

ACP-1078

7" WSVGA Android Based Panel PC

User's Manual 1st Ed

Copyright Notice

This document is copyrighted, 2024. All rights are reserved. The original manufacturer reserves the right to make improvements to the products described in this manual at any time without notice.

No part of this manual may be reproduced, copied, translated, or transmitted in any form or by any means without the prior written permission of the original manufacturer. Information provided in this manual is intended to be accurate and reliable. However, the original manufacturer assumes no responsibility for its use, or for any infringements upon the rights of third parties that may result from its use.

The material in this document is for product information only and is subject to change without notice. While reasonable efforts have been made in the preparation of this document to assure its accuracy, AAEMON assumes no liabilities resulting from errors or omissions in this document, or from the use of the information contained herein.

AAEMON reserves the right to make changes in the product design without notice to its users.

Acknowledgement

All other products' name or trademarks are properties of their respective owners.

- Arm® and Cortex® are registered trademarks of Arm Limited (or its subsidiaries).
- Mali™ is a trademark of Arm Limited (or its subsidiaries).
- ITE is a trademark of Integrated Technology Express, Inc.
- IBM, PC/AT, PS/2, and VGA are trademarks of International Business Machines Corporation.
- Rockchip™ is a trademark of Rockchip Electronics Co., Ltd
- Debian® is a registered trademark of Software in the Public Interest, Inc.
- Android™ is a trademark of Google LLC.

All other product names or trademarks are properties of their respective owners.

Packing List

Before setting up your product, please make sure the following items have been shipped:

Item	Quantity
● ACP-1078	1

If any of these items are missing or damaged, please contact your distributor or sales representative immediately.

About this Document

This User's Manual contains all the essential information, such as detailed descriptions and explanations on the product's hardware and software features (if any), its specifications, dimensions, jumper/connector settings/definitions, and driver installation instructions (if any), to facilitate users in setting up their product.

Users may refer to the product page at AAEON.com for the latest version of this document.

Safety Precautions

Please read the following safety instructions carefully. It is advised that you keep this manual for future references

1. All cautions and warnings on the device should be noted.
2. All cables and adapters supplied by AAEON are certified and in accordance with the material safety laws and regulations of the country of sale. Do not use any cables or adapters not supplied by AAEON to prevent system malfunction or fires.
3. Make sure the power source matches the power rating of the device.
4. Position the power cord so that people cannot step on it. Do not place anything over the power cord.
5. Always completely disconnect the power before working on the system's hardware.
6. No connections should be made when the system is powered as a sudden rush of power may damage sensitive electronic components.
7. If the device is not to be used for a long time, disconnect it from the power supply to avoid damage by transient over-voltage.
8. Always disconnect this device from any AC supply before cleaning.
9. While cleaning, use a damp cloth instead of liquid or spray detergents.
10. Make sure the device is installed near a power outlet and is easily accessible.
11. Keep this device away from humidity.
12. Place the device on a solid surface during installation to prevent falls
13. Do not cover the openings on the device to ensure optimal heat dissipation.
14. Watch out for high temperatures when the system is running.
15. Do not touch the heat sink or heat spreader when the system is running
16. Never pour any liquid into the openings. This could cause fire or electric shock.

17. As most electronic components are sensitive to static electrical charge, be sure to ground yourself to prevent static charge when installing the internal components. Use a grounding wrist strap and contain all electronic components in any static-shielded containers.
18. If any of the following situations arises, please the contact our service personnel:
 - i. Damaged power cord or plug
 - ii. Liquid intrusion to the device
 - iii. Exposure to moisture
 - iv. Device is not working as expected or in a manner as described in this manual
 - v. The device is dropped or damaged
 - vi. Any obvious signs of damage displayed on the device
19. **DO NOT LEAVE THIS DEVICE IN AN UNCONTROLLED ENVIRONMENT WITH TEMPERATURES BEYOND THE DEVICE'S PERMITTED STORAGE TEMPERATURES (SEE CHAPTER 1) TO PREVENT DAMAGE.**

Warning!



This device complies with Part 15 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.

Caution:

There is a danger of explosion if the battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions and your local government's recycling or disposal directives.

Attention:

Il y a un risque d'explosion si la batterie est remplacée de façon incorrecte. Ne la remplacer qu'avec le même modèle ou équivalent recommandé par le constructeur. Recycler les batteries usées en accord avec les instructions du fabricant et les directives gouvernementales de recyclage.

产品中有毒有害物质或元素名称及含量

AAEON System

QO4-381 Rev.A0

部件名称	有毒有害物质或元素					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr(VI))	多溴联苯 (PBB)	多溴二苯 醚(PBDE)
印刷电路板 及其电子组件	×	○	○	○	○	○
外部信号 连接器及线材	×	○	○	○	○	○
外壳	○	○	○	○	○	○
中央处理器 与内存	×	○	○	○	○	○
硬盘	×	○	○	○	○	○
液晶模块	×	×	○	○	○	○
光驱	×	○	○	○	○	○
触控模块	×	○	○	○	○	○
电源	×	○	○	○	○	○
电池	×	○	○	○	○	○

本表格依据 SJ/T 11364 的规定编制。

○：表示该有毒有害物质在该部件所有均质材料中的含量均在 GB/T 26572 标准规定的限量要求以下。

×：表示该有害物质的某一均质材料超出了 GB/T 26572 的限量要求，然而该部件

仍符合欧盟指令 2011/65/EU 的规范。

备注：

- 一、此产品所标示之环保使用期限，系指在一般正常使用状况下。
- 二、上述部件物质中央处理器、内存、硬盘、光驱、电源为选购品。
- 三、上述部件物质液晶模块、触控模块仅一体机产品适用。

Hazardous and Toxic Materials List

AAEON System

QO4-381 Rev.A0

Component Name	Hazardous or Toxic Materials or Elements					
	Lead (Pb)	Mercury (Hg)	Cadmium (Cd)	Hexavalent Chromium (Cr(VI))	Polybrominated biphenyls (PBBS)	Polybrominated diphenyl ethers (PBDES)
PCB and Components	X	O	O	O	O	O
Wires & Connectors for Ext.Connections	X	O	O	O	O	O
Chassis	O	O	O	O	O	O
CPU & RAM	X	O	O	O	O	O
HDD Drive	X	O	O	O	O	O
LCD Module	X	X	O	O	O	O
Optical Drive	X	O	O	O	O	O
Touch Control Module	X	O	O	O	O	O
PSU	X	O	O	O	O	O
Battery	X	O	O	O	O	O

This form is prepared in compliance with the provisions of SJ/T 11364.

O: The level of toxic or hazardous materials present in this component and its parts is below the limit specified by GB/T 26572.

X: The level of toxic of hazardous materials present in the component exceed the limits specified by GB/T 26572, but is still in compliance with EU Directive 2011/65/EU (RoHS 2).

Notes:

1. The Environment Friendly Use Period indicated by labelling on this product is applicable only to use under normal conditions.
2. Individual components including the CPU, RAM/memory, HDD, optical drive, and PSU are optional.
3. LCD Module and Touch Control Module only applies to certain products which feature these components.

Table of Contents

Chapter 1 - Product Specifications	1
1.1 Specifications.....	2
Chapter 2 – Hardware Information	4
2.1 Dimensions	5
2.2 Connectors	11
2.2.1 Upper Side View.....	11
2.2.2 Bottom Side View.....	11
2.2.3 Left Hand Side View	12
2.2.4 Right Hand Side View	12
2.3 List of Connectors	13
2.3.1 Power Button: On/Off	14
2.3.2 HDMI Port.....	14
2.3.3 USB 3.2 Gen 1/USB 2.0 Port.....	15
2.3.4 COM Port.....	16
2.3.5 RJ-45 LAN Port 1.....	17
2.3.6 USB 3.2 Gen 1 Type-C OTG.....	18
2.3.7 Audio Jack w/ Mic Function	19
2.3.8 Nano SIM Card.....	20

Chapter 1

Product Specifications

1.1 Specifications

System

Processor	Rockchip™ RK3568 Quad-Core Arm® Cortex® -A55 Processor
System Memory	LPDDR4 2GB/4GB (Optional)
LCD/CRT Controller	—
Ethernet	10/100/1000 Base TX x2
I/O Port	LAN x 2 COM x 2 USB 3.2 Gen 1 (Type-C OTG) x 1 (For System Recovery) USB 3.2 Gen 1 x 2 USB 2.0 x 2 HDMI x 1 Audio x 1
Storage Disk Drive	16GB eMMC and Micro SD card
Expansion Slot	Full-size mini-PCIe Slot x 1 (PCIe 3.0 [x1] or mSATA)
OS Support	Android™ 12/Debian

Mechanical

Construction	Aluminum Front Bezel + Metal Chassis
Mounting	VESA/Panel Mount
Dimensions	7.7" x 5.3" x 1.5" (196.5mm x 135mm x 40mm)
Carton Dimension	11.0" x 8.7" x 6.1" (280mm x 220mm x 154mm)
Gross Weight	2.2 lb. (1Kg)

Environmental

Operating Temperature	23°F ~131°F (-5°C ~ 50°C) with 0.5 m/s airflow
Storage Temperature	-4°F ~ 140°F (-20°C ~ 60°C)
Storage Humidity	90% @40°C; non-condensing
Vibration	1Grms / 5~ 500Hz / operation
Shock	15 G peak acceleration (11 msec. duration)
EMC	CE/FCC Class A

Power Supply

DC Input	DC 12V ~ 24V
----------	--------------

LCD

Display Type	7" WSVGA (1024 x 600) Color TFT LCD Display
Max Resolution	1024 x 600
Max. Colors	16.7M
Luminance	320 nits
Viewing Angle	145° (H); 150° (V)
Back Light	LED
Back Light MTBF (Hours)	25,000

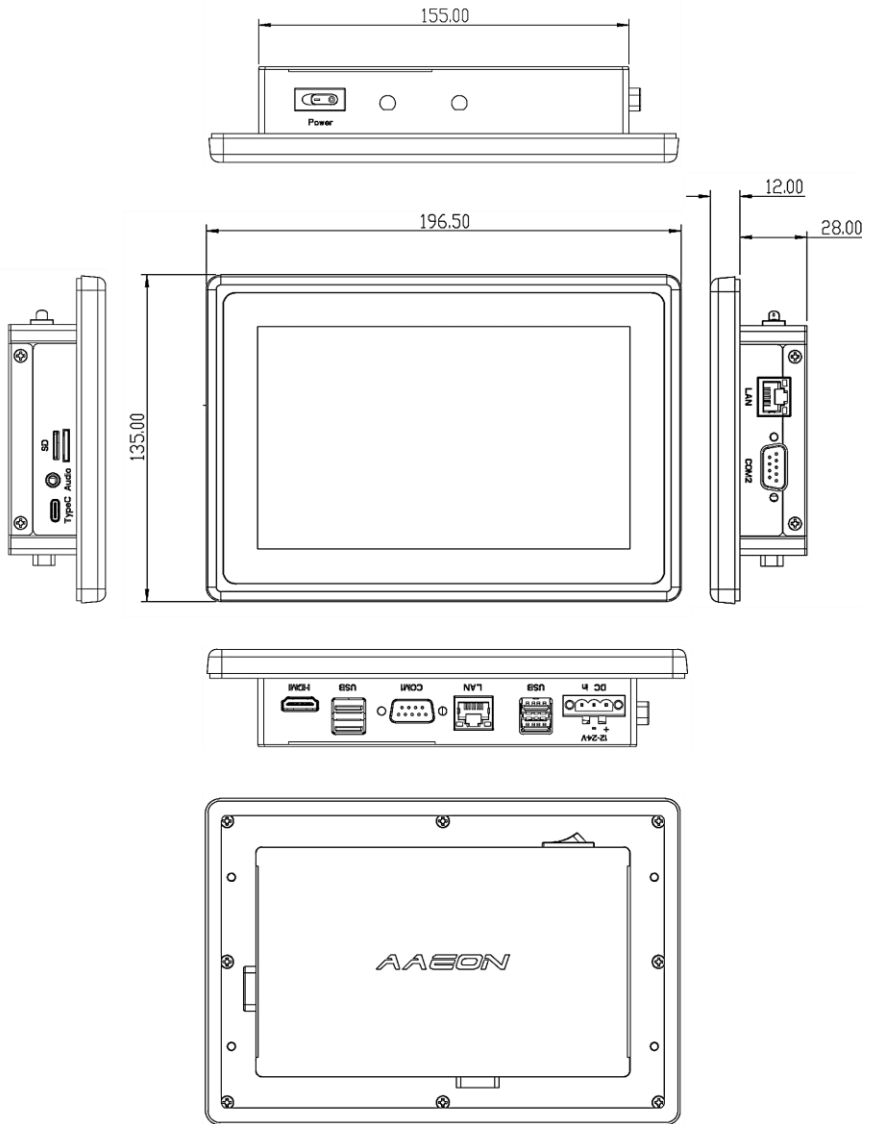
Touchscreen

Type	Projected Capacitive Multi-Touch
Light Transmission	90%

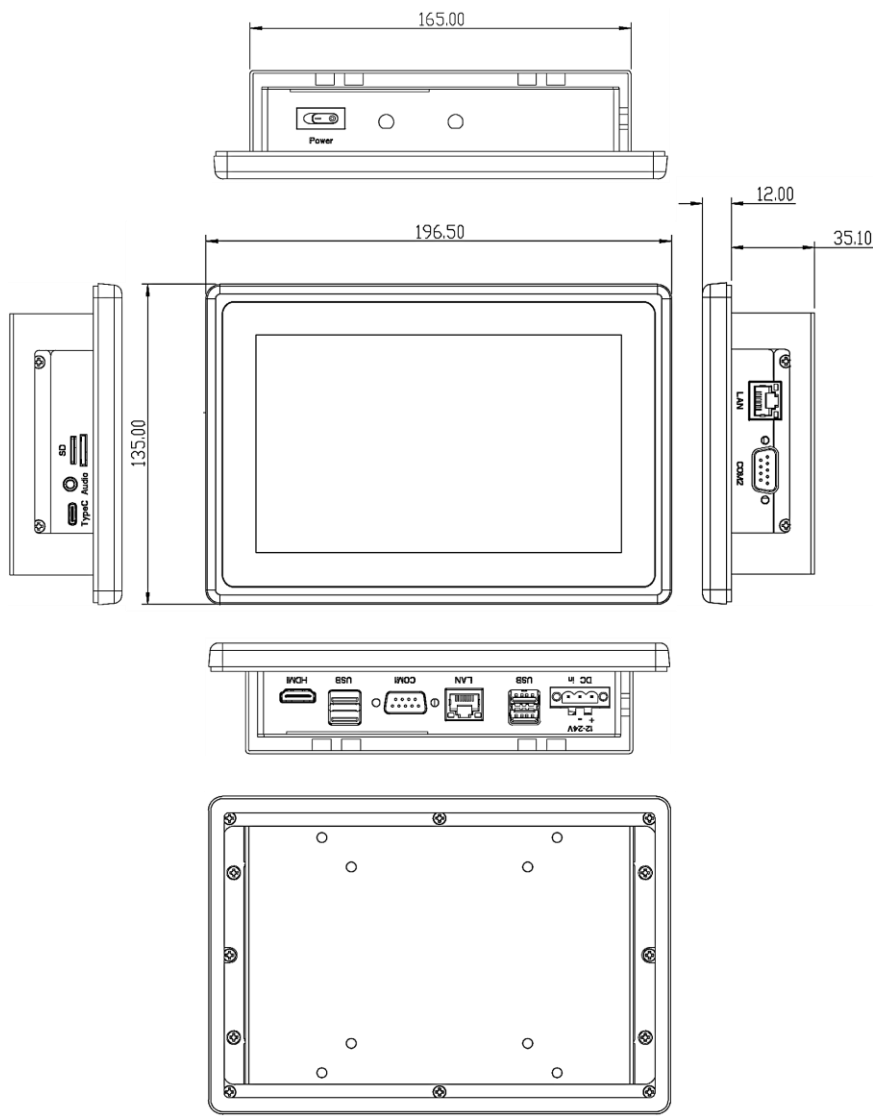
Chapter 2

Hardware Information

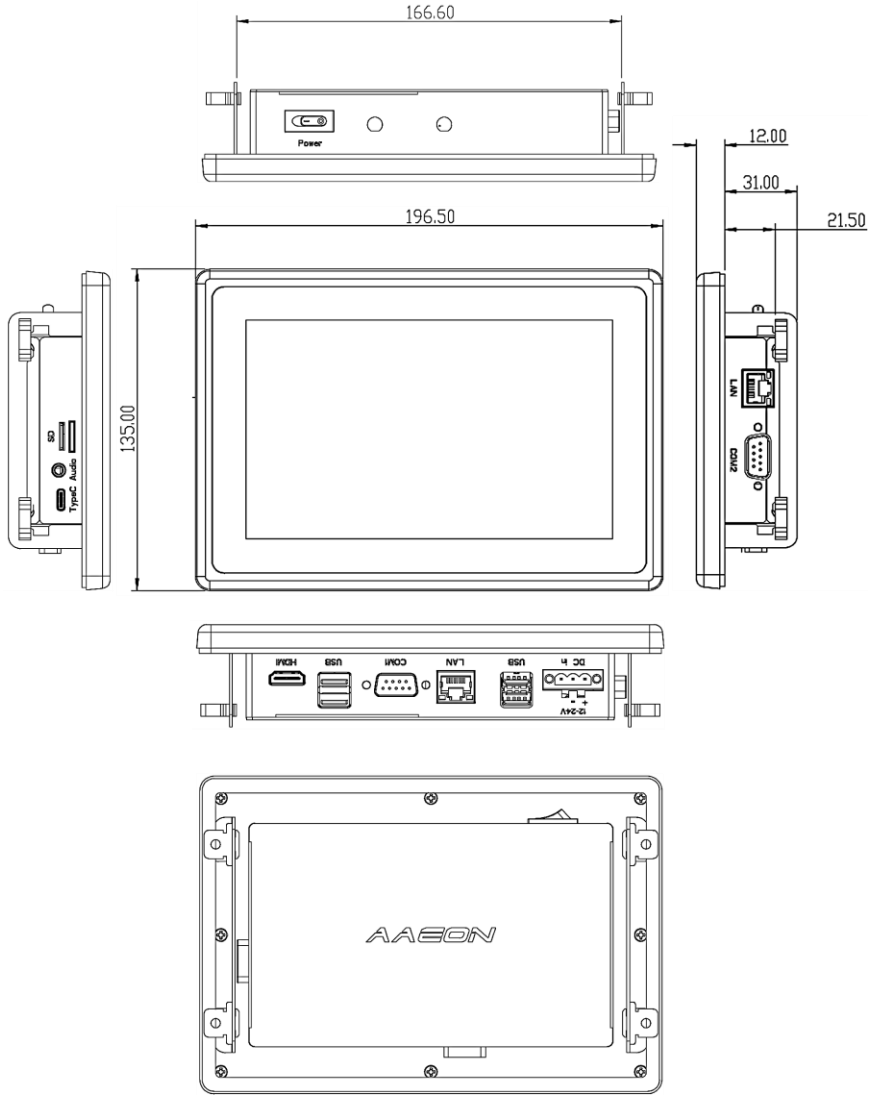
2.1 Dimensions



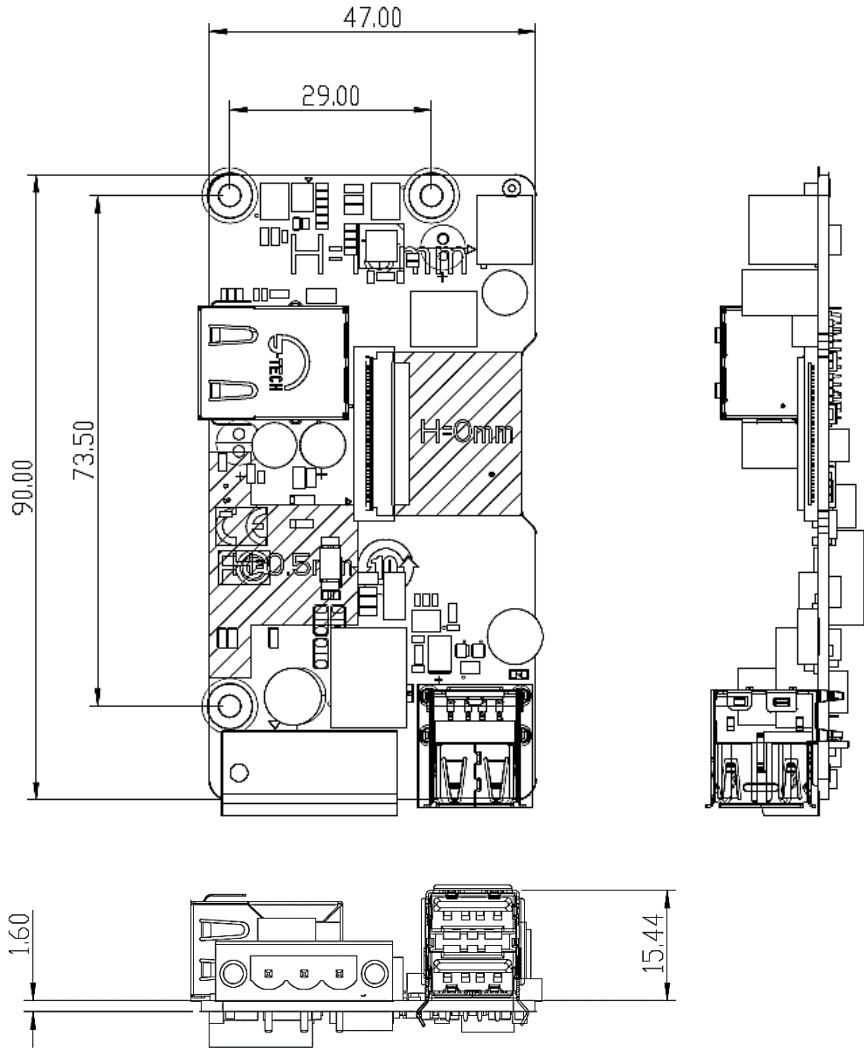
With VESA Mount

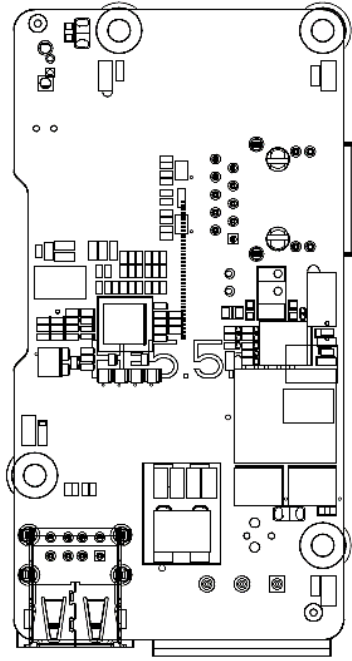


With Panel Mount



Power Board Dimensions

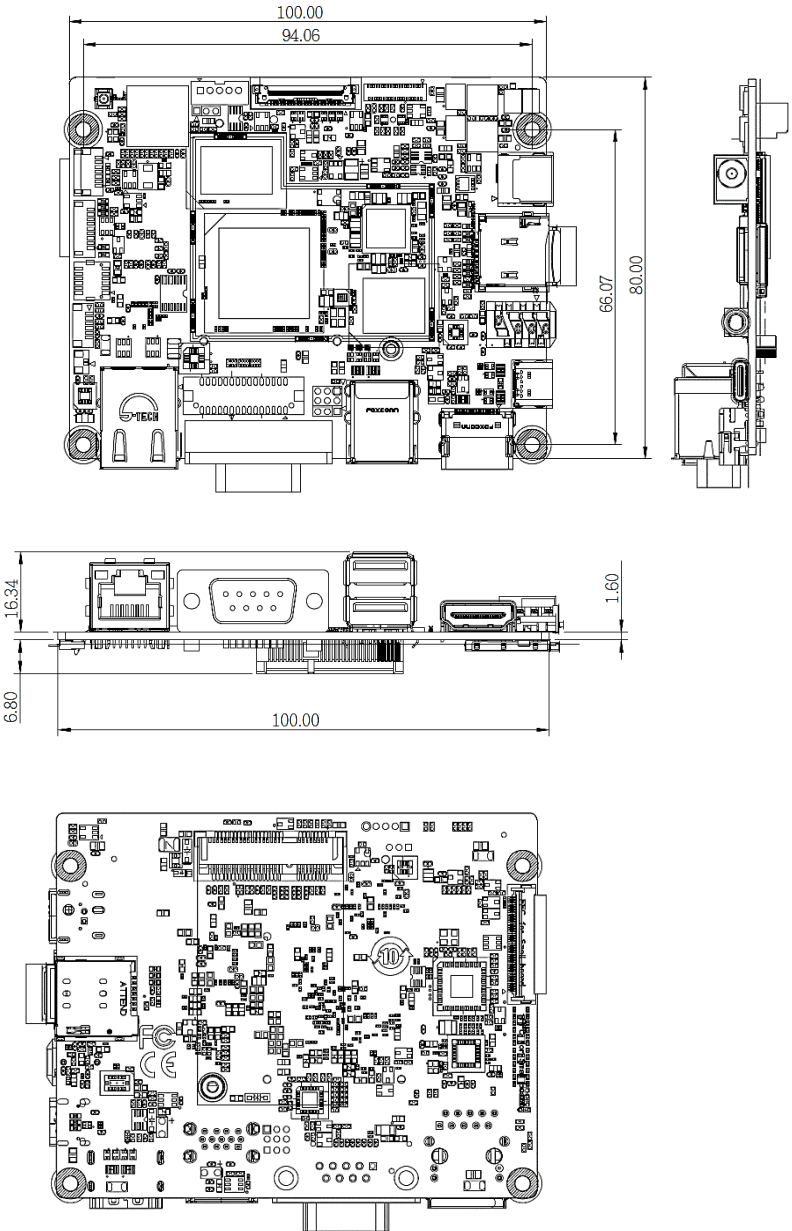




PCB Dimensions

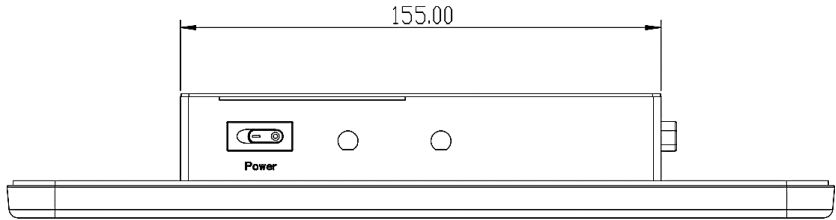
7" WSVGA Android Based Panel PC

ACP-1078



2.2 Connectors

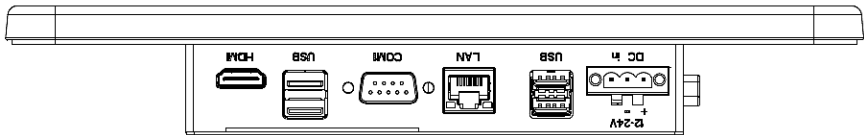
2.2.1 Upper Side View



Function

Power Power Switch. Press for 2 seconds to turn ON/OFF.

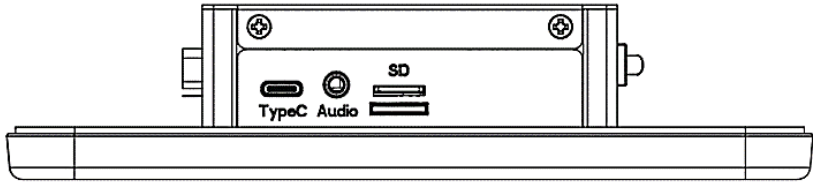
2.2.2 Bottom Side View



Function

HDMI	HDMI Type-A Port for HDMI Cable
USB	USB Type-A Port for USB 2.0 and USB 3.2 Gen 1
COM 1	DB-9 Port for RS-232/422/485
LAN	Giga LAN Port
DC In	Phoenix Connector for 12V ~ 24V DC Input

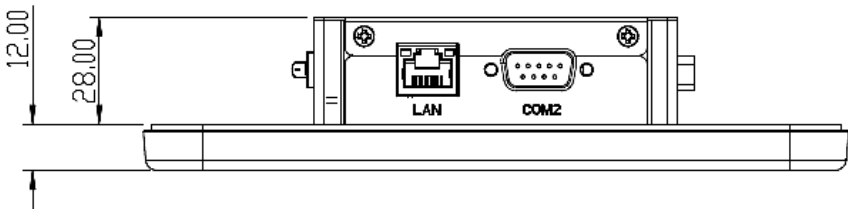
2.2.3 Left Hand Side View



Function

USB	USB 3.2 Gen 1 Type-C OTG Port
Audio	4-pole Audio Jack for Microphone/Earphone
SD	Micro SD Card Socket (Push-Push Type)
Nano SIM	Nano SIM Card Socket (Push-Push Type with Tray)

2.2.4 Right Hand Side View



Function

LAN*	Giga LAN Port
COM 2	DB-9 Port for RS-232

Note: This port supports Wide Area Network (WAN) with Debian OS.

Note: This port only supports Local area network (LAN) with Android OS.

2.3 List of Connectors

Please refer to the table below for all of the board's connectors that you can configure for your application

Connector List

Power Button: On/Off

HDMI Port

USB 3.2 Gen 1/USB 2.0 Port

COM Port

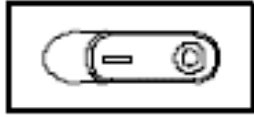
RJ-45 LAN Port

USB 3.2 Gen 1 Type-C OTG

Audio Jack w/ Mic Function

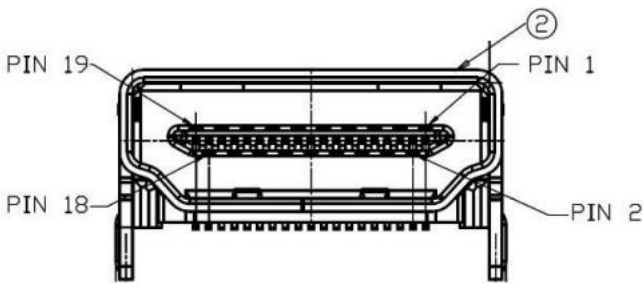
Nano SIM Card

2.3.1 Power Button: On/Off



POWER

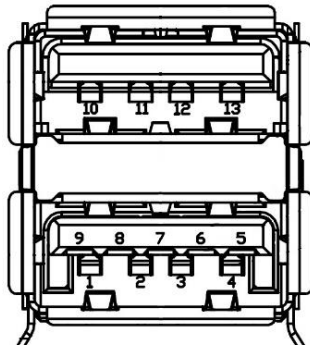
2.3.2 HDMI Port



Pin	Pin Name	Signal Type	Signal Level
1	HDMI_TX2P_CONN	DIFF	
2	GND	GND	GND
3	HDMI_TX2N_CONN	DIFF	
4	HDMI_TX1P_CONN	DIFF	
5	GND	GND	GND
6	HDMI_TX1N_CONN	DIFF	
7	HDMI_TX0P_CONN	DIFF	
8	GND	GND	GND
9	HDMI_TX0N_CONN	DIFF	
10	HDMI_TXCP_CONN	DIFF	
11	GND	GND	GND
12	HDMI_TXCN_CONN	DIFF	
13	PORT_CEC	OUT	
14	N.C.	N/A	N/A
15	HDMI_SCL	I/O	
16	HDMI_SDA	I/O	

Pin	Pin Name	Signal Type	Signal Level
17	GND	GND	GND
18	VCC5V_HDMI	PWR	+5V
19	PORT_HPDP	IN	

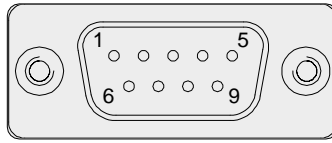
2.3.3 USB 3.2 Gen 1/USB 2.0 Port



Pin	Pin Name	Signal Type	Signal Level
1	5V_USB_C	PWR	+5V
2	USB3_DM_C	DIFF	
3	USB3_DP_C	DIFF	
4	GND	GND	GND
5	USB3_SSRXN_C	DIFF	
6	USB3_SSRXP_C	DIFF	
7	GND	GND	GND
8	USB3_SSTXN_C	DIFF	
9	USB3_SSTXP_C	DIFF	
10	5V_USB_C	PWR	+5V
11	USB2_N_C	DIFF	
12	USB2_P_C	DIFF	
13	GND	GND	GND

Note: The driving current of 5V_USB_C supports up to 2A.

2.3.4 COM Port



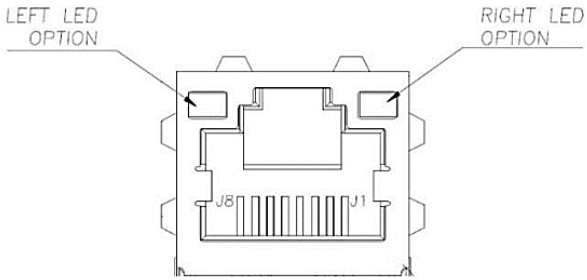
RS-232			
Pin	Pin Name	Signal Type	Signal Level
1	DCD	IN	
2	RX	IN	
3	TX	OUT	+10V
4	DTR	OUT	+10V
5	GND	GND	GND
6	DSR	IN	
7	RTS	OUT	+10V
8	CTS	IN	
9	RI/+5V/+12V	IN/ PWR	+5V/+12V

RS-485			
Pin	Pin Name	Signal Type	Signal Level
5	GND	GND	GND
1	RS485_D-	I/O	+5V
2	RS485_D+	I/O	+5V

RS-422			
Pin	Pin Name	Signal Type	Signal Level
5	GND	GND	GND
1	RS422_TX-	OUT	±5V
2	RS422_TX+	OUT	±5V
3	RS422_RX+	IN	
4	RS422_RX-	IN	

Note: COM RS-232/422/485 mode can be set by APP settings. Default is RS-232.

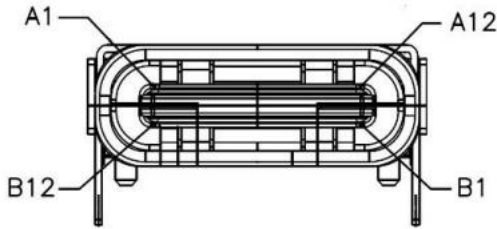
2.3.5 RJ-45 LAN Port 1



Pin	Pin Name	Signal Type	Signal Level
J1	LAN1_MDI0_P	DIFF	
J2	LAN1_MDI0_N	DIFF	
J3	LAN1_MDI1_P	DIFF	
J4	LAN1_MDI1_N	DIFF	
J5	LAN1_MDI2_P	DIFF	
J6	LAN1_MDI2_N	DIFF	
J7	LAN1_MDI3_P	DIFF	
J8	LAN1_MDI3_N	DIFF	

LED Color		Link Speed
Left	Right	-
OFF	Orange	10 Mbps
OFF	Green	100 Mbps
Yellow	OFF	1000 Mbps

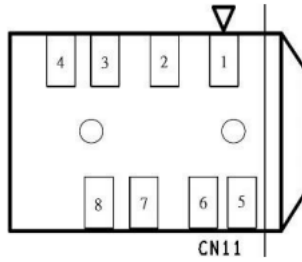
2.3.6 USB 3.2 Gen 1 Type-C OTG



Pin	Pin Name	Signal Type	Signal Level
A1	GND	GND	GND
A2	TYPECO_TX1P_C	DIFF	
A3	TYPECO_TX1N_C	DIFF	
A4	VBUS_TYPEC	PWR	
A5	TYPECC1	I/O	
A6	TYPECO_DP_C	DIFF	
A7	TYPECO_DM_C	DIFF	
A8	N.C.	N/A	N/A
A9	VBUS_TYPEC	PWR	
A10	TYPECO_RX2N_C	DIFF	
A11	TYPECO_RX2P_C	DIFF	
A12	GND	GND	GND
B1	GND	GND	GND
B2	TYPECO_TX2P_C	DIFF	
B3	TYPECO_TX2N_C	DIFF	
B4	VBUS_TYPEC	PWR	
B5	TYPECC2	I/O	
B6	TYPECO_DP_C	DIFF	
B7	TYPECO_DM_C	DIFF	
B8	N.C.	N/A	N/A
B9	VBUS_TYPEC	PWR	
B10	TYPECO_RX1N_C	DIFF	
B11	TYPECO_RX1P_C	DIFF	
B12	GND	GND	GND

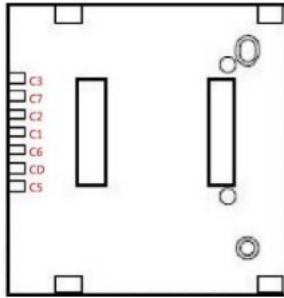
Note: The driving current of VBUS_TYPEC supports up to 2A.

2.3.7 Audio Jack w/ Mic Function



Pin	Pin Name	Signal Type	Signal Level
1	GND	GND	
2	HP_DET	IN	
3	HP_J_R	OUT	
4	N.C.	N/A	N/A
5	N.C.	N/A	N/A
6	HP_MIC1N	IN	
7	N.C.	N/A	N/A
8	HP_J_L	OUT	

2.3.8 Nano SIM Card



Pin	Pin Name	Signal Type	Signal Level
C3	USIM_CLK	IN	
C7	USIM_DATA	I/O	
C2	USIM_RESET	IN	
C1	USIM_PWR	PWR	
C6	N.C.	N/A	
CD	Card Detect	IN	
C5	GND	GND	GND