



J3455-NUC IPC
N4200-NUC IPC
N3350-NUC IPC

User Manual

Version 1.0

Published June 2018

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“Perchlorate Material-special handling may apply, see www.dtsc.ca.gov/hazardouswaste/perchlorate”

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DISPOSE OF USED BATTERIES ACCORDING TO THE INSTRUCTIONS.

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Chapter 1: Introduction

Thank you for purchasing ASRock **J3455-NUC IPC / N4200-NUC IPC / N3350-NUC IPC** motherboard, a reliable motherboard produced under ASRock's consistently stringent quality control. It delivers excellent performance with robust design conforming to ASRock's commitment to quality and endurance.

In this manual, chapter 1 and 2 contain introduction of the motherboard and step-by-step guide to the hardware installation. Chapter 3 and 4 contain the configuration guide to BIOS setup and information of the Support CD.



Because the motherboard specifications and the BIOS software might be updated, the content of this manual will be subject to change without notice. In case any modifications of this manual occur, the updated version will be available on ASRock website without further notice. You may find the latest VGA cards and CPU support lists on ASRock website as well. ASRock website <http://www.asrock.com>

If you require technical support related to this motherboard, please visit our website for specific information about the model you are using.

www.asrock.com/support/index.asp

1.1 Package Contents

ASRock **J3455-NUC IPC / N4200-NUC IPC / N3350-NUC IPC** Motherboard
(4.09" x 4.02" (104 x 102mm))

ASRock **J3455-NUC IPC / N4200-NUC IPC / N3350-NUC IPC** Driver CD

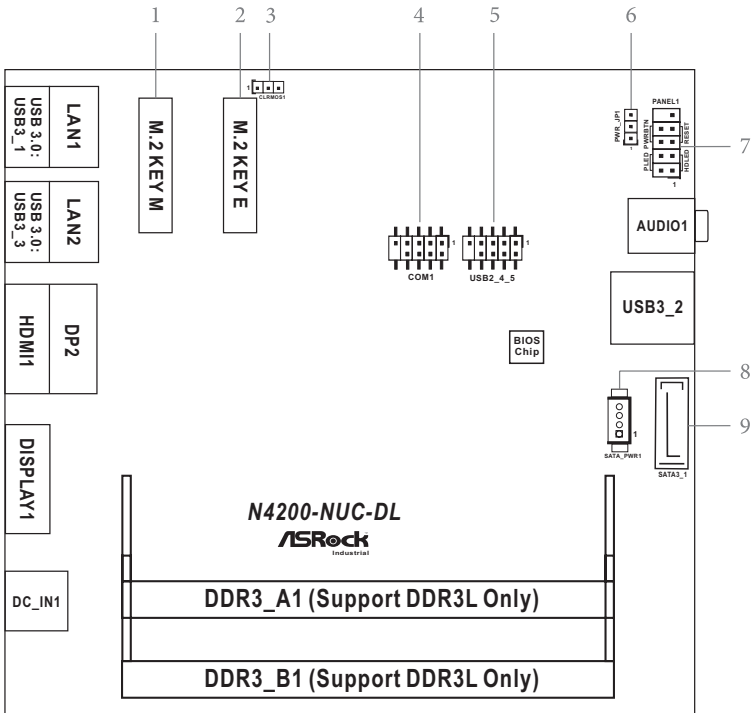
ASRock **J3455-NUC IPC / N4200-NUC IPC / N3350-NUC IPC** Jumper setting instruction

1.2 Specifications

Form Factor	Dimensions	4.09" x 4.02" (104 x 102mm)
	Processor System	CPU
	Chipset	Intel® SoC
Expansion Slot	PCIe	N/A
	Mini-PCIe	N/A
	mSATA	N/A
	M.2	1 x M.2 2230, Key E (PCIe x1 +USB2.0), 1 x M.2 2242/2260, Key M with SATA3 for SSD
Memory	Technology	Dual Channel DDR3L 1867
	Max.	16GB
	Socket	2 x SO-DIMM
Graphics	Controller	Intel® Gen9 Graphics DX 11/12, OGL4.3/4.4
	VGA	N/A
	DVI	N/A
	LVDS	N/A
	HDMI	Supports HDMI 1.4b, Max. resolution 3840 x 2160@30Hz
	DisplayPort	Supports DP 1.2, Max. resolution 4096 x 2160@60Hz
	MultiDisplay	Triple Display
	eDP	N/A
Ethernet	Ethernet	10/100/1000 Mbps
	Controller	2 x Realtek RTL8111G
Rear I/O	VGA	N/A
	DVI	N/A
	HDMI	1
	DisplayPort	2
	Ethernet	2
	USB	2 x USB 3.0
	Audio	1 x (Mic-in, Line-out)
	Serial	N/A
PS/2	N/A	

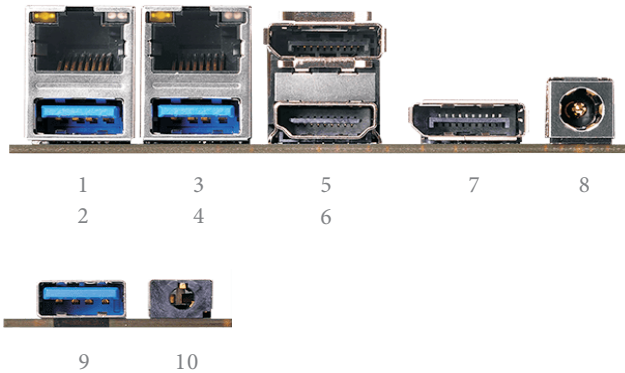
Internal Connector	USB	2 x USB2.0
	LVDS/ inverter	N/A
	eDP	N/A
	VGA	N/A
	Serial	1
	SATA	1 x SATA3 (6.0 Gb/s)
	Parallel	N/A
	GPIO	N/A
	SATA PWR Output	1
	Speaker Header	N/A
	TPM	SPI TPM on-board design
Watchdog Timer	Output	From Super I/O to drag RESETCON#
	Interval	256 segments, 0,1,2...255sec
Power Requirements	Input PWR	12V DC-In (DC Jack)
	Power On	ATX Supported ATX: Press Button to PWR on after Power input ready
Environment	Operating Temp	0°C – 60°C
	Storage Temp	-40°C – 85°C

1.3 Motherboard Layout



- 1 : M.2 Socket (Key-M) (M2M_1)
- 2 : M.2 Socket (Key-E) (M2E_1)
- 3 : Clear CMOS Header (CLRMOS1)
- 4 : COM Port Header (COM1)
- 5 : USB2.0 Header (USB2_4_5)
- 6 : ATX/AT Mode Select (PWR_JP1)
- 7 : System Panel Header (PANEL1)
- 8 : SATA Power Output Connector (SATA_PWR1)
- 9 : SATA3 Connector (SATA3_1)

1.4 I/O Panel



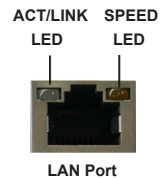
- | | |
|--------------------------|--------------------------|
| 1 LAN RJ-45 Port (LAN1)* | 6 HDMI Port (HDMI1) |
| 2 USB 3.0 Port (USB3_1) | 7 DisplayPort (DISPLAY1) |
| 3 LAN RJ-45 Port (LAN2)* | 8 DC-In Jack (DC_IN1) |
| 4 USB 3.0 Port (USB3_3) | 9 USB 3.0 Port (USB3_2) |
| 5 DisplayPort (DP2) | 10 Audio Jack (AUDIO1) |

* There are two LED next to the LAN port. Please refer to the table below for the LAN port LED indications.

LAN Port LED Indications

Activity/Link LED	
Status	Description
Off	No Link
Blinking	Data Activity
On	Link

SPEED LED	
Status	Description
Off	10Mbps connection
Orange	100Mbps connection
Green	1Gbps connection



Chapter 2: Installation

Before you install the motherboard, study the configuration of your chassis to ensure that the motherboard fits into it.



Make sure to unplug the power cord before installing or removing the motherboard. Failure to do so may cause physical injuries to you and damages to motherboard components.

2.1 Screw Holes

Place screws into the holes to secure the motherboard to the chassis.



Do not over-tighten the screws! Doing so may damage the motherboard.

2.2 Pre-installation Precautions

Take note of the following precautions before you install motherboard components or change any motherboard settings.

1. Unplug the power cord from the wall socket before touching any component.
2. To avoid damaging the motherboard components due to static electricity, NEVER place your motherboard directly on the carpet or the like. Also remember to use a grounded wrist strap or touch a safety grounded object before you handle components.
3. Hold components by the edges and do not touch the ICs.
4. Whenever you uninstall any component, place it on a grounded antistatic pad or in the bag that comes with the component.



Before you install or remove any component, ensure that the power is switched off or the power cord is detached from the power supply. Failure to do so may cause severe damage to the motherboard, peripherals, and/or components.

2.3 Installation of Memory Modules (SO-DIMM)

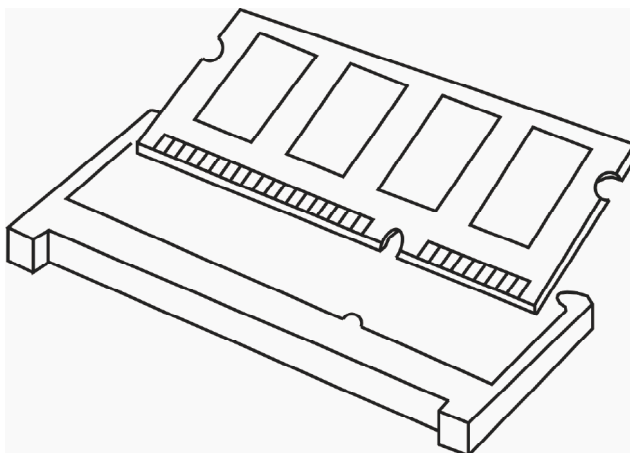
J3455-NUC IPC / N4200-NUC IPC / N3350-NUC IPC motherboard provides two 204-pin DDR3 (Double Data Rate 3) SO-DIMM slots, which support Dual Channel DDR3L (low voltage).



1. It is not allowed to install a DDR or DDR2 memory module into a DDR3 slot; otherwise, this motherboard and SO-DIMM may be damaged.
2. Please make sure to disconnect the power supply before adding or removing SO-DIMMs or the system components.
3. The SO-DIMM only fits in one correct orientation. It will cause permanent damage to the motherboard and the SO-DIMM if you force the SO-DIMM into the slot at incorrect orientation.

Installing a SO-DIMM

- Step 1. Align a SO-DIMM on the slot such that the notch on the SO-DIMM matches the break on the slot.



- Step 2. Firmly insert the SO-DIMM into the slot until the retaining clips at both ends fully snap back in place and the SO-DIMM is properly seated.

2.4 Expansion Slots (M.2 Sockets)

There are 2 M.2 sockets on this motherboard.

M.2 Sockets:

1 x M.2 2230, Key E (PCIe x1 +USB2.0)

1 x M.2 2242/2260, Key M (SATA3)

M.2 Socket (Key-M) (M2M_1)

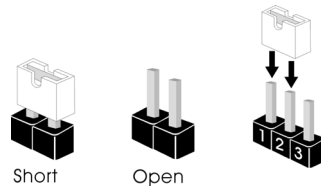
Pin	Signal Name	Pin	Signal Name
1	GND	2	+5V
3	GND	4	+5V
5	NC	6	NC
7	NC	8	NC
9	GND	10	NC
11	NC	12	+5V
13	NC	14	+5V
15	GND	16	+5V
17	NC	18	+5V
19	NC	20	NC
21	GND	22	NC
23	NC	24	NC
25	NC	26	NC
27	GND	28	NC
29	NC	30	NC
31	NC	32	NC
33	GND	34	NC
35	NC	36	NC
37	NC	38	DEVSLP
39	GND	40	SMB_CLK
41	SATA_RXP	42	SMB_DATA
43	SATA_RXN	44	NC
45	GND	46	NC
47	SATA_TXN	48	NC
49	SATA_TXP	50	NC
51	GND	52	NC
53	NC	54	NC
55	NC	56	NC
57	GND	58	NC
59	NC	60	NC
61	NC	62	NC
63	NC	64	NC
65	NC	66	NC
67	NC	68	NC
69	GND	70	+5V
71	GND	72	+5V
73	GND	74	+5V
75	GND		

M.2 Socket (Key-E) (M2E_1)

Pin	Signal Name	Pin	Signal Name
1	GND	2	DVSB
3	USB_P	4	DVSB
5	USB_N	6	NC
7	GND	8	NC
9	NC	10	NC
11	NC	12	NC
13	NC	14	NC
15	NC	16	NC
17	NC	18	GND
19	NC	20	NC
21	NC	22	NC
23	NC	24	NC
25	NC	26	NC
27	NC	28	NC
29	NC	30	NC
31	NC	32	NC
33	GND	34	NC
35	PCIE_RXP	36	NC
37	PCIE_TXN	38	NC
39	GND	40	NC
41	PCIE_RXP	42	NC
43	PCIE_RXN	44	NC
45	GND	46	NC
47	PCIE_CLAMP	48	NC
49	PCIE_CLAMP	50	NC
51	GND	52	PL1_RST#
53	CLKREQ#	54	BT_DISABLE#
55	HSWDW	56	WLAN_DISABLE#
57	GND	58	SMB_DATA
59	NC	60	SMB_CLK
61	NC	62	NC
63	GND	64	NC
65	NC	66	NC
67	NC	68	NC
69	GND	70	NC
71	NC	72	DVSB
73	NC	74	DVSB
75	GND		

2.5 Jumpers Setup

The illustration shows how jumpers are setup. When the jumper cap is placed on pins, the jumper is “Short”. If no jumper cap is placed on pins, the jumper is “Open”. The illustration shows a 3-pin jumper whose pin1 and pin2 are “Short” when jumper cap is placed on these 2 pins.



Clear CMOS Jumper

(CLRCMOS1)

(see p.8, No. 3)



Note: CLRCMOS1 allows you to clear the data in CMOS. To clear and reset the system parameters to default setup, please turn off the computer and unplug the power cord from the power supply. After waiting for 15 seconds, use a jumper cap to short pin2 and pin3 on CLRCMOS1 for 5 seconds. However, please do not clear the CMOS right after you update the BIOS. If you need to clear the CMOS when you just finish updating the BIOS, you must boot up the system first, and then shut it down before you do the clear-CMOS action. Please be noted that the password, date, time, user default profile and MAC address will be cleared only if the CMOS battery is removed.

ATX/AT Mode Select

(3-pin PWR_JP1)

(see p.8 No. 6)



1-2: AT Mode

2-3: ATX Mode

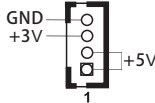
2.6 Onboard Headers and Connectors



Onboard headers and connectors are NOT jumpers. Do NOT place jumper caps over these headers and connectors. Placing jumper caps over the headers and connectors will cause permanent damage of the motherboard!

SATA Power Output Connector

(SATA_PWR1)
(see p.8, No. 8)



Please connect a SATA power cable to this connector.

SATA3 Connector

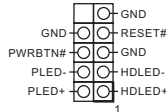
(SATA3_1: see p.8, No. 9)



This Serial ATA3 (SATA3) connector supports SATA data cables for internal storage devices. The current SATA3 interface allows up to 6.0 Gb/s data transfer rate.

System Panel Header

(9-pin PANEL1)
(see p.8, No. 7)



This header accommodates several system front panel functions.



Connect the power switch, reset switch and system status indicator on the chassis to this header according to the pin assignments below. Note the positive and negative pins before connecting the cables.

PWRBTN (Power Switch):

Connect to the power switch on the chassis front panel. You may configure the way to turn off your system using the power switch.

RESET (Reset Switch):

Connect to the reset switch on the chassis front panel. Press the reset switch to restart the computer if the computer freezes and fails to perform a normal restart.

PLED (System Power LED):

Connect to the power status indicator on the chassis front panel. The LED is on when the system is operating. The LED keeps blinking when the system is in S1/S3 sleep state. The LED is off when the system is in S4 sleep state or powered off (S5).

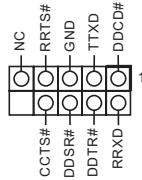
HDLED (Hard Drive Activity LED):

Connect to the hard drive activity LED on the chassis front panel. The LED is on when the hard drive is reading or writing data.

The front panel design may differ by chassis. A front panel module mainly consists of power switch, reset switch, power LED, hard drive activity LED, speaker and etc. When connecting your chassis front panel module to this header, make sure the wire assignments and the pin assignments are matched correctly.

COM Port Header (RS232/422/485)

(9-pin COM1: see p.8, No. 4)



* This motherboard supports RS232/422/485 on COM1 port. Please refer to below table for the pin definition. In addition, COM1 port (RS232/422/485) can be adjusted in BIOS setup utility > Advanced Screen > Super IO Configuration. You may refer to page 23 for details.

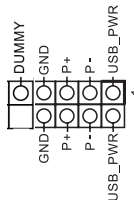
COM1 Port Pin Definition

PIN	RS232	RS422	RS485
1	DCD	TX-	RTX-
2	RXD	TX+	RTX+
3	TXD	RX+	N/A
4	DTR	RX-	N/A
5	GND	GND	GND
6	DSR	N/A	N/A
7	RTS	N/A	N/A
8	CTS	N/A	N/A
9	N/A	N/A	N/A
10	N/A	N/A	N/A

USB 2.0 Connector

(9-pin USB2_4_5)

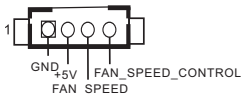
(see p.8 No. 5)



There is one USB 2.0 connector on this motherboard. Each USB 2.0 connector can support two USB ports.

Back Side:

Fan Connector



Power Button



Chapter 3: UEFI SETUP UTILITY

3.1 Introduction

This section explains how to use the UEFI SETUP UTILITY to configure your system. The UEFI chip on the motherboard stores the UEFI SETUP UTILITY. You may run the UEFI SETUP UTILITY when you start up the computer. Please press <F2> or during the Power-On-Self-Test (POST) to enter the UEFI SETUP UTILITY, otherwise, POST will continue with its test routines.

If you wish to enter the UEFI SETUP UTILITY after POST, restart the system by pressing <Ctl> + <Alt> + <Delete>, or by pressing the reset button on the system chassis. You may also restart by turning the system off and then back on.



Because the UEFI software is constantly being updated, the following UEFI setup screens and descriptions are for reference purpose only, and they may not exactly match what you see on your screen.

3.1.1 UEFI Menu Bar

The top of the screen has a menu bar with the following selections:

Main	To set up the system time/date information
Advanced	To set up the advanced UEFI features
H/W Monitor	To display current hardware status
Security	To set up the security features
Boot	To set up the default system device to locate and load the Operating System
Exit	To exit the current screen or the UEFI SETUP UTILITY

Use <←> key or <→> key to choose among the selections on the menu bar, and then press <Enter> to get into the sub screen. You can also use the mouse to click your required item.

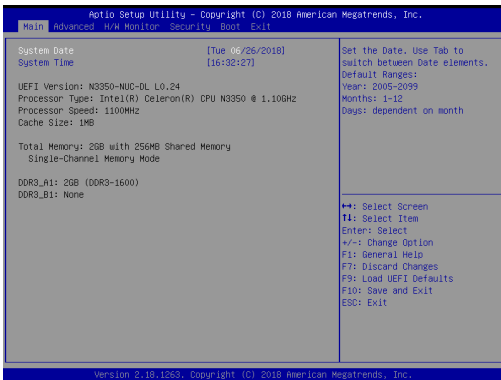
3.1.2 Navigation Keys

Please check the following table for the function description of each navigation key.

Navigation Key(s)	Function Description
← / →	Moves cursor left or right to select Screens
↑ / ↓	Moves cursor up or down to select items
+ / -	To change option for the selected items
<Enter>	To bring up the selected screen
<F1>	To display the General Help Screen
<F7>	Discard changes
<F9>	To load optimal default values for all the settings
<F10>	To save changes and exit the UEFI SETUP UTILITY
<F12>	Print screen
<ESC>	To jump to the Exit Screen or exit the current screen

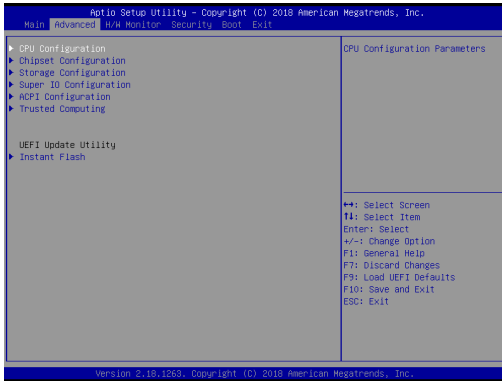
3.2 Main Screen

When you enter the UEFI SETUP UTILITY, the Main screen will appear and display the system overview.



3.3 Advanced Screen

In this section, you may set the configurations for the following items: CPU Configuration, Chipset Configuration, Storage Configuration, Super IO Configuration, ACPI Configuration and Trusted Computing.



Setting wrong values in this section may cause the system to malfunction.

Instant Flash

Instant Flash is a UEFI flash utility embedded in Flash ROM. This convenient UEFI update tool allows you to update system UEFI without entering operating systems first like MS-DOS or Windows®. Just launch this tool and save the new UEFI file to your USB flash drive, floppy disk or hard drive, then you can update your UEFI only in a few clicks without preparing an additional floppy diskette or other complicated flash utility. Please be noted that the USB flash drive or hard drive must use FAT32/16/12 file system. If you execute Instant Flash utility, the utility will show the UEFI files and their respective information. Select the proper UEFI file to update your UEFI, and reboot your system after UEFI update process completes.

3.3.1 CPU Configuration



Intel SpeedStep Technology

Intel SpeedStep technology is Intel's new power saving technology. Processors can switch between multiple frequencies and voltage points to enable power saving. The default value is [Enabled]. Configuration options: [Enabled] and [Disabled]. If you install Windows® OS and want to enable this function, please set this item to [Enabled]. This item will be hidden if the current CPU does not support Intel SpeedStep technology.



Please note that enabling this function may reduce CPU voltage and lead to system stability or compatibility issues with some power supplies. Please set this item to [Disabled] if above issues occur.

CPU C States Support

Enable CPU C States Support for power saving. It is recommended to keep C3, C6 and C7 all enabled for better power saving.

Intel Virtualization Technology

When this option is set to [Enabled], a VMM (Virtual Machine Architecture) can utilize the additional hardware capabilities provided by Vanderpool Technology. This option will be hidden if the installed CPU does not support Intel Virtualization Technology.

VT-d

Intel® Virtualization Technology for Directed I/O helps your virtual machine monitor better utilize hardware by improving application compatibility and reliability, and providing additional levels of manageability, security, isolation, and I/O performance.

Power Gear

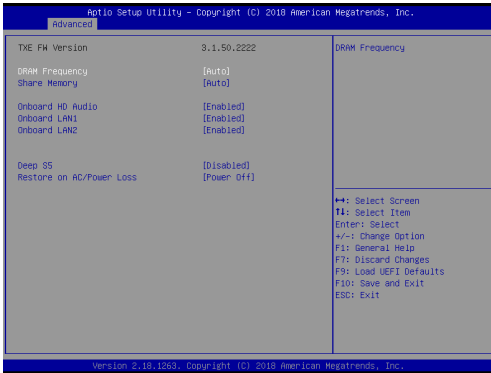
Toggle between three operational modes (Eco, Normal and Sport) to maximize performance or conserve energy.

Eco Mode: Reduces your computer's performance and saves energy.

Normal Mode: Balance performance with power consumption.

Sport Mode: Use more power to achieve the highest performance.

3.3.2 Chipset Configuration



DRAM Frequency

If [Auto] is selected, the motherboard will detect the memory module(s) inserted and assign the appropriate frequency automatically.

Share Memory

Configure the size of memory that is allocated to the integrated graphics processor when the system boots up.

Onboard HD Audio

Select [Auto], [Enabled] or [Disabled] for the onboard HD Audio feature. If you select [Auto], the onboard HD Audio will be disabled when PCI Sound Card is plugged.

Onboard LAN 1

This allows you to enable or disable the Onboard LAN 1 feature.

Onboard LAN 2

This allows you to enable or disable the Onboard LAN 2 feature.

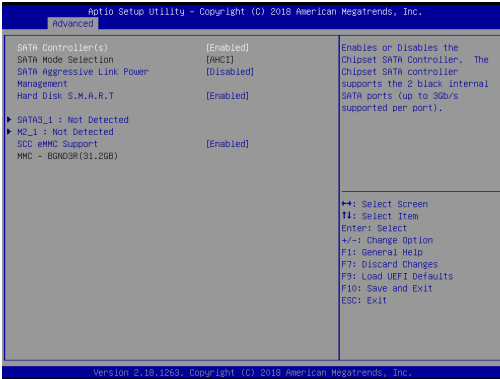
Deep S5

Mobile platforms support Deep S5 in DC only and desktop platforms support Deep S5 in AC only. The default value is [Disabled].

Restore on AC/Power Loss

Select the power state after a power failure. If [Power Off] is selected, the power will remain off when the power recovers. If [Power On] is selected, the system will start to boot up when the power recovers.

3.3.3 Storage Configuration



SATA Controller(s)

Use this item to enable or disable the SATA Controller feature.

SATA Mode Selection

Use this to select SATA mode. The default value is [AHCI Mode].



AHCI (Advanced Host Controller Interface) supports NCQ and other new features that will improve SATA disk performance but IDE mode does not have these advantages.

SATA Aggressive Link Power Management

Use this item to configure SATA Aggressive Link Power Management.

Hard Disk S.M.A.R.T.

Use this item to enable or disable the S.M.A.R.T. (Self-Monitoring, Analysis, and Reporting Technology) feature. Configuration options: [Disabled] and [Enabled].

3.3.4 Super IO Configuration



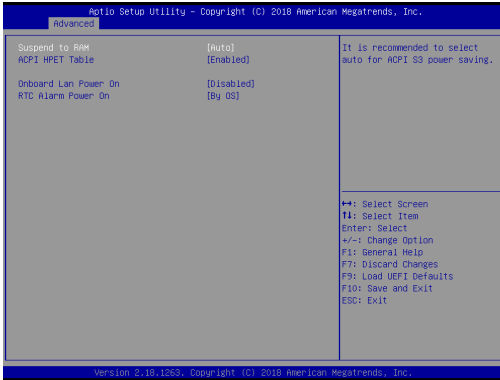
COM1 Configuration

Use this to set parameters of COM1. Select COM1 port type: [RS232], [RS422] or [RS485].

WDT Timeout Reset

This allows users to enable/disable the Watch Dog Timer timeout to reset system. The default value is [Disabled].

3.3.5 ACPI Configuration



Suspend to RAM

Use this item to select whether to auto-detect or disable the Suspend-to-RAM feature. Select [Auto] will enable this feature if the OS supports it.

ACPI HPET Table

Use this item to enable or disable ACPI HPET Table. The default value is [Enabled]. Please set this option to [Enabled] if you plan to use this motherboard to submit Windows® certification.

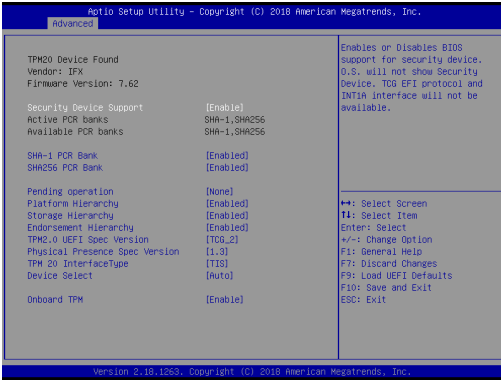
Onboard LAN Power On

Use this item to enable or disable onboard LAN to power on the system.

RTC Alarm Power On

Use this item to enable or disable RTC (Real Time Clock) to power on the system.

3.3.6 Trusted Computing

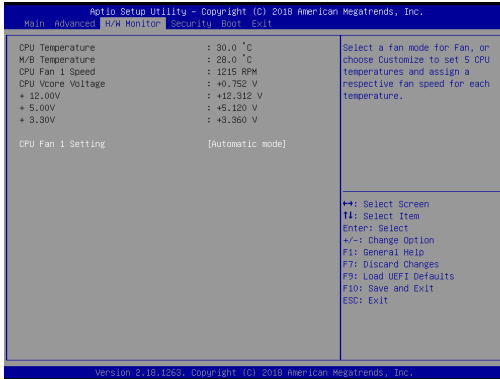


Security Device Support

Enable or disable BIOS support for security device.

3.4 Hardware Health Event Monitoring Screen

In this section, it allows you to monitor the status of the hardware on your system, including the parameters of the CPU temperature, motherboard temperature, CPU fan speed, chassis fan speed, and the critical voltage.

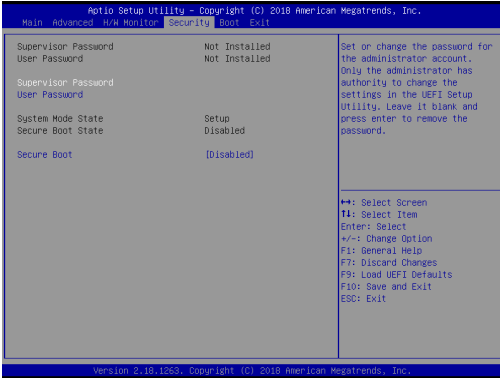


CPU Fan 1 Setting

Select a fan mode for CPU Fan 1, or choose Customize to set 5 CPU temperatures and assign a respective fan speed for each temperature.

3.5 Security Screen

In this section, you may set, change or clear the supervisor/user password for the system.



Supervisor Password

Set or change the password for the administrator account. Only the administrator has authority to change the settings in the UEFI Setup Utility. Leave it blank and press enter to remove the password.

User Password

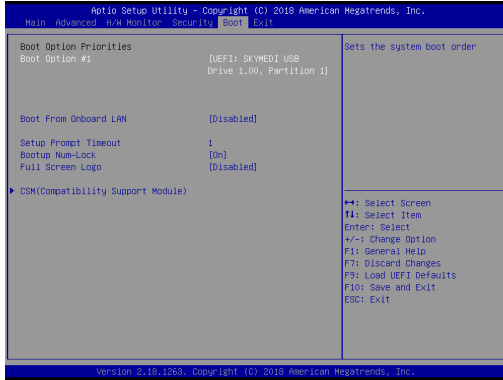
Set or change the password for the user account. Users are unable to change the settings in the UEFI Setup Utility. Leave it blank and press enter to remove the password.

Secure Boot

Enable to support Windows Secure Boot.

3.6 Boot Screen

In this section, it will display the available devices on your system for you to configure the boot settings and the boot priority.



Boot From Onboard LAN

Use this item to enable or disable the Boot From Onboard LAN feature.

Setup Prompt Timeout

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

Bootup Num-Lock

If this item is set to [On], it will automatically activate the Numeric Lock function after boot-up.

Full Screen Logo

Use this item to enable or disable OEM Logo. The default value is [Enabled].

CSM (Compatibility Support Module)



CSM

Enable to launch the Compatibility Support Module. Please do not disable unless you're running a WHCK test. If you are using Windows 8.1 64-bit and all of your devices support UEFI, you may also disable CSM for faster boot speed.

Launch PXE OpROM Policy

Select UEFI only to run those that support UEFI option ROM only. Select Legacy only to run those that support legacy option ROM only. Select Do not launch to not execute both legacy and UEFI option ROM.

Launch Video OpROM Policy

Select UEFI only to run those that support UEFI option ROM only. Select Legacy only to run those that support legacy option ROM only. Select Do not launch to not execute both legacy and UEFI option ROM.

3.7 Exit Screen



Save Changes and Exit

When you select this option, it will pop-out the following message, "Save configuration changes and exit setup?" Select [OK] to save the changes and exit the UEFI SETUP UTILITY.

Discard Changes and Exit

When you select this option, it will pop-out the following message, "Discard changes and exit setup?" Select [OK] to exit the UEFI SETUP UTILITY without saving any changes.

Discard Changes

When you select this option, it will pop-out the following message, "Discard changes?" Select [OK] to discard all changes.

Load UEFI Defaults

Load UEFI default values for all the setup questions. F9 key can be used for this operation.

Launch EFI Shell from filesystem device

Attempts to Launch EFI Shell application (Shell64.efi) from one of the available filesystem devices.

Chapter 4: Software Support

4.1 Install Operating System

This motherboard supports various Microsoft® Windows® operating systems: 10 32-bit / 10 64-bit / 8.1 32-bit / 8.1 64-bit / 7 32-bit / 7 64-bit. Because motherboard settings and hardware options vary, use the setup procedures in this chapter for general reference only. Refer your OS documentation for more information.

4.2 Support CD Information

The Support CD that came with the motherboard contains necessary drivers and useful utilities that enhance the motherboard's features.

4.2.1 Running The Support CD

To begin using the support CD, insert the CD into your CD-ROM drive. The CD automatically displays the Main Menu if "AUTORUN" is enabled in your computer. If the Main Menu did not appear automatically, locate and double click on the file "ASRSETUP.EXE" from the BIN folder in the Support CD to display the menus.

4.2.2 Drivers Menu

The Drivers Menu shows the available device's drivers if the system detects installed devices. Please install the necessary drivers to activate the devices.

4.2.3 Utilities Menu

The Utilities Menu shows the application software that the motherboard supports. Click on a specific item then follow the installation wizard to install it.

4.2.4 Contact Information

If you need to contact ASRock or want to know more about ASRock, you're welcome to visit ASRock's website at <http://www.asrock.com>; or you may contact your dealer for further information.