M05 Hardware User Manual

Product Version: 1.0

Date: August 8, 2022

Vantron

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

Change History

This table describes the version and release date.

Rev.	Date	Description	Author
1.0	August 8, 2022	First release	Zhihui SUN
1.1	FRE 29,2024	Update product model	Zhihui SUN

Foreword

Copyright

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 together 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 so as 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 45°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.

- Keep the ventilation slot unclogged.
- 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 temperature is excessively high. The device is damaged.
- The temperature is excessively high.

- Fault is still not solved after operations according to the manual.

Contents

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, MediaTek MTK8362, MTK8365, X8, TI OMAP35xx CortexA8 series, and Intel Skylake and ApolloLake processor boards. In additional 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, sufficient human resources and on-time delivery will guarantee the success in your project development.

Being 'Application Ready', our embedded computers have embedded basic operation system which includes the drivers for the 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.

1.2 Connector Description

This table respectively describes the valid signal of connectors on the Vantron board.

N/C	Not connection
GND	Grounding
/	Active low signal
+	Positive of difference signal
-	Negative of difference signal

I	Input
O	Output
I/O	Input/output
P	Power or grounding
A	Analog
OD	Open drain
CMOS	3.3V CMOS
LVCMOS	Low-voltage CMOS
LVTTL	Low-voltage TTL

3.3V	3.3V signal level
5V	5V signal level
USB	5V tolerant signal
PCIe	PCI Express signal (not 3.3 V tolerant)
NC	No Connection

2. Overview

2.1 Introduction

M05 is a multimedia tablet based on MT8362 processor, containing three PCBAs (motherboard, small board and light sensor board). The screen has 5-inch SD display output, 3-point multi-finger touch, rear 2 million cameras, 1 USB2.0 Type-C interface, supporting WiFi/BT, built-in 2GB DDR and 16GB eMMC.

2.2 Feature

Specification		
System	CPU	MT8362 Cortex-A35, core up to 1.5GHz
	RAM	2GB LPDDR3-800
	ROM	eMMC5.1 16GB
	EEPROM	2KB
Communication	Wi-Fi & Bluetooth	802.11a/b/g/n/ac+BT5.0
Media	Display	5'' IPS TFT LCD Resolution: 854x480 Brightness: 450cd/m2
	TP	3-point capacitive Touch Screen
	Audio	1 x 0.8W/8Ω Speak 1 x Headphone with MIC 1 x MIC
I/Os	USB	1 x USB 2.0 Type-C (USB OTG supported)
Memory	SD	1 x Micro SD
Sensor	Sensor	Light Sensor
Camera	Rear Camera	2M Pixels Fixed Focus Camera
BAT	BAT	3.7V, 2400mAh Li-ion Battery

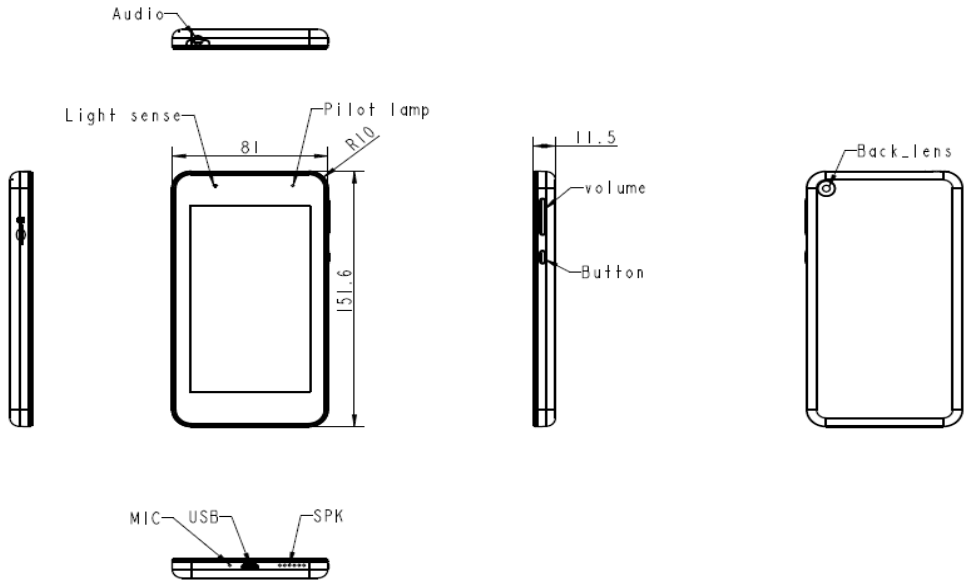
Power	Input	Type-C Power Input
LED	LED	Indicator: 1 color LED Yellow: charging; Red: low power; Green: charged
Button	Button	x 1 Power/+/- button
Software	OS	Android 10
Mechanical	Dimensions	151.6 x 81 x 11.5mm
Environment Condition	Temperature	Operating: 0℃~+45℃ Storage: -20℃~+60℃
	Certification	FCC, ISED, CE, UL(MET) in Process, RoHS Compliant ESD

2.3 Order Information

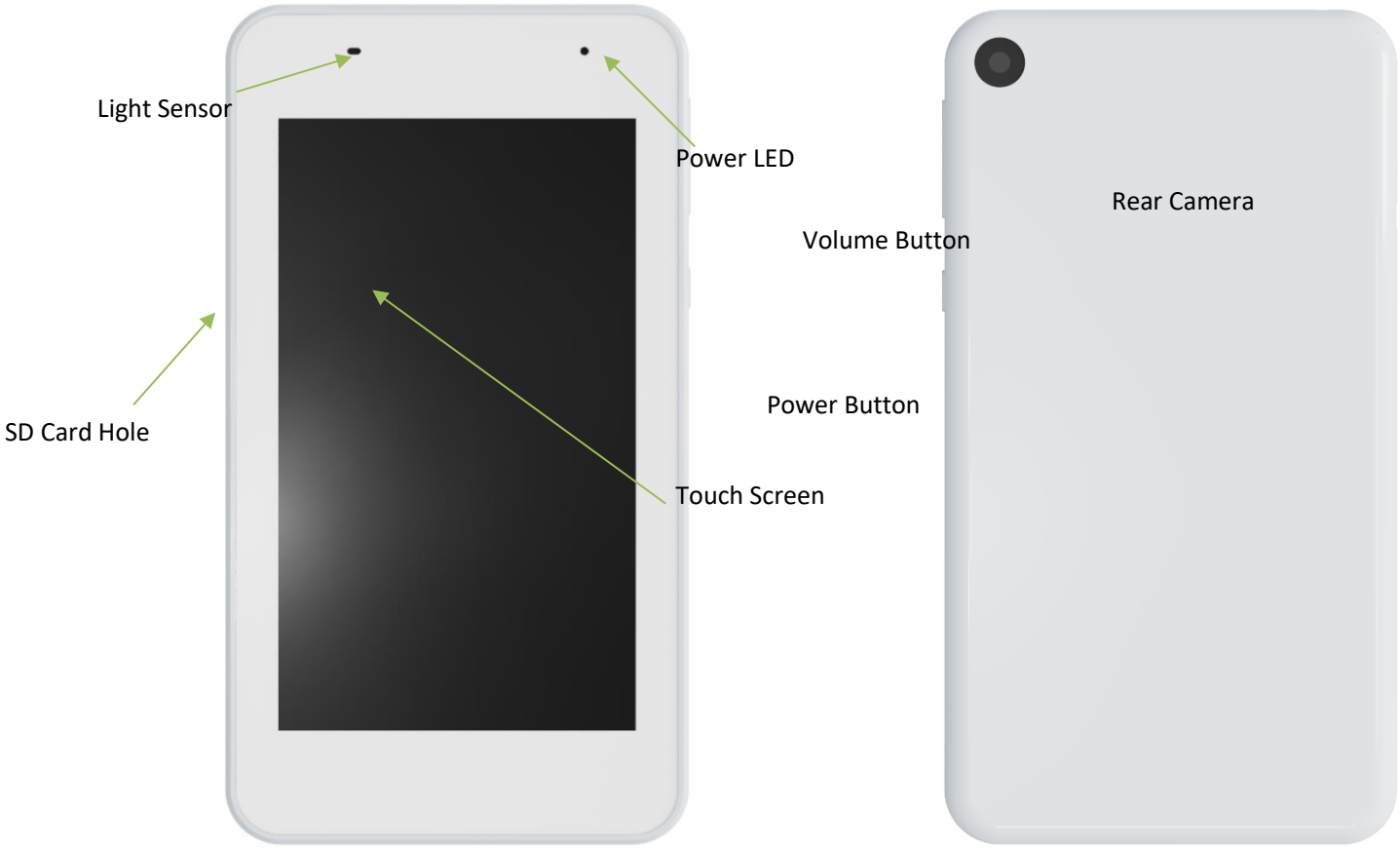
Part Order Example	
M05	● MTK MT8362 eMMC V5.1 16 GB LPDDR3-1600 2GB ● 2MP Camera ● 5V USB power ● 5” (854x480) 3-point touch screen display ● Single Li-ion battery 2400mAh/3.7V ● Color LED; Yellow: charging; Red: low power; Green: charged ● 2 x Button (Volume up/down, on/off button) ● USB 2.0 Type-C ● 1 x 0.8W/8Ω Speaker, 1x Audio Jack, 1 x MIC Hole ● WIFI: 802.11a/b/g/n/ac+BT5.0

3. Hardware Instructions

3.1 Appearance



3.2 Interface Description



3.3 Structure

Download the board structure document from Vantron technology or Vantron net site: www.vantrontech.com.cn

Unit: mm

4. Hardware Function Description

This chapter mainly describes the main hardware functions of this product, including WIFI/BT, audio, display, light sensor, camera, button, LED and Type-C.

4.1 WIFI/BT

Wi-Fi & BT function primarily by MT7663BSN combo module to achieve. Wi-Fi communicates to master device with SDIO interface. This WIFI module can work at the frequency of 2.400GHz ~2.4835GHz, 5.15~5.35GHz、5.47~5.725GHz, 5.725~5.85GHz.

4.2 Audio

M05 has 1 MIC and 1 headphone jack with MIC input and also has a 1 x 0.8W/8Ω speaker.

4.3 Display

M05 has a 5" screen. The screen consists of a display screen and a touch screen fitted together by full-fit technology. More parameters are shown in the table.

Item	Specification	Unit
Screen Size	5"	Inch
Viewing Direction	Full View	-
Resolution	854x480	-
Display Mode	Normally Black	-
Number of Colors	16.7M	-
LCM Luminance	450 (Typ.)	cd/m2
Contrast Ratio	800	-
Interface	MIPI	-
Touch Screen	Cap-touch, 3-point	

4.4 Light Sensor

M05 has a separate light-sensitive small board with distance sensing to adjust the screen brightness according to the ambient brightness.

4.5 Camera

M05 has a rear Camera of 2 megapixels.

4.6 Button

M05 has 2 buttons. One is the power button and the other is the volume adjustment

button.

4.7LED

M05 has 1 power indicator and different colors indicate the charging of the battery in different situations. Yellow: charging; Red: low power; Green: charged.

4.8Type-C

M05 has a Type-C as a power input interface and supports OTG mode for data transfer.

5. Hardware Operation Note

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

5.1 Power Preparation

5.1.1 Environment

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

- Operation temperature: 0°C ~ +45°C

5.1.2 Type-C Power Input

Please confirm the power input is 5V and the reference current is 2A.

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

5.2 Antenna

The design of the internal antenna position of M05 will be shown as follows:

Figure 5-1 Internal antenna

In order to ensure that the tablet functions can work properly, please do not cover the antenna area with metal shielding devices.

Unit: mm

Product Name	AC Adapter
Model No.	TEKA-UCA20US
Interface Type	USB Type-A (Female)
Input Parameter	100-240V ~ 50-60 Hz 0.35A
Output Parameter	5 VDC 2A
Product Dimensions	151.6 x 81 x 11.5mm (Pins are not included)
Operating Temperature	0℃~40℃

6. Software Instructions

M05 has a pre-loaded firmware. For more information, please refer to software user manual for software operation.

7. 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 so as 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.

Vantron reserves the right to make necessary changes to this manual without prior notice. No part of this manual may be reprinted or publicly released in forms of photocopy, tape, broadcast, e-document, etc.

8. FCC compliance statement

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.

Note 1: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of 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 or more 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.

NOTE 2: Any changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTE 3: 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.

RF exposure information and statement: This device meets the government's requirements for exposure to radio waves. This device is designed and manufactured not to exceed the emission limits for exposure to radio frequency (RF) energy. The exposure standard for wireless devices employs a unit of measurement known as Specific Absorption Rate(SAR).The SAR limit set by the FCC is 1.6 W/Kg. For body-worn operation, this device has been tested and meets the FCC RF exposure guidelines for use with an accessory that

contains no metal and positions the device a minimum of 0.5 cm from the body. RF exposure compliance with any body-worn accessory that contains metal was not tested and certified, and use of such body-worn accessory should be avoided. Any accessory used with this device for body-worn operation must keep the device a minimum of 0.5 cm away from the body.

9. Appendix A: How to Contact Us

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

US Office: Vantron Technology, Inc.

Address: 48434 Milmont Ave., Fremont,

CA 94538-7324

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