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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, and
- 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 55032**	Electromagnetic compatibility of multimedia equipment - Emission requirements
❑ **EN 61000-3-2**	Electromagnetic Compatibility(EMC) Part 3-2: Limits-Limits for harmonic current emissions (equipment input current ⩽16A per phase)
❑ **EN 61000-3-3**	Electromagnetic Compatibility(EMC) Part 3-3: Limits-Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems, for equipment with rated current ⩽16A per phase and not subject to conditional connection
❑ **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:

TABLE OF CONTENTS

Chapter 1
Introducing the Motherboard

Introduction

Thank you for choosing the **A320AM4-M3(D)** motherboard. This motherboard is a high performance, enhanced function motherboard designed to support the AMD® AM4 CPU Socket for business or personal desktop markets.

This motherboard is based on AMD® A320 PROM1 chipset for best desktop platform solution. It supports up to 32 GB of system memory with dual channel DDR4 2667/ 2400/2133 MHz. One PCI Express x16 Gen3 slot is supported, intended for Graphics Interface. In addition, one PCI Express x1 Gen2 slot and one M.2 slot are for extending usage.

It integrates USB 2.0 and USB 3.0 interface, supporting up to six USB 2.0 ports (two USB 2.0 ports at the rear panel, and two 10-pin USB 2.0 headers support additional four USB 2.0 ports) and six USB 3.0 ports (four USB 3.0 ports 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 connector, one PS/2 keyboard connector, one VGA port, one DVD-D port (A320AM4-M3 only), one HDMI port, four USB 3.0 ports, two USB 2.0 ports, one RJ45 LAN connector, and three audio jacks for microphone, line-in and line-out.

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

Package Contents

Your motherboard package ships with the following items:

- ❑ A320AM4-M3(D) Motherboard
- ❑ User Manual
- ❑ DVD
- ❑ I/O Shield
- ❑ 2 SATA 6Gb/s Cables

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

Specifications

CPU	• AMD® AM4 CPU Socket • Supports CPU up to 95W TDP *Note: Please go to ECS website for the latest CPU support list.*
Chipset	• FCH A320 PROM1
Memory	• Dual-channel DDR4 memory architecture • 2 x 288-pin DDR4 Long-DIMM sockets support up to 32 GB • Supports 2133/2400/2667 MHz DDR4 Long-DRAM (by CPU) *Note: Please go to ECS website for the latest Menory support list.*
Expansion Slots	• 1 x PCI Express x16 Gen3 slot • 1 x PCI Express x1 Gen2 slot • 1 x M.2 slot (Socket 3 key M 2242/2260/2280 supports SSD (PCIE))
Storage	• Supported by AMD A320 Chipset - 4 x Serial ATA 6Gb/s devices - RAID 0, 1, 10
Audio	• Realtek ALC662 - 6 Channel High Definiton Audio Codec - Compliant with HD audio specification
LAN	• Realtek RTL8111H Gigabit Lan - 10/100/1000 Fast Ethernet Controller - Wake-on-LAN and remote wake-up support
Rear Panel I/O	• 1 x PS/2 keyboard and PS/2 mouse connectors • 1 x VGA port • 1 x DVI-D port (A320AM4-M3 only) • 1 x HDMI port • 2 x USB 2.0 ports • 4 x USB 3.0 ports • 1 x RJ45 LAN connector • 1 x Audio port (1x Line in, 1x Line out, 1x Mic_in Rear)
Internal I/O Connectors & Headers	• 1 x 24-pin ATX Power Supply connector • 1 x 4-pin 12V Power connector • 1 x 4-pin CPU_FAN connector • 1 x 4-pin SYS_FAN connector • 1 x Front Panel audio header • 1 x Front Panel switch/LED header • 1 x USB 3.0 header supports additional two USB 3.0 ports • 2 x 10-pin USB 2.0 headers support additional four USB 2.0 ports • 4 x Serial ATA 6Gb/s connectors • 1 x Clear CMOS jumper • 1 x Serial port header (COM) • 1 x Buzzer header • 1 x RGB header (A320AM4-M3 only)

System BIOS	•	AMI BIOS with 128Mb SPI Flash ROM - Supports Plug and Play, STR(S3)/STD(S4), PS/2 S5 Wake up - Supports Hardware Monitor - Supports ACPI & DMI - Supports Audio, LAN, can be disabled in BIOS - F7 hot key for boot up devices option - Supports BIOS parameters copied to the flash disk - Supports Pgup clear CMOS Hotkey (PS2 KB Model only)
AP Support	•	Supports eBLU*/eDLU/eSF* *Note: *Microsoft .NET Framework 3.5 is required.*
Form Factor	•	Micro-ATX Size, 220mm x 205mm

Motherboard Components

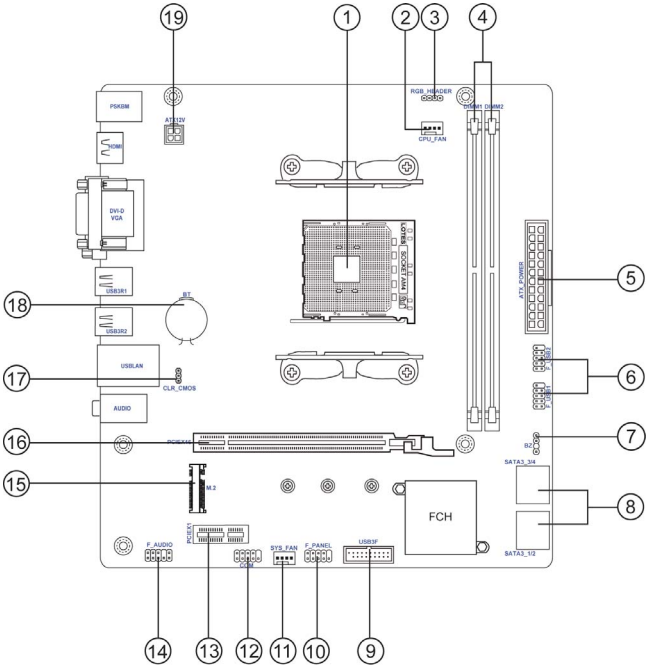
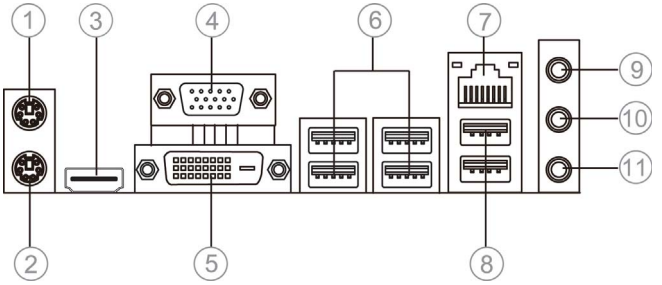


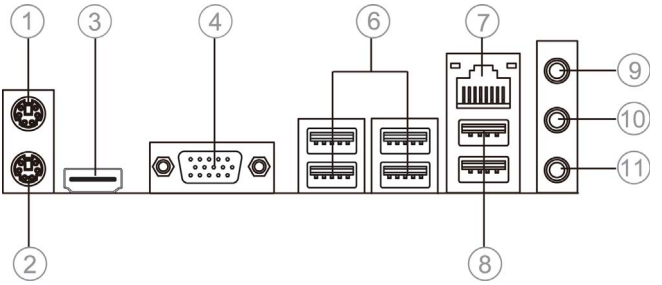
Table of Motherboard Components

LABEL	COMPONENTS
1. CPU Socket	AMD® AM4 CPU Socket
2. CPU_FAN	4-pin CPU cooling fan connector
3. RGB_HEADER	RGB header (A320AM4-M3 only)
4. DIMM_1~2	288-pin DDR4 Module slots
5. ATX_POWER	Standard 24-pin ATX power connector
6. F_USB1~2	10-pin Front Panel USB 2.0 headers
7. BZ	Buzzer header
8. SATA1~4	Serial ATA 6.0 Gb/s connectors
9. USB3F	Front Panel USB 3.0 header
10. F_PANEL	Front panel switch/LED header
11. SYS_FAN	4-pin System cooling fan connector
12. COM	Onboard serial port header
13. PCIEX1	PCI Express x1 slot
14. F_AUDIO	Front panel audio header
15. M.2	Socket 3 key M 2242/2260/2280 for NVMe slot
16. PCIEX16	PCI Express slot for graphics interface
17. CLR_CMOS	Clear CMOS jumper
18. BT	Battery
19. ATX_12V	4-pin +12V power connector

I/O Ports



or



1. PS/2 Mouse(green)
Use the upper PS/2 port to connect a PS/2 mouse.

2. PS/2 Keyboard(purple)
Use the lower PS/2 port to connect a PS/2 keyboard.

3. HDMI Port
You can connect the HDMI device to the HDMI port.

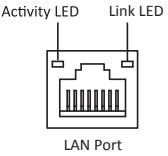
4. VGA Port
Connect your monitor to the VGA port.

5. DVI-D Port (A320AM4-M3 only)
Connect your monitor to the DVI port.

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

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

9. Line-in(blue)
It can be connected to an external CD/DVD player, Tape player or other audio devices for audio input.

10. Line-out(lime)
It is used to connect to speakers or headphones.

11. Microphone(pink)
It is used to connect to a microphone.

Memo

Chapter 2
Installing the Motherboard

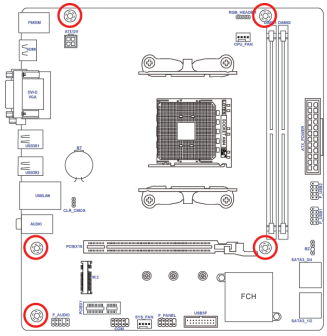
2-1. Safety Precautions

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

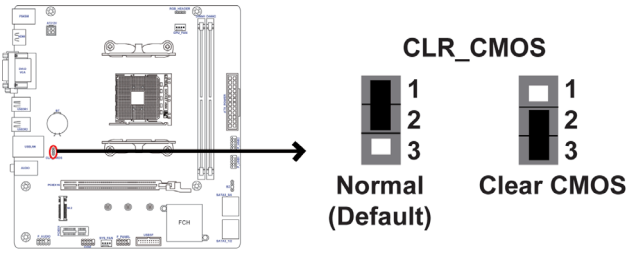
This motherboard carries a Micro ATX form factor of 220 x 205 mm. Choose a chassis that accommodates this from factor. Make sure that the I/O template in the chassis matches the I/O ports installed on the rear edge of the motherboard. Most system chassis have mounting brackets installed in the chassis, 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.



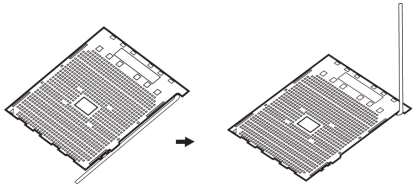
To avoid the system instability after clearing CMOS, we recommend users to enter the main BIOS setting page to "Load Default Settings" and then "Save and Exit Setup".

2-4. Installing Hardware

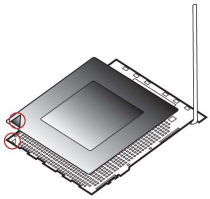
2-4-1. Installing the Processor

- This motherboard has an AM4 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.

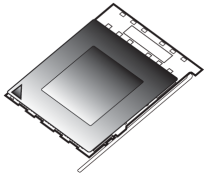
A. Pull up the lever away from the socket and lift up to 90-degree angle.



B. Locate the CPU cut edge (the corner with the pin hold noticeably missing). Align and insert the CPU correctly.



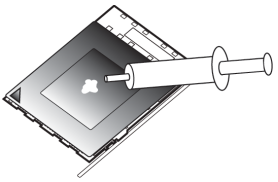
C. Press the metal lever back into its original position.



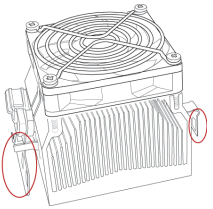
2-4-2. Installing the CPU Cooler

- 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.
- The following illustration shows how to install CPU fan.

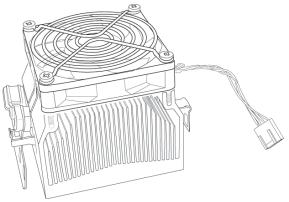
A. Apply some thermal grease onto the contacted area between the heatsink and the CPU, and make it to be a thin layer.



B. Put the CPU Fan down on the retention module and flip the levers over the heat sink in place.



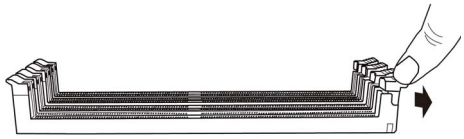
C. Connect the CPU cooler power connector to the CPU_FAN connector.



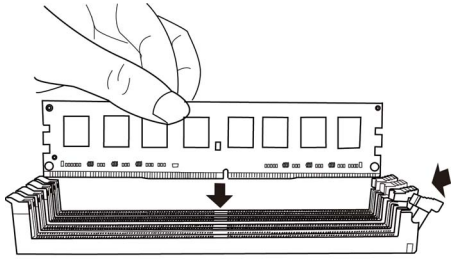
2-4-3. Installing Memory Modules

- This motherboard accommodates two memory modules. It can support two 288-pin DDR4 2667/2400/2133 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 two slots. Total memory capacity is 32 GB.
- Refer to the following to install the memory modules.

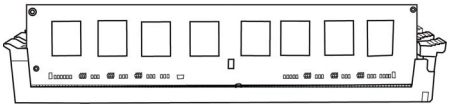
A. Push the latch on the mobilizable side of the DIMM slot down.



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 latche is levered upwards and latch on to the edges of the DIMM.

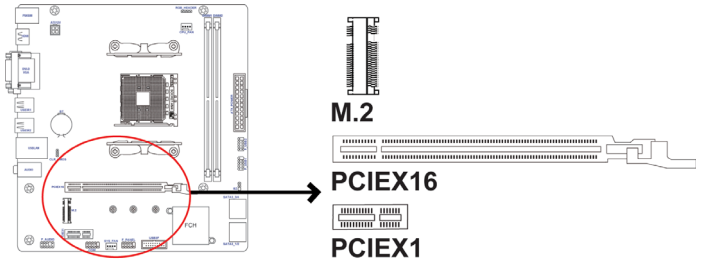


** For reference only*

We suggest users not to mix memory type. It is recommended to use the same brand and type memory on this motherboard.

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.



PCIEX16 Slot The PCI Express x16 slot is used to install an external PCI Express graphics card that is fully compliant to the PCI Express Base Specification revision 3.0.

PCIEX1 Slot The PCI Express x1 slot is fully compliant to the PCI Express Base Specification revision 2.0.

M.2 Slot This is M.2 slot, socket 3 key M 2242/2260/2280 supports SSD (PCIE).

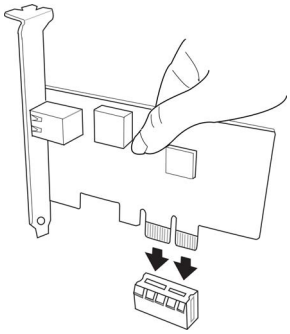
Before installing an add-on card, check the documentation for the card carefully. If the card is not Plug and Play, you may have to manually configure the card before installation.

Follow these instructions to install an add-on card:

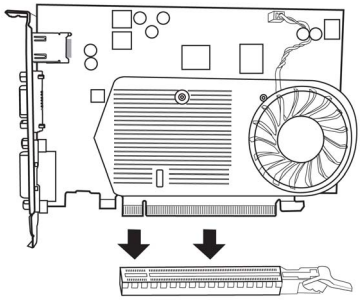
1 Remove a blanking plate from the system case corresponding to the slot you are going to use.
2 Install the edge connector of the add-on card into the expansion slot. Ensure that the edge connector is correctly seated in the slot.
3 Secure the metal bracket of the card to the system case with a screw.

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:



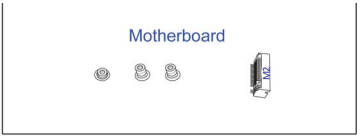
Install the LAN Card in the PCIEX1 slot



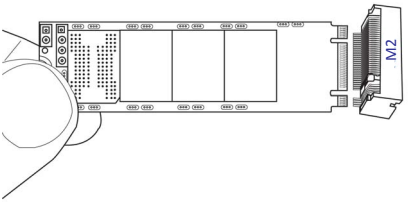
Install the VGA Card in the PCIEX16 slot

Please refer the following steps to install the M.2 SSD card:

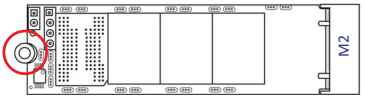
1 Demount the screw not used according to the length of your M.2 SSD card.



2 Insert the M.2 SSD card into M2 slot in the fool-proof way.

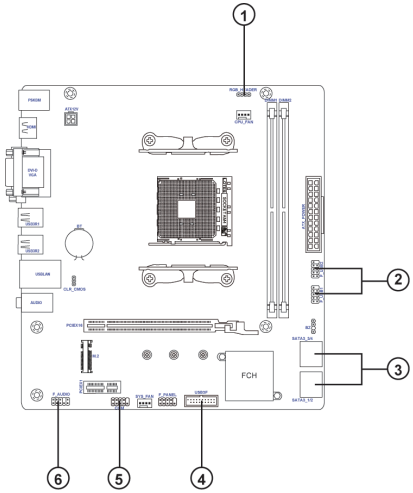


3 Lock the screw as the following picture shows to make sure the M.2 SSD card is installed in place.



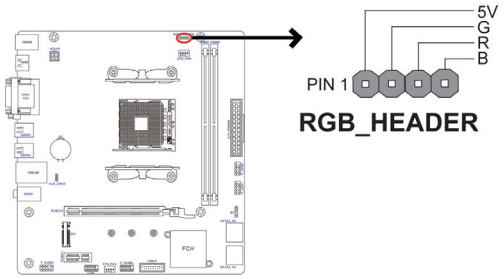
2-4-5. Connecting Optional Devices

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



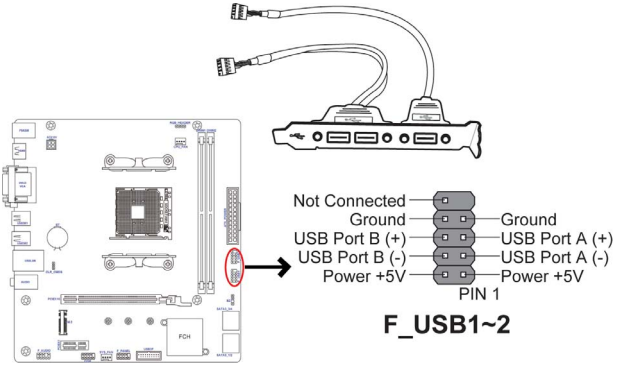
No.	Components	No.	Components
1	RGB_HEADER	4	USB3F
2	F_USB1~2	5	COM
3	SATA3_1~4	6	F_AUDIO

1. RGB: RGB Header (A320AM4-M3 only)



2. F_USB1~2: Front Panel USB 2.0 Headers

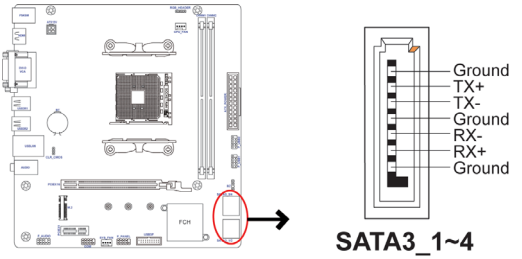
The motherboard has two USB 2.0 headers supporting four USB 2.0 ports. Additionally, some computer cases have USB ports at the front of the case. If you have this kind of case, use auxiliary USB connector to connect the front-mounted ports to the motherboard.



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.

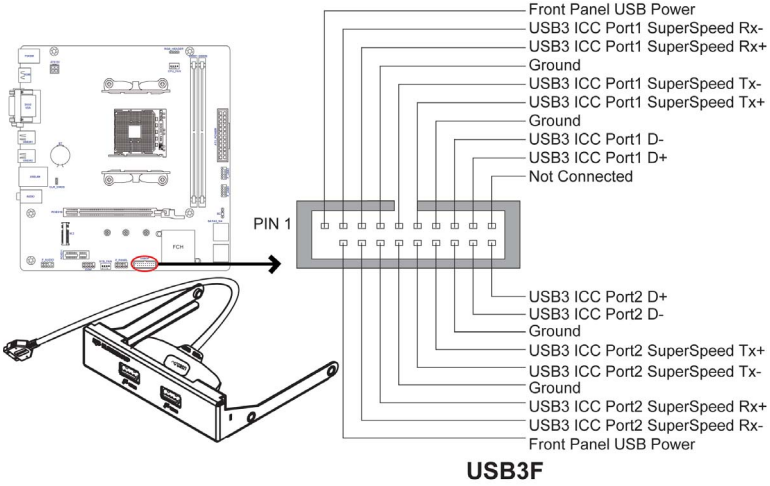
3. SATA3_1~4: Serial ATA Connectors

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. 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.

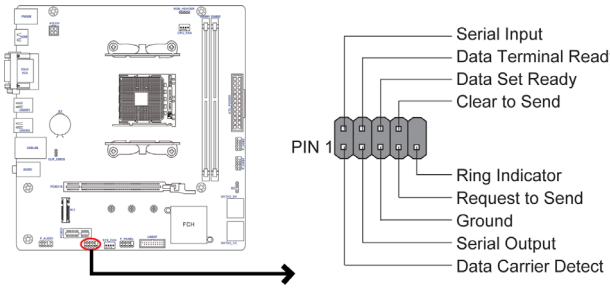


USB3F

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.

5. COM: Onboard Serial Port Header

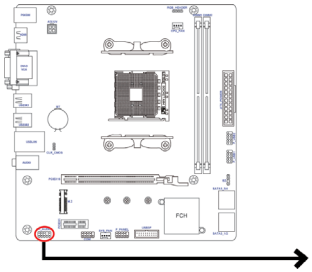
Connect a serial port extension bracket to this header to add a serial port to your system.

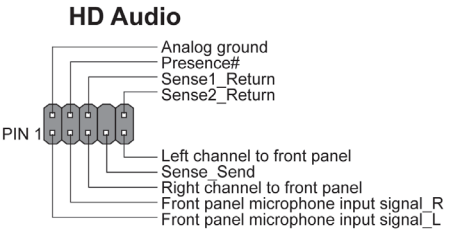


COM

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. If you want connect an AC' 97 front panel audio to HD onboard headers, please set as below picture.





2-4-6. Installing a SATA Hard Drive

This section describes how to install a SATA Hard Drive.

About SATA Connectors

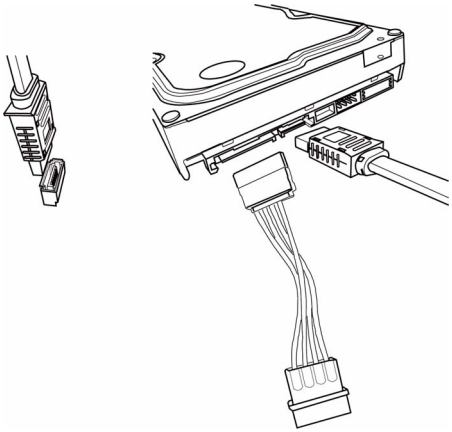
Your motherboard features four SATA connectors supporting a total of four drives. SATA refers to Serial ATA (Advanced Technology Attachment) is the standard interface for the IDE hard drives which are currently used in most PCs. These connectors are well designed and will only fit in one orientation.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

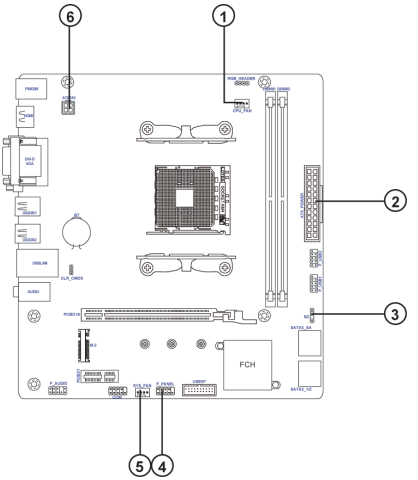
1 Attach either cable end to the connector on the motherboard.
2 Attach the other cable end to the SATA hard drive.
3 Attach the SATA power cable to the SATA hard drive and connect the other end to the power supply.



** For reference only*

2-4-7. Connecting Case Components

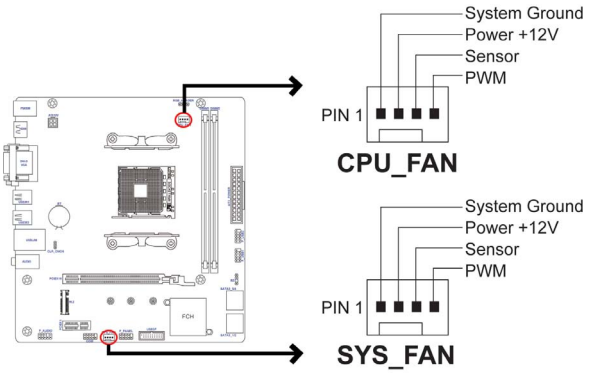
After you have installed the motherboard into a case, you can begin connecting the motherboard components. Refer to the following:



No.	Components	No.	Components
1	CPU_FAN	4	F_PANEL
2	ATX_POWER	5	SYS_FAN
3	BZ	6	ATX_12V

1. CPU_FAN (CPU Cooling FAN Power Connector) & 5. SYS_FAN (System Cooling FAN Power Connector)

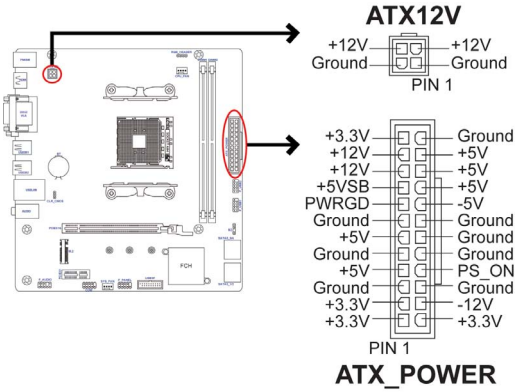
Connect the CPU cooling fan cable to **CPU_FAN**.
Connect the system cooling fan connector to **SYS_FAN**.



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

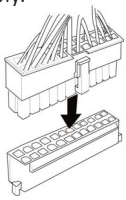
2. ATX_POWER (ATX 24-pin Power Connector) & 6. ATX_12V (ATX 12V Power Connector)

Connect the standard power supply connector to **ATX_POWER**.
Connect the auxiliary case power supply connector to **ATX_12V**.



Connecting 24-pin power cable

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

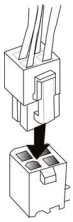


24-pin power cable

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

Connecting 4-pin power cable

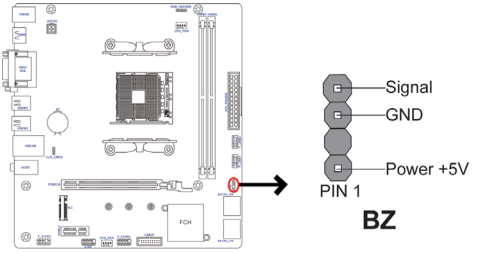
The ATX_12V power connector is used to provide power to the CPU.



4-pin power cable

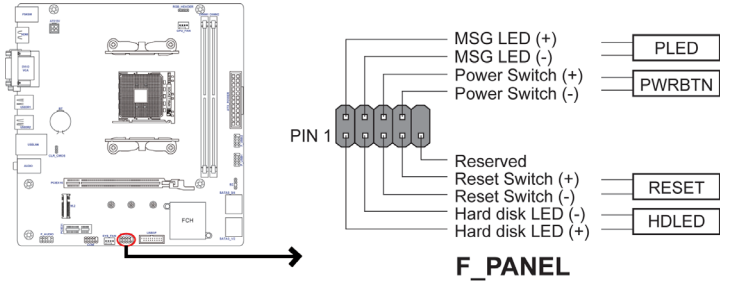
When installing 4-pin power cable, the latches of power cable and the ATX_12V match perfectly.

3. BZ: Buzzer Header



4. F_PANEL: Front Panel Header

The front panel header (F_PANEL) provides a standard set of switch and LED headers commonly found on ATX or Micro ATX 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.

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.

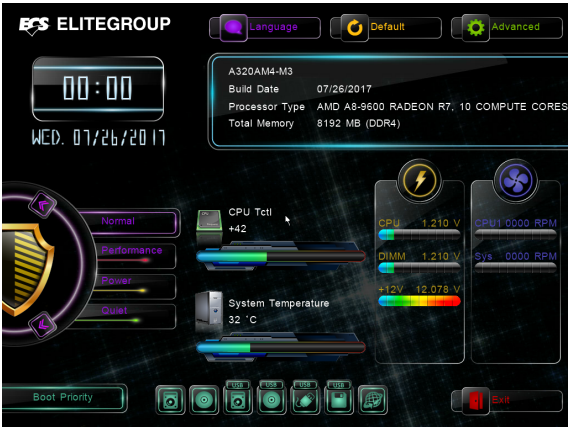
BIOS Navigation Keys

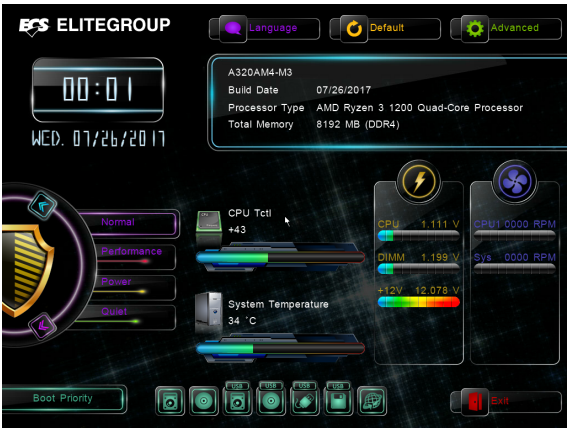
The BIOS navigation keys are listed below:

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

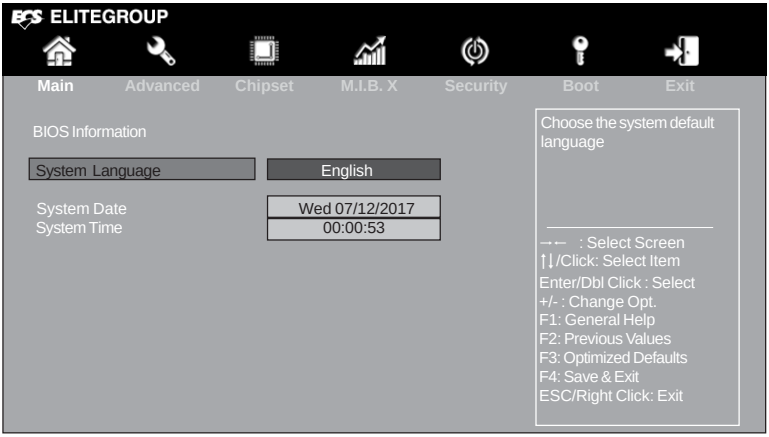
Select the advanced icon and press <Enter> or double click the left key of the mouse to display the screen.

Exit

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

Main Menu

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



System Language (English)

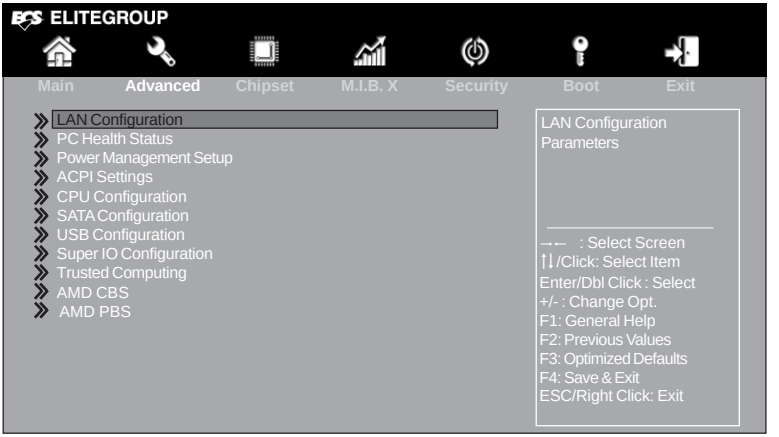
This item is used to set system language.

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.

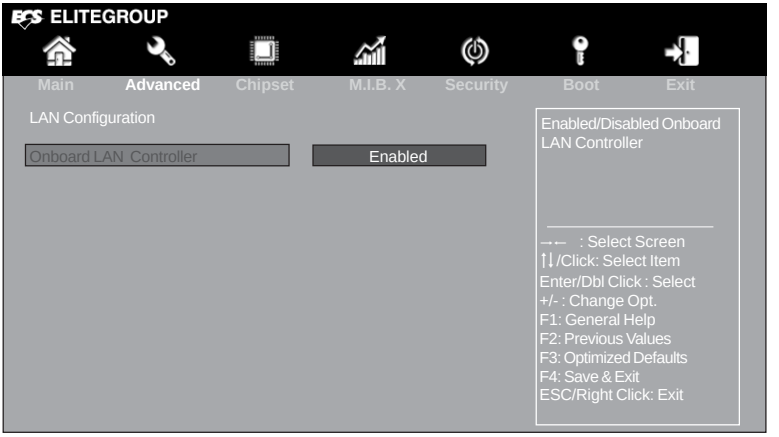
Advanced Menu

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.



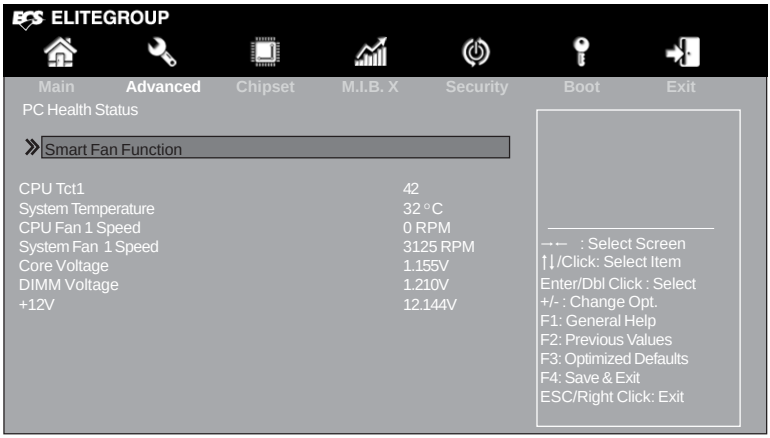
Onboard LAN Controller (Enabled)

Use this item to enable or disable Onboard LAN controller.

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

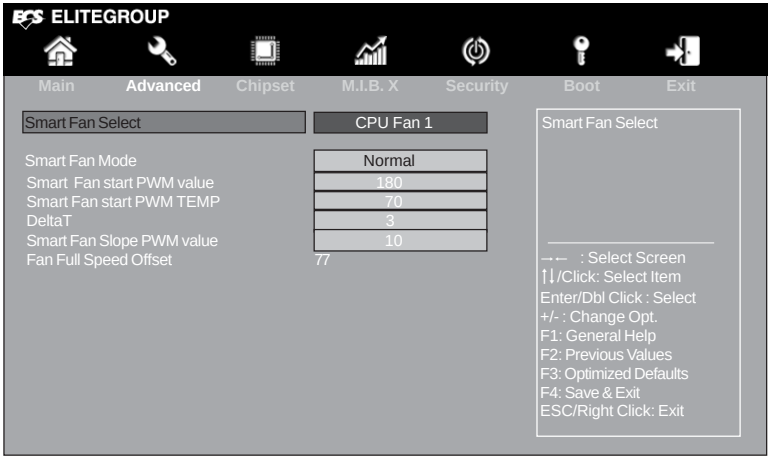
» PC Health Status

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 1)

This item allows you to change and configure Smart Fans on M/B. ex. CPU Fan1, System Fan1.

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 (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 (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

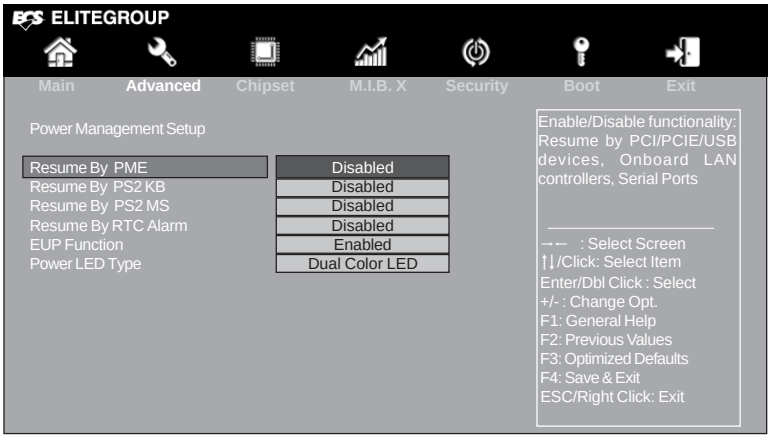
These items display the monitoring of the overall inboard hardware health events, such as CPU & DIMM voltage, CPU & System fan speed...etc.

- CPU Tct1
- System Temperature
- CPU Fan 1 Speed
- System Fan 1 Speed
- Core Voltage
- DIMM Voltage
- +12V

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

» Power Management Setup

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



Resume By PME (Disabled)

The system can be turned off with a software command. If you enable this item, the system can automatically resume if there is an incoming call on the PCI/PCI-E Modem or PCI/PCI-E LAN card. You must use an ATX power supply in order to use this feature. Use this item to do wake-up action if inserting the PCI/PCI-E card.

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 (realtime clock). 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.

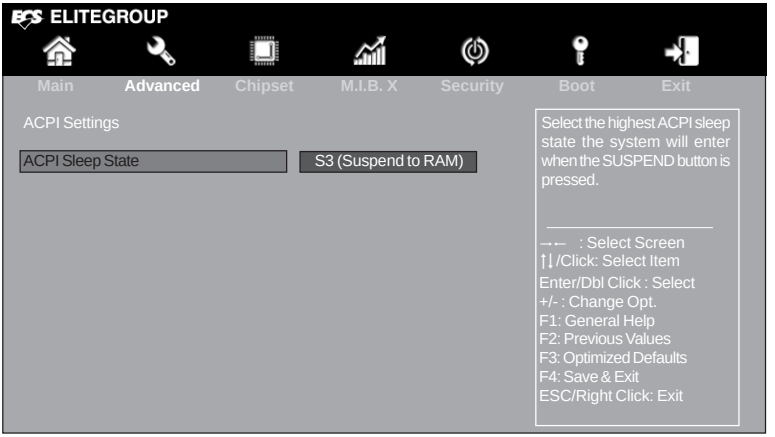
Power LED Type (Dual Color LED)

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.



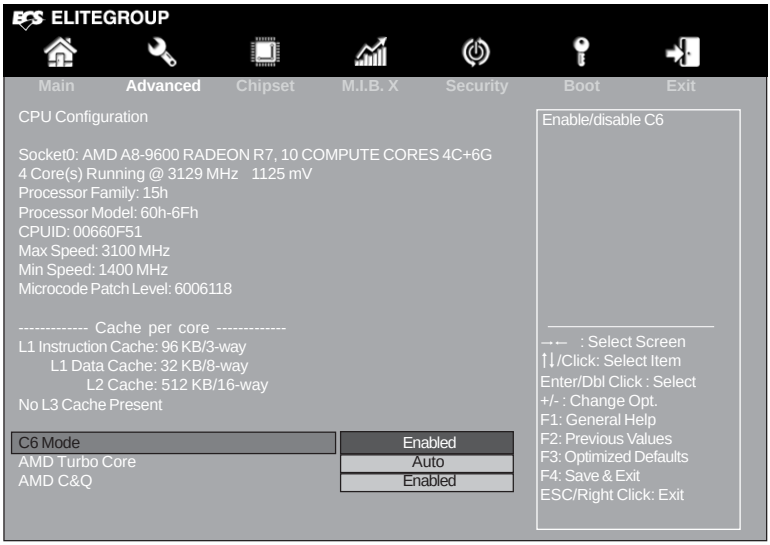
ACPI Sleep State [S3(Suspend to RAM)]

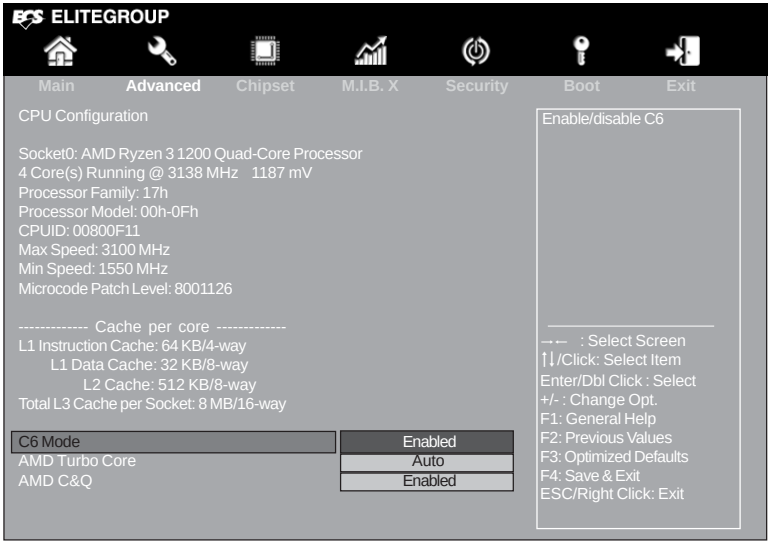
This item allows user to enter the ACPI S3 (Suspend to RAM) Sleep State (default).

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

» CPU Configuration

The item in the menu shows the CPU.





Socket0: AMD A8-9600 RADEON R7, 10 COMPUTE CORES 4C+6G 4 Core(s) Running @ 3129 MHz 1125 mV

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

Socket0: AMD Ryzen 3 1200 Quad-Core Processor*

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

Processor Family (15h)

This item shows the processor family.

Processor Model (60h-6Fh)

This item shows the processor model.

CPUID (00660F51)

This item shows the CPUID.

Max Speed (3100 MHz)

This item shows the max speed of the CPU.

Min Speed (1400 MHz)

This item shows the min speed of the CPU.

Microcode Patch Level (6006118)

This item shows the microcode revision.

L1 Instruction Cache (96KB/3-way)

This item shows CPU L1 Cache.

L1 Data Cache (32KB/8-way)

This item shows the size of CPU L1 Data Cache memory.

L2 Cache (512KB/16-way)

This item shows the size of CPU L2 Cache memory.

C6 Mode (Enabled)

Use this item to enable or disable the C6 mode.

AMD Turbo Core (Auto)

Use this item to select the AMD Turbo Core: Auto/Disabled.

AMD C&Q (Enabled)

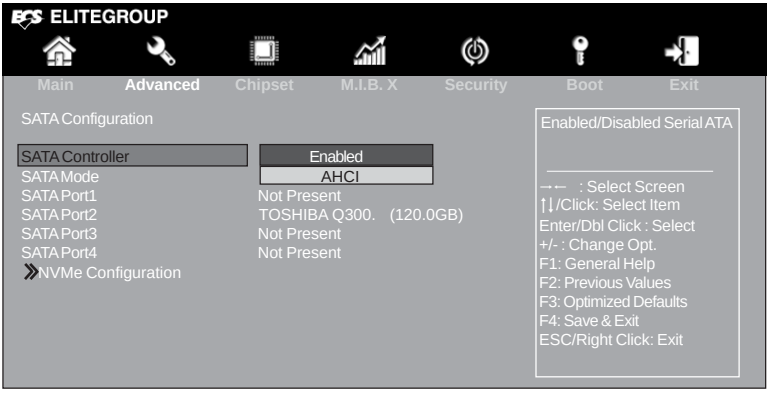
Use this item to enable or disable the CPU C&Q Function.

** This is for AMD Ryzen™ Processor.*

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

»SATA Configuration

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



SATA Controller (Enabled)

Use this item to enable or disable SATA controller.

SATA Mode (AHCI)

Use this item to select SATA mode.

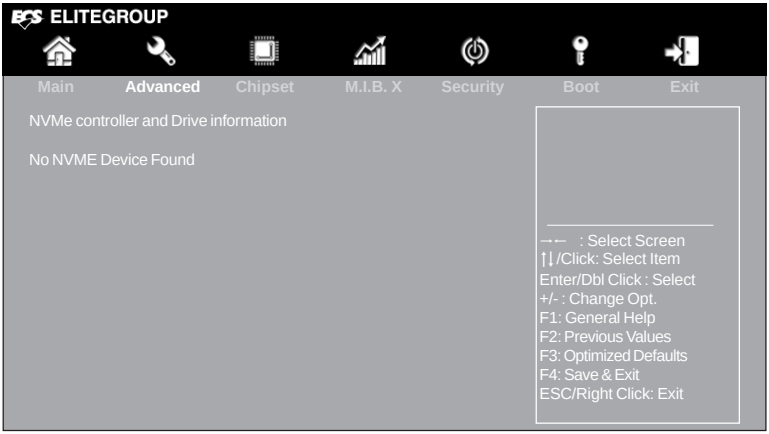
SATA Port 1~4 (Not Present/TOSHIBA Q300. (120.0GB))

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

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

» NVMe Configuration

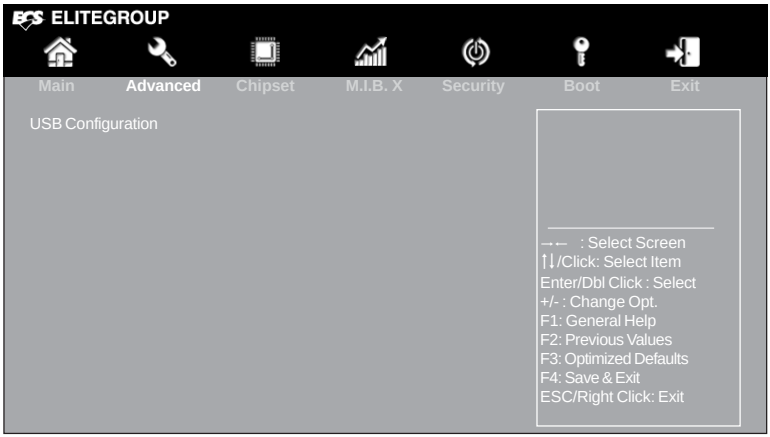
Use this item to show the information of NVMe configuration.



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

» USB Configuration

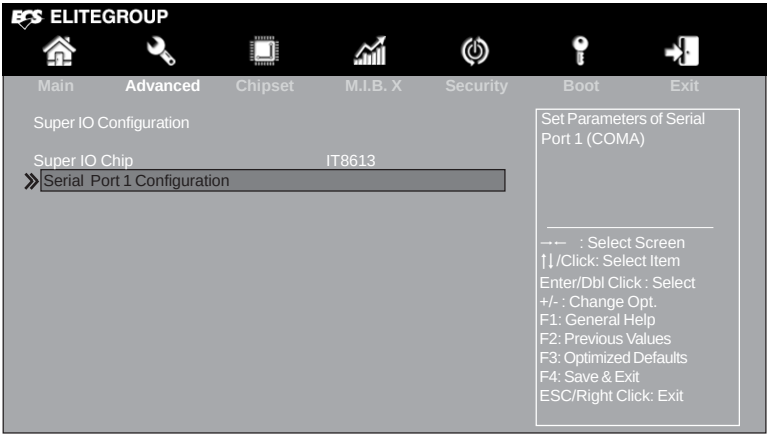
Use this item to show the information of USB configuration.



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

» Super IO Configuration

Use this item to show the information of Super IO configuration.

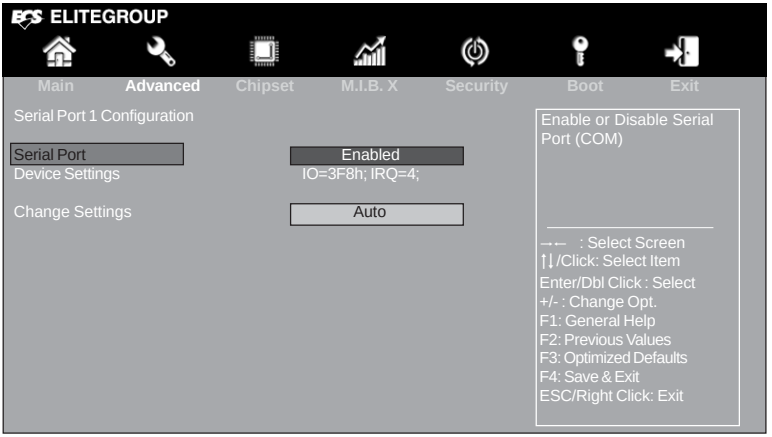


Super IO Chip (IT8613)

This item shows the information of the super IO chip.

»Serial Port 1 Configuration

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



Serial Port (Enabled)

This item allows you to enable or disable serial port.

Device Settings (IO=3F8h; IRQ=4)

This item shows the information of the device settings.

Change Settings (Auto)

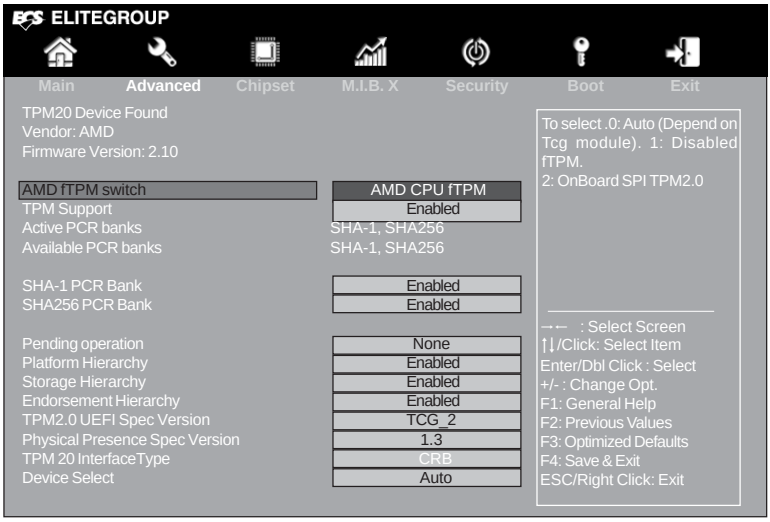
Use this item to change device settings.

Press <Esc> to return to the Super IO Configuration page.

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

»Trusted Computing

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



TPM20 Device Found Vendor (AMD)

This item shows the information of TPM20 device found vendor.

Firmware Version (2.10)

This item shows the information of firmware version.

AMD fTPM switch (AMD CPU fTPM)

Use this item to select the AMD fTPM switch: AMD CPU fTPM/Disabled.

TPM Support (Enabled)

Use this item to enable or disable the TPM support. 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.

SHA-1 PCR Bank (Enabled)

Use this item to enable or disable the SHA-1 PCR bank.

SHA256 PCR Bank (Enabled)

Use this item to enable or disable the SHA256 PCR bank.

Pending operation (None)

Schedule an Operation for the Security Device. NOTE: Your Computer will reboot during restart in order to change State of Security Device.

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.

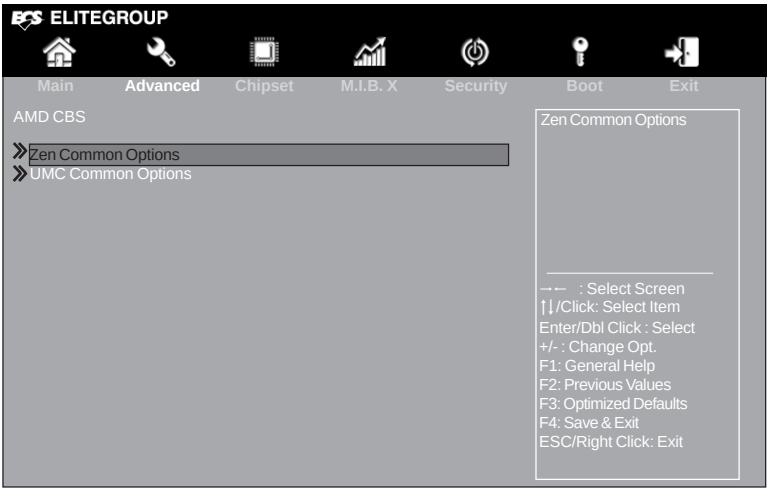
TPM 20 Interface Type (CRB)
Use this item to select the communication interface to TPM 20 device.

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.

» AMD CBS*

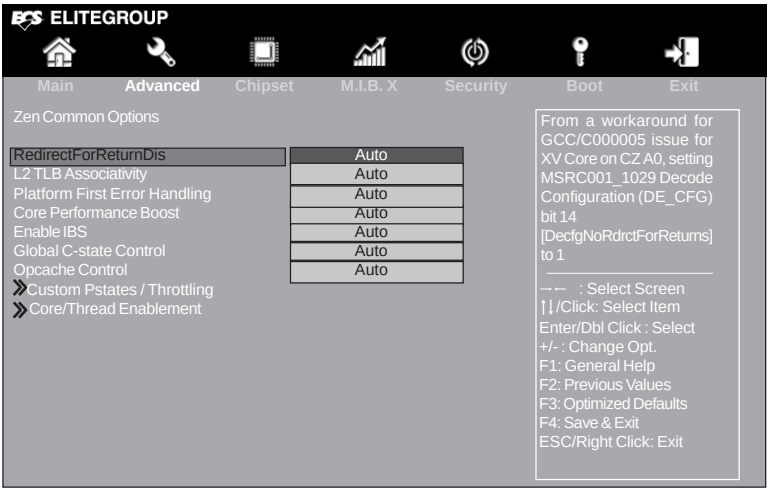
Use this item to show the information of AMD CBS.



** When you use AMD Ryzen™ Processor, this item and its submenu will show.*

»Zen Common Options

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



RedirectForReturnDis (Auto)

Use this item to select the RedirectForReturnDis: Auto/1/0. From a workaround for GCC/C00005 issue for XV Core on CZ A0, setting MSRC001_1029 Decode Configuration (DE_CFG) bit 14 [DecfgNoRdrctForReturns] to 1.

Platform First Error Handling (Auto)

Use this item to select the Platform First Error Handling: Enabled/Disabled/Auto. Enable/Disable PFEH, cloak individual banks, and mask deferred error interrupts from each bank.

Core Performance Boost (Auto)

Use this item to select the Core Performance Boost: Disabled/Auto.

Enable IBS (Auto)

Use this item to select the Enable IBS: Auto/Enabled/Disabled. Enables IBS through MSRC001_1005[42] and disables SpecLockMap through MSRC001_1020[54].

Global C-state Control (Auto)

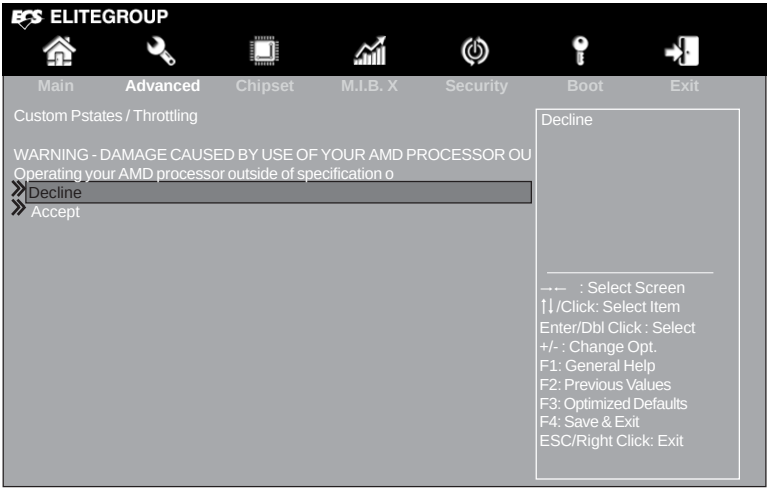
Use this item to select the Global C-state Control: Disabled/Enabled/Auto. Controls IO based C-state generation and DF C-states.

Opcache Control (Auto)

Use this item to select the Opcache Control: Disabled/Enabled/Auto.

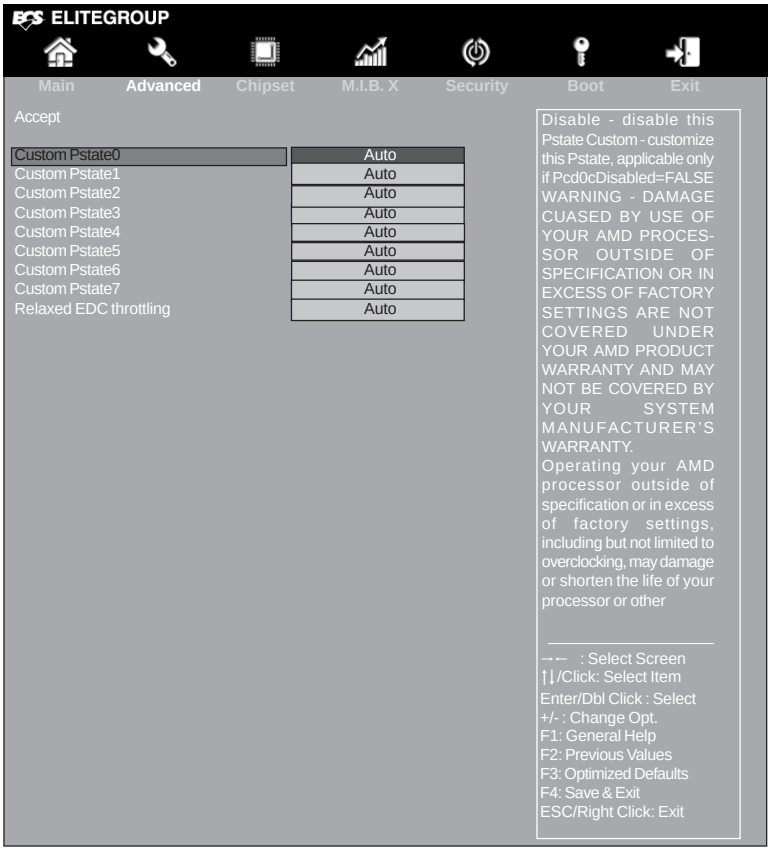
» Custom Pstates / Throttling

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



» Accept

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



Custom Pstate0 /1 /2 /3 /4 /5 /6 /7 (Auto)

Use these items to select the Custom Pstate 0 /1 /2 /3 /4 /5 /6 /7: Auto/Custom. If you select the Custom, the following screen will show:

Relaxed EDC throttling (Auto)

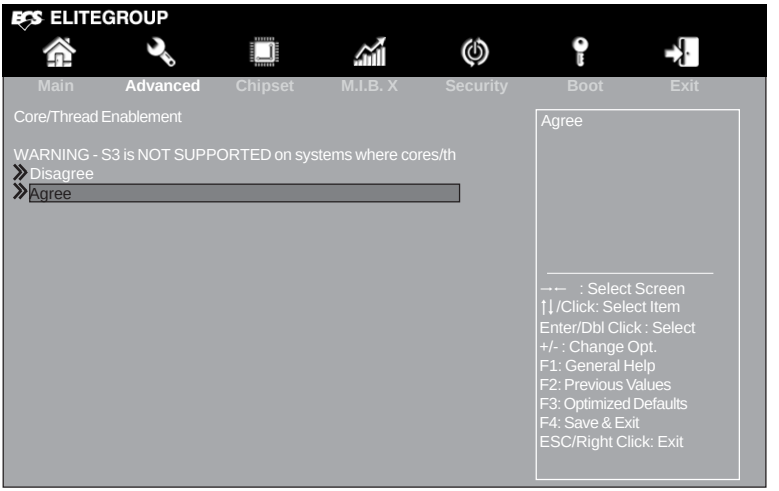
Disable - Part-specific EDC throttling protection enabled.
Enable - Reduce the amount of time the processor will throttle.
Auto-AMD's recommendation (Disable).

Press <Esc> to return to the Custom Pstates / Throttling page.

Press <Esc> to return to the Zen Common Options page.

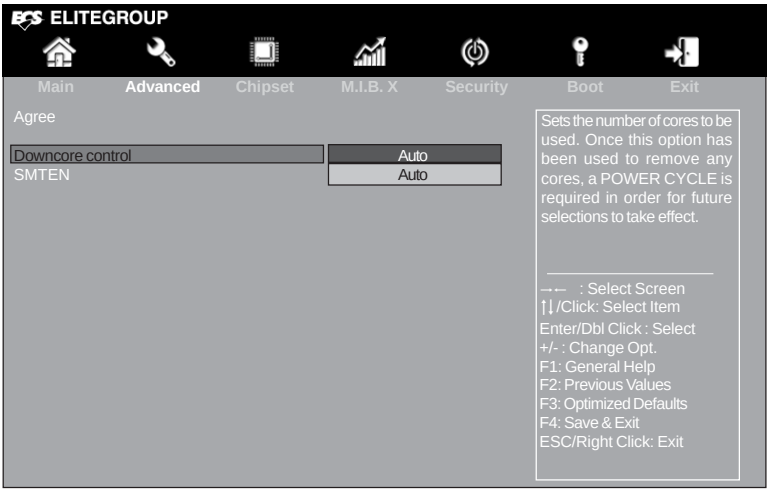
» Core/Thread Enablement

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



» Agree

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



Downcore control (Auto)

This item allows you to set the number of cores to be used. Once this option has been used to remove any cores, a Power Cycle is required in order for future selections to take effect.

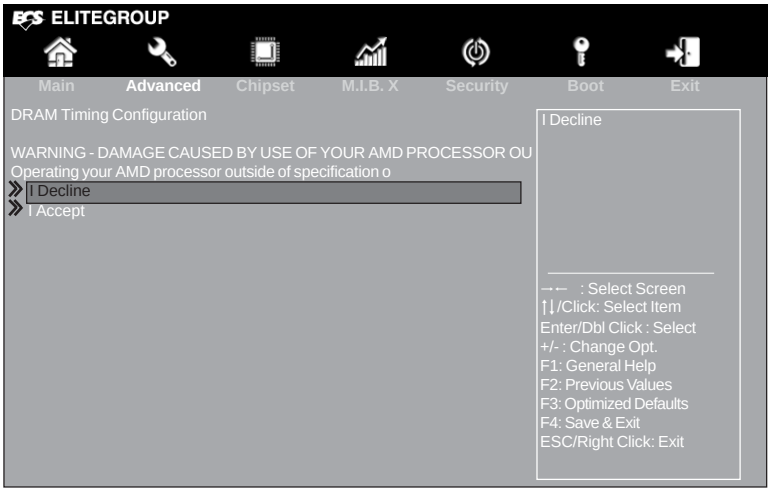
Press <Esc> to return to the Core / Thread Enablement page.

Press <Esc> to return to the Zen Common Options page.

Press <Esc> to return to the AMD CBS page.

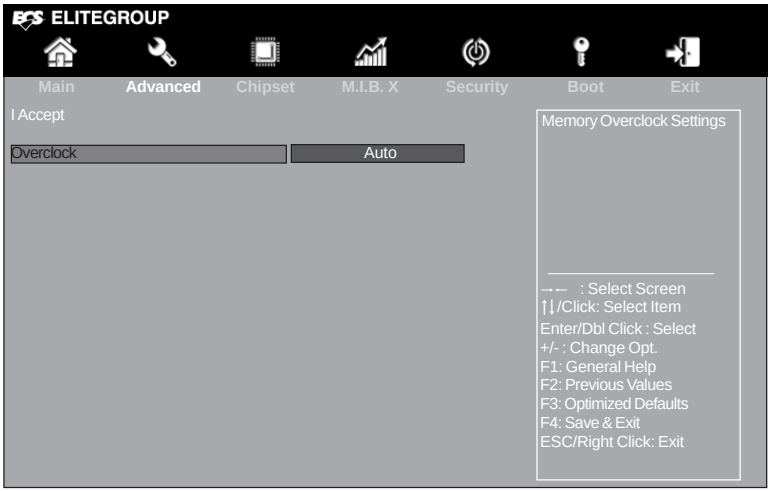
» DRAM Timing Configuration

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



» I Accept

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



Overclock (Auto)

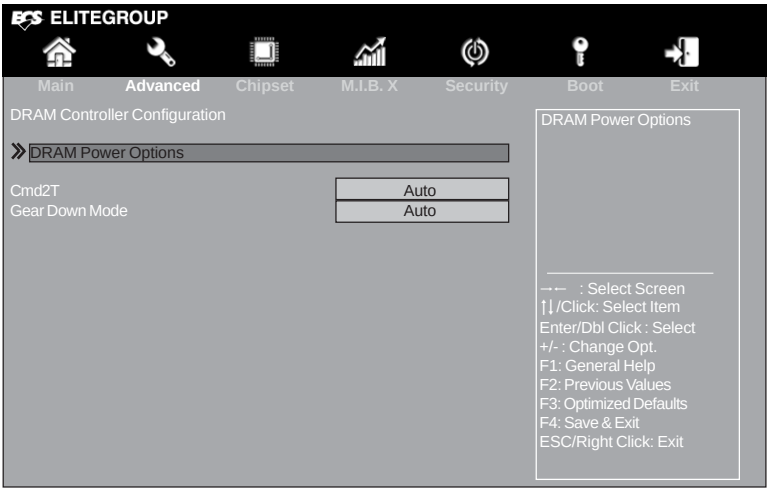
Use this item to set the Memory Overclock settings: Auto/Enabled.

Press <Esc> to return to the DRAM Timing Configuration page.

Press <Esc> to return to the DDR4 Common Options page.

» DRAM Controller Configuration

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



» DRAM Power Options

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

Power Down Enable (Auto)

Use this item to enable or disable DDR power down mode.

Press <Esc> to return to the DRAM Controller Configuration page.

Cmd2T (Auto)

Use this item to select the Cmd2T: 1T/2T/Auto. Select between 1T and 2T mode on ADDR/CMD.

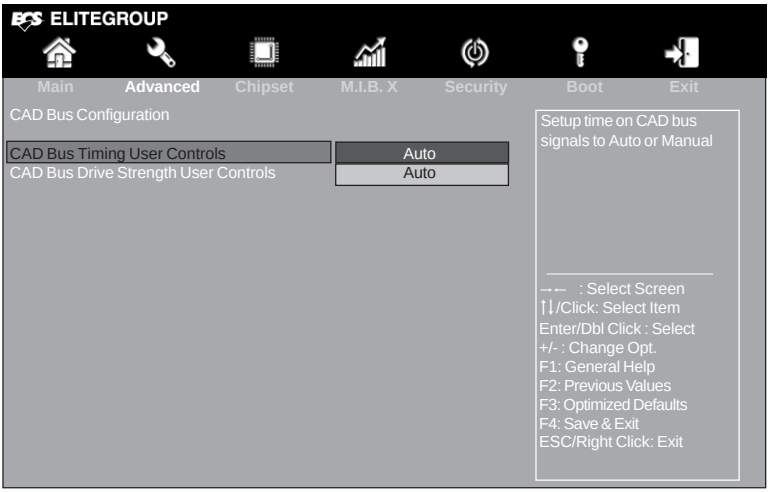
Gear Down Mode (Auto)

Use this item to select the Gear Down Mode: Disabled/Enabled/Auto.

Press <Esc> to return to the DDR4 Common Options page.

» CAD Bus Configuration

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



CAD Bus Timing User Controls (Auto)

Use this item to set time on CAD bus signals to Auto or Manual.

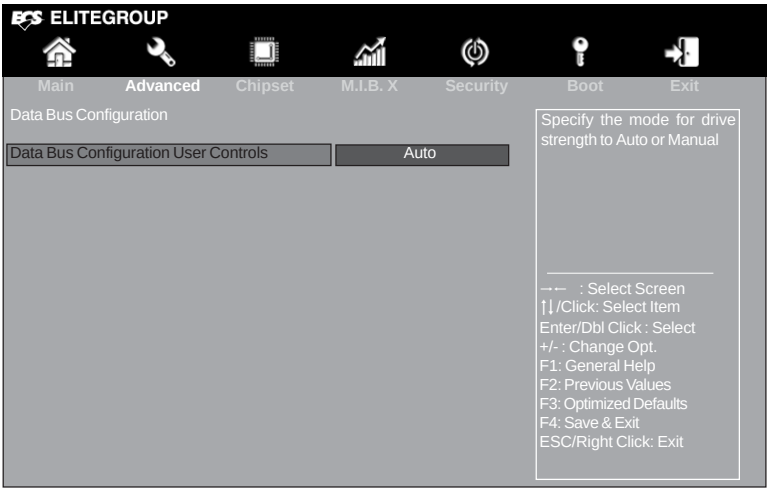
CAD Bus Drive Strength User Controls (Auto)

Use this item to select the CAD Bus Drive Strength User Controls: Auto/Manual. Drive Strength on CAD bus signals to Auto or Manul.

Press <Esc> to return to the DDR4 Common Options page.

»Data Bus Configuration

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



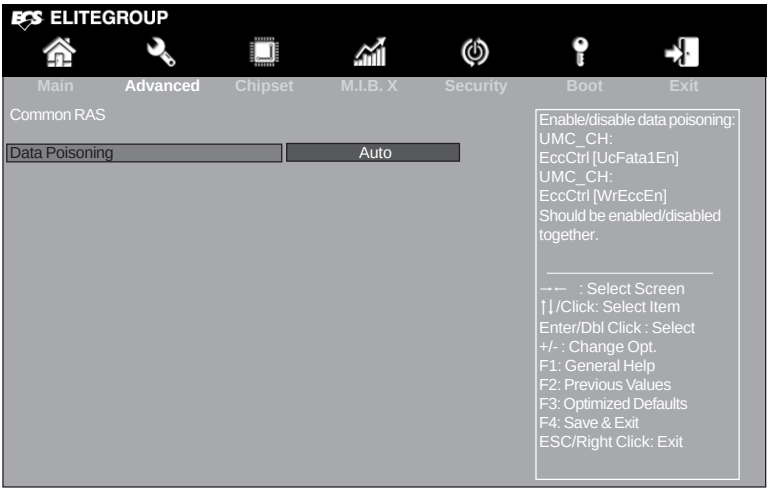
Data Bus Configuration User Controls (Auto)

Use this item to specify the mode for drive strength to Auto or Manual.

Press <Esc> to return to the DDR4 Common Options page.

» Common RAS

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



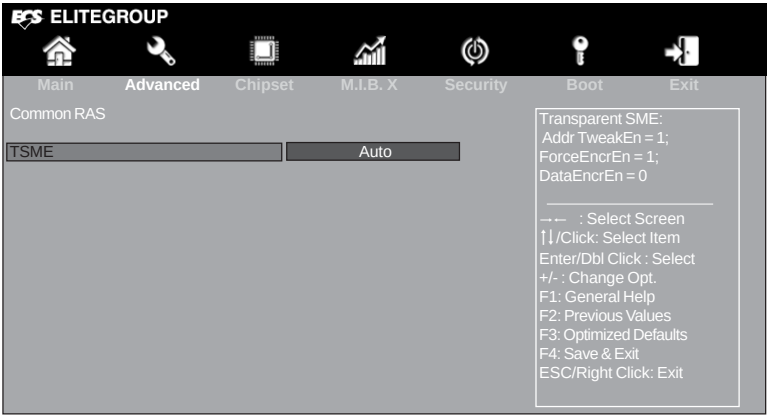
Data Poisoning (Auto)

Use this item to select the data poisoning: Disabled/Enabled/Auto. Enable/Disable data poisoning: UMC_CH:: EccCtrl[UcFatalEn] UMC_CH:: EccCtrl[WrEccEn] Should be enabled/disabled together.

Press <Esc> to return to the DDR4 Common Options page.

» Security

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



TSME (Auto)

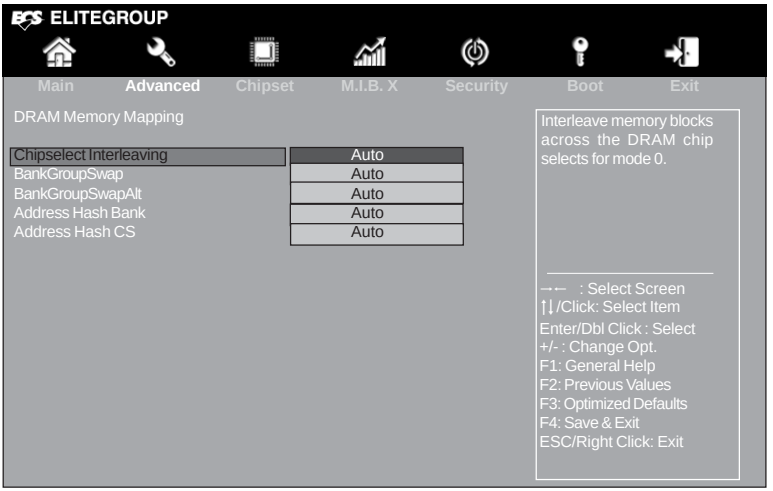
Use this item to select the TSME: Disabled/Enabled/Auto. Transparent SME: Addr TweakEn = 1; ForceEncrEn = 1; DataEncrEn = 0.

Press <Esc> to return to the DDR4 Common Options page.

Press <Esc> to return to the UMC Common Options page.

» DRAM Memory Mapping

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



Chipselect Interleaving (Auto)

Use this item to interleave memory blocks across teh DRAM chip slects for mode 0.

BankGroupSwap (Auto)

Use this item to select the BankGroupSwap: Disable/Enabled/Auto.

BankGroupSwapAlt (Auto)

Use this item to select the BankGroupSwapAlt: Disabled/Enabled/Auto.

Address Hash Bank (Auto)

Use this item to select the Address Hash Bank: Disable/Enabled/Auto. Enable or disable bank address hashing.

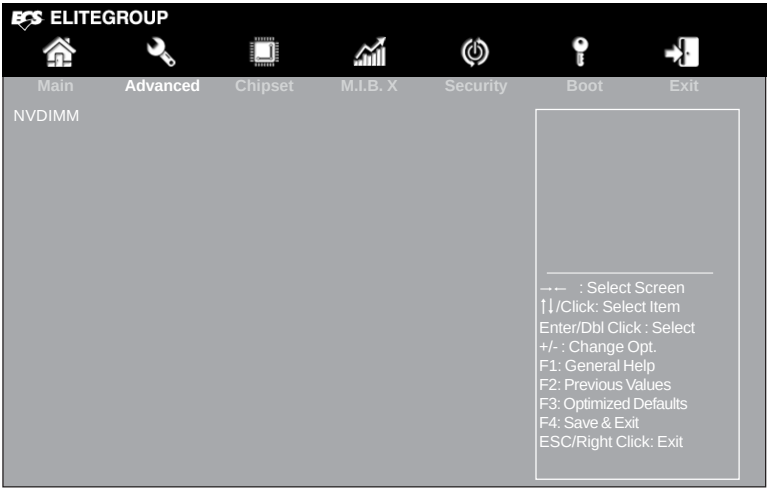
Address Hash CS (Auto)

Use this item to select the Address Hash CS: Disable/Enabled/Auto. Enable or disable CS address hashing.

Press <Esc> to return to the UMC Common Options page.

» NVDIMM

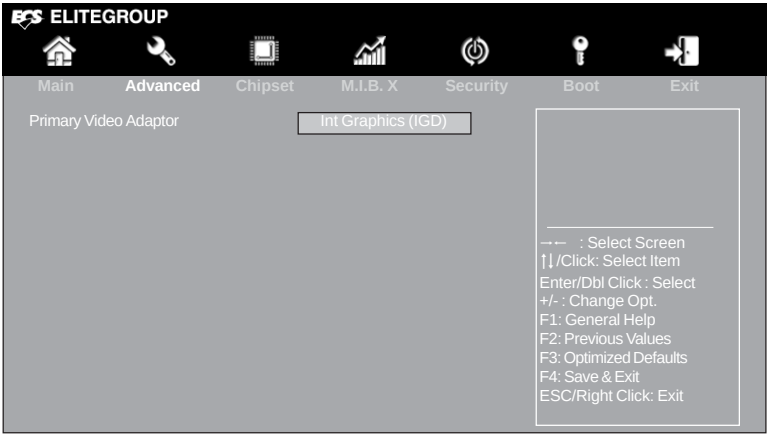
Scroll to this item and press <Enter> to view the following screen:



Press <Esc> to return to the UMC Common Options page.

» AMD PBS

Use this item to show the information of AMD PBS.

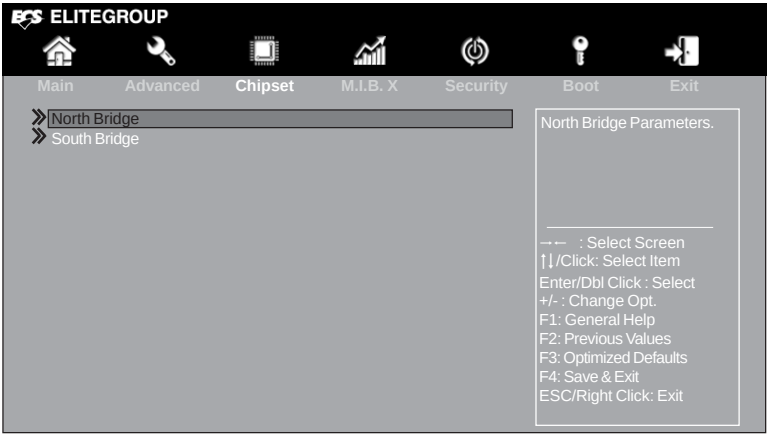


Primary Video Adaptor (Int Graphics (IGD))

This item shows the information of primary video adaptor.

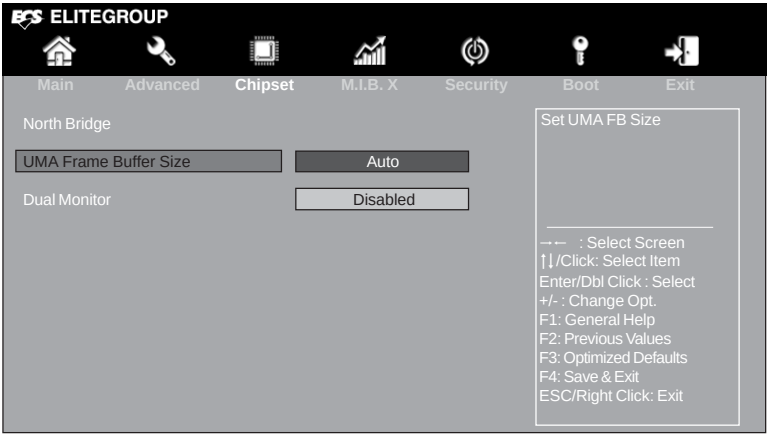
Chipset Menu

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



» North Bridge

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



UMA Frame Buffer Size (Auto)*

Use this item to select the UMA frame buffer size: 32M/64M/128M/256M/512M/1G/2G/Auto.

Dual Monitor (Disabled)*

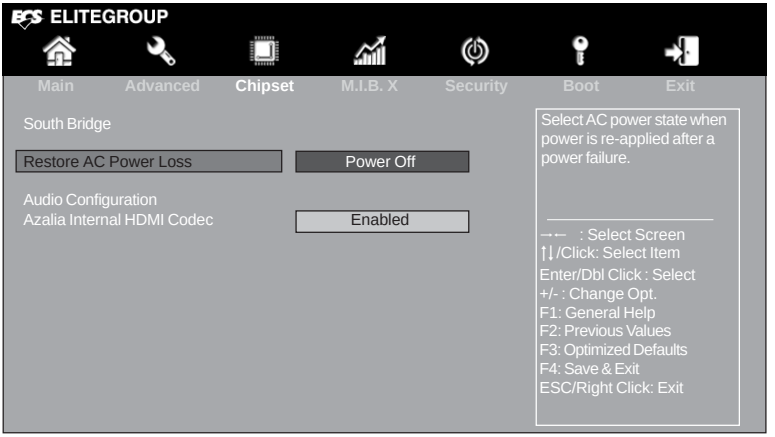
Use this item to enable or disable the dual monitor.

** These are for AMD 7th Gen A-series Processor.*

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

» South Bridge

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



Restore AC Power Loss (Power Off)

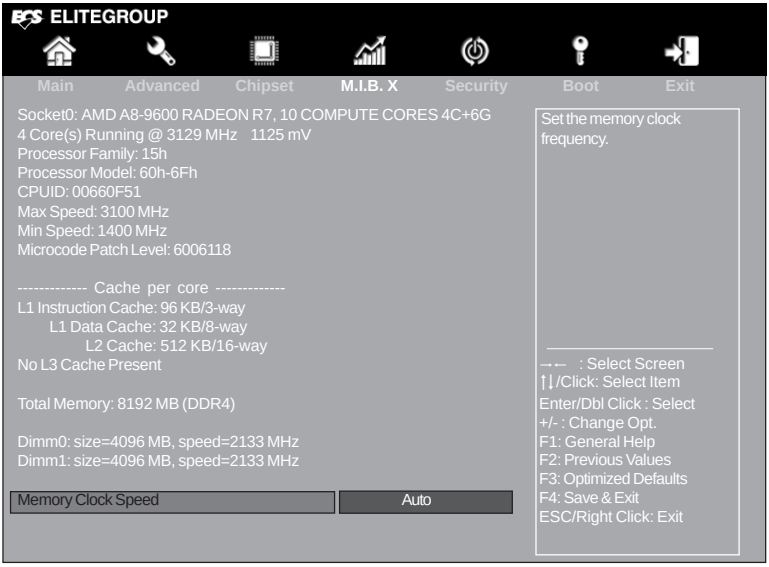
This item enables your computer to automatically restart or return to its operating status.

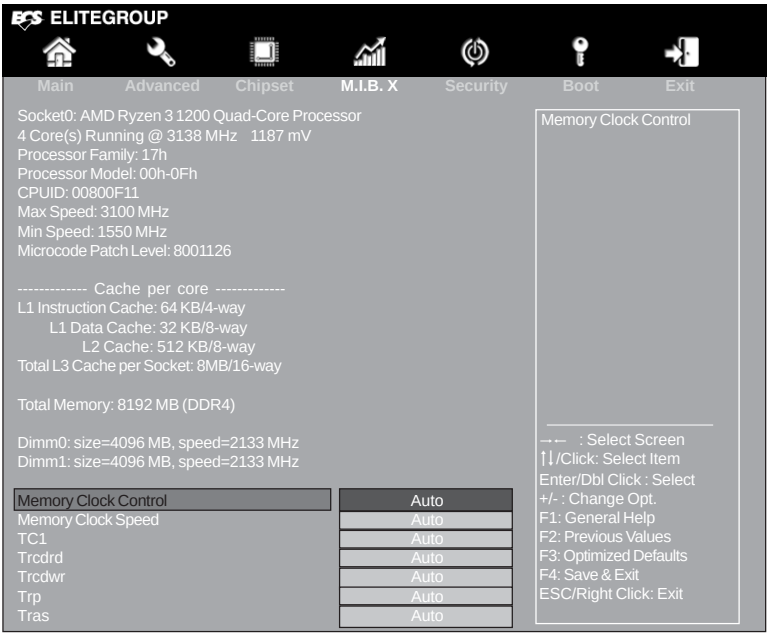
Azalia Internal HDMI Codec (Enabled)

Use this item to enable or disable the Azalia Internal HDMI Codec.

M.I.B. 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.





Socket0: AMD A8-9600 RADEON R7, 10 COMPUTE CORES 4C+6G 4 Core(s) Running @ 3129 MHz 1125 mV

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

Socket0: AMD Ryzen 3 1200 Quad-Core Processor 4 Core(s) Running @ 3138 MHz 1187 mV*

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

Processor Family (15h)

This item shows the processor family.

Processor Model (60h-6Fh)

This item shows the processor model.

CPUID (00660F51)

This item shows the CPUID.

Max Speed (3100 MHz)

This item shows the max speed of the CPU.

Min Speed (1400 MHz)

This item shows the min speed of the CPU.

Microcode Patch Level (6006118)

This item shows the microcode revision.

L1 Instruction Cache (96KB/3-way)

This item shows CPU L1 Cache.

L1 Data Cache (32KB/8-way)

This item shows the size of CPU L1 Data Cache memory.

L2 Cache (512KB/16-way)

This item shows the size of CPU L2 Cache memory.

Total Memory (8192 MB (DDR4))

This item shows the total memory.

Dimm0/ 1 (size=4096 MB, speed=2133 MHz)

These items show the information of Dimm0/ 1.

CPU Frequency/Voltage Control (Disabled)*

Use these items to enable or disable CPU Frequency/Voltage Control.

Memory Clock Control (Auto)*

Use this item to control the memory clock.

Memory Clock Speed (Auto)

Use this item to set the memory clock frequency.

Tc1 (Auto)*

Use this item to set the tCL time: 8 - 33Clk/Auto.

Trcdrd (Auto)*

Use this item to set the RAS# Active to CAS# read delay: 8 - 27Clk/Auto.

Trcdwr (Auto)*

Use this item to set the RAS# Active to CAS# write delay: 8 - 27Clk/Auto.

Trp (Auto)*

Use this item to specify the row precharge time: 8 - 27Clk/Auto.

Tras (Auto)*

Use this item to specify the min RAS# active time: 21 - 58Clk/Auto.

** These are for AMD 7th Gen A-series Processor.* ***Tcl, Trcdrd, Trcdwr, Trp, Tras*** *only show when you enable the Memory Clock Control.*

Security Menu

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

Administrator Password

This item shows administrator password installed or not.

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)

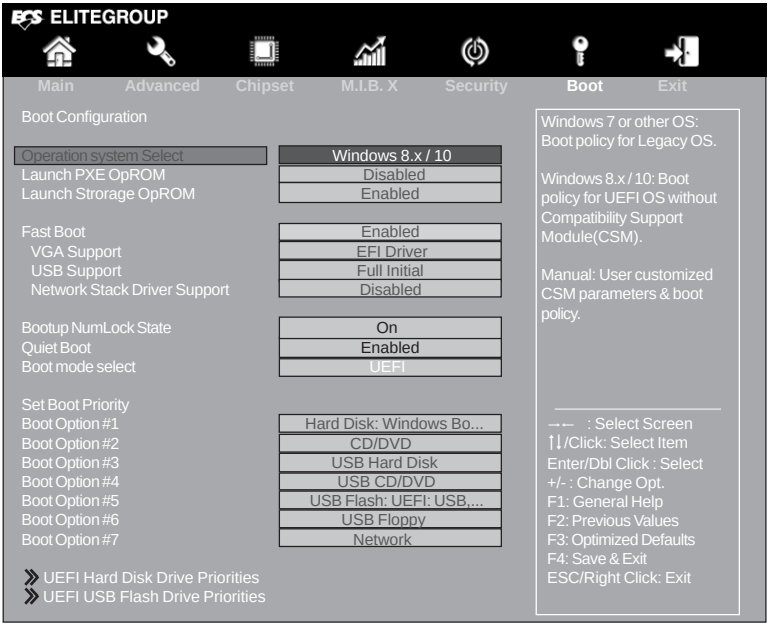
This item is used to control the secure boot flow, it is possible only if system runs in User Mode.

Secure Boot Mode (Standard)

This item is used to select the secure boot mode.

Boot Menu

This page enables you to set the keyboard NumLock state.



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 (Enabled)

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.

VGA Support (EFI Driver)

If auto, only install legacy OpROM with legacy OS and Post logo will not be shown during post. EFI driver still be installed with EFI OS.

USB Support (Full Initial)

If you select Disabled, all USB devices will not be available until after OS boot. If you select Partial Initial, specific USB port/device will not be available before OS boot. If you select Full Initial, all USB devices will be available in OS and POST.

Network Stack Driver Support (Disabled)

If disabled, Network stack driver will be skipped.

Bootup NumLock State (On)

This item enables you to select NumLock state.

Quiet Boot (Enabled)

This item enables or disables quiet boot.

Boot mode select (UEFI)

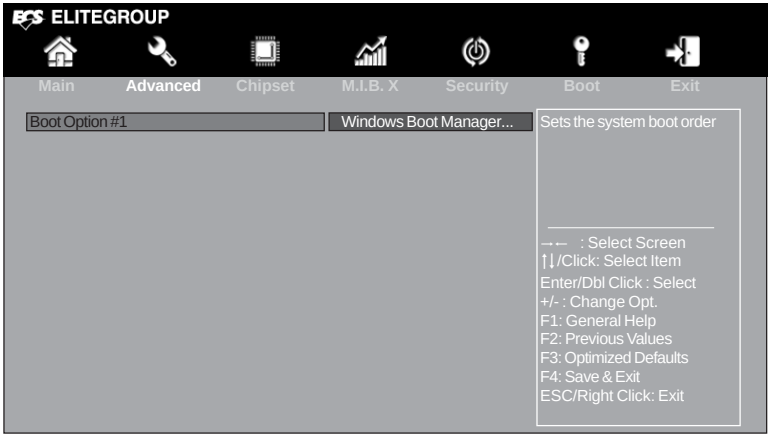
Use this item to select boot mode.

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

These items show the boot priorities.

» UEFI Hard Disk Drive Priorities

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



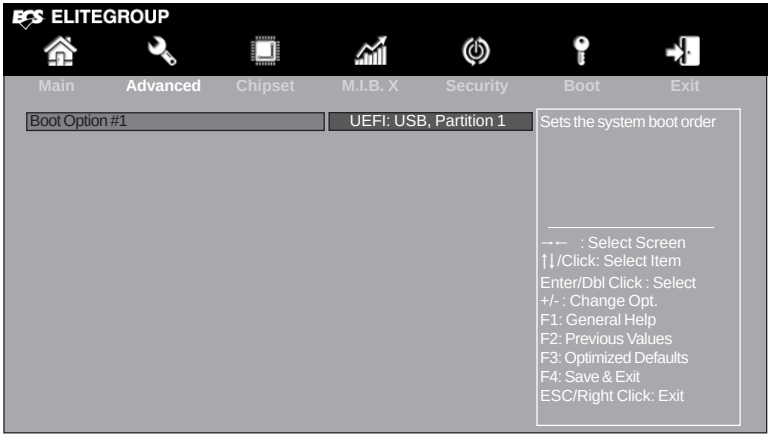
Boot Option#1 (Windows Boot Manager...)

Use this item to set the system boot order.

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

» UEFI Hard Disk Drive Priorities

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

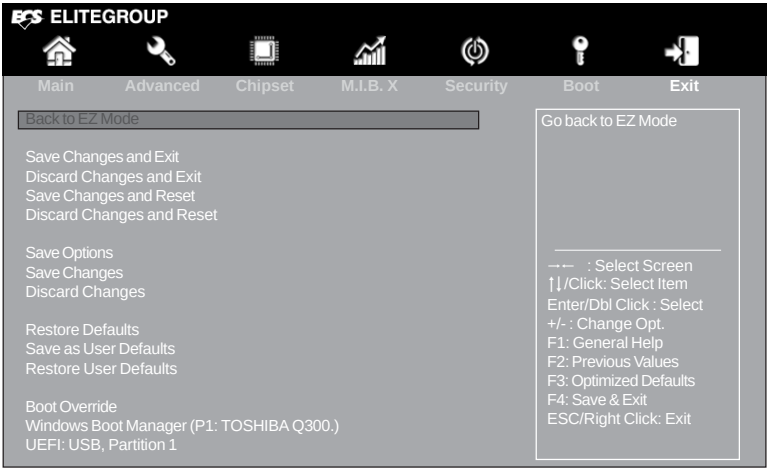


Boot Option#1 (UEFI: USB, Partition 1)

Use this item to set the system boot order.

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.

Save as User Defaults

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

Restore User Defaults

This item enables you to restore the user defaults.

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.

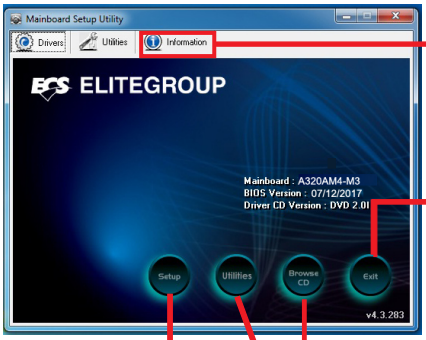
Memo

Chapter 4

Using the Motherboard Software

Auto-installing under Windows 10/7

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 10/7. 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.

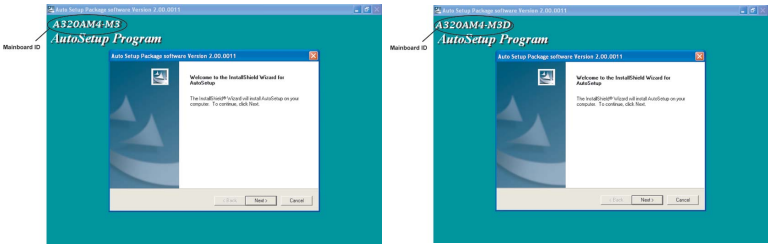
Click the "**Setup**" button to select and run the software installation program.

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:

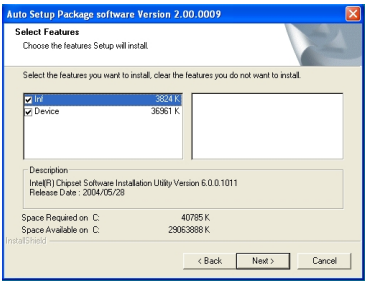
1. Click **Setup**. The installation program begins:



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

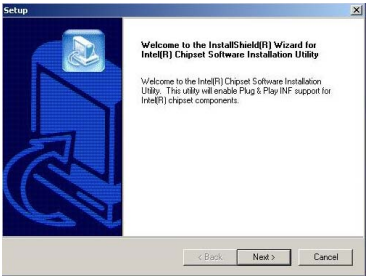
The motherboard identification is located in the upper left-hand corner.

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:

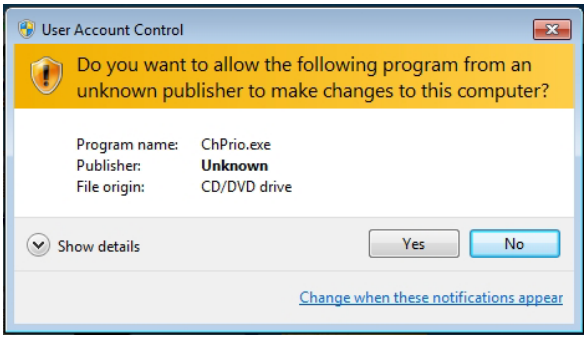


5. Follow the instructions on the screen to install the items.

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)

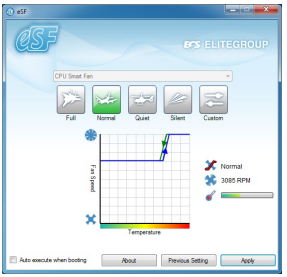
ECS Intelligent EZ Utility provides friendly interfaces under Windows O.S, which makes your computing more easily and conveniently.

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

eSF

eSF(Smart Fan) utility provides easy and safe way to adjust fan speed in accordance with your PC's system loading and temperature.

It has five modes to adjust fan speed in a safe range without entering the BIOS to optimize your system cooling environment.



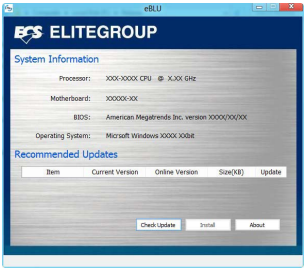
Microsoft .NET Framework 3.5 is required.

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
Setting Up AMD A320 RAID Configuration

Setting Up a bootable RAID Array

This section explains how to configure a bootable AMD RAID array.

Setting Up the BIOS

1. Start your computer, then press Delete to enter the BIOS setup. The BIOS Main screen appears.

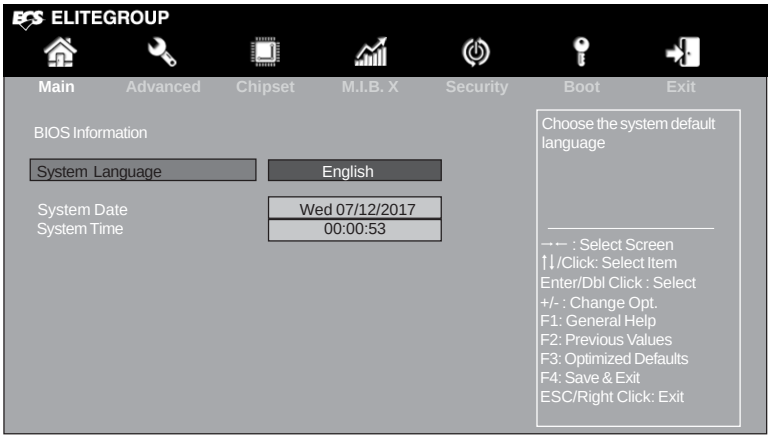


Figure 1.1 BIOS Main Screen

2. Use the arrow keys to select Devices menu (see Figure 1.2), then select SATA Configuration and press Enter. Globally set SATA Configuration to RAID.

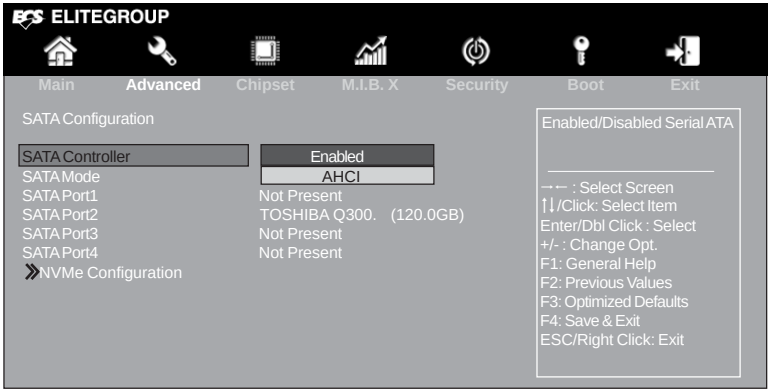


Figure 1.2 SATA Configuration Screen

3. Press F10 to save the configuration and exit.

   The PC reboots.

4. Enter the RAID BIOS Setup by pressing Ctrl-F when prompted, and proceed to set up the AMD RAID BIOS as described in the next section.

Configuring the AMD RAID BIOS (Windows XP Installation)

The AMD RAID BIOS set up lets you choose the RAID type and which hard drives you want to make part of the array.

Entering the RAID BIOS Setup:

1. Wait until you see the RAID software prompting you to press Ctrl-F.

   The RAID prompt appears as part of the system POST and boot process prior to loading of the OS. You have a few seconds to press Ctrl-F before the screen disappears.

2. Press Ctrl-F.

   The Main Menu screen appears (Figure 1.3).

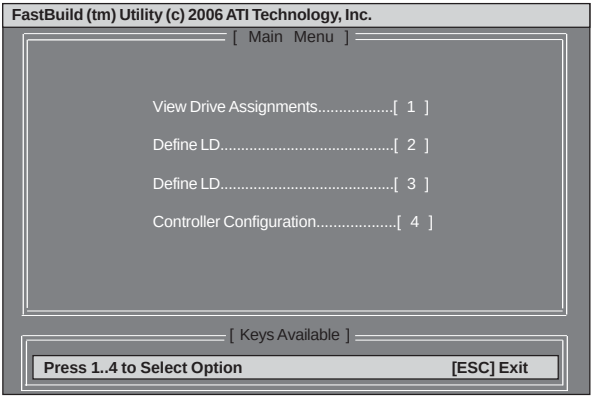


Figure 1.3 Main Menu

3. Select [2], then select LD 1 in the following page.

The Define LD Menu screen appears (Figure 1.4).

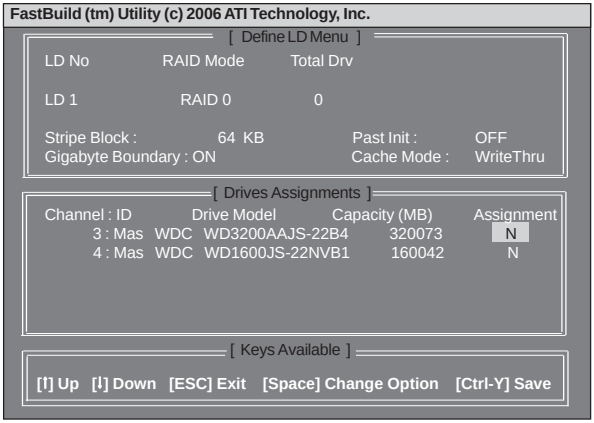


Figure 1.4 Define LD Menu

Using the Define a New Array Screen

If necessary, press the tab key to move from field to field until the appropriate field is highlighted.

Note: If you want to use the function of the following RAID Mode, you have to install enough HDD.

RAID READY (1 piece of HDD); RAID 0,1 ,JBOD (2 or more pieces of HDD); RAID 0+1 (4 pieces of HDD)

- **Selecting the RAID Mode**

  By default, this is set to Mirroring. To change to a different RAID mode, press the spacebar until the mode that you want appears in the RAID Mode box—RAID0/1/10/JBOD.

  Note: Not all RAID levels are supported on all platforms.

- **Selecting the Stripe Block Size**

  Stripe block size is given in kilobytes, and affects how data is arranged on the disk. It is recommended to leave this value at the default Optimal, which is 64KB, but the values can be 64 KB and 128 KB. When choose RAID 1, the Stripe block size is unchangeable.

Assigning the Disks

1. Select the Assignment to Y to designate a free disk to be used as a RAID array disk.

   Figure 1.5 illustrates the Define a New Array screen after two disks have been assigned as RAID 0 array disks.

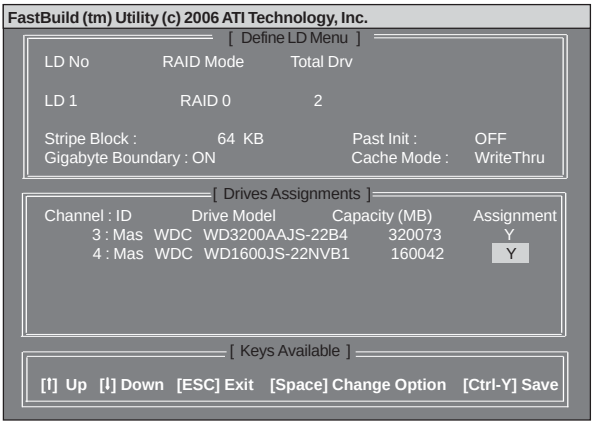


Figure 1.5 FastBuild Utility—Array Disks Assigned

2. Press Ctrl-Y to save the configuration and exit.

   The Define LD Menu screen appears (Figure 1.6).

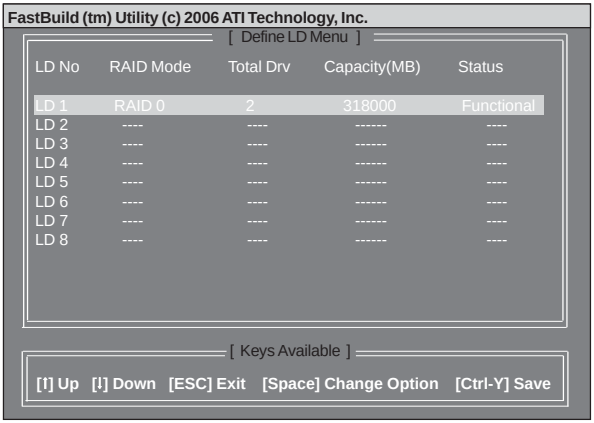


Figure 1.6 Define LD Menu

3. Press ESC to exit.

The Main Menu screen appears (Figure 1.7).

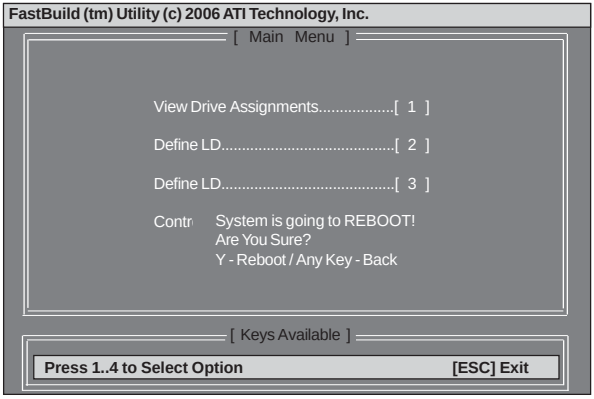


Figure 1.7 Main Menu

Press Y to reboot.

The following screen appears (Figure 1.8).

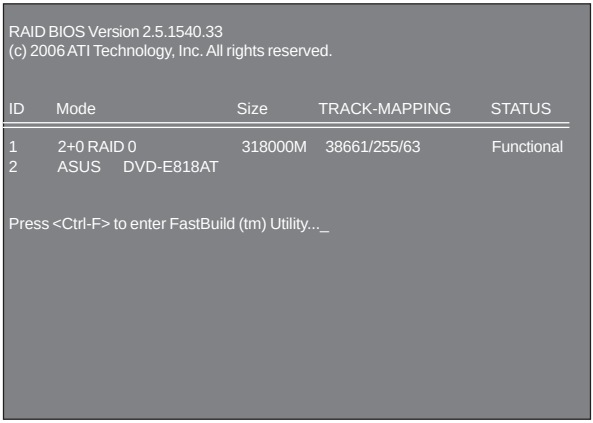


Figure 1.8

Installing the RAID Drivers

Your system may come with a Windows install CD that already includes AMD RAID drivers. If so, then this section is not relevant.

If that is not the case (or you are trying to install a new version of Windows), then you will need an AMD RAID driver F6 install floppy. Check to see if one came with your system. If not, you can create one by downloading the appropriate driver package and following the steps in this section.

1. Copy all files in "...\RAID\ATI\A320\Floppy\Win3264" to a floppy disk.
2. After you complete the RAID BIOS setup, boot from the Windows CD. The Windows Setup program starts.

Figure 1.9

3. Press F6 and wait a few moments for the Windows Setup screen to appear.

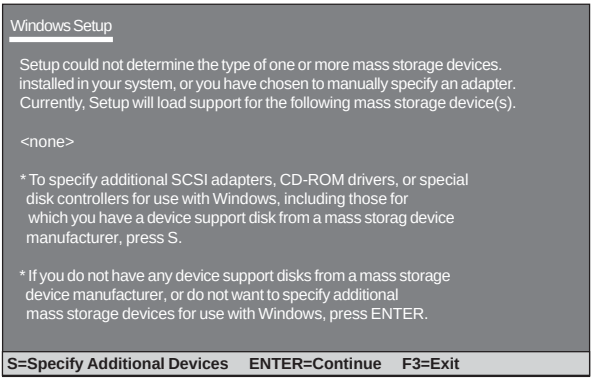


Figure 1.10 Windows Setup—Specify Devices

4. Specify the AMD drivers.

a. Insert the floppy that has the RAID driver, press S, then press Enter.

The following Windows Setup screen appears:

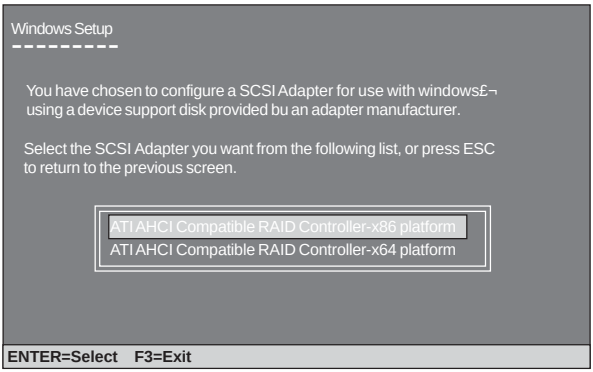


Figure 1.11 Windows Setup—Selected SCSI Adapter

b. Select "ATI AHCI Compatible RAID Controller-x86 platform" and press Enter for 32-bit OS or Select "ATI AHCI Compatible RAID Controller-x64 platform" and press Enter for 64-bit OS.

The following Windows Setup screen appears listing both drivers:.

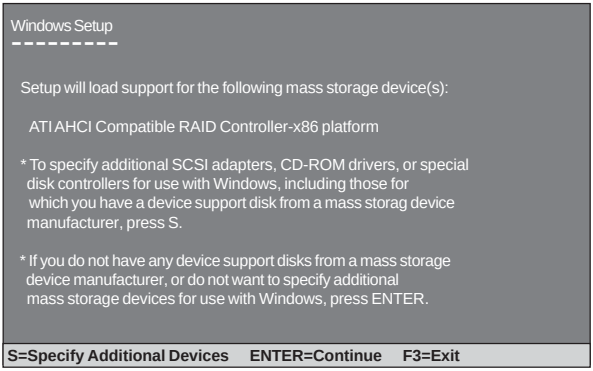


Figure 1.12 Windows Setup—AMD drives listed

5. Press Enter to continue with Windows XP Installation.

Be sure to leave the floppy disk inserted in the floppy drive until the blue screen portion of Windows XP installation is completed, then take out the floppy.

6. Follow the instructions on how to install Windows XP.

After Windows XP is completely installed, it is recommended that you install the ForceWare software in order to access the FastBuild RAID Management tool.

Note: Each time you add a new hard drive to a RAID array, the RAID driver will have to be installed under Windows once for that hard drive. After that, the driver will not have to be installed.

Memo

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 log 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.

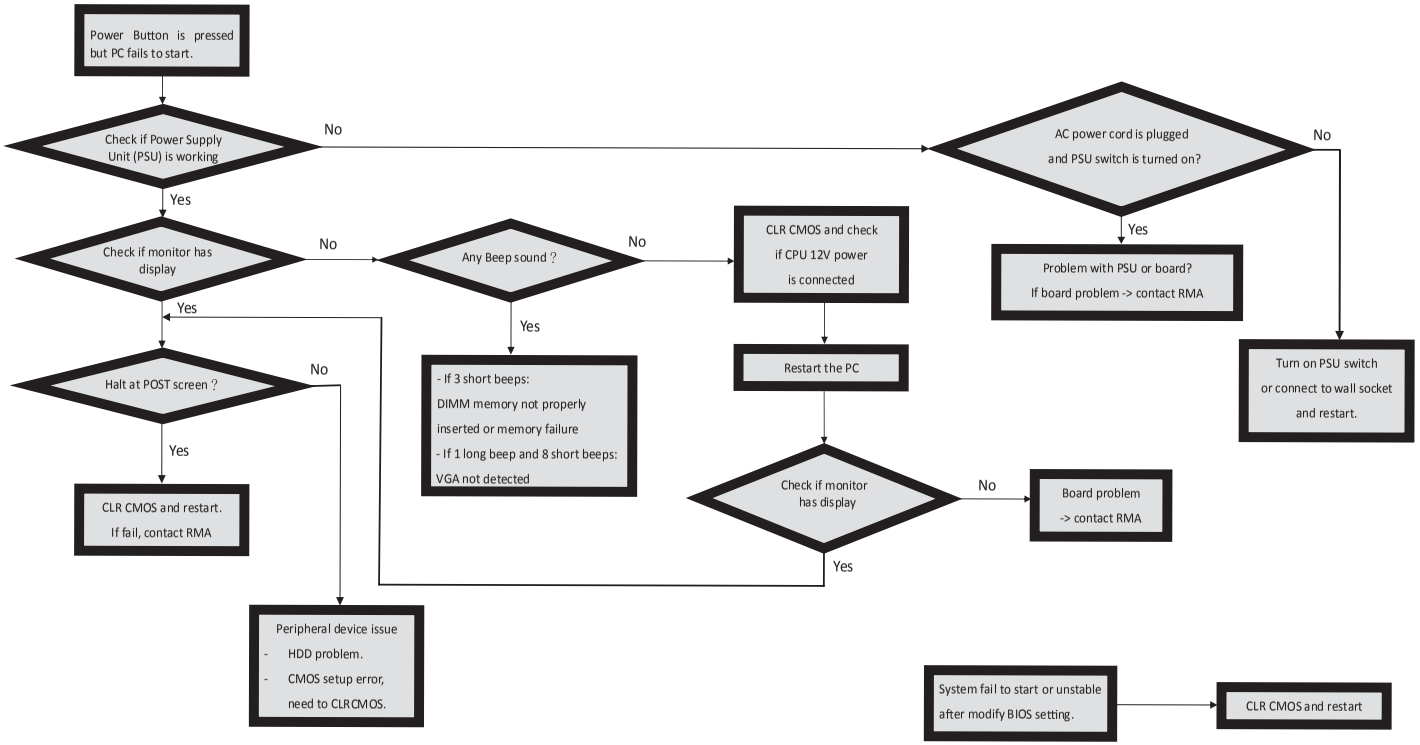
3. Routinely clean the CPU cooler fan to remove dust and hair.

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