<u>SPECIFICATIONS</u>

Fanless Embedded Android Computer

BIPC-R200

Content

Declaration

This manual is suitable for BIPC-R200 Android computer. Information in this document is subject to change without notice. Shandong New Beiyang Info-Tech Co., Ltd. (Hereinafter referred to as "SNBC") reserves the right to improve products as new technology, components, software, and firmware become available. If users need the further data about these products, please feel free to contact us or your local distributor.

No part of this document may be reproduced or transmitted in any form or by any means, electronic or mechanical, for any purpose without the express written permission of SNBC.

Copyright

Copyright © 2020 by SNBC.

Printed in China.

Trademark

Registered trademark: **SNBC**®

SNBC has been approved by the following certifications:

ISO9001 Quality Control System Certification

ISO14001 Environmental Management System Certification

OHSAS18001 Occupational Health and Safety Management System Certification

IECQ QC 080000 Hazardous Substance Process Management System Certification

Contact us:

Address: No.169 huoju road, high-tech zone, Weihai, China

Hot line: 400-618-1368   800-860-1368

Fax: +86-631-5656098

PC: 264209

Website: www.snbc.com.cn

1 Overview

1.1 Product name, model, version

Android computer, BIPC-R200, V1.2.

1.2 Product function

This product serves as the control computer of self-service terminal products (including cabinets, sales and other terminals), and is used to drive the human-machine interaction (display, operation), module control, data interaction and other business functions of terminal products.

2 Product description

The Android computer BIPC-R200 is an embedded industrial control host based on the Rockchip RK3399 processor. It has 2xCortex®-A72 MP cores and 4xCortex®-A53 MP cores, up to 1.8GHz, 4-Core Mali-T860 GPU, and good chip performance. The system is equipped with multiple interfaces such as Ethernet, RS232, RS485, USB, WIFI, HDMI, LVDS, TF, SIM, audio, etc. and the system supports HDMI 2.0 video output, dual 8-bit LVDS output, and can be customized for various TFT LCD displays.

3   Physical characteristics

3.1 Composition structure

Main box, main box cover, circuit board, product label, fixing screws (M3×4 countersunk screws, M3×5 ball head screws, M3×6 combination screws).

3.2 Appearance and color

Black (only on the external surface, the internal will not be painted), with a white silk screen pattern on the appearance.

3.3 Overall dimensions and weight
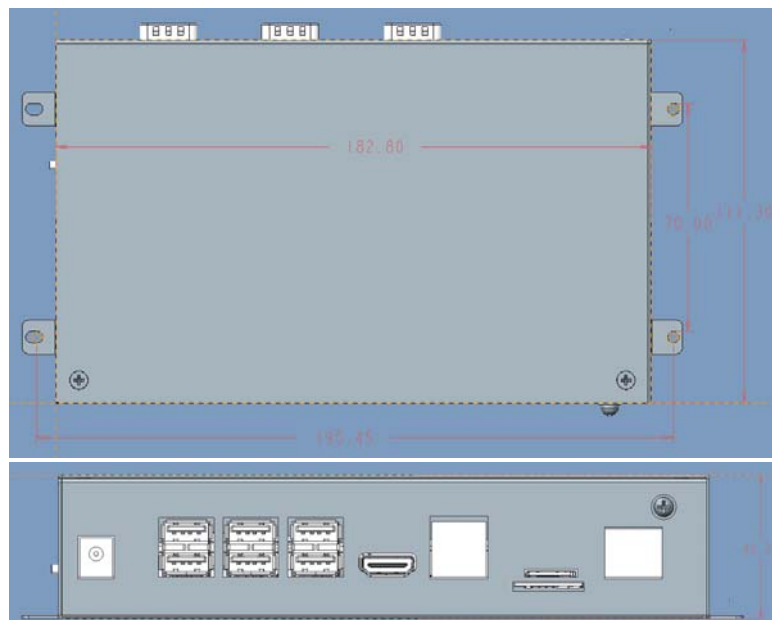
Weight: about 703g

3.4 Trademark and nameplate

- 4 -

SNBC Fanless Embedded Android Computer

BIPC-R200   12V === 4.0A   MADE IN CHINA

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.

S/N: 200500100001

P/N: BIPC-R2000131M

Shandong New Beiyang Information Technology Co., Ltd.

4   Technical specifications

Item		Specifications
Product model		BIPC-R200 Android computer
Processor	CPU	RK3399, 64-bit CPU, up to 1.8 GHz
	Number of cores	Six cores, 2x Cortex®-A72 MP cores + 4x Cortex®-A53 MP cores
	Main frequency	2.0GHz
	Memory RAM	LPDDR4 2GB/4GB (optional)
	Storage ROM	EMMC 8GB/16GB/32GB (optional)
Communication interface	USB interface	6x USB2.0 Host interfaces, 1x USB3.0 Host interface, 1x USB OTG interface
	RS232 interface	3x standard RS232 serial interface (DB9 male)
	RS485 interface	1x RS485 interface (3Pin green terminal)
	Ethernet interface	1x 110/100/1000M Ethernet interface
	WIFI + Bluetooth	1x WIFI / Bluetooth wireless communication interface (optional)
Audio/Video interface	Audio input	1x microphone input interface
	Audio input/output	1x dual-channel headphone output interface, suitable for CTIA standard headphones
	Audio output	1x dual-channel speaker output interface, suitable for 8 Ω 5W speakers
	LVDS interface	1x dual 8-bit LVDS interface, supporting up to 1080P video output
	LCD backlight interface	1x LCD backlight power interface
	HDMI interface	1x HDMI2.0 interface, supporting up to 4096×2160 (4K) video output
Other resources	Power interface	Optional DC005 socket / DS301 socket
	External storage interface	1x TF card expansion storage interface
	Indicator light	3x indicator lights (running/4G/power)
	Return button	1x return button
	Reset button	1x reset button
	RTC clock	1x RTC clock circuit
	GPIO Interface	1x GPIO interface
System version		Standard Android 7.1.2 operating system
Power supply		Rated 12 (± 10%) VDC
Working current		≤3A
Working environment temperature		-20~+60℃
Working environment humidity		10%~95% relative humidity (non-condensation)

Storage environment temperature	-40~+85℃
Storage environment humidity	5%~95% relative humidity (without condensation)
Certificate	CCC
MTBF	910000 hours
MTTR	1 hour
Overall dimensions	182.8mm (length) * 111.3mm (width) * 40.2mm (height)

5   Interface definition

5.1 Front-side interfaces

5.1.1   Power interface

The allowable input voltage range for the host power supply is 12V±10%, the rated input voltage is 12V/DC, and the input current should not be less than 3A (without screen). The shell silk-screen is "DC/12V", and the power interface form can be adjusted according to the demands:

Power interface connector 1 (default): DC-005 socket (internal positive and external negative), φ2.0mm, referring to the following figure:

Power interface connector 2: DS-301 socket, referring to the following figure:

5.1.2   USB interface

The computer provides six USB 2.0 interfaces which complies with USB2.0 standard and has overcurrent protection function. The connector is a standard USB-A type socket, with the shell silk-screen of "USB2.0". The computer supports FAT32 formatted USB drives.

In addition, the computer provides one USB 3.0 interface which complies with USB3.0 specification and has 1.5A current. The connector is a standard USB-A type socket, with the shell silk-screen of "USB3.0". The computer provides one USB OTG interface for the system burning and ADB debugging, and the interface is a USB-A type socket with the shell silk-screen printed as of "OTG".

5.1.3 HDMI interface

The computer provides one standard HDMI interface which can support universal HDMI2.0 interface display screen and components, and play 4096×2160 (4K) video. The shell silk-screen is "HDMI", referring to the following figure:

5.1.4 TF card interface

The computer provides one TF card interface, with a standard TF card socket as the connector. The shell silk-screen is "TF" and indicates the direction, referring to the following figure:

5.1.5 Ethernet interface

The computer provides one adaptive 10M/100M/1000M Ethernet interface which is equipped with isolation transformer. The connector is a standard RJ-45 socket, and the shell silk-screen is "LAN", referring to the following figure:

The Ethernet interface is RJ-45 interface, and the pin definition for the RJ-45 interface is shown in the table below:

Pin No.	Pin definition	Function	Pin No.	Pin definition	Function
1	TX_D1+	Send+	2	TX_D1-	Send-
3	RX_D2+	Receive+	4	BI_D3+	Bidirectional+
5	BI_D3-	Bidirectional-	6	RX_D2-	Receive-
7	BI_D4+	Bidirectional+	8	BI_D4-	Bidirectional-

5.1.6   Grounding point

The shell of computer is designed with a grounding point. To ensure the electromagnetic compatibility reliability, please ensure that the shell is reliably grounded during use. Refer to the following figure:

5.2 Left-side interfaces

5.2.1   Audio speaker interface

The computer provides one audio power amplifier output interface, which uses a 4Pin-2.0mm PH socket and the shell silk-screen is "SPK". This interface can support left and right dual-channel audio output and 2 speakers with 8Ω and 5W. The pin definition of interface is as follows:

Pin No.	Pin definition	Pin No.	Pin definition
1	R+	3	L-
2	R-	4	L+

5.2.2   Return button

The shell silk-screen of return button is "RETURN". The button can be used to return to the previous step in the Android operating system. Refer to the following figure:

5.2.3   Reset button

The reset button can reset and restart the Android system, and the shell silk-screen is "RESET". Refer to the following figure:


5.2.4   GPIO interface

The computer provides one GPIO input, which can be externally connected to buttons, etc. to detect the high and low level status. The shell silk-screen is "ADC". Refer to the following figure:

5.2.5   MIC interface

The computer provides one audio input interface with 3.5mm socket for external microphones. The shell silk-screen is "MIC". Refer to the following figure:
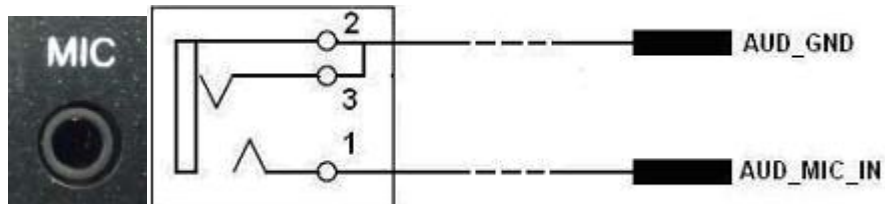
5.2.6   Headphone interface

The computer provides one 3.5mm audio input/output interface, which is used to externally connect the CTIA standard four-segment type headphones (with microphone). The shell silk-screen is "MIC/HP". Refer to the following figure:

5.2.7 Backlight interface

The backlight interface adopts 6Pin-2.0mm single-row bent pin socket, which takes the corresponding pin marked with a white triangle symbol silk-screen as the first pin, and the shell silk-screen is "BKL".

The pin definition is shown in the table below:

Pin No.	Pin definition	Pin No.	Pin definition
1	PWR	4	PWM
2	PWR	5	GND
3	ENABLE	6	GND

5.3 Right-side interface

5.3.1 RS485 interface

The computer provides one RS485 interface with 3Pin-3.81mm green terminals and fixing screws. The corresponding serial port number is ttysWK0, and the shell silk-screen is "RS 485". Refer to the following figure:

5.4 Back-side interfaces

5.4.1 Indicator light

The indicator light adopts integrated indicator light (3 lights), namely the normal working indicator light, 4G network status indicator light, and system power indicator light. By observing the indicator lights, it is easy to know the system operation situation. The description of indicator lights is shown in the table below:

Indicator light No.	Silk-screen	Function
1	SYS	Indicates the normal working status of the system, which is always on when the system is running.
2	4G	When the 4G module is running, the light flashes.
3	POWER	Indicates the normal power supply of the system, which is always on.

5.4.2 LVDS video interface

The computer provides one LVDS video interface, which adopts a 30Pin-2.0mm double-row bent pin socket, data bus LVDS, and the shell silk-screen is "LVDS". The corresponding pin marked with a white triangle symbol silk-screen is taken as the first pin. The video interface also provides optional levels (3.3V/5V), which would be set to 5V by default before leaving from the factory. The pin definition is shown in the table below:

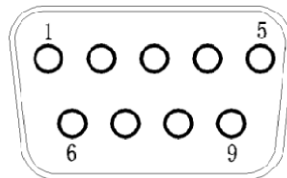| Pin No.	Pin definition	Pin No.	Pin definition
1	LVDS_PWR	2	LVDS_PWR
3	LVDS_PWR	4	GND
5	GND	6	GND
7	LVDS0_TX0_N	8	LVDS0_TX0_P
9	LVDS0_TX1_N	10	LVDS0_TX1_P
11	LVDS0_TX2_N	12	LVDS0_TX2_P
13	GND	14	GND
15	LVDS0_CLK_N	16	LVDS0_CLK_P
17	LVDS0_TX3_N	18	LVDS0_TX3_P
19	LVDS1_TX0_N	20	LVDS1_TX0_P
21	LVDS1_TX1_N	22	LVDS1_TX1_P
23	LVDS1_TX2_N	24	LVDS1_TX2_P
25	GND	26	GND
27	LVDS1_CLK_N	28	LVDS1_CLK_P
29	LVDS1_TX3_N	30	LVDS1_TX3_P

5.4.3 RS232 interface

The computer provides three RS232 interfaces, all adopt standard DB9 (male) sockets. Each serial interface supports a maximum baud rate of 115200bps, and the shell silk-screen is "COM1-3".

The correspondence between serial interface number and silk-screen is as follows:

Silk-screen	Serial interface No.
COM1	ttysWK1
COM2	ttysWK2
COM3	ttysWK3

The pin definition is as follows:

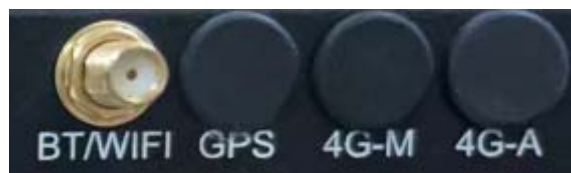| Pin No.	Pin definition		Pin No.	Pin definition
1	NC		6	NC
2	RXD		7	NC
3	TXD		8	NC
4	NC		9	NC
5	GND			

5.4.4 Antenna interfaces

The computer has four antenna interfaces, namely 4G main antenna, 4G sub antenna, GPS, and WIFI/BT.

6   Compliant specifications

6.1 Product certification

This product has passed CCC certification.

[Warning]:

1) This is a grade A product. In the living environment, this product may cause radio interference. Under this situation, the user may need to take feasible measures to prevent the interference;

2) If a power adapter is used for the power supply, please use a power adapter that has obtained CCC certification and meets the standard requirements.

3) Please take attention that changes or modification not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

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.

This equipment should be installed and operated with minimum distance 20cm between the radiator&your body.

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.

l'appareil contient des émetteurs/récepteurs exempts de licence qui sont conformes aux CNR exempts de licence d'Innovation, Sciences et Développement économique Canada.

L'exploitation est soumise aux deux conditions suivantes :

(1) l'appareil ne doit pas produire de brouillage,

(2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le

brouillage est susceptible d'en compromettre le fonctionnement.