

NAS-9601

User Manual

Version 1.0
Published October 2017

Important Safety Instructions

Pay close attention to the following safety instructions before performing any of the operation. Basic safety precautions should be followed to protect yourself from harm and the product from damage:

- Operation of the product should be carried out by suitably trained, qualified, and certified personnel only to avoid risk of injury from electrical shock or energy hazard.
- Disconnect the power cord from the wall outlet when installing or removing main system components, such as the motherboard and power supply unit.
- Place the system on a stable and flat surface.
- Use extreme caution when working with high-voltage components.
- When handling parts, use a grounded wrist strap designed to prevent static discharge.
- Keep the area around the system clean and clutter-free.
- Keep all components and printed circuit boards (PCBs) in their antistatic bags when not in use.
- Handle a board by its edges only; do not touch its components, peripheral chips, memory modules or contacts.

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Chapter 1 Introduction



Because the hardware specifications might be updated, the content of this documentation will be subject to change without notice.

1.1 Package Contents

- NAS-9601 Barebone System with:
 - NAS-9601 Chassis
 - Motherboard (pre-installed)

*The barebone system does not include memory, hard drive and mSATA SSD.
- 1 x Power Adapter (12V) & Power Plug
- 2 x M.2 Screws
- 1 x VGA Cable
- 1 x RJ45 to COM Cable
- Support CD
- Quick Installation Guide



If any items are missing or appear damaged, contact your authorized dealer.

1.2 Product Specifications

NAS-9601	Barebone
CPU	Intel® Celeron Braswell SoC Supports Hyper-Threading Technology Default N3160 Quad core 6W processor
OS	N/A
Chipset	Intel® N3160 SoC
Memory	Supports Single Channel DDR3L up to 1600 MHz, 1 x SO-DIMM slot, Max. 8GB
HDD	M.2 slot 1 x M.2 Slot (Key M), supports type 2242/2280 M.2 for SATA only
	2.5" HDD Supports 1 x 2.5" SATA HDD
LAN	Gigabit LAN
WiFi	Optional
Audio	N/A
Front I/O	N/A
Rear I/O	2 x USB 3.0(Type A), 6 x LAN, 1 x Serial (RJ45 (No LED) COM port)
Power Unit	36W/12V Adapter
Dimension	220mm (W) x 145mm (H) x 44mm (D)

VESA	N/A
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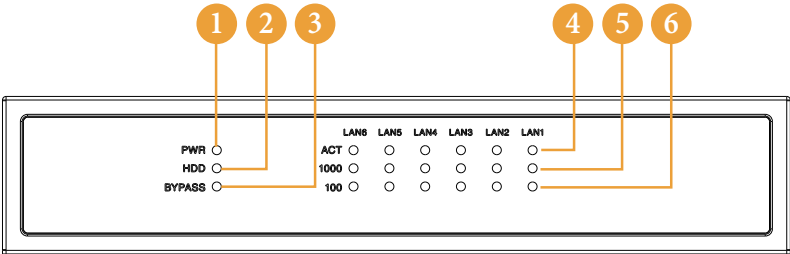
Weight	1.1Kg
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Operating Temperature	0°C~50°C
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Chapter 2 Product Overview

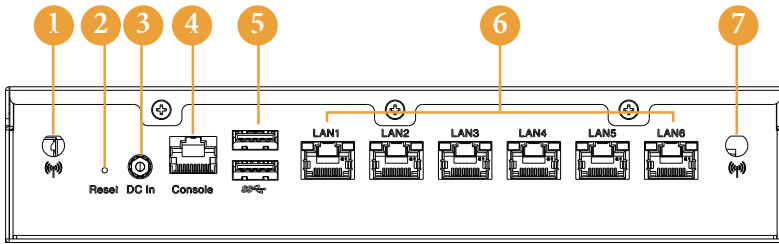
This chapter provides diagrams showing the location of important components of the NAS-9601.

2.1 Front View



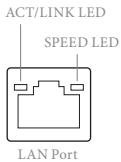
No.	Description
1	Power Status LED
2	HDD Status LED
3	Bypass Status LED
4	LAN Activity/Link LED
5	100M bps Connection Speed LED
6	1Gbps Connection Speed LED

2.2 Rear View



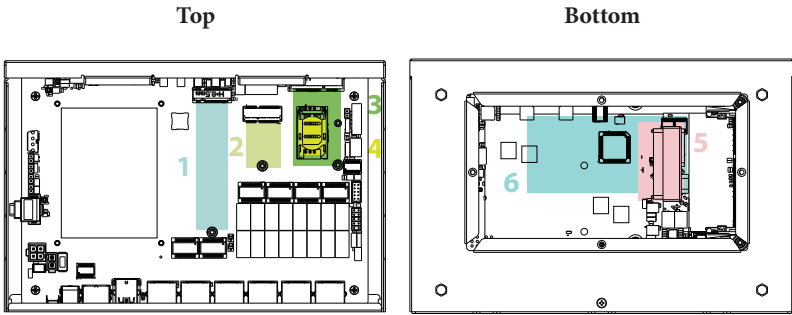
No.	Description
1	Antenna (Optional)
2	Reset
3	DC-In
4	Console Output (RJ45 (No LED) COM port)
5	USB 3.0 (Type A)
6	Ethernet RJ-45
7	Antenna (Optional)

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



Activity / Link LED		Speed LED	
Status	Description	Status	Description
Off	No Link	Off	10Mbps connection
Blinking	Data Activity	Orange	100Mbps connection
On	Link	Green	1Gbps connection

2.3 Inside View



No.	Description
1	M.2 Slot (Key M), supports type 2242/2280 M.2 for SATA only
2	M.2 Slot (Key E), supports type 2230 for WiFi + BT Module (BT function shares from internal USB)
3	Mini PCIe Slot (full/half size, supports PCIe x1 and USB device)
4	Sim Socket for WiFi/3G/LTE
5	SO-DIMM Slot, Single Channel DDR3L up to 1600 MHz, Max. 8GB
6	Hard disk drive tray (compatible with 2.5" SATA HDD)



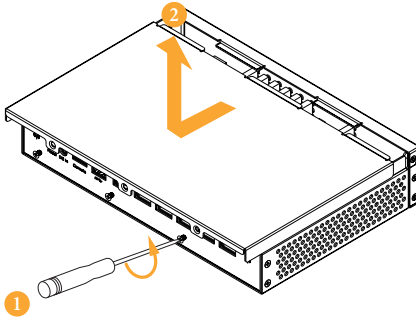
SO-DIMM memory, hard drive, mini-PCIE card, M.2 card and SIM card are not included with this system.

Chapter 3 Hardware Installation

This chapter helps you install or remove important components.

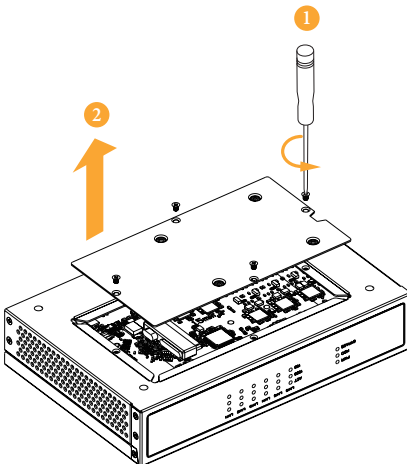
3.1 How to Remove the Top Case

1. Remove the three screws on the top case.
2. Then lift up and remove the top panel..



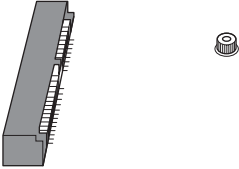
3.2 How to Remove the Bottom Case

3. Remove the four screws on the bottom case.
4. Then lift up and remove the bottom panel..

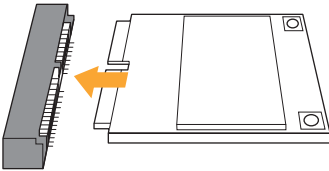


3.3 How to Install the Mini PCIe Card

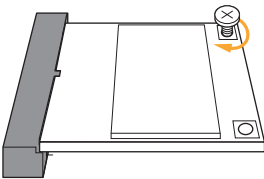
1. Locate the Mini PCIe slot on the motherboard.



2. Carefully insert the Mini PCIe card into the slot.

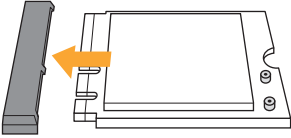


3. Tighten the screw to secure the PCIe card to the motherboard.

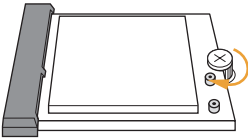


3.4 How to Install the Wifi Module

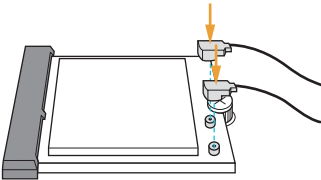
1. Locate the M.2 Slot (Key E) on the motherboard. Insert the WiFi Module Card into the M.2 Slot for WiFi + BT Module.



2. Tighten the screw to secure the WiFi Module Card to the motherboard.

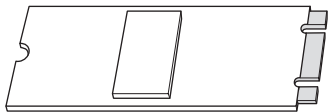


3. Attach the SMA Wi-Fi Antenna Cables to the WiFi Module.



3.5 How to Install the M.2_SSD Module

1. Prepare a M.2_SSD module and the screw.

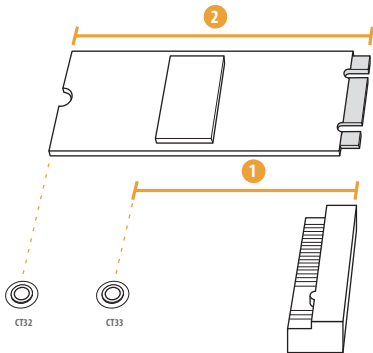


2. Depending on the PCB type and length of your M.2_SSD module, find the corresponding nut location to be used.



3. Move the standoff based on the module type and length.

Note: Supports type 2242/2280 M.2 for SATA only.

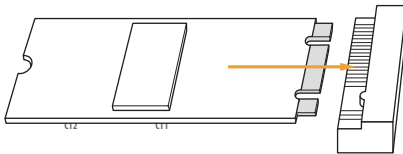


No.	1	2
Nut Location	CT33	CT32
PCB Length	4.2cm	8cm
Module Type	Type 2242	Type 2280

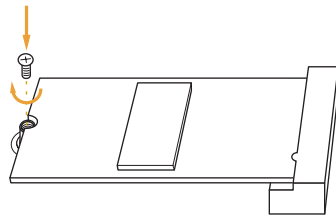
4. Peel off the yellow protective film on the nut to be used. Hand tighten the standoff into the desired nut location on the motherboard.



5. Align and gently insert the M.2 SSD module into the M.2 slot (Key M). Please be aware that the M.2 SSD module only fits in one orientation.

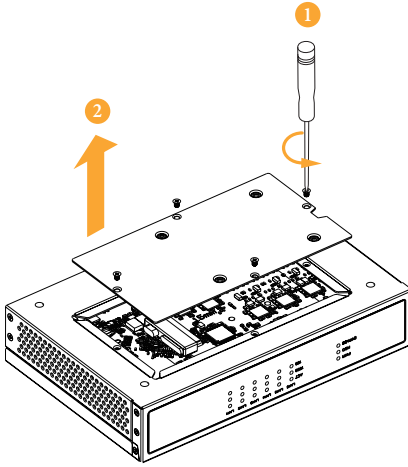


6. Tighten the screw with a screwdriver to secure the module into place. Please do not overtighten the screw as this might damage the module.

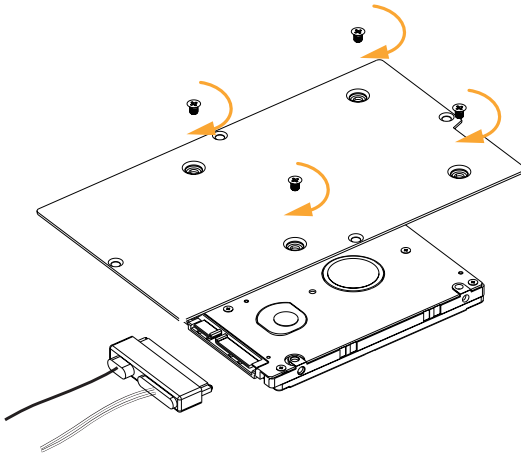


3.6 How to Install the 2.5-inch Hard Drive

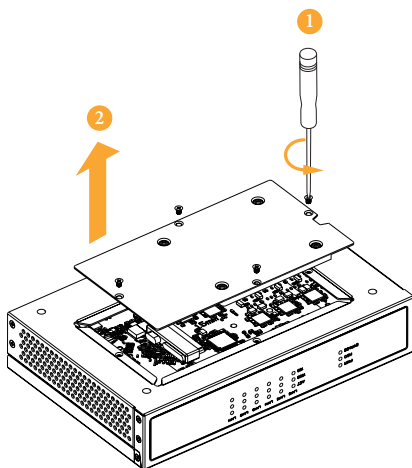
1. Remove the four screws on the bottom case. Then lift up and remove the bottom panel.



2. Attach the HDD to the bottom panel and secure it using the four screws. Then connect the SATA cable to the HDD.



3. Then reinstall the bottom panel.



3.7 How to Install the Memory Modules (DDR3 Low Voltage (1.35V))

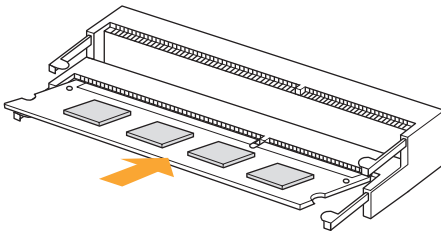


1. The NAS-9601 requires DDR3L SO-DIMM (1.35V).
2. For dual channel configuration, you always need to install identical (the same brand, speed, size and chip-type) DDR3L SO-DIMM pairs.

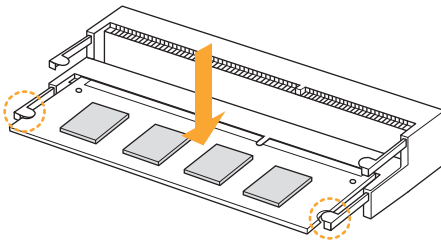


The SO-DIMM only fits in one correct orientation. It will cause permanent damage to the motherboard and the DIMM if you force the DIMM into the slot at incorrect orientation.

1. Carefully insert the SO-DIMM memory modules into the slot at a 30-degree angle.



2. Push down until the modules snap into place.



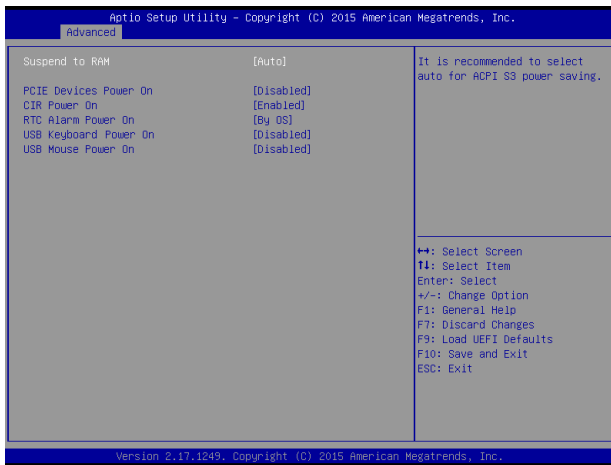
USB Power On Function:

USB Power On Function allows system power on via USB keyboard/mouse.

This function is useful when the NAS-9601 is mounted behind your display/TV.

To enable USB Power On Function:

1. Enter BIOS by pressing <F2> or during device startup.
2. Select “Advanced > ACPI Configuration” from the menu.
3. Set “USB Keyboard Power On” and “USB Mouse Power On” settings to “Enabled”.
4. Press F10 to Save and Exit.



Chapter 4 Software and Utilities Operation

4.1 Installing Drivers

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

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 does not appear automatically, locate and double click on the file "ASRSETUP.EXE" in the Support CD to display the menu.

Drivers Menu

The drivers compatible to your system will be auto-detected and listed on the support CD driver page. Please click **Install All** or follow the order from top to bottom to install those required drivers. Therefore, the drivers you install can work properly.

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.



To improve Windows 7 compatibility, please download and install the following hot fix provided by Microsoft.

"KB2720599": <http://support.microsoft.com/kb/2720599/en-us>

Chapter 5 UEFI SETUP UTILITY

5.1 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.

5.1.1 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.

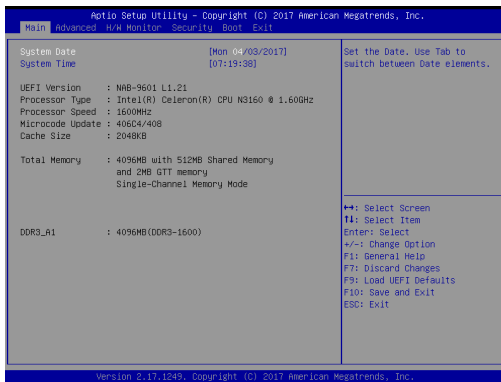
5.1.2 Navigation Keys

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

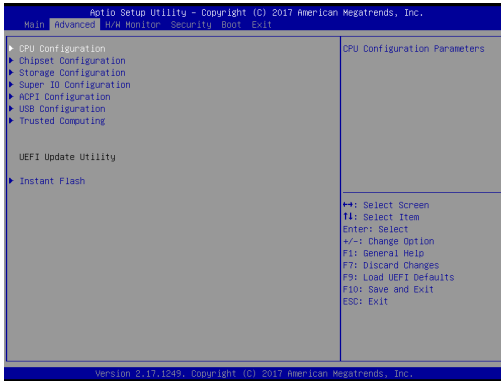
5.2 Main Screen

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



5.3 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, USB Configuration and Trusted Computing.

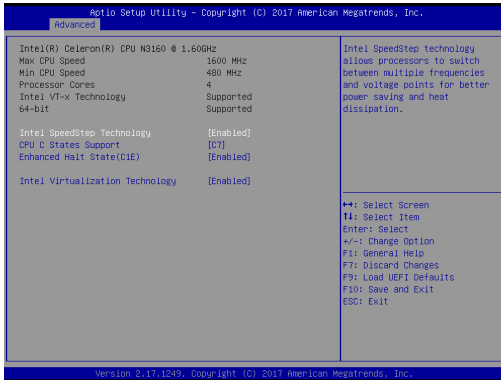


Setting wrong values in this section may cause the system to malfunction.

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.

5.3.1 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.

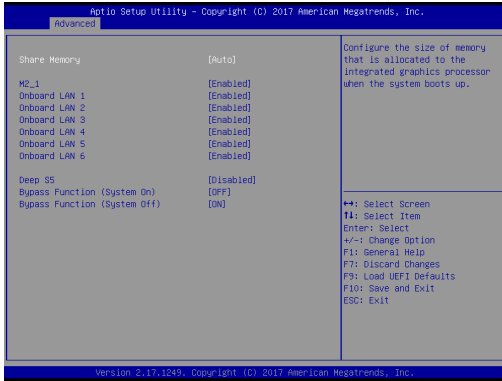
Enhanced Halt State (C1E)

Enable Enhanced Halt State (C1E) for lower power consumption.

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.

5.3.2 Chipset Configuration



Share Memory

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

M2_1

Use this to enable or disable the M2_1.

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.

Onboard LAN 3

This allows you to enable or disable the Onboard LAN 3 feature.

Onboard LAN 4

This allows you to enable or disable the Onboard LAN 4 feature.

Onboard LAN 5

This allows you to enable or disable the Onboard LAN 5 feature.

Onboard LAN 6

This allows you to enable or disable the Onboard LAN 6 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].

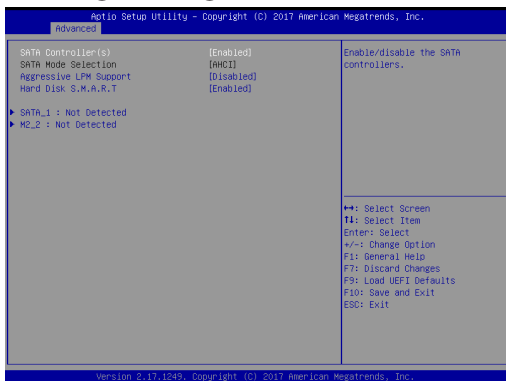
Bypass Function (System On)

System turn to bypass function status when in S0. The default value is [OFF].

Bypass Function (System Off)

System turn to bypass function status when in S0 to S5. The default value is [ON].

5.3.3 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. Configuration options: [IDE Mode] and [AHCI 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.

Aggressive Link Power Management

Use this item to configure 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].

5.3.4 Super IO Configuration



COM1 Configuration

Use this to set parameters of COM1.

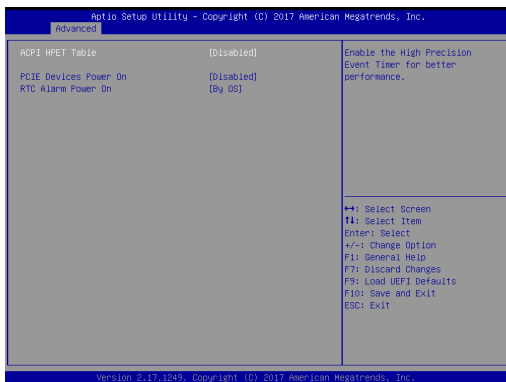
COM2 Configuration

Use this to set parameters of COM2.

WDT Timeout Reset

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

5.3.5 ACPI Configuration



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.

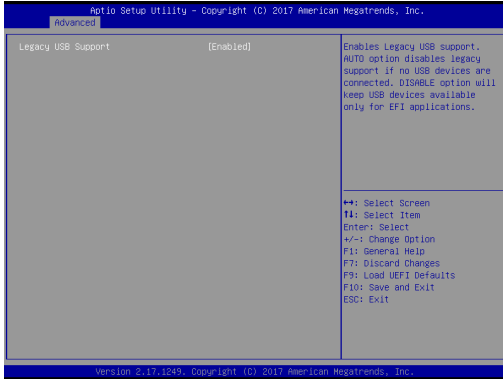
PCIe Devices Power On

Allow the system to be waked up by a PCIe device and enable wake on LAN.

RTC Alarm Power On

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

5.3.6 USB Configuration



Legacy USB Support

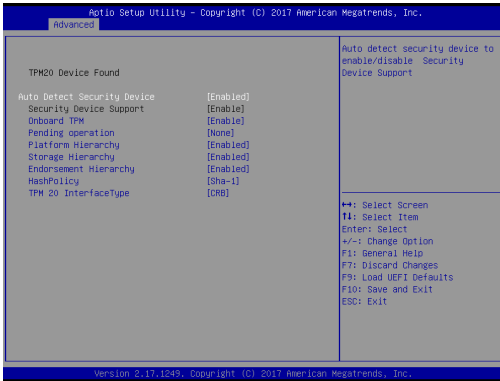
Use this option to select legacy support for USB devices. There are four configuration options: [Enabled], [Auto] and [UEFI Setup Only]. The default value is [Auto]. Please refer to below descriptions for the details of these four options:

[Enabled] - Enables support for legacy USB.

[Auto] - Enables legacy support if USB devices are connected.

[UEFI Setup Only] - USB devices are allowed to use only under UEFI setup and Windows / Linux OS.

5.3.7 Trusted Computing

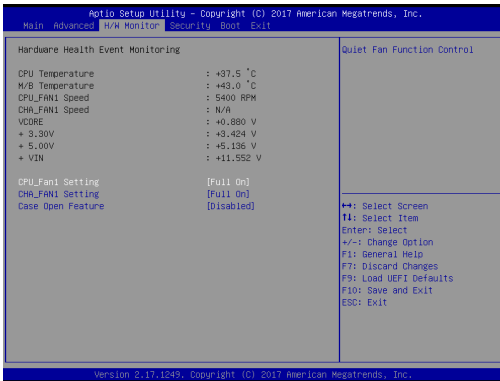


Security Device Support

Enable or disable BIOS support for security device.

5.4 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_Fan1 Setting

This allows you to set CPU fan 1's speed. Configuration options: [Full On] and [Automatic Mode]. The default value is [Full On].

CHA_Fan1 Setting

This allows you to set Chassis fan 1's speed. Configuration options: [Full On] and [Automatic Mode]. The default value is [Full On].

Case Open Feature

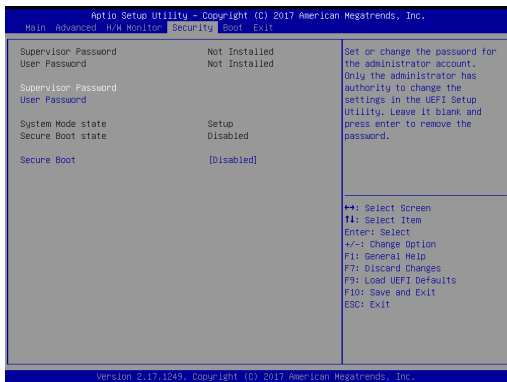
This allows you to enable or disable case open detection feature. The default is value [Disabled].

Clear Status

This option appears only when the case open has been detected. Use this option to keep or clear the record of previous chassis intrusion status.

5.5 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 8 / 8.1 Secure Boot.

5.6 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.

Boot Beep

Select whether the Boot Beep should be turned on or off when the system boots up. Please note that a buzzer is needed.

Full Screen Logo

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

AddOn ROM Display

Enable AddOn ROM Display to see the AddOn ROM messages or configure the AddOn ROM if you've enabled Full Screen Logo. Disable for faster boot speed.

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 / 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.

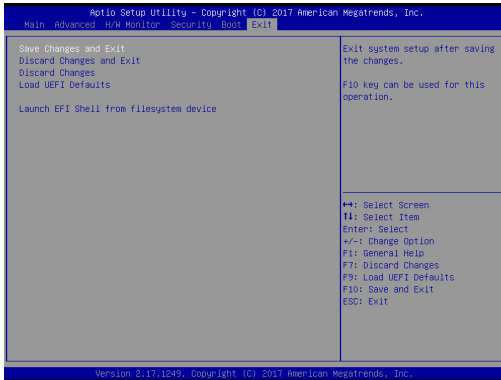
Launch Storage OpROM Policy

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.

5.7 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.