NexAIoT Co., Ltd.

Intelligent Platform & Services Business Unit
AI Edge Computer
Coeus 3500 Series
User Manual

CONTENTS

Preface

Chapter 1: Product Introduction

Chapter 2: Jumpers and Connectors

Chapter 3: System Setup

Chapter 4: Function Introduction

Appendix A:

PREFACE

Copyright

This publication, including all photographs, illustrations and software, is protected under international copyright laws, with all rights reserved. No part of this manual may be reproduced, copied, translated or transmitted in any form or by any means without the prior written consent from NexAIoT Co., Ltd.

Disclaimer

The information in this document is subject to change without prior notice and does not represent commitment from NexAIoT Co., Ltd. However, users may update their knowledge of any product in use by constantly checking its manual posted on our website: http://www.nexaiot.com. NexAIoT shall not be liable for direct, indirect, special, incidental, or consequential damages arising out of the use of any product, nor for any infringements upon the rights of third parties, which may result from such use. Any implied warranties of merchantability or fitness for any particular purpose is also disclaimed.

Acknowledgements

Coeus 3500 is a trademark of NexAIoT Co., Ltd. All other product names mentioned herein are registered trademarks of their respective owners.

Regulatory Compliance Statements

This section provides the FCC compliance statement for Class A devices and describes how to keep the system CE compliant.

Declaration of Conformity

FCC

This equipment has been tested and verified to comply with the limits for a Class A digital device, pursuant to Part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. 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. Operation of this equipment in a residential area (domestic environment) is likely to cause harmful interference, in which case the user will be required to correct the interference (take adequate measures) at their own expense.

CE

The product(s) described in this manual complies with all applicable European Union (CE) directives if it has a CE marking. For computer systems to remain CE compliant, only CE-compliant parts may be used. Maintaining CE compliance also requires proper cable and cabling techniques.

RoHS Compliance

NexAIoT RoHS Environmental Policy and Status Update

NexAIoT is a global citizen for building the digital infrastructure. We are committed to providing green products and services, which are compliant with European Union RoHS (Restriction on Use of Hazardous Substance in Electronic Equipment) directive 2011/65/EU, to be your trusted green partner and to protect our environment.

RoHS restricts the use of Lead (Pb) < 0.1% or 1,000ppm, Mercury (Hg) < 0.1% or 1,000ppm, Cadmium (Cd) < 0.01% or 100ppm, Hexavalent Chromium (Cr6+) < 0.1% or 1,000ppm, Polybrominated biphenyls (PBB) < 0.1% or 1,000ppm, and Polybrominated diphenyl Ethers (PBDE) < 0.1% or 1,000ppm.

In order to meet the RoHS compliant directives, NexAIoT has established an engineering and manufacturing task force to implement the introduction of green products. The task force will ensure that we follow the standard NexAIoT development procedure and that all the new RoHS components and new manufacturing processes maintain the highest industry quality levels for which NexAIoT are renowned.

The model selection criteria will be based on market demand. Vendors and suppliers will ensure that all designed components will be RoHS compliant.

How to recognize NexAIoT RoHS Products?

For existing products where there are non-RoHS and RoHS versions, the suffix "(LF)" will be added to the compliant product name.

All new product models launched after January 2013 will be RoHS compliant. They will use the usual NexAIoT naming convention.

Warranty and RMA

NexAIoT Warranty Period

NexAIoT manufactures products that are new or equivalent to new in accordance with industry standard. NexAIoT warrants that products will be free from defect in material and workmanship for 2 years, beginning on the date of invoice by NexAIoT.

NexAIoT Return Merchandise Authorization (RMA)

▪ Customers shall enclose the "NexAIoT RMA Service Form" with the returned packages.

▪ Customers must collect all the information about the problems encountered and note anything abnormal or, print out any on-screen messages, and describe the problems on the "NexAIoT RMA Service Form" for the RMA number apply process.

▪ Customers can send back the faulty products with or without accessories (manuals, cable, etc.) and any components from the card, such as CPU and RAM. If the components were suspected as part of the problems, please note clearly which components are included. Otherwise, NexAIoT is not responsible for the devices/parts.

▪ Customers are responsible for the safe packaging of defective products, making sure it is durable enough to be resistant against further damage and deterioration during transportation. In case of damages occurred during transportation, the repair is treated as "Out of Warranty."

▪ Any products returned by NexAIoT to other locations besides the customers' site will bear an extra charge and will be billed to the customer.

Repair Service Charges for Out-of-Warranty Products

NexAIoT will charge for out-of-warranty products in two categories, one is basic diagnostic fee and another is component (product) fee.

System Level

▪ Component fee: NexAIoT will only charge for main components such as SMD chip, BGA chip, etc. Passive components will be repaired for free, ex: resistor, capacitor.

▪ Items will be replaced with NexAIoT products if the original one cannot be repaired. Ex: motherboard, power supply, etc.

▪ Replace with 3rd party products if needed.

▪ If RMA goods can not be repaired, NexAIoT will return it to the customer without any charge.

Board Level

▪ Component fee: NexAIoT will only charge for main components, such as SMD chip, BGA chip, etc. Passive components will be repaired for free, ex: resistors, capacitors.

▪ If RMA goods can not be repaired, NexAIoT will return it to the customer without any charge.

Warnings

Read and adhere to all warnings, cautions, and notices in this guide and the documentation supplied with the chassis, power supply, and accessory modules. If the instructions for the chassis and power supply are inconsistent with these instructions or the instructions for accessory modules, contact the supplier to find out how you can ensure that your computer meets safety and regulatory requirements.

Cautions

Electrostatic discharge (ESD) can damage system components. Do the described procedures only at an ESD workstation. If no such station is available, you can provide some ESD protection by wearing an antistatic wrist strap and attaching it to a metal part of the computer chassis.

Safety Information

Before installing and using the device, note the following precautions:

▪ Read all instructions carefully.

▪ Do not place the unit on an unstable surface, cart, or stand.

▪ Follow all warnings and cautions in this manual.

▪ When replacing parts, ensure that your service technician uses parts specified by the manufacturer.

▪ Avoid using the system near water, in direct sunlight, or near a heating device.

▪ The load of the system unit does not solely rely for support from the rackmounts located on the sides. Firm support from the bottom is highly necessary in order to provide balance stability.

▪ The computer is provided with a battery-powered real-time clock circuit. There is a danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Discard used batteries according to the manufacturer's instructions.

Installation Recommendations

Ensure you have a stable, clean working environment. Dust and dirt can get into components and cause a malfunction. Use containers to keep small components separated.

Adequate lighting and proper tools can prevent you from accidentally damaging the internal components. Most of the procedures that follow require only a few simple tools, including the following:

▪ A Philips screwdriver

▪ A flat-tipped screwdriver

▪ A grounding strap

▪ An anti-static pad

Using your fingers can disconnect most of the connections. It is recommended that you do not use needle-nose pliers to disconnect connections as these can damage the soft metal or plastic parts of the connectors.

Safety Precautions

1. Read these safety instructions carefully.

2. Keep this User Manual for later reference.

3. Disconnect this equipment from any AC outlet before cleaning. Use a damp cloth. Do not use liquid or spray detergents for cleaning.

4. For plug-in equipment, the power outlet socket must be located near the equipment and must be easily accessible.

5. Keep this equipment away from humidity.

6. Put this equipment on a stable surface during installation. Dropping it or letting it fall may cause damage.

7. The openings on the enclosure are for air convection to protect the equipment from overheating. DO NOT COVER THE OPENINGS.

8. Make sure the voltage of the power source is correct before connecting the equipment to the power outlet.

9. Place the power cord in a way so that people will not step on it. Do not place anything on top of the power cord. Use a power cord that has been approved for use with the product and that it matches the voltage and current marked on the product's electrical range label. The voltage and current rating of the cord must be greater than the voltage and current rating marked on the product.

10. All cautions and warnings on the equipment should be noted.

11. If the equipment is not used for a long time, disconnect it from the power source to avoid damage by transient overvoltage.

12. Never pour any liquid into an opening. This may cause fire or electrical shock.

13. Never open the equipment. For safety reasons, the equipment should be opened only by qualified service personnel.

14. If one of the following situations arises, get the equipment checked by service personnel:
    a. The power cord or plug is damaged.
    b. Liquid has penetrated into the equipment.
    c. The equipment has been exposed to moisture.
    d. The equipment does not work well, or you cannot get it to work according to the user's manual.
    e. The equipment has been dropped and damaged.
    f. The equipment has obvious signs of breakage.

15. Do not place heavy objects on the equipment.

16. The unit uses a three-wire ground cable which is equipped with a third pin to ground the unit and prevent electric shock. Do not defeat the purpose of this pin. If your outlet does not support this kind of plug, contact your electrician to replace your obsolete outlet.

17. **CAUTION:** DANGER OF EXPLOSION IF BATTERY IS INCORRECTLY REPLACED. REPLACE ONLY WITH THE SAME OR EQUIVALENT TYPE RECOMMENDED BY THE MANUFACTURER. DISCARD USED BATTERIES ACCORDING TO THE MANUFACTURER'S INSTRUCTIONS.

18. Ensure to connect the power cord of the power adapter to a socket-outlet with earthing connection.

Technical Support and Assistance

1. For the most updated information of NexAIoT products, visit NexAIoT's website at www.nexaiot.com.

2. For technical issues that require contacting our technical support team or sales representative, please have the following information ready before calling:
   – Product name and serial number
   – Detailed information of the peripheral devices
   – Detailed information of the installed software (operating system, version, application software, etc.)
   – A complete description of the problem
   – The exact wordings of the error messages

Warning!
1. Handling the unit: carry the unit with both hands and handle it with care.

2. Maintenance: to keep the unit clean, use only approved cleaning products or clean with a dry cloth.

Conventions Used in this Manual

Warning:
Information about certain situations, which if not observed, can cause personal injury. This will prevent injury to yourself when performing a task.

Caution:
Information to avoid damaging components or losing data.

Note:
Provides additional information to complete a task easily.

Global Service Contact Information

Headquarters
NEXCOM International Co., Ltd.

9F, No. 920, Zhongzheng Rd.,
Zhonghe District, New Taipei City, 23586,
Taiwan, R.O.C.
Tel: +886-2-8226-7786
Fax: +886-2-8226-7782
www.nexcom.com

Asia

Taiwan
NexAIoT Headquarters
Industry 4.0 and Cloud Services

12F, No.922, Zhongzheng Rd.,
Zhonghe District, New Taipei City,
23586, Taiwan, R.O.C.
Tel: +886-2-8226-7796
Fax: +886-2-8226-7926
Email: sales@nexaiot.com
www.nexaiot.com

NexAIoT Co., Ltd.
Taichung Office

16F, No.250, Sec.2, Chongde Rd.,
Beitun District,
Taichung City, 406, Taiwan, R.O.C.
Tel: +886-4-2249-1179
Fax: +886-4-2249-1172
Email: jacobhuang@nexaiot.com
www.nexaiot.com

NexCOBOT Taiwan Co., Ltd.

13F, No.916, Zhongzheng Rd.,
Zhonghe District,
New Taipei City, 23586, Taiwan, R.O.C.
Tel: +886-2-8226-7786
Fax: +886-2-8226-7926
Email: jennyshern@nexcobot.com
www.nexcobot.com

GreenBase Technology Corp.

13F, No.922, Zhongzheng Rd.,
Zhonghe District,
New Taipei City, 23586, Taiwan, R.O.C.
Tel: +886-2-8226-7786
Fax: +886-2-8226-7900
Email: vivianlin@nexcom.com.tw
www.nexcom.com.tw

DivioTec Inc.

19F-1A, No.97, Sec.4, ChongXin Rd.,
Sanchong District,
New Taipei City, 24161, Taiwan, R.O.C.
Tel: +886-2-8976-3077
Email: sales@diviotec.com
www.diviotec.com

AIoT Cloud Corp.

13F, No.922, Zhongzheng Rd.,
Zhonghe District,
New Taipei City, 23586, Taiwan, R.O.C.
Tel: +886-2-8226-7786
Fax: +886-2-8226-7782
Email: alantsai@aiotcloud.net
www.aiotcloud.dev

EMBUX TECHNOLOGY CO., LTD.

13F, No.916, Zhongzheng Rd.,
Zhonghe District,
New Taipei City, 23586, Taiwan, R.O.C.
Tel: +886-2-8226-7786
Fax: +886-2-8226-7782
Email: info@embux.com
www.embux.com

TMR TECHNOLOGIES CO., LTD.

13F, No.916, Zhongzheng Rd.,
Zhonghe District,
New Taipei City, 23586, Taiwan, R.O.C.
Tel: +886-2-8226-7786
Fax: +886-2-8226-7782
Email: services@tmrtek.com
www.tmrtek.com

China
NEXSEC Incorporated

201, Floor 2, Unit 2, Building 15, Yard 3,
Gaolizhang Road, Haidian District,
Beijing, 100094, China
Tel: +86-10-5704-2680
Fax: +86-10-5704-2681
Email: marketing@nexsec.cn
www.nexsec.cn

NEXCOM Shanghai

Room 406-407, Building C, No 154, Lane 953,
Jianchuan Road, Minhang District,
Shanghai, 201108, China
Tel: +86-21-5278-5868
Fax: +86-21-3251-6358
Email: sales@nexcom.cn
www.nexcom.cn

NEXCOM Surveillance Technology Corp.

Floor 8, Building B3, Xiufeng Industrial Zone,
GanKeng Community, Buji Street,
LongGang District,
ShenZhen, 518112, China
Tel: +86-755-8364-7768
Fax: +86-755-8364-7738
Email: steveyang@nexcom.com.tw
www.nexcom.cn

NEXGOL Chongqing

1st Building No.999,
Star Boulevard, Yongchuan Dist,
Chongqing City, 402160, China
Tel: +86-23-4960-9080
Fax: +86-23-4966-5855
Email: sales@nexgol.com.cn
www.nexcom.cn

Beijing NexGemo Technology Co.,Ltd.

Room 205, No.1, Fazhan Rd.,
Beijing International Information Industry Base,
Changping District,
Beijing, 102206, China
Tel: +86-10-8072-2025
Fax: +86-10-8072-2022
Email: sales@nexgemo.cn
www.nexgemo.com

Japan
NEXCOM Japan

9F, Tamachi Hara Bldg.,
4-11-5, Shiba Minato-ku,
Tokyo, 108-0014, Japan
Tel: +81-3-5419-7830
Fax: +81-3-5419-7832
Email: sales@nexcom-jp.com
www.nexcom-jp.com

America
USA
NEXCOM USA

46665 Fremont Blvd.,
Fremont CA 94538, USA
Tel: +1-510-656-2248
Fax: +1-510-656-2158
Email: sales@nexcom.com
www.nexcomusa.com

Package Contents

Before continuing, verify that the Coeus 3500 series package that you received is complete. Your package should have all the items listed in the following table.

Item	Coeus 3501T
Platform	Jetson NX-TX2
CPU	Dual-Core NVIDIA® Denver 2 64-bit CPU
GPU	NVIDIA® PascalTM architecture with 256 CUDA cores
RAM	4GB 64-bit LPDDR4x
Storage	16G eMMC
Others	LAN x 2, COM x 2, Line out, USB x 2, HDMI, GPIO (4DI & 4DO), Micro USB (OTG), M.2 Key B (4G/5G), Micro SD, 9-30V DC, LED

Document Amendment History

Ver.	Modify record	Modified date	Remark
1.0	First draft	Mar 15, 2024	

CHAPTER 1: PRODUCT INTRODUCTION

Coeus 3500 Series

Overview
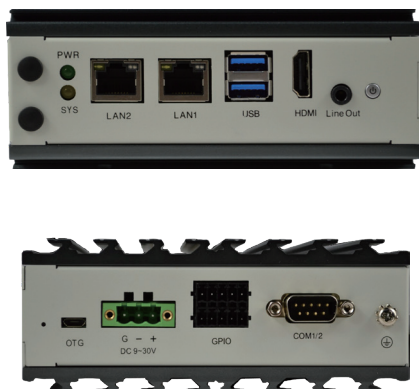
Product Introduction

Coeus series products are artificial intelligence edge computers created by NexAIoT. It is an industrial-grade hardware design, supporting multiple AI frameworks. It can be widely used in intelligent manufacturing, intelligent transportation as well as various edge computing fields.

Key Features

- NVIDIA® PascalTM architecture with 256 NVIDIA® CUDA® cores

- Support Tensorflow, Caffe, Paddlepaddle and other AI frameworks

- Support TensorRT, DeepStream library and other AI libraries and tools

- Fanless embedded design, -20~60℃ wide temperature operation, DC9-30V wide voltage input, rich I/O interface, support wall and rail installation

1 Coeus 3500 Series User Manual

Hardware Specifications

CPU Support

- Dual-Core NVIDIA® Denver 2 64-bit CPU
- Quad-Core Arm® Cortex-A57 MPCore processor

GPU

- NVIDIA® PascalTM architecture with 256 CUDA cores

I/O Interface - Front

- 2x USB3.0
- 2x RJ45 LAN
- 1x HDMI
- 1x PWR indicator light
- 1x SYS indicator light
- 1x Line Out
- 1x Power switch
- 2x Antenna reservation

I/O Interface - Bottom

- 1x Power connector
- 1x GPIO (4DI&4DO)
- 2x COM (incomplete signal, 1x DB9 form lead, COM1 RS-232/422/485; COM2 RS-232)
- 1x OTG
- 1x Recovery
- 1x Ground screw hole

Storage

- 16G eMMC

Expansion

- 1x Micro SD
- 1x M.2 M-Key 2280 (1x signal)
- 1x M.2 B-Key 3052 supports 5G and 4G modules
- 1x miniPCIe full-size slot, support mSATA

Power Supply

- DC 9~30V wide voltage

Environment

- Operating temperature: -10°C to 60°C with air flow
- Storage temperature: -20°C to 80°C
- Working humidity: 40°C, 95% (relative humidity, non-condensing)

Dimensions

- 137mm x 52.4mm x 176mm (L x W x H)

Installation Method
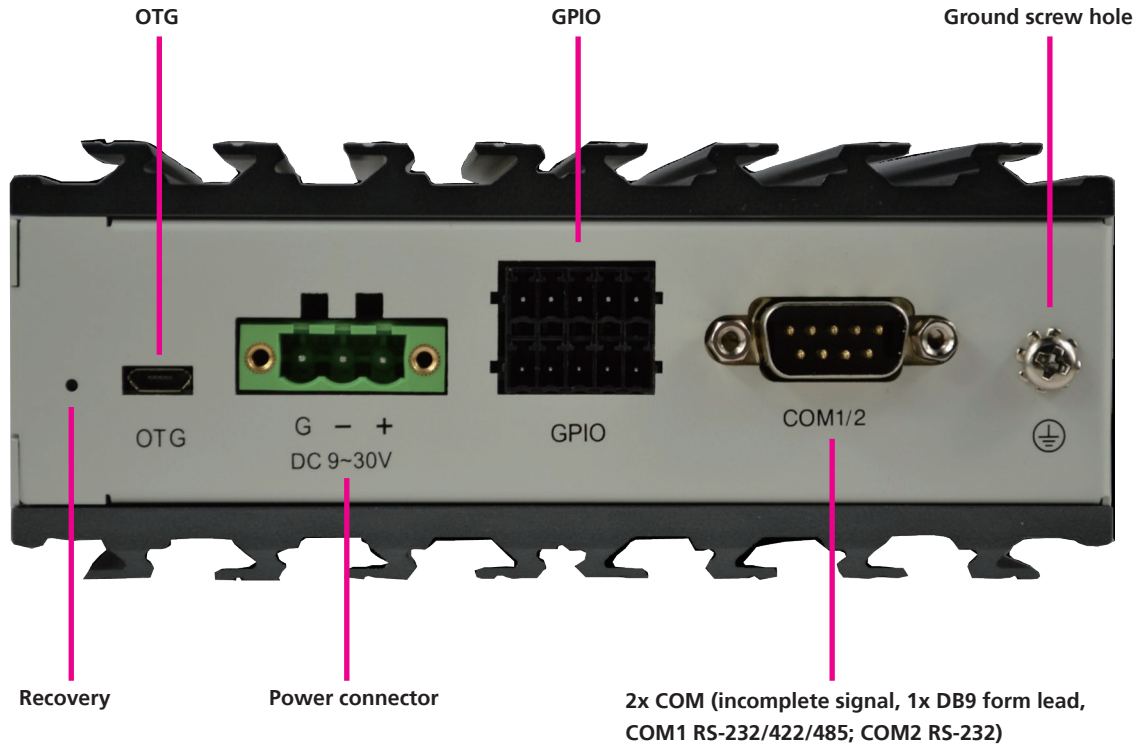
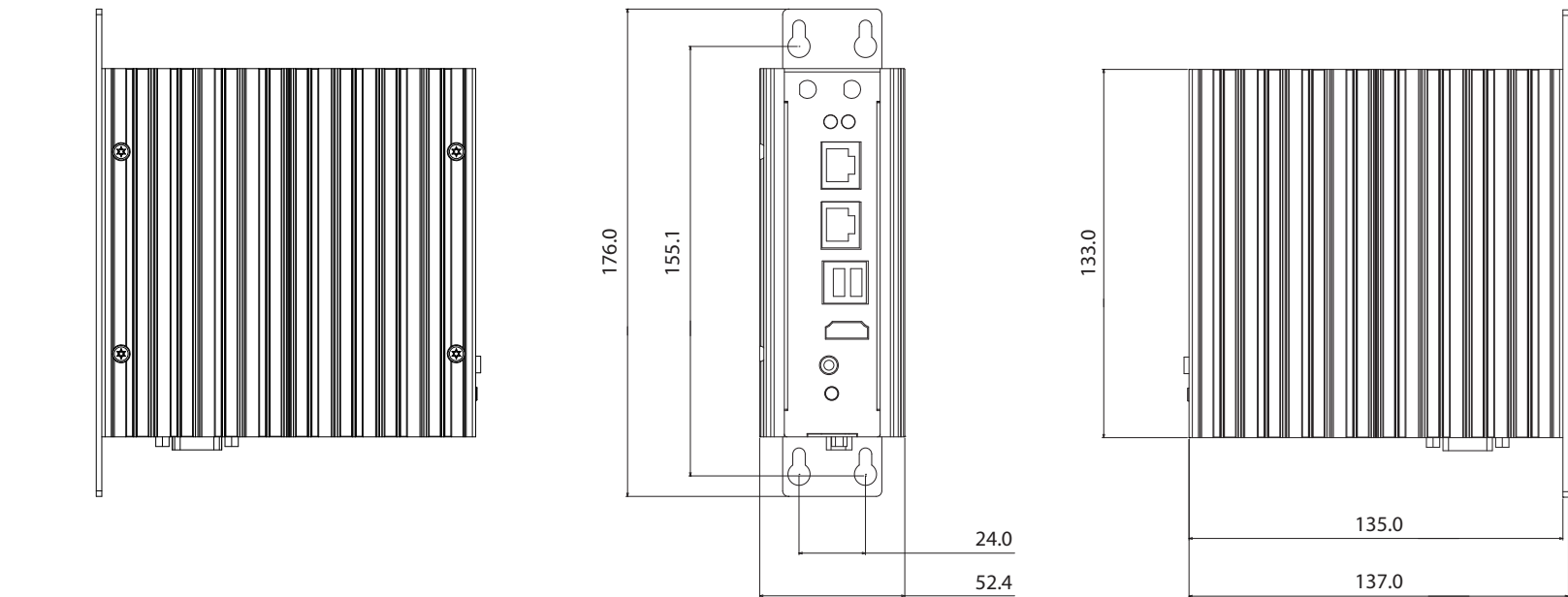- Wall Mount, DIN-Rail Mount

Physical Features

Front View

PWR Indicator light   2x USB 3.0   HDMI   Power switch

PWR

2x Antenna reservation

SYS

LAN2   LAN1   USB   HDMI   Line Out

SYS Indicator light   2x RJ45   Line Out
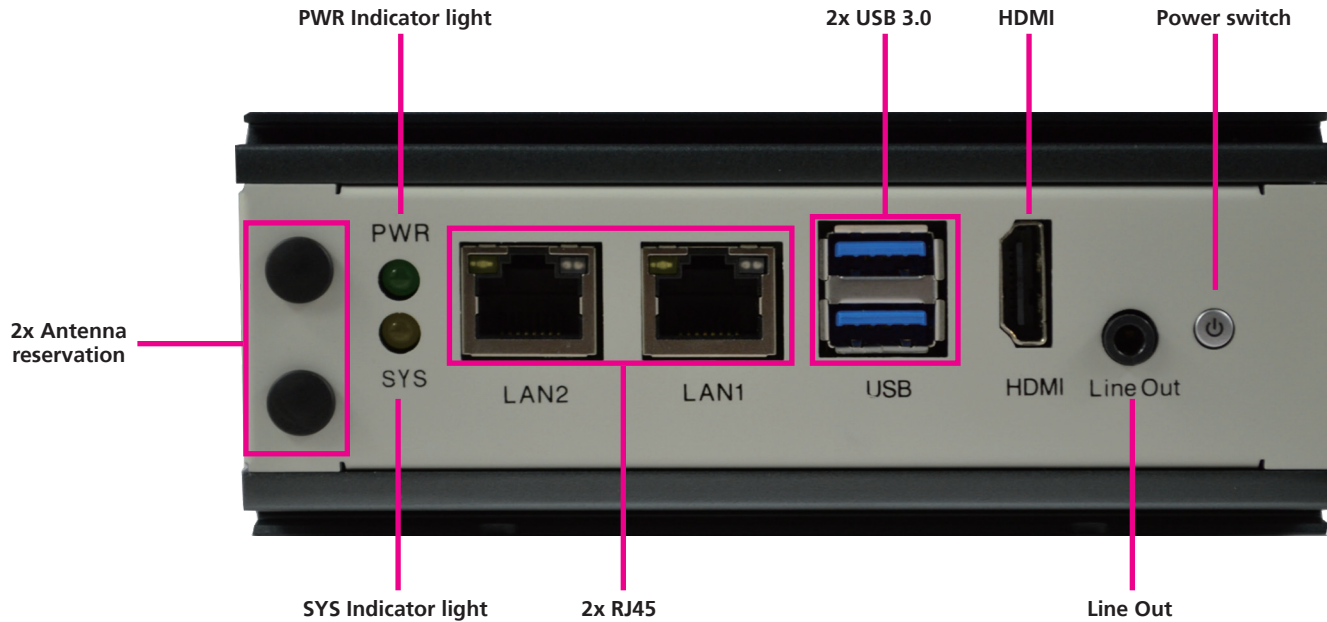
Physical Features

Bottom View

OTG   GPIO   Ground screw hole

OTG

G − +
DC 9~30V

GPIO

COM1/2

Recovery   Power connector   **2x COM (incomplete signal, 1x DB9 form lead, COM1 RS-232/422/485; COM2 RS-232)**

Mechanical Dimensions

Chapter 2: Jumpers and Connectors

This chapter lists the locations of the jumpers and connectors for Coeus 3500 Series.

Before You Begin

- Ensure you have a stable, clean working environment. Dust and dirt can get into components and cause a malfunction. Use containers to keep small components separated.

- Adequate lighting and proper tools can prevent you from accidentally damaging the internal components. Most of the procedures that follow require only a few simple tools, including the following:
  – A Philips screwdriver
  – A flat-tipped screwdriver
  – A set of jewelers screwdrivers
  – A grounding strap
  – An anti-static pad

- Using your fingers can disconnect most of the connections. It is recommended that you do not use needle-nosed pliers to disconnect connections as these can damage the soft metal or plastic parts of the connectors.

- Before working on internal components, make sure that the power is off. Ground yourself before touching any internal components, by touching a metal object. Static electricity can damage many of the electronic components. Humid environments tend to have less static electricity than dry environments. A grounding strap is warranted whenever danger of static electricity exists.

Precautions

Computer components and electronic circuit boards can be damaged by discharges of static electricity. Working on computers that are still connected to a power supply can be extremely dangerous.

Follow the guidelines below to avoid damage to your computer or yourself:
- Always disconnect the unit from the power outlet whenever you are working inside the case.

- If possible, wear a grounded wrist strap when you are working inside the computer case. Alternatively, discharge any static electricity by touching the bare metal chassis of the unit case, or the bare metal body of any other grounded appliance.

- Hold electronic circuit boards by the edges only. Do not touch the components on the board unless it is necessary to do so. Don't flex or stress the circuit board.

- Leave all components inside the static-proof packaging that they shipped with until they are ready for installation.

- Use correct screws and do not over tighten screws.

Jumper Settings

A jumper is the simplest kind of electric switch. It consists of two metal pins and a cap. When setting the jumpers, ensure that the jumper caps are placed on the correct pins. When the jumper cap is placed on both pins, the jumper is short. If you remove the jumper cap, or place the jumper cap on just one pin, the jumper is open.

Refer to the illustrations below for examples of what the 2-pin and 3-pin jumpers look like when they are short (on) and open (off).

Two-Pin Jumpers: Open (Left) and Short (Right)
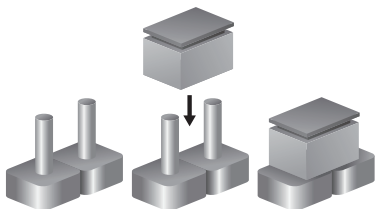
Three-Pin Jumpers: Pins 1 and 2 are Short
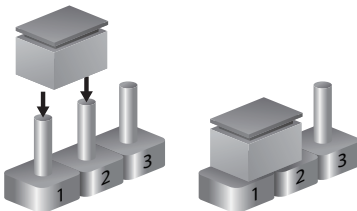
Locations of the Jumpers and Connectors for Coeus 3500 Series

The figure below is the top and bottom view of the mainboard used in Coeus 3500 series. It shows the locations of the jumpers and connectors.

Top View
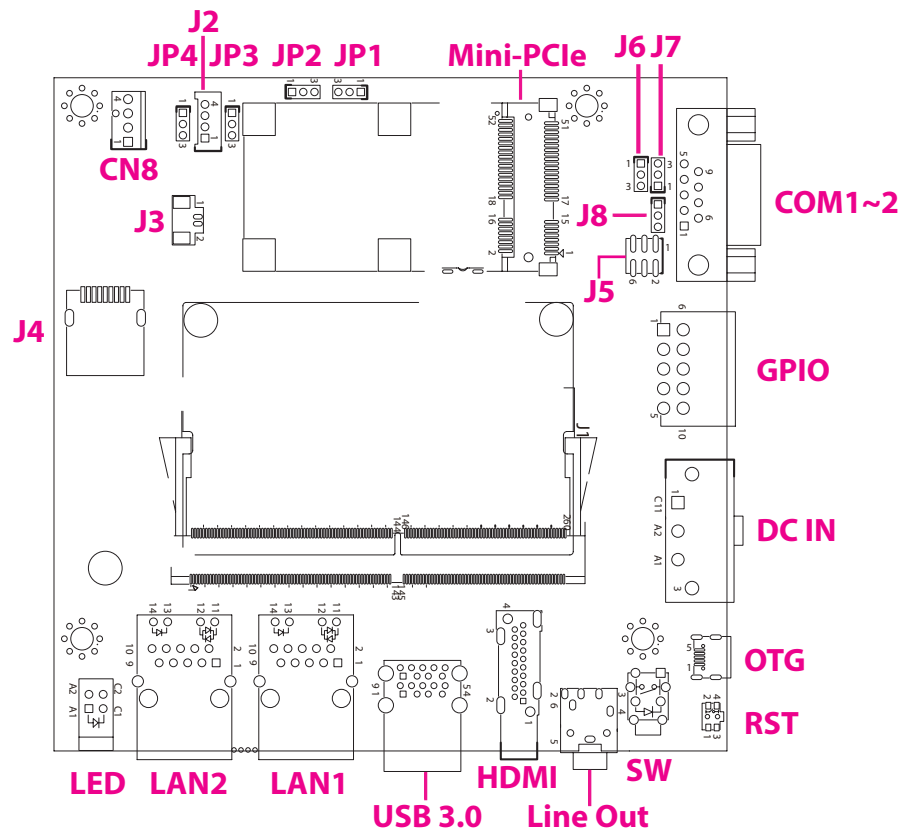
Bottom View
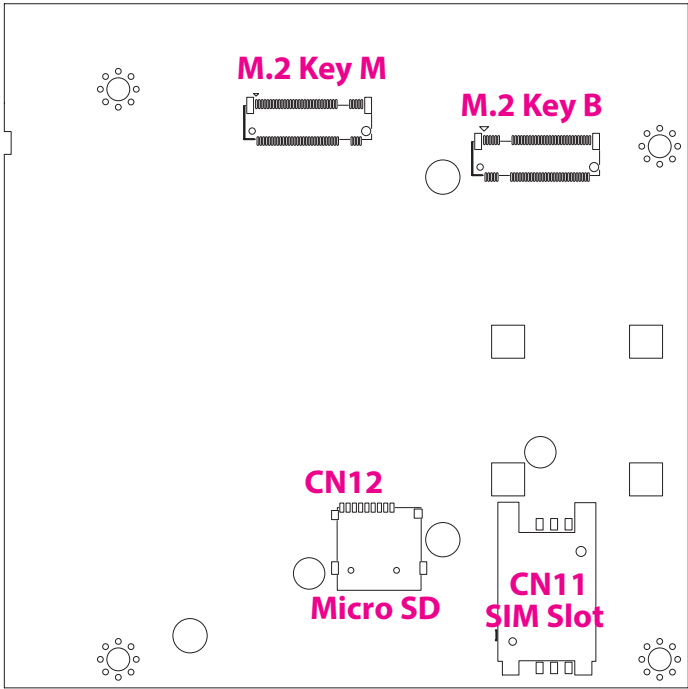
Jumpers

RS422/485 Mode Terminal Resistance

Connector type: 1x3 3-pin header
Connector location: JP1

1 □ ○ ○ 3

Pin	Signal Definition
1-2	Terminal resistance is on
*2-3 (Default)	Terminal resistance is disconnected

Power-on self-start setting

Connector type: 1x3 3-pin header
Connector location: JP4

1 □ ○ ○ 3

Pin	Signal Definition
*1-2 (Default)	ATX, Power on and turn off
2-3	AT, automatically open after power-on

Connectors Pin Definitions

External I/O Interfaces - Front Panel Switch button

Connector location: SW

Machine State	Indicator Color
Power on standby	Red
Boot up	Blue

Indicator

Connector location: SW

Power

SYS

Machine State	PWR Indicator	SYS Indicator
Boot up	Always on	Always on
Shut down	Always off	Always off

- SYS: The indicator light can be customized according to the situation.

SYS corresponding address of indicator	gpio-419

Line Out

Connector location: Line Out

Line-Out

Pin	Definition	Pin	Definition
1	AUD_LOUTR	2	AUD_HP_JD
3	NC	4	AUD_LOUTL
5	AUD_GND	6	AUD_GND

USB 3.0

Connector location: USB 3.0
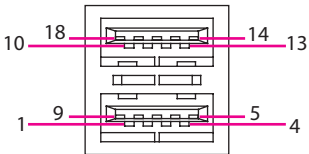
Pin	Definition	Pin	Definition
1	VCC5(+5V)	2	USB2N_2
3	USB2P_2	4	GND
5	USB31_RXN2	6	USB31_RXP2
7	GND	8	USB31_TXN2
9	USB31_TXP2	10	VCC5(+5V)
11	USB2N_1	12	USB2P_1
13	GND	14	USB31_RXN1
15	USB31_RXP1	16	GND
17	USB31_TXN1	18	USB31_TXP1
MH1	GND_CHASIS	MH2	GND_CHASIS
MH3	GND_CHASIS	MH4	GND_CHASIS

LAN1 and LAN2 Ports

Connector location: LAN1, LAN2
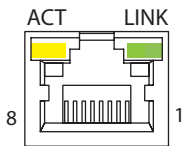
Act	Status
Flashing Yellow	Data Activity
Off	No activity

Link	Status
Steady Green	1000M LAN
Off	10/100M LAN

Pin	Definition	Pin	Definition
1	MDI0_P	2	MDI0_N
3	MDI1_P	4	MDI1_N
5	TCT	6	TCT
7	MDI2_P	8	MDI2_N
9	MDI3_P	10	MDI3_N
11	LED_G-	12	LED_O-
13	LED_Y+	14	LED_Y-

External I/O Interfaces - Bottom Panel

DC IN (9-30V)

Connector location: DC IN
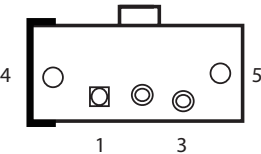
Pin	Signal Definition
1	DC Input (+9V~30V)
2	GND
3	Chassis_GND

GPIO

Connector type: 2x5 10-pin header
Connector location: GPIO
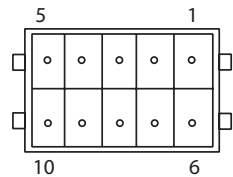
Pin	Definition	Pin	Definition
1	GPI0	2	GPI1
3	GPI2	4	GPI3
5	+5V	6	GPO0
7	GPO1	8	GPO2
9	GPO3	10	GND

Exposed Interface	Coeus 3501T
1-pin GPI0	gpio-421
2-pin GPI1	gpio-264
3-pin GPI2	gpio-266
4-pin GPI3	gpio-267
6-pin GPO0	gpio-424
7-pin GPO1	gpio-417
8-pin GPO2	gpio-422
9-pin GPO3	gpio-268

▪ GPIO mapping in the system.

COM1~COM2 (DB9 Interface)

Connector location: COM1~2
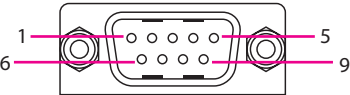
Pin	Signal Definition	Signal Definition	Signal Definition
Mode Description	COM1/2 RS-232	COM1 RS-422/ COM2 RS-232	COM1 RS-485/ COM2 RS-232
1	COM2_RXD	COM2_RXD	COM2_RXD
2	COM1_RXD	TX+	D+
3	COM1_TXD	TX-	D-
4	COM2_TXD	COM2_TXD	COM2_TXD
5	GND	GND	GND
6	COM2_CTS	COM2_CTS	COM2_CTS
7	COM1_RTS	RX+	NC
8	COM1_CTS	RX-	NC
9	COM2_RTS	COM2_RTS	COM2_RTS

Pin	RS-232 (Default)	RS-422	RS-485
JP5	Pin 1-pin2 short	Pin5-pin6 short	Pin3-pin4 short
JP6	Pin 1-pin2 short	Pin2-pin3 short	Pin2-pin3 short
JP7	Pin1-pin2 short	Pin2-pin3 short	Do not care
JP8	Pin1-pin2 short	Pin2-pin3 short	Do not care

▪ COM1 serial port mode jumper setting

Internal Connectors

CAN Interface

Connector type: 1x4 4-pin header
Connector location: J2
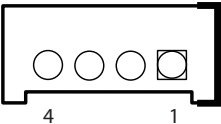
Pin	Signal Definition
1	CAN_H
2	CAN_L
3	GND
4	NC

CHAPTER 3: SYSTEM SETUP

Expansion Device Installation

CAUTION! The following functions are recommended to be confirmed and installed before leaving the factory or assembled by our company; non-professionals are not allowed to disassemble by themselves.

1. Equipment disassembly: Use a star shaped screwdriver to unscrew the four screws shown (red circle) to remove the side cover of the whole machine.

2. Once the side cover is removed, the motherboard can be expanded. The interface is shown in the figure. (Note: Introduced in the full-featured version Coeus series, other corresponding interfaces have corresponding equipment reductions), you can refer to items 3-5 for direct corresponding installation.

M.2 M Key 2280

Micro SD

SIM Slot

M.2 B Key 3052
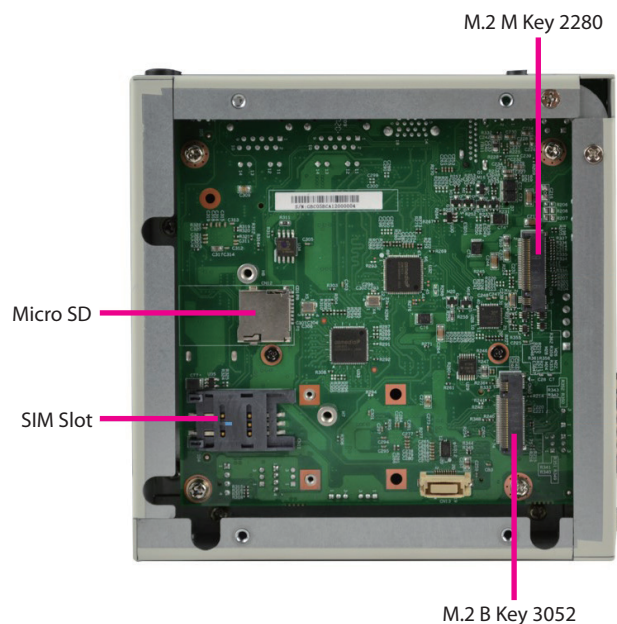
3. Micro SD card expansion: As shown in the figure below, it supports mainstream MicroSD card insertion to expand the storage space; the pin gold finger is flushed and inserted until the card is the master.
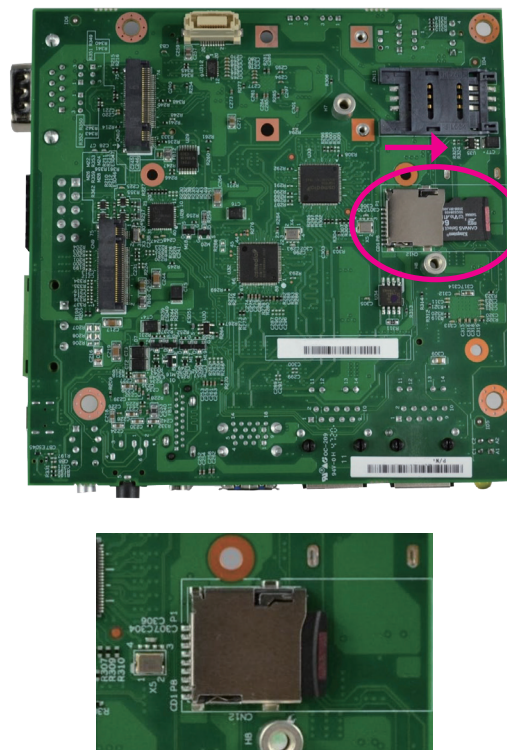
4. M.2 expansion:

▪ This device supports one extended M.2 B key and one M.2 M key device.

▪ M.2 M key device, support 2280 size memory card, can be fixed with M3 screws.

Note:

Coeus series devices provide 1X PCIe signals in this slot.
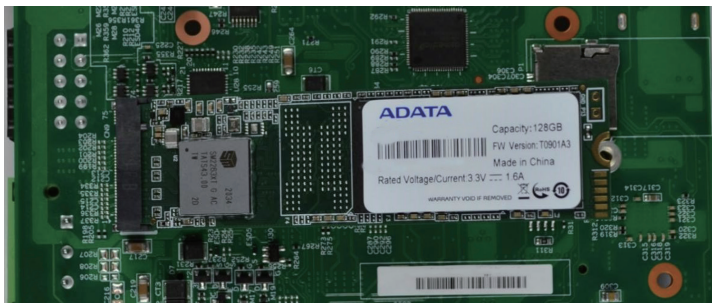
▪ M.2 B Key device, supports 3052 size 4G, 5G, Wi-Fi modules. It can be fixed with M3 screws.
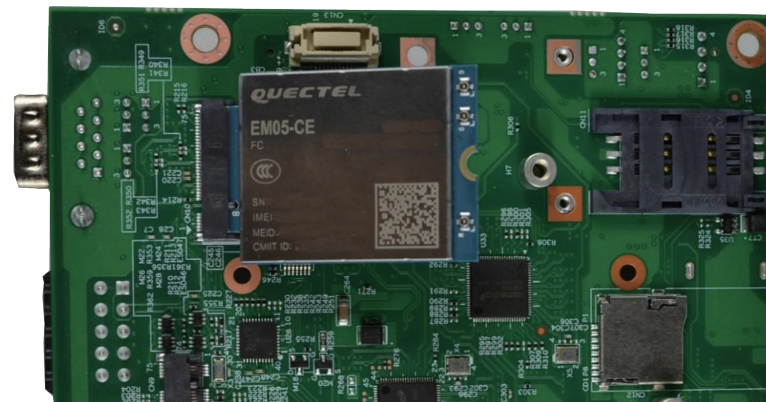
5. The SIM card slot supports the insertion of a standard SIM card and is used with 4G and 5G communication modules.

6. In order to remove 2 L-shaped interface boards, 1 stiffener and 1 motherboard., use a cross screwdriver to remove the 10 screws as shown in the figure.
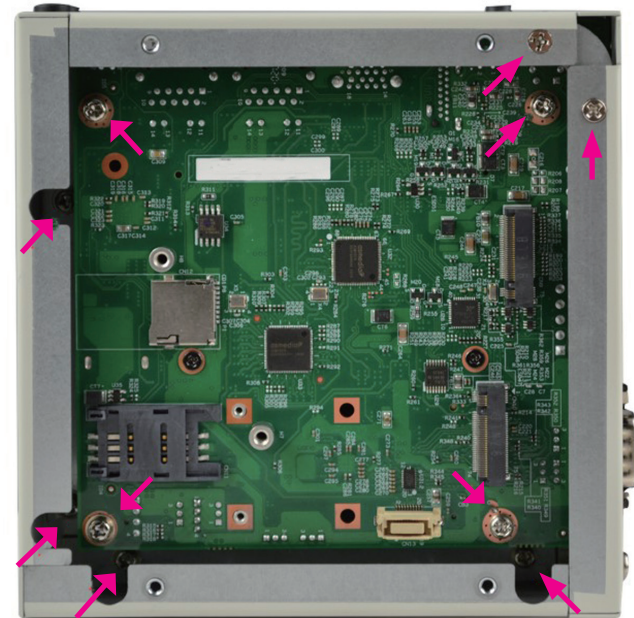
7. Corresponding to the motherboard interface, you can see the expandable version. Please refer to 8-10 to install the device directly.
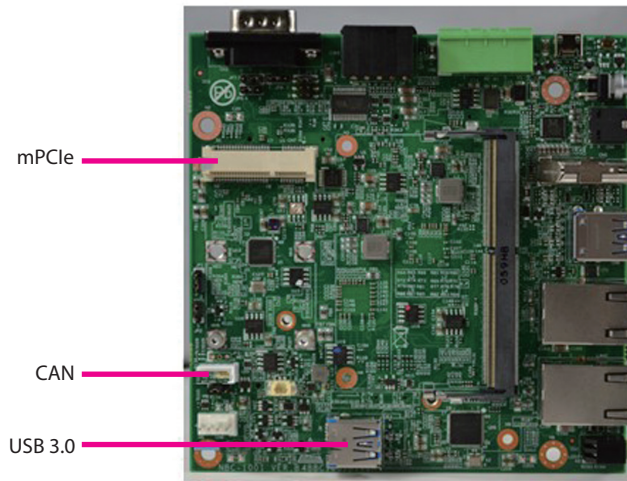
8. The miniPCIe interface supports mainstream miniPCIe full-card and half-length card devices, and can be fixed with M2 screws.

23 Coeus 3500 Series User Manual

9. USB 3.0 interface: Users can directly plug in usb disk, dongle, etc.
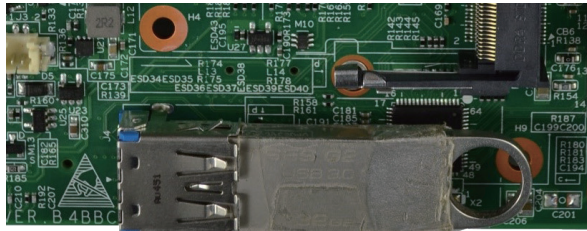
10. CAN interface: CAN device can be expanded through cable.
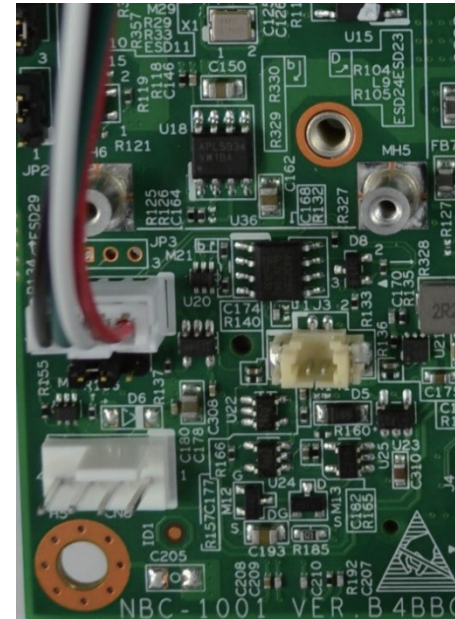
CHAPTER 4: FUNCTION INTRODUCTION

4.1 General usage

4.1.1 System introduction

4.1.2 Coeus series equipment uses Ubuntu 18.04 system.
Default username: nexaiot; password: nexaiot

4.1.3 View the system version number:
lsb_release -a Burn image
Burning tool, programming tool description and corresponding mirror image.

4.1.4: Switch on and off
Power-on: Coeus series default power-on mode is self-start after power on. Plug in the power supply and connect the monitor to Coeus series through the HDMI interface. The startup screen is as shown in Figure 4.1.1.

Shut down: Hold the POWER button to shut down, or execute $ sudo poweroff in the command line to complete soft shutdown.

Restart: Execute $ sudo reboot in the command line to complete the restart.

Figure 4.1.1 Startup screen

4.2 Power mode setting

Devices equipped with Jetson Xavier NX have multiple working modes. It can be adjusted by setting the NVIDIA green logo in the upper right corner. The default mode of Coeus series is: MODE 10W 2CORE
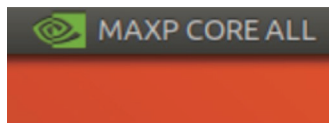

Figure 4.2.1 Setting icon

You can also use the command line to adjust:
```
# Check the current mode of the device
sudo nvpmodel -q verbose
# Set to a mode
sudo nvpmodel -m <MODE ID>
# Get the best performance in the current mode
sudo jetson_clocks
# check the detail information
sudo jetson_clocks --show
```

4.3 Expansion device configuration method

Expand the use of SSD hard drives
View hard drive information: $sudo fdisk -lu

Figure 4.3.1

Format the hard drive: $sudo mkfs -t ext4 /dev/nvme0n1

Figure 4.3.2

View hard drive UUID: $sudo blkid /dev/nvme0n1

Figure 4.3.3

Setting method of auto-mounting hard disk at boot:
Create a systemd service in the /etc/systemd/system path, which is used to automatically mount the hard disk at boot, such as: coeus_mount_ssd.service

#Create service coeus_mount_ssd.service
vim coeus_mount_ssd.service
[Unit]
Description=COEUS specific script
After=udev.service

[Service]
ExecStart=/etc/systemd/coeus_mount_ssd.sh

[Install]
WantedBy=multi-user.target

Create a script in the /etc/systemd/ path to mount the hard disk, such as: coeus _mount_ssd.sh

#Create service script coeus_mount_ssd.sh
vim coeus_mount_ssd.sh
#!/bin/bash
mount -o rw /dev/nvme0n1 /home/nvidia/workspace

Add executable permissions to the created script file
sudo chmod +x coeus_mount_ssd.sh
Set the service of the mounted hard disk to start automatically after booting

sudo systemctl enable coeus_mount_ssd.service

Extend the use of TF refer to the use of extended SSD

APPENDIX A:

5.1   Mirror burning

5.1.1   Function introduction
Burning tool, suitable for Coeus series products. This tool has two main functions: flashing image and cloning image. You can burn the official image for Coeus series devices through ubuntu 18.04.

5.1.2   Prepare software and hardware

5.1.2.1 Host preparation
You need to connect the programming host to the Coeus series device to be able to burn the image. The recommended configuration for programming the host is as follows:

- CPU adopts Intel Core series processor of X86 architecture
- Memory 8G DDR3 and above
- Free hard disk capacity 40G and above
- The system is Ubuntu Linux v18.04

Method 1: Take out the Coeus series disassembled TF card, and use a card reader to program the system into the TF card

Method 2: Please refer to 5.1.2.2

5.1.2.2 Prepare to burn tool and device image

- Get link: https://github.com/mark-nexcom/3501/tree/main
- "Customer upload data temporary storage" directory.
- Download device image and programming instructions

Note: There can be no Chinese or special characters in the file storage path.

5.1.2.3 Prepare the hardware
- Equipment and power supply, USB-Micro data cable

5.1.3   Operation

- 5.1.3.1 Hardware connection
- Connect the programming port to the programming host via a USB data cable