Nano-001

Installation Manual

E10480

First Edition V1

August 2015

Copyright Notice

Acknowledgments

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Notices

Federal Communications Commission Statement

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- This device may not cause harmful interference.
- This device must accept any interference received including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with manufacturer's instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

WARNING! The use of shielded cables for connection of the monitor to the graphics card is required to assure compliance with FCC regulations. Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

DO NOT throw the motherboard in municipal waste. This product has been designed to enable proper reuse of parts and recycling. This symbol of the crossed out wheeled bin indicates that the product (electrical and electronic equipment) should not be placed in municipal waste. Check local regulations for disposal of electronic products.

DO NOT throw the mercury-containing button cell battery in municipal waste. This symbol of the crossed out wheeled bin indicates that the battery should not be placed in municipal waste.

电子电气产品有害物质限制使用标识要求：图中之数字为产品之环保使用期限。仅指电子电气产品中含有的有害物质不致发生外泄或突变从而对环境造成污染或对人身、财产造成严重损害的期限。

有害物质的名称及含量说明标示：

部件名称	有害物质					
	铅(Pb)	汞(Hg)	镉(Cd)	六价铬(Cr(VI))	多溴联苯(PBB)	多溴二苯醚(PBDE)
印刷电路板及其电子组件	×	○	○	○	○	○
外部信号连接口及线材	×	○	○	○	○	○

本表格依据 SJ/T 11364 的规定编制。

○：表示该有害物质在该部件所有均质材料中的含量均在 GB/T 26572 规定的限量要求以下。

×：表示该有害物质至少在该部件的某一均质材料中的含量超出 GB/T 26572 规定的限量要求，然该部件仍符合欧盟指令 2011/65/EU 的规范。

备注：此产品所标示的环保使用期限，系指在一般正常使用状况下。

Chapter 1

This chapter gives a general description of the Nano-001. The chapter lists the system features including introduction on the front and rear panel, and internal components.

System introduction

1.1 Welcome!

Your Nano-001 comes in a stylish casing and with a motherboard that supports the 5th Generation Intel® Core™ i7-5650U / i5-5350U / i3-5010U Processor (FCBGA1168).

The system supports up to 16GB Non-ECC, Un-buffered DDR3L 1600 MHz SO-DIMM. It features integrated Intel® Graphics Media Accelerator for high resolution graphics, mSATA slot for enhancing the SSD performance, and USB 2.0/3.0 ports for plug-and-play connectivity solutions for your USB 2.0/3.0 devices.

System package contents

Check your Nano-001 system package for the following items.

If any of the items is damaged or missing, contact your retailer immediately.

Item description	
1.	Nano-001 system with
	• NITX-BD1 motherboard
	• VESA mount Kit
	Power supply unit (optional)
	Memory module (optional)
	Storage module (optional)
	• Chassis
2.	Cable
	• AC power cord (optional)
3.	Support DVD

1.2 Specifications

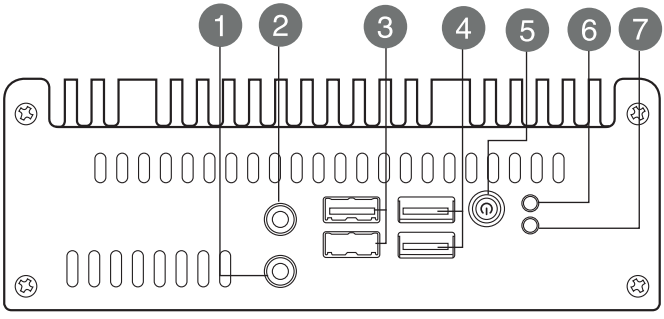
System	
CPU	Intel® 5th generation 14nm Broadwell ULT i7-5650U/ i5-5350U/ i3-5010U, BGA CPU, 15W TDP
Chipset	Integrated
Memory	2 x SO-DIMM, max. 16GB, DDR3L 1600 MHz, non-ECC, un-buffered memory
I/O Chipset	NCT5538D
Ethernet	2 x Realtek 8111G Giga LAN 10/100/1000Mb LAN controllers
Audio	Realtek® ALC887
Expansion Slots	1 x M.2 slot(M-key), length:60mm (mSATA colay LVDS), auto detection
	1 x mini card half size (USB+PCIe+mSATA), default USB+PCIe, mSATA BOM change
BIOS	128Mbit Flash ROM, AMI BIOS
H/W Monitor	Temperature Monitor on CPU/System
	Voltage Monitor on Vcore/5V/3.3V/12V
	Fan Monitor on Chassis
WatchDog Timer	1~255 steps by software program
Smart Fan Control	Chassis Fan
Wake On LAN / PXE	Yes (WOL / PXE)
Power State	S3, S4, S5
Graphics	
Graphics Chipset	Integrated Graphics
Display Port Resolution	DP: up to 3840 x 2160@60Hz
Graphics Multi Display	DP1+DP2
Environment & Power & ME	
Battery	Lithium battery
Power Requirement	1 x DC Power (DC: 12V~19V, wide rage:12V-5%~ 19V+10%)
Operating Temperature	NANO-001N (FANLESS): 0°C~40°C NANO-001F (FAN): 0°C~50°C
Storage Humidity	10% ~ 90%RH, non-condensing
Certificate	CE & FCC class A
M/B Form Factor	Nano ITX: 120mm x 120mm (4.72" x 4.72")
VESA Mounting	75mm x 75mm
Dimension (W x H x D)	150 x 125 x 55 mm (5.91" x 4.92" x 1.97")

Front I/O	
USB	2 x USB 3.0 ports
	2 x USB 2.0 ports
Audio	2 x Audio Jacks: Line-out (green), Mic-in (pink)
Power button	1 x On/Off Button
Others	1 x Power LED + 1 x HDD LED
Back I/O	
USB	2 x USB 3.0 ports
Display	2 x DisplayPort ports
LAN	2 x RJ-45 connectors
Others	1 x Reset switch
	1 x Antenna output (from internal mini-card)
Power Supply	
Power supply	1 x DC Power (DC: 12V~19V, wide rage:12V-5%~ 19V+10%)
Internal I/O	
Storage	1 x M.2 slot for mSATA
	1 x SATA 6.0 Gb/s ports
FAN	1 x Chassis Fan connector (3-pin, p=2.00mm)
Others	1 x USB header support 1 USB2.0 PORT (p=2.00mm)
	1 x COM port header p=2.00mm (RS232)
Others	
OS Support	Windows 7 32 bit
	Windows 7 64 bit
	Windows 8.1 32 bit
	Windows 8.1 64 bit
	Linux Fedora

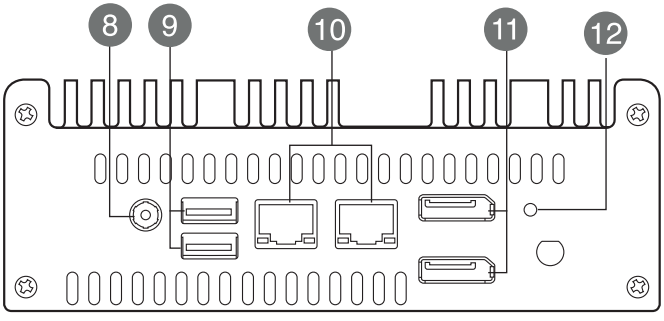
1.3 Getting to know your Nano-001

The front panel includes the power button and I/O ports.

Front panel



Back panel



1. **Line Out port (lime).** This port connects a headphone or a speaker.
2. **Mic In port (pink).** This port connects a microphone.
3. **USB 2.0 port.** This 4-pin Universal Serial Bus (USB) ports is available for connecting USB 2.0 devices.
4. **USB 3.0 ports.** These two 9-pin Universal Serial Bus (USB) ports connect to USB 3.0/2.0 devices.

- Due to USB 3.0 controller limitations, USB 3.0 devices can only be used under a Windows® OS environment and after USB 3.0 driver installation.
- The plugged USB 3.0 device may run on xHCI or EHCI mode, depending on the operating system's setting.
- USB 3.0 devices can only be used for data storage.
- We strongly recommend that you connect USB 3.0 devices to USB 3.0 ports for faster and better performance from your USB 3.0 devices.

Back panel

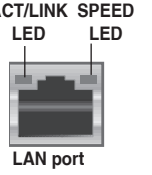
5. **Power button.** This button is for switching on/off the power supply unit.
6. **HDD LED.** This LED indicator flashes while reading/writing data.
7. **Power LED.** This power LED lights up when you turn on the Slot-In PC.
8. **DC-In port**. Plug the power adapter into this port.
9. **USB 3.0 ports.** These two 9-pin Universal Serial Bus (USB) ports connect to USB 3.0/2.0 devices.

- Due to USB 3.0 controller limitations, USB 3.0 devices can only be used under a Windows® OS environment and after USB 3.0 driver installation.
- The plugged USB 3.0 device may run on xHCI or EHCI mode, depending on the operating system's setting.
- USB 3.0 devices can only be used for data storage.
- We strongly recommend that you connect USB 3.0 devices to USB 3.0 ports for faster and better performance from your USB 3.0 devices.

10. **LAN (RJ-45) port.** This port allows gigabit connection to a Local Area Network (LAN) through a network hub. Refer to the table below for the LAN port LED indications.

LAN port LED indications

Activity/Link		Speed LED	
Status	Description	Status	Description
OFF	No link	OFF	10 Mbps connection
ORANGE	Linked	ORANGE	100 Mbps connection
Green	Linked	GREEN	1000 Mbps connection



11. **DisplayPort connector.** This port connects a device with DisplayPort connector.
12. **Reset button.** This button resets or restores the system to its factory default settings.

Chapter 2

This chapter provides step-by-step instructions on how to install components in the system.

Basic installation

2.1 Preparation

Before you proceed, make sure that you have all the components you plan to install in the system.

Basic components

1. DDR3L 1600/1333 MHz Non-ECC, Un-buffered SO-DIMM Memory Module (DIMM)
2. Hard disk drive

Tool

Phillips screw driver

2.2 Before you proceed

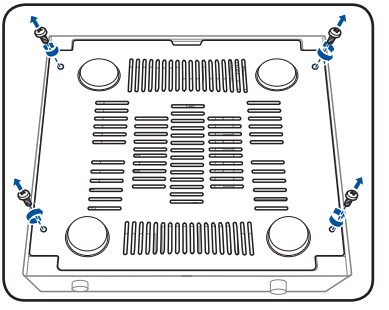
Take note of the following precautions before you install components into the system.

- Use a grounded wrist strap or touch a safely grounded object or a metal object, such as the power supply case, before handling components to avoid damaging them due to static electricity.
- Hold components by the edges to avoid touching the ICs on them.
- Whenever you uninstall any component, place it on a grounded antistatic pad or in the bag that came with the component.

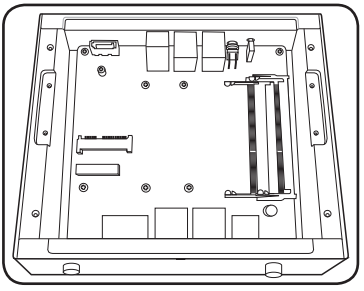
2.3 Installing your Nano-001

Installing your Nano-001

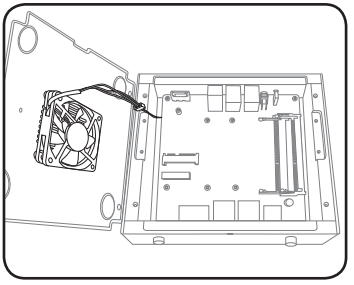
1. Loosen the screws on the bottom cover of Nano-001 with a screwdriver.



2. Take bottom cover away from Nano-001.

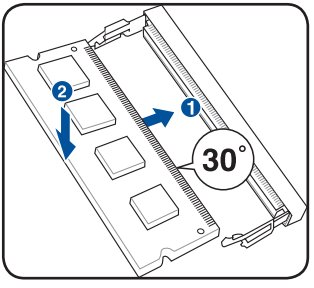


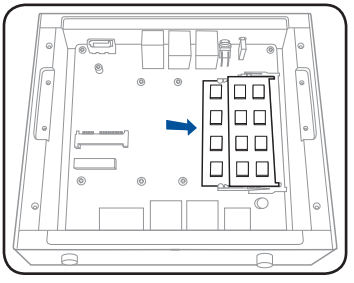
Nano-001N without fan



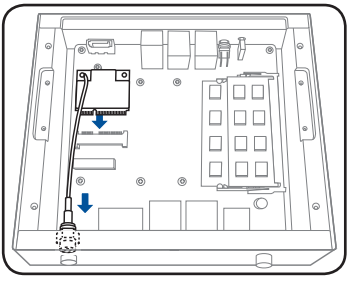
Nano-001F with fan

3. Insert the DDR3L memory to the SO-DIMM socket(s).

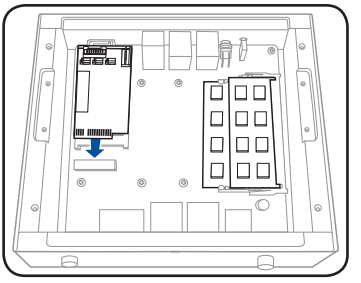




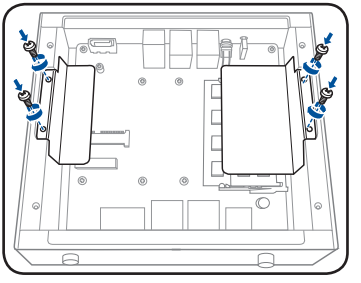
4. Install the Wi-Fi module with half-size mini PCIe interface.



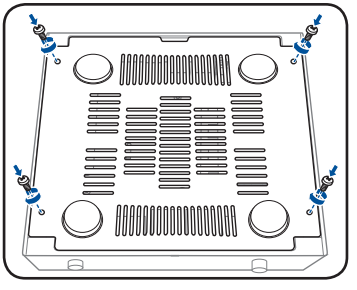
5. Install the external M.2 SSD module.



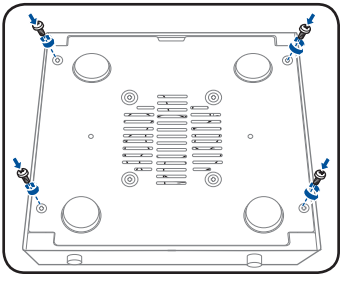
6. Install the two metal plates. (For fanless system only)



7. Secure the bottom cover to Nano-001 with the screws you removed earlier.



Nano-001N without fan



Nano-001F with fan

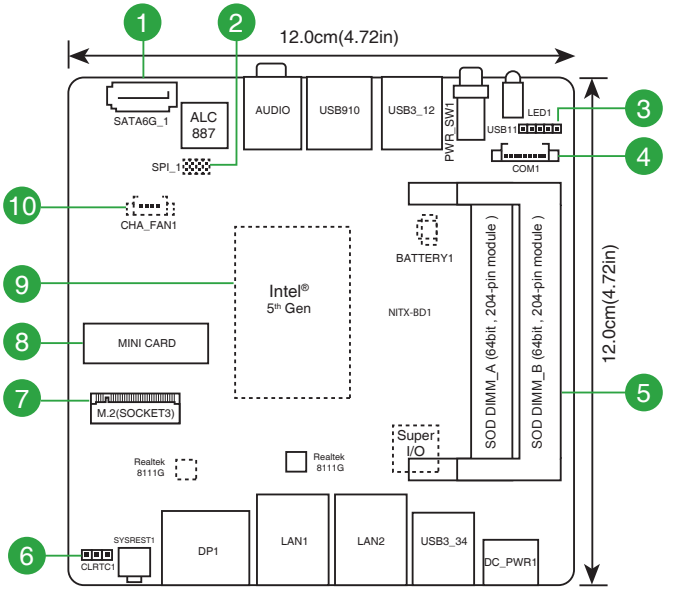
Chapter 3

This chapter gives information about the motherboard that comes with the system. This chapter includes the motherboard layout, jumper settings, and connector locations.

Motherboard info

3.1 Motherboard layout

The Nano-001 system comes with a motherboard. This chapter provides technical information about the motherboard for future upgrades or system reconfiguration.

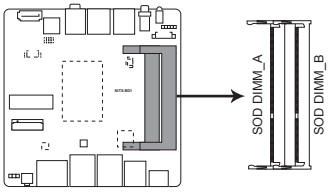


Connectors/Jumpers/Slots		Page
1.	Serial ATA 6.0Gb/s connectors (7-pin SATA6G_1)	
2.	BIOS programmable connector (8-pin SPI)	
3.	USB 2.0 connector (10-1 pin USB11)	
4.	Serial port connectors (10-1 pin COM1)	
5.	SO-DIMM memory slots	
6.	Clear RTC RAM (CLRTC)	
7.	M.2 Socket	
8.	Minicard connector (MINI_CARD1)	
9.	CPU	
10.	Chassis fan connectors (4-pin CHA_FAN1)	

3.2 Installing a DIMM

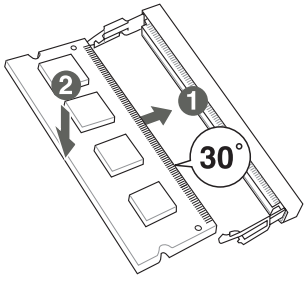
This motherboard comes with one Double Data Rate 3 (DDR3) Small Outline Dual Inline Memory Module (SO-DIMM) sockets. A DDR3 module has the same physical dimensions as a DDR2 DIMM but is notched differently to prevent installation on a DDR2 DIMM socket. DDR3 modules are developed for better performance with less power consumption.

The figure below illustrates the location of the DDR3 DIMM socket:

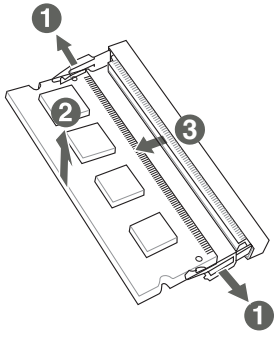


NITX-BD1 204-pin DDR3L DIMM sockets

To install a DIMM



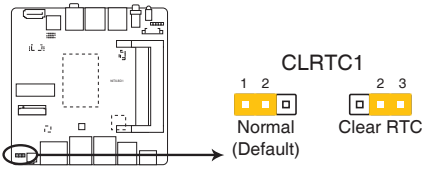
To remove a DIMM



3.3 Jumpers

1. Clear RTC RAM (3-pin CLRTC)

This jumper allows you to clear the Real Time Clock (RTC) RAM in CMOS. You can clear the CMOS memory of date, time, and system setup parameters by erasing the CMOS RTC RAM data. The button cell battery powers the RAM data in CMOS, which include system setup information such as system passwords.



NITX-BD1 Clear RTC RAM

To erase the RTC RAM:

1. Turn OFF the computer and unplug the power cord.
2. Move the jumper cap from pins 1-2 (default) to pins 2-3. Keep the cap on pins 2-3 for about 5-10 seconds, then move the cap back to pins 1-2.
3. Plug the power cord and turn ON the computer.
4. Hold down the <Del> key during the boot process and enter BIOS setup to re-enter data.

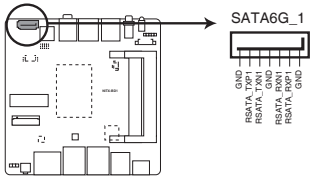
Except when clearing the RTC RAM, never remove the cap on CLRTC jumper default position. Removing the cap will cause system boot failure!

- If the steps above do not help, remove the onboard battery and move the jumper again to clear the CMOS RTC RAM data. After the CMOS clearance, reinstall the battery.
- You do not need to clear the RTC when the system hangs due to overclocking. For system failure due to overclocking, use the CPU Parameter Recall (C.P.R.) feature. Shut down and reboot the system, then the BIOS automatically resets parameter settings to default values.
- Due to the chipset limitation, AC power off is required before you use the C.P.R. function. You must turn off and on the power supply or unplug and plug the power cord before rebooting the system.

3.4 Connectors

1. Serial ATA 6.0Gb/s connector (7-pin SATA6G_1,)

This connector connects to Serial ATA 6.0 Gb/s hard disk drives via Serial ATA 6.0 Gb/s signal cables.



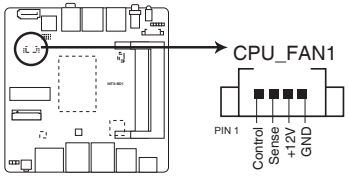
NITX-BD1 SATA 6.0Gb/s connector

IMPORTANT:

- You must install Windows® XP Service Pack 3 or later version before using Serial ATA hard disk drives.
- When using hot-plug and NCQ, set the SATA Mode Selection item in the BIOS to [AHCI]. See section **3.3.2 SATA Configuration** for details.

2. Chassis fan connectors (4-pin CHA_FAN1)

Connect the fan cables to the fan connectors on the motherboard, ensuring that the black wire of each cable matches the ground pin of the connector.

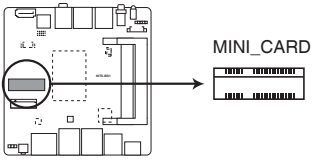


NITX-BD1 Fan connector

CAUTION: Do not forget to connect the fan cables to the fan connectors. Insufficient air flow inside the system may damage the motherboard components. These are not jumpers! Do not place jumper caps on the fan connectors!

3. Minicard connector

Use this connector to connect a Minicard reader.

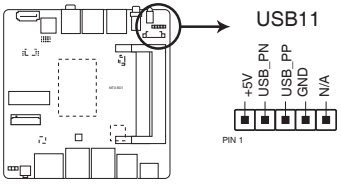


NITX-BD1 MINICARD connector

NOTE: The Mini-card module is purchased separately.

4. USB 2.0 connector (10-1 pin USB11)

This USB connectors complies with USB 2.0 specifications.



NITX-BD1 Front USB 2.0 Header connector

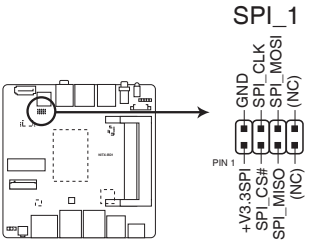
Never connect a 1394 cable to the USB connector. Doing so will damage the motherboard.

NOTES:

- The USB module cable is purchased separately.
- Before you install Windows 7 operating system, go to BIOS Setup > Advanced > XHCI mode [Disabled], USB 2.0 (EHCI) support [Enabled], and set them back when you finish installing the operating system.

5. BIOS programmable connector (8-pin SPI)

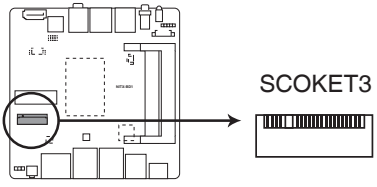
Use this connector to flash the BIOS ROM.



NITX-BD1 BIOS Programmable connector

6. M.2 socket

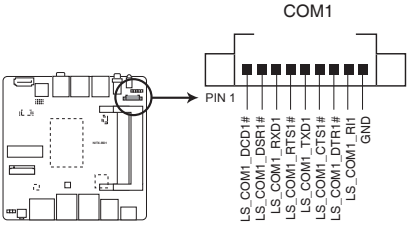
This socket allows you to install an M.2 (NGFF) SSD module.



NITX-BD1 M.2 socket

7. Serial port connectors (10-1 pin COM1)

These connectors are for serial (COM) ports. Connect the serial port module cable to this connector, then install the module to a slot opening at the back of the system chassis.



NITX-BD1 Com port connector

NOTE: The COM module is purchased separately.

Chapter 4

This chapter tells how to change system settings through the BIOS Setup menus and describes the BIOS parameters.

BIOS setup

4.1 BIOS setup program

Use the BIOS Setup program to update the BIOS or configure its parameters. The BIOS screens include navigation keys and brief online help to guide you in using the BIOS Setup program.

Entering BIOS Setup at startup

To enter BIOS Setup at startup:

- Press <Delete> during the Power-On Self Test (POST). If you do not press <Delete>, POST continues with its routines.

Entering BIOS Setup after POST

To enter BIOS Setup after POST:

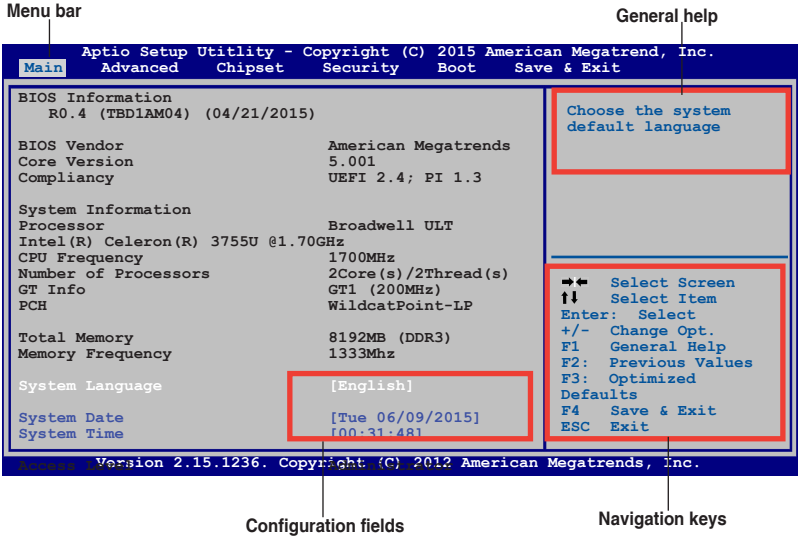
- Press **<Ctrl>+<Alt>+<Del>** simultaneously.
- Press the reset button on the system chassis.
- Press the power button to turn the system off then back on. Do this option only if you failed to enter BIOS Setup using the first two options.

Using the **power button**, **reset button**, or the **<Ctrl>+<Alt>+<Del>** keys to force reset from a running operating system can cause damage to your data or system. We recommend to always shut down the system properly from the operating system.

IMPORTANT:

- The default BIOS settings for this motherboard apply to most working conditions and ensures optimal performance. If the system becomes unstable after changing any BIOS settings, load the default settings to regain system stability. Select the option **Restore Defaults** under the Save & Exit Menu. See section **4.7 Save & Exit** Menu.
- The BIOS setup screens shown in this section are for reference purposes only, and may not exactly match what you see on your screen.

4.1.1 BIOS menu screen



4.1.2 Menu bar

The menu bar on top of the screen has the following main items:

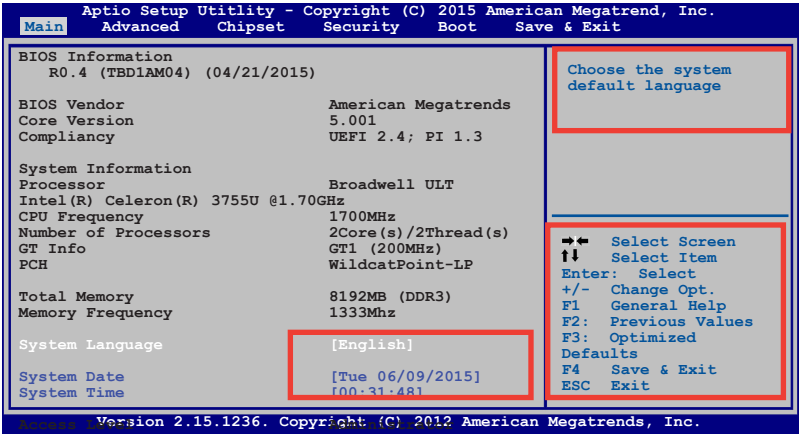
Main	For changing the basic system configuration.
Advanced	For changing the advanced system settings.
Chipset	For viewing and changing chipset settings.
Boot	For changing the system boot configuration.
Security	For setting up BIOS security settings.
Save & Exit	For selecting the exit options and loading default settings.

To select an item on the menu bar, press the right or left arrow key on the keyboard until the desired item is highlighted.

4.2 Main menu

When you enter the BIOS Setup program, the **Main** menu screen appears, giving you an overview of the basic system information.

Refer to section **4.1.1 BIOS menu screen** for information on the menu screen items and how to navigate through them.



4.2.1 System Language [English]

Allows you to set the system language.

4.2.2 System Date [Day xx/xx/xxxx]

Allows you to set the system date.

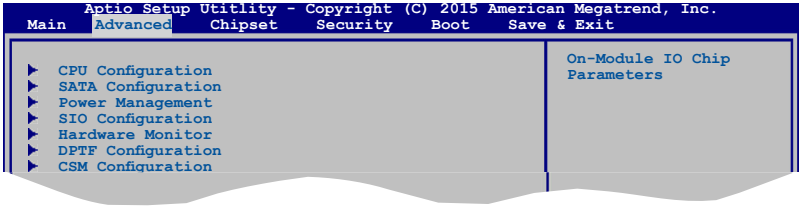
4.2.3 System Time [xx:xx:xx]

Allows you to set the system time.

4.3 Advanced menu

The **Advanced** menu items allow you to change the settings for the CPU and other system devices.

Take caution when changing the settings of the Advanced menu items. Incorrect field values can cause the system to malfunction.



4.3.1 CPU Configuration

The items in this menu show the CPU-related information that the BIOS automatically detects.

Hyper-threading [Enabled]

The Intel Hyper-Threading Technology allows a hyper-threading processor to appear as two logical processors to the operating system, allowing the operating system to schedule two threads or processes simultaneously.

[Enabled] Two threads per activated core are enabled.

[Disabled] Only one thread per activated core is enabled.

Active Processor Cores [All]

This item allows you to select the number of CPU cores to activate in each processor package. Configuration options: [All] [1]

Limit CPUID Maximum [Disabled]

[Enabled] Allows legacy operating systems to boot even without support for CPUs with extended CPUID functions.

[Disabled] Disables this function.

Execute Disable Bit [Enabled]

[Enabled] Enables the No-Execution Page Protection Technology.

[Disabled] Forces the XD feature flag to always return to zero (0).

Intel® Virtualization Technology [Disabled]

[Enabled] Allows a hardware platform to run multiple operating systems separately and simultaneously, enabling one system to virtually function as several systems.

[Disabled] Disables this function.

EIST [Enabled]

Allows you to enable or disable the Enhanced Intel® SpeedStep Technology (EIST).

[Disabled] The CPU runs at its default speed.

[Enabled] The operating system controls the CPU speed.

Turbo Mode [Enabled]

This item appears only when you set EIST to [Enabled] and allows you to automatically set the CPU cores to run faster than the base operating frequency when it is below the operating power, current and temperature specification limit. Configuration options: [Enabled] [Disabled]

CPU C-States [Enabled]

This item allows you to set the power saving of the CPU states. Configuration options: [Disabled] [Enabled]

The following four items appear only when you set the CPU C-States to **[Enabled]**.

Enhanced C1 state [Enabled]
This item allows your CPU to reduce power consumption when the system is in idle mode. Configuration options: [Enabled] [Disabled]

CPU C3 report [Enabled]
This item allows you to disable or enable the CPU C3 report to the operating system. Configuration options: [Enabled] [Disabled]

CPU C6 report [Enabled]
This item allows you to disable or enable the CPU C6 report to the operating system. Configuration options: [Enabled] [Disabled]

CPU C7 report [CPU C7s]
This item allows you to disable or enable the CPU C7 report to the operating system. Configuration options: [Disabled] [CPU C7] [CPU C7s]

Intel TXT(LT) Support [Enabled]

This item allows you to enable or disable Intel TXT(LT) support. Configuration options: [Disabled] [Enabled]

4.3.2 SATA Configuration

While entering Setup, the BIOS automatically detects the presence of SATA devices. The SATA Port items show **Not Present** if no SATA device is installed to the corresponding SATA port.

SATA Controller(s) [Enabled]

Enables or disables SATA devices. Configuration options: [Enabled] [Disabled]

SATA Controller Speed [Enabled]

Allows you to set the maximum speed that the SATA controller supports. Configuration options: [Default] [Gen1] [Gen2] [Gen3]

SATA Port / M2 mSATA / Mini-card mSATA

Port [Enabled]

Allows you to enable or disable the SATA port. Configuration options: [Enabled] [Disabled]

Hot Plug [Disabled]

Allows you to enable or disable the hot plug function. Configuration options: [Enabled] [Disabled]

4.3.3 Power Management

Power Mode [ATX Type]

Select power supply mode. Configuration options: [ATX Type] [AT Type]

Power Saving Control [Disabled]

Enables or disables power saving function. Configuration options: [ERP] [Disabled]

Restore AC Power loss [Power Off]

When set to [Power Off], the system goes into off state after an AC power loss. When set to [Power On], the system goes on after an AC power loss. When set to [Last State], the system goes into either off or on state, whatever the system state was before the AC power loss. Configuration options: [Power Off] [Power On] [Last State]

ACPI Settings

Enable Hibernation [Enabled]

This item disables/enables hibernation. Configuration options: [Disabled] [Enabled]

ACPI Sleep State [S3(Suspend to RAM)]

Select ACPI sleep state the system will enter when the Suspend button is pressed. Configuration options: [Suspend Disabled] [S3(suspend to RAM)]

Wake Configuration

S5 RTC Wake Settings [Disabled]

Wake system with Fixed Time [Disabled]
Enable or disable system wake on alarm event. When enabled, the system will wake on specified hr::min::sec. Configuration options: [Enabled] [Disabled]

Wake system with Ddynamic Time [Disabled]
Enabled or disable system wake on dynamic time. Configuration options: [Enabled] [Disabled]

Wake up minute increase [1]
This item appears only when you set Wake system with Dynamic Time to [Enabled] and allows you to specify the number of minutes added to the current time before waking up system. Configuration options: [1] ~ [5]

4.3.4 SIO Configuration

Serial Port1 Configuration

The sub-items in this menu allow you to set the serial port configuration.

Serial Port [Enabled]

Allows you to enable or disable the serial port (COM). Configuration options: [Enabled] [Disabled]

Change Settings [Auto]

Allows you to select the Serial Port base address. Configuration options: [Auto] [IO=3F8h; IRQ=4] [IO=3F8h; IRQ=3,4,5,6,7,9,10,11,12;] [IO=2F8h; IRQ=3,4,5,6,7,9,10,11,12;;] [IO=3E8h; IRQ=3,4,5,6,7,9,10,11,12;;] [IO=2E8h; IRQ=3,4,5,6,7,9,10,11,12;]

4.3.5 Hardware Monitor

Smart Fan [Enabled]

Enables or disables the smart fan function. Configuration options: [Enabled] [Disabled]

Smart Fan Configuration

This item appears only when you set the previous item to [Enabled].

CPU Fan Mode [Auto Duty]

Select Smart Fan control mode.

Temperature 3 / 2 / 1 [xx]

Configures a temperature 3/2/1 bound that controls the auto fan duty cycle.

4.3.6 DPTF Configuration

DPTF [Enabled] (for Nano-001N only)

Enables or disables the Intel Dynamic Platform Thermal Framework. Configuration options: [Enabled] [Disabled]

DPTF [Disabled] (for Nano-001F only)

This item shows the status of Dynamic Platform Thermal Framework and is not configurable.

4.3.7 CSM Configuration

GateA20 Active [Upon Request]

[Upon Request] GA20 can be disabled using BIOS services.

[Always] Do not allow G20 disabling. This option is useful when any RT code is executed above 1MB.

Option ROM Messages [Force BIOS]

[Force BIOS] The third-party ROM messages will be forced to display during the boot sequence.

[Keep Current] The third-party ROM messages will be displayed only if the third-party manufacturer had set the add-on device to do so.

Boot option filter [UEFI and Legacy]

This option controls Legacy UEFI ROMs priority. Configuration options: [UEFI and Legacy] [Legacy only] [UEFI only]

Option ROM execution

Network [Do not launch]

This item controls the execution of UEFI and Legacy PXE OpROM. Configuration options: [Do not launch] [UEFI] [Legacy]

Storage [Legacy]

This item controls the execution of UEFI and Legacy Storage OpROM. Configuration options: [Do not launch] [UEFI] [Legacy]

Video [Legacy]

This item controls the execution of UEFI and Legacy Video OpROM. Configuration options: [Do not launch] [UEFI] [Legacy]

Other PCI devices [UEFI]

This item determines OpROM execution policy for device other than Network, Storage or Video. Configuration options: [Do not launch] [UEFI] [Legacy]

4.3.8 USB Configuration

The items in this menu allows you to change the USB-related features. Select an item then press **<Enter>** to display the configuration options.

The Module Version and USB Devices Enabled items show the auto-detected values. If no USB device is detected, the item shows **None**.

Legacy USB Support [Enabled]

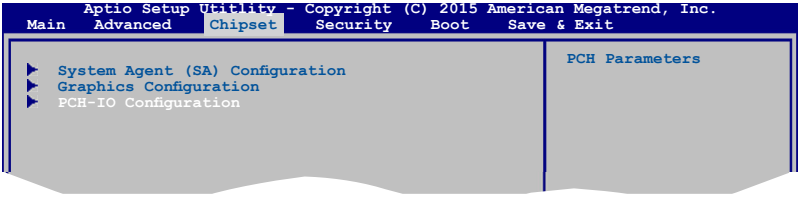
Disables or enables the legacy USB support. Configuration options: [Auto] [Disabled] [Enabled]

USB Mass Storage Driver Support [Enabled]

Disables or enables the USB mass storage driver support. Configuration options: [Disabled] [Enabled]

4.4 Chipset Menu

The **Chipset** menu allows you to change the advanced chipset settings. Select an item then press **<Enter>** to display the submenu.



4.4.1 System Agent (SA) Configuration

Memory Frequency Limiter [Auto]

Allows you to set the memory frequency limiter. Configuration options: [Auto] [1333] [1600]

Max TOLUD [Dynamic]

Configures the maximum value of TOLUD. Dynamic assignment will adjust TOLUD automatically based on the largest MMIP length of installed graphics controller. Configuration options: [Dynamic] [1GB] [1.25GB] ~ [3.25GB]

Memory Remap [Enabled]

Enables or disables memory remap above 4GB. Configuration options: [Enabled] [Disabled]

4.4.2 Graphics Configuration

Internal Graphics [Auto]

Configures IGD enabled based on setup options. Configuration options: [Auto] [Disabled] [Enabled]

DVMT Total Gfx Mem [256M]

Selects DVMT5.0 Total Graphic Memory size used by the Internal Graphics Device. Configuration options: [128M] [256M] [MAX]

RC6 (Render Standby) [Enabled]

Enable or disable the render standby support. Configuration options: [Disabled] [Enabled]

Primary Boot Display [VBIOS Default]

Select the Vedio Device which will be activated during POST. Your selection does not take effect if you have installed an external graphics device. Secondary boot display selection will appear based on your selection. Configuration options: [VBIOS Default] [DisplayPort 1] [DisplayPort 2] [LVDS]

The following item appears only when you set the Primary Boot Display to **[DisplayPort 1]**, **[DisplayPort 2]** or **[LVDS]**.

Second Boot Display [Disabled]

This Secondary Boot Display selection varies depends on your selection to primary boot display. Configuration options include: [Disabled] [DisplayPort 2] [LVDS] or [Disabled] [DisplayPort 1] [LVDS] or [Disabled] [DisplayPort 1] [DisplayPort 2]

LVDS Panel Configuration

The subitems in this menu allows you to configure the LVDS panel.

LVDS [Enabled]

Allows you to enable or disable LVDS. Configuration options: [Disabled] [Enabled]

The following items appear only when you set the LVDS to **[Enabled]**.

Panel Type [1280x768 18bit, 60Hz]

Allows you to configure LVDs panel used by Internal Graphics Device. Configuration options: [640x480, 18bit, 60Hz] [800x480, 18bit, 60Hz] [800x600, 18bit, 60Hz] [1024x600, 18bit, 60Hz] [1024x768, 18bit, 60Hz] [1024x768, 24bit, 60Hz] [1280x768, 24bit, 60Hz] [1280x1024, 48bit, 60Hz] [1366x768, 24bit, 60Hz] [1440x900, 48bit, 60Hz] [1600x1200, 48bit, 60Hz] [1920x1080, 48bit, 60Hz] [1920x1200, 48bit, 60Hz]

Backlight Type [Normal]

Allows you to select the backlight control type of LVDS. Configuration options: [Normal] [Invert]

Backlight Level [80%]

Allows you to select the backlight brightness of LVDS. Configuration options: [0%] ~ [80%] [90%] [100%]

4.4.3 PCH-IO Configuration

Azalia [Enabled]

Allows you to enable or disable the control detection of the Azalia device.

[Disabled]	Disables the Azalia controller.
[Enabled]	Enables the Azalia controller.
[Auto]	The Azalia controller will be enabled if present.

PCI Express Configuration

RTL111 LAN 1~2

ASPM [Disabled]

This item allows you to select the ASPM state for energy-saving conditions. Configuration options: [Disabled] [L0s] [L1] [L0sL1] [Auto]

PCIe Speed [Auto]

Allows you to select the PCI Express port speed. Configuration options: [Auto] [Gen1] [Gen2]

Mini-card Slot (Half-size)

Hot Plug [Disabled]

Enables or disables the hot plug function. Configuration options: [Disabled] [Enabled]

ASPM [Auto]

This item allows you to select the ASPM state for energy-saving conditions. Configuration options: [Disabled] [L0s] [L1] [L0sL1] [Auto]

PCIe Speed [Auto]

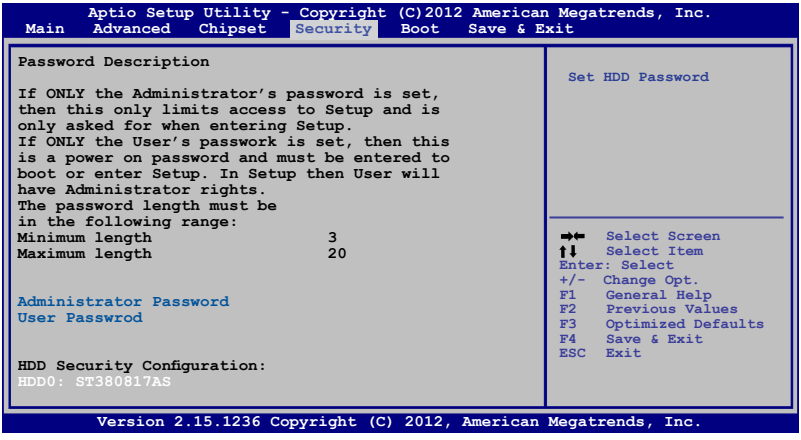
Allows you to select the PCI Express port speed. Configuration options: [Auto] [Gen1] [Gen2]

SLP_S4 Assertion Width [4-5 Seconds]

Allows you to select a minimum assertion width of the SLP_S4# signal. Configuration options: [Disabled] [1-2 Seconds] [2-3 Seconds] [3-4 Seconds] [4-5 Seconds]

4.5 Security menu

The Security menu items allow you to change the system security settings.



Administrator Password

If you have set an administrator password, we recommend that you enter the administrator password for accessing the system. Otherwise, you might be able to see or change only selected fields in the BIOS setup program.

To set an administrator password:

- If you have forgotten your BIOS password, erase the CMOS Real Time Clock (RTC) RAM to clear the BIOS password.
- The **Administrator** or **User Password** items on top of the screen show the default **Not Installed**. After you set a password, these items show **Installed**.

1. Select the **Administrator Password** item and press <Enter>.
2. From the **Create New Password** box, key in a password, then press <Enter>.
3. Confirm the password when prompted.

To change an administrator password:

1. Select the **Administrator Password** item and press <Enter>.
2. From the **Enter Current Password** box, key in the current password, then press <Enter>.
3. From the **Create New Password** box, key in a new password, then press <Enter>.

4. Confirm the password when prompted.

To clear the administrator password, follow the same steps as in changing an administrator password, but press <Enter> when prompted to create/confirm the password. After you clear the password, the **Administrator Password** item on top of the screen shows **Not Installed**.

User Password

If you have set a user password, you must enter the user password for accessing the system. The **User Password** item on top of the screen shows the default **Not Installed**. After you set a password, this item shows **Installed**.

To set a user password:

1. Select the **User Password** item and press <Enter>.
2. From the **Create New Password** box, key in a password, then press <Enter>.
3. Confirm the password when prompted.

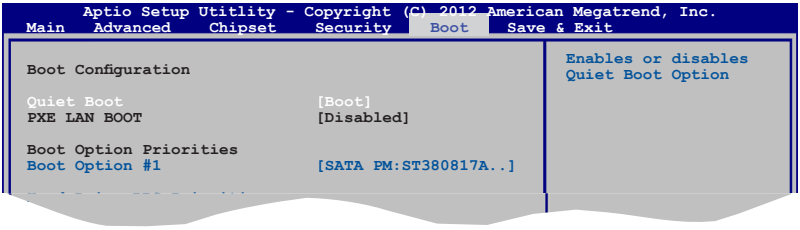
To change a user password:

1. Select the **User Password** item and press <Enter>.
2. From the **Enter Current Password** box, key in the current password, then press <Enter>.
3. From the **Create New Password** box, key in a new password, then press <Enter>.
4. Confirm the password when prompted.

To clear the user password, follow the same steps as in changing a user password, but press <Enter> when prompted to create/confirm the password. After you clear the password, the **User Password** item on top of the screen shows **Not Installed**.

4.6 Boot Menu

The Boot menu items allow you to change the system boot options.



Boot Configuration

Quiet Boot [Disabled]

This item enables/disables Quiet Boot. Configuration options: [Disabled] [Enabled]

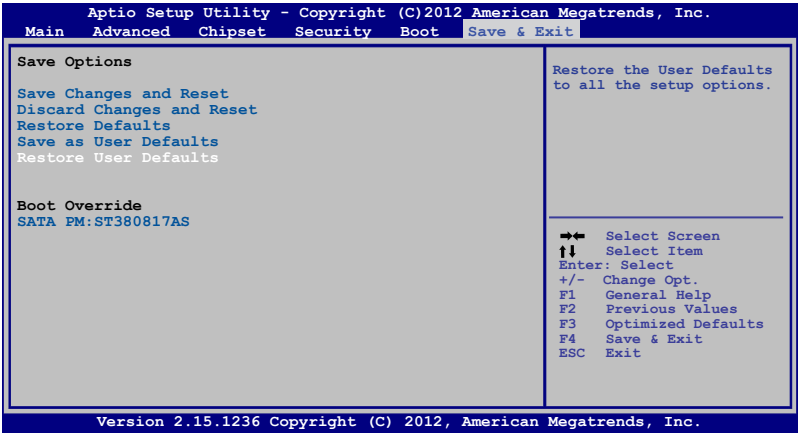
Boot Option Priorities

These items specify the boot device priority sequence from the available devices. The number of device items that appears on the screen depends on the number of devices installed in the system.

- To select the boot device during system startup, press <F7> during POST.
- To access Windows OS in Safe Mode, do any of the following:
  - Press <F5> during POST.
  - Press <F8> after POST.

4.7 Save & Exit menu

The Save & Exit menu items allow you to load the optimal default values for the BIOS items, and save or discard your changes to the BIOS items.



Save Changes & Reset

Once you are finished making your selections, choose this option from the Save & Exit menu to ensure the values you selected are saved. When you select this option or if you press <F4>, a confirmation window appears. Select Yes to save changes and reset.

Discard Changes & Reset

This option allows you to reset the system without saving your changes. When you select this option or if you press <Esc>, a confirmation window appears. Select Yes to discard changes and reset.

Restore Defaults

This option allows you to restore the default values for each of the parameters on the Setup menus. When you select this option or if you press <F3>, a confirmation window appears. Select Yes to load the default values.

Save as User Defaults

This option allows you to sve the changes made so far as User Defaults. When you select this option, a confirmation window appears. Select Yes to save as user defaults.

Restore User Defaults

This option allows you to restore the User Defaults to all the setup options. When you select this option, a confirmation window appears. Select Yes to restore user defaults.

Boot Override

These items displays the available devices. The number of device items that appears on the screen depends on the number of devices installed in the system. Click an item to start booting from the selected device.