ZB-HD-ANT-257

Hardware User Manual

Product Version: 1.0

Date: 2021-12-14

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

Change History

This table describes the version and release date.

Rev.	Date	Description	Author
1.0	2021-12-14	First release.	Cong Yang
2.0	2022-01-07	Modify product parameter	Cong Yang

Foreword

Copyright

While all information contained herein have been carefully checked to assure its accuracy in technical details and printing, Vantron assumes no responsibility resulting from any error or features of this manual, or from improper uses of this manual or the software. Please contact our technical department for relevant operation solutions if there is any problem that cannot be solved according to this manual.

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 85°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.

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, Freescale iMX6, iMX8, 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 in 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.

1.2 Connector Description

These tables respectively describe the valid signal of connectors on the Vantron board.

Table 1-1 Term description (1)

N/C	Not connect
GND	Ground
/	Active low signal
+	Positive of difference signal
-	negative of difference signal

Table 1-2 Term description (2)

I	Input
O	Output
I/O	input/output
P	Power or ground
A	Analog
OD	Open drain
CMOS	3.3 V CMOS
LVCMOS	Low Voltage CMOS
LVTTL	Low Voltage TTL
3.3V	3.3 V signal level
5V	5 V signal level
USB	5 V tolerant signal
PCIe	PCI Express signal, not 3.3 V tolerant
NC	No Connection

2 Overview

2.1 Introduction

ZB-HD-ANT-257 is ANT+ module.

2.2 Specifications

Table 2-1 Specifications

Specifications		
SOC	Processor	TI CC2571
Interfaces	GPIO	3 x GPIO
	UART	1 x UART
Wireless	ANT+	2.4-GHz Radio support RSSI
Power	DC Input	Support 3.3V/50mA 1.8V/1mA DC power supply.
Design	Dimensions	32.79 x 31.36 mm
	Tablet Weight	TBD
Environment Condition	Temperature	Operating: -40℃~ 85℃ (Recommended: 25℃) storage: -20 ~ +60℃ (Recommended: 25℃)
	Humidity	5-95%RH (Non-Condensation)

3 Hardware Instructions

3.1 Appearance

Figure 3-1 Views

3.2 Interface Description

Figure 3-2 Interfaces (1)

3.3 Structure

Download the board structure document from Vantron official website:

www.vantrontech.com.cn

Figure 3-4 Structure

Unit: mm

4 Hardware Function Description

This chapter mainly describes the main hardware functions of this product, including ANT+.

4.1 ANT+ Module

ANT+ module shall support ANT+ communication at least 1 channel, and RSSI (Received Signal Strength Indicator).

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 Preparation

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

- Operation Temperature: 0°C ~ +60°C
- Operation Humidity: 5-95%RH (Non-Condensation)

5.1.2 DC Power Input

Please confirm the power input is 3.3V, and the reference current is 50mA.

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

5.2 Antenna

The design of the internal antenna of ZB-HD-ANT-257 is shown in Figure 5-1.

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.

6 Software Instructions

ZB-HD-ANT-257 has been 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 Statement

FCC 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.

Changes or modifications not expressly approved by the party responsible for compliance could void the

user’s authority to operate the equipment.

NOTE: 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 or more of the following measures:● Reorient of relocate the receiving antenna.

● Increase the separation between the equipment and receiver.

● Connect the equipment into an outlet on a circuit difference from that to which the receiver is connected.

● Consult the dealer or an experienced radio/TV technician for help

The final end product must be labeled in a visible area with the following “Contains FCC ID: 2AAGE-257"

If the FCC identification number is not visible when the module is installed inside another device, then the

outside of the device into which the module is installed must also display a label referring to the enclosed

module. This exterior label can use wording such as the following; Contains Transmitter Module FCC ID:2AAGE-257.

According to FCC Part 15 Subpart C Section 15.212, the radio elements of the modular transmitter must have radio frequency circuitry shielded. However, due to there have no radio frequency circuitry shielded for this Module, this module is granted as a Limited Modular Approval. When this I Module is installed into the end product, a Class II Permissive Change or a New FCC ID submission is required to ensure the full compliance of FCC relevant requirements.

remove this RF module in the user's manual of the end product which integrates this module. The end user manual shall include all required regulatory information/warning as show in this manual.
When the module is installed inside another device, the user manual of this device must contain below
warning statements;
1. 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,
9 / 102) this device must accept any interference received, including interference that
may cause undesired operation.
2. Changes or modifications not expressly approved by the party responsible for compliance could
void the user's authority to operate the equipment. The devices must be installed and used in strict accordance with the manufacturer's instructions as described in the user documentation that comes with the product.

Manual Information to the End User:
The OEM integrator has to be aware not provide information to the end user regarding how to install or remove this RF module in the user's manual of the end product which integrates this module.
The end user manual shall include all required regulatory information/warning as show in this manual.
When the module is installed inside another device, the user manual of this device must contain below warning statements;
This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions:
this device may not cause harmful interference,
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. The devices must be installed and used in

strict accordance with the manufacturer's instructions as described in the user documentation that comes with the product.

IC：

This device complies with Industry Canada's license-exempt RSSs. Operation is subject to the following two conditions:

(1) This device may not cause interference; and

(2) This device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Important Note:

In the event that these conditions cannot be met (for example certain laptop configurations or co-location with another transmitter), then the Canada authorization is no longer considered valid and the IC cannot be used on the final product. In these circumstances, the OEM integrator will be responsible for re-evaluating the end product (including the transmitter) and obtaining a separate Canada authorization.

Note Importante:

Dans le cas où ces conditions ne peuvent être satisfaites (par exemple pour certaines configurations d'ordinateur portable ou de certaines co-localisation avec un autre émetteur), l'autorisation du Canada n'est plus considéré comme valide et l' IC ne peut pas être utilisé sur le produit final. Dans ces circonstances, l'intégrateur OEM sera chargé de réévaluer le produit final (y compris l'émetteur) et l'obtention d'une autorisation distincte au Canada.

End Product Labeling

The final end product must be labeled in a visible area with the following: Contains IC: 11152A-257

Plaque signalétique du produit final

Le produit final doit être étiqueté dans un endroit visible avec l'inscription suivante: Contient des IC: 11152A-257

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

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