NexCOBOT Co., Ltd.

Intelligent Platform & Services Business Unit

Embedded Computing (Industrial Motherboard)

NEX 913C

User Manual

NexCOBOT Co., Ltd.
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Contents

Chapter 3: BIOS Setup

PREFACE

Copyright

Disclaimer

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Acknowledgements

NEX 913C is a trademark of Nexcobot 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

NexCOBOT RoHS Environmental Policy and Status Update

NexCOBOT 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, NexCOBOT has established an engineering and manufacturing task force in to implement the introduction of green products. The task force will ensure that we follow the standard NexCOBOT development procedure and that all the new RoHS components and new manufacturing processes maintain the highest industry quality levels for which NexCOBOT 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 NexCOBOT 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 NexCOBOT naming convention.

Warranty and RMA

NexCOBOT Warranty Period

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

NexCOBOT Return Merchandise Authorization (RMA)

- Customers shall enclose the "NexCOBOT 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 "NexCOBOT 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, NexCOBOT 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 NexCOBOT 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

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

Board Level

- Component fee: NexCOBOT 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, NexCOBOT 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 the equipment from any AC outlet before cleaning or installing a component inside the chassis. Use a damp cloth. Do not use liquid or spray detergents for cleaning.

4. To prevent electrostatic build-up, leave the board in its anti-static bag until you are ready to install it.

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

6. Keep the board away from humidity.

7. Put the board on a stable surface. Dropping it or letting it fall may cause damage.

8. Wear anti-static wrist strap.

9. Do all preparation work on a static-free surface.

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

11. Hold the board only by its edges. Be careful not to touch any of the components, contacts or connections.

12. All cautions and warnings on the board should be noted.

13. Use the correct mounting screws and do not over tighten the screws.

14. Keep the original packaging and the anti-static bag; in case the board has to be returned for repair or replacement.

Technical Support and Assistance

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

Asia

Taiwan
NexCOBOT Taiwan

13F, No.916, Chung-Cheng Rd.,
ZhongHe District,
New Taipei City, 23586, Taiwan, R.O.C.
Tel: +886-2-8226-7786
Fax: +886-2-8226-7726
Email: jennyshern@nexcobot.com
www.nexcobot.com

China
NEXCOM Shanghai

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

America

USA
NEXCOM USA

4665 Fremond Blvd,
Fremont CA 94538, USA
Tel: +1-510-656-2248
Fax: +1-510-656-2158
Email: sales@nexcom.com
www.nexcom.com

Package Contents

Before continuing, verify that the NEX 913C package that you received is complete. Your package should have all the items listed in the following table.

Item	Name	Qty
1	NEX 913C Motherboard	1
2	I/O Shield	1
3	COM Port Cable	1

Ordering Information

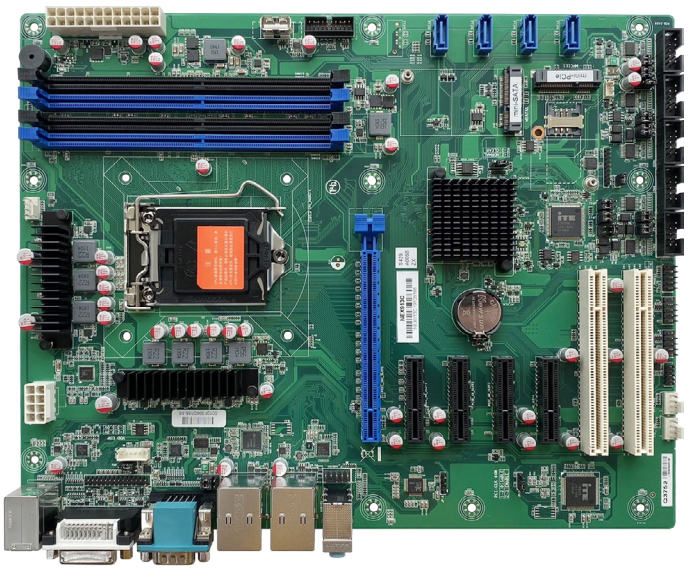
The following information below provides ordering information for NEX 913C.

NEX 913C (P/N: 6879MBNX9131F)

ATX, 8th/9th generation Intel® Core™ processors (up to 95W), Q370, LGA1151, DDR4 x 4 up to 64GB, HDMI/DVI-D/VGA/eDP, 6 x USB 3.0, 7 x USB 2.0, 2 x GbE, 5 x SATA, 2 x Mini-PCIe (SATA/PCIe), 6 x COM, 1 x DB9, 1 x RS232/422/485, 1 x RS232/485, 1 x PCIe x16, 4 x PCIe x4, 2 x PCI

Chapter 1: Product Introduction

Overview



Key Features

- 8th/9th generation Intel® Core™ i7/i5/i3, Pentium 14nm LGA 1151 socket processors (Coffee Lake-S, Coffee Lake-S Refresh), Max. 95W, PCH Q370
- 4 x U-DIMM DDR4 with ECC or non-ECC SO-DIMM 2666MHz up to 64GB
- Support triple display via VGA, DVI-D, DP, eDP
- 2 x Intel® GbE LAN ports, 6 x USB 3.1 (Gen1), 7 x USB 2.0, 5 x RS232, 1 x RS232/485/422, 1 x RS232/485, 4 x SATAIII, PS/2, HD Audio
- 1 x PCIe x16, 4 x PCIe x4, 2 x PCI, 2 x Mini-PCIe, SIM Card
- 8-bit DIO, onboard TPM 2.0

Hardware Specifications

CPU Support

- Intel® 8/9th Generation (Coffee Lake-S, Coffee Lake-S Refresh) Core™ i7/ i5/i3 LGA 1151 socket processor, Max. 95W
  Notice: Support MAX CPU TDP: Hexa-Core 95W (Do not support Octa-Core 65W/95W CPU)

Chipset

- Intel® Q370 Express Chipset

Main Memory

- 4x DDR4 U-DIMM memory socket with non-ECC support, up to 64GB 2666MHz

BIOS

- AMI (UEFI) with watchdog timer support

Display

- Ingetrated Intel® Gen9 Graphics graphic engine
- 1x VGA connector (resolution up to 1920 x 1080 @ 60Hz)
- 1x eDP pin header (resolution up to 1920 x 1080 @ 60Hz)
- 1x DVI-D connector (resolution up to 1920 x 1090 @ 60Hz)
- 1x HDMI1.4b connector (resolution up to 4096 x 2160 @ 30MHz)

System

- 1x PS/2 connector, 6 x USB3.1 (Gen1), 7x USB2.0
- 4x RS232, 1x RS 232/485/422, 1x RS232/485
- Realtek ALC662 5.1 Channel HDA Codec
- 1x front panel header, 8 bit digital I/O (In/Out programmable), SMBus
- Supports on board TPM2.0
- 3x smart fan connector

Storage

- 4x SATA III (6.0Gb/s) ports, support RAID 0/1/5/10
- 1x mSATA (by SATA port1)

Expansion Slots

- One PCIe x16 (Gen 3.0)
- Four PCIe x4
- Two PCI
- One Mini PCIe
- One SMI Card

Rear I/O

- 1x PS2/2 combo (mouse and keyboard supported)
- 2x USB 2.0
- 1x DVI-D, 1x VGA, 1x HDMI
- 1x COM (by COM1)
- 2x RJ45:
  - LAN 1: Intel PHY i219LM Gb LAN (supports iAMT 11.0)
  - LAN 2: Intel i211AT Gb LAN
- 4x USB 3.1 (Gen1)
- 1x HD audio connector (1x Line-out, MIC, Line-in 3.5mm jack)

Internal I/O

- 4x USB 2.0

  - 1x USB 2.0 (Type A, vertical), 4x USB 2.0 (header)
- 2x USB 3.1 (Gen 1)
- 5x serial ports
  - 3x RS232, 1x RS232/485/422 (via COM3), 1x RS232/485 (via COM4)
- HA Audio:
  - 1x audio pin header (Line-out + Mic-in), 1x S/PDIF Out pin header

Power Requirements

- 1x 24-pin ATX connect/1x 8-pin (2x4) ATX12V power connector
- support both AT and ATX power supply mode

Dimensions

- 305mm x 244mm (ATX)

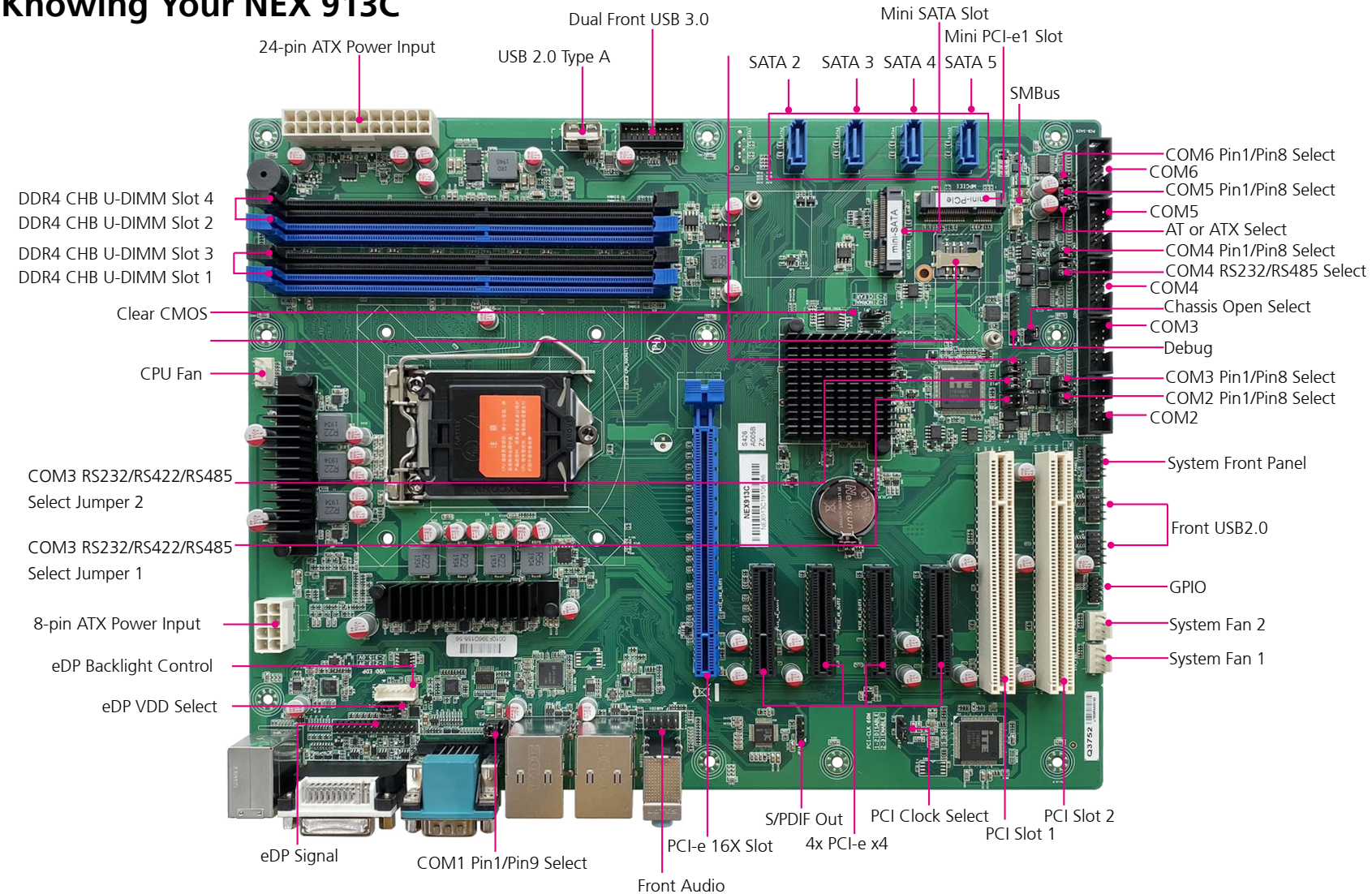
Environment

- Board level operating temperature: 0°C to 60°C
- Storage temperature: -20°C to 75°C
- Relative humidity:
  - 10% to 95% (operating, non-condensing)
  - 5% to 95% (non-operating, non-condensing)

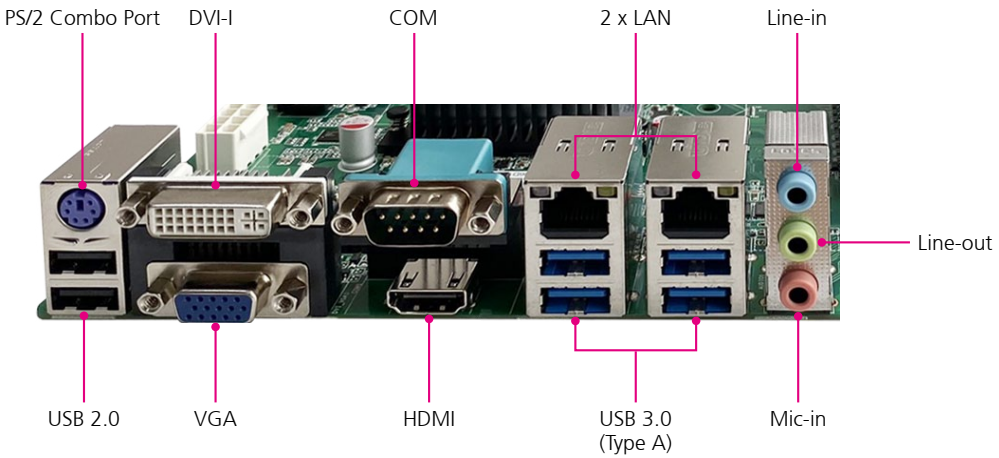
Certifications

- Meet CE/FCC Class A

Knowing Your NEX 913C



Edge I/O View



Chapter 2: Jumpers and Connectors

This chapter describes how to set the jumpers and connectors on the NEX 913C 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:

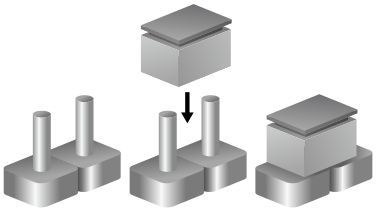
- Always disconnect the unit from the power outlet whenever you are working inside the case.
- If possible, wear a grounded wrist strap when you are working inside the computer case. Alternatively, discharge any static electricity by touching the bare metal chassis of the unit case, or the bare metal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

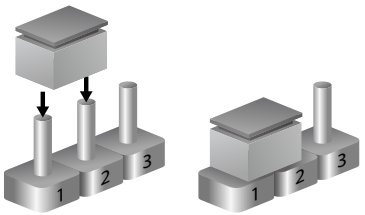
A jumper is the simplest kind of electric switch. It consists of two metal pins and a cap. When setting the jumpers, ensure that the jumper caps are placed on the correct pins. When the jumper cap is placed on both pins, the jumper is short. If you remove the jumper cap, or place the jumper cap on just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

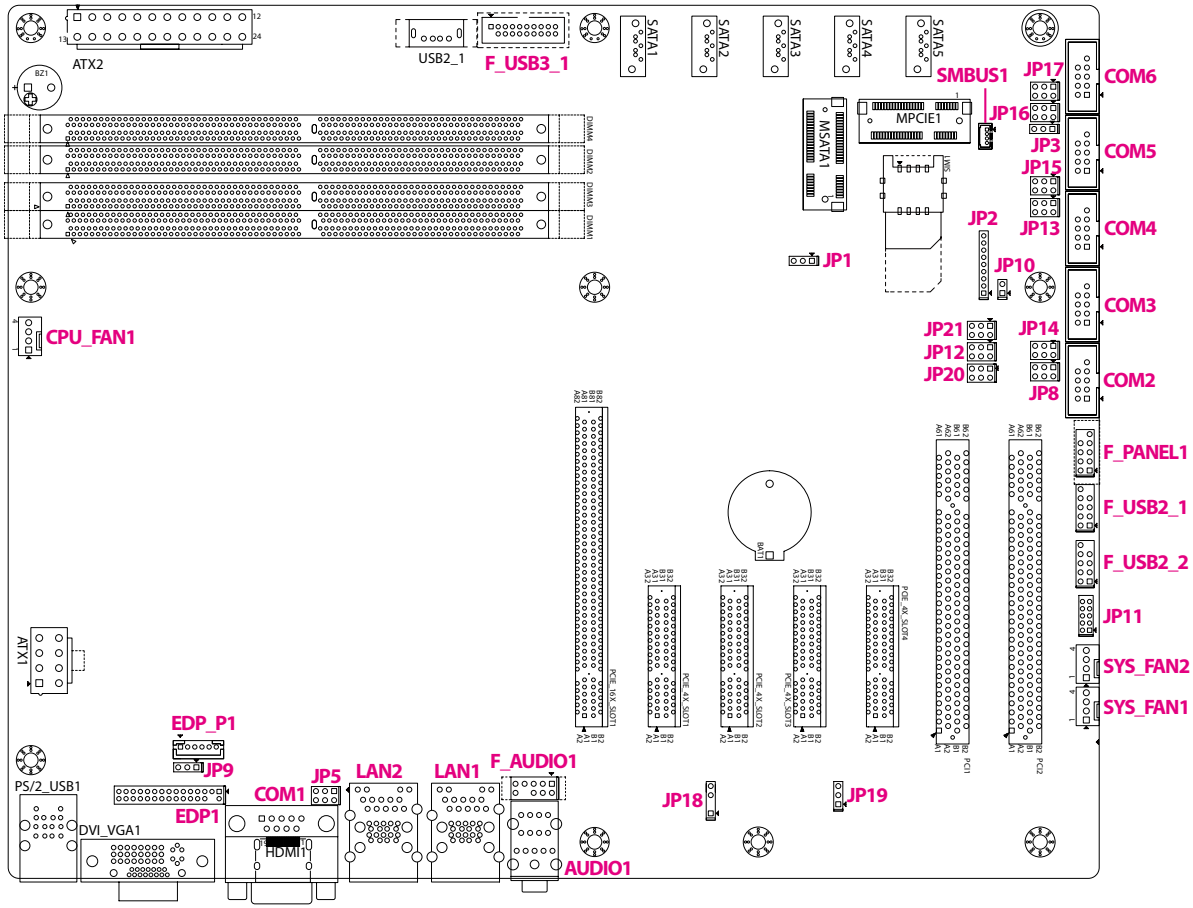


Three-Pin Jumpers: Pins 1 and 2 are Short



Locations of the Jumpers and Connectors

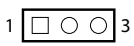
The figure below shows the location of the jumpers and connectors.



Jumpers

CMOS Clear Selection

Connector type: 1x3 3-pin header, 2.54mm pitch
Connector location: JP1

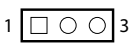


Pin	Settings
1-2 On	Normal
2-3 On	Clear CMOS

1-2 On: default

AT/ATX Mode Selection

Connector type: 1x3 3-pin header, 2.54mm pitch
Connector location: JP3

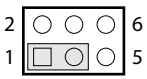


Pin	Settings
1-2 On	ATX Mode
2-3 On	AT Mode

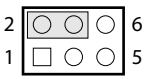
1-2 On: default

COM1 Pin1/Pin9 Selection

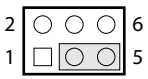
Connector type: 2x3 6-pin header, 2.54mm pitch
Connector location: JP5



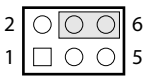
1-3 On



2-4 On



3-5 On (Default)



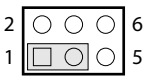
4-6 On (Default)

Pin	Settings
1-3 On	COM1_Pin1: +5V
2-4 On	COM1_Pin9: +12V
3-5 On	COM1_Pin1: DCD#
4-6 On	COM1_Pin9: RI#

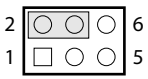
3-5 On, 4-6 On: default

COM2 Pin1/Pin8 Selection

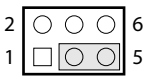
Connector type: 2x3 6-pin header, 2.54mm pitch
Connector location: JP8



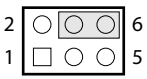
1-3 On



2-4 On



3-5 On (Default)



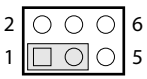
4-6 On (Default)

Pin	Settings
1-3 On	COM2_Pin1: +5V
2-4 On	COM2_Pin8: +12V
3-5 On	COM2_Pin1: DCD#
4-6 On	COM2_Pin8: RI#

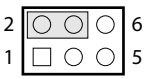
3-5 On, 4-6 On: default

COM3 Pin1/Pin8 Selection

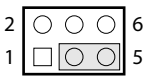
Connector type: 2x3 6-pin header, 2.54mm pitch
Connector location: JP14



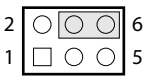
1-3 On



2-4 On



3-5 On (Default)



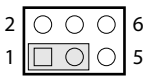
4-6 On (Default)

Pin	Settings
1-3 On	COM3_Pin1: +5V
2-4 On	COM3_Pin8: +12V
3-5 On	COM3_Pin1: DCD#
4-6 On	COM3_Pin8: RI#

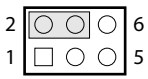
3-5 On, 4-6 On: default

COM4 Pin1/Pin8 Selection

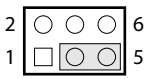
Connector type: 2x3 6-pin header, 2.54mm pitch
Connector location: JP15



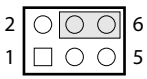
1-3 On



2-4 On



3-5 On (Default)



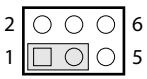
4-6 On (Default)

Pin	Settings
1-3 On	COM4_Pin1: +5V
2-4 On	COM4_Pin8: +12V
3-5 On	COM4_Pin1: DCD#
4-6 On	COM4_Pin8: RI#

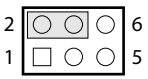
3-5 On, 4-6 On: default

COM5 Pin1/Pin8 Selection

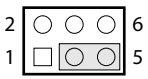
Connector type: 2x3 6-pin header, 2.54mm pitch
Connector location: JP16



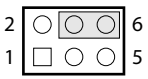
1-3 On



2-4 On



3-5 On (Default)



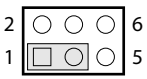
4-6 On (Default)

Pin	Settings
1-3 On	COM5_Pin1: +5V
2-4 On	COM5_Pin8: +12V
3-5 On	COM5_Pin1: DCD#
4-6 On	COM5_Pin8: RI#

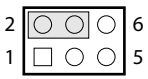
3-5 On, 4-6 On: default

COM6 Pin1/Pin8 Selection

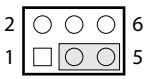
Connector type: 2x3 6-pin header, 2.54mm pitch
Connector location: JP17



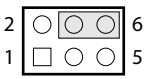
1-3 On



2-4 On



3-5 On (Default)



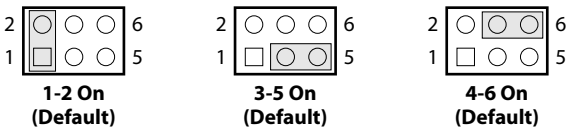
4-6 On (Default)

Pin	Settings
1-3 On	COM6_Pin1: +5V
2-4 On	COM6_Pin8: +12V
3-5 On	COM6_Pin1: DCD#
4-6 On	COM6_Pin8: RI#

3-5 On, 4-6 On: default

COM3 RS232 Selection (Default)

Connector type: 2x3 6-pin header, 2.54mm pitch
Connector location: JP20, JP12 and JP21

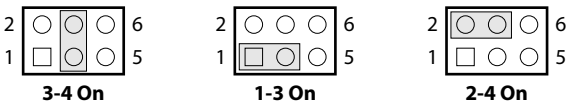


Pin	Settings
JP20: 1-2 On	RS232
JP12: 3-5 On, 4-6 On	
JP21: 3-5 On, 4-6 On	

1-2 On, 3-5 On, 4-6 On: default

COM3 RS422 Selection

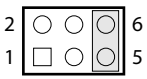
Connector type: 2x3 6-pin header, 2.54mm pitch
Connector location: JP20, JP12 and JP21



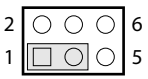
Pin	Settings
JP20: 3-4 On	COM3: RS422 (COM3_DTR#: RS422_RX- COM3_TXD: RS422_RX+ COM3_PIN8: RS422_TX- COM3_RXD: RS422_TX+)
JP12: 1-3 On, 2-4 On	
JP21: 1-3 On, 2-4 On	

COM3 RS485 Selection

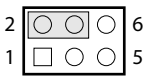
Connector type: 2x3 6-pin header, 2.54mm pitch
Connector location: JP20, JP12 and JP21



5-6 On



1-3 On

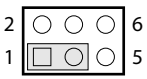


2-4 On

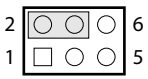
Pin	Settings
JP20: 5-6 On	COM3: RS485 (COM3_PIN8: RS485- COM3_RXD: RS485+)
JP12: 1-3 On, 2-4 On	
JP21: No Effect	

COM4 RS232/RS485 Selection

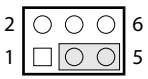
Connector type: 2x3 6-pin header, 2.54mm pitch
Connector location: JP13



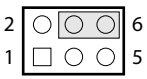
1-3 On



2-4 On



3-5 On (Default)



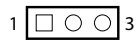
4-6 On (Default)

Pin	Settings
1-3 On	RS485 (COM4_Pin1: RS485- COM4_RXD: RS485+)
2-4 On	
3-5 On	RS232
4-6 On	

3-5 On, 4-6 On: default

eDP VDD Selection

Connector type: 1x3 3-pin header, 2.54mm pitch
Connector location: JP9



Pin	Settings
1-2 On	+3.3V
2-3 On	+5V

1-2 On: default

PCI Clock Selection

Connector type: 1x3 3-pin header, 2.54mm pitch
Connector location: JP19

Pin	Settings
1-2 On	33MHz PCI CLK
2-3 On	66MHz PCI CLK

1-2 On: default

Case Open Selection

Connector type: 1x2 2-pin header, 2.54mm pitch
Connector location: JP10

Pin	Settings
1-2 Connected	Normal
1-2 Open	Active Case Open

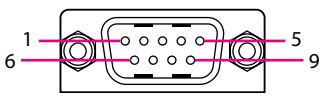
1-2 Connected: default

Connector Pin Definitions

External Connector

COM1 DB9 Male Connector

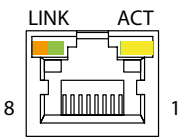
Connector type: DB-9 port, 9-pin D-Sub
Connector location: COM1



Pin	Definition	Pin	Definition
1	COM1_PIN1	2	COM1_RXD#
3	COM1_TXD#	4	COM1_DTR#
5	COM1_GND	6	COM1_DSR#
7	COM1_RTS#	8	COM1_CTS#
9	COM1_PIN9		

LAN1 Connector

Connector type: RJ45 port with LEDs
Connector location: LAN1



Act	Status
Flashing Yellow	Data activity
Off	No activity

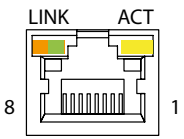
Link	Status
Steady Orange	1G network link
Steady Green	100Mbps network link
Off	10Mbps or no link

Pin	Definition	Pin	Definition
1	MDI1_0+	2	MDI1_0-
3	MDI1_1+	4	MDI1_2+
5	MDI1_2-	6	MDI1_1-
7	MDI1_3+	8	MDI1_3-

Note:
LAN1 connector supports AMT and Wake-on-LAN.

LAN2 Connector

Connector type: RJ45 port with LEDs
Connector location: LAN2



Act	Status
Flashing Yellow	Data activity
Off	No activity

Link	Status
Steady Orange	1G network link
Steady Green	100Mbps network link
Off	10Mbps or no link

Pin	Definition	Pin	Definition
1	MDI2_0+	2	MDI2_0-
3	MDI2_1+	4	MDI2_2+
5	MDI2_2-	6	MDI2_1-
7	MDI2_3+	8	MDI2_3-

Note:
LAN2 connector supports Wake-on-LAN.

Internal Connectors

System Fan Connector

Connector type: 1x4 4-pin header, 2.54mm pitch
Connector location: SYS_FAN1

Pin	Definition	Pin	Definition
1	GND	2	+12V
3	FAN Speed Detection2	4	FAN Speed Control2

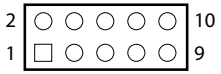
System Fan Connector

Connector type: 1x4 4-pin header, 2.54mm pitch
Connector location: SYS_FAN2

Pin	Definition	Pin	Definition
1	GND	2	+12V
3	FAN Speed Detection4	4	FAN Speed Control4

Digital I/O Connector

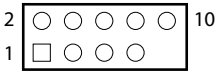
Connector type: 2x5 10-pin header, 2.0mm pitch
Connector location: JP11



Pin	Definition	Pin	Definition
1	SIO_ GPO74 (0xA06 Bit4, High)	2	SIO_ GPI70 (0xA06 Bit0, High)
3	SIO_ GPO75 (0xA06 Bit5, High)	4	SIO_ GPI71 (0xA06 Bit1, High)
5	SIO_ GPO76 (0xA06 Bit6, High)	6	SIO_ GPI72 (0xA06 Bit2, High)
7	SIO_ GPO77 (0xA06 Bit7, High)	8	SIO_ GPI73 (0xA06 Bit3, High)
9	GND	10	GND

USB 2.0 Connector

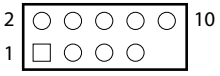
Connector type: 2x5 10-pin header, 2.54mm pitch
Connector location: F_USB2_2



Pin	Definition	Pin	Definition
1	+ 5V	2	+ 5V
3	USB2_12-	4	USB2_13-
5	USB2_12+	6	USB2_13+
7	GND	8	GND
9		10	N/C

USB 2.0 Connector

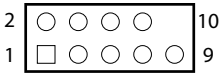
Connector type: 2x5 10-pin header, 2.54mm pitch
Connector location: F_USB2_1



Pin	Definition	Pin	Definition
1	+ 5V	2	+ 5V
3	USB2_7-	4	USB2_8-
5	USB2_7+	6	USB2_8+
7	GND	8	GND
9		10	N/C

System Panel Connector

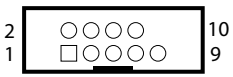
Connector type: 2x5 10-pin header, 2.54mm pitch
Connector location: F_PANEL1



Pin	Definition	Pin	Definition
1	HD LED+	2	Power LED+
3	HD LED-	4	Power LED-
5	RESET-	6	Power+
7	RESET+	8	Power-
9	N/C	10	

COM2 Internal Serial Port Connector

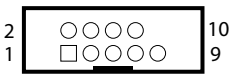
Connector type: 2x5 10-pin header, 2.54mm pitch
Connector location: COM2



Pin	Definition	Pin	Definition
1	COM2_PIN1	2	COM2_DSR#
3	COM2_RXD	4	COM2_RTS#
5	COM2_TXD	6	COM2_CTS#
7	COM2_DTR#	8	COM2_PIN8
9	GND	10	

COM3 Internal Serial Port Connector

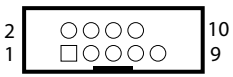
Connector type: 2x5 10-pin header, 2.54mm pitch
Connector location: COM3



Pin	Definition	Pin	Definition
1	COM3_PIN1	2	COM3_DSR#
3	COM3_RXD	4	COM3_RTS#
5	COM3_TXD	6	COM3_CTS#
7	COM3_DTR#	8	COM3_PIN8
9	GND	10	

COM4 Internal Serial Port Connector

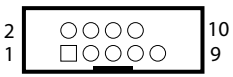
Connector type: 2x5 10-pin header, 2.54mm pitch
Connector location: COM4



Pin	Definition	Pin	Definition
1	COM4_PIN1	2	COM4_DSR#
3	COM4_RXD	4	COM4_RTS#
5	COM4_TXD	6	COM4_CTS#
7	COM4_DTR#	8	COM4_PIN8
9	GND		

COM5 Internal Serial Port Connector

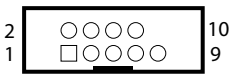
Connector type: 2x5 10-pin header, 2.54mm pitch
Connector location: COM5



Pin	Definition	Pin	Definition
1	COM5_PIN1	2	COM5_DSR#
3	COM5_RXD	4	COM5_RTS#
5	COM5_TXD	6	COM5_CTS#
7	COM5_DTR#	8	COM5_PIN8
9	GND		

COM6 Internal Serial Port Connector

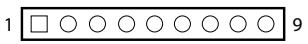
Connector type: 2x5 10-pin header, 2.54mm pitch
Connector location: COM6



Pin	Definition	Pin	Definition
1	COM6_PIN1	2	COM6_DSR#
3	COM6_RXD	4	COM6_RTS#
5	COM6_TXD	6	COM6_CTS#
7	COM6_DTR#	8	COM6_PIN8
9	GND		

Debug Pin Header

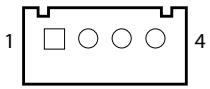
Connector type: 1x9 9-pin header, 2.0mm pitch
Connector location: JP2



Pin	Definition	Pin	Definition
1	LFRAME_N	2	LAD3
3	LAD2	4	LAD1
5	LAD0	6	GND
7	RST#	8	LPC_CLK
9	+3.3V		

SMBus Header

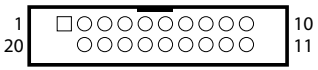
Connector type: 1x4 4-pin header, 1.25mm pitch
Connector location: SMBUS1



Pin	Definition	Pin	Definition
1	+5V	2	SMB_CLK_MAIN
3	SMB_DATA_MAIN	4	GND

Dual Front USB 3.0 Header

Connector type: 2x10 20-pin header
Connector location: F_USB3_1



Pin	Definition	Pin	Definition
1	+5V	2	USB3_RX5-
3	USB3_RX5+	4	GND
5	USB3_TX5-	6	USB3_TX5+
7	GND	8	USB2_11-
9	USB2_11+	10	N/C
11	USB2_10+	12	USB2_10-
13	GND	14	USB3_TX6+
15	USB3_TX6-	16	GND
17	USB3_RX6+	18	USB3_RX6-
19	+5V		

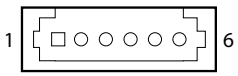
CPU Fan Connector

Connector type: 1x4 4-pin header, 2.54mm pitch
Connector location: CPU_FAN1

Pin	Definition	Pin	Definition
1	GND	2	+12V
3	FAN Speed Detection1	4	FAN Speed Control1

eDP Backlight Control Pin Header

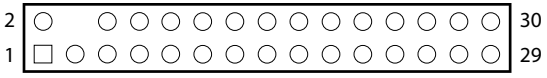
Connector type: 1x6 6-pin header, 2.0mm pitch
Connector location: EDP_P1



Pin	Definition	Pin	Definition
1	GND	2	GND
3	EDP_BKL_CTL	4	EDP_BKL_EN
5	+12V	6	+12V

eDP Signal Pin Header

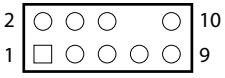
Connector type: 2x15 30-pin header, 2.0mm pitch
Connector location: EDP1



Pin	Definition	Pin	Definition
1	VDD_PANEL	2	VDD_PANEL
3	VDD_PANEL	4	
5	HPDET_DPD	6	HPDET_DPD
7	N/C	8	N/C
9	N/C	10	N/C
11	N/C	12	N/C
13	GND	14	GND
15	N/C	16	N/C
17	EDP_TX3-	18	EDP_TX3+
19	EDP_TX0-	20	EDP_TX0+
21	EDP_TX1-	22	EDP_TX1+
23	EDP_TX2-	24	EDP_TX2+
25	GND	26	GND
27	N/C	28	N/C
29	EDP_AUX-	30	EDP_AUX+

Front Panel Audio Pin Header

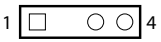
Connector type: 2x5 10-pin header, 2.54mm pitch
Connector location: F_AUDIO1



Pin	Definition	Pin	Definition
1	MIC_IN_L	2	GND
3	MIC_IN_R	4	+3.3V
5	AUD_OUT_R	6	MIC_IN_RET
7	GND		
9	AUD_OUT_L	10	AUD_OUT_RET

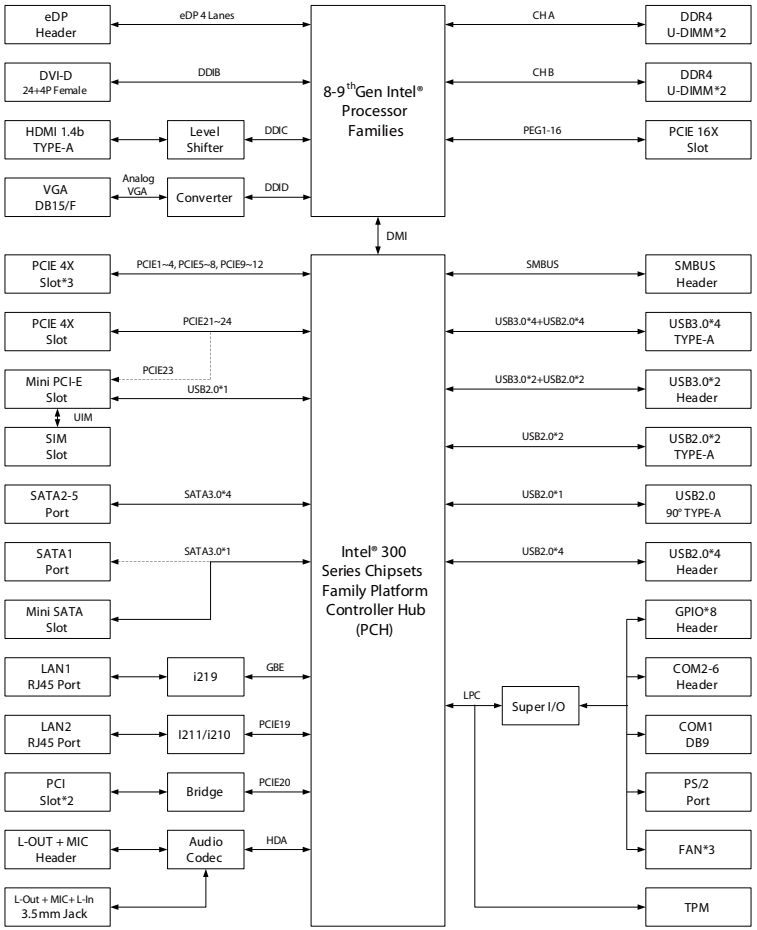
S/PDIF Out

Connector type: 1x4 4-pin header, 2.54mm pitch
Connector location: JP18



Pin	Definition
1	+5V
2	
3	SPDIF_OUT
4	GND

Block Diagram



Chapter 3: BIOS Setup

This chapter describes how to use the BIOS setup program for NEX 913C. 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 NexCOBOT website at www.nexcobot.com.

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.

Press the 

key to enter Setup:

Legends

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

Exits the BIOS Setup Utility.

Scrolls forward through the values or options of the highlighted field.

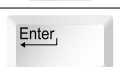
Scrolls backward through the values or options of the highlighted field.

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 Date

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

System Time

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

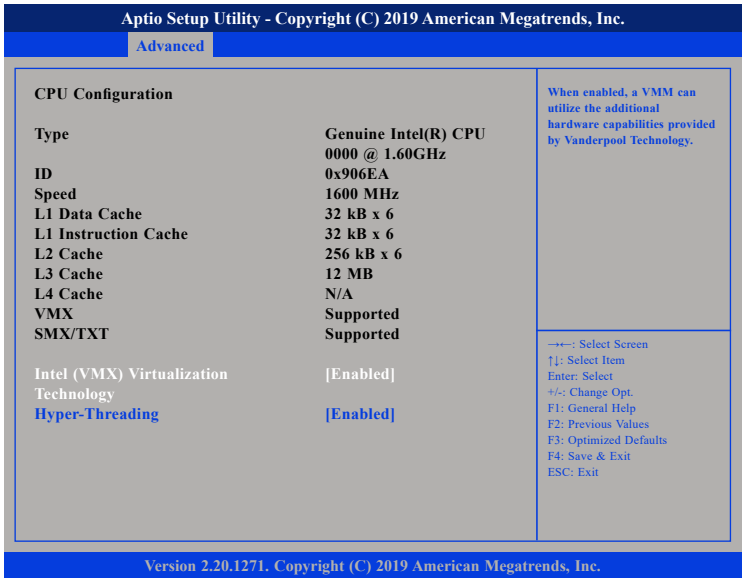
Advanced

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

Setting incorrect field values may cause the system to malfunction.

CPU Configuration

This section is used to configure the CPU settings.



Intel® (VMX) Virtualization Technology

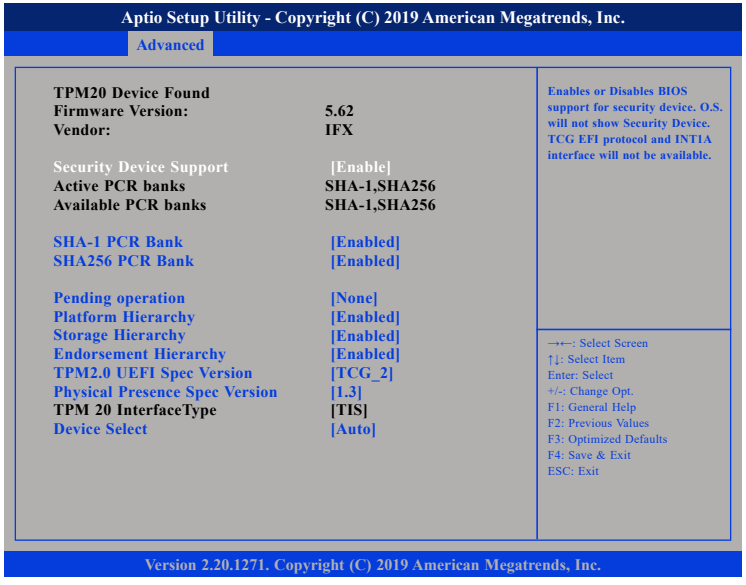
When this field is set to Enabled, the VMM can utilize the additional hardware capabilities provided by Vanderpool Technology.

Hyper-Threading

Enables or disables hyper-threading technology.

Trusted Computing

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



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

SHA-1 PCR Bank
Enables or disables SHA-1 PCR Bank.

SHA256 PCR Bank
Enables or disables SHA256 PCR Bank.

Pending operation
Schedules an operation for the security device.

Platform Hierarchy
Enables or disables platform hierarchy.

Storage Hierarchy
Enables or disables storage hierarchy.

Endorsement Hierarchy
Enables or disables endorsement hierarchy.

TPM2.0 UEFI Spec Version
Configures the TPM2.0 UEFI spec version.

Physical Presence Spec Version
Configures the physical presence spec version.

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.

ACPI Settings

This section is used to configure ACPI settings.

Enable ACPI Auto Configuration

Enables or disables BIOS ACPI auto configuration.

Enable Hibernation

Enables or disables system ability to hibernate (OS/S4 Sleep State). This option may not be effective with some OS.

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).

Super IO Configuration

This section is used to configure the serial ports.

COM1 to COM6

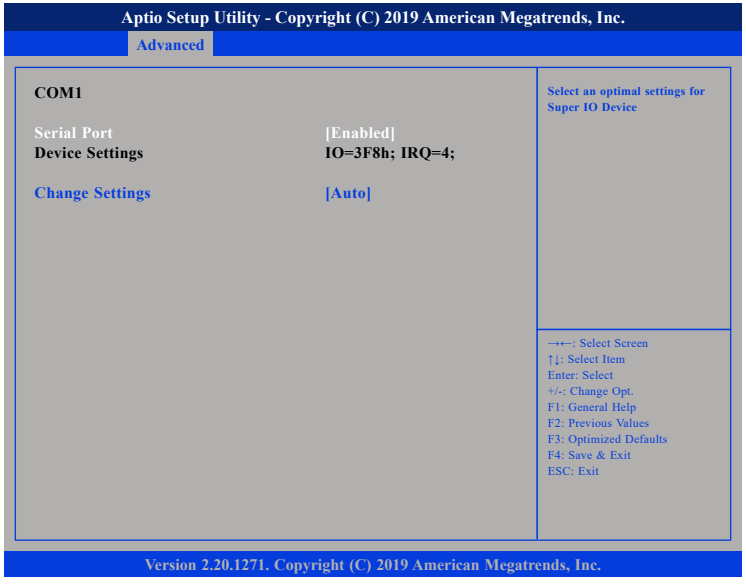
Configuration settings for serial port 1 to port 6.

CHASSIS OPEN

Enables or disables case open detection function.

COM1

This section is used to configure serial port 1.



Serial Port

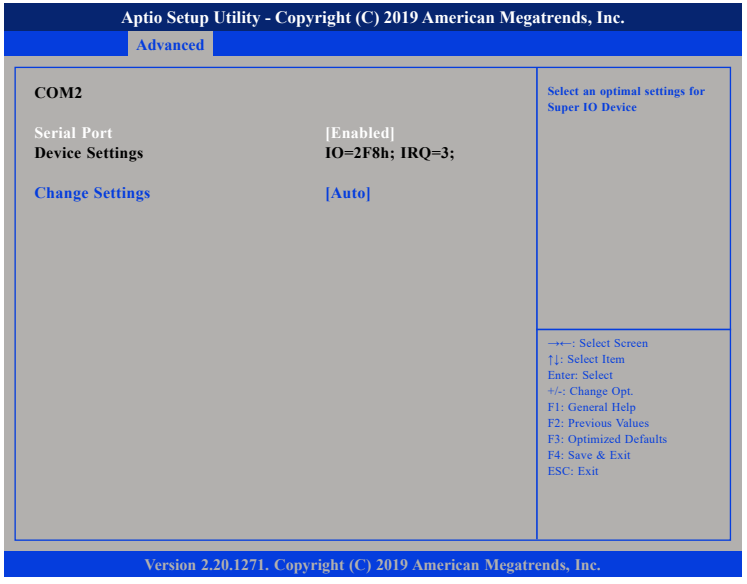
Enables or disables the serial port.

Change Settings

Selects an optimal setting for the Super IO device.

COM2

This section is used to configure serial port 2.



Serial Port

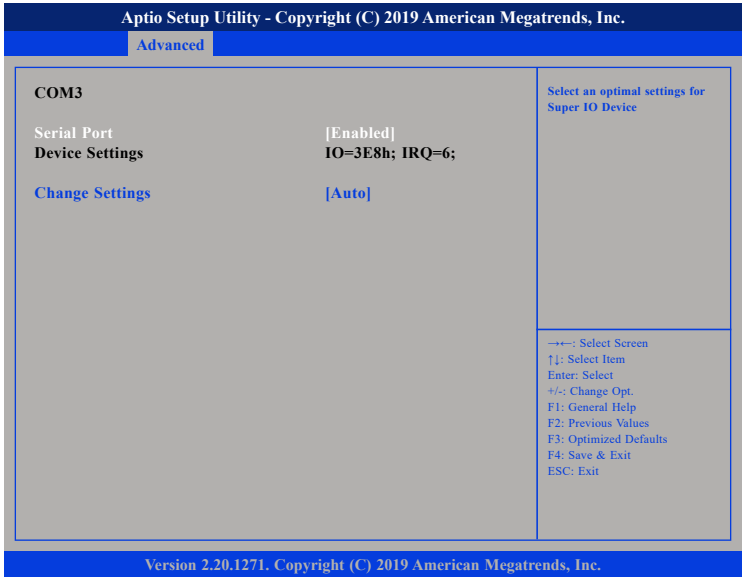
Enables or disables the serial port.

Change Settings

Selects an optimal setting for the Super IO device.

COM3

This section is used to configure serial port 3.



Serial Port

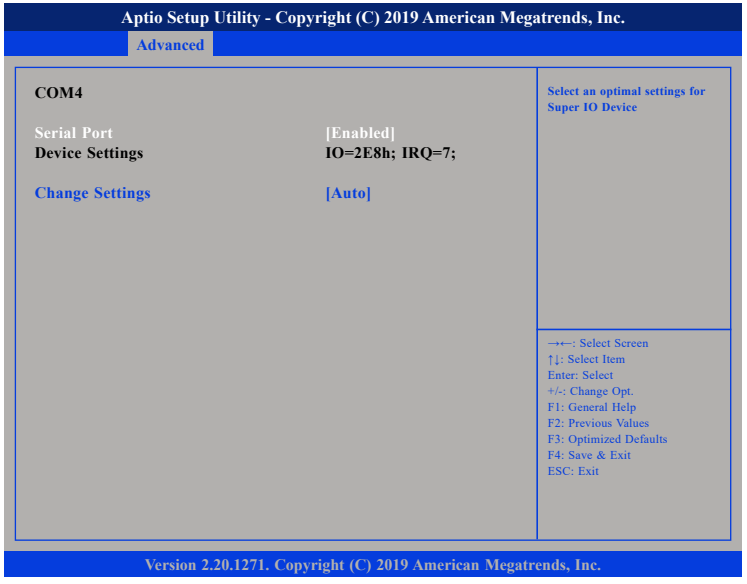
Enables or disables the serial port.

Change Settings

Selects an optimal setting for the Super IO device.

COM4

This section is used to configure serial port 4.



Serial Port

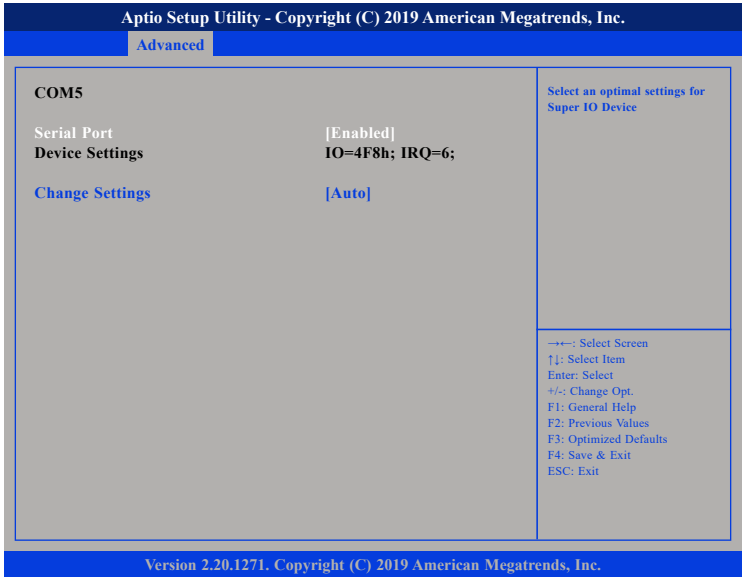
Enables or disables the serial port.

Change Settings

Selects an optimal setting for the Super IO device.

COM5

This section is used to configure serial port 5.



Serial Port

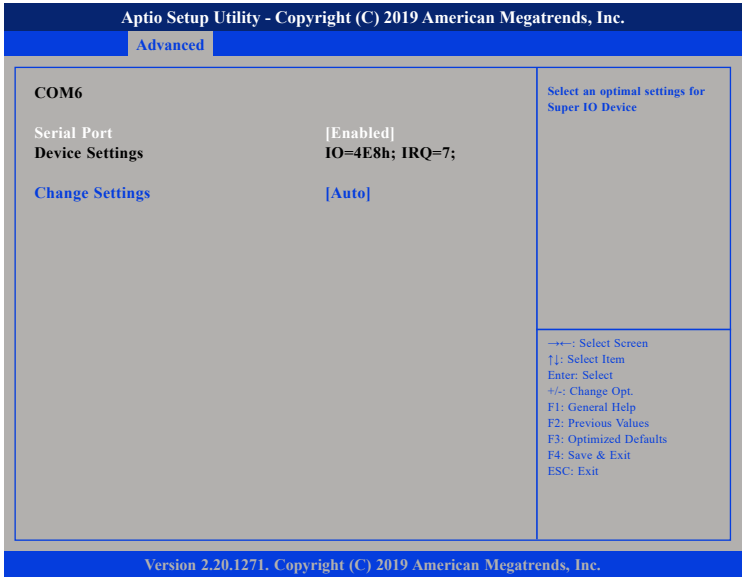
Enables or disables the serial port.

Change Settings

Selects an optimal setting for the Super IO device.

COM6

This section is used to configure serial port 6.



Serial Port

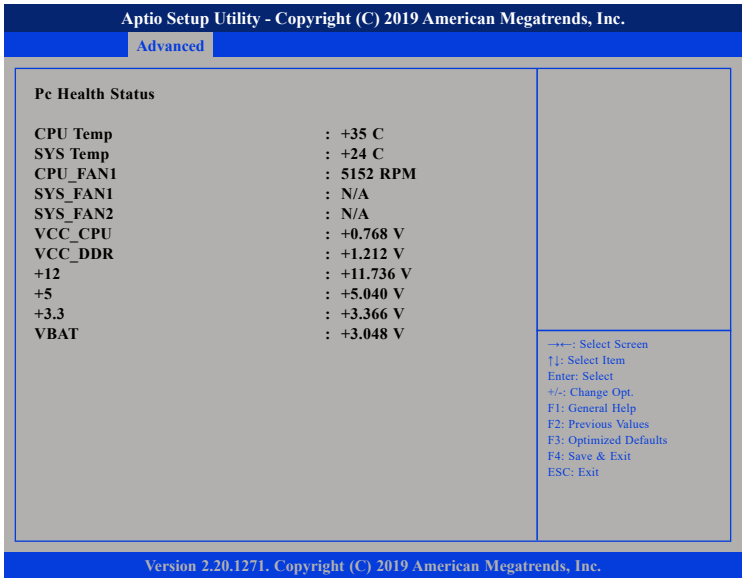
Enables or disables the serial port.

Change Settings

Selects an optimal setting for the Super IO device.

Hardware Monitor

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



CPU and SYS Temp
Detects and displays the current CPU and system temperature.

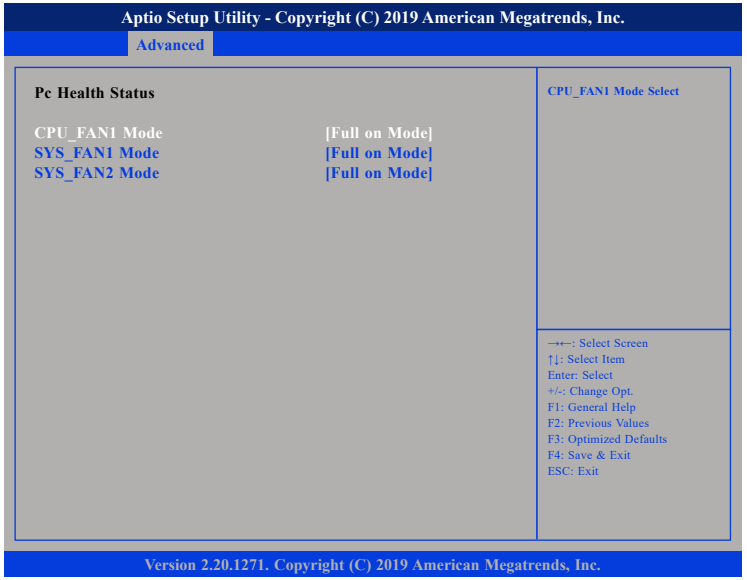
CPU_FAN1 Speed
Detects and displays the current CPU fan speed.

SYS_FAN1 and SYS_FAN2 Speed
Detects and displays the current system fan 1 and fan 2 speed.

VCC_CPU to VBAT
Detects and displays the output voltages.

Fan Function

This section is used to configure CPU fan and system fan settings.

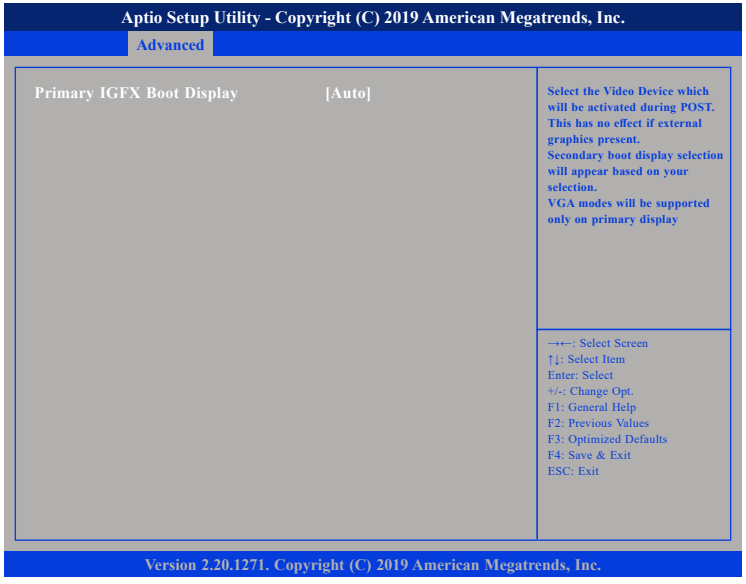


CPU_FAN1 Mode
Configures the mode of the CPU fan, the options are Full on Mode, Automatic Mode and Manual Mode.

SYS_FAN1 and SYS_FAN2 Mode
Configures the mode of system fan 1 and system fan 2, the options are Full on Mode, Automatic Mode and Manual Mode.

Display Configuration

This section is used to configure the graphics settings.



Primary IGFX Boot Display
Select the video device which will be activated during POST. This has no effect if external graphics is present. Secondary boot display selection will appear based on your selection. VGA modes will be supported only on primary display. The options are Auto, DVI, eDP/LVDS, VGA and HDMI.

Power Button Control

This section is used to configure system power management settings.

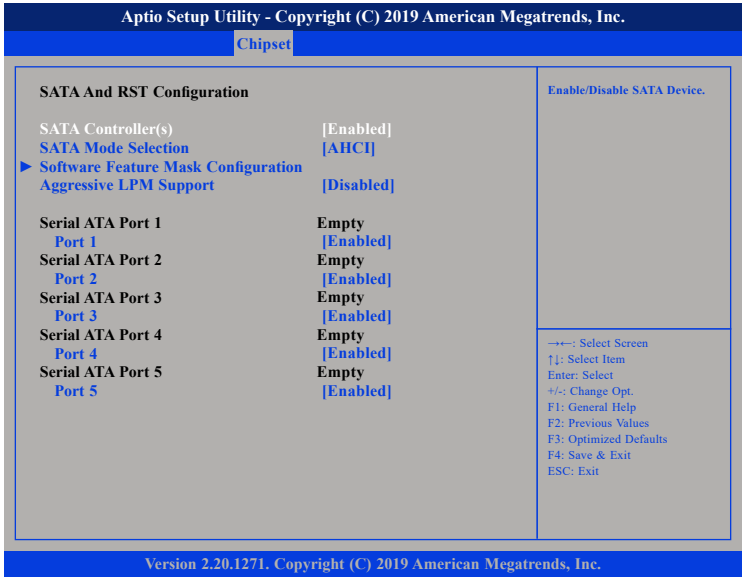
PowerOn After G3
Configures the power state when power is re-applied after a power failure (G3 state).

Soft-Off by PWR-BTTN
Configures the behavior of the power button when pressed. The options are Instant-Off and Delay 4 Sec.

ME Function Ctrl
Enables or disables ME function.

Network Stack
Enables or disables UEFI network stack.

SATA And RST Configuration



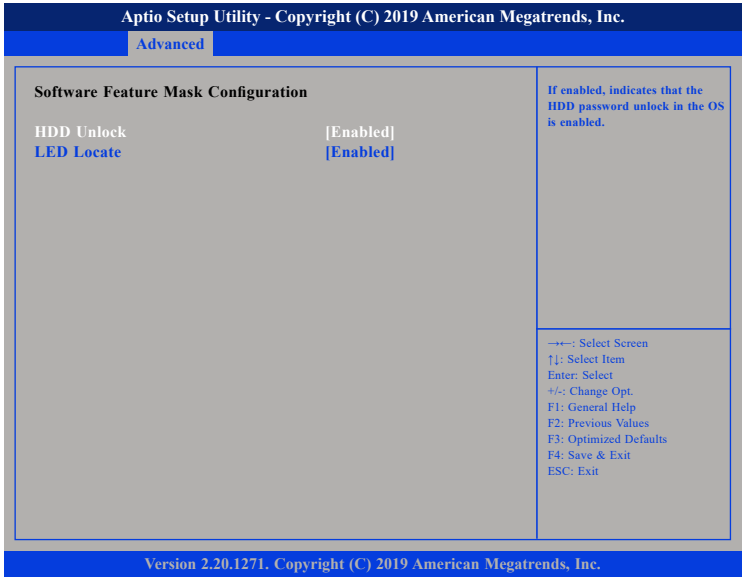
SATA Controller(s)
Enables or disables the SATA controller.

SATA Mode Selection
Configures the SATA mode. The options are AHCI and Intel RST Premium With Intel Optane System Acceleration.

Aggressive LPM Support
Enables or disables PCH to aggressively enter link power state.

Port 1 to Port 5
Enables or disables SATA port 1 to port 5.

Software Feature Mask Configuration

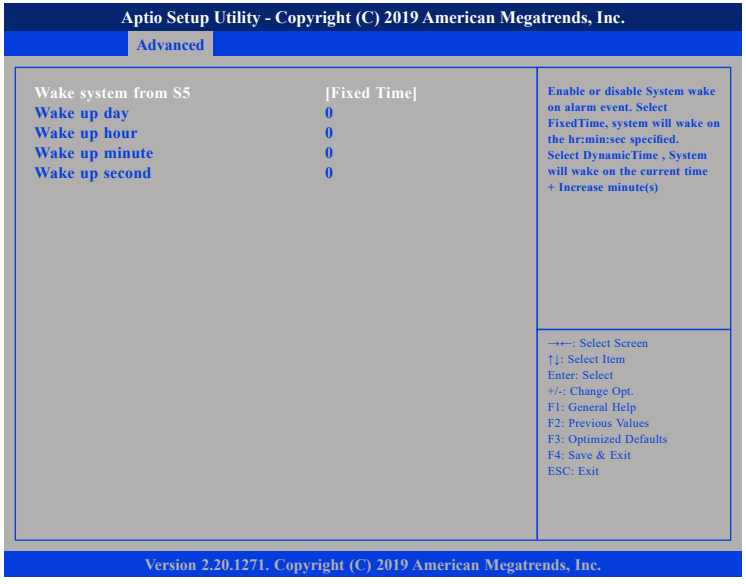


HDD Unlock
Enables or disables HDD password unlock in the OS.

LED Locate
Enables or disables detection of LED/SGPIO hardware and ping-to-locate feature.

S5 RTC Wake Settings

This section is used to configure S5 RTC wake settings.



Wake system from S5

Enables or disables the system to wake up from S5.

Fixed Time: System will wake on the hr:min:sec specified.

CSM Configuration

This section is used to configure the compatibility support module features.

CSM Support

This field is used to enable or disable CSM support, if Auto option is selected, based on OS, CSM will be enabled or disabled automatically.

Option ROM Messages

This field is used to set the display mode for Option ROM. The options are Force BIOS and Keep Current.

Boot option filter

Configures which devices the system will boot from.

Network
Controls the execution of UEFI and Legacy PXE OpROM.

Storage
Controls the execution of UEFI and Legacy Storage OpROM.

Video
Controls the execution of UEFI and Legacy Video OpROM.

Other PCI devices
Configures the OpROM execution policy for devices other than Network, Storage or Video.

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
Enters the System Agent (SA) Configuration submenu.

PCH-IO Configuration
Enters the PCH-IO Configuration submenu.

System Agent (SA) Configuration

Graphics Configuration
Enters the graphics configuration submenu.

Graphics Configuration

Internal Graphics
Keep IGD enabled based on the setup options.

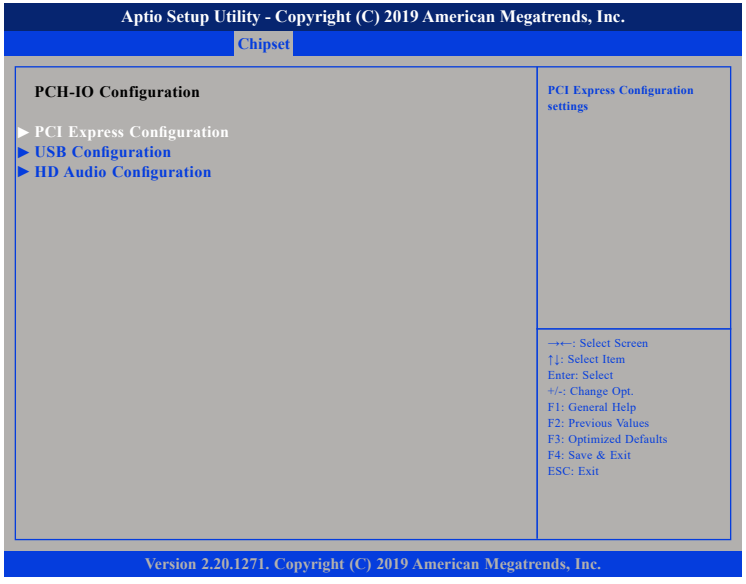
GTT Size
Configures the GTT memory size.

Aperture Size
Configures the Aperture size.

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

DVMT Total Gfx Mem
Configures the DVMT 5.0 total graphic memory size used by the IGD.

PCH-IO Configuration

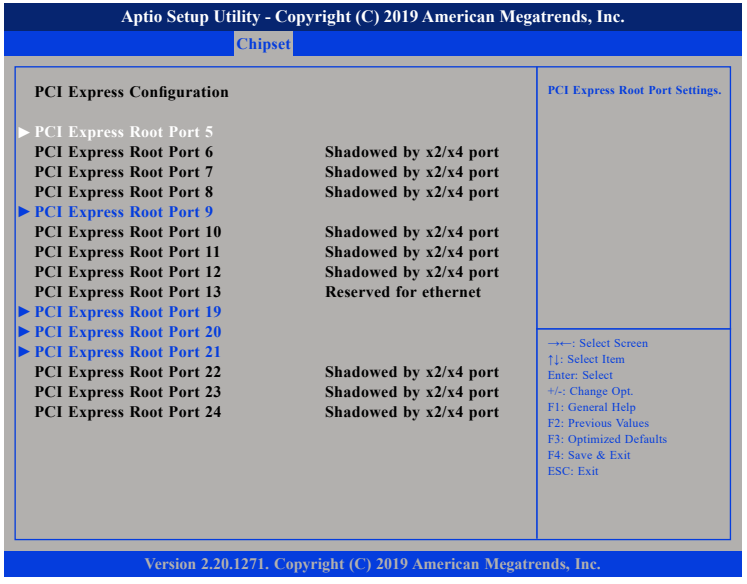


PCI Express Configuration
Enters the PCI Express configuration submenu.

USB Configuration
Enters the USB configuration submenu.

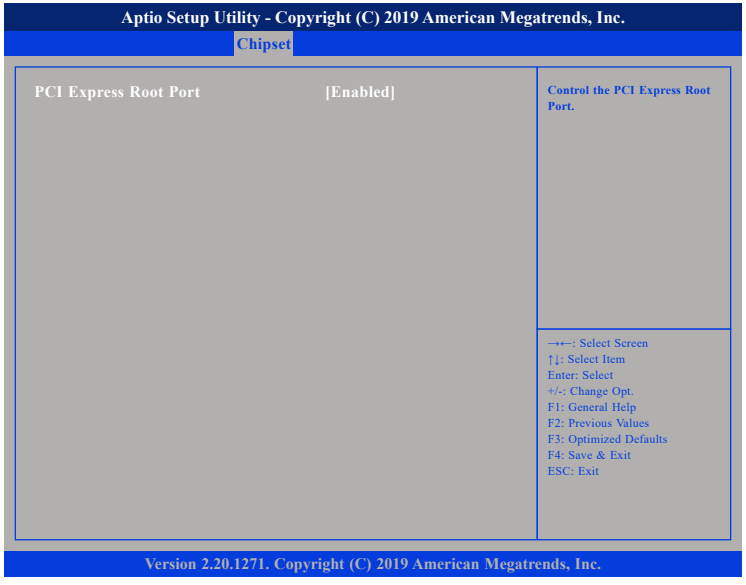
HD Audio Configuration
Enters the HD Audio configuration submenu.

PCI Express Configuration



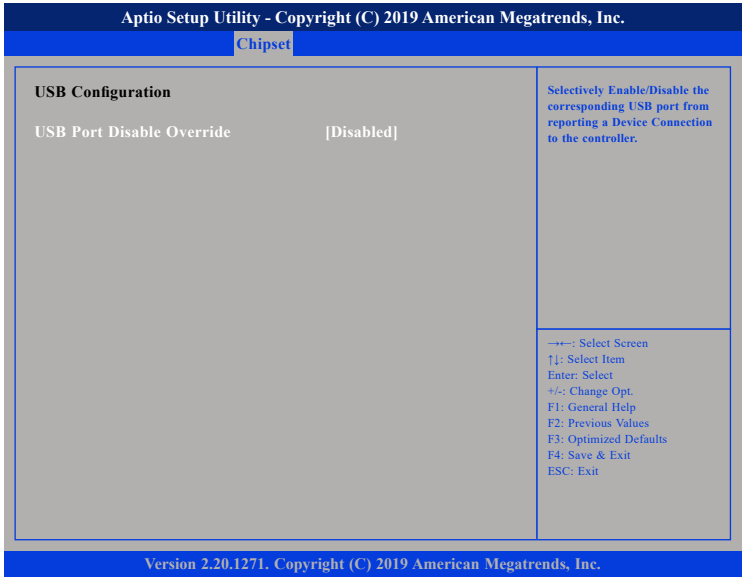
PCI Express Root Port 5, Port 9, Port 19, Port 20 and Port 21
Enters the PCI Express Root Port 5, Port 9, Port 19, Port 20 and Port 21 submenus.

PCI Express Root Port 5, Port 9, Port 19, Port 20 and Port 21



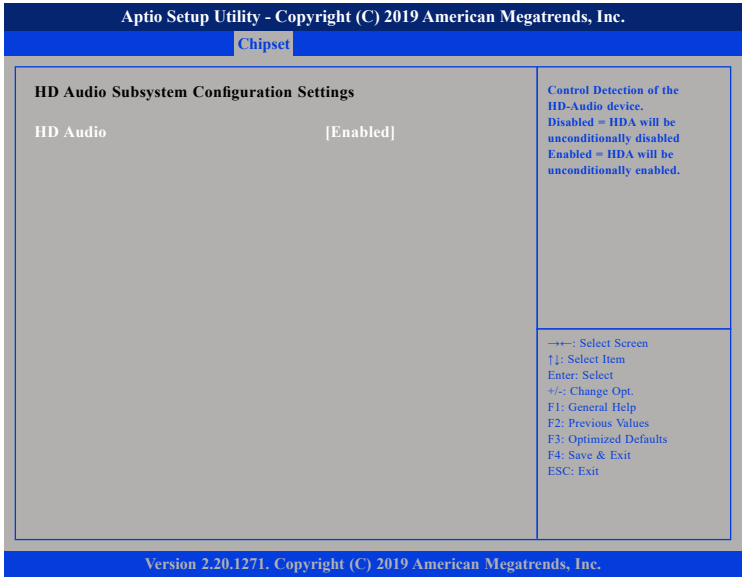
PCI Express Root Port
Enables or disables the PCI Express port.

USB Configuration



USB Port Disable Override
Enables or disables the USB port from reporting a device connection to the controller.

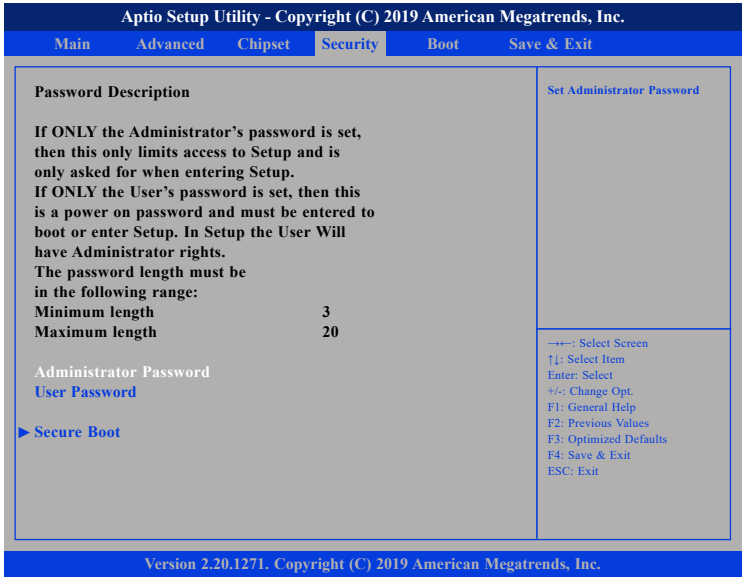
HD Audio Configuration



HD Audio
Control detection of the HD-Audio device.

Disabled	HDA will be unconditionally disabled.
Enabled	HDA will be unconditionally enabled.

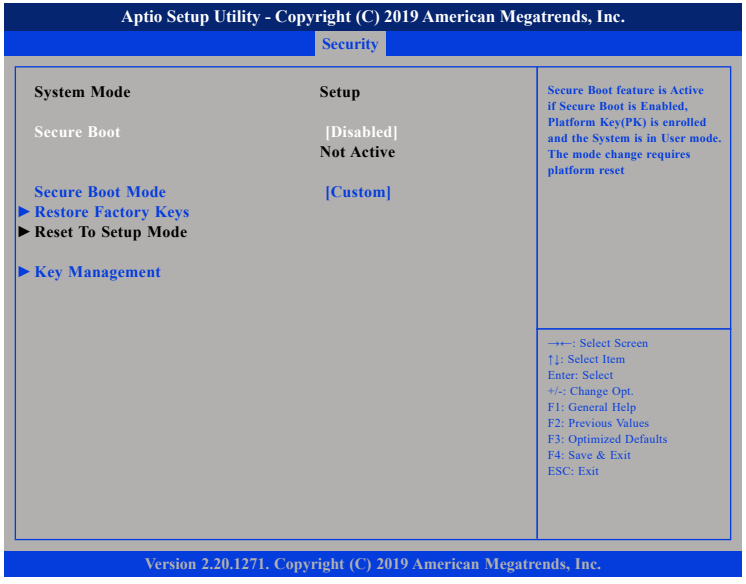
Security



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

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

Secure Boot



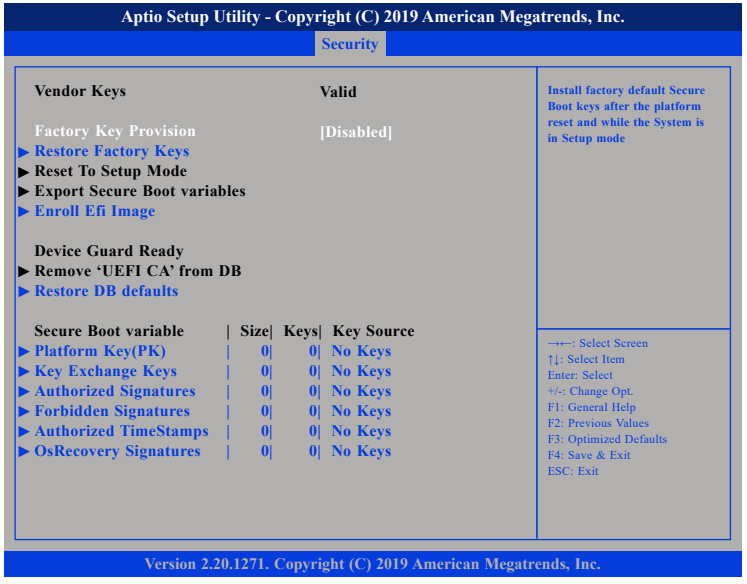
Secure Boot
Select this to enable or disable Secure Boot. Secure Boot only works when the system runs in user mode.

Restore Factory Keys
Force the system to switch to user mode and install factory default secure boot key databases.

Secure Boot Mode
Select this to configure the Secure Boot mode.

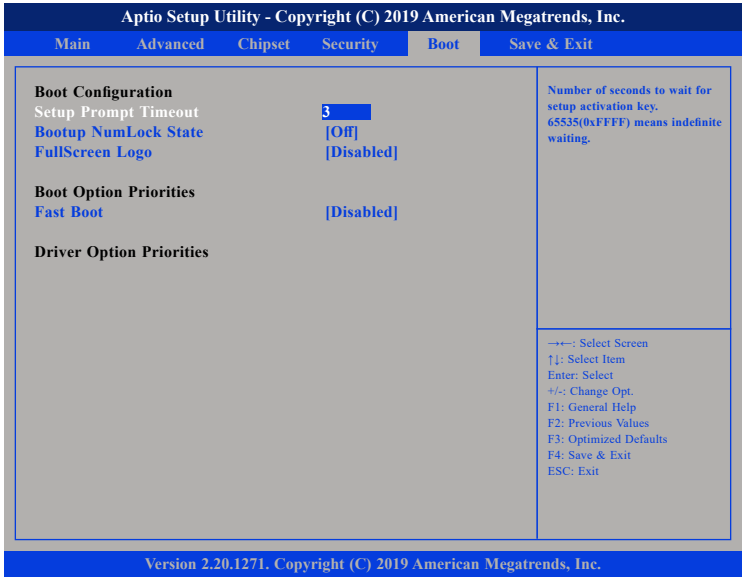
Standard	Fixed secure boot policy.
Custom	Secure boot policy variables can be configured by a physically present user without full authentication.

Key Management



Factory Key Provision
Select this to enable or disable the installation of factory default secure boot keys after the platform resets during system setup mode.

Boot



Setup Prompt Timeout

Configures the number of seconds to wait for setup activation key. 65535 (0xFFFF) means indefinite waiting.

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.

FullScreen Logo

Enabled	Displays OEM logo instead of the POST messages.
Disabled	Displays normal POST messages.

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

When enabled, the BIOS will shorten or skip some check items during POST. This will decrease the time needed to boot the system.

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.