NEXCOM International Co., Ltd.

Intelligent Platform & Services Business Unit

Edge Computing System

Neu-XE105 Series

User Manual

NEXCOM International Co., Ltd.
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Contents

PREFACE

Copyright

Disclaimer

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Acknowledgements

Neu-XE105 series 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.

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.
- Proper grounding is essential to protect against electrical surges and ensure stable operation. Always connect the grounding wire.

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. Equipment is intended for installation in Restricted Access Area" (Instruction)/"Les matériels sont destinés à être installés dans des EMPLACEMENTS À ACCÈS RESTREINT" (Instruction).
18. **CAUTION:** Risk of fire or explosion if the battery is replaced by an incorrect type. Dispose of Used Batteries According to the Instructions.
    ATTENTION: Risque d'explosion si la batterie est remplacée par un type incorrect. Mettre au rebus les batteries usagées selon les instructions.
19. Please ensure to connect the power cord of the power adapter to a socket-outlet with earthing connection.
20. This product is intended to be supplied by a Listed Power Adapter or DC power source, rated 12Vdc, minimum 2.0A, minimum T ma=50 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

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Package Contents

Before continuing, please verify the contents of the product package.
The items included are listed in the table below.

Item	Part Number	Name	Description	Qty
1	4NCPF01024X00	TERMINAL BLOCKS 10P	TERMINAL BLOCKS 10P DINKLE:0221-2810	2
2	7400120039X00	Power Adapter	FSP 12V/10A 120W Adaptor W/2-pin Pheonix contact	1

Ordering Information

The following provides ordering information.

Neu-XE105-N50-12U (P/N: 10W10E10500X0)
Intel® processor N50, 6W fanless system

Chapter 1: Product Introduction

Product Overview

Front Panel

Rear Panel

Key Features

- Intel® processor N50
- Slim compact chassis and fanless design
- 1 x DDR5 4800 SO-DIMM, up to 16GB
- Support 1 x HDMI® 1.4 output 4K@30Hz
- TPM 2.0 design for security
- Rich I/O connectivity: 1 x LAN, 4 x USB 3.2, 8 x USB 2.0,
- 3 x COM, 1 x GPIO
- 1 x M.2 Key M 2242, supports a SATA storage device
- 1 x M.2 Key E 2230, supports a Wi-Fi module
- DC 12V power input

Hardware Specifications

Processor
- Intel® Processor N50, TDP 6W

Integrated Graphics
- Intel® UHD Graphics

Memory
- 1 x DDR5 4800 SO-DIMM socket, non-ECC, up to 16GB

I/O Interface Front
- 2 x COM port (DB9), supports RS-232
- 1 x COM port (DB9), supports RS-485 (D+, D-, GND)
- 1 x 20-pin header for GPIO (16-bit programmable)
- 1 x 4-pin header for speaker out (with 20W/4Ω amplifier)
- 1 x Line out (reserved)
- 1 x Storage active LED

I/O Interface Rear
- 1 x 2.5GbE RJ45 port
- 1 x HDMI® 1.4, up to 3840x2160@30Hz
- 4 x USB 3.2, Type-A
- 8 x USB 2.0, Type-A
- 1 x Power button with LED
- 1 x 2-pin header for DC 12V power input

I/O Interface Side
- 2 x Antenna hole

I/O Interface Internal
- 1 x 9-pin header for mic in and line out

Expansion Slot
- 1 x M.2 Key E 2230, supports a Wi-Fi module

Storage
- 1 x M.2 Key M 2242 SSD (SATA 3.0)

Power Supply
- DC 12V input

Environment
- Temperature:
  - Ambient with air flow: 0°C~45°C
  - Storage temperature: -20°C~80°C
- Relative Humidity: 95% (non-condensing)
- Shock protection: 50G peak acceleration, 11ms according to IEC 60068-2-27
- Vibration protection
  - Random: 2Grms@5Hz~500Hz, IEC 60068-2-64
  - Sinusoidal: 2G@5Hz~500Hz, IEC 60068-2-6

Mechanical
- Dimensions: 220.0mm (W) x 106.9mm (D) x 29.6mm (H)
- Net weight: 0.3kg

Package Information

- Dimensions: 558mm (W) x 388mm (D) x 207mm (H)
- Gross weight: 6.3kg (10 units per carton)

Certification

- CE (EN 55035 + EN 55032)
- FCC Class A (EMI part 15B)
- LVD

Operating System

- Windows 11
- Windows 10 64-bit
- Linux

Physical Features

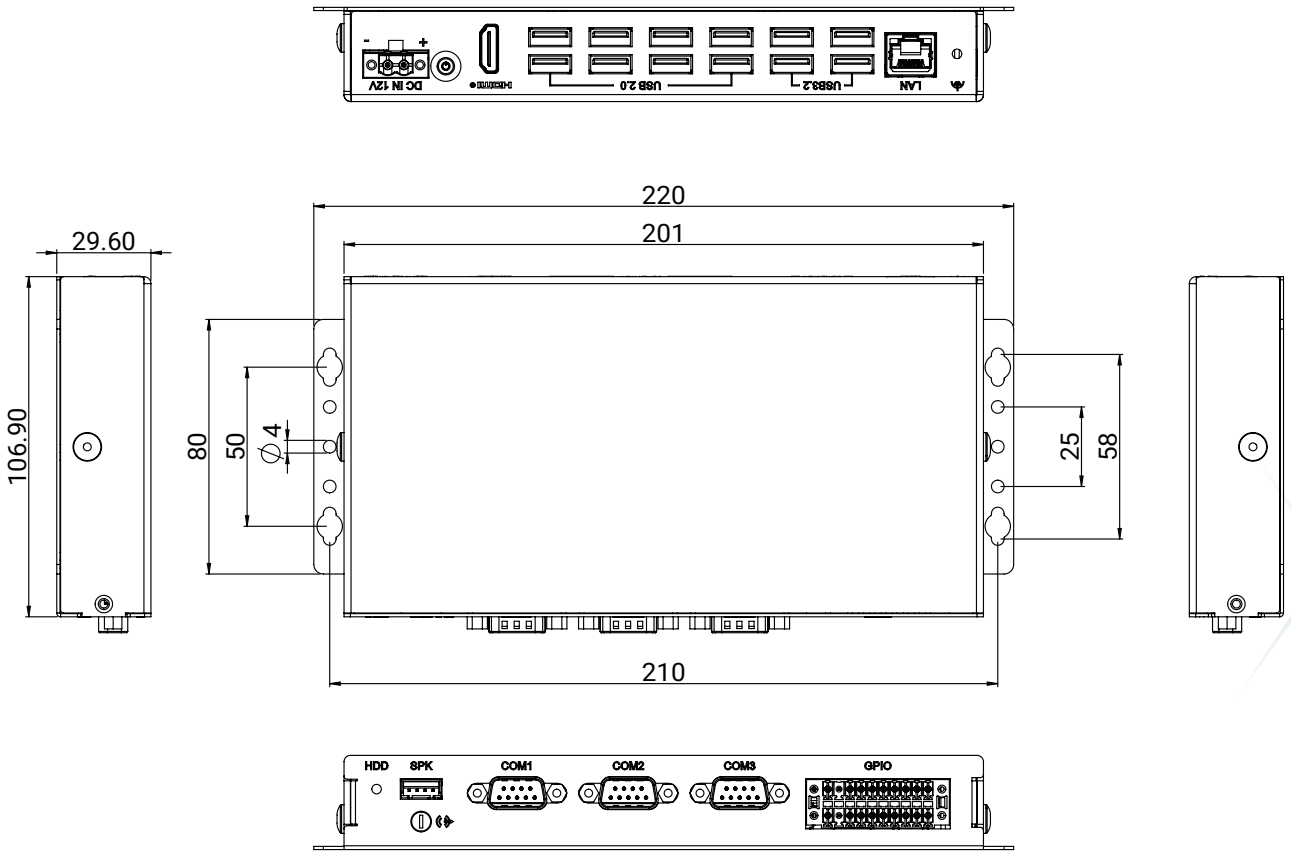
Front Panel

1. Storage active LED
2. Speaker out
3. Line out (optional)
4. COM1/2, supports RS-232
5. COM3, supports RS-485
6. 20-pin GPIO

Rear Panel

7. 2.5GbE RJ45 LAN port
8. USB 3.2 Type-A ports
9. USB 2.0 Type-A ports
10. HDMI[S] 1.4, up to 3840x2160@30Hz
11. Power button with LED
12. 2-pin DC 12V power input

Mechanical Dimensions



Chapter 2: Jumpers and Connectors

This chapter lists the locations of the jumpers and connectors for Neu-XE105 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:

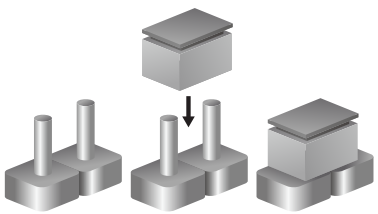
- Always disconnect the unit from the power outlet whenever you are working inside the case.
- If possible, wear a grounded wrist strap when you are working inside the computer case. Alternatively, discharge any static electricity by touching the bare metal chassis of the unit case, or the bare metal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

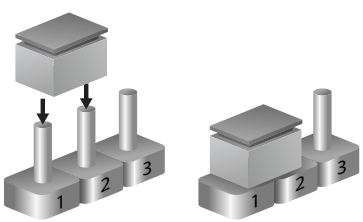
A jumper is the simplest kind of electric switch. It consists of two metal pins and a cap. When setting the jumpers, ensure that the jumper caps are placed on the correct pins. When the jumper cap is placed on both pins, the jumper is short. If you remove the jumper cap, or place the jumper cap on just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

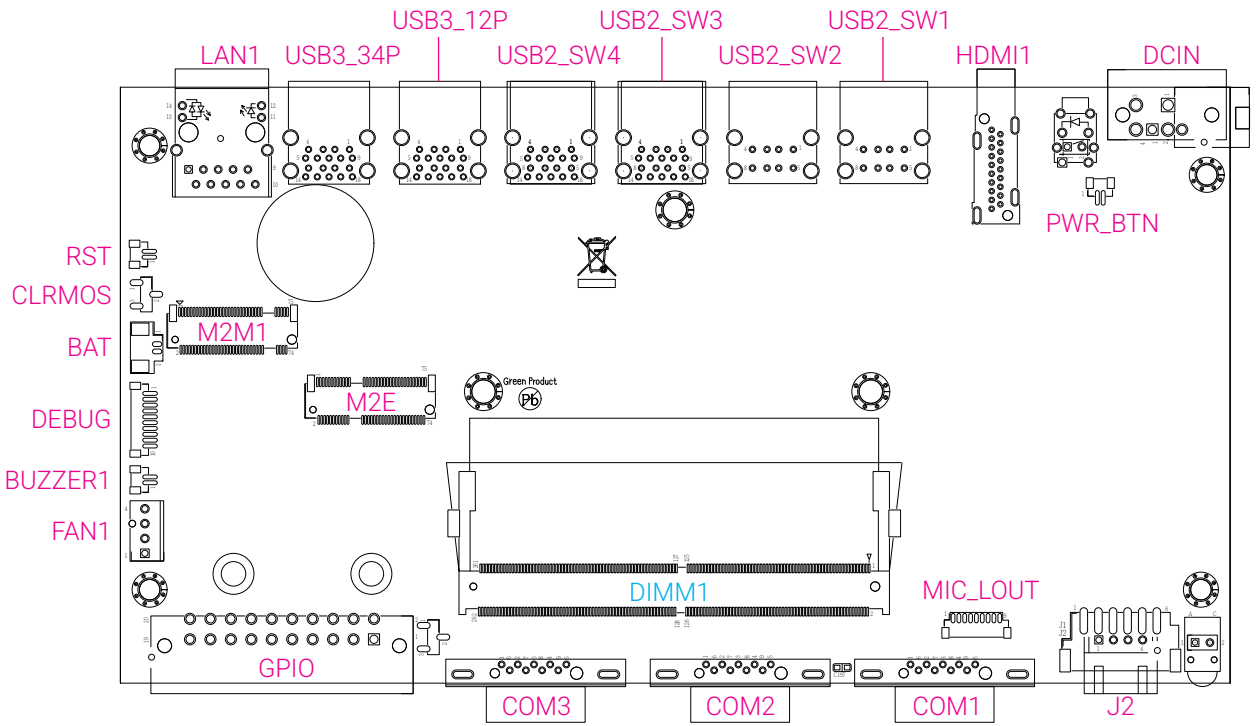


System Motherboard Overview

This chapter outlines the location and pin assignments of jumpers and connectors, with reference illustrations (not to scale) and pink-marked pin definitions to aid understanding.

Location of Jumpers and Connectors on the Motherboard

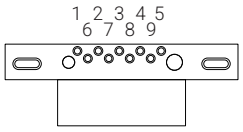
Top View



External I/O Interfaces

COM Ports

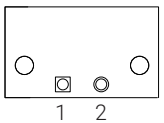
Connector location: COM1, COM2, COM3



RS-232		RS-422 (COM3 only)		RS-485 (COM3 only)	
Pin	**Definition**	**Pin**	**Definition**	**Pin**	**Definition**
1	DCD#	1	TX- (B)	1	D- (B)
2	RXD	2	TX+ (A)	2	D+ (A)
3	TXD	3	RX+ (A)	3	
4	DTR#	4	RX- (B)	4	
5	GND	5		5	GND
6	DSR#	6		6	CCTALK_DATA
7	RTS#	7		7	
8	CTS#	8		8	GND
9	RI	9		9	+12V

12V DC Input

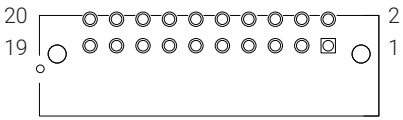
Connector location: DCIN



Pin	Definition
1	12V
2	GND

GPIO

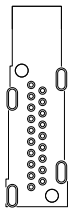
Connector location: GPIO



Pin	Definition	Pin	Definition
1	+5V	2	+5V
3	GPI0	4	GPI8
5	GPI1	6	GPI9
7	GPI2	8	GPI10
9	GPI3	10	GPI11
11	GPI4	12	GPI12
13	GPI5	14	GPI13
15	GPI6	16	GPI14
17	GPI7	18	GPI15
19	GND	20	GND

HDMI®

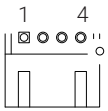
Connector location: HDMI1



Pin	Definition	Pin	Definition
1	HDMI_TX2P	2	GND
3	HDMI_TX2N	4	HDMI_TX1P
5	GND	6	HDMI_TX1N
7	HDMI_TX0P	8	GND
9	HDMI_TX0N	10	HDMI_CLK_P
11	GND	12	HDMI_CLK_N
13	NC	14	NC
15	HDMI_SCL	16	HDMI_SDA
17	GND	18	HDMI_P5V
19	HDMI_HPD		

Speaker

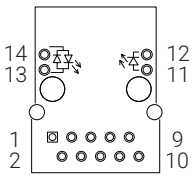
Connector location: J2



Pin	Definition
1	L_OUT+
2	L_OUT-
3	R_OUT+
4	R_OUT-

LAN Port

Connector location: LAN1



Pin	Definition
1	MDI0P
2	MDI0N
3	MDI1P
4	MDI1N
5	TCT
6	TCTG
7	MDI2P
8	MDI2N
9	MDI3P
10	MDI3N
11	LED_ACT_P
12	LED_ACT#
13	LAN1_LED_2500#
14	LAN1_LED_100#

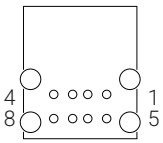
Power Button

Connector location: PWR_BTN

Pin	Definition
1	GND
2	PWRBTN#

USB 2.0 Ports

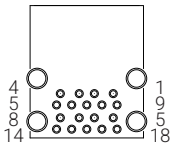
Connector location: USB2_SW1, USB2_SW2, USB2_SW3, USB2_SW4



Pin	Definition	Pin	Definition
1	+5V	2	USB2_1N
3	USB2_1P	4	GND
5	+5V	6	USB2_2N
7	USB2_2P	8	GND

USB 3.2 Ports

Connector location: USB3_12P, USB3_34P



Pin	Definition	Pin	Definition
1	+5V	2	USB2_1N
3	USB2_1P	4	GND
5	USB3_RX1N	6	USB3_RX1P
7	GND	8	USB3_TX1N
9	USB3_TX1P	10	+5V
11	USB2_2N	12	USB2_2P
13	GND	14	USB3_RX2N
15	USB3_RX2P	16	GND
17	USB3_TX2N	18	USB3_TX2P

Internal I/O Interfaces

Battery Connector

Connector location: BAT

Pin	Definition
1	GND
2	BAT

Buzzer

Connector location: Buzzer1

Pin	Definition
1	BUZZER_N
2	BUZZER_P

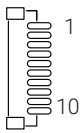
Clear CMOS

Connector location: CLRCMOS

Pin	Definition
1-2 On	Normal (default)
2-3 On	Clear CMOS

Debug Port

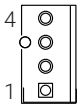
Connector location: DEBUG



Pin	Definition
1	GND
2	PLTRST#
3	ESPI_CLK
4	ESPI_CS#
5	ESPI_IO3
6	ESPI_IO2
7	ESPI_IO1
8	ESPI_IO0
9	ESPI_RST#
10	3.3V

Fan Connector

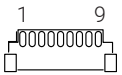
Connector location: FAN1



Pin	Definition
1	GND
2	+12V
3	CPU FAN SPEED DETECT
4	CPU FAN SPEED CONTROL

Mic-in & Line-out Connector

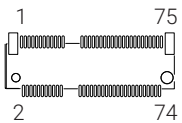
Connector location: MIC_LOUT



Pin	Definition
1	LINEOUT_R
2	LINEOUT_JD
3	AGND
4	LINEOUT_L
5	AGND
6	MIC_R
7	MIC_JD
8	MIC_L
9	AGND

M.2 Key E

Connector form factor: M.2 Key E, 2230
Connector location: M2E

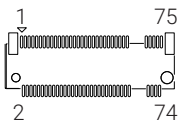


Pin	Definition	Pin	Definition
1	GND	2	3VSB
3	USBP	4	3VSB
5	USBN	6	NC
7	GND	8	NC
9	NC	10	NC
11	NC	12	NC
13	NC	14	NC
15	NC	16	NC
17	NC	18	NC
19	NC	20	NC
21	NC	22	NC
23	NC		
		32	NC
33	GND	34	NC
35	PCIE_TXP	36	NC
37	PCIE_TXN	38	NC
39	GND	40	NC

Pin	Definition	Pin	Definition
41	PCIE_RXP	42	NC
43	PCIE_RXN	44	NC
45	GND	46	NC
47	CLK_PCIEP	48	NC
49	CLK_PCIEN	50	SUSCLK
51	GND	52	PLTRST#
53	CLKREQ#	54	BT_DISABLE#
55	WAKE#	56	WIFI_DISABLE#
57	GND	58	NC
59	NC	60	NC
61	NC	62	NC
63	GND	64	NC
65	NC	66	NC
67	NC	68	NC
69	GND	70	NC
71	NC	72	3VSB
73	NC	74	3VSB
75	GND	76	

M.2 Key M

Connector form factor: M.2 Key M, 2242
Connector interface: SATA
Connector location: M2M1



Pin	Definition	Pin	Definition
1	GND	2	VCC3
3	GND	4	VCC3
5	PCIE3_RXN	6	NC
7	PCIE3_RXP	8	NC
9	GND	10	M2M_LED#
11	PCIE3_TXN	12	VCC3
13	PCIE3_TXP	14	VCC3
15	GND	16	VCC3
17	PCIE2_RXN	18	VCC3
19	PCIE2_RXP	20	NC
21	GND	22	NC
23	PCIE2_TXN	24	NC
25	PCIE2_TXP	26	NC
27	GND	28	NC
29	PCIE1_RXN	30	NC
31	PCIE1_RXP	32	NC
33	GND	34	NC
35	PCIE1_TXN	36	NC

Pin	Definition	Pin	Definition
37	PCIE1_TXP	38	DEVSLP
39	GND	40	NC
41	SATA_RXP(PCIE0_RXP)	42	NC
43	SATA_RXN(PCIE0_RXN)	44	NC
45	GND	46	NC
47	SATA_TXN(PCIE0_TXN)	48	NC
49	SATA_TXP(PCIE0_TXP)	50	RESET#
51	GND	52	CLKREQ#
53	CLK_PCIEN	54	WAKE#
55	CLK_PCIEP	56	NC
57	GND	58	NC
Key			
67	NC	68	NC
69	M2M_PEDET	70	VCC3
71	GND	72	VCC3
73	GND	74	VCC3
75	GND		

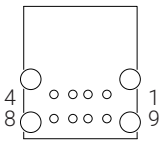
System Reset Button

Connector location: RST

Pin	Definition
1	GND
2	RESET#

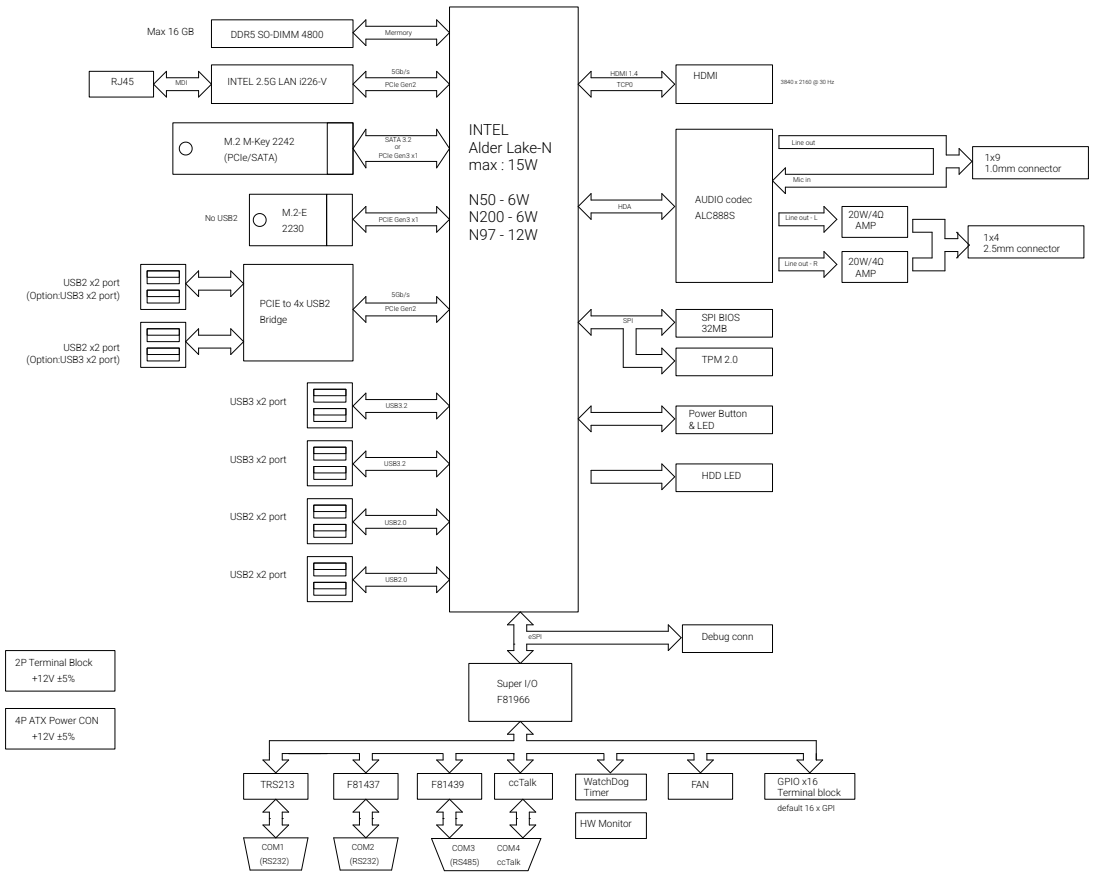
USB 3.2 Ports

Connector location: USB3_12P, USB3_34P



Pin	Definition	Pin	Definition
1	+5V	2	USB2_1N
3	USB2_1P	4	GND
5	USB3_RX1N	6	USB3_RX1P
7	GND	8	USB3_TX1N
9	USB3_TX1P	10	+5V
11	USB2_2N	12	USB2_2P
13	GND	14	USB3_RX2N
15	USB3_RX2P	16	GND
17	USB3_TX2N	18	USB3_TX2P

Block Diagram



Chapter 3: System Setup

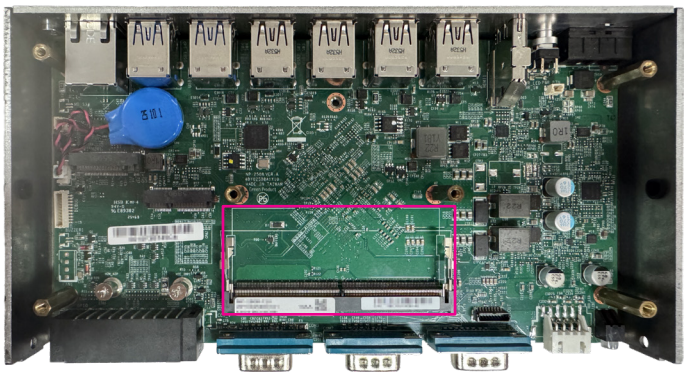
Prior to removing the top cover, make sure the unit's power is off and disconnected from the power sources to prevent electric shock or system damage.

Removing the Enclosure

- Loosen the screws at the locations marked below, then lift the chassis carefully.

Installing a SO-DIMM Memory Module

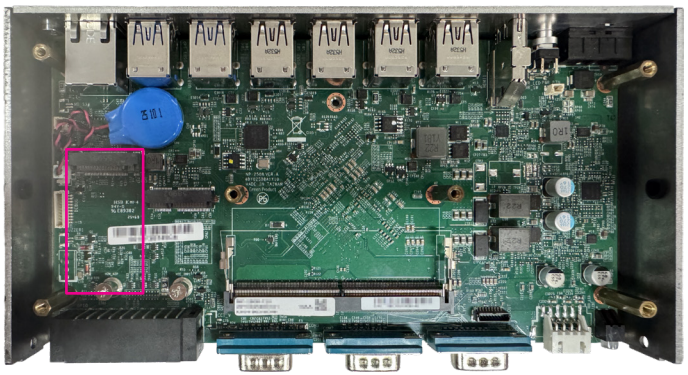
1. Once the chassis has been opened as described in the previous section, the motherboard will be visible. Refer to the image below for the location of the DDR memory slot.



2. Insert the DDR module into the slot at an approximately 30-degree angle. Push the module down until the clips on both sides of the socket lock into position. The gold-plated connector on the edge of the module will almost completely disappear inside the slot. The supported memory in this slot is up to 16 GB.

Installing an M.2 SSD

1. Once the chassis has been opened as described in the previous section, the motherboard will be visible. Refer to the image below for the location of the M.2 Key M slot. It supports the 2242 form factor.

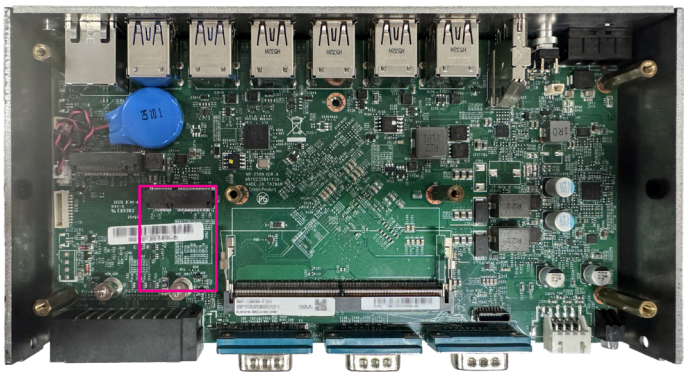


2. Insert the M.2 SSD module into the M.2 slot at a 45 degree angle until the gold-plated connector on the edge of the module completely disappears inside the slot.

3. With the module fully inserted, tighten the screw through the mounting hole on the module and into the standoff on the motherboard to secure it.

Installing a Wi-Fi Module and Its Antennas

1. Once the chassis has been opened as described in the previous section, the motherboard will be visible. Refer to the image below for the location of the M.2 Key E slot. It supports the 2230 form factor.



2. Insert the M.2 Wi-Fi module into the M.2 slot at a 45 degree angle until the gold-plated connector on the edge of the module completely disappears inside the slot.

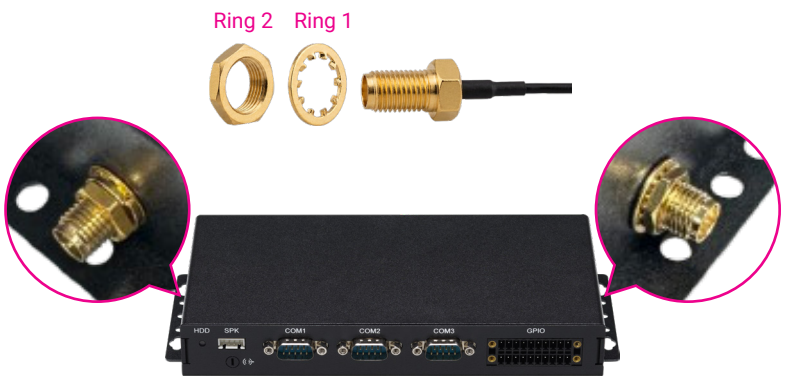
3. With the module fully inserted, tighten the screw through the mounting hole on the module and into the standoff on the motherboard to secure it.

4. Attach the RF cables to the Wi-Fi module.

5. Route the antenna jacks at the other ends of the cables through the antenna holes in the chassis.

6. Remove the two antenna hole covers on the side panels of the chassis.

7. Insert the 2 rings (ring 1 then ring 2) into the Wi-Fi antenna jacks.



8. Connect the external antennas to the Wi-Fi antenna jacks.

Chapter 4: BIOS Setup

This chapter describes how to use the BIOS setup program for Neu-XE105 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 such items 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 Del allows you to enter Setup.

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 Enter.

Legends

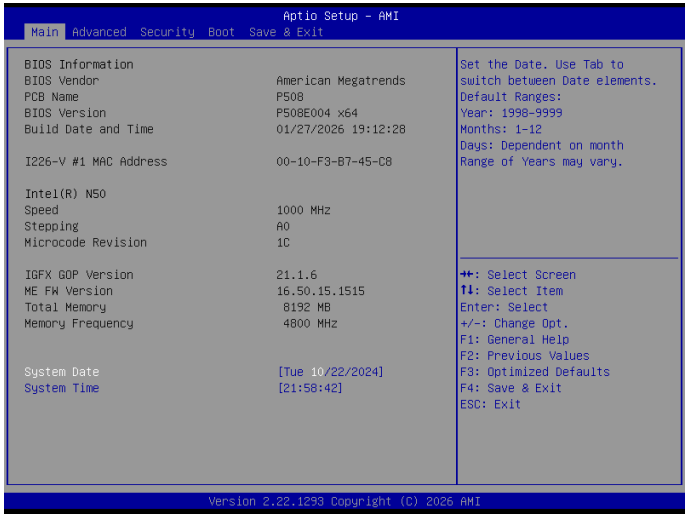
Key	Function
< >	Moves the highlight left or right to select a menu.
^ v	Moves the highlight up or down between sub-menus or fields.
Esc	Exits the BIOS Setup Utility.
+	Scrolls forward through the values or options of the highlighted field.
-	Scrolls backward through the values or options of the highlighted field.
Tab	Selects a field.
F1	Displays General Help.
F2	Load previous values.
F3	Load optimized default values.
F4	Saves and exits the Setup program.
Enter	Press <Enter> to enter the highlighted sub-menu

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 Enter 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.

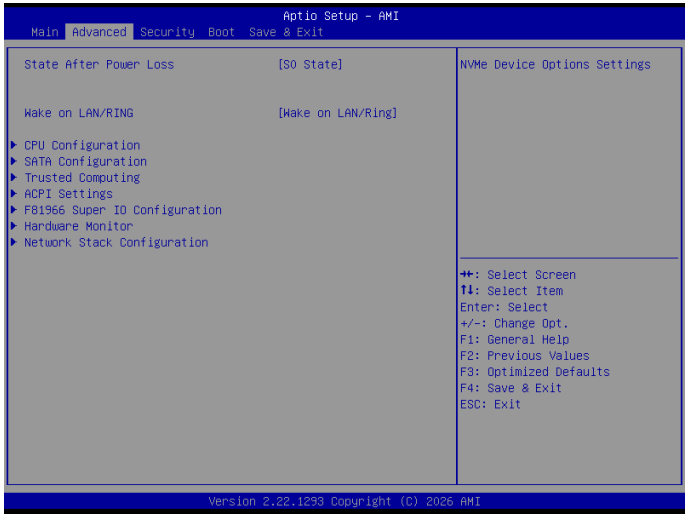
System Time

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.



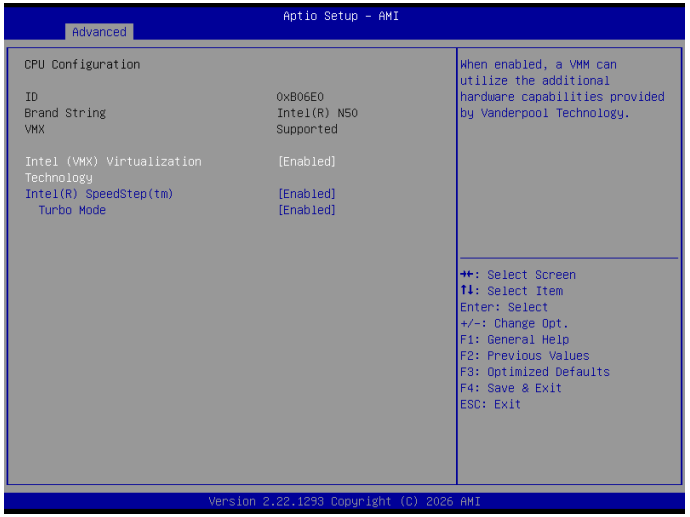
State After Power Loss

Specific what state to go to when power is re-applied after a power failure (G3 state).

Wake on LAN/RING

Enable or Disable the integrate LAN & Ring to wake the system.

CPU Configuration

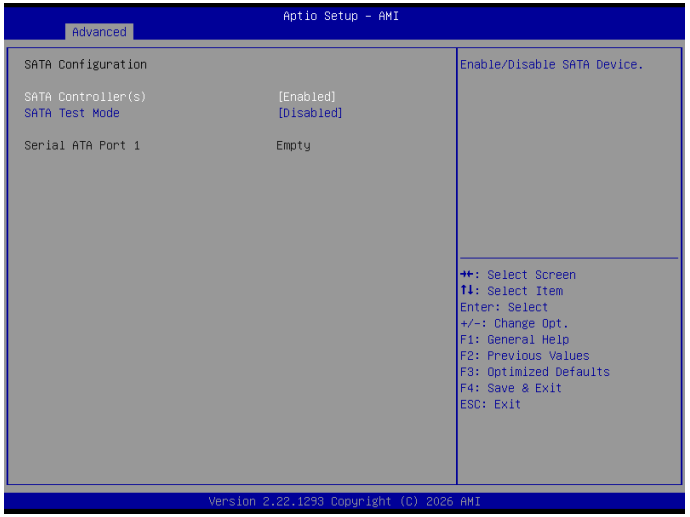


Intel (VMX) Virtualization Technology
When enabled, a VMM can utilize the additional hardware capabilities provided by Vanderpool Technology.

Intel (R) SpeedStep(tm)
Enable or disable Intel SpeedStep.

Turbo Mode
Enable or disable turbo mode.

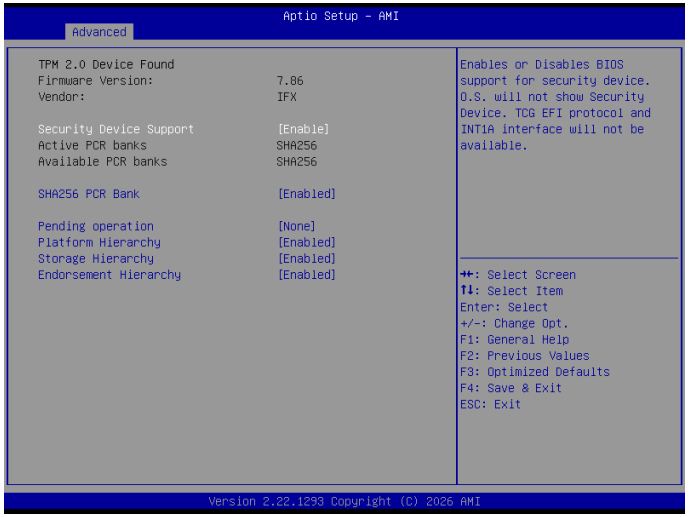
SATA Configuration



SATA Controller(s)
Enable or Disable SATA devices

SATA Test Mode
Enable or Disable SATA test mode.

Trusted Computing



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

SHA256 PCR Bank
Enable or disable SHA256 PCR Bank.

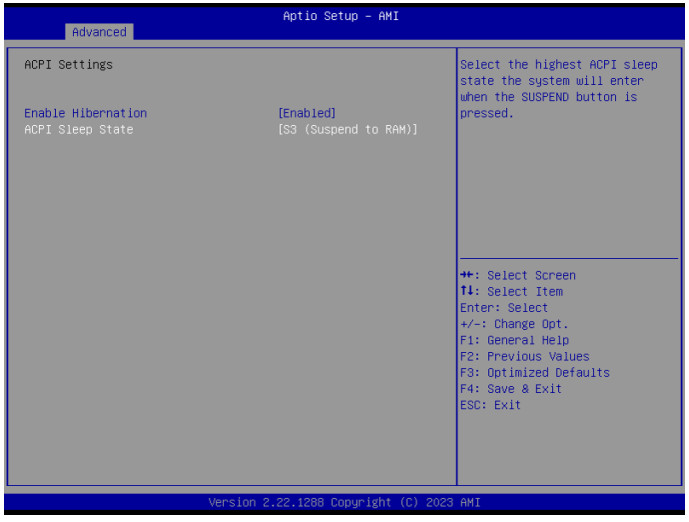
Pending operation
Schedule an operation for the security device.

Platform Hierarchy
Enable or disable Platform Hierarchy.

Storage Hierarchy
Enable or disable Storage Hierarchy.

Endorsement Hierarchy
Enable or disable Endorsement Hierarchy.

ACPI Settings



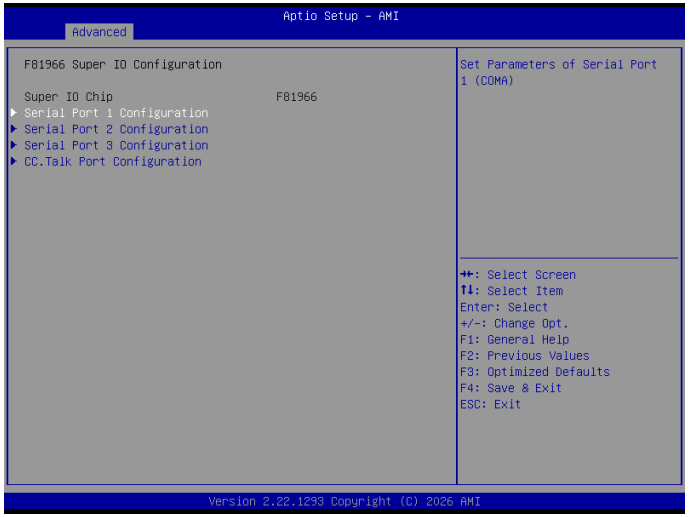
Enable Hibernation

Enable or disable system ability to hibernate (OS/S4 Sleep State). This option may not be effective with some operating systems.

ACPI Sleep State

Select the highest ACPI sleep state the system will enter when the suspend button is pressed. The options are Suspend Disabled and S3 (Suspend to RAM).

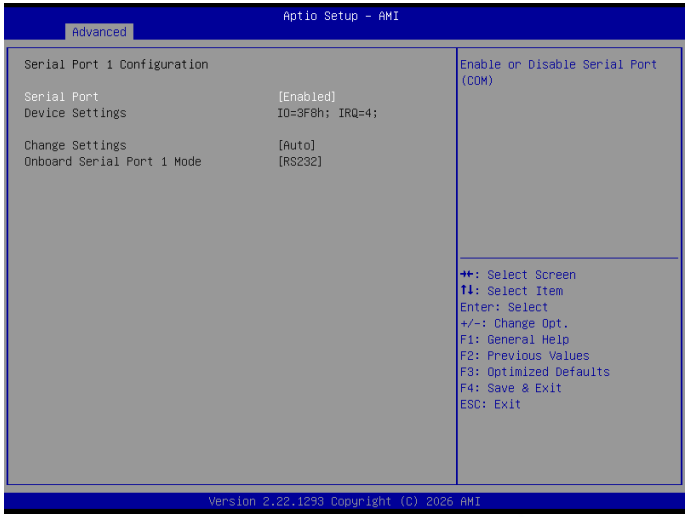
F81966 Super IO Configuration



Serial Port 1/2/3 Configuration
Press <Enter> to open the submenu.

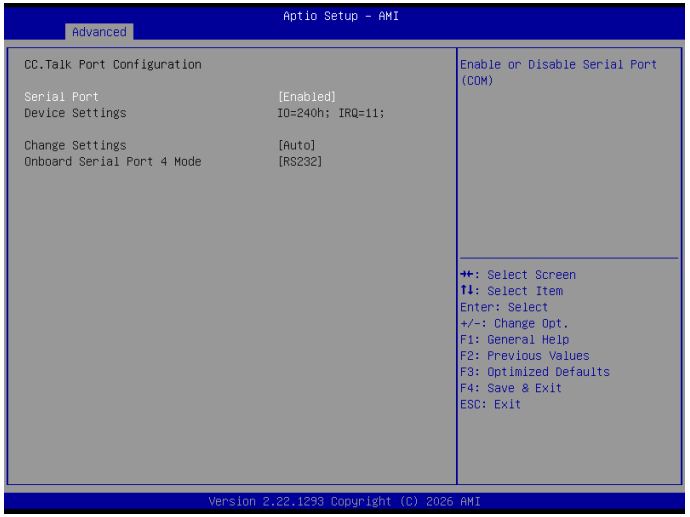
CC.Talk Port Configuration
Press <Enter> to open the submenu.

F81966 Super IO Configuration > Serial Port 1/2/3 Configuration



Serial Port (Port 1/2/3)
Enable or disable the serial port.

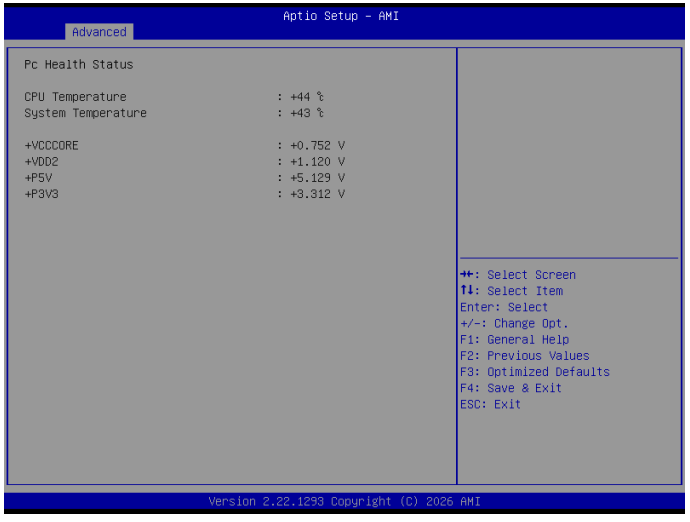
F81966 Super IO Configuration > CC.Talk Port Configuration



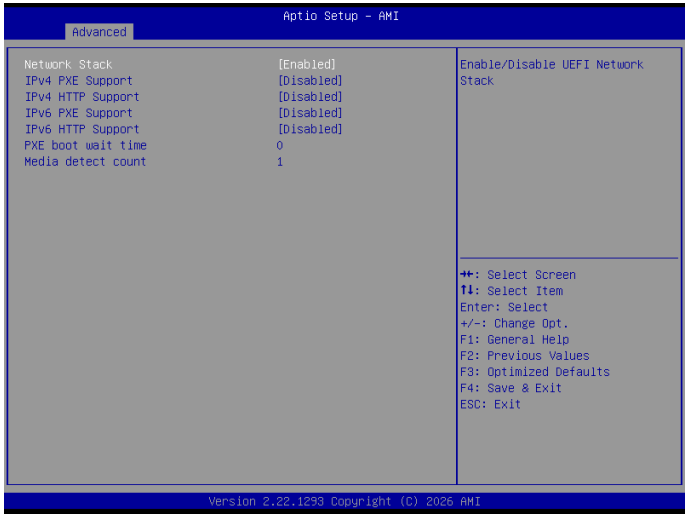
Serial Port
Enable or disable the serial port.

Hardware Monitor

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



Network Stack Configuration



Network Stack
Enable or disable UEFI network stack.

IPv4 PXE Support
Enable or disable IPv4 PXE support. If disabled, the IPv4 boot option will not be created.

IPv4 HTTP Support
Enable or disable Ipv4 HTTP support. If disabled, the IPv4 HTTP boot option will not be available.

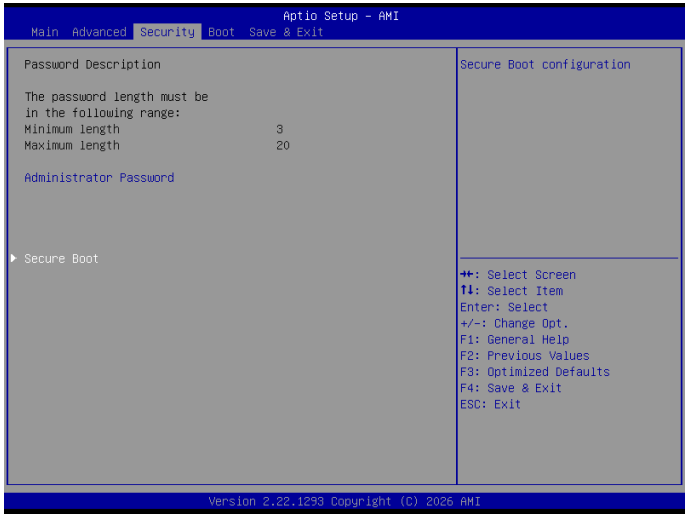
IPv6 PXE Support
Enable or disable IPv6 PXE support. If disabled, the IPv6 PXE boot option will not be available.

IPv6 HTTP Support
Enable or disable Ipv6 HTTP support. If disabled, the IPv6 HTTP boot option will not be available.

PXE boot wait time
Configure the wait time to press the ESC key to abort the PXE boot. Use either+/- or numeric keys to set the value.

Media detect count
Configure the number of times the media will be checked. Use either+/- or numeric keys to set the value.

Security



Administrator Password
Select this item to manage your password.

Secure Boot
Press <Enter> to open the submenu.

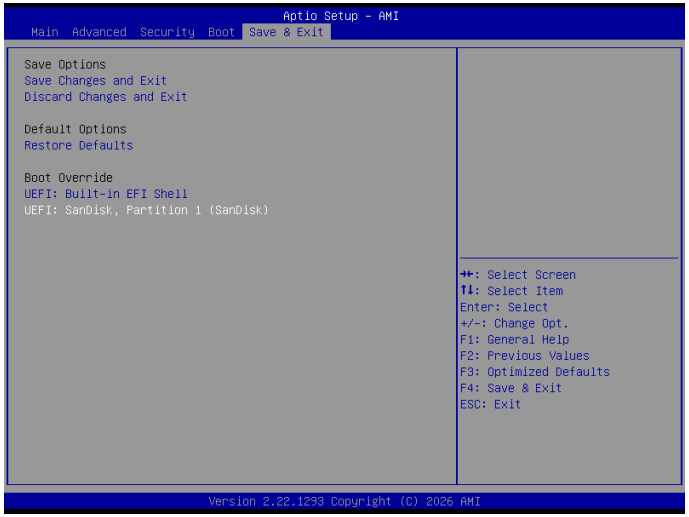
Boot

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.

Quiet Boot
Enable or disable quiet boot option.

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 Exit
After save all the changes, select this field then press <Enter>. A dialog box will appear. Confirm by selecting "Yes" and then exit the system setup.

Discard Changes and Exit
To exit the Setup utility and reboot the system 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.

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: GPIO PROGRAMMING GUIDE

APPENDIX A: GPIO Programming Guide

```
// Enable Logical Device 6
Iowrite8(0x2e, 0x07);     // Write Value: 0x07 to  IO address: 0x2e
Iowrite8(0x2f, 0x06);     // Write Value: 0x06 to  IO address: 0x2f
Iowrite8(0x2e, 0x30);     // Write Value: 0x30 to  IO address: 0x2e
Iowrite8(0x2f, 0x01);     // Write Value: 0x01 to  IO address: 0x2f

// Set GPIO 50-57 as input
Iowrite8(0x2e, 0xA0);     // Write Value: 0xA0 to  IO address: 0x2e
Iowrite8(0x2f, 0x00);     // Write Value: 0x0f to  IO address: 0x2f

// Set GPIO 70-77 as input
Iowrite8(0x2e, 0x80);     // Write Value: 0x80 to  IO address: 0x2e
Iowrite8(0x2f, 0x00);     // Write Value: 0x0f to  IO address: 0x2f

// Read GPIO 50-57 Status Value
Iowrite8(0x2e, 0xA2);   // Write Value: 0xA2 to  IO address: 0x2e
Data = IoRead8(0x2f);   // Read Data from Io address: 0x2f
                        // Data bit definition as following rule
                        // bit 0/1/2/3/4/5/6/7  :  GPIO50/51/52/53/54/55/56/57
                                                   Status value

// Read GPIO 70-77 Status Value
Iowrite8(0x2e, 0x82);   // Write Value: 0x82 to  IO address: 0x2e
Data = IoRead8(0x2f);   // Read Data from Io address: 0x2f
                        // Data bit definition as following rule
                        // bit 0/1/2/3/4/5/6/7  :  GPIO70/71/72/73/74/75/76/77
                                                   Status value
```

Appendix B: Watchdog Timer Setting

F81966 WatchDog Programming Guide

Programming Guide:

Step 1:
IO Address : 0x220
Input Value : 0x11

Step 2:
IO Address : 0x216
Input Value : Watch dog time value

IO Address : 0x215
Input Value : 31: Watch Dog time value unit is SECOND
39: Watch Dog time value unit is MINUTE