
PBA-9000

Carrier Board for SOM Series

Quick Installation Guide

Version 1.0

Form Factor <i>EPIC Carrier Board</i>	Video <i>HDMI, MIPI, LVDS, eDP</i>	Audio <i>Microphone, Speaker, Headphone</i>
I/O <i>USB, COM, UART, SDIO</i>	Ethernet <i>GbE RJ45</i>	

◆ Technical Support

If you need technical support with the product, please contact us via our web-site or email:

<https://www.arbor-technology.com>

E-mail: info@arbor.com.tw

FCC Class A

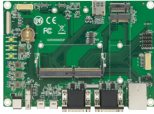
This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions : (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

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4040090002100P

Packing List



1 x PBA-9000 in EPIC form factor



1 x Quick Installation Guide

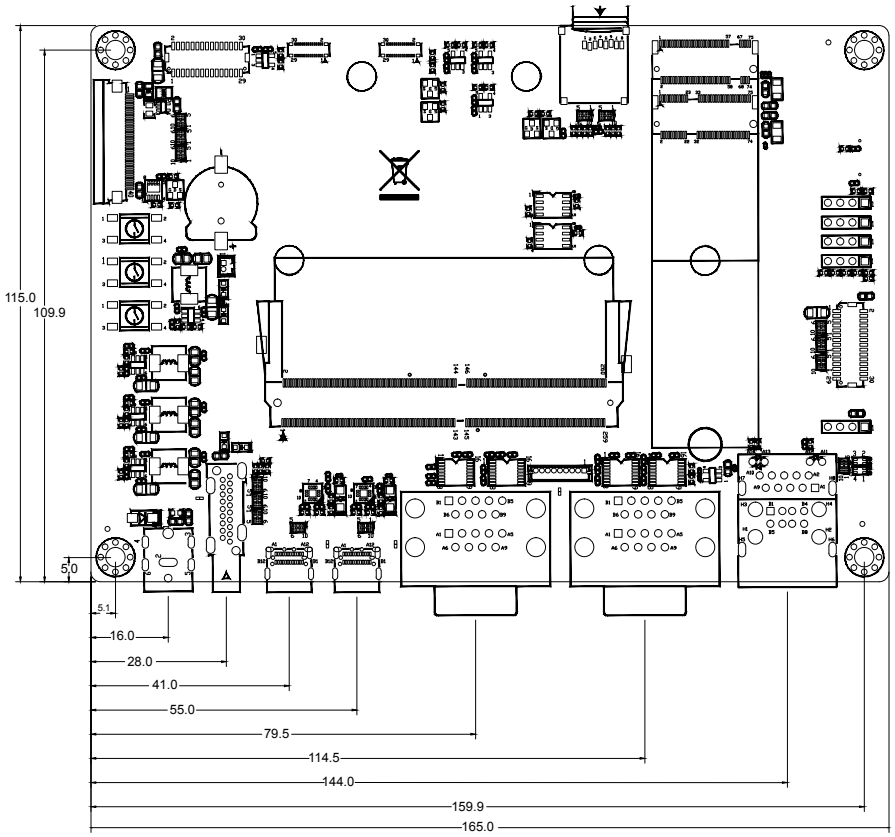
Ordering Information

PBA-9000	Carrier board
CBK-06-900L-00	Cable kit 1 x USB cable 2 x COM cables 1 x SATA cable 1 x SATA power cable 1 x AUDIO cable

Specifications

Form Factor	Carrier board for SOM Series
I/O	
Display	1 x HDMI; 1 x MIPI DSI; 1 x eDP
Camera	2x MIPI CSI RX interface with 13MP ISP
Audio	2 x 1W (@8Ω)Speaker; 2 x Analog Microphone, 1 x Digital Microphone; 1 x Headphone out
Ethernet	1 x Giga Ethernet port w/RJ-45 connector
Serial Port	Supports 2 UART ports, 2-wire; Supports 2 UART ports, 4-wire
USB Port	4 x USB 2.0 ports 2 x USB Type-C ports
SDIO	1 x SD Socket
ADC	10-bit resolution; Up to 1MS/s sampling rate; 3 port 1.8V range single-ended input channels
DIO	8-bit DI, 8-bit DO
OS Support	
OS	Linux: Ubuntu, Buildroot Android 8.1
Mechanical & Environmental	
Power Requirement	5V/3A
Power Consumption	TBD
Operation Temp.	-20 ~ 70°C (-4 ~ 158°F)
Dimension (L x W)	165 x 115 mm (6.5" x 4.53")

Board dimensions

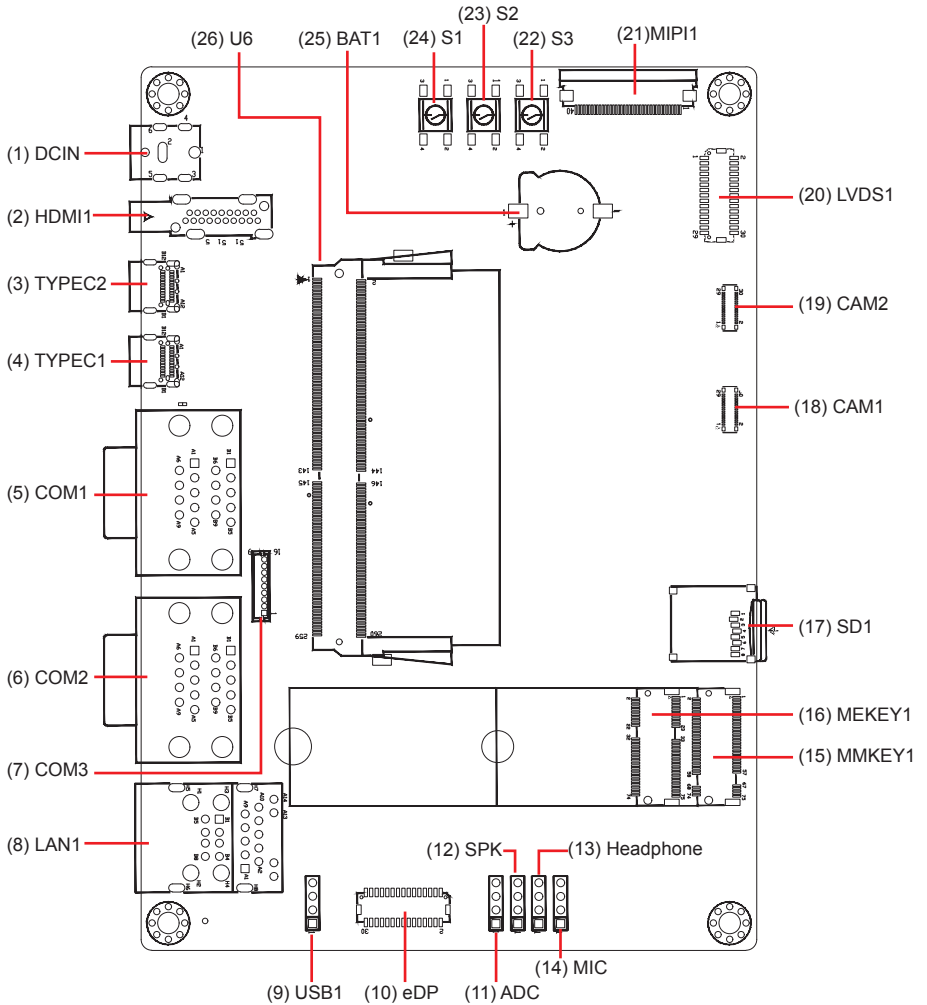


Unit: mm

Connectors

No.	Label	Function
(1)	DCIN	DC In Power Jack
(2)	HDMI1	HDMI Connector
(3)(4)	TYPEC2, 1	USB Type-C Connector
(5)	COM1	RS-232 COM Ports
(6)	COM2	RS-232 COM Ports
(7)	COM3	RS-232 Connector
(8)	LAN1	RJ-45 Connector
(9)	USB1	USB Connector
(10)	eDP	eDP Connector
(11)	ADC	Analog to Digital Converter Connector
(12)	SPK	Speaker Connector
(13)	Headphone	Headphone Connector
(14)	MIC	Microphone Connector
(15)	MMKEY1	M.2 M-Key Socket
(16)	MEKEY1	M.2 E-Key Socket
(17)	SD1	SD Card Socket
(18)(19)	CAM1, 2	Camera Connector
(20)	LVDS	LVDS Connector
(21)	MIPI1	MIPI Connector
(22)	S3	USB Download Mode Button
(23)	S2	Reset Button
(24)	S1	Power Button
(25)	BAT1	Battery Holder
(26)	U6	DDR4-SODIMM Socket

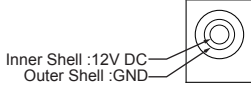
Connectors Location



Connectors

(1) DCIN: DC Input

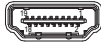
Connector type: DC In Power Jack



(2) HDMI1:HDMI Connector

Connector type: 19-pin HDMI connector

The pin assignments conform to the industry standard.



(3)(4) TYPEC2, 1: USB Type-C Connector

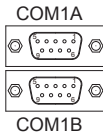
Connector type: USB Type-C Connectors

The pin assignments conform to the industry standard.



(5) COM1: RS-232 COM Ports

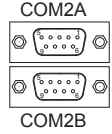
Connector type: Double Stacked D-Sub 9-pin male COM Ports



COM1A		COM1B	
Pin	Desc.	Pin	Desc.
1	N/C	1	N/C
2	RS-232-0_RX	2	RS-232-1_RX
3	RS-232-0_TX	3	RS-232-1_TX
4	N/C	4	N/C
5	GND	5	GND
6	N/C	6	N/C
7	RS-232-0_RTS	7	RS-232-1_RTS
8	RS-232-0_CTS	8	RS-232-1_CTS
9	N/C	9	N/C

(6) COM2: RS-232 COM Ports

Connector type: Double Stacked D-Sub 9-pin male COM Ports



COM2A		COM2B	
Pin	Desc.	Pin	Desc.
1	N/C	1	N/C
2	RS-232-2_RX	2	RS-232-3_RX
3	RS-232-2_TX	3	RS-232-3_TX
4	N/C	4	N/C
5	GND	5	GND
6	N/C	6	N/C
7	N/C	7	N/C
8	N/C	8	N/C
9	N/C	9	N/C

(7) COM3: RS-232 Connector

Connector type: 1.25mm pitch 1x9-pin wafer header

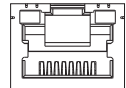
Pin	Desc.
1	N/C
2	N/C
3	RS-232-4_RX
4	N/C
5	RS-232-4_TX
6	N/C
7	N/C
8	N/C
9	GND



(8) LAN1: RJ-45 Connector

Connector type: Giga Ethernet RJ-45 connector

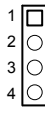
The pin assignments conform to the industry standard.



(9) USB1: USB Connector

Connector type: 2.54mm pitch 1×4 pin header.

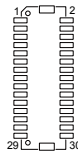
Pin	Description
1	DC_5V
2	USB3_Dn
3	USB3_Dp
4	GND



(10) eDP: eDP Connector

Connector type: 1.00mm pitch 15×2 pin wafer connector

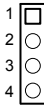
Pin	Desc.	Pin	Desc.
1	VCC_LCD	2	LCD_3V3
3	VCC_LCD	4	LCD_3V3
5	eDP_PWM	6	eDP_EN
7	eDP_TXp0	8	N/C
9	eDP_TXn0	10	N/C
11	eDP_TXp1	12	N/C
13	eDP_TXn1	14	N/C
15	eDP_TXp2	16	N/C
17	eDP_TXn2	18	N/C
19	eDP_TXp3	20	N/C
21	eDP_TXn3	22	N/C
23	eDP_AUXp	24	N/C
25	eDP_AUXn	26	N/C
27	GND	28	GND
29	GND	30	GND



(11) ADC: Analog to Digital Converter Connector

Connector type: 2.54mm pitch 1×4 pin header

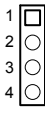
Pin	Description
1	ADC1
2	ADC2
3	ADC3
4	GND



(12) SPK: Speaker Connector

Connector type: 2.54mm pitch 1×4 pin header.

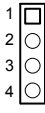
Pin	Description
1	SPK-R-
2	SPK-R+
3	SPK-L-
4	SPK-L+



(13) Headphone: Headphone Connector

Connector type: 2.54mm pitch 1×4 pin header.

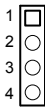
Pin	Description
1	HP_SNS
2	HP_OUT-L
3	HP_OUT-R
4	GND



(14) MIC: Microphone Connector

Connector type: 2.54mm pitch 1×4 pin header.

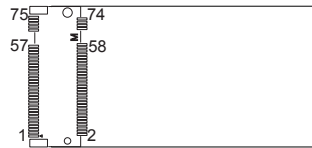
Pin	Description
1	MIC_BIAS
2	MIC_IN1
3	MIC_IN2
4	GND



(15) MMKEY1: M.2 M-Key Socket

Connector Type: NGFF M.2 socket for M-Key 22x42

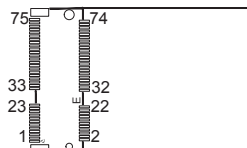
The pin assignments conform to the industry standard.



(16) MEKEY1: M.2 E-Key Socket

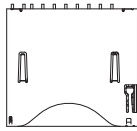
Connector Type: NGFF M.2 socket for E Key 22x42, Hybrid RF + WLAN

The pin assignments conform to the industry standard.



(17) SD1: SD Card Socket

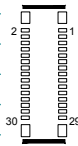
The pin assignments conform to the industry standard.



(18)(19) CAM1, 2: Camera Connector

Connector type: 0.40mm pitch 15x2 pin connector

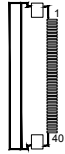
Pin	Desc.	Pin	Desc.
2	CAM0_1V8MCLK	1	GND
4	CAM0_1V8PD	3	CSI_RX0p3
6	CAM0_1V8RST	5	CSI_RX0n3
8	CAM0_SDA	7	GND
10	CAM0_SCL	9	CSI_RX0p2
12	GND	11	CSI_RX0n2
14	N/C	13	GND
16	N/C	15	CSI_RX0p1
18	GND_CAM1	17	CSI_RX0n1
20	VCC2V8_CAM1	19	GND
22	AVDD2V8_CAM1	21	CSI_RX0p0
24	GND	23	CSI_RX0n0
26	VDD1V2_CAM1	25	GND
28	VCC1V8	27	CSI_RX0CLKP
30	GND	29	CSI_RX0CLKn



(21) MIPI1: MIPI Connector

Connector type: 5.00mm pitch 15x2 pin FPC Connector

Pin	Desc.	Pin	Desc.
1	LCD_BL_P	21	LVDS/DS_TXn3
2	LCD_BL_P	22	GND
3	N/C	23	LVDS/DSI_TXp2
4	N/C	24	LVDS/DS_TXn2
5	N/C	25	GND
6	N/C	26	LVDS/DSI_CLKp
7	N/C	27	LVDS/DS_CLKn
8	N/C	28	GND
9	LCD_BL_N	29	LVDS/DSI_TXp1
10	LCD_BL_N	30	LVDS/DS_TXn1
11	GND	31	GND
12	N/C	32	LVDS/DSI_TXp0
13	N/C	33	LVDS/DS_TXn0
14	N/C	34	GND
15	N/C#	35	N/C
16	GND	36	LVDS/DSI_RST
17	N/C	37	GND
18	N/C	38	LCD_3V3
19	GND	39	LCD_3V3
20	LVDS/DSI_TXp3	40	N/C



(20) LVDS: LVDS Connector

Connector type: 30DP-1.25V connector.

Pin	Desc.	Pin	Desc.
1	VCC_LCD	2	LCD_3V3
3	VCC_LCD	4	LCD_3V3
5	LVDS/DSI_PWM	6	LVDS_EN
7	LVDS/DS_TXp0	8	N/C
9	LVDS/DSI_TXn0	10	N/C
11	LVDS/DS_TXp1	12	N/C
13	LVDS/DSI_TXn1	14	N/C
15	LVDS/DS_TXp2	16	N/C
17	LVDS/DSI_TXn2	18	N/C
19	LVDS/DS_CLKp	20	N/C
21	LVDS/DS_CLKn	22	N/C
23	LVDS/DS_TXp3	24	N/C
25	LVDS/DSI_TXn3	26	N/C
27	GND	28	GND
29	GND	30	GND



(22) S3: USB Download Mode Button

Pin	Desc.	Pin	Desc.
1	DWN#	2	DWN#
3	GND	4	GND



(23) S2: Reset Button

Pin	Desc.	Pin	Desc.
1	Reset	2	Reset
3	GND	4	GND



(24) S1: Power Button

Pin	Desc.	Pin	Desc.
1	PWRon	2	PWRon
3	GND	4	GND



(25) BAT1: Battery Holder

(26) U6: DDR4 SO-DIMM Socket

Connector type: 260-pin DDR4 SO-DIMM Socket

