neXCOBOT

NexCOBOT Co., Ltd.

IoT Automation Solutions Business Group
Industrial Robot Controller
RCB 600
User Manual

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Chapter 3: BIOS Setup

PREFACE

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Acknowledgements

RCB 600 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.

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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.

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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.

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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.

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Package Contents

Before continuing, verify that the RCB 600 package that you received is complete. Your package should have all the items listed in the following table.

Item	Name	Qty
1	RCB600 Mainboard	1
2	SATA Cable	1
3	SATA POWER Cable	1
4	COMPORT Cable	1

Optional Accessories

Item	Part Number	Name	Description
1	603ATA0162X00	SATA Cable	SATA CABLE ST:MD-6110066 SATA 7P/F/LATCH 180D TO 7P/F/LATCH 180D BLUE L=250mm
2	603POW0510X00	SATA POWER Cable	SATA POWER CABLE ST:MD-6110034 SATA 15P/F/LATCH TO 1x4P H.S PH:2.5mm L=250mm
3	60233SIO62X00	COMPORT Cable	COMPORT CABLE CP:NEX-110819-01 UL2651#28x9C-DB9+TU1001-10 L:200mm
4	5050200117X00	CPU COOLER	CPU COOLER FOR NEX614A VER:A COOLJAG:JACDD04A-2D 60x60x26.5mm ANODE

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Ordering Information

The following below provides ordering information for RCB 600.

RCB 600 (P/N: 10J200RCB08X0)

Mini-ITX, 11th Gen Intel® Core™ i processors , 2 x DDR4 SO-DIMM,
1 x VGA, 1x HDMI, 7 x USB 3.2 (Gen1), 4 x USB 2.0, 3 x GbE LAN,
1 x SATA, 2 x RS232, 2 x RS232/422/485, 16-bit GPIO, 2 x DI/DO, WDT,
SMBus, 2 x M.2 Key B ,1 x mini-PCIe, onboard TPM, 24V DC

Optional Accessories

- SATA Cable (P/N: 603ATA0162X00)
- SATA POWER Cable (P/N: 603POW0510X00)
- COMPORT Cable (P/N: 60233SIO62X00)
- CPU Cooler (P/N: 5050200117X00)

CHAPTER 1: PRODUCT INTRODUCTION

Overview
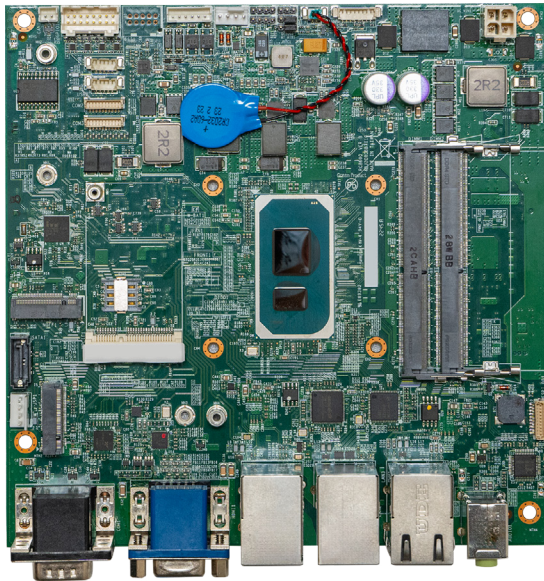
Key Features

- 11th Gen Intel® Core™ i processors

- 1 x VGA and 1 x HDMI display ports

- 2 x SO-DIMM DDR4 with non-ECC 3200MHz up to 64GB

- 2 x Intel® GbE LAN ports and 1 x 2.5 GbE LAN

- 7 x USB 3.2 (Gen1), 4 x USB 2.0

- 2 x RS232 and 2 x RS232/422/485

- 1 x SATA 3.0 port

- 1 x Full size mini-PCIe slot

- 2 x M.2 Key B

- Onboard TPM

- 24V DC input

Hardware Specifications

CPU Support

- 11th Gen Intel® Core™ i processors
- i7-1185G7E (4C, 1.8GHz, up to 4.4GHz, TDP-up 28W) standard
- i5-1145G7E (4C, 1.5GHz, up to 4.1GHz, TDP-up 28W) optional
- i3-1115G4E (2C, 2.2GHz, up to 3.9GHz, TDP-up 28W) optional

Main Memory

- DDR4 3200 SO-DIMM sockets supported dual channel, max 64GB

Display

- 1 x VGA (resolution up to 1920 x 1080@60Hz)
- 1 x HDMI 1.4b (resolution up to 3840 x 2160@30Hz)

Tip: Multiple display: (VGA+HDMI)

System

- 7 x USB 3.2 (Gen1), 4 x USB 2.0
- 2 x RS232, 2 x RS232/485/422, 1 x CAN bus
- Realtek HDA Codec
- 1 x Front panel header, 16 bit digital I/O (8-in/8-out), 2 x DI/DO
- WDT, SMBus, onboard TPM
- 1 x Fan connector

Storage

- 1 x SATA 3.0, 1 x SATA power connector (+5V)
- 1 x M.2 2242/2280 Key B (support SATA/PCIe)

Expansion Slot

- 1 x Full size mPCIe x1 with nano SIM (support PCIe/USB 2.0 Interface)
- 1 x M.2 3052/3042 Key B (for LTE 5G), (USB 3.2 (Gen1)/PCIe) with nano SIM

Rear I/O

- 6 x USB 3.2 (Gen1)
- 1 x VGA, 1 x HDMI 1.4b
- 2 x DB9 (by COM 1,2)
- 3 x GbE LAN
  - LAN1: Intel® I219-LM
  - LAN2: Intel® I210-AT
  - LAN3: Intel® I226-IT
- 1 x 2 ports HD Audio Jack (Mic-in, Line-out)

Internal I/O

- 2 x USB 2.0
- 4 x serial ports:
  - 2 x RS232 (by COM 3,4)
  - 2 x RS232/485/422 (by COM1,2)
- 1 x CAN Bus
- 1 x Front panel header, 1 x 16 bit digital I/O (8-in/8-out)
- 2 x DI/DO, WDT, SMBus
- HA Audio:
  - 1 x Line-out, 1 x Mic-in
- 1 x 4-Pin DC-in (+24V)

Power Requirement

▪ 1 x 4-pin (2 x 2) ATX power connector
  - Input power DC 24V
▪ Support both AT and ATX power supply mode

Dimension

▪ 6.7"x 6.7" (170mm x 170 mm)

Environment

▪ Board level operation temperature: 0°C to 60°C
▪ Storage temperature: -40°C to 85°C
▪ Relative humidity:
  - 0% to 90% (operating, non-condensing)
  - 0% to 90% (non-operating, non-condensing)

Certifications

▪ CE/FCC Class A&IEC 61326-3-1

Support OS

▪ Windows 10 (64bit)
▪ Ubuntu 21.04.0/Kernel 5.8

Knowing Your RCB 600

Top View

I/O Interfaces

COM1A VGA LAN1
Intel® i219 LAN2
Intel® i210 LAN3
Intel® i226 Line Out

COM1B HDMI 1.4b USB 3.2
Gen1 Type-A USB 3.2
Gen1 Type-A USB 3.2
Gen1 Type-A Mic In
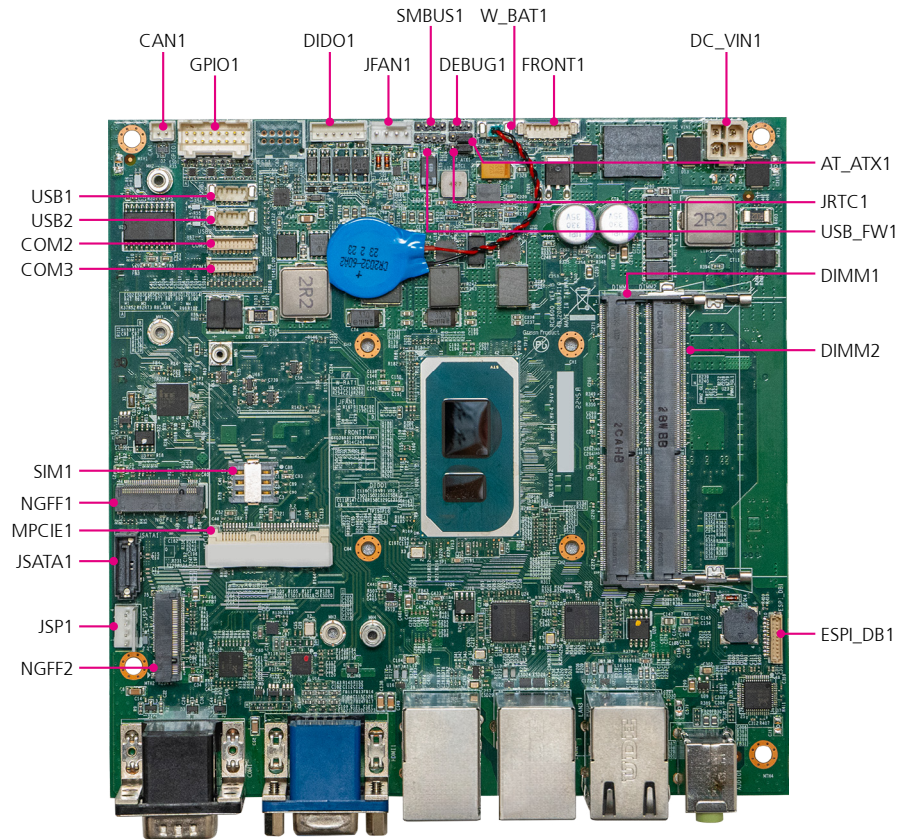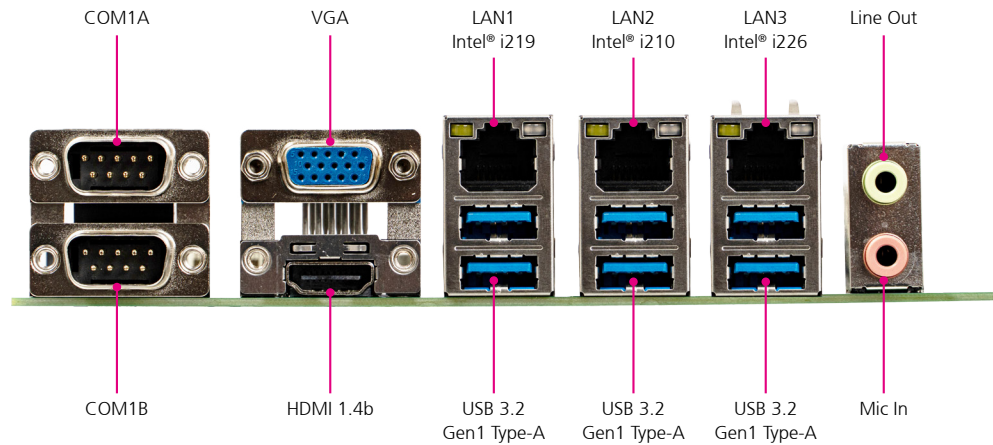
CHAPTER 2: JUMPERS AND CONNECTORS

This chapter describes how to set the jumpers and connectors on the RCB 600 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)
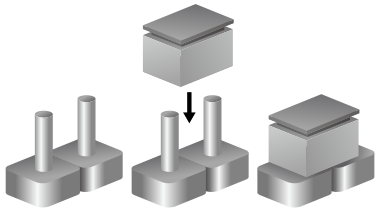
Three-Pin Jumpers: Pins 1 and 2 are Short
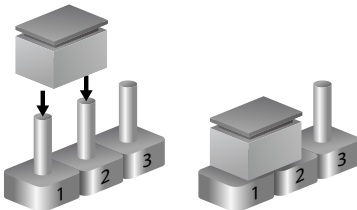
Locations of the Jumpers and Connectors

The figure below shows the location of the jumpers and connectors. Refer to this chapter for detailed pin settings and definitions of the connectors marked in pink on this figure.
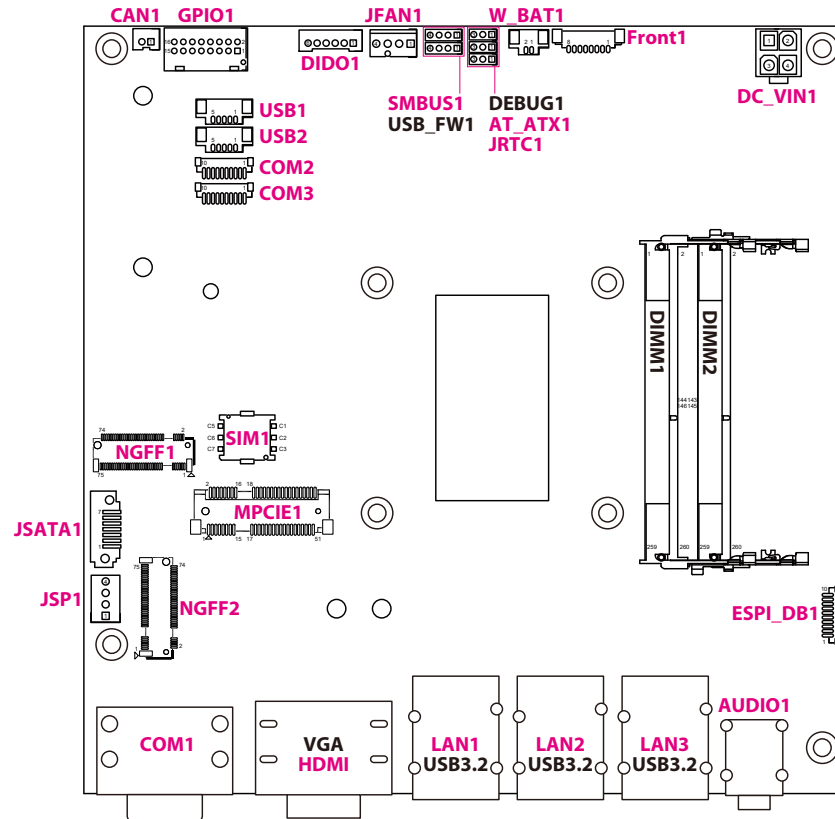
Jumpers

AT/ATX Power Type Selection

Connector location: AT_ATX1

3 ⬜⭕⭕ 1

Pin	Function
1-2 On	AT Mode (Default)
2-3 On	ATX Mode

RTC Clear

Connector location: JRTC1

3 ⬜⭕⭕ 1

Pin	Definition
1	+3VSB_RTC
2	RTCRST#
3	GND

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

Connector Pin Definitions

External I/O Interfaces

Audio Phone Jack

Connector location: AUDIO1

LINE OUT

MIC

Pin	Definition
1	AGND
2	MIC_OUT-L
3	AGND
4	MIC_JD
5	MIC_OUT-R
22	LINE_OUT_LC
23	AGND
24	LINEOUT_JD
25	LINE_OUT_RC

COM Ports

Connector location: COM1A (top), COM1B (bottom)
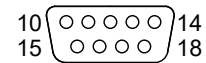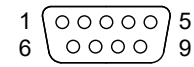
Pin	Definition	Pin	Definition
1	DCD#_R_COM1	10	DCD#_R_COM2
2	RXD_R_COM1	11	RXD_R_COM2
3	TXD_R_COM1	12	TXD_R_COM2
4	DTR#_R_COM1	13	DTR#_R_COM2
5	GND	14	GND
6	DSR#_R_COM1	15	DSR#_R_COM2
7	RTS#_R_COM1	16	RTS#_R_COM2
8	CTS#_R_COM1	17	CTS#_R_COM2
9	RI#_R_COM1	18	RI#_R_COM2

HDMI and VGA Ports

Connector type: HDMI, VGA ports
Connector location: HDMI1
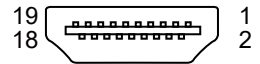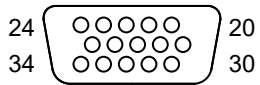
Pin	Definition	Pin	Definition
1	HDMI_D2+_C_1	10	HDMI_CK+_C_1
2	GND	11	GND
3	HDMI_D2-_C_1	12	HDMI_CK-_C_1
4	HDMI_D1+_C_1	13	NC
5	GND	14	NC
6	HDMI_D1-_C_1	15	HDMI_SCL_C_1
7	HDMI_D0+_C_1	16	HDMI_SDA_C_1
8	GND	17	GND
9	HDMI_D0-_C_1	18	+5V_HDMI

Pin	Definition	Pin	Definition
19	HDMI_HPD_C_1	27	VGA_GND
20	RED_VGA	28	+5V_CRT
21	GREEN_VGA	29	GND
22	BLUE_VGA	30	NC
23	NC	31	VGA_DDCDATA
24	GND	32	HSYNC
25	VGA_GND	33	VSYNC
26	VGA_GND	34	VGA_DDCCLK

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LAN and USB 3.2 Ports

Connector type: RJ45 port with LEDs, Dual USB 3.2 Gen 1 Type A ports
Connector location: LAN1

LAN1 LEDs Status

Left LED	Description
Blinking Yellow	Activity
Off	No active

Right LED	Description
Steady Green	1G Link
Steady Orange	100M Link
Off	10M Link
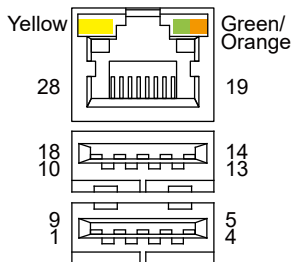
Pin	Definition	Pin	Definition
1	+5VSB_USB3	2	USB2_N6_C
3	USB2_P6_C	4	GND
5	USB31_RXN_2C	6	USB31_RXP_2C
7	GND	8	USB31_TXN_2C
9	USB31_TXP_2C	10	+5VSB_USB3
11	USB2_N4_C	12	USB2_P4_C
13	GND	14	USB31_RXN_4C
15	USB31_RXP_4C	16	GND

Pin	Definition	Pin	Definition
17	USB31_TXN_4C	18	USB31_TXP_4C
19	TCT_LAN1	20	MDI_PLUS0
21	MDI_MINUS0	22	MDI_PLUS1
23	MDI_MINUS1	24	MDI_PLUS2
25	MDI_MINUS2	26	MDI_PLUS3
27	MDI_MINUS3	28	GND
29	ACTPW_LAN1	30	LAN1_LED_ACT#
31	LINK100_LAN1	32	LINK1G_LAN1

LAN and USB 3.2 Ports

Connector type: RJ45 port with LEDs, Dual USB 3.2 Gen 1 Type A ports
Connector location: LAN2

LAN2 LEDs Status

Left LED	Description
Blinking Yellow	Activity
Off	No active

Right LED	Description
Steady Green	1G Link
Steady Orange	100M Link
Off	10M Link
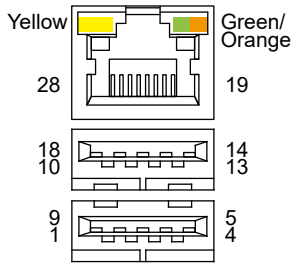
Pin	Definition	Pin	Definition
1	+5VSB_USB2	2	USB2_HUB_N4_C
3	USB2_HUB_P4_C	4	GND
5	USB31_RX_N4_C	6	USB31_RX_P4_C
7	GND	8	USB31_TX_N4_C
9	USB31_TX_P4_C	10	+5VSB_USB2
11	USB2_HUB_N3_C	12	USB2_HUB_P3_C
13	GND	14	USB31_RX_N3_C
15	USB31_RX_P3_C	16	GND

Pin	Definition	Pin	Definition
17	USB31_TX_N3_C	18	USB31_TX_P3_C
19	TCT_LAN2	20	MDI_0_P_2
21	MDI_0_N_2	22	MDI_1_P_2
23	MDI_1_N_2	24	MDI_2_P_2
25	MDI_2_N_2	26	MDI_3_P_2
27	MDI_3_N_2	28	GND
29	ACTPW_LAN2	30	LED1_2
31	LINK100_LAN2	32	LINK1G_LAN2

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RCB 600 User Manual

LAN and USB 3.2 Ports

Connector type: RJ45 port with LEDs, Dual USB 3.2 Gen 1 Type A ports
Connector location: LAN3

LAN3 LEDs Status

Left LED	Description
Blinking Yellow	Activity
Off	No active

Right LED	Description
Steady Green	2.5G Link
Steady Orange	1G Link
Off	10M/100M Link
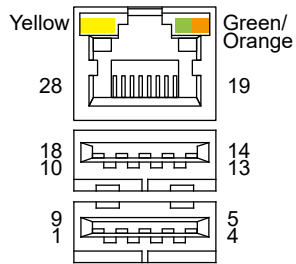
Pin	Definition	Pin	Definition
1	+5VSB_USB1	2	USB2_N1_C
3	USB2_P1_C	4	GND
5	USB31_RX_N2_C	6	USB31_RX_P2_C
7	GND	8	USB31_TX_N2_C
9	USB31_TX_P2_C	10	+5VSB_USB1
11	USB2_N2_C	12	USB2_P2_C
13	GND	14	USB31_RX_N1_C
15	USB31_RX_P1_C	16	GND

Pin	Definition	Pin	Definition
17	USB31_TX_N1_C	18	USB31_TX_P1_C
19	LAN3_VCC	20	LAN3_MDI0P
21	LAN3_MDI0N	22	LAN3_MDI1P
23	LAN3_MDI1N	24	LAN3_MDI2P
25	LAN3_MDI2N	26	LAN3_MDI3P
27	LAN3_MDI3N	28	GND
29	LAN3_ACT_P	30	LAN3_LEDACTL_R
31	LAN3_LED1GL_R	32	LAN3_LED2500L_R

Internal Connectors

Power Wire

Connector location: CAN1

COM Ports

Connector location: COM2, COM3

Pin	Definition
1	CAN1_L
2	CAN1_H
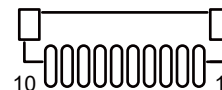
COM2		COM3	
Pin	Definition	Pin	Definition
1	DCD#_COM4	1	DCD#_COM5
2	RXD_COM4	2	RXD_COM5
3	TXD_COM4	3	TXD_COM5
4	DTR#_COM4	4	DTR#_COM5
5	GND	5	GND
6	DSR#_COM4	6	DSR#_COM5
7	RTS#_COM4	7	RTS#_COM5
8	CTS#_COM4	8	CTS#_COM5
9	RI#_COM4	9	RI#_COM5
10	GND	10	GND

DC-in Connector

Connector location: DC_VIN1
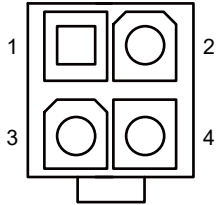
Pin	Definition
1	GND
2	GND
3	+24V
4	+24V

Pin Wire

Connector location: DIDO1
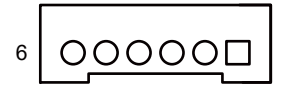
Pin	Definition	Pin	Definition
1	OUTPUT0	2	OUTPUT1
3	G_O_COM0	4	G_I_COM0
5	INPUT0	6	INPUT1

Debug Connector

Connector location: ESPI_DB1

Front Panel Header

Connector location: FRONT1
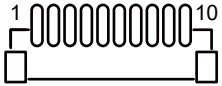
Pin	Definition	Pin	Definition
1	GND	2	PLTRST#
3	eSPI_CLK	4	eSPI_CS#
5	eSPI_IO3	6	eSPI_IO2
7	eSPI_IO1	8	eSPI_IO0
9	eSPI_RESET#	10	+3VSB
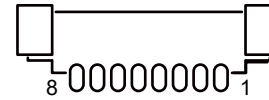
Pin	Definition
1	+3V3
2	HD_LED#
3	GND
4	SYSRESET
5	+3V3
6	PWRLED#
7	GND
8	ATX_PWRBT#

Pin Wire

Connector location: GPIO1

CPU Fan

Connector location: JFAN1
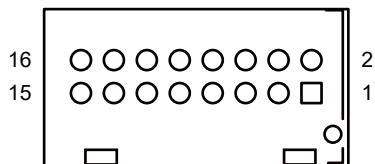
Pin	Definition	Pin	Definition
1	GPO_0	2	GPI_0
3	GPO_1	4	GPI_1
5	GPO_2	6	GPI_2
7	GPO_3	8	GPI_3
9	GPO_4	10	GPI_4
11	GPO_5	12	GPI_5
13	GPO_6	14	GPI_6
15	GPO_7	16	GPI_7
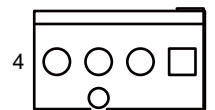
Pin	Definition
1	GND
2	12V_FAN
3	FAN_TAC1_C
4	FAN_CTL1_C

SATA Connector

Connector location: JSATA1
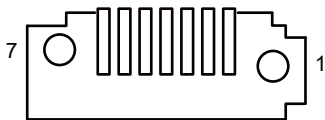
Pin	Definition
1	SATA_GND
2	SATA_TXP1_C
3	SATA_TXN1_C
4	SATA_GND
5	SATA_RXN1_C
6	SATA_RXP1_C
7	SATA_GND

SATA Power Connector

Connector location: JSP1
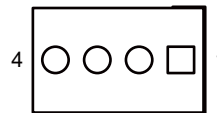
Pin	Definition
1	NC
2	SATA_GND
3	SATA_GND
4	+5V

Mini PCIe Slot

Connector location: MPCIE1
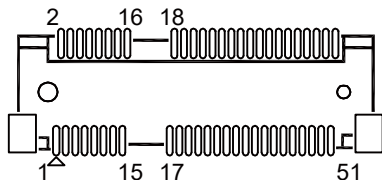
Pin	Definition	Pin	Definition
1	WAKE	2	+3VSB_MPCIE
3	NC	4	GND
5	NC	6	+1V5_MPCIE
7	SRCCLKREQ#1	8	UIM_PWR
9	GND	10	UIM_DATA
11	CLKOUT_PCIE_N1	12	UIM_CLK
13	CLKOUT_PCIE_P1	14	UIM_RESET
15	GND	16	MPCIE_UIM_VPP
17	NC	18	GND
19	NC	20	+3VSB_MPCIE
21	GND	22	BUFF_PLTRST#_2
23	PCIE_RXN9	24	+3VSB_MPCIE
25	PCIE_RXP9	26	GND

Pin	Definition	Pin	Definition
27	GND	28	+1V5_MPCIE
29	GND	30	SMBCLK_MAIN
31	PCIE_TX_N9	32	SMBDATA_MAIN
33	PCIE_TX_P9	34	GND
35	GND	36	USB2N_1
37	GND	38	USB2P_1
39	+3VSB_MPCIE	40	GND
41	+3VSB_MPCIE	42	NC
43	GND	44	NC
45	NC	46	NC
47	NC	48	+1V5_MPCIE
49	NC	50	GND
51	SATAXPCIE_1	52	+3VSB_MPCIE

NGFF Key B Connector

Connector location: NGFF1
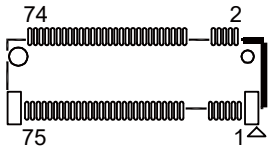
Pin	Definition	Pin	Definition
1	CONFIG_3	2	+3V3_NGFF_M2B
3	GND	4	+3V3_NGFF_M2B
5	GND	6	POWER_OFF#_3.3V
7	USB2_DP	8	W_DISABLE#
9	USB2_DN	10	DSS#_1
11	NC	20	NC

Pin	Definition	Pin	Definition
21	CONFIG_0	22	NC
23	NC	24	NC
25	NC	26	N_WWAN_GPS_ON
27	GND	28	NC
29	NC	30	NC
31	NC	32	NC
33	GND	34	NC
35	NC	36	NC

Pin	Definition	Pin	Definition
37	NC	38	NC
39	GND	40	NC
41	PCIE_RXP11	42	NC
43	PCIE_RXN11	44	NC
45	GND	46	NC
47	PCIE_TX_N11	48	NC
49	PCIE_TX_P11	50	N_PERSET#
51	GND	52	N_CLKREQ#
53	CLKOUT_PCIE_N4	54	N_WAKE#
55	CLKOUT_PCIE_P4	56	N_SMB_CLK

Pin	Definition	Pin	Definition
57	GND	58	N_SMB_DAT
59	NC	60	NC
61	NC	62	NC
63	NC	64	NC
65	NC	66	NC
67	3V3_PLTRST#	68	SUSCLK_R_1
69	CONFIG_1	70	+3V3_NGFF_M2B
71	GND	72	+3V3_NGFF_M2B
73	GND	74	+3V3_NGFF_M2B
75	CONFIG_2		

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NGFF Key B Connector

Connector location: NGFF2
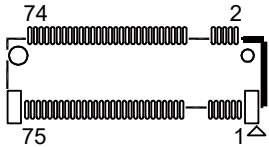
Pin	Definition	Pin	Definition
1	NGFF_CONFIG_3	2	+3V3_NGFF_M2
3	GND	4	+3V3_NGFF_M2
5	GND	6	POWER_OFF#
7	NGFF_USB2_DP	8	NGFF_W_DISABLE#
9	NGFF_USB2_DN	10	DSS#_1
11	NC	20	NC

Pin	Definition	Pin	Definition
21	NGFF_CONFIG_0	22	NC
23	WWAN_WAKE#	24	NC
25	NC	26	NGFF_WWAN_GPS_ON
27	GND	28	NC
29	USB31_RXN_3	30	UIM_RESET
31	USB31_RXP_3	32	UIM_CLK
33	GND	34	UIM_DATA
35	USB31_TXN_3	36	UIM_PWR

Pin	Definition	Pin	Definition
37	USB31_TXP_3	38	DEVSLP0
39	GND	40	NC
41	PCIE_RXN10	42	NC
43	PCIE_RXP10	44	NC
45	GND	46	NC
47	PCIE_TX_N10	48	NC
49	PCIE_TX_P10	50	NGFF_PERSET#
51	GND	52	NGFF_CLKREQ#
53	CLKOUT_PCIE_N3	54	NGFF_WAKE#
55	CLKOUT_PCIE_P3	56	NGFF_SMB_CLK

Pin	Definition	Pin	Definition
57	GND	58	NGFF_SMB_DAT
59	NC	60	NC
61	NC	62	NC
63	NC	64	NC
65	NC	66	NC
67	3V3_N_PLTRST#	68	SUSCLK_R_1
69	NGFF_CONFIG_1	70	+3V3_NGFF_M2
71	GND	72	+3V3_NGFF_M2
73	GND	74	+3V3_NGFF_M2
75	NGFF_CONFIG_2		

Nano SIM Connector

Connector location: SIM1
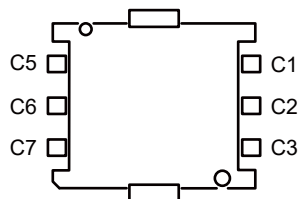
Pin	Definition
C1	VCC
C2	RST
C3	CLK
C5	GND
C6	VPP
C7	I/O

SMBUS Power Connector

Connector location: SMBUS1
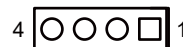
Pin	Definition
1	+5V
2	SML0DATA
3	SML0CLK
4	GND

USB2.0 Connector

Connector location: USB1
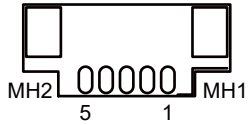
Pin	Definition	Pin	Definition
1	+5VSB_CN2	2	USB2_N8
3	USB2_P8	4	GND
5	GND	MH1	GND
MH2	GND		

USB2.0 Connector

Connector location: USB2
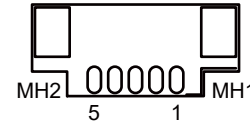
Pin	Definition	Pin	Definition
1	+5VSB_CN1	2	USB2_N5
3	USB2_P5	4	GND
5	GND	MH1	GND
MH2	GND		

RTC Battery Connector

Connector location: W_BAT1
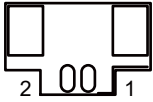
Pin	Definition
1	GND
2	BATT+

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Block Diagram
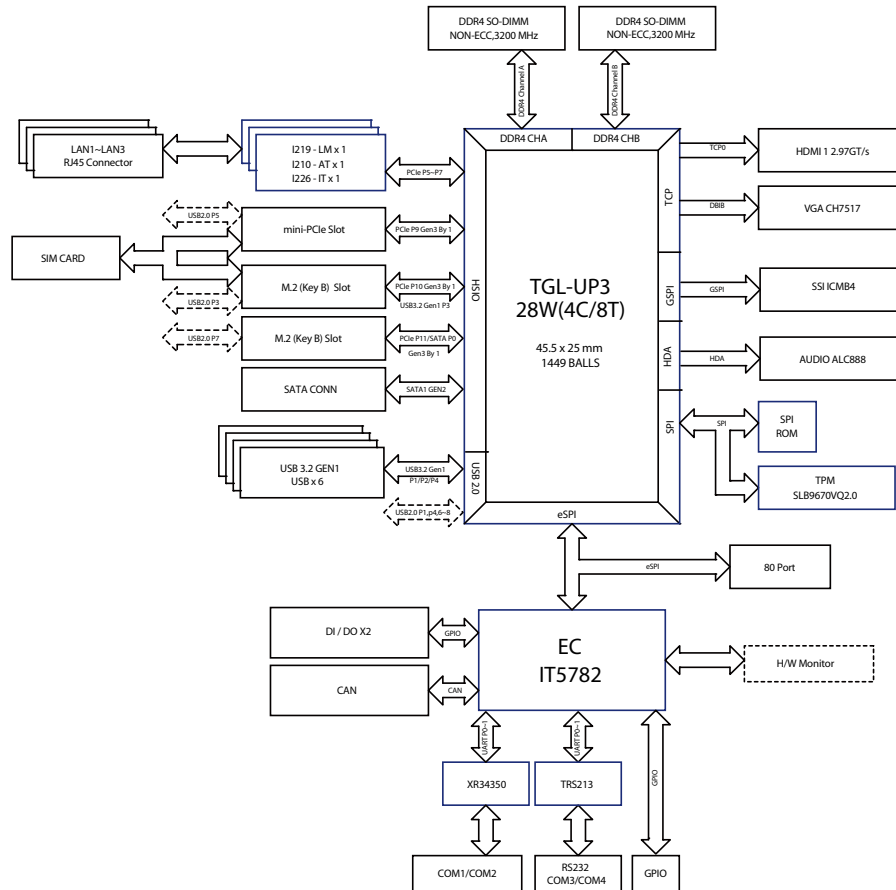
Chapter 3: BIOS Setup

This chapter describes how to use the BIOS setup program for RCB 600. 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 Del key to enter Setup:

Legends

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

Scroll Bar

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

Submenu

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

![nexCOBOT](logo)

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.
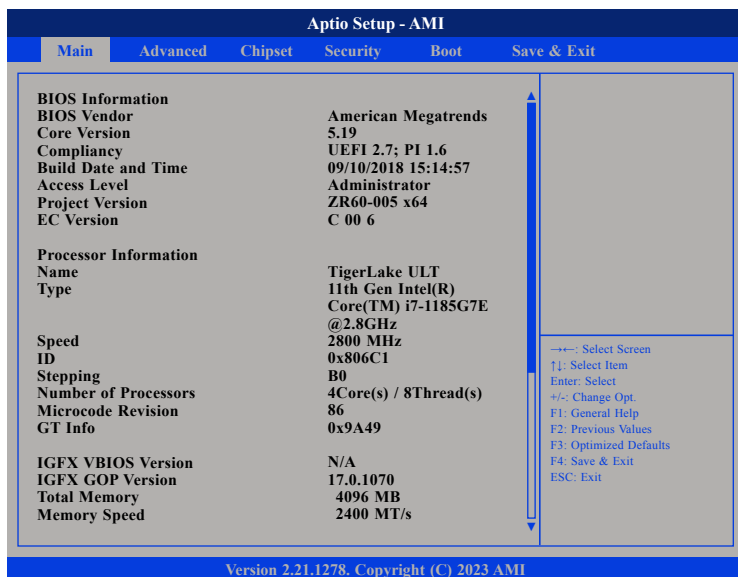
System Date

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 1999 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.

```
                        Aptio Setup - AMI
   Main    Advanced    Chipset    Security    Boot    Save & Exit

  BIOS Information
  BIOS Vendor                 American Megatrends
  Core Version                5.19
  Compliancy                  UEFI 2.7; PI 1.6
  Build Date and Time         09/10/2018 15:14:57
  Access Level                Administrator
  Project Version             ZR60-005 x64
  EC Version                  C 00 6

  Processor Information
  Name                        TigerLake ULT
  Type                        11th Gen Intel(R)
                              Core(TM) i7-1185G7E
                              @2.8GHz
  Speed                       2800 MHz            →←: Select Screen
  ID                          0x806C1             ↑↓: Select Item
  Stepping                    B0                  Enter: Select
  Number of Processors        4Core(s) / 8Thread(s)   +/-: Change Opt.
  Microcode Revision          86                  F1: General Help
  GT Info                     0x9A49              F2: Previous Values
                                                  F3: Optimized Defaults
  IGFX VBIOS Version          N/A                 F4: Save & Exit
  IGFX GOP Version            17.0.1070           ESC: Exit
  Total Memory                 4096 MB
  Memory Speed                 2400 MT/s

               Version 2.21.1278. Copyright (C) 2023 AMI
```

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.

```
                     Aptio Setup Utility - AMI
   Main      Advanced     Chipset    Security    Boot     Save & Exit

 ▶ CPU Configuration                        CPU Configuration Parameters.
 ▶ Power & Performance
 ▶ Trusted Computing
 ▶ IT5782 Super IO Configuration
 ▶ Hardware Monitor
 ▶ USB Configuration
 ▶ Network  Stack Configuration
 ▶ NVMe Configuration




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


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```

CPU Configuration

This section is used to configure the CPU.

```
         Aptio Setup Utility - Copyright (C) 2018 American Megatrends, Inc.
              Advanced

  CPU Configuration                                When enabled, a VMM can
                                                   utilize the additional
  Intel (VMX) Virtualization      [Enabled]        hardware capabilities provided
  Technology                                       by Vanderpool Technology.
  Active Processor Cores          [All]
  Hyper-Threading                 [Enabled]




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


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```

Intel® (VMX) Virtualization Technology
Enable or disable Intel Virtualization technology.

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

Hyper-Threading
Enable or disable hyper-threading technology.

Power & Performance

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

```
                            Aptio Setup - AMI
        Advanced

   Power & Performance                          CPU - Power Management
                                                Control Options
 ▶ CPU - Power Management Control




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

                  Version 2.21.1278. Copyright (C) 2023 AMI
```
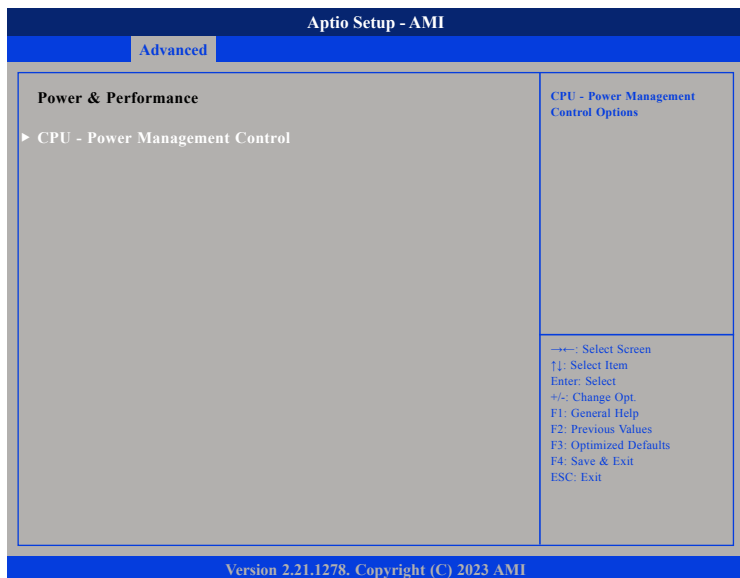
CPU - Power Management Control
Enter the CPU - Power Management Control submenu.

CPU - Power Management Control

```
                            Aptio Setup - AMI
        Advanced

   CPU - Power Management Control               Allows more than two frequency
                                                ranges to be supported.
    Intel(R) SpeedStep(tm)        [Disabled]
 ▶  Config TDP Configurations
    C states                      [Disabled]




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

                  Version 2.21.1278. Copyright (C) 2023 AMI
```
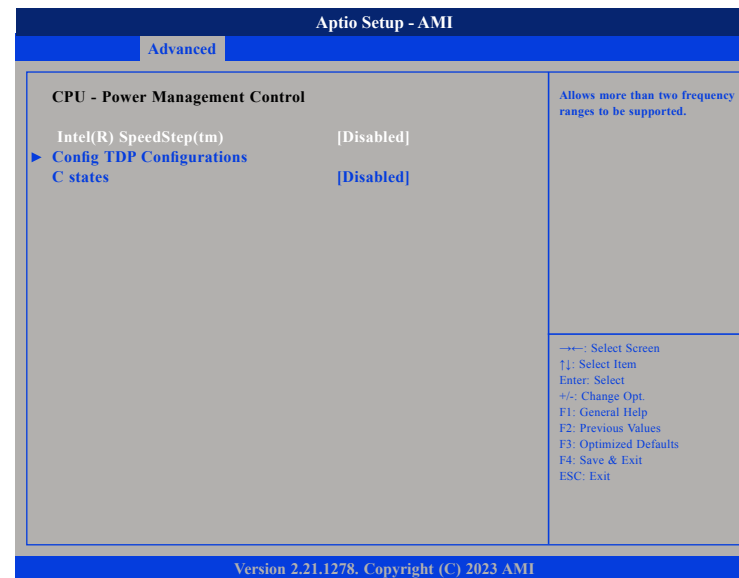
Intel® SpeedStep™
Enable or disable Intel SpeedStep technology.

Config TDP Configurations
Enter the Config TDP Configurations submenu.

C states
Enable or disable CPU C states support for power saving.

CPU - Power Management Control > Config TDP Configurations

```
                        Aptio Setup - AMI
        Advanced

  Config TDP Configurations                        Configurable TDP Mode as
                                                   Nominal/Up/Down Selection.
  Configurable TDP Boot Mode       [Up]
  Power Limit 1                    28W






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


          Version 2.21.1278. Copyright (C) 2023 AMI
```
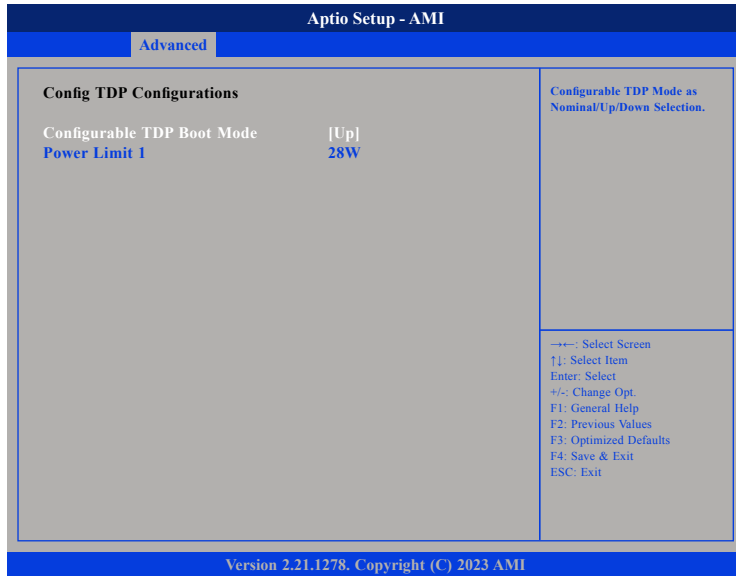
Configurable TDP Boot Mode
Configurable TDP Mode as Nominal/Up/Down selection.

Power Limit 1
Configure the power limit 1.

Trusted Computing

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

```
                          Aptio Setup - AMI
        Advanced

   TPM2.0 Device Found                                Enables or Disables BIOS
   Firmware Version:            600.7                 support for security device.
   Vendor:                      INTC                  O.S. will not show Security
                                                      Device. TCG EFI protocol and
                                                      INT1A interface will not be
   Security Device Support      [Enable]              available.
   Active PCR banks             SHA256
   Available PCR banks          SHA-1, SHA256, SHA384, SM3

   SHA-1 PCR Bank               [Disabled]
   SHA256 PCR Bank              [Enabled]
   SHA384 PCR Bank              [Disabled]
   SM3_256 PCR Bank             [Disabled]

   Pending operation            [None]                →←: Select Screen
   Platform Hierarchy           [Enabled]             ↑↓: Select Item
   Storage Hierarchy            [Enabled]             Enter: Select
   Endorsement Hierarchy        [Enabled]             +/-: Change Opt.
   TPM2.0 UEFI Spec Version     [TCG_2]               F1: General Help
   Physical Presence Spec Version [1.3]               F2: Previous Values
   TPM 2.0 InterfaceType        [CRB]                 F3: Optimized Defaults
   Device Select                [Auto]                F4: Save & Exit
                                                      ESC: Exit


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```

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.

SHA-1 PCR Bank
Enable or disable SHA-1 PCR Bank.

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.

Platform Hierarchy
Enable or disable platform hierarchy.

Storage Hierarchy
Enable or disable storage hierarchy.

Endorsement Hierarchy
Enable or disable endorsement hierarchy.

TPM2.0 UEFI Spec Version
Configure the TPM 2.0 UEFI spec version.

Physical Presence Spec Version
Configure the physical presence spec version.

Device Select
Configure the TPM version. TPM 1.2 will restrict support to TPM 1.2 devices and 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.

nexCOBOT

IT5782 Super IO Configuration

This section is used to configure the I/O functions supported by the onboard Super I/O chip.

```
                          Aptio Setup - AMI
   Advanced

   IT5782 Super IO Configuration                   Set Parameters of Serial Port
                                                   1 (COMA)
   Super IO Chip                  IT5782
 ▶ Serial Port 1 Configuration
 ▶ Serial Port 2 Configuration
 ▶ Serial Port 3 Configuration
 ▶ Serial Port 4 Configuration




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

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```

Super IO Chip

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

Serial Port 1/2/3/4 Configuration

This section is used to configure serial port 1/2/3/4.

```
                          Aptio Setup - AMI
      Advanced

   Serial Port 1 Configuration                     Enable or Disable Serial Port
                                                   (COM)
   Serial Port                    [Enabled]
   Device Settings                IO=3F8h; IRQ=4;

   Onboard Serial Port Mode       [RS232]
   Terminal 120 0hm               [Disabled]

   Change Settings                [Auto]




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

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```

Serial Port (Port1/2/3/4)

Enable or disable the serial port.

Onboard Serial Port Mode (Port1/2/3/4)

Select this to change the serial port mode.

Terminal 120 0hm (Port1/2)

Enable or disable the terminal 120 ohm.

Change Settings (Port1/2/3/4)

Select an optimal setting for the Super IO device.

33

Hardware Monitor

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

```
                        Aptio Setup - AMI
        Advanced

    Hardware Monitor                              Smart Fan Mode Select

    Samrt FAN Mode            [Full on Mode]

    FAN SPEED               : 8299 RPM

    CPU Temperature         : +42 ℃
    System Temperature      : +30 ℃

    +3.3V                   : +3.24 V
    +5V                     : +4.83 V
    VCORE                   : +1.29 V

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

               Version 2.21.1278. Copyright (C) 2023 AMI
```
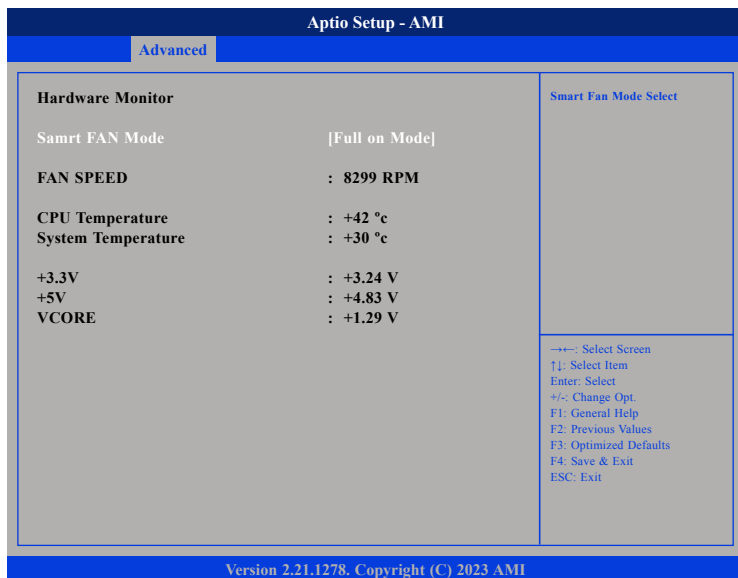
Smart Fan Mode

Select a smart fan mode for the system.

USB Configuration

This section is used to configure the USB.

```
                        Aptio Setup - AMI
        Advanced

    USB Configuration                             Enables Legacy USB support.
                                                  AUTO option disables legacy
    USB Module Version           26               support if no USB devices are
                                                  connected. DISABLE option will
    USB Controllers:                              keep USB devices available
        2 XHCI                                    only for EFI applications.
    USB Devices:
        1 Keyboard, 1 Mouse, 2 Hubs

    Legacy USB Support           [Enabled]
    XHCI Hand-off                [Disabled]

    USB hardware delays and time-outs:
    Device reset time-out        [20 sec]         →←: Select Screen
                                                  ↑↓: Select Item
                                                  Enter: Select
                                                  +/-: Change Opt.
                                                  F1: General Help
                                                  F2: Previous Values
                                                  F3: Optimized Defaults
                                                  F4: Save & Exit
                                                  ESC: Exit

               Version 2.21.1278. Copyright (C) 2023 AMI
```

Legacy USB Support

Enabled   Enable Legacy USB.
Auto   Disable support for Legacy when no USB devices are connected.
Disabled   Keep USB devices available only for EFI applications.

XHCI Hand-off

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

Device reset time-out

Select the USB mass storage device's start unit command timeout.

Network Stack Configuration

This section is used to configure the network stack settings.

Aptio Setup - AMI		
Advanced		
Network Stack	[Disabled]	Enable/Disable UEFI Network Stack
		→←: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2.21.1278. Copyright (C) 2023 AMI		
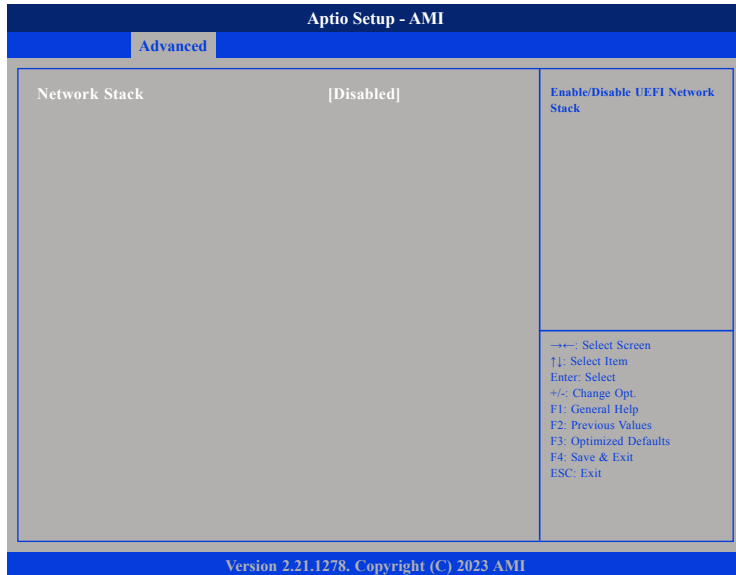
Network Stack
Enable or disable UEFI network stack. The options below will appear when selecting Enabled.

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

Ipv4 HTTP Support
Enable or disable IPv4 HTTP support.

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

Ipv6 HTTP Support
Enable or disable IPv6 HTTP support.

PXE boot wait time
Configure the wait time to press the ESC key to abort the PXE boot.

NVMe Configuration

This section is used to display information on the NVMe devices installed.

Aptio Setup - AMI	
Advanced	

NVMe Configuration

No NVMe Device Found

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

Version 2.21.1278. Copyright (C) 2023 AMI
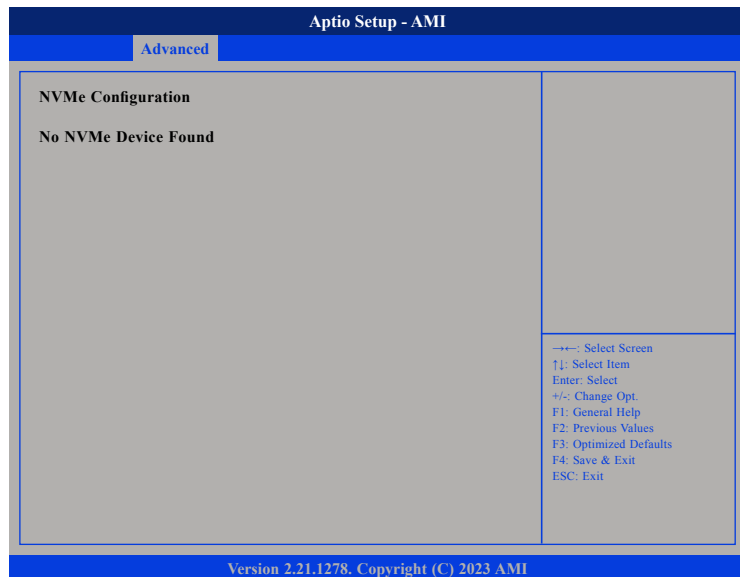
Chipset

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.

Aptio Setup - AMI					
Main	Advanced	Chipset	Security	Boot	Save & Exit

System Agent (SA) Configuration
PCH-IO Configuration

System Agent (SA) Parameters

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

Version 2.21.1278. Copyright (C) 2023 AMI
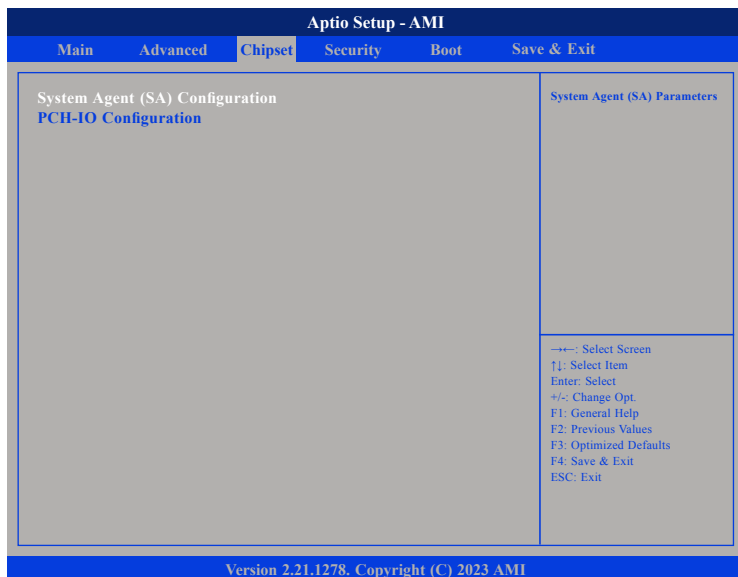
⚠️ Setting incorrect field values may cause the system to malfunction.

System Agent (SA) Configuration

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

Aptio Setup - AMI	
Chipset	

System Agent (SA) Configuration

VT-d   Supported

▶ **Graphics Configuration**

VT-d   [Enabled]

Graphics Configuration

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

Version 2.21.1278. Copyright (C) 2023 AMI
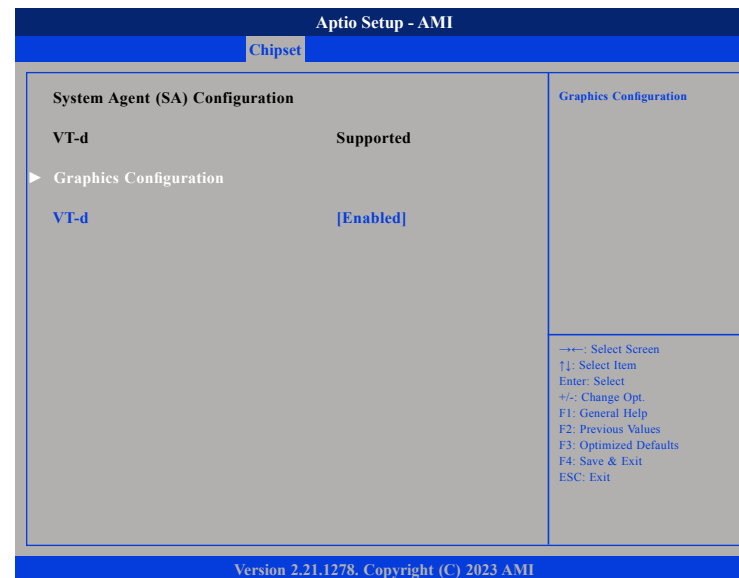
Graphics Configuration
Enter the Graphics Configuration submenu.

VT-d
Enable or disable VT-d function on MCH.

Graphics Configuration

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

```
                              Aptio Setup - AMI
                     Chipset

  Graphics Configuration                                Select DVMT 5.0 Pre-Allocated
                                                        (Fixed) Graphics Memory size
  DVMT Pre-Allocated              [60M]                 used by the Internal Graphics
  DVMT Total Gfx Mem              [256M]                Device.












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



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```
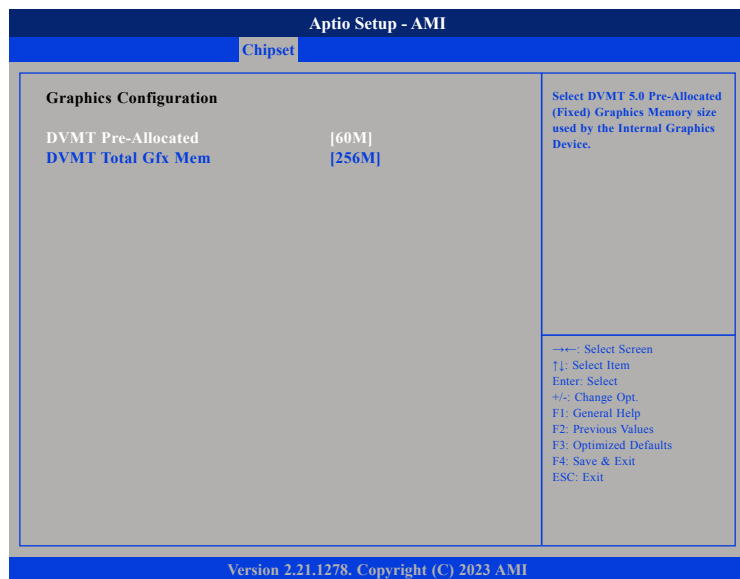
DVMT Pre-Allocated

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

DVMT Total Gfx Mem

Configure the DVMT 5.0 total graphic memory size used by the IGD.

PCH-IO Configuration

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

```
                        Aptio Setup - AMI
                Chipset

    PCH-IO Configuration                          SATA Device Options Settings

    ►  SATA And RST Configuration
    ►  HD Audio Configuration

       PCH LAN Controller             [Enabled]
       State After G3                 [S0 State]




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


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```

SATA And RST Configuration

Enter the SATA and RST configuration sub-menu.

HD Audio Configuration

Enter the HD Audio configuration sub-menu.

PCH LAN Controller

Enable or disable onboard NIC.

State After G3

Configure the PCH state after G3.

SATA And RST Configuration

```
                        Aptio Setup - AMI
            Chipset

  SATA And RST Configuration                         Enable/Disable SATA Device.

  SATA Controller(s)          [Enabled]

  Serial ATA Port 0           Empty
  Serial ATA Port 1           2.5" SATA SSD (62.0GB)




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


            Version 2.21.1278. Copyright (C) 2023 AMI
```
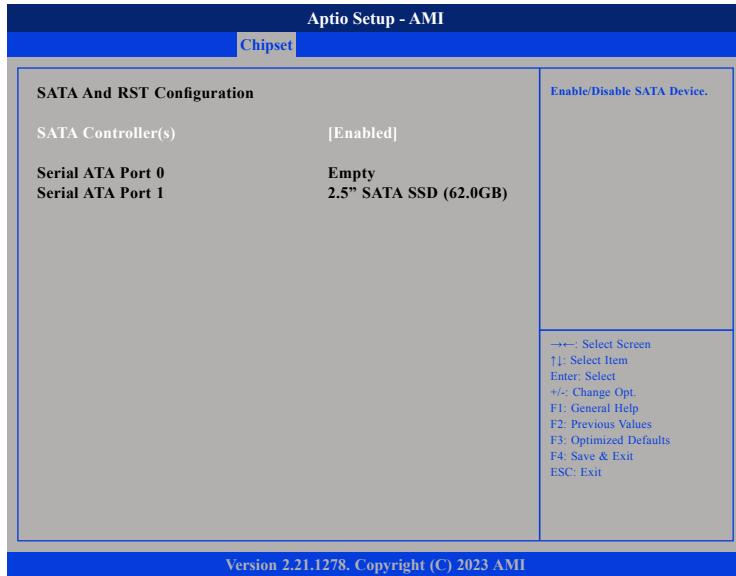
SATA Controller(s)
Enable or disable SATA device.

HD Audio Configuration

```
                        Aptio Setup - AMI
            Chipset

  HD Audio Subsystem Configuration Settings          Control Detection of the
                                                     HD-Audio device.
  HD Audio                    [Enabled]              Disabled= HDA will be
                                                     unconditionally disabled
                                                     Enabled= HDA will be
                                                     unconditionally enabled.




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


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```

HD Audio
Control Detection of the HD-Audio device.
Disabled   HDA will be unconditionally disabled.
Enabled   HDA will be unconditionally enabled.

Security

```
                          Aptio Setup - AMI
    Main      Advanced    Chipset   Security    Boot    Save & Exit

    Password Description                        Set Administrator Password

    If ONLY the Administrator's password is set,
    then this only limits access to Setup and is
    only asked for when entering Setup.
    If ONLY the User's password is set, then this
    is a power on password and must be entered to
    boot or enter Setup. In Setup the User Will
    have Administrator rights.
    The password length must be
    in the following range:
    Minimum length               3
    Maximum length               20
                                               →←←: Select Screen
                                               ↑↓: Select Item
    Administrator Password                     Enter: Select
    User Password                              +/-: Change Opt.
                                               F1: General Help
                                               F2: Previous Values
                                               F3: Optimized Defaults
                                               F4: Save & Exit
                                               ESC: Exit


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```

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

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

Boot

```
                        Aptio Setup - AMI
   Main      Advanced    Chipset    Security    Boot    Save & Exit

  Boot Configuration                              Number of seconds to wait for
  Setup Prompt Timeout        0                   setup activation key.
  Bootup NumLock State        [Off]               65535(0xFFFF) means indefinite
  Quiet Boot                  [Disabled]          waiting.

  Boot Option Priorities
  Boot Option #1              [Windows Boot Manager
                             (P1: 2.5" SATA SSD
                             3MG2-P)]
  Boot Option #2              [UEFI OS (P1: 2.5"
                             SATA SSD 3MG2-P)]
  Boot Option #3              [UEFI: Built-in EFI
                             Shell]
                                                 →←: Select Screen
                                                 ↑↓: Select Item
                                                 Enter: Select
                                                 +/-: Change Opt.
                                                 F1: General Help
                                                 F2: Previous Values
                                                 F3: Optimized Defaults
                                                 F4: Save & Exit
                                                 ESC: Exit

             Version 2.21.1278. Copyright (C) 2023 AMI
```
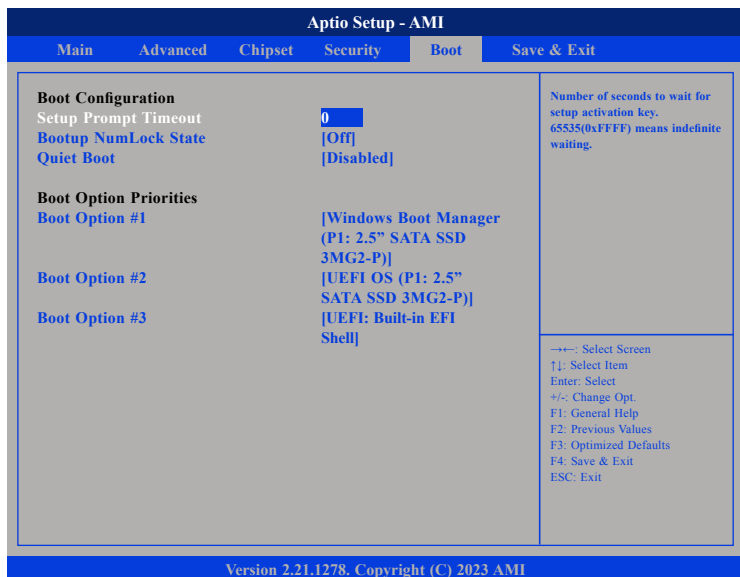
Setup Prompt Timeout
Select the number of seconds to wait for the setup activation key.
65535(0xFFFF) denotes indefinite waiting.

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.

Quiet Boot
Enabled   Display OEM logo instead of the POST messages.
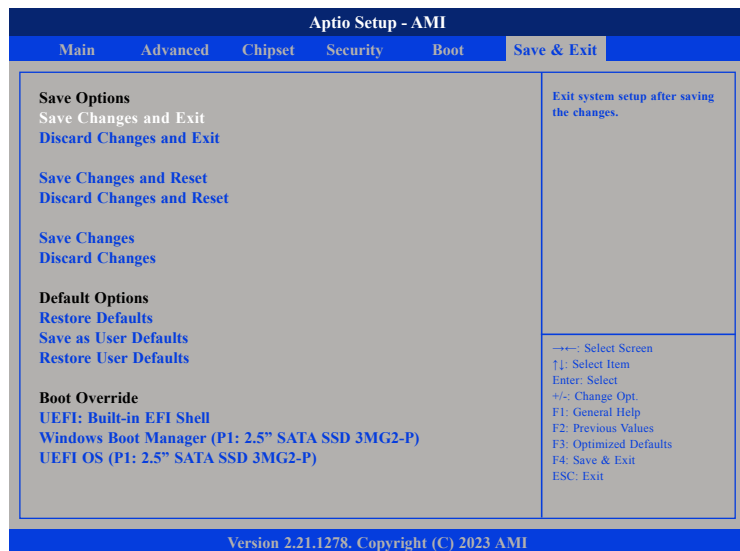Disabled   Display normal POST messages.

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.

Boot Option #1/2/3
Display the boot device information if plugged.

Save & Exit

```
                           Aptio Setup - AMI
    Main        Advanced     Chipset     Security     Boot    Save & Exit

  Save Options                                      Exit system setup after saving
  Save Changes and Exit                             the changes.
  Discard Changes and Exit

  Save Changes and Reset
  Discard Changes and Reset

  Save Changes
  Discard Changes

  Default Options
  Restore Defaults
  Save as User Defaults                             →←: Select Screen
  Restore User Defaults                             ↑↓: Select Item
                                                    Enter: Select
  Boot Override                                     +/-: Change Opt.
  UEFI: Built-in EFI Shell                          F1: General Help
  Windows Boot Manager (P1: 2.5" SATA SSD 3MG2-P)   F2: Previous Values
  UEFI OS (P1: 2.5" SATA SSD 3MG2-P)                F3: Optimized Defaults
                                                    F4: Save & Exit
                                                    ESC: Exit

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```

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 and reset 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 selecing 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>.