⚠ WARNING! Electronic Emission Notices

Federal Communications Commission (FCC) Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of 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 instructions contained in this manual, may cause harmful interference to radio and television 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 INTO AN OUTLET ON A CIRCUIT DIFFERENT FROM THAT OF THE RECEIVER
- CONSULT THE DEALER OR AN EXPERIENCED AUDIO/TELEVISION TECHNICIAN

NOTE: Connecting this device to peripheral devices that do not comply with Class B requirements, or using an unshielded peripheral data cable, could also result in harmful interference to radio or television reception.

The user is cautioned that any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

To ensure that the use of this product does not contribute to interference, it is necessary to use shielded I/O cables.

Copyright

This manual is copyrighted with all rights reserved. No portion of this manual may be copied or reproduced by any means.

While every precaution has been taken in the preparation of this manual, no responsibility for errors or omissions is assumed. Neither is any liability assumed for damages resulting from the use of the information contained herein.

Trademarks

All brand names, logos and registered trademarks mentioned are property of their respective owners.

Table of Contents

HARDWARE CONFIGURATION

Key Features
- VIA® Apollo Pro chipset.

Processor
- Full support for the Intel® Pentium III and Celeron® processors using PGA370 Socket.
- Support Coppermine processors using PGA370 socket.
- Support 66MHz and 100MHz bus speed including all PGA370 processors operating from 300MHz to 533MHz and future processors.

VRM 8.2 (Voltage Regulator Modules) on Board
- Flexible motherboard design with on-board VRM 8.2, easy to upgrade with Intel's® Future Overdrive® processors.

System Memory
- A total of two 168-pin DIMM sockets.
- Up to 512MB DRAMs.
- Supports FP, EDO, SDRAM and SDRAM-II.
- Supports JEDEC BDDR (Bidirectional Double Data Rate) SDRAM-II standard. Supports Enhanced synchronous DRAM (ESDRAM).
- Supports single-density DIMMs of 1MB, 2MB, 4MB, 8MB and 16MB depth (x64 or 72).
- Supports double-density DIMMs of 2MB, 4MB, 8MB, 16MB and 32MB depth (x64 or 72).
- Supports error checking correction (ECC) using parity DRAM modules.
- Banks of different DRAM types depths can be mixed.

On-Board I/O
- Two PCI fast IDE ports supporting up to 4 ATA, ATA2 and Ultra DMA 33 IDE devices.
- Supports bus master IDE, PIO mode 4 (up to 16.6M bytes/sec) and Ultra DMA 33 (up to 33M bytes/sec) transfer.
- One ECP/EPP parallel port .
- Two 16550-compatible UART serial ports.
- One floppy port supporting two FDDs of 360KB, 720KB, 1.2MB, 1.44MB or 2.88MB formated capacity.
- Two USB ports (via a header).
- One standard AT keyboard port (factory option for PS/2 type).
- One PS/2 mouse port (via a header).
- Infrared (IrDA) support (via a header).

System BIOS
- 2MB flash BIOS supporting PnP, APM, ATAPI, ACPI and DMI.
- Jumper selection for 5V or 12V flash memory voltage.
- Auto detects and supports LBA hard disks with formatted capacities over 8.4GB.
- Easily upgradable by end-user.

Plug-and-Play
- Supports plug-and-play specification 1.1.
- Plug-and-play for DOS, Windows® 3.X, Windows® 95 as well as Windows® 98.
- Fully steerable PCI interrupts.

Power Management
- Supports SMM, APM and ACPI.
- Break switch for instant suspend/resume on system operation.
- Energy star "Green PC" compliant .

On board Sound Sub-system (optional)
- Creative ViBRA 16XV sound chip is used.
- Sound Blaster 16 compatible.
- Full-Duplex 16-bit record & playback.
- Roland MPU401 UART mode compatible.
- Integrated CQM and FM synthesizer.
- PnP and APM 1.2 Support.
- Speaker out(Line-out), Mic-in, one Line-in and MIDI / Game Port (Cable).

Expansion Slots
- 1 AGP slot (ver. 1.0, 1x/2x mode supported).
- 3 PCI bus master slots.
- 2 ISA slots.

CAUTION

Static electricity can harm delicate components of the motherboard. To prevent damage caused by static electricity, discharge the static electricity from your body before you touch any of the computers electronic components.

Motherboard Layout (Model Code No. -35C86101XX)

The following diagrams show the relative positions of the jumpers, connectors, major components and memory banks on the motherboard.
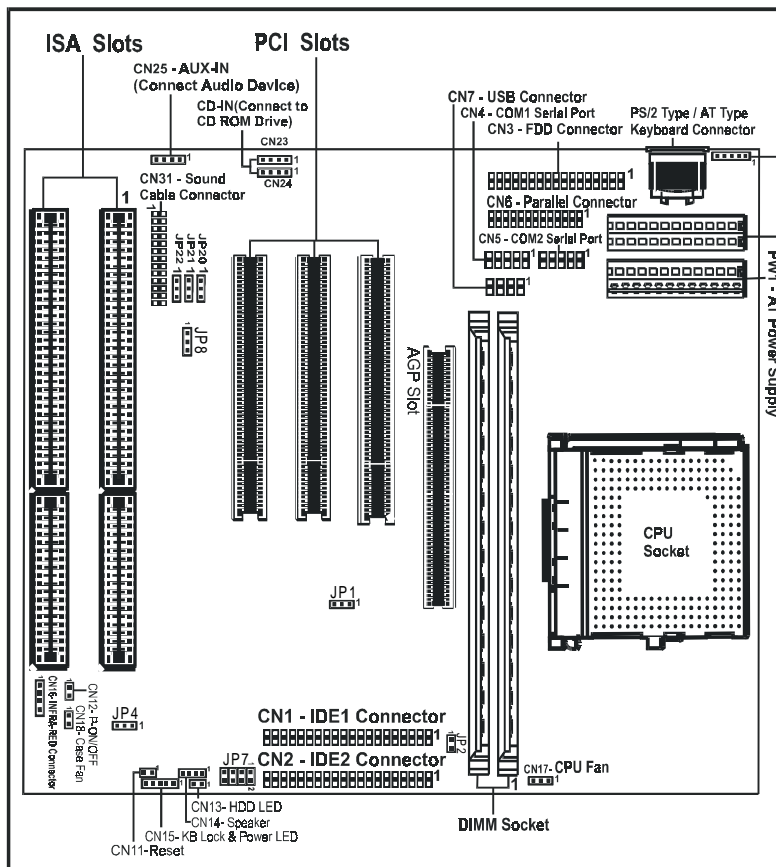

NOTE

1) Be sure to check the cable orientation in order to match the colored strip to the pin 1 end of the connector.

2) When you start up the system, please wait for 5 seconds after you power on AC.

Jumper Settings

This chapter explains how to configure the motherboard's hardware. Before using your computer, make sure all jumpers and DRAM modules are set correctly. Refer to this chapter whenever in doubt.
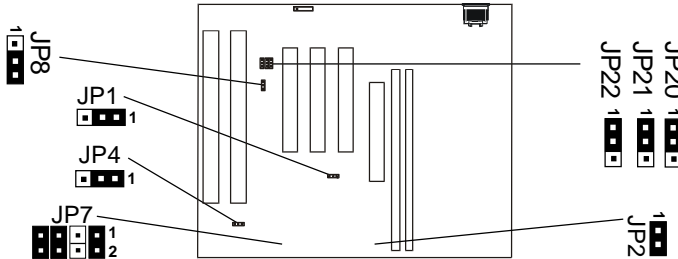
CPU Speed Selection

When JP7 is installed on this motherboard, jumper is required to be set for different type of CPU installed. The CPU speed is set by JP2 and JP7, please see JP7- Ratio of Processor Core to System Bus Frequency table.

When JP7 is not installed on this motherboard, jumperless feature is implemented such that no jumper is required to be set for different type of CPU installed.

The CPU speed is set in "CPU Speed Setting" of CMOS Setup.

Notice:
1. Be sure to save the CMOS setting when exit the CMOS.
2. When the system is turned on the first time or the CPU is changed, a Pentium II-133 or -200 (depends on the CPU bus speed) will be recognized and a warning message of "CPU has been changed" will appear. Please enter the CMOS setup menu to configure the CPU speed.

JP2 - System Bus Frequency

JP2	System Bus Frequency
1 ▪▪ Close*	Auto*
1 ▫▫ Open	100MHz

JP7 - Ratio of Processor Core to System Bus Frequency

Ratio	JP7	Ratio	JP7	Ratio	JP7
3*		5		7	
3.5		5.5		7.5	
4		6		8	
4.5		6.5		--	

* =Default setting

▪ Close   ▫ Open

JP1 - SDRAM CLK

JP1	SDRAM CLK
1-2*	Follow CPU*
2-3	66MHz

Note: When use 100MHz CPU CLK, you can choose 66MHz SDRAM CLK by setting JP1(2-3).

JP4 - CMOS Clear

JP4	Selection
1-2*	Normal*
2-3	CMOS Clear

JP8 - BIOS Program Voltage Select

JP8	BIOS Program Voltage
1-2	12V
2-3	5V

JP8 is pre-installed in the factory. It should not be altered by the users.
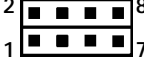
JP20, JP21, JP22 - Sound Chip Enable Setting

JP20	JP21	JP22	Selection
1-2*	1-2*	1-2*	Enable*
2-3	2-3	2-3	Disable

* =Default setting

■ Close ▦ Open

Pin Assignment

Interinal Audio Connector

CN25 : AUX-IN(JST)

Pin	Assignment
1	AUX-L
2	GND
3	GND
4	AUX-R

CN24 : CD-IN

Pin	Assignment
1	CD-L
2	GND
3	GND
4	CD-R

CN23 : CD-IN

G L G R

Pin	Assignment
1	GND
2	CD-L
3	GND
4	CD-R

CN16 : Infrared Module

Pin	Assignment
1	IRRX
2	GND
3	IRTX
4	VCC

CN8 : PS/2 Mouse

Pin	Assignment
1	VCC
2	NC
3	MS-DATA
4	GND
5	MS-CLK

CN7 : USB Port

Pin	Assignment
1	VCC
2	GND
3	USBP1-
4	USBP0+
5	USBP1+
6	USBP0-
7	GND
8	VCC

Hardware Setup

To Install DIMMs

1. Locate the DIMM sockets.
2. Holding the DIMM by the edges, remove it from its antistatic package.
3. Make sure the clips at either end of the socket are pushed away from the socket.

Clip

DIMM

Clip

DIMM Socket
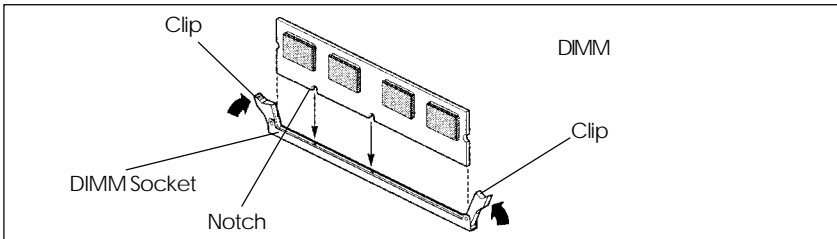
Notch

4. Position the DIMM above the socket. Align the two small notches in the bottom edge of the DIMM with the keys in the socket.
5. Insert the bottom edge of the DIMM into the socket.
6. When the DIMM is seated, push down on the top edge of the DIMM until the retaining clips at the ends of the socket snap into place. Make sure the clips are firmly in place.
7. If you installed a DIMM with ECC memory, start the computer and use the ECC Configuration feature in Setup to enable the use of ECC.

⚠ **CAUTION!** **Turn system power off before installing and removing any device, otherwise you'll cause the system damage.**

Installing a New Processor

An upgrade processor can dramatically increase general system speed and performance.

Most microprocessor upgrade kits include the following items:

- Microprocessor chip
- Installation instructions and technical data

Your system may have these features built in, or support them as upgrades.

To Install a Processor to ZIF Socket

To install the processor, follow these steps:

1. If the system microprocessor is already on the motherboard socket, you need to remove it from the motherboard socket. The socket is a Zero Insertion Force (ZIF) socket which has a metal arm at one side. Carefully grasp this arm, move it horizontally away from the socket and lift it up. Eventually you will be able to lift the chip straight up out of the socket.

Be careful not to bend any of the pins when removing the microprocessor chip from its socket. The microprocessor chip can be permanently damaged.

2. Unpack the new microprocessor chip.
3. Carefully align the processor with the correct orientation to the socket on the motherboard.
4. Carefully insert the processor into the socket, and move the metal arm downward to replace it in its original position.

Connect the Processor Fan Connector

There is a fan attached the processor to prevent the overheating. Connect the processor fan cable to the fan connector that located on the motherboard near the processor and ensure the fan can operate. Otherwise the CPU can overheat and cause *damage to both CPU and motherboard.*

Installing the Spacer

When installing the Pentium II motherboard (Baby AT), you need to insert the SPACER at the corner near the IDE to provide better support for connect the IDE connector and future DRAM modules.
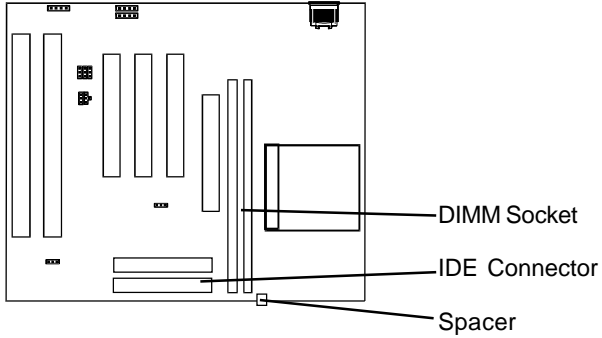
DIMM Socket

IDE Connector

Spacer

Caution

Please check your computer chassis if it is carrying any metal mounting post at this location.

Remove the mounting post or add insulation to the post before putting in the motherboard.

BIOS SETUP

This chapter discusses Award's Setup Program built into the ROM BIOS. The Setup Program allows users to modify the basic system configuration. This special information is then stored in battery-backed RAM, which retains the setup information when the power is turned off.

Starting Setup

The Award BIOS is immediately activated when you turn on the computer. The BIOS reads the system information contained in the CMOS and begins the process of checking out the system and configuring it. When it finishes, the BIOS will seek an operating system on one of the disks and then launch and turn control over to the operating system.

While the BIOS is in control, the Setup Program can be activated :

1. By pressing <Del> immediately after switching the system on, or
2. By pressing the <Del> key when the following message appears briefly at the bottom of the screen during the POST (Power On Self Test)

Press DEL to enter SETUP

If the message disappears before you can respond and you still wish to enter Setup, restart the system to try again by turning it OFF then ON or pressing the "RESET" button on the system case. You may also restart by simultaneously pressing the <Ctrl>, <Alt>, and <Delete> keys. If you do not press the keys at the correct time and the system does not reset, an error message will be displayed and you will again be asked to ...

PRESS F1 TO CONTINUE, DEL TO ENTER SETUP

Getting Help

Press F1 to pop up a small help window that describes the appropriate keys to use and the possible selections for the highlighted item. To exit the Help Window press <Esc> or the F1 key again.

In Case of Problems

If, after making and saving system changes with the Setup Program, you discover that your computer does not reset, use the Award BIOS defaults to override the CMOS settings.

Main Menu

Once you enter the Award BIOS CMOS Setup Utility, the Main Menu will appear on the screen. The Main Menu allows you to select from various setup functions and two exit choices. Use the arrow keys to select among the items and press <Enter> to accept and enter the sub-menu.

ROM PCI/ISA BIOS
CMOS SETUP UTILITY
AWARD SOFTWARE. INC.

STANDARD CMOS SETUP	CPU SPEED SETTING
BIOS FEATURES SETUP	INTEGRATED PERIPHERALS
CHIPSET FEATURES SETUP	SUPERVISOR PASSWORD
POWER MANAGEMENT SETUP	USER PASSWORD
PNP/PCI CONFIGURATION	IDE HDD AUTO DETECTION
LOAD BIOS DEFAULTS	SAVE & EXIT SETUP
LOAD SETUP DEFAULTS	EXIT WITHOUT SAVING
Esc : Quit	↑↓→← : Select Item
F10 : Save & Exit Setup	(Shift) F2 : Change Color
Time. Date. Hard Disk Type	

(Note : The figures of BIOS Setup Menu included here only show a typical case, and may not be exactly the same as the one on your unit.)

Note that a brief description of each highlighted item will appear at the bottom of the screen.

Standard CMOS Setup	This setup page includes all the items of Award™ special standard features.
BIOS Features Setup	This setup page includes all the items of Award™ special enhanced features.
Chipset Features Setup	This setup page includes all the items of chipset special features.
Power Management Setup	This entry only appears if your system supports Power Management "Green PC" standards.
PNP / PCI Configuration	This entry appears if your system supports PNP/PCI.
Load BIOS Defaults	The BIOS defaults have been set by the manufacturer and represent settings which provide the minimum requirements for your system to operate.
Load Setup Defaults	The chipset defaults are settings which provide for maximum system performance. While Award has designed the custom BIOS to maximize performance, the manufacturer has the right to change these defaults to meet its needs.

CPU Speed Setting	You should refer to your CPU marking and correct setting CPU speed.
Integrated Peripherals	This section page includes all the items of IDE hard drive and Programmed Input / Output features.
Supervisor / User Password Setting	Changes, sets, or disables password. It allows you to limit access to the system and the Setup Program.
IDE HDD Auto Detection	Automatically detects and configures the hard disk parameters. The Award BIOS includes this ability in the event you are uncertain of your hard disk's parameters.
Save & Exit Setup	Saves value changes to CMOS and exits setup.
Exit Without Saving	Abandons all CMOS value changes and exits setup.

Standard CMOS Setup

The items in Standard CMOS Setup Menu are divided into 10 categories. Each category includes one or more setup items. Use the arrow keys to highlight the item and then use the <PgUp> or <PgDn> key to select the desired value in each item.

```
                          ROM PCI/ISA BIOS
                        STANDARD CMOS SETUP
                        AWARD SOFTWARE. INC.
┌─────────────────────────────────────────────────────────────────────────┐
│  Date (mm:dd:yy)   : Thu, Jan 23 1997                                    │
│  Time (hh:mm:ss)   : 00:00:00                                            │
│                                                                          │
│  HARD DISKS          TYPE SIZE CYLS. HEADS PRECOMP LANDZ SECTORS   Mode  │
│  Primary Master   : Auto  0    0     0       0      0      0       Auto  │
│  Primary Slave    : Auto  0    0     0       0      0      0       Auto  │
│  Secondary Master : Auto  0    0     0       0      0      0       Auto  │
│  Secondary Slave  : Auto  0    0     0       0      0      0       Auto  │
├──────────────────────────────────────┬──────────────────────────────────┤
│  Drive A :   1.44M, 3.5 in           │   Base Memory       : 640K       │
│  Drive B :   None                    │   Extended Memory   : 15360K     │
│  Video :     EGA/VGA                 │   Other Memory      : 384K       │
│                                      │                                  │
│  Halt on :   All Errors              │   Total Memory      : 16384K     │
├──────────────────────────────────────┴──────────────────────────────────┤
│  Esc : Quit              ↑↓→←: Select Item    PU/PD/+/- : Modify         │
│  F1 : Help               (Shift) F2 : Change Color                       │
└─────────────────────────────────────────────────────────────────────────┘
```

(Note : The figures of BIOS Setup Menu included here only show a typical case, and may not be exactly the same as the one on your unit.)

Date   The date format is <day-of-the-week>. <day> <month> <year>. Press <F3> to display the calendar.

Time   The time format is <hour> <Minute> <second> displayed in 24-hour military-time clock. For example, 1 p. m. is displayed as 13:00:00.

Primary Master/Primary Slave/Secondary Master/Secondary Slave   These categories identify the types of the two channels that have been installed in the computer.

If you select Type "User", you will need to know the information listed below. Enter the information directly from the keyboard and press <Enter>. This information should be included in the documentation from your hard disk vendor or the system manufacturer.

If the controller of the HDD interface is SCSI, the selection shall be "None".

If you select Type "Auto", the BIOS will auto-detect the HDD and CD-ROM drive at the POST stage and show the IDE for the HDD and CD-ROM drive.

TYPE   -Drive type
CYLS   -Number of cylinders
HEADS   -Number of heads
PRECOMP   -Write precom
LANDZONE   -Landing zone
SECTORS   -Number of sectors
MODE   -Mode type

If a hard disk has not been installed, select NONE and press <Enter>.

Drive A Type / Drive B Type   This category identifies the types of floppy disk drive A or drive B that has been installed in the computer.

Video   This category selects the type of video adapter used for the primary system monitor. Although secondary monitors are supported, you do not have to select them in Setup.

BIOS Features Setup

This section allows you to configure your system for basic operation. You have the opportunity to select the system's default speed, boot-up sequence, keyboard operation, shadowing and security.

Chipset Features Setup

The Chipset Features Setup option is used to change the values of the chipset registers. These registers control most of the system options in the computer.

This section allows you to configure the system based on the specific features of the installed chipset. This chipset manages bus speeds and access to system memory resources, such as DRAM and the external cache. It must be stated that these items should not be altered. The default settings have been chosen because they provide the best operating conditions for your system.

Power Management Setup

The Power Management Setup Menu allows you to configure your system to most save energy while operating in a manner consistent with your own style of computer use.

PNP/PCI Configuration

This section describes how to configure the PCI bus system. This section covers some very technical items and it is recommended that only experienced users should make any changes to the default settings.

Integrated Peripherals

The Integrated Peripherals Setup allows the user to configure the onboard IDE controller, floppy disk controller, the printer port and the serial ports.

Supervisor/User Password Setting

You can set either supervisor or user password, or both of them. The difference between them are:

Supervisor Password :   You can enter the Setup Program and change the options of the setup menus.

User Password :   You can enter the Setup Program but cannot change the options of the setup menus.

When you select this function, the following message will appear at the center of the screen to assist you in creating a password.

ENTER PASSWORD:

Type the password, up to eight characters in length, and press<Enter>. The new password will clear the previously entered password from the CMOS memory. You will be asked to confirm the password. Type the password again and press <Enter>. You may also press <Esc> to abort the selection and operate without a password.

To disable a password, just press <Enter> when you are prompted to enter the password. A message will be displayed to confirm that the password is disabled.

PASSWORD DISABLED.

Once the password is disabled, the system will reset and you can enter the Setup Program freely.

When a password is enabled, you will be prompted to enter it every time you try to enter setup. This prevents an unauthorized person from changing any setting of your system configuration.

In addition, when a password is enabled, you can require the BIOS to request a password every time your system is rebooted. This would further prevent unauthorized use of your computer.

The password requirement is defined by the Security Option of the BIOS Features Setup Menu. If the Security Option is set to "System", the password will be required both at resetting and at entering setup. If the option is set to "Setup", the prompt only appears when you try to enter setup.

Flash Update Procedure

A program AWDFLASH.EXE is included in the utility diskette or CD. The user is recommended to follow the procedure below to update the flash BIOS.

1. Create a DOS-bootable floppy diskette. Copy the new BIOS file (just obtained or downloaded) and the utility program AWDFLASH.EXE to the diskette.
2. Allow the PC system to boot from the DOS diskette.
3. At the DOS prompt, key in

    AWDFLASH
    and hit <ENTER>

4. Enter the file name of the new BIOS.
5. The question: "Do you want to save file?" is displayed.

    Key in "N" if there is no need to save the existing BIOS content..
    Key in "Y" if a backup copy of the existing BIOS is needed.
    (A file name has to be assigned to the existing BIOS binary file.)

6. The question : "Are you sure to program?" is displayed.

    Key in "Y"

7. Wait until the flash-update is completed.
8. Power down the PC system.
9. Restart the PC.

Warning:
DO not turn off or RESET the computer during the flash process.
If you are unsure how to upgrade the BIOS, it is best to take your
computer to an Authorized Service Center and have a trained
technician do the work for you.