

Esonic Motherboard®

Quest for performance

MOTHERBOARD **USER'S MANUAL**



For Intel H310C/B250 Series Motherboard

Specifications

Layout 1

Processor

- Support for 6/7/8/9th generation Intel® Core™ i7/i5/ i3/Pentium processors in the LGA1151 package

Chipset

- Chipset: Intel® H310C/B250 chipset

Memory

- 2 DDR4 2400/2133 DIMM slots (64GB Max)

LAN

- Supports LAN 10/100M Fast Ethernet by Realtek® (optional 1000M)

Audio

- Chip integrated by Realtek®ALC662 / ALC897 Flexible 6-channel

Storage Interface

- 4 SATA 3.0 6Gb/s ports

Back Panel I/O

- (1 PS/2 mouse & keyboard port or 2 USB 2.0 ports)
- 1 VGA port
- 1 HDMI port
- 2 USB 3.0 ports
- 4 USB 2.0 ports
- 1 LAN jack
- 3 flexible audio jacks

Onboard Connectors

- 1 USB 3.0 connector
- 1 F_PANEL connector
- 1 DEBUG connector
- 1 USB 2.0 connector
- 1 F_Audio connector

Slots

- 1 PCIE x16 slot
- 1 PCIE x1 slot

Form Factor

- Micro-ATX (19.5 cm x 17 cm)

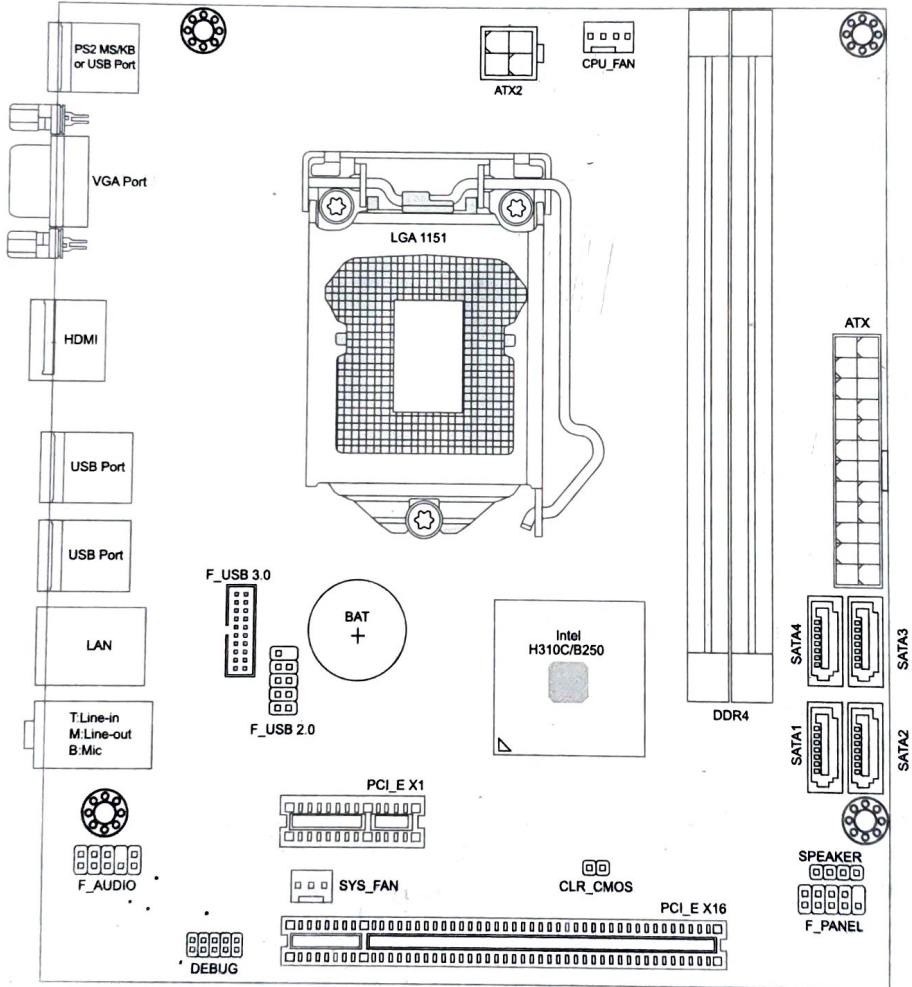
Mounting

- 4 mounting holes

Layout 1

Quick Components Guide of H310C/ B250 Series Motherboard

The picture is for reference only, please prevail in kind, If modify the product due to technical issue without prior notice.



Screw holes

Layout 2

Processor

- Support for 6/7/8/9th generation Intel® Core™ i7/i5/ i3/Pentium processors in the LGA1151 package

Chipset

- Chipset: Intel® H310C / B250 chipset

Memory

- 2 DDR4 2400/2133 DIMM slots (64GB Max)

LAN

- Supports LAN 10/100M Fast Ethernet by Realtek® (optional 1000M)

Audio

- Chip integrated by Realtek®ALC662 / ALC897 Flexible 6-channel

Storage Interface

- 4 SATA 3.0 6Gb/s ports

Back Panel I/O

- (1 PS/2 mouse & keyboard port or 2 USB 2.0 ports)
- 1 VGA port
- 1 HDMI port
- 2 USB 3.0 ports
- 2 USB 2.0 ports
- 1 LAN jack
- 3 flexible audio jacks

Onboard Connectors

- 1 USB 3.0 connector
- 1 F_PANEL connector
- 1 DEBUG connector
- 1 USB 2.0 connector
- 1 F_Audio connector

Slots

- 1 PCIE x16 slot
- 1 M.2 SSD slot

Form Factor

- Micro-ATX (20 cm x 17 cm)

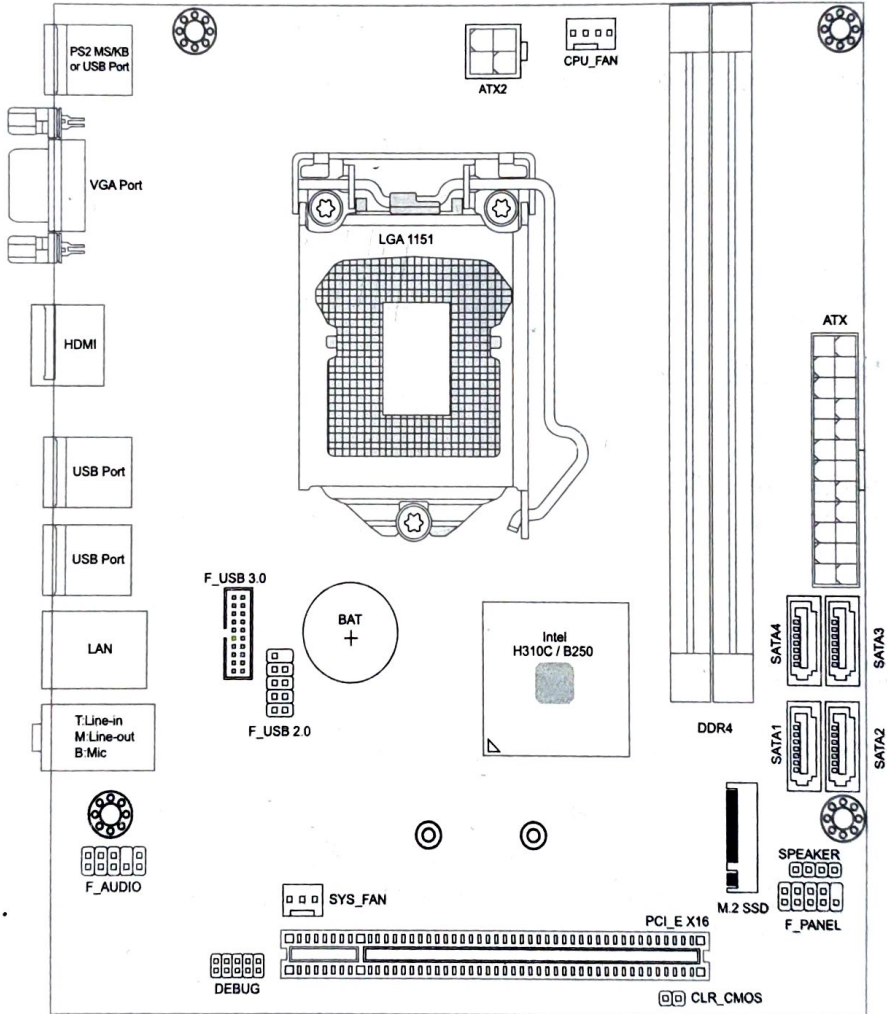
Mounting

- 4 mounting holes

Layout 2

Quick Components Guide of H310C/ B250 Series Motherboard

The picture is for reference only, please prevail in kind, If modify the product due to technical issue without prior notice.



 **Screw holes**

Layout 3

Processor

- Support for 6/7/8/9th generation Intel® Core™ i7/i5/ i3/Pentium processors in the LGA1151 package

Chipset

- Chipset: Intel® H310C chipset

Memory

- 2 DDR3 1600 DIMM slots (16GB Max)

LAN

- Supports LAN 1000M Fast Ethernet by Realtek® (optional 100M)

Audio

- Support Realtek®ALC662 High Definition Audio

Storage Interface

- 4 SATA 3.0 6Gb/s ports

Back Panel I/O

- (1 PS/2 mouse & keyboard port or 2 USB 2.0 ports)
- 1 VGA port
- 1 HDMI port
- 2 USB 3.0 ports
- 4 USB 2.0 ports
- 1 LAN jack
- 3 flexible audio jacks

Onboard Connectors

- 1 USB 3.0 connector
- 1 F_PANEL connector
- 1 DEBUG connector
- 1 USB 2.0 connector
- 1 F_Audio connector

Slots

- 1 PCIE x16 slot
- 1 PCIE x1 slot
- 1 M.2 SSD slot
- 1 M.2 WIFI slot

Form Factor

- Micro-ATX (21.5 cm x 17 cm)

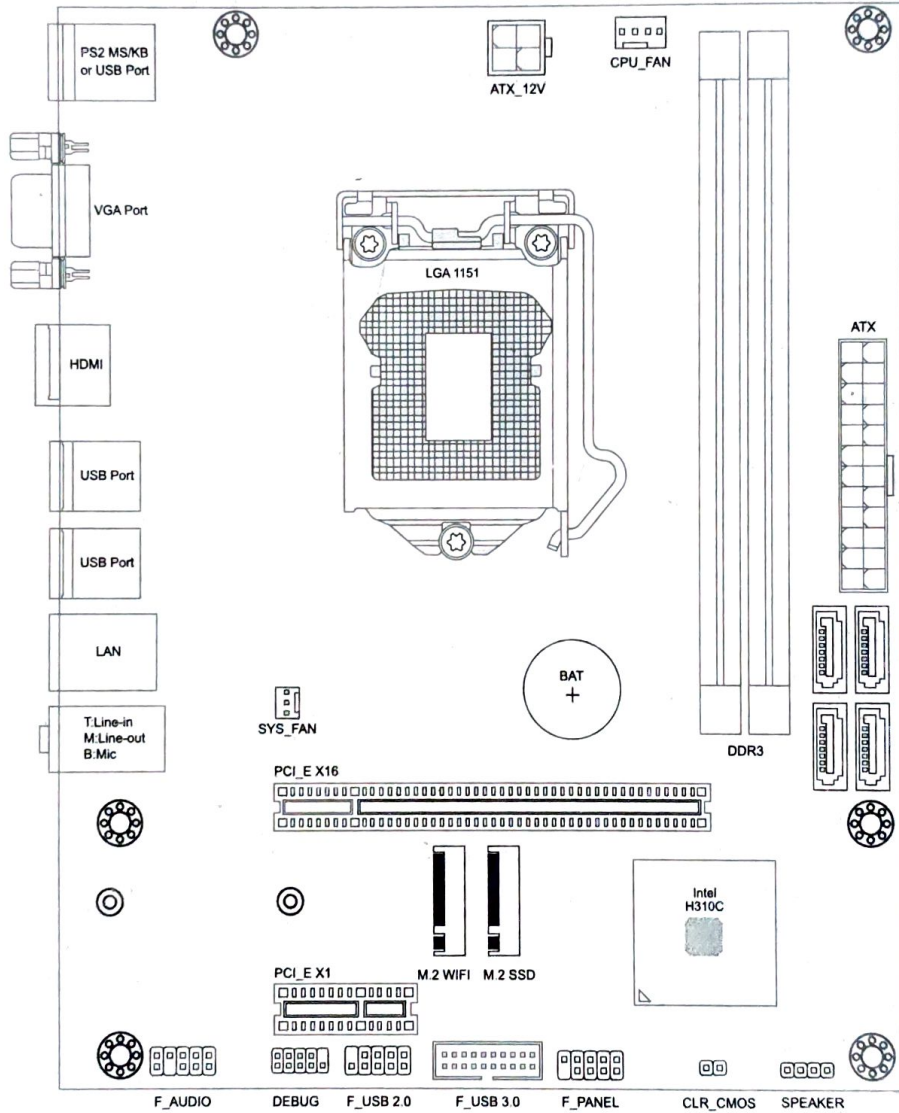
Mounting

- 6 mounting holes

Layout 3

Quick Components Guide of H310C Series Motherboard

The picture is for reference only, please prevail in kind, If modify the product due to technical issue without prior notice.

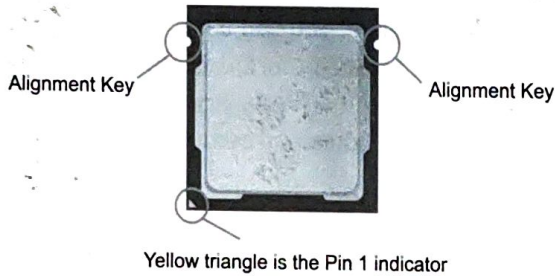


 **Screw holes**

HARDWARE SETUP

CPU & Cooler Installation Procedures for LGA115X

When you are installing the CPU, make sure that you install the cooler to prevent overheating. If you do not have the CPU cooler, consult your dealer before turning on the computer.



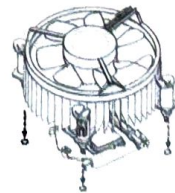
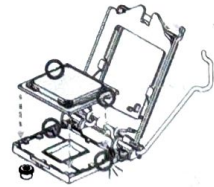
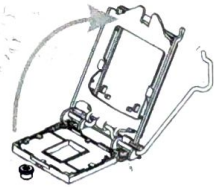
Introduction to LGA 115X CPU

The surface of LGA 115X CPU. Remember to apply some thermal paste on it for better heat dispersion.

Follow the steps below to install the CPU & cooler correctly.

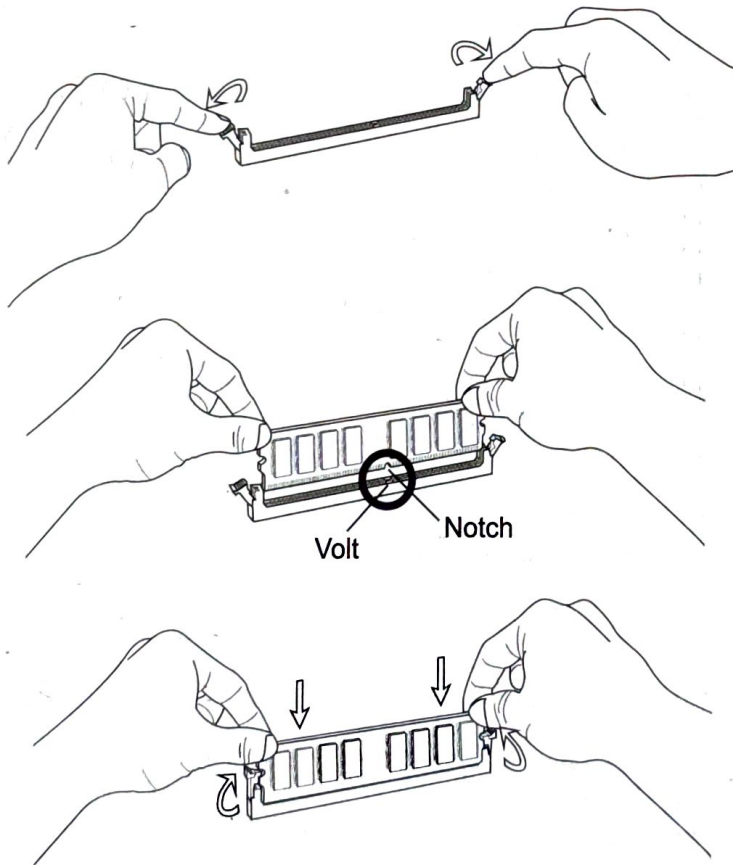
Wrong installation will cause the damage of your CPU & mainboard.

1. Open the load lever.
2. Lift the load lever up to fully open position.
3. After confirming the CPU direction for correct mating, put down the CPU in the socket housing frame. Be sure to grasp on the edge of the CPU base. Note that the alignment keys are matched.
4. Remove the plastic cap. Engage the load lever while pressing down lightly onto the load plate.
5. Secure the lever near the hook end under the retention tab.
6. Make sure the four hooks are in proper position before you install the cooler. Align the holes on the mainboard with the cooler. Push down the cooler until its four clips get wedged into the holes of the mainboard.
7. Press the four hooks down to fasten the cooler. Turn over the mainboard to confirm that the clipends are correctly inserted.
8. Finally, attach the CPU Fan cable to the CPU fan connector on the mainboard.



Installing Memory Modules

1. The memory module has only one notch on the center and will only fit in the right orientation.
2. Insert the memory module vertically into the DIMM slot. Then push it in until the golden finger on the memory module is deeply inserted in the DIMM slot. The plastic clip at each side of the DIMM slot will automatically close when the memory module is properly seated. You can barely see the golden finger if the memory module is properly inserted in the DIMM slot.
3. Manually check if the memory module has been locked in place by the DIMM slot clips at the sides.



Important

In Dual-Channel mode, make sure that you install memory modules of the same type and density in different channel DIMM slots.

To enable successful system boot-up, always insert the memory modules into the DIMM1 first.

F_AUDIO: Front Audio Connector

This connector allows you to connect audio jacks on the front panel.

	1	MIC L	2	Ground
	3	MIC R	4	NC
	5	Head Phone R	6	MIC Detection
	7	SENSE SEND	8	No Pin
	9	Head Phone L	10	Head Phone Detection

ATX_24P, ATX_8P: Power Connectors

These connectors allow you to connect an ATX power supply.

	1	+3.3V	13	+3.3V
	2	+3.3V	14	-12V
	3	Ground	15	Ground
	4	+5V	16	PS-ON#
	5	Ground	17	Ground
	6	+5V	18	Ground
	7	Ground	19	Ground
	8	PWR OK	20	Res
	9	5VSB	21	+5V
	10	+12V	22	+5V
	11	+12V	23	+5V
	12	+3.3V	24	Ground

	1	Ground	5	+12V
	2	Ground	6	+12V
	3	Ground	7	+12V
	4	Ground	8	+12V



Important

Make sure that all the power cables are securely connected to a proper ATX power supply to ensure stable operation of the motherboard.

COM: Serial Port Connector

This connector allows you to connect the optional serial port with bracket.

	1	DCD	2	SIN
	3	SOUT	4	DTR
	5	Ground	6	DSR
	7	RTS	8	CTS
	9	RI	10	No Pin

CPU_FAN1, SYS_FAN1: Fan Connectors

Fan connectors can be classified as PWM (Pulse Width Modulation) Mode or DC Mode. PWM Mode fan connectors provide constant 12V output and adjust fan speed with speed control signal. DC Mode fan connectors control fan speed by changing voltage.

Connector	Default fan mode	Max. current	Max. power
CPU_FAN1	PWM mode	2A	24W
SYS_FAN1	DC mode	1A	12W

PWM Mode pin definition			
1	Ground	2	+12V
3	Sense	4	Speed Control Signal

DC Mode pin definition			
1	Ground	2	Voltage Control
3	Sense	4	NC

Important

You can adjust fan speed in BIOS > Hardware Monitor.

JCMOS: Clear CMOS (Reset BIOS) Jumper

There is CMOS memory onboard that is external powered from a battery located on the motherboard to save system configuration data. If you want to clear the system configuration, set the jumpers to clear the CMOS memory.



Keep Data
(default)



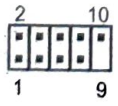
Clear CMOS/ Reset
BIOS

Resetting BIOS to default values

1. Power off the computer and unplug the power cord.
2. Use a jumper cap to short JCMOS for about 5-10 seconds.
3. Remove the jumper cap from JCMOS.
4. Plug the power cord and power on the computer.

F_USB2.0: USB 2.0 Connector

This connector allows you to connect USB 2.0 ports on the front panel.

	1	VCC	2	VCC
	3	USB0-	4	USB1-
	5	USB0+	6	USB1+
	7	Ground	8	Ground
	9	No Pin	10	NC

Important

- Note that the VCC and Ground pins must be connected correctly to avoid possible damage.

F_USB3.0: USB 3.2 Gen 1 5Gbps Connector

This connector allows you to connect USB 3.2 Gen 1 5Gbps ports on the front panel.

	1	Power	11	USB2.0+
	2	USB3_RX_DN	12	USB2.0-
	3	USB3_RX_DP	13	Ground
	4	Ground	14	USB3_TX_C_DP
	5	USB3_TX_C_DN	15	USB3_TX_C_DN
	6	USB3_TX_C_DP	16	Ground
	7	Ground	17	USB3_RX_DP
	8	USB2.0-	18	USB3_RX_DN
	9	USB2.0+	19	Power
	10	Ground	20	No Pin

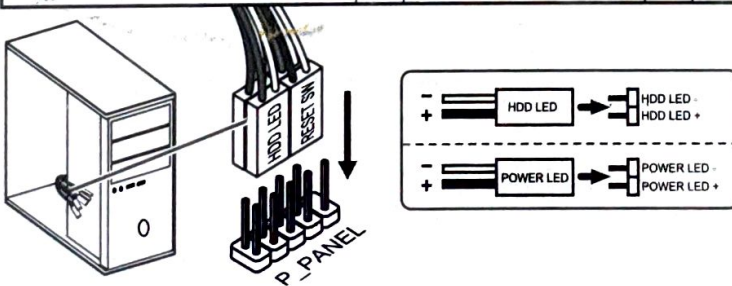
Important

Note that the Power and Ground pins must be connected correctly to avoid possible damage.

P_PANEL: Front Panel Connectors

These connectors connect to the switches and LEDs on the front panel.

	1	HDD LED +	2	Power LED +
	3	HDD LED -	4	Power LED -
	5	Reset Switch	6	Power Switch
	7	Reset Switch	8	Power Switch
	9	Reserved	10	No Pin



TPM: TPM Module Connector

This connector is for TPM (Trusted Platform Module). Please refer to the TPM security platform manual for more details and usages.

	1	SPI Power	2	SPI Chip Select
	3	Master In Slave Out (SPI Data)	4	Master Out Slave In (SPI Data)
	5	Reserved	6	SPI Clock
	7	Ground	8	SPI Reset
	9	Reserved	10	No Pin
	11	Reserved	12	Interrupt Request

BIOS Setup

Once you enter the BIOS Setup program, the Main Menu (as shown below) appears on the screen. Use arrow keys to move among the items and press <Enter> to accept or enter a sub-menu.

Power on the computer and the system will start POST(Power On Self Test) process.

When the message below appears on the screen .

Press to enter SETUP

Main Page

Aptio Setup Utility Copyright (C) 2010 American Megatrends, Inc.		
Main Advanced Chipset Startup Security Save & Exit		
Bios Information		Choose the system default language
Bios Vendor	American Megatrends	
Core Version	4.6.4.0	
Complency	UEFI 2.0	
Project Version	H** 0.14 X64	
Build Date and Time	**/**/20** **.*.*..	
Memory Information		
Total Memory	****MB (DDR3)	
Memory Slot0	****MB(DDR3 ****)	
Memory Slot1	****MB(DDR3 ****)	
System Language		
	[English]	
System Date		
System Time	[mm: dd: yy] [hh: mm: ss]	
Access Level1		
	Administrator	
→←: Select Screen ↑ ↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F7: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit		
Version 2.10.1208 Copyright (C) 2010 American Megatrends, Inc.		

BIOS Information

BIOS Vendor American Megatrends
 Core Version 4.6.4.0
 Complency UEFI 2.1
 Project Version H** 0.14 X64
 Build Date and Time **/**/20** **.*.*..

Memory Information

Memory Clock ****MHZ
 Total Memory ****MB (DDR3)
 Memory Slot0 ****MB(DDR3 ****)
 Memory Slot1 ****MB(DDR3 ****)

System Language

System Language Default: English

System Date

System Date Default: [mm: dd: yy]

Set the system date. The date format is week (read only), month, day and year.

Select the desired field and use the [Enter] key to set the date.

System Time

System Time Default: [hh: mm: ss]

Set the system time. Select the desired field and use the [Enter] key to set the time.

Access Level

Administrator

Security

Aptio Setup Utility Copyright (C) 2010 American Megatrends, Inc.	
Main Advanced Chipset Startup Security Save & Exit	
<p>Password Description</p> <p>If ONLY the Administrator's password is set, then this only limits access to Setup and is only asked for when entering Setup. If ONLY the User's password is set, then this is a power on password and must be entered to Boot or enter Setup. In Setup the User will Have Administrator rights. The password must be 3 to 20 characters long.</p>	<p>Set Setup Administrator Password</p>
<p>Administrator Password User Password</p>	<p>→←: Select Screen ↑ ↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F7: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit</p>
Version 2.10.1208 Copyright (C) 2010 American Megatrends, Inc.	

Save & Exit

Aptio Setup Utility Copyright (C) 2010 American Megatrends, Inc.	
Main Advanced Chipset Startup Security Save & Exit	
<p>Save Changes and Exit Discard Changes and Exit</p> <p>Restore Defaults Save as User Defaults Restore User Defaults</p> <p>Boot Override</p>	<p>Exit system setup after saving the changes</p>
	<p>→←: Select Screen ↑ ↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F7: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit</p>
Version 2.10.1208 Copyright (C) 2010 American Megatrends, Inc.	

Esonic Motherboard®

Quest for performance

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