NEXCOM International Co., Ltd.

IoT Automation Solutions Business Group

PC-based Factory Automation System

NIFE 106 Series

User Manual

NEXCOM International Co., Ltd.
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PREFACE

Copyright

Disclaimer

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Acknowledgements

NIFE 106-A01 and NIFE 106-A02 are trademarks 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. HCP series products (Blade Server) which are manufactured by NEXCOM are covered by a three year warranty period.

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.

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.

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.

Safety Warning: This equipment is intended for installation in a Restricted Access Location only.

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Package Contents

Before continuing, verify that the NIFE 106 series package that you received is complete. Your package should have all the items listed in the following table.

Item	Part Number	Description	Qty
1	6012200052X00	PE ZIPPER BAG #8 炎洲: 印刷由任袋8號 170x240mm,W/China RoHS SYMBOL	1
2	6012200053X00	PE ZIPPER BAG #3 炎洲: 印刷由任袋3號 100x70mm,W/China RoHS SYMBOL	3
3	4NCPM00442X00	TERMINAL BLOCKS 4P DINKLE:0159-0104 ASSY 3.5mm H:22.55mm MALE 90D BLACK	1
4	4NCPF01012X00	TERMINAL BLOCKS 10P PHOENIX CONTACT:1821177 ASSY 2.54mm FEMALE 90D BLACK	1
5	5061600245X00	WASHER KANGYANG:TW-320-01 10.4x6.4mm T=1mm NYLON BLACK	8
6	5061711760X00	MINI PCI-E BRACKET FOR NISE106 SERIES VER:A ASDA 30x29x2.1mm SPCC T=1.0mm	1
7	50344C0379X00	COPPER POST FOR NISE53 SERIES VER:A LONG FEI WITH FEMALE/MALE (FEMALE) 6mm x (MALE) 5mm	1
8	50311F0396X00	I HEAD SCREW LONG FEI:I3x3 ISO+NYLOK BLACK I3x3 ISO+NYLOK BLACK	1
9	50311F0295X00	FLAT HEAD SCREW LONG FEI:F2x4 NYLOK NIGP F2x4 NIGP NYLOK	1
10	50311F0330X00	ROUND HEAD SCREW LONG FEI:P2x3 ISO+NYLON P2x3 NI NYLOK	2
11	5060200007X0E	Msata & M.2 2242 devices Thermal PAD 30 x20x5.5mm TP-H400 K=4w/mk	2

Ordering Information

The following information below provides ordering information for the NIFE 106 series.

NIFE 106-A01 (P/N: 10J70010600X0, P/N: 10J70010600XE)
Intel® Processor N97 Quad Core factory automation fanless system with onboard 8GB memory, and 64GB eMMC

NIFE 106-A02 (P/N: 10J70010603X0, P/N: 10J70010603XE)
Intel® Processor N97 Quad Core factory automation fanless system with onboard 8GB memory, 64GB eMMC, M.2 2242/3052 Key B, mPCIe, and bottom side I/O

NIFE 106-A03 (P/N: 10J70010604X0)
Intel Atom® x7433RE Processor Quad Core factory automation fanless system with onboard 8GB memory, and 64GB eMMC

NIFE 106-A04 (P/N: 10J70010605X0)
Intel Atom® x7433RE Processor Quad Core factory automation fanless system with onboard 8GB memory, 64GB eMMC, M.2 2242/3052 Key B, mPCIe, and bottom side I/O

- **24V, 60W AC/DC power adapter w/o power cord (P/N: 7400060077X00)**
- **24V, 120W AC/DC power adapter w/o power cord (P/N: 7400120036X00)**

Chapter 1: Product Introduction

NIFE 106 Series Overview

NIFE 106 Series
Top view

NIFE 106-A01
Bottom view

NIFE 106-A02
Bottom view

Key Features

- Onboard Intel® Processor N97 Quad Core 2.0GHz
- 1 x HDMI® display
- 3 x Intel® I226-IT 2.5GbE LAN port, supports WoL, teaming and PXE
- 2 x USB 3.2 Gen2
- 1 x RS-232/485 with auto flow control (TX, RX, CTX, RTX), supports 2.5KV isolation protection
- Onboard TPM 2.0
- Support operating temperature -10~60°C
- Support typical +12/24VDC ±20%
- 1 x USB-C, 5V/3A, supports up to 15W (NIFE 106-A02 only)
- 4-Channel Isolated Digital I/O, 4 In/4 Out (NIFE 106-A02 only)
- 1 x Mini PCIe full-size (PCIe x1, USB 2.0, SATA, SIM) (NIFE 106-A02 only)
- 1 x M.2 2242/3052 Key B (PCIe x1, SATA, USB 3.0, SIM) (NIFE 106-A02 only)

Hardware Specifications

CPU Support

- Intel® processor N97, embedded (NIFE 106-A01/A02)
- Intel Atom® x7433RE processor, embedded (NIFE 106-A03/A04)

Main Memory

- Onboard LPDDR5 4800 SDRAM, default 8GB (optional by DBOM up to 16 GB), with In-band ECC

Storage Device

- Onboard eMMC 64GB

Display Output

- 1 x HDMI® port, resolution up to 3840 x 2160@30Hz
- 1 x USB-C port, supports USB PD 5V/3A, up to 15W (NIFE 106-A02 only)

I/O Interface - Front

- 1 x HDMI® port
- 3 x Intel® I226-IT 2.5 GbE LAN port; supports WoL, teaming and PXE
- 2 x USB 3.2 Gen2 (900mA)
- 1 x DB9, supports RS-232/485 with auto-flow control (TX, RX, CTX, RTX), supports 2.5KV isolation protection
- 1 x ATX power on/off switch

I/O Interface - Bottom (NIFE 106-A02 only)

- 1 x DB9, supports RS-232/485 with auto-flow control (TX, RX, CTX, RTX), supports 2.5KV isolation protection
- 1 x USB-C, supports USB PD 5V/3A, up to 15W
- 4-Channel Isolated Digital I/O (4 In/4 Out), DI: 2mA, DO: 200mA per port, four channels 800mA

I/O Interface - Top (NIFE 106-A02 only)

- 1 x Fieldbus slot & 1 x Antenna hole
- 4 x Antenna hole (If Fieldbus is not used)

I/O Interface - Internal

- N/A

Expansion (NIFE 106-A02 only)

- 1 x Mini PCIe full-size (PCIe x1, USB 2.0, SIM)
- 1 x M.2 2242/3052 Key B for LTE/ Storage (PCIe x1, SATA, USB 3.0, SIM) (Default) or 1 x Mini PCIe full-size (PCIe x1, USB 2.0, SATA, SIM)(Optional by DBOM)

Status LED

- 4 x LED status indicator for power, battery, Tx, Rx

Power Requirements

- Power input: typical +12/24VDC ±20%
- 1 x Optional 24V, 60W power adapter
- 1 x Optional 24V, 120W power adapter (NIFE 106-A02 only)

Dimensions

- 66.5mm (W) x 100mm (D) x 130mm (H)

Construction

- Aluminum and metal chassis with front access design

Environment

- Operating temperature
  - Ambient with low airflow: -10~60°C (Default), (according to IEC 60068-2-1, IEC 60068-2-2, IEC 60068-2-14) (Tolerance +/- 2°C) for industry-grade
  - Ambient with low airflow: -10~55°C (according to IEC 60068-2-1, IEC 60068-2-2, IEC 60068-2-14) (Tolerance +/- 2°C) for CB/CCC/UL
- Storage temperature: -20°C~80°C
- Relative humidity: 10%~95% (non-condensing)
- Shock protection
  - eMMC: 50G, half sine, 11ms, IEC 60068-27
- Vibration protection w/eMMC condition
  - Random: 2Grms@5~500Hz, IEC 60068-2-64
  - Sinusoidal: 2Grms@5~500Hz, IEC 60068-2-6

Certifications

- Gross weight: 1.75 kg
- Net weight: 1 kg

Certifications

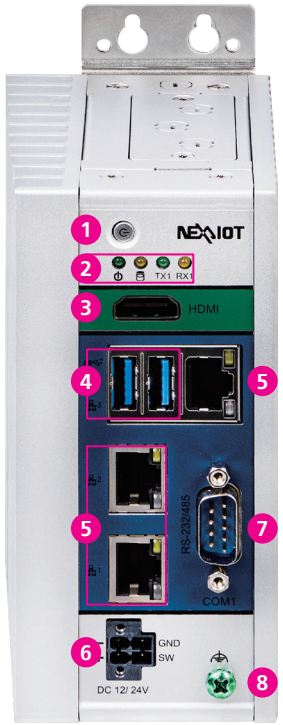
- CE approval
  - EN 61000-6-2
  - EN 61000-6-4
- FCC Class A
- UL/cUL (By request)
- CCC (By request)

Support OS

- Windows 11
- Windows 10 Enterprise, 64-bit
- Linux Kernel 4.19

Knowing Your NIFE 106 Series

Front View



1 Power Button

Power on or off the system.

2 LED Indicators

Indicate the power, hard drive, COM TX and RX activity of the system.

3 HDMI®

Used to connect the system with an HDMI® monitor.

4 USB Type-A Ports

USB 3.2 Gen 2 ports are used to connect the system to USB devices and support a 900mA power output.

5 LAN Ports

2.5GbE LAN ports are used to connect the system to a local area network.

6 12V/24V DC Input

Used to plug in a DC power cord.

7 DB9 COM1 Port

Used to connect an RS-232/422/485 compatible device.

8 Ground

Used to connect a grounding wire.

Bottom View (NIFE 106-A02/A04)

9 GPIO Port

Support 4-Channel Isolated Digital I/O (4 In/4 Out).

10 DB9 COM2 Port

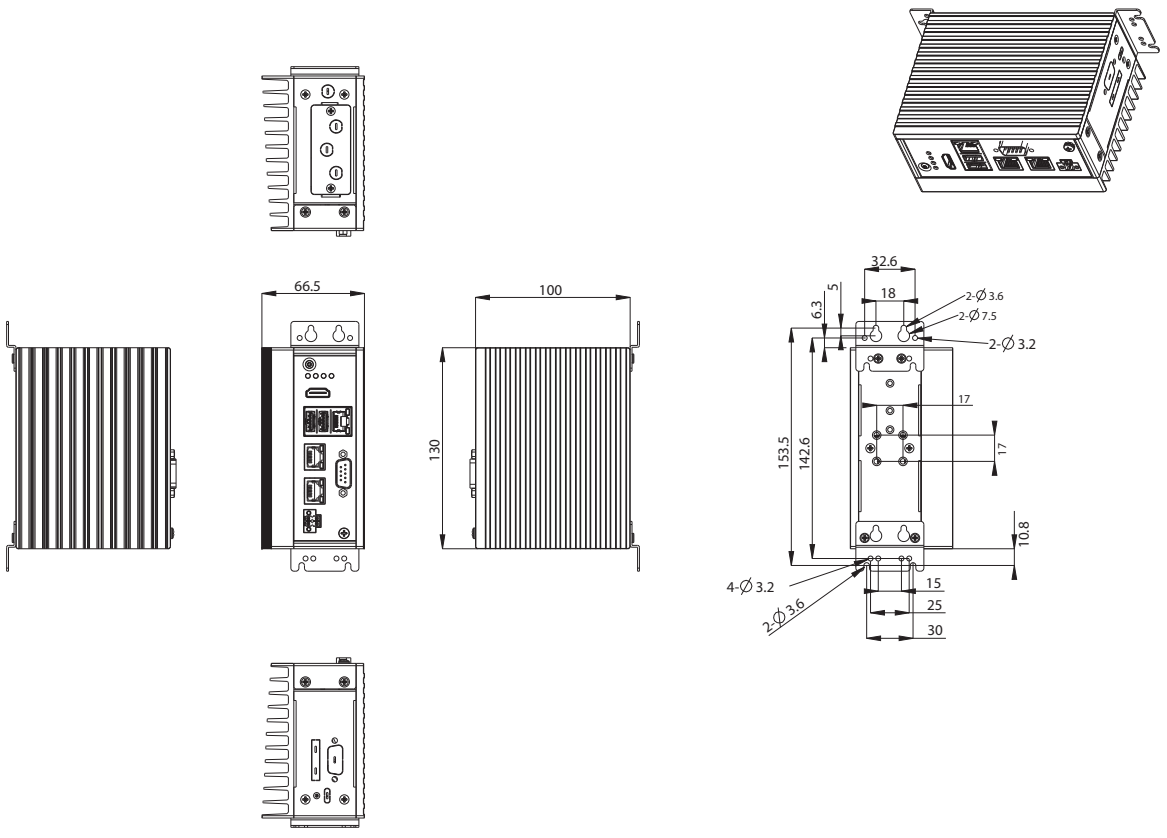
Used to connect an RS-232/485 compatible device.

11 USB Type-C Port

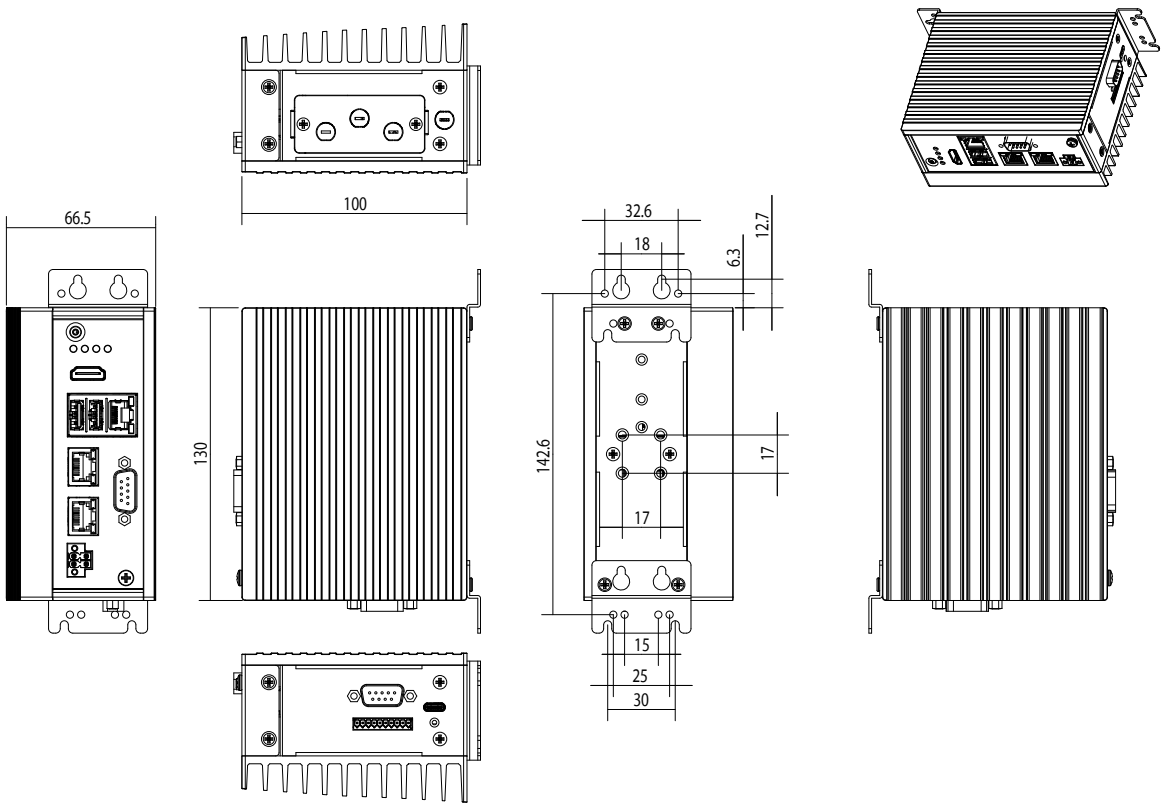
USB 3.2 Gen 2 port is used to connect the system to a USB device and supports USB PD 5V/3A, providing up to 15W of output.

Mechanical Dimensions

NIFE 106-A01/03



NIFE 106-A02/04



Chapter 2: Jumpers and Connectors

This chapter describes how to set the jumpers and connectors on the NIFE 106 series motherboard.

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:

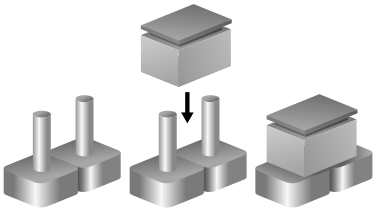
- Always disconnect the unit from the power outlet whenever you are working inside the case.
- If possible, wear a grounded wrist strap when you are working inside the computer case. Alternatively, discharge any static electricity by touching the bare metal chassis of the unit case, or the bare metal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

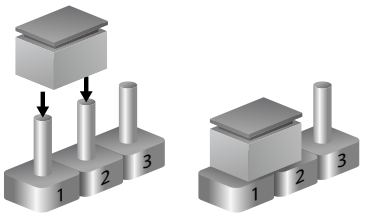
A jumper is the simplest kind of electric switch. It consists of two metal pins and a cap. When setting the jumpers, ensure that the jumper caps are placed on the correct pins. When the jumper cap is placed on both pins, the jumper is short. If you remove the jumper cap, or place the jumper cap on just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

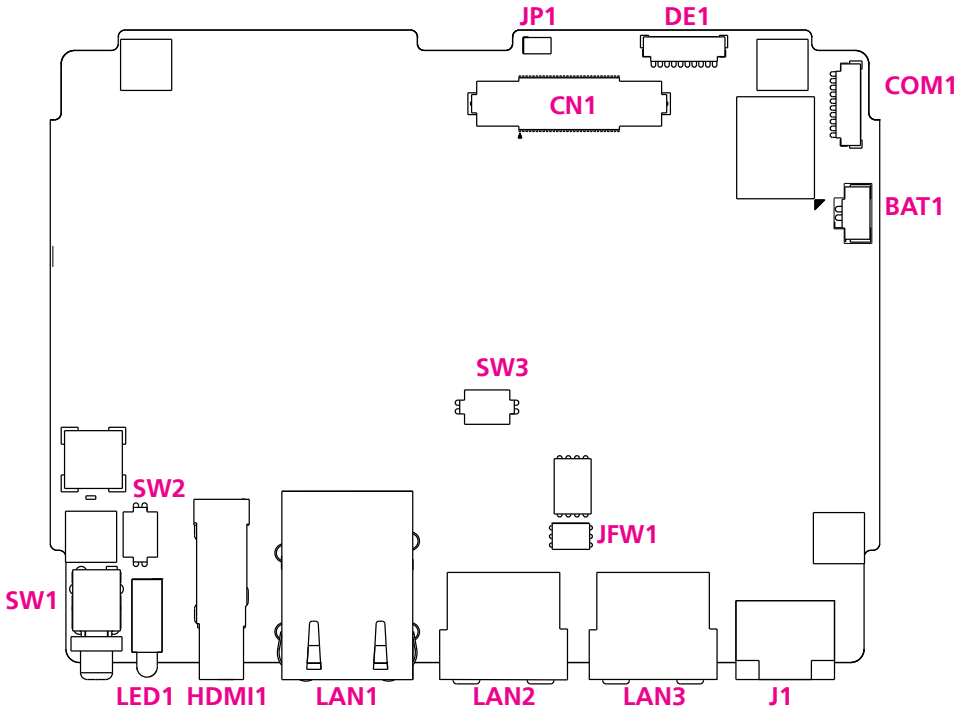


System Overview

The NIFE 106 system consists of a main board and an I/O board. This chapter provides the locations and pinout assignments of the DIP switches, jumpers, and connectors on each component. Note that the illustrations shown in this chapter are not to scale and are for reference only.

Mainboard

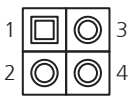
Component Layout



External I/O

Power and Remote Power On/Off Input Connector

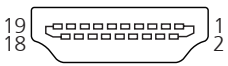
Connector location: J1



Pin	Definition
1	PWRBTN#_J
2	GND
3	VINP1
4	VINVSS

HDMI®

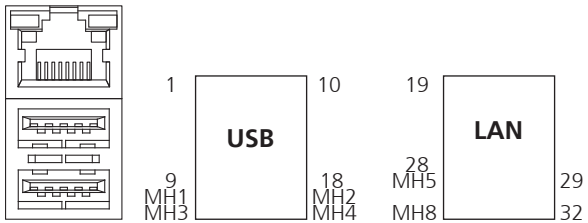
Connector location: HDMI1



Pin	Definition	Pin	Definition
1	HDMITX2P1	11	GND
2	GND	12	HDMICLKN1
3	HDMITX2N1	13	NC
4	HDMITX1P1	14	NC
5	GND	15	HDMIDDCSCL
6	HDMITX1N1	16	HDMIDDCSDA
7	HDMITX0P1	17	GND
8	GND	18	VCC5HDMI
9	HDMITX0N1	19	HDMIHPD
10	HDMICLKP1		
MH1	CHASSIS_GND	MH2	CHASSIS_GND
MH3	CHASSIS_GND	MH4	NC
NH1		NH2	

LAN and USB 3.2 Gen 2 Ports

Connector type: RJ45 port with LEDs and dual USB 3.2 Gen 2 ports, Type-A
Connector location: LAN1



LAN1

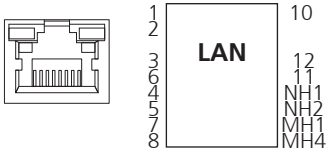
Pin	Definition	Pin	Definition
19	LAN1TVCC1	26	LAN1_MDI3P
20	LAN1_MDI0P	27	LAN1_MDI3N
21	LAN1_MDI0N	28	GND
22	LAN1_MDI1P	29	V3P3A_LAN1
23	LAN1_MDI1N	30	LAN1_LEDACTL
24	LAN1_MDI2P	31	LAN1_LED1GL
25	LAN1_MDI2N	32	LAN1_LED2500L
MH5	N.C	MH6	CHASSIS_GND
MH7	N.C	MH8	CHASSIS_GND

USB

Pin	Definition	Pin	Definition
1	5VSB_USB1	10	5VSB_USB1
2	IUSB2N3	11	IUSB2N4
3	IUSB2P3	12	IUSB2P4
4	GND	13	GND
5	IUSB3CRXN1	14	IUSB3CRXN2
6	IUSB3CRXP1	15	IUSB3CRXP2
7	GND	16	GND
8	IUSB3CTXN1	17	IUSB3CTXN2
9	IUSB3CTXP1	18	IUSB3CTXP2
MH1	CHASIS_GND	MH2	Chassis GND
MH3	CHASIS_GND	MH4	CHASIS_GND

LAN Ports

Connector type: RJ45 port with LEDs
Connector location: LAN2, LAN3



LAN2

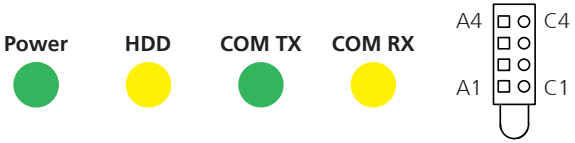
Pin	Definition	Pin	Definition
1	LAN2TXDP0	8	LAN2TXDN3
2	LAN2TXDN0	9	LAN2_LED2500L
3	LAN2TXDP1	10	LAN2_LED1GL
4	LAN2TXDP2	11	LAN2_LEDACTL
5	LAN2TXDN2	12	V3P3A_LAN2
6	LAN2TXDN1		
7	LAN2TXDP3		
NH1	NC	NH2	NC
MH1	CHASIS_GND	MH2	CHASIS_GND

LAN3

Pin	Definition	Pin	Definition
1	LAN3TXDP0	8	LAN3TXDN3
2	LAN3TXDN0	9	LAN3_LED2500L
3	LAN3TXDP1	10	LAN3_LED1GL
4	LAN3TXDP2	11	LAN3_LEDACTL
5	LAN3TXDN2	12	V3P3A_LAN3
6	LAN3TXDN1		
7	LAN3TXDP3		
NH1	NC	NH2	NC
MH1	CHASIS_GND	MH2	CHASIS_GND

LED Indicators

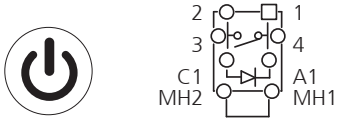
Connector location: LED1



Pin	Definition	Pin	Definition
A1	VCC3	C1	SYS_PWROK
A2	VCC3	C2	SATA_LED
A3	VCC3	C3	COM1_TXLEDN
A4	VCC3	C4	COM1_RXLEDN

Power Button

Connector location: SW1



Pin	Definition	Pin	Definition
1	GND	2	ATX_PBT
4	GND	3	ATX_PBT
A1	PWRLED_N	C1	N153755
MH1	NC	MH2	NC

Internal DIP Switch and Jumper Settings

AT/ATX Selection

Connector location: SW2

Pin 1-4	Pin 2-3	Mode
On	On	AT (PWR BT available)
On	Off	AT (PWR BT invalid)
Off	On	ATX

Pin	Definition
1	RTC_RST_N
2	SRTC_RST_N
3	GND#
4	GND#

Clear CMOS

Connector location: SW3

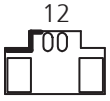
Pin 1-4	Pin 2-3	Mode
On	On	Clear CMOS
Off	Off	Normal

Pin	Definition
1	RTC_RST_N
2	SRTC_RST_N
3	GND#
4	GND#

Internal I/O Connector

RTC Battery Connector

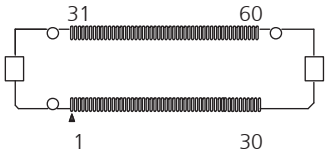
Connector location: BAT1



Pin	Definition	Pin	Definition
1	GND	2	3V_BAT1_R
MH1	GND	MH2	GND

Rear BD to BD Connector

Connector location: CN1

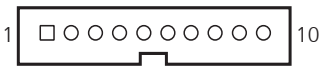


Pin	Definition	Pin	Definition
1	CLK_PCIE_M2_N	18	TCP0_TX0_DP
2	CLK_PCIE_M2_P	19	TCP0_AUX_DN
3	GND	20	TCP0_AUX_DP
4	PCIE_SATA_MINI_TX_DP	21	2_RS485
5	PCIE_SATA_MINI_TX_DN	22	2_SP338ETERM
6	PCIE_SATA_MINI_RX_DP	23	USB32_M2_TX2_DP
7	PCIE_SATA_MINI_RX_DN	24	USB32_M2_TX2_DN
8	S_M2RSTL	25	USB32_M2_RX2_DP
9	S_M2DISL	26	USB32_M2_RX2_DN
10	S_M2POFF	27	SIO_UART2CTSL
11	TCP0_TXRX1_DN	28	SIO_UART2RTSL
12	TCP0_TXRX1_DP	29	SIO_UART2RXD
13	TCP0_TXRX0_DN	30	SIO_UART2TXD
14	TCP0_TXRX0_DP	P1	GND
15	TCP0_TX1_DN	P2	VIN_M
16	TCP0_TX1_DP	MH1	GND
17	TCP0_TX0_DN		

Pin	Definition	Pin	Definition
31	CLK_PCIE_MINI_P	48	USB2_P2_DP
32	CLK_PCIE_MINI_N	49	USB2_P2_DN
33	GND	50	USB2_P5_DP
34	PCIE_M2_TX1_DP	51	USB2_P5_DN
35	PCIE_M2_TX1_DN	52	PCIE_WAKE#
36	USBC_PD_SML1_DATA	53	S_MINIPCIEENL
37	PCIE_M2_RX1_DP	54	S_M2PWRONL
38	PCIE_M2_RX1_DN	55	MINI_SATAPCIE0
39	PCIE_M2_TX0_DP	56	PM_SLP_S3_N
40	PCIE_M2_TX0_DN	57	I_PLTRST_SLOT
41	PCIE_M2_RX0_DP	58	I_SUSCLK
42	PCIE_M2_RX0_DN	59	SMB_DATA
43	USBC_PD_SML1_CLK	60	SMB_CLK
44	I2C_PMC_PD_INT_N	P3	GND
45	TCP0_DP_HPD	P4	VIN_M
46	USB2_P1_DN	MH2	GND
47	USB2_P1_DP		

UART Connector

Connector location: COM1



Pin	Definition
1	RS485_D-_R
2	COM1_RXD
3	COM1_TXD
4	
5	ISO_GND
6	RS485_D+_R
7	COM1_RTS#
8	COM1_CTS#
9	
10	ISO_GND
MH1	ISO_GND
MH2	ISO_GND

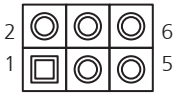
eSPI Port 80 Connector

Connector location: DE1

Pin	Definition
1	GND
2	I_PLTRSTN_BUFF
3	ESPI_HDR_CLK
4	I_ESPI_CS0_N
5	ESPI_HDR_IO3
6	ESPI_HDR_IO2
7	ESPI_HDR_IO1
8	ESPI_HDR_IO0
9	I_ESPI_RESET_N
10	3VSB
MH1	GND
MH2	GND

Flash BIOS Pin Header

Connector location: JFW1



Pin	Definition
1	VSPI
2	GND
3	CS#_0
4	CLK_0
5	DO_0
6	DI_0

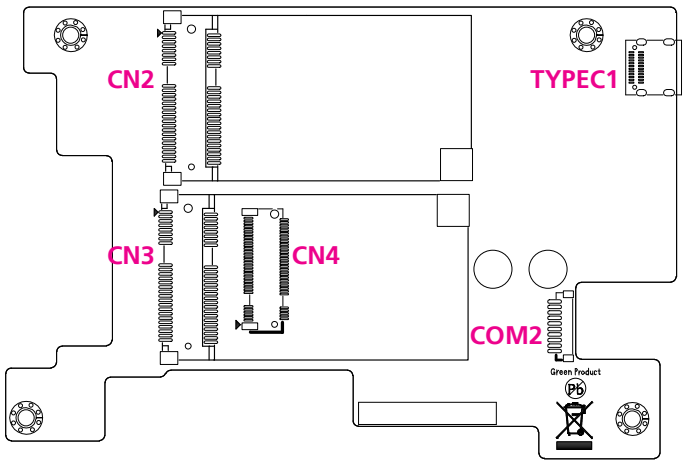
Reset Pin Header

Connector location: JP1

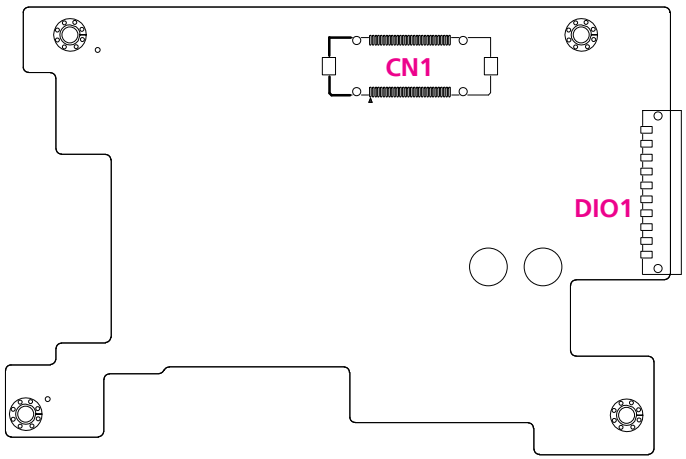
Pin	Definition
1	SYSRESETN
2	GND

I/O Board

Top Component Layout

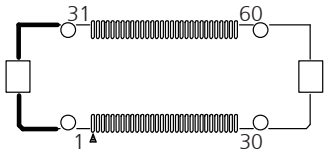


Bottom Component Layout



BD to BD Connector

Connector location: CN1

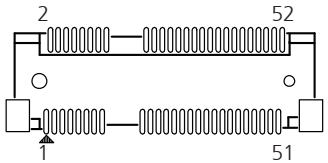


Pin	Definition	Pin	Definition
1	CLK_PCIE_M2_P3_N	16	TCP0_TX1_DP
2	CLK_PCIE_M2_P3_P	17	TCP0_TX0_DN
3	GND	18	TCP0_TX0_DP
4	PCIE_SATA_TX_P11_DP	19	TCP0_AUX_DN
5	PCIE_SATA_TX_P11_DN	20	TCP0_AUX_DP
6	PCIE_SATA_RX_P11_DP	21	S_UART2_RS485_EN
7	PCIE_SATA_RX_P11_DN	22	S_UART2_RS485_TERM
8	S_M2RSTL	23	USB32_M2_TX_DP
9	S_M2DISL	24	USB32_M2_TX_DN
10	S_M2POFFL	25	USB32_M2_RX_DP
11	TCP0_TXRX1_DN	26	USB32_M2_RX_DN
12	TCP0_TXRX1_DP	27	S_UART2_CTSL
13	TCP0_TXRX0_DN	28	S_UART2_RTSL
14	TCP0_TXRX0_DP	29	S_UART2_RXD
15	TCP0_TX1_DN	30	S_UART2_TXD

Pin	Definition	Pin	Definition
31	CLK_PCIE_MINI_P4_P	46	USB2_P1_DN
32	CLK_PCIE_MINI_P4_N	47	USB2_P1_DP
33	GND	48	USB2_P2_DP
34	PCIE_SATA_TX_P12_DP	49	USB2_P2_DN
35	PCIE_SATA_TX_P12_DN	50	USB2_P5_DP
36	GND	51	USB2_P5_DN
37	PCIE_SATA_RX_P12_DP	52	PCIE_WAKE#
38	PCIE_SATA_RX_P12_DN	53	S_MINIPCIEDISL
39	GND	54	S_M2PWRON
40	MINI_SATAPCIE1	55	P11_SATAPCIE0
41	TCPD_OC2_N	56	P11_SATAPCIE0
42	USBC_PD_SML1_DATA	57	I_PLTRSTL
43	USBC_PD_SML1_CLK	58	I_SUSCLK
44	I2C_PMC_PD_INT_N	59	SMB_DATA
45	TCP0_DP_HPD	60	SMB_CLK

Mini PCIe

Connector location: CN2

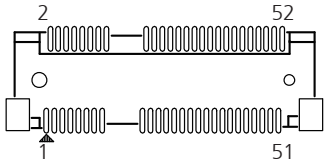


Pin	Definition	Pin	Definition
1	PCIE_WAKE#	2	3VSB_mPCIe1
3	NC	4	GND
5	NC	6	V1P5_MPCIE
7	NC	8	UIM_PWR
9	GND	10	UIM_DATA
11	CLK_PCIE_MINI_P4_N	12	UIM_CLK
13	CLK_PCIE_MINI_P4_P	14	UIM_RESET
15	GND	16	UIM_VPP
17	NC	18	GND
19	NC	20	S_MINIPCIEDISL
21	GND	22	mPCIe1_PERSTL
23	PCIE_SATA_RX_P12_DP	24	3VSB_mPCIe1
25	PCIE_SATA_RX_P12_DN	26	GND

Pin	Definition	Pin	Definition
27	GND	28	1V5_mPCIe1
29	GND	30	SMB_CLK
31	PCIE_SATA_TX_P12_DN	32	SMB_DATA
33	PCIE_SATA_TX_P12_DP	34	GND
35	GND	36	USB2_P5_DN
37	GND	38	USB2_P5_DP
39	3VSB_mPCIe1	40	GND
41	3VSB_mPCIe1	42	NC
43	GND	44	NC
45	NC	46	NC
47	NC	48	1V5_mPCIe1
49	NC	50	GND
51	MINI_SATAPCIE1	52	3VSB_mPCIe1

Mini PCIe

Connector location: CN3

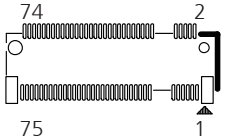


Pin	Definition	Pin	Definition
1	PCIE_WAKE#	2	3VSB_mPCIe2
3	NC	4	GND
5	NC	6	1V5_mPCIe2
7	NC	8	UIM_PWR
9	GND	10	UIM_DATA
11	CLK_PCIE_mPCIe2_C_N	12	UIM_CLK
13	CLK_PCIE_mPCIe2_C_P	14	UIM_RESET
15	GND	16	UIM_VPP
17	NC	18	GND
19	NC	20	mPCIe2_LTEDISL
21	GND	22	mPCIe2_PERSTL
23	PCIE_mPCIe2_RP	24	3VSB_mPCIe2
25	PCIE_mPCIe2_RN	26	GND

Pin	Definition	Pin	Definition
27	GND	28	1V5_mPCIe2
29	GND	30	SMB_CLK
31	PCIE_mPCIe2_TN	32	SMB_DATA
33	PCIE_mPCIe2_TP	34	GND
35	GND	36	USB2_mPCIe2_P2_DN
37	GND	38	USB2_mPCIe2_P2_DP
39	3VSB_mPCIe2	40	GND
41	3VSB_mPCIe2	42	NC
43	GND	44	NC
45	NC	46	NC
47	NC	48	1V5_mPCIe2
49	NC	50	GND
51	mPCIe2_PCIESATASEL	52	3VSB_mPCIe2

Key B (PCIe)

Connector location: CN4

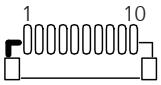


Pin	Definition	Pin	Definition
1	M2BCONFIG3	2	3VSB_M2
3	GND	4	3VSB_M2
5	GND	6	S_M2POFFL
7	USB2_M2_P2_DP	8	S_M2DISL
9	USB2_M2_P2_DN	10	NC
11	GND	20	NC
21	M2BCONFIG0	22	NC
23	PCIE_WAKE#	24	NC
25	NC	26	NC
27	GND	28	NC
29	USB32_M2_C_RN	30	UIM_RESET
31	USB32_M2_C_RP	32	UIM_CLK
33	GND	34	UIM_DATA
35	USB32_M2_C_TN	36	UIM_PWR
37	USB32_M2_C_TP	38	NC
39	GND	40	NC
41	PCIE_SATA_M2_RP	42	NC

Pin	Definition	Pin	Definition
43	PCIE_SATA_M2_RN	44	NC
45	GND	46	NC
47	PCIE_SATA_M2_TN	48	NC
49	PCIE_SATA_M2_TP	50	LTEPERSTL
51	GND	52	I_CLKREQ7L
53	CLK_PCIE_M2_C_N	54	PCIE_WAKE#
55	CLK_PCIE_M2_C_P	56	NC
57	GND	58	NC
59	NC	60	NC
61	NC	62	NC
63	NC	64	NC
65	NC	66	NC
67	M2LTERSTL	68	I_SUSCLK
69	M2BCONFIG1	70	3VSB_M2
71	GND	72	3VSB_M2
73	GND	74	3VSB_M2
75	M2BCONFIG2		

COM Port

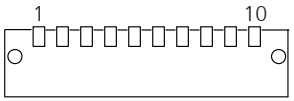
Connector location: COM2



Pin	Definition	Pin	Definition
1	RS485_D-_R	2	COM2_RXD
3	COM2_TXD	4	NA
5	GND	6	RS485_D+_R
7	COM2_RTS#	8	COM2_CTS#
9	NA	10	GND

DIO Connector

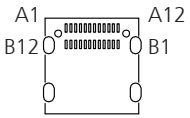
Connector location: DIO1



Pin	Definition	Pin	Definition
1	V_COM	6	DI3
2	DIO_GND	7	DO0
3	DI0	8	DO1
4	DI1	9	DO2
5	DI2	10	DO3

Type C

Connector location: TYPEC1



Pin	Definition	Pin	Definition
A1	GND	B1	GND
A2	TCP0_TYPEC_TX0_C_DP	B2	TCP0_TYPEC_TX1_C_DP
A3	TCP0_TYPEC_TX0_C_DN	B3	TCP0_TYPEC_TX1_C_DN
A4	V_USBC_VBUS_CONN	B4	V_USBC_VBUS_CONN
A5	+VTCPD_CC1	B5	+VTCPD_CC2
A6	USB2_P1_TCP_L_DP	B6	USB2_P1_TCP_L_DP
A7	USB2_P1_TCP_L_DN	B7	USB2_P1_TCP_L_DN
A8	TCP0_SBU_RDRV_CONN_DP	B8	TCP0_SBU_RDRV_CONN_DN
A9	V_USBC_VBUS_CONN	B9	V_USBC_VBUS_CONN
A10	TCP0_TYPEC_TXRX1_C_DN	B10	TCP0_TYPEC_TXRX0_C_DN
A11	TCP0_TYPEC_TXRX1_C_DP	B11	TCP0_TYPEC_TXRX0_C_DP
A12	GND	B12	GND

Chapter 3: System Setup

Removing the Chassis Cover

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

The images in this chapter are provided as examples for reference. The steps described here apply to all products in this series.

1. Follow the indicators below the images to remove the screws.

Top

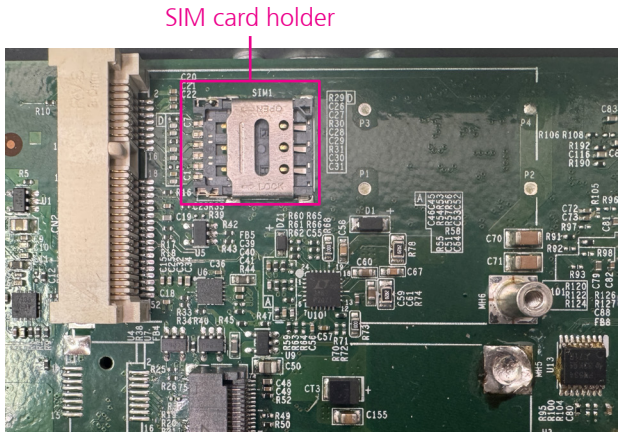
Bottom

Rear

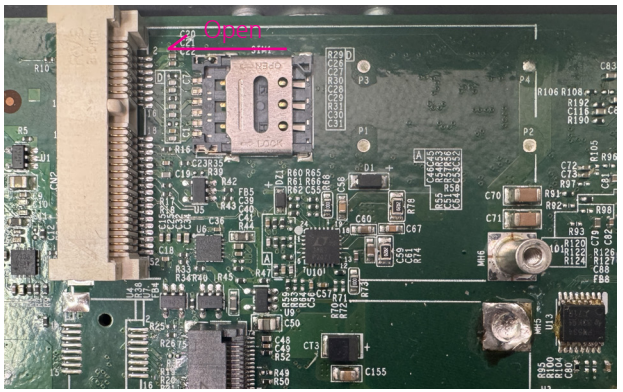
2. Gently lift the cover.

Installing a SIM Card (NIFE106-A02/A04 only)

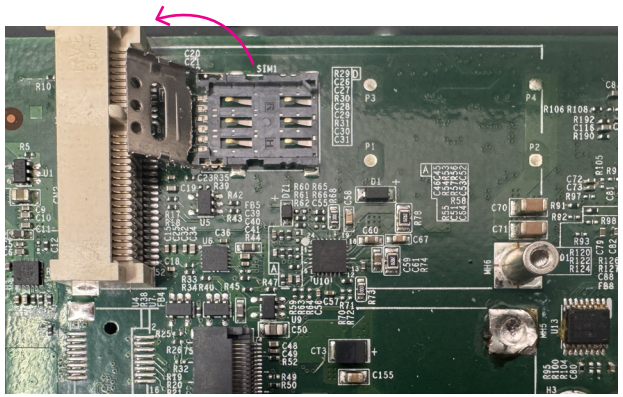
1. Follow the previous steps to remove the side cover, and locate the SIM card holder (SIM1) on the I/O board.



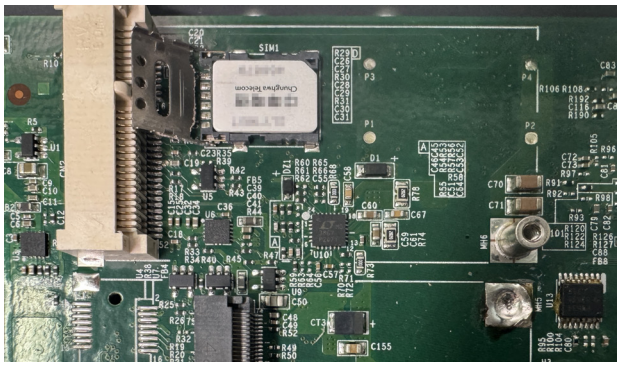
2. Check if the SIM card holder is in the OPEN position. If it is in the LOCK position, slide it to the left to unlock.



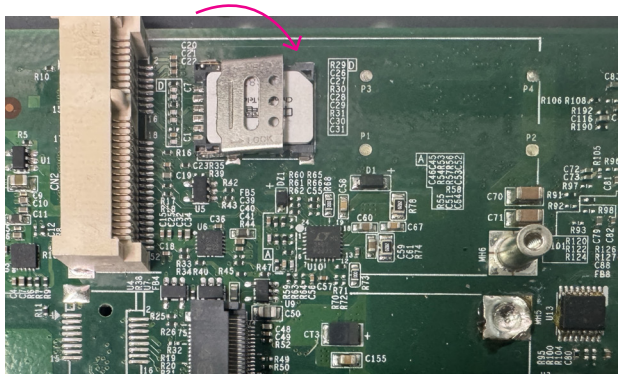
3. Flip open the SIM card holder cover.



4. Place the SIM card onto the holder, following the card slot's orientation.



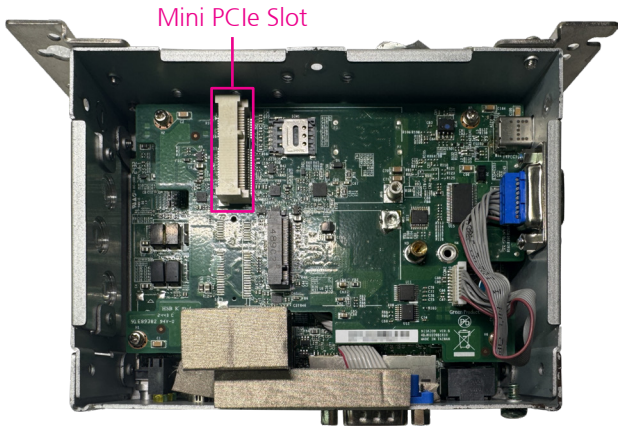
5. Close the cover, securing it to its original position.



6. Ensure the SIM card holder is in the LOCK position. If it is in the OPEN position, slide it to the right to lock.

Installing a Mini PCIe Module (NIFE106-A02/A04 only)

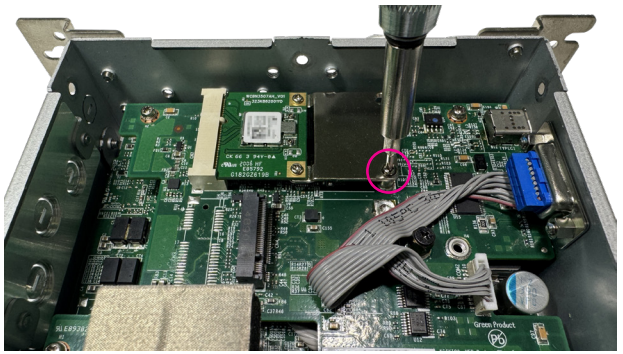
1. Follow the previous steps to remove the side cover, and locate the Mini PCIe slot on the I/O board.



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

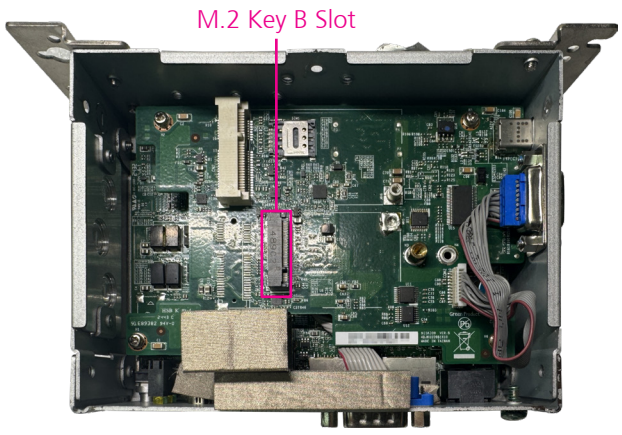
If the module is half-size, secure the Mini PCIe bracket to the Mini PCIe module. The Mini PCIe bracket is included in the system package.

3. Push the module down and secure it with a screw.

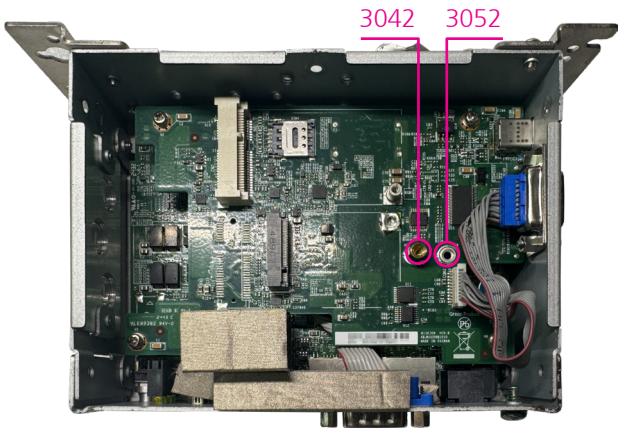


Installing an M.2 Module (NIFE106-A02/A04 only)

1. Follow the previous steps to remove the side cover, and locate the M.2 Key B slot on the I/O board.

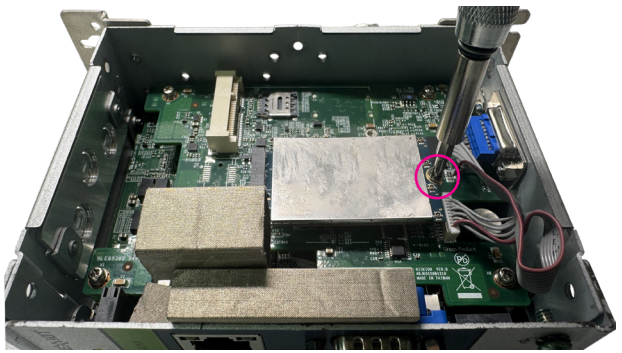


2. Secure the M.2 standoff into the appropriate mounting hole on the main board, depending on the length of the module, using a screwdriver.



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

4. Fasten a screw into the M.2 standoff mounting hole to secure the module in place.



Installing an Antenna (NIFE106-A02/A04 only)

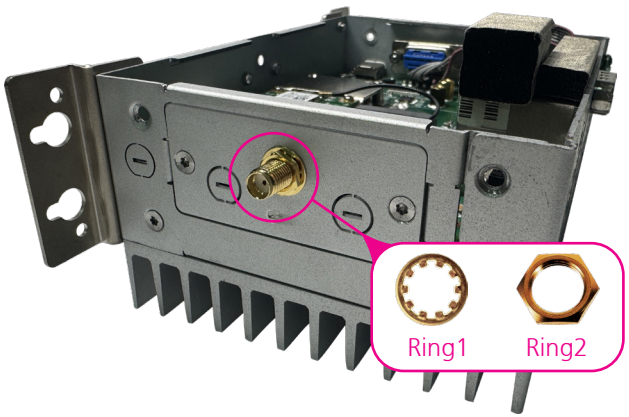
Before installing an antenna, ensure that the communication module (Wi-Fi/BT/5G/4G/LTE) is installed in the slot first.

This section details the installation process for a single antenna. If multiple antennas are required, repeat the same procedure for each antenna.

1. Remove the antenna hole cover located on the top side of the NIFE 106 system.

2. Follow the previous steps to remove the side cover, then connect the antenna cable to the communication module (Wi-Fi/BT/5G/4G/LTE) that is installed.

3. Locate the antenna hole on the top of the chassis, insert the antenna jack through the antenna hole, then install ring1 and ring2 onto the antenna jack in order, respectively.



4. Connect the external antenna to the antenna jack.

Mounting the System

1. Install the wall mount brackets onto the rear chassis, and ensure that the wall mount bracket screws are fastened tightly.

2. Align the mounting holes on the wall mount brackets with the holes on the flat surface where you wish to assemble the system. Then tighten the screws into the holes to secure the system.

The screw specifications: 4 x round head screws, P3 x6

Select screws based on the wall thickness. Recommended screw specifications: truss head M3 L5~6mm, quantity: 4pcs

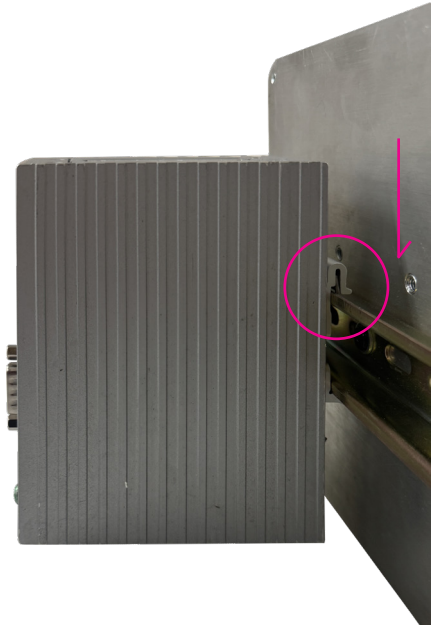
Mounting a DIN Rail Kit (Optional)

1. Unscrew and remove the wall mount brackets from the rear chassis, if they are installed.

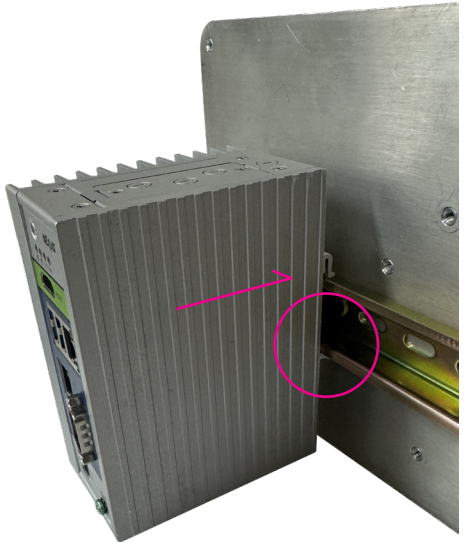
2. Install the DIN rail bracket on the rear of the system, ensuring that the screws are properly tightened.

The screw specifications: 4 x F head screws, F6#32x6

3. Install the system onto the DIN rail from the top of the bracket, ensuring that the hook is securely connected to the DIN rail.



4. Push the system backward to connect the bracket to the DIN rail and complete the installation.



Chapter 4: BIOS Setup

This chapter describes how to use the BIOS setup program for the NIFE 106 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

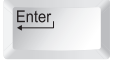
When the system is powered on, the BIOS will enter the Power-On Self Test (POST) routines. These routines perform various diagnostic checks; if an error is encountered, the error will be reported in one of two different ways:

- 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 

allows you to enter Setup.

Legends

Key	Function
	Moves the highlight left or right to select a menu.
	Moves the highlight up or down between sub-menu 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 

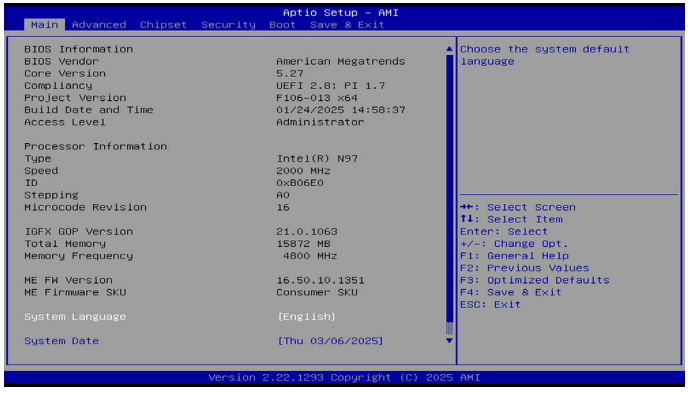
.

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 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 Language
Choose the system default language.

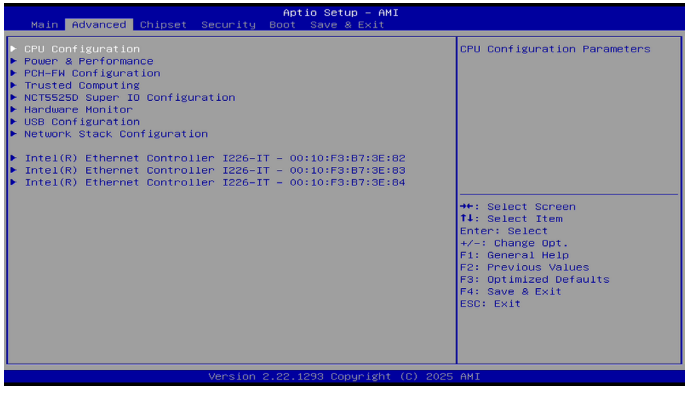
System Date
The date format is <day>, <month>, <date>, <year>. Day displays a day, from Monday to Sunday. Month displays the month, from January to December. Date displays the date, from 1 to 31. Year displays the year, from 2005 to 2099.

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.

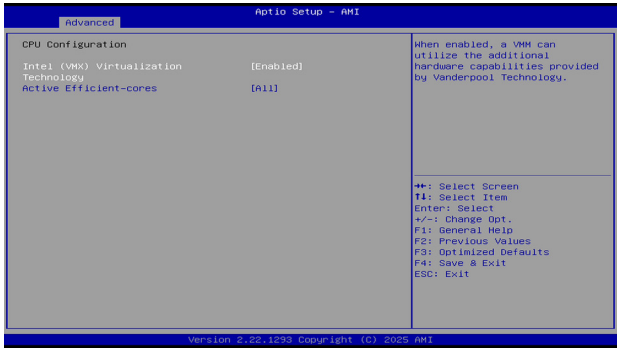
Advanced

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 Settings



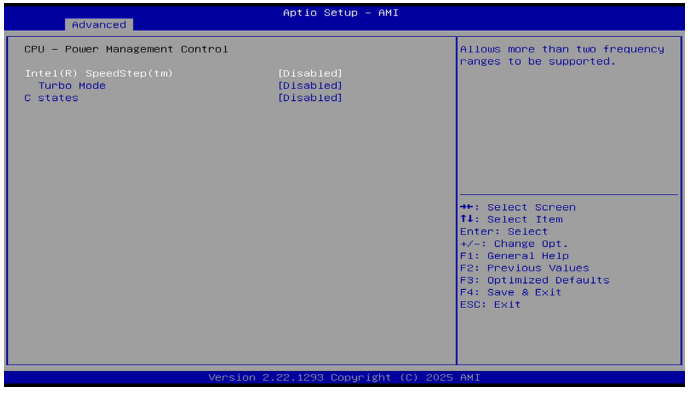
Intel (VMX) Virtualization Technology

When enabled, a VMM can utilize the additional hardware capabilities provided by Vanderpool Technology.

Active Efficient-cores

Number of E-cores to enable in each processor package.

Power & Performance > CPU- Power Management Control

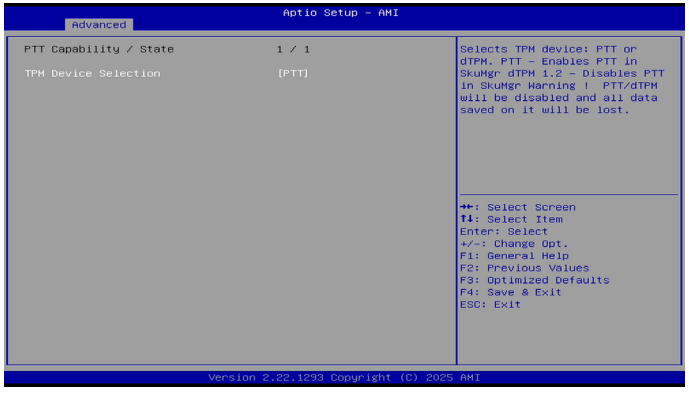


Intel(R) SpeedStep(tm)
Allow more than two frequency ranges to be supported.

Turbo Mode
Enable or disable processor turbo mode (requires EMTTM enabled too). Auto means enabled.

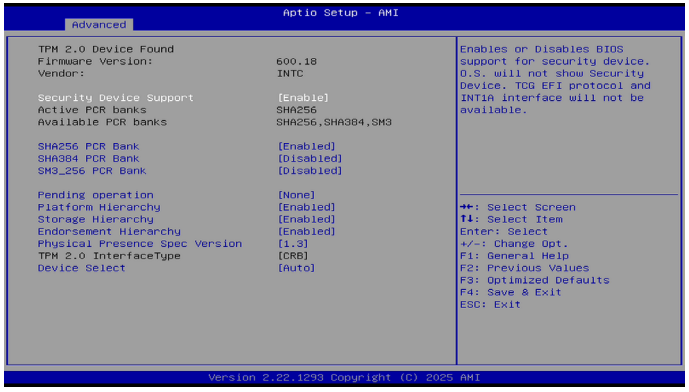
C states
Enable or disable CPU power management. Allows CPU to go to C states when it's not 100% utilized.

PCH-FW Configuration > PTT Configuration



TPM Device Selection
Select a TPM device, the options are PTT or dTPM. Note that all data saved on it will be lost if it is disabled.

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.

SHA384 PCR Bank
Enable or disable SHA384 PCR Bank.

SHA_256 PCR Bank
Enable or disable SHA_256 PCR Bank.

Pending operation
Schedule an operation for the security device. Note: Your computer will reboot during restart in order to change state of security device.

Platform Hierarchy
Enable or disable platform hierarchy.

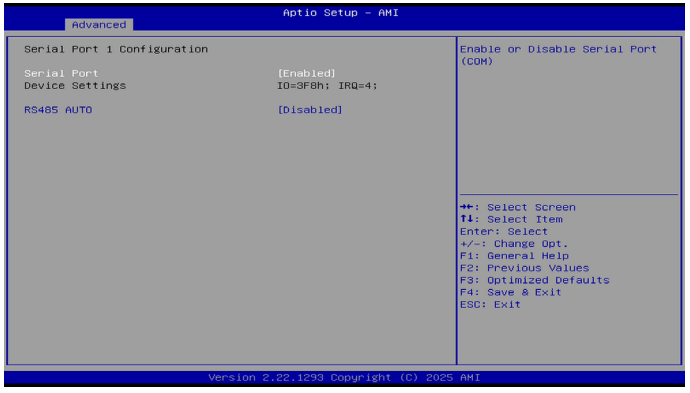
Storage Hierarchy
Enable or disable storage hierarchy.

Endorsement Hierarchy
Enable or disable endorsement hierarchy.

Physical Presence Spec Version
Select to tell O.S. to support PPI spec version 1.2 or 1.3. Note 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.

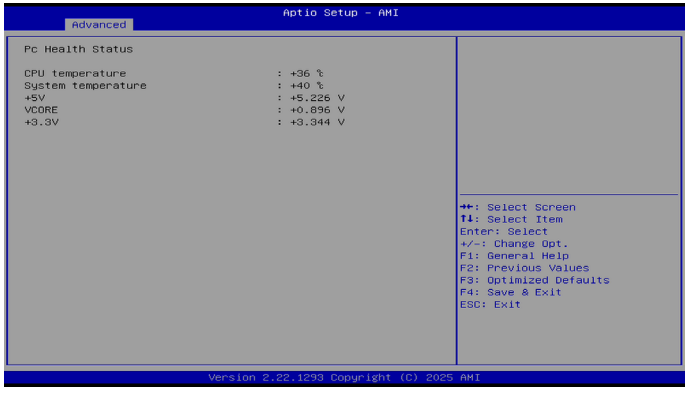
NCT5525D Super IO Configuration > Serial Port 1 Configuration



Serial Port
Enable or disable serial port (COM).

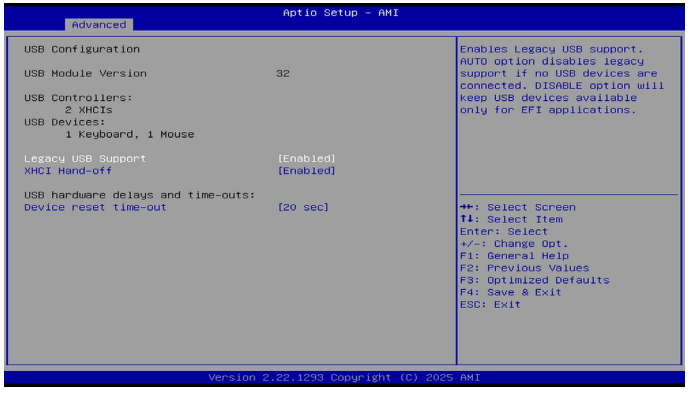
RS485 Auto
Select an optimal settings for super IO device.

Hardware Monitor



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

USB Configuration

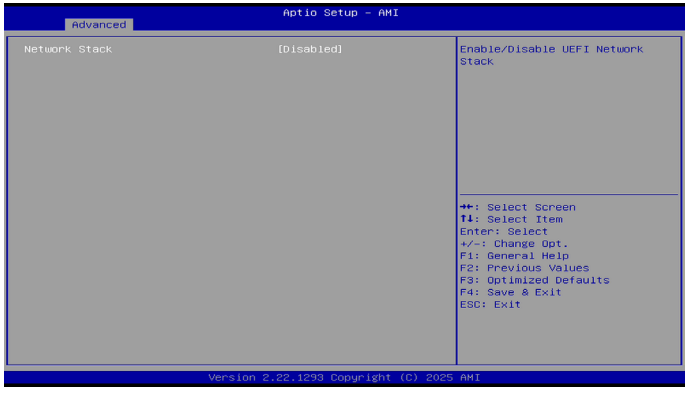


Legacy USB Support
Enable legacy USB supprt. AUTO option disables legacy support if no USB devices are connected. Disable option will keep USB devices available only for EFI applications.

XHCI Hand-off
This is a workaround for OSes without XHCI hand-off support. The XHCI ownership change should be claimed by the XHCI driver.

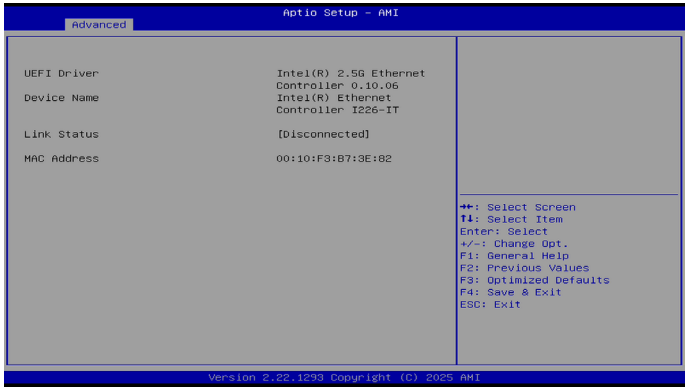
Device reset time-out
USB mass storage device start unit command time-out.

Network Stack Configuration



Network Stack
Enable or disable UEFI network stack.

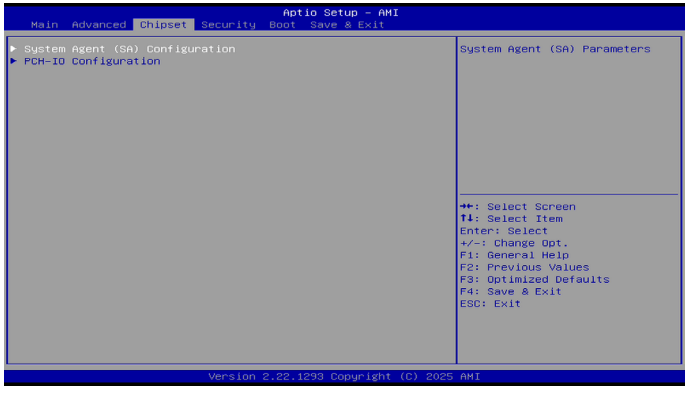
Intel (R) Ethernet Controller I226-IT



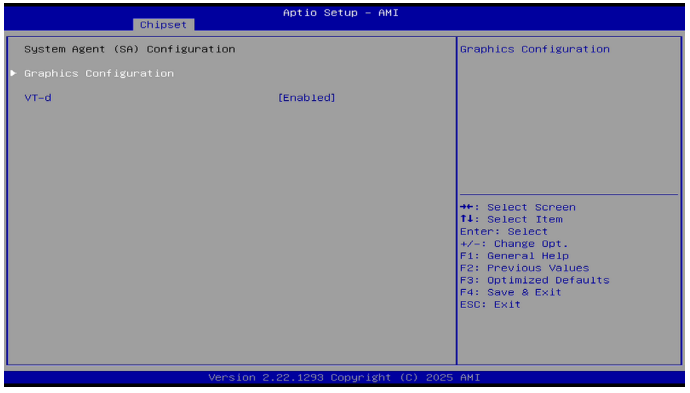
This section is used to configure Gigabit Ethernet device parameters.

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.



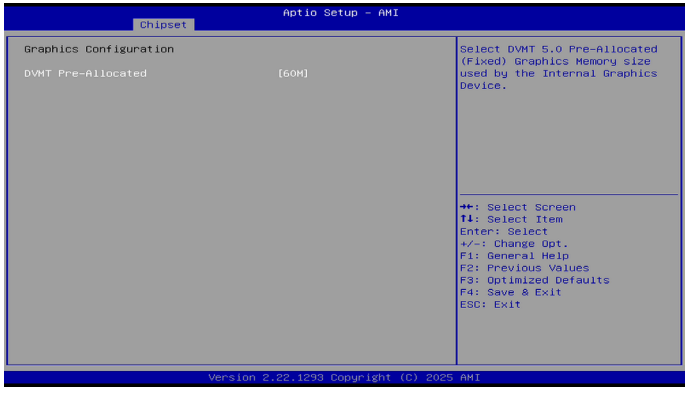
System Agent (SA) Configuration



Graphics Configuration
Press Enter to access the submenu.

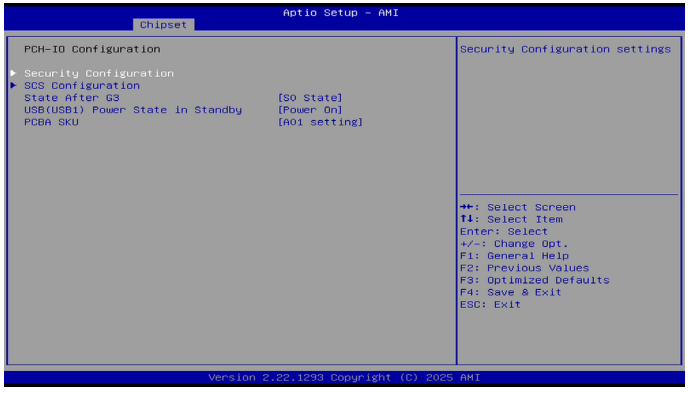
VT-d
Enable or disable VT-d function.

Graphic Configuration



DVMT Pre-Allocated
Select DVMT 5.0 pre-allocated (fixed) graphics memory size used by the internal graphic device.

PCH-IO Configuration



Security Configuration
Press Enter to access the submenu.

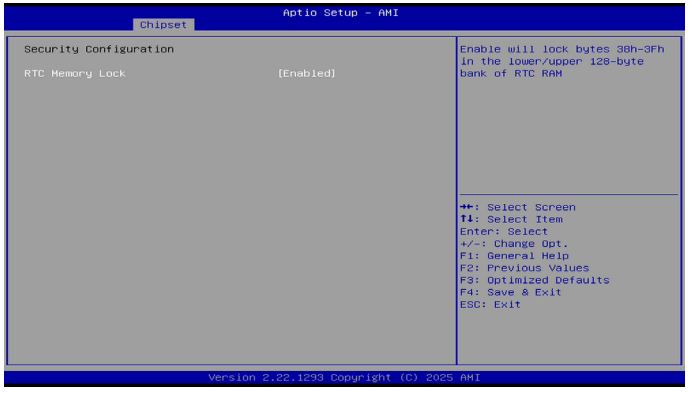
SCS Configuration
Press Enter to access the submenu.

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

USB(USB1) Power State in Standby
Select USB power state in standby.

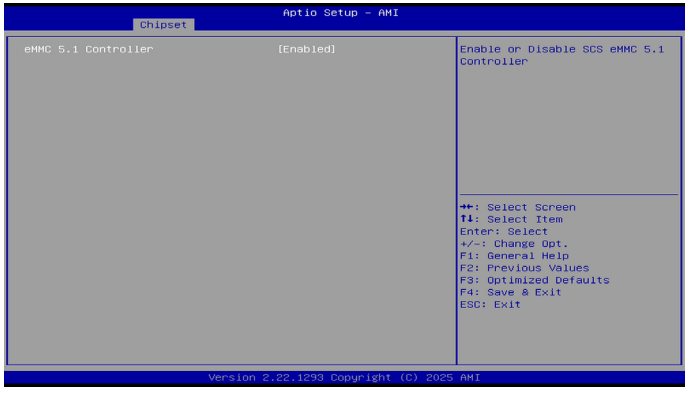
PCBA SKU
Select PCBA SKU.

Security Configuration



RTC Memory Lock
Enable will lock bytes 38h-3Fh in the lower/upper 128-byte bank of RTC RAM.

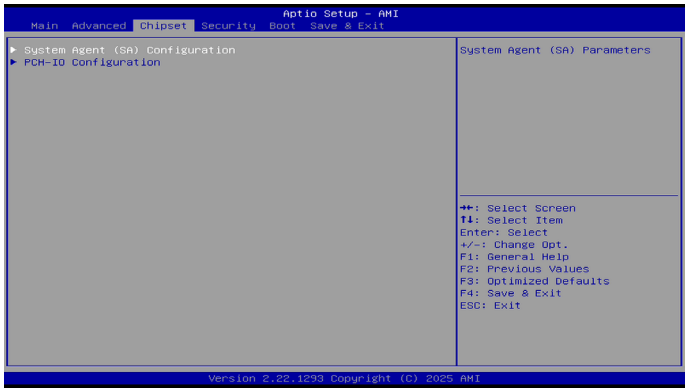
SCS Configuration



eMMC 5.1 Controller

Enable or disable SCS eMMC 5.1 controller.

Security

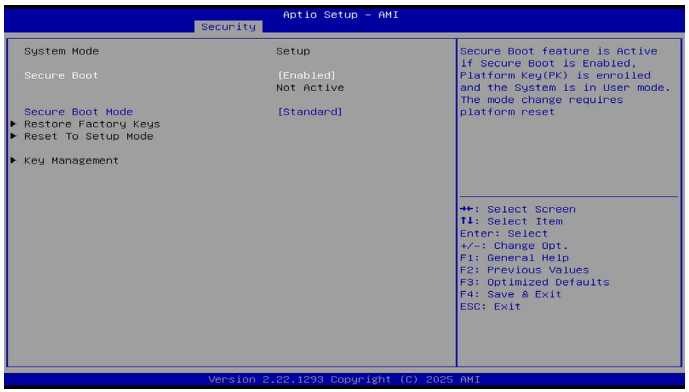


Setup Administrator Password
Select this to reconfigure the administrator's password.

User Password
Select this to reconfigure the user's password.

Secure Boot
Press Enter to access the submenu.

Secure Boot

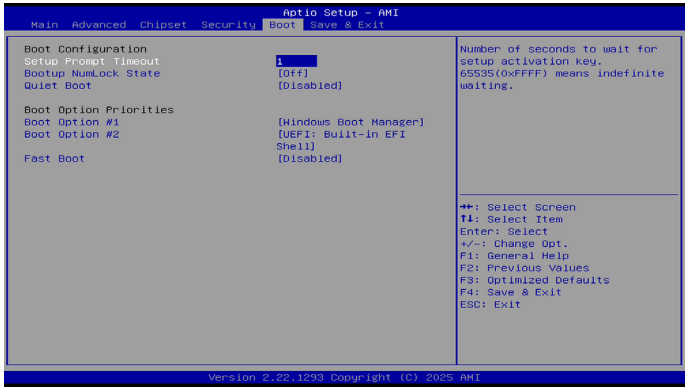


Security Boot
Secure boot feature is active if secure boot is enabled, platform key (PK) is enrolled and the system is in user mode. The mode change requires platform reset.

Security Boot Mode
Secure Boot mode options include standard and custom. In custom mode, secure boot policy variables can be configured by a physically present user without full authentication.

Restore Factory Keys / Reset to Setup Mode / Key Management
Press Enter to access each submenu.

Boot



Setup Prompt Timeout
Number of seconds to wait for setup activation key. 65535 (0xFFFF) means indefinite waiting.

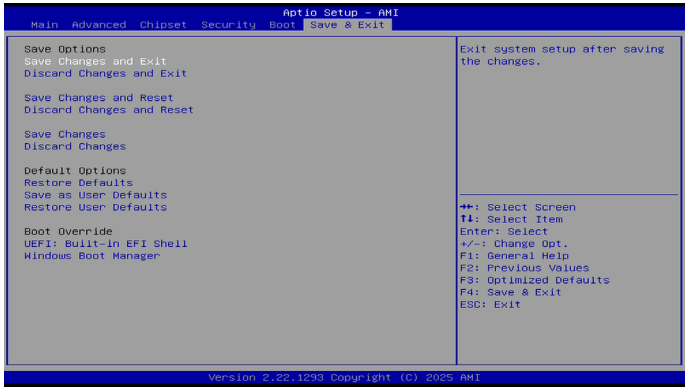
Bootup NumLock State
Select the keyboard NumLock state.

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.

Fast Boot
Enable or disable boot with initialization of a minimal set of devices required to launch active boot option. Has no effect for BBS boot options.

Save & Exit



Save Changes and Exit
To save the changes and exit the Setup utility, select this field then press <Enter>. A dialog box will appear. Confirm by selecting Yes. You can also press <F4> to save and exit Setup.

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

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 without saving the changes, select this field then press <Enter>. You may be prompted to confirm again before exiting.

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

Discard Changes
To discard the changes, select this field then press <Enter>. A dialog box will appear. Confirm by selecting Yes to discard all changes made and restore the previously saved settings.

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

Save as User Defaults
To use the current configurations as user default settings for the BIOS, select this field then press <Enter>. A dialog box will appear. Confirm by selecting Yes.

Restore User Defaults
To restore the BIOS to user 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 Criteria

The measured voltage & current must meet the power supply & mainboard specifications.
The power requirement should be 1.2 times the power consumption at least.

Test Equipment/Software

1. DC power supply
2. Operation System OS: Windows 11 (x64 bit)
3. Burn-In Test Software 10.2 (1013)
4. Intel® Thermal Analysis Tool software
5. Network test program
6. Function port fixture

Pin	Definition
Functional port	Front/ Rear Side
USB3.2 (All port)	5V, 1.0A (Cement Resistor) *2
COM Port (All port)	RS-232 Loopback (115200 baud rate) for All COM port
Network (All Port)	Ping to Ping
Display Interface	HDMI® Interface LCD Monitor
USB	Keyboard & Mouse

Test Equipment/Software

Test Condition
Temperature: room temperature
Test Voltage Input: 12VDC/24VDC ± 20% input range, 3-Pin Phoenix Contact

Test Procedure

1. Use a DC power supply to measure the power consumption
2. Measure system maximum power consumption as below mode
3. 1000% full loading mode (Including USB load fixture)

Test Data

NIFE106-A01:

Max load Power Consumption (100% Full loading)		Total (W)
12V	2.78 A	33.36 W
24V	1.43 A	35.04 W
Windows Idle Mode		
12V	1.667 A	20.0 W
24V	0.870 A	20.88W
Sleep Mode		
12V	0.15 A	1.80 W
24V	0.10A	2.40 W

NIFE106-A02:

Max load Power Consumption (100% Full loading)		Total (W)
12V	3.742 A	44.94 W
24V	1.899 A	45.57 W
Windows Idle Mode		
12V	3.445 A	41.42 W
24V	1.689 A	40.55W
Sleep Mode		
12V	2.394 A	28.75 W
24V	1.233 A	29.63 W

Appendix B: Watchdog Programming Guide

NCT5525D WatchDog Programming Guide

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

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

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

  # Set WDT setting
        outportb(SUPERIO_PORT, WDT_SET);
        outportb(SUPERIO_PORT+1, 0x00); # Use the second
# Use the minute, change value to 0x08
  # Set WDT sec/min
        outportb(SUPERIO_PORT, WDT_VALUE);
        outportb(SUPERIO_PORT+1, 0x05); #Set 5 seconds
}
```

Appendix C: GPI/O Mode Configuration

GPI/O Programming Guide

GPI/O (General Purpose Input/Output) pins are provided for custom system design. This appendix provides definitions and its default setting for the ten GPI/O pins in the NIFE106 series. The pin definition is shown in the following tables:

Pin	GPI/O mode	Address
A4	VCC3	MMIO[0xFD6E07E0] (Bit0)

LED1 – GPI/O Connector

Pin	GPI/O mode	Address
1	VCC	
2	GND	
3	GPI0	EFA5h(Bit0)
4	GPI1	EFA5h(Bit1)
5	GPI2	EFA5h(Bit2)
6	GPI3	EFA5h(Bit3)
7	GPO0	EFA5h(Bit4)
8	GPO1	EFA5h(Bit5)
9	GPO2	EFA5h(Bit6)
10	GPO3	EFA5h(Bit7)

DIO1 – GPI/O Connector

Control the GPO pin (A2) level from Memory address 0xFD6E07E0 bit (0). The bit is Set/Clear indicated output High/Low

For Example of GPI0:
o 0xEFA0 0xFE
o 0xEFA3 0x00
o 0xEFA4 0x41
o 0xEFA2 0x48
GPI0 value is 0xEFA5[Bit0]

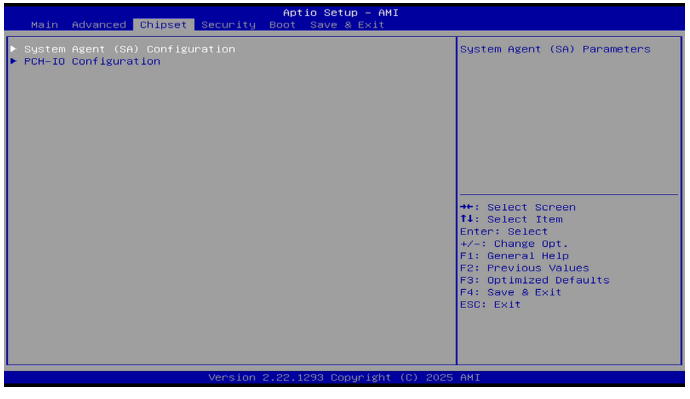
For Example of GPO0 High:
o 0xEFA0 0xFE
o 0xEFA3 0x01
o 0xEFA4 0x40
o 0xEFA5 0x10
o 0xEFA2 0x48

Appendix D: Troubleshooting

By default, the system is configured to NIFE 106-A01 in the BIOS. If your system is NIFE 106-A02, follow the steps to configure it appropriately in the BIOS.

1. Follow the instructions mentioned in Chapter 4 to configure the settings in the BIOS.

2. Go to the Chipset tab, then enter the PCH-IO Configuration menu.



3. Select PCBA SKU, then press Enter to bring up the options and select the A02 setting.