ELITEGROUP

DURATHON 2

Z270H4-I

USER GUIDE

Version:1.0

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ISO-9001 ISO-14001

Copyright

Version 1.0

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Federal Communications Commission (FCC)

This equipment has been tested and found to comply with the limits for a Class B 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 the 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 the receiver
- Connect the equipment onto 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

Shielded interconnect cables and a shielded AC power cable must be employed with this equipment to ensure compliance with the pertinent RF emission limits governing this device. Changes or modifications not expressly approved by the system's manufacturer could void the user's authority to operate the equipment.

Declaration of Conformity

This device complies with part 15 of the FCC rules. Operation is subject to the following conditions:

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

This device is in conformity with the following EC/EMC directives:

- ❑ **EN 55022** Limits and methods of mesurement of radio disturbance characteristics of information technology equipment
- ❑ **EN 61000-3-2** Disturbances in supply systems caused
- ❑ **EN 61000-3-3** Disturbances in supply systems caused by household appliances and similar electrical equipment " Voltage fluctuations"
- ❑ **EN 55024** Information technology equipment-Immunity characteristics-Limits and methods of measurement
- ❑ **EN 60950** Safety for information technology equipment including electrical business equipment
- ❑ **CE marking** CE

Canadian Department of Communications

This class B digital apparatus meets all requirements of the Canadian Interference-causing Equipment Regulations.

Cet appareil numérique de la classe B respecte toutes les exigences du Réglement sur le matériel brouilieur du Canada.

About the Manual

The manual consists of the following:

Chapter 1 **Introducing the Motherboard**	Describes features of the motherboard.	⇨ page 1
Chapter 2 **Installing the Motherboard**	Describes installation of motherboard components.	⇨ page 7
Chapter 3 **Using BIOS**	Provides information on using the BIOS Setup Utility.	⇨ page 25
Chapter 4 **Using the Motherboard Software**	Describes the motherboard software.	⇨ page 59
Chapter 5 **Intel® Rapid Storage Technology RAID Configuration**	Describes Intel® Matrix Storage Manager RAID Configurations.	⇨ page 63
Chapter 6 **Trouble Shooting**	Provides basic trouble shooting tips.	⇨ page 69

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Chapter 1
Introducing the Motherboard

Introduction

Thank you for choosing the **Z270H4-I** motherboard. This motherboard is a high performance, enhanced function motherboard designed to support the LGA1151 socket for Intel® Kabylake processor.

This motherboard is based on Intel® Z270 Express Chipset for best desktop platform solution. It supports up to 32 GB of system memory with dual channel DDR4 3000(OC)/ 2400 MHz. One PCI Express x16 Gen3 slot is supported, intended for Graphics Interface. In addition, two M.2 slots are supported.

It integrates USB 2.0 and USB 3.0 interface, supporting up to four USB 2.0 ports (two USB 2.0 ports at rear panel and one USB 2.0 header supports additional two USB 2.0 ports) and eight USB 3.0 ports (five USB 3.0 ports and one Type-C USB 3.0 port at the rear panel and one USB 3.0 header supports additional two USB 3.0 ports).

The motherboard is equipped with advanced full set of I/O ports in the rear panel, including one PS/2 mouse and keyboard Combo connector, one DP port, one WiFi anttena connector (optional), one HDMI port, five USB 3.0 ports, one Type-C USB 3.0 port, two USB 2.0 ports, two RJ45 LAN connectors, one 5.1-ch audio and one SPDIF jack.

In addition, this motherboard supports four SATA 6Gb/s connectors for expansion.

Package Contents

Your motherboard package ships with the following items:

- ❑ Z270H4-I Motherboard
- ❑ User Manual
- ❑ DVD
- ❑ I/O Shield
- ❑ 2 SATA 6G Cables

The package contents above are for reference only, please take the actual package items as standard.

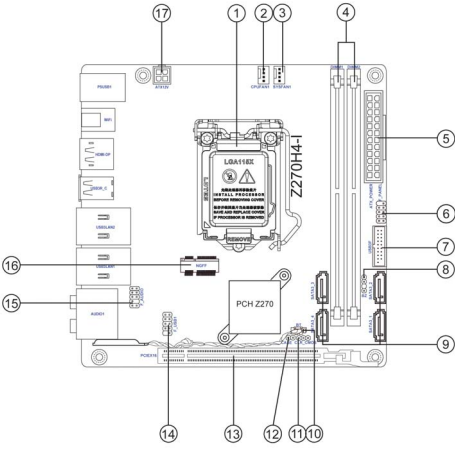
Specifications

CPU	• LGA1151 socket for Intel® Kabylake processor • Supports CPU up to 95W, TDP up to 95W *Note: Please go to ECS website for the latest CPU support list.*
Chipset	• Intel® Z270 Chipset
Memory	• Dual-channel DDR4 memory architecture • 2 x 288-pin DDR4 DIMM sockets support up to 32 GB • Supports DDR4 SDRAM *Note: Please go to ECS website for the latest Memory support list.*
Expansion Slots	• 1 x PCI Express x16 Gen3 slot • 1 x M.2 Socket 1 with A/E key, supports 2230 WiFi/BT card (on the top side) • 1 x M.2 Socket 3 with M key, supports 2242/2280 Optane SSD card (on the bottom side)
Storage	• Supported by Intel® Z270 Express Chipset - 4 x Serial ATA 6Gb/s devices
Audio	• Realtek ALC1150 5.1-Ch High Definition audio CODEC - Compliant with HD audio specification
LAN	• Intel WGI 219V + Realtek RTL8118AS Gigabit Lan
Rear Panel I/O	• 1 x PS/2 mouse & keyboard Combo connector • 1 x WiFi anttena connector (optional) • 1 x DP port • 1 x HDMI port • 2 x USB 2.0 ports • 5 x USB 3.0 ports • 1 x Type-C USB 3.0 port • 2 x RJ45 LAN connectors • 1 x 5.1-ch Audio + 1 x SPDIF jack
Internal I/O Connectors & Headers	• 1 x 24-pin ATX Power Supply connector • 1 x 4-pin ATX 12V Power connector • 1 x 4-pin CPU_FAN connector • 1 x 4-pin SYS_FAN connector • 1 x USB 3.0 header supports additional two USB 3.0 ports • 1 x USB 2.0 header supports additional two USB 2.0 ports • 4 x SATA 6Gb/s connectors • 1 x Front Panel audio header • 1 x Front Panel switch/LED header • 1 x Clear CMOS jumper • 1 x Buzzer header • 1 x Battery connector • 1 x Case open header

System BIOS	• AMI BIOS with 128Mb SPI Flash ROM • Supports Plug and Play, STR (S3)/ STD(S4), Hardware Monitor • Audio, LAN, can be disabled in BIOS • F7 hot key for boot up devices option • Supports ACPI & DMI • Supports Over-Clocking (Memory) • Supports PgUp clear CMOS Hotkey (Has PS2 KB Model only) • Add the function of copying BIOS parameters to USB flash drive
AP Support	• Supports eBLU*/eDLU *Note: *Microsoft .NET Framework 3.5 is required.*
Form Factor	• Mini ITX Size, 170mm x 170mm

Motherboard Components

Top



Bottom

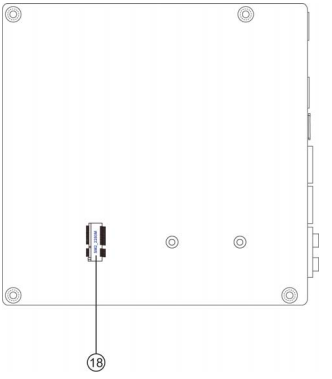
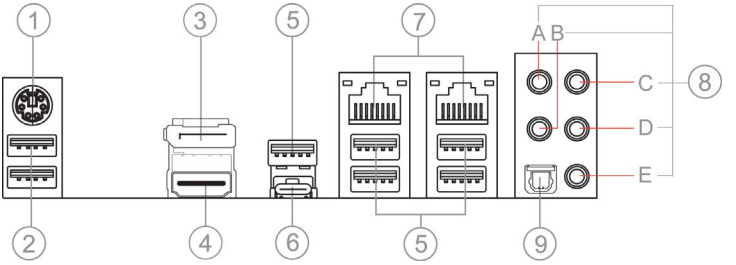


Table of Motherboard Components

LABEL	COMPONENTS
1. CPU Socket	LGA1151 socket for Intel® Kabylake processor
2. CPUFAN1	4-pin CPU cooling fan connector
3. SYSFAN1	4-pin system cooling fan connector
4. DIMM1~2	288-pin DDR4 Module slots
5. ATX_POWER	Standard 24-pin ATX power connector
6. F_PANEL	Front panel switch/LED header
7. USB3F	Front panel USB 3.0 header
8. BZ	Buzzer header
9. SATA3_1~4	Serial ATA 6Gb/s connectors
10. BT	Battery connector
11. CLR_CMOS	Clear CMOS jumper
12. CASE	CASE open header
13. PCIEX16	PCI Express Gen3 x16 slot for graphics interface
14. F_USB1	Front panel USB 2.0 header
15. F_AUDIO	Front panel audio header
16. NGFF	M.2 slot for 2230 WiFi/BT card
17. ATX12V	4-pin +12V power connector
18. SM2_2280M	M.2 slot for 2242/2280 Optane SSD card

I/O Ports



1. PS/2 Combo port
Use the PS/2 combo port to connect the PS/2 Keyboard or PS/2 Mouse.

2. USB 2.0 Ports
Use the USB 2.0 ports to connect USB 2.0 devices.

3. DP Port
Connect your monitor to the DP port.

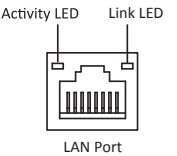
4. HDMI Port
You can connect the display device to the HDMI port.

5. USB 3.0 Ports
Use the USB 3.0 ports to connect USB 3.0 devices.

6. Tpye-C USB 3.0 Port
Use the Type-C USB 3.0 port to connect Type-C USB 3.0 device.

7. LAN Port
Connect an RJ-45 jack to the LAN port to connect your computer to the Network.

LAN LED	Status	Description
Activity LED	OFF	No data
	Orange blinking	Active
Link LED	OFF	No link
	Green	Link



8. Audio Ports
Use the audio jacks to connect audio devices. The C port is for stereo line-in signal, while the E port is for microphone in signal. This motherboard supports 5.1-channel audio devices that correspond to the A, B and D port respectively. In addition, all of the 3 ports, B and D provide users with both right & left channels individually. Users please refer to the following note for specific port function definition. The D port also provides ESS SABRE^{32} DAC good quality audio experience.

A: Center & Woofer	D: Front Out
B: Back Surround	E: Mic_in Rear
C: Line-in	——

The above port definition can be changed to audio input or audio output by changing the driver utility setting.

9. Optical SPDIF Output
This jack connects to external optical digital audio output devices.

Chapter 2
Installing the Motherboard

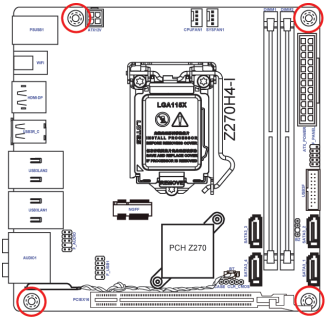
2-1. Safety Precautions

Follow these safety precautions when installing the motherboard:

- Wear a grounding strap attached to a grounded device to avoid damage from static electricity.
- Discharge static electricity by touching the metal case of a safely grounded object before working on the motherboard.
- Leave components in the static-proof bags.
- Always remove the AC power by unplugging the power cord from the power outlet before installing or removing the motherboard or other hardware components.

2-2. Installing the motherboard in a Chassis

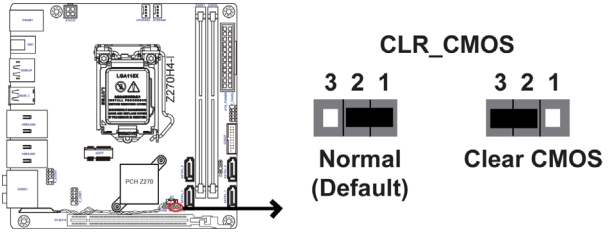
This motherboard carries an Mini ITX form factor of 170 x 170 mm. Choose a chassis that accommodates this form factor. Make sure that the I/O template in the chassis matches the I/O ports installed on the rear edge of the motherboard. Most system chassis have mounting brackets installed in the chassis, which corresponds to the holes in the motherboard. Place the motherboard over the mounting brackets and secure the motherboard onto the mounting brackets with screws.



Do not over-tighten the screws as this can stress the motherboard.

2-3. Checking Jumper Settings

The following illustration shows the location of the motherboard jumpers. Pin 1 is labeled.



To avoid the system instability after clearing CMOS, we recommend users to enter the main BIOS setting page to "Load Default Settings" and then "Save and Exit Setup".

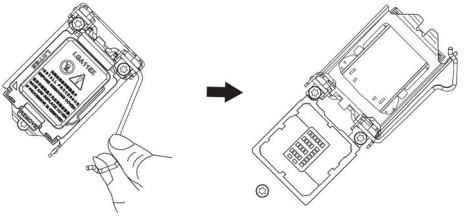
2-4. Installing Hardware

2-4-1. Installing the Processor

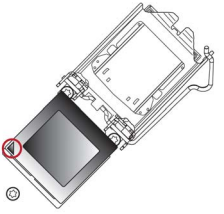
- This motherboard has an LGA1151 socket.
- When choosing a processor, consider the performance requirements of the system. Performance is based on the processor design, the clock speed and system bus frequency of the processor, and the quantity of internal cache memory and external cache memory.
- You may be able to change the settings in the system Setup Utility. We strongly recommend you do not over-clock processor or other components to run faster than their rated speed.
- The following illustration shows CPU installation components.

A. Press the hook of lever down with your thumb and pull it to the right side to release it from retention tab.

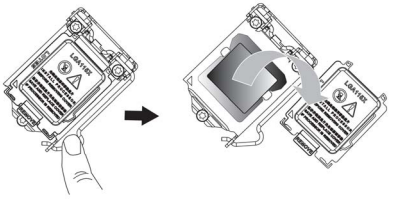
B. Lift the tail of the load lever and rotate the load plate to fully open position.



C. Grasp the edge of the package substrate. Make sure pin 1 indicator is on your bottom-left side. Aim at the socket and place the package carefully into the socket by purely vertical motion.



D. Rotate the load plate onto the package IHS (Intergraded Heat Spreader). Engage the load lever while pressing down lightly onto the load plate. Secure the load lever with the hook under retention tab. Then the cover will flick automatically.

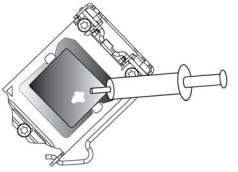


Please save and replace the cover onto the CPU socket if processor is removed.

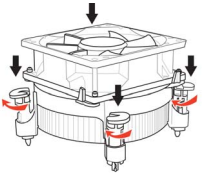
2-4-2. Installing the CPU Cooler

- Install the cooling fan in a well-lit work area so that you can clearly see the motherboard and processor socket.
- Avoid using cooling fans with sharp edges in case the fan casing and the clips cause serious damage to the motherboard or its components.
- To achieve better airflow rates and heat dissipation, we suggest that you use a high quality fan with 3800 rpm at least. CPU fan and heat sink installation procedures may vary with the type of CPU fan/heatsink supplied. The form and size of fan/heatsink may also vary.
- DO NOT remove the CPU cap from the socket before installing a CPU.
- Return Material Authorization (RMA) requests will be accepted only if the motherboard comes with the cap on the LGA1151 socket.
- The following illustration shows how to install CPU fan.

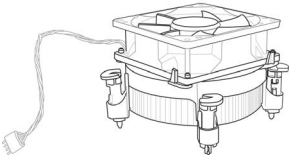
A. Apply some thermal grease onto the contacted area between the heatsink and the CPU, and make it to be a thin layer.



B. Fasten the cooling fan supporting base onto the CPU socket on the motherboard. And make sure the CPU fan is plugged to the CPU fan connector.



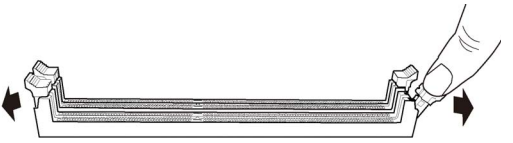
C. Connect the CPU cooler power connector to the CPU_FAN connector.



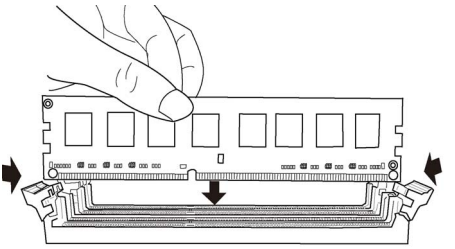
2-4-3. Installing Memory Modules

- This motherboard accommodates four memory modules. It can support two 288-pin DDR4 3000(OC)/2400 MHz.
- Do not remove any memory module from its antistatic packaging until you are ready to install it on the motherboard. Handle the modules only by their edges. Do not touch the components or metal parts. Always wear a grounding strap when you handle the modules.
- You must install at least one module in any of the four slots. Total memory capacity is 32 GB.
- Refer to the following to install the memory modules.

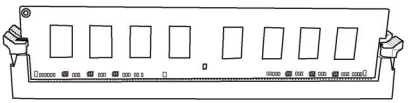
A. Push the latches on each side of the DIMM slot down.



B. Install the DIMM module into the slot and press it firmly down until it seats correctly. Check that the cutouts on the DIMM module edge connector match the notches in the DIMM slot.

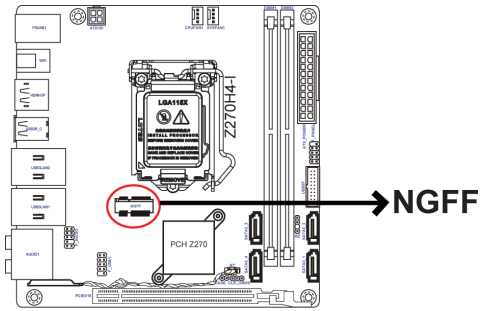


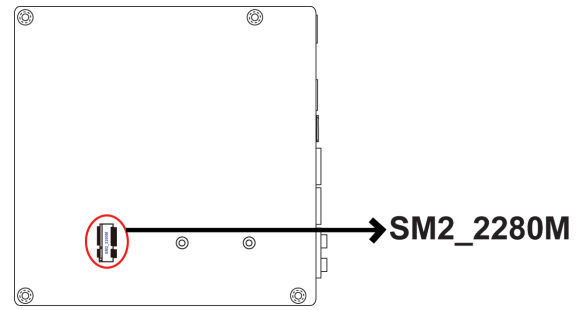
C. The slot latches are levered upwards and latch on to the edges of the DIMM.



2-4-4. Installing Add-on Cards

The slots on this motherboard are designed to hold expansion cards and connect them to the system bus. Expansion slots are a means of adding or enhancing the motherboard's features and capabilities. With these efficient facilities, you can increase the motherboard's capabilities by adding hardware that performs tasks that are not part of the basic system.





NGFF Slot This is M.2 slot for 2230 WiFi/BT card. It will provide high transfer performance than original Mini PCIe interface.

SM2_2280M Slot This is M.2 slot for 2242/2280 Optane SSD card. It will provide high transfer performance than original Mini PCIe interface.

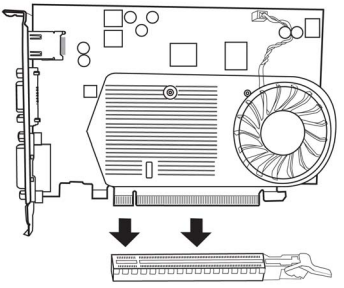
Before installing an add-on card, check the documentation for the card carefully. If the card is not Plug and Play, you may have to manually configure the card before installation.

Follow these instructions to install an add-on card:

1 Remove a blanking plate from the system case corresponding to the slot you are going to use.
2 Install the edge connector of the add-on card into the expansion slot. Ensure that the edge connector is correctly seated in the slot.
3 Secure the metal bracket of the card to the system case with a screw.

For some add-on cards, for example graphics adapters and network adapters, you have to install drivers and software before you can begin using the add-on card.

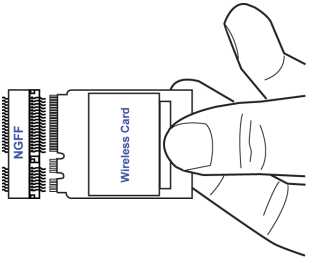
Please refer the following illustrations to install the add-on card:



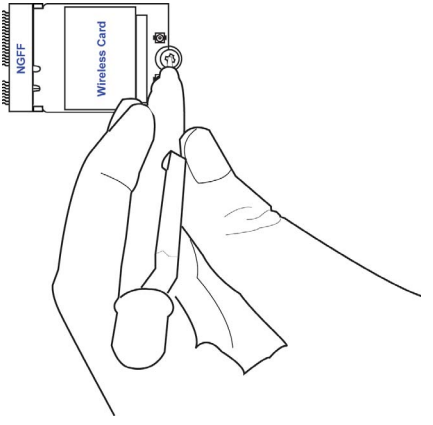
Install the VGA Card in the PCIE X16 slot

Please refer the following steps to install the M.2 WiFi/BT card:

1 Insert the M.2 WiFi/BT card into NGFF slot in the fool-proof way.

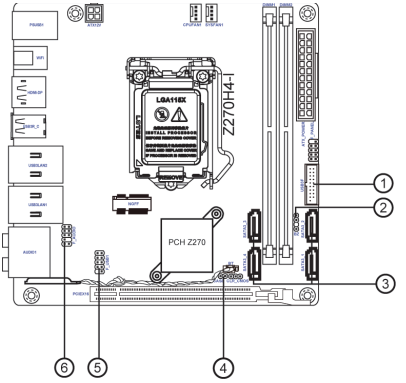


2 Lock the screw as the following picture shows to make sure the M.2 WiFi/ BT card is installed in place.



2-4-5. Connecting Optional Devices

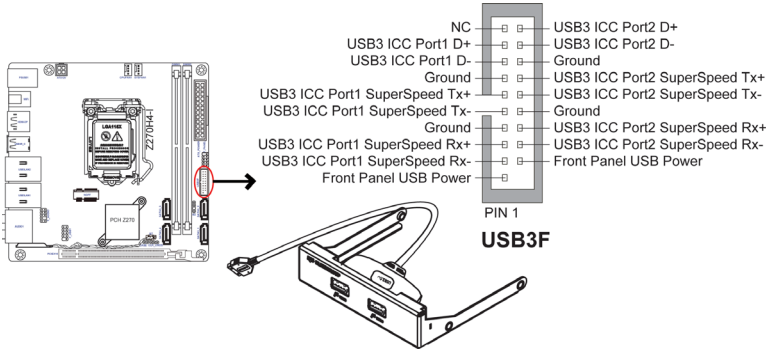
Refer to the following for information on connecting the motherboard's optional devices:



No.	Components	No.	Components
1	USB3F	4	CASE
2	BZ	5	F_USB1
3	SATA3_1~4	6	F_AUDIO

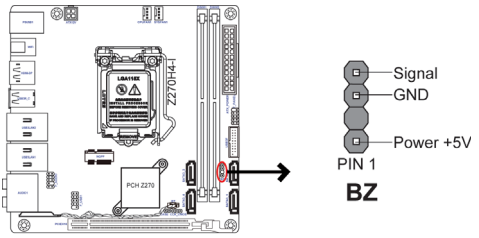
1. USB3F: Front Panel USB 3.0 Header

This Motherboard implements one USB 3.0 header supporting 2 extra front USB 3.0 ports, which delivers 5Gb/s transfer rate.



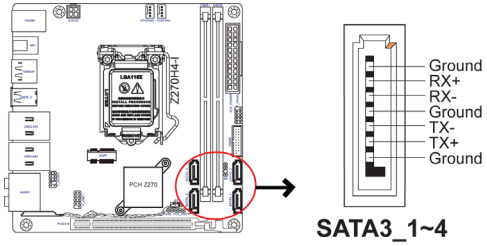
Please make sure that the USB cable has the same pin assignment as indicated above. A different pin assignment may cause damage or system hang-up.

2. BZ: Buzzer Header



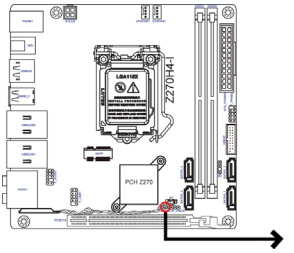
3. SATA3_1~4: Serial ATA III Connectors

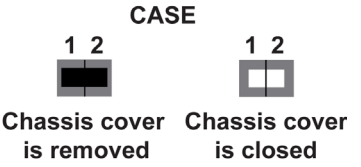
SATA3_1~4 connectors are used to support the Serial ATA 6Gb/s device, simpler disk drive cabling and easier PC assembly. It eliminates limitations of the current Parallel ATA interface. But maintains register compatibility and software compatibility with Parallel ATA.



4. CASE: Chassis Intrusion Detect Header

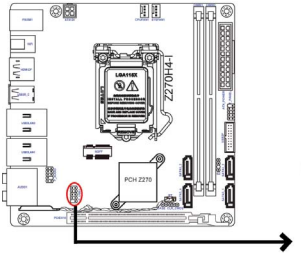
This detects if the chassis cover has been removed. This function needs a chassis equipped with instrusion detection switch and needs to be enabled in BIOS.

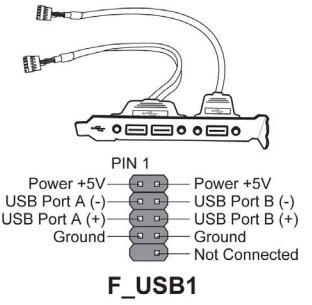




5. F_USB1: Front Panel USB 2.0 Header

The motherboard has one USB 2.0 headers supporting two USB 2.0 ports. Additionally, some computer cases have USB ports at the front of the case. If you have this kind of case, use auxiliary USB connector to connect the front-mounted ports to the motherboard.

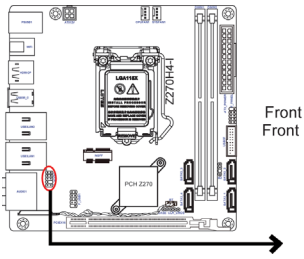


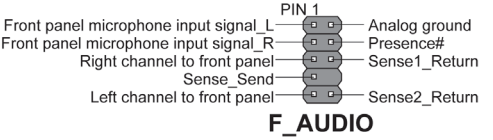


Please make sure that the USB cable has the same pin assignment as indicated above. A different pin assignment may cause damage or system hang-up.

6. F_AUDIO: Front Panel Audio Header

The front panel audio header allows the user to install auxiliary front-oriented microphone and line-out ports for easier access. This header supports HD audio by default.





2-4-6. Installing a SATA Hard Drive

This section describes how to install a SATA Hard Drive.

About SATA Connectors

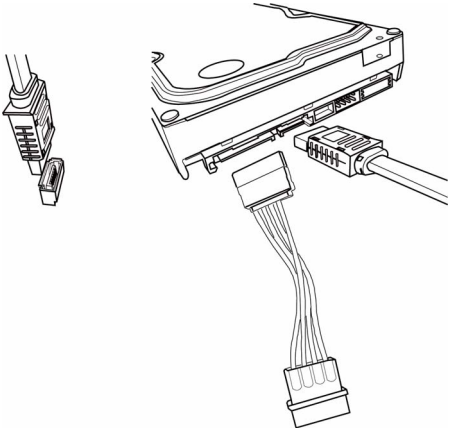
Your motherboard features four SATA connectors supporting a total of four drives. SATA refers to Serial ATA (Advanced Technology Attachment) is the standard interface for the IDE hard drives which are currently used in most PCs. These connectors are well designed and will only fit in one orientation. Locate the SATA connectors on the motherboard and follow the illustration below to install the SATA hard drives.

Installing Serial ATA Hard Drives

To install the Serial ATA (SATA) hard drives, use the SATA cable that supports the Serial ATA protocol. This SATA cable comes with a SATA power cable. You can connect either end of the SATA cable to the SATA hard drive or the connector on the motherboard.

Refer to the illustration below for proper installation:

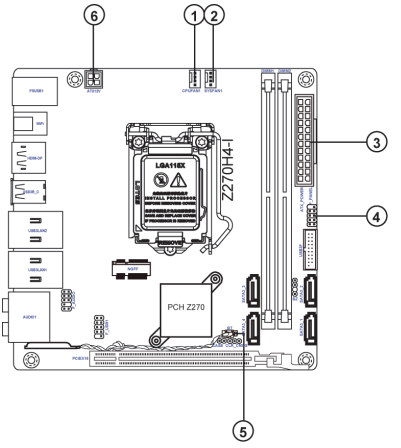
1 Attach either cable end to the connector on the motherboard.
2 Attach the other cable end to the SATA hard drive.
3 Attach the SATA power cable to the SATA hard drive and connect the other end to the power supply.



** For reference only*

2-4-7. Connecting Case Components

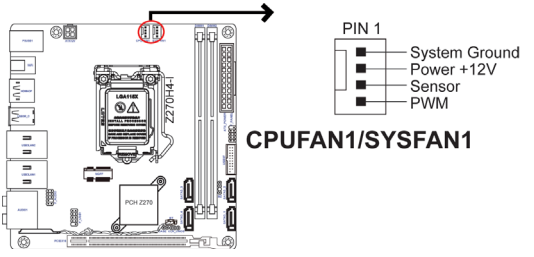
After you have installed the motherboard into a case, you can begin connecting the motherboard components. Refer to the following:



No.	Components	No.	Components
1	CPUFAN1	4	F_PANEL
2	SYSFAN1	5	BT
3	ATX_POWER	6	ATX12V

1 & 2. CPUFAN1 (CPU Cooling FAN Connector) & SYSFAN1 (System Cooling FAN Connector)

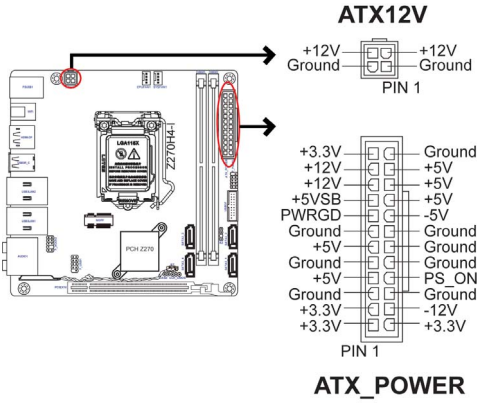
Connect the CPU cooling fan cable to **CPUFAN1**.
Connect the system cooling fan connector to **SYSFAN1**.



Users please note that the fan connector supports the CPU cooling fan of 1.1A ~ 2.2A (26.4W max) at +12V.

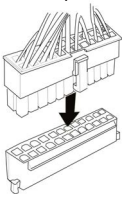
3 & 6. ATX_POWER (ATX 24-pin Power Connector) & ATX12V (ATX 12V Power Connector)

Connect the standard power supply connector to **ATX_POWER**.
Connect the auxiliary case power supply connector to **ATX12V**.



Connecting 24-pin power cable

The ATX 24-pin connector allows you to connect to ATX_POWER power supply.

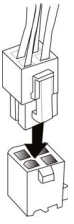


24-pin power cable

With ATX_POWER power supply, users please note that when installing 24-pin power cable, the latches of power cable and the ATX match perfectly.

Connecting 4-pin power cable

The ATX12V power connector is used to provide power to the CPU.

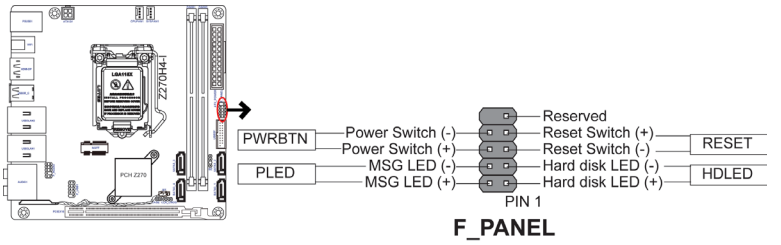


4-pin power cable

When installing 4-pin power cable, the latches of power cable and the ATX12V match perfectly.

4. F_PANEL: Front Panel Header

The front panel header (F_PANEL) provides a standard set of switch and LED headers commonly found on Mini ITX cases. Refer to the table below for information:



Hard Drive Activity LED

Connecting pins 1 and 3 to a front panel mounted LED provides visual indication that data is being read from or written to the hard drive. For the LED to function properly, an IDE drive should be connected to the onboard IDE interface. The LED will also show activity for devices connected to the SCSI (hard drive activity LED) connector.

Power/Sleep/Message waiting LED

Connecting pins 2 and 4 to a single or dual-color, front panel mounted LED provides power on/off, sleep, and message waiting indication.

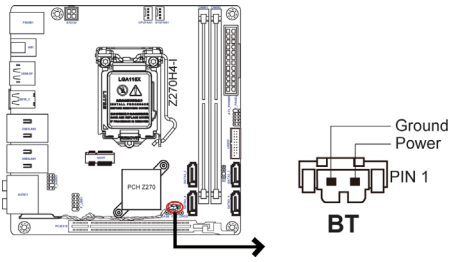
Reset Switch

Supporting the reset function requires connecting pin 5 and 7 to a momentary-contact switch that is normally open. When the switch is closed, the board resets and runs POST.

Power Switch

Supporting the power on/off function requires connecting pins 6 and 8 to a momentary-contact switch that is normally open. The switch should maintain contact for at least 50 ms to signal the power supply to switch on or off. The time requirement is due to internal de-bounce circuitry. After receiving a power on/off signal, at least two seconds elapses before the power supply recognizes another on/off signal.

5. BT: Battery Connector



This concludes Chapter 2. The next chapter covers the BIOS.

Memo

Chapter 3
Using BIOS

About the Setup Utility

The computer uses the latest "American Megatrends Inc. " BIOS with support for Windows Plug and Play. The CMOS chip on the motherboard contains the ROM setup instructions for configuring the motherboard BIOS.

The BIOS (Basic Input and Output System) Setup Utility displays the system's configuration status and provides you with options to set system parameters. The parameters are stored in battery-backed-up CMOS RAM that saves this information when the power is turned off. When the system is turned back on, the system is configured with the values you stored in CMOS.

The BIOS Setup Utility enables you to configure:

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

The settings made in the Setup Utility affect how the computer performs. Before using the Setup Utility, ensure that you understand the Setup Utility options.

This chapter provides explanations for Setup Utility options.

The Standard Configuration

A standard configuration has already been set in the Setup Utility. However, we recommend that you read this chapter in case you need to make any changes in the future.

This Setup Utility should be used:

- when changing the system configuration
- when a configuration error is detected and you are prompted to make changes to the Setup Utility
- when trying to resolve IRQ conflicts
- when making changes to the Power Management configuration
- when changing the password or making other changes to the Security Setup

Entering the Setup Utility

When you power on the system, BIOS enters the Power-On Self Test (POST) routines. POST is a series of built-in diagnostics performed by the BIOS. After the POST routines are completed, the following message appears:

Press DEL to enter SETUP

Press the delete key to access BIOS Setup Utility.

Resetting the Default CMOS Values

When powering on for the first time, the POST screen may show a "CMOS Settings Wrong" message. This standard message will appear following a clear CMOS data at factory by the manufacturer. You simply need to Load Default Settings to reset the default CMOS values.

Note: Changes to system hardware such as different CPU, memories, etc. may also trigger this message.

Using BIOS

When you start the Setup Utility, the main menu appears. The main menu of the Setup Utility displays a list of the options that are available. A highlight indicates which option is currently selected. Use the cursor arrow keys to move the highlight to other options. When an option is highlighted, execute the option by pressing <Enter>.

Some options lead to pop-up dialog boxes that prompt you to verify that you wish to execute that option. Other options lead to dialog boxes that prompt you for information.

Some options (marked with an icon ») lead to submenus that enable you to change the values for the option. Use the cursor arrow keys to scroll through the items in the submenu.

In this manual, default values are enclosed in parenthesis. Submenu items are denoted by an icon ».

The default BIOS setting for this motherboard apply for most conditions with optimum performance. We do not suggest users change the default values in the BIOS setup and take no responsibility to any damage caused by changing the BIOS settings.

BIOS Navigation Keys

The BIOS navigation keys are listed below:

KEY	FUNCTION
ESC	Exits the current menu
↑↓→←	Scrolls through the items on a menu
+/-	Change Opt.
Enter	Select
F1	General Help
F2	Previous Value
F3	Optimized Defaults
F4	Save & Exit

1. For the purpose of better product maintenance, the manufacture reserves the right to change the BIOS items presented in this manual. The BIOS setup screens shown in this chapter are for reference only and may differ from the actual BIOS. Please visit the manufacture's website for updated manual.

2. In this Gui BIOS, you can operate by mouse or keyboard. Click : select item; Double click: enter; Right click: exit.

Default

Select the Default icon and press <Enter> or double click the left key of the mouse to display the screen. Then you can load optimized defaults or not.

Advanced

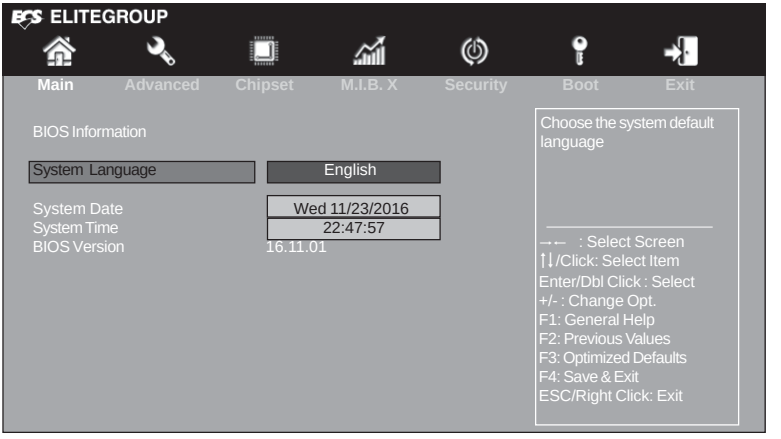
Select the Advanced icon and press <Enter> or double click the left key of the mouse to display the screen.

Exit

Select the Exit icon and press <Enter> or double click the left key of the mouse to display the screen. Then you can exit the BIOS setup.

Main Menu

This menu shows the information of BIOS and enables you to set the system language, date and time.



System Language (English)

This item is used to set system language.

System Date & Time

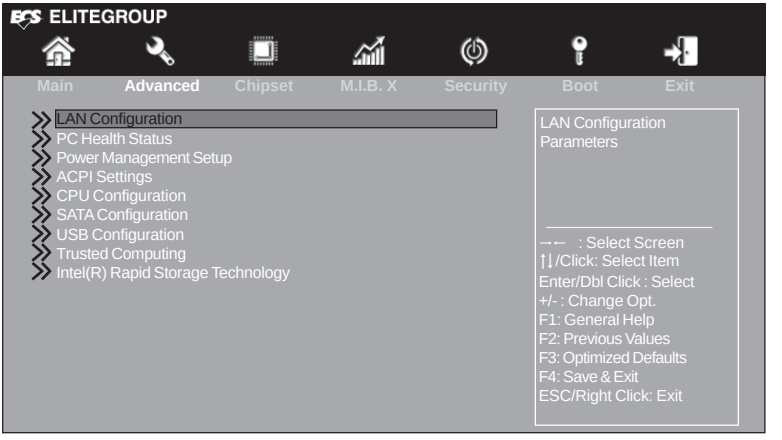
The Date and Time items show the current date and time on the computer. If you are running a Windows OS, these items are automatically updated whenever you make changes to the Windows Date and Time Properties utility.

BIOS Version (16.11.01)

This item shows the BIOS version.

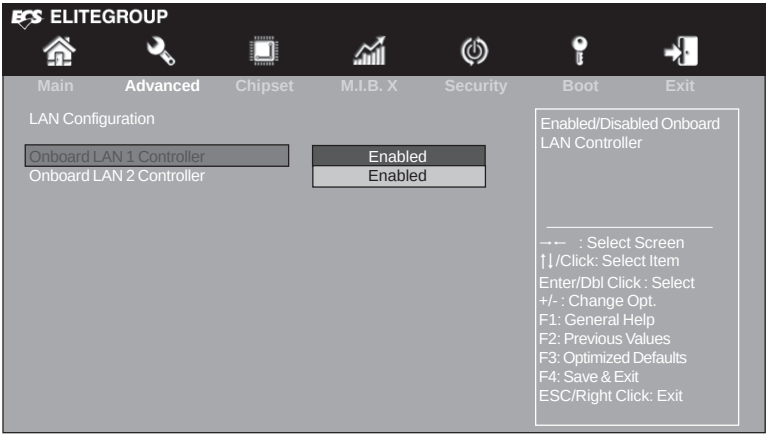
Advanced Menu

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



» LAN Configuration

The item in the menu shows the LAN-related information that the BIOS automatically detects.



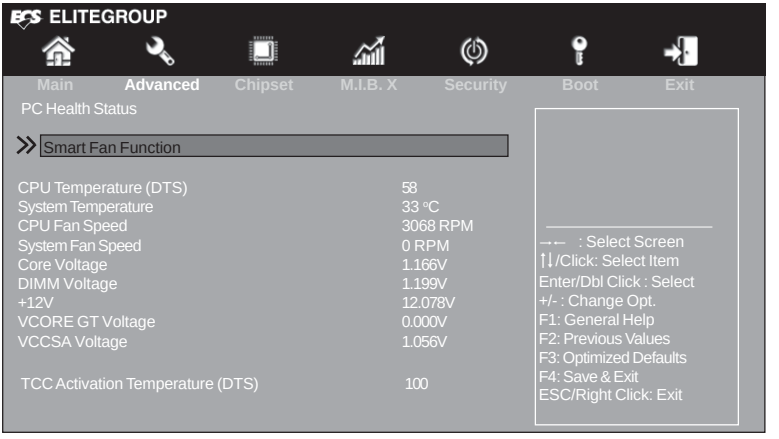
Onboard LAN 1/2 Controller (Enabled)

Use these items to enable or disable Onboard LAN 1/2 controller.

Press <Esc> to return to the Advanced Menu page.

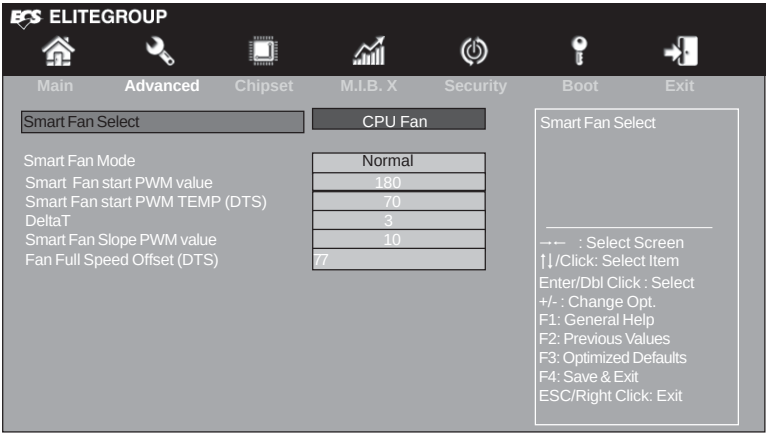
» PC Health Status

On motherboards support hardware monitoring, this item lets you monitor the parameters for critical voltages, temperatures and fan speeds.



» Smart Fan Function

Scroll to this item and press <Enter> to view the following screen:



Smart Fan Select (CPU Fan)

This item allows you to change and configure Smart Fans on M/B. ex. CPU Fan, System Fan.

Smart Fan Mode (Normal)

This item allows you to select the fan mode (Normal, Quiet, Silent, or Manual) for a better operation environment. If you choose Normal mode, the fan speed will be auto adjusted depending on the CPU temperature. If you choose Quite mode, the fan speed will be auto minimized for quiet environment. If you choose Silent mode, the fan speed will be auto restricted to make system more quietly. If you choose Manual mode, the fan speed will be adjust depending on users' parameters.

Smart Fan start PWM value (180)

This item is used to set the start PWM value of the smart fan.

Smart Fan start PWM TEMP (DTS) (70)

This item is used to set the start temperature of the smart fan.

DeltaT (3)

This item specifies the range that controls CPU temperature and keeps it from going so high or so low when smart fan works.

Smart Fan Slope PWM value (10)

This item is used to set the Slope Select PWM of the smart fan.

Fan Full Speed Offset (DTS) (77)

This item is used to set the Fan full speed offset value.

Press <Esc> to return to the PC Health Status page.

System Component Characteristics

These items display the monitoring of the overall inboard hardware health events, such as CPU & DIMM voltage, CPU & System fan speed...etc.

- CPU Temperature (DTS)
- System Temperature
- CPU Fan Speed
- System Fan Speed
- Core Voltage
- DIMM Voltage
- +12V
- VCORE GT Voltage
- VCCSA Voltage

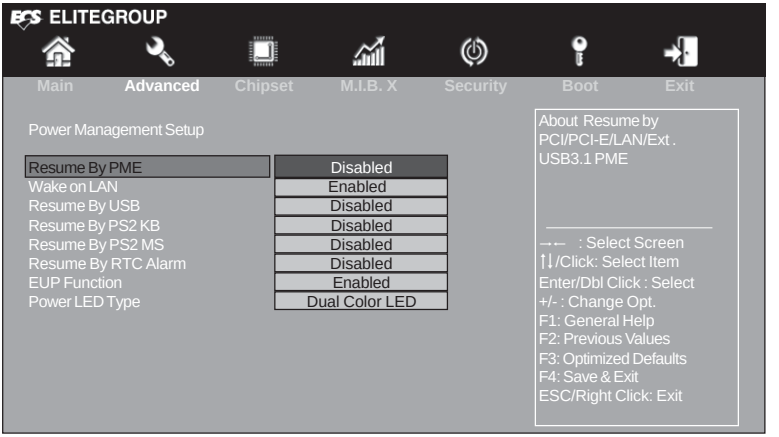
Press <Esc> to return to the Advanced Menu page.

TCC Activation Temperature (DTS) (100)

This item shows the factory TCC activation temperature.

» Power Management Setup

This page sets up some parameters for system power management operation.



Resume By PME (Disabled)

This item specify whether the system will be awakened from power saving modes when activity or input signal of the specified hardware peripheral or components is detected.

Wake on LAN (Enabled)

Use this item to enable or disable integrated LAN to wake the system. (The wake on LAN cannot be disabled if ME is not at Sx state.) If disabled, resume by USB (S3) will not be available.

Resume By USB (Disabled)

This item allows you to enable or disable the USB device wakeup function from S3 mode.

Resume By PS2 KB (Disabled)

This item enables or disables you to allow keyboard activity to awaken the system from power saving mode.

Resume By PS2 MS (Disabled)

This item enables or disables you to allow mouse activity to awaken the system from power saving mode.

Resume By RTC Alarm (Disabled)

The system can be turned off with a software command. If you enable this item, the system can automatically resume at a fixed time based on the system's RTC (realtimeclock). Use the items below this one to set the date and time of the wake-up alarm. You must use an ATX power supply in order to use this feature.

EUP Function (Enabled)

This item allows user to enable or disable EUP support.

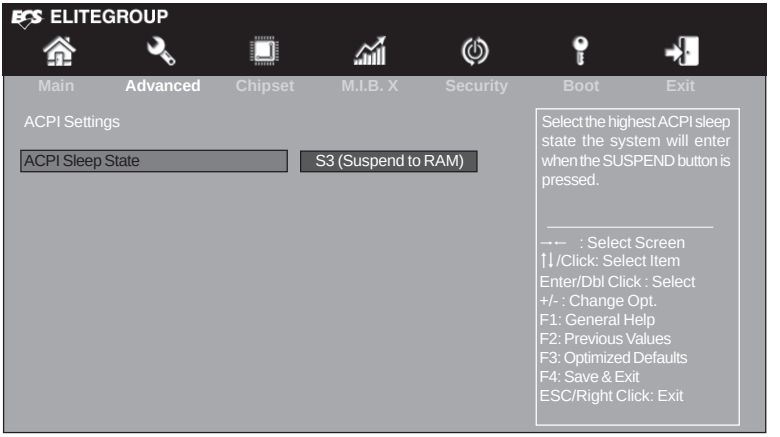
Power LED Type (Dual Color LED)

This item shows the type of the Power LED.

Press <Esc> to return to the Advanced Menu page.

≫ ACPI Settings

The item in the menu shows the highest ACPI sleep state when the system enters suspend.



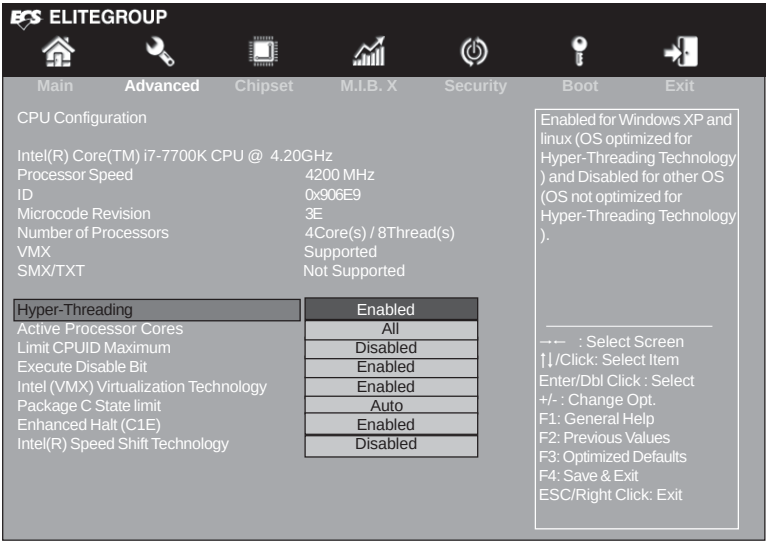
ACPI Sleep State (S3(Suspend to RAM))

This item allows user to enter the ACPI S3 (Suspend to RAM) Sleep State (default).

Press <Esc> to return to the Advanced Menu page.

≫ CPU Configuration

The item in the menu shows the CPU configuration.



Intel(R) Core(TM) i7-7700K CPU @ 4.20GHz

This is display-only field and displays the information of the CPU installed in your computer.

Processor Speed (4200MHz)

This item shows the current processor speed.

ID (0x906E9)

This item shows the processor ID.

Microcode Revision (3E)

This item shows the Microcode version.

Number of Processors (4Core(s) / 8Thread(s))

This item shows the Core number of the processors.

VMX (Supported)

This item shows that the processor supports VMX or not.

SMX/TXT (Not Supported)

This item shows that the processor supports SMZ/TXT or not.

Hyper-threading (Enabled)

This item is only available when the chipset supports Hyper-threading and you are using a Hyper-threading CPU.

Active Processor Cores (All)

Use this item to control the number of active processor cores.

Limit CPUID Maximum (Disabled)

Use this item to enable or disable the maximum CPUID value limit, you can enables this item to prevent the system from “rebooting” when trying to install Windows NT 4.0.

Execute Disable Bit (Enabled)

This item allows the processor to classify areas in memory by where application code can execute and where it cannot. When a malicious worm attempts to insert code in the buffer, the processor disables code execution, preventing damage or worm propagation. Replacing older computers with Execute Disable Bit enabled systems can halt worm attacks, reducing the need for virus related repair.

Intel (VMX) Virtualization Technology (Enabled)

When enabled, a VMM can utilize the additional hardware capabilities provided by Vanderpool Technology.

Package C State limit (Auto)

Use this item to set the package C state limit.

Enhanced Halt (C1E) (Enabled)

Use this item to enable the CPU energy-saving function when the system is not running.

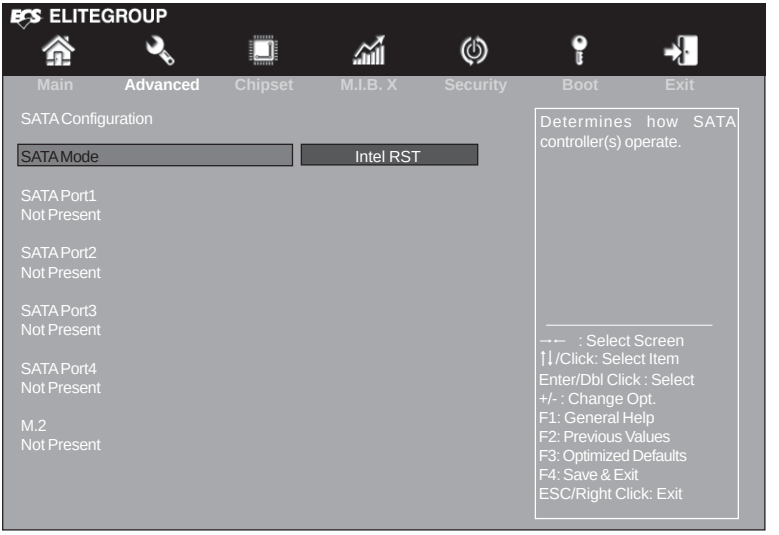
Intel(R) Speed Shift Technology (Disabled)

Use this item to enable or disable the Intel(R) Speed Shift technology support. Enabling will expose the CPPC v2 interface to allow for hardware controlled P-states.

Press <Esc> to return to the Advanced Menu page.

≫ SATA Configuration

Use this item to show the mode of serial SATA configuration options.



SATA Mode (Intel RST)

Use this item to select SATA mode.

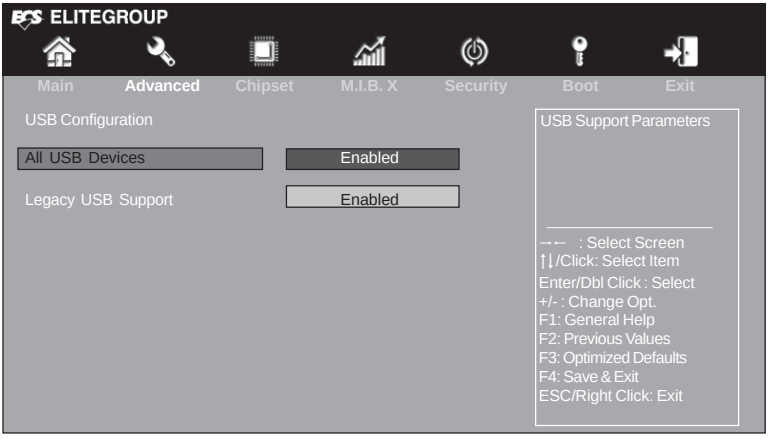
SATA Port 1~4 & M.2

This motherboard supports four SATA channels and one M.2 slot, and each channel allows one SATA or M.2 device to be installed. Use these items to configure each device on the SATA channel or M.2 slot.

Press <Esc> to return to the Advanced Menu page.

≫ USB Configuration

Use this item to show the information of USB configuration.



All USB Devices (Enabled)

Use this item to enable or disable all USB devices.

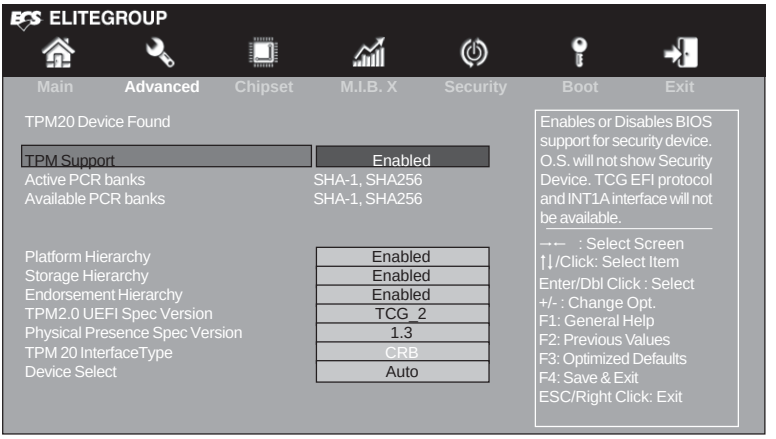
Legacy USB Support (Enabled)

Use this item to enable or disable support for legacy USB devices.

Press <Esc> to return to the Advanced Menu page.

» Trusted Computing

Use this item to show the information of trused computing configuration.



TPM Support (Enabled)

Use this item to enable or disable the TPM port. O.S. will not show TPM. Reset of platform is required.

Active PCR banks (SHA-1, SHA256)

Use this item to show the Active PCR banks.

Available PCR banks (SHA-1, SHA256)

Use this item to show the Available PCR banks.

Platform Hierarchy (Enabled)

Use this item to enable or disable the Platform Hierarchy.

Storage Hierarchy (Enabled)

Use this item to enable or disable the Storage Hierarchy.

Endorsement Hierarchy (Enabled)

Use this item to enable or disable the Endorsement Hierarchy.

TPM2.0 UEFI Spec Version (TCG_2)

Use this item to show the TPM2.0 UEFI Spec Version.

Physical Presence Spec Version (1.3)

Use this item to show the Physical Presence Spec Version.

TPM 20 Interface (CRB)

Use this item to select the communication interface to TPM 2.0 device.

Device Select (Auto)

TPM 1.2 will restrict support to TPM 1.2 devices, TPM 2.0 will restrict support to TPM 2.0 devices, Auto will support both with default set to TPM 2.0 devices if not found, TPM 1.2 devices will be enumerated.

Press <Esc> to return to the Advanced Menu page.

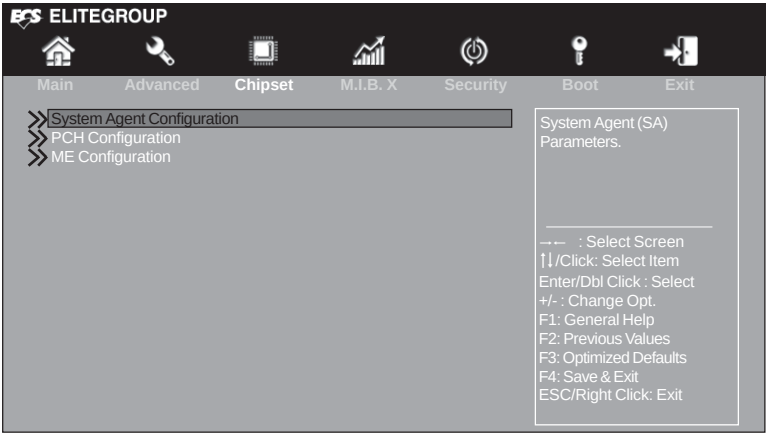
≫ Intel(R) Rapid Storage Technology

This formset allows the user to manage RAID volumes on the Intel(R) RAID Controller.

Press <Esc> to return to the Advanced Menu page.

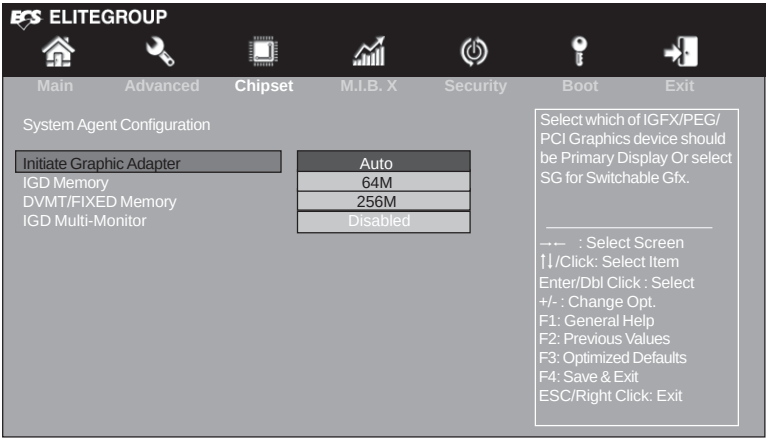
Chipset Menu

The chipset menu items allow you to change the settings for the North Bridge chipset, South Bridge chipset and other system.



» System Agent Configuration

Scroll to this item and press <Enter> to view the following screen:



Initiate Graphic Adapter (Auto)

This item allows you to select graphics controller to use as the primary boot device.

IGD Memory (64M)

This item shows the information of the IGD (Internal Graphics Device) memory.

DVMT Memory (256M)

When set to Fixed Mode, the graphics driver will reserve a fixed position of the system memory as graphics memory, according to system and graphics requirements.

IGD Multi-Monitor (Disabled)

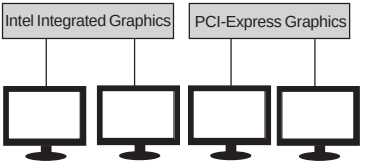
This item allows you to enable or disable the IGD Multi-Monitor.

Press <Esc> to return to the Chipset Menu page.

Multi-Monitor technology

Multi-Monitor technology can help you to increase the area available for programs running on a single computer system through using multiple display devices.

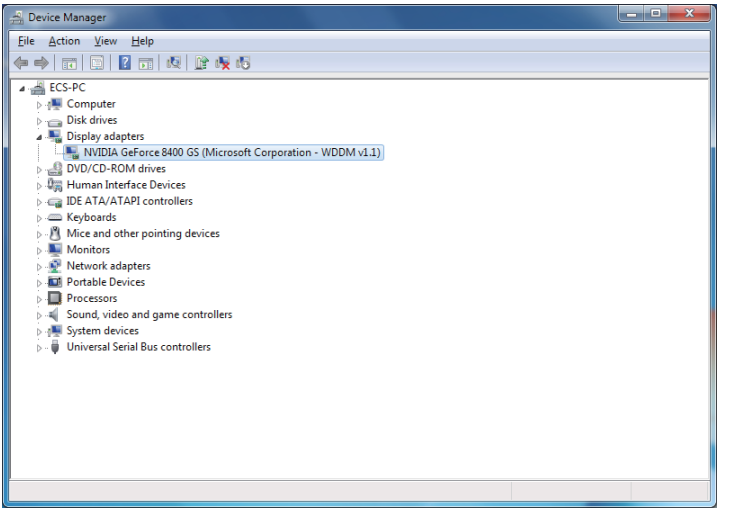
It is not only to increase larger screen viewing but aslo to improving personal productivity.



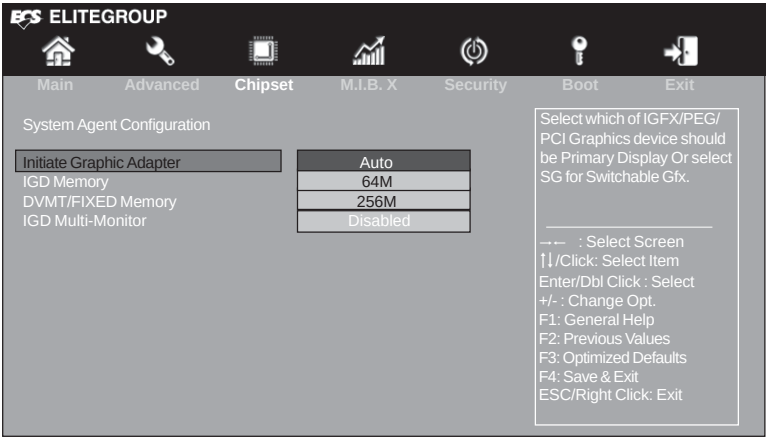
Please note that Multi-Monitor technology supports up to four monitors: one or two Intel integrated Graphics and one or two PCI-Express graphics devices under Windows 7/10.

Step 1. Insert ECS drives DVD to run Auto setup or browse the DVD to install Intel chipset drivers, VGA and sound drivers.(If you want know the detail information, please refer to chapter 4.)

Step 2. Install all the drivers of PCI-Express graphic cards. Click the Browse CD item, then appears the following screen. Select the driver you want to install(e.g NVIDIA GeForce 8400 GS(Microsoft Corporation-WDDM v1.1)) and double click it.

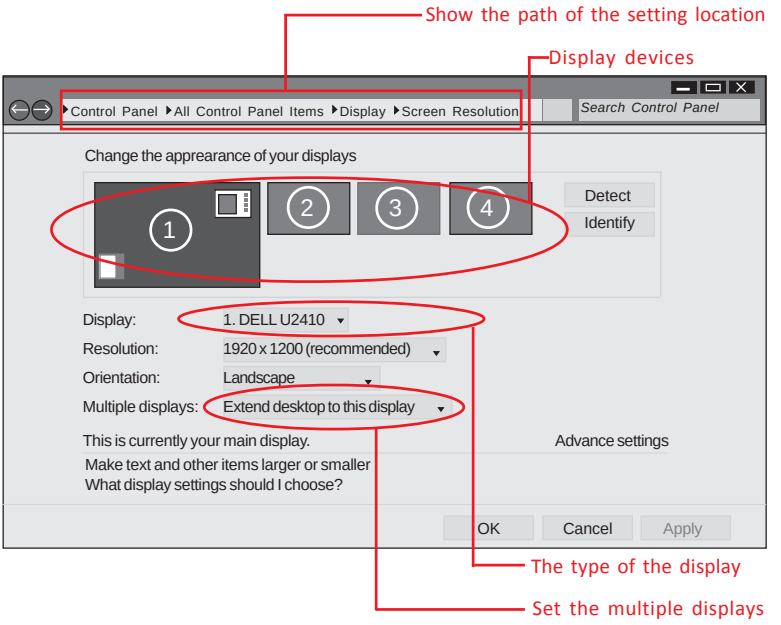


Step 3. Enable IGD Multi-Monitor from BIOS. In the following BIOS screen, please set IGD Multi-Monitor to [Enabled].

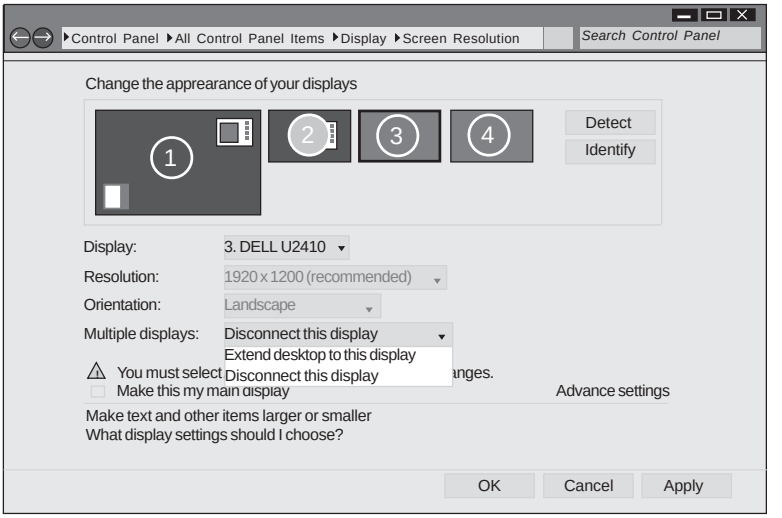


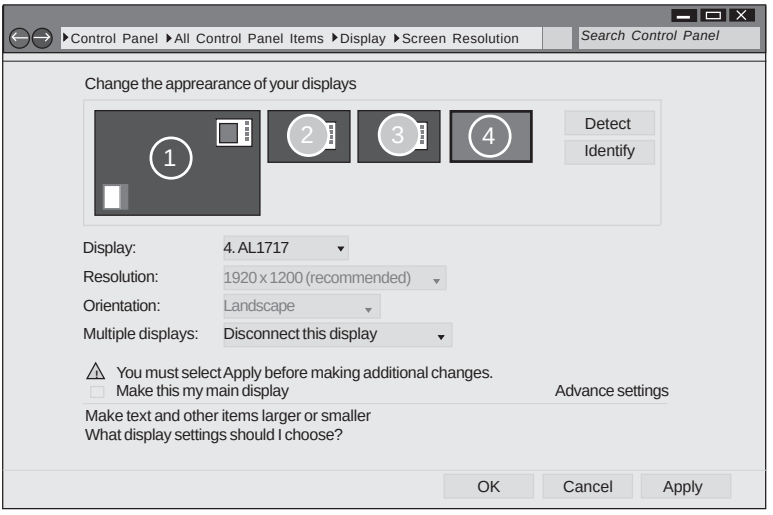
Step 4. Change the appearance of your displays under Windows 7/10.

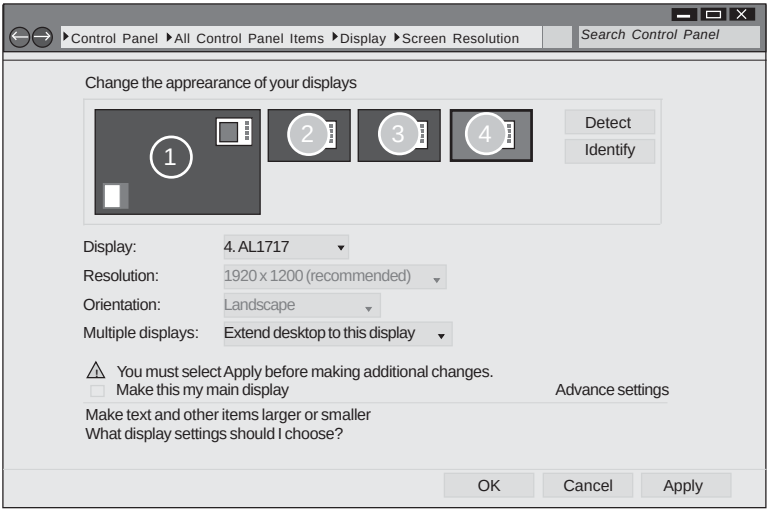
1. Enter the Control Panel menu, select the Display in the All Control Panel Items and click the Screen Resolution, then appears the following screen.



2.Select display devices, set the multiple displays option and to extend destop for display “Multi-Monitor technology”.

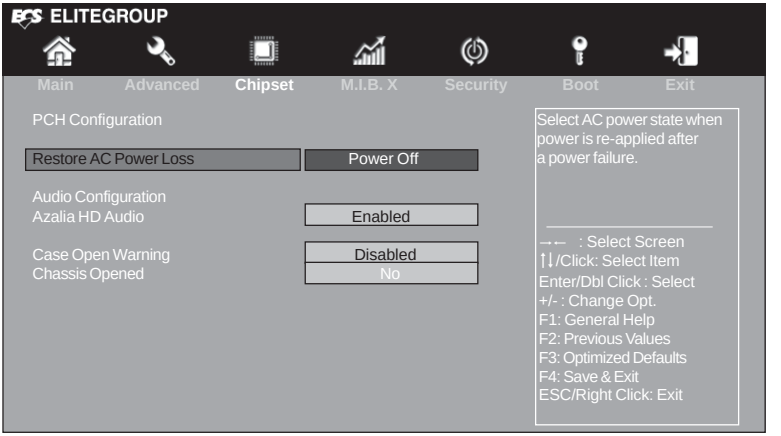



Control Panel ▸ All Control Panel Items ▸ Display ▸ Screen Resolution
Search Control Panel
Change the apprearance of your displays
1
2
3
4
Detect
Identify
Display: 4. AL1717
Resolution: 1920 x 1200 (recommended)
Orientation: Landscape
Multiple displays: Disconnect this display
You must select Apply before making additional changes.
Make this my main display
Advance settings
Make text and other items larger or smaller
What display settings should I choose?
OK
Cancel
Apply


Control Panel ▸ All Control Panel Items ▸ Display ▸ Screen Resolution
Search Control Panel
Change the apprearance of your displays
1
2
3
4
Detect
Identify
Display: 4. AL1717
Resolution: 1920 x 1200 (recommended)
Orientation: Landscape
Multiple displays: Extend desktop to this display
You must select Apply before making additional changes.
Make this my main display
Advance settings
Make text and other items larger or smaller
What display settings should I choose?
OK
Cancel
Apply

≫PCH Configuration

Scroll to this item and press <Enter> to view the following screen:



Restore AC Power Loss (Power Off)

This item enables your computer to automatically restart or return to its operating status.

Azalia HD Audio (Enabled)

This item enables or disables Azalia HD audio.

Case Open Warning (Disabled)

This item enables or disables the warning if the case is opened up, and the item below indicates the current status of the case.

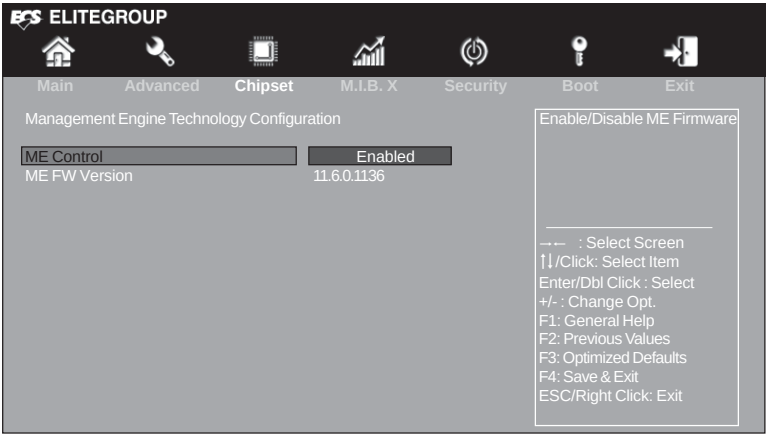
Chassis Opened (No)

This item indicates whether the case has been opened.

Press <Esc> to return to the Chipset Menu page.

» ME Configuration

Scroll to this item and press <Enter> to view the following screen:



ME Control (Enabled)

Use this item to enable or disable the ME Firmware.

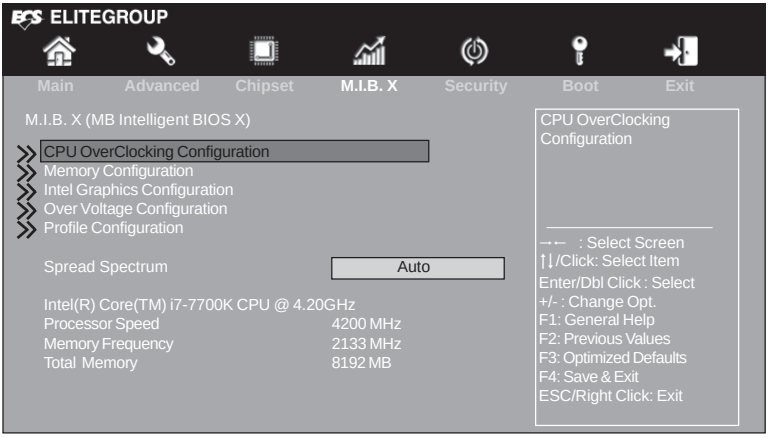
ME FW Version (11.6.0.1136)

This item shows the ME FW version.

Press <Esc> to return to the Chipset Menu page.

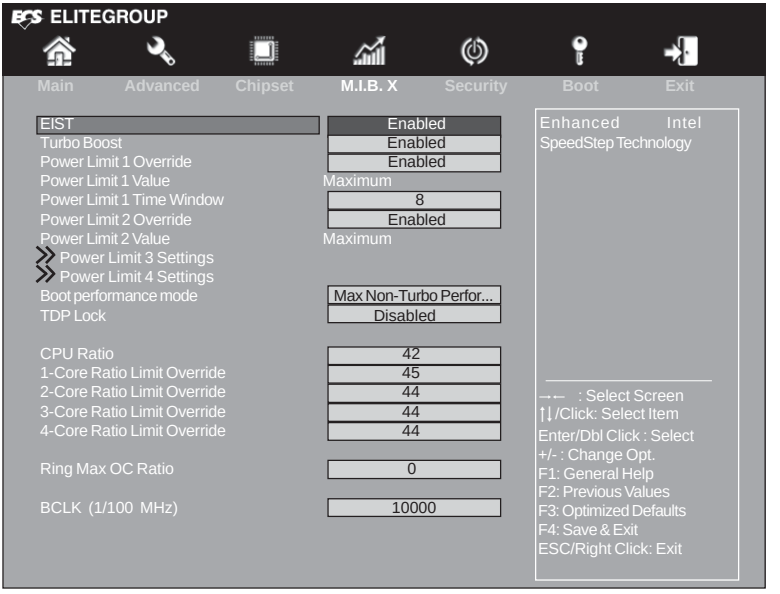
M.I.B. X (MB Intelligent BIOS X) Menu

This page enables you to set the clock speed and system bus for your system. The clock speed and system bus are determined by the kind of processor you have installed in your system.



» CPU OverClocking Configuration

Scroll to this item to view the following screen:



EIST (Enabled)

This item allows you to enable or disable the EIST (Enhanced Intel SpeedStep Technology).

Turbo Boost (Enabled)

This item allows you to enable or disable turbo boost.

Power Limit 1/2 Override (Enabled)

Use these items to enable or disable the Power Limit 1/2 Override. If these options are disabled, BIOS will program the default values for Power Limit 1/2.

Power Limit 1/2 Value (Maximum)

Use these items to control the limit of the TDP. These are for Turbo mode.

Power Limit 1 Time Window (8)

Power Limit 1 Time Window value in seconds. The value may vary from 0 to 128. If the value is 0, default values will be programmed (28 sec for Mobile and 1 sec for Desktop). Indicates the time window over which TDP value shoudl be maintained.

Power Limit 3 Settings

Use this item to enable or disable the power limit 3 override. If this option is disabled, BIOS will leave the default values for power limit 3 and power limit 3 time window.

Power Limit 4 Settings

Use this item to enable or disable the power limit 3 override. If this option is disabled, BIOS will leave the default values for power limit 4.

Boot performance mode (Max Non-Turbo Perfor...)

Use this item to select the performance state that the BIOS will set before OS handoff.

TDP Lock (Disabled)

This item allows you to enable or disable the TDP lock.

CPU Ratio (42)

This item allows you to control CPU ratio.

1 /2 /3 /4-Core Ratio Limit Override (45/44/44/44)

These items show the Core Ratio Limit Override Value.

Ring Max OC Ratio (0)

This item allows you to set the Ring Max OC Ratio.

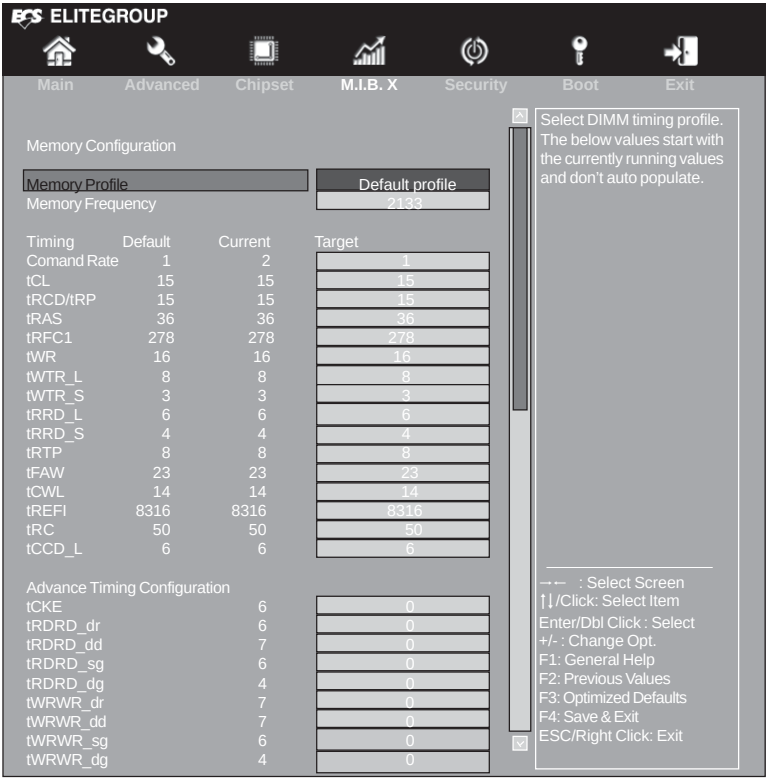
BCLK (1/100 MHz) (10000)

This item allows you to set the BCLK (1/100 MHz) value.

Press <Esc> to return to the M.I.B. X Menu page.

» Memory Configuration

Scroll to this item to view the following screen:



Memory Profiles (Default profile)

This item enables you to set the memory profiles. The selection of memory profiles impacts memory sizing behavior.

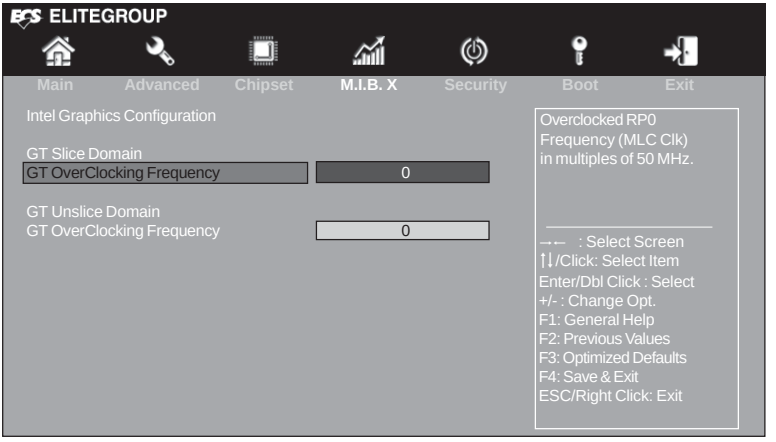
Memory Frequency (2133)

This item shows the memory frequency.

Press <Esc> to return to the M.I.B. X Menu page.

» Intel Graphics Configuration

Scroll to this item to view the following screen:



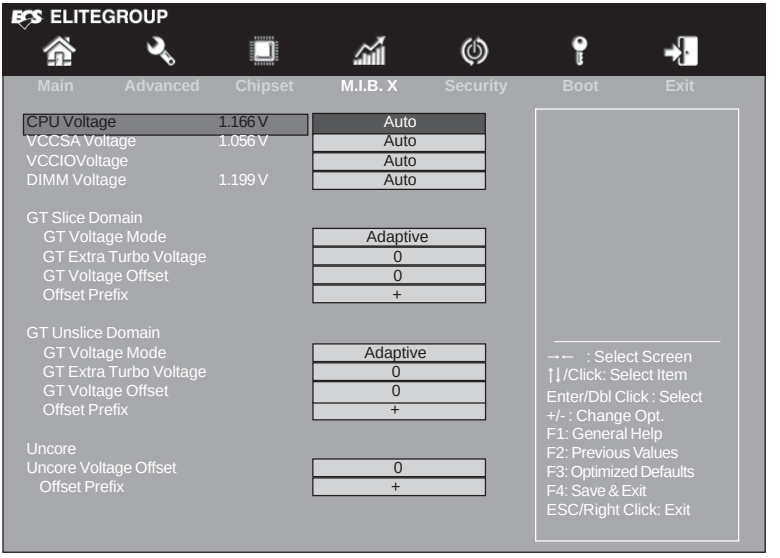
GT OverClocking Frequency (0)

This item allows you to adjust the GT OverClocking Frequency.

Press <Esc> to return to the M.I.B. X Menu page.

» Over Voltage Configuration

Scroll to this item to view the following screen:



CPU Voltage (Auto)

This item allows you to adjust the CPU voltage.

VCCSA Voltage (Auto)

This item allows you to adjust the VCCSA voltage.

VCCIO Voltage (Auto)

This item allows you to adjust the VCCIO voltage.

DIMM Voltage (Auto)

This item allows you to adjust the DIMM voltage.

GT Voltage Mode (Adaptive)

This item allows you to set the GT voltage mode.

GT Extra Turbo Voltage (0)

This item allows you to adjust the GT extra turbo voltage.

GT/Uncore Voltage Offset (0)

This item allows you to adjust the GT/Uncore voltage offset from -1000 to 998mV.

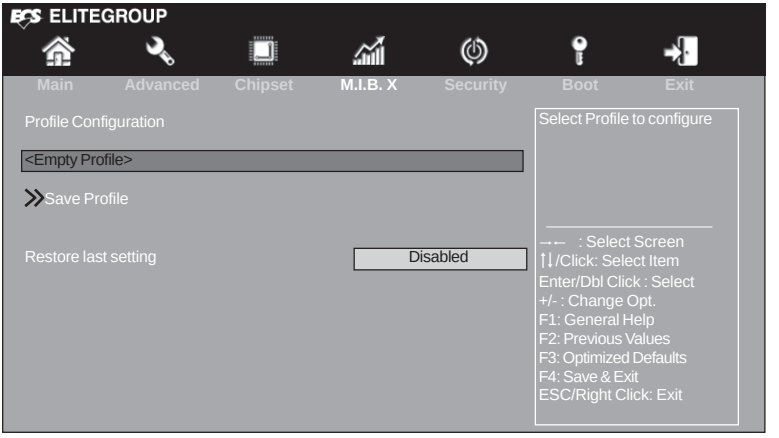
Offset Prefix (+)

This item allows you to select the offset value as positive (+) or negative (-).

Press <Esc> to return to the M.I.B. X Menu page.

» Profile Configuration

Scroll to this item to view the following screen:



Select Profile

Use this item to select the profile to configure.

Restore last setting (Disabled)

Use this item to enable or disable the restore last setting configuration.

Press <Esc> to return to the M.I.B. X Menu page.

Spread Spectrum (Auto)
If you enable spread spectrum, it can significantly reduce the EMI (Electro-Magnetic Interference) generated by the system.

Intel(R) Core(TM) i7-7700K CPU @ 4.20GHz
This is display-only field and displays the information of the CPU installed in your computer.

Processor Speed (4200 MHz)
This item shows the CPU speed.

Memory Frequency (2133 MHz)
This item shows the memory frequency.

Total Memory (8192 MB)
This item shows the total memory.

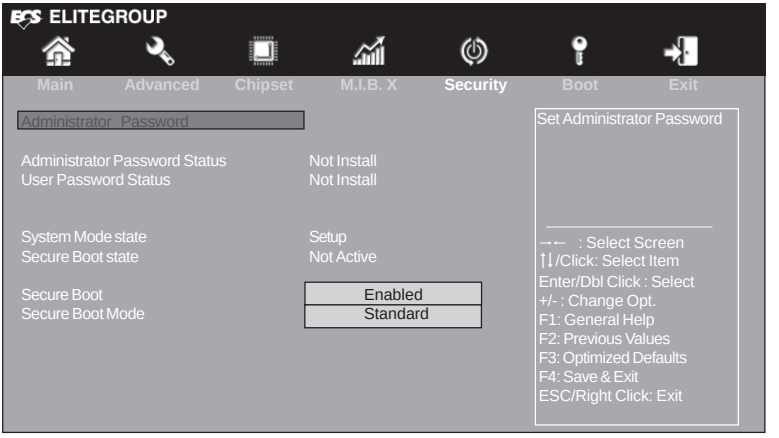
Warning: Over-clocking components can adversely affect the reliability of the system and introduce errors into your system. Over-clocking can permanently damage the motherboard by generating excess heat in components that are run beyond the rated limits.

Fail-Safe Procedures for Over-clocking
When end-users encounter failure after attempting over-clocking, please take the following steps to recover from it.

1. Shut down the computer.
2. Press and hold the “Page Up Key (PgUp)” of the keyboard, and then boot the PC up.
3. Two seconds after the PC boots up, release the “Page Up Key (PgUp)”.
4. The BIOS returns to the default setting by itself.

Security Menu

This page enables you to set setup administrator password and user password.



Administrator Password Status (Not Install)

This item shows administrator password installed or not.

User Password Status (Not Install)

This item shows user password installed or not.

Administrator Password

Press <Enter> to setup the administrator password.

System Mode state (Setup)

This item shows system mode setup or not.

Secure Boot state (Not Active)

This item allows you to enable or disable the secure boot state.

Secure Boot (Enabled)

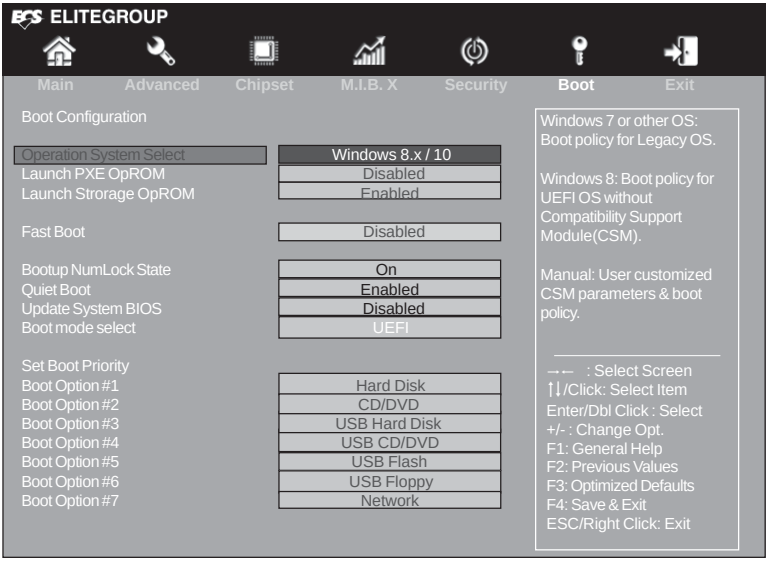
This item is used to control the secure boot flow, it is possible only if system runs in User Mode.

Secure Boot Mode (Standard)

This item is used to select the secure boot mode, when you select standard mode, secure boot policy is fixed; when you select custom mode, the image execution policy and secure boot key databases are changeable.

Boot Menu

This page enables you to set the keyboard NumLock state.



Boot Configuration

This item shows the information of the Boot Configuration.

Operation System Select (Windows 8.x / 10)

This item is used to select the operation system.

Launch PXE OpROM (Disabled)

The item enables or disables launch PXE Option ROM.

Launch Storage OpROM (Enabled)

Use this item to enable or disable the Storage OpROM.

Fast Boot (Disabled)

This item enables or disables boot with initialization of a minimal set of device required to launch active boot option. Has no effect for BBS boot options.

Bootup NumLock State (On)

This item enables you to select NumLock state.

Quiet Boot (Enabled)

This item enables or disables quiet boot.

Update System BIOS (Disabled)

This item enables or disables to update system BIOS.

Boot mode select (LEGACY)

Use this item to select boot mode.

Set Boot Priority

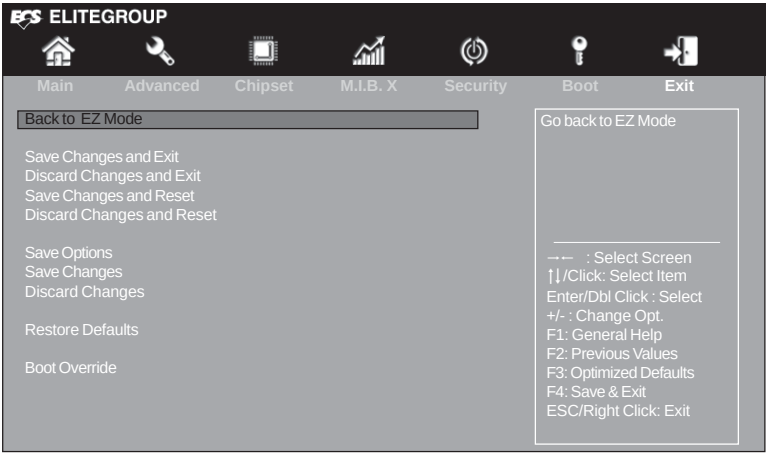
This item enables you to set boot priority for all boot devices.

Boot Option #1 /2 /3 /4 /5 /6 /7

These items show the boot priorities.

Exit Menu

This page enables you to exit system setup after saving or without saving the changes.



Back to EZ Mode

This item enables you to back to EZ mode.

Save Changes and Exit

This item enables you to exit the system setup after saving the changes.

Discard Changes and Exit

This item enables you to exit system setup without saving any changes.

Save Changes and Reset

This item enables you to reset system setup after saving the changes.

Discard Changes and Reset

This item enables you to reset system setup without saving any changes.

Save Options

This item enables you to save the options that you have made.

Save Changes

This item enables you to save the changes that you have made.

Discard Changes

This item enables you to discard any changes that you have made.

Restore Defaults

This item enables you to restore defaults to all the setup options.

Boot Override

Use this item to select the boot device.

Updating the BIOS

You can download and install updated BIOS for this motherboard from the manufacturer's Website. New BIOS provides support for new peripherals, improvements in performance, or fixes for known bugs. Install new BIOS as follows:

1 If your motherboard has a BIOS protection jumper, change the setting to allow BIOS flashing.

2 If your motherboard has an item called Firmware Write Protect in Advanced BIOS features, disable it. (Firmware Write Protect prevents BIOS from being overwritten.)

3 Prepare a bootable device or create a bootable system disk. (Refer to Windows online help for information on creating a bootable system disk.)

4 Download the Flash Utility and new BIOS file from the manufacturer's Web site. Copy these files to the bootable device.

5 Turn off your computer and insert the bootable device in your computer. (You might need to run the Setup Utility and change the boot priority items on the Advanced BIOS Features Setup page, to force your computer to boot from the bootable device first.)

6 At the C:\ or A:\ prompt, type the Flash Utility program name and the file name of the new BIOS and then press <Enter>. Example: AFUDOS.EXE 040706.ROM

7 When the installation is complete, remove the bootable device from the computer and restart your computer. If your motherboard has a Flash BIOS jumper, reset the jumper to protect the newly installed BIOS from being overwritten. The computer will restart automatically.

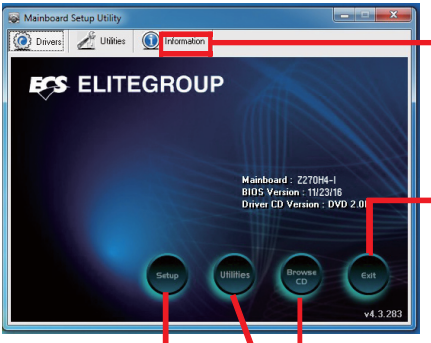
This concludes Chapter 3. Refer to the next chapter for information on the software supplied with the motherboard.

Chapter 4

Using the Motherboard Software

Auto-installing under Windows 7/10

The auto-install DVD-ROM makes it easy for you to install the drivers and software. The support software DVD-ROM disc loads automatically under Windows 7/10. When you insert the DVD-ROM disc in the DVD-ROM drive, the auto-run feature will automatically bring up the installation screen. The screen has four buttons on it: **Setup**, **Utilities**, **Browse CD** and **Exit**.



Information:
Displays the path for all software and drivers available on the disk.

Click "**Exit**" button to close the Auto-Setup window.

Browse CD:
Open Windows Explorer and show the contents of the support disk.

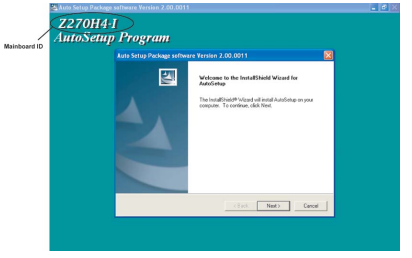
Click the "**Setup**" button to select and run the software installation program.

Click the "**Utilities**" button to select and install ECS Intelligent Utility.

Running Setup

Follow these instructions to install device drivers and software for the motherboard:

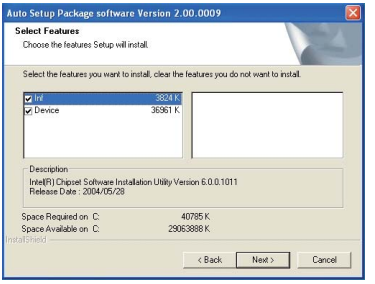
1. Click **Setup**. The installation program begins:



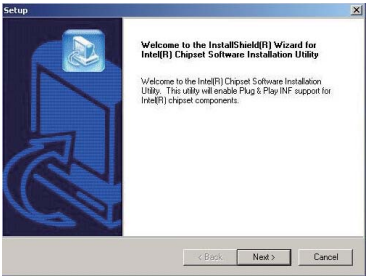
The following screens are examples only. The screens and driver lists will be different according to the motherboard you are installing.

The motherboard identification is located in the upper left-hand corner.

2. Click **Next.** The following screen appears:



3. Check the box next to the items you want to install. The default options are recommended.
4. Click **Next** to run the Installation Wizard. An item installation screen appears:

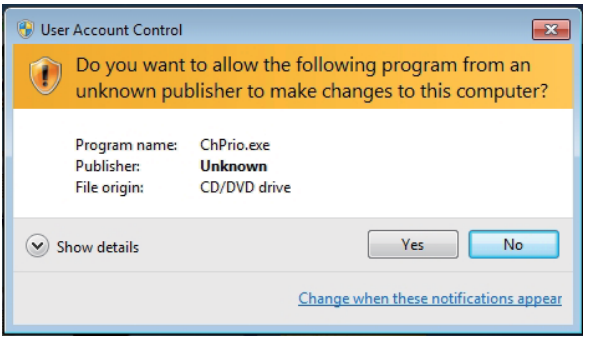


5. Follow the instructions on the screen to install the items.

Drivers and software are automatically installed in sequence. Follow the onscreen instructions, confirm commands and allow the computer to restart a few times to complete the installation.

Windows 10 will show the following screen after system restart, you must select "Desktop" in the bottom left to install the next driver.

Windows 7/10 will appear below UAC (User Account Control) message after the system restart. You must select "Yes" to install the next driver. Continue this process to complete the drivers installation.



Manual Installation

If the auto-install DVD-ROM does not work on your system, you can still install drivers through the file manager for your OS (for example, Windows Explorer). Look for the chipset and motherboard model, and then browse to the directory and path to begin installing the drivers. Most drivers have a setup program (SETUP.EXE) that automatically detects your operating system before installation. Other drivers have the setup program located in the operating system subfolder.

If the driver you want to install does not have a setup program, browse to the operating system subfolder and locate the readme text file (README.TXT or README.DOC) for information on installing the driver or software for your operating system.

ECS Utility Software (Intelligent EZ Utility)

ECS Intelligent EZ Utility provides friendly interfaces under Windows O.S, which makes your computing more easily and conveniently.

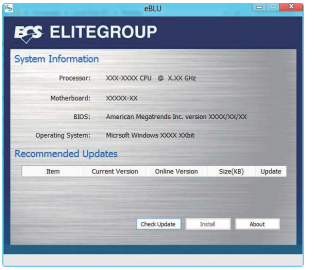
These software(s) are subject to change at anytime without prior notice. Please refer to the support disk for available software.

eDLU

ECS eDLU utility makes updating drivers fast and easy. eDLU saves time and hassle by listing all the latest drivers online. Just select the one you prefer and start to download and install the drivers.

eBLU

ECS eBLU utility makes BIOS update faster and easier. eBLU will list the latest BIOS with a default check-mark. Click"install" button to install.



Microsoft .NET Framework 3.5 is required.

Chapter 5

Intel® Rapid Storage Technology RAID Configuration

The Intel® Rapid Storage Technology allows you to configure RAID 0, and 1 sets on the external Serial ATA hard disk drives.

Before creating a RAID set

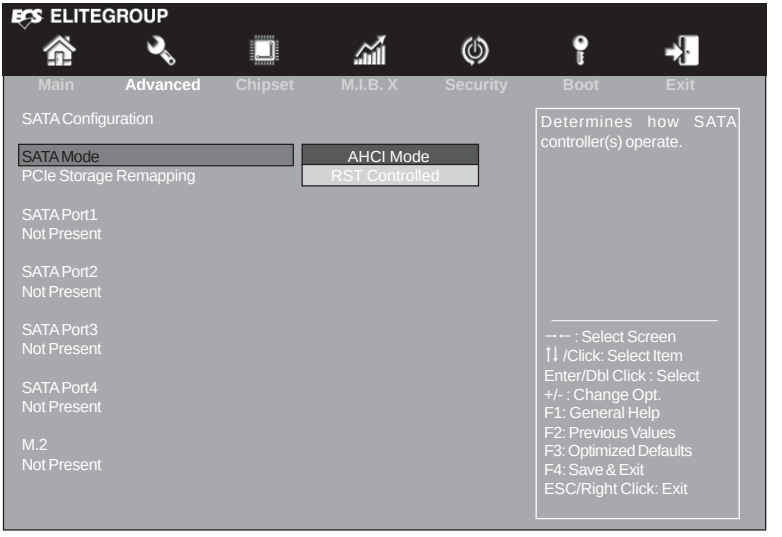
Prepare the following items:

1. One SATA HDD.
2. A write-enabled floppy disk.
3. Microsoft® Windows® OS installation disk (Windows 7/10).
4. Motherboard support CD with Intel® Rapid Storage Technology RAID driver.

Complete the following steps before you create a RAID set:

1. Install the external Serial ATA hard disk drive (HDD) on your system.
2. Set the *SATA Mode* item in the BIOS from *"IDE Mode"* to *"RAID* Mode"

   See section "SATA Configuration" for details.



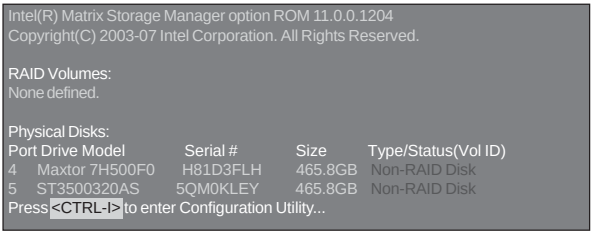
3. Enter the Intel® Rapid Storage Technology option to set up your RAID configuration.

4. Create an Intel® Rapid Storage Technology RAID driver disk for Windows® OS installation. See section “Creating a RAID driver disk” for details.

5. Install the Intel® Rapid Storage Technology RAID driver after the Windows® OS had been installed.

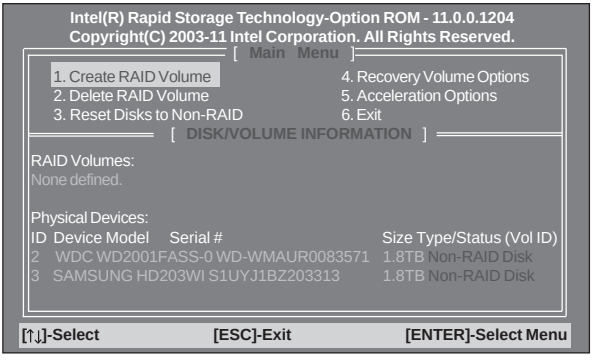
Entering Intel® Rapid Storage Technology RAID BIOS utility

1. During POST, press <Ctrl-I> to enter the Intel® Rapid Storage Technology RAID BIOS menu.



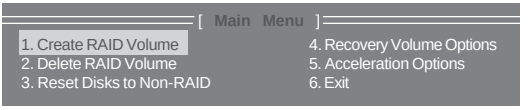
2. The main Intel® Rapid Storage Technology RAID BIOS menu appears.

3. Use the arrow keys to move the color bar and navigate through the items.

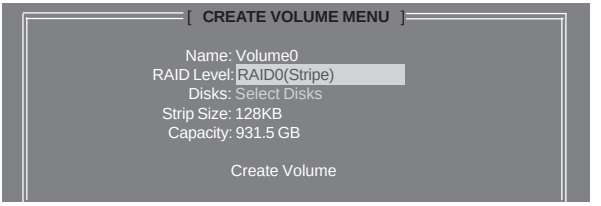


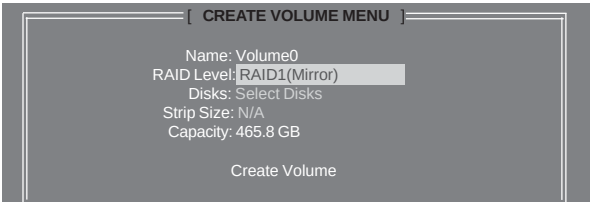
Creating a RAID set

1. In the main Intel® Rapid Storage Technology RAID BIOS menu, highlight *Create RAID Volume* using the up/down arrow key then press <Enter>.

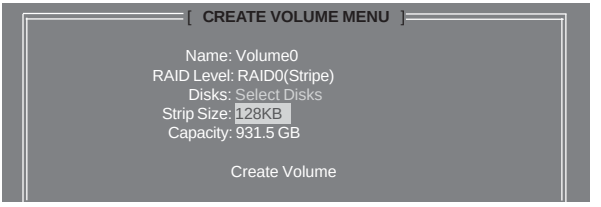


2. When the *RAID Level* item is highlighted, use the up/down arrow key to select the RAID set that you want to create.

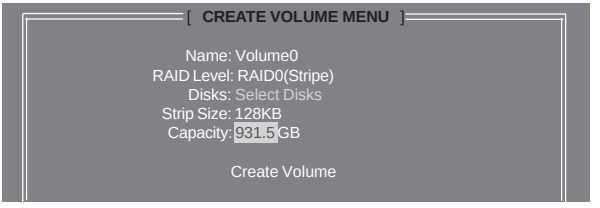




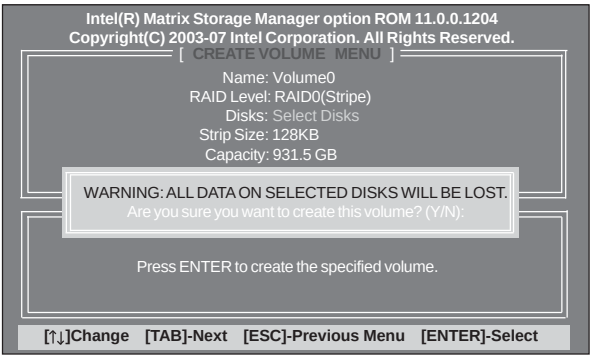
When more than two HDDs are installed in your computer, the *Disks* item will be selectable. Then users can select the HDD that you want to belong to the RAID set. Please be noticed that selecting a wrong disk will result in losing the original data of the HDD.



3. Key in the RAID volume capacity. Use the up/down arrow to choose the *Capacity*. The default value indicates the maximum capacity using the selected disks. Entering a lower capacity allows you to create a second volume on these disks.

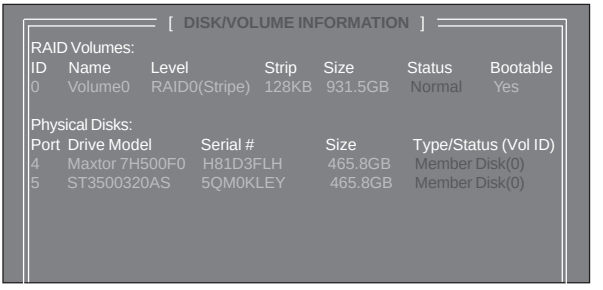


4. When done, press <Enter> to confirm the creation of the RAID set. A dialogue box appears to confirm the action. Press <Y> to confirm; otherwise, press <N>.

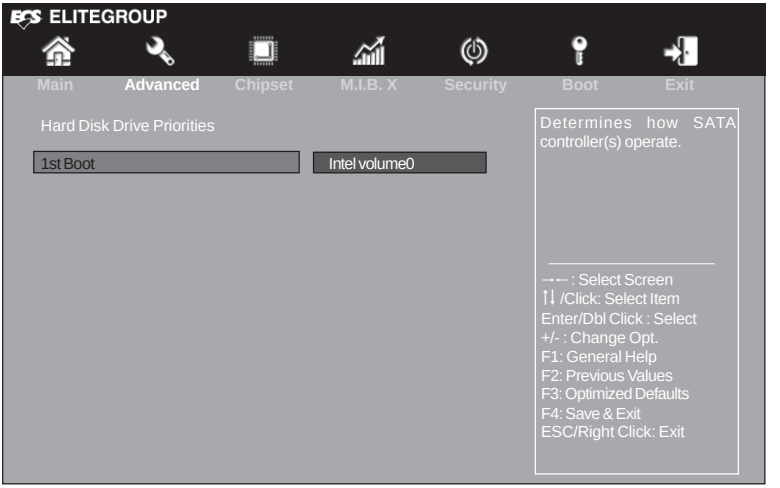


Pressing <Y> deletes all the data in the HDDs.

5. The following screen appears, displaying the relevant information about the RAID set you created.

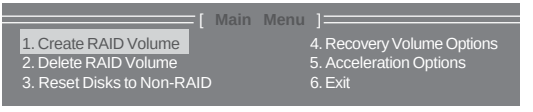


Users please be noted that RAID 0 (Stripe) is set to accelerate the data access, and RAID 1 (Mirror) is set to provide the data backup. If you want to set RAID 0, you need to set the *2nd Boot Device* item in the BIOS to *Intel Volume0*. See section "Advanced Setup" for details.



Deleting a RAID set

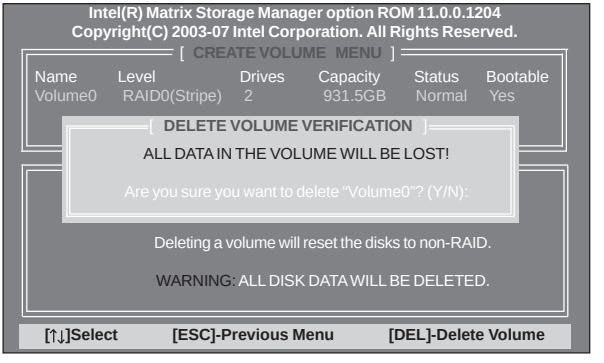
1. In the main Intel® Rapid Storage Technology RAID BIOS menu, highlight *Delete RAID Volume* using the up/down arrow key then press <Enter>.



2. Use the space bar to select the RAID set you want to delete.

   Press the <Del> key to delete the set.

3. A dialogue box appears to confirm the action. Press <Y> to confirm; otherwise, press <N>.



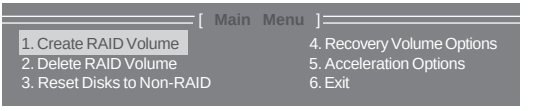
Pressing <Y> deletes all the data in the HDDs.

Resetting disks to Non-RAID

An HDD that has been previously configured as part of another RAID set in another platform is called a broken RAID HDD. When you install a broken RAID HDD, you cannot select this disk when configuring a RAID set through the Intel® Rapid Storage Technology option. If you still want to use this broken RAID HDD as part of the RAID set configured through the Intel® Rapid Storage Technology, you may do so by resetting the disk to Non-RAID. You will, however, lose all data and previous RAID configurations.

To reset disks to Non-RAID:

1. In the main Intel® Rapid Storage Technology RAID BIOS menu, highlight *Reset Disks to Non-RAID* using the up/down arrow key then press <Enter>.



Pressing <Y> deletes all the data in the HDDs.

2. Use the space bar to select the HDD to reset to Non-RAID.
3. A dialogue box appears to confirm the action. Press <Y> to confirm; otherwise, press <N>.

Exiting Setup

When you have finished, highlight *Exit* using the up/down arrow key then press <Enter> to exit the Intel® Rapid Storage Technology RAID BIOS utility.

A dialogue box appears to confirm the action. Press <Y> to confirm; otherwise, press <N> to return to the Intel® Rapid Storage Technology RAID BIOS menu.

Chapter 6
Trouble Shooting

Start up problems during assembly

After assembling the PC for the first time you may experience some start up problems. Before calling for technical support or returning for warranty, this chapter may help to address some of the common questions using some basic troubleshooting tips. You may also log onto our ECS website for more information: *http:// www.ecs.com.tw/ECSWebSite/Support/Support_FAQ.aspx?MenuID=49&childid=M_49&LanID=0*

a) System does not power up and the fans are not running.

1. Disassemble the PC to remove the VGA adaptor card, DDR memory, LAN, USB and other peripherals including keyboard and mouse. Leave only the motherboard, CPU with CPU cooler and power supply connected. Make sure the power cord is plugged into the wall socket & the switch on the Power Supply Unit (PSU) is turned " on " as well. Turn on again to see if the CPU and power supply fans are running.

2. Make sure to remove any unused screws or other metal objects such as screwdrivers from the inside PC case. This is to prevent damage from short circuit.

3. Check the CPU FAN connector is connected to the motherboard.

4. For Intel platforms check the pins on the CPU socket for damage or bent. A bent pin may cause failure to boot and sometimes permanent damage from short circuit.

5. Check the 12V power connector is connected to the motherboard.

6. Check that the 12V power & ATX connectors are fully inserted into the motherboard connectors. Make sure the latches of the cable and connector are locked into place.

b) Power is on, fans are running but there is no display

1. Make sure the monitor is turned on and the monitor cable is properly connected to the PC.

2. Check the VGA adapter card (if applicable) is inserted properly.

3. Listen for beep sounds. If you are using internal PC speaker make sure it is connected.
   a. continuous 3 short beeps: memory not detected
   b. 1 long beep and 8 short beeps: VGA not detected

c) The PC suddenly shuts down while booting up.

1. The CPU may experience overheating so it will shutdown to protect itself. Apply the thermal grease onto the CPU heatsink & ensure the CPU fan is well-connected with the CPU heatsink. Check if the CPU fan is working properly while the system is running.

2. From the BIOS setting, try to disable the Smartfan function to let the fan run at default speed. Doing a Load Optimised Default will also disable the Smartfan.

Start up problems after prolong use

After a prolong period of use your PC may experience start up problems again. This may be caused by breakdown of devices connected to the motherboard such as HDD, CPU fan, etc. The following tips may help to revive the PC or identify the cause of failure.

1. Clear the CMOS values using the CLR_CMOS jumper. Refer to CLR_CMOS jumper in Chapter 2 for Checking Jumper Settings in this user manual. When completed, follow up with a Load Optimised Default in the BIOS setup.

2. Check the CPU cooler fan for dust. Long term accumulation of dust will reduce its effectiveness to cool the processor. Clean the cooler or replace a new one if necessary.

3. Check that the 12V power & ATX connectors are fully inserted into the motherboard connectors. Make sure the latches of the cable and connector are locked into place.

4. Remove the hard drive, optical drive or DDR memory to determine which of these components may be at fault.

5. Check whether there is any bulked up electrolytic capacitor or abnormal component.

Please logo onto our ECS website: http://www.ecs.com.tw/ECSWebSite/Support/Technical_Support_List.aspx?MenuID=50&LanID=0 for more information.

Maintenance and care tips

Your computer, like any electrical appliance, requires proper care and maintenance. Here are some basic PC care tips to help prolong the life of the motherboard and keep it running as best as it can.

1. Keep your computer in a well ventilated area. Leave some space between the PC and the wall for sufficient airflow.

2. Keep your computer in a cool dry place. Avoid dusty areas, direct sunlight and areas of high moisture content.

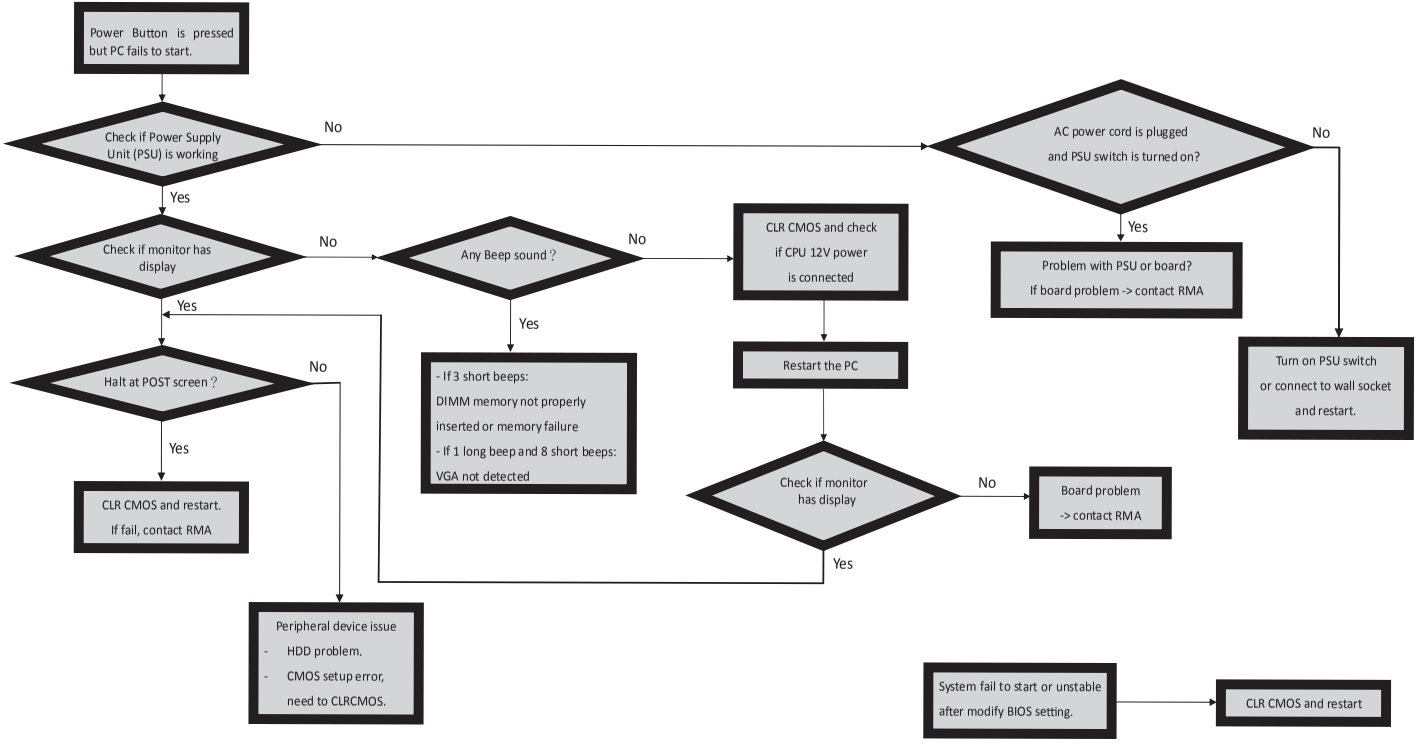
3. Routinely clean the CPU cooler fan to remove dust and hair.

4. In places of hot and humid weather you should turn on your computer once every other week to circulate the air and prevent damage from humidity.

5. Add more memory to your computer if possible. This not only speeds up the system but also reduces the loading of your hard drive to prolong its life span.

6. If possible, ensure the power cord has an earth ground pin directly from the wall outlet. This will reduce voltage fluctuation that may damage sensitive devices.

Basic Troubleshooting Flowchart



Memo