

VT-PNL156-MT70-HD

Hardware User Manual

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Vantron

For any question, please contact Vantron Technology Co., Ltd.

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Table describes

This table describes the version and release date

Rev	Date	Description	Author
1.0	2024-11-20	First release.	CH
1.1	2025-07-09	Update the device power	CH

Foreword

Copyright

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Symbol Conventions

The symbols that may be found in this document are defined as follows.

Symbol	Type	Description
	Notice	Important information and regulations
	Caution	Caution for latent damage to system or harm to personnel

Statement & Disclaimer

It is recommended to read and comply with this manual which provides important guidance and helps decreasing the danger of injury, electric shock, fire, or any damage to the device.

Vantron assumes no legal liability of accidents resulting from failure of conforming to the safety instructions.

Limitation of Liability/Non-warranty

For direct or indirect damage to this device or other devices of Vantron caused by failure of conforming to this manual or the safety instructions on device label, Vantron assumes neither warranty nor legal liability even if the device is still under warranty.

The device should be installed, debugged and maintained by professionals.

The outside antennas are not permitted to be installed or to be changed by non-professionals. To run the device normally, only specified antennas are approved to be assembled by professionals.

Unit shall be used with indoor-use antenna only. No antenna for this unit can be installed outdoor.

Safety Instructions

- ✧ Keep and comply with all operation instructions, warnings, and information.
- ✧ Pay attention to warnings on this device.
- ✧ Read the following precautions to decrease the danger of injury, electric shock, fire, or any damage to the device.
- ✧ Operations and service instructions are provided with the equipment.
- ✧ Unit shall be used with indoor-use antenna only. No antenna for this unit can be installed outdoor.
- ✧ The maximum operation temperature is 80°C.

Precautions

- ✧ Pay attention to the product labels/safety instructions printed on silk screens.
- ✧ Do not try repairing this product unless declared in this manual.
- ✧ Keep away from heat source, such as heater, heat dissipater, or engine casing.
- ✧ Do not insert other items into the slot (if any) of this device.
- ◆ Ensure ventilation of the ventilation slot.
- ◆ System fault may arise if other items are inserted into this device.
- ✧ Installation: ensure correct installation according to instructions from the manufacturer with recommended installation tools.
- ✧ Ensure ventilation and smoothness according to relevant ventilation standards.

Safety Instructions for Power Cables and Accessories



Use Proper power source only. Start only with power source that satisfies voltage label and the voltage necessary according to this manual. Please contact technical support personnel of Vantron for any uncertainty about the requirements of necessary power source.



Use tested power source. This product still contains a button lithium battery as a real-time clock after its external power source is removed and therefore should not be short-circuited during transportation or placed under high temperature.



Place cables properly: Do not place cables at any place with extrusion danger.



Cleaning Instructions

- ✧ Please power off before cleaning the device.
- ✧ Do not use spray detergent.
- ✧ Clean with a damp cloth.
- ✧ Do not try cleaning exposed electronic components unless with a dust collector.
- ✧ Support for special fault: Power off and contact technical support personnel of Vantron in case of the following faults:
 - The device is damaged.
 - The temperature is excessively high.
 - Fault is still not solved after operations according to the manual.

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1 Introduction

1.1 Product Description

Vantron offers both ARM and ATOM based Single Boards Computer (SBC) platforms including Cirrus Logic EP9315, RockChip RK3128, RK3368, RK3288, RK3399, Freescale iMX6, iMX8, TI OMAP35xx CortexA8 series, MTK MT8370, and Intel Skylake and ApolloLake processor boards. In addition to offering the standard SBCs, we also provide professional customization board design services. Our seamless project management, efficient error-free development process, strong fundamentals in technology, enough human resources, and on-time delivery will guarantee the success in your project development.

Based on idea of "Application Ready" products and services, our embedded computers have embedded basic operation system which includes the drivers of its interfaces. So, it is easy to be used by adding your application software only. It can speed Time to Market of your products, and save more cost.

2 Overview

2.1 Introduction

According to the requirements, Vanchuang designed a core module of OSM standard based on MTK MT8370 multimedia processor and Android system. The standard module storage configuration can be selected from (8GB+32GB).

Specifications(Detail Specification)		
System	CPU	MT8370, Dual-core ARM Cortex-A78 (2.0GHz)MP Core processor + Quad-core ARM Cortex-A55 (2.0Hz) MP Core processor
	Memory	LDDR4+eMMC=(8GB+32GB)
	Storage	
	EEPROM	2Kb EEPROM, only for Device Product information.
	PMIC	MT6365
Function	Wi-Fi & Bluetooth	WIFI: IEEE 802.11 a/b/g/n/ac; BT: 5.0. 2T2R MIMO internal Antenna, support 2.4GHz and 5GHz.
	Micro USB	USB2.0 Micro USB. Support USB2.0, Debug and Image Download. Not support OTG
	Ethernet	10/100/1000M Ethernet,Supply RJ45 connector.
	Button	Support Volume +/- Button, Internal 1xReset Button for Debug. 1xhome Button. Power Button.
	Touch Screen	I2C 6PIN interface for TP control. Support 10 Points Touch and support touch to wake up. Support low

		power mode. Power dissipation lower 3.3V/10mA Optional USB interface and I2C 6PIN interface for TP control. Support 10 Points Touch and support touch to wake up. Support low power mode. Power dissipation lower 5V/10mA
	LCD	2Lane eDP interface, 15.6" LCD , Resolution 1920x1080, Color deth 16.7M (8bit) ,IPS LCD, Full View(85°). Back light support 250cd/m2 and 210cd/m2 with TP.
	Audio	2xSpeaker 3W audio output
	Type-C	POWER INPUT
	WTD&RTC	Support WTD&RTC
Software	Operation system	Andiord11 or newer
Power	Power In	DC input with Type-C PD Power input, support 20V/2A.
Environment Condition	Temperature	Operating: 0°C - 45°C 10~90%RH

2.2 Order Information

Part Order Example	
VT-PNL156-MT70-HD	VT-PNL156-MT70-HD V1.0,MT8370+7663,8GBM/32GBE/0~45°C,Android,RoHS

3.3 Port Description

Download the board structure document from Vantron technology or Vantron web site:

www.vantrontech.com.cn.

3 Hardware Instructions

3.1 Appearance



Picture 3-1 appearance diagram

3.2 Device interface



Picture 3-2 interface

3.3 Operating environment

Assembly、debug and use the equipment to ensure that there are no other risks, and the environment meets the following requirements:

- Operating temperature: 0°C - 45°C 10~90%RH

3.4 DC Power input

This device supports 15VDC input .The maximum power consumption of the whole machine等于20W

3.5 RJ45 interface

1000M network port communication through RJ45,Direct connrection communication through network cables.

3.6 LCD&TP

LCD:full fitted 15.6 LCD, 2Lane eDP interface, 15.6" LCD , Resolution 1920x1080, Color deth 16.7M (8bit) ,IPS LCD, Full View(85°), Back light support 250cd/m2 and 210cd/m2.

TP:small system :hibernation:0.1W;Hibernation low power consumption with the system,maintain the connection,and wake up the data.

3.7 WIFI/BT

The wireless module inside WIFI,BT . WIFI: IEEE 802.11 a/b/g/n/ac; BT: 5.0. 2T2R MIMO internal Antenna, support 2.4GHz and 5GHz.

WLAN:

Dual-band 2T2R mode,data rate up to 866.7Mbps using 80MHz bandwidth Supports 802.11d/e/h/i/j/k/r/v/w with companion D-die.Security support for WFA WPA/WPA2 personal, WPS2.0, WAPISupports external PA and LNA for WIFI-2.4GHz and WIFI-5GHz. Support MU-MIMO RX

3.8 ANT+

Support ANT+,ANT Wireless is divison of Garmin Canada Inc.(formerly Dynastream Innovations)and evolved out of the need to master ultra low power wireless communication between decives.ANT understanding:in fact,it is a wireless transmission protocol for communication between devices,supporting a variety of application scenarios,the use of the frequency band is 2400Mhz~2524Mhz,of which 2457Mhz is reserved for ANT+(there is no detailed specification of the physical layer ,accurately speaking,theis protocol specification is not very complete,the default NRF PHY mechenism).ANT+ is an ultra-low-power version of the ANT transport protocol,which is specially developed for health,training and sports.

3.9 RTC

Suprort RTC,Clock chip (RTC ,Real Time Clock/Calender).

3.10 Micro USB

USB2.0 Micro USB. Support USB2.0, Debug and Image Download. Not support OTG.

3.11 Audio

2xSpeaker audio output,support output audio,system pormpttone.

4 Hardware Operation Note

This chapter provides a guide to set up and use some of the features of the board. For more details, see hardware description.

4.1 Environment

Before the device is powered on, please confirm whether the environmental conditions meet the requirements. Environmental conditions are as follows:

Operating temperature: 0°C - 45°C 10~90%RH

4.2 Power Input

Please confirm that DC 20V INPUT.



Do not use unauthorized or incompatible power adaptors to charge the device, otherwise fire, explosion or other danger may be caused.

5 Software Instructions

VT-PNL156-MT70-HD has been pre-loaded with firmware. For more information, please see software user manual.

6 Tips



Waste Disposal

It is recommended to disassemble the device before abandoning it in conformity with local regulations. Please ensure that the abandoned batteries are disposed according to local regulations on waste disposal. Do not throw batteries into fire (explosive) or put in common waste canister. Products or product packages with the sign of “explosive” should not be disposed like household waste but delivered to specialized electrical & electronic waste recycling/disposal center. Proper disposal of this sort of waste helps avoiding harm and adverse effect upon surroundings and people’s health. Please contact local organizations or recycling/disposal center for more recycling/disposal methods of related products.

Comply with the following safety tips:



Do not use in combustible and explosive environment.

Keep away from combustible and explosive environment for fear of danger.



Keep away from all energized circuits.

Operators should not remove enclosure from the device. Only the group or person with factory certification is permitted to open the enclosure to adjust and replace the structure and components of the device. Do not change components unless the power cord is removed. In some cases, the device may still have residual voltage even if the power cord is removed. Therefore, it is a must to remove and fully discharge the device before contact to avoid injury.



Unauthorized changes to this product or its components are prohibited.

In the aim of avoiding accidents as far as possible, it is not allowed to replace the system or change components unless with permission and certification. Please contact the technical department of Vantron or local branches for help.



Pay attention to caution signs.

Caution signs in this manual remind of possible danger. Please comply with relevant safety tips below each sign. Meanwhile, you should strictly conform to all safety tips for operation environment.



Notice

Considering that reasonable efforts have been made to assure accuracy of this manual, Vantron assumes no responsibility of possible missing contents and information, errors in contents, citations, examples, and source programs.

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7 Appendix A: How to Contact Us

If you have any problem or want to know more about our products, visit www.vantrontech.com or contact us.

US Office: Vantron Technology, Inc.

Address: 440 Boulder Court, Suite 300,

Pleasanton, CA 94566, USA

Tel: 925-621-8758

Email: sales@vantrontech.com

FCC Warning

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help

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.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body

IC Warning

This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions:

- (1) This device may not cause interference.
- (2) This device must accept any interference, including interference that may cause undesired operation of the device.

Cet appareil contient un ou plusieurs émetteur(s) / récepteur(s) exempts de licence qui sont conformes aux Normes des appareils radio exempts de licence (RSS) d'Innovation, Sciences et Développement économique Canada. Toute utilisation doit se faire sous les deux conditions suivantes :

Cet appareil ne doit pas provoquer d'interférences.

Cet appareil doit accepter toute interférence, y compris celles qui pourraient provoquer un fonctionnement non souhaité de l'appareil.

1.This equipment complies with FCC/IC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

2.The device has been evaluated to meet general RF exposure requirement

"In order to comply with ISED RF Exposure requirements, this device must be installed to provide at least 20 cm separation from the human body at all times.

"Afin de se conformer aux exigences d'exposition RF ISED, cet appareil doit être installé pour fournir au moins 20 cm de séparation du corps humain en tout temps.

Operation in the band 5150 –5250 MHz is only for indoor use to reduce the potential for harmful interference to co-channel mobile satellite systems.

La bande 5150 –5250 MHz est réservée uniquement pour une utilisation à l'intérieur afin de réduire les risques de brouillage préjudiciable aux systèmes de satellites mobiles utilisant les mêmes canaux.

CAN ICES-003(B)/NMB-003(B)