Introduction

System Overview

The board incorporates system board, ISA I/O and PCI IDE and PCI Sound in one board that provides all the PC solutions. The mainboard is a Pentium II™ / Celeron™ micro processor based PC/ATX system, supports single processor with ISA Bus , PCI Local Bus and AGP Bus to upgrade your system performance. It is ideal for multi-tasking and fully supports MS-DOS, Windows, Windows NT, Novell, OS/2, Windows95/98, UNIX, SCO UNIX etc. This manual also explains how to install the mainboard for operation, and how to setup your CMOS configuration with BIOS setup program.

Features

• Hardware

CPU

– The Pentium II™ / Celeron micro Processor provides the new generation power for high-end workstations and servers.
– Provides slot1.

Speed

– Supports CPU bus frequency 66MHz.
– Supports from 233MHz to 333MHz CPU core speed.
– Supports 33MHz PCI Bus speed.
– I/O clock 8MHz for ISA Bus.
– Supports 66MHz / 133MHz AGP Bus.

DRAM Memory

– Supports 8/16/32/64…...MB, 3.3V / Unbuffered DIMM module socket.
– Supports Synchronous DRAM.
– Supports EDO DRAM.
– Supports a maximum memory size of 256MB with SDRAM.
– Supports a maximum memory size of 256MB with EDO.

Green Function

– Supports power management operation via BIOS.
– Power down timer from 1 min to 15 mins.
– Wakes up by any key pressed or mouse activity.

Shadow RAM

– A memory controller that provides shadow RAM and supports 8-bit ROM BIOS.

BUS Slots

– Provides two 16-bit ISA Bus slots and two PCI Bus slots, one AGP Bus slot.

Flash Memory

– Supports flash memory.
– Supports ESCD Function.

PCI Enhanced IDE Built-in On Board

– Supports 4 IDE hard disk drives.
– Supports PIO mode 4, Master Mode, high performance hard disk drives.
– Supports Ultra DMA/33, Bus Master Mode.
– Supports IDE interface with CD-ROM.
– Supports high capacity hard disk drives.
– Supports LBA mode.
– Supports LS120/ZIP 100.

PCI Sound Card Built-in On Board

– ESS™ Solo1™ Sound Chip.
– Full native DOS games compatibility.
– High-Quality ESFM music synthesizer.
– Software Wavetable synthesizer.
– Integrated Spatialzer 3D audio effects processor.
– 16-Bit stereo ADC and DAC.
– Full-Duplex operation for simultaneous record and playback.
– Supports
(1) PC games and applications for Sound Blaster™ and Sound Blaster Pro™.
(2) Microsoft Windows Sound System, PC 97™/PC 98™ and WHQL™ specifications.

ISA I/O Built-in On Board

– Supports one multi-mode Parallel Port.
(1) Standard & Bidirection Parallel Port.
(2) Enhanced Parallel Port (EPP).
(3) Extended Capabilities Port (ECP).
– Supports two serial ports, 16550 UART.

– Supports one Infrared transmission (IR). (optional)
– Supports PS/2 Mouse.
– Supports 360KB, 720KB, 1.2MB, 1.44MB and 2.88MB floppy disk drivers.

Universal Serial Bus

– Supports two Universal Serial Bus (U.S.B.) Ports.
– Supports 48 MHz USB.

Dimension(Micro ATX form-factor)

– 24.3 cm X 20.5 cm (W x L)

• Software

BIOS

– AWARD legal BIOS.
– Supports APM1.2.
– Supports USB Function.

O.S.

– Offers the highest performance for MS-DOS, OS/2, Windows, Windows NT, Windows 95/98, Novell, UNIX, SCO UNIX etc.

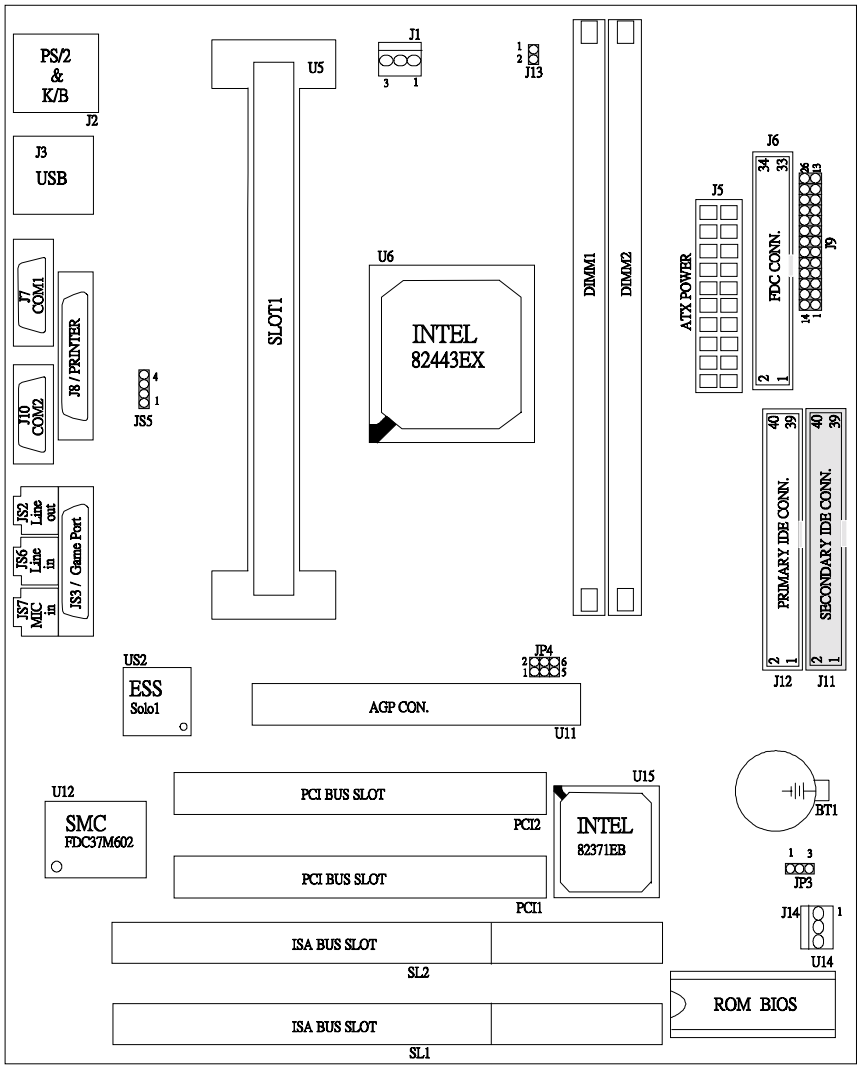
• Attachments

– HDD Cable
– FDD Cable
– Retention Kits for CPU
– CD for Driver and BIOS flash utility
– Rear I/O Panel for Micro ATX Case (Optional)

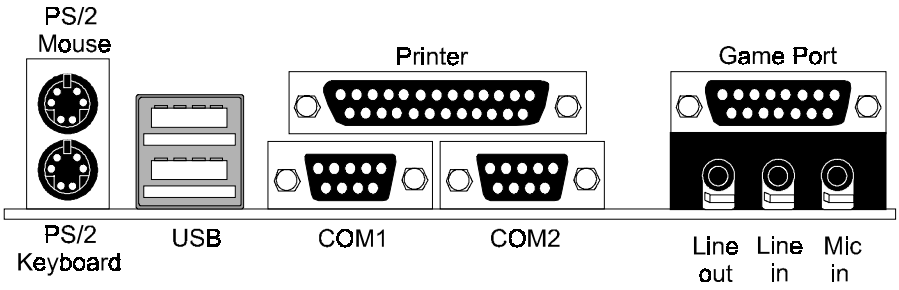
Mainboard Installation

Layout of Mainboard

Model No. M6TEA Ver:1.0



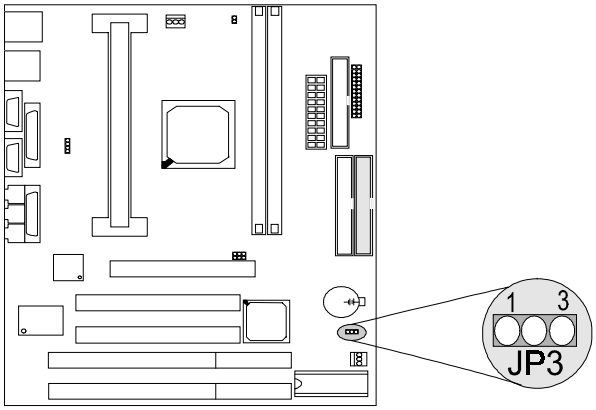
Back I/O panel



Jumper Settings

A jumper is several pins which may or may not be covered by a plastic jumper cap. A jumper is used to select different system options.

(A) JP3 CMOS Function Select



JP3	Assignment
1 3 1-2 Closed	Normal Operation (default)
1 3 2-3 Closed	Clear CMOS Data (*Note)
1 3 Open	Onboard Battery Disabled

***Note :** Please follow the procedure as below to clear CMOS Data.
Note : Please follow the procedure as below to clear BIOS Password if your password is lost or forgotten.

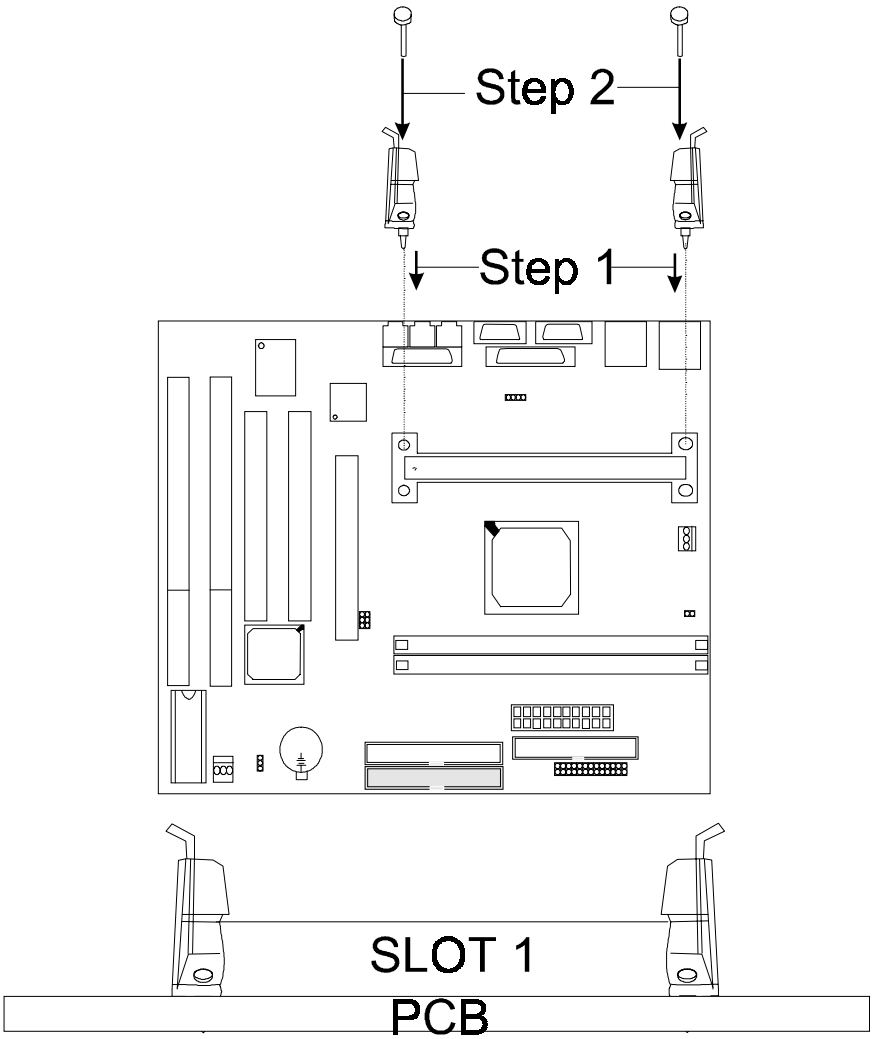
AC Power off → JP3 (2-3) closed → Waiting three seconds → JP3 (1-2) closed →

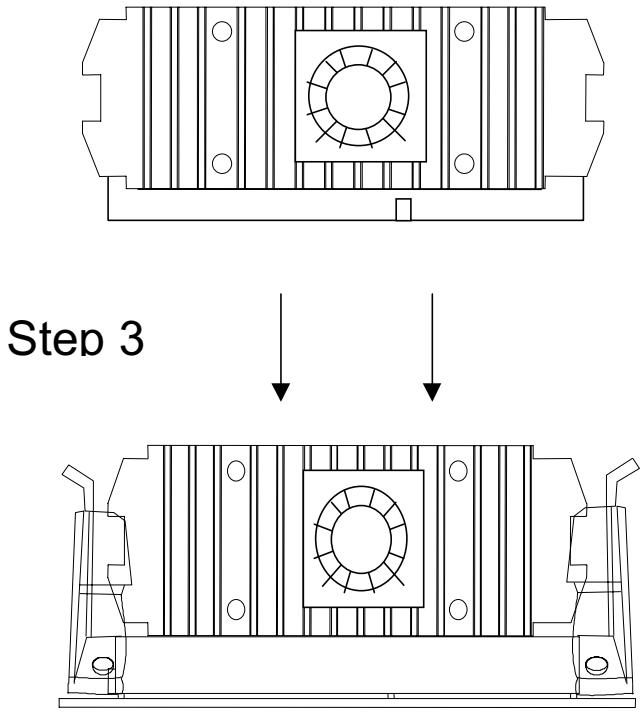
→ AC Power On → Reset your desired password or Clear CMOS Data

CPU Installation

(1) Celeron CPU Installation Procedure

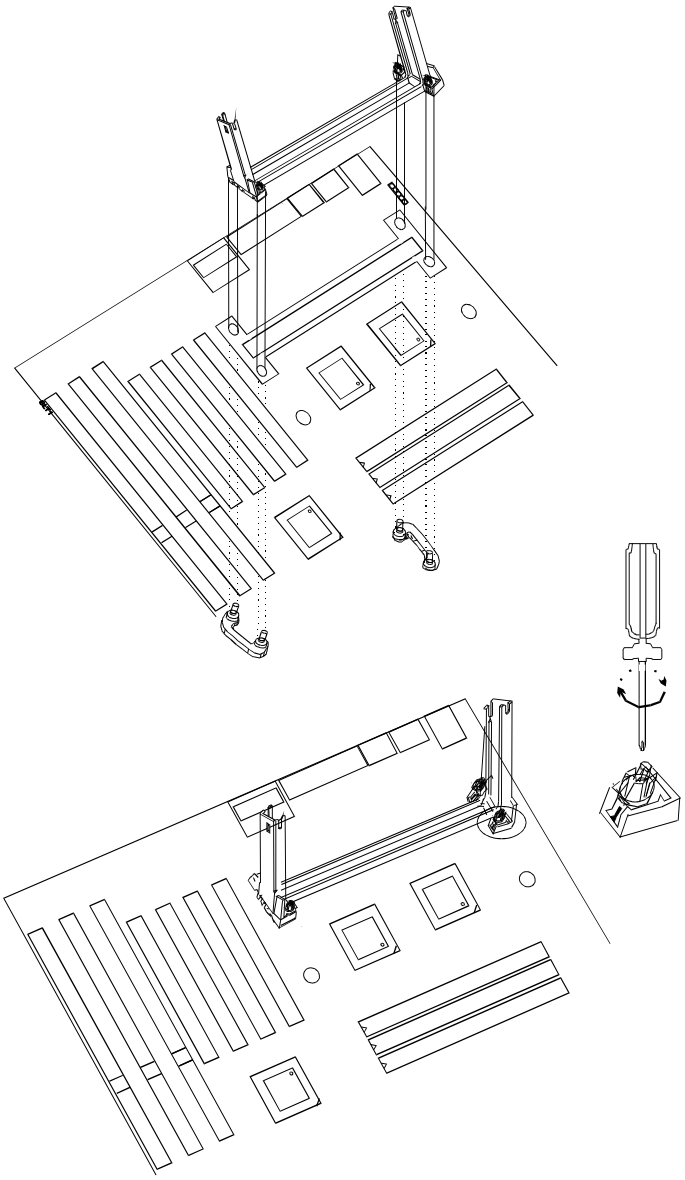
Step 1:



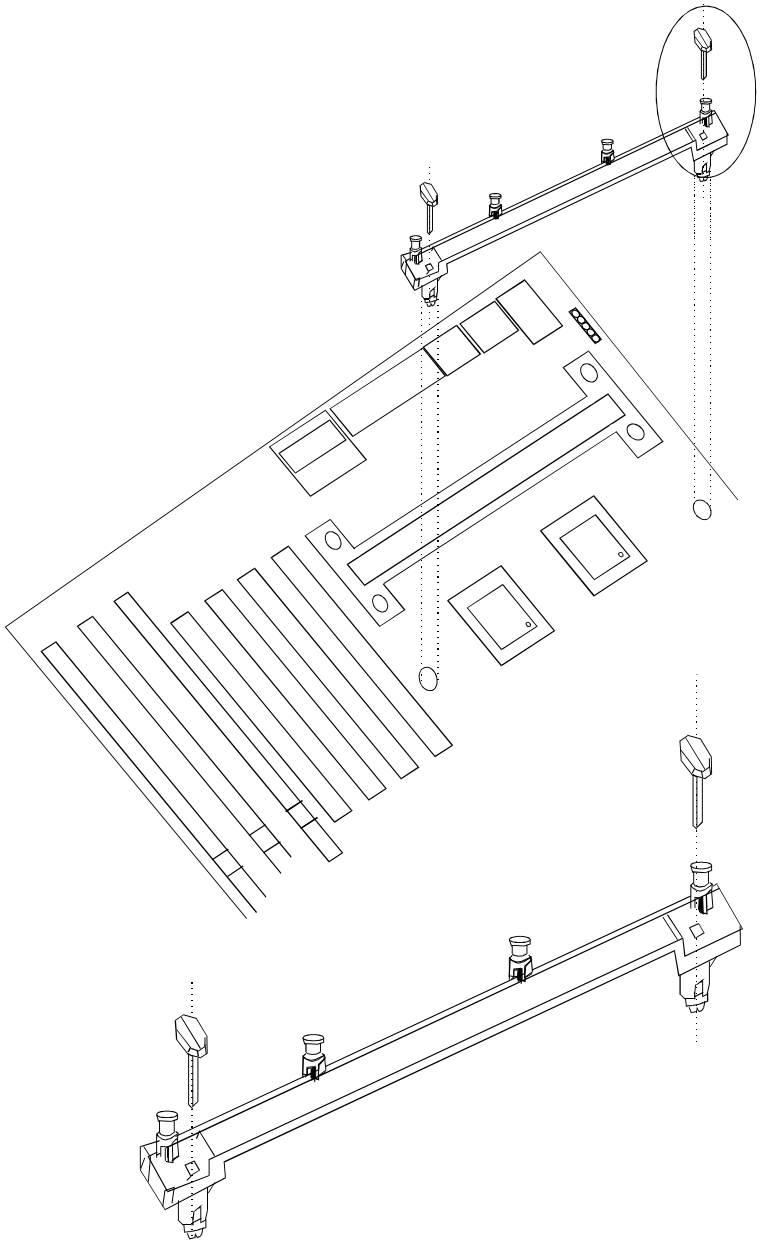

Step 3

(2) Pentium II CPU Installation Procedure

Step 1:

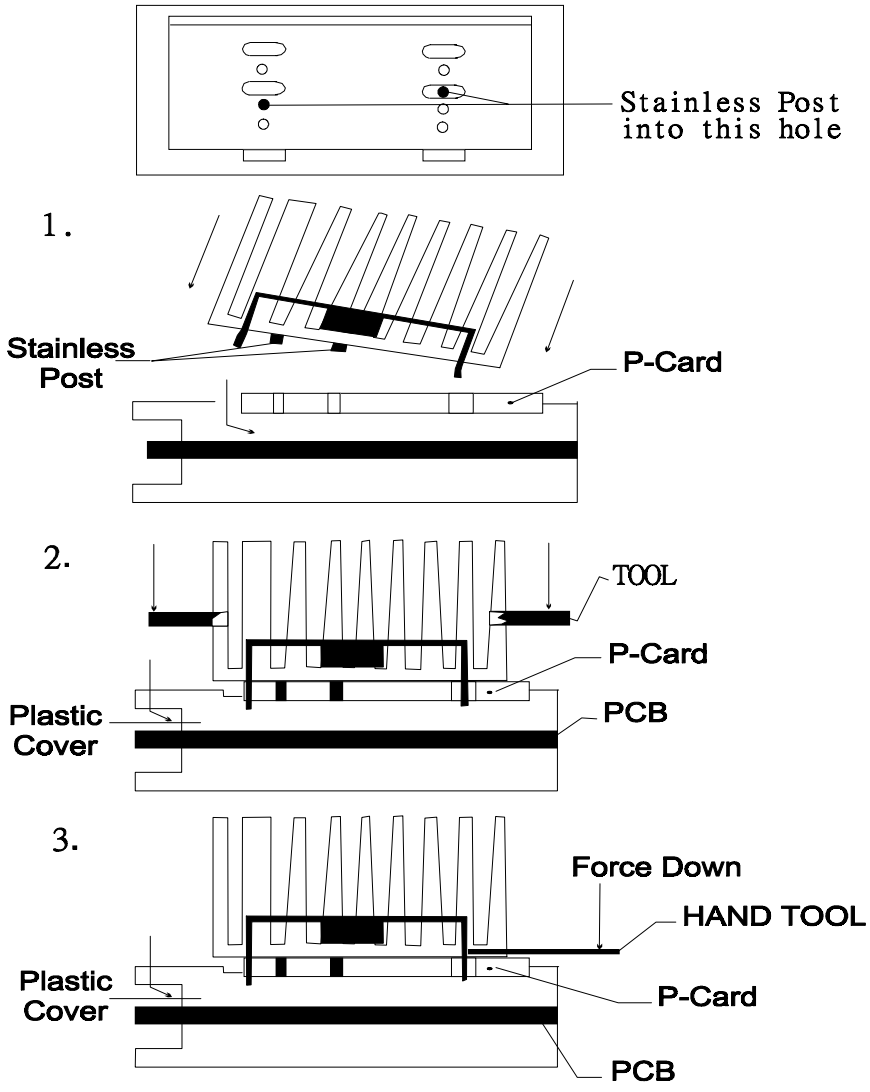


Step 2:

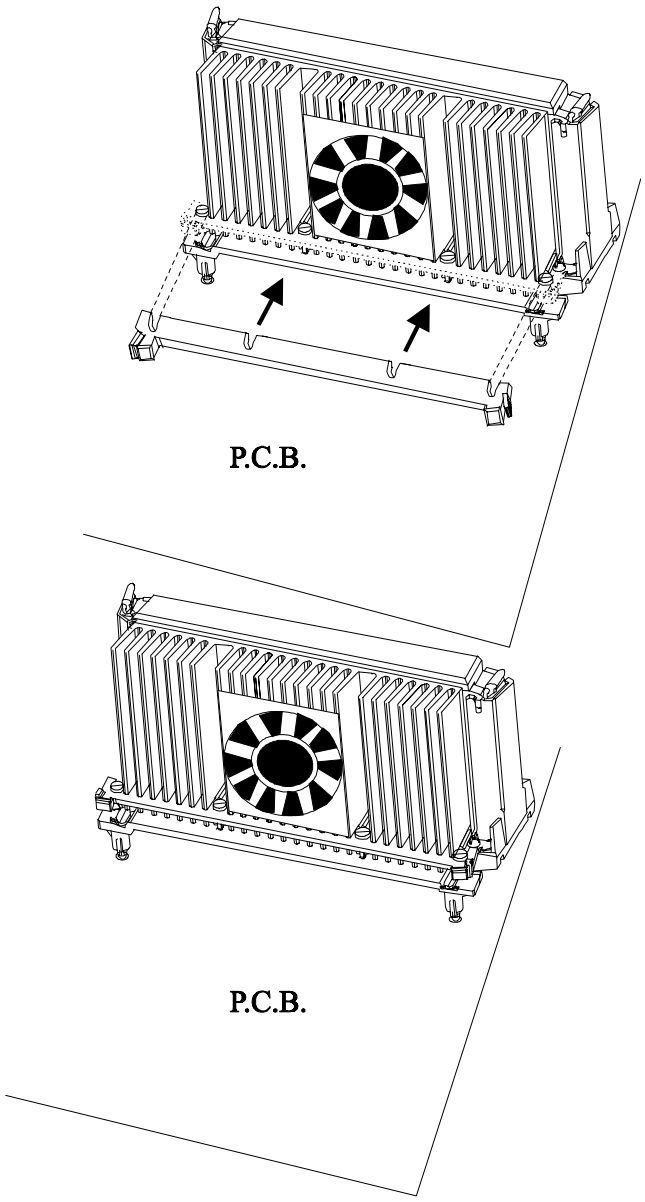


Step 2:

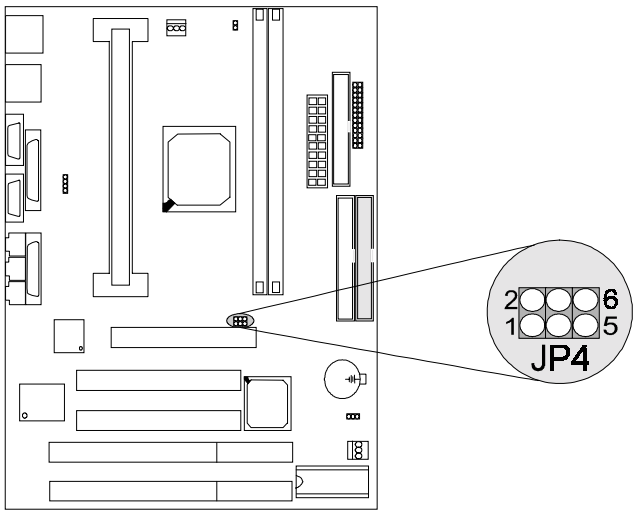
Note : Please remove plastic of the heat sink before installation of the Fan.



Step 4:



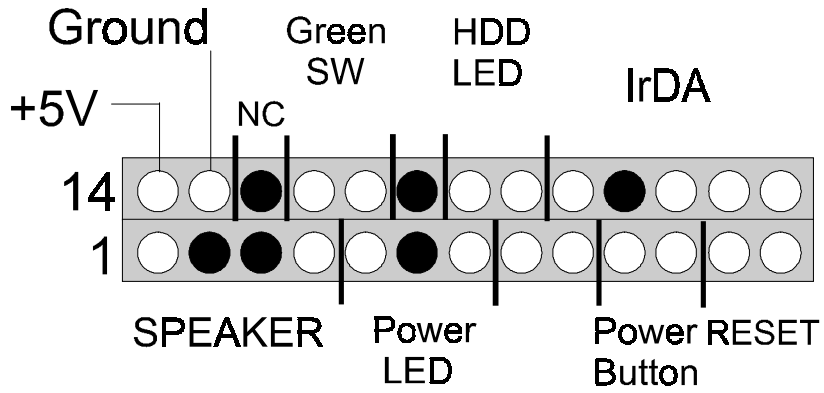
(A) JP4 INTEL CPU Clock Select



CPU Speed	JP4 (1-2)	JP4 (3-4)	JP4 (5-6)
200MHz	closed	open	closed
233MHz	open	open	closed
266MHz	closed	closed	open
300MHz	open	closed	open
333MHz	closed	open	open

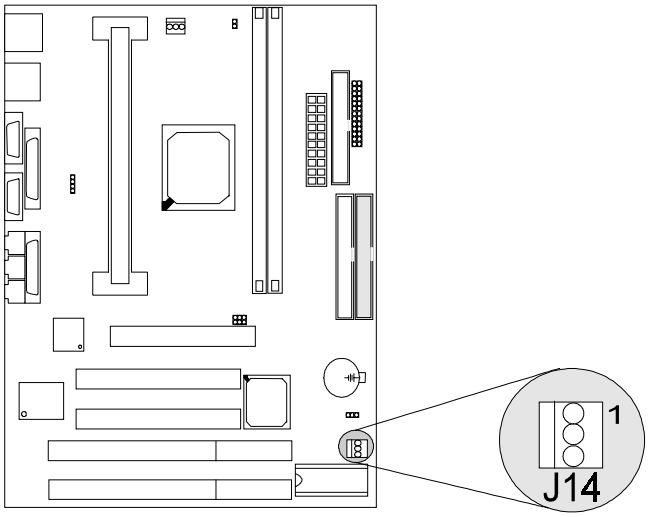
Connectors

(A) J9



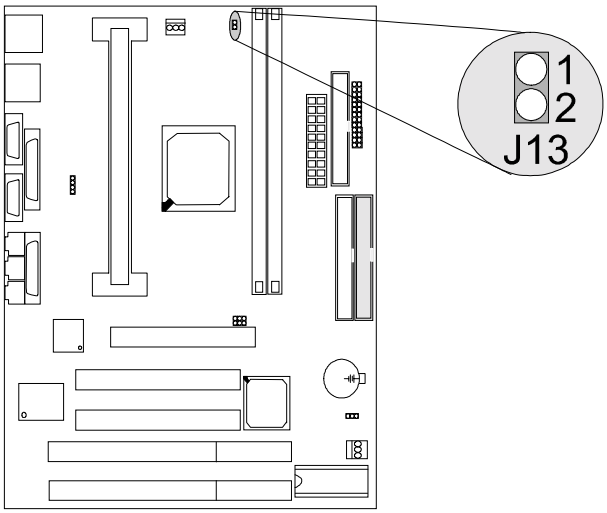
Pin No.	Assignment	Function	Pin No.	Assignment	Function
1	Speaker	Speaker Connector	**14**	+5V	VCC
2	NC		**15**	Ground	Ground
3	NC		**16**	Ground	
4	+5V		**17**	Green Control	Green Switch
5	Power LED(+)	Power LED	**18**	Ground	
6	NC		**19**	NC	HDD LED
7	Ground		**20**	HDD LED(-)	
8	Green LED +	Green LED	**21**	HDD LED(+)	
9	Green LED -		**22**	+5V	IrDA Connector
10	Power Switch	ATX Power Button	**23**	NC	
11	Standby Voltage		**24**	IRRX	
12	Reset Control	Reset	**25**	Ground	
13	Ground		**26**	IRTX	

(B) J14 Wake-On-LAN Header



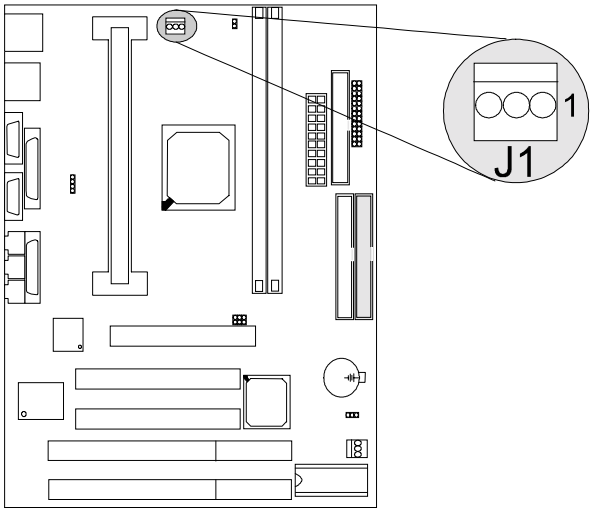
Pin No.	Assignment
1	+5 V Standby Voltage
2	Ground
3	MP-Wakeup

(C) J13 Wake-On-Internal Modem



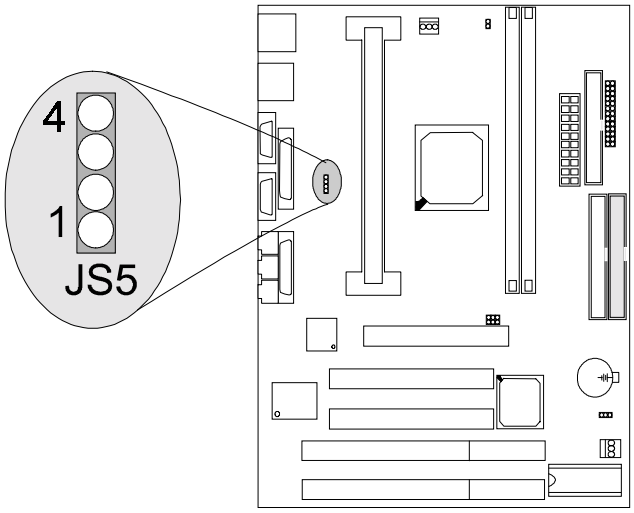
Pin No.	Assignment
1	Ring
2	GND

(D) J1 CPU Cooling Fan Power Connector



Pin No.	Assignment
1	Ground
2	+12V
3	No Connection

(E) JS5 CD Audio Input Connector



Pin No.	Assignment
4	Right Channel Input
3	GND
2	GND
1	Left Channel Input

AWARD BIOS Setup

Entering Setup

Power on the computer and press <**Del**> immediately will allow you to enter Setup. The other way to enter Setup is to power on the Computer, when the below message appears briefly at the bottom of the screen during the POST (Power On Self Test), press <**Del**> key or simultaneously press <**CTRL**>, <**Alt**>, and <**Esc**> keys.

TO ENTER SETUP BEFORE BOOT PRESS CTRL-ALT-ESC OR DEL KEY

If the message disappears before you 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 < **CTRL**>, <**Alt**>, and <**Delete**> key. If you do not press the keys at the correct time and the system does not boot, an error message will be displayed and you will again be asked to,

PRESS F1 TO CONTINUE, CTRL-ALT-ESC OR DEL TO ENTER SETUP

Main Menu

The on-line description of the highlighted setup function is displayed at the bottom of the screen.

Status Page Setup Menu/Option Page Setup Menu

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**>.

Control Keys

Up arrow	Move to previous item
Down arrow	Move to next item
Left arrow	Move to the item in left hand
Right arrow	Move to the item in right hand
Esc key	Main Menu-Quit and not save changes into COMS Status Page Setup Menu and Option Page Setup Menu-Exit current page and return to Main Menu
PgUp key	Increase the numeric value or make changes
PgDn key	Decrease the numeric value or make changes
+ key	Increase the numeric value or make changes
- key	Decrease the numeric value or make changes
F1 key	General help, only for Status Page Setup Menu and Option Page Setup Menu
(Shift) F2 key	Change color from total 16 colors. F2 to select color forward, (Shift) F2 to select color backward
F3 key	Reserved
F4 key	Reserved
F5 key	Restore the previous CMOS value from CMOS, only for Option Page Setup Menu
F6 key	Load the default CMOS value from BIOS default table, only for Option Page Setup Menu
F7 key	Load the default
F8 key	Reserved
F9 key	Reserved
F10 key	Save all the CMOS changes, only for Main Menu

Main Menu

Once you enter AWARD BIOS CMOS Setup Utility, the Main Menu(**Figure 1**) will appear on the screen. The Main Menu allows you to select among the items and press <**Enter**> to accept or enter the sub-menu.

■ **Figure 1. Main Menu**

ROM PCI/ISA BIOS (xxxxxxxx)
CMOS SETUP UTILITY
AWARD SOFTWARE, INC.

STANDARD CMOS SETUP	INTEGRATED PERIPHERALS
BIOS FEATURES SETUP	SUPERVISOR PASSWORD
CHIPSET FEATURES SETUP	USER PASSWORD
POWER MANAGEMENT SETUP	IDE HDD AUTO DETECTION
PCI / PCI CONFIGURATION	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...	

Standard CMOS Setup

This setup page includes all the items in a standard compatible BIOS.

BIOS Features Setup

This setup page includes all the items of BIOS special enhanced features.

Chipset Features Setup

This setup page includes all the items of chipset special features.

Power Management Setup

This setup page includes all the items of power management features.

PnP / PCI Configuration

This category specifies the value (in units of PCI bus clocks) of the latency timer for this PCI bus master and the IRQ level for PCI device.

Load Setup Defaults

Chipset defaults indicates the values required by the system for the maximum performance. The OEM manufacturer may change to defaults through MODBIN before the binary image burn into the ROM.

Integrated Peripherals

This setup page includes all the items of Integrated Peripherals features.

Supervisor Password / User Password Setting

Change, set, or disable password. It allows you to limit access to the system and Setup, or just to Setup.

IDE Hdd Auto Detection

Automatically configure hard disk parameters.

Save & Exit Setup

Save CMOS value changes to CMOS and exit setup.

Exit Without Saving

Abandon all CMOS value changes and exit setup.

Standard CMOS Setup Menu

The items in Standard CMOS Setup Menu are divided into categories. Each category includes no, one or more than one setup items. Use the arrow keys to highlight the item and then use the **<PgUp>** or **<PgDn>** keys to select the value you want in each item.

■ **Figure 2. Standard CMOS Setup Menu**

ROM PCI/ISA BIOS (xxxxxxxx)
STANDARD CMOS SETUP
AWARD SOFTWARE, INC.

Date (mm:dd:yy) : Mon Mar 3 1997
Time (hh:mm:ss) : 11 : 37 : 30

HARD DISKS	TYPE	SIZE	CYLS	HEAD	PRECOMP	LAND	SECTOR	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 :1.44MB, 3.5 in.
Drive B :None

Video :EGA/VGA

Halt On :All, But Keyboard

Base Memory	:	0K
Extended Memory	:	0K
Other Memory	:	512K
Total Memory	:	512K

Esc : Quit ↑ ↓ → ← : Select Item PU/PD/+/-:Modify
F1 : Help (Shift) F2 : Change Color

Date

The Date format is **<day><month><date><year>**.

day	The day, from Sun to Sat, determined by the BIOS and is display-only
date	The date, from 1 to 31 (or the maximum allowed in the month)
month	The month, Jan through Dec
year	The year, from 1994 through 2079

Time

The time format is **<hour><minute><second>**. The time is calculated based on the 24-hour military-time clock. For example, 2 p.m. is 14:00:00.

Hard Disks Type

The categories identify the types of hard disk that have been installed in the computer. There are 46 predefined types and a user definable type. Type 1 to Type 45 are predefined. Type User is user-definable. Type Auto is automatic-define by BIOS.

Press **<PgUp>** or **<PgDn>** to select a numbered hard disk type or type the number and press **<Enter>**. Note that the specifications of your drive must match with the drive table. The hard disk will not work properly if you enter improper information for this category. If your hard disk drive type is not matched or listed, you can use Type User to define your own drive type manually.

If you select Type User, related information is asked to be entered. Enter the information directly from the keyboard and press **<Enter>**. This information should be provided in the documentation from your hard disk vendor or the system manufacturer.

CYLN	number of cylinders
HEAD	number of heads
WPCOM	write precom
SEC	number of sectors
LBA MODE	type of LBA mode
BLK MODE	type of Block mode
PIO MODE	type of PIO
32BIT MODE	type of 32-Bit transfer mode

If a hard disk has not been installed, select NOT Installed and press **<Enter>**.

Driver A Type/Drive B Type

The category identifies the types of floppy disk drive A or drive B that have been installed in the computer.

None	No floppydrive installed
360K, 5 1/4	5-1/4 inch PC-type standard drive; 360 kilobyte capacity
1.2M, 5 1/4	5-1/4 inch AT-type high-density drive; 1.2 megabyte capacity
720K, 3 1/2	3-1/2 inch double-sided drive; 720 kilobyte capacity
1.44M, 3 1/2	3-1/2 inch double-sided drive; 1.44 megabyte capacity
2.88M, 3 1/2	3-1/2 inch double-sided drive; 2.88 megabyte capacity

Video

The category selects the type of adapter used for the primary system monitor that must match your video display card and monitor. Although secondary monitors are supported, you do not have to select the type in Setup.

EGA/VGA	Enhanced Graphics Adapter/Video Graphics Array. FOR EGA, VGA, SEGA, or PGA monitor adapters.
CGA 40	Color Graphics Adapter, power up in 40 column mode

CGA 80	Color Graphics Adapter, power up in 80 column mode
MONO	Monochrome adapter, includes high resolution monochrome adapters

Halt On

The category determines whether the computer will stop if an error is detected during power up.

No errors	Whenever the BIOS detects a non-fatal error the system will be stopped and you will be prompted.
All errors	The system boot will not be stopped for any error that may be detected.
All, But Keyboard	The system boot will not stop for a keyboard error, it will stop for all other errors.
All, But Diskette	The system boot will not stop for a disk error, it will stop for all other errors.
All, But Disk/Key	The system boot will not stop for a keyboard or disk error, it will stop for all other errors.

Memory

The category is display-only which is determined by POST (Power On Self Test) of the BIOS.

Base Memory

The POST of the BIOS will determine the amount of base (or conventional) memory installed in the system. The value of the base memory is typically 512K for system with 512K memory installed on the motherboard, or 640K for system with 640K or more memory installed on the motherboard.

Extended Memory

The BIOS determines how much extended memory is presented during the POST. This is the amount of memory located above 1MB in the CPU‘s memory address map.

Other Memory

This refers to the memory located in the 640K address space. This is the

memory that can be used for different applications. DOS uses this area to load device drivers to keep as much base memory free application programs. Most use for this area is Shadow RAM.

BIOS Features Setup

!! WARNING !! *The information about BIOS defaults on manual* ***(Figure 3.4.5.6.8)*** *is just for reference, please refer to the BIOS installed on board, for update information.*

■ **Figure 3. BIOS Features Setup Menu**

ROM PCI/ISA BIOS (xxxxxxxx)
BIOS FEATURES SETUP
AWARD SOFTWARE, INC.

Virus Warning	: Disabled	Video BIOS Shadow	: Enabled
CPU Internal Cache	: Enabled	C8000-CBFFF Shadow	: Disabled
External Cache	: Enabled	CC000-CFFFF Shadow	: Disabled
CPU L2 Cache ECC Checking	: Disabled	D0000-D3FFF Shadow	: Disabled
Quick Power On Self Test	: Enabled	D4000-D7FFF Shadow	: Disabled
Boot From LAN First	: Disabled	D8000-DBFFF Shadow	: Disabled
Boot Sequence	: A,C,SCSI	DC000-DFFFF Shadow	: Disabled
Swap Floppy Drive	: Disabled		
Boot Up Floppy Seek	: Enabled		
Boot Up NumLock Status	: On		
Gate A20 Option	: Fast		
Typematic Rate Setting	: Disabled		
Typematic Rate (Chars/Sec)	: 6		
Typematic Delay (Msec)	: 250		
Security Option	: Setup		
PCI/VGA Palette Snoop	: Disabled	ESC : Quit	↑ ↓ → ← : Select Item
OS Select For DRAM > 64MB	: Non-OS2	F1 : Help	PU/PD/+/- : Modify
Report No FDD For WIN 95	: No	F5 : Old Values	<Shift> F2 : Color
		F7 : Load Setup Defaults	

Virus Warning

This category flashes on the screen. During and after the system boot up, any attempt to write to the boot sector or partition table of the hard disk drive will halt the system and the error message will appear. In the mean time, you can run an anti-virus program to locate the problem.

Disabled (default)
No warning message to appear when anything attempts to access the boot sector or hard disk partition table.
Enabled
Activates automatically when the system boots up causing a warning message to appear when anything attempts to access the boot sector of hard disk partition table.

CPU Internal Cache

Enabled (default)	Enable cache
Disabled	Disable cache

External Cache

Cache memory is additional memory that is much faster than conventional DRAM (system memory). Most, but not all, modern PCs have additional (external) cache memory. When the CPU requests data, the system transfers the requested data from the main DRAM into cache memory, for even faster access by the CPU.

Enabled (default)	Enable cache
Disabled	Disable cache

CPU L2 Cache ECC Checking

This item allows you to select between two methods of L2 Cache error checking.

Enabled
Disabled (default)

Quick Power On Self Test

This option enables the level 2 external cache memory.

Enabled	Enable quick POST
Disabled (default)	Normal POST

Boot From LAN First

The BIOS attempts to boot from LAN First. If LAN fails to boot, it should invoke INT18h, since this is now the boot recovery rector.

Disabled (default)	Boot sequence Normal
Enabled	System will first search for LAN

Boot Sequence

This option determines which drive the computer searches the OS for boot-up. The settings are “A, C, SCSI”, “C, A, SCSI”, “C, CDROM, A”, “CDROM, C, A”, “D, A, SCSI”, “E, A, SCSI”, “F, A, SCSI”, “SCSI, A, C”, “SCSI, C, A” or “C only”,etc. **The default is “A, C, SCSI”.**

Swap Floppy Drive

Switches the floppy disk drive between being designated as A and B. **Default is Disabled.**

Boot Up Floppy Seek

During POST, BIOS will determine if the floppy disk drive installed is 40 or 80 tracks. 360K type is 40 tracks while 720K, 1.2M and 1.44M are all 80 tracks.

Enabled (default)	BIOS searches for floppy disk drive to determine if it is 40 or 80 tracks. Note that BIOS cannot tell from 720K, 1.2M or 1.44M drive type as they are all 80 tracks.
Disabled	BIOS will not search for the type of floppy disk

drive by track number. Note that there will not be any warning message if the drive installed is 360K.

Boot Up NumLock Status

On (default)	Keypad is number keys.
Off	Keypad is arrow keys.

Gate A20 Option

This entry allows you to select how the gate A20 is handled. The gate A20 is a device used to address memory above 1 Mbytes. Initially, the gate A20 was handled via a pin on the keyboard. Today, while keyboards still provide this support, it is more common, and much faster, for the system chipset to provide support for gate A20.

Typematic Rate Setting

This determines the typematic rate.

Enabled	Enable typematic rate and typematic delay programming.
Disabled (default)	Disable typematic rate and typematic delay programming. The system BIOS will use default value of this 2 items and the default is controlled by keyboard.

Typematic Rate (Chars/Sec)

6	6 characters per second
8	8 characters per second
10	10 characters per second
12	12 characters per second
15	15 characters per second
20	20 characters per second
24	24 characters per second
30	30 characters per second

Typematic Delay (Msec)

Choose the length of delay from the time you press a key and the character repeating. (units are mil-sec)

Security Option

This category allows you to limit access to the system and Setup, or just to Setup.

System	The system will not boot and access to Setup will be denied if the correct password is not entered at the prompt.
Setup (default)	The system will boot, but access to Setup will be denied if the correct password is not entered at the prompt.

PCI / VGA Palette Snoop

Choose Disabled or Enabled. Some graphic controllers which are not VGA compatible take the output from a VGA controller and map it to their display as a way to provide the boot information and the VGA compatibility.

However, the color information coming from the VGA controller is drawn from the palette table inside the VGA controller to generate the proper colors, and the graphic controller needs to know what is in the palette of the VGA controller. To do this, the non-VGA graphic controller watches for the Write access to the VGA palette and registers the snoop data. In PCI based systems, where the VGA controller is on the PCI bus and a non-VGA graphic controller is on an ISA bus, the Write Access to the palette will not show up on the ISA bus if the PCI VGA controller responds to the Writes.

In this case, the PCI VGA controller should not respond to the Write, it should only snoop the data and permit the access to be forwarded to the ISA bus. The non-VGA ISA graphic controller can then snoop the data on the ISA bus. Unless you have the above situation, you should disable this option.

Disabled (default)	Disables the function.
Enabled	Enables the function.

OS Selection for DRAM > 64MB

Allows OS/2 to be used with > 64MB of DRAM. Settings are Non-OS/2 (default) and OS/2. Set to OS/2 if using more than 64MB and running OS/2.
DEFAULT is Non-OS2.

Video BIOS Shadow

Determines whether video BIOS will be copied to RAM for faster execution.

Enabled	Optional ROM is enabled.
Disabled (default)	Optional ROM is disabled.

C8000 - CFFFF Shadow / E8000 - EFFFF Shadow

Determines whether the optional ROM will be copied to RAM for faster execution.

Enabled	Optional ROM is shadowed.
Disabled (default)	Optional ROM is not shadowed.

Note : For C8000 - DFFFF option - ROM on PCI BIOS, BIOS will automatically enable the shadow RAM. User does not have to select the item.

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.

- **Figure 4. Chipset Feature Setup Menu**

ROM PCI/ISA BIOS (xxxxxxxx)
CHIPSET FEATURES SETUP
AWARD SOFTWARE, INC.

Auto Configuration	: Enabled	SDRAM CAS latency Time	: 2
DRAM Speed Selection	: 60ns		
MA Wait State	: Slow		
EDO RAS# To CAS# Delay	: 3		
EDO RAS# Precharge Time	: 4		
EDO DRAM Read Burst	: x222		
EDO DRAM Write Burst	: x333		
CPU-To-PCI Ide Posting	: Enabled		
System BIOS Cacheable	: Enabled		
Video BIOS Cacheable	: Enalbed		
Video RAM Cacheable	: Disabled		
8 Bit I/O Recovery Time	: 1		
16 Bit I/O Recovery Timing	: 1		
Memory Hole At 15M-16M	: Disabled		
Passive Release	: Enabled	ESC : Quit	↑ ↓ → ←: Select Item
Delayed Transaction	: Enabled	F1 : Help	PU/PD/+/- : Modify

AGP Aperture Size (MB)	: 64	F5	: Old Values <Shift> F2 : Color
SDRAM RAS-to-CAS Delay	: Fast	F7	: Load Setup Defaults
SDRAM RAS Precharge Time	: Fast		

Auto Configuration

Choosing **Enabled** (default) will automatically configure chipset features using default settings. Choose Disable to customize setup.

DRAM Timing

The value in this field must correspond to the speed of the DRAM installed in your system. DO NOT change the default setting of this field, as determined by the system board manufacturer for the installed DRAM. This value is access speed, so a lower value means a faster system.

60ns (default)

MA Waite State

Selecting Enabled inserts an wait state before the beginning of a memory read. The setting of this parameter depends on the board design. Do not change from the manufacturer's default unless you are getting memory addressing errors.

Slow (default)

EDO RAS# To CAS# Delay

This sets the relative delay between the row and column address strobes from DRAM (EDO).

3 (default)

EDO RAS# Precharge Time

Defines the length of time for Row Address Strobe from DRAM (EDO) is allowed to precharge.

4 (default)

EDO DRAM Read Burst

This sets the timing for burst mode reads from DRAM (EDO). Burst read and write requests are generated by the CPU in four separate parts. The lower the timing numbers, the faster the system will address memory.

X222 (default)	Read DRAM (EDO) timings are 2-2-2
X333	Read DRAM (EDO) timings are 3-3-3

EDO DRAM Write Burst

This sets the timing for burst mode reads from DRAM (EDO). Burst read and write requests are generated by the CPU in four separate parts. The lower the timing numbers, the faster the system will address memory.

X222 (default)	Read DRAM (EDO) timings are 2-2-2
X333	Read DRAM (EDO) timings are 3-3-3

CPU-To-PCI IDE Posting

Select Enabled to post write cycles from the CPU to the PCI IDE interface. IDE accesses are posted in the CPU to PCI buffers, for cycle optimization.

Enabled (default)
Disabled

System BIOS Cacheable

When enabled, accesses to the system BIOS ROM addressed at F0000H-FFFFFH are cached, provided that the cache controller is enable.

Enabled (default)	BIOS access cached
Disabled	BIOS access not cached

Video BIOS Cacheable

As with caching the System BIOS above, enabling the Video BIOS cache will cause access to video BIOS addressed at C0000H to C7FFFH to be cached, if the cache controller is also enabled.Data from the CPU to the PCI bus can be posted (buffered by the controller).

Enabled (default)	Video BIOS access cached
Disabled	Video BIOS access not cache

8 Bit I / O Recovery Time

The recovery time is the length of time, measured in CPU clocks, which the system will delay after the completion of an input / output request. This delay takes place because the CPU is operating so much faster than the input / output bus that the CPU must be delayed to allow for the completion of the I / O.
The item allows you to determine the recovery time allowed for 8 bit I / O. Choices are from NA, 1 to 8 CPU clocks.

1 (default)

16 Bit I / O Recovery Time

This item allows you to determine the recovery time allowed for 16 bit I/ O. Choices are from NA, 1 to 4 CPU clocks.

1 (default)

Memory Hole At 15M-16M

You can reserve this area of system memory for ISA adapter ROM. When this area is reserved, it cannot be cached. The user information of peripherals that need to use this area of system memory usually discusses their memory requirements.

Disabled (default)

Passive Release

When Enabled, CPU to PCI bus accesses is allowed during passive release. Otherwise, the arbiter only accepts another PCI master access to local DRAM.

Enabled (default)

Delayed Transaction

The chipset has an embedded 32-bit posted write buffer to support delay transactions cycles. Select Enabled to support compliance with PCI specification version 2.1.

Enabled (default)

AGP Aperture Size (MB)

Select the size of the Accelerated Graphics Port(AGP) aperture. The aperture is a portion of the PCI memory address range dedicated for graphics memory address space. Host cycles that hit the aperture range are forwarded to the AGP without any translation.

64 (default)

SDRAM RAS-to-CAS Delay

This field lets you insert a timing delay between the CAS and RAS strobe signals, used when DRAM is written to, read from, or refreshed. Fast gives faster performance; and Slow gives more stable performance. This field applies only when synchronous DRAM is installed in the system.

Fast (default)

SDRAM RAS Precharge Time

If an insufficient number of cycles is allowed for the RAS to accumulate its charge before DRAM refresh, the refresh may be incomplete and the DRAM may fail to retain data. Fast gives faster performance; and Slow gives more stable performance. This field applies only when synchronous DRAM is installed in the system.

Fast (default)

SDRAM CAS latency Time

When synchronous DRAM is installed, the number of clock cycles of CAS latency depends on the DRAM timing. Do not reset this field from the default value specified by the system designer.

2 (default)

Power Management Setup

■ **Figure 5. Power Management Setup Menu**

ROM PCI/ISA BIOS (xxxxxxxx)
POWER MANAGEMENT SETUP
AWARD SOFTWARE, INC.

Power Management	: Disabled	** Reload Global Timer Events **	
PM Control by APM	: Yes	IRQ [3-7 , 9-15] , NMI	: Enabled
Video Off Method	: DPMS	Primary IDE 0	: Enabled
Video Off After	: Standby	Primary IDE 1	: Enabled
MODEM Use IRQ	: NA	Secondary IDE 0	: Disabled
		Secondary IDE 1	: Disabled
Doze Mode	: Disabled	Floppy Disk	: Enabled
Standby Mode	: Disabled	Serial Port	: Enabled
Suspend Mode	: Disabled	Parallel Port	: Enabled
HDD Power Down	: Disabled		
Throttle Duty Cycle	: 62.5 %		

VGA Active Monitor	: Disabled	
Soft-Off by PWR-BTTN	: Instant - Off	
Resume by Ring	: Disabled	
Resume by RTC Alarm	: Disabled	ESC : Quit ↑ ↓→←: Select Item
		F1 : Help PU/PD/+/- : Modify
		F5 : Old Values <Shift> F2 : Color
Wake Up On LAN	: Disabled	F7 : Load Setup Defaults
IRQ 8 Break Suspend	: Disabled	

Power Management

Disable (Min. Saving)	Global Power Management will be disabled..
User Define (Max. Saving)	Users can configure their own power management.
Min Saving	Pre-defined timer values are used such that all timers are at their MAX value.
Max Saving	Pre-defined timer values are used such that all timers are at their MIN value.

PM Control by APM

No	System BIOS will ignore APM when power managing the system.
Yes	System BIOS will wait for APM‘s prompt before it enters any PM mode.

Video Off Method

Blank Screen	The system BIOS will only blank the screen when disabling video.
V/H SYNC+Blank	In addition to the above, BIOS will also turn off the V-SYNC & H-SYNC signals from VGA card to monitor.
DPMS	This function is enabled only for VGA card supporting DPMS.

Video Off After

As the system moves from lesser to greater power-saving modes, select

the mode in which you want the monitor to blank:

Standby (default)

MODEM Use IRQ

Name the interrupt request (IRQ) line assigned to the modem (if any) on your system. Activity of the selected IRQ always awakens the system.

3 (default)

Doze Mode

This options specifies how long the CPU is continuously idle before entering the doze mode. When the system is in Doze mode, the screen will be blank.

Disabled (default)

Standby Mode

After the selected period of system inactivity, the fixed disk drive and the video shut off while all other devices still operated at full speed.

Disabled (default)

Suspend Mode

This options allows the user to indicate how long the system will be idle before entering the suspend mode, which turns off the CPU and saves the energy of the system.

HDD Power Down

After the selected period of drive inactivity, the hard disk drive powers down while all other devices remain active.

Disabled (default)

Throttle Duty Cycle

When the system enters Doze mode, the CPU clock runs only part of the time. You may select the percent of time that the clock runs.

62.5 % (default)

VGA Active Monitor

When Enabled, any video activity restarts the global timer for Standby mode.

Disabled (default)

Soft-Off by PWR-BTTN

This item allows you to set the off function of power button by software control.

Instant-Off (default)

Resume by Ring

An input signal on the serial Ring Indicator (RI) line (in other words, an incoming call on the modem) awakens the system from a soft off state.

Disabled (default)

Resume by RTC Alarm

When set to Enabled RTA Alarm Resume, you could set the date (of month) and timer (hh:mm:ss),a any event occurring at will awaken a system which has been powered down.

Disabled (default)

Wake Up On LAN

Disabled (default)

IRQ 8 Break Suspend

You can turn On or Off monitoring of IRQ 8 (the Real Time Clock) so it does not awaken the system from Suspend mode.

Disabled (default)

PNP / PCI Configuration Setup

■ **Figure 6. PNP / PCI Configuration Setup Menu**

ROM PCI/ISA BIOS (xxxxxxxx)
PNP / PCI FUNCTION SETUP
AWARD SOFTWARE, INC.

PNP OS Installed	: No	PCI IDE IRQ Map To	: PCI-AUTO
Resources Controlled BY	: Manual	Primary IDE INT#	: A
Reset Configuration Data	: Disabled	Seconardy IDE INT#	: B
IRQ-3 assigned to :	PCI / ISA PnP	Assign IRQ For VGA	: Enabled
IRQ-4 assigned to :	PCI / ISA PnP	Assign IRQ For USB	: Enabled
IRQ-5 assigned to :	PCI / ISA PnP		

IRQ-7	assigned to :	PCI / ISA PnP	
IRQ-9	assigned to :	PCI / ISA PnP	
IRQ-10	assigned to :	PCI / ISA PnP	
IRQ-11	assigned to :	PCI / ISA PnP	
IRQ-12	assigned to :	PCI / ISA PnP	
IRQ-14	assigned to :	PCI / ISA PnP	
IRQ-15	assigned to :	PCI / ISA PnP	
DMA-0	assigned to :	PCI / ISA PnP	
DMA-1	assigned to :	PCI / ISA PnP	ESC : Quit ↑ ↓ → ←: Select Item
DMA-3	assigned to :	PCI / ISA PnP	F1 : Help PU/PD/+/- : Modify
DMA-5	assigned to :	PCI / ISA PnP	F5 : Old Values <Shift> F2 : Color
DMA-6	assigned to :	PCI / ISA PnP	F7 : Load Setup Defaults
DMA-7	assigned to :	PCI / ISA PnP	

PnP OS Installed

When set to YES, BIOS will only initialize the PnP cards used for booting (VGA, IDE, SCSI). The rest of the cards will be initialized by the PnP operating system like Windows™95. When set to NO, BIOS will initialize all the PnP cards. Therefore for non-PnP operating system (DOS, Netware™), this option must set to NO.

Resources Controlled By "Auto" or "Manual"

By Choosing "Auto" the system BIOS will detect the system resource and automatically assign the relative IRQ and DMA channel for each peripheral.
By Choosing "Manual"(default), the user will need to assign IRQ & DMA for add-on cards. Be sure that there are no IRQ/DMA and I/O ports conflict.

Resources Configuration Data

The system BIOS supports the PnP feature so the system needs to record which resource is assigned and protect resources from conflict. Every peripheral device has a node which is called ESCD. This node records

which resources are assigned to it. The system needs to record and update ESCD to the memory locations. These locations (4K) are reserved at the system BIOS.
If Disabled (default) is chosen, the system's ESCD will update only when the new configuration varies from the last one.
If Enabled is chosen, the system will be forced to update ESCDs if the system configuration has changed and then auto set this option to the "Disabled" mode.

IRQ-3	assigned to : PCI / ISA PnP
IRQ-4	assigned to : PCI / ISA PnP
IRQ-5	assigned to : PCI / ISA PnP
IRQ-7	assigned to : PCI / ISA PnP
IRQ-9	assigned to : PCI / ISA PnP
IRQ-10	assigned to : PCI / ISA PnP
IRQ-11	assigned to : PCI / ISA PnP
IRQ-12	assigned to : PCI / ISA PnP
IRQ-14	assigned to : PCI / ISA PnP
IRQ-15	assigned to : PCI / ISA PnP
DMA-0	assigned to : PCI / ISA PnP
DMA-1	assigned to : PCI / ISA PnP
DMA-3	assigned to : PCI / ISA PnP
DMA-5	assigned to : PCI / ISA PnP
DMA-6	assigned to : PCI / ISA PnP
DMA-7	assigned to : PCI / ISA PnP

The above settings will be shown on the screen only if "Manual" is chosen for the Resources Controlled By function.

Legacy is the term which signifies that a resource is assigned to the ISA Bus and provides for non PnP ISA add-on cards. PCI / ISA PnP signifies that a resource is assigned to the PCI Bus or provides for ISA PnP add-on cards and peripherals.

PCI IDE IRQ Map To

This allows you to configure your system to the type of IDE disk controller in use. By default, Setup assumes that your controller is an ISA (Industry Standard Architecture) device rather than a PCI controller. The more apparent difference is the type of slot being used.

If you have equipped your system with a PCI controller, changing this allows you to specify which slot has the controller and which PCI interrupt (A, B, C or D) is associated with the connected hard drives.

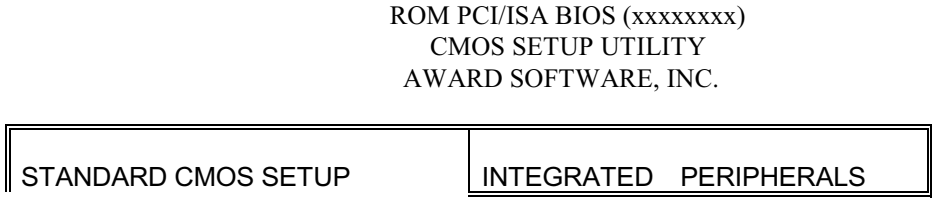
Remember that this setting refers to the hard disk drive itself, rather than individual partitions. Since each IDE controller supports two separate hard drives, you can select the INT# for each Again, you will note that the primary has a lower interrupt than the secondary as described in “lot x Using INT#” above.

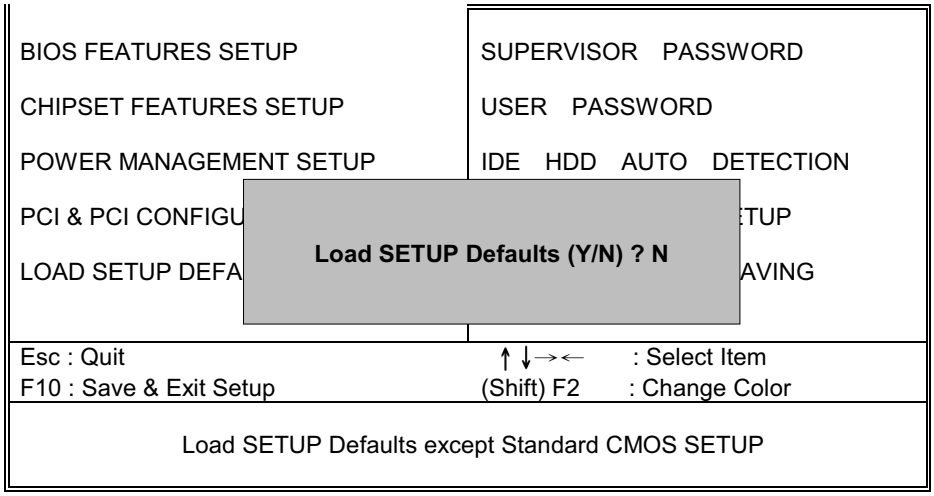
Selecting “PCI Auto” allows the system to automatically determine how your IDE disk system is configured.

Load Setup Defaults

Chipset defaults indicates the values required by the system for maximum performance.

- **Figure 7. Load Setup Defaults Screen**





If you wish to load the SETUP Defaults, change the prompt to <**Y**> and press <**ENTER**>.

Integrated Peripherals Setup

- **Figure 8. Integrated Peripherals Setup Menu**

ROM PCI/ISA BIOS (xxxxxxxx)
INTEGRATED PERIPHERALS
AWARD SOFTWARE, INC.

IDE HDD Block Mode	: Enabled	Parallel Port Mode	: SPP
IDE Primary Master PIO	: Auto		

IDE Primary Slave PIO	: Auto	
IDE Secondary Master PIO	: Auto	
IDE Secondary Slave PIO	: Auto	
IDE Primary Master UDMA	: Auto	
IDE Primary Slave UDMA	: Auto	
IDE Secondary Master UDMA	: Auto	
IDE Secondary Slave UDAM	: Auto	
On-Chip Primary PCI IDE	: Enabled	
On-Chip Secondary PCI IDE	: Enabled	
USB Keyboard Support	: Disabled	
Onboard FDC Controller	: Enabled	
Onboard Serial Port 1	: 3F8/IRQ4	
Onboard Serial Port 2	: 2F8/IRQ3	ESC : Quit ↑ ↓ → ←: Select Item
UART2 Mode	: Standard	F1 : Help PU/PD/+/- : Modify
		F5 : Old Values <Shift> F2 : Color
		F7 : Load Setup Defaults
Onboard Parallel Port	: 378/IRQ7	

IDE HDD Block Mode

Block mode is also called block transfer, multiple commands, or multiple sector read/write. If your IDE hard drive supports block mode (most new drives do), select Enabled for automatic detection of the optimal number of block read/write per sector the drive can support.

Enabled (default)

IDE Primary / Secondary Master / Slave PIO

The IDE PIO (Programmed Input / Output) fields let you set a PIO mode (0-4) for each of the IDE devices that the onboard IDE interface supports. Modes 0 through 4 provide successively increased performance. In Auto mode, the system automatically determines the best mode for each device.

Auto (default)

IDE Primary / Secondary Master / Slave UDMA

Ustra DMA /33 implementation is possible only if your IDE hard drive supports it and the operating environment includes a DMA drive (Windows 95 OSR2 or a third-party IDE bus master driver). If your hard drive and your system software both support Ultra DMA/33, select Auto to enable BIOS support.

Auto (default)

On-Chip Primary IDE / Secondary PCI IDE

The integrated peripheral controller contains an IDE interface with support for two IDE channels. Select Enabled to activate each channel separately.

Enabled (default)

USB Keyboard Support

Select Enabled if your system contains a Universal Serial Bus (USB) controller and you have a USB keyboard.

Disabled (default)
Enabled

Onboard FDC Controller

Enabled / Disabled The system has an on-board Super I/O chip with a FDD controller that supports 2 FDDs for 360K / 720K / 1.2M / 1.44M / 2.8M. Choose "Enabled" to use the on-board FDD controller for accessing the FDD. Otherwise choose "Disabled" to use the off-board FDD controller.

Onboard Serial Port 1

Disabled / (3F8 / IRQ4) / (2F8 / IRQ3) / (3E8 / IRQ4) / (2E8 / IRQ3)

Onboard Serial Port 2

Disabled / (3F8 / IRQ4) / (2F8 / IRQ3) / (3E8 / IRQ4) / (2E8 / IRQ3)
The system has an On-board Super I/O chipset with 2 serial ports.
The On-board serial ports can be selected as:

Disabled	
3F8 / IRQ4	COM1 uses IRQ4
2F8 / IRQ3	COM2 uses IRQ3
3F8 / IRQ4	COM3 uses IRQ4
2F8 / IRQ3	COM4 uses IRQ3

UART 2 Mode

Select an operating mode for the second serial port:

Standard (default)	RS-232C serial port
IrDA SIR	IrDA-compliant serial infrared port
IrDA MIR	1 MB/sec infrared port
IrDA FIR	Fast Infrared standard
Sharp IR	4-Mb/s data transmission

Onboard Parallel Port

Disabled/ (3BC/IRQ7)/ (278 /IRQ5)/ (378 /IRQ7)	There is a built-in parallel port on the on-board Super I/O chipset that provides standard, ECP, and EPP features. It has the following options:

Disable
(3BC/IRQ7)Line Printer port 0
(278 / IRQ5)Line Printer port 2
(378 / IRQ7)Line Printer port 1

Parallel Port Mode

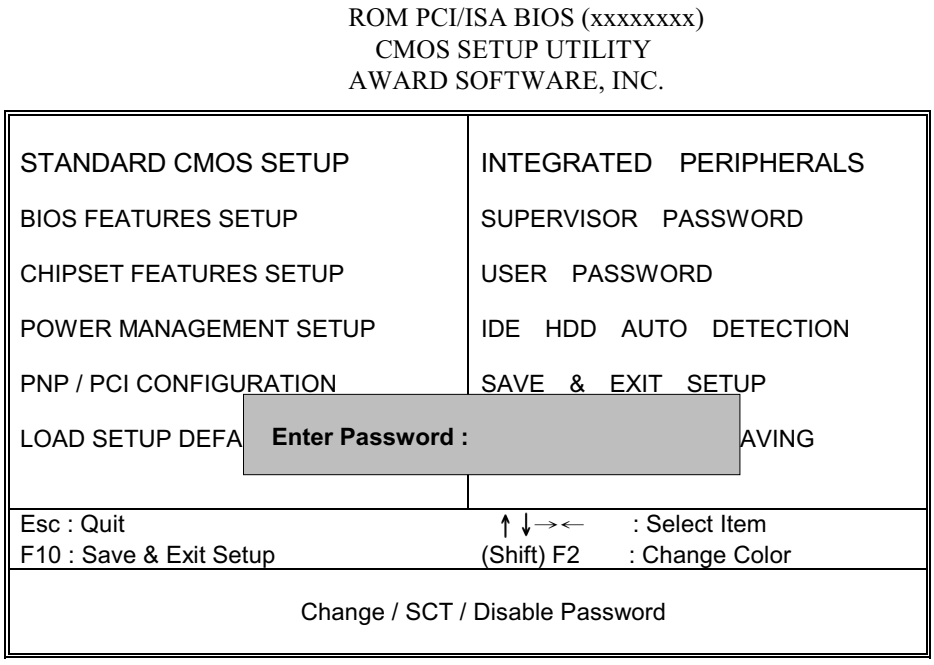
SPP : Standard Parallel Port
EPP : Enhanced Parallel Port
ECP : Extended Capability Port

To operate the onboard parallel port as Standard Parallel Port only, choose “SPP.” To operate the onboard parallel port in the ECP and SPP modes simultaneously, choose “ECP/SPP.” By choosing “ECP” the onboard parallel port will operate in ECP mode only. Choosing

"ECP/EPP" will allow the onboard parallel port to support both the ECP and EPP modes simultaneously. The ECP mode has to use a DMA channel so choose the onboard parallel port with the ECP feature. After selecting it the following message will appear: "ECP Mode Use DMA". At this time the user can choose between DMA channels 3 or 1. The onboard parallel port is EPP Spec. compliant so after the user chooses the onboard parallel port with the EPP function, the following message will be displayed on the screen: "Parallel port EPP Type." At this time either EPP 1.7 spec. or EPP 1.9 spec. can
be chosen.

Supervisor / User Password Setting

- **Figure 9. Supervisor Password Setting**



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, and press <**Enter**>. The password typed now will clear any previously entered password from 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 not enter a password. To disable password, just press <**Enter**> when you are prompted to enter password. A message will confirm the password begin disable. Once the password is disabled, the system will boot and you can enter setup freely.

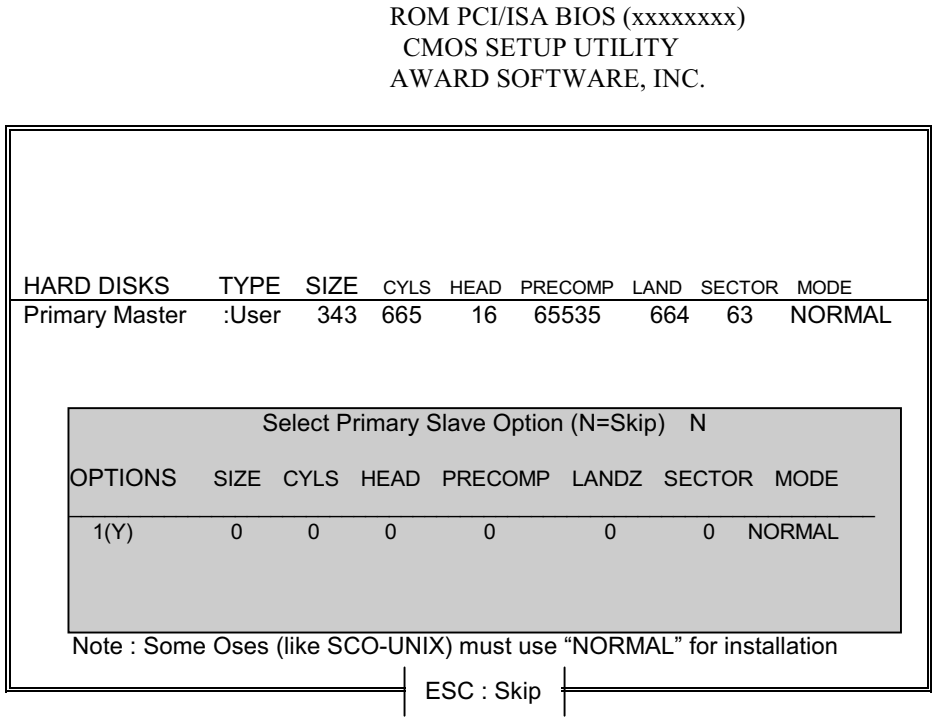
PASSWORD DISABLED

If you select System at Security Option of BIOS Features Setup Menu, you will be prompted for the password every time the system is rebooted or any time you try to enter Setup. If you select Setup at Security Option of BIOS Feature Setup Menu, you will be prompted only when you try to enter Setup.

IDE HDD Auto Detection

Automatically configure hard disk parameters. The parameters on this figure are just for reference.

■ **Figure 10. Auto Configuration with Optimal Settings Screen**

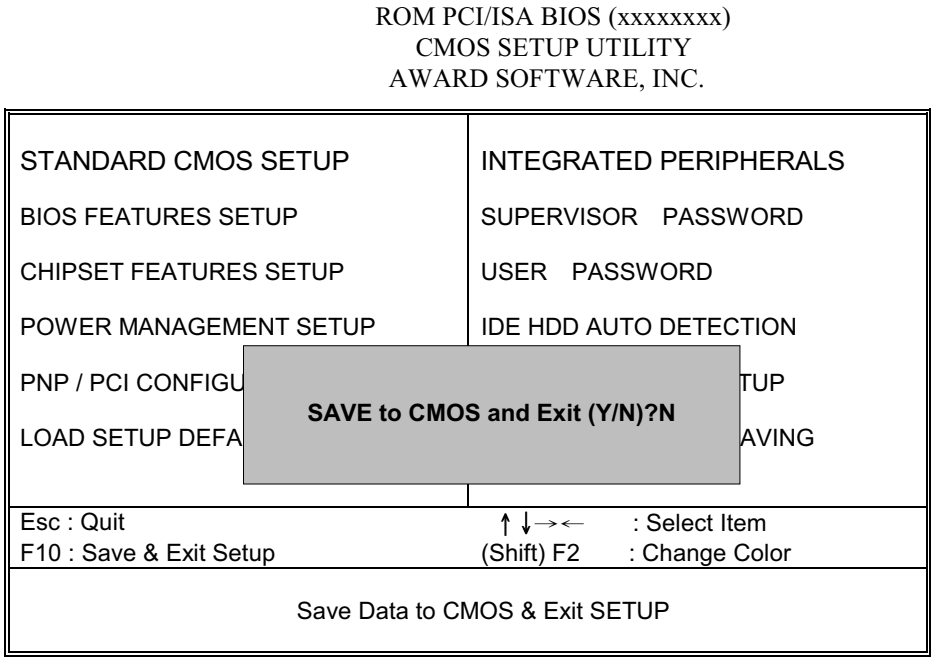


When you enter this utility, the screen asks you to select a specific hard disk for Primary Master. If you accept a hard disk detected by the BIOS, you can enter **"Y"** to confirm and then press <**Enter**> to check next hard disk. This function allows you to check four hard disks and you may press the <**Esc**> after the <**Enter**> to skip this function and go back to the Main Menu.

Save & Exit Setup

Save CMOS value changes to CMOS and exit setup.

■ **Figure 11. Save & Exit Setup Screen**



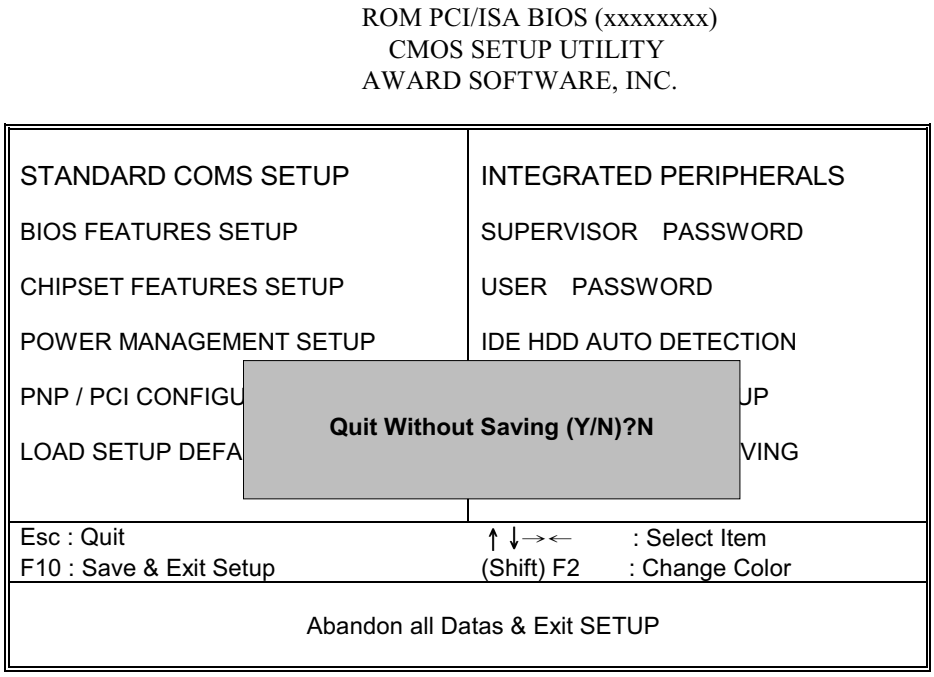
Pressing **<N>** and **<ENTER>** will return you to the Main Menu.

Pressing **<Y>** and **<ENTER>** will save the system parameters and continue with the booting process.

Exit Without Saving

Abandon all CMOS value changes and exit setup.

■ **Figure 12. Save Settings and Exit Screen**



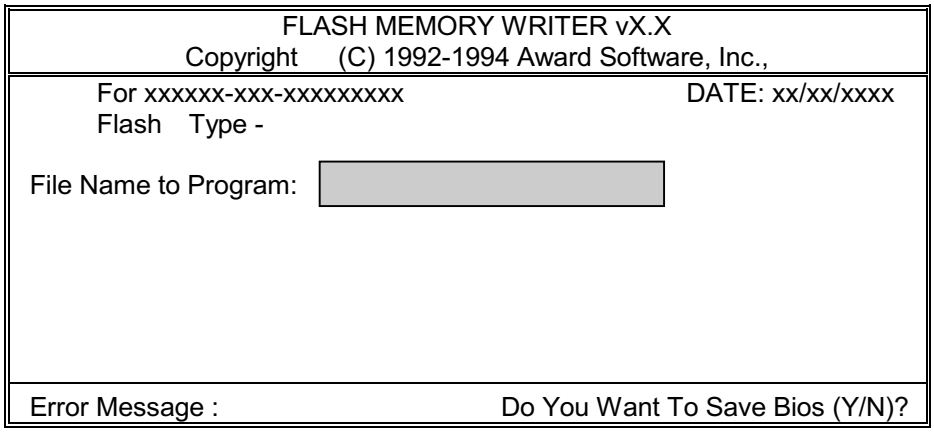
Pressing **<N>** and **<ENTER>** will return you to the Main Menu.

Pressing **<Y>** and **<ENTER>** will continue with booting process without saving any system parameters.

Application Software

– Please use the "BIOS Utility" diskette to setup Flash Memory.
– The diskette contains the intelligent installation utility **AWDFLASH.EXE**, showing as follow.

■ **Figure 13. Flash Memory Writer**



ESS Solo-1 Software

Software List

NOTE: The mark * means it can be installed directly from CD by using CD Installation Utility (i.e. START.EXE).

Drivers

Category	Location in CD
Windows 95 / 98 *	\Esstech\Win9x
Windows NT 4.0	\Esstech\WinNT40

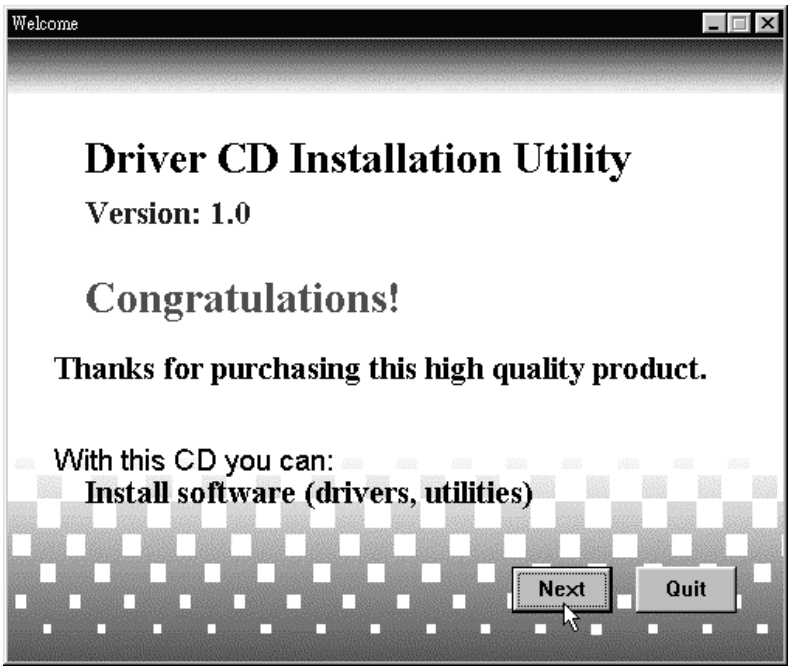
Applications

Name	Location in CD	Platform
AudioRack 32 *	\Esstech\Arakp350	Windows 95 / 98
Midisoft Studio LE *	\Esstech\Stud4le	Windows 95 / 98 / NT4.0

Software Installation

Installation for Windows 95/98:

There is an installation wizard, **Driver CD Installation Utility** (START.EXE), located in the root of CD to let users install drivers directly and conveniently.



Installation for Windows NT 4.0:

1. Start Windows NT 4.0 and open Devices tab in Multimedia Properties Panel (Control Panel, Multimedia)

2. Click "Add..." button and choose "Unlisted or Updated Driver" option, then click "OK" button.

3. Point to the location of ESS Solo-1 on-board sound drivers and click “OK” button.

   For example: X:\Esstech\Winnt40 X: is your CD-ROM drive where this CD located.

4. In Add Unlisted or Updated Driver Dialog, click "OK" button.

5. Windows will copy the drivers.

Using Software

Using AudioRack 32

After the AudioRack 32 Software Installation completed, please refer to Readme.txt and On-line Help come with AudioRack 32 for the detailed information before using AudioRack 32.

Using Midisoft Studio LE

After the Midisoft Studio LE Software Installation completed, please refer to On-line Help come with Midisoft Studio LE for the detailed information before using the application.