

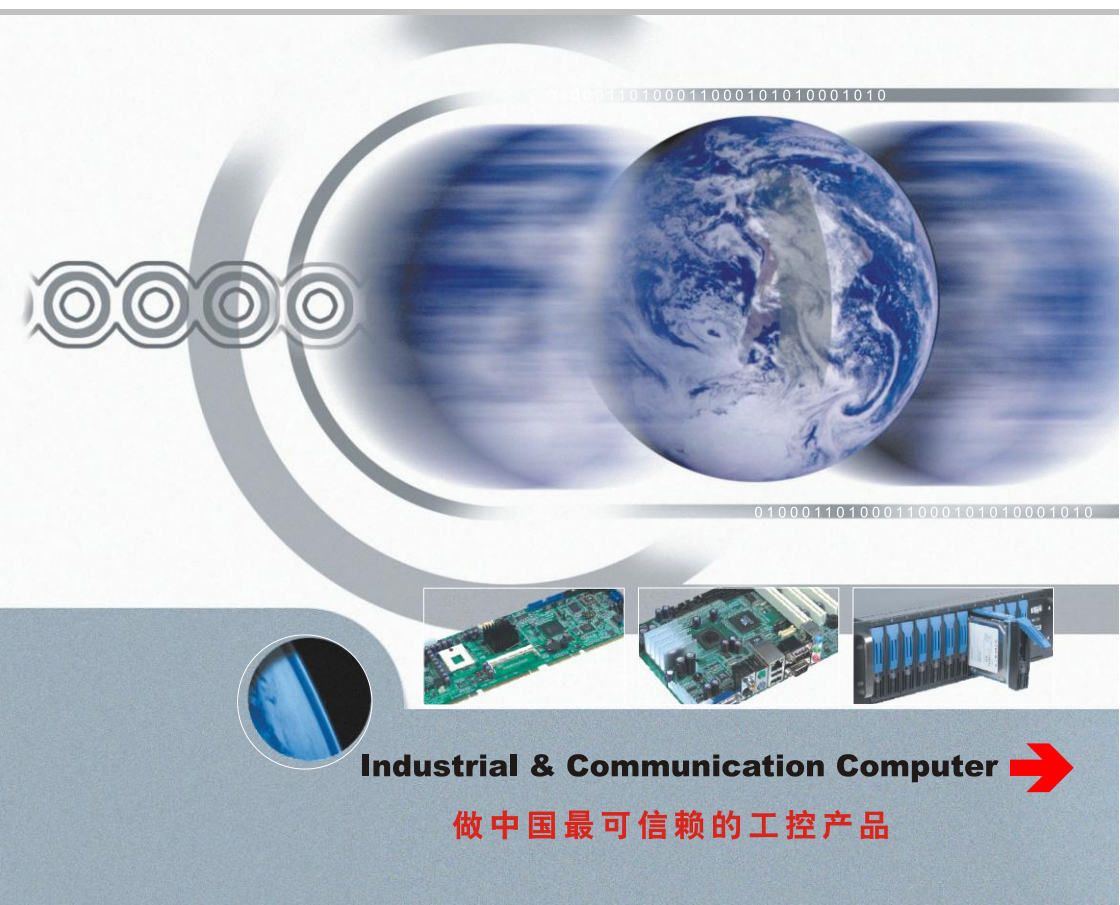


BIS-6380E

USER' Manual V1.0

用户手册

USER'Manual



Industrial & Communication Computer ➔

做中国最可信赖的工控产品

BIS-6380E

USER' Manual V1.0

SZ HQ: 0755-27331166

Beijing Office: 010-82671166

Shanghai Office: 021-61212081

Chengdu Office: 028-85259319

Shenyang Office: 024-23960846

Xi'an Office: 029-88338386

Nanjing Office: 025-58015489

Wuhan Office: 027-87858983

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Safety Instructions

1. Please read the product manual carefully before using this product.
- 2 . Put all the unused or uninstalled boards or electronic components in a static dissipative surface or static shielding bag.
- 3 . Always ground yourself to remove any static discharge before touching the board, to place your hands on grounding metal object for a while or wear a anti-static wrist strap at all times.
- 4 . When taking or fetching the boards or cards, please wear antistatic gloves and have the habit of holding the boards by its edges.
- 5 . Make sure that your power supply is set to the correct voltage in your area. Incorrect voltage may cause personal injuries and damage the system.
- 6 . To prevent electronic shock hazard or any damage to the product, please ensure that all power cables for the devices are unplugged when adding or removing any devices or reconfiguring the system.
- 7 . To prevent electrical shock hazard, disconnect the power cable from the electrical outlet before relocating the system.
- 8 . When adding or removing devices to or from the system, ensure that all the power cables for the devices are unplugged in advance.
- 9 . To prevent any unnecessary damage to the products due to frequent power on/off, please wait at least 30 seconds to restart the unit after the shutdown.
- 10 . If system goes wrong during the operation, do not try to fix it by yourself. Contact a qualified service technician or your retailer.
- 11 . This product is classified as Class A product, which may cause radio interference in our living environment. On this occasion, users need to take measures to handle the interference.

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Packing List

Thanks for purchasing NORCO products. Please check the accessories as per the packing list when you open its package. If you find any components/parts defected, damaged or lost, please contact your vendor ASAP.

■BIS-6380E	1pcs
■12V Power Adaptor	1pcs
■Screw	1bag



Chapter 1. Product Introduction

Chapter 1 Product Introduction

1.1 Overview

BIS-6380E is a new generation embedded barebone with size of 270mmx165.2mmx66.7mm. Built-in motherboard supports onboard chipset. I.MX6 platform, onboard memory, memory up to 2GB and 3/4G Internet are supported as well.. 1VGA interface, 1HDMI interface,1 dual channel LVDS interface(24Bit, with definition up to 1920x1200@60Hz);1 Gigabit Ethernet interface, 7 USB interface, 8 serial ports, 1MIC-in interface, 1Line-out socket,1 headphone socket, 2 MINI PCIE socket, and 2 SIM socket are provided.

1.2 Specifications

Size

- Size: 270mm× 165.2mm×66.7 mm (L×W×H)

Processor

- CPU : Onboard, support i.MX6 system(single core、 dual core、 quad core)

Memory

- Onboard memory : can choose 1/ 2GB , support DDRIII

Display

- Display Interface: VGA, LVDS, HDMI(optional)
- LVDS : dual channel LVDS interface , 24Bit with definition up to 1920x1200@60Hz
- HDMI : with definition up to : 1920x1080@60Hz

Internet

- Support onboard Gigabit cable network control device : 10/100/1000MBps
- Support onboard WiFi
- Provide 2 MINI PCIE socket , 2 个 SIM socket ,support 3/4G Internet

Storage

- Provide 1x standard 7Pin SATA Port
- SD: support SD
- FLASH : onboard 8GB INAND

AUDIO

- Adopts SGTL5000-XNAA3 audio controller chip
- Provide 1 MIC-in interface, two 6W power amplifier output interface
- Provide 1 Line-in socket , 1 Headphone socket

I/O

- Serial ports : provide 8 RS232 DB9 serial ports , COM1、COM2 support RS485。
- Provide 7 standard USB2.0 interface , 1 USB2.0 OTG standard interface
- Support 2 line CAN BUS(optional)

Power Supply

- 12V single supply

Support 9-18V wide voltage input, it will not support 12V output to LVDS under this circumstances.

Watchdog

- Support system reset function

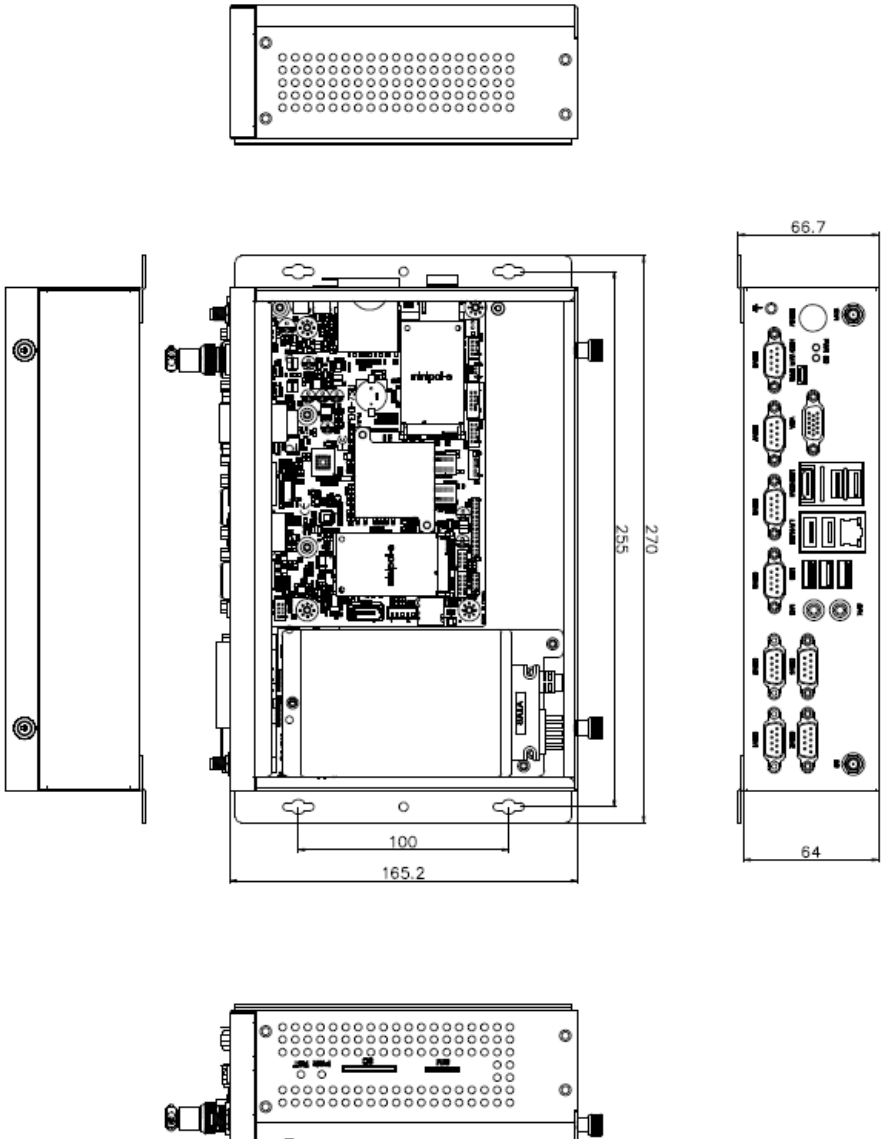
Operating Temperature

- Operating Temperature: 0°C~60°C
- Operating Humidity: 5%~95%, non-condensing

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1.3 Product Structure Size

Size: 270mm x 165.2mm x 66.7mm (L x W x H)



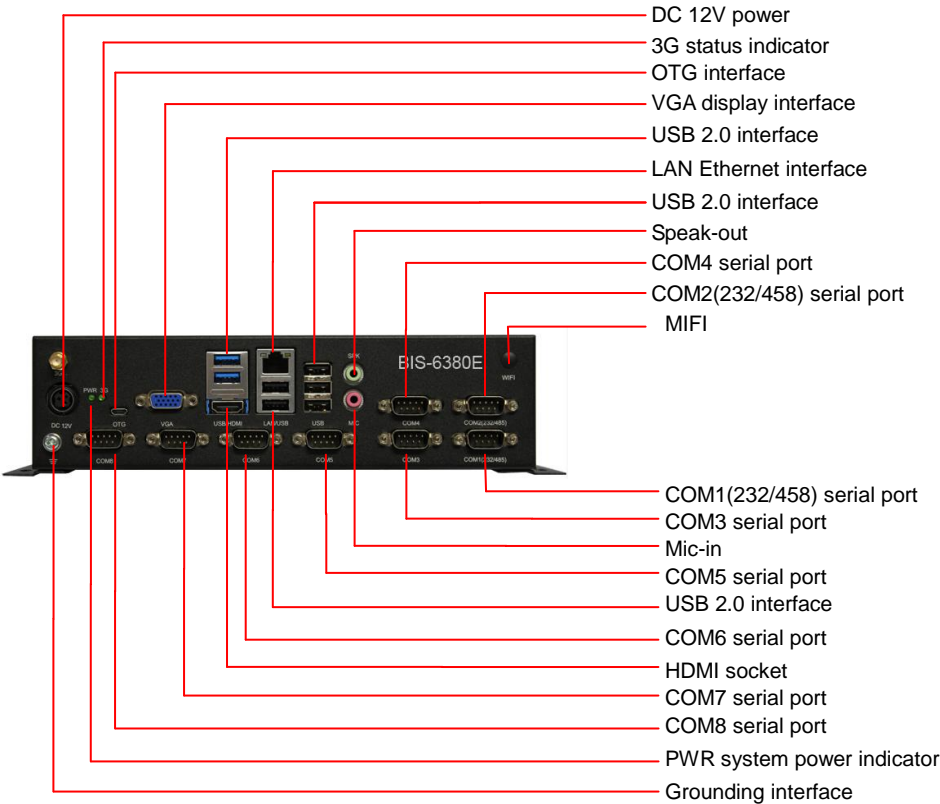


Chapter 2. Hardware Introduction

Chapter 2 Hardware Introduction

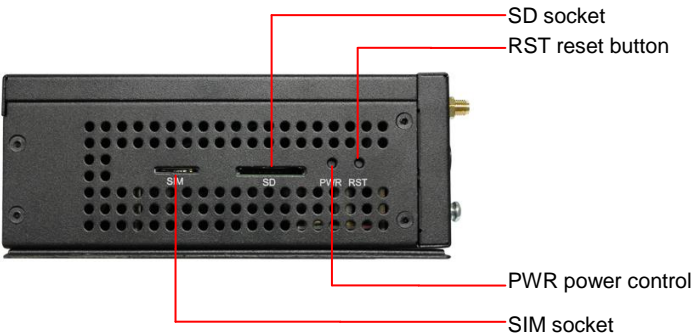
2.1 External Interfaces Location

1: BIS-6380E Front View



BIS-6380E User Manual

2: BIS-6380E Back View



2.2 Front Panel I/O Connectors

2.2.1 Audio (Speak-out, Mic-in)

BIS-6380E uses SGTL5000-XNAA3 audio control chip and TDA3133 power amplifier chip, The green port is speak-out; the pink port is microphone Mic-in.



2.2.2 LED

Left one is PWR LED. Right one is 3G LED.



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2.2.3 Serial Ports (COM1-COM8)

Provide 8DB9 serial ports



When COM1-COM2 sets RS232/RS422/RS485, pin definition as following:

RS485	RS422	RS232	Pin		RS232	RS422	RS485
DATA-	TX-	NC	1	2	RXD	TX+	DATA+
NC	RX+	TXD	3	4	NC	RX-	NC
GND	GND	GND	5	6	NC	NC	NC
NC	NC	NC	7	8	NC	NC	NC
NC	NC	NC	9				

COM3-COM8:

Pin	Signal Name	Signal Description
1	NC	
2	RXD	Receive data
3	TXD	Transfer data
4	NC	
5	GND	Ground
6	NC	
7	RTS	Request to send
8	CTS	Clear to send
9	NC	

2.2.4 USB

BIS-6380E provide 7 standard USB2.0 interfaces, plug and play



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USB:

Pin	Signal Name
1、 2	+5V
3、 4	USB DATA-
5、 6	USB DATA+
7、 8	GND

2.2.5 Ethernet (LAN)

BIS-6380E provides 1x RJ-45 Gigabit LAN port. LILED and ACTLED are the two LED indicator Lamps on the two sides of the RJ-45 Interface. The two lamps indicate LAN status:



RJ45 LAN LED status:

LILED (Green)	Function	ACTLED (Yellow)	Function
Flash	Effective Link	On	Data transfer
Off	No link/Close	Off	Data stop transferring

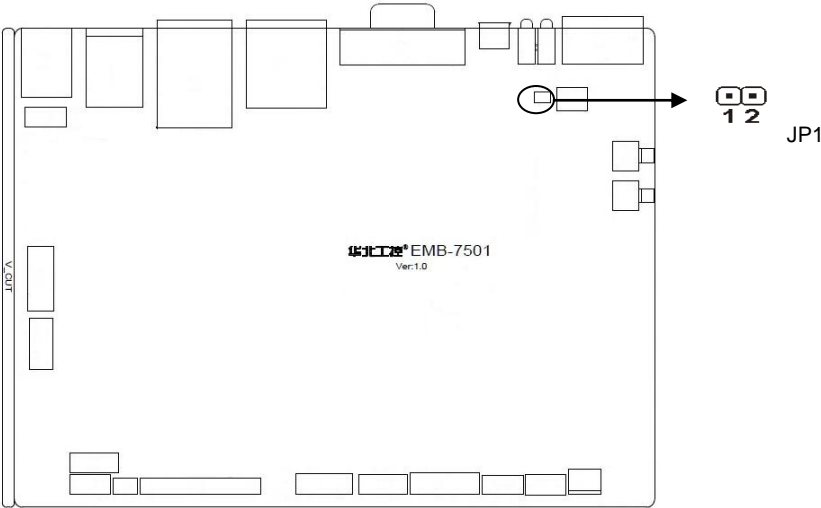
2.3 Jumper Setting

Please refer to following instructions to setup jumpers before installing your hardware devices.

Remark: How to identify the PIN1 of all jumpers and interfaces: Please observe the word mark on the side of the plug socket, which will be a “1” or bold line or triangular symbol; And please look at the back of PCB, each with a square shape will be the PIN 1; and all the jumpers’ PIN1 have a white arrow on the side.

2.3.1 Jumper Function Setting (JP1)


JP1 is to set motherboard boot mode, plug in jumper cap is DOWNLOAD mode, unplug is normal boot mode, J2 is to set LVDS’ power according to different screens.



JP1

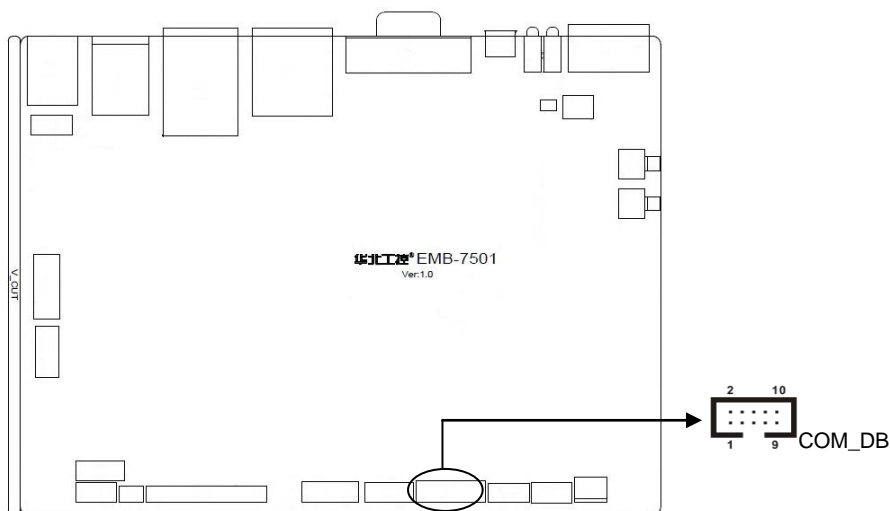
JP1 (download setting)	
Close	download
Open	normal

2.4 Inner Interface Instruction

 Please read the manual carefully to connect external connector so as to avoid any damage to the board!

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2.4.1 Serial Port (COM_DB)

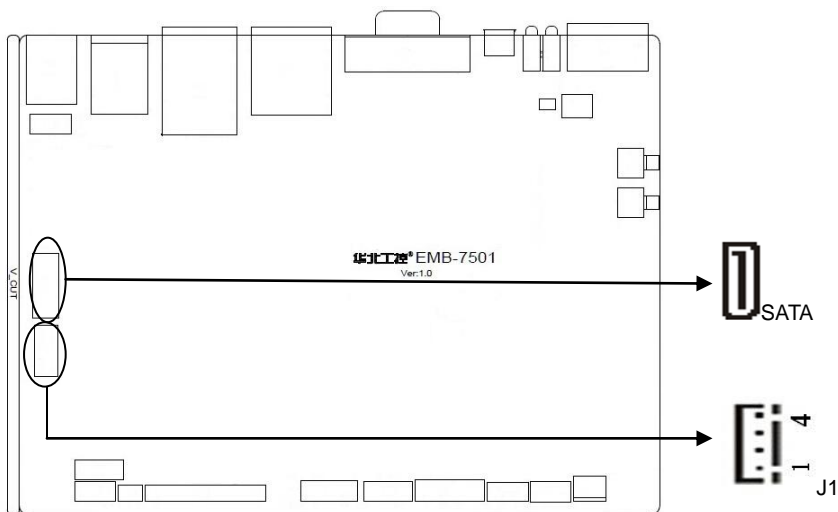


COM_DB

Signal Name	Pin	Pin	Signal Name
NC	1	2	NC
COM0_RX	3	4	COM0_RTS
COM0_TX	5	6	COM0_CTS
NC	7	8	NC
GND	9	10	GND

2.4.2 SATA Interface (SATA、J16)

BIS-6380E provides 7Pin SATA signal interface and 4Pin SATA power interface.



SATA signal interface:

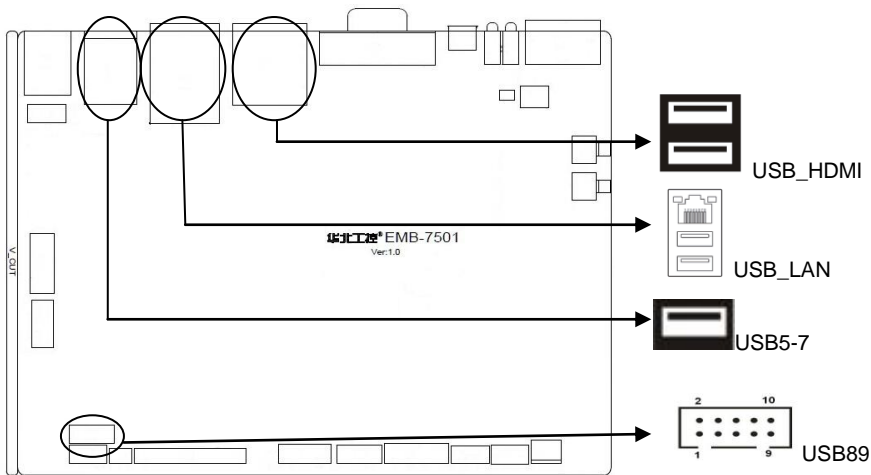
Pin	Signal Name
1	GND
2	TX+
3	TX-
4	GND
5	RX-
6	RX+
7	GND

SATA power interface J16:

Pin	Signal Name
1	+3.3V
2	GND
3	+5V
4	GND

2.4.3 USB Interface (USB5-7, USB_HDMI, USB_LAN, USB89)

BIS-6638E provides 9 USB2.0 interfaces, 7 standard USB2.0 interfaces, 1 USB2.0 pin.

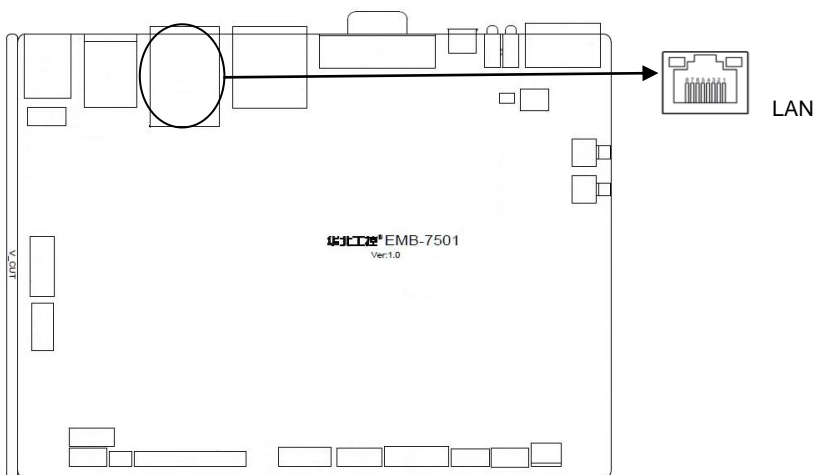


USB89

Signal Name	PIN		Signal Name
VCC	1	2	GND
USB DATA-	3	4	GND
USB DATA+	5	6	USB DATA+
GND	7	8	USB DATA-
GND	9	10	VCC

2.4.4 Ethernet Interface (LAN)

BIS-6380E provides PHY interface chip (model: AR8033), yellow indicates data transfer status, and green indicates network connection status.

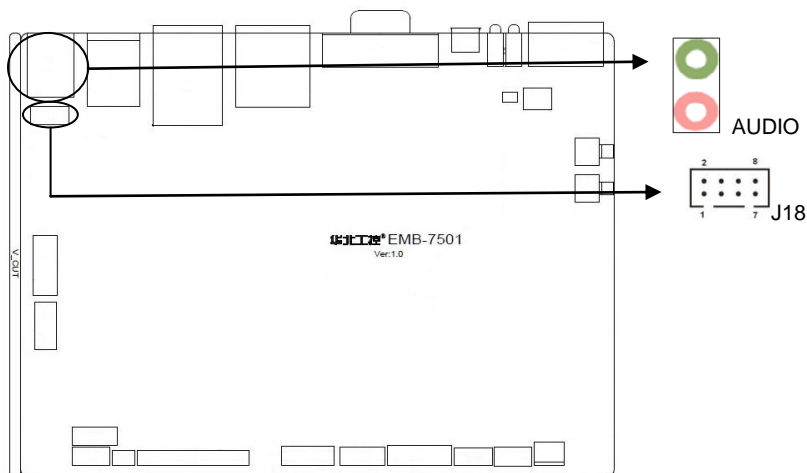


RJ45 LAN LED Status::

LILED (Green)	Function	ACTLED (Yellow)	Function
Flash	100/1000M link	On	Data transfer
Off	10M link/ close	Off	Data stop transfer

2.4.5 Audio Interface (AUDIO、J18)

EMB-7501 adopts SCTL5000-XNAA3 audio control chip and DA3133 power amplifier chip. Microphone interface is red one. J18 is audio pin.

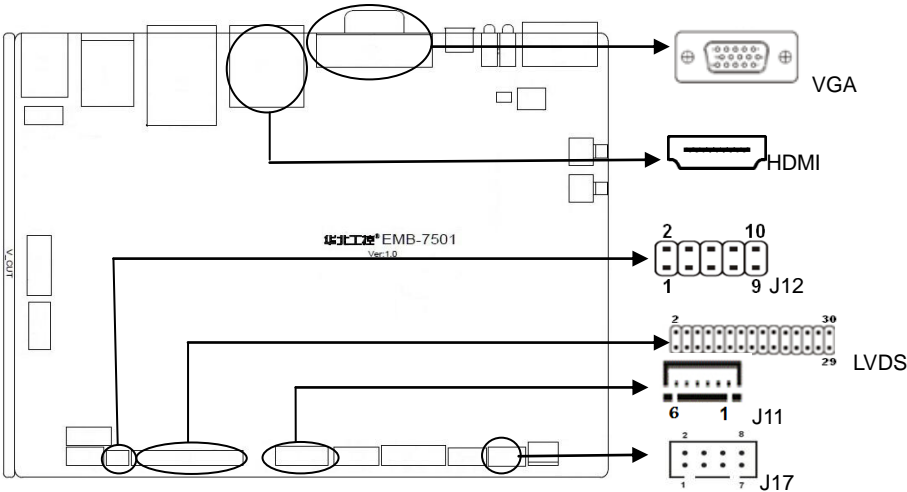


J18:

Signal Name	Pin		Signal Name
Line in-L	1	2	Line in-R
GND	3	4	GND
AMP_L+(power amplifier output)	5	6	AMP_R+ (power amplifier output)
AMP_L- (power amplifier output)	7	8	AMP_R- (power amplifier output)

2.4.6 Display Interface (LVDS、 HDMI、 VGA)

Provide 1 dual channel LVDS interface (pin LVDS, J11, J12, and J17), 1 HDMID HD display interface, 1VGA interface.



LVDS:

Signal Name	Pin		Signal Name
VDD_PANEL	1	2	VDD_PANEL
GND	3	4	NC
GND	5	6	GND
LVDS0_TX0_N	7	8	LVDS0_TX0_P
LVDS0_TX1_N	9	10	LVDS0_TX1_P
LVDS0_TX2_N	11	12	LVDS0_TX2_P
GND	13	14	GND
LVDS0_CLK_N	15	16	LVDS0_CLK_P
LVDS0_TX3_N	17	18	LVDS0_TX3_P

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LVDS1_TX0_N	19	20	LVDS1_TX0_P
LVDS1_TX1_N	21	22	LVDS1_TX1_P
LVDS1_TX2_N	23	24	LVDS1_TX2_P
GND	25	26	GND
LVDS1_CLK_N	27	28	LVDS1_CLK_P
LVDS1_TX3_N	29	30	LVDS1_TX3_P

J12

J12(LVDS POWER Selection)	
VDD_PANEL (+3.3V)	1-3,2-4
VDD_PANEL (+5V)	3-5,4-6
VDD_PANEL (+12V)	7-9,8-10

J11:

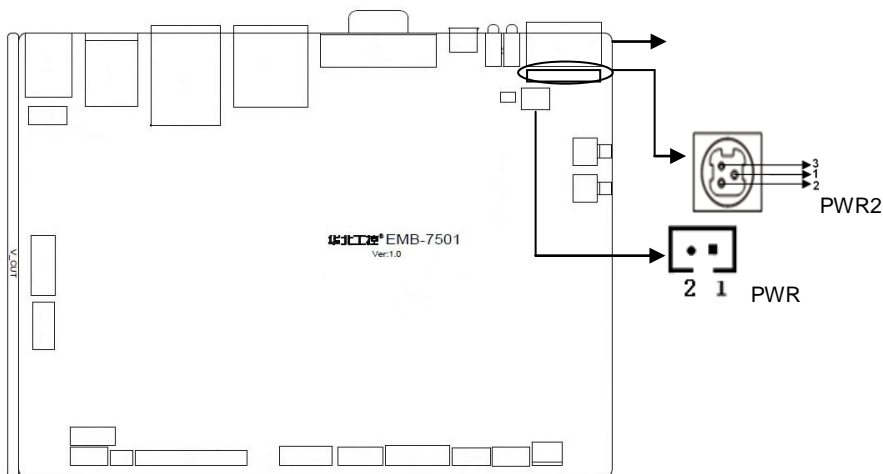
Pin	Signal Name
1	+12V
2	+12V
3	Backlight on/off
4	Backlight PWM
5	GND
6	GND

J17(LVDS12C and GPIO):

Signal Name	Pin		Signal Name
+3.3V	1	2	GND
LVDS1_SCL	3	4	LVDS0_SCL
LVDS1_SDA	5	6	LVDS0_SDA
EIM_CS1	7	8	EIM_D23

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2.4.7 Power Interface (PWR、PWR1、PW2)



PWR:

Pin	Signal Name
1	+VIN
2	GND

PWR1:

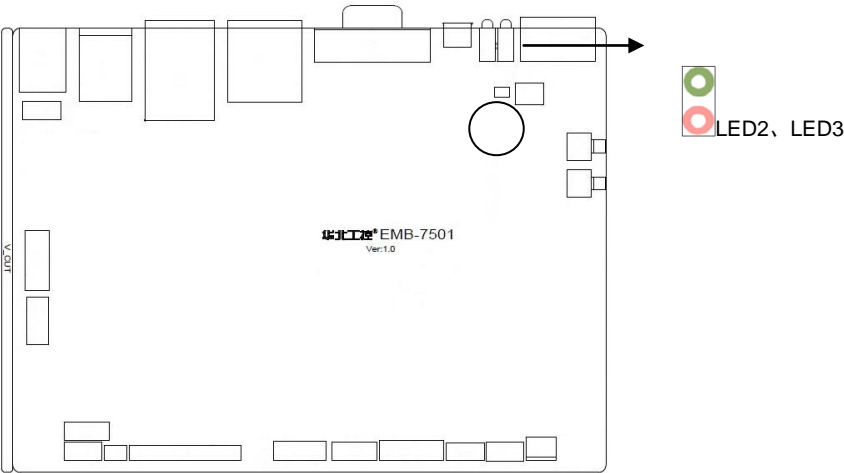
Pin	Signal Name
1	+VIN
2	GND

PWR2:

Pin	Signal Name
1	+VIN
2	GND

2.4.8 Power and System LED (LED2、LED3):

When system was plug in, motherboard has power then green PWR is on. When power is off, green PWR will be off. When motherboard begins system, and system starts to run, then red PWR is on.

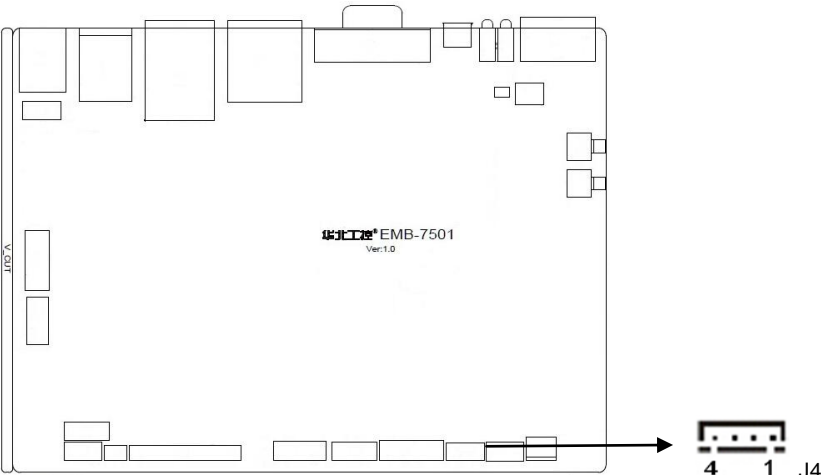


LED3(3G and Wifi LED):

Board provides 2x MINI PCIe socket to expand Mini PCIe devices based on actual needs. If you use MINI PCIe WALN card, you can use red LED to indicate WALN card status according to wireless network. If you use 3G, you can use green LED to indicate 3G status. Board has standard SD card socket, SIM card socket, and Gigabit Ethernet RJ45 interface.

2.4.9 Four-wire Resistive Touch (J4)

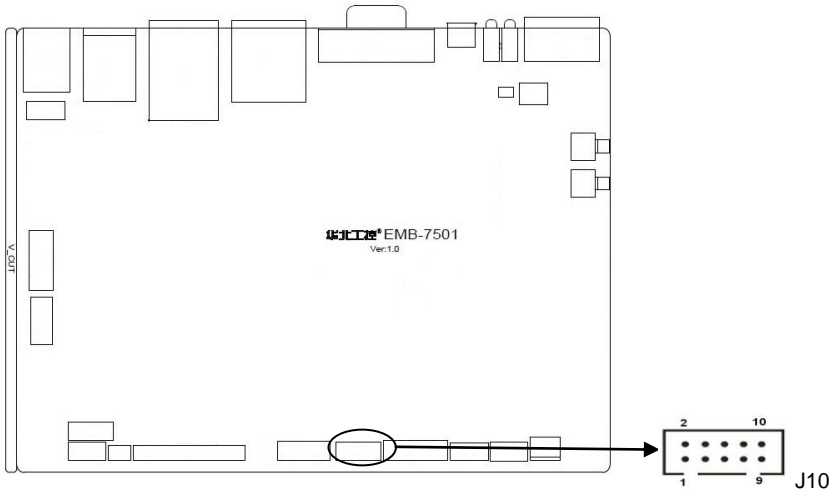
Motherboard provides 1x four-wire resistive touch J4 (optional).



J4:

Pin	Signal Name
1	Y-
2	X-
3	Y+
4	X+

2.4.10_GPIO Expansion Slot (J10):



J10:

Signal Name	Pin	Pin	Signal Name
+3.3V	1	2	GND
SD1_DAT0	3	4	SD1_CMD
SD1_DAT1	5	6	SD1_CLK
SD1_DAT2	7	8	EIM_CS0
NANDF_D3	9	10	GPIO9

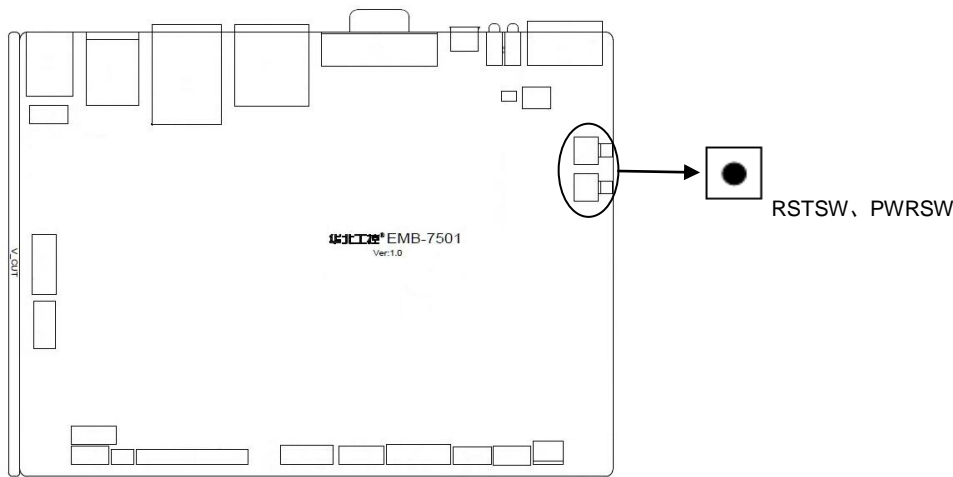
4.4.11 Front Panel Interface (PWRSW、RSTSW):

RSTSW is reboot function. Low level trigger was achieved reboot by software(or press

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RSTSW)

PWRSW is power switch. Low level trigger switch achieved by software.



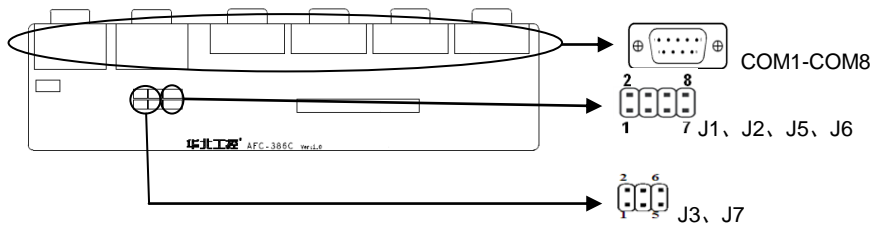
2.4.12 EXP_CON Interface

Board provides 1 ↑ EXP_CON.

2.5 ACF-386C Interface Illustration

2.5.1 Serial Ports (COM1-COM8)

BIS-6380E 8xDB9 serial ports.



J1、J2、J3:

COM1	J1	J2	J3
------	----	----	----

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RS232	1-3,2-4	1-3,2-4	1-2
RS422	3-5,4-6	3-5,4-6	3-4
RS485	3-5,4-6	3-5,4-6	5-6,7-8

J5、J6、J7:

COM2	J5	J6	J7
RS232	1-3,2-4	1-3,2-4	1-2
RS422	3-5,4-6	3-5,4-6	3-4
RS485	3-5,4-6	3-5,4-6	5-6,7-8

When COM1-COM2 sets RS232/RS422/RS485, definition of pins as followings:

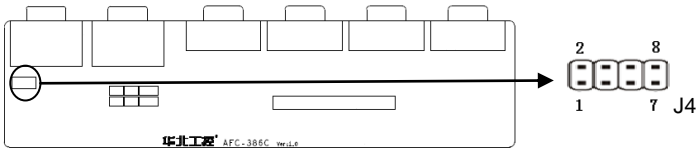
RS485	RS422	RS232	Pin		RS232	RS422	RS485
DATA-	TX-	NC	1	2	RXD	TX+	DATA+
NC	RX+	TXD	3	4	NC	RX-	NC
GND	GND	GND	5	6	NC	NC	NC
NC	NC	NC	7	8	NC	NC	NC
NC	NC	NC	9				

COM3-COM8:

Pin	Signal Name	Signal Description
1	NC	
2	RXD	Receive data
3	TXD	Transfer data
4	NC	
5	GND	Ground
6	NC	
7	RTS	Request to send
8	CTS	Clear to send
9	NC	

2.5.2 GPIO（J4）

5V optical coupling isolation level signal.



J4(GPIO):

Signal Name	Pin	Pin	Signal Name
GP_IN1	A1	B1	GP_01
GP_IN2	A2	B2	GP_02
GP_IN3	A3	B3	GP_03
+5V	A4	B4	GND



Chapter 3. Software Functions

Chapter 3 Software Functions

3.1 Android System

3.1.1 Display

Support lvds lcd and HDMI interface output respectively

Support lvds lcd and HDMI interface output spontaneously

Support lvds lcd and HDMI interface expansion output simultaneously

lvds lcd interface, can use LCD screen customization drive according to customer's actual needs

3.1.2 USB

6xUSB interface supports U disk, USB keyboard mouse and other devices.

U-Disk auto mount directory: /mnt/udisk/ (or/udisk)

3.1.3 COM

Serial port operation node: /dev/ttyS0~/dev/ttyS8

3.1.4 CAN

Not support

3.1.5 SD card

Support, auto mount directory: /mnt/extsd

3.1.6 SATA

auto mount directory: /mnt/satadisk/(或/satadisk)

3.1.7 WIFI

Support onboard WIFI

3.1.8 3G

Support China Telecom 3G model Huawei MU509

Support China Unicom 3G model Huawei MU609

3.1.9 Ethernet

Detail operation referred to android interface.

3.1.10 Sound Card

Support local card and HDMI dual sound card. Local card supports headphone and MIC

3.1.11 WEBCAM

Support USB camera 和 CVBS interface camera

3.1.12 GPIO

Support 3bit optical coupling isolation input, 3bit optical coupling isolation output, 16 bit standard interface.



Appendix

Appendix

Appendix 1: Glossary

BUS

In a computer system, it is the channel among different parts for exchanging data; it is also a set of hardware lines. BUS here refers to part lines inside CPU and the main components of system memory.

Chipset

Chipset is a Integrated set of chips for executing one or more related functions. Here it refers to a system level chipset structured by Southbridge & Northbridge; It decides the structure and main functions of motherboard.

CMOS

Complementary Metal-Oxide Semiconductor, which is a widely used semiconductor with the characteristics of high-speed and low-power. COMS here refer to part of space on-board CMOS RAM for saving date, time, system information and system parameter, ect.

COM

Computer-Output Microfilmer. A universal serial communication interface, usually adopts normative DB 9 connector.

DRAM

Dynamic Random Access Memorizer. It's a normal type of memory often with a transistor and a capacitance to store 1 bit. With the development of the technology, more and more types of DRAM with different specifications exist in computer applications. For example: SDRAM/DDR SDRAM/RDRAM.

LAN

Network interface. Network grouped by correlative computers in a small area, generally in a company or a building. Local area network is buildup by sever, workstation, some

communications links. Terminals can access data and devices anywhere through cables, which enables users to share costly devices and resource.

LED

Light-Emitting Diode. A semiconductor device that shines when power supply is connected, It is often used to denote information directly, for example, to denote power on or HDD working normally.

PnP

Plug-and-Play. It is a specification that allows PC to configure its external devices automatically and can work independently without the manual operation by its user. To achieve this function, its BIOS should be able to support PnP and a PnP expansion card

POST

Self-test when power on. While the system is booting, BIOS will do an uninterrupted testing to the system, including RAM, keyboard, hard disk driver to check if all the components are in normal situation and work well.

USB

It is the Universal Serial Bus for short. A hardware interface adapts to low speed peripherals,



Please visit our website:

<http://www.norco-group.com>

The content of this manual is subject to change without notice

Regarding the contents described herein, NORCO reserves the final right of interpretation



FCC Information and Copyright

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 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. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.