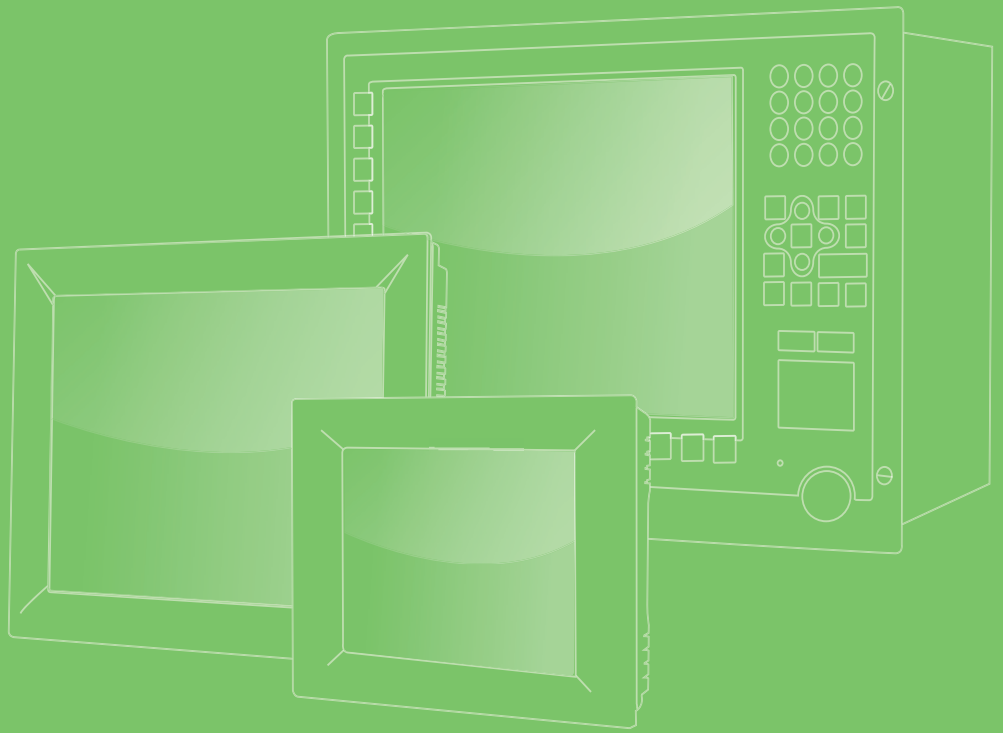


User Manual



PPC-112W/115W

11.6"/15.6" All-in-One Panel PC with
Rockchip RK3399 Processor

ADVANTECH

VICPAS
HMI Parts Center

Enabling an Intelligent Planet

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Product Warranty (2 years)

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If you believe your product is defective, follow the steps outlined below.

1. Collect all the information about the problem encountered. (For example, CPU speed, Advantech products used, other hardware and software used, etc.) Note anything abnormal and list any on-screen messages displayed when the problem occurs.
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5. Write the RMA number on the outside, and ship the package prepaid to your dealer.

Declaration of Conformity

CE

This product has passed the CE test for environmental specifications when shielded cables are used for external wiring. We recommend the use of shielded cables. This type of cable is available from Advantech. Please contact your local supplier for ordering information.

Test conditions for passing also include the equipment being operated within an industrial enclosure. In order to protect the product from damage caused by electrostatic discharge (ESD) and EMI leakage, we strongly recommend the use of CE-compliant industrial enclosure products.

FCC Class A

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference. In this event, users are required to correct the interference at their own expense.

甲類資訊技術設備

甲類設備為其他符合甲類設備限制值之資訊技術設備，而非符合乙類資訊技術設備的限制值；雖然不可限制此類設備之行銷，但使用場所必須被限制，不得進行居住的環境中，且應於其機器本體及使用說明書中含有下列警語：

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此為甲類資訊技術設備，於居住環境中使用時，可能會造成射頻擾動，在此種情況下，使用者會被要求採取某些適當的對策。

Technical Support and Assistance

1. Visit the Advantech website at <http://support.advantech.com> to obtain the latest product information.
2. Contact your distributor, sales representative, or Advantech's customer service center for technical support if you need additional assistance. Please have the following information to hand before calling:
 - Product name and serial number
 - Description of your peripheral attachments
 - Description of your software (operating system, version, application software, etc.)
 - A complete description of the problem
 - The exact wording of any error messages

Safety Instructions

1. Read these safety instructions carefully.
Veuillez lire attentivement ce manuel d'instructions de sécurité.
2. Retain this startup manual for future reference.
Veuillez conserver ce manuel d'instructions pour référence ultérieure.
3. Disconnect the equipment from all power outlets before cleaning. Use only a damp cloth for cleaning. Do not use liquid or spray detergents.
Débranchez l'appareil de toutes les prises de courant avant le nettoyage. Nettoyez-le uniquement à l'aide d'un chiffon humide. Ne pas utiliser de détergents liquides ou pulvérisateurs.
4. For pluggable equipment, the power outlet socket must be located near the equipment and easily accessible.
Pour les appareils enfichables, la prise de courant doit être placée près de l'appareil et facilement accessible.
5. Protect the equipment from humidity.
Protégez l'appareil contre l'humidité.
6. Place the equipment on a reliable surface during installation. Dropping or letting the equipment fall may cause damage.
Placez l'appareil sur une surface fiable pendant l'installation. L'abandon ou la chute de l'appareil pourrait causer des dommages.
7. The openings on the enclosure are for air convection. Protect the equipment from overheating. Do not cover the openings.
Les ouvertures du boîtier sont pour la convection d'air. Protégez l'appareil contre la surchauffe. Ne couvrez pas les ouvertures.
8. Warning: Ensure that the voltage of the power source is correct before connecting the equipment to a power outlet. The power outlet socket must have a grounded connection.
Attention: Assurez-vous que la tension de la source d'alimentation est correcte avant de connecter l'appareil à une prise de courant. La prise de courant doit avoir une bonne connexion mise à la terre.
9. Position the power cord away from high-traffic areas. Do not place anything over the power cord.
Placez le cordon d'alimentation à l'écart des zones à fort trafic. Ne placez rien sur le cordon d'alimentation.
10. All cautions and warnings on the equipment should be noted.
Attention à toutes les précautions et avertissements indiqués sur l'appareil.
11. If the equipment is unused for a long time, disconnect it from the power source to avoid damage from transient overvoltage.
Si l'appareil n'est pas utilisé pendant une longue période, déconnectez-le de la source d'alimentation pour éviter les dommages causés par une surtension transitoire.
12. Never pour liquid into an opening. This may cause fire or electrical shock.
Ne versez jamais de liquide dans une ouverture. Sinon, cela pourrait provoquer un incendie ou un choc électrique.
13. Never open the equipment. For safety reasons, the equipment should be opened only by qualified service personnel.
N'ouvrez jamais l'appareil. Pour des raisons de sécurité, l'appareil ne doit être ouvert que par un technicien qualifié.
14. If one of the following occurs, have the equipment checked by qualified service personnel:
Si l'un des cas suivants se produit, demandez aide à un technicien qualifié:

- The power cord or plug is damaged.
Le cordon d'alimentation ou la fiche est endommagé.
 - Liquid has penetrated into the equipment.
Le liquide a pénétré dans l'appareil.
 - The equipment has been exposed to moisture.
L'appareil a été exposé à l'humidité.
 - The equipment is malfunctioning or does not function according to the user manual.
L'appareil est défectueux ou ne fonctionne pas conformément aux instructions.
 - The equipment has been dropped or damaged.
L'appareil a été abandonné et endommagé.
 - The equipment shows obvious signs of breakage.
L'appareil montre des signes évidents de rupture.
15. Do not leave the equipment in an environment with a storage temperature of below -20° C/-4° F or above 60° C/140° F as this may cause damage. The equipment should be maintained in a controlled environment.
Ne laissez pas cet appareil dans un environnement dont la température de stockage est inférieure à -20° C/-4° F ou supérieure à 60° C/140° F, car cela pourrait causer des dommages. L'appareil doit être surveillé dans l'environnement.
16. CAUTION: Batteries are at risk of exploding if incorrectly replaced. Replace only with the same or equivalent type as recommended by the manufacturer. Discard used batteries according to the manufacturer's instructions.
ATTENTION: Il y a danger d'explosion s'il y a remplacement incorrect de la pile. Remplacer uniquement avec une pile du même type ou d'un type équivalent recommandé par le constructeur.
17. In accordance with the IEC 704-1:1982 specifications, the sound pressure level at the operator's position does not exceed 70 dB (A).
Conformément aux spécifications de l'IEC 704-1:1982, le niveau de pression acoustique à la position de l'opérateur ne dépasse pas 70 dB (A).
18. PPC-112W/PPC-115W devices are intended to be supplied by a UL-certified power supply (Adapter: ADP-36PH) suitable for use at a TMA of 40 °C/104 °F min., with output rated 12V, 3A min., ES1 (or SELV). If you require further assistance, contact Advantech for more information.
Le produit PPC-112W/PPC-115W doit être alimenté par une alimentation certifiée UL (Adaptateur: ADP-36PH) approprié pour l'utilisation à une température de 40 °C/104 °F au minimum, et la sortie nominale est 12V, 3A min., ES1 (ou SELV). Si vous avez besoin d'aide supplémentaire, veuillez contacter Advantech pour plus d'informations.
19. DISCLAIMER: These instructions are provided in accordance with IEC 704-1 standards. Advantech disclaims all responsibility for the accuracy of any statements contained herein.
AVERTISSEMENT: Ces instructions sont fournies conformément aux normes IEC 704-1. Advantech décline toute responsabilité quant à la précision de toute déclaration contenue dans le présent document.
20. CAUTION: This product is not intended for use by children and is not suitable for use in locations where children are likely to be present (this product is not a toy).
ATTENTION: Ce produit n'est pas un jouet et devrait être gardé hors de la portée des enfants.
21. Keep the monitor away from direct sunlight, very strong bright lights, and heat sources. Lengthy exposure to such environments may result in discoloration and damage to the monitor.
Veuillez ne pas placer les écrans dans le rayonnement solaire direct, dans la

haute lumière et dans d'autres sources de chaleur. L'exposition prolongée dans cet environnement peut entraîner la décoloration et l'endommagement de l'affichage.

安全指示

1. 請仔細閱讀此安全操作說明。
2. 請妥善保存此用戶手冊供日後參考。
3. 用濕抹布清洗設備前，請從插座拔下電源線。請不要使用液體或去汙噴霧劑清洗設備。
4. 對於使用電源線的設備，設備周圍必須有容易接觸到的電源插座。
5. 請不要在潮濕環境中使用設備。
6. 請在安裝前確保設備放置在可靠的平面上，意外跌落可能會導致設備損壞。
7. 設備外殼的開口是用於空氣對流，從而防止設備過熱。請不要覆蓋這些開口。
8. 當您連接設備到電源插座上前，請確認電源插座的電壓是否符合要求。
9. 請將電源線佈置在人們不易絆到的位置，並不要在電源線上覆蓋任何雜物。
10. 請注意設備上的所有警告和注意標示。
11. 如果長時間不使用設備，請將其同電源插座斷開，避免設備被超標的電壓波動損壞。
12. 請不要讓任何液體流入通風口，以免引起火災或者短路。
13. 請不要自行打開設備。為了確保您的安全，請由經過認證的工程師來打開設備。
14. 如遇下列情況，請由專業人員來維修：
 - 電源線或者插頭損壞；
 - 設備內部有液體流入；
 - 設備曾暴露在過於潮濕的環境中使用；
 - 設備無法正常工作，或您無法通過用戶手冊來使其正常工作；
 - 設備跌落或者損壞；
 - 設備有明顯的外觀破損。
15. 請不要把設備保存在超出我們建議的溫度範圍的環境，即不要低於 -20°C (-4°F) 或高於 60°C (140°F)，否則可能會損壞設備。
16. 注意：如果電池放置不正確，將有爆炸的危險。因此，只可以使用製造商推薦的同一種或者同等型號的電池進行替換。請按照製造商的指示處理舊電池。
17. 根據 IEC 704-1:1982 的規定，操作員所在位置的音量不可高於 70dB(A)。
18. 限制區域：請勿將設備安裝於限制區域使用。
19. 免責聲明：該安全指示符合 IEC 704-1 的要求。研華公司對其內容的準確性不承擔任何法律責任。
20. 使用過度恐傷害視力。
21. 使用 30 分鐘請休息 10 分鐘。
22. 未滿 2 歲幼兒不看螢幕，2 歲以上每天看螢幕不要超過 1 小時。
23. 本產品為國內裝置使用時，其電源僅限使用架構電源模組所提供電源直流輸入，不得使用交流電源及附加其他電源轉換裝置提供電源這者，其電源輸入電壓及電流請依說明書規定使用。
24. 請避免顯示器遭受陽光直射，並遠離強光及其他熱源。若長時間接觸此類環境，顯示器可能會褪色及損壞。

Safety Precautions - Static Electricity

Follow the simple precautions detailed below to protect yourself from harm and the products from damage.

- To avoid electrical shock, always disconnect the power from the PC chassis before manual handling the device. Do not touch any components on the CPU card or other cards while the equipment is powered on.
- Disconnect the power before executing any configuration changes. A sudden rush of power after connecting a jumper or installing a card may damage sensitive electronic components.

Battery Information

Batteries, battery packs, and accumulators should not be disposed of as unsorted household waste. Please use the public collection system to return, recycle, or treat them in compliance with local regulations.



Manual Conventions

Warning! Warnings indicate conditions that, if not observed, can cause personal injury!



Caution! Cautions are included to prevent hardware damage and data loss.



For example, “Batteries are at risk of exploding if replaced with an incorrect type. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer’s instructions.

Par exemple, “Si la batterie est remplacée par un modèle inapproprié, il y a un risque d’explosion. Remplacer les produits identiques ou équivalents recommandés par le fabricant. Traitement des piles usagées selon les instructions du fabricant.”

Note! Notes provide additional information.



Revision

Date	Version	Description/Change
March 2023	1.0	Initial

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Chapter 1

General Information

This chapter details general information regarding PPC-112W/115W.

- Introduction
- Specifications
- Dimensions

1.1 Introduction

PPC-112W/115W is 11.6"/15.6" All-in-One PPC with Rockchip RK3399 processor with Android or Debian OS pre-installed. Featuring wide screen display and 10 points Pcap multi-touch, IP65 rated front panel, VESA or panel mounting support, PPC-112W provides friendly experience and reliable integration possibility. External 2 x USB 2.0/3.0, 1 x RS-232 expands more flexible connection. Pre-installed Android or Debian, PPC-112W/115W helps customer visiting web information quickly in various IoT applications.

1.2 Key Features

- True flat wide display screen with Pcap multi-touch
- Embedded Rockchip RK3399 processor, Dual-core Cortex-A72 up to 1.8GHz and Quad-core Cortex-A53 up to 1.4GHz
- Onboard 4GB LPDDR4-1333 memory, 32GB eMMC NAND Flash
- IP65 rated front panel protection
- Supports VESA 100 and panel mounting (optional)
- Supports Android and Debian

1.3 Front Panel

The PPC-112W/115W front panel is a true-flat color TFT LCD touchscreen with Projected Capacitive Multi-Touch. The front panel is IP65 rated for dust and water tolerance (Figure 1.1).



Figure 1.1 Front Panel

1.4 Rear Panel

The PPC-112W/115W rear panel features four VESA mount (100 x 100 mm/3.93 x 3.93 in) holes located on its bottom side, as demonstrated below:

VESA mount screws: 4 x M4 screws

Screw depth: 8 mm/0.31 in (max.)



Figure 1.2 Rear Panel

1.5 Panel Bottoms

The system's I/O, located on the bottom of the device, (Figures 1.3) are listed below:

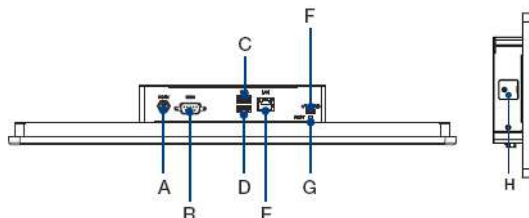


Figure 1.3 Panel PC Bottom

- A. DC-In
- B. 1 x RS-232
- C. 1 x USB 2.0
- D. 1 x USB 3.0
- E. 1 x LAN
- F. 1 x Micro USB OTG
- G. 1 x Reset button
- H. 1 x Micro SD slot (with lock catch)

1.6 Dimensions

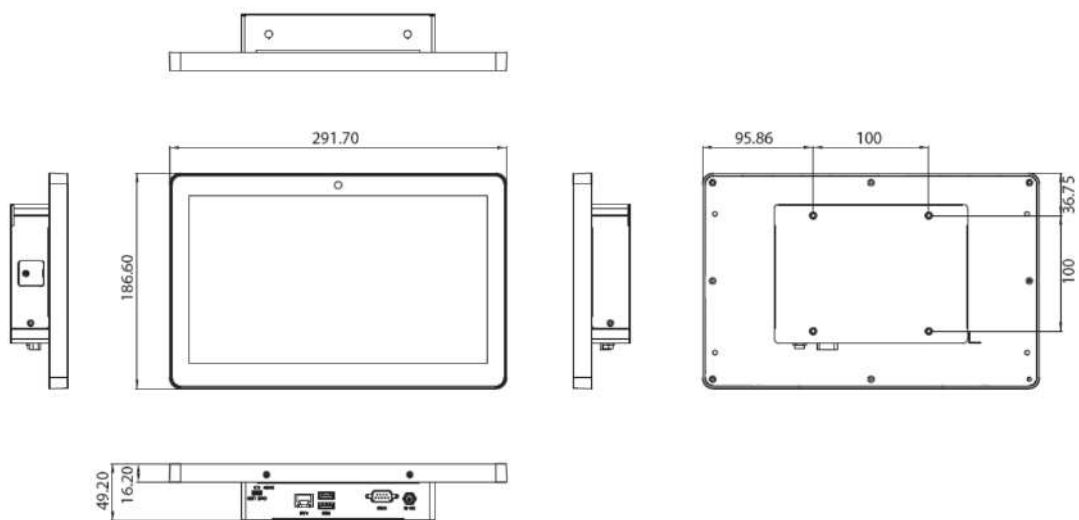


Figure 1.4 PPC-112W Dimensions

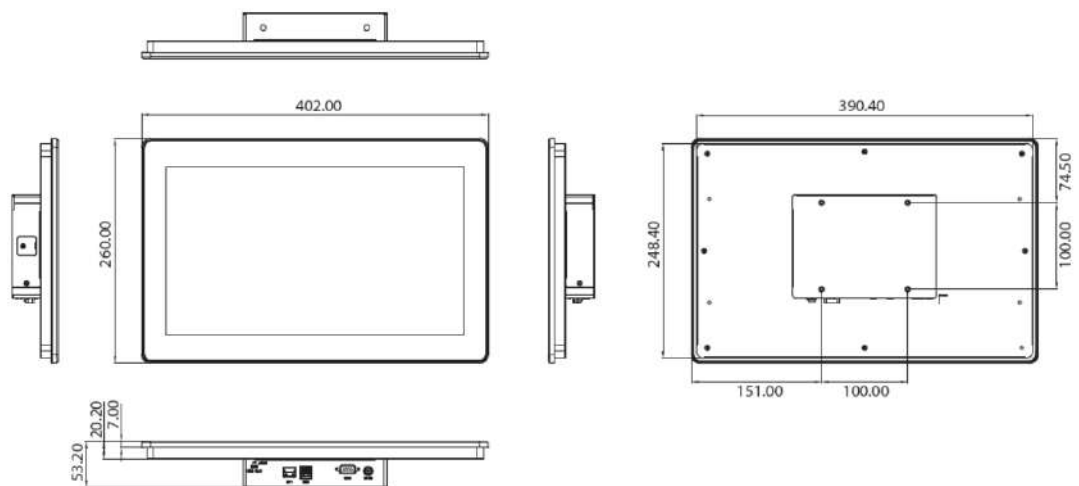


Figure 1.5 PPC-115W Dimensions

1.7 Specifications

Table 1.1: Specifications		
	PPC-112W	PPC-115W
CPU	Rockchip RK3399 Big.Little architecture: Dual Cortex-A72 + Quad Cortex-A53 (64 bit)	
GPU	Mali-T860	
Memory	On-board 4GB LPDDR4-1333	
Network (LAN)	1 x 10/100/1000 Mbps	
I/O	1 x USB 2.0, 1 x USB 3.0, 2 x USB 2.0 via pin header 1 x Micro USB OTG 1 x RS-232, 1 x RS-232 via pin header 1 x DC-In 5 x GPIO via pin header (3.3V TTL level)	
Expansion	1 x M.2 2230 E-key slot	
Watchdog Timer	Timeout duration: 21s (max.)/10s (default)	
Storage	32GB eMMC NAND Flash; 1 x micro SD slot	
Input Voltage	12V _{DC} , 3A	
Power Consumption	19W	20W
Operating System	Android, Debian	
Weight	1.78 kg/3.92 lb	2.6 kg/5.7 lb
Dimensions	291.7 x 186.6 x 49.2 mm/11.5 x 7.3 x 1.9 in	402 x 260 x 53.2 mm/15.8 x 10.2 x 2.1 in
Mount Options	VESA 100	
Size	11.6"	15.6"
Resolution	1366 x 768	1920 x 1080
Viewing Angle	45 (left), 45 (right), 20 (up), 40 (down)	85 (left), 85 (right), 85 (up), 85 (down)
Brightness	250	250
Contrast Ratio	500	800
Backlight Lifetime	15,000 hrs (min.)	
Type	Projected-capacitive multi touch	
Light Transmission	>88%	
Interface	USB	
Operating Temperature	0 ~ 50° C/32 ~ 122° F	
Storage Temperature	-20 ~ 60° C/-4 ~ 140° F	
Humidity	10 ~ 95% @ 40° C/104° F (non-condensing)	

Shock	10 G peak acceleration (11 ms duration), in accordance with IEC 60068-2-27
Vibration	Random vibration test 5 ~ 500 Hz, 0.5 Grms, in accordance with IEC 60068-2-64
EMC	CE, FCC Class B, BSMI
Safety	CB, UL, CCC, BSMI
Ingress Protection	IP65-rated front panel

Note! *The test conditions for the power consumption values provided above were as follows:*






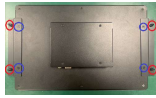



Memory: 4GB LPDDR4-1333

Storage: 32G eMMC NAND Flash

OS: Android 11

Software: antutubenchmark9.5.8w.apk

1.8 Ordering Information

Table 1.2: Ordering Information		
Part Number	Description	Image
PPC-112W-PK92AA PPC-115W-PK92AB PPC-112W-PK92DA PPC-115W-PK92DB	All-in-One Panel PC with Rockchip RK3399 processor	
98R3P115W10	Wi-Fi module with antenna	
98R3P112W00	Panel mount kit for PPC-112W	
98R3P115W00	Panel mount kit for PPC-115W	
PPC-ARM-A03	Arm mount VESA standard	
PPC-174T-WL-MTE	Wall mount kit	
PPC-Stand-A1E	Stand kit	

Chapter **2**

System Installation and Setup

- SD card Installation
- Wireless LAN Card Installation
- Mounting the System

2.1 Transport and Unpacking

When accepting a delivery, please check the packaging for visible transportation damage and check the delivery for completeness by comparing it with your order form. If you notice any shipping damage or inconsistencies between the contents and your order, please inform the responsible delivery service immediately. During transportation, the PPC system should be protected from excessive mechanical stress. If the PPC system is transported or stored without packaging, shocks, vibrations, pressure, and moisture may impact the unprotected unit. Additionally, damaged packaging indicates that ambient conditions have already had a massive impact on the device. Therefore, please use the original packaging during transportation and storage.

If the PPC system is transported in cold weather or is exposed to extreme variations in temperature ensure that moisture (condensation) does not build up on or inside the HMI device. Moisture can result in short circuits and damage to the device.

To avoid this, store the PPC system in a dry environment and bring the system to room temperature before powering it up. If condensation occurs, a delay time of approximately 12 hours must be allowed to ensure that the system is completely dry before being switched on.

2.2 Installation Procedures

When installing system hardware, adhere to the following order:

1. Install peripheral devices
2. Mount the panel PC
3. Configure the system

2.2.1 SD Card Installation

1. Remove screw of SD card bracket.



Figure 2.1 Remove SD card bracket

2. Insert SD card.

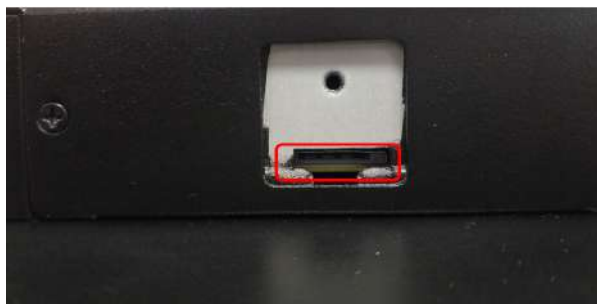


Figure 2.2 Insert SD card

2.2.2 Wireless LAN Card Installation

PPC-112w/115w provides M.2 key Express slot and allows users to expend functions like Wi-Fi and Bluetooth type modules.

1. Remove 6pcs screws as below figure, and then remove the rear cover.



Figure 2.3 Retention screws on rear cover

2. Insert wireless card on motherboard.



Figure 2.4 Installing the wireless LAN card

3. Assemble antenna cable to rear cover.



Figure 2.5 Antenna cable assemble on rear cover

4. Connect the antenna cables with wireless LAN card.



Figure 2.6 Connect antenna cable with wireless LAN card

5. Assemble rear cover, and install external antenna.



Figure 2.7 Location of external antenna

2.3 Mounting the System

Warning! When mounting the panel PC, more than one person should perform the installation to prevent accidental damage to the panel or personal injury.



Le comité constate qu'el-nasr " mounting, Plus d'une personne installation to prevent the cadre accidental damage to the personal injury.

The panel PC supports various mounting options, as listed below.

- Wall mounting
- Panel mounting
- Arm mounting
- Stand mounting

2.3.1 Wall Mounting

To mount the panel PC onto a wall, follow the instructions below (see Figure 2.20 for additional reference).

1. Select the location on the wall for the wall mount plate.
2. Mark the locations of the two plate screws holes on the wall.
3. Drill two pilot holes at the marked locations on the wall.
4. Align the wall mount plate screw holes with the pilot holes.
5. Secure the mount plate to the wall by inserting screws into the two pilot holes and tightening them.

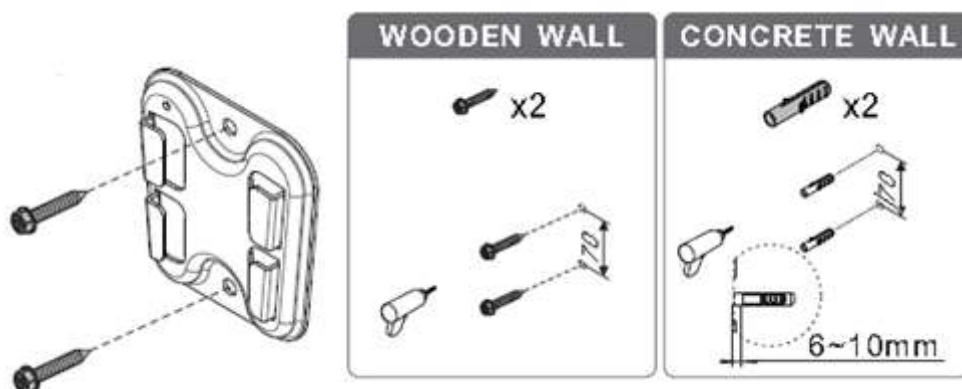


Figure 2.8 Wall mount plate

6. Insert four M4 screws into the holes on the panel PC and tighten them to secure the bracket to the rear panel.

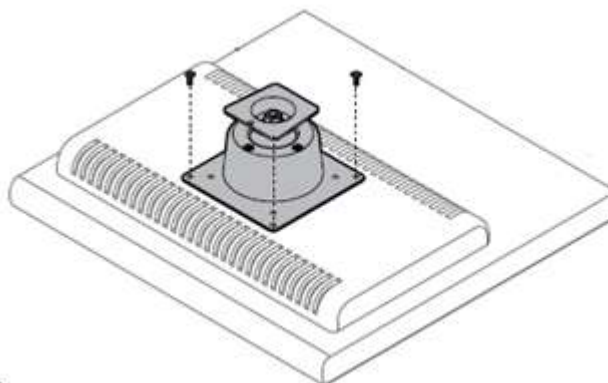
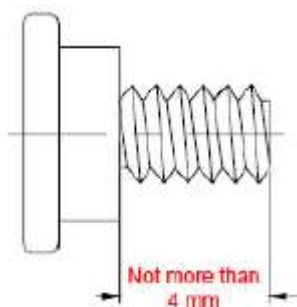


Figure 2.9 Rear Panel screw locations

Warning! Ensure that the thread depth of the screws on the rear panel does not exceed 4 mm (0.15 in).



Assurez-vous que la profondeur du filetage des vis sur le panneau arrière ne dépasse pas 4 mm.



7. To mount the panel PC on the wall, align the wall mount bracket attached to the panel PC with the wall mount plate on the wall and slide the panel PC downwards to hang the bracket on the mount plate.

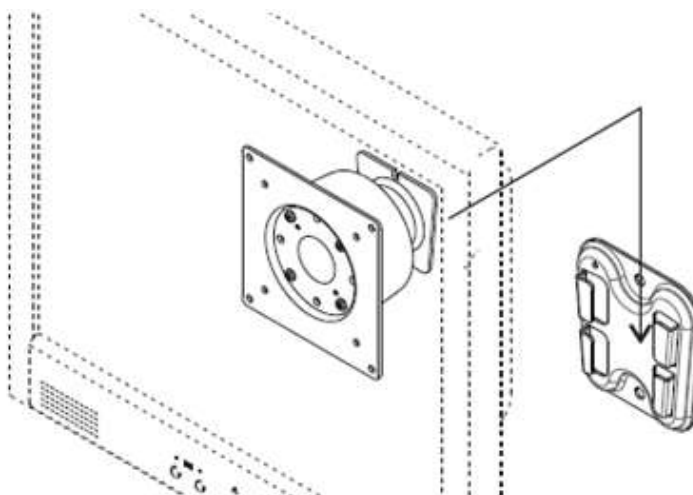


Figure 2.10 Mounting the panel PC on a wall

8. Secure the panel PC in place by tightening screws in the wall mount bracket.

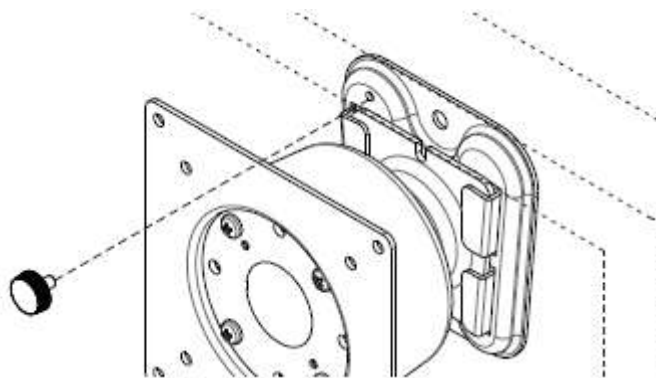


Figure 2.11 Securing the panel PC

2.3.2 Panel Mounting Kit 98R3P112W00 Installation with PPC-112W

Packing List

Please check and ensure the following items are in the kit box before installation:

1. Panel mount cover bracket * 1 pcs
2. Panel mount bracket * 2 pcs
3. M6*21L screw * 4 pcs
4. M4*6L screw * 4 pcs
5. Panel mount cover bracket sponge * 2pcs

Panel mounting kit installation

1. Remove 4 rubbers and 4 screws from rear cover, and reserve the 4 screws for next step.



Figure 2.12 Remove rear cover

2. Install panel mount cover bracket on PPC-112W with previous 4 screws. Stick 2 sponges at the bottom and make them align with panel mount cover bracket edge.

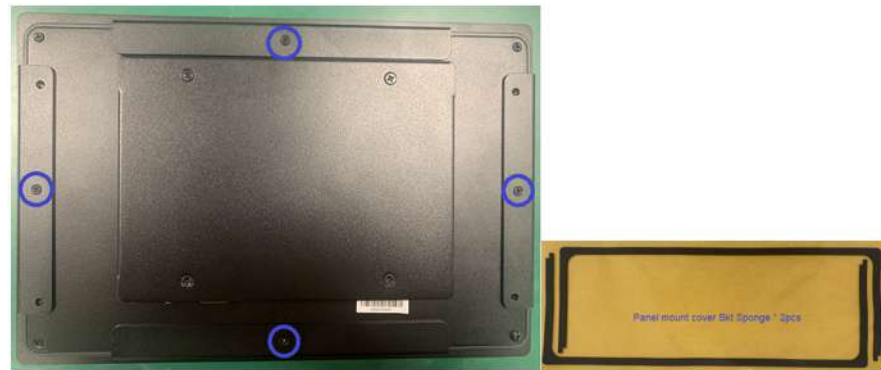


Figure 2.13 Install panel mount cover bracket

3. Install 2pcs panel mount brackets on both sides of PPC-112W with 4pcs M4*6L screws (shows in blue circle). Finally, fix them with 4pcs M6*12L panel mount screws (shows in red circle).



Figure 2.14 Install panel mount bracket

Installation sketch shows as below:

PPC-112W Panel Cutout Dimensions: 298.00 x 193.00 mm (11.73 x 7.60 in)

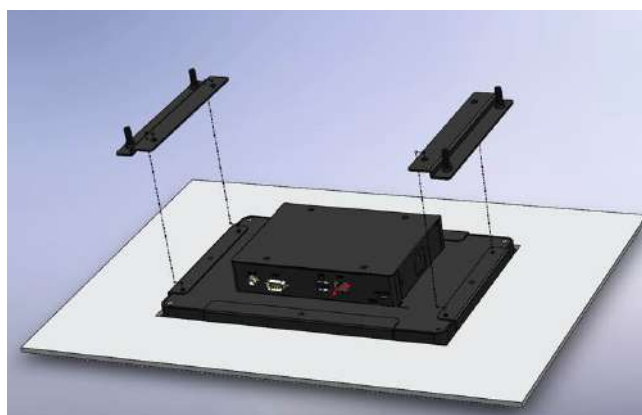


Figure 2.15 Fix panel mount brackets with screws

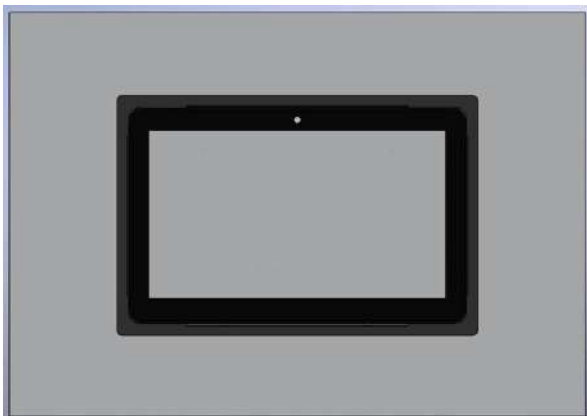


Figure 2.16 Panel mount front view

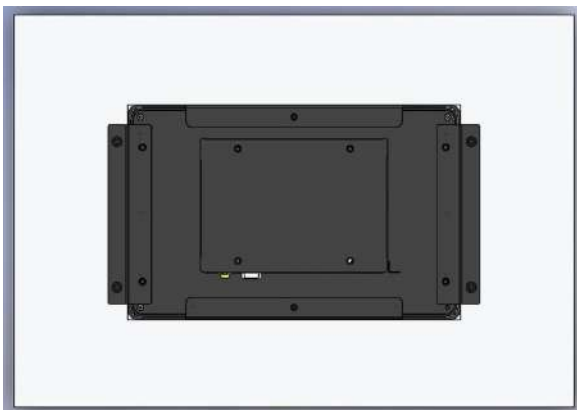


Figure 2.17 Panel mount rear view

2.3.3 Panel Mounting Kit 98R3P115W00 Installation with PPC-115W

Packing List

Please check and ensure the following items are in the kit box before installation:

1. Panel mount bracket * 2 pcs
2. M6*21L screw * 4 pcs
3. M4*6L screw * 4 pcs
4. Panel mount sponge * 4 pcs

Panel mounting kit installation

1. Remove 4 rubbers and 4 screws from rear cover, and reserve the 4 screws for next step.



Figure 2.18 Remove rear cover

2. Stick sponge-H & sponge-V sponges align with panel edge.

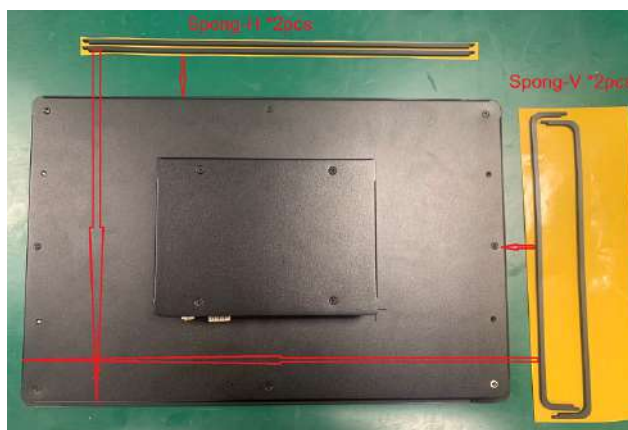


Figure 2.19 Stick sponge

3. Install 2pcs panel mount brackets on both sides of PPC-115W with 4pcs M4*6L screws (shows in blue circle). Finally, fix them with 4pcs M6*12L panel mount screws (shows in red circle).



Figure 2.20 Install panel mount bracket

PPC-115W Panel Cutout Dimensions: 392.00 x 250.00 mm (15.43 x 9.84 in)

2.3.4 Arm Mounting

PPC-112W/115W can be mounted on a VESA-compliant arm mount with a 100 mm (3.93 in) interface pad. To affix the panel PC to an arm mount, follow the steps below.

1. Refer to the installation instruction of the mounting arm to correctly mount the arm onto the surface as a base.
2. Align the retention screw holes on the mounting arm interface with VESA holes in the panel PC, and secure the panel PC with the four M4 retention screws.



Figure 2.21 Arm mount for panel PC

Warning! Ensure that the thread depth of the screws on the rear panel does not exceed 4 mm (0.15 in).



2.3.5 Stand Mounting

Before stand mounting, check that the product was shipped with the following items:

No.	Name	Qty.	Pic.	No.	Name	Qty.	Pic.
A	Screw (M4x8L)	12 (4 x spare)		B	Screw (M4x6L)	6 (2 x spare)	
C	Screw (M4x5L)	2 (1 x spare)		1	Hinge	1	
2	VESA Bracket	1		3	Hinge Cover	1	
4	Base Plate	1					

To mount the panel PC onto the stand, follow the steps below

1. Remove the four screws at the rear of the panel PC.
2. Retrieve the VESA mount. Line up the screw holes of the VESA mount with the screw holes at the rear of the panel PC.
3. Use the four screws to affix the VESA mount to the panel PC.

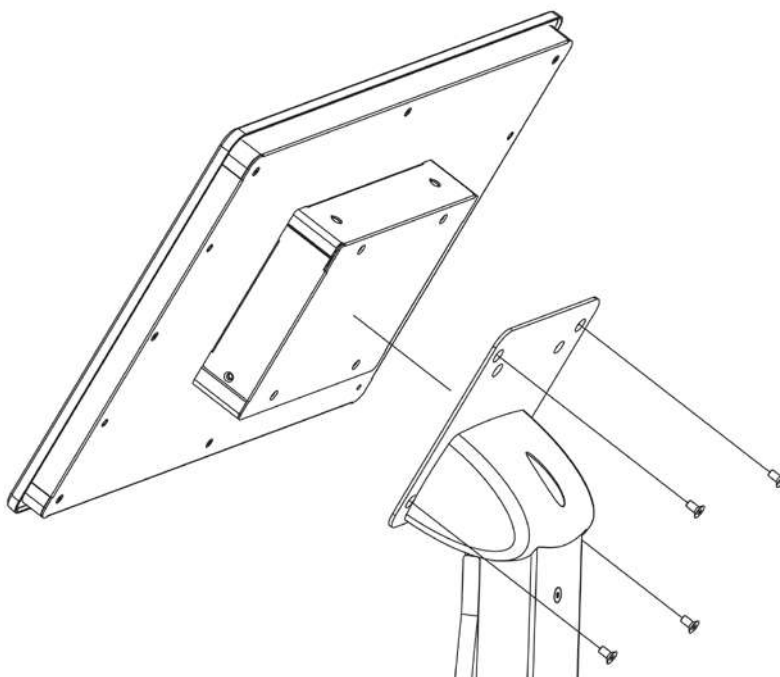


Figure 2.22 VESA mount screw holes

Chapter 3

Android 11

3.1 Android 11

PPC-112W/115W platform is an embedded system with Android 11. It contains system required commands and drivers ready.

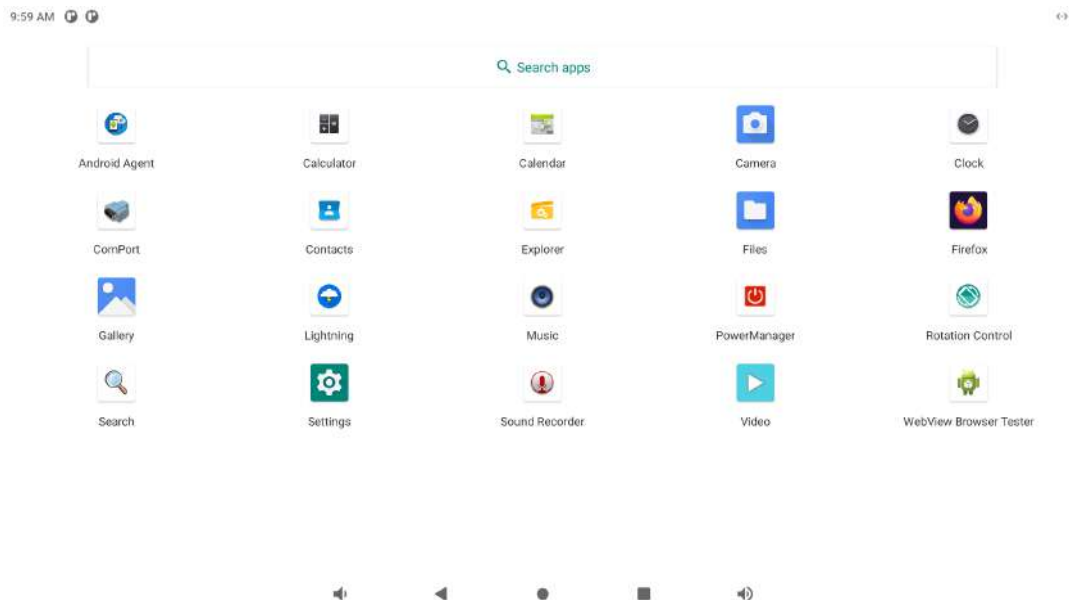
AIM-Android11 is developed for Advantech devices based on formal Android11. It is customized to satisfy users' requirements and to add new functions and features.

3.2 Android 11 Software Support

3.2.1 System Default Software

AIM-Android11 support below functions as default including:

- Chromium
- ADB debugging support
- Demo serial port utility
- Kiosk Setting
- Android agent (Device manager)



3.2.2 Other Applications

Many other applications for arm supported by Android or other resource web sites. You can search and download them from internet by yourself.

3.3 Install Android Software

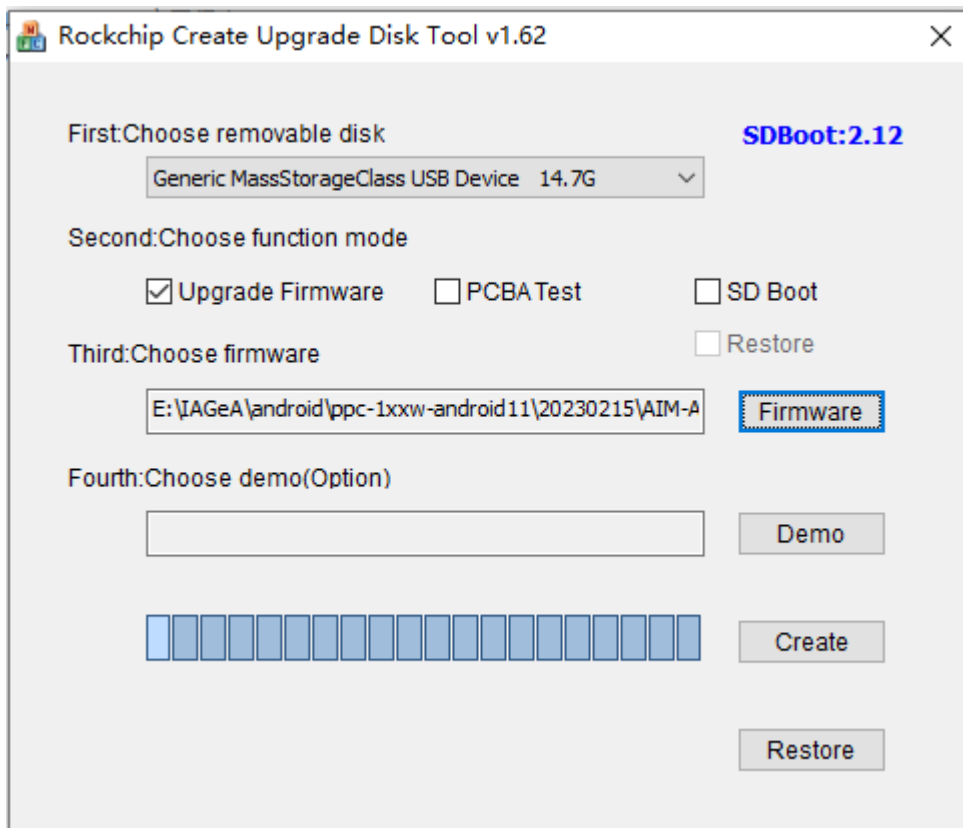
PPC-112W/115W supports boot from SD card or onboard flash. This section will guide you how to build an image for PPC-112W/115W Android system boot media.

3.3.1 Create a Bootable SD Card

Please follow the steps below to create an SD card (not less than 16G) for boot up.

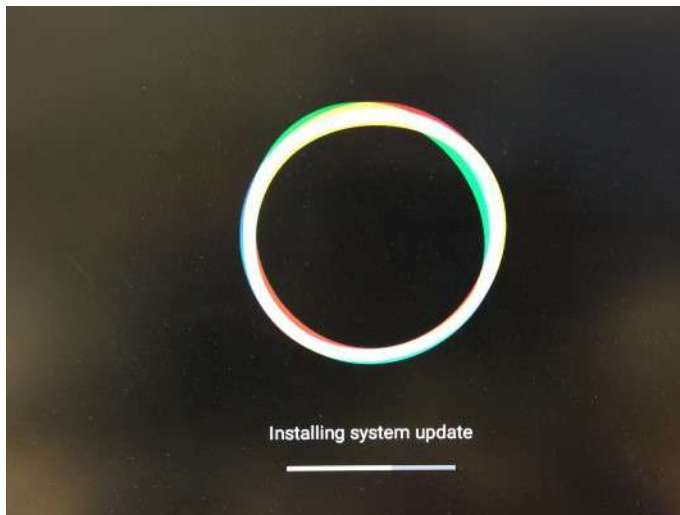
If your PC is Windows 10:

1. Unzip the AIM-Android-11-ARM_64-PPC-1XX_yyyy_mm_dd.zip.
2. Use the SD Disk Tool to burn the image.
3. Click the “Create” button to burn the SD card.

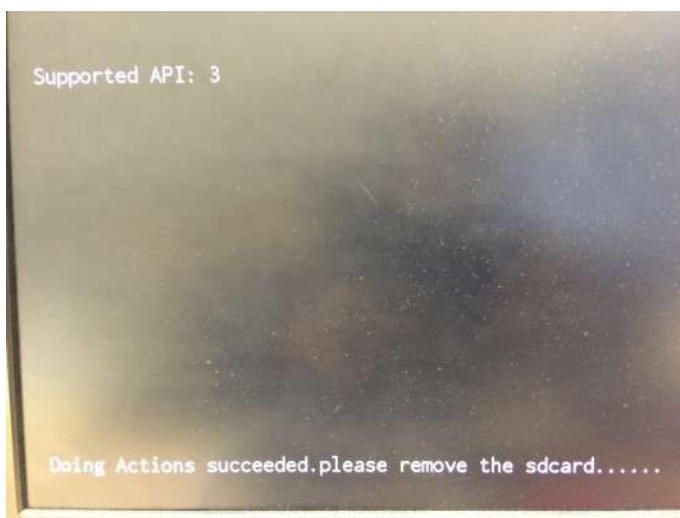


3.3.2 Install Android 11

1. Please power off in PPC.
2. Insert the SD card.
3. Power on in PPC.
4. Installing system update.



5. Please Remove the SD Card when PPC show the message "Doing Action succeeded. please remove the sdcard.....".

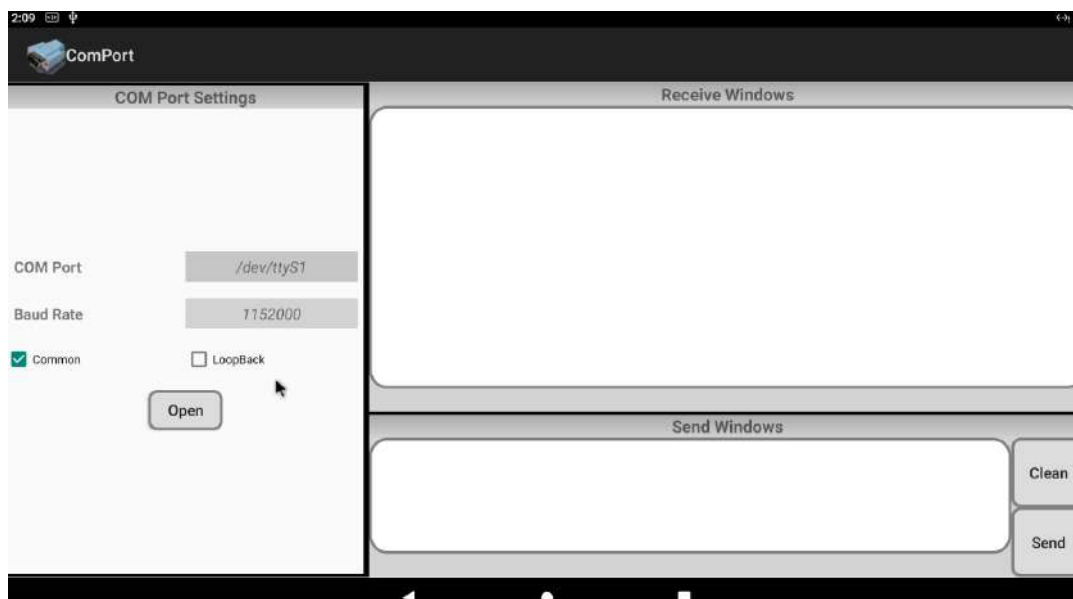


6. Remove SD card.
The Android image will be auto-install.

3.4 Serial Port Sample

After installing AIM-Android, you will see a Serial application in App list. Users can test serial port with it.

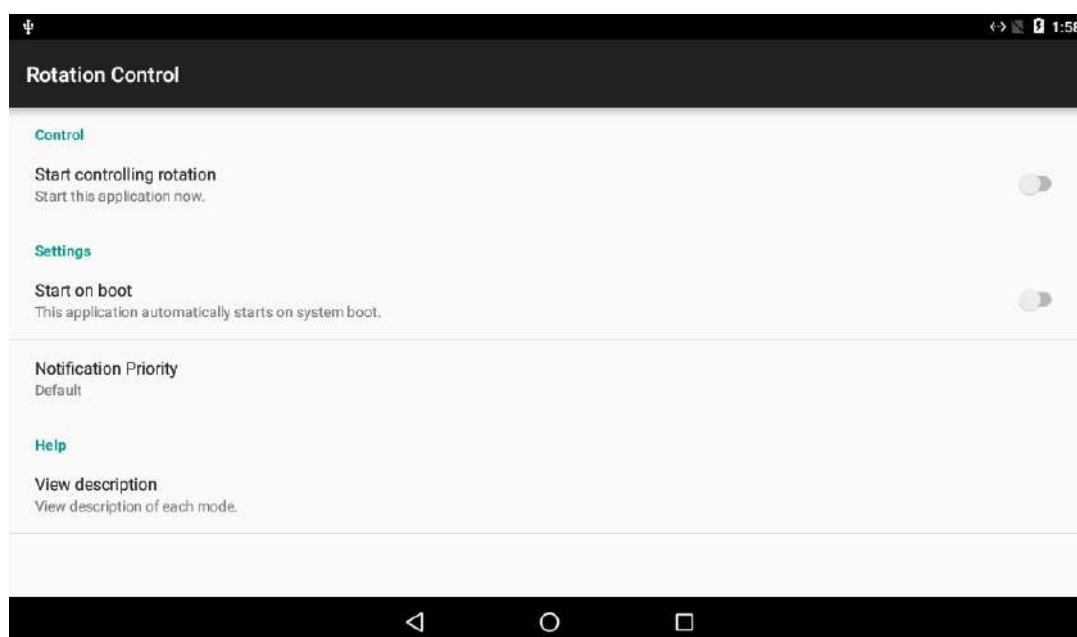
After starting the application, you will see:

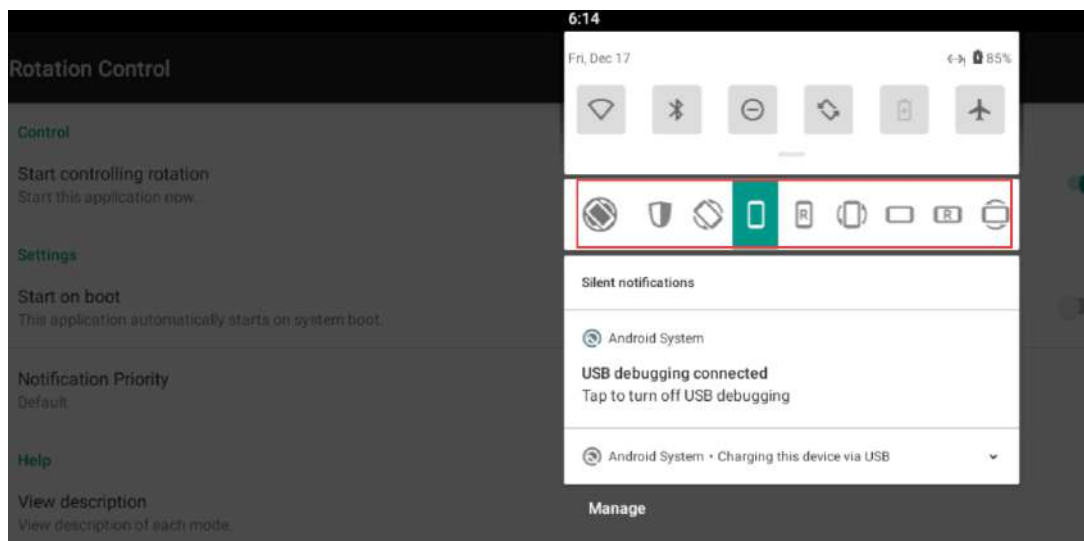
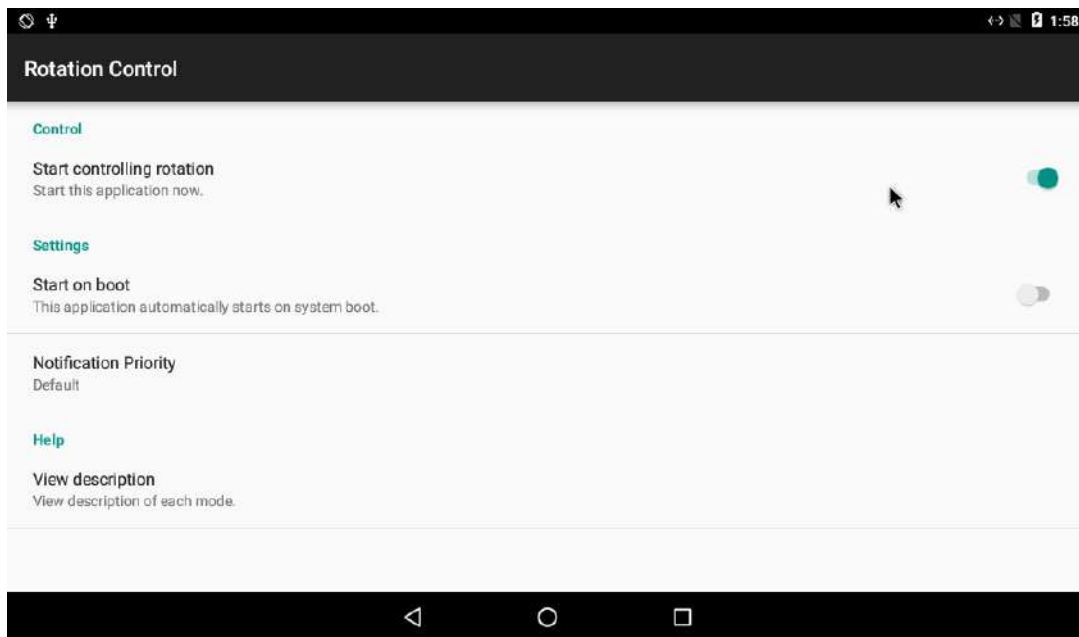


Usage: choose the port, baudrate.(e.g., ttyS1, 9600)

3.5 About Screen Rotation Control

The rotate step of the screen.





3.6 How to Use ADB Tool in Windows

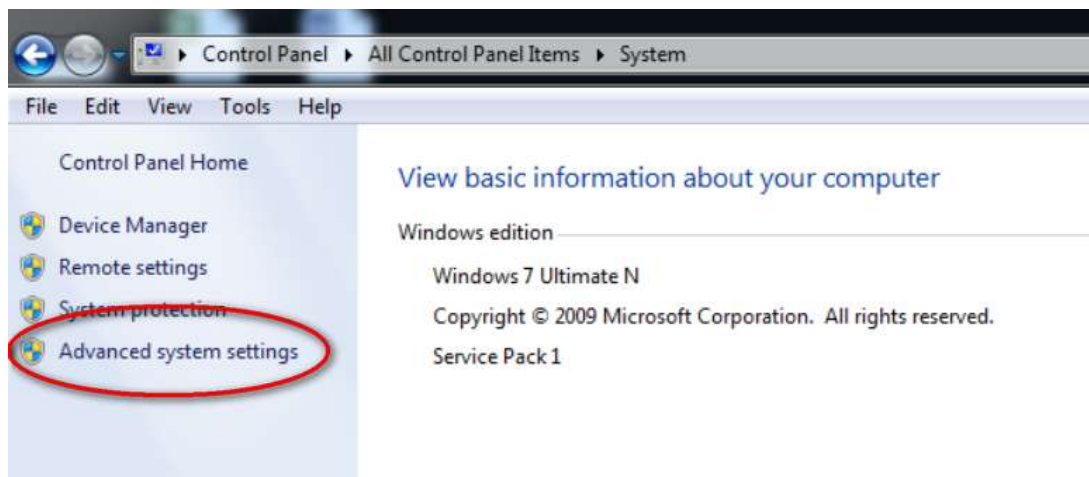
3.6.1 Install ADB

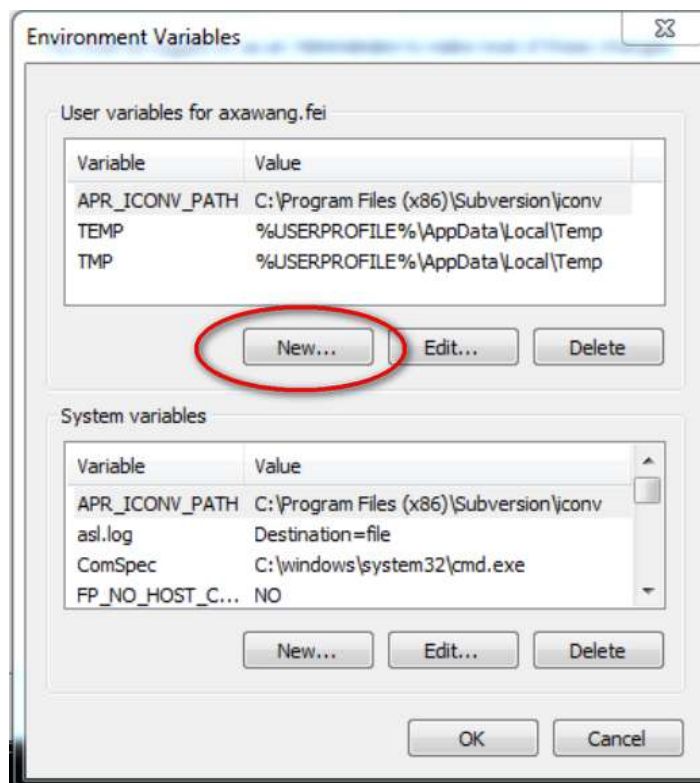
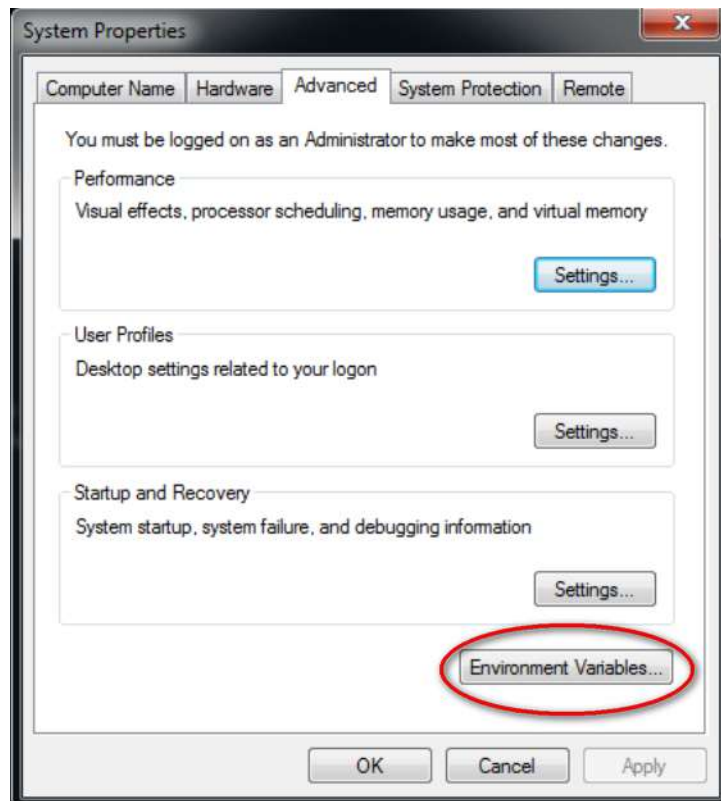
After the connection is built, download & execute “ADBDriverInstaller.exe” to install adb driver.

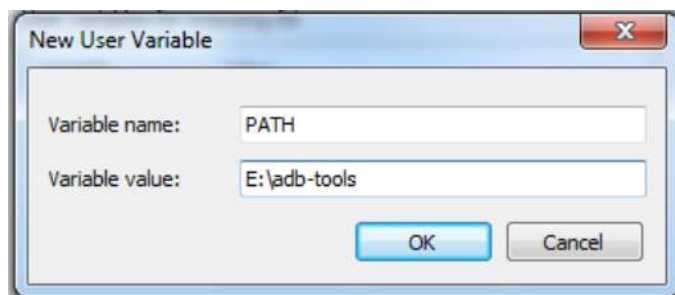
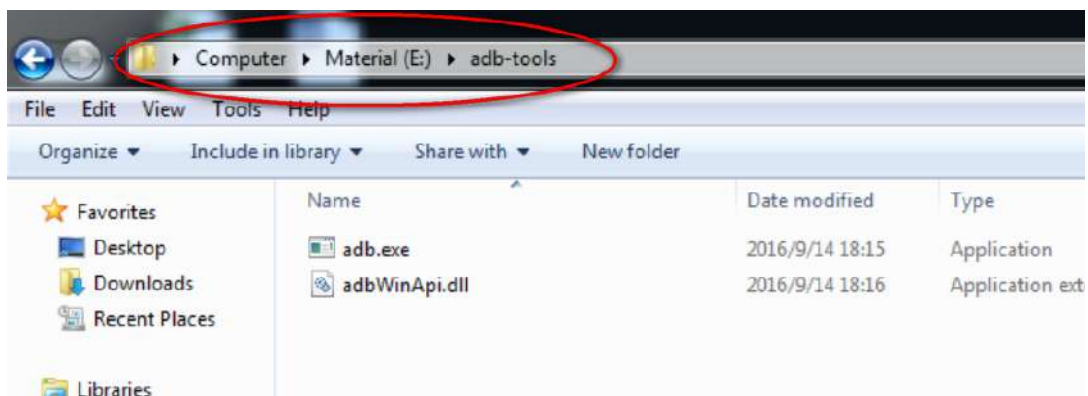


3.6.2 Create PATH

Add adb-tool and create path in windows.







3.7 Value-added Services

3.7.1 AppHub

After installing AIM-Android, you will see Android Agent application in App list. It is an Android client application of Apphub.

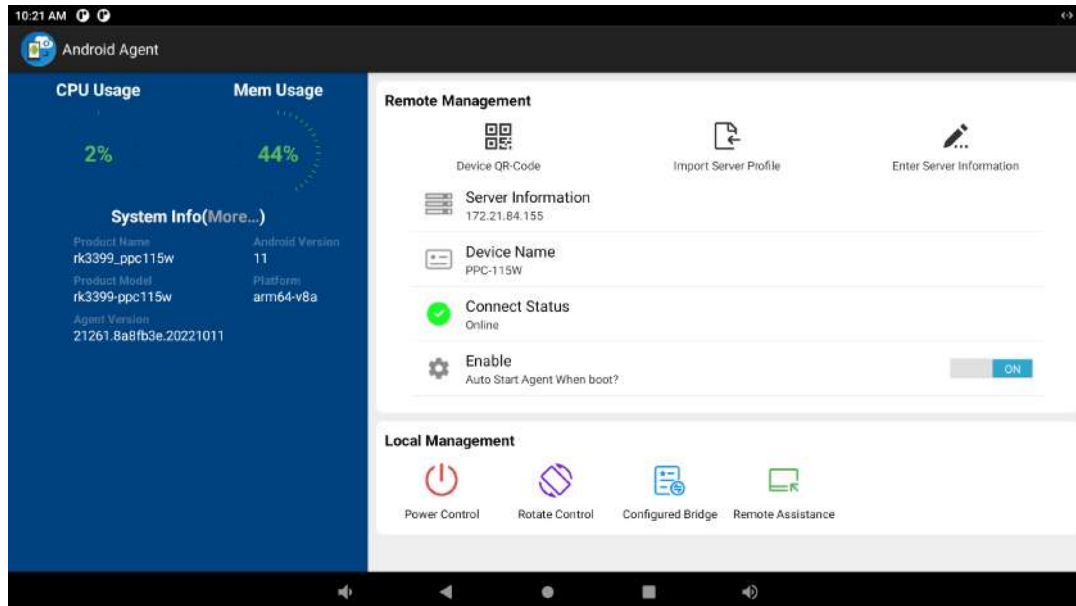


Figure 3.1 Apphub Android Agent

It allows you to register the device with the Apphub server. In this way, the remote management and monitoring functions of the device can be realized. The main functions that can be realized are as follows:

- OTA functions, such as remotely updating Android system, installing, uninstalling applications, deploying files, etc
- Remote desktop function
- Remote monitoring of device status, such as cpu, memory, app running status, usb device status, capturing device system logs, etc
- Remote control equipment: such as shutdown, restart, backlight adjustment, brightness adjustment, open/close/disable/enable an application
- Realize the device kiosk function, display an application in full screen, and automatically start the application after the system is powered on
- Change the boot animation of the device
- Black and white list of app
- Remote message push
- System security configuration

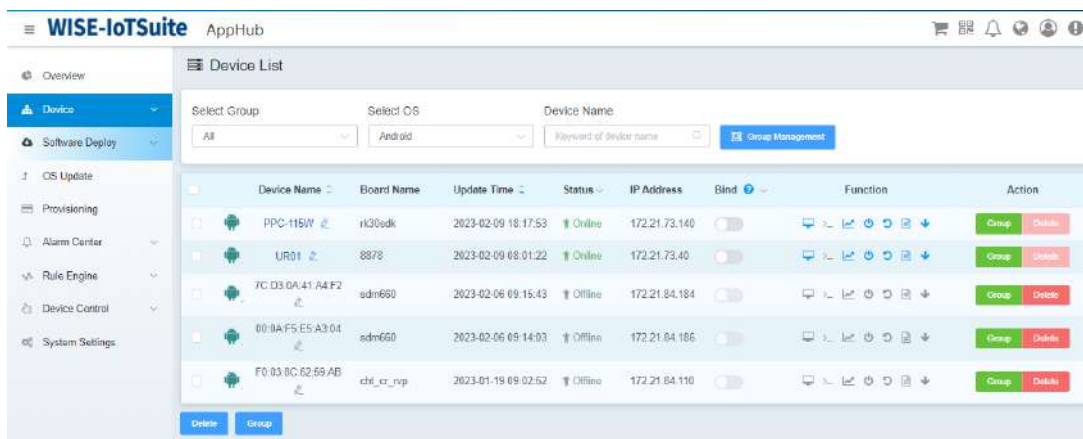


Figure 3.2 Apphub Server web

If you need more information or specific usage, please refer to the information in the link below or contact us

Apphub User Manual?<https://shimo.im/docx/KrkEVd7IBXIEBOAJ/>

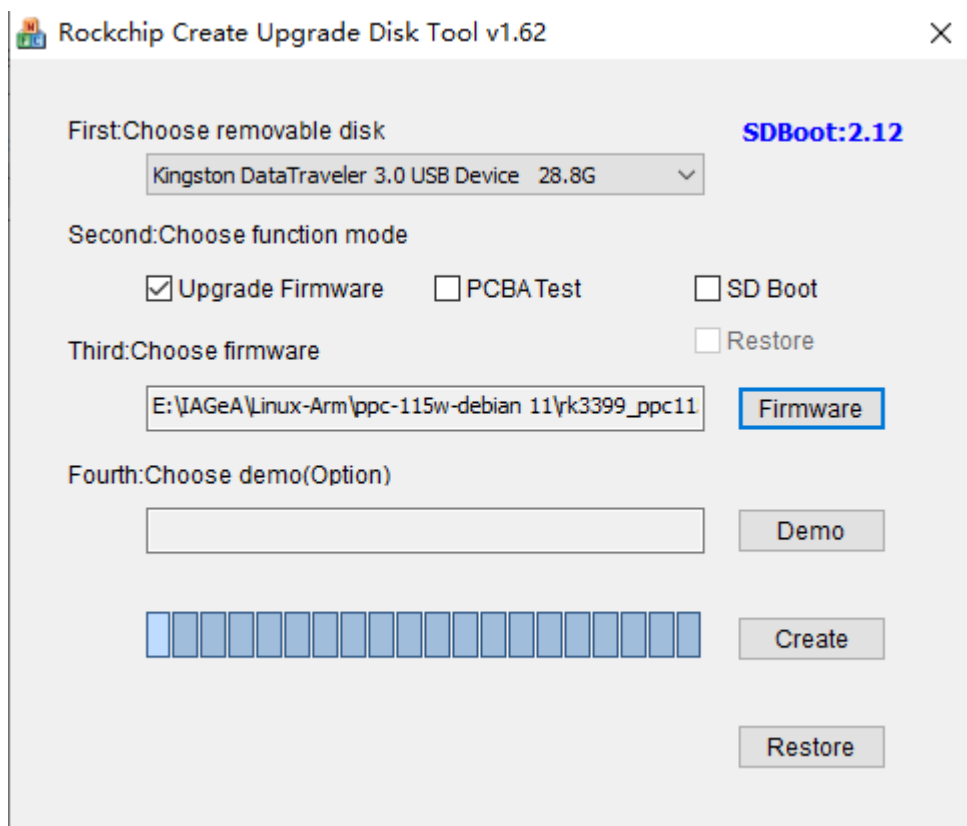
Quick Start Guide for Apphub?<https://shimo.im/docx/eNQSx9fGqKojrflv/>

Chapter 4

Debian OS Installation

4.1 Installation

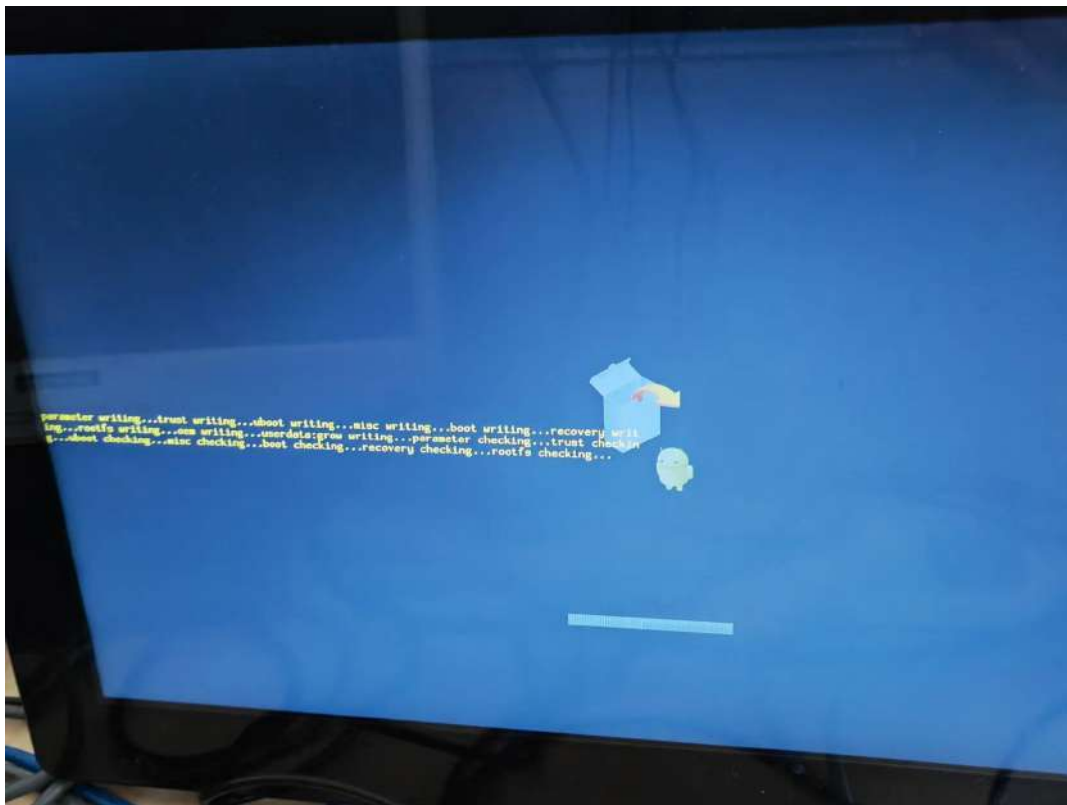
4.1.1 Prepare an Installation SD Card



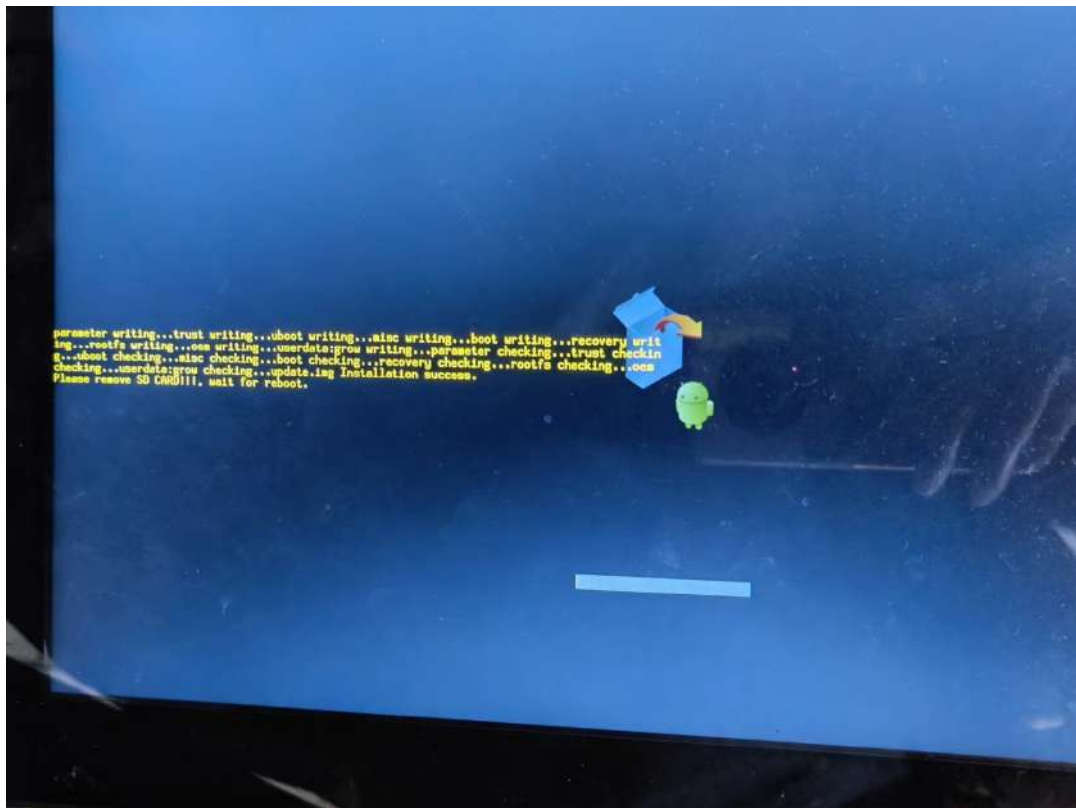
You should click the “Create” button to burn the SD card.

4.1.2 Install RK3399-PPC-1xxw-Debian11

1. Please power off in PPC.
2. Insert the SD card.
3. Power on in PPC.
4. Installing system update.



5. Please Remove the SD Card when PPC1XX show the message "Doing Action succeeded. please remove the sdcard.....".



6. Remove SD card.
The rk3399-ppc-1xxw-Debian11 will be auto-install.

4.1.3 Hardware Requirements

The following information represents the requirements necessary to install rk3399-ppc-1xxw-Debian11 successfully.

SD card Size

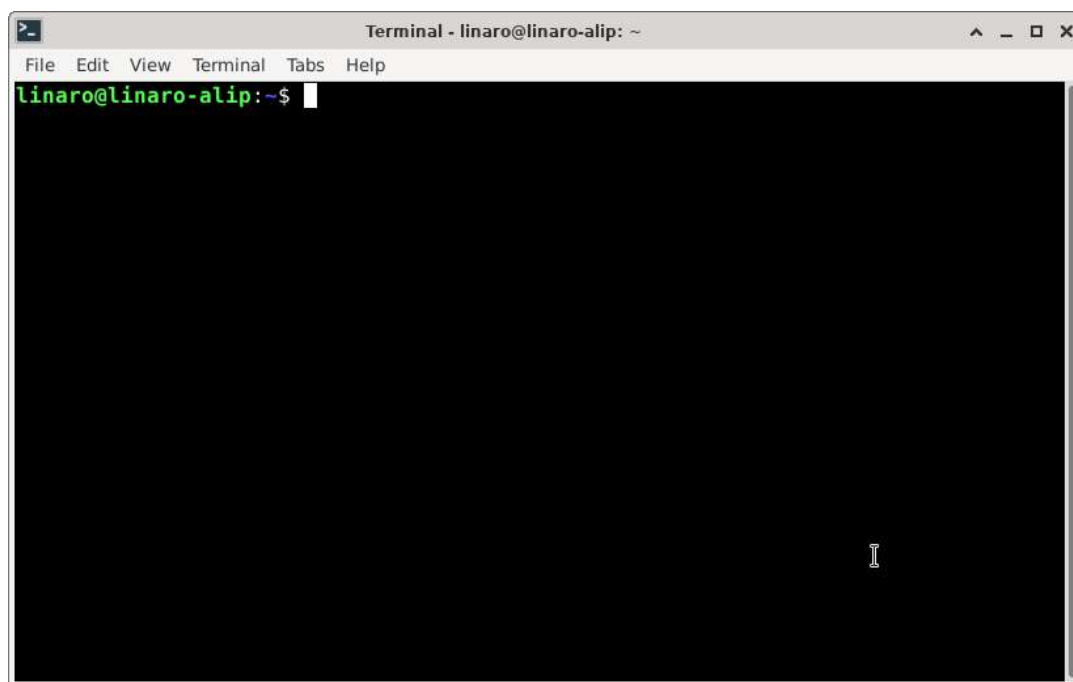
- Recommended: 16 G or more

4.2 Usage

rk3399-ppc-1xxw-Debian11 provides many tools based on X-Windows. Here we mainly introduce some important tools that the user may use frequently.

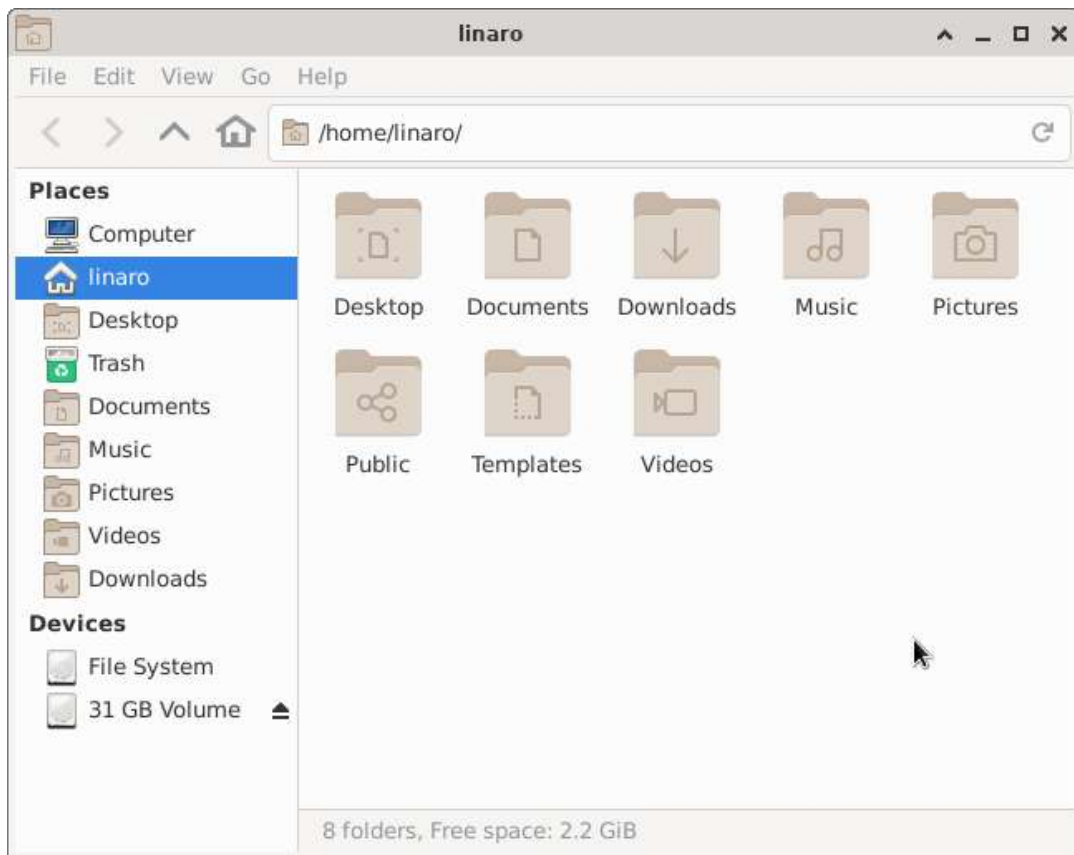
4.2.1 Terminal

Applications-Terminal Emulator, open Terminal as follows:



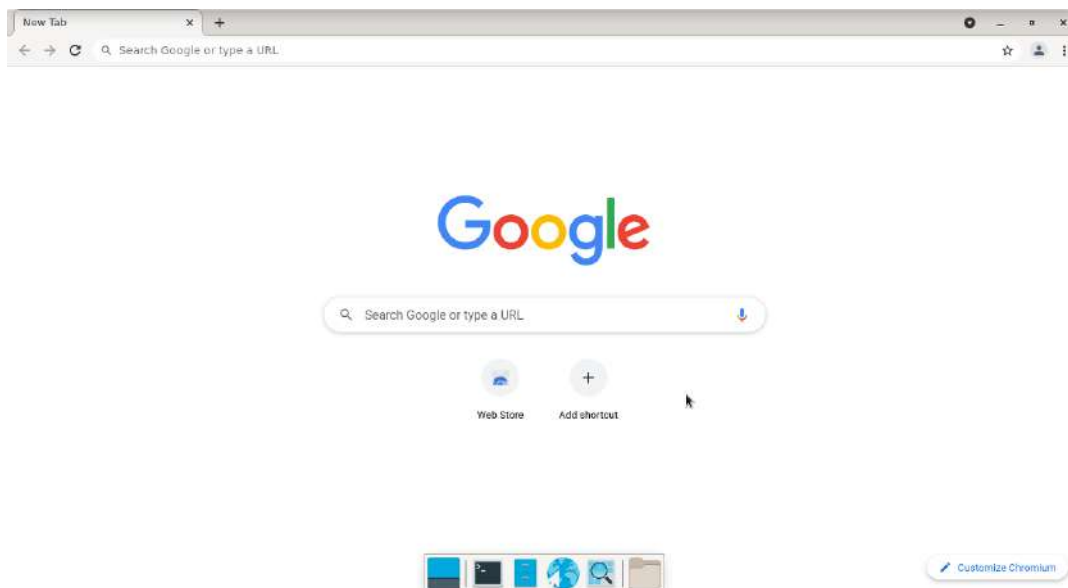
4.2.2 File Manager

Applications-File Manager, open File Manager as follows:



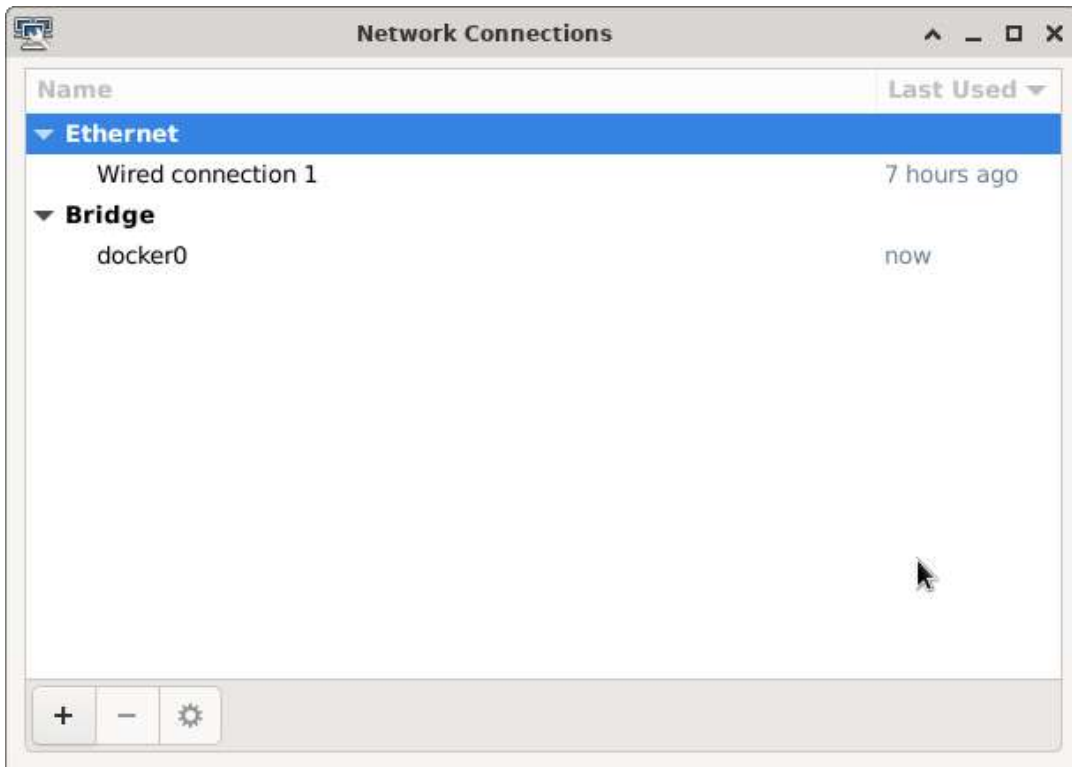
4.2.3 Browser

Chromium browser:

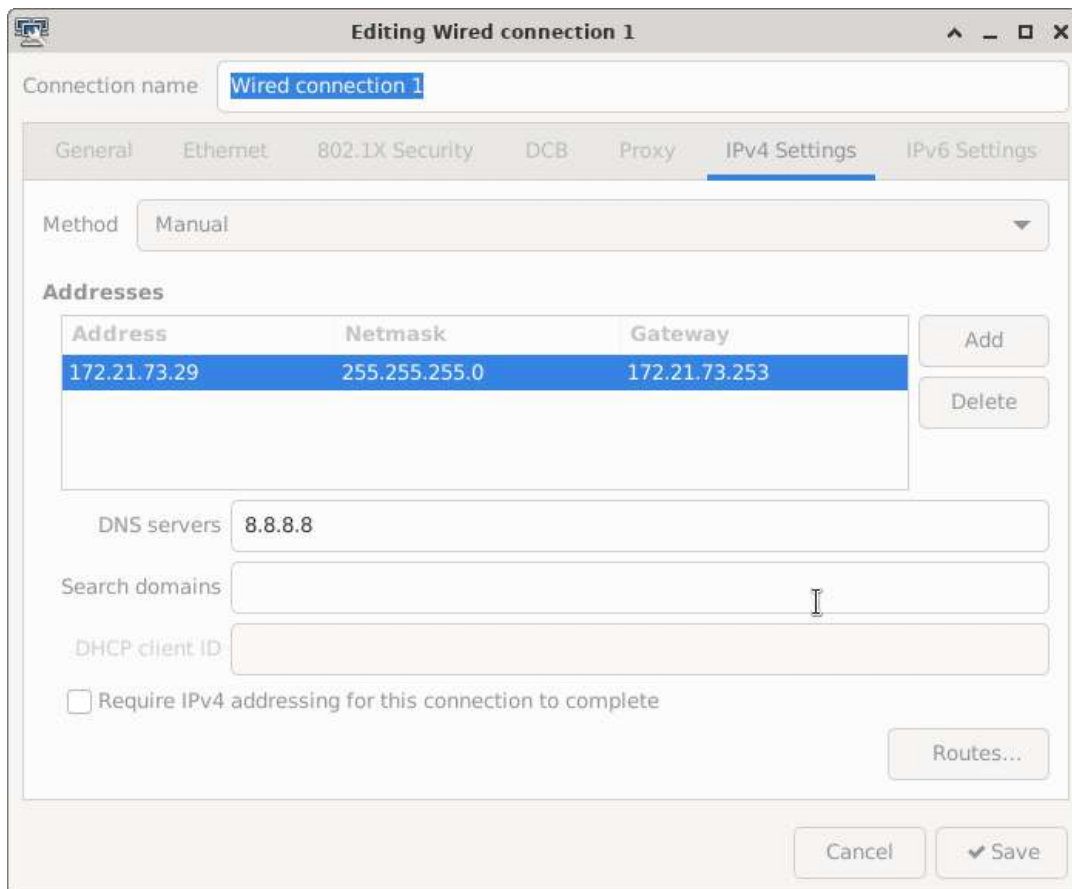


4.2.4 IP Configuration

rk3399-ppc-1xxw-Debian11 gets IP according to DHCP default. If you want to get IP by static, you can use “Applications-Settings- Advanced Network Configuration”. To set static IP.



Then edit wired connection 1, as follows: first chooses IPV4 Settings, then “Method” choose Manual, finally input the Address, netmask, Gateway and DNS information save the config.



After that, restart the Network Manager or restart the system, The ip address will become what you set.

```

root@advantech-machine:~# ssh linaro@172.21.73.59
The authenticity of host '172.21.73.59 (172.21.73.59)' can't be established.
ECDSA key fingerprint is SHA256:rjrSiFBvQm73pkT2hj0Jyb7LTaoPCTHcGzAX4ycsmE8.
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added '172.21.73.59' (ECDSA) to the list of known hosts.
linaro@172.21.73.59's password:
Linux linaro-alip 4.4.194 #2 SMP Thu Apr 21 13:51:29 CST 2022 aarch64

The programs included with the Debian GNU/Linux system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Debian GNU/Linux comes with ABSOLUTELY NO WARRANTY, to the extent
permitted by applicable law.
linaro@linaro-alip:~$
linaro@linaro-alip:~$ ls
Desktop  Documents  Downloads  Music  Pictures  Public  Templates  Videos
linaro@linaro-alip:~$

```

4.3 Packages Install

Install packages:

```
# sudo apt-get install packagename
```

Remove packages:

```
# sudo apt-get remove packagename
```

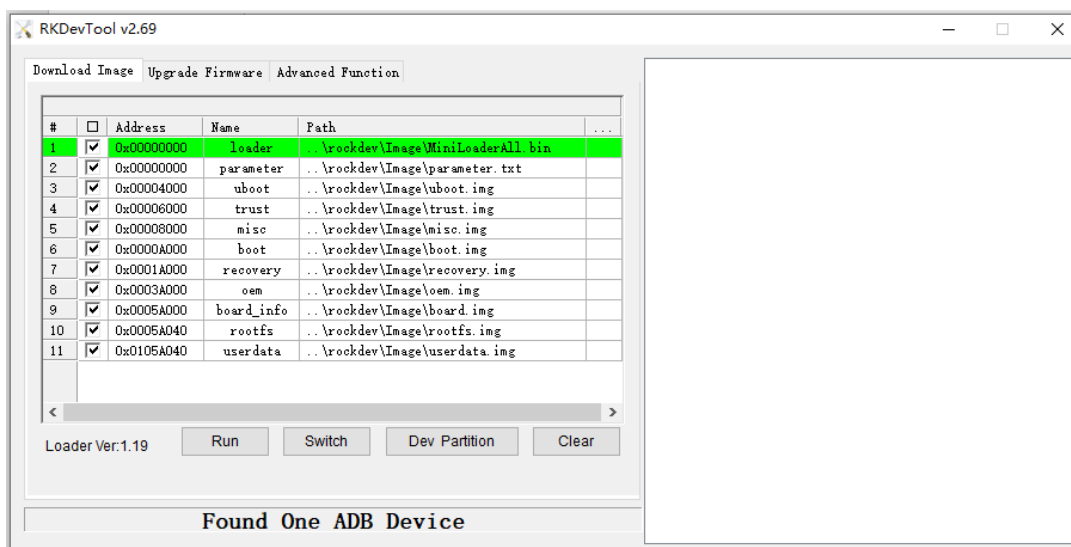
```
COM1 - PuTTY
[ 41.463733] invalid destination resolution act_w = 0, act_h = 0
[ 41.469752] rga: req argument is inval
[ 46.924739] invalid destination resolution act_w = 0, act_h = 0
[ 46.930765] rga: req argument is inval
[ 47.059593] dwhdmi-rockchip ff940000.hdmi: Rate 0 missing; compute N dynamica
lly
[ 47.092619] dwhdmi-rockchip ff940000.hdmi: Rate 0 missing; compute N dynamica
lly
root@linaro-alip:~#
root@linaro-alip:~#
```

4.4 System Update

There are two ways to update the system. One is using Android Tool to update system, the other is using “updateEngine” command to update system.

4.4.1 Android Tool Update System

1. Use USB OTG to connect PPC-1xx device and PC.
2. Open AndroidTool.exe.



4.4.2 UpdateEngine Update System

1. Copy the update.img to /userdata directory.
2. Execute the following command.

```
1 | updateEngine --image_url=/userdata/update.img --misc=update --  
  | savepath=/userdata/update.img --reboot &
```

3. Then wait for update, The system will restart automatically after the update is completed.

4.5 User Development

Users can use gcc to develop their own applications on the rk3399-ppc-1xxw-Debian11. For example, a simple demo as follows, write a simple program demo.c.

```
#include <stdio.h>  
int main()  
{  
    printf("hello word\n");  
    return 0;  
}
```

And then write a “Makefile” file as follow:

```
all:  
    gcc -o demo demo.c  
clean:  
    rm -rf demo
```

Then you can perform as follows:

```
root@linaro-alip:~# ls  
demo.c makefile  
root@linaro-alip:~# make  
gcc -o demo demo.c  
root@linaro-alip:~# ls  
demo demo.c makefile  
root@linaro-alip:~# ./demo  
hello word  
root@linaro-alip:~#
```

The file “demo” is the executable file user developed.

Appendix **A**

BSMI RoHS

A.1 BSMI RoHS

設備名稱：電腦 Equipment name		型號（型式）：PPC-115W/PPC-112W Type designation (Type)				
單元 Unit	限用物質及其化學符號 Restricted substances and its chemical symbols					
	鉛 Lead (Pb)	汞 Mercury (Hg)	鎘 Cadmium (Cd)	六價鉻 Hexavalent chromium (Cr ⁺⁶)	多溴聯苯 Polybrominated biphenyls (PBB)	多溴二苯醚 Polybrominated diphenyl ethers (PBDE)
電路板	—	○	○	○	○	○
內外殼 (外殼、內部 框架 … 等)	○	○	○	○	○	○
其它固定組件 (螺絲、夾 具、卡榫)	—	○	○	○	○	○
配件 (滑鼠、鍵 盤、電源線、 排線、傳輸 線、網路線 … 等)	○	○	○	○	○	○
液晶面板	—	○	○	○	○	○
觸控模組	—	○	○	○	○	○
電源供應器	—	○	○	○	○	○
備考 1. “超出 0.1 wt %” 及 “超出 0.01 wt %” 係指限用物質之百分比含量超出百分比含量基準值。 Note 1. “Exceeding 0.1 wt %” and “exceeding 0.01 wt %” indicate that the percentage content of the restricted substance exceeds the reference percentage value of presence condition.						
備考 2. “○” 係指該項限用物質之百分比含量未超出百分比含量基準值。 Note 2. “○” indicates that the percentage content of the restricted substance does not exceed the percentage of reference value of presence.						
備考 3. “—” 係指該項限用物質為排除項目。 Note 3. “-” indicates that the restricted substance corresponds to the exemption.						

製造商：研華股份有限公司

地址：台北市內湖區瑞光路 26 巷 20 弄 1 號

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PPC-112W 系列型號

PPC-112W-PK91A	PPC-112W-PK91B	PPC-112W-PK91C
PPC-112W-PK91AU	PPC-112W-PK92B	PPC-112W-PK92C
PPC-112W-PK92A	PPC-112W-PK93B	PPC-112W-PK93C
PPC-112W-PK93A	PPC-112W-PK94B	PPC-112W-PK94C
PPC-112W-PK94A	PPC112W2102-T	PPC112W2103-T
PPC112W2101-T	PPC112W2201-T	PPC112W2202-T
PPC112W2104-T	PPC112W2204-T	PPC112W2301-T
PPC112W2203-T	PPC112W2303-T	PPC112W2304-T
PPC112W2302-T	PPC112W2402-T	PPC112W2403-T
PPC112W2401-T	PPC112W2501-T	PPC112W2502-T
PPC112W2404-T	PPC112W2504-T	PPC112W2601-T
PPC112W2503-T	PPC112W2603-T	PPC112W2604-T
PPC112W2602-T		

PPC-115W 系列型號

PPC-115W-PK91A	PPC-115W-PK91AU	PPC-115W-PK91B
PPC-115W-PK91C	PPC-115W-PK92A	PPC-115W-PK92B
PPC-115W-PK92C	PPC-115W-PK93A	PPC-115W-PK93B
PPC-115W-PK93C	PPC-115W-PK94A	PPC-115W-PK94B
PPC-115W-PK94C	PPC115W2101-T	PPC115W2102-T
PPC115W2103-T	PPC115W2104-T	PPC115W2201-T
PPC115W2202-T	PPC115W2203-T	PPC115W2204-T
PPC115W2301-T	PPC115W2302-T	PPC115W2303-T
PPC115W2304-T	PPC115W2401-T	PPC115W2402-T
PPC115W2403-T	PPC115W2404-T	PPC115W2501-T
PPC115W2502-T	PPC115W2503-T	PPC115W2504-T
PPC115W2601-T	PPC115W2602-T	PPC115W2603-T
PPC115W2604-T		

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