



NEXCOM International Co., Ltd.

Intelligent Platform & Services Business Unit

Edge Computing System

Neu-X302 Series

User Manual

NEXCOM International Co., Ltd.

Published September 2022

www.nexcom.com

CONTENTS

Preface

Copyright	iv
Disclaimer	iv
Acknowledgements	iv
Regulatory Compliance Statements	iv
Declaration of Conformity	iv
RoHS Compliance	v
Warranty and RMA	vi
Safety Information	viii
Installation Recommendations	viii
Safety Precautions	ix
Technical Support and Assistance	x
Conventions Used in this Manual	x
Global Service Contact Information	xi
Package Contents	xiii
Ordering Information	xiv

Chapter 1: Product Introduction

Neu-X302	1
Overview	1
Key Features	1
Hardware Specifications	2
Physical Features	4
Front Panel	4
Rear Panel	4
Mechanical Dimensions	5

Block Diagram	6
---------------------	---

Chapter 2: Jumpers and Connectors

Before You Begin	6
Precautions	6
Jumper Settings	7
Locations of the Jumpers and Connectors for the Neu-X302 Series	8
Jumpers	9
AT/ATX Mode Select	9
Connector Pin Definitions	10
External I/O Interfaces	10
HDMI Port	10
COM 1 and COM 2 Ports	10
COM 3 and VGA Ports	11
LAN 1 and USB 3.0 Ports	11
LAN 2 and USB 3.0 Ports	12
Audio Connectors	12
Internal Connectors	13
Power Connector	13
Speaker Connector	13
RI Connector	14
SATA Connector	14
SATA Connector	15
SATA Power Connectors	15
COM 4 Connector	16
COM 5 Connector	16



COM 6 Connector	17
USB Connector	17
USB Connector	18
USB Connector	18
GPIO Connector.....	19
System Fan Connector	19
CPU Fan Connector.....	20
INV Connector	20
LVDS Panel Connector.....	21
LCD Power Connector.....	21
BIOS Program Header.....	22
RTC Battery Connector.....	22
Front Panel Connector	23
S3 Connector.....	23
LPC 80 Port Connector.....	24
M.2 Connector (E-Key).....	25
PCIe x16 Slot.....	26

Chapter 3: System Setup

Installing a 2.5" SATA Storage Drive.....	28
Installing an LTE Module (Mini-PCIe Slot).....	30
Installing SO-DIMM Memory Modules.....	32
Installing a Wi-Fi Module (M.2 E-Key Slot).....	33
Installing a CPU.....	34
Wall Mounting Instructions	37

Chapter 4: BIOS Setup

About BIOS Setup.....	38
When to Configure the BIOS.....	38
Default Configuration	39

Entering Setup	39
Legends.....	39
BIOS Setup Utility.....	41
Main	41
Advanced.....	42
Chipset.....	58
Security	62
Boot.....	62
Save & Exit	63

Appendix A: Power Consumption64

Appendix B: GPI/O Programming Guide65

Appendix C: Watchdog Timer Setting.....67

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 NEXCOM International Co., Ltd.

Disclaimer

The information in this document is subject to change without prior notice and does not represent commitment from NEXCOM International Co., Ltd. However, users may update their knowledge of any product in use by constantly checking its manual posted on our website: <http://www.nexcom.com>. NEXCOM 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

Neu-X302 is a trademark of NEXCOM International 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



NEXCOM RoHS Environmental Policy and Status Update

NEXCOM 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, NEXCOM 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 NEXCOM development procedure and that all the new RoHS components and new manufacturing processes maintain the highest industry quality levels for which NEXCOM 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 NEXCOM 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 NEXCOM naming convention.

Warranty and RMA

NEXCOM Warranty Period

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

NEXCOM Return Merchandise Authorization (RMA)

- Customers shall enclose the “NEXCOM 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 “NEXCOM 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, NEXCOM 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 NEXCOM 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

NEXCOM 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: NEXCOM 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 NEXCOM 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, NEXCOM will return it to the customer without any charge.

Board Level

- Component fee: NEXCOM 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, NEXCOM 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.
19. This product is intended to be supplied by a Listed Power Adapter or DC power source, rated 12Vdc, minimum 8A, minimum T ma=45 degree C, minimum altitude of operation=2000m, and evaluated in accordance to UL/IEC 60950-1 and/or UL/IEC 62368-1. If further assistance is needed, please contact NEXCOM International Co., Ltd. (UL file owner or brand owner) for further information.

Technical Support and Assistance

1. For the most updated information of NEXCOM products, visit NEXCOM's website at www.nexcom.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

13F, 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: jacobhuang@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

Europe

United Kingdom **NEXCOM EUROPE**

10 Vincent Avenue,
Crownhill Business Centre,
Milton Keynes, Buckinghamshire
MK8 0AB, United Kingdom
Tel: +44-1908-267121
Fax: +44-1908-262042
Email: sales.uk@nexcom.eu
www.nexcom.com

Package Contents

Before continuing, verify that the Neu-X302 package that you received is complete. Your package should have all the items listed in the following table.

Item	Part Number	Description	Qty
1	50311F0112X00	Flat Head Screw Long Fei:F3x4iso FOR SPC-150 M3x4mm (Nylok) Black	4
2	5060200082X00	Thermal Pad for NDiS B533, 25x25x0.2mm	1
3	5060200417X00	Thermal Pad, 30x25x1.5mm K=4 W/mK-UL	1
4	7400096007X00	Power Adapter FSP:FSP096-AHAN3, 96W 12V/8A	1

Ordering Information

The following below provides ordering information for Neu-X302.

Neu-X302-Q (P/N: 10W10X30200X0)

8th/9th generation Intel® Core™ edge computing fanless system with Intel® Q370 onboard

Neu-X302-H (P/N: 10W10X30201X0)

8th/9th generation Intel® Core™ edge computing fanless system with Intel® H310 onboard

CHAPTER 1: PRODUCT INTRODUCTION

Neu-X302

Overview



Front Panel



Rear Panel

Key Features

- Support 8th/9th generation Intel® Core™ socket type processor
- Dual channel DDR4 SO-DIMM, 32GB max.
- 1 x VGA and 1 x HDMI 1.4 4K display output
- Dual Intel® LAN ports
- 6 x COM ports, 10 x USB, Mic-in/Line-out
- Optional TPM 2.0 for security advantage
- Support Intel® AMT Technology
- Onboard M.2 Key B/E for storage & wireless connection

Hardware Specifications

CPU Support

- 8th/9th generation Intel® Core™ socket type processor up to 35W
 - i3-8100T quad core, 3.10 GHz, TDP 35W
 - i5-8500T 6 core, 2.10 GHz, TDP 35W
 - i7-8700T 6 core, 2.40 GHz, TDP 35W
 - i3-9100TE quad core, 2.20 GHz, TDP 35W
 - i5-9500TE 6 core, 2.20 GHz, TDP 35W
 - i7-9700TE 8 core, 1.80 GHz, TDP 35W

Chipset & Memory

- Intel® PCH Q370
- Intel® PCH H310
- 2 x DDR4 SO-DIMM sockets, support up to 32G DDR4 2666 SDRAM, with un-buffered and non-ECC

Graphics & Display

- Intel® UHD Graphics 630
- 1 x VGA output on the edge, resolution up to 1920 x 1200 @ 60Hz
- 1 x HDMI 1.4 output on the edge, resolution up to 4096 x 2160 @ 30Hz
- 1 x LVDS internal connector, dual channel, resolution up to 1920 x 1200 @ 60Hz (eDP: by request)

I/O Interface-Front

- Power button
- HDD LED status
- 3 x RS232 DB9 COM port (COM4 support RI 5V or 12V)
- 2 x Antenna holes

I/O Interface-Rear

- +12V DC input
- 1 x HDMI 1.4 output, resolution up to 4096 x 2160 @ 30Hz
- 3 x RS232/422/485 DB9 COM ports

- 1 x VGA output
- 2 x Intel® GbE LAN ports (Intel® I219-LM and I211-AT)
- 4 x USB 3.0
- 1 x Mic-in, 1 x Line-out powered by Realtek ALC888

Internal I/O

- 6 x USB 2.0, internal pin header (with Intel® Q370 chipset)
- 3 x USB 2.0, internal pin header (with Intel® H310 chipset)
- 8 channel GPIO, 5V TTL level
- 1 x Internal pin header for speaker with 2W amplifier

Expansion

- 1 x M.2 Key E, 2230, support optional Wi-Fi/Bluetooth module
- 1 x M.2 Key B, 2242/3042, support optional SSD/3G/4G or LTE module
- 1 x SIM card holder for M.2 Key B use

Storage

- 1 x 2.5" SATA SSD space
- 1 x M.2 Key B, 2242, support optional storage module if 3G / 4G / LTE will not be used

Power Requirements

- +12V DC input
- Equip with 96W AC/DC power adapter in carton
- AT/ATX power setting by jumper (ATX as the default)

Environment

- Operating temperature: -5°C to 45°C ambient with air flow (according to IEC60068-2-1, IEC60068-2-2, IEC60068-2-14)
- Relative humidity (non-condensing): 95% (non-condensing)
- Storage temperature: -20°C to 80°C
- Shock protection: 50G peak acceleration, 11ms according to IEC60068-2-27

- Vibration protection
 - Random: 2Grms @ 5~500 Hz, IEC60068-2-64
 - Sinusoidal: 2G @ 5~500 Hz, IEC60068-2-6

Certification

- CE approval (EN55032/EN55035)
- FCC Class A

Mechanical & Dimension

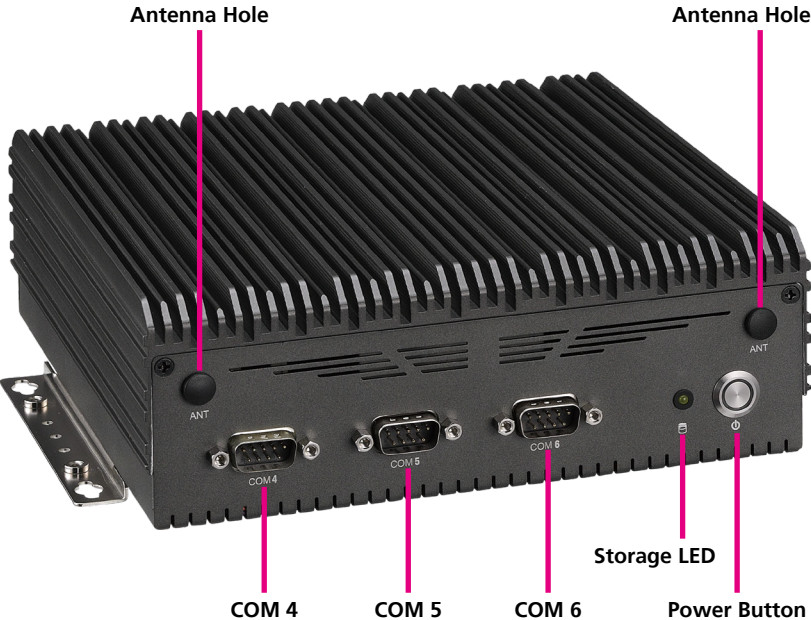
- Aluminum and metal chassis with fanless design
- 200mm (L) x 190mm (W) x 64.3mm (H) without mounting bracket
- 200mm (L) x 212.5mm (W) x 70.3mm (H) with mounting bracket

Weight Information

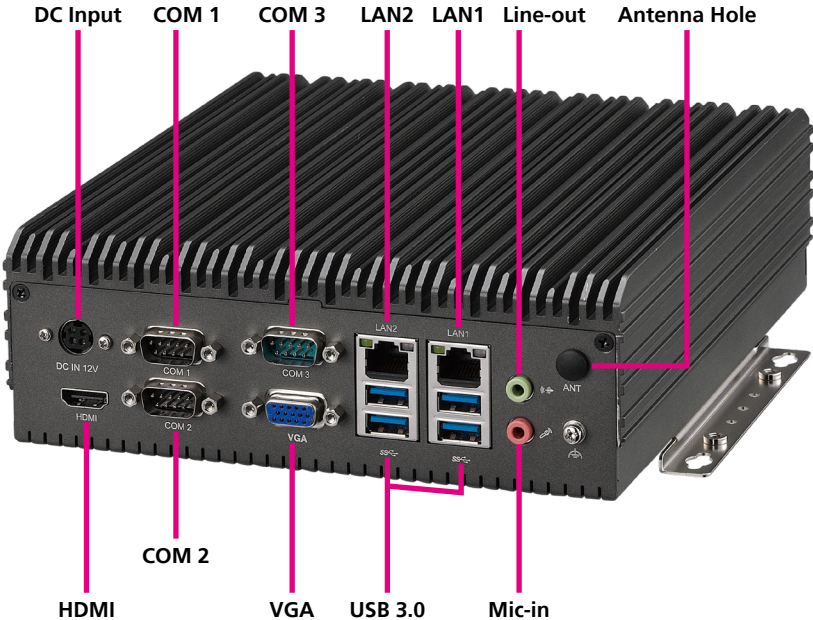
- Gross weight: 4.25kg
- Net weight: 2.68kg

Physical Features

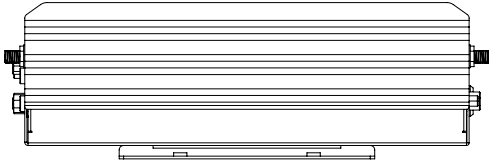
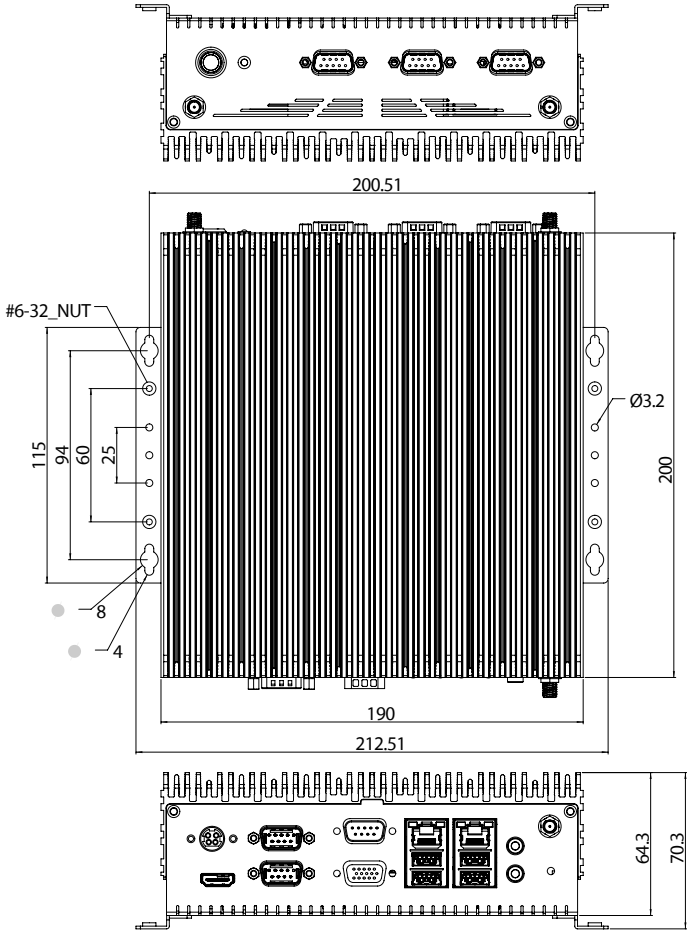
Front Panel



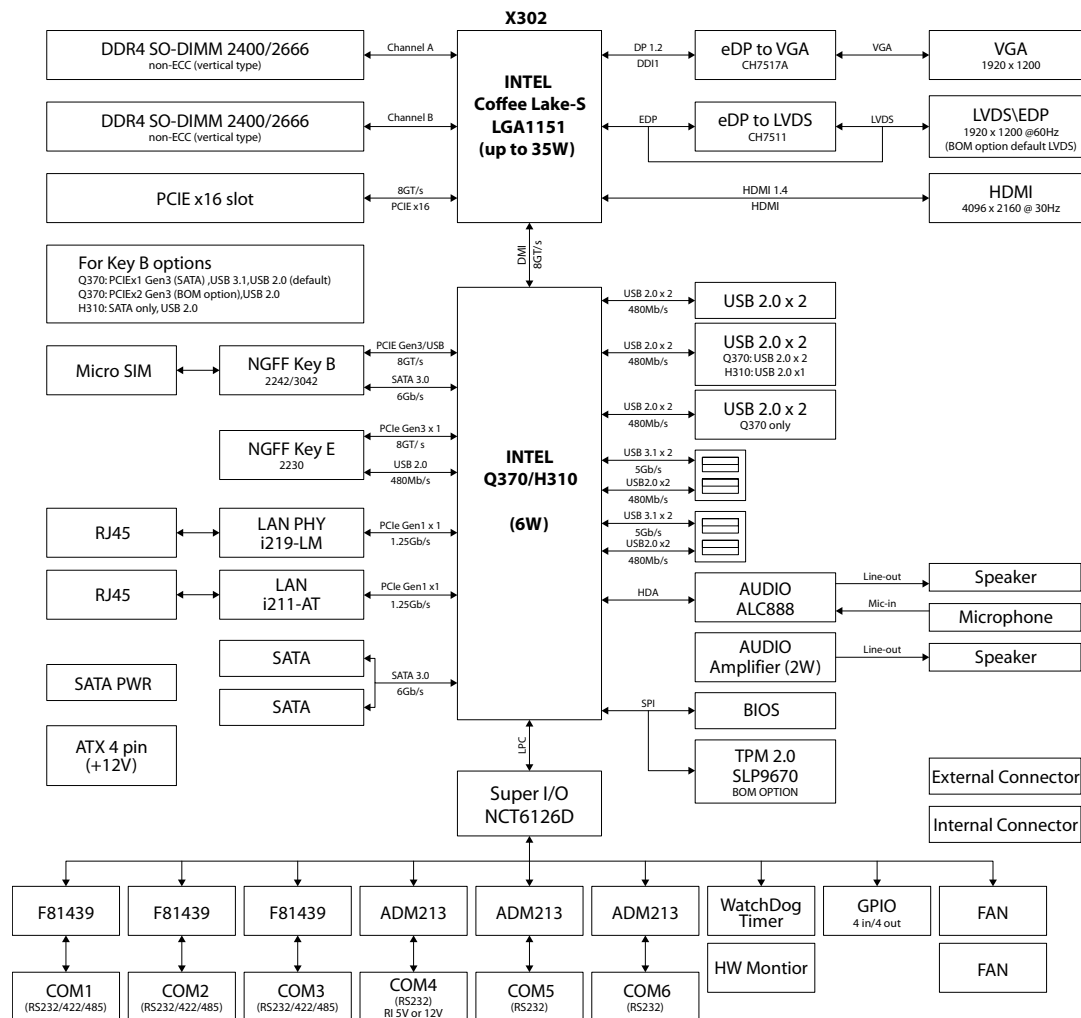
Rear Panel



Mechanical Dimensions



Block Diagram



CHAPTER 2: JUMPERS AND CONNECTORS

This chapter lists the locations of the jumpers and connectors for the Neu-X302 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:

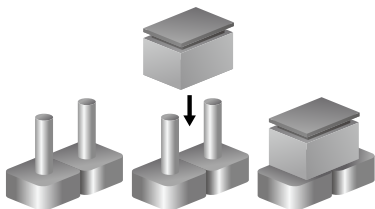
- Always disconnect the unit from the power outlet whenever you are working inside the case.
- If possible, wear a grounded wrist strap when you are working inside the computer case. Alternatively, discharge any static electricity by touching the bare metal chassis of the unit case, or the bare metal 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

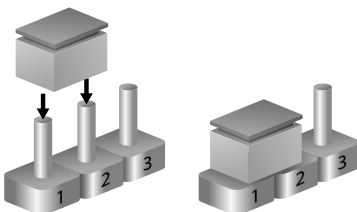
A jumper is the simplest kind of electric switch. It consists of two metal pins and a cap. When setting the jumpers, ensure that the jumper caps are placed on the correct pins. When the jumper cap is placed on both pins, the jumper is short. If you remove the jumper cap, or place the jumper cap on just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

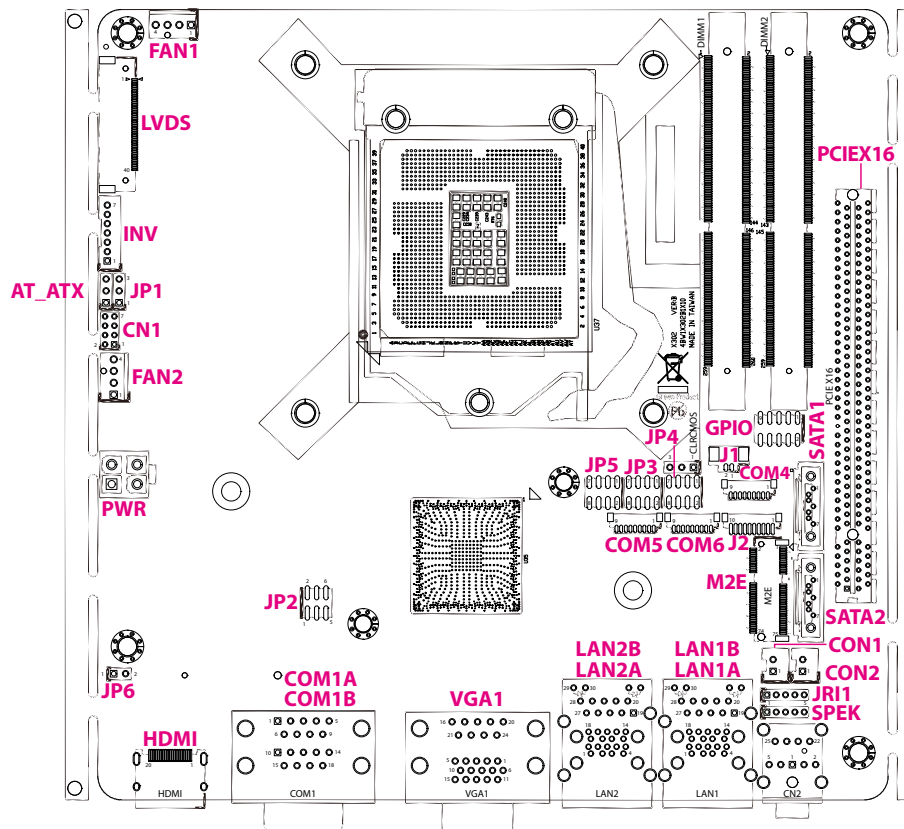


Three-Pin Jumpers: Pins 1 and 2 are Short



Locations of the Jumpers and Connectors for the Neu-X302 Series

The figure below is the top and bottom view of the mainboard used in the Neu-X302 series. It shows the locations of the jumpers and connectors.



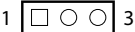


Jumpers

AT/ATX Mode Select

Connector type: 1x3 3-pin header, 2.54mm pitch

Connector location: AT_ATX



Pin	Settings
1	ATB
2	H_PWRBTN#_M
3	H_PWRBTN#



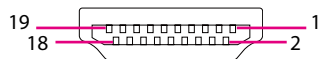
Connector Pin Definitions

External I/O Interfaces

HDMI Port

Connector type: HDMI port

Connector location: HDMI

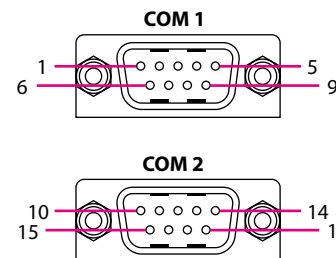


Pin	Definition	Pin	Definition
1	HDMI2_TX2P	2	GND
3	HDMI2_TX2N	4	HDMI2_TX1P
5	GND	6	HDMI2_TX1N
7	HDMI2_TX0P	8	GND
9	HDMI2_TX0N	10	HDMI2_CLK_P
11	GND	12	HDMI2_CLK_N
13	NC	14	NC
15	HDMI2_SCL	16	HDMI2_SDA
17	GND	18	HDMI2_P5V
19	HDMI2_HPD		

COM 1 and COM 2 Ports

Connector type: DB-9 port, 9-pin D-Sub

Connector location: COM1A (COM 1) and COM1B (COM 2)



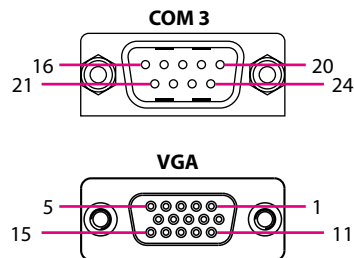
COM1			
Pin	RS232	RS422	RS485
1	DCD	TX-	TR-
2	RXD	TX+	TR+
3	TXD	RX+	
4	DTR	RX-	
5	GND	GND	GND
6	DSR		
7	RTS		
8	CTS		
9	RI		

COM2			
Pin	RS232	RS422	RS485
10	DCD	TX-	TR-
11	RXD	TX+	TR+
12	TXD	RX+	
13	DTR	RX-	
14	GND	GND	GND
15	DSR		
16	RTS		
17	CTS		
18	RI		

COM 3 and VGA Ports

Connector type: DB-9 port, 9-pin D-Sub; DB-15 port, 15-pin D-Sub

Connector location: VGA1

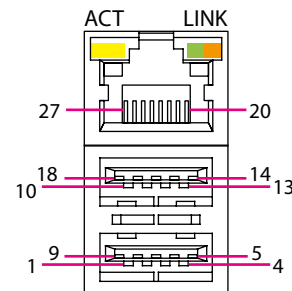


Pin	Definition	Pin	Definition
1	VGA_RED	2	VGA_GREEN
3	VGA_BLUE	4	NC
5	GND	6	GND
7	GND	8	GND
9	VGA_+5V_CN	10	GND
11	NC	12	VGA_DATA
13	VGA_HS	14	VGA_VS
15	VGA_CLK	16	DCD3
17	RXD3	18	TXD3
19	DTR3	20	GND
21	DSR3	22	RTS3
23	CTS3	24	RI3

LAN 1 and USB 3.0 Ports

Connector type: RJ45 port with LEDs and dual USB 3.0 ports, Type A

Connector location: LAN1A (USB) and LAN1B (LAN 1)

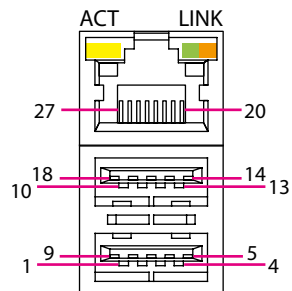


Pin	Definition	Pin	Definition
1	P5V_USB_P01	2	USB2N1_C
3	USB2P1_C	4	GND
5	USB3RN1_C	6	USB3RP_C
7	GND	8	USB3TN1_C
9	USB3TP1_C	10	P5V_USB_P01
11	USB2N2_C	12	USB2P2_C
13	GND	14	USB3RN2_C
15	USB3RP2_C	16	GND
17	USB3TN2_C	18	USB3TP2_C
19	0V9_VDC	20	MDI_PLUS0
21	MDI_MINUS0	22	MDI_PLUS1
23	MDI_MINUS1	24	MDI_PLUS2
25	MDI_MINUS2	26	MDI_PLUS3
27	MDI_MINUS3	28	GND

LAN 2 and USB 3.0 Ports

Connector type: RJ45 port with LEDs and dual USB 3.0 ports, Type A

Connector location: LAN2A (USB) and LAN2B (LAN 2)

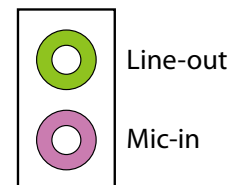


Pin	Definition	Pin	Definition
1	P5V_USB_P23	2	USB2N4_C
3	USB2P4_C	4	GND
5	USB3RN4_C	6	USB3RP4_C
7	GND	8	USB3TN4_C
9	USB3TP4_C	10	P5V_USB_P23
11	USB2_3N_C	12	USB2_3P_C
13	GND	14	USB3_RX3_N_C
15	USB3_RX3_P_C	16	GND
17	USB3TN3_C	18	USB3TP3_C
19	LAN2TCT	20	LAN2MDI0P
21	LAN2MDI0N	22	LAN2MDI1P
23	LAN2MDI1N	24	LAN2MDI2P
25	LAN2MDI2N	26	LAN2MDI3P
27	LAN2MDI3N	28	GND

Audio Connectors

Connector type: 2x 3.5mm jack

Connector location: CN2



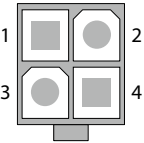
Pin	Definition	Pin	Definition
1	AGND	2	LINE_INL
3	AGND	4	MIC_JD
5	LINE_INR	22	LINE_OUTL
23	AGND	24	LINEOUT_JD
25	LINE_OUTR		



Internal Connectors

Power Connector

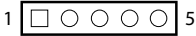
Connector type: 2x2 4-pin header, 4.2mm pitch
Connector location: PWR



Pin	Definition	Pin	Definition
1	GND	2	GND
3	VIN_12	4	VIN_12

Speaker Connector

Connector type: 1x5 5-pin header, 2.0mm pitch
Connector location: SPEK



Pin	Definition	Pin	Definition
1	OUT-LR+_C	2	OUT-LR-_C
3	GND	4	OUT-RR+_C
5	OUT-RR-_C		





RI Connector

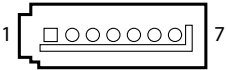
Connector type: 1x5 5-pin header, 2.0mm pitch
Connector location: JRI1



Pin	Definition	Pin	Definition
1	VCC5	2	COM4RIL_CN
3	VCC12	4	COM4RIL_CN
5	COM4RIL		

SATA Connector

Connector type: Standard Serial ATA 7P (1.27mm, SATA-M-180)
Connector location: SATA1

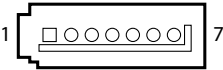


Pin	Definition	Pin	Definition
1	GND	2	SATA_TXP0_C
3	SATA_TXN0_C	4	GND
5	SATA_RXN0_C	6	SATA_RXP0_C
7	GND		



SATA Connector

Connector type: Standard Serial ATA 7P (1.27mm, SATA-M-180)
Connector location: SATA2



Pin	Definition	Pin	Definition
1	GND	2	SATA_TXP1_C
3	SATA_TXN1_C	4	GND
5	SATA_RXN1_C	6	SATA_RXP1_C
7	GND		

SATA Power Connectors

Connector type: 1x2 2-pin header JST, 2.54mm pitch
Connector location: CON1 and CON2



Pin	Definition
1	VCC5
2	GND



COM 4 Connector

Connector type: 1x9 9-pin header, 1.0mm pitch
Connector location: COM4



Pin	Definition	Pin	Definition
1	COM4RIL_CN	2	COM4CTSL
3	COM4RTSL	4	COM4DSRL
5	GND	6	COM4DTRL
7	COM4TXD	8	COM4RXD
9	COM4DCDL		

COM 5 Connector

Connector type: 1x9 9-pin header, 1.0mm pitch
Connector location: COM5



Pin	Definition	Pin	Definition
1	COM5RIL	2	COM5CTSL
3	COM5RTSL	4	COM5DSRL
5	GND	6	COM5DTRL
7	COM5TXD	8	COM5RXD
9	COM5DCDL		





COM 6 Connector

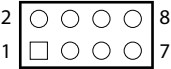
Connector type: 1x9 9-pin header, 1.0mm pitch
Connector location: COM6



Pin	Definition	Pin	Definition
1	COM6RIL	2	COM6CTSL
3	COM6RTSL	4	COM6DSRL
5	GND	6	COM6DTRL
7	COM6TXD	8	COM6RXD
9	COM6DCDL		

USB Connector

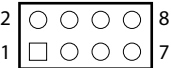
Connector type: 2x4 8-pin header, 2.0mm pitch
Connector location: JP3



Pin	Definition	Pin	Definition
1	P5V_USB_P56	2	GND
3	USB2N5_C	4	USB2P6_C
5	USB2P5_C	6	USB2N6_C
7	GND	8	P5V_USB_P56

USB Connector

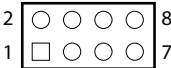
Connector type: 2x4 8-pin header, 2.0mm pitch
Connector location: JP4



Pin	Definition	Pin	Definition
1	P5V_USB_P78	2	GND
3	USB2N7_C	4	USB2P8_C
5	USB2P7_C	6	USB2N8_C
7	GND	8	P5V_USB_P78

USB Connector

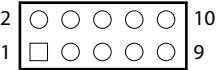
Connector type: 2x4 8-pin header, 2.0mm pitch
Connector location: JP5



Pin	Definition	Pin	Definition
1	P5V_USB_P9_10	2	GND
3	USB2N12_C	4	USB2P11_C
5	USB2P12_C	6	USB2N11_C
7	GND	8	P5V_USB_P9_10

GPIO Connector

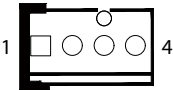
Connector type: 2x5 10-pin header, 2.0mm pitch
Connector location: GPIO



Pin	Definition	Pin	Definition
1	GPIO_PWR	2	GND
3	GPIO_GP30	4	GPIO_GP34
5	GPIO_GP31	6	GPIO_GP35
7	GPIO_GP32	8	GPIO_GP36
9	GPIO_GP33	10	GPIO_GP37

System Fan Connector

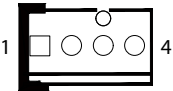
Connector type: 1x4 4-pin Wafer, 2.54mm pitch
Connector location: FAN1



Pin	Definition
1	GND
2	VCC12
3	FAN1TACH
4	FAN1PWM

CPU Fan Connector

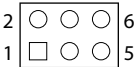
Connector type: 1x4 4-pin Wafer, 2.54mm pitch
Connector location: FAN2



Pin	Definition
1	GND
2	VCC12
3	FAN2TACH
4	FAN2PWM

INV Connector

Connector type: 2x3 6-pin header, 2.54mm pitch
Connector location: INV

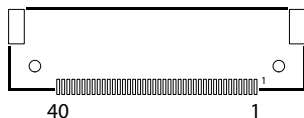


Pin	Definition	Pin	Definition
1	GND	2	GND
3	+V_INV	4	+V_INV
5	M_BKLTEN_R	6	PL_BKLTCTRL

LVDS Panel Connector

Connector type: 1x40 40-pin header, 0.5mm pitch

Connector location: LVDS

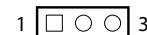


Pin	Definition	Pin	Definition
1	LVDS0_D3+_C	2	LVDS0_D3-_C
3	HD0_D2+	4	HD0_D2-
5	HD0_D1+	6	HD0_D1-
7	HD0_D0+	8	HD0_D0-
9	HD1_D3+	10	HD1_D3-
11	HD1_D2+	12	HD1_D2-
13	LVDS1_D1+	14	LVDS1_D1-
15	LVDS1_D0+	16	LVDS1_D0-
17	GND	18	+V_PANEL
19	+V_PANEL	20	+V_PANEL
21	GND	22	VCC3
23	GND	24	GND
25	GND	26	LVDS0_CLK+_C
27	LVDS0_CLK-_C	28	GND
29	GND	30	GND
31	HPDET	32	CH_ENABKL
33	7511_BKLTCTRL	34	LVDS1_CLK+
35	LVDS1_CLK-	36	+V_INV
37	+V_INV	38	+V_INV
39	+V_INV	40	NC

LCD Power Connector

Connector type: 1x3 3-pin header, 2.54mm pitch

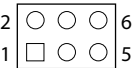
Connector location: JP1



Pin	Settings
1	VCC3
2	+VCLCDIN
3	VCC5

BIOS Program Header

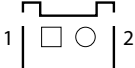
Connector type: 2x3 6-pin header, 2.0mm pitch
Connector location: JP2



Pin	Definition	Pin	Definition
1	+3V3_SPI	2	GND
3	CS#_1	4	CLK_1
5	DO_1	6	DI_1

RTC Battery Connector

Connector type: 1x2 2-pin header JST, 2.5mm pitch
Connector location: J1

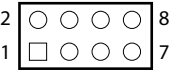


Pin	Definition
1	GND
2	BAT



Front Panel Connector

Connector type: 2x4 8-pin header, 2.0mm pitch
Connector location: CN1



Pin	Definition	Pin	Definition
1	H_PWRBTN#	2	GND
3	PWRLEDP#	4	PWR_LED_DP
5	PM_RESET#_J	6	GND
7	HD_LED#	8	HDD_LED_DP

S3 Connector

Connector type: 1x2 2-pin header, 2.54mm pitch
Connector location: JP6



Pin	Definition
1	S_SLP_S3#
2	GND





LPC 80 Port Connector

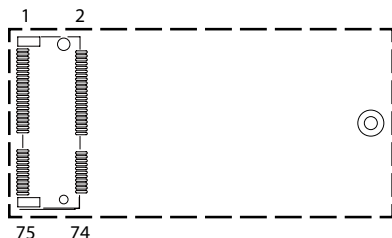
Connector type: 1x10 10-pin header, 1.0mm pitch
Connector location: J2



Pin	Definition	Pin	Definition
1	GND	2	PLTRST#_BUFF_1
3	CLK_PCI_P80	4	LPC_FRAME#
5	LPC_AD3	6	LPC_AD2
7	LPC_AD1	8	LPC_AD0
9	SERIRQ	10	VCC3

M.2 Connector (E-Key)

Connector location: M2E



Pin	Definition	Pin	Definition
1	GND	2	NGFF_3V3
3	M2_E_USBP	4	NGFF_3V3
5	M2_E_USBN	6	NC
7	GND	8	NC
9	NC	10	NC
11	NC	12	NC
13	NC	14	NC
15	NC	16	NC
17	NC	18	GND
19	NC	20	NC
21	NC	22	NC
23	NC		
		32	NC
33	GND	34	NC
35	S_PCIE_TXP7	36	NC
37	S_PCIE_TXN7	38	CL_RST#_C
39	GND	40	CL_DAT_C
41	S_PCIE_RXP7	42	CL_RST#_C

Pin	Definition	Pin	Definition
43	S_PCIE_RXN7	44	NC
45	GND	46	NC
47	S_CLKOUT_PCIE_P10	48	NC
49	S_CLKOUT_PCIE_N10	50	SUSCLK3
51	GND	52	RST_M2E
53	SRCLKREQ_N10	54	CONFIG_1
55	S_WAKE#	56	CONFIG_2
57	GND	58	NC
59	S_PCIE_TXP8	60	NC
61	S_PCIE_TXN8	62	NC
63	GND	64	NC
65	S_PCIE_RXP8	66	RST_M2E
67	S_PCIE_RXN8	68	SRCLKREQ_N9
69	GND	70	S_WAKE#
71	S_CLKOUT_PCIE_P9	72	NGFF_3V3
73	S_CLKOUT_PCIE_N9	74	NGFF_3V3
75	GND		

PCIe x16 Slot

Connector location: PCIEX16



Pin	Definition	Pin	Definition
A1	PCIE_PRSENT1	B1	VCC12
A2	VCC12	B2	VCC12
A3	VCC12	B3	VCC12
A4	GND	B4	GND
A5	PCIEX16_TCK	B5	S_SMBCLK
A6	PCIEX16_TDI	B6	S_SMBDATA
A7	NC	B7	GND
A8	PCIEX16_TMS	B8	VCC3
A9	VCC3	B9	PCIEX16_TRST#
A10	VCC3	B10	3VSB
A11	RST_PCIEX16	B11	S_WAKE#
A12	GND	B12	NC
A13	S_CLKOUT_PCIE_P7	B13	GND
A14	S_CLKOUT_PCIE_N7	B14	PEG_TXP0
A15	GND	B15	PEG_TXN0
A16	PEG_RXP0	B16	GND
A17	PEG_RXN0	B17	SRCCLKREQ_N7
A18	GND	B18	GND

Pin	Definition	Pin	Definition
A19	NC	B19	PEG_TXP1
A20	GND	B20	PEG_TXN1
A21	PEG_RXP1	B21	GND
A22	PEG_RXN1	B22	GND
A23	GND	B23	PEG_TXP2
A24	GND	B24	PEG_TXN2
A25	PEG_RXP2	B25	GND
A26	PEG_RXN2	B26	GND
A27	GND	B27	PEG_TXP3
A28	GND	B28	PEG_TXN3
A29	PEG_RXP3	B29	GND
A30	PEG_RXN3	B30	NC
A31	GND	B31	NC
A32	NC	B32	GND
A33	NC	B33	PEG_TXP4
A34	GND	B34	PEG_TXN4
A35	PEG_RXP4	B35	GND
A36	PEG_RXN4	B36	GND

Pin	Definition	Pin	Definition
A37	GND	B37	PEG_TXP5
A38	GND	B38	PEG_TXN5
A39	PEG_RXP5	B39	GND
A40	PEG_RXN5	B40	GND
A41	GND	B41	PEG_TXP6
A42	GND	B42	PEG_TXN6
A43	PEG_RXP6	B43	GND
A44	PEG_RXN6	B44	GND
A45	GND	B45	PEG_TXP7
A46	GND	B46	PEG_TXN7
A47	PEG_RXP7	B47	GND
A48	PEG_RXN7	B48	NC
A49	GND	B49	GND
A50	NC	B50	PEG_TXP8
A51	GND	B51	PEG_TXN8
A52	PEG_RXP8	B52	GND
A53	PEG_RXN8	B53	GND
A54	GND	B54	PEG_TXP9
A55	GND	B55	PEG_TXN9
A56	PEG_RXP9	B56	GND
A57	PEG_RXN9	B57	GND
A58	GND	B58	PEG_TXP10
A59	GND	B59	PEG_TXN10

Pin	Definition	Pin	Definition
A60	PEG_RXP10	B60	GND
A61	PEG_RXN10	B61	GND
A62	GND	B62	PEG_TXP11
A63	GND	B63	PEG_TXN11
A64	PEG_RXP11	B64	GND
A65	PEG_RXN11	B65	GND
A66	GND	B66	PEG_TXP12
A67	GND	B67	PEG_TXN12
A68	PEG_RXP12	B68	GND
A69	PEG_RXN12	B69	GND
A70	GND	B70	PEG_TXP13
A71	GND	B71	PEG_TXN13
A72	PEG_RXP13	B72	GND
A73	PEG_RXN13	B73	GND
A74	GND	B74	PEG_TXP14
A75	GND	B75	PEG_TXN14
A76	PEG_RXP14	B76	GND
A77	PEG_RXN14	B77	GND
A78	GND	B78	PEG_TXP15
A79	GND	B79	PEG_TXN15
A80	PEG_RXP15	B80	GND
A81	PEG_RXN15	B81	NC
A82	GND	B82	NC

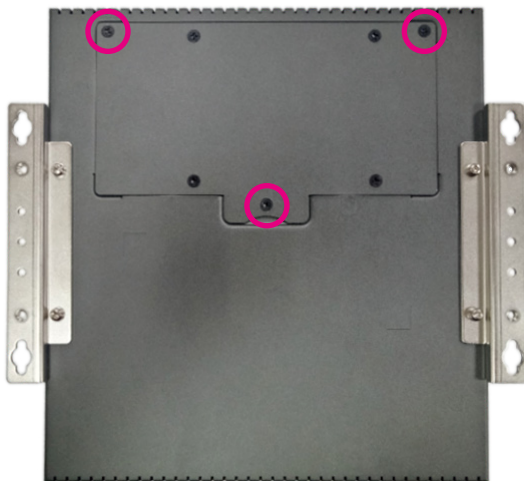
CHAPTER 3: SYSTEM SETUP

Installing a 2.5" SATA Storage Drive

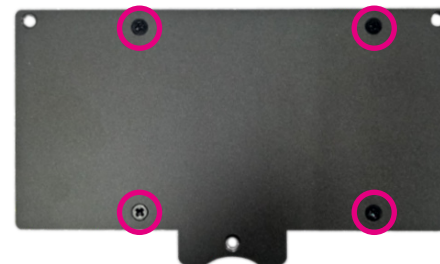


Prior to installing a 2.5" SATA storage drive, make sure the unit's power is off and disconnected from the power sources to prevent electric shock or system damage.

1. On the bottom of the system, loosen the three screws on the bottom cover as circled below, and then remove the cover from the chassis.



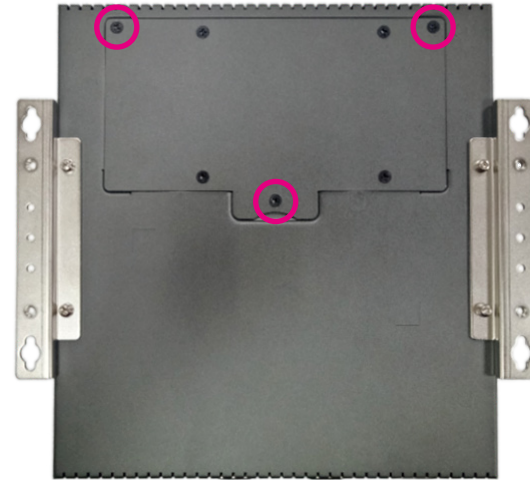
2. Loosen the four screws on the bottom cover as circled below.



3. Mount the 2.5" SATA storage drive on the bottom side of the cover with four flat head screws (P/N: 50311F0112X00).



4. Secure the bottom cover back to the system.

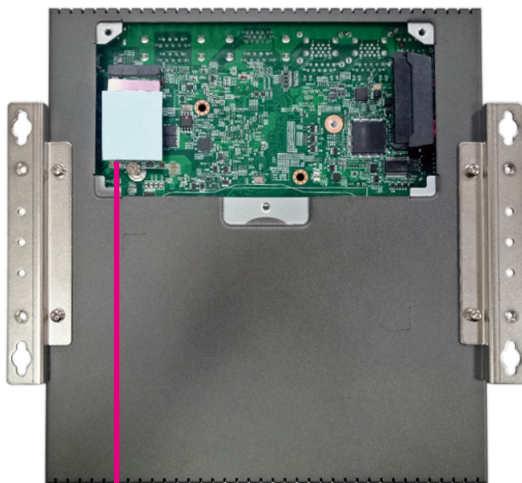


Installing an LTE Module (Mini-PCle Slot)

1. With the bottom cover removed, locate the mini-PCle and SIM card socket on the mainboard.
2. Install the LTE module and SIM card into their respective sockets.

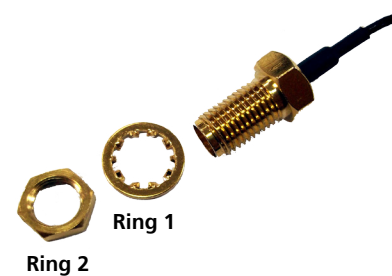


3. Place the thermal pad (included in the accessory bag) on top of the module.



Thermal Pad
(P/N: 5060200417X00)

4. Attach the RF cable onto the module and remove the antenna hole cover on the front/rear panel. Then insert the antenna jack end of the cable through the antenna hole.



Installing SO-DIMM Memory Modules

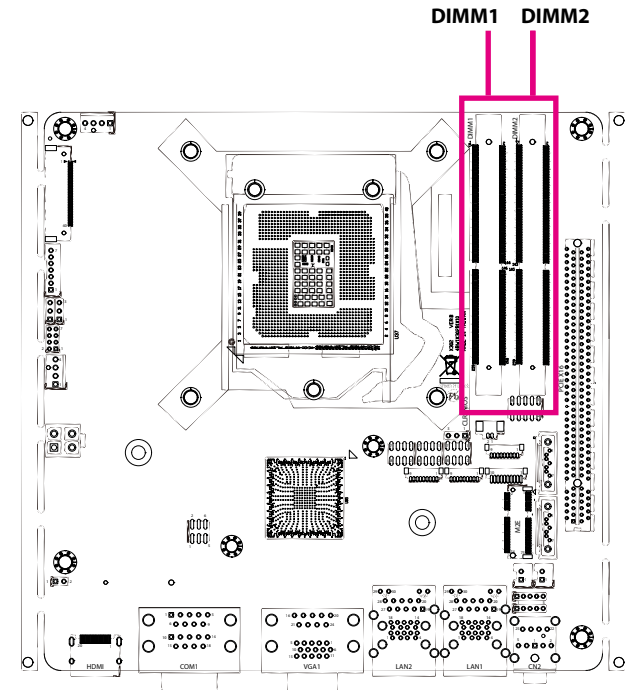
1. Remove the two screws each on the front and rear panel of the system.
2. With the screws removed, remove the system chassis cover and install the memory modules into the DIMM1 and DIMM2 slots.



Front Panel

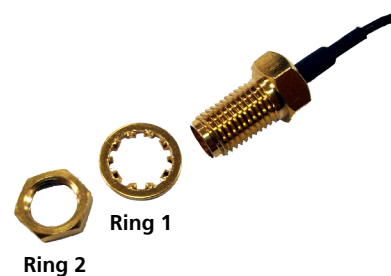
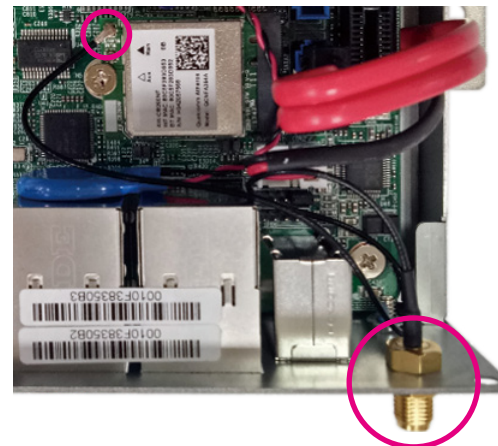
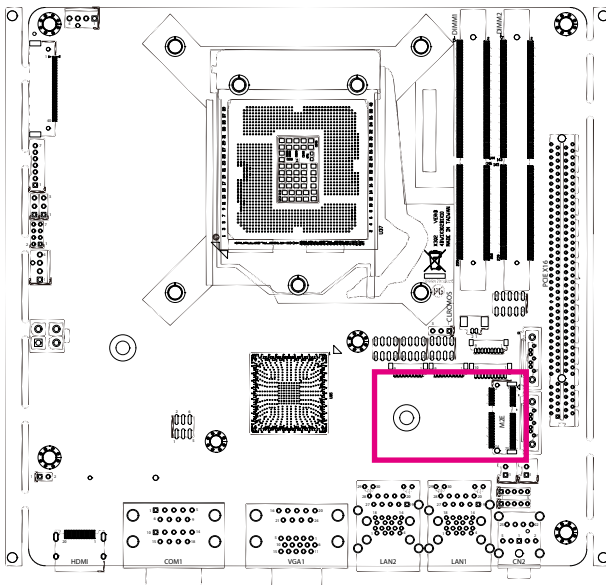


Rear Panel



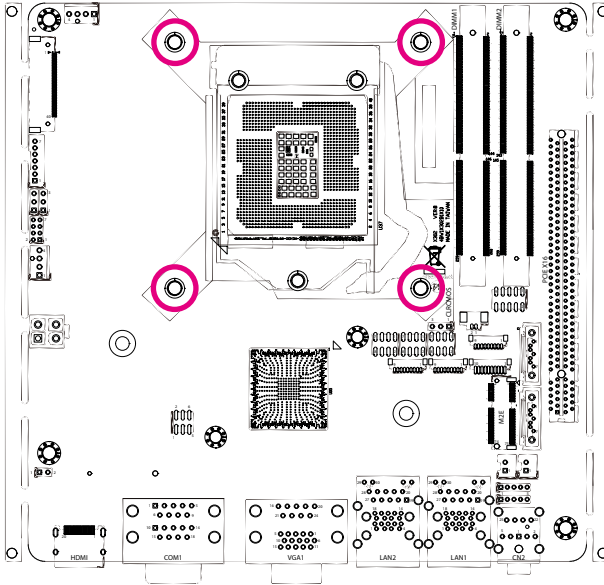
Installing a Wi-Fi Module (M.2 E-Key Slot)

1. With the system chassis cover removed, locate the M.2 E-Key slot and insert the Wi-Fi module into the slot. Then secure the module with the screw included in the accessory bag.
2. Attach the RF cable onto the module and remove the antenna hole cover on the rear panel. Then insert the antenna jack end of the cable through the antenna hole.

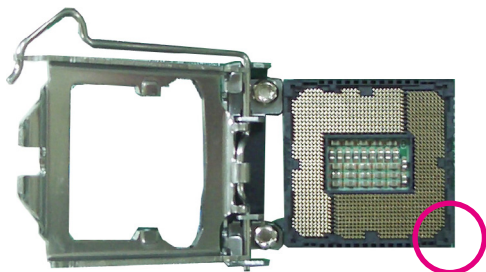


Installing a CPU

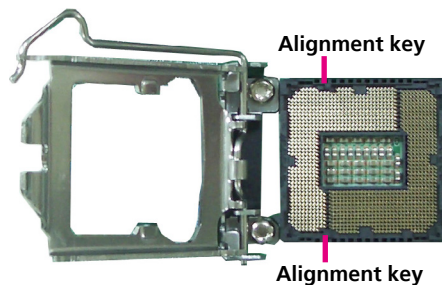
1. With the system chassis cover removed, loosen the four mounting screws on the heat sink then remove it to access the CPU socket.
2. Unlock the socket by pushing the load lever down, moving it sideways until it is released from the retention tab; then lift the load lever up.

**Retention Tab****Load Lever**

3. Insert the CPU into the socket. The triangular edge on the CPU must align with the corner of the CPU socket shown on the photo.



The CPU's notch will at the same time fit into the socket's alignment key.



4. Close the load plate and then hook the load lever under the retention tab.



- Handle the CPU by its edges and avoid touching the pins.
- The CPU will fit in only one orientation and can easily be inserted without exerting any force.



Do not force the CPU into the socket. Forcing the CPU into the socket may bend the pins and damage the CPU.

5. Remove the adhesive film on the thermal pad (P/N: 5060200082X00) and place it on top of the CPU.



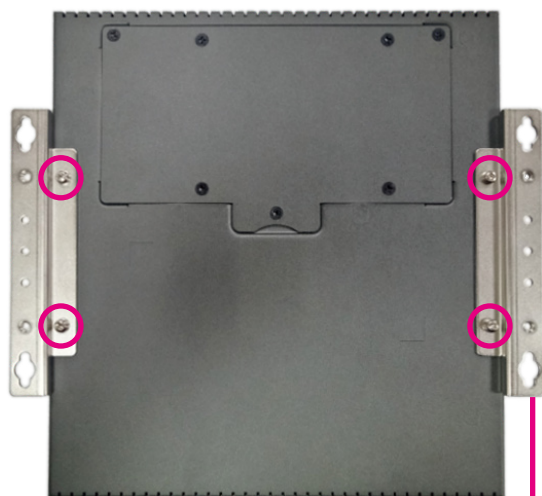
6. Reinstall the heat sink with the four mounting screws removed earlier.



Wall Mounting Instructions

To mount the system on to a wall or some other surface using the two mounting brackets, please follow the steps below.

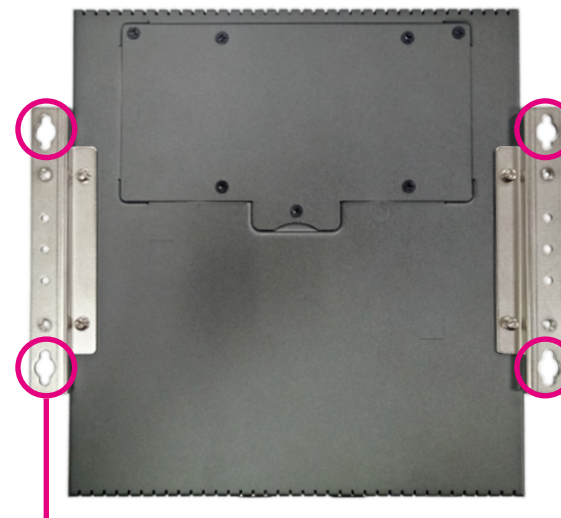
1. Turn the system over. Align the two retention screw holes in each bracket with the retention screw holes on the sides of the bottom surface.
2. Secure the brackets to the system by inserting two retention screws into each bracket.
3. Drill holes in the intended installation surface.
4. Align the mounting holes on the sides of the mounting brackets with the predrilled holes on the mounting surface.
5. Insert four retention screws, two in each bracket, to secure the system to the wall.



Wall Mount Bracket



Specification of the wall mount screw: (P/N: 50311F0185X00)
4 x Round Head Screw Long Fei:P6#32TX8L_w/Spring+Flat Washer



Fasten screws to mount the system to the wall

CHAPTER 4: BIOS SETUP

This chapter describes how to use the BIOS setup program for the Neu-X302 series. The BIOS screens provided in this chapter are for reference only and may change if the BIOS is updated in the future.

To check for the latest updates and revisions, visit the NEXCOM website at www.nexcom.com.tw.

About BIOS Setup

The BIOS (Basic Input and Output System) Setup program is a menu driven utility that enables you to make changes to the system configuration and tailor your system to suit your individual work needs. It is a ROM-based configuration utility that displays the system's configuration status and provides you with a tool to set system parameters.

These parameters are stored in non-volatile battery-backed-up CMOS RAM that saves this information even when the power is turned off. When the system is turned back on, the system is configured with the values found in CMOS.

With easy-to-use pull down menus, you can configure items such as:

- Hard drives, diskette drives, and peripherals
- Video display type and display options
- Password protection from unauthorized use
- Power management features

The settings made in the setup program affect how the computer performs. It is important, therefore, first to try to understand all the setup options, and second, to make settings appropriate for the way you use the computer.

When to Configure the BIOS

- This program should be executed under the following conditions:
- When changing the system configuration
- When a configuration error is detected by the system and you are prompted to make changes to the setup program
- When resetting the system clock
- When redefining the communication ports to prevent any conflicts
- When making changes to the Power Management configuration
- When changing the password or making other changes to the security setup

Normally, CMOS setup is needed when the system hardware is not consistent with the information contained in the CMOS RAM, whenever the CMOS RAM has lost power, or the system features need to be changed.

Default Configuration


Most of the configuration settings are either predefined according to the Load Optimal Defaults settings which are stored in the BIOS or are automatically detected and configured without requiring any actions. There are a few settings that you may need to change depending on your system configuration.

Entering Setup











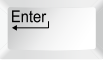
When the system is powered on, the BIOS will enter the Power-On Self Test (POST) routines. These routines perform various diagnostic checks; if an error is encountered, the error will be reported in one of two different ways:

- If the error occurs before the display device is initialized, a series of beeps will be transmitted.
- If the error occurs after the display device is initialized, the screen will display the error message.

Powering on the computer and immediately pressing allows you to enter Setup.

Press the  key to enter Setup:


Legends

Key	Function
	Moves the highlight left or right to select a menu.
	Moves the highlight up or down between sub-menus or fields.
	Exits the BIOS Setup Utility.
	Scrolls forward through the values or options of the highlighted field.
	Scrolls backward through the values or options of the highlighted field.
	Selects a field.
	Displays General Help.
	Load previous values.
	Load optimized default values.
	Saves and exits the Setup program.
	Press <Enter> to enter the highlighted sub-menu


Scroll Bar

When a scroll bar appears to the right of the setup screen, it indicates that there are more available fields not shown on the screen. Use the up and down arrow keys to scroll through all the available fields.

Submenu

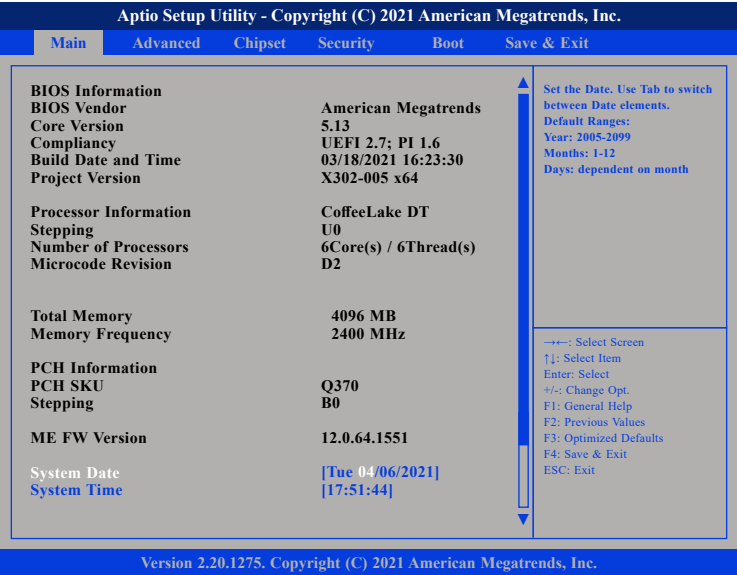
When “▶” appears on the left of a particular field, it indicates that a submenu which contains additional options are available for that field. To display the submenu, move the highlight to that field and press  .

BIOS Setup Utility

Once you enter the AMI BIOS Setup Utility, the Main Menu will appear on the screen. The main menu allows you to select from several setup functions and one exit. Use arrow keys to select among the items and press  to accept or enter the submenu.

Main

The Main menu is the first screen that you will see when you enter the BIOS Setup Utility.



System Date

The date format is <day>, <month>, <date>, <year>. Day displays a day, from Monday to Sunday. Month displays the month, from January to December. Date displays the date, from 1 to 31. Year displays the year, from 2005 to 2099.

System Time

The time format is <hour>, <minute>, <second>. The time is based on the 24-hour military-time clock. For example, 1 p.m. is 13:00:00. Hour displays hours from 00 to 23. Minute displays minutes from 00 to 59. Second displays seconds from 00 to 59.

Advanced

The Advanced menu allows you to configure your system for basic operation. Some entries are defaults required by the system board, while others, if enabled, will improve the performance of your system or let you set some features according to your preference.

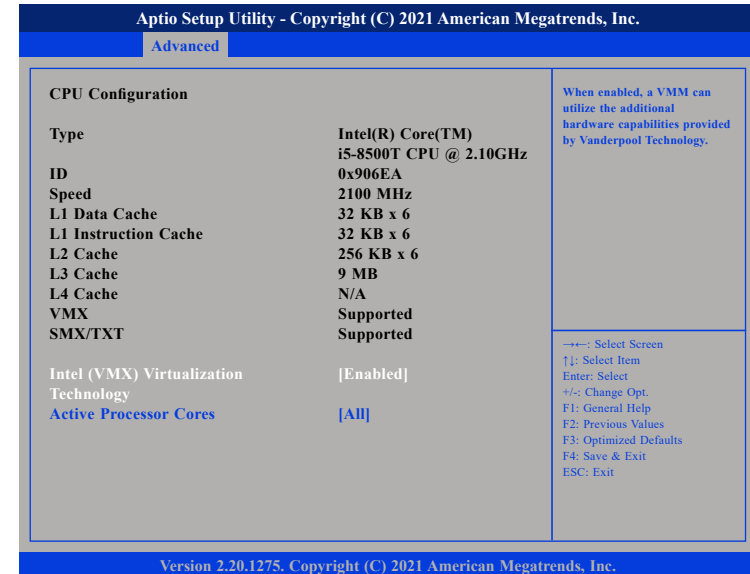


Setting incorrect field values may cause the system to malfunction.



CPU Configuration

This section is used to view CPU status and configure CPU parameters.



Intel® (VMX) Virtualization Technology

When this field is set to Enabled, the VMM can utilize the additional hardware capabilities provided by Vanderpool Technology.

Active Processor Cores

Select the number of cores to enable in each processor package.

Power & Performance

This section is used to configure the CPU power management features.



CPU - Power Management Control

Enters the CPU - Power Management Control submenu.

CPU - Power Management Control



Intel® SpeedStep™

Enables or disables Intel Speedstep technology.

Turbo Mode

Enables or disables turbo mode.

C states

Enable CPU C States Support for power saving. It is recommended to keep C3, C6 and C7 all enabled for better power saving.



PCH-FW Configuration

This section is used to configure the firmware update options.

Aptio Setup Utility - Copyright (C) 2021 American Megatrends, Inc.

Advanced

ME Firmware Version	12.0.64.1551	When Disabled ME will be put into ME Temporarily Disabled Mode.
ME Firmware Mode	Normal Mode	
ME Firmware SKU	Corporate SKU	
ME Firmware Status 1	0x90000255	
ME Firmware Status 2	0x89108106	
ME State	[Enabled]	
Manageability Features State	[Enabled]	
AMT BIOS Features	[Enabled]	
ME Unconfig on RTC Clear	[Enabled]	

Version 2.20.1275. Copyright (C) 2021 American Megatrends, Inc.

→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit

ME State

Enables or disables ME state. When disabled, ME will be placed into ME Temporarily Disabled Mode.

Manageability Features State

Enables or disables Manageability Features State.

AMT BIOS Features

When disabled, AMT BIOS Features are no longer supported and user is no longer able to access MEBx Setup. Please note that this option does not disable Manageability Features in FW.

ME Unconfig on RTC Clear

When disabled, ME will not be unconfigured on RTC Clear.





AMT Configuration

Aptio Setup Utility - Copyright (C) 2021 American Megatrends, Inc.

Advanced

ASF support	[Enabled]	Enable/Disable Alert Standard Format support.
USB Provisioning of AMT	[Disabled]	
<div>▶ CIRA Configuration</div> <div>▶ ASF Configuration</div> <div>▶ Secure Erase Configuration</div> <div>▶ OEM Flags Settings</div> <div>▶ MEBx Resolution Settings</div>		
		<div>→←: Select Screen</div> <div>↑↓: Select Item</div> <div>Enter: Select</div> <div>+/-: Change Opt.</div> <div>F1: General Help</div> <div>F2: Previous Values</div> <div>F3: Optimized Defaults</div> <div>F4: Save & Exit</div> <div>ESC: Exit</div>

Version 2.20.1275. Copyright (C) 2021 American Megatrends, Inc.

ASF support

Enables or disables Alert Standard Format support.

USB Provisioning of AMT

Enables or disables USB Provisioning of AMT.

CIRA Configuration

Aptio Setup Utility - Copyright (C) 2021 American Megatrends, Inc.

Advanced

Activate Remote Assistance Process	[Disabled]	Trigger CIRA boot
CIRA Timeout	0	Note: Network Access must be activated first from MEBx Setup.
		<div>→←: Select Screen</div> <div>↑↓: Select Item</div> <div>Enter: Select</div> <div>+/-: Change Opt.</div> <div>F1: General Help</div> <div>F2: Previous Values</div> <div>F3: Optimized Defaults</div> <div>F4: Save & Exit</div> <div>ESC: Exit</div>

Version 2.20.1275. Copyright (C) 2021 American Megatrends, Inc.

Activate Remote Assistance Process

Enables or disables Activate Remote Assistance Process.



ASF Configuration

Aptio Setup Utility - Copyright (C) 2021 American Megatrends, Inc.

Advanced

PET Progress	[Enabled]	Enable/Disable PET Events Progress to receive PET Events.
WatchDog	[Disabled]	
OS Timer	0	
BIOS Timer	0	
ASF Sensor Table	[Disabled]	

→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit

Version 2.20.1275. Copyright (C) 2021 American Megatrends, Inc.

PET Progress

Enables or disables PET Events Progress to receive PET Events.

WatchDog

Enables or disables watchdog timer.

ASF Sensors Table

Enables or disables the option to add ASF Sensor Table into ASF ACPI Table.

Secure Erase Configuration

Aptio Setup Utility - Copyright (C) 2021 American Megatrends, Inc.

Advanced

Secure Erase mode	[Simulated]	Change Secure Erase module behavior: Simulated: Performs SE flow without erasing SSD Real: Erase SSD.
Force Secure Erase	[Disabled]	

→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit

Version 2.20.1275. Copyright (C) 2021 American Megatrends, Inc.

Secure Erase mode

Configures the Secure Erase module behavior.

Simulated: Performs SE flow without erasing SSD.
Real: Erases SSD.

Force Secure Erase

Enables or disables the option to Force Secure Erase on next boot.



OEM Flags Settings



MEBx hotkey Pressed

Enables or disables automatic MEBx hotkey press.

MEBx Selection Screen

Enables or disables MEBx selection screen with 2 options.

- Press 1 to enter ME configuration screens.
- Press 2 to initiate a remote connection.

Hide Unconfigure ME Confirmation Prompt

Enables or disables the option to hide unconfigure ME confirmation prompt when attempting ME unconfiguration.

MEBx OEM Debug Menu Enable

Enables or disables OEM debug menu in MEBx.

Unconfigure ME

Enables Unconfigure ME without password or disables Unconfigure ME.





MEBx Resolution Settings

Aptio Setup Utility - Copyright (C) 2021 American Megatrends, Inc.

Advanced

Non-UI Mode Resolution	[Auto]	Resolution for non-UI text mode.
UI Mode Resolution	[80x25]	
Graphics Mode Resolution	[Auto]	

→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit

Version 2.20.1275. Copyright (C) 2021 American Megatrends, Inc.

Non-UI Mode Resolution

Configures the resolution for non-UI text mode.

UI Mode Resolution

Configures the resolution for UI text mode.

Graphics Mode Resolution

Configures the resolution for graphics mode.

Trusted Computing

This section is used to configure Trusted Platform Module (TPM) settings.

Aptio Setup Utility - Copyright (C) 2021 American Megatrends, Inc.

Advanced

TPM20 Device Found	7.62	Enables or Disables BIOS support for security device. O.S will not show Security Device. TCG EFI protocol and INT1A interface will not be available.
Firmware Version:	IFX	
Vendor:		
Security Device Support	[Enable]	<div><div>→←: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</div></div>
Active PCR banks	SHA-1,SHA256	
Available PCR banks	SHA-1,SHA256	
SHA-1 PCR Bank	[Enabled]	
SHA256 PCR Bank	[Enabled]	
Pending operation	[None]	
Platform Hierarchy	[Enabled]	
Storage Hierarchy	[Enabled]	
Endorsement Hierarchy	[Enabled]	
TPM2.0 UEFI Spec Version	[TCG_2]	
Physical Presence Spec Version	[1.3]	
TPM 20 InterfaceType	[ITIS]	
Device Select	[Auto]	
Disable Block Sid	[Disabled]	

Version 2.20.1275. Copyright (C) 2021 American Megatrends, Inc.

Security Device Support

Enables or disables BIOS support for security device. O.S will not show Security Device. TCG EFI protocol and INT1A interface will not be available.

SHA-1 PCR Bank

Enables or disables SHA-1 PCR Bank.

SHA256 PCR Bank

Enables or disables SHA256 PCR Bank.



Pending operation

Schedules an operation for the security device.

Platform Hierarchy

Enables or disables Platform Hierarchy.

Storage Hierarchy

Enables or disables Storage Hierarchy.

Endorsement Hierarchy

Enables or disables Endorsement Hierarchy.

TPM2.0 UEFI Spec Version

Configures the TPM2.0 UEFI spec version.

TCG_1_2: The compatible mode for Windows 8/Windows 10.
 TCG_2: Support new TCG2 protocol and event format for Windows 10 or later.

Physical Presence Spec Version

Configures which physical presence spec version the OS will support. Please note that some HCK tests might not support 1.3.

Device Select

TPM 1.2 will restrict support to TPM 1.2 devices. TPM 2.0 will restrict support to TPM 2.0 devices. Auto will support both TPM 1.2 and 2.0 devices with the default set to TPM 2.0 devices if not found, and TPM 1.2 devices will be enumerated.

Disable Block Sid

Enables or disables the option to allow SID authentication in TCG storage device.

NCT6126D Super IO Configuration

This section is used to configure the serial ports.



Super IO Chip

Displays the Super I/O chip used on the board.



Serial Port 1 Configuration

This section is used to configure serial port 1.

Aptio Setup Utility - Copyright (C) 2021 American Megatrends, Inc.

Advanced

Serial Port 1 Configuration

Serial Port

[Enabled]

Device Settings

IO=3F8h; IRQ=4;

Change Settings

[Auto]

Onboard Serial Port 1 Mode

[RS232]

Enable or Disable Serial Port (COM)

→←: Select Screen

↑↓: Select Item

Enter: Select

+/-: Change Opt.

F1: General Help

F2: Previous Values

F3: Optimized Defaults

F4: Save & Exit

ESC: Exit

Version 2.20.1275, Copyright (C) 2021 American Megatrends, Inc.

Serial Port

Enables or disables the serial port.

Change Settings

Selects an optimal setting for the Super IO device.

Onboard Serial Port 1 Mode

Select this to change the serial port mode to RS232, RS422 or RS485.

Serial Port 2 Configuration

This section is used to configure serial port 2.

Aptio Setup Utility - Copyright (C) 2021 American Megatrends, Inc.

Advanced

Serial Port 2 Configuration

Serial Port

[Enabled]

Device Settings

IO=2F8h; IRQ=3;

Change Settings

[Auto]

Onboard Serial Port 2 Mode

[RS232]

Enable or Disable Serial Port (COM)

→←: Select Screen

↑↓: Select Item

Enter: Select

+/-: Change Opt.

F1: General Help

F2: Previous Values

F3: Optimized Defaults

F4: Save & Exit

ESC: Exit

Version 2.20.1275, Copyright (C) 2021 American Megatrends, Inc.

Serial Port

Enables or disables the serial port.

Change Settings

Selects an optimal setting for the Super IO device.

Onboard Serial Port 2 Mode

Select this to change the serial port mode to RS232, RS422 or RS485.





Serial Port 3 Configuration

This section is used to configure serial port 3.

Aptio Setup Utility - Copyright (C) 2021 American Megatrends, Inc.

Advanced

Serial Port 3 Configuration

Serial Port

[Enabled]

Device Settings

IO=3E8h; IRQ=7;

Change Settings

[Auto]

Onboard Serial Port 3 Mode

[RS232]

Enable or Disable Serial Port (COM)

→←: Select Screen

↑↓: Select Item

Enter: Select

+/-: Change Opt.

F1: General Help

F2: Previous Values

F3: Optimized Defaults

F4: Save & Exit

ESC: Exit

Version 2.20.1275, Copyright (C) 2021 American Megatrends, Inc.

Serial Port

Enables or disables the serial port.

Change Settings

Selects an optimal setting for the Super IO device.

Onboard Serial Port 3 Mode

Select this to change the serial port mode to RS232, RS422 or RS485.

Serial Port 4 Configuration

This section is used to configure serial port 4.

Aptio Setup Utility - Copyright (C) 2021 American Megatrends, Inc.

Advanced

Serial Port 4 Configuration

Serial Port

[Enabled]

Device Settings

IO=2E8h; IRQ=5;

Change Settings

[Auto]

Enable or Disable Serial Port (COM)

→←: Select Screen

↑↓: Select Item

Enter: Select

+/-: Change Opt.

F1: General Help

F2: Previous Values

F3: Optimized Defaults

F4: Save & Exit

ESC: Exit

Version 2.20.1275, Copyright (C) 2021 American Megatrends, Inc.

Serial Port

Enables or disables the serial port.

Change Settings

Selects an optimal setting for the Super IO device.





Serial Port 5 Configuration

This section is used to configure serial port 5.

Aptio Setup Utility - Copyright (C) 2021 American Megatrends, Inc.

Advanced

Serial Port 5 Configuration

Serial Port [Enabled]
Device Settings IO=220h; IRQ=6;
Change Settings [Auto]

Enable or Disable Serial Port (COM)

→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit

Version 2.20.1275, Copyright (C) 2021 American Megatrends, Inc.

Serial Port

Enables or disables the serial port.

Change Settings

Selects an optimal setting for the Super IO device.

Serial Port 6 Configuration

This section is used to configure serial port 6.

Aptio Setup Utility - Copyright (C) 2021 American Megatrends, Inc.

Advanced

Serial Port 6 Configuration

Serial Port [Enabled]
Device Settings IO=228h; IRQ=10;
Change Settings [Auto]

Enable or Disable Serial Port (COM)

→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit

Version 2.20.1275, Copyright (C) 2021 American Megatrends, Inc.

Serial Port

Enables or disables the serial port.

Change Settings

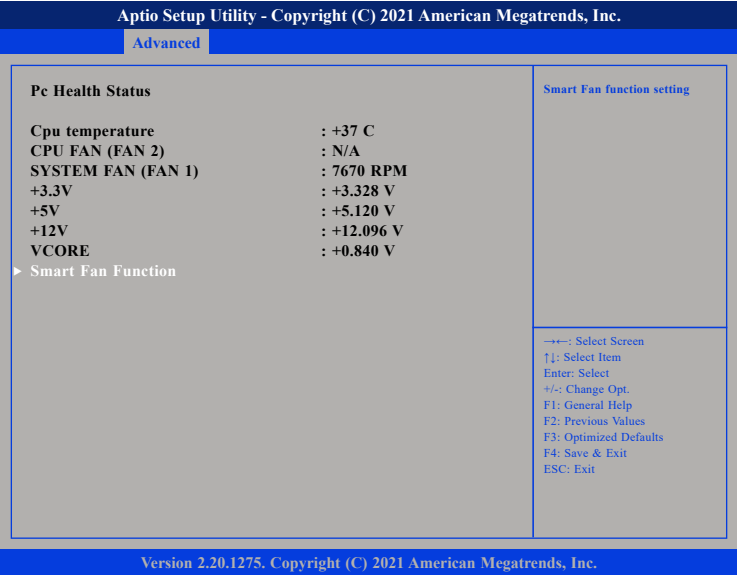
Selects an optimal setting for the Super IO device.





Hardware Monitor

This section is used to monitor hardware status such as temperature, fan speed and voltages.



Cpu temperature

Detects and displays the current CPU temperature.

CPU FAN (FAN 2)

Detects and displays the current CPU fan speed.

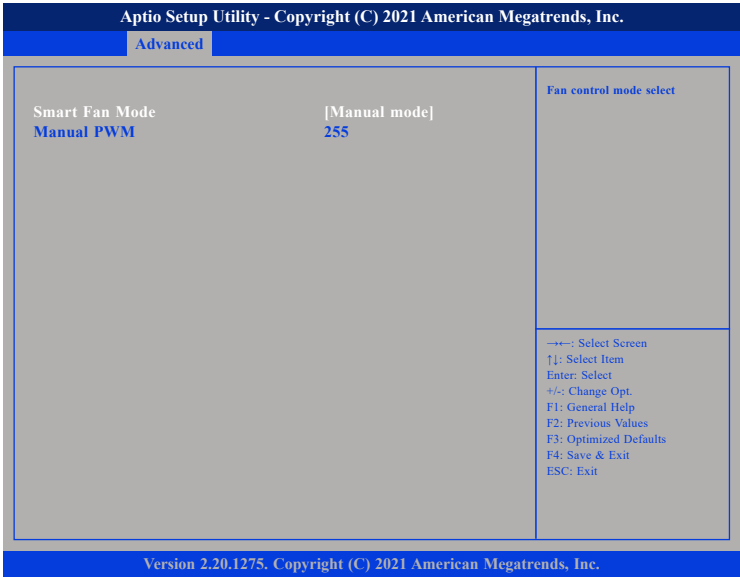
SYSTEM FAN (FAN 1)

Detects and displays the current system fan speed.

+3.3V to VCORE

Detects and displays the output voltages.

Smart Fan Function



Smart Fan Mode

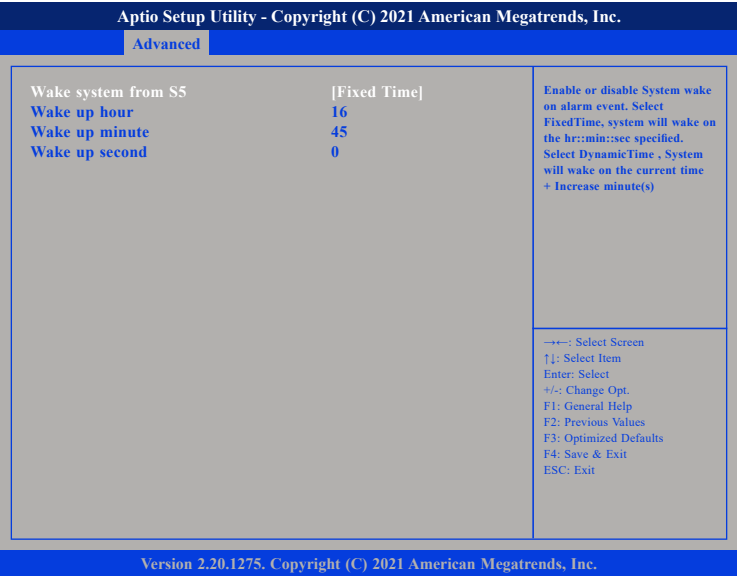
Enables or disables smart fan mode.

Manual PWM

Configures the fan speed manually when the fan mode is set to Manual mode.

S5 RTC Wake Settings

This section is used to configure system to wake from S5 using RTC alarm.

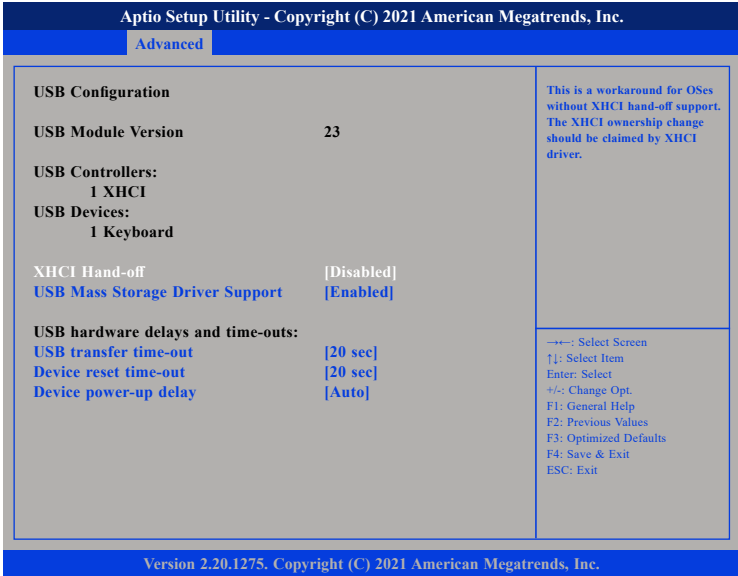


Wake system from S5

Enables or disables system wake on alarm event. When FixedTime is selected, system will wake on the hr::min::sec specified. When DynamicTime is selected, system will wake on the current time + Increase minute(s).

USB Configuration

This section is used to configure the USB.



XHCI Hand-off

This is a workaround for OSs that does not support XHCI hand-off. The XHCI ownership change should be claimed by the XHCI driver.

USB Mass Storage Driver Support

Enables or disables USB mass storage driver support.



USB transfer time-out

The time-out value for control, bulk, and interrupt transfers.

Device reset time-out

Selects the USB mass storage device’s start unit command timeout.

Device power-up delay

Maximum time the value will take before it properly reports itself to the Host Controller. “Auto” uses default value: for a Root port it is 100 ms, for a Hub port the delay is taken from Hub descriptor.

NVMe Configuration

This section is used to configure the NVMe devices installed.



NVMe Device [M.2 (P42) 3ME2]

Enters the submenu of the NVMe device.





Network Stack Configuration

This section is used to configure the network stack.

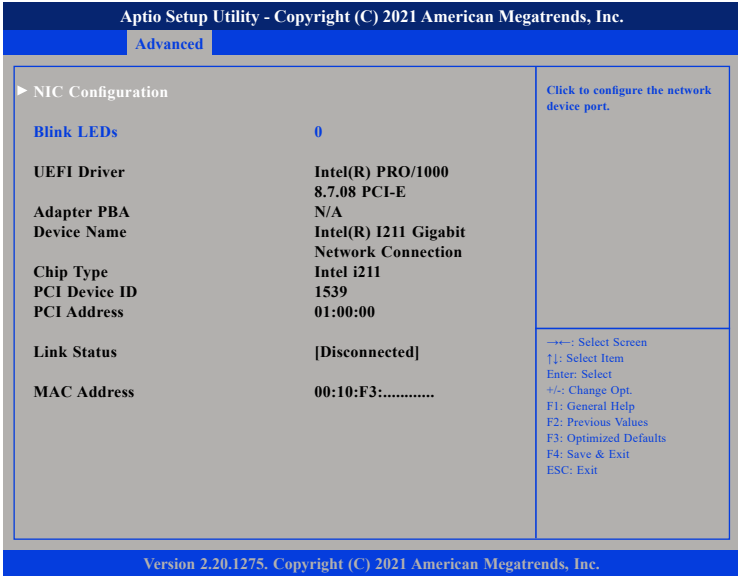


Network Stack

Enables or disables UEFI network stack.

Intel(R) I211 Gigabit Network Connection

This section is used to configure network settings of the LAN controller.



NIC Configuration

Enters the network configuration submenu of the network controller.





NIC Configuration

Aptio Setup Utility - Copyright (C) 2021 American Megatrends, Inc.

Advanced

Link Speed

Wake On LAN

[Auto Negotiated]

[Enabled]

Specifies the port speed used for the selected boot protocol.

→←: Select Screen

↑↓: Select Item

Enter: Select

+/-: Change Opt.

F1: General Help

F2: Previous Values

F3: Optimized Defaults

F4: Save & Exit

ESC: Exit

Version 2.20.1275. Copyright (C) 2021 American Megatrends, Inc.

Link Speed

Specifies the link speed of the network interface.

Wake On LAN

Enables or disables Wake-on-LAN support.

Chipset

This section gives you functions to configure the system based on the specific features of the chipset. The chipset manages bus speeds and access to system memory resources.



CH7511B LVDS Control

Enables or disables LVDS.

System Agent (SA) Configuration

System Agent (SA) parameters.

PCH-IO Configuration

PCH-IO parameters.

System Agent (SA) Configuration

This section is used to configure the System Agent (SA) configuration.



Graphics Configuration

Enters the Graphics Configuration submenu.

PEG Port Configuration

Enters the PEG Port Configuration submenu.



Graphics Configuration

Aptio Setup Utility - Copyright (C) 2021 American Megatrends, Inc.

Chipset

Graphics Configuration

Primary Display

Auto

Internal Graphics

Auto

→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit

Version 2.20.1275. Copyright (C) 2021 American Megatrends, Inc.

Displays the settings for the primary display and internal graphics.

PEG Port Configuration

Aptio Setup Utility - Copyright (C) 2021 American Megatrends, Inc.

Chipset

PEG Port Configuration

PEG 0:1:0

Not Present

Enable Root Port

[Auto]

Max Link Speed

[Auto]

Enable or Disable the Root Port

→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit

Version 2.20.1275. Copyright (C) 2021 American Megatrends, Inc.

Enable Root Port
Enables or disables the root port.

Max Link Speed
Configures the maximum link speed of the PEG device.



PCH-IO Configuration

This section is used to configure PCH-IO configuration.



PCH LAN Controller

Enables or disables onboard NIC.

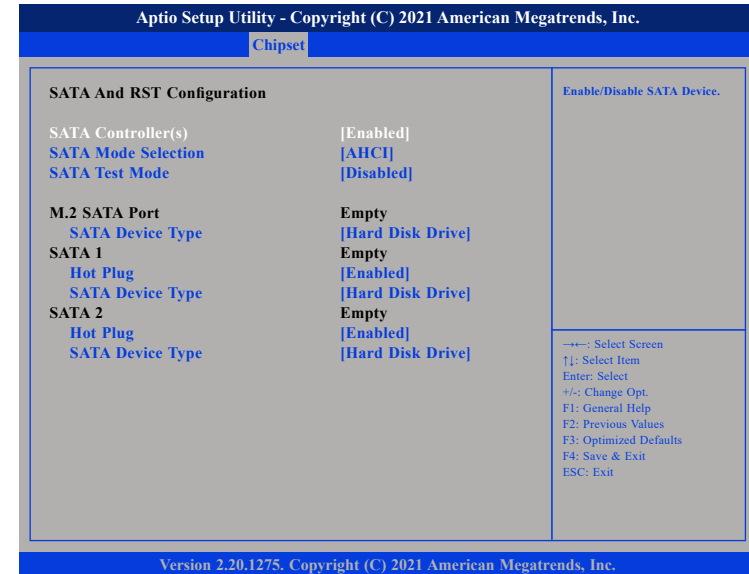
Wake on LAN Enable

Enables or disables integrated LAN to wake the system.

State After G3

Configures the power state when power is re-applied after a power failure (G3 state).

SATA And RST Configuration



SATA Controller(s)

Enables or disables SATA device.

SATA Mode Selection

Configures the SATA as AHCI mode.

AHCI This option configures the Serial ATA drives to use AHCI (Advanced Host Controller Interface). AHCI allows the storage driver to enable the advanced Serial ATA features which will increase storage performance.



SATA Test Mode

Enables or disables SATA test mode.

SATA Device Type

Identifies what type of SATA device is connected.

Hot Plug

Enables or disables hot plugging feature on M.2 SATA port, SATA port 1 and port 2.

HD Audio Configuration



HD Audio

Control detection of the HD audio device.

- | | |
|----------|--|
| Disabled | HD audio will be unconditionally disabled. |
| Enabled | HD audio will be unconditionally enabled. |





Security

Aptio Setup Utility - Copyright (C) 2021 American Megatrends, Inc.

MainAdvancedChipsetSecurityBootSave & Exit

Password Description

The password length must be in the following range:
Minimum length3
Maximum length20

Administrator Password
User Password

Set Administrator Password

→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit

Version 2.20.1275. Copyright (C) 2021 American Megatrends, Inc.

Administrator Password

Select this to reconfigure the administrator’s password.

Boot

Aptio Setup Utility - Copyright (C) 2021 American Megatrends, Inc.

MainAdvancedChipsetSecurityBootSave & Exit

Boot Configuration

Bootup NumLock State[On]

Boot Option Priorities
Boot Option #1[UEFI: Built-in EFI Shell]

Sets the system boot order

→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit

Version 2.20.1275. Copyright (C) 2021 American Megatrends, Inc.

Bootup NumLock State

This allows you to determine the default state of the numeric keypad. By default, the system boots up with NumLock on wherein the function of the numeric keypad is the number keys. When set to Off, the function of the numeric keypad is the arrow keys.

Boot Option Priorities

Adjust the boot sequence of the system. Boot Option #1 is the first boot device that the system will boot from, next will be #2 and so forth.





Save & Exit



Save Changes and Reset

To save the changes and reset, select this field then press <Enter>. A dialog box will appear. Confirm by selecting Yes.

Discard Changes and Reset

To exit the Setup utility and reset without saving the changes, select this field then press <Enter>. You may be prompted to confirm again before exiting.

Restore Defaults

To restore the BIOS to default settings, select this field then press <Enter>. A dialog box will appear. Confirm by selecting Yes.

Boot Override

To bypass the boot sequence from the Boot Option List and boot from a particular device, select the desired device and press <Enter>.



APPENDIX A: POWER CONSUMPTION

Power Consumption Management

Purpose

The purpose of the power consumption test is to verify the power dissipation of the system, and the loading of the power supply.

Test Result

Voltage (V)	Current (A)	Total (W)
100% Full Loading Mode Power Consumption		
12V	7.1512	85.8W
Windows Idle mode		
12V	2.0396	24.5W
Sleep Mode (S3)		
12V	0.1938	2.3W

APPENDIX B: GPIO PROGRAMMING GUIDE

GPIO (General Purpose Input/Output) pins are provided for custom system design. This appendix provides definitions and its default setting for the ten GPIO pins in the Neu-X302 series. The pin definition is shown in the following table:

Pin	GPIO Mode	PowerOn Default	Address	Pin	GPIO Mode	Address
1	VCC	-	-	2	GND	-
3	GPO0	HIGH	A02h (Bit0)	4	GPI0	A02h (Bit4)
5	GPO1	HIGH	A02h (Bit1)	6	GPI1	A02h (Bit5)
7	GPO2	HIGH	A02h (Bit2)	8	GPI2	A02h (Bit6)
9	GPO3	HIGH	A02h (Bit3)	10	GPI3	A02h (Bit7)

Control the GPO 0/1/2/3 level from I/O port A02h bit0 / A02h bit1 / A02h bit2 / A02h bit3.
The bit is Set/Clear indicated output High/Low.

Read GPI 0/1/2/3 Set GPO3X.

GPIO Programming Sample Code

```
#define GPO0                (0x01 << 0)
#define GPO1                (0x01 << 1)
#define GPO2                (0x01 << 2)
#define GPO3                (0x01 << 3)
#define GPO3X               outputb(0xA00, 0x03)
#define GPO0_HI             outputb(0xA02, GPO0)
#define GPO0_LO             outputb(0xA02, 0x00)
#define GPO1_HI             outputb(0xA02, GPO1)
#define GPO1_LO             outputb(0xA02, 0x00)
#define GPO2_HI             outputb(0xA02, GPO2)
#define GPO2_LO             outputb(0xA02, 0x00)
#define GPO3_HI             outputb(0xA02, GPO3)
#define GPO3_LO             outputb(0xA02, 0x00)
void main(void)
{
    GPO3X;
    GPO0_HI;
    GPO1_LO;
    GPO2_HI;
    GPO3_LO;
}
```

APPENDIX C: WATCHDOG TIMER SETTING

NCT6126D Watchdog Programming Guide

```
#define SUPERIO_PORT 0x2E
#define WDT_SET      0xF0
#define WDT_VALUE    0xF1

void main(void)
{
    #Enter SuperIO Configuration
        outputb(SUPERIO_PORT, 0x87);
        outputb(SUPERIO_PORT, 0x87);

    # Set LDN
        outputb(SUPERIO_PORT, 0x07);
        outputb(SUPERIO_PORT+1, 0x08);

    # Set WDT setting
        outputb(SUPERIO_PORT, WDT_SET);
        outputb(SUPERIO_PORT+1, 0x00);    # Use the second
                                           # Use the minute, change value to 0x08

    # Set WDT sec/min
        outputb(SUPERIO_PORT, WDT_VALUE);
        outputb(SUPERIO_PORT+1, 0x05);    # Set 5 seconds
}
```