

Embedded Star

AMI BIOS Setup Guide

For Core 8

Version: A1

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Chapter 1 BIOS Introduction

Overview

BIOS (Basic Input and Output System) resides in a flash memory chip. Its main functions include: initialize system hardware, set up the operating status of each part of the system, adjust the operating parameters of each part of the system, diagnose the functions of each part of the system and report error, provide hardware operating control port for upper software system, leading operating system and so on. BIOS provides you with a human-machine interface menu to set system parameters, control power management mode, adjust the resources distribution of system devices.

Correct BIOS settings make system more stable and reliable and also improve the comprehensive performance of the system. Inappropriate and wrong BIOS settings reduce the performance of system, make system unstable and even can't work normally.

Chapter 2 BIOS Parameters Setup

Power on the system and start the computer, then you can see the notification of entering BIOS setup. At this time (invalid at other time), press the indicated key (usually key) to enter BIOS setup program.

If the BIOS settings in CMOS are damaged, system will demand to enter BIOS to set up or select all default settings.

All the modified BIOS settings are saved in CMOS. The CMOS is powered by backup battery. So, the content in CMOS is not lost even when the power supply is cut off, unless performing clear CMOS operation.

Note: BIOS settings directly affect computer performance. Wrong settings may damage computer or even prevent boot up. Please restore default BIOS settings to recover system.

EVOC Company continues to develop and update BIOS program, so the following pictures are for your references only, they might be different from your current BIOS setting program.

Chapter 3 BIOS Basic Setup

When Setup program starts, you can see the main image of CMOS Setup Utility, shown as below:

| BIOS SETUP UTILITY | |
|---|--|
| System Overview | |
| Processor Genuine Intel(R) CPU @ 2.40GHz Speed :2400MHz | ←→ Select Screen ↑↓ Select Item + - Change Field Tab Select Field F1 General Help F10 Save and Exit ESC Exit |
| System Memory Size: 504MB | |
| System Time [00:47:55] | |
| System Date [Wed 01/02/2002] | |
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3.1 Main

3.1.1 System Time

Select this option, use <Page Up>/<Page Down> or <+>/<-> to set the current time. Time display form: hour/minute/second. The acceptable range of each item: hours of the day (0-23), minutes of the hour (0-59), seconds of the minute (0-59).

3.1.2 System Date

Select this option, use <Page Up>/<Page Down> or <+>/<-> to set the current time. Time display form: month/day/year. The acceptable range of each item: month (Jan.-Dec.), (01~31), year (expanded to 2079), week (Mon.-Sun.).

3.2 Advanced

| BIOS SETUP UTILITY | |
|---|--|
| Advanced Settings | Configure CPU |
| WARNING:Setting wrong values in below sections may cause system to malfunction | |
| <ul style="list-style-type: none"> ▶ CPU Configuration ▶ IDE Configuration ▶ Floppy Configuration ▶ SuperIO Configuration ▶ Hardware Health Configuration ▶ USB Configuration ▶ Power Management | ←→ Select Screen ↑↓ Select Item Enter Go to Sub Screen Tab Select Field F1 General Help F10 Save and Exit ESC Exit |
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3.2.1 CPU Configuration

| BIOS SETUP UTILITY | |
|---|--|
| Configure advanced CPU settings | |
| Module Version:3E.01 | |
| Manufacturer: Intel | |
| Genuine Intel(TM)2 CPU 6300 @1.86GHz | |
| Frequency; :1.86GHz | |
| FSB Speed; :1066MHz | |
| Cache L1; :32 KB | |
| Cache L2; :2048 KB | |
| Ratio Actual Value :7 | |
| | ←→ Select Screen ↑↓ Select Item + - Change Field Tab Select Field F1 General Help F10 Save and Exit ESC Exit |
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3.2.2. IDE Configuration

| BIOS SETUP UTILITY | | |
|---|-----------------|-------------------|
| IDE Configuration | | |
| SATA/IDE Configuration | [Enhanced] | |
| Configure SATA as | [IDE] | |
| Configuration SATA Channel | [Before PATA] | ←→ Select Screen |
| ▶Primary IDE Master | :[Not Detected] | ↑↓ Select Item |
| ▶Secondary IDE Master | :[Not Detected] | + - Change Field |
| ▶Third IDE Master | :[Not Detected] | Tab Select Field |
| ▶Third IDE Slave | :[Not Detected] | F1 General Help |
| ▶Fourth IDE Master | :[Not Detected] | F10 Save and Exit |
| ▶Fourth IDE Slave | :[Not Detected] | ESC Exit |
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1. SATA/IDE Configuration

There are three options: Disabled, Compatible and Enhanced; Compatible is compatible mode, which can map SATA hard disk to the related port of parallel IDE channel, Enhanced is enhanced mode.

2. Configure SATA as

There are two options: IDE, RAID; default as IDE

3. Configuration SATA Channel

There are two options: Before ATA and Behind ATA; Before ATA: the channel before PATA which is set by SATA Channel, Behind ATA: the channel behind PATA which is set by SATA Channel. Default as Before ATA.

4. Primary~Fourth IDE Master/Slave**1)Type**

Not Installed: System does not detect IDE devices.

AUTO: system bootup IDE parameter auto-detection;

CD/DVD: Used for ATAPI CDROM

ARMD: Used for all kinds of analog IDE devices

2)LBA/Large Mode

Support LBA mode or not

3)Block(Multi-sector Transfer)

Support multi-sector transfer or not

4)PIO Mode

Setup PIO mode

5)DMA Mode

Setup DMA mode

6)S.M.A.R.T

The option is to set enable or disable the S.M.A.R.T function of hard disk, this function is only available for the hard disk that can support S.M.A.R.T.

7)32-Bit Data Transfer

The option can enable the visiting mode of 32-bit hard disk, to optimize the transmit speed of hard disk to the best performance.

3.2.3 Floppy Configuration

| BIOS SETUP UTILITY | |
|---|-------------------|
| Floppy Configuration | ←→ Select Screen |
| Floppy A [1.44MB 31/2"] | ↑↓ Select Item |
| Floppy B [Disable] | + - Change Field |
| | Tab Select Field |
| | F1 General Help |
| | F10 Save and Exit |
| | ESC Exit |
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1. Floppy Options

Floppy driver connector option, can connect up to two devices.

3.2.4 Super IO Configuration

| BIOS SETUP UTILITY | |
|-------------------------------------|---|
| Configure Win627 Super IO Chipset | Allows BIOS to Enable or Disable Floppy Controller. |
| OnBoard Floppy Controller [Enabled] | |
| Serial Port1 Address [3F8/IRQ4] | |
| Serial Port2 Address [2F8/IRQ3] | |
| Parallel Port Address [378] | |
| Parallel Port Mode [Normal] | ←→ Select Screen |
| Parallel Port IRQ [IRQ7] | ↑↓ Select Item |
| | + - Change Field |
| | Tab Select Field |
| | F1 General Help |
| | F10 Save and Exit |
| | ESC Exit |
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1. OnBoard Floppy Controller

Used to enable the floppy controller.

2. Serial Port 1 Address

(Default value as 3F8H/IRQ4), set the address and IRQ of the onboard serial port 1, there are four options: Disabled, 3F8H/IRQ4, 3E8/IRQ4,

2E8/IRQ3.

3. Serial Port 2 Address

Set the addresses of onboard serial port 2.

4. Parallel Port Address

Set the address of the onboard parallel ports, address default value is 378

5. Parallel Port Mode

Set the onboard parallel port mode

6. Parallel Port IRQ

Set the onboard parallel port interrupt

3.2.5 Hardware Health Configuration

| BIOS SETUP UTILITY | | |
|---|-------------|---|
| Hardware Health Configuration | | Enables Hardware Health Monitoring Device |
| Chassis Temperature | : 34°C/93°F | |
| System Temperature | : 34°C/93°F | |
| CPU Temperature | : 34°C/93°F | |
| CPUFAN1 Speed | : 1577 RPM | |
| Vcore | : 1.230 V | ←→ Select Screen |
| V1.5 | : 1.538 V | ↑↓ Select Item |
| V1.8 | : 1.810 V | + - Change Field |
| V3.3 | : 3.312 V | Tab Select Field |
| V5.0 | : 5.107 V | F1 General Help |
| V12.0 | : 11.981V | F10 Save and Exit |
| VBAT | : 3.200 V | ESC Exit |
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1. Chassis Temperature

Usually the onboard thermosensitive resistance can monitor current system temperature.

2. System Temperature

Usually the onboard thermosensitive resistance can monitor current system temperature.

3. CPU Temperature

Current CPU temperature The onboard temperature sensor can monitor the CPU temperature.

4. CPUFAN1 Speed

It shows the current CPU fan speed.

5. Vcore

CPU core voltage

6. V1.5/V1.8/V3.3/V3.3SB/V5.0/VIN12.0

Switching power supply output voltage

3.2.6 USB Configuration

| BIOS SETUP UTILITY | |
|---|-------------------------------|
| USB Configuration | Enables USB host controllers. |
| Module Version -2.24.0-11.4 | |
| USB Devices Enabled : | |
| None | ←→ Select Screen |
| USB Function [8 USB Ports] | ↑↓ Select Item |
| USB 2.0 Controller [Enabled] | + - Change Field |
| Legacy USB Support [Enabled] | F1 General Help |
| | F10 Save and Exit |
| | ESC Exit |
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1. USB Function

The option can set the USB controller quantity; usually one controller can support two USB ports.

2. USB 2.0 Controller

The option is used to select if it can support USB2.0 controller

3. Legacy USB Support

It can support traditional USB keyboard and mouse, when it is set to Enabled, even the operation system that does not support USB can use USB devices in DOS.

3.2.7 Power Management

| BIOS SETUP UTILITY | | |
|---|--------------|-------------------|
| Power Management Configuration | | |
| Restore on AC Power Loss | [Last state] | ←→ Select Screen |
| ACPI Aware O/S | [Yes] | ↑↓ Select Item |
| Resume on Ring | [Disabled] | + - Change Field |
| Resume on PME# | [Disabled] | F1 General Help |
| Resume on RTC Alarm | [Disabled] | F10 Save and Exit |
| Restore on AC Power Loss | [Last state] | ESC Exit |
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1. Restore on AC Power Loss

The option can set the system status when the computer is powered after been cut off. “Power Off”: system will stay in power off status; “Power On”: system will automatically power on; “Last State”: system will maintain the previous status before the power have been cut off.

2. ACPI Aware O/S

The option is used to enable or disable ACPI, there are two options “Yes” and “No”, default as “Yes”.

3. Resume on Ring

The option is MODEM bootup/wakeup function. When it is set to Enabled, system will detect RI signal and if it is available, the system will wakeup from power save mode or power off status, ATX power supply is asked for the function.

4. Resume on PME#

If this option is Enabled, system will be wakeup from power save mode or power off mode when the signal from PME# is detected available, ATX power supply is asked for the function.

5. Resume on RTC Alarm

The option is used to enable or disable the system alarm clock. System will be wakeup from power save mode or power off mode when it reaches the pointed time, ATX power supply is asked for this function.

3.3 Chipset

| BIOS SETUP UTILITY | |
|--|---------------|
| Advanced Chipset Settings | |
| WARNING:Setting wrong values in below sections may cause system to malfunction. | |
| NorthBridge Configuration | |
| DRAM Frequency | [Auto] |
| Configure DRAM Timing by SPD | [Enabled] |
| Initate Graphic Mode Select | [PEG/PCI] |
| Internal Graphics Mode Select | [Enabled,8MB] |
| SouthBridge Configuration | |
| Audio Controller | [Enabled] |
| PCIE port 0 | [Auto] |
| PCIE port 1 | [Auto] |
| PCIE port 2 | [Auto] |
| PCIE port 3 | [Auto] |
| PCIE port 4 | [Auto] |
| ←→ Select Screen ↑↓ Select Item Enter Go to Sub Screen F1 General Help F10 Save and Exit ESC Exit | |
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3.3.1 RAM Frequency

Configuration of the DRAM frequency.

3.3.2 Configure DRAM Timing by SPD

BIOS will configure the SDRAM memory timing according to SPD chip content. Most memory bank has a small chip to save the memory timing, capacity and other parameters, such as SPD chip

3.3.3 Primary Graphics Adapter

This option is to appoint primary graphic port when there are external PCI graphic cards in addition to the VGA graphic controller on CPU

board.

3.3.4 Internal Graphics Mode Select

The graphic device will apply to the system addresses space for a special address as graphic memory space.

3.3.5 Audio Controller

Enable/disable the audio card controller.

3.3.6 PCIE port 0-4

There are three options: Auto, Enabled and Disabled; Auto: automatically enable or disable PCIE port according to the card.

3.4 PCIPnP

| BIOS SETUP UTILITY | |
|--|-------------|
| Advanced PCI/PnP Settings | |
| WARNING: Setting wrong values in below sections may cause system to malfunction. | |
| IRQ3 | [Available] |
| IRQ4 | [Available] |
| IRQ5 | [Available] |
| IRQ7 | [Available] |
| IRQ9 | [Available] |
| IRQ10 | [Available] |
| IRQ11 | [Available] |
| IRQ14 | [Available] |
| IRQ15 | [Available] |
| ←→ Select Screen ↑↓ Select Item + - Change Field F1 General Help F10 Save and Exit ESC Exit | |
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3.4.1 IRQ 3~15

The option is used to decide the IRQ interrupt is PNP mode or reserved for ISA.

3.5 Boot

| BIOS SETUP UTILITY | | |
|---|--------------------------------|------------------------|
| Boot Settings | | |
| Quick Boot | [Enabled] | ←→ Select Screen |
| Quiet Boot | [Disabled] | ↑↓ Select Item |
| Waite For 'F1' If Error | [Enabled] | Enter Go to Sub Screen |
| Boot Device Priority | | F1 General Help |
| 1 st Boot Device | [1 st FLOPPY DRIVE] | F10 Save and Exit |
| | | ESC Exit |
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3.5.1 Quick Boot

Configure that it is allowed to omit some test items during BIOS bootup to shorten the BIOS bootup time.

3.5.2 Quiet Boot

Configure that if it will show OEM LOGO.

3.5.3 Wait For 'F1' If Erorr

Configure that weather it prompts to press F1 when system errors.

3.5.4 1st~4th Boot Device

Configure priority level of the bootup equipments.

3.6 Security

| BIOS SETUP UTILITY | |
|---|--------------------------------|
| Security Settings | Install or Change the password |
| Supervisor Password :Not Installed | |
| User Password :Not Installed | ←→ Select Screen |
| | ↑↓ Select Item |
| Change Supervisor Password | Enter Change |
| Change User Password | F1 General Help |
| | F10 Save and Exit |
| | ESC Exit |
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3.6.1 Change User/ Supervisor Password

Press Change User/Supervisor Password then input a new password into dialog box; it will show that user's password has been set.

3.7 Exit

| South Bridge Configuration | |
|---|---|
| Exit Options | Exit system setup after saving the changes. |
| Save Changes and Exit | |
| Discard Changes and Exit | ←→ Select Screen |
| Discard Changes | ↑↓ Select Item |
| | Enter Go to Sub Screen |
| Load Optimal Defaults | F1 General Help |
| Load Failsafe Defaults | F10 Save and Exit |
| | ESC Exit |
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3.7.1 Save Changes and Exit

This function allows you to recover the former setting parameters after you have finish all the changes, new setting parameters will be saved in the memory of CMOS. To enable this operation, press<Enter> to select this option then press <Enter> again to exit.

3.7.2 Discard Changes and Exit

This option allows you to exit without saving all the changing settings into memory of CMOS, press <Enter> to select this option and then press <Enter> again to exit.

3.7.3 Discard Changes

If there is any mistake in your changes, you can select this option and press <Enter>, then set the related options again.

3.7.4 Load Optimal Defaults

The menu helps you to input default value to the system configuration. These default settings are optimized and can help all the hardware with their high performances.

3.7.5 Load Failsafe Defaults

The option allows you to initialize all the settings to enable the basic and safest value of system function. To enable this function, select this option and press <Enter>, then the system will ask you to insure your information, press <Enter> to insure and enable the function.

Chapter 4 System Resource Managed by BIOS on X86 Platform

The system resource here including: I/O port addresses. IRQ interrupt number and DMA number.

4.1 DAM

| Level | Function |
|-------|--------------------------------------|
| DMA0 | DRAM Refresh |
| DMA1 | Unassigned |
| DMA2 | Floppy Disk |
| DMA3 | Unassigned (sometimes for hard disk) |
| DMA4 | For DMAC cascade |
| DMA5 | Unassigned |
| DMA6 | Unassigned |
| DMA7 | Unassigned |

4.2 APIC

High level programmable interrupt controller. Most of the motherboard later than P4 can support APIC and offer more than 16 interrupt sources, such as IRQ16~IRQ23, some motherboards that can support PCI-X can offer 28 interrupt sources. Related operation system is requested for this function, presently the operation system later than Windows 2000 can support this function.

4.3 I/O Port Address

There are 16 I/O address line of X86, from 0~0FFFFh, I/O address space is 64K. For traditional ISA port, only the front 1024 is occupied (0000~03FFh), the ports later than 0400h is for PCI connector and EISA connector. Each peripheral will be assigned one I/O address space. The following table lists out the I/O ports for X86 platform.

| Address | Device Description |
|-------------|--------------------------------------|
| 000h - 00Fh | DMA Controller# 1 |
| 020h - 021h | Programmable Interrupt Controller#1 |
| 040h - 043h | System Timer |
| 060h - 064h | Standard 101/102 Keyboard Controller |
| 070h - 071h | Real-time Clock, NMI |
| 080h - 09Fh | DMA Page Register |
| 0A0h - 0A1h | Programmable Interrupt Controller#2 |
| 0C0h - 0DFh | DMA Controller# 2 |
| 0F0h - 0FFh | Numerical Value Data Processor |
| 170h - 177h | Slave IDE |
| 1F0h - 1F7h | Master IDE |
| 279h, A79h | PnP Configuration Register Port |
| 295h - 296h | Hardware Monitor |
| 2E8h - 2EFh | Serial Port #4(COM4) |
| 2F8h - 2FFh | Serial Port #2(COM2) |
| 376h | Slave IDE (dual FIFO) |
| 378h - 37Fh | Parallel Port #1 (LPT1) |
| 3B0h - 3DFh | Display Interface |
| 3E8h - 3EFh | Serial Port #3(COM3) |
| 3F0h - 3F5h | Standard Floppy Disk Controller |
| 3F6h | Master IDE (dual FIFO) |
| 3F8h - 3FFh | Serial Port #1(COM1) |

| | |
|-------|---|
| 0CF8h | PCI Configuration Address Register Port |
| 0CFCh | PCI Configuration Data Read/Write Port |

4.4 IRQ Assignment Table

The system has 15 interrupt sources in total. Some have been occupied by system equipments. Only those unoccupied interrupt sources can be distributed to other equipments. ISA equipment requests to use interrupt exclusively; only ISA equipment can be distributed interrupt by BIOS or operating system. And multiple PCI equipment can share one interrupt, and distributed by BIOS or operating system, too. Interrupt assignment of some devices of the motherboard is shown in the following table, but interrupt resources occupied by PCI devices are not included.

| Level | Function |
|-------|---|
| IRQ0 | System Timer |
| IRQ1 | Standard 101/102 keyboard or Microsoft Keyboard |
| IRQ2 | Programmable Interrupt Controller |
| IRQ3 | Serial Port#2 |
| IRQ4 | Serial Port#1 |
| IRQ5 | Parallel Port#2 |
| IRQ6 | Standard Floppy Disk Controller |
| IRQ7 | Parallel Port#1 |
| IRQ8 | System CMOS/Real-time Clock |
| IRQ9 | Software Rerouting Int 0Ah |
| IRQ10 | Reservation |
| IRQ11 | Reservation |
| IRQ12 | Reservation |
| IRQ13 | Mouse Port |
| IRQ14 | Master IDE |
| IRQ15 | Slave IDE |