Federal Communications Commission Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the 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 the instructions, may cause harmful interference to radio 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 receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio / TV technician for help.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Table of Contents

1 Instruction

1-1. Overview

The CB649M-SI motherboard integrates the latest advances in processor, memory and I/O technologies into an micro-ATX form factor (244 x 205mm) that combines performance, flexibility and ease of use into high integrated capable of meeting a variety of price/performance levels.
The CB649M-SI supports not only FSB(Front Side Bus) 66MHz but also FSB 100MHz. Celeron PPGA370 333MHz~466MHz with FSB 66MHz can be supported for the higher performance level.

The CB649M-SI motherboard supports Intel Celeron processor based on the SiS620 and 5595B. Two standard 168-pin unbuffered DIMM sockets with memory size up to 1 GB support Synchronous DRAM modules.

The CB649M-SI has an integrated Bus Master IDE controller and Ultra DMA-33/66 with high performance IDE interfaces for up to four devices.

In addition, the CB649M-SI comes with integrated AGP (Accelerated Graphics Port) controller and provides either UMA(select 2/4/8MB for video memory) or Non-UMA(2/4MB SGRAM).

The CB649M-SI provides two USB(Universal Serial Bus) ports to fit today and tomorrow's requirements.

The CB649M-SI has integrated Trident 4DWAVE-DX-1 PCI Audio which has three jacks(Line-out, Line-in and Mic-in), MIDI/Game port and internal connectors.

Caution :
There is the danger of an explosion if the battery is incorrectly replaced. Replace the battery with the same or equivalent type recommended by the manufacturer. Discard used batteries according to the battery manufacturer's instructions.

1-2. Main Features

1. Processor

- ZIF Socket PPGA370
- Supports Intel Celeron - 333 / 366 / 400 / 433 / 466MHz processor with FSB 66MHz
- Supports future Intel Celeron processors with FSB 100MHz

2. Main Chipset

- SiS620 PCI / AGP 3D VGA Chipset
- SiS5595B PCI System I / O Chipset

3. BIOS

- Award System BIOS
  - 2 Mbits Flash ROM
- Supports PnP, APM, ACPI, DMI & CD-ROM booting

4. Main Memory

- Two 168-pin DIMM Sockets
- Support 8 / 16 / 32 / 64 / 128 / 256 / 512 MB 3.3V Unbuffered Synchronous DRAM(up to 1 GB)

5. I/O Features

- ITE, IT8661F Super I / O Controller
- Standard I / O Functions
  - ▶ One Floppy Disk Drive Connector
  - ▶ One SPP / EPP / ECP Compatible Parallel Port

▶ Two 16C550 UART Compatible Serial Ports
▶ One IrDA Compatible Port (Internal)

6. Expansion SLOTs

- Three 32-bit PCI Slots
  ▶ PCI Specification version 2.2 compliant
- Two 16-bit ISA Slots

7. Input/Output Ports

- PS/2 Keyboard and PS/2 Mouse
  ▶ Integrated into SiS5595B PCI System I/O Chipset
  ▶ Provide Double Height PS/2 Style Keyboard and Mouse Connector
- Serial/Parallel Ports
  ▶ One multi-mode parallel port with chip-protect circuitry supports standard, EPP and ECP modes (25-pin D-sub)
  ▶ Two high speed 16C550 UART compatible buffer serial ports (One 9-pin D-sub and one internal header)
- USB Ports
  ▶ Provide two USB ports
  ▶ Fully supports UHCI(Universal Host Controller Interface) and uses UHCI compatible software drivers.
- IrDA
  ▶ Supports an optional Infrared port module for wireless interface(5-pin Header)

8. Enhanced IDE

- Provides two independent bus mastering PCI IDE interfaces (40-pin Boxed Headers)
- Supports PIO mode 4 and Ultra DMA-33/66
- The BIOS detects IDE devices, transfer rates and translation modes automatically

9. FDD

- Provides One 34-pin Boxed Header
- Supports 360K / 720K / 1.2M / 1.44M / 2.88M floppy drives.

10. Audio Subsystem :

- Trident 4DWAVE-DX-1 PCI Audio Controller
  - ▶ 64-voices polyphony wavetable synthesizer supports all combinations of stereo / mono, 8- / 16-bits, and signed / unsigned samples
  - ▶ Legacy game audio support with SoundBlaster Pro / 16 compatibility on the PCI bus
  - ▶ Complete DirectX driver suite (DirectSound3D, DirectSound, DirectMusic, and DirectInput for Window® 95 and Windows® 98 / NT 4.0® / NT 5.0®)
  - ▶ Configuration, installation, and diagnostics under real mode DOS, Win95, and Win98 DOS box
  - ▶ Windows® 3.1 / 95 / 98 / NT4.0 / NT5.0 configuration, installation, and mixer program
  - ▶ 1, 2, or 6 Mbytes General MIDI (GM) / General Sound(GS) compliant sample Library
- Provide Line-Out, Line-In and Microphone-In Jacks
- One MIDI / Game Port

11. Integrated VGA

- AGP Video has Integrated SiS620 PCI / AGP 3D VGA Chipset
  - ▶ Non-UMA Mode(2 / 4MB SGRAM) achives optimum 2D / 3D performance
  - ▶ UMA Mode(2 / 4 / 8MB from System memory) requires no external display memory
- 3D Graphics Accelerator
- 2D Graphics Accelerator

12. Power-On Function

- Power Button On
- Keyboard Password Power On
- Hotkey Power On
- PC98 Keyboard Power On

13. Hardware Monitoring

- Integrated SiS5595B like LM78 hardware monitor
  - ▶ Supports two FAN speed monitoring, CPU Temperature monitoring and, Voltage Monitoring

14. Type

- 244mm(W) x 205mm(D), micro-ATX Form Factor

2 Installation

This chapter provides information how to install and configure CB649M-SI motherboard.

2-1. Check List

The standard packing of CB649M-SI should include:

- ☑ CB649M-SI motherboard
- ☑ 1 IDE cable
- ☑ 1 Floppy cable
- ☑ CB649M-SI User's Manual
- ☑ Device driver CD

2-2. Installation Steps

Installing of the CB649M-SI motherboard depends on the type of case what you use. The CB649M-SI motherboard is designed for the micro ATX form factor and must be installed in an ATX or Micro ATX (chassis).

Before using your computer, you must complete the following steps :

1. Set Jumpers

2. Install the System Memory

3. Install the CPU

4. Connect Cables

2-3. Set Jumpers

Several hardware settings are made through the use of jumper caps to connect jumper pins (JP) on the motherboard. Refer to motherboard layout on following page. The jumper settings will be described numerically such as [1-2], [2-3] for connect pins 1&2, connect pins 2&3 respectively, or [ON(Short)], [OFF(Open)]

Warning!

Computer motherboards and Add-on cards contain very delicate IC chips. To protect them against damage from electricity, you should follow some precaution whenever you work on your computer.

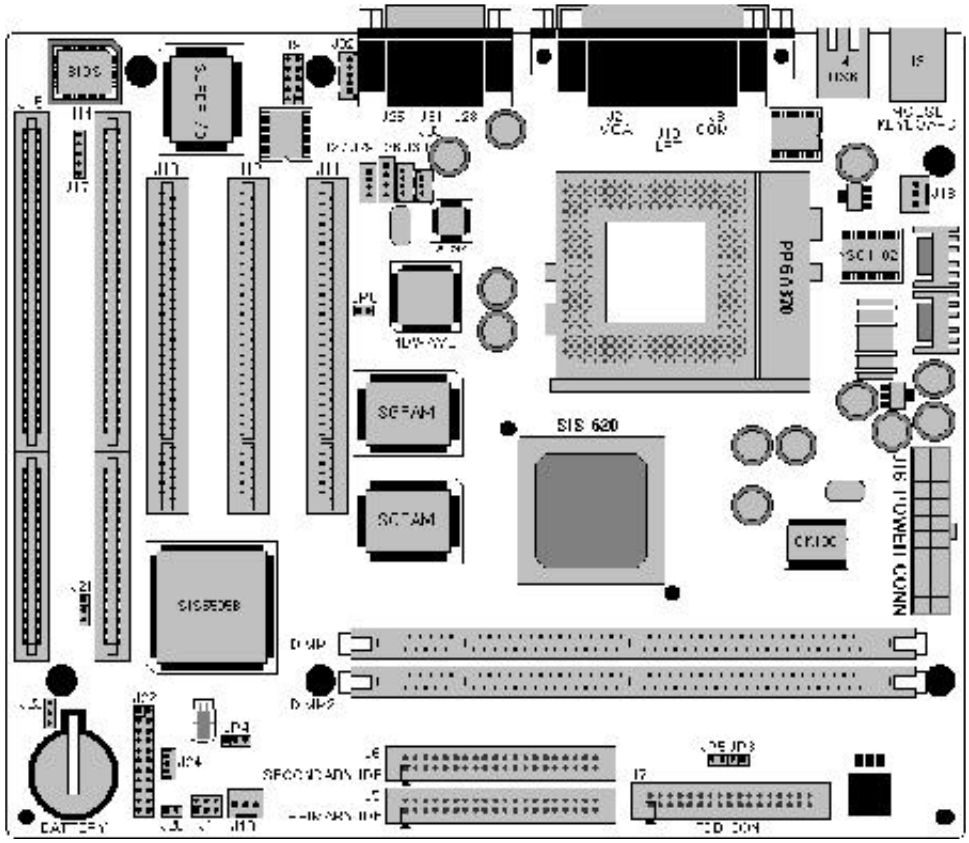
1. Unplug your computer when working on the inside.

2. Use a grounded wrist strap before handling computer components. If you do not have one, touch both of your hands to a safely grounded object or to a metal object, such as the power supply case.

3. Hold components by the edges and try not to touch such the IC chips, leads or connectors, or other components.

4. Place components on a grounded anti-static pad or on the bag that came with the component whenever the components are separated from the system.

2-4. Motherboard Layout



<Fig. 2-1> System Board Layout Diagram

2-5. Connectors and Jumpers

1. Connectors Description

• J1	SB-Link Connector (Option)	• J21	Standby 5V(5VSB) Supply Connector
• J2	VGA Connector	• J22	Front Panel (LED,S/W) Connector
• J3	PS/2 Mouse and Keyboard Connector	• J23	Modem RING Connector
• J4	USB0/1 Connector	• J24	Wake-On LAN Connector
• J5	Primary IDE Connector	• J25	Mic-In Jack
• J6	Secondary IDE Connector	• J26	Telephony(TAD) Connector
• J7	FDD Connector	• J27	CD-Audio Connector (Panasonic Type)
• J8	COM1 Port Connector	• J28	Line-Out Jack
• J9	COM2 Port Connector	• J29	CD-Audio Connector (ATAPI Type)
• J10	Parallel Port Connector	• J30	Aux-In Conn.(Option)
• J11	PCI 1 Connector	• J31	Line-In Jack
• J12	PCI 2 Connector	• J32	Front Panel MIC/Line-Out Conn. (Option)
• J13	PCI 3 Connector	• J33	MIDI/Game Port
• J14	ISA Connector	• DM1	DIMM 1 Connector
• J15	ISA Connector	• DM2	DIMM 2 Connector
• J16	ATX Power Connector	• JP3	Int. VGA Setting (Enable/Disable)
• J17	IrDA Connector	• JP4	CMOS Setting (Normal/Clear)
• J18	CPU Fan Connector	• JP6	Int. Sound Setting (Enable/Disable)
• J19	System(Secondary) Fan Connector		
• J20	Power Switch Connector		

<Table 2-1> Description of the Motherboard connectors

2. Jumpers Description

- Clear CMOS (JP4)

  The CMOS RAM is powered by the onboard coin-cell battery or power supply.

  To clear the CMOS data, first of all you should turn off your computer and unplug the AC cord from the system. Short pins 2&3 for 2~5 seconds and place jumper back to pins 1&2 position. If not the system may malfunctions.

Clear CMOS	JP4
NORMAL	1-2
CLEAR	2-3

<Table 2-2> Clear CMOS Jumper

- Internal SOUND Setting (JP6)

  This jumper uses for Enable or Disable the onboard Audio chip.

Int. SOUND	JP6
Enable	ON
Disable	OFF

< Table 2-3> Internal Sound Setting

- Internal VGA Setting (JP3)

  This jumper uses for Enable or Disable the onboard VGA.

Int. VGA	JP3
Enable	OFF
Disable	ON

< Table 2-4> Internal VGA Setting

- Other Jumper

  ▶ JP5 Power-Up when Plug-In AC Power Cord to the System (Use Factory Only)

2-6. Install DRAM Modules

The CB649M-SI motherboard has two 3.3V unbuffered 64/72-bit, 168-pin DIMM sockets for upto 1 GB of SDRAM memory.

1. Adding Memory

If you use FSB 100MHz CPU(future Intel Celeron CPUs), use PC100 SDRAMs and FSB 66MHz CPU(i.e., 333/366/400/433/466MHz CPUs), you can use either Normal SDRAMs or PC100 SDRAMs.

2. Memory Configuration

DIMM		TOTAL
DIMM1	DIMM2	
8MB	8MB	DIMM1+DIMM2 The combination of memory size is 8MB to 1 GB. All DIMM sockets can use SDRAM memory like left table.
16MB	16MB	
32MB	32MB	
64MB	64MB	
128MB	128MB	
256MB	256MB	
512MB	512MB	

<Table 2-5> Memory Configurations

Note:

In case of using the future Intel Celeron CPUs with FSB 100MHz, please use the DIMM satisfied PC100 specifications. The combination of incorrect DIMM and CPU may cause the system malfunction, or system stability problems.

3. Installing and removing DIMMs

To Install the DIMMs, locate the memory banks on the mother board and perform the following steps:

1. Release tab which you want to install the DIMM
2. Hold the DIMM so that notched edge is aligned with the notch on the DIMM socket.
3. Insert the DIMM at a 90 degree angle and gently push the DIMM straight down until it locks by the tabs.

< FIG. 2-2> Installing a SDRAM Module

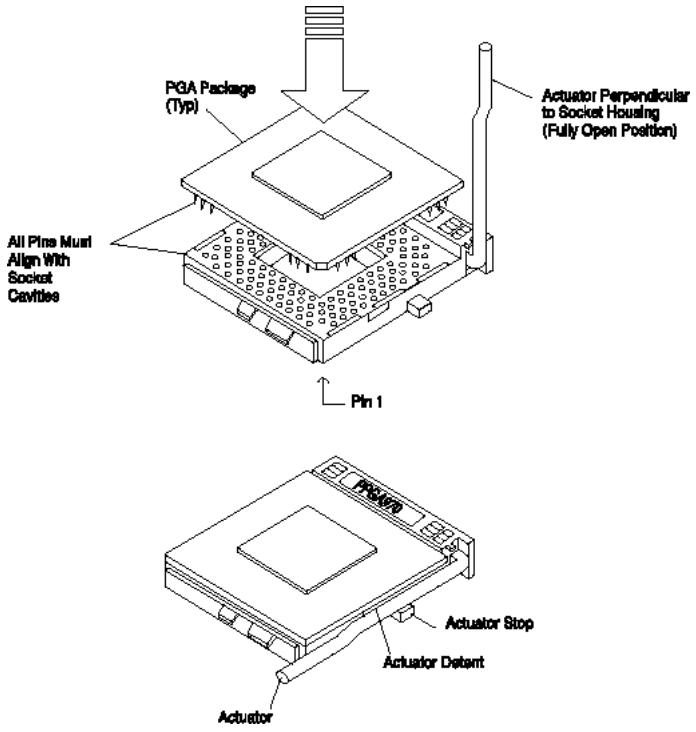
To Remove the DIMMs, follow the steps below:

1. Press the both the release tabs away from the socket.
2. With the DIMM free from the release tabs, lift the module up and place in the anti-static bag or clean place.

2-7. Install the CPU

The CB649M-SI is designed to support a Intel Celeron Processor.
The Celeron processor comes installed in a Zero Insertion Force (ZIF) PPGA370 on the motherboard.

To install the Celeron PPGA370 CPU, refer to the following steps
1. Raise the knob
2. Install the CPU with right direction.
3. Lock the knob to the Socket completely



< FIG. 2-3> Installing the CPU

2-8. Connect Cables

1. CPU Fan Connector (J18)

This connector supplies the power for the CPU cooling fan cable (3-pin or 2-pin). If you have a fan which has two cables(Red and Black), then match Red line to Pin No.2 and connect 1&2 .

Pin	Signal Name
1	Conrol(Ground)
2	+12V
3	Sense

2. Primary / Secondary IDE Connectors (J5 / J6)

These connectors support for the provided 40-pin ribbon cable. After connecting the single end to the motherboard, connect the two plugs at the other end of your hard disk drive(s).

3. FDD Connector (J7)

This connector supports for the provided 34-pin ribbon cable. After connecting the single end to the motherboard, connect the two plugs on the other end of the floppy drive(s).

4. IR Connector (J17)

CB649M-SI provides one connector which can support IrDA (InfraRed Data Association) receiver module. It gives to users IR wireless data exchange directly from mobile computers, printers and PDAs,. etc.

Pin	Signal Name
1	+5V
2	IR_RXH
3	IR_RXL
4	Ground
5	IR_TX

5. Wake On LAN (WOL) Connector (J24)

This connector supports Wake On LAN function. If you use Wake on LAN function, connect 3-pin cable between this connector and your LAN Card.

Pin	Signal Name
1	+5V Stby (5VSB)
2	Ground
3	WOL

6. Internal Modem Ring Connector (J23)

This connector supports internal modem ring wake-up function.
If you use this function, connect 3-pin cable between this connector and your modem card.

Pin	Signal Name
1	+5V Stby (5VSB)
2	Ground
3	RING#

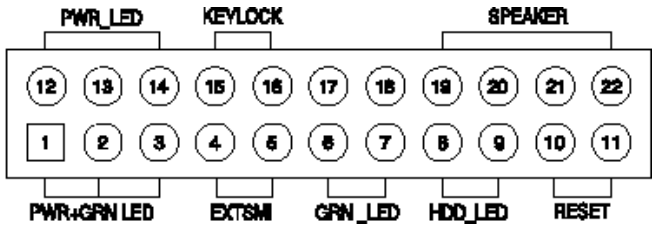
7. Secondary Fan Connector (J19)

This connector supports additional system fan such as Front Fan.

Pin	Signal Name
1	Control(Ground)
2	+12V
3	Sense

8. Front Panel (LED, S/W) Connector (J22)

This connector provides the signals of the Power LED, HDD LED, Reset Switch, Suspend / Resume Switch, Internal Speaker and Key Lock.



< FIG. 2-4> Features of Front Panel Connector

Pin	Signal Name	Pin	Signal Name
1	PWR_LED 2	12	PWR_LED1
2	GND	13	NC
3	Sleep LED2	14	Ground for PWR_LED 1
4	Suspend / Resume Switch	15	KBLOCK#
5	Ground for S / R SW	16	Ground for KBLOCK
6	Sleep LED 1	17	NC
7	Ground for Sleep LED 1	18	NC
8	HD_PWR	19	VCC for Speaker
9	HD Active#	20	Ground
10	Ground for HW Reset	21	Ground
11	H / W Reset#	22	Speaker In

9. Power Switch Connector (J20)

This connector is used to turn the system on. Connect the power switch from the front panel.

Pin	Signal Name
1	PWRBT#
2	Ground

NOTE :

In order to prevent the system from shutting down by mistake, the CB649M-SI motherboard provides one optional item of the BIOS setup (refer to the Power Management Setup).
This item is called Soft-Off by PWR-BUTTON. The function is as follows:

Delay 4 sec:
1. Pushing the power button, system will turn the power on,
2. System is under operating, pushing the button one time will change the system from Normal operation mode to Suspend mode. Pushing the button again will wake up the system.
2. Pushing the power button more than 4 seconds will shut down the system.

Instant-Off:
Pushing the power button one time will turn the system on,
Push and release it, system will turn the power off.

Before boot the system:
Push and release the power button, system will shut down immediately.

10. ATX Power Supply Connector (J16)

This connector connects to an micro-ATX or ATX power supply. The plug from the power supply will only insert in one orientation because of the different hole-size. Find the proper orientation and push down firmly but gently making sure that the pins aligned.

Pin	Signal Name	Pin	Signal Name
1	+3.3V	11	+3.3V
2	+3.3V	12	-12V
3	Ground	13	Ground
4	+5V	14	PSON#(Power supply remote on / off control)
5	Ground	15	Ground
6	+5V	16	Ground
7	Ground	17	Ground
8	PWRGD(Power Good)	18	N.C
9	+5VSB(Standby for RTC)	19	+5V
10	+12V	20	+5V

11. +5V Standby Supply Connector (J21)

This connector can be used to supply power (+5V Stanby) to an add-on card which can work while the system power is out.

Pin	Signal Name
1	N.C.
2	Ground
3	+5VSB

12. SB-Link Connector (J1) : Factory Option

SB-Link is a connector(J1) on the mainboard which is especially for use with a Creative Labs PCI soundcard. The SB-link guides signals from the ISA bus to the PCI soundcard through a cable which comes with the PCI soundcard. This is necessary because some DOS based games address the ISA bus directly. In this way compatibility with these games is guaranteed.

Pin	Signal Name	Pin	Signal Name
1	PCGNT#	2	Ground
3	N.C.	4	PCREQ#
5	Ground	6	SIRQ

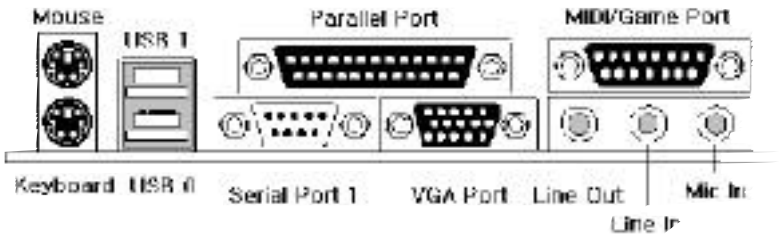
NOTE : SB-Link

The official explanation of SB-Link (as posted on Creative Labs website) is as follows:

SB-LINK combines Intel's PC-PCI and "Serialized IRQ" protocols. These technologies can be found in Intel's TX, LX and newer core logic chip sets. This technology provides the DMA and IRQ signals present in ISA Bus today, but not available on the PCI Bus. The SB-LINK serves as a bridge between the motherboard and PCI sound card to deliver Sound Blaster 16 compatibility for real-mode DOS games, a widely accepted audio standard in Multimedia Personal Computers.

SB-LINK, endorsed by leading motherboard suppliers, is becoming a standard audio connector on new motherboards. With SB-LINK, sound card users can look forward to the best gaming experience ever.

2-9. Connect External I/Os



< FIG. 2-5> Layout of Back Panels

1. PS/2 Keyboard and Mouse Connector (J3)

The CB649M-SI provides one PS/2 keyboard and one PS/2 mouse connector. Refer to the Fig. 2.5 for the location of keyboard(lower side) and mouse(upper side) cables and install to keyboard and mouse connectors.

Pin	Signal Name
1	Data
2	No connect
3	Ground
4	+5V (fused)
5	Clock
6	No connect

2. Universal Serial Bus (USB) Connector (J4)

The CB649M-SI provides double(2) stacked USB Ports.

The USB is a new external bus standard that supports data transfer rates of 12 Mbps (12 million bits per second). A single USB port can be used to connect up to 127 peripheral devices, such as mice, modems, and keyboards. USB also supports Plug-and-Play installation and hot plugging.

Pin	Signal Name
1	Power
2	USBP0# [USBP1#]
3	USBP0 [USBP1]
4	Ground

3. Serial Port 1 & Header for Serial Port 2 (J8 & J9)

The CB649M-SI provides two sets of high speed serial port. One is ready for serial devices. An optional second serial port is available using a serial port bracket connected from motherboard to an expansion slot.

Pin	Signal Name	Pin	Signal Name
1	DCD#	2	DSR#
3	Serial In	4	RTS#
5	Serial Out	6	CTS#
7	DTR#	8	RI#
9	Ground		

4. VGA Port (J2)

The CB649M-SI provides VGA port which can support a DDC monitor.

Pin	Signal Name	Pin	Signal Name
1	RED	9	Key - N.C
2	Green	10	Logic GND (Sync GND)
3	Blue	11	N.C
4	N.C	12	DDCDAT
5	Self Test (TTL Ground)	13	Horizontal Sync
6	R Ground	14	Vertical Sync
7	G Ground	15	DDCCLK
8	B Ground		

5. Parallel Port (J10)

The CB649M-SI provides one set of high speed parallel port. The parallel port supports bi-direction / EPP / ECP modes.

Pin	Signal Name	Pin	Signal Name
1	Strobe#	14	AUTO Feed#
2	Data bit 0	15	Fault#
3	Data bit 1	16	INIT#
4	Data bit 2	17	SLCT IN#
5	Data bit 3	18	Ground
6	Data bit 4	19	Ground
7	Data bit 5	20	Ground
8	Data bit 6	21	Ground
9	Data bit 7	22	Ground
10	ACK#	23	Ground
11	Busy	24	Ground
12	Error	25	Ground
13	Select		

6. Audio Jacks (J28/J31/J25/J33)

The CB649M-SI motherboard contains Trident 4DWAVE-DX-1 PCI Audio. It provides Line-out(J28), Line-in(J31), MIC-in(J25) jacks and MIDI / Game port(J33).

In the Audio Subsystem, describes detail about these jacks.

2-10. Audio Subsystem (Trident 4DWAVE-DX-1)

2-10-1 Overview

The CB649M-SI motherboard has built-in Trident 4DWAVE-DX-1 PCI audio chipset.

It is an advanced PCI audio accelerator providing full legacy compatibility, wavetable synthesis, DirectMusic, DirectSound and DirectSound3D.

It supports full Sound Blaster compatibility and is fully PC97/PC98 compliant.

The 4DWAVE-DX-1 integrates a 64-voice wavetable engine with per voice effect processing capability. It supports the upcoming Microsoft DirectMusic API and is fully compatible with DLS Level 1 (downloadable samples) specification. The 4DWAVE-DX-1 is optimized for Microsoft Windows 98 and Windows NT5.0 WDM streaming architecture with re-routable end-point support. 4DWAVE-DX-1 integrates DirectX 5 3D positional audio accelerator by incorporating QSound Labs QSoft3D technology. It includes DirectSound3D acceleration hardware for ITD(Interaural Time Difference), IID (Interaural Intensity Difference), Pan, Delay, and Doppler hardware. VirtualFM, VirtualGS technologies maintains Sound Blaster Pro / 16 DOS games compatibility while improving gaming audio quality. The 4DWAVE-DX-1 utilizes a Digital Enhanced Game Port, which when coupled with a DirectInput driver, can save up to 12% of the CPU overhead nominally required by a conventional analog game port. 4DWAVE-DX-1 employs a high precision 26-bit digital mixer, providing an accurate 20-bit output and higher than 90dB signal-to-noise ratio when used with a high quality AC'97 codec. The 4DWAVE-DX-1 supports dual AC'97 interfaces, and is AC'97 Rev 2.0 compliant.

2-10-2 Audio I/O Features

1. MIDI/Game Port

- Standard PC joystick port or Midi device.

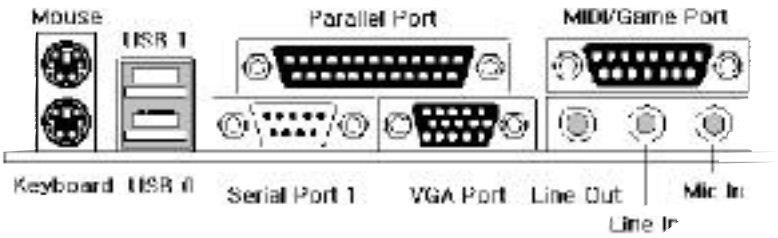
2. Inputs and Outputs

- Line Out
- Line In
- Microphone In
- CD In (supports two types of connector)
- Aux In (Option)
- TAD (Telephone Answering Device)
- Front Panel Control Interface for OEM PCs (Option)

2-10-3 Connectors and Jumpers

< FIG. 2-6> Layout of Onboard PCI Audio

The board consists of the following connectors that support the connection of internal devices or hardware configuration changes:



< FIG. 2-7> Layout of Back Panels

- LINE-OUT Jack (J28)

  This is line-out for an external speaker or an amplifier.

Pin	Signal Name
Sleeve	Ground
Tip	Audio Left Out
Ring	Audio Right Out

- **LINE-IN Jack (J31)**

  This line-in jack is for input from external sources, such as cassette recorder, DAT or CD-Player. This is for mixing with the other sources and so on.

Pin	Signal Name
Sleeve	Ground
Tip	Audio Left In
Ring	Audio Right In

- **MIC-IN Jack (J25)**

  Microphone input port. You can connect Dynamic or Condensor mic.

Pin	Signal Name
Sleeve	Ground
Tip	Mono In
Ring	(Electret Bias Voltage)

- **MIDI/GAME Port (J33)**

  Connect MIDI Kit or Joystick.

Pin	Signal Name	Pin	Signal Name
1	Power	9	Power
2	Joystick button 0	10	Joystick button 2
3	Joystick X1	11	Joystick X1
4	Ground	12	MIDI out
5	Ground	13	Joystick Y2
6	Joystick Y1	14	Joystick button 3
7	Joystick button 1	15	MIDI in
8	Power		

- **Telephone Answering Device(TAD) Connector (J26)**

  Connect to modem phone and mic cable which supports speaker phone.

Pin	Signal Name
1	MIC input (Phone)
2	Ground
3	Ground
4	Mono output

- **Aux-In (Line-In) Audio Connector (J30) : Factory Option**

  Connect to expansion card aux-in such as MPEG card or TV tuner card.

Pin	Signal Name
1	Left channel audio in
2	Ground
3	Right channel audio in

- **Front Panel Audio Connector (J32) : Factory Option**

  This connecter can support front panel line-out and mic-in.
  It is populated the only for OEMs.

Pin	Signal Name
1	Left, Line-Out
2	Ground
3	Right, Line-Out
4	Ground
5	MIC input

- **CD-ROM (Panasonic) Audio Connector (J27)**

  Connect to CD-audio cable which has 2mm pitch so called Panasonic type.

Pin	Signal Name
1	Ground
2	CD Audio left channel
3	Ground
4	CD Audio right channel

- **CD-ROM (ATAPI) Audio Connector (J29)**

  Connect to CD-audio cable which has 2.54mm pitch so called ATAPI type.

PIN	Signal Name
1	CD Audio left channel
2	Ground
3	Ground
4	CD Audio right channel

- Internal SOUND Enable/Disable Jumper (JP6)

  This jumper allows user to disable internal PCI audio to change a new sound card or somthing.

Int.SOUND	JP6
Enable	ON
Disable	OFF

2-10-4 Audio Driver Installation

1. Windows95/98

- First Time Installation

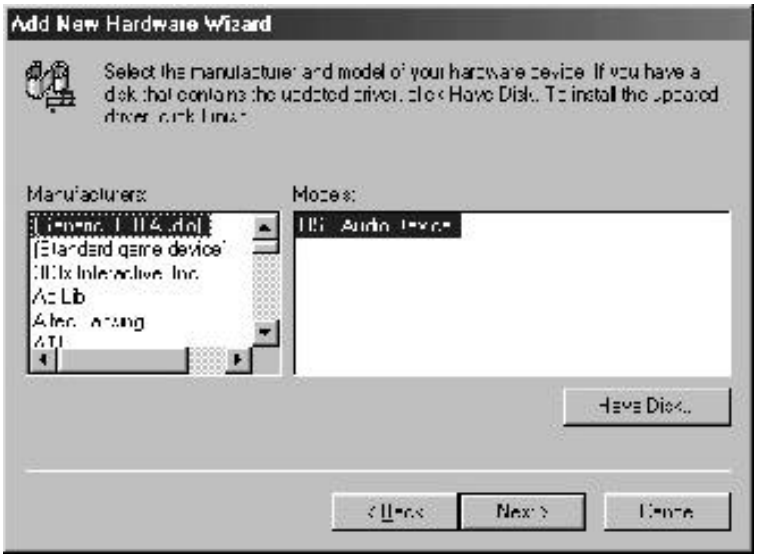
  System will find PCI Multimedia Audio Device and show you like below picture.

  Click "Next" Button

When system shows you following window then check lower item and Click "Next" Button.

Select "Sound, video and game controllers" and Click "Next".

Then "Have Disk" Button and insert your Driver CD into the CD-ROM drive.



Browse your Driver CD and find Win95 Folder.
This may D:\Sound\Drivers\Win95.

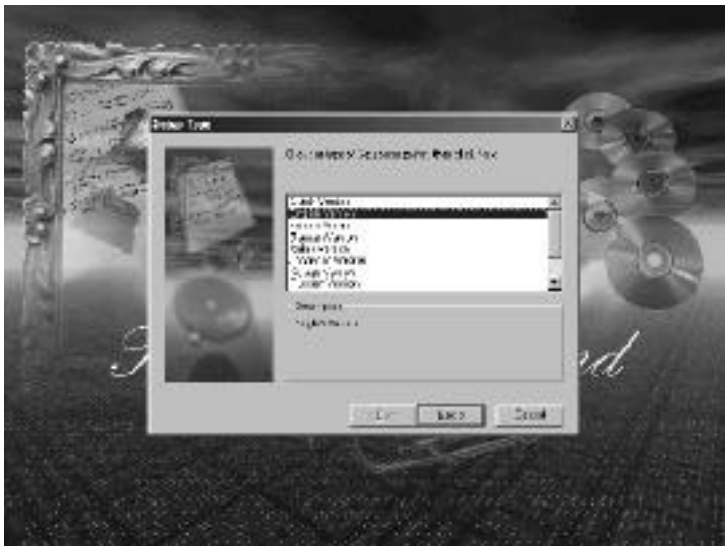
Here, system will show you searched device and folder
Click "Next" Button.

Click "Finish" Button.

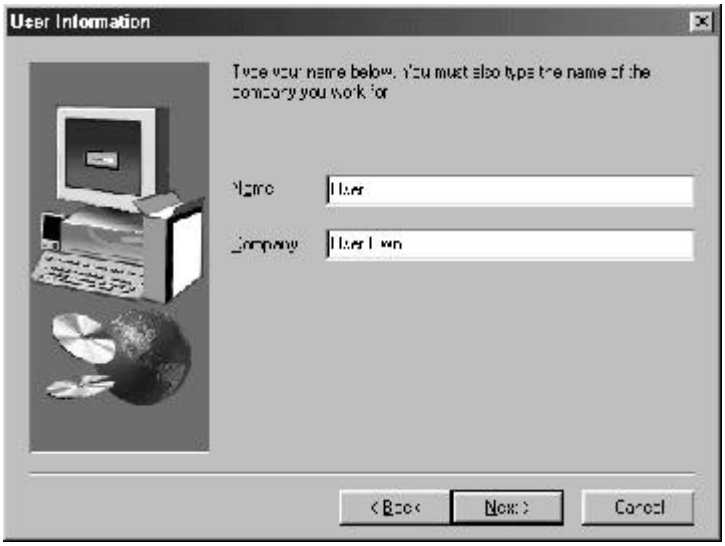
System will copy files from CD-ROM drive into your Hard disk drive and system also wants to install "Trident Direct Input Driver", then you can install the same way just you have done before.

2. Voyetra Installation

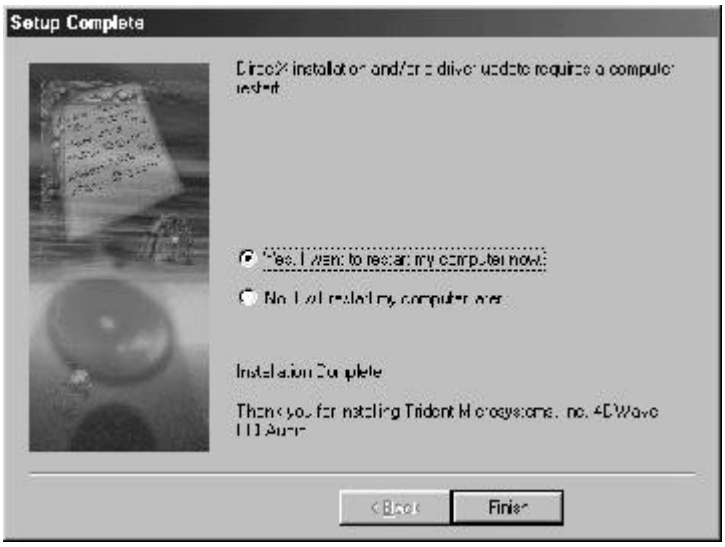
Run the Setup.exe at the D:\Sound\Setup.exe or
D:\Sound\Apps\Voyetra\Setup.exe
This will setup Audio Driver, DirectX and Voyetra audio Utilities.
System shows you like following windows, then select your Win95/98 language and Click "Next" Button.



User Information window appears and waits until enter your Name and Company.
Click "Next" Button.



Follow the system wants you "Next" or "OK" then finally system shows you "Setup Complete"
Click "Finish".



3. Audio Station

Audio Station includes everything you need to run your PC just like a home stereo system. An intuitive hardware-style interface lets you play and edit sound(WAV) and music (MIDI) files, control sound levels and even play your favorite audio CDs with your PC's CD-ROM drive-all from a single convenient interface.

▶ Power Bar

▶ Mixer Component

▶ CD Player Component

▶ WAV Player Component

▶ MIDI Player Component

- Player Common Control Button

Buttons	Functions
	Play
	Pause
	Stop
	Rewind
	Fast Forward
	Record
	Move to the Previous Track
	Move to the Next Track
	Closes the Current Component
	Volume Control
	Playlist

- Audio Station Menu and Functions

Buttons	Functions	Descriptions
	Audio Mixer	Dispalys or hides Digital Audio Mixer
	CD Player	Dispalys or hides CD Player
	WAV Player	Dispalys or hides Wave Player
	MIDI Player	Dispalys or hides MIDI Player

4.Using CD Player

Player can play an Audio CD through CD-ROM drive
It provides various functions like a Home CD Player.

- Playlist Window

When you click the Playlist on the Component, you will see Windows for Playlist.

You can see information for an Audio CD on the left-hand-side and it dispalys name of Title, Total Tracks and Total Time for playing.

- Making Playlist

  To play CD, you need to edit tracks which you want to hear. i.e., click "Add" or"AddAll", and songs are listed on Playlist. Then click the "OK", Audio Station will play.

5. Using Audio Mixer

- Function Control for Players

Buttons	Functions	Descriptions
	Master Volume Control	Control the Slide up and down, Master Volume is controlled.
	Wave Volume Control	Volume control for Digital Audio files
	MIDI Volume Control	Volume control for MIDI files
	CD Volume Control	Volume control for CD-Audio.
	Line-In Control	Volume control for connection to the Line-In (Casette Recorder or CDP...)
	MIC Control	Volume control for Microphone input
	SRS Volume Control	Volume control for SRS 3D input
	Mono-In Volume Control	Volume control for Mono-In input

6. Using Wave Player

Wave Player can play various digital audio files(.WAV, .VOC) and you can see their waves. Also you can record input from external devices such as Microphone, CD-ROM drive and Cassette recorder.

7. Using MIDI Player

MIDI Player can play or record to standard MIDI file(.MID).

You can edit Playlist your favorite MIDI files and play in sequence. Also you can make a MIDI file using MIDI keyboard.

8. Uninstall Voyetra AudioStation

Double click the "Add/Remove Programs" icon in the Control panel, select "Voyetra AudioStation" at Install/Uninstall tab and click "Add/Remove...".

2-11. Integrated VGA (SiS620)

2-11-1 Overview

The CB649M-SI provides built-in 3D AGP VGA controller (SiS620).
The integrated graphics accelerator is compatible with AGP1.0 and PCI2.2 configuration.
The CB649M-SI provides two options -- UMA and Non-UMA modes for display memory allocation.
In UMA mode, the display memory is shared with system memory and user can select 2/4/8MB of system memory as dispaly memory on the system SETUP.
In Non-UMA mode, on-board SGRAM (up to 4MB) is used as display memory and the display memory size is fixed from factory 2 or 4MB SGRAM.
The SiS620 super-AGP architecture provides 800MB/s bandwidth between VGA and host bus, which is 50% more than the AGP 2X mode(532MB/s). The display memory interface bus frequency can also be operated at up to 100MHz, with 64-bit data path.
In summary, CB649M-SI provides consistent 800MB/s bandwidth among internal module as well as external memory interfaces, and delivers high performance in 2D and 3D applications.

NOTE :
In UMA mode, System will use First Bank of system memory as dispaly memory so that user install the system memory into the DM1 slot.

NOTE :
CB649M-SI motherboard provides built-in AGP video controller.
If you need to change video card for your special purpose, use JP3 to disable the internal VGA.

Internal VGA Setting (JP3)

This jumper uses for Enable or Disable the onboard VGA.

Int. VGA	JP3
Enable	OFF
Disable	ON

2-11-2 Driver Installation

SiS620 VGA Drivers can find in Driver CD.
SiS620 VGA Drivers support upto 30 languages for Windows95/98(briefly Windows9x)

1. Windows 95/98

To setup integrated AGP VGA Driver, insert Driver CD into the CD-ROM drive and Run D:\Video\Win9x\Setup.exe
System will show you following screen.

Click "Next" Button.

You can see three type of installation, such as Typical, Compact and Custom.

You should select "Typical" for install everything what system needs.

Click "Next" Button.

After installation is done, Setup Complete window will appear.

Click "Finish", then the system will reboot.

2. Changing Display Settings

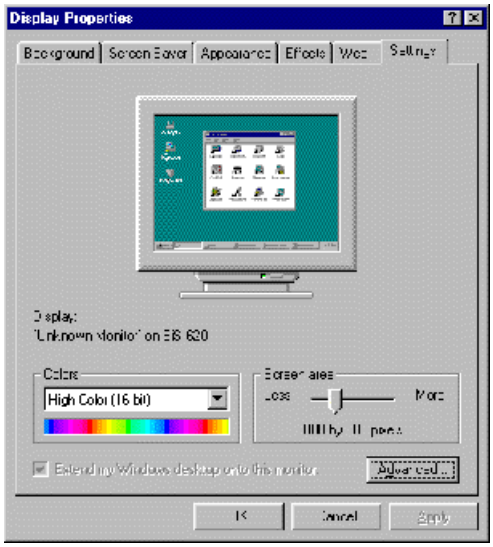
To change the Dispaly setting, click "Display" in the Control panel.

Select "Setting" tab, then system shows you "Colors" and "Screen area".

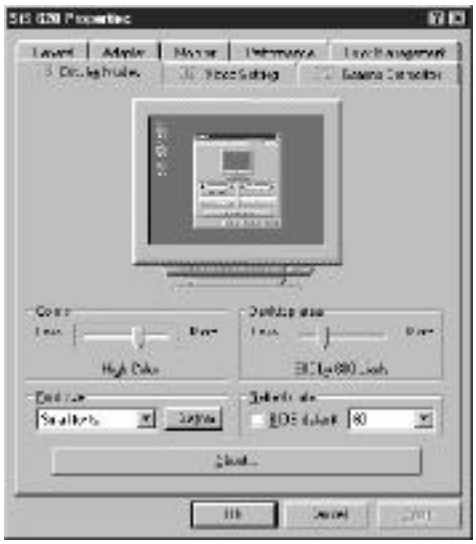
To change Color depth to the other, use Color's tab.

To change Screen area to the other, use slide bar for Screen area.

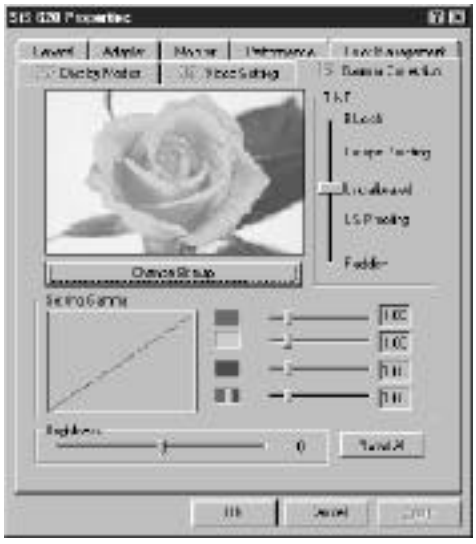
You can choose 640x480, 800x600, 1024x768, 1280x1024 and 1600x1280.



At Display Modes, also can change Colors and Screen area(Desktop area)
If your display monitor has shown irregular figures, such as Pincushion, then check and adjust Refresh rate.



If your display monitor has shown irregular figures, such as bluish, then check and adjust Gamma Correction.



3. WindowsNT 4.0

1. Click "Start" at task bar and select Control Panel from Setting group.
2. Select Display icon.
3. Select Settings of Display Properties.
4. Select Display Type.
5. Select Change from the Adapter Type area.
6. Select Have Disk of Change Display.
7. Place the CB649M-SI Driver CD into the CD-ROM drive.
8. When the "Install from Disk" dialog box appears, type the directory storing the drivers and click "OK".
   The directory in Driver CD is D:\Video\WinNT40.
9. When the "Change Display" dialog box appears, click "OK".
10. When the "Third-party Drivers" dialog box appears, click "Yes".

- Selecting resolution and color depth:
  1. Click "Start" at task bar and select Control Panel from Setting group.
  2. Select Display icon.
  3. Select Settings.
  4. Select Color Palette to change between 16, 256, 32768, 65536 and 16.7M colors.
  5. To select desktop resolution, go to the Desktop area and use the slide bar to change resolution. You can select 640x480, 800x600, 1024x764, and 1280x1024.
  6. Select Test to test the resolution. If the display test screen was good then select "Yes" when the "Testing Mode" dialog box appears. If the display test screen was bad then select "No". Windows NT will give you an error message.
  7. Click "OK". If the display test screen was good and you select "Yes",Windows NT 4.0 will change the mode without restarting Windows NT 4.0.

4. WindowsNT 5.0 (Windows 2000)

1. Click "Start" at task bar and select Control Panel from Setting group.
2. Select Display icon.
3. Click "Hardware" of System Properties.
4. Click "Device Manager..." of Hardware tab.
5. Remove "VGA adapter device" item of Devmgmt [Device Manager on local computer\Devices].
6. Restart Computer.
7. Place the CB649M-SI Driver CD into the CD-ROM drive.
8. When WindowsNT 5.0 searches a new VGA hardware device driver, indicate driver directory.
   The directory in Driver CD is D:\Video\WinNT50.
9. The driver will successfully installed after restarting Windows NT 5.0.

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.