3 BIOS Setup

This chapter provides information on how the setup program allows you to configure the functions and devices of your computer and how to configure each item on the setup menus.

Before the computer can operate, it must be known what devices are installed in it. These devices include floppy and fixed-disk drives, video, and so forth. Taken together, the presence or absence of these devices comprise the system configuration. Use the SETUP program to verify or change the system configuration.

Ordinarily, there should be no need to run SETUP the first time you start up your system, since your computer comes from the factory ready to use. You must, however, run the SETUP program each time you make any changes to your computer's configuration, such as adding drives, and so forth. You can also run it to verify the system configuration.

3-1 Starting Setup

The SETUP program is permanently stored in a "Flash EEPROM" and not contained on disk. The SETUP program can be accessed:

- When powering up the system & When resetting the system
- When the system detects an error and prompts for the setup program

1. Accessing SETUP When Powering Up the System

To access the SETUP program when powering up the system, turn the computer power on. The system BIOS will first test the system components and then display a message similar to the following:

• Press <DEL> to enter setup

Before the above message disappears, press the <DEL> key to activate the SETUP program.

2. Accessing SETUP When Resetting the System

Reset the system by either pressing the reset button or the key combination of <Ctrl+Alt+Del>.
The system will display the following message:

• Press <DEL> to enter setup

Before the above message disappears, press <DEL> key to activate the SETUP program.

3. Accessing SETUP When the System Prompts error for the setup program

If the system BIOS detects a software or hardware error during the self-testing process, the system displays the following message:

• Press <F1> to continue, <DEL> to Enter SETUP

Press <F1> to continue the boot sequence or <DEL> to run SETUP.

4. Accessing SETUP Menus

SETUP provides access to primary menus from which you modify the system configuration. SETUP always displays the Main Menu when you start the program. Primary menus include:

• STANDARD CMOS SETUP - This option allows users to check or modify the basic system configuration.

- BIOS FEATURES SETUP - This option is used to set the various system options for the users, including the virus warning, external cache, security option, boot operations, and video BIOS shadow, etc..

- CHIPSET FEATURES SETUP - This option allows users to control the features of chipset.

- POWER MANAGEMENT SETUP - This option allows users to set the power saving status for reducing the power consumption.

- PNP/PCI CONFIGURATION - This option is used to set the various system function and internal addresses of the PCI devices. Allows users to configure system IRQ and DMA to PCI/ISA PnP or Legacy ISA.

- LOAD BIOS DEFAULTS - User can load the BIOS default values to boot the system safely.

- LOAD SETUP DEFAULTS - This option supports the better performance for the system.

ROM PCI/ISA BIOS(CB649MSI)
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
PNP/PCI CONFIGURATION	SAVE & EXIT SETUP
LOAD BIOS DEFAULTS	EXIT WITHOUT SAVING
LOAD SETUP DEFAULTS	
ESC : Quit	↑↓→← : Select Item
F10 : Save & Exit Setup	(Shift)F2 : Change Color

Figure 3-1 CMOS Setup Utility

- INTEGRATED PERIPHERALS - This option allows users to decide how many kinds of peripherals need to change their I/O type, mode and used or not. This options also allows users to set the various system function and onboard PCI IDE controller.

- SUPERVISOR PASSWORD- Password is required when entering and changing all of the SETUP option or booting your system. Users can change the current password stored in the CMOS by accessing this option.

- USER PASSWORD- Password is required when booting your system and entering to change only the USER PASSWORD. Users can change the current password stored in the CMOS by accessing this option.

- IDE HDD AUTO DETECTION - This option can automatically detect the hard disk drive type(s) including the number of cylinders and heads, write precompensation time, read/write head landing zone, and number of sectors per track.

- SAVE & EXIT SETUP - After saving the changes what you have made in the SETUP program, exit and reboot the system.

- EXIT WITHOUT SAVING - Abandon all previous settings, then exit and reboot the system.

To choose an menu item from the SETUP main menu, move the cursor by using the <Up>, <Down>, <Left>, <Right> Arrow keys and press <Enter> key . To modify the setting of an option, simply press the <PgUp> or <+> and the <PgDn> or <-> keys, Press the <F2> key when changing the color setting, <F1> for a context sensitive help function, and the <Esc> key when quitting SETUP.

3-2. Standard CMOS Setup

ROM PCI / ISA BIOS (CB649MSI)
STANDARD CMOS SETUP
AWARD SOFTWARE, INC.

Date (mm:dd:yy) : Thu, Jan 21 1999
Time (hh:mm:ss) : 13 : 42 : 14

HARD DISKS	TYPE	SIZE	CYLS	HEAD	PRECOMP	LANDZ	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 : 1.44M, 3.5 in.
Drive B : None

Video : EGA / VGA
Halt On : All Errors

Base Memory : 640K
Extended Memory : 31744K
Other Memory : 384K

Total Memory : 32768K

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

Figure 3-2 Standard CMOS Setup Menu

1. Date- Allows manual setting of the electronic calendar on the main board.

2. Time - Sets the system's internal clock which includes hour, minutes, and seconds.

3. Primary Master / Primary Slave / Secondary Master / Secondary Slave - Specifies the physical and electronic properties of the standard hard disk drives installed. Relevant specifications include the type, number of cylinders(CYLS), heads(HEAD), write pre-compensation time (PRECOMP), read / write head landing zone (LANDZ), number of sectors per track (SECTOR), and HDD mode (MODE). Select "AUTO" in

the hard disk type item to avoide the necessity of loading the HDD specifications and the fuction of the"IDE HDD AUTO DETECTION"option in the main menu. The system BIOS will automatically detect the hard drive installed on the system upon boot-up.

➔ Large Hard Disk Modes

The last of the drive parameter entries - Mode- has four options, Normal, LBA, Large, Auto.

Normal: For IDE hard disks of 528MB or less.

LBA : This stands for Logical Block Addressing, the current standard access mode for large IDE hard disk drive. It allows the use of hard disks larger than 528MB by causing the IDE controller to translate between the logical address, it create and the hard disk's actual physical address. The maximum drive size supported is 8.4GB.

Large : For 1GB or smaller drives with more than 1024 cylinders and no LBA support. This access mode causes the Operating System to treat the drive as if it has fewer than 1024 cylinders by dividing the cylinders in half and doubling the number of heads. Drives needing this mode are less common.

Most large IDE hard disk drives currently available use the LBA mode.

Use the Auto setting to automatically detect the correct mode for new drives.

4. Drive A:/B: - Specifies the capacity and format of the floppy drive installed in your system.

5. Video - Specifies the display adapter installed.

6. Halt On - Enables the system to halt on several condition options.

The Choices : "All Errors", "All, But Keyboard", "All, But Diskette", "All, but Disk/Key", "System Test Only", "No Errors".

7. Base/Extended/Other Memory - A small section in the lower right corner of the screen displays important information about your system which includes the base, extended, and other memory sizes. They are updated automatically by the SETUP program according to the status detected by the BIOS self-test. This section of the Standard CMOS SETUP screen is for viewing purpose only and manual modifications are not allowed.

3-3. BIOS Features Setup

ROM PCI / ISA BIOS (CB649MSI)
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	: Enabled	D0000-D3FFF Shadow	: Disabled
Quick Power On Self Test	: Enabled	D4000-D7FFF Shadow	: Disabled
Boot From LAN First	: Enabled	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		
Memory Parity Check	: Enabled		
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
Assing IRQ For VGA	: Enabled	F1 : Help	PU / PD / + / - : Modify
OS Select For DRAM > 64MB	: Non-OS2	F5 : Old Values	(Shift)F2 : Color
HDD S.M.A.R.T. capability	: Disabled	F6 : Load BIOS Defaults	
Report No FDD For WIN 95	: Yes	F7 : Load Setup Defaults	

Figure 3-3 BIOS Feature Setup Menu

1. Virus Warning - Allows the virus warning feature for the hard disk boot sector to display a warning message and produce a beep sound whenever an attempt is made to write on the hard disk's boot sector.
   The Choices : Enabled, Disabled.

2. CPU Internal Cache - Enables the internal code / data cache of CPU when set to "Enabled".
   The Choices : Enabled, Disabled.

3. External Cache - Enables the on-board secondary cache when set to "Enabled" .
   The Choices : Enabled, Disabled.

4. CPU L2 Cache ECC Checking - Enables the ECC (Error Checking & Correction) checking of Processor L2 Cache when set to "Enabled"
   The Choices : Enabled, Disabled.

5. Quick Power On Self Test - Allows the Power On Self test to run at either a fast or a normal speed.
   The Choices : Enabled, Disabled.

6. Boot From LAN First - This feature makes it possible to configure or reconfigure a system remotely, even with a blank hard disk drive.
   The Choices : Enabled, Disabled.

Note : This item only function with the proper network environment.

7. Boot Sequence - Selects the drive where the system would search for the operating system to run with. *The Choices :*

- 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	*- C only*
- LS/ZIP, C	

8. Swap Floppy Drive - "Enabled" will effectively change the A: drive to B: and the B: to A: drive. "Disabled" sets the floppy drives in their default state.
The Choices : Enabled, Disabled.

9. Boot Up Floppy Seek - Check if the floppy drives installed on the system are correct or not. This option's operation usually occurs when the magnetic heads of the floppy drives produce a sound during Power On Self Test.
The Choices : Enabled, Disabled.

10. Boot Up NumLock Status - This allows users to determine the default state of the numeric keypad. By default, the system boots up with NumLock on.
The Choices : On, Off.

11. Memory Parity Check - Determines whether perform Parity Error Checking or not.
The Choices : Enabled, Disabled.

12. Typematic Rate Setting - Defines the setting of the keyboard's typematic rate.
The Choices : Enabled, Disabled.

13. Typematic Rate <Char/Sec> - Specifies the key repeat rate, in seconds, of keyboard character.
The Choices : 6/ 8/10/12/15/20/24/30.

14. Typematic Delay <Msec> - Select the delay, in milliseconds, before a key repeat.
The Choices : 250/500/750/1000.

15. Security Option - Determines whether the password will be asked for in every boot (System), or when entering into the SETUP program (Setup). Refer to the section entitled SUPERVISOR PASSWORD for the password setting.

16. PCI/VGA Palette Snoop - Select "Enabled" to solve the abnormal color in windows while using ISA MPEG and PCI VGA card.
The Choices : Enabled, Disabled.

17. Assing IRQ For VGA - Set the interrupt request (IRQ) line assigned to the VGA(if any) on your system.
The Choices : Enabled, Disabled.

18. OS Select For DRAM > 64MB - Select the OS if DRAM > 64MB.
The Choices : Non-OS2, OS2.

19. HDD S.M.A.R.T. capability - This item allows to support Hard Disk S.M.A.R.T Function. S.M.A.R.T Stands for Self-Monitoring, Analysis and Reporting Technology.
The Choices : Enabled, Disabled.

20. Report No FDD For WIN 95 - Enables to release IRQ6 under when the floppy drive in CMOS setup to NONE. When "Yes" is selected, BIOS reports the information to Windows 95 that no floppy drive is installed.
The Choices : Yes, No.

21. Video BIOS Shadow
Enables the system shadowing and achieve the best performance of the system.
The Choices : Enabled, Disabled.

22. C8000-CBFFF, CC000-CFFFF, D0000-D3FFF, D4000-D7FFF, D8000-DBFFF, DC000-DFFFF Shadow - If you have a shadowing of the BIOS at

any of the above segments, you may set the appropriate memory shadowable function to "Enabled". Otherwise, select "Disabled".
The Choices : Enabled, Disabled.

3-4. Chipset Features Setup

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.

The first chipset settings deal with CPU access to dynamic random access memory (DRAM). The default timings have been carefully chosen and should only be altered if data is being lost. Such a scenario might well occur if your system have mixed speed DRAM chips so that greater delays may be required to preserve the integrity of the data held in the slower memory chips.

It also coordinates communications between the conventional ISA bus and the PCI bus. It must be stated that these items should never need to be altered. The default settings have been chosen because they provide the best operating conditions for your system. The only time you might consider making any changes would be if you discovered that data was being lost while using your system.

ROM PCI / ISA BIOS (CB649MSI)
CHIPSET FEATURES SETUP
AWARD SOFTWARE, INC.

Auto Configuration	: Enabled	AGP Aperture Size	: 64MB
RAS Pulse Width Refresh	: 6T	PCI Delay Transaction	: Enabled
RAS Precharge Time	: 4T	SDRAM Synchronous Mode	: Enabled
RAS to CAS Delay	: 4T	SDRAM Clock Frequency	: 66MHz
ISA Bus Clock Frequency	: PCICLK / 4	Spread Spectrum	: Disabled
Starting Point of Paging	: 2T		
SDRAM CAS Latency	: 3T		
SDRAM WR Retire Rate	: X-2-2-2		
CPU to PCI Burst Mem. WR	: Disabled		
System BIOS Cacheable	: Enabled		
Video BIOS Cacheable	: Disabled		
Memory Hole at 15M-16M	: Disabled		
		ESC : Quit ↑↓→← : Select Item	
		F1 : Help PU / PD / + / - : Modify	
		F5 : Old Values (Shift)F2 : Color	
		F6 : Load BIOS Defaults	
		F7 : Load Setup Defaults	

Figure 3-4 Chipset Features Setup Screen

1. Auto Configuration

This item allows you select pre-determined optimal values of chipset parameters. When Disabled, chipset parameters revert to setup information stored in CMOS. Many fields in this screen are not available when Auto Configuration is Enabled.

The Choices: Enabled, Disabled.

> **Note:** When this item is enabled, the pre-defined items will become SHOW-ONLY.

2. RAS Pulse Width Refresh

Select the RAS# pulse width for refresh cycles.

The Choices: 4T, 5T, 6T, 7T.

3. RAS Precharge Time

The Precharge time is the number of cycles it takes for the RAS to accumulate its charge before DRAM refreshes.

The Choices: 2T, 3T, 4T, 5T.

4. RAS to CAS Delay

When DRAM is refreshed, both rows and columns are addressed separately. This setup item allows you to determine the timing of the transition from RAS (row address strobe) to CAS (column address strobe).

The Choices: 2T, 3T, 4T, 5T.

5. ISA Bus Clock Frequency

You can set the speed of the AT bus at one-third or one-fourth of the CPU clock speed.

The Choices: 7.159MHz, PCICLK/3, PCICLK/4.

6. Starting Point of Paging

This value controls the start timing of memory paging operations.

The Choices: 1T, 2T, 4T, 8T.

7. SDRAM CAS Latency

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

The Choices: 2T, 3T.

8. SDRAM WR Retire Rate

This item controls the timing that chipset writes data SDRAM during burst cycles.

The Choices: X-2-2-2, X-1-1-1.

9. CPU to PCI Burst Mem. WR

Select enabled permits PCI burst memory write cycles, for faster performance. When disabled, performance is slightly slower, but more reliable.

The Choices: Enabled, Disabled.

10. System BIOS Cacheable

Selecting "Enabled" allows caching of the System BIOS ROM at F0000h-FFFFFh, resulting in better system performance. However, if any program writes to this memory area, a system error may result.

The Choices: Enabled, Disabled.

11. Video BIOS Cacheable

Selecting "Enabled" allows caching of the video BIOS ROM at C0000h-C7FFFh, resulting in better system performance. However, if any program writes to this memory area, a system error may result.

The Choices: Enabled, Disabled.

12. 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.

The Choices: Enabled, Disabled.

13. AGP Aperture Size

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. See www. agpforum. org got AGP information.

The Choices: 4M, 8M, 16M, 32M, 64M, 128M, 256M.

14. PCI Delay 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.

The Choices: Enabled, Disabled.

15. SDRAM Synchronous Mode

This item is Enabled means cpu's FSB(Front Side Bus) and SDRAM clocks run synchronous. For example, cpu's FSB is 66MHz and SDRAM clock is also 66MHz.

The Choices: Enabled, Disabled.

16. SDRAM Clock Frequency

This item can only select when SDRAM Synchronous Mode is disabled. This item allows you that cpu's FSB and SDRAM clocks run asychronous. For example, cpu's FSB is 66MHz and SDRAM clock is 66, 75, 83 or 100 MHz.

The Choices: 66MHz, 75MHz, 83MHz, 100MHz.

17. Spread Spectrum

When this item is Selected, the EMI noise can be extremely minimized.

The Choices: Disabled , 0.50%(Down), 0.25% (Cntr).

3-5. Power Management Setup

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

ROM PCI/ISA BIOS (CB649MSI)
POWER MANAGEMENT SETUP
AWARD SOFTWARE, INC.

ACPI function	: Enabled	IRQ [3-7, 9-15], NMI	: Enabled
Power Management	: User Define	Power Button Over Ride	: Delay 4 Sec
PM Control by APM	: Yes	Resume By Ring	: Disabled
Video Off Option	: Susp, stby → off	Resume By PME	: Disabled
Video Off Method	: DPMS	Wake On LAN(WOL)	: Disabled
Switch Function	: Break/Wake	POWER ON Function	: Button
Doze Speed(div by)	: 2/8		
Stdby Speed(div by)	: 1/8		
MODEM Use IRQ	: 3	Power Up by Alarm	: Disabled
Hot Key(Ctrl+Alt+←)	: Power Off		
** PM Timer / Events **			
HDD Off After	: Disabled		
Doze Mode	: 10Min		
Standby Mode	: 10Min		
Suspend Mode	: 10Min		
HDD Ports Activity	: Enabled	ESC : Quit	↑↓→←: Select Item
COM Ports Activity	: Enabled	F1 : Help	PU/PD/+/-: Modify
LPT Ports Activity	: Enabled	F5 : Old Values (Shift)F2	: Color
VGA Activity	: Enabled	F6 : Load BIOS Defaults	
IRQ 8 Break Suspend	: Disabled	F7 : Load Setup Defaults	

Figure 3-5 Power Management Setup Screen

1. ACPI Function

This item allows you to Enable ACPI (Advenced Configuration and Power Interface). The ACPI is a key element in OS Directed Power Management (OSPM).

2. Power Management

This option allows you to select the type (or degree) of power saving for Doze, Standby, and Suspend modes. See the section PM Timers for a brief description of each mode.

There are 4 options for Power Management, three of which have fixed mode settings.

Disable	No power management. Disables all four modes
Min. Power Saving	Minimum power management. Doze Mode = 4 Hours, Standby Mode = 4Hours, Suspend Mode = 4Hours.
Max. Power Saving	Maximum power management. Doze Mode = 10 sec, Standby Mode = 10sec, Suspend Mode = 10sec.
User Define	Allows you to set each mode individually. When not disabled, each of the ranges are from 10sec. to 4 hr. except for HDD Power Down which ranges from 1 min. to 15 min. and disable.

3. PM Control by APM

When enabled, an Advanced Power Management device will be activated to enhance the Max. Power Saving mode and stop the CPU internal clock. If Advanced Power Management (APM) is installaed on your system, selecting "Yes" gives better power savings.

4. Video Off Option

When enabled, this feature allows the VGA adapter to operate in a power saving mode.

Always On	Monitor will remain on during power saving modes.
Suspend → Off	Monitor is blanked when the systems enters the Suspend mode.
Susp, Stby → Off	Monitor is blanked when the system enters Standby mode or Suspend mode.
All Modes → Off	Monitor is blanked when the system enters any power saving mode.

5. Video Off Method

This determines the manner in which the monitor is blanked.

V / H SYNC+Blank	This selection will cause the system to turn off the vertical and horizontal synchronization ports and write blanks to the video buffer.
Blank Screen	This option only writes blanks to the video buffer.
DPMS	Select this option if your monitor supports the Display Power Management Signaling (DPMS) standard of the Video Electronics Standards to select video power management values.

6. Switch Function

You can choose whether or not to permit your system to Enter / Wake Suspend mode by pressing Suspend / Resume Button. Suspend mode offers greater power savings, with a correspondingly longer awakening period.

The Choices : Break/Wake, Disabled.

7. Doze Speed(div by)

Sets the CPU's speed during Doze mode. The speed is reduced to a fraction of the CPU's normal speed.

The Choices : 1/8 - 8/8.

8. Stdby Speed(div by)

Sets the CPU's speed during Standby mode. The speed is reduced to a fraction of the CPU's normal speed.

The Choices: 1/8 - 8/8.

9. MODEM Use IRQ

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

The Choices: 3, 4, 5, 7, 9, 10, 11, NA.

10. Hot Key (Ctrl+Alt+ ←)

Select Hotkey Function (Cntl + Alt +←). If you want Power Off the system by pressing <Ctrl+Alt+ ← >, set this as "Power Off". Otherwise "Suspend".

The Choices: Power Off, Suspend, Disable.

11. HDD Off After

This shuts down IDE hard disks that support a power saving modes after a specified period of time. The settings range from 1 to 15 minutes and can be set manually when power management is in User Define mode. This item does not affect SCSI hard disks.

12. Doze Mode

When enabled and after the set time of system inactivity, system enters Doze Mode. When enabled and after the set time of system inactivity, the CPU clock will run at slower speed while all other devices still operate at full speed.

13. Standby Mode

When enabled and after the set time of system inactivity, system enters Standby Mode. When enabled and after the set time of system inactivity, the CPU clock will run at slower speed while all other devices still operate at full speed.

14. Suspend Mode

When enabled and after the set time of system inactivity, system enters Suspend Mode.

15. HDD Ports Activity

When set to "Enabled", any event occurring at a HDD will awaken a system which has been powerd down.

16. COM/LPT Ports Activity

When set to "Enabled", any event occurring at a COM(LPT) Port will awaken a system which has been powerd down.

17. VGA Activity

When enabled, any video activity will prevent the system from entering power down mode.

18. IRQ 8 Break Suspend

You can enable or disable monitoring of IRQ8 so it does not awaken the system from Suspend mode.

The Choices: Enabled, Disabled.

19. IRQ [3 - 7, 9 - 15], NMI

IRQ's (Interrupt requests) can be exempted much as the COM ports and LPT ports above can. When an I/O device wants to gain the attention of the operating system, it signals this by causing an IRQ to occur. When the operating system is ready to respond to the request, it interrupts itself and performs the service. As above, the choices are "Enabled" and "Disabled". When set any IRQ item to "Enabled", Enabled IRQ events occurring at device(s) will awaken a system which has been powered down.

The Choices: Enabled, Disabled.

20. Power Button Over Ride

When set to "Enabled", turning the system off with the on / off button places the system in a very low-power-usage state, with only enough circuitry receiving power to detect power button activity or Resume by Ring activity.
The Choices: Instant-Off, Delay 4 Sec.

21. 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.
The Choices: Enabled, Disabled.

22. Resume By PME

When set to "Enabled", network or any out of envirunment events will awaken a system which has been powered down.

23. Wake On LAN (WOL)

When you select "Enabled", a power up signal from remote server returns the system to full on state.
The Choices: Enabled, Disabled.

24. Power On Function

This item allows you to select a method to power-on by keyboard
The available options are :

- **BUTTON ONLY** : Enables power up by power button.
- **Password** : It allows you to power on the system by the password that you entered.
- **Hot Key** : It allows you to power on the system by the Hot-Key (Ctrl+F12 combination or PC98-KBD's Power Button)

25. KBD Power ON Password

This option will be shown only when the option "Power On Function" is set to "Password". You will be asked to input a password.

When the power cord is disconnected abruptly or power source is disappeared, you should press the power button before enter the password that you have decided to power on the the system. When you press the Power Button, the screen shows you the following message:

Warning !!! Power cord was out !
System will Shutdown!!

And then system will be shutdown. After that, you can power on the system with your password.

26. Hot-Key Power On

This option will be shown only when the option "Power On Function" is set to "Hot-Key". This item allows you to select a hot-key for power on the system.

When the power cord is disconnected abruptly or power source is disappeared, you should power up by power button for the first time. Because the programmed information is lost.

The Choices : Ctrl-F12, PC98 KBD.

27. Power Up by Alarm

When you select "Enabled", the following fields will appear. They allows you to set the alarm time, day of month, week and month.

Month Alarm : Select a month (1-12) or NA if you want the alarm active during all months.

Day of Month Alarm : Select a date in the month. Select 0 (Zero), if you prefer to set a weekly alarm (below)

Week Alarm : Turn the alarm On and Off on specific days.

Time Alarm : Set the alarm time.

The Choices: Enabled, Disabled.

3-6. PNP/PCI Configuration

This section describes configuring the PCI bus system. PCI (or Personal Computer Interconnect) is a system which allows I/O devices to operate at speeds nearing the speed of the CPU itself uses when communicating with its own special components. This section covers some very technical items and it is strongly recommended that only experienced users should make any changes to the default settings.

ROM PCI/ISA BIOS (CB649MSI)
PNP/PCI CONFIGURATION
AWARD SOFTWARE, INC.

PNP OS Installed	: Yes	PCI IRQ Actived By	:Level
Resources Controlled By	:Auto	Slot 1 Use IRQ No.	: Auto
Reset Configuration Data	:Disabled	Slot 2 Use IRQ No.	: Auto
		Slot 3 Use IRQ No.	: Auto
		OnBoard Sound IRQ No.	: Auto

ESC : Quit ↑↓→← : Select Item
F1 : Help PU/PD/+/- : Modify
F5 : Old Values (Shift) F2 : Color
F6 : Load Bios Defaults
F7 : Load Setup Defaults

Figure 3-6 PnP/PCI Configuration Setup Screen

1. PNP OS Installed

If you plan to use an operating system that supports Plug and Play, you should set this line to "Yes". When this line is set to "Yes", the BIOS will only initialize PnP PCI card boot devices. Any other PnP PCI cards are initialized by the OS. Do not change the default setting if your OS does not support Plug and Play.

The Choices : Yes, No.

2. Resources controlled by

The Award Plug and Play BIOS has the capacity to automatically configure all of the boot and Plug and Play compatible devices. However, this capability means absolutely nothing unless you are using a Plug and Play operating system such as Windows 95 & 98.

When this line is set to "Auto", the BIOS will automatically configure IRQ and DMA resources. This is the recommended setting. If you set this line to "Manual", the screen changes as shown above and allows manual configuration. In general you should only need this if you are installing an ISA card that requires manual configuration.

The Choices: Auto, Manual.

3. Reset Configuration Data

Normally, you leave this field "Disabled". If you need to clear Extended System Configuration (ESCD), set this to "Enabled". The ESCD data will clear automatically and the BIOS will reset this item to "Disabled" setting. Use this item If you have installed a new add-on and the system reconfiguration has caused such a serious conflict that the operating system can not boot.

The Choices: Enabled, Disabled.

4. IRQ 3 / 4 / 5 / 7/ 9 / 10 / 11 /12 / 14 / 15

When resources are controlled manually, assign each system interrupt as one of the following types, depending on the type of device using the interrupt:

Legacy ISA Devices compliant with the original PC AT bus specification, requiring a specific interrupt (such as IRQ4 for serial port 1). PCI / ISA PnP Devices compliant with the Plug and Play standard, whether designed for PCI or ISA bus architecture.

The Choices: Legacy ISA, PCI/ISA PnP.

5. DMA0/1/3/5/6/7 assigned to

When resources are controlled manually, assign each system DMA channel as one of the following types, depending on the type of device using the interrupt:

Legacy ISA Devices compliant with the original PC AT bus specification, requiring a specific interrupt (such as IRQ4 for serial port 1). PCI / ISA PnP Devices compliant with the Plug and Play standard, whether designed for PCI or ISA bus architecture.

The Choices: Legacy ISA, PCI/ISA PnP.

6. PCI IRQ Actived By

This sets the method by which the PCI bus recognizes that an IRQ service is being requested by a device. Under all circumstances, you should retain the default configuration unless advised by your system's manufacturer.

The Choices: Level, Edge.

7. Slot 1/2/3 Use IRQ No.

This item allows you to select which IRQ is assigned to each slot.

The Choices: Auto, 3, 4, 5, 7, 9, 10, 11, 12, 14, 15.

8. OnBoard Sound IRQ No.

This item allows you to select IRQ No. for onboard pci sound.

The Choices: Auto, 3, 4, 5, 7, 9, 10, 11, 12, 14, 15.

3-7. Load BIOS Defaults

In the event of a loss in memory on the configuration SETUP, the user can restore the information on the BIOS by default values. This settings are not optimal and turn off all the performance features. Loading the BIOS defaults provides safety booting of the system.

3-8. Load SETUP Defaults

SETUP defaults are considered default values with which the system will be enabled to perform better. This due to the enabling of some options within the SETUP program. However, if problems are encountered after loading the Setup Default Settings, reboot the system and load the BIOS defaults instead.

3-9. Integrated Peripherals

ROM PCI/ISA BIOS (CB649MSI)
INTEGRATED PERIPHERALS
AWARD SOFTWARE, INC.

Internal PCI/IDE	: Both		
IDE Primary Master PIO	: Auto	PS/2 mouse function	: Enabled
IDE Primary Slave PIO	:Auto	USB Controller	: Enabled
IDE Secondary Master PIO	: Auto	USB Keyboard Support	: Disabled
IDE Secondary Slave PIO	: Auto	Init Display First	: AGP
Primary Master UltraDMA	: Auto	VGA Shared Memory Size	: 4MB
Primary Slave UltraDMA	: Auto	Current CPU Temperature	: 37ºC/98ºF
Secondary Master UltraDMA	: Auto	Current CPUFAN Speed	: 4500RPM
Secondary Slave UltraDMA	: Auto	Secondary FAN Speed	: 0RPM
IDE Burst Mode	: Enabled	Logic Voltage (5. 0V)	: 4.85V
IDE HDD Block Mode	:Enabled	Logic Voltage (3. 3V)	: 3.25V
		Voc CMOS (2. 5V)	: 2.45V
Onboard FDC Controller	: Enabled	Voc CMOS (2. 0V)	: 1.98V
Onboard Serial Port 1	:3F8/IRQ4		
Onboard Serial Port 2	:2F8/IRQ3		
IR Address Select	: Disable	ESC : Quit ↑↓→←	: Select Item
		F1 : Help PU/PD/+/-	: Modify
		F5 : Old Values (Shift) F2	: Color
Onboard Parallel Port	: 378/IRQ7	F6 : Load BIOS Defaults	
Parallel Port Mode	: SPP	F7 : Load Setup Defaults	

Figure 3-7 Integrated Peripheral Setup Screen

1. Internal PCI/IDE

This chipset contains a internal PCI IDE interface with support for two IDE channels.

The Choices: Both, Primary, Secondary.

2. IDE Primary/Secondary Master/Slave PIO

The four IDE PIO (Programmed Input/Output) fields let you set a PIO mode (0-4) for each of the four 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.

3. Primary/Secondary Master/Slave Ultra DMA

Ultra DMA / 33 implementation is possible only if your IDE hard drive supports it and the operating environment includes a DMA driver (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.

The Choices: Auto, Disabled.

4. IDE Burst Mode

Selecting "Enabled" reduces latency between each drive read / write cycle, but may cause instability in IDE subsystems that cannot support such fast performance. If you are getting disk drive errors, try setting this value to "Disabled". This field does not appear when the Internal PCI / IDE field, above, is "Disabled".

The Choices: Enabled, Disabled.

5. IDE HDD Block Mode

The chipset contains a PCI IDE interface with support for two IDE channels. Select "Enabled" to activate the primary and / or secondary IDE interface. Select "Disabled" to deactivate this interface, if you install a primary and / or secondary add-in IDE interface.

6. Onboard FDC Controller

This should be enabled if your system has a floppy disk drive (FDD) installed on the system board and you wish to use it. Even when so equipped, if you add a higher performance controller, you will need to disable this feature.

The Choices: Enabled, Disabled.

7. Onboard Serial Port 1/Port 2

This item allows you to determine access onboard serial port 1/port 2 controller with which I/O address.

The Choices: 3F8/IRQ4, 2F8/IRQ3, 3E8/IRQ4, 2E8/IRQ3, Disabled, Auto.

8. IR Address Select

This item allows you to determine IR port address.

The Choices: 3F8, 2F8, 3E8,, 2E8, Disable.

9. IR Mode

This item allows you to determine which Infra Red(IR) function.

The Choices: "HP SIR", "ASKIR".

10. IR IRQ Select

This item allows you to select IRQ for the IR function.

The Choices: IRQ10, IRQ11, IRQ3, IRQ4.

11. Onboard Parallel Port

This item allows you to determine access onboard parallel port controller with which I/O port address.

The Choices: 378h/IRQ7, 278h/IRQ5, 3BCh/IRQ7, Disabled.

12. Parallel Port Mode

Select an operating mode for the onboard parallel port. Select SPP unless you are certain your hardware and software both support EPP or ECP mode.

The Choices: SPP, EPP, ECP, ECP+EPP.

If user set this option to SPP or EPP, the ECP Mode Use DMA item below will not be shown on the screen.

13. ECP Mode USE DMA

Select a DMA channel for the parallel port for the use during ECP mode.

The Choices: 3, 1.

14. PS/2 Mouse function

If your system has a PS/2 mouse port and you have a serial pointing device, select "Disabled".

The Choices: Enabled, Disabled.

15. USB Controller

Select "Enabled" if your system contains a Universal Serial Bus (USB) Controller and you have USB peripherals.

The Choices: Enabled, Disabled.

16. USB Keyboard Support

Determines whether to support legacy USB Keyboard or not.

The Choices: Enabled, Disabled.

17. Init Display First

This item allows you to select which video card used when AGP and PCI video card is installed at the same time.

The Choices: AGP, PCI Slot.

18. VGA Shared Memory Size

Specify the size of system to allocate for video memory from 2MB to 8MB.

The Choices: 2MB, 4MB, 8MB, None.

19. Current CPU Temperature

This item shows current CPU temperature. Note that this item is SHOW-ONLY.

20. Current CPU FAN Speed/Seconary FAN Speed

These items show current states of FAN speed. Note that these items are SHOW-ONLY.

21. Logic Voltage (5.0V) / Logic Voltage (3.3V)

These items show voltage states of system power. Note that these items are SHOW-ONLY.

22. Vcc CMOS (2.5V) / CPU Core (2.0V)

These items show voltage states of CPU and Vcc CMOS. Note that these items are SHOW-ONLY.

3-10. Supervisor Password

The SUPERVISOR PASSWORD utility allows you to set, change, and disable the password which is stored in the BIOS. To change the password setting, press <Enter> on the SUPERVISOR PASSWORD option of the main menu and then type the new password.

Configure the Security Option within the BIOS Features Setup corresponding to the setting in this utility. SUPERVISOR PASSWORD access right is higher than USER PASSWORD.

The password can be at most 8 characters long. The program will require you to confirm the new password before it exits and enables the utility. To disable the SUPERVISOR PASSWORD, press the <F1> when the program asks you to enter the new password.

3-11. User Password

USER PASSWORD only can be used when the system is booting. Users only can enter SETUP screen to change the USER PASSWORD.

The password can be at most 8 characters long. The program will require you to confirm the new password before it exits and enables the utility.

To disable the USER PASSWORD, press the <F1> as the program asks you to enter the new password.

3-12. IDE HDD Auto Detection

The IDE HDD Auto Detection provides auto configuration of the hard drive installed in the system. It supports LBA, Large, and Normal modes. If the system's hard disk drive has a capacity of over 528MB and supports LBA functions, you may enable either the LBA mode or the Large mode. On the other hand, if the hard disk drive's capacity is over 528MB but does support LBA functions, you may enable the Large mode in order to use over 528MB.

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

HDD	DISKS	TYPE	SIZE	CYLS	HEAD	PRECOMP	LANDZ	SECTOR	MODE

Primary Master :

Select Primary Master Option (N=Skip) : N

OPTIONS	SIZE	CYLS	HEAD	PRECOMP	LANDZ	SECTOR	MODE
2(Y)	1674	811	64	0	3243	63	LBA
1	1674	3244	16	65535	3243	63	NORMAL
3	1674	811	64	65535	3243	63	LARGE

Note : Some OSes (like SCO-UNIX) must use "NORMAL" for

ESC:Skip

Figure 3-8 IDE HDD Auto Detection Screen

- a. The LBA and Large modes will only appear on the screen when the installed hard disk drive is specified to support the LBA mode.

- b. In the case when a hard disk drive's cylinder specification exceeds 1024, and does not support the LBA functions, only the Large mode will be displayed on the screen.

- c. With a hard disk drive supporting cylinders below 1024, only the Normal mode will appear on the screen. The Normal mode will also be shown on the screen under conditions a & b above.

- d. Hard disk drives with less than 528MB total capacity must be set to Normal mode when combined with either old BIOS versions or the Award BIOS. LBA and Large modes are new specifications which may not be fully supported by all operating systems. An example of which is the current version of UNIX System (R3.2.4) which is still unable to support the LBA function. Therefore, determine the specifications of your hard disk drive and operating system before selecting the drive's mode.

After pressing the <Enter> key on this item of the main menu, the display screen will show the following screen.

Once the program detects the type of hard disk installed, it will display the relative information such as the type, cylinders, heads, write pre-compensation, landing zone, number of sectors per track, size and mode. A message asking you to accept the IDE HDD detected will also be displayed on the screen.

3-13. Quitting SETUP

After making all modifications in the SETUP program, go to the option "SAVE & EXIT SETUP" then press the <Enter> key. The program will display the following screen.
Press <Y> to confirm the changes made, and the <N> or the <Esc> keys if further modifications are still necessary before exiting the SETUP program.

Once the <Y> key in pressed, the system will automatically exit the program and reboot.
However, if you want cancel all changes made under the SETUP program, go to the options "EXIT WITHOUT SAVING"

Press <Y> and the system will exit the SETUP program then reboot without saving any of the changes made. You may also use the <F10> key to save the new settings.