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- In order to assist in the use of this product, carefully read the User's Manual.
- For product-related information, check on our website at: http://www.gigabyte.com

Identifying Your Motherboard Revision
The revision number on your motherboard looks like this: "REV: X.X." For example, "REV: 1.0" means the revision of the motherboard is 1.0. Check your motherboard revision before updating motherboard BIOS, drivers, or when looking for technical information.

Example:
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GA-970A-DS3 Motherboard Layout

(Note) Due to a hardware limitation, the PCIEX1_1 slot can only accommodate a shorter PCI Express x1 expansion card. For a longer expansion card, use other expansion slots.

**Box Contents**

- GA-970A-DS3 motherboard
- Motherboard driver disk
- User's Manual
- Two SATA cables
- I/O Shield

* The box contents above are for reference only and the actual items shall depend on the product package you obtain.
For detailed product information/limitation(s), refer to "1-2 Product Specifications."
Chapter 1 Hardware Installation

1-1 Installation Precautions
The motherboard contains numerous delicate electronic circuits and components which can become damaged as a result of electrostatic discharge (ESD). Prior to installation, carefully read the user’s manual and follow these procedures:

- Prior to installation, make sure the chassis is suitable for the motherboard.
- Prior to installation, do not remove or break motherboard S/N (Serial Number) sticker or warranty sticker provided by your dealer. These stickers are required for warranty validation.
- Always remove the AC power by unplugging the power cord from the power outlet before installing or removing the motherboard or other hardware components.
- When connecting hardware components to the internal connectors on the motherboard, make sure they are connected tightly and securely.
- When handling the motherboard, avoid touching any metal leads or connectors.
- It is best to wear an electrostatic discharge (ESD) wrist strap when handling electronic components such as a motherboard, CPU or memory. If you do not have an ESD wrist strap, keep your hands dry and first touch a metal object to eliminate static electricity.
- Prior to installing the motherboard, please have it on top of an antistatic pad or within an electrostatic shielding container.
- Before unplugging the power supply cable from the motherboard, make sure the power supply has been turned off.
- Before turning on the power, make sure the power supply voltage has been set according to the local voltage standard.
- Before using the product, please verify that all cables and power connectors of your hardware components are connected.
- To prevent damage to the motherboard, do not allow screws to come in contact with the motherboard circuit or its components.
- Make sure there are no leftover screws or metal components placed on the motherboard or within the computer casing.
- Do not place the computer system on an uneven surface.
- Do not place the computer system in a high-temperature environment.
- Turning on the computer power during the installation process can lead to damage to system components as well as physical harm to the user.
- If you are uncertain about any installation steps or have a problem related to the use of the product, please consult a certified computer technician.
1-2  Product Specifications

**CPU**
- AM3+ Socket:
  - AMD AM3+ FX processors
  - AMD AM3 Phenom™ II processor/ AMD Athlon™ II processor
  (Go to GIGABYTE's website for the latest CPU support list.)

**Hyper Transport Bus**
- 4800 MT/s

**Chipset**
- North Bridge: AMD 970
- South Bridge: AMD SB950

**Memory**
- 4 x 1.5V DDR3 DIMM sockets supporting up to 32 GB of system memory
  * Due to a Windows 32-bit operating system limitation, when more than 4 GB of physical memory is installed, the actual memory size displayed will be less than the size of the physical memory installed.
  * Dual channel memory architecture
  * Support for DDR3 2000(O.C.)/1866/1600/1333/1066 MHz memory modules
  * To support a DDR3 1866 MHz (and above) memory, you must install an AM3+ CPU first.
  (Go to GIGABYTE's website for the latest supported memory speeds and memory modules.)

**Audio**
- Realtek ALC887 audio codec
- High Definition Audio
- 2/4/5.1/7.1-channel
- Support for S/PDIF Out

**LAN**
- Realtek GbE LAN chip (10/100/1000 Mbit)

**Expansion Slots**
- 1 x PCI Express x16 slot, running at x16 (PCIEX16)
  * For optimum performance, if only one PCI Express graphics card is to be installed, be sure to install it in the PCIEX16 slot.
- 1 x PCI Express x16 slot, running at x4 (PCIEX4)
- 3 x PCI Express x1 slots
  (All PCI Express slots conform to the PCI Express 2.0 standard.)
- 2 x PCI slots

**Storage Interface**
- South Bridge:
  - 6 x SATA 6Gb/s connectors supporting up to 6 SATA 6Gb/s devices
  - Support for RAID 0, RAID 1, RAID 5, RAID 10, and JBOD

**USB**
- South Bridge:
  - Up to 12 USB 2.0/1.1 ports (6 ports on the back panel, 6 ports available through the internal USB headers)
- Etron EJ168 chip:
  - Up to 2 USB 3.0/2.0 ports on the back panel
  * Be sure to connect your USB device(s) to the USB 2.0/1.1 ports before the USB 3.0 driver is installed. (Refer to the labels in section 1-7, "Back Panel Connectors.")

**Internal Connectors**
- 1 x 24-pin ATX main power connector
- 1 x 4-pin ATX 12V power connector
- 6 x SATA 6Gb/s connectors
- 1 x CPU fan header
- 2 x system fan headers
<table>
<thead>
<tr>
<th>Internal Connectors</th>
<th>1 x power fan header</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 x front panel header</td>
</tr>
<tr>
<td></td>
<td>1 x front panel audio header</td>
</tr>
<tr>
<td></td>
<td>1 x S/PDIF Out header</td>
</tr>
<tr>
<td></td>
<td>3 x USB 2.0/1.1 headers</td>
</tr>
<tr>
<td></td>
<td>1 x Clear CMOS jumper</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Back Panel Connectors</th>
<th>1 x PS/2 keyboard/mouse port</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2 x USB 3.0/2.0 ports</td>
</tr>
<tr>
<td></td>
<td>6 x USB 2.0/1.1 ports</td>
</tr>
<tr>
<td></td>
<td>1 x RJ-45 port</td>
</tr>
<tr>
<td></td>
<td>3 x audio jacks (Line In/Line Out/Microphone)</td>
</tr>
</tbody>
</table>

| I/O Controller            | iTE I/O Controller Chip |

<table>
<thead>
<tr>
<th>Hardware Monitor</th>
<th>System voltage detection</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>CPU/System temperature detection</td>
</tr>
<tr>
<td></td>
<td>CPU/System/Power fan speed detection</td>
</tr>
<tr>
<td></td>
<td>CPU overheating warning</td>
</tr>
<tr>
<td></td>
<td>CPU/System/Power fan fail warning</td>
</tr>
<tr>
<td></td>
<td>CPU/System fan speed control</td>
</tr>
</tbody>
</table>

* Whether the CPU/system fan speed control function is supported will depend on the CPU/system cooler you install.

<table>
<thead>
<tr>
<th>BIOS</th>
<th>2 x 32 Mbit flash</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Use of licensed AMI EFI BIOS</td>
</tr>
<tr>
<td></td>
<td>Support for DualBIOS*</td>
</tr>
<tr>
<td></td>
<td>PnP 1.0a, DMI 2.0, SM BIOS 2.6, ACPI 2.0a</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Unique Features</th>
<th>Support for @BIOS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Support for Q-Flash</td>
</tr>
<tr>
<td></td>
<td>Support for Xpress Install</td>
</tr>
<tr>
<td></td>
<td>Support for EasyTune</td>
</tr>
</tbody>
</table>

* Available functions in EasyTune may differ by motherboard model.

<table>
<thead>
<tr>
<th></th>
<th>Support for Smart Recovery 2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Support for Auto Green</td>
</tr>
<tr>
<td></td>
<td>Support for ON/OFF Charge</td>
</tr>
<tr>
<td></td>
<td>Support for 3TB+ Unlock</td>
</tr>
<tr>
<td></td>
<td>Support for Q-Share</td>
</tr>
</tbody>
</table>

| Bundled Software          | Norton Internet Security (OEM version) |

| Operating System          | Support for Microsoft® Windows 8/7/Vista/XP |

| Form Factor               | ATX Form Factor; 30.5cm x 22.5cm |

* GIGABYTE reserves the right to make any changes to the product specifications and product-related information without prior notice.
* Please visit the Support & Downloads Utility page on GIGABYTE's website to check the supported operating system(s) for the software listed in the "Unique Features" and "Bundled Software" columns.
1-3 Installing the CPU

Read the following guidelines before you begin to install the CPU:

- Make sure that the motherboard supports the CPU.
  (Go to GIGABYTE’s website for the latest CPU support list.)
- Always turn off the computer and unplug the power cord from the power outlet before installing the CPU to prevent hardware damage.
- Locate the pin one of the CPU. The CPU cannot be inserted if oriented incorrectly.
- Apply an even and thin layer of thermal grease on the surface of the CPU.
- Do not turn on the computer if the CPU cooler is not installed, otherwise overheating and damage of the CPU may occur.
- Set the CPU host frequency in accordance with the CPU specifications. It is not recommended that the system bus frequency be set beyond hardware specifications since it does not meet the standard requirements for the peripherals. If you wish to set the frequency beyond the standard specifications, please do so according to your hardware specifications including the CPU, graphics card, memory, hard drive, etc.

Installing the CPU
Locate the pin one (denoted by a small triangle) of the CPU socket and the CPU.
1-4 Installing the Memory

Read the following guidelines before you begin to install the memory:

- Make sure that the motherboard supports the memory. It is recommended that memory of the same capacity, brand, speed, and chips be used.
  (Go to GIGABYTE's website for the latest supported memory speeds and memory modules.)
- Always turn off the computer and unplug the power cord from the power outlet before installing the memory to prevent hardware damage.
- Memory modules have a foolproof design. A memory module can be installed in only one direction. If you are unable to insert the memory, switch the direction.

Dual Channel Memory Configuration

This motherboard provides four DDR3 memory sockets and supports Dual Channel Technology. After the memory is installed, the BIOS will automatically detect the specifications and capacity of the memory. Enabling Dual Channel memory mode will double the original memory bandwidth.

The four DDR3 memory sockets are divided into two channels and each channel has two memory sockets as following:

- Channel A: DDR3_2, DDR3_4
- Channel B: DDR3_1, DDR3_3

Due to CPU limitations, read the following guidelines before installing the memory in Dual Channel mode.

1. Dual Channel mode cannot be enabled if only one DDR3 memory module is installed.
2. When enabling Dual Channel mode with two or four memory modules, it is recommended that memory of the same capacity, brand, speed, and chips be used and installed in the same colored DDR3 sockets for optimum performance. For optimum performance, when enabling Dual Channel mode with two memory modules, we recommend that you install them in the DDR3_1 and DDR3_2 sockets.

1-5 Installing an Expansion Card

Read the following guidelines before you begin to install an expansion card:

- Make sure the motherboard supports the expansion card. Carefully read the manual that came with your expansion card.
- Always turn off the computer and unplug the power cord from the power outlet before installing an expansion card to prevent hardware damage.
1-6 Back Panel Connectors

- **PS/2 Keyboard/Mouse Port**
  Use this port to connect a PS/2 mouse or keyboard.

- **USB 2.0/1.1 Port**
  The USB port supports the USB 2.0/1.1 specification. Use this port for USB devices such as a USB keyboard/mouse, USB printer, USB flash drive and etc.

- **USB 3.0/2.0 Port**
  The USB 3.0 port supports the USB 3.0 specification and is compatible to the USB 2.0/1.1 specification. Use this port for USB devices such as a USB keyboard/mouse, USB printer, USB flash drive and etc.

- **RJ-45 LAN Port**
  The Gigabit Ethernet LAN port provides Internet connection at up to 1 Gbps data rate. The following describes the states of the LAN port LEDs.

<table>
<thead>
<tr>
<th>Connection/Speed LED</th>
<th>Activity LED</th>
</tr>
</thead>
<tbody>
<tr>
<td>State</td>
<td>Description</td>
</tr>
<tr>
<td>Orange</td>
<td>1 Gbps data rate</td>
</tr>
<tr>
<td>Green</td>
<td>100 Mbps data rate</td>
</tr>
<tr>
<td>Off</td>
<td>10 Mbps data rate</td>
</tr>
</tbody>
</table>

- **Activity LED**
  Blinking: Data transmission or receiving is occurring
  Off: No data transmission or receiving is occurring

- **Line In Jack (Blue)**
  The default line in jack. Use this audio jack for line in devices such as an optical drive, walkman, etc.

- **Line Out Jack (Green)**
  The default line out jack. Use this audio jack for a headphone or 2-channel speaker. This jack can be used to connect front speakers in a 4/5.1/7.1-channel audio configuration.

- **Mic In Jack (Pink)**
  The default Mic in jack. Microphones must be connected to this jack.

  To configure 7.1-channel audio, you have to use an HD front panel audio module and enable the multi-channel audio feature through the audio driver.

- **Warning**
  - When removing the cable connected to a back panel connector, first remove the cable from your device and then remove it from the motherboard.
  - When removing the cable, pull it straight out from the connector. Do not rock it side to side to prevent an electrical short inside the cable connector.
1-7 Internal Connectors

Read the following guidelines before connecting external devices:

- First make sure your devices are compliant with the connectors you wish to connect.
- Before installing the devices, be sure to turn off the devices and your computer. Unplug the power cord from the power outlet to prevent damage to the devices.
- After installing the device and before turning on the computer, make sure the device cable has been securely attached to the connector on the motherboard.

<table>
<thead>
<tr>
<th>1) ATX_12V</th>
<th>7) SATA3 0/1/2/3/4/5</th>
</tr>
</thead>
<tbody>
<tr>
<td>2) ATX</td>
<td>8) BAT</td>
</tr>
<tr>
<td>3) CPU_FAN</td>
<td>9) F_PANEL</td>
</tr>
<tr>
<td>4) SYS_FAN1/SYS_FAN2</td>
<td>10) F_AUDIO</td>
</tr>
<tr>
<td>5) PWR_FAN</td>
<td>11) SPDIF_O</td>
</tr>
<tr>
<td>6) CLR_CMOS</td>
<td>12) F_USB1/F_USB2/F_USB3</td>
</tr>
</tbody>
</table>
1/2) ATX_12V/ATX (2x2 12V Power Connector and 2x12 Main Power Connector)

With the use of the power connector, the power supply can supply enough stable power to all the components on the motherboard. Before connecting the power connector, first make sure the power supply is turned off and all devices are properly installed. The power connector possesses a foolproof design. Connect the power supply cable to the power connector in the correct orientation. The 12V power connector mainly supplies power to the CPU. If the 12V power connector is not connected, the computer will not start.

To meet expansion requirements, it is recommended that a power supply that can withstand high power consumption be used (500W or greater). If a power supply is used that does not provide the required power, the result can lead to an unstable or unbootable system.

---

### ATX_12V:

<table>
<thead>
<tr>
<th>Pin No.</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>GND</td>
</tr>
<tr>
<td>2</td>
<td>GND</td>
</tr>
<tr>
<td>3</td>
<td>+12V</td>
</tr>
<tr>
<td>4</td>
<td>+12V</td>
</tr>
</tbody>
</table>

### ATX:

<table>
<thead>
<tr>
<th>Pin No.</th>
<th>Definition</th>
<th>Pin No.</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>3.3V</td>
<td>13</td>
<td>3.3V</td>
</tr>
<tr>
<td>2</td>
<td>3.3V</td>
<td>14</td>
<td>-12V</td>
</tr>
<tr>
<td>3</td>
<td>GND</td>
<td>15</td>
<td>GND</td>
</tr>
<tr>
<td>4</td>
<td>+5V</td>
<td>16</td>
<td>PS_ON (soft On/Off)</td>
</tr>
<tr>
<td>5</td>
<td>GND</td>
<td>17</td>
<td>GND</td>
</tr>
<tr>
<td>6</td>
<td>+5V</td>
<td>18</td>
<td>GND</td>
</tr>
<tr>
<td>7</td>
<td>GND</td>
<td>19</td>
<td>GND</td>
</tr>
<tr>
<td>8</td>
<td>Power Good</td>
<td>20</td>
<td>-5V</td>
</tr>
<tr>
<td>9</td>
<td>5VSB (stand by +5V)</td>
<td>21</td>
<td>+5V</td>
</tr>
<tr>
<td>10</td>
<td>+12V</td>
<td>22</td>
<td>+5V</td>
</tr>
<tr>
<td>11</td>
<td>+12V (Only for 2x12-pin ATX)</td>
<td>23</td>
<td>+5V (Only for 2x12-pin ATX)</td>
</tr>
<tr>
<td>12</td>
<td>3.3V (Only for 2x12-pin ATX)</td>
<td>24</td>
<td>GND (Only for 2x12-pin ATX)</td>
</tr>
</tbody>
</table>
3/4/5) CPU_FAN/SYS_FAN1/SYS_FAN2/PWR_FAN (Fan Headers)
The motherboard has a 4-pin CPU fan header (CPU_FAN), a 3-pin (SYS_FAN2) and a 4-pin (SYS_FAN1) system fan headers, and a 3-pin power fan header (PWR_FAN). Most fan headers possess a foolproof insertion design. When connecting a fan cable, be sure to connect it in the correct orientation (the black connector wire is the ground wire). The speed control function requires the use of a fan with fan speed control design. For optimum heat dissipation, it is recommended that a system fan be installed inside the chassis.

<table>
<thead>
<tr>
<th>Pin No.</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>GND</td>
</tr>
<tr>
<td>2</td>
<td>+12V</td>
</tr>
<tr>
<td>3</td>
<td>Sense</td>
</tr>
<tr>
<td>4</td>
<td>Speed Control</td>
</tr>
</tbody>
</table>

SYS_FAN1:

<table>
<thead>
<tr>
<th>Pin No.</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>GND</td>
</tr>
<tr>
<td>2</td>
<td>+12V</td>
</tr>
<tr>
<td>3</td>
<td>Sense</td>
</tr>
<tr>
<td>4</td>
<td>Reserve</td>
</tr>
</tbody>
</table>

SYS_FAN2/PWR_FAN:

<table>
<thead>
<tr>
<th>Pin No.</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>GND</td>
</tr>
<tr>
<td>2</td>
<td>+12V</td>
</tr>
<tr>
<td>3</td>
<td>Sense</td>
</tr>
</tbody>
</table>

- Be sure to connect fan cables to the fan headers to prevent your CPU and system from overheating. Overheating may result in damage to the CPU or the system may hang.
- These fan headers are not configuration jumper blocks. Do not place a jumper cap on the headers.

6) CLR_CMOS (Clear CMOS Jumper)
Use this jumper to clear the CMOS values (e.g. date information and BIOS configurations) and reset the CMOS values to factory defaults. To clear the CMOS values, use a metal object like a screwdriver to touch the two pins for a few seconds.

- Always turn off your computer and unplug the power cord from the power outlet before clearing the CMOS values.
- After system restart, go to BIOS Setup to load factory defaults (select Load Optimized Defaults) or manually configure the BIOS settings (refer to Chapter 2, "BIOS Setup," for BIOS configurations).
7) **SATA3 0/1/2/3/4/5 (SATA 6Gb/s Connectors)**

The SATA connectors conform to SATA 6Gb/s standard and are compatible with SATA 3Gb/s and SATA 1.5Gb/s standard. Each SATA connector supports a single SATA device. The AMD SB950 South Bridge supports RAID 0, RAID 1, RAID 5, RAID 10, and JBOD. Refer to Chapter 4, "Configuring SATA Hard Drive(s)," for instructions on configuring a RAID array.

- A RAID 0 or RAID 1 configuration requires at least two hard drives. If more than two hard drives are to be used, the total number of hard drives must be an even number.
- A RAID 5 configuration requires at least three hard drives. (The total number of hard drives does not have to be an even number.)
- A RAID 10 configuration requires four hard drives.

8) **BAT (Battery)**

The battery provides power to keep the values (such as BIOS configurations, date, and time information) in the CMOS when the computer is turned off. Replace the battery when the battery voltage drops to a low level, or the CMOS values may not be accurate or may be lost.

You may clear the CMOS values by removing the battery:
1. Turn off your computer and unplug the power cord.
2. Gently remove the battery from the battery holder and wait for one minute. (Or use a metal object like a screwdriver to touch the positive and negative terminals of the battery holder, making them short for 5 seconds.)
3. Replace the battery.
4. Plug in the power cord and restart your computer.

- Always turn off your computer and unplug the power cord before replacing the battery.
- Replace the battery with an equivalent one. Danger of explosion if the battery is replaced with an incorrect model.
- Contact the place of purchase or local dealer if you are not able to replace the battery by yourself or uncertain about the battery model.
- When installing the battery, note the orientation of the positive side (+) and the negative side (-) of the battery (the positive side should face up).
- Used batteries must be handled in accordance with local environmental regulations.
9) **F_PANEL (Front Panel Header)**

Connect the power switch, reset switch, speaker, chassis intrusion switch/sensor and system status indicator on the chassis to this header according to the pin assignments below. Note the positive and negative pins before connecting the cables.

![Diagram of F_PANEL](image)

**MSG/PWR (Message/Power/Sleep LED, Yellow/Purple):**

<table>
<thead>
<tr>
<th>System Status</th>
<th>LED</th>
</tr>
</thead>
<tbody>
<tr>
<td>S0</td>
<td>On</td>
</tr>
<tr>
<td>S1</td>
<td>Blinking</td>
</tr>
<tr>
<td>S3/S4/S5</td>
<td>Off</td>
</tr>
</tbody>
</table>

Connects to the power status indicator on the chassis front panel. The LED is on when the system is operating. The LED keeps blinking when the system is in S1 sleep state. The LED is off when the system is in S3/S4 sleep state or powered off (S5).

**PW (Power Switch, Red):**

Connects to the power switch on the chassis front panel. You may configure the way to turn off your system using the power switch (refer to Chapter 2, "BIOS Setup," "Power Management Setup," for more information).

**SPEAK (Speaker, Orange):**

Connects to the speaker on the chassis front panel. The system reports system startup status by issuing a beep code. One single short beep will be heard if no problem is detected at system startup. If a problem is detected, the BIOS may issue beeps in different patterns to indicate the problem. Refer to Chapter 5, "Troubleshooting," for information about beep codes.

**HD (Hard Drive Activity LED, Blue):**

Connects to the hard drive activity LED on the chassis front panel. The LED is on when the hard drive is reading or writing data.

**RES (Reset Switch, Green):**

Connects to the reset switch on the chassis front panel. Press the reset switch to restart the computer if the computer freezes and fails to perform a normal restart.

**CI (Chassis Intrusion Header, Gray):**

Connects to the chassis intrusion switch/sensor on the chassis that can detect if the chassis cover has been removed. This function requires a chassis with a chassis intrusion switch/sensor.

The front panel design may differ by chassis. A front panel module mainly consists of power switch, reset switch, power LED, hard drive activity LED, speaker and etc. When connecting your chassis front panel module to this header, make sure the wire assignments and the pin assignments are matched correctly.
10) F_AUDIO (Front Panel Audio Header)

The front panel audio header supports Intel High Definition audio (HD) and AC'97 audio. You may connect your chassis front panel audio module to this header. Make sure the wire assignments of the module connector match the pin assignments of the motherboard header. Incorrect connection between the module connector and the motherboard header will make the device unable to work or even damage it.

- The front panel audio header supports HD audio by default.
- Audio signals will be present on both of the front and back panel audio connections simultaneously.
- Some chassis provide a front panel audio module that has separated connectors on each wire instead of a single plug. For information about connecting the front panel audio module that has different wire assignments, please contact the chassis manufacturer.

<table>
<thead>
<tr>
<th>For HD Front Panel Audio:</th>
<th>For AC'97 Front Panel Audio:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pin No.</td>
<td>Definition</td>
</tr>
<tr>
<td>1</td>
<td>MIC2_L</td>
</tr>
<tr>
<td>2</td>
<td>GND</td>
</tr>
<tr>
<td>3</td>
<td>MIC2_R</td>
</tr>
<tr>
<td>4</td>
<td>-ACZ_DET</td>
</tr>
<tr>
<td>5</td>
<td>LINE2_R</td>
</tr>
<tr>
<td>6</td>
<td>GND</td>
</tr>
<tr>
<td>7</td>
<td>FAUDIO_JD</td>
</tr>
<tr>
<td>8</td>
<td>No Pin</td>
</tr>
<tr>
<td>9</td>
<td>LINE2_L</td>
</tr>
<tr>
<td>10</td>
<td>GND</td>
</tr>
</tbody>
</table>

11) SPDIF_O (S/PDIF Out Header)

This header supports digital S/PDIF Out and connects a S/PDIF digital audio cable (provided by expansion cards) for digital audio output from your motherboard to certain expansion cards like graphics cards and sound cards. For example, some graphics cards may require you to use a S/PDIF digital audio cable for digital audio output from your motherboard to your graphics card if you wish to connect an HDMI display to the graphics card and have digital audio output from the HDMI display at the same time. For information about connecting the S/PDIF digital audio cable, carefully read the manual for your expansion card.

<table>
<thead>
<tr>
<th>Pin No.</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>SPDIFO</td>
</tr>
<tr>
<td>2</td>
<td>GND</td>
</tr>
</tbody>
</table>
12) F_USB1/F_USB2/F_USB3 (USB Headers)

The headers conform to USB 2.0/1.1 specification. Each USB header can provide two USB ports via an optional USB bracket. For purchasing the optional USB bracket, please contact the local dealer.

![USB Header Diagram]

<table>
<thead>
<tr>
<th>Pin No.</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Power (5V)</td>
</tr>
<tr>
<td>2</td>
<td>Power (5V)</td>
</tr>
<tr>
<td>3</td>
<td>USB DX-</td>
</tr>
<tr>
<td>4</td>
<td>USB DY-</td>
</tr>
<tr>
<td>5</td>
<td>USB DX+</td>
</tr>
<tr>
<td>6</td>
<td>USB DY+</td>
</tr>
<tr>
<td>7</td>
<td>GND</td>
</tr>
<tr>
<td>8</td>
<td>GND</td>
</tr>
<tr>
<td>9</td>
<td>No Pin</td>
</tr>
<tr>
<td>10</td>
<td>NC</td>
</tr>
</tbody>
</table>

- Do not plug the IEEE 1394 bracket (2x5-pin) cable into the USB header.
- Prior to installing the USB bracket, be sure to turn off your computer and unplug the power cord from the power outlet to prevent damage to the USB bracket.
Chapter 2  BIOS Setup

BIOS (Basic Input and Output System) records hardware parameters of the system in the CMOS on the motherboard. Its major functions include conducting the Power-On Self-Test (POST) during system startup, saving system parameters and loading operating system, etc. BIOS includes a BIOS Setup program that allows the user to modify basic system configuration settings or to activate certain system features.

When the power is turned off, the battery on the motherboard supplies the necessary power to the CMOS to keep the configuration values in the CMOS.

To access the BIOS Setup program, press the <Delete> key during the POST when the power is turned on.

To upgrade the BIOS, use either the GIGABYTE Q-Flash or @BIOS utility.
- Q-Flash allows the user to quickly and easily upgrade or back up BIOS without entering the operating system.
- @BIOS is a Windows-based utility that searches and downloads the latest version of BIOS from the Internet and updates the BIOS.

Because BIOS flashing is potentially risky, if you do not encounter problems using the current version of BIOS, it is recommended that you not flash the BIOS. To flash the BIOS, do it with caution. Inadequate BIOS flashing may result in system malfunction.

It is recommended that you not alter the default settings (unless you need to) to prevent system instability or other unexpected results. Inadequately altering the settings may result in system's failure to boot. If this occurs, try to clear the CMOS values and reset the board to default values. (Refer to the "Load Optimized Defaults" section in this chapter or introductions of the battery/clear CMOS jumper in Chapter 1 for how to clear the CMOS values.)

2-1  Startup Screen

The following startup Logo screen will appear when the computer boots.

![Startup Screen Image]
2-2 The Main Menu

On the main menu of the BIOS Setup program, press arrow keys to move among the items and press <Enter> to accept or enter a sub-menu. Or you can use your mouse to select the item you want.

(Sample BIOS Version: FAc)

- When the system is not stable as usual, select the Load Optimized Defaults item to set your system to its defaults.
- The BIOS Setup menus described in this chapter are for reference only and may differ by BIOS version.
Whether the system will work stably with the overclock/overvoltage settings you made is dependent on your overall system configurations. Incorrectly doing overclock/overvoltage may result in damage to CPU, chipset, or memory and reduce the useful life of these components. This page is for advanced users only and we recommend you not to alter the default settings to prevent system instability or other unexpected results. (Inadequately altering the settings may result in system's failure to boot. If this occurs, clear the CMOS values and reset the board to default values.)

This section provides information on the BIOS version, CPU base clock, CPU frequency, memory frequency, total memory size, CPU temperature, Vcore, and memory voltage.
M.I.T. Current Status
This screen provides information on CPU/memory frequencies/parameters.

Advanced Frequency Settings

- **BCLK Clock Control**
  Allows you to manually set the CPU base clock in 1 kHz increments. (Default: Auto)

- **CPU NorthBridge Frequency**
  Allows you to alter the North Bridge controller frequency for the installed CPU. (Default: Auto)

- **HT Link Frequency**
  Allows you to manually set the frequency for the HT Link between the CPU and chipset. (Default: Auto)

- **CPU Clock Ratio**
  Allows you to alter the clock ratio for the installed CPU. The adjustable range is dependent on the CPU being installed.

- **CPU Frequency**
  Displays the current operating CPU frequency.
Advanced CPU Core Features

- **CPU Clock Ratio, CPU Frequency**
The settings above are synchronous to those under the same items on the **Advanced Frequency Settings** menu.

- **Core Performance Boost** *(Note)*
  Allows you to determine whether to enable the Core Performance Boost (CPB) technology, a CPU performance-boost technology. (Default: Auto)

- **CPB Ratio** *(Note)*
  Allows you to alter the ratio for the CPB. The adjustable range is dependent on the CPU being installed. (Default: Auto)

- **CPU Unlock**
  Allows you to determine whether unlock hidden CPU cores. (Default: Disabled)

- **Cool&Quiet**
  - Enabled: Lets the AMD Cool'n'Quiet driver dynamically adjust the CPU clock and VID to reduce heat output from your computer and its power consumption. (Default)
  - Disabled: Disables this function.

- **C1E Support**
  Enables or disables the C1E CPU power-saving function in system halt state. When enabled, the power consumption will be reduced during system halt state.
  - Enabled: If a CPU that supports hardware C1E is installed, the BIOS will automatically enable the hardware C1E function. If not, the BIOS will enable the software C1E function. (Default)
  - Disabled: Disables this function.

- **SVM**
  Virtualization enhanced by Virtualization Technology will allow a platform to run multiple operating systems and applications in independent partitions. With virtualization, one computer system can function as multiple virtual systems. (Default: Enabled)

*(Note) This item is present only when you install a CPU that supports this feature.*
CPU core Control (Note 1)
Allows you to determine whether to manually enable/disable CPU cores. **Automatic mode** allows the BIOS to enable all CPU cores (number of cores available depends on the CPU being used). (Default: Automatic mode)

Core C6 State
Allows you to determine whether to let the CPU enter C6 mode in system halt state. When enabled, the CPU core frequency will be reduced during system halt state to decrease power consumption. The C6 state is a more enhanced power-saving state than C1. (Default: Enabled)

HPC Mode (Note 1)
Allows you to determine whether to enable High Performance Computing (HPC) mode for the CPU. **Enabled** prevents the CPU frequency from being lowered during system halt state. (Default: Disabled)

Extreme Memory Profile (X.M.P.) (Note 2)
Allows the BIOS to read the SPD data on AMP memory module(s) to enhance memory performance when enabled.
- **Disabled** Disables this function. (Default)
- **Profile1** Uses Profile 1 settings.
- **Profile2 (Note 2)** Uses Profile 2 settings.

System Memory Multiplier (SPD)
Allows you to set the system memory multiplier. **Auto** sets memory multiplier according to memory SPD data. (Default: Auto)

Memory Frequency (MHz)
This value is automatically adjusted according to the **BCLK Clock Control** and **System Memory Multiplier** settings.

Advanced Memory Settings

Extreme Memory Profile (X.M.P.) (Note 2), System Memory Multiplier, Memory Frequency(MHz)
The settings above are synchronous to those under the same items on the Advanced Frequency Settings menu.

(Note 1) This item is present only when you install a CPU that supports this feature.
(Note 2) This item is present only when you install a memory module that supports this feature.
Performance Enhance
- Allows the system to operate at three different performance levels.
  - Normal: Lets the system operate at its basic performance level.
  - Turbo: Lets the system operate at its good performance level. (Default)
  - Extreme: Lets the system operate at its best performance level.

DRAM Timing Selectable
- Quick and Expert allows the memory timing settings below to be configurable. Options are: Auto (default), Quick, Expert.

Profile DDR Voltage
- When using a non-XMP memory module or Extreme Memory Profile (X.M.P.) is set to Disabled, this item will display as 1.50V. When Extreme Memory Profile (X.M.P.) is set to Profile1 or Profile2, this item will display the value based on the SPD data on the XMP memory.

Profile VTT Voltage
- The value displayed here is dependent on the CPU being used.

Channel Interleaving
- Enables or disables memory channel interleaving. Enabled allows the system to simultaneously access different channels of the memory to increase memory performance and stability. Auto lets the BIOS automatically configure this setting. (Default: Auto)

Rank Interleaving
- Enables or disables memory rank interleaving. Enabled allows the system to simultaneously access different ranks of the memory to increase memory performance and stability. Auto lets the BIOS automatically configure this setting. (Default: Auto)

Channel A/B Timing Settings

This sub-menu provides memory timing settings for each channel of memory. The respective timing setting screens are configurable only when DRAM Timing Selectable is set to Quick or Expert. Note: Your system may become unstable or fail to boot after you make changes on the memory timings. If this occurs, please reset the board to default values by loading optimized defaults or clearing the CMOS values.
Advanced Voltage Settings

This sub-menu allows you to set CPU, Chipset and memory voltages.

PC Health Status
**Reset Case Open Status**

- **Disabled**: Keeps or clears the record of previous chassis intrusion status. (Default)
- **Enabled**: Clears the record of previous chassis intrusion status and the Case Open field will show "No" at next boot.

**Case Open**

Displays the detection status of the chassis intrusion detection device attached to the motherboard CI header. If the system chassis cover is removed, this field will show "Yes", otherwise it will show "No". To clear the chassis intrusion status record, set Reset Case Open Status to **Enabled**, save the settings to the CMOS, and then restart your system.

**CPU Vcore/Dram Voltage/+3.3V/+5V/+12V**

Displays the current system voltages.

**CPU/System Temperature**

Displays current CPU/system temperature.

**CPU/System/Power Fan Speed**

Displays current CPU/system/power fan speed.

**CPU Warning Temperature**

Sets the warning threshold for CPU temperature. When CPU temperature exceeds the threshold, BIOS will emit warning sound. Options are: Disabled (default), 60°C/140°F, 70°C/158°F, 80°C/176°F, 90°C/194°F.

**CPU/System/Power Fan Fail Warning**

Allows the system to emit warning sound if the CPU/system/power fan is not connected or fails. Check the fan condition or fan connection when this occurs. (Default: Disabled)

**CPU Fan Control Mode**

- **Auto**: Lets the BIOS automatically detect the type of CPU fan installed and sets the optimal CPU fan control mode. (Default)
- **Voltage**: Sets Voltage mode for a 3-pin CPU fan.
- **PWM**: Sets PWM mode for a 4-pin CPU fan.
CPU Fan Speed Control
Allows you to determine whether to enable the CPU fan speed control function and adjust the fan speed.
- Normal: Allows the CPU fan to run at different speeds according to the CPU temperature. You can adjust the fan speed with EasyTune based on your system requirements. (Default)
- Silent: Allows the CPU fan to run at slow speeds.
- Manual: Allows you to control the CPU fan speed under the Slope PWM item.
- Disabled: Allows the CPU fan to run at full speeds.

Slope PWM
Allows you to control the CPU fan speed. This item is configurable only when CPU Fan Speed Control is set to Manual. Options are: 0.75 PWM value /°C ~ 2.50 PWM value /°C.

1st System Fan Speed Control
Allows you to determine whether to enable the system fan speed control function for the system fan connected to the SYS_FAN1 connector and adjust the fan speed.
- Normal: Allows the system fan to run at different speeds according to the system temperature. You can adjust the fan speed with EasyTune based on your system requirements. (Default)
- Silent: Allows the system fan to run at slow speeds.
- Manual: Allows you to control the system fan speed under the Slope PWM item.
- Disabled: Allows the system fan to run at full speeds.

Slope PWM
Allows you to control the system fan speed. This item is configurable only when 1st System Fan Speed Control is set to Manual. Options are: 0.75 PWM value /°C ~ 2.50 PWM value /°C.
2-4 System

This section provides information on your motherboard model, and BIOS version. You can also select the default language used by the BIOS and manually set the system time.

- **System Language**
  Selects the default language used by the BIOS.

- **System Date**
  Sets the system date. The date format is week (read-only), month, date, and year. Use <Enter> to switch between the Month, Date, and Year fields and use the <Page Up> or <Page Down> key to set the desired value.

- **System Time**
  Sets the system time. The time format is hour, minute, and second. For example, 1 p.m. is 13:0:0. Use <Enter> to switch between the Hour, Minute, and Second fields and use the <Page Up> or <Page Down> key to set the desired value.

- **Access Level**
  Displays the current access level depending on the type of password protection used. (If no password is set, the default will display as Administrator.) The Administrator level allows you to make changes to all BIOS settings; the User level only allows you to make changes to certain BIOS settings but not all.

- **ATA Port Information**
  This section provides information on the device connected to each SATA port controlled by AMD Chipset.
2-5 BIOS Features

Boot Option Priorities
Specifies the overall boot order from the available devices. For example, you can set hard drive as the first priority (Boot Option #1) and DVD ROM drive as the second priority (Boot Option #2). The list only displays the device with the highest priority for a specific type. For example, only hard drive defined as the first priority on the Hard Drive BBS Priorities submenu will be presented here. Removable storage devices that support GPT format will be prefixed with "UEFI:" string on the boot device list. To boot from an operating system that supports GPT partitioning, select the device prefixed with "UEFI:" string. Or if you want to install an operating system that supports GPT partitioning such as Windows 7 64-bit, select the optical drive that contains the Windows 7 64-bit installation disk and is prefixed with "UEFI:" string.

Hard Drive/CD/DVD ROM Drive/Floppy Drive/Network Device BBS Priorities
Specifies the boot order for a specific device type, such as hard drives, optical drives, floppy disk drives, and devices that support Boot from LAN function, etc. Press <Enter> on this item to enter the submenu that presents the devices of the same type that are connected. This item is present only if at least one device for this type is installed.

Bootup Numlock State
Enables or disables Numlock feature on the numeric keypad of the keyboard after the POST. (Default: Enabled)

Security Option
Specifies whether a password is required every time the system boots, or only when you enter BIOS Setup. After configuring this item, set the password(s) under the Administrator Password/User Password item.

Full Screen LOGO Show
Allows you to determine whether to display the GIGABYTE Logo at system startup. Disabled skips the GIGABYTE Logo when the system starts up. (Default: Enabled)
CSM Support
Enables or disables UEFI CSM (Compatibility Support Module) to support a legacy PC boot process.
- Always Enables UEFI CSM. (Default)
- Never Disables UEFI CSM and supports UEFI BIOS boot process only.

Boot Mode Selection
Allows you to select which type of operating system to boot.
- UEFI and Legacy Allows booting from operating systems that support legacy option ROM or UEFI option ROM. (Default)
- Legacy Only Allows booting from operating systems that only support legacy Option ROM.
- UEFI Only Allows booting from operating systems that only support UEFI Option ROM.
This item is configurable only when CSM Support is set to Always.

LAN PXE Boot Option ROM
Allows you to decide whether to enable the legacy option ROM for the LAN controller. (Default: Disabled)
This item is configurable only when CSM Support is set to Always.

Storage Boot Option Control
Allows you to select whether to enable the UEFI or legacy option ROM for the storage device controller.
- Disabled Disables option ROM.
- UEFI Only Enables UEFI option ROM only.
- Legacy Only Enables legacy option ROM only. (Default)
- Legacy First Enables legacy option ROM first.
- UEFI First Enables UEFI option ROM first.
This item is configurable only when CSM Support is set to Always.

Display Boot Option Control
Allows you to select whether to enable the UEFI or legacy option ROM for the graphics controller.
- Disabled Disables option ROM.
- UEFI Only Enables UEFI option ROM only.
- Legacy Only Enables legacy option ROM only. (Default)
- Legacy First Enables legacy option ROM first.
- UEFI First Enables UEFI option ROM first.
This item is configurable only when CSM Support is set to Always.

Other PCI Device ROM Priority
Allows you to select whether to enable the UEFI or Legacy option ROM for the PCI device controller other than the LAN, storage device, and graphics controllers.
- UEFI OpROM Enables UEFI option ROM only. (Default)
- Legacy OpROM Enables legacy option ROM only.

Network stack
Disables or enables booting from the network to install a GPT format OS, such as installing the OS from the Windows Deployment Services server. (Default: Disable)

Ipv4 PXE Support
Enables or disables IPv4 PXE Support. This item is configurable only when Network stack is enabled.

Ipv6 PXE Support
Enables or disables IPv6 PXE Support. This item is configurable only when Network stack is enabled.

Administrator Password
Allows you to configure an administrator password. Press <Enter> on this item, type the password, and then press <Enter>. You will be requested to confirm the password. Type the password again and press <Enter>. You must enter the administrator password (or user password) at system startup and when entering BIOS Setup. Differing from the user password, the administrator password allows you to make changes to all BIOS settings.
User Password

Allows you to configure a user password. Press <Enter> on this item, type the password, and then press <Enter>. You will be requested to confirm the password. Type the password again and press <Enter>. You must enter the administrator password (or user password) at system startup and when entering BIOS Setup. However, the user password only allows you to make changes to certain BIOS settings but not all.

To cancel the password, press <Enter> on the password item and when requested for the password, enter the correct one first. When prompted for a new password, press <Enter> without entering any password. Press <Enter> again when prompted to confirm.
### 2-6 Peripherals

#### OnChip SATA Controller
Enables or disables the integrated SATA controllers. (Default: Enabled)

#### OnChip SATA Type
Enables or disables RAID for the SATA controllers integrated in the AMD Chipset or configures the SATA controllers to AHCI mode.
- **Native IDE**: Configures the SATA controller to IDE mode. (Default)
- **RAID**: Enables RAID for the SATA controller.
- **AHCI**: Configures the SATA controllers to AHCI mode. AHCI is an interface specification that allows the storage driver to enable advanced Serial ATA features such as Native Command Queuing and hot plug.

#### OnChip SATA Port4/5 Type (SATA3 4/SATA3 5 connectors)
This option is configurable only when OnChip SATA Type is set to RAID or AHCI. Configures the operating mode of the integrated SATA3 4/SATA3 5 connectors.
- **IDE**: Disables RAID for the SATA controller and configures the SATA controller to IDE mode. (Default)
- **As SATA Type**: The mode depends on the OnChip SATA Type settings.

#### HD Audio Azalia Device
Enables or disables the onboard audio function. (Default: Enabled)
If you wish to install a 3rd party add-in audio card instead of using the onboard audio, set this item to Disabled.

#### Onboard USB Device
Enables or disables the integrated USB controller. (Default: Enabled)

#### R_USB3.0 Controller (Etron EJ168 USB Controller, USB 3.0/2.0 ports on the back panel)
Enables or disables the Etron EJ168 USB controller. (Default: Enabled)
- Onboard LAN Controller
  Enables or disables the onboard LAN function. (Default: Enabled)
  If you wish to install a 3rd party add-in network card instead of using the onboard LAN, set this item to Disabled.

- Legacy USB Support
  Allows USB keyboard/mouse to be used in MS-DOS. (Default: Enabled)

- XHCI Hand-off
  Determines whether to enable XHCI Hand-off feature for an operating system without XHCI Hand-off support. (Default: Enabled)

- EHCI Hand-off
  Determines whether to enable EHCI Hand-off feature for an operating system without EHCI Hand-off support. (Default: Disabled)

- Port 60/64 Emulation
  Enables or disables emulation of I/O ports 64h and 60h. This should be enabled for full legacy support for USB keyboards/mice in MS-DOS or in operating system that does not natively support USB devices. (Default: Disabled)

- USB Storage Devices
  Displays a list of connected USB mass storage devices. This item appears only when a USB storage device is installed.

- IOMMU Controller
  Enables or disables AMD IOMMU support. (Default: Disabled)

- SB SATA Configuration

- PORT0 Hot Plug~PORT5 Hot Plug
  Enables or disable the hot plug capability for each SATA port. (Default: Disabled)

- SATA Power on PORT0~SATA Power on PORT5
  Enables or disables each SATA port. (Default: Enabled)
2-7 Power Management

Resume by Alarm
Determines whether to power on the system at a desired time. (Default: Disabled)
If enabled, set the date and time as follows:
- Wake up day: Turn on the system at a specific time on each day or on a specific day in a month.
- Wake up hour/minute/second: Set the time at which the system will be powered on automatically.
Note: When using this function, avoid inadequate shutdown from the operating system or removal of the AC power, or the settings may not be effective.

HPET Support (Note)
Enables or disables High Precision Event Timer (HPET) for Windows 7/Vista operating system. (Default: Enabled)

Soft-Off by PWR-BTTN
Configures the way to turn off the computer in MS-DOS mode using the power button.
- Instant-Off: Press the power button and then the system will be turned off instantly. (Default)
- Delay 4 Sec: Press and hold the power button for 4 seconds to turn off the system. If the power button is pressed for less than 4 seconds, the system will enter suspend mode.

AC BACK
Determines the state of the system after the return of power from an AC power loss.
- Memory: The system returns to its last known awake state upon the return of the AC power.
- Always On: The system is turned on upon the return of the AC power.
- Always Off: The system stays off upon the return of the AC power. (Default)

Power On By Keyboard
Allows the system to be turned on by a PS/2 keyboard wake-up event.
Note: To use this function, you need an ATX power supply providing at least 1A on the +5VSB lead.
- Disabled: Disables this function. (Default)
- Password: Set a password with 1~5 characters to turn on the system.
- Keyboard 98: Press POWER button on the Windows 98 keyboard to turn on the system.
- Any Key: Press any key to turn on the system.

(Note) Supported on Windows 7/Vista operating system only.
Power On Password
Set the password when Power On By Keyboard is set to Password.
Press <Enter> on this item and set a password with up to 5 characters and then press <Enter> to accept.
To turn on the system, enter the password and press <Enter>.
Note: To cancel the password, press <Enter> on this item. When prompted for the password, press <Enter> again without entering the password to clear the password settings.

Power On By Mouse
Allows the system to be turned on by a PS/2 mouse wake-up event.
Note: To use this function, you need an ATX power supply providing at least 1A on the +5VSB lead.
- Disabled: Disables this function. (Default)
- Move: Move the mouse to turn on the system.
- Double Click: Double click on left button on the mouse to turn on the system.

ErP
Determines whether to let the system consume least power in S5 (shutdown) state. (Default: Disabled)
Note: When this item is set to Enabled, the following functions will become unavailable: PME event wake up, power on by mouse, power on by keyboard, and wake on LAN.

2-8 Save & Exit

Save & Exit Setup
Press <Enter> on this item and select Yes. This saves the changes to the CMOS and exits the BIOS Setup program. Select No or press <Esc> to return to the BIOS Setup Main Menu.

Exit Without Saving
Press <Enter> on this item and select Yes. This exits the BIOS Setup without saving the changes made in BIOS Setup to the CMOS. Select No or press <Esc> to return to the BIOS Setup Main Menu.

Load Optimized Defaults
Press <Enter> on this item and select Yes to load the optimal BIOS default settings. The BIOS defaults settings help the system to operate in optimum state. Always load the Optimized defaults after updating the BIOS or after clearing the CMOS values.
Boot Override
Allows you to select a device to boot immediately. Press <Enter> on the device you select and select Yes to confirm. Your system will restart automatically and boot from that device.

Save Profiles
This function allows you to save the current BIOS settings to a profile. You can create up to 8 profiles and save as Setup Profile 1~ Setup Profile 8. Press <Enter> to complete. Or you can select Select File in HDD/USB/FDD to save the profile to your storage device.

Load Profiles
If your system becomes unstable and you have loaded the BIOS default settings, you can use this function to load the BIOS settings from a profile created before, without the hassles of reconfiguring the BIOS settings. First select the profile you wish to load and then press <Enter> to complete. You can select Select File in HDD/USB/FDD to input the profile previously created from your storage device or load the profile automatically created by the BIOS, such as reverting the BIOS settings to the last settings that worked properly (last known good record).

Chapter 3 Drivers Installation

• Before installing the drivers, first install the operating system.
• After installing the operating system, insert the motherboard driver disk into your optical drive. The driver Autorun screen is automatically displayed which looks like that shown in the screen shot below. (If the driver Autorun screen does not appear automatically, go to My Computer, double-click the optical drive and execute the Run.exe program.)

After inserting the driver disk, "Xpress Install" will automatically scan your system and then list all the drivers that are recommended to install. You can click the Install All button and "Xpress Install" will install all the recommended drivers. Or click Install Single Items to manually select the drivers you wish to install.
Chapter 4 Appendix

4-1 Configuring SATA Hard Drive(s)

Before you begin

Please prepare:

- At least two SATA hard drives (to ensure optimal performance, it is recommended that you use two hard drives with identical model and capacity). If you do not want to create RAID, you may prepare only one hard drive.
- Windows 7/Vista/XP setup disk.
- Motherboard driver disk.
- A USB floppy disk drive (needed during Windows XP installation).
- An empty formatted floppy disk (needed during Windows XP installation).

Configuring the Onboard SATA Controller

A. Installing SATA hard drive(s) in your computer

Attach one end of the SATA signal cable to the rear of the SATA hard drive and the other end to available SATA port on the motherboard. Then connect the power connector from your power supply to the hard drive.

B. Configuring SATA controller mode in BIOS Setup

Make sure to configure the SATA controller mode correctly in system BIOS Setup. For the BIOS Setup menus, refer to Chapter 2, "BIOS Setup," "Integrated Peripherals."

Steps:

1. Turn on your computer and press <Delete> to enter BIOS Setup during the POST (Power-On Self-Test). Ensure OnChip SATA Controller is enabled under Integrated Peripherals. To enable RAID for the SATA3 0/1/2/3 connectors, set OnChip SATA Type to RAID. To enable RAID for the SATA2 4/SATA2 5 connectors, set OnChip SATA Type to RAID and set OnChip SATA Port4/5 Type to As SATA Type.
2. Save changes and exit BIOS Setup.

The BIOS Setup menus described in this section may differ from the exact settings for your motherboard. The actual BIOS Setup menu options you will see shall depend on the motherboard you have and the BIOS version.

C. Configuring RAID set in RAID BIOS

Enter the RAID BIOS setup utility to configure a RAID array. After the POST memory test begins and before the operating system boot begins, look for a message which says "Press <Ctrl-F> to enter RAID Option ROM Utility". Press <Ctrl> + <F> to enter the RAID BIOS setup utility. To create a new array, press <2> to enter the LD View/LD Define Menu window. To create an array, press <Ctrl+C> to access the LD Define Menu. In the LD Define Menu, use the up or down arrow key to move to an item for further configuration. In the following procedure, we'll create RAID 0 as an example.

Steps:

1. Under the RAID Mode section, press the <SPACE> key to select RAID 0.
2. Set the Stripe Block size. 64 KB is the default.
3. Under the Drives Assignments section, press the up or down arrow key to highlight a drive.
4. Press the <SPACE> key or <Y> to change the Assignment option to Y. This action adds the drive to the disk array. The Drv section will show the number of disks assigned.
5. Press <Ctrl>+<Y> keys to save the information. The message in Figure 1 will appear. Press <Ctrl>+<Y> to input the array name. If you do not input the array name, the default array name will be used.

![Figure 1](https://example.com/fig1.png)

6. When the next message appears, press <Ctrl>+<Y> to clear the MBR or press other keys to ignore this option.

![Figure 2](https://example.com/fig2.png)

7. Then, the message in Figure 3 will appear. Press <Ctrl>+<Y> to set the capacity of the RAID array or press other keys to set the array to its maximum capacity.

![Figure 3](https://example.com/fig3.png)

8. After the creation is complete, the screen will return to **LD View Menu** where you will see the newly-created array.

9. Press <Esc> to return to **Main Menu** and press <Esc> again if you want to exit the RAID BIOS utility.

**Making a SATA RAID/AHCI Driver Diskette**

Before installing Windows XP, connect a USB floppy disk drive to your computer first because you need to install the SATA RAID/AHCI driver from a floppy disk that contains the driver during the OS installation. To copy the RAID/AHCI driver for Windows XP, copy all files in the `\BootDrv\Hxp` folder in the motherboard driver disk to your floppy disk. To install Windows 7/Vista, you also need to install the SATA RAID/AHCI driver during the OS installation. To copy the RAID/AHCI driver for Windows 7, copy the whole `Hw7` folder under the `BootDrv` folder in the motherboard driver disk to a USB flash drive.

**Installing the SATA RAID/AHCI Driver and Operating System**

**A. Installing Windows XP**

Restart your system to boot from the Windows XP setup disk and press <F6> as soon as you see the message "Press F6 if you need to install a 3rd party SCSI or RAID driver." Insert the floppy disk containing the SATA RAID/AHCI driver. Follow the on-screen instructions to install the driver that suits your operating system. When completed, proceed with the Windows XP installation.

**B. Installing Windows 7/Vista**

(The following instructions use Windows 7 as the example operating system.)

Boot from the Windows 7 setup disk and perform standard OS installation steps. When the screen requesting you to load the driver appears, select **Browse**. Then browse to the USB flash drive that contains the driver and select the location of the driver. The locations of the drivers are as follows:

- RAID driver for Windows 7 32-bit: Hw7\RAID\x86
- RAID driver for Windows 7 64-bit: Hw7\RAID\x64
- AHCI driver for Windows 7 32-bit: Hw7\AHCI\W7
- AHCI driver for Windows 7 64-bit: Hw7\AHCI\W764A

After loading the driver, continue the OS installation.
4-2 Regulatory Statements

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The symbol shown below is on the product or on its packaging, which indicates that this product must not be disposed of with other waste. Instead, the device should be taken to the waste collection centers for activation of the treatment, collection, recycling and disposal procedure. The separate collection and recycling of your waste equipment at the time of disposal will help to conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment.
For more information about where you can drop off your waste equipment for recycling, please contact your local government office, your household waste disposal service or where you purchased the product for details of environmentally safe recycling.
• When your electrical or electronic equipment is no longer useful to you, "take it back" to your local or regional waste collection administration for recycling.
• If you need further assistance in recycling, reusing in your "end of life" product, you may contact us at the Customer Care number listed in your product's user's manual and we will be glad to help you with your effort.

Finally, we suggest that you practice other environmentally friendly actions by understanding and using the energy-saving features of this product (where applicable), recycling the inner and outer packaging (including shipping containers) this product was delivered in, and by disposing of or recycling used batteries properly. With your help, we can reduce the amount of natural resources needed to produce electrical and electronic equipment, minimize the use of landfills for the disposal of "end of life" products, and generally improve our quality of life by ensuring that potentially hazardous substances are not released into the environment and are disposed of properly.
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