Introduction 1

The K7T Turbo Limited Edition (MS-6330 v3.X) mainboard is a high-performance computer mainboard based on VIA® KT133A chipset. The K7T Turbo Limited Edition (MS-6330 v3.X) is designed for the AMD® Socket processor for inexpensive business/personal desktop markets.

The KT133A chipset consists of the VT8363A system controller (552 pin BGA) and the VT82C686B (352 pin BGA). The system controller provides superior performance between the CPU, DRAM, AGP bus, and PCI bus with pipelined burst, and concurrent operation.

The VT8363A supports six banks of DRAM's up to 1.5 GB and full AGP v2.0 capability for maximum bus utilization including 1x, 2x and 4x mode transfers, SBA (SideBand Addressing), Flush/Fence commands, and pipelined burst. The chip also supports enhanced PCI bus commands such as Memory-Read-Line, Memory-Read-Multiple and Memory-Write-Invalid commands to minimize snoop overhead.

The VT82C686B integrates all system control functions such as ACPI (Advanced Configuration and Power Interface). The ACPI provides more Energy Saving Features for the OSPM (OS Direct Power Management) function. The VT82C686B chipset also improves the IDE transfer rate by supporting Ultra DMA-33/66/100 IDE that transfers data at the rate 33/66/100MB/sec.

This mainboard which supports KT133A chipset coupled with VT8363A and VT82C686B is ideal for high performance, high quality, high energy efficiency and high integration desktop AGP/PCI computer systems.

Chapter 1 contains the following topics:

Mainboard Specifications

CPU
- Socket A for AMD® Duron™/Athlon™ processor
- Support 600MHz up to 1.3GHz processor

Chipset
- VIA® KT133A chipset. (552 BGA)
  - AGP 4x and PCI Advanced high performance memory controller
  - Support PC100/133 SDRAM, & VCM technology
- VIA® 686B chipset. (352 BGA)
  - Enhanced Power Management Features
  - Integrated Super I/O (FDC, LPT, COM 1/2, and IR)
  - Dual bus Master IDE Ultra DMA33/66/100
  - Integrated Hardware Soundblaster
  - Direct Sound AC97 Audio
  - ACPI

Clock Generator
- 100MHz/133MHz clocks are supported

Main Memory
- Support six memory banks using three 168-pin unbuffered DIMM
- Support a maximum memory size of 1.5GB (32M x 8)
- Support 3.3v SDRAM DIMM

Slots
- One AGP(Accelerated Graphics Port) slot
  - AGP specification compliant
  - Support AGP 2.0 1x/2x/4x
- One CNR (Communication Network Riser) slot
- Six 32-bit Master PCI Bus slots
- Supports 3.3v/5v PCI bus Interface

On-Board IDE
- An IDE controller on the VIA® 686B Chipset provides IDE HDD/CD-ROM with PIO, Bus Master and Ultra DMA 33/66/100 operation modes

- Can connect up to four IDE devices

Promise 20265R On-Board (Optional)
- Support IDE RAID 0 or 1
- Can connect up to four IDE devices

Audio
- Chip Integrated
  - Direct Sound AC97 Audio

On-Board Peripherals
- On-Board Peripherals include:
  - 1 floppy port supports 2 FDD with 360K, 720K, 1.2M, 1.44M and 2.88Mbytes.
  - 2 serial ports (COMA + COM B)
  - 1 parallel port supports SPP/EPP/ECP mode
  - 4 USB ports (2 Rear Connectors/2 from USB Front Pin Header)
  - 1 IrDA connector for SIR/CIR/ASKIR/HPSIR
  - 1 Audio/Game port

USB PC 2 PC Networking Function (Optional)
- Controlled by USB PC To PC host controller
- One of the USB ports supports **USB PC to PC Networking** function

BIOS
- The mainboard BIOS provides "Plug & Play" BIOS which detects the peripheral devices and expansion cards of the board automatically.
- The mainboard provides a Desktop Management Interface (DMI) function which records your mainboard specifications.
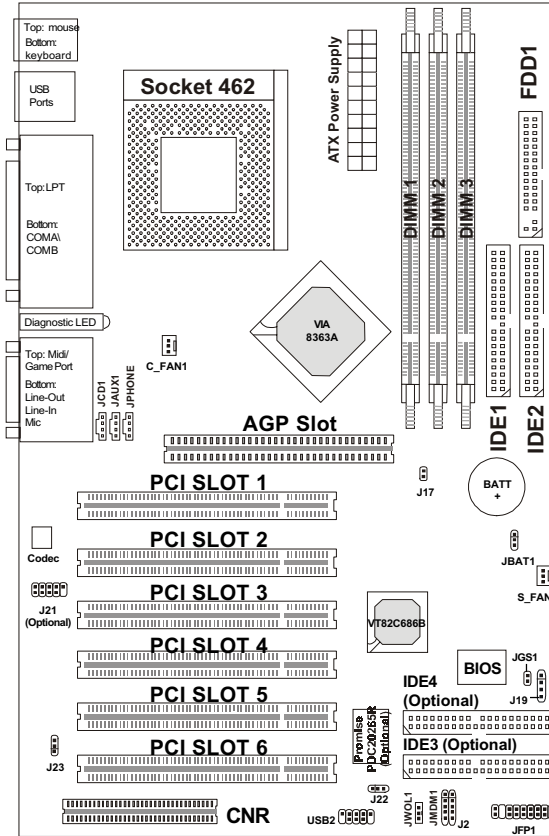
Dimension
- ATX Form Factor: 30.4cm x 23cm

Mounting
- 6 mounting holes

Mainboard Layout

Top: mouse
Bottom: keyboard

USB Ports

Top:LPT

Bottom: COMA\ COMB

Diagnostic LED

Top: Midi/ Game Port

Bottom: Line-Out Line-In Mic

Socket 462

C_FAN1

JCD1 JAUX1 JPHONE

ATX Power Supply

DIMM 1 DIMM 2 DIMM 3

FDD1

VIA 8363A

AGP Slot

J17

BATT +

IDE1 IDE2

PCI SLOT 1

PCI SLOT 2

Codec

PCI SLOT 3

J21 (Optional)

PCI SLOT 4

PCI SLOT 5

J23

PCI SLOT 6

JBAT1

S_FAN1

VT82C686B

BIOS

IDE4 (Optional)

IDE3 (Optional)

Promise PDC20265R (Optional)

J22

CNR

USB2

JWOL1 JMDM1

J2

JGS1

J19

JFP1

K7T Turbo Limited Edition (MS-6330 v3.X) Mainboard

Key Features

- ATX Form Factor
- Support Accelerated Graphic Port (AGP) Add-On Card
- Support Duron processors at 200/266MHz System Bus Frequencies
- Chip Integrated Audio
- PC Alert System Hardware Monitor
- Support DMI (Desktop Management Interface) through BIOS
- LAN Wake Up Function
- Modem (Internal/External) Ring Wake Up Function
- Support PCI 2.2
- Suspend to RAM/Disk
- Live BIOS
- Fuzzy Logic III
- Promise 20265R Onboard (optional)
- USB PC to PC Networking function (optional)

Hardware Installation 2

This chapter provides you with the information about hardware setup procedures. During installation, be careful when handling the components and follow the installation procedures properly. For some components, installing it in a wrong orientation will cause it to become unstable.

Remember to use a grounded wrist strap before handling computer components. Static electricity may damage the components.

This chapter contains the following topics:

Central Processing Unit: CPU

The mainboard operates with **AMD® Duron™/Athlon™ processor.** The mainboard uses a CPU socket called Socket 462 for easy CPU installation. The CPU should always have a Heat Sink and a cooling fan attached to prevent overheating.

● **CPU Installation Procedures**

1. Pull the lever sideways away from the socket. Then, raise the lever up to a 90-degree angle.

Open Lever

Sliding Plate

2. Look for the cut edge. The cut edge should point towards the lever pivot. The CPU will only fit in the correct orientation.

Cut edge

3. Hold the CPU down firmly, and then close the lever to complete the installation.

Close Lever
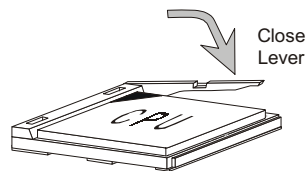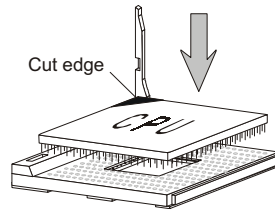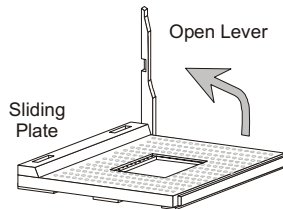
• CPU Core Speed Derivation Procedure

The BIOS can be used to set the CPU Host Bus Frequency Clock.

If	CPU Clock	= 100MHz
	Core/Bus ratio	= 7
then	CPU core speed	= Host Clock x Core/Bus ratio
		= 700MHz

• CPU Front Side Bus Frequency Selector: J17

This is used to set the CPU Front Side Bus Frequencies from 100MHz to 133MHz.

J17
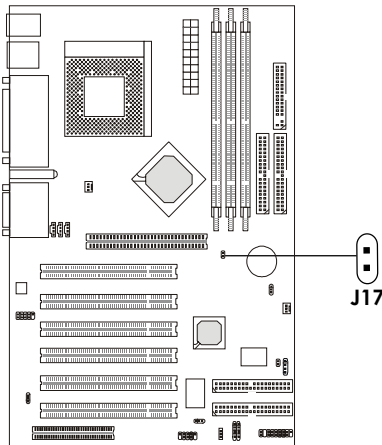
J17	Function
	For CPU FSB 100MHz (DDR 200MHZ)
	For CPU FSB 133MHz (DDR 266MHZ)

Memory Installation

● Memory Bank Configuration

The mainboard supports a maximum memory size of 1.5 GB. It provides three 168-pin **unbuffered** DIMMs (Double In-Line Memory Module) sockets. It supports 33MB to 512MB DIMM memory module.

DIMM1
DIMM2
DIMM3
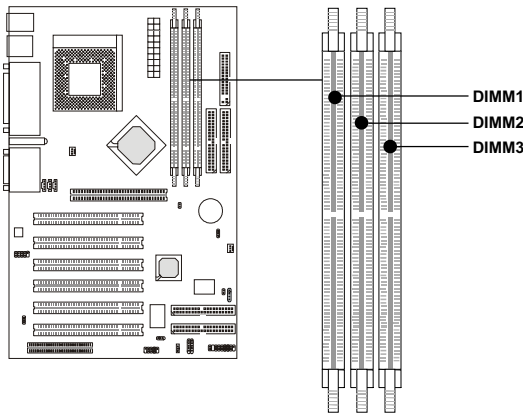
WARNING!

There are three kinds of DIMM specification supported by this mainboard: PC133 and PC100 If you use 100 MHz CPU Bus Frequency, PC100 and PC133 DIMM Specs. is supported. If you use 133MHz CPU Bus Frequency, only PC133 DIMM Specs. will be supported

● **Memory Installation Procedures**

How to install a DIMM Module
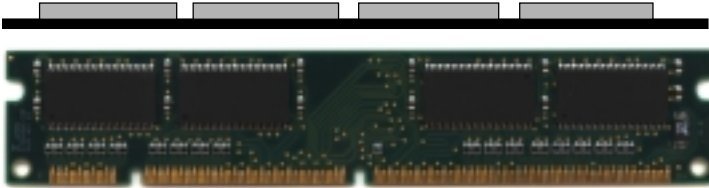
Single Sided DIMM
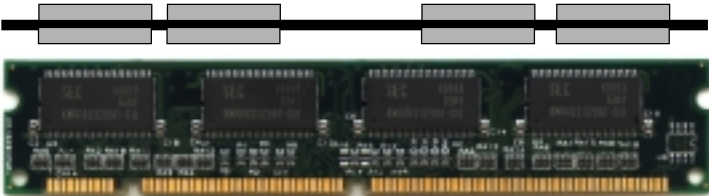
Double Sided DIMM

1. The DIMM slot has 2 Notch Keys "VOLT and DRAM", so the DIMM memory module can only fit in one direction.

2. Insert the DIMM memory module vertically into the DIMM slot. Then push it in.

DRAM   VOLT
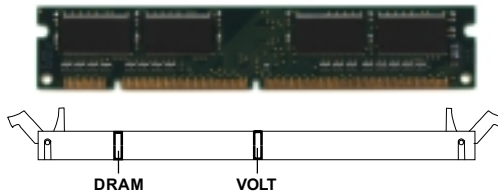
3. The plastic clip at the side of the DIMM slot will automatically close.

● **Memory Population Rules**

1. Supports only SDRAM DIMM.

2. To operate properly, at least one 168-pin DIMM module must be installed.

3. This mainboard supports Table Free memory, so memory can be installed on DIMM1, DIMM 2, and DIMM 3 in any order.

4. Supports 3.3 volt DIMM.

● **SDRAM Memory Addressing**

DRAM Tech.	DRAM Density & Width	DRAM Addressing	Address Size		MB/DIMM	
			Row	Column	Single no. Side(S) pcs.	Double no. Side(D) pcs.
16M	1Mx16	ASYM	11	8	8MBx4	16MBx8
	2Mx8	ASYM	11	9	16MBx8	32MBx16
	4Mx4	ASYM	11	10	32MB	64MB
64M	2Mx32	ASYM	11	9	32MBx2	64MBx4
	2Mx32	ASYM	12	8	16MBx2	32MBx4
	4Mx16	ASYM	11	10	32MB	64MB
	4Mx16	ASYM	13	8	32MB	64MB
	8Mx8	ASYM	13	9	64MB	128MB
	16Mx4	ASYM	13	10	128MB	256MB
64M	2Mx32	ASYM	12	8	16MB	32MB
	4Mx16	ASYM	13	8	32MB	64MB
	8Mx8	ASYM	13	9	64MB	128MB
	16Mx4	ASYM	13	10	128MB	256MB

Back Panel

The mainboard provides the following back panel connectors:

Mouse   **Parallel**   **Midi/Joystick**

Keyboard   USB   COM A   COM B   L-out L-in MIC
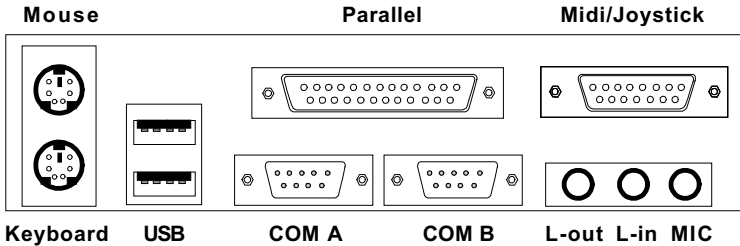
Mouse Connector: JKBMS1

The mainboard provides a standard PS/2® mouse mini DIN connector for attaching a PS/2® mouse. You can plug a PS/2® mouse directly into this connector.
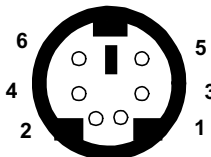
PS/2 Mouse (6-pin Female)

PIN	SIGNAL	DESCRIPTION
1	Mouse DATA	Mouse DATA
2	NC	No connection
3	GND	Ground
4	VCC	+5V
5	Mouse Clock	Mouse clock

Keyboard Connector: JKBMS1

The mainboard provides a standard PS/2® keyboard mini DIN connector for attaching a keyboard. You can plug a keyboard cable directly to this connector.
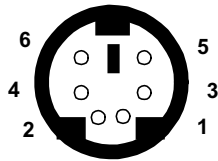
PS/2 Keyboard (6-pin Female)

PIN	SIGNAL	DESCRIPTION
1	Keyboard DATA	Keyboard DATA
2	NC	No connection
3	GND	Ground
4	VCC	+5V
5	Keyboard Clock	Keyboard clock
6	NC	No connection

USB Connectors

The mainboard provides a **UHCI (Universal Host Controller Interface) Universal Serial Bus root** for attaching USB devices like: keyboard, mouse and other USB devices. You can plug the USB device directly to this connector.
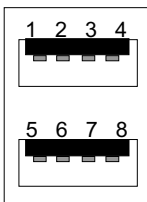
USB Ports

PIN	SIGNAL	DESCRIPTION
1	VCC	+5V
2	-Data 0	Negative Data Channel 0
3	+Data 0	Positive Data Channel 0
4	GND	Ground
5	VCC	+5V
6	-Data 1	Negative Data Channel 1
7	+Data 1	Positive Data Channel 1
8	GND	Ground

Parallel Port Connector: LPT1

The mainboard provides a 25 pin female centronic connector for LPT. A
parallel port is a standard printer port that also supports Enhanced Parallel
Port (EPP) and Extended capabilities Parallel Port (ECP). See connector and
pin definition below:
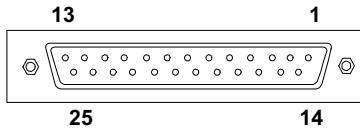
PIN	SIGNAL	DESCRIPTION
1	STROBE	Strobe
2	DATA0	Data0
3	DATA1	Data1
4	DATA2	Data2
5	DATA3	Data3
6	DATA4	Data4
7	DATA5	Data5
8	DATA6	Data6
9	DATA7	Data7
10	ACK#	Acknowledge
11	BUSY	Busy
12	PE	Paper End
13	SELECT	Select
14	AUTO FEED#	Automatic Feed
15	ERR#	Error
16	INIT#	Initialize Printer
17	SLIN#	Select In
18	GND	Ground
19	GND	Ground
20	GND	Ground
21	GND	Ground
22	GND	Ground
23	GND	Ground
24	GND	Ground
25	GND	Ground1

Serial Port Connectors: COM A and COM B

The mainboard provides two 9-pin male DIN connectors for serial port COM A & COM B. These port are 16550A high speed communication port that send/receive 16 bytes FIFOs. You can attach a mouse or a modem cable directly into this connector.
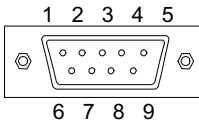
PIN	SIGNAL
1	**DCD** (Data Carry Detect)
2	**SIN** (Serial In or Receive Data)
3	**SOUT** (Serial Out or Transmit Data)
4	**DTR** (Data Terminal Ready)
5	**GND**
6	**DSR** (Data Set Ready)
7	**RTS** (Request To Send)
8	**CTS** (Clear To Send)
9	**RI** (Ring Indicate)

Joystick/Midi Connectors

You can connect a joystick or game pad to this connector.
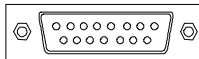
Audio Port Connectors

Line Out is a connector for Speakers or Headphones. **Line In** is used for external CD player, Tape player, or other audio devices. **Mic** is a connector for the microphones.

Line Out   Line In   MIC
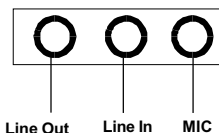
Connectors

Fan Power Connectors: C_FAN1 & S_FAN1

These connectors support system cooling fan with + 12V. It supports three pin head connector. When connecting the wire to the connector, always take note that the red wire is the positive and should be connected to the +12V, the black wire is Ground and should be connected to GND.
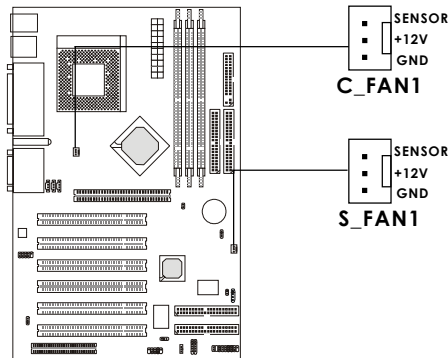
C_FAN1: Processor Fan
S_FAN1: System Fan

For fans with fan speed sensor, every rotation of the fan will send out 2 pulses. System Hardware Monitor will count and report the fan rotation speed.   If your mainboard has System Hardware Monitor chipset on-board, you must use a specially designed fan with speed sensor to take advantage of this function.

Note: **1.** Always consult your reseller for proper CPU cooling fan.
2. CPU FAN supports the FAN control. You can install PC Alert utility. This will automatically control the CPU FAN Speed according to the actual CPU temperature.

Case Connector: JFP1

The Power Switch, Reset Switch, Power LED, Speaker, and HDD LED are all connected to the JFP1 connector block.
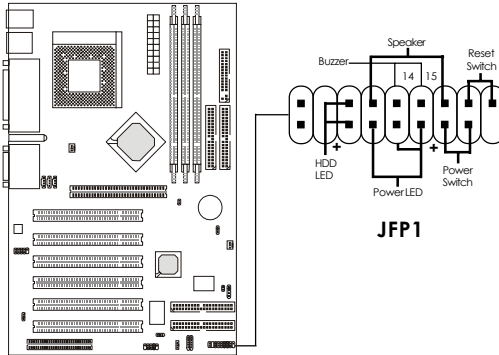
Power Switch
Connect to a 2-pin push button switch. This switch has the same feature with JRMS1.

Reset Switch
Reset switch is used to reboot the system rather than turning the power ON/OFF. Avoid rebooting while the HDD LED is lit. You can connect the Reset switch from the system case to this pin.

Power LED
The Power LED is lit while the system power is on. Connect the Power LED from the system case to this pin.
There are two types of LED that you can use: 2-pin single color LED or 3-pin dual color LED(ACPI request).

        a. 2-pin single color LED is connected to pin 5 & 6. This LED will light
           when the system is on.
        b. 3-pin dual color LED is connected to pin 4, 5, & 6.
           GREEN Color: Indicate the system is in full on mode.
           ORANGE Color: Indicate the system is in suspend mode.

Speaker
Speaker from the system case is connected to this pin.
If on-board Buzzer is available:
        Short pin 14-15:   On-board Buzzer Enabled.
        Open pin 14-15:   On-board Buzzer Disabled.

HDD LED
HDD LED shows the activity of a hard disk drive. Avoid turning the power off while the HDD led is lit. You can connect the HDD LED from the system case to this pin.

Floppy Disk Connector: FDD1

The mainboard also provides a standard floppy disk connector FDD that supports 360K, 720K, 1.2M, 1.44M and 2.88M floppy disk types. This connector supports the provided floppy drive ribbon cables.
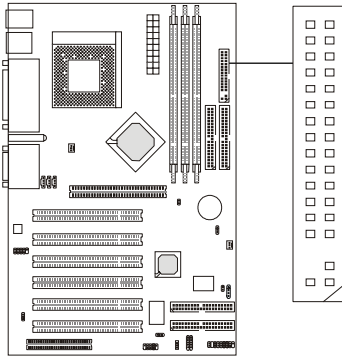
USB PC To PC Connector: USB2 (Optional)

The mainboard provides a **Universal Serial Bus connector** for you to connect optional USB ports. One of the ports is implemented with **USB PC to PC Networking** function.

Pin	Signal	Pin	Signal
1	NC	6	USBD2+
2	GND	7	GND
3	USBD3-	8	USBD2-
4	GND	9	NC
5	USBD3+	10	VCC
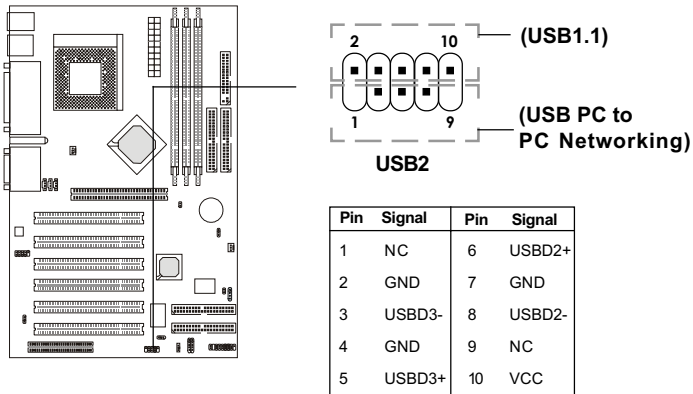
Note: USB PC to PC Networking feature allows users to transfer and receive data from other computers or share system resources with other computers without using any network adapter. See below for instructions.

To Attach the USB PC to PC cable

1. Check whether the package includes the following items. If any is missing, contact your dealer.

USB PC to PC Bracket   USB PC to PC Cable

2. Connect the USB Bracket cable to the USB2 pin header on the mainboard. Locate the pin position marked with the ARROW on the connector of USB Bracket and Pin# 9 of USB2. Then align the pin position with Pin# 9 to attach the USB Bracket.

Pin Position marked with ARROW

JUSB2
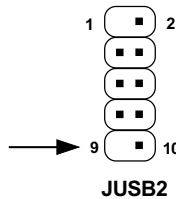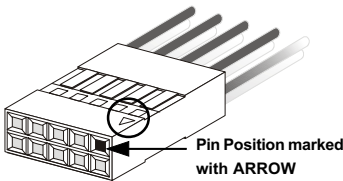
3. Identify the **B Type Connector** on the bracket used for PC to PC Networking function.

B Type Connector for PC to PC Networking   **A Type Connector for attaching USB 1.1 Peripherals**
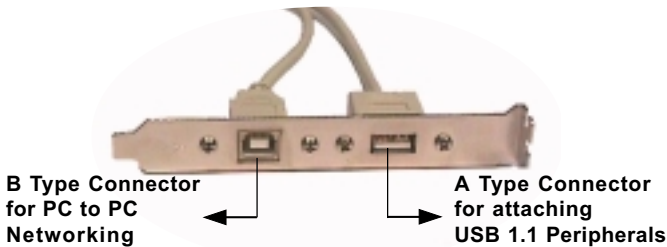
4. Connect your PC to another PC via USB PC to PC cable. The transfer rate will run at USB 1.1 speed (12Mbps/s).

Connect to the B Type Connector on your PC

Connect to the USB 1.1 port of another PC

B Type Connector
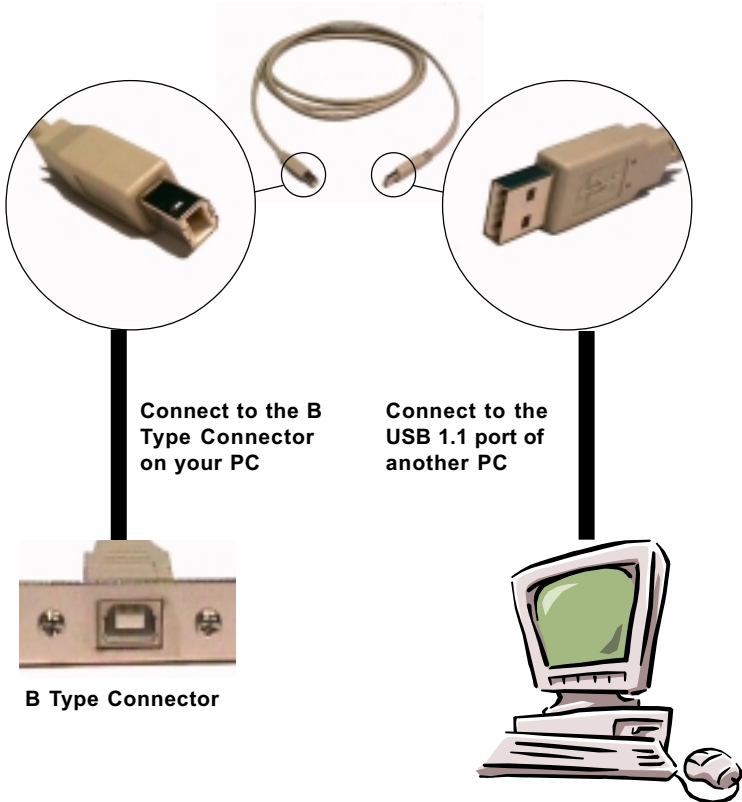
For more information on USB PC to PC Networking function, refer to Appendix A: USB PC to PC Networking Function.

D-Bracket™ Connector: J21 (Optional)

If your motherboard comes with J21 connector, you can connect a D-Bracket™ to J21. D-Bracket™ is a USB Bracket integrating four LEDs whose functions are similar to D-LED™ and allows users to identify system problem through 16 various combinations of LED signals. For definitions of 16 signal combinations, refer to page 2-29 *Diagnostic LED Function Table*.

Connected to J21

Connected to USB2

D-Bracket™
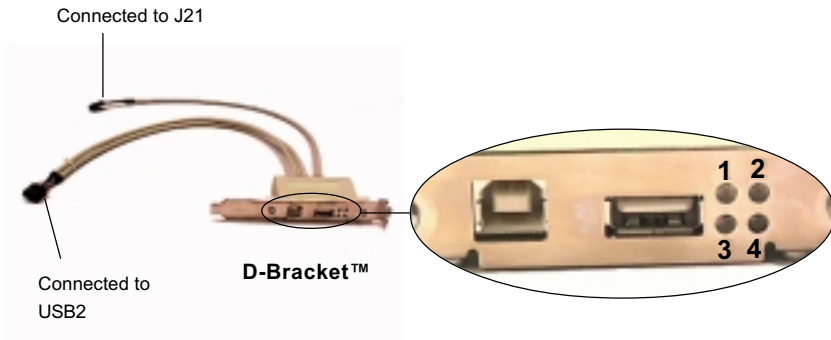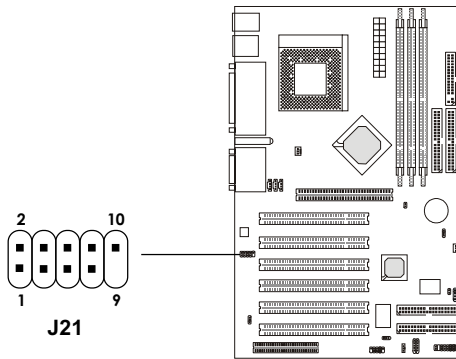
Wake-Up on LAN Connector: JWOL1

The JWOL1 connector is for use with LAN add-on cards that supports Wake Up on LAN function. To use this function, you need to set the "Wake-Up on LAN" to enable at the BIOS Power Management Setup.

JWOL1

PIN	SIGNAL
1	5VSB
2	GND
3	MP_WAKEUP
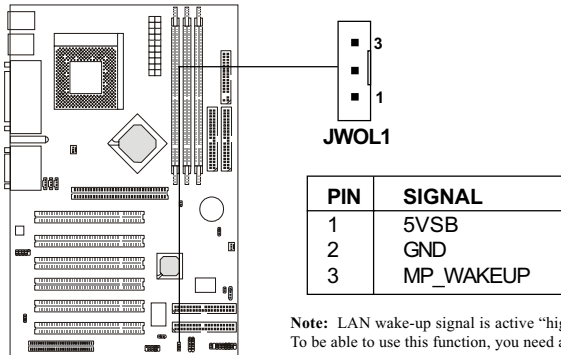
Note: LAN wake-up signal is active "high". To be able to use this function, you need a power supply that provide enough power for this feature. (Power supply with 750mA 5V Stand-by)

Modem Wake Up Connector: JMDM1

The JMDM1 connector is for use with Modem add-on card that supports the Modem Wake Up function.

JMDM1

PIN	SIGNAL
1	NC
2	GND
3	MDM_WAKEUP
4	NC
5	5VSB
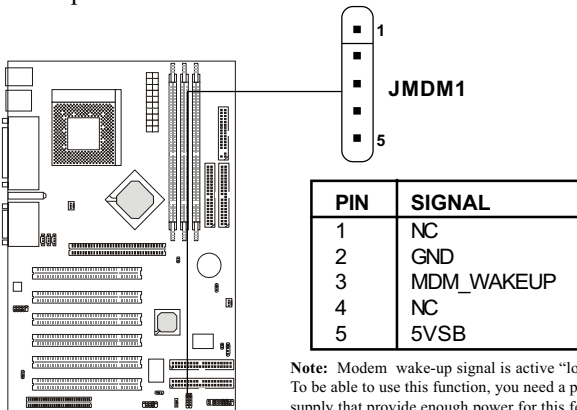
Note: Modem wake-up signal is active "low". To be able to use this function, you need a power supply that provide enough power for this feature. (Power supply with 750mA 5V Stand-by)

2-17

IDE3/IDE4 HDD LED Connector: J19

The HDD LED shows the activity of the IDE3/IDE4 hard disk drive.
Avoid turning the power off while the HDD LED is lit. You can connect the
IDE3/IDE4 HDD LED from the system case to this pin.

JGL2

Pin Signal

LED
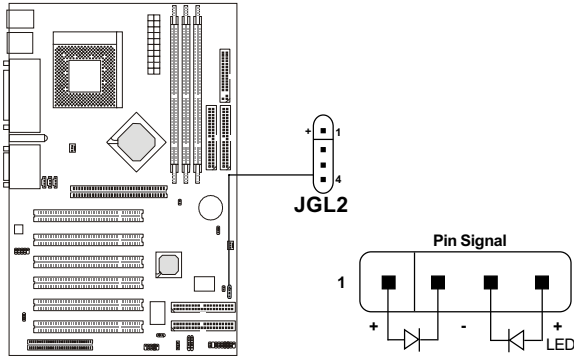
Power Saving Switch Connector: JGS1

Attach a power saving switch to **JGS1**. When the switch is pressed, the
system immediately goes into suspend mode. Press any key and the system
wakes up.

JGS1
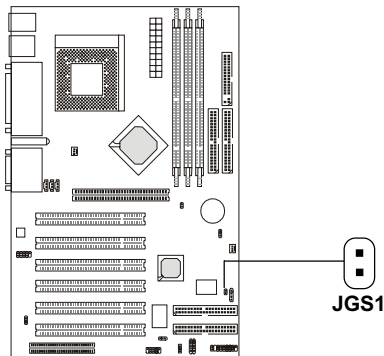
IrDA Infrared Module Connector: J2

The mainboard provides one infrared (J2) connector for IR modules. This connector is for optional wireless transmitting and receiving infrared module. You must configure the setting through the BIOS setup to use the IR function.

J2

PIN	SIGNAL
1	VCC
2	NC
3	IRRX
4	GND
5	IRTX
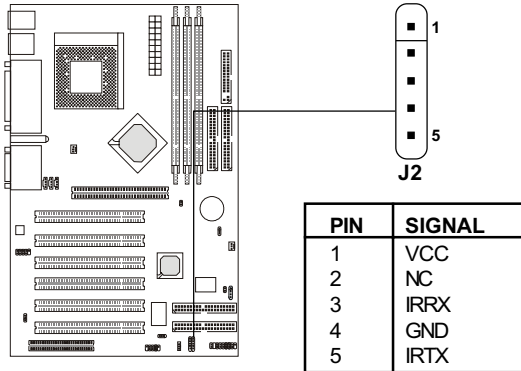
CD-In Connector: JCD1

This connector is for CD-ROM audio connector.

L
GND
R

JCD1
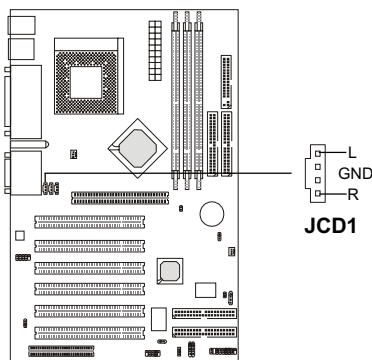
AUX Line In Connector: JAUX1

This connector is used for DVD Add on Card with Line In connector.


```
L
GND
R
```

JAUX1
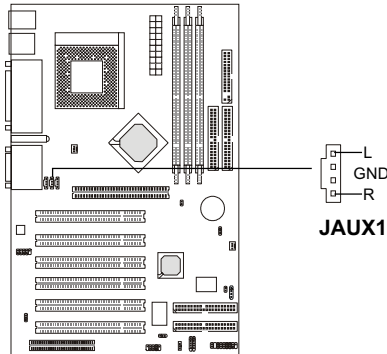
Modem-In: JPHONE

The connector is for Modem with internal voice connector.


```
Phone_In
GND
Mono_Out
```
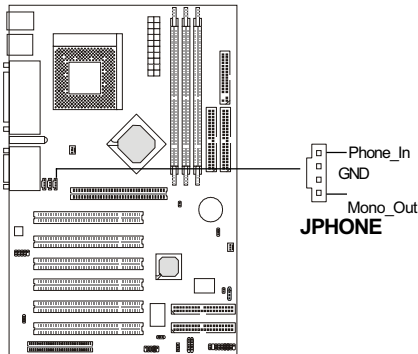
JPHONE

Mono_Out is connected to the Modem Speaker Out connector.
Phone_In is connected to the Modem Microphone In connector.

ATX 20-pin Power Connector: JWR1

This connector supports the power button on-board. Using the ATX power supply, functions such as Modem Ring Wake-Up and Soft Power Off are supported by this mainboard. This power connector supports instant power on function which means that system will boot up instantly when the power connector is inserted on the board.
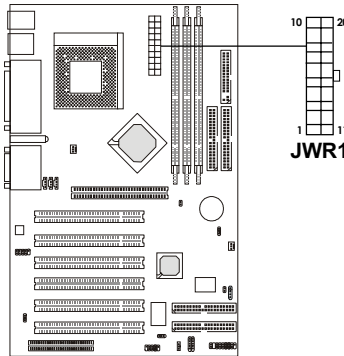
PIN	SIGNAL	PIN	SIGNAL
1	3.3V	11	3.3V
2	3.3V	12	-12V
3	GND	13	GND
4	5V	14	PS_ON
5	GND	15	GND
6	5V	16	GND
7	GND	17	GND
8	PW_OK	18	-5V
9	5V_SB	19	5V
10	12V	20	5V

Warning: Since the mainboard has the instant power on function, make sure that all components are installed properly before inserting the power connector to ensure that no damage will be done.

Hard Disk Connectors:

• IDE1 & IDE2

The mainboard has a 32-bit Enhanced PCI IDE and Ultra DMA/100
Controller that provides PIO mode 0~4, Bus Master, and Ultra
DMA/33/66/100 function. It has two HDD connectors IDE1 (primary) and
IDE2 (secondary). You can connect up to four hard disk drives, CD-ROM,
120MB Floppy (reserved for future BIOS) and other devices to IDE1 and
IDE2. These connectors support the provided IDE hard disk cable.
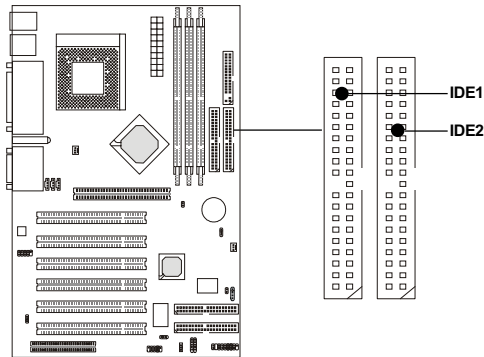
IDE1 (Primary IDE Connector)
The first hard drive should always be connected to IDE1. IDE1 can
connect a Master and a Slave drive. You must configure second hard
drive to Slave mode by setting the jumper accordingly.

IDE2 (Secondary IDE Connector)
IDE2 can also connect a Master and a Slave drive.

● IDE3 & IDE4 (Optional)

For the usage procedure, please refer to the "Promise Raid" manual provided with this mainboard.
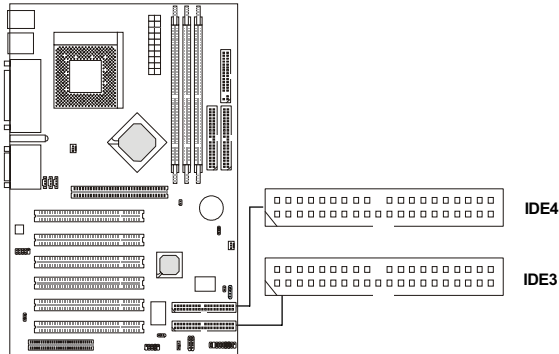
IDE 3 (Third IDE Connector) (optional)/
IDE 4 (Fourth IDE Connector) (optional)

- Supports RAID 0 (striping) or RAID 1 (mirroring), RAID 0 & RAID 1 non-coexist.
- Offers double sustained data transfer rate of attached drive (RAID 0).
- Supports Ultra ATA/100 drives and backward compatible with Ultra ATA/66/33 & EIDE drives (identical drives recommended).
- Supports "hot" swap or failed drive (RAID 1).
- Data handling optimizations include tagged command queuing, elevator seek and load balancing.
- Offers transparent data recovery and rebuilds drive in background.
- Arrays are bootable with built-in BIOS.
- RAID 0 or RAID 1 function is supported by the Master channel of PROMISE ATA RAID.

Note: *The HDD connects to the Slave channel of PROMISE ATA RAID are to be as ATA HDD.*

Jumpers

IDE3/IDE4 Function Selection Jumper: J22

The jumper allows you to set the IDE3/IDE4 connectors to one of the following modes:

ATA100 Mode:

IDE3/IDE4 connectors function as regular IDE connectors. You can connect any ATA33/66/100 compatible devices to the IDE3/IDE4 connectors, such as HDD, CD-ROM and 120MB floppy.

IDE RAID Mode:

You can only connect hard disk drives because IDE3/IDE4 connectors will function as IDE RAID connectors.
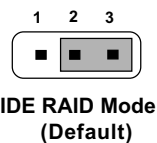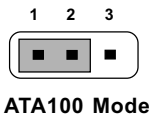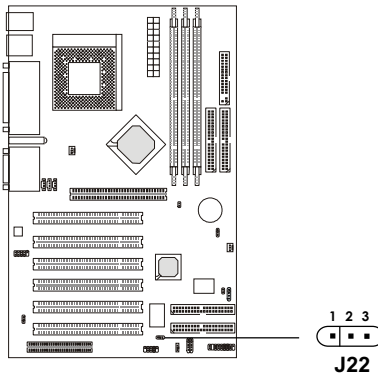
IDE3/IDE4 Enable/Disable Jumper: J23

Use the jumper to activate or disable the function of IDE3/IDE4 connectors.
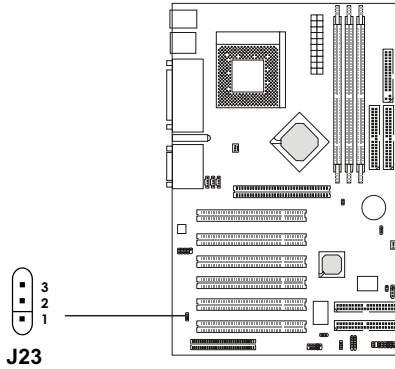
J23
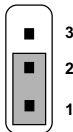
**Enable IDE3/
IDE4 function
(Default)**
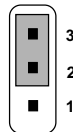
**Disable IDE3/
IDE4 function**

Clear CMOS Jumper: JBAT1

A battery must be used to retain the mainboard configuration in CMOS RAM. Short 1-2 pins of JBAT1 to store the CMOS data.

JBAT1
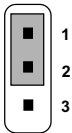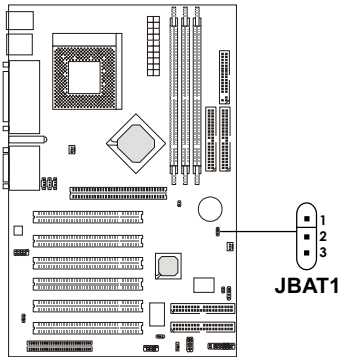
Keep Data   **Clear Data**
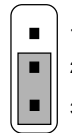
> ⚠ **WARNING!** *You can clear CMOS by shorting 2-3 pin, while the system is off. Then, return to 1-2 pin position. Avoid clearing the CMOS while the system is on, it will damage the mainboard. Always unplug the power cord from the wall socket.*

Slots

AGP Slot (Accelerated Graphics Port)

The AGP slot allows you to insert the AGP graphics card. AGP is an interface specification designed for the throughput demands of 3D graphics. It introduces a 66MHz, 32-bit channel for the graphics controller to directly access main memory and provides three levels of throughputs: 1x (266Mbps), 2x (533Mbps) and 4x (1.07Gbps).

PCI (Peripheral Component Interconnect) Slots

Three PCI slots allow you to install expansion cards to meet your needs. When adding or removing expansion cards, make sure that you unplug the power supply first. Meanwhile, read the documentation for the expansion card to make any necessary hardware or software settings for the expansion card, such as jumpers, switches or BIOS configuration.

CNR (Communication Network Riser)

The Communication Network Riser specification is an open industry-standard specification that defines a hardware scalable Original Equipment Manufacturer (OEM) mainboard riser board and interface, which supports audio and modem only.

AGP slot

PCI slots

CNR slot
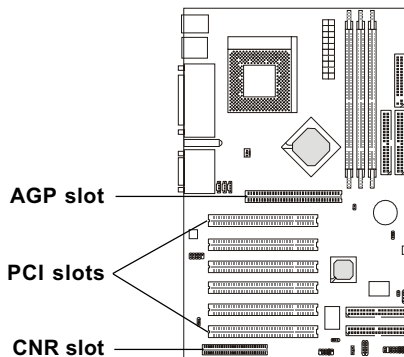
Diagnostic LED

The mainboard provides a Special Diagnostic LED for users to be aware of their mainboard conditions. The LED helps user determine the problem of the mainboard. Please refer to chapter 2-29 for the Diagnostic LED table.
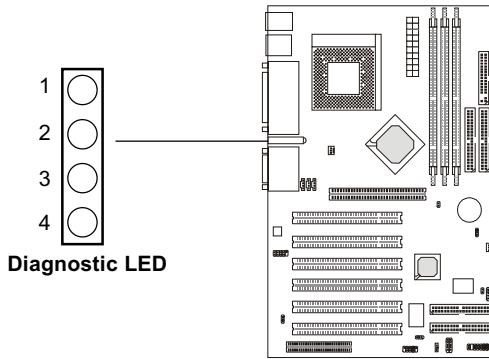
Diagnostic LED

Diagnostic LED Function Table

D-LED 1 2 3 4	DESCRIPTION	POSSIBLE PROBLEM
0 0 0 0	System Power ON This will start the BIOS Initialization	*The processor might be damaged or not installed properly*
1 0 0 0	Early Chipset Initialization	*Please check your local vendor*
0 1 0 0	Memory Detection Test Testing Onboard memory size	*The memory module might be damaged or not installed properly*
1 1 0 0	Decompressing BIOS image to RAM for fast booting	*Please check your local vendor*
0 0 1 0	Initializing Keyboard Controller	*The keyboard might be damaged or not plug-in properly*
1 0 1 0	Test shadow memory	*Please check your local vendor*
0 1 1 0	Processor Initialization This will show information regarding the processor e.g. brand name, system bus, etc.,	*Please check your local vendor*
1 1 1 0	Testing RTC (Real Time Clock)	*Low lithium battery*
0 0 0 1	Initializing Video Interface This will start detecting CPU clock, checking type of video onboard. Then detect and initialize the video adapter	*The VGA card might be damaged or not installed properly*
1 0 0 1	BIOS sign ON This will start showing information about logo, processor, brand name, etc.,	*Please check your local vendor*
0 1 0 1	Testing base and Extended memory Testing base memory from 240K to 640K and extended memory above 1MB using various patterns	*Please check your local vendor*
1 1 0 1	Assign Resources to all ISA	*Please check your local vendor*
0 0 1 1	Initializing Hard Drive Controller This will initialize IDE drive and controller	*Check IDE cable for proper installation*
1 0 1 1	Initializing Floppy Drive Controller This will initialize Floppy Drive and controller	The Floppy Drive Cable might not be installed
0 1 1 1	Assign IRQs to PCI devices	Stop
1 1 1 1	Operating System Booting	*System Available*

1 = GREEN 0 = RED

Note: The system D-LED will hang when problem occurs during operation

AWARD® BIOS Setup

3

Award® BIOS ROM has a built-in Setup program that allows users to modify the basic system configuration. This type of information is stored in battery-backed RAM (CMOS RAM), so that it retains the Setup information when the power is turned off.

Chapter 3 contains the following topics:

Entering Setup

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

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

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

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

Getting Help

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

Status Page Setup Menu/Option Page Setup Menu
Press F1 to pop up a small help window that describes the appropriate keys to use and the possible selections for the highlighted item. To exit the Help Window, press <Esc>.

The Main Menu

Once you enter Award® BIOS CMOS Setup Utility, the Main Menu (Figure 1) will appear on the screen. The Main Menu allows you to select from twelve setup functions and two exit choices. Use arrow keys to select among the items and press <Enter> to accept or enter the sub-menu.

CMOS Setup Utility - Copyright(C) 1984-2000

```
┌─────────────────────────────┬─────────────────────────────┐
│ Standard CMOS Features      │ Frequency/Voltage Control   │
│                             │                             │
│ Advanced BIOS Features      │ High System Performance     │
│                             │                             │
│ Advanced Chipset Features   │ Load Optimized Defaults     │
│                             │                             │
│ Integrated Peripherals      │ Set Supervisor Password     │
│                             │                             │
│ Power Management Setup      │ Set User Password           │
│                             │                             │
│ PnP/PCI Configurations      │ Save & Exit Setup           │
│                             │                             │
│ PC Health Status            │ Exit Without Saving         │
├─────────────────────────────┴─────────────────────────────┤
│  Esc : Quit              ↑↓→←   : Select Item              │
│  F10 : Save & Exit Setup                                   │
├────────────────────────────────────────────────────────────┤
│          Time, Date, Hard Disk Type...                     │
└────────────────────────────────────────────────────────────┘
```

Standard CMOS Features

Use this Menu for basic system configurations.

Advanced BIOS Features

Use this menu to set the Advanced Features available on your system.

Advanced Chipset Features

Use this menu to change the values in the chipset registers and optimize your system's performance.

Integrated Peripherals

Use this menu to specify your settings for integrated peripherals.

Power Management Setup

Use this menu to specify your settings for power management.

PnP/PCI Configurations

This entry appears if your system supports PnP/PCI.

PC Health Status (Optional)

This entry shows your PC health status. If Hardware Monitor Chipset is installed.

Frequency/Voltage Control

Use this menu to specify your settings for frequency/voltage control.

High System Performance

Use this menu to load the BIOS values for the best system performance, but the system stability may be affected.

Load Optimized Defaults

Use this menu to load the BIOS default values that are factory settings for optimal and stable performance system operations.

Set Supervisor/User Password

Use this menu to set User and Supervisor Passwords.

Save & Exit Setup

Save CMOS value changes to CMOS and exit setup.

Exit Without Saving

Abandon all CMOS value changes and exit setup.

Standard CMOS Features

The items in Standard CMOS Features Menu are divided into 10 categories. Each category includes no, one or more than one setup items. Use the arrow keys to highlight the item and then use the <PgUp> or <PgDn> keys to select the value you want in each item.

CMOS Setup Utility - Copyright(C) 1984-2000 Award Software
Standard CMOS Features

```
┌─────────────────────────────────────────────┬──────────────────────────┐
│ Date(mm:dd:yy):        Fri,May 5,2000        │                          │
│ Time(hh:mm:ss):        00:00:00              │       Item Help          │
│                                              │                          │
│                                              │                          │
│ IDE Primary Master     Press Enter27326MB    │                          │
│ IDE Primary Slave      Press Enter None      │  Menu Level  >           │
│ IDE Secondary Master   Press Enter None      │                          │
│ IDE Secondary Slave    Press Enter None      │                          │
│                                              │                          │
│                                              │                          │
│ Drive A                1.44M, 3.5in.         │                          │
│ Drive B                None                  │                          │
│                                              │                          │
│                                              │                          │
│ Video                  EGA/VGA               │                          │
│ Halt On                All, But Keyboard     │                          │
│                                              │                          │
│                                              │                          │
│ Based Memory            640K                 │                          │
│ Extended Memory        64512K                │                          │
│ Total Memory           65152K                │                          │
│                                              │                          │
│                                              │                          │
├──────────────────────────────────────────────┴─────────────────────────┤
│ ↑↓→← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help │
│   F5:Previous Values F6:Fail-safe Defaults F7:Optimized Defaults         │
└─────────────────────────────────────────────────────────────────────────┘
```

Date

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

Day	Day of the week, from Sun to Sat, determined by BIOS. (Read-only)
Month	The month from Jan. through Dec.
Date	The date from 1 to 31 can be keyed by numeric function keys.
Year	The year, depends on the year of the BIOS

Time

The time format is <hour> <minute> <second>.

PrimaryMaster/PrimarySlave
SecondaryMaster/Secondary Slave

Press PgUp/<+> or PgDn/<-> to select Manual, None, Auto type. Note that the specifications of your drive must match with the drive table. The hard disk will not work properly if you enter improper information for this category. If your hard disk drive type is not matched or listed, you can use Manual to define your own drive type manually.

If you select Manual, related information is asked to be entered to the following items. Enter the information directly from the keyboard. This information should be provided in the documentation from your hard disk vendor or the system manufacturer.

If the controller of HDD interface is **SCSI** and **CD-ROM**, the selection should be set to "None".

Access Mode	The settings are Auto, Normal, Large,LBA.
Cylinder	Number of cylinders
Head	Number of heads
Precomp	Write precom
Landing Zone	Landing zone
Sector	Number of sectors

Advanced BIOS Features

CMOS Setup Utility - Copyright(C) 1984-2000 Award Software
Advanced BIOS Features

```
┌──────────────────────────────────────────────┬──────────────────────────┐
│ Anti-Virus Protection        Disabled         │                          │
│ CPU Internal Cache           Enabled          │       Item Help          │
│ External Cache               Enabled          │                          │
│ CPU L2 Cache ECC Checking    Enabled          │                          │
│ Quick Power On Self Test     Enabled          ├──────────────────────────┤
│ Promise & SCSI Boot Order    Promise, SCSI    │ Menu Level   >           │
│ First Boot device            Floppy           │                          │
│ Second Boot device           HDD-0            │                          │
│ Third Boot device            LS/ZIP           │                          │
│ Boot other device            Enabled          │                          │
│ Swap Floppy Drive            Disabled         │                          │
│ Boot Up Floppy Seek          Disabled         │                          │
│ Boot Up Numlock Status       On               │                          │
│ Gate A20 Option              Normal           │                          │
│ Typematic Rate Setting       Disabled         │                          │
│ Typematic Rate (Chars/Sec)   6                │                          │
│ Typematic Delay (Msec)       250              │                          │
│ Security Option              Setup            │                          │
│ OS Select for DRAM > 64MB    Non-OS2          │                          │
│ Video BIOS Shadow            Enabled          │                          │
│ C8000-CBFFF Shadow           Disabled         │                          │
│ CC000-CFFFF Shadow           Disabled         │                          │
│ D0000-D3FFF Shadow           Disabled         │                          │
│ D4000-D7FFF Shadow           Disabled         │                          │
│ D8000-DBFFF Shadow           Disabled         │                          │
│ DC000-DFFFF Shadow           Disabled         │                          │
├──────────────────────────────────────────────┴──────────────────────────┤
│ ↑↓→←Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help   │
│    F5:Previous Values F6:Fail-safe D0efaults F7:Optimized Defaults        │
└──────────────────────────────────────────────────────────────────────────┘
```

Anti-Virus Protection

Allows you to choose the VIRUS Warning feature for IDE Hard Disk boot sector protection. If this function is enabled and someone attempt to write date into this area, BIOS will show a warning message on screen and alarm beep.

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

CPU Internal Cache

The default value is Enabled.

Enabled (default)	Enable cache
Disabled	Disable cache

Note: The internal cache is built in the processor.

External Cache

Choose Enabled or Disabled. This option enables the level 2 cache memory.

CPU L2 Cache ECC Checking

Choose Enabled or Disabled. This option enables the level 2 cache memory ECC (Error Check Correction).

Quick Power On Self Test

This category speeds up Power On Self Test (POST) after you power on the computer. If this is set to Enabled, BIOS will shorten or skip some check items during POST.

Enabled	Enable quick POST
Disabled (default)	Normal POST

Promise & SCSI Boot Order

The field allows you to determine the boot priority of the attached SCSI card and Promise IDE RAID device when **First**, **Second** or **Third Boot Device** is set to *SCSI*. Settings are *Promise, SCSI* and *SCSI, Promise*. Default value is *Promise, SCSI*.

First/Second/Third/Other Boot Device

The BIOS attempts to load the operating system from the devices in the sequence selected in these items. The settings are Floppy, LS/ZIP, HDD-0/HDD-1/HDD-2/HDD-3, SCSI, CDROM, LAN, and Disabled.

Swap Floppy Drive

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

Boot Up Floppy Seek

During POST, BIOS will determine if the floppy disk drive installed is 40 or 80 tracks. 360K type is 40 tracks while 760K, 1.2M and 1.44M are all 80 tracks.

Boot Up NumLock Status

Toggle between On or Off to control the state of the NumLock key when the system boots. When toggled On, the numeric keypad generates numbers instead of controlling cursor operations.

Gate A20 Option

Gate A20 refers to the way the system addresses memory above 1MB (extended memory). When set to Fast, the system chipset controls Gate A20. When set to Normal, a pin in the keyboard controller controls Gate A20. Setting Gate A20 to Fast improves system speed, particularly with OS/2 and Windows.

Typematic Rate Setting

Key strokes repeat at a rate determined by the keyboard controller. When enabled, the typematic rate and typematic delay can be selected. The settings are Enabled and Disabled.

Typematic Rate (Chars/Sec)

Sets the number of times a second to repeat a key stroke when you hold the key down. The settings are 6, 8, 10, 12, 15, 20, 24 and 30.

Typematic Delay (Msec)

Sets the delay time after the key is held down before it begins to repeat the keystroke   The settings are 250, 500, 750 and 1000.

Security Option

If you have set a password, select whether the password is required every time the System boots, or only when you enter Setup. The default setting is Setup.

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

OS Selection for DRAM > 64MB

Select OS2 only if you are running OS/2 operating system with greater than 64MB of RAM on your system.

Advanced Chipset Features

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

Choose the "ADVANCED CHIPSET FEATURES" from the Main Menu and the following screen will appear.

CMOS Setup Utility - Copyright(C) 1984-2000 Award Software
Advanced Chipset Features

```
 ┌──────────────────────────────────────┬─────────────────────────┐
 │ DRAM Timing by SPD        Yes         │                         │
 │ SDRAM CAS Latency         Auto        │        Item Help        │
 │ DRAM Clock                Auto        │                         │
 │ Memory Hole               Disabled    │                         │
 │ P2C/C2P Concurrency       Enabled     ├─────────────────────────│
 │ Fast R-W Turn Around      Disabled    │ Menu Level   >          │
 │ System BIOS Cacheable     Disabled    │                         │
 │ Video RAM Cacheable       Disabled    │                         │
 │ AGP Aperture Size         64M         │                         │
 │ AGP 4X Mode               Enabled     │                         │
 │ AGP Driving Control       Auto        │                         │
 │ AGP Driving Value         DA          │                         │
 │ OnChip USB                Enabled     │                         │
 │ USB Keyboard Support      Disabled    │                         │
 │ USB Mouse Support         Disabled    │                         │
 │ OnChip Sound              Auto        │                         │
 │ OnChip Modem              Auto        │                         │
 │ CPU to PCI Write Buffer   Enabled     │                         │
 │ PCI Dynamic Bursting      Enabled     │                         │
 │ PCI Master 0 WS Write     Enabled     │                         │
 │ PCI Delay Transaction     Enabled     │                         │
 │ PCI#2 Access #1 Retry     Disabled    │                         │
 │ AGP Master 1 WS Write     Enabled     │                         │
 │ AGP Master 1 WS Read      Enabled     │                         │
 │ Memory Parity/ECC Check   Disabled    │                         │
 ├──────────────────────────────────────┴─────────────────────────│
 │↑↓→←Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help│
 │    F5:Previous Values F6:Fail-safe defaults F7:Optimized Defaults │
 └──────────────────────────────────────────────────────────────────┘
```

Note: Change these settings only if you are familiar with the chipset.

DRAM Timing by SPD

The DRAM timing is controlled by the DRAM Timing Registers. The Timings programmed into this register are dependent on the system design. Slower rates may be required in certain system designs to support loose layouts or slower memory.

SDRAM CAS Latency

This field sets the CAS latency timing. The settings are Auto (default), 2 or 3.

DRAM Clock

The chipset support synchronous and asynchronous mode between the host clock and DIMM clock.

Auto (default)	BIOS automatically determines DIMM clock.
100MHz	DIMM clock is set to 100MHz.
133MHz	DIMM clock is set to 133MHz.

Memory Hole

In order to improve performance, certain space in memory can be reserved for ISA cards. This memory must be mapped into the memory space below 16 MB.

Enabled	Memory hole supported.
Disabled (default)	Memory hole not supported.

P2C/C2P Concurrency

This item allows you to Enable or Disable the PCI to CPU, CPU to PCI concurrency. The default setting is Enabled.

Fast R-W Turn Around

This item controls the DRAM timing. It allows the user to Enable or Disable the fast read, write turn around. The settings are Enabled or Disabled. The default setting is Disabled.

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 settings are: Enabled and Disabled.

Video RAM Cacheable

Select Enabled allows caching of the video BIOS , resulting in better system performance. However, if any program writes to this memory area, a system error may result. The settings are: Enabled and Disabled.

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.

AGP-4X Mode

This item is used to Enabled or Disabled the AGP support for AGP 4x mode.

AGP Driving Control

This item allows you to adjust the AGP driving force. Choose Manual to key in a AGP Driving Value in the next selection. This field is recommended to set in Auto for avoiding any error in your system. The default setting is Auto.

AGP Driving Value

This item allows you to adjust the AGP driving force.

Onchip USB

Set this option to Enable or Disable the onchip USB controller. The default setting is Enabled.

USB Keyboard Support

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

OnChip Sound

This item allows you to control the onboard AC 97 audio.

OnChip Modem

This item allows you to control the onboard MC 97 Modem.

CPU to PCI Write Buffer

When this field is Enabled, writes from the CPU to the PCI bus are buffered, to compensate for the differences between the CPU and the PCI bus. When Disabled, the writes are not buffered and the CPU must wait until the write is complete before starting another cycle. The default setting is Enabled.

PCI Dynamic Bursting

When Enabled, every write transaction goes to the write buffer. Burstable transactions then burst on the PCI bus and non burstable transactions do not.

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 settings are Enabled or Disabled.

PCI#2 Access #1 Retry

When Disabled, PCI#2 will not be disconnected until access finishes (default). When Enabled, PCI#2 will be disconnected if max retries are attempted without success. The default setting is Enabled.

AGP Master 1 WS Write

When Enabled, writes to the AGP (Accelerated Graphics Port) are executed with one wait states. The default setting is Enabled.

AGP Master 1 WS Read

When Enabled, reads to the AGP (Accelerated Graphics Port) are executed with one wait states. The default setting is Enabled.

Memory Parity/ECC Check

Select Enabled, Disabled, or Auto. In Auto mode, the BIOS enables the memory checking automatically when it detects the presence of ECC or parity DRAM.

Integrated Peripherals

CMOS Setup Utility - Copyright(C) 1984-2000 Award Software
Integrated Peripherals

```
 Onchip IDE Channel0          Enabled
 Onchip IDE Channel1          Enabled              Item Help
 IDE Prefetch Mode            Enabled
 Primary Master PIO           Auto
 Primary Slave PIO            Auto           Menu Level  >
 Secondary Master PIO         Auto
 Secondary Slave PIO          Auto
 Primary Master UDMA          Auto
 Primary Slave UDMA           Auto
 Secondary Master UDMA        Auto
 Secondary Slave UDMA         Auto
 Init Display First           PCI Slot
 IDE HDD Block Mode           Enabled
 Onboard FDD Controller       Enabled
 Onboard Serial Port 1        Auto
 Onboard Serial Port 2        Auto
 UART 2 Mode                  Standard
X IR Function Duplex          Half
X TX,RX inverting enable      No, Yes
 Onboard Parallel Port        378/IRQ7
 Onboard Parallel Mode        Normal
 ECP Mode Use DMA             3
 Parallel Port EEP Type       EEP 1.9
 Onboard Legacy Audio         Enabled
 Sound Blaster                Disabled
 SB I/O Base Address          220H
 SB IRQ Select                IRQ 5
 SB DMA Select                DMA1
 MPU-401                      Disabled
 MPU-4-1 I/O Address          330-333H
 Game Port (200-207H)         Enabled
```

↑↓→←Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
   F5:Previous Values F6:Fail-safe defaults F7:Optimized Defaults

OnChip IDE Channel0/Onchip IDE Channel1

The integrated peripheral controller contains an IDE interface with support for two IDE channels. Select *Enabled* to activate each channel separately. The settings are: Enabled and Disabled.

IDE Prefetch Mode

This item is used to Enabled or Disabled the IDE Read/Write Prefetch buffer. This buffer is used to store data for faster performances.

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. The settings are: Auto, Mode 0, Mode 1, Mode 2, Mode 3, Mode 4.

Primary/Secondary Master/Slave UDMA

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 supports Ultra DMA/33, Ultra DMA/66 and Ultra DMA/100, select Auto to enable BIOS support. The settings are: Auto, Disabled.

Init Display First

This item allows you to decide to activate whether PCI Slot or AGP Slot.   The settings are: PCI Slot, AGP Slot.

IDE HDD Block Mode

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

Onboard FDD Controller

Select Enabled if your system has a floppy disk controller (FDD) installed on the system board and you wish to use it. If you install add-on FDC or the system has no floppy drive, select Disabled in this field. The settings are: Enabled and Disabled.

Onboard Serial Port 1/Port 2

Select an address and corresponding interrupt for the first and second serial ports. The settings are: 3F8/IRQ4, 2E8/IRQ3, 3E8/IRQ4, 2F8/ IRQ3, Disabled, Auto.

UART 2 Mode

This item allows you to select which mode for the Onboard Serial Port 2. The settings are: Standard, HPSIR, ASKIR.

IR Function Duplex

Select the value required by the IR device connected to the IR port. Full-duplex mode permits simultaneous two-direction transmission. Half-duplex mode permits transmission in one direction only at a time. If no infrared port is present in the system, select Disabled.

TX, RX inverting enable

This item allows you to enable the TX, RX inverting which depends on different H/W requirement. This field is not recommended to change its default setting for avoiding any error in your system.

Onboard Parallel Port

Select a logical LPT port address and corresponding interrupt for the physical parallel port.

Onboard Parallel Mode

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

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

ECP Mode Use DMA

Select a DMA channel for the parallel port for use during ECP mode. The settings are 3 or 1. The default setting is 3.

Parallel Port EEP Type

Select EPP port type 1.7 or 1.9, as required by your parallel peripheral.

Onboard Legacy Audio

This fields controls the onboard legacy audio.

- Sound Blaster
- SB I/O Base Address
- SB IRQ Select
- SB DMA Select
- MPU-401
- MPU-401 I/O Address
- Game Port (200-207H)

Power Management Setup

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

```
        CMOS Setup Utility - Copyright(C) 1984-2000 Award Software
                        Power Management Setup
┌──────────────────────────────────────────┬─────────────────────────┐
│ IPCA Function            Enabled          │                         │
│ Power Management         Press Enter      │       Item Help         │
│ ACPI Suspend Type        S1(POS)          │                         │
│ PM Control by APM        Yes              ├─────────────────────────┤
│ Video Off Option         Suspend->Off     │                         │
│ Video Off Method         V/H SYNC+Blank   │ Menu Level  >           │
│ MODEM Use IRQ            3                │                         │
│ Soft-Off by PWRBTN       Instant-Off      │                         │
│ State After Power Failure Auto            │                         │
│ LED In Suspend           Blink            │                         │
│ Wake Up Events           Press Enter      │                         │
│                                           │                         │
│                                           │                         │
│                                           │                         │
│                                           │                         │
│                                           │                         │
│                                           │                         │
│                                           │                         │
│                                           │                         │
├──────────────────────────────────────────┴─────────────────────────┤
│ ↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help │
│    F5:Previous Values F6:Fail-safe Defaults F7:Optimized Defaults    │
└─────────────────────────────────────────────────────────────────────┘
```

IPCA Function

This item allows you to Enabled/Disabled the Advanced Configuration and Power Management (ACPI). The Settings are Enabled and Disabled.

Power Management

This option allows you to select the type (or degree) of power saving for Doze, Standby, and Suspend modes. This table describes each power management mode:

Max Saving	Maximum power savings. Only available for SL CPU's
User Define	Set each mode individually.
Min Saving	Minimum power savings.

ACPI Suspend Type

This item will set which ACPI suspend type will be used.

S1 (POS)	The S1 sleeping state is low wake-up latency sleeping state. In this state, no system context is lost(CPU or chip set) and hardware maintains all system context.
S3 (STR)	The S3 state is a low wake-up latency sleeping state where all system context is lost expect system memory. CPU, cache, and chipset context are lost in this state. Hardware maintains memory context and restores some CPU and L2 configuration context.

PM Control by APM

If Advanced Power Management (APM) is installed on your system, selecting Yes gives better power savings.

Video Off Option

Selects the power-saving modes during which the monitor goes blank:

Always On	Monitor remains on during power-saving modes.
Suspend Off	Monitor blanked when system enters Suspend mode.
Susp, Stby Off	Monitor blanked when system enters either Suspend or Standby mode.
All Modes Off	Monitor blanked when system enters any power saving mode.

Video Off Method

Determines the manner in which the monitor is blanked.

V/H SYNC+Blank	System turns off vertical and horizontal synchronization ports and writes blanks to the video buffer.
DPMS Support	Initial display power management signaling.
Blank Screen	This option only writes blanks to the video buffer.

Modem Use IRQ

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

Soft-Off by PWR-BTTN

Pressing the power button for more than 4 seconds forces the system to enter the Soft-Off state. The settings are Delay 4 Sec and Instant-Off.

State After Power Failure

This option will determine how the system will power on after a power failure.

Wake Up Events

```
VGA                      Off
LPT & COM                LPT/COM              Item Help
HDD & FDD                On
PCI Master               Off
Power On by PCI Card     Disabled
Wake Up On LAN/Ring      Disabled          Menu Level  >
RTC Alarm Resume         Disabled
Date (of Month)          0
Resume Time              0:0:0
IRQs Wake Up Event       On
IRQs Activity Monitoring  Press Enter




↑↓→←Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
   F5:Previous Values F6:Fail-safe defaults F7:Optimized Defaults
```

VGA

When Enabled, you can set the VGA to awaken the system.

LPT & COM

When LPT & COM is On, any activity from one of the listed system peripheral devices or IRQs wakes up the system

HDD & FDD

When HDD & FDD is On, any activity from one of the listed system peripheral devices or IRQs wakes up the system

PCI Master

When PCI Master is On, any activity from one of the listed system peripheral devices or IRQs wakes up the system

Wake Up On LAN/Ring

To use this function, you need a LAN add-on card or Modem which supports power on functions. During Disabled, the system cannot be boot up through LAN and ignores any incoming call from the modem. During Enabled, the system can be boot up through LAN and modem.

RTC Alarm Resume

This function is for setting date and time for your computer to boot up. During Disabled, you cannot use this function. During Enabled, choose the Date and Time Alarm:

> **Date(of month) Alarm**   You can choose which month the system will boot up. Set to 0, to boot every day.
>
> **Time(hh:mm:ss) Alarm**   You can choose what hour, minute and second the system will boot up.

Note: If you have change the setting, you must let the system boot up until it goes to the operating system, before this function will work.

IRQs Wake Up Event

When this is set to On, any event occuring at will awaken a system which has been powered down.

IRQs Activity Monitoring

```
 IRQ3  (COM 2)            Enabled
 IRQ4  (COM 1)            Enabled                Item Help
 IRQ5  (LPT 2)            Enabled
 IRQ6  (Floppy Disk)      Enabled
 IRQ7  (LPT 1)            Enabled
 IRQ8  (RTC Alarm)        Disabled    Menu Level  >
 IRQ9  (IRQ2 Redir)       Disabled
 IRQ10 (Reserved)         Disabled
 IRQ11 (Reserved)         Disabled
 IRQ12 (PS/2 Mouse)       Enabled
 IRQ13 (Coprocessor)      Enabled
 IRQ14 (Hard Disk)        Enabled
 IRQ15 (Reserved)         Disabled




 ↑↓→←Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
    F5:Previous Values F6:Fail-safe defaults F7:Optimized Defaults
```

The following is a list of IRQ's, **I**nterrupt **ReQ**uests, which 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.

When set On, activity will neither prevent the system from going into a power management mode nor awaken it.

- IRQ3 (COM 2)
- IRQ4 (COM 1)
- IRQ5 (LPT 2)
- IRQ6 (Floppy Disk)
- IRQ7 (LPT 1)
- IRQ8 (RTC Alarm)
- IRQ9 (IRQ2 Redir)
- IRQ10 (SCSI1)
- IRQ11 (SCSI2)
- IRQ12 (PS/2 Mouse)
- IRQ13 (Coprocesssor)
- IRQ14 (Hard Disk)
- IRQ15 (Reserved)

PnP/PCI Configurations

This section describes configuring the PCI bus system. PCI, or
Personal **C**omputer **I**nterconnect, is a system which allows I/O devices to
operate at speeds nearing the speed the CPU itself uses when communicat-
ing 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.

```
         CMOS Setup Utility - Copyright(C) 1984-2000 Award Software
                        PnP/PCI Configurations
┌─────────────────────────────────────────────┬─────────────────────────┐
│ PnP OS Installed            No                │                         │
│ Reset Configuration Data    Disabled          │       Item Help         │
│                                               │                         │
│ Resources Controlled By     Auto (ESCD)       ├─────────────────────────┤
│ IRQ Resources               Press Enter       │                         │
│ DMA Resources               Press Enter       │ Menu Level  >           │
│                                               │                         │
│ PCI/VGA Palette Snoop       Disabled          │                         │
│ Assign IRQ for VGA          Enabled           │                         │
│ Assign IRQ for USB          Enabled           │                         │
│ INT Pin 1 Assignment        Auto              │                         │
│ INT Pin 2 Assignment        Auto              │                         │
│ INT Pin 3 Assignment        Auto              │                         │
│ INT Pin 4 Assignment        Auto              │                         │
│                                               │                         │
│                                               │                         │
│                                               │                         │
│                                               │                         │
│                                               │                         │
│                                               │                         │
├───────────────────────────────────────────────────────────────────────┤
│↑↓→←Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help  │
│   F5:Previous Values F6:Fail-safe defaults F7:Optimized Defaults        │
└───────────────────────────────────────────────────────────────────────┘
```

PnP OS Installed

When set to YES, BIOS will only initialize the PnP cards used for booting (VGA, IDE, SCSI). The rest of the cards will be initialized by the PnP operating system like Windows® 95 or 98. When set to NO, BIOS will initialize all the PnP cards. So, for non-PnP operating system (DOS, Netware®), this option must set to Yes.

Reset Configuration Data

Normally, you leave this field Disabled. Select Enabled to reset Extended System Configuration Data (ESCD) when you exit Setup 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 settings are: Enabled and Disabled .

Resource 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. If you set this field to "manual" choose specific resources by going into each of the sub menu that follows this field (a sub menu is preceded by a "➤"). The settings are: Auto (ESCD), Manual.

IRQ Resources

When resources are controlled manually, assign each system interrupt a type, depending on the type of device using the interrupt.

DMA Resources

This sub menu can let you control the DMA resource.

PCI/VGA Palette Snoop

Leave this field at Enabled. The settings are Enabled and Disabled.

Assign IRQ for VGA

Leave this field at Enabled. The settings are Enabled and Disabled.

Assign IRQ for USB

Leave this field at Enabled. The settings are Enabled and Disabled.

PC Health Status (Optional)

This section helps you to get more information about your system including CPU temperature, FAN speed and voltages. It is recommended that you contact with your motherboard supplier to get proper value about your setting of the CPU temperature.

CMOS Setup Utility - Copyright(C) 1984-2000 Award Software
PC Health Status

```
┌─────────────────────────────────────────────┬─────────────────────────┐
│ Shutdown Temperature        Disabled         │                         │
│ Current CPU Temp.           33°C/91°F         │       Item Help         │
│ Current System Temp.        23°C/73°F         │                         │
│ Current CPUFAN1 Speed       6124Rpm           │                         │
│ Current CPUFAN2 Speed       0Rpm              ├─────────────────────────┤
│ Vcore                       1.70V             │ Menu Level   >          │
│  3.3V                       3.30V             │                         │
│    5V                       4.92V             │                         │
│   12V                       11.40V            │                         │
│                                               │                         │
│                                               │                         │
│                                               │                         │
│                                               │                         │
│                                               │                         │
│                                               │                         │
├───────────────────────────────────────────────────────────────────────┤
│ ↑↓→←Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help │
│    F5:Previous Values F6:Fail-safe defaults F7:Optimized Defaults       │
└───────────────────────────────────────────────────────────────────────┘
```

Shutdown Temperature

The item allows ACPI-aware OS to automatically shutdown if the system temperature reaches a thermal level preset in the field. This can prevent the system components from being damaged due to overheat.

Current CPU Temp.

This item shows the current CPU temperature.

Current System Temp.

This item shows the current system temperature.

Current CPUFAN1 Temp.

This item shows the current CPUFAN1 speed.

Current CPUFAN2 Temp.

This item shows the current CPUFAN2 speed.

Vcore

This item shows the current system voltage.

Frequency/Voltage Control

This section is for setting CPU Frequency/Voltage Control.

CMOS Setup Utility - Copyright(C) 1984-2000 Award Software
Frequency/Voltage Control

```
┌─────────────────────────────────────────────────┬──────────────────────────┐
│ CPU Vcore Select            Default              │                          │
│ CPU Vio Select              3.3V                 │      Item Help           │
│ Auto Detect DIMM/PCI Clk    Enabled              │                          │
│ Spread Spectrum Modulated   Enabled              ├──────────────────────────┤
│ Clock By Slight Adjust      100                  │ Menu Level  >            │
│ CPU Clock Ratio             Default              │                          │
│                                                  │                          │
│                                                  │                          │
│                                                  │                          │
│                                                  │                          │
│                                                  │                          │
│                                                  │                          │
│                                                  │                          │
│                                                  │                          │
│                                                  │                          │
│                                                  │                          │
│                                                  │                          │
├─────────────────────────────────────────────────┴──────────────────────────┤
│ ↑↓→←Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help      │
│    F5:Previous Values F6:Fail-safe defaults F7:Optimized Defaults            │
└─────────────────────────────────────────────────────────────────────────────┘
```

Auto Detect DIMM/PCI CLK

To reduce the occurrence of electromagnetic interference (EMI), the BIOS detects the presence or absence of components in DIMM and PCI slots and turns off system clock generator pulses to empty slots.

Spread Spectrum Modulated

When the system clock generator pulses, the extreme values of the pulse generate excess EMI. Enabling pulse spectrum modulation changes the extreme values from spikes to flat curves, thus reducing EMI. This benefit may in some cases be outweighed by problems with timing-critical devices, such as a clock-sensitive SCSI device.

Clock By Slight Adjust

This item allows the user to increment the clock by 1(MHz) per clock adjustment. During OverClocking, if the system hangs up. The Watch Dog Timer will automatically reboot the system and set the Clock by Slight Adjust to its default setting (100MHz).
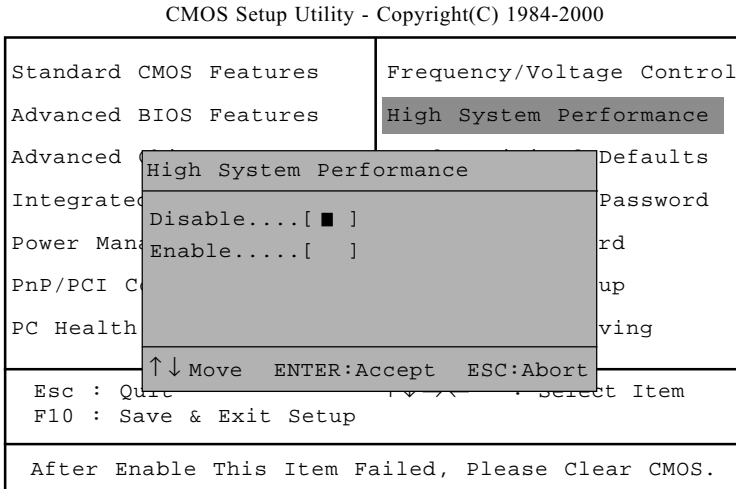
CPU Clock Ratio

This item allows you to select the CPU Clock Ratio.

Default   CPU Clock Ratio default setting.

5.5 to 12.5   Allows user to over ratio the CPU.

Note: We do not guarantee that the Motherboard or other components will work properly after overclocking.

High System Performance/Load Optimized Defaults

CMOS Setup Utility - Copyright(C) 1984-2000

```
┌────────────────────────────────┬────────────────────────────┐
│ Standard CMOS Features         │ Frequency/Voltage Control  │
│                                │                            │
│ Advanced BIOS Features         │ High System Performance    │
│                                │                            │
│ Advanced C    ┌─────────────────────────────┐  Defaults    │
│ Integrated    │ High System Performance     │  Password    │
│               │                             │              │
│ Power Man     │ Disable....[ ■ ]            │  rd          │
│               │ Enable.....[   ]            │              │
│ PnP/PCI C     │                             │  up          │
│               │                             │              │
│ PC Health     │ ↑↓ Move  ENTER:Accept  ESC:Abort │  ving   │
│           └───┴─────────────────────────────┘              │
├──────────────────────────────────────────────────────────┤
│  Esc : Quit                        ↑↓→←    : Select Item   │
│  F10 : Save & Exit Setup                                   │
├──────────────────────────────────────────────────────────┤
│  After Enable This Item Failed, Please Clear CMOS.        │
└──────────────────────────────────────────────────────────┘
```
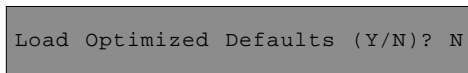
High System Performance

Selecting **Enable** will load the BIOS values that enable the best system performance (better than the Optimized Defaults) but may result in the instability of system. The default value is **Disable**.

⚠ **WARNING!** | **The option is for powerful or overclocking users only**. If the system crashes or hangs after the option is enabled, please CLEAR CMOS DATA to resolve the problem. For more information, refer to Clear CMOS Jumper:JBAT1 on page 2-26.

Load Optimized Defaults

After selecting the option, the following dialog box will appear. Pressing 'Y' loads the default values that are factory settings for optimal and stable performance system operations.

```
Load Optimized Defaults (Y/N)? N
```

Set Supervisor/User Password

CMOS Setup Utility - Copyright(C) 1984-2000

```
Standard CMOS Features      Frequency/Voltage Control

Advanced BIOS Features      High System Performance

Advanced Chipset Features   Load Optimized Defaults

Integrated Peripherals      Set Supervisor Password

Power Manag
             Enter Password:
PnP/PCI Con

PC Health Status            Exit Without Saving

 Esc : Quit                 ↑↓→←   : Select Item
 F10 : Save & Exit Setup

            Change/Set/Disable Password
```

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

Supervisor password: Can enter and change the options of the setup menus.

User password: Can only enter but do not have the right to change the options of the setup menus. When you select this function, the following message will appear at the center of the screen to assist you in creating a password.

ENTER PASSWORD:

Type the password, up to eight characters in length, and press <Enter>. The password typed now will clear any previously entered password from CMOS memory. You will be asked to confirm the password. Type the password again and press <Enter>. You may also press <Esc> to abort the selection and not enter a password.

To disable a password, just press <Enter> when you are prompted to enter the password. A message will confirm the password will be disabled. Once the password is disabled, the system will boot and you can enter Setup freely.

PASSWORD DISABLED.

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

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

You determine when the password is required within the BIOS Features Setup Menu and its Security option. If the Security option is set to "System", the password will be required both at boot and at entry to Setup. If set to "Setup", prompting only occurs when trying to enter Setup.

VIA Chipset Driver

4

The K7T Turbo Limited Edition (MS-6330 v3.X) is paired with the VIA VT82C686B south bridge. Highly advanced, the south bridge combines an integrated 2D/3D engine with DVD hardware acceleration, AC-97 audio support for SoundBlaster Pro and FM synthesis legacy audio.

Chapter 4 contains the following topics:

Audio Features (Optional)

- AC'97 audio support for SoundBlaster Pro
- FM synthesis legacy audio

System Requirements

This section describes system requirements for the VIA Driver installation and Usage.

Computer	AMD® Duron™/Athlon® processor or higher
Monitor	VGA Support, mimimum 640x480 resolution
Operating system	DOS 5.0 or higher, Windows® 95/98SE/2000, Windows® ME, Windows® NT 3.51 or 4.0, or OS/2®
CD-ROM	Double Speed or Higher
Chipset	VIA®K T133A/VT82C686B chipset

Driver Setup & Usage Procedures for Windows® 98SE

To install the drivers correctly, you must install the "Via Chipset Drivers" first, and then install the "VIA AC97 PCI Sound Drivers".

VIA Chipset Drivers installation procedure:

Step 1: Insert the provided CD_ROM disk into the CD-ROM drive.

Step 2: Look for the CD_ROM drive, double click on the CD_ROM icon. This will show the setup screen.

Step 3: Click on "Via Chipset Drivers" icon and the screen will show "VIA Service Pack 4.XX".

Step 4: Click "Next" and the screen will show a "VIA Service Pack 1 README" dialog box.

Step 5: Click "Next" and the screen will show four drivers "VIA Atapi Vendor Support Driver", "AGP VxD Driver", "IRQ Routing Miniport Driver" and "VIA INF Driver 1.XX". Select all four drivers and click on "Next".

Step 6: The setup program will request you to choose "Install VIA Atapi Vendor Support Driver". Please select "Install" and click "Next" to continue.

Step 7: Select "Click to enable DMA Mode" and click "Next" to continue.

Step 8: The setup program will request you to choose "Install VIA AGP VxD in turbo mode", "Install VIA AGP VxD in normal mode" or "Uninstall VIA AGP VxD". Please select "Install VIA AGP VxD in turbo mode" and click on "Next".

Step 9: Please select "Install VIA IRQ Routing Miniport Driver" and then click "Next".

Step 10: The setup program will request you to choose whether to restart the computer or not. Please select "Yes, I want to restart my computer now" and click "Finish". The computer will restart and finish the VIA Chipset Drivers installation.

VIA AC97 Audio Driver installation procedure:

Step 1: Insert the provided CD_ROM disk into the CD-ROM drive.

Step 2: Look for the CD_ROM drive, double click on the CD_ROM icon. This will show the setup screen.

Step 3: Click on "VIA AC97 PCI Sound Drivers" icon and the screen will show "VIA Audio Driver Setup Program 1.XX".

Step 4: Click "Next" to proceed and the screen will show "Install", or "Uninstall". Select "Install" and then click on "Next".

Step 5: Click "Finish" to complete the AC97 Audio Driver Installation.

Driver Setup & Usage Procedures for Windows® 2000

To install the drivers correctly, you must install the "Via Chipset Drivers" first, and then install the "VIA AC97 PCI Sound Drivers". Besides, you should install Windows 2000 Service Pack 2 or the latest version before installing VIA chipset driver.

VIA Chipset Drivers installation procedure:

Step 1: Insert the provided CD_ROM disk into the CD-ROM drive.

Step 2: Look for the CD_ROM drive, double click on the CD_ROM icon. This will show the setup screen.

Step 3: Click on "Via Chipset Drivers" icon and the screen will show "VIA Service Pack 4.XX".

Step 4: Click "Next" and the screen will show a "VIA Service Pack 1 README" dialog box.

Step 5: Click "Yes" and the screen will show three drivers "VIA Bus Master Ultra ATA Driver (Windows 2000)", "AGP VxD Driver" and "VIA INF Driver 1.XX." Select all and click "Next" to proceed to next step.

Step 6: The screen will show a "VIA Bus Master Ultra ATA Driver" dialog box. Select "Install" and click "Next".

Step 7: The screen will show a "VIA GART AGP Driver 4.XX" dialog box. Select "Install AGP 4X/133 driver" and click "Next".

Step 8: There is a "Read Only File Detected" dialog box. Click "Yes". A dialog box "Digital Signature Not Found" will appear and ask you "Do you want to continue the installation of the VIA Bus Master Ultra ATA Controller". Click "Yes" to continue.

Step 9: Select "Yes" and then click "Finish" to restart the system.

Step 10: After restart, the system will find a new hardware device and the "Found New Hardware Wizard" dialog box will appear. Click "Next" to the next screen and a "VIA BM Ultra DMA Channel" device will be found.

Step 11: Click "Next" and the driver search result will be shown on the screen. Click "Next".

Step 12: A dialog box "Digital Signature Not Found" will appear. Click
"Yes".

Step 13: Click "Finish" and then click "Yes" to restart the system.

Step 14: Repeat **Step 10 through Step 13** again.

Step 15: After restart, the VIA Chipset driver installation will be complete.

VIA AC97 PCI Sound Drivers installation procedure:

Step 1: Insert the provided CD_ROM disk into the CD-ROM drive.

Step 2: Look for the CD_ROM drive, double click on the CD_ROM icon.
This will show the setup screen.

Step 3: Click on "VIA AC97 PCI Sound Drivers" icon and the screen will
show "VIA AC97 PCI Sound Drivers".

Step 4: Click "Next" to proceed and the screen will show "Install",
or "Uninstall". Select "Install" and then click on "Next".

Step 5: A window "Digital Signature Not Found" will appear and ask you
"Do you want to continue the installation of the VIA AC'97 Audio
Controller (WDM) Driver?" Please click "Yes" to proceed.

Step 6: Click "Finish" to complete setup.

> **One Touch Setup:**
> In Windows® 2000/ME, you probably will see the **One Touch Setup**
> button appear on the setup screen. Choosing the button will help you
> install more than one driver into the system without going through the
> installation process step by step and save a lot of time. After clicking
> on One Touch Setup, a window will show up listing what drivers will
> be installed. Install other drivers not included by One Touch Setup
> manually if any.

Driver Setup & Usage Procedures for Windows® ME

To install the drivers correctly, you must install the "Via Chipset Drivers" first, and then install the "VIA AC97 PCI Sound Drivers".

VIA Chipset Drivers installation procedure:

Step 1: Insert the provided CD_ROM disk into the CD-ROM drive.

Step 2: Look for the CD_ROM drive, double click on the CD_ROM icon. This will show the setup screen.

Step 3: Click on "Via Chipset Drivers" icon and the screen will show "VIA Service Pack 4.XX".

Step 4: Click "Next" and the screen will show a "VIA Service Pack 1 README" dialog box.

Step 5: Click "Yes" and the screen will show two drivers "AGP VxD Driver" and "VIA INF Driver 1.XX". Select all and click "Next" to proceed to next step.

Step 6: The screen will show a "VIA_GART AGP Driver 4.XX" dialog box. Select "Install VIA AGP VxD in Turbo mode" and click "Next".

Step 7: The setup program will request you to choose whether to restart the computer or not. Please select "Yes, I want to restart my computer now" and click "Finish". The computer will restart and finish the VIA Chipset Drivers installation.

VIA AC97 PCI Sound Drivers installation procedure:

Step 1: Insert the provided CD_ROM disk into the CD-ROM drive.

Step 2: Look for the CD_ROM drive, double click on the CD_ROM icon. This will show the setup screen.

Step 3: Click on "VIA AC97 PCI Sound Drivers" icon.

Step 4: Then you restart the system manually to make it work.

Driver Setup & Usage Procedures for Windows® NT4.0

Install Windows® NT 4.0 Service Pack 6 or the latest version before installing the VIA drivers.

To install the drivers correctly, you must install the "Via Chipset Drivers" first, and then install the "VIA AC97 PCI Sound Drivers".

VIA Chipset Drivers Installation Procedure:

Step 1: Insert the provided CD_ROM disk into the CD-ROM drive.

Step 2: Look for the CD_ROM drive, double click on the CD_ROM icon. This will show the setup screen.

Step 3: Click on "VIA Chipset Drivers" icon and the screen will show "VIA Service Pack 4.XX".

Step 4: Click "Next" and the screen will show the "VIA Service Pack 1 README" dialog box.

Step 5: Click "Yes" to proceed and then select "Install" to enable (Ultra) DMA for IDE Driver.

Step 6: The "Choose Destination Location" dialog box appears. Click "Next".

Step 7: The "Select Program Folder" dialog box appears. Click "Next".

Step 8: Please click on "Yes, I want to restart my computer" and then click "Finish" to restart your computer and complete installation.

VIA AC97 PCI Sound Drivers Installation Procedure:

Step 1:   Insert the provided CD_ROM disk into the CD-ROM drive.

Step 2:   Look for the CD_ROM drive, double click on the CD_ROM icon. This will show the setup screen.

Step 3:   Click on "VIA AC97 PCI Sound Drivers" icon and the screen will show the "VIA PCI Audio Drivers" setup screen. Click "Next" to continue

Step 4:   The setup program will show "Install" or "Uninstall" on the screen. Select "Install" and click "Next"

Step 5:   The setup program will show the following on the screen:

> Please choose "Add" from the next window
> and add the following device:
>   VIA PCI Audio Controller
>   VIA MIDI External Port

Then click "OK".

Step 6:   Follow the steps shown in **Step 5** to finish the VIA AC97 PCI Audio Drivers Installation.

Step 7:   A window will appear asking "Do you want to install the joystick driver for the Microsoft Sidewinder 3D Pro Joystick?" Please click "No" to continue.

Step 8:   Please click "Finish" to restart your computer and complete installation.

AGP Retention Module   **5**

The motherboard comes with an AGP retention module installed. The retention module is used to secure the AGP card. This chapter describes how to remove the AGP card from the AGP slot with AGP retention module.
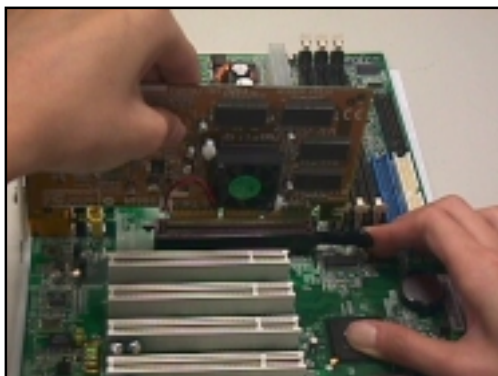
This chapter contains the following topics:

How to Uninstall AGP Card from AGP Slot

1. Pull the lever to release the AGP card.

2. Remove the AGP card from AGP slot.

USB PC to PC Networking Function A

USB PC to PC is the best solution for providing the easiest network connection service to you. By connecting multiple PCs through USB PC to PC port, you can build up a local area network without any network adapter. We give this Ethernet emulation environment a name — USB PC to PC. USB PC to PC supports TCP/IP, NetBEUI and IPX protocols. These features make your PCs able to share their resources such as files or printers to each other. Furthermore, USB PC to PC also gives you the ability of connecting to your existing Home or Office LAN for network resource or Internet sharing.

The section includes the following topics:

Installing GeneLink™ LAN Driver

Before you use the function, you need to install the GeneLink™ LAN Driver to all PCs connected via USB PC to PC cables.

Step 1. Installing driver

1. Insert the driver CD and click "USB PC to PC" button to install the driver.
2. The welcome dialog box appears and click <u>N</u>ext > button.
3. Choose the destination folder and click <u>N</u>ext > button.
4. Select components that you want to install and then click <u>N</u>ext > button. (<u>GeneLink^{TM} LAN Driver</u> is used only for those PCs connected via USB PC to PC port so that resources are shared between these PCs; <u>GeneLink^{TM} Software Router</u> allows your PC to connect to another existing Home/Office LAN for network resource or Internet sharing.)
5. The Setup Program will install all necessary components automatically.
6. Setup completes. Then select 'Yes, I want to restart my computer now' and click "FInish" button to reboot your computer for updating your driver configuration.

After you complete the installation procedures, you'll find Setup Program has installed GeneLink^{TM} network driver in your computer. It binds TCP/IP, NetBEUI and IPX protocols to GeneLink^{TM} device.

Step 2 – Connect your PCs via the USB PC to PC cable

Step 3 - Network Login

When you restart your computer, you will be prompted for a user name and password to login your network. Please enter an unique name for your PC.

Step 4 – Sharing your resources and Connecting to Internet

You need to manually share your resources (files, folders, drives and printers) to make them accessible for other computers. For Internet accessing, you must define which computer (That has already been connected to Internet) should install GeneLink^{TM} Software Router. And all

clients accessing Internet resources through GeneLink™ USB port should have installed GeneLink™ LAN driver.

Notice:

1. *You should use the same network protocol (TCP/IP, NetBEUI or IPX) for connecting GeneLink™ LAN to existing Home/Office LAN.*
2. *If you've already configured your [IPX/SPX] and [Client for Netware Networks] before installing GeneLink™ driver, we strongly recommend that you should also install **Software Router** while installing GeneLink™ driver into your system.*

Using USB PC to PC Networking Function

How to share your files, folders, drives and printers

a.   Go to the file, folder, drive or printer that you want to share.
b.   Right click your mouse pointer on the resource you want to share, you'll see a POP-UP Menu.

c.   Select " Sharing" and you'll see another POP-UP Menu.

d. In "Sharing" tag, select "Share As".
e. Enter a name to help others recognize your sharing file or device (optional).
f. Select "Access Type". If you select " Depend on Password", your need to assign an access password for this device.
g. Click "OK" button.

How to check if you have already shared your resources

Go to the resource and check if Windows had added a hand on its icon or not. If yes, it means you've successfully shared your resource and others can access it through USB PC to PC; if not, you need to repeat the steps described in "**How to share your files, folders, drives and printers***"* to complete your sharing processes.

Connecting to your existing Home or Office LAN

To connect your USB PC to PC to another existing Home of Office LAN via USB PC to PC port, you need to install **GeneLink™ Software Router** in addition to GeneLink™ LAN driver. GeneLink™ Software Router is responsible for handling all network packets between USB PC to PC and your Home/Office LAN. So only the computer that is physically connected to both LANs needs to install GeneLink™ Software Router (i.e., this computer should install both GeneLink™ LAN and one network adapter for Home/Office LAN). For those computers on USB PC to PC, you only need to follow installation procedures on the manual to install GeneLink™ LAN driver. The following procedures will show you how to install drivers to the computer that will link both PC and your existing Home/Office LAN:

Notice: If you want to connect your GeneLink™ LAN to your existing Home/Office LAN, you should use the same protocol for the two LANs. For example, if your Home/Office LAN uses TCP/IP protocol, you should also use TCP/IP protocol for your GeneLink™ LAN. Otherwise, these two LANs cannot communicate to each other. The Setup Program installs TCP/IP, NetBEUI and IPX protocols for GeneLink™ LAN by default. If your Home/Office LAN uses other protocol, please install the same protocol for those computers within GeneLink™ LAN.

Connecting to Internet through USB PC to PC & Office/Home LAN

If you would like to access Internet resources through USB PC to PC, here are some things you should notice:

- a. You must define which computer should install GeneLink™ Software Router.
- b. The computer which has installed GeneLink™ Software Router should have already been connected to internet.
- c. All clients which would like to access Internet resources through USB cable should have installed GeneLink™ driver.

Now we need to make some network configurations on the Desktop/ Notebook which connect to GeneLink™ Software Router to make your Internet access possible (maybe you need to consult you Network Administrator for doing that):

- a. If your existing home/office network is NOT using DHCP to assign client's IP address, your need to:
  - Move your mouse pointer on Network Neighborhood icon and right click on it. You'll see a pop-up menu.
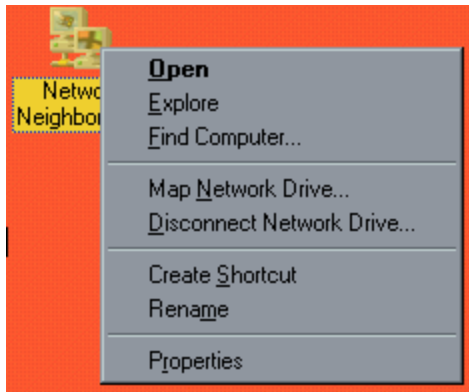
- Click on "Properties", you'll see another menu.
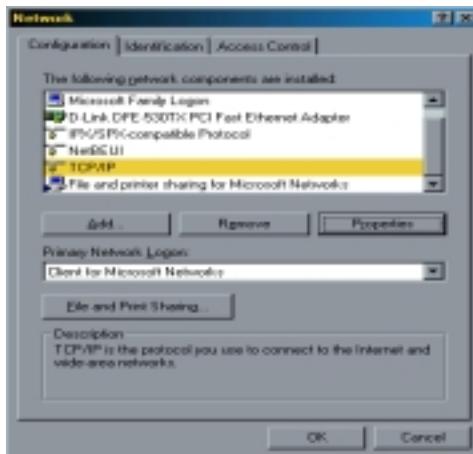
- Choose TCP/IP in Configuration tag, and then press "Properties" button. You'll see "TCP/IP Properties" menu.

- Now you need to navigate between "IP Address", "Gateway", and "DNS Configuration" tags to specify "IP Address", "Subnet Mask", "Gateway" and "DNS Server". If you don't know their values, pleases consult your Network Administrator.

- Press "OK" button to go back to "Network" pop-up menu. Choose "Identification" tag. Specify an unique name for your computer if it doesn't have and fill in the name of your workgroup. If you are not sure what's the name of your computer or Workgroup, please consult your Network Administrator.

- Press "OK" to complete your network configuration. Restart your computer and you'll be ready to connect to Internet.

b.   If your existing HOME/OFFICE network is using DHCP to assign client's IP address, your Network Sever will configure your network configuration automatically. So you can skip those procedures described in the previous session.

SPECIAL NOTICE for those users who have already installed Network Adapter in their system:

If you've already configured your [IPX/SPX] and [Client for Netware Networks] before installing GeneLink™ driver, we strongly recommend that you should also install *Software Router* when you install GeneLink™ driver into your system. If you decide not to install *Software Router*, then the OS will not allow two IPX/SPX configurations co-exist in the same system. This will cause GeneLink™ Driver Install Program overwrite your original IPX/SPX configuration and make your original network configuration malfunction.

Connecting to internet through USB PC to PC & another PC with modem

If there is no existing Office/Home LAN and your computer does not have a modem, you still can connect USB PC to PC to internet through another computer with a modem installed. **The function is available in Windows® 98SE and ME.**

Internet ←	Phone Line	PC with modem installed	USB PC to PC cable	Your PC with USB PC to PC function
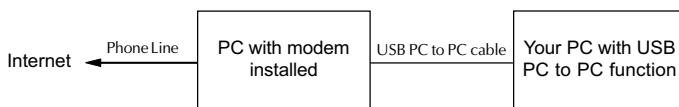
To access internet through another computer with modem, you need to setup "Internet Connection Sharing" on all computers connected via USB PC to PC cables. Instructions are as follows:

  a.   Go to "Control Panel".
  b.   Double click "Add/Remove Programs" and the "Add/Remove Programs Properties" window appears.
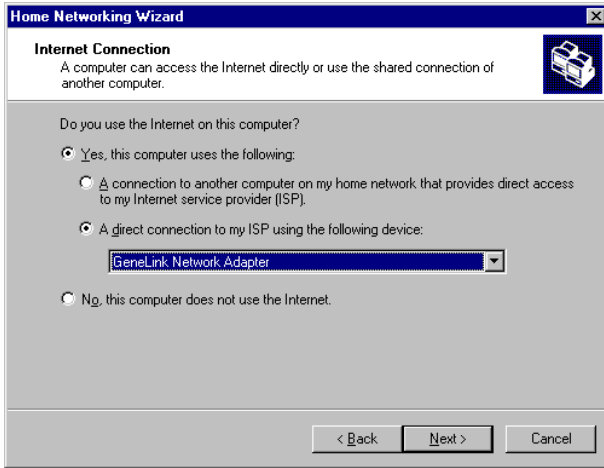 c.   Select "Windows Setup" tag and double click
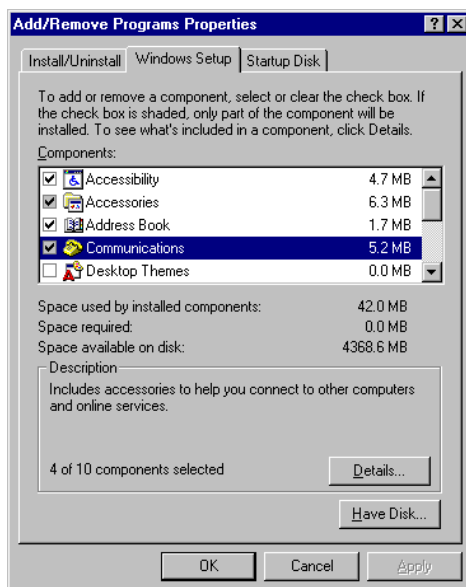
"Communications". The "Communications" window appears.

d.   Check "Internet Connection Sharing" and click "OK".
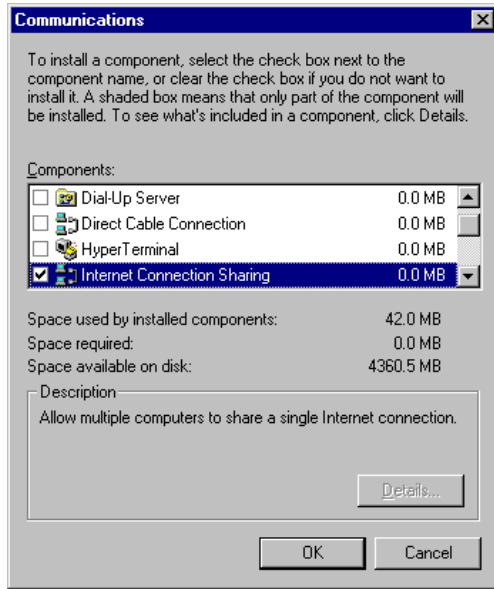
e.   The "Home Networking Wizard" starts. Click "Next".

f.   Click "Adirect connection to my ISP using the following device", and select "GeneLink Network Adapter" from the pull-down menu. Click "Next".

Note: For the computer with a modem installed, you need to select "**My Connection**" instead of "GeneLink Network Adapter" on the step, and after finishing installation of "My Connection", select "GeneLink Network Adapter" when the above window returns.

g.   Continue to click "Next".

h.   Click "Finish."

i.   Restart the computer.

Note: In Windows® 98SE, you can access internet through the shared connection of another computer, but it is unable for you to control the remote modem. However, in *Windows® ME*, you are allowed to dial the remote modem of another computer using the dialing program built in Windows® ME.