NEXCOM International Co., Ltd.

Intelligent Platform & Services Business Unit

Embedded Computing (Industrial Motherboard)

NEX 912

User Manual

NEXCOM International Co., Ltd.
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www.nexcom.com

Contents

Chapter 3: BIOS Setup

PREFACE

Copyright

Disclaimer

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Acknowledgements

NEX 912 is a trademark of NEXCOM International Co., Ltd. All other product names mentioned herein are registered trademarks of their respective owners.

Regulatory Compliance Statements

This section provides the FCC compliance statement for Class B 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 B digital device, pursuant to Part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. Operation of this equipment in a residential area (domestic environment) is likely to cause harmful interference, in which case the user will be required to correct the interference (take adequate measures) at their own expense.

CE

The product(s) described in this manual complies with all applicable European Union (CE) directives if it has a CE marking. For computer systems to remain CE compliant, only CE-compliant parts may be used. Maintaining CE compliance also requires proper cable and cabling techniques.

RoHS Compliance

NEXCOM RoHS Environmental Policy and Status Update

NEXCOM is a global citizen for building the digital infrastructure. We are committed to providing green products and services, which are compliant with European Union RoHS (Restriction on Use of Hazardous Substance in Electronic Equipment) directive 2011/65/EU, to be your trusted green partner and to protect our environment.

RoHS restricts the use of Lead (Pb) < 0.1% or 1,000ppm, Mercury (Hg) < 0.1% or 1,000ppm, Cadmium (Cd) < 0.01% or 100ppm, Hexavalent Chromium (Cr6+) < 0.1% or 1,000ppm, Polybrominated biphenyls (PBB) < 0.1% or 1,000ppm, and Polybrominated diphenyl Ethers (PBDE) < 0.1% or 1,000ppm.

In order to meet the RoHS compliant directives, NEXCOM has established an engineering and manufacturing task force in to implement the introduction of green products. The task force will ensure that we follow the standard NEXCOM development procedure and that all the new RoHS components and new manufacturing processes maintain the highest industry quality levels for which NEXCOM are renowned.

The model selection criteria will be based on market demand. Vendors and suppliers will ensure that all designed components will be RoHS compliant.

How to recognize NEXCOM RoHS Products?

For existing products where there are non-RoHS and RoHS versions, the suffix "(LF)" will be added to the compliant product name.

All new product models launched after January 2013 will be RoHS compliant. They will use the usual NEXCOM naming convention.

Warranty and RMA

NEXCOM Warranty Period

NEXCOM manufactures products that are new or equivalent to new in accordance with industry standard. NEXCOM warrants that products will be free from defect in material and workmanship for 2 years, beginning on the date of invoice by NEXCOM. HCP series products (Blade Server) which are manufactured by NEXCOM are covered by a three year warranty period.

NEXCOM Return Merchandise Authorization (RMA)

- Customers shall enclose the "NEXCOM RMA Service Form" with the returned packages.
- Customers must collect all the information about the problems encountered and note anything abnormal or, print out any on-screen messages, and describe the problems on the "NEXCOM RMA Service Form" for the RMA number apply process.
- Customers can send back the faulty products with or without accessories (manuals, cable, etc.) and any components from the card, such as CPU and RAM. If the components were suspected as part of the problems, please note clearly which components are included. Otherwise, NEXCOM is not responsible for the devices/parts.
- Customers are responsible for the safe packaging of defective products, making sure it is durable enough to be resistant against further damage and deterioration during transportation. In case of damages occurred during transportation, the repair is treated as "Out of Warranty."
- Any products returned by NEXCOM to other locations besides the customers' site will bear an extra charge and will be billed to the customer.

Repair Service Charges for Out-of-Warranty Products

NEXCOM will charge for out-of-warranty products in two categories, one is basic diagnostic fee and another is component (product) fee.

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NEXCOM will charge for out-of-warranty products in two categories, one is basic diagnostic fee and another is component (product) fee.

System Level

- Component fee: NEXCOM will only charge for main components such as SMD chip, BGA chip, etc. Passive components will be repaired for free, ex: resistor, capacitor.
- Items will be replaced with NEXCOM products if the original one cannot be repaired. Ex: motherboard, power supply, etc.
- Replace with 3rd party products if needed.
- If RMA goods can not be repaired, NEXCOM will return it to the customer without any charge.

Board Level

- Component fee: NEXCOM will only charge for main components, such as SMD chip, BGA chip, etc. Passive components will be repaired for free, ex: resistors, capacitors.
- If RMA goods can not be repaired, NEXCOM will return it to the customer without any charge.

Warnings

Read and adhere to all warnings, cautions, and notices in this guide and the documentation supplied with the chassis, power supply, and accessory modules. If the instructions for the chassis and power supply are inconsistent with these instructions or the instructions for accessory modules, contact the supplier to find out how you can ensure that your computer meets safety and regulatory requirements.

Cautions

Electrostatic discharge (ESD) can damage system components. Do the described procedures only at an ESD workstation. If no such station is available, you can provide some ESD protection by wearing an antistatic wrist strap and attaching it to a metal part of the computer chassis.

Safety Information

Before installing and using the device, note the following precautions:

- Read all instructions carefully.
- Do not place the unit on an unstable surface, cart, or stand.
- Follow all warnings and cautions in this manual.
- When replacing parts, ensure that your service technician uses parts specified by the manufacturer.
- Avoid using the system near water, in direct sunlight, or near a heating device.
- The load of the system unit does not solely rely for support from the rackmounts located on the sides. Firm support from the bottom is highly necessary in order to provide balance stability.
- The computer is provided with a battery-powered real-time clock circuit. There is a danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Discard used batteries according to the manufacturer's instructions.

Installation Recommendations

Ensure you have a stable, clean working environment. Dust and dirt can get into components and cause a malfunction. Use containers to keep small components separated.

Adequate lighting and proper tools can prevent you from accidentally damaging the internal components. Most of the procedures that follow require only a few simple tools, including the following:

- A Philips screwdriver
- A flat-tipped screwdriver
- A grounding strap
- An anti-static pad

Using your fingers can disconnect most of the connections. It is recommended that you do not use needle-nose pliers to disconnect connections as these can damage the soft metal or plastic parts of the connectors.

Safety Precautions

1. Read these safety instructions carefully.

2. Keep this User Manual for later reference.

3. Disconnect this equipment from any AC outlet before cleaning. Use a damp cloth. Do not use liquid or spray detergents for cleaning.

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

5. Keep this equipment away from humidity.

6. Put this equipment on a stable surface during installation. Dropping it or letting it fall may cause damage.

7. The openings on the enclosure are for air convection to protect the equipment from overheating. DO NOT COVER THE OPENINGS.

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

9. Place the power cord in a way so that people will not step on it. Do not place anything on top of the power cord. Use a power cord that has been approved for use with the product and that it matches the voltage and current marked on the product's electrical range label. The voltage and current rating of the cord must be greater than the voltage and current rating marked on the product.

10. All cautions and warnings on the equipment should be noted.

11. If the equipment is not used for a long time, disconnect it from the power source to avoid damage by transient overvoltage.

12. Never pour any liquid into an opening. This may cause fire or electrical shock.

13. Never open the equipment. For safety reasons, the equipment should be opened only by qualified service personnel.

14. If one of the following situations arises, get the equipment checked by service personnel:
    a. The power cord or plug is damaged.
    b. Liquid has penetrated into the equipment.
    c. The equipment has been exposed to moisture.
    d. The equipment does not work well, or you cannot get it to work according to the user's manual.
    e. The equipment has been dropped and damaged.
    f. The equipment has obvious signs of breakage.

15. Do not place heavy objects on the equipment.

16. The unit uses a three-wire ground cable which is equipped with a third pin to ground the unit and prevent electric shock. Do not defeat the purpose of this pin. If your outlet does not support this kind of plug, contact your electrician to replace your obsolete outlet.

17. CAUTION: DANGER OF EXPLOSION IF BATTERY IS INCORRECTLY REPLACED. REPLACE ONLY WITH THE SAME OR EQUIVALENT TYPE RECOMMENDED BY THE MANUFACTURER. DISCARD USED BATTERIES ACCORDING TO THE MANUFACTURER'S INSTRUCTIONS.

Technical Support and Assistance

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

2. For technical issues that require contacting our technical support team or sales representative, please have the following information ready before calling:
   - Product name and serial number
   - Detailed information of the peripheral devices
   - Detailed information of the installed software (operating system, version, application software, etc.)
   - A complete description of the problem
   - The exact wordings of the error messages

Warning!

1. Handling the unit: carry the unit with both hands and handle it with care.

2. Maintenance: to keep the unit clean, use only approved cleaning products or clean with a dry cloth.

Conventions Used in this Manual

Warning:
Information about certain situations, which if not observed, can cause personal injury. This will prevent injury to yourself when performing a task.

Caution:
Information to avoid damaging components or losing data.

Note:
Provides additional information to complete a task easily.

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Package Contents

Before continuing, verify that the NEX 912 package that you received is complete. Your package should have all the items listed in the following table.

Item	Name	Qty
1	NEX 912 Motherboard	1
2	NEX 912 Driver CD	1
3	COM port cable	1
4	SATA cable	1
5	I/O panel shield	1

Optional Accessories

Item	Part Number	Name	Description
1	60233SIO88X00	COM Port Cable CP: NEX-130109-02	DB9 (M) to IDC 10P PH:2.54mm L=250mm
2	603USB0026X00	USB Cable Great Ideal: CXH14092302	Dual Port USB CON to DUPONT 10P 2.54mm L=300mm
3	60233ATA48X00	SATA Cable Best	SATA CON 7P 180D to 180D Connector L:250mm 28AWG
4	10E000TPM02X0	EBK-TPM-2.0 for NEX 912	TPM SLB9665TT2.0 FW 5.51
5	5050200109X00	Intel LGA115X 1U CPU Cooler	For NEX 912, COOLJAG:JAC7L07A

Ordering Information

The following information below provides ordering information for NEX 912.

NEX 912 (P/N: 10G00091200X0)

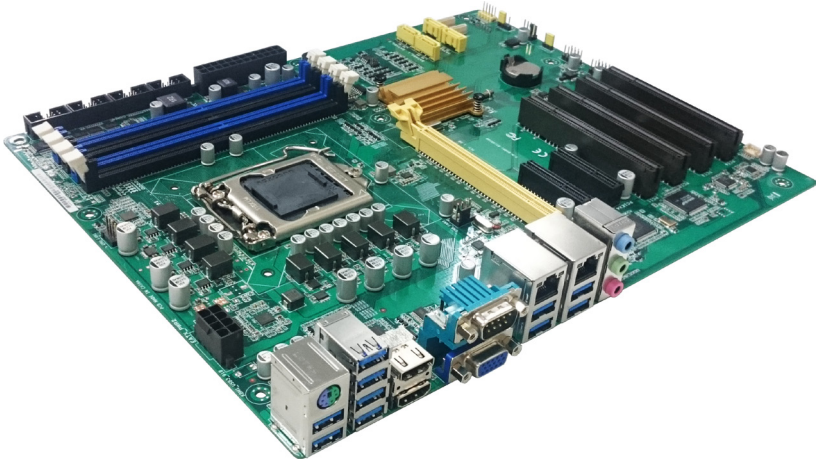
ATX, socket LGA1151 6th gen. Intel® Core™ & Celeron® processor product family with Q170, 4x DDR4, VGA/2x HDMI, PCIe x16/2x PCIe x4/4x PCI, 2x GbE /10x USB/6x COM

NEX 912-10PBK (P/N: 10G00091201X0)

10-in-1 Pack, ATX, socket LGA1151 6th gen. Intel® Core™ & Celeron® processor product family with Q170, 4x DDR4, VGA/2x HDMI, PCIe x16/2x PCIe x4/4x PCI, 2x GbE /10x USB/6x COM

Chapter 1: Product Introduction

Overview



Key Features

- Support socket LGA1151 for 6th generation Intel® Core™ i7/i5/i3 and Intel® Celeron® processors (codenamed Skylake) or next generation Intel® Core™/Celeron® processors
- 4x DDR4 DIMM Socket, up to 64GB
- Support triple independent display: 2x HDMI/VGA
- 2x Intel® GbE, 4x SATA 3.0, 14x USB 3.0/2.0, 6x COM, 4-in/4-out GPIO, HD Audio
- 1x PCIe x16, 2x PCIe x4, 4x PCI
- TPM supported
- Support AT/ATX mode by ATX power input

Hardware Specifications

CPU Support

- Socket LGA1151, Intel® 6th and next generation Core™ i7/i5/i3 processor and Intel® Celeron® processors

Main Memory

- 4x 288-pin dual channel long DIMMs support DDR4 2133/1867MH up to 64GB, non-ECC, un-buffered system memory

Chipset

- Intel® Q170 PCH

BIOS

- AMI system BIOS
- Plug and play support

On-board LAN

- 2x RJ45 connectors with LED
- LAN1: Intel® PHY I219LM GbE LAN (support AMT 11.0)
- LAN2: Intel® I211AT GbE LAN
- Support PXE boot from LAN, wake on LAN function

Display

- 2x HDMI 1.4 connector (resolution up to 4096 x 2160@24Hz)
- 1x VGA (resolution up to 1920 x 1200@60Hz)

Expansion Slot

- 1x PCIe x16 (gen. 3.0)
- 2x PCIe x4
- 4x PCI

Edge I/O Interfaces

- 2x HDMI
- 1x VGA
- 2x RJ45 connectors with GbE transformer inside & LED
- 10x USB 3.0 (blue)
- 1x RS-232/422/485 DB-9 connector (COM1)
- 1x Combo PS/2 KB and MS
- 1x Audio Jack: Line-in/Line-out/Mic-in

I/O Interfaces

- USB 2.0: 4 ports by internal pin-header
- Serial: 5 ports RS232 by internal pin-header
- SATA HDD: 4 ports SATA6.0Gb/s, supports RAID 0/1/5/10
- GPIO: supports 4x GPI and 4x GPO

Interfaces

- 1x Pin header for TPM
- 1x 4-pin CPU fan connector; 2x 4-pin chassis fan connector
- 1x Front panel header; 1x clear CMOS jumper
- 1x Chassis Intrusion
- 1x Speaker header (Line-out)

System Monitor

- 4 voltage (for +3.3V/+5V, +12V, Vcore)
- 2 temperatures (CPU, system temperatures)
- 2 fans speed (CPU and system fans)

Power Requirements

- 1x 24-pin ATX connector,
- 1x 8-pin ATX 12V power connector

Dimensions

- ATX
- Dimension: 305mm (L) x 244mm (W) (12” x 9.6”)

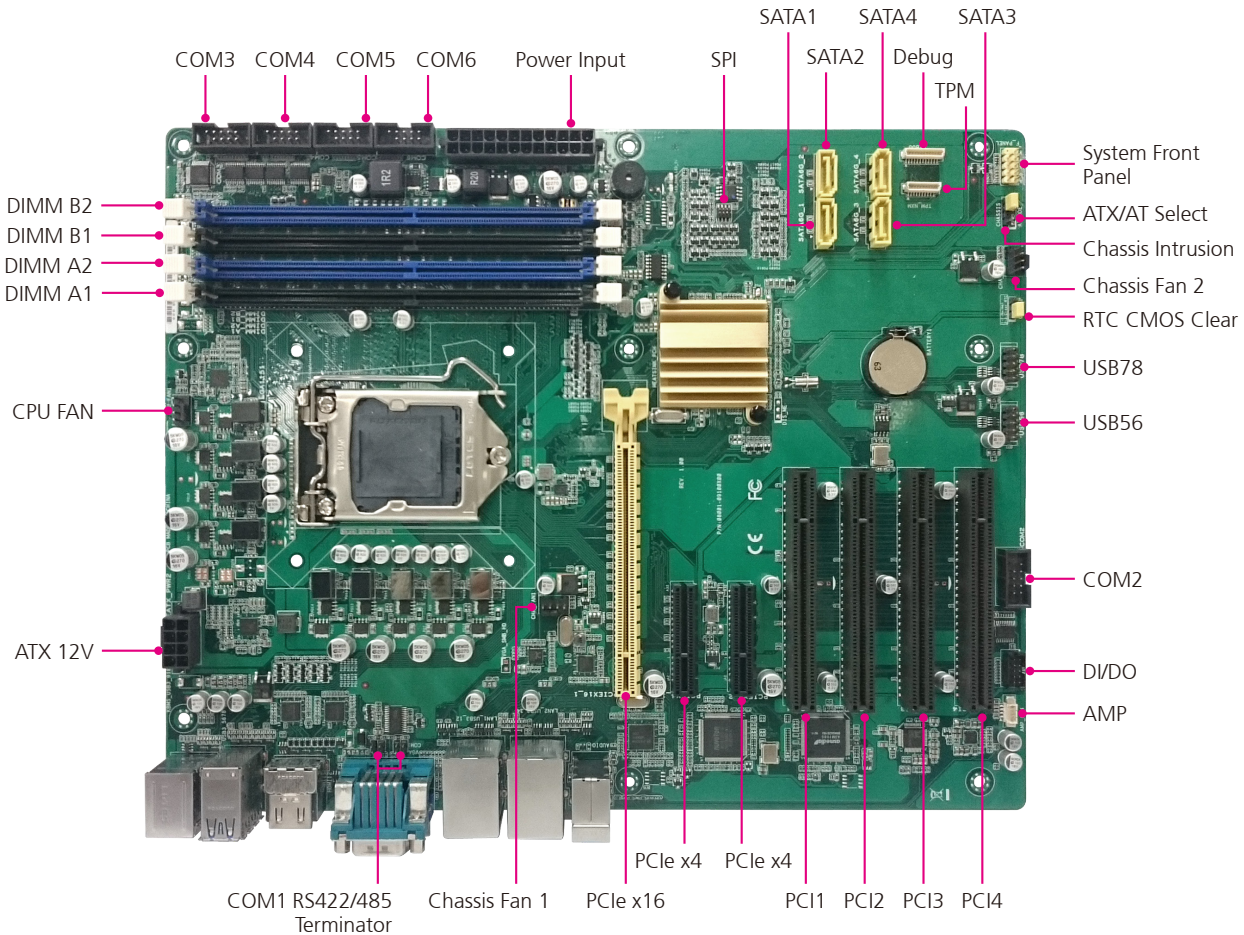
Environment

- Board level operating temperatures: 0°C to 60°C
- Storage temperatures: -40°C to 85°C
- Relative humidity:
  - 0% to 90% (operating, non-condensing)
  - 5% to 95% (non-operating, non-condensing)

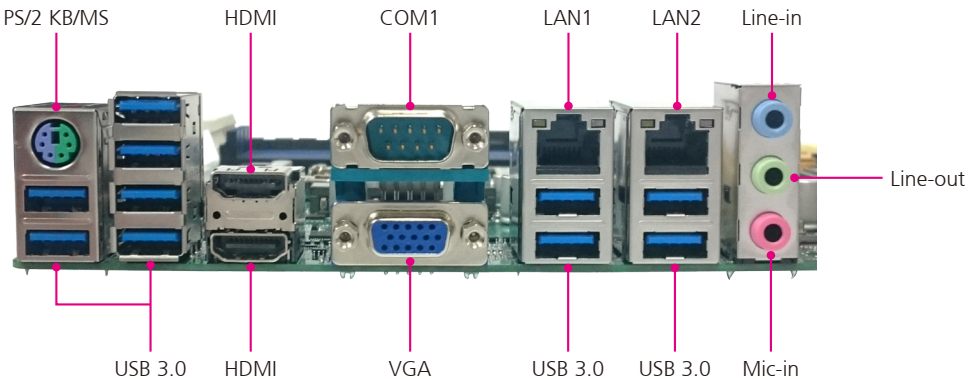
Certifications

- Meet CE/FCC Class A

Knowing Your NEX 912



Edge I/O View



Chapter 2: Jumpers and Connectors

This chapter describes how to set the jumpers and connectors on the NEX 912 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:

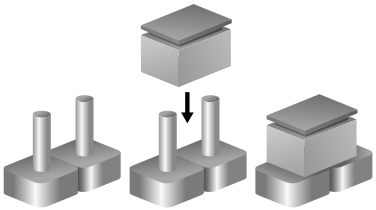
- Always disconnect the unit from the power outlet whenever you are working inside the case.
- If possible, wear a grounded wrist strap when you are working inside the computer case. Alternatively, discharge any static electricity by touching the bare metal chassis of the unit case, or the bare metal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

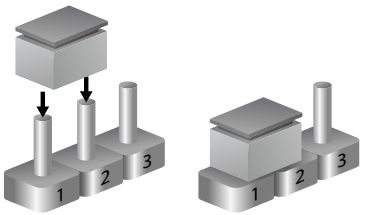
A jumper is the simplest kind of electric switch. It consists of two metal pins and a cap. When setting the jumpers, ensure that the jumper caps are placed on the correct pins. When the jumper cap is placed on both pins, the jumper is short. If you remove the jumper cap, or place the jumper cap on just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

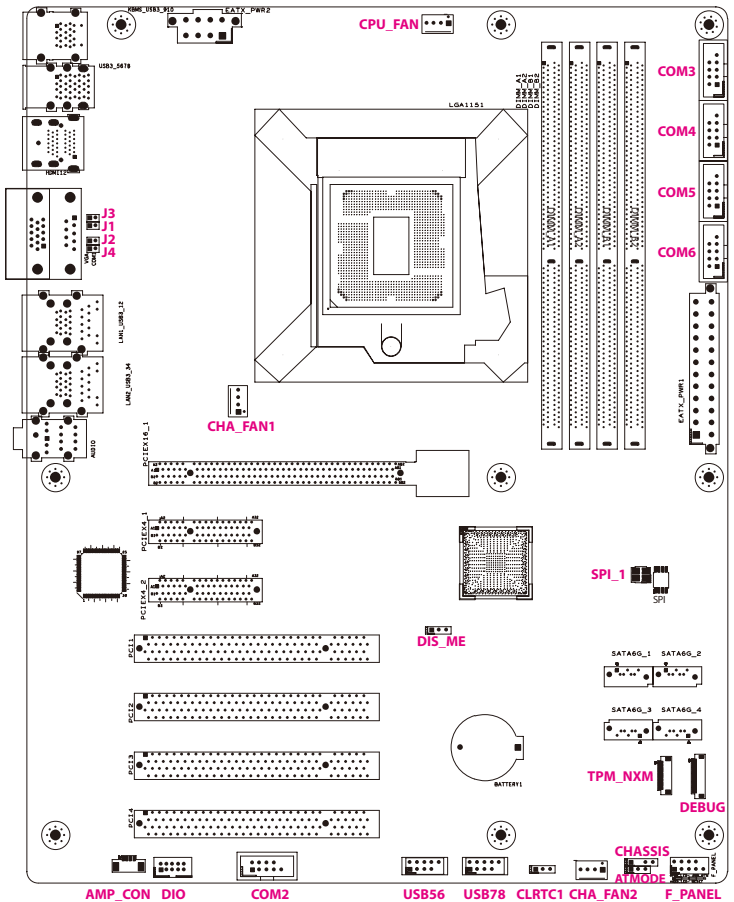


Three-Pin Jumpers: Pins 1 and 2 are Short



Locations of the Jumpers and Connectors

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



Jumpers

H/W AT/ATX Mode Selection

Connector type: 1x3 3-pin header
Connector location: ATMODE

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

2-3 On: default

RTC CMOS Clear Selection

Connector type: 1x3 3-pin header
Connector location: CLRTC1

Pin	Settings
1-2	Normal
2-3	Clear CMOS

1-2 On: default

Chassis Intrusion

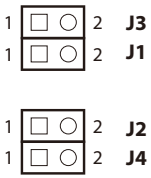
Connector type: 1x4 4-pin header
Connector location: CHASSIS1

Pin	Settings
1-2	Chassis Intruder - No Intruder
3-4	Chassis Intruder - Intruder

3-4 On: default

COM1 RS422/485 Terminator

Connector type: 1x2 2-pin header
Connector location: J1, J2, J3 and J4



Pin	Settings
J1, J2, J3, J4 all off	RS232
J1, J2, J3, J4 all on	RS485/RS422 with terminator

J1, J2, J3, J4 Off: default

Disable ME

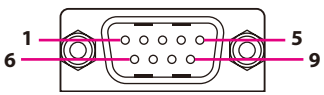
Connector type: 1x3 3-pin header
Connector location: DIS_ME

Pin	Settings
1-2	Disable ME
2-3	Normal

Connector Pin Definitions

COM1 RS485 Mode

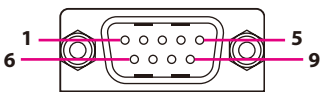
Connector type: DB-9 port, 9-pin D-Sub
Connector location: COM1



Pin	Definition
1	RS485 D- (B)
2	RS485 D+ (A)

COM1 RS422 Mode

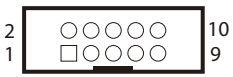
Connector type: DB-9 port, 9-pin D-Sub
Connector location: COM1



Pin	Definition
1	RS422 TX(B)
2	RS422 TX(A)
3	RS422 RX(A)
4	RS422 RX(B)

COM2 to COM6 Internal Serial Port Connectors

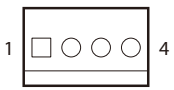
Connector type: 2x5 10-pin header
Connector location: COM3, COM4, COM5 and COM6



Pin	Definition	Pin	Definition
1	DCD	2	RXD
3	TXD	4	DTR
5	GND	6	DSR
7	RTS	8	CTS
9	RI_F_VCC	10	NC

CPU and System FAN Connectors

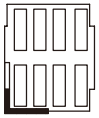
Connector type: 1x4 4-pin Wafer
Connector location: CPU_FAN1, CHA_FAN1 and CHA_FAN2



Pin	Definition
1	PWN
2	SENSE
3	VCC
4	GND

SPI Flash Programmable Connectors

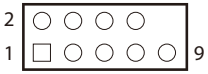
Connector type: 2x4 8-pin header
Connector location: SPI_1



Pin	Definition	Pin	Definition
1	+3V_SPI	2	GND
3	S_SPI_CS1#Q	4	S_SPI_CLK_2Q
5	S_SPI_MISO_2Q	6	S_SPI_MOSI_2Q
7	(NC)	8	(NC)

Front Panel Connector

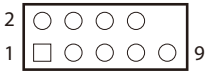
Connector type: 2x5 10-pin header
Connector location: F_PANEL1



Pin	Definition	Pin	Definition
1	HDLED+	2	PLED+
3	HDLED-	4	PLED-
5	GND	6	F_PWRBTN#
7	RSTCON#_PANEL	8	GND
9	(NC)	10	(kill pin)

Internal USB 2.0 Connectors

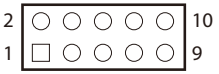
Connector type: 2x5 10-pin header
Connector location: USB56 and USB78



Pin	Definition	Pin	Definition
1	+5V	2	GND
3	S_USB_PN	4	GND
5	S_USB_PP	6	S_USB_PP
7	GND	8	S_USB_PN
9	GND	10	+5V

Digital I/O Connector

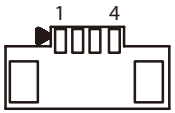
Connector type: 2x5 10-pin header
Connector location: DIO



Pin	Definition	Pin	Definition
1	DIO_I#1	2	DIO_I#2
3	DIO_P#3	4	DIO_I#4
5	DIO_O#1	6	DIO_O#2
7	DIO_O#3	8	DIO_O#4
9	+5V	10	GND

AMP Connector

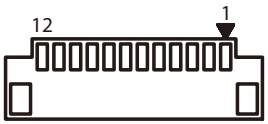
Connector type: 1x4 4-pin header
Connector location: AMP_CON



Pin	Definition
1	ROUTP
2	ROUTN
3	LOUTN
4	LOUTP

Debug Port Connector

Connector type: 1x12 12-pin header
Connector location: DEBUG



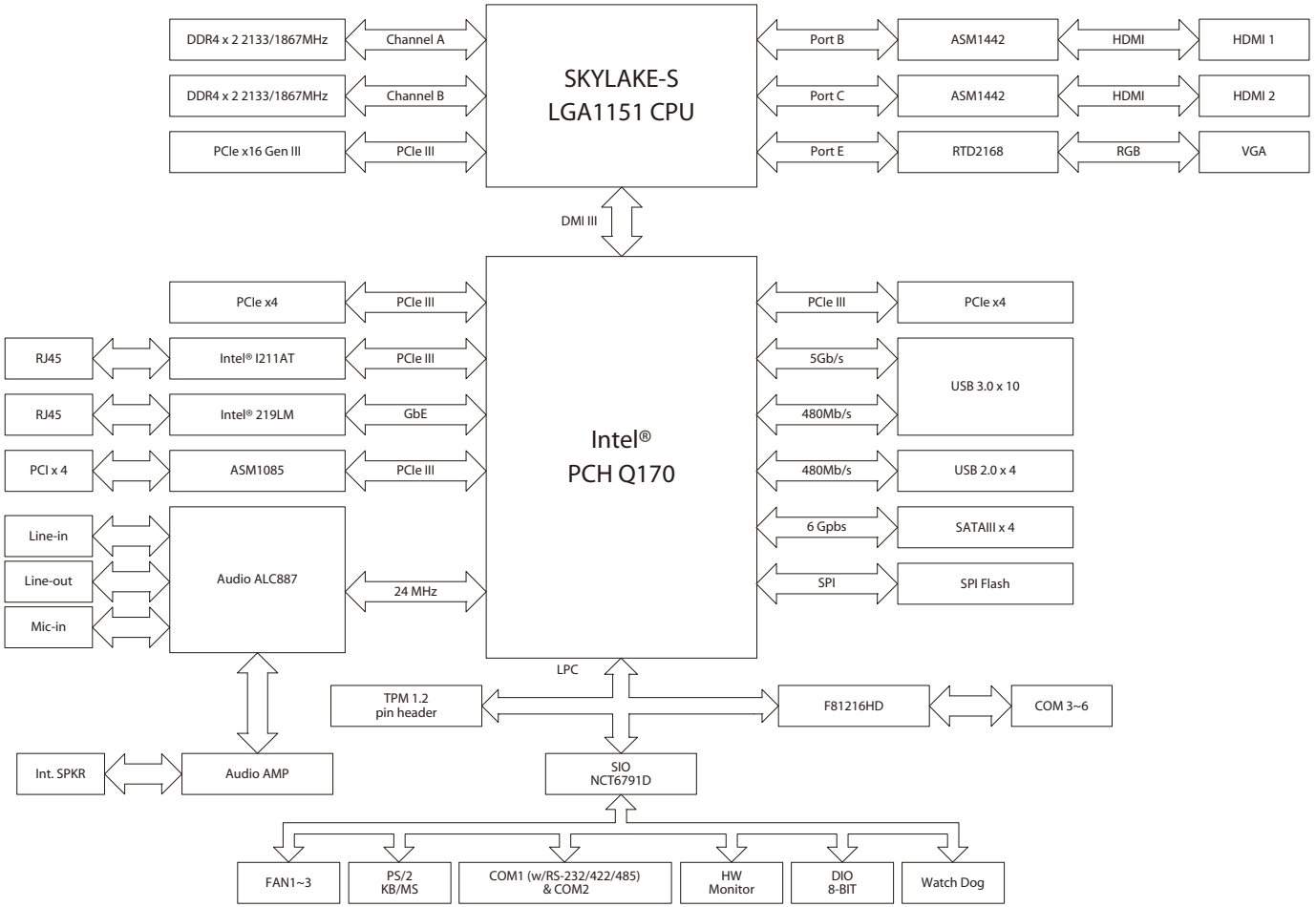
Pin	Definition	Pin	Definition
1	S_LAD0	2	S_LAD1
3	S_LAD2	4	S_LAD3
5	+3V	6	F_FRAME#
7	S_PLTRST#	8	GND
9	33M_CLK5_C	10	S_LDRQ1#
11	S_LDRQ#	12	F_SERIRQ#

NXM TPM Connector

Connector type: 1x10 10-pin header
Connector location: TPM_NXM

Pin	Definition	Pin	Definition
1	GND	2	S_PLTRST#
3	33M_CLK4_C	4	F_FRAME#
5	S_LAD3	6	S_LAD2
7	S_LAD1	8	S_LAD0
9	F_SERIRQ#	10	+3V

Block Diagram



Chapter 3: BIOS Setup

This chapter describes how to use the BIOS setup program for NEX 912. The BIOS screens provided in this chapter are for reference only and may change if the BIOS is updated in the future.

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

About BIOS Setup

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

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

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

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

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

When to Configure the BIOS

This program should be executed under the following conditions:

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

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

Default Configuration

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

Entering Setup

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

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

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

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 

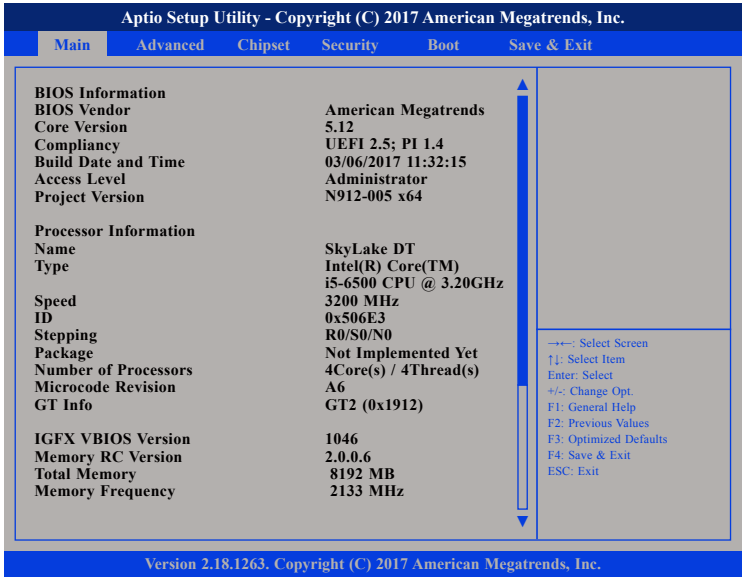
.

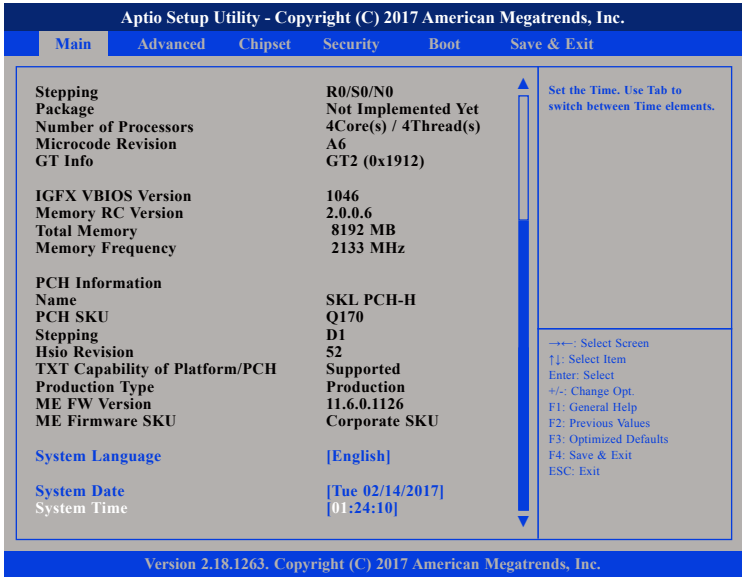
BIOS Setup Utility

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 Language

Selects the language of the system.

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.

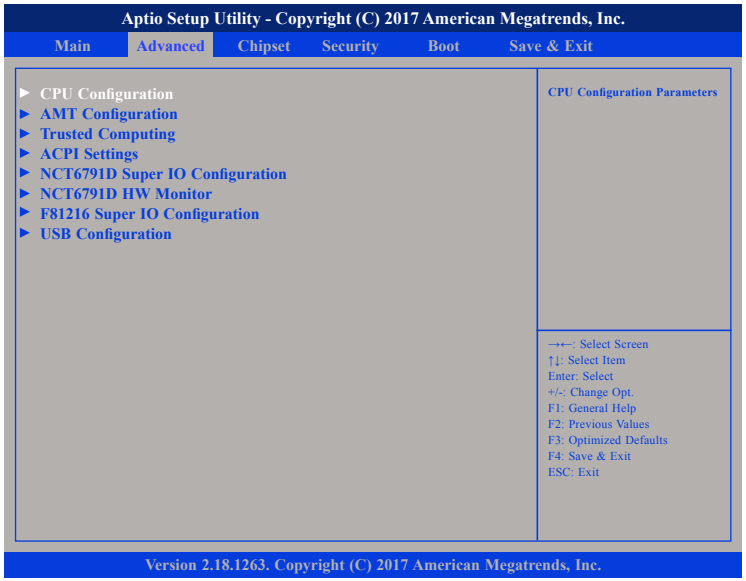
System Time

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.

Advanced

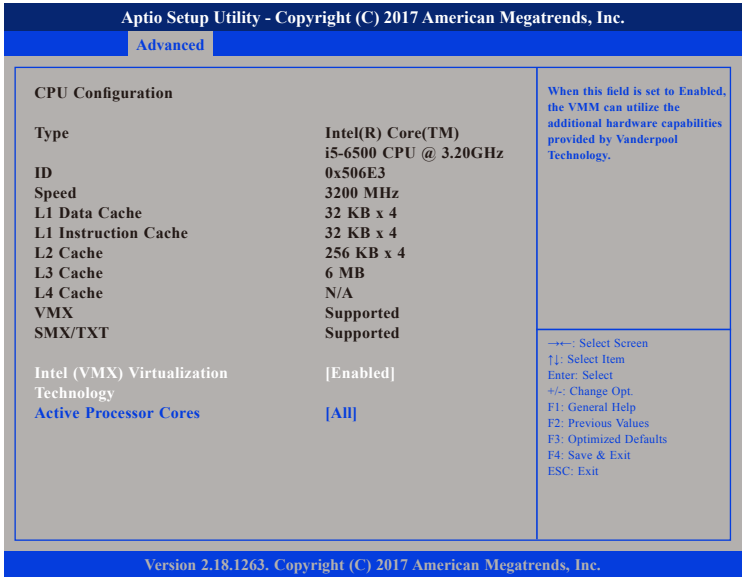
The Advanced menu allows you to configure your system for basic operation. Some entries are defaults required by the system board, while others, if enabled, will improve the performance of your system or let you set some features according to your preference.

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

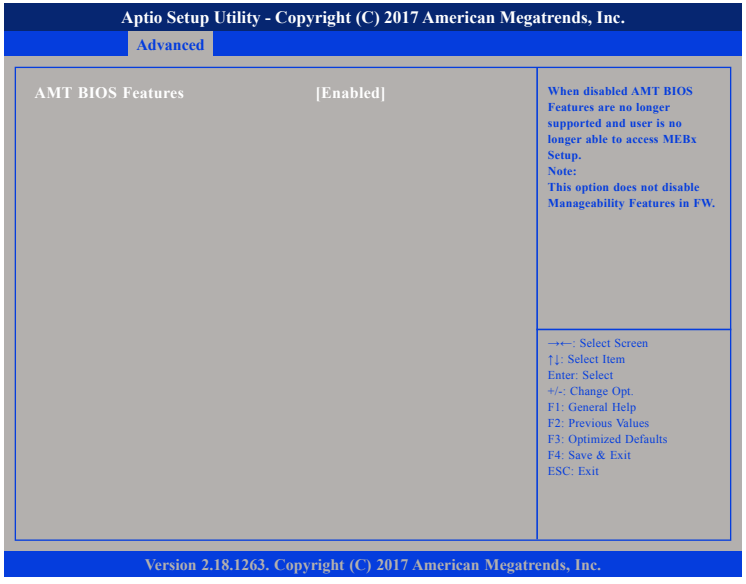
When this field is set to Enabled, the VMM can utilize the additional hardware capabilities provided by Vanderpool Technology.

Active Processor Cores

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

AMT Configuration

This section is used to configure AMT settings.



Enable ACPI Auto Configuration

Enables or disables AMT BIOS features. When disabled, user will no longer be able to access MEBx setup.

Trusted Computing

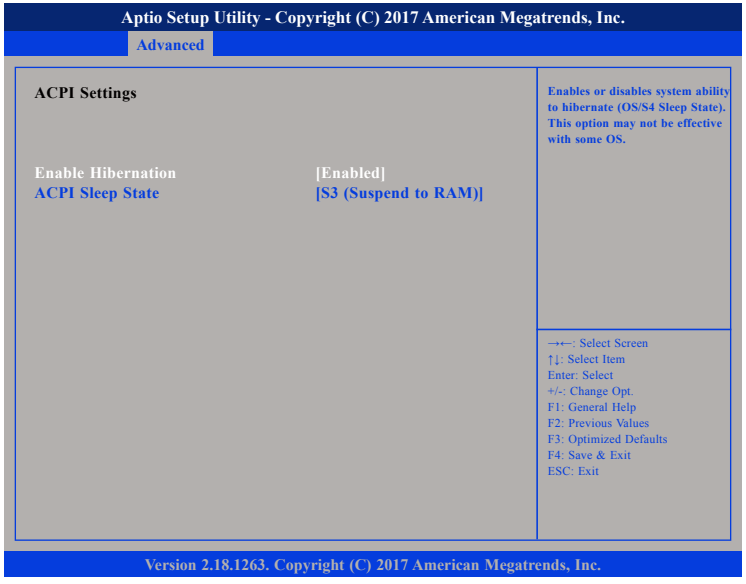
This section is used to configure Trusted Platform Module (TPM) settings.

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.

ACPI Settings

This section is used to configure ACPI settings.



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.

NCT6791D Super IO Configuration

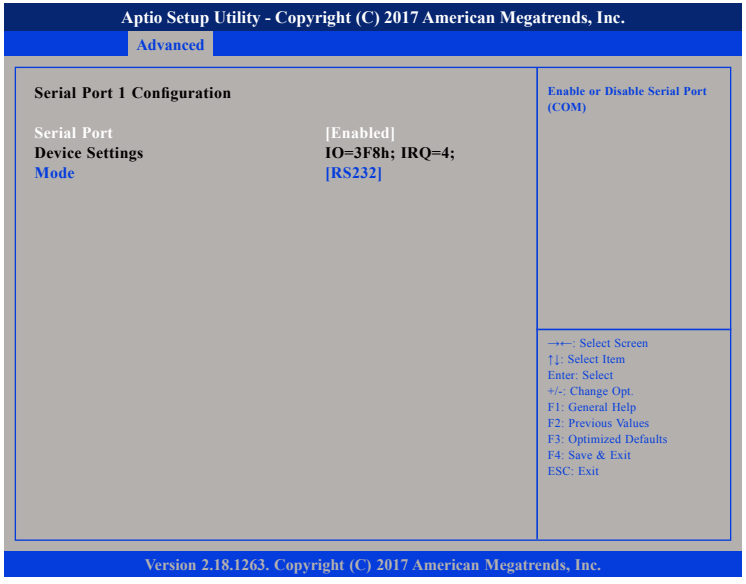
This section is used to configure serial ports 1 and 2 of the super IO.

Super IO Chip

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

Serial Port 1 Configuration

This section is used to configure serial port 1.



Serial Port

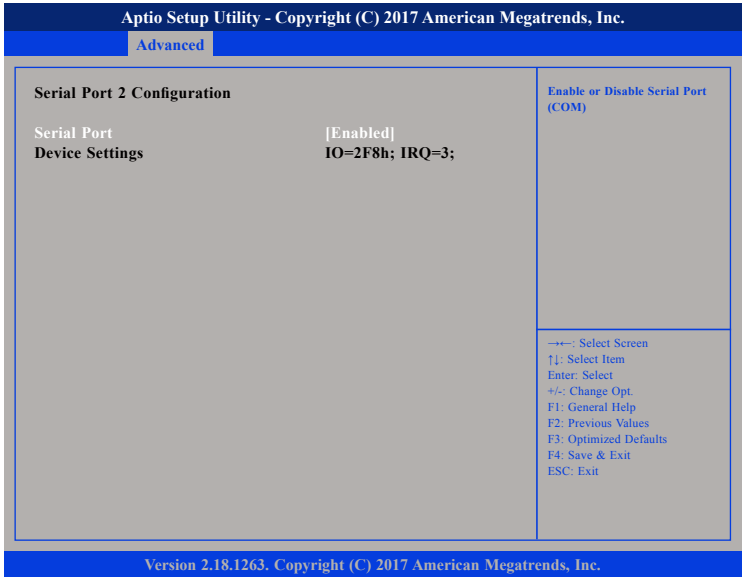
Enables or disables the serial port.

Mode

Configures the serial port mode to RS232, RS422, RS485D or RS485R.

Serial Port 2 Configuration

This section is used to configure serial port 2.

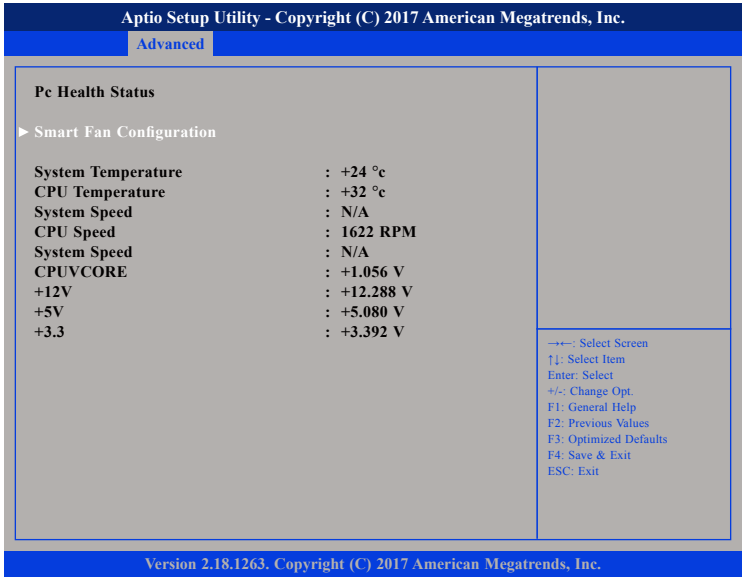


Serial Port

Enables or disables the serial port.

NCT6791D HW Monitor

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



System Temperature
Detects and displays the current system temperature.

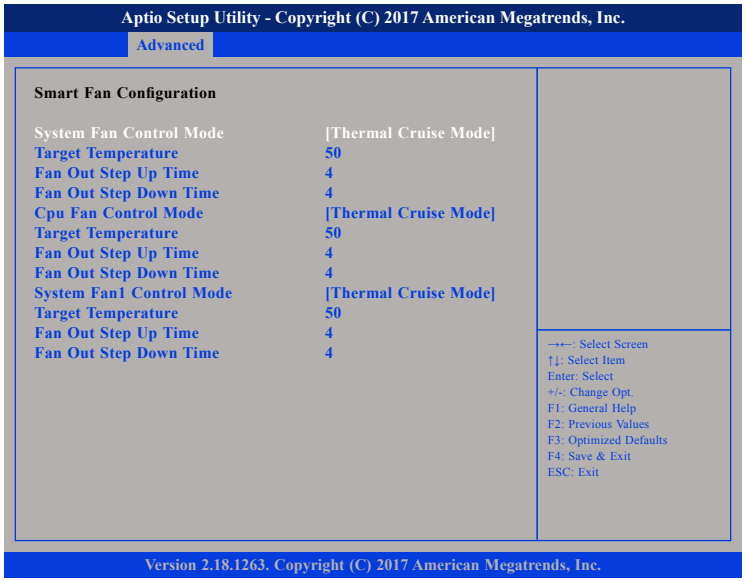
CPU Temperature
Detects and displays the current CPU temperature.

System Speed
Detects and displays the current system fan speed.

CPU Speed
Detects and displays the current CPU fan speed.

CPUVCORE to +3.3
Detects and displays the output voltages.

Smart Fan Configuration

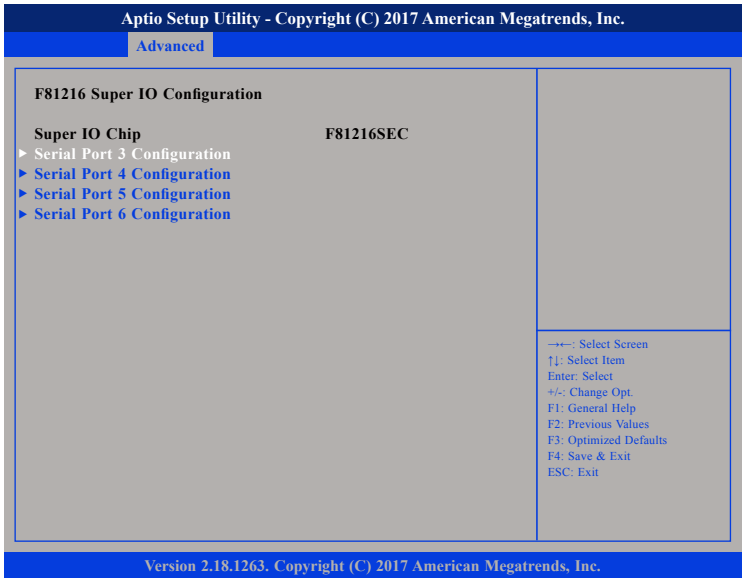


System Fan/CPU Fan/System Fan1 Control Mode

Configures the fan mode of the system fans and CPU fan. The options are Disabled (manual fan mode) and Thermal Cruise Mode (automatic fan mode).

F81216 Super IO Configuration

This section is used to configure serial ports 3 to 6 of the super IO.

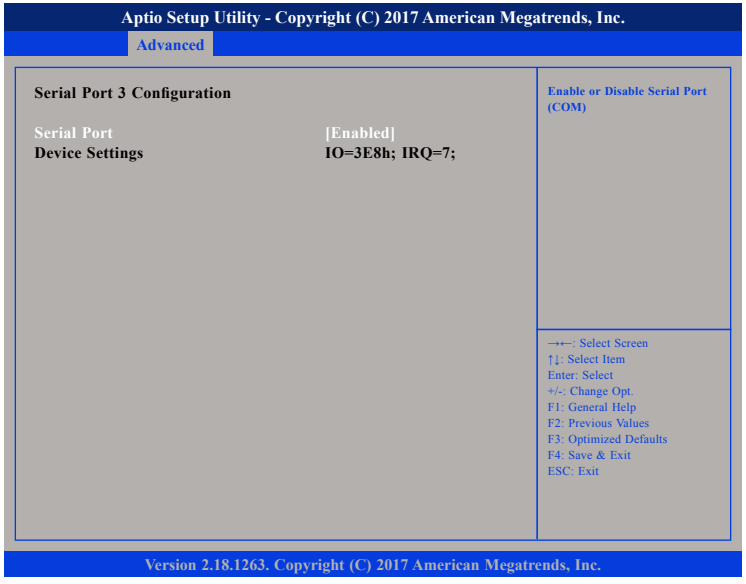


Super IO Chip

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

Serial Port 3 Configuration

This section is used to configure serial port 3.

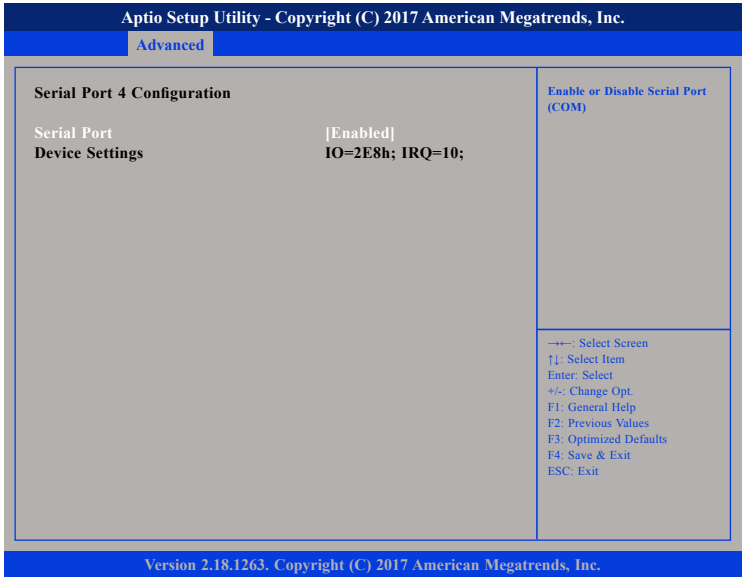


Serial Port

Enables or disables the serial port.

Serial Port 4 Configuration

This section is used to configure serial port 4.

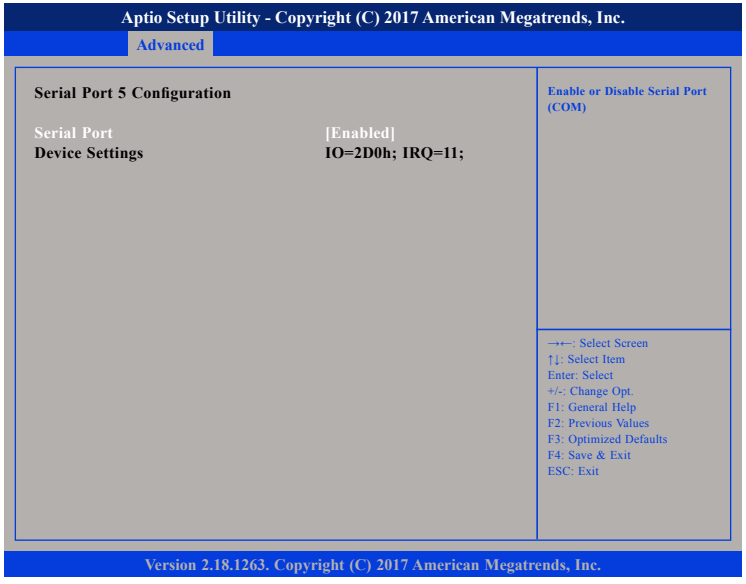


Serial Port

Enables or disables the serial port.

Serial Port 5 Configuration

This section is used to configure serial port 5.

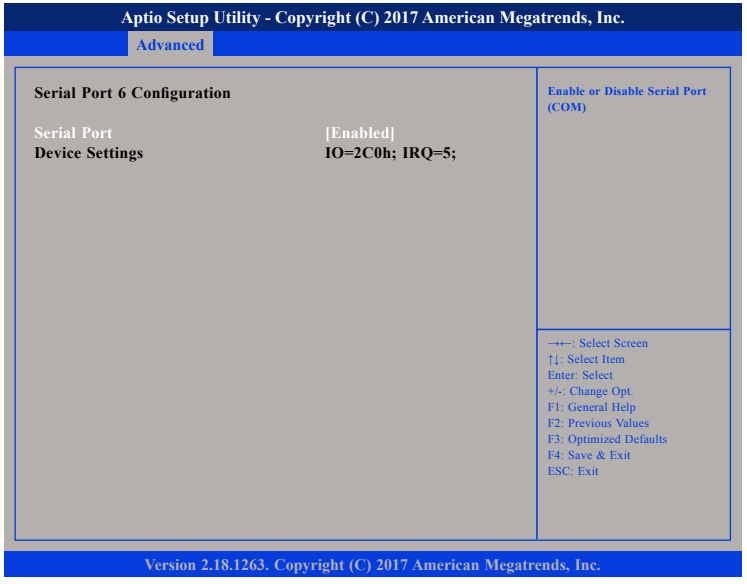


Serial Port

Enables or disables the serial port.

Serial Port 6 Configuration

This section is used to configure serial port 6.

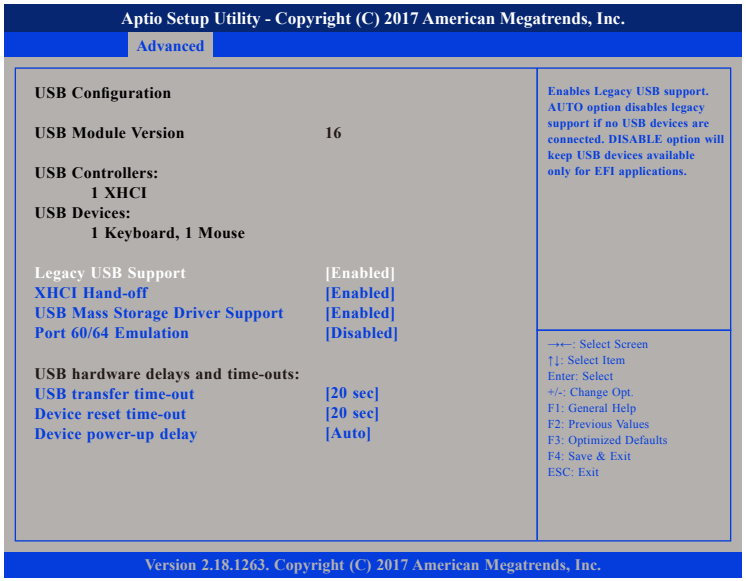


Serial Port

Enables or disables the serial port.

USB Configuration

This section is used to configure the USB.



Legacy USB Support

Enable Enables Legacy USB.
Auto Disables support for Legacy when no USB devices are connected.
Disable Keeps 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.

USB Mass Storage Driver Support

Enables or disables USB mass storage driver support.

Port 60/64 Emulation

Enables the 60h/64h I/O port emulation. Enable this to fully support USB keyboard legacy for non-USB OSes.

USB Transfer Time-out

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

Device Reset Time-out

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

Device Power-up Delay

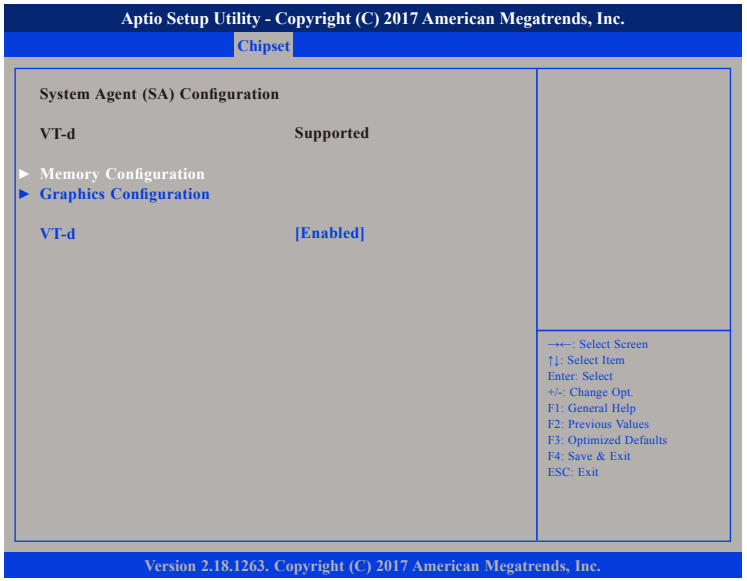
Maximum time the value will take before it properly reports itself to the Host Controller. "Auto" uses default value: for a Root port it is 100 ms, for a Hub port the delay is taken from Hub descriptor.

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.

ERP/EUP Mode
Enables or disables ErP/EuP compliance mode.

System Agent (SA) Configuration

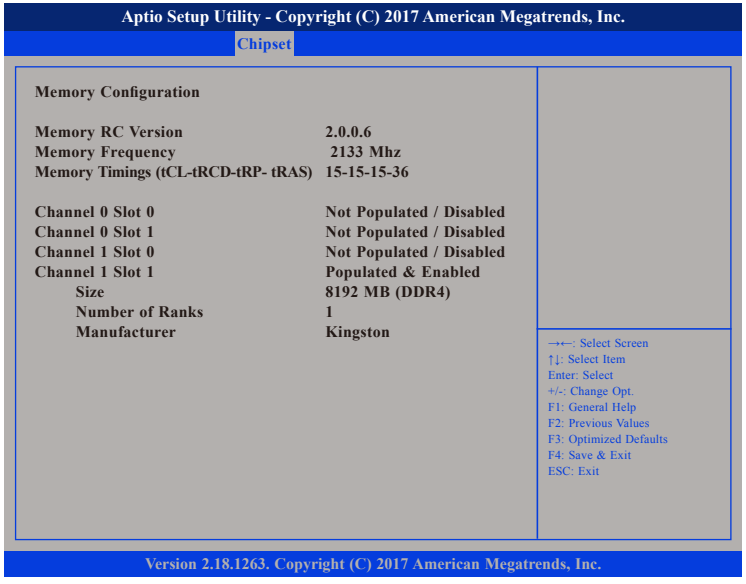


VT-d
Enables or disables VT-d function on MCH.

Memory Configuration
Configures the memory settings.

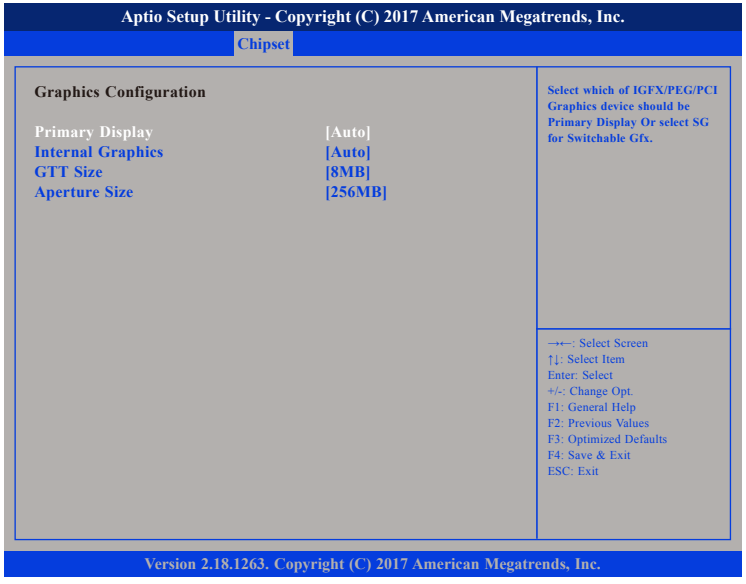
Graphics Configuration
Configures the graphics chip settings.

Memory Configuration



Detects and displays the information on the memory installed.

Graphics Configuration



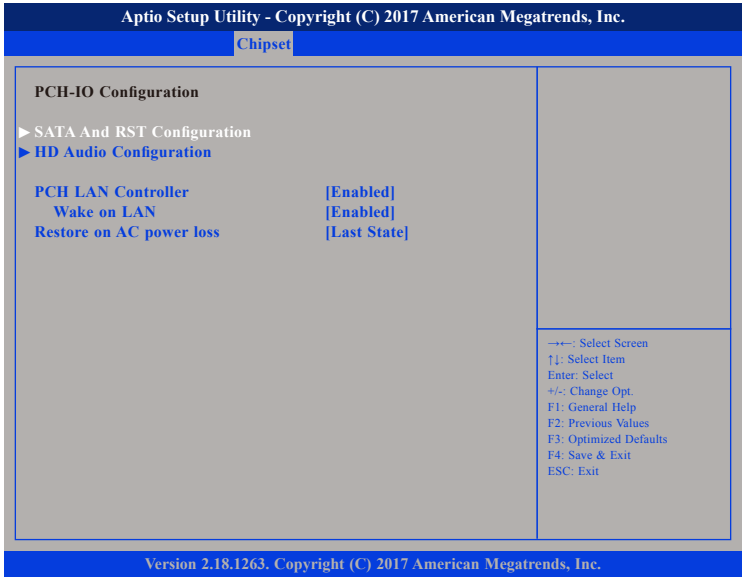
Primary Display
Selects which of IGFX/PEG/PCI graphics device should be primary display or select SG for switchable GFx.

Internal Graphics
Keep IGD enabled based on the setup options.

GTT Size
Configures the GTT size.

Aperture Size
Selects the Aperture size.

PCH-IO Configuration

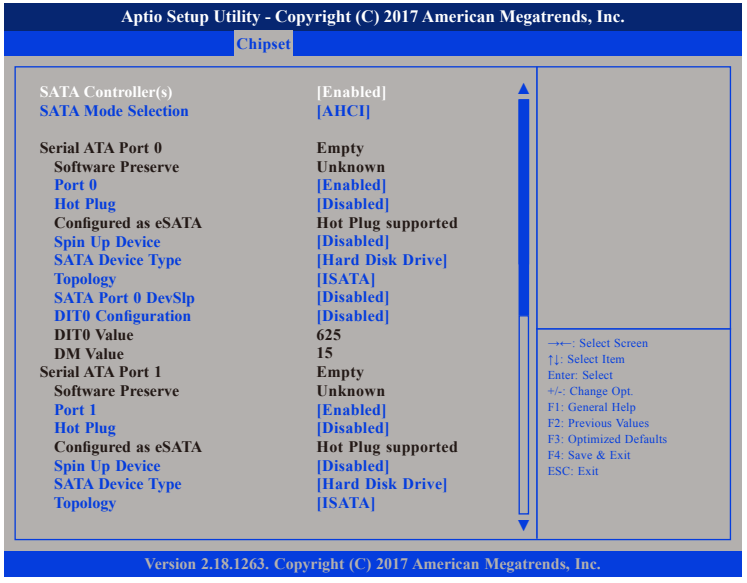


PCH LAN Controller
Enables or disables onboard NIC.

Wake on LAN
Enables or disables integrated LAN to wake the system.

Restore on AC Power Loss
Select AC power state when power is re-applied after a power failure.

SATA And RST Configuration

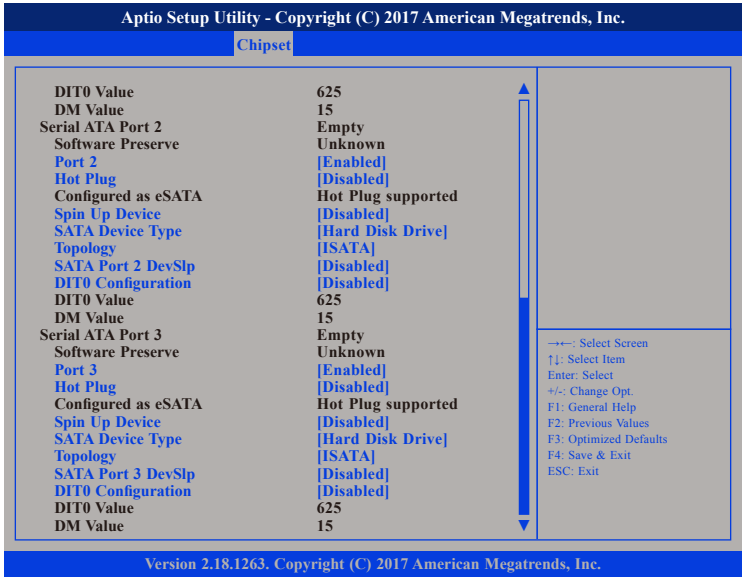


SATA Controller(s)
Enables or disables the SATA controller.

SATA Mode Selection
Configures the SATA mode. The options are AHCI and Intel RST Premium.

Port 0 to Port 3
Enables or disables SATA port 0 to port 3.

Hot Plug
Enables or disables hot plugging feature on SATA port 0 to port 3.



Spin Up Device
Enables or disables staggered spin up on devices connected to SATA port 0 to port 3.

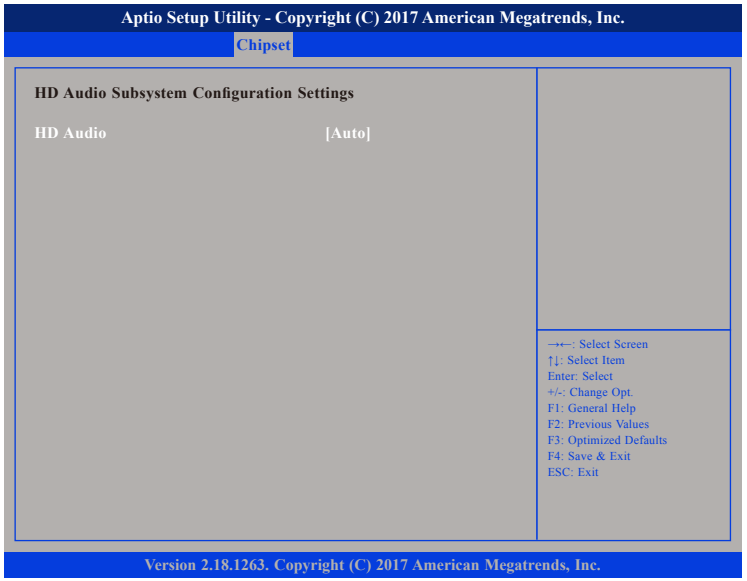
SATA Device Type
Identifies what type of SATA device is connected.

Topology
Identifies what type of SATA connection is used.

SATA Port 0 to Port 3 DevSlp
Enables or disables SATA port 0 to port 3 DevSlp. Before enabling DevSlp, board rework is needed.

DIT0 Configuration
Enables or disables DIT0 configuration for SATA port 0 to port 3.

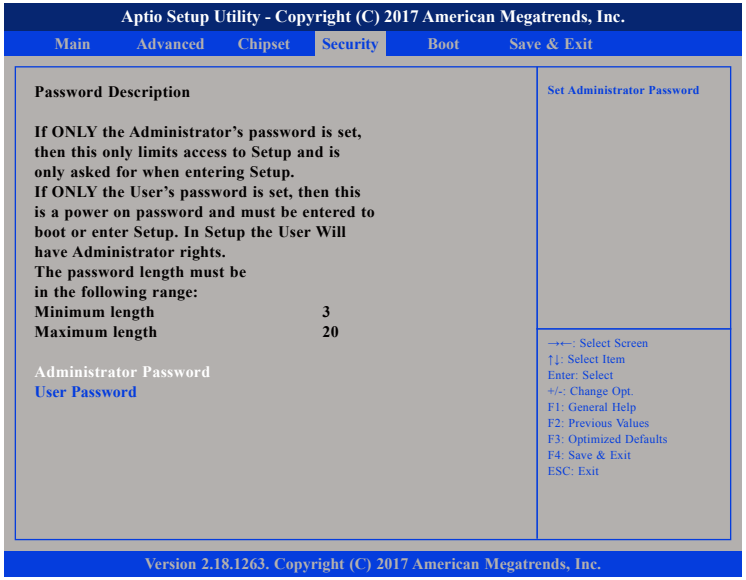
HD Audio Configuration



Azalia
Control detection of the Azalia device.

Disabled	Azalia will be unconditionally disabled.
Enabled	Azalia will be unconditionally enabled.
Auto	Azalia will be enabled if present, disabled otherwise.

Security



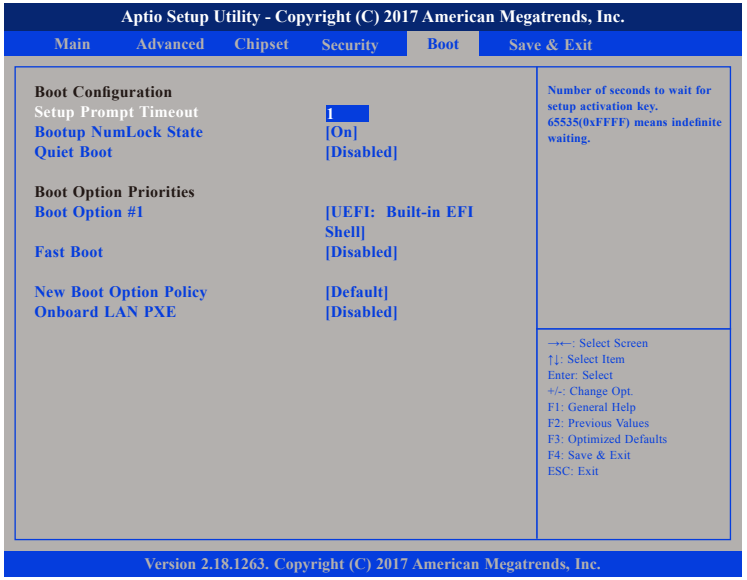
Administrator Password

Select this to reconfigure the administrator's password.

User Password

Select this to reconfigure the user's password.

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.

Quiet Boot

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.

New Boot Option Policy

Controls the placement of newly detected UEFI boot options.

Onboard LAN PXE

Enables or disables onboard LAN PXE ROM.

Save & Exit

Save Changes and Reset

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

Discard Changes and Reset

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

Restore Defaults

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

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

Launch EFI Shell from Filesystem Device
To launch EFI shell from a filesystem device, select this field and press <Enter>.

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