DC power input connector
J2	HDMI output connector
CN19, CN20	LAN connectors
D94	LED indicators
SW1	Power button
CN25	RS-232/422/485 connector
CN21	Dual USB 5Gb/s connector
CN23	USB Type-C connector

CN16: Debug Port Connector

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	3	DEBUG_RX
2	DEBUG_TX	4	GND

JP3: GPIO Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	EXT_GPIO1	2	EXT_GPIO2
3	EXT_GPIO3	4	EXT_GPIO4
5	EXT_GPIO5	6	EXT_GPIO6
7	EXT_GPIO7	8	EXT_GPIO8

J1: MIPI DSI Output Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	LCD_NC1	21	MIPI_D3P
2	LCD_VDD	22	GND
3	LCD_VDD	23	N/C
4	LCD_NC2	24	N/C
5	LCD_RESET	25	GND
6	LCD_NC3	26	N/C
7	GND	27	LED_PWM
8	MIPI_D0N	28	LCD_NC4
9	MIPI_D0P	29	LCD_NC5
10	GND	30	GND
11	MIPI_D1N	31	LCD_LED-
12	MIPI_D1P	32	LCD_LED-
13	GND	33	LCD_NC6
14	MIPI_CKN	34	LCD_NC7
15	MIPI_CKP	35	LCD_VSN
16	GND	36	LCD_NC8
17	MIPI_D2N	37	LCD_NC9
18	MIPI_D2P	38	LCD_VSP
19	GND	39	LCD_LED+
20	MIPI_D3N	40	LCD_LED+

CN18: MIPI CSI Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	CAM_LED-	16	CAM_D3
2	CAM_LED+	17	CAM_D2
3	N/C	18	CAM_RST
4	CAM_FREX	19	CAM_HSYNC
5	CAM_STROBE	20	CAM_VSYNC
6	GND	21	N/C
7	CAM_D1P	22	CAM_I2C_SDA
8	CAM_D1N	23	CAM_I2C_SCL
9	GND	24	CAM_PWD_N
10	CAM_MCP	25	CAM_MCLK
11	CAM_MCN	26	CAM_DVDD1V5
12	GND	27	CAM_DOVDD
13	CAM_MDP1	28	CAM_AGND
14	CAM_MDN1	29	CAM_AVDD_2V8
15	GND	30	GND

U117: SIM Slot			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
C1	LTE_UIM_PWR	C6	SIM_VPP_1
C5	GND	C3	LTE_UIM_CLK
C2	LTE_UIM_RESET	C7	LTE_UIM_DATA

CN24: Speaker Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	SPK_LP	3	SPK_RN
2	SPK_LN	4	SPK_RP

CN26: DC Power Input Connector			
PIN	DESCRIPTION	PIN	DESCRIPTION
1	DC_12V	2	GND

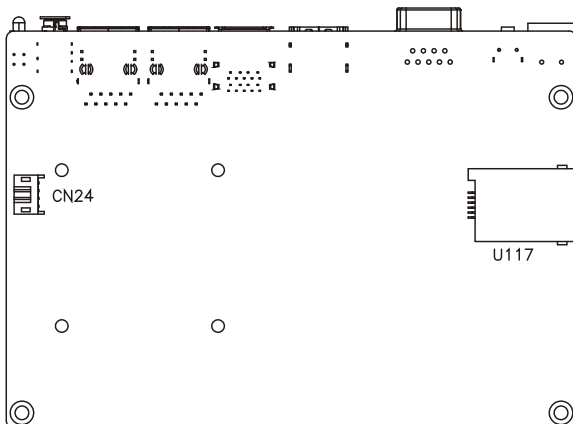
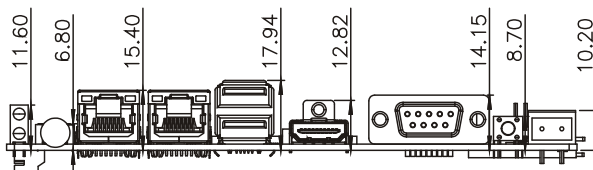
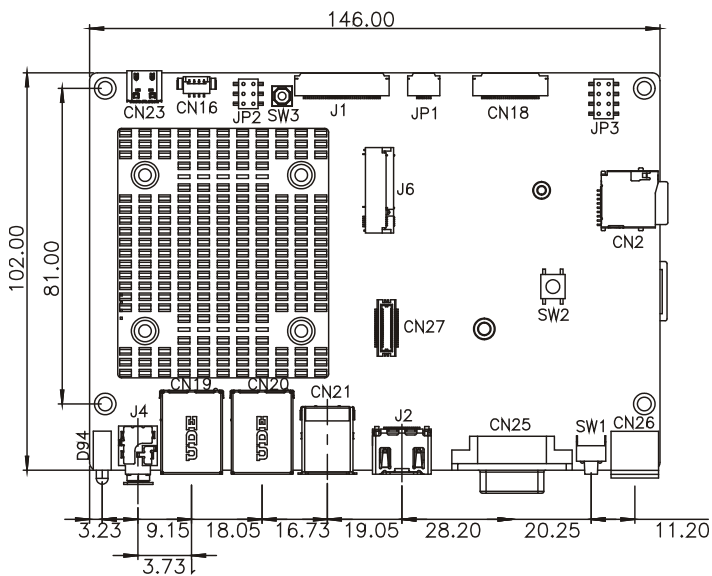
JP2: RS-232/485 Connector		
PIN NO.	RS-232	RS-485
1	-	DATA-
2	RXD	DATA+
3	RTS	-
4	TXD	-
5	CTS	-
6	GND	-

JP1: Touch Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	5	A_CPT_I2C_SDA
2	NC	6	A_CPT_INT
3	TOUCH_VCC	7	A_CPT_RST
4	A_CPT_I2C_SCL	8	GND

D94: LED Indicators		
LED	STATUS	DESCRIPTION
Green	On	Power connected
	Off	No power connected
Red	On	Turned on and boot into OS
	Off	Not turned on / Failed to boot into OS

CN25: RS-232/422/485 Connector			
PIN NO.	RS-232	RS-422	RS-485
1	DCD	TX-	D-
2	RX	TX+	D+
3	TX	RX+	
4	DTR	RX-	
5	GND		
6	DSR		
7	RTS		
8	CTS		
9	RI		

Board Layout: Jumper and Connector Locations



(Unit: mm)